2014 ADDENDUM TO THE 2013 ANNUAL REPORT FOR EL26/2008

Mineral Resources Tasmania

Department of Infrastructure Energy and Resources

Period Covered 18th September 2012 to 17th September 2013

Licensee: Tiger Coal Pty Ltd

CAN 130 087 697

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Date of Report: 15 January 2014

The purpose of this Addendum is to provide the Lithic and Graphic logs for the drilling of holes OJ009 to OJ029 conducted in 2013

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APPENDIX 17

Hole ID: OJ011

Collar:	Northing:	5305194	mN	Datum:	GDA
	Easting:	525417	mE	Locating Method:	Survey
	Elevation:	401	m	Accuracy:	mm
	Tenement:			EL26/2008 Lake Tiberias	
	Location:			Ellesmere, Mudwalls Road	

Surveys:

Depth	Dip	Azimuth

Company: South East Asia Resources (Tasmania)

Depth: 41.3 m
Azimuth: n/a degrees
Dip -90 degrees

Drilling Method: Diamond (HQ3)
Date Drilled: 23/6/2013 - 24/6/2013
Drilling Company: Whole Core

Site Geologist: Karen Adams
Logging Geologist: Karen Adams

Sampled:

	m	to	m	
	m	to	m	
	m	to	m	
	m	to	m	

Results:

mFrom	mTo	Interval	Relative Density	Ash%	Total Sulphur	Calories Kcal/Kg	Moisture

Notes:
PVC lined to 23m
No significant intercepts

Drill Hole ID: OJ011

Project: Southern Midlands Coal
License: EL26/2008
Date Drilled: 23rd to the 24th of June, 2013

Collar: Easting: 55 525 417
Northing: 5 305 194
Elevation: 401
(GDA - Survey)

Azimuth: n/a
Dip: -90 degrees

mFrom	mTo	Description
0	1.5	Core Loss
1.5	2.2	Strongly weathered red-brown to pale orange sandstone and clay
2.2	4.6	Core Loss
4.6	5.2	Strongly weathered, red-brown to pale orange tallus
5.2	6	Cream to orange, moderately to strongly weathered medium-grained lithic sandstone
6	6.15	Core Loss - Washed away
6.15	7.1	Soft, moderately to strongly weathered orange to pale orange, medium to fine-grained lithic sandstone
7.1	7.8	Core Loss - Washed away
7.8	8.6	Soft, weathered, orange medium to fine-grained sandstone
8.6	11.7	Frequently fractured, orange, weathered & soft clay rich mudstone
11.7	13.3	Orange-grey, partially weathered mudstone with zonally strong fracture zones (possible fluid pathways)
13.3	13.45	Core Loss - Washed away
13.45	13.65	Strongly broken, orange-grey clay-rich mudstone
13.65	13.95	Core Loss
13.95	14.5	Grey, broken, clay-rich mudstone
14.5	14.7	Dark grey to black, broken carbonaceous mudstone with minor mudstone
14.7	15.2	Grey mudstone
15.2	15.45	Dark grey to black carbonaceous mudstone
15.45	18.82	Grey to green-grey mudstone with minor fine-grained sandstone increasing in abundance downhole
18.82	19.2	Green-grey, silica-sericite-chlorite altered medium-grained lithic sandstone
19.2	20.12	Alternatinglight brown and green-grey mudstone and sandstone beds
20.12	24.42	Green-grey, medium to coarse-grained sericite-silica-chlorite altered lithic sandstone
24.42	24.57	Black carbonaceous mudstone +/- coal
24.57	25	Orange-brown (and minor grey-green) mudstone
25	25.8	Green-grey interbedded mudstone and sandstone
25.8	26	Core Loss - Ground away
26	26.1	Green-grey mudstone and sandstone
26.1	28.44	Green-grey, fine to medium-grained, sericite-silica altered lithic sandstone with zonal iron-alteration
28.44	34.9	Green-grey, sericite-silica altered, medium to coarse-grained lithic sandstone with flacer banding from 33.5-33.65m and fossilised plants (Dichroidium?) at 32.5m
34.9	35.26	Green, chlorite altered (?) medium to coarse-grained lithic sandstone
35.26	39.3	Green-grey, sericite-silica-chlorite altered medium to coarse-grained lithic sandstone
39.3	41.3	Very broken, green-grey, sericite-silica-chlorite altered mudstone
	EOH	

Drill Hole ID: OJ011

Detailed Logs

mFrom	mTo	Description

Structure		OJ					
Hole ID	**m From**	**m To**	**Structure**	**Angle to Core Axis**	**Alteration**	**Form**	**Comments**
OJ011	0	10.8	fx		Cy		weathered and soft
OJ011	11.4	20	fx		Cy		zonal fractures
OJ011	18.8	20.1	bd	70			
OJ011	19.5	20	jt	70		PS	
OJ011	19.5	20	jt	30		PS	
OJ011	24.8	26	jt	70		UR	
OJ011	24.8	26	jt	30		UR	
OJ011	33.5	33.65	bn	70			flacer banding
OJ011	39.7	40	fx				
OJ011	40.5	41.3	fx				fault

Hole ID: OJ012

Collar:
Northing: 5301094 mN
Easting: 525599 mE
Elevation: 437 m
Tenement:
Location:

Datum: GDA
Locating Method: Surveyed
Accuracy: m
EL26/2008 Lake Tiberias
Ellesmere, Mudwalls Road

Surveys:

Depth	Dip	Azimuth

Company: South East Asia Resources (Tasmania)

Depth: 41.45 m
Azimuth: n/a degrees
Dip -90 degrees

Drilling Method: Diamond (HQ3)
Date Drilled: 26/6/13 - 28/6/13
Drilling Company: Whole Core

Site Geologist: Karen Adams
Logging Geologist: Karen Adams

Sampled:

9.4	m	to	10.15	m	Broken coal (incl. cave-in: difficult to distinguish)
10.15	m	to	11.24	m	Dominantly heavy dull coal
	m	to		m	
	m	to		m	

Results:

mFrom	mTo	Interval	Relative Density	Ash%	Total Sulphur	Calories Kcal/Kg	Moisture
9.4	10.15	0.75					
10.15	11.24	1.09					

Notes:
Sample interval: 9.4 - 10.15m includes cave-in material
PVC lined to EOH
Dolerite at 24.42m

Drill Hole ID: OJ012

Project: Southern Midlands Coal
License: EL26/2008
Date Drilled: 26th - 28th June, 2013

Collar: Easting: 55 525 599
Northing: 5 301 094
Elevation: 437
(GDA - Surveyed)

Azimuth: n/a
Dip: -90 degrees

mFrom	mTo	Description
0	1.02	Core Loss
1.02	1.86	Clay and dirt
1.86	2.3	Orange-brown, highly weathered, clay-rich, fine to medium-grained sandstone and minor mudstone
2.3	2.56	Core Loss
2.56	4.82	Orange-brown, weathered, fine to medium-grained sandstone with flacer banding at 3.77m and 2-3cm rounded, mudstone clasts
4.82	6.9	Zonally broken, brown-orange mudstone and carbonaceous mudstone with minor fine-grained sandstone and flacer banding at 5.76m
6.9	7	Very broken, grey, clay-rich mudstone
7	7.4	Core Loss
7.4	7.7	Very broken, grey to black, clay-rich, carbonaceous mudstone and mudstone
7.7	8.4	Core Loss
8.4	9.4	Grey, clay-rich mudstone and minor carbonaceous mudstone
9.4	10.2	Black, very broken coal with calcite veins and cleats (including some cave-in that is difficult to distinguish)
10.2	11.22	Dominantly heavy, dull coal with minor calcite veining and some carbonaceous mudstone
11.22	11.9	Interbedded grey mudstone and carbonaceous mudstone
11.9	12.86	Grey interbedded fine-grained sandstone and mudstone
12.86	13.3	White to very pale grey, heavy, fine-grained, moderate to intensely altered rock with tensional carbonate veining, clasts (xenoliths??) of up to 3cm in size and varigation of alteration (possibly preferential alteration of flow banding??)
13.3	16	Grading from grey, fine-grained sandstone with mudstone beds, to dominantly dark grey mudstone with prominant finely interbedded carbonaceous mudstone
16	16.36	Carbonaceous mudstone
16.36	24.42	Zonally broken, pale grey, silica-sericite altered and somewhat clay-rich mudstone with some fine-grained sandstone increasing downhole
24.42	41.45	Dominantly medium-grained (with finer grained chilled margin proximal to uphole contact), grey-green dolerite with calcite filled vessicles to 28.2m, stong to moderate calcite veining uphole and vein brecciation at and around 26.6m. Some minor blebby pyrite associated with calcite veining and selvedges downhole
	EOH	

Drill Hole ID: OJ012

Detailed Logs

mFrom	mTo	Description
8.4	9.4	Grey, clay-rich mudstone with minor carbonaceous mudstone
9.4	10.2	Very broken coal with calcite veining and cleating. Significant amounts of cave-in, difficult to distinguish
10.2	10.63	Heavy, dull coal and carbonaceous mudstone with minor calcite veining
10.63	10.92	Finely interbedded carbonaceous and coal with minor mudstone
10.92	11.15	Heavy, dull coal and some carbonaceous mudstone
11.15	11.22	Moderately bright coal with calcite cleats and approximately 1% vitrinite
11.22	11.9	Interbedded grey mudstone and carbonaceous mudstone, grading from dominantly carbonaceous mudstone to dominantly mudstone
11.9	12	Grey interbedded fine-grained sandstone and mudstone

Structure

Hole ID	m From	m To	Structure	Angle to Core Axis	Alteration	Form	Comments
OJ012	5.76	5.82	bn	80			70-90 deg - variable flacer banding
OJ012	6.55	10.2	fx		cy		broken ground - fault?
OJ012	10.2	11.5	jt	45		US	fault associated broken ground
OJ012	10.2	11.5	jt	70	gr	US	
OJ012	12.05	12.16	jt	60	cy	UR	
OJ012	12.05	12.16	jt	20	cy		
OJ012	12.86	12.86	Cn	70			contact
OJ012	13.3	13.4	fx				
OJ012	13.35	16	bd	85			
OJ012	15.17	15.27	jt	45		PS	
OJ012	16.99	17.43	jt	30			
OJ012	22.38	22.7	fx			UR	
OJ012	22.8	23.6	fx			UR	
OJ012	24.43	24.43	jt	85	ca	UR	
OJ012	24.64	24.78	vn		ca	UR	
OJ012	25.63	27.54	vn	10	ca	UR	
OJ012	27.6	27.68	jt	60	ca	UR	
OJ012	28.61	28.67	jt	70	ca	UR	
OJ012	29.17	29.3	jt	60	ca	UR	
OJ012	29.45	29.54	jt	10	ca	UR	
OJ012	29.45	29.54	jt	30	ca	UR	
OJ012	32.22	32.45	jt	45	ca	UR	
OJ012	36.45	38.3	jt	10	ca	UR	
OJ012	24.5	41.5	bd	90			

Hole ID: OJ013

Collar:	Northing:	5315433	mN	Datum:	GDA
	Easting:	525794	mE	Locating Method:	Survey
	Elevation:	351	m	Accuracy:	mm
	Tenement:	EL26/2008 Lake Tiberias			
	Location:	Bowhill Road, Oatlands			

Surveys:

Depth	Dip	Azimuth

Company: South East Asia Resources (Tasmania)

Depth: 65.4 m
Azimuth: n/a degrees
Dip: -90 degrees

Drilling Method: Diamond (HQ3)
Date Drilled: 2/7/13 - 3/7/13
Drilling Company: Whole Core

Site Geologist: Karen Adams
Logging Geologist: Karen Adams

Sampled:

10.62	m	to	11.26	m	Carbonaceous mudstone +/- coal
15.49	m	to	16.09	m	Heavy dull coal and carbonaceous mudstone
16.66	m	to	17.31	m	Heavy dull coal. Approx 1% vitrinite & minor calcite veining
24.52	m	to	24.9	m	Carbonaceous mudstone +/- coal
45.42	m	to	46	m	Carbonaceous mudstone +/- heavy dull coal
46	m	to	46.54	m	Carbonaceous mudstone +/- heavy dull coal
46.54	m	to	46.87	m	Grading from moderately bright coal to heavy dull coal
59.3	m	to	59.57	m	Broken, heavy dull coal with approximately 2% vitrinite
60.09	m	to	60.6	m	Carbonaceous mudstone +/- heavy dull coal

Results:

mFrom	mTo	Interval	Relative Density	Ash%	Total Sulphur	Calories Kcal/Kg	Moisture
10.62	11.26	0.64					
15.49	16.09	0.6					
16.66	17.31	0.65					
24.52	24.9	0.38					
45.42	46	0.58					
46	46.54	0.54					
46.54	46.87	0.33					
59.3	59.57	0.27					
60.09	60.6	0.51					

Notes: PVC lined to 60.6m

Drill Hole ID: OJ013

Project: Southern Midlands Coal
License: EL26/2008
Date Drilled: 2nd -3rd July, 2013

Collar: Easting: 55 525 794
Northing: 5 315 433
Elevation: 351
(GDA - Surveyed)

Azimuth: n/a
Dip: -90 degrees

mFrom	mTo	Description
0	1	Orange-cream-brown, weathered clay rich sandstone and some dolerite tallus
1	2	Red-brown clay and dolerite tallus from cave-in(?)
2	2.6	Core Loss
2.6	3	Red-brown clay and dolerite tallus from cave-in(?)
3	3.15	Core Loss
3.15	4	Dark grey, clay-rich mudstone and carbonaceous mudstone
4	5.25	Pale grey to dark grey, fine to medium-grained lithic sandstone and carbonaceous mudstone
5.25	7.36	Pale grey, medium to fine-grained lithic sandstone with some flacer banding
7.36	7.44	Carbonaceous mudstone
7.44	8.45	Pale grey lithic sandstone with flacer banding
8.45	9.6	Grey, fine-grained lithic sanadstone and mudstone
9.6	10.62	Grey mudstone and carbonaceous mudstone
10.62	11.26	Carbonaceous mudstone +/- coal
11.26	11.5	Core Loss - Ground away
11.5	11.79	Carbonaceous mudstone +/- coal with some ash banding
11.79	12.86	Carbonaceous mudstone and dark grey mudstone
12.86	14.03	Grey to dark grey mudstone and fine to medium-grained lithic sandstone with minor carbonaceous mudstone
14.03	15.11	Grey to dark grey mudstone and some carbonaceous mudstone with minor sandstone downhole
15.11	15.36	Carbonaceous mudstone with minor sandstone uphole
15.36	15.49	Grey, fine-grained sandstone, mudstone and carbonaceous mudstone
15.49	16.09	Heavy dull coal and carbonaceous mudstone
16.09	16.66	Greasy, silica-sericite altered, pale cream mudstone/ash(?) band
16.66	17.31	Heavy dull coal with approximately 1% vitrinite and minor calcite veining
17.31	17.46	Core Loss - Ground away
17.46	18.15	Carbonaceous mudstone and dark grey mudstone
18.15	18.22	Core Loss - Ground away
18.22	18.89	Fine to medium-grained, grey samdstone with some mudstone, increasing downhole
18.89	20.5	Dark grey mudstone with minor sandstone downhole
20.5	21.38	Grey, fine-grained sandstone and mudstone (decreasing in abundance downhole) with some carbonaceous mudstone
21.38	22.27	Grey and dark grey interbedded mudstone and carbonaceous mudstone with minor sandstone
22.27	22.36	Core Loss - Ground away
22.36	22.5	Grey and dark grey interbedded mudstone and carbonaceous mudstone with minor sandstone
22.5	23.04	Interbedded fine-grained, grey sandstone and dark grey carbonaceous mudstone and mudstone
23.04	24.2	Carbonaceous mudstone with minor ash bands
24.2	24.52	Grey fine to medium-grained sandstone with carbonaceous mudstone

24.52	24.9	Carbonaceous mudstone +/- coal
24.9	25.96	Grey-green tuffaceous sequence with some sandstone downhole
25.96	26.5	Grey, fine to medium-grained lithic sandstone with minor mudstone and carbonaceous mudstone
26.5	27.34	Grey interbedded mudstone and minor carbonaceous mudstone with very minor sandstone uphole
27.34	27.45	Carbonaceous mudstone
27.45	28.24	Grey, fine-grained sandstone with some mudstone
28.24	28.28	Carbonaceous mudstone
28.28	28.8	Grey to dark grey mudstone
28.8	30.27	Grey fine to medium-grained lithic sandstone with minor mudstone uphole
30.27	31.03	Pale grey, grey and dark grey interbedded mudstone, ash and minor carbonaceous mudstone
31.03	32.6	Grey to dark grey, fine-grained lithic sandstone with minor mudsotne and carbonaceous mudstone bands
32.6	33.03	Pale grey to white, fine-grained sandstone
33.03	33.09	Pale grey, fine-grained sandstone
33.09	37.4	Grey to dark grey mudstone, carbonaceous mudstone and minor sandstone uphole
37.4	41.41	Pale grey to grey mudstone with minor carbonaceous mudstone increasing in abundance downhole
41.41	42.62	Dark grey carbonaceous mudstone and very minor fine-grained sandstone and approximately <1% vitrinite banding containing calcite cleating
42.62	44.12	Pale grey fine-grained lithic sandstone with minor mudstone bands
44.12	45.42	Pale grey to grey mudstone and some carbonaceous mudstone, increasing in abundance downhole
45.42	46.46	Carbonaceous mudstone +/- heavy dull coal
46.46	46.54	Carbonaceous mudstone and ash bands
46.54	46.87	Grading from moderately bright coal to heavy dull coal
46.87	46.92	Carbonaceous mudstone
46.92	49.42	Grey mudstone interbedded with fine to medium-grained, pale grey lithic sandstone with small coal clasts and carbonaceous mudstone banding increasing downhole
49.42	53.12	Carbonaceous mudstone with minor to very minor sandstone banding
53.12	55.64	Mudstone and carbonaceous mudstone with coal clast (containing calcite veining) at 54.59m and coal and calcite band at 54.88m
55.64	55.81	Carbonaceous mudstone
55.81	56	Mudstone and carbonaceous mudstone
56	57.25	Pale cream, with minor grey, medium to fine-grained, somewhat quartz-rich sandstone with some carbonaceous mudstone banding
57.25	58.16	Interbedded carbonaceous mudstone and cream sandstone
58.16	58.58	Cream, medium to fine-grained sandstone
58.58	59.3	Grey to dark grey mudstone and carbonaceous mudstone
59.3	59.57	Broken, heavy dull coal with approximately 2% vitrinite
59.57	59.77	Carbonaceous mudstone
59.77	60.09	Cream, fine to medium-grained sandstone
60.09	60.6	Carbonaceous mudstone +/- heavy dull coal
60.6	60.78	Interbedded mudstone and carbonaceous mudstone
60.78	61.32	Carbonaceous mudstone
61.32	62.7	Interbedded fine-grained grey lithic sandstone, carbonaceous mudstone and mudstone
62.7	63.34	Carbonaceous mudstone
63.34	63.69	Grey mudstone
63.69	63.82	Carbonaceous mudstone
63.82	64.12	Grey mudstone and minor fine-grained sandstone
64.12	64.46	Carbonaceous mudstone
64.46	65.4	Grey mudstone with minor carbonaceous mudstone and ash bands
	EOH	

Drill Hole ID: OJ013

Detailed Logs

mFrom	mTo	Description
9.6	10.62	Grey mudstone and carbonaceous mudstone
10.62	11.26	Carbonaceous mudstone +/- coal
11.26	11.5	Core Loss - Ground away
11.5	11.79	Carbonaceous mudstone +/- coal with some ash banding
11.79	12.86	Carbonaceous mudstone and dark grey mudstone
14.03	15.11	Grey to dark grey mudstone and some carbonaceous mudstone with minor sandstone downhole
15.11	15.36	Carbonaceous mudstone with minor sandstone uphole
15.36	15.49	Grey, fine-grained sandstone, mudstone and carbonaceous mudstone
15.49	16.09	Heavy dull coal and carbonaceous mudstone
16.09	16.66	Greasy, silica-sericite altered, pale cream mudstone/ash(?) band
16.66	17.31	Heavy dull coal with approximately 1% vitrinite and minor calcite veining
17.31	17.46	Core Loss - Ground away
17.46	18.15	Carbonaceous mudstone and dark grey mudstone
18.15	18.22	Core Loss - Ground away
18.22	18.89	Fine to medium-grained, grey samdstone with some mudstone, increasing downhole
23.04	24.2	Carbonaceous mudstone with minor ash bands
24.2	24.52	Grey fine to medium-grained sandstone with carbonaceous mudstone
24.52	24.9	Carbonaceous mudstone +/- coal
24.9	25.96	Grey-green tuffaceous sequence with some sandstone downhole
25.96	26.5	Grey, fine to medium-grained lithic sandstone with minor mudstone and carbonaceous mudstone
44.12	45.42	Pale grey to grey mudstone and some carbonaceous mudstone, increasing in abundance downhole
45.42	46.46	Carbonaceous mudstone +/- heavy dull coal
46.46	46.54	Carbonaceous mudstone and ash bands
46.54	46.87	Grading from moderately bright coal to heavy dull coal
46.87	46.92	Carbonaceous mudstone
46.92	49.42	Grey mudstone interbedded with fine to medium-grained, pale grey lithic sandstone with small coal clasts and carbonaceous mudstone banding increasing downhole
58.16	58.58	Cream, medium to fine-grained sandstone
58.58	59.3	Grey to dark grey mudstone and carbonaceous mudstone
59.3	59.57	Broken, heavy dull coal with approximately 2% vitrinite
59.57	59.77	Carbonaceous mudstone
59.77	60.09	Cream, fine to medium-grained sandstone
60.09	60.6	Carbonaceous mudstone +/- heavy dull coal
60.6	60.78	Interbedded mudstone and carbonaceous mudstone
60.78	61.32	Carbonaceous mudstone
61.32	62.7	Interbedded fine-grained grey lithic sandstone, carbonaceous mudstone and mudstone

32.6	33.03	Pale grey to white, fine-grained sandstone
33.03	33.09	Pale grey, fine-grained sandstone
33.09	37.4	Grey to dark grey mudstone, carbonaceous mudstone and minor sandstone uphole
37.4	41.41	Pale grey to grey mudstone with minor carbonaceous mudstone increasing in abundance downhole
41.41	42.62	Dark grey carbonaceous mudstone and very minor fine-grained sandstone and approximately <1% vitrinite banding containing calcite cleating
42.62	44.12	Pale grey fine-grained lithic sandstone with minor mudstone bands
44.12	45.42	Pale grey to grey mudstone and some carbonaceous mudstone, increasing in abundance downhole
45.42	46.46	Carbonaceous mudstone +/- heavy dull coal
46.46	46.54	Carbonaceous mudstone and ash bands
46.54	46.87	Grading from moderately bright coal to heavy dull coal
46.87	46.92	Carbonaceous mudstone
46.92	49.42	Grey mudstone interbedded with fine to medium-grained, pale grey lithic sandstone with small coal clasts and carbonaceous mudstone banding increasing downhole
49.42	53.12	Carbonaceous mudstone with minor to very minor sandstone banding
53.12	55.64	Mudstone and carbonaceous mudstone with coal clast (containing calcite veining) at 54.59m and coal and calcite band at 54.88m
55.64	55.81	Carbonaceous mudstone
55.81	56	Mudstone and carbonaceous mudstone
56	57.25	Pale cream, with minor grey, medium to fine-grained, somewhat quartz-rich sandstone with some carbonaceous mudstone banding
57.25	58.16	Interbedded carbonaceous mudstone and cream sandstone
58.16	58.58	Cream, medium to fine-grained sandstone
58.58	59.3	Grey to dark grey mudstone and carbonaceous mudstone
59.3	59.57	Broken, heavy dull coal with approximately 2% vitrinite
59.57	59.77	Carbonaceous mudstone
59.77	60.09	Cream, fine to medium-grained sandstone
60.09	60.6	Carbonaceous mudstone +/- heavy dull coal
60.6	60.78	Interbedded mudstone and carbonaceous mudstone
60.78	61.32	Carbonaceous mudstone
61.32	62.7	Interbedded fine-grained grey lithic sandstone, carbonaceous mudstone and mudstone
62.7	63.34	Carbonaceous mudstone
63.34	63.69	Grey mudstone
63.69	63.82	Carbonaceous mudstone
63.82	64.12	Grey mudstone and minor fine-grained sandstone
64.12	64.46	Carbonaceous mudstone
64.46	65.4	Grey mudstone with minor carbonaceous mudstone and ash bands
	EOH	

Structure

Hole ID	m From	m To	Structure	Angle to Core Axis	Alteration	Form	Comments
OJ013	0	3.4	fx				Broken ground - collar related
OJ013	4.9	5.2	bd	80			
OJ013	6	7.2	bn	85			flacer banding
OJ013	9.6	10.62	bd	80			
OJ013	13.15	13.2	jt	50		UR	
OJ013	16.3	16.35	jt	50		PS	
OJ013	18.96	19.2	jt	20		PS	
OJ013	21.38	22.5	bd	75			
OJ013	25.65	25.8	jt	40		US	
OJ013	26.5	27.34	bd	80			
OJ013	30.27	31.03	bd	80			
OJ013	32.93	33.03	jt	20		UR	
OJ013	33.03	65.4	bd	75			
OJ013	37.6	37.7	jt	60	CyCa	PS	
OJ013	40.9	41.01	jt	30		PS	
OJ013	43.6	44.3	jt	10		PR	
OJ013	45.3	45.4	jt	50	Ca	US	
OJ013	45.6	45.7	jt	20		US	
OJ013	46.55	46.7	jt	10		US	
OJ013	49.15	49.3	jt	60		UR	
OJ013	50.99	51.06	jt	60		US	
OJ013	53.9	54	jt	45		UR	
OJ013	59.3	59.77	fx				broken
OJ013	62.7	63	fx				fault zone?
OJ013	63.51	63.7	fx				fault zone?

Hole ID: OJ014

Collar:	Northing:	5315026	mN	Datum:	GDA
	Easting:	525337	mE	Locating Method:	Survey
	Elevation:	371	m	Accuracy:	mm
	Tenement:			EL26/2008 Lake Tiberias	
	Location:			Bowhill Road, Oatlands	

Surveys:

Depth	Dip	Azimuth

Company: South East Asia Resources (Tasmania)

Depth: 60.6 m
Azimuth: n/a degrees
Dip -90 degrees

Drilling Method: Diamond (HQ3)
Date Drilled: 5/7/13 - 10/7/13
Drilling Company: Whole Core

Site Geologist: Karen Adams
Logging Geologist: Karen Adams

Sampled:					
19.88	m	to	20.65	m	Heavy dull coal and carbonaceous mudstone
31.61	m	to	32.03	m	Heavy dull coal and some carbonaceous mudstone
35.3	m	to	36.12	m	Heavy dull, zonally moderately bright coal
	m	to		m	

Results:

mFrom	mTo	Interval	Relative Density	Ash%	Total Sulphur	Calories Kcal/Kg	Moisture
19.88	20.65	0.77					
31.61	32.03	0.42					
35.3	36.12	0.82					

Notes: PVC lined to 60.6m

Drill Hole ID: OJ014

Project: Southern Midlands Coal
License: EL26/2008
Date Drilled: 5th- 10th July, 2013

Collar: Easting: 55 525 337
Northing: 5 315 026
Elevation: 371
(GDA - Surveyed)

Azimuth: n/a
Dip: -90 degrees

mFrom	mTo	Description
0	0.6	Core Loss
0.6	1	Strongly to very strongly weathered, clay-rich, orange-brown mudstone
1	2.1	Strongly weathered, orange, clay-rich mudstone and sandstone
2.1	2.15	Strongly to very strongly weathered, orange, clay-rich mudstone
2.15	3.38	Moderately to strongly weathered, orange, clay-rich, fine to medium-grained sandstone
3.38	3.47	Dark grey, weathered carbonaceous mudstone
3.47	4.22	Weathered, orange, fine-grained lithic sandstone
4.22	5.47	Grey-brown, weakly to moderately weathered mudstone
5.47	6.24	Grey-brown, weakly to moderately weathered, fine-grained sandstone with some carbonaceous mudstone
6.24	6.44	Black to brown, weakly to moderately weathered carbonaceous mudstone with minor sandstone
6.44	7.63	Orange-grey, weakly weathered fine-grained lithic sandstone with minor carbonaceous mudstone banding
7.63	7.9	Brown-black carbonaceous mudstone with minor sandstone
7.9	8.01	Orange-grey, fine-grained sandstone and mudstone
8.01	8.8	Grey mudstone with minor fine-grained sandstone and very minor carbonaceous mudstone at 8.4m
8.8	9.4	Grey, fine-grained, lithic sandstone with very minor mudstone
9.4	10.33	Grey mudstone interbedded with minor fine-grained sandstone and minor to very minor carbonaceous mudstone
10.33	10.61	Grey-orange, weakly weathered interbedded mudstones
10.61	10.84	Grey, fine-grained sandstone
10.84	11.65	Grading from grey to dark grey, mudstone with minor carbonaceous mudstone to carbonaceous mudstone with minor ash bands
11.65	11.82	Grey, fine-grained lithic sandstone interbedded with carbonaceous mudstone
11.82	12.27	Carbonaceous mudstone with minor to very minor ash banding and heavy dull coal
12.27	13.5	Grey mudstone with some sandstone banding increasing downhole and minor carbonaceous mudstone. Millimetre thick vitrinite banding with calcite at 12.28m
13.5	13.97	Grey, fine-grained lithic sandstone with minor mudstone uphole
13.97	15.19	Grey interbedded mudstone and fine-grained sandstone with minor carbonaceous mudstone
15.19	15.35	Weathered carbonaceous mudstone
15.35	18.06	Interbedded pale grey, fine-grained lithic sandstone and mudstone and carbonaceous mudstone with cross-bedding and flame structures evident between 17 & 18m
18.06	19.88	Grey to pale grey, fine-grained lithic sandstone with minor mudstone at 19.6m
19.88	20.65	Heavy dull coal and carbonaceous mudstone with minor calcite veining at 20.3m and minor ash banding downhole
20.65	21.3	Carbonaceous mudstone

21.3	29.21	Grey to dark grey mudstone interbedded with fine-grained grey sandstone. Minor coal and calcite clasts at approximately 26m and increasing amounts of sandstone downhole
29.21	29.46	Carbonaceous mudstone
29.46	31.61	Interbedded grey mudstone & pale grey, fine-grained sandstone and some carbonaceous mudstone with clastic zone at approximately 29.6m: sub-rounded, elongated carbonaceous mudstone and mudstone clasts
31.61	32.03	Heavy dull coal and some carbonaceous mudstone
32.03	34.21	Interbedded fine to medium-grained, pale grey lithic sandstone and carbonacous mudstone
34.21	34.49	Carbonaceous mudstone and heavy, dull coal
34.49	34.83	White, altered fine-grained sandstone
34.83	35.09	Carbonaceous mudstone interbedded with pale grey, fine-grained sandstone
35.09	35.3	Carbonaceous mudstone and heavy dull coal
35.3	36.12	Heavy dull but zonally moderately bright coal with approximately 5% vitrinite and minor calcite veining
36.12	38	Carbonaceous mudstone with some fine-grained sandstone banding
38	48.45	Pale grey, fine to medium-grained lithic sandstone with carbonaceous mudstone clasts from 46.9-47.3m with increasing amounts of irregular carbonaceous mudstone bedding downhole
48.45	51.89	Interbedded grey, fine-grained lithic sandstone and carbonaceous mudstone, each one zonally dominant
51.89	52.98	Carbonaceous mudstone and heavy dull coal with some mudstone/ash banding
52.98	53.89	Interbedded carbonaceous mudstone and fine-grained grey sandstone
53.89	60.6	Grey mudstone interbedded with pale grey fine to medium-grained lithic sandstone with sandstone increasing in abundance uphole
	EOH	

Drill Hole ID: OJ014

Detailed Logs

mFrom	mTo	Description
18.06	19.88	Grey to pale grey, fine-grained lithic sandstone with minor mudstone at 19.6m
19.88	20.65	Heavy dull coal and carbonaceous mudstone with minor calcite veining at 20.3m and minor ash banding downhole
20.65	21.3	Carbonaceous mudstone
30	31.61	Interbedded grey mudstone & pale grey, fine-grained sandstone and some carbonaceous mudstone
31.61	32.03	Heavy dull coal and some carbonaceous mudstone
32.03	34.21	Interbedded fine to medium-grained, pale grey lithic sandstone and carbonacous mudstone
34.21	34.49	Carbonaceous mudstone and heavy, dull coal
34.49	34.83	White, altered fine-grained sandstone
34.83	35.09	Carbonaceous mudstone interbedded with pale grey, fine-grained sandstone
35.09	35.3	Carbonaceous mudstone and heavy dull coal
35.3	36.12	Heavy dull but zonally moderately bright coal with approximately 5% vitrinite and minor calcite veining
36.12	37	Carbonaceous mudstone with some fine-grained sandstone banding

