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PRELIMINARY REPORT
ON THE
ST PAULS RIVER
EXPLORATION AREAS
(EL 50/82, EL 26/84, EL 27/84)
VOLUME 1

PREPARED FOR

CORNWALL COAL COMPANY N.L

BY

MCELROY BRYAN & ASSOCIATES PTY LIMITED

TO ACCOMPANY
REPORT 60/1/7

J.H. BRYAN

JANUARY 1985

ST PAULS RIVER AREAS

The recent drilling programme in the valley of the St Pauls River has involved 11 drill holes and 1 hole is still to be completed. Table SP1 gives a summary of the data on significant coal intervals intersected in the drill holes. The accompanying plan shows the location of the drill holes.

All holes that were completed to target depth intersected coaly intervals. Some 'seams' contain numerous stone bands and although they are of mineable thickness the yield after beneficiation would be rather low (35% - 50%). Some coaly intervals are too thin to be considered for underground mining, but the coal is generally free of stone bands. The seam at 137 m in DDH 9 is only 1.175 m thick but has a raw coal ash content of 23.1%.

The most prospective area is in EL 26/84, to the south of Royal George. DDH 8A intersected a 1.805 m thick seam at 104.375 m and this coal could be beneficiated to give a product ash of less than 20% at a washing yield of about 60%. On completion of the drilling at Nicholas Range another drill hole is proposed for this area - see accompanying map.

CORNWALL COAL COMPANY N.L.

TABLE SP 1

SUMMARY OF COAL SEAM DATA

ST PAULS RIVER EXPLORATION AREAS

HOLE NO. (S.P.)	COLLAR RL (masl)	SEAM (Ply)	THICK. (m)	DEPTH TO ROOF (m)	RAW COAL ANALYSIS (AIR DRIED)					20 x 0.5 mm - 'WASHED' COAL (AIR DRIED)									20 x 0.5mm	-0.5mm	Ash % -0.5mm	SINKS	
					M %	Ash %	Vol %	F.C. %	R.D.	F/S R.D.	Yield %	R.D.	M %	Ash %	Vol %	F.C. %	S %	S.E. MJ/kg	%	%		R.D.	Ash %
DDH 1	480	-	1.24	80.950	3.1	28.7	26.6	41.6	1.53														
		-	0.92	84.045	3.1	29.0	26.2	41.7	1.51														
DDH 2	530	-	1.99*	106.130	3.6	54.9	11.6	29.9	1.89														
		-	2.062	135.412	4.0	53.7	18.1	24.2	1.82														
		-	1.355	164.755	6.5	41.5	20.7	31.3	1.66														
		-	1.946	174.370	4.5	46.7	21.5	27.3	1.71														
		-	1.340	238.360	3.8	36.0	18.0	42.2	1.66														
DDH 3	470	-	1.746	92.210	3.4	42.9	22.1	31.6	1.70	1.60	49.5	-	3.2	20.7	29.6	46.5	0.38	25.08	93.0	7.0	55.7	1.96	64.4
		-	1.768	135.732	3.5	50.6	21.1	24.8	1.82	1.60	38.5	-	3.9	15.6	32.5	48.0	0.57	26.78	97.9	2.1	41.3	2.10	70.6
DDH 4	480		Hole abandoned at 51.20 m due to difficult drilling conditions																				
DDH 5	470		Hole abandoned at 102.40 m due to difficult drilling conditions																				
DDH 6	570		Hole abandoned at 72.00 m due to difficult drilling conditions																				
DDH 7	460		Hole abandoned at 43.15 m due to difficult drilling conditions																				
DDH 8	520		Hole abandoned at 10.50 m due to difficult drilling conditions																				
DDH 8A	500	-	1.805	104.375	4.8	38.5	21.9	34.8	1.60	1.60	62.7	1.41	4.3	15.1	28.0	52.6	0.52	27.00	96.1	3.9	69.7	2.12	70.9
DDH 9	340	-	1.175	137.045	2.8	23.1	23.4	50.7	1.57	1.60	90.6	1.45	3.2	15.8	24.1	56.9	0.36	27.58	98.4	1.6	31.3	2.06	63.7

* Coal is heat affected

TABLE SP1

CORNWALL COAL COMPANY N.L.

SUMMARY OF COAL SEAM DATA

ST PAULS RIVER EXPLORATION AREAS

HOLE NO.	COLLAR RL (masl)	SEAM (Ply)	THICK. (m)	DEPTH TO ROOF (m)	RAW COAL ANALYSIS (AIR DRIED)					20 x 0.5 mm - 'WASHED' COAL (AIR DRIED)									20 x 0.5mm	-0.5mm	Ash % -0.5mm	SINKS	
					M %	Ash %	Vol %	F.C. %	R.D.	F/S R.D.	Yield %	R.D.	M %	Ash %	Vol %	F.C. %	S %	S.E. MJ/kg	%	%		R.D.	Ash %
DDH 10	440	1	0.950	51.66	5.2	46.9	19.0	28.9	1.75														
		2	0.280	52.61	-	81.9	-	-	-														
		3	0.580	52.89	4.5	40.1	22.6	32.8	1.64	1.60	35.5	1.51	5.0	21.1	26.9	47.0	0.46	24.36	98.2	1.8	68.0	-	-
		4	0.380	53.47	-	69.0	-	-	-														
		5	0.930	53.85	4.4	47.9	19.4	28.3	1.75														
DDH 11	500	-	1.945	148.23	5.5	53.4	17.5	23.6	1.84	1.60	34.1	1.47	3.6	21.5	28.9	46.0	0.44	24.94	96.8	3.2	54.1	-	-
DDH 12																							
RG 1	590		2.02	29.185	(FULL SEAM NOT ANALYSED)																		
RG 2	510		1.55	122.96	(FULL SEAM NOT ANALYSED)																		
AV 10	300	NO TRIASSIC STRATA INTERSECTED (340.87 m dolerite)																					
AV 11	825	NO TRIASSIC STRATA INTERSECTED (466.50 m dolerite)																					
DOM 22	407		1.49	155.19	2.4	21.0	26.3	50.3	-														

Based on the limited drilling information it is not possible to make reliable correlations between the relatively widely spaced drill holes. However some tentative correlations are suggested below:-

A

DDH 1		DDH 10		DDH 2
1.24 m Seam at RL 399 m	→ →	3.12 m Seam at RL 388 m	→ →	1.946 m Seam at RL 356 m

This correlation is consistent with a south-easterly dip.

B

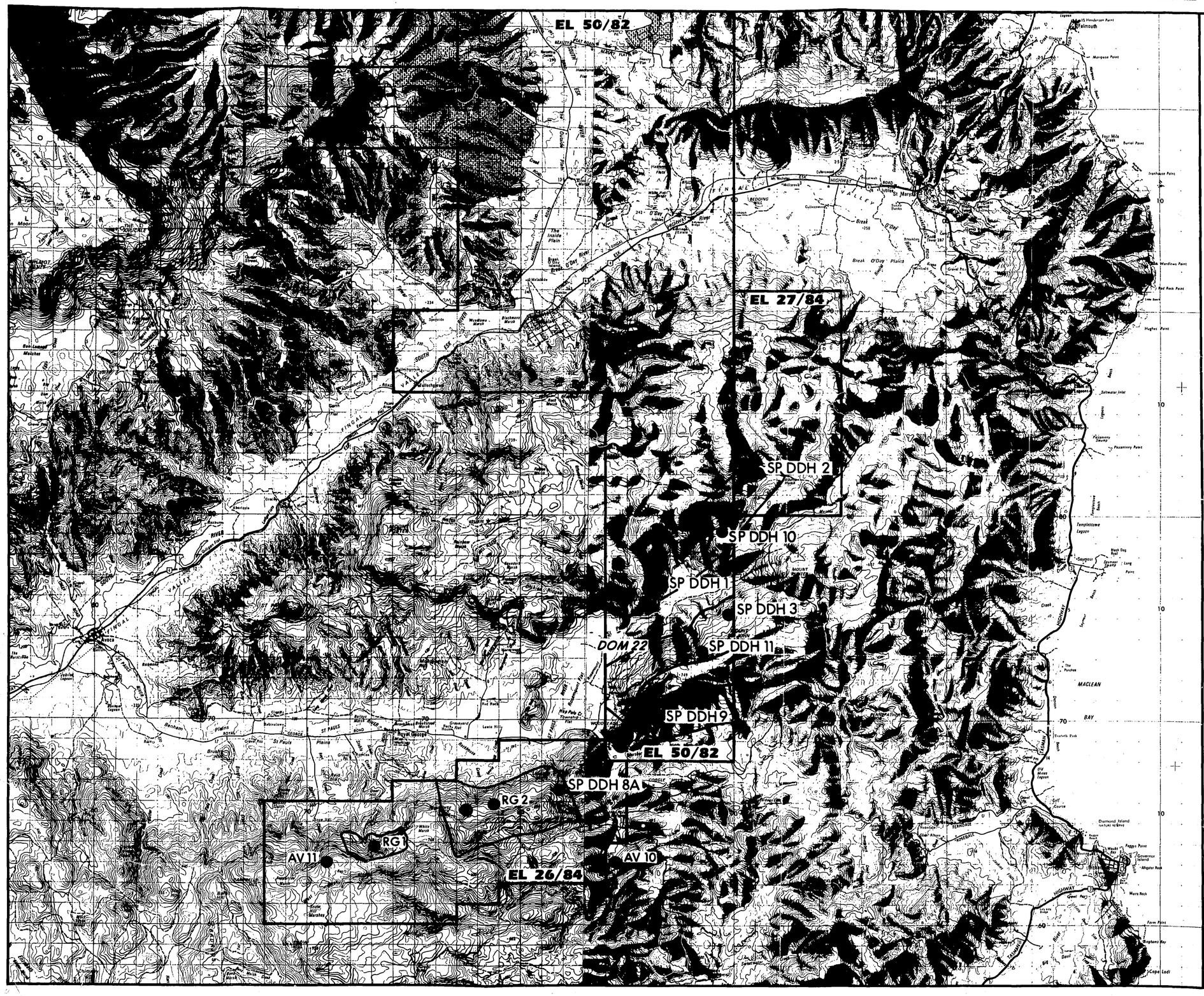
DOM 22		DDH 9
1.49 m Seam at RL 252 m	→ →	1.175 m Seam at RL 203 m

This correlation is consistent with a south-easterly dip.

C

RG 2		DDH 8A
1.55 m Seam at RL 387 m	→ →	1.805 m Seam at RL 396 m

The drilling undertaken in the latter part of 1984 by Cornwall Coal Company N.L has indicated that there are likely to be limited reserves of coal that could be mined from the outcrop on the slopes of the valley of the St Pauls River. When the last of the series of proposed holes is drilled it will be possible to more accurately access the potential of the area south of Royal George.



REFERENCE

Cornwall Coal Company drill hole (St Pauls River)	SP DDH 1
Proposed drill hole	
CRA drill hole	RG 2
Shell drill hole	AV 11
Department of Mines drill hole	*DOM 22*

Area of Triassic strata generally unaffected by dolerite intrusions, and in which potentially mineable coal is under less than 300 metres of cover.

SCALE 1:100.000

0 1 2 4 6

Scale in Kilometres

CORNWALL COAL COMPANY N.L.

DRILL HOLE LOCALITY PLAN

St Pauls River Area

005

85-2324 (Vol 1 of 3)

Prepared by McElroy Bryan & Associates Pty Limited
To accompany report by J.H.Bryan - November, 1984

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PARTIAL RE-INTERPRETATION GRAVITY DATA

FINGAL TIER

for
Cornwall Coal Company N L

by
Dr. D.E. Leaman

October 1986

INTRODUCTION

Recent fault and dolerite-related problems on headings south of the Duncan Mine have led to reconsideration of the implications and application of the Mines Department gravity surveys across Fingal Tier. The surveys and their initial interpretation were described by Leaman and Richardson (1981). This work is referred to as Bull 60 throughout this report.

The surveys were undertaken to provide a regional guide to dolerite structure and to suggest those areas in which the Triassic coal-bearing section was thickest. Even though coverage on Fingal Tier was upgraded only these basic objectives were fulfilled - most successfully, as the results of the drilling programme attest. Unlike other explorers, the Department was able to avoid feeders and wasted holes. Policy, time and cost prevented more detailed review of Fingal Tier data (including magnetic data) in 1980.

The analysis given in Bull 60 was a uniform regional treatment of the entire survey area. In order to achieve this within the exploration schedule applying in 1979-1980 an original, largely automated treatment coupled with coarse 3D regional modelling was developed. Data analysis and detailed evaluation of specific areas was not attempted. A more refined processing sequence was applied to the upgraded survey on Fingal Tier but the interpretation provided (Figure 3) was derived from an essentially qualitative combination of processed data sequences. No supportive geological modelling was incorporated or implied.

Thus it has been possible for some to suggest that certain feeder locations are misplaced by up to 1 km. Such suggestions must be treated with great caution since the sites indicated are related to mass anomalies defined by analysis and these cannot, or should not, be shifted for convenience or apparent need - unless, or until, the data and the processing sequence have been reviewed and a more detailed alternative, or supporting, view provided. The particular feature debated is located at 586 mE, 5385 mN (Figure 3). Problems faced on the more southern heading in this region began nearly 1 km further northwest (see Figure 9 for heading position). The more northerly heading is presently heading toward the implied feeder system at 586/5385.

Before considering what might be done to resolve some of the problems and uncertainties which have arisen the admitted limitations of the existing interpretation must be stated. These include absence of detailed inspection of data patterns and value verifications, compensation for topographically sourced anomalies (as distinct from terrain corrections), detailed modelling - either 2D or 3D, or evaluation of the effect of processing on the fine detail within the data set.

Given the status implied by these limitations a two stage interpretation is required to resolve and extract structural information consistent with the data coverage and resolution.

1. Assess the actual data available, review the effectiveness and reliability of the filters applied, check the adequacy of the plotting routines, cross correlate borehole results and anomalies and attempt basic compensation of dolerite - in - terrain effects (or other established deviations from the Bouguer density of 2.67 t/cu m). This approach, while still restricted, may be adequate for immediate mining application and is an essential precursor for complete modelling.
2. Complete modelling of the areas of interest. Combined gravity-magnetic 3D methods are required to achieve ultimate resolution and minimal ambiguity. This type of analysis is a last resort due to cost and time involved but its ability to extract fine detail within the definition permitted by the survey is not in question.

This report describes the development of an upgraded "guide" interpretation of the type outlined as stage 1. Only a few days have been devoted to this effort in order to establish whether the information derived is adequate for the immediate purposes (of defining problems in the advancing headings) or whether the data or geological requirements require more complex treatment and, if so, what. Gravity data form the basis of this review since the potentially critical magnetic data are not amenable to simple guide methods.

DATA AND TREATMENT

Original gravity data have been obtained from the TASGRAV data base of the Mines Department. Values have been manually inspected and replotted. This plot, not reproduced in this report, has been contrasted with the Davis and Kansas computer plots of Figure 29 in Bull 60 (Figure 2). The profiles discussed in this report are derived from the new plot. The comparison of the data plots suggests that the computer plots are only fair representations and are adequate only where value changes are substantial rather than subtle. Some combination of the Davis and Kansas plots would be more satisfactory. Figure 2 is, however, adequate for gross applications but locally misleading in detail.

Some obvious errors were found but these have not seriously distorted the original plots. More importantly, the control on many anomalies could be reviewed. Coverage density is least south and west of 586 000 mE, 5386 000 mN which is unfortunate for the purposes of this review. Some anomalies depend on only one or two stations and the reliability of these cannot be generally appraised.

Comparison of the revised plot and the original Bouguer anomaly plots with the various residual separations also exposed a number of deficiencies. All are excessively smoothed and many require alternate contouring procedures and other contour intervals to define anomaly character. The inspections also suggested that the interpretation conclusions as presented in Bull 60 (Figure 3) might be suspect. This Figure was generated from the low frequency 3 km filter and the equivalent mass downward continuation at 250 m. Each of these procedures was thought to compensate for near surface effects and sharpen resolution of thickened dolerite and feeders. The erratic nature of the gravity field, however, may have biassed the evaluation of mass continuations and the filter separation is imperfect as presented. All gross elements are reflected but their location and relative significance is not unambiguously defined. Many second order, or smaller, structures have been overlooked or omitted. Again, the results were approximate but adequate for a regional study.

INTERPRETATION REVIEW

Five profiles were then examined to test data correction and compensation requirements and attempt correlations between drilling results and anomaly patterns. Such an approach was not possible when the original interpretation was prepared. Bulletin 60 was ready for printing before site 45 was drilled and the basic elements of the interpretation had been used in various forms to guide the drilling programme for up to two years prior to this.

The profiles are located in Figure 9. The base for this Figure is given in Figure 1 to enable more precise location on the Tier free of obscuring interpretive detail. The sections sample an array of topographic, structural and gravity features. Figures 4 to 8 present topographic profiles, the form of the dolerite base (from drill control), observed Bouguer anomalies (new manual plot) and a compensated profile for a reference elevation of 560 m. Available drill control suggests that this level may be general south of the basemap line AB. The gravity data also become more regular toward the south east. Other, more complex, dolerite sheet or anomaly characteristics can be contrasted against this level which is above the mineable seams but below most of the irregular capping topography.

The compensated profile was obtained by correcting the Bouguer values for known deviations in geology - as displayed in drill holes. Thus any dolerite or coal measures above the reference level was deducted using contrasts of +0.16 and -0.32 t/cu m when referred to the Bouguer density. The topography was included in this correction as a two dimensional factor. The latter is not generally valid but must be attempted for rapid review guide purposes and is certainly better than no adjustment at all. Adjustment of the original terrain corrections was relatively minor but some of the scarp effects may be due to assumption failures (e.g. Figure 7). This process has been termed geological stripping and is designed to focus attention on truly anomalous effects below the reference level, i.e., much closer to the seam than the original erratic level of the observations.

LINE 1 (Figure 4).

There is a reasonable correlation between absence of dolerite capping, or feeders, and anomaly. The increase in anomaly toward the east reflects a regional gradient of 4 to 5 mGal per 10 km. The deeper dolerite base near DDH 23 is mirrored by an increased anomaly but the feature near DDH 19 is not supported by the drilling profile. Further, the strong gradient which might be expected near the scarp is displaced nearly a kilometre toward the south east. This suggests that the 2D assumptions are inadequate but it is possible that a substantial dyke (up to 200 m across) is concealed near DDH 19 (shown in Figure 9). The anomaly rise near the Mine indicates that the dolerite in the Spion Kop dyke and the feeder in Fingal Rivulet are interconnected and possibly extend beneath the Mine area. This study can not offer more detail.

Review of the steps in anomaly and the indicated broad shifts in dolerite base levels are consistent with the density assumptions employed. Although the plunge in levels referred to DDH 70 are off section the profile does indicate that the change occurs quite close to DDH 16A.

LINE 2 (Figure 5)

The presence and scale of major feeders at the ends of the section are apparent. With the exception of the anomaly peak near DDH 39 the profile is wholly consistent with the dolerite base profile as defined by drilling. This peak is supported on several loops although its magnitude may be in doubt by up to 0.5 mGal. Such an anomaly can be explained by a dyke no more than 200 m thick. The relief in compensated anomalies between DDH 42 and 45 is consistent with the density assumptions.

LINE 3 (Figure 6)

The large feeders at section ends are again evident. With the exception of the spike between DDH 55 and 61 the gravity and drilling profiles are consistent. The anomalies along this profile are such as to offer no obvious suggestion of the regional gradient. A feeder is certainly suggested near DDH 65 and extends south from the general location of DDH 44. It is not clear how reliable are the values in the region of DDH 61. The observed gradients are close to the maximum possible and may indicate faulty observations. All stations north of DDH 61 form part of a single loop. The gradient is verified at DDH 61. Some caution is advised in assessing both the low values and the spike on this profile. It is possible that the dyke inferred from line 2 extends to this position and this view is shown in Figure 9. If the profile is sound then the coal measures section will be found sandwiched between two dolerite dykes.

This profile, and its problems, are relevant to the future development of the extended mine headings. These are shown in Figure 9.

The northern heading extends from DDH 26 north of 44 to bisect 40 and 61. This path would retain the coal measures to the easting of DDH 40 and 61. There is then a risk of section loss. A redirection of this header would seem advisable at the easting of DDH 61. The alternative is to drive at the present orientation and risk encountering the dyke implied by the spike anomaly (if real)

The southern heading, already terminated by dolerite, has verified the implications of the gravity data AND the original interpretation of Bull 60. As shown in Figure 3 any transect in this region could have been expected to pass through a faulted zone and then reach a point where a steeply transgressive dolerite base would cut out the coal measures. This more detailed review clearly demonstrates the scale of this effect. Further progress on this heading is not advised.

