# Combined Report: Annual & Final
## BUDDYCURRAWA
### (EL 28058)
#### 30 December 2010 to 02 January 2013

<table>
<thead>
<tr>
<th>Title Holder:</th>
<th>NATURAL RESOURCES EXPLORATION PTY. LTD.</th>
</tr>
</thead>
<tbody>
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<td>Natural Resources Exploration Pty. Ltd.</td>
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<td>Titles / Tenements:</td>
<td>EL(s): 28058</td>
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<td>Buddycurrawa</td>
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<td>Diamonds &amp; Base Metals</td>
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<tr>
<td>Date of Report:</td>
<td>30 January 2013</td>
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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 Annual and Final Report for EL28058, known to NRE as the ‘Buddycurrawa Prospect’, prepared by Natural Resources Exploration (‘NRE’).

EL28058 forms part of NRE’s ‘South Nicholson Project’ which has been approved for Group Reporting along with EL27640 Flemington, EL27817 North Boxer and EL28056 Murlanka. Based on the exploration activities conducted on EL28058, NRE made application to the Department to completely surrender the entire title for EL28058 under section 103 of the *Mineral Titles Act*. EL28058 was surrendered on 2 January 2013. Future exploration activities conducted over EL27640, EL27817 and EL28058 will continue to be reported on as a Group.

NRE’s exploration rationale and objectives for its Buddycurrawa Prospect considered the evaluation of potential diamonds and base metals. 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 its Buddycurrawa Prospect, Exploration Licence (EL) 28058. NRE’s exploration activities included a helicopter reconnaissance program, geological mapping and associated rock chip sampling, as well as a XRF analysis of water bores held at the Darwin Core Library in the region surrounding the tenement.

This combined Annual and Final Report for EL28058 offers a summary of the activities carried out over all of the title area up to the time when the title ceased to be in force, including any results produced by those activities.
1. Introduction

Natural Resources Exploration (‘NRE’) has conducted extensive office-based studies and field work of Exploration Licences forming part of its South Nicholson Project. The South Nicholson Project consists of four (4) tenements (EL27640 Flemington, EL27817 North Boxer, EL28056 Murlanba and EL28058 Buddycurrawa). Natural Resources Exploration (‘NRE’) was granted EL 28058 on 30 December 2010, consisting of a total of 21 sub-blocks. EL28058 is located in the Paleoproterozoic Murphy Tectonic Ridge and the Mesoproterozoic South Nicholson Basin.

Based on the exploration activities conducted on EL28058, NRE made application to the Department to completely surrender the entire title for EL28058 under section 103 of the Mineral Titles Act. EL28058 was surrendered on 2 January 2013. During the entire term of its licence period, NRE was the sole titleholder and operator of EL28058.

NRE conducted an extensive review of all previous exploration across the tenements, completed a reconnaissance helicopter assisted field trip and carried out soil and rock sampling across the tenures. Furthermore, NRE followed up targets identified through these activities with a more extensive soil sampling survey, heavy minerals sampling and a ground magnetics survey. NRE also went on to conduct XRF analysis of water bore cuttings across the tenures, held at the Darwin Core Library.

NRE’s exploration rationale and objectives for its South Nicholson Project considered the evaluation of diamond and base metal mineralisation within the tenements. The Project was also considered for other targets such as phosphate and uranium during the early phases of exploration. Investigations during the first year were intended to locate any outcropping of mineralisation and any indicators of any subsurface mineralisation across the tenements.
2. Tenure

Exploration licence (EL) 28058, is more commonly known by NRE as its ‘Buddycurrawa Prospect’. The Buddycurrawa Prospect consists of 21 sub-blocks and was granted to NRE on 30 December 2010. Table 1 lists the pertinent tenement details.

Table 1. Tenement Details

<table>
<thead>
<tr>
<th>Project</th>
<th>Tenement Name</th>
<th>Title No. (EL)</th>
<th>Sub-blocks</th>
<th>Sq. Km</th>
<th>Status</th>
<th>Grant Date</th>
<th>Term (Yrs)</th>
<th>Surrender Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Nicholson</td>
<td>Buddycurrawa</td>
<td>28058</td>
<td>21</td>
<td>68.54</td>
<td>Surrendered</td>
<td>30-Dec-10</td>
<td>6</td>
<td>2-Jan-13</td>
</tr>
</tbody>
</table>

Figure 1. Cadastral Map

2.1 Native Title Claims

There is currently one (1) Native Title Claim over the project area, namely the Cresswell / Benmara Native Title Claim (Tribunal Number DC01/38). The Native Title Claim is identified in Figure 2 below.
2.1 Location and Access

Location
The Buddycurrawa Prospect falls within the South Nicholson group of EL’s (EL27640 Flemington, EL27817 North Boxer, EL28056 Murlanba and EL28058 Buddycurrawa) and is situated in parts of the Murphy Inlier and the South Nicholson Basin. The names of the EL’s derive from geographic features and water bore names within the EL’s. The location of the tenure is shown in Figure 3 below.

