NT Minerals Pty Ltd
Todd River Project
(EL 29090, 29091, 29094 & 29095)

Annual and Final Report
For the period
06 June 2012 to 02 Jan 2014

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Relevant 100K Map sheets: Undoolya, Fergusson Range, Limbla, Todd, Pellinore
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1.0 ABSTRACT

NT Minerals was the holder of Exploration Licenses (EL) 29090, 29091, 29094 and 29095 which were amalgamated into the Todd River Project. The Project was approximately 50 km east of Alice Spring in the Northern Territory and extended 60 km to the south. The cumulative area of the four tenements covered an area of approximately 2,720 km$^2$ of the Amadeus Basin.

The four Licenses of the Todd River Project were granted to NT Minerals Pty Ltd in June and August of 2012 and were surrendered on the 2nd of January 2014. During this period no field exploration activities were conducted over the Project area.

There were multiple target mineralisation styles in the Todd River Project:

- Sedimentary hosted base metals and rare earth elements
- Sandstone hosted uranium
- Evaporites including potash, halite and gypsum

Previous exploration in the region has targeted uranium, diamonds, gold, mineral sands, evaporites, copper, lead and zinc. A review of the historical data available over the area and discouraging findings led to the decision to drop the ground. The assessment conducted found that though the tenement area could hold deposits the targeted evaporites, the level of uncertainty and risk in a large exploration program was too high. NT Minerals Pty Ltd has instead chosen to focus on its other more prospective projects.
2.0 LOCATION AND PHYSIOGRAPHY

2.1 LOCATION

The Todd River Project is located in the south of the Northern Territory, approximately 50 km east of Alice Springs (Figure 1).

2.2 TENEMENT DETAILS

Tenement details of EL 29090, 29091, 29094 and 29095, as granted to NT Minerals Pty Ltd in 2012, are shown in Table 1 below.

<table>
<thead>
<tr>
<th>EL NUMBER</th>
<th>EL 29090</th>
<th>EL 29091</th>
<th>EL 29094</th>
<th>EL 29095</th>
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<td>6/6/12</td>
<td>6/6/12</td>
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<td>Native Title Agreements</td>
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</tr>
</tbody>
</table>

2.3 ACCESS & PHYSIOGRAPHY

The Todd River Project lies in a relatively flat region with the majority of the land covered by sand dunes which obscure outcrop of formations.
Access to the tenement could be gained from the Stuart Hwy in the west and the Old Andando Rd that runs along to the south of the Project. Various dirt tracks that can be seen from satellite connecting local airstrips and small communities in the region could be utilized to navigate the tenement area itself.

3.0 GEOLOGICAL SETTING

3.1 REGIONAL GEOLOGY

Todd River Project is located in the east of the intracratonic Amadeus Basin located in the south of the Northern Territory.

The Amadeus Basin is a Neoproterozoic to early Phanerozoic intracratonic sedimentary basin approximately 170,000 square kilometres in area and includes several sub-basins and troughs which are major depositional centres. Sediment thickness reaches a maximum of 14,000 metres.

The Amadeus Basin overlies the Warumpi and Aileron provinces to the north and the Musgrave Province to the south. The Amadeus Basin is overlain by the Eromanga and Pedirka Basins to the south-east.

The basin has at least nine recognisable megasequences separated by regional unconformities. These megasequences were instigated by major tectonic events including the Peterman and Alice Springs Orogenies.

Periods of subsidence and uplifts coupled with sea level changes caused a series of fluvial, glacial, marine and evaporite deposits. Though the formation of the Amadeus Basin was instigated by an extensional event, the majority of deformation that took place was compressional and transtensional (Shaw, R.D. 1991). More recently, halotectonics has been considered to be very important to the development of the basin’s structure with evaporite deposits allowing an alternate dispersion of tectonic forces and acting as reservoirs (Marshall and Dyson, 2007).
Figure 2 - Simplified Stratigraphic Column of the Amadeus Basin. Adapted after Wells and others, 1970 and Kennard and others, 1986 (Shaw, R.D. The tectonic development of the Amadeus Basin, Central Australia, BMR Bulletin 236, 1991)
3.2 LOCAL GEOLOGY

A map of the Todd River Project local geology is shown below in Figure 3.

![Local Geology Map - Todd River Project](image)

Figure 3 - Local Geology of the Amadeus East Project

3.3 HISTORIC EXPLORATION

There have been numerous exploration programs conducted in the region of the Todd River Project seeking various minerals including copper, gold, potash, phosphate, diamonds, lead and zinc.