Structure							
Hole ID	**m From**	**m To**	**Structure**	**Angle to Core Axis**	**Alteration**	**Form**	**Comments**
OJ014	0	2.15	fx				Broken ground - collar related
OJ014	3.38	3.38	bd	85			
OJ014	4.22	5.42	bd	85			80-90 degrees
OJ014	10	10.33	bd	85			80-90 degrees
OJ014	12.95	13.06	jt	40		US	
OJ014	14.04	14.13	jt	50		US	
OJ014	15.05	15.19	jt	35		US	30-40 degrees
OJ014	17.96	18.08	jt	35		UR	30-40 degrees
OJ014	18.39	19.88	jt	25		UR	joint set
OJ014	21.9	31.61	bd	80			
OJ014	25.2	25.5	jt	30		US	
OJ014	30.9	31.95	fx				broken ground
OJ014	35.3	35.9	fx				broken ground
OJ014	38	45.4	bn	85			flacer banding, 80-90 degrees
OJ014	48.89	51.58	bd	80			
OJ014	54.2	60.6	bd	85			
OJ014	55.03	55.3	jt	20		UR	

Hole ID: OJ015

Collar:
Northing: 5305590 mN
Easting: 525743 mE
Elevation: 404 m
Tenement:
Location:

Datum: GDA
Locating Method: Survey
Accuracy: mm
EL26/2008 Lake Tiberias
Ellesmere, Mudwalls Road

Surveys:

Depth	Dip	Azimuth

Company: South East Asia Resources (Tasmania)

Depth: 49.58 m
Azimuth: n/a degrees
Dip -90 degrees

Drilling Method: Diamond (HQ3)
Date Drilled: 24/6/2013 - 26/6/2013
Drilling Company: KMR Drilling

Site Geologist: Karen Adams
Logging Geologist: Karen Adams

Sampled:

19.67	m	to	20.57	m	Heavy, dull coal with zonally brighter coal
20.57	m	to	21.11	m	Laminated coal and carbonaceous mudstone
	m	to		m	
	m	to		m	

Results:

mFrom	mTo	Interval	Relative Density	Ash%	Total Sulphur	Calories Kcal/Kg	Moisture
19.67	20.57	0.9					
20.57	21.11	0.54					

Notes:
Lost water return at 41m
PVC lined to 43.8m
Dolerite at 35.2m

Drill Hole ID: OJ015

Project: Southern Midlands Coal
License: EL26/2008
Date Drilled: 24th-26th June, 2013

Collar: Easting: 55 525 743
Northing: 5 305 590
Elevation: 404
(GDA - Surveyed)

Azimuth: n/a
Dip: -90 degrees

mFrom	mTo	Description
0	7.7	No Core - Cutting Bit (tri-cone)
7.7	14.75	Blue-grey, medium to coarse-grained lithic sandstone with zonal flacer banding. Colouration grading to grey downhole
14.75	15.16	Carbonaceous mudstone (+/- coal) beds with sandstone interbeds containing carbonaceous mudstone and coal clasts (rip-up clasts?)
15.16	15.52	Medium to coarse-grained, grey lithic sandstone with rounded carbonaceous mudstone and coal clasts
15.52	15.8	Black carbonaceous mudstone +/- coal
15.8	16.6	Grey,upwardly fining, fine to medium-grained lithic sandstone sequence
16.6	19.37	Grey, zonally black, medium to coarse-grained lithic sandstone with frequent flacer banding
19.37	19.67	Dark grey to grey, mudstone and carbonaceous mudstone with cross-bedding present
19.67	20.57	Heavy, dull coal with zonally brighter coal
20.57	21.11	Laminated coal and carbonaceous mudstone with some graphitic alteration on fracture surfaces
21.11	21.19	Dark grey to grey mudstone and carbonaceous mudstone
21.19	21.25	Carbonaceous mudstone +/- coal
21.25	21.36	Grey mudstone with carbonaceous mudstone laminations
21.36	21.69	Interbedded grey mudstone and carbonaceous mudstone
21.69	21.85	Dull coal and carbonaceous mudstone with approximately less than 1% vitrinite
21.85	22.05	Grey mudstone and carbonaceous mudstone with some vitrinite banding
22.05	22.27	Heavy dull coal and carbonaceous mudstone
22.27	22.75	Light grey to dark grey tuff/mudstone(?). Compressed pyroclastic(?) clasts visible
22.75	23.51	Light grey-green, silica altered mudstone and minor fine-grained sandstone
23.51	24.36	Cream-grey, medium to fine-grained lithic sandstone
24.36	33.3	Pale grey to white, medium to coarse-grained lithic sandstone with gradational downhole alteration contact
33.3	34.18	Green-grey, silica-sericite altered, coarse-grained lithic sandstone
34.18	34.65	Annealed fault sone/vein with remnant altered mud
34.65	35.2	Pale green, mottled, fine-grained sandstone and some mudstone
35.2	36.54	Dark green-grey, frequently fractured dolerite with some calcite-quartz veinlets
36.54	36.73	Core Loss - Broken ground
36.73	41	Dark green, fine to medium-grained dolerite with zonally frequent fractures, calcite-filled vessicles from around 39-41m and some irregular calcite veining present
41	41.2	Core Loss - Faulting (?)
41.2	48.58	Dark green-grey, medium-grained dolerite with some possible interstitial calcite proximal to uphole faulting. Prominent joint sets
	EOH	

Drill Hole ID: OJ015

Detailed Logs

mFrom	mTo	Description
18	19.37	Grey, zonally black, medium to coarse-grained lithic sandstone with frequent flacer banding
19.37	19.67	Dark grey to grey mudstone and carbonaceous mudstone with cross-bedding present
19.67	19.69	Vitrinite
19.69	19.85	Moderately dull coal with approximately 1% vitrinite
19.85	20.43	Heavy, dull coal (+/- carbonaceous mudstone)
20.43	20.57	Moderately dull coal with approximately 1% vitrinite
20.57	21.11	Black to very dark grey, thinly (<1mm) laminated coal, carbonaceous mudstone with some graphitic bands visible of fracture surfaces
21.11	21.19	Dark grey to grey mudstone and carbonaceous mudstone
21.19	21.25	Carbonaceous mudstone +/- heavy, dull coal
21.25	21.36	Grey to dark grey mudstone with carbonaceous mudstone laminations
21.36	21.69	Interbedded grey mudstone and carbonaceous mudstone (+/- coal)
21.69	21.85	Dull coal and carbonaceous mudstone with approximately <1%
21.85	22	Carbonaceous mudstone and minor grey mudstone with approximately 1% vitrinite
22	22.05	Grey mudstone and carbonaceous mudstone
22.05	22.22	Heavy, dull coal and carbonaceous mudstone with less than 1% vitrinite
22.22	22.27	Carbonaceous mudstone
22.27	22.37	Dark grey to grey tuffaceous mudstone
22.37	22.75	Light grey tuffaceous mudstone with compressed, possibly pyroclastic clasts
22.75	23	Light grey (green), silica altered (?) mudstone and minor fine-grained sandstone

Structure							
Hole ID	**m From**	**m To**	**Structure**	**Angle to Core Axis**	**Alteration**	**Form**	**Comments**
OJ015	8.7	8.85	bn	90			flacer banding
OJ015	10.1	10.4	bn	90			flacer banding
OJ015	12.03	12.13	jt	30		US	
OJ015	16.05	16.06	bd	80			
OJ015	16.87	17.2	bd	80			
OJ015	17.2	19.2	bn	85			flacer banding
OJ015	19.37	19.67	bd	85			plus cross bedding at approximately 70
OJ015	20.57	21.11	fx	90		US	fractures along bedding planes
OJ015	27.3	27.6	bn	70			bedding
OJ015	31.4	31.42	bn	70			
OJ015	34.18	34.65	ft	80			partially healed/annealed fault
OJ015	34.84	34.94	jt	0	Se	PS	
OJ015	34.84	34.94	jt	70	Ca		
OJ015	35.12	35.13	jt	70	Cy	PS	
OJ015	35.93	37.17	fx		CyCa		fracture zone
OJ015	37.17	37.72	jt	5	Ca	PR	curved joint
OJ015	38.1	38.31	jt	45	Ca	UR	
OJ015	38.1	38.31	jt	20	Ca	UR	
OJ015	38.34	38.42	fx	85	CaCy	PS	
OJ015	39.09	39.18	fx	80	Ch		
OJ015	39.68	39.85	jt	5	Ca	PS	
OJ015	39.99	40.24	jt	80	Ca	PS	
OJ015	40.68	40.87	jt	30	Ca	PS	
OJ015	40.68	40.87	jt	60		PS	
OJ015	40.68	40.87	jt	45		UR	
OJ015	40.87	41.4	ft	7	Ca		Fluid pathway
OJ015	41.83	41.86	jt	70	Ca	PR	
OJ015	41.86	41.96	jt	45	Ca	PR	
OJ015	42.7	42.45	jt	45	CaCy	UR	
OJ015	42.6	42.9	jt	20	Ca	UR	
OJ015	43.14	43.22	ft				
OJ015	43.44	44	jt	2	Ca	PR	
OJ015	43.98	44.03	jt	45		UR	
OJ015	44.16	44.34	jt	80		PR	
OJ015	45.18	45.33	jt	20	Ca	PR	
OJ015	45.49	45.6	jt	30	Ca	PR	
OJ015	45.6	45.69	ft				fracture zone
OJ015	45.88	48.45	jt	20	Ca	PS	
OJ015	45.88	48.45	jt	50		PR	
OJ015	45.88	48.45	jt	70		PR	

Hole ID: OJ016

Collar:	Northing:	5314279	mN	Datum:	GDA
	Easting:	525313	mE	Locating Method:	Surveyed
	Elevation:	389	m	Accuracy:	mm
	Tenement:			EL26/2008 Lake Tiberias	
	Location:			Bowhill Road, Oatlands	

Surveys:

Depth	Dip	Azimuth

Company: South East Asia Resources (Tasmania)

Depth: 51.48 m
Azimuth: n/a degrees
Dip -90 degrees

Drilling Method: Diamond (HQ3)
Date Drilled: 27th June - 1st July, 2013
Drilling Company: Whole Core

Site Geologist: Karen Adams
Logging Geologist: Karen Adams

Sampled:

4.72	m	to	5.5	m	Heavy dull coal + carbonaceous mudstone
9.08	m	to	9.35	m	Zonally bright, but dominantly heavy, dull coal
9.7	m	to	10.41	m	Zonally bright, but dominantly heavy, dull coal
18.43	m	to	18.81	m	Heavy dull coal + some ash banding and weathering
41.94	m	to	43	m	Carbonaceous mudstone +/- heavy dull coal
43	m	to	44.07	m	Carbonaceous mudstone +/- heavy dull coal

Results:

mFrom	mTo	Interval	Relative Density	Ash%	Total Sulphur	Calories Kcal/Kg	Moisture
4.72	5.5	0.78					
9.08	9.35	0.27					
9.7	10.41	0.71					
18.43	18.81	0.38					
41.94	43	1.06					
43	44.07	1.07					

Notes:
PVC lined to EOH
Dolerite from 45.4m

Drill Hole ID: OJ016

Project: Southern Midlands Coal
License: EL26/2008
Date Drilled: 27th June to 1st July, 2013

Collar: Easting: 55 525 313
Northing: 5 314 279
Elevation: 389
(GDA - Surveyed)

Azimuth: n/a
Dip: -90 degrees

mFrom	mTo	Description
0	2.2	No Core - Cutting bit (tri-cone)
2.2	3.08	Orange-brown weathered carbonaceous mudstone and mudstone
3.08	3.2	Pale grey, weakly weathered, fine-grained heavy rock
3.2	3.48	Brown-orange weathered carbonaceous mudstone and mudstone
3.48	4.44	Brown-grey to dark grey interbedded mudstone and carbonaceous mudstone
4.44	4.54	Heavy dull coal
4.54	4.72	Grey to dark grey weathered carbonaceous mudstone
4.72	4.87	Strongly weathered dull coal and carbonaceous mudstone with some mm thick ash banding
4.87	5.24	Carbonaceous mudstone and coal with mm ash bands
5.24	5.5	Heavy dull coal with minor ash bands and minor vitrinite banding
5.5	5.71	Interbedded dark grey carbonaceous mudstone and grey mudstone
5.71	6.26	Pale grey, fine-grained sandstone
6.26	6.72	Interbedded grey-cream mudstone and carbonaceous mudstone (increasing in abundance downhole)
6.72	6.97	Grey-cream fine-grained sandstone with some carbonaceous mudstone
6.97	7.28	Cream, fine-grained sandstone and carbonaceous mudstone with cross bedding present
7.28	7.81	Cream, fine-grained sandstone with minor carbonaceous mudstone flacer banding
7.81	8.23	Interbedded carbonaceous mudstone and mudstone with minor fine-grained sandstone and cream-brown clay seam on downhole contact
8.23	8.7	Grey to dark grey mudstone with carbonaceous mudstone increasing downhole
8.7	8.91	Dark grey carbonaceous mudstone
8.91	9.08	Grey, fine to medium-grained lithic sandstone
9.08	9.35	Zonally bright, but dominantly heavy, dull coal
9.35	9.6	Grey mudstone and carbonaceous mudstone with minor coal downhole
9.6	9.75	Grey mudstone and caronaceous mudstone
9.75	10.41	Zonally bright but dominantly heavy, dull coal
10.41	10.62	Grey mudstone and carbonaceous mudstone
10.62	11.96	Grey mudstone and carbonaceous mudstone with minor fine-grained sandstone down hole
11.96	12.72	Pale grey, fine to medium-grained sandstone with flacer banding
12.72	13.74	Grey mudstone and carbonaceous mudstone
13.74	14.86	Grey, fine-grained sandstone with some carbonaceous mudstone banding, flame structures and cross-bedding present
14.86	15.5	Interbedded fine-grained sandstone, mudstone and carbonaceous mudstone with cross-bedding and flame structures present
15.5	16.14	Grey, medium to fine-grained sandstone with carbonaceous mudstone down hole
16.14	18.23	White to pale cream, medium to fine-grained sandstone with flacer banding up and down hole
18.23	18.43	Pale grey to white sandstone with flacer banding
18.43	18.54	Weathered heavy, dull coal
18.54	18.69	Heavy, dull coal with approximately 1% vitrinite and very minor calcite cleating
18.69	18.73	Pale grey ash band
18.73	18.81	Heavy dull coal
18.81	19.64	Grey mudstone with minor interbedded fine-grained sandstone
19.64	22.55	Interbedded grey mudstone, pale grey fine-grained sandstone and minor carbonaceous mudstone (carbonaceous mudstone dominant zone from 20.43-20.66m)
22.55	23.59	Grey, fine to medium-grained lithic sandstone with low-angle calcite veining
23.59	23.86	Grey mudstone with flame structures downhole
23.86	24.6	Strongly banded/bedded grey mudstone and white ash(?) bands with increased abundance of carbonaceous mudstone downhole
24.6	26.94	Interbedded pale grey fine-grained sandstone with some carbonaceous mudstone and minor mudstone
26.94	27.13	Carbonaceous mudstone with very minor grey mudstone
27.13	29.96	Grey mudstone, pale grey fine-grained sandstone and some white ash(?) banding
29.96	30.79	Carbonaceous mudstone with minor ash banding at approximately 30.5m
30.79	32.87	Grey mudstone and fine-grained sandstone and minor carbonaceous mudstone increasing downhole
32.87	32.98	Carbonaceous mudstone
32.98	36.07	Grading from grey mudstone and minor fine-grained sandstone to interbedded fine-grained sandstone, carbonaceous mudstone and mudstone with cross-bedding present
36.07	36.92	Grey, medium-grained lithic sandstone
36.92	37.4	Grey mudstone and minor fine-grained sandstone and carbonaceous mudstone
37.4	37.88	Carbonaceous mudstone
37.88	41.44	Sequence of interbedded mudstone and sandstone, carbonaceous mudstone and sandstone beds with strong carbonaceous mudstone about 40.7-40.95m
41.44	41.94	Carbonaceous mudstone
41.94	44.87	Carbonaceous mudstone plus or minus heavy dull coal(?)
44.87	45.34	Interbedded pale grey mudstone and fine-grained sandstone
45.34	45.45	Red-brown to grey, highly altered mudstone, possibly sericite and jasperoidal(?) alteration
45.45	51.48	Grading from green-grey fine-grained, to grey-green dolerite with minor to very minor calcite vein. Fine-grained chilled margin possibly chlorite altered
	EOH	

Drill Hole ID: OJ016

Detailed Logs

mFrom	mTo	Description
3.2	3.48	Brown-orange weathered carbonaceous mudstone and mudstone
3.48	4.44	Brown-grey and dark grey interbedded mudstone with carbonaceous mudstone
4.44	4.54	Heavy, dull coal with minor carbonaceous mudstone
4.54	4.72	Grey to dark grey weathered carbonaceous mudstone
4.72	4.87	Strongly weathered dull coal (with some carbonaceous mudstone and minor mm ash bands)
4.87	5.24	Carbonaceous mudstone and coal with mm ash bands
5.24	5.5	Heavy, dull coal with minor ash bands and minor vitrinite banding, approximately 1%
5.5	5.71	Interbedded dark grey carbonaceous mudstone and grey mudstone
5.71	6	Pale grey, fine-grained sandstone
8.7	8.91	Dark grey carbonaceous mudstone
8.91	9.08	Grey, fine to medium-grained sadstone
9.08	9.27	Heavy, dull coal
9.27	9.35	Moderately bright coal with frequent calcite cleating
9.35	9.55	Grey mudstone
9.55	9.6	Carbonaceous mudstone, coal and some vitrinite
9.6	9.7	Grey mudstone and carbonaceous mudstone
9.7	9.75	Carbonaceous mudstone
9.75	9.99	Zonally bright but dominantly heavy dull coal with approximately 5% vitrinite (downhole) and some calcite veining
9.99	10.22	Heavy, dull coal with <1% vitrinite and minor calcite veining
10.22	10.41	Moderately to strongly bright, brittle coal with approximately 50% vitrinite and some carbonaceous mudstone bands
10.41	10.62	Grey mudstone and carbonaceous mudstone
10.62	10.69	Carbonaceous mudstone
10.69	11.96	Grey mudstone and carbonaceous mudstone with minor fine-grained sandstone downhole
16.14	18.23	White to pale cream, medium to fine-grained sandstone with flacer banding up and downhole
18.23	18.43	Pale grey white sandstone with flacer banding
18.43	18.45	Heavy, dull coal
18.45	18.54	Weathered heavy, dull coal
18.54	18.69	Heavy dull coal with zonal brown coal, approximately 1% vitrinite and minor calcite cleating
18.69	18.73	Pale grey ash band
18.73	18.81	Heavy, dull coal
18.81	19.64	Grey mudstone with minor interbedded fine-grained sandstone

Structure							
Hole ID	**m From**	**m To**	**Structure**	**Angle to Core Axis**	**Alteration**	**Form**	**Comments**
OJ016	2.2	3.7	fx				weathering profile
OJ016	3.15	4.47	bd	80		PS	
OJ016	3.84	3.9	jt	85		PS	
OJ016	4.06	4.26	jt	85	ca	PS	
OJ016	4.5	5.18	jt	85		PS	
OJ016	5.65	6.68	jt	80		UR	
OJ016	5.7	5.83	jt	45		UR	
OJ016	5.84	5.9	jt	70		UR	
OJ016	6.22	6.52	bd	80		PS	
OJ016	6.54	6.7	jt	45		UR	
OJ016	7	7.3	bd	80			
OJ016	7.6	7.87	fx			UR	
OJ016	8.2	8.2	jt	45		PS	
OJ016	8.6	8.9	jt	5		UR	
OJ016	9.7	10.73	fx	80		UR	
OJ016	11.95	12.3	bd	80			
OJ016	12.4	12.56	bd	75			
OJ016	12.7	13.1	jt	20	ca	US	
OJ016	16	16.95	jt	75		US	
OJ016	18.45	18.84	fx	90		UR	
OJ016	19.5	19.7	jt	45		UR	
OJ016	20.58	20.6	fx	90			
OJ016	22.9	23.8	jt	20	ca	UR	
OJ016	26.4	26.6	bd	70			
OJ016	32.9	33.1	fx				
OJ016	36.4	37	fx	5		UR	horsetail
OJ016	37.9	38.4	jt	15		US	
OJ016	42.15	42.47	fx				broken
OJ016	43	45	fx	70			fractures along bedding planes
OJ016	43	45	jt	5			
OJ016	45.66	46.72	jt	50		PR	
OJ016	45.66	46.72	jt	45	ca	PR	

Hole ID: OJ017

Collar:	Northing:	5313550	mN	Datum:	GDA
	Easting:	525520	mE	Locating Method:	Surveyed
	Elevation:	389	m	Accuracy:	mm
	Tenement:	EL26/2008 Lake Tiberias			
	Location:	Bowhill Rd, Oatlands			

Surveys:

Depth	Dip	Azimuth

Company: South East Asia Resources (Tasmania)

Depth: 60.33 m
Azimuth: n/a degrees
Dip -90 degrees

Drilling Method: Diamond (HQ3)
Date Drilled: 2/7/13 - 3/7/13
Drilling Company: KMR Drilling

Site Geologist: Karen Adams
Logging Geologist: Karen Adams

Sampled:					
17.59	m	to	18.17	m	Heavy dull coal and carbonaceous mudstone
18.5	m	to	18.78	m	Heavy dull coal with approximately 1% vitrinite
18.89	m	to	19.63	m	Moderately bright brittle coal with approximately 40% vitrinite
19.63	m	to	19.95	m	Heavy dull coal and carbonaceous mudstone

Results:

mFrom	mTo	Interval	Relative Density	Ash%	Total Sulphur	Calories Kcal/Kg	Moisture
17.59	18.17	0.58					
18.5	18.78	0.28					
18.89	19.63	0.74					
19.63	19.95	0.32					

Notes: PVC lined to 60.33m

Drill Hole ID: OJ017

Project: Southern Midlands Coal
License: EL26/2008
Date Drilled: 2nd - 3rd July, 2013

Collar: Easting: 55 525 520
Northing: 5 313 550
Elevation: 389
(GDA - Survey)

Azimuth: n/a
Dip: -90 degrees

mFrom	mTo	Description
0	2.8	No Core - Cutting bit
2.8	5.95	Orange, soft clay-rich, strongly weathered medium to coarse-grained lithic sandstone
5.95	9.02	Orange, zonally black, soft clay-rich medium to coarse-grained lithic sandstone with some carbonaceous mudstone
9.02	10.67	Orange, soft clay-rich, crumbly lithic sandstone
10.67	12.1	Green-grey, silica-sericite-chlorite altered medium to fine-grained lithic sandstone
12.1	17	Grey medium to fine-grained lithic sandstone
17	17.59	Pale grey medium to coarse-grained lithic sandstone with carbonaceous mudstone and coal clasts
17.59	18.17	Heavy dull coal and carbonaceous mudstone
18.17	18.22	Medium-grained sandstone and coal
18.22	18.5	Cream, clay-rich, highly degraded mudstone
18.5	18.78	Heavy dull coal with approximately 1% vitrinite
18.78	18.89	Brown-cream mudstone-ash layer
18.89	19.63	Moderately bright brittle coal with approximately 40% vitrinite
19.63	19.95	Heavy dull coal and carbonaceous mudstone
19.95	21	Cream-grey, broken mudstone
21	27.22	Grey-cream, mudstone and fine-grained lithic sandstone increasing downhole with cross-bedding present
27.22	27.4	Grading from green to orange-brown altered fine-grained sandstone with cross-bedding
27.4	39.02	Green-grey, medium to coarse-grained lithic sandstone with ferric, orange alteration patches around 28, 28.5, 34 and 36.3m. Large (up to 5cm), ferric altered, mudstone clasts present around 34 and 36m, and carbonaceous mudstone clasts present from 34.27-34.5m
39.02	39.2	Brown, clay-rich mudstone
39.2	39.8	Core Loss
39.8	40.2	Brown, clay-rich mudstone
40.2	40.4	Broken, green-grey (with minor orange), sericite-silica altered, coarse to medium-grained lithic sandstone
40.4	50	Green-grey, coarse to medium-grained lithic sandstone with zonal white alteration/leached zone from 40.68-40.76m and mudstone clasts from 45.6-48m
50	51	Broken, veined fault zone in green-grey, silica-seriite altered coarse-grained lithic sandstone with some mudstone clasts
51	56.38	Green-grey, coarse-grained lithic sandtone with some mudstone clasts
56.38	60.33	Pale grey, medium to coarse-grained llithic sandstone with large (>5cm) mudstone clasts from 57.5-57.8m
	EOH	

Drill Hole ID: OJ017

Detailed Logs

mFrom	mTo	Description
17	17.59	Pale grey medium to coarse-grained lithic sandstone with carbonaceous mudstone and coal clasts
17.59	18.17	Heavy dull coal and carbonaceous mudstone
18.17	18.22	Medium-grained sandstone and coal
18.22	18.5	Cream, clay-rich, highly degraded mudstone
18.5	18.78	Heavy dull coal with approximately 1% vitrinite
18.78	18.89	Brown-cream mudstone-ash layer
18.89	19.63	Moderately bright brittle coal with approximately 40% vitrinite
19.63	19.95	Heavy dull coal and carbonaceous mudstone
19.95	21	Cream-grey, broken mudstone

Structure							
Hole ID	**m From**	**m To**	**Structure**	**Angle to Core Axis**	**Alteration**	**Form**	**Comments**
OJ017	0	5.95	fx				broken ground
OJ017	12.4	12.8	bd	70			
OJ017	14.05	14.34	jt	20		PR	
OJ017	21	27.45	bd	75			
OJ017	31.17	31.23	ft		Cy		annealed fault?
OJ017	39.02	40.52	ft				very broken
OJ017	40.68	40.76	ft		Cy		annealed fault?
OJ017	40.95	41.3	jt	25	Cy	PR	
OJ017	50	51	ft				fault zone

Hole ID: OJ018

Collar:
Northing: 5308563 mN
Easting: 526577 mE
Elevation: 404 m
Datum: GDA
Locating Method: Survey
Accuracy: ____ mm
Tenement: EL26/2008 Lake Tiberias
Location: Northumbria, Jericho

Surveys:

Depth	Dip	Azimuth

Company: South East Asia Resources (Tasmania)

Depth: 27.49 m
Azimuth: n/a degrees
Dip -90 degrees

Drilling Method: Diamond (HQ3)
Date Drilled: 12/7/13 - 15/7/13
Drilling Company: KMR Drilling

Site Geologist: Karen Adams
Logging Geologist: Karen Adams (Claire Thomas)

Sampled:
____ m to ____ m
____ m to ____ m
____ m to ____ m
____ m to ____ m

Results:

mFrom	mTo	Interval	Relative Density	Ash%	Total Sulphur	Calories Kcal/Kg	Moisture

Notes:
No Samples taken
Dolerite from 20.01m
PVC lined to EOH

Drill Hole ID: OJ018

Project: Southern Midlands Coal
License: EL26/2008
Date Drilled: 12th to the 15th of July, 2013

Collar: Easting: 55 526 577
Northing: 5 308 563
Elevation: 404
(GDA - Surveyed)

Azimuth: n/a
Dip: -90 degrees

mFrom	mTo	Description
0	3.6	No Core - Cutting bit
3.6	5.64	Moderately to strongly weathered, orange (with minor grey zones) medium to coarse-grained lithic sandstone
5.64	7.6	Orange, strongly weathered clay-rich mudstone with ferruginous alteration and some remnant silica-sericite alteration
7.6	8.61	Grey sericite-silica alterated mudstone with calcite veins and joint alteration
8.61	9.01	Green-grey, sericite-silica altered medium-grained lihtic sandstone
9.01	9.4	Orange, medium to coarse-grained lithic sandstone with 5-7mm clasts of mudstone. Appears to be water pathway, possibly fault
9.4	10.02	Green-grey, sericite-silica altered medium-grained lihtic sandstone
10.02	10.53	Orange, moderately to strongly weathered, clay-rich, medium-grained lithic sandstone
10.53	11.22	Green-grey, sericite-silica altered medium-grained lihtic sandstone
11.22	11.32	Orange, moderately weathered medium-grained lithic sandstone
11.32	11.98	Green-grey, sericite-silica altered medium to fine-grained lithic sandstone
11.98	14.63	Orange-yellow, moderately to strongly weathered, medium to coarse-grained lithic sandstone with very minor mudstone and red-brown clasts of mudstone at japproximately 14.53m
14.63	17.15	Red to white, wth some pink leached and zonally ferruginously (phlogopite??) altered coarse to medium-grained lithic sandstone.
17.15	18.88	White-grey-green, silica-sericite altered/leached, medium to coarse-grained lithic sandstone
18.88	20.01	White, pink and grey, leached and altered, medium to coarse-grained lithic sandstone
20.01	27.49	Green-grey, fine-grained dolerite with frequent fractures and moderately frequent calcite veining. Chlorite and calcite alteration prominent at uphole contact.
	EOH	

Drill Hole ID: OJ018		
Detailed Logs		
mFrom	mTo	Description
n/a	n/a	n/a

Structure							
Hole ID	**m From**	**m To**	**Structure**	**Angle to Core**	**Alteration**	**Form**	**Comments**
OJ018	3.6	5.66	bd	80			
OJ018	5.66	7.26	fx		Fe		
OJ018	7.35	7.37	jt	80	Fe		
OJ018	7.37	7.53					
OJ018	7.4	7.73	jt	70			
OJ018	7.73	9.02				UR	
OJ018	8.03	8.07	jt	75	Fe		
OJ018	8.1	8.17	vn	80	Fe		
OJ018	8.23	8.25	jt	15	Ca		
OJ018	8.23	8.25	jt	20	Ca		
OJ018	8.23	8.25	jt	50	Ca		
OJ018	8.44	8.53	jt	45	FeCa		
OJ018	8.53	8.54	jt	90	Fe		
OJ018	9.11	9.13	jt	85	Fe	UR	
OJ018	9.16	9.2	jt	85	Fe	UR	
OJ018	10.02	10.5	bd	90	Fe		
OJ018	12.15	14.7	bd	80			
OJ018	12.07	12.13	jt	80	Fe		
OJ018	12.45	12.64	jt	80	Fe	UR	
OJ018	13.44	13.94	vn	80	Fe	UR	
OJ018	14.94	14.96	jt	60	Ca	UR	
OJ018	17.48	17.66	jt	30	Ca	UR	
OJ018	14.87	20.01	jt	5	CaCy	UR	
OJ018	20.06	20.56	vn		Ca		
OJ018	20.09	20.11	jt	60	CaCy	UR	
OJ018	20.45	20.5	jt	50	CaCy	PR	
OJ018	20.56	20.6	jt	45	CaCy	UR	
OJ018	20.6	21.4	jt	50	CaCy	UR	
OJ018	20.76	20.96	jt	30	CaCy	UR	
OJ018	21.19	21.26	jt	60	CaCy	UR	

Hole ID: OJ020

Collar:	Northing:	5311626	mN	Datum:	GDA
	Easting:	522069	mE	Locating Method:	GPS
	Elevation:	357	m	Accuracy:	3 m
	Tenement:			EL26/2008 Lake Tiberias	
	Location:			Northumbria, Jericho	

Surveys:

Depth	Dip	Azimuth

Company: South East Asia Resources (Tasmania)

Depth: 54.71 m
Azimuth: n/a degrees
Dip -90 degrees

Drilling Method: Diamond (HQ3)
Date Drilled: 19/7/13 - 23/7/13
Drilling Company: KMR Drilling

Site Geologist: Karen Adams
Logging Geologist: Karen Adams (Claire Thomas)

Sampled:

	m	to	m	
	m	to	m	
	m	to	m	
	m	to	m	

Results:

mFrom	mTo	Interval	Relative Density	Ash%	Total Sulphur	Calories Kcal/Kg	Moisture

Notes: No seams to warrant detailed logs or sampling, but higher level of detail observed in lithology in areas that may assist in correlation with other drilling

