

# Red Dog Exploration (Aust) Pty Limited

(100% owned subsidiary of Ebony Coal Ltd)

## EL 29142

Northern Territory Geological Survey

1: 250,000 map sheet: Auvergne

### FINAL & ANNUAL REPORT

For the Period 15/5/12 to 14/5/14

### Red Dog Project

EXPLORATION TARGETTING RESERVES OF EXPORT QUALITY COAL

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Prepared for Ebony Coal Ltd by

**Jackray Mining Pty Ltd**

ABN 150 338 506

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## DOCUMENT CONTROL SHEET

<b>Jackray Mining Pty Ltd</b>	
Postal Address	PO Box 5672 Chatswood West, NSW 1515
Phone	+61 409 324 137
Email	davidweidemier@jackraymining.com

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Operations Manager	David Weidemier		
Author	Nick Raffan		
Client	Ebony Coal Ltd		
Client Contact	David Weidemier		

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## 1.0 ABSTRACT

Red Dog Exploration (Aust) Pty Ltd applied for EL 29142 on 27/10/11. EL 29142 was granted on 15/5/12 for a term of six years. EL 29142 is made up of 27 Blocks (41.72 sq. km). The Notice of Grant had expenditure commitments of \$15,000 for Year-1 and \$17,000 for Year-2. The rationale for applying for EL 29142 was coal seams intercepted in Permian age Bonaparte Basin Kulshill Group sediments from drilling for coal and petroleum. Desk-top study revealed multiple coal intersections >0.4 metres reported with the greatest net coal thickness from historic drilling of 4 metres. The latter result was coal seams intercepted in drill hole Keep River-1 within EL 29010. Nearest intercepts of coal seams are concentrated to the east and southeast of the tenement. The exploration target was export quality thermal coal resources amenable to open pit mining. EL 29142 is favourably located 120 kilometres from the deep-water port of Wyndham. The location in Northern Australia offers a competitive advantage for shipping costs compared with thermal coal shipped to Asian destinations from the Port of Newcastle in New South Wales. The work program for the year ending 14/5/14 was restricted to desktop risk/reward evaluation of EL 29142. The risk/reward balance did not support an application to renew this tenement. EL 29142 was relinquished on 14<sup>th</sup> May 2014.

## 2.0 COPYRIGHT STATEMENT

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### **3.0 GENERAL**

#### **3.1 Tenure Information**

Red Dog Exploration (Aust) Pty Limited applied for EL 29142 on 27/10/11. EL 29142 was granted on 15/5/12 for a period of six years.

EL 29142 is situated on a Pastoral Lease. The Aboriginal Areas Protection Authority (AAPA) has advised that it have a number of records within Red Dog Project. An Authority Certificate has previously been issued over parts or all of the search area.

