

206001

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MICROFILMED

FORM	A.O.	C.G.	E.O.	REVISION
D. DIR.			- 4 APR 1985	
DEPT. OF MINES				E & IL
REF. No. 3372/85				

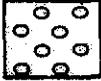
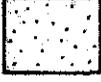
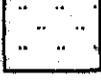
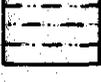
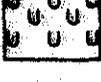
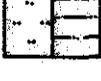
NICHOLAS RANGE AND TOWER HILL
NOVEMBER 1984 - JANUARY 1985
DRILLING PROGRAMMES - BASIC
DATA REPORT

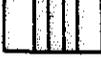
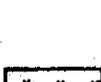
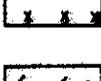
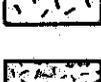
EL 50 82
OPEN FILE

D.D.H.'s 13, 14, 15, 16, 17, 18, 19, 20,
21, 21A, 22 AND 23

LITHOLOGICAL LOGS
GRAPHIC SECTIONS
CORE PHOTOGRAPHS
ANALYSIS SHEETS FROM S.G.S.

PREPARED FOR
CORNWALL COAL COMPANY N.L.
BY
MCELROY BRYAN & ASSOCIATES PTY LIMITED

-  CONGLOMERATE, pebble to granule
-  BRECCIA
-  SANDSTONE
-  SILTSTONE
-  CLAYSTONE
-  STONE, COALY OR CARBONACEOUS
-  MUDSTONE
-  SHALE, SILTSHALE, CLAYSHALE
-  WEATHERED and UNCONSOLIDATED MATERIAL
-  INTERBEDDED
-  UNKNOWN
-  COAL, UNDIFFERENTIATED
(in sections of scale less than 1:50)

-  COAL, BRIGHT
-  COAL, BRIGHT with DULL BANDS
-  COAL, DULL and BRIGHT
-  COAL, MAINLY DULL with NUMEROUS BRIGHT BANDS
-  COAL, DULL to DULL with MINOR BRIGHT BANDS
-  COAL INTERLAYERED with NON-COAL
-  NON-COAL INTERLAYERED with COAL
-  COAL, STONY
-  STONE, COALY
-  COAL, WEATHERED
-  COAL, HEAT ALTERED

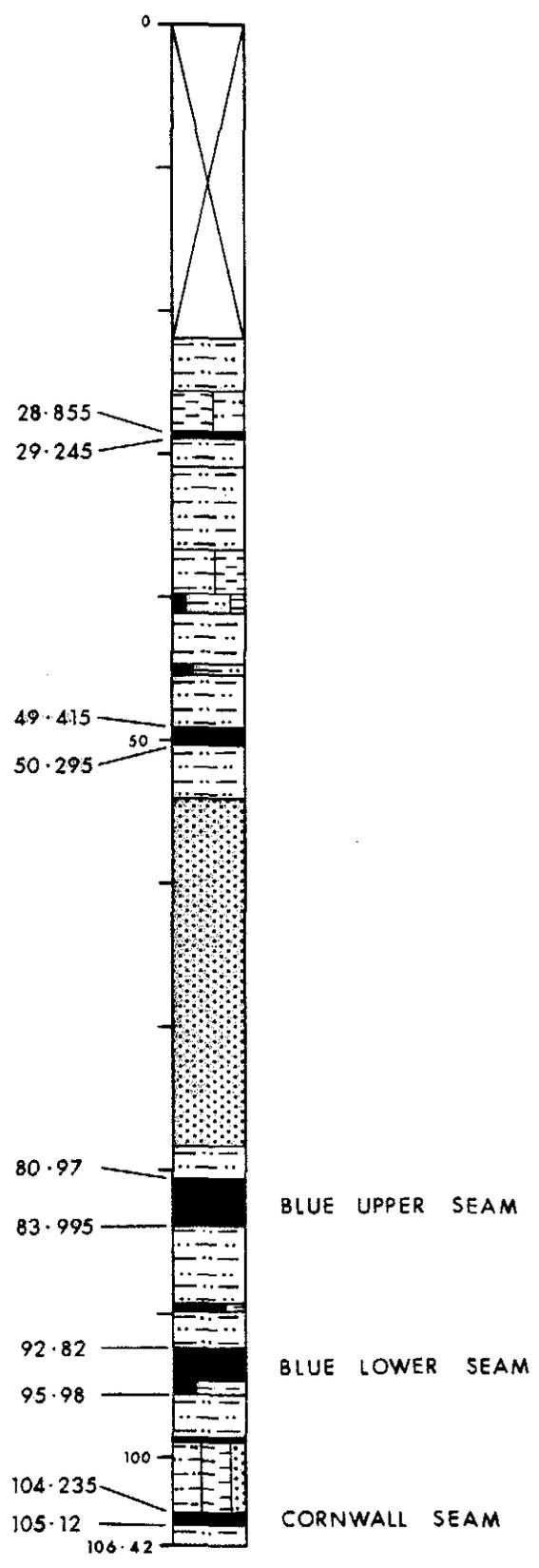
-  IGNEOUS, acid and intermediate
-  IGNEOUS, basic
-  SCREE, igneous-basic and clay

LEGEND FOR GRAPHIC LOGS
& COAL SECTIONS

CORNWALL COAL COMPANY N.L.

Mt Nicholas

DDH 13



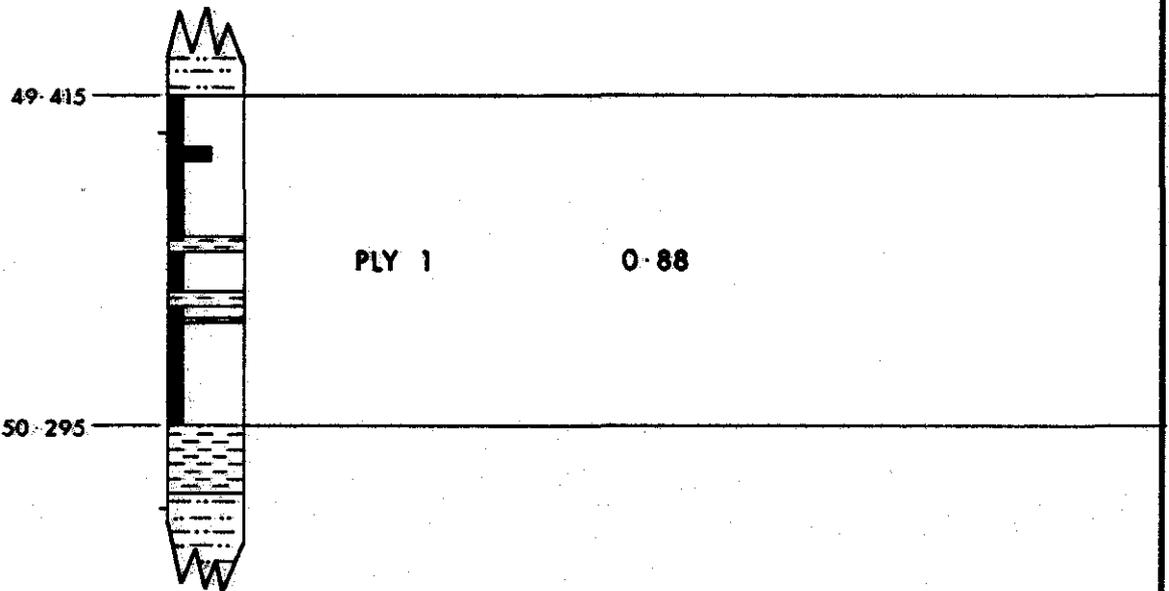
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206005

CORNWALL COAL COMPANY N.L.

Mt Nicholas

DDH 13



5 cm

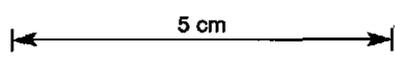
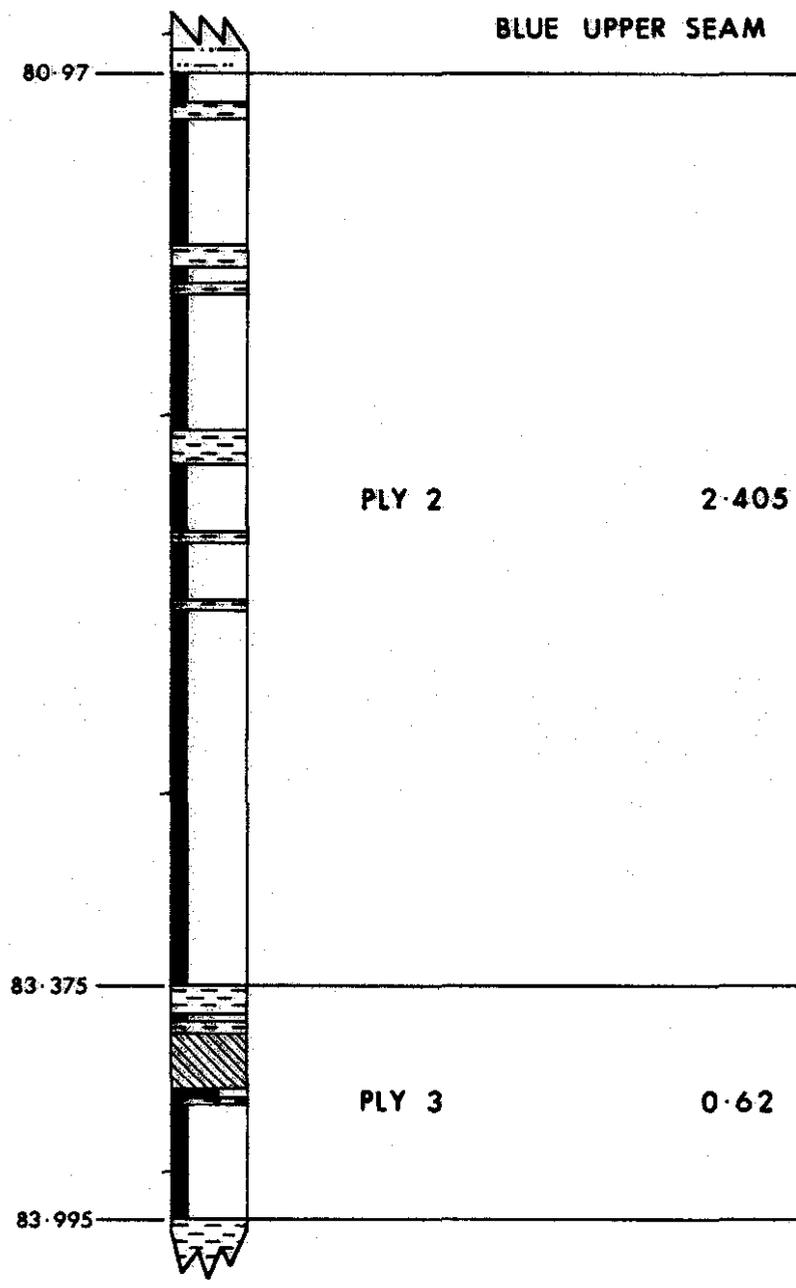
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206006

CORNWALL COAL COMPANY N.L.

Mt Nicholas

DDH 13



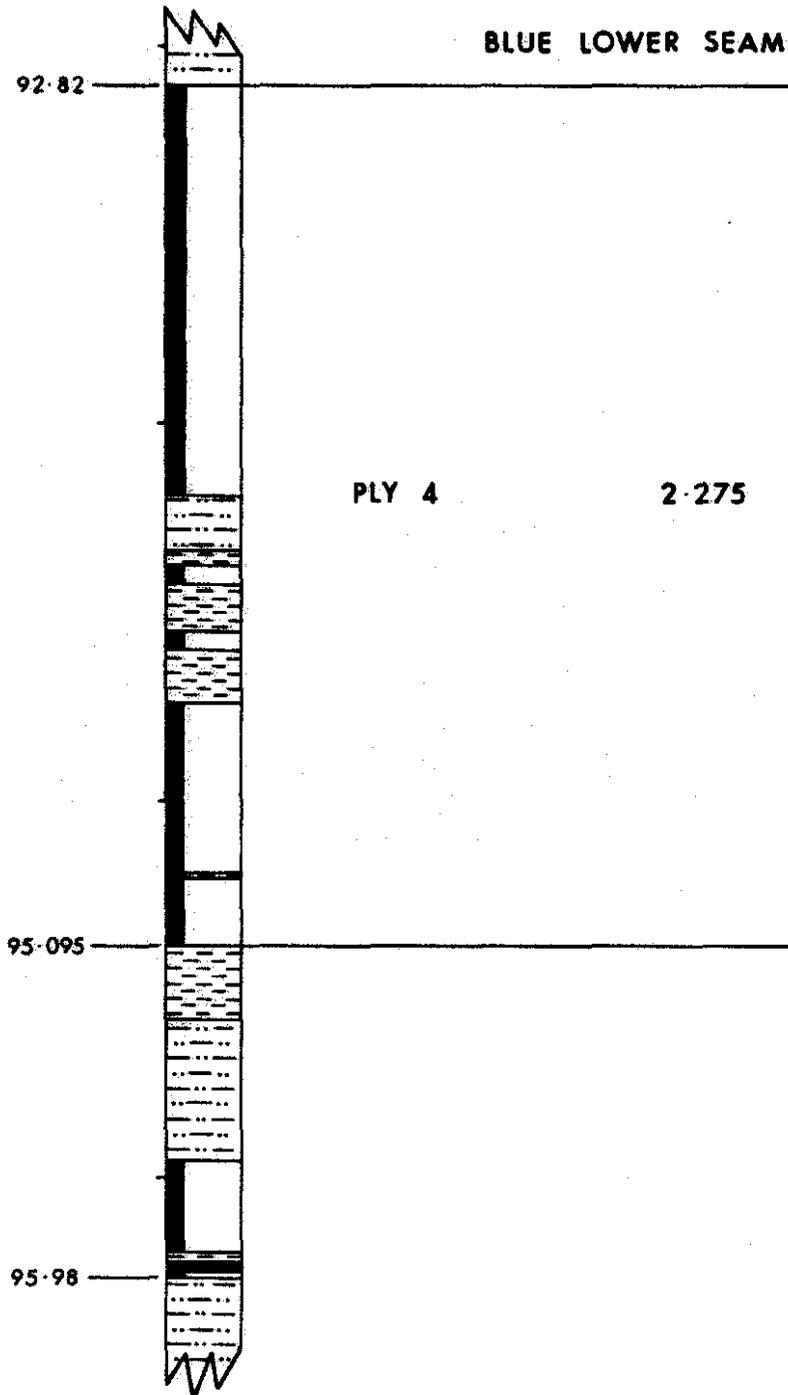
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206007

CORNWALL COAL COMPANY N.L.

Mt Nicholas

DDH 13



5 cm

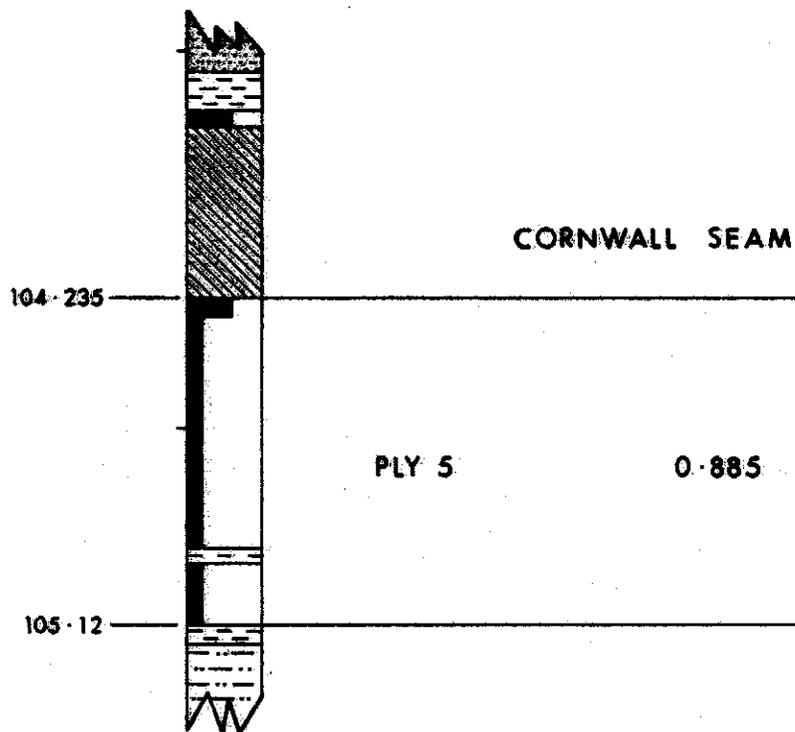
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206008

CORNWALL COAL COMPANY N.L.

Mt Nicholas

DDH 13



5 cm

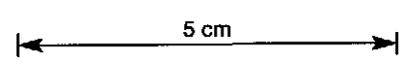
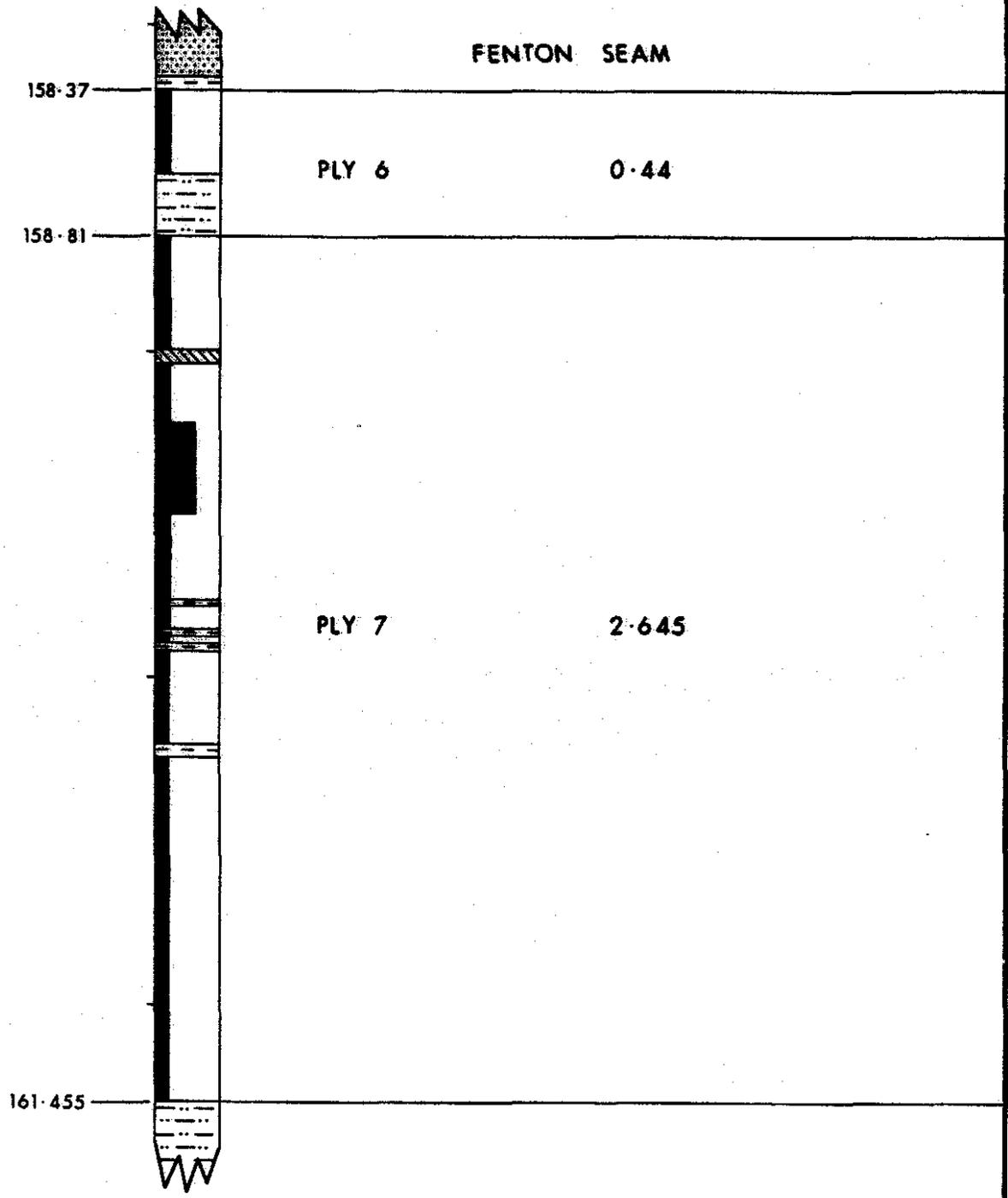
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206009

CORNWALL COAL COMPANY N.L.

Mt Nicholas

DDH 13





Cornwall Coal Mt Nicholas DDH 13, Plies 2 & 3
 Blue Upper Seam from 80.970m to 83.995m; Thickness: 3.025m



Cornwall Coal Mt Nicholas DDH 13, Ply 4
 from 92.82m to 95.095m; Thickness: 2.275m



Cornwall Coal Mt Nicholas DDH 13, Ply 5
 Cornwall Coal Seam from 104.235m to 105.120m;
 Thickness: 0.885m



Cornwall Coal Mt Nicholas DDH 13, Plies 6 & 7
 Fenton Seam from 158.370m to 161.455m; Thickness: 3.085m

011

206012

CORNWALL COAL MT NICHOLAS D.D.H. 13

<u>Location:</u> Mt Nicholas	<u>Logged by:</u> J.H. Bryan
<u>AMG Co-ordinates:</u> E 594 091	<u>Drilled by:</u> Stacpoole Drilling
N 5400 830	
<u>Collar R.L.:</u> 582.2 m	<u>Commenced:</u> 10.11.84
<u>Total Depth:</u> 171.72 m	<u>Completed:</u> 19.11.84

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
NON CORE (DOLERITE SCREE)	22.00	22.00	
MUDSTONE, grey with minor fine grained sandstone interbeds	3.72	25.72	
CLAYSTONE, buff coloured, very soft, swelling clays present resulting in rapid break-up	0.15	25.87	
MUDSTONE, black	0.02	25.89	
CLAYSTONE, buff coloured as shown	0.42	26.31	
MUDSTONE, black, coaly in part	0.21	26.52	
CLAYSTONE, dark brown, soft	0.17	26.69	
MUDSTONE, grey and grey/brown	0.14	26.83	
CLAYSTONE, buff, soft with swelling clays	1.00	27.83	
CLAYSTONE, dark brown	0.06	27.89	
MUDSTONE, black, carbonaceous	0.28	28.17	

012

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2.

CORNWALL COAL MT NICHOLAS D.D.H. 13

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, buff coloured, soft (as above)	0.150	28.320	
<u>COAL</u> , dull with minor bright bands	0.070	28.390	
MUDSTONE, black, carbonaceous	0.465	28.855	
<u>COAL</u> , dull to stony	0.390	29.245	
MUDSTONE, dark grey to black, carbonaceous in part with some mid brown claystone bands	1.780	31.025	
MUDSTONE, light to mid grey with minor sandstone interbeds, carbonaceous in part	5.815	36.840	
CLAYSTONE, buff, tuffaceous ? with swelling clays	0.310	37.150	
MUDSTONE, dark grey to black, carbonaceous	1.580	38.730	
CLAYSTONE, buff, tuffaceous ?	0.380	39.110	
CLAYSTONE, black, carbonaceous	0.150	39.260	
CLAYSTONE, light brown, ? tuffaceous	0.210	39.470	
CLAYSTONE, black, soft	0.040	39.510	
CLAYSTONE, brown, soft	0.045	39.555	

CORNWALL COAL MT NICHOLAS D.D.H. 13

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
MUDSTONE, grey to black, coaly in part	0.430	39.985	
<u>COAL</u> , dull	0.070	40.055	
CLAYSTONE, brown to grey	0.050	40.105	
MUDSTONE, black	0.080	40.185	
<u>COAL</u> , dull	0.170	40.355	
MUDSTONE, black	0.070	40.425	
MUDSTONE, grey	0.850	41.275	
<u>COAL</u> , dull and bright with minor carbonaceous claystone bands	0.100	41.375	
CLAYSTONE, carbonaceous, hard	0.030	41.405	
MUDSTONE, grey, soft except for minor fine grained sandstone or siltstone interbeds	3.530	44.935	
MUDSTONE, black	0.400	45.335	
<u>COAL</u> , dull and bright	0.160	45.495	
MUDSTONE, black and grey/brown claystone interbedded in units up to 0.20m (25% claystone/ 75% black mudstone)	3.920	49.415	Very poor roof

014

206015 4.

CORNWALL COAL MT NICHOLAS D.D.H. 13

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
<u>COAL</u> , dull	0.140	49.555)
, dull and bright	0.030	49.585)
, dull	0.210	49.795)
)
CLAYSTONE, brown, hard	0.030	49.825)
)
<u>COAL</u> , dull with minor bright bands	0.110	49.935	) PLY 1
)
CLAYSTONE, brown, hard	0.040	49.975	) Thickness
			) 0.88 m
<u>COAL</u> , dull	0.035	50.010)
)
CLAYSTONE, grey, hard	0.010	50.020)
)
<u>COAL</u> , dull with minor bright bands	0.275	50.295)
)
CLAYSTONE, dark grey/black, carbonaceous	0.170	50.465	
MUDSTONE, grey with minor fine grained sandstone interbeds	3.90	54.365	
SANDSTONE, grey, fine grained, lithic, becoming coarser towards base with coaly fragments and claystone bands up to 0.7 m thick	24.140	78.505	
CLAYSTONE, black, carbonaceous	0.060	78.565	
<u>COAL</u> , dull	0.120	78.685	
CLAYSTONE, grey, soft	0.220	78.905	

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5.

CORNWALL COAL MT NICHOLAS D.D.H. 13

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
<u>COAL</u> , dull	0.035	78.940	
MUDSTONE, dark grey at top, remainder grey to green/grey, soft, parts readily along bedding planes	2.030	80.970	
<u>COAL</u> , dull	0.065	81.035)
)
CLAYSTONE, brown, soft, carbonaceous in part - ? tuffaceous	0.050	81.085)
)
<u>COAL</u> , dull with minor bright bands	0.330	81.415)
)
CLAYSTONE, brown, soft, - ? tuffaceous	0.065	81.480)
)
<u>COAL</u> , dull with minor bright bands	0.040	81.520)
)
CLAYSTONE, grey/brown, soft	0.025	81.545)
)
<u>COAL</u> , dull	0.365	81.910	) BLUE
			) UPPER
			) SEAM
CLAYSTONE, brown, soft, - ? tuffaceous	0.090	82.000)
)
<u>COAL</u> , dull with minor bright bands	0.175	82.175	) Thickness
			) 3.025 m
)
CLAYSTONE, grey/brown, soft, ? tuffaceous	0.035	82.210)
)
<u>COAL</u> , dull with minor bright bands	0.145	82.355)
)
CLAYSTONE, grey, hard	0.020	82.375)
)
<u>COAL</u> , dull with minor bright bands	1.00	83.375)

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6.

CORNWALL COAL MT NICHOLAS D.D.H. 13

	<u>Estimated Thickness</u> (m)	<u>Estimated Depth to Base of Stratum</u> (m)	<u>Remarks</u>
CLAYSTONE, grey, hard, grey/brown, carbonaceous	0.070	83.445)
<u>COAL</u> , dull	0.020	83.465)
CLAYSTONE, grey to buff, soft - with numerous coaly flecks	0.030	83.495)
CLAYSTONE, black, coaly in part	0.150	83.645	) BLUE UPPER SEAM
<u>COAL</u> , dull and bright	0.025	83.670	) Thickness
CLAYSTONE, grey	0.015	83.685	) 3.025 m
<u>COAL</u> , dull with minor bright bands	0.310	83.995)
CLAYSTONE, dark grey/black, carbonaceous in part with minor coaly wisps and penny bands	0.200	84.195)
SILTSTONE, grey, hard	0.205	84.400)
MUDSTONE, grey, soft, with some siltstone interbeds and minor carbonaceous bands - sporadic coaly inclusions, slickensided fracture planes towards top	5.165	89.565)
CLAYSTONE, black, carbonaceous	0.020	89.585)
<u>COAL</u> , dull and bright	0.015	89.600)

017

CORNWALL COAL MT NICHOLAS D.D.H. 13

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, black, fissile, carbonaceous	0.030	89.630	
CLAYSTONE, grey	0.020	89.650	
CLAYSTONE, black, coaly in part	0.030	89.680	
<u>COAL</u> , dull and bright	0.025	89.705	
CLAYSTONE, black, fissile	0.010	89.715	
<u>COAL</u> , dull with minor bright bands	0.215	89.930	
MUDSTONE, grey, soft with a band of buff coloured carbonate at 93.0 m, carbonaceous in part (very poor roof - breaks up very easily on exposure to air)	2.890	92.820	
<u>COAL</u> , dull	1.090	93.910)
MUDSTONE, black, carbonaceous	0.140	94.050)
CLAYSTONE, mid grey, hard	0.040	94.090)
<u>COAL</u> , dull	0.050	94.140	) BLUE
CLAYSTONE, dark grey, soft	0.125	94.265	) LOWER
<u>COAL</u> , dull with minor bright bands	0.040	94.305	) SEAM
CLAYSTONE, dark grey to brown/black	0.150	94.455	) Thickness:
			) 2.275 m

018

CORNWALL COAL MT NICHOLAS D.D.H. 13

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
<u>COAL</u> , dull with minor bright bands	0.450	94.905)
)
CLAYSTONE, grey, hard	0.007	94.912)
)
<u>COAL</u> , dull with minor bright bands	0.183	95.095)
CLAYSTONE, black to grey, coaly in part	0.190	95.285	
MUDSTONE, grey, soft	0.370	95.655	
<u>COAL</u> , dull	0.250	95.905	
CLAYSTONE, black, carbonaceous to coaly	0.035	95.940	
<u>COAL</u> , bright	0.015	95.955	
, dull	0.025	95.980	
MUDSTONE, grey (includes some siltstone bands up to 0.3m)	2.910	98.890	
MUDSTONE, black	0.060	98.950	
<u>COAL</u> , dull to stony	0.360	99.310	
CLAYSTONE, dark grey, soft, with carbonaceous and coaly phases	1.970	101.280	
MUDSTONE, grey, soft	1.800	103.080	
SANDSTONE, grey, lithic, fine grained	0.570	103.650	

019

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9.

CORNWALL COAL MT NICHOLAS D.D.H. 13

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, grey, carbonaceous at base	0.100	103.750	
<u>COAL</u> , dull and bright	0.040	103.790	
CLAYSTONE, black, coaly in part	0.445	104.235	
<u>COAL</u> , dull and bright	0.060	104.295)	
, dull	0.445	104.740)	
, dull with minor bright bands	0.170	104.910)	CORNWALL
			) SEAM
CLAYSTONE, grey/brown, carbonaceous	0.040	104.950)	Thickness:
			) 0.885 m
<u>COAL</u> , dull with minor bright bands	0.170	105.120)	
CLAYSTONE, black, fissile, carbonaceous	0.050	105.170	
MUDSTONE, grey, soft, with hard grey siltstone interbeds	0.850	106.020	
MUDSTONE, grey	0.400	106.420	
SANDSTONE, medium, grey, lithic, occasional claystone bands and mudstone clasts	35.690	142.110	
MUDSTONE, grey to green/grey	3.410	145.520	
SANDSTONE, fine, grey, lithic	2.780	148.300	
MUDSTONE, grey to grey/green	0.270	148.570	

020

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10.

CORNWALL COAL MT NICHOLAS D.D.H. 13

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, black to dark brown, coaly to carbonaceous	0.360	148.930	
SANDSTONE/MUDSTONE INTERBEDS, grey, soft mudstone and hard fine grained sandstone	8.140	157.070	
SANDSTONE, grey, fine grained, hard, (strong roof)	0.490	157.560	
MUDSTONE, grey to grey/green, soft	0.200	157.760	
SANDSTONE, grey, fine grained, hard - strong roof with occasional carbonaceous partings	0.560	158.320	
CLAYSTONE, grey (moderately strong unit)	0.050	158.370	
<u>COAL</u> , dull	0.250	158.620	
MUDSTONE, black, carbonaceous, hard	0.190	158.810	
<u>COAL</u> , dull	0.350	159.160)	
)	
CLAYSTONE, black, coaly	0.040	159.200)	
		)	FENTON
<u>COAL</u> , dull to stony	0.180	159.380)	SEAM
, dull and bright	0.280	159.660)	Thickness
, dull	0.265	159.925)	3.085m

CORNWALL COAL MT NICHOLAS D.D.H. 13

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, light grey, hard	0.020	159.945)	
)	
<u>COAL</u> , dull	0.070	160.015)	
)	
CLAYSTONE, light grey, hard	0.020	160.035)	
)	
<u>COAL</u> , dull	0.015	160.050)	
)	
CLAYSTONE, dark grey/black	0.025	160.075)	
		)	FENTON
<u>COAL</u> , dull	0.290	160.365)	SEAM
		)	Thickness
CLAYSTONE, light grey, hard	0.040	160.405)	3.085 m
)	
<u>COAL</u> , dull with minor bright bands	1.050	161.455)	
)	
MUDSTONE, grey/brown, hard at top grading to grey/green - becoming soft	5.165	166.620	
SANDSTONE, grey, fine grained at top, grading to medium at end of hole, massive	5.100	171.720	

BASE OF HOLE

022

206023



SGS Australia Pty. Ltd.

REFERENCE: NL/7842
HOLE NO: 13
PLY NO: 1

RAW COAL

Mass Received	1866 g.
Relative Density	1.54
Moisture % (air dried)	5.5
Ash % (air dried)	25.7
Volatile Matter % (air dried)	25.8
Fixed Carbon % (air dried)	43.0

.....
KEN R. WILSON
LABORATORY MANAGER.



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023



SGS Australia Pty. Ltd.

REFERENCE: NL/7842
 HOLE NO: 13
 PLY NO: 2

RAW COAL

Mass Received		5368g.
Relative Density		1.60
Moisture	% (air dried)	6.7
Ash	% (air dried)	30.5
Volatile Matter	% (air dried)	23.0
Fixed Carbon	% (air dried)	39.8

	<u>Mass (g)</u>	<u>Mass%</u>	<u>Ash%</u>
20 x 0.5mm	4498	96.88	30.4 (calc)
- 0.5mm	145	3.12	40.8
		<u>100.00</u>	<u>30.7 (calc)</u>

Float / Sink Separation of 20 x 0.5mm Material

		<u>Fractional</u>		<u>Cumulative</u>	
	Mass (g)	Mass%	Ash%	Mass%	Ash%
Floats 1.60	3178	72.92	16.4	72.92	16.4
S 1.60 - F 1.70	184	4.22	41.4	77.14	17.8
Sinks 1.70	996	22.86	73.1	100.00	30.4

		<u>Plus 0.5mm F 1.60 Material</u>	<u>Plus 0.5mm Cumulative Floats 1.70 Material</u>
Yield	%	72.92	77.14
Relative Density		1.45	1.46
Moisture	% (air dried)	4.5	4.1
Ash	% (air dried)	16.4	17.8
Volatile Matter	% (air dried)	29.8	29.4
Fixed Carbon	% (air dried)	49.3	48.7
* Sulphur	% (air dried)	0.47	0.44
Specific Energy MJ/kg	(air dried)	26.04	25.50



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K. Wilson
 K. Wilson
 Manager - Laboratory

024

206025



SGS Australia Pty. Ltd.

