MERLIN COAL PTY LTD
(100% Owner & Operator)

PURNI COAL PROJECT

YEAR 6 COMBINED ANNUAL REPORT

for the period 1st Sept 2014
to the 31st August 2015
covering

EL27094, EL27100, EL27101, EL27102, EL27103, EL27104, EL27105, EL27106,
EL27107, EL27108, EL27109, EL27110, EL27114, EL28095, EL28096, EL28097, and
EL28472.

(Group Reporting Number: 157)

PEDIRKA BASIN

NORTHERN TERRITORY

Compiled by:

Joe Schifano

(Consulting Geologist for Geo Joe Pty Ltd)

(BSc. (Hons), BComm, MAIG, MAusIMM, GAICD)

01 October 2015
<table>
<thead>
<tr>
<th><strong>Titleholder</strong></th>
<th>Merlin Coal Pty Ltd</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operator (if different from above)</strong></td>
<td>Merlin Coal Pty Ltd</td>
</tr>
<tr>
<td><strong>Tenement Manager/Agent</strong></td>
<td>Merlin Coal Pty Ltd</td>
</tr>
<tr>
<td><strong>Titles/Tenements</strong></td>
<td>EL27094, EL27100, EL27101, EL27102, EL27103, EL27104, EL27105, EL27106, EL27107, EL27108, EL27109, EL27110, EL27114, EL28095, EL28096, EL28097, and EL28472.</td>
</tr>
<tr>
<td><strong>Mine/Project Name</strong></td>
<td>Purni Coal Project</td>
</tr>
<tr>
<td><strong>Report title including type of report and reporting period including a date.</strong></td>
<td>Purni Coal Project Year 6 Combined Annual Report for the period 1st September 2014 to the 31st August 2015.</td>
</tr>
<tr>
<td><strong>Personal author(s):</strong></td>
<td>Joe Schifano (Geo Joe Pty Ltd)</td>
</tr>
<tr>
<td><strong>Corporate author(s):</strong></td>
<td>Merlin Coal Pty Ltd</td>
</tr>
<tr>
<td><strong>Company reference number:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Target Commodity or Commodities:</strong></td>
<td>Coal, gas and any other valuable minerals</td>
</tr>
<tr>
<td><strong>Date of report:</strong></td>
<td>01 October 2015</td>
</tr>
<tr>
<td><strong>Datum/Zone:</strong></td>
<td>GDA94/Zone 53</td>
</tr>
<tr>
<td><strong>250,000k mapsheets:</strong></td>
<td>McDills, Hale River, Simpson Desert South, and Simpson Desert North</td>
</tr>
<tr>
<td><strong>100,000k mapsheets:</strong></td>
<td>McDills, Eromange Basin, Andado, Etingambra, Nuckua, Poodinitterra, Langley, Simpson, Lukin, Sandford, Hubbard, Geosurveys, and Colson.</td>
</tr>
</tbody>
</table>
| **Contact details (Postal address):** | Level 5  
350 George St  
Sydney NSW 2000  
Australia |
| **Fax:** | 02 8284 5500 |
| **Phone:** | 02 8284 5588 |
| **Email for further technical details:** | JoeS@FRID.com.au |
| **Email for expenditure:** | JoeS@FRID.com.au |
Table of Contents

Abstract .................................................................................................................................................. 1

1.0 Introduction ........................................................................................................................................ 3
  1.1 Location and Access ............................................................................................................................ 3
  1.2 Tenure .................................................................................................................................................. 3
  1.3 Land Use ............................................................................................................................................. 5

2.0 Geological Setting ............................................................................................................................... 7
  2.1 Local Geology ....................................................................................................................................... 10
  2.2 Stratigraphy .......................................................................................................................................... 13
  2.3 Recent PCP Exploration History .......................................................................................................... 18
  2.4 Exploration Rationale .......................................................................................................................... 19

3.0 Geological Activities and Exploration Work ....................................................................................... 20
  3.1 General Development Concept Design Analysis on the PCP .............................................................. 20
  3.2 Expenditure ........................................................................................................................................ 21

4.0 Conclusions and Recommendations ................................................................................................ 21
  4.1 Conclusions ......................................................................................................................................... 21
  4.2 Recommendations .............................................................................................................................. 22

5.0 References .......................................................................................................................................... 24
List of Figures

Figure 1: Purni Coal Project Exploration Licence Location Map................................. 4
Figure 2: Purni Coal Project Area Topographic Map..................................................... 6
Figure 3: Regional Tectonic Elements of the Central Australian Area.......................... 8
Figure 4: Merlin Exploration Licences and Regional Elements Map............................... 9
Figure 5: A Regional Cross section through the Pedirka-Cooper Basin area ................. 12
Figure 6: Pedirka Basin Stratigraphy .............................................................................. 16
Figure 7: Pedirka-Simpson Desert Area Basin Stratigraphy .......................................... 17
Figure 8: Possible drill hole locations for the Purni Project in 2015/16............................. 22
Figure 9: Purni Coal Project Exploration Licences and proposed drill sites and access tracks .......................................................................................................................... 23

