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471001

90-3147

RELINQUISHMENT REPORT
EL 26/84 (part EL 50/82)

REPORT PREPARED FOR
CORNWALL COAL COMPANY N.L.

BY

McELROY BRYAN GEOLOGICAL SERVICES PTY LTD

REPORT No: 60/1/16 J.H. BRYAN JUNE 1990

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471002

TABLE OF CONTENTS

RELINQUISHMENT REPORT - EL26/84

1. INTRODUCTION

Drilling for coal was first undertaken south of Royal George in 1978 by Investigator Coal Exploration Pty Ltd (EL 16/77) (ICE) who completed 2 drill holes RG1 and RG2 in the area of EL26/84. The Triassic coal measures occur below dolerite scree and talus on a gently sloping plateau overlooking the Royal George Valley. Adjacent areas were explored by The Shell Company (EL18/77) and drill hole AV11 encountered more than 450m of dolerite, and no coal measures.

Between 1984 and 1990 The Cornwall Coal Company N.L. drilled 6 holes in EL26/84. These were St. Pauls River DDH's 4, 8a, 12, 13, 14 and 15; logs of these holes are included in Appendix A.

2. TRIASSIC COAL MEASURES

Within EL26/84 the Triassic Coal Measures are all but obscured by dolerite scree and talus. A few outcrops of coal measures and coal are reported by ICE in that company's reports on EL 16/77. Massive dolerite intrusions occupy large parts of the region and the shell drill holes AV10 and AV11 appear to have been located on such structures.

Coal seams occur in the Triassic sequence south of Royal George and the strata appear to generally dip to the south-east at perhaps 2°-4°. The coal intervals are up to 2m thick and are generally high ash coals, similar to those in many parts of Tasmania. Correlation of the coaly intervals between drill holes is very difficult and indeed it is most likely that the seams are discontinuous and/or lenticular, with stone bands and the coal varying in thickness over distances of only several hundred metres.

Table RG1 gives a summary of the coal intersections in drill holes located in EL26/84.

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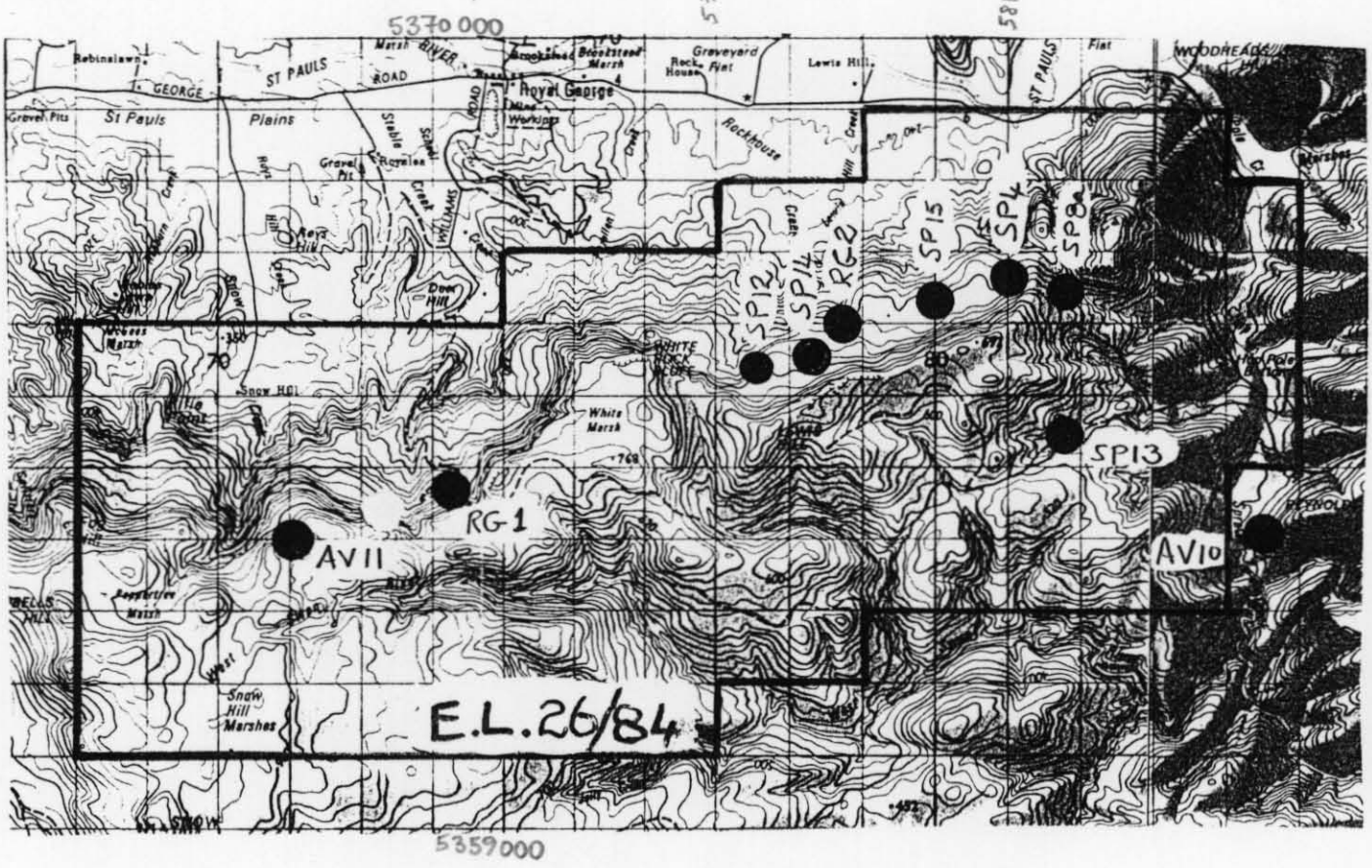
471004



EL 26/84 - RELINQUISHED

● DRILL HOLE

RG HOLES - INVESTIGATOR COAL

AV HOLES - THE SHELL COMPANY

SP HOLES - CORNWALL COAL COMPANY

CORNWALL COAL COMPANY N.L.

