



Titleholder	Minemakers Australia Pty Ltd
Operator	Minemakers Australia Pty Ltd
Tenements	EL29841 (Wonarah)
Project name	Partial Relinquishment Report for period ending 18 March 2019
Personal authors	R. Fulton
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Target commodity	Phosphate
Date of report	20 May 2019
Datum/Zone	GDA94, Zone 53
250,000 map sheet	Frew River, Ranken, Avon Downs
100,000 map sheet	Joildung, Ranken, Barry Caves
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ABSTRACT

EL29841 (Wonarah Project) is located approximately 220 km ESE Tennant Creek and approximately 25 km south of the Barkly Highway on the Alroy 1: 250,000 and the Wonarah 1:100,000 map sheets in the Northern Territory. The tenement was acquired to explore for rock phosphate. The tenement occurs within the central western part of the Georgina Basin where flat-lying, phosphate-bearing Cambrian sediments have been deposited. The lower part of this sequence, the Gum Ridge Formation, is considered prospective for phosphate mineralization overlying either carbonates or basalts of the Middle Cambrian. The tenement was formed by the amalgamation of several tenements in early 2013. Since 19 March 2013, when EL29841 was granted, work has comprised rehabilitation and rehabilitation monitoring. A partial relinquishment of what was deemed to be the least prospective part of the tenement was made in March 2015. A partial cancellation of 27 blocks was made 14 April 2016 pursuant to section 105 (1) (b) of the Mineral Titles Act. A partial relinquishment of 27 blocks was made on 20 April 2017, pursuant to section 29 of the Mineral Titles Act. A further relinquishment of 13 blocks took place in March 2019, the subject of this report. A total of 5 RC exploration drill holes were drilled on the relinquished part of the tenement, with best result of 1 m @ 20.20% P₂O₅ from 26 metres depth. An airborne EM survey was carried out to help identify potential aquifers for process water. Since 19 March 2013 when EL29840 was granted, work has comprised rehabilitation and rehabilitation monitoring. Although some mineralisation has been identified on the relinquished blocks, it is not considered to be significant compared to the shallow JORC Resource at Arruwurra and Main Zone.

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1. INTRODUCTION

This report describes exploration activities on a partially relinquished portion comprising 13 blocks of EL29841, part of Minemakers Australia Pty Ltd's (MAPL) Wonarah Project. These blocks were relinquished on 18 March 2019 pursuant to section 29 of the Mineral Titles Act.

MAPL is a wholly owned subsidiary of Avenira Limited which listed on the ASX on 10 October 2006. Exploration was aimed at the discovery and development of economic phosphate deposits proximal to the Alice Springs-Darwin railway and associated with shallow marginal sediments at the western edge of the Georgina Basin.

2. LOCATION

EL29841 is located approximately 220 km east-southeast of Tennant Creek in the Northern Territory (

Figure 1). The tenement lies on the Frew River SF5303, Ranken SE5316 and Avon Downs SF5304 1:250,000 map sheets and on the Joildung 6157, Ranken 6258 and Barry Caves 6257 1:100,000 map sheets.

Access to the project is via the Barkly Highway, the main paved freight link between Queensland and the Northern Territory. The nearest town is Camooweal in western Queensland, approximately 180 km to the east. Access within the tenement is via a gravelled road and a network of dozed tracks suitable for 4WD only.

3. TENURE AND TITLE HISTORY

EL29841 comprising 189 blocks (559 km²) was granted on 19 March 2013 to Minemakers Australia Pty Ltd for a period of six years. The tenement was reduced to 94 blocks (272 km²) on 18 March 2015 (Pellatt and Fulton, 2015). A partial cancellation comprising 40 blocks was completed in April 2016 (Pellatt and Fulton, 2016). A further 27 blocks were relinquished in April 2017. A further 13 blocks were relinquished in March 2019.

The tenement was formed by the amalgamation of EL26584, EL29355 and part of EL26452 (formerly SEL26452). These were all surrendered on 19 March 2013 to be amalgamated into EL29841.

