Titleholder: Central Australian Phosphate Pty Ltd
(formerly Central Australian Phosphate Limited)
Operator: Rum Jungle Resources Ltd
Tenement Manager: Complete Tenement Management
Tenement: EL 26228
Project Name: Ammaroo Phosphate
Report Title: Partial relinquishment report for EL 26228,
38 sub-blocks dropped at renewal,
Ammaroo Phosphate Project
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Corporate Author: Rum Jungle Resources Ltd
Target Commodities: Rock Phosphate
Date of Report: 30/05/2014
Datum/Zone: GDA94/ Zone 53
250K map sheet: Bonney Well SF53-02
100K map sheets: Wauchope 5756
Davenport Range 5856
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SUMMARY

The Ammaroo Phosphate Project is located 240 km southeast of Tennant Creek. The project covers 280 km of strike of the northwestern neck of the highly prospective southern Georgina Basin where it connects to the Wiso Basin. The project area contains the Ammaroo Phosphate Deposit, which is Australia’s largest JORC phosphate resource, the Ammaroo South and Rockhole prospects, and significant greenfields potential. EL 26288 is being renewed and, as part of that process, it needs to be split into two such that each is less than the mandatory 250 sub-blocks. This report describes an accompanying voluntary reduction from 354 sub-blocks overall to 316 to precede the split. The 38 sub-blocks being relinquished all contain AAPA sites and/or CLC sites of cultural significance. No work has been undertaken on these areas. EL 26228, amongst all others in subsidiary company names, is being transferred from Rum Jungle Resources’ wholly owned subsidiary Central Australian Phosphate to the parent company. An MMP to drill EL 26228 has been submitted to DME, but after a month is still awaiting approval.
INTRODUCTION
The Ammaroo Phosphate Project tenements are located 280 km northeast of Alice Springs and 240 km southeast of Tennant Creek, on the Barrow Creek SF53-06, Elkedra SF53-07 and Bonney Well SF53-02 1:250,000 mapsheets. Rum Jungle Resources has been exploring for Cambrian rock phosphate in this area since 2009 resulting in the discovery of Barrow Creek 1 deposit and the Ammaroo South Prospect. Rum Jungle Resources also acquired the Arganara Phosphate deposit, which is contiguous with Barrow Creek 1, by taking over Central Australian Phosphate. The flagship deposits have been combined into Australia’s largest rock phosphate resource now called Ammaroo Phosphate. The take-over of Central Australian Phosphate Limited (now delisted and called Central Australian Phosphate Pty Ltd) also gave Rum Jungle Resources control of EL 26228 which is yet to be drill tested.

LOCATION, ACCESS AND LAND USE

Location
EL 26228 is the on the Bonney Well 250K and Wauchope and Davenport Range 100K mapsheets. Figure 1 is a map of EL 26228 showing the areas being relinquished.

Access and Logistics
Access to EL 26228 is via the sealed Stuart Highway which bisects the EL. Access within outer areas of the EL is limited to various station tracks and the gas pipeline track as shown on the above Figure. Reconnaissance drilling would require the clearing of additional tracks, particularly in the northwest of the EL.

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 months) transitional periods. The summer
rains are somewhat influenced by the monsoonal rain patterns from the north, particularly cyclones which cross the Western Australian coastline.

Rainfall figures over a 30 year period (1981 – 2010) indicate an annual average rainfall of 383 mm (BOM 2012). However, rainfall is highly variable and unpredictable and annual records range from 86.4 mm to 914 mm. As shown below, much of 2010 and the start of 2011 were atypically wet while the rainfall for 2012 was more typical (Figure 2).

Figure 2. Average rainfall for the project area.

The average monthly relative humidity at 9 am (derived from data from 1988 - 2010) fluctuates between 31 to 52 percent with an average of 42 percent (Figure 3). The average monthly relative humidity at 3 pm is about 11-21 percent lower than the 9 am recorded humidity.

Figure 3. Mean monthly relative humidity (%) at 9am (Green) and 3pm (Orange) at Ali Curung, NT (BOM 2013).

The mean monthly maximum and minimum temperature over a 30 year period (1981 – 2010) indicate that the 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. Figure 4 shows the mean monthly maximum and minimum temperatures recorded at Ali Curung.
Physiography, Land Systems, Flora and Fauna

Figure 5 below shows the physiography. The EL itself is generally flat country with ranges to the northeast and large vegetated sand dunes to the southwest. Wycliffe Creek which flows from the northwest and northeast feeds Thring Swamp and flood-out. Skinner Creek in the south of EL 26228 flows into another flood-out east of Ali Curung.

The project is located in the Tanami Bioregion. 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 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. These topics are dealt with even more comprehensively in the NOI.

**Land Use**

EL 262288 is bisected by the Stuart Highway and the Darwin-Adelaide Central Australian Railway. It is on Singleton and Murray Downs Pastoral Stations which run cattle. The EL is crossed by two corridors of Crown Land and the Iliyarne Aboriginal Land Trust is excised. Other Aboriginal land borders the EL to the north and south.

