



PURE
ENERGY RESOURCES LIMITED

Tasmania Special Exploration License SEL 32/2003

Annual Report

Period: July 30, 2006 to July 30, 2007

License Holder: OME Resources Pty Ltd

**Report by: Focal Petroleum Engineering Pty Ltd
(on behalf of Pure Energy Resources Ltd)**

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Summary

This report is in reference to exploration activities conducted over Special Exploration License SEL 32/2003. The license applies to coalbed methane only. On November 3, 2005, the license was renewed to July 30, 2010, over a reduced area covering 11,295 km². This license was originally part of SEL13/98, granted in July 2004.

The expenditure commitment for the first three years of the license, from July 30, 2004 to July 30, 2007, was \$1,350,000. As of July 30, 2005, a total of \$178,500 was spent, with a further \$113,221 being spent between July 30, 2005 and July 30, 2006. In the year July 30, 2006 to July 30, 2007, a total of approximately \$1,068,072 will have been spent in the planning, drilling and evaluation of 2 coreholes in the Fingal-Dalmayne Coalfield. The total expenditure over the last three years is then \$1,359,793, representing an over-expenditure of approximately \$9793 to be carried forward.

The work carried out in the current year included:

- further geological evaluation, finalising CSG drill locations in Fingal-Dalmayne
- site visits, finalising drilling and evaluation programs with contractors
- coordinating with the MRT on drilling programs and environmental requirements
- Drilling two coreholes for CSG evaluation: cored all prospective coal seams, took 28 coal samples for gas desorption, 9 drillstem tests for permeability

The proposed work for next year includes geological modelling, based on the recent corehole and test results, and the drilling and testing of 2 further appraisal coreholes. The expenditure in Year 3 is estimated at \$700,000 for the two coreholes and associated studies.

If successful, then more wells would be proposed to follow, as the area moves into pilot and then phased development.

The general next steps in the appraisal process would include:

1. Interpretation of results from the recent coreholes
2. Selection of appraisal drilling locations within the Fingal-Dalmayne coalfield
3. Drilling of two coreholes, including desorption and permeability testing
4. If successful, drilling and completing pilot production wells

The ultimate objective is to conduct a pilot project to de-water, establish gas deliverability, and confirm/certify recoverable gas reserves.

Pure Energy Resources Ltd is committed to carrying out its CSG exploration in a safe, efficient and environmentally responsible manner. This has been demonstrated during the recent corehole program conducted in the Fingal area.

1. Introduction

1.1. Coal Seam Gas in Tasmania

Coal Seam Gas (CSG) is a “greener” energy source that will play a major role in future energy supply world-wide.

The Tasmania Basin is a mature coal-mining production province, with significant coal resources, and hence significant potential for Coal Seam Gas. Our objective is to evaluate and demonstrate both the distribution and economic viability of CSG production in the Tasmania Basin. If drilling and pilot programs are successful, we plan to rapidly develop this resource, and establish CSG as a viable alternate energy source for the state of Tasmania.

1.2. Exploration / Appraisal Program

The first step in evaluating the CSG potential was a “desk-top” literature study, completed in 2005. The second phase was to drill the first CSG exploration wells in the Fingal-Dalmaine Coalfield. Two coreholes were completed in early July 2007, and yielded encouraging, although variable, results.

Upon finalisation of the gas desorption lab tests, and interpretation and integration of these and all other data, we intend to conduct follow-up appraisal drilling of two coreholes to assess the extent of the Fingal-Dalmaine CSG resource.

If these appraisal wells are successful, we plan to move into pilot and production as soon as possible.

2. Background – Pre-drill Well Proposal for Fingal Tier

The following three sections present key excerpts from the pre-drill well proposal.

2.1. Geological Setting

The Tasmania Basin is a mature coal mining production province having a significant coal resource with the potential to host a substantial coal seam gas resource (Figure 1). There are few petroleum wells, just 3 being within the permit boundary. Seismic coverage is limited to about 600km of two dimensional (2D) data.

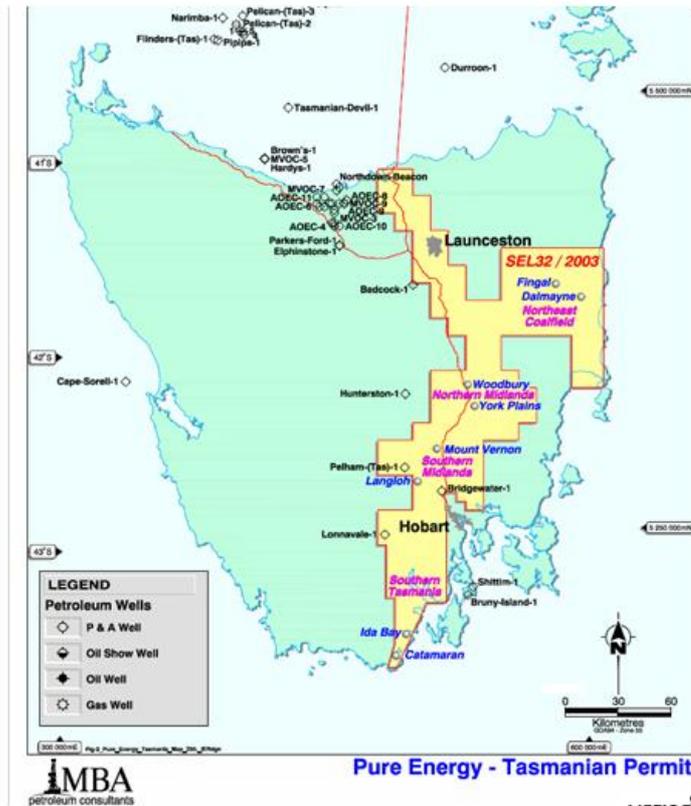


Figure 1: Pure Energy Tasmanian Permit

The basin contains a sequence up to 2km thick of flat lying rocks, ranging in age from Late Carboniferous to Late Triassic (Figure 2). The total section is called the Parmeener Supergroup and the Supergroup is separated into two divisions, the Lower Parmeener and the Upper Parmeener (Bacon, 1991).

The Late Triassic Coal Measures are, except for the northern edge, present over the bulk of the Tasmania Basin. Their best development is in the northeast corner of Tasmania, and these contain the bulk of the State's coal reserves. The coal measures are about 300-400m thick and contain some 8 seams up to 2m or more thick, totaling about 10m of net coal in the primary target seams, and up to 20m, if including the secondary target coals. A dolerite sheet intrudes through much of the coal measures and, because it is resistant to erosion, forms high topographic relief covering most of the areas of the coalfields.

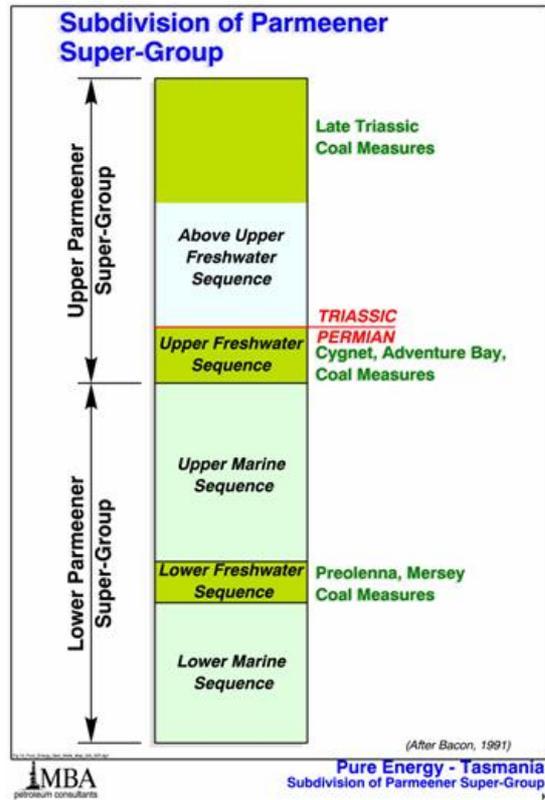
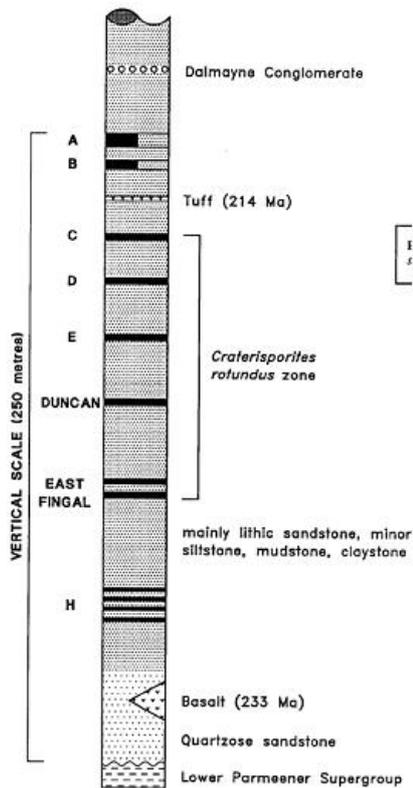


Figure 2: Parmeener Super-group of the Tasmanian Basin

The Fingal-Dalmyne Coalfields in the Northeast of the basin are the most prospective for CSG. The Fingal coals, as described by C. Bacon, consist of up to 8 major coal seams, A – H. A and B are better described as carbonaceous intervals, as they consist of piles of coal < 0.5m thick, interbedded with carbonaceous matter and claystone over intervals of 5 – 10m. Figure 3 presents a diagrammatic stratigraphic section of the Coal Measures, from Bacon.

The coals have relatively high average ash content (20 to 40%), although variable, and generally have only a small component of bright coal. Maceral analyses indicate the coal is dominated by inertinite, with approximately 10% vitrinite and 10% exinite. The coal was termed by Bacon and Threader to be medium rank, and has low sulphur content. With the mean maximum reflectance in the range of 0.5 to 0.7%, CSIRO placed it in the high volatile C bituminous range.

The coal seams which are of the greatest interest on the Fingal Tier are the Duncan Seam (F), the East Fingal Seam (G), and the D Seam. The Duncan F Seam is currently mined at the Duncan Colliery, and typically consists of 2 – 3m of dull coal with minor clay and mudstone partings. The East Fingal G Seam is about 30m stratigraphically below the Duncan Seam, and is commonly split. The upper and lower seams are 1 – 2m thick and separated by 1 – 10m of intra-seam sediments. The D seam has also been identified by Bacon to have substantial areas of “possible working coal” (defined as >1.5m thick, with ash <40%) within in the CSG prospective area.



Diagrammatic Stratigraphic Section Fingal Tier

Main Seams of Interest:

1. Duncan or "F" Seam
 - main seam mined in area
 - typically 2 – 3 meters thick
2. East Fingal or "G" Seam
 - similar to Duncan seam
 - usually split in two, each 1 -2 m thick
3. "D" Seam
 - Generally 1 - 2 m thick

Figure 3: Diagrammatic Stratigraphic Section, Fingal Tier - Bacon

A thick dolerite sill of Jurassic age covers the coal bearing sediments of the Fingal Tier and is generally 100 – 300m thick. This cover forms an extensive plateau in the area. Localised dolerite intrusions have been mapped by MRT, based on borehole and gravity and magnetics data. The Dolerite does not represent a significant risk to altering the coals and potential gas content. From Bacon and Threader, 1984: "Heat capacity of the magma was very low. In consequence the thermal metamorphic effects are generally minimal and restricted to zones rarely more than 5 meters wide, or near pipes. Coal is rarely affected and thermal changes are of no significant exploration significance." (pp35-37)

2.2. Exploration Risks

The two key risks are gas content and permeability.

2.2.1. Gas Content

The Duncan Colliery in the Fingal Valley experienced an explosion of methane gas in 1977, approximately 5km from the proposed drilling locations, in one of the seams targeted here. The mine continues to experience methane readings in the order of 1%, despite continuous ventilation. Thus, the presence of at least some gas in the coals is proven.

Given the rank of the coal, the relatively low reflectance (0.5 to 0.7%) and high inertinite content, the probability of thermogenic gas generation is reduced. However, the reflectance is still within the range for thermogenic gas generation, and is similar to the Scotia / Peat coals of the Queensland Bowen Basin, and higher than the Powder River Basin.

The more likely source of prospectivity is biogenic gas. Biogenic gas generation requires an active hydrologic system to supply methanogenic bacteria, and a relatively low temperature to allow bacterial activity. An active hydrologic system appears present in the coals. The Duncan Colliery pumps fresh water from the same coals being targeted in the Fingal coalfield (the water is used by miners to shower, and for irrigation of the Fingal Valley). In addition, the coals are at a relatively shallow depth, approximately 300 to 400 meters, in a lower temperature regime. The mine explosion shows that gas can be trapped even where water has high penetration. The exploration target area is some distance from high water intake, so is even less likely to be flushed.

While it is true that higher rank coals generally have higher gas contents, gas content is not determined by coal rank alone. Gas content can be increased by biogenic gases or by the diffusion and long-distance migration of thermogenic gases toward so-called conventional traps (facies changes, anticlines, or faults) for resorption. There are a number of potential trapping mechanisms at Fingal, although trapping is still considered a risk under this scenario. This will be discussed further in the following sections.

There are of course numerous examples of low rank CSG fields, most notably the Powder River and Raton Basins in the United States. Some researchers maintain that an alternating stratigraphic mix of “dull” and “bright” coals will optimize both gas storage capacity and cleat development (R.W. Specht, JIREH Exploration and Consulting, PTTC Case Studies). This alternation of dull and bright coals is common in the Fingal Coalfield. An AAPG study of Indian coals ranging in rank from high-volatile bituminous C (Vr of 0.6%, analogous to Fingal) to medium-volatile bituminous coals, suggests that for every 10% increase in ash yield, the gas content was reduced by 100ft³/ton (or about 3m³/tonne) (Crosdale and Laxminarayana, AAPG, 2002).

The key conditions for biogenic gas generation and retention are thought to be in place at Fingal. A likely success scenario may see average gas contents in the range of 5m³/tonne. The probability of finding gas content in this range was estimated at 50%.

2.2.2. Permeability

The following suggest that an extensive cleat or fracture system exists in the Fingal coals:

- an active hydrologic system (as outlined above)
- open cleats reported in core descriptions, along with traces of mineralisation
- an extensional environment (shallow horst and graben structures) (Calver report, MRT)
- shallow depth (300 to 400 meters)

The probability of encountering good permeability was considered high, in the order of 70 to 80%. Combined with a gas content risk of 50%, this yielded a prospect probability of success in the order of 35 to 40%.