Scale 1:100,000

5 cm

Figure 4

To accompany Report 60/1/16

(004

TABLE RG1 - EL 26/84

	Collar	COAL INTERVAL		
	R.L. (m)	Thickness	Depth to Roof	Raw Ash
RG1	590	2.02	29.2	-
RG2	510	1.55	123.0	-
AV10	300	Dolerite to 341m		
AV11	825	Dolerite to 467m		
SP4	480	Dolerite scree to T.D. at 51m		
SP8a	500	1.80	104.4	38.5%
SP12	520	1.38	19.8	38.8%
SP13	410	Dolerite to T.D. at 96m		
SP14	575	Dolerite scree to T.D. at 38m		
SP15	505	1.50	83.6	55.5%
SP15	505	0.92	107.6	-
SP15	505	1.29	122.0	-

RG Holes are Investigator Coal Exploration (EL16/77)
AV Holes are Shell Company (EL18/77)
SP Holes are Cornwall Coal (EL26/84)

APPENDIX A

DRILL LOGS - CORNWALL COAL CO. N.L.

ROYAL GEORGE AREA

EL26/84 (PART EL 50/82)

471007

CORNWALL COAL ST PAULS RIVER DDH 4

Location:	Royal George	**Logged by:**	C.F.R. Parbury
AMG Co-ordinates:	E 581 100	**Drilled by:**	Stacpoole Drilling
	N 5367 950		
Collar R.L.:	480 m approx.	**Commenced:**	8.10.84
Total Depth:	52.2 m	**Completed:**	17.10.84

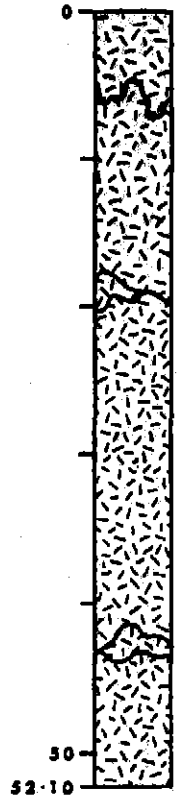
	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
DOLERITE SCREE - dolerite grey green, fine to medium, crystalline, numerous phases of red brown clays cementing the scree	51.20	51.20	HOLE ABANDON

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 4

471008



SCALE 1:500 DRAWN C.F.R.P. DATE 3/12/84 PAGE 1 OF 1

008

471009

CORNWALL COAL ST PAULS RIVER DDH 8a

Location: Royal George
AMG Co-ordinates: E 581 750
N 5366 190
Collar R.L.: 500 m approx.
Total Depth: 149.00 m

Logged by: C.G. Lancaster
Drilled by: Stacpoole Drilling
Commenced: 23.10.84
Completed: 30.10.84

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
NOT CORED: open hole to 4.000m	4.000	4.000	
SANDSTONE, brown, fine to medium, lithic, soft, weathered, sporadic silty horizons, thin carbonaceous band at 9 m	9.195	13.195	
SILTSTONE, grey-black, laminated, shaly in places, core completely fretted from exposure, grades to underlying unit	1.385	14.580	
SILTSTONE, grey, numerous fine sandy laminations, bedding laminated, wavy to parallel, fissile to flaggy, extensive fretting from exposure	6.050	20.630	
SILTSTONE, dark grey to black, carbonaceous in part, fretted, fissile	0.080	20.710	
CLAYSTONE, brownish grey, fissile, and crumbly	0.080	20.790	
SILTSTONE, dark grey-black, carbonaceous in part, broken	0.710	21.500	
CLAYSTONE, brownish grey, fissile and crumbly	0.110	21.610	

CORNWALL COAL ST PAULS RIVER DDH 8a

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SILTSTONE, dark grey-black, carbonaceous bands in places, fretted and fissile due to exposure, laminated in part, thin brownish claystone band at base	2.000	23.610	
CLAYSTONE, black, carbonaceous, minor bright coaly wisps, fissile and fretted from exposure, grades to underlying unit	1.830	25.440	
SILTSTONE, grey to dark grey, sporadic extremely fissile claystone bands, numerous sandy laminations in basal section, core badly broken in places	1.220	26.660	
CLAYSTONE, black, carbonaceous, extremely fissile and fretted from exposure, sporadic coaly wisps	1.450	28.110	
CLAYSTONE, dark grey to brownish grey, carbonaceous in part, fissile and fretted bands, core broken	0.290	28.400	
CORE LOSS	0.900	29.300	
CLAYSTONE, as for 0.290 m unit above	0.800	30.100	
CLAYSTONE, black, carbonaceous, fissile and fretted from exposure, minor coaly wisps in places	1.600	31.700	
CORE LOSS: in fissile claystone	0.300	32.000	

019

CORNWALL COAL ST PAULS RIVER DDH 8a

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, as for 1.600 m unit above	0.600	32.600	
COAL, stony, minor bright wisps	0.255	32.855	
CLAYSTONE, as for 0.600 m unit above	0.690	33.545	
CLAYSTONE, brown, fissile, fretted	0.280	33.825	
CLAYSTONE, black, carbonaceous to coaly	0.650	34.475	
CLAYSTONE, brown, fissile and fretted	0.250	34.725	
CLAYSTONE, black, carbonaceous to coaly, minor disseminated pyrite, some ironstaining on broken surfaces, broken throughout	0.520	35.245	
CLAYSTONE, brown, fissile and fretted	0.320	35.565	
CLAYSTONE, black, carbonaceous to coaly, broken	1.040	36.605	
CLAYSTONE, brown, soft, crumbly	0.100	36.705	
CLAYSTONE, grey to black, carbonaceous in part, numerous silty phases, grades to underlying unit, fretted and broken from exposure	2.460	39.165	
SILTSTONE, grey to dark grey, crumbly and broken throughout from exposure, sandy at base, grades to underlying unit	7.900	47.065	

