



HardRock Coal Mining Pty Ltd  
ACN: 150 741 094

## **ANNUAL REPORT FOR**

### **EXPLORATION LICENCE EL17/2010**

**Period covered:** 1<sup>st</sup> November 2014 to 31<sup>st</sup> October 2015

**Licensee:** Hardrock Investments Pty Ltd  
P.O. Box 3051  
Prahan East. VIC 3181

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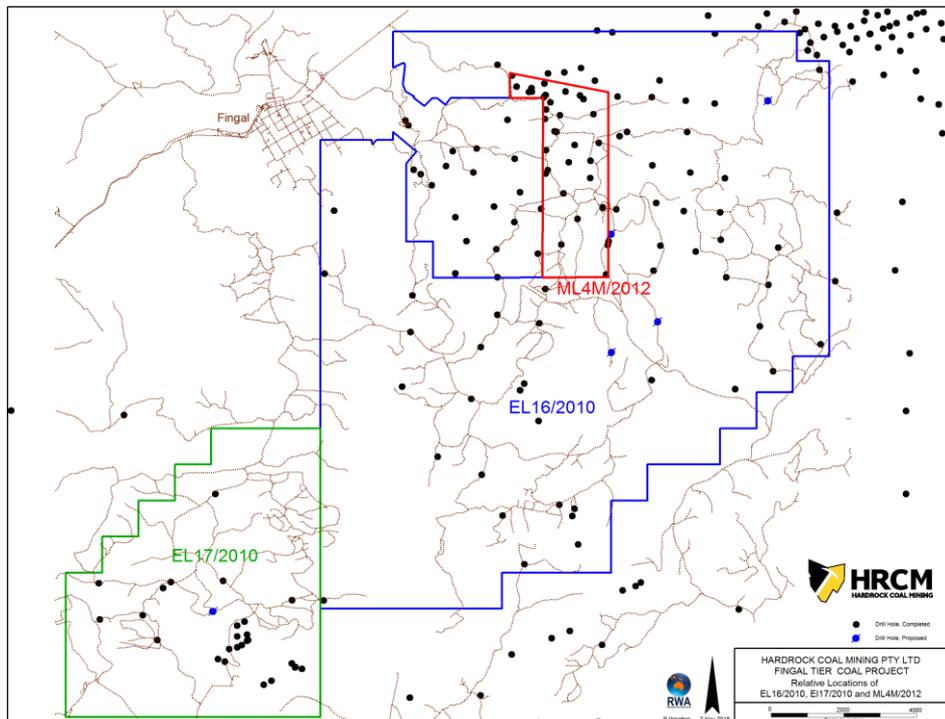
**Publication date:** 8<sup>th</sup> November 2015

## ABSTRACT

Exploration Licence EL17/2010 lies to the west of EL16/2010.

There has been some exploration drilling in the licence area, firstly by the Tasmanian Department of Mines in the 1970's & 1980's and recently by HardRock Coal Mining (HRCM). Drilling has reduced the prospectively for a significant coal resource within the EL however there still remains the possibility of a resource so exploration is to be continued. HRCM considers EL17/2010 to be part of a larger exploration area that includes EL16/2010 and ML4M/2012 and as such there is a single geological model which covers the three domains. The single geological model and JORC compliant resource statement are, by agreement with Mineral Resources Tasmania (MRT), confidential at this stage.

The relativity of the three domains is shown below with EL17/2010 outlined in green. The black dots represent the drillholes that are contained within the HRCM database (214 in total). Note that EL17/2010 has been reduced in extent subsequent to the 2013-14 Annual report.



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## 2 Introduction

### 2.1 Licence Area, Report Datum, Reporting Period

At the commencement of the period EL17/2010 covered an area of 112 km<sup>2</sup> and has no exclusion areas. The EL was reduced by partial surrender in June 2015 to 46 km<sup>2</sup> and its new boundary is shown on the appended **Figure 1**. It is located immediately south west of Fingal township. The Report Datum is GDA94 (MGA Zone 55) and the reporting period is from November 2014 to November 2015.