Drill Hole ID: OJ020

Project: Southern Midlands Coal
License: EL26/2008
Date Drilled: 19th to 23rd of July, 2013

Collar: Easting: 55 522 069
Northing: 5 311 626
Elevation: 357
(GDA - GPS)

Azimuth: n/a
Dip: -90 degrees

mFrom	mTo	Description
0	5.8	No Core - Cutting bit
5.8	8.12	Orange, strongly weathered, clay-rich, fine-grained sandstone and carbonaceous mudstone banding. Strongly broken downhole
8.12	8.55	Core Loss
8.55	9.23	Orange, strongly weathered, clay-rich mudstone and minor fine-grained sandstone with gradational downhole oxidation front downhole
9.23	10.92	Interbedded dark grey carbonaceous mudstone and pale grey fine-grained, moderately quartz-rich sandstone with some mudstone and increasing sandstone downhole
10.92	12.73	Medium-grained, pale grey moderately quartz-rich sandstone with flacer banding
12.73	13.31	Pale grey fine-grained sandstone with carbonaceous mudstone banding
13.31	13.77	Pale grey, medium to coarse-grained, quartz-rich sandstone with minor carbonaceous mudstone
13.77	13.87	Carbonaceous mudstone with very minor sandstone
13.87	13.99	Interbedded carbonaceous mudstone and pale grey, fine-grained sandstone
13.99	14.09	Carbonaceous mudstone
14.09	14.2	Carbonaceous mudstone with minor fine-grained sandstone interbeds
14.2	14.45	Carbonaceous mudstone
14.45	14.64	Interbedded pale grey, quartz-rich sandstone with carbonaceous mudstone
14.64	14.94	Coarse to medium-grained, pale grey, quartz-rich sandstone with 2-3% disseminated pyrite and some flacer banding
14.94	15.02	Carbonaceous mudstone and minor sandstone
15.02	15.13	Fine-grained pale grey sandstone with some carbonaceous mudstone
15.13	15.39	Carbonaceous mudstone
15.39	15.45	Pale grey fine-grained sandstone
15.45	15.5	Carbonaceous mudstone with minor fine-grained pale grey sandstone
15.5	15.53	Pale grey fine-grained sandstone
15.53	15.61	Carbonaceous mudstone with minor fine-grained pale grey sandstone
15.61	15.66	Pale grey fine-grained sandstone
15.66	15.76	Grey fine-grained sandstone with some carbonaceous mudstone
15.76	15.87	Carbonaceous mudstone with minor ash banding
15.87	15.91	Pale grey fine-grained sandstone
15.91	15.93	Carbonaceous mudstone
15.93	15.95	Pale grey fine-grained sandstone with minor carbonaceous mudstone
15.95	16.4	Interbedded carbonaceous mudstone and some fine-grained, pale grey sandstone
16.4	16.62	Carbonaceous mudstone and very minor pale grey, fine-grained sandstone
16.62	17.01	Interbedded carbonaceous mudstone and some fine-grained, pale grey sandstone
17.01	17.15	Carbonaceous mudstone and very minor pale grey, fine-grained sandstone
17.15	17.33	Dominantly carbonaceous mudstone with some pale grey, fine-grained sandstone and very minor fossilised bioturbation
17.33	17.77	Interbedded fine-grained pale grey sandstone and carbonaceous mudstone with some possible fossilised bioturbation
17.77	18.22	Pale grey, moderately quartz-rich, fine to medium-grained sandstone with some flacer banding and carbonaceous mudstone bedding
18.22	18.35	Interbedded pale grey, fine-grained sandstone and carbonaceous mudstone
18.35	18.48	Carbonaceous mudstone with minor fine-grained pale grey sandstone interbeds
18.48	18.66	Pale grey, quartz-rich, fine to medium-grained sandstone with minor carbonaceous mudstone
18.66	19.23	Carbonaceous mudstone and some mudstone with minor fine-grained pale grey sandstone interbeds
19.23	19.74	Grey mudstone with possible fossilised bioturbated sandstone at the bottom of the sequence
19.74	20.39	Pale grey to white, fine-grained, quartz-rich sandstone with minor flacer banding and bioturbation on downhole contact
20.39	21.32	Grey mudstone and very minor fine-grained sandstone
21.32	21.64	Grey mudstone and minor fine-grained sandstone
21.64	21.97	Medium to coarse-grained, grey to pale grey, quartz-rich sandstone with minor mudstone cross-bedding
21.97	22.22	Interbedded pale grey, fine-grained sandstone and carbonaceous mudstone with mudstone base
22.22	22.97	Finely laminated carbonaceous mudstone with some fine-grained, pale grey sandstone increasing downhole
22.97	23.02	Interbedded pale grey to white fine-grained sandstone and carbonaceous mudstone
23.02	23.44	Finely laminated carbonaceous mudstone and pale grey fine-grained sandstone with some pyrite
23.44	23.48	Bioturbated pale grey to white sandstone with some mudstone and carbonaceous mudstone
23.48	23.88	Grey mudstone with stylitic downhole contact
23.88	24.46	White to pale grey, fine-grained sandstone with stylitic carbonaceous mudstone zones up and downhole
24.46	24.98	Grey to dark grey mudstone
24.98	25.01	Carbonaceous mudstone
25.01	25.08	Dark grey carbonaceous mudstone
25.08	25.18	Grey to pale grey, fine-grained sandstone
25.18	25.46	Carbonaceous mudstone and minor pale grey, fine-grained sandstone
25.46	27.11	Fine-grained, pale grey to white sandstone with minor mudstnoe and zonal green-yellow tinge
27.11	27.34	Yellow-green-grey, altered medium to coarse-grained sandstone
27.34	42.86	Likely upwardly fining sequence of pale grey to white quartz and zonally pyrite-rich sandstone with minor mudstone. Chlorite altered flacer banding and some angular to sub-angular mudstone clasts (at approximately 41.1m) present
42.86	43.03	Grey mudstone
43.03	43.7	Pale grey, medium-grained quartz-rich sandstone with rip-up clasts and ripped-up mudstone beds
43.7	43.82	Grey mudstone with minor sandstone
43.82	44.17	Pale grey medium-grained, quartz-rich sandstone with angular mudstone rip-up clasts
44.17	47.78	Pale grey to white medium to coarse-grained, quartz-rich sandstone with zonal disseminated pyrite of up to 3% in abundance (especially between 46.4-46.5m) that appears to be particularly associated with flacer banding
47.78	48.17	Pale grey medium to coarse-grained, quartz-rich and zonally sulphide rich sandstone with sub-rounded to rounded mudstone and carbonaceous mudstone clasts
48.17	51.38	Pale grey to white, medium to fine-grained, quartz-rich and zonally sulphide-rich sandstone with minor to very minor mudstone bedding
51.38	51.67	Pale grey quartz-rich, medium to coarse-grained sandstone with angular carbonaceous mudstone clasts
51.67	54.71	Pale grey quartz-rich medium-grained sandstone with some falcer banding uphole and very minor compressed carbonaceous mudstone clasts around 53.4-53.8m
	EOH	

Drill Hole ID: OJ020

Detailed Logs

mFrom	mTo		Description
n/a	n/a	n/a	

Structure							
Hole ID	**m From**	**m To**	**Structure**	**Angle to Core Axis**	**Alteration**	**Form**	**Comments**
OJ020	0	9.06	fx		FeCa	UR	Fracture zone
OJ020	9.79	10	fx			UR	Fracture zone
OJ020	10.12	10.45	fx		Fe	UR	Fracture zone
OJ020	11.44	11.45	jt	90		UR	
OJ020	12.46	12.46	bd	90		UR	Fracture along bedding plane
OJ020	12.72	17.73	bd	85		UR	Fracture along bedding plane
OJ020	13.04	13.3	bd	90		PS	Fracture along bedding plane
OJ020	13.44	13.46	fx	85		UR	
OJ020	13.67	13.68	fx	85		UR	
OJ020	13.77	13.77	bd	90		UR	Fracture along bedding plane
OJ020	14.06	14.07	jt	80		UR	
OJ020	14.2	14.31	jt	45	Ca	UR	
OJ020	14.45	14.62	jt	80		UR	
OJ020	14.95	14.97	jt	80		UR	
OJ020	15.02	15.1	fx				Fracture zone
OJ020	15.16	15.39	jt	60		PS	
OJ020	15.59	15.62	bd				Fracture along bedding plane
OJ020	15.16	15.16	jt	90		PS	
OJ020	15.86	15.88	fx	80		US	
OJ020	15.97	15.98	bd	90		UR	Fracture along bedding plane
OJ020	16.81	16.82	fx	90		UR	
OJ020	17.33	17.35	bd	90		UR	Fracture along bedding plane
OJ020	17.87	17.89	bd	90			
OJ020	18.61	18.61	bd	90		UR	Fracture along bedding plane
OJ020	19.01	19.03	fx				Fracture zone
OJ020	19.7	19.73	fx				Fracture zone
OJ020	20.11	20.11	bd	90		UR	Fracture along bedding plane
OJ020	20.35	20.35	bd	90		UR	Fracture along bedding plane
OJ020	21.97	21.97	fx	90		UR	
OJ020	22.8	22.96	fx				
OJ020	23.41	23.42	bd	90		UR	Fracture along bedding plane
OJ020	23.65	23.65	fx	90		UR	
OJ020	23.73	23.7	fx	90		UR	
OJ020	24.79	24.85	jt	45		UR	
OJ020	27.35	27.35	bd			UR	Fracture along bedding plane
OJ020	27.5	27.51	jt	85		UR	
OJ020	29.24	29.24	bd	90		PR	Fracture along bedding plane
OJ020	30.01	30.01	bd	90		UR	Fracture along bedding plane
OJ020	30.04	30.05	jt	85		UR	
OJ020	30.1	30.17	jt	45		UR	

OJ020	30.43	30.46	jt	85		UR	
OJ020	30.45	30.48	jt	85		UR	
OJ020	32.37	32.39	jt	85		PR	
OJ020	32.59	32.67	jt	45		UR	
OJ020	33.93	33.94	jt	45		UR	
OJ020	34.62	34.62	fx	90		UR	
OJ020	34.63	34.64	jt	85		UR	
OJ020	37.53	37.55	jt	85		UR	
OJ020	37.76	37.82	jt	70		UR	
OJ020	38.23	38.3	bd	85		UR	Fracture along bedding plane
OJ020	38.36	38.38	jt	80		UR	
OJ020	38.55	38.58	jt	80		PS	
OJ020	38.95	39.02	jt	90		PS	
OJ020	39.02	39.09	jt	45		PS	
OJ020	39.09	39.09	jt	90		PS	
OJ020	39.23	39.23	jt	90		PS	
OJ020	39.88	39.88	bd	90		UR	Fracture along bedding plane
OJ020	41.92	41.92	bd	85			Fracture along bedding plane
OJ020	42.7	42.7	bd				Fracture along bedding plane
OJ020	42.95	43	jt	50		PS	
OJ020	43.27	43.33	fx				
OJ020	43.71	43.75	fx	50		PS	
OJ020	43.84	43.86	fx	70		PS	
OJ020	45.54	45.59	jt	85		UR	
OJ020	46.9	46.92	jt	85		UR	
OJ020	46.99	47.02	jt	70		UR	
OJ020	47.51	47.52	jt	85		PR	
OJ020	48.1	48.1	fx				
OJ020	48.33	48.33	fx	90		PR	
OJ020	49.2	49.23	jt	80		PR	
OJ020	51.2	51.22	jt	80		UR	
OJ020	51.62	51.63	jt	85		UR	
OJ020	52.45	52.21	jt	85		UR	
OJ020	53.67	53.68	fx	85		UR	

Hole ID: OJ021

Collar:
Northing: 5300300 mN
Easting: 525683 mE
Elevation: 440 m
Tenement:
Location:

Datum: GDA
Locating Method: Survey
Accuracy: mm
EL26/2008 Lake Tiberias
Ellesmere, Mudwalls Road

Surveys:

Depth	Dip	Azimuth

Company: South East Asia Resources (Tasmania)

Depth: 60 m
Azimuth: n/a degrees
Dip -90 degrees

Drilling Method: Open Hole
Date Drilled: 1/7/13 - 2/7/13
Drilling Company: KMR Drilling

Site Geologist: Karen Adams (Claire Thomas)
Logging Geologist: Karen Adams

Sampled:

17	m	to	18	m	Carbonaceous mudstone +/- coal, sandstone + mudstone
18	m	to	19	m	Carbonaceous mudstone with minor mudstone
46	m	to	47	m	Carbonaceous mudstone with sandstone and mudstone
51	m	to	52	m	Carbonaceous mudstone with mudstone
52	m	to	53	m	Sandstone and Carbonaceous mudstone
59	m	to	60	m	Carbonaceous mudstone and mudstone

Results:

mFrom	mTo	Interval	Relative Density	Ash%	Total Sulphur	Calories Kcal/Kg	Moisture
17	18	1					
18	19	1					
46	47	1					
51	52	1					
52	53	1					
59	60	1					

Notes:
Water at 5m
PVC lined to 60m
Predominantly small samples.

Drill Hole ID: OJ021

Project: Southern Midlands Coal
License: EL26/2008
Date Drilled: 1st - 2nd of July, 2013

Collar: Easting: 55 525 683
Northing: 5 300 300
Elevation: 440
(GDA - Survey)

Azimuth: n/a
Dip: -90 degrees

mFrom	mTo	Description
0	1	Grey-brown, clay-rich mudstone and sandstone
1	2	Orange-cream, clay-rich sandstone and mudstone
2	3	Orange-brown, medium to coarse-grained, weathered lithic sandstone
3	4	Orange-grey, medium to fine-grained, weakly weathered lithic sandstone
4	5	Grey, coarse to medium-grained lithic sandstone with minor black carbonaceous mudstone
5	6	Grey, with minor orange, medium-grained lithic sandstone
6	7	Grey-orange, medium-grained lithic sandstone with very minor grey mudstone
7	8	Grey, medium to coarse-grained lithic sandstone with 20-30% dark grey carbonaceous mudstone
8	9	Grey, medium to coarse-grained lithic sandstone
9	10	Grey, medium to coarse-grained lithic sandstone
10	11	Grey, medium to coarse-grained lithic sandstone with 10-15% black carbonaceous mudstone
11	12	Grey, medium-grained lithic sandstone with very minor carbonaceous mudstone
12	13	Grey, medium to coarse-grained lithic sandstone
13	14	Grey, coarse to fine-grained lithic sandstone
14	15	Grey, medium-grained lithic sandstone
15	16	Grey, medium-grained lithic sandstone with very minor carbonaceous mudstone
16	17	Grey, medium-grained lithic sandstone
17	18	Dark grey to black carbonaceous mudstone +/- coal(?) with clay-rich pale grey mudstone and very minor medium-grained grey lithic sandstone
18	19	Black carbonaceous mudstone with very minor grey mudstone
19	20	Pale grey, fine-grained lithic sandstone with 20-30% black carbonaceous mudstone
20	21	Pale grey, medium to fine-grained lithic sandstone with minor to very minor black carbonaceous mudstone
21	22	Grey, fine to medium-grained lithic sandstone
22	23	Pale grey, medium-grained lithic sandstone. EXTREMELY SMALL SAMPLE
23	24	Pale grey, medium to coarse-grained lithic sandstone
24	25	Grey mudstone with minor to very minor, medium-grained lithic sandstone
25	26	Grey mudstone and fine-grained sandstone
26	27	Grey, medium-grained lithic sandstone with some mudstone
27	28	Grey, medium to coarse-grained lithic sandstone
28	29	Pale grey, medium to coarse-grained lithic sandstone
29	30	Grey, medium-grained lithic sandstone with very minor mudstone and carbonaceous mudstone
30	31	Grey medium to fine-grained lithic sandstone with minor carbonaceous mudstone
31	32	Grey, medium to coarse-grained lithic sandstone with 5-10% carbonaceous mudstone and some minor mudstone
32	33	Grey, medium-grained lithic sandstone with minor (~5%) carbonaceous mudstone
33	34	Grey, medium-grained lithic sandstone and darker grey mudstone
34	35	Pale grey mudstone and some pale grey, medium-grained lithic sandstone
35	36	Grey mudstone and very minor pale grey, medium-grained lithic sandstone
36	37	Grey mudstone
37	38	Grey mudstone with 5-10% carbonaceous mudstone and very minor lithic sandsotne. Carbonaceous mudstone contains minor, very fine-grained disseminated sulphide.
38	39	Grey to dark grey mudstone
39	40	Grey mudstone and fine-grained sandstone
40	41	Grey to dark grey, fine-grained sandstone with minor to very minor mudstone and carbonaceous mudstone
41	42	Grey to dark grey, fine to medium-grained lithic sandstone with approximately 5% carbonaceous mudstone
42	43	Pale grey, medium-grained lithic sandstone, grey mudstone and 15-20% carbonaceous mudstone
43	44	Grey to pale grey, medium-grained lithic sandstone with minor to very minor grey mudstone and dark grey carbonaceous mudstone (<2%)
44	45	Grey medium to fine-grained lithic sandstone, grey mudstone and 5-10% carbonaceous mudstone
45	46	Grey medium to coarse-grained lithic sandstone, 15-25% black carbonaceous mudstone and approximately 5% coarse pyrite
46	47	Black carbonaceous mudstone, pale grey medium-grained lithic sandstone and dark grey mudstone
47	48	Pale grey to grey mudstone
48	49	Grey to dark grey mudstone
49	50	Grey, fine-grained lithic sandstone with 5-10% black carbonaceous mudstone
50	51	Grey mudstone
51	52	Black carbonaceous mudstone with minor grey mudstone
52	53	Grey fine-grained sandstone with 15-20% black carbonaceous mudstone
53	54	Grey, moderately clay-rich, fine-grained sandstone and mudstone
54	55	Pale grey mudstone and approximately 25% carbonaceous mudstone
55	56	Pale grey, soapy mudstone with 20% carbonaceous mudstone
56	57	Pale grey, soapy mudstone and grey fine-grained sandstone with very minor carbonaceous mudstone
57	58	Grey mudstone with minor black carbonaceous mudstone
58	59	Grey mudstone with 5-10% carbonaceous mudstone
59	60	Dark grey carbonaceous mudstone and grey mudstone
	EOH	

Drill Hole ID: OJ021

Detailed Logs

mFrom	mTo	Description
n/a	n/a	n/a

Structure							
Hole ID	**m From**	**m To**	**Structure**	**Angle to Core**	**Alteration**	**Form**	**Comments**
OJ021							

Hole ID: OJ022

Collar:	Northing:	5300500	mN	Datum:	GDA
	Easting:	525688	mE	Locating Method:	Survey
	Elevation:	439	m	Accuracy:	mm
	Tenement:	EL26/2008 Lake Tiberias			
	Location:	Ellesmere, Mudwalls Road			

Surveys:

Depth	Dip	Azimuth

Company: South East Asia Resources (Tasmania)

Depth: 44 m
Azimuth: n/a degrees
Dip -90 degrees

Drilling Method: Open Hole
Date Drilled: 3/07/2013
Drilling Company: KMR Drilling

Site Geologist: Karen Adams (Claire Thomas)
Logging Geologist: Karen Adams

Sampled:

8	m	to	9	m	Lithic sandstone with minor carbonaceous mudstone
9	m	to	10	m	Mudstone with minor sandstone & carbonaceous mudstone
27	m	to	28	m	Lithic sandstone & carbonaceous mudstone
28	m	to	29	m	Mudstone & carbonaceous mudstone
29	m	to	30	m	Mudstone & some carbonaceous mudstone
30	m	to	31	m	Mudstone & minor carbonaceous mudstone
31	m	to	32	m	Mudstone & black carbonaceous mudstone
32	m	to	33	m	Carbonaceous mudstone & some mudstone
33	m	to	34	m	Mudstone, some carbonacous mudstone & sandstone
38	m	to	39	m	Mudstone & some carbonaceous mudstone
39	m	to	40	m	Mudstone & carbonaceous mudstone
40	m	to	41	m	Mudstone with some carbonaceous mudstone

Results:

mFrom	mTo	Interval	Relative Density	Ash%	Total Sulphur	Calories Kcal/Kg	Moisture
8	9	1					
9	10	1					
27	28	1					
28	29	1					
29	30	1					
30	31	1					
31	32	1					
32	33	1					
33	34	1					
38	39	1					
39	40	1					
40	41	1					

Notes:
Water at 7m. PVC Lined to 44m
All samples of poor size, some being extremely small
Hole ended early due to collar degradation

Drill Hole ID: OJ022

Project: Southern Midlands Coal
License: EL26/2008
Date Drilled: 3rd July, 2013

Collar: Easting: 55 525 688
Northing: 5 300 500
Elevation: 439
(GDA - Survey)

Azimuth: n/a
Dip: -90 degrees

mFrom	mTo	Description
0	1	Dark brown, clay-rich, strongly weathered mudstone
1	2	Brown-orange, clay-rich, strongly weathered sandstone and mudstone
2	3	Orange, clay-rich, strongly weathered sandstone and minor mudstone
3	4	Pale grey, medium-grained lithic sandstone. EXTREMELY SMALL SAMPLE
4	5	Pale grey, medium-grained lithic sandstone. VERY SMALL SAMPLE
5	6	Clay-rich, pale grey sand. EXTREMELY SMALL SAMPLE
6	7	Grey-orange, moderately clay-rich sandstone and mudstone
7	8	Grey, medium-grained lithic sandstone with very minor carbonaceous mudstone
8	9	Grey, medium to fine-grained lithic sandstone with minor carbonaceous mudstone
9	10	Grey mudstone with minor sandstone and carbonaceous mudstone
10	11	Grey mudstone and some carbonaceous mudstone
11	12	Grey, fine to medium-grained lithic sandstone with minor carbonaceous mudstone
12	13	Grey, fine-grained sandstone, mudstone and carbonaceous mudstone
13	14	Grey to dark grey, mudstone and carbonaceous mudstone
14	18	Grey Mudstone
18	19	Grey to dark grey mudstone and carbonaceous mudstone
19	20	Grey fine-grained lithic sandstone
20	27	Grey, coarse to medium-grained lithic sandstone with some mudstone and minor carbonaceous mudstone
27	28	Grey medium-grained lithic sandstone and black carbonaceous mudstone
28	29	Dark grey mudstone and black carbonaceous mudstone
29	30	Grey mudstone and some carbonaceous mudstone
30	31	Grey mudstone and minor carbonaceous mudstone
31	32	Grey mudstone and black carbonaceous mudstone
32	33	Black carbonaceous mudstone and some pale grey mudstone
33	34	Grey mudstone and some carbonacous mudstone and fine-grained sandstone
34	35	Grey mudstone and black carbonaceous mudstone
35	36	Grey mudstone and fine-grained sandstone
36	37	Grey mudstone and minor carbonaceous mudstone
37	38	Grey mudstone
38	39	Grey mudstone and some carbonaceous mudstone
39	40	Grey mudstone and black carbonaceous mudstone
40	41	Very dark grey to black mudstone with some carbonaceous mudstone
41	42	Very dark grey to black mudstone and carbonaceous mudstone
42	43	Dark grey to black mudstone with some carbonaceous mudstone and some calcite present
43	44	Grey mudstone with minor carbonaceous mudstone
	EOH	

Drill Hole ID: OJ022

Detailed Logs

mFrom	mTo	Description
n/a		

Structure							
Hole ID	**m From**	**m To**	**Structure**	**Angle to Core**	**Alteration**	**Form**	**Comments**
OJ022							

Hole ID: OJ024

Collar:	Northing:	5311193	mN	Datum:	GDA
	Easting:	523815	mE	Locating Method:	GPS
	Elevation:	395	m	Accuracy:	4 m
	Tenement:			EL26/2008 Lake Tiberias	
	Location:			Northumbria, Jericho	

Surveys:

Depth	Dip	Azimuth

Company: South East Asia Resources (Tasmania)

Depth: 31 m
Azimuth: n/a degrees
Dip: -90 degrees

Drilling Method: Open Hole
Date Drilled: 5/7/13 - 8/7/13
Drilling Company: KMR Drilling

Site Geologist: Karen Adams
Logging Geologist: Karen Adams

Sampled:

	m	to	m	
	m	to	m	
	m	to	m	
	m	to	m	

Results:

mFrom	mTo	Interval	Relative Density	Ash%	Total Sulphur	Calories Kcal/Kg	Moisture

Notes:

Dolerite from 0m
Foaming started at 28m (ie. Some water present at this point)
PVC lined to 31m

Drill Hole ID: OJ024

Project: Southern Midlands Coal
License: EL26/2008
Date Drilled: 5th - 8th July, 2013

Collar: Easting: 55 523 815
Northing: 5 311 193
Elevation: 395
(GDA - GPS)

Azimuth: n/a
Dip: -90 degrees

mFrom	mTo	Description
0	8	Dark-brown-blue, moderately to strongly weathered dolerite
8	15	Dark-blue-grey, weakly weathered dolerite
15	21	Dark-blue-grey fine to medium-grained dolerite
21	22	Dark-blue-grey dolerite with some minor orange, ferruginous alteration
22	26	Dark-blue-grey dolerite
26	27	Dark-blue-grey dolerite with significant orange, ferruginaous alteration and some calcite. Possible fault
27	31	Dark-blue-grey dolerite
	EOH	

Drill Hole ID: OJ024

Detailed Logs

mFrom	mTo	Description
N/A	N/A	N/A

Structure	OJ024
N/A	

Hole ID: OJ025

Collar:
Northing: 5313463 mN
Easting: 523907 mE
Elevation: 366 m
Datum: GDA
Locating Method: Survey
Accuracy: ____ mm
Tenement: EL26/2008 Lake Tiberias
Location: Bowhill Rd, Oatlands

Surveys:

Depth	Dip	Azimuth

Company: South East Asia Resources (Tasmania)

Depth: 33 m
Azimuth: n/a degrees
Dip -90 degrees

Drilling Method: Open Hole
Date Drilled: 9/07/2013
Drilling Company: KMR Drilling

Site Geologist: Karen Adams (Claire Thomas)
Logging Geologist: Karen Adams

Sampled:
____ m to ____ m
____ m to ____ m
____ m to ____ m
____ m to ____ m

Results:

mFrom	mTo	Interval	Relative Density	Ash%	Total Sulphur	Calories Kcal/Kg	Moisture

Notes:
No Samples taken
Water from 0m
Hole making small amount of water. To be grouted once geophysical survey has been carried out
Possible dolerite sill from around 14-16m
Likely dolerite contact from within 28m interval to end of hole

Drill Hole ID: OJ025

Project: Southern Midlands Coal
License: EL26/2008
Date Drilled: 9th of July, 2013

Collar: Easting: 55 523 907
Northing: 5 313 463
Elevation: 366
(GDA - GPS)

Azimuth: n/a
Dip: -90 degrees

mFrom	mTo	Description
0	2	Orange-brown, weathered medium to coarse-grained lithic sandstone
2	3	Brown-orange, weathered medium-grained lithic sandstone and some mudstone
3	4	Orange, clay-rich highly weathered, medium-grained lithic sandstone. Small sample
4	5	Orange-brown, weathered, medium to coarse-grained lithic sandstone. Small sample
5	6	Brown-grey mudstone and minor medium to coarse-grained lithic sandstone
6	7	Soft grey, clay-rich medium-grained lithic sandstone. Very small sample
7	9	Green-grey, medium-grained, altered lithic sandstone with minor quartz/calcite. Small samples
9	10	Green-grey, medium-grained lithic sandstone with some brown mudstone
10	11	Soft, grey-green, medium-grained altered lithic sandstone
11	12	Green-grey, mudstone and medium-grained lithic sandstone
12	13	Green-grey and some pink, altered mudstone with minor sandstone
13	14	Grey, possibly silica altered mudstone and fine-grained sandstone
14	15	Dark grey, crystalline rock with quartz and calcite veinlets (dolerite??). Some altered mudstone
15	16	Hard, black crystaline rock with calcite veinlets (dolerite???????)
16	17	Altered mudstone (silica-sericite?) and dark-grey crystalline rock
17	18	Dark-grey carbonaceous mudstone and grey mudstone with quartz, calcite and pyrite present
18	20	Green-grey, altered mudstone and pale grey altered mudstone (silica-sericite?)
20	21	Soft, grey-green altered mudstone, some calcite and minor carbonaceous mudstone
21	23	Pale-grey mudstone and minor green tinged, medium-grained sandstone
23	24	Grey mudstone with very minor calcite
24	26	Grey mudstone
26	27	Grey mudstone with minor carbonaceous mudstone
27	28	Grey mudstone with minor altered sandstone
28	29	Black, fine-grained dolerite(?) with significant amounts of calcite and minor mudstone
29	30	Black, fine-grained dolerite(?) with minor calcite
30	31	Black, fine-grained dolerite(?) with significant amounts of calcite
31	32	Black, fine-grained dolerite(?) with minor calcite
32	33	Grey, fine to medium-grained dolerite
	EOH	

Drill Hole ID: OJ025

Detailed Logs

mFrom	mTo	Description
n/a		

Structure	0J025
n/a	

Hole ID: OJ026

Collar:	Northing:	5315462	mN	Datum:	GDA
	Easting:	524337	mE	Locating Method:	Survey
	Elevation:	350	m	Accuracy:	mm
	Tenement:			EL26/2008 Lake Tiberias	
	Location:			Bowhill Rd, Oatlands	

Surveys:

Depth	Dip	Azimuth

Company: South East Asia Resources (Tasmania)

Depth: 10 m
Azimuth: n/a degrees
Dip -90 degrees

Drilling Method: Open Hole
Date Drilled: 10/07/2013
Drilling Company: KMR Drilling

Site Geologist: Karen Adams (Claire Thomas)
Logging Geologist: Karen Adams

Sampled:

	m	to	m	
	m	to	m	
	m	to	m	
	m	to	m	

Results:

mFrom	mTo	Interval	Relative Density	Ash%	Total Sulphur	Calories Kcal/Kg	Moisture

Notes:

No samples taken
Water from 1m
Hole finished early due to large amounts of sticky clay-rich mud, second attempt at open hole drilling of the target (OJ027) also failed, leading to a third attempt with diamond (OJ028) that was successful

Drill Hole ID: OJ026

Project: Southern Midlands Coal
License: EL26/2008
Date Drilled: 10th of July, 2013

Collar: Easting: 55 524 337
Northing: 5 315 462
Elevation: 350
(GDA - Surveyed)

Azimuth: n/a
Dip: -90 degrees

mFrom	mTo	Description
0	10	Brown-orange weathered dolerite, sandstone, mudstone and very minor quartzite tallus. Small sample size in 0-1m and 6-7m and extremely small sample size from 8-10m
	EOH	

Drill Hole ID: OJ026

Detailed Logs

mFrom	mTo	Description
n/a		

Structure	OJ026
n/a	

Hole ID: OJ027

Collar:
Northing: 5315597 mN
Easting: 524376 mE
Elevation: 352 m
Tenement: EL26/2008 Lake Tiberias
Location: Bowhill Rd, Oatlands

Datum: GDA
Locating Method: Survey
Accuracy: mm

Surveys:

Depth	Dip	Azimuth

Company: South East Asia Resources (Tasmania)

Depth: 2 m
Azimuth: n/a degrees
Dip -90 degrees

Drilling Method: Open Hole
Date Drilled: 11/07/2013
Drilling Company: KMR Drilling

Site Geologist: Karen Adams (Claire Thomas)
Logging Geologist: Karen Adams

Sampled:
m to m
m to m
m to m
m to m

Results:

mFrom	mTo	Interval	Relative Density	Ash%	Total Sulphur	Calories Kcal/Kg	Moisture

Notes:
No Samples taken
Hole back filled with soil
Problems with sticky clay combined with large amounts of tallus, lead to this second attempt at this hole being ended very early to diminish the expense of pushing through with the open hole in favour of an attempt to drill with diamond (OJ028) which was far more successful in a shorter time frame

Drill Hole ID: OJ027

Project: Southern Midlands Coal
License: EL26/2008
Date Drilled: 11th July, 2013

Collar: Easting: 55 524 376
Northing: 5 315 597
Elevation: 352
(GDA - Surveyed)

Azimuth: n/a
Dip: -90 degrees

mFrom	mTo	Description
0	1	Brown-orange-grey dolerite tallus and minor silicious altered mudstone
1	2	Brown-orange-grey dolerite tallus
	EOH	

Drill Hole ID: OJ027

Detailed Logs

mFrom	mTo	Description
n/a		

Structure	OJ027						
Hole ID	**m From**	**m To**	**Structure**	**Angle to Core**	**Alteration**	**Form**	**Comments**
n/a							

