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Partial Relinquishment Report

E30616 and E30603

Florina Glauconite-Phosphorite Project

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Introduction

This partial relinquishment report gives geological information on the areas within and around relinquished blocks from E30616 and E30603 held by Tracker Geoservices Pty Ltd.

Initially the relinquished blocks were part of the Florina Potash – Phosphate Project that targets the lower sandstone unit of the Florina Formation. That unit is known to contain potassium and phosphorus in constituent mineral phases. That Florina project is subject to group reporting GR427. Areas where the lower sandstone does not occur, or where the Cretaceous cover is prohibitively thick, have been relinquished.

Tracker Global Pty Ltd has granted tenements as follows.

EL	Grant Date	Grant blocks	Relinquished blocks	Relinquish Date
30616	9 Jul 2015	85	64	14 Aug 2017
30603	9 Jul 2015	109	54	14 Aug 2017

Access and Location

The project is centred on Florina Pastoral Station 70 km west of the regional town of Katherine in the Northern Territory. Access is via Florina Road which is sealed for the first 32 km, and then 38km along unsealed all-weather graded road to Florina Station Homestead.

Work done

Work was confined to tenement-scale mapping as part of the Florina Potash-Phosphate Project. This involved the mapping of Cretaceous overburden, and reconstruction of the individual stratigraphic members of the Florina Formation. No analytical, geochemical or geophysical work was done on the relinquished blocks.

Regional Geology

The relinquished blocks lie in the Daly Basin which is a sequence of mostly Middle Cambrian sedimentary rocks that occupies a broad gentle synclinal downwarp between the basement highs of the Pine Creek Orogen to the northeast, and the Birrindudu-Victoria province to the southwest. It is characterized by extensive cover of Cretaceous sandstone and colluvial-alluvial sands.

The Middle Cambrian sequence (known as the Daly River Group), consists of the Tindall Limestone, overlain by the Jinduckin Formation (dolomitic siltstone), and capped by the Ooloo Dolomite. These units are compressed facies variants of the widespread and much thicker Middle Cambrian sequences of the contiguous Wiso and Georgina Basins well to the south.

Cretaceous

The Cretaceous is a typical argillaceous sandstone and siltstone. It is expressed as flat elevated plateau and mesas with scarps 20-30m in height, and invariably capped by lateritic duricrust. The Cretaceous landforms represent the remnants of a once-continuous transgressive sequence of fluvial and shallow-marine sandstones. Lateritic weathering has not affected the underlying Florina Formation.

Figure 1 shows an extensive cover of Cretaceous. Waterbore drilling indicates this has an average thickness of 34m meters, but can reach up to 65m depth in possible depocenters. Such thicknesses present prohibitive overburden for prospective mining.

Florina Formation Stratigraphy

The Florina Formation was recognized as a separate stratigraphic entity, based on fossil dating which puts it into the Lower Ordovician, significantly younger than the Daly River Group (Kruse et al 2012). It occurs over an area 72km long and 17km wide in the axial part of the Daly Basin (**Figure1**). It is 167m thick as defined in stratigraphic bore RN37043, which penetrated the entire formation (Tickell 2008).

Water bore 37043 was drilled by NT DNRE in June 2010 to evaluate aquifers within and around the Florina Formation. It was collared at 789153mE, 8394312mN (GDA 94 Zone 52) in Cretaceous sandstone. It penetrated the full known extent (153m) of the Florina Formation, and finished in Ooloo Limestone at a total depth of 230m. As such it is the definitive stratigraphic reference section for the Florina Formation.

The lithological intervals have been identified geological logging and down-hole gamma logging (Tickell 2008). Major stratigraphic units are summarized in the following table.

From	To	Interval	Lithology Stratigraphy	Comment
0	25	25	Cretaceous	
25	39	14	clay, uncertain if Cretaceous or Florina	may be some weathered upper Florina limestone
39	79	40	Upper Sandstone 5-10% glauconite	only one known outcrop in Daly River
79	84.5	5.5	Shale	Included in Upper Sandstone
84.5	104.5	20	Middle Limestone	no shale recorded
104.5	162	57.5	Lower Sandstone	current prime target, fine ssn and shale toward top
160.5	192	31.5	Lower Limestone	interface of Lower Limestone and Oolloo is karstic
192	230	38	Oolloo Limestone	

Figure 1 shows an interpretation of the distribution of the individual members of the Florina Formation. It is based on mapping over the entire project area. In this figure the extensive cover of Cretaceous has been superimposed on the bedrock interpretation. Also shown is the location of RN37043, and two other water bores that contribute to understanding the stratigraphy. With the extensive cover of post-Cretaceous sand and black-soil plains, exposures are poor and occur in river banks, creek beds, and rare cliff outcrops.

Conclusions

The relinquished areas are mainly underlain by Cretaceous sandstone generally 36m thick. The intervening areas are mostly underlain by the dolomitic units of the Florina Formation. As such they have no prospectivity for potash or phosphate minerals. No geochemical work was done on these surrendered areas.

References

Kruse PD, Tickell SJ, Munson TJ, 2012. Florina formation: a new Ordovician unit capping the Daly Basin succession. Central Australian Basins Symposium 3

Tickell SJ, 2009. Investigation drilling in the Koolpinyah Dolostone. *Department of Natural Resources, Environment, the Arts and Sport, Report 28/2009D*

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