



**NATURAL
RESOURCES
EXPLORATION**

**COMBINED REPORT:
YEAR 2 ANNUAL & FINAL
PARADISE BORE (EL28396)**

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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 2 Annual and Final Report for Exploration Licence (EL) 28396, known to NRE as its 'Paradise Bore Prospect', prepared by Natural Resources Exploration ('NRE').

NRE's exploration rationale and objectives for its Paradise Bore Prospect initially considered the evaluation of phosphate mineralisation however the results obtained from its field based activities have now identified a need for NRE to investigate the possibility of base mineralisation. Investigations were intended to locate any possible areas of surface or shallow subsurface (<30m) mineralisation across the tenement.

Based on the assessment of the activities conducted within EL28396 itself, NRE made application to the Department to completely surrender the entire title for EL28396 under section 103 of the *Mineral Titles Act*. EL28396 was surrendered on 24 April 2013.

The purpose of the following combined Annual and Final Report for EL28396 is to provide a summary of the activities carried out over the entire area of EL28396 up to the time when the title ceased to be in force, including any results produced by those activities.

NRE has carried out a detailed geological assessment of EL 28396, more commonly known to NRE as its 'Paradise Bore' Prospect. NRE's exploration activities included extensive desktop based studies and evaluation of potential mineralisation prior to NRE conducting a helicopter reconnaissance program to evaluate the tenement, introduce themselves to landowners and conduct geological mapping on the tenement. NRE's extensive desktop studies included research, review and compilation of the data in the Northern Territory Geological Services' ('NTGS') open file reports, air photo imagery and examination and interpretation of the latest geological maps. NRE's targeted areas for ground evaluation during this program was on the basis of previous geophysical surveys, in particular aeromagnetism and radiometrics.

NRE believes that there is no rehabilitation required in relation to EL28396 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') has conducted extensive office-based studies and field work over its Paradise Bore Prospect, EL28396. The EL is located in the Southern Georgina Basin south of the Plenty Highway and south of the Sandover Highway, approximately 350 kilometres to the east of Alice Springs.

NRE conducted an extensive review of all previous exploration across the tenement and also conducted a reconnaissance helicopter assisted field trip and geological mapping across the tenure. NRE also took this opportunity to introduce ourselves to the landowners.

NRE's exploration rationale and objectives for its Paradise Bore Prospect considered the evaluation of phosphate mineralisation and subsequent evaluation of the possibility of base metal mineralisation. Based on the assessment of the activities conducted within EL28396 itself, NRE made application to the Department to completely surrender the entire title for EL28396 under section 103 of the *Mineral Titles Act*. EL28396 was surrendered on 24 April 2013.

2. Tenure

NRE's exploration licence EL28396 is more commonly known to NRE as its Paradise Bore Prospect. The Paradise Bore Prospect consists of 219 sub-blocks across the Southern Georgina Basin making up an area of approximately 705 square kilometres.

The tenure was granted on 8 July 2011 for a term of six (6) years. **Table 1** lists the pertinent tenement details.

Table 1. Tenement Details

Project Name	Tenement Name	Title No. (EL)	Sub-blocks	Sq. Km	Status	Grant Date	Term (Yrs)	Surrendered
Southern Georgina	Paradise Bore	28396	219	705	Granted	8-Jul-11	6	24-Apr-13

Native Title

There are currently no Native Title Claims within the boundary of the exploration licence.