3. Fingal Tier Prospect Analysis

3.1. Fingal Tier – Prospect Details

The Fingal - Dalmayne area is directly east and south of the Fingal coalfield mining lease and covers approximately 300km² (Figure 4; each of the grid squares is 25 km²). Within this coalfield there is a prime target area of approximately 25km², with 25 existing boreholes drilled by the Department of Mines in 1979-80 (red dashed outline in Figure 4). The coals were intersected at approximately 300 to 400m depth, with an average total coal thickness of 10m, with several holes encountering considerably thicker sections. Average total coal-mining “working thickness” (cutoff > 1.5m for an individual seam) is in the order of 2 to 4m.

The focus in this section is to better understand the structural and stratigraphic setting in the immediate area, in order to select the first boreholes for twinning.

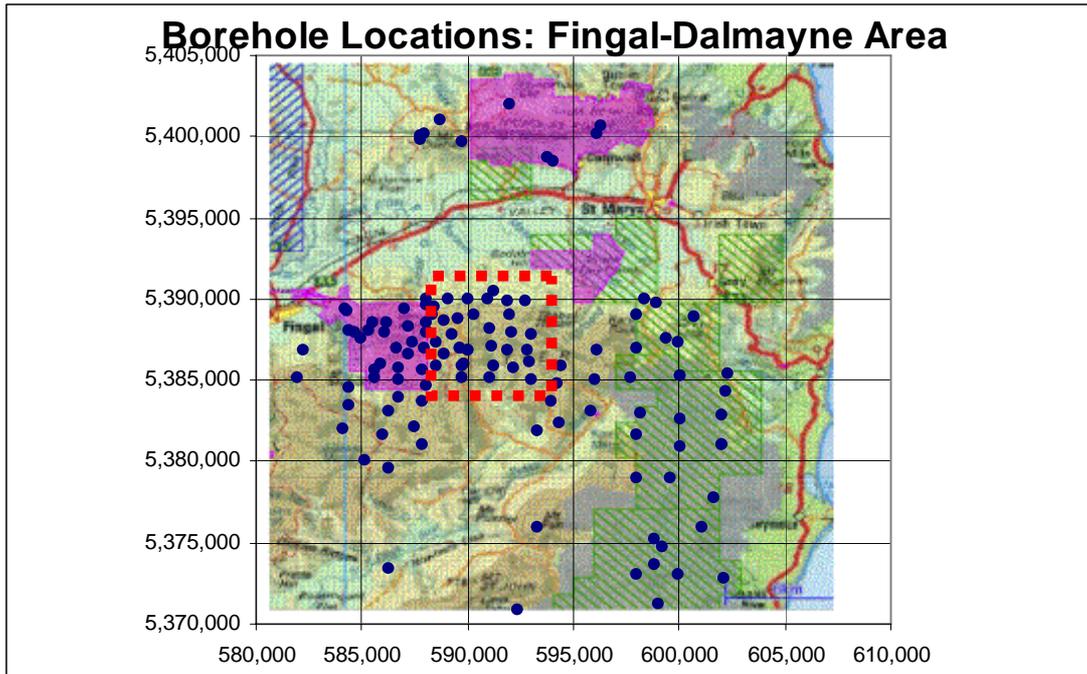


Figure 4: Existing Borehole Locations within the Fingal-Dalmayne Area

Most of the interpretations and figures that follow are based on the work of Threader and Bacon (The Department of Mines coal exploration programme, Fingal Tier. *Unpubl. Rep. Dep. Mines Tasm.* 1983/46, 1983), Section 6, “The Coal Seams,” pages 41 to 65. Also of interest is the 1987 report by Turner and Calver (Geological Survey Explanatory Report, Sheet 49 (8514N), St Marys, pages 82 to 87), dealing with the structure of Parmeener Super-Group in the Fingal Tier.

3.2. The Duncan Seam (F Seam)

The Duncan F Seam is the main seam that has been mined in the area. Figure 5 has been annotated with a few key features, several of which are common to all seams.

Duncan (F) Seam: Total Seam Thickness

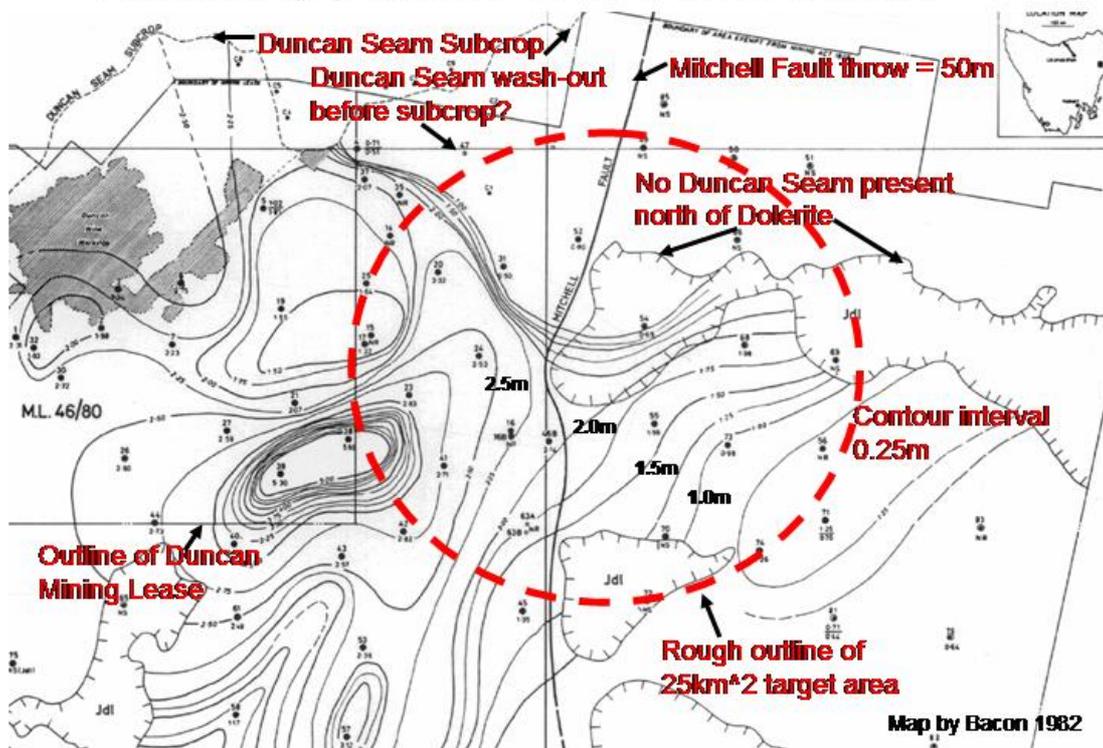


Figure 5: Duncan Seam (F): Total Seam Thickness, showing Mitchell Fault

The red-dashed circle is approximately the same area outlined in the red-dashed box in Figure 4. The solid outlined box to the east, the Duncan Colliery Mining Lease, is the same as the pink area in Figure 4.

In general the Parmeener Super-Group has a dip in this area of about one degree to the southeast. Steeper dips have been observed, mostly near known faults.

The main structural feature is the Mitchell Fault that runs from north to south roughly down the center of the target area. The fault has a throw of approximately 50 meters, downthrown on the east side. The Mitchell Fault runs through all the coal seams (and also likely through the Dolerite, but this has not been proven, according to Calver). Also noted by Calver is that the predominant faulting trend in Fingal is a series of shallow meridional horsts and grabens, indicative of an extensional environment.

Another key feature, common to all the seams, but with a slightly different configuration, is the location of the Duncan Seam subcrop to the northwest.

The contours in Figure 5 represent the total seam thickness for the Duncan Seam. The contour interval is 0.25 meters. Figure 6 presents the structure map (by Bacon), annotated with the main features impacting whether an area may have closure.

Duncan (F) Seam: Structural Contours

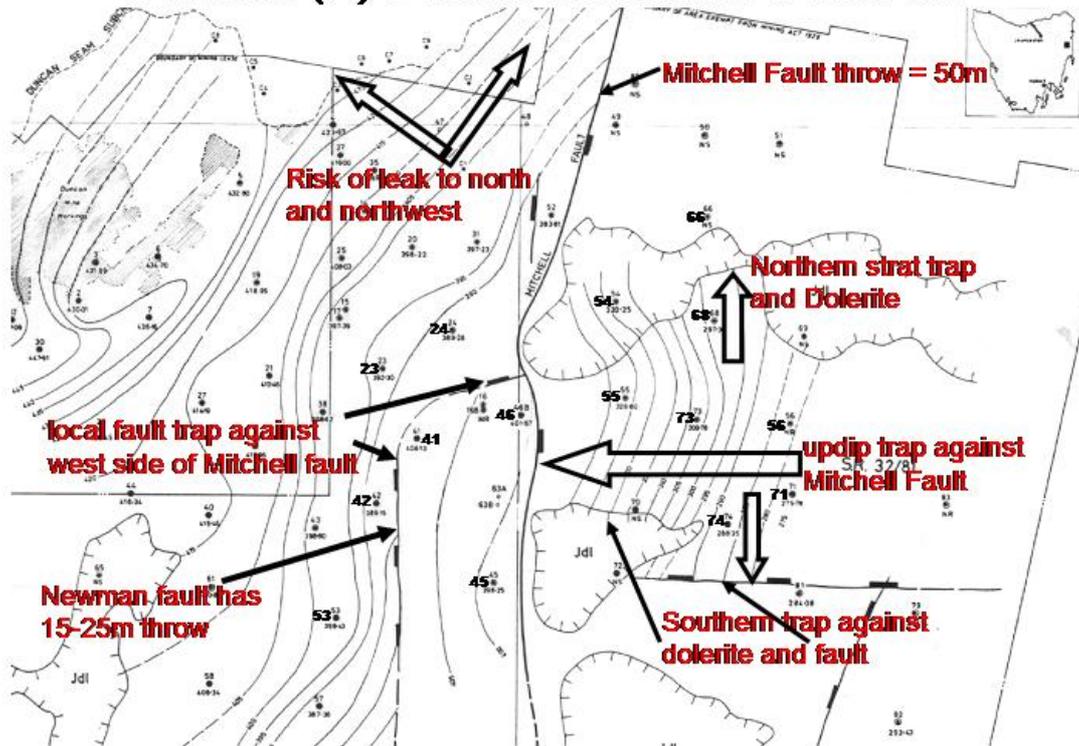


Figure 6: Duncan (F) Seam Structural Features, with DOM Boreholes shown

The main points to note in Figure 5 and Figure 6 are:

1. On the west side of the Mitchell Fault:
 - a. the F seam thins toward the north (Figure 5), and may wash-out before the subcrop
 - b. the northern areas may still have leaked northwest, toward the Duncan Colliery (although Calver maps more east-west trending faults in this area), which may form a trap
 - c. there is a southwest area of local closure defined by the Mitchell and Newman Faults, enclosing boreholes 45, 41 and 46 (Figure 6)
 - d. the F seam can be expected to be 1.5 to 3 meters thick in this area
 - e. Boreholes 16 and 63 also fall within this closure, but did not reach these seams, so no coal thickness data are available for these wells
2. on the east side of the Mitchell Fault:
 - a. localized dolerite intrusions and “wash-outs” of the coal limit the northern extension of the Duncan seam (Bacon), apparently sealing access to the northern subcrop (Figure 5 and Figure 6)
 - b. localised dolerite intrusions, and an unnamed east-west trending fault, apparently limit any southern leak of the Duncan seam
 - c. the seam trends updip against the Mitchell Fault
 - d. There are 6 boreholes within this local closure: 55, 73, 71, 74, 56, and 68, with 55, 73, and 71 being the best overall borehole targets. The F seam can be expected to be about 1 to 2 meters thick in this area.

These two mapped areas of closure appear to represent a viable trapping mechanism. Drilling on the west side of the Mitchell Fault, outside of the Newman – Mitchell Fault closure, appears riskier, or at least less well defined with existing data.

However, it should be noted that Calver, 1987 (Figure 7) maps several more faults than Bacon, and in Calver's words, commenting on his own map: "a greater fault density than that shown is probable..."

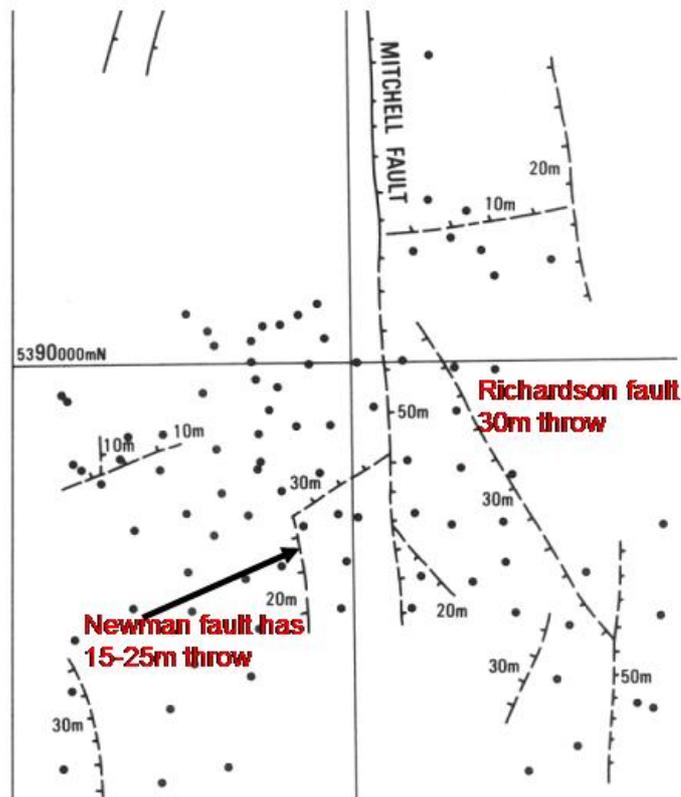


Figure 7: Structure Map by Calver, 1987

3.3. The East Fingal Seam (G Seam)

The East Fingal Seam is about 30m stratigraphically below the Duncan Seam, and is commonly split. The upper and lower seams are 1 – 2m thick and separated by 1 – 10m of intra – seam sediments.

