

# **EAGLE NICKEL LIMITED**

## **RAILTON PROJECT**

### **SURRENDER REPORT FOR EXPLORATION ACTIVITY**

#### **EXPLORATION LICENSE EL15/2008 (RAILTON)**

**FOR THE PERIOD 5 NOVEMBER 2008 TO 10 NOVEMBER 2010**

**Northern Tasmania**

**Electronic Versions:**

EL152008\_S\_2010\_ReportBody.pdf

**Level 7  
231 Adelaide Terrace  
PERTH WA 6000  
T: 08 9225 6475  
F: 08 9225 6474**

**Carol Murphy  
November 2010**

## **BIBLIOGRAPHIC DATA SHEET**

**Project Name:** Railton

**Tenement Number:** EL15/2008

**Tenement Operator:** Eagle Nickel Limited

**Tenement Holder:** Geotech International Pty Ltd

**Report Type:** Surrender

**Report Title:** Surrender Report for Railton Project EL15/2008 for the Period 5 November 2008 to 10 November 2010

**Report Period:** 5 November 2008 to 10 November 2010

**Author:** Carol Murphy

**Date of Report:** November 2010

**Target Commodity:** Oil Shale

**Keywords:** Data Review, prospectivity, reconnaissance

### **ABSTRACT:**

**Location:** The Railton exploration licence EL15/2008 is located in northern Tasmania, 25 km south of Devonport.

**Geology:** The project area includes known tasmanite oil shales.

**Work Done:** Research into previous work carried out, interpretation of remote airborne geophysical and other digital data, assessment of prospectivity, a reconnaissance visit to the tenement.

**Conclusions:** The work done on the tenement was not encouraging and no further work is viable at present.

## TABLE OF CONTENTS

	Page
1. Introduction	6
1.1 Location and Access	6
1.2 Tenement Details	6
1.3 Exploration Rationale	6
2. Geology	6
3. Previous Exploration	9
4. Work carried out during the reporting period	11
5. Prospectivity Discussion	11
6. Expenditure	11
7. Conclusions	12
8. References	12

## LIST OF FIGURES

Figure 1	4
Figure 2	5
Figure 3	8
Figure 4	10
Figure 5	13
Figure 6	14
Figure 7	15
Figure 8	16



