

Hale Energy Limited

EL 25378

Bundey River

Alcoota SF53-10 & Huckitta SF53-11  
1:250,000 Map Sheets

Year 2 Annual Report

February 15th 2008 – February 14th 2009

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## 1.0 SUMMARY

The Bunday River Project is located in the Plenty River area about 125km northeast of Alice Springs. The project is part of two contiguous tenements that cover about 1,200km<sup>2</sup> of the Tertiary Waite and Huckitta Basins within the Proterozoic Arunta Block, which are prospective for palaeo drainage hosted uranium mineralisation. The Bunday River passes through the west and the Little Frazer Creek to the east of the Bunday River project area. The prospective areas within the tenement are topographically flat and are covered by scrubland and grassland.

The project area covers part of the Tertiary Waite and Huckitta Basins which are relatively shallow sedimentary basins; the central portions of which were probably lakes during deposition of their sediments. The basins were fed from both the Harts Range metamorphic rocks in the south and by various channels that drain areas of Proterozoic granitic and metamorphic rocks to the north. The sedimentary sequence within the basin is dominated by clays and sandy clays, with lesser amounts of sands. Lignite and evaporite horizons are also present. The sediments were subject to slight uplift during the late Pliocene and the upper parts of the sequence have been eroded in part. The sequence is poorly known, with the approximate 1,200km<sup>2</sup> of basin within the project areas having been tested by only about 15 drill-holes. Within the Plenty Highway tenement basement was reached in only one hole and the basin is known to be in excess of 200m vertical depth at it's deepest point.

Early stratigraphic information was obtained by the BMR, which drilled two holes into the basin during the 1960s.

Alcoa explored the basins for uranium during 1979 and 1980. Alcoa drilled 71 holes to maximum depths of 200m for a total of 6,260 metres. Of these holes, six were drilled within the area of EL24810 and a further six within the adjacent tenement EL25378. Significant uranium intersections were only achieved in four holes, drilled outside Hale Energy's project areas. The best intersection, at a depth of 104m, was of 45ppm U<sub>3</sub>O<sub>8</sub> within a reducing horizon of pyritic carbonaceous silt.

In late January of 2008, a helicopter borne time domain electromagnetic survey (SkyTEM) was flown over the eastern half of the tenement. Modelling and interpretation by Montana GIS identified numerous drill targets.

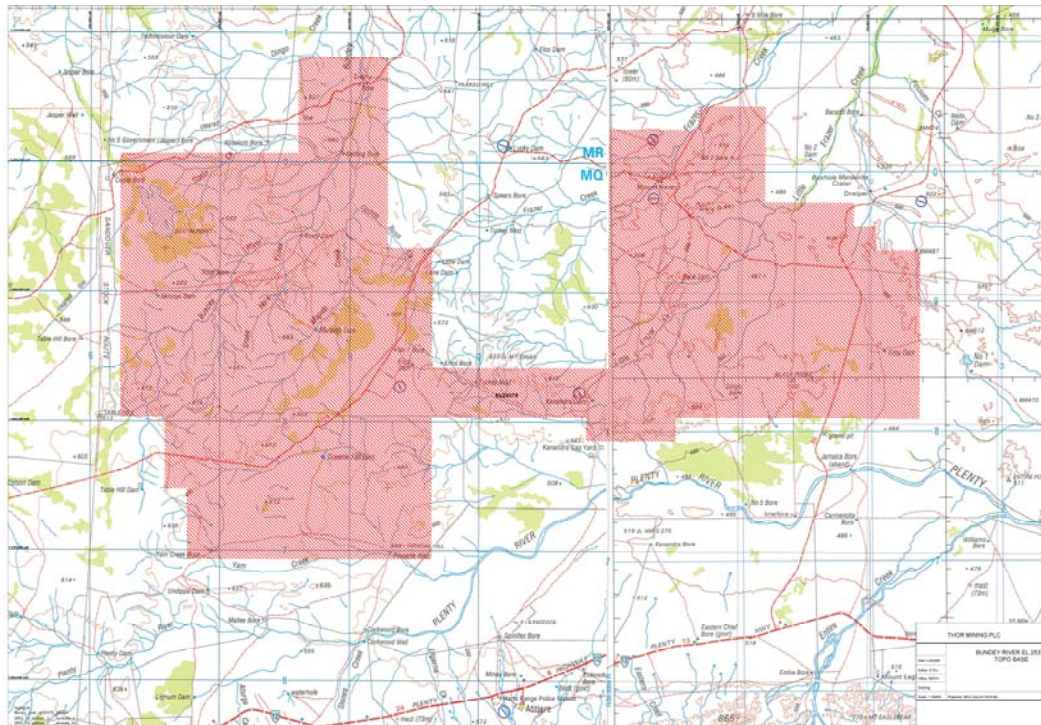
27 Air Core holes were drilled totalling 1685m to test some of the anomalies before heavy rain ended the programme prematurely. The drilling program confirmed the presence of units of carbonaceous clays and lignite/coal coincident with the modelled conductive shells within the paleochannel which are potential hosts for "roll front style" uranium mineralisation. No significant assays results were returned from the drilling. Basement conductors were also drilled and were coincident with massive to semi massive pyrite in a quartz-biotite-magnetite gneiss.