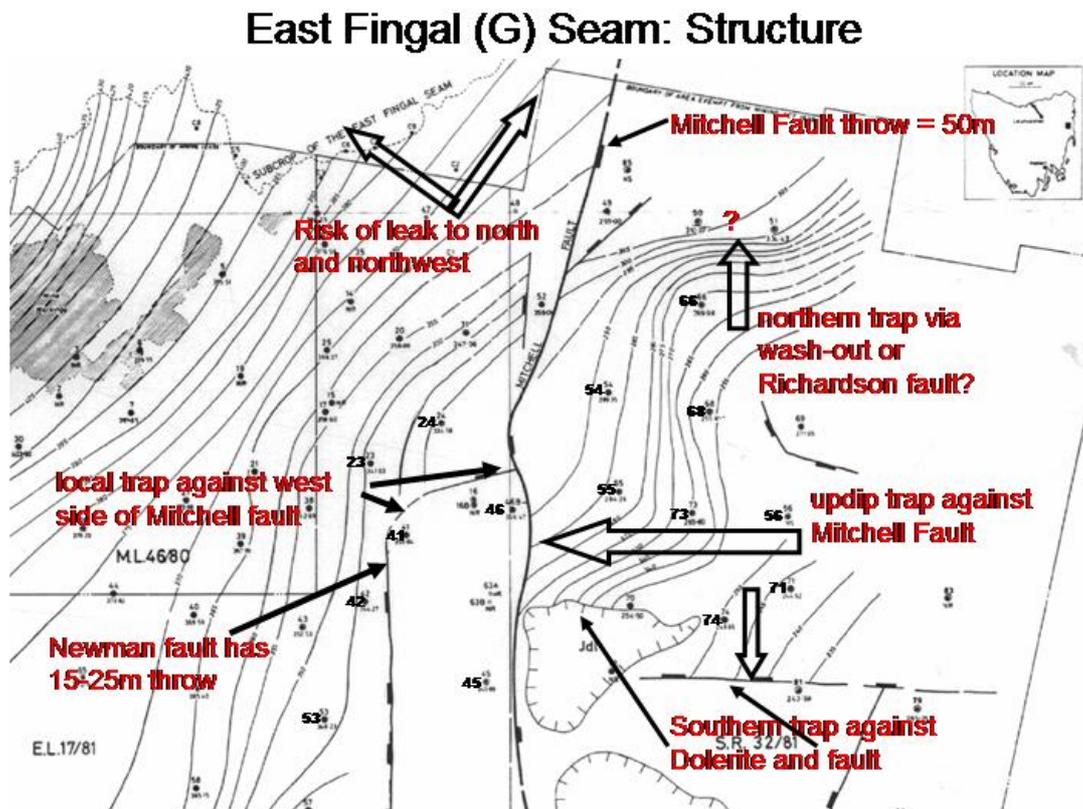


Figure 8: East Fingal (G) Seam Structure Map (Bacon)

Figure 8 shows the structure map for the G, or East Fingal Seam. Figure 9 below shows the Upper G Seam thickness.

The main points to note in Figure 8 and Figure 9 are, on the west side of the Mitchell Fault:

1. A similar structural setting to the Duncan (F) seam, with the Newman – Mitchell faults creating an apparent closure in the southwest around boreholes 45, 41, and 46.
2. The G seam thins to the north, possibly washing out before the subcrop (Figure 9).
3. The G seam thickens to the south, with the cross-hatched area (“C”) identified by Bacon et al as Coal Reserve

On the east side of the Mitchell Fault:

1. A similar structure to the Duncan (F) Seam, with apparent southern closure, and updip trap against the Mitchell Fault;
2. Any dolerite “trapping” to the north is absent. The seams thin toward the north east, and may wash out. The Richardson fault (Figure 7) may also provide a northern trap.

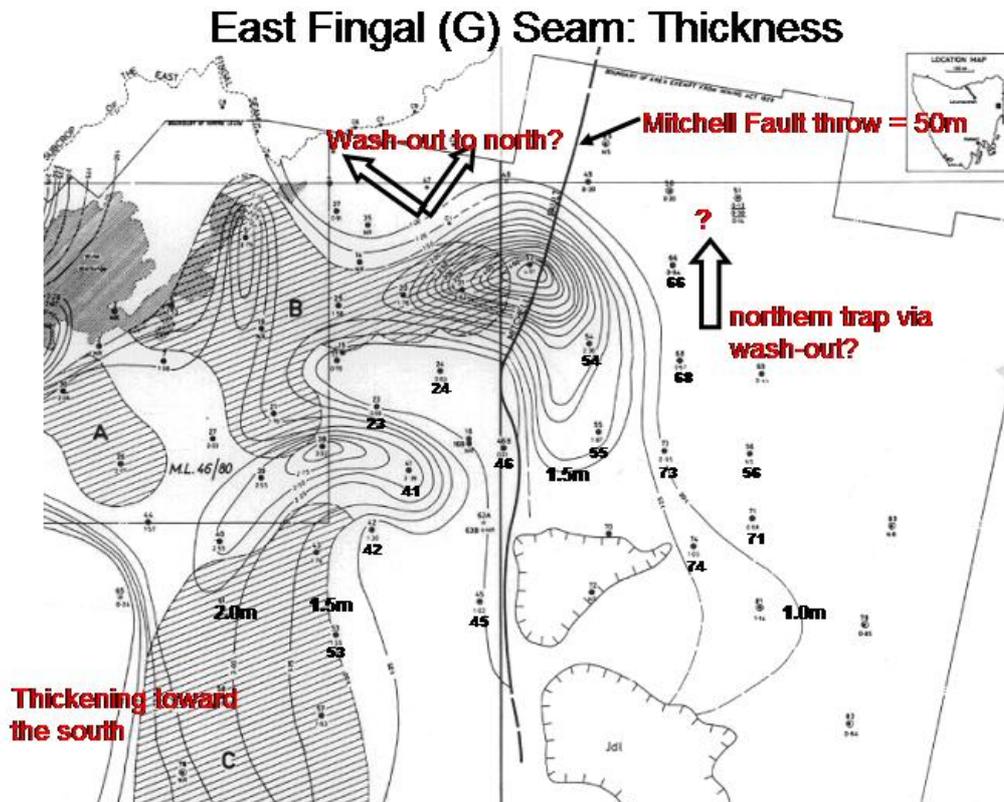


Figure 9: Upper G Seam Thickness, showing DOM boreholes and contour intervals

3.4. The D Seam

The D Seam is the third primary target seam in Fingal for CSG. The D seam is commonly 1 to 2 meters thick, with ash content in the order of 25 to 35%. The D Seam was identified by Bacon to have substantial areas of “possible working coal” (defined as >1.5m thick, with ash <40%) in the CSG prospective area. These areas are indicated in Figure 10 by the cross-hatched areas. The D Seam lies above the Duncan F Seam (Figure 3). A similar structural setting as the Duncan F Seam is expected.

D Seam: Coal Thickness (no structure map)

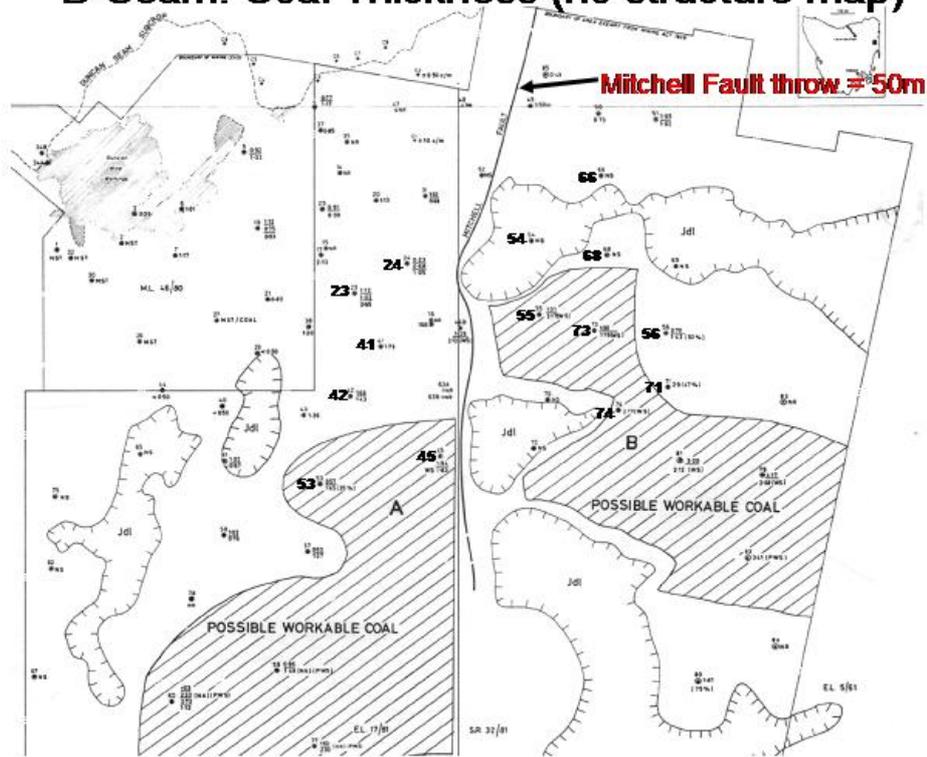


Figure 10: D Seam Coal Thickness (Bacon)

3.5. The "Other" Seams (A, B, C, E, H)

The other seams have not been analysed in detail for their closure potential. There are rarely any mappable "Possible Working Sections" in these coals. However, the seams B, C, and H do on occasion have significant localized thickness, with low ash content, and may represent a secondary target in some boreholes. The thickness of the "other" seams has been tallied and presented in the summary tables.

3.6. Well Location Selection

The exploration program proposed to twin two existing Department of Mines coreholes to obtain gas desorption and permeability data on the coal seams.

3.6.1. Selection Criteria

The geological objective was to select locations that appear more likely to have a structural and/or stratigraphic trap, have relatively thick coal in the primary target seams, and are at appropriate depth (>250 m).

The operational / environmental considerations include access via existing roads, surface topography, drilling problems encountered in original boreholes, proximity of sensitive vegetation, and access to water for drilling operations.

3.6.2. Prioritised Candidates

Table 1 presents the top four borehole candidates to the east of the Mitchell Fault, while Table 2 presents the candidates to the west of the Mitchell Fault. The objective was to pick one location from each group.

Table 1: Borehole Candidates east of Mitchell Fault

Hole#	Easting	Northing	Ground Elevation	Priority	D Seam D.Depth	D Seam Net	F Seam Net	G Seam Net	Primary Seams Net	Other A,B,C,E,H Net	Total Borehole Net
55	591,126	5,387,069	626	High	245	3.5	1.6	4.0	9.1	10.6	19.7
73	591,885	5,386,843	707	High	345	2.8	1.0	2.7	6.4	6.9	13.3
71	592,905	5,386,048	654	High	328	2.9	2.0	3.1	7.9	7.0	14.9
74	592,215	5,385,722	643	Med	304	2.2	1.3	4.3	7.7	9.2	16.9

Table 2: Borehole Candidates west of the Mitchell Fault

Hole#	Easting	Northing	Ground Elevation	Priority	D Seam D.Depth	D Seam Net	F Seam Net	G Seam Net	Primary Seams Net	Other A,B,C,E,H Net	Total Borehole Net
41	588,949	5,386,618	812	High	352	1.8	2.7	3.1	7.6	11.0	18.6
46	590,032	5,386,888	773	High	317	3.4	2.1	2.0	7.6	6.5	14.0
45	589,749	5,385,088	708	High	251	3.6	1.4	2.1	7.0	10.7	17.7

Following a number of site visits, and discussions with drilling contractors, surface wellsite preparation personnel, and the Department of Mines, the two boreholes selected were DDH41 and DDH55.

4. Discussion of Results

The first 2 coreholes were drilled in the Fingal-Dalmaine Coalfield, and twinned two existing boreholes, Fingal DDH55 and Fingal DDH41. Appendix 1 provides the Daily Geological reports and core descriptions, by Coffey Mining.

Table 3: Corehole Locations Fingal 55B and 41B

Well	Northing (m)	Easting (m)	Elevation (masl)	Surface Casing (m)	Total Depth (m)
Fingal 55B	5,387,069	591,126	626	146	369
Fingal 41B	5,386,618	588,949	812	180	464.5

Top-holes were initially air-drilled through the dolerite, and then the wells were cored through to TD. All prospective coal seams were cored in both wells (No geophysical logs were taken in these twinned wellbores). A total coal seam thickness of approximately 19 and 13 meters was encountered in Fingal 41B and 55B respectively.

A total of nine DST's were conducted on the prospective coal seams in the two wells (Table 4, Table 5), with test data indicating moderate to excellent permeabilities for potential CSG production, ranging from less than 1 mD to over 100 mD. DST interpretations, by Focal Petroleum Engineering Pty Ltd, are included in Appendix 2.

Table 4: Summary of DST Results for Fingal 55B

Test Interval (m)	Seam	Net Coal (m)	Pressure (psi)	KH (mD*m)	Est Perm (mD)
187.1 - 191.4	B	3.75	218	30	8
239.0 - 246.0	D	2.75	268	0.6	0.2
297.5 - 298.9	F	1.4	339	4	3
342.5 - 347.9	Gu & Gl	2.1	371	6	3

Table 5: Summary of DST Results for Fingal 41B

Test Interval (m)	Seam	Net Coal (m)	Pressure (psi)	KH (mD*m)	Est Perm (mD)
301.9 - 306.5	B	2.8	187	495	176
328.1 - 330.8	C	1.6	223	53	33
355.7 - 364.5	D	3.0	252	15	5
405.0 - 407.9	F	2.9	50	N/A	N/A
453.7 - 463.7	Gu&Gl	2.4	273	.15	.06

A total of twenty-eight coal samples were taken for gas desorption testing (Table 6, Table 7), with early indications suggesting the presence of at least some gas. Final gas desorption results are expected in August - September, 2007.

Table 6: Formation Tops and Desorption Samples from Fingal 55B

FORMATION	DESORPTION SAMPLE	PROGNOSED DEPTH (m RT)	WELSITE PICK (m RT)	DIFFERENCE	HIGH/LOW
Coal Seam A	1,2	162	166.5	4.5	Lower
Coal Seam B	3, 4, 5	181	187.1	6.1	Lower
Coal Seam C	6*	212			
Coal Seam D	7, 8, 9	244	239	5.3	High
Coal Seam F	11**	297.6	297.5	0	-
Coal G Upper	13	342	342.5	0.5	Lower
Coal G Lower	14	346	346.75	0.75	Lower
Coal Seam H	15	365	365.27	0	-
TD		400	369.1	30.9	High

*Sample 6 was a dull coal above actual Seam C. Seam C not present in section.

** Sample 10 is an unnamed coal seam above Seam F.

Table 7: Formation Tops and Desorption Samples from Fingal 41B

FORMATION	DESORPTION SAMPLES	PROGNOSED DEPTH (m RT)	WELSITE PICK (m RT)	DIFFERENCE (m)	HIGH/LOW
Coal Seam A	1, 2	280	280	none	NA
Coal Seam B	3, 4	300	300	none	NA
Coal Seam C	5, 6	326	326.4	0.4	Low
Coal Seam C or D	7, 8	355.15	355.88	0.73	Low
Coal Seam D	9	361.90	362.75	0.85	Low
Coal Seam F	10, 11	404.27	405.00	0.73	Low
Coal G Upper	12	452.56	453.65	1.09	Low
Coal G Lower	13	461.94	462.58	0.64	Low
TD		537	464.5		

Although the results are preliminary, and much further analysis is required, initial gas desorption results suggest the gas content on the west side of the Mitchel Fault may be substantially lower than on the east side of the Mitchell Fault. Final results are needed to confirm this.