Figure 1. EL15/2008 Tenement Location Map

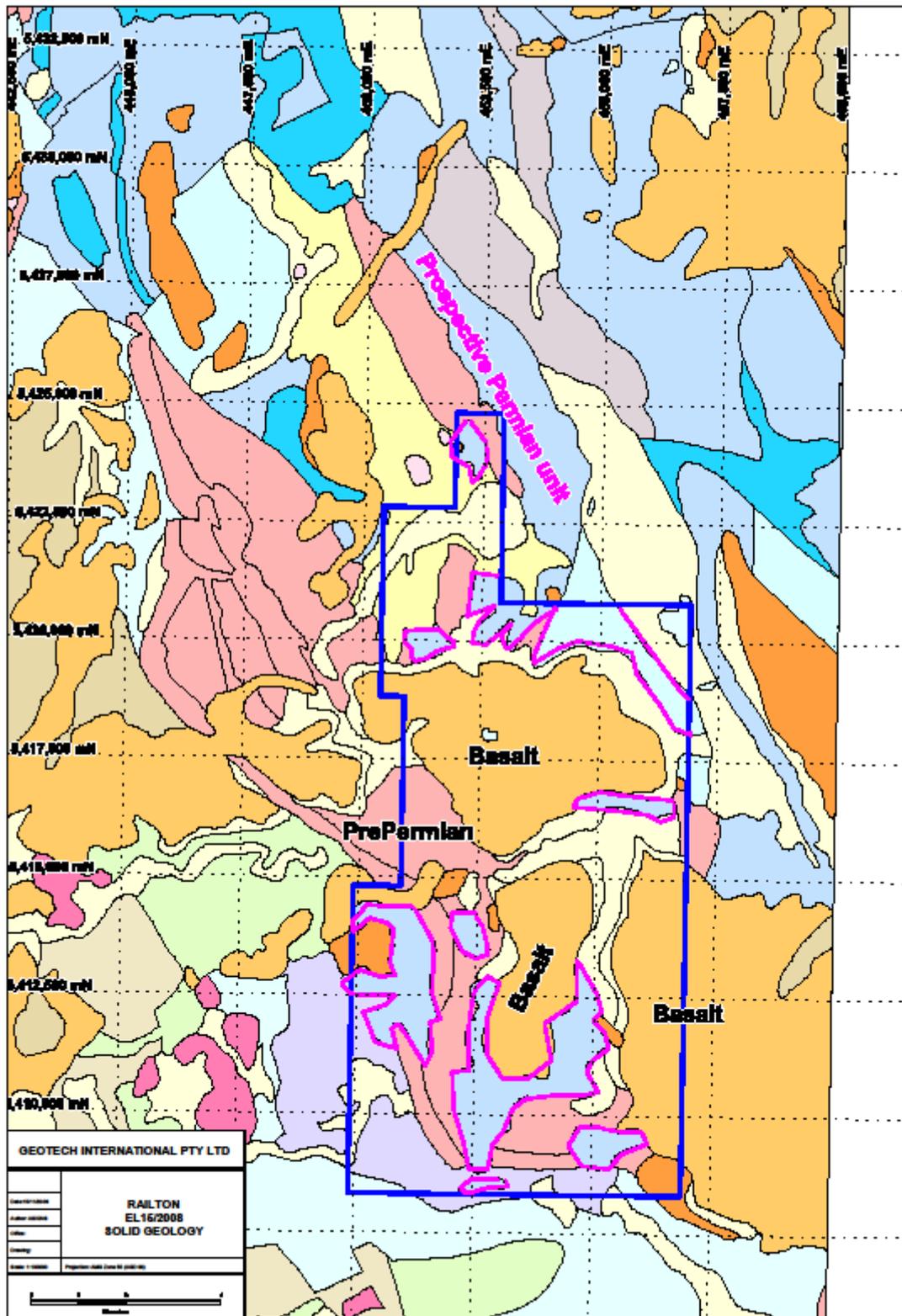


Figure 2. EL15/2008 Geological Map

## **1. Introduction**

This report describes the exploration carried out by Geotech International Pty and Eagle Nickel Limited on Exploration Licence EL15/2008 in the Railton region of Northern Tasmania for the period 5 November 2008 to 10 November 2010.

During the reporting period all available previous work was evaluated and the prospectivity appraised.

### **1.1. Location and Access**

Exploration Licence EL15/2008 is located approximately 25 km south of the port of Devonport in North West Tasmania, with township of Railton located in the northern section of the tenement. Potential resources lie in non-sterilised working forest areas and over privately owned land. The tenement is readily accessible via the many roads and tracks in the area.

### **1.2. Tenement Details**

Exploration Licence EL73/2007 was granted to Geotech International Pty Ltd on 5 November 2008 for a period of 5 years and consists of 88km<sup>2</sup> blocks. See Figure 1 for tenement location.

### **1.3. Exploration Rationale**

The area was known to be prospective for oil shale but has been poorly investigated in the past. However, it was believed to hold high potential for open-pittable specialised tasmanite deposits. The exploration objectives were to locate and develop the near surface open-pittable oil shale deposits using the best available techniques. This included those already discovered and previously considered uneconomic to develop. Recent increases in fuel prices and new technologies were thought to improve the prospectivity of these already known deposits.

## **2. Geology**

An oil shale unit and coal seams have been found in this tenement in two stratigraphic intervals within the Permian parts of the Lower and Upper Divisions of the Parmeener Supergroup of the Tasmanian Basin. There is evidence that the Parmeener Supergroup is up to two kilometres thick in places. The Lower Division is predominantly of marine origin and the Upper division is totally of freshwater origins. The stratigraphic column can be seen in Figure 3.

The oil shale unit occurs close to the base of the Lower Parmeener Supergroup above tillite and has been formed in a restricted marine environment. There is a known occurrence of oil shale in the southern part of the tenement within the State Forest, however there is little information available. The Latrobe Oil shales, a large field of oil shale occurs on the other side of the northern boundary of the tenement.