REFERENCE: NL/7842
 HOLE NO: 13
 PLY NO: 3

RAW COAL

Mass Received 1560g.
 Relative Density 1.80
 Moisture % (air dried) 4.3
 Ash % (air dried) 48.9
 Volatile Matter % (air dried) 22.1
 Fixed Carbon % (air dried) 24.7

	Mass (g)	Mass%	Ash%
20 x 0.5mm	1283	94.62	49.4 (calc)
- 0.5mm	73	5.38	42.0
		<u>100.00</u>	<u>49.0 (calc)</u>

Float / Sink Separation of 20 x 0.5mm Material

	Mass(g)	Fractional		Cumulative	
		Mass%	Ash%	Mass%	Ash%
Floats 1.60	520	41.70	20.3	41.70	20.3
S 1.60 - F 1.70	52	4.17	42.2	45.87	22.3
Sinks 1.70	675	54.13	72.4	100.00	49.4

		Plus 0.5mm F 1.60 Material	Plus 0.5mm Cumulative Floats 1.70 Material
Yield	%	41.70	45.87
Relative Density		1.48	1.50
Moisture	% (air dried)	4.0	3.7
Ash	% (air dried)	20.2	22.2
Volatile Matter	% (air dried)	30.4	29.6
Fixed Carbon	% (air dried)	45.4	44.5
* Sulphur	% (air dried)	0.44	0.47
Specific Energy MJ/kg	(air dried)	25.00	24.12



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[Signature]

K. Wilson
 Manager - Laboratory

025



SGS Australia Pty. Ltd.

REFERENCE: NL/7842

HOLE NO: 13

PLY NO: 4

RAW COAL

Mass Received		5328g.
Relative Density		1.66
Moisture	% (air dried)	4.8
Ash	% (air dried)	36.8
Volatile Matter	% (air dried)	21.6
Fixed Carbon	% (air dried)	36.8

	<u>Mass (g)</u>	<u>Mass%</u>	<u>Ash%</u>
20 x 0.5mm	4406	97.09	36.5 (calc)
- 0.5mm	132	2.91	33.9
		<u>100.00</u>	<u>36.4 (calc)</u>

Float / Sink Separation of 20 x 0.5mm Material

		<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass(g)</u>	<u>Mass%</u>	<u>Ash%</u>	<u>Mass%</u>	<u>Ash%</u>
Floats 1.60	2682	62.62	15.2	62.62	15.2
S 1.60 - F 1.70	142	3.32	39.8	65.94	16.4
Sinks 1.70	1459	34.06	75.4	100.00	36.5

		<u>Plus 0.5mm F 1.60 Material</u>	<u>Plus 0.5mm Cumulative Floats 1.70 Material</u>
Yield	%	62.62	65.94
Relative Density		1.42	1.45
Moisture	% (air dried)	4.0	3.7
Ash	% (air dried)	15.2	16.5
Volatile Matter	% (air dried)	28.8	28.6
Fixed Carbon	% (air dried)	52.0	51.2
* Sulphur	% (air dried)	0.44	0.44
Specific Energy MJ/kg	(air dried)	26.60	26.06



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K. Wilson

 K. Wilson
 Manager - Laboratory

026

206027



SGS Australia Pty. Ltd.

Page 9 of 13

REFERENCE: NL/7842
HOLE NO: 13
PLY NO: 5

RAW COAL

Mass Received	2038g.
Relative Density	1.58
Moisture % (air dried)	5.4
Ash % (air dried)	29.5
Volatile Matter % (air dried)	23.0
Fixed Carbon % (air dried)	42.1

[Signature]

KEN R. WILSON
LABORATORY MANAGER.



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027



SGS Australia Pty. Ltd.

REFERENCE: NL/7842

HOLE NO: 13

PLY NO: 6

RAW COAL

Mass Received		1044g.
Relative Density		1.61
Moisture	% (air dried)	4.0
Ash	% (air dried)	33.4
Volatile Matter	% (air dried)	23.5
Fixed Carbon	% (air dried)	39.1

	<u>Mass (g)</u>	<u>Mass%</u>	<u>Ash%</u>
20 x 0.5mm	856	96.83	32.8 (calc)
- 0.5mm	28	3.17	37.7
		<u>100.00</u>	<u>33.0 (calc)</u>

Float / Sink Separation of 20 x 0.5mm Material

		<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass(g)</u>	<u>Mass%</u>	<u>Ash%</u>	<u>Mass%</u>	<u>Ash%</u>
Floats 1.60	415	50.18	16.5	50.18	16.5
S 1.60 - F 1.70	141	17.05	41.3	67.23	22.8
Sinks 1.70	271	32.77	53.4	100.00	32.8

		<u>Plus 0.5mm F 1.60 Material</u>	<u>Plus 0.5mm Cumulative Floats 1.70 Material</u>
Yield	%	50.18	67.23
Relative Density		1.44	1.49
Moisture	% (air dried)	3.6	3.2
Ash	% (air dried)	16.5	22.7
Volatile Matter	% (air dried)	29.7	27.4
Fixed Carbon	% (air dried)	50.2	46.7
* Sulphur	% (air dried)	0.57	0.46
Specific Energy MJ/kg	(air dried)	27.00	24.70



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K. Wilson
.....
K. Wilson
Manager - Laboratory


SGS Australia Pty. Ltd.
REFERENCE: NL/7842

HOLE NO: 13 /

PLY NO: 7

RAW COAL

Mass Received		5858g.
Relative Density		1.54
Moisture	% (air dried)	4.2
Ash	% (air dried)	24.1
Volatile Matter	% (air dried)	25.5
Fixed Carbon	% (air dried)	46.2

	<u>Mass (g)</u>	<u>Mass%</u>	<u>Ash%</u>
20 x 0.5mm	4840	96.74	24.5 (calc)
- 0.5mm	163	3.26	25.5
	<u>100.00</u>		<u>24.5 (calc)</u>

Float / Sink Separation of 20 x 0.5mm Material

	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass(g)</u>	<u>Mass%</u>	<u>Mass%</u>	<u>Ash%</u>
Floats 1.60	3343	71.69	71.69	13.8
S 1.60 - F 1.70	427	9.16	80.85	16.6
Sinks 1.70	893	19.15	100.00	24.5

		<u>Plus 0.5mm</u>	<u>Plus 0.5mm</u>
		<u>F 1.60</u>	<u>Cumulative</u>
		<u>Material</u>	<u>Floats 1.70</u>
			<u>Material</u>
Yield	%	71.69	80.85
Relative Density		1.42	1.44
Moisture	% (air dried)	3.8	3.3
Ash	% (air dried)	13.9	16.6
Volatile Matter	% (air dried)	28.1	27.6
Fixed Carbon	% (air dried)	54.2	52.5
* Sulphur	% (air dried)	0.46	0.44
Specific Energy MJ/kg	(air dried)	27.30	26.50



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.....
 K. Wilson
 Manager - Laboratory



SGS Australia Pty. Ltd.

REFERENCE: NL/7842

HOLE NO: 13

PLY NO: 7

SAMPLE DESCRIPTION: Plus 0.5mm CF1.70FORMS OF SULPHUR

Pyritic % 0.027

Sulphate % 0.001

Organic % 0.412

Hardgrove Grindability Index 56(54)

Chlorine % 0.05

Total Carbon % 65.2

Hydrogen % 4.44

Nitrogen % 1.18

Oxygen (calc by diff) % 8.84

Carbon Dioxide % 0.22

ASH FUSION °C (red atm)

Initial deformation +1560

Spherical +1560

Hemispherical +1560

Flow +1560



 KEN R. WILSON
LABORATORY MANAGER.

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SGS Australia Pty. Ltd.

REFERENCE: NL/7842
 HOLE NO: 13
 PLY NO: 7

SAMPLE DESCRIPTION:

Plus 0.5mm CF1.70

<u>*** ANALYSIS OF ASH</u>	<u>%</u>
SiO ₂	62.0
Al ₂ O ₃	31.8
Fe ₂ O ₃	1.68
CaO	1.44
MgO	0.39
Na ₂ O	0.22
K ₂ O	0.26
TiO ₂	1.30
Mn ₃ O ₄	0.033
SO ₃	0.575
** P ₂ O ₅	0.099
BaO	0.032
SrO	0.030
ZnO	0.019

Ken R. Wilson

KEN R. WILSON
LABORATORY MANAGER.



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031



SGS Australia Pty. Ltd.

206032

REPORT No: NL/7842

Page 2 of 15

COAL ANALYSIS REPORT

INTRODUCTION

The following Samples were received at S.G.S. Newcastle on 24th. November, 1984.

	<u>HOLE NO.</u>	<u>PLY NO.</u>	<u>THICKNESS (M)</u>
CORNWALL COAL COMPANY	DDH 18	1	1.530
	18	2	2.085
	13	1	0.880
	13	2	2.405
	13	3	0.620
	13	4	2.275
	13	5	0.885
	13	6	0.440
	13	7	2.645

The Raw Coal was air dried, weighed, crushed to -20mm. and screened at ± 0.5 mm. except 13/1 and 13/5 which were air dried, weighed and prepared for Raw Analysis only i.e. Relative Density and Proximate Analysis.

The ± 0.5 mm. Coal was subdivided for Raw Analysis and the remainder floated at the required Relative Density of 1.60 and 1.70. Yields and Ash reported on all Float Sink Relative Density Fractions.

The F1.60 and C.F.1.70 Samples were then analysed for Relative Density, Proximate Analysis, Sulphur and Specific Energy.

DDH 13/7 and DDH 18/2 had the extra analysis of Forms of Sulphur, Hardgrove Grindability Index, Ash Fusion, Ultimate, Chlorine and Ash Analysis carried out on the CF1.70.

Results are tabulated on pages 3 to 15.



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W.S.

032

206033



SGS Australia Pty. Ltd.

REFERENCE: NL/7842
HOLE NO: 13
PLY NO: 1

RAW COAL

Mass Received 1866g.
Relative Density 1.54
Moisture % (air dried) 5.5
Ash % (air dried) 25.7
Volatile Matter % (air dried) 25.8
Fixed Carbon % (air dried) 43.0

	<u>Mass%</u>	<u>Ash%</u>
20 x 0.5mm		
- 0.5mm		

Float / Sink Separation of 20 x 0.5mm Material

	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass%</u>	<u>Ash%</u>	<u>Mass%</u>	<u>Ash%</u>
Floats 1.60				
S 1.60 - F 1.70				
Sinks 1.70				

Plus 0.5mm
F 1.60
Material
Plus 0.5mm
Cumulative
Floats 1.70
Material

Yield %
Relative Density
Moisture % (air dried)
Ash % (air dried)
Volatile Matter % (air dried)
Fixed Carbon % (air dried)
* Sulphur % (air dried)
Specific Energy MJ/kg (air dried)



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WS

.....
K. Wilson
Manager - Laboratory

033



SGS Australia Pty. Ltd.

RAW COAL

Mass Received		5368g.
Relative Density		1.60
Moisture	% (air dried)	6.7
Ash	% (air dried)	30.5
Volatile Matter	% (air dried)	23.0
Fixed Carbon	% (air dried)	39.8

	<u>Mass(g)</u>	<u>Mass%</u>	<u>Ash%</u>
20 x 0.5mm	4498	96.88	30.4 (calc)
- 0.5mm	145	3.12	40.8
	<u>100.00</u>		<u>30.7 (calc)</u>

Float / Sink Separation of 20 x 0.5mm Material

		<u>Fractional</u>		<u>Cumulative</u>	
		<u>Mass(g)</u>	<u>Mass%</u>	<u>Mass%</u>	<u>Ash%</u>
Floats 1.60	3178	72.92	16.4	72.92	16.4
S 1.60 - F 1.70	184	4.22	41.4	77.14	17.8
Sinks 1.70	996	22.86	73.1	100.00	30.4

		<u>Plus 0.5mm F 1.60 Material</u>	<u>Plus 0.5mm Cumulative Floats 1.70 Material</u>
Yield	%	72.92	77.14
Relative Density		1.45	1.46
Moisture	% (air dried)	4.5	4.1
Ash	% (air dried)	16.4	17.8
Volatile Matter	% (air dried)	29.8	29.4
Fixed Carbon	% (air dried)	49.3	48.7
Sulphur	% (air dried)	0.47	0.44
* Specific Energy MJ/kg	(air dried)	26.04	25.50



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Wilson

.....
K. Wilson
Manager - Laboratory

034



SGS Australia Pty. Ltd.

REFERENCE: NL/7842
HOLE NO: 13
PLY NO: 2

RAW COAL

Mass Received 1560g.
Relative Density 1.80
Moisture % (air dried) 4.3
Ash % (air dried) 48.9
Volatile Matter % (air dried) 22.1
Fixed Carbon % (air dried) 24.7

Table with 4 columns: Sieve size, Mass(g), Mass%, Ash%. Rows include 20 x 0.5mm and - 0.5mm, with a total row at the bottom.

Float / Sink Separation of 20 x 0.5mm Material

Table with 6 columns: Fractional (Mass(g), Mass%, Ash%) and Cumulative (Mass%, Ash%). Rows include Floats 1.60, S 1.60 - F 1.70, and Sinks 1.70.

Table with 4 columns: Property, Unit, Plus 0.5mm F 1.60 Material, and Plus 0.5mm Cumulative Floats 1.70 Material. Rows include Yield, Relative Density, Moisture, Ash, Volatile Matter, Fixed Carbon, Sulphur, and Specific Energy.



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K. Wilson
Manager - Laboratory

035

206036



SGS Australia Pty. Ltd.

Page 10 of 15

REFERENCE: NL/7842
 HOLE NO: 13
 PLY NO: 4

RAW COAL

Mass Received		5328g.
Relative Density		1.66
Moisture	% (air dried)	4.8
Ash	% (air dried)	36.8
Volatile Matter	% (air dried)	21.6
Fixed Carbon	% (air dried)	36.8

	<u>Mass(g)</u>	<u>Mass%</u>	<u>Ash%</u>
20 x 0.5mm	4406	97.09	36.5 (calc)
- 0.5mm	132	2.91	33.9
	<u>100.00</u>		<u>36.4 (calc)</u>

Float / Sink Separation of 20 x 0.5mm Material

	<u>Fractional</u>			<u>Cumulative</u>	
	<u>Mass(g)</u>	<u>Mass%</u>	<u>Ash%</u>	<u>Mass%</u>	<u>Ash%</u>
Floats 1.60	2682	62.62	15.2	62.62	15.2
S 1.60 - F 1.70	142	3.32	39.8	65.94	16.4
Sinks 1.70	1459	34.06	75.4	100.00	36.5

		<u>Plus 0.5mm F 1.60 Material</u>	<u>Plus 0.5mm Cumulative Floats 1.70 Material</u>
Yield	%	62.62	65.94
Relative Density		1.42	1.45
Moisture	% (air dried)	4.0	3.7
Ash	% (air dried)	15.2	16.5
Volatile Matter	% (air dried)	28.8	28.6
Fixed Carbon	% (air dried)	52.0	51.2
* Sulphur	% (air dried)	0.44	0.44
Specific Energy MJ/kg	(air dried)	26.60	26.06



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.....
 K. Wilson
 Manager - Laboratory

036



SGS Australia Pty. Ltd.

REFERENCE: NL/7842
HOLE NO: 13
PLY NO: 5

RAW COAL

Mass Received 2038g.
Relative Density 1.58
Moisture % (air dried) 5.4
Ash % (air dried) 29.5
Volatile Matter % (air dried) 23.0
Fixed Carbon % (air dried) 42.1

	<u>Mass%</u>	<u>Ash%</u>
20 x 0.5mm		
- 0.5mm		

Float / Sink Separation of 20 x 0.5mm Material

	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass%</u>	<u>Ash%</u>	<u>Mass%</u>	<u>Ash%</u>
Floats 1.60				
S 1.60 - F 1.70				
Sinks 1.70				

Plus 0.5mm
F 1.60
Material
Plus 0.5mm
Cumulative
Floats 1.70
Material

Yield %
Relative Density
Moisture % (air dried)
Ash % (air dried)
Volatile Matter % (air dried)
Fixed Carbon % (air dried)
* Sulphur % (air dried)
Specific Energy MJ/kg (air dried)



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WJ

.....
K. Wilson
Manager - Laboratory

037



SGS Australia Pty. Ltd.

REFERENCE: NL/7842
 HOLE NO: 13
 PLY NO: 6

RAW COAL

Mass Received		1044g.
Relative Density		1.61
Moisture	% (air dried)	4.0
Ash	% (air dried)	33.4
Volatile Matter	% (air dried)	23.5
Fixed Carbon	% (air dried)	39.1

	<u>Mass(g)</u>	<u>Mass%</u>	<u>Ash%</u>
20 x 0.5mm	856	96.83	32.8 (calc)
- 0.5mm	28	3.17	37.7
	<u>100.00</u>		<u>33.0 (calc)</u>

Float / Sink Separation of 20 x 0.5mm Material

	<u>Fractional</u>			<u>Cumulative</u>	
	<u>Mass(g)</u>	<u>Mass%</u>	<u>Ash%</u>	<u>Mass%</u>	<u>Ash%</u>
Floats 1.60	415	50.18	16.5	50.18	16.5
S 1.60 - F 1.70	141	17.05	41.3	67.23	22.8
Sinks 1.70	271	32.77	53.4	100.00	32.8

		<u>Plus 0.5mm F 1.60 Material</u>	<u>Plus 0.5mm Cumulative Floats 1.70 Material</u>
Yield	%	50.18	67.23
Relative Density		1.44	1.49
Moisture	% (air dried)	3.6	3.2
Ash	% (air dried)	16.5	22.7
Volatile Matter	% (air dried)	29.7	27.4
Fixed Carbon	% (air dried)	50.2	46.7
* Sulphur	% (air dried)	0.57	0.46
Specific Energy MJ/kg	(air dried)	27.00	24.70



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.....
 K. Wilson
 Manager - Laboratory

038

206039



SGS Australia Pty. Ltd.

REFERENCE: NL/7842
HOLE NO: 13
PLY NO: 7

RAW COAL

Mass Received 5858g.
Relative Density 1.54
Moisture % (air dried) 4.2
Ash % (air dried) 24.1
Volatile Matter % (air dried) 25.5
Fixed Carbon % (air dried) 46.2

Table with 4 columns: Description, Mass(g), Mass%, Ash%. Rows include 20 x 0.5mm and - 0.5mm fractions, with totals at the bottom.

Float / Sink Separation of 20 x 0.5mm Material

Table with 6 columns: Description, Mass(g), Mass%, Ash%, Cumulative Mass%, Cumulative Ash%. Rows include Floats 1.60, S 1.60 - F 1.70, and Sinks 1.70.

Table with 4 columns: Property, %, Plus 0.5mm F 1.60 Material, Plus 0.5mm Cumulative Floats 1.70 Material. Rows include Yield, Relative Density, Moisture, Ash, Volatile Matter, Fixed Carbon, Sulphur, and Specific Energy.



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K. Wilson
Manager - Laboratory

039



SGS Australia Pty. Ltd.

206040

REPORT No: NL/7842
HOLE NO: 13
PLY NO: 7

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COAL ANALYSIS REPORT

SAMPLE DESCRIPTION: PLUS 0.5mm. C.F.1.70

<u>FORMS OF SULPHUR</u>	<u>%</u>
PYRITIC	0.027
SULPHATE	0.001
ORGANIC	0.412
HARDGROVE GRINDABILITY INDEX	56 (54)
CHLORINE	0.05
TOTAL CARBON	65.2
HYDROGEN	4.44
NITROGEN	1.18
OCYGEN (calculated by difference)	8.84
CARBON DIOXIDE	0.22

ASH FUSION Degrees Celcius

INITIAL DEFORMATION	+1560
SPHERICAL DEFORMATION	+1560
HEMISPHERICAL DEFORMATION	+1560
FLOW	+1560



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Handwritten signature or initials



040
SGS Australia Pty. Ltd.

REPORT No: NL/7842
HOLE NO: 13
PLY NO: 7

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COAL ANALYSIS REPORT

***	<u>ANALYSIS OF ASH</u>	<u>%</u>
	SiO ₂	62.0
	Al ₂ O ₃	31.8
	Fe ₂ O ₃	1.68
	CaO	1.44
	MgO	0.39
	Na ₂ O	0.22
	K ₂ O	0.26
	TiO ₂	1.30
	Mn ₃ O ₄	0.033
	SO ₃	0.575
**	P ₂ O ₅	0.099
	BaO	0.032
	SrO	0.030
	ZnO	0.019
	PHOSPHORUS (in ash)	0.043
	(in coal)	0.007


W. VAN der VEEN
CHIEF CHEMIST



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WV

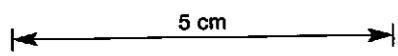
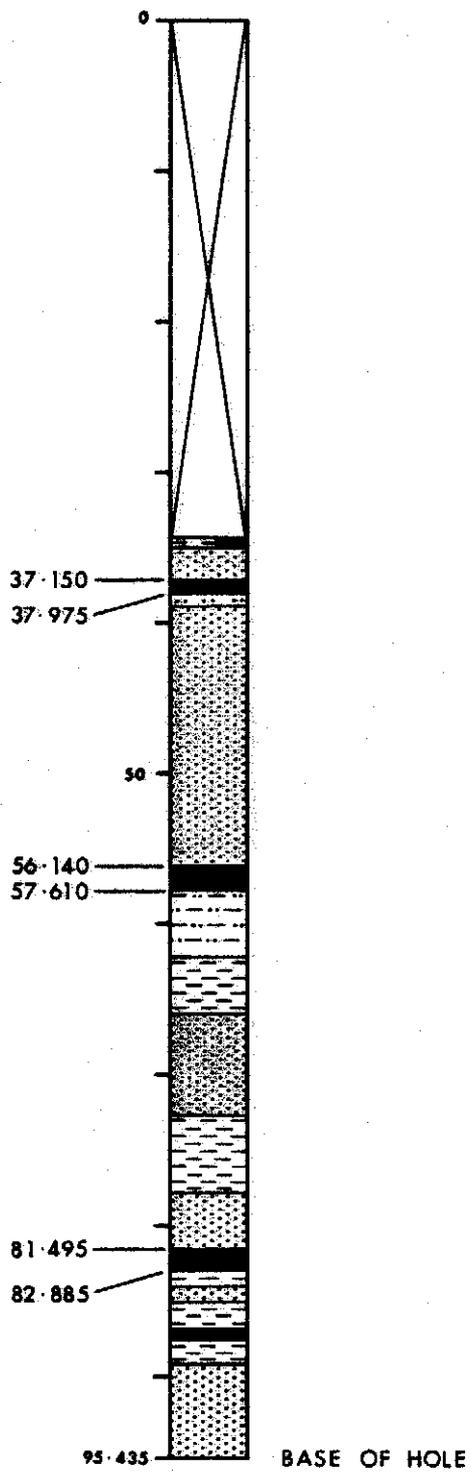
041

206042

CORNWALL COAL COMPANY N.L.

Tower Hill

DDH 14



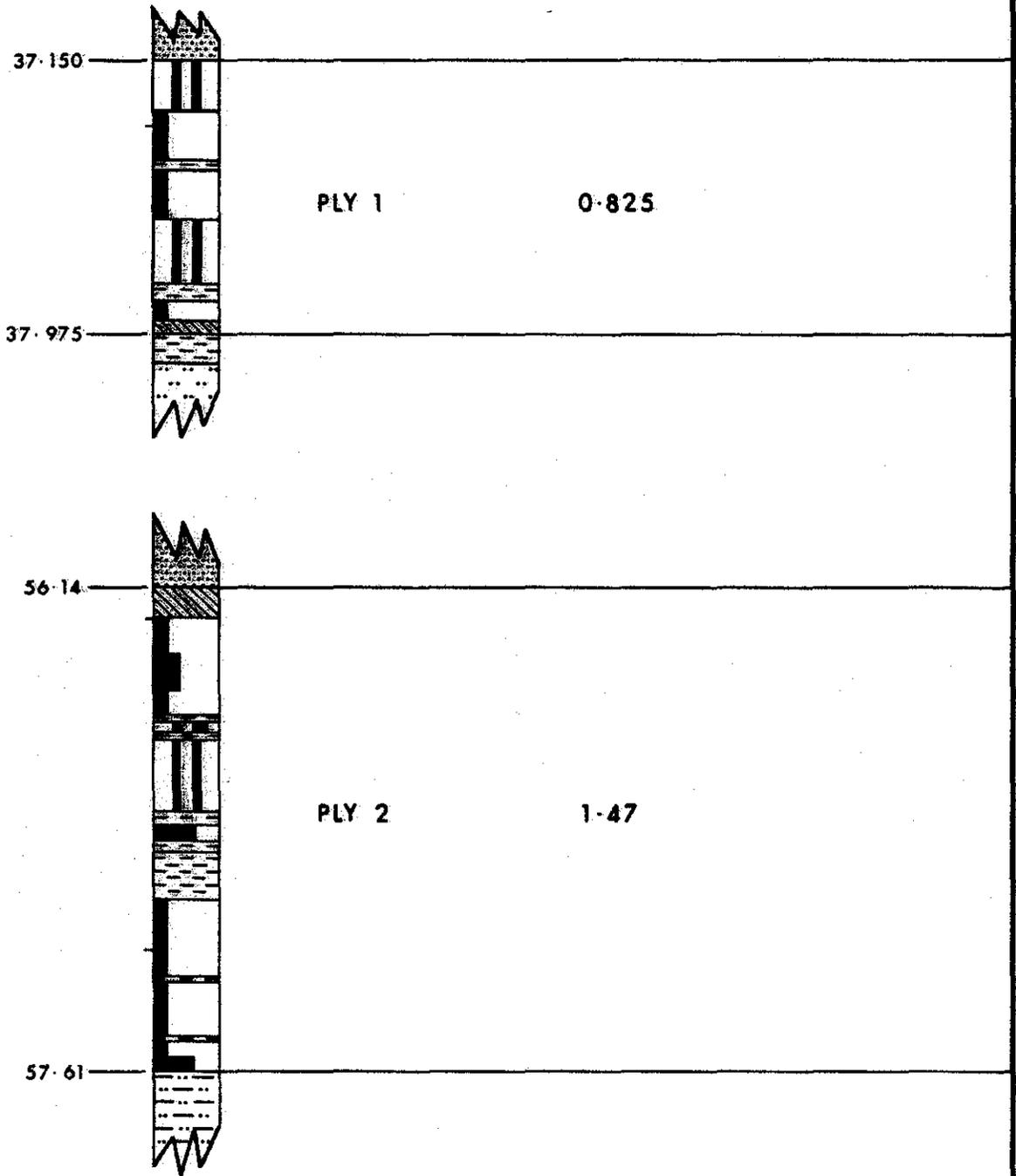
042

206043

CORNWALL COAL COMPANY N.L.

Tower Hill

DDH 14



5 cm

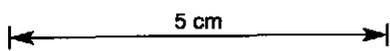
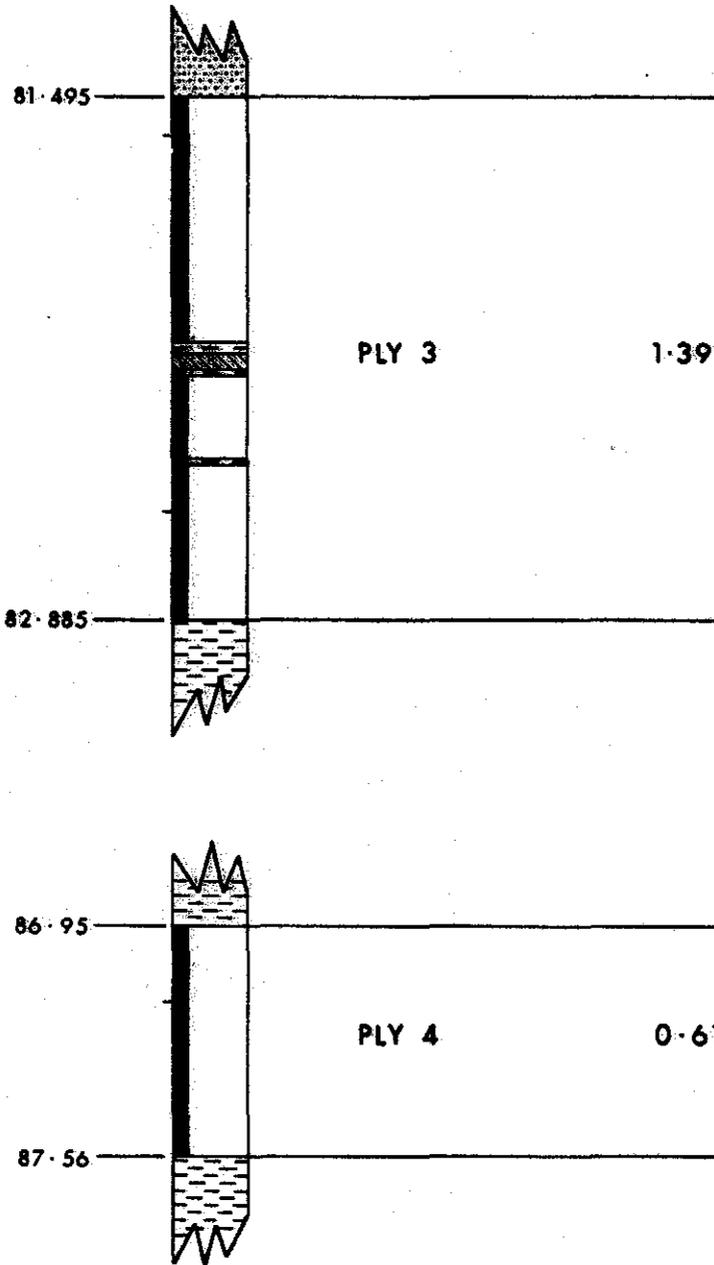
043

206044

CORNWALL COAL COMPANY N.L.

Tower Hill

DDH 14





Cornwall Coal Tower Hill DDH 14, Ply 1
from 37.150m to 37.975m; Thickness: 0.825m

045



Cornwall Coal Tower Hill DDH 14, Ply 2
from 56.140m to 57.610m; Thickness: 1.470m



Cornwall Coal Tower Hill DDH 14, Ply 3
from 81.495m to 82.885m; Thickness: 1.390m

206046

046

206047

CORNWALL COAL TOWER HILL D.D.H. 14

Location: Tower Hill
AMG Co-ordinates: E 571 550
 N 5400 013

Logged by: C.G. Lancaster
Drilled by: Stacpoole Drilling

Collar R.L.: 990 m approx.
Total Depth: 95.435 m

Commenced: 2.11.84
Completed: 9.11.84

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
NOT CORED, open hole	3.5	3.5	
SANDSTONE, light grey to greenish grey, medium to coarse, lithic, irregular siltstone lens at 6.70 m, Bedding thick to massive, subparallel, blocky to massive, vertical and subvertical joints at 18.0 - 19.0 m and 25.7 - 26.3m, irregular carbonaceous and coaly material at 29.0 - 30.5 m	30.850	34.350	
<u>COAL</u> , dull and bright, bedding disturbed	0.130	34.480	
SILTSTONE, grey, irregular coaly inclusions	0.130	34.610	
<u>COAL AND SILTSTONE INTERBEDED</u> , ratio 40:60. Coal, dull and bright; siltstone, grey, bedding vertical in part, core broken and crumbly	0.360	34.970	
SILTSTONE, grey, bedding disturbed	0.285	35.255	

047

206048

2.

CORNWALL COAL TOWER HILL D.D.H. 14

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
SANDSTONE, light grey, fine, medium and coarse interbeds, sporadic siltstone pods and lenses, minor carbonaceous material on partings, bedding thin to medium, wavy to irregular, blocky, sporadic joint plane dipping at approximately 45°	1.895	37.150	
<u>COAL</u> , stony, abrupt upper contact	0.150	37.300)
, dull with minor bright bands	0.150	37.450)
)
CLAYSTONE, brown, soft, puggy	0.030	37.480)
			) PLY 1
<u>COAL</u> , dull with minor bright bands	0.150	37.630	) Thickness
, stony	0.200	37.830	) 0.825 m
)
CLAYSTONE, brown to dark grey, soft in part	0.050	37.880)
)
<u>COAL</u> , dull with minor bright bands	0.055	37.935)
)
CLAYSTONE, black, carbonaceous	0.040	37.975)
)
CLAYSTONE, brown to black, carbonaceous at top, compact, silty at base, grades to underlying unit	0.095	38.070	
SILTSTONE, grey, numerous fine sandy phases, grades to underlying unit, bedding laminated to very thin, irregular carbonaceous remains at top, sporadic closed subvertical fractures	0.630	38.700	

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3.

CORNWALL COAL TOWER HILL D.D.H. 14

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
SANDSTONE, light grey, fine to medium interbeds, lithic, bedding laminated to very thin, grades to laminite in places, numerous carbonaceous partings particularly pronounced in basal half, bedding parallel to wavy, slabby to blocky, crushed zone 0.100 m thick at top (? fault)	6.170	44.870	
SANDSTONE, light grey, medium to coarse, sorting moderate to good, bedding medium to thick, subparallel, blocky to massive, very minor coaly laminae and wisps in centre, sub-vertical fracture at 49.0 m and 50.0 m	11.270	56.140	
CLAYSTONE, black, coaly, minor bright wisps	0.090	56.230)
<u>COAL</u> , dull with minor bright bands	0.110	56.340)
, dull with numerous bright bands	0.105	56.445	) PLY 2
, dull	0.050	56.495)
, dull with minor bright bands	0.035	56.530	) Thickness
			) 1.470 m
CLAYSTONE, speckled dark brown-black, carbonaceous in part	0.015	56.545)
<u>COAL</u> , stony, minor bright wisps	0.030	56.575)

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4.

CORNWALL COAL TOWER HILL D.D.H. 14

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, dark brown-black, carbonaceous to coaly	0.025	56.600)
<u>COAL</u> , stony to dull with minor bright bands, sporadic thin carbonaceous claystone laminae	0.215	56.815)
CLAYSTONE, grey, fissile, soft	0.045	56.860)
<u>COAL</u> , dull and bright	0.050	56.910)
CLAYSTONE, black, carbonaceous	0.025	56.935)
CLAYSTONE, grey to black, soft, carbonaceous at base	0.155	57.090	) Thickness 1.47 m
<u>COAL</u> , dull with minor bright bands	0.230	57.320)
CLAYSTONE, dark brown, carbonaceous	0.010	57.330)
<u>COAL</u> , dull with minor bright bands, sporadic thin carbonaceous claystone partings	0.170	57.500)
CLAYSTONE, speckled dark brown	0.010	57.510)
<u>COAL</u> , dull	0.055	57.565)
, dull and bright	0.045	57.610)
MUDSTONE, grey to dark grey, sporadic carbonaceous horizons, minor fine sandy phases and bands, bedding very thin to laminated, parallel to wavy, flaggy to slabby	4.760	62.370)

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5.