Also, the apparent under-pressures of the water in the coal seams (approximately 0.35 psi/ft in Fingal 55B and 0.20 psi/ft in Fingal 44B) suggest the hydrostatic “head” is controlled by nearby subcrops.

Follow-up geological and engineering modeling is planned to further understand these and other observations, before selecting the next locations to drill.

5. Conclusions

5.1. Results

These preliminary results are considered encouraging for further CSG appraisal in Fingal-Dalmaine, as well as other potential CSG fields in the tenement.

One of the two key exploration risks – permeability – has been demonstrated to be clearly favourable for potential CSG development in Fingal-Dalmaine. Sufficient permeability exists in most, if not all, of the prospective seams.

The preliminary gas content results suggest a relatively low to variable gas content in the coals in these two locations, as expected. Further study of this variability may also point toward other areas for CSG appraisal in the Fingal-Dalmaine area. Final gas desorption results will help define the size of this contingent CSG resource in Fingal-Dalmaine, as well as the area(s) for further appraisal.

5.2. Objectives of Subsequent Appraisal

Upon finalisation of the gas desorption lab tests, and interpretation and integration of these and other data, we intend to conduct follow-up appraisal drilling of two coreholes to assess the extent of the Fingal-Dalmaine CSG resource.

Some of the key questions to be addressed in the subsequent geological analysis and appraisal drilling are:

1. the role of biogenic versus thermogenic gas
2. mechanisms for potential biogenic gas re-charge
3. the role of faulting / intrusions in creating trapping mechanisms (on both east and west side of the Mitchell fault)
4. possible relationship between permeability, pressure, and gas content

6. Environment

The well bores have been capped and labeled as per MRT guidelines. The well bores may be re entered for use as monitor wells and as such the access tracks have been left open. Should a decision be made to abandon these core holes then an excavator will be contracted to carry out the necessary site works, which will be minimal.

7. Exploration / Appraisal Plans and Expenditures

7.1. Expenditure in Year 2: July 30, 2006 to July 30, 2007

The expenditure commitment for the first three years of the license, from July 30, 2004 to July 30, 2007, was \$1,350,000. As of July 30, 2005, a total of \$178,500 was spent; with a further \$113,221 being spent between July 30, 2005 and July 30, 2006. In the year July 30, 2006 to July 30, 2007, a total of approximately \$1,068,072 will have been spent in the planning, drilling and evaluation of 2 coreholes in the Fingal-Dalmaine Coalfield. The total expenditure over the last three years is then \$1,359,793, representing an over-expenditure of approximately \$9793 to be carried forward.

The past year's expenditure is itemized as follows:

Activity	Cost (\$)
Geological Analysis, Proposals, Well Planning	211,065
Site Construction, Logistics, Drilling 2 Coreholes in Fingal	642,072
Evaluation: Gas Desorption and Permeability Testing 2 coreholes	115,387
Administration	99,548
Total	\$1,068,072

7.2. Proposed Program: July 30, 2007 to July 30, 2008

The proposed work for next year includes geological modelling, based on the recent corehole and test results, and the drilling and testing of 2 further appraisal coreholes. The expenditure in Year 3 is estimated at \$700,000 for the two coreholes and associated studies.

Appendix 1a: Coal Seam Summaries

by Coffey Mining

FINGAL41B - COAL SEAM SUMMARY

HOLE NAME: FINGAL41B
R.L. of Hole: 812.00 m
Northing: 5386618.00 m
Easting: 588949.00 m
Date Drilling Commenced: 13/06/2007
Date Drilling Completed: 29/06/2007
Drill Company: Spaulding Drilling
Core Size: HQ3
PCD Depth: 180.00 m
Core Depth: 464.50 m

Seam	Depth From	Depth To	Seam Thickness	Description
Coal A, Upper	281.00	282.25	1.25	Very thin bands of Coal with very fine cleat within a carbonaceous mudstone (60:40). Moderately dense.
Coal A, Lower	285.05	285.55	0.50	Carbonaceous Mudstone and Dull Coal thinly interbedded (50:50). Abundant red mineralisation on abundant and thin sub vertical healed fractures.
Coal B, upper (?)	297.06	298.04	0.98	Very dull Coal, moderately dense with mudstone and carbonaceous mudstone interbeds interbeds
Coal B	301.65	306.50	4.85	Coal (C3 - C6) with thin carbonaceous mudstone interbeds and several (~11) thin volcanic tuff bands throughout. Well developed cleat on brighter coals. Badly broken sections and calcite and fracture planes near top of section. Minor kaolinite on cleated surfaces near base.
Coal C	328.10	330.80	2.70	Coal is generally dull with tuff/mud throughout. Minor cleat development
Coal D, Upper (Coal C or D in proposal)	355.70	357.35	1.65	Dull and moderately dense coal; carbonaceous throughout with carbonaceous and tuff parting from 356.30 - 356.60 m. Badly broken with moderately bright bands interbedded with carbonaceous mudstone at base. Some core loss (~0.3 m) during drilling. Kaolinite on fractures and cleat planes near base.
Coal D, Lower	362.75	364.45	1.70	Dull Coal of low density with several thin (<5 cm) bands of mudstone and tuff. Poor cleat development and subvertical healed fractures with calcite infill.
Coal F, Upper	405.00	407.85	2.85	Dull Coal with sparse and thin bands of C3 to C4. Moderately dense throughout with three thin well defined tuff bands. Kaolinite present on fractures and broken surfaces.
Coal G, Upper	453.65	455.10	1.45	Very dull coal. Little to no cleat development and rocky throughout.
Coal G, Lower	462.58	463.64	1.06	Moderately dense Carbonaceous Mudstone and Coal with thin tuffaceous partings. Badly broken throughout with thin bands of C3/C4 coal with carbonaceous mudstone. Calcite present on cleat and fracture surfaces.

Total Coal Thickness: 19.0

FINGAL55B - COAL SEAM SUMMARY

HOLE NAME: FINGAL55B
R.L. of Hole: 626.00 m
Date Drilling Commenced: 31/05/2007
Date Drilling Completed: 11/06/2007
Drill Company: Spaulding Drilling
Core Size: HQ3
PCD Depth: 123.00 m
Core Depth: 369.10 m

Seam	Depth From	Depth To	Seam Thickness	Description
Coal A, Upper	166.50	166.95	0.45	Carbonaceous Mudstone with very thin bright bands of Coal with very fine cleat (70:30).
Coal A, Lower	170.64	170.93	0.29	Carbonaceous Mudstone and Dull Coal thinly interbedded. Abundant kaolinite and calcite as well as red mineralisation.
Coal B, Upper	187.10	188.10	1.00	Very dull Coal, moderately dense with mudstone and carbonaceous mudstone interbeds interbeds
Coal B, Lower	188.90	191.40	2.50	Coal with carbonaceous mudstone interbeds near top of section and thin brown tuff bands (previously described as expanding clays) and thin mudstone bands. Coal is generally dull with moderately bright (C4-C5) bands with well developed cleat. Some calcite mineralisation at 190.60 - 190.70
Unnamed Coal	210.00	210.40	0.40	Unnamed boney dull coal. Dark black and low density with small cleats visible. Badly broken with slickenside surfaces at multiple angles. Carbonaceous at base.
Coal C	NA	NA	NA	Not present in section.
Coal D, Upper	238.95	239.75	0.80	Dull Coal with thin interbeds of volcanic tuff. Moderately dense throughout with minor thin and cleated bright bands.
Coal D, Lower	243.94	246.05	2.11	Dull Coal of low density with several thin (<5 cm) bands of mudstone and tuff. Poor cleat development and subvertical healed fractures with calcite infill.
Unnamed seam	264.30	264.80	0.50	Dull and moderately dense coal with minor cleat development and thin (0.02 m) C3 band. Calcite and kaolinite on cleating from 264.64 - 264.80.
Coal F, Upper	297.50	298.87	1.37	Dull Coal with sparse and thin bright bands. Calcite on cleated surfaces. Thin interbeds of Carbonaceous mudstone and volcanic tuff throughout.
Coal F, Lower	328.30	328.77	0.47	Dull and dense coal with dark grey to black carbonaceous interbeds. Small cleats when broken but a hard, heavy coal
Coal G, Upper	342.50	343.53	1.03	Coal with thin interbeds of volcanic tuff (<0.06 m). Calcite on fractures and cleats. Carbonaceous at base.
Coal G, Lower	346.75	347.90	1.15	Low density coal with well developed cleating and C4 to C5 bands. Calcite on cleat planes. Thin interbeds of tuff (<0.04 m) and carbonaceous mudstone.
Coal H	365.27	365.95	0.68	Dull coal with carbonaceous mudstone throughout. Calcite on subvertical 1 mm thick healed fractures. No clear cleating but not as dense as the carbonaceous mudstone above.

Total Coal Thickness: 12.8

Appendix 1b: Lithology Summaries

by Coffey Mining

FINGAL41B - LITHOLOGY SUMMARY

HOLE NAME: FINGAL41B
R.L. of Hole: 812.00 m
Northing: 5386618.00 m
Easting: 588949.00 m
Date Drilling Commenced: 39246
Date Drilling Completed: 39262
Drill Company: Spaulding Drilling
Core Size: HQ3
PCD Depth: 180.00 m
Core Depth: 464.50 m



FROM	TO	THICKNESS	CORE LOSS	GEOLOGICAL DESCRIPTION
179.70	227.90	48.20		Dolerite: Grey, fine-grained, hard 194 – 197 – subvertical healed fracture with calcite (1 mm thick) 202.5 – 204.0 – Healed fracture at 80 degrees to core axis (TCA) (1 mm thick) 211 – 212 – Greenish grey w/ drill induced fractures perpendicular to core axis 217 – 218.5 – subvertical healed fracture (~80 degrees) 226 – 227.9 – very fine grained; brittle; green Irregular (irregular) basal contact (contact) – intrusive? - no apparent bake zone in sandstone
227.90	231.60	3.70		SANDSTONE (SS): Med grained lithic sandstone; light grey to creamy white; muddy bands TO at 0 – 20 degrees; mod to poor sorting - sparse mud pellets w/ silty matrix throughout (TO), irregular bedding TO - 230.3 – 230.5 – Med grained well sorted sand zone - Sharp basal contact
231.60	233.05	1.45		SILTSTONE (SL): fine creamy greenish grey; w/ thinly bedded minor SS interbeds (interbed); - 232.1 – 232.2 – SL/SS (50:50) - Sharp basal contact
233.05	233.11	0.06		SS: Med grained grey; mod to well sorted; - sharp basal contact
233.11	234.10	0.99		MUDSTONE (MS): creamy grey/white; laminae w/ mottled/disturbed bedding(?) - 233.11 -233.6 – badly broken, soft and clayey - 233.6 – 234.0 – fracture at 85 degrees - gradational basal contact
234.10	235.30	1.20		SS/SL (60:40): – Light grey creamy white; thinly bedded and interbedded - very gradational contact; increasing sand
235.30	235.90	0.60		SS: white creamy; F-M grained w/ mod sorting, thin bedded; bedding at 0 – 5 degrees - sharp erosional basal contact
235.90	236.40	0.50		MS/SL: light greyish green to white (?); fining upwards - 236.3 – 236.4 – irregular fracture at 88 degrees and 10 degrees - Grad basal contact
236.40	240.80	4.40		SS: Very fined grained; greenish grey w/ light tan bedding @ 0 degrees; well sorted, minor SL bands TO - 238.15 – 238.3 – Thin interbed of greenish SL - 239.5 – 238.3 – Thin interbed of tan SL w/ rusty brown SS - 240 – 240.8 – F-grained; reddish brown; thinly bedded at 0 degrees TCA - Gradational basal contact as part of fining upwards package
240.80	249.60	8.80		SS: Med grained lithic sandstone, brown to rusty brown w/ thin interbed of VF grey SS or SL (widely spaced and > 0.4 m); - bedding at 0 – 8 degrees; no fractures or breaks in core - 243.1 – 243.2 – minor black specks in sand - 243 – 246 – reddish brown colour fading to grey at 246 - 246.5 – 247.3 – bedding thin at 5 to 10 degrees - 247.5 – 248 – irregular fracture at 60 to 80 degrees TCA - 248.6 – 248.9 – irregular shaped brown mud pellets (< 1 cm diameter.) in grey sand with bedding at 0 – 5 degrees
249.60	250.50	0.90		SS: grey and green bands of med grained SS w/ small subround mud pellets; muddy TO; soft rock (easily scratched with chisel); bedding at 15 degrees; sharp basal contact
250.50	253.00	2.50		SS – F-M grained in fining upwards package; mod sorting; grey w/ beds at 0 – 5 degrees; - 251.6 – 251.7 – large 1-2 cm mud pellet in sand mud pellets – elliptical - 251.7 – 252 – M-grained grey SS beds at 5 degrees - F grained w/ thin bedding at 5 degrees at base
253.00	259.50	6.50		SS: Med grained w/ abundant carbonaceous debris/grains and sparse med pellets TO; grey to dark grey - 253.2 – 253.5 – Sub angular pellets 1-3 cm - 254.5 – 255 – Mud pellets and carbonaceous TO - 255.5 – 256 - bedding at 5 degrees - 256.5 – 257 – abundant carbonaceous. debris – darker grey to black in colour - 257.4 – 257.5 – band w/ mud pellets and carbonaceous debris - Gradational contact

