**COMBINED REPORT:**

**YEAR 1 ANNUAL & FINAL**

**31/05/2012 to 24/04/2013**

**Mt Playford South**

**(EL 29145)**

| Title Holder: | NATURAL RESOURCES EXPLORATION PTY. LTD. |
| Operator: | Natural Resources Exploration Pty. Ltd. |
| Tenement Manager: | Nicole Munro, Natural Resources Exploration Pty. Ltd. |
| Titles / Tenements: | EL(s): 29145 |
| Project Names: | Mt Playford South |
| Report Title: | **Combined Report: Year 1 Annual & Final – Mt Playford South (EL29145)** |
| Type of Report: | Combined Report: Year 1 Annual & Final |
| Author(s): | Munro, N and Forder, P. |
| Company Ref: | NRE_NT2013: Mt Playford South - Combined Report: Year 1 Annual & Final |
| Target Commodity / Commodities: | Phosphate and Base Metals |
| Date of Report: | 13 May 2013 |

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Summary

Section 94 of the **Mineral Titles Act** requires the submission of reports prepared by the titleholder for each Exploration Licence about the authorised activities conducted under the title and other matters relating to the title. The following report is a combined Year 1 Annual and Final Report for Exploration Licence (EL) 29145, known to NRE as its ‘Mt Playford South Prospect’, prepared by Natural Resources Exploration (‘NRE’).

During the first term, NRE completed an extensive review of this tenure in order to assess its prospectivity. Based on the assessment of the activities conducted within EL29145 itself, NRE made application to the Department to completely surrender the entire title for EL29145 under section 103 of the **Mineral Titles Act**.

The purpose of the following combined Annual and Final Report for EL29145 is to provide a summary of the activities carried out over the entire area of EL29145 up to the time when the title ceased to be in force, including any results produced by those activities.

NRE’s exploration rationale and objectives for its Mt Playford South Prospect considered the evaluation of potential phosphate and base metal mineralisation. Investigations were intended to locate any outcropping of mineralisation and any indicators of any sub-surface mineralisation within the tenement. NRE carried out a detailed geological assessment of EL29145 including considerable research and extensive office-based studies. Research included review and compilation of the data in the Northern Territory Geological Services’ (‘NTGS’) open file reports, air photo imagery and examination of the latest geological maps.

NRE believes that there is no rehabilitation required in relation to EL29145 as no field based activities have been undertaken within the tenure nor have any works involving land disturbance been carried out during the term of the licence.
1. Introduction

Natural Resources Exploration (‘NRE’) was granted EL 29145 on 31 May 2012, consisting of a total of 37 sub-blocks. EL29145 is located in the east of the Northern Territory, approximately 300 kilometres northeast of Alice Springs.

NRE’s exploration rationale and objectives for EL29145 considered the evaluation of phosphate and base metal mineralisation.

Based on the exploration activities conducted on EL29145, NRE made application to the Department to completely surrender the entire title for EL29145 under section 103 of the Mineral Titles Act. EL29145 was surrendered on 24 April 2013. During the entire term of its licence period, NRE was the sole titleholder and operator of EL29145.

NRE carried out a detailed geological assessment of EL29145 including considerable research and extensive office-based studies up until the title ceased to be in force over all of the title area. Research included review and compilation of the data in the Northern Territory Geological Services’ (‘NTGS’) open file reports, air photo imagery and examination of the latest geological maps.

2. Tenure

EL29145 was granted to NRE on 31 May 2012 consisting of 37 sub-blocks and covering an area of approximately 117.5 square kilometres.

Table 1 lists the pertinent tenement details.

Table 1. Tenement Details

<table>
<thead>
<tr>
<th>Name</th>
<th>EL</th>
<th>Sub blocks</th>
<th>Sq. Km</th>
<th>Status</th>
<th>Grant Date</th>
<th>Surrender Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mt Playford South</td>
<td>29145</td>
<td>37</td>
<td>117.5</td>
<td>Surrendered</td>
<td>31-May-12</td>
<td>24-Apr-13</td>
</tr>
</tbody>
</table>

Native Title and Recorded Sites

There are currently no Native Title Claims over EL29145. Furthermore, the Aboriginal Areas Protection Authority (AAPA) has not identified any Recorded Sacred Sites or Restricted Work Areas within the boundaries of EL29145.
Pastoral Leases

EL29145 overlies one (1) Pastoral Lease, namely NT Por 686 PPL 1007 ("Lucy Creek Station"). The location of the Pastoral Leases in relation to EL27905 is shown in Figure 1 below.

