

Borehole No. **FINGAL55B**

Sheet 1 of 17

Project No: **MINENTWN00134AA**

Date started: **31.5.2007**

Date completed: **11.6.2007**

Logged by: **NW**

Checked by: **DA**











Engineering Log - Cored Borehole

Client: **Pure Energy Resources**

Principal:

Project: **Fingal Valley Coal Seam Gas Drilling**

Borehole Location:

drill model & mounting:		Easting: 591126		slope: -90°		R.L. Surface:											
hole diameter: mm		Drilling fluid:		Northing: 5387069		bearing: datum:											
drilling information			material substance				rock mass defects										
method	core-lift	water	RL	depth metres	graphic log core recovery	material rock type; grain characteristics, colour, structure, minor components	weathering alteration	estimated strength			IS ₍₅₀₎ MPa D- diam- A- axial	defect description type, inclination to core axis, planarity, roughness, coating, thickness					
						Continued from non-cored borehole		VL	L	M	H	VH	EH	RQD %	defect spacing mm	particular	general
				124		SANDSTONE: Fine-grained, light grey to white, moderately to well sorted, minor/sparse mudstone semiround mudstone clast. 128.0-129.0: Mudstone semi-round clasts (2 – 5 cm) in sandstone mixture											
				126													
				128													
				130		SANDSTONE: Fine-Medium grained, light grey to white, moderate – well sorted, massive unit, gradational contact with below unit											
				132													
				134													
				136													
				138		SANDSTONE: Fine-Medium grained lithic sandstone, medium grey (darker than above unit) moderate to well sorted, Sparse and small coaly lenticular fragments (<5 cm thick)											
method DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit NMLC NMLC core NQ, HQ, PQ wireline core			core-lift  casing used  barrel withdrawn graphic log/core recovery  core recovered  - graphic symbols indicate material  no core recovered			water  10/1/98 water level on date shown  water inflow  partial drill fluid loss  complete drill fluid loss  water pressure test result (lugeons) for depth interval shown			weathering FR fresh SW slightly weathered MW moderately weathered HW highly weathered XW extremely weathered DW distinctly weathered (covers MW and HW) strength VL very low L low M medium H high VH very high EH extremely high			defect type JT joint PT parting SM seam SZ sheared zone SS sheared surface CS crushed seam planarity PL planar CU curved UN undulating ST stepped IR irregular roughness VR very rough RO rough SO smooth SL slickensided coating CN clean SN stained VN veneer CO coating					

Borehole No. **FINGAL55B**

Sheet 2 of 17

Project No: **MINENTWN00134AA**

Date started: **31.5.2007**

Date completed: **11.6.2007**

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Engineering Log - Cored Borehole

Client: **Pure Energy Resources**

Principal:











Project: **Fingal Valley Coal Seam Gas Drilling**

Borehole Location:

drill model & mounting: Easting: 591126 slope: -90° R.L. Surface:

hole diameter: mm Drilling fluid: Northing: 5387069 bearing: datum:

drilling information					material substance					rock mass defects				
method	core-lift	water	RL	depth metres	graphic log core recovery	material	weathering alteration	estimated strength	IS ₍₅₀₎ MPa	D- diam- etral A- axial	RQD %	defect spacing mm	defect description	
						rock type; grain characteristics, colour, structure, minor components		VL L M H VH EH					type, inclination to core axis, planarity, roughness, coating, thickness	
						SANDSTONE: Fine-Medium grained lithic sandstone, medium grey (darker than above unit) moderate to well sorted, (continued) Bedding at 8 degrees Sparse pebble sized mudstone clast								
				140		Thin band with coaly/carbonaceous bands								
				142										
						Sandstone ; soft and fractured, moderate sorting								
				144										
						Coaly/carbonaceous laminae								
						SANDSTONE: Fine-Medium grained, thinly bedded, medium grey; badly broken along carbonaceous bedding planes and along fractures at ~80 degrees								
				146										
						Fine carb. Sandstone with small (<10 cm) visible x-bedding, bedding at 5-10 degrees								
				148										
						SANDSTONE: Fine-Medium grained, medium grey, well sorted, soft (can break with hand), minor fine grained black 'specks' throughout,								
				150		Siltstone bands, bedding at 10 degrees								
						Carb. Fragments, sharp contact at 25 degrees								
						SILTSTONE: Fine, dark grey to black; gradational contact, irregular/wavey bedding at 151.5								
				152		Carbonaceous, black								
						SANDSTONE: Fine grained, medium grey, moder to well sorted, dark black carb grainsthroughout, fining upwards								

method	core-lift	water	weathering	defect type	roughness
DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit NMLC NMLC core NQ, HQ, PQ wireline core	 casing used  barrel withdrawn graphic log/core recovery  core recovered  - graphic symbols indicate material  no core recovered	 10/1/98 water level on date shown  water inflow  partial drill fluid loss  complete drill fluid loss  water pressure test result (lugeons) for depth interval shown	FR fresh SW slightly weathered MW moderately weathered HW highly weathered XW extremely weathered DW distinctly weathered (covers MW and HW) strength VL very low L low M medium H high VH very high EH extremely high	JT joint PT parting SM seam SZ sheared zone SS sheared surface CS crushed seam planarity PL planar CU curved UN undulating ST stepped IR irregular	VR very rough RO rough SO smooth SL slickensided coating CN clean SN stained VN veneer CO coating

Engineering Log - Cored Borehole

Client: **Pure Energy Resources**

Date started: **31.5.2007**

Principal:

Date completed: **11.6.2007**

Project: **Fingal Valley Coal Seam Gas Drilling**











Logged by: **NW**

Borehole Location:

Checked by: **DA**

drill model & mounting: Easting: 591126 slope: -90° R.L. Surface:
hole diameter: mm Drilling fluid: Northing: 5387069 bearing: datum:

drilling information					material substance					rock mass defects				
method	core-lift	water	RL	depth metres	graphic log core recovery	material	weathering alteration	estimated strength	IS ₍₅₀₎ MPa	D- diam- etral A- axial	RQD %	defect spacing mm	defect description	
						rock type; grain characteristics, colour, structure, minor components		VL L M H VH EH				30 100 300 1000 3000	particular	general
				154		SANDSTONE: with interbedded siltstone, dark grey to black (dark grey sands), very fine – fine graind, well sorted well rounded, carbonaceous throughout Fractures @ 60 degrees Siltstone with minor sand Sandstone bedding at 10 degrees Fractures (~3) @ 60 degrees with minor calcite								
				156		SILTSTONE: Dark grey, laminae with minor sands @ base; gradational contact with Sandstone below								
				158		SANDSTONE: Dark grey Fine to Medium grained and carbonaceous throughout; badly broken - potential zone of core loss CARBONACEOUS MUDSTONE: dark grey to black thinly laminated; fractures conchoidally and along bedding planes when hit with hammer; gradational contact with sandstone SANDSTONE: Fine grained, grey with interbeds of bright and dull coal, Bright coal with sand 10 cm coal band, bright with fine cleating								
				160		MUDSTONE: Light grey, massive; gradational contact with Carbonaceous Mudstone below Minor calcite in fracture (@80 degrees) CARBONACEOUS MUDSTONE: black and shaley, fine mudstone pellets visible; badly broken with minor calcite on irregular fracture planes; becoming sandy at 160.3 , gradational contact SANDSTONE: Fine grained, moderate sorting, dark grey and carb. throughout; sharp contact with underlying Siltstone/Mudstone CARBONACEOUS MUDSTONE: with interbeds of bright coal and coaly laminae; gradational contact with Mudstone/Siltstone below								
				162		MUDSTONE/SILTSTONE: Medium grey, thin laminae throughout; no carbonaceous material, bedding at 0 degrees								
				164		light grey and dark grey bands 2 – 10 cm thick MUDSTONE/CARBONACEOUS MUDSTONE (50:50);-Interbedded, dark black to grey; minor cm material								
				166		CARBONACEOUS MUDSTONE: minor sands throughout 166 – 166.5 – grey sands with Carbonaceous Mudstone pellets, fining upward CARBONACEOUS MUDSTONE: with interbeds of Bright coal (~C3) Carbonaceous Mudstone:Coal = 70:30, Coal bright with fine cleat CARBONACEOUS MUDSTONE: dark grey to black; gradational contact with Mudstone CARBONACEOUS MUDSTONE/MUDSTONE: Interbedded Carbonaceous Mudstone and Mudstone								
				168										

method	core-lift	water	weathering	defect type	roughness
DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit NMLC NMLC core NQ, HQ, PQ wireline core	 casing used  barrel withdrawn graphic log/core recovery  core recovered  - graphic symbols indicate material  no core recovered	 10/1/98 water level on date shown  water inflow  partial drill fluid loss  complete drill fluid loss  water pressure test result (lugeons) for depth interval shown	FR fresh SW slightly weathered MW moderately weathered HW highly weathered XW extremely weathered DW distinctly weathered (covers MW and HW) strength VL very low L low M medium H high VH very high EH extremely high	PL planar CU curved UN undulating ST stepped IR irregular	VR very rough RO rough SO smooth SL slickensided coating CN clean SN stained VN veneer CO coating

Borehole No. **FINGAL55B**

Engineering Log - Cored Borehole

Sheet 4 of 17
Project No: **MINENTWN00134AA**

Client: **Pure Energy Resources**

Date started: **31.5.2007**

Principal:

Date completed: **11.6.2007**

Project: **Fingal Valley Coal Seam Gas Drilling**










Logged by: **NW**

Borehole Location:

Checked by: **DA**

drill model & mounting: Easting: 591126 slope: -90° R.L. Surface:
hole diameter: mm Drilling fluid: Northing: 5387069 bearing: datum:

drilling information					material substance					rock mass defects				
method	core-lift	water	RL	depth metres	graphic log core recovery	material	weathering alteration	estimated strength	IS ₍₅₀₎ MPa D- diam- etral A- axial	RQD %	defect spacing mm	defect description		
						rock type; grain characteristics, colour, structure, minor components		VL L M H VH EH				particular	general	
						(50:50), laminated dark grey to black CARBONACEOUS MUDSTONE/MUDSTONE: interbedded Carbonaceous Mudstone and Mudstone (50:50), laminated dark grey to black (continued)								
				170		BONEY COAL: subvertical fractures with red mineralization CARBONACEOUS MUDSTONE: dark grey to black, thinly bedded to laminated, Badly broken - zone of core loss?								
				172		BONEY COAL/CARBONACEOUS MUDSTONE: interbedded, white and red secondary mineralization on subvertical healed fractures. Thin (<10 cm) zone of coal with fine cleats CARBONACEOUS MUDSTONE: Dark grey to black, laminated, Thin coaly(?) laminae Fractured @ 60 - 80 degrees (> 3 clear fracture planes) Fractured @ 30 - 45 degrees, badly broken with slicken sides Highly Fractured @ 30 - 45 degrees, badly broken with slickensides COAL: Thin coal bright with fine cleating MUDSTONE: carbonaceous, dark grey to black								
				174		MUDSTONE/CLAYSTONE: Dark grey with light grey interbeds, laminae Clayey with healed fractures (fractures @80 degrees) CARBONACEOUS MUDSTONE: Dark black on surface, dense with minor sands @ 176.0 - 176.2; fractured at 80 degrees throughout								
				176		SANDSTONE: Fine-Medium grained, carbonaceous, dark grey to black, massive, cross bedding visible at 179.5; Sharp basal contact								
				178		Medium grained with carbonaceous mudstone matrix Badly broken								
				180		Badly Broken, light grey and dark grey beds (50:50)								
				182										

method	core-lift	water	weathering	defect type	roughness
DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit NMLC NMLC core NQ, HQ, PQ wireline core	 casing used  barrel withdrawn graphic log/core recovery  core recovered - graphic symbols indicate material  no core recovered	 10/1/98 water level on date shown  water inflow  partial drill fluid loss  complete drill fluid loss  water pressure test result (lugeons) for depth interval shown	FR fresh SW slightly weathered MW moderately weathered HW highly weathered XW extremely weathered DW distinctly weathered (covers MW and HW) strength VL very low L low M medium H high VH very high EH extremely high	JT joint PT parting SM seam SZ sheared zone SS sheared surface CS crushed seam planarity PL planar CU curved UN undulating ST stepped IR irregular	VR very rough RO rough SO smooth SL slickensided coating CN clean SN stained VN veneer CO coating

Borehole No. **FINGAL55B**

Sheet 5 of 17

Project No: **MINENTWN00134AA**

Date started: **31.5.2007**

Date completed: **11.6.2007**

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Engineering Log - Cored Borehole

Client: **Pure Energy Resources**

Principal:











Project: **Fingal Valley Coal Seam Gas Drilling**

Borehole Location:

drill model & mounting: Easting: 591126 slope: -90° R.L. Surface:

hole diameter: mm Drilling fluid: Northing: 5387069 bearing: datum:

drilling information					material substance					rock mass defects				
method	core-lift	water	RL	depth metres	graphic log core recovery	material	weathering alteration	estimated strength	IS ₍₅₀₎ MPa D- diam- etral A- axial	RQD %	defect spacing mm	defect description		
						rock type; grain characteristics, colour, structure, minor components		VL L M H VH EH				particular	general	
				184		Irregular coaly fragments SANDSTONE: Fine-Medium grained, carbonaceous, dark grey to black, massive, cross bedding visible at 179.5; Sharp basal contact (<i>continued</i>)								
						SANDSTONE: Medium grained, fining upward, dark grey with carbonaceous mudstone matrix Mud pellets in irregular beds Coal bands, lenticular fragments (<10 cm)								
				186		COAL: Thin bright coal band; Sharp basal contact SANDSTONE: Fine grained, bedding at 10 degrees, dark grey to black; Coaly fragments throughout Medium grained with steep cross bedding Bedding at 5 – 10 degrees, slickensides on bedding								
				188		COAL: Very dull and moderately dense with Mudstone interbeds Boney Coal with mudstone cleating Carbonaceous Mudstone/Boney Coal dense (50:50) Carbonaceous Mudstone with minor Boney Coal, dull								
						VOLCANIC TUFF: Brownish grey, dense and clayey CARBONACEOUS MUDSTONE: Dense, dark black VOLCANIC TUFF: Light brownish grey, clayey texture COAL/CARBONACEOUS MUDSTONE (50:50)								
				190		COAL: dark black, non-dense (potential Core loss 189.4 – 189.6) C5/C6 – dull and dense Thin Mudstone band								
						C4 coal - cleated, bright at base, calcite VOLCANIC TUFF: brown clayey texture COAL: dark black C3-C6								
				192		VOLCANIC TUFF: with Carbonaceous Mudstone MUDSTONE: Light grey, massive								
						CO – C4 band, badly broken with fine cleating MUDSTONE: Light grey, thinly laminated								
				194		SANDSTONE: Light to medium grey, very fine grained with thin Siltstone interbeds, bedding at 5 degrees throughout; Gradational contact with underlying Siltstone Healed fractures at 60 Degrees Interbeds of Siltstone – very fine grained sand								
				196		Fractures (x3) healed with calcite at 50 degrees								
						SILTSTONE: grey and dark grey bands, laminae at 5 degrees; Basal contact at 45 degrees – sharp fault/slip plane, slickensides; minor calcite on a few planes Bedding at 5 degrees Fractures at 50 degrees (x2)								
				198										

method	core-lift	water	weathering	defect type	roughness
DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit NMLC NMLC core NQ, HQ, PQ wireline core	 casing used  barrel withdrawn graphic log/core recovery  core recovered  - graphic symbols indicate material  no core recovered	 10/1/98 water level on date shown  water inflow  partial drill fluid loss  complete drill fluid loss  water pressure test result (lugeons) for depth interval shown	FR fresh SW slightly weathered MW moderately weathered HW highly weathered XW extremely weathered DW distinctly weathered (covers MW and HW) strength VL very low L low M medium H high VH very high EH extremely high	JT joint PT parting SM seam SZ sheared zone SS sheared surface CS crushed seam planarity PL planar CU curved UN undulating ST stepped IR irregular	VR very rough RO rough SO smooth SL slickensided coating CN clean SN stained VN veneer CO coating

Borehole No. **FINGAL55B**

Sheet 6 of 17

Project No: **MINENTWN00134AA**

Date started: **31.5.2007**

Date completed: **11.6.2007**

Logged by: **NW**

Checked by: **DA**

Engineering Log - Cored Borehole

Client: **Pure Energy Resources**

Principal:

Project: **Fingal Valley Coal Seam Gas Drilling**

Borehole Location:

drill model & mounting:		Easting: 591126		slope: -90°		R.L. Surface:											
hole diameter: mm		Drilling fluid:		Northing: 5387069		bearing: datum:											
drilling information		material substance				rock mass defects											
method	core-lift	water	RL	depth metres	graphic log core recovery	material	weathering alteration	estimated strength					IS ₍₅₀₎ MPa	D- diam- etral A- axial	RQD %	defect spacing mm	defect description
								VL	L	M	H	VH					
				200		SILTSTONE: grey and dark grey bands, laminae at 5 degrees; Basal contact at 45 degrees – sharp fault/slip plane, slickensides; minor calcite on a few planes (continued)											
						Broken fractured/fault at 45 degrees											
				202		SANDSTONE: Medium grained lithic sandstone, light grey to grey, massive with no clear sedimentary structures, soft friable sands, Fracture zone with multiple fracture planes from 50 – 70 degrees, small displacement(?) Multiple fractures at 70 degrees, minor calcite mineralization											
						Fracture at 70 degrees											
				204		Fracture at 70 degrees											
						Fracture at 60 degrees											
						Thin (<1 cm) coaly laminae and debris											
				206		Sparse irregular, small (<22 cm) mud pellets, 2 fractures at 45 degrees no slickensides (@ 205.9 – 206.2)											
						4 fractures with minor slickensides, bedding visible at 5 – 10 degrees											
				208		Coaly whisps and thin irregular bedding (<3cm thick)											
						Finer grained than above, with sharp basal contact											
						CARBONACEOUS MUDSTONE/DULL COAL (50:50)											
						VOLCANIC TUFF: dark brown with small black flecks											
						CARBONACEOUS MUDSTONE: with Siltstone											
						TUFF: medium to light brown											
				210		BONEY/DULL COAL with Carbonaceous Mudstone											
						VOLCANIC TUFF: medium to light brown, soft											
						BONEY/DULL COAL: Black and non-dense											
						MUDSTONE: medium grey with dark grey interbeds, thinly laminated; Sharp basal contact with Carbonaceous Mudstone											
						Convoluted/disturbed bedding broken along bedding planes at 50 degrees											
				212		Fractures at 60 – 70 degrees, no clear sides											
						Fine to Very Fine sand interbeds, thinly laminated throughout											
						Interbedded dark grey and light grey laminations											
method		core-lift		water		weathering		defect type		roughness							
DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit NMLC NMLC core NQ, HQ, PQ wireline core		casing used barrel withdrawn		10/1/98 water level on date shown water inflow partial drill fluid loss complete drill fluid loss water pressure test result (lugeons) for depth interval shown		FR fresh SW slightly weathered MW moderately weathered HW highly weathered XW extremely weathered DW distinctly weathered (covers MW and HW) strength VL very low L low M medium H high VH very high EH extremely high		JT joint PT parting SM seam SZ sheared zone SS sheared surface CS crushed seam planarity PL planar CU curved UN undulating ST stepped IR irregular		VR very rough RO rough SO smooth SL slickensided coating CN clean SN stained VN veneer CO coating							

Engineering Log - Cored Borehole

Client: **Pure Energy Resources**

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Principal:

Date completed: **11.6.2007**

Project: **Fingal Valley Coal Seam Gas Drilling**











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Borehole Location:

Checked by: **DA**

drill model & mounting: Easting: 591126 slope: -90° R.L. Surface:
hole diameter: mm Drilling fluid: Northing: 5387069 bearing: datum:

drilling information					material substance					rock mass defects				
method	core-lift	water	RL	depth metres	graphic log core recovery	material	weathering alteration	estimated strength	IS ₍₅₀₎ MPa	D- diam- etral A- axial	defect spacing mm	defect description		
						rock type; grain characteristics, colour, structure, minor components						type, inclination to core axis, planarity, roughness, coating, thickness		
												particular		general
				214		MUDSTONE: medium grey with dark grey interbeds, thinly laminated; Sharp basal contact with Carbonaceous Mudstone (<i>continued</i>) Fracture at 30 degrees no clear sides Bedding laminae at 0 degrees								
				216		Sandy interbeds, light grey and thinly bedded Fractures (3) at 40, 20, 50 degrees								
				218		CARBONACEOUS MUDSTONE: Dark black with Mudstone interbedded; Gradational contact, interbeds of Sandstone at base SANDSTONE: Fine grained sand with thin interbeds of Carbonaceous Mudstone (60:40) MUDSTONE: Light grey laminae, convoluted beds at top Badly broken SILTSTONE/SANDSTONE: (50:50) - interbedded silts and sand laminae; light grey, bedding at 0 degrees								
				220		MUDSTONE: medium grey, laminations throughout at 5 degrees, sharp basal contact at 50 degrees Fractures with normal offset bedding, small displacements (< 1 cm) with slickensides, healed fractures with normal offset MUDSTONE: medium grey, laminations throughout at 5 degrees, sharp basal contact at 50 degrees SANDSTONE: Medium grained sandstone, medium grey with white calcareous grains (?), thinly bedded, soft sand Bedding parallel fractures Bedding parallel fracture								
				222		Fractured and jointed along bedding and subvertical								
				224		SANDSTONE: with abundant mud pellet clasts (< 2cm dia.), irregular shaped rounded pellets SANDSTONE: with Carbonaceous Mudstone and coaly bands Large mud pellet Irregular bedding with Carbonaceous Mudstone pellets and coaly fragments SANDSTONE: Medium grey with white grains, well sorted,								
				226		Finer grained than above, thinly bedded with minor carb/coaly laminae at 227.4								
				228										

method	core-lift	water	weathering	defect type	roughness
DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit NMLC NMLC core NQ, HQ, PQ wireline core	 casing used  barrel withdrawn graphic log/core recovery  core recovered  - graphic symbols indicate material  no core recovered	 10/1/98 water level on date shown  water inflow  partial drill fluid loss  complete drill fluid loss  water pressure test result (lugeons) for depth interval shown	FR fresh SW slightly weathered MW moderately weathered HW highly weathered XW extremely weathered DW distinctly weathered (covers MW and HW) strength VL very low L low M medium H high VH very high EH extremely high	JT joint PT parting SM seam SZ sheared zone SS sheared surface CS crushed seam planarity PL planar CU curved UN undulating ST stepped IR irregular	VR very rough RO rough SO smooth SL slickensided coating CN clean SN stained VN veneer CO coating

Borehole No. **FINGAL55B**

Sheet 8 of 17

Project No: **MINENTWN00134AA**

Date started: **31.5.2007**

Date completed: **11.6.2007**

Logged by: **NW**

Checked by: **DA**

Engineering Log - Cored Borehole

Client: **Pure Energy Resources**

Principal:

Project: **Fingal Valley Coal Seam Gas Drilling**

Borehole Location:

drill model & mounting:				Easting: 591126		slope: -90°		R.L. Surface:				
hole diameter: mm				Drilling fluid:		Northing: 5387069		bearing: datum:				
drilling information				material substance				rock mass defects				
method	core-lift	water	RL	depth metres	graphic log core recovery	material	weathering alteration	estimated strength	IS ₍₅₀₎ MPa	D- diam- etral A- axial	defect spacing mm	defect description
						rock type; grain characteristics, colour, structure, minor components		VL L M H VH EH			RQD %	type, inclination to core axis, planarity, roughness, coating, thickness
											30 100 300 1000 3000	particular general
				230		SANDSTONE: Medium grey with white grains, well sorted, (continued) Band of mud pellet CGL, sharp basal (erosional) contact Thin bedded with Mudstone interbeds						
				232		SANDSTONE: Fine-Medium grained, moderate sorting, grey to medium grey, 1 -2 mm thick coaly laminae at top, bedding at 5 degrees, some disturbed bedding; Sharp basal contact Medium to Coarse grained with coaly laminae Mud pellet CGL Massive bedding at 0 degrees						
				234		Sparse coaly whisps Thin Carbonaceous Mudstone bands and large (5 cm) irregular Carbonaceous Mudstone clast Grey with white and carbonaceous grains						
				236								
				238		SANDSTONE: Very fine grained, well sorted, bedding wavy 45 -70 degrees; Sharp basal contact SANDSTONE: Medium grey, medium grained, abundant Carbonaceous Mudstone/Coal whisps; Sharp contact with Carbonaceous Mudstone, Contact at 45 degrees with slickensides CARBONACEOUS MUDSTONE: dark black VOLCANIC TUFF: Dark brown MUDSTONE: Medium grey with mud pellet clast CARBONACEOUS MUDSTONE/DULL COAL (50:50) VOLCANIC TUFF: creamy grey to white COAL: Very dull, moderate dense and black COAL: Dull, bedded with thin (<0.5 cm) bright bands COAL: Dull, dark black with dark brown (Volcanic Tuff?) COAL: Dull, black, thinly bedded with minor bright bands MUDSTONE: Light grey, thinly bedded to laminated						
				240								
				242		MUDSTONE: Grey to medium grey laminae; Carbonaceous at base						

method		core-lift		water		weathering		defect type		roughness	
DT	diatube		casing used		10/1/98 water level on date shown	FR	fresh	JT	joint	VR	very rough
AS	auger screwing		barrel withdrawn		water inflow	SW	slightly weathered	PT	parting	RO	rough
AD	auger drilling				partial drill fluid loss	MW	moderately weathered	SM	seam	SO	smooth
RR	roller/tricone				complete drill fluid loss	HW	highly weathered	SZ	sheared zone	SL	slickensided
CB	claw or blade bit					XW	extremely weathered	SS	sheared surface		
NMLC	NMLC core					DW	distinctly weathered (covers MW and HW)	CS	crushed seam		
NQ, HQ, PQ	wireline core										
		graphic log/core recovery				strength		planarity		coating	
						VL		PL		CN	
						L		CU		SN	
						M		UN		VN	
						H		ST		CO	
						VH		IR			
						EH					

Borehole No. **FINGAL55B**

Sheet 9 of 17

Project No: **MINENTWN00134AA**

Date started: **31.5.2007**

Date completed: **11.6.2007**

Logged by: **NW**

Checked by: **DA**

Engineering Log - Cored Borehole

Client: **Pure Energy Resources**

Principal:

Project: **Fingal Valley Coal Seam Gas Drilling**

Borehole Location:

drill model & mounting:		Easting: 591126		slope: -90°		R.L. Surface:														
hole diameter: mm		Drilling fluid:		Northing: 5387069		bearing: datum:														
drilling information			material substance				rock mass defects													
method	core-lift	water	RL	depth metres	graphic log core recovery	material rock type; grain characteristics, colour, structure, minor components	weathering alteration	estimated strength					IS ₍₅₀₎ MPa D- diam- etral A- axial	RQD %	defect spacing mm				defect description	
								VL	L	M	H	VH			EH	30	100	300	1000	3000
				244		MUDSTONE: Grey to medium grey laminae; Carbonaceous at base (<i>continued</i>) Irregular wavy bedding(?) Fracture, irregular/wavy; incomplete slickensides VOLCANIC TUFF: brown, waxy texture COAL/CARBONACEOUS MUDSTONE (50:50) - Dull, bedded VOLCANIC TUFF: Dark brown with crystals visible COAL: Black; dull; low density Dull coal with abundant mm thick subvertical calcite veins COAL: Dull with minor bright bands and Tuff bands														
				246		MUDSTONE: Medium - Light grey laminae, Sharp basal contact SANDSTONE: Medium grained, well - moderate sorted, light to medium grey; erosional contact at base Thin band of fine sand with cross bedding Coaly wisps														
				250		Massive Sandstone, medium grained with sparse Carbonaceous Mudstone grains														
				252		Carbonaceous Mudstone and coaly wisps, minor														
				254		Carbonaceous Mudstone/Coaly wisps on bedding at 0 degrees														
				256		SANDSTONE: Fine grained, grey sandstone, well sorted, erosional base														
				258																
method DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit NMLC NMLC core NQ, HQ, PQ wireline core			core-lift casing used barrel withdrawn graphic log/core recovery core recovered - graphic symbols indicate material no core recovered			water 10/1/98 water level on date shown water inflow partial drill fluid loss complete drill fluid loss water pressure test result (lugeons) for depth interval shown			weathering FR fresh SW slightly weathered MW moderately weathered HW highly weathered XW extremely weathered DW distinctly weathered (covers MW and HW) strength VL very low L low M medium H high VH very high EH extremely high			defect type JT joint PT parting SM seam SZ sheared zone SS sheared surface CS crushed seam planarity PL planar CU curved UN undulating ST stepped IR irregular roughness VR very rough RO rough SO smooth SL slickensided coating CN clean SN stained VN veneer CO coating								

Borehole No. **FINGAL55B**

Sheet 10 of 17

Project No: **MINENTWN00134AA**

Date started: **31.5.2007**

Date completed: **11.6.2007**

Logged by: **NW**

Checked by: **DA**

Engineering Log - Cored Borehole

Client: **Pure Energy Resources**

Principal:

Project: **Fingal Valley Coal Seam Gas Drilling**

Borehole Location:

drill model & mounting:				Easting: 591126		slope: -90°		R.L. Surface:					
hole diameter: mm				Drilling fluid:		Northing: 5387069		bearing: datum:					
drilling information				material substance				rock mass defects					
method	core-lift	water	RL	depth metres	graphic log core recovery	material	weathering alteration	estimated strength	IS ₍₅₀₎ MPa	D- diam- etral A- axial	RQD %	defect spacing mm	defect description
						rock type; grain characteristics, colour, structure, minor components		VL L M H VH EH			30 100 300 1000 3000		particular general
						SANDSTONE: Medium grained, medium grey, no fractures (<i>continued</i>)							
						Subround mud pellets and coaly wisps (pellets < 1 cm dia.)							
				260		CONGLOMERATE: Mud pellet conglomerate, Sandstone matrix with abundant 1-2 cm subround mud pellets; Erosional basal contact							
				262		SANDSTONE: Fine - medium grained, well sorted, medium grey, massive with sparse coaly flecks,							
				264		SANDSTONE: Fine sand, dark grey with small scale cross bedding visible in thin beds, Large < 10 cm dia clast of above medium grained Sandstone							
						MUDSTONE/CARBONACEOUS MUDSTONE: (50:50)							
						CARBONACEOUS MUDSTONE: dark black, dense							
						COAL: dull with Carbonaceous Mudstone and Tuff bands							
						MUDSTONE/CARBONACEOUS MUDSTONE							
						COAL: Dull with a thin (<1mm) bright band							
						VOLCANIC TUFF: Light brown, dense							
				266		SANDSTONE: Medium grained, grey, fining upwards sequence, no visible fractures, massive unit 3 fractures at 45, 70, and 80 degrees with sides Fine Sand, thinly bedded, bedding at 0 degrees							
				268		Medium grained, moderate to well sorted							
						Medium grained, moderate sorting, massive							
				270									
				272		3 thin bands (<2 cm thick) with Carbonaceous Mudstone/Coaly debris							

method	core-lift	water	weathering	defect type	roughness
DT diatube	casing used	10/1/98 water level on date shown	FR fresh	JT joint	VR very rough
AS auger screwing	barrel withdrawn	water inflow	SW slightly weathered	PT parting	RO rough
AD auger drilling		partial drill fluid loss	MW moderately weathered	SM seam	SO smooth
RR roller/tricone		complete drill fluid loss	HW highly weathered	SZ sheared zone	SL slickensided
CB claw or blade bit			XW extremely weathered	SS sheared surface	
NMLC NMLC core			DW distinctly weathered (covers MW and HW)	CS crushed seam	
NQ, HQ, PQ wireline core					

graphic log/core recovery	strength	planarity	coating
core recovered	VL very low	PL planar	CN clean
- graphic symbols indicate material	L low	CU curved	SN stained
no core recovered	M medium	UN undulating	VN veneer
	H high	ST stepped	CO coating
	VH very high	IR irregular	
	EH extremely high		

Borehole No. **FINGAL55B**

Sheet 11 of 17

Project No: **MINENTWN00134AA**

Date started: **31.5.2007**

Date completed: **11.6.2007**

Logged by: **NW**

Checked by: **DA**

Engineering Log - Cored Borehole

Client: **Pure Energy Resources**

Principal:

Project: **Fingal Valley Coal Seam Gas Drilling**

Borehole Location:

drill model & mounting:		Easting: 591126		slope: -90°		R.L. Surface:										
hole diameter: mm		Drilling fluid:		Northing: 5387069		bearing: datum:										
drilling information		material substance				rock mass defects										
method	core-lift	water	RL	depth metres	graphic log core recovery	material rock type; grain characteristics, colour, structure, minor components	weathering alteration	estimated strength					IS ₍₅₀₎ MPa D- diam- etral A- axial	RQD %	defect spacing mm	defect description type, inclination to core axis, planarity, roughness, coating, thickness
								VL	L	M	H	VH				
				274		SANDSTONE: Fine grained, thin bedded, grey, well sorted, no visible fracturing; Sharp basal contact										
						SANDSTONE: Medium grained, grey lithic sandstone, bedding at 0 -5 degrees										
						Carbonaceous Mudstone and coaly debris; Massive unit with no fracture										
				276		Finer grained, medium grey										
						Fine-Medium grained, thinly bedded, bedding at 5 - 10 degrees, sparse thin Carbonaceous Mudstone grains										
				278												
				280												
				282		SANDSTONE: Medium grained, with abundant mudstone, Carbonaceous Mudstone and coaly fragments, coal fragments at 2 - 3 cm diameter, subangular; bedding at 5-10 degrees										
						Thin coal band with/ good cleating										
						SANDSTONE: Medium-Coarse grained, grey, lithic Sandstone; gradational basal contact										
				284		SANDSTONE: Medium-Coarse grained, dark grey and white subround grains, moderately thick bedding, thin bands (<1 cm) of Carbonaceous Mudstone throughout; well to moderate sorting; erosional basal contact										
				286		SANDSTONE: Fine-medium grained, thinly bedded with carbonaceous interbeds near top, fining upwards packages; greenish grey in colour										
				288		CONGLOMERATE: Fine grained matrix with abundant mudstone clasts and contorted mudstone beds at 30 degrees; poor sorting, 3 cm diameter Mudstone clast at base, greenish grey										
						SANDSTONE: Medium-Coarse grained, greenish grey with white subround grains and sparse mud pellets at base, moderate to poor sorting, subround to subangular clasts; mud pellets at base (<1 cm dia.); bedding at 0 - 5 degrees										
method		core-lift		water		weathering		defect type		roughness						
DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit NMLC NMLC core NQ, HQ, PQ wireline core		casing used barrel withdrawn graphic log/core recovery core recovered - graphic symbols indicate material no core recovered		10/1/98 water level on date shown water inflow partial drill fluid loss complete drill fluid loss water pressure test result (lugeons) for depth interval shown		FR fresh SW slightly weathered MW moderately weathered HW highly weathered XW extremely weathered DW distinctly weathered (covers MW and HW) strength VL very low L low M medium H high VH very high EH extremely high		JT joint PT parting SM seam SZ sheared zone SS sheared surface CS crushed seam planarity PL planar CU curved UN undulating ST stepped IR irregular		VR very rough RO rough SO smooth SL slickensided coating CN clean SN stained VN veneer CO coating						

