SUPLEJACK PROJECT

ANNUAL AND FINAL SURRENDER REPORT for the period

4th April 2014 to 19th March 2015

Exploration License EL29620

OPERATED BY

NORTHERN MINERALS LIMITED

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<td>NAME</td>
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<td>Exploration Licenses EL29620</td>
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<td>DUE DATE</td>
<td>19-May-2015</td>
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<td>PREPARED BY</td>
<td>Kurt Warburton, Nicole Heesh</td>
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<td>NTU-REPORT NO</td>
<td>2015-06</td>
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<td>TARGET COMMODITIES</td>
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<td>NT 1:100,000 Sheet</td>
<td>4758 &quot;Pargee, 4858&quot;Tanami&quot;</td>
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<td>NT1:250,000 Sheet</td>
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Abstract:

Tenement EL29620 was part of the Suplejack project in the Gardiner Tanami region, and was granted on the 4th April 2013.

The project is located along the northern edge of the Palaeo-Proterozoic Coomarie Dome, formed by the intrusion of granitic units circa 1815 Ma. The surrounding units include the deformed Palaeo-Proterozoic Tanami and Macfarlane Peak Groups. Each of these units has been eroded and covered by the Mesoproterozoic Birrindudu Basin (Gardiner Sandstone, Talbot Well Formation and Coomarie Sandstone). Much of the surface geology is covered with Tertiary duricrusts, mainly calcrete, and unconsolidated Quaternary sediments.

Northern Minerals (NM) acquired the tenement in 2013 with the intention of exploring for rare earth exploration. The Suplejack Project shares a number of geological features with Browns Range heavy rare earth (HRE) project to the north. It is located along the northern edge of the Coomarie Dome, formed by a granitic intrusion of similar age to the Browns Range granite, near the Gardiner Sandstone unconformity. Xenotime, which is the main HRE mineral at Browns Range, has been identified outside the project at the nearby Boulder Ridge prospect.

No on-ground exploration was completed while Northern Minerals had tenure.

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Declaration

To the best of our knowledge, this document conforms to the format outline for an annual report, as shown by the Northern Territory Geological Survey- Minerals and Energy Division website.
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1. INTRODUCTION

Tenement EL29620 was granted to Northern Minerals on the 4th April 2013. Approval for this tenement to be added to the combined reporting group for the Suplejack project (GR074-13) was approved by the Department of Mines and Energy on the 6th September 2013.

2. LOCATION & ACCESS

The project area is located approximately 600km northwest of Alice Springs within the Suplejack pastoral lease. The tenements are approximately 40 km north of Tanami, 468 km west of Tennant Creek and 260 km south west from Kalkarindji. The Tanami 1:250,000 map sheet (SE5215) covers the tenement area. There are two 1:100,000 map sheets which cover the tenement; Pargee (4758) and Tanami (4858).

Figure 1: Location of Tenements
Access to the project from Alice Springs is northwest via the Tanami road for approximately 600km to the Tanami Gold Mine, then north-northeast for approximately 90km along the Lajamanu road to Suplejack Station homestead. Access from Suplejack Station homestead is via a limited number of station tracks heading westwards.

3. TENURE

Tenement EL29620 contains 55 blocks and covers an area of 171 km².

The current tenement schedule is outlined in Table 1.

<table>
<thead>
<tr>
<th>Tenement</th>
<th>Tenement No.</th>
<th>Area (Blocks)</th>
<th>Surrender Date</th>
<th>Grant Date</th>
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<td>55</td>
<td>19/3/2015</td>
<td>04/04/2013</td>
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4. REGIONAL GEOLOGY

The Tanami Region, one of the most important tectonic units in the North Australian Craton, has a stratigraphic succession which shows similarities with the Pine Creek and Halls Creek Orogens, other Paleoproterozoic successions in northern Australia.

Within the region, the MacFarlane Peak Group, interpreted to be the basal unit of the Paleoproterozoic sequence, is dominated by volcanic and volcanioclastic rocks, along with clastic and calc-silicate sediments. These are overlain by siltstone, carbonaceous shale, calc silicates and BIF of the Dead Bullock Formation. This in turn is overlain by a thick sequence of turbidites, known as the Killi Killi Formation. Interbedded siltstone, greywacke and chert west of Tanami are included in the Twigg Formation. The latter three units are grouped together in the Tanami Group.

The Pargee Sandstone and the Mount Charles Formation occur in small extensional basins. A period of wider extension follows, accompanied by felsic volcanism in the Mount Winnecke Group and Nanny Goat Volcanics.

Five main granitic suites are recognised in the Tanami Region, the most important being the Coomarie and Frederick Suites. The youngest granites in the area belong to The Granites Suite. Archaean rocks identified from drilling comprise of the Browns Range Metamorphics and the Billabong Complex.

Deposition in the Birrindudu Basin began with sandstone transgressing over the metamorphic and crystalline basement probably at about 1.7 Ga. This was accompanied by regionally extensive north-trending growth faults and volcanism, possibly indicating rifting. The Birrindudu and Tolmer Groups represent the exposed basal section of this basin and may be as much as 6,000m thick locally. Apart from minor felsic volcanic rocks (tentatively assigned to undifferentiated Birrindudu Group) and
carbonate rocks and shale in the upper Tolmer Group, these units are dominated by coarse clastic sedimentary rocks.

The eastern margin of the project is covered by Cambrian flood basalts (Antrim Plateau Volcanics), which overlie Mesoproterozoic Gardiner Sandstones of the Birrindudu Basin.

Several ESE, SE and N-trending structures have been identified within the project area, which represent subsidiary structures to the major regional ESE-trending structures, such as the Trans-Tanami Fault and the Bluebush Fault.

A large portion of the area is covered by ferricrete as well as surficial deposits including alluvium, lateritic lag and windblown sand. The Gardiner Formation outcrops are frequently capped by a silcrete layer of variable thickness.

Surface outcropping of the Birrindudu Group (Gardiner Sandstone and Talbot Well Formation) covers the northern edge of the project area. These units trend in a general NE-SW orientation where they wrap around the northwest margin of the Palaeo-Proterozoic Coomarie Dome. The Birrindudu Group sediments are overlain by Tertiary calcrete deposits and surficial Quaternary sediments. The southern portion of the project is covered by alluvial deposits developed over granodiorite of the Coomarie Dome.

Figure 3 below shows the outcrop geology of the project area taken from the NTGS 1:250,000 scale geological mapping of the area.
Figure 2: NTGS Tanami Geology
5. **EXPLORATION COMPLETED**

No exploration work was completed on this tenement during Northern Minerals tenure.

6. **CONCLUSION**

EL29620 was initially acquired for the purposes of HRE exploration after the ongoing exploration success at Browns Range and the identification of a similar xenotime occurrence at the nearby Boulder Ridge Project. However due to limited resources available, a rationalisation of Northern Minerals tenement holdings was necessary and those that no longer meet its primary exploration criteria or are considered less prospective are being surrendered.

7. **REFERENCES**

Tanami, NTGS 1:250,000 Geological Series Explanatory Notes, Sheet SE/52-15