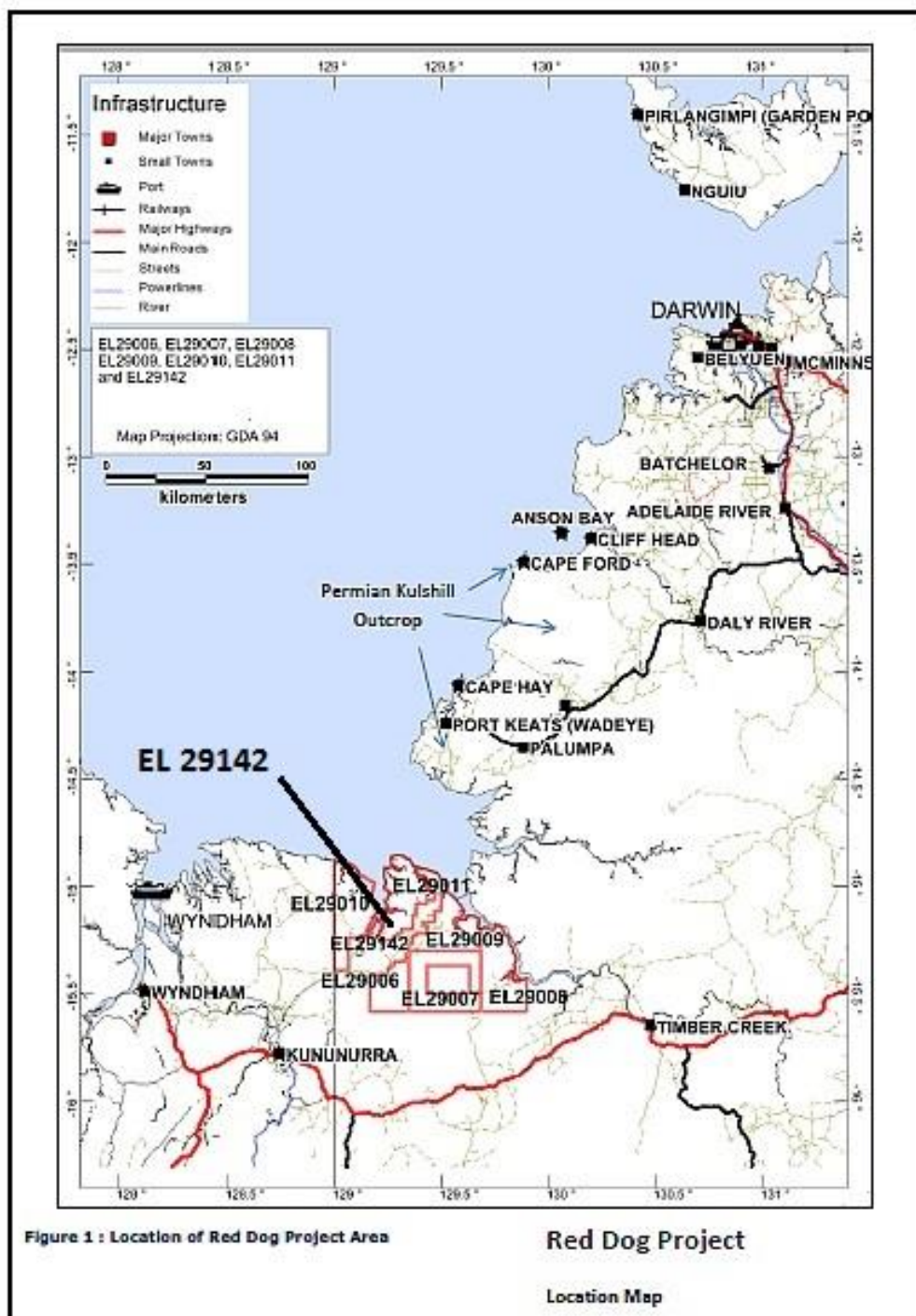
#### **3.2 Tenement Location and Access**

EL 29142 is a peninsula of low relief sandwiched between the mouths of the Keep River to the west and Sandy Creek to the east. The closest towns are Kununurra and Wyndham in far northeast of Western Australia. Wyndham has a deep-water point and is 120km southwest of the tenement. Details of EL 29142 are depicted in Figures 1, 2 and 4.

This is a remote location with no significant infrastructure, restricted road access and with few tracks. The nearest rural property is Legune Station which is 28km east of EL 29142. The Bullo River Station is located 68km to the southeast.

The tenement is characterised by a dendritic pattern of drainage with numerous swampy areas of low relief of less than 6 metres.

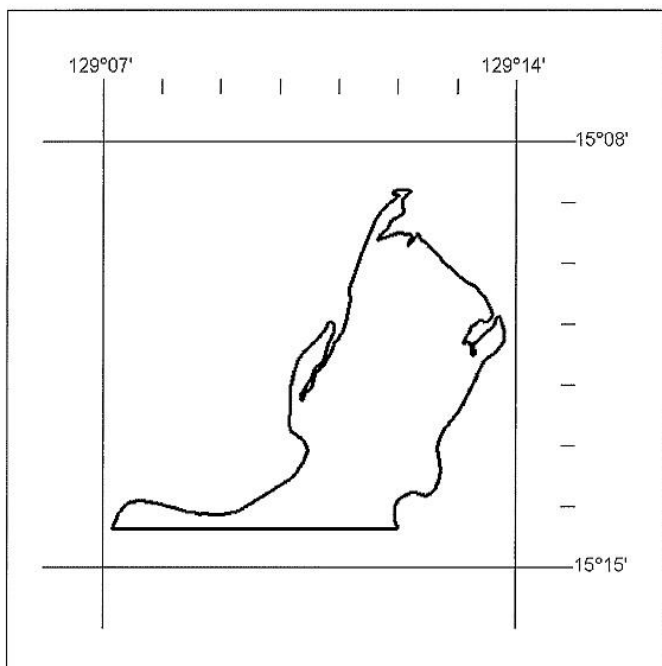
Figure 1: Regional Map -- Red Dog Project



Source: Ebony Coal.