Figure 1. Cadastral Map

2.1 Location and Access

Location and Access

EL29145 is located in the east of the Northern Territory, approximately 300 kilometres north east of Alice Springs. The tenement lies just to the north of the Plenty Highway and unpaved tracks cross the tenure. The location and access of the tenure is shown in Figure 2 below.
3. Geology

3.1 Regional Geology

EL28780 overlies the Georgina Basin with the Aileron Province (Arunta Region) to the south see Figure 3. The Georgina basin is a large intracratonic basin which is Neoproterozoic to Palaeozoic and was initiated as part of the Centralian Superbasin. It lies across the Queensland/Northern Territory border and occupies an area of approximately 325 000 km².

The Georgina Basin is aged between 850 Ma to 355 Ma and overlies the Aileron Province, Tennant Region, Murphy Inlier, McArthur and South Nicholson Basins and Lawn Hill Platform. The basin deepens towards the south along the margin with the Arunta Region and can be up 3.7 km thick.

The basin consists of mainly Cambrian to middle Ordovician marine sedimentary rocks. The Cambrian to early Ordovician rocks are essentially marine carbonate rocks with minor sandstone and siltstone. The middle Ordovician rocks are dominated by siltstone and
sandstone. The early Palaeozoic Georgina Basin succession underlies the Silurian to Devonian freshwater sandstone and Permian boulder beds.

Deposits have been found of sedimentary phosphate including the Wonarah phosphate deposit. Several lead-zinc occurrences have also been located along the southern margin and oil is found throughout the basin. This basin is considered a major exploration target for sedimentary phosphate and there is also exploration for base metals, diamonds, manganese, oil and gas.

The Arunta Region includes the Aileron Province of Palaeoproterozoic age, the Warumpi Province of Palaeoproterozoic age and the Irindina Province of Neoproterozoic to Carboniferous age. The Aileron Province can be divided into two sequences: the Strangways Metamorphic Complex and the younger Oonagalabi Assemblage. The Irindina Province consists of the Harts Range Group.

The Strangways metamorphic complex can be split into three groups: the Lander Package, the Ongeva Package and the Cadney Package. The Lander package is aged between 1865 Ma and 1820 Ma and consists of: tubiditic pelites and psammites. The Ongeva Package is aged between 1810 Ma and 1790 Ma and consists of: metapelitic and metapsammitic rocks with subordinate calc-silicate, marble and felsic and mafic orthogneiss. The Cadney Package is aged between 1780 Ma and 1730 Ma and consists of: marbles and calc-silicates.

The regional geology is shown below in Figure 3.
The Oonagalabi Assemblage contains one sequence called the Ledan Package. The Ledan package is aged between 1770 and 1730 Ma and includes pelitic and psammitic metasediments that unconformably overlie the Strangways Metamorphic Complex.

The Warumpi Province can be split into three groups: the Madderns Package, the Yaya Package and the Iwupataka Package. The Madderns Package is aged between 1690 to 1670 Ma and includes K calc-alkaline felsic magmatism. The Yaya Metamorphic Complex is aged between 1660 and 1640 Ma and contains mudstones, sandstone, calc-arenites and mafic extrusives/intrusives. The Iwupataka Metamorphic Complex is aged between 1630 and 1610 Ma and contains schist and amphibolite.

Finally, the Irindina Province consists of the Harts Range Group. The Harts Range Group is aged between 850 Ma and 500 Ma and contains a complex assemblage of granite gneiss, marble, calc-silicate, amphibolite, psammites and pelites which has gone under metamorphism.

3.2 Permit Geology

The permit / local geology within the Playford South Prospect has been summarised below:
**Unconsolidated Sediments**
Soil, silty or sandy, alluvial and Aeolian: includes other quaternary units locally. Sheet and dune sand; sandy soil.

**Arrinthrunga Formation**
Dolostone and limestone, micrite to grainstone, oolitic, stromatolitic, intraclastic: minor silt or quartz-arenite interbeds: prominently evenly bedded, thin to thick-bedded, grey, pink and yellow.

**Eurowie Sandstone Member**
Quartz arenite; rare siltstone; thin-bedded, red-brown: halite pseudomorphs and abundant ripple marks present.