Some faults have also been suggested on Figure 9. The present treatment suggests that dolerite may be involved in many of these. Bodies of 2 to 100 m thickness are possible. I have been advised (C. Bacon pers comm) that one such body was

encountered on the northern heading near the inferred fault position. These trends need not reflect substantial displacement at seam level but may mirror the dolerite association.

LINE 4 (Figure 7)

Line 4 offers some confirmation of the implications of previous lines. The general increase in anomaly south westward is consistent with the generally transgressive form of the dolerite. This line shows clearly the manner in which the topography often mimics the form of the sheet. The escarpment near DDH 58 and 78 is of this type and the sheet base rises steeply beneath the escarp. The profile also demonstrates the need for compensation near DDH 75 and 25. In the first case the effect is largely topographic but in the second the observed anomaly disguises the steep arching of the sheet into the Fingal Tier escarpment. The line suggests that the dyke content of the thickened sheet south of DDH 44 may be relatively small while offering perspective on the problems of the southern heading.

LINE 5 (Figure 8)

Relatively simple correlations are possible on this line. Two small dykes can be inferred in the region of DDH 17 and 43.

The elements of this interpretive review have been summarised in Figure 9 and may be contrasted with Figure 3 (from Bull 60). There are no major differences but several features have been brought into sharper focus. There are no grounds, either gravimetric, structural or mine observation, for presuming or requiring that any inferred feeder system is misplaced. The observations within the headings are wholly consistent with the broad thrust of the regional interpretation and the refined implications of this review.

GENERAL COMMENTS AND CONCLUSIONS

1. GRAVITY DATA

Occasional observations are suspect and may influence detailed interpetation. This comment notwithstanding the general view presented in Bull 60 is supported. It has been refined to evaluate feeder positions and types but there is no possibility, given present data, of any significant error in the location of features.

Although further stations, perhaps 25 sites, should be added before additional interpretation the present coverage is adequate to define all large feeders and indicate substantial transgressions of the capping sheet. Additional observations should be located in critical gaps and to check values near DDH 40 to 43.

The simple methods employed in this review merely suggest dolerite forms and confirm the need for 3D analysis if more resolution is required. (The high quality magnetic data, which can be used to correlate and support, must be used to overcome problems or uncertainties in the gravity coverage). Future analysis should use a 5 to 6 km filter for extraction of residuals for modelling.

2. DOLERITE FORMS

Several aspects of the dolerite intrusions have been revealed by this limited study. Since some of these may have considerable ramifications for future mining or mine research they have been listed. Stage 2 style interpretation is required to define most features.

a) The dolerite sheet arches from Spion Kop into the main Fingal Tier escarpment. Loading problems could be expected.

b) The sheet is very irregular overall. While several holes give the impression of flat base levels the gravity data give a different perspective. It is possible, but not proven at this stage, that there are two sheets within the Tier and its environs. This possibility may lead to some unexpected pinch outs. The irregular form of the sheet and the high relief topography above must produce marked loading differentials at the level of mining.

c) Although there are very few very large feeders it seems likely that the bulk of the central sheet is fed by an en-echelon dyke swarm. Each dyke may be less than 1 to 1.5 km long and 200 m thick. Such a feeding swarm could account for the generally fine and regular texture of the capping sheet.

d) There are suggestions of NE-SW, N-S and E-W controls on structures, feeders and dykes.

3. CONCERNING THE HEADINGS

This review suggests that the observations within the southern heading are consistent with the regional interpretation and were to be expected. The increasing disturbance along the heading is consistent with the

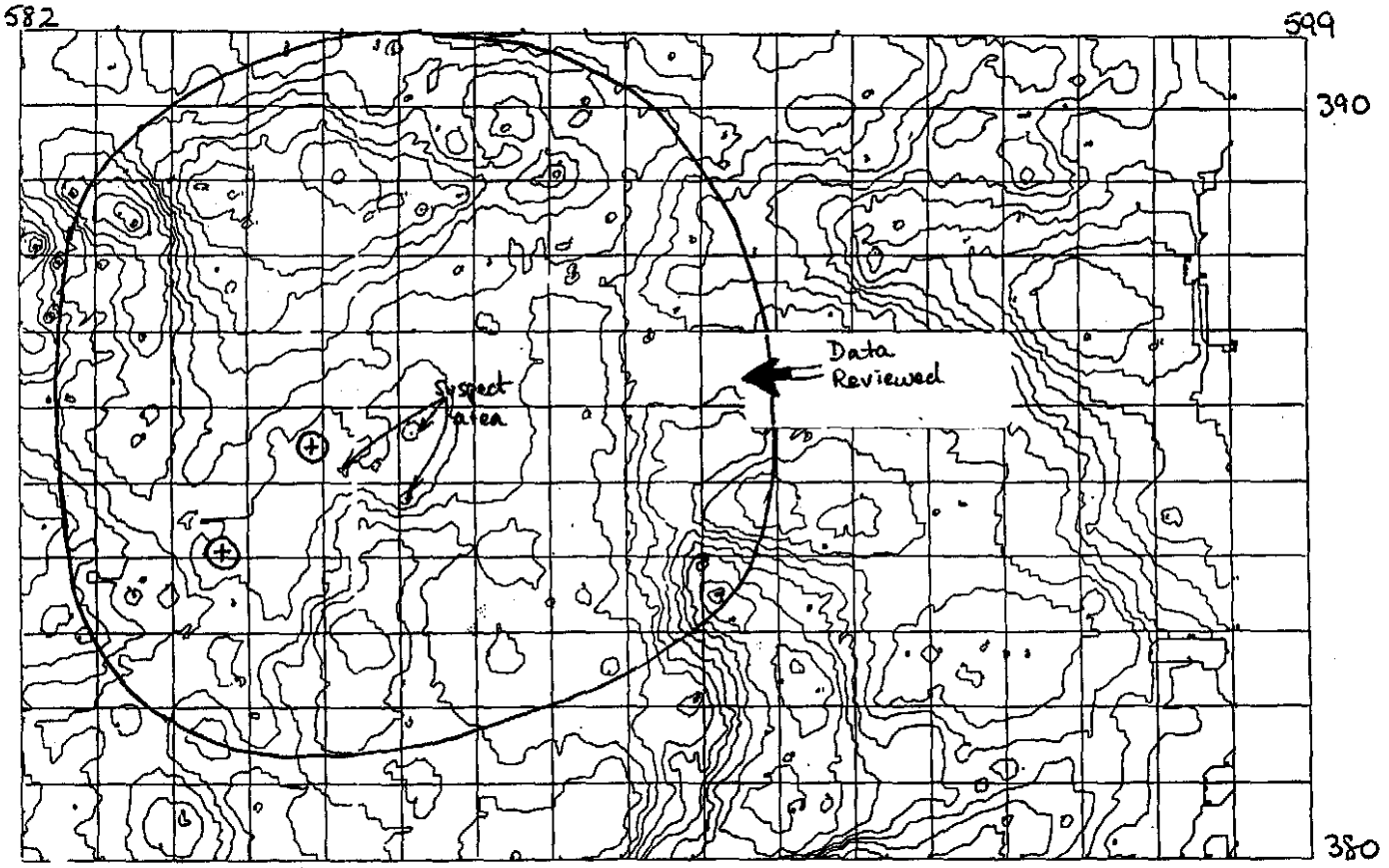
marked transgression of the dolerite sheet above the seam. This review offers better focus on some of the limiting features and smaller structures.

The northern drive would appear to be able to avoid most of the problems encountered along the southern heading. Some caution must be attached to this statement, as described in a previous section, due to the limitations in the data local to DDH 40 and 44. If the present heading is retained and the data are valid then another quite major dyke is to be expected east of DDH 40. A change in heading (or preparation for one) before this easting is advised. Some small faults and dykes are implied in the region southwest of DDH 40.

This limited study suggests that no mine loading study can produce valid results without comprehensive definition of the dolerite above and around the mined seam and some understanding of the relationship of faulting and fracturing to the intrusions. Load variations sourced within the coal measures are likely to be insignificant when compared to the effect of sheet transgressions and thermal and fracture variations. It may also be noted that the density of the local dolerite is in excess of 2.83 t/cu m while the coal sequence is generally less than 2.35 t/cu m - a differential of 500 kg per cubic metre. The role of intrusion loading can be appreciated when it is realised that transgressive steps in excess of 100 m are common.

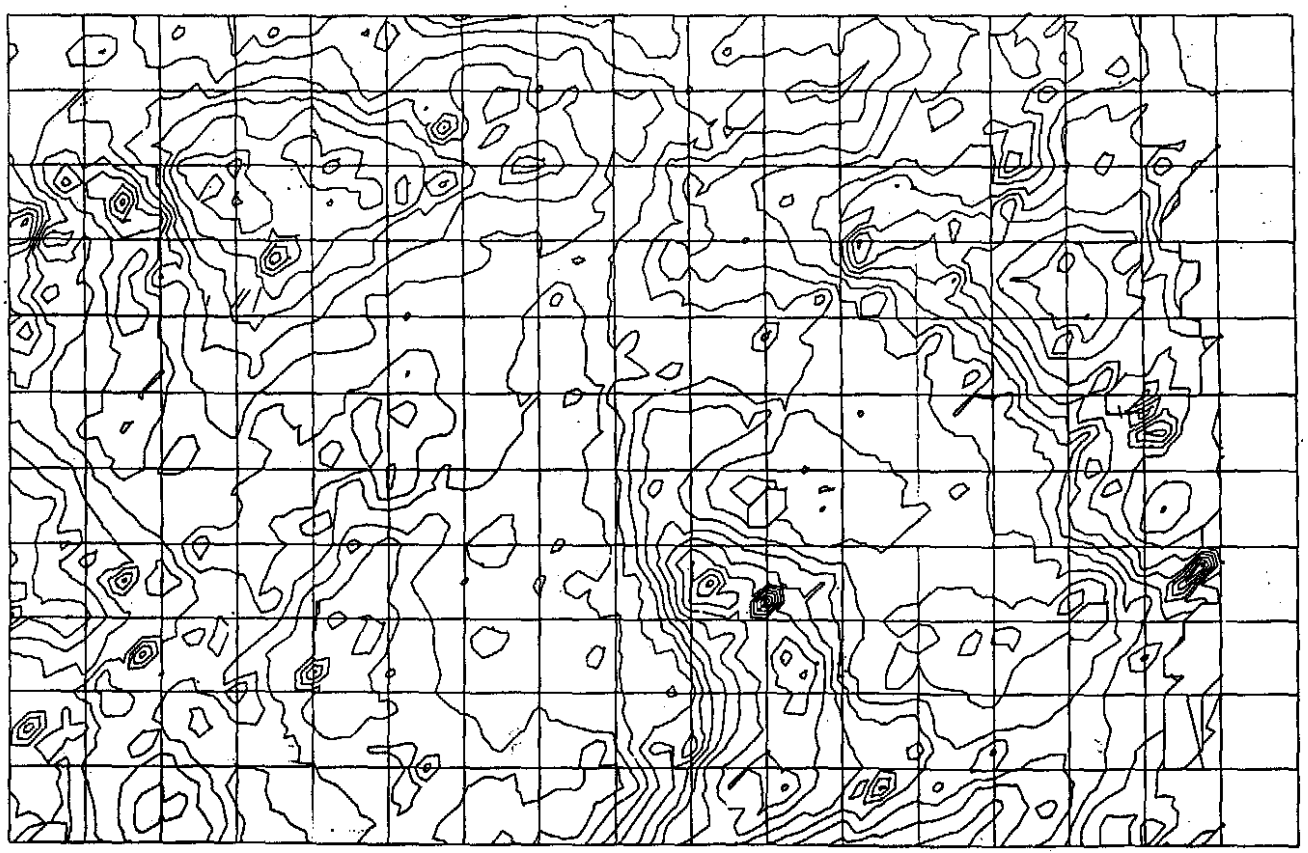
REFERENCE

Leaman, D.E., and Richardson, R.G., 1981. Gravity Survey of the East Coast Coalfields. Bull. Geol. Surv. Tasm., 60.



BOUGUER ANOMALIES — DAVIS

5 cm



BOUGUER ANOMALIES — KANSAS

FIGURE 2 Bouguer anomalies 1 mgal. interval

FIGURE 3

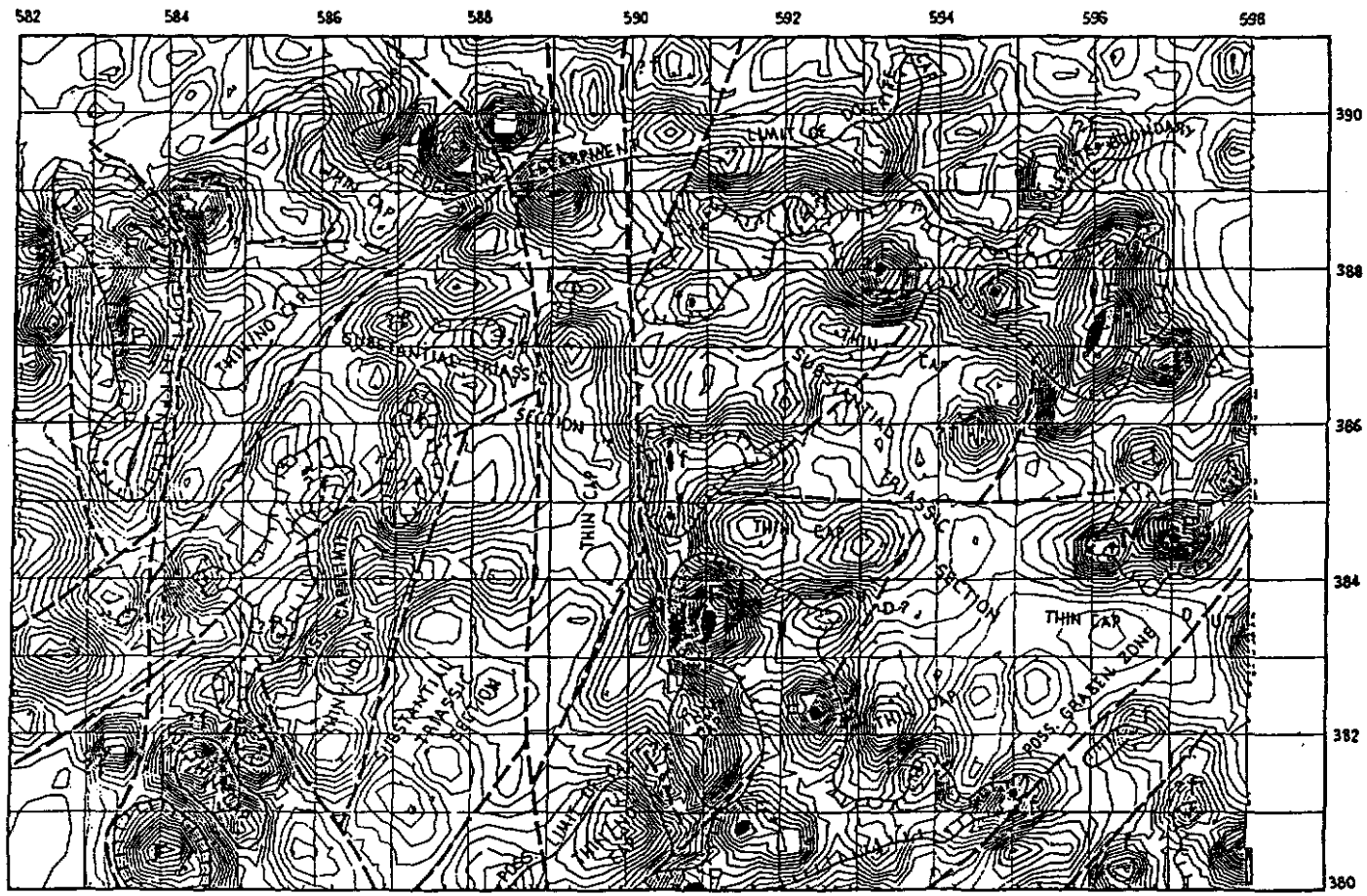


Figure 30. *Predictive structure warning map: Interpretation conclusions summary, June 1980. Fingal Tier*

SHEET THICKENING LIKELY TO RISK TRUNCATION OR DISRUPTION OF MAIN COAL SEAMS.

REGIONS WITH SUBSTANTIAL SEDIMENTARY SECTIONS WITH OR WITHOUT THICK CAPPINGS ARE UNHATCHED. RELATIVE INDICATION SHOWN.

F MAJOR FEEDER PIPE/DYKE

f MINOR PIPE/DYKE

?f POSSIBLE SMALL PIPE/DYKE

FAULT INFERRED APPROX. POSITION

FAULT INFERRED NOT WELL INDICATED.