The oil shale found in the Latrobe Oil Shales is a tasmanite variety, which apparently only occurs in several places worldwide. The kerogen of tasmanite consists of particulate amber-coloured discs, or flattened sacs, with a distinct structure and clearly defined cell walls. Although scattered geographically and over a wide range of sediments aged from Ordovician to Recent, reasonable sized deposits of tasmanite are limited to Tasmania and Alaska and both deposits are marine, associated with shallow seas close to ancient coastlines.

Tasmanite occurs in the northwest of Tasmania over a relatively restricted area, fairly close to the northern coast. The oil shale beds occur in numerous isolated areas separated by faulting and diabase intrusions. It normally occurs as two main bands, separated by a layer of mudstone which is similar to the inorganic matrix of tasmanite, but not organically. Although very little study has been done on the geochemical mode of deposition of the tasmanite, it has been concluded that it was formed in very shallow seas close to the Permian coastline where a quiet ecosystem promoted the growth of alga "spores" resulting in the formation of kerogen.

### **Latrobe Oil Shales**

The Latrobe Oil Shales are held by Boss Energy Limited and their proximity to EL15/2008 is significant. There is extensive literature on open file relating to past production and on the exploration of the Latrobe Oil Shale area, particularly by CRA and Endeavour Resources Limited. However, a quote from their website summarises the known resources:

The Latrobe oil project has a JORC indicated resource of 42 million tonnes of Tasmanite oil shale of which approximately 6 million tonnes is at less than 20 metres depth and amenable to open cut mining methods. An additional JORC compliant inferred resource of 30 million tonnes of Tasmanite oil shale is estimated.

The Tasmanite oil shale horizon within EL 20/2004 has already produced 1.13 million litres of oil from historical underground mining operations. Historical drilling campaigns have demonstrated a continuity of the deposit over a large area.

The variety of oil shale found at the company's Latrobe Oil Project is unique to Tasmania and has advantages over other Australian oil shales in that it can be used as a source of bitumen as well as oil and power generation.

It is worth noting that there are oil shale occurrences under the basalt formations. It is believed that there is a possibility that the seam extending from the Latrobe resource into the Railton resource cannot be ruled out.