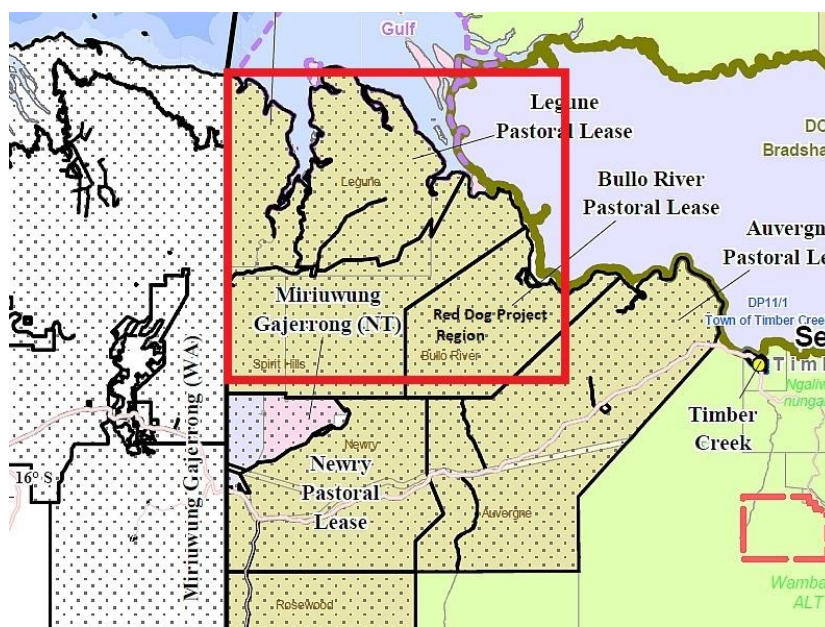


Figure 2: Details of EL 29142 – 41.72 square km.



Source: NTG Department of Resources, 2012

Figure 3: Red Dog Project Area and Pastoral Leases



Source: National Native Title Tribunal

Figure 4: Google Image Showing EL 29142 and EL 29010.



Source: Ebony Coal

## 4.0 GEOLOGICAL SETTING

### 4.1 Regional Geology

Key aspects of the geology of the Bonaparte Basin are summarised by Geoscience Australia. The Bonaparte Basin consists of a number of structural elements and extends over an area of 270,000 square kilometres. The basin has a history of both oil and gas production.

The Bonaparte extends both offshore and onshore. Red Dog tenements are within the most southern part of the basin. Red Dog tenure covers over 1,500 square kilometres of the prospective Early Permian Kulshill Group that is considered prime target stratigraphy for development of coal.

*“The Cambrian to Recent Bonaparte Basin is a fan-shaped hydrocarbon-bearing basin extending over 270,000 km<sup>2</sup> in the northwestern offshore and onshore Australia. The basin contains up to 15 km of sediments and has a multi-phase history, comprising the southern Palaeozoic and northern Mesozoic depocentres. The latter forms part of the Westralian Super-basin.*

*The Bonaparte Basin had produced 11 GL of oil to end-2000 but only 0.11 BCM of gas due mainly to market limitations. Remaining known reserves are 33.42 GL of oil and 668.55 BCM of gas.*

*The basin developed during two phases of Palaeozoic extension and Late Triassic compression prior to the onset of Mesozoic extension. Initial rifting occurred in the Late Devonian (NW-trending Petrel Sub-basin) and was orthogonally overprinted in the Late Carboniferous to Early Permian by NE-trending rift basins (proto-Malita and proto-Vulcan depocentres). Regional N-S compression in the Late Triassic resulted in widespread uplift and erosion, and, together with salt tectonics, produced inversion structures and anticlines in the Petrel Sub-basin. Erosion and collapse of these uplifted areas led to the widespread deposition of Lower-Middle Jurassic 'redbeds' and fluvio-deltaic clastics. Late Jurassic extension resulted in a series of linked, NE-trending (Vulcan Sub-basin, Malita and Calder Grabens) and SE-trending (Sahul Syncline) intracontinental grabens.*