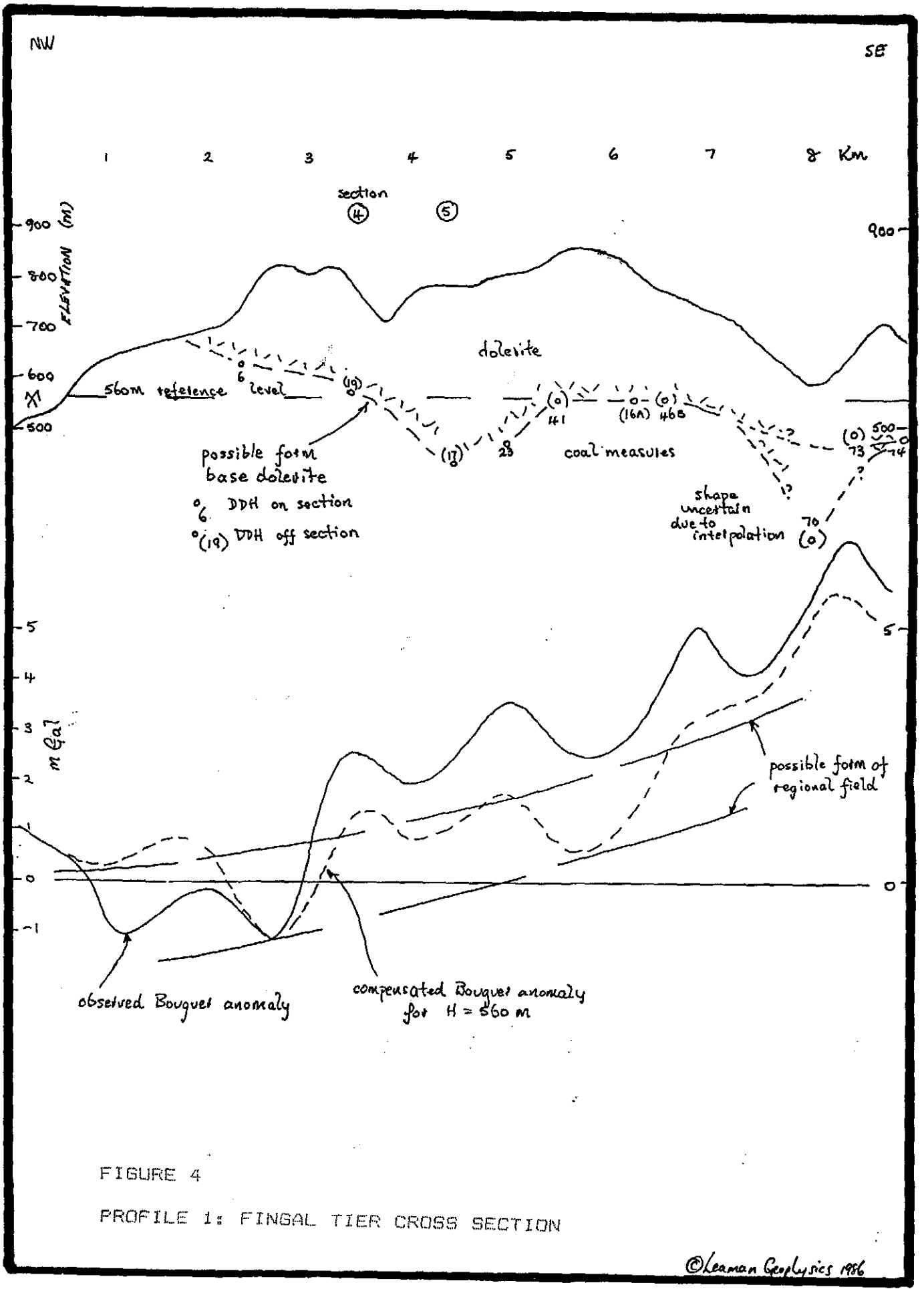


FIGURE 4

PROFILE 1: FINGAL TIER CROSS SECTION

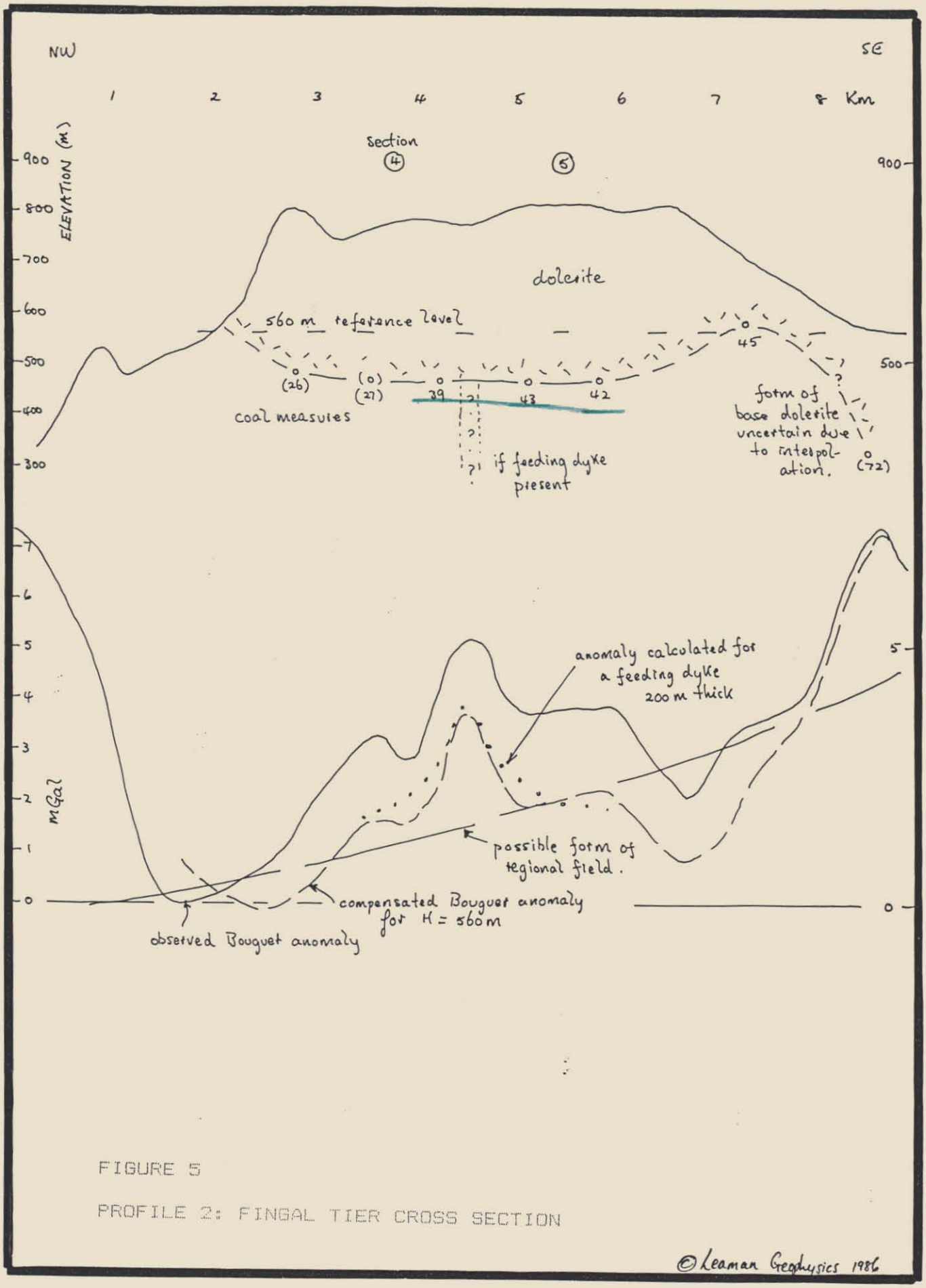


FIGURE 5

PROFILE 2: FINGAL TIER CROSS SECTION

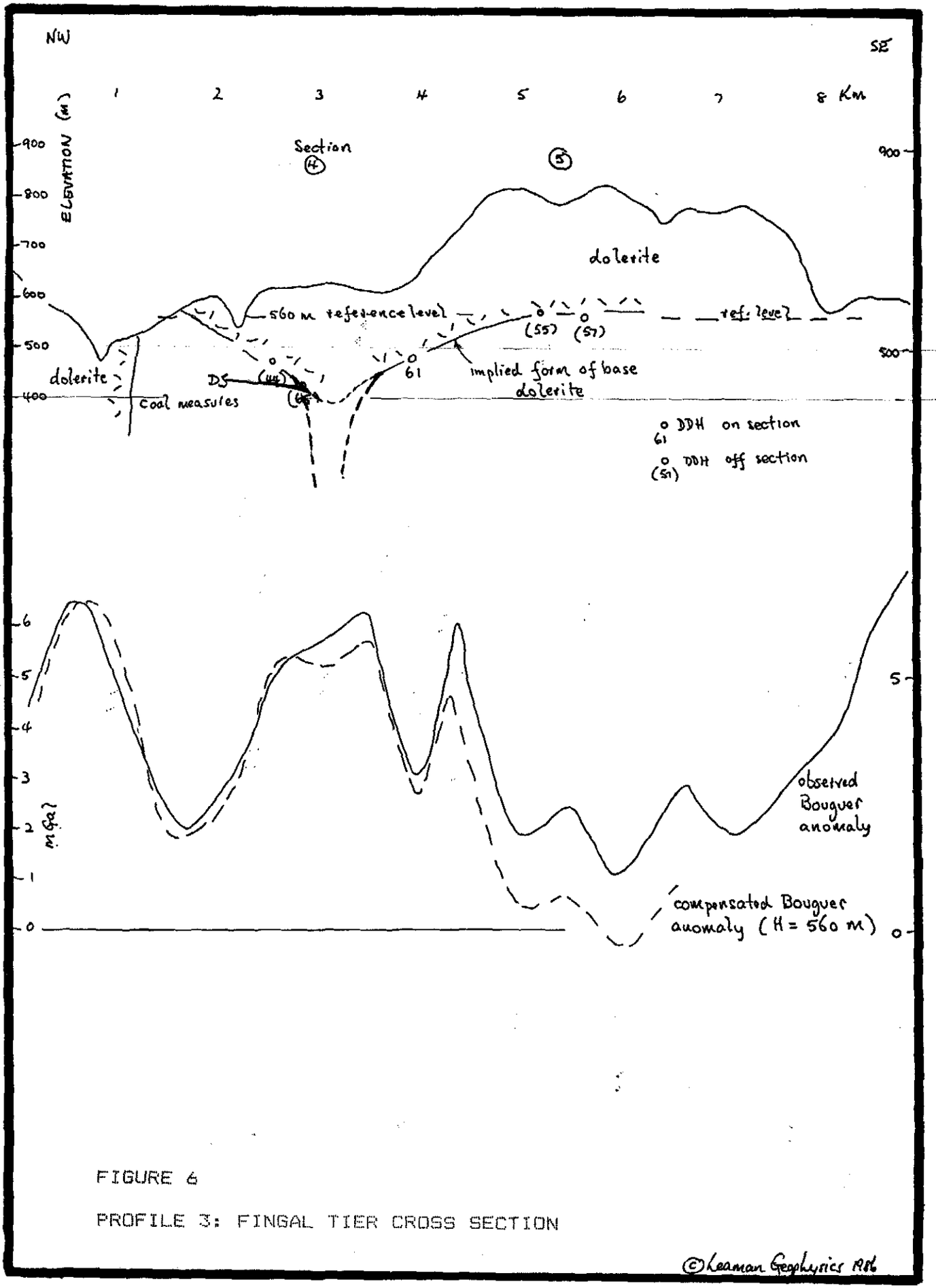


FIGURE 6

PROFILE 3: FINGAL TIER CROSS SECTION

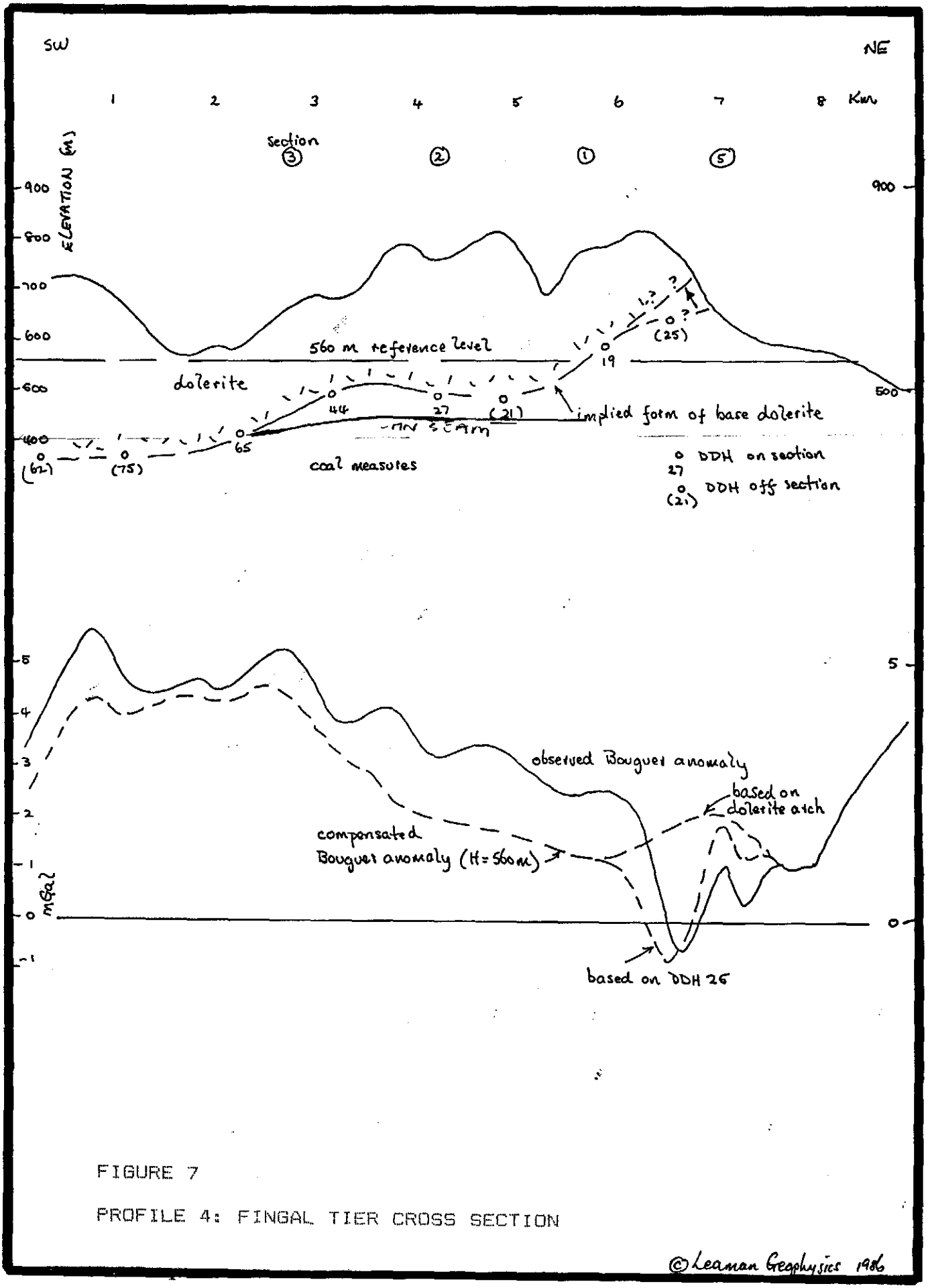


FIGURE 7

PROFILE 4: FINGAL TIER CROSS SECTION

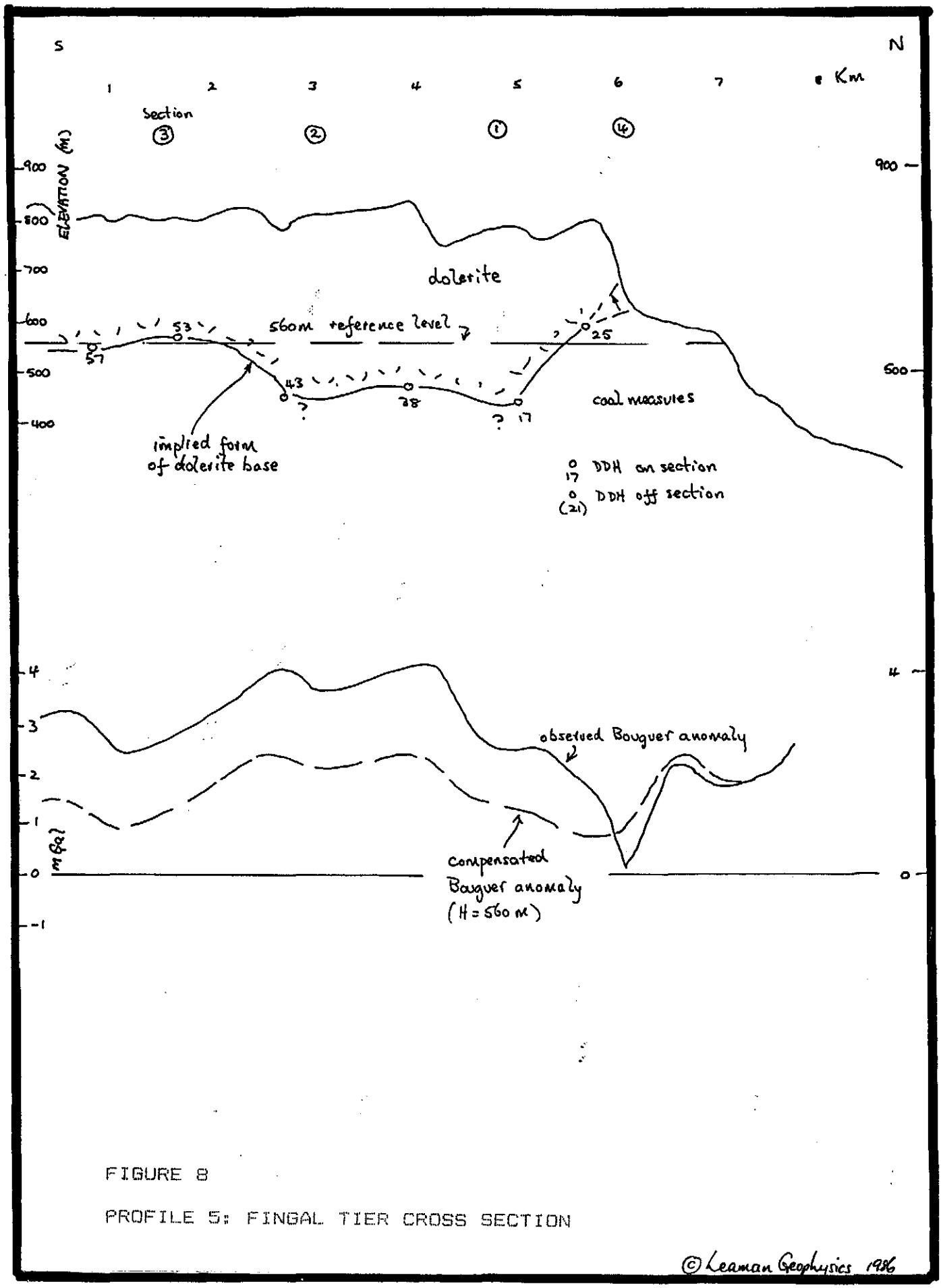


FIGURE 8

PROFILE 5: FINGAL TIER CROSS SECTION

241023

Report submitted on behalf of
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by

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Oct 27, 1986

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Oct. 27, 1986

Attention: Accounts Department

RE: REVIEW OF GRAVITY DATA, FINGAL TIER

Attention: Messrs C.E. Peck, I. MacPhedran

The attached report details the results of my review. There are some weaknesses in the gravity data and solution of more detailed issues will require either more stations or use of the magnetic data base. These problems notwithstanding, it is possible to confirm the general truth of the original, regional work within the constraints of the existing data. Many features have been more accurately located and several other dykes and small feeders suggested. These seem to be associated with, or aligned along, possible faults and gravity field gradients.

The problems in the headings, particularly the southern one, were forecast. The precursors which led to a belief that feeders were misplotted were both consistent with the old interpretation and the characteristics of dolerite intrusions. Profile 3 clearly demonstrates the scale of the problem and I would not expect any continuation of this heading to be feasible. The northern heading may yet escape relatively unscathed but I would expect to see some more small dykes and breaks before reaching the easting of DDH 40 or the northing of DDH 61 irrespective of the truth of the anomaly-dyke system east of 40-61. Any major dyke will be oriented approx N-S and the heading may need trend southerly upon reaching DDH 40.

It appears that the NERDDC-ACIRL Project involves mine loading, pillar stability studies. I respectfuly suggest, from what I have been permitted to see of this work, that it is dangerously limited. I have stressed in the report the key role which the variably loading dolerite cap might play. Yet this factor has been virtually ignored by assuming a slab character. This assumption cannot be justified. The basal form of the dolerite can be fully defined but it requires use of all data, 3D methods and an appreciation of feasible dolerite forms. Most of the reservations attaching to this review relate to non use of 3D correlations. The potential value and application of the Tier data base is merely indicated here.

If my experience of dolerite structures and advanced structural interpretation can be of any further assistance I would be pleased to place it at your disposal.

