# Corella Creek

**Year 2 Annual Report – Corella Creek (EL 28581)**

<table>
<thead>
<tr>
<th>Title Holder:</th>
<th>Natural Resources Exploration Pty. Ltd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator:</td>
<td>Natural Resources Exploration Pty. Ltd.</td>
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<tr>
<td>Titles / Tenements:</td>
<td>EL(s): 28581</td>
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<td>Corella Creek</td>
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<td>Target Commodity / Commodities:</td>
<td>Base metals, Uranium &amp; Coal</td>
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<td>Date of Report:</td>
<td>14 January 2014</td>
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Summary

Section 94 of the *Mineral Titles Act* requires the submission of an Annual Report prepared by the titleholder for each exploration licence. The purpose of the following Annual Report for Exploration Licence (EL) 28581 is to provide a summary of the activities carried out over the permit in the past 12 months, including results produced by those activities.

To delineate prospective areas for potential base metal, coal and/or uranium mineralisation and define the next phase of exploration, Natural Resources Exploration (‘NRE’) has carried out extensive office-based studies of EL28581, known to NRE as its ‘Corella Creek’ Prospect. NRE conducted extensive desktop reviews of all previous exploration across the area including review of all previous historical exploration reports.

NRE has also designed a large regional sampling programme with particular focus on gold and uranium mineralization over the tenement. NRE has commenced obtaining quotations and is currently attempting to find solutions in relation to logistical difficulties in access and completing such a large program in the region.

NRE’s exploration rationale and objectives for its Corella Creek Prospect considered the evaluation of potential coal, uranium and base metal mineralization within the tenement. Investigations were intended to locate any outcropping of mineralisation and any indicators of any sub-surface mineralisation within the tenement based on desktop reviews.

NRE looks forward to exploration activities to be commenced in the upcoming term.
1. **Introduction**

Natural Resources Exploration (‘NRE’) has conducted extensive office-based studies during the second term of Exploration Licence (EL) 28581, known to NRE as its ‘Corella Creek’ Prospect.

A significant part of NRE’s activities included the design of a large sampling program over the tenement focused on attempting to understand the potential for gold mineralization within the tenement.

EL 28581 was granted to NRE on 12 September 2011, consisting of a total of 500 sub-blocks. EL 28581 is situated in the Pedirka Basin, containing overlapping Amadeus and Eromanga Basin sediments with the Musgrave Province to the West. The region is strongly mineralised with Uranium with a number of other prominent commodities including Copper, Lead-Zinc, Silver, Gold, Iron, Phosphate and Diamonds.

NRE’s exploration rationale and objectives for its Corella Creek Prospect considered the evaluation of potential coal, uranium and base metal mineralisation. Investigations were intended to locate any outcropping of mineralisation and any indicators of any sub-surface mineralisation within the tenement based on desktop reviews.

Office-based studies have included desktop reviews of all previous exploration across the tenement, assessment of the geology, radiometrics, aeromagnetics, gravity and ASTER imagery within the Corella Creek Prospect during the second year of grant. NRE also designed a large sampling program within the tenement, attempted to model possible coal basement and has commenced finding solutions around the logistical challenges of conducting such a large sampling program within the region.

NRE looks forward to conducting further exploration activities on EL28581 during the second term.
NRE’s exploration licence (EL) 28581, is more commonly known by NRE as its ‘Corella Creek Prospect’. The Corella Creek Prospect was granted to NRE on 12 September 2011. EL28581 consists of 500 sub-blocks in the Pedirka Basin, which underlies Eromanga and Amadeus Basin sedimentary rocks. Table 1 lists the pertinent tenement details.

### Table 1. Tenement Details

<table>
<thead>
<tr>
<th>Project Name</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>Expiry Date</th>
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<tr>
<td>Pedirka Basin</td>
<td>Corella Creek</td>
<td>28581</td>
<td>500</td>
<td>1541</td>
<td>Granted</td>
<td>12-Sep-11</td>
<td>6</td>
<td>11-Sep-17</td>
</tr>
</tbody>
</table>

Native Title

There are currently no Native Title claims over EL28581.

Recorded Sacred Sites

There are eight (8) Recorded Sacred Sites and four (4) Registered Sacred Sites within the boundaries of EL28581.

### 2.1 Location and Access

**Location**

The Corella Creek Prospect area is located approximately 200 kilometres south of Alice Springs, adjacent to the border with South Australia. The location of EL28581 is outlined in Figure 1 below.

