# Year 3 Annual Group Report (GR 214): Daly Waters Project
## 14/09/2012 to 13/09/2013

<table>
<thead>
<tr>
<th>Title Holder</th>
<th>NATURAL RESOURCES EXPLORATION PTY LTD</th>
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<tr>
<td>Operator</td>
<td>Natural Resources Exploration Pty Ltd</td>
</tr>
<tr>
<td>Tenement Manager</td>
<td>Becana Devencorn, Natural Resources Exploration Pty Ltd</td>
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<td>Tenements</td>
<td>EL27878 and EL27879</td>
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<tr>
<td>Tenement Names</td>
<td>Kalala and Shenandoah</td>
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<td>Report Title</td>
<td>Year 3 Annual Group Report Daly Waters Project</td>
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<tr>
<td>Map 250k</td>
<td>SD53-14, SE53-01, SE53-02</td>
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<td>Company Reference</td>
<td>NRE_NT2012: DW (Group x2) – Yr 3 Annual Group Report</td>
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<td>Target Commodities</td>
<td>Base metals, diamonds and phosphate</td>
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**Contact Details**

NATURAL RESOURCES EXPLORATION PTY LTD.

PO Box 9235, Gold Coast Mail Centre, QLD 9726

Level 8 Corporate Centre, 2 Corporate Ct, Bundall QLD

**Tel:** (07) 5644 5500  **Fax:** (07) 5528 4558

**Email:** info@naturalresources.net.au
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Summary

Section 34 of the *Mining Act* requires the submission of an Annual Report prepared by the titleholder for each exploration licence.

This report details all the exploration within EL27878 and EL27879 which constitutes the ‘Daly Waters Project’, for the third annual period ending 14 September 2013. The two (2) licences have been approved for Group Technical Reporting, GR 214 and are operated as a joint project covering the same target areas. The licences are held by Natural Resources Exploration Pty Ltd and the target commodities are base metals, diamonds, and phosphate.

The dominant activity for the current term, the third term, was the review of drilling results obtained during the second term together with the results and reprocessing of geophysical data collected during the second term. Activities also included a Data Collaboration & Exchange with a third party explorer in the region and the correlation, interpretation and review of that additional data against NRE’s newly acquired and compilation of data from historical reports.

The primary target within the project area is the Daly Waters Arch structural feature which has had no exploration conducted and which is believed by NRE to be prospective for base metal mineralization. The only historical drilling over the project area prior to the NRE and NTGS Collaboration Drilling efforts during the second term, are shallow historical drilled water bores with limited available data.

The single drillhole conducted as a result of the NRE and NTGS collaboration has confirmed the stratigraphy in an area and shown the Proterozoic rocks to be at around 139 meters depth at this location. Further work is required but initial observations are that they are Proterozoic McArthur Group equivalents. Evidence of sulphide has been observed including chalcopyrite. Geophysics has shown the region is suitable for electrical based exploration and a potential target has been generated for follow up during the fourth term.

NRE looks forward to continuing to conduct its exploration activities during the fourth term.
1. Introduction

The approved Group Technical Reporting (GR 214) consists of now of two (2) tenements, EL 27878 ‘Kalala’ and EL 27879 ‘Shenandoah’ which together, form the ‘Daly Waters Project’. The project is located approximately 500 kilometers southeast of Darwin around the township of Daly Waters.

During the third term, NRE negotiated and came to an agreement with a third party explorer in the region for the purposes of a Data Exchange Agreement. This facilitated both parties in an exchange of exploration data acquired over the region in order for both parties to continue with their exploration efforts in a very effective and cost effective means.

This activity alone together with NRE’s compilation of this newly acquired data with its own database and subsequent interpretation works, has proven to be very valuable and has, in the case of NRE, altered its understanding of the region and in particular, the base metal target within the Daly Waters Project.

Figure 1 below shows the Exploration Index and Location map for the Daly Waters Project. The location of drill hole NDW12-01 conducted in collaboration with NTGS is shown as well as all heavy mineral samples (red squares are loan and red circles are stream samples). Insert map shows 1:250,000 map sheets and license locations.

**Figure 1** Location Map of Project Area, Drillhole and Samples.

NRE’s activities during the third term have been very successful and have delineated areas for further exploration activities to be conducted during the fourth term.
2. Tenure

NRE’s Daly Waters Project consists of two (2) granted exploration licences, namely EL27878 and EL27879. Together, these tenures consist of 812 sub-blocks across Daly Waters making up an area of approximately 2,668 square kilometers.

The first tenure, EL27879 was granted on 3 August 2010 and the second tenure, EL27878 was granted on 15 September 2010. Table 1 below lists the pertinent tenement details.