EL29841 is located on NT Freehold Land (NT Portions 03747-03756) owned by the Arruwurra Aboriginal Corporation. ATC's NT Portion 1413 is excluded from EL29841.

EL29841 is subject to a confidential Deed for Exploration (19 March 2009) between MAPL, the Arruwurra Aboriginal Corporation and the Central Land Council (CLC).

Exploration drilling programs on the pre-amalgamation tenements were authorised by the Department of Mines and Energy through approval of a Mining Management Plan; Wonarah Project Authorisation 0413-01, 0413-02, 0413-03, 0413-04 and 0417-02.

MAPL obtained sacred site clearances through the Central Land Council: Sacred Site Clearance Certificate C2008-008, C2008-087, C2009-003, C2010-032 and C2012-094.

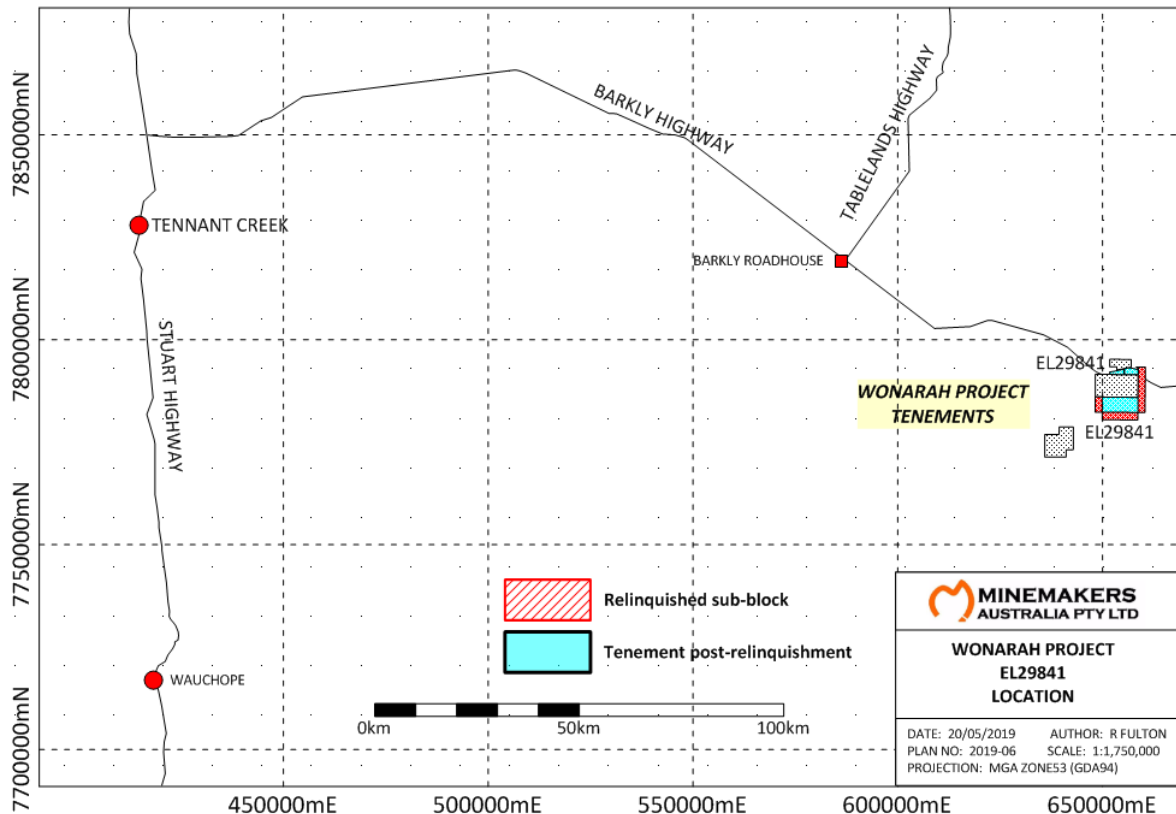


Figure 1: Location of EL29841.

