KEY WORDS

RODINGA
BITTER SPRINGS FORMATION
PROTEROZOIC
CHANDLER FORMATION
MAGELLAN PETROLEUM
BLUEBUSH FORMATION
AMADEUS FORMATION
GILLEN MEMBER
DIAPIR
ISOPACH
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SUMMARY

AIM
To explore and evaluate the potential for economic potash mineralisation.

OBJECT of REPORT
To document exploration activities and results achieved on Exploration Licence 23773 "Rodinga"

LOCATION
EL 23773 is located 120 kilometres south east of Alice Springs on the Rodinga 1: 250 000 map sheet (SG53-2).

TENURE
EL 23773 "Rodinga" was granted to Tyson Resources Pty Ltd on 23rd November 2003 for a period of six years. It is bounded by Longitudes 134°29' and 134°54' and Latitudes 24°30' and 24°52'.
**PRECIS**

During this reporting year, drill targets were selected and site visits made to mark out drill collars

**RECOMMENDATIONS**

Drilling of target zones.
1. **INTRODUCTION**

Exploration Licence 23773 "Rodinga" (EL 23773), is located in the southeastern sector of the Amadeus Basin in the Northern Territory (Figure 1). The Amadeus Basin covers approximately 150,000km² and is located in the southwestern part of the Northern Territory extending into Western Australia. It is comprised of a Neoproterozoic to mid-Palaeozoic succession of shallow marine sediments and attains a thickness of up to 14,000m.

The purpose of this report is to detail exploration conducted on EL 23773 during the year ended 22nd November 2005.

2. **LOCATION and ACCESS**

EL 23773 is located 120 kilometres south east of Alice Springs on the Rodinga 1:250 000 map sheet (SG53-2). (See Figure 1).

Access is via a graded gravel road to Allambri Station. Historical exploration and mine tracks, as well as limited station tracks provide local access throughout the tenement which is located over a portion of the Rodinga Pastoral Lease.

Fig 1
Location Diagram
3. **TENURE**

EL 23773 “Rodinga” was granted to Tyson Resources Pty Ltd on 23rd November 2003 for a period of six years. It comprises 271 blocks encompassing a total area of 826 sq km.

4. **GEOLOGICAL SETTING**

EL 23773 lies on the Rodinga 1: 250 000 map sheet (SG53-2), for which geological notes are available.

The Amadeus Basin contains two sequences prospective for potash mineralisation; the Neoproterozoic Bitter Springs Formation and the Early Cambrian Chandler Formation. Both of these formations occur within the basin at exploitable depths.

4. **PREVIOUS EXPLORATION**

In 1982, Magellan Petroleum carried out a seismic survey on an area called Camel Flat, part of which is covered by the tenement. A total of seven seismic lines (MCF 1, 10, 13, 14, 15, 18 and 19) were shot within the tenement, the positions of which are shown in Figure 3. The area has been geologically mapped as the Camel Flat Nappe. From the seismic interpretation a series of isopach maps were produced displaying the following:

- Depth to bottom of the Chandler Formation
- Depth to the bottom of the Proterozoic
- Combined Chandler-Arumbera Isopach

These interpretations were combined to produce a map indicating areas where the Chandler Formation was at its lowest, providing a target zone for end stage bittens to collect, including potash. The tenement was sited to cover this target zone. (Fig 3)
5. DISCUSSION AND RECOMMENDATIONS

The Chandler Formation is the primary target for potash mineralisation. In the eastern part of the Amadeus Basin, the Chandler Formation contains thick sequences of evaporitic rocks. Halite beds range in thickness from less than 50m to over 1,000m and average 470m thick in the Rodinga area. These thickness variations are accentuated in areas of structural thickening due to salt tectonics. Within the Rodinga project area the Mt Charlotte No1 well intersected a 225m thick section of Chandler Formation halite from 710 metres depth to the bottom of the hole and the Bluebush No1 well intersected 690m of halite from 786 metres depth (Fig 4). These intersections occurred between depths of 700 and 1,500m, within the depth range of economic exploitation. The Chandler salt has high bromine levels that suggest precipitation from late stage brines which is a positive indicator for the presence of potash salts.
The main Chandler Formation target interpreted from seismic surveys in the Rodinga Project is a basinal depression target at Camel Flats, just north of Bluebush No1 (see Fig 2). Other targets are areas of thickening of the Formation in localised basinal depressions adjacent to salt diapirs and salt walls derived from the underlying Bitter Springs Formation. Potential exists for large flat-lying Canadian-type potash deposits as well as diapir related European-style potash deposits.

Further analyses will be carried out using existing and new geophysical, geochemical and geological data to better define potash mineralisation targets within the Chandler Formation.

Within the Bitter Springs Formation, the evaporitic Gillen Member is the target horizon for potash mineralisation. It was deposited in the Neoproterozoic and comprises interbedded carbonates, sulphates and halite beds typical of a marine evaporitic sequence. It is widely distributed throughout the Amadeus Basin covering an area significantly greater than the Chandler Salt. The thickness of the Gillen Member averages 800m but varies from 100m to more than 2,000m with the thickening of the beds mainly due to salt tectonism. Halite units are common within the Gillen Member but have been poorly tested by drilling, with a number of holes terminating in halite units at considerable depths.
In the Rodinga project area, two drill holes ended in the Gillen Member, *Mt Charlotte No1* after intersecting 556m and *Bluebush No1* after intersecting 85m of this formation. Halite beds up to 60m thick were intersected in the Gillen Member in the Mt Charlotte hole.

Bromine levels in the Gillen Member vary from 130-190ppm indicating precipitation of salts occurred from late stage brines. Potential exists for both large, flat-lying, Canadian style as well as diapir related potash mineralisation within the Bitter Springs Formation. Further work is required to establish the best target areas for potash mineralisation.

Bore hole location and analytical data was purchased from the Conservation and Natural Resources Group to cover the whole of the Rodinga 1:250,000 sheet. Unfortunately no assays for K and TDS corresponding to the bore holes were taken. Figure 5 displays the location of the wells and geological units. Figure 6 shows the thicknesses of the Chandler Formation from the surface vertically.

Figure 5  
Location of Water Bores and Geology
6. WORK COMPLETED

Following identification of suitable targets, three drill targets were selected, based on depth to the salt horizon and probability of intersecting economic salt horizons. (See Figure 7,8)

Several field visits were completed in order to position the sites on the ground and locate a base for accommodation and water supplies.

Several drilling companies were contacted but none were available and/or had rigs capable of drilling to 800 metres depth.
Figure 7
Seismic Line MCF 81-15
Showing planned Drillhole Locations in section

Figure 8
Drillhole Plan showing Shotput Locations, Geology and Proposed Drillholes
REFERENCES

Tyson Resources Pty Ltd

EL23773.RODINGA

STATEMENT OF EXPENDITURE FOR 12 MONTHS ENDED NOVEMBER 22, 2005

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**TOTAL DIRECT COST**                  **23,970**

**ADD: TECHNICAL SUPPORT & ADMINISTRATION**     **2,000**

**TOTAL PROPOSED TERM**                  **$ 25,970**
Tyson Resources Pty Ltd

EL23773.RODINGA

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