Titleholder: Territory Phosphate Pty Ltd
Operator: Rum Jungle Resources Ltd
Tenement Manager: Complete Tenement Management
Tenement: EL 27987
Project Name: Ammaroo Phosphate
Report Title: Partial relinquishment report for EL 27987, Ammaroo Phosphate Project
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Corporate Author: Rum Jungle Resources Ltd
Target Commodities: Rock Phosphate, metals
Date of Report: 01/12/2016
Datum/Zone: GDA94/ Zone 53
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Note: Rum Jungle Resources Ltd will become Verdant Minerals Ltd on 05/12/2016.
SUMMARY
EL 27987 is part of the Ammaroo Phosphate Project and the area within the EL prospective for Cambrian phosphate is being retained. The four blocks being relinquished are “basement” and not prospective for phosphate. Sampling of the only known nearby basement mineral occurrence, Trew Creek, by Adelaide Resources has downgraded the prospectivity of the four blocks being relinquished since no significant lithium, tantalum, tungsten or niobium was found by them immediately adjacent to EL 27987. Furthermore, the blocks being relinquished are almost entirely within the Davenport Ranges Zone of Conservation Significance. This imposes extra conditions on any ground-disturbing exploration. This partial relinquishment was requested in late November prior to Rum Jungle Resources Ltd becoming Verdant Minerals Ltd on 05 December 2016 but only actioned in STRIKE by DPIR on 13 December 2016.
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INTRODUCTION
EL 27987 is part of the Ammaroo Phosphate Project and has both Cambrian rocks prospective for phosphate and “basement” rocks which may be prospective for tantalum, tungsten, niobium and lithium based on the proximity of the Trew Creek eluvial mineral occurrence.

LOCATION, ACCESS AND LAND USE

Location
The Ammaroo Phosphate Project tenements are located 280 km northeast of Alice Springs and 240 km southeast of Tennant Creek. Figure 1 is a map of the greater Ammaroo Phosphate Project. EL 27987 is located in the central eastern part of the project area. The Trew Creek mineral occurrence is on the western boundary of EL 27987.

Figure 1. Ammaroo Phosphate Project titles showing the area of EL 27987 being relinquished outlined in pink. The Trew Creek occurrence is on the western boundary of the area being relinquished. Phosphate ML applications in blue. JORC phosphate resources outlined in purple and phosphate exploration targets in light blue. Pastoral leaseholders and other landholders labelled in green.
**Access and Logistics**

Access to the project area is via the sealed Stuart Highway and the sealed Plenty and unsealed Sandover Highways from the south and the Taylors Road / Murray Downs road from the north. The centre of the main Ammaroo Resource is approximately 90 km from the Central Australian Railway. Access within the project area is limited to various station and exploration tracks.

Within EL 27987 itself, there are several station tracks coming from the Derry Downs side. The main track follows Newlands Creek and passes via Newlands Bore before heading south to pick-up the pastoral boundary fence. There are no tracks as such in the area being relinquished although it is possible to drive cross-country in a fourwheel drive.

![Figure 2. Local access to EL 27987. Zone of Conservation Significance outlined in pink.](image)

**Climate**

The climate is described as arid tropical by Baker et al 2005. The year is notionally divided into two main seasons, a short, hot summer featuring the bulk of the annual rainfall and a longer mild to cold and dry winter. These two dominant seasonal patterns are separated by short (1-2 month) transitional periods. The summer rains are somewhat influenced by the monsoonal rain patterns from the north and particularly those cyclones which cross the Western Australian coast. Rainfall is highly variable and unpredictable and annual records range from 86.4 mm to 914 mm. As shown below, January 2007, much of 2010 and the start of 2011 were atypically wet while the rainfall since has been more typical (Figure 3).
Figure 3. Average rainfall for the project area.

The average monthly relative humidity at 9 am (derived from the previous 16 years) fluctuates between 31 to 52 percent with an average of 42 percent (Figure 4). The average monthly relative humidity at 3 pm is about 11-21 percent lower than the 9 am recorded humidity.

Figure 4. Mean monthly relative humidity (%) at 9am and 3pm at Ali Curung, NT (BOM 2015).