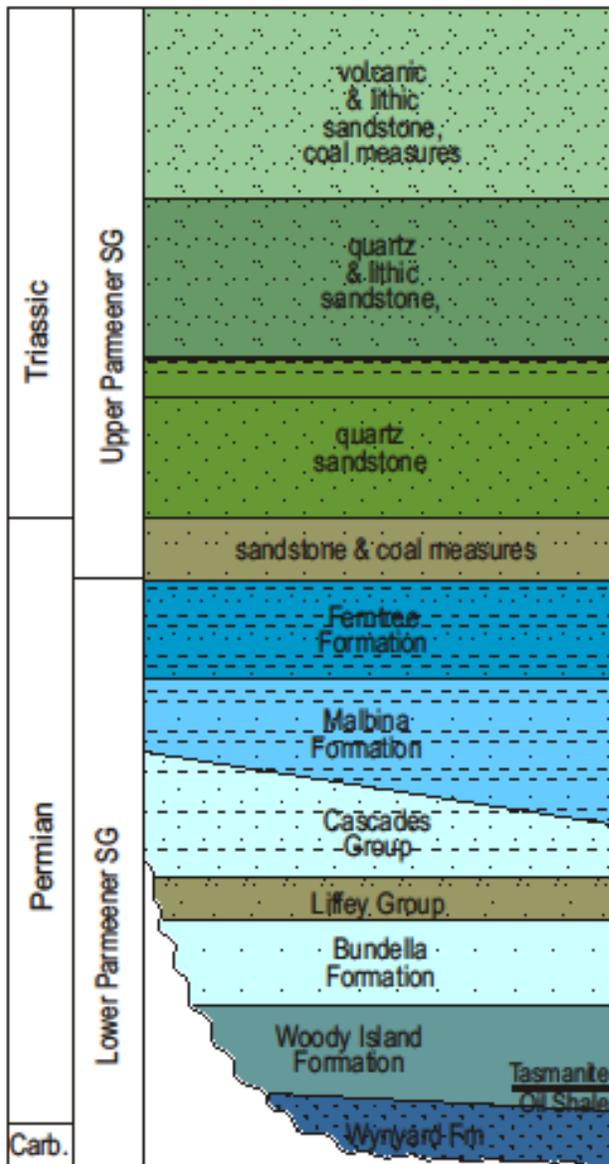


Figure 3. A generalised stratigraphic column and nomenclature for the Parmeener Supergroup. The Lower Parmeener Supergroup is divided into many local units (see Clarke, 1989), but is simplified here to broad units recognisable basin wide. The Upper Parmeener Supergroup nomenclature follows Forsyth (1989). FROM Reid & Burrett, (2004).

### 3. Previous Exploration

There is little recorded exploration for oil shales in the area of the tenement. Some scattered work for other commodities has been done but none appears relevant to oil shales.

Merseylea which is within the lease boundary is reported to have a probable reserve of 4.5million tonnes. Other known occurrences at Kimberley, less than 1 kilometre outside the lease boundary is stated to have a probable resource of over 2 million tonnes; Beulah is reported to have a probable reserve of over 1.4 million tonnes. In 1924, Reid, AM, stated that *“Permo-carbonaceous shoreline can be traced from Kimberley to Beulah but the continuity of the Tasmanite is broken by faulting”*. This suggests that although tasmanite may be present between these two locations, it may be difficult to mine, due to faulting.

A few drill holes are known in the area, as shown on Figure 4. Available data, albeit skeletal, was reviewed, but little or none appears to have been directed at oil shales.

No University studies such as theses have been located for the area.