## 2.0 INTRODUCTION

This report covers all exploration completed on EL25378 in Year 2 for the period 15<sup>th</sup> February 2008 to 14<sup>th</sup> February 2009. Exploration Licence EL 25378 is comprised of 396 graticular blocks (1255 km<sup>2</sup>) and was granted to Hale Energy Limited on 15<sup>th</sup> February 2007 by the DPIFM NT.

### 3.0 LOCATION AND ACCESS

EL 25378 is located on the Alcoota 1:250,000 (SF53-10) and Huckitta (SF53-11) map sheets 160km northeast of Alice Springs (Figure 1.0). Access is via the Stuart Highway to the Plenty Highway turnoff 70km north of Alice Springs, then east for 90km along the Plenty Highway. The area of the licence is well served by station roads and tracks.



**Figure 1.0 – Bundy River Location Plan**

### 4.0 NATIVE TITLE AND SITE CLEARANCE

A search of the AAPA database has been completed which identified several recorded sites in the area and was referred to in the MMP submission. The MMP covering drilling activities was approved on 20 May 2008, Authorisation 0411-01.

## **5.0 GEOLOGY**

The Bunday River project area (EL 25378) covers part of the Tertiary Waite and Huckitta Basins which are relatively shallow sedimentary basins; the central portions of which were probably lakes during the majority of the deposition phase of the sediments. The basins were fed from both the Harts Range metamorphic rocks in the south and by various channels that drain areas of Proterozoic granitic and metamorphic rocks to the north. The sedimentary sequence within the basin is dominated by clays and sandy clays, with lesser amounts of sands. Lignite and evaporite horizons are also present. The sediments were subject to slight uplift during the late Pliocene and the upper parts of the sequence have been eroded in part. The sequence is poorly known, with the approximate 1,200km<sup>2</sup> of basin within the project areas having been tested by only about 15 drill-holes. Within the Plenty Highway tenement basement was reached in only one hole and the basin is known to be in excess of 200m vertical depth at its deepest point.

