EL28275 & 28611

MARQUA

Northern Territory, Australia

Amalgamated Technical Report
for the period 30 March 2012 to 29 March 2013 (EL28275)
and the period 1 September 2011 to 29 March 2013 (EL28611)

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1:100,000 Maps:  6352 Marqua, 6452 Toko, 6351 Mount Barrington, 6451 Adam
SUMMARY

The Marqua Project in the Northern Territory is located 400km east of Alice Springs and 300km southwest of Mount Isa (Figure 1). The area is highly prospective for minerals, with high grade phosphate drill intersections encountered and also potential for base metals and uranium.

Rox Resources Limited held a number of contiguous Exploration Licences in the area, EL28275, EL28276, EL28611 and EL28612, but recent rationalisation has seen this reduced to just two Exploration Licences, EL28275 and 28611. This report is for the second period of EL28275 from 30 March 2012 to 29 March 2013, and under the provision for amalgamated technical reporting the first period for EL28611 from 1 September 2011 to 29 March 2013.

Previous exploration of EL28275 identified five phosphate prospects over a strike length of 30 km with outcrops grading up to 39.4% P₂O₅ along the phosphorus bearing Cambrian age Thorntonia Limestone. A repeat outcrop of this stratigraphy is interpreted to occur within EL28611.

The prospects occur near the southern extent of the Georgina Basin, which is rapidly becoming Australia’s major hard-rock phosphate province.

Exploration work completed during 2012-2013 included geological prospecting and drill site rehabilitation.

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1 INTRODUCTION

Rox Resources Limited’s (“Rox”) Marqua Project now consists of tenements EL28275 and EL28611. The tenement area covers an area of approximately 667.4 km² that is prospective for phosphate mineralisation.

This report summarises Rox’s exploration activities for the second year of tenure on EL28275 for the period 30 March 2012 to 29 March 2013, and under the provisions for amalgamated technical reporting the first year of EL28611 for the period 1 September 2011 to 29 March 2013.

2 LOCATION AND ACCESS

The Marqua project area is located approximately 500 km by road east of Alice Springs, and is southeast of the Marqua Station homestead with good road access 40 km off the Plenty Highway and a network of established minor roads and station tracks (Figure 1).

![Figure 1: Marqua Project Location](image-url)
3 TENURE

The project consists of tenements EL28275 and EL28611 as shown in Table 1 and Figure 2.

At the end of year 2 a partial surrender of 50% of EL28275 was undertaken (not shown in Table 1).

Table 1: Marqua Tenements

<table>
<thead>
<tr>
<th>Tenement</th>
<th>Registered Holder</th>
<th>Interest</th>
<th>Grant Date</th>
<th>Expiry Date</th>
<th>Area (sub-blocks)</th>
<th>Current Annual Rent (incl. GST)</th>
<th>Current Annual Minimum Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL 28275</td>
<td>Rox Resources Limited</td>
<td>100%</td>
<td>30 March 2011</td>
<td>29 March 2017</td>
<td>418</td>
<td>$4,598</td>
<td>$114,500</td>
</tr>
<tr>
<td>EL 28611</td>
<td>Rox Resources Limited</td>
<td>100%</td>
<td>1 September 2011</td>
<td>31 August 2017</td>
<td>2</td>
<td>$22</td>
<td>$6,000</td>
</tr>
</tbody>
</table>

There are no Native Title Claims over the tenement area, which comprises the Marqua and Tobermorey pastoral stations. A meeting was convened for any interested Aboriginal parties on the tenements before exploration work commenced, but no parties attended. Previous heritage site locations were obtained by a search of the AAPA Register and were avoided during exploration.
4 GEOLOGY

4.1 Regional Geology

The project area is part of the southern Georgina Basin, comprising Neoproterozoic to Cambro-Ordovician platform cover of sedimentary rocks (dominantly sandstone, shale, limestone, dolostone) overlying the Precambrian basement of the Northern Australian Craton. This Precambrian basement is exposed along major fault systems on the southern margin of the basin.

