



**Final Report EL 24609  
Wonarah, Northern Territory**

**For the period 6 February 2007-27 September 2007**

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## SUMMARY

**EL24609** formed part of Minemakers' **Wonarah Phosphate Project**, located on the Barkly Highway 240km east of Tennant Creek in the Northern Territory, Australia. Minemakers held 100% interest in this tenement. The EL has now been incorporated into SEL 26451 which was lodged on 25 September 2007. EL 24609 was surrendered on 27 September 2007.

The Wonarah phosphate deposit was purchased by Minemakers from Indo Mines Limited (formerly AKD Limited) in 2006 and Indo retains a 10% vendor claw-back right with respect to ELs 9976, 9978, 9979, 22168 and 24562.

The Wonarah Phosphate deposit was discovered in 1967 and the Indo-Rio Tinto joint venture drilled up a rock phosphate resource estimated at a JORC-compliant **72Mt at 23%  $P_2O_5$  (at a cut off grade of 15%)**.

The known phosphate resource does not lie within EL24609.

During the reporting period, Minemakers has continued to carry out data compilation and review in order to plan a program of scout reconnaissance drilling during the field season.

## TENURE & LOCATION

EL 24609 was granted to Minemakers Australia Pty Ltd (a wholly owned subsidiary of Minemakers Limited) on 6 February 2006 for a term of six (6) years. The licence comprised 67 blocks, or 185.90 km<sup>2</sup>. EL 24609 was located on PPL988, Channel Cattle Co Pty Ltd.

Minemakers' Wonarah Phosphate Project is located in east central Northern Territory on the Barkly Tableland and lies 240km east south east of Tennant Creek. The Wonarah tenements straddle the Barkly Highway that links Tennant Creek to Mount Isa in Queensland. They are located on the Avon Downs, Frew River, Alroy, and Ranken 1:250,000 map sheets and the Barry Caves, Joildung, Wonarah, and Ranken 1:100,000 map sheets and included Exploration Licences 9976, 9978, 9979, 22168, 24562 and 24609 together with Exploration Licence Application 24607; the underlying land tenure with respect to the defined deposit is Arruwurra Aboriginal Corporation NT freehold for which exploration agreements have been negotiated by the various past explorers.

Exploration Licence 24609 has now been incorporated into SEL 26451 (along with EL 9978) and EL 24609 was surrendered on 27 September 2007.

## GEOLOGICAL SETTING

### Regional Geology

The Georgina Basin is a large Late Proterozoic to Early Palaeozoic sedimentary basin covering a major part of eastern Northern Territory and extending into northwest Queensland. Basement consists of Mesoproterozoic sediments and minor Neoproterozoic sediments overlain by Early Cambrian Peaker Piker Volcanics. The volcanics are amygdaloidal and porphyritic tholeiitic basalts and have associated dolerites. A basement high forms a structural ridge striking NNE – SSW which is known as the Alexandria – Wonarah High.

## Geology

The Wonarah deposits occur along the flanks of the Alexandria – Wonarah High. Onlapping dolomitic members equivalent to the Middle Cambrian Thornton Limestone are present on the lower flanks of this structural ridge and, when present, the phosphorus-bearing sediments (Upper Gum Ridge Formation) occur on the limestone and extend in thicker beds, lying directly on the Peaker Piker Volcanics, on the upper flanks of the ridge. This succession is then overlain by the Convolute Mudstone followed by the Hanging Wall Mudstone. Two basal sedimentary units that are not always present are the Transitional Sediments and the Potassium Marker Horizon. The transitional sediments consist of mixed mudstone, siltstone, sandstone, and a possible palaeo soil. The overlying Potassium Marker Horizon is a clay rich mudstone.

There are two mineralized rock types at Wonarah – The Mudstone Phosphorite and the Chert Breccia Phosphorite.

The Mudstone Phosphorite contains most of the mineralization, forming beds from 2m to 10m thick with grades up to 40%  $P_2O_5$  but typically between 20% and 30%  $P_2O_5$ . This rock is usually friable and fine grained.

The Chert Breccia Phosphorite occurs beneath the Mudstone Phosphorite with a gradational boundary and contains discrete clasts of chert breccia in a phosphorite matrix. The grade ranges from 5% to 20%  $P_2O_5$  but is typically between 10% and 15%  $P_2O_5$ .