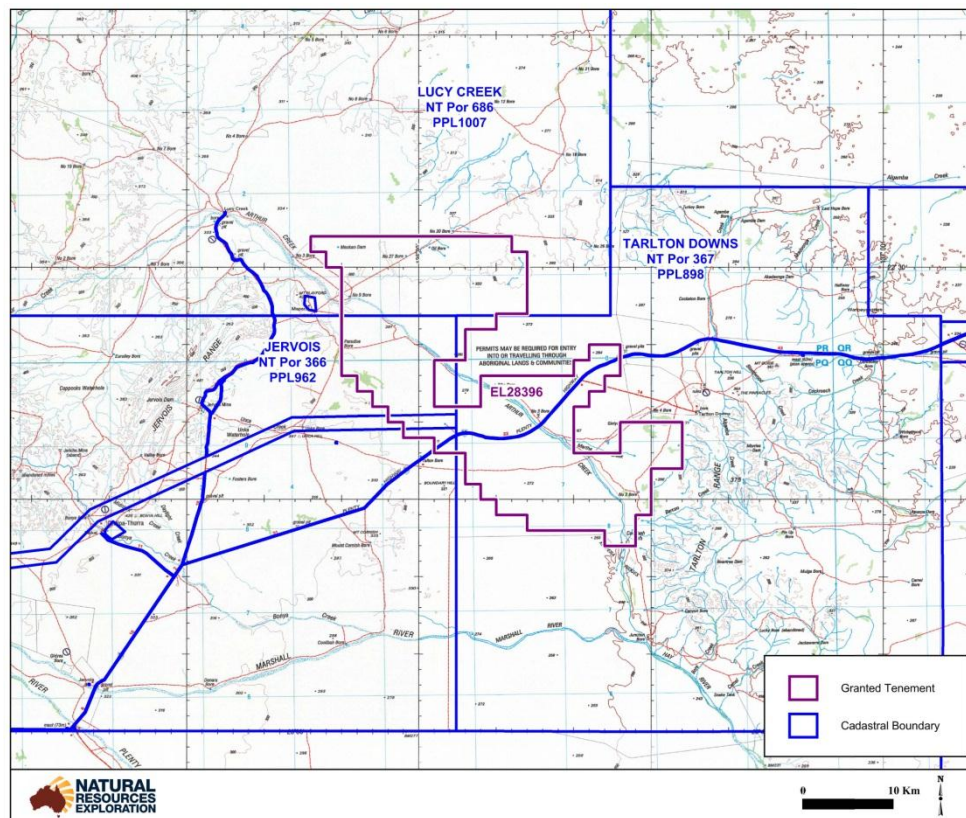
Recorded Sites

The Aboriginal Areas Protection Authority (AAPA) has identified one (1) registered site, two (2) recorded sacred sites and one (1) restricted work area within the boundary of the exploration licence.

Pastoral Leases

NRE's Paradise Bore Prospect overlies three (3) Pastoral Leases, namely NT Por 366 PPL 962 ("Jervois Station"), NT Por 686 PPL 1007 ("Lucy Creek Station") and NT Por 367 PPL 898 ("Tarlton Downs Station"). The location of these leases in relation to the EL is shown below in **Figure 1**. NRE met with the landowners in relation to these landholdings.