The Northern Territory Geological Survey (NTGS) has recognised the mineral potential of the southern Georgina Basin and recently prepared a comprehensive review of both government and private exploration undertaken, and has now developed applicable ore genesis models (Dunster et al., 2007).

Since the 1960’s, the basin has been considered prospective mainly for Mississippi Valley Type (MVT) lead-zinc mineralisation. More recently, however, the potential for other commodities in a variety of geological settings has been investigated, and the basin is now regarded as having potential for several styles of base-metal mineralisation.

The area is considered to have potential for Cambrian limestone hosted phosphate. Prospective units within the Georgina Basin include the Middle Cambrian Beetle Creek Formation of the eastern basin, its stratigraphic equivalent in the south, the Arthur Creek Formation, and the underlying Thorntonia Limestone which is recognised basin-wide. Prospective ground for phosphate rock within these Middle Cambrian units occurs along the basin margins and adjacent to basement highs within the basin interior.

4.2 Local Geology

The Marqua project area is located in the structurally complex south-eastern portion of the Georgina Basin, which is comprised of basement granitoids, Neoproterozoic tillites and arkosic sedimentary rocks, overlain by Cambrian and Cambro-Ordovician limestone, dolostone, shale and clastic sedimentary rocks of the Toko Syncline.

These units have been disrupted by multiple folding and faulting events. Faulting in the project area generally trends northwest and individual faults have been locally offset by later northeast trending faults. Part of the regionally significant Toomba Fault Zone lies in the eastern portion of the tenements and segregates a structurally complex zone dominated by arkosic sediments to the southwest from limestone, dolostone and sandstone of the Toko Syncline to the north.

The Toomba Fault Zone is a reverse fault which dips ~45° towards the southwest and lies in close proximity to a number of parallel folds and faults including the Field River Anticline (Figure 2). A northwest trending fault zone in the Christmas Dam area represents a structural divide between gently north dipping sedimentary rocks to the west and steep to vertical dipping sediments to the east (Figure 2).
4.3 Geological Model For Phosphate

The processes responsible for the formation of high-grade marine phosphate rock deposits (known as phosphorite if it contains greater than 15% $\text{P}_2\text{O}_5$) are the subject of some uncertainty. It is recognized that regions favourable to large-scale phosphate deposition occur along ocean margins where deep upwelling currents rich in phosphate are trapped within relatively shallow lagoons and embayments.

The phosphate-rich waters lead to high levels of biological activity which results in the deposition of organic-rich sediments (black shales) within confined anoxic depositional centres. Phosphate liberated into interstitial and bottom waters, principally from the bacterial decay of organic matter, is believed to be responsible for the formation of phosphorites both by direct precipitation of phosphate minerals from solution and by replacement of siliceous and calcareous skeletal debris (forming coquinite phosphorites).

This process appears to occur near the water sediment interface at the transition between anoxic and oxic zones so that phosphorite deposits are typically laterally offset from black shale accumulations. Mechanical reworking of sediments may also play a significant role in the formation of some high-grade phosphorite deposits.
5 PREVIOUS EXPLORATION

5.1 Other Companies

The Marqua area has been subject to exploration for over 30 years. Mapping of the Marqua area (Tobermory 1:250,000 map sheet) was carried out by BMR 1959-1960 and subsequent remapping was done throughout the 1970’s and 1980’s. Exploration during that time was mainly focussed on base metals and involved rock chip and stream sampling. During 1977-1978 and 1983 the BMR drilled four cored stratigraphic holes in the area. Anomalous zinc levels were found in these holes (BMR 1976/36) (Dunster et. al., 2007).

Subsequently Agip undertook base metal exploration in 1981 over the tenement area (CR19830328). Reconnaissance rock chip sampling and mapping demonstrated that base metals are anomalous within the Late Proterozoic Wonnadinna Dolostone and Thorntonia Limestone. Sixteen holes were drilled during 1982 to test the zinc anomalies over a strike length of 8km.

