FINAL REPORT

Gum Creek Project
EL27634

NORTHERN TERRITORY

FOR THE PERIOD
09 April 2010 to 08 April 2013

REPORT NO: ROY0735
DATE: July 2013
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BIBLIOGRAPHIC DATA SHEET

PROJECT NAME: Gum Creek Project
TENEMENT NO: EL27634
TENEMENT OWNER: Royal Resources Limited
TENEMENT OPERATOR: Royal Resources Limited
REPORT TYPE: Final
REPORT TITLE: Final Report Gum Creek Project, EL27634 Northern Territory for the period 09 April 2010 to 8 May 2013
REPORT PERIOD: 09 April 2010 to 8 May 2013
AUTHOR: I. Faris & B. Lawrence
DATE OF SUBMISSION: July 2013
DATUM: GDA94_Zone 52
1:250,000 SHEET AREA: Mount Doreen (SF52-12)
1:100,000 SHEET AREA: Doreen (5153)
GEOLOGICAL PROVINCE: Ngalia Basin
COMMODITY: Uranium, Vanadium, Copper, Lead, Zinc, Gold
ABSTRACT

LOCATION: The Gum Creek Project is located approximately 320 kilometres west-northwest of Alice Springs in the centre of the Ngalia Basin, Northern Territory. The project is defined by a single Exploration Licence, EL27634, which covers an area of ~16km² (5 sub-blocks) and is located on the Mount Doreen (SF52-12) 1:250,000 sheets and the Doreen (5153) 1:100,000 sheet.

GEOLOGY: The Gum Creek Project is situated in the central northern margin of the Ngalia Basin, a basin containing sediments up to 6000m thick ranging in age from Neoproterozoic to Palaeozoic and preserved in an elongate structure. The project area is covered by thin Quaternary sands, clays and alluvials with minor outcrop of the Carboniferous Mount Eclipse Sandstone on the northern margin. The Davis Anticline passes through project area.

WORK DONE: During the reporting period, Royal Resources Limited undertook a historical report review, obtaining copies of all the historical reports and commencing assembling into a database. Regional gravity and magnetic surveys were subset and reprocessed for the project area and field programmes were developed. No field activities were undertaken during the tenure due to commitments on surrounding tenements.

CONCLUSIONS: The licence area is considered to be completely underlain by Mt Eclipse Sandstone over an irregular basement, which is possibly overlain by incised Tertiary channels. Tertiary channels were to be targeted by gravity or airborne EM surveys to identify targets for drill testing however focus was on surrounding tenements during the tenure period and no field work was carried out.

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1. INTRODUCTION AND TENURE

This final report details all exploration completed on the Gum Creek Project for the period 09 April 2010 to 08 April 2013. The project area consists of one granted Exploration Licence EL27634 situated approximately 320 kilometres west-northwest of Alice Springs in the central northern margin of the Ngalia Basin (Figure 1). The tenement covers 5 blocks (~16 km²) and is 100% owned by Royal Resources Limited (“Royal”). Tenement details are listed below in Table 1.

The exploration focus was uranium mineralisation hosted by either the Mt Eclipse Sandstone (sandstone type) or by Tertiary channels buried beneath the Quaternary sands (palaeochannels). Past and current geological reports, both Government and Company open file reports were acquired, available public geophysical data sets were acquired and reprocessed over the project area and the historical data collated into a GIS database for the region. No field activities were undertaken during the tenure period due to focus on surrounding tenements.

All coordinates in this report are in MGA94 Zone 52.

Table 1: Gum Creek Project tenement details

<table>
<thead>
<tr>
<th>Tenement</th>
<th>EL27634</th>
</tr>
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<tbody>
<tr>
<td>Location</td>
<td>Ngalia</td>
</tr>
<tr>
<td>Ownership</td>
<td>100% Royal Resources Limited</td>
</tr>
<tr>
<td>Grant date</td>
<td>9 April 2010</td>
</tr>
<tr>
<td>Relinquishment date</td>
<td>8 May 2013</td>
</tr>
<tr>
<td>Area</td>
<td>5 Blocks (~16 km²)</td>
</tr>
<tr>
<td>Expenditure commitment</td>
<td>$13,750</td>
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</tbody>
</table>

2. LOCATION AND ACCESS

EL27634 is located 320 kilometres west-northwest of Alice Springs in the Northern Territory, (Figure 1) on the Mt Doreen (SF52-12) 1:250,000 mapsheet and the Doreen (5153) 1:100,000 mapsheet, although the 1:100,000 sheet has not been compiled or published. The tenement is bounded by latitudes 22°15'-22°17’S and longitudes 131°06'-131°09’E.

Access to the area is by the sealed Stuart Highway for approximately 20 kilometres northwest of Alice Springs, then by travelling 295 kilometres northwest along the Tanami Highway via Yuendumu before driving along the access road to Vaughan Springs homestead for roughly 50kms then 5kms northwards along the Davis Gap road. Station tracks and old access tracks are used within the project area.

3. REGIONAL GEOLOGY

The Gum Creek Project is within the Ngalia Basin. The Basin contains sediments up to 6000m thick ranging in age from Neoproterozoic to Palaeozoic and preserved in an elongate structure that is remnant of a much more extensive, polyphase intracratonic basin.

