Relinquishment Report  EL 26997

Katherine Region, Northern Territory

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Katherine Project

1:100 000 Mapsheets: 5268 Bowman, 5267 Willeroo, 5367 Dry River, 5368 Manbulloo
1:250 000 Mapsheets: DS5216 Delamere, SD5212 Fergusson River, SD5313 Larrimah, SD5309 Katherine
Commodity: Phosphate

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1. **EXECUTIVE SUMMARY**

This report covers that portion of EL 26997 that was relinquished at the end of the second licence year (2/09/2011). The licence underwent a mandatory 50% reduction in line with the requirements of the Mining Act.

The underlying geology of the relinquished area is the Cretaceous Mullamen Beds which covers the Cambrian limestones that are the target lithology in this area.

Work done during the life of the licence has been concentrated further to the west where outcrops of middle Cambrian Tindal Limestone occur.

2. **INTRODUCTION**

At the date of grant EL 26997 had an area of 284 graticular sub-blocks (930 km²), and with the end of the second licence year a mandatory reduction in area of 50% was undertaken leaving the licence with its new retained area of 142 graticular sub-blocks (465 km²).

EL 26997 is part of the Katherine Project, a number of contiguous exploration licences (including ELs 26995 and 27008) having a total area of 2,059 km² (after the 2011 reductions) and located to the south of Katherine in the Northern Territory.

The licences have been applied for to search for phosphate in the Daly Basin. The Daly Basin is a Cambro-Ordovician sedimentary basin resting unconformably on Proterozoic basement some 300 km south of Darwin.
Figure 1. EL 26997 – Katherine Project Location Map
3. TENURE

Exploration Licence 26997 was granted to FSL World Holdings on 3rd of September 2009 for a period of 6 years, expiring on 2nd of September 2015.

The exploration licence consisted of 284 graticular blocks (930 km²) and is located to the south of Katherine within the Fergusson River, Delamere, Katherine and Larrimah 1:250 000 mapsheets.

After reduction the licence now consists of 142 graticular blocks (465 km²) as illustrated by the map below.

Figure 2. Katherine Project - areas relinquished in 2011
4. **Access**

EL 26997 is located some 65 km to the south of Katherine, lying between the Stuart Highway to the east and the Victoria Highway to the west.

Access to the licence area is south from Katherine along the Stuart Highway thence by Lakefield Station tracks and fence lines around the southern part of the licence area.

As can be seen from the map below the number of access points throughout this licence are very few. Lakefield Station has a relatively small amount of infrastructure development done on it so roads and fence lines are few and far between.

![Map of EL 26997 Access](image)

**Figure 3:** EL 26997 Access – relinquished area
5. **Regional Geological Setting**

Exploration Licence 26997 is located to the south of Katherine in the Daly Basin, a shallow intracratonic basin resting disconformably on Early Cambrian volcanics or unconformably on Early-Middle Proterozoic rocks. It includes flat-lying sediments of the Daly River Group consisting of rocks belonging to the Tindal Limestone, Jinduckin Formation and Oolloo Dolostone.

The group ranges in age from Middle Cambrian (Tindal limestone) to Early Ordovician (Oolloo Dolostone).

The Daly Basin represents a small area of relatively thin sedimentary cover which mantled much of the North Australian Craton following an initial marine transgression in the early Middle Cambrian. Remnants of this cover can be recognised in the Bonaparte, Ord, Wiso, MacArthur and Georgina Basins in nearly every case overlying Early Cambrian Volcanics (Antrim Plateau Volcanics).

It rests on mainly Proterozoic rocks of the Victoria Basin to the west, Pine Creek Geosyncline to the north and MacArthur basin to the east. Southwards it connects with the Georgina and Wiso Basins, but transitions are obscured by extensive Cretaceous cover (Mullamen Beds).

![Regional Geological Setting Diagram](image-url)

Figure 4. Regional Geological Setting
6. **LICENCE GEOLOGY**

EL 26997 is located in the central part of the Daly Basin to the south of Katherine. The skeletal soils of the licence are underlain by sediments of the Mullamen Beds which consist of siltstone, sandstone and conglomerate and represent shallow marine fluviatile and terrestrial conditions in the Cretaceous.

These unconformably overlie the Cambrian Daly River Group. This sequence forms the majority of the Cambrian sediments in the Daly River Basin. The Daly River Group consists of the Cambro-Ordovician Jinduckin Formation which conformably overlies the Cambrian Tindal Limestones. These in turn overlie the Early Cambrian Antrim Plateau Volcanics which unconformably overlie the Middle Proterozoic Katherine River Group.

The target lithology in this area is the Tindal Limestone which is a massive grey crystalline limestone, containing minor flaggy chert and banded limonitic fine limestone containing fossiliferous intervals. In EL 26997 the Tindal Limestone outcrops as a Karst terrain that occurs along the incised channel of the Dry River. The limestone within this terrain is crystalline with some silicification and clastic input making it ideal for phosphate deposition.

The Tindal Limestone in the Daly Basin is slightly phosphatic (generally less than 1% P$_2$O$_5$) but may contain up to 2%+ P$_2$O$_5$, the successful conclusion to this exploration program will be the location of a site where conditions were suitable for the concentration of this phosphorite into an economic accumulation. The Tindal Limestone forms the basal unit of the Daly Basin and is the target unit for phosphate mineralisation.

The geology in that part of the licence that has been surrendered consists of soils derived from the Cretaceous Mullamen Beds. As such this area is considered to have little potential for phosphate development.
Figure 5. EL 26997 Outcrop Geology - relinquished area
7. **Work Done in Year 1 (2009 – 2010)**

a. **Field Work**
   There was no field work done on the licence in the first year of tenure.

b. **Desktop Surveys**
   Office work in the first year of tenure consisted of examining historical exploration in the area and cross-referencing this where possible with the current thinking on phosphate deposition in Australia to generate valid exploration targets for follow up in the second year of tenure.


a. **Field Work**
   In total 153 samples were collected on EL 26995, of these 147 were rock chip samples and 6 were B Horizon soil samples. 18 of these rock chip samples were collected from within the relinquished area.

   b. **Desktop Surveys**
   Office work during the second year of tenure consisted of examining the data generated during the year and the collection of publicly available water bore data to determine which area to retain for the third year of tenure.

![Figure 6. EL 26997 Sample Locations – relinquished area](image-url)
Figure 7. Phosphate Values – relinquished area
9. REFERENCES

Open File Company Reports


**Published Reports**


**Company Reports**