Saracen Minerals drilled nineteen percussion holes in 1988 (CR19880057) with the aim of detecting possible platinum-group element mineralisation associated with the black shales. No platinum group elements were detected.

MIM explored the area in the early 1990’s to test for MVT style Pb and Zn and Carlin-style Au and Pt (CR19920506). Re-assays of Saracen Minerals percussion drill holes and ten additional drill holes within the prospective units concluded that mineralisation is structurally controlled.

In conjunction with regional re-mapping of the Tobermorey map sheet, NTGS drilled cored stratigraphic hole NTGS99/1 within the current tenement area (Dunster et. al., 2007).

The NTGS re-evaluated the area as part of the southern Georgina Basin Geology and Resource Potential Report in 2007 and concluded that the Marqua area remains prospective for base metals since the lithostratigraphy of the area was not fully understood until recently (Dunster et. al., 2007).

More recently Uramet explored the region for phosphate, engaging in field mapping, a VTEM survey (Figure 3), surface sampling and aircore drilling (CR20070662, CR20070663 CR20080424, CR20080427, CR20090583, CR20100557). VTEM (Versatile Time Domain Electromagnetic) was used to detect conductivity highs associated with the Thortonian black shale. The Uramet mapping improved the accuracy of the existing maps, and confirmed known prospective Thorntonia and Red Heart Dolostone localities, as well as defining new prospects that were favourable drilling targets for phosphate. Uramet drilled 77 aircore holes for a total of 1,962 metres within the prospective Thorntonian unit. Uramet also re-sampled some of the previous drill cuttings of Saracen (CR20080872).
5.2 Rox Resources

During 2011 Rox undertook a programme of soil sampling and RC drilling on EL28275, as reported below. In addition a compilation of regional geophysics was also undertaken.

5.2.1 Soil Sampling

Soil sampling (552 samples) was conducted across the prospective Thorntonia Limestone along its entire 30km of mapped strike within EL28275 at a nominal line spacing of 500 metres. Samples were taken at 50m horizontal intervals starting from the rock unit above (Arthur Creek Limestone) and continuing to the rock unit below (Gnallan-a-Gea Arkose).

The procedure involved GPS location of the sample point and then a small hole was dug to 15cm depth, and the B or C soil horizon analysed with the Niton XRF. Some samples were not recorded because of obvious transported soils (sand dunes). Elements recorded included P, Ca, Cu, Pb, Zn, Fe, Y, and U.

On two of the sample lines a bulk soil sample was collected at each site and submitted to the laboratory for analysis by ICP for the same elements recorded by the Niton. The results showed a poor comparison between laboratory and Niton for P, Cu, and Pb, mainly because the detection limit of the Niton is above the content of those elements in the soil (the laboratory had a lower detection limit).
Good comparative results were obtained for Ca, Zn, Fe and Y.

Overall it was felt that the Niton soil sampling effectively mapped out the extent of the Thorntonia Limestone and enabled drill planning to be made on the basis of the soil results and the geological mapping that accompanied it.

5.2.2 RC Drilling

Following the soil sampling program, and using those results as a guide, Rox conducted a 29 hole Reverse Circulation (RC) drilling program for a total of 1,902 metres. The program was designed to identify the extent and grade of phosphate at Mauritania and between the known phosphate occurrences at Red Heart and White Hill. At Foss Hill, Coquina Creek and Library Ridge, drilling was designed to explore for the phosphate horizon to the north and at depth.

Significant drill intercepts are listed below (Table 2).