Yours faithfully,

Dr. D. E. Leaman

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241025

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PRELIMINARY REPORT
ON THE
ST PAULS RIVER
EXPLORATION AREAS
(EL 50/82, EL 26/84, EL 27/84)
VOLUME 2

BOREHOLE LOGS, STRATIGRAPHIC AND SEAM SECTIONS AND COAL QUALITY DATA
DDHs 1 TO 11

PREPARED FOR

CORNWALL COAL COMPANY N.L

BY

McELROY BRYAN & ASSOCIATES PTY LIMITED

TO ACCOMPANY
REPORT 60/1/7

J.H. BRYAN

JANUARY 1985

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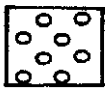
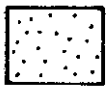
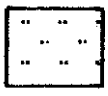

CONGLOMERATE, pebble to granule


BRECCIA


SANDSTONE


SILTSTONE


CLAYSTONE


STONE, COALY OR CARBONACEOUS

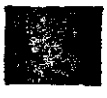

MUDSTONE


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 INTERLAYED with NON-COAL

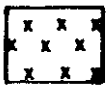
NON-COAL INTERLAYED with COAL

COAL, STONY

STONE, COALY

COAL, WEATHERED

COAL, HEAT ALTERED


IGNEOUS, acid and intermediate


IGNEOUS, basic

LEGEND FOR GRAPHIC LOGS & COAL SECTIONS

PREPARED BY: McELROY BRYAN & ASSOCIATES PTY LTD

002

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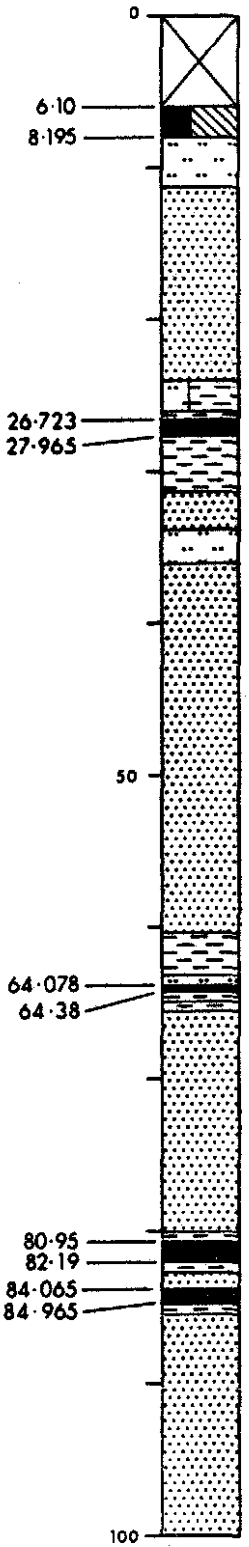
CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 1



5 cm

SCALE 1:500 DRAWN C.F.R.P. DATE 28/9/84

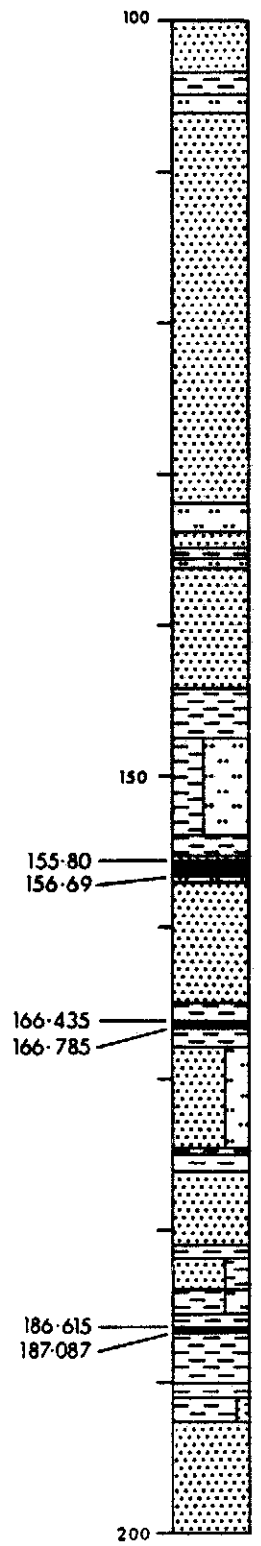
003

241028

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 1



5 cm

SCALE 1:500 DRAWN C.F.R.P. DATE 28/9/84 PAGE 2 OF 3

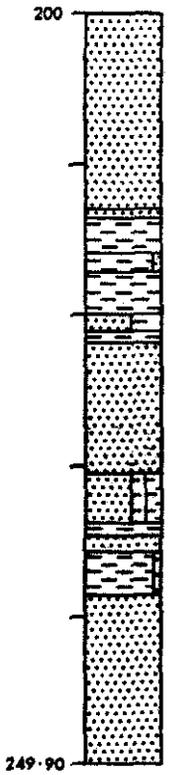
004

241029

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 1



5 cm

SCALE 1:500 DRAWN C.F.R.P. DATE 28/9/84

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241030

CORNWALL COAL ST PAULS RIVER D.D.H. 1

Location: Mt Puzzler
AMG Co-ordinates: E 586 625
N 5378 468
Collar R.L.: 480 m approx.
Total Depth: 249.90 m

Logged by: C.F.R. Parbury
Drilled by: Stacpoole Drilling
Commenced: 1.9.84
Completed: 13.9.84

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
OPEN HOLE TO SET CASING - no record of chips	6.100	6.100	
COAL, dull, fissile in part	0.470	6.570	
CLAYSTONE, black, carbonaceous, fissile, coaly	0.090	6.660	
COAL, dull, slightly broken	0.270	6.930	
CORE LOSS	0.120	7.050	PLY 3
CLAYSTONE, black, carbonaceous, fissile, coaly	0.295	7.345	Thickness: 1.985 m
COAL, dull, broken	0.085	7.430	
CLAYSTONE, black, carbonaceous, fissile	0.255	7.685	
COAL, black, highly fissile	0.350	8.085	
CORE LOSS	0.110	8.195	

606

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
MUDSTONE, dark brown grey to black, highly fissile	0.195	8.390	
SILTSTONE, light brown grey, highly fissile, minor claystone bands coarsening towards base to a fine to medium lithic sandstone, basal section has parallel laminations, slakes and swells when exposed to air and water	3.035	11.425	
SANDSTONE, tan brown (when oxidised) light grey blue, medium, lithic, moderately well sorted, sub-angular, minor siltstone bands and phases, numerous to common bright coaly wisps and fragments, sandstone well cemented, thickly to massively bedded, bedding dips less than 5°, weathering restricted to defined horizons, micaceous in part along bedding partings, occasional bands (<0.050 m) of intraformational mudstone pellets fracture planar to irregular 30° to LCA at 18.73, 19.50, core slightly broken and close spaced bedding partings from 19.8 to 20.4m, fracture, regular planar 20° to LCA at 22.6m, sandstone unit base abrupt, last ironstaining horizon as a result of weathering at 22.76m	12.825	24.250	

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
MUDSTONE, brown black, carbonaceous, coaly in part, silty phases throughout	0.230	24.480	
SILTSTONE, grey brown, highly fissile, some claystone bands, slaking moderate, swelling moderate	0.780	25.260	
MUDSTONE, light grey brown, extremely fissile, very swollen, very disintegrated on exposure to air and water, minor calcite along bedding partings	0.460	25.720	
CLAYSTONE, white fawn, very swollen, puggy, very disintegrated, minor stony coal band 0.040 m in middle of unit, abrupt base	0.315	26.035	
COAL, dull with minor bright bands	0.070	26.105	
MUDSTONE, dark brown, fissile	0.090	26.195	
CLAYSTONE, coaly	0.063	26.258	
MUDSTONE, black, carbonaceous	0.105	26.363	
MUDSTONE, brown, intraformational clasts and rip up structures throughout	0.360	26.723	
CLAYSTONE, black, coaly	0.200	26.923	

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
COAL, dull, transitional lower boundary	0.065	26.988	
CLAYSTONE, brown grey, sporadic carbonaceous bands	0.145	27.133	
COAL, dull, minor cream claystone wisps and lenses	0.390	27.523	
CLAYSTONE, cream, abrupt upper and lower boundary	0.022	27.545	
COAL, dull	0.110	27.655	
, dull with minor bright bands	0.085	27.740	
CLAYSTONE, white cream, abrupt top and base	0.010	27.750	
COAL, dull	0.050	27.800	
, dull with numerous bright bands	0.165	27.965	
MUDSTONE, dark brown, minor wisps of bright coal	0.130	28.095	
CLAYSTONE, light brown grey, fissile, discrete bands have swollen, occasional bands indurated hard, coarsening with depth to siltstone, siltstone in basal 1.5 m of unit	3.565	31.660	

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE, light grey, fine to medium, lithic, minor siltstone interbeds, well cemented, well bedded, dip <5°	2.380	34.040	
SILTSTONE, mid grey, fissile, well bedded, very thinly bedded	2.395	36.435	
SANDSTONE, light grey, medium, lithic to quartz-lithic, well cemented, well sorted, subangular, well bedded, massive to thickly bedded, minor horizons of coal wisps and lenses, laminations defined by carbonaceous material, zone of abundant to common coaly wisps, rip up structures and fragments from 47.80 to 52.50 m - within this zone are occasional very rounded pebbles and intra-formational clasts, coal band 0.045 m thick at 54.81 m	24.155	60.590	
MUDSTONE, brown, fissile, abrupt top and base	0.025	60.615	
COAL, dull with minor bright bands	0.035	60.650	
CLAYSTONE, black, carbonaceous	0.200	60.850	

010

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, grey brown, highly fissile, swollen, disintegrated, carbonaceous towards base	2.450	63.300	
SILTSTONE, green grey brown, carbonaceous wisps at top of unit	0.615	63.915	
CLAYSTONE, dark grey to grey green, carbonaceous at top	0.100	64.015	
CLAYSTONE, cream, highly fissile, very disintegrated	0.060	64.075	
COAL, dull	0.030	64.105	
CLAYSTONE, mid grey	0.060	64.165	
COAL, dull	0.215	64.380	
CLAYSTONE, coaly for the top 0.040m grading to grey to green grey	0.430	64.810	
MUDSTONE, grey, indurated hard	0.220	65.030	
COAL, dull	0.070	65.100	
TUFF ? CLAYSTONE, white cream, abrupt top and base	0.030	65.130	
CLAYSTONE, mid grey, carbonaceous wisps and lenses	0.360	65.490	

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE, light grey, fine at top, medium throughout rest of unit, quartz-lithic, well sorted, sub-angular, siltstone interbeds at top 2.5 m, siltstone interbeds laminated, sporadic irregular intraformational clasts of mudstone, siltstone bands fissile, sandstone well bedded, massive, dip <5°, abrupt basal contact, large intraformational clasts 0.40 m from base	14.765	80.255	
SILTSTONE, grey to light grey, indurated, carbona-eous phases towards base	0.265	80.520	
CLAYSTONE, green grey, highly fissile, moderately disintegrated	0.430	80.950	
COAL, dull	1.140	82.090	) PLY 1
MUDSTONE, grey, white flecks throughout	0.035	82.125	) Thickness: 1.240 m
COAL, stony	0.065	82.190	)
CLAYSTONE, grey, highly fissile, carbonaceous wisps and lenses at top 0.050 m of unit, moderately disintegrated	0.620	82.810	

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)		Remarks
SILTSTONE, grey to brown grey, well bedded, fine sandstone in part	0.250	83.060		
SANDSTONE, light grey, medium, quartz-lithic, well sorted, well bedded	0.985	84.045		
CLAYSTONE, brown, laminated	0.020	84.065	)	
			)	
COAL, dull	0.105	84.170	)	
			)	PLY 2
SANDSTONE, light grey, fine,			)	
abrupt top and base	0.020	84.190	)	Thickness
			)	0.92 m
COAL, dull	0.235	84.425	)	
, dull with minor bright bands	0.175	84.600	)	
, dull	0.365	84.965	)	
CLAYSTONE, black to dark brown, coaly in part	0.130	85.095		
CLAYSTONE, brown grey, abrupt top, graded base, grading into siltstone	0.550	85.645		
SANDSTONE, light grey, medium, quartz-lithic, well sorted, sub-angular, well cemented, well bedded, massive minor coal wisps and fragments, sporadic siltstone phases at top 1.5 m of unit	18.135	103.780		

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, black, carbonaceous, minor coaly bands	0.150	103.930	
CLAYSTONE, grey green, carbonaceous phase in middle of unit, fissile, intraformational clasts of lighter coloured claystone pellets	1.140	105.070	
SILTSTONE, grey, minor sandstone phases, sandstone fine to medium, fining upward sequences, siltstone fissile	1.140	106.210	
SANDSTONE, light grey to green grey, as above sandstone unit, within sandstone unit are numerous fining upward sequences, coarse fractions only moderately sorted, basal part may contain clasts up to 0.040 m, well bedded, massive abundant pyrite crystals, blebs and aggregate in fine sandstone unit at 127.90 m	25.915	132.125	
SILTSTONE, grey green, well bedded, very thinly bedded, coaly at 0.050 m of top of unit, abrupt top, transitional base, minor laminations and wisps, sporadic irregular fractures with slicken-sides, fissile, numerous plant remains at top along bedding partings, sandstone phases towards base	1.860	133.985	

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE, light grey, fine to medium, quartz-lithic, abrupt regular basal contact, minor mudstone intraformational clasts and laminations	1.125	135.11	
MUDSTONE, dark grey, carbonaceous, minor siltstone pennybands and laminations, fissile in basal half of unit, core broken from 135.5 m to base of unit	0.755	135.865	
COAL, dull	0.030	135.895	
SILTSTONE, grey green, fissile, fine sandstone band in middle of unit, abrupt base and top, well bedded	0.550	136.445	
SANDSTONE, grey to grey green, medium, quartz-lithic, well sorted, subangular, massive, very minor carbonaceous wisps and lenses	7.975	144.420	
CLAYSTONE/LAMINITE, 60:40, dark grey to black:light grey green; laminations straight parallel, bedding dip <5°, fissile in part, carbonaceous in part, minor dull coal bands less than 0.030m, minor phases of bioturbation, sporadic sandstone infilled dykelettes	3.215	147.635	

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
MUDSTONE:SILTSTONE LAMINATED, ratio 40:60. Mudstone, grey green; siltstone, light grey; laminations parallel straight to wavy, minor infilled worm burrows, regularly bedded, dip <5°, minor fractures regular planar 45° to LCA, some fractures lined with calcite, minor scour and fill structures	6.410	154.045	
CLAYSTONE LAMINITE, 80:20, black:light grey; fissile siltstone laminite towards basal section	1.510	155.555	
SANDSTONE, light grey, medium, lithic, well sorted, subangular, well cemented, numerous coaly and carbonaceous wisps, blebs, lenses, abrupt base	0.245	155.800	
COAL, stony, abrupt base	0.042	155.842	
CLAYSTONE, white, abrupt base	0.030	155.872	
COAL, stony, abrupt base	0.035	155.907	
, dull	0.070	155.977	
CLAYSTONE, light grey brown, wavy irregular coaly wisps and lenses throughout, bedding highly irregular, abrupt top and base, irregular	0.060	156.037	

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
COAL, dull, abrupt base	0.085	156.122	
CLAYSTONE, white cream, abrupt base	0.030	156.152	
COAL, dull	0.030	156.182	
CLAYSTONE, white cream, abrupt top and base	0.010	156.192	
COAL, dull with minor claystone pennybands, abrupt base	0.410	156.602	
CORE LOSS	0.048	156.650	
COAL, dull	0.040	156.690	
SILTSTONE, light grey, fissile, slightly carbonaceous at top, rare carbonaceous wisps and lenses	0.530	157.220	
SANDSTONE, light grey to grey green, fine to medium with coarse phases, quartz-lithic, well sorted, subrounded, well cemented, occasional siltstone bands, laminations parallel wavy and straight, defined by dark grey mudstone, well bedded, thickly to very thickly bedded, bright coal band at 158.8 m 0.030m thick, siltstone bands fissile, abrupt base	7.905	165.125	

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
MUDSTONE, grey green, abrupt base	0.170	165.295	
COAL, dull, hard	0.1-0	165.395	
CLAYSTONE, black to dark grey, carbonaceous, fissile	0.610	166.005	
CLAYSTONE, light grey, abrupt top and base	0.040	166.045	
MUDSTONE, dark grey, well bedded, silty phases and bands throughout, intraformational clasts towards base of unit, clasts of mudstone	0.390	166.435	
COAL, dull	0.030	166.465	
, dull, silty band towards middle of unit, unit has transitional upper and lower boundary	0.320	166.785	
CLAYSTONE, buff brown, silty in part, gradational base	0.130	166.915	
SILTSTONE, green grey, fine sandstone phases in part	0.580	167.495	
CLAYSTONE, mid grey green, minor carbonaceous wisps and laminations, fractures spaced less than 0.10m towards base, 5 in 0.20m, 40° to LCA, planar regular	0.670	168.165	

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, white buff, highly fissile	0.025	168.190	
SANDSTONE AND SILTSTONE INTERBEDDED, ratio 70:30. Sandstone, grey green, some light grey brown bands, fine to medium, lithic; siltstone, green grey, well bedded, moderately thickly bedded, numerous laminations parallel wavy, micro cross laminations sporadic, dip less than 5°, minor coaly fragments and wisps, single open fracture with slickensides inclined 30° to LCA at 171.10 m, abrupt base	6.590	174.780	
CLAYSTONE, dark grey blue, laminated with green grey laminae	0.115	174.895	
CLAYSTONE, dark grey, carbonaceous in part, slightly fissile	0.290	175.185	
SANDSTONE AND CLAYSTONE INTERBEDDED, ratio 90:10. Sandstone, dark brown green, medium, lithic; claystone, dark grey, carbonaceous	0.220	175.405	
CLAYSTONE, black, carbonaceous, fissile, very sporadic stony coal pennybands, silty towards base	1.040	176.445	

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE AND CLAYSTONE INTERBEDDED, ratio 90:10. Sandstone, mid grey, coarse, lithic; claystone, coaly	0.195	176.640	
SANDSTONE, light grey, coarse, lithic, moderately sorted, well bedded, moderately thickly bedded, numerous wisps, lenses and laminations of coaly material and carbonaceous material, dip 7°, pyrite blebs sporadic, pyrite also along bedding partings	4.650	181.290	
CLAYSTONE, brown buff, carbonaceous in part, silty bands and phases towards base, fissile	0.950	182.240	
SANDSTONE AND MUDSTONE INTERBEDDED, ratio 70:30. Sandstone, buff brown grey, medium to coarse, lithic, moderately sorted; mudstone, dark grey, carbonaceous, parallel to irregular laminations throughout, scour and fill structures, well bedded, fissile in part, abrupt base	1.840	184.080	
CLAYSTONE AND SILTSTONE LAMINATED, ratio 70:30. Claystone, black to dark grey; siltstone, buff brown, laminations irregular, moderately well bedded, single open regular planar fracture at 185.0m slicken-sided, calcite lined	1.725	185.805	

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, mid grey brown, highly fissile, gradational base	0.380	186.185	
CLAYSTONE, black, carbonaceous, dense	0.430	186.615	
COAL, dull, dense	0.050	186.665	
CLAYSTONE, black, coaly	0.058	186.723	
CLAYSTONE, black, carbonaceous, fissile	0.242	186.965	
COAL, dull, compact	0.075	187.040	
, stony	0.047	187.087	
CLAYSTONE, green grey, carbonaceous at top, minor fracture at top 45° to LCA	1.100	188.187	
MUDSTONE, buff brown, intra-formational clasts of mudstone in top 0.050 m of unit, abrupt base, fissile, carbonaceous band of mud pellets in middle of unit, abrupt base	2.300	190.487	
COAL, dull with minor bright bands	0.275	190.762	
CLAYSTONE, black, carbonaceous in part, basal sandstone unit 0.115m thick abrupt base	0.520	191.282	

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, black, carbonaceous	0.115	191.397	
CLAYSTONE AND SANDSTONE INTERBEDDED, ratio 85:15. Claystone, brown grey, highly fissile; sandstone, brown, lithic, medium	1.702	193.099	
SANDSTONE, green grey, medium, quartz-lithic to lithic, well sorted, well cemented, laminations defined by siltstone regular parallel straight, bedding dip <7°, well bedded, thickly to massive bedding, minor claystone bands rare - up to 0.040m thick, abrupt base	19.993	213.092	
CLAYSTONE, green, highly fissile, abrupt base	0.560	213.652	
SANDSTONE, white cream, hard, well cemented, disturbed irregular laminations of carbonaceous material, medium, lithic, abrupt top and base, irregular boundaries	0.110	213.762	
SANDSTONE, light grey green, medium, lithic, well sorted, fining upward cycle, abrupt base, carbonaceous mudstone at top 0.060m of unit, siltstone phases within top 0.50 m of unit, siltstone fissile, well bedded, dip <5°	1.960	215.722	

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, brown greey grey, carbonaceous in parts, highly fissile	0.750	216.472	
CLAYSTONE LAMINITE, claystone and fine sandstone 90:10. Claystone dark green grey, sandstone buff cream, numerous sandstone dykelettes (infilling mud cracks?), laminations parallel wavy, regular	0.685	217.157	
CLAYSTONE, black, carbonaceous, lower boundary formed by steep plane slickensided, lined with calcite	0.080	217.237	
CLAYSTONE AND SANDSTONE INTER-BEDDED, ratio 90:10. Claystone, green grey, fissile. Sandstone, light green grey, fine to medium, lithic, minor mudstone pellet phases	2.750	219.987	
COAL, dull, calcite along cleat surfaces	0.140	220.127	
CLAYSTONE, green grey, carbonaceous at top, single closed fracture at 220.73, 50° to LCA, partly slicken-sided	0.890	221.017	

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, dark grey green, carbonaceous in part, fissile, buff puggy claystone towards base	0.135	221.152	
SANDSTONE, light buff to green grey, fine to medium, lithic, abrupt base, carbonaceous lenses, sporadic	0.200	221.352	
CLAYSTONE AND SILTSTONE LAMINITE, ratio 80:20. Claystone, dark grey to black; siltstone, light grey to mid grey, laminae parallel straight, carbonaceous at base, base abrupt	0.360	221.712	
SANDSTONE, light grey, fine coarsening to medium towards base, claystone at top 0.70 m of unit, well bedded, dip <5°, sporadic coal fragments and plant fragments abrupt base	8.793	230.505	
COAL, dull with minor bright bands, pyrite along cleat surfaces	0.115	230.620	
SANDSTONE, SILTSTONE AND CLAYSTONE INTERBEDDED, ratio 60:20:20. Sandstone, light grey to cream, medium, quartz-lithic, well cemented, bioturbated at base; siltstone, grey green; claystone, dark grey green, bedding <5°, scour and fill structures, abrupt base	3.225	233.845	

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
MUDSTONE, black, carbonaceous, fissile, well formed sandstone dykelette, gradational base	0.170	234.015	
MUDSTONE, buff brown, pelletoidal, transitional base	0.080	234.095	
CLAYSTONE, grey green, fissile, coarsening down into fine sandstone, abrupt base, base bioturbated	0.505	234.600	
SANDSTONE, buff brown, medium, quartz-lithic, well cemented, abrupt base, claystone towards middle of unit	1.140	235.740	
MUDSTONE, black, carbonaceous, fissile, plant remains along bedding partings	0.080	235.820	
CLAYSTONE,SANDSTONE AND SILTSTONE INTERBEDDED, ratio 90:5:5. Claystone, dark grey green to black, carbonaceous in part; sandstone, light grey, medium, showing irregular laminations, disturbed bedding, abrupt bases; siltstone, dark grey; sandstone blebs within claystone; claystone fissile, abrupt base, irregular	2.840	238.660	