CORNWALL COAL TOWER HILL D.D.H. 14

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
<u>COAL</u> , dull with several very thin claystone bands	0.160	62.530	
CLAYSTONE, grey with minor sandstone interbeds	3.340	65.870	
SANDSTONE, grey to greenish grey, lithic, medium grained	6.850	72.720	
CLAYSTONE, grey with numerous sandstone interbeds, grading to dark grey carbonaceous claystone in part	5.000	77.720	
SANDSTONE, grey, fine grained, lithic with numerous carbonaceous laminae and partings (relatively strong roof strata)	3.775	81.495	
<u>COAL</u> , dull	0.655	82.150)
CLAYSTONE, grey, hard	0.035	82.185	) PLY 3
CLAYSTONE, black, coaly	0.040	82.225	) Thickness:
CLAYSTONE, grey, hard	0.008	82.233	) 1.39 m
<u>COAL</u> , dull, core broken	0.225	82.458)
CLAYSTONE, grey, hard	0.007	82.465)
<u>COAL</u> , dull with minor bright bands	0.420	82.885)

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6.

CORNWALL COAL TOWER HILL D.D.H. 14

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, grey/green, buff with minor coaly bands	0.920	83.805	
SANDSTONE, grey/green, fine grained with minor claystone interbeds	1.125	84.930	
CLAYSTONE, grey/green	0.705	85.635	
<u>COAL</u> , dull	0.025	85.660	
CLAYSTONE, grey and clayey, sandstone soft, breaks readily along bedding planes	0.800	86.460	
MUDSTONE, grey/green and black interbedded in very thin units - usually 2mm to 5mm thick	0.200	86.660	
CLAYSTONE, black to dark brown, carbonaceous	0.290	86.950	
<u>COAL</u> , dull with minor bright bands	0.610	87.560	) PLY 4
CLAYSTONE, grey/brown, grading to hard clayey sandstone towards base, carbonaceous at top	1.615	89.175	
SANDSTONE, fine to medium grained, lithic, grey	4.825	94.000	

BASE OF HOLE


SGS Australia Pty. Ltd.

(Incorporated in N.S.W.)

 74 McEvoy St.,
 Alexandria NSW 2015
 Telephone (02) 699 7625.
 Telex 22395
 NATA Reg. No. 1062

Page 1 of 4

 McElroy Bryan & Associates Pty Ltd
 P. O. Box 34
 Willoughby N.S.W. 2068

Attn : Dr. J. H. Bryan

REPORT NO SL 2880	CLIENT REF. NO
DATE SAMPLES IN 9/11/84	DATE REPORT OUT 16/11/84

REPORT TITLE: ANALYSES OF BORECORES ST. PAULS RIVER,
DDH 9 AND TOWER HILL DDH 14

The tests contained in this report have been carried out in accordance with the Australian Standards or other NATA approved methods listed below:-

AS 1038 Pt. 1	Total Moisture
AS 1038 Pt. 3	Proximate Analysis
AS 1038 Pt. 5	Specific Energy
AS 1038 Pt. 6	Ultimate Analysis
AS 1038 Pt. 8	Chlorine
AS 1038 Pt.11	Forms of Sulphur
AS 1038 Pt.12.1	Crucible Swelling Number
AS 1038 Pt.12.2	Gray King Coke Type
AS 1038 Pt.14.1	Ash Analysis
AS 1038 Pt.15	Fusibility of Ash
AS 1038 Pt.20	Hardgrove Grindability Index
AS 1038 Pt.21	Relative Density
AS 1661	Float/Sink Testing
AS 1676 XXXXXXXXXXXX	Sampling
AS 2137	Gieseler Plastometer (Dis-continuous stirring method)
AS 2486	Reflectance of Vitrinite
AS 2515	Maceral Analysis
ISO 349	Audibert Arnu Dilatometer
ISO 335	Roga Index
ISO 1018	Moisture Holding Capacity
BS 1016 Pt.17	Size Analysis
LECO Method	Total Sulphur

Samples supplied by client.

053


SGS Australia Pty. Ltd.

206054

REPORT No:

SL 2880

20 x 0mm

0.5 x 0mm

Page 3 of 4
20 x 0.5mm

Analysis	Sample Ref.	Tower Hill	Tower Hill				
		ccDDH 14 Ply 1	ccDDH 14 Ply 2	ccDDH 14 Ply 1	ccDDH 14 Ply 2	ccDDH 14 Ply 2 F 1.60	ccDDH 14 Ply 2 S 1.60
Total Moisture	%	0.825m	1.470				
Moisture	%	4.2	3.5			3.2	
Ash	%	36.0	40.2	44.0	45.9	20.3	70.1
Volatile Matter	%	20.7	23.3			29.9	
Fixed Carbon	%	39.1	33.0			46.6	
Crucible Swelling No.							
Specific Energy Mj/kg							
Total Sulphur	%						
Carbon	%						
Hydrogen	%						
Nitrogen	%						
Oxygen (plus errors)	%						
Carbon Dioxide	%						
Chlorine	%						
Relative Density		1.66	1.69			1.46	2.08
Mass (kg)		2.03	3.68	0.04	0.13		

FUSIBILITY OF COAL ASH (Atmosphere): Sintered Alumina Support
Temperatures °C at Characteristic Shapes

Initial Deformation						
Spherical						
Hemispherical						
Flow						
Comments:						

BASIS RESULTS REPORTED ON Air Dried



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COAL ANALYSIS REPORT

FLOAT / SINK ANALYSIS

ST. PAUL'S RIVER DDH 9 PLY 1

Relative Density	Fractional (%)		Cumulative (%)	
	Mass	Ash	Mass	Ash
F 1.60	90.6	15.8	90.6	15.8
S 1.60	9.4	63.7	100.0	20.3

TOWER HILL cc DDH 14 PLY 2

Relative Density	Fractional (%)		Cumulative (%)	
	Mass	Ash	Mass	Ash
F 1.60	60.2	20.3	60.2	20.3
S 1.60	39.8	70.1	100.0	40.0

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SGS Australia Pty. Ltd.

REPORT NO: SL 2882

CORNWALL COAL COMPANY

DDH14 - Ply 3

RAW COAL

Mass Received		3.146 kg
Relative Density		1.58
Moisture	% (air dried)	3.9
Ash	% (air dried)	29.8
Volatile Matter	% (air dried)	24.1
Fixed Carbon	% (air dried)	42.2

	<u>Mass %</u>	<u>Ash%</u>
20 x 0.5mm	97.8	29.7 (calc)
- 0.5mm	2.2	29.6
	<u>100.0</u>	<u>29.7 (calc)</u>

Float / Sink Separation of 20 x 0.5mm Material

	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass%</u>	<u>Ash%</u>	<u>Mass%</u>	<u>Ash%</u>
Floats 1.60	67.7	15.5	67.7	15.5
S 1.60 - F 1.70	7.4	41.4	75.1	18.1
Sinks 1.70	24.9	65.0	100.0	29.7
		(RD=2.03)		
		<u>Plus 0.5mm F 1.60 Material</u>		<u>Plus 0.5mm Cumulative Floats 1.70 Material</u>
Yield	%	67.7		75.1
Relative Density		1.45		1.49
Moisture	% (Air Dried)	3.2		3.0
Ash	% (Air Dried)	15.5		17.8
Volatile Matter	% (Air Dried)	27.8		27.5
Fixed Carbon	% (Air Dried)	53.5		51.7
Sulphur	% (Air Dried)	0.47		0.47
Specific Energy	Mj/kg	27.34		26.42
	(Air Dried)			



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SGS Australia Pty. Ltd.

REPORT NO: SL 2882

CORNWALL COAL COMPANY

DDH14 - Ply 4

RAW COAL

Mass Received		1.180 kg
Relative Density		1.46
Moisture	% (air dried)	4.1
Ash	% (air dried)	16.2
Volatile Matter	% (air dried)	27.3
Fixed Carbon	% (air dried)	52.4

	<u>Mass %</u>	<u>Ash%</u>
20 x 0.5mm		NOT REQUIRED
- 0.5mm		

Float / Sink Separation of 20 x 0.5mm Material

	<u>Fractional</u>	<u>Cumulative</u>
	<u>Mass%</u> <u>Ash%</u>	<u>Mass%</u> <u>Ash%</u>
Floats 1.60		
S 1.60 - F 1.70		
Sinks 1.70		
	NOT REQUIRED	

F 1.60
Material

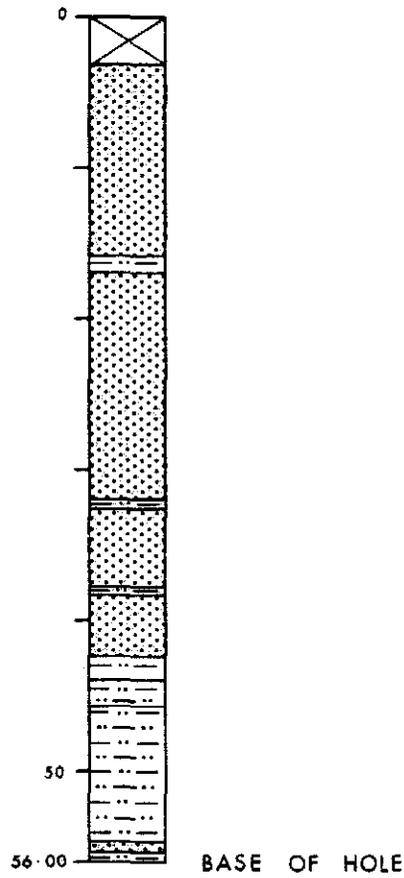
Yield	%	
Relative Density		
Moisture	% (Air Dried)	
Ash	% (Air Dried)	
Volatile Matter	% (Air Dried)	NOT REQUIRED
Fixed Carbon	% (Air Dried)	
Sulphur	% (Air Dried)	
Specific Energy	Mj/kg	



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CORNWALL COAL COMPANY N.L.
Tower Hill
DDH 15



5 cm

058

206059

CORNWALL COAL TOWER HILL D.D.H. 15

<u>Location:</u> Tower Hill	<u>Logged by:</u> J.H. Bryan
<u>AMG Co-ordinates:</u> E 570 010 N 54 00 050	<u>Drilled by:</u> H. Stacpoole
<u>Collar R.L.:</u> 940 m approx.	<u>Commenced:</u> 10.10.84
<u>Total Depth:</u> 55.98 m	<u>Completed:</u> 20.11.84

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
TRICONE ROLLER BIT	3.00	3.00	
SANDSTONE, light grey, fine grained, lithic with grey mudstone inter- beds	4.12	7.12	
SANDSTONE, grey, medium grained, lithic	8.71	15.83	
MUDSTONE, grey, soft, poorly laminated	0.94	16.77	
SANDSTONE, grey, lithic, fine grained, becoming coarser towards the base	15.23	32.00	
MUDSTONE, black	0.08	32.08	
MUDSTONE, grey, with clasts of black mudstone and sandstone	0.35	32.43	
SANDSTONE, grey, lithic, medium grained with occasional coaly lenses and fragments, - occasional conglomeratic phases	5.31	37.74	

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2.

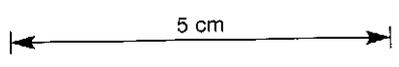
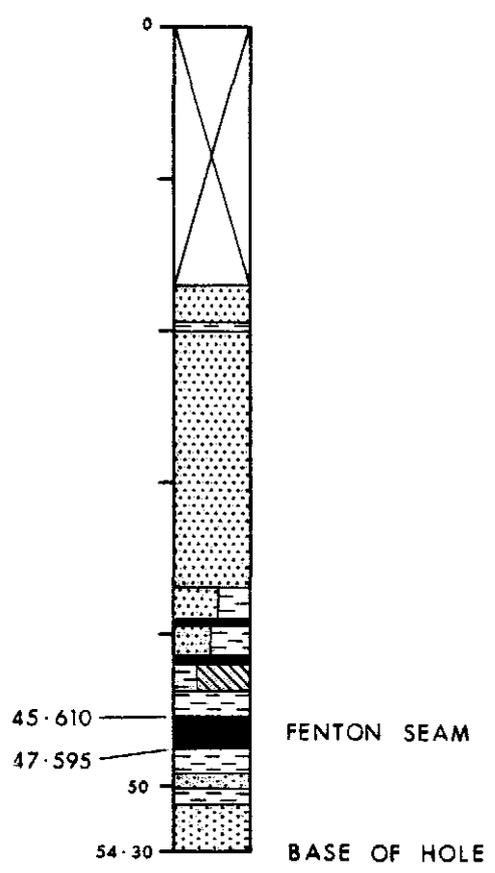
CORNWALL COAL TOWER HILL D.D.H. 15

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
MUDSTONE, grey	0.44	38.18	
SANDSTONE, grey, medium, lithic	4.12	42.30	
MUDSTONE, grey/green, soft	0.60	42.90	
MUDSTONE, black, coaly	0.28	43.18	
MUDSTONE, grey	0.805	43.985	
SANDSTONE, grey, fine, lithic	0.225	44.210	
MUDSTONE, grey, soft, carbonaceous towards base	1.250	45.460	
<u>COAL</u> , dull with minor bright bands	0.030	45.490	
CLAYSTONE, grey/brown, ? tuffaceous	0.040	45.530	
<u>COAL</u> , dull with minor bright bands	0.100	45.630	
MUDSTONE, grey, soft (breaks up readily on contact with air) with occasional siltstone or fine grained sandstone interbeds - mudstone is carbonaceous in part and varies from light grey to grey/black	8.970	54.600	
SANDSTONE, grey, fine grained, lithic	0.610	55.210	
CLAYSTONE, black, carbonaceous	0.030	55.240	
<u>COAL</u> , dull	0.085	55.325	
MUDSTONE, grey, soft	0.655	55.980	TOTAL DEPTH

CORNWALL COAL COMPANY N.L.

Mt Nicholas

DDH 16



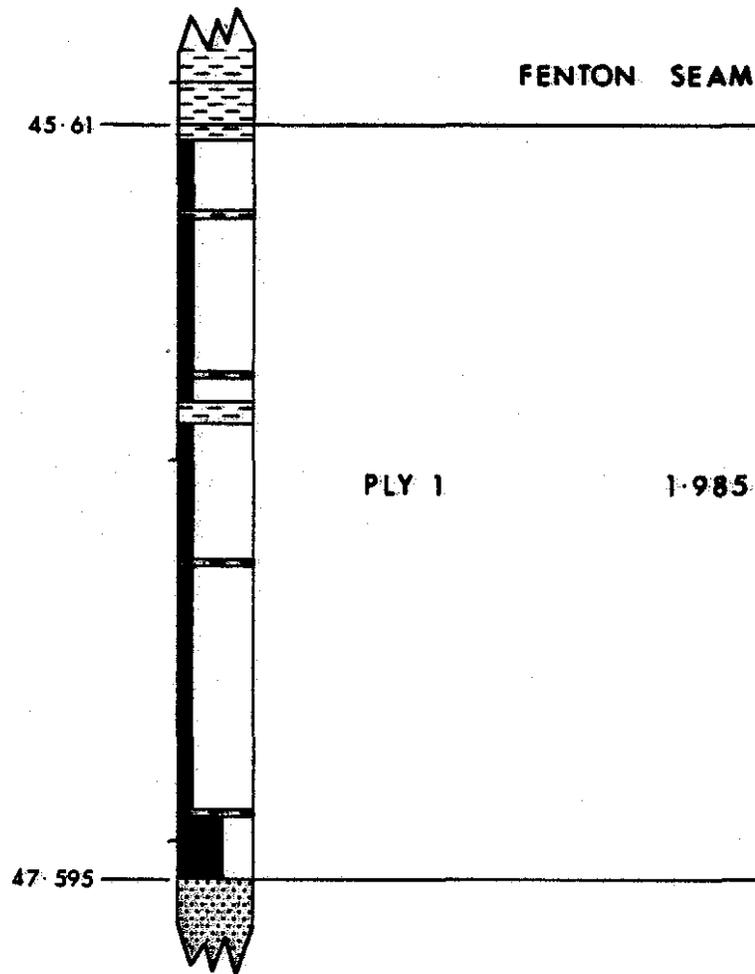
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CORNWALL COAL COMPANY N.L.

Mt Nicholas

DDH 16



5 cm



Cornwall Coal Mt Nicholas D.D.H. 16, Ply 1
Fenton Seam from 45.610m to 47.595m:
Thickness: 1.985 m

063

206064

CORNWALL COAL MT NICHOLAS D.D.H. 16

<u>Location:</u> Mt Nicholas	<u>Logged by:</u> J.H. Bryan
<u>AMG Co-ordinates:</u> E 592 447.10	<u>Drilled by:</u> Stackpoole Drilling
N 5398 507.38	
<u>Collar R.L.:</u> 393.9 m	<u>Commenced:</u> 10.11.84
<u>Total Depth:</u> 54.30 m	<u>Completed:</u> 13.11.84

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
TRICONE ROLLER BIT (NON-CORE)	17.10	17.10	
SANDSTONE, grey, lithic, medium grained	1.200	18.300	
CLAYSTONE, dark grey	0.140	18.440	
CLAYSTONE, black, carbonaceous, fissile	0.080	18.520	
SANDSTONE, grey, lithic, medium grained	0.890	19.410	
CLAYSTONE, grey, soft	0.080	19.490	
CLAYSTONE, black, carbonaceous, fissile	0.060	19.550	
CLAYSTONE, dark grey to grey/green	0.480	20.030	
SANDSTONE, grey, lithic, medium grained, occasional carbonaceous wisps and laminae	16.960	36.990	

CORNWALL COAL MT NICHOLAS D.D.H. 16

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, brown, ? tuffaceous, hard, very thin carbonaceous layers showing wavy bedding	0.110	37.100	
SANDSTONE, grey, lithic, medium grained	0.760	37.860	
CLAYSTONE, black/dark grey	0.070	37.930	
SANDSTONE, grey, fine, lithic	0.195	38.125	
CLAYSTONE, dark grey, breaks readily on bedding planes	0.870	38.995	
SANDSTONE, grey with numerous thin black carbonaceous laminae	0.115	39.110	
<u>COAL</u> , dull with minor bright bands	0.390	39.500	
CLAYSTONE, grey with occasional coaly or carbonaceous bands (readily broken along bedding planes)	1.515	41.015	
SANDSTONE/CLAYSTONE INTERBEDDED, grey to green/grey, moderately strong roof	0.525	41.540	
<u>COAL</u> , dull to stony, core broken	0.520	42.060	
CLAYSTONE, black, coaly in part	0.390	42.450	

06A

CORNWALL COAL MT NICHOLAS D.D.H. 16

	<u>Estimated Thickness</u> (m)	<u>Estimated Depth to Base of Stratum</u> (m)	<u>Remarks</u>
<u>COAL</u> , dull with minor bright bands	0.040	42.490	
CLAYSTONE, black, coaly in part	0.305	42.795	
CLAYSTONE, grey/green, soft - breaks readily	0.065	42.860	
CLAYSTONE, black, coaly in part	0.810	43.670	
CLAYSTONE, brown, soft	0.015	43.685	
CLAYSTONE, grey with minor interbeds of fine grained sandstone (relatively weak roof strata)	1.815	45.500	
CLAYSTONE, black, carbonaceous, hard	0.110	45.610	
CLAYSTONE, grey/green, soft, weak strata	0.035	45.645)
<u>COAL</u> , dull	0.190	45.835)
CLAYSTONE, grey/brown, hard	0.025	45.860)
<u>COAL</u> , dull, core broken	0.408	46.268	) FENTON SEAM
CLAYSTONE, grey, soft	0.015	46.283	) Thickness: 1.985 m
<u>COAL</u> , dull to stony	0.065	46.348)
CLAYSTONE, grey, hard	0.050	46.398)

CORNWALL COAL MT NICHOLAS D.D.H. 16

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
<u>COAL</u> , dull	0.360	46.758)
)
CLAYSTONE, grey/black, hard	0.015	46.773	) FENTON
			) SEAM
<u>COAL</u> , dull with minor bright bands	0.647	47.420)
			) Thickness
CLAYSTONE, brown, soft	0.005	47.425	) 1.985 m
)
<u>COAL</u> , dull and bright	0.170	47.595)
SANDSTONE, grey, lithic, clayey at top	0.425	48.020	
CLAYSTONE, grey, soft, as above	1.280	49.300	
SANDSTONE, fine grained, grey, lithic	0.860	50.160	
CLAYSTONE, grey, soft	1.140	51.300	
SANDSTONE, grey, lithic, medium/coarse	3.000	54.300	

BASE OF HOLE



SGS Australia Pty. Ltd.

REPORT NO: SL 2882

CORNWALL COAL COMPANY

DDH16 - P1y 1

RAW COAL

Mass Received		4.056 kg
Relative Density		1.66
Moisture	% (air dried)	4.1
Ash	% (air dried)	34.3
Volatile Matter	% (air dried)	22.0
Fixed Carbon	% (air dried)	39.6

	<u>Mass %</u>	<u>Ash%</u>
20 x 0.5mm	97.2	32.5 (calc)
- 0.5mm	2.8	35.2
	<u>100.0</u>	<u>32.6 (calc)</u>

Float / Sink Separation of 20 x 0.5mm Material

	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass%</u>	<u>Ash%</u>	<u>Mass%</u>	<u>Ash%</u>
Floats 1.60	63.2	16.9	63.2	16.9
S 1.60 - F 1.70	11.4	38.2	74.6	20.2
Sinks 1.70	25.4	68.7	100.0	32.5
		(RD=2.12)		
		<u>Plus 0.5mm</u>		<u>Plus 0.5mm</u>
		<u>F 1.60</u>		<u>Cumulative</u>
		<u>Material</u>		<u>Floats 1.70</u>
				<u>Material</u>
Yield	%	63.2		74.6
Relative Density		1.47		1.50
Moisture	% (Air Dried)	3.6		3.6
Ash	% (Air Dried)	16.9		20.1
Volatile Matter	% (Air Dried)	27.3		26.3
Fixed Carbon	% (Air Dried)	52.2		50.0
Sulphur	% (Air Dried)	0.41		0.40
Specific Energy	Mj/kg	26.32		24.86
	(Air Dried)			



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SGS Australia Pty. Ltd.

Incorporated in New South Wales

Sydney

74 McEvoy Street,
Alexandria, N.S.W.,
P.O. Box 163, Redfern, 2016
Tel.: 699-7625
Telex: AA 22395
Cables: Supervise

McElroy Bryan & Associates Pty Ltd

P. O. Box 34

Willoughby N.S.W. 2068

Attn : Dr. John H. Bryan

Your ref.:

Our ref.: SL 2905

Date : 13th. December, 1984

Dear Dr. Bryan,

Please find enclosed the additional analytical data for cumulative floats 1.70, ST. PAUL'S RIVER, DDH 16, PLY 1. This supplements the data previously reported in SL 2882.

The chlorine was determined on the raw coal so as to avoid contamination by perchloroethylene. It was assumed that chlorine in the raw coal would be similar to that in the washed coal.

Yours faithfully,

R. E. GUYOT
MANAGER - COAL LABORATORY


SGS Australia Pty. Ltd.

(Incorporated in N.S.W.)

 74 McEvoy St.,
 Alexandria NSW 2015
 Telephone (02) 699 7625,
 Telex 22395
 NATA Reg. No. 1062

Page 1 of 3

McElroy Bryan & Associates Pty Ltd

P. O. Box 34

Willoughby N.S.W. 2068
Attn : Dr. John H. Bryan

REPORT NO SL 2905	CLIENT REF. NO (Ref : SL 2882)
DATE SAMPLES IN 6/12/84	DATE REPORT OUT 13/12/84

REPORT TITLE: ADDITIONAL ANALYSES ON CUMULATIVE FLOATS 1.70
FOR ST PAUL'S RIVER DDH 16, PLY 1, CORNWALL COAL CO. NL

The tests contained in this report have been carried out in accordance with the Australian Standards or other NATA approved methods listed below:-

AS 1038 Pt. 1	Total Moisture
AS 1038 Pt. 3	Proximate Analysis
AS 1038 Pt. 5	Specific Energy
AS 1038 Pt. 6	Ultimate Analysis
AS 1038 Pt. 8	Chlorine
AS 1038 Pt.11	Forms of Sulphur
AS 1038 Pt.12.1	Crucible Swelling Number
AS 1038 Pt.12.2	Gray King Coke Type
AS 1038 Pt.14.1	Ash Analysis
AS 1038 Pt.15	Fusibility of Ash
AS 1038 Pt.20	Hardgrove Grindability Index
AS 1038 Pt.21	Relative Density
AS 1661	Float/Sink Testing
AS 1676 XXXXXXXXXXXX	Sampling
AS 2137	Gieseler Plastometer (Dis-continuous stirring method)
AS 2486	Reflectance of Vitrinite
AS 2515	Maceral Analysis
ISO 349	Audibert Arnu Dilatometer
ISO 335	Roga Index
ISO 1018	Moisture Holding Capacity
BS 1016 Pt.17	Size Analysis
LECO Method	Total Sulphur

Sample supplied by client.

071



SGS Australia Pty. Ltd.

REPORT No: SL 2905
 ST PAUL'S RIVER, DDH 16, PLY 1, CORNWALL COAL CO. NL

Analysis	Sample Ref.	Cum. Floats 1.70		Raw Coal			
		-20 + 0.5mm	-20mm+0	-20mm+0			
		*	**	*			
Total Moisture	%						
Moisture	%	3.3	-				
Ash	%	20.1	-				
Volatile Matter	%						
Fixed Carbon	%						
Crucible Swelling No.							
Specific Energy	Mj/kg						
Hardgrove Grindability		57(47)					
Index							
Total Sulphur	%	0.40	0.52				
Carbon	%	62.1	81.1				
Hydrogen	%	3.73	4.87				
Nitrogen	%	1.17	1.53				
Oxygen(plus errors)	%	9.20	11.98				
Carbon Dioxide	%						
Chlorine	%	-	-	0.02			
Relative Density							
Phosphorus in coal	%	0.004	-				
Organic Sulphur	%	0.37	0.48				
Pyritic Sulphur	%	0.03	0.04				
Sulphate Sulphur	%	< 0.01	< 0.01				

FUSIBILITY OF COAL ASH (Reducing Atmosphere): Sintered Alumina Support

Temperatures °C at Characteristic Shapes						
Initial Deformation	1240					
Spherical	+1560					
Hemispherical	+1560					
Flow	+1560					
Comments:						

BASIS RESULTS REPORTED ON * Air Dried
 ** Dry

[Signature]
 COLIN MEADS
 MANAGER - LABORATORIES



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REPORT No: SL 2905

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ST PAUL'S RIVER, DDH 16, PLY 1, CORNWALL COAL CO NL

COAL ASH ANALYSIS REPORT

Ash Constituent	Sample Ref. CF1.70 -20+0.5mm					
SiO ₂ %	61.4					
Al ₂ O ₃ %	33.4					
Fe ₂ O ₃ %	2.38					
CaO %	0.45					
MgO %	0.65					
Na ₂ O %	0.072					
K ₂ O %	0.42					
TiO ₂ %	1.00					
Mn ₃ O ₄ %	0.012					
SO ₃ %	0.035					
P ₂ O ₅ %	0.050					
BaO %	0.023					
SrO %	0.017					
ZnO %	0.032					

DETERMINED BY SYDNEY LAB

REPORTED ON THE "IGNITED BASIS @ 815°C".



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COLIN MEADS
MANAGER - LABORATORIES

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CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 17

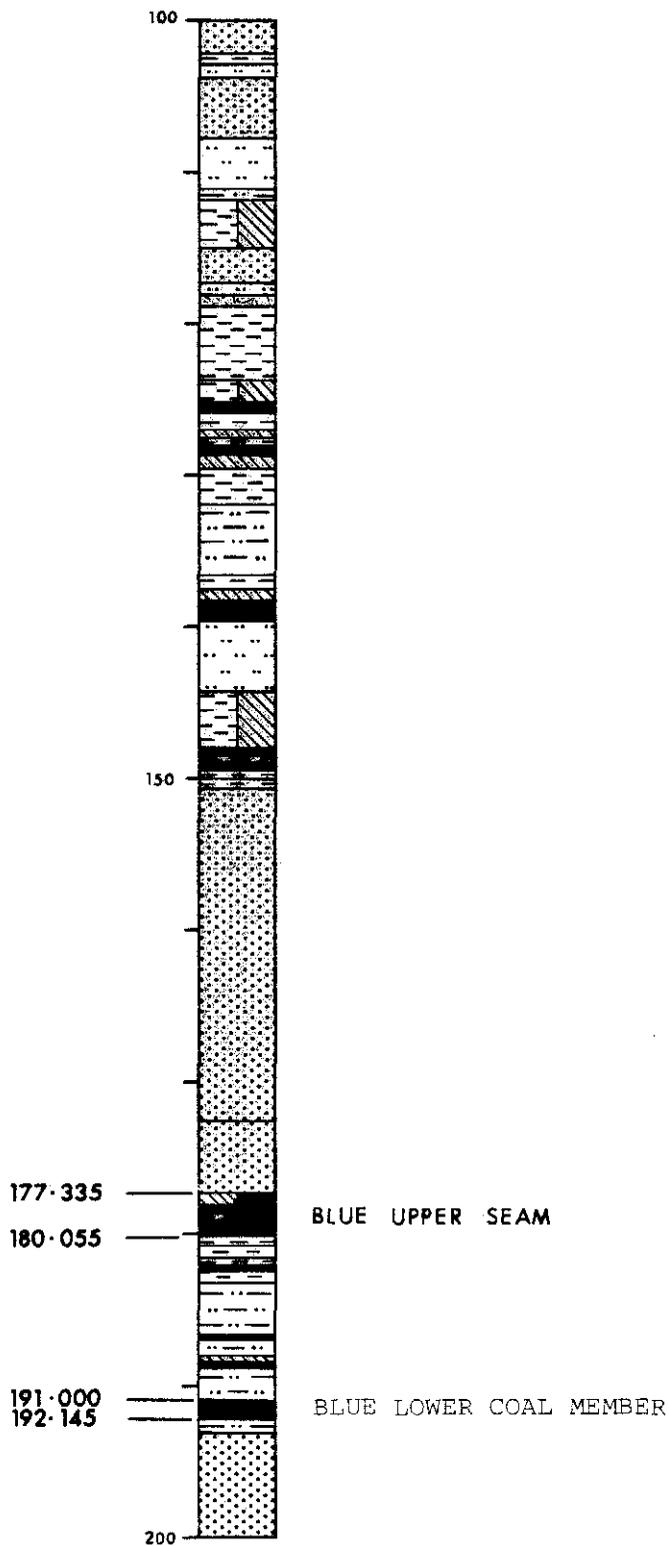


5 cm

CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 17

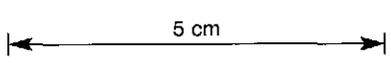
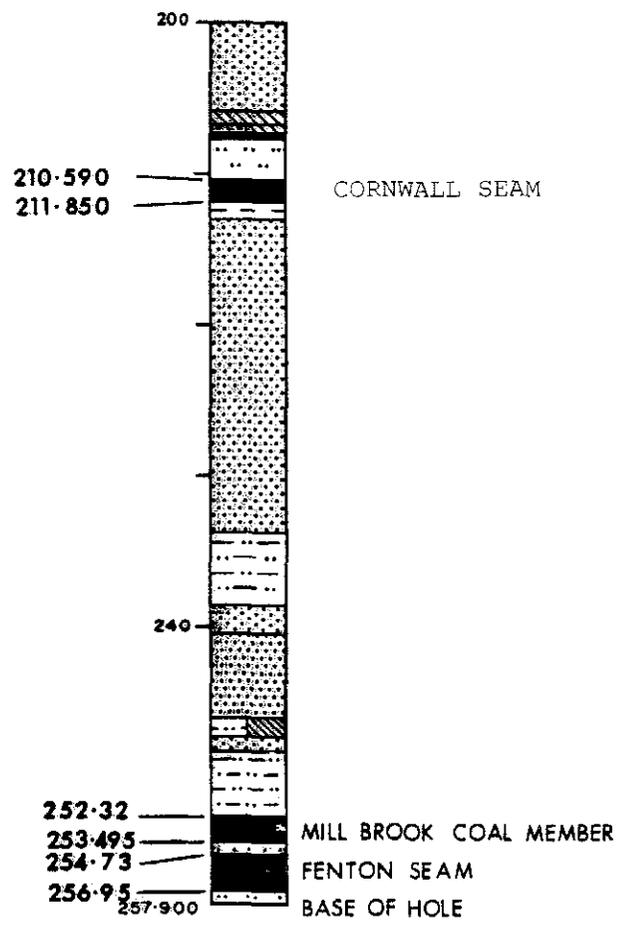


5 cm

CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 17



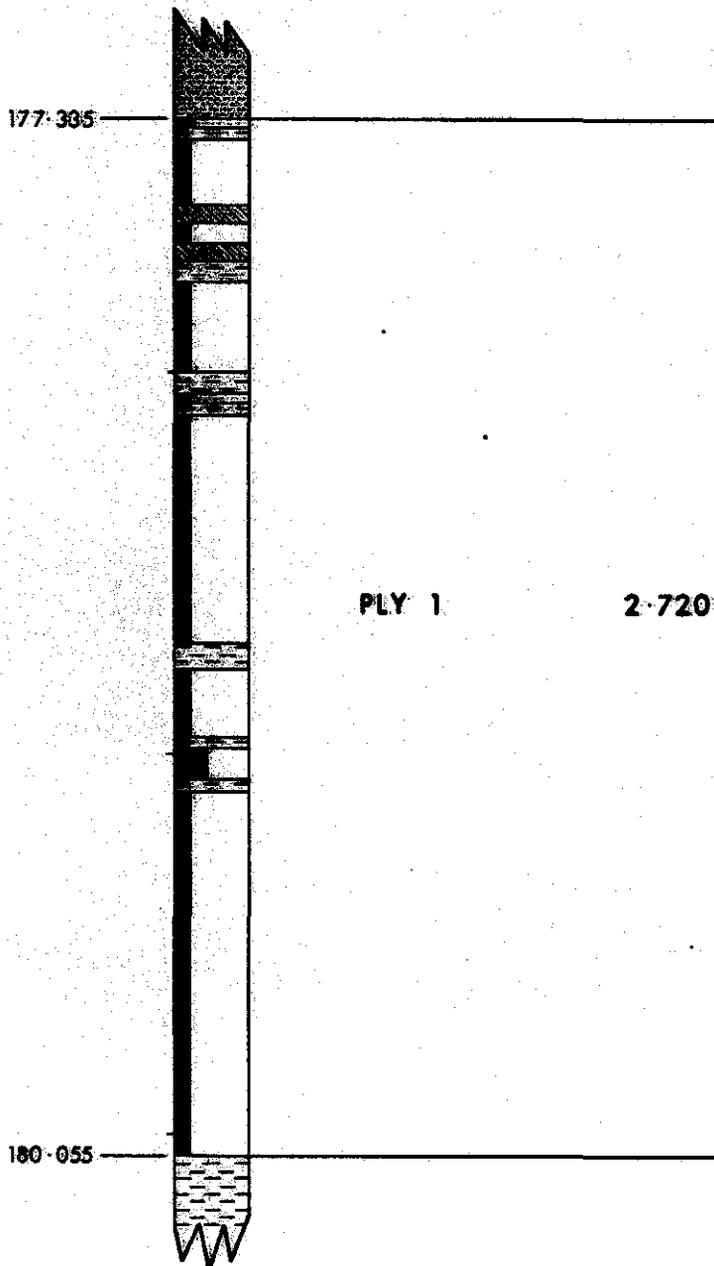
076

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CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 17