### 2.2 Exploration Rationale

The aim of exploration on EL17/2010 is to determine if any significant coal resource exists within the licence area, particularly the areas adjacent to Exploration Licence EL16/2010.

### 2.3 Geological Setting

The coal seams of interest lie within the Triassic Upper Parmeener Super Group. The upper limit is defined by outcrop or the overlying Jurassic Dolerite which forms a discordant upper limit to the coal measures. The base of coal bearing strata is defined by a formation highlighted by the presence of white quartz rich sandstone beds.

Large volumes of Jurassic dolerite have intruded the Parmeener Supergroup stratigraphy, and in the project area dolerite outcrop up to >400metres thickness covers most of the coal measures. Cainozoic tectonic rifting and periglacial landscape development processes through the Fingal Valley have produced the escarpment and benched dolerite talus slope morphology which characterizes the landscape of the project area.

Surface geology is shown on the appended **Figure 2**, which is from the MRT 1:25,000 geological map series.

### 2.4 Coal Geology

There are 8 coal horizons which are identified simply "A" to "H" Seams in descending order. Apart from Seam G, which has areas of economic thickness and coal quality in the southern part of EL17 where it was informally named the Merrywood seam, the other coal beds are either completely removed by the dolerite or are represented by minor coal or carbonaceous shale bands. The Merrywood seam was worked by open cut and underground methods by Merrywood Colliery.

### 2.5 Other Information

The tenement holder and licence owner is HardRock Investments Pty Ltd of P.O. Box 3051, Prahan East, VIC 3181. There is no joint venture structure and there have been no title transfers during the reporting period.

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### **3 Review of Previous Work**

The following review of previous exploration activities have been carried out by HRCM.

#### **3.1 Literature Review**

Reports and documents relating to previous exploration and mining activities have been reviewed.

#### **3.2 Air-photo Interpretation**

The extent of Jurassic dolerite was mapped from aerial photographs and access for geological mapping and drill sites were assessed.

#### **3.3 Surface Mapping**

The extent of dolerite and surface talus were confirmed as drill site access for the planned holes was checked.

### **4 Exploration**

#### **4.1 Desktop Studies**

HRCM has established a database containing information from this Exploration Licence, the adjacent EL16/2010 and Mining Lease 4M/2012. Drillhole, mining and geological mapping data is progressively entered into the databases particularly when additional historical drill records and associated data is discovered in archives.

#### **4.2 Regional Exploration Activities**

No regional exploration was conducted in 2014-2015

#### **4.3 Prospect-based Exploration Activities**

##### **4.3.1 Drilling**

One drillhole at Dickies Ridge (DR01) was completed in the reporting period. A second drillhole (DR02) was planned for the eastern boundary of EL17/2010 but operational considerations pushed its location further east and into EL16/2010. The details of drillhole DR01 are provided in this Report and details of DR02 form part of the EL16/2010 Report.

##### **4.3.2 Geotechnical**

As drillhole DR01 did not penetrate coal measures no geophysical logging was undertaken.

##### **4.3.3 RFGT Technology**

Global Geological Group Pty Ltd (GGG) was engaged to repeat both the aerial and ground survey previously undertaken in 2011 by Dexon Technology Pty Ltd (who are no longer trading) using Resonance Frequency Geological Technology (RFGT). In addition a single (1of) vertical sounding confirmation scan (VSCS) was conducted in the south-eastern corner of the EL over the site of drill hole (DR01). The survey report is attached as file: "**EL172010\_201511\_09\_GGG (RFGT Survey) Report for HRCM**"

The survey commented that there was some carbonaceous material at depth around drillhole DR01, which HRCM's do not believe is the case as this is at a depth well below

the modeled base of the coal measures. The RFGT scan data provided by GGG simply noted the details of the various scan points and was not useable by the geological modeling software.

