EL 29043

COMBINED 2nd ANNUAL & FINAL REPORT

FOR THE PERIOD

8 October 2012 to 7 March 2014

By

Company Geologists

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Target Commodities: Sn & Ta

MAP REFERENCE

NT 1:100 000 Bynoe, 5072
NT 1:250 000 Darwin, SD5204
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Abstract

Exploration Licence EL29043 was granted to GRIGM Resources Pty Ltd by NT Department of Mines and Energy on 8 October 2012 for a period of six years. After a careful review, the managing board of GRIGM Resources Pty Ltd has reached a decision on 1 March 2014 to surrender all the rights and interests in for the authority. This report summarises work carried out on EL29043 during the period October 8 2013 to March 7, 2014.

EL29043 license area is located in the northwest part of Central Domain of the Palaeoproterozoic Pine Creek Orogen. The area outcrop Finniss River Group Rocks. The area is considered to be prospective for tin and tantalum as the general geological setting in the area is comparable with that along the Byone Sn-Ta Pegmatite belt. The strategy is to locate pegmatite veins, try to find hidden granites, and explore for cassiterite-bearing greisen type ore deposits near the contact zone of granitic intrusions.

Work completed recently include:

1. Ground check of the magnetic anomalies in EL29043 license area;
2. Ground check of the mineral occurrences within the license area;

Ground check magnetic anomaly has failed to find any significant magnetic minerals and/or rock types that could cause the positive anomaly. The near N-S extended magnetic anomalies in the east part of the license area might indicate a regional structure. Further work is needed to interpret the magnetic anomalies in the west and southwest part of EL29043 license area.

Field reconnaissance has failed to locate any primary outcrop of cassiterite-bearing pegmatite veins. Although the geological setting of the license area is very similar to that of the Bynoe Sn-Ta pegmatite belt, potential to find large scale Sn-Ta pegmatite in EL29043 might not be encouraging.

After a careful review, the managing board of GRIGM Resources Pty Ltd has come to the decision to relinquish the license EL29043.
Introduction

Exploration Licence EL29043 was granted to GRIGM Resources Pty Ltd by NT Department of Mines and Energy on 8 October 2012 for a period of six years. After a careful review, the managing board of GRIGM Resources Pty Ltd has reached a decision on 1 March 2014 to surrender all the rights and interests in for the authority. This report summarises work carried out on EL29043 during the period October 8 2013 to March 7, 2014.

Tenure details

EL29043, total of 42 units (Table 1), is located about 15km southwest of Darwin, accessing by Cox Peninsula Road and local 4WD tracks (Figure. 1).

![Figure 1 EL29043 location diagram](image)

Table 1  EL29043 unit

<table>
<thead>
<tr>
<th>BLOCK NO</th>
<th>UNITS</th>
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<tbody>
<tr>
<td>SD52 706</td>
<td>E, H, N, S, U, X, Y, Z</td>
</tr>
<tr>
<td>SD52 779</td>
<td>A, B, C, D, E, F, G, H, J, K, N, O, P</td>
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Geological Setting

EL29043 license area locates in the northwest part of Central Domain of the Palaeoproterozoic Pine Creek Orogen (Figure 2) (Ahmad M and Hollis J A, 2013).

Figure 2  Generalised Geology of Pine Creek Orogen (Ahmad M and Hollis JA, 2013)

The area outcrop Finniss River Group Rocks (Figures 2 & 3). The Finniss River Group represents a thick succession of sedimentary rocks of turbiditic
origin (Ahmad M and Hollis JA 2013). In the central trough, these sedimentary rocks are generally finer grained and dominated by shale and sandstone/shale in contrast to the Batchelor Shelf, where conglomerate and sandstone are relatively more significant. The Finniss River Group is subdivided into the Burrell Creek and Tollis formations (Ahmad M and Hollis JA, 2013). Majority of the rocks outcrop in EL29043 are members of Burrell Creek Formation. Rock units trend (schistosity/lineation trending) NNE-NE, dip to west (Figure 3).

Figure 3 General geology around EL29043

Mineralization

As shown in Figure 4, in northwestern portion of the Pine Creek Orogen, Sn-Ta-bearing pegmatite are present in a north-trending up-to-10 Km belt, extending from Bynoe Harbor to the Wingate Mountains. Another cluster of pegmatite is present in the Mount Shoobridge area (Ahmad M and Hollis JA, 2013). All occurrences are within the contact aureole of granites and most are hosted within Burrell Creek Formation.

According to Ahmad M and Hollis JA (2013), the pegmatite bodies are linear or lenticular, and up to 10 m wide and 250 m long. Most are poorly exposed
and extensively altered. Usually, the feldspar is completely decomposed to white kaolinitic clay and has been removed by erosion, leaving behind rubbly or boulder remnants of white massive quartz. Mine workings are confined to a depth of less than 25 m in heavily altered material.