Average summer temperatures can fluctuate between 21 and 38 degrees Celsius and the winter temperatures can flux between 7 and 27 degrees Celsius. Sub-zero temperatures occur occasionally during July and August and there have been instances of surface water freezing at night. During the 2014 field season, maximum temperatures exceeded 40 degrees Celsius. Figure 5 shows the mean monthly maximum and minimum temperatures recorded at Ali Curung from 1988 to 2014.
**Physiography, Land Systems, Flora and Fauna**

Figure 1 (previous) shows the physiography. The project is located in the Tanami Bioregion south of the Davenport Ranges. This bioregion is comprised mainly of red sand plains with underlying rock strata occasionally exposed as hills and ranges. The sand plains are vegetated with mixed shrublands of Acacia, Eucalyptus or Hakea over Triodia hummock grasslands. On the ranges, Acacia shrublands occur over hummock grasses. This bioregion contains many plant taxa that are endemic to the region or the Northern Territory and several flora and fauna species that are of conservation significance.

Using the system devised by Perry, the area contains two major land systems; the Alinga and Singleton. The Alinga Land System can generally be described as a system of undulating plains interspersed by low rounded ridges with shallow stony soils, red earths and red clayey sands. The land system is dominated by *Acacia aneura* (Mulga) or *Acacia georginae* (Gidgee) woodlands over short grasses and forbs. On shallow stony soils, sparse shrublands occur over *Triodia sp* (Spinifex). The Singleton land system includes red sands forming undulating plains and sand rises, separated by moderately wide, flat swales. Alluvial flats and drainage floors may also be present. Vegetation is dominated by sparse shrublands over *Triodia* (Spinifex), with Acacia woodlands also being present.

The project area has been the subject of several baseline fauna and flora surveys commissioned by Rum Jungle Resources. These, a Threatened Species Report, and a report on weed species have been provided with MMPs and are not repeated here.

**Zone of Conservation Significance**

The blocks being relinquished are almost entirely within the Davenport Ranges Zone of Conservation Significance. This imposes extra conditions on any ground-disturbing exploration.
Habitation and Land Use

The area is sparsely settled. The largest permanent habitations are the indigenous communities at Ampilatwatja (population approx. 500) and Ali Curung (population quoted variously as 960 or 535 of which over 95% are Indigenous persons). The dominant Aboriginal languages spoken are Warlpiri and Alyawarr with English as a second or third language.

EL 27987 is mainly on Derry Downs Station, NT Portion 1289, PPL 1107. Owned by DA and CM Weir, Ammaroo PMB 154 Alice Springs NT. A small area in the northwest, including the Trew Creek prospect, is on Elkedra Station, NT Portion 1094, Parcel 3431 (see Figure 1). The area supports an active beef cattle industry and stocking numbers vary seasonally.

Aboriginal Sites of Cultural Significance and Agreements

AAPA site certificates and/or register searches have been obtained over all work areas. The area being relinquished does not contain any known AAPA sites.
When they were the leaseholder, NuPower / Central Australian Phosphate did not have any agreement with the CLC on EL 27987. It was brought into an existing Rum Jungle Resources agreement with the CLC in early 2014.

**Heritage Sites**
A search of the NT Heritage Register held by NRETAS shows no Declared Heritage Sites in the area covered by this report.

**HISTORY OF TENURE**
The area around EL 27987 had been part of Arafura’s Ni-PGE-gold exploration program in the Kurinelli region focused on mineralisation in the Kurinelli Goldfield situated 140 km SE of Tennant Creek. Some assets of Arafura, including uranium-exploration ELs contiguous with EL 27987 were spun-off to create NuPower Resources. During its regional assessment of this area, NuPower noticed that apparent uranium and thorium radiometric anomalies from the NTGS airborne data associated with sedimentary units of the Cambrian Georgina Basin extended east. EL 27987 was applied for by NuPower Resources Limited on 16/03/2010 and subsequently granted on 27/10/2010 over 35 blocks or 111.91 km². NuPower referred to it as Newlands Bore and it was targeted on radiometric anomalies. However, no uranium exploration was undertaken on EL 27987 when work on other adjacent ELs found that the radiometric anomalies were surficial and not prospective. After Rum Jungle Resources’ discovery of phosphate at nearby at what became Ammaroo Phosphate, NuPower switched to phosphate exploration on its tenement package including EL 27987. NuPower became Central Australian Phosphate Limited. During 2013, Rum Jungle Resources took over Central Australian Phosphate which gave Rum Jungle Resources control of the contiguous Central Australian Phosphate titles which were incorporated into the Ammaroo Project. Central Australian Phosphate was delisted and became Central Australian Phosphate Pty Ltd which is a wholly-owned subsidiary of Rum Jungle Resources Ltd.