List of Tables

Table 1: Purni Coal Project Exploration Licence details ................................................ 5
Table 2: Previously drilled and planned CTP drill hole locations .................................... 19
Table 3: Purni Coal Project potential drill hole target locations ..................................... 22

COPYRIGHT: Information contained within this report is the copyright of Merlin Coal Pty Ltd. Merlin Coal Pty Ltd authorise the Minister of Mines and Energy to publish information contained within this report. Merlin Coal Pty Ltd authorises the Department of Mines and Energy to copy and distribute this report and associated data.
Abstract

This is the Year 6 Combined Annual Report for the Purni Coal Project (PCP), comprising of seventeen mineral exploration licences (EL27094, 27100 - 27110, EL27114, EL28095 - 28097 and EL28472) for the period 1st September 2014 to the 31st August 2015. The PCP covers an area of 17,897 km².

Past exploration by the previous owners has focussed on the extensive coal deposits of the Pedirka Basin and has consisted of a review of available data, creation of a digital terrain model of the top of the Cadna-Owie and Purni Formations, stratigraphic interpretation of existing water bores, stratigraphic drilling, and testing and analysis of coal samples from the drilling.

During the current reporting period to the 31st August, no on site exploration activity was undertaken on any of the 17 exploration licences. Inclement weather in April 2014 prevented access to the area to assess 3 previous drill sites on ELs 27109 and 28095 for rehabilitation work, future seismic work and follow up drilling.

A $1.4M favourable Preliminary General Development Concept Design Analysis on the PCP has been completed by China Shenhua on behalf of Merlin Coal over the last 18 months. China Shenhua is the largest coal mining state owned enterprise in mainland China, and the largest coal mining enterprise in the world. China Shenhua has advised that a Full Feasibility on the PCP would cost around $A22M.

An exploration program is being developed which to currently assess the value of drilling further holes within the project area and/or under additional seismic surveys to infill between the existing 2D seismic lines to improve the structural interpretation in these areas, reduce subsurface uncertainties, and to undertake further drill testing of the shallower coal targets as the focus of exploration moves to targeting coal measures within the top 500 metres.

Merlin Coal is currently in discussion with China Shenhua and other potential joint venture partners in regards to how best to develop this infrastructure dependent project covering mining, rail, port, power supply, water supply, and all aspects of engineering. This also includes where to best locate future drill holes for
exploration work. However, current world commodity market conditions have made it increasingly difficult for Merlin Coal to secure and finalise an Asian joint venture partner to fund ongoing exploration and development work for the Purni Coal Project.
1.0 Introduction

This is the Year 6 Group Annual Report for the Purni Coal Project (PCP), comprising of seventeen mineral exploration licences (EL27094, 27100 - 27110, EL27114, EL28095 - 28097 and EL28472) for the period 1st September 2014 to the 31st August 2015. This report covers the technical activities and total expenditure on all the exploration licences.

The sale of the 17 exploration licences that consist of the PCP held by Merlin Coal Pty Ltd to FRID Energy Pty Ltd occurred on the 29/05/2013, with the ASIC transfer of registered Directors and shareholdings occurring on the 3rd of June 2013. Merlin Coal Pty Ltd was previously owned by ASX listed Central Petroleum Limited (CTP).

1.1 Location and Access

The PCP is located approximately 340 km’s southeast of Alice Springs in the Simpson Desert and covers part of the Eromanga and Pedirka Basins (figure 1). It comprises seventeen exploration licences operated by Merlin Coal Pty Ltd, now wholly owned by FRID Energy Pty Ltd.

The project is located in the Simpson Desert, south east of Alice Springs in the Simpson Strzelecki Dune fields Bioregion. Access to the exploration area is via previously approved routes on public roads (figure 1). Upon entry to the Simpson Desert, access is via pre-existing access tracks which have been built in order to service the operations of the previous exploration licence operator. There are no permanent watercourse areas in the exploration areas, although the Hale and Todd Rivers flood out to the west of the Allitra Tableland.

1.2 Tenure

EL27094 was granted on 7th August 2009, EL27100 - 27110 and EL27114 were granted 4th September 2009, EL 28095 - 28097 were granted 24th December 2010, and EL28472 was granted on the 7th of September 2011. The exploration licences cover 5,931 blocks over an area of 17,897 km$^2$. FRID Energy became the owner of these 17 exploration licences via a purchase of Merlin Coal Pty Ltd which was finalised on the 3rd June 2013 when the new ownership was registered.