259.50	264.00	4.50		SS: w/ abundant carbonaceous debris and black muddy pellets; poor sorting; bedding at 5 degrees; - 259.6 – 259.63 – coal band cleated and bright - 260.4 – 260.5 – CM band and bedding at 10 degrees - 261 – 263 – black and grey; med grained bedding at 0 degrees - 263.6 – 264.0 – abundant CM debris
264.00	264.20	0.20		CARBONACEOUS MUDSTONE (CM): black thinly bedded; less dense than above sand
264.20	269.50	5.30		SS: dark grey to black; med grained - 264.4 – 265.6 – abundant carbonaceous material; bedding at 5 – 10 degrees - 266.6 – 266.9 – irregular shaped mud pellets in sand matrix - 267.7 – 267.8 – 3 thin (<2 mm thick) bright coal bands - 268.3 – 268.4 – CM pellets irregular bedding at 5 degrees - 269 – 269.1 – CM band; dark black; sandy TO - 269.45 – thin bright coal band - grad contact
269.50	278.15	8.65		SS: grey; med grained; thinly bedded; no fractures but SS is soft;; dark grey - 274.1 – 274.2 – bedding at 15 degrees w. white calcareous interbeds; soft rock - 276.8 – 277.0 – SS w/ thin CM laminae at 0 degrees -sharp basal contact
278.15	279.00	0.85		CM: dark black; dense with plant debris on fresh fractures; gradational basal contact
279.00	280.00	1.00		SL: dark grey and silty; very fine laminae - Grad basal contact
280.00	280.05	0.05		COAL (CO): boney dull coal; dense and black
280.05	281.00	0.95		CM: Dark black; dense w/ thin interbeds of SL and boney coal
281.00	281.20	0.20		CO: Very dull coal; rocky w/ subvertical calcite in fractures; bedded but less dense; thin (1mm thick) coaly bands in CM – abundant coaly bands
281.20	281.40	0.20		CM: dark black and dense, scratches grey to brown; dense
281.40	281.55	0.15		CO: Dark black w/ interbed CM; abundant thin CO bands (1 mm thick); calcite abundant in subvertical healed fractures
281.55	281.75	0.20		CM – black laminae; minor very thin coaly bands
281.75	282.25	0.50		CO/CM (60:40): dark black thin coal bands; increasing CO at base; fairly dense -gradational basal contact
282.25	284.45	2.20		MS: Dark grey and carbonaceous at the top; laminae TO
284.45	285.05	0.60		CM: dark black, dense and fissile; friable, badly broken throughout
285.05	285.55	0.50		CO/CM (50:50): abundant thin dull coal bands in carbonaceous mud - 285.3 – 285.5 – subvertical healed fractures w/ red mineralisation and calcite; thin fractures (~1 mm) but abundant
285.55	285.70	0.15		CM: dark grey to black; laminae TO
285.70	285.75	0.05		TUFF (VT): creamy tan volcanic tuff; sharp basal contact
285.75	286.70	0.95		CM: dark black; dense; laminae; red mineralisation on fracture at 285.8 - 286.3 – 286.4 – SL interbeds, thin
286.70	286.96	0.26		CO: thin coaly laminae in carbonaceous mud; non- dense w/ subvertical healed fractures w/ calcite - 286.84 – 286.86 – C4 coal w/ well developed cleat; thin band Contact gradational
286.96	287.40	0.44		CM: dark black, dense - grading to mudstone at base
287.40	287.70	0.30		SL: dark grey; thin laminae; sharp basal contact
287.70	288.25	0.55		CM: dark black; dense; coaly near top 287.85 – 288.0 – subvertical calcite veins
288.25	288.80	0.55		CO/CM (50:50): dark black; dense w/ thin bands of CO in thinly laminated CM; dense
288.80	289.30	0.50		CM/CO (70:30): dark black w/ thin (mm thick) coal bands - gradational contact
289.30	294.60	5.30		SS: Very fine grained; thinly bedded; carbonaceous beds TO - 290 – 290.3 – small scale cross bedding; dark grey w/ dark black CM and SL beds TO - 292.0 – 292.12 – thin SL bands
294.60	296.20	1.60		SS/SL (60:40): thinly interbedded grey sands with darker greyish brown carbonaceous SL beds TO
296.20	297.06	0.86		SS: F-M grained well sorted sand; grey 296.35 – 296.4 – thin carbonaceous wisps - Sharp basal contact
297.06	297.18	0.12		CO: C4/C5 – dark black w/ bright bands; low density
297.18	297.20	0.02		VT: dark brown tuff band
297.20	297.28	0.08		CO: C5 dark black coal; cleated w/ calcite on cleat planes; badly broken
297.28	297.30	0.02		VT – dark brown and dense
297.30	297.85	0.55		CO – black; moderately bright coal at top (2 cm); dull coal w/ CM interbeds - 297.3 – 297.7 – C5 cleated and fractured
297.85	298.04	0.19		CM/CO: black and denser than above CO; thinly bedded w/ minor sand grains TO
298.04	299.50	1.46		SS: Very fine sand; thinly bedded w/ carbonaceous beds - 299 – 299.3 – convoluted bedding at 10 degrees TCA
299.50	300.80	1.30		SS: Fine grained; light brownish grey w/ abundant carbonaceous beds (dark black) - thinly bedded w/ bedding at 5 degrees - sharp basal contact
300.80	300.84	0.04		CO: Dull dark black; cleated w/ kaolinite on cleat planes

300.84	301.25	0.41		CM – Dark black thinly laminated; bedding at 0 degrees - breaks along bedding planes -gradational contact
301.25	301.65	0.40		CM: dark black w/ thin interbeds (laminae) of MS or volcanic tuff (brownish grey in colour) beds (<2 mm); dense - coaly laminae - 2 one mm bands
301.65	306.50	4.85		CO: dull coal C6(?); fracture with slickenside at 301.48 m 301.65 – 302.04 – Dull coal – hard w/ abundant subvertical fractures filled with calcite; muddy but less dense 302.04 – 302.07 – Dull coal and tuffaceous wisps and pellets(?) 302.07 – 302.35 – Dull coal w/ 3 bands (1cm thick) of brighter cleated coal 302.35 – 302.4 – CM band 302.4 – 302.54 – Dull coal – black with metallic sheen; cleated in part but rocky 302.54 – 302.60 – VT – tuff brown thinly laminated 302.60 – 302.81 – CM band; dense w/ minor very thin coaly bands 302.81 – 302.86 – VT – light grey; dense 302.86 – 303.0 – CM – dense and black 303.0 – 303.12 – VT – tan to grey w/ CM interbeds 303.12 – 303.25 – CO – dull black metallic(?); white mineralization on fractures; hard and no clear cleating 303.25 – 303.27 – VT – tan w/ CM wisps 303.27 – 303.5 – CM – dark black and dense 303.5 – 303.75 – VT – tan, thinly laminated 303.75 – 304.10 – CM – dark black dense 304.10 – 304.3 – CM/VT – dark black and brown thinly interbedded 304.3 – 304.4 – CO – dull black with minor cleating 304.4 – 304.42 – CO – dull and black 304.42 – 304.45 – VT – brown 304.45 – 304.71 – CO – C(?) w/ mod. Cleating and mod density 304.71 – 304.73 – VT – dark brown 304.73 – 304.90 – CO – dull and dense, no cleating or fracturing 304.90 – 305.22 – C5 coal – irregular fracturing and cleating 305.22 – 305.26 – C3 band; black w/ good cleating 305.26 – 305.40 – CO black but denser 305.40 – 305.5 – C4 – bright and cleated; light and badly broken 305.5 – 305.55 – CO dull and dense 305.55 – 305.58 – VT – thin tuff ; dark brown 305.58 – 305.71 – C5 coal w/ kaolinite on cleated surfaces 305.71 -305.73 – VT – creamy brown 305.73 – 305.94 – C6 w/ CM interbeds; thick band (3 cm) of C4; kaolinite on cleated surfaces 305.94 – 305.96 – VT – creamy brown 305.96 – 306.15 – CO – dull black and badly broken; irregular fractures; minor thin cleating 306.15 – 306.20 – CM/VT – interbeds of dark black and creamy brown 306.20 – 306.40 – C6 coal, minor cleating 306.40 – 306.5 – CM; sharp basal contact
306.50	306.55	0.05		VT: creamy brown, dense
306.55	307.05	0.50		CM: dense, black, gradational basal contact
307.05	307.65	0.60		SL: dark grey, laminae; bedding at 0 degrees
307.65	308.40	0.75		SS: Fine grained, light grey, well sorted
308.40	309.90	1.50		SANDSTONE: Grey, fine grained, well sorted, carbonaceous laminations throughout, silty in parts
309.90	310.30	0.40		SL: Grey, slightly sandy in parts, laminated appearance
310.30	311.00	0.70		SS: Grey, fine to medium grained, well sorted, laminated, very thin carbonaceous bands
311.00	313.90	2.90		SS: Grey, medium to coarse grained, well sorted, carbonaceous parts at 311.6m with minor tuff, lithic fragments
313.90	314.50	0.60		SS: Grey, fine grained with silty partings, laminated, minor carbonaceous bands throughout, well sorted
314.50	315.60	1.10		SS: Grey, medium to coarse grained, minor lithic and carbonaceous fragments, massive, well sorted
315.60	315.90	0.30		SS: Grey, fine to coarse grained in parts, carbonaceous laminations at 315.8m
315.90	316.65	0.75		SS: Light grey, medium grained, laminated in parts, lithic fragments, carbonaceous stringers at 316.4m and 316.65m
316.65	316.80	0.15		SL: Grey, well sorted, carbonaceous stringers on joint surfaces
316.80	317.70	0.90		SS: Lightly grey, medium to coarse grained with sub-rounded clasts up to 10mm, thin carbonaceous bands, poorly to moderately sorted
317.70	319.70	2.00		SS: Grey, medium grained, laminated in parts, well sorted, carbonaceous mudstone bands at 318.7m and 318.8m
319.70	320.30	0.60		SS: Grey, fine to medium grained, well laminated, moderately to well sorted, lithic fragments
320.30	323.50	3.20		SS: Grey, fine to medium grained, well sorted, carbonaceous laminations from 320.8-320.9m, 321.2m, 322.5-322.8m
323.50	323.90	0.40		SS: Grey, medium grained, abundant sub-rounded clasts to 10mm, poorly sorted, carbonaceous stringers throughout
323.90	324.50	0.60		SS: Grey, fine to medium grained, minor carbonaceous coaly stringers, well sorted, rare sub-rounded clasts, minor laminations
324.50	324.65	0.15		SS: Grey, fine to medium grained with abundant rounded clasts to 10mm, poorly sorted
324.65	326.40	1.75		SS: Light to medium grey, laminated in parts, occasional rounded clasts, coaly stringers from 325.3-325.8m, becoming slightly silty in parts
326.40	326.80	0.40		VT: Light brown grey to cream, soft, strongly foliated

327.10	327.50	0.40		VT: Light brown grey to cream, soft, strongly foliated
327.50	327.65	0.15		CM: Dark brown grey to black in parts, slightly tuffaceous, highly carbonaceous
327.65	327.75	0.10		VT: Light brown grey to cream, soft, strongly foliated
327.75	328.00	0.25		CM: Dark brown grey to black in parts, slightly tuffaceous, highly carbonaceous
328.00	328.10	0.10		VT: Light brown grey to cream, soft, strongly foliated
328.10	328.70	0.60		COAL – C SEAM: Black, slightly tuffaceous in parts, slight to moderate cleating, vertical fracture, mostly dull, Sample 5
328.70	329.00	0.30		VT: Light brown grey to cream, soft, strongly foliated
329.00	329.30	0.30		CM: Dark brown grey to black in parts, slightly tuffaceous, moderately carbonaceous
329.30	329.45	0.15		VT: Light brown grey to cream, soft, strongly foliated
329.45	329.65	0.20		CM: Dark brown grey to black in parts, slightly tuffaceous, highly carbonaceous, 0.1m moisture sample taken
329.65	329.80	0.15		VT: Light brown grey to cream, soft, strongly foliated
329.80	330.80	1.00		COAL – C SEAM: Black, slightly tuffaceous in parts, minor cleating with some jointing, dull, Sample 6
330.80	330.90	0.10		VT: Light brown grey to cream, soft, moderately foliated
330.90	331.20	0.30		CM: Dark brown grey to black in parts, moderately tuffaceous throughout, highly carbonaceous
331.20	331.90	0.70		MS: Light grey, massive, well sorted, minor carbonaceous partings, some tuff throughout
331.90	334.20	2.30		SL: Light grey, massive, minor carbonaceous debris on fresh fractures, minor very fine sand throughout
334.20	334.60	0.40		CM: Dark black w/ thin interbeds/laminae of Siltstone - Gradational basal contact – increasing siltstone
334.60	335.40	0.80		SL: grey, badly broken - Note: lost core run out of inter tube and had to re-core section, therefore, badly broken throughout
335.40	336.10	0.70		SS: Grey and fine grained; badly broken
336.10	337.30	1.20		MS: Grey, massive; sharp basal contact
337.30	340.30	3.00		SS: Greenish grey, fine to medium grained with fining upwards packages 0.5 – 0.75 m thick, - bedding at 0 degrees - 337.6 – 337.8 – Medium grained - 337.8 – 338.2 – Very fine grained sand 340.2 – 340.3 – Fine grained w/ coaly wisps and debris - gradational basal contact
340.30	342.00	1.70		SS: Fine to medium grained, grey, poor to moderate sorting, - 341.3 – 342.0 – coaly debris and laminae interbeds; bedding at 0 to 5 degrees and finer sand - Gradational basal contact
342.00	346.35	4.35		SS: Grey, Medium grained, well sorted - bedding at 0 – 10 degrees, cross bedded - 343.4 – 343.5 – minor carbonaceous laminae - Sharp irregular basal contact at 20 degrees
346.35	346.53	0.18		MS: black to brownish grey; badly broken w/ slickensides(?) on some surfaces - carbonaceous at top - sharp basal contact
346.53	349.90	3.37		SS: Med to coarse grained; moderate to poor sorting with abundant carbonaceous grains and flecks and debris throughout. - 346.8 – 347.7 – abundant carbonaceous wisps, coaly fragments and bands, and irregular shaped siltstone pellets. - 348.3 – 349.1 – carbonaceous pellets on bedding at 0 degrees to core axis - 349.1 – 349.9 – Coarse grained at base w/ fine to medium grained bands; larger mud pellets in coarse sand matrix at base - Transitional base
349.90	350.50	0.60		SS: Fine to medium grained; moderate sorting - Gradational contact
350.50	351.30	0.80		SS: Medium to coarse grained; poor sorting - abundant coaly debris, wisps and mud pellets - mud pellets at base (1-2 cm) and elliptical in shape - transition to less debris at base
351.30	353.96	2.66		SS: Fine to medium grained; abundant mudstone pellets in matrix (1 – 3 cm diameter and elliptical); high density of mud clasts at base - 353.15 m thin coaly laminae with calcite bedded at 0 degrees - 353.0 – fracture at 70 degrees to core axis (TCA) - 353.8 – fracture at 50 degrees with slicken sides in mud pellet - sharp basal contact
353.96	354.05	0.09		COAL: Dull and black, moderately dense
354.05	354.08	0.03		VT: brown and muddy
354.08	354.11	0.03		CM: Dense and black
354.11	354.35	0.24		COAL: Dull with moderately bright band at 354.16 – 354.19 m, bedded with some cleat development - kaolinite on subvertical fractures and cleated planes
354.35	355.70	1.35		SL: Medium grey with very fine sand interbeds and minor carbonaceous laminae - 355.67 – fracture at 50 degrees w. undulose slickensides - sharp basal contact
355.70	355.81	0.11		COAL: Dull; black and moderately dense, carbonaceous
355.81	355.88	0.07		VT: brown, fissile; irregular basal contact
355.88	356.10	0.22		COAL: Dull black, minor cleat development
356.10	356.30	0.20		CM: Black to brown; fissile and moderately dense
356.30	356.60	0.30	0.30	CORE LOSS: Driller change over and potential loss in coal?