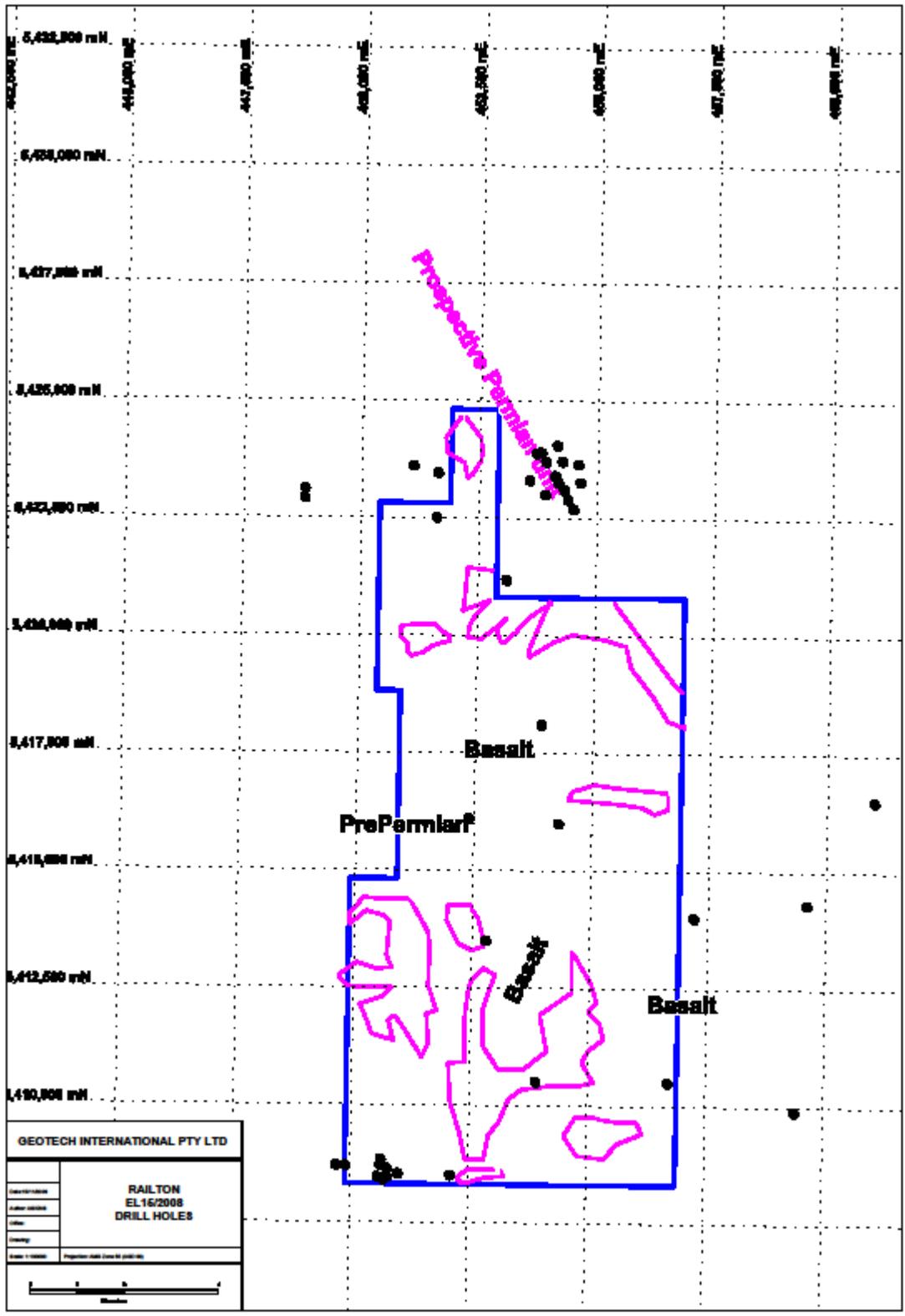


Figure 4. EL15/2008 Map showing previous drill holes

## **4. Work Carried Out During the Reporting Period**

The work carried out during the period consisted of office based research, including:

- Compilation of all past company exploration data, government reports, drill data.
- Assessment of prospectivity for coal and for oil shale within the tenement area.
- Attempted to farm-out the project to a third party.
- A brief reconnaissance field visit

The field visit found no evidence of oil shale cropping out in the southern part of the tenement. The area visited is within the State Forest and it was difficult to find outcrops due to vegetation litter or disturbance in a coupe area of clear felling.

## **5. Prospectivity Discussion**

Oil shale prospectivity was reviewed. No other commodities were included in this review. This did not include coal bed methane (the company does not hold coal bed methane rights).

Large areas where the prospective Permian horizon occurs are outlined in Figures 4 and 5. Here open pitable resources, thought to be necessary for economic development, may occur. Areas where Tertiary basalt occurs are therefore, non-prospective.

Previous assessments by Endeavour and CRA have shown the extent of the oil shale unit southwards in the Latrobe field and it has been concluded that the horizon may extend into EL15/2008, as illustrated in Figures 6 and 7, prepared by Boss Energy.

The known field at Latrobe has limited potential for development because it has only about 6Mt of open pitable resources, and these are scattered and in populated areas. It is thought that there is a possibility that better tonnage potential may occur in accessible areas in EL15/2008. The area is readily accessible, with numerous roads and tracks traversing the Private Lands and working forest areas.

Tasmanite has potentially greater value than other types of oil shale as it can be recovered by flotation, rather than retorting, which gives a higher yield and is substantially cheaper to produce.

A true estimate of the presence and size of the resource can only be obtained by a structured drilling and sampling program. Although the tenement appears to have some potential, 40% of the tenement is covered in basalt outcrops, which may harbour tasmanite oil shales beneath them. The amount of open-pitable oil shale may be scattered and uneconomical.

Despite the projected shortages of fuel supplies and the increasing prices for oil, the costs involved in a detailed exploration program of the yet to be tested tasmanite unit, are presently not viable.

## **6. Expenditure**

Total expenditure for the reporting period was \$19,932.

## **7. Conclusion**

The deposits of oil shale are untested to date and there is very little information available. The deposits of the Latrobe Oil Shales being mined adjacent to the northern boundary of the tenement, are encouraging, particularly as they are open-pittable. However, the economics of further exploration of this unknown resource, do not warrant further work at this time.