Table 1 below summarises the exploration licences covered by this report and figure 1 shows the location of the exploration licences. Thirteen full renewals were lodged on the 4th August for ELs 27094, 27100-110, & 27114.
Figure 1: Purni Coal Project Exploration Licence Location Map
<table>
<thead>
<tr>
<th>Type</th>
<th>EL Number</th>
<th>Grant Date</th>
<th>Expiry Date</th>
<th>Status</th>
<th>Size (Blocks)</th>
<th>Size (km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL</td>
<td>27094*</td>
<td>07-Aug-09</td>
<td>06-Aug-15</td>
<td>Granted</td>
<td>47</td>
<td>97.81</td>
</tr>
<tr>
<td>EL</td>
<td>27100*</td>
<td>04-Sep-09</td>
<td>03-Sep-15</td>
<td>Granted</td>
<td>476</td>
<td>1382.34</td>
</tr>
<tr>
<td>EL</td>
<td>27101*</td>
<td>04-Sep-09</td>
<td>03-Sep-15</td>
<td>Granted</td>
<td>265</td>
<td>735.40</td>
</tr>
<tr>
<td>EL</td>
<td>27102*</td>
<td>04-Sep-09</td>
<td>03-Sep-15</td>
<td>Granted</td>
<td>440</td>
<td>1349.00</td>
</tr>
<tr>
<td>EL</td>
<td>27103*</td>
<td>04-Sep-09</td>
<td>03-Sep-15</td>
<td>Granted</td>
<td>440</td>
<td>1354.00</td>
</tr>
<tr>
<td>EL</td>
<td>27104*</td>
<td>04-Sep-09</td>
<td>03-Sep-15</td>
<td>Granted</td>
<td>440</td>
<td>1364.00</td>
</tr>
<tr>
<td>EL</td>
<td>27105*</td>
<td>04-Sep-09</td>
<td>03-Sep-15</td>
<td>Granted</td>
<td>440</td>
<td>1365.00</td>
</tr>
<tr>
<td>EL</td>
<td>27106*</td>
<td>04-Sep-09</td>
<td>03-Sep-15</td>
<td>Granted</td>
<td>449</td>
<td>1296.00</td>
</tr>
<tr>
<td>EL</td>
<td>27107*</td>
<td>04-Sep-09</td>
<td>03-Sep-15</td>
<td>Granted</td>
<td>440</td>
<td>1368.67</td>
</tr>
<tr>
<td>EL</td>
<td>27108*</td>
<td>04-Sep-09</td>
<td>03-Sep-15</td>
<td>Granted</td>
<td>440</td>
<td>1368.68</td>
</tr>
<tr>
<td>EL</td>
<td>27109*</td>
<td>04-Sep-09</td>
<td>03-Sep-15</td>
<td>Granted</td>
<td>373</td>
<td>1144.09</td>
</tr>
<tr>
<td>EL</td>
<td>27110*</td>
<td>04-Sep-09</td>
<td>03-Sep-15</td>
<td>Granted</td>
<td>180</td>
<td>561.09</td>
</tr>
<tr>
<td>EL</td>
<td>27114*</td>
<td>04-Sep-09</td>
<td>03-Sep-15</td>
<td>Granted</td>
<td>480</td>
<td>1375.02</td>
</tr>
<tr>
<td>EL</td>
<td>28095</td>
<td>24-Dec-10</td>
<td>23-Dec-16</td>
<td>Granted</td>
<td>420</td>
<td>1310.18</td>
</tr>
<tr>
<td>EL</td>
<td>28096</td>
<td>24-Dec-10</td>
<td>23-Dec-16</td>
<td>Granted</td>
<td>240</td>
<td>749.17</td>
</tr>
<tr>
<td>EL</td>
<td>28097</td>
<td>24-Dec-10</td>
<td>23-Dec-16</td>
<td>Granted</td>
<td>364</td>
<td>1064.99</td>
</tr>
<tr>
<td>EL</td>
<td>28472</td>
<td>07-Sep-11</td>
<td>06-Sep-17</td>
<td>Granted</td>
<td>7</td>
<td>12.25</td>
</tr>
</tbody>
</table>

Total of 17 Exploration Licences granted

Seven new applications have also been lodged on 28th of July for ELAs 30901-30907 covering the centre of the project area replacing the previous applications 27095-99.

1.3 Land Use

There are two sites of national significance within the Simpson Desert (Allitra Tableland and Andado) as determined by the NT Government Department of Natural Resources Environment the Arts and Sport (NRETAS) Parks and Conservation Masterplan. White et al. (2000) list these sites as being of national significance and describe the Allitra Tablelands as a large residual tableland bounded to the north and west by the flood out of the Hale River. The site supports one of the largest known populations of the vulnerable Acacia pickardii (TPWC Act) as well as other flora of national or bioregional significance such as Calotis kempei, Maireana apressa and Osteocarpum pentapterum, Acacia cerophylla and Lysiana spathulata (White et al. 2000).