CORNWALL COAL ST PAULS RIVER DDH 8a

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE, light grey, medium, lithic, sporadic silty phases, bedding thin to medium, wavy to subparallel, slabby to blocky	8.190	55.255	
CLAYSTONE, brown and black carbonaceous interbeds, core broken and crumbly	0.620	55.875	
SANDSTONE, grey, fine to medium, lithic, irregular carbonaceous inclusions in centre	0.260	56.135	
CLAYSTONE, black, carbonaceous	0.365	56.500	
COAL, dull with numerous bright bands	0.090	56.590	
SILTSTONE, grey to dark grey, carbonaceous bands in places, core broken and crumbly from exposure, bedding laminated to very thin, wavy to irregular	2.805	59.395	
SANDSTONE, light grey, medium, lithic, sporadic carbonaceous partings, bedding thin to thick, subparallel, mostly slabby to blocky, irregular phases of carbonaceous lenticles and pods in place	31.780	91.175	
CLAYSTONE, black, carbonaceous, sporadic silty pods, soft and crumbly	0.480	91.655	
CORE LOSS	0.260	91.915	

012

CORNWALL COAL ST PAULS RIVER DDH 8a

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE, as for sandstone unit above (31.780m), bedding contorted in horizons of irregular carbonaceous lenticles and pods, soft and crumbly siltstone band at 95.00 m (0.150m thick)	8.015	99.930	
COAL, dull and bright, irregular lens	0.075	100.005	
SANDSTONE, as for 8.015 m unit above, sporadic irregular coaly inclusions	1.780	101.785	
COAL, dull with minor bright bands, broken	0.350	102.135	
CLAYSTONE, grey, numerous carbonaceous partings, soft, fretted, friable and crumbly, fissile	0.340	102.475	
COAL, dull with minor bright bands	0.100	102.575	
CLAYSTONE, grey to dark grey, carbonaceous in places, core crumbly, fretted and friable, fissile, sporadic silty phases	1.790	104.365	
CLAYSTONE, black, carbonaceous, hard	0.010	104.375	
COAL, dull to stony	0.050	104.425	)
CLAYSTONE, grey-brown, ? tuffaceous	0.060	104.485	) PLY 1
COAL, dull with minor bright bands	0.215	104.700	)

013

CORNWALL COAL ST PAULS RIVER DDH 8a

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, grey-brown, ? tuffaceous	0.040	104.740	
COAL, dull	0.030	104.770	
CLAYSTONE, grey-brown, soft	0.010	104.780	
COAL, dull with minor bright bands	0.740	105.520	
CLAYSTONE, dark grey with light grey clay pellets scattered throughout	0.060	105.580	PLY 1 Thickness 1.805 m
COAL, dull	0.220	105.800	
CLAYSTONE, dark grey, hard	0.010	105.810	
COAL, dull with minor bright bands	0.240	106.050	
CLAYSTONE, mid grey, hard	0.050	106.100	
COAL, dull	0.080	106.180	
SILTSTONE, grey, laminated, grades to sandstone at base, fissile and crumbly throughout, carbonaceous remains on partings	1.475	107.655	
SANDSTONE, light grey, medium to coarse, lithic, bedding thick, subparallel, blocky to massive, minor silty phases	13.695	121.350	
CORE LOSS	0.630	121.980	

CORNWALL COAL ST PAULS RIVER DDH 8a

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE, as for 13.695 m unit above	1.235	123.215	
CORE LOSS	0.250	123.465	
COAL, dull to stony	0.795	124.260)	PLY 2 76% only recovery
CLAYSTONE, black-grey, carbonaceous at top, fissile, grades through siltstone to underlying unit	0.240	124.500	
SANDSTONE, light grey, medium to coarse, sporadic very coarse interbeds, lithic, silty phases at top, bedding thick to massive, subparallel, blocky to massive, sorting good	24.500	149.00	

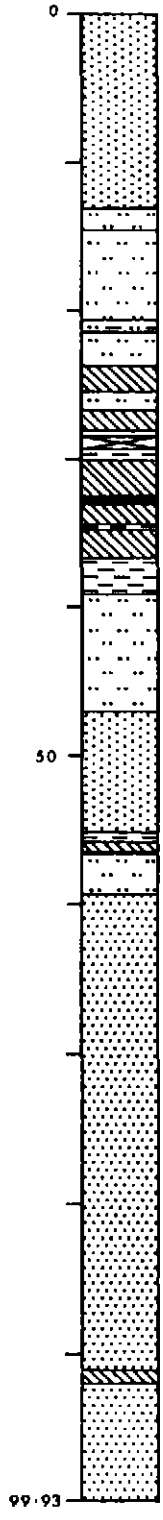
BASE OF HOLE

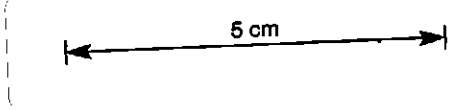
CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 8a