356.30	357.35	1.05		COAL: Black, badly broken on irregular fractures and cleat planes; moderately bright (C4/C5?); minor carbonaceous fissile layers near base; kaolinite on fracture and cleat planes
357.35	358.63	1.28		SS: Grey, very fine sand, sharp basal contact
358.63	359.10	0.47		MS: Grey, massive with minor clayey bands - 357.95 - 358 – Thin band of carbonaceous mudstone - 358.18 – 358.20 – Badly broken (Drill induced?) - Muddy and carbonaceous at base and badly broken
359.10	360.00	0.90		SL: Grey and massive with bedding at 0 degrees - 359.1 – 359.5 – Fractures at 80 – 90 degrees TCA - Gradational basal contact
360.00	361.10	1.10		SS: Grey, very fine sand, well sorted, massive; - silty interbeds and gradational basal contact
361.10	362.38	1.28		SL: Grey, massive, sharp basal contact and carbonaceous at base
362.38	362.47	0.09		VT: brown with calcite dendritic veins throughout. - fracture at upper contact with undulose slickensides at 40 degrees
362.47	362.75	0.28		MS: Grey with carbonaceous wisps; basal contact at 10 degrees
362.75	362.94	0.19		COAL: Dull and dense/hard; with tuffaceous interbeds
362.94	362.96	0.02		TUFF: Dark brown
362.96	364.45	1.49		COAL: Dull and black, with very thin tuff interbeds (three 2 – 4 mm bands); kaolinite on fracture and cleat planes - 362.96 – 363.4 subvertical fractures.; minor cleat development - 363.40 – 363.71 – Coal: black C6, bedded, no mineralisation - 363.71 – 363.73 – Tuff: brown - 363.73 – 364.11 – Coal: dull black - 364.11 – 364.13 – Tuff; brown - 364.13 – 364.45 – Coal: broken on subvertical fractures and minor cleated surfaces - sharp basal contact
364.45	366.05	1.60		MS: Grey and massive - 364.60 – 365.00 – Broken; subvertical fracture with slickensides and calcite
366.05	366.80	0.75		SS: Very fine grained, bedding at 0 degrees, gradational basal contact with muddy interbeds
366.80	367.80	1.00		MS: Grey massive, laminae, bedding at 0 degrees, -gradational basal contact
367.80	369.20	1.40		SL: Grey with minor sand (very fine), muddy throughout - sharp basal contact
369.20	373.50	4.30		SS: Fine to medium grained, grey, moderately to well sorted, bedding at 0 degrees, - 369.9 – 370.10 – Carbonaceous laminae - Gradational basal contact to medium grained sand
373.50	377.50	4.00		SS: Medium grained, moderate to well sorted, grey with carbonaceous grains and carbonaceous debris on fresh fractures throughout, massive - 376.3 – 377.4 abundant carbonaceous laminae, mud pellets and carbonaceous. mud pellets - Gradational basal contact
377.50	378.30	0.80		CONGLOMERATE: Grey, mud pellets 1 – 10 cm in diameter (elliptical) in a medium grained sand matrix, - bedding at 0 degrees
378.30	380.74	2.44		SS: Grey with black carbonaceous grains throughout (salt and pepper) 379.30 – 380.10 – Carbonaceous grains/pellets on bedding at 0°; thinly bedded 380.20 – 380.25 – Thin siltstone 379.90 – 379.95 – Irregular bedding with calcification 380.50 – 380.60 – Siltstone horizon
380.74	381.40	0.66	0.66	Core loss – Tripped rods out; change of drillers
381.40	383.40	2.00		SS: Grey to dark grey, thinly bedded with interbeds of carbonaceous siltstone, bedding at 0 degrees 381.70 -381.80 – Muddy siltstone horizon with irregular fracturing 382.10 – 382.2 – Bedding at 10 – 20 degrees irregular 382.6 – 383.1 – increasing carbonaceous material; bright flecks of coaly material on fresh fractures
383.40	383.85	0.45		CM: black laminae; gradational basal contact with sandy interbeds
383.85	384.80	0.95		SL: Grey with minor sand throughout; sharp erosional contact
384.80	385.30	0.50		SS: Grey, fine to medium grained, well sorted; sharp and irregular basal contact
385.30	385.75	0.45		SS: Grey, fine to very fine grained with minor carbonaceous wisps/beds at 0 degrees TCA with small scale cross bedding in thin beds, sharp basal contact at 10 degrees
385.75	390.40	4.65		SS: Grey, fine to medium grained with fine grained horizons - 386.6 – 386.95 – Finer grained with erosional contacts at top and bottom - 387.5 – 387.85 – Carbonaceous wisps; bedding at 15 degrees TCA - 389.6 – 390.40 – Thin light brown beds at 15 degrees - Gradational bottom contact to medium sand
390.40	398.10	7.70		SS: Medium grained; grey, massive - 397.7 – 398.1 – sparse coaly debris and mud pellets - 398.1 – gradational/transitional base to finer sand
398.10	399.52	1.42		SS: Grey, fine to medium grained, bedding at 10 degrees
399.52	400.90	1.38		SS: Medium grained and medium grey; abundant carbonaceous debris/wisps/fragments throughout.
400.90	403.50	2.60		SS: Fine to medium grained, bedding at 10 degrees; sparse carbonaceous debris at 401.6 m - 402.1 – 402.3 – coaly wisps in SS matrix - bedding at 5 degrees at base - sharp basal contact
403.50	404.25	0.75		CONGLOMERATE (CGL): Greenish grey, medium grained sand; lenticular coaly fragments abundant at top; mud and tuff(?) pebbles (1-5 cm diameter) throughout

404.25	405.00	0.75		SS: Medium grained; grey, massive; sharp basal contact
405.00	405.43	0.43		COAL: (C4 – C5) black and moderately dense with very thin (1 mm thick) bright bands; minor cleating and irregular fracturing throughout
405.43	405.45	0.02		TUFF: creamy brown
405.45	405.84	0.39		COAL: C5, black and moderately dense, irregular subvertical fractures
405.84	405.86	0.02		TUFF: brown
405.86	406.00	0.14		COAL: Dull; black and moderately dense SAMPLE 10 – 405.00 – 406.00
406.00	406.60	0.60		COAL: dull coal with minor thin C3(?) bands; kaolinite on subvertical fractures
406.60	406.80	0.20		COAL: C4 cleated and badly broken; minor kaolinite
406.80	407.31	0.51		COAL: C5; moderately dense, ashy throughout
407.31	407.33	0.02		TUFF: thin band of brown
407.33	407.85	0.52		COAL: Dull black C5/C6 with several bright bands – 1-2 mm thick
407.85	407.90	0.05		CM: dark black, dense, sharp basal contact
407.90	408.63	0.73		MS: Grey, massive; laminae at 0 degrees; sharp basal contact
408.63	409.00	0.37		SS: brownish grey; fine grained; sharp base
409.00	409.30	0.30		MS: Grey; massive; gradational contact
409.30	416.20	6.90		SS: Fine to medium grained; grey; moderately to well sorted, grey with minor carbonaceous flecks/grains throughout - 411.2 – 411.25 – sparse carbonaceous flecks - 414.3 – 414.4 – thin carbonaceous flecks and debris, bedding at 5 degrees - 415.3 – 415.55 – horizon with carbonaceous grains - transition to conglomerate
416.20	416.70	0.50		SS and CONGLOMERATE: large siltstone pellets and carbonaceous pellets and debris (lenticular and round) - 416.5 – 416.55 – coal bed thin bright with kaolinite - erosional basal contact
416.70	434.09	17.39		SS: White to grey, fine to medium grained, massive, minimal fracturing - 422.80 – 423.10 – mud pellets on bedding dipping at 15 degrees - 427.00 – 427.20 – sparse carbonaceous laminae - 428.95 – 429.20 – Carbonaceous laminae and lenticular debris - 429.20 – 434.09 – no fractures, massive - sharp basal contact
434.09	434.56	0.47		MS: grey and black; convoluted bedding with tuffaceous (brown) interbeds(?); sharp basal contact
434.56	434.67	0.11		COAL: dull and dense with carbonaceous interbeds, black streak
434.67	434.90	0.23		TUFF: Carbonaceous interbeds; black and brown, sharp basal contact
434.09	434.56	0.47		MS: grey and black; convoluted bedding with tuffaceous (brown) interbeds(?); sharp basal contact
434.56	434.67	0.11		COAL: dull and dense with carbonaceous interbeds, black streak
434.67	434.90	0.23		TUFF: Carbonaceous interbeds; black and brown, sharp basal contact
434.90	438.00	3.10		SS: Medium grained, grey; well sorted; gradational basal contact (colour change)
438.00	438.60	0.60		SS: green-grey, medium grained with sharp basal contact
438.60	439.80	1.20		MS: Grey with minor carbonaceous laminae throughout; gradational basal contact
439.80	440.60	0.80		SS and MS: (40:60) grey to dark grey; interbedded throughout with small scale cross bedding visible in fine sand; gradational basal contact
440.60	440.98	0.38		MS: grey, massive; sharp basal contact
440.98	441.06	0.08		CM: Black and coaly with very thin tuff band (2 mm) at top
441.06	442.30	1.24		SS: Very fine sand, grey with carbonaceous interbeds and muddy throughout
442.30	445.12	2.82		CM AND MS: (60:40) thinly bedded, black and grey; gradational contact
445.12	447.10	1.98		SS: Dark grey and black; fine grained; carbonaceous laminae throughout; coarse grained at base - gradational basal contact
447.10	449.60	2.50		SS: Medium grained; grey; carbonaceous laminae at 0 degrees - 448.3 – 448.6 less carbonaceous
449.60	451.45	1.85		MS: grey, massive - fracture at 449.70 at 50 degrees with slickensides - 450.99 – 451.10 fracture at 50 degrees with slickensides - sharp basal contact
451.45	452.70	1.25		SL AND SS: (60:40) – dark grey silt and light grey fine sand - thinly bedded with bedding at 0 degrees - 451.90 – 452.0 – sandy brown
452.70	453.30	0.60		CARBONACEOUS MS: dark black with sparse light grey sand interbeds; - gradational basal contact; increasing sand
453.30	453.65	0.35		SS: dark grey fine sand with abundant carbonaceous laminae; fining upward - sharp basal contact
453.65	455.10	1.45		COAL: Dull and moderately dense; bedded(?), poor cleat development if any; muddy/rocky throughout - gradational basal contact - fracture with slickensides at 50 degrees at 354.70
455.10	455.75	0.65		CM: dark black and dense; grey streak when scratched
455.75	455.98	0.23		SS: Black with carbonaceous interbeds; sharp basal contact

455.98	462.58	6.60		SS: medium grained; massive; well sorted - 456.0 – 461.10 – no fractures - Sharp basal contact
462.58	462.63	0.05		COAL: dark black, dull coal, moderately dense, bedded
462.63	462.65	0.02		TUFF: brown, clayey
462.65	462.70	0.05		COAL: Dull, badly broken; black
462.70	462.73	0.03		TUFF: brown, clayey
462.73	462.84	0.11		COAL: C5, black, minor thin bright bands
462.84	462.86	0.02		TUFF: brown, clayey
462.86	463.10	0.24		COAL: Black, badly broken; C5 with minor cleating
463.10	463.26	0.16		COAL and CM: (50:50) black and moderately dense with very thin tuff bands
463.26	463.58	0.32		COAL: Black, badly broken, cleated and fractured; C3(?) to C4 bands; calcite on cleat and fracture surfaces
463.58	463.60	0.02		TUFF: brown, clayey
463.60	463.64	0.04		COAL: Badly broken, C4
463.64	464.50	0.86		SS: Very fine grained sand with silty interbeds 463.60 – fracture at 60 degrees with slickensides and calcite 464.30 – fracture at 50 degrees with slickensides
464.50				EOH

FINGAL55B - Lithology Summary

HOLE NAME: FINGAL55B
R.L. of Hole: 626.00 m
Easting: 591126
Northing: 5387069
Date Drilling Commenced: 31/05/2007
Date Drilling Completed: 11/06/2007
Drill Company: Spaulding Drilling
Core Size: HQ3
PCD Depth: 123.00 m
Total Core Depth: 369.10 m

FROM	TO	THICKNESS	CORE LOSS	GEOLOGICAL DESCRIPTION
123.00	129.40	6.40		SANDSTONE (SS): F-grained, light grey to white, moderately to well sorted, minor/sparse mudstone semi round mudstone clast. 128.0-129.0 – Mudstone semi-round clasts (2 – 5 cm) in sandstone matrix
129.40	136.00	6.60		SS: Fine to Medium grained, light grey to white, mod – well sorted, massive unit, gradational contact with below unit
136.00	136.30	0.30		Conglomerate (CGL): Semi-round brown to grey mud pellets in sandy matrix
136.30	144.50	8.20		SS: Fine to Medium grained lithic sandstone, medium grey (darker than above unit) mod to well sorted, -136.9 – sparse and small coaly lenticular fragments (<5 cm thick) -138.5 – 138.7 – Bedding at 8 degrees, -138.8 sparse pebble sized mudstone clast -139.8 – 141.0 – thin band with coaly/carbonaceous bands -143 – 144.5 – SS ; soft and fractured, mod sorting
144.50	148.10	3.60		SS: Fine to Medium grained, thinly bedded, med grey; badly broken along carbonaceous bedding planes and along fractu -144.4 – 146.5 – Coaly/carbonaceous laminae -147.5 – 147.6 – Fine carbonaceous. Sandstone with small (<10 cm) visible x-bedding, bedding at 5-10 degrees
148.10	151.20	3.10		SS: Fine to Medium grained, medium grey, well sorted, soft (can break with hand), minor fine grained black 'specks' throughout, -149.75 – 149.8 – Siltstone bands, bedding at 10 degrees -151.0 – 151.2 – Carbonaceous. Fragments, sharp contact at 25 degrees
151.20	151.95	0.75		SILTSTONE (SL): Fine, dark grey to black; gradational contact, irregular/wavy bedding at 151.5 -151.6 - 152 – carbonaceous, black
151.95	153.30	1.35		SS: Fine grained, med. grey, mod to well sorted, dark black carbonaceous grains throughout., fining upwards
153.30	156.00	2.70		SS: w/ interbedded siltstone, dark grey to black (dark grey sands), Very Fine – Fine grained, well sorted well rounded, carbonaceous throughout (TO), -153.8 – 154.2 – Siltstone (SL) w/ minor sand -154.5 – SS bedding at 10 degrees -153.5 – Fractures @ 60 degrees -155.3 – Fractures (~3) @ 60 degrees with minor calcite
156.00	157.40	1.40	CL - .23	SL: dark grey, laminae w/ minor sands @ base - gradational contact with SS below
157.40	158.10	0.70		SS: dark grey Fine to Med grained and carbonaceous TO, - badly broken – potential zone of core loss
158.10	158.25	0.15		CARBONACEOUS MUDSTONE (CM): dark grey to black thinly laminated - fractures conchoidially and along bedding planes when hit with hammer - gradational contact with ss
158.25	159.40	1.15		SS: F grained, grey with interbeds of bright and dull coal, -158.45 – 158.5 – Bright coal with sand -158.6 – 10 cm coal band, bright with fine cleating
159.40	160.10	0.70		MUDSTONE (MS): light grey, massive 160.00 – minor calcite in fracture (@80 degrees) Grad contact with CM below
160.10	160.30	0.20		CM: black and shaly, fine mudstone pellets visible - badly broken with minor calcite on irregular fracture planes -becoming sandy at 160.3 , grad contact
160.30	161.20	0.90		SS: F grained, mod sorting, dark grey and carbonaceous. TO, - sharp contact with underlying SL/MS
161.20	162.20	1.00		CM: w/ interbeds of bright coal and coaly laminae - gradational contact with MS/SL below
162.20	164.30	2.10		MS/SL: Med grey, thin laminae TO -no carbonaceous material, bedding at 0 degrees 164.25 light grey and dark grey bands 2 – 10 cm thick
164.30	165.70	1.40	CL - .23	MS/CM (50:50): Interbedded, dark black to grey; minor cm material
165.70	166.50	0.80		CM: minor sands TO -166 – 166.5 – 10.64t grey sands w/ CM pellets, fining upward
166.50	166.95	0.45		CM : w/ interbeds of Bright coal (~C3) CM:CO = 70:30 SAMPLE #1 – 166.5 – 166.95 Coal bright with fine cleat
166.95	167.00	0.05		CM: dark grey to black - grad contact with ms

