ANNUAL AND FINAL REPORT

EL 10167

FRANCES CREEK PROJECT PINE CREEK

FOR THE PERIOD

5 SEPTEMBER 2015 - 4 SEPTEMBER 2016

Pine Creek: 1:1000 000

PINE CREEK: 1:250 000

(Target Commodities – Base metals, Gold and Uranium)

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Element 92 Pty Ltd (Thundelarra Ltd)
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SUMMARY

The Frances Creek project (EL 10043 and EL 10167) is situated in the central part of the Pine Creek Orogen. These tenements are located about 200 km SE of Darwin, and approximately 40 km NE of Pine Creek in the Northern Territory. Both ELs were granted on 5 September 2002 to a syndicate of Earthrowl (80%), Douglas (10%) and White (10%). With successive reductions each EL now has only one block of area. In 2007, Thundelarra Limited secured the exploration rights with an option to purchase for both tenements from the holders.

The Frances Creek project underlies mainly prospective Palaeoproterozoic rocks of the Masson which contain significant base metal and uranium mineralisation in the east of the project area. Faulted and folded rocks within the Allamber Embayment that are intruded by granites, offer good exploration targets.

During the tenement life, from September 2002 to September 2016, only airborne radiometric survey was conducted over the tenement and no zone of interest was discovered therefore Element 92 decided to relinquished the tenement.
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APPENDIX

Appendix 1: Airborne Radiometric Data
1. INTRODUCTION
EL 10167 constitute Frances Creek project which is located about 200 km SE of Darwin in a close proximity of Frances Creek iron mine. It was granted combined reporting status in 2011. Element 92 Pty Ltd, a wholly owned subsidiary of Thundelarra Ltd is exploring the project area for gold, uranium and base metals mineralisation. This communication documents the exploration activities undertaken during the reporting period ending on 4 September 2015.

2. TENEMENT LOCATION
The project area is located approximately 40 km NE of Pine Creek in the Northern Territory (Figure 1). The license area can be accessed via the Frances Creek Road, turning north off the Kakadu Highway approximately 3km east of Pine Creek. Frances Creek Road has been upgraded to service the Frances Creek iron ore mine and is accessible through the year. About 4 kilometres south of the Frances Creek mine, a track comes of the Frances Creek road and leads to the project area which could mainly be accessible during the dry season. Tenement can also be reached via Kakadu Highway – A track coming off from the Kakadu Highway about 27 km from Pine Creek and leads towards NE and passes through EL 10043. Access within the tenement is via station tracks. The climate is hot with periodic monsoonal rains between November and April for the remainder of the year, it is warm to hot and largely dry.

3. TENEMENT DETAILS
EL 10167 was applied for 10 August 1998 and was granted on 5 September 2002 to a syndicate of Earthrowl (80%), Douglas (10%) and White (10%) for a period of 6 years. Originally, it had 11 blocks (36.74 km²) and with successive reductions now the tenement has only 1 block. Surrender for the tenement has been submitted and accepted by the Mine Department during the reporting period.

On 24 January 2007, Thundelarra Exploration Limited secured the exploration rights with an option to purchase for both tenements from the holders, and from 2014 Thundelarra Limited has secured 100% equity in EL 10164.
Figure 1: Location of the Project area.
4. GEOLOGICAL SETTING

The project area is located within central part of the Pine Creek Orogen (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 aureole 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.

Local Geology

The Geology of the project area is shown in Figure 2 (NTGS/GA Mapping). EL 10167 is dominated by rocks of the Masson Formation (Namooan Group) and Mundogie Sandstone forms thin narrow beds east and west of the Masson Formation (Figure 2). It is a thick sequence of carbonaceous phyllite, slate, siltstone and dolomite. The dolomitic sediments are exposed towards the base of the formation. Some massive ironstone and muscovite-tremolite marble horizons are also present. It has been intruded by the Minglo and Frances Creek Granites towards east and Allamber Granite towards south. The Masson Formation hosts significant uranium mineralisation towards east at Cleo, twins and Mercedes. In addition, it also contains some occurrences of base metals mineralisation. The Mundogie Sandstone contains a thick sequence of coarse clastic sediments deposited in shallow marine and fluvial environment. Pyritic lithologies are present at places and contain sedimentary structures such as graded bedding, cross-bedding and load clasts. In addition, thin hematitic interbeds of phyllite, carbonaceous phyllite and sandy siltstone probably comprise less than 50% of the formation. The Minglo and Allamber Springs Granites intrude the rocks towards north-east and south. Minor occurrences of vein-type base metals and Au mineralisation are hosted by the Mundogie Sandstone.
Uranium and Copper Mineralisation

As mentioned previously that Cleo group of uranium deposits (Cleo, Twins, Dam, Mercedes) are located in the south-east of the project area within Allamber Embayment (Figure 2). Uranium mineralisation occurs within a zone of about 3 km in strike length which was identified by Total Mining in the 1970’s. More recent drilling by Atom Energy Ltd has identified a near surface resource of 1.4 Mt @ 304 ppm U₃O₈ at Dam and Twin prospects.
Furthermore, zones of significant copper mineralisation have been intersected during drilling program. In recent high resolution geophysical survey, a number of radiometric and magnetic anomalies have been identified.