Figure 1. Cadastral Map

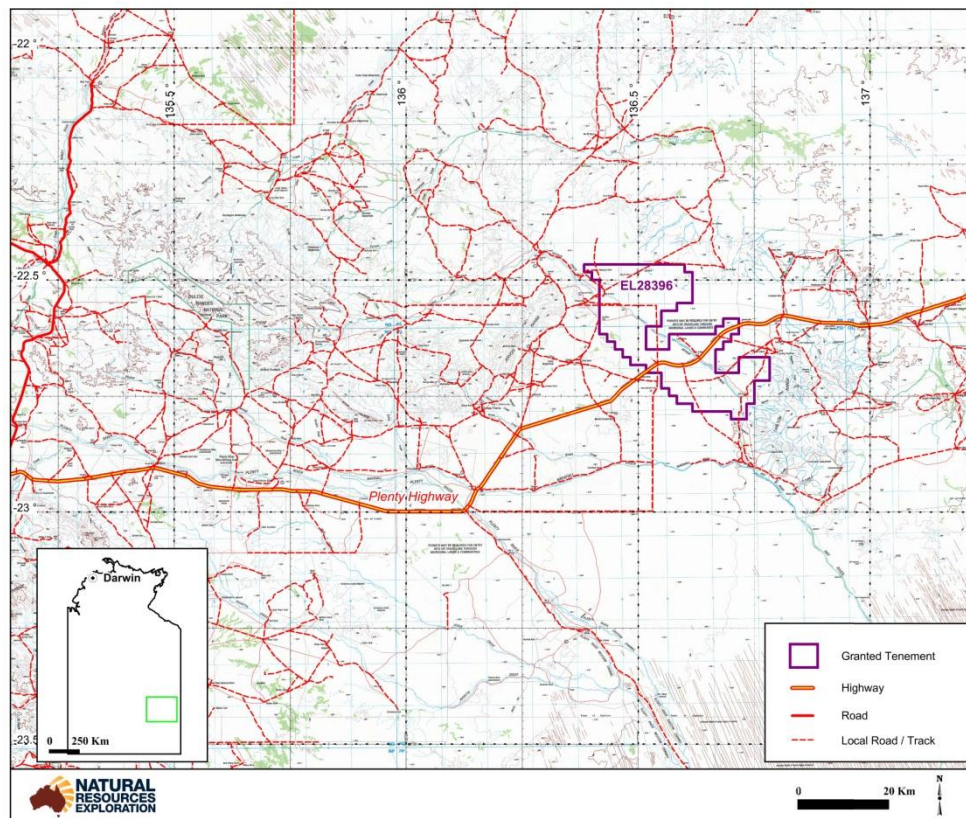


2.1 Location and Access

EL28396 is located in the Southern Georgina Basin south of the Plenty Highway and 100 kilometres south of the Sandover Highway, approximately 350 kilometres to the east of Alice Springs.

Access to the EL by road is via the Plenty Highway. The Plenty Highway runs through the tenure. A series of unsealed tracks can be utilised to access the EL, but further clearing may be required to reach areas of the tenure. Existing rail infrastructure lies approximately 300 kilometres away from the EL. The location of the tenure and access to the tenure is identified in **Figure 2**.

Figure 2. Location & Access Map



3. Geology

3.1 Regional Geology

The Paradise Bore Prospect is located in the Southern Georgina Basin. The Georgina Basin is a large intracratonic sedimentary basin in central and northern Australia, lying mostly within the Northern Territory and partly within Queensland. It is named after the Georgina River which drains part of the basin. Deposition of locally up to ca. 4 kilometres of marine and non-marine sedimentary rocks took place from the Neoproterozoic to the late Paleozoic.

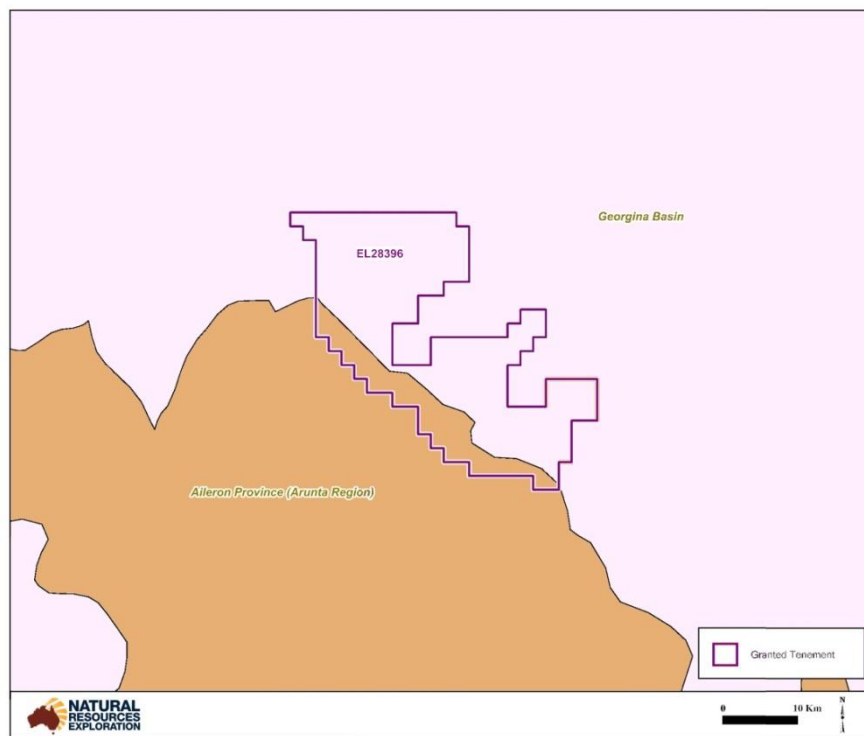
Along with other nearby sedimentary basins of similar age such as the Amadeus Basin and Officer basin, the Georgina Basin is to believe to have once been part of the hypothetical Centralian Superbasin that was fragmented during episodes of tectonic activity. The Georgina Basin overlies the Aileron Province, Tennant Region, Murphy Inlier, McArthur and South Nicholson Basins and Lawn Hill Platform. It is interpreted to be contiguous at depth with Wiso and Daly Basins and Conformably overlies the Kalkarindji Province.