EL 27987 was reduced to 19 blocks or 60.75 km² on 26/08/2014 and was transferred to Territory Phosphate which is also a wholly-owned subsidiary of Rum Jungle Resources. A second voluntary relinquishment of 10 blocks in 2015 reduced EL 27987 to nine blocks.

The third partial relinquishment being reported here is dropping the southern four blocks, retaining only the northern five blocks. This partial relinquishment was requested in late November prior to Rum Jungle Resources Ltd becoming Verdant Minerals Ltd on 05/12/2016 but only actioned in STRIKE by DPIR on 13/12/2016.

EL 27987 remains contiguous with a larger title to the east and is still part of the Ammaroo Phosphate project.

**EXPLORATION AND PROJECT RATIONALE**
Part of EL 27987 is considered prospective for phosphate and this area is being retained. The area being relinquished is basement and was held mainly because of the proximity to the Trew Creek eluvial tantalite occurrence in MODAT.

**GEOLOGICAL SETTING**

**Local Geology**
The mapped geology is shown below. The area being relinquished is Proterozoic volcanics (shown in orange in Figure 7) overlain by thin Cambrian (Cld and Cma) and Cenozoic cover(Qc).
The Trew Creek Occurrence is described in MODAT as an eluvial tantalite occurrence supposedly derived from the weathering of a basement east-trending quartz vein which occurs right on, or just outside, the southwestern boundary of EL 27987. Two historic samples reputedly assayed 26.6% Ta₂O₅, 31.7% Nb, 2% WO₃, and 66.2% TaO₅, 10.3% Nb, 1.15% Sn. The location given in MODAT is imprecise.

WORK ON RELINQUISHED AREA BY RUM JUNGLE RESOURCES AND SUBSIDIARIES

NuPower / Central Australian Phosphate held EL 27987 before being taken-over by Rum Jungle Resources. The former companies reviewed the Trew Creek occurrence and deemed it to not to be worthy of follow-up. However, this was prior to the interest in lithium.

Given the association between Sn-Ta and Li, it seemed prudent to check for Li around Trew Creek, however unlikely this seemed. On 10/09/2016, Rum Jungle Resources’ exploration manager briefly visited the area on EL 27987 near Trew Creek. His observations were not encouraging. No samples were taken. A watching brief was then put in place to monitor Adelaide Resources’ activity in the region of Trew Creek on their EL 31211 adjacent to EL 27987. Adelaide Resources’ results are described below.
Figure 8. The approximate location of the Trew Creek occurrence (from MODAT) shown as the pin in relation to the granted EL 27987 (in green). The trend of outcropping parent rock, presumed to be volcanics at least in part, is shown as the black line. Also note the northeast-southwest lineament (possibly a fault) that intersects the black line south of the occurrence on the boundary of the EL.

WORK ON ADJACENT EL 31211 BY ADELAIDE RESOURCES

The following rockchip results attributed to the Trew Creek occurrence are taken from an Adelaide Resources’ ASX announcement of 29/11/2016. Although not explicitly stated by Adelaide Resources, we assume that their field portable X-Ray fluorescence measurements, including testing of soil, did not corroborate the anomalous Ta and Nb previously reported at Trew Creek.

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<th>Ta ppm</th>
<th>Nb ppm</th>
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Table 1. Adelaide Resources’ rock chip results from the Trew Creek occurrence. Assaying was by multi-acid digest followed by ICP-AES and ICP-MS.

These results are not encouraging, particularly for lithium, and catalysed Rum Jungle Resources’ decision to partially relinquish the blocks described below.
Figure 9 below shows those blocks being relinquished and retained.

Figure 9. Blocks being relinquished outlined in pink and those retained in green.

CONCLUSION AND RECOMMENDATIONS
The four blocks being relinquished are not prospective for phosphate and are in a Zone of Conservation Significance. Sampling of the only known nearby basement mineral occurrence, Trew Creek, by Adelaide Resources has downgraded the lithium prospectivity of these four blocks. Similarly, no significant tantalum, tungsten or niobium was found by them adjacent to EL 27987.