Borehole No. **FINGAL55B**

Engineering Log - Cored Borehole

Sheet 12 of 17
Project No: **MINENTWN00134AA**

Client: **Pure Energy Resources**

Date started: **31.5.2007**

Principal:

Date completed: **11.6.2007**

Project: **Fingal Valley Coal Seam Gas Drilling**

Logged by: **NW**

Borehole Location:

Checked by: **DA**

drill model & mounting:		Easting: 591126		slope: -90°		R.L. Surface:						
hole diameter: mm		Drilling fluid:		Northing: 5387069		bearing: datum:						
drilling information		material substance				rock mass defects						
method	core-lift	water	RL	depth metres	graphic log core recovery	material	weathering alteration	estimated strength	IS ₍₅₀₎ MPa	D- diam- etral A- axial	defect spacing mm	defect description
						rock type; grain characteristics, colour, structure, minor components						type, inclination to core axis, planarity, roughness, coating, thickness
				290		SANDSTONE: Fine grained, greenish grey; fining upward with beds at 0 degrees; carbonaceous laminae at top of package (<i>continued</i>) Massive, Fine-Medium grained Sandstone						
						SANDSTONE: Medium grained; greenish grey; abundant carbonaceous debris/grains- lenticular clasts, Carbonaceous Mudstone band; dark brown with mud pellets throughout but sparse (< 1 cm dia)						
				292		SANDSTONE: Medium grained, greenish grey; lithic; minor sparse mud pellets; carbonaceous fragments/grains visible on fractures surfaces; sharp basal contact						
						Mud pellets and carbonaceous grains, abundant						
				294		Medium grained; massive, less green tint; carbonaceous grains/fragments throughout						
				296								
				298		COAL Dull Coal, moderately dense with thin interbeds of Carbonaceous Mudstone laminae						
						MUDSTONE: Light grey laminae, Carbonaceous at top COAL: C6 band of coal, non-dense						
				300		VOLCANIC TUFF: brown waxy tuffaceous band MUDSTONE: Medium grey Fractures and slicken surfaces at 50 degrees Thin Volcanic Tuff Carbonaceous Mudstone with Mudstone laminae						
						Fractures with slicken sides						
				302		SANDSTONE: with Siltstone interbeds; decreasing with depth; sharp erosional contact						
						Carbonaceous Mudstone laminae interbedded with Fine						
method		core-lift		water		weathering		defect type		roughness		
DT	diatube			10/1/98	water level on date shown	FR	fresh	JT	joint	VR	very rough	
AS	auger screwing					SW	slightly weathered	PT	parting	RO	rough	
AD	auger drilling					MW	moderately weathered	SM	seam	SO	smooth	
RR	roller/tricone					HW	highly weathered	SZ	sheared zone	SL	slickensided	
CB	claw or blade bit					XW	extremely weathered	SS	sheared surface			
NMLC	NMLC core					DW	distinctly weathered (covers MW and HW)	CS	crushed seam			
NQ, HQ, PQ	wireline core					strength		planarity		coating		
						VL	very low	PL	planar	CN	clean	
						L	low	CU	curved	SN	stained	
						M	medium	UN	undulating	VN	vener	
						H	high	ST	stepped	CO	coating	
						VH	very high	IR	irregular			
						EH	extremely high					

Borehole No. **FINGAL55B**

Sheet 13 of 17

Project No: **MINENTWN00134AA**

Date started: **31.5.2007**

Date completed: **11.6.2007**

Logged by: **NW**

Checked by: **DA**

Engineering Log - Cored Borehole

Client: **Pure Energy Resources**

Principal:

Project: **Fingal Valley Coal Seam Gas Drilling**

Borehole Location:

drill model & mounting:		Easting: 591126		slope: -90°		R.L. Surface:						
hole diameter: mm		Drilling fluid:		Northing: 5387069		bearing: datum:						
drilling information		material substance				rock mass defects						
method	core-lift	water	RL	depth metres	graphic log core recovery	material	weathering alteration	estimated strength	IS ₍₅₀₎ MPa	D- diam- etral A- axial	defect spacing mm	defect description
						rock type; grain characteristics, colour, structure, minor components						type, inclination to core axis, planarity, roughness, coating, thickness
				304		Sandstone; soft rock; bedding at 0 degrees SANDSTONE: with Siltstone interbeds; decreasing with depth; sharp erosional contact (<i>continued</i>)						
				306		SANDSTONE: Fine to Medium grained, moderate to well sorted, bedding at 5 degrees, carbonaceous grains and debris throughout, light green tint to rock, carbonaceous debris visible on all fract surfaces (no fractures or faults 305 – 312); gradational contact Fining upwards package						
				308								
				310		SANDSTONE: Medium grained, grey (less green tint), no fractures, bedding @ 0 – 5 degrees; thin carbonaceous wisps and debris throughout Carbonaceous and large mud pellets interbeds in sand mixture (1-2 cm dia. pellets) Carbonaceous Mudstone wisps and mud pellets in sand mixture						
				312		Massive and medium grey						
				314								
				316								
				318		Finer grained, well sorted, bedding at 5 degrees						
method DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit NMLC NMLC core NQ, HQ, PQ wireline core		core-lift  casing used  barrel withdrawn graphic log/core recovery  core recovered  - graphic symbols indicate material  no core recovered		water  10/1/98 water level on date shown  water inflow  partial drill fluid loss  complete drill fluid loss  water pressure test result (lugeons) for depth interval shown		weathering FR fresh SW slightly weathered MW moderately weathered HW highly weathered XW extremely weathered DW distinctly weathered (covers MW and HW) strength VL very low L low M medium H high VH very high EH extremely high		defect type JT joint PT parting SM seam SZ sheared zone SS sheared surface CS crushed seam planarity PL planar CU curved UN undulating ST stepped IR irregular roughness VR very rough RO rough SO smooth SL slickensided coating CN clean SN stained VN veneer CO coating				

