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Any information included in the report that has been originated or sourced from historical open file reports or other sources is listed in the “Exploration Studies - Historic” section within the document.

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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) 29180, known to NRE as its ‘Mt Playford 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 and define the next phase of exploration. Based on the assessment of the activities conducted within EL29180 itself, NRE made application to the Department to completely surrender the entire title for EL29180 under section 103 of the *Mineral Titles Act*.

The purpose of the following combined Annual and Final Report for EL29180 is to provide a summary of the activities carried out over the entire area of EL29180 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 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 EL29180 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 EL29180 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 29180 on 17 August 2012, consisting of a total of 81 sub-blocks. EL29180 is located in the east of the Northern Territory, approximately 300 kilometres northeast of Alice Springs.

NRE’s exploration rationale and objectives for EL29180 considered the evaluation of phosphate and base metal mineralisation.

Based on the exploration activities conducted on EL29180, NRE made application to the Department to completely surrender the entire title for EL29180 under section 103 of the *Mineral Titles Act*. EL29180 was surrendered on 19 June 2013. During the entire term of its licence period, NRE was the sole titleholder and operator of EL29180.

NRE carried out a detailed geological assessment of EL29180 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**

EL29180 was granted to NRE on 17 August 2012 consisting of 81 sub-blocks and covering an area of approximately 257.1 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</td>
<td>29180</td>
<td>81</td>
<td>257.1</td>
<td>Surrendered</td>
<td>17-Aug-2012</td>
<td>19-Jun-2013</td>
</tr>
</tbody>
</table>
Native Title

There are currently no Native Title Claims over EL29180.

Recorded Sites

There is one recorded sacred site and one restricted work area within the Mt Playford Project area. These are situated in the south eastern area of the tenement.

Pastoral Leases

EL29180 overlies one (1) Pastoral Lease, namely NT Por 686 PPL 1007. The location of the Pastoral Leases in relation to EL29180 is shown in Figure 1 below.

Figure 1. Cadastral Map

2.1 Location and Access

Location and Access
EL29180 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.

Figure 2. Location and Access Map

2.2 Topography and Drainage

The topography across the tenure is predominantly gently undulating, with elevation ranging between 380 and 320 meters above sea level. The tenement appears to be slightly more elevated to the west and drains predominantly to the east. The tenement is cross-cut by numerous creek and tributaries with the predominant creek labelled Arthur Creek in the south of the tenement area.

Figure 3 shows the topography within EL29180.

Figure 3. Topography Map
3. Geology

3.1 Regional Geology

EL29180 overlies the Georgina Basin with the Aileron Province (Arunta Region) to the south see Figure 4. 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 km$^2$.

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 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.

The regional geology is shown below in Figure 4.

Figure 4.  Regional Geology Map
3.2 Permit Geology

The permit geology of the tenement is described below and shown in *Figure 5* and the simplified stratigraphic column is also shown below in *Table 2*.

**Unconsolidated Sediments**
These units are Quaternary in age and are comprised of: soil, silty or sandy, alluvial and Aeolian, sheet and dune sand; sandy soil and colluvium; scree.

**Tomahawk Beds**
This unit is Cambrian to Ordovician in age and is composed of: quartz sandstone; quartz-arenaceous limestone and dolostone: glauconitic, fossiliferous and bioturbated, thin to thick-bedded, grey where fresh, yellow to brown-weathering, much complex meso-scale folding.

**Arrinthuranga Formation**
This unit is late Cambrian in age and can be described as 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**
This unit is middle to late Cambrian in age and is comprised of: quartz arenite; rare siltstone; thin-bedded, red-brown: halite pseudomorphs and abundant ripple marks present.

**Arthur Creek Formation**
This unit is middle Cambrian in age and is composed of: calcareous siltstone, fossiliferous, poorly exposed, limestone interbeds and quartz-arenaceous limestone at top.