Andado is described as a large outlier of heavy finely textured soils and gibber plains enclosed by dune fields of the Simpson Desert. The site incorporates the major conservation reserve for endangered Acacia peuce (TPWC Act) as well as several important ephemeral swamps. Other flora of national significance in the Andado site includes Acacia pickardii, Atriplex morrissii, Bergia occultipetala, Eleocharis papillosa, and Ptilotis aristatus var. eichlerianus (White et al. 2000). The Andado area also supports a major breeding population of the plains mouse (Pseudomys australis) (vulnerable under the TPWC Act) and several other threatened mammalian fauna have been recorded in the area e.g. mulgara.
(Dasycercus cristicauda/hilleri) and southern marsupial mole (Notoryctes typhlops).

The exploration area is predominately located in Crown Land, although the most western sites are located on Andado Pastoral station. NRETAS biodiversity south unit also have a long term flora and fauna monitoring site located in and around the Mac Clarke Conservation reserve. Heritage and Sacred Site clearance have also been conducted in the area in relation to previous exploration campaigns and the Central Land Council and/or Aboriginal Areas Protection Authority have previously been contacted with regards to Merlin’s exploration activities.

The company’s previous owners, CTP, undertook several reviews of its operations (past, present and future) against the requirements of the Environmental Protection and Biodiversity Conservation Act and against the administrative procedures prescribed by the Environmental Assessment Process in the NT and Environment Assessment Act 1982. This has included reviews of the NT Flora and Fauna atlas, protected matters searches, and on ground flora and fauna surveys by suitably qualified consultants.

Figure 2: Purni Coal Project Area Topographic Map.
2.0 Geological Setting

Pronounced Palaeozoic tectonic related compression during the latter part of the Alice Springs Orogeny (Late Devonian to Early Carboniferous) folded Neoproterozoic/Palaeozoic sediments of the Warburton Basin, as recorded in Hibburt and Gravestock (1995) and Ambrose et al., (2002).

This section was truncated by erosion resulting in a moderately undulating topography which was infilled by Permo – Carboniferous sediments. During this period, epeirogenic downwarp accommodated glacigene and floodplain-swamp deposits but subsequent depositional terrains became progressively more subdued through time.

Mild tectonism at the end of the early Permian was accompanied by a regional easterly tilt with local basin sag occurring in the Eringa, Madigan and Poolowanna Troughs, the latter being the major focus of Mesozoic sedimentation. This period saw the development of a structural regime differentiating the Pedirka Basin from the younger, closely allied Simpson and Eromanga basins.

The oldest Simpson Basin sediments, the Walkandi Formation red-bed sequence was deposited on a gently undulating Permian surface, under the influence of mild regional subsidence. It is assumed that minor uplift in the Late - Middle Triassic triggered an abrupt change to fluvial - alluvial sedimentation at the base of the Peera Peera Formation. Minor uplift and erosion (penepianation) at the end of the Triassic resulted from mild rejuvenation of pre-existing faults. The overlying Early Jurassic sedimentary cycles are sheet-like in extent and sedimentation of both this unit and the overlying Jurassic/Cretaceous sequence were increasingly focused in the Poolowanna Trough. This resulted in the vertical juxtaposition of the thickest developments of Peera Peera and Poolowanna formation source rocks beneath the most substantial Cretaceous sedimentary load as shown in figures 3 and 4 (Ambrose, G., and Heugh, J., 2012).

Structuring during the Jurassic was subtle and largely a function of drape and compaction over older Palaeozoic highs, but structural closures formed at this time are believed to be prime oil targets. Relatively rapid burial of the Eromanga section occurred during the Cretaceous prior to at least some uplift and erosion at the end of Winton Formation time although this interpretation relies heavily on evidence from the Cooper Basin to the south. During the Miocene, intense east-west compression and local wrenching resulted in severe structural rejuvenation, and in some cases structural inversion, along most major fault lines. This structural phase is linked to the collision of the Australian and Timor continental plates during the Miocene.
Tectonic Elements

Figure 3: Regional Tectonic Elements of the Central Australian Area
Tectonic Elements

Figure 4: Merlin Exploration Licences and Regional Elements Map
2.1 Local Geology

The Pedirka Basin sequence had its genesis in Carbonaceous-Early Permian time when sedimentation occurred in a down warp over the pre-existing sediments of the Proterozoic-Early Carboniferous Amadeus Basin.

Sedimentation in the Amadeus Basin was controlled and constrained by basement blocks of metamorphic and igneous composition, the Arunta Block to the north and the Musgrave block to the south. The western margin of the basin is a shallow basement ridge which separates the Amadeus Basin from the Canning Basin of Western Australia.

The basin's eastern margin is not well understood but appears to be truncated, as does the southern margin. Two pulses of marine deposition are thought to have occurred; these were then followed by a later pulse of continental sedimentation. Several episodes of structuring then occurred, involving uplift and erosion and then sinking and marine transgression. The previously mentioned basement blocks acted as immobile bulwarks against which the sediments of the Amadeus Basin were deformed and structured, due to north-south compression.