CORNWALL COAL ST PAULS RIVER D.D.H. 1

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE, cream white, medium, quartz-lithic to quartz-arenite, well cemented, cement siliceous, numerous laminations of coaly to carbonaceous material in upper part of unit, numerous scour and fill structures, load structures, infilled worm burrows, laminations disturbed in part, wavy to irregular, rip up structures, blebs and clasts of mudstone sporadic, massive bedding, laminations dip up to 25°, cross laminations sporadic	11.240	249.90	

BASE OF HOLE

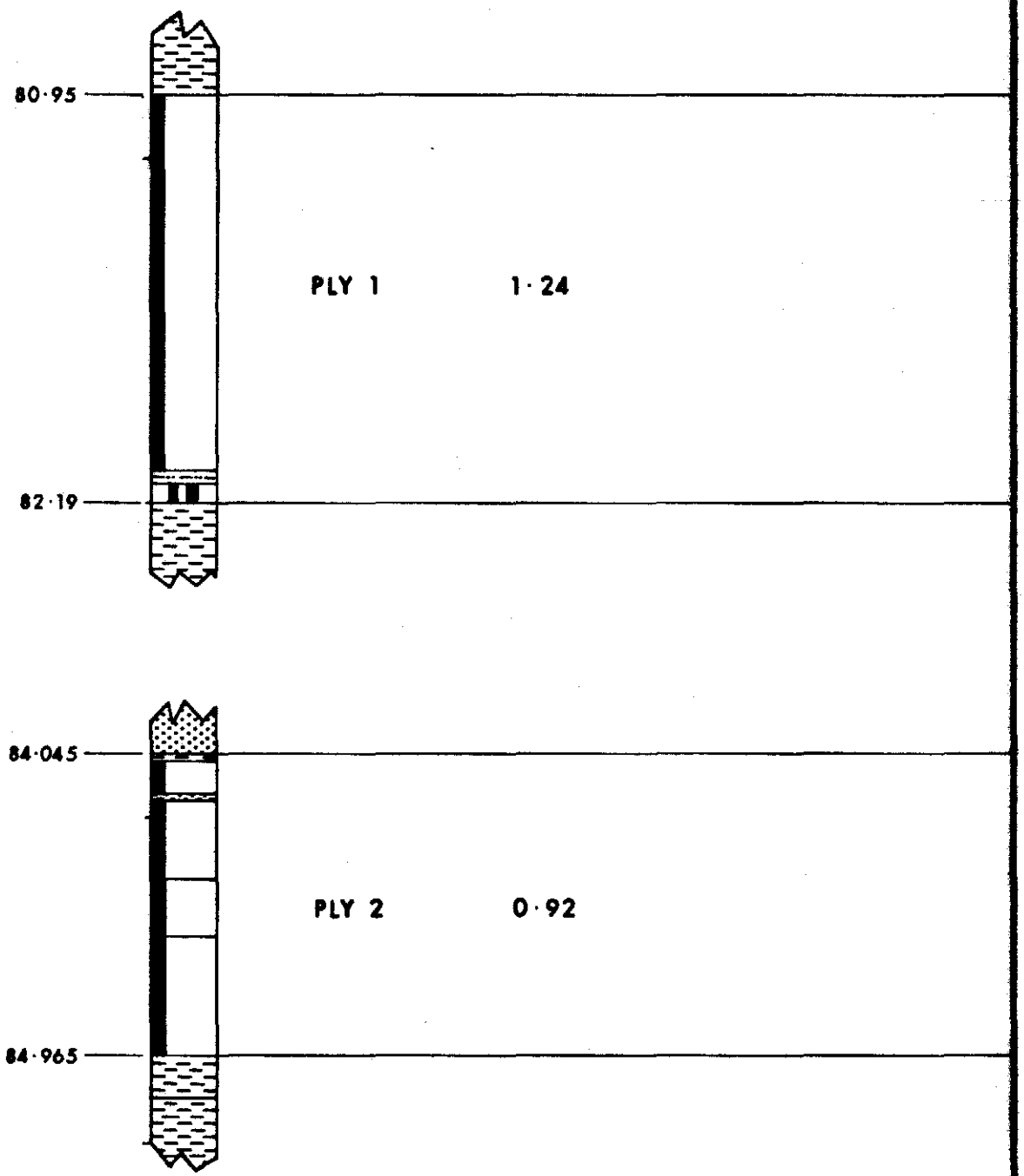
026

241051

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 1



5 cm

SCALE 1:20 DRAWN C.F.R.P. DATE 4/12/84 PAGE 1 OF 1

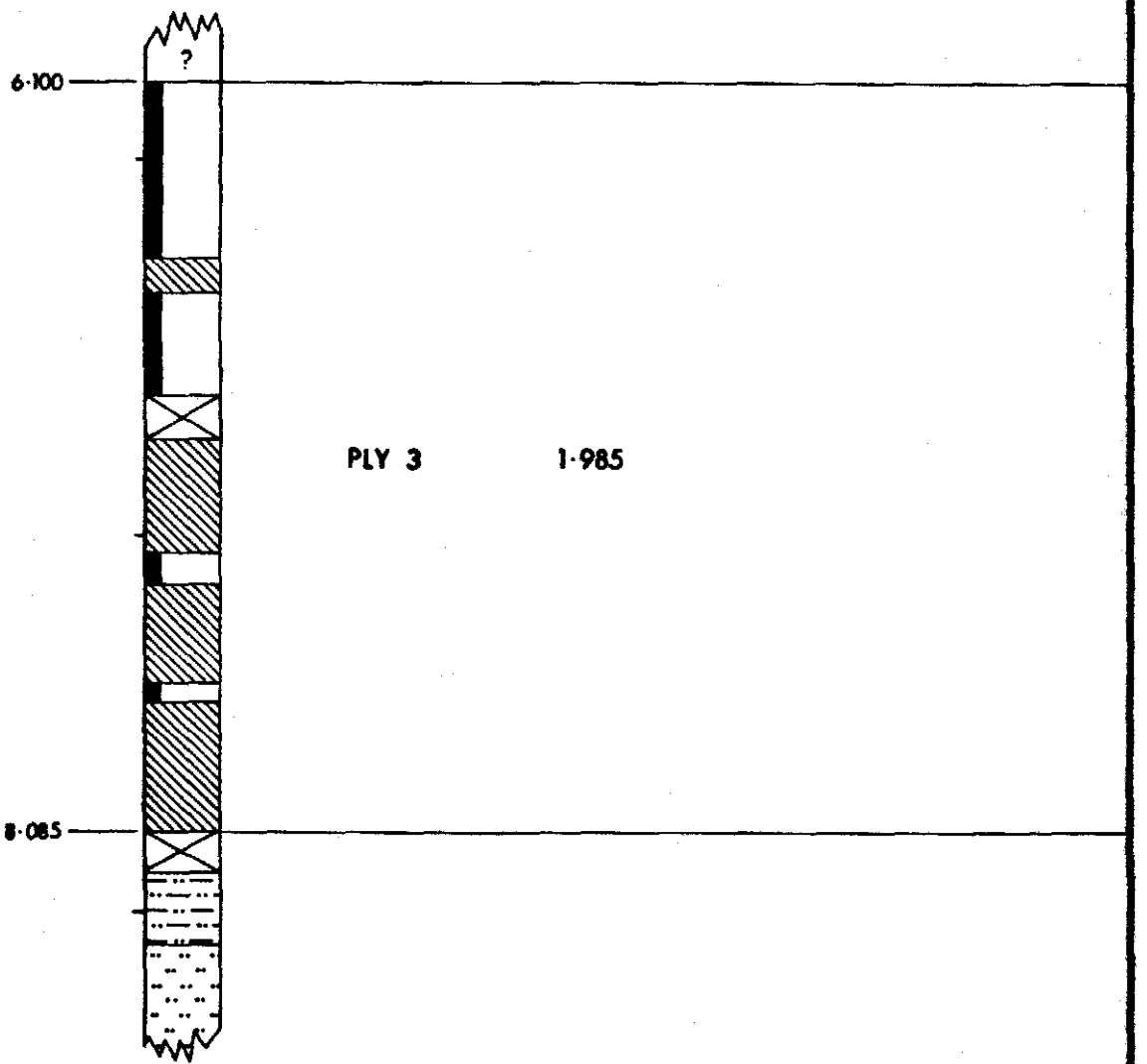
027

241052

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 1



5 cm

SCALE 1:20 DRAWN C.F.R.P. DATE 4/12/84 PAGE 1 OF 1

028

241053

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 & Assoc. Pty Limited
P.O. Box 34
Willoughby NSW 2068

Attn: Mr. C. Parbury

REPORT NO .SL2814... CLIENT REF. NO .....DDH1.....

DATE SAMPLES IN ..17/9/84.. DATE REPORT OUT ..19/9/84..

REPORT TITLE: ANALYSIS OF COAL PLIES FROM TASMANIA

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 (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

029

241054

SGS Australia Pty. Ltd.

REPORT No: SL2814

Analysis \ Sample Ref.		DDH 1 Ply 1 *	DDH 1 Ply 1 **		DDH 1 Ply 2 *	DDH 1 Ply 2 **	
Total Moisture	%						
Moisture	%	3.1	-		3.1	-	
Ash	%	28.7	29.6		29.0	29.9	
Volatile Matter	%	26.6	27.5		26.2	27.0	
Fixed Carbon	%	41.6	42.9		41.7	43.1	
Crucible Swelling No.							
Specific Energy Mj/kg							
Total Sulphur	%						
Carbon	%						
Hydrogen	%						
Nitrogen	%						
Oxygen(plus errors)	%						
Carbon Dioxide	%						
Chlorine	%						
Relative Density		1.53	-		1.51	-	
Mass Received (kg)		3.002			1.972		

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
**dry

Colin Meads-Manager
Laboratories

030

241055

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,
156 Mowbray Road,
Willoughby N.S.W. 2068

Attn: Mr. C. Parbury.

REPORT NO SL 2825 . . CLIENT REF. NO . . . . . .

DATE SAMPLES IN . . 2/10/84. . DATE REPORT OUT .4/10/84 . . .

REPORT TITLE: Analysis of Coal Sample:
St. Paul's River DDH 1 - Ply 3

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 XXXXX~~	~~Sxxxxxx~~
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

Sample supplied by client.

031

241056

SGS Australia Pty. Ltd.

REPORT No: SL2825

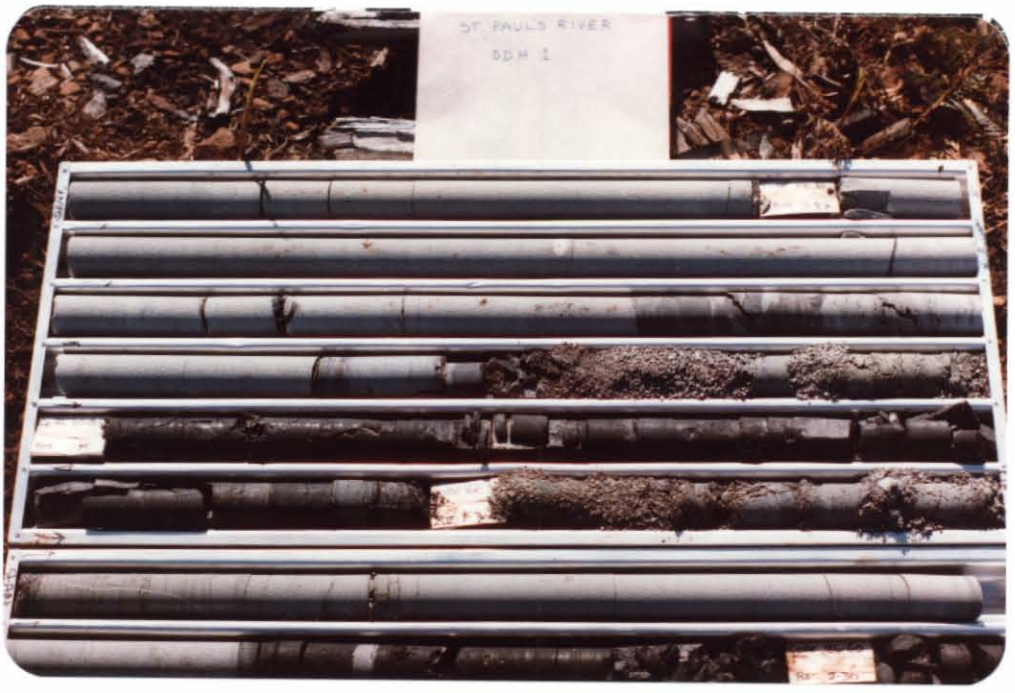
Analysis \ Sample Ref.	St.Paul's River DDH-PLY3					
Total Moisture %						
Moisture %						
Ash ** %	78.5					
Volatile Matter %						
Fixed Carbon %						
Crucible Swelling No.						
Specific Energy Mj/kg						
Total Sulphur %						
Carbon %						
Hydrogen %						
Nitrogen %						
Oxygen(plus errors) %						
Carbon Dioxide %						
Chlorine %						
Relative Density **	2.29					
Mass (kg) *	5.342					

FUSIBILITY OF COAL ASH (Atmosphere): Sintered Alumina Support

Temperatures ^{o}C at Characteristic Shapes						
Initial Deformation						
Sherical						
Hemispherical						
Flow						
Comments:						

BASIS RESULTS REPORTED ON *As received
**Air dried

COLIN MEADS-MANAGER
LABORATORIES



St Pauls River DDH 1 -

Ply 1, from 80.950m to 82.190m
Ply 2, from 84.045m to 84.965m

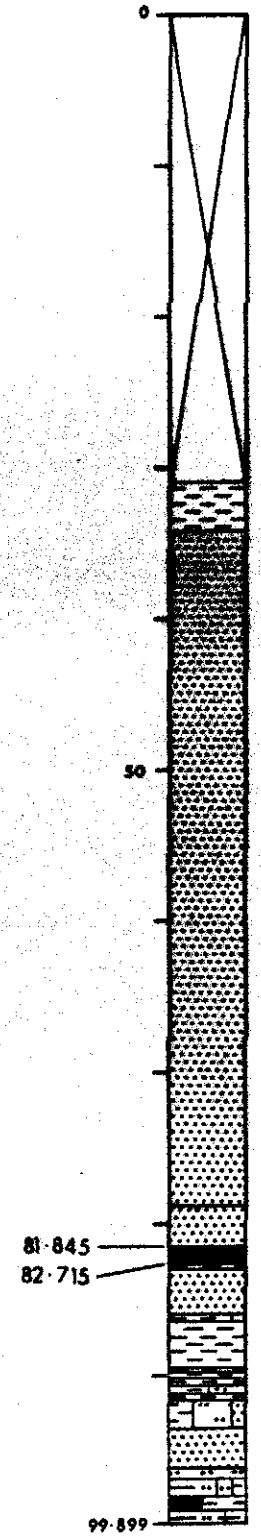
033

241058

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 2



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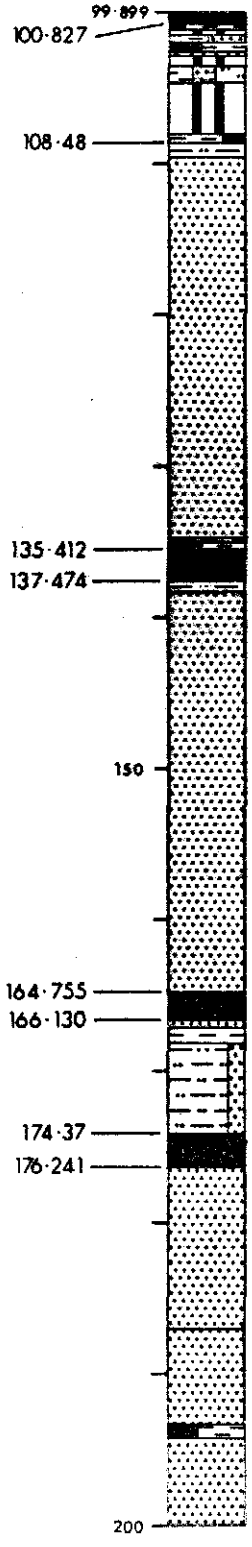
SCALE 1:500 DRAWN C.F.R.P. DATE 3/12/84

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 2



5 cm

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

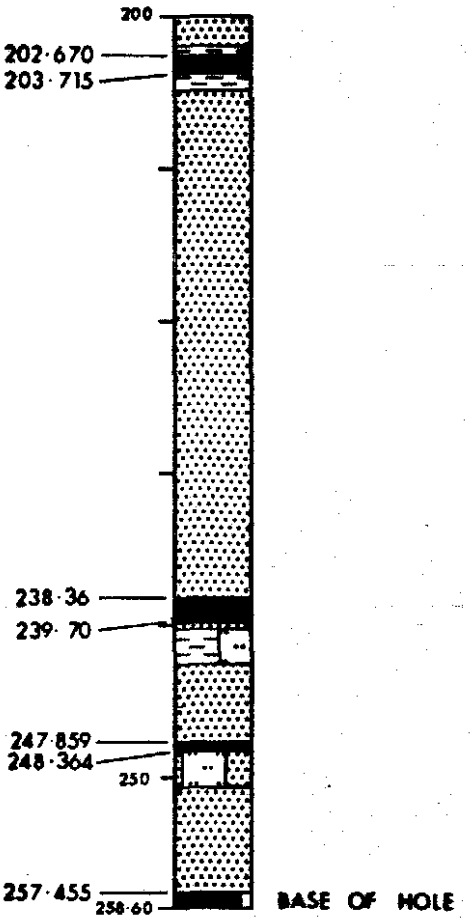
035

241060

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 2



5 cm

SCALE 1:800 DRAWN C.F.B.P. DATE 3/12/84 PAGE 3 OF 3

CORNWALL COAL ST PAULS RIVER D.D.H. 2

Location: Mt Puzzler
AMG Co-ordinates: E 591 000
N 5382 156
Collar R.L.: 530 m (approx)
Total Depth: 258.60 m

Logged by: C.F.R. Parbury
Drilled by: Stacpoole Drilling
Commenced: 14.9.84
Completed: 26.9.84

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
OPEN HOLE DRILLING - no record of chips down to 31.0 m	31.00	31.00	
CLAYSTONE, buff cream, chert-like, jointing spaced 0.5 m 20° to LCA planar regular, core broken in part, very broken at base	3.289	34.289	
SANDSTONE, mid grey, medium to coarse, lithic, moderately well sorted, well bedded, thinly to moderately thickly bedded, laminations defined by claystone (black) lenses, wisps and blebs, bedding dip <5°, sporadic large blebs of claystone, irregular flattened in plane of bedding, poorly cemented in part, micaceous along partings, coal band 0.170 m thick at 54.55 m, highly broken claystone band at 57.40 m, 0.300 m thick, coaly claystone at 57.70 m, 0.160m thick, joint regular planar 15° to LCA at 58.0 m, joint planar irregular, subparallel to LCA at 58.4 m	44.696	78.985	

CORNWALL COAL ST PAULS RIVER D.D.H.2

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE, dark grey, medium, lithic, laminations of carbonaceous material wisps and blebs, common fragments of bright coal wisps, well cemented	2.750	81.735	
SILTSTONE, black, carbonaceous, abrupt base and top	0.110	81.845	
COAL, dull	0.070	81.915	
, dull	0.100	82.015	
, stony	0.220	82.235	
, dull with minor bright bands, calcite along cleats	0.170	82.405	
, stony, very hard, dense	0.130	82.535	
, dull with minor bright bands, calcite along cleats	0.180	82.715	
CLAYSTONE, black, very hard, siliceous, chert-like	0.340	83.055	
SANDSTONE, mid grey, medium, lithic, poorly cemented, well sorted, regularly bedded, thinly bedded, dip <5°	3.085	86.140	
CLAYSTONE AND SANDSTONE LAMINITE, ratio 80:20. Claystone, dark grey; sandstone, mid grey, laminations parallel wavy to straight, gradational base	0.375	86.515	