## PREVIOUS EXPLORATION

In 2000-20001 RTE commenced drilling on ground to the south of latitude 20° 02' S which had had no drilling previously. A gravity survey was carried out with the object of defining basement highs but the technique was not successful.

RTE also put in some closely spaced holes in the well mineralized areas in the south of mineralization identified by IMC enabling them to calculate a JORC compliant Inferred Resource in this area (Miller 2001A). The resource is located within an area of 23 km<sup>2</sup>. It is based on the mineralization in the mudstone phosphorite and excludes the underlying lower grade chert breccia phosphorite which had poorer lateral continuity.

***Miller 2001B. Inferred Mineral Resource. 72Mt at 23%  $P_2O_5$  (at a cut off grade of 15%)***

The reduced estimated size of the resource and the inability to upgrade the mineralization economically was considered to seriously lower the Wonarah project's potential. RTE carried out a reverse economic study indicating that the project was NPV negative at that time and it withdrew from the joint venture in late 2002.

Exploration by RTE during 2001-02 also included field work on the outcropping Upper Gum Ridge Formation phosphorite beds at the Arruwurra prospect which lies 16km southwest of the Wonarah deposit. This area requires more detailed investigation. The Wonarah Beds outcrop in the north central area, but are generally highly weathered and covered by stabilised Cainozoic aeolian sand sheets and longitudinal dunes. Silcrete and ferricrete duricrust has developed beneath the sand cover and can outcrop as low rises. Calcrete and black soil overlies dolostone in the south central area. At the Arruwurra outcrop sampling indicated the phosphorite is high grade but of unknown extent. It outcrops over a strike of about 2km with grades up to 30%  $P_2O_5$  with less than 5%  $Al_2O_3 + Fe_2O_3$ .

## **EXPLORATION BY MINEMAKERS 6 FEBRUARY 2007 TO 27 SEPTEMBER 2007**

There was no exploration carried out on EL 24609 during the reporting period. The main concentration of effort however, has revolved around the development of scenarios which may see Minemakers attract an appropriate partner for the advancement of the Project through to a viable status as a major Australian phosphate production centre. Much of this work has been carried out in conjunction with Mitsui Australia Ltd, a subsidiary of the major Japanese commodity trading firm (refer Conclusions & Recommendations section of this report).

## **EXPENDITURE STATEMENT**

The only expenditure incurred on EL 24609 for the period from 6 February 2007 to 27 September 2007 was administrative costs totalling \$2,000.00.

## **CONCLUSIONS & RECOMMENDATIONS**

To date, there is only one area which has been sufficiently drilled to define a potentially minable resource, viz, Rio's JORC compliant resource estimate of 72 mt @ 23% phosphate. Rio determined that a simple crushing and screening operation would lift the grade to 32-33%.

Minemakers views Wonarah as being a potential +100 year producer. Given the global currently known rock phosphate distribution at Wonarah, the system within the Minemakers tenements may contain 4-5 billion tonnes.

The initial aims of the field component of the evaluation programme are to:

- enlarge the main deposit tonnage and lift estimation confidence for mining studies, and
- to seek and delineate either better mineralised areas, or those with mining cost advantages e.g. shallower, less stripping ratio, higher grade etc. Scout drilling of EL24609 fits this strategy.

On the larger project overview, Minemakers has for some time been in active discussions with Mitsui Australia – the local arm of the major international commodities trading house. Mitsui approached Minemakers regarding a potential farm-in or partnering arrangement at Wonarah.

As part of its due diligence, Mitsui (in conjunction with its Australian coal mining partner, Thiess), has initiated a desk-top scoping study incorporating:

- Current Australian cost regimes.
- Capital estimates.
- Mining.
- Beneficiation to acceptable export parameters.
- Freight to Darwin.
- Export to overseas fertilizer plants.

Minemakers initial exploration plans aim to assess the potential of the high grade Arruwurra deposit with shallow RC drilling to determine if this mineralization could provide an independent source of ore with lower overburden or possibly be used for blending to increase the grade of Wonarah ore.