**Arthur Creek Formation**
Calcareous siltstone, fossiliferous, poorly exposed, limestone interbeds and quartz-arenaceous limestone at top.

<table>
<thead>
<tr>
<th>Era</th>
<th>Period</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cenozoic</td>
<td>Quaternary</td>
<td>Unconsolidated Sediments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arrinthrunga Formation</td>
</tr>
<tr>
<td>Paleozoic</td>
<td>Cambrian</td>
<td>Eurowie Sandstone Member</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arthur Creek Formation</td>
</tr>
</tbody>
</table>

The geology includes Cambrian units of the Georgina Basin with some remnant Cretaceous of the Dunmarra Basin and regolith (silcretes and calcretes) of Tertiary and Quaternary age. The southern region contains the thickest basinal successions, and demonstrates the strongest structuring related to distal effects of the 320Ma Alice Springs Orogeny. In contrast to the southern region, the central Georgina Basin, north of latitude 21°S, contains a relatively thin stratigraphic succession, up to 450 m thick, deposited on a tectonically quiescent platform. Deposition in the central region commenced with a marine transgression in the early Middle Cambrian and may have extended into the Late Cambrian.

The permit geology for EL29145 is illustrated in Figure 4 below.
4. **NRE’s Exploration Activities during the Reporting Period**

NRE’s exploration program for the first term of EL29145 consisted of an extensive review of the tenement in order to delineate potential phosphate and base metal surface targets within the area. NRE has been unable to identify any subsurface mineralisation within EL29145 in respect of phosphate and base metals. NRE believes that no further exploration is warranted within EL29145 at this time.

During the reporting period, NRE made application to the Department to completely surrender the entire title for EL29145 under section 103 of the *Mineral Titles Act*. EL29145 was surrendered on 24 April 2013.

4.1 **Previous Exploration Studies & Assessment**

NRE has conducted an extensive review of historic exploration over EL29145. There has been minor exploration across the region covered by EL29145 in the past. The Georgina Basin hosts Australia’s most economic phosphate deposits in the Middle Cambrian rocks, such as Phosphate Hill across the border in Queensland and Wonarah in Southern Georgina Basin.
Previous exploration has been summarised in Table 2 and location of historic tenements is shown in Figure 5.

Table 2. Historic Tenures

<table>
<thead>
<tr>
<th>Tenement</th>
<th>Period</th>
<th>Company Reports</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL 4620</td>
<td>1984-1990</td>
<td>CR1985-0272</td>
<td>CRA Exploration</td>
</tr>
<tr>
<td>EL 4619</td>
<td>1984-1990</td>
<td>CR1985-0272</td>
<td>CRA Exploration</td>
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<tr>
<td>EL 128</td>
<td>1972-1973</td>
<td>CR1974-0103</td>
<td>Petrocarb Exploration</td>
</tr>
</tbody>
</table>

Figure 5. Historic tenements over EL29145

As well as a comprehensive desktop study of all previous exploration associated with EL29145, an assessment of geophysical imagery has taken place across the tenure. Work has included the following:

Geophysical Imagery Analysis

- Assessment of regional radiometrics to identify any radiometric anomalies in the region;
- Assessment of regional aeromagnetics to identify any magnetic anomalies in the region; and
- Assessment of regional gravity data to identify any density anomalies in the region.
5. **Reports lodged during the reporting period**

NRE believes that no other reports were required to be lodged during this reporting period.

6. **Conclusions**

Natural Resources Exploration’s (‘NRE’) exploration activities have been focused on delineating surface targets within EL29145. NRE’s exploration rationale and objectives for its Mt Playford South Prospect considered the evaluation of potential phosphate and base metal mineralisation. Investigations were intended to locate any outcropping of mineralisation and any indicators of any sub-surface mineralisation within the tenement.

NRE believes that this tenure holds low mineral prospectivity and no further exploration is warranted at this time. NRE made application to the Department to completely surrender the entire title for EL29145 under section 103 of the *Mineral Titles Act*. EL29145 was surrendered on 24 April 2013.

NRE believes that there is no rehabilitation required in relation to EL29145 as no field based activities have been undertaken within the tenure nor have any works involving land disturbance been carried out during the term of the licence.
7. Bibliography


Note these (and many more) references are also located in the References section of the Huckitta 1:250,000 geological map series explanatory notes.