Minemakers commenced fieldwork in 2008 and the following work was carried out on the relinquished areas, but on previous tenements prior to their amalgamation to form EL29841 (Figure 2):

During the year ended January 2009 the following work was carried out:

- During October 2008, an airborne Electromagnetic (EM) Survey was flown over parts of the project area to help with mapping of the geology and structure. The survey was flown by Fugro Airborne Surveys, Canada using a RESOLVE multi-coil, multi-frequency electromagnetic system.
- During June 2008, 5 RC holes were drilled for a total of 182 metres. Patchy phosphate mineralisation was encountered. Significant results are shown in Table 1 below.

Table 1. Significant results from RC drilling.

Hole ID	Dip (-°)	Azimuth (°)	MGA East (m)	MGA North (m)	Sample Interval (m)	From (m)	Cut-off 10% P ₂ O ₅	Total depth (m)
WNRC0021	-90	360	649125	7784200	1	26	1m @ 22.10% P ₂ O ₅	34
WNRC0031	-90	360	649133	7785204	2	28	1m @ 12.25% P ₂ O ₅	31

During the year ended January 2010 the following work was carried out:

- From March to April 2009, 4 RC water search holes were drilled for a total of 602 metres. No significant water was found.

During the year ended January 2011 the following work was carried out:

- Rehabilitation monitoring.

During the year ended January 2012 the following work was carried out:

- Rehabilitation of drill sites and tracks and rehabilitation monitoring.

Since the granting of EL29841 in 2013, the following work was completed:

During the year ended January 2014 the following work was carried out:

- Rehabilitation of drill sites and tracks and rehabilitation monitoring.

During the year ended January 2015 the following work was carried out:

- Rehabilitation monitoring.

During the year ended January 2016 the following work was carried out:

- No work carried out.

During the year ended January 2017 the following work was carried out:

- Rehabilitation monitoring

During the year ended January 2018 the following work was carried out:

- Rehabilitation monitoring.

During the year ended January 2019 the following work was carried out:

- No work carried out.