**Errara Formation**
This unit is early to middle Cambrian in age and is comprised of: dolostone, silty to clean, laminated to thick-bedded, fossiliferous, quartz siltstone to pebble conglomerate in the east.
Table 2. Stratigraphic Column

<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>Paleozoic</td>
<td>Cambrian</td>
<td>Tomahawk Beds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arrinthuranga Formation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Eurowie Sandstone Member</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arthur Creek Formation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Errara Formation</td>
</tr>
</tbody>
</table>

The permit geology for the tenement is illustrated in Figure 5 below.

Figure 5. Permit Geology Map

4. NRE’s Exploration Activities during the Reporting Period

NRE’s exploration program for the first term of EL29180 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
EL29180 in respect of phosphate and base metals. NRE believes that no further exploration is warranted within EL29180 at this time.

During the reporting period, NRE made application to the Department to completely surrender the entire title for EL29180 under section 103 of the *Mineral Titles Act*. EL29180 was surrendered on 19 June 2013.

### 4.1 Previous Exploration Studies & Assessment

NRE has conducted an extensive review of historic exploration over EL29180. There has been minor exploration across the region covered by EL29180 in the past. However, geological reconnaissance including: soil sampling, rock chip sampling, RC drilling and stream sediment sampling has been conducted in the surrounding areas. The historical exploration across the tenement and the surrounding area is outlined below.

**CRA Exploration**

CRA Exploration held two tenements, one of which was to the west (EL7596) and one of which was to the south (EL8116) of the Mt Playford tenement area during a 1992-1994 period. In EL7596 CRA exploration completed 3 drill holes to test the metalliferous potential of the lower Arthur Creek Formation. However, no significant results were obtained. In EL8116 CRA Exploration targeted an airborne radiometrics and TM imagery phosphatic organic rich Arthur Creek Formation-Mt Baldwin Formation disconformity. A total of 42 rock chips samples were collected from the disconformity and reported assays up to 2.08 % Cu, 100 ppm U and 11.4% P. Six RC holes were also drilled, with a total of 530 m completed. However, no significant values were returned. CRA Exploration held two other tenements EL4620 and EL4619 during 1984-1990 over the Mt Playford Tenement area but did not take any soil samples or rock chip samples. They also held a tenement AP2372 between 1969-1971, the tenement covered a small eastern edge of the Mt Playford tenement and also extended to the north and west of the tenement area. CRA Exploration collected approximately 1500 geochemical drainage samples and soil samples over the tenement area.
Elkedra Diamonds
Elkedra Diamonds held the tenement EL22533 for the period 2001-2004, this tenement covers the eastern edge of Mt Playford and extends much further to the north. Elkedra Diamonds undertook 25 loam samples and 3 stream sediment samples. All stream sediment samples reportedly showed positive results, however, the loam samples did not report positive results.

Saracen Minerals
Saracen Minerals held the tenement area EL5149 between 1987-1988 and explored for platinum group element mineralisation, this tenement area was located just to the south of the Mt Playford tenement area. A drilling program was conducted to a total of 632 m in 14 rotary/percussion holes. However, the results from the analysis of the drill cuttings were all below the limits of detection.

Previous exploration has been summarised in Table 3 and location of historic tenements is shown in Figure 6.
### Table 3. Historic Tenures

<table>
<thead>
<tr>
<th>Tenure</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>
</tr>
<tr>
<td>EL 128</td>
<td>1972-1973</td>
<td>CR1974-0103</td>
<td>Petrocarb Exploration</td>
</tr>
</tbody>
</table>

### Figure 6. Historic tenements over EL29180
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 EL29180. NRE has conducted extensive reviews in relation to EL29180 and assessment of aeromagnetic, gravity and radiometric data indicates there is no strong anomalism indicative of potential sub-surface mineralisation within the tenure.

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 EL29180 under section 103 of the Mineral Titles Act. EL29180 was surrendered on 19 June 2013.

NRE believes that there is no rehabilitation required in relation to EL29180 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