**Access**

The tenure is accessible from Alice Springs via the southbound, sealed Stuart Highway and along the sealed Finke Road east of Kulgra. The road trends east-west across the tenement. Unsealed station tracks can be used to access various locations on the tenement.

An alternative way of reaching the EL would be to access any focus areas via helicopter. Access to the tenements is identified in Figure 2.
Figure 1. Location Map

Figure 2. Access Map
Pastoral Leases

NRE’s Corella Creek Prospect overlies two (2) Pastoral Leases, namely ‘Umbeara’ NT Portion 2869 PPL 999 and ‘Lilla Creek’ NT Portion 259 PPL 1041. Figure 3 shows the leases in relation to the Corella Creek Prospect.

Figure 3. Cadastral Map

![Map showing pastoral leases](image)

2.2 Topography and Drainage

The topography of the Corella Creek Prospect is relatively flat, with the Newland Ranges running through the tenement. The Goyder and Corella Creeks run through the tenement as well as several small valleys with unnamed estuaries. There are an abundance of small tributaries to the south of EL 28581, which drains to the south west.

The north east section of the area contains sand ridges that trend in north south. There are also three (3) historic bore holes within the tenement, those being Corella bore, Lady Bird bore and Mallee bore. Figure 4 below shows the topography within EL28581.
3. Geology

3.1 Regional Geology

The Corella Creek Prospect lies within three main geological provinces. EL28581 contains Cambrian to Devonian age sedimentary rocks of the Amadeus Basin with overlapping Cretaceous-age sediments of the Eromanga Basin occurring in the north west. The western third of EL28581 contains Neoproterozoic age gneiss, granite and dolerite dykes of the Musgrave Province, with the remainder of the license containing Eromanga Basin rocks. Permian age sedimentary rocks of the Pedirka Basin underlie Eromanga Basin rocks.

Outcrop as shown on 250 000 scale mapping is moderate, on average about 40%. The majority of cover material is transported sand of Quaternary age. The Regional Geology is depicted in Figure 5 below.
Figure 5. Regional Geology Map

Outcropping rocks of the Musgrave Block within EL28581 are dominated by Proterozoic age gneiss (mostly derived from felsic and minor mafic rocks), granite and dolerite dykes. Mineralisation is not known to occur within the same type of rocks elsewhere in the Musgrave Block, although exploration efforts have generally ignored the granites.

Neoproterozoic to Cambrian age sedimentary rocks of the southern edge of the Amadeus Basin underlie part of EL28581. The northern edge of the Amadeus Basin contains several small occurrences of sediment hosted copper and two major sediment hosted uranium deposits. Oil and gas is produced from three areas to the south and west of Alice Springs.

Pedirka and Eromanga Basins are considered together here because they occupy approximately the same area. The Pedirka Basin is Permian in age and extends into South Australia and Queensland. Coal bearing strata of the Purni Formation are thought to be of equivalent age to major coal deposits of the Bowen Basin in Queensland. Outcrop of Crown Point Formation, the basal unit of the Pedirka Basin, occurs in the southeast of EL28581.

Eromanga Basin rocks are Jurassic to Cretaceous in age. In the EL area there is one main unit mapped at the base of the Eromanga Basin succession, that being Rumbulara Shale.
3.2 Permit Geology

NRE’s Corella Creek Prospect is situated in the Pedirka Basin with overlapping Eromanga and Amadeus Basins. Over the area, there is a large cover of superficial deposits of Quaternary alluvium and sand in the north east portion of the tenement. To the west lay Precambrian gneiss and minor dolerite intrusions, these were deposited in the Musgrave Province which has been folded into an anticline trending north-north east to the south-south west.

In the centre and towards the east of the tenement lie Jurassic sandstones and pebbly sandstones from the Da Souza Sandstone Formation. Lower Cretaceous shale and siltstones from the Rumbalara Shale Formation reside in the eastern section of the tenement. The permit geology is illustrated in Figure 6 and the changes in the interpreted stratigraphic succession over time are shown in Table 2.