Subsequently subsidence occurred in the deeper eastern and southern ends of the basin and the lacustrine, fluvial, and often glacial derived sediments of the Permian aged Pedirka Basin were deposited unconformably on the Amadeus Basin section. Extensive accumulations of carbonaceous material were deposited in this cycle.

A hiatus then occurred before the Triassic aged Simpson Basin sequence was deposited, unconformably, on the Pedirka Basin sequence. These sediments are of lacustrine, flood plain and fluvial origin, with some glacial influence. This cycle is dominated by carbonaceous shale with some coal. The depocentre of this basin, the Poolowanna Trough is eastwards of the Pedirka Basin depocentres.

Uplift and erosion occurred as a result of the widespread Triassic structuring event. This was followed by the cyclic sedimentation of the Eromanga Basin sequence, of fluvial and flood plain origin. The Poolowanna Formation, the basal unit is a good source rock, containing some coal and carbonaceous shale, which are known to be mature and to contain oil prone macerals. Cyclic alternating interbedded high and low energy then occurred during the deposition of the Eromanga Basin sequence of alternating and juxtaposed high quality clastic
reservoirs and regional seals. A marine transgression occurred in Cretaceous time when the Wallumbilla Formation was deposited. This unit is a regional top seal to the Eromanga Basin sequence.

The basin complex has had, for most of its life, an intra-cratonic setting. In eastern and central Australia this has resulted in the deposition of considerable amounts of coal and or carbonaceous shale.


Figure 4 (Ambrose, G., and Heugh, J., 2012) above shows the structural elements of the Pedirka Basin and figure 5 (Ambrose, G., and Heugh, J., 2012) shows the schematic cross section.
Figure 5: A Regional Cross section through the Pedirka-Cooper Basin area
2.2 Stratigraphy

The Pedirka area is situated in the Simpson Desert, the stratigraphy of the Pedirka Basin and the interpreted stratigraphic column of the Simpson Desert area is illustrated in figures 6 and 7.

The Pedirka Basin encompasses four superimposed sedimentary basins, namely the Palaeozoic Warburton Basin, the Permo-Carboniferous Pedirka Basin, the Triassic Simpson Basin, and the Jurassic–Cretaceous Eromanga Basin. Over wide areas it reflects a structural footprint controlled by Palaeozoic structuring and palaeo-depositional facies.

Pre-Permian

The earliest sediments in the area are a succession of Neoproterozoic to Late Devonian intracratonic sediments of the Warburton Basin. These strata occur extensively in the subsurface and onlap Mesoproterozoic gneiss, amphibolite and granites of the Musgrave Province.

Permian Sedimentation (Pedirka Basin)

The Pedirka Basin depocentres consist of the Eringa and Madigan troughs and the Jurassic/Cretaceous Poolowanna Trough. The Permo-Carboniferous record is dominated by widespread glaciation and basal diamicites (Crown Point Formation). This sequence is overlain by intracratonic sediments of the Early Permian Purni Formation which are equivalent to the Patchawarra Formation of the Cooper Basin. However, this interpretation recognises regional development of glacial outwash sandstones at the top of the Crown Point Formation which are believed to be equivalent to the Tirrawarra Sandstone of the Cooper Basin.

Permo-Carboniferous Crown Point Formation/Tirrawarra Sandstone Equivalent

The basal Permian unit, the Crown Point Formation, is a dominantly glacial succession comprising extensive diamicite, glacial-fluvial outwash sandstones, ripple laminated sandstone and siltstone, together with thick shale and varved successions. Coarse sandstone, conglomerate and diamicite are common around palaeo-highs, whereas basinal areas are mostly shale and varve sedimentation. The succession is thickest in the Eringa Trough where 700 metres of clean sandstone and siltstone was encountered in Mount Hammersley-
1; these are believed to represent glacio-lacustrine deposits. The topmost unit is a glacial outwash sandstone equivalent to the Tirrawarra Sandstone of the Cooper Basin. The sandstones are most porous at the base and are commonly feldspathic with lithics. The thickest known development of this sandstone is 200 metres in Mt Hammersley-1 in South Australia where the sequence comprises glacial outwash sandstone, displaying both fining-upward and coarsening-upward GR log motifs.

**Early Permian Purni Formation**

The Purni Formation conformably overlies the Crown Point Formation, being a depositional continuum following the termination of glaciation in Sakmarian time. Glacial outwash sandstone intervening between these two units correlates with the Tirrawarra Sandstone and subdivided the Purni Formation at Mokari-1 and Purni-1 into three members with a total maximum thickness of 350 metres in Mokari-1 and 286 metres in Mount Hammersley-1. The lowest member comprises thinly interbedded sandstone and siltstone, with minor carbonaceous shale and conglomerate. This facies resulted from a predominantly low-energy, meandering-fluvial depositional system. The sandstones are commonly pyritic which differentiates them from feldspathic sandstones of the Tirrawarra Sandstone. The upper part of the Purni Formation consists of paludal/floodplain deposits, comprising very fine to fine-grained carbonaceous sandstone and interbedded siltstone, shale and coal. The coals and shales contain up to 10% exinite and are expected to be rich in vitrinite and inertinite thus providing excellent source rocks for oil and gas.