CORNWALL COAL ST PAULS RIVER D.D.H. 2

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, buff cream grey, hard, indurated, chert-like scour and fill structure with pelletoidal mudstone soft sediment deformation structures sporadic abrupt base, carbonaceous towards base	3.055	89.570	
CLAYSTONE, black, carbonaceous	0.165	89.735	
CLAYSTONE, mid brown, fissile in part	0.335	90.070	
CLAYSTONE, light green, fissile, abrupt base and top	0.120	90.190	
CLAYSTONE, dark brown, fissile, slaking when wet, coaly towards base	0.110	90.300	
CLAYSTONE, black, hard, indurated, calcite and red material infilling veins, pyrite along vertical fractures, green calcite along jointing parallel to LCA, coaly at top	0.505	90.805	
CLAYSTONE AND SANDSTONE INTER-BEDDED, ratio 90:10. Claystone, black, coaly; sandstone, black, dark grey, lithic, medium calcite along bedding partings	0.515	91.320	

CORNWALL COAL ST PAULS RIVER D.D.H. 2

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, black, carbonaceous	0.360	91.680	
MUDSTONE, SILTSTONE AND SANDSTONE INTERBEDDED, ratio 30:50:20. Mudstone, dark grey, carbonaceous in part; siltstone, mid grey; sandstone, dark grey with white flecks, medium, lithic, well cemented, poorly sorted, well bedded, intraformational clasts throughout, minor scour and fill structures, bedding <5°	1.980	93.660	
SANDSTONE, light grey, medium to coarse, lithic to quartz-lithic, moderately sorted, subangular to angular, well bedded, thinly bedded, claystone band at top of unit, claystone laminated shows micro syn-depositional faulting, abrupt base and top to claystone, abrupt base to unit	2.720	96.380	
SILTSTONE, mid grey, laminated in part, laminations of fine sandstone, convoluted and disturbed bedding, top abrupt angular, irregular	0.615	96.995	
SANDSTONE, mid grey, coarse, lithic, poorly sorted	0.045	97.040	

CORNWALL COAL ST PAULS RIVER D.D.H. 2

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
MUDSTONE, SILTSTONE AND CLAYSTONE INTERBEDDED, ratio 60:20:20. Mudstone, dark grey, carbonaceous; siltstone, mid grey; claystone, light cream, abrupt tops and bases, fissile, minor coaly bands	1.100	98.140	
COAL, stony	0.100	98.240	
COAL AND MUDSTONE INTERBEDDED, ratio 40:60. Coal, dull, heat affected ? hard, indurated, calcite throughout cleats; mudstone, mid grey to dark grey, carbonaceous in part	0.690	98.930	
MUDSTONE AND CLAYSTONE INTERBEDDED, ratio 70:30. Mudstone, dark grey to black, carbonaceous to coaly, fissile, red staining along fracture parallel to LCA; claystone, grey green, minor bands of sandstone sporadic rip up structures	0.735	99.665	
MUDSTONE, dark grey, carbonaceous, silty in part	0.064	99.729	
CLAYSTONE, black, coaly	0.045	99.774	
SANDSTONE, dark grey, fine to medium, lithic	0.020	99.794	

CORNWALL COAL ST PAULS RIVER D.D.H. 2

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, black, coaly	0.045	99.839	
MUDSTONE, black, carbonaceous	0.060	99.899	
COAL, stony	0.080	99.979	
COAL, MUDSTONE AND SILTSTONE INTERBEDDED, ratio 50:30:20. Coal, stony, heat affected ? hard indurated; mudstone, black, carbonaceous; siltstone, dark grey, sandy in part, calciate throughout along cleats	0.848	100.827	
MUDSTONE, black, carbonaceous to coaly, pelletoid fragments throughout	0.290	101.117	
COAL, stony, indurated, heat affected ?, hard, dense, calcite throughout	0.100	101.217	
SANDSTONE, dark grey, medium, lithic, mudstone pellets common	0.073	101.290	
COAL, stony, heat affected ? hard, dense, indurated, calcite throughout	0.205	101.495	
SANDSTONE, mid grey, medium, lithic	0.030	101.525	

042

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CORNWALL COAL ST PAULS RIVER D.D.H. 2

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
MUDSTONE, coaly, hard, dense, indurated, calcite throughout, red ironstaining associated with calcite	0.292	101.817	
SANDSTONE, pink brown, medium, lithic, abrupt base	0.147	101.964	
MUDSTONE, black, carbonaceous	0.032	101.996	
COAL, stony, hard, indurated, heat affected ? calcite throughout, red staining associated with calcite	0.165	102.161	
MUDSTONE, black, carbonaceous, hard, indurated	0.100	102.261	
MUDSTONE, coaly, hard, indurated	0.080	102.341	
COAL, stony, hard, indurated, red calcite throughout	0.145	102.486	
SANDSTONE, mid brown, medium to fine, lithic, coarse at base	0.360	102.846	
CLAYSTONE, black, carbonaceous, fissile	0.020	102.866	
COAL, stony, heat affected ? hard, indurated, red calcite throughout, minor pennybands of mudstone and sandstone, abrupt base	0.585	103.451	

043

CORNWALL COAL ST PAULS RIVER D.D.H. 2

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SILTSTONE, mid brown, white flecks throughout, claystone at base, claystone carbonaceous	0.085	103.536	
SANDSTONE, mid brown, fine, lithic, well bedded, pelletoidal mudstone fragments common	0.203	103.739	
SILTSTONE, mid brown, carbonaceous	0.100	103.839	
MUDSTONE, black, carbonaceous to coaly, hard, indurated, dense, red calcite staining common	0.255	104.094	
SILTSTONE, mid brown, fissile in part, carbonaceous along bedding partings	0.482	104.576	
MUDSTONE, black, carbonaceous, pelletoidal	0.112	104.688	
COAL, heat affected ? hard, indurated, dense, calcite throughout, minor claystone pennybands	0.975	105.663	
CLAYSTONE, black, coaly, fissile	0.130	105.793	
COAL, heat affected ? hard, indurated, dense, calcite throughout	0.260	106.053	

CORNWALL COAL ST PAULS RIVER D.D.H. 2

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, black, soft, puggy, fissile, carbonaceous	0.077	106.130	
COAL, heat affected ? hard, dense, indurated, calcite throughout, minor siltstone and mudstone pennybands, fractured	1.990	108.120	PLY 1 Thickness: 1.99 m
CLAYSTONE, black, carbonaceous, hard, dense, indurated calcite in partings, core broken	0.130	108.250	
CLAYSTONE, coaly	0.075	108.325	
COAL, heat affected ? hard, indurated, dense, calcite throughout, fractured	0.155	108.480	
MUDSTONE, mid brown, carbonaceous in part, laminations wavy and convoluted, sporadic bright bands of coal, interval contains 4 fractures, planar regular to curved irregular, 20° to LCA, transitional base, plant remains along bedding partings	1.010	109.490	

045

CORNWALL COAL ST PAULS RIVER D.D.H. 2

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE, light grey, medium to coarse, lithic to quartz-lithic, well sorted, well cemented, fractures common in part, siltstone at top 0.7m of strata, siltstone has disturbed bedding, fracture 20° to LCA and parallel to LCA, planar regular, curved irregular, seven fractures down to 111.35m, laminations defined by coaly wisps and fragments and carbonaceous lenses, bedding moderately thick to thick, 3 fractures to 114.35 m, 3 close spaced fractures at 115.50m, fracture at 120.0m, 1 set of 3 close spaced fractures at 121.50 m, bedding partings spacing is 0.15m from 123.0m to 130 m, numerous coaly fragments and fossil wood fragments from 123.8 m to 125.0m, numerous fractures from 126.0m to 130.5m, core sheared and broken within this interval	25.285	134.775	
CLAYSTONE, white cream	0.020	134.795	
COAL, dull, stony	0.090	134.885	
MUDSTONE, mid brown, pelletoidal	0.050	134.935	
MUDSTONE, black, carbonaceous	0.050	134.985	

CORNWALL COAL ST PAULS RIVER D.D.H. 2

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)		Remarks
COAL, dull	0.107	135.092		
CLAYSTONE, cream green, soft, slaking, fissile	0.320	135.412		
COAL, stony	0.038	135.450	)	
CORE LOSS	0.101	135.551	)	
COAL, stony	0.050	135.601	)	
MUDSTONE, cream grey, pelletoidal	0.025	135.626	)	
COAL, stony	0.120	135.746	)	
MUDSTONE, buff brown, abrupt top and base	0.040	135.786	)	
COAL, stony	0.045	135.831	)	PLY 2
CLAYSTONE, buff	0.040	135.871	)	Thickness: 2.062m
CLAYSTONE, black, carbonaceous	0.015	135.886	)	
COAL, dull with minor bright bands, calcite throughout	0.292	136.178	)	
CLAYSTONE, white, abrupt top and base, pelletoidal, carbonaceous towards base	0.160	136.338	)	
CLAYSTONE, coaly	0.097	136.435	)	

CORNWALL COAL ST PAULS RIVER D.D.H. 2

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
COAL, dull with minor bright bands	0.290	136.725	
CLAYSTONE AND COAL INTERBEDDED, ratio 70:30. Claystone, white, pelletoidal; coal, dull, calcite throughout	0.110	136.835	
COAL, dull	0.084	136.919	
CLAYSTONE, cream	0.050	136.969	PLY 2
COAL, stony	0.080	137.049	
MUDSTONE AND MUDSTONE INTERBEDDED, ratio 60:40. Mudstone, black, carbonaceous; mudstone, cream, pelletoidal	0.155	137.204	
COAL, stony	0.270	137.474	
MUDSTONE, cream white, disturbed bedding throughout, rip up clasts throughout, bedding convoluted, sporadic bright coal bands	0.680	138.154	
SANDSTONE, light grey, medium, quartz-lithic, well sorted, well bedded, bedding dip less than 5°, fractures common irregular curved 40° to LCA, subsets of fractures spacing about 0.7 m to 0.5 m, within subsets fractures every 0.020m, subset size up to 1.3m thick, some subsets are so sheared			

CORNWALL COAL ST PAULS RIVER D.D.H. 2

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)		Remarks
the rock is friable, poorly cemented	26.601	164.755		
COAL, dull	0.020	164.775	)	
			)	
MUDSTONE, mid brown, pelletoidal	0.045	164.820	)	
			)	
COAL, dull	0.055	164.875	)	
			)	
MUDSTONE, cream brown, fissile, slaking	0.160	165.035	)	
			)	
COAL, dull	0.205	165.240	)	PLY 3
			)	
CLAYSTONE, brown tan, fissile, slaking	0.140	165.380	)	Thickness: 1.355 m
			)	
COAL, dull	0.050	165.430	)	
, dull with minor bright bands	0.680	166.110	)	
CLAYSTONE, light cream grey, bedding disturbed	0.300	166.410		
SANDSTONE, light grey, medium, quartz-lithic, bedding dipping less than 5°, well bedded	0.630	167.040		
CLAYSTONE, cream grey, bedding disturbed, coal band in middle of unit 0.06m thick, numerous fractures, close spaced & irregular	1.050	168.090		

CORNWALL COAL ST PAULS RIVER D.D.H. 2

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)		Remarks
MUDSTONE AND SANDSTONE INTERBEDDED, ratio 80:20. Mudstone, cream grey, silty phases throughout; sandstone, light grey, fine to medium, quartz-lithic, well bedded, dip less than 5°, highly fractured, where sandstone fractured it has become friable, poorly cemented, laminations common in sandstone, parallel wavy	6.205	174.295		
CALCITE, white, infilling a cavity ?	0.075	174.370		
COAL, dull with minor bright bands, sporadic mudstone clasts	0.973	175.343	)	
CLAYSTONE, white, buff, abrupt base and top	0.020	175.363	)	
COAL, dull	0.160	175.523	)	
MUDSTONE, cream grey, pelletoidal	0.070	175.593	)	PLY 4
COAL, dull	0.150	175.743	)	Thickness 1.946 m
, stony	0.035	175.778	)	
MUDSTONE, cream grey, disturbed laminations throughout, rip up clasts, pelletoidal at base	0.255	176.033	)	

CORNWALL COAL ST PAULS RIVER D.D.H. 2

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
MUDSTONE, brown, carbonaceous	0.038	176.071	)
			) PLY 4
COAL, dull	0.170	176.241	)
SANDSTONE, light grey, medium to coarse, quartz-lithic, well sorted subangular, well cemented, bedding less than 5°, mudstone at top 0.7m thick, cream, carbonaceous at 0.050m top, minor fractures throughout between 177.45 - 180.45m (3 fractures); 180.45 - 183.35 m (10 fractures); 183.35 - 186.45 m (9 fractures) and 186.45 and base of unit (2 fractures)	10.691	186.932	
SANDSTONE, as above, siltstone at top of unit is 1.2m thick, between top of unit and 189.45 m [11 fractures (5 in 1.2m)], between 189.45 and 192.45 m (4 fractures), basal 0.5m of unit has mudstone intraformational clasts throughout	6.460	193.392	
CLAYSTONE, cream grey, abrupt top and base	0.065	193.457	
MUDSTONE, brown, carbonaceous at base	0.200	193.657	

CORNWALL COAL ST PAULS RIVER D.D.H. 2

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
MUDSTONE, brown, fissile	0.035	193.692	
COAL, stony	0.145	193.837	
CLAYSTONE, mid brown, fissile	0.210	194.047	
COAL, dull	0.240	194.287	
SANDSTONE, light grey, medium, quartz-lithic, well sorted, sub-angular, well cemented, bedding dips less than 5°, mudstone top 0.20m fine sandstone for further 1.0m, fine sandstone fractured, highly sheared between 198.50 m and 201.0 m, fractures curved irregular, sandstone in sheared zone friable, poorly cemented	7.803	202.090	
MUDSTONE, light to medium grey, fissile, abrupt base, fractures throughout	0.580	202.670	
COAL, dull	0.155	202.825	
MUDSTONE, cream, pelletoidal	0.030	202.855	
COAL, dull, cream, claystone penny-band in middle	0.460	203.315	
CLAYSTONE, cream, abrupt top and base	0.020	203.335	

CORNWALL COAL ST PAULS RIVER D.D.H. 2

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
COAL, dull, minor claystone pennybands as pellets, lenses, micro dyklettes	0.380	203.715	
CLAYSTONE, buff, very fissile, slaking, minor carbonaceous lenses, siltstone phases in part towards base	1.010	204.725	
SANDSTONE, light grey, medium to coarse, quartz-lithic, moderately well sorted to well sorted, well cemented, subangular, sporadic claystone blebs and phases, sporadic intraformational clasts well bedded, bedding dip less than 7°, numerous fining upward sequences, sporadic coaly fragments and rip up clasts, abrupt base	33.635	238.360	
COAL, dull with minor claystone pennybands, abrupt base	1.340	239.700	PLY 5
SANDSTONE, light grey cream, fine, fissile, slightly fractured minor carbonaceous wisps and lenses, abrupt base	0.775	240.475	
COAL, stony, abrupt base	0.100	240.575	

CORNWALL COAL ST PAULS RIVER D.D.H. 2

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE AND SILTSTONE LAMINITE, ratio 60:40. Claystone, dark grey, black, carbonaceous in part; siltstone, light grey green, highly fissile, graded base	2.142	242.717	
SANDSTONE, light grey, medium, quartz-lithic, well sorted, rounded to subangular, well cemented	5.142	247.859	
COAL, stony, fissile	0.090	247.949	
, dull	0.415	248.364	
CLAYSTONE, black, coaly, abrupt base	0.080	248.444	
CLAYSTONE, mid brown, highly fissile	0.170	248.614	
CLAYSTONE, dark brown black, coaly, abrupt base	0.055	248.669	
SILTSTONE, light grey, fissile	0.280	248.949	
SANDSTONE, light grey, fine to medium, lithic, well sorted	0.720	249.669	
SILTSTONE, light green grey, highly fissile, gradational base	1.185	250.854	

CORNWALL COAL ST PAULS RIVER D.D.H. 2

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE, light grey, medium to coarse, quartz-lithic, well bedded, moderately cemented, friable in part, claystone towards base	6.601	257.455	
COAL AND CLAYSTONE INTERBEDDED, ratio 90:10. Coal, dull; claystone, light brown, fissile	1.070	258.525	
SILTSTONE, light grey	0.075	258.600	
			BASE OF HOLE

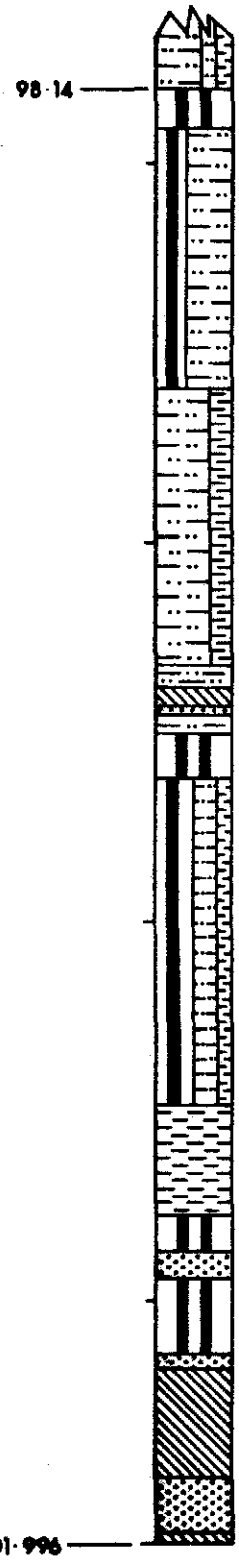
055

241080

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 2



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SCALE 1:20 DRAWN C.F.R.P. DATE 3/12/84 PAGE 1 OF 1

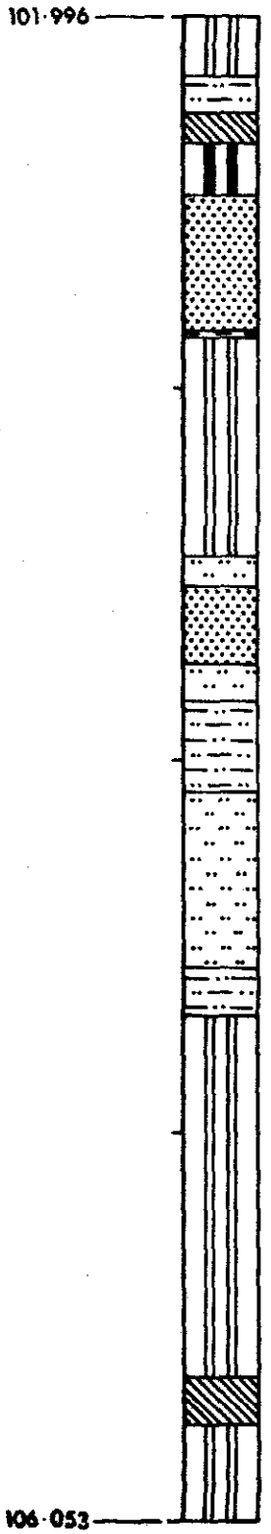
056

241081

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 2



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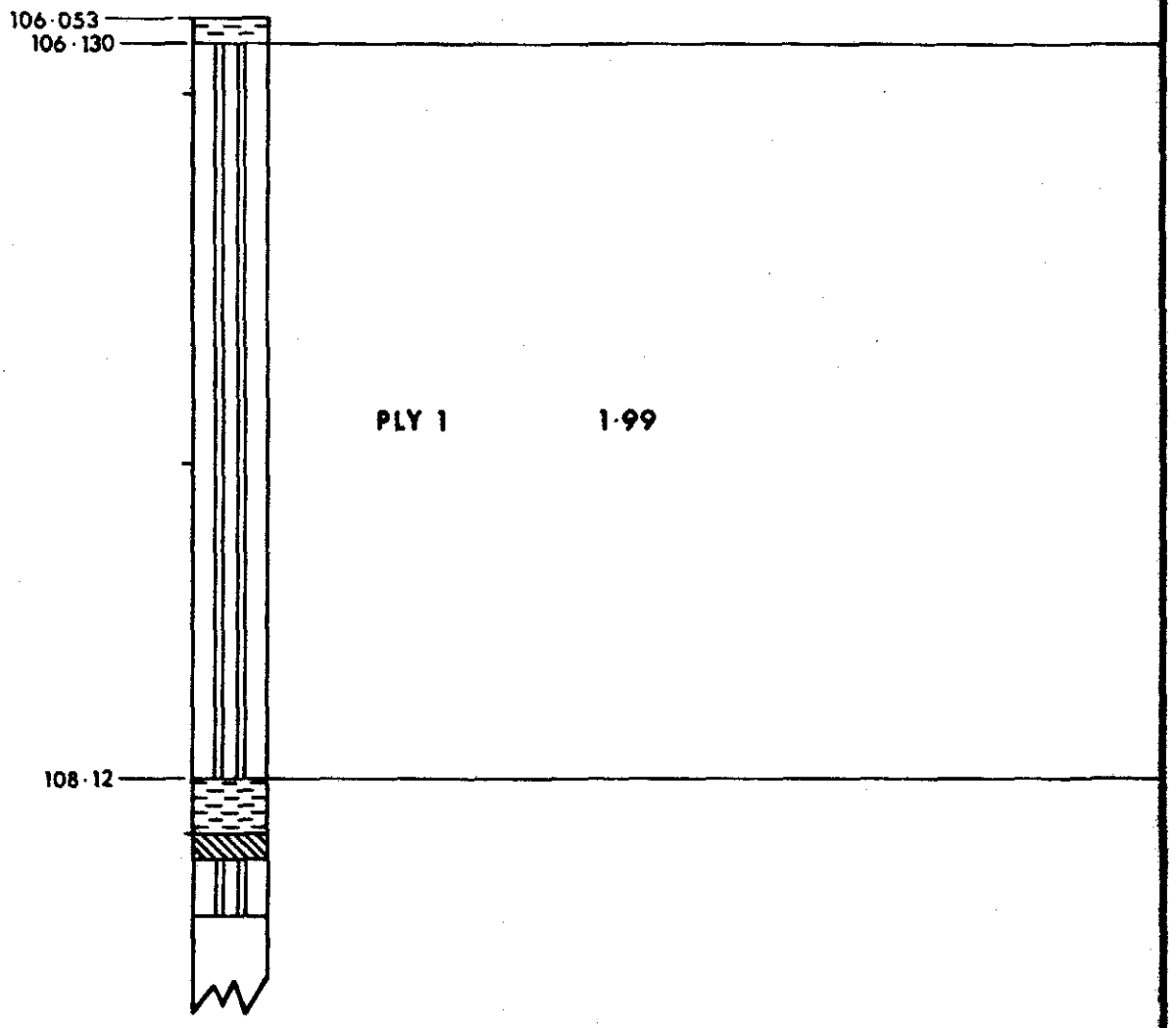
057