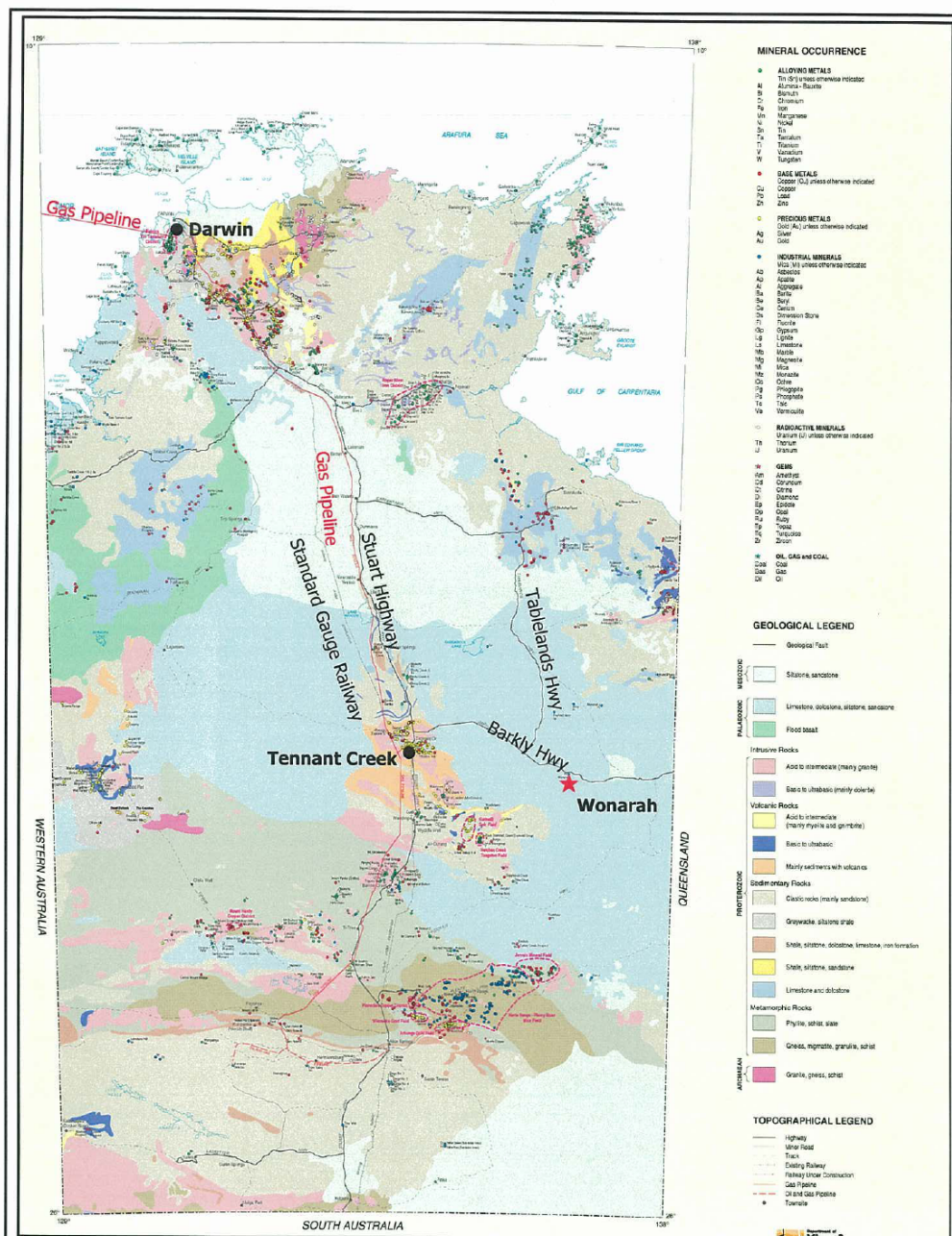
Previous exploration on the Barkly Tableland completed the considerable task of regional drilling which defined those areas with potentially economic phosphorite deposits. To date only the mineralization at Wonarah has been assessed with closer spaced drilling.

The Wonarah Deposit straddles latitude 20° 00' S. This latitude marked the southern tenement boundary of the IMC block of tenements and therefore marked the southern limit of the exploration IMC carried out. The results of the drilling conducted by IMC on the northern mineralized area at Wonarah did not differentiate between the higher grade Mudstone Phosphorite and the underlying lower grade Chert Breccia Phosphorite. The density of drilling in this area is also low and variable and is not adequate for a full assessment of the mineralization present.