**Early Jurassic Poolowanna Formation**

In the Eromanga Basin, the Early Jurassic Poolowanna Formation is an important target for hydrocarbons. To the east in the Poolowanna Trough and beyond, this unit can be subdivided into two vertically stacked upward-fining cycles, each being 50 to 100 metres in thickness. This sequence, which relates to distal sea-level change may be present in the Eringa Trough but probably pinches out down-dip of the well location. Care should be exercised in differentiating any Poolowanna coals (not predicted but could possibly be present) from those expected in the top Purni Formation.

**Jurassic Algebuckina Sandstone/Cretaceous Marine Shales**

The Poolowanna Formation is disconformably/unconformably overlain by thick continental sandstones of the Algebuckina Sandstone. This thick fluvial package is in turn sometimes overlain by thin Murta Member shales in turn succeeded by marginal-marine Cadna-Owie Formation, comprising fine-grained sandstone,
siltstone, and claystone, with minor limestone. Geochemistry of oil stains recorded at the top Algebuckina Sandstone indicates a marine source rock – the most likely candidate is the Murta Member shales which appear to have acted as both source and seal.

The onset of full marine conditions during the Early Cretaceous is represented by the Bulldog Shale/Toolebuc/Oodnadatta succession. In the Late Cretaceous, non-marine conditions prevailed and the Winton Formation was deposited in a fluvial-floodplain environment denoted by interbedded sandstones, siltstones and coals. It was during Winton Formation sediment loading that most hydrocarbon generation is believed to have occurred in the Eringa Trough to the east. The Andado Shelf is a target for migrated hydrocarbons formed in the Eringa Trough as well as for coal-bed-methane.
<table>
<thead>
<tr>
<th>AGE</th>
<th>RESERVOIR SOURCE SEAL</th>
<th>STRATIGRAPHY</th>
<th>ASSOCIATED BASIN</th>
<th>OIL/GAS</th>
<th>DEFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>TERTIARY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Miocene Collision Orogeny with Timor Plate</td>
</tr>
<tr>
<td></td>
<td>5MA/7BP</td>
<td></td>
<td></td>
<td></td>
<td>Mid Tertiary Compression Regeneration of older Structures</td>
</tr>
<tr>
<td>CRETAUCEOUS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Compression Phase</td>
</tr>
<tr>
<td></td>
<td>LATE/EARLY</td>
<td></td>
<td></td>
<td></td>
<td>Continued Downwarp of Basin</td>
</tr>
<tr>
<td>JURASSIC</td>
<td>LATE/EARLY/MIDDLE</td>
<td></td>
<td></td>
<td></td>
<td>Continued tilt of Basin to N.E.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Basin tilt wrench induced compressional stress assoc with doming phase of Aust/Antarctica pull apart</td>
</tr>
<tr>
<td>TRIASSIC</td>
<td>LATE/EARLY</td>
<td></td>
<td></td>
<td></td>
<td>Faults reactivated</td>
</tr>
<tr>
<td>PERMIAN</td>
<td>LATE/EARLY</td>
<td></td>
<td></td>
<td></td>
<td>Major compression al phase-thrusting-wrenching (Alice Springs Orogeny)</td>
</tr>
<tr>
<td>CARBONIFEROUS</td>
<td>LATE/EARLY</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEVONIAN</td>
<td>LATE/EARLY</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 6: Pedirka Basin Stratigraphy**
Figure 7: Pedirka-Simpson Desert Area Basin Stratigraphy
2.3 Recent PCP Exploration History

The Pedirka Basin covers about 150,000 km² (80% in Northern Territory and 20% in South Australia). Merlin Coal has both mineral tenements and petroleum permits covering this area. It is an intracratonic basin unconformably overlying the Amadeus Basin. A NW-SE compressional phase in Mid to Late Carboniferous initiated deposition in the Pedirka Basin.

Exploration targeted coal measures identified in the Purni Formation, a Permian sequence of predominantly inter-bedded siltstone, shale, fine sandstone, and coal. Coal measures were also intersected in petroleum wells within the Pedirka Basin.

The presence of a substantial net thickness of series of thick Permian aged coal seams in the Purni Formation was defined by the Blamore-1 petroleum exploration well and series of Coal Bed Methane exploration wells drilled by CTP. These wells established that the very large Purni Formation coal deposits were regionally extensive in the Eringa Trough and Madigan Trough of the Pedirka Basin within the company’s Petroleum Exploration permits.