The Georgina Basin is a broad, northwest-southwest trending intracratonic depression which underlies an area of some 325,000 square kilometres of the Northern Territory and

Queensland. Approximately 60 percent of the basin area lies within the Northern Territory. The Georgina Basin has a maximum sediment thickness in the south (Toko and Dulcie Synclines) including the area covered by NRE’s Lucy Creek Project tenement, and east (Bruke River Belt), with a much thinner succession in the central and northern parts of the basin (Barkly and Undilla Sub-basins).

The Georgina Basin contains Cambrian and Ordovician, predominantly marine carbonate and clastic sediments, Devonian continental sediments and, in places, Neoproterozoic clastics. After an initial period of rift filling, sediments were deposited in a series of subtidal to supratidal environments over part of an extensive epicontinental shelf. The regional geology is shown in **Figure 3**.

Figure 3. Regional Geology Map



The Palaeozoic sequence progressively thickens in a south-southeasterly direction, rarely exceeding 400 metres in the northern half of the basin, and reaching about 5000 metres in the southeast of the basin. The sedimentary sequence has been neither metamorphosed nor intruded by igneous rocks. In the latest Cambrian, the Delamerian Orogeny caused a change to predominantly marine siliciclastic deposition in the southwest, with carbonate deposition continuing in the southeast. This pattern persisted until deposition ceased during the Middle Ordovician. In the Early to Late Devonian, the Arunta Block was uplifted during a phase of the Alice Springs Orogeny and fluvial siliciclastics deposited along the southern margin of the basin.

Despite extensive potential source rocks in the early Middle Cambrian of the southern part of the basin, numerous oil shows and an uneconomic gas flow in Ethabuka 1, little exploration has been undertaken. The basin has been deformed by minor to moderate folding and faulting, especially in the south and east, with moderate to severe folding and faulting and extensive overthrusting along the southern and southwestern margin. Most of the structural deformation occurred during the Late Devonian to Early Carboniferous Alice Springs Orogeny. The northern part of the Georgina Basin sequence is gently undulating with no pronounced folding recognised other than supratenuous (drape) folding.