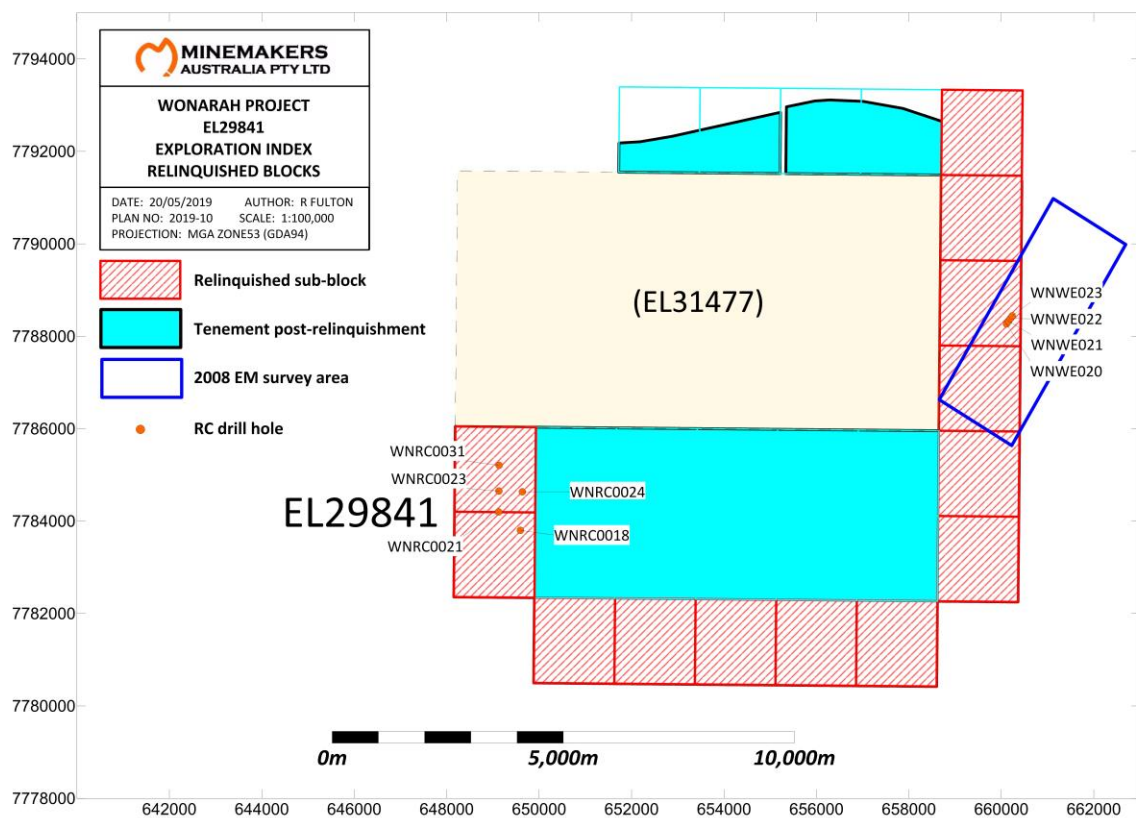


Figure 2: Historical work completed.

4. GEOLOGY

4.1 Deposit style and model

Minemakers Australia is seeking to develop a large sedimentary phosphate deposit within the Georgina Basin. The Georgina Basin is an extensive late Proterozoic to early Palaeozoic basin that extends from northwestern Queensland through much of the eastern Northern Territory area and which hosts several large sedimentary phosphate deposits. A map representing the regional geological setting is presented in Figure 3.

Sedimentary phosphate deposits are restricted in their occurrence globally. The model for phosphate deposition requires upwelling, cold phosphate-saturated water depositing phosphate onto the continental shelf where the required narrow pH range is locally present. Co-deposition with carbonate occurs at slightly higher pH values. Carbonate deposition becomes dominant at higher pH. Post-depositional reworking and replacement of carbonate facies by phosphatic mineralisation is probably an important factor in upgrading phosphorite grades to economic levels.

4.2 Regional Geology

The Wonarah phosphate project is situated in the central western Georgina Basin, a large late Proterozoic to early Palaeozoic basin that extends from northwestern Queensland through much of the eastern Northern Territory.

Basement rocks in this part of the Georgina Basin are comprised of granites of unknown age. They are possibly correlates of the Palaeo-proterozoic rocks of the Tennant Creek region. Mesoproterozoic sediments and volcanics are overlain by the Early Cambrian Helen Springs Volcanics (formerly Peaker Piker Volcanics). A northeast-southwest trending basement high runs through the Wonarah project area.

Overlying Middle Cambrian sediments are divided into two basin-wide sequences. Sequence One deposited clastics, carbonates, organic shales and minor phosphorites during gradual transgression which was abruptly terminated by rapid regression. In the Wonarah region, basement highs are flanked by onlapping dolomitic rocks equivalent to the Thornton Limestone. An erosional unconformity is represented by the development of a karst surface.

Sequence Two deposited shallow clastics, carbonates, grainstones, peritidal phosphorites and phosphatic limestones in a transgressive tract system. At Wonarah dolostone, mudstone and phosphorite of the lower Middle Cambrian Upper Gum Ridge Formation overlie Sequence One rocks and basement highs. This formation contains major phosphorite mineralisation and is equivalent to the Beetle Creek Formation on the eastern Margin of the basin which hosts Phosphate Hill and Lady Annie-D-Tree phosphate deposits. The overlying Wonarah Beds are Middle Cambrian mudstone, siltstone and dolostones. Silcrete, ferricrete and calcrete regolith are extensively developed and large areas are covered by stabilised aeolian sand.