471016





SCALE 1:500 DRAWN C.G.L. DATE November, 1984 PAGE 1 OF 2

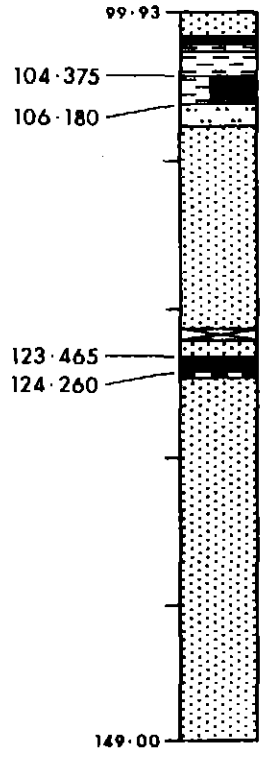
016

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 8a

471017



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SCALE 1:500 DRAWN C.G.L. DATE November , 1984 PAGE 2 OF 2

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 8a

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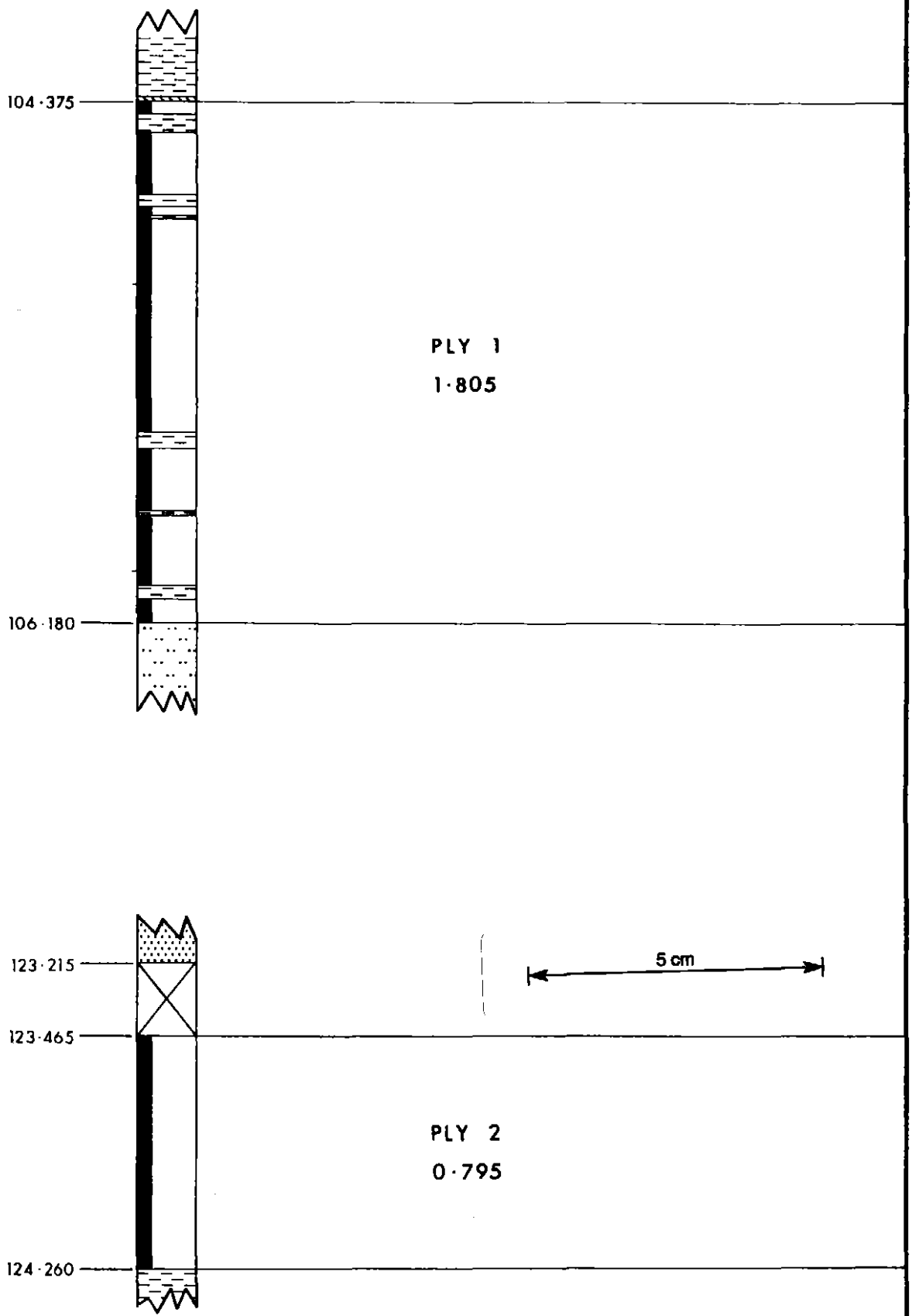

SCALE 1:20 DRAWN C.G.L. DATE November, 1984 PAGE 1 OF 1

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Alexandria NSW 2015
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Telex 22395
NATA Reg. No. 1062

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

Attn : Dr. J. H. Bryan

REPORT NO SL 2877 CLIENT REF. NO .....
DATE SAMPLES IN 2/11/84 DATE REPORT OUT 14/11/84

REPORT TITLE: ANALYSES OF BORECORE SAMPLES DDH 8A AND DDH 10 (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 1678~~	~~Sampling~~
AS 2137	Gieseler Plastometer (Discontinuous 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.