3.2 Permit Geology

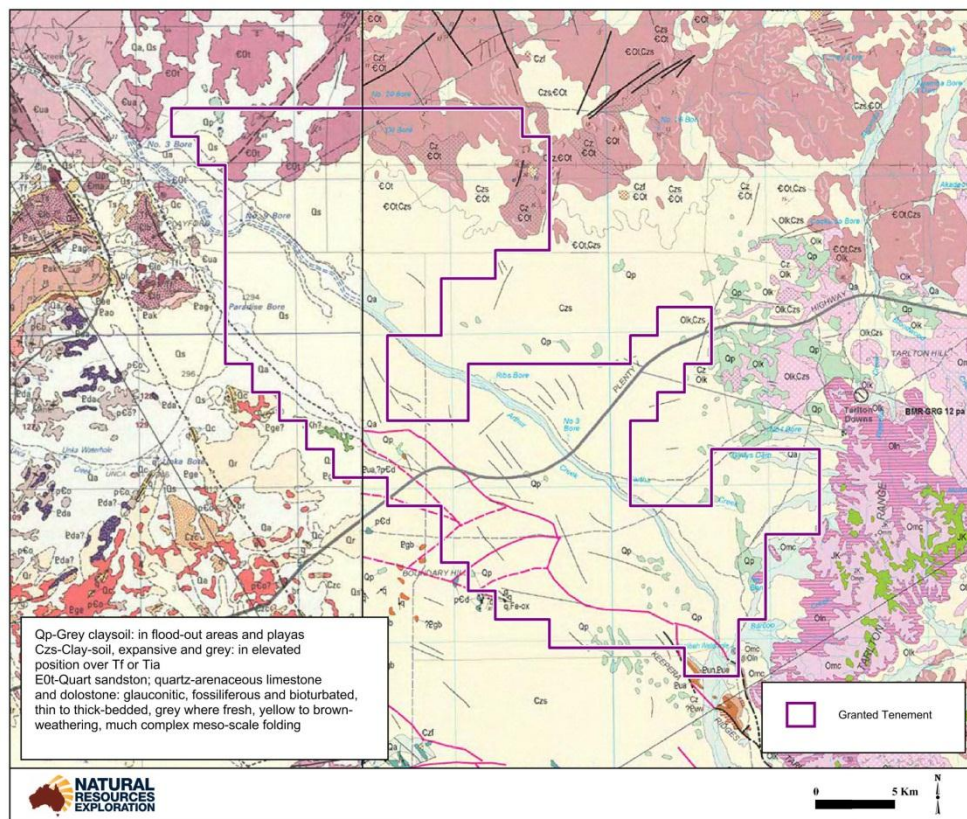
EL28396 is situated in the southern margin of the Georgina Basin, approximately 350 kilometres to the east of Alice Springs. Regional NTGS geology comprises Cambrian basin sediments with the south western edge of the license covering faulted contact zone between the Arunta Province to the south west and the Georgina Basin to the north east.

Much of the Cambrian sequence within the license area is obscured by Cretaceous and younger cover. The outcrop in the far north of the license is Lower Ordovician Tomahawk Formation with minor outcrops of Proterozoic rocks and claypan.

There is potential for Irish-style carbonate replacement and sediment hosted Cu, especially along the Tarlton Fault in the south west of the licence area.

The geology has been mapped and interpreted across the Huckitta and Tobermory 1:250,000 geological sheets and the Algamba, Tarlton, Jervois Range and Lucy 1:100,000 geological sheets by government geologists. The permit geology is illustrated in **Figure 4** below.

Figure 4. Permit Geology Map



4. NRE’s Exploration Activities during the Reporting Period

NRE has carried out a detailed geological assessment of EL28396. To delineate prospective areas for base metal mineralisation, NRE carried out extensive office-based studies including desktop reviews of all previous exploration across EL28396 and its surrounding tenements.

NRE also attended the Alice Springs Core Facility for the purpose of conducting XRF and ALS Analysis of cuttings from previously drilled water bores in the region in order to gain a better understanding of the region.