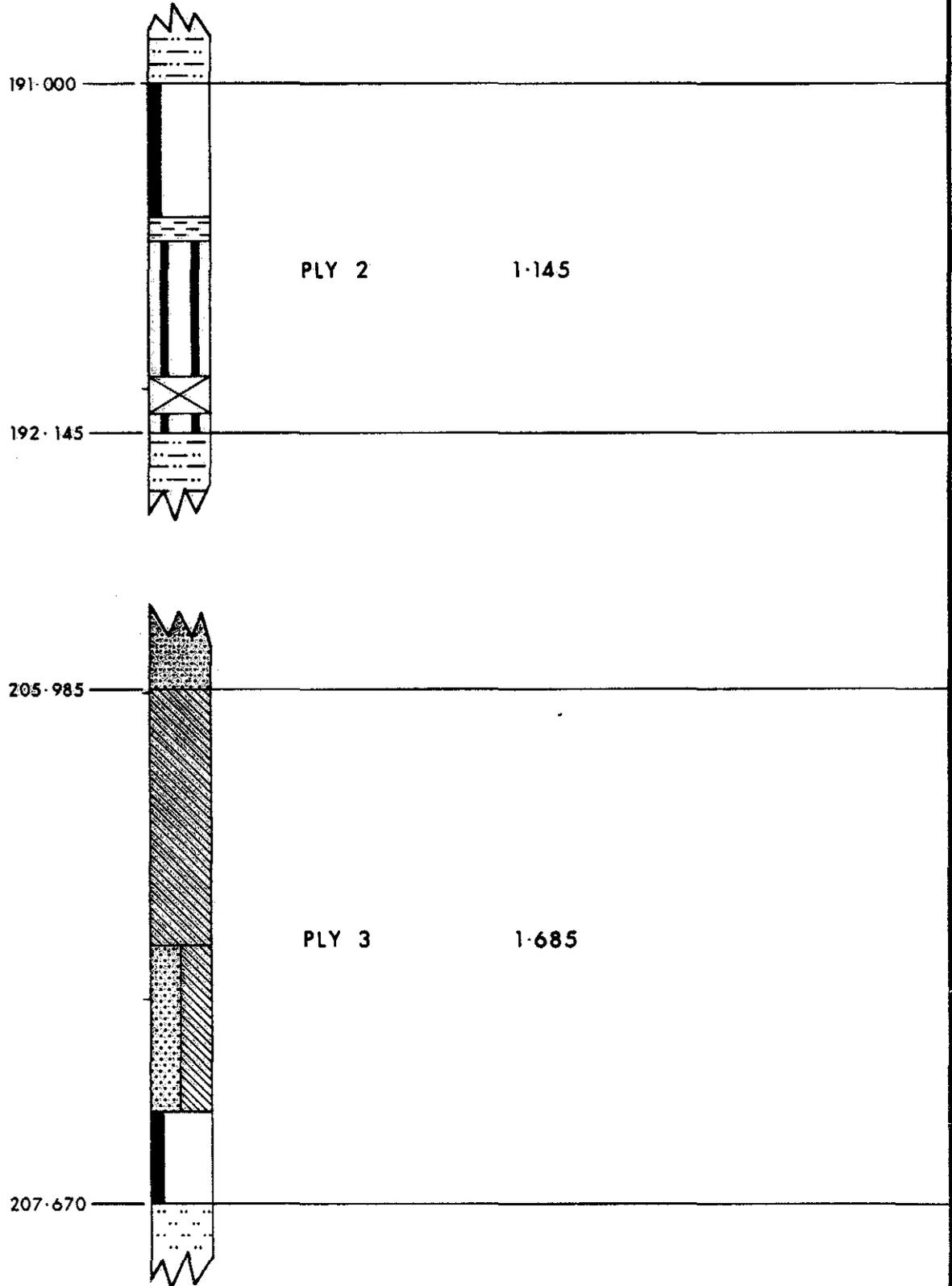


5 cm

CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 17



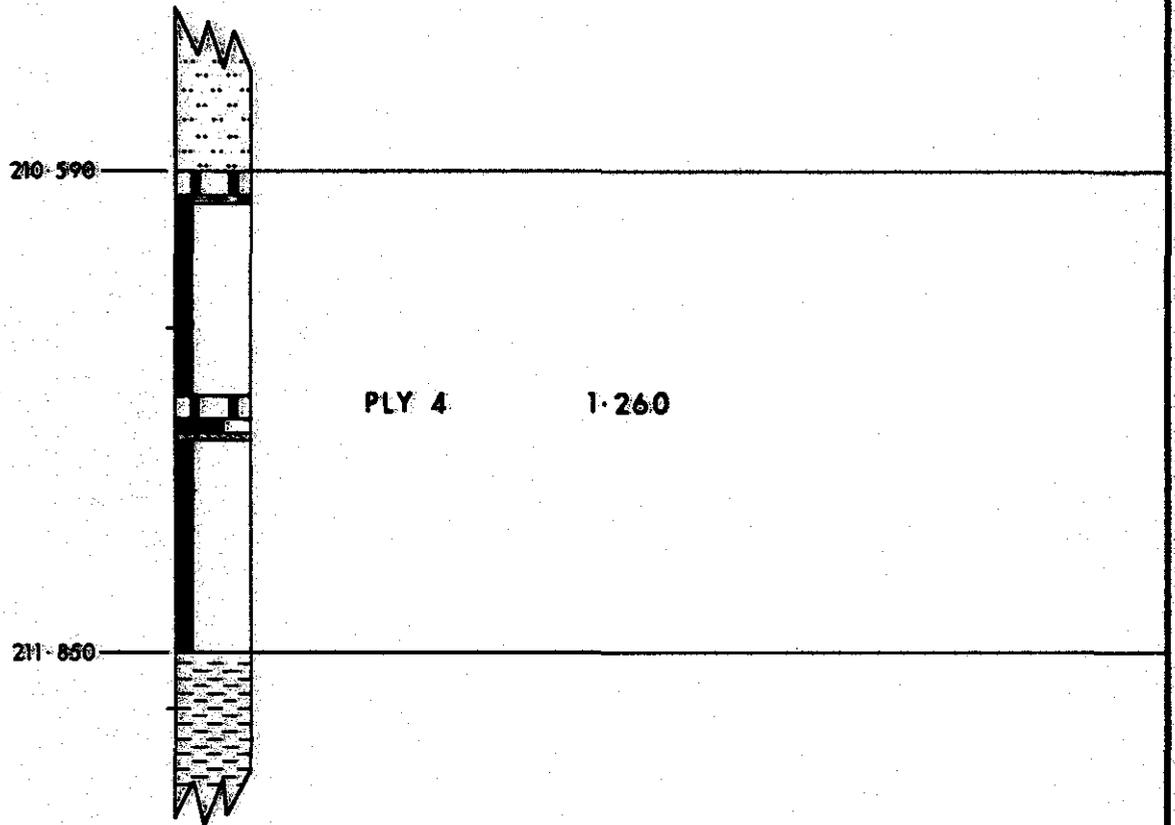
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CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 17



5 cm

0719

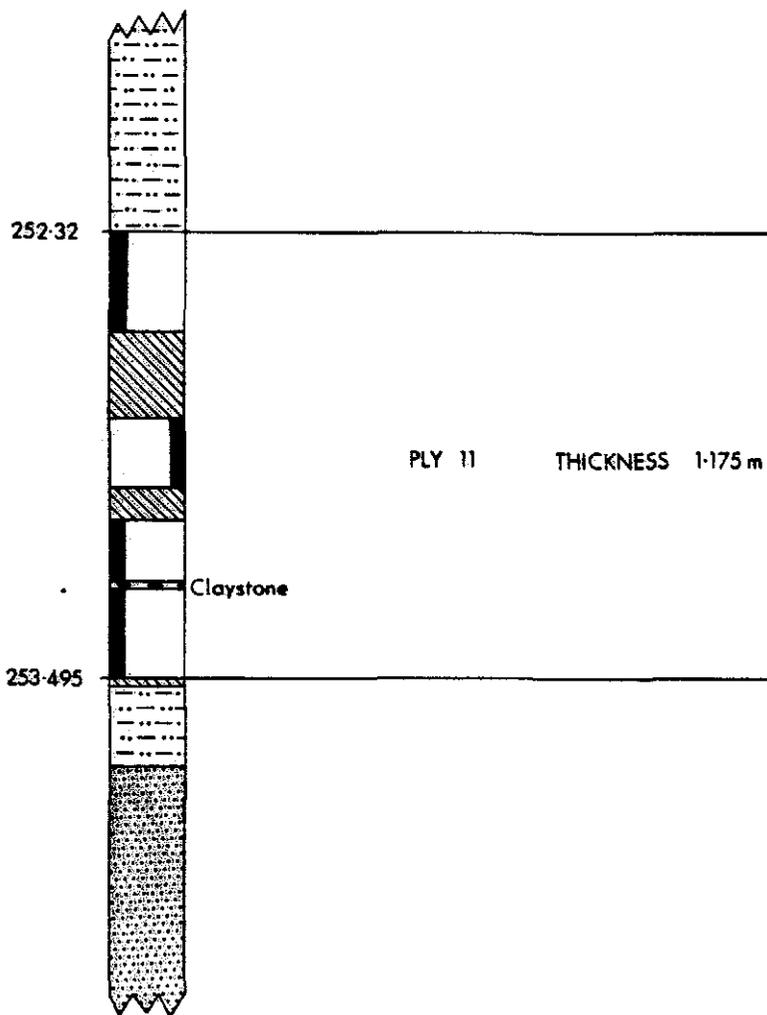
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CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 17

Millbrook Coal Member



5 cm

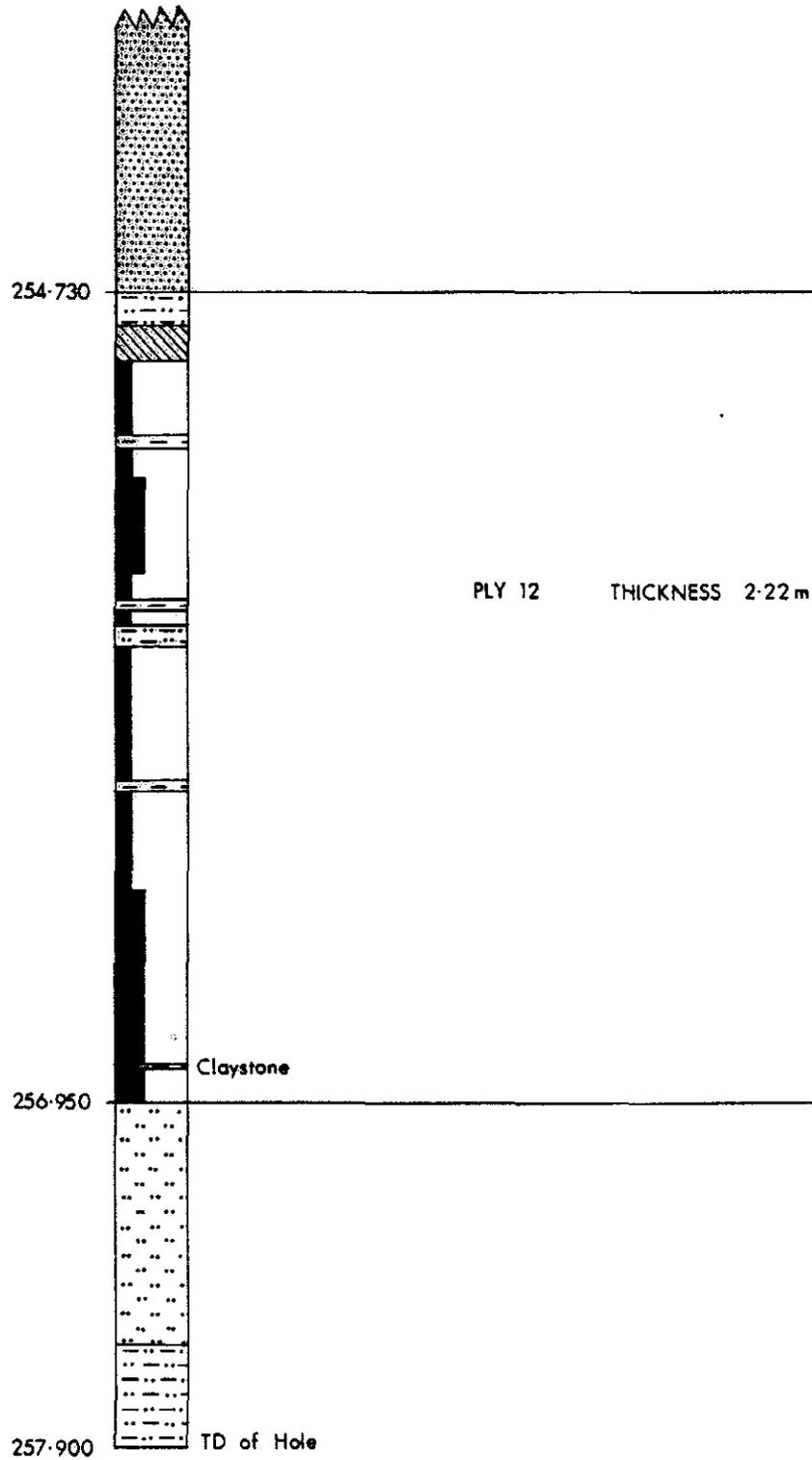
UKU

CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 17

Fenton Seam



5 cm



Cornwall Coal Mt Nicholas DDH 17 (Ply 1)
Blue Upper Seam from 177.335 m to 180.055 m



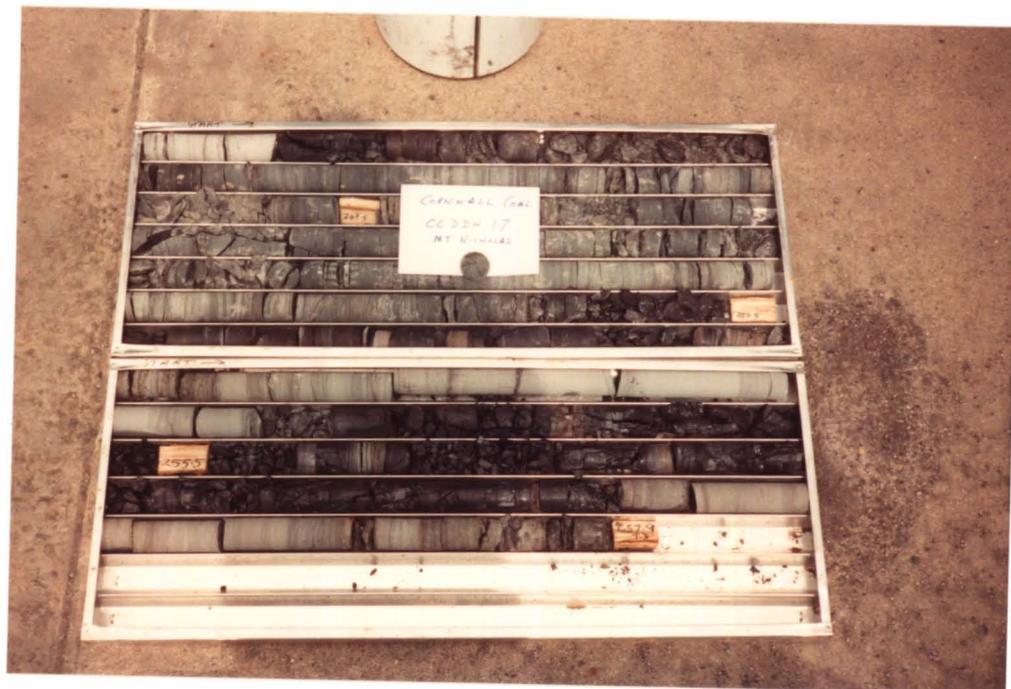
Cornwall Coal Mt Nicholas DDH 17 (Ply 2)
Blue Lower Seam from 191.000 m to 192.145 m



Cornwall Coal Mt Nicholas DDH 17 (Ply 4)
Cornwall Seam from 210.59 m to 211.85 m

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Cornwall Coal Mt Nicholas D.D.H. 17
Fenton Seam 254.73 to 256.95 m
Thickness: 2.22 m

085

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2.

CORNWALL COAL MT NICHOLAS D.D.H. 17

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, carbonaceous	0.030	86.250	
SILTSTONE, grey, laminated with fine sandy lenses	0.680	86.930	
<u>COAL</u> , stony to dull with minor bright bands, broken	0.220	87.150	
CLAYSTONE, grey, fretted and crumbly, fissile, grades to underlying unit	1.350	88.500	
SILTSTONE, grey to dark grey, interbedded with fine sandy phases, bedding laminated to thin, wavy, flaggy to slabby, grades to underlying unit	5.410	93.910	
SANDSTONE, light grey, medium, lithic, bedding laminated to thick, subparallel to wavy, blocky to massive, broken at base	8.300	102.210	
CLAYSTONE, carbonaceous to coaly	0.170	102.380	
CLAYSTONE, brown, compact	0.040	102.420	
CLAYSTONE, dark brown to black, carbonaceous at top, soft and puggy in centre	0.600	103.020	

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3.

CORNWALL COAL MT NICHOLAS D.D.H. 17

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
SILTSTONE, grey, friable and crumbly due to exposure, interlaminated with fine sandy phases, grades to underlying unit	0.790	103.810	
SANDSTONE, grey, very fine, numerous silty interlaminations, soft and crumbly	3.860	107.670	
SILTSTONE, grey to dark grey, soft and crumbly, carbonaceous in places, grades to underlying unit, bedding laminated and wavy, flaggy to fissile	3.640	111.310	
MUDSTONE LAMINITE, grey to black alternating laminations, carbonaceous in part, grades to siltstone at base	0.625	111.935	
SANDSTONE, light grey, medium to coarse, lithic	0.270	112.205	
CLAYSTONE, carbonaceous	0.190	112.395	
CLAYSTONE, grey, minor carbonaceous remains	0.115	112.510	
CLAYSTONE, carbonaceous to coaly	0.075	112.585	
CLAYSTONE, grey, sporadic carbonaceous lenses and wisps, soft and fissile in part	0.450	113.035	

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4.

CORNWALL COAL MT NICHOLAS D.D.H. 17

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, carbonaceous to coaly	0.230	113.265	
CLAYSTONE, grey, sporadic carbonaceous remains	0.185	113.450	
CLAYSTONE, dark grey to black, carbonaceous and coaly in parts, broken in centre	0.725	114.175	
<u>COAL</u> , dull with minor bright bands	0.080	114.255	
CLAYSTONE, dark grey, carbonaceous in part, completely broken at top, thin coaly lenses at base	0.670	114.925	
SANDSTONE, light grey, medium, lithic, broken in centre, silty at top and base, bedding thin to medium, sub-parallel, numerous vertical and sub-vertical fractures	2.530	117.455	
SILTSTONE, grey, numerous claystone laminations, flaggy	0.745	118.200	
IGNEOUS, cream to white, fine, crystalline, moderately hard	0.770	118.970	
CLAYSTONE, carbonaceous, sporadic thin grey to dark brown claystone bands and lenses, core broken in places	4.730	123.700	

CORNWALL COAL MT NICHOLAS D.D.H. 17

	<u>Estimated Thickness</u> (m)	<u>Estimated Depth to Base of Stratum</u> (m)	<u>Remarks</u>
CLAYSTONE, light brown, compact, waxy	0.310	124.010	
CLAYSTONE, carbonaceous, minor coaly lenses	0.635	124.645	
CLAYSTONE, cream to light brown, waxy, compact, broken near base, fissile to flaggy	0.385	125.030	
CLAYSTONE, carbonaceous to coaly	0.310	125.340	
CLAYSTONE, brown, waxy, compact, thin carbonaceous wisps	0.055	125.395	
<u>COAL</u> , dull with numerous bright bands	0.070	125.465	
, dull to stony, broken	0.140	125.605	
, stony to dull with minor bright bands, broken	0.170	125.775	
CLAYSTONE, grey to brown, waxy, carbonaceous lenses in centre, sandy texture at base	1.350	127.125	
CLAYSTONE, black, carbonaceous to coaly	0.425	127.550	
CLAYSTONE, interbanded carbonaceous and brown lenses, compact	0.570	128.120	
<u>COAL</u> , dull with minor bright bands	0.155	128.275	
CLAYSTONE, green, hard	0.020	128.295	

CORNWALL COAL MT NICHOLAS D.D.H. 17

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
<u>COAL</u> , stony to dull with minor bright bands	0.250	128.545	
CLAYSTONE, greenish grey, waxy, compact, soft and puggy at base, flaggy	0.270	128.815	
CLAYSTONE, carbonaceous to coaly, sporadic bright wisps	0.820	129.635	
CLAYSTONE, brown to grey interbanded with carbonaceous lenses, minor coaly bands, broken, flaggy	2.160	131.795	
MUDSTONE, grey to dark grey, laminated, bedding wavy, silty bands in places, flaggy to slabby	4.835	136.630	
CLAYSTONE, brown, minor carbonaceous bands near top, puggy at basal 0.100m, plant remains on partings, waxy	0.850	137.480	
CLAYSTONE, carbonaceous, soft	0.215	137.695	
CLAYSTONE, brown	0.090	137.785	
CLAYSTONE, carbonaceous	0.335	138.120	
CLAYSTONE, coaly	0.185	138.305	
<u>COAL</u> , stony, broken	0.185	138.490	
CLAYSTONE, greenish grey	0.055	138.545	

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7.

CORNWALL COAL MT NICHOLAS D.D.H. 17

	<u>Estimated Thickness</u> (m)	<u>Estimated Depth to Base of Stratum</u> (m)	<u>Remarks</u>
<u>COAL</u> , stony, minor bright bands	0.170	138.715	
, dull with numerous bright bands, broken	0.105	138.820	
CLAYSTONE, dark grey to black, carbonaceous in part	0.155	138.975	
<u>COAL</u> , stony to dull with minor bright bands, broken	0.430	139.405	
SILTSTONE, grey, laminated, bedding wavy to sub-parallel, sandy in places, flaggy to slabby, thin coaly band (0.100m thick) at 140.55 m	4.850	144.255	
CLAYSTONE, brown to dark brown, carbonaceous at base, broken	0.300	144.555	
<u>COAL</u> , stony, broken	0.250	144.805	
CLAYSTONE, carbonaceous, broken at top, sporadic fissile brown lenses, minor coaly bands	1.170	145.975	
CLAYSTONE, brown, fissile	0.220	146.195	
CLAYSTONE, carbonaceous to coaly, sporadic thin brown bands	0.640	146.835	
CLAYSTONE, brown, fissile	0.240	147.075	
CLAYSTONE, black to brown, coaly at top and base	0.260	147.335	

CORNWALL COAL MT NICHOLAS D.D.H. 17

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, grey to black, carbonaceous bands in places, flaggy to fissile	0.645	147.980	
<u>COAL</u> , stony to dull with minor bright bands, broken	0.220	148.200	
CORE LOSS	0.160	148.360	
CLAYSTONE, brownish grey, compact, waxy	0.035	148.395	
<u>COAL</u> , stony to dull with minor bright bands	0.190	148.585	
CLAYSTONE, brown, waxy, compact, interbedded with carbonaceous bands	0.380	148.965	
<u>COAL</u> , dull with minor bright bands, broken	0.140	149.105	
CORE LOSS	0.150	149.255	
CLAYSTONE, speckled brown	0.035	149.290	
<u>COAL</u> , stony to dull with minor bright bands	0.170	149.460	
CLAYSTONE, brown to black, interbanded carbonaceous and coaly lenses with wavy and compact bands, broken in places	0.670	150.130	

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CORNWALL COAL MT NICHOLAS D.D.H. 17

	<u>Estimated Thickness</u> (m)	<u>Estimated Depth to Base of Stratum</u> (m)	<u>Remarks</u>
CLAYSTONE, grey, silty at base, grades to underlying unit	0.610	150.740	
SANDSTONE, light grey, medium to coarse, minor fine phases, lithic, sporadic coaly inclusions mostly on partings, bedding thin to very thick, subparallel to wavy, blocky to massive	21.790	172.530	
CLAYSTONE, black, carbonaceous, broken	0.080	172.610	
SANDSTONE, light grey, medium to coarse, lithic, siltstone blebs at base, bedding very thick, massive, irregular basal contact with coal	4.725	177.335	
<u>COAL</u> , dull	0.020	177.355)
CLAYSTONE, dark brown, compact, hard	0.030	177.385)
<u>COAL</u> , dull, bright wisps, pyrite on fracture	0.180	177.565)
CLAYSTONE, carbonaceous	0.045	177.610	) BLUE UPPER SEAM
<u>COAL</u> , dull with minor bright bands	0.055	177.665)
CLAYSTONE, carbonaceous	0.040	177.705	) Thickness: 2.720m
CLAYSTONE, brown, waxy, fissile	0.060	177.765)
<u>COAL</u> , dull with minor bright bands, slickensided upper surface	0.230	177.995)

CORNWALL COAL MT NICHOLAS D.D.H. 17

	<u>Estimated Thickness</u> (m)	<u>Estimated Depth to Base of Stratum</u> (m)	<u>Remarks</u>
CLAYSTONE, brown, waxy, fissile	0.060	178.055)	
)	
<u>COAL</u> , dull	0.025	178.080)	
)	
CLAYSTONE, brown, waxy, fissile	0.030	178.110)	
)	
<u>COAL</u> , dull with minor bright bands, thin claystone partings at top, minor calcite on cleat	0.600	178.710)	
)	
CLAYSTONE, brown, waxy, fissile, minor carbonaceous wisps	0.070	178.780)	BLUE UPPER
		)	SEAM
<u>COAL</u> , dull with minor bright bands	0.180	178.960)	
)	
CLAYSTONE, dark brown, soft, fissile	0.025	178.985)	
)	
<u>COAL</u> , dull with numerous bright bands, broken	0.080	179.065)	
)	
CLAYSTONE, brown	0.030	179.095)	
)	
<u>COAL</u> , dull with minor bright bands, sporadic thin claystone partings	0.960	180.055)	
)	
CLAYSTONE, dark grey to dark brown, carbonaceous in part, sporadic bright coaly lenses	0.430	180.485	
<u>COAL</u> , dull with numerous bright bands	0.080	180.565	
CLAYSTONE, carbonaceous to coaly, broken at base	0.135	180.700	

CORNWALL COAL MT NICHOLAS D.D.H. 17

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, grey, waxy, compact, coaly lens near base	0.875	181.575	
<u>COAL</u> , stony, broken	0.070	181.645	
CLAYSTONE, grey	0.440	182.085	
<u>COAL</u> , stony	0.120	182.205	
, dull with numerous bright bands	0.045	182.250	
CLAYSTONE, grey, waxy, compact	0.625	182.875	
CLAYSTONE, dark grey to black, carbonaceous to coaly	0.205	183.080	
CLAYSTONE, grey, waxy, compact	0.295	183.375	
CLAYSTONE, white to cream, hard and soft wavy laminae, ? igneous remnant	0.070	183.445	
MUDSTONE, grey to dark grey, carbonaceous in parts, numerous fine sandy phases, bedding laminated to thin, subparallel, flaggy	3.390	186.835	
<u>COAL</u> , dull with minor bright bands, broken	0.125	186.960	
MUDSTONE, as for 3.390 m unit above	1.000	187.860	
CLAYSTONE, carbonaceous to coaly, semi conchoidal fracture	0.520	188.480	

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12.

CORNWALL COAL MT NICHOLAS D.D.H. 17

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
<u>COAL</u> , stony	0.350	188.830	
MUDSTONE, grey to dark grey, carbonaceous at top and base, numerous fine sandy phases, mostly flaggy	2.170	191.000	
<u>COAL</u> , dull with minor bright bands, broken at top	0.440	191.440	) ) BLUE) LOWER
CLAYSTONE, dark brownish-grey, waxy, compact	0.075	191.515	) COAL) MEMBER
<u>COAL</u> , stony, broken	0.450	191.965	) PLY 2)
CORE LOSS	0.120	192.085))
<u>COAL</u> , stony, broken	0.060	192.145)
MUDSTONE, grey, carbonaceous at top, broken at top, grades to fine grained sandstone at base, flaggy	1.000	193.145	
SANDSTONE, light grey, fine at top grading to medium and coarse, lithic, bedding laminated to thick, parallel to subparallel, blocky to massive, sporadic lenses of carbonaceous debris, rough subvertical fracture near base	12.840	205.985	
CLAYSTONE, black, carbonaceous, thin coaly laminae at top, grades to underlying laminite	0.840	206.825)) PLY 3)

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13.

CORNWALL COAL MT NICHOLAS D.D.H. 17

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
SANDSTONE AND SILTSTONE LAMINITE, ratio 50:50. Sandstone, grey to dark grey, fine, lithic; siltstone, dark grey to black, carbonaceous, bedding subparallel, flaggy	0.550	207.375	) ) ) ) ) PLY 3
<u>COAL</u> , dull with minor bright bands, broken at base	0.295	207.670))
SILTSTONE, grey to dark grey, carbonaceous and coaly bands at top, sporadic slickensided surfaces, flaggy to slabby, numerous very fine sandy phases in centre, subvertical fracture at base, irregular slickensided contact with underlying coal	2.920	210.590)
<u>COAL</u> , stony	0.065	210.655	) ) CORNWALL
CLAYSTONE, brown, soft	0.020	210.675	) SEAM)
<u>COAL</u> , stony to dull with minor bright bands	0.500	211.175	) PLY 4
, stony	0.065	211.240)
, dull and bright	0.035	211.275))
CLAYSTONE, carbonaceous	0.015	211.290))
<u>COAL</u> , dull with minor bright bands	0.560	211.850)
CLAYSTONE, grey, carbonaceous lenses in top half, slickensided surfaces at top	1.120	212.970)

CORNWALL COAL MT NICHOLAS D.D.H. 17

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
SANDSTONE, light grey, fine at top grading to medium and coarse, sporadic very coarse to granular phases, minor carbonaceous and coaly lenticules bedding thin to thick, subparallel, massive	20.840	233.810	
CLAYSTONE, brown, hard, ? sideritic	0.080	233.890	
MUDSTONE, greenish-grey, moderately soft, hard ? sideritic bands at 236 m and 237 m	4.820	238.710	
SANDSTONE, light grey, fine to medium, lithic	1.790	240.500	
SANDSTONE, as for 1.790 m unit above,	5.140	245.640	Hole cleaned out & continued beyond original
CLAYSTONE, black, coaly	0.030	245.670	TD - 240.5m - coring commenced
CLAYSTONE, brown, carbonaceous	0.015	245.685	On 21/1/85
CLAYSTONE, black, coaly	0.060	245.745	
MUDSTONE, grey to grey/brown, sandy in part	0.865	246.610	
SANDSTONE, fine grained, grey, lithic, with numerous dark grey mudstone bands up to 4 cm thick	0.810	247.420	

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15.

CORNWALL COAL MT NICHOLAS D.D.H. 17

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
<u>COAL</u> , dull with minor bright bands	0.230	247.650	
MUDSTONE, grey to grey/green - parts readily along bedding planes and breaks up readily	4.670	252.320	
<u>COAL</u> , dull with minor bright bands	0.180	252.500	) Top of Millbrook Coal Membe
, dull	0.090	252.590)
)
CLAYSTONE, dark brown to black, coaly in part - carbonaceous throughout	0.220	252.810)
)
CLAYSTONE, grey, hard	0.010	252.820)
)
<u>COAL</u> , dull	0.005	252.825)
)
CLAYSTONE, grey, hard, ? tuffaceous	0.025	252.850)
)
CLAYSTONE, black, coaly	0.035	252.885	) MILLBROOK
			) COAL MEMBEI
<u>COAL</u> , dull	0.045	252.930)
			) PLY 11
CLAYSTONE, brown	0.030	252.960)
			) Thickness
<u>COAL</u> , dull	0.040	253.000	) 1.175 m
)
CLAYSTONE, black, carbonaceous	0.085	253.085)
)
<u>COAL</u> , dull	0.160	253.245)
)
CLAYSTONE, brown, hard	0.010	253.255)
)
<u>COAL</u> , dull	0.240	253.495)

CORNWALL COAL MT NICHOLAS D.D.H. 17

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, black, carbonaceous	0.020	253.515	
MUDSTONE, grey to grey/brown	0.215	253.730	
SANDSTONE, grey, fine grained, lithic with minor siltstone bands	1.000	254.730	
MUDSTONE, grey/green	0.080	254.810)
)
CLAYSTONE, black, coaly	0.100	254.910)
)
<u>COAL</u> , dull	0.210	255.120	) FENTON
			) SEAM
CLAYSTONE, brown, hard	0.040	255.160	) PLY 12
)
<u>COAL</u> , dull	0.080	255.240)
, dull with numerous bright bands	0.260	255.500)
, dull	0.070	255.570)
)
CLAYSTONE, grey, hard	0.025	255.595)
)
<u>COAL</u> , dull	0.040	255.635)
)
MUDSTONE, grey, hard	0.056	255.690	) Drilling rate
			) slow due to
			) water loss.
			) 2-4 m per
<u>COAL</u> , dull	0.380	256.070	) 1000 gallons
			) of water.
			) 6-7 loads
CLAYSTONE, grey to grey/brown	0.035	256.105	) per day
			) possible due
			) to poor road
<u>COAL</u> , dull	0.270	256.375	) conditions.
, dull with numerous bright bands	0.470	256.845)

CORNWALL COAL MT NICHOLAS D.D.H. 17

	<u>Estimated Thickness</u> (m)	<u>Estimated Depth to Base of Stratum</u> (m)	<u>Remarks</u>
CLAYSTONE, brown, soft	0.010	256.855 )	) FENTON
<u>COAL</u> , dull with numerous bright bands	0.095	256.950 )	) SEAM
SILTSTONE, grey, hard, with minor claystone bands (good floor)	0.670	257.620	Hole terminated on 23/1/85 at 11.35 am.
MUDSTONE, grey, soft	0.280	257.900	Drilling further would have been very diffi- cult due to tight mud- stones.

BASE OF HOLE


SGS Australia Pty. Ltd.