Table 2: RC Drilling Results – Marqua – 15% P₂O₅ Cut-Off

<table>
<thead>
<tr>
<th>Hole</th>
<th>East (m)</th>
<th>North (m)</th>
<th>Dip</th>
<th>Azimuth</th>
<th>Total Depth (m)</th>
<th>From (m)</th>
<th>To (m)</th>
<th>Interval (m)</th>
<th>P₂O₅%</th>
<th>Prospect</th>
</tr>
</thead>
<tbody>
<tr>
<td>MQRC003</td>
<td>748998</td>
<td>746820</td>
<td>-90</td>
<td>0</td>
<td>60</td>
<td>15</td>
<td>16</td>
<td>1</td>
<td>21.8</td>
<td>Mauritania</td>
</tr>
<tr>
<td>MQRC008</td>
<td>754049</td>
<td>746764</td>
<td>-90</td>
<td>0</td>
<td>58</td>
<td>7</td>
<td>8</td>
<td>1</td>
<td>17.6</td>
<td>Red Heart</td>
</tr>
<tr>
<td>MQRC021</td>
<td>770788</td>
<td>746595</td>
<td>-60</td>
<td>180</td>
<td>52</td>
<td>12</td>
<td>19</td>
<td>7</td>
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</tr>
<tr>
<td>MQRC022</td>
<td>770000</td>
<td>746610</td>
<td>-60</td>
<td>180</td>
<td>69</td>
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<td>180</td>
<td>83</td>
<td>45</td>
<td>49</td>
<td>4</td>
<td>26.3</td>
<td>Coquina Creek</td>
</tr>
</tbody>
</table>

5.2.3 Regional Geophysics Compilation

A compilation of regional geophysics showed that the magnetics do not show much relation to surface geology (Figure 4), however the radiometrics plot of Total Count maps out the main faults and prospective phosphate horizon quite well (Figure 5).
Figure 4: Regional Magnetics with Faults and Phosphate Horizon Shown

Figure 5: Total Count Radiometrics with Faults and Phosphate Horizon Shown
6 EXPLORATION DURING 2012-2013

No exploration work was undertaken by Rox during the reporting period except for some brief geological prospecting and drill site rehabilitation Reported separately in the MMP update).

The market conditions for exploration in general and for phosphate in particular deteriorated significantly during the period. Several more advanced phosphate projects were put on hold and partners withdrew from other projects such as Wonarah.

Rox tried unsuccessfully to attract a joint venture partner to Marqua, speaking with several Chinese and Indian parties to no avail. The biggest issue for the Marqua phosphate deposits is their distance from transport and market. It is over 350km by unsealed and poorly maintained road to the north-south Adelaide-Darwin railway line to the west, and 330km by a similar standard unsealed and poorly maintained road to the rail head at Phosphate Hill in Queensland.

7 CONCLUSIONS AND RECOMMENDATIONS

Work completed by Rox over the last 2 years has been successful in identifying a semi-continuous phosphate-bearing rock horizon between Mauritania in the west and Library Ridge in the east.

More drilling is warranted to the west of Mauritania to determine the entire strike length of the phosphate bearing horizon to the western tenement boundary, however, in the current general exploration market and in particular Rox’s lack of success in finding a joint venture partner, this work cannot be justified at present.

The phosphate bearing horizon has a shallow north dip to the west (i.e. Mauritania to White Hill) of the Christmas Creek fault, but grades are only moderate, while to the east (i.e. Foss Hill to Library Ridge) the dip is much steeper and grades are higher. This has implications of where the best phosphate potential may be. The steeper dips indicate less tonnage potential to a mineable open pit depth, but grades are higher. The shallow dips allow for more tonnes per vertical metre, but the grade is lower.

Given the 30km strike length of the phosphate bearing horizon, and the relatively shallow and wide spaced nature of drilling, there is enormous potential for a significant sized phosphate resource at Marqua. However, a significant amount of drilling will be needed to delineate that resource.

Phosphate economics are largely involved with infrastructure (distance to market) and marketing of product. The ideal corporate configuration would be a vertically integrated company that owned and mined phosphate to deliver it to its own market (i.e. a fertiliser company).
8 REFERENCES