471020

REPORT No: SL 2877

Analysis \ Sample Ref.		20.0mm x 0 DDH 8A Ply 1 (1.805m)	DDH 8A Ply 2 (0.795m)		20.0mm x 0.5 DDH 8A Ply 1 F1.60	DDH 8A Ply 1 S1.60	0.5 x 0 DDH 8A Ply 1
Total Moisture	%						
Moisture	%	4.8	5.2		4.3		
Ash	%	38.5	41.8		15.1	70.9	69.7
Volatile Matter	%	21.9	17.8		28.0		
Fixed Carbon	%	34.8	35.2		52.6		
Crucible Swelling No.							
Specific Energy	Mj/kg				27.00		
Total Sulphur	%				0.52		
Carbon	%						
Hydrogen	%						
Nitrogen	%						
Oxygen(plus errors)	%						
Carbon Dioxide	%						
Chlorine	%						
Relative Density		1.60	1.65		1.41	2.12	
Mass (kg)		4.31	1.80				

FUSIBILITY OF COAL ASH (Atmosphere): Sintered Alumina Support

Temperatures °C at Characteristic Shapes						
Initial Deformation						
Sherical						
Hemispherical						
Flow						
Comments:						

BASIS RESULTS REPORTED ON Air Dried

.....
COLIN MEADS
MANAGER - LABORATORIES

020

471021

SGS Australia Pty. Ltd.

REPORT No: SL 2877

DDH 8A, Ply 1 (1.805m)
20.0mm x 0

COAL ANALYSIS REPORT

Float / Sink Analysis

Relative Density	Fractional (%)		Cumulative (%)	
	Mass	Ash	Mass	Ash
F 1.60	62.7	15.1	62.7	15.1
S 1.60	37.3	70.9	100.0	35.9

COLIN MEADS
MANAGER - LABORATORIES

DDH 8A PLY 1

RAW COAL

Mass Recovered	%	4.31kg
Relative Density	%	1.60
Moisture	%	4. 8
Ash	%	38. 5
Volatile Matter	%	21. 9
Fixed Carbon	%	34. 8

MASS %

	Mass %	Ash %	
20 x 0.5 mm	96. 1	35.9	Calc. from Float/Sink
- 0.5 mm	3. 9	69.7	
	100. 0	37.2	
		(38.5 determined on raw coal)	

FLOAT/SINK SEPARATION of 20 x 0.5 mm material

	FRACTIONAL			CUMULATIVE	
	Mass %	Ash %	(RD)	Mass %	Ash %
Floats 1.60	62.7	15.1	(1.41)	62.7	15.1
Sinks 1.60	37.3	70.9	(2.12)	100.0	35.9

20 x 0.5 mm Float 1.60

Relative Density	%	1.41
Moisture	%	4. 3
Ash	%	15. 1
Volatile Matter	%	28. 0
Fixed Carbon	%	52. 6
Sulphur	%	0.52
Specific Energy MJ/kg		27.00

(Mass % and analyses on air dried basis)

.....
COLIN MEADS
MANAGER - LABORATORIES

471023

CORNWALL COAL ST PAULS RIVER DDH12

Location: Royal George
AMG Co-ordinates: E 577 500
N 5 365 500
Collar R.L.: 520m approx.
Total Depth: 180.20m

Logged by: J.H. Bryan
Drilled by: Stacpoole Drilling
Commenced: 30.1.85
Completed: 8.2.85

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
TRICONE ROLLER BIT (NON CORE)	13.200	13.200	
MUDSTONE, grey, soft	0.170	13.370	
SANDSTONE, grey, lithic, fine to medium grained, slightly in part with carbonaceous or coaly wisps and partings towards the base	6.455	19.825	
COAL, dull with minor bright bands	0.24	20.065	
, dull, very slightly weathered	0.16	20.225	
CLAYSTONE, grey to grey-brown	0.05	20.275	
COAL, dull	0.025	20.300	SAMPLE (PLY 1)
CLAYSTONE, dark grey, carbonaceous	0.035	20.335	Thickness: 1.375 m
COAL, dull	0.115	20.450	
CLAYSTONE, dark brown to black, carbonaceous	0.135	20.585	
COAL, dull	0.295	20.880	

023

CORNWALL COAL ST PAULS RIVER DDH12

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, grey, soft	0.320	21.200	
COAL, dull, fissile in part	0.090	21.29	
CLAYSTONE, dark brown, carbonaceous with abundant plant debris	0.280	21.57	
MUDSTONE, grey, sandy in part	1.54	23.11	
CLAYSTONE, grey to grey-green, soft	1.26	24.37	
CLAYSTONE, white, soft, talc like or soapy texture and feel	0.38	24.75	
CLAYSTONE, dark brown to black, coaly in part and carbonaceous throughout	0.58	25.33	
SILTSTONE, grey, hard	1.13	26.46	
SANDSTONE, grey, lithic, fine to medium grained, occasional coaly fragments and partings	10.000	36.46	
COAL, dull with minor bright bands	0.28	36.74	
CLAYSTONE, black to brown, carbonaceous throughout and coaly in part	0.490	37.23	
CLAYSTONE, grey to grey-brown	0.070	37.30	

CORNWALL COAL ST PAULS RIVER DDH12

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, black, coaly	0.160	37.46	
CLAYSTONE, brown, soft, waxy	0.350	37.81	
COAL, dull with minor bright bands	0.180	37.99	
CLAYSTONE, brown	0.015	38.005	
COAL, dull with minor bright bands	0.025	38.03	
CLAYSTONE, black, carbonaceous	0.145	38.175	
CLAYSTONE, grey	0.025	38.200	
CLAYSTONE, black, carbonaceous	0.645	38.845	
COAL, dull	0.110	38.955	
CLAYSTONE, brown	0.030	38.985	
COAL, dull	0.030	39.015	
, dull with numerous bright bands	0.100	39.115	
, dull	0.075	39.190	
CLAYSTONE, brown, carbonaceous with occasional coaly bands	0.330	39.52	
MUDSTONE, grey, soft, breaks up on exposure to air	1.590	41.110	

