EL 29045

COMBINED 2nd ANNUAL & FINAL REPORT

FOR THE PERIOD

3 July 2012 to 7 March 2014

By

Company Geologists

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Target Commodities: Sn

MAP REFERENCE

NT 1:100 000 Pine Creek, 5270
NT 1:250 000 Pine Creek, SD5208
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Abstract

Exploration Licence EL29045 was granted to GRIGM Resources Pty Ltd by NT Department of Mines and Energy on 3 July 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 EL29045 during the period July 3, 2013 to March 7, 2014.

EL29045 license area is located in the northwest part of Central Domain of the Palaeoproterozoic Pine Creek Orogen. The licensed area is entirely covered by Cullen Supersuite granite plutons. The granites form an I-type (granodiorite) suite that has undergone significant fractionation.

Work completed recently include:

1. Ground check of the magnetic anomalies in EL29045 license area;
2. Ground check of the mineral occurrences within the license area;

No primary tin mineralization has been found in EL29045 license area. Although EL29045 license area locates in highly prospective Pine Creek Orogen, the actual area is entirely within Proterozoic Allamber Springs Granite. Outer and inner contact zones between the granite and host stratigraphy Wildman Siltstone meta-sediments had gone due to erosion and weathering. Therefore, chance to find any significant primary tin and/or tungsten mineralization would not be great.

Palaeoproterozoic Wildman Siltstone hosted gossan outcrops have been identified near the center of magnetic anomaly. These are the only mineralization have been identified in EL29045 license area. As the gossans and the host stratigraphy Wildman Siltstone occur as roof pendant surrounded by Allamber Springs Granite, the scale of iron mineralization would be limited in this circumstance. It is not likely the iron mineralization here would be economical.

After a careful review, the managing board of GRIGM Resources Pty Ltd has come to the decision to relinquish EL29045 exploration license.
Introduction

Exploration Licence EL29045 was granted to GRIGM Resources Pty Ltd by NT Department of Mines and Energy on 3 July 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 EL29045 during the period July 3, 2012 to March 7, 2014.

Tenure details

EL29045, total of 35 units (Table 1), is located about 30km northeast of township of Pine Creek, accessing by Kakadu Highway and local 4WD tracks (Figure 1).

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<th>UNITS</th>
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<td>L,O,Q,R,S,T,U,V,W,X,Y,Z</td>
</tr>
<tr>
<td>SD52 1510</td>
<td>K</td>
</tr>
<tr>
<td>SD52 1511</td>
<td>C,D,E,F,G,L,M</td>
</tr>
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<td>SD52 1512</td>
<td>A,B,C,D,E</td>
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<td>SD53 1369</td>
<td>Q,V</td>
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<tr>
<td>SD53 1441</td>
<td>A</td>
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Figure 1 EL29045 Location Diagram
Geological Setting

EL29045 license area locates in the central 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 licensed area is entirely covered by Cullen Supersuite granite plutons (Figure 3). The granites form an I-type (granodiorite) suite that has undergone
On the basis of petrography, geochemistry and associated mineral deposits, Stuart-Smith et al (1993) and Wyborn et al (1997) subdivided the Cullen Supersuite into three groups:

1. Leucogranite-dominated plutons;
2. Granite-dominated plutons;
3. Concentrically zoned transitional granites and leucogranite-dominated plutons.

As shown in Figure 4, granite outcrops in most of EL29045 license area are parts of Allamber Springs (zoned) Granite (the pinkish part in the map). In the central south part of the licensed area, outcrops is part of Saunders Suite leucogranite.

Allamber Springs Granite is coarse-grained equigranular leucogranite with porphyritic granite at margins. The leucogranite and granite are characterized by low TiO₂, Al₂O₃, MgO, and CaO, and high Na₂O, Sr, Th, Zr, La, Ce and V (Ahmad M and Hollis J A 2013).

Saunders granite is fine to medium grained equigranular leucogranite, and characterized by large SiO₂ range, high FeO, TiO₂, MgO, CaO, Ar and Ba, low Rb (Ahmad M and Hollis J A 2013).
**Figure 4** Generalized geology of EL29045

**Figure 5** Location of tin, tantalum, tungsten and molybdenum deposits of the PCO (Ahmad M and Hollis JA, 2013)
Mineralization

Pine Creek Orogen hosts over a thousand mineral occurrences and is amongst the most prospective geological regions of Australia. It contains about 20% of the world’s low cost uranium resources, has a known resources of about 9 Moz of gold and has produced approximately 3.2 Moz to 2007 since 1870. Considerable resources of nickel-cobalt-lead-copper, lead-zinc-silver, platinum-palladium, tin-tantalum-tungsten, iron, magnesite, phosphate and various other commodities also exist.

Figure 5 shows location of tin, tantalum, tungsten and molybdenum deposits of the Pine Creek Orogen. A tin mineral occurrence, Nellie Creek, located in the centre of EL29045 license area (Figure 4 and 5).

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

Work 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 related to granite;
2. Analyse the existing aero-geophysical images of the area. This has been proven to be helpful to understand substructures in the area;
3. Preliminary field reconnaissance trips have been undertaken to the area.