The NeoProterozoic Vaughan Springs Quartzite is the oldest unit in the Ngalia Basin, mostly forming ridges along the northern and southern margins. It unconformably overlies the Arunta Inlier basement and is overain conformably by carbonate units of the Albinia Formation, which in turn is conformably overlain by the Naburula Formation, the Mount Stuart Formation and Rinkabeena Shale and unconformably overlain by glacial deposits of the Mount Doreen Formation. The Yuendumu Sandstone, Walbiri Dolomite, Bloodwood Formation, Djugamara Formation and Kerridy Sandstone were deposited within the Ngalia Basin through to Ordovician times. Unconformably overlying all earlier units is the Carboniferous Mount Eclipse Sandstone. It crops out widely throughout the Basin and has a thickness in excess of 3000 metres. The Mt Eclipse Sandstone hosts the majority of the sandstone type uranium mineralisation. It is a medium to coarse-grained feldspathic sandstone, commonly with carbonate cement. Conglomerate, arkose, dolomitic sandstone and shale units are
present as lenses. The rocks are dominantly red or yellow-brown (oxidised facies) with restricted zones of light to dark grey (reduced facies).

The Arunta Block, located on the north and west of the Ngalia Basin contains the Southwark Granite, an undivided megacrystic biotite and muscovite-biotite granite with minor microgranite and leucogranite, pegmatite and aplite dykes, (Young et al., 1995). The Southwark Granite is considered a source for the uranium in the project area.

Seismic data indicates that the basin is an asymmetrical synclinal structure, which preserves a much thicker succession on the northern margin marked by northerly dipping thrusts and high angle reverse faults. The current basin configuration results predominantly from affects of the 300-400Ma Alice Springs Orogeny. This involved exhumation of the basement, which became the provenance for the Mt Eclipse Sandstone (Edgoose, 2006).

4. LOCAL GEOLOGY AND MINERALISATION

EL27634 is in the central northern margin of the Ngalia Basin, (Figure 2). The licence area is essentially flat and covered by Quaternary sands with low remanent ridges of the Mt Eclipse Sandstone. About 5 km north, the Vaughan Springs Quartzite forms prominent scarp ridges. There are no known uranium prospects or drillholes within the Licence area beside the shot holes for the seismic surveys related to petroleum exploration.

EL27634 is approximately 6 km southeast of the Bigrlyi uranium deposit, which was discovered within the Mount Eclipse Sandstone by Central Pacific Minerals NL (CPM) in 1971 following up surface radiometric anomalies. Most of the uranium mineralisation encountered to date within the Ngalia Basin is in the basal Mt Eclipse Sandstone. Central Pacific Mines NL sub-divided the basal 500m of the Mt Eclipse Sandstone into eight units, namely Units A to H (Pope, 1978). Unit C contains most of the known mineralisation. More recently, exploration companies (Thundelarra) has identified significant uranium mineralisation within Tertiary channels incised into the Mt Eclipse or related to buried topography.

The uranium is thought to be sourced from the Southwark Granite, transported in oxidising solutions and precipitated in reduced sandstones containing carbonaceous material and pyrite such as the Mount Eclipse Sandstone, although more recent work (CSIRO, pers. comm.) suggests most of the ‘carbonaceous matter’ are vanadium minerals. Uranium minerals include carnotite in the oxidised zone and uraninite±montroseite in the fresh rock below the water table. Diagnostic alteration in the Bigrlyi deposit includes hematitisation, chloritisation and kaolinisation.

Three exploration models exist at present, namely uranium associated with structures and associated with redox fronts within, although not restricted to the Mt Eclipse Sandstone, and within Tertiary channels overlying the Mt Eclipse Sandstone. Three is also some potential for uranium mineralisation associated with surficial calcrete deposits.
Figure 1: Gum Creek Project Location
Figure 2: Gum Creek Project Regional Geology (after Mt Doreen 1:250,000 Sheet, 2006)
5. WORK DONE

5.1 Site Clearance

A search of the Sacred Sites Register by the AAPA identified no Registered or Recorded Sites within EL27634. A works program and heritage survey request was sent to the CLC in August 2010 however was not completed.

5.2 GIS Data Review

A compilation of all geophysical and geological data commenced to identify all historical activity on the tenement. The most significant activity was two seismic lines (Magellan Lines A & E) and the associated shot holes and gravity surveys results along these lines. No geological information has been located for the shot holes.

A tracketch survey was undertaken on the southern half of EL27634 north of the access road to Vaughan Springs.

No significant historic uranium anomalism or prospects were identified within EL 27634.

5.3 Geophysical Studies

Hawke Geophysics Pty Ltd was contracted to reprocess the existing regional geophysical surveys over the tenement area. The existing gravity, magnetics and radiometric datasets were subset and reprocessed to aid interpretation of the existing geological maps.

6. RESULTS

6.1 Data Review

The most significant activity was the two seismic lines and the associated shot holes and gravity surveys results along these lines. Unlike other lines, no basic lithological data has been located in historical reports. The interpretation of Line A is shown in Figure 3.

Plotting of the local geology and historical results is shown on Figure 4.

6.2 Geophysical Studies

Reprocessing of the regional gravity (Figure 5) and magnetic (Figure 6) data and further examination of the outcrop patterns on available imagery shows that the Davis Anticline passes through the northern edge of the Licence area with an unnamed syncline passing through the southern edge. The Davis Anticline is from seismic interpretations but is supported by the gravity imagery.

7. CONCLUSIONS AND RECOMMENDATIONS

The licence area is considered to be completely underlain by Mt Eclipse Sandstone over an irregular basement, which is possibly overlain by incised Tertiary channels, controlled by the incompletely buried topography. Younger Quaternary units cover most of the licence area with only low ridges of Mt Eclipse exposed on the northern edge and as remanent bedding evident on GoogleEarth imagery.

Tertiary channels were to be targeted by gravity or airborne EM surveys to identify targets for drill testing however focus was on surrounding tenements during the tenure period and no field work was carried out. Due to budgetary constraints and focus on other projects the tenement was relinquished.
Figure 3: Interpretation of Seismic Line A
Figure 5: Historical Activities over gravity (1VD)
Figure 6: Historical Activities over magnetics (TMI 1VD)
8. REFERENCES