(Incorporated in N.S.W.)

 74 McEvoy St.,
 Alexandria NSW 2015
 Telephone (02) 699 7625.
 Telex 22395
 NATA Reg. No. 1062

Page 1 of 9

 McElroy Bryan & Associates Pty Ltd
 P.O. Box 34
 WILLOUGHBY - N.S.W. 2068

Attention: Dr. J. H. BRYAN

REPORT NO .SL .2917... CLIENT REF. NO

DATE SAMPLES IN . 17/12/84.. DATE REPORT OUT .28/12/84..

 REPORT TITLE: CORNWALL COAL COMPANY NL COAL CORES FROM
 DDH 17 AND DDH 20

 The tests contained in this report have been carried out in accordance
 with the Australian Standards or other NATA approved methods listed
 below:-

AS 1038 Pt. 1	Total Moisture
AS 1038 Pt. 3	Proximate Analysis
AS 1038 Pt. 5	Specific Energy
AS 1038 Pt. 6	Ultimate Analysis
AS 1038 Pt. 8	Chlorine
AS 1038 Pt.11	Forms of Sulphur
AS 1038 Pt.12.1	Crucible Swelling Number
AS 1038 Pt.12.2	Gray King Coke Type
AS 1038 Pt.14.1	Ash Analysis
AS 1038 Pt.15	Fusibility of Ash
AS 1038 Pt.20	Hardgrove Grindability Index
AS 1038 Pt.21	Relative Density

AS 1661	Float/Sink Testing
AS 1676	Sampling
AS 2137	Gieseler Plastometer (Dis- continuous stirring method)
AS 2486	Reflectance of Vitrinite
AS 2515	Maceral Analysis

ISO 349	Audibert Arnu Dilatometer
ISO 335	Roga Index
ISO 1018	Moisture Holding Capacity

BS 1016 Pt.17	Size Analysis
---------------	---------------

LECO Method	Total Sulphur
-------------	---------------

SAMPLES SUPPLIED BY CLIENT.

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I N T R O D U C T I O N

The following coal cores were received for testing :

Cornwall Coal Company NL DDH 17, plies 1 - 4 inclusive
" " " " DDH 20, plies 8, 9, 10.

Each ply was air dried and weighed, then crushed to minus 20 mm (minimum fines).

Representative raw coal samples were split out and analysed for proximate analysis and relative density (ash and RD only for DDH 17 ply 3).

DDH 17 plies 1, 2, 4; DDH 20 ply 10 samples were screened at 0.5 mm and the plus 0.5 mm float-sink separated at 1.60.

The floats 1.60 material was analysed for proximate analysis, specific energy, total sulphur and relative density.
The sink 1.60 was analysed for ash only.

Results are tabulated on pages 3 to 9.



SGS Australia Pty. Ltd.

CORNWALL COAL CO. NL

Report No : SL 2917

DDH 17 PLY 1

Blue Upper

RAW COAL (-20mm + 0)

Mass Received	kg	6.192
Moisture	%	5.6
Ash	%	34.0
Volatile Matter	%	23.9
Fixed Carbon	%	36.5
Relative Density		1.59

	<u>Mass %</u>	<u>Ash %</u>	
- 20 + 0.5mm	96.7	31.7	(calculated)
- 0.5mm + 0	3.3	36.4	
	<u>100.0</u>	<u>31.9</u>	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

<u>Relative Density</u>	<u>Fractional (%)</u>		<u>Cumulative (%)</u>	
	<u>Mass</u>	<u>Ash</u>	<u>Mass</u>	<u>Ash</u>
Floats 1.60	71.1	17.3	71.1	17.3
S 1.60 - F 1.70	6.9	40.3	78.0	19.3
Sinks 1.70	22.0	75.5	100.0	31.7

(RD 2.20)

<u>-20 + 0.5mm</u>	<u>-20 + 0.5mm Sinks 1.60-</u>
<u>Floats 1.60 MATERIAL</u>	<u>Floats 1.70 MATERIAL</u>

Moisture	%	2.8	-
Ash	%	17.3	40.3
Volatile Matter	%	30.2	-
Fixed Carbon	%	49.7	-
Sulphur	%	0.47	-
Specific Energy (MJ/kg)		26.20	-
Relative Density		1.48	-



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Colin Meads
Colin Meads
Manager - Laboratories



SGS Australia Pty. Ltd.

CORNWALL COAL CO. NL

Report No : SL 2917

DDH 17 PLY 2

(Blue Lamer)

RAW COAL (-20mm + 0)

Mass Received	kg	2.166
Moisture	%	4.3
Ash	%	27.3
Volatile Matter	%	23.8
Fixed Carbon	%	44.6
Relative Density		1.54

	Mass %	Ash %	
- 20 + 0.5mm	96.5	26.0	(calculated)
- 0.5mm + 0	3.5	27.9	
	<u>100.0</u>	<u>26.1</u>	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

Relative Density	Fractional (%)		Cumulative (%)	
	Mass	Ash	Mass	Ash
Floats 1.60	78.1	12.5	78.1	12.5
S 1.60 - F 1.70	1.6	40.4	79.7	13.1
Sinks 1.70	20.3	76.8	100.0	26.0
	(RD 2.39)			

<u>-20 + 0.5mm</u>	<u>-20 + 0.5mm Sinks 1.60-</u>
<u>Floats 1.60 MATERIAL</u>	<u>Floats 1.70 MATERIAL</u>

Moisture	%	3.0	-
Ash	%	12.5	40.4
Volatile Matter	%	27.8	-
Fixed Carbon	%	56.7	-
Sulphur	%	0.44	-
Specific Energy (MJ/kg)		27.46	-
Relative Density		1.45	-



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Colin Meads
Manager - Laboratories


SGS Australia Pty. Ltd.

CORNWALL COAL CO. NL

Report No : SL 2917

DDH 17 PLY 3

RAW COAL (-20mm + 0)

Mass Received	kg	5.032
Moisture	%	-
Ash	%	67.8
Volatile Matter	%	-
Fixed Carbon	%	-
Relative Density		2.01

	<u>Mass %</u>	<u>Ash %</u>	
- 20 + 0.5mm	-	-	(calculated)
- 0.5mm + 0	-	-	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

<u>Relative Density</u>	<u>Fractional (%)</u>		<u>Cumulative (%)</u>	
	<u>Mass</u>	<u>Ash</u>	<u>Mass</u>	<u>Ash</u>
Floats 1.60	-	-	-	-
S 1.60 - F 1.70	-	-	-	-
Sinks 1.70	-	-	-	-
	(RD -)			

<u>-20 + 0.5mm</u>	<u>-20 + 0.5mm Sinks 1.60-</u>
<u>Floats 1.60 MATERIAL</u>	<u>Floats 1.70 MATERIAL</u>

Moisture	%	-	-
Ash	%	-	-
Volatile Matter	%	-	-
Fixed Carbon	%	-	-
Sulphur	%	-	-
Specific Energy (MJ/kg)		-	-
Relative Density		-	-



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Colin Meads
 Colin Meads
 Manager - Laboratories

SGS Australia Pty. Ltd.

CORNWALL COAL CO. NL

Report No : SL 2917

DDH 17 PLY 4

(Cornwall Seam)

RAW COAL (-20mm + 0)

Mass Received	kg	2.816
Moisture	%	4.3
Ash	%	25.6
Volatile Matter	%	23.3
Fixed Carbon	%	46.8
Relative Density		1.54

	<u>Mass %</u>	<u>Ash %</u>	
- 20 + 0.5mm	96.1	25.1	(calculated)
- 0.5mm + 0	3.9	27.6	
	<u>100.0</u>	<u>25.2</u>	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

<u>Relative Density</u>	<u>Fractional (%)</u>		<u>Cumulative (%)</u>	
	<u>Mass</u>	<u>Ash</u>	<u>Mass</u>	<u>Ash</u>
Floats 1.60	81.7	17.1	81.7	17.1
S 1.60 - F 1.70	3.2	39.2	84.9	17.9
Sinks 1.70	15.1	65.1	100.0	25.1

(RD 2.10)

<u>-20 + 0.5mm</u>	<u>-20 + 0.5mm Sinks 1.60-</u>
<u>Floats 1.60 MATERIAL</u>	<u>Floats 1.70 MATERIAL</u>

Moisture	%	2.8	-
Ash	%	17.1	39.2
Volatile Matter	%	26.3	-
Fixed Carbon	%	53.8	-
Sulphur	%	0.40	-
Specific Energy (MJ/kg)		26.26	-
Relative Density		1.50	-



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Colin Meads
 Colin Meads
 Manager - Laboratories



SGS Australia Pty. Ltd.

(Incorporated in N.S.W.)

74 McEvoy St.,
 Alexandria NSW 2015
 Telephone (02) 699 7625,
 Telex 22395
 NATA Reg. No. 1062

CORNWALL COAL COMPANY N.L.
 C/- McELROY BRYAN & ASSOCIATES
 P. O. BOX 34
 WILLOUGHBY NSW 2068

ATTN : DR. J. H. BRYAN

REPORT NO .SL. 2932..	CLIENT REF. NO
DATE SAMPLES IN . 24/01/85	DATE REPORT OUT . 6/02/85

REPORT TITLE: ANALYSES OF BORECORE SAMPLES
DDH 17 ST. PAUL'S RIVER

The tests contained in this report have been carried out in accordance with the Australian Standards or other NATA approved methods listed below:-

- | | |
|---|---|
| AS 1038 Pt. 1 | Total Moisture |
| AS 1038 Pt. 3 | Proximate Analysis |
| AS 1038 Pt. 5 | Specific Energy |
| AS 1038 Pt. 6 | Ultimate Analysis |
| AS 1038 Pt. 8 | Chlorine |
| AS 1038 Pt.11 | Forms of Sulphur |
| AS 1038 Pt.12.1 | Crucible Swelling Number |
| AS 1038 Pt.12.2 | Gray King Coke Type |
| AS 1038 Pt.14.1 | Ash Analysis |
| AS 1038 Pt.15 | Fusibility of Ash |
| AS 1038 Pt.20 | Hardgrove Grindability Index |
| AS 1038 Pt.21 | Relative Density |
| AS 1661 | Float/Sink Testing |
| AS 1671 XXXXXXXXXXXXXXXXXXXX | Sampling |
| AS 2137 | Gieseler Plastometer (Dis-continuous stirring method) |
| AS 2486 | Reflectance of Vitrinite |
| AS 2515 | Maceral Analysis |
| ISO 349 | Audibert Arnu Dilatometer |
| ISO 335 | Roga Index |
| ISO 1018 | Moisture Holding Capacity |
| BS 1016 Pt.17 | Size Analysis |
| LECO Method | Total Sulphur |

Borecore samples supplied by client.

Analytical data on air dried basis.

206109

SGS Australia Pty. Ltd.

CORNWALL COAL CO. NL

Report No : SL 2932

DDH 17 PLY 12

RAW COAL

Mass Received	kg	4.380
Moisture	%	3.7
Ash	%	37.4
Volatile Matter	%	21.8
Fixed Carbon	%	37.1
Relative Density		1.65

	<u>Mass %</u>	<u>Ash %</u>	
- 20 + 0.5mm	97.6	36.0	(calculated)
- 0.5mm + 0	2.4	37.6	
	<u>100.0</u>	<u>36.0</u>	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

<u>Relative Density</u>	<u>Fractional (%)</u>		<u>Cumulative (%)</u>	
	<u>Mass</u>	<u>Ash</u>	<u>Mass</u>	<u>Ash</u>
Floats 1.60	55.1	14.0	55.1	14.0
S 1.60 - F 1.70	9.7	36.2	64.8	17.3
Sinks 1.70	35.2	70.8	100.0	36.1

	<u>-20 + 0.5mm</u>	<u>-20 + 0.5mm Cumulative</u>
	<u>Floats 1.60 MATERIAL</u>	<u>Floats 1.70 MATERIAL</u>

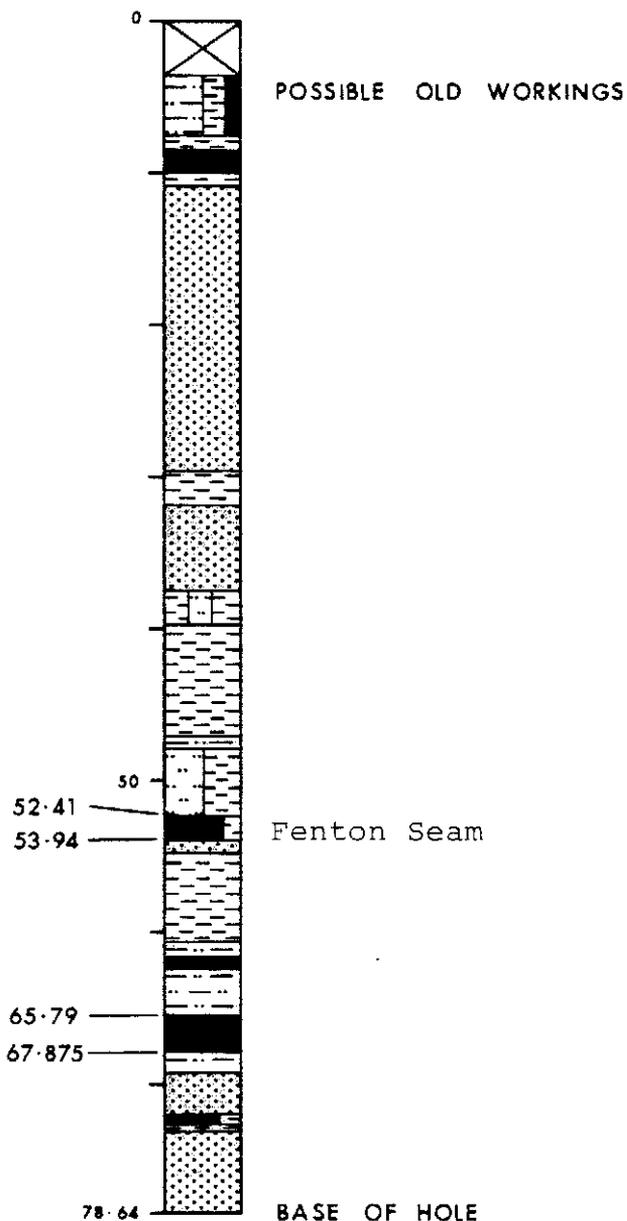
Moisture	%	4.6	4.5
Ash	%	14.0	17.4
Volatile Matter	%	27.5	26.2
Fixed Carbon	%	53.9	51.9
Sulphur	%	0.45	0.42
Specific Energy (MJ/kg)		27.10	25.68
Relative Density		1.42	1.51

B. Lonnon
 B. LONNON
 MANAGER - SYDNEY LABORATORY

CORNWALL COAL COMPANY N.L.

Mt Nicholas

DDH 18

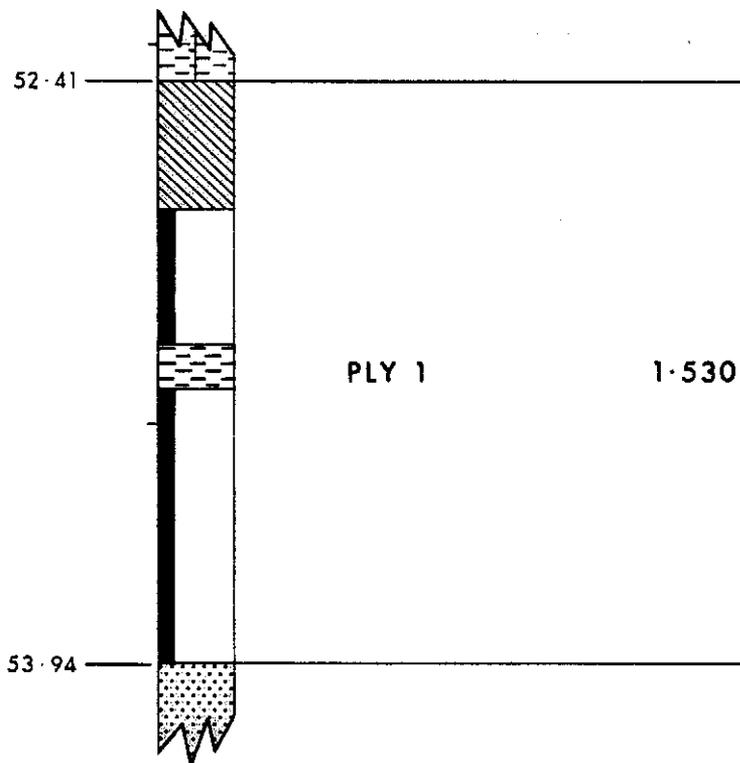


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CORNWALL COAL COMPANY N.L.

Mt Nicholas

DDH 18



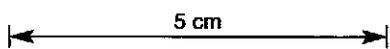
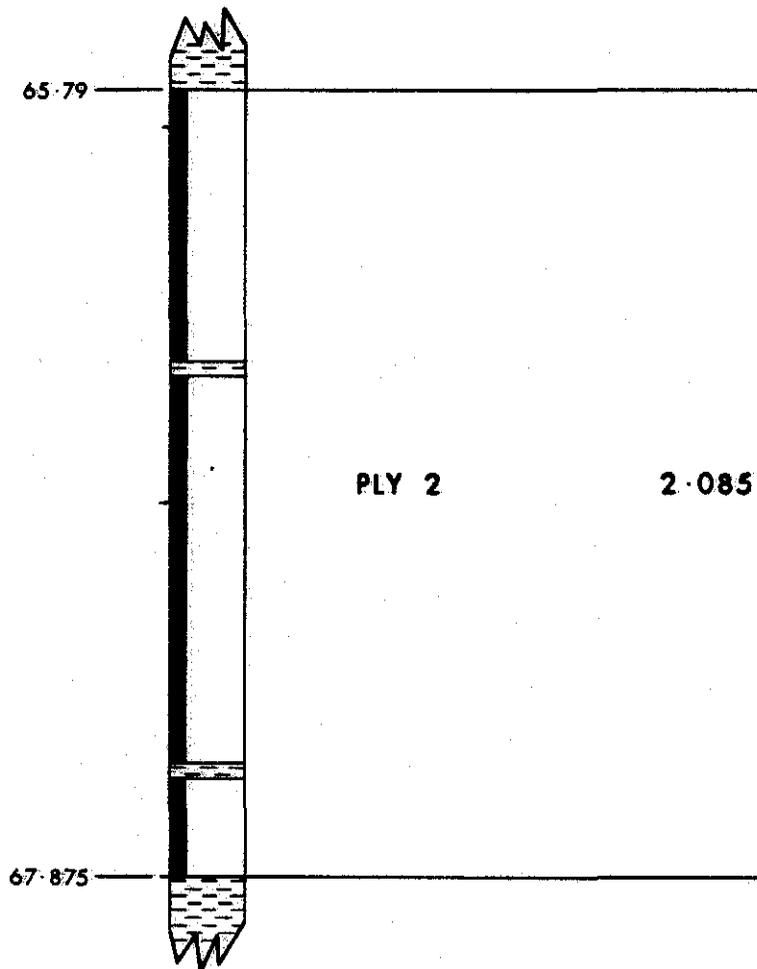
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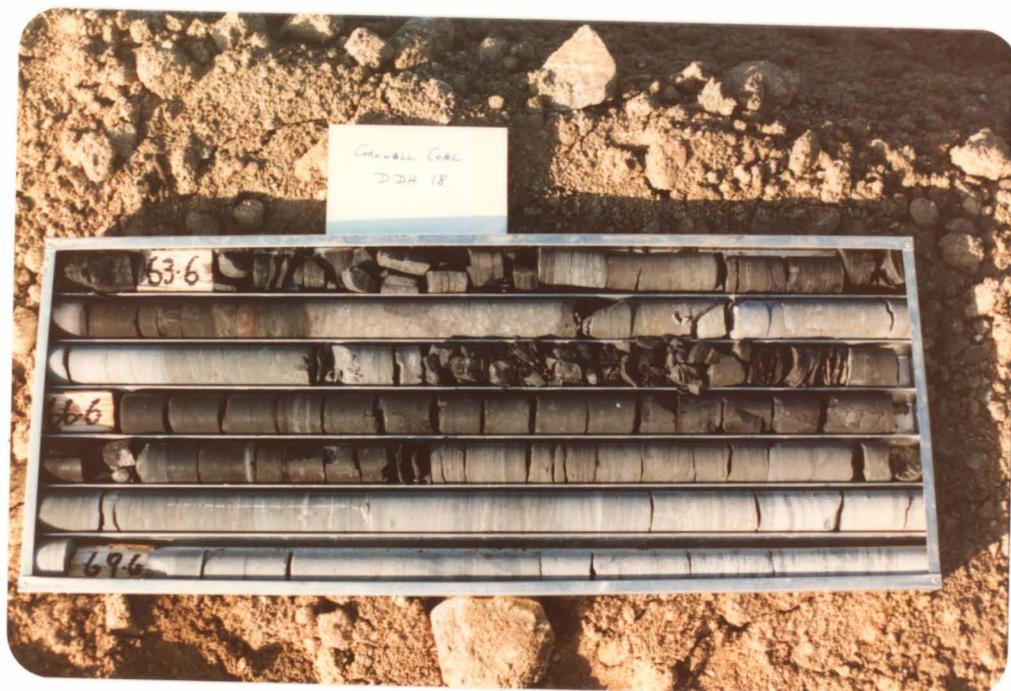
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CORNWALL COAL COMPANY N.L.

Mt Nicholas

DDH 18





Cornwall Coal Mt Nicholas D.D.H. 18, Ply 2
Fenton Seam from 65.790 m to 67.875 m;
Thickness: 2.085 m

CORNWALL COAL MT NICHOLAS DDH 18

<u>Location:</u> above Cornwall Village	<u>Logged by:</u> J.H. Bryan
<u>AMG Co-ordinates:</u> E 595 369.75	<u>Drilled by:</u> Stacpoole Drilling
N 5398 736.75	
<u>Collar R.L.:</u> 434.1 m	<u>Commenced:</u> 14.11.84
<u>Total Depth:</u> 78.64 m	<u>Completed:</u> 21.11.84

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
TRICONE ROLLER BIT TO 3.50 m, soil and scree, non-core	3.50	3.50	
<u>COAL</u> , carbonaceous mudstone and dark grey claystone, core badly broken, very poor recovery-possible old workings	4.13	7.63	
CLAYSTONE, grey, soft	1.08	8.71	
<u>COAL</u> , dull to stony, core badly broken (core loss) (probably not old workings)	1.29	10.00	
CLAYSTONE, grey, grading to clayey sandstone	0.82	10.82	
SANDSTONE, (weathered) - brown, medium to coarse, lithic	18.76	29.58	
CLAYSTONE, brown, slightly weathered	1.57	31.15	
CLAYSTONE, grey, sandy in part	0.79	31.94	

CORNWALL COAL MT NICHOLAS D.D.H. 18

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
SANDSTONE, grey, lithic, unweathered	0.50	32.44	
SANDSTONE, brown, soft, weathered (includes 0.76m core loss)	1.16	33.60	
SANDSTONE, grey, lithic, medium grained, massive	3.99	37.59	
MUDSTONE/SILTSTONE/CLAYSTONE INTERBEDS, black to dark grey mudstone, grey to green/grey claystone and grey lithic sandstone	2.13	39.72	
CLAYSTONE, grey, soft, with minor sandstone phases	7.38	47.10	
MUDSTONE, dark grey/black with minor coal intervals up to 0.04 m thick - calcite band 0.03 m thick, core broken	0.85	47.95	
SILTSTONE/CLAYSTONE INTERBEDS, grey, soft in part with abundant near vertical joints - core broken in places	4.46	52.41	
MUDSTONE, black, carbonaceous to stony	0.34	52.75	) FENTON SEAM
<u>COAL</u> , dull to stony (0.16m core loss)	0.45	53.20) Thickness 1.530 m
CLAYSTONE, grey/brown, soft	0.02	53.22)

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3.

CORNWALL COAL MT NICHOLAS D.D.H. 18

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
<u>COAL</u> , dull with minor bright bands	0.72	53.94	) PLY 1
SANDSTONE, grey, fine, lithic	0.89	54.83	
CLAYSTONE, grey, soft with occasional minor sandstone interbeds and dark grey/brown carbonaceous mudstone interbeds up to 0.20 m thick	5.87	60.70	
MUDSTONE, grey, soft	1.00	61.70	
<u>COAL</u> , dull	0.17	61.87	
MUDSTONE, black, carbonaceous, coaly	0.10	61.97	
CLAYSTONE, brown, soft	0.03	62.00	
<u>COAL</u> , dull to stony, core broken	0.27	62.27	
MUDSTONE, black (core loss)	1.05	63.32	
CLAYSTONE, grey and grey/brown, soft	0.12	63.44	
MUDSTONE, black, carbonaceous, minor coaly lenses and grey claystone interbeds	1.25	64.69	
MUDSTONE, grey/green, soft	1.10	65.79	

CORNWALL COAL MT NICHOLAS D.D.H. 18

	<u>Estimated Thickness</u> (m)	<u>Estimated Depth to Base of Stratum</u> (m)	<u>Remarks</u>
<u>COAL</u> , dull to stony, core badly broken (core loss .275m)	0.725	66.515)
CLAYSTONE, grey/brown, hard	0.035	66.550	) SEAM Thickness 2.085m
<u>COAL</u> , dull with minor bright bands , dull to stony	0.050 0.980	66.600 67.580))
CLAYSTONE, grey/brown, hard	0.035	67.615)
<u>COAL</u> , dull	0.260	67.875)
MUDSTONE, grey to green/grey, soft (core loss 0.125m)	1.505	69.380	
SANDSTONE, grey, medium grained, lithic with sporadic claystone clasts	2.800	72.180	
CLAYSTONE, grey, grey/green and black, carbonaceous in part	0.160	72.340	
<u>COAL</u> , dull with minor bright bands	0.380	72.720	
MUDSTONE, dark grey/black with minor coaly partings, distinctive brown claystone pellets throughout	0.610	73.330	
SANDSTONE, grey, lithic, medium (core loss when core dropped 1.90m)	5.31	78.64	

BASE OF HOLE



SGS Australia Pty. Ltd.

REFERENCE: NL/7842
 HOLE NO: 18
 PLY NO: 1

RAW COAL

Mass Received 2744g.
 Relative Density 1.58
 Moisture % (air dried) 6.0
 Ash % (air dried) 31.3
 Volatile Matter % (air dried) 21.6
 Fixed Carbon % (air dried) 41.1

	<u>Mass (g)</u>	<u>Mass%</u>	<u>Ash%</u>
20 x 0.5mm	2237	95.15	30.9 (calc)
- 0.5mm	114	4.85	49.2
	<u>100.00</u>		<u>31.8 (calc)</u>

Float / Sink Separation of 20 x 0.5mm Material

	<u>Fractional</u>			<u>Cumulative</u>	
	<u>Mass (g)</u>	<u>Mass%</u>	<u>Ash%</u>	<u>Mass%</u>	<u>Ash%</u>
Floats 1.60	1628	75.90	21.3	75.90	21.3
S 1.60 - F 1.70	152	7.08	39.8	82.98	22.9
Sinks 1.70	365	17.02	70.2	100.00	30.9

		<u>Plus 0.5mm F 1.60 Material</u>	<u>Plus 0.5mm Cumulative Floats 1.70 Material</u>
Yield	%	75.90	82.98
Relative Density		1.48	1.50
Moisture	% (air dried)	4.3	4.1
Ash	% (air dried)	21.3	22.8
Volatile Matter	% (air dried)	24.6	24.2
Fixed Carbon	% (air dried)	49.8	48.9
* Sulphur	% (air dried)	0.45	0.42
Specific Energy MJ/kg	(air dried)	24.60	24.10



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.....
 K. Wilson
 Manager - Laboratory



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SGS Australia Pty. Ltd.

REPORT No: NL/7842
 HOLE NO: 18
 PLY NO: 2

Page 5 of 15

COAL ANALYSIS REPORT

SAMPLE DESCRIPTION: PLUS 0.5mm. C.F.1.70

<u>FORMS OF SULPHUR</u>	<u>%</u>
PYRITIC	0.041
SULPHATE	0.002
ORGANIC	0.377
HARDGROVE GRINDABILITY INDEX	61 (53)
CHLORINE	0.21
TOTAL CARBON	58.3
HYDROGEN	3.26
NITROGEN	1.12
OXYGEN (calculated by difference)	8.44
CARBON DIOXIDE	0.04

ASH FUSION Degrees Celcius

INITIAL DEFORMATION	+1560
SPHERICAL DEFORMATION	+1560
HEMISPHERICAL DEFORMATION	+1560
FLOW	+1560



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SGS Australia Pty. Ltd.

REFERENCE: NL/7842
 HOLE NO: 18
 PLY NO: 2

RAW COAL

Mass Received 4050g.
 Relative Density 1.71
 Moisture % (air dried) 4.2
 Ash % (air dried) 41.9
 Volatile Matter % (air dried) 18.7
 Fixed Carbon % (air dried) 35.2

	<u>Mass(g)</u>	<u>Mass%</u>	<u>Ash%</u>
20 x 0.5mm	3338	96.31	41.5 (calc)
- 0.5mm	128	3.69	35.1
		<u>100.00</u>	<u>41.3 (calc)</u>

Float / Sink Separation of 20 x 0.5mm Material

	<u>Fractional</u>			<u>Cumulative</u>	
	<u>Mass(g)</u>	<u>Mass%</u>	<u>Ash%</u>	<u>Mass%</u>	<u>Ash%</u>
Floats 1.60	1147	35.46	19.5	35.46	19.5
S 1.60 - F 1.70	514	15.89	37.4	51.35	25.0
Sinks 1.70	1574	48.65	58.9	100.00	41.5

		<u>Plus 0.5mm F 1.60 Material</u>	<u>Plus 0.5mm Cumulative Floats 1.70 Material</u>
Yield	%	35.46	51.35
Relative Density		1.48	1.53
Moisture	% (air dried)	3.6	3.3
Ash	% (air dried)	19.5	25.2
Volatile Matter	% (air dried)	24.8	23.4
Fixed Carbon	% (air dried)	52.1	48.1
* Sulphur	% (air dried)	0.39	0.33
Specific Energy MJ/kg	(air dried)	25.32	23.40



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.....
 K. Wilson
 Manager - Laboratory


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 SGS Australia Pty. Ltd.

 REPORT No: NL/7842
 HOLE NO: 18
 PLY NO: 2

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 Page of

COAL ANALYSIS REPORT

***	<u>ANALYSIS OF ASH</u>	<u>%</u>
	SiO ₂	6.17
	Al ₂ O ₃	33.1
	Fe ₂ O ₃	2.36
	CaO	0.49
	MgO	0.47
	Na ₂ O	0.20
	K ₂ O	0.41
	TiO ₂	1.00
	Mn ₃ O ₄	0.015
	SO ₃	0.025
**	P ₂ O ₅	0.069
	BaO	0.030
	SrO	0.031
	ZnO	0.030
	PHOSPHORUS (in ash)	0.030
	(in coal)	0.008


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 WJ

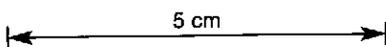
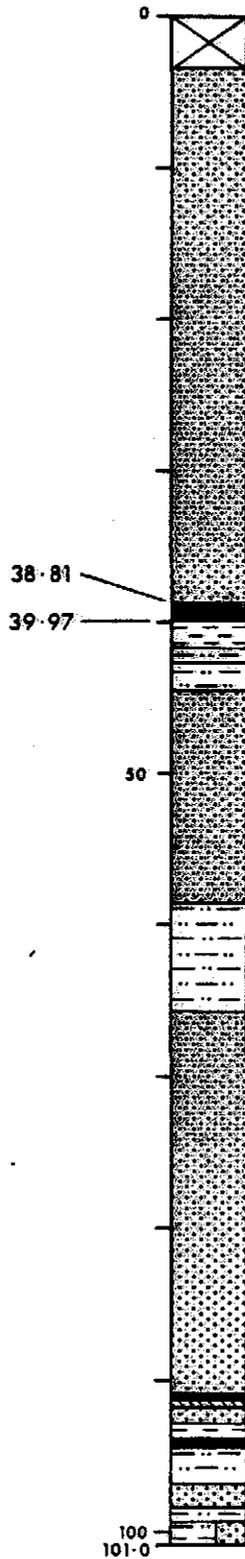
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206123

CORNWALL COAL COMPANY N.L.

Tower Hill

DDH 19

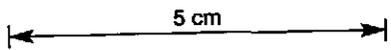
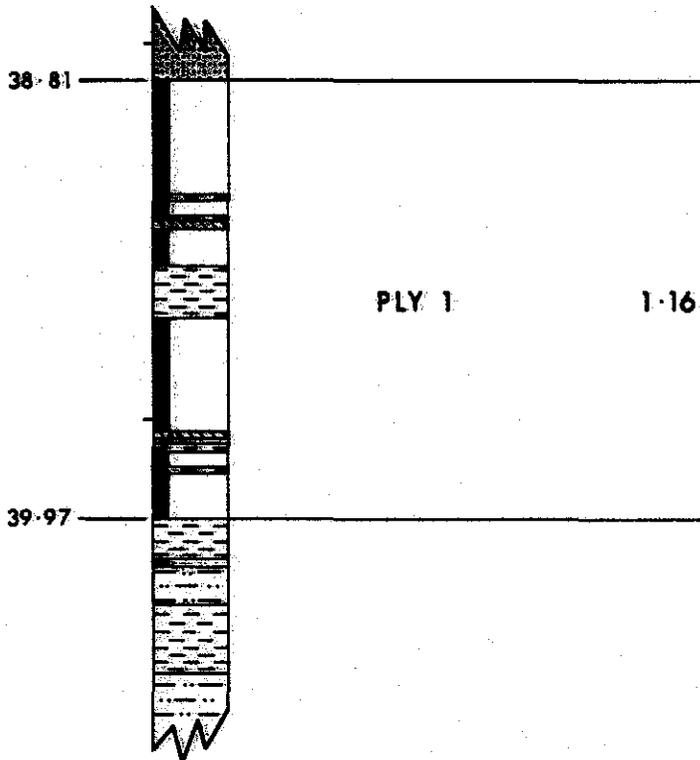


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206124

CORNWALL COAL COMPANY N.L.