Access
Access to the ELs by road is via either Ranken Road or Calvert Road off the Tablelands Highway. Accessed used by NRE was via a station track from Mittiebah Homestead. Access to the area from Mittiebah is across 40 kilometers of flat Mitchell grass plains (Tertiary regolith). These plains are difficult to cross after heavy rainfall. Access to the tenures is
identified in Figure 4.

Figure 3. Location and Access Map

2.2 Topography and Drainage

The South Nicholson ELs are located largely on low undulating and flat grassed plains to the north of Mittiebah station. These plains are of the order of 300m AHD. The flat area drains into Fish Hole Creek which flows to the west eventually joining Brunette Creek at Brunette Downs station. Brunette Creek flows south west into Lake Sylvester. The topography across the tenement is identified in Figure 5.
3.0 Geology

3.1 Regional Geology

EL28058 is located within the Murphy Province and the South Nicholson Basin. The Murphy Province is which made up of the Palaeoproterozoic Murphy Metamorphics and the co-magmatic Cliffdale Volcanics and Nicholson Granite Complex. The Murphy Province is an east trending basement and straddles the border between Queensland and Northern Territory some 300 km north-west of Mount Isa (Denaro and Dhnaram 2009). The Mesoproterozoic South Nicholson Basin lies to the east and west of this section of the Murphy Province and consists of the Benmara Group and the South Nicholson Group (Geoscience Australia 2012).
The Murphy Metamorphics consist of shale, siltstone, sandstone and felsic volcanic rocks converted to schist and gneiss by greenschist facies metamorphism. These rocks are isoclinally folded along east-west axes and are unconformably overlain by the Cliffdale Volcanics and the Nicholson Granite Complex. The upper age limit of the Cliffdale Volcanics is constrained by the older phases of the Nicholson Granite Complex at 1820±103Ma as this was a co-magmatic event. The lower part of the Cliffdale Volcanics is dominated by ignimbrite whilst the upper part consists essentially of flow-banded alkali rhyolite and minortuff dated at 1730±20Ma. The Nicholson Granite Complex intrudes both the Murphy Metamorphics and the Cliffdale Volcanics in some parts and consists of granodiorite and granite (Denaro and Dhnaram 2009).

The Murphy Inlier contains over 50 uranium, copper, tin and base metal occurrences (Mernagh and Wygralak 2011). The Mesoproterozoic South Nicholson Basin lies to the east and west of this section of the Murphy Province. The Benmara group in this basin contains: ferruginous to silicified, immature to mature, sublithic to lithic sandstone, trachyte, pebble conglomerate, ferruginous siltstone and minor stromatolitic chert. The South Nicholson Group contains: siltstone, shale and sandstone of a Mesoproterozoic age (Geoscience Australia 2012).

The only significant mineralisation recorded within the rocks of the basin is sedimentary ironstone in the Constance Range area (Harms, 1965) where oolitic hematite, siderite and chamosite beds occur within the Train Range Ironstone Member.

The regional geology is shown in Figure 6 below.
3.2 Permit Geology

The geology within the Buddycurrawa Prospect consists of units which have been mapped and interpreted across the Mount Drummond 1:250,000 Geological Map Sheet by government geologists. The permit geology found in EL28058 is outlined below and is illustrated in Figure 7.

Unconsolidated Sediments

Rock types in this area of the Murphy Inlier and South Nicholson are largely cenozoic residual sand sheets and pisolitic and massive ferricrete and laterite.

Crow Formation

Interbedded lithic micaceous siltstone and fine-grained sandstone, reddish brown to grey shale, chalky white claystone, fine to medium grained, quartzose to sublithic sandstone, minor local reddish-brown, poorly sorted, feldspathic, micaceous, ferruginous and lithic,
medium to very coarse grained sandstone, pebbly sandstone and matrix supported conglomerate.

**Buddycurrawa Volcanics**

Ferruginous coarse sandstone, massive and brecciated trachyte, poorly sorted immature lithic sandstone and pebble conglomerate, mature sandstone, ferruginous siltstone and fine sandstone; minor stromatolitic chert.

**Breakfast Sandstone**

White to pink, medium to coarse grained silicified sublithic sandstone; thin basal pebble or cobble conglomerate; rare chertified stromatolitic carbonate.

**Murphy Metamorphics**

Purple micaceous metasiltstone (phylite), metagreywacke and quartz-mica schist with locally abundant quartz veins; minor metaquartzite, banded ironstone and calc-silicate rock.

*Figure 7. Permit Geology Map*
4. NRE’s Exploration Activities carried out on EL28058

NRE’s exploration activities for EL28058 consisted of both field and office based activities. An initial regional assessment of the areas within EL28058 and NRE’s South Nicholson Project for diamond and base metals was conducted during the initial term. An extensive review was conducted in relation to this tenement and NRE believes that no further exploration is warranted at this time.