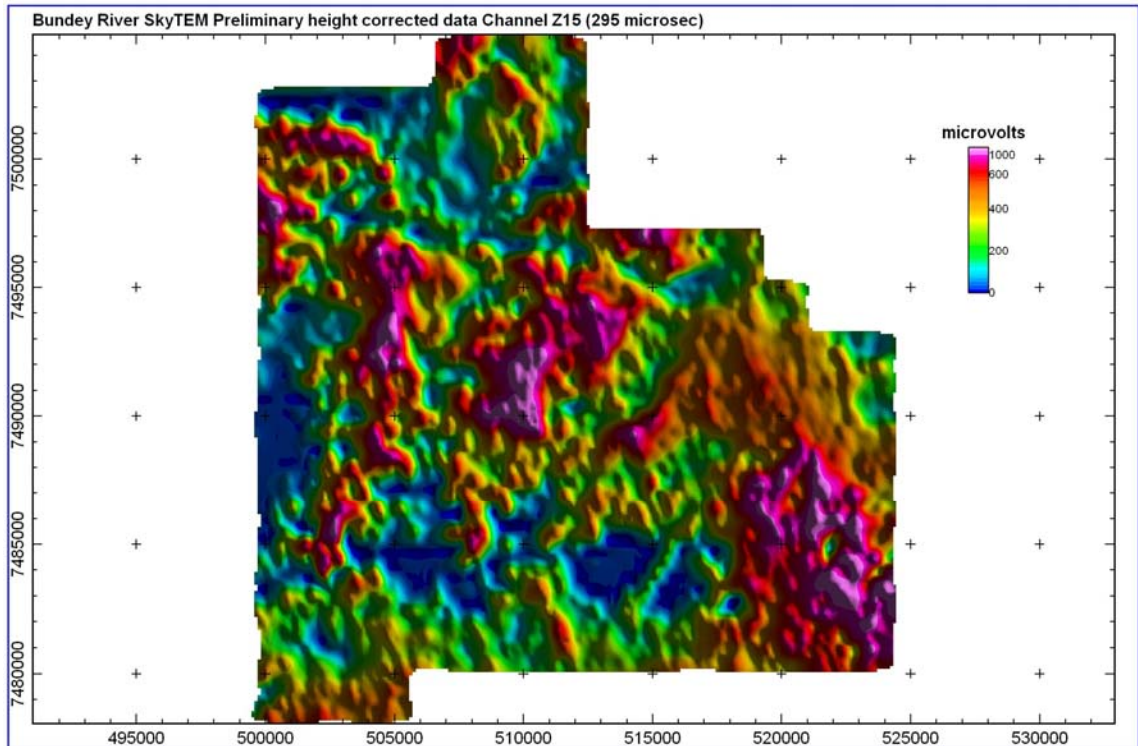
## **6.0 PREVIOUS EXPLORATION**

Early stratigraphic information was obtained by the BMR, which drilled two holes into the basin during the 1960s.

Alcoa explored the basins for uranium during 1979 and 1980. Alcoa drilled 71 holes to maximum depths of 200m for a total of 6,260 metres. Of these holes, six were drilled within the area of EL24810 and a further six within on the adjacent tenement EL25378. Significant uranium intersections were only achieved in four holes, drilled outside Hale Energy's project areas. The best intersection, at a depth of 104m, was of 45ppm U<sub>3</sub>O<sub>8</sub> within a reducing horizon of pyritic carbonaceous silt.

Geoforce Airborne Services were contracted by Hale Energy to complete an airborne electromagnetic survey over the area. Extensive open file and report data was also reviewed.

In late January of 2008, a helicopter borne time domain electromagnetic survey (SkyTEM) was flown over the tenement. The survey consisted of 52 traverses with 500m line spacing, collected in a North-South Orientation for a total collection of approximately 1085 line km of data.



**Figure 2.0 – Bunday River Preliminary SkyTEM image – Channel 15**

The image above is derived from preliminary height corrected data (z component) on the eastern side of the tenement from Channel 15 (295 micro second). The magenta coloured areas indicate conductive areas within the palaeo channels. Drop outs or lows can be interpreted as less conductive areas or possible sites of alteration/mineralisation.

The SkyTEM Data was modelled and interpreted by Dave McInnes of Montana GIS Pty Ltd which identified numerous drill targets for the Year 2 exploration during 2008.

## **7.0 YEAR 2 EXPLORATION**

### **7.1 Air Core Drilling**

Australian Mineral and Waterwell Drilling Pty Ltd were contracted to undertake the drilling program. The equipment utilized in the drilling program is summarised below:

- KD150 Drill rig mounted on a 4x4 Hino truck with and onboard Sullair Compressor rated to 700cfm/200psi
- 4x4 Hino support truck carrying fuel (3000L), water (2000L), extra rods and consumables
- Landcruiser Ute for personnel transport

One driller and 2 offsiders managed the rig at all times.

All holes were completed by RAB drilling the first 3m which were then cased with PVC casing and sealed with A and B foam. Once the hole had been cased the bit was changed to a nominal 3" Aircore Blade bit for the remainder of the hole unless hard bands were encountered which required the use of air core hammer. Only two holes 08BRAC011 and 08BRAC027 required the use of the air core hammer, both holes were following up basement conductors identified by the SkyTEM data.