## **8. References**

Askins, P.W., 2009. Railton Project, First Annual Report for EL15/2008 for the Period 5 November 2008 to 4 November 2009.

Cane, R.F., 1970, Origin and Formation of Oil Shale, Geological Semantics, *Nature*, 228, 1009.

GHD. 2010. Eagle Nickel Report for Tasmanian Oil Shales, Resource Review.

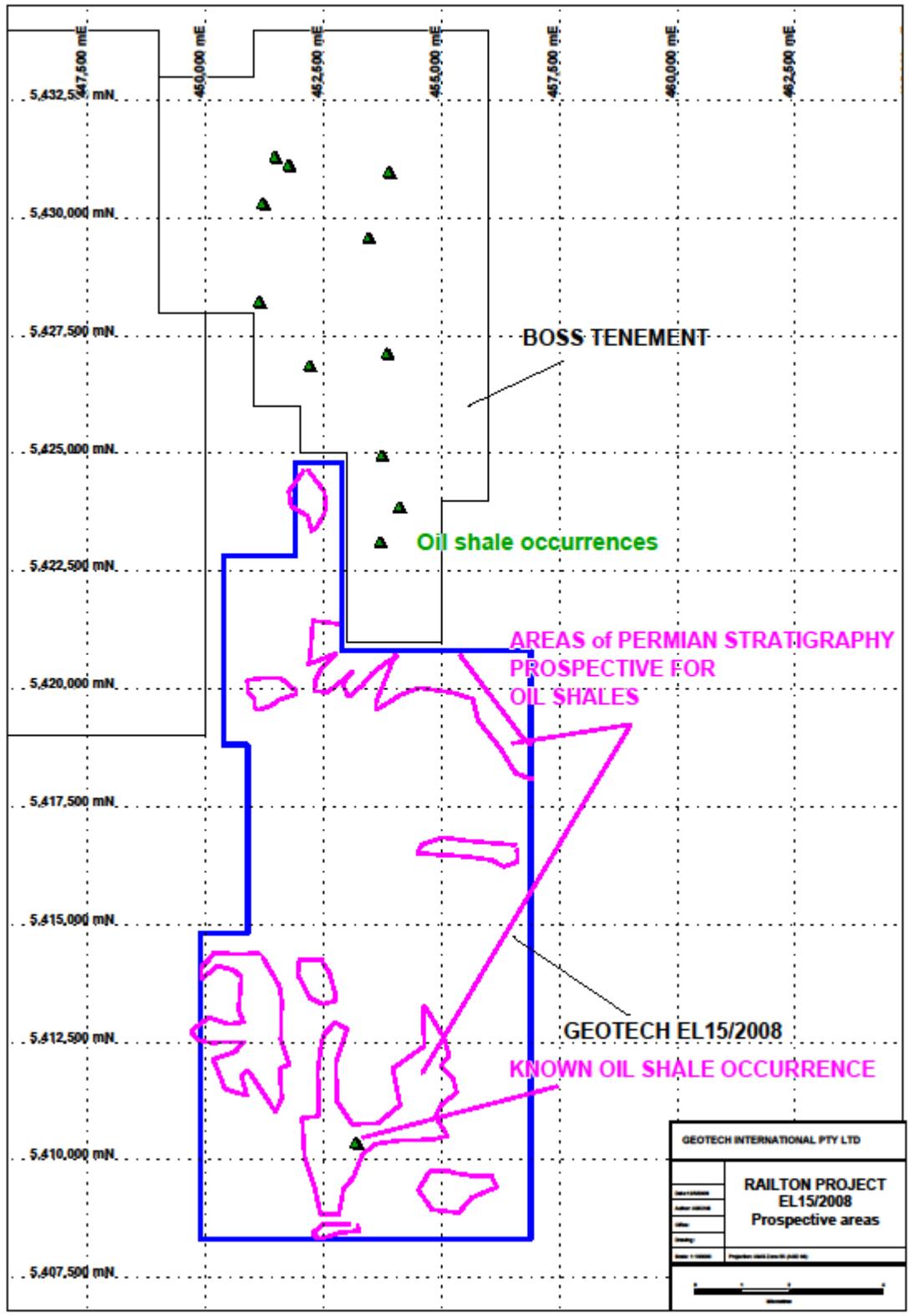


Figure 5. EL15/2008 Prospective Areas