241082

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 2



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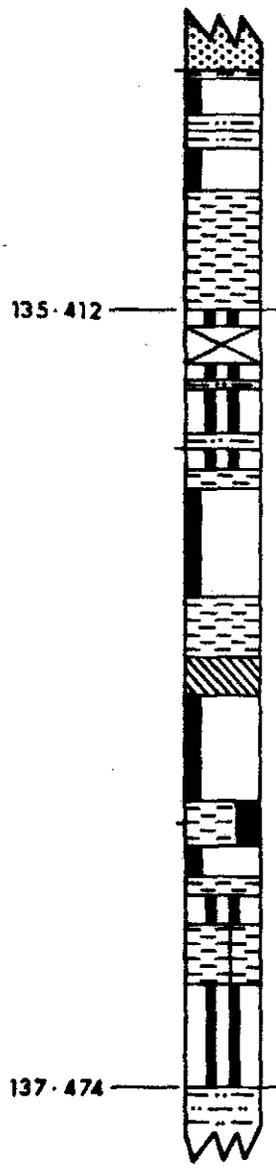
058

241083

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 2



PLY 2 2·062

5 cm

SCALE 1:20 DRAWN C.F.R.P. DATE 3/12/84 PAGE 1 OF 1

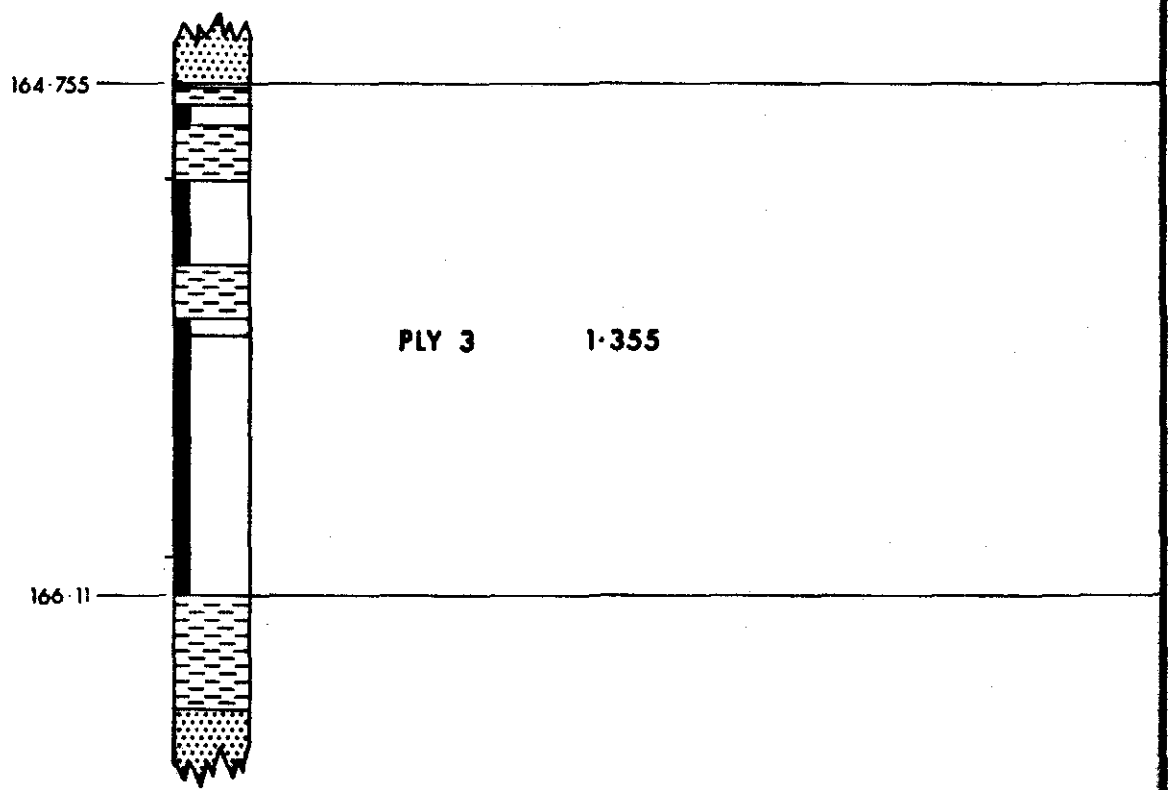
059

241084

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 2



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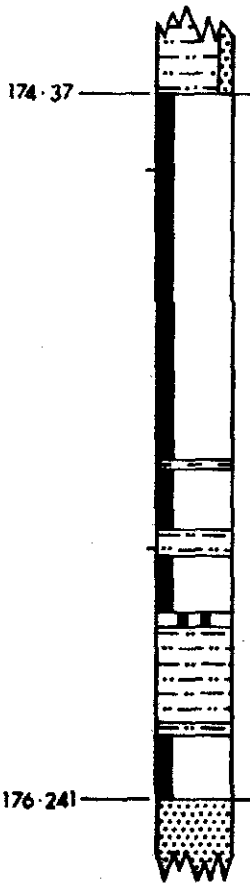
SCALE 1:20 DRAWN C.F.R.P. DATE 3/12/84 PAGE 1 OF 1

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 2



PLY 4 1·871

5 cm

SCALE 1:20 DRAWN C.F.R.P. DATE 3/12/84 PAGE 1 OF 1

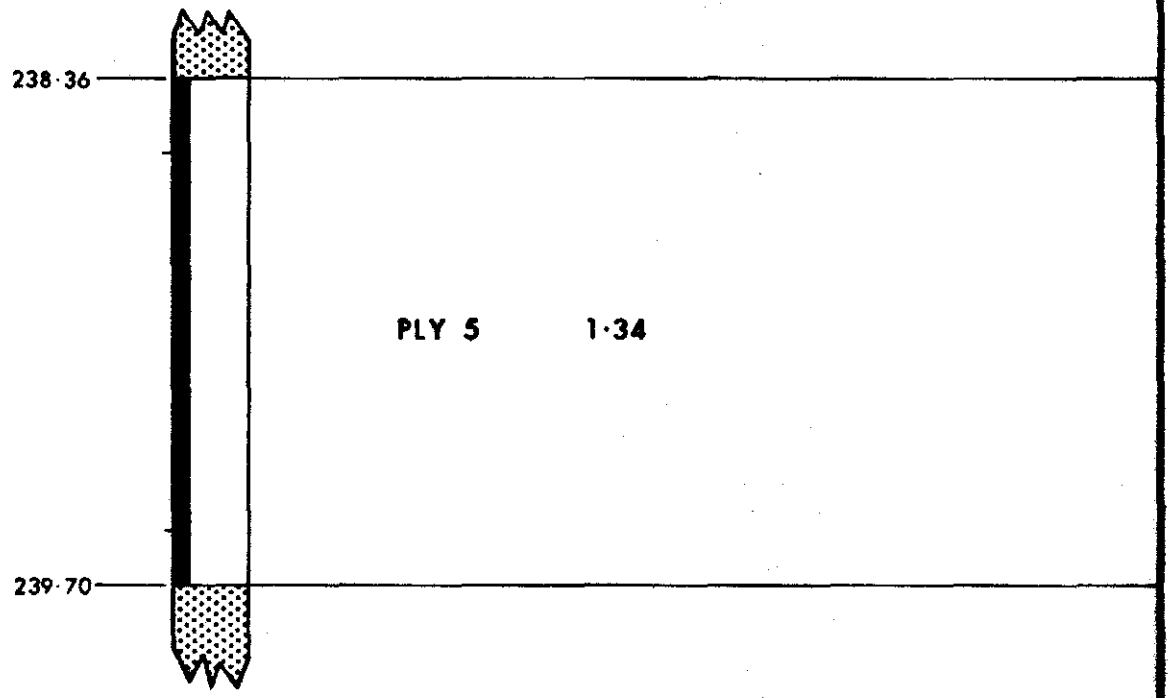
061

241086

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 2



5 cm

SCALE 1:20 DRAWN C.F.R.P. DATE 3/12/84 PAGE 1 OF 1

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
156 Mowbray Road
Willoughby, N.S.W. 2068

Attn: Mr. Charles Parbury

REPORT NO . SL. 2858. . CLIENT REF. NO . . . . . .

DATE SAMPLES IN . 22/10/84. . DATE REPORT OUT . 2/11/84. .

REPORT TITLE: ANALYSES OF BORECORE SAMPLES
DDH 2, 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 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

Borecore samples supplied by client.

063

Re-Issue No. 1 241088

SGS Australia Pty. Ltd.

REPORT No: SL 2858

Analysis \ Sample Ref.		Ply 1 20mmx0	Ply 1 0.5mm	Ply 2 20mmx0	Ply 2 -0.5mm	Ply 3 20mmx0	Ply 3 -0.5mm
Total Moisture	%						
Moisture	%	3.6		4.0		6.5	
Ash	%	54.9	53.5	53.7	62.2	41.5	60.0
Volatile Matter	%	11.6		18.1		20.7	
Fixed Carbon	%	29.9		24.2		31.3	
Crucible Swelling No.							
Specific Energy	Mj/kg						
Total Sulphur	%						
Carbon	%						
Hydrogen	%						
Nitrogen	%						
Oxygen(plus errors)	%						
Carbon Dioxide	%						
Chlorine	%						
Relative Density		1.89		1.82		1.66	
Mass	(kg)	4.73	0.20	4.45	0.21	2.56	0.22

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

064

241089

SGS Australia Pty. Ltd.

Re-issue No. 1

REPORT No: SL 2858

Analysis \ Sample Ref.		Ply 4 20mmx0	Ply 4 -0.5mm	Ply 5 20mmx0	Ply 5 -0.5mm		
Total Moisture	%						
Moisture	%	4.5		3.8			
Ash	%	46.7	55.7	36.0	43.6		
Volatile Matter	%	21.5		18.0			
Fixed Carbon	%	27.3		42.2			
Crucible Swelling No.							
Specific Energy	Mj/kg						
Total Sulphur	%						
Carbon	%						
Hydrogen	%						
Nitrogen	%						
Oxygen(plus errors)	%						
Carbon Dioxide	%						
Chlorine	%						
Relative Density		1.71		1.66			
Mass	(kg)	4.19	0.18	2.43	0.17		

FUSIBILITY OF COAL ASH (Atmosphere): Sintered Alumina Support

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

BASIS RESULTS REPORTED ON Air Dired

COLIN MEADS
MANAGER
LABORATORIES

065

Re-issue No.1 241090

SGS Australia Pty. Ltd.

REPORT No: SL 2858

20 x 0.5mm

Analysis \ Sample Ref.		DDH 2 Ply 4 F1.60	DDH 2 Ply 4 S1.60				
Total Moisture	%						
Moisture	%	5.6					
Ash	%	23.7	73.6				
Volatile Matter	%	27.9					
Fixed Carbon	%	42.8					
Crucible Swelling No.							
Specific Energy Mj/kg		23.62					
Total Sulphur	%	0.57					
Carbon	%						
Hydrogen	%						
Nitrogen	%						
Oxygen(plus errors)	%						
Carbon Dioxide	%						
Chlorine	%						
Relative Density		1.46	2.08				

FUSIBILITY OF COAL ASH (Atmosphere): Sintered Alumina Support

Temperatures ^{o}C at Characteristic Shapes						
Initial Deformation						
Sherical						
Hemispherical						
Flow						
Comments:						

BASIS RESULTS REPORTED ON Air Dried Basis.

COLIN MEADS
MANAGER
LABORATORIES

SGS Australia Pty. Ltd.

REPORT No: SL 2858

COAL ANALYSIS REPORT

FLOAT/SINK ANALYSIS, PLY 4
(20.0 mm x 0.5 mm)

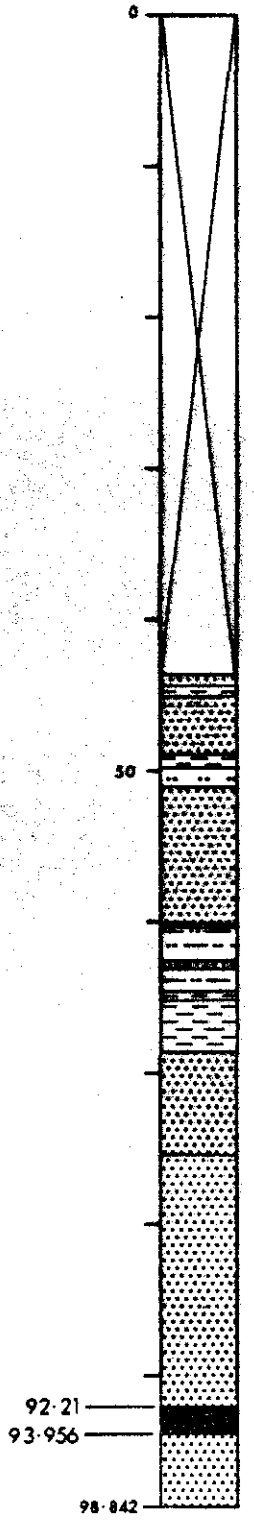
Relative Density	Fractional %		Cumulative %	
	Mass	Ash	Mass	Ash
F1.60	53.9	23.7	53.9	23.7
S1.60	46.1	73.6	100.0	46.7

COLIN MEADS
MANAGER
LABORATORIES

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 3



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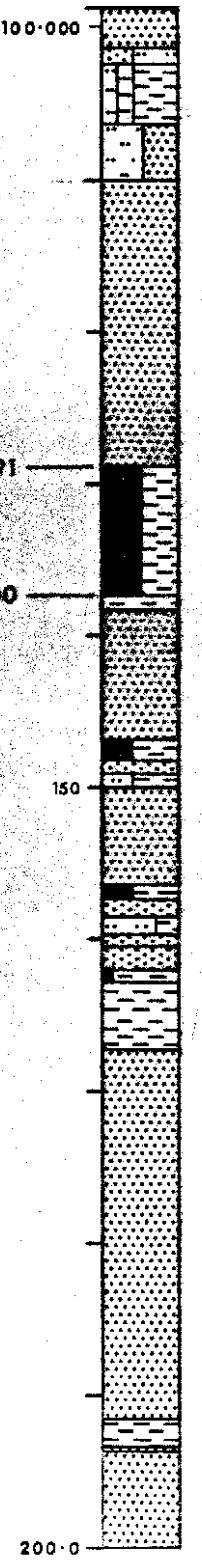
SCALE 1:500 DRAWN C.F.R.P. DATE 4/12/84

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 3



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SCALE 1:500 DRAWN C.F.R.P. DATE 4/12/84

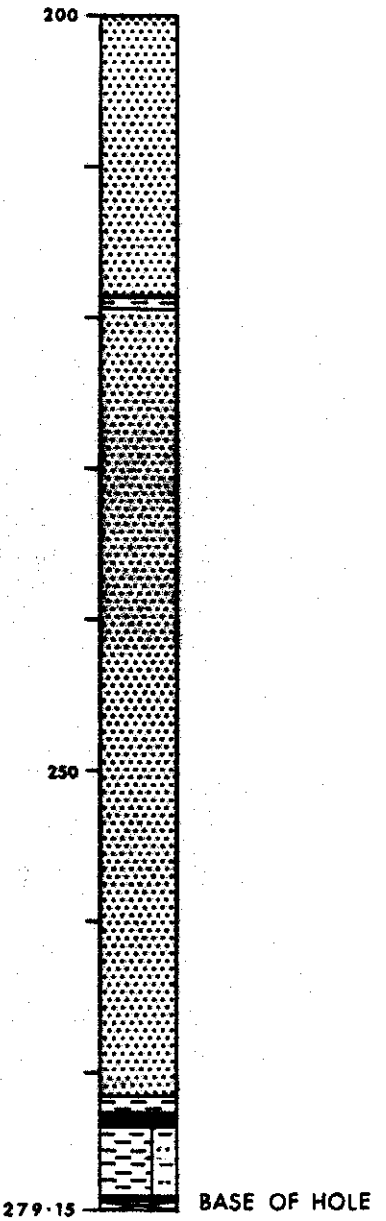
069

241094

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 3



5 cm

SCALE 1:500 DRAWN C.F.R.P. DATE 4/12/84 PAGE 3 OF 3

070

241095

CORNWALL COAL ST PAULS RIVER D.D.H. 3

Location: Mt St John-north
AMG Co-ordinates: E 589 750
N 5375 000
Collar R.L.: 470 m approx.
Total Depth: 279.15 m

Logged by: C.F.R. Parbury
Drilled by: Stacpoole Drilling
Commenced: 18.9.84
Completed: 5.10.84

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
OPEN HOLE - no record of chips to 43.75 m collared in dolerite scree	43.75	43.75	
SANDSTONE, brown buff, weathered, ironstained, medium, soft, friable, puggy claystone band in middle of unit, carbonaceous claystone band towards base, core broken	0.69	44.44	
CLAYSTONE, black to dark grey, highly fissile, slakes when wet, abrupt base, thin sandstone band at base	0.61	45.05	
SANDSTONE, mid grey, medium, lithic, poorly sorted, poorly cemented, friable, subangular, well bedded, numerous coaly and carbonaceous fragments, sporadic pebbles, pebbles quartzite, pebbles common at base	3.865	48.915	
CLAYSTONE, black to dark grey, highly fissile, carbonaceous in part, coaly at top 0.10m gradational base	0.820	49.735	

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SILTSTONE, dark grey, moderately fissile, minor siltstone phases in part	1.385	51.120	
SANDSTONE, mid grey, medium, lithic, moderately sorted, sub-angular, moderately cemented, well bedded, dip less than 5°, bedding massive, micaceous along partings, abrupt base	9.135	60.255	
COAL, dull with minor bright bands	0.305	60.560	
MUDSTONE, dark grey to black, carbonaceous in part, fissile towards base, minor bright coal pennybands, calcite along joints, minor grey brown, puggy claystone phases	1.905	62.465	
SANDSTONE, light to mid grey, fine, lithic to quartz-lithic, siltstone top and base, well bedded, siltstone fissile, calcite along irregular joints	0.690	63.155	
MUDSTONE AND CLAYSTONE INTERBEDDED, ratio 60:40. Mudstone, mid grey brown; claystone, black, well laminated	1.525	64.680	

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
MUDSTONE, cream green, highly fissile, slakes when wet, puggy	0.685	65.365	
CLAYSTONE, black, carbonaceous in part, puggy, soft	0.100	65.465	
CLAYSTONE, mid brown grey, indurated, hard, fissile bands, sporadic	1.355	66.820	
CLAYSTONE, black, carbonaceous, moderately fissile	1.750	68.570	
SANDSTONE, mid to light grey, fine, lithic, moderately well sorted, well bedded, numerous claystone bands up to 0.6 m thick, claystone carbonaceous, fissile, numerous fracture sets, fractures within sets very close spaced, high irregular, inclined to LCA 20°, sandstone has disturbed laminations, syndepositional deformation structures	6.840	75.410	
SANDSTONE, light grey, medium, quartz-lithic, well sorted, sub-angular, well cemented, massively bedded, well bedded, carbonaceous phases define straight to wavy laminations and micro cross-			

