



# **THUNDELARRA**

## **EXPLORATION**

### **ANNUAL REPORT**

### **ALARA JV PROJECT EL24928**

### **FOR THE PERIOD 21 AUGUST 2008 TO 20 AUGUST 2009**

### **NGALIA BASIN NORTHERN TERRITORY**

REPORT NUMBER:	EK/205/ALA
DATE:	SEPTEMBER 2009
AUTHOR:	MARTIN MOLONEY
DISTRIBUTION:	NTDPIFM/NTGS THUNDELARRA EXPLORATION LTD

## **BIBLIOGRAPHIC DATA SHEET**

PROJECT NAME: Alara JV

REPORT TITLE: Annual Report, Alara JV Project; EL24928, for the period 21 August 2008 to 20 August 2009, Ngalia Basin, Northern Territory

REPORT TYPE: Annual

TARGET COMMODITY: U

KEYWORDS: Data compilation, helicopter-assisted ground gravity survey.

PROSPECTS DRILLED: None

HOLDER: Strike Resources Limited (100%)

OPERATOR: Thundelarra Exploration Ltd

TENEMENT: EL24928

REPORT PERIOD: 21 August 2008 to 20 August 2009

1:250,000 SHEET AREA: MT DOOREEN (SF5212)

1:100,000 SHEET AREAS: VAUGHAN (5053)

AUTHOR: Martin Moloney

DATE OF SUBMISSION: September 2009

## **ABSTRACT:**

**Location:** The Alara JV Project comprises granted Exploration Licenses 24879, 24928 & 24929 and the application EL24927. EL 24879 is located approximately 330km northwest of Alice Springs.

**Geology:** The tenement is located within the Ngalia Basin, a Neoproterozoic to Palaeozoic intracratonic basin approximately 300km long and 70km wide within the Northern Arunta Province of the Arunta Inlier, in central-south of the Northern Territory. Uranium mineralisation has been detected in the uppermost unit of the Basin – the Mt Eclipse Sandstone, and this forms the target of the current exploration within EL24928.

**Work done:** On 14th May, 2009 Thundelarra entered into a Joint Venture with Alara Resources to manage exploration on ELs 24879, 24928 & 24929 and the application EL24927. Exploration work during the tenure period comprised data compilation and a helicopter-assisted ground gravity survey.

**Results:** A vast amount of historical data has been retrieved, and compilation is in progress. Historic work of relevance includes track etch surveys by CPM and seismic surveys by Magellan. Compilation is ongoing and the results of the helicopter-assisted gravity survey remain to be interpreted.

**Conclusions:** The work program for the coming year will involve interpretation of the gravity survey results, along with structural and stratigraphic mapping. The results will be integrated into Thundelarra's basin-wide uranium exploration efforts.

## TABLE OF CONTENTS

1.	INTRODUCTION AND TENURE .....	1
2.	GEOLOGICAL AND STRUCTURAL SETTING .....	1
3.	MINERALISATION AND EXPLORATION MODELS .....	2
4.	HISTORICAL WORK.....	2
5.	EXPLORATION PROGRAM .....	2
5.1.	DATA COMPILATION & PROCESSING .....	2
5.2.	HELICOPTER ASSISTED GROUND GRAVITY SURVEY .....	2
6.	DISCUSSION AND RECOMMENDATIONS .....	3
7.	REFERENCES .....	3

## **LIST OF FIGURES**

FIGURE 1:           Location Map

## **LIST OF TABLES**

TABLE 1:           Tenement details for EL24928

## **APPENDICIES**

APPENDIX 1:       Gravity Survey Data (see DVD)

## **DVD**

DVD1:           Report pdf and digital data (attached, back cover)

## 1. INTRODUCTION AND TENURE

Exploration License (EL) 24928 covers 15 blocks (approximately 35km<sup>2</sup>) located approximately 330km northwest of Alice Springs on the Mt Doreen pastoral lease, immediately south of the Vaughan Springs homestead (Figure 1). On 14<sup>th</sup> May, 2009, Thundelarra entered into a formal joint venture with Alara Resources Limited to earn a 70% interest in EL24928.