EL27905 and EL27877 were formerly part of the project, but have since been surrendered with EL27877 being surrendered during the term. A separate Final Report regarding the activities in relation to EL27877 has been lodged and this licence is not discussed further within this report. Full details on the licences contained in this report are contained in Table 1 below.

Approved Annual Group Technical Reporting has been granted by the Department and is referred as GR 214. All coordinates and maps in this report are shown in GDA94, Zone 53 datum.

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2.1 Location and Access

Location

The Daly Waters project is located in the central north of the Northern Territory, approximately 500 kilometers southeast of Darwin. The township of Daly Waters is situated within an incised portion of EL 27878.

The Stuart, Buchanan and Carpentaria Highways intersect the project area and numerous minor roads and unpaved tracks cross the tenures. The Stuart, Buchanan and Carpentaria Highways intersect the project area and numerous minor roads and unpaved tracks cross the tenures. The Adelaide – Darwin Railway Line lies approximately 50 to 150 kilometers to the west of the project areas.

The southern EL27879 is on the eastern side of the Daly Waters SE53-01 1:250,000 map sheet and EL27878 covers the corners of Hodgson Downs (SD53-14), Tanumirini (SE53-02), Larrimah (SD53-13) and Daly Waters (SE53-01) 1:250,000 map sheets.
Location and access to the project areas are identified in Figure 2 below.

**Figure 2.** Location and Access Map

2.2 Topography and Drainage

The topography across the project is predominantly gently undulating, with elevation ranging between 200 and 250 meters above sea level.

Birdum, Daly Waters and Two Mile Creeks pass through the center of EL’s 27878 and 27879, draining to the north. The Strangeways River is the primary drainage system in the east of EL27878. This system flows north-easterly towards the Gulf of Carpentaria. **Figure 3** below shows the topography of the project area.
2.3 Climate and Vegetation

The climate is monsoonal and subtropical; relatively cool and dry between April and October and warm to hot and humid during the wet season (November – March). Vegetation comprises typical savannah with low trees interspersed amongst grasslands with thickets of riverine vegetation along drainage lines.

The nearest weather monitoring station is at Daly Waters. Average temperatures at Daly Waters range from a low of 12°C in July to a high of 38°C in November/December. Average annual rainfall is 665mm with the majority of the rain falling in the ‘wet season’ from November through to March with January typically being the wettest month.

Average humidity ranges from a low during the dry season of 21% (August/September) and increases to a high during the wet season of 46% (February).
2.4 Cadastral

Pastoral Leases

NRE’s Daly Waters Project overlies three (3) Pastoral Leases, namely NT Por 1077 PPL 1135 (“Hayfield”), NT Por 2620 PPL 1141 (“Shenandoah”) and NT Por 697 PPL 1064 (“Kalala”). Pastoral Leases across the Project Area are located in Figure 4 below.

Figure 4. Cadastral Map

3. Geology

3.1 Regional Geology

The Daly Waters Project tenements are located in the central region of the Mesozoic Dunmarra Basin, an unmetamorphosed intracratonic basin unconformably part of the Neoproterozoic-Palaeozoic overlying the Georgina, Wiso and Daly Basins and Palaeoproterozoic-Mesoproterozoic sedimentary rocks of the McArthur Basin.

The Dunmarra Basin is largely unmetamorphosed and attains a maximum thickness of ~100
meters. No mineral occurrences are known but potential is thought to exist for diamondiferous kimberlite pipes, phosphates, base metals and uranium. The regional geology is shown in **Figure 5**.

**Figure 5.** Regional Geology Map

The unmetamorphosed Georgina Basin is an intracratonic Neoproterozoic to Devonian sedimentary basin forming part of the Central Australian Platform Cover. The Basin is an erosional remnant of a series of originally interconnected central Australian intracratonic basins (the Centralian Super-Basin) that range from Neoproterozoic to Palaeozoic.

The Basin contains up to 3.7 kilometres of sedimentary rocks with frequent oil shows throughout. Although mainly explored for phosphate, oil and gas, several small lead-zinc occurrences are located along the southern margin. The large Wonarah phosphate deposit and a number of smaller deposits and prospects exist within the Basin. Base metal potential in the southern part of the basin has been highlighted by recent NTGS studies whilst a large part of the basin is currently under exploration for diamonds.

Like the Georgina Basin, the Wiso Basin (Cambrian to Devonian) is an unmetamorphosed
intracratonic sedimentary basin that also forms part of the Central Australian Platform Cover. It unconformably overlies the Aileron Province metamorphic rocks to the south, Tanami Region and Victoria-Birrindudu Basin to the west, and Tennant Creek Region to the east. Cretaceous rocks of the Dunmarra Basin cover its northern margin. Sediments in the Wiso Basin are up to three (3) kilometres thick and although rare oil shows are noted in stratigraphic drillholes, no petroleum wells have been drilled. The Basin is considered prospective for petroleum and phosphate and is currently being explored for diamonds.

