Amadeus Project
EL24876

Partial Surrender Report to the Northern Territory, Department of Resources for the Period 18th April 2006 to 17th April 2011.

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Summary.

This report details the exploration activities carried out over recently relinquished parts of Cauldron licence EL 24876, part of the Amadeus Project in the Northern Territory, during the period 18th April 2010 to 17th April 2011. Work included research, database compilation, field reconnaissance and target generation.

Fifth year compulsory 50% reduction was requested by the DOR in early 2011. Cauldron received approval for partial relief from 5th year partial surrender and as such has relinquished 26 sub blocks covering ground that is deemed to be less prospective for sediment-hosted uranium mineralisation. This ground was relinquished on the 1st March 2011.
1.0 Introduction.

Cauldron’s Amadeus Uranium Project covers the central and eastern parts of the Amadeus Basin, to the south of Alice Springs, which is prospective for sandstone uranium mineralisation. EL 24876 covers the southern part of the basin and is located approximately 20 km to the south of the Pamela and Angela uranium deposits.

This report details the exploration activities carried out over the recently relinquished portion of EL 24876 during the period 18\textsuperscript{th} April 2010 to 17\textsuperscript{th} April 2011. This work included research, data base compilation, field reconnaissance and target generation.

2.0 Location, Access and Tenure.

The Amadeus Uranium Project is located 25 to 50 km southeast of Alice Springs. Access to the area is provided by a number of major unsealed roads, including the Old South Road and the Santa Teresa Road. (Fig. 1)

Exploration Licence EL 24876 currently covers 690 km\(^2\) (220 blocks) and is found on the Henbury SF 53-01 and Rodinga SG 53-02 1:250,000 map sheets, centred on 380800 E / 7319100 N (GDA94). The licence was subject to third year compulsory 50\% reduction during late 2008. The company relinquished 110 sub blocks (50\%) of EL 24876 on the 16\textsuperscript{th} February 2009. Relief from 4\textsuperscript{th} year partial surrender of EL 24876 was granted in 2010. The licence was subject to partial relief from fifth year surrender resulting in the drop off of 26 sub blocks.

Table 1. Amadeus Project Tenement Details.

<table>
<thead>
<tr>
<th>Licence</th>
<th>Holder</th>
<th>Date Granted</th>
<th>Expiry Date</th>
<th>Area km(^2)</th>
<th>Minimum Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL 24876</td>
<td>Cauldron Energy Limited 100%</td>
<td>10/04/2006</td>
<td>17/04/2012</td>
<td>345</td>
<td>$140,000</td>
</tr>
</tbody>
</table>

3.0 Regional Geology.

The Amadeus Basin is a large east west trending intra-cratonic basin of Late Proterozoic to Carboniferous aged marine and continental sediments. These were derived from the surrounding early to mid Proterozoic granites and metamorphic rocks of the Arunta Block to the north and Musgrave Block to the south.

The basin is rimmed by the Phanerozoic Canning Basin to the west, The Musgrave block to the south, the Palaeozoic Pedirka Basin to the east and the Arunta Block to the north. Sedimentation commenced about 900 Mya and resulted in a sequence up to 10,000 metres thick. The basal (Late Proterozoic) sequence comprises shelf, sediments, lagoonal and continental fluvo-glacial deposits which are disconformably overlain by Cambrian continental to shallow marine sediments including carbonates and evaporate. Late Cambrian and Ordovician marine sediments disconformably overlie parts of the basin, with Devonian – Carboniferous continental sediments unconformably overlaying other areas. (Freeman et al 1990)

Extensive broad folding and thrusting along the northern basin margin, during the Alice Springs Orogeny (Devonian-Carboniferous) and along the southern margin
during the late Proterozoic Petermann Orogeny, has given rise to the broad regional synclines and anticlines that are visible today. (Freeman et al 1990)

Figure 1. Amadeus Project Location.
4.0 Project Geology.