RTE conducted its drilling programme on ground to the south of latitude 20° 00' S and when it carried out its assessment of ore reserves it concentrated its study on the southern mineralization in the areas which it had drilled. The density of drilling in the south is greater than the north, although it is again very variable, but the assay database is superior for the southern holes. In its resource estimate RTE stated that the available information was such that a range of cut off grades could not be applied to the current database. It would appear that the northern areas of the Wonarah Deposit have not been assessed as well as the southern and that both areas require further work to enable a reliable estimate of resources to be made. Minemakers' geological consultants consider that the existing drill hole data on the north and south areas of the main area of mineralization should be reviewed in detail and more drilling of the total resource area is warranted to bring the density of drilling up to an acceptable and uniform standard. Full information on the Mudstone Phosphorite and the Chert Breccia Phosphorite should be available to enable the confident application of a range of cut off grades. By obtaining adequate and uniform data the resource can be properly evaluated and optimum choices made for feasibility studies.

Minemakers planned exploration of the Arruwurra mineralization is considered to be the first priority; scout drilling of other untested project areas, including prospective parts of area formerly subject to EL 24609, will be investigated at the same time.

Minemakers also plans to undertake a review and update of the project economics of development of Wonarah and also the economics of a DAP plant near Darwin. The available infrastructure in the Northern Territory has improved considerably over the last few years and continues to improve steadily. Development plans envisage a partnering arrangement with foreign interests and currently, Mitsui is completing its modelling studies prior to formal joint venture negotiations.