CORNWALL COAL ST PAULS RIVER DDH12

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE, fine grained, grey, lithic	2.350	43.46	
SANDSTONE, grey, medium to coarse, lithic, massive	21.10	64.56	
CLAYSTONE, grey, dark brown-black, carbonaceous	0.425	65.045	
COAL, dull	0.18	65.225	
CLAYSTONE, brown	0.010	65.235	
COAL, dull	0.040	65.275	
CLAYSTONE, dark brown, carbonaceous	0.170	65.445	
COAL, dull	0.070	65.515	
CLAYSTONE, dark grey	0.010	65.525	
COAL, dull	0.345	65.870	
CLAYSTONE, black to brown, carbonaceous	0.140	66.01	
SILTSTONE, grey	1.610	67.62	
SANDSTONE, grey, fine grained, lithic	1.58	69.20	
SANDSTONE, grey, lithic, medium grained, massive with occasional claystone and coaly clasts	46.055	115.255	

CORNWALL COAL ST PAULS RIVER DDH12

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, black, coaly in part, with coarse sandstone interbeds	0.410	115.665	
SANDSTONE, grey, lithic, medium grained	2.205	117.87	
MUDSTONE, grey-green to black	2.89	120.76	
COAL, dull to stony	0.170	120.93	
MUDSTONE, grey to grey-green, core broken	2.000	122.93	
SANDSTONE, grey, lithic, fine grained at top grading to medium	7.66	130.59	
MUDSTONE, grey with occasional sandy interbeds	1.610	132.20	
CLAYSTONE, black, coaly	0.48	132.68	
MUDSTONE, grey-green	0.210	132.89	
CLAYSTONE, black, coaly	0.38	133.27	
CLAYSTONE, brown	0.015	133.285	
CLAYSTONE, black, coaly	0.160	133.445	
COAL, dull to stony	0.130	133.575	
CLAYSTONE, grey-brown, waxy	0.060	133.635	

097

CORNWALL COAL ST PAULS RIVER DDH12

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remark
CLAYSTONE, black, coaly	0.300	133.935	
COAL, dull with numerous bright bands	0.07	134.005	
, dull	0.055	134.06	
CLAYSTONE, brown, soft	0.055	134.115	
CLAYSTONE, black, carbonaceous to coaly	0.240	134.355	
MUDSTONE, grey-green	0.670	135.025	
SANDSTONE, grey, lithic, medium grained	1.975	137.00	
MUDSTONE, grey	0.550	137.55	
CLAYSTONE, black, coaly	0.350	137.90	
MUDSTONE, grey	0.375	138.275	
COAL, dull	0.040	138.315	
CLAYSTONE, brown	0.010	138.325	
COAL, dull	0.025	138.35	
CLAYSTONE, brown	0.010	138.36	
COAL, dull	0.140	138.50	
MUDSTONE, grey to grey-green	1.67	140.17	

028

CORNWALL COAL ST PAULS RIVER DDH12

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SILTSTONE, grey grading to fine lithic sandstone	0.68	140.85	
SANDSTONE, grey, lithic, medium grained	2.47	143.32	
MUDSTONE, grey-green	1.860	145.18	
SANDSTONE, grey, lithic, medium	1.92	147.100	
MUDSTONE, grey-green	0.100	147.20	
CLAYSTONE, grey-black, carbonaceous	0.100	147.30	
COAL, dull	0.180	147.48	
MUDSTONE, grey-brown	1.180	148.66	
SILTSTONE, grey, hard	3.22	151.88	
SANDSTONE, grey, lithic, medium grained	8.18	160.06	
MUDSTONE, grey to grey-green	6.565	166.625	
COAL, dull	0.065	166.69	
MUDSTONE, grey	0.095	166.785	
COAL, dull with numerous bright bands	0.315	167.100	
CLAYSTONE, brown	0.005	167.105	

CORNWALL COAL ST PAULS RIVER DDH12

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
COAL, dull	0.080	167.185	
CLAYSTONE, grey	0.020	167.205	
COAL, dull	0.025	167.23	
CLAYSTONE, black, carbonaceous	0.60	167.83	
MUDSTONE, grey, laminated	4.825	172.655	
CLAYSTONE, buff, hard	0.010	172.665	
CLAYSTONE, black, coaly	0.080	172.745	
COAL, dull	0.175	172.920	
MUDSTONE, grey, hard	1.590	174.51	
CLAYSTONE, grey to black	0.035	174.545	
COAL, dull to stony	0.170	174.715	
CLAYSTONE, dark grey	0.050	174.765	
COAL, dull with pyrite on cleats at base	0.600	175.365	
SILTSTONE, grey, hard	0.61	175.975	
MUDSTONE, grey	3.745	179.72	
SANDSTONE, grey, lithic, fine grained	0.48	180.20	

BASE OF HOLE

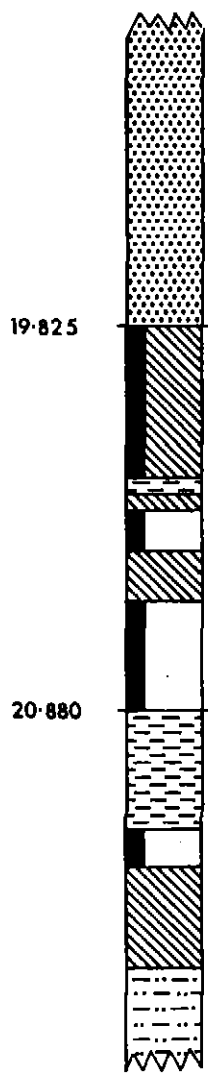
030

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 12

471031



19·825

20·880

PLY 1 THICKNESS 1·375

5 cm

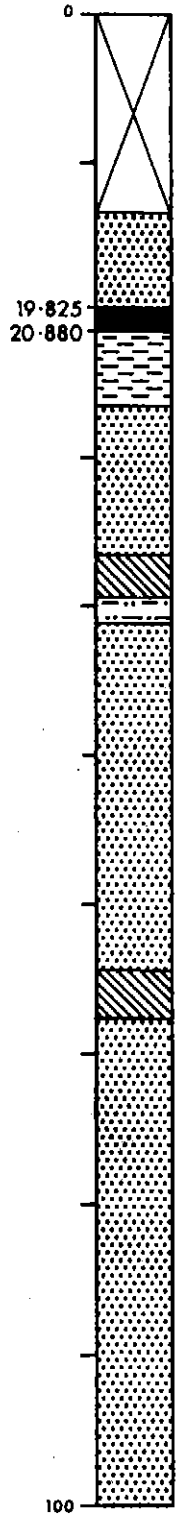
SCALE 1:20 DRAWN JHB DATE February, 1985 PAGE 1 OF 1