The aim of work was to identify areas for a helicopter assisted reconnaissance field program which would include mapping and geological ground truthing. An array of material was assessed prior to field work to assist with optimal target generation and included:

- Data from all previous exploration as documented in open file reports retrieved from the Northern Territory Government, including:
 - Surface geological sampling,
 - Geochemical anomalism mapping,
 - Geological mapping,
 - Detailed geophysical survey data,
 - Geophysical anomalism mapping,

- Drilling results, and
 - Local and regional geological assessments and conclusions derived from exploration programs.
-
- Water bore data available for all bores drilled in the regions of interest. This data includes geological logging and water assaying.
 - Geological maps provided by the Northern Territory Government.
 - Aeromagnetics, aero-radiometrics and gravity surveys provided by the Northern Territory Government.
 - Satellite imagery, ASTER and Google Earth imagery.
 - Data supplied by landowners in relation to geological and topographic features of interest on their properties.

4.1 Previous Exploration Studies

NRE has conducted an extensive review of historic exploration over its Paradise Bore Prospect. 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 in the area has included reconnaissance surface sampling for Pb-Zn MVT by CRA Exploration, BHP and MIM.

Previous exploration has been summarised in **Table 2** and location of historic tenements is shown in **Figure 5**.

Figure 5. Historic tenements over the Paradise Bore Prospect.