DDH 19





Cornwall Coal Tower Hill DDH 19, Ply 1
 from 38.810m to 39.970m; Thickness: 1.160m



Cornwall Coal Tower Hill DDH 19
 from 93.260m to 94.660m; Thickness: 1.400m

CORNWALL COAL TOWER HILL D.D.H. 19

<u>Location:</u> Tower Hill	<u>Logged by:</u> J.H. Bryan
<u>AMG Co-ordinates:</u> E 570 500	<u>Drilled by:</u> Stacpoole Drilling
N 5399 550	
<u>Collar R.L.:</u> 1000 m approx.	<u>Commenced:</u> 20.11.84
<u>Total Depth:</u> 101.00 m	<u>Completed:</u> 26.11.84

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
TRICONE ROLLER BIT TO 3.5 m	3.50	3.50	
SANDSTONE, brown, slightly weathered, lithic, medium to coarse	35.310	38.810	
<u>COAL</u> , dull with minor bright bands	0.310	39.120)
CLAYSTONE, brown, carbonaceous	0.310	39.130)
<u>COAL</u> , dull with minor bright bands	0.035	39.165)
CLAYSTONE, brown/grey, hard	0.010	39.175	) SEAM A
CLAYSTONE, black, coaly	0.025	39.200	) PLY 1
<u>COAL</u> , dull with minor bright bands	0.100	39.300)
CLAYSTONE, grey with thin, lenticular coaly partings	0.135	39.435	) Thickness: 1.16m
<u>COAL</u> , dull with minor bright bands	0.310	39.745)
CLAYSTONE, black, coaly	0.010	39.755)

CORNWALL COAL TOWER HILL D.D.H. 19

	<u>Estimated Thickness</u> (m)	<u>Estimated Depth to Base of Stratum</u> (m)	<u>Remarks</u>
<u>COAL</u> , dull and bright	0.010	39.765)
)
CLAYSTONE, dark brown, carbonaceous	0.025	39.790)
)
<u>COAL</u> , dull with minor bright bands	0.045	39.835	) PLY 1
)
CLAYSTONE, grey/brown, hard	0.010	39.845)
)
<u>COAL</u> , dull with minor bright bands	0.125	39.970)
)
MUDSTONE, grey, soft	0.110	40.080	
<u>COAL</u> , dull	0.020	40.100	
MUDSTONE, grey/green, soft	0.095	40.195	
CLAYSTONE, grey to black, carbonaceous with coaly lenses and partings	0.180	40.375	
MUDSTONE, grey/green, soft	0.410	40.785	
CLAYSTONE, dark grey, carbonaceous	0.050	40.835	
<u>COAL</u> , dull	0.035	40.870	
MUDSTONE, dark grey, carbonaceous	0.040	40.910	
MUDSTONE, grey to green/grey	0.530	41.440	
CLAYSTONE, black, carbonaceous, coaly in part	0.025	41.465	

CORNWALL COAL TOWER HILL D.D.H. 19

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
MUDSTONE, grey to grey/green - mostly claystone	0.215	41.680	
CLAYSTONE, coaly	0.035	41.715	
MUDSTONE, grey to grey/green	1.010	42.725	
CORE LOSS	0.075	42.800	
<u>COAL</u> , dull	0.020	42.820	
CLAYSTONE, black, carbonaceous	0.020	42.840	
<u>COAL</u> , dull	0.015	42.855	
, bright	0.010	42.865	
, dull	0.075	42.940	
CLAYSTONE, black, coaly	0.015	42.955	
MUDSTONE, grey, hard, with occasional coaly partings	1.575	44.530	
SANDSTONE, grey, medium grained, lithic	14.12	58.650	
MUDSTONE, mid grey to dark grey, carbonaceous throughout, occasional thin sandstone interbeds	7.18	65.830	
SANDSTONE, grey, lithic, medium grained, massive, carbonaceous partings towards top, minor mudstone interbeds	25.38	91.210	

CORNWALL COAL TOWER HILL D.D.H. 19

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
<u>COAL</u> , dull to stony	0.320	91.530 )	) SEAM B) Thickness
CLAYSTONE, black, coaly	0.390	91.920)	
<u>COAL</u> , dull, pyritic	0.080	92.000)	0.79 m
MUDSTONE, grey to green/grey, hard	0.200	92.200	
SANDSTONE, fine grained, lithic, massive	1.060	93.260	
CLAYSTONE, black and dark brown, carbonaceous, coaly in part	1.050	94.310	
<u>COAL</u> , dull with minor bright bands	0.350	94.660	
CLAYSTONE, dark brown, carbonaceous	0.070	94.730	
MUDSTONE, grey, soft	2.270	97.000	
SANDSTONE, grey, lithic, medium	1.640	98.640	
MUDSTONE, grey	0.960	99.600	
CLAYSTONE, black, carbonaceous	0.180	99.780	
MUDSTONE, grey to green/grey	0.890	100.670	
SANDSTONE, grey, lithic, fine to medium grained	0.33	101.00	

BASE OF HOLE

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SGS Australia Pty. Ltd.

(Incorporated in N.S.W.)

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Alexandria NSW 2015
Telephone (02) 699 7625,
Telex 22395
NATA Reg. No. 1062

McELROY BRYAN & ASSOCIATES PTY LTD
P. O. BOX 34
WILLOUGHBY N.S.W. 2068

ATTN : DR. JOHN H. BRYAN

REPORT NO SL 2904 CLIENT REF. NO Letter J.H.B. 30/11/84
DATE SAMPLES IN 30/11/84 DATE REPORT OUT 5/12/84

REPORT TITLE: ANALYSES OF BORECORE SAMPLE DDH 19 PLY 1 FROM CORNWALL COAL COMPANY N.L.

The tests contained in this report have been carried out in accordance with the Australian Standards or other NATA approved methods listed below:-

- AS 1038 Pt. 1 Total Moisture
- AS 1038 Pt. 3 Proximate Analysis
- AS 1038 Pt. 5 Specific Energy
- AS 1038 Pt. 6 Ultimate Analysis
- AS 1038 Pt. 8 Chlorine
- AS 1038 Pt.11 Forms of Sulphur
- AS 1038 Pt.12.1 Crucible Swelling Number
- AS 1038 Pt.12.2 Gray King Coke Type
- AS 1038 Pt.14.1 Ash Analysis
- AS 1038 Pt.15 Fusibility of Ash
- AS 1038 Pt.20 Hardgrove Grindability Index
- AS 1038 Pt.21 Relative Density

- AS 1661 Float/Sink Testing
- ~~AS 1670~~ ~~XXXXXXXXXXXXXXXXXXXX~~ ~~Sampling~~
- AS 2137 Gieseler Plastometer (Dis-continuous stirring method)
- AS 2486 Reflectance of Vitrinite
- AS 2515 Maceral Analysis

- ISO 349 Audibert Arnu Dilatometer
- ISO 335 Roga Index
- ISO 1018 Moisture Holding Capacity

BS 1016 Pt.17 Size Analysis

LECO Method Total Sulphur

BORECORE SUPPLIED BY CLIENT.

ALL MASSES AND ANALYSES ON AIR DRIED BASIS.



SGS Australia Pty. Ltd.

Page 2 of 3

Report No : SL 2904

INTRODUCTION

A sample of Borecore (DDH 19, Ply 1) was delivered at S.G.S. Sydney on 30/11/84.

The sample was prepared and analysed as requested by letter from Dr. John H. Bryan.

The raw coal was air dried, weighed and crushed to pass a 20mm screen.

A representative sample was prepared for the determination of proximate and relative density.

The remainder was screened at 0.5mm and the - 20 + 0.5mm Float / Sunk at relative densities 1.60, 1.70.

Ash was determined on the raw - 0.5mm + 0 coal; proximate, sulphur, specific energy, relative density on the washed - 20 + 0.5mm Floats 1.60; and Ash on both the washed Sinks 1.60 / Floats 1.70 and Sinks 1.70 samples.

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COAL ANALYSIS REPORT

DDH 19, Ply 1

Raw Coal (-20mm + 0)

Mass Received	(kg)	2.374
Moisture	%	3.3
Ash	%	37.2
Volatile Matter	%	25.0
Fixed Carbon	%	34.5
Relative Density		1.61

	<u>Mass %</u>	<u>Ash %</u>
- 20 + 0.5mm	96.0	36.0 (Calculated)
- 0.5mm + 0	4.0	42.7
	<u>100.0</u>	<u>36.3 (36.0 Calc Raw Coal)</u>

Float / Sink Separation - 20 + 0.5mm Material

	<u>Fractional %</u>			<u>Cumulative %</u>	
	<u>Mass</u>	<u>Ash</u>	<u>RD</u>	<u>Mass</u>	<u>Ash</u>
Floats 1.60	65.3	19.6	1.45	65.3	19.6
Sinks 1.60, Floats 1.70	6.8	45.5	-	72.1	22.0
Sinks 1.70	27.9	72.2	2.10	100.0	36.0

- 20 + 0.5mm Floats 1.60

Moisture	%	3.4
Ash	%	19.6
Volatile Matter	%	31.0
Fixed Carbon	%	46.0
Sulphur	%	0.54
Specific Energy	MJ/kg	26.18
Relative Density		1.45

COLIN MEADS
MANAGER - LABORATORIES



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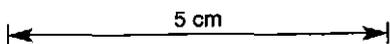
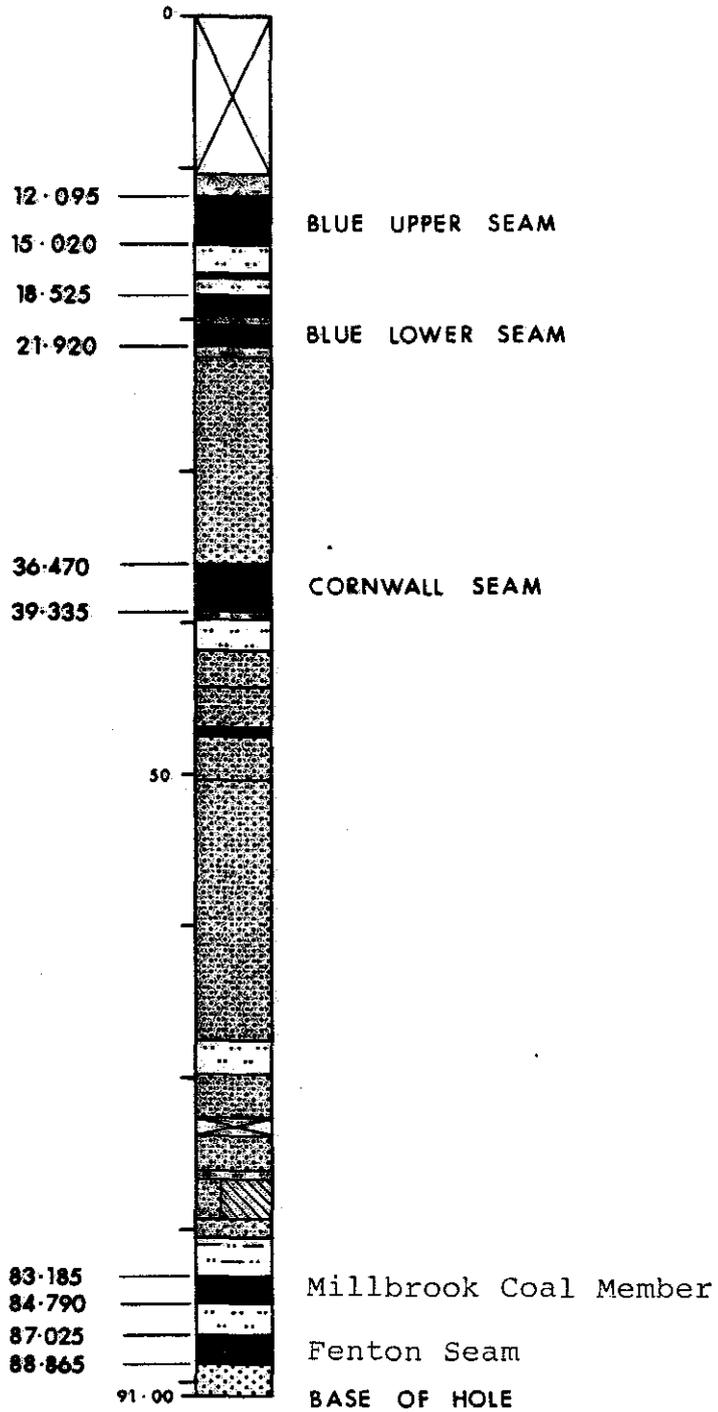
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CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 20



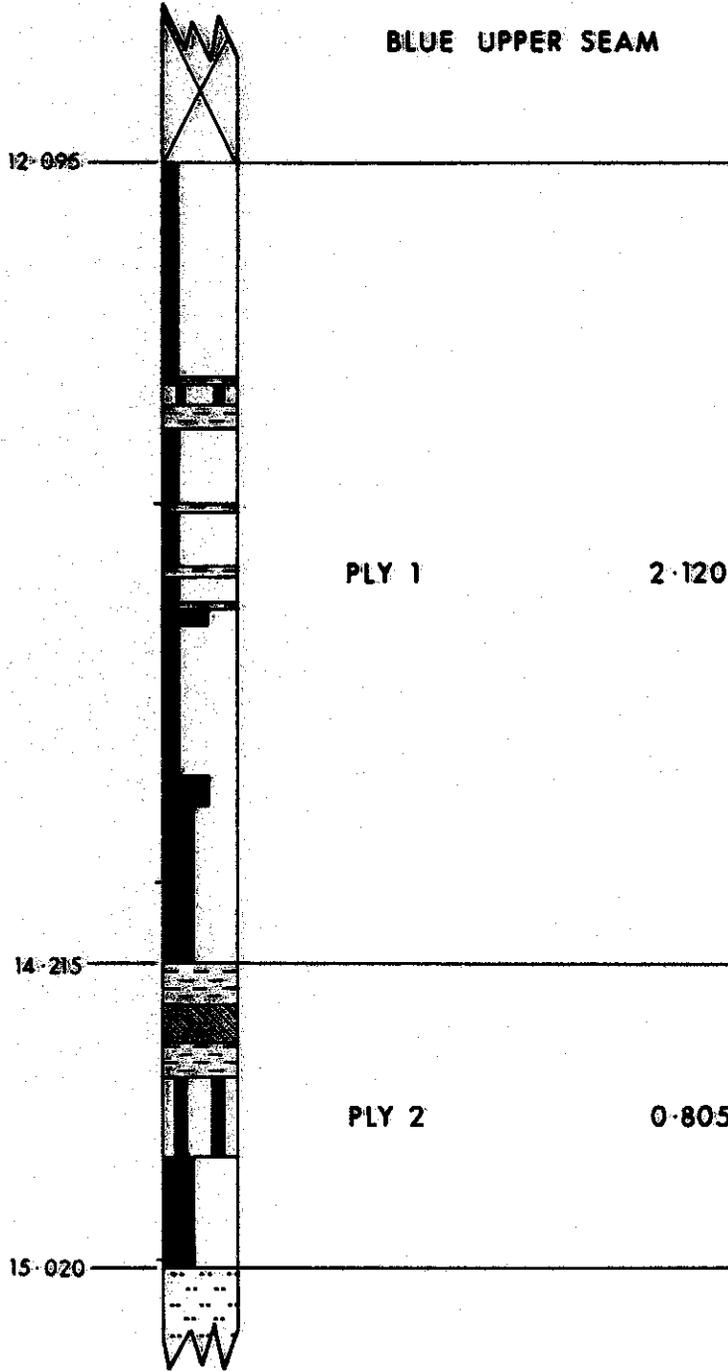
133

206134

CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 20



5 cm

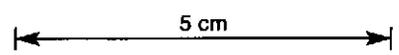
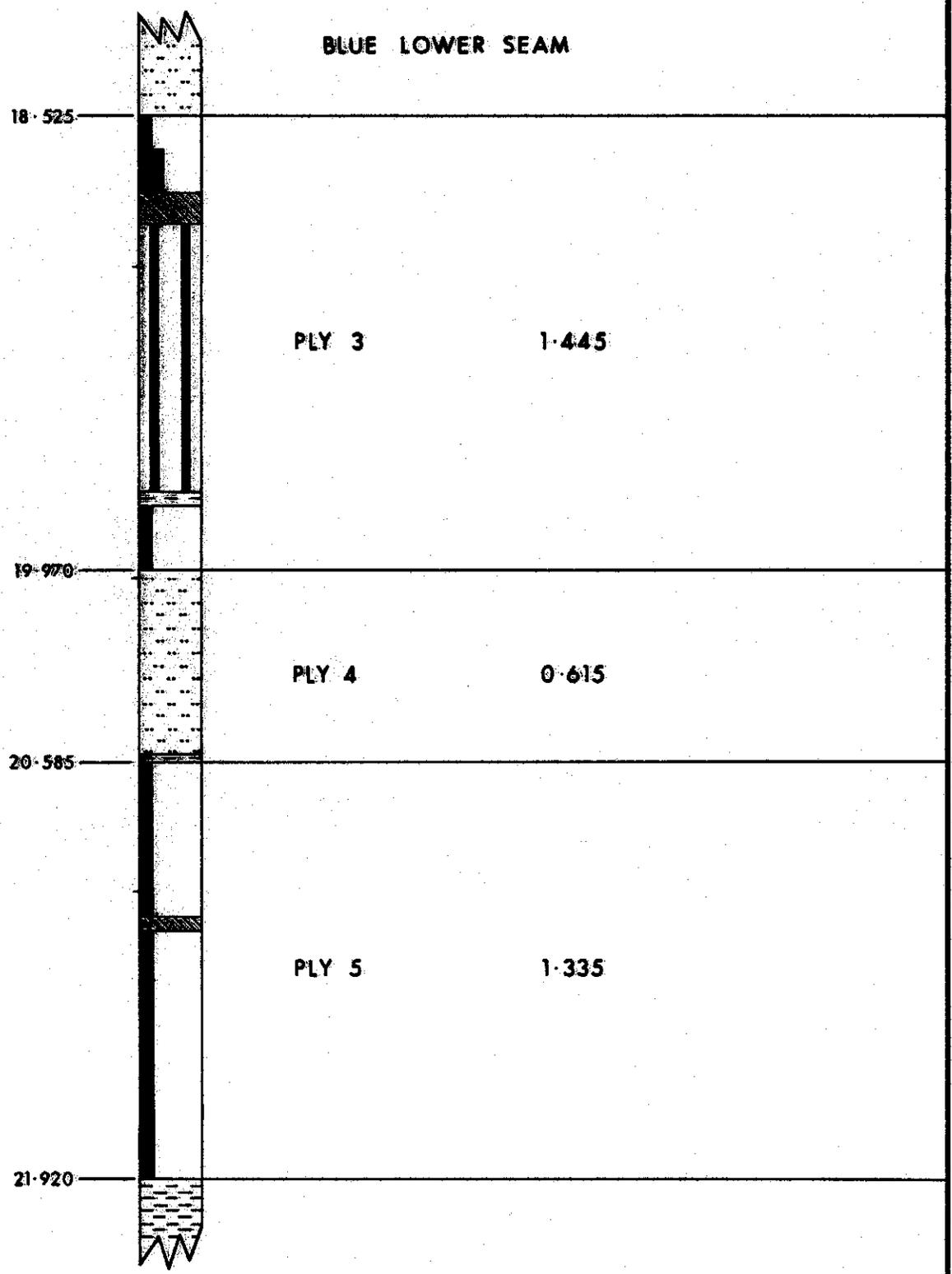
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206135

CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 20



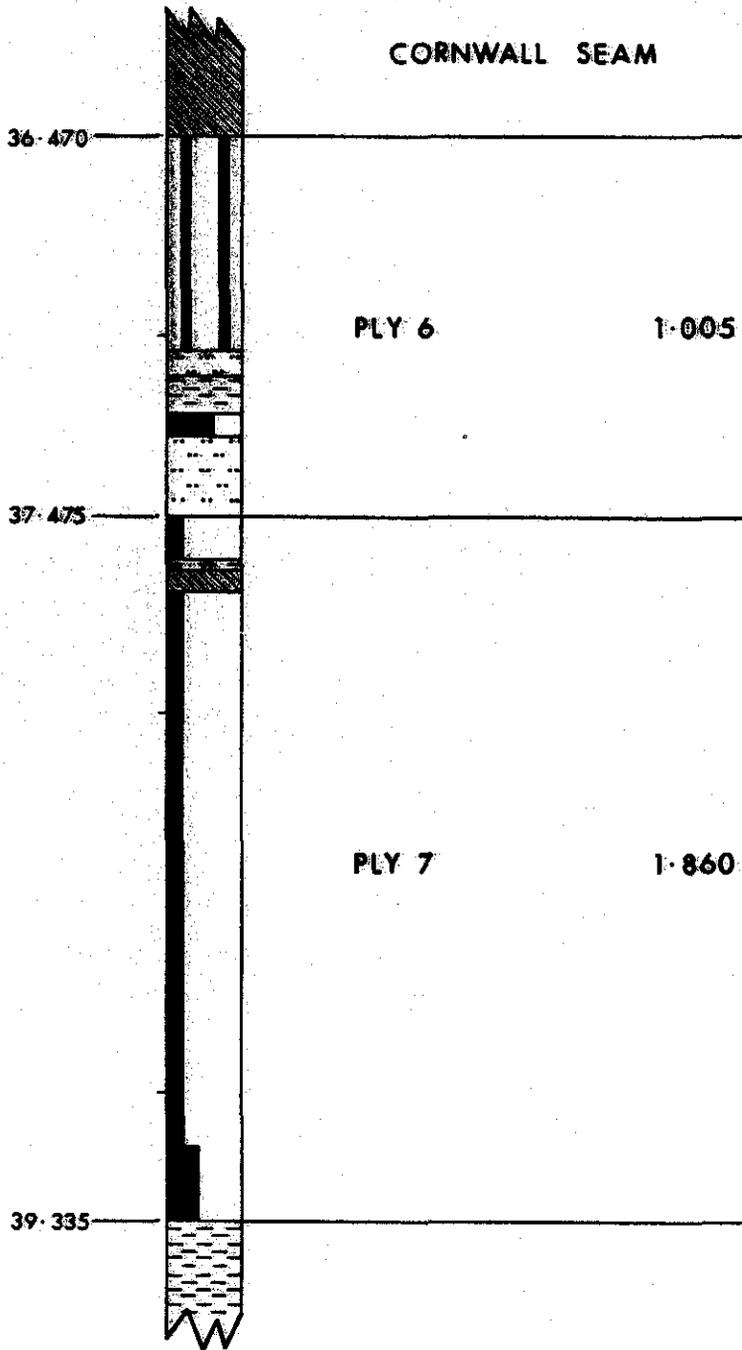
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206136

CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 20



5 cm

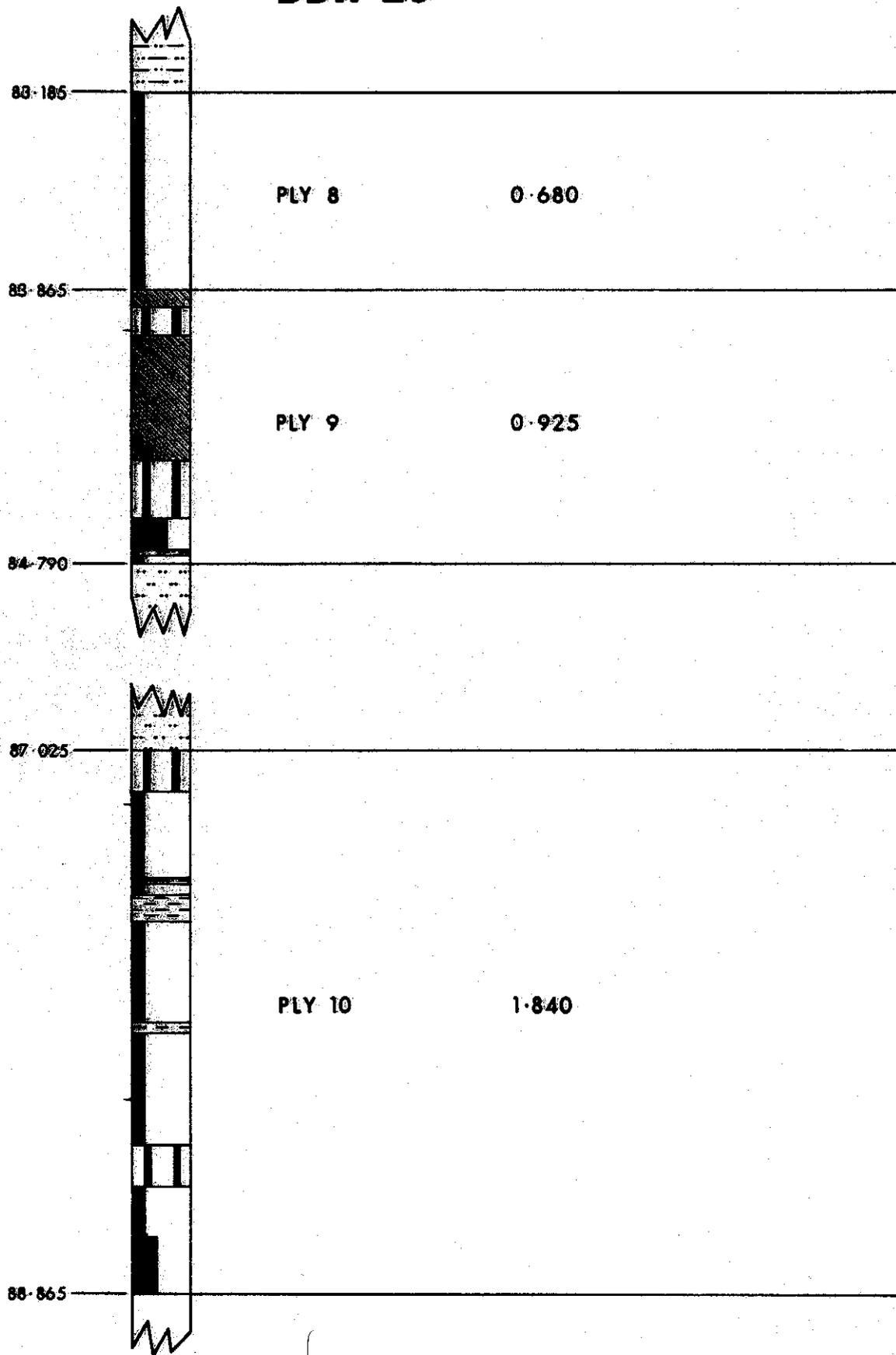
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CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 20



5 cm

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206138

Cornwall Coal Mt Nicholas DDH 20, Plies 1 - 5

Blue Upper Seam from 12.095m to 15.020m; Thickness: 2.925m

Blue Lower Seam from 18.525m to 21.920m; Thickness: 3.395m



Cornwall Coal Mt Nicholas DDH 20, Plies 6 & 7

Cornwall Seam from 36.470m to 39.335m; Thickness: 2.865m



Cornwall Coal Mt Nicholas DDH 20
Fenton Seam from 87.025 m to 88.865 m

CORNWALL COAL MT NICHOLAS D.D.H. 20

<u>Location:</u> Mt Nicholas	<u>Logged by:</u> C.G. Lancaster
<u>AMG Co-ordinates:</u> E 593 342.87	<u>Drilled by:</u> Stacpoole Drilling
N 5398 621.5	
<u>Collar R.L.:</u> 443.1 m	<u>Commenced:</u> 22.11.84
<u>Total Depth:</u> 91.00 m	<u>Completed:</u> 5.12.84

	<u>Estimated Thickness</u> (m)	<u>Estimated Depth to Base of Stratum</u> (m)	<u>Remarks</u>
NOT CORED: tricone roller to 10.50m	10.500	10.500	NQ Core to 91.0 m
CORE LOSS, in broken dolerite	1.595	12.095	
<u>COAL</u> , stony to dull with minor bright bands, core broken	0.570	12.665)
)
<u>CLAYSTONE</u> , dark brown, waxy, compact	0.015	12.680)
)
<u>COAL</u> , stony, minor bright wisps	0.060	12.740)
)
<u>CLAYSTONE</u> , speckled dark grey, crumbly and fissile in part, mostly compact	0.060	12.800	) BLUE UPPER SEAM
)
<u>COAL</u> , dull with minor bright bands	0.200	13.000	) Thickness 2.925 m
)
<u>CLAYSTONE</u> , brown, speckled, carbonaceous remains in places, broken	0.025	13.025)
)
<u>COAL</u> , dull with minor bright bands to stony	0.145	13.170)

CORNWALL COAL MT NICHOLAS D.D.H. 20

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, brown to black, carbonaceous in part	0.025	13.195)
<u>COAL</u> , dull, minor bright wisps	0.065	13.260)
CLAYSTONE, brown	0.010	13.270)
<u>COAL</u> , dull and bright, calcite on cleat , stony to dull with minor bright bands, sporadic very thin claystone bands, core broken in centre	0.050 0.400	13.320 13.720))))
, dull and bright	0.075	13.795)
, dull with numerous bright bands	0.420	14.215)
CLAYSTONE, dark grey to grey, grades to carbonaceous claystone at top and base, fissile and crumbly	0.110	14.325	) BLUE) UPPER) SEAM
CLAYSTONE, black, carbonaceous, sporadic coaly wisps, broken at base	0.095	14.420)
CLAYSTONE, grey, fissile and soft, numerous carbonaceous remains	0.100	14.520)
<u>COAL</u> , stony, minor bright wisps	0.205	14.725)
, dull with numerous bright bands, sporadic thin claystone partings	0.295	15.020)
SILTSTONE, grey to dark grey, fissile and crumbly, fine sandy phases in places, sporadic carbonaceous laminations	0.440	15.460	

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3.

CORNWALL COAL MT NICHOLAS D.D.H. 20

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CORE LOSS	0.540	16.000	
SILTSTONE, as for 0.440m unit above	0.080	16.080	
CORE LOSS, in broken and crumbly coal	0.300	16.380	
SILTSTONE, grey to dark grey, numerous plant remains, fissile and crumbly	0.670	17.050	
<u>COAL</u> , dull with minor bright bands	0.105	17.155	
SILTSTONE, grey, fretted, fissile and crumbly in part, plant remains throughout	1.370	18.525	
<u>COAL</u> , stony to dull with minor bright bands	0.110	18.635)
, dull with numerous bright bands, broken	0.130	18.765)
CLAYSTONE, carbonaceous, broken	0.100	18.865	) BLUE LOWER) SEAM
<u>COAL</u> , stony, minor bright wisps and laminae	0.860	19.725	) Thickness) 3.395 m
CLAYSTONE, dark grey, carbonaceous at top and base, compact	0.040	19.765)
<u>COAL</u> , dull with minor bright bands	0.205	19.970)

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4.

CORNWALL COAL MT NICHOLAS D.D.H. 20

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
SILTSTONE, grey to dark grey, fretted, fissile in part, carbonaceous in places, plant remains throughout, coaly wisps at base	0.590	20.560))))
CLAYSTONE, white to cream, numerous carbonaceous wisps	0.025	20.585)))
<u>COAL</u> , stony to dull with minor bright bands, fine disseminated pyrite throughout	0.495	21.080)))
CLAYSTONE, carbonaceous	0.040	21.120	) BLUE LOWER SEAM)
<u>COAL</u> , stony to dull with minor bright bands, fine disseminated pyrite throughout	0.800	21.920)))
CLAYSTONE, dark brownish-grey to black, carbonaceous at top, thin coaly laminae at top, grades to underlying unit	0.220	22.140)
SILTSTONE, grey, fissile to flaggy	0.285	22.425)
SANDSTONE, light grey, fine at top grading to medium and coarse at base, lithic, bedding thin to thick, subparallel, blocky to massive, numerous irregular carbonaceous and coaly laminae and blebs at base	13.745	36.170)

CORNWALL COAL MT NICHOLAS D.D.H. 20

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
<u>COAL</u> , dull, broken	0.040	36.210	
CLAYSTONE, black, carbonaceous	0.260	36.470	
<u>COAL</u> , stony, ironstaining and calcite on fracture surfaces, core broken throughout	0.570	37.040)))
SILTSTONE, grey, plant remains in places, slickensided basal contact dipping at 45°	0.065	37.105)))
CLAYSTONE, dark grey to black, carbonaceous in part	0.105	37.210	) CORNWALL) SEAM
<u>COAL</u> , dull and bright, broken	0.055	37.265	) Thickness) 2.865m
SILTSTONE, grey to dark grey, carbonaceous in part, numerous lighter claystone laminae	0.210	37.475)))
<u>COAL</u> , dull with minor bright bands	0.120	37.595))
CLAYSTONE, speckled yellowish brown, carbonaceous at top and base	0.025	37.620))
CLAYSTONE, black, carbonaceous	0.055	37.675))
<u>COAL</u> , stony to dull with minor bright bands, sporadic thin claystone laminae, broken in places , dull with numerous bright bands	1.470 0.190	39.145 39.335))))

CORNWALL COAL MT NICHOLAS D.D.H. 20

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, dark grey to black, carbonaceous and coaly bands throughout	0.220	39.555	
SILTSTONE, grey, fretted	0.170	39.725	
CLAYSTONE, grey to black, carbonaceous to coaly in part	0.110	39.835	
SILTSTONE, grey, fretted and broken throughout, grades to underlying unit	2.025	41.860	
SANDSTONE, light grey, fine to very fine, lithic, numerous silty laminae, bedding laminated to thin, wavy to subparallel, flaggy	2.380	44.240	
CLAYSTONE, black, carbonaceous to coaly, sporadic bright lenses	0.205	44.445	
SANDSTONE, as for 2.380 m unit above	2.515	46.960	
CLAYSTONE, dark grey, broken	0.240	47.200	
<u>COAL</u> , dull, broken	0.450	47.650	
SANDSTONE, light grey, fine at top to medium and coarse, lithic, claystone at top 0.100 m	2.595	50.245	
CLAYSTONE, off-white, puggy	0.070	50.315	

CORNWALL COAL MT NICHOLAS D.D.H. 20

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
SANDSTONE, light grey, medium to coarse, lithic, minor carbonaceous wisps, bedding thin to very thick, subparallel, blocky to massive	17.195	67.510	
SILTSTONE, grey, bedding laminated to very thin, parallel to wavy, sporadic carbonaceous remains, mostly slabby	2.205	69.715	
SANDSTONE, light grey, medium, lithic, broken 73m - 74 m, mostly blocky to massive	3.155	72.870	
CORE LOSS: probably in broken sandstone	0.930	73.800	
SANDSTONE, as for 3.155 m unit above	2.340	76.140	
SILTSTONE, dark brownish grey, carbonaceous in part, soft and crumbly	0.560	76.700	
CARBONACEOUS SHALE AND SANDSTONE LAMINITE: ratio 70:30. Carbonaceous shale, black, plant remains on partings; sandstone, grey, medium, lithic, bedding wavy, fissile to flaggy	2.645	79.345	
SANDSTONE, light grey, fine to medium, lithic, sporadic plant remains on partings	1.170	80.515	

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7.