#### 4.4 Modelling

Following the completion of drillholes DR01 and DR02 the geological model was re-run with coal resources being limited to a working thickness greater than 1.5 metres and raw ash less than 45% (air dried basis). A JORC compliant report has been compiled and it attached as file: "EL172010\_201511\_10\_EL17\_JORC\_Resources\_Aug2015\_v1". The G Seam Coal Resources are summarised below:

JORC Class tonnes (in situ)	
Measured	2,271,632 (t)
Indicated	1,631,016 (t)
Measured + Indicated	3,902,648 (t)
Inferred	5,609,292 (t)
<b>TOTAL</b>	<b>9,511,941 (t)</b>

Some work has been undertaken on applying the mitigating factors to convert the resource into a reserve.

## 5 Results

The results of HRCM's activities over the reporting period are:

- Further definition of the extent of the dolerite;
- A JORC compliant report and reserve statement have been produced.

## 6 Conclusions

The conclusion is that EL17/2010 has no prospectivity for a workable coal resource beyond its south east corner due to the coal measures being eroded by dolerite. There is prospectivity for a coal resource in the south east corner of the licence area around the old Merrywood area and also to the north of Merrywood adjacent to the EL16/2010 boundary and these areas are the targets for future exploration. The current interpretation is shown as a series of plans contained in the geological report.

## 7 Environment

All drillhole sites have been rehabilitated.

## 8 Expenditure

Expenditure, being the total of four quarterly reports spanning 1 Oct 2014 to 30 Sept 2015, is \$432,894 and is shown below in the formal contained in the Annual Return:

<b>Expenditure EL17/2010</b>	
<b>1/10/14 to 30/09/15</b>	
<b>Expense Category</b>	<b>Value</b>
Geoscientific	
Geology	\$ 48,325
Geochemistry	\$ -
Gephysics	\$ -
Remote Sensing	\$ 179,401
Drilling & Gridding	
Gridding	\$ -
Meters Drilled	308m
Drilling	\$ 133,653
Land Access	\$ -
Rehabilitation	\$ 1,840
Feasibility	\$ 18,445
Other	\$ 17,632
Admin	\$ 33,597
<b>Total</b>	<b>\$432,894</b>

## 9 References

Bacon, C.A. 1991. The Coal Resources of Tasmania. *Bull. Geol. Surv. Tasm.* 64.

## 10 List of Appended Figures

Figure 1 - Plan of Original Licence boundary from MRT Approval Document

Figure 2 - Surface Geology Plan from MRT 1:25,000 map series

Figure 3 - Location of Drillholes undertaken in Reporting Period showing DR01.

## 11 Listing of Files on Attached CD

Exploration Work Type	Filename	File format
<b>Report</b>	EL172010_201511_01_ANNUAL REPORT_14-15.pdf	pdf
<b>Drilling</b>	EL172010_201511_02_SL_1.xls	xls
	EL172010_201511_03_DL_1.xls	xls
	EL172010_201511_04_Lithologycodes.xls	xls
<b>Borehole Graphic - DR01</b>	EL172010_201511_05_BHG MS02.png	png
<b>Borehole Graphic - Symbols</b>	EL172010_201511_06_BHG SYMB.png	png
<b>Surface sampling</b>		
<b>Other (specify)</b>		
<b>3D Model</b>	EL172010_201511_08_vulcan.dxf	dxf
<b>RFGT Survey</b>	EL172010_201511_09_GGG (RFGT Survey) Report.pdf	pdf
<b>Resource Estimation</b>	EL172010_201511_10_Fingal_Tier_EL17_JORC_Resources_Aug2015_v1.pdf	pdf
<b>File Verification Listing</b>	EL172010_201511_07_FILELIST.xls	xls