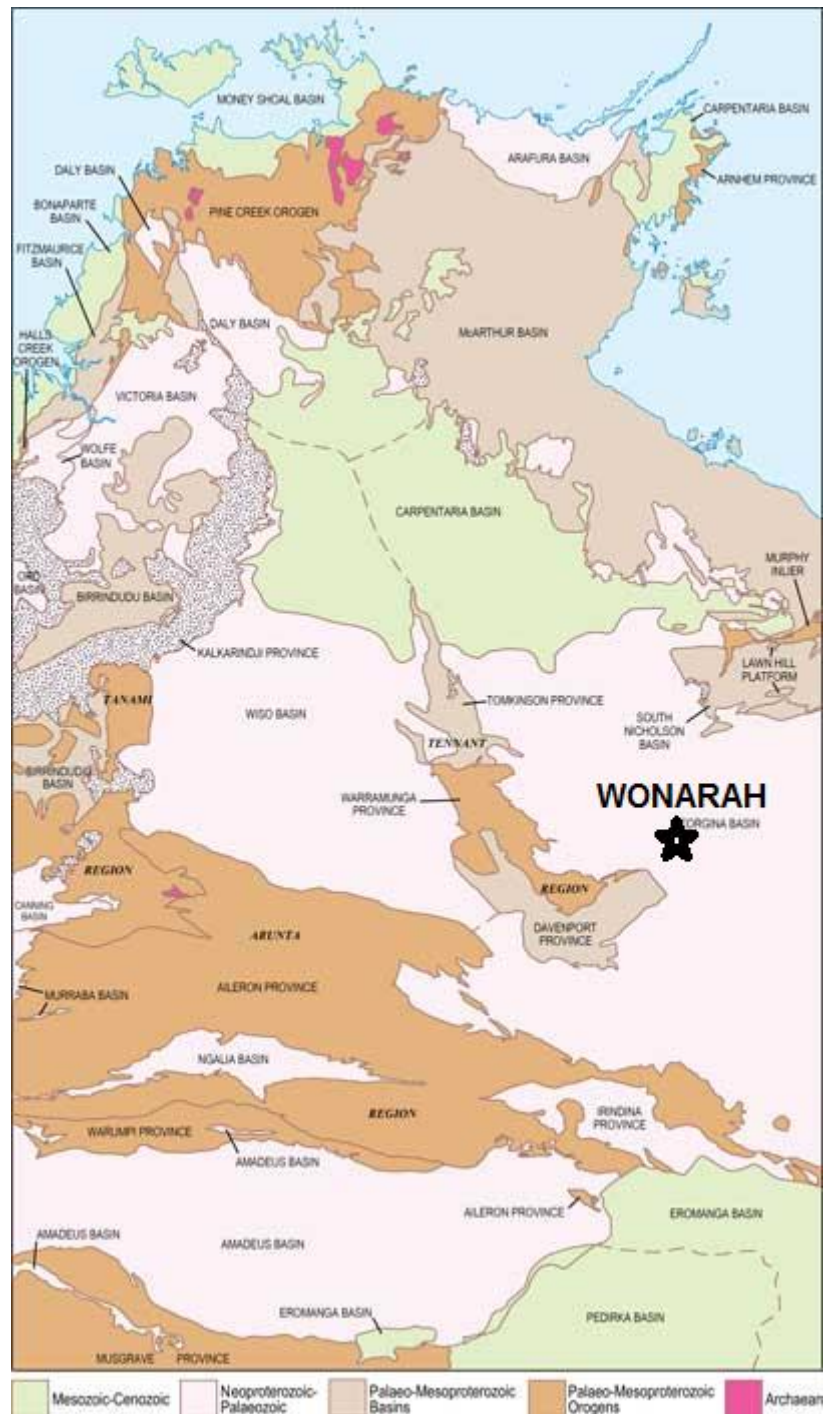


Figure 3: Regional geological setting (from the NTGS)

4.3 Local Geology

Basement in the Main Zone area is alkali feldspar granite of possible Palaeo-proterozoic age. These are overlain by the Helen Springs Volcanics. The top of the basalt is extremely weathered and a ferruginous and manganiferous duricrust is developed locally. Where less weathered, the basalt is vesicular, amygdaloidal and irregularly porphyritic. Dolomitic rocks of the Thornton Limestone equivalent are present above the basalt at the southeastern extremity of the Main Zone. To the east and the south, the carbonate rocks are developed extensively.