Hole ID: OJ028

Collar:	Northing:	5315457	mN	Datum:	GDA
	Easting:	524327	mE	Locating Method:	GPS
	Elevation:	358	m	Accuracy:	3 m
	Tenement:			EL26/2008 Lake Tiberias	
	Location:			Bowhill Road, Oatlands	

Surveys:

Depth	Dip	Azimuth

Company: South East Asia Resources (Tasmania)

Depth: 42.22 m
Azimuth: n/a degrees
Dip -90 degrees

Drilling Method: Diamond (HQ3)
Date Drilled: 24/7/13 - 25/7/13
Drilling Company: KMR Drilling

Site Geologist: Karen Adams
Logging Geologist: Karen Adams (Claire Thomas)

Sampled:

	m	to		m	
	m	to		m	
	m	to		m	
	m	to		m	

Results:

mFrom	mTo	Interval	Relative Density	Ash%	Total Sulphur	Calories Kcal/Kg	Moisture

Notes:
Approximately 0.48m left downhole (true EOH 42.7m)
PVC lined to EOH

Drill Hole ID: OJ028

Project: Southern Midlands Coal
License: EL26/2008
Date Drilled: 24th to 25th of July, 2013

Collar: Easting: 55 524 327
Northing: 5 315 457
Elevation: 358
(GDA - GPS)

Azimuth: n/a
Dip: -90 degrees

mFrom	mTo	Description
0	7	No Core - Cutting bit
7	7.19	Grey clay
7.19	7.36	Core Loss - Washed away
7.36	10.98	Grey, with minor orange, very clay-rich, poorly consolidated medium-grained sandstone
10.98	12.06	Grey, poorly consolidated, moderately clay-rich, medium to coarse-grained lithic sandstone with frequent angular carbonaceous mudstone rip-up clasts
12.06	12.5	Grey, soft, medium-grained lithic sandstone
12.5	13.13	Grey, poorly consolidated, moderately clay-rich, medium to coarse-grained lithic sandstone with frequent angular carbonaceous mudstone rip-up clasts
13.13	13.29	Core Loss - Washed away
13.29	13.9	Grey, soft, medium-grained lithic sandstone
13.9	14.97	Soft, very poorly consolidated, grey, medium to coarse-grained lithic sandstone with frequent and sometimes large (>5cm) clasts of coal and carbonaceous mudstone
14.97	18.32	Soft grey, clay-rich medium-grained lithic sandstone and some clay altered mudstone
18.32	18.6	Soft grey, poorly consolidated, medium to coarse-grained lithic sandstone with some carbonaceous mudstone and coal clasts
18.6	19.4	Soft grey, medium-grained, moderately clay-rich lithic sandstone
19.4	19.7	Soft grey, poorly consolidated, medium to coarse-grained lithic sandstone with irregular flacer banding and some carbonaceous mudstne clasts
19.7	20.9	Modertely soft, grey medium to fine-grained lithic sandstone
20.9	21.56	Grey, zonally dark grey to black, coarse to medium-grained, poorly consolidated lithic sandstone with zonal flacer banding and angular carbonaceous mudstone and coal rip-up clasts
21.56	21.86	Core Loss - Washed away
21.86	22.25	Grey, zonally dark grey to black, coarse to medium-grained, poorly consolidated lithic sandstone with zonal flacer banding and angular carbonaceous mudstone and coal rip-up clasts
22.25	23.73	Soft grey, medium to coarse-grained, poorly consolidated, lithic sandstone with small (10cm) zone of flacer banding at 22.8m
23.73	24.3	Soft, grey to dark grey, poorly consolidated, coarse-grained lithic sandstone with frequent carbonaceous mudstone clasts and minor flacer banding
24.3	24.55	Soft grey, moderately clay-rich, medium-grained lithic sandstone
24.55	24.78	Pale grey quartzite
24.78	27.64	Grey, soft clay-rich, medium to fine-grained lithic sandstone and mudstone with minor carbonaceous mudstone clasts (likely rip-up clasts) at 25.63m and 26.2m
27.64	27.82	Pale grey, hard quartzite
27.82	30.54	Soft grey, clay-rich medium-grained lithic sandstone and mudstone with minor carbonaceous mudstone clasts at 29.18m
30.54	30.95	Soft, moderately to strongly clay-rich, dark grey to black, interbedded carbonaceous mudstone and mudstone
30.95	31.2	Soft grey, poorly consolidated medium-grained lithic sandtone
31.2	31.59	Grey to dark grey, soft, moderately clay-rich, coarse to medium-grained lithic sandstone with zonal carbonaceous mudstone and small angular carbonaceous mudstone rip-up clasts
31.59	32.15	Soft grey, clay-rich, fine-grained lithic sandstone and mudstone
32.15	32.32	Dark grey, poorly consolidated, soft, medium to coarse-grained lithic sandstone with carbonaceous mudstone clasts
32.32	33.44	Grey soft, clay-rich medium to fine-grained lithic sandstone and mudstone with jpossible remnant carbonaceous mudstone bedding at 32.41m
33.44	33.51	Dark grey, soft, moderately clay-rich, fine to medium-grained lithic sandstone
33.51	33.79	Soft grey, poorly consolidated medium to coarse-grained lithic sandstone with some carbonaceous mudstone clasts
33.79	34.29	Core Loss - Washed away
34.29	34.93	Soft to very soft, grey to dark grey, coarse to medium-grained lithic sandstone and carbonaceous mudstone
34.93	35.07	Moderately hard, pale grey, fine to medium-grained lithic sadstone with minor compressed clasts. Tuffaceous remnants (?)
35.07	35.26	Soft grey, clay-rich medium-grained, lithic sandstone
35.26	36.2	Moderately soft, grey to dark grey, moderately clay-rich, medium-grained lithic sandstone with frequent carbonaceous mudstone 'beds' and clasts
36.2	37.79	Soft grey, clay-rich, medium to fine-grained lithic sandstone
37.79	38.13	Grey to dark-grey, soft, poorly consolidated, medium to coarse-grained lithic sandstone with flacer banding
38.13	39.13	Soft grey, clay-rich, medium to fine-grained lithic sandstone and mudstone with irregular styolitic flacer banding downhole
39.13	39.5	Soft grey, poorly consolidated, medium to coarse-grained lithic sandstone with some carbonaceous mudstone clasts and carbonaceous mudstone bedding at approximately 30 degrees downhole
39.5	40.67	Grey soft, clay-rich, medium to coarse-grained lithic sandstone and mudstone
40.67	41.4	Soft grey, poorly consolidated, medium to coarse-grained lithic sandstone with carbonaceous mudstone clasts and minor flacer banding
41.4	41.83	Grey to dark-grey, soft clay-rich, medium to fine-grained lithic sandstone with remnant carbonaceous mudstone beds and flacer banding
41.83	41.92	Dark grey, soft clay-rich mudstone and carbonaceous mudstone
41.92	42.14	Grey clay-rich, soft, fine to medium-grained lithic sandstone and mudstone
42.14	42.22	Dark grey, clay-rich soft, carbonaceous mudstone and mudstone
	EOH	

Drill Hole ID: OJ028

Detailed Logs

mFrom	mTo		Description
n/a	n/a	n/a	

Structure		OJ028					
Hole ID	m From	m To	Structure	Angle to Core Axis	Alteration	Form	Comments
OJ028	7	7.2	fx				
OJ028	8.18	8.2	fx	85		UR	
OJ028	8.46	8.88	fx	85		UR	
OJ028	9.65	9.86	fx				
OJ028	11.2	11.33	fx				
OJ028	11.78	11.95	fx				
OJ028	13.08	13.1	fx	85			
OJ028	16.35	16.39	fx				
OJ028	18.26	18.53	fx				
OJ028	21.3	21.34	fx	85		UR	
OJ028	21.47	21.5	jt	85		UR	
OJ028	22.25	22.26	fx	90		UR	
OJ028	22.5	22.56	fx	90		UR	
OJ028	22.6	22.01	fx	90		UR	
OJ028	22.83	22.84	fx	90		UR	
OJ028	23.95	23.95	fx	90		UR	
OJ028	24.22	24.22	fx	90		UR	
OJ028	24.55	24.26	fx	90		UR	
OJ028	24.77	24.78	fx	90		UR	
OJ028	26.36	26.37	fx	90		UR	
OJ028	27.64	27.64	fx	90		UR	
OJ028	27.82	27.83	fx	90		UR	
OJ028	30.47	30.47	fx	90		US	
OJ028	31.14	31.14	fx	90		UR	
OJ028	31.58	31.59	fx	90		UR	
OJ028	32.26	32.28	fx	85		UR	
OJ028	33.52	33.62	fx				
OJ028	34.3	34.46	fx				
OJ028	34.92	34.92	fx	85		PR	
OJ028	34.98	35.01	fx	85		UR	
OJ028	38.35	38.38	jt	45		UR	
OJ028	39.08	39.12	jt	45		PR	
OJ028	39.45	39.52	jt	50		UR	
OJ028	41.14	41.33	fx				
OJ028	41.79	41.88	jt	80		UR	

Hole ID: OJ029

Collar:

Northing:	5302647	mN	Datum:	GDA
Easting:	525759	mE	Locating Method:	GPS
Elevation:	439	m	Accuracy:	4 m
Tenement:			EL26/2008 Lake Tiberias	
Location:			Ellesmere, Mudwalls Road	

Surveys:

Depth	Dip	Azimuth

Company: South East Asia Resources (Tasmania)

Depth: 32.75 m
Azimuth: n/a degrees
Dip -90 degrees

Drilling Method: Diamond (HQ3)
Date Drilled: 26/7/13 - 30/7/13
Drilling Company: KMR Drilling

Site Geologist: Karen Adams
Logging Geologist: Karen Adams (Claire Thomas)

Sampled:

	m	to	m	
	m	to	m	
	m	to	m	
	m	to	m	

Results:

mFrom	mTo	Interval	Relative Density	Ash%	Total Sulphur	Calories Kcal/Kg	Moisture

Notes:

Dolerite from 0m
PVC lined to 16m
No Samples taken
Approximately 0.6m left down hole

Drill Hole ID: OJ029

Project: Southern Midlands Coal
License: EL26/2008
Date Drilled: 26th to the 30th July, 2013

Collar: Easting: 55 525 759
Northing: 5 302 647
Elevation: 439
(GDA - GPS)

Azimuth: n/a
Dip: -90 degrees

mFrom	mTo	Description
0	1.5	No Core - Cutting Bit
1.5	2.9	Grey with some orange, medium-grained dolerite
2.9	4.4	Orange to brown, strongly weathered dolerite. Possible fault
4.4	4.5	Core Loss
4.5	5.8	Grey with orange, iron-rich alteration on fracture planes, weakly weathered, medium-grained dolerite
5.8	32.75	Grey-green, medium-grained dolerite with low angle joints and veining from 10.8-11.9m with dark infil and some calcite.
	EOH	

Drill Hole ID: OJ029

Detailed Logs

mFrom	mTo	Description
n/a	n/a	n/a

Structure		OJ029					
Hole ID	**m From**	**m To**	**Structure**	**Angle to Core Axis**	**Alteration**	**Form**	**Comments**
OJ029	1.5	1.65	fx		FeCa		
OJ029	1.65	1.98	jt	45	Ca.Fe	UR	
OJ029	1.81	1.84	fx			UR	
OJ029	1.9	1.92	jt	85	Ca	UR	
OJ029	1.92	3.65	jt	5	Ca.Fe	UR	
OJ029	2.28	3.65	fx	90	FeCa	UR	
OJ029	2.33	2.39	jt	50	FeCa	UR	
OJ029	3.65	4.4	fx				Highly fractured and weathered
OJ029	4.5	5.23	fx	15	Fe	UR	0-30 degrees
OJ029	4.52	4.86	fx		Fe		
OJ029	4.64	4.72	jt	45	Fe	UR	
OJ029	4.84	4.86	jt	80	Fe	UR	
OJ029	4.94	4.95	fx	85	Fe	UR	
OJ029	5.36	5.44	jt	85	Fe	UR	
OJ029	5.3	5.48	jt	45	FeCa	UR	
OJ029	5.56	5.78	fx	85	Fe	UR	
OJ029	5.67	5.69	jt	85	Fe	UR	
OJ029	5.86	5.87	fx	90	FeCa	UR	
OJ029	6.44	6.45	fx	90	Ca.Fe	UR	
OJ029	8.17	8.19	jt	85	Ca.Fe	UR	
OJ029	9.6	9.62	fx		Ca	UR	
OJ029	9.8	9.91	jt	5	CaSeCl	US	
OJ029	10.14	10.16	jt	85	CaSeCl	UR	
OJ029	10.57	11	jt	15	CaSeCl	US	
OJ029	11.08	11.1	jt	85	CaSeCl	UR	
OJ029	11.21	11.77	fx	10	CaSeCl	US	
OJ029	12.69	12.79	jt	85	CaSeCl	UR	
OJ029	13.07	13.08	fx		CaSe	US	
OJ029	13.99	13.99	jt	85	CaSe	US	
OJ029	14.9	14.92	fx		CaSe	US	
OJ029	15.12	15.14	jt	80	CaSe	UR	
OJ029	15.62	15.62	fx	90	CaSe	UR	
OJ029	17.02	17.04	jt	85		UR	
OJ029	17.7	17.7	fx	90	FeCa	UR	
OJ029	19.15	19.17	jt	85	FeCa	UR	
OJ029	19.67	19.69	jt	80	FeCa	UR	
OJ029	21.59	21.62	jt	80	FeCa	UR	
OJ029	21.72	21.74	jt	80	CaCyFe	UR	
OJ029	26.3	26.33	jt	80	CyCa	US	
OJ029	27.08	27.09	fx	90	Ca		
OJ029	27.27	27.42	jt	10	CaCy	US	
OJ029	29.46	27.48	jt	80	CaCy	US	
OJ029	29.58	29.61	fx		CaCy		
OJ029	30.65	30.67	jt	80	CaCy	US	
OJ029	31.29	31.3	jt	90	CaCy	US	
OJ029	32.22	32.26	fx	90	CaCy	UR	
OJ029	32.45	32.48	jt	85	CaCy	UR	

APPENDIX 18

MIDLANDS ENERGY

DRILL HOLE No OJ011

SHEET 1 OF 3

Survey Depth	Azimuth	Dip	Hole Co-ordinates	GDA
			Easting_	525 417
			Northing_	5 305 194
			Elevation (m)	401
			Azimuth_ Mag	–
			Dip	-90°

PROJECT: SOUTHERN MIDLANDS COAL
PROSPECT: MUDWALLS RD (EL26/2008)
DATE: 23-06-13 TO 24-06-13
LOGGED BY: KAREN ADAMS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
1	0	0			fx			0.00-1.50: CORE LOSS	CL
	50	0							
2						Fe		1.50-2.20: STRONGLY WEATHERED RED-BROWN TO PALE ORANGE AND CLAY-RICH SANDSTONE	SS
3	20	0						2.20-4.60: CORE LOSS	
4	0	0							CL
	40	0							
5								4.60-5.20: STRONGLY WEATHERED, RED-BROWN TO PALE ORANGE TALLUS	TALL
6	100	0				Fe		5.20-6.00: CREAM TO ORANGE, MODERATELY TO STRONGLY MEDIUM-GRAINED LITHIC SANDSTONE	SS
								6.00-6.15: CORE LOSS-WASHED AWAY	CL
7	85	0				Fe		6.15-7.10: SOFT, MODERATELY TO STRONGLY WEATHERED, ORANGE TO PALE ORANGE, MEDIUM TO FINE-GRAINED LITHIC SANDSTONE	SS
8	30	17						7.10-7.80: CORE LOSS-WASHED AWAY	CL
9	100	21				Fe		7.80-8.60: SOFT, WEATHERED, ORANGE, MEDIUM TO FINE-GRAINED SANDSTONE	SS
								8.60-11.70: ORANGE, FREQUENTLY FRACTURED, SOFT WEATHERED AND CLAY-RICH MUDSTONE	
10	100	18							MS
11	100	19				Fe			
12	100	0			fx			11.70-13.30: ORANGE TO GREY, PARTIALLY WEATHERED MUDSTONE WITH ZONALLY STRONG FRACTURING (POSSIBLE FLUID PATHWAY)	
13	100	0				Fe			MS
								13.30-13.46: CORE LOSS-WASHED AWAY	CL
14	70	0						13.45-13.66: STRONGLY BROKEN, ORANGE, CLAY-RICH MUDSTONE	MS
								13.65-13.95: CORE LOSS	CL
15	100	0						13.95-14.50: GREY, BROKEN, CLAY-RICH MUDSTONE	MS
								14.50-14.70: DARK GREY TO BLACK, BROKEN CARBONACEOUS MUDSTONE WITH MINOR MUDSTONE	CMS
								14.70-15.20: GREY MUDSTONE	MS
16	100	0						15.20-15.45: DARK GREY TO BLACK CARBONACEOUS MUDSTONE	CMS
								15.45-18.82: GREY TO GREEN-GREY MUDSTONE WITH MINOR FINE-GRAINED SANDSTONE, INCREASING IN ABUNDANCE DOWN HOLE	
17	100	20							MS
18	100	100							
19	100	18							
								18.82-19.20: GREEN-GREY, SILICA-SERICITE-CHLORITE ALTERED, MEDIUM-GRAINED LITHIC SANDSTONE	SS
20	100	56			jt 70° 20°	Sr Ss Sh Sr Ss Sh		19.20-20.12: ALTERNATING LIGHT BROWN AND GREEN-GREY MUDSTONE AND SANDSTONE	MS SS

REMARKS DRILLED HQ3 BY WHOLE CORE

MIDLANDS ENERGY

DRILL HOLE No OJ011

SHEET 2 OF 3

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	MUDWALLS RD (EL26/2008)
DATE:	23-06-13 TO 24-06-13
LOGGED BY:	KAREN ADAMS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
21	100	100						20.12-24.42: GREEN-GREY, MEDIUM TO COARSE-GRAINED SERICITE-SILICA-CHLORITE ALTERED LITHIC SANDSTONE	
22	100	100							
23	100	100				SeSiCh			SS
24	100	85							
25	100	71			jt 70° 30°			24.42-24.57: BLACK CARBONACEOUS MUDSTONE +/- COAL 24.57-25.00: ORANGE-BROWN (AND MINOR GREY-GREEN) MUDSTONE	CMS MS
26	80	0				SeSi		25.00-25.80: GREEN-GREY INTERBEDDED MUDSTONE AND SANDSTONE 25.80-26.00: CORE LOSS - GROUND AWAY	MS SS CL
27	100	71						26.00-26.10: GREEN-GREY MUDSTONE AND SANDSTONE 26.10-28.44: GREEN-GREY, FINE TO MEDIUM-GRAINED, SERICITE-SILICA ALTERED LITHIC SANDSTONE WITH ZONAL IRON ALTERATION	MS/SS
28	100	75				SeSi (Fe)			SS
29	100	89						28.44-34.90: GREEN-GREY, SERICITE-SILICA ALTERED, MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE WITH PLACER BANDING FROM 33.5-33.65m AND FOSSILISED PLANTS (DICHRIDIUM?) AT 32.5m	
30	100	100							
31	100	100							
32	100	100				SeSi			SS
33	100	100							
34	100	100			bn 70°				
35	100	100							
36	100	74				Ch		34.90-35.26: GREEN, CHLORITE-ALTERED (?) MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE 35.26-39.30: GREEN-GREY, SERICITE-SILICA-CHLORITE ALTERED, MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE	SS
37	100	100							
38	100	100				SeSiCh			SS
39	100	100							
40	100	79			fx	SeSiCh		39.30-41.30: VERY BROKEN, GREEN-GREY, SERICITE-SILICA-CHLORITE ALTERED MUDSTONE	MS

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJO11

SHEET 3 OF 3

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	MUDWALLS RD (EL26/2008)
DATE:	23-06-13 TO 24-06-13
LOGGED BY:	KAREN ADAMS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
41	100	52			fx	SeSiCh			MS
	100	0							
41.3 EOH									

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJ012

SHEET 1 OF 3

Survey Depth	Azimuth	Dip	Hole Co-ordinates	GDA
			Easting_	525 599
			Northing_	5 301 094
			Elevation (m)	437
			Azimuth_Mag	—
			Dip	-90°

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	MUDWALLS RD (EL26/2008)
DATE:	26-06-13 TO 28-06-13
LOGGED BY:	KAREN ADAMS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % (.1 .3 1 3 5)	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm (0.06 0.5 2 8 32 64)	GEOLOGY NOTES	SUMMARY LOG
1	0	0						0.00-1.02: CORE LOSS	CL
2	98	0				Cy		1.02-1.86: CLAY AND DIRT	Cy
						Cy Fe		1.86-2.30: ORANGE-BROWN, HIGHLY WEATHERED, CLAY-RICH, FINE TO MEDIUM-GRAINED SANDSTONE	SS
	74	35						2.30-2.56: CORE LOSS	CL
3								2.56-4.82: ORANGE-BROWN, WEATHERED, FINE TO MEDIUM-GRAINED SANDSTONE WITH FLACER BANDING AT 3.77m AND 2-3cm ROUNDED, MUDSTONE CLASTS	
4	100	27				Fe			SS
5	100	58							
6	100	30			bn 60	Fe		4.82-6.90: ZONALLY BROKEN, BROWN-ORANGE MUDSTONE AND CARBONACEOUS MUDSTONE WITH MINOR FINE-GRAINED SANDSTONE AND FLACER BANDING AT 5.76m	MS CMS
7	100	0			fx				
								6.90-7.00: VERY BROKEN, GREY, CLAY-RICH MUDSTONE	MS
	20	0				Cy		7.00-7.40: CORE LOSS	CL
8								7.40-7.70: VERY BROKEN, GREY TO BLACK, CLAY-RICH CARBONACEOUS MUDSTONE AND MUDSTONE	CMS
								7.70-8.40: CORE LOSS	CL
9	60	0				Cy		8.40-9.40: GREY, CLAY-RICH MUDSTONE AND MINOR CARBONACEOUS MUDSTONE	MS
10	100	0						9.40-10.20: BLACK, VERY BROKEN COAL WITH CALCITE VEINS AND CLEATS (INCLUDING SOME CAVE-IN THAT IS DIFICULT TO DISTINGUISH)	
11	100	13			Jt 45° 70°			10.20-11.22: DOMINANTLY HEAVY, DULL COAL WITH MINOR CALCITE VEINING AND SOME CARBONACEOUS MUDSTONE	
12	100	30						11.22-11.90: INTERBEDDED GREY MUDSTONE AND CARBONACEOUS MUDSTONE	MS CMS
13	100	86			Jt 60° 20°			11.90-12.86: GREY INTERBEDDED SANDSTONE AND MUDSTONE	SS MS
						Qz		12.86-13.30: WHITE TO VERY PALE GREY, HEAVY, FINE-GRAINED, MODERATE TO INTENSELY ALTERED ROCK WITH TENSIONAL CARBONATE VEINING, CLASTS (XENOLITHS?) OF UP TO 3cm IN SIZE AND VARIGATION OF ALTERATION (POSSIBLY PREFERENTIAL ALTERATION OF FLOW BANDING???) OR QUARTZITE??	Qz
14	100	91			fx				SS
15	100	67						13.30-16.00: GRADING FROM GREY, FINE-GRAINED SANDSTONE WITH MUDSTONE BEDS TO DOMINANTLY DARK GREY MUDSTONE WITH PROMINANT FINELY INTERBEDDED CARBONACEOUS MUDSTONE	? MS CMS
16	100	67			Jt 45°				
								16.00-16.36: CARBONACEOUS MUDSTONE	CMS
17	100	78			Jt 80°			16.36-24.42: ZONALLY BROKEN, PALE GREY, SILICA-SERICITE ALTERED AND SOMEWHAT CLAY-RICH MUDSTONE WITH SOME FINE-GRAINED SANDSTONE DOWNHOLE	
18	100	62				SiSe			MS
19	100	52							SS
20	100	24							

REMARKS DRILLED WITH HQ3 BY WHOLE CORE

MIDLANDS ENERGY

DRILL HOLE No OJ012

SHEET 2 OF 3

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	MUDWALLS RD (EL26/2008)
DATE:	26-06-13 TO 28-06-13
LOGGED BY:	KAREN ADAMS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
21	100	19							MS
22	100	19							
23	100	62			fx	Si,Se			SS
24	100	41			fx				
25	100	81			jt 85° vn			24.42-41.45: DOMINANTLY MEDIUM-GRAINED (WITH FINER GRAINED CHILLED MARGIN PROXIMAL TO UPHOLE CONTACT), GREY-GREEN DOLERITE WITH CALCITE FILLED VESSICLES TO 28.2m, STRONG TO MODERATE CALCITE VEINING UPHOLE AND VEIN BRECCIATION AT AND AROUND 26.6m. SOME MINOR BLEBBY PYRITE ASSOCIATED WITH CALCITE VEINING AND SELVEDGES DOWNHOLE	
26	100	79			vn 10°				
27	100	100							
28	100	72			jt 60°				
29	100	100			jt 70°				
30	100	100			jt 60° jt 10° 30°				
31	100	100							
32	100	100							DOL
33	100	74			jt 45°				
34	100	100							
35	100	95							
36	100	100							
37	100	100			jt 10°				
38	100	100							
39	100	68							
40	100	100							

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJ012

SHEET 3 OF 3

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_Mag	
			Dip	

PROJECT: SOUTHERN MIDLANDS COAL
PROSPECT: MUDWALLS RD (EL26/2008)
DATE: 26-06-13 TO 28-06-13
LOGGED BY: KAREN ADAMS

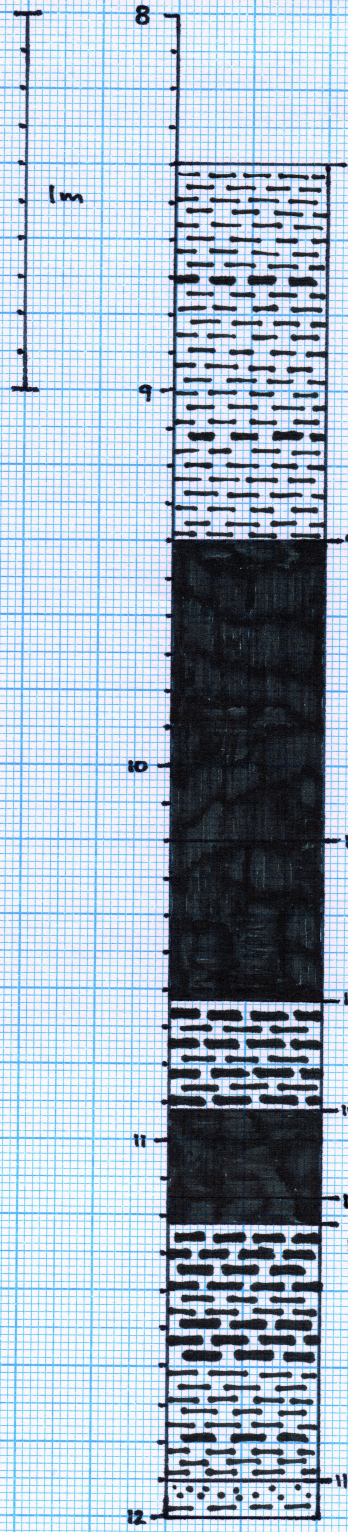
HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
	100	100							
41									DOL
	100	100			Bk 90°				
41.45 EOH									

REMARKS

1mm Squares

OJ012 DETAILED LOG : SEAM ONE

SCALE 1:20



8.40-9.40: GREY, CLAY-RICH MUDSTONE WITH MINOR CARBONACEOUS MUDSTONE

9.40-10.20: VERY BROKEN COAL WITH CALCITE VEINING AND CLEATING. SIGNIFICANT AMOUNTS OF CAVE-IN, DIFFICULT TO DISTINGUISH

10.20-10.65: HEAVY, DULL COAL AND CARBONACEOUS MUDSTONE WITH MINOR CALCITE VEINING

10.65-10.92: FINELY INTERBEDDED CARBONACEOUS MUDSTONE AND COAL WITH MINOR MUDSTONE

10.92-11.15: HEAVY, DULL COAL AND SOME CARBONACEOUS MUDSTONE

10.95 - 11.22: MODERATELY BRIGHT COAL WITH CALCITE CLEATS AND APPROXIMATELY 17. VITRINITE

11.22-11.90: INTERBEDDED GREY MUDSTONE AND CARBONACEOUS MUDSTONE, GRADING FROM DOMINANTLY CARBONACEOUS MUDSTONE TO DOMINANTLY MUDSTONE

11.90-12.00: GREY INTERBEDDED FINE-GRAINED SANDSTONE AND MUDSTONE

MIDLANDS ENERGY

DRILL HOLE No OJ013

SHEET 1 OF 4

Survey Depth	Azimuth	Dip	Hole Co-ordinates	GDA
			Easting_	524 794
			Northing_	5315 433
			Elevation (m)	351
			Azimuth_Mag	—
			Dip	-90°

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	BOWHILL RD (EL 26/2008)
DATE:	2-07-13 TO 3-07-13
LOGGED BY:	KAREN ADAMS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % (.1 .3 1 3 5)	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm (0.06 0.5 2 8 32 64)	GEOLOGY NOTES	SUMMARY LOG
1	100	0			fx	FeCy		0.00-1.00: ORANGE-CREAM-BROWN, WEATHERED, CLAY-RICH SANDSTONE AND SOME DOLERITE TALLUS	SS
2	100	0				Cy		1.00-2.00: RED-BROWN CLAY AND DOLERITE TALLUS FROM CAVE-IN	CY
	40	0						2.00-2.60: CORE LOSS	CL
3						Cy		2.60-3.00: RED-BROWN CLAY AND DOLERITE TALLUS	CY
4	85	0			bd 80°	Cy		3.00-3.15: CORE LOSS 3.15-4.00: DARK GREY, CLAY-RICH MUDSTONE AND CARBONACEOUS MUDSTONE	CL MS CMS
5	100	0						4.00-5.25: PALE GREY TO DARK GREY, FINE TO MEDIUM-GRAINED LITHIC SANDSTONE AND CARBONACEOUS MUDSTONE	SS CMS
6	100	100						5.25-7.36: PALE GREY, MEDIUM TO FINE-GRAINED LITHIC SANDSTONE WITH SOME FLACER BANDING	
7	100	100			bn 85°				SS
8	100	100						7.36-7.44: CARBONACEOUS MUDSTONE 7.44-8.45: PALE GREY LITHIC SANDSTONE WITH FLACER BANDING	CMS SS
9	100	95						8.45-9.60: GREY, FINE-GRAINED LITHIC SANDSTONE AND MUDSTONE	SS MS
10	100	100			bd 80°			9.60-10.62: GREY MUDSTONE AND CARBONACEOUS MUDSTONE	MS CMS
11	100	100						10.62-11.26: CARBONACEOUS MUDSTONE +/- COAL	CMS
								11.26-11.50: CORE LOSS - GROUND AWAY	CL
12	76	81						11.50-11.79: CARBONACEOUS MUDSTONE +/- COAL WITH SOME ASH BANDING	CMS
13	100	100						11.79-12.86: CARBONACEOUS MUDSTONE AND DARK GREY MUDSTONE	CMS MS
14	100	79			jt 50°			12.86-14.03: GREY TO DARK GREY MUDSTONE AND FINE TO MEDIUM-GRAINED LITHIC SANDSTONE WITH MINOR CARBONACEOS MUDSTONE	MS SS
15	100	52						14.03-15.11: GREY TO DARK GREY MUDSTONE AND SOME CARBONACEOUS MUDSTONE WITH MINOR SANDSTONE DOWN HOLE	MS CMS
16	100	81						15.11-15.36: CARBONACEOUS MUDSTONE WITH MINOR SANDSTONE UP HOLE 15.36-15.49: GREY, FINE-GRAINED SANDSTONE, MUDSTONE AND CARBONACEOUS MUDSTONE 15.49-16.09: HEAVY, DULL COAL AND CARBONACEOUS MUDSTONE	CMS
17	100	26			jt 50°	Si Se		16.09-16.66: GREASY, SILICA-SERICITE ALTERED, PALE CREAM MUDSTONE / ASH BAND ? 16.66-17.31: HEAVY DULL COAL WITH APPROXIMATELY 1% VITRINITE AND MINOR CALCITE VEINING 17.31-17.46: CORE LOSS - GROUND AWAY	MS
18	85	35						17.46-18.15: CARBONACEOUS MUDSTONE AND DARK GREY MUDSTONE	CL CMS MS
19	93	83			jt 20°			18.15-18.22: CORE LOSS - GROUND AWAY 18.22-18.89: FINE TO MEDIUM-GRAINED, GREY SANDSTONE WITH SOME MUDSTONE INCREASING DOWN HOLE	CL SS
20	100	64						18.89-20.50: DARK GREY MUDSTONE WITH MINOR SANDSTONE DOWN HOLE	MS