The PCP attempted to define the potential coal reserves at more shallow depth in mineral permits EL27109 towards the northern margin of the Pedirka Basin with provisional locations in other licenses held by the company.

A series of stratigraphic holes (table 2) were planned to provide the information required to extend the known boundaries of the coal measures and compile a new estimate of the volume and tonnes. Drilling of these stratigraphic holes was phased, four were proposed (two each) from EL27109 and EL27114 for the first stage of the drilling program with plan to fully core the Purni Formation. Eventually the two from EL27114 were dropped and replaced with one from EL28095 due to operational reasons. Three holes SHEL27109-1, SHEL27109-2 and SHEL28095-1 were drilled during December 2010 and January 2011.

The phasing of the stratigraphic hole drilling and the reduction in number of holes drilled in the first phase by CTP were due to the higher cost of drilling using a coring rig and the increase in targeted depths.

SHEL27109-2 was the first hole drilled and it is located in EL 29109 in the Pedirka Basin of the Northern Territory approximately 255 km’s southeast of Alice Springs. The well spudded on 2nd December 2010 and reached a total depth of 1,209.35 metres on the 17th December 2010.

The second hole SHEL27109-1 was also drilled in EL 27109 approximately 246 km’s southeast of Alice Springs. Drilling of this hole commenced on 9th January 2011 and reached a total depth of 1,128.6 metres on the 22nd January 2011.

The third hole SHEL28095-1 is located in EL28095, 236 km’s southeast of Alice Springs. Drilling of this hole commenced on the 23rd January 2011 and reached a total depth of 460.1 metres on the 30th January 2011. This hole intersected
only thin coal of 0.32 metres in thickness (375.08 to 375.40m) during coring. The major coal intervals of this formation are absent at this location as a result of relative uplift and erosion. The well was abandoned 31st January 2011.

Table 2: Previously drilled and planned CTP drill hole locations

<table>
<thead>
<tr>
<th>Hole Name</th>
<th>GDA 94 Lat / Long</th>
<th>MGA Zone 53 (GDA 94)</th>
<th>Drilled Depth (m)</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHEL27109-1</td>
<td>-24.78229</td>
<td>136.01076</td>
<td>602,177.95</td>
<td>7,258,780.81</td>
</tr>
<tr>
<td>SHEL27109-2</td>
<td>-24.75091</td>
<td>136.01172</td>
<td>613,970.00</td>
<td>7,262,255.00</td>
</tr>
<tr>
<td>SHEL28095-1</td>
<td>-24.5653</td>
<td>136.009</td>
<td>602,160.73</td>
<td>7,282,805.50</td>
</tr>
<tr>
<td>SHEL27114-2</td>
<td>-25.667421</td>
<td>135.246397</td>
<td>524,727.90</td>
<td>7,161,123.31</td>
</tr>
<tr>
<td>SHEL27094-1</td>
<td>-25.989503</td>
<td>135.193831</td>
<td>519,399.90</td>
<td>7,125,464.26</td>
</tr>
<tr>
<td>SHEL28097-1</td>
<td>-24.5155</td>
<td>136.008</td>
<td>602,144.50</td>
<td>7,282,805.50</td>
</tr>
<tr>
<td>SHEL28097-2</td>
<td>-24.4736</td>
<td>136.008</td>
<td>602,167.92</td>
<td>7,292,968.28</td>
</tr>
<tr>
<td>C in EL27101</td>
<td>-25.4425</td>
<td>135.334</td>
<td>533,582.25</td>
<td>7,186,011.34</td>
</tr>
<tr>
<td>D in EL27101</td>
<td>-25.3751</td>
<td>135.428777</td>
<td>543,150.12</td>
<td>7,193,451.49</td>
</tr>
<tr>
<td>E in EL27101</td>
<td>-25.334565</td>
<td>135.50502</td>
<td>550,843.33</td>
<td>7,203,311.92</td>
</tr>
<tr>
<td>F in EL27101</td>
<td>-25.28578</td>
<td>135.03027</td>
<td>604,125.75</td>
<td>7,255,502.65</td>
</tr>
<tr>
<td>J in EL27109</td>
<td>-24.8036</td>
<td>136.159</td>
<td>617,144.79</td>
<td>7,256,301.97</td>
</tr>
</tbody>
</table>

2.4 Exploration Rationale

The new owners of Merlin Coal (FRID Energy) are developing an exploration program to undertake further drill testing of the shallower coal targets as the focus of exploration moves to targeting coal measures within the top 500 metres.
3.0 Geological Activities and Exploration Work

No on ground exploration activity was carried out during the reporting period to the 31st August 2015.

An attempt to access the 3 drill sites of SHEL27109-1 & 2, and SHEL28095-1 was thwarted by impassable access tracks due to inclement weather in April 2014. The purpose of this visit was to assess any required outstanding rehabilitation of the drilling areas, assess the locations of undrilled holes and for possible infill seismic work. Merlin Coal will attempt to visit these sites in late 2015.