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)		Remarks
laminations, single fractures sporadic, continuous, rough planar and regular, sporadic pebble and intraformational clast horizons, rip up clasts and thin coal bands in horizon 0.50 m thick at 86.60m mudstone band 0.120m thick, 0.580m above base of unit, abrupt base	16.800	92.210		
COAL, dull, hard, compact	0.114	92.324	)	
CLAYSTONE, brown, soft, slakes when wet	0.025	92.349	)	
COAL, dull, hard, compact	0.332	92.681	)	
SILTSTONE, light grey, abrupt top and base, erosional base	0.040	92.721	)	PLY 1
COAL, dull with minor bright bands	0.095	92.816	)	Thickness: 1.746 m
CLAYSTONE, brown buff, fissile, slakes and swells when wet, abrupt top and base	0.080	92.896	)	
COAL, dull	0.025	92.921	)	
CLAYSTONE, white cream, hard, compact	0.020	92.941	)	
COAL, dull	0.030	92.971	)	

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SILTSTONE, light grey, cream, irregular lenses of carbonaceous material at top	0.035	93.006	
COAL, dull with minor bright bands	0.117	93.123	
SILTSTONE, light grey, hard, compact	0.023	93.146	PLY 1
COAL, dull with minor bright bands	0.230	93.376	Thickness 1.746 m
, dull with numerous bright bands	0.394	93.770	
, stony	0.039	93.809	
CLAYSTONE, dark brown-black, carbonaceous	0.147	93.956	
CLAYSTONE, mid brown, fissile, carbonaceous in part, gradational base	0.250	94.206	
SANDSTONE, light grey, fine to medium, lithic to quartz-lithic, well bedded, well sorted, well cemented, thickly bedded, siltstone phases at top of unit, two fractures in unit, planar rough subparallel to LCA, parallel to wavy laminations, micro cross laminations defined by carbonaceous material	4.636	98.842	

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE AND SILTSTONE INTER-BEDDED, ratio 40:60. Sandstone, light grey, fine, bioturbation structures; siltstone, mid grey, fissile, carbonaceous mudstone band at top, thinly bedded, sporadic coal wisps and lenses	2.515	101.357	
CLAYSTONE, mid grey to black, carbonaceous, fissile, becoming more compact at base	1.046	102.403	
SILTSTONE, mid grey, compact, fine sandstone in part, sandstone infilling structures, gradational base	0.535	102.938	
MUDSTONE, mid grey to dark grey, carbonaceous in part, fissile	0.590	103.528	
CLAYSTONE, brown grading to light cream green, highly fissile, slaking when wet	0.275	103.803	
CLAYSTONE, cream green, puggy, slaking and swelling, abrupt base	0.700	104.503	
SILTSTONE, light to mid grey, hard, compact, abrupt base, fractures at top and base, slickensides along fracture	0.375	104.878	

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
MUDSTONE, dark brown, moderately carbonaceous, compact at top, fissile at base	0.240	105.118	
CLAYSTONE, dark brown, numerous bright coal pennybands	0.180	105.298	
CLAYSTONE, dark grey, fissile, moderately carbonaceous, numerous coaly lenses and wisps	0.110	105.408	
CLAYSTONE, mid grey, highly fissile, numerous lenses and blebs of siltstone, single smooth planar fracture 45° to LCA in middle of unit	0.900	106.308	
SILTSTONE AND SANDSTONE INTERBEDDED, ratio 55:45. Siltstone, mid grey, fissile; sandstone, light grey, medium, well sorted, well bedded, laminations parallel wavy throughout, numerous scour and fill structures, syndepositional deformation structures, laminated in basal 0.5 m of unit, abrupt base, micaceous along partings, where laminated highly fissile	3.845	110.153	

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE, light grey, medium with coarse fractions, quartz-lithic, well bedded, massive to thickly bedded, minor intra-formational clasts, laminations defined by carbonaceous material bedding dip less than 5°, basal 1.5 m coarse with numerous rip up structures, coaly blebs and intraformational clasts, fractures at 124.1 m and 127.0m, curved irregular	18.838	128.991	
MUDSTONE, dark grey to black, pelletoidal, carbonaceous in part, gradational base	0.092	129.083	
COAL, dull, abrupt base, pyrite blebs sporadic	0.145	129.228	
MUDSTONE, cream fawn, pelletoidal, numerous black carbonaceous wisps and lenses, abrupt base	0.138	129.366	PLY 2
COAL, dull	0.045	129.411	Thickness: 1.818 m
SILTSTONE, light to mid brown, fissile, abrupt base	0.045	129.456	
CLAYSTONE, black, hard, compact	0.120	129.576	
COAL, stony	0.020	129.596	

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
MUDSTONE, black, hard, compact, abrupt base	0.015	129.611	
MUDSTONE, buff cream, pelletoidal	0.020	129.631	
COAL, stony, hard, compact, siltstone cream pennyband at base	0.060	129.691	
, dull, abrupt base	0.080	129.771	
MUDSTONE, cream, pelletoidal	0.010	129.781	
COAL, stony	0.020	129.801	
MUDSTONE, cream, hard, compact, pelletoidal, abrupt base	0.035	129.836	
COAL, dull, hard, compact	0.085	129.921	PLY 2
CLAYSTONE, black, carbonaceous, hard, compact	0.025	129.946	
SANDSTONE, mid grey, lithic, medium	0.062	130.008	
MUDSTONE, buff fawn, compact, pelletoidal, minor carbonaceous wisps	0.056	130.064	
COAL, dull, hard, compact, abrupt base	0.123	130.187	

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, light brown buff, fissile, slaking and swelling when wet, abrupt base	0.032	130.219	
COAL, dull, gradational base	0.034	130.253	
MUDSTONE, dark grey to black, carbonaceous in part, numerous pellets, abrupt base	0.095	130.348	
MUDSTONE, cream buff, pelletoidal, abrupt irregular base	0.060	130.408	
CLAYSTONE, black, coaly	0.077	130.485	PLY 2
COAL, stony	0.038	130.523	
CLAYSTONE, black, coaly	0.038	130.561	
COAL, dull	0.175	130.736	
MUDSTONE, black, carbonaceous, hard, compact, abrupt base	0.073	130.809	
MUDSTONE, cream buff, pelletoidal	0.035	130.844	
CLAYSTONE, light brown cream, slaking and swelling when wet	0.180	131.024	PLY 3 Thickness: 0.215 m

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
COAL, stony, abrupt base	0.042	131.066	
MUDSTONE, mid brown, pelletoidal abrupt base	0.020	131.086	
CLAYSTONE, black, coaly	0.020	131.106	
MUDSTONE, dark grey black, minor pellets	0.070	131.176	
COAL, stony, abrupt base	0.030	131.206	
MUDSTONE, brown tan, fissile, soft in part, abrupt base	0.035	131.241	PLY 4
COAL, dull, soft	0.260	131.501	Thickness: 0.586 m
CLAYSTONE, dark grey black, hard, compact	0.058	131.559	
CLAYSTONE, black, coaly, abrupt base	0.051	131.610	
CLAYSTONE, cream fawn, very soft, highly slaking and swollen when wet, abrupt base	0.285	131.895	PLY 5
COAL, dull, hard, compact	0.108	132.003	
, bright	0.035	132.038	
, dull	0.190	132.228	PLY 6 Thickness: 1.071 m

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
MUDSTONE, brown, tan, soft, fissile, abrupt base	0.047	132.275	
COAL, dull, hard, compact	0.235	132.510	
CLAYSTONE, cream fawn, soft, highly swollen and slaking when wet	0.045	132.555	
CLAYSTONE, black, carbonaceous	0.050	132.605	
CLAYSTONE, cream fawn, highly swollen and slaking	0.185	132.790	PLY 6
MUDSTONE, black, numerous fawn pellets throughout, abrupt base	0.130	132.920	Thickness: 1.071 m
COAL, dull	0.046	132.966	
CLAYSTONE, cream fawn, highly swollen and slaking when wet	0.510	133.476	PLY 7
MUDSTONE, black, carbonaceous, hard, compact	0.050	133.526	
COAL, stony	0.080	133.606	
CLAYSTONE, mid brown black, hard, compact	0.067	133.673	PLY 8 Thickness: 1.052 m
CLAYSTONE, black, coaly, dense, hard	0.085	133.758	

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, cream fawn, highly swollen and slaking when wet	0.105	133.863	
MUDSTONE, black, carbonaceous, hard, compact, dense	0.140	134.003	PLY 8
COAL, dull	0.310	134.313	Thickness: 1.052 m
, dull with numerous bright bands	0.090	134.403	
, dull	0.125	134.528	
CLAYSTONE, cream fawn, highly swollen and slaking when wet	0.180	134.708	PLY 9
COAL, stony, hard, compact, abrupt base	0.128	134.836	
CLAYSTONE, fawn buff, pelletoidal, abrupt base	0.025	134.861	
COAL, stony, gradational base	0.120	134.981	
CLAYSTONE, buff fawn, fissile, minor swelling, pelletoidal at top, abrupt base	0.115	135.096	PLY 10 Thickness: 0.709 m
COAL, dull, abrupt base	0.020	135.116	
CLAYSTONE, buff cream, abrupt base	0.016	135.132	
COAL, dull, abrupt base	0.285	135.417	

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, buff cream, slaking when wet	0.315	135.732	PLY 11
CLAYSTONE, black, coaly, hard, compact	0.145	135.877	
CLAYSTONE, mid brown, fissile, abrupt base	0.025	135.902	
COAL, stony	0.042	135.944	
CLAYSTONE, mid brown, fissile, abrupt base, irregular band	0.015	135.959	
COAL, dull	0.083	136.042	
CLAYSTONE, black, carbonaceous, hard, compact, sporadic lenses and pellets throughout, abrupt base	0.054	136.096	PLY 12
CLAYSTONE, cream white, hard, compact, irregular abrupt base	0.070	136.166	Thickness 1.768 m
CLAYSTONE, black with numerous cream lenses and pellets, abrupt base	0.107	136.273	
COAL, dull	0.135	136.408	
, dull with numerous bright bands	0.095	136.503	
, dull	0.070	136.573	

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
COAL, dull with numerous bright bands	0.600	137.173	PLY 12
CLAYSTONE, grey, hard, indurated	0.033	137.206	
COAL, dull with numerous bright bands, abrupt top	0.025	137.231	
CLAYSTONE, cream white, abrupt top and base	0.020	137.251	
COAL, dull with minor bright bands	0.056	137.307	
, dull and bright	0.140	137.447	
, dull, abrupt base	0.053	137.500	
CLAYSTONE, light grey, fissile	0.965	138.465	
SANDSTONE, light grey, medium, lithic, minor carbonaceous phases, well sorted, subangular, well cemented, well bedded, thickly to massive, carbonaceous phases define laminations, wavy straight parallel, micro cross laminations	8.465	146.930	
COAL, dull with numerous bright bands	0.160	147.090	
, dull with minor bright bands	0.082	147.172	
CLAYSTONE, dark grey, carbonaceous to coaly	0.020	147.192	

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
MUDSTONE, mid grey, numerous coaly wisps and lenses, abrupt base	0.180	147.372	
CLAYSTONE, cream white, hard, compact, abrupt base	0.046	147.418	
MUDSTONE, mid grey, numerous coaly bands	0.040	147.458	
COAL, dull with minor bright bands	0.180	147.638	
CLAYSTONE, mid grey, highly fissile, bedding dip less than 10° highly disturbed bedding, numerous rip up clasts, pellets, intraformational clasts	0.382	148.020	
SANDSTONE, light grey, medium, quartz-lithic, well sorted, well cemented, well bedded, numerous coaly wisps and lenses, numerous coal fragments, single regular planar fracture inclined to LCA 0.5 m from top of unit, numerous intraformational clasts at base, abrupt angular base	1.200	149.220	
CLAYSTONE, mid grey, fissile, irregular angular base	0.400	149.620	
CLAYSTONE, mid grey, breccia	0.190	149.810	

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SILTSTONE, mid grey, fractured throughout, abrupt base, abrupt top	0.330	150.140	
SANDSTONE, light grey, medium to coarse, quartz-lithic, well sorted, well cemented, subangular, numerous coal fragments, coaly wisps and lenses, intraformational claystone blebs, numerous fractures highly irregular, curved, closed at 150.50 m over an interval of 0.7 m massive bedding	6.542	156.682	
COAL, stony	0.120	156.802	
MUDSTONE, buff brown, compact, hard, fissile in part, carbonaceous towards top	0.430	157.232	
SANDSTONE, light grey, fine to medium, lithic, grain size coarser at base, moderately well sorted, well bedded, numerous laminations defined by carbonaceous material, numerous curved fractures in basal 0.5 m of unit, abrupt base	1.283	158.515	
SILTSTONE, mid grey, fine sandstone phases throughout, well bedded, fissile in part, minor infilling structures	0.785	159.300	

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, dark grey to black, carbonaceous in part	0.360	159.660	
SANDSTONE, mid grey, fine, lithic, numerous siltstone phases throughout, parallel wavy to straight laminations throughout, numerous fractures, curved and irregular throughout	0.843	160.503	
SANDSTONE, light grey, medium, quartz-lithic, abrupt base	1.857	162.360	
COAL, dull with minor bright bands	0.050	162.410	
CLAYSTONE, light brown grey, irregular abrupt top and base	0.065	162.475	
COAL, stony	0.096	162.571	
MUDSTONE, brown, fissile, abrupt top and base	0.025	162.596	
CLAYSTONE, mid brown black, carbonaceous	0.032	162.628	
CLAYSTONE, cream white, abrupt base	0.026	162.654	
COAL, dull	0.106	162.760	
CLAYSTONE, dark grey black, carbonaceous, coaly at base	0.065	162.825	

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, mid grey,highly fissile, carbonaceous in part, siltstone throughout towards base	4.485	167.310	
SANDSTONE, light grey, medium to coarse, quartz-lithic, well sorted, well bedded, well cemented, massively bedded, sporadic phases of carbonaceous material defining laminations, laminations parallel straight, sporadic claystone phases highly irregular boundaries and abrupt sporadic intraformational clasts, sporadic extraformational clasts up to 0.050 m in size, claystone phase at 184.5 m highly fractured, fractures at 184.6 m, fractures closed, rough, discontinuous, irregular, curved, subparallel to LCA	24.494	191.804	
CLAYSTONE, green grey, fissile, abrupt top and base	0.105	191.909	
COAL, stony to dull, wisps and lenses of claystone throughout, abrupt base	0.135	192.044	
MUDSTONE, cream grey green, abrupt base, fractures common	0.420	192.464	

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, mid grey, fissile, bright coal pennyband at base	0.100	192.564	
CLAYSTONE, cream fawn, highly fissile, slaking when wet, abrupt top and base	0.122	192.686	
CLAYSTONE, dark grey, carbonaceous in part, bright coal pennyband in middle of strata	0.150	192.836	
CLAYSTONE, mid grey green, fissile and fractures in part	0.352	193.188	
COAL, dull	0.070	193.258	
CLAYSTONE, dark brown, puggy	0.015	193.273	
CLAYSTONE, black, coaly, abrupt base	0.155	193.428	
MUDSTONE, light grey, abrupt base, bioturbated	0.060	193.488	
CLAYSTONE, brown, fawn, highly fissile, slaking when wet	0.340	193.828	
SANDSTONE, light grey green, medium to coarse, lithic, moderately sorted, well cemented, subangular, hard, well cemented, massive, heat affected? in part (from 198m to 207m), siltstone at top of strata 0.4m thick, minor plant remains along bedding partings	24.766	218.594	

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
COAL, dull with minor bright bands	0.290	218.884	
CLAYSTONE, light cream grey, fissile, slaking when wet, sandstone phase 0.040m thick in middle of strata	0.400	219.284	
CLAYSTONE, dark grey black, carbonaceous	0.078	219.362	
SANDSTONE, light grey green, medium to coarse, lithic, well sorted, subangular, well cemented, well bedded, massive, very minor carbonaceous laminations, sporadic intraformational clasts, siltstone on top of strata for 0.4m thick, fractures vary from planar regular to curved irregular with rough surfaces, minor plant remains along bedding partings, thinly bedded from 234 m to 242 m	52.028	271.390	
CLAYSTONE, mid grey green, fissile in part, sporadic fractures, minor carbonaceous bands, numerous plant remains along partings	1.370	272.760	
COAL, dull, minor claystone penny-bands	0.465	273.225	

CORNWALL COAL ST PAULS RIVER D.D.H. 3

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE AND MUDSTONE INTERBEDDED, ratio 70:30. Claystone, mid grey green; mudstone, light grey, fissile, bedding disturbed in part, thinly bedded	5.073	278.298	
COAL, dull	0.250	278.548	
CORE LOSS	0.602	279.150	
			BASE OF HOLE

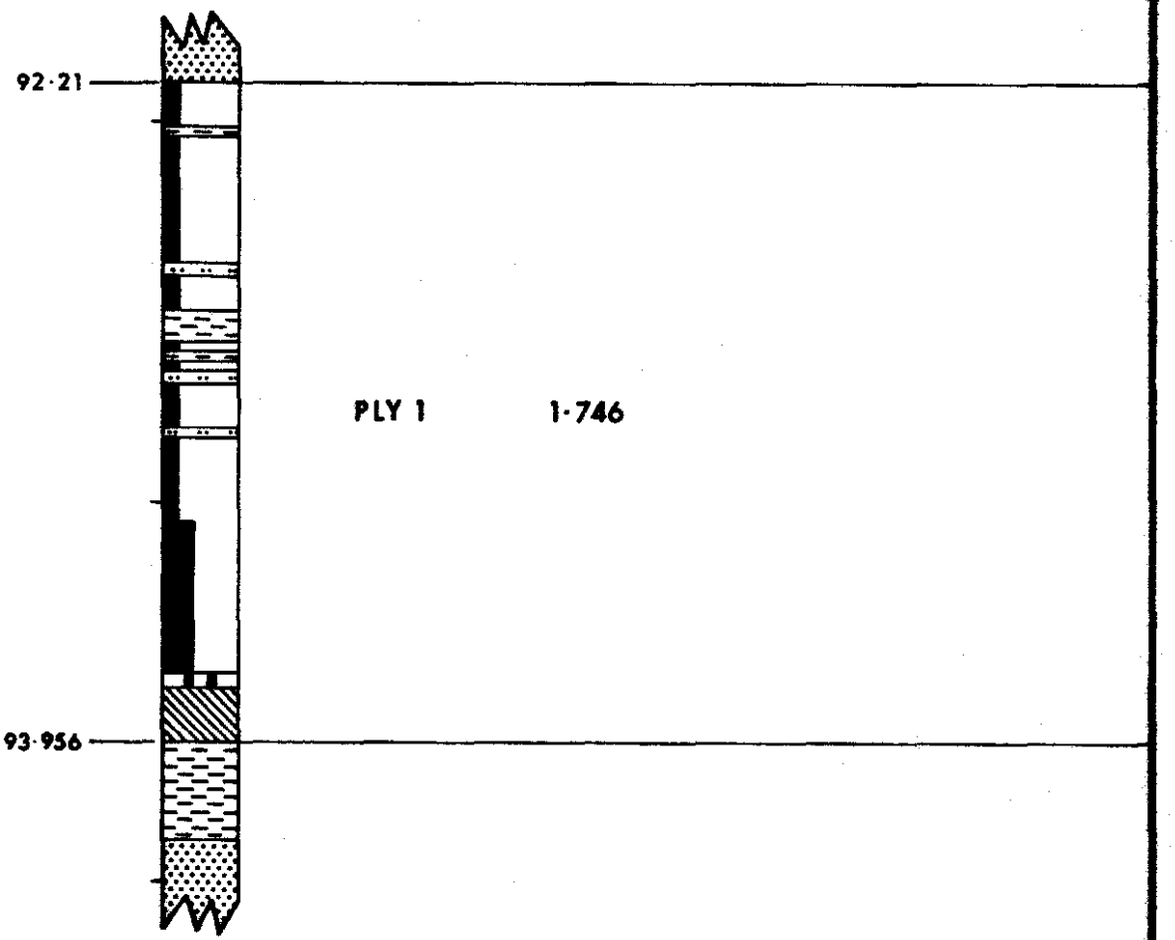
092

241117

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 3



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SCALE 1:20 DRAWN C.F.R.P. DATE October, 1984 PAGE 1 OF 4

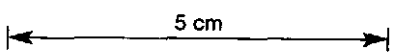
093