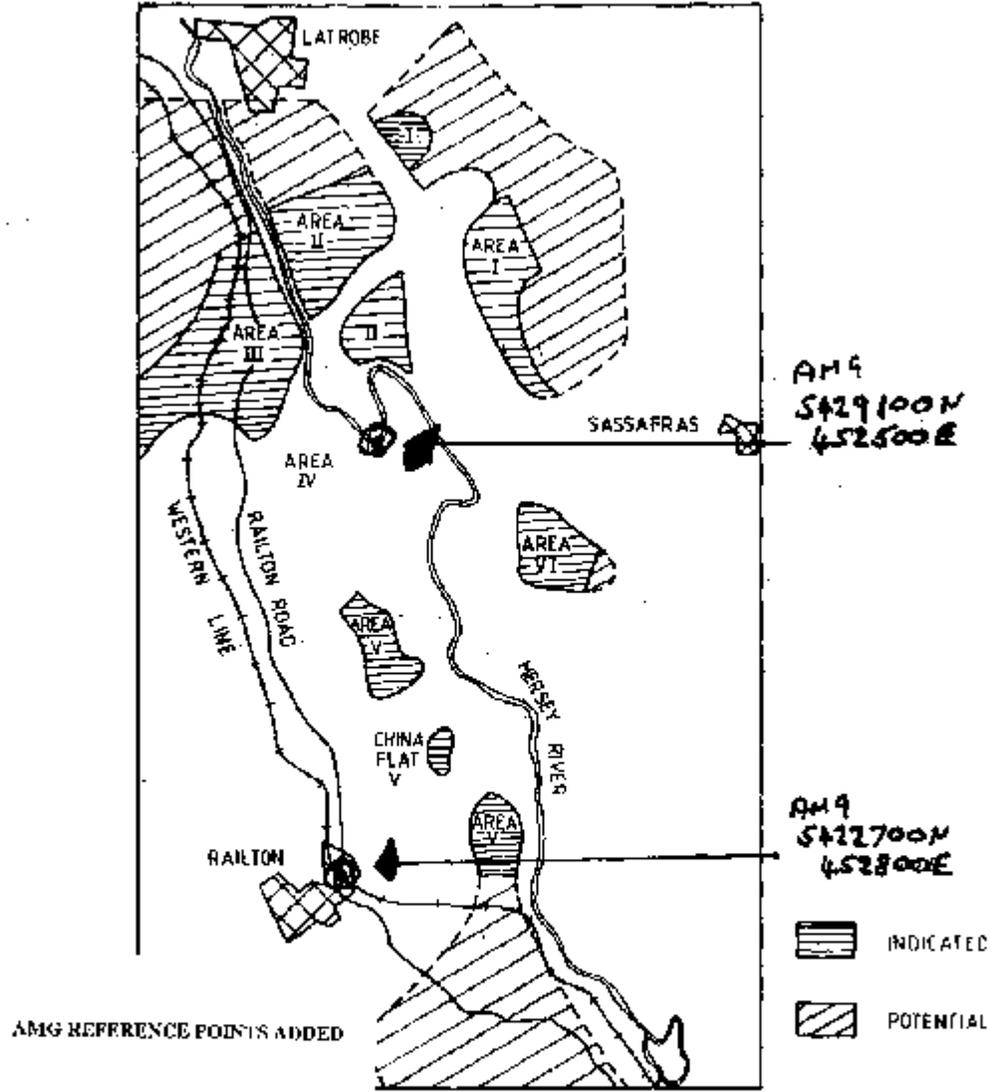
790003

001

OIL SHALE OCCURRENCE LATROBE - RAILTON

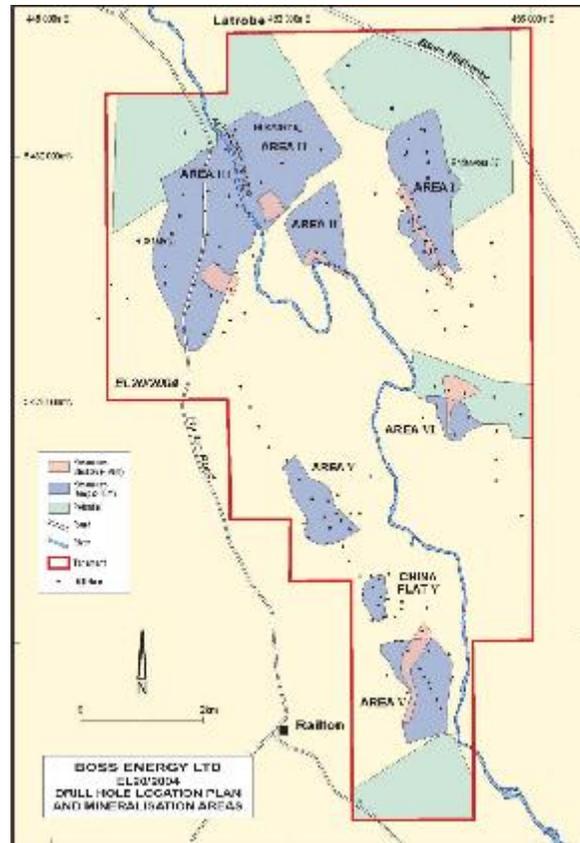
FIGURE A1.2

SOURCE: CHAE REPORT No 11252 (1982)

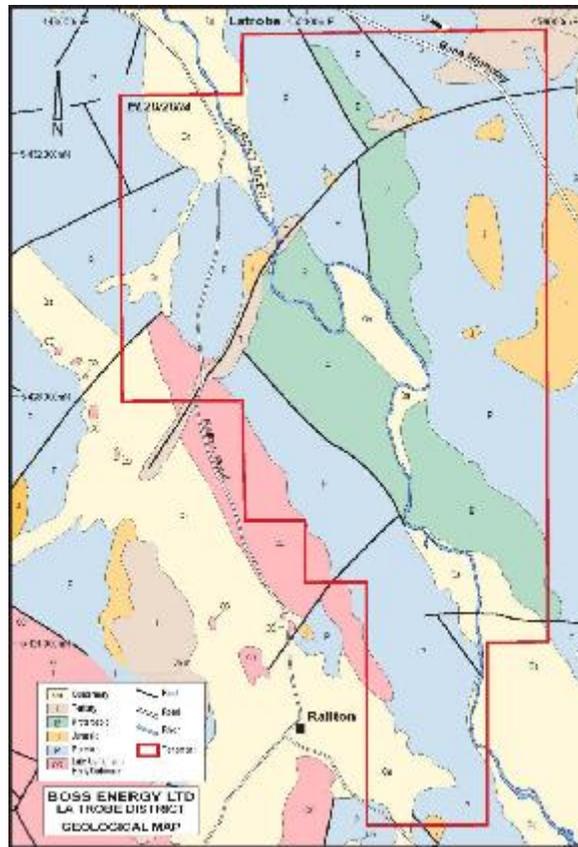


LOCALITY	AV THICKNESS (METRES)	INDICATED RESOURCE (MILLION TONNES)		POTENTIAL RESOURCE (MILLION TONNES)
		DEPTH CUT < 20m	DEPTH > 20m	DEPTH > 20m
AREA I	1.4	0.6	6.7	9.3+
AREA II	1.8	0.7	11.6	7.0
AREA III	1.8	0.7	13.8	16.0+
AREA IV	NOT ADEQUATELY TESTED	RESOURCE BELIEVED TO BE MINIMAL		
AREA V	1.2	3.5	2.0	7
AREA VI	1.25	0.6	1.9	0.9
TOTAL	1.82	6.0	36.0	77.2

Figure 6. Oil Shale Occurrence – Latrobe to Railton Region



**Figure 7.** Boss Energy Drill Hole Location Plan



**Figure 8.** Boss Energy Latrobe District Geological map