Caravans and tents were used for both accommodation and messing purposes at the MacDonald Downs (previously Mt Swan) Homestead. Ablution and waste disposal facilities were provided by the station owners. Water for drilling was sourced from the homestead bore (approximately 5000L was used).

All drill holes were sited using handheld Garmin 76 GPS units with an accuracy of approximately  $\pm 5$ m.

Drilling commenced on the 28<sup>th</sup> May and concluded on the 5<sup>th</sup> June. On Saturday the 7<sup>th</sup> June it was decided by the site geologist to conclude the program due to rain falling the previous day and a forecast for more to follow. Due to the early conclusion of the program the eight days drilling resulted in 27 holes (08BRAC001-027) of 42 holes planned being drilled for 1685m (see Figure 3 below for location of hole collars). The drilling program had an average penetration rate of 210m a day and a cost of \$30 per metre including mobilization and demobilization. Two days drilling were lost due to a crew change and a mechanical breakdown.

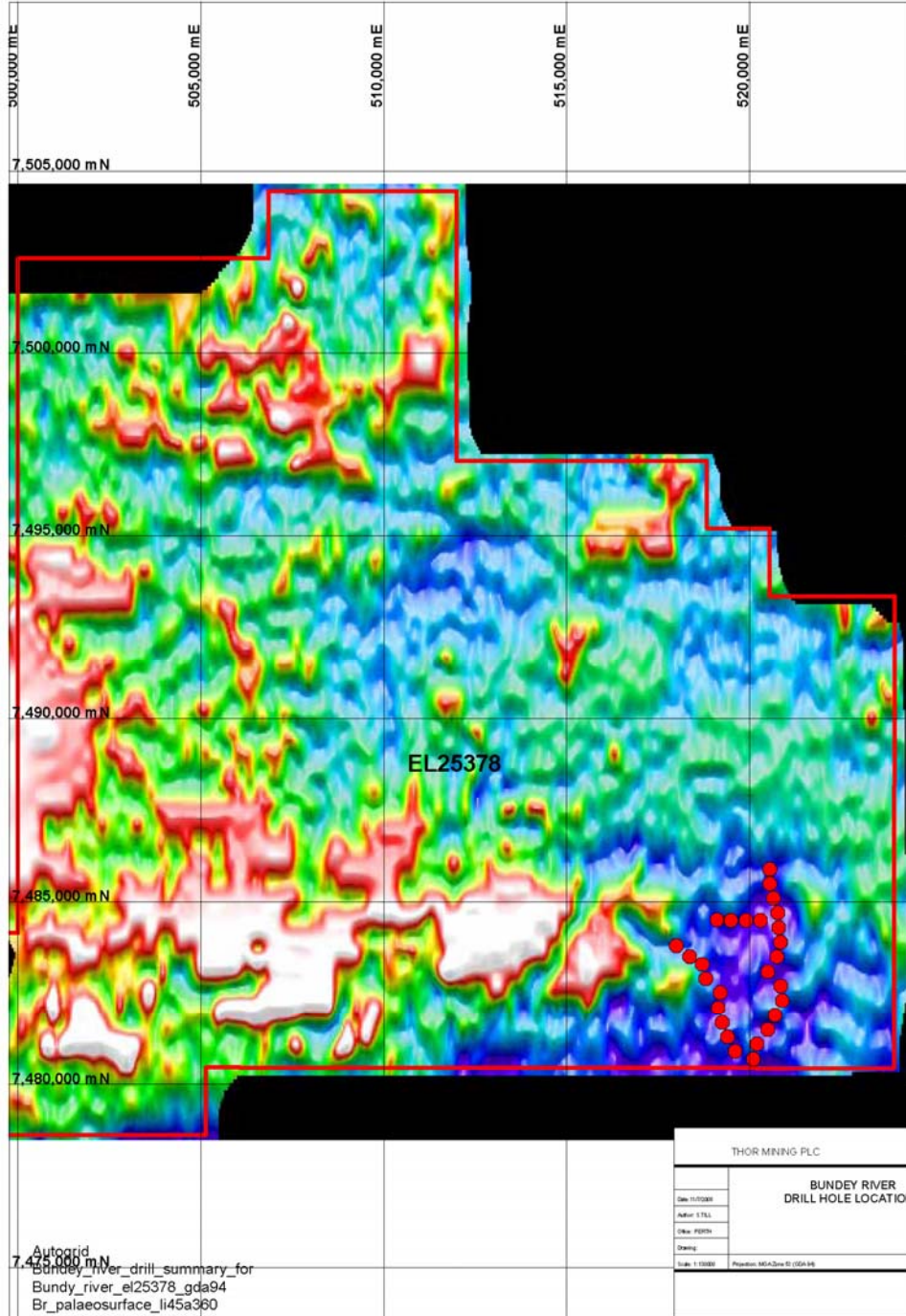


Figure 3: Bundey River Aircore Drill Collars 2008



## 7.2 Sampling

567 three metre composite were collected and sent to Amdel laboratories in Adelaide. No significant assays results were returned from the drilling. Three metre composites were collected in 12" x 15" calico sample bags from scooped one metre samples laid out on the ground.

The sample method whilst drilling involved the driller's offsideers collecting 1 metre samples in buckets beneath the cyclone and placing the samples in 10m rows on the ground. Holes were dug for wet samples to minimize contamination.

Gamma readings were taken for every metre drilled with the reading taken simply by placing the Exploranium Scintillometer against the sample to determine the presence of any anomalous radiation in counts per second (cps).

## 7.3 Discussion/Results

Three reconnaissance traverses (north-south, east-west and northwest-southeast) were drilled to determine the extent and depth of the paleochannels in the area. The base of transported material varied from 11m at the shallowest to over 128m at the deepest with the average between 35m to 40m.

Anomalous scintillometer readings can only be used as a guide to the presence of uranium mineralisation. Recent mineralisation can often exhibit low gamma emissions due to the lack of daughter products that have formed.

Calcrete was intersected in nearly all of the drill holes from surface to approximately 5m depth. The presence of the calcrete horizon may also be prospective for uranium mineralisation in the area. No elevated scintillometer readings have been noted to date.