167.00	169.40	2.40		CM/MS: interbedded CM and MS (50:50) – -laminated dark grey to black - 168.4 – 168.5 – subvertical fracture healed with red mineralization -168.7 – 168.9 – subvert fracture healed with red mineralisation Note: Red mineralization correlates to red mineralization identified in twin hole
169.40	169.70	0.30		BONEY COAL (BC): subvert fractures with red mineralization
169.70	170.64	0.94		CM: dark grey to black, thinly bedded to laminated, 169.8 – 169.9 – Badly broken – zone of core loss (CL)?
170.64	170.93	0.29		BC/CM: interbedded, white and red secondary mineralization on sub vertical healed fractures, 170.93 – thin (<10 cm) zone of coal with fine cleats
170.93	172.30	1.37		CM – dark grey to black, lam., -171.3 – 171.38 – thin coaly(?) laminae -171.5 – 171.8 – Fractured @ 30 – 45 degrees, badly broken with slicken sides
172.30	172.33	0.03		COAL: thin coal bright with fine cleating-
172.33	174.40	2.07		MS: carbonaceous., dark grey to black -171.3 – 173.38 – Fractured @ 60 – 80 degrees (> 3 clear fracture planes) -171.5 -171.8 – Highly Fracture. @ 30 – 45 degrees, badly broken (BB) w? slickensides
174.40	175.30	0.90		MS/ Claystone (CS): dark grey with light grey interbeds, laminae 175 – 175.2 – clayey with healed fractures (fractures @80 degrees)
175.30	176.70	1.40	CL - 0.12	CM: dark black on surface, dense w/ minor sands @176.0 - 176.2 fractured at 80 degrees TO
176.70	184.00	7.30	CL - 0.27	SS: Fine to Medium grained, carbonaceous, dark grey to black, massive, cross bedding visible at 179.5 178 – 180.4 – M grained w/ carbonaceous mud matrix 179 – 179.5 – Badly broken 180 – 180.4 Badly Broken, Lt grey and dark grey beds (50:50) 182.9 – 183.0 – irregular coaly fragments Sharp basal contact
184.00	184.75	0.75		SS: M grained, fining upward, dark grey w/ carbonaceous mud matrix 184.3 -184.4 – mud pellets in irregular beds 184.5 – 184.75 – coal bands, lenticular fragments (<10 cm)
184.75	184.80	0.05		COAL (CO) – Thin bright coal band - sharp basal contact
184.80	187.10	2.30		SS – Fine grained, bedding at 10 degrees, dark grey to black 185.5 – 186 – M grained with steep cross bedding 186.3 – 186.45 – bedding at 5 – 10 degrees, slickensides on bedding Coaly fragments throughout (TO)
187.10	188.30	1.20		COAL: very dull and moderately dense with MS interbeds 187.1 – 187.4 – Boney Coal with mudstone cleating 187.4 – 188.1 - CM/BC dense (50:50) 188.1 – 188.3 – CM w/ minor BC, dull SAMPLE 3 187.1 – 188.1 (Upper B Seam)
188.30	188.40	0.10		Tuff (VT): brownish grey, dense and clayey, sharp contact - Previously described as expanding clays
188.40	188.71	0.31		CM: Dense, dark black, grading up to dull boney coal at 188.4
188.71	188.90	0.19		VT: Lt brownish grey, clayey texture
188.90	189.40	0.50		CO/CM (50:50) – dark black, no clear cleating, but not dense Irregular fractures on carbonaceous mudstone bedding SAMPLE 4 – 188.9 – 189.4
189.40	190.75	1.35	CL - 0.2	CO: dark black, non-dense (potential Core loss 189.4 – 189.6) 189.6 – 189.8 - C5/C6 – dull and dense 189.8 – 190.1 – C4, cleated bright 190.1 – 190.2 – Thin MS band 190.2 – 190.6 – C5 coal w/ CM interbeds 190.6 – 190.7 – C4 coal - cleated, bright at base, white calcite mineralisation SAMPLE 5 189.7 – 190.7 (Lower B Seam)
190.75	190.80	0.05		VT: brown clayey texture
190.80	191.40	0.60		CO: dark black 190.8 – 191.1 – C3 coal – cleated with minor CM 191.1 – 191.2 – C4, badly broken 191.2 – 191.4 – C6, badly broken w/ 4 10 cm thick tuff bands
191.40	191.60	0.20		VT: w. CM interbeds, dark brown
191.60	192.40	0.80		MS – Light grey, massive 192.0 – 192.1 – 3 fractures at 5 degrees w/ slickensides; bedding plane parallel 192.1 – 192.4 swirled/irregular bedding w/ coal stringers
192.40	192.50	0.10		CO: C4 band, badly broken with fine cleating
192.50	193.70	1.20		MS: Lt grey, thinly laminated with light grey and dark grey interbeds
193.70	196.00	2.30		SS – Lt to medium grey, very fined grained with thin SL interbeds, bedding at 5 degrees TO 193.7 – 195 – interbeds of SL – very fined grained sand 193.7 – 194 - Healed fractures at 60 Degrees 195.5 -196 – Fractures (x3) healed w/ calcite at 50 degrees Gradational contact with underlying SL
196.00	200.30	4.30		SL: grey and dark grey bands, laminae at 5 degrees 196.7 – 199.5 – Bedding at 5 degrees 197.2 -197.3 Fractures at 50 degrees (x2) 199.3 – 199.6 Broken fractured/fault at 45 degrees - minor calcite on a few planes Basal contact at 45 degrees – sharp fault/slip plane, slickensides

200.30	208.75	8.45		SS: Med. grained lithic sandstone, light grey to grey, massive with no clear sedimentary structures, soft friable sands, 200.3 – 200.6 – Fracture zone with multiple fracture planes from 50 – 70 degrees, small displacement(?) 200.8 – 201.1 – Multiple fractures at 70 degrees, minor calcite mineralization 202.5 – Fracture at 70 degrees 203.3 – 203.5 – Fracture at 70 degrees 204.1 – 204.2 – Fracture at 60 degrees 205 – 205.15 – Thin (<1 cm) coaly laminae and debris 205.5 – 206.7 – Sparse irregular, small (<22 cm) mud pellets, 2 fractures at 45 degrees no slickensides (@ 205.9 – 206.8 – 207.0 – 4 fractures with minor slickensides, bedding visible at 5 – 10 degrees 207.8 – 208.5 – Coaly wisps and thin irregular bedding (<3cm thick) 208.5 – 208.75 – Finer grained than above, with sharp basal contact
208.75	208.80	0.05		CM/CO (50:50): dark grey to black, fractured and badly broken on irregular fracture planes
208.80	208.90	0.10		VT: dark brown w/ small black flecks
208.90	209.20	0.30		CM: with SL, dark grey at base and grading up to black
209.20	209.42	0.22		TUFF: med to light brown – soft and expanding (difficult drilling), irregular regular bedding (?)
209.42	209.80	0.38		Boney/Dull Coal: w/ CM TO, dark grey to black Badly broken – bedded with small cleats occasionally visible
209.80	210.00	0.20		VT - med to light brown, soft Contact is fault surface at 70 degrees
210.00	210.40	0.40		BONEY/DULL COAL (CO): Black and non-dense, small cleats visible Badly broken with slickenside surfaces at multiple angles CM at base SAMPLE 6 210.0– 210.4
210.40	217.33	6.93		MS: med grey w/ dark grey interbeds, thinly laminated 210.4 – 211.4 – convoluted/disturbed bedding broken along bedding planes at 50 degrees 211.9 – 212 – 2 fractures at 60 – 70 degrees, no clear slickensides 212.3 – 212.5 – F to VF sand interbeds, thinly laminated throughout 212.5 – 213.4 – interbedded dark grey and light grey laminations 213.0 – fracture at 30 degrees no clear slickensides 213.4 – 215 – Bedding laminae at 0 degrees 215 – 215.4 – Sandy interbeds, light grey and thinly bedded 215.8 – 216.1 – Fractures (3) at 40, 20, 50 degrees Sharp basal contact with CM
217.33	217.67	0.34		CM: Dark black w/ MS interbedded Gradational contact, interbeds of SS at base
217.67	218.13	0.46		SS: Fine grained sand with thin interbeds of CM (60:40)
218.13	218.60	0.47		MS: Lt grey laminae, convoluted beds at top 218.3 – 218.4 – Badly broken
218.60	219.60	1.00		SL/SS (50:50): interbedded silts and sand laminae Lt grey, bedding 0 degrees 219.6 – Fractures with normal offset bedding, small displacements (< 1 cm) w/ slickensides, healed fractures w/ normal offset
219.60	220.30	0.70		MS: med grey, laminations TO at 5 degrees, sharp basal contact at 50 degrees
220.30	223.60	3.30		SS: Med grained sandstone, med grey w/ white calcareous grains (?), thinly bedded, soft sand 220.7 – bedding parallel fractures 221.1 – bedding parallel fracture 222.5 – 223.5 – fractured and jointed along bedding and subvertical
223.60	224.10	0.50		SS: w/ abundant mud pellet clasts (< 2cm diameter.), irregular shaped rounded pellets
224.10	224.80	0.70		SS: w/ CM and coaly bands 224.6 – large mud pellet 224.6 – 224.8 – irregular bedding with CM pellets and coaly fragments
224.80	229.20	4.40		SS: Med grey w/ white grains, well sorted, 227.0 – 227.6 Finer grained than above, thinly bedded w/ minor carbonaceous/coaly laminae at 227.4 228.2 – 228.25 – Band of mud pellet CGL, sharp basal (erosional) contact
229.20	236.65	7.45		SS: Fine to Medium grained, mod sorting, grey to med grey, 1 -2 mm thick coaly laminae at top, bedding at 5 degrees, some disturbed bedding 228.8 – 230.0 – thin bedded w/ MS interbeds 230.2 – 230.5 – M-Coarse grained with coaly laminae 231 – 231.35 – Mud pellet CGL 231.25 – 232.9 – Massive bedding at 0 degrees 233.2 – 233.3 – Sparse coaly wisps 233.6 – 234.0 – Thin CM bands and large (5 cm) irregular CM clast 234.0 – 236.65 – grey with white and carbonaceous grains Sharp basal contact
236.65	237.30	0.65		SS: VF grained, well sorted, bedding wavy 45 -70 degrees Sharp basal contact
237.30	238.25	0.95		SS: Med grey, med grained, abundant CM/CO wisps - sharp contact with CM - contact at 45 degrees with slickensides
238.25	238.50	0.25		CM: dark black with irregular bedding, dark black, thin SS interbeds - basal contact irregular at 45 degrees
238.50	238.55	0.05		VT – Dark brown – irregular basal contact at 60 degrees
238.55	238.67	0.12		MS: Med grey w/ mud pellet clast and SS, CM at base -grad contact
238.67	238.80	0.13		CM/Dull Coal (50:50) - dark black, mod dense, bedded with slightly metallic sheen on surfaces
238.80	238.95	0.15		VT: creamy grey to white, laminae, previously described as expanding clay
238.95	238.98	0.03		CO: very dull, mod dense and black SEAM D
238.98	239.48	0.50		CO: Dull, bedded with thin (<0.5 cm) bright bands -cleated on some fracture planes visible SAMPLE 7
239.48	239.60	0.12		CO: dull, dark black with dark brown (VT?) thin inter beds (<0.5 cm)-
239.60	239.75	0.15		CO: dull, black, thinly bedded with minor bright bands (< 2 mm thick) TO