Similarly, the Daly Basin (Cambrian to Ordovician), is an unmetamorphosed sedimentary basin forming part of the Central Australian Platform Cover. Up to 1 kilometre thick, it unconformably overlies the Pine Creek Orogen metamorphic rocks and MacArthur Basin to the north and east and the Victoria Basin to the west. Cretaceous rocks of the Dunmarra Basin cover its southern margin. Little exploration has been conducted in the basin but it is a source of limestone suitable for quicklime and cement and potential exists for Mississippi Valley-Type (MVT) Pb-Zn occurrences. Some potential also exists for phosphate deposits. Unmetamorphosed sedimentary rocks of the Mesoproterozoic-Palaeoproterozoic McArthur Basin forms part of the North Australian Platform Cover and unconformably overlie the Palaeoproterozoic Pine Creek Orogen to the northwest, the Murphy Inlier to the southeast and Arnhem Inlier to the northeast. Hosting the McArthur River Zn-Pb-Ag mine, several minor occurrences of base metals and uranium are known and the basin is considered to have significant exploration potential for sediment hosted base metal deposits.

3.2 Permit Geology

EL27878 and EL27879

The surface geology consists mainly or poor exposed Tertiary sands and Cretaceous Mullaman Beds. The last published regional geological overview of the area was in 1969 (Brown, 1969).

The local geology is dominated by Cainozoic and Tertiary sedimentary units comprising alluvium and black soil (Cza), haematitic clayey soils, residual sands and ferruginous rubble (Czs), laterite, nodular and pisolitic ironstone and ferruginous rubble (TI).

These ferruginous and lateritic weathering profiles have developed over poorly exposed Cretaceous marine sediments of the Mullaman Beds (Klm) (claystone, siltstone, glauconitic sandstone and ferruginous conglomerate) in response to prolonged weathering during the Tertiary.

The Cretaceous Mullaman Beds represent the oldest outcropping geology in the region. However, unconformably underlying this stratigraphy are Middle Cambrian Limestones and Lower Cambrian basic volcanics, primarily comprised of basalt.

The permit geology for all tenures is illustrated in Figure 6 below.
NRE’s previous exploration activities included the following:

a. **Historical Exploration Activity Evaluation and Interpretation.**
   This included an extensive review of historic exploration over the Daly Waters Project area with the regional assessment of areas being for phosphate, base metals and other commodities. NRE conducted a compilation of data sets from historical data into NRE’s database for interpretation and target generation. It also included analysis of historical drill chip samples.
b. **Historical Water Bore Chip Sampling**
   Selected historical water bore chip samples stored at the Northern Territory Geological Survey were assayed for a range of metals. A total of thirty water bore chip samples were examined from the current license area and anomalous levels of zinc, copper, lead and arsenic were observed. Full details are in First Annual Report (Devencorn, 2011).

c. **Reconnaissance Site Visit**
   In August 2011 NRE conducted an initial site visit and reconnaissance program around EL27878, Kalala. Meetings with the landowners were conducted and proposed drill hole locations were ground inspected to assess their geological and accessibility conditions. NRE further discussed all foreseen future drill holes with the landowners and the proposed access to those drill holes along fence lines and existing tracks.

d. **Stratigraphic Diamond Core Drilling & Ground Survey**
   NRE drilled one (1) stratigraphic diamond core hole as part of the NTGS Drilling Collaboration. NRE completed the drilling of drill hole ‘NDW12-01’ to a total depth of 317.2m HQ diamond cored completed on 12 June 2012. NRE then also proceeded these activities with a small ground survey around the drill hole due to being unable to conduct downhole geophysics on NDW12-01.

e. **Palynological Sampling**
   In 2012, NRE also took one sample from the drilling and submitted same for palynological examination to L Stoian from the Geological Survey of South Australia. The sample was from a thin (~1cm) mafic clay unit (see Figure 3) at 38.4m depth, just above the unconformity with the underlying limestone.

f. **Petrographic Description**
   Four (4) initial samples were dispatched to consulting petrologist Dr B.J. Barron in Sydney for detailed descriptions as part of NRE’s 2012 exploration activities. The small fragments of half core were collected from various intervals to confirm lithology.

g. **XRF Analysis of Drill Core**
   Also in 2012, XRF multi-element analysis was conducted using a Delta X Premium Hand-held XRF (HHXRF) with Rh anode and 30mm2 Silicon Drift Detector (SDD) over the entire length of hole at regular intervals.

h. **Drill Site Rehabilitation**
   Immediately following the completion of the drilling and geophysics program, NRE conducted drill site rehabilitation and sealed hole below surface. Soil was replaced in the area and sumps were back filled. Original soil was replaced, spread and leveled over the site.

i. **Heavy Mineral Diamond Sampling & Grain Microprobe Analyses**
   During May-June 2011 the diamond exploration activity included surface loam deflation
scraps and stream sediment sampling for heavy mineral kimberlite indicator minerals. A total of nine (9) samples (144.77 kg total) were collected across the then licences. Selected indicator grains from Diatech Labs were sent to Microbeam Services for standard microprobe analyses.