3.3.1 Copper

Exploration for copper began to the east in the 1950’s when the Ringwood Copper Project conducted diamond core drilling following findings of visible malachite. (GS1967-0004)

Australian Geophysical undertook a large program in the 1960’s over the southeast of the Amadeus Basin. The program was targeting base metals and included mapping, stream and rock chip sampling, drilling and geophysical surveys. (CR1967-0004)

Later in the 1970’s Kratos Uranium targeted Cu-Pb-Zn mineralisation previously identified by Australian Geophysical. Work conducted included three drill holes which have limited data available. (CR1970-0042)
CRA Exploration targeted sediment hosted copper mineralisation in the 1990’s in a previously untested stratigraphic layer. An airborne geophysical survey identified over 60 anomalies of which 24 were reviewed though results were not reported. (CR1997-431)

### 3.3.2 Phosphate & Potash

BHP conducted exploration for phosphate in the Todd River Dolomite in mid-1970. Phosphatic zones were identified through a drill program but no further testing was pursued. (CR1976-0073)

EL 26564 was held by Holocene Pty Ltd until 7 September 2010. Exploration was brief consisting of samples being taken from one dam and two bores targeting potash mineralisation. No anomalous results were found. (CR2010-0419)

### 3.3.3 Uranium

Agip Nucleare Australia focussed on uranium over a number of tenements held in the in the region where uranium mineralisation had been identified. Exploration targeted areas in Cainozoic sediments in the Illogwa-Arema Creek area. Work included resistivity surveys, drilling programs and airborne spectrometry and radiometric surveys. Ultimately work carried out proved mineralisation to be too low-grade to pursue.

Otter Exploration also targeted uranium in the region. Their focus was on a roll front unconformity style mineralisation in the Ringwood Copper prospect, Waldo Peddlar syncline and the Brewer Conglomerate. Reconnaissance of the area concluded the geological settings of these locations were unsuitable for this style of mineralisation.

Esso Minerals Australia conducted exploration for uranium and base metals along the Amadeus Basin and Arunta boundary in the 1970’s. Two airborne radiometric surveys identified 56 radiometric anomalies: two of which became the Albarta and Tourmaline deposits. Drilling programs that followed focussed on these areas, especially Albarta. After twenty nine percussion holes the area was no longer recommended for further work.

In the 1980’s uranium was targeted by Alcoa and AFMECO who both undertook exploration programs. Drilling and down-hole gamma logging identified uranium mineralisation with the best result being 56 ppm.

Rio Tinto Exploration obtained ground covering the Albarta prospect. They targeted uranium and diamond mineralisation however after gravel sampling and ground magnetic, it was recommended that the ground be dropped. (CR1997-0543)

Western Desert Resources conducted several phases of exploration from 2007 to 2009 seeking uranium and base metals. Airborne radiometric and magnetic surveys were flown by UTS geophysics in 2007. Interpretation indicated a number of uranium anomalies that required ground follow-up. In 2008 a helicopter was used to visit a number of the radiometric anomalies delineated by the 2007 airborne survey. Then in 2009, Aerosystems P/L were contracted to complete an aeromagnetic and radiometric survey. Within the Limbla project three surveys were conducted, over the Hale River Prospect, Albarta and Tourmaline Gorge. The results were not encouraging and the ground was surrendered in 2009. (CR2009-1115)
3.3.4 Mineral Sands
Pancontinental Exploration targeted mineral sands in the Hale River alluvial plain in the early 1990’s. Bulk sampling returned >7% garnet rich heavy minerals but sub-economic concentrations of zircon and monzonite. Further work including 28 RC drill holes confirmed low occurrences of zircon and monzonite. (CR1990-0180)

3.3.5 Gold
Roebuck Resources conducted exploration activities including stream sediment and rock chip sampling tested two magnetic anomalies for gold and base metals in 1993. Weak gold values were found in stream sediments with little follow-up sampling completed noting negative results. (CR2001-2003)

Exploration was conducted by Gutnick Resources NL for Witwatersrand type gold mineralisation. Stream sediment samples were collected and analysed for bulk leach extractable gold. No anomalous values were found and the tenement was surrendered in 2004. (CR2002-0128)

EL 24282 & 24283 was held by Raxile Pty Ltd who were, again, targeting a Witwatersrand type gold deposit. Two diamond core holes (and one redrill) were drilled in the year ending February 2010. ‘Todd River A’ reached 494 m total depth and ‘Todd River B’ and ‘B2’ reached 111 m (abandoned) and 507 m respectively. No traces of gold were detected in samples. (CR2010-0419)

4.0 OPERATIONS REPORT
No field work was conducted on the Todd River Project prior to surrender. Work associated with this tenement has been focused on a review of previous exploration in order to plan the forward exploration programme.

5.0 CONCLUSION AND RECOMMENDATIONS
NT Minerals conducted an extensive literature review and historic exploration assessment of the Todd River Project area. Numerous mineral deposit types were considered over the area with particular interest paid to uranium and especially potash and gypsum.

The conclusion reached for the Todd River Project was that the area may be prospective for a potash exploration target associated with playa salt lake sediments. However, the area has been surrendered because it is not believed that there is enough evidence yet to warrant large exploration programs in this part of the Amadeus Basin.
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