REMARKS DRILLED WITH HQ3 BY WHOLE CORE

MIDLANDS ENERGY

DRILL HOLE No OJ013

SHEET 2 OF 4

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_Mag	
			Dip	

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	BOWHILL RD (EL26/2008)
DATE:	02-07-13 TO 03-07-13
LOGGED BY:	KAREN ADAMS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % (.1 .3 1 3 5)	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm (0.06 0.5 2 8 32 64)	GEOLOGY NOTES	SUMMARY LOG
21	100	74						20.50-21.38: GREY, FINE-GRAINED SANDSTONE AND MUDSTONE (DECREASING IN ABUNDANCE DOWNHOLE) WITH SOME CARBONACEOUS MUDSTONE	MS (SS)
22	100	100			bd 75°			21.38-22.27: GREY AND DARK GREY INTERBEDDED MUDSTONE AND CARBONACEOUS MUDSTONE WITH MINOR SANDSTONE	SS / MS CMS
								22.27-22.36: CORE LOSS: GROUND AWAY	CL
23	91	31						22.36-22.50: GREY AND DARK GREY INTERBEDDED MUDSTONE AND CARBONACEOUS MUDSTONE WITH MINOR SANDSTONE	MS CMS
24	100	80						22.50-23.04: INTERBEDDED FINE-GRAINED, GREY SANDSTONE AND DARK GREY CARBONACEOUS MUDSTONE AND MUDSTONE	SS
								23.04-24.20: CARBONACEOUS MUDSTONE WITH MINOR ASH BANDS	CMS
25	100	84						24.20-24.52: GREY FINE TO MEDIUM-GRAINED SANDSTONE WITH CARBONACEOUS MUDSTONE	SS
								24.52-24.90: CARBONACEOUS MUDSTONE +/- COAL	CMS
26	100	100			jt 40°			24.90-25.96: GREY-GREEN TUFFACEOUS-LIKE SEQUENCE WITH SOME SANDSTONE DOWN HOLE	SS
27	100	100			bd 80°			25.96-26.50: GREY, FINE TO MEDIUM-GRAINED LITHIC SANDSTONE WITH MINOR MUDSTONE AND CARBONACEOUS MUDSTONE	SS
								26.50-27.34: GREY INTERBEDDED MUDSTONE AND MINOR CARBONACEOUS MUDSTONE WITH VERY MINOR SANDSTONE UPHOLE	MS
28	100	100						27.34-27.45: CARBONACEOUS MUDSTONE	CMS
								27.45-28.24: GREY, FINE-GRAINED SANDSTONE WITH SOME MUDSTONE	SS
29	100	100						28.24-28.28: CARBONACEOUS MUDSTONE	CMS
								28.28-28.80: GREY TO DARK GREY MUDSTONE	MS
30	100	100						28.80-30.27: GREY FINE TO MEDIUM-GRAINED LITHIC SANDSTONE WITH MINOR MUDSTONE UPHOLE	SS
31	100	100			bd 80°			30.27-31.03: PALE GREY, GREY AND DARK GREY INTERBEDDED MUDSTONE, ASH AND MINOR CARBONACEOUS MUDSTONE	MS
32	100	100						31.08-32.60: GREY TO DARK GREY, FINE-GRAINED LITHIC SANDSTONE WITH MINOR MUDSTONE AND CARBONACEOUS MUDSTONE BANDS	SS
33	100	92			jt 20° bd 75°			32.60-33.08: PALE GREY TO WHITE, FINE-GRAINED SANDSTONE	SS
								33.08-33.09: PALE GREY, FINE-GRAINED SANDSTONE	
34	100	96						33.09-37.40: GREY TO DARK GREY MUDSTONE, CARBONACEOUS MUDSTONE AND MINOR SANDSTONE UPHOLE	
35	100	100							MS CMS
36	100	88							
37	100	97							
38	100	78			jt 60°			37.40-41.41: PALE GREY TO GREY MUDSTONE WITH MINOR CARBONACEOUS MUDSTONE INCREASING IN ABUNDANCE DOWNHOLE	
39	100	75							MS
40	100	100							

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJ013

SHEET 3 OF 4

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	BOWHILL RD (EL 26/2008
DATE:	02-07-13 TO 03-07-13
LOGGED BY:	KAREN ADAMS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
41	100	93			Jt	30°			MS CMS
42	100	79						41.41-42.62: DARK GREY CARBONACEOUS MUDSTONE AND VERY MINOR FINE-GRAINED SANDSTONE AND APPROXIMATELY <1% VITRINITE BANDING CONTAINING CALCITE CLEATING	CMS
43	100	92						42.62-44.12: PALE GREY, FINE-GRAINED LITHIC SANDSTONE WITH MINOR MUDSTONE BANDS	SS
44	100	86			Jt	10°			
45	100	50						44.12-45.42: PALE GREY TO GREY MUDSTONE AND SOME CARBONACEOUS MUDSTONE INCREASING IN ABUNDANCE DOWNHOLE	MS
46	100	81			Jt	50°		45.42-46.46: CARBONACEOUS MUDSTONE +/- HEAVY, DULL COAL	CMS
47	100	70			Jt	10°		46.46-46.54: CARBONACEOUS MUDSTONE AND ASH BANDS 46.54-46.87: GRADING FROM MODERATELY BRIGHT COAL TO HEAVY DULL COAL	
48	100	89						46.87-46.92: CARBONACEOUS MUDSTONE 46.92-49.42: GREY MUDSTONE INTERBEDDED WITH FINE TO MEDIUM-GRAINED, PALE GREY LITHIC SANDSTONE WITH SMALL COAL CLASTS AND CARBONACEOUS MUDSTONE BANDING INCREASING DOWNHOLE	MS SS
49	100	100							
50	100	83			Jt	60°		49.42-53.12: CARBONACEOUS MUDSTONE WITH MINOR TO VERY MINOR SANDSTONE BANDING	
51	100	85							
52	100	100			Jt	60°			SS
53	100	100							
54	100	90						53.12-55.64: MUDSTONE AND CARBONACEOUS MUDSTONE WITH COAL CLAST CONTAINING CALCITE VEINING AT 54.59m AND COAL AND CALCITE BAND AT 54.88m	
55	100	100			Jt	45°			MS CMS
56	100	80						55.64-55.81: CARBONACEOUS MUDSTONE 55.81-56.00: MUDSTONE AND CARBONACEOUS MUDSTONE	CMS MS
57	100	100						56.00-57.25: PALE CREAM, WITH MINOR GREY, MEDIUM TO FINE-GRAINED, SOMEWHAT QUARTZ-RICH SANDSTONE WITH SOME CARBONACEOUS MUDSTONE BANDING	SS
58	100	100						57.25-58.16: INTERBEDDED CARBONACEOUS MUDSTONE AND CREAM SANDSTONE	CMS SS
59	100	100						58.16-58.58: CREAM, MEDIUM TO FINE-GRAINED SANDSTONE 58.58-59.30: GREY TO DARK GREY MUDSTONE AND CARBONACEOUS MUDSTONE	SS MS CMS
60	100	53			fx			59.30-59.57: BROKEN, HEAVY DULL COAL WITH APPROXIMATELY 2% VITRINITE 59.57-59.77: CARBONACEOUS MUDSTONE 59.77-60.09: CREAM, FINE TO MEDIUM-GRAINED SANDSTONE	CMS SS

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJ013

SHEET 4 OF 4

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	BOWHILL RD (EL26/2008)
DATE:	02-07-13 TO 03-07-13
LOGGED BY:	KAREN ADAMS

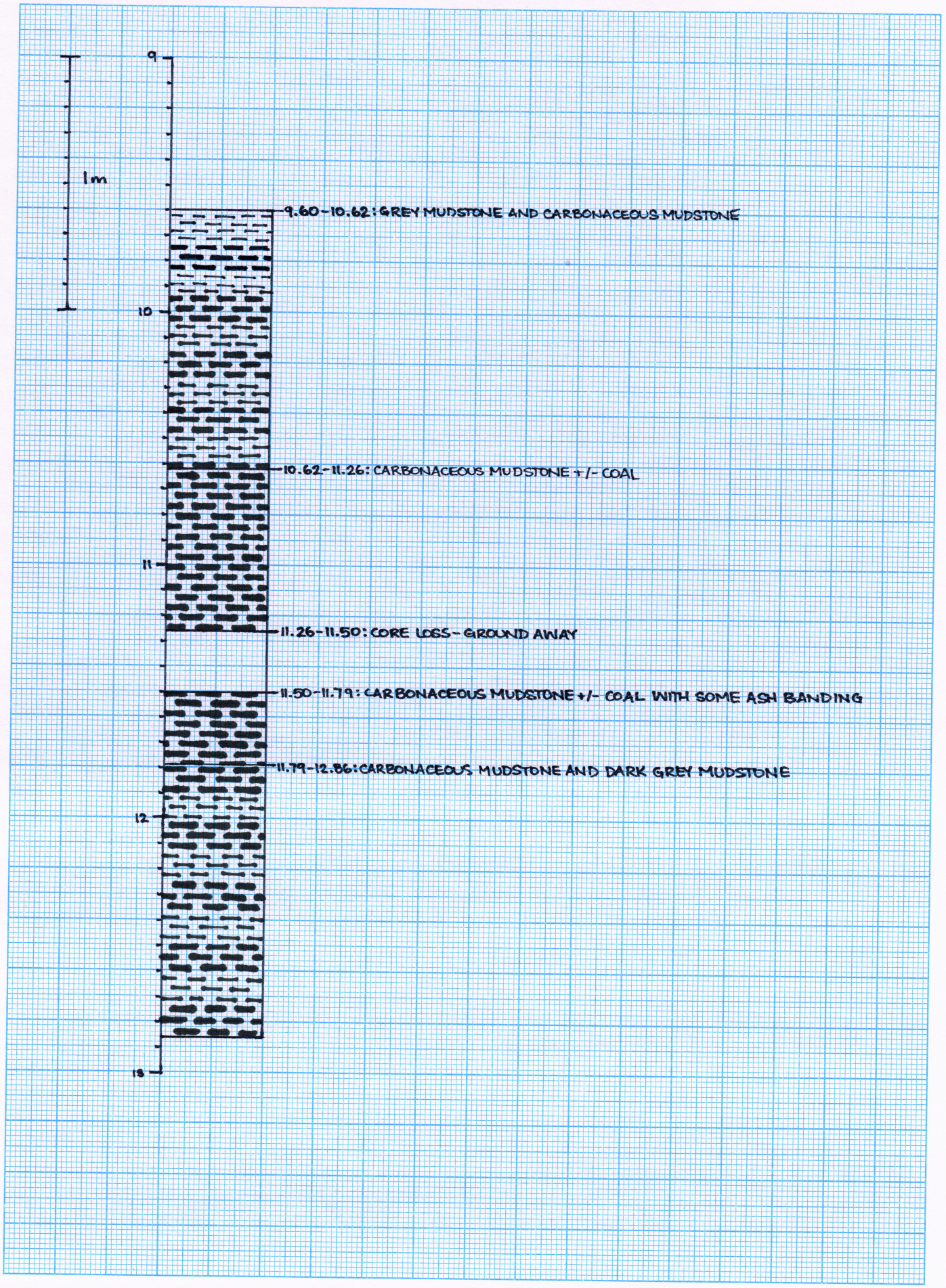
HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
61	100	68						60.09-60.60: CARBONACEOUS MUDSTONE +/- HEAVY, DULL COAL	CMS
								60.60-60.78: INTERBEDDED MUDSTONE AND CARBONACEOUS MUDSTONE	MS/CMS
								60.78-61.32: CARBONACEOUS MUDSTONE	CMS
62	100	90						61.32-62.70: INTERBEDDED FINE-GRAINED GREY LITHIC SANDSTONE, CARBONACEOUS MUDSTONE AND MUDSTONE	SS MS CMS
63	100	72			fx			62.70-63.54: CARBONACEOUS MUDSTONE	CMS
64	100	71			fx			63.54-63.69: GREY MUDSTONE	MS
								63.69-63.82: CARBONACEOUS MUDSTONE	CMS
								63.82-64.12: GREY MUDSTONE AND MINOR FINE-GRAINED SANDSTONE	MS
65	100	100						64.12-64.46: CARBONACEOUS MUDSTONE	CMS
	100	90						64.46-65.40: GREY MUDSTONE WITH MINOR CARBONACEOUS MUDSTONE AND ASH BANDS	MS
65.40 EOH									

REMARKS

OJ013 DETAILED LOG: SEAM ONE

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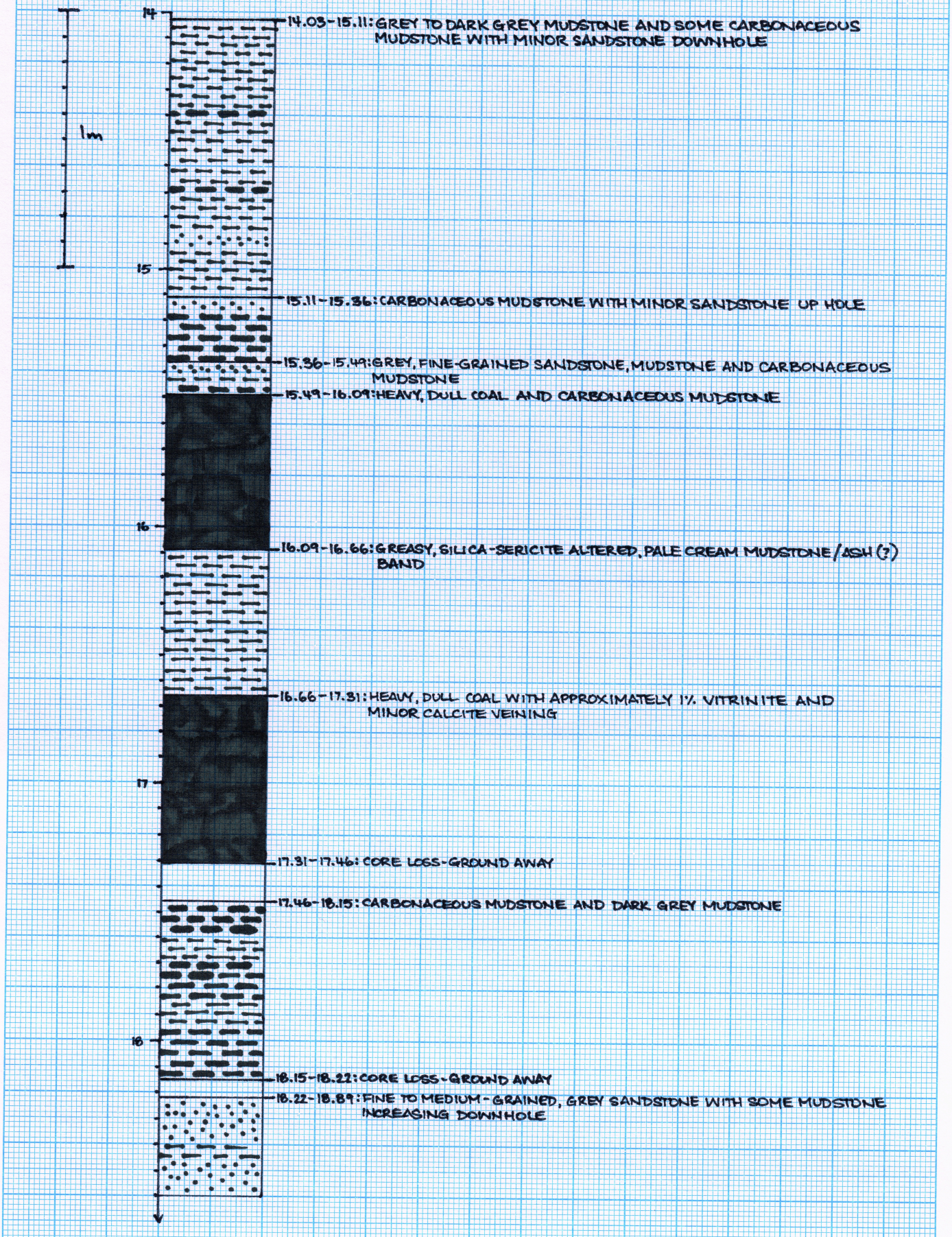
1mm Squares



1mm Squares

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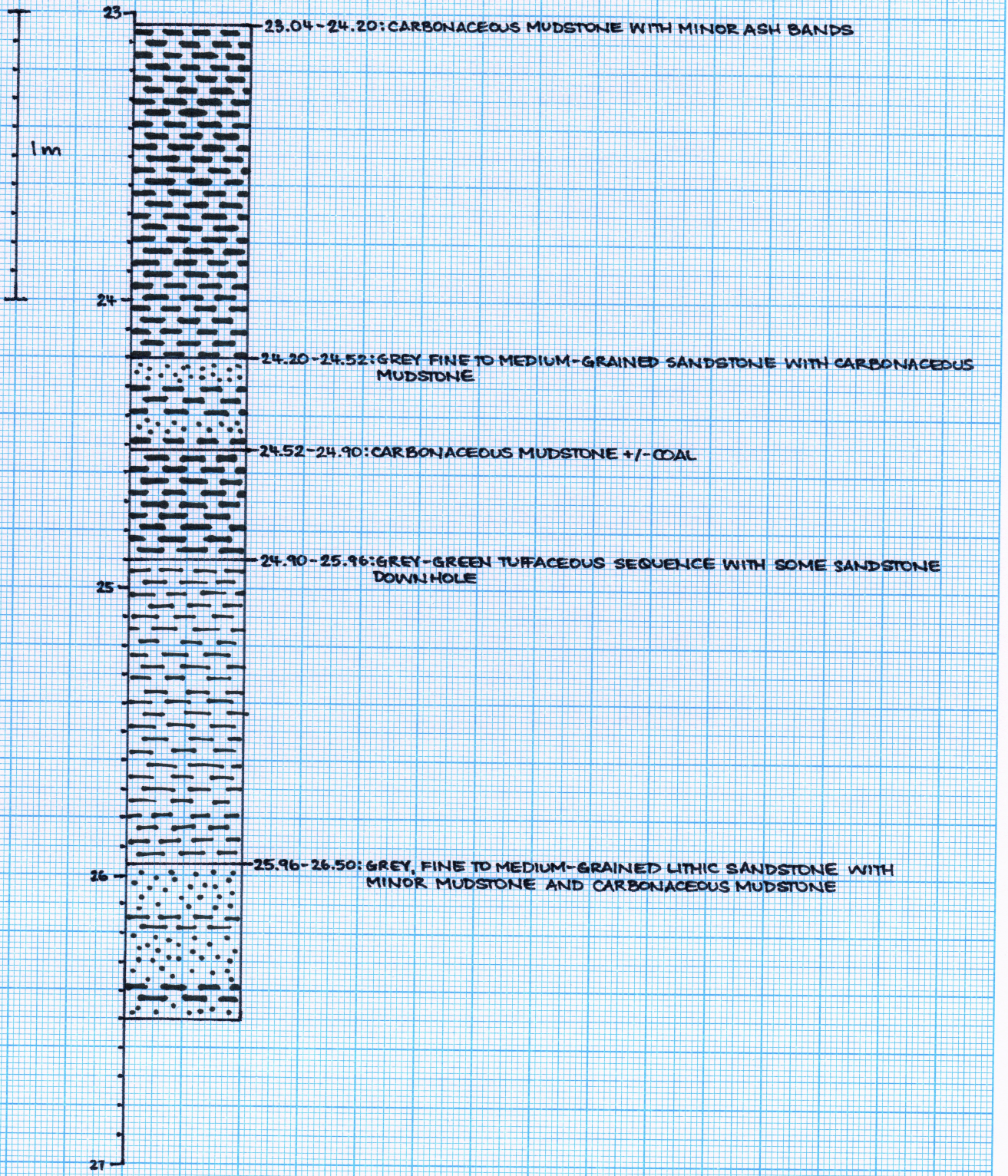
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OJO13 DETAILED LOG: SEAM THREE

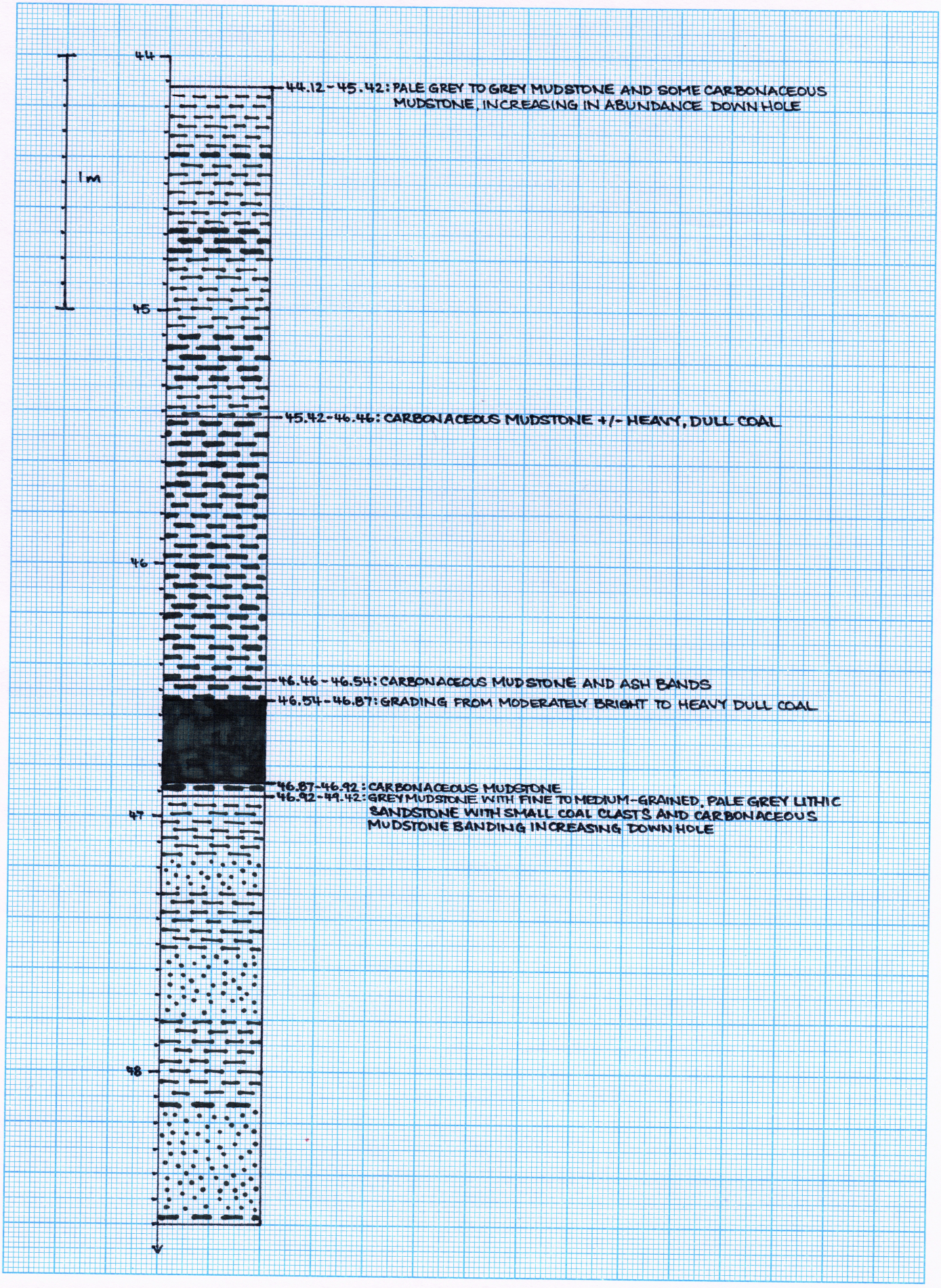
1mm Squares

SCALE 1:20



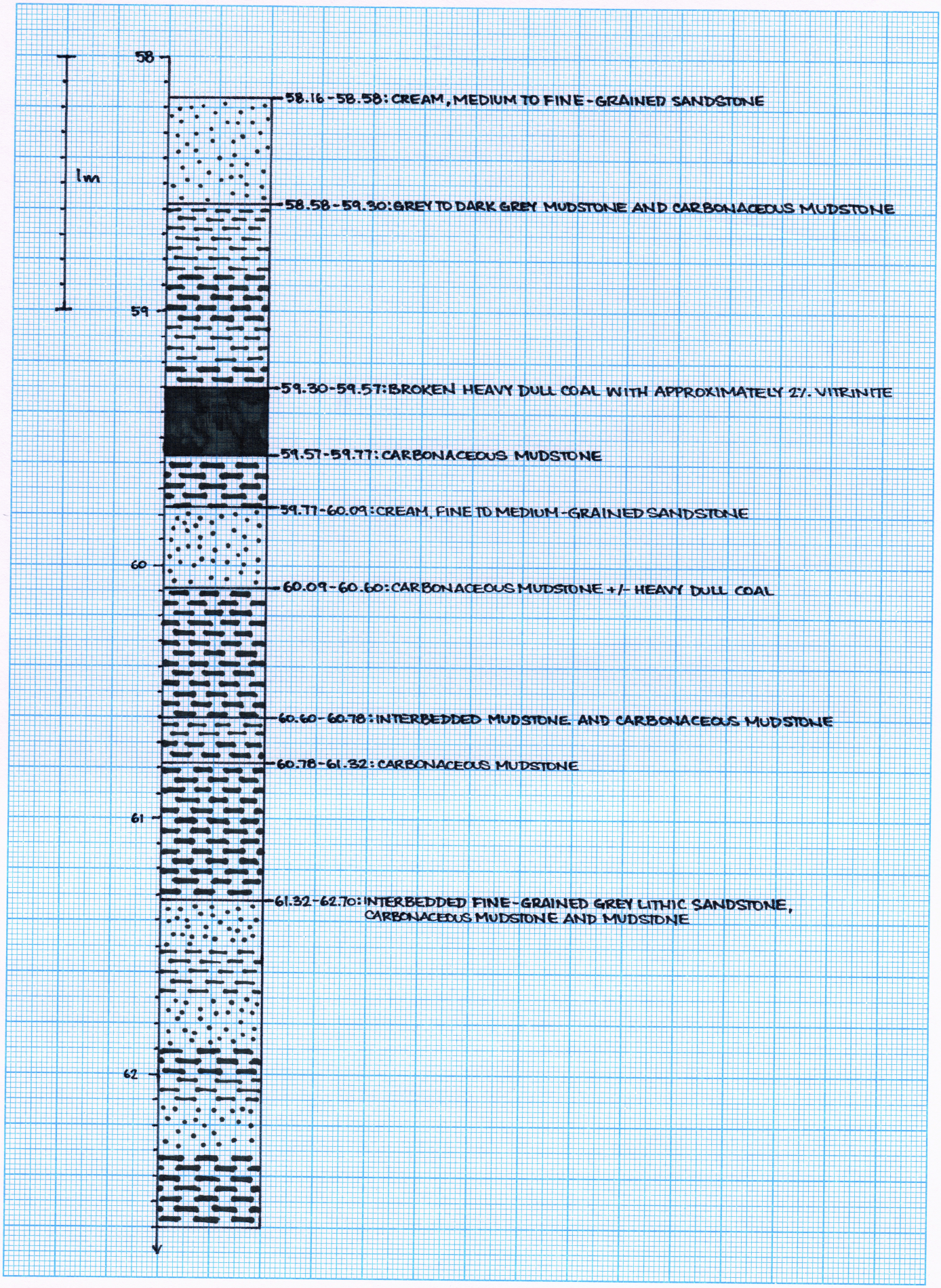
OJ013 DETAILED LOG: SEAM FOUR SCALE 1:20

1mm Squares



OJ013 DETAILED LOG: SEAM FIVE SCALE 1:20

1mm Squares



MIDLANDS ENERGY

DRILL HOLE No OJ014

SHEET 1 OF 4

Survey Depth	Azimuth	Dip	Hole Co-ordinates	GDA
			Easting_	525 337
			Northing_	5 315 026
			Elevation (m)	371
			Azimuth_ Mag	–
			Dip	-90°

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	BOWHILL RD (EL 26/2008)
DATE:	05-07-13 TO 10-07-13
LOGGED BY:	KAREN ADAMS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
	40	0			fx			0.00-0.60: CORE LOSS	CL
1								0.60-1.00: STRONGLY TO VERY STRONGLY WEATHERED, CLAY-RICH, ORANGE-BROWN MUDSTONE	MS
	100	0						1.00-2.10: STRONGLY WEATHERED, ORANGE CLAY-RICH MUDSTONE AND SANDSTONE	MS SS
2									
	100	48						2.10-2.15: STRONGLY TO VERY STRONGLY WEATHERED, ORANGE CLAY-RICH MUDSTONE	
3								2.15-3.38: MODERATELY TO STRONGLY WEATHERED ORANGE, CLAY-RICH, FINE TO MEDIUM-GRAINED SANDSTONE	SS
	100	88			bd 85°			3.38-3.47: DARK GREY WEATHERED CARBONACEOUS MUDSTONE	
4								3.47-4.22: WEATHERED ORANGE FINE-GRAINED LITHIC SANDSTONE	
	100	92			bd 85°			4.22-5.47: GREY-BROWN, WEAKLY TO MODERATELY WEATHERED MUDSTONE	SS
5									MS
	100	90						5.47-6.24: GREY-BROWN, WEAKLY TO MODERATELY WEATHERED, FINE-GRAINED SANDSTONE WITH SOME CARBONACEOUS MUDSTONE	
6									SS
	100	82						6.24-6.44: BLACK TO BROWN, WEAKLY TO MODERATELY WEATHERED CARBONACEOUS MUDSTONE WITH MINOR SANDSTONE	CMS
7								6.44-7.63: ORANGE-GREY, WEAKLY WEATHERED FINE-GRAINED LITHIC SANDSTONE WITH MINOR CARBONACEOUS MUDSTONE BANDING	SS
	100	80						7.63-7.90: BROWN-BLACK CARBONACEOUS MUDSTONE WITH MINOR SANDSTONE	CMS
8								7.90-8.01: ORANGE-GREY, FINE-GRAINED SANDSTONE AND MUDSTONE	
	100	85						8.01-8.80: GREY MUDSTONE WITH MINOR FINE-GRAINED SANDSTONE AND VERY MINOR CARBONACEOUS MUDSTONE	MS
9								8.80-9.40: GREY, FINE-GRAINED LITHIC SANDSTONE WITH VERY MINOR MUDSTONE	SS
	100	77						9.40-10.33: GREY MUDSTONE INTERBEDDED WITH MINOR FINE-GRAINED SANDSTONE AND MINOR TO VERY MINOR CARBONACEOUS MUDSTONE	MS
10									
	100	70			bd 85°			10.33-10.61: GREY-ORANGE, WEAKLY WEATHERED INTERBEDDED MUDSTONES	MS
11								10.61-10.84: GREY FINE-GRAINED SANDSTONE	SS
	100	95						10.84-11.65: GRADING FROM GREY TO DARK GREY, MUDSTONE WITH MINOR CARBONACEOUS MUDSTONE TO CARBONACEOUS MUDSTONE WITH MINOR ASH BANDS	MS CMS
12								11.65-11.82: GREY, FINE-GRAINED LITHIC SANDSTONE INTERBEDDED WITH CARBONACEOUS MUDSTONE	SS
	100	59						11.82-12.27: CARBONACEOUS MUDSTONE WITH MINOR TO VERY MINOR ASH BANDING AND HEAVY, DULL COAL	CMS
13					jt 40°			12.27-13.50: GREY MUDSTONE WITH SOME SANDSTONE BANDING INCREASING DOWN HOLE AND MINOR CARBONACEOUS MUDSTONE. MILLIMETRE THICK VITRINITE BANDING WITH CALCITE AT 12.78m	MS
	100	95						13.50-13.97: GREY FINE-GRAINED LITHIC SANDSTONE WITH MINOR MUDSTONE UP HOLE	SS
14									
	100	85			jt 50°			13.97-15.19: GREY INTERBEDDED MUDSTONE AND FINE-GRAINED SANDSTONE WITH MINOR CARBONACEOUS MUDSTONE	SS
15									MS SS
	100	83			jt 35°			15.19-15.35: WEATHERED CARBONACEOUS MUDSTONE	
16								15.35-18.06: INTERBEDDED PALE GREY, FINE-GRAINED LITHIC SANDSTONE, MUDSTONE AND CARBONACEOUS MUDSTONE WITH CROSS-BEDDING AND FLAME STRUCTURES EVIDENT BETWEEN 17 AND 18m	CMS
	100	75							SS MS CMS
17									
	100	96			FLAME T / Xbd jt 35°				
18									
	100	20			jt 25°			18.06-19.88: GREY TO PALE GREY, FINE-GRAINED LITHIC SANDSTONE WITH MINOR MUDSTONE AT 19.6m	
19									SS
	100	0							
20									