The overlying phosphate-bearing Upper Gum Ridge Formation is divided into five main units: a basal, indurated high grade phosphorite; muddy to sandy, clay-rich transitional sediments; a chert breccia phosphorites; a mudstone phosphorite; and a convolute mudstone.

The basal Transitional Phosphorite is a laterally discontinuous high grade indurated phosphorite up to 3m thick developed throughout the eastern and southern part of the Main Zone.

The Transition Sediments (TUN) are laterally continuous, 4-6m thick and comprised of clay-rich mudstone and siltstone with minor phosphorite, dolomite, sandstone and basal epiclastic.

The Chert Breccia Phosphorite forms a distinctive, laterally continuous horizon, 1-10 m thick, and comprised of yellow, grey or pink, variably friable or indurated, low to high grade phosphorite with abundant dark grey chert. Chert averages 50-60%.

The Mudstone Phosphorite is the main phosphate-bearing unit at Wonarah and is comprised of 1-10m of yellow and pink mudstone phosphorite with trace to minor dark grey chert. The mineralogy is dominated by (carbonate)-fluorapatite – $\text{Ca}_5(\text{PO}_4, \text{CO}_3)_3\text{F}$. The MPH is variably friable or indurated with the indurated phosphorite typically being high to very high grade (30-40% P_2O_5).

The Convolute Mudstone is a 1-10m thick unit of white, light grey and yellow clay-rich variably convolute mudstone with minor siltstone and fine sandstone interbeds. It generally contains minor (<10%) P_2O_5 .

The Wonarah Beds overlie the Convolute Mudstone and are comprised of mudstone and siltstone with minor chert, the Hangingwall Mudstone. The Wonarah Beds thicken towards the east and south away from the basement high that defines the western fringe of the Main Zone. Dolomitic units, the Hangingwall Dolostone, are present east and south of the Main Zone.

Regolith is extensively developed throughout the Main Zone with silcrete and ferricrete present in most holes. Low silcrete ridges are prominent features. Colluvial and alluvial deposits are common and extensive stabilised aeolian deposits cover much of the regolith. The phosphatic units thin and peter out towards the basement high which trends in a northeast-southwest direction towards Arruwurra. To the east and south the phosphatic units, although still present with grade and thickness, are too deep to be of economic interest at this time.

A stratigraphic column and schematic section are presented in Figure 4 and Figure 5 respectively.