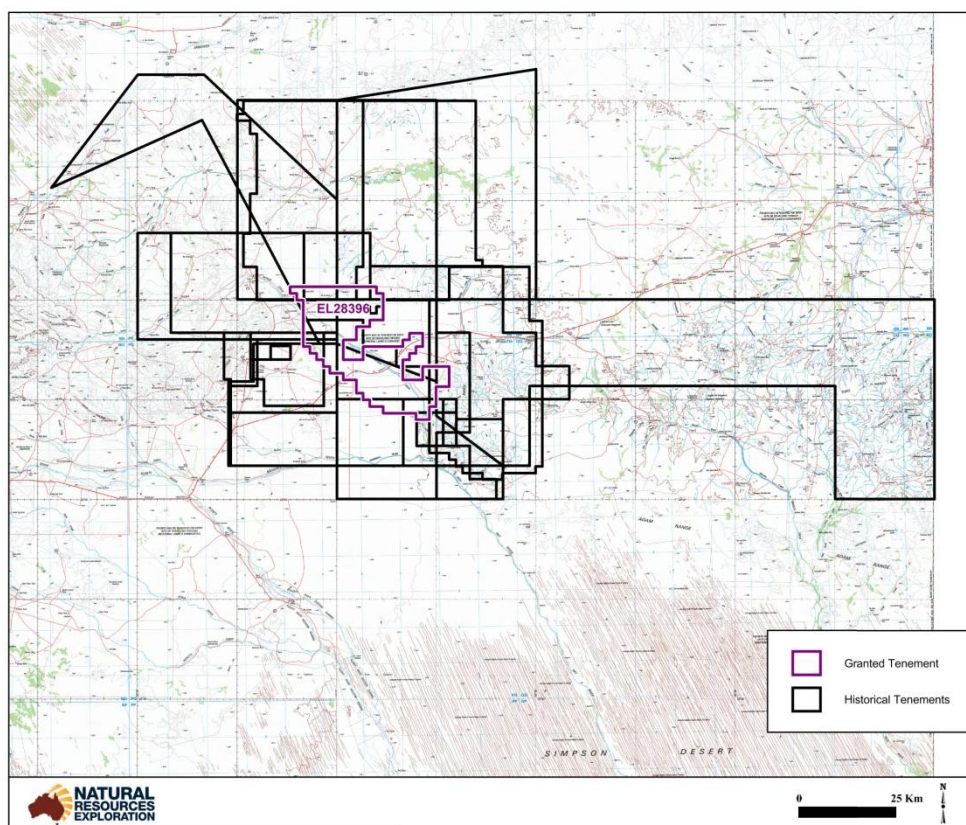


Table 2. Historic Tenures

Tenement	Period	Company Reports	Company
EL 9604	1996-1998	CR1998-0670	Ashcourt Corporation
EL 22533	2001-2004	CR2002-0133,CR2004-0304	Elkedra Diamonds
EL 23306	2002-2004	CR2004-0611	Elkedra Diamonds
EL 22529	2002-2004	CR2004-0609	Elkedra Diamonds
EL 22534	2001-2005	CR2002-0133,CR2005-0680	Elkedra Diamonds
EL 740	1972-1974	CR1974-0174	Attutra Mining Company
EL 3263	1982-1988	CR1983-0047	M McGeough
EL 4621	1984-1990	CR1985-0272	CRA Exploration
EL 4620	1984-1990	CR1985-0272	CRA Exploration
EL 5171	1984-1989	CR1988-0279,CR1989-0630	Hunter Resources
EL 4527	1984-1990	CR1985-0066	BHP Minerals
EL 1118	1976-1978	CR1977-0064,CR1977-0147	Dampier Mining
AP 3161	1971-1972	CR1972-0016	Petrocarb Exploration
AP 3085	1971-1972	CR1971-0080	Aberlour
EL 1585	1977-1981	CR1978-0118,CR1979-0123,CR1980-0124,CR1980-0252,CR1982-0299	Arunta Province
AP 2875	1970-1971	CR1971-0034,CR1971-	Sydney Geological and

		0035,CR1971-0129	Geophysical Services
EL 128	1972-1973	CR1974-0103	Petrocarb Exploration
AP 2372	1969-1971	CR1971-0014,CR1971-0022,CR1971-0140,CR1971-0194	CRA Exploration
EL 1229	1976-1977	CR1977-0102	Carpentaria Exploration Company

4.2 Helicopter Reconnaissance

NRE commenced a helicopter reconnaissance assisted field trip of the Paradise Bore Prospect in August 2011. NRE introduced themselves to local landholders, assessed a number of field targets across the tenement and carried out geological mapping of the project area. The field trip proved successful in evaluating the tenement in the most effective and timely manner possible.

Field assessment of the prospects involved an initial low fly over before determining whether a landing was viable for each target site. In most cases, a landing was made. Assessment at each site involved a variety of the following tasks:

- Geological and structural note taking and measurements
- Radiometric measurements
- Observations of outcrop boundaries where relevant
- Botanical and physiographic appraisal
- Photography of the features of interest at each site.

Detailed geological characteristics were recorded at each site. In addition to planned target sites, all areas identified in the air as being characterised by features anomalous to that mapped or revealed in currently available data sets were assessed.

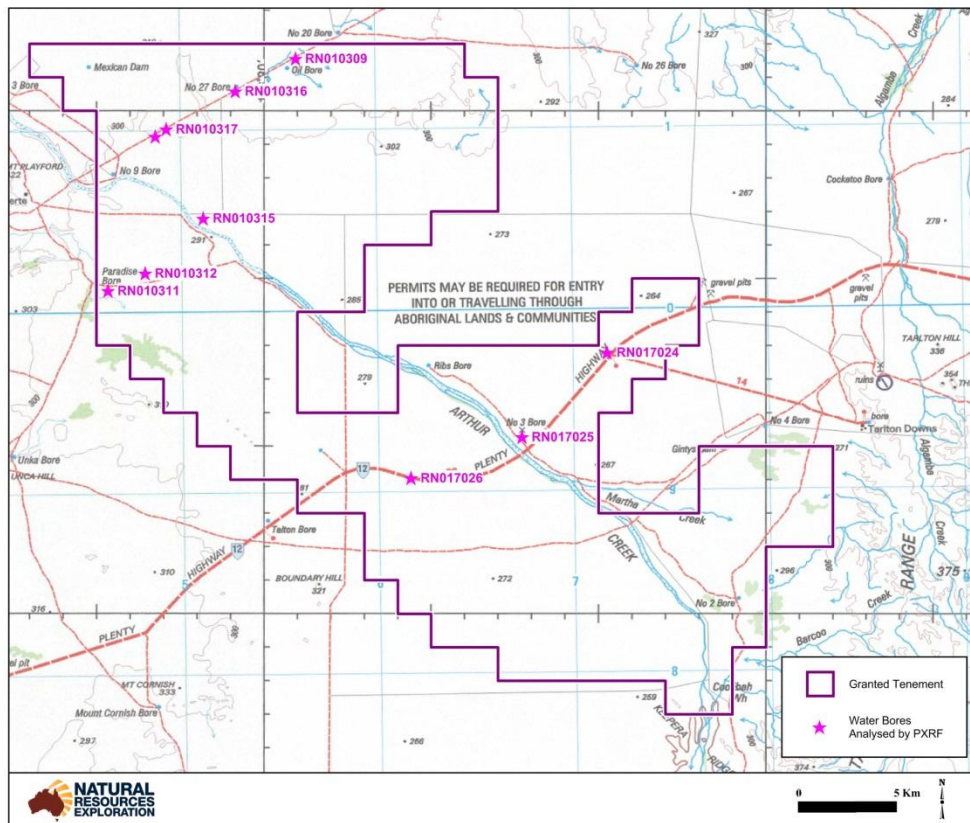
Geological ground truthing has produced new information regarding surface characteristics across the region. Observations have been made at all target sites detailing the actual setting to ensure follow up work is carried out with optimal effectiveness.