031 CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 12

471032



5 cm

SCALE 1:500 DRAWN C.G.L. DATE February, 1985 PAGE 1 OF 1

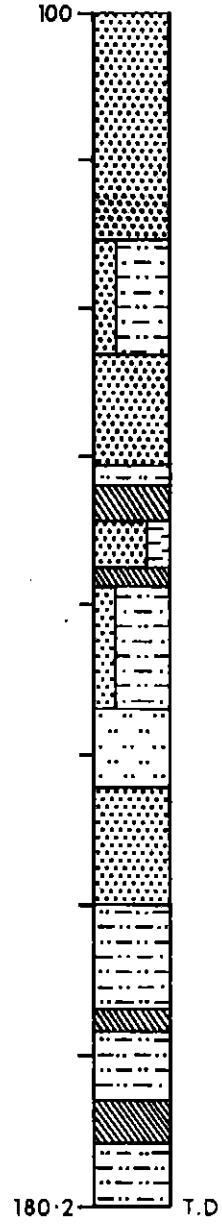
032

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 12

471033



5 cm

SCALE 1:500 DRAWN C.G.L. DATE February, 1985 PAGE 1 OF 1

035

471034

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

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

ATTN : DR. JOHN H. BRYAN

REPORT NO SL. 2947. . . CLIENT REF. NO . . . . . .
DATE SAMPLES IN . . . . . 14/02/85 . . . DATE REPORT OUT 20/02/85

REPORT TITLE: ANALYSIS OF ST. PAUL'S RIVER BORECORE SAMPLE DDH 12 PLY 1.

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 1672	[illegible]
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.

SGS Australia Pty. Ltd.

CORNWALL COAL CO. NL

Report No : SL 2947

DDH 12 PLY 1

RAW COAL

Mass Received	kg	1946
Moisture	%	4.3
Ash	%	38.8
Volatile Matter	%	22.4
Fixed Carbon	%	34.5
Relative Density		1.68

	Mass %	Ash %	
- 20 + 0.5mm	94.3	40.1	(calculated)
- 0.5mm + 0	5.7	65.2	
	100.0	41.5	(calculated)

Float / Sink Separation of - 20 + 0.5mm MATERIAL

		Fractional (%)		Cumulative (%)	
Relative Density		Mass	Ash	Mass	Ash
Floats	1.60	55.2	15.0	55.2	15.0
S 1.60 - F	1.70	3.9	42.8	59.1	16.8
Sinks	1.70	40.9	73.8	100.0	40.1

(RD 2.18)

		-20 + 0.5mm Floats 1.60 MATERIAL	-20 + 0.5mm Cumulative Floats 1.70 MATERIAL
Moisture	%	3.1	3.1
Ash	%	15.0	16.8
Volatile Matter	%	29.8	29.0
Fixed Carbon	%	52.1	51.1
Sulphur	%	0.52	0.50
Specific Energy (MJ/kg)		28.08	27.36
Relative Density		1.40	1.43

B. LONNON
MANAGER - SYDNEY LABORATORY

0 038

CORNWALL COAL COMPANY N.L.

Royal George Drill Hole
St Pauls River DDH 13

5-81 730E)
) Location
53-64 510 N)

Date Commenced:	27.2.89
Date Completed:	3.3.89
COLLAR RL	410m (approx.)
0-35m	Dolerite Scree and Dolerite (Down Hole Hammer)
35-96m	Dolerite, massive, dark grey, occasional joints (N.Q. core)

96.0m Total Depth

CORNWALL COAL ST. PAUL'S RIVER DDH 14

Location:	Royal George	**AMG Co-ordinates:**	E578250
Logged by:	J.H. Bryan		N5365500
Drilled by:	Stacpoole Drilling	**Collar RL:**	575m approx
Commenced:	2.4.90		
Completed:	3.4.90		

Hole non-cored to 38m in dolerite scree and talus. Hole unable to be advanced beyond 38m and abandoned at that depth.

087

471038

CORNWALL COAL ST PAUL'S RIVER DDH 15

Location: Royal George
Logged by: J.H. Bryan
Drilled by: Stacpoole Drilling
Commenced: 4.4.90
Completed: 10.4.90

AMG Co-ordinates: E579850 N5366260
Collar RL: 505m approx

	Estimated Thickness (m)	Estimated Depth of Base of Stratum (m)	Remarks
Delerite Scree (Non Cored) and Talus	51.30	51.30	NQ Core
MUDSTONE, grey, soft - core broken	2.28	53.58	
CLAYSTONE, black, carbonaceous	1.18	54.76	
CLAYSTONE, buff, soft -? tuffaceous	0.36	55.12	
COAL, stony	0.09	55.21	
MUDSTONE, grey/green	0.76	55.97	
CLAYSTONE, black, carbonaceous to coaly	0.24	56.21	
MUDSTONE, grey/green laminated	2.27	58.48	
CLAYSTONE, buff - ?tuffaceous	0.24	58.72	
MUDSTONE, black/brown, coaly in part	1.02	59.74	