5. PREVIOUS EXPLORATION ACTIVITY
In the project area, previous exploration activity has been reported by Earthrowl (2007) and readers are advised to consult that report for more information.

6. EXPLORATION BY ELEMENT 92
YEAR ENDING 4 SEPTEMBER 2002
No exploration work was undertaken during this period.

YEAR ENDING 4 SEPTEMBER 2003
No exploration work was undertaken during this period.

YEAR ENDING 4 SEPTEMBER 2004
No exploration work was undertaken during this period.

YEAR ENDING 4 SEPTEMBER 2005
No exploration work was undertaken during this period.

YEAR ENDING 4 SEPTEMBER 2006
No exploration work was undertaken during this period.

YEAR ENDING 4 SEPTEMBER 2007
No exploration work was undertaken during this period.

YEAR ENDING 4 SEPTEMBER 2008
No exploration work was undertaken during this period.

YEAR ENDING 4 SEPTEMBER 2009
No exploration work was undertaken during this period.

YEAR ENDING 4 SEPTEMBER 2010
Thundelarra Ltd/Element 92 Pty Ltd conducted exploration under optional agreement with the tenement holders. It involved acquiring a very extensive airborne radiometric survey covering the entire tenement. Data are attached to this report.
YEAR ENDING 4 SEPTEMBER 2011
No exploration work was undertaken during this period. During 2011 the company’s exploration focus shifted from uranium to base metals mineralisation.

YEAR ENDING 4 SEPTEMBER 2012
During the period ending 4 September 2012, a regional geological interpretation was completed by consultant Barry Cotton using publicly available satellite imagery and the results of the airborne geophysical surveys. A summary is provided below.

Geological and Geophysical Review
The project area is located in the central part of the Pine Creek Orogen which is a world-class mineral province, and contains significant gold, base metals, uranium and iron ore mineralisation. It still offers significant potential for the discovery of new mineral deposits of base metals, gold, uranium and iron ore.

Geological setting of the project area shows that it is mainly underlain by the prospective Palaeoproterozoic rocks of the Masson Formation, which host significant uranium and base metals mineralisation towards south-east within the Allamber Embayment. EL 10043 covers part of the embayment where EW-trending belt of metasediments of the Masson Formation is deformed between two granite intrusions; the Allamber Granite towards south and the Minglo Granite to the North. These granite bodies are fractionated, I-type and characterised by high heat-producing elements, and are responsible for the formation of gold, uranium and base metals in the adjacent meta-sediments (Bajwah, 1994). In the Allamber Project area, granite-metasediment contact is marked by base metal anomalisim (Figure 3). Here, approximate contact of the Allamber Springs Granite with the metasediments is characterised by a series of ENE trending SE dipping gossan outcrops (the Ox-Eyed Herring Gossan Line (OEH Line)), which appears to be weathered massive pyrite-pyrrhotite bodies. This is interpreted to be a major fault structure in the area. Within the granite, but probably representing splays from the OEH Line, are several major NE trending, moderately SE dipping sulphide-quartz breccia lodes, composed of predominantly pyrite-pyrrhotite and minor chalcopyrite, and numerous parallel minor quartz-sulphide veins and veinlets.

EL10167 covers mainly meta-sedimentary rocks of the Mount Partridge Group (Mundogie Sandstone) and Namoona Groups (Masson Formation. The tenement still lies in the contact metamorphic aureole of the Minglo Granite (Figure 4).
Figure 3: Granite – metasediment contact is marked by Cu anomalism.
Figure 4: Detailed prospect scale mapping of the project area.
YEAR ENDING 4 SEPTEMBER 2013
No exploration work was undertaken during this period.

YEAR ENDING 4 SEPTEMBER 2014
No exploration work was undertaken during this period.

YEAR ENDING 4 SEPTEMBER 2015
No exploration work was undertaken during this period.

YEAR ENDING 4 SEPTEMBER 2016
No exploration work was undertaken during this period.

7. CONCLUSIONS AND RECOMMENDATION
The Frances Creek project underlies mainly prospective Palaeoproterozoic rocks of the Masson which contain significant base metal and uranium mineralisation in the east of the project area. Faulted and folded rocks within the Allamber Embayment that are intruded by granites, offer good exploration targets.

Only airborne radiometric survey was conducted over the tenement during its life and no zone of interest was discovered therefore Element 92 decided to relinquished the tenement.
8. REFERENCES


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