Merlin Coal has also been awaiting the outcome of a confidential Concept Study by China Shenhua that was started 18 months ago. This has now been completed. However, current world commodity market conditions has made it increasingly difficult for Merlin Coal to secure and finalise an Asian joint venture partner to fund ongoing exploration and development work for the Purni Coal Project.

3.1 General Development Concept Design Analysis on the PCP

A favourable (but confidential) Preliminary General Development Concept Design Analysis on the PCP has been undertaken by China Shenhua on behalf of Merlin Coal over the last 18 months. This has involved the translation and comprehension of around 23 gigabytes of data on the PCP. China Shenhua has completed working on the design and development aspects of the PCP.

China Shenhua is a world-leading coal-based integrated energy company. Its main business includes production and sales of coal, railway and port transportation of coal-related materials, as well as power generation and sales. China Shenhua, with the largest coal reserves, is the largest coal supplier and vendor in China. The Company’s coal business has become the model of large-scale, high-efficient, and safe production mode in China’s coal industry. China Shenhua has advised that a Full Feasibility on the PCP would cost around $A22M, which includes a 50% discount.
3.2 Expenditure

Total expenditure for the 17 exploration licences for the period ending 31st August 2015 was $1,810,215 and individual expenses for each exploration licence are shown in the separate accompanying Form 17 expenditure reports. The final $A1.4M cost for the Preliminary General Development Concept Design Analysis on the PCP by China Shenhua has been apportioned to each of the 17 ELs.

4.0 Conclusions and Recommendations

4.1 Conclusions

The new owners of Merlin Coal Pty Ltd are now focussed on the targeting and delineation of the coal measures within 500 metres from surface at the PCP.

An exploration program is being developed to currently assess the value of drilling further holes within the project area and/or undertake additional seismic surveys to infill between the existing 2D seismic lines to improve the structural interpretation in these areas and reduce subsurface uncertainties.

A favourable but confidential Preliminary General Development Concept Design Analysis on the PCP has been undertaken by China Shenhua over the last 12 months, which is the largest coal mining state owned enterprise in mainland China, and the largest coal mining enterprise in the world. Merlin Coal is currently in discussion with China Shenhua in regards to how to best develop this infrastructure dependent project.

However, current world commodity market conditions have made it increasingly difficult for Merlin Coal to secure and finalise an Asian joint venture partner to fund ongoing exploration and development work for the Purni Coal Project.
4.2 Recommendations

Ongoing work will be subject to the possible project partnering with China Shenhua. A program is currently being considered to drill up to six new holes as described below in consultation with China Shenhua (table 3 and figures 8 & 9).

Table 3: Purni Coal Project potential drill hole target locations

<table>
<thead>
<tr>
<th>Hole Name</th>
<th>GDA 94 Lat / Long</th>
<th>MGA Zone 53 (GDA 94)</th>
<th>Drilled Depth (m)</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>C in EL27100</td>
<td>-25.4425 135.334</td>
<td>533,582.25 7,186,011.34</td>
<td>Not Drilled</td>
<td></td>
</tr>
<tr>
<td>D in EL27101</td>
<td>-25.3751 135.417</td>
<td>541,950.93 7,193,451.49</td>
<td>Not Drilled</td>
<td></td>
</tr>
<tr>
<td>E in EL27101</td>
<td>-25.334565 135.428777</td>
<td>543,150.12 7,197,936.42</td>
<td>Not Drilled</td>
<td></td>
</tr>
<tr>
<td>F in EL27101</td>
<td>-25.28578 550,843.33 7,203,311.92</td>
<td>Not Drilled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I in EL27109</td>
<td>-24.81176 136.03027</td>
<td>604,125.75 7,255,502.65</td>
<td>Not Drilled</td>
<td></td>
</tr>
<tr>
<td>J in EL27109</td>
<td>-24.8036 136.159</td>
<td>617,144.79 7,256,301.97</td>
<td>Not Drilled</td>
<td></td>
</tr>
</tbody>
</table>

Figure 8: Possible drill hole locations for the Purni Project in 2015/16
Figure 9: Purni Coal Project Exploration Licences and proposed drill sites and access tracks
5.0 References


Middleton MF, Barker CE and Heugh J, 2007. The geology of the western part of the Pedirka Basin, Australia: in Munson TJ and Ambrose GJ (editors)


Schifano, J., 2014. Purni Coal Project, Year 5 Combined Annual Report, for the period 1st Sept 2014 to the 31st August 2014, covering EL27094, EL27100, EL27101, EL27102, EL27103, EL27104, EL27105, EL27106, EL27107, EL27108, EL27109, EL27110, EL27114, EL28095, EL28096, EL28097, and EL28472.