Figure 6. Permit Geology Map
Table 2. Stratigraphy (adapted from Northern Territory Geological Survey, 1989)

<table>
<thead>
<tr>
<th>Era</th>
<th>Period</th>
<th>Formation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cainozoic</td>
<td>Quaternary</td>
<td>Alluvium and Sand</td>
</tr>
<tr>
<td>Mesozoic</td>
<td>Lower Cretaceous</td>
<td>Rumbalara Shale</td>
</tr>
<tr>
<td></td>
<td>Jurassic</td>
<td>Da Souza Sandstone</td>
</tr>
<tr>
<td>Palaeozoic</td>
<td>Devonian – Cretaceous</td>
<td>Langara Formation</td>
</tr>
<tr>
<td>Precambrian</td>
<td>(Undifferentiated)</td>
<td>Dolerite and Gneiss</td>
</tr>
</tbody>
</table>

4. NRE’s Exploration Activities during the Reporting Period

To delineate prospective areas for coal, base metal and uranium mineralisation and define the next phase of exploration, Natural Resources Exploration (‘NRE’) has carried out extensive office-based studies of EL28581 and a historic review of previous exploration over the tenure area.

Our office-based studies and analysis of cuttings at the Darwin Core Library in the first term have allowed us to delineate prospective areas in particular for base metal and uranium mineralisation. NRE, in particular, has attempted to model coal basement based on previous historical reporting and has designed a large sampling program for the tenement and the subsequent term’s exploration activities.

NRE has encountered a number of logistical challenges in being able to conduct such a large regional sampling program due to the terrain and weather conditions in the region. In order to efficiently collect numerous samples across such a large area, NRE are currently considering two or more teams of personnel with the use of all-terrain vehicles.

NRE is currently in the process of obtaining quotations to conduct this work from third parties to assist in providing additional personnel and the vehicles and equipment which would be required to conduct this program.

4.1 Exploration Studies

NRE has conducted an extensive review of historic exploration over its Corella Creek Prospect. A review of all previous exploration within the EL has been completed including:

- Review of previous exploration data from NTGS open file company reports; and
- Review of aeromagnetics, of radiometrics and gravity survey provided by NTGS; and
- Review of satellite imagery, of ASTER imagery, Google Earth Imagery.

Exploration within EL28581 has primarily been for sedimentary U deposits. Fourteen
companies have explored the area from 1984 to present with aerial radiometrics being a common tool used to define exploration targets which were generally followed up with geological reconnaissance.

In the wider area, there has been exploration for sedimentary and primary U, Au, opal, diamonds, base metals, Sn, Ta, PGE, REE, massive Mn, Ni, Fe and coal.

**Afmeco Mining and Exploration**

EL820, EL909 and EL2398 overlap with part of EL28581. These tenures were explored by Afmeco Mining and Exploration between 1973 and 1981 by radiometric surveys. Follow up drilling was planned but only two holes drilled due to government action on uranium exploration at this time.

**Burke, RJ**

EL5602 overlaps with the western boundary of EL2858. The tenure was explored for Au, opal and diamonds by Burke, RJ from 1988 to 1990 via geological reconnaissance, rockchip sampling (not assayed, petrography) and pan concentrate. Two potch opal (low quality jewellery opal) areas were located. In the authors opinion there is a high potential for more potch opal areas with a strong possibility of precious opal (high quality), based on an air photo interpretation. Tin biotite, amphibole and zirconium were observed in the pan concentrate.

**Benger, JW**

EL5862 covers the majority of EL28581. The tenure was explored for Au and opal by Benger, JW from 1988 to 1990. Whole rock sampling was performed with the geochemistry of samples being compared to samples collected from the Mintabie Opal Fields (an opal field in South Australia approx 200km south west of Pedirka). This showed similar and identical results. One sample from an amphibolite dyke near Umbeara Well gave anomalous gold values 0.03ppm (the rough location of this sample has been guessed at based on the NTGS mapping of dykes in that area). 12 auger holes were drilled out of a planned 120. The holes indicated that any potential opal bearing strata had been eroded away and any potential must be found in the south-east corner of the EL. This was not covered by any future opal exploration.

**Kajeena Mining Company**

EL10055 overlaps with the westernmost third of EL28581. The tenure was explored by the Kajeena Mining Company for base metals, diamonds gemstones U, Sn and Ta between 2001 and 2004. Exploration consisted of a desktop review and drainage sampling with follow up of anomalies. Results were negative.
**Washington Resources**

EL24204 covers an area largely to the west of the tenure. The tenure was explored by Washington Resources between 2004 and 2008 for base metals, PGE, U (primary and calcrete) and REE. Exploration consisted of desktop review, aerial magnetic and radiometric surveys, heavy mineral concentrate, rock chip and scintillometer surveys. A drilling program was designed however heritage clearance was not forthcoming and in October 2008 the tenement was surrendered due to economic and political reasons.