END OF REPORT

## Appended Figures

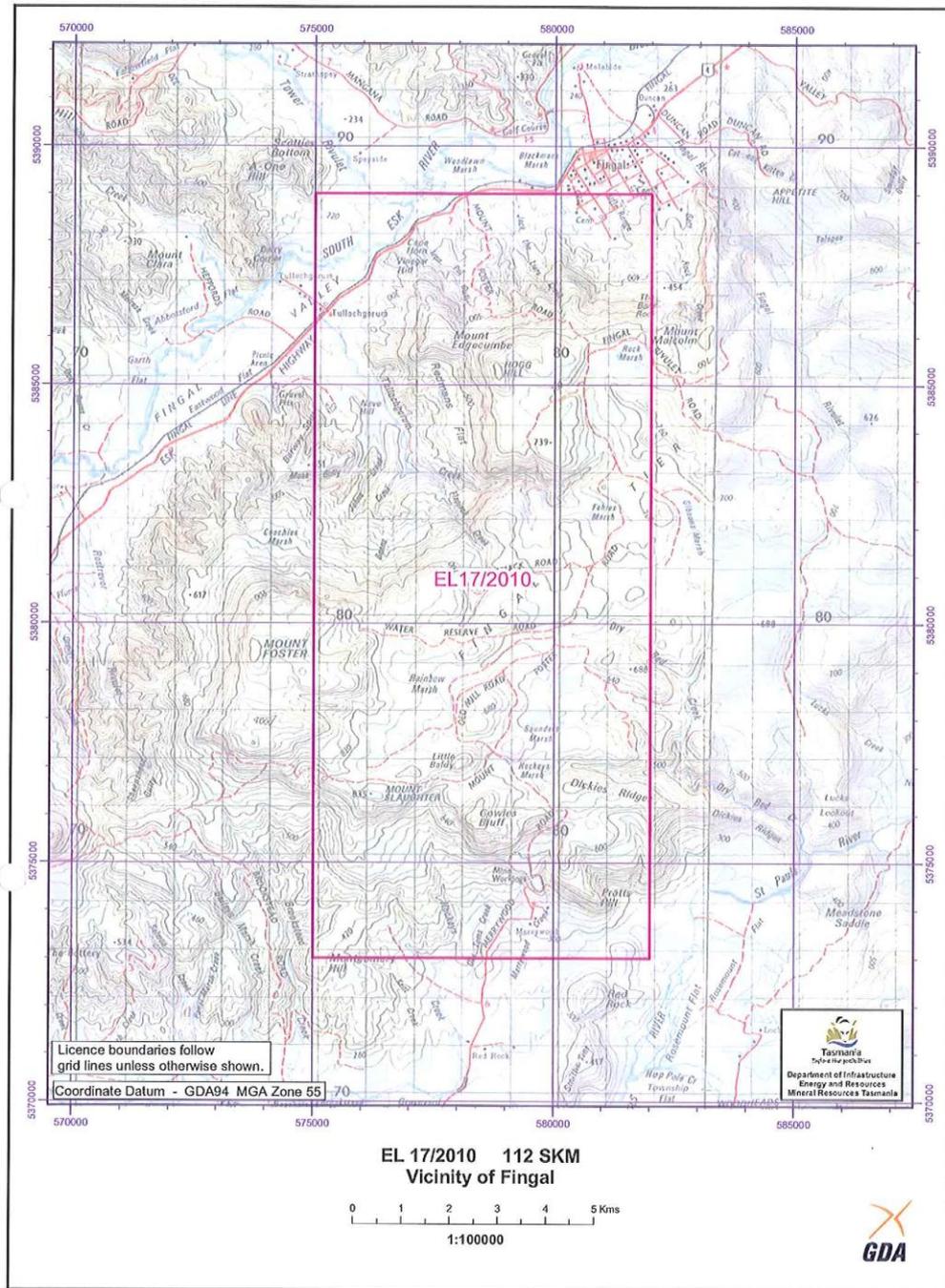


Figure 1 – Location Map for EL17/2010 (Original Boundary)