**TABLE 1: TENEMENT DETAILS FOR EL24928**

Project	Tenement	Approval date	Expiry date	Graticular Blocks	Expenditure Commitment
Alara JV	EL24928	21/08/2005	20/08/2012	15	\$25,000

## 2. GEOLOGICAL AND STRUCTURAL SETTING

The Ngalia Basin is a Neoproterozoic to Palaeozoic intracratonic basin approximately 300km long and 70km wide within the Northern Arunta Province of the Arunta Inlier, in central-south of the Northern Territory. The Ngalia Basin is an asymmetric syncline with a steep tectonised northern boundary and a shallow northerly dipping unconformity forming the southern basin boundary. The northern boundary is defined to the east by low angle thrust faults over the Arunta Inlier and to the west by high-angle reverse faults that have thrust the basement rocks several kilometres over the sediments.

The region has been tectonically active since before 1880Ma with several tectonic events and phases of granitic intrusions up to 1000Ma. Granites and metamorphic rocks have provided the source material for subsequent sedimentation.

The younger post-tectonic granites, particularly the Southwark Granite Suite dated at 1567Ma are believed to be the origin of the uranium for the known uranium mineralisation in the region. Wholerock chemical analysis of 18 samples from these late granites are recorded as having uranium contents varying from 1.5-22.5ppm, thorium ranged from 3-175ppm and vanadium typically from 3-57ppm. In contrast, 8 samples from the older granites ranged in uranium content from 1.5-10ppm and vanadium from 20-90ppm. In general the geochemistry of these late granites is consistent with other high-heat production group (i.e. radiogenic) granites of the Arunta Inlier.

The Neoproterozoic to Carboniferous sedimentary sequences of the Ngalia Basin range in age from 850 - 350Ma. The Basin rests unconformably over the Arunta Inlier. The sediments of the Neoproterozoic are 2-3km in thickness and composed of dominantly fluvial to shallow marine quartz sandstones, shales, mudstones, conglomerates, dolomites and tillites. The transition from the Neoproterozoic to the Cambrian occurs within the 700m thick Yuendumu Formation of sandstone and arkosic sandstone formed in shallow marine conditions. Three further sequences of shallow marine to fluvial sediments, each unconformable upon the underlying sediments, were deposited during the Cambrian, Ordovician and Devonian periods.

The youngest and thickest Palaeozoic sedimentary sequence is the thick Devonian to Carboniferous Mount Eclipse Sandstone, up to 2.4km thick, which is deposited unconformably on all underlying Ngalia Basin units. In the region around the Bigrlyi uranium deposits the Mount Eclipse Sandstone overlies the Neoproterozoic age Vaughan Springs Quartzite, the oldest unit in the Ngalia Basin overlying the rocks of the Arunta Inlier.

Uplift and erosion of the Arunta Inlier rocks to the north of the Ngalia Basin between 350-370Ma initiated the deposition of the Mount Eclipse Sandstone. This deposition was terminated

at the peak of the Alice Springs Orogeny, possibly about 300-320Ma. At this time the Yuendumu, Waite Creek, Patty Hill, Napperby and Hann Range thrust faults were active, thrusting the Arunta Inlier rocks southward over the Ngalia Basin rocks. This overthrusting is associated with the asymmetric folding of the Mount Eclipse Sandstone sequence with east to west axes and steep north-facing limbs.

The Mount Eclipse Sandstone consists of arkoses, conglomeratic sandstones, greywacke and minor conglomerates deposited in piedmont to subaerial-fluvial environments. The sequence contains a significant carbonaceous component with common plant fossils.

Uranium mineralisation of the Ngalia Basin is hosted in piedmont-style sedimentary channels, composed of carbonaceous arkoses located towards the base of the Mount Eclipse Sandstone. The primary source of the uranium is inferred to be the younger granites of the Arunta Inlier.