![Figure 6. Cadastre over the project area.](image)

The township and roadhouse at Wycliffe Well (population 20) is the only permanent human habitation within the EL, although the locals claim that there are sporadic alien visitors. The associated tourism is the main source of revenue for the township.
Aboriginal Sites of Significance
EL 26288 contains numerous AAPA sites and CLC cultural sites, the exact locations of which are kept confidential as per CLC agreements. Most of these sites were located during scouting for the Central Australian Railway corridor, prior to Central Australian Phosphate/Rum Jungle Resources’ title. There is also a large buffer around sites along Wycliffe Creek, through Thring Swamp, right up to its headwaters at Stockwell Bore. All the sub-blocks being relinquished in this report contain or are part of “no-go” cultural zones.

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

Mining Management Act
The NT Mining Management Act (MMA) allows for different reporting groups to the NT Mineral Titles Act (MTA). Under the MMA, EL 26228 is part of the amended Ammaroo Authorisation which is yet to be approved by DME in Alice Springs.

WorkSafe
As part of an NT-wide move by Worksafe to improve its monitoring and inspections of exploration and mining projects, Worksafe required Rum Jungle Resources to redo its Safety Management System and update its Risk Management Plans for each project including Ammaroo. Consultants Switched on to Safety were engaged to completely update Rum Jungle Resources WHS&E. The most recent Worksafe inspection of the Ammaroo project was undertaken in March 2014.

HISTORY OF TENURE
During 2013, Rum Jungle Resources took over Central Australian Phosphate (CEN) which became a wholly owned subsidiary and gave RUM control of the contiguous CEN titles in the Ammaroo Project. The former CEN titles are yet to be transferred in the DME system.
EXPLORATION AND PROJECT RATIONALE

The Ammaroo Project is being explored for rock phosphate, principally within the Arthur Creek Formation which hosts the Ammaroo Phosphate Resource. Exploration is directed at locating phosphate where it is shallow (low strip ratios), not entirely weathered (predictable rock properties amenable to mining), and highest grade and thickest (potentially draped over palaeo-highs). Rum Jungle Resources’ approach, which has worked successfully to date, is to initially undertake reconnaissance RC or air core drilling on existing tracks and fences. Samples are analysed in the field with a handheld XRF and potential phosphate is sent for laboratory analysis. Depending on success, follow-up drilling usually involves cleared drill lines and/or grid drilling.

Since the discovery of economic grades of phosphate in 2010, Rum Jungle Resources has moved to rapidly prove it up to the Measured category, has completed a Scoping Study and begun a Prefeasibility Study.

GEOLOGICAL SETTING

Regional Geology

The Ammaroo Project is located in the Georgina Basin which contains the largest sedimentary rock phosphate deposits in Australia. The Georgina Basin includes rocks of Neoproterozoic to Devonian age, with Cambrian platform carbonate rocks dominating basin fill. The southern Georgina Basin is contiguous with the Wiso Basin to the west (Figure 8).
The southern Georgina Basin includes a thick sequence of Cambrian-Ordovician sediments, deposited within the Dulcie Trough and on the adjoining Elkedra Shelf. Work by previous explorers and NTGS identified an extensive area of shelf-facies marine carbonate and clastic sediments of the Middle Cambrian Arthur Creek Formation within the southern Georgina Basin (Figure 9). This area is prospective for sedimentary phosphate mineralisation.

![Figure 9. Simplified Cambrian lithostratigraphy of the southern Georgina Basin, from NTGS.](image)

Cambrian sediment outcrop is restricted to the north of the project area, along the flanks of the Davenport Range. Several formations contain very similar carbonate and recessive shale units that can be very difficult to tell apart without palaeontology and some mis-mapping is suspected on published maps. Alluvial, aeolian and residual sediments of Cenozoic age blanket most of the remaining project area.

![Figure 10. Regional geological setting showing simplified geology from NTGS. The target stratigraphy is the northern-most part of the part pink zone.](image)
Local Geology

NTGS reported that a waterbore at Wycliffe Well contained 2 mat 2.2% P2O5. It is dubious if such low grade is even worth pursuing when ore-grade is defined as 27%. NTGS assumed that the phosphate was in Cambrian rocks. However, in the opinion of Rum Jungle Resources, the intersection was almost certainly too shallow to be in Cambrian rocks. Rum Jungle Resources believes that northern EL 26228, at least, is underlain by Cenozoic clastic sedimentary rocks of unknown thickness. NTGS drillhole BC2 approximately 10 km south of EL 26228 did not intersect phosphate, nor any prospective stratigraphy. There is no proof that any Cambrian rocks are present under the cover on EL 26228, let alone that the prospective part of the Arthur Creek Formation is present. Only reconnaissance drilling will determine this.

SUB-BLOCKS RELINQUISHED

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WORK ON RELINQUISHED AREA

No on-ground work whatsoever has been undertaken on the sub-blocks being relinquished.

CONCLUSION AND RECOMMENDATIONS

Cultural sites and “no-go” areas as determined by the AAPA and CLC have been relinquished from EL 26288. It is planned to drill test EL 26228 during the 2014 field season.