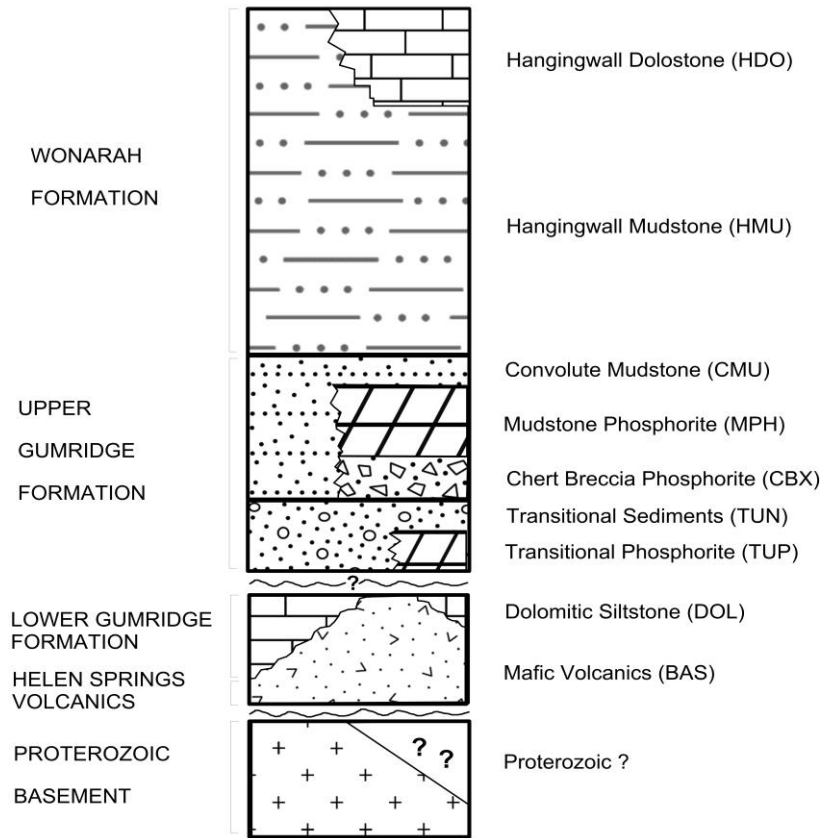


Figure 4: Regional Stratigraphic Column

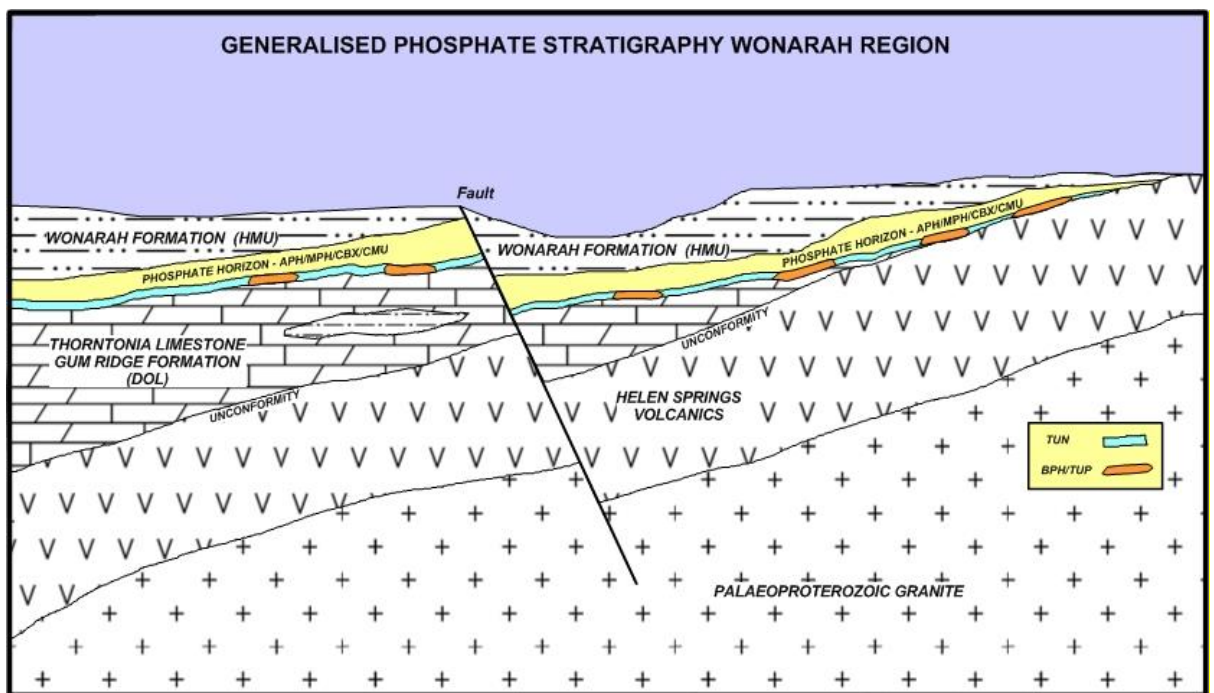


Figure 5: Schematic Regional Geology Section

5. WORK COMPLETED

No work completed on the relinquished portion of the tenement in the reporting year to March 2019.

6. CONCLUSIONS

MAPL was required to nominate blocks for reduction pursuant to section 29 of the Mineral Titles Act. Exploration on the relinquished portion of EL29841 did not return any significant results in comparison to the Main Zone JORC Resource. The relinquished portion has some phosphate mineralisation however the mineralisation is known to thin to the west and to deepen significantly to the east.

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