**Imperial Granite and Minerals**

EL24535 overlaps with western third of EL28581. The Tenure was explored for base metals, Ni and Fe from 2007 to 2008 by Imperial Granite and Minerals. Exploration consisted of rock chip sampling of magnetic anomalies, results were poor. Elevated iron results came from a narrow (max. 1 meter wide) discontinuous vein with no apparent potential.

**Eromanga Uranium**

EL25163 has a slight overlap with EL28581. EL25166 covers the eastern half of EL28581. These tenures were explored by Eromanga Uranium between 2006 and 2008 for sedimentary uranium in paleochannels. An aerial electromagnetic survey was conducted over the entire project area which was followed up by geological reconnaissance. This suggested U prospectivity was poor due to the extent of Mesozoic sedimentation i.e. the Rumbalara Shale and Hooray Sandstone being significantly smaller then indicated on the geological maps made by the NTGS.

**Tri-Star Energy Company**

EL27218 overlaps with the western most area of EL28581. It was explored by the Tri-Star Energy Company in 2009 to 2010 for coal. Tri star determined the coal seam underlying the area was too deep to be economically mined. Exploration activities in the area uncovered a large ironstone deposit which Tri-Star actively explored. It was determined that the ironstone deposit lies to the west of EL27218 and therefore outside of EL28581. No further information was available on the ironstone deposit.

Previous exploration has been summarised in Table 3 and location of historic tenements is shown in Figure 7.

**Table 3. Historic Tenures and Previous Companies’ Exploration Reports**

<table>
<thead>
<tr>
<th>TENEMENT</th>
<th>PERIOD</th>
<th>COMPANY REPORTS</th>
<th>COMPANY</th>
</tr>
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<tbody>
<tr>
<td>---------</td>
<td>-------------</td>
<td>-------------</td>
<td>------------</td>
</tr>
<tr>
<td>EL 8263</td>
<td>1993 - 1993</td>
<td></td>
<td></td>
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<tr>
<td>EL 909</td>
<td>1974 - 1976</td>
<td>CR1976-0087</td>
<td>Afmeco Mining and Exploration</td>
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<td>EL 24535</td>
<td>2006 - 2008</td>
<td>CR2008-0784</td>
<td>Imperial Granite and Minerals</td>
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<td>EL 27218</td>
<td>2009 - 2010</td>
<td>CR2010-0790</td>
<td>Tri-Star Energy Company</td>
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</table>

**Figure 7.** Historic tenements over the Corella Creek Prospect
5. **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 its Corella Creek Prospect will be to follow up any targets identified during its second term activities.

In order to do this, NRE intends to overcome logistical challenges in order to conduct its large sampling program in the region and to process Eromanga Uranium’s raw magnetic data to assess the depth to basement within the tenure as well as any paleochannels within EL28581. Exploration activities for the Corella Creek Prospect will be undertaken in conjunction with NRE’s surrounding tenures in the Pedirka Basin region.

6. **Reports lodged during the reporting period**

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

7. **Conclusions**

Natural Resources Exploration’s exploration activities during the second term of its Corella Creek Prospect have been focused on delineating any potential coal, uranium and base metals targets within the tenement. NRE’s exploration rationale and objectives for its Corella Creek Prospect considered the the potential mineralization within the tenement through conducting various office based activities.

Investigations were intended to locate any outcropping of mineralisation and any indicators of any sub-surface mineralisation within the tenement based on desktop reviews and analysis of the XRF sampling program of water bore chips held at the Alice Springs Core Library during the first term.

NRE’s office-based studies and assaying of water bore chips at the Alice Spring Core Library have allowed us to delineate prospective areas for potential uranium and base metal mineralisation. NRE has designed a large sampling program within the tenement primarily focused on attempting to establish the potential for gold mineralisation. NRE has encountered logistical challenges in relation to planning for its sampling program however intends on resolving these during the third term as well as intends to process Eromanga Uranium’s raw magnetic data to assess the depth to basement within the tenure as well as any paleochannels within EL28581 over the next 12 month period.

NRE is looking forward to conducting its exploration activities on EL28581 in the third term.
8. Bibliography