*The Jurassic depocentres contain thick marine mudstones flanked by fan delta sandstones. A thick post-rift Cretaceous-Tertiary succession is dominated by fine-grained clastic and carbonate facies. Late Miocene-Pliocene convergence of the Australian and Eurasian plates resulted in flexural downward of the Timor Trough and widespread reactivation of the previous extensional fault systems.”*

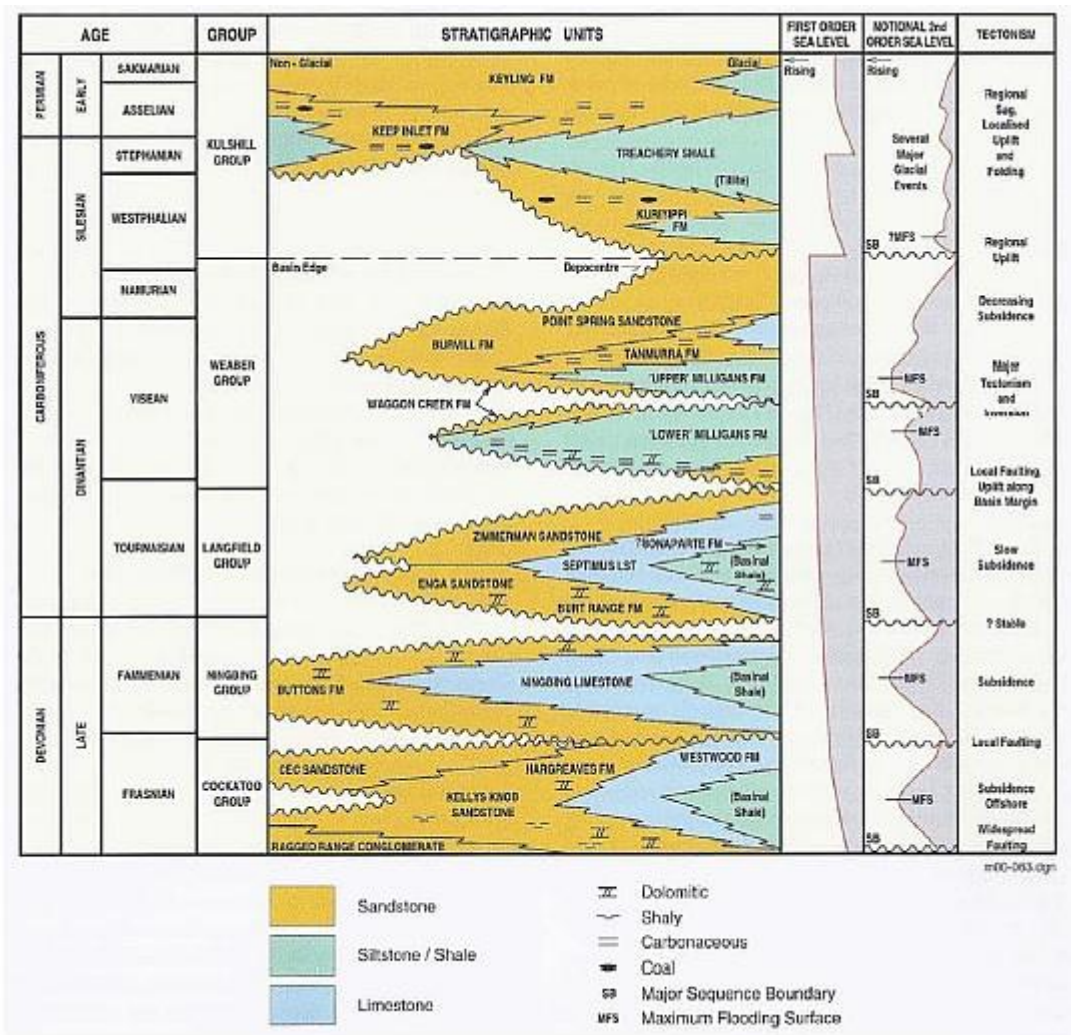
**Source:** Australian Government, Geoscience Australia.

With recorded coal intersections, the focus of exploration is the Lower Permian Kulshill Group (Figure 5).

### 4.2 Tenement Geology

The tenement or local stratigraphy is shown in Figure 5.