Borehole No. **FINGAL55B**

Sheet 14 of 17

Project No: **MINENTWN00134AA**

Date started: **31.5.2007**

Date completed: **11.6.2007**

Logged by: **NW**

Checked by: **DA**





Engineering Log - Cored Borehole

Client: **Pure Energy Resources**

Principal:

Project: **Fingal Valley Coal Seam Gas Drilling**

Borehole Location:

drill model & mounting:		Easting: 591126		slope: -90°		R.L. Surface:										
hole diameter: mm		Drilling fluid:		Northing: 5387069		bearing: datum:										
drilling information		material substance				rock mass defects										
method	core-lift	water	RL	depth metres	graphic log core recovery	material rock type; grain characteristics, colour, structure, minor components	weathering alteration	estimated strength					IS ₍₅₀₎ MPa D- diam- etral A- axial	RQD %	defect spacing mm	defect description type, inclination to core axis, planarity, roughness, coating, thickness
								VL	L	M	H	VH				
				320		SANDSTONE: Medium grained, grey (less green tint), no fractures, bedding @ 0 – 5 degrees; thin carbonaceous wisps and debris throughout (<i>continued</i>) Medium grained and massive, Sparse Carbonaceous Mudstone flecks, gradational basal contact										
				322		SANDSTONE: with mudstone clasts; medium greenish grey with dark grey mud pellets (mud pellets with Carbonaceous Mudstone bands), clast large (> 5 cm); fining upwards sequence with coaly/carbonaceous laminae in sand matrix Sandstone with coaly debris and small mud pellets, bedding at 0 degrees										
				324		SANDSTONE: Fine-Medium grained; moderate sorting; grey, round to subround clasts Mud pellets dark grey with Carbonaceous Mudstone bands and mud pellets; slickensides on fracture surface Thinly bedded with distinct light tan/brown beds (< 1 cm thick bands) Massive grey, sharp basal contact										
				326												
				328		MUDSTONE: medium grey with dark grey to black Carbonaceous Mudstone interbeds, leaf prints on fresh surfaces Badly broken with fracture surfaces at 50 and 70 degrees to core axis, with slickensides and kaolinite on fracture planes										
						COAL: Dull and dense with dark grey to black CM interbeds. Small cleats when broken but a hard coal; 2 thin (<1 cm) Mudstone bands										
						CARBONACEOUS MUDSTONE/MUDSTONE (50:50): grey Mudstone grading up to dark black Mudstone below the Coal, laminated										
				330		COAL: dull with Carbonaceous Mudstone interbeds										
						SANDSTONE: grey, Very fine grained, thinly bedded with carbonaceous grains throughout, gradational contact										
						CARBONACEOUS MUDSTONE/SANDSTONE (50:50): thinly laminated, dark grey and black bands, sandy bedding at 0 degrees										
				332												
						SILTSTONE: grey fine with interbeds of Carbonaceous Mudstone; gradational contact; Bedding at 0 degrees										
method DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit NMLC NMLC core NQ, HQ, PQ wireline core		core-lift  casing used  barrel withdrawn graphic log/core recovery  core recovered  - graphic symbols indicate material  no core recovered		water  10/1/98 water level on date shown  water inflow  partial drill fluid loss  complete drill fluid loss  water pressure test result (lugeons) for depth interval shown		weathering FR fresh SW slightly weathered MW moderately weathered HW highly weathered XW extremely weathered DW distinctly weathered (covers MW and HW) strength VL very low L low M medium H high VH very high EH extremely high		defect type JT joint PT parting SM seam SZ sheared zone SS sheared surface CS crushed seam planarity PL planar CU curved UN undulating ST stepped IR irregular roughness VR very rough RO rough SO smooth SL slickensided coating CN clean SN stained VN veneer CO coating								

Borehole No. **FINGAL55B**

Engineering Log - Cored Borehole

Sheet 15 of 17
Project No: **MINENTWN00134AA**

Client: **Pure Energy Resources**

Date started: **31.5.2007**

Principal:

Date completed: **11.6.2007**

Project: **Fingal Valley Coal Seam Gas Drilling**











Logged by: **NW**

Borehole Location:

Checked by: **DA**

drill model & mounting: Easting: 591126 slope: -90° R.L. Surface:
hole diameter: mm Drilling fluid: Northing: 5387069 bearing: datum:

drilling information					material substance					rock mass defects				
method	core-lift	water	RL	depth metres	graphic log core recovery	material	weathering alteration	estimated strength	IS ₍₅₀₎ MPa	D- diam- etral A- axial	RQD %	defect spacing mm	defect description	
						rock type; grain characteristics, colour, structure, minor components		VL L M H VH EH					type, inclination to core axis, planarity, roughness, coating, thickness	
						Fracture at 50 – 70 degrees with slicken sides							particular	general
				334		SANDSTONE: Fine to Medium grained, moderate to well sorted, bedding at 5 degrees, carbonaceous grains and debris throughout, light green tint to rock, carbonaceous debris visible on all fracture surfaces (no fractures or faults 305 – 312),								
				336										
				338		SILTSTONE: with Carbonaceous Mudstone interbeds, dark grey with black Fractured at 50 degrees with slicken surfaces on 3 surfaces; bedding at 0-5 degrees Sandy with Carbonaceous Mudstone; gradational contact MUDSTONE: with Carbonaceous Mudstone interbeds, laminae with minor very fine sand; gradational contact								
				340		CARBONACEOUS MUDSTONE/SANDSTONE (50:50): Light grey sands with small scale cross bedding and carbonaceous interbeds; bedding at 0 degrees; sharp contact								
				342		Thin (< 0.5 cm) coal band MUDSTONE: with sandy interbeds, thin to laminated with Carbonaceous Mudstone bands at base Fracture at 50 degrees with slickensides								
				344		COAL: Coal; C6? Nondense Volcanic Tuff band, dark brown C5/C6 with thin C3 band Volcanic Tuff: creamy brown, waxy texture C6: non-dense, fractured and cleated C6 with thin calcite veins filling subvertical fractures Volcanic Tuff: dark brown irregular contact with visible calcite Carbonaceous and moderately dense, thinly bedded SILTSTONE: Very Fine grained and grey, with carbonaceous (black) grains throughout, plant prints on fresh fractures								
				346										
				348		CARBONACEOUS MUDSTONE: Black with Siltstone interbeds; calcite on fracture plane at 345.55 COAL: Black non dense with large cleating (~C4 to C5 coal) C5 coal, cleated C4; cleated with calcite, sharp basal contact Volcanic Tuff: thin brown tuff band C4 coal with large cleats; calcite on many cleat planes								

method	core-lift	water	weathering	defect type	roughness
DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit NMLC NMLC core NQ, HQ, PQ wireline core	 casing used  barrel withdrawn graphic log/core recovery  core recovered  - graphic symbols indicate material  no core recovered	 10/1/98 water level on date shown  water inflow  partial drill fluid loss  complete drill fluid loss  water pressure test result (lugeons) for depth interval shown	FR fresh SW slightly weathered MW moderately weathered HW highly weathered XW extremely weathered DW distinctly weathered (covers MW and HW) strength VL very low L low M medium H high VH very high EH extremely high	JT joint PT parting SM seam SZ sheared zone SS sheared surface CS crushed seam planarity PL planar CU curved UN undulating ST stepped IR irregular	VR very rough RO rough SO smooth SL slickensided coating CN clean SN stained VN veneer CO coating