The project area is typified by undulating sandy plains overlying the Devonian Undandita sandstone Member of the Brewer Conglomerate, part of the Pertnjara Group. Exposures of the Undandita Member are common in the northern part of the basin but lacking over much of the project area.

The Undandita Member is the youngest unit in the Amadeus Basin and is the host for the Angela and Pamela uranium deposits as well as a number of other uranium prospects throughout the basin. It was deposited in a fluvial braided channel environment and ranges from fine to coarse grained lithic arenite through to medium to coarse grained lithic arkose. Thin mudstone and siltstone units are common. The sandstone interfingers with the Brewer Conglomerate and reaches a maximum thickness of 3000m in the Missionary Syncline, 15 km south west of Alice Springs. (Borshoff & Farris 1990) Source rocks for the Brewer Conglomerate include uranium enriched granitic orthogneiss of the Iwupataka Metamorphic Complex and the Teapot Granite Complex. (Lally and Bajwah, 2006)

The Undandita Member is generally oxidised but contains a wedge of reduced sediments between regionally extensive upper and lower redox boundaries. This reduced wedge is extensive throughout the basin and is found both in the Missionary Syncline, where it is associated with uranium mineralisation at Pamela and Angela, and in the Orange Creek Syncline where it is associated with mineralisation at the Orange Creek Prospect. (Fig. 2)
5.0 Previous Exploration.

During the 1970's and early 1980's the Amadeus basin was the centre of active uranium exploration, with the focus on sandstone hosted roll front uranium mineralisation within the late Devonian aged Undandita Sandstone. A number of significant uranium deposits and occurrences were identified including the Pamela and Angela uranium deposits located along the northern basin margin and the Orange Creek prospect on Scimitar’s adjacent licence EL 24870.

Uranerz Australia P/L (Uranerz) held a large area within the Amadeus Basin during the 1970’s and early 1980’s and undertook basin wide exploration for uranium mineralisation. Most of this work was concentrated on the Angela and Pamela deposits with preliminary work undertaken at the Orange Creek Prospect, now covered by Scimitar’s licences EL 24870 and EL 24876.

5.1 Angela and Pamela Deposits

First pass airborne and ground based radiometric surveys, during 1972, identified three surface uranium anomalies. Follow up trenching and drilling led to the recognition of the Pamela and Angela prospects in 1973 and 1974. Detailed ground mapping in association with shallow vacuum drilling indicated that uranium mineralisation is associated with gently north dipping redox boundaries within the Undandita Member.

Follow up exploration over a 10 year period by Uranerz Australia P/L (Uranerz) and joint venture (JV) partners Carpentaria Exploration Company P/L delineated a measured resource of 4700 tonnes eU$_3$O$_8$ (average grade 0.13% ) to a depth of 650m within the Angela deposit and associated satellite ore bodies. A further 1950 tonnes at an average grade of 0.1% U$_3$O$_8$ is stated as an indicated resource. (Borshoff & Farris 1990) The Angela deposit was recently awarded to the Angela Project Joint Venture, between Paladin Energy Minerals NL (50%) and Cameco Australia P/L (50%).

5.2 Orange Creek Prospect

Uranerz undertook exploration for uranium over the Orange Creek Syncline during the period 1977 to 1981. Work included geological mapping, airborne spectrometry, vacuum drilling, track etch and shallow rotary airblast and deeper percussion drilling (Fig. 3). Uranerz reported that redox boundaries within the Undandita sandstone in the Orange Creek Syncline are more difficult to define because of weak gradational oxidation at the boundaries combined with surface weathering effects which extends to depths in excess 30m.