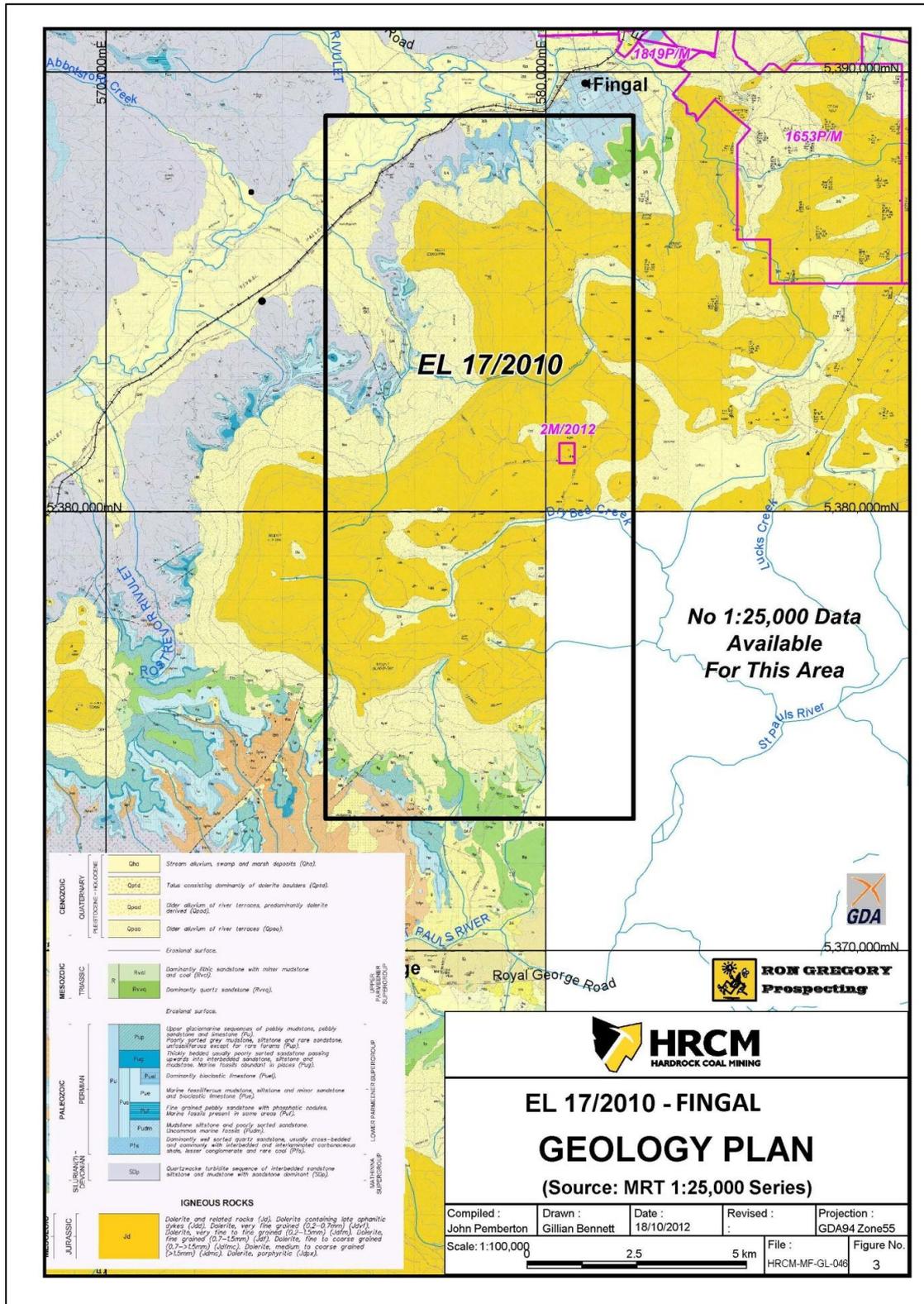


Figure 2 – Surface Geology Plan from MRT 1:25,000 map series