REMARKS DRILLED WITH HQ3 BY WHOLE CORE

MIDLANDS ENERGY

DRILL HOLE No OJ014

SHEET 2 OF 4

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_Mag	
			Dip	

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	BOWHILL RD (EL 26/2008)
DATE:	05-07-13 TO 10-07-13
LOGGED BY:	KAREN ADAMS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
21	100	32						19.88-20.65: HEAVY DULL COAL AND CARBONACEOUS MUDSTONE WITH MINOR CALCITE VEINING AT 20.3m AND MINOR ASH BANDING DOWNHOLE	
22	100	23			bd 80°			20.65-21.30: CARBONACEOUS MUDSTONE	CMS
23	100	81						21.30-29.21: GREY TO DARK GREY MUDSTONE INTERBEDDED WITH FINE-GRAINED GREY SANDSTONE. MINOR COAL AND CALCITE CLASTS AT APPROXIMATELY 26m AND INCREASING AMOUNTS OF SANDSTONE DOWNHOLE	
24	100	100							
25	100	100							MS SS
26	100	38			jt 90°				
27	100	100							
28	100	70							
29	100	100							
30	100	95						29.21-29.46: CARBONACEOUS MUDSTONE	
31	100	53			fx			29.46-31.61: INTERBEDDED GREY MUDSTONE AND PALE GREY, FINE-GRAINED SANDSTONE AND SOME CARBONACEOUS MUDSTONE WITH CLASTIC ZONE AT APPROXIMATELY 29.6m: SUB-ROUNDED, ELONGATED CARBONACEOUS MUDSTONE AND MUDSTONE CLASTS	CMS MS SS
32	100	0						31.61-32.03: HEAVY DULL COAL AND SOME CARBONACEOUS MUDSTONE	
33	100	94						32.03-34.21: INTERBEDDED FINE TO MEDIUM-GRAINED, PALE GREY LITHIC SANDSTONE AND CARBONACEOUS MUDSTONE	SS
34	100	95							CMS
35	100	21						34.21-34.49: CARBONACEOUS MUDSTONE AND HEAVY DULL COAL	CMS
								34.49-34.83: WHITE, ALTERED FINE-GRAINED SANDSTONE	SS
36	100	0			fx			34.83-35.09: CARBONACEOUS MUDSTONE INTERBEDDED WITH PALE GREY, FINE-GRAINED SANDSTONE	CMS CMS
								35.09-35.30: CARBONACEOUS MUDSTONE AND HEAVY DULL COAL	
37	100	100						35.90-36.12: HEAVY, DULL BUT ZONALLY MODERATELY BRIGHT COAL WITH APPROXIMATELY 5% VITRINITE AND MINOR CALCITE VEINING	
38	100	100						36.12-38.00: CARBONACEOUS MUDSTONE WITH SOME FINE-GRAINED SANDSTONE BANDING	CMS
39	100	69			bn 85°			38.00-48.45: PALE GREY, FINE TO MEDIUM-GRAINED LITHIC SANDSTONE WITH CARBONACEOUS MUDSTONE CLASTS FROM 46.9-47.3m WITH INCREASING AMOUNTS OF IRREGULAR CARBONACEOUS MUDSTONE BEDDING DOWNHOLE	
40	100	100							SS

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJ014

SHEET 3 OF 4

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_Mag	
			Dip	

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	BOWHILL RD (EL 26/2008)
DATE:	05-07-13 TO 10-07-13
LOGGED BY:	KAREN ADAMS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
41	100	96							
42	100	60							
43	100	100							
44	100	100							SS
45	100	94							
46	100	100							
47	100	100							
48	100	100							
49	100	90			bd 80°			48.45-51.89: INTERBEDDED GREY, FINE-GRAINED LITHIC SANDSTONE AND CARBONACEOUS MUDSTONE, EACH ONE ZONALLY DOMINANT	
50	100	95							
51	100	100							SS CMS
52	100	100							
53	100	70						51.89-52.98: CARBONACEOUS MUDSTONE AND HEAVY DULL COAL WITH SOME MUDSTONE/ASH BANDING	CMS
54	100	72						52.98-53.89: INTERBEDDED CARBONACEOUS MUDSTONE AND FINE-GRAINED GREY SANDSTONE	CMS SS
55	100	100			bd 85°			53.89-60.60: GREY MUDSTONE INTERBEDDED WITH PALE GREY FINE TO MEDIUM-GRAINED LITHIC SANDSTONE	
56	100	66			jt 25°				
57	100	70							MS SS
58	100	100							
59	100	100							
60	100	98							

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJ014

SHEET 4 OF 4

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	BONHILL RD (EL26/2008)
DATE:	05-07-13 TO 10-07-13
LOGGED BY:	KAREN ADAMS

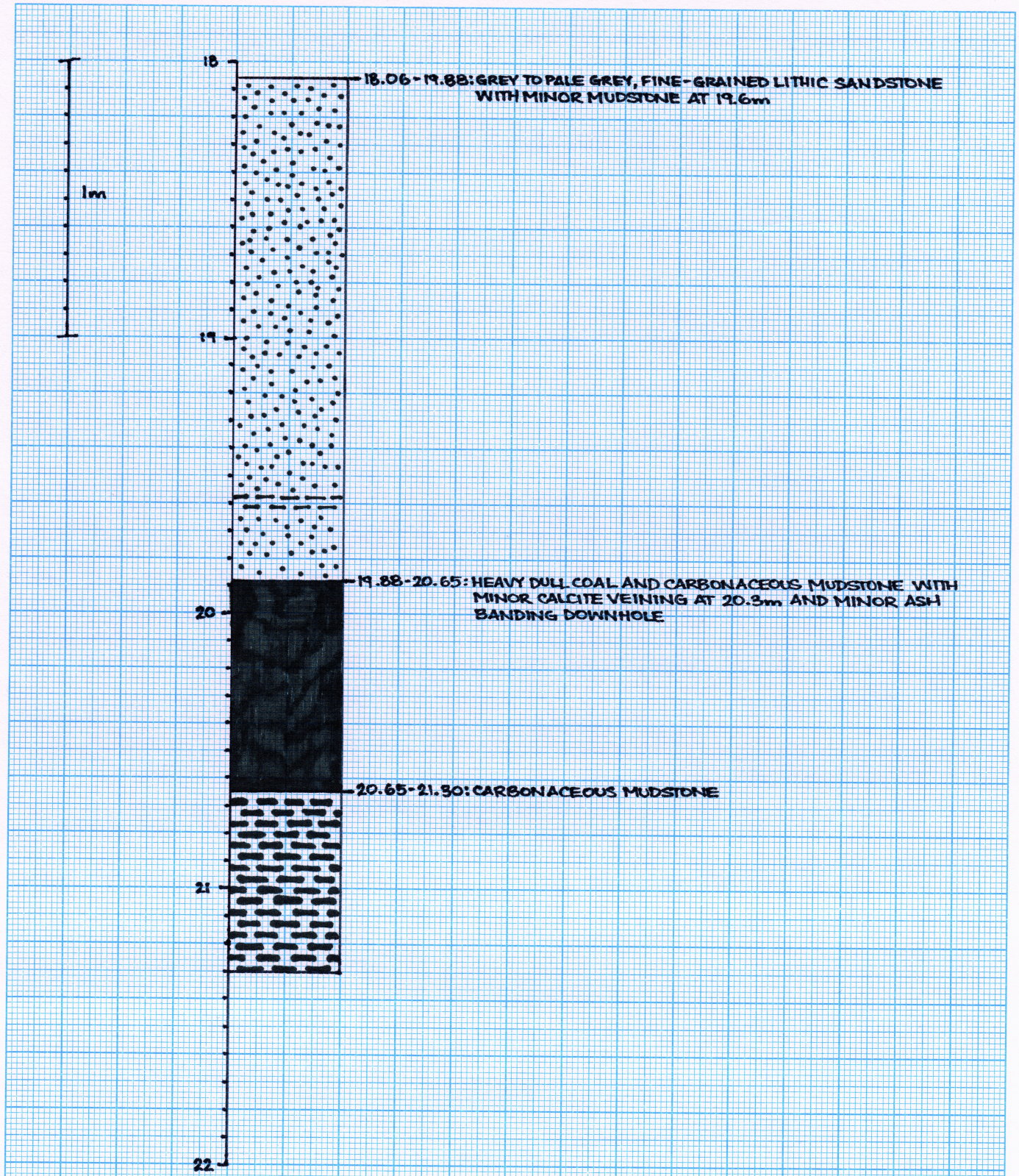
HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
	100	100							MS
60.60 EOH									BS

REMARKS

OJO14 DETAILED LOG: SEAM ONE

1mm Squares

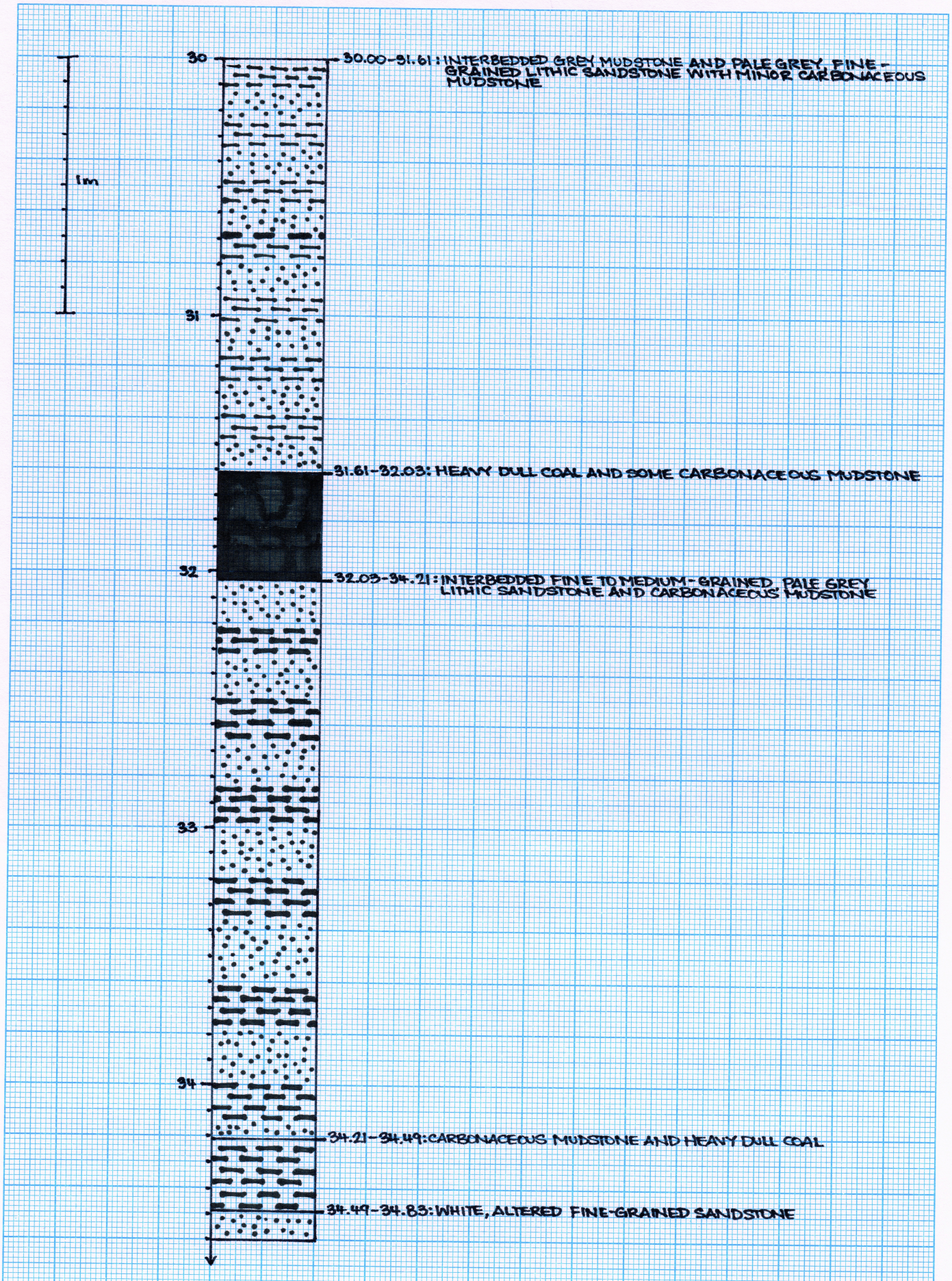
SCALE 1:20



1mm Squares

OJO14 DETAILED LOG: SEAM TWO

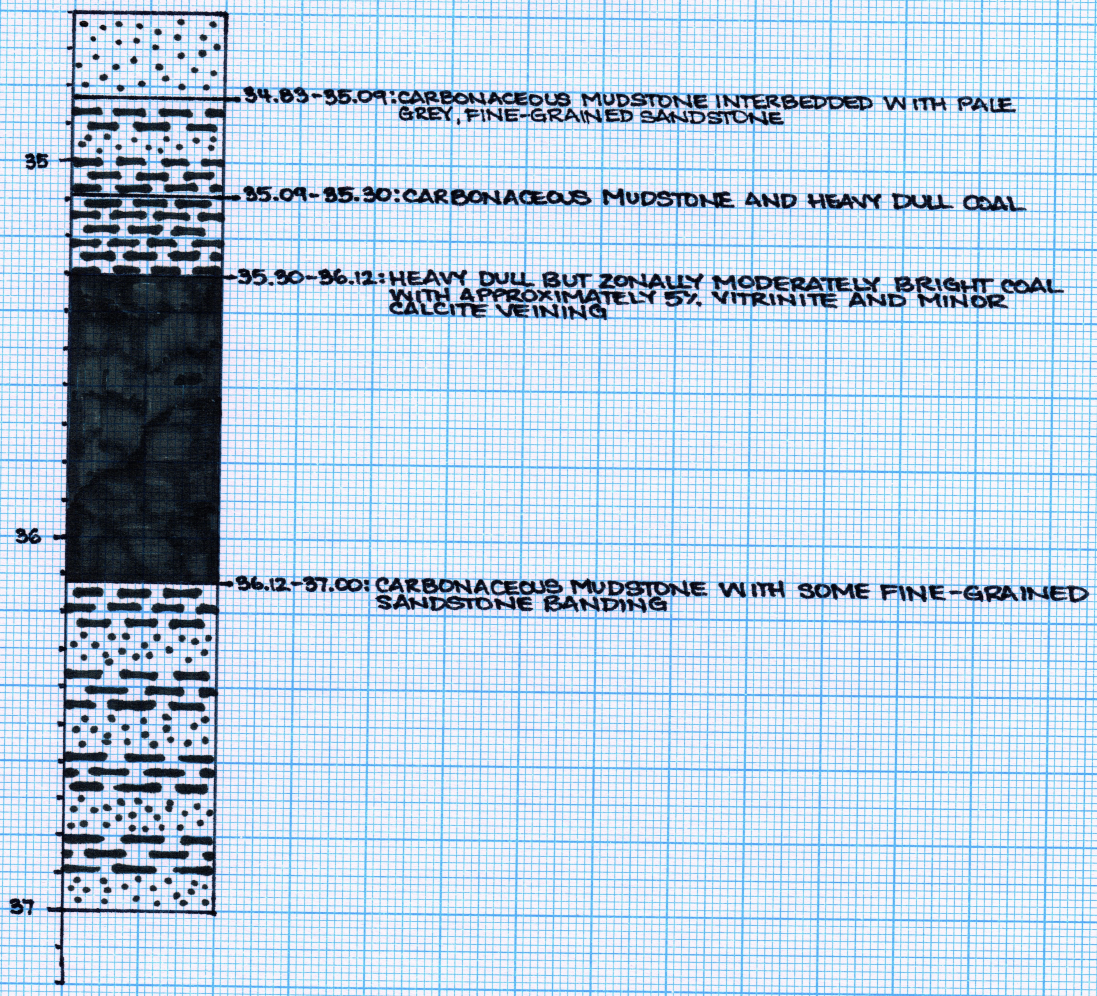
SCALE 1:20



OJ014 DETAILED LOG: SEAM TWO CONTINUED

1mm Squares

SCALE 1:20



MIDLANDS ENERGY

DRILL HOLE No OJ015

SHEET 1 OF 3

Survey Depth	Azimuth	Dip	Hole Co-ordinates	GDA
			Easting_	525 743
			Northing_	5 305 590
			Elevation (m)	404
			Azimuth_ Mag	–
			Dip	-90°

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	MUDWALLS RD (26/2008)
DATE:	24-06-13 TO 26-06-13
LOGGED BY:	KAREN ADAMS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
1	0	0						0.00-7.70: NO CORE (CUTTING BIT) - COLLAR	
2	0	0							
3	0	0							
4	0	0							
5	0	0							
6	0	0							
7	0	0							
8	30	30							
9	100	100			bn 90°			7.70-14.75: BLUE-GREY, MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE WITH ZONAL FLACER BANDING, COLOURATION GRADING TO GREY DOWNHOLE	
10	100	100							
11	100	100			bn 90°				
12	100	100							SS
13	100	100			jt 35°				
14	100	100							
15	100	75							
16	100	98						14.75-15.16: CARBONACEOUS MUDSTONE (+/- COAL) BEDS WITH SANDSTONE BEDS CONTAINING CARBONACEOUS MUDSTONE AND COAL RIP-UP CLASTS	CMS
17	100	97			bd 80°			15.16-15.52: MEDIUM TO COARSE-GRAINED, GREY LITHIC SANDSTONE WITH ROUNDED CARBONACEOUS MUDSTONE AND COAL CLASTS	SS
					bd 80°			15.52-15.80: BLACK CARBONACEOUS MUDSTONE +/- COAL	CMS
18	100	100			bn 85°			15.80-16.60: GREY, UPWARDLY FINING, FINE TO MEDIUM-GRAINED LITHIC SANDSTONE SEQUENCE	SS
19	100	100						16.60-19.37: GREY, ZONALLY BLACK, MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE WITH FREQUENT FLACER BANDING	SS
20	100	0			bd 85°	X-bd		19.37-19.67: DARK GREY TO GREY, MUDSTONE AND CARBONACEOUS MUDSTONE WITH FREQUENT CROSS-BEDDING	MS
								19.67-20.57: HEAVY DULL COAL WITH ZONALLY BRIGHT COAL	

REMARKS DRILLED WITH HQ3 BY KMR DRILLING

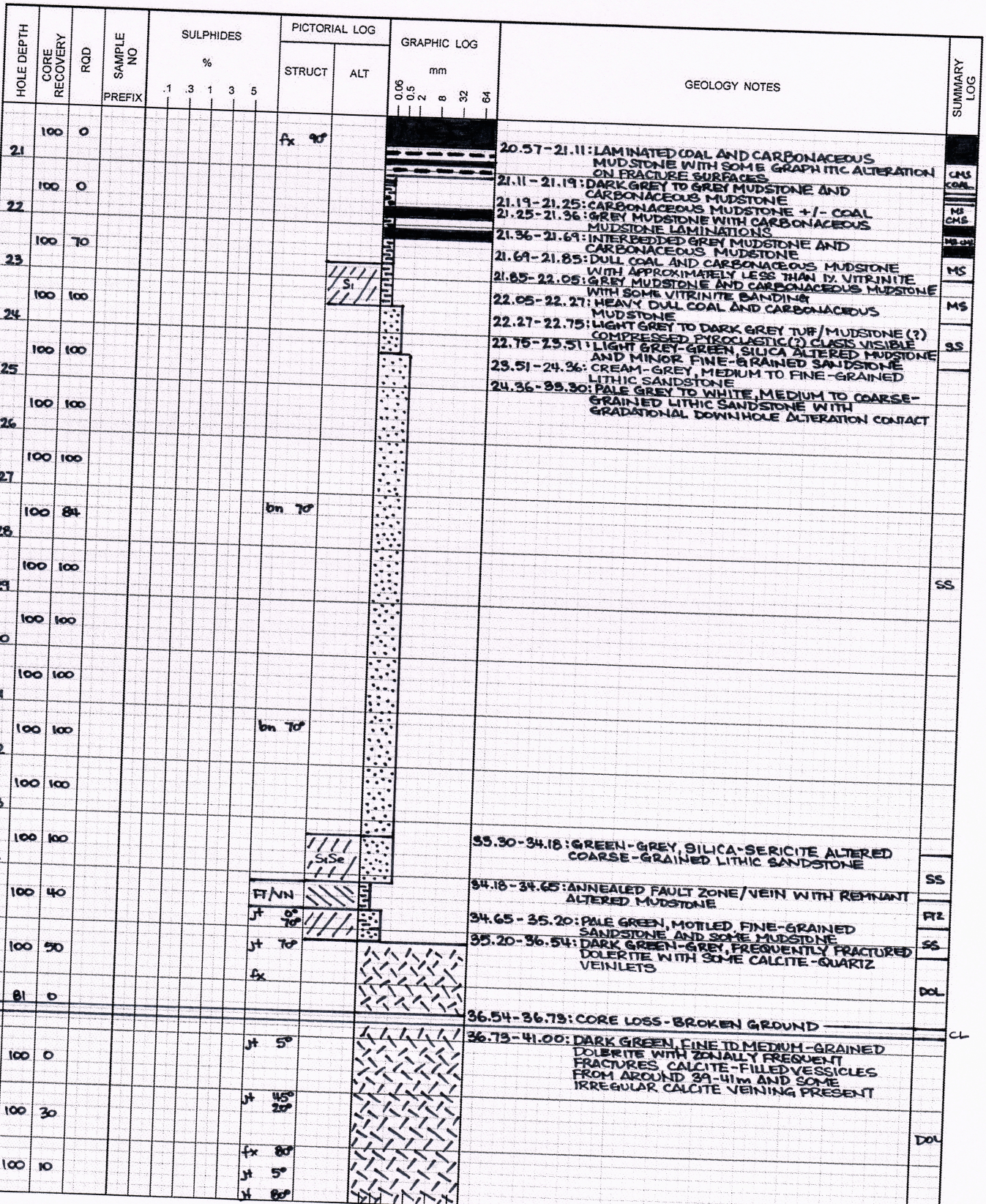
MIDLANDS ENERGY

DRILL HOLE No OJ015

SHEET 2 OF 3

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_Mag	
			Dip	

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	MUDWALLS RD (EL 26/2008)
DATE:	24-06-13 TO 26-06-13
LOGGED BY:	KAREN ADAMS



REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJ015

SHEET 3 OF 3

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	MUDWALLS RD (EL 26/2008)
DATE:	24-06-13 TO 26-06-13
LOGGED BY:	KAREN ADAMS

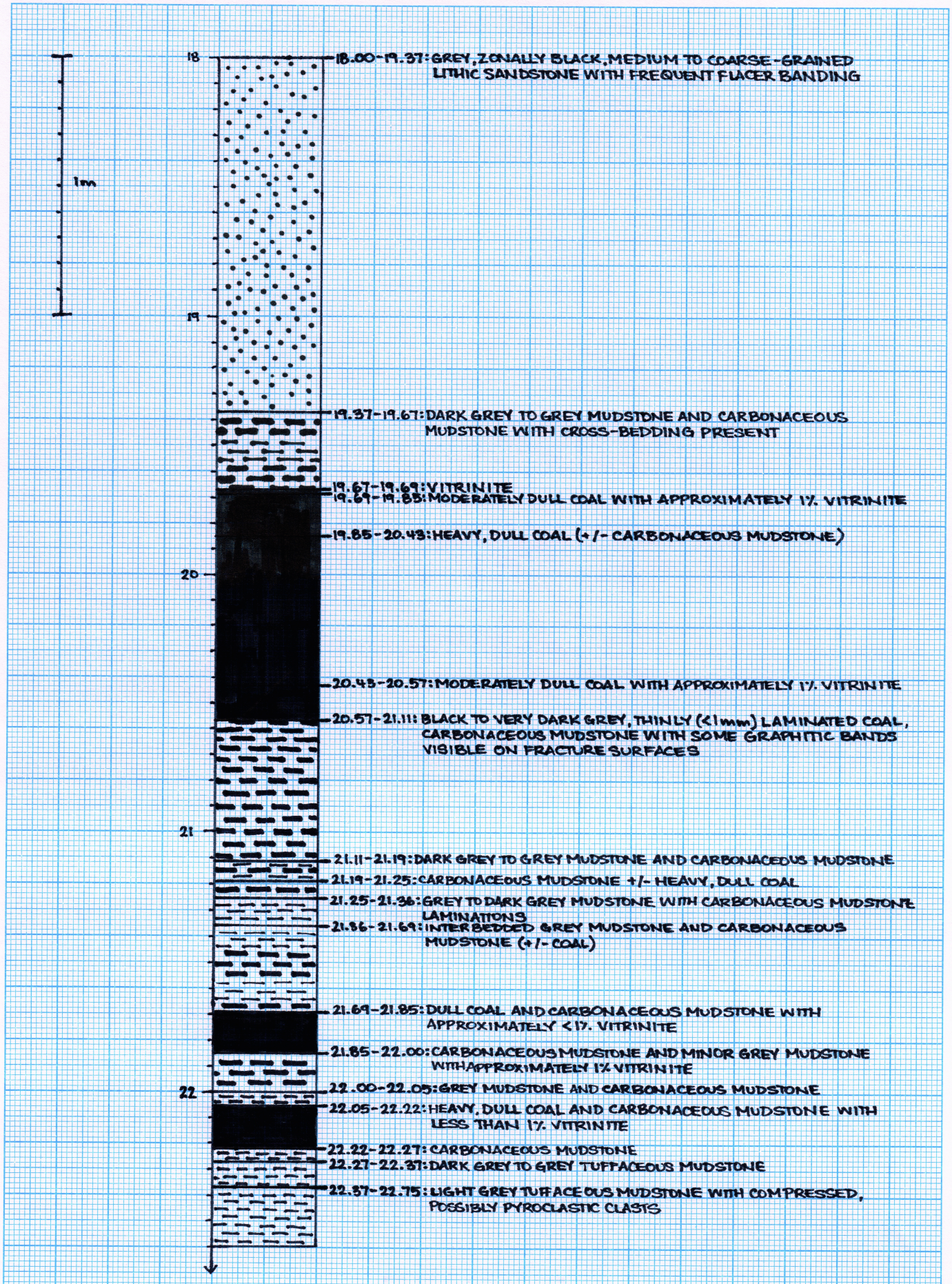
HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
41	100	54			Jt 85° 85°				DOL
								41.00-41.20 CORE LOSS - FAULTING (?)	
	80	25			Jt 70°			41.20-48.58: DARK GREEN-GREY, MEDIUM-GRAINED DOLERITE WITH SOME POSSIBLE INTERSTITIAL CALCITE PROXIMAL TO UPHOLE FAULTING PROMINENT JOINT SETS	
42					Jt 70° 45°				
	100	56							
43					Jt 45°				
	100	32			Jt				
44									
	100	54			Jt 45°				
45									DOL
	100	37			Jt 20° Jt 30° Jt				
46									
	100	56							
47									
	100	51							
48									
	100	94							
48.58 EOH									

REMARKS

OJ015 DETAILED LOG: SEAM ONE

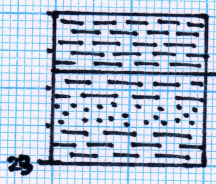
1mm Squares

SCALE 1:20



OJ015 DETAILED LOG: SEAM ONE CONTINUED SCALE 1:20

1mm Squares



22.75-23.00: LIGHT GREY (GREEN), SILICA ALTERED (?) MUDSTONE AND MINOR FINE-GRAINED SANDSTONE

MIDLANDS ENERGY

DRILL HOLE No OJ016

SHEET 1 OF 3

Survey Depth	Azimuth	Dip	Hole Co-ordinates	GDA
			Easting_	525 313
			Northing_	5 314 279
			Elevation (m)	389
			Azimuth_ Mag	–
			Dip	-90°

PROJECT: SOUTHERN MIDLANDS COAL
PROSPECT: BOWHILL RD (EL 26/2008)
DATE: 27-06-13 TO 01-07-13
LOGGED BY: KAREN ADAMS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
1	0	0						0.00-2.20: NO CORE - CUTTING BIT - COLLAR	
2	0	0							
3	80	0			fx			2.20-5.05: ORANGE-BROWN WEATHERED CARBONACEOUS MUDSTONE AND MUDSTONE	CMS MS
4	100	38			bd 60° jt 85°			5.08-3.20: PALE GREY, WEAKLY WEATHERED, FINE-GRAINED HEAVY ROCK 3.20-3.48: BROWN-ORANGE WEATHERED CARBONACEOUS MUDSTONE AND MUDSTONE 3.48-4.44: BROWN-GREY TO DARK GREY INTERBEDDED MUDSTONE AND CARBONACEOUS MUDSTONE	CMS MS CMS
5	100	15			jt 85° jt 85°			4.44-4.54: HEAVY DULL COAL 4.54-4.72: GREY TO DARK GREY WEATHERED CARBONACEOUS MUDSTONE	CMS
6	100	18			jt 80° 45°			4.72-4.87: STRONGLY WEATHERED DULL COAL AND CARBONACEOUS MUDSTONE WITH SOME mm THICK ASH BANDING 4.87-5.24: CARBONACEOUS MUDSTONE AND COAL WITH mm ASH BANDS	CMS SS
7	100	81			bd 80° jt 45°			5.24-5.50: HEAVY DULL COAL WITH MINOR ASH BANDS AND MINOR VITRINITE BANDING 5.50-5.71: INTERBEDDED DARK GREY CARBONACEOUS MUDSTONE AND GREY MUDSTONE 5.71-6.26: PALE GREY, FINE-GRAINED SANDSTONE	MS SS
8	100	61			bd 80° fx			6.26-6.72: INTERBEDDED GREY-CREAM MUDSTONE AND CARBONACEOUS MUDSTONE (INCREASING IN ABUNDANCE DOWN HOLE) 6.72-6.97: GREY-CREAM, FINE-GRAINED SANDSTONE WITH SOME CARBONACEOUS MUDSTONE	SS SS
9	100	36			jt 45° jt 5°			6.97-7.28: CREAM, FINE-GRAINED SANDSTONE AND CARBONACEOUS MUDSTONE WITH CROSS-BEDDING PRESENT 7.28-7.81: CREAM, FINE-GRAINED SANDSTOE WITH MINOR CARBONACEOUS MUDSTONE FLACER BANDING	CMS MS MS CMS
10	100	18			fx 80°			7.81-8.23: INTERBEDDED CARBONACEOUS MUDSTONE AND MUDSTONE WITH MINOR FINE-GRAINED SANDSTONE. (CLAY SEAM ON DOWNHOLE CONTACT)	SS MS MS CMS
11	100	23						8.23-8.70: GREY TO DARK GREY MUDSTONE WITH CARBONACEOUS MUDSTONE INCREASING DOWN HOLE 8.70-8.91: DARK GREY CARBONACEOUS MUDSTONE 8.91-9.08: GREY, FINE TO MEDIUM-GRAINED SANDSTONE	
12	100	75			bd 80°			9.08-9.35: ZONALLY BRIGHT, BUT DOMINANTLY HEAVY, DULL COAL 9.35-9.60: GREY MUDSTONE AND CARBONACEOUS MUDSTONE WITH MINOR COAL DOWN HOLE 9.60-9.75: GREY MUDSTONE AND CARBONACEOUS MUDSTONE	MS CMS
13	100	67			bd 75° jt 20°			9.75-10.41: ZONALLY BRIGHT BUT DOMINANTLY HEAVY, DULL COAL 10.41-10.62: GREY MUDSTONE AND CARBONACEOUS MUDSTONE 10.62-11.96: GREY MUDSTONE AND CARBONACEOUS MUDSTONE WITH MINOR FINE-GRAINED SANDSTONE DOWN HOLE	SS
14	100	89						11.96-12.72: PALE GREY, FINE-GRAINED TO MEDIUM-GRAINED SANDSTONE WITH FLACER BANDING 12.72-13.74: GREY MUDSTONE AND CARBONACEOUS MUDSTONE	MS CMS
15	100	100						13.74-14.86: GREY, FINE-GRAINED SANDSTONE WITH SOME CARBONACEOUS MUDSTONE BANDING, FLAME STRUCTURED AND CROSS-BEDDED	SS
16	100	100						14.86-15.50: INTERBEDDED FINE-GRAINED SANDSTONE, MUDSTONE AND CARBONACEOUS MUDSTONE WITH CROSS-BEDDING AND FLAME STRUCTURES PRESENT 15.50-16.14: GREY, MEDIUM TO FINE-GRAINED SANDSTONE WITH CARBONACEOUS MUDSTONE DOWN HOLE	MS CMS SS SS
17	100	90			jt 75°			16.14-18.23: WHITE TO PALE CREAM, MEDIUM TO FINE-GRAINED SANDSTONE WITH FLACER BANDING UP AND DOWN HOLE	
18	100	93							SS
19	100	58						18.23-18.43: PALE GREY TO WHITE SANDSTONE WITH FLACER BANDING 18.43-18.54: WEATHERED HEAVY DULL COAL	SS
20	100	79			jt 45°			18.54-18.69: HEAVY, DULL COAL WITH APPROXIMATELY 1% VITRINITE AND VERY MINOR CALCITE CLEATING 18.69-18.73: PALE GREY ASH BAND 18.73-18.81: HEAVY DULL COAL 18.81-19.64: GREY MUDSTONE WITH MINOR FINE-GRAINED SANDSTONE	MS