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, two small isolated distinct magnetic anomalies exist in the northeast part of EL29045 license area. Ground check line A-A’ cut across these two anomalies. At the place near the magnetic anomaly 1 (Figure 6), outcrops of gossan are identified. The gossan outcrop extends NW about 150 meters, with width about 50-60 meters. As shown in Photo 1, the gossan consists of massive hematite/limonite, containing varying amounts of shale fragments and quartz grains. Like that at the Frances Creek, the gossans are hosted by the Wildman Siltstone. At this particular geological surroundings, the Wildman Siltstone could be “roof pendent” surrounded by
granite. Due to soil and vegetation cover, no primary gossan outcrop was located near the magnetic anomaly 2, only a few floating gossan samples identified.

Ground check line B-B’ cut across a near EW extended weak anomaly (Figure 6). As 80% of the ground is covered by soil and vegetation, ground check has failed to identify any rocks containing large amount of magnetic minerals. Further work is needed to interpret the magnetic anomaly. Compare regional magnetic and geological maps (Figure 7), the near EW to NEE-SWW weak anomalies in the central part of EL29045 license area may reflect structures developed along contact zone between Saunders Suite leucogranite and Allamber Springs biotite granite.

**Figure 6** Magnetic anomalies

**Figure 7** Regional geological and magnetic anomaly maps
Mineral occurrences in the license area

Limited number of mineral occurrences exist inside the EL29045 license area. The old record show that a tin occurrence, named Nellie Creek, locates in the central part of the license area. (Figure 4 and Figure 6).

Field inspections have been carried out in attempt to locate the tin occurrence. It seems that Nellie Creek was an old alluvial tin occurrence. No hard rock cassiterite-bearing mineralization outcrop has been found.

The only other mineral occurrence being identified in the license area are the gossan outcrops located near magnetic anomaly 1 in Figure 6. The
appearance of these gossan outcrops are shown in Photo 1 A to F. Samples of gossan outcrops have been analyzed by hand-held XRF, results listed in Table 2. It is worthy to indicate that XRF analyze results are only semi-quantitative and preliminary, and only be used here to indicate a rough range of the element concentration in the analyzed samples. Two samples taken from magnetic anomaly 1 (M1) and magnetic anomaly 2 (M2) have been sent to laboratory, analyze results are listed in Table 3.

Table 2 Hand-Held XRF analyze results of gossan samples

<table>
<thead>
<tr>
<th>Reading</th>
<th>Mode</th>
<th>Mn +/-</th>
<th>Fe</th>
<th>Fe +/-</th>
<th>Co +/-</th>
<th>Cu +/-</th>
<th>Zn +/-</th>
<th>Pb +/-</th>
<th>Instrument SN</th>
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<td>16</td>
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<td>5</td>
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<tr>
<td>M1-2</td>
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<td>&lt;LOD</td>
<td>69</td>
<td>2076530</td>
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<td>&lt;LOD</td>
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Table 3 Laboratory analyze results of gossan samples

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<td>%</td>
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<td>ppm</td>
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<tr>
<td>Detection limit</td>
<td>0.001ppm</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.03ppm</td>
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<td>Accuracy</td>
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<td>4.90%</td>
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<td>M2</td>
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<td>8490878</td>
<td>0.082</td>
<td>0.12</td>
<td>0.52</td>
<td>3.1</td>
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</table>

Figure 8 shows location of gossan outcrops in EL29045 license area and location of Frances Creek iron deposit. The host stratigraphy at both these iron mineralization are the Wildman Siltstone. Assuming the gossan outcrops in EL29045 licensed area being relics of iron deposit similar to Frances Creek iron deposits, its genesis could be same as that of France Creek iron deposit. Crohn (1968) considered that the Frances Creek iron deposits formed as a result of supergene enrichment of pyritic shale breccia. A more recent review of mining data (geological plans and cross-sections), along with petrological studies and field inspections of the open pits (Pontifex 2000), suggested that iron ore mineralization is the result of hydrothermal remobilization (Bowden 2000). In this model, iron oxides from ferruginous banded shale in the Wildman Siltstone were concentrated into favourable structural sites that developed prior to intrusion of the Allamber Springs Granite.
Conclusion and recommendation

1. No primary tin mineralization has been found in EL29045 license area. Although EL29045 license area locates in highly prospective Pine Creek Orogen, the actual area is entirely within Proterozoic Allamber Springs Granite. Outer and inner contact zones between the granite and host stratigraphy Wildman Siltstone meta-sediments have gone due to erosion and weathering. Therefore, chance to find any significant primary tin and/or tungsten mineralization would not be great;

2. Palaeoproterozoic Wildman Siltstone hosted gossan outcrops have been identified near the center of magnetic anomaly. These are the only mineralization have been identified in EL29045 license area. As the gossans and the host stratigraphy Wildman Siltstone occur as roof pendant surrounded by Allamber Springs Granite, the scale of iron mineralization would be limited in this circumstance. It is not likely the iron mineralization here would be economical.

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References