Since the end of the Alice Springs Orogen, the Ngalia Basin has been part of the stable Australian Craton with terrestrial sedimentation of sands, silts, aeolian sand, calcrete, silcrete, lateritic ironstones and playa lake sediments; however sedimentation appears restricted to the Tertiary. These unconsolidated sediments obscure parts of the prospective Mount Eclipse Sandstone within the Alara tenement block.

### **3. MINERALISATION AND EXPLORATION MODELS**

The shallow cover of Recent to Quaternary sediments obscures much of the geology and also inhibits any radiometric response from the area. The asymmetric folding and the extensive thrust faulting, plus faulting within the Bigryli deposit suggests that carbonaceous horizons within the Mount Eclipse Sandstone, considered favourable for hosting the uranium mineralisation, may have repetitions within the tenements. In addition faults would have provided excellent channel ways for the movement of uranium bearing oxidising fluids.

### **4. HISTORICAL WORK**

A number of historic exploration licenses coincide with the present area of EL24928. Most of the work on these historic licenses did not involve exploration within EL24928. However CPM, on ELs 358 and 360, undertook a regional track-etch survey. No anomalies were detected within EL24928.

A number of seismic lines were surveyed by Magellan in 1992 on EP15, with a single line (M92-WR02) covering the western strip of EL24928.

### **5. EXPLORATION PROGRAM**

The work conducted on EL24928 between 21 August 2008 and 20 August 2009 is detailed below.

#### **5.1. Data Compilation & Processing**

Data compilation has commenced with collation activities that aim to result in a digital database of all the relevant open-file exploration data available. This work is ongoing.

#### **5.2. Helicopter Assisted Ground Gravity Survey**

A total of 35 gravity stations were acquired within EL24928 on 29 July 2009. This data has been supplied as Appendix 1.

## 6. DISCUSSION AND RECOMMENDATIONS

No conclusions have yet been reached regarding the prospectivity of this license. Future work will involve interpretation of the gravity and other data (e.g. seismic/magnetics) and integration of these results into a basin-wide analysis.

## 7. REFERENCES

CENTRAL PACIFIC MINERALS NL (CPM). 1976. Final Report (to the Northern Territory Department of Mines and Energy) for EL 358 “Albinia”, August 1976. NTGS CR19760080.

CENTRAL PACIFIC MINERALS NL (CPM). 1977. Final Report (to the Northern Territory Department of Mines and Energy) for EL 360 “Autobahn””, May 1977. NTGS CR19770075.

MAGELLAN PETROLEUM AUSTRALIA LIMITED (MAGELLAN). 1992. Ngalia Basin seismic survey EP15 NT Final operations report. NTGS PR19920148.