5. **NRE’s Exploration Activities during the Reporting Period**

NRE’s exploration program for the third term consisted mainly of compilation of data obtained from the extensive range of activities NRE conducted during the second term which included drilling, heavy mineral sampling, XRF analysis of drill core samples, ground geophysics and various samples sent for analysis.

NRE spent considerable amounts of time analysing the result of these activities to reach conclusion that the rocks and ground conditions would be suitable for a larger ground survey over the target area. As this was going to result in significant time and costs for NRE, NRE proceeded to engage with a third party explorer in the region who had already conducted a ground survey with the goal of entering into a Data Exchange Agreement.

NRE entered into a Data Exchange Agreement which has resulted in great benefits for both parties. It has also saved considerable time and money for both parties by exchanging the information between them and adding to their understanding and interpretation of the region and assisting them in reaching their exploration goals.

Upon receiving the data consisting of a primarily a ground magnetic survey conducted sometime prior by the third party, NRE was able to integrate this newly acquired data with its current dataset. NRE proceeded to analyse and interpret data over its base metal target with particular focus on the formation and structure of the Daly River Arch.

NRE has commenced modeling of the gravity data together with its database of other data with senior geophysist, Mr. Rob Angus. This was initiated in order to produce a better understanding of the target and define areas for further exploration which will include geophysics, sampling and possible limited drilling program.

**Current Modeling of Data**

Regional gravity data from the Australian Gravity Database shows that EL27878 includes a northsouth trending gravity high known as the Daly River Arch which is interpreted loosely as a basement high. Gravity stations in this database are very sparse with spacing between readings being several kilometres apart.

There does not appear to have been any modeling of the regional gravity data over the Daly River Arch to determine the depth to basement.
The third party explorer collected ground gravity data along several seismic survey lines which cross EL27878. This gravity data was obtained by NRE in 2013 as part of a Data Exchange Agreement.

The gravity data obtained was collected at 100m stations along seismic survey lines oriented roughly northsouth and eastwest. There are 13 lines that cross EL 27878. The data has resulted in much higher definition over the target area as seen in Figure 7 below.

Figure 7. Modeled gravity data NRE compared with Australian Gravity Database data

Results of the 3D inversion modeling suggests that the Daly River Arch is not an arch at all, but more like a half-pipe with a deep (3000m+) central area and steep shallow sides that come to within 200-300m of the surface. There also appears to be some vertical features within the half-pipe that come close to the surface which correspond to small peaks in the gravity profile.

6. NRE’s Exploration Activities for next 12 month period

The objective of NRE’s exploration activities over the next 12 month period in relation to the Daly Waters Project is to identify further targets for exploration activities based on recently interpreted gravity data with NRE’s database set.

NRE believes that the next exploration activities may include the following pending final target generation from recent modeling:
1. Additional gravity surveys to infill gaps between current data to enable more detailed model to be produced.

2. Electrical geophysics (Resistivity and IP) over the margins of the half-pipe model to test for possible sulphide mineralization. Given the results of the DHEM, MALM and MLEM completed at drill hole NDW12-01 indicated that the overburden is not overly conductive then electrical geophysics should be successful in penetrating to basement rocks).

3. Direct drill testing of the shallow margins of the half-pipe gravity model to determine lithologies and potential for mineralization.

NRE will of course lodge an updated Mining Management Plan and Authorisation as part of its exploration activities during the fourth term and to allow it to conduct further infield exploration.

7. Reports lodged during the reporting period

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

8. Conclusions

The recent modeling of the morphology of the Daly River Arch has significant implications for exploration on the Daly Waters Project. The basement highs are still the driving factor in the exploration model and modeling of the area with the additional data obtained during the term as a result of a Data Exchange Agreement with a third party explorer, has significantly changed the interpretation of the region.

NRE looks forward to pursuing its theory during the fourth term that the Daly River Arch is not actually an arch but a half-pipe structure which may have potential for base metal mineralisation. NRE believes that the activities required and which will be conducted during the fourth term will include conducting additional geophysical survey, sampling and follow up limited drilling program to better understand the morphology of the target area.
9. **Bibliography**