CORNWALL COAL MT NICHOLAS D.D.H. 20

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
MUDSTONE, light grey to grey, sporadic carbonaceous lenses and wisps, soft and silty in places, flaggy	2.670	83.185	
<u>COAL</u> , dull with minor bright bands, broken in part	0.680	83.865	) PLY 8
CLAYSTONE, dark brown to black, carbonaceous	0.060	83.925	) ) MILLBROOK
<u>COAL</u> , stony	0.085	84.010	) COAL) MEMBER
CLAYSTONE, interbanded grey, dark brown and black, mostly carbonaceous minor bright coaly laminae	0.430	84.440	) ) ) PLY 9
<u>COAL</u> , stony	0.195	84.635)
, dull and bright	0.110	84.745))
CLAYSTONE, speckled brown	0.015	84.760))
<u>COAL</u> , dull with minor bright bands	0.030	84.790)
SILTSTONE, grey to dark grey, carbonaceous at base, laminated to thin bedding, flaggy to slabby	2.235	87.025	
<u>COAL</u> , stony	0.140	87.165) PLY 10
, dull	0.290	87.455)

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CORNWALL COAL MT NICHOLAS D.D.H. 20

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, speckled greyish brown	0.020	87.475)
)
<u>COAL</u> , dull	0.035	87.510)
)
CLAYSTONE, speckled cream to brown, soft and puggy in part	0.090	87.600	) FENTON) SEAM
)
<u>COAL</u> , dull	0.165	87.765)
, dull with minor bright bands	0.180	87.945	) PLY 10
)
CLAYSTONE, brownish grey	0.035	87.980)
)
<u>COAL</u> , dull with minor bright bands	0.380	88.360)
, stony	0.135	88.495)
, dull with minor bright bands	0.180	88.675)
, dull with numerous bright bands	0.190	88.865)
SANDSTONE, light grey, fine, lithic, sporadic coaly wisps and laminae, numerous silty phases, bedding laminated to thin, subparallel to wavy, slabby	2.135	91.000	

BASE OF HOLE

**SGS Australia Pty. Ltd.**

Incorporated in New South Wales

Sydney

74 McEvoy Street,
Alexandria, N.S.W.,
P.O. Box 163, Redfern, 2016
Tel.: 699-7625
Telex: AA 22395
Cables: Supervise

McElroy Bryan & Associates Pty Ltd

P. O. Box 34

Willoughby N.S.W. 2068Attn : Dr. John H. Bryan

Your ref.:

Our ref.: SL 2906 Cornwall Coal Co. NL

14th. Dec, 1984

Dear Dr. Bryan,

Enclosed is a report on analyses for DDH 20, Plies 1 - 7
inclusive.

The analyses conducted were as per your letter dated 6/11/84,
except an additional relative density separation at 1.70
was conducted on the -20mm + 0.5 coal.

Yours faithfully,


R. E. GUYOT
MANAGER - COAL LABORATORY

**SGS Australia Pty. Ltd.**

REPORT NO : SL 2906

CORNWALL COAL CO. NL

INTRODUCTION : DDH 20

Proximate and relative density determinations were conducted on raw coal crushed to pass a 20mm screen for plies 1, 2, 3, 5, 6 and 7, whereas only relative density and ash was determined on ply 4.

The minus 20mm raw coal for plies 1, 2, 3, 5 and 7 was sized at 0.5mm. Plies 4 and 6 were not sized at 0.5mm. Float/Sink density separations were conducted at 1.60 and 1.70 on the -20mm + 0.5 material. Proximate, relative density, total sulphur and specific energy determinations were conducted on material floating at 1.60; ash on material floating at 1.70 and ash and relative density on material sinking at 1.70.

These results are recorded on pages 2 to 8 of this report.


SGS Australia Pty. Ltd.

(Incorporated in N.S.W.)

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 NATA Reg. No. 1062

Page 1 of 8

McElroy Bryan & Associates Pty Ltd

P. O. Box 34

Willoughby N.S.W. 2068
Attn : Dr. John H. Bryan

REPORT NO	SL 2906	CLIENT REF. NO	Letter JHB, 6/11/84
DATE SAMPLES IN	6/12/84	DATE REPORT OUT	14/12/84

REPORT TITLE: ANALYSES OF DDH 20, PLIES 1 - 7
CORNWALL COAL COMPANY NL

The tests contained in this report have been carried out in accordance with the Australian Standards or other NATA approved methods listed below:-

AS 1038 Pt. 1	Total Moisture
AS 1038 Pt. 3	Proximate Analysis
AS 1038 Pt. 5	Specific Energy
AS 1038 Pt. 6	Ultimate Analysis
AS 1038 Pt. 8	Chlorine
AS 1038 Pt.11	Forms of Sulphur
AS 1038 Pt.12.1	Crucible Swelling Number
AS 1038 Pt.12.2	Gray King Coke Type
AS 1038 Pt.14.1	Ash Analysis
AS 1038 Pt.15	Fusibility of Ash
AS 1038 Pt.20	Hardgrove Grindability Index
AS 1038 Pt.21	Relative Density
AS 1661	Float/Sink Testing
AS 1676 xxxxxxxxxxxx	Sampling
AS 2137	Gieseler Plastometer (Dis-continuous stirring method)
AS 2486	Reflectance of Vitrinite
AS 2515	Maceral Analysis
ISO 349	Audibert Arnu Dilatometer
ISO 335	Roga Index
ISO 1018	Moisture Holding Capacity
BS 1016 Pt.17	Size Analysis
LECO Method	Total Sulphur

Samples supplied by client.

All data on air dried basis.


SGS Australia Pty. Ltd.
CORNWALL COAL CO. NL

Report No : SL 2906

DDH 20 PLY 1
RAW COAL (-20mm + 0)

Mass Received	kg	4.256
Moisture	%	4.1
Ash	%	22.3
Volatile Matter	%	29.2
Fixed Carbon	%	44.4
Relative Density		1.51

	<u>Mass %</u>	<u>Ash %</u>	
- 20 + 0.5mm	97.2	22.3	(calculated)
- 0.5mm + 0	2.8	28.3	
	<u>100.0</u>	<u>22.5</u>	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

<u>Relative Density</u>	<u>Fractional (%)</u>		<u>Cumulative (%)</u>	
	<u>Mass</u>	<u>Ash</u>	<u>Mass</u>	<u>Ash</u>
Floats 1.60	82.8	14.0	82.8	14.0
S 1.60 - F 1.70	3.5	44.1	86.3	15.2
Sinks 1.70	13.7	66.6	100.0	22.3

(RD 2.18)

-20 + 0.5mm
Floats 1.60 MATERIAL
-20 + 0.5mm Sinks 1.60-
Floats 1.70 MATERIAL

Moisture	%	3.8	-
Ash	%	14.0	44.1
Volatile Matter	%	32.0	-
Fixed Carbon	%	50.2	-
Sulphur	%	0.45	-
Specific Energy (MJ/kg)		27.24	-
Relative Density		1.41	-



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COLIN MEADS
MANAGER - LABORATORIES



SGS Australia Pty. Ltd.

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Page 3 of 8

Report No : SL 2906

CORNWALL COAL CO. NL

DDH 20 PLY 2

RAW COAL (-20mm + 0)

Mass Received	kg	1.864
Moisture	%	3.7
Ash	%	45.7
Volatile Matter	%	22.7
Fixed Carbon	%	27.9
Relative Density		1.77

	<u>Mass %</u>	<u>Ash %</u>	
- 20 + 0.5mm	97.3	45.0	(calculated)
- 0.5mm + 0	2.7	52.0	
	<u>100.0</u>	<u>45.2</u>	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

<u>Relative Density</u>	<u>Fractional (%)</u>		<u>Cumulative (%)</u>	
	<u>Mass</u>	<u>Ash</u>	<u>Mass</u>	<u>Ash</u>
Floats 1.60	49.8	13.9	49.8	13.9
S 1.60 - F 1.70	4.9	45.3	54.7	16.7
Sinks 1.70	45.3	79.1	100.0	45.0

(RD 2.37)

-20 + 0.5mm

Floats 1.60 MATERIAL

-20 + 0.5mm Sinks 1.60-

Floats 1.70 MATERIAL

Moisture	%	3.6	-
Ash	%	13.9	45.3
Volatile Matter	%	35.1	-
Fixed Carbon	%	47.4	-
Sulphur	%	0.52	-
Specific Energy (MJ/kg)		27.73	-
Relative Density		1.44	-



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Page 4 of 8


SGS Australia Pty. Ltd.
CORNWALL COAL CO. NL

Report No : SL 2906

DDH 20 PLY 3
RAW COAL (-20mm + 0)

Mass Received	kg	3.222
Moisture	%	4.0
Ash	%	28.8
Volatile Matter	%	24.2
Fixed Carbon	%	43.0
Relative Density		1.61

	<u>Mass %</u>	<u>Ash %</u>	
- 20 + 0.5mm	98.2	29.9	(calculated)
- 0.5mm + 0	1.8	28.3	
	<u>100.0</u>	<u>29.9</u>	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

<u>Relative Density</u>	<u>Fractional (%)</u>		<u>Cumulative (%)</u>	
	<u>Mass</u>	<u>Ash</u>	<u>Mass</u>	<u>Ash</u>
Floats 1.60	72.7	18.4	72.7	18.4
S 1.60 - F 1.70	4.3	39.3	77.0	19.6
Sinks 1.70	23.0	64.5	100.0	29.9

(RD 2.09)

<u>-20 + 0.5mm</u>	<u>-20 + 0.5mm Sinks 1.60-</u>
<u>Floats 1.60 MATERIAL</u>	<u>Floats 1.70 MATERIAL</u>

Moisture	%	3.9	-
Ash	%	18.4	39.3
Volatile Matter	%	28.6	-
Fixed Carbon	%	49.1	-
Sulphur	%	0.45	-
Specific Energy (MJ/kg)		25.51	-
Relative Density		1.51	

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SGS Australia Pty. Ltd.

CORNWALL COAL CO. NL

Report No : SL 2906

DDH 20 PLY 4

RAW COAL (-20mm + 0)

Mass Received	kg	1.906
Moisture	%	-
Ash	%	82.0
Volatile Matter	%	-
Fixed Carbon	%	-
Relative Density		2.48

	<u>Mass %</u>	<u>Ash %</u>	
- 20 + 0.5mm	-	-	(calculated)
- 0.5mm + 0	-	-	
	-	-	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

<u>Relative Density</u>	<u>Fractional (%)</u>		<u>Cumulative (%)</u>	
	<u>Mass</u>	<u>Ash</u>	<u>Mass</u>	<u>Ash</u>
Floats 1.60	-	-	-	-
S 1.60 - F 1.70	-	-	-	-
Sinks 1.70	-	-	-	-
	(RD -)			

<u>-20 + 0.5mm</u>	<u>-20 + 0.5mm Sinks 1.60-</u>
<u>Floats 1.60 MATERIAL</u>	<u>Floats 1.70 MATERIAL</u>

Moisture	%	-	-
Ash	%	-	-
Volatile Matter	%	-	-
Fixed Carbon	%	-	-
Sulphur	%	-	-
Specific Energy (MJ/kg)		-	-
Relative Density		-	-



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CORNWALL COAL CO. NL

Report No : SL 2906

DDH 20 PLY 5
RAW COAL (-20mm + 0)

Mass Received	kg	2.522
Moisture	%	4.0
Ash	%	14.9
Volatile Matter	%	30.0
Fixed Carbon	%	51.1
Relative Density		1.48

	<u>Mass %</u>	<u>Ash %</u>	
- 20 + 0.5mm	97.5	15.2	(calculated)
- 0.5mm + 0	2.5	22.9	
	<u>100.0</u>	<u>15.4</u>	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

<u>Relative Density</u>	<u>Fractional (%)</u>		<u>Cumulative (%)</u>	
	<u>Mass</u>	<u>Ash</u>	<u>Mass</u>	<u>Ash</u>
Floats 1.60	90.9	10.6	90.9	10.6
S 1.60 - F 1.70	2.0	40.0	92.9	11.2
Sinks 1.70	7.1	66.7	100.0	15.2

(RD 2.16)

-20 + 0.5mm
-20 + 0.5mm Sinks 1.60-
Floats 1.60 MATERIAL
Floats 1.70 MATERIAL

Moisture	%	3.8	-
Ash	%	10.6	40.0
Volatile Matter	%	31.6	-
Fixed Carbon	%	54.0	-
Sulphur	%	0.49	-
Specific Energy (MJ/kg)		28.55	-
Relative Density		1.40	-



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SGS Australia Pty. Ltd.
CORNWALL COAL CO. NL

Report No : SL 2906

DDH 20 PLY 6
RAW COAL (-20mm + 0)

Mass Received	kg	2.078
Moisture	%	3.6
Ash	%	49.3
Volatile Matter	%	18.4
Fixed Carbon	%	1.84
Relative Density		

	<u>Mass %</u>	<u>Ash %</u>	
- 20 + 0.5mm	-	-	(calculated)
- 0.5mm + 0	-	-	
	<u>-</u>	<u>-</u>	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

<u>Relative Density</u>	<u>Fractional (%)</u>		<u>Cumulative (%)</u>	
	<u>Mass</u>	<u>Ash</u>	<u>Mass</u>	<u>Ash</u>
Floats 1.60	-	-	-	-
S 1.60 - F 1.70	-	-	-	-
Sinks 1.70	-	-	-	-
	(RD -)			

	<u>-20 + 0.5mm</u>	<u>-20 + 0.5mm Sinks 1.60-</u>
	<u>Floats 1.60 MATERIAL</u>	<u>Floats 1.70 MATERIAL</u>

Moisture	%	-	-
Ash	%	-	-
Volatile Matter	%	-	-
Fixed Carbon	%	-	-
Sulphur	%	-	-
Specific Energy (MJ/kg)		-	-
Relative Density		-	-



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**SGS Australia Pty. Ltd.**CORNWALL COAL CO. NL

Report No : SL 2906

DDH 20 PLY 7RAW COAL (-20mm + 0)

Mass Received	kg	3.886
Moisture	%	3.9
Ash	%	22.8
Volatile Matter	%	24.0
Fixed Carbon	%	49.3
Relative Density		1.52

	<u>Mass %</u>	<u>Ash %</u>	
- 20 + 0.5mm	96.9	23.1	(calculated)
- 0.5mm + 0	3.1	22.1	
	<u>100.0</u>	<u>23.1</u>	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

<u>Relative Density</u>	<u>Fractional (%)</u>		<u>Cumulative (%)</u>	
	<u>Mass</u>	<u>Ash</u>	<u>Mass</u>	<u>Ash</u>
Floats 1.60	79.6	16.0	79.6	16.0
S 1.60 - F 1.70	8.9	39.3	88.5	18.3
Sinks 1.70	11.5	59.7	100.0	23.1

(RD 2.01)

-20 + 0.5mm-20 + 0.5mm Sinks 1.60-Floats 1.60 MATERIALFloats 1.70 MATERIAL

Moisture	%	3.8	-
Ash	%	16.0	39.3
Volatile Matter	%	25.3	-
Fixed Carbon	%	54.9	-
Sulphur	%	0.33	-
Specific Energy (MJ/kg)		26.18	-
Relative Density		1.50	-



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Page 1 of 9

 McElroy Bryan & Associates Pty Ltd
 P.O. Box 34
 WILLOUGHBY - N.S.W. 2068

Attention: Dr. J. H. BRYAN

REPORT NO .SL .2917... CLIENT REF. NO
DATE SAMPLES IN .17/12/84.. DATE REPORT OUT .28/12/84..

 REPORT TITLE: CORNWALL COAL COMPANY NL COAL CORES FROM
 DDH 17 AND DDH 20

The tests contained in this report have been carried out in accordance with the Australian Standards or other NATA approved methods listed below:-

AS 1038 Pt. 1	Total Moisture
AS 1038 Pt. 3	Proximate Analysis
AS 1038 Pt. 5	Specific Energy
AS 1038 Pt. 6	Ultimate Analysis
AS 1038 Pt. 8	Chlorine
AS 1038 Pt.11	Forms of Sulphur
AS 1038 Pt.12.1	Crucible Swelling Number
AS 1038 Pt.12.2	Gray King Coke Type
AS 1038 Pt.14.1	Ash Analysis
AS 1038 Pt.15	Fusibility of Ash
AS 1038 Pt.20	Hardgrove Grindability Index
AS 1038 Pt.21	Relative Density
AS 1661	Float/Sink Testing
AS 1676 =====	Sampling
AS 2137	Gieseler Plastometer (Dis-continuous stirring method)
AS 2486	Reflectance of Vitrinite
AS 2515	Maceral Analysis
ISO 349	Audibert Arnu Dilatometer
ISO 335	Roga Index
ISO 1018	Moisture Holding Capacity
BS 1016 Pt.17	Size Analysis
LECO Method	Total Sulphur

SAMPLES SUPPLIED BY CLIENT.

**SGS Australia Pty. Ltd.**

page 2 of 9

I N T R O D U C T I O N

The following coal cores were received for testing :

Cornwall Coal Company NL DDH 17, plies 1 - 4 inclusive

" " " " DDH 20, plies 8, 9, 10.

Each ply was air dried and weighed, then crushed to minus 20 mm (minimum fines).

Representative raw coal samples were split out and analysed for proximate analysis and relative density (ash and RD only for DDH 17 ply 3).

DDH 17 plies 1, 2, 4; DDH 20 ply 10 samples were screened at 0.5 mm and the plus 0.5 mm float-sink separated at 1.60.

The floats 1.60 material was analysed for proximate analysis, specific energy, total sulphur and relative density.
The sink 1.60 was analysed for ash only.

Results are tabulated on pages 3 to 9.

SGS Australia Pty. Ltd.

CORNWALL COAL CO. NL

Report No : SL 2917

DDH 20 PLY 8

RAW COAL (-20mm + 0)

Mass Received	kg	1.091
Moisture	%	4.0
Ash	%	16.3
Volatile Matter	%	24.7
Fixed Carbon	%	55.0
Relative Density		1.46

	<u>Mass %</u>	<u>Ash %</u>	
- 20 + 0.5mm	-	-	(calculated)
- 0.5mm + 0	-	-	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

<u>Relative Density</u>	<u>Fractional (%)</u>		<u>Cumulative (%)</u>	
	<u>Mass</u>	<u>Ash</u>	<u>Mass</u>	<u>Ash</u>
Floats 1.60	-	-	-	-
S 1.60 - F 1.70	-	-	-	-
Sinks 1.70	-	-	-	-
	(RD	-)		

<u>-20 + 0.5mm</u>	<u>-20 + 0.5mm Sinks 1.60-</u>
<u>Floats 1.60 MATERIAL</u>	<u>Floats 1.70 MATERIAL</u>

Moisture	%	-	-
Ash	%	-	-
Volatile Matter	%	-	-
Fixed Carbon	%	-	-
Sulphur	%	-	-
Specific Energy (MJ/kg)			
Relative Density			



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Colin Meads
Colin Meads
Manager - Laboratories



SGS Australia Pty. Ltd.

CORNWALL COAL CO. NL

Report No : SL 2917

DDH 20 PLY 9

RAW COAL (-20mm + 0)

Mass Received	kg	2.536
Moisture	%	3.5
Ash	%	52.3
Volatile Matter	%	19.7
Fixed Carbon	%	24.5
Relative Density		1.81

	Mass %	Ash %	
- 20 + 0.5mm	-	-	(calculated)
- 0.5mm + 0	-	-	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

Relative Density	Fractional (%)		Cumulative (%)	
	Mass	Ash	Mass	Ash
Floats 1.60				
S 1.60 - F 1.70				
Sinks 1.70				

(RD)

<u>-20 + 0.5mm</u>	<u>-20 + 0.5mm Sinks 1.60-</u>
<u>Floats 1.60 MATERIAL</u>	<u>Floats 1.70 MATERIAL</u>

Moisture	%	-	-
Ash	%	-	-
Volatile Matter	%	-	-
Fixed Carbon	%	-	-
Sulphur	%	-	-
Specific Energy (MJ/kg)		-	-
Relative Density		-	-



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Colin Meads
Colin Meads
Manager - Laboratories



SGS Australia Pty. Ltd.

CORNWALL COAL CO. NL

Report No : SL 2917

DDH 20 PLY 10

FEATON

RAW COAL (-20mm + 0)

Mass Received	kg	3.978
Moisture	%	3.6
Ash	%	28.3
Volatile Matter	%	24.5
Fixed Carbon	%	43.6
Relative Density		1.56

	<u>Mass %</u>	<u>Ash %</u>	
- 20 + 0.5mm	96.0	26.8	(calculated)
- 0.5mm + 0	4.0	37.8	
	<u>100.0</u>	<u>27.2</u>	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

<u>Relative Density</u>	<u>Fractional (%)</u>		<u>Cumulative (%)</u>	
	<u>Mass</u>	<u>Ash</u>	<u>Mass</u>	<u>Ash</u>
Floats 1.60	75.5	14.9	75.5	14.9
S 1.60 - F 1.70	5.4	38.1	80.9	16.4
Sinks 1.70	19.1	70.4	100.0	26.8

(RD 2.21)

<u>-20 + 0.5mm</u>	<u>-20 + 0.5mm Sinks 1.60-</u>
<u>Floats 1.60 MATERIAL</u>	<u>Floats 1.70 MATERIAL</u>

Moisture	%	2.6	-
Ash	%	14.9	38.1
Volatile Matter	%	28.0	-
Fixed Carbon	%	54.5	-
Sulphur	%	0.48	-
Specific Energy (MJ/kg)		27.60	-
Relative Density		1.42	-



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Colin Meads
Colin Meads
Manager - Laboratories

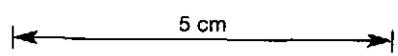
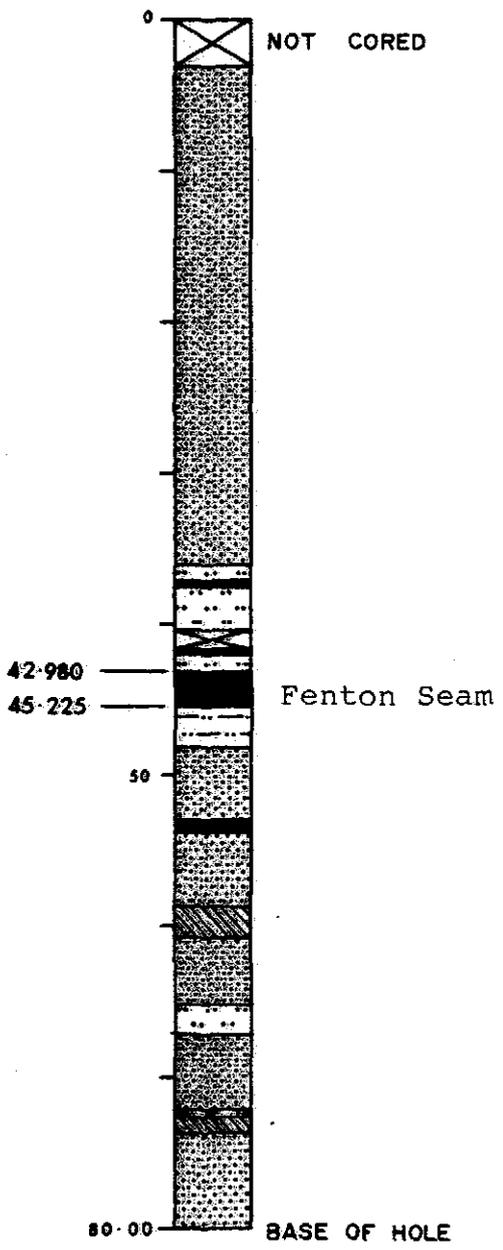
163

206164

CORNWALL COAL COMPANY N.L.

Mt. Nicholas

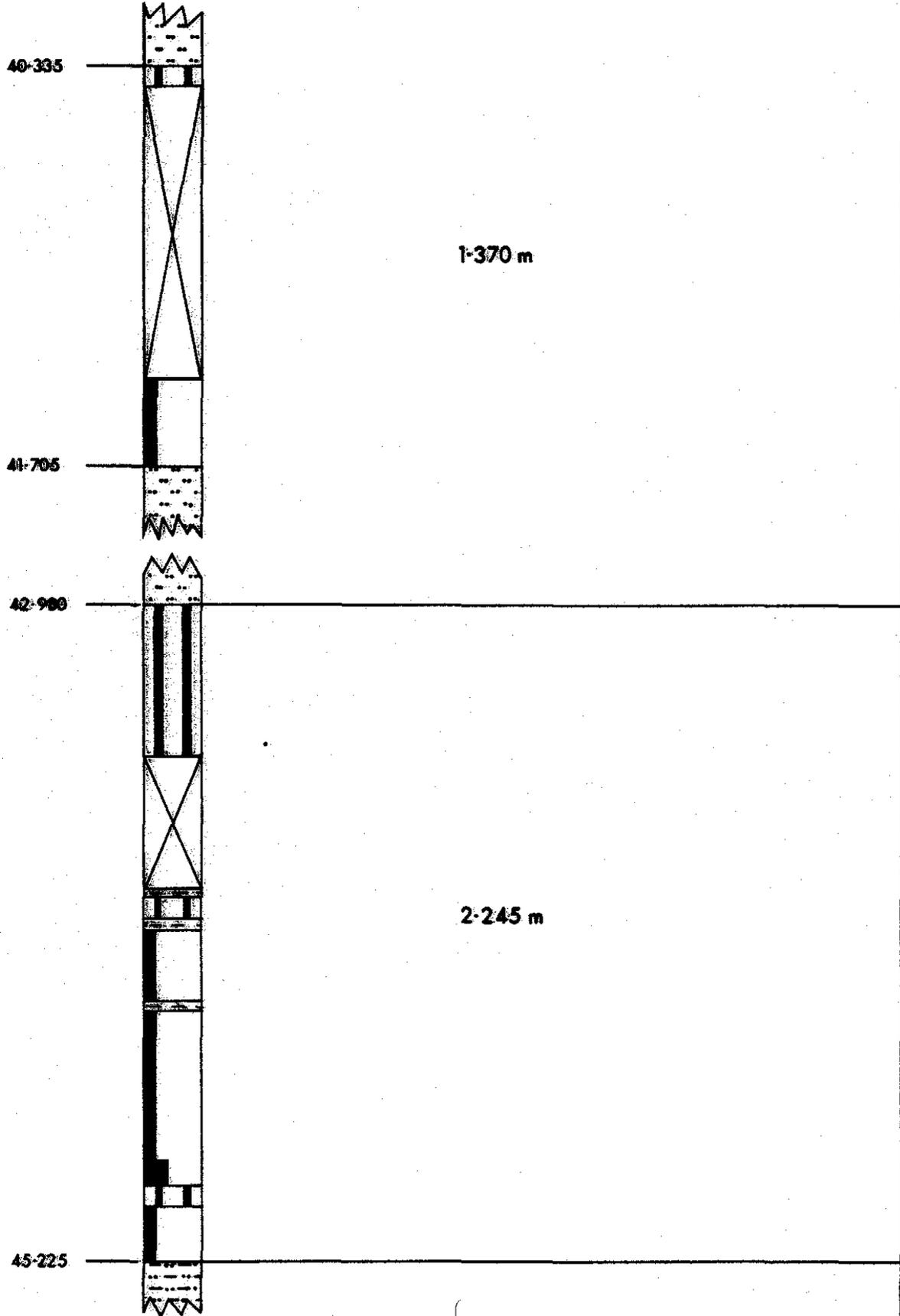
DDH 21



CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 21





Cornwall Coal Mt Nicholas DDH 21
Fenton Seam from 42.980 m to 45.225 m

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206167

CORNWALL COAL MT NICHOLAS D.D.H. 21Location: Mt NicholasLogged by: C.G. LancasterAMG Co-ordinates: E 592 956.05Drilled by: Stacpoole Drilling

N 5398 404.83

(Max Harvey)

Collar R.L.: 400.9 mCommenced:Total Depth: 80.0 mCompleted:

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
NOT CORED: tricone roller to 3.0 m	3.000	3.000	NQ Core to 80.0m
SANDSTONE, brown at top to light grey, medium to coarse, lithic, weathered to 9 m, sporadic carbonaceous wisps and lenses, minor silty horizons, bedding thin to thick, subparallel, blocky to massive	32.900	35.900	
SILTSTONE, grey to dark grey interbeds, carbonaceous in part, numerous sandy phases, sandy at base	1.150	37.050	
<u>COAL</u> , stony to dull with minor bright bands, broken	0.280	37.330	
CLAYSTONE, dark brown, soft, puggy	0.065	37.395	
SILTSTONE, grey, fretted from exposure, possible fracture at base, core crumbly	2.940	40.335	

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2.

206168

CORNWALL COAL MT NICHOLAS D.D.H. 21

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
<u>COAL</u> , stony	0.070	40.405)
)
CORE LOSS: probably in broken coal and claystone	1.000	41.405	) Thickness 1.370m
)
<u>COAL</u> , dull, completely broken	0.300	41.705)
)
SILTSTONE, grey, numerous sandy phases, flaggy	1.275	42.980)
)
<u>COAL</u> , stony, broken throughout	0.520	43.500)
)
CORE LOSS	0.450	43.950)
)
CLAYSTONE, speckled light brown	0.030	43.980	) FENTON SEAM
)
<u>COAL</u> , stony, broken	0.070	44.050)
)
CLAYSTONE, cream	0.040	44.090)
)
<u>COAL</u> , stony to dull, broken	0.240	44.330	) Thickness 2.245 m
)
CLAYSTONE, speckled brownish-grey	0.040	44.370)
)
<u>COAL</u> , stony to dull with minor bright bands	0.510	44.880)
, dull with numerous bright bands	0.090	44.970)
, stony	0.065	45.035)
, dull with minor bright bands	0.190	45.225)
)
MUDSTONE, grey, flaggy, broken throughout from exposure, numerous fine sandy phases, grades to under- lying sandstone	2.900	48.125)

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3.

CORNWALL COAL MT NICHOLAS D.D.H. 21

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
SANDSTONE, light grey, fine, lithic, bedding laminated to very thin, subparallel, flaggy, carbonaceous remains on partings	1.360	49.485	
SANDSTONE, brown, medium with minor coarse phases, lithic, blocky to massive	2.490	51.975	
SANDSTONE, as for 1.360 m unit above	0.895	52.870	
CORE LOSS, in broken stony coal	0.130	53.000	
<u>COAL</u> , stony, completely broken, disseminated pyrite	0.570	53.570	
CLAYSTONE, dark grey to black, carbonaceous	0.070	53.640	
SANDSTONE, light grey, medium, lithic, silty at top, blocky to massive	5.050	58.690	
CLAYSTONE, black, carbonaceous broken	0.230	58.920	
CLAYSTONE, light brown, fissile	0.050	58.970	
CLAYSTONE, dark grey to black, mostly carbonaceous	0.180	59.150	
CORE LOSS	0.160	59.310	
CLAYSTONE, dark grey to black, mostly carbonaceous	0.640	59.950	

CORNWALL COAL MT NICHOLAS D.D.H. 21

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, brown, fissile	0.040	59.990	
CLAYSTONE, black, carbonaceous	0.620	60.610	
SILTSTONE, grey, sporadic fine sandy phases, flaggy	4.575	65.185	
CLAYSTONE, black, carbonaceous to coaly	0.065	65.250	
SILTSTONE, as for 4.575 m unit above	1.660	66.910	
SANDSTONE, light grey, medium, lithic, blocky to massive	5.030	71.940	
SILTSTONE, grey, laminated, fissile to flaggy, carbonaceous at base	0.500	72.440	
CLAYSTONE, black, carbonaceous, laminated at top, coaly wisps in centre, sandstone blebs at base	1.000	73.440	
SANDSTONE, grey to light grey, medium, lithic, silty and carbonaceous lenses at top, closed subvertical fractures throughout	6.560	80.000	

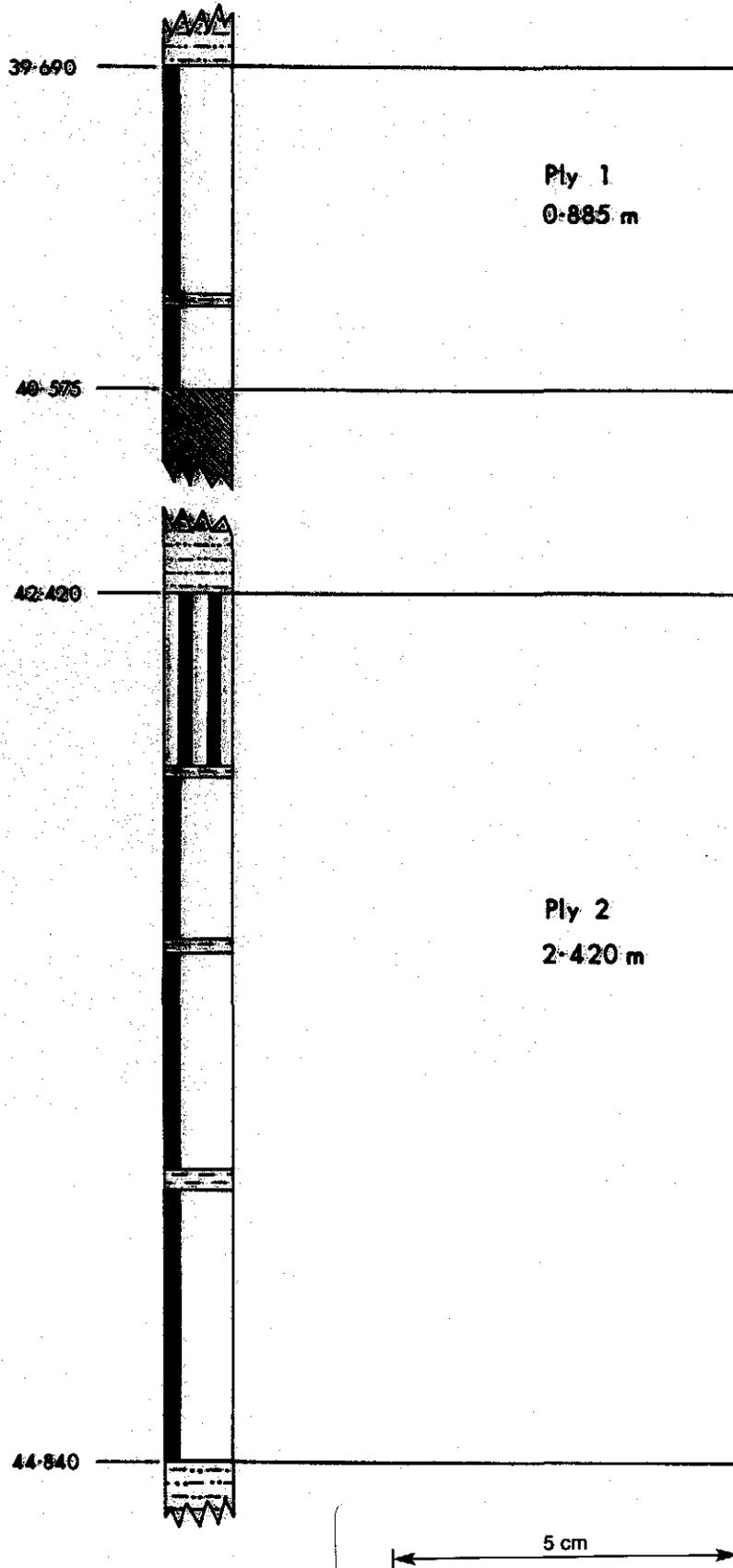
BASE OF HOLE

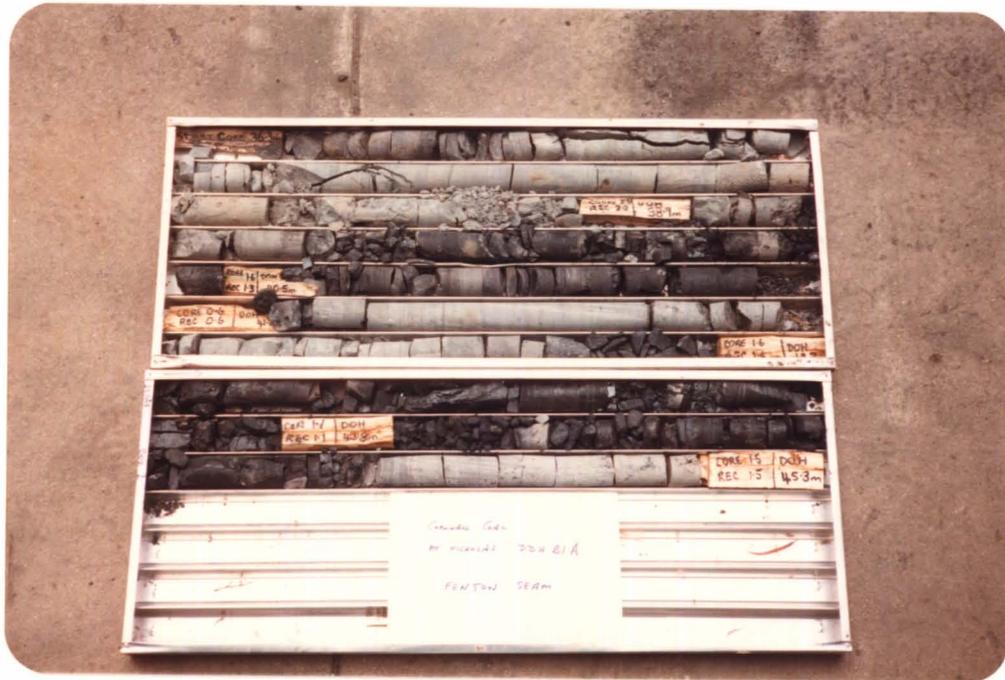
CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 21A

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Cornwall Coal Mt Nicholas D.D.H. 21A
Fenton Seam from 42.42 m to 44.84 m

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CORNWALL COAL MT NICHOLAS D.D.H. 21A (REDRILL)

Location: Mt Nicholas
AMG Co-ordinates: E 592 955
 N 5398 402

Logged by: J.H. Bryan
Drilled by: Stacpoole Drilling

Collar R.L.: 400.4 m
Total Depth: 45.20 m

Commenced:
Completed:

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
TRICONE ROLLER BIT TO 38.9 m (NO CORE)	38.90	38.90	
MUDSTONE, grey with occasional carbonaceous wisps (core loss in mudstone ?)	0.790	39.690	
<u>COAL</u> , dull	0.650	40.340	) ) PLY 1
CLAYSTONE, grey, hard	0.025	40.365	) Thickness) 0.885 m
<u>COAL</u> , dull to stony	0.210	40.575)
CLAYSTONE, dark brown to black, carbonaceous	0.605	41.180	
MUDSTONE, grey	0.125	41.305	
SILTSTONE, grey, hard (competent strata)	0.335	41.640	
MUDSTONE, grey to grey/green, carbonaceous in part towards base	0.780	42.420	

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2.