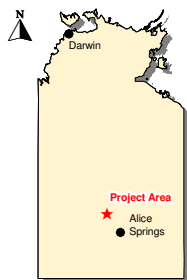
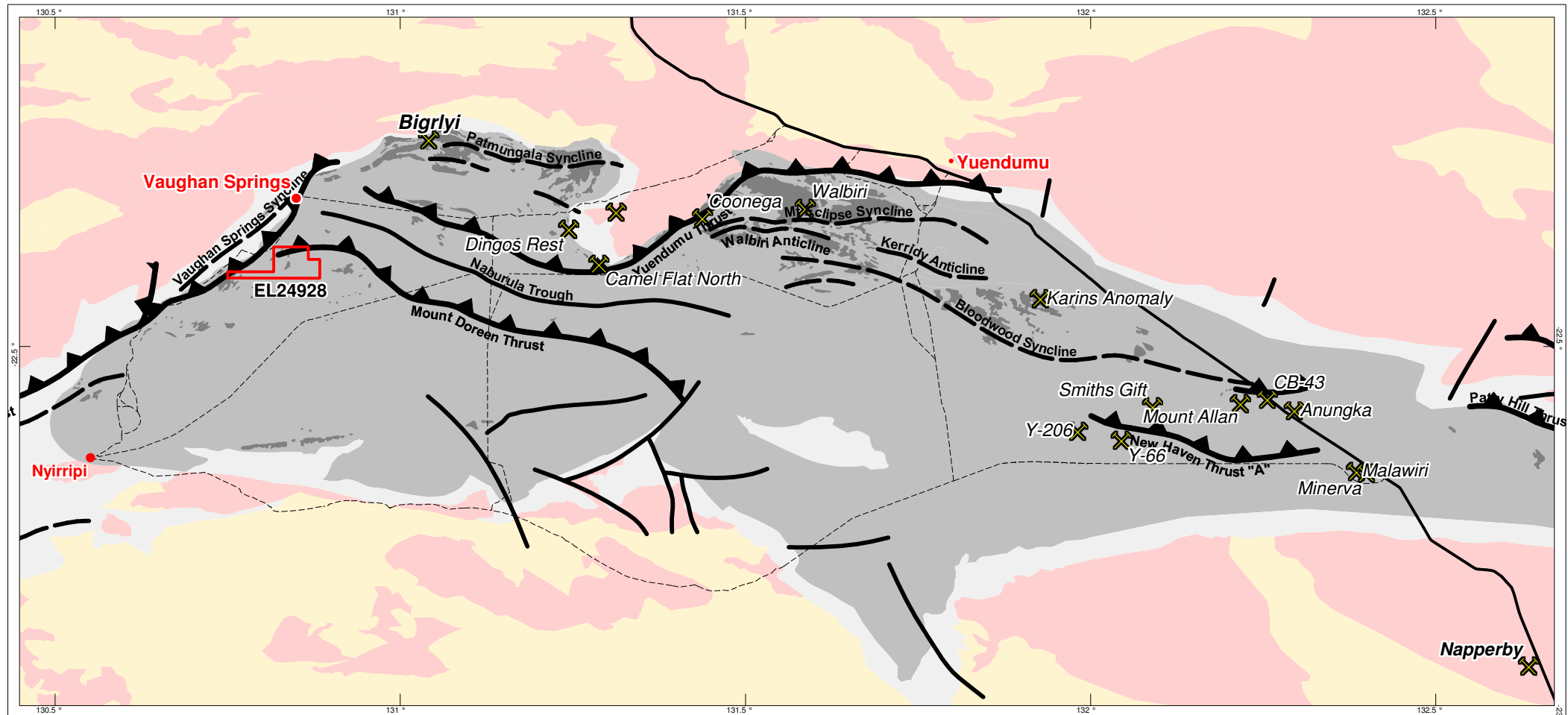
QUESTA AUSTRALIA PTY. LTD. 1989. Ngalia Basin. Northern Territory Geological Survey Petroleum Basin Study Series.

SHAW, R. D. 1994. Structure and tectonic development of the Mount Doreen 1:250 000 sheet area. BMR Record 1994/054.

WELLS, A. T. & MOSS, F.J. 1983. The Ngalia Basin, Northern Territory : stratigraphy and structure. Bureau of Mineral Resources, Geology and Geophysics Bulletin, v. 212.

YOUNG, D.N., EDGOOSE, C.J., BLAKE, D.H. AND SHAW, R.D. 1995. Mount Doreen SF52-12, Northern Territory, 1:250,000 Geological series – explanatory notes, NTGS, AGSO, Darwin, 55 p.





## LEGEND

- U Deposits (NTGS MODAT Database)
- Tenure

## Geology (2.5 M)

### Ngalia Basin Sediments

- Mt Eclipse Sandstone (250k Compilation)
- Phanerozoic seds undiff.
- Proterozoic seds undiff.

### Arunta Inlier

- Granitic rocks undiff.
- Metamorphic rocks undiff.

0 10 20  
kilometres



**Figure 1**  
**EL24928 Location Map**

Author: MPM / NTGS	Date: 07/09/2009
Drawn By: MPM	Revised:
Plan No.: THD0168a	Report No.:
Projection: GDA94 Lat/Long	Scale: 1:838,700