239.60	239.75	0.15		CO: dull, black, thinly bedded with minor bright bands (< 2 mm thick) TO - sharp basal contact
239.75	242.60	2.85		MS: Lt grey, thinly bedded to laminated 239.75 – 240.2 minor wavy bedding w/ darker grey interbeds 240.9 Fracture at 50 degrees
242.60	243.80	1.20		MS: Grey to med grey laminae 243.0 – 243.1 – irregular wavy bedding(?) 243.2 – Fracture, irregular/wavy; incomplete slickensides Carbonaceous at base
243.80	243.94	0.14		VT: brown, waxy texture
243.94	244.08	0.14		CO/CM (50:50): Dull, bedded
244.08	244.10	0.02		VT: Dark brown w/ crystals visible
244.10	245.00	0.90		CO: black 244.1 -244.45 – Dull Coal, non-dense, black 244.45 – 244.80 – Dull coal w/ abundant mm thick subvertical calcite veins 244.80 – 244.82 – Dull Coal + CM w/ calcite veins 244.82 – 244.84 – VT, small normal fault with 5 mm of displacement 244.84 – 245.00 – Dull coal w/ VT/MS interbeds (60:40) SAMPLE 8 244.10 – 245.0
245.00	246.05	1.05		CO: black, C6 245.0 – 245.05 – Dull coal, mod dense 245.05 – 245.10 – MS/VT(?) interbed 245.10 -245.3 – Dull Coal, C6(?) 245.3 – 245.32 – VT layer 245.32 – 245.75 – Dull mod dense coal 245.75 – 245.80 – VT band, brown 245.8 – 245.86 – Dull, C6 coal 245.86 – 245.88 – Bright C3 band 245.88 – 246.06 – Dull CO/CM (50:50) w/ interbeds of VT(?) Sharp basal contact
246.05	246.86	0.81		MS: Med – Lt grey laminae, 246.18 – thin (<5 mm) coaly laminae Sharp basal contact
246.86	256.50	9.64		SS: Med grained, well – mod sorted, light to med grey 247.70 – 247.75 – Thin band of fine sand w/ cross bedding 248.2 – 248.33 – Coaly wisps 250.0 – 254.7 – Massive SS, med grained with sparse CM grains 254.7 – 255 – Cm and coaly wisps, minor 255.3 – 255.4 – CM/Coaly wisps on bedding at 0 degrees Erosional Contact at base
256.50	257.90	1.40		SS: F grained, grey sandstone, well sorted, erosional base
257.90	259.50	1.60		SS: M grained, med grey, no fractures 258.9 – 258.95 – Subround mud pellets and coaly wisps (pellets < 1 cm diameter.)
259.50	259.90	0.40		CGL: Mud pellet conglomerate, SS matrix with abundant 1-2 cm subround mud pellets
259.90	263.20	3.30		SS: F – M grained, well sorted, med grey, massive w/ sparse coaly flecks, - erosional Basal contact
263.20	264.10	0.90		SS: Fine sand, dark grey w/ small scale cross bedding visible in thin beds, 263.2 – 263.35 – large < 10 cm diameter clast of above medium grained SS
264.10	264.20	0.10		MS/CM: (50:50) brown and black interbeds, laminae
264.20	264.30	0.10		CM: dark black, dense, with thin laminae
264.30	264.80	0.50		CM: dull and moderately dense 264.3 – 264.4 – Dull CO w/ CM interbeds 264.4 – 264.5 – VT thin band, brown 264.5 – 264.62 - Dull CO and CM., light w/ small cleats on fractured surfaces 264.62 – 264.64 – C3 band, large cleats 264.64 – 264.8 – Dull coal, calcite/kaolinite on cleat - sharp basal contact SAMPLE 10 - 264.3 – 264.8
264.80	265.00	0.20		MS/CM: carbonaceous and dark black at base and grading up to a dark grey mudstone, calcite on fracture surface
265.00	265.04	0.04		CO – Dull with a thin (<1mm) bright band
265.04	265.40	0.36		VT: Lt brown, dense -irregular basal contact at 50 degrees with slicken surface
265.40	273.00	7.60		SS: Med grained, grey, fining upwards sequence, no visible fractures, massive unit 265.4 – 265.5 – 3 fractures at 45, 70, and 80 degrees with slickensides 265.4 – 266.40 – Fine Sand, thinly bedded, bedding at 0 degrees 267.4 – 268 –Medium grained, mod to well sorted 268 – 270.4 – Med. grained, mod sorting, massive 271.3 – 271.6 – 3 thin bands (<2 cm thick) w/ CM/coaly debris Sharp basal contact
273.00	273.40	0.40		SS: Fine grained, thin bedded, grey, well sorted, no visible fracturing Sharp basal contact
273.40	281.40	8.00		SS: Med grained, grey lithic sandstone, bedding at 0 -5 degrees 274.0 – 274.1 – CM and coaly debris Massive unit with no fracture 275.4 – 276 – Finer grained, med grey 276 – 281.4 – F- M grained, thinly bedded, bedding at 5 – 10 degrees, sparse thin CM grains
281.40	282.10	0.70		SS: Med grained, w/ abundant mudstone, CM and coaly fragments, coal fragments at 2 – 3 cm diameter, subangular 281.95 – 281.97 – thin coal band w/ good cleating - bedding at 5 – 10 degrees
282.10	283.50	1.40		SS – M-C grained, grey, lithic SS Gradational basal contact

283.50	284.87	1.37		SS: M-C grained, dark grey and white subround grains, moderately thick bedding, thin bands (<1 cm) of CM TO; well to mod sorting - erosional Basal contact
284.87	286.25	1.38		SS: Fine to Medium grained, thinly bedded w/ carbonaceous interbeds near top, fining upwards packages; greenish grey in colour
286.25	286.60	0.35		CG: Fine grained matrix with abundant mudstone clasts and contorted mudstone beds at 30 degrees; poor sorting, 3 cm diameter MS clast at base, greenish grey
286.60	287.80	1.20		SS: M-C grained, greenish grey w/ white subround grains and sparse mud pellets at base, mod to poor sorting, subround to subangular clasts; mud pellets at base (<1 cm diameter.); bedding at 0 – 5 degrees
287.80	290.10	2.30		SS – Fine grained, greenish grey; fining upward with beds at 0 degrees; carbonaceous laminae at top of package 288.0 – 290.1 – massive, Fine to Medium grained SS
290.10	290.70	0.60		SS: Medium grained; greenish grey; abundant carbonaceous debris/grains- lenticular clasts, 290.5 – 290.55 – CM band; dark brown w/ mud pellets throughout but sparse (< 1 cm diameter)
290.70	297.50	6.80		SS: Medium grained, greenish grey; lithic - minor sparse mud pellets - carbonaceous fragments/ grains visible on fractured surfaces 293.1 – 293.3 – mud pellets and carbonaceous grains, abundant 294 – 297 – med grained; massive, less green tint; carbonaceous grains/fragments throughout - sharp basal contact
297.50	298.87	1.37		COAL 297.5 – 297.8 – Dull CO, moderately dense with thin interbeds of CM laminae and 1 mm thick bright bands with fine cleat 297.8 – 298.05 – C6 – black with very thin bright coal C2 bands 298.05 – 298.10 – MS – light grey, thinly laminated 298.10 – 298.18 – Dull coal w/ MS interbeds 298.18 – 298.22 – MS, light grey 298.22 – 298.40 – C6 w/ thin C3 bands (<0.5 cm thick band); calcite on cleat planes, but not on all planes 298.40 – 298.45 – VT, thinly banded, light brown 298.45 – 298.80 – Dull coal, CM laminae interbeds; fracturing along cleat surfaces, some calcite on cleat, increasing MS at 298.80 298.80 – 298.87 – CM w/ thin CO interbeds (cleated), mod dense, black with brown interbeds (Tuffaceous?)
298.87	299.04	0.17		MS: Lt grey laminae, Carbonaceous at top
299.04	299.14	0.10		CO: C6 band of coal, non-dense
299.14	299.15	0.01		VT: brown waxy tuffaceous band
299.15	301.90	2.75		MS: Med grey w/ thin CM laminae (70:30), 299.7 – 301.1 – Fractures and slicken surfaces at 50 degrees 299.84 – 299.86 – thin VT 300.1 – 300.2 – CM w/ MS laminae 300.8 – 301.1 – Fractures with slicken sides - Gradational basal contact with Sandstone
301.90	305.17	3.27		SS: w. SL interbeds; decreasing with depth 302.8 – 303.0 – CM laminae interbedded with Fine SS; soft rock; bedding at 0 degrees - sharp erosional contact
305.17	309.00	3.83		SS: F to M grained, mod to well sorted, bedding at 5 degrees, carbonaceous grains and debris TO, light green tint to rock, carbonaceous debris visible on all fracture surfaces (no fractures or faults 305 – 312), -306 – 309 – Fining upwards package Grad contact
309.00	320.40	11.40		SS: Med grained, grey (less green tint), no fractures, bedding @ 0 – 5 degrees; thin carbonaceous wisps and debris TO, 309 – 309.6 – Carbonaceous and large mud pellets interbeds in sand matrix (1-2 cm diameter. pellets) 310.2 – 310.3 – CM wisps and mud pellets in sand matrix 312 – 315 – massive and med. grey 317.4 – 318 – Finer grained, well sorted, bedding at 5 degrees 318 – 320.4 – M grained and massive, Sparse CM flecks, grad basal contact
320.40	321.30	0.90		SS: w/ mudstone clasts; med greenish grey w/ dark grey mud pellets (mud pellets with CM bands), clast large (> 5 cm); fining upwards sequence with coaly/carbonaceous laminae in sand matrix 320.4 – 320.9 – Ss w/ coaly debris and small mud pellets, bedding at 0 degrees 321.3 – mud pellets dark grey w/ CM bands and mud pellets; slickensides on fracture surface
321.30	326.90	5.60		SS: Fine to Medium grained; mod sorting; grey, round to subround clasts 322.1 – 322.6 – Thinly bedded w/ distinct light tan/brown beds (< 1 cm thick bands) 322.6 – 326.9 – Massive grey, sharp basal contact
326.90	328.30	1.40		MS: med grey with dark grey to black CM interbeds, leaf prints on fresh surfaces 327.1 – 327.4 – Badly broken w/ fracture surfaces at 50 and 70 degrees TCA, with slickensides and kaolinite on fracture planes
328.30	328.55	0.25		CO: Dull and dense with dark grey to black CM interbeds. Small cleats when broken but a hard coal; 2 thin (<1 cm) MS bands
328.55	328.70	0.15		CM/MS (50:50): grey MS grading up to dark black MS below the CO, laminated
328.70	328.77	0.07		CO: dull with CM interbeds
328.77	329.20	0.43		SS: grey, Very fined grained, thinly bedded with carbonaceous grains TO, gradational contact
329.20	332.20	3.00		CM/SS (50:50): thinly laminated, dark grey and black bands, sandy bedding at 0 degrees
332.20	333.40	1.20		SL: grey fine w/ interbeds of CM; grad contact Bedding at 0 degrees 333 -333.4 – fracture at 50 – 70 degrees with slicken sides
333.40	336.80	3.40		SS: F to M grained, mod to well sorted, bedding at 5 degrees, carbonaceous grains and debris TO, light green tint to rock, carbonaceous debris visible on all fracture surfaces (no fractures or faults 305 – 312), -306 – 309 – Fining upwards package Grad contact
336.80	338.00	1.20		SL: w/ CM interbeds, dark grey with black 337.4 – 337.7 – fractured at 50 degrees with slicken surfaces on 3 surfaces - bedding at 0 – 5 degrees 337.7 – 338.0 – sandy w/ CM - grad contact
338.00	339.65	1.65		MS: w/ CM interbeds, laminae with minor very fine sand - gradational contact

339.65	341.00	1.35		CM/SS (50:50): Light grey sands w/ small scale cross bedding and carbonaceous interbeds; bedding at 0 degrees 341.0 – thin (< 0.5 cm) coal band Sharp contact
341.00	342.50	1.50		MS: w/ sandy interbeds, thin to laminated w/ CM bands at base 341.1 Fracture at 50 degrees with slickensides
342.50	343.53	1.03		CO: 342.5 – 342.77 – CO; C6? Non-dense 342.77 – 342.79 – VT band, dark brown 342.79 – 342.95 – C5/C6 with thin C3 band 342.95 – 342.96 – VT – creamy brown, waxy texture 342.96 – 343.31 – C6 – non-dense, fractured and cleated 343.31 – 343.45 – C6 w/ thin calcite veins filling subvertical fractures 343.45 – 343.47 – VT - dark brown irregular contact w/ visible calcite 343.47 – 343.53 – Carbonaceous and moderately dense, thinly bedded
343.53	346.40	2.87		SL: VF grained and grey, w/ carbonaceous (black) grains TO, plant prints on fresh fractures
346.40	346.75	0.35		CM: Black with SL interbeds; calcite on fracture plane at 345.55
346.75	347.90	1.15		CO: Black non dense w/ large cleating (~C4 to C5 coal) 346.75 – 347.25 – C5 coal, cleated 347.25 – 347.27 – VT – thin brown tuff band 347.27 – 347.40 – C4 coal with large cleats; calcite on many cleat planes 347.40 – 347.70 – C4 w/ CM interbeds; sparse calcite 347.70 – 347.72 – VT band 347.2 – 347.90 – C4 – cleated with calcite, sharp basal contact
347.90	348.55	0.65		SL: grey w/ CM interbeds; sandy at base (fining upward package) Gradational basal contact
348.55	350.03	1.48		MS: w/ silty interbeds; carbonaceous TO w/ laminae at 0 degrees, sharp irregular basal contact at 25 degrees; leaf prints on fresh fracture/bedding planes; 348.6 – Fracture at 60 degrees w/ slickensides
350.03	350.10	0.07		CM: dark black w/ 5 mm tuffaceous band; badly broken w/ slicken surfaces; sharp contact
350.10	352.00	1.90		SL: grey with carbonaceous laminae TO; 350.45 – 350.70 – irregular fracture surfaces with slicken surfaces 350.7 – 350.90 – sandy interbeds - muddy at top - gradational basal contact
352.00	353.40	1.40		SS: grey; very fine to fine sand; well sorted w. carbonaceous bedding TO -fining upward package w/ SL at top - sharp erosional basal contact
353.40	354.40	1.00		MS: dark grey, carbonaceous laminae TO; 353.8 – 354.2 – Badly broken w/ slicken surfaces on fractures at 70 degrees.
354.40	356.98			SS: Fine grained lithic sand; well sorted; bedding at 0 – 5 degrees; small scale cross bedding TO; carbonaceous beds TO
356.98	357.80	0.82		MS: dark grey; laminae 357.0 – 357.1 – 2 fractures at 50 degrees w/ calcite and slickensides; carbonaceous at base
357.80	358.60	0.80		CM: black w/ minor sand (grey) TO 357.95 – Fracture @ 60 degrees w/ slickensides - gradational basal contact
358.60	360.50	1.90		SS: grey w/ abundant dark black carbonaceous beds; - fine grained; bedding at 0 degrees TO 359.6 – 360 – x bedding at 5 to 10 degrees w/ abundant CM/coaly debris - grad contact w/ coarser sands at base
360.50	364.40	3.90		SS: Fine to Med grained; dark grey; carbonaceous TO ; bedding at 0 degrees - No fractures from 360.5 – 363.4 - 363.3 – 363.4 – coaly debris in 2 1 cm bands - Sharp basal contact
364.40	364.90	0.50		CM: dark black; dense dull w/ abundant 1 mm thick grey MS bands TO; grad contact
364.90	365.27	0.37		CM/SS (70:20): dark black w/ sandy (grey) beds TO; laminae;
365.27	365.95	0.68		CO: Boney/dull coal w/ CM throughout; calcite on subvertical 1 mm thick healed fractures (~3); no clear cleating but less dense than CM above SAMPLE 25 – 365.45 – 365.95 m
365.95	365.96	0.01		VT: dense creamy tan colour, waxy
365.96	366.02	0.06		CM: dark black and dense
366.02	366.05	0.03		VT: creamy tan and waxy
366.05	366.10	0.05		CM: dark black; dense
366.10	366.30	0.20		CM/CO (?): very dull but less dense than CM above; bedded without any cleat planes, thin/minor dull band at 366.15; gradational contact
366.30	367.30	1.00		MS: grey; very clayey and soft; thinly laminated with bedding at 0 degrees
367.30	368.00	0.70		MS/SS (50:50): grey fine sand w/ silty MATRIX; med grey MS bands; bedding at 5 degrees w/ regular MS and SS interbeds TO 367.3 – 367.5 – 4 evenly spaced fractures at 30 degrees - gradational basal contact
368.00	369.10	1.10		SS: Fine grained; grey to white w/ carbonaceous flecks on fresh fracture surfaces; minor carbonaceous laminae TO
369.10				EOH

Appendix 2: Drill Stem Test Results

By Focal Petroleum Engineering Pty Ltd

See Separate document for Appendix 2