REMARKS DRILLED WITH HQ3 BY KMR DRILLING

MIDLANDS ENERGY

DRILL HOLE No OJ016

SHEET 2 OF 3

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	BOWHILL RD (EL 26/2008)
DATE:	27-06-13 to 01-07-13
LOGGED BY:	KAREN ADAMS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
21	100	78			fx 90°			19.64-22.55: INTERBEDDED GREY MUDSTONE, PALE GREY FINE-GRAINED SANDSTONE AND MINOR CARBONACEOUS MUDSTONE. (ZONALLY DOMINANT FROM 20.43-20.66m)	MS
22	100	99							SS (CMS)
23	100	100			jt 20°			22.55-23.59: GREY, FINE TO MEDIUM-GRAINED LITHIC SANDSTONE WITH LOW-ANGLE CALCITE VEINING	
24	100	64						23.59-23.86: GREY MUDSTONE WITH FLAME STRUCTURES DOWN HOLE	SS
25	100	68						23.86-24.60: STRONGLY BANDED/BEDDED GREY MUDSTONE AND WHITE ASH (?) BANDS WITH INCREASED ABUNDANCE OF CARBONACEOUS MUDSTONE DOWN HOLE.	MS
26	100	100						24.60-26.94: INTERBEDDED PALE GREY FINE-GRAINED SANDSTONE WITH SOME CARBONACEOUS MUDSTONE AND MINOR MUDSTONE	SS
27	100	95			bd 70°				
28	100	89						26.94-27.13: CARBONACEOUS MUDSTONE WITH VERY MINOR GREY MUDSTONE	CMS
29	100	100						27.13-29.96: GREY MUDSTONE, PALE GREY FINE-GRAINED SANDSTONE AND SOME WHITE ASH (?) BANDING	MS SS
30	100	100							
31	100	75						29.96-30.79: CARBONACEOUS MUDSTONE WITH MINOR ASH BANDING AT APPROXIMATELY 30.5m	CMS
32	100	100						30.79-32.87: GREY MUDSTONE AND FINE-GRAINED SANDSTONE AND MINOR CARBONACEOUS MUDSTONE INCREASING DOWN HOLE	MS SS
33	100	84			fx			32.87-32.98: CARBONACEOS MUDSTOE	
34	100	86						32.98-36.07: GRADING FROM GREY MUDSTONE AND MINOR FINE-GRAINED SANDSTONE TO INTERBEDDED FINE-GRAINED SANDSTONE CARBONACEOUS MUDSTONE, AND MUDSTONE WITH CROSS-BEDDING PRESENT	MS
35	100	77							SS
36	100	100							
37	100	30			fx 5° jt 15°			36.07-36.92: GREY, MEDIUM-GRAINED LITHIC SANDSTONE	SS
38	100	80						36.92-37.40: GREY MUDSTONE AND MINOR FINE-GRAINED SANDSTONE AND CARBONACEOUS MUDSTONE	MS
								37.40-37.88: CARBONACEOUS MUDSTONE	CMS
39	100	60						37.88-41.44: SEQUENCE OF INTERBEDDED MUDSTONE AND SANDSTONE, CARBONACEOUS MUDSTONE AND SANDSTONE BEDS WITH STRONG CARBONACEOUS MUDSTONE ABOUT 40.7-40.95m	SS
40	100	82							MS/ CMS

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJ016

SHEET 3 OF 3

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	BOWHILL RD (EL 26/2008)
DATE:	27-06-13 TO 01-07-13
LOGGED BY:	KAREN ADAMS

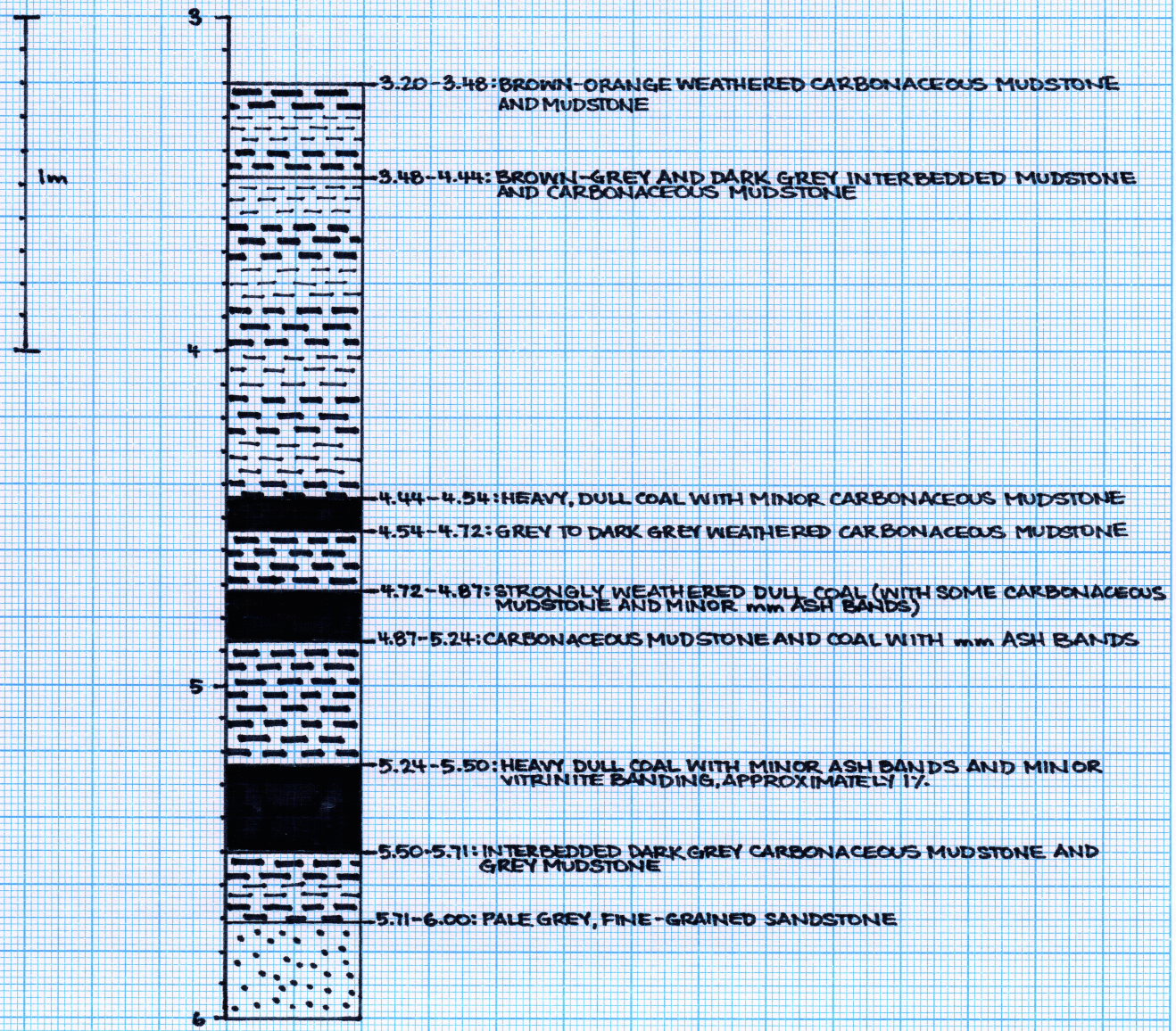
HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
41	100	100							
42	100	100						41.44-41.94: CARBONACEOUS MUDSTONE	CMS
43	100	71			fx			41.94-44.87: CARBONACEOUS MUDSTONE PLUS OR MINUS HEAVY DULL COAL (?)	
44	100	80			fx 70° jt 5%				CMS
45	100	0						44.87-45.34: INTERBEDDED PALE GREY MUDSTONE AND FINE-GRAINED SANDSTONE	MS SS
46	100	55			jt 50°			45.34-45.45: RED-BROWN TO GREY, HIGHLY ALTERED MUDSTONE, POSSIBLY SERICITE-JASPEROIDAL ALTERATION	MS
47	100	47						45.45-51.48: GRADING FROM GREEN-GREY FINE-GRAINED TO GREY-GREEN DOLERITE WITH MINOR TO VERY MINOR CALCITE VEINING. FINE-GRAINED CHILLED MARGIN WITH POSSIBLE CHLORITE ALTERATION	
48	100	85							DOL
49	100	100							
50	100	100							
51	100	100							
51.48 EOH	100	80							

REMARKS

1mm Squares

OJ016 DETAILED LOG : SEAM ONE

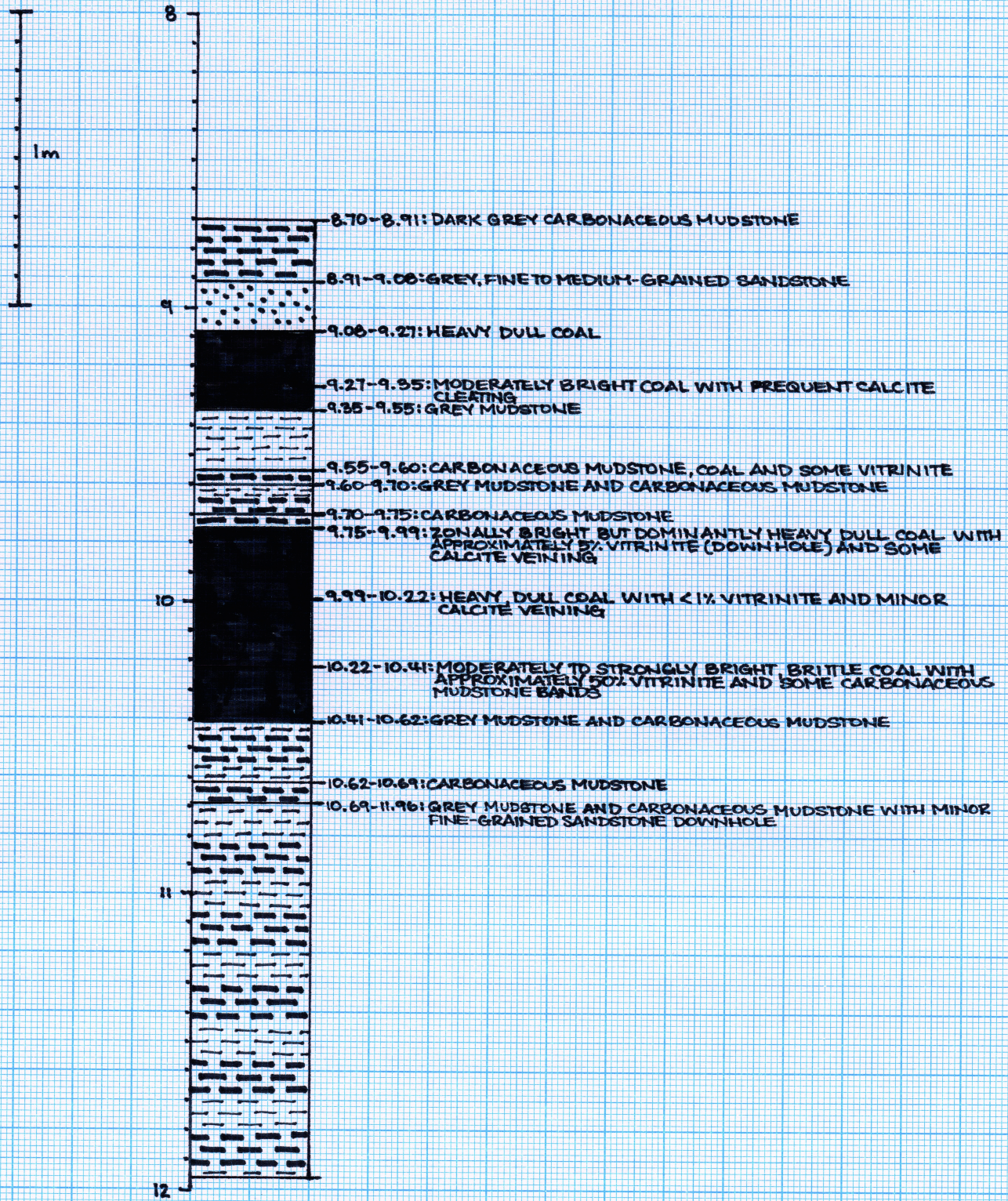
SCALE 1:20



1mm Squares

OJ016 DETAILED LOG: SEAM TWO

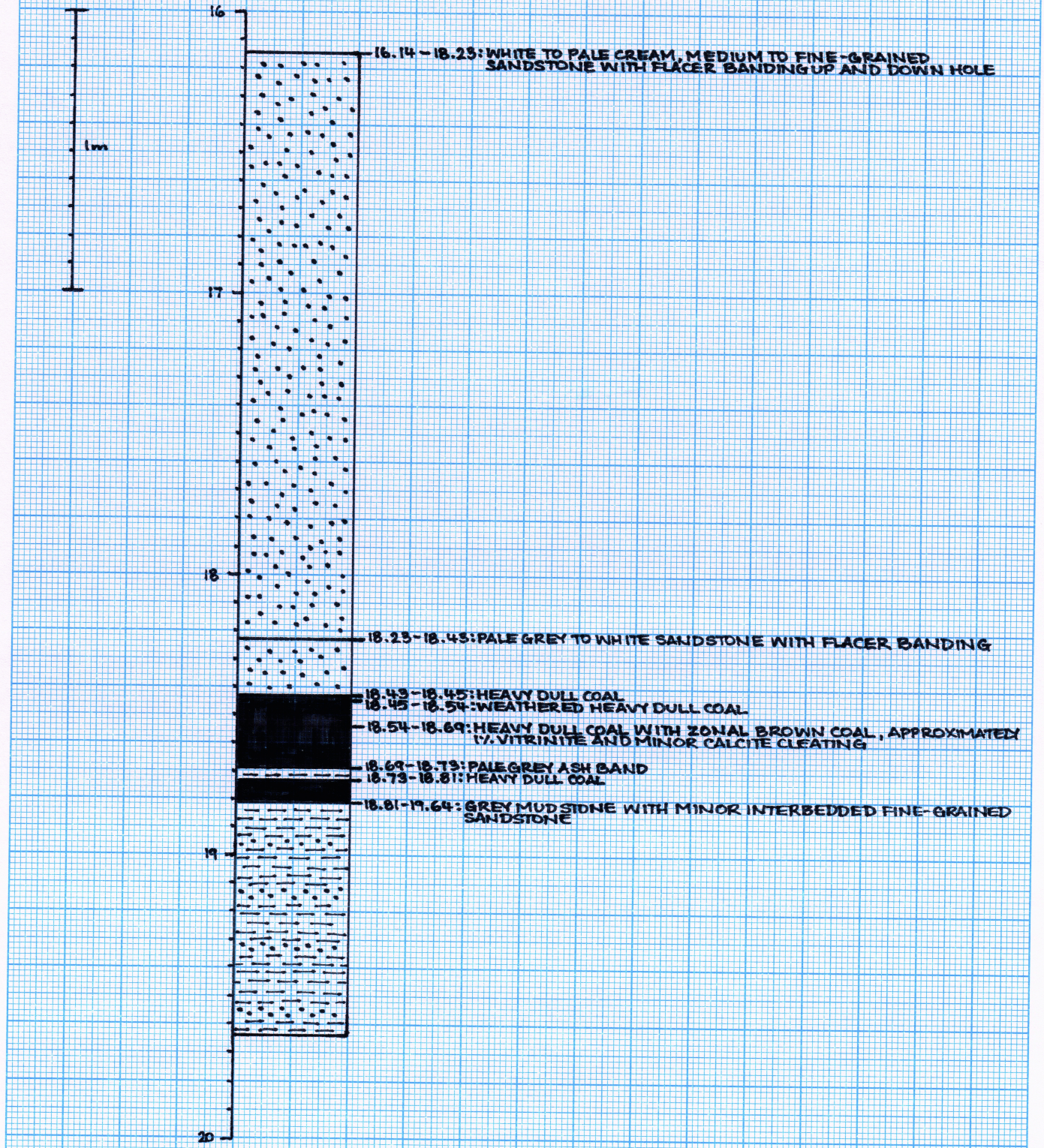
SCALE 1:20



OJ016 DETAILED LOG: SEAM THREE

SCALE 1:20

1mm Squares



MIDLANDS ENERGY

DRILL HOLE No OJ017

SHEET 1 OF 4

Survey Depth	Azimuth	Dip	Hole Co-ordinates	GDA
			Easting_	525 520
			Northing_	5 315 550
			Elevation (m)	389
			Azimuth_ Mag	—
			Dip	-90°

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	BOWHILL RD (EL 26/2008)
DATE:	02-07-13 TO 03-07-13
LOGGED BY:	KAREN ADAMS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
1	0	0						0.00-2.80: NO CORE - CUTTING BIT - COLLAR	
2	0	0							
3	20	0							
4	100	0				Cy		2.80-5.95: ORANGE, SOFT, CLAY-RICH, STRONGLY WEATHERED, MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE	
5	100	0				Cy			SS
6	100	0			fx				
7	100	100				Cy		5.95-9.02: ORANGE, ZONALLY BLACK, SOFT, CLAY-RICH MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE WITH SOME CARBONACEOUS MUDSTONE	
8	100	100				Cy			SS
9	100	100							
10	100	50				Cy		9.02-10.67: ORANGE, SOFT, CLAY-RICH, CRUMBLY LITHIC SANDSTONE	SS
11	100	33							
12	100	48				Si Se Ch		10.67-12.10: GREEN-GREY, SILICA-SERICITE-CHLORITE ALTERED MEDIUM TO FINE-GRAINED LITHIC SANDSTONE	SS
13	100	100			bd 70°			12.10-17.00: GREY, MEDIUM TO FINE-GRAINED LITHIC SANDSTONE	
14	100	90							
15	100	54			jt 20°				SS
16	100	100							
17	100	100							
18	100	63						17.00-17.59: PALE GREY MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE WITH CARBONACEOUS MUDSTONE AND COAL CLASTS	SS
								17.59-18.17: HEAVY, DULL COAL AND CARBONACEOUS MUDSTONE	
								18.17-18.22: MEDIUM-GRAINED SANDSTONE AND COAL	
19	100	0						18.22-18.50: CREAM, CLAY-RICH, HIGHLY DEGRADED SANDSTONE	SS
								18.50-18.78: HEAVY DULL COAL WITH APPROXIMATELY 1% VITRINITE	MS
								18.78-18.89: BROWN-CREAM MUDSTONE-ASH LAYER	
								18.89-19.69: MODERATELY BRIGHT BRITTLE COAL WITH APPROXIMATELY 40% VITRINITE	
20	100	0						19.69-19.95: HEAVY DULL COAL AND CARBONACEOUS MUDSTONE	

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJ017

SHEET 2 OF 4

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	BOWHILL RD (EL 26/2008)
DATE:	02-07-13 TO 03-07-13
LOGGED BY:	KAREN ADAMS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
21	100	0						19.95-21.00: CREAM-GREY BROKEN MUDSTONE	MS
	100	100			bd 15°			21.00-27.22: GREY-CREAM MUDSTONE AND FINE-GRAINED LITHIC SANDSTONE INCREASING DOWN HOLE WITH CROSS-BEDDING PRESENT	
22									
23	100	100							
24	100	100							MS SS
25	100	100							
26	100	100							
27	100	70							
28	100	100						27.22-27.40: GRADING FROM GREEN TO ORANGE-BROWN ALTERED FINE-GRAINED SANDSTONE WITH CROSS-BEDDING	SS
						Fe		27.40-39.02: GREEN-GREY, MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE WITH FERRIC ORANGE ALTERATION PATCHES AROUND 28, 28.5, 34 AND 36.8m. LARGE (UPTO 5cm), FERRIC ALTERED, MUDSTONE CLASTS PRESENT AROUND 34 AND 36m. AND CARBONACEOUS MUDSTONE CLASTS PRESENT FROM 34.27-34.5m	
29	100	100				Fe			
30	100	100							
31	100	100							
32	100	95			ft				
33	100	95							SS
34	100	100				Fe			
35	100	100							
36	100	100							
37	100	88				Fe			
38	100	100							
39	100	100							
	40	0						39.02-39.20: BROWN, CLAY-RICH MUDSTONE 39.20-39.80: CORE LOSS	MS CL
40					ft				

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJ017

SHEET 3 OF 4

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_Mag	
			Dip	

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	BOWHILL RD (EL 26/2008)
DATE:	02-07-13 TO 03-07-13
LOGGED BY:	KAREN ADAMS

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % (.1 .3 1 3 5)	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm (0.06 0.5 2 8 32 64)	GEOLOGY NOTES	SUMMARY LOG
41	100	0			jt 25°	SeSi		39.80-40.20: BROWN, CLAY-RICH MUDSTONE 40.20-40.40: BROKEN, GREEN-GREY (WITH MINOR ORANGE), SILICA-SERICITE ALTERED COARSE TO MEDIUM-GRAINED LITHIC SANDSTONE	MS SS
42	100	100						40.40-50.00: GREEN-GREY, COARSE TO MEDIUM-GRAINED LITHIC SANDSTONE WITH ZONAL WHITE ALTERATION/LEACHED ZONES FROM 40.68-40.76m AND MUDSTONE CLASTS FROM 45.6-46m	
43	100	46							
44	100	100							
45	100	100							
46	100	66							SS
47	100	95							
48	100	92							
49	100	55							
50	100	100							
51	100	0			T ft ⊥	SiSe		50.00-51.00: BROKEN, VEINED FAULT ZONE IN GREEN-GREY, SILICA-SERICITE ALTERED COARSE-GRAINED LITHIC SANDSTONE WITH SOME MUDSTONE CLASTS	SS
52	100	100						51.00-56.38: GREEN-GREY COARSE-GRAINED LITHIC SANDSTONE WITH SOME MUDSTONE CLASTS	
53	100	100							
54	100	100				SeSi			SS
55	100	95							
56	100	100							
57	100	100						56.38-60.33: PALE GREY, MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE WITH LARGE (>5cm) MUDSTONE CLASTS FROM 57.5-57.8m	
58	100	100							
59	100	100							SS
60	100	100							

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJ017

SHEET 4 OF 4

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	BOWHILL RD (EL26/2008)
DATE:	02-07-13 TO 03-07-13
LOGGED BY:	KAREN ADAMS

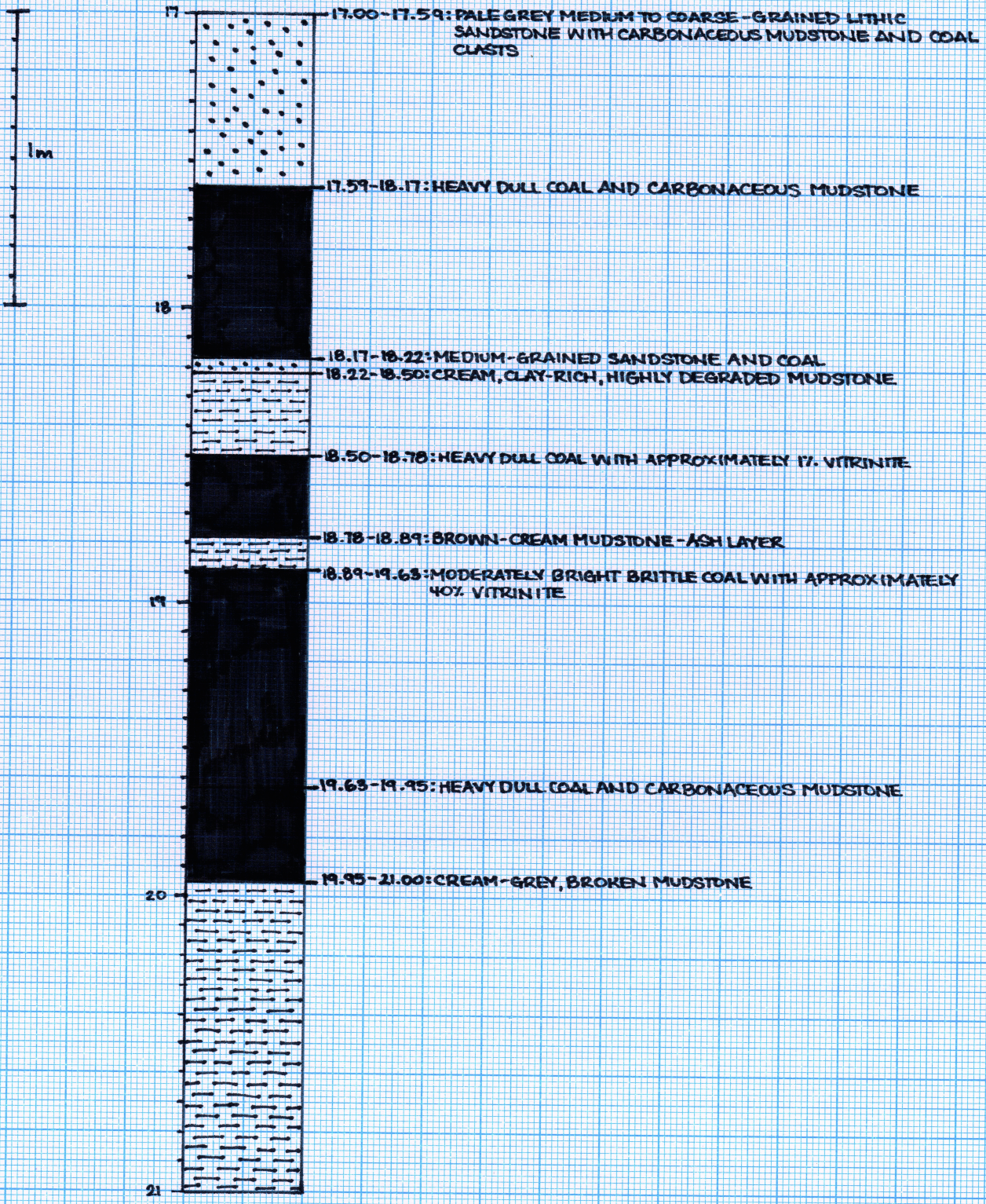
HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
	100	100							55
60.39 EOH									

REMARKS

OJ017 DETAILED LOG: SEAM ONE

SCALE 1:20

1mm Squares



MIDLANDS ENERGY

DRILL HOLE No OJ018

SHEET 1 OF 2

Survey Depth	Azimuth	Dip	Hole Co-ordinates	GDA
			Easting_	526 577
			Northing_	5 308 563
			Elevation (m)	404
			Azimuth_Mag	—
			Dip	-90°

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	JERICHO (EL 26/2008)
DATE:	12-07-13 TO 15-07-13
LOGGED BY:	KAREN ADAMS (CLAIRE THOMAS)

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
1	0	0						0.00-3.60: NO CORE - CUTING BIT - COLLAR	
2	0	0							
3	0	0							
4	40	40			bd 80°			3.60-5.64: MODERATELY TO STRONGLY WEATHERED ORANGE (WITH MINOR GREY ZONES) MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE	
5	100	78				Fe			SS
6	100	59			fx			5.64-7.60: ORANGE, STRONGLY WEATHERED CLAY-RICH MUDSTONE WITH FERRUGINOUS ALTERATION AND SOME REMNANT SILICA-SERICITE ALTERATION	
7	100	0				Fe (SiSe)			MS
8	100	22			jt 80° jt 70°			7.60-8.61: GREY SERICITE-SILICA ALTERED MUDSTONE WITH CALCITE VEINS AND JOINT ALTERATION	
9	100	63			jt 75° jt 80° jt 15°	SeSi			MS
10	100	88			jt 85°	Fe SeSi		8.61-9.01: GREEN-GREY, SERICITE-SILICA ALTERED MEDIUM-GRAINED LITHIC SANDSTONE 9.01-9.40: ORANGE, MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE WITH 5-7mm CLASTS OF MUDSTONE. POSSIBLE WATER PATHWAYS 9.40-10.02: GREEN-GREY, SERICITE-SILICA ALTERED MEDIUM-GRAINED LITHIC SANDSTONE	SS SS SS
11	100	94			bd 90°	FeCy SeSi		10.02-10.53: ORANGE, MODERATELY TO STRONGLY WEATHERED CLAY-RICH, MEDIUM-GRAINED LITHIC SANDSTONE 10.53-11.22: GREEN-GREY, SERICITE-SILICA ALTERED MEDIUM-GRAINED LITHIC SANDSTONE	SS SS
12	100	98				SeSi		11.22-11.32: ORANGE, MODERATELY WEATHERED MEDIUM-GRAINED LITHIC SANDSTONE 11.32-11.98: GREEN-GREY, SERICITE-SILICA ALTERED MEDIUM TO FINE-GRAINED LITHIC SANDSTONE	SS SS
13	100	48			bd 80° jt 80°			11.98-14.63: ORANGE-YELLOW, MODERATELY TO STRONGLY WEATHERED, MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE WITH VERY MINOR MUDSTONE AND RED-BROWN CLASTS OF MUDSTONE AT APPROXIMATELY 14.53m	
14	100	86			vn 80°	Fe			SS
15	100	79						14.63-17.15: RED TO WHITE WITH SOME PINK, LEACHED AND ZONALLY FERRUGINOUSLY (PHLOGOPITE??) ALTERED COARSE TO MEDIUM-GRAINED LITHIC SANDSTONE	
16	100	98			jt 60°				SS
17	100	100							
18	100	79						17.15-18.88: WHITE-GREY-GREEN, SILICA-SERICITE ALTERED/LEACHED, MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE	
19	100	98				SiSe			SS
20	100	100						18.88-20.01: WHITE, PINK AND GREY, LEACHED/ALTERED, MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE	SS

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJ018

SHEET 2 OF 2

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT: SOUTHERN MIDLANDS COAL
PROSPECT: JERICHO (EL 26/2008)
DATE: 12-07-13 TO 15-07-13
LOGGED BY: KAREN ADAMS (CLAIRE THOMAS)

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
21	100	21			VN JT 60 JT 30 JT 45 JT 50			20.01 - 27.49: GREEN-GREY, FINE-GRAINED DOLERITE WITH FREQUENT FRACTURES AND MODERATELY FREQUENT CALCITE VEINING CHLORITE AND CALCITE ALTERATION PROMINENT AT UPHOLE CONTACT	
22	100	45			JT 60				
23	100	0							
24	100	0							DOL
25	100	35							
26	100	45							
27	100	68							
27.49 EOH	100	60							

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJ020

SHEET 1 OF 3

Survey Depth	Azimuth	Dip	Hole Co-ordinates	GDA
			Easting_	522 069
			Northing_	5 311 626
			Elevation (m)	357
			Azimuth_Mag	–
			Dip	-90°

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	JERICHO "NORTHUMBRIA" EL26/08
DATE:	19-07-13 TO 23-07-13
LOGGED BY:	KAREN ADAMS (CLAIRE THOMAS)