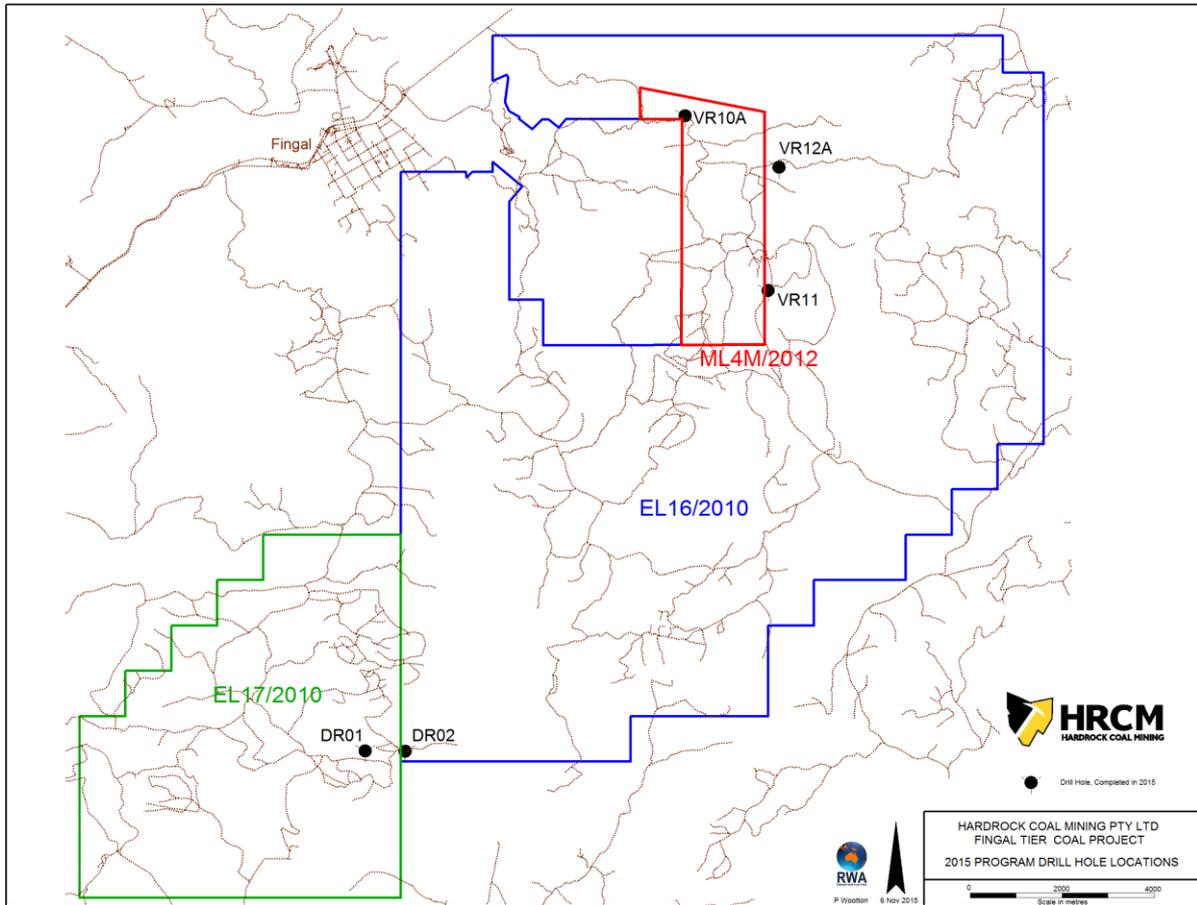


Figure 3 - Location of Drillholes undertaken in Reporting Period showing DR01