An assessment has been made of each target visited during the program in order to assist in designing future exploration programmes for Paradise Bore. All field observations and assay data collected from the field trip were assimilated in order to optimally define prospectivity based on this work.

4.4 Water Bore Cuttings Analysis

NRE engaged Terra Search Pty. Ltd. to attend the Northern Territory's Alice Springs Core Facility to analyse a number of cuttings available from historically drilled water bores in and around its Paradise Bore Prospect (**Figure 6**).

Figure 6. Water Bore Location Map



The Northern Territory Geological Survey (NTGS) maintains a database and storage facility for samples from historic water bores drilling in the Northern Territory. NTGS has, for research and exploration purposes, made available access to both their records and descriptions of the water bores as well as physical access to the samples kept for a large number of the bores at their facilities in both Darwin and Alice Springs.

The water bore samples are kept in either Darwin or Alice Springs, according to the proximity of the water bores to these cities. All the water bore data relevant to the Southern Georgina Project was located at the Darwin Core Facility.

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. NRE was able to test ten (10) water bore cuttings in the region (**Table 3**).

Table 3. Water Bores tested using the XRF Device

Drill Hole ID	MGA94_Zone53_E	MGA94_Zone53_N
RN010309	655944.6	7513914
RN010311	646221.7	7501226
RN010312	648126.7	7502170
RN010315	651126.7	7505170

RN010316	652840.6	7512153
RN010317	649280.7	7510097
RN010318	648714.7	7509701
RN017024	671726.6	7497570
RN017025	667326.6	7492971
RN017026	661626.7	7490771

Water bore XRF and assays found small usually 6 – 9 metre thick intervals with 2000 – 3000ppm phosphate in several water bores. No significant phosphate horizons were found.

NRE lodged an Exploration Report with the Northern Territory Department of Resources' Geoscience Division on 12 September, 2011. This report was required in respect of the XRF and ALS Assaying of Water Bore Chips at the Alice Springs Core Facility. The Exploration Report was titled '*XRF & ALS Assaying of Water Bore Chips – Core Facility: Alice Springs*'.

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 over its Paradise Bore Prospect have been focused on delineating surface targets for phosphate mineralisation. The activities conducted by NRE included desktop studies and the completion of a helicopter reconnaissance program to conduct geological mapping and ground truthing. NRE also took the opportunity to meet with landowners and discuss NRE's activities with those landowners.

Based on the assessment of the activities conducted within EL28396 itself, NRE made application to the Department to completely surrender the entire title for EL28396 under section 103 of the *Mineral Titles Act*. EL28396 was surrendered on 24 April 2013.

NRE believes that there is no rehabilitation required in relation to EL28396 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

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