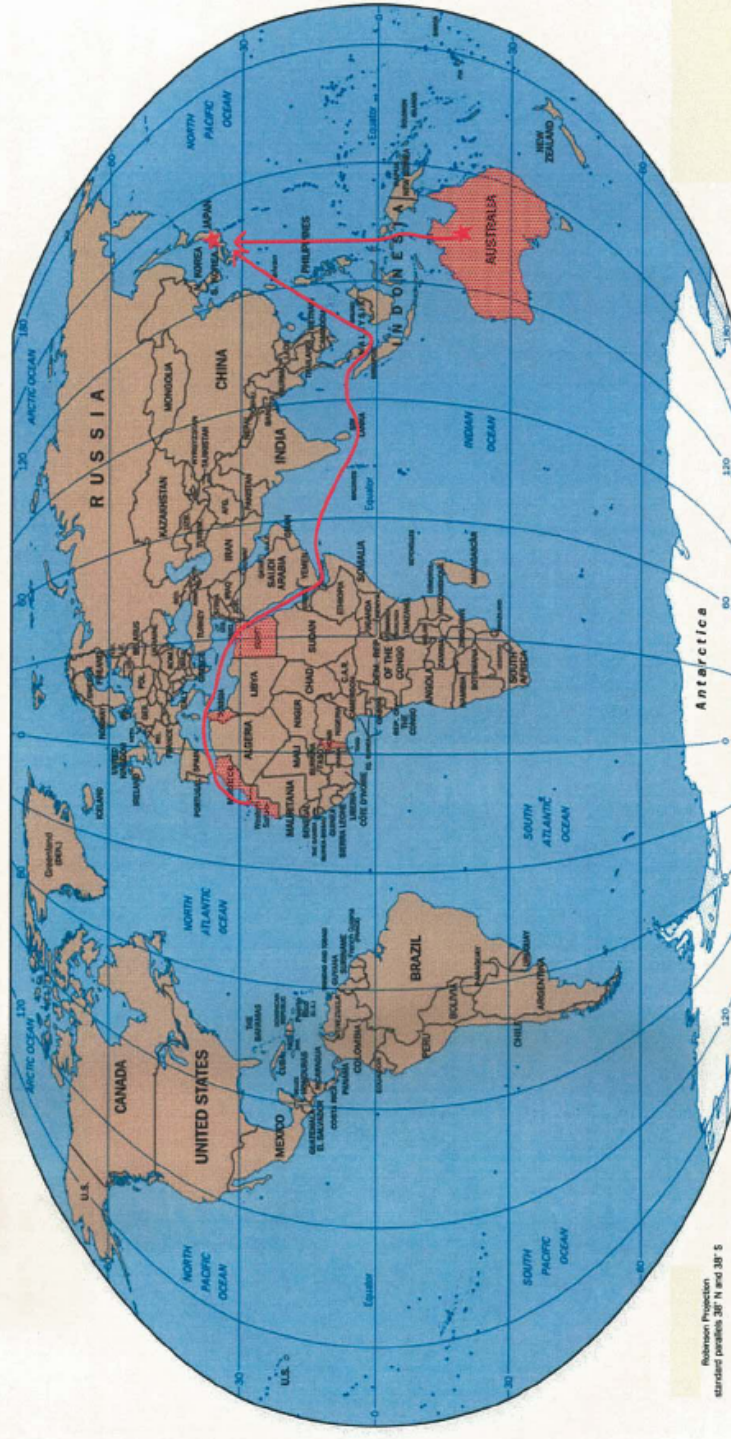
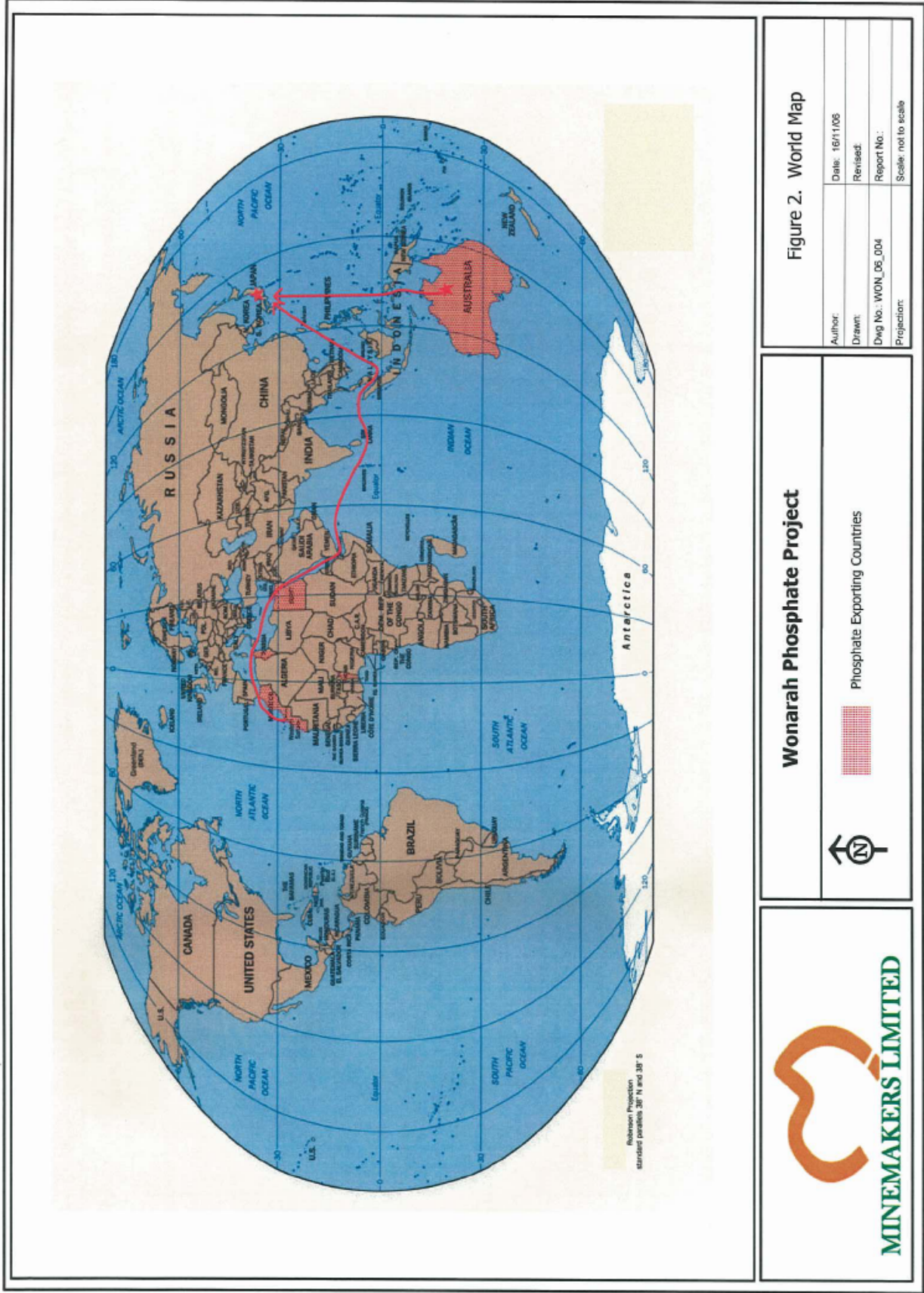


## Wonarah Prostate Project

Figure 1. Location, Access and Infrastructure

Author:	Date: 2011/06
Drawn:	Revised:
Dwg No.: WON_06_007	Report No.:
Projection:	Scale: N/A





Robinson Projection  
standard parallels 30° N and 30° S