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
1	0	0						0.00-5.80: NO CORE - CUTTING BIT	
2	0	0							
3	0	0							
4	0	0							
5	0	0							
6	20	0			fx				
7	100	37				Cl Fe		5.80-8.12: ORANGE, STRONGLY WEATHERED, CLAY-RICH, FINE-GRAINED SANDSTONE AND CARBONACEOUS MUDSTONE BANDING. STRONGLY BROKEN DOWNHOLE	
8	100	0							SS
9	37	0						8.12-8.55: CORE LOSS	CL
10	100	33				Fe/ Cl		8.55-9.23: ORANGE, STRONGLY WEATHERED, CLAY-RICH MUDSTONE AND MINOR FINE-GRAINED SANDSTONE WITH GRADATIONAL DOWNHOLE OXIDATION FRONT	MS
11	100	36						9.23-10.92: INTERBEDDED DARK GREY CARBONACEOUS MUDSTONE AND PALE GREY FINE-GRAINED, MODERATELY QUARTZ-RICH SANDSTONE WITH SOME MUDSTONE, AND SANDSTONE INCREASING DOWNHOLE	CMS SS
12	100	98			jt 90°			10.92-12.73: MEDIUM-GRAINED, PALE GREY MODERATELY QUARTZ-RICH SANDSTONE WITH FLACER BANDING	SS
13	100	97			bd 90°			12.73-13.31: PALE GREY FINE-GRAINED SANDSTONE WITH CARBONACEOUS MUDSTONE BANDING	SS
14	100	97			bd 90° fx 85° bd 90°			13.31-13.77: PALE GREY, MEDIUM TO COARSE-GRAINED, QUARTZ-RICH SANDSTONE WITH MINOR CARBONACEOUS MUDSTONE	SS
15	100	59			jt 80° jt 45° jt 80°			13.77-13.87: CARBONACEOUS MUDSTONE WITH VERY MINOR SANDSTONE 13.87-13.99: INTERBEDDED CARBONACEOUS MUDSTONE AND PALE GREY, FINE-GRAINED SANDSTONE	CMS
16	100	33			fx jt 60° fx bd 80° 90°			13.99-14.09: CARBONACEOUS MUDSTONE 14.09-14.20: CARBONACEOUS MUDSTONE WITH MINOR FINE-GRAINED SANDSTONE INTERBEDS 14.20-14.45: CARBONACEOUS MUDSTONE 14.45-14.64: INTERBEDDED PALE GREY, QUARTZ-RICH SANDSTONE WITH CARBONACEOUS MUDSTONE	SS
17	100	82						14.64-14.94: COARSE TO MEDIUM-GRAINED, PALE GREY, QUARTZ-RICH SANDSTONE WITH 2-3% DISSEMINATED PYRITE AND SOME FLACER BANDING	CMS SS
18	100	98			bd 90° bd 85°			14.94-15.02: CARBONACEOUS MUDSTONE AND MINOR SANDSTONE 15.02-15.13: FINE-GRAINED PALE GREY SANDSTONE WITH SOME CARBONACEOUS MUDSTONE 15.13-15.39: CARBONACEOUS MUDSTONE	
19	100	98			bd 90°			15.39-15.45: PALE GREY FINE-GRAINED SANDSTONE 15.45-15.50: CARBONACEOUS MUDSTONE WITH MINOR FINE-GRAINED PALE GREY SANDSTONE 15.50-15.53: PALE GREY FINE-GRAINED SANDSTONE 15.53-15.61: CARBONACEOUS MUDSTONE WITH MINOR FINE-GRAINED PALE GREY SANDSTONE	
20	100	96			fx			15.61-15.66: PALE GREY, FINE-GRAINED SANDSTONE 15.66-15.76: GREY FINE-GRAINED SANDSTONE WITH SOME CARBONACEOUS MUDSTONE 15.76-15.87: CARBONACEOUS MUDSTONE WITH MINOR ASH BANDING	MS SS

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJ020

SHEET 2 OF 3

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT: SOUTHERN MIDLANDS COAL

PROSPECT: JERICHO "NORTHUMBRIA" (EL26/2008)

DATE: 19-07-13 TO 23-07-13

LOGGED BY: KAREN ADAMS (CLAIRE THOMAS)

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
21	100	98			bd 90°			15.87-15.91: PALE GREY FINE-GRAINED SANDSTONE 15.91-15.93: CARBONACEOUS MUDSTONE 15.93-15.95: PALE GREY FINE-GRAINED SANDSTONE WITH MINOR CARBONACEOUS MUDSTONE	
22	100	92			fx 90°			15.95-16.40: INTERBEDDED CARBONACEOUS MUDSTONE AND SOME FINE-GRAINED, PALE GREY SANDSTONE 16.40-16.62: CARBONACEOUS MUDSTONE AND VERY MINOR PALE GREY, FINE-GRAINED SANDSTONE	MS SS
23	100	71			fx			16.62-17.01: INTERBEDDED CARBONACEOUS MUDSTONE AND SOME FINE-GRAINED, PALE GREY SANDSTONE 17.01-17.15: CARBONACEOUS MUDSTONE AND VERY MINOR PALE GREY, FINE-GRAINED SANDSTONE	
24	100	89			bd 90° fx 90°			17.15-17.33: DOMINANTLY CARBONACEOUS MUDSTONE WITH SOME PALE GREY, FINE-GRAINED SANDSTONE AND VERY MINOR FOSSILISED BIOTURBATION	
25	100	47			jt 45°			17.33-17.77: INTERBEDDED FINE-GRAINED PALE GREY SANDSTONE AND CARBONACEOUS MUDSTONE WITH SOME POSSIBLE FOSSILISED BIOTURBATION	CMS SS MS
26	100	98						17.77-18.22: PALE GREY, MODERATELY QUARTZ-RICH FINE TO MEDIUM-GRAINED SANDSTONE WITH SOME PLACER BANDING AND CARBONACEOUS MUDSTONE BEDDING	
27	100	100						18.22-18.35: INTERBEDDED PALE GREY, FINE-GRAINED SANDSTONE AND CARBONACEOUS MUDSTONE 18.35-18.48: CARBONACEOUS MUDSTONE WITH MINOR FINE-GRAINED PALE GREY SANDSTONE INTERBEDS	
28	100	98			jt 85°			18.48-18.66: PALE GREY, QUARTZ-RICH, FINE TO MEDIUM-GRAINED SANDSTONE WITH MINOR CARBONACEOUS MUDSTONE 18.66-19.23: CARBONACEOUS MUDSTONE AND SOME MUDSTONE WITH MINOR FINE-GRAINED PALE GREY SANDSTONE INTERBEDS	SS
29	100	100						19.23-19.74: GREY MUDSTONE WITH POSSIBLE FOSSILISED BIOTURBATED SANDSTONE AT THE BOTTOM OF THE SEQUENCE 19.74-20.39: PALE GREY TO WHITE, FINE-GRAINED QUARTZ-RICH SANDSTONE WITH MINOR PLACER BANDING AND BIOTURBATION ON DOWNHOLE CONTACT	
30	100	99			bd 90°			20.39-21.32: GREY MUDSTONE AND VERY MINOR FINE-GRAINED SANDSTONE 21.32-21.64: GREY MUDSTONE + MINOR FINE-GRAINED SANDSTONE	
31	100	41			jt 45° jt 85°			21.64-21.97: MEDIUM TO COARSE-GRAINED, GREY TO PALE GREY, QUARTZ-RICH SANDSTONE WITH MINOR MUDSTONE CROSS-BEDDING 21.97-22.22: INTERBEDDED PALE GREY, FINE-GRAINED SANDSTONE AND CARBONACEOUS MUDSTONE WITH MUDSTONE BASE	
32	100	100						22.22-22.97: FINELY LAMINATED CARBONACEOUS MUDSTONE WITH SOME FINE-GRAINED, PALE GREY SANDSTONE INCREASING DOWNHOLE	
33	100	92			jt 45°			22.97-23.02: INTERBEDDED PALE GREY TO WHITE FINE-GRAINED SANDSTONE AND CARBONACEOUS MUDSTONE 23.02-23.44: FINELY LAMINATED CARBONACEOUS MUDSTONE AND PALE GREY, FINE-GRAINED SANDSTONE WITH SOME PYRITE	
34	100	92			jt 45°			23.44-23.48: BIOTURBATED PALE GREY TO WHITE SANDSTONE WITH SOME MUDSTONE AND CARBONACEOUS MUDSTONE	SS
35	100	96			jt 90° jt 85°			23.48-23.88: GREY MUDSTONE WITH STYOLITIC DOWN-HOLE CONTACT 23.88-24.46: WHITE TO PALE GREY, FINE-GRAINED SANDSTONE WITH STYOLITIC CARBONACEOUS MUDSTONE ZONES UP AND DOWNHOLE	
36	100	95						24.46-24.98: GREY TO DARK GREY MUDSTONE 24.98-25.01: CARBONACEOUS MUDSTONE 25.01-25.08: DARK GREY CARBONACEOUS MUDSTONE 25.08-25.18: GREY TO PALE GREY, FINE-GRAINED SANDSTONE	
37	100	98						25.18-25.46: CARBONACEOUS MUDSTONE AND MINOR PALE GREY, FINE-GRAINED SANDSTONE 25.46-27.11: FINE-GRAINED, PALE GREY TO WHITE SANDSTONE WITH MINOR MUDSTONE AND ZONAL GREEN-YELLOW TINGE	
38	100	93			jt 85° jt 10°			27.11-27.34: YELLOW-GREEN-GREY, ALTERED MEDIUM TO COARSE-GRAINED SANDSTONE 27.34-42.86: LIKELY UPWARDLY FINING SEQUENCE OF PALE GREY TO WHITE QUARTZ AND ZONALLY PYRITE-RICH SANDSTONE WITH MINOR MUDSTONE, CHLORITE ALTERED PLACER BANDING AND SOME ANGULAR TO SUB-ANGULAR MUDSTONE CLASTS (AT APPROXIMATELY 41.1m) PRESENT	
39	100	82			jt 80° jt 80°				
40	100	91			jt 90° jt 90° bd 90°				

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJO20

SHEET 3 OF 3

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT: SOUTHERN MIDLANDS COAL

PROSPECT: JERICHO "NORTHUMBRIA" (EL26/08)

DATE: 19-07-13 TO 23-07-13

LOGGED BY: KAREN ADAMS (CLAIRE THOMAS)

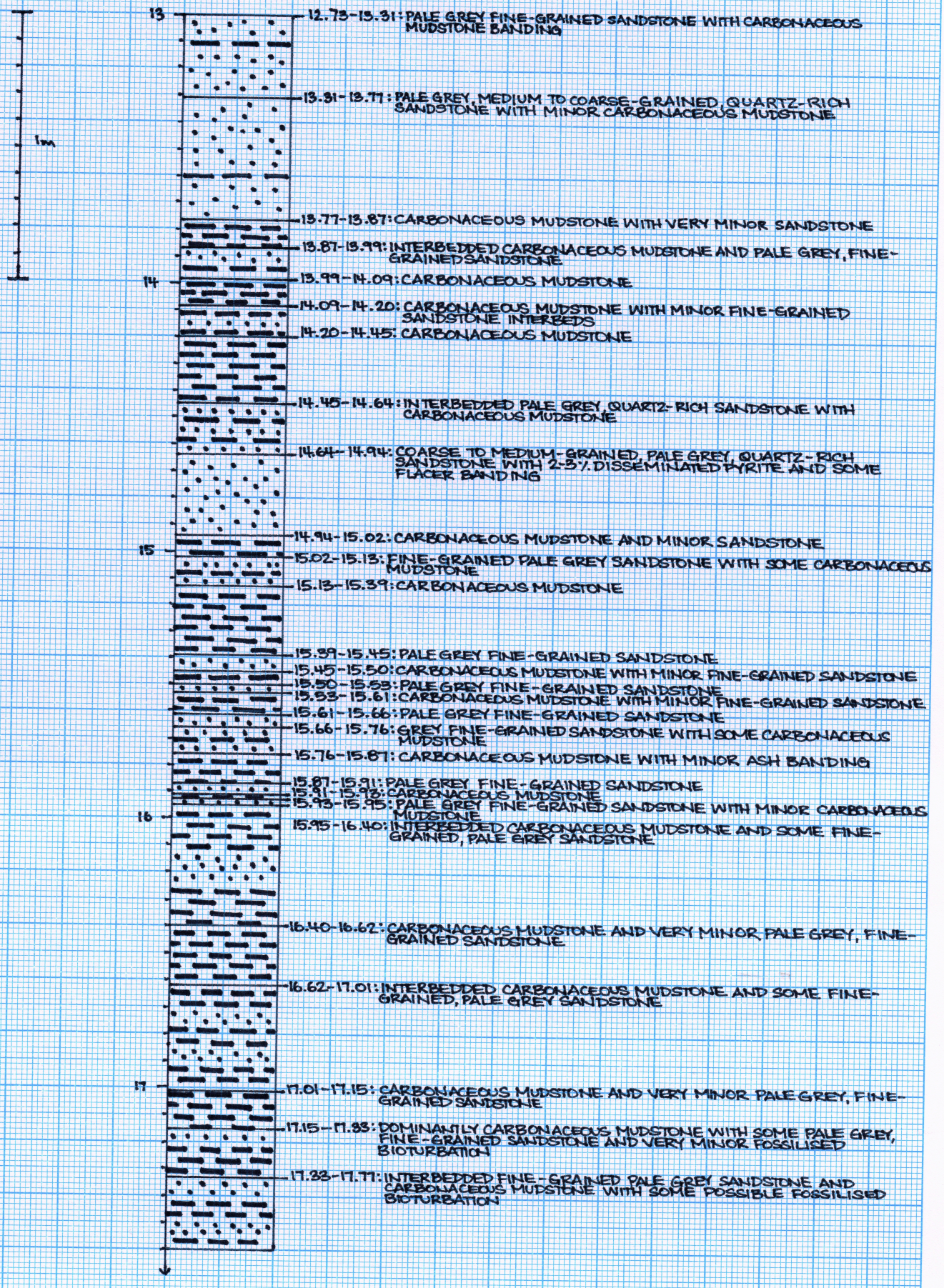
HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
41	100	86							
42	100	100			bd 85°				SS
43	100	93			jt 50°			42.86-43.03: GREY MUDSTONE	
44	100	79			fx 50° fx 10°			43.03-43.70: PALE GREY, MEDIUM-GRAINED QUARTZ-RICH SANDSTONE WITH RIP-UP CLASTS AND RIPPED-UP MUDSTONE BEDS 43.70-43.82: GREY MUDSTONE WITH MINOR SANDSTONE 43.82-44.17: PALE GREY MEDIUM-GRAINED, QUARTZ-RICH SANDSTONE WITH ANGULAR MUDSTONE RIP-UP CLASTS	MS SS SS
45	100	99						44.17-47.78: PALE GREY TO WHITE, MEDIUM TO COARSE-GRAINED, QUARTZ-RICH SANDSTONE WITH ZONAL DISSEMINATED PYRITE OF UP TO 3% IN ABUNDANCE (ESPESCIALLY BETWEEN 46.4-46.5m) THAT APPEARS TO BE PARTICULARLY ASSOCIATED WITH FLACER BANDING	
46	100	77			jt 85°				
47	100	89			jt 70°				SS
48	100	96			jt 85°				
49	100	88			fx 90°			47.78-48.17: PALE GREY MEDIUM TO COARSE-GRAINED, QUARTZ-RICH AND ZONALLY SULPHIDE-RICH SANDSTONE WITH SUB-ROUNDED TO ROUNDED MUDSTONE AND CARBONACEOUS MUDSTONE CLASTS 48.17-51.38: PALE GREY TO WHITE, MEDIUM TO FINE-GRAINED, QUARTZ-RICH AND ZONALLY SULPHIDE-RICH SANDSTONE WITH MINOR TO VERY MINOR MUDSTONE BEDDING	SS
50	100	98			jt 80°				
51	100	99							SS
52	100	96			jt 80° jt 85°			51.38-51.67: PALE GREY QUARTZ-RICH, MEDIUM TO COARSE-GRAINED SANDSTONE WITH ANGULAR MUDSTONE CLASTS	SS
53	100	93			jt 85°			51.67-54.71: PALE GREY QUARTZ-RICH MEDIUM-GRAINED SANDSTONE WITH SOME PLACER BANDING UP HOLE AND VERY MINOR COMPRESSED CARBONACEOUS MUDSTONE CLASTS AROUND 53.4-53.8m	
54	100	100			fx 85°				SS
54.71 EOH	100	100							

REMARKS

OJ020 DETAILED LOG

1mm Squares

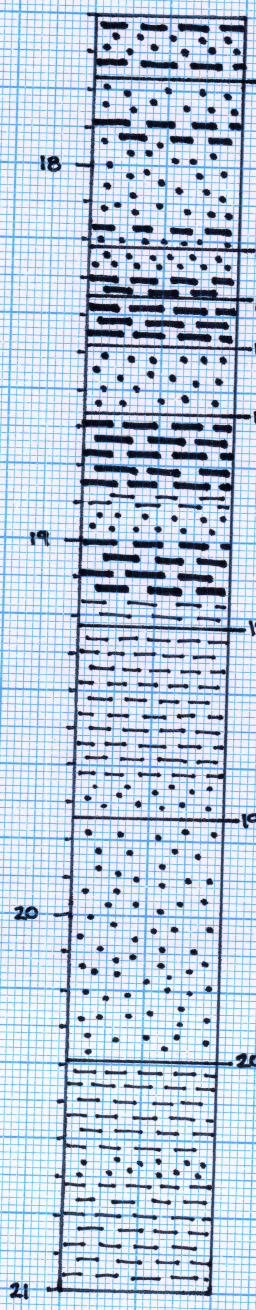
SCALE 1:20



OJ020 DETAILED LOG CONTINUED

1mm Squares

SCALE 1:20



17.77–18.22: PALE GREY, MODERATELY QUARTZ-RICH, FINE TO MEDIUM-GRAINED SANDSTONE WITH SOME PLACER BANDING AND CARBONACEOUS MUDSTONE BEDDING

18.22–18.35: INTERBEDDED PALE GREY, FINE-GRAINED SANDSTONE AND CARBONACEOUS MUDSTONE

18.35–18.48: CARBONACEOUS MUDSTONE WITH MINOR FINE-GRAINED PALE GREY SANDSTONE INTERBEDS

18.48–18.66: PALE GREY, QUARTZ-RICH, FINE TO MEDIUM-GRAINED SANDSTONE WITH MINOR CARBONACEOUS MUDSTONE

18.66–19.23: CARBONACEOUS MUDSTONE AND SOME MUDSTONE WITH MINOR FINE-GRAINED PALE GREY SANDSTONE INTERBEDS

19.23–19.74: GREY MUDSTONE WITH POSSIBLE FOSSILISED BIOTURBATED SANDSTONE AT THE BOTTOM OF THE SEQUENCE

19.74–20.39: PALE GREY TO WHITE, FINE-GRAINED, QUARTZ-RICH SANDSTONE WITH MINOR PLACER BANDING AND BIOTURBATION ON DOWNHOLE CONTACT

20.39–21.32: GREY MUDSTONE AND VERY MINOR FINE-GRAINED SANDSTONE

MIDLANDS ENERGY

DRILL HOLE No OJ028

SHEET 1 OF 3

Survey Depth	Azimuth	Dip	Hole Co-ordinates	GDA
			Easting_	524 327
			Northing_	5 315 457
			Elevation (m)	358
			Azimuth_ Mag	–
			Dip	-90°

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	BOWHILL RD (EL 26/2008)
DATE:	24-07-13 TO 25-07-13
LOGGED BY:	KAREN ADAMS (CLAIRE THOMAS)

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % (.1 .3 1 3 5)	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm (0.06 0.5 2 8 32 64)	GEOLOGY NOTES	SUMMARY LOG
1	0	0						0.00-7.00: NO CORE - CUTTING BIT	
2	0	0							
3	0	0							
4	0	0							
5	0	0							
6	0	0							
7	0	0							
								7.00-7.19: GREY CLAY	CY
								7.19-7.36: CORE LOSS - WASHED AWAY	CL
8	85	26						7.36-10.98: GREY, WITH MINOR ORANGE, VERY CLAY-RICH, POORLY CONSOLIDATED MEDIUM-GRAINED SANDSTONE	
9	100	96			fx 85°				
10	100	98							SS
11	100	100							
12	100	80						10.98-12.06: GREY, POORLY CONSOLIDATED, MODERATELY CLAY-RICH, MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE WITH FREQUENT ANGULAR CARBONACEOUS MUDSTONE RIP-UP CLASTS	SS
13	100	90			fx 85°			12.06-12.50: GREY, SOFT, MEDIUM-GRAINED LITHIC SANDSTONE	SS
								12.50-13.13: GREY, POORLY CONSOLIDATED, MODERATELY CLAY-RICH, MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE WITH FREQUENT ANGULAR CARBONACEOUS MUDSTONE RIP-UP CLASTS	SS
								13.13-13.29: CORE LOSS - WASHED AWAY	CL
14	84	90						13.29-13.90: GREY SOFT, MEDIUM-GRAINED LITHIC SANDSTONE	SS
15	100	98						13.90-14.97: SOFT, VERY POORLY CONSOLIDATED, GREY MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE WITH FREQUENT AND SOMETIMES LARGE (>5cm) CLASTS OF COAL AND CARBONACEOUS MUDSTONE	SS
16	100	100						14.97-18.32: SOFT, GREY, CLAY-RICH MEDIUM-GRAINED LITHIC SANDSTONE AND SOME CLAY ALTERED MUDSTONE	
17	100	88							SS
18	100	100							
19	100	91						18.32-18.60: SOFT GREY, POORLY CONSOLIDATED, MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE WITH SOME CARBONACEOUS MUDSTONE AND COAL CLASTS	SS
								18.60-19.40: SOFT GREY, MEDIUM-GRAINED, MODERATELY CLAY-RICH LITHIC SANDSTONE	SS
20	100	97						19.40-19.70: SOFT GREY, POORLY CONSOLIDATED, MEDIUM- TO COARSE-GRAINED LITHIC SANDSTONE WITH IRREGULAR FLACER BANDING AND SOME CARBONACEOUS MUDSTONE CLASTS	SS

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJ028

SHEET 2 OF 3

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT:	SOUTHERN MIDLANDS COAL
PROSPECT:	BOWHILL RD (EL26/2008)
DATE:	24-07-13 TO 25-07-13
LOGGED BY:	KAREN ADAMS (CLAIRE THOMAS)

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
21	100	100			fx 85°			19.70-20.90: MODERATELY SOFT, GREY MEDIUM TO FINE-GRAINED LITHIC SANDSTONE	SS
	70	95			jt 85°			20.90-21.56: GREY, ZONALLY DARK GREY TO BLACK, COARSE TO MEDIUM-GRAINED, POORLY CONSOLIDATED LITHIC SANDSTONE WITH ZONAL FLACER BANDING AND ANGULAR CARBONACEOUS MUDSTONE AND COAL RIP-UP CLASTS	SS
22									CL
23	100	97			fx 90°			21.56-21.86: CORE LOSS - WASHED AWAY 21.86-22.25: GREY, ZONALLY DARK GREY TO BLACK, COARSE TO MEDIUM-GRAINED, POORLY CONSOLIDATED LITHIC SANDSTONE WITH ZONAL FLACER BANDING AND ANGULAR CARBONACEOUS MUDSTONE AND COAL RIP-UP CLASTS	SS
24	100	98						22.25-23.73: SOFT GREY, MEDIUM TO COARSE-GRAINED, POORLY CONSOLIDATED LITHIC SANDSTONE WITH SMALL (10cm) ZONE OF FLACER BANDING AT 22.8m	SS
25	100	96				QTZ		23.73-24.30: SOFT, GREY TO DARK GREY, POORLY CONSOLIDATED COARSE-GRAINED LITHIC SANDSTONE WITH FREQUENT CARBONACEOUS MUDSTONE CLASTS AND MINOR FLACER BANDING	SS SS SS
26	100	100						24.30-24.56: SOFT GREY, MODERATELY CLAY-RICH, MEDIUM-GRAINED LITHIC SANDSTONE 24.56-24.78: PALE GREY QUARTZITE 24.78-27.64: GREY, SOFT CLAY-RICH, MEDIUM TO FINE-GRAINED LITHIC SANDSTONE AND MUDSTONE WITH MINOR CARBONACEOUS MUDSTONE CLASTS (LIKELY RIP-UP CLASTS) AT 25.68m AND 26.2m	
27	100	98							SS
28	100	97				QTZ			
29	100	100						27.64-27.82: PALE GREY QUARTZITE. HARD 27.82-30.54: SOFT GREY, CLAY-RICH MEDIUM-GRAINED LITHIC SANDSTONE AND MUDSTONE WITH MINOR CARBONACEOUS MUDSTONE CLASTS AT 29.18m	SS
30	100	100							SS
31	100	98						30.54-30.95: SOFT, MODERATELY TO STRONGLY CLAY-RICH DARK GREY TO BLACK, INTERBEDDED CARBONACEOUS MUDSTONE AND MUDSTONE	MS CMS
32	100	97						30.95-31.20: SOFT GREY, POORLY CONSOLIDATED MEDIUM-GRAINED LITHIC SANDSTONE 31.20-31.59: GREY TO DARK GREY, SOFT, MODERATELY CLAY-RICH, COARSE TO MEDIUM-GRAINED LITHIC SANDSTONE WITH ZONAL CARBONACEOUS MUDSTONE AND SMALL, ANGULAR CARBONACEOUS MUDSTONE RIP-UP CLASTS	SS SS
33	100	100			fx 85°			31.59-32.15: SOFT GREY, CLAY-RICH FINE-GRAINED LITHIC SANDSTONE AND MUDSTONE	SS
34	79	90						32.15-32.32: DARK GREY, POORLY CONSOLIDATED, SOFT, MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE WITH CARBONACEOUS MUDSTONE CLASTS	SS
35	71	90			fx 85°			32.32-33.44: GREY, SOFT CLAY-RICH MEDIUM TO FINE-GRAINED LITHIC SANDSTONE AND MUDSTONE WITH POSSIBLE REMNANT CARBONACEOUS MUDSTONE BEDDING AT 32.41m	SS CL
36	100	100						33.44-33.51: DARK GREY, SOFT, MODERATELY CLAY-RICH, FINE TO MEDIUM-GRAINED LITHIC SANDSTONE 33.51-33.79: SOFT GREY, POORLY CONSOLIDATED MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE WITH SOME CARBONACEOUS MUDSTONE CLASTS	SS SS
37	100	100						33.79-34.29: CORE LOSS - WASHED AWAY 34.29-34.93: SOFT TO VERY SOFT GREY TO DARK GREY, COARSE TO MEDIUM-GRAINED LITHIC SANDSTONE AND CARBONACEOUS MUDSTONE	
38	100	98						34.93-35.07: MODERATELY HARD, PALE GREY, FINE TO MEDIUM-GRAINED LITHIC SANDSTONE WITH MINOR COMPRESSED CLASTS, TUFFACEOUS REMNANTS (?) 35.07-36.26: SOFT GREY, CLAY-RICH MEDIUM-GRAINED, LITHIC SANDSTONE	SS
39	100	97			jt 45°			36.26-36.20: MODERATELY SOFT, GREY TO DARK GREY, MODERATELY CLAY-RICH, MEDIUM-GRAINED LITHIC SANDSTONE WITH FREQUENT CARBONACEOUS MUDSTONE 'BEDS' AND CLASTS 36.20-37.79: SOFT GREY, CLAY-RICH, MEDIUM TO FINE-GRAINED LITHIC SANDSTONE	SS SS
40	100	90			jt 45° jt 50°			37.79-38.13: GREY TO DARK-GREY, SOFT, POORLY CONSOLIDATED MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE WITH FLACER BANDING 38.13-39.13: GREY TO DARK GREY, CLAY-RICH, MEDIUM TO FINE-GRAINED LITHIC SANDSTONE AND MUDSTONE WITH IRREGULAR STYOLITIC FLACER BANDING DOWNHOLE	SS SS

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJ028

SHEET 3 OF 3

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT: SOUTHERN MIDLANDS COAL

PROSPECT: BOWHILL RD (EL26/2008)

DATE: 24-07-13 TO 25-07-13

LOGGED BY: KAREN ADAMS
(CLAIRE THOMAS)

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
41	100	98						39.15-39.50: SOFT GREY, POORLY CONSOLIDATED, MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE WITH SOME CARBONACEOUS MUDSTONE CLASTS AND CARBONACEOUS MUDSTONE BEDDING AT APPROXIMATELY 30 DEGREES TO CORE AXIS, DOWN HOLE	SS
42	100	81			fx jt 80			39.50-40.67: GREY SOFT, CLAY-RICH, MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE AND MUDSTONE	SS
42.22 EOH	100	100						40.67-41.40: SOFT GREY, POORLY CONSOLIDATED, MEDIUM TO COARSE-GRAINED LITHIC SANDSTONE WITH CARBONACEOUS MUDSTONE CLASTS AND MINOR FLACER BANDING	SS MS
								41.40-41.83: GREY TO DARK GREY, SOFT CLAY-RICH, MEDIUM TO FINE-GRAINED LITHIC SANDSTONE WITH REMNANT CARBONACEOUS MUDSTONE BEDS AND FLACER BANDING	
								41.83-41.92: DARK GREY, SOFT CLAY-RICH MUDSTONE AND CARBONACEOUS MUDSTONE	
								41.92-42.14: GREY CLAY-RICH, SOFT, FINE TO MEDIUM-GRAINED LITHIC SANDSTONE AND MUDSTONE	
								42.14-42.22: DARK GREY, CLAY-RICH, SOFT CARBONACEOUS MUDSTONE AND MUDSTONE EOH	

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJ029

SHEET 1 OF 2

Survey Depth	Azimuth	Dip	Hole Co-ordinates	GDA
			Easting_	525 759
			Northing_	5 302 647
			Elevation (m)	439
			Azimuth_ Mag	—
			Dip	-90°

PROJECT: SOUTHERN MIDLANDS COAL
PROSPECT: MUDWALLS RD (EL 26/2008)
DATE: 26-07-13 TO 30-07-13
LOGGED BY: KAREN ADAMS (CLAIRE THOMAS)

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
1	0	0						0.00-1.50: NO CORE - CUTTING BIT (DOLERITE CHIPS)	DOL
	50	28							
2					Jt 45° 85°	Fe		1.50-2.90: GREY WITH SOME ORANGE, MEDIUM-GRAINED DOLERITE	
3	100	41			Jt 50°			2.90-4.40: ORANGE TO BROWN, STRONGLY WEATHERED DOLERITE. POSSIBLE FAULT	DOL
4	100	0			Jt 5°	Fe			DOL
								4.40-4.50: CORE LOSS	
5	90	0			Jt 45° Jt 80°	Fe		4.50-5.80: GREY WITH ORANGE, IRON-RICH ALTERATION ON FRACTURE PLANES, WEEKLY WEATHERED, MEDIUM-GRAINED DOLERITE	CL
6	100	30			Jt 85° 45°				DOL
7	100	95						5.80-32.75: GREY-GREEN, MEDIUM-GRAINED DOLERITE WITH LOW-ANGLE JOINTS AND VEINING FROM 10.8-11.9m WITH DARK INFIL AND SOME CALCITE	
8	100	100							
9	100	100			Jt 85°				
10	100	86			Jt 5°				
11	100	54			Jt 85° Jt 15°				
12	100	42			Jt 85°				
13	100	100			Jt 85°				DOL
14	100	98			Jt 85°				
15	100	94							
16	100	100			Jt 80°				
17	100	100							
18	100	100			Jt 85°				
19	100	100							
20	100	97			Jt 85° Jt 80°				

REMARKS

MIDLANDS ENERGY

DRILL HOLE No OJ029

SHEET 2 OF 2

Survey Depth	Azimuth	Dip	Hole Co-ordinates	
			Easting_	
			Northing_	
			Elevation (m)	
			Azimuth_ Mag	
			Dip	

PROJECT: SOUTHERN MIDLANDS COAL
PROSPECT: MUDWALLS RD (EL26/2008)
DATE: 26-07-13 TO 30-07-13
LOGGED BY: KAREN ADAMS (CLAIRE THOMAS)

HOLE DEPTH	CORE RECOVERY	RQD	SAMPLE NO PREFIX	SULPHIDES % .1 .3 1 3 5	PICTORIAL LOG STRUCT	PICTORIAL LOG ALT	GRAPHIC LOG mm 0.06 0.5 2 8 32 64	GEOLOGY NOTES	SUMMARY LOG
21	100	100							
22	100	94			jt 60°				
23	100	100							
24	100	100							
25	100	100							
26	100	100							DOL
27	100	97			jt 80°				
28	100	82			jt 10°				
29	100	100							
30	100	95			jt 60°				
31	100	98			jt 80°				
32	100	98			jt 90°				
	100	96			fx 90° jt 85°				
32.75 EOH									

REMARKS