038

471039

	Estimated Thickness (m)	Estimated Depth of Base of Stratum (m)	Remarks
COAL, dull, stony	0.14	59.88	
CLAYSTONE, buff to dark brown, tuffaceous in part	0.38	60.26	
CLAYSTONE, buff, soft	0.40	60.66	
CLAYSTONE, dark brown/black, coaly in part	3.77	64.43	
COAL, dull, stony	0.54	64.97	
CLAYSTONE, green/grey, soft	0.18	65.15	
COAL, dull	0.46	65.61	
CLAYSTONE, brown, tuffaceous	0.05	65.66	
CLAYSTONE, grey to brown	0.36	66.02	
CLAYSTONE, black, carbonaceous to coaly	0.22	66.24	
CLAYSTONE, grey/green, soft	0.42	66.66	
COAL, dull to stony	0.25	66.91	
CLAYSTONE, grey/green	0.07	66.98	
COAL, dull with minor bright bands	0.57	67.55	
COAL, dull to stony	0.18	67.73	
CLAYSTONE, grey	0.13	67.86	
COAL, dull to stony	0.30	68.16	
MUDSTONE, grey	0.12	68.28	
CLAYSTONE, black, carbonaceous	0.17	68.45	
MUDSTONE, grey to grey/brown	6.15	74.60	

	Estimated Thickness (m)	Estimated Depth of Base of Stratum (m)	Remarks
SILTSTONE, grey, grading to fine, sandstone, occasional carbonaceous partings	1.24	75.84	
SANDSTONE, grey, fine grained, lithic	7.72	83.56	
CLAYSTONE, black, carbonaceous	0.04	83.60)	
COAL, dull	0.06	83.66)	COAL SEAM
CLAYSTONE, brown, ?tuffaceous	0.09	83.75)	SAMPLE RG101
COAL, dull	0.25	84.00)	83.56m TO 85.06m
		)	(1.50m)
CLAYSTONE, brown	0.03	84.03)	
COAL, dull	0.63	84.66)	
		)	
CLAYSTONE, brown	0.05	84.71)	
COAL, dull	0.21	84.92)	
CLAYSTONE, black to brown, carbonaceous	0.12	85.04)	
		)	
COAL, dull	0.02	85.06)	
MUDSTONE, grey	2.26	87.32	
SANDSTONE, grey, lithic, fine grained, some coaly partings and carbonaceous bands	18.56	105.88	
COAL, dull	0.07	105.95	
SANDSTONE, grey, medium grained	0.33	106.28	

040

471041

	Estimated Thickness (m)	Estimated Depth of Base of Stratum (m)	Remarks
COAL, dull with minor bright bands	0.20	106.48	
SANDSTONE, grey, lithic	1.17	107.65	
COAL, dull	0.36	108.01)	
COAL, dull & bright	0.11	108.12)	COAL
		)	SEAM
COAL, dull with minor bright bands	0.35	108.47)	0.92m
		)	
CLAYSTONE, carbonaceous, dark brown with coaly lenses	0.10	108.57)	
		)	
MUDSTONE, grey, grey/brown to green/grey, laminated in part	6.01	114.58	
SANDSTONE, grey, lithic, medium	5.99	120.57	
MUDSTONE, grey - grading to sandy mudstone	0.50	121.07	
COAL, dull, stony	0.56	121.63	
MUDSTONE, grey/brown	0.41	122.04	
COAL, dull	0.19	122.23)	
CLAYSTONE,	0.06	122.29)	COAL
COAL, dull with minor bright bands	0.63	122.92)	SEAM
		)	1.29m
CLAYSTONE, brown - ?tuffaceous	0.02	122.94)	
		)	

471042

	Estimated Thickness (m)	Estimated Depth of Base of Stratum (m)	Remarks
COAL, dull with minor bright	0.39	123.33))	
MUDSTONE, grey/green	1.10	124.43	
COAL, dull with minor bright bands	0.24	124.67	
MUDSTONE, brown/grey, carbonaceous at top	4.33	129.00	

Total depth 129.00 metres.

Our Reference: EP513 Client Reference: RG101 ST.PAUL RIVER

042

471043

ANALYTICAL REPORT ON SAMPLES SUBMITTED BY / ON BEHALF OF

MCELROY BRYAN GEOLOGICAL SERVICES LTD

PO BOX 34

WILLOUGHBY NSW 2068

Attn: DR JOHN H BRYAN

Date Received 23.Apr.1990

Date Completed 14.May.1990

Number of Samples 2

Julie Pilkington

Issued at Port Kembla on 14.May.1990

SGS Australia Pty Ltd
40 SWAN STREET
WOLLONGONG NSW 2500
Telephone: 042 283766
Telex:
Fax: 042 263348

Our Reference: EP513 Client Reference: RG101 ST.PAUL RIVER

Analysis \ Sample Reference: Raw Coal Sample Moisture Base

471044

Total Moisture	%	5.8	AR
Moisture	%	2.9	AD
Ash	%	55.5	AD
Volatile Matter	%	17.9	AD
Sulphur	%	0.21	AD
Specific Energy	Mj/Kg	12.26	AD
Apparent Relative Density	%	1.80	
Weight As Recieved	gms	3780	AR

ST PAULS RIVER DDH 15 — CORNWALL COAL Co.

Our Reference: EP513 Client Reference: R6101 ST.PAUL RIVER

0(044

471045

METHOD OF PREPARATION AND ANALYSIS USED

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

AS 1038.1	Total Moisture
AS 1038.3	Proximate Analysis
AS 1038.6.3.3	Total Sulphur (Infrared)
AS 1038.5.1	Specific Energy
AS 1038.21.1	Apparent Relative Density.