During the reporting period, NRE made application to the Department to completely surrender the entire title for EL28058 under section 103 of the Mineral Titles Act. EL28058 was surrendered on 2 January 2013.

4.1 Previous Exploration Studies

NRE has conducted desktop research of regional geological and geophysical data, augmented with compilation of all previous exploration results. Material from historic exploration was extensively reviewed.

The data from all previous exploration as documented in open file reports retrieved from the Northern Territory Government included:

- Surface geochemical sampling
- Geochemical anomaly mapping
- Geological mapping
- Detailed geophysical survey data
- Geophysical anomaly mapping
- Drilling results (if any) and
- Local and regional geological assessments and conclusions derived from previous exploration programmes.
- Utilisation of aeromagnetics, aerora diometrics and gravity surveys provided by the Northern Territory Government;
• Utilisation of Satellite imagery, ASTER and Google Earth imagery; and
• Use of data supplied by landowners in regard to interesting land forms on their properties.

Historic exploration over Buddycurrawa has been for phosphate, base metals, uranium, gold and diamonds. Previous exploration has been summarised in Table 2 and location of historic tenements is shown in Figure 8.

**Table 2. Historic Tenures and Previous Companies’ Exploration Reports**

<table>
<thead>
<tr>
<th>Tenement</th>
<th>Period</th>
<th>Reports</th>
<th>Company</th>
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</thead>
<tbody>
<tr>
<td>EL 22994</td>
<td>2002-2004</td>
<td>CR2003-0482</td>
<td>De Beers Australia Exploration</td>
</tr>
<tr>
<td>EL 886</td>
<td>1973-1974</td>
<td>CR1974-0104</td>
<td>RA Weston, TW Cawley</td>
</tr>
<tr>
<td>AP 3401</td>
<td>1971-1972</td>
<td>CR1973-0103</td>
<td>Esso Australia</td>
</tr>
<tr>
<td>EL 24666</td>
<td>2006-2011</td>
<td>CR2008-0382,CR2009-0323,CR2010-0398</td>
<td>Lagoon Creek Resources</td>
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</table>
4.2 Water Bore Cutting Analysis

In January 2011, the Department kindly allowed NRE to set-up in the Darwin Core Facility where NRE’s geologists undertook analysis of the water bore cuttings using a hand-held XRF device and re-logged water bores. Although none of the analysed water bores fell within the relinquished area of EL28058 the data gathered from these water bores assisted with future geological interpretation and target generation (see Figure 9 for water bore locations).
NRE lodged an Exploration Report with the Northern Territory Department of Resources’ Geoscience Division on 7 June, 2011. This report was required in respect of the XRF and ALS Assaying of Water Bore Chips at the Darwin Core Facility. The Exploration Report was titled ‘XRF & ALS Assaying of Water Bore Chips – Core Facility: Darwin’.

4.3 Helicopter Reconnaissance

During NRE’s helicopter reconnaissance program over the South Nicholson Project, NRE targeted areas for ground evaluation on the basis of previous geophysical surveys, in particular aeromagnetics and radiometrics.
Sites were tested using a scintillometer and by the taking of soil and rock samples. Geological observations and photographs were recorded at each site. Although no samples (soil or rock) were collected from within the EL28058 area itself, data collected on a regional scale was used to further understand the surrounding geology for future interpretations.

5. Reports lodged during the reporting period

NRE lodged an Exploration Report with the Northern Territory Department of Resources’ Geoscience Division on 7 June, 2011. This report was required in respect of the XRF and ALS Assaying of Water Bore Chips at the Darwin Core Facility. The Exploration Report was titled ‘XRF & ALS Assaying of Water Bore Chips – Core Facility: Darwin’.

NRE lodged its Year 1 Group Annual Technical Report with the Northern Territory Department of Resources on 26 August 2011, the report of which covered a number of tenures forming NRE’s ‘South Nicholson Project GR175/10’.

NRE also lodged its Year 2 Group Annual Technical Report with the Northern Territory Department of Mines and Energy on 25 September 2012, the report of which covered a number of tenures forming NRE’s ‘South Nicholson Project GR175/10’.

6. Conclusions

Natural Resources Exploration’s exploration activities during the first and second term of EL28058 have been focused on delineating surface targets within the relinquished area with the aim of identifying any diamond or base metal mineralisation.

NRE has conducted both office-based studies and field operations on EL28058 during the term of this tenure. NRE carried out a detailed geological assessment of the relinquished area which included considerable research prior to a helicopter reconnaissance program evaluating the 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.
NRE conducted extensive reviews in relation to the tenement and believes that no further exploration is warranted at this time. NRE made application to the Department to completely surrender the entire title for EL28058 under section 103 of the Mineral Titles Act. EL28058 was surrendered on 2 January 2013.

NRE did not conduct any works involving land disturbance during the term of the licence. NRE believes that no rehabilitation is required in respect of EL28058.
7. Bibliography