A distinct brown/black carbonaceous clay horizon (generally 1m thick) was intersected in most of the drill holes. This horizon generally exhibited anomalous scintillometer readings when intersected in the drilling due the reducing nature of the horizon compared to the sediments adjacent to it.

In drill hole 08BRAC012 basement was not intersected at EOH 128m. This drill hole intersected the deepest part of the paleo channel to date and was coincident with a strongly conductive shell in the model. At 103m there was an abrupt change from lacustrine clays to coal/lignite and clay seams interbedded on a sub metre scale. A petroleum odour was noted during drilling of these units and in places appeared quite oily. Toward the bottom of the hole the coal/lignite seams graded into a carbonaceous shale/siltstone. No significantly elevated scintillometer readings were noted. Further drilling to define the extent of these coal/lignite seams is recommended as the margins are regarded as highly prospective for uranium mineralisation.

Drill hole 08BRAC011 intersected a massive to semi-massive pyritic band 3m thick overlying a pyritic quartz biotite gneiss (disseminated pyrite throughout). This unit is coincident with the basement conductor identified in the SkyTEM data. There may be potential for gold and base metal mineralisation associated with this unit with the right structural setting.

Quartz magnetite gneiss was intersected in drill hole 08BRAC027 which is coincident with the basement conductor identified in the SkyTEM data.

#### **7.4 Rehabilitation**

At the completion of each drillhole a hole plug was inserted in the PVC collar to prevent anything falling down the holes. No other rehabilitation has taken place while assays are pending. When final assay results have been received and any re-sampling has been completed the holes will be rehabilitated by cutting the collar below surface and burying the hole plug. All sample spoils will be covered with topsoil.

#### **8.0 PLANNED YEAR 3 EXPLORATION**

No ground disturbing activities are planned for 2009 due to staff and budget cuts. A desktop review of data and some reconnaissance mapping and rock chip sampling is planned. The tenement will need to be halved in size to reduce costs.

##### **APPENDIX 1**

DRILL\_COLLAR\_DATA\_EL25378\_2009  
DRILL\_LITHOLOGY\_DATA\_EL25378\_2009  
DRILL\_ASSAY\_DATA\_EL25378\_2009

##### **APPENDIX 2**

Bunday River EL 25378 Expenditure Report Year 2