CORNWALL COAL MT NICHOLAS D.D.H. 21A (REDRILL)

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
<u>COAL</u> , dull to stony (core loss) 0.080m	0.480	42.900)
CLAYSTONE, brown, hard	0.025	42.925	) FENTON SEAM
<u>COAL</u> , dull	0.460	43.385)
CLAYSTONE, grey, hard	0.025	43.410	) PLY 2
<u>COAL</u> , dull	0.610	44.020	) Thickness 2.42 m
CLAYSTONE, grey, hard	0.050	44.070)
<u>COAL</u> , dull with minor bright bands	0.770	44.840)
MUDSTONE, grey, clayey at top	0.460	45.300)

BASE OF HOLE

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SGS Australia Pty. Ltd.

(Incorporated in N.S.W.)

74 McEvoy St.,
Alexandria NSW 2015
Telephone (02) 699 7625.
Telex 22395
NATA Reg. No. 1062

Page 1 of 8

McElroy Bryan & Associates Pty Ltd

P. O. Box 34

Willoughby N.S.W. 2068

Attn : Dr. John H. Bryan

REPORT NO ... SL 2923 CLIENT REF. NO Letter Dr. J.H.Bryan 3/01/85
DATE SAMPLES IN 3/01/85 ... DATE REPORT OUT 10/01/85

REPORT TITLE: ANALYSIS OF BORECORES DDH 21A AND DDH 23,
CORNWALL COAL CO. NL

The tests contained in this report have been carried out in accordance with the Australian Standards or other NATA approved methods listed below:-

- AS 1038 Pt. 1 Total Moisture
- AS 1038 Pt. 3 Proximate Analysis
- AS 1038 Pt. 5 Specific Energy
- AS 1038 Pt. 6 Ultimate Analysis
- AS 1038 Pt. 8 Chlorine
- AS 1038 Pt.11 Forms of Sulphur
- AS 1038 Pt.12.1 Crucible Swelling Number
- AS 1038 Pt.12.2 Gray King Coke Type
- AS 1038 Pt.14.1 Ash Analysis
- AS 1038 Pt.15 Fusibility of Ash
- AS 1038 Pt.20 Hardgrove Grindability Index
- AS 1038 Pt.21 Relative Density

- AS 1661 Float/Sink Testing
- ~~AS 1661 XXXXXXXXXXXXXXX Sampling~~
- AS 2137 Gieseler Plastometer (Dis-continuous stirring method)
- AS 2486 Reflectance of Vitrinite
- AS 2515 Maceral Analysis
- ISO 349 Audibert Arnu Dilatometer
- ISO 335 Roga Index
- ISO 1018 Moisture Holding Capacity

BS 1016 Pt.17 Size Analysis

LECO Method Total Sulphur

Borecores supplied by client.

Analytical data on air dried basis.

**SGS Australia Pty. Ltd.**

Page 2 of 8

Report No : SL 2923

INTRODUCTION

The following borecores samples were received at SGS Laboratory on 3rd. January, 1985:

cc DDH 21 A, Ply 1 (0.650mm)
cc DDH 21 A, Ply 2 (2.420mm)
cc DDH 23 Ply 1 (2.050mm)

These samples were prepared and analysed as requested by letter and additional work was conducted as discussed between Dr. John Bryan and Mr. H. Read.

The samples were air dried and crushed to -20.0mm. A portion of -20.0mm raw coal was analysed for proximate and relative density. The remaining -20.0mm coal was sized at 0.5mm and the -0.5mm material analysed for ash.

The -20 + 0.5mm material was washed at relative densities 1.60 and 1.70, the floats 1.60 analysed for proximate, total sulphur, specific energy and relative density; the floats 1.70 for ash; and the sinks 1.70 for ash and relative density.

In addition cumulative floats composities were prepared for each ply and analysed as for floats 1.60.

These results are reported on pages 3,4,5,6,7 & 8 of this report.

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SGS Australia Pty. Ltd.

CORNWALL COAL CO. NL

Report No : SL 2923

DDH 21 A PLY 1

RAW COAL (-20mm + 0)

Mass Received	kg	1.822
Moisture	%	3.2
Ash	%	36.1
Volatile Matter	%	20.3
Fixed Carbon	%	40.4
Relative Density		1.66

	<u>Mass %</u>	<u>Ash %</u>	
- 20 + 0.5mm	97.2	35.0	(calculated)
- 0.5mm + 0	2.8	39.4	
	<u>100.0</u>	<u>35.1</u>	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

<u>Relative Density</u>	<u>Fractional (%)</u>		<u>Cumulative (%)</u>	
	<u>Mass</u>	<u>Ash</u>	<u>Mass</u>	<u>Ash</u>
Floats 1.60	60.7	20.2	60.7	20.2
S 1.60 - F 1.70	10.2	37.1	70.9	22.6
Sinks 1.70	29.1	65.3	100.0	35.0
	(RD 2.07)			

-20 + 0.5mm

-20 + 0.5mm Sinks 1.60-

Floats 1.60 MATERIAL

Floats 1.70 MATERIAL

Moisture	%	3.2	
Ash	%	20.2	37.1
Volatile Matter	%	23.6	
Fixed Carbon	%	53.0	
Sulphur	%	0.35	
Specific Energy (MJ/kg)		25.01	
Relative Density		1.54	

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SGS Australia Pty. Ltd.

CORNWALL COAL CO. NL

Report No : SL 2923

DDH 21 A PLY 1

Cumulative Floats 1.70 (-20.0 + 0.5 mm MATERIAL)

Moisture	%	3.6
Ash	%	22.5
Volatile Matter	%	22.7
Fixed Carbon	%	51.2
Sulphur	%	0.34
Specific Energy (MJ/kg)		24.29
Relative Density		1.50

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SGS Australia Pty. Ltd.
CORNWALL COAL CO. NL

Report No : SL 2923

DDH 21 A PLY 2
RAW COAL (-20mm + 0)

Mass Received	kg	3.998
Moisture	%	3.0
Ash	%	29.1
Volatile Matter	%	23.1
Fixed Carbon	%	44.8
Relative Density		1.61

	<u>Mass %</u>	<u>Ash %</u>	
- 20 + 0.5mm	97.2	29.4	(calculated)
- 0.5mm + 0	2.8	28.9	
	<u>100.0</u>	<u>29.4</u>	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

<u>Relative Density</u>	<u>Fractional (%)</u>		<u>Cumulative (%)</u>	
	<u>Mass</u>	<u>Ash</u>	<u>Mass</u>	<u>Ash</u>
Floats 1.60	61.6	15.1	61.6	15.1
S 1.60 - F 1.70	13.9	36.9	75.5	19.1
Sinks 1.70	24.5	60.9	100.0	29.4
	(RD 1.97)			

-20 + 0.5mm
-20 + 0.5mm Sinks 1.60-
Floats 1.60 MATERIAL
Floats 1.70 MATERIAL

Moisture	%	2.8	
Ash	%	15.1	36.9
Volatile Matter	%	27.9	
Fixed Carbon	%	54.2	
Sulphur	%	0.43	
Specific Energy (MJ/kg)		26.85	
Relative Density		1.48	



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COLIN MEADS
MANAGER - LABORATORIES

**SGS Australia Pty. Ltd.**

Report No : SL 2923

CORNWALL COAL CO. NLDDH 21 A PLY 2Cumulative Floats 1.70 (-20.0 + 0.5 mm MATERIAL)

Moisture	%	3.3
Ash	%	19.0
Volatile Matter	%	26.0
Fixed Carbon	%	51.7
Sulphur	%	0.44
Specific Energy (MJ/kg)		25.57
Relative Density		1.51

COLIN MEADS
MANAGER - LABORATORIES

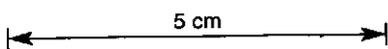
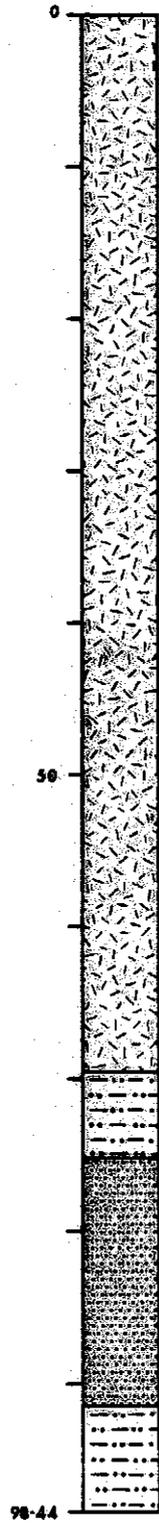


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CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 22



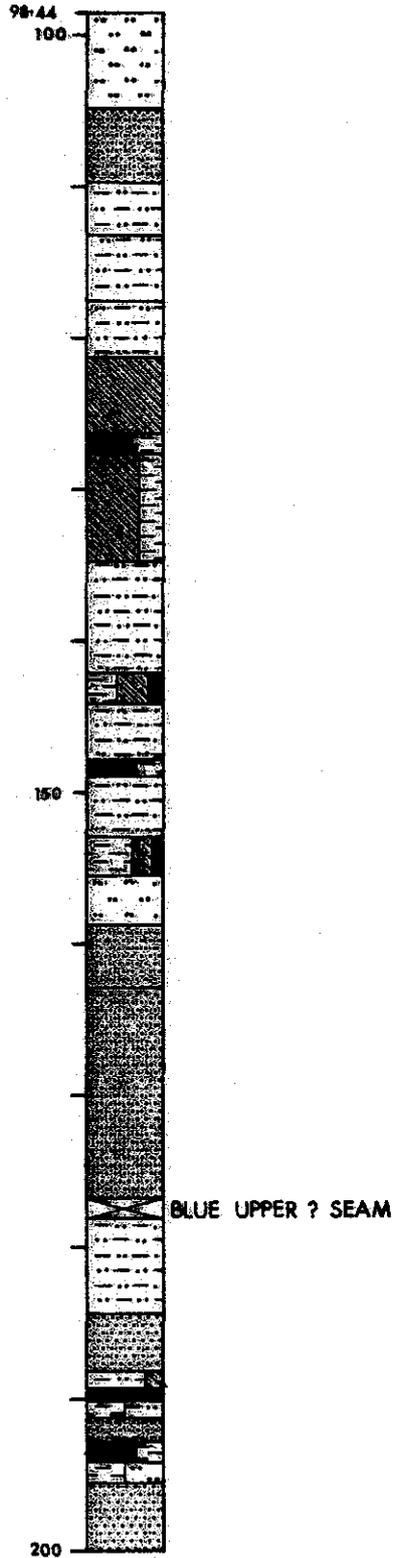
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CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 22



5 cm

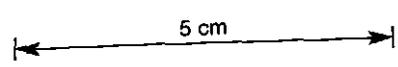
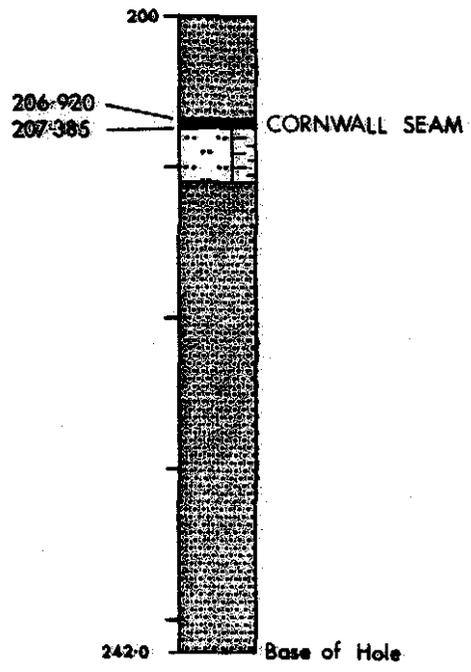
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CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 22





Cornwall Coal Mt Nicholas D.D.H. 22
Blue Lower from 188.27 - 190.595 m

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CORNWALL COAL MT NICHOLAS D.D.H. 22

Location:

AMG Co-ordinates: E 592 319.1
N 5399 451.8

Collar R.L.: 612.1 m

Total Depth: 242.0 m

Logged by: J.H. Bryan

Drilled by: Stacpoole Drilling

Commenced:

Completed: 7.1.85

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
DOLERITE - scree (broken and slightly weathered throughout-core not retained. Water loss in scree - frequent cementing required to enable drilling from 49.5 to 69.5 m	69.500	69.500	
MUDSTONE, green/grey with numerous joints and fractures - breaks up on exposure to air	4.540	74.040	
MUDSTONE, grey, hard	1.180	75.220	
SANDSTONE, grey, medium grained, lithic, massive - with occasional thin bands of black mudstone pellets and some coaly claystone lenses, sandstone becoming clayey towards base and more friable	16.410	91.630	
MUDSTONE, grey and grey/green with some laminite phases and occasional hard siltstone bands	6.810	98.440	

CORNWALL COAL MT NICHOLAS D.D.H. 22

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
SILTSTONE, grey, hard, with numerous dark grey carbonaceous bands - becoming coarser towards the base, gradational into the sandstone below	6.320	104.760	
SANDSTONE, grey, lithic, medium grained, with sporadic coaly wisps and lenses	5.080	109.840	
<u>COAL</u> , dull	0.020	109.860	
MUDSTONE, dark grey, core broken	0.160	110.020	
MUDSTONE, grey, hard, with clayey sandstone interbeds	3.200	113.220	
CLAYSTONE, black, coaly in part	0.180	113.400	
CLAYSTONE, buff, soft	0.030	113.430	
<u>COAL</u> , dull to stony	0.100	113.530	
MUDSTONE, grey/green, soft	0.225	113.755	
CLAYSTONE, black, carbonaceous	0.135	113.890	
MUDSTONE, grey, soft with some dark grey laminite bands	3.420	117.310	
CLAYSTONE, grey/brown, hard interbedded with black carbonaceous mudstone and grey/buff claystones in units up to 0.3 m	1.970	119.280	

CORNWALL COAL MT NICHOLAS D.D.H. 22

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
<u>COAL</u> , dull	0.020	119.300	
MUDSTONE, black, carbonaceous	0.600	119.900	
MUDSTONE, grey, hard	0.590	120.490	
CLAYSTONE, buff, hard	0.740	121.230	
MUDSTONE, black (coaly in part) with grey and grey/brown claystone interbeds	5.100	126.330	
<u>COAL</u> , dull	0.170	126.500	
CLAYSTONE, black, carbonaceous	0.070	126.570	
CLAYSTONE, grey/brown	0.320	126.890	
CLAYSTONE, black, carbonaceous	0.040	126.930	
<u>COAL</u> , dull	0.205	127.135	
CLAYSTONE, black, carbonaceous to coaly	0.075	127.210	
<u>COAL</u> , dull with minor bright bands	0.330	127.540	
MUDSTONE, black, carbonaceous (coaly in part) with interbeds of buff claystone	7.020	134.560	

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4.

CORNWALL COAL MT NICHOLAS D.D.H. 22

	<u>Estimated Thickness</u> (m)	<u>Estimated Depth to Base of Stratum</u> (m)	<u>Remarks</u>
MUDSTONE, light to mid grey, laminated in part, with minor carbonaceous claystone bands and occasional buff coloured claystone interbeds, claystone pellets abundant in lower 0.3m of unit	7.430	141.990	
CLAYSTONE, black, carbonaceous	0.440	142.430	
<u>COAL</u> , dull	0.240	142.670	
CLAYSTONE, black and coaly stone	0.420	143.090	
MUDSTONE, light to mid grey	0.880	143.970	
<u>COAL</u> , dull with minor bright bands	0.100	144.070	
MUDSTONE, grey, laminated in part	2.090	146.160	
SANDSTONE, grey, fine grained, lithic	0.220	146.380	
MUDSTONE, grey	1.310	147.690	
CLAYSTONE, black, carbonaceous	0.105	147.795	
<u>COAL</u> , dull to stony	0.230	148.025	
CLAYSTONE, buff to brown, soft, core loss	0.245	148.270	

CORNWALL COAL MT NICHOLAS D.D.H. 22

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
<u>COAL</u> , dull to stony with minor claystone bands	0.440	148.710	
MUDSTONE, black, carbonaceous with soft brown ? tuffaceous claystone interbeds up to 0.3m thick (core loss - grey mudstone as below)	1.790	150.500	
MUDSTONE, grey	1.980	152.480	
CLAYSTONE, black with some light grey bands	0.325	152.805	
<u>COAL</u> , dull to stony	0.160	152.965	
CLAYSTONE, black, carbonaceous	0.080	153.045	
CLAYSTONE, grey/brown, hard, ? tuffaceous	0.160	153.205	
<u>COAL</u> , dull	0.090	153.295	
CLAYSTONE, black, carbonaceous	0.120	153.415	
CLAYSTONE, grey, hard	0.035	153.45	
<u>COAL</u> , dull to stony	0.025	153.475	
CLAYSTONE, grey, hard	0.050	153.525	
CLAYSTONE, black, carbonaceous with occasional coaly bands	0.360	153.885	

CORNWALL COAL MT NICHOLAS D.D.H. 22

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, dark grey, waxy	0.155	154.040	
MUDSTONE, grey to green/grey, hard	0.960	155.000	
SANDSTONE, grey, fine grained, lithic	0.300	155.300	
SILTSTONE, grey, hard, cross bedded, grading to fine sandstone	3.330	158.630	
SANDSTONE, grey, fine grained, lithic, hard	4.130	162.760	
SANDSTONE, grey, lithic, medium grained with occasional coaly inclusions and mudstone clasts	13.860	176.620	
CORE LOSS (core loss 1.38m possibly in coal, one piece broken coal core)	1.380	178.000	? BLUE UPPER
MUDSTONE, grey - interbedded siltstone and claystone with numerous partings and fractures, breaks up on exposure to air	6.270	184.270	
SANDSTONE, medium grained, grey, lithic, massive	4.000	188.270	
<u>COAL</u> , dull	0.015	188.285	
MUDSTONE, grey, soft, broken up on exposure to air	0.090	188.375	

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7.

CORNWALL COAL MT NICHOLAS D.D.H. 22

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
<u>COAL</u> , dull with minor bright bands	0.040	188.415	
SANDSTONE, grey, lithic, medium grained	0.140	188.555	
CLAYSTONE, coaly	0.035	188.590	
MUDSTONE, grey, with several coaly or carbonaceous bands	0.500	189.090	
CLAYSTONE, black, carbonaceous with minor coaly bands	0.120	189.210	
CLAYSTONE, grey with carbonaceous interbeds	0.140	189.350	
<u>COAL</u> , dull with minor bright bands	0.150	189.500	
, dull	0.600	190.100	
CLAYSTONE, mid grey to black, carbonaceous	0.310	190.410	
MUDSTONE, grey	0.170	190.580	
<u>COAL</u> , dull	0.015	190.595	
MUDSTONE, soft, mid grey with occasional dark grey carbonaceous bands	0.560	191.155	
SANDSTONE, grey, lithic, medium grained with numerous coaly inclusions	1.705	192.860	

CORNWALL COAL MT NICHOLAS D.D.H. 22

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
MUDSTONE, grey/green, soft - becoming carbonaceous towards base	0.110	192.970	
CLAYSTONE, black, coaly in part - carbonaceous throughout	0.165	193.135	
<u>COAL</u> , dull	0.185	193.320	
CLAYSTONE, mid to dark grey, carbonaceous	0.120	193.440	
<u>COAL</u> , dull	0.550	193.990	
CLAYSTONE, mid grey/brown, carbonaceous	0.150	194.140	
SILTSTONE, grey, hard	0.610	194.750	
CLAYSTONE, grey/brown, carbonaceous in part	0.550	195.300	
SANDSTONE, grey, lithic, fine grained at top, becoming medium grained toward base, coaly wisps and mudstone clasts occur towards base	11.620	206.920	
<u>COAL</u> , dull	0.085	207.005)
CLAYSTONE, black, carbonaceous	0.030	207.035)
<u>COAL</u> , dull	0.020	207.055)
			) CORNWALL SEAM Thickness: 0.465m

CORNWALL COAL MT NICHOLAS D.D.H. 22

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
CLAYSTONE, dark brown, carbonaceous	0.050	207.105)	
)	
CLAYSTONE, grey/brown, soft, waxy	0.080	207.185)	CORNWALL
)	
<u>COAL</u> , dull	0.105	207.290)	SEAM
, dull with numerous bright)	
bands	0.095	207.385)	
CLAYSTONE, dark brown, carbonaceous	0.050	207.435	
CLAYSTONE, grey/brown, waxy, breaks up on exposure to air	0.195	207.630	
SILTSTONE/CLAYSTONE INTERBEDDED, ratio 70:30. Grey to grey/green, siltstone grading to fine lithic sandstone towards base	3.320	210.950	
SANDSTONE, grey, lithic, medium grained, massive - occasional coaly partings and mudstone clasts	31.050	242.000	

BASE OF HOLE

(Hole unable to be
continued after rods
broken and barrel
unable to be recovered)

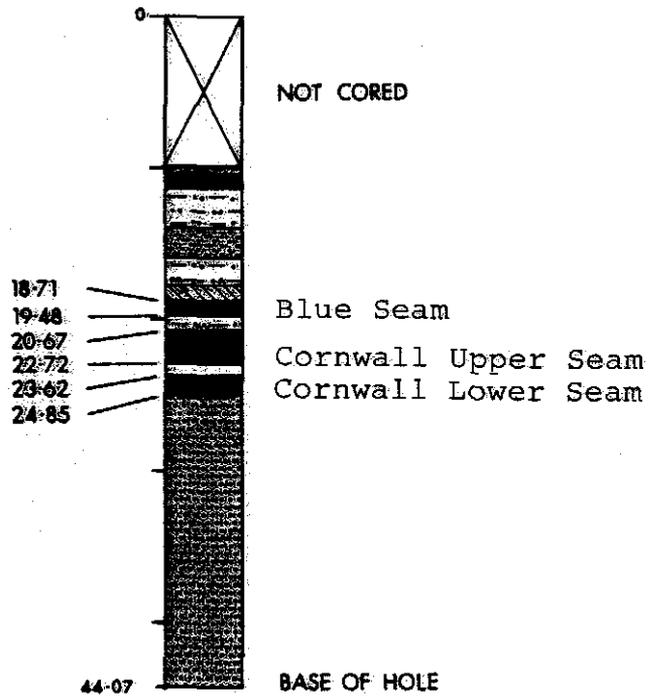
193

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CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 23

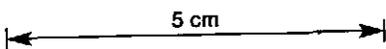
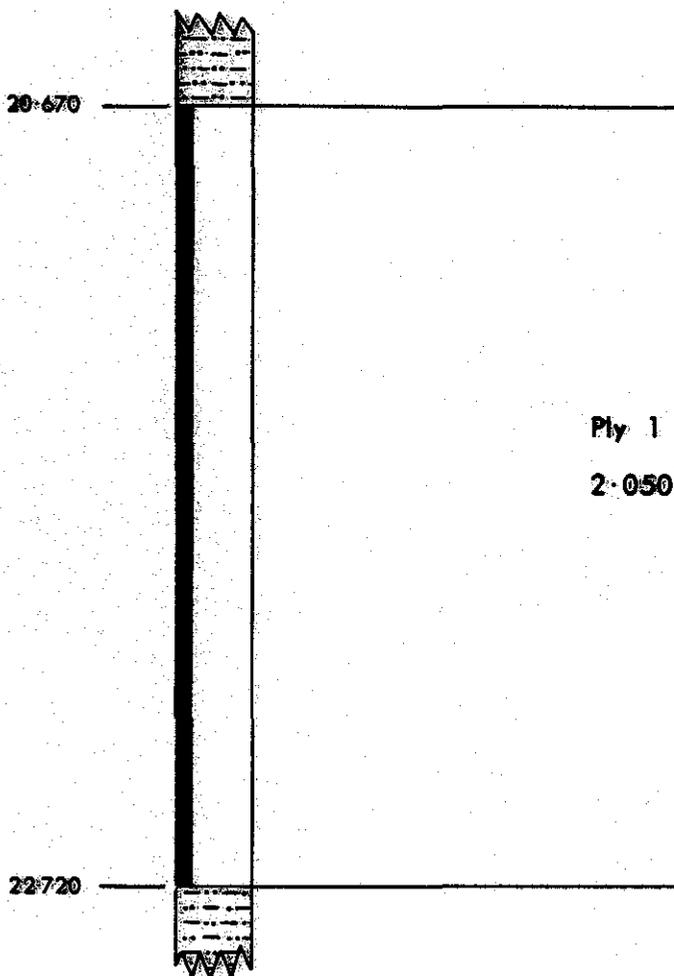


5 cm

CORNWALL COAL COMPANY N.L.

Mt. Nicholas

DDH 23





Cornwall Coal Mt Nicholas D.D.H. 23
 Cornwall Upper Seam from 20.67 m to 22.72 m

CORNWALL COAL MT NICHOLAS D.D.H. 23

<u>Location:</u> Mt Nicholas	<u>Logged by:</u> J.H. Bryan
<u>AMG Co-ordinates:</u> E 597 402.2 N 5401 788.7	<u>Drilled by:</u> Stacpoole Drilling
<u>Collar R.L.:</u> 545.2 m	<u>Commenced:</u>
<u>Total Depth:</u> 44.07 m	<u>Completed:</u>

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remarks</u>
NON CORE TO 10.0 m	10.00	10.00	
SANDSTONE, grey, lithic, core broken and slightly weathered	0.37	10.37	
<u>COAL</u> , dull (? core loss in weathered coal)	0.63	11.00	
MUDSTONE, grey to grey/green, core loss in mudstone	3.065	14.065	
SANDSTONE, grey	1.850	15.915	
MUDSTONE, grey to grey/green, soft, breaks up on exposure to air	1.805	17.720	
MUDSTONE, black to dark grey, carbonaceous	0.990	18.710	
<u>COAL</u> , dull to stony	0.280	18.990)
)
CLAYSTONE, black, carbonaceous	0.070	19.070)
)
<u>COAL</u> , dull (core loss in coal - 0.10m)	0.420	19.480	) Not sampled
MUDSTONE, grey (broken core), soft, (very poor roof strata	1.190	20.670	

19,

206198

2.

CORNWALL COAL MT NICHOLAS D.D.H. 23

	<u>Estimated Thickness (m)</u>	<u>Estimated Depth to Base of Stratum (m)</u>	<u>Remark</u>
<u>COAL</u> , dull with several lenticular pennybands of hard grey claystone	2.050	22.720	) CORNWALL) UPPER) SEAM
MUDSTONE, grey/green to brown, soft	0.850	23.570	
CLAYSTONE, black, hard, carbonaceous	0.050	23.620	
<u>COAL</u> , dull, core loss in coal- 0.12m	1.230	24.850	) (not sampled)
CLAYSTONE, grey/brown, grading to sandy claystone	0.250	25.100	
SANDSTONE, grey/brown to grey, very slightly weathered to 27 m	18.970	44.070	

BASE OF HOLE


SGS Australia Pty. Ltd.

(Incorporated in N.S.W.)

 74 McEvoy St.,
 Alexandria NSW 2015
 Telephone (02) 699 7625.
 Telex 22395
 NATA Reg. No. 1062

Page 1 of 8

McElroy Bryan & Associates Pty Ltd

P. O. Box 34

Willoughby N.S.W. 2068

Attn : Dr. John H. Bryan

REPORT NO . . . SL 2923 CLIENT REF. NO Letter Dr. J.H.Bryan 3/01/85

DATE SAMPLES IN . 3/01/85 . . . DATE REPORT OUT . 10/01/85 .

 REPORT TITLE: ANALYSIS OF BORECORES DDH 21A AND DDH 23,
CORNWALL COAL CO. NL

The tests contained in this report have been carried out in accordance with the Australian Standards or other NATA approved methods listed below:-

AS 1038 Pt. 1	Total Moisture
AS 1038 Pt. 3	Proximate Analysis
AS 1038 Pt. 5	Specific Energy
AS 1038 Pt. 6	Ultimate Analysis
AS 1038 Pt. 8	Chlorine
AS 1038 Pt.11	Forms of Sulphur
AS 1038 Pt.12.1	Crucible Swelling Number
AS 1038 Pt.12.2	Gray King Coke Type
AS 1038 Pt.14.1	Ash Analysis
AS 1038 Pt.15	Fusibility of Ash
AS 1038 Pt.20	Hardgrove Grindability Index
AS 1038 Pt.21	Relative Density

AS 1661	Float/Sink Testing
AS 1661	Sampling
AS 2137	Gieseler Plastometer (Dis-continuous stirring method)
AS 2486	Reflectance of Vitrinite
AS 2515	Maceral Analysis

ISO 349	Audibert Arnu Dilatometer
ISO 335	Roga Index
ISO 1018	Moisture Holding Capacity

BS 1016 Pt.17	Size Analysis
---------------	---------------

LECO Method	Total Sulphur
-------------	---------------

Borecores supplied by client.
Analytical data on air dried basis.

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Report No : SL 2923

INTRODUCTION

The following borecores samples were received at SGS Laboratory on 3rd. January, 1985:

cc DDH 21 A, Ply 1 (0.650mm)
cc DDH 21 A, Ply 2 (2.420mm)
cc DDH 23 Ply 1 (2.050mm)

These samples were prepared and analysed as requested by letter and additional work was conducted as discussed between Dr. John Bryan and Mr. H. Read.

The samples were air dried and crushed to -20.0mm. A portion of -20.0mm raw coal was analysed for proximate and relative density. The remaining -20.0mm coal was sized at 0.5mm and the -0.5mm material analysed for ash.

The -20 + 0.5mm material was washed at relative densities 1.60 and 1.70, the floats 1.60 analysed for proximate, total sulphur, specific energy and relative density; the floats 1.70 for ash; and the sinks 1.70 for ash and relative density.

In addition cumulative floats composities were prepared for each ply and analysed as for floats 1.60.

These results are reported on pages 3,4,5,6,7 & 8 of this report.

**SGS Australia Pty. Ltd.**CORNWALL COAL CO. NL

Report No : SL 2923

DDH 23 PLY 1RAW COAL (-20mm + 0)

Mass Received	kg	3.812
Moisture	%	4.3
Ash	%	20.0
Volatile Matter	%	25.2
Fixed Carbon	%	50.5
Relative Density		1.49

	<u>Mass %</u>	<u>Ash %</u>	
- 20 + 0.5mm	95.7	20.4	(calculated)
- 0.5mm + 0	4.3	27.6	
	<u>100.0</u>	<u>20.7</u>	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

<u>Relative Density</u>	<u>Fractional (%)</u>		<u>Cumulative (%)</u>	
	<u>Mass</u>	<u>Ash</u>	<u>Mass</u>	<u>Ash</u>
Floats 1.60	83.1	14.7	83.1	14.7
S 1.60 - F 1.70	7.0	37.4	90.1	16.5
Sinks 1.70	9.9	55.9	100.0	20.4
	(RD 2.07)			

-20 + 0.5mmFloats 1.60 MATERIAL-20 + 0.5mm Sinks 1.60-Floats 1.70 MATERIAL

Moisture	%	4.1	
Ash	%	14.7	37.4
Volatile Matter	%	26.6	
Fixed Carbon	%	54.6	
Sulphur	%	0.36	
Specific Energy (MJ/kg)		26.41	
Relative Density		1.44	



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Colin Meads
COLIN MEADS
MANAGER - LABORATORIES

206202


SGS Australia Pty. Ltd.
CORNWALL COAL CO. NL
DDH 23 PLY 1

Report No : SL 2923

Cumulative Floats: 1.70 (-20.0 + 0.5 mm MATERIAL)

Moisture	%	4.5
Ash	%	16.4
Volatile Matter	%	25.4
Fixed Carbon	%	53.7
Sulphur	%	0.37
Specific Energy (MJ/kg)		25.55
Relative Density		1.46

COLIN MEADS
MANAGER - LABORATORIES


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