Borehole No. **FINGAL55B**

Sheet 16 of 17

Project No: **MINENTWN00134AA**

Date started: **31.5.2007**

Date completed: **11.6.2007**

Logged by: **NW**

Checked by: **DA**

Engineering Log - Cored Borehole

Client: **Pure Energy Resources**

Principal:











Project: **Fingal Valley Coal Seam Gas Drilling**

Borehole Location:

drill model & mounting: Easting: 591126 slope: -90° R.L. Surface:

hole diameter: mm Drilling fluid: Northing: 5387069 bearing: datum:

drilling information					material substance					rock mass defects				
method	core-lift	water	RL	depth metres	graphic log core recovery	material	weathering alteration	estimated strength	IS ₍₅₀₎ MPa D- diam- A- axial	RQD %	defect spacing mm	defect description		
						rock type; grain characteristics, colour, structure, minor components		VL L M H VH EH			30 100 300 1000 3000	particular	general	
				350		C4 with Carbonaceous Mudstone interbeds; sparse Valentinian Tuff band SILTSTONE: grey with Carbonaceous Mudstone interbeds; sandy at base (fining upward package); Gradational basal contact (continued) MUDSTONE: with silty interbeds; carbonaceous throughout with laminae at 0 degrees, sharp irregular basal contact at 25 degrees; leaf prints on fresh fracture/bedding planes; Fracture at 60 degrees with slickensides								
				352		CARBONACEOUS MUDSTONE: dark black with 5 mm tuffaceous band; badly broken with slicken surfaces; sharp contact SILTSTONE: grey with carbonaceous laminae throughout fracture surfaces with slicken surfaces Sandy interbeds; muddy at top; gradational basal contact								
				354		SANDSTONE: grey; very fine to fine sand; well sorted with carbonaceous bedding throughout; fining upward package with Siltstone at top; sharp erosional basal contact MUDSTONE: dark grey, carbonaceous laminae throughout; Badly broken with slicken surfaces on fractures at 70 degrees.								
				356		SANDSTONE: Fine grained lithic sand; well sorted; bedding at 0 – 5 degrees; small scale cross bedding throughout; carbonaceous beds throughout MUDSTONE: dark grey; laminae 2 fractures at 50 degrees with calcite and slickensides; carbonaceous at base								
				358		CARBONACEOUS MUDSTONE: black with minor sand (grey) throughout Fracture @ 60 degrees with slickensides; gradational basal contact SANDSTONE: grey with abundant dark black carbonaceous beds; fine grained; bedding at 0 degrees throughout								
				360		Cross bedding at 5 to 10 degrees with abundant Carbonaceous Mudstone/Coaly debris; gradational contact with sands at base SANDSTONE: Fine to Medium grained; dark grey; carbonaceous throughout; bedding at 0 degrees; no fractures								
				362										

method	core-lift	water	weathering	defect type	roughness
DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit NMLC NMLC core NQ, HQ, PQ wireline core	 casing used  barrel withdrawn graphic log/core recovery  core recovered  - graphic symbols indicate material  no core recovered	 10/1/98 water level on date shown  water inflow  partial drill fluid loss  complete drill fluid loss  water pressure test result (lugeons) for depth interval shown	FR fresh SW slightly weathered MW moderately weathered HW highly weathered XW extremely weathered DW distinctly weathered (covers MW and HW) strength VL very low L low M medium H high VH very high EH extremely high	JT joint PT parting SM seam SZ sheared zone SS sheared surface CS crushed seam planarity PL planar CU curved UN undulating ST stepped IR irregular	VR very rough RO rough SO smooth SL slickensided coating CN clean SN stained VN veneer CO coating

Borehole No. **FINGAL55B**

Sheet 17 of 17

Project No: **MINENTWN00134AA**

Date started: **31.5.2007**

Date completed: **11.6.2007**

Logged by: **NW**

Checked by: **DA**











Engineering Log - Cored Borehole

Client: **Pure Energy Resources**

Principal:

Project: **Fingal Valley Coal Seam Gas Drilling**

Borehole Location:

drill model & mounting:		Easting: 591126		slope: -90°		R.L. Surface:					
hole diameter: mm		Drilling fluid:		Northing: 5387069		bearing: datum:					
drilling information		material substance				rock mass defects					
method	core-lift	water	RL	depth metres	graphic log core recovery	material	weathering alteration	estimated strength	IS ₍₅₀₎ MPa D- diam- etral A- axial	defect spacing mm	defect description
						rock type; grain characteristics, colour, structure, minor components					type, inclination to core axis, planarity, roughness, coating, thickness
				364		SANDSTONE: Fine to Medium grained; dark grey; carbonaceous throughout; bedding at 0 degrees; no fractures (<i>continued</i>) Coaly debris in 2 1 cm bands; sharp basal contact					
						CARBONACEOUS MUDSTONE: dark black; dense					
						CARBONACEOUS MUDSTONE/SANDSTONE: (70:20)					
				366		COAL: Boney/dull coal with Carbonaceous Mudstone					
						VOLCANIC TUFF: dense creamy tan colour, waxy					
						CARBONACEOUS MUDSTONE: dark black and dense					
						VOLCANIC TUFF: creamy tan and waxy					
						CARBONACEOUS MUDSTONE: dark black; dense					
						CARBONACEOUS MUDSTONE/COAL (?) - very dull					
				368		MUDSTONE: grey; very clayey and soft; thinly laminated with bedding at 0 degrees					
						MUDSTONE/SANDSTONE - (50:50) - grey fine sand with silty mixture; medium grey Mudstone bands; bedding at 5 degrees with regular Mudstone and Sandstone interbeds throughout					
						4 evenly spaced fractures at 30 degrees; gradational basal contact					
						SANDSTONE: Fine grained; grey to white with carbonaceous flecks on fresh fracture surfaces; minor carb laminae throughout					
				370		EOH FINGAL55B terminated at 369.1m					
				372							
				374							
				376							
				378							
method DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit NMLC NMLC core NQ, HQ, PQ wireline core		core-lift  casing used  barrel withdrawn graphic log/core recovery  core recovered  - graphic symbols indicate material  no core recovered		water  10/1/98 water level on date shown  water inflow  partial drill fluid loss  complete drill fluid loss  water pressure test result (lugeons) for depth interval shown		weathering FR fresh SW slightly weathered MW moderately weathered HW highly weathered XW extremely weathered DW distinctly weathered (covers MW and HW) strength VL very low L low M medium H high VH very high EH extremely high		defect type JT joint PT parting SM seam SZ sheared zone SS sheared surface CS crushed seam planarity PL planar CU curved UN undulating ST stepped IR irregular roughness VR very rough RO rough SO smooth SL slickensided coating CN clean SN stained VN veneer CO coating			