Figure 5: Tenement/Local Stratigraphy.



Source: Ebony Coal

Kulshill Group sedimentation is characteristic of a fluvial environment with formation of alluvial fans. Depositional sites suitable for accumulation of coal, such as swamps and lakes, may have occurred near the margins of the basin.



### 4.3 Exploration Rationale and History

The rationale for applying for EL 29142 was coal seams intercepted in Permian age Bonaparte Basin Kulshill Group sediments from drilling for coal and petroleum. Desk-top study revealed multiple coal intersections >0.4 metres are reported with the greatest net coal thickness from historic drilling of 4 metres. The latter result was from drill hole Keep River-1 within EL 29010.

Coal exploration within the onshore Bonaparte Basin began in 1906 when the South Australian Department of Mines completed a number of boreholes around Port Keats, Cliff Head, Cape Ford, Anson Bay and Cape Hay. Coal is in outcrop at Cape Hay but the location of boreholes is unknown as are the thicknesses of seams intersected. It seems that the seams were discontinuous, considered uneconomic, and exploration ceased.

In the mid-1960s, Australian Aquitaine Petroleum Pty Ltd drilling for oil (Authority to Prospect OP2) intersected coal in Kulshill 1, Kulshill 2 and Keep River-1. This success led to further exploration by Theiss Brothers Pty Ltd (Coal Licence 172), but it was concluded that bands of coal were thin, discontinuous, and occurred in unconsolidated sediments and not mineable. Utah Development Corporation (UDC) drilled a number of holes near Port Keats in 1972. Western Mining Corporation Limited (WMC) completed a desktop study of the work completed by UDC in 1982 and completed coal quality analysis of historical petroleum well cuttings. WMC concluded that mining coal around Port Keats would not be economic.

The target of this earlier exploration was the shallow Lower Permian coal in the Upper Kulshill Group that outcrops in the Port Keats area. Red Dog Exploration did not target the Upper Kulshill Group. Rather the target of the current exploration programme is the Lower Kulshill Group.

Inspired by Keep River-1, CRA mounted an exploration effort on three tenements, Coal Licence 1 (NT), and two tenements in Western Australia. The only noteworthy drill result was net 1.8 metres of coal from five seams in WA (DH RD81BC7). CRA concluded that coal seams were shaly, thin and discontinuous, and the tenements were relinquished.

## 5.0 EXPLORATION WORKS CONDUCTED

### Year 1 ending 14<sup>th</sup> May 2013

#### 5.1 Overview of Work Performed

The work program for the year ending 14/5/13 was restricted to desktop studies and commissioning of reports from consultants. Jackray Mining Pty Ltd, Global Ore Discovery and MBGS completed this work. Consultant's reports were referred to in the Annual Report for the year ending 14<sup>th</sup> May 2013 and formed attachments to that document.

#### 5.2 Committed Expenditure

The expenditure commitment for the first year of tenure for EL 29142 was \$15,000. Actual expenditure of \$15,540 for the year ending 14<sup>th</sup> May 2013 exceeded covenant.

## 6.0 EXPLORATION WORKS CONDUCTED

### Year 2 ending 14<sup>th</sup> May 2014

#### 6.1 Overview of Work Performed

The work program for the period was restricted to a risk/reward study and review of earlier reports received from consultants. This work, completed by Jackray Mining Pty Ltd, focussed on a risk/reward analysis to determine whether additional funds should be allocated to explore EL 29142.

#### 6.2 Committed Expenditure

The expenditure commitment for EL 29142 in the second year of tenure was \$17,000. The amount spent on the tenement in the current period of **\$1,650** did not meet the expenditure commitment for the year ending 14<sup>th</sup> May 2014. A review of the Red Dog Project resulted in relinquishment of EL 29142 on 14<sup>th</sup> May 2014.

## **7.0 CONCLUSION & RECOMMENDATION**

Junior explorers are finding it difficult to raise new equity capital to fund exploration. The current state of affairs necessitates continuous review of the portfolio of tenements that comprise the Red Dog Project. On a risk/reward basis, EL 29142 was considered to have too high risk.

EL 29142 was relinquished to preserve funds that are better allocated towards exploring higher priority projects.

**EL 29142 was relinquished on 14<sup>th</sup> May 2014.**