An extensive reconnaissance shallow vacuum drilling program was conducted over the basin during 1978-79 to map the redox boundary (Fig. 3). All holes were logged and bottom-hole samples analysed for uranium. A track etch survey was carried out with cups placed in each hole. Drilling at Orange Creek, on the adjacent licence EL 24870, defined a shallow spoon shaped feature formed by the upper oxidised sediments in the centre of the syncline and indicated anomalous on its western margin. The redox boundary in this area proved to be a well-defined synclinal feature dipping at shallow angles to a maximum depth of 90m in the centre of the syncline. Broadly spaced follow up percussion drilling (64 holes for 3,873 metres) conducted during 1979 and 1980 intersected uranium mineralisation associated with the regional redox front between depths of 13 to 72 metres and located a well defined step of 45m in the redox boundary. (Taylor, 1980 and Anon, 1981)
A number of significant intersections were recorded, including 3.40 metres @ 413ppm \( \text{eU}_3\text{O}_8 \) from hole OC 08, 1 metre @ 328ppm \( \text{eU}_3\text{O}_8 \) from hole OC 11, 1.25 metre @ 421ppm \( \text{eU}_3\text{O}_8 \) from hole OC 14, 0.45 metre @ 864ppm \( \text{eU}_3\text{O}_8 \) from hole OC 60 and 1.55 metres @ 370ppm \( \text{eU}_3\text{O}_8 \) from OC 64.

Figure 3. Amadeus Project Historical Drilling.

6.0 Work Completed.

During the first three years of tenure, Cauldron has undertaken a review of the available open file reports and data, acquired airborne radiometric imagery, undertaken data entry and the creation of a project data base, undertaken a number of reconnaissance field trips and generated targets for follow up drilling programs.

As part of a basin wide review of data and the creation of an electronic data base for the Amadeus Project, all the available open file historical reports were acquired from the NT government. The data from these reports has been entered into a data base, which references drill collar data with downhole information including geology, uranium assay results, oxidation states and radiometric data. Plans from the historical reports were scanned and geo-referenced in Mapinfo. Collar positions in UTM coordinates were extracted from these plans so that the data could be used in modern GIS computing packages. Results from percussion and vacuum drilling targeting uranium were reviewed and incorporated into Cauldron 's database. This data is being used to target further exploration programs within the Amadeus Basin.
Data sourced from Uranerz’s vacuum drilling program was re-interpreted, utilising the new data in Mapinfo and Micromine to accurately define the boundary between oxidised and reduced sediments in the tenement. From this work it appears that in a number of areas, packages of alternating reduced and oxidised sediments exist, which may provide a better locus for the formation of uranium mineralisation.

Two reconnaissance field trips were undertaken during mid to late 2006 and one in late 2007. The aim of these trips was to get an understanding of the general lie of the land, access, geology and potential target areas, including locating outcrops of calcrete, which could potentially host secondary uranium mineralisation. Field work during 2008 included ground based mapping, geophysical surveying and RC drilling within the retained part of EL 24876.

The Company also commenced a first pass RC drilling program during the second year of tenure. A total of twelve holes for 707 metres were completed at the Orange Creek prospect on adjacent tenement EL 24870. The average depth of holes was 59 metres. Due to hard drilling and difficulties encountered with ground conditions the drilling program was temporarily suspended before completing any planned holes on EL 24876. A larger drill rig was located and the program was re-commenced in July 2008, with a total of ten holes for 1,047 metres completed within EL 24876. The drilling, within EL 24876, returned a number of anomalous uranium intersections on the southern margin of the syncline within the retained area of EL24876. No drilling was completed on the dropped portion of the tenement.

7.0 Conclusions and Recommendations.

Investigation of open file reports has indicated that exploration for uranium, within EL 24876 is at a relatively early stage, but that broadly defined target zones exist within the tenure. These areas are associated with a regionally extensive redox front within the Orange Creek Syncline. Recent RC drilling by Cauldron has indicated that significant uranium mineralisation exists along this redox front in areas that have not previously been drilled.

50% of the tenement was subject to fifth year compulsory relinquishment. Approval was granted for partial waiver from drop off which resulted in 26 sub blocks being dropped. The areas shown on Figure 4, were assessed by Cauldron to be less prospective for sediment-hosted uranium mineralisation and were relinquished on the 1 March 2011. Work over the relinquished area comprised research and some data entry of historical shallow drilling.
References.