Quartz, muscovite and feldspar are the most common gangue minerals and their distribution suggests a crude zonation, in which a broader zone of quartz + muscovite is followed by an intermediate zone of feldspar + muscovite + quartz. A massive quartz core is seen in some pegmatite.

Ore minerals include cassiterite, tantalite and columbite, occurring as coarse crystals or aggregates of crystals. Minor minerals include amblygonite, mintebrasite, wordite, augelite, rutile, ilmenite, magnetite, zircon and tourmaline.

Figure 4  General geological setting of northern portion of Bynoe pegmatite belt, western Pine Creek Orogen (Ahmad M and Hollis JA, 2013)
Figure 5 Sn-Ta mineral occurrences in Bynoe area

EL29043 license area is adjacent with Byone Sn-Ta pegmatite belt (Figure 4 and Figure 5). The area has been considered to be prospective area for tin and tantalum as the general geological setting in the area is comparable with that along the Byone Sn-Ta Pegmatite belt (Figure 4 and Figure 5). There are a few tin occurrences located at west margin of EL29043 license area (Figure 5).

The strategy is to locate pegmatite veins, try to find hidden granites, and explore for cassiterite-bearing greisen vein type tin ore bodies near the contact zone of granitic intrusions.

**Work completed in the first 12 months** (October 8, 2012 to October 7, 2013)

Worked completed in the first 12 months please refer to the first annual report (Jiang Z and Lu J 2013). It can be summarized as follows:
1 A detailed review of the previous exploration work have been conducted, this has revealed that the title area could be prospective for tin, tantalum mineralization associated with pegmatite. Three Sn-Ta-Nb and Th mineral occurrences located in area of the EL29043 have been mentioned in the previous reports. Previous explorations and mining activities had only carried out in a limited depth, generally less than 50 meters in depth;

2 Analyse the existing aero-geophysical images of the area. This has been proven to be helpful to understand substructures in the area. A distinct set of near north-south aeromagnetic anomaly exist in the east part of license area the area, which may indicate a regional structure. A few relatively weak magnetic anomalies, individually EW od NWW trend, exist in the southwest part, these are the ones may related to granitic intrudes;

3 Two reconnaissance trips have been undertaken to the area. Samples had been taken from the tin field and analysis of the samples returned good results.

Work completed after October 8, 2013

1 Ground check of the magnetic anomalies;
2 Ground check of the mineral occurrences within the license area;

Results

Ground check magnetic anomalies

As shown in Figure 6, a set of near NS and NNW extend magnetic anomalies exist in the east part of EL29043 license area. Ground check lines A-A’, B-B’ and C-C’ along roads cut through these anomalies. Lines A-A’ and B-B’ run cross a fairly flat area. Rock outcrop is traceable although vegetation cover is good. No particular magnetic minerals have been identified. No small-scale structures such as faults are visible. Northwest section of Line C-C’ follows a local track that had been opened along southwest limb of a sub-fold. Northwestern extended magnetic anomaly is coincident with fold hinge zone. Again, no particular magnetic minerals have been identified. Line D-D’ crosses a near EW extended magnetic anomaly. Here the near EW extended magnetic anomaly is at near 90 degrees angle with a near NS extended sub-fold zone. No particular magnetic minerals have been identified.
Figure 6  Magnetic anomalies

Figure 7  Mineral occurrences in EL29043
**Mineral occurrences in the license area**

Only limited mineral occurrences exist inside the license area. The old record show that there is a tin occurrence, named Liana, in the northwest part of the license area, another mineral occurrence, Charlotte River, in the southwest of the license area (Figure 6 and Figure 7).

Field inspections have been carried out in attempt to locate these old mine diggings. Unfortunately, no primary cassiterite-bearing pegmatite vein outcrop has been found, as both mine-diggings have been abandoned for a long time. Field inspection across several line section have failed to encounter any significant pegmatite outcrop. Only a few cassiterite-bearing pegmatite float rock samples have been collected in the possible abandoned mine waste. These are quartz-muscovite pegmatite, and k-feldspar-quartz-muscovite pegmatite vein samples (photo 1).

![Photo 1 Cassiterite-bearing pegmatite samples](image)

**Conclusion and recommendation**

Ground check magnetic anomaly has failed to find any significant magnetic minerals and/or rock types that could cause the positive anomaly. The N-S extended magnetic anomalies in the east part of the license area could reflect a regional structure. Further work is needed to interpret the magnetic anomalies in the west part of the license area.

Field reconnaissance has failed to locate any significant cassiterite-bearing pegmatite vein outcrop. Although the geological setting in EL29043 is very similar to that of the Bynoe Sn-Ta pegmatite belt, the potential to find significant large scale Sn-Ta pegmatite in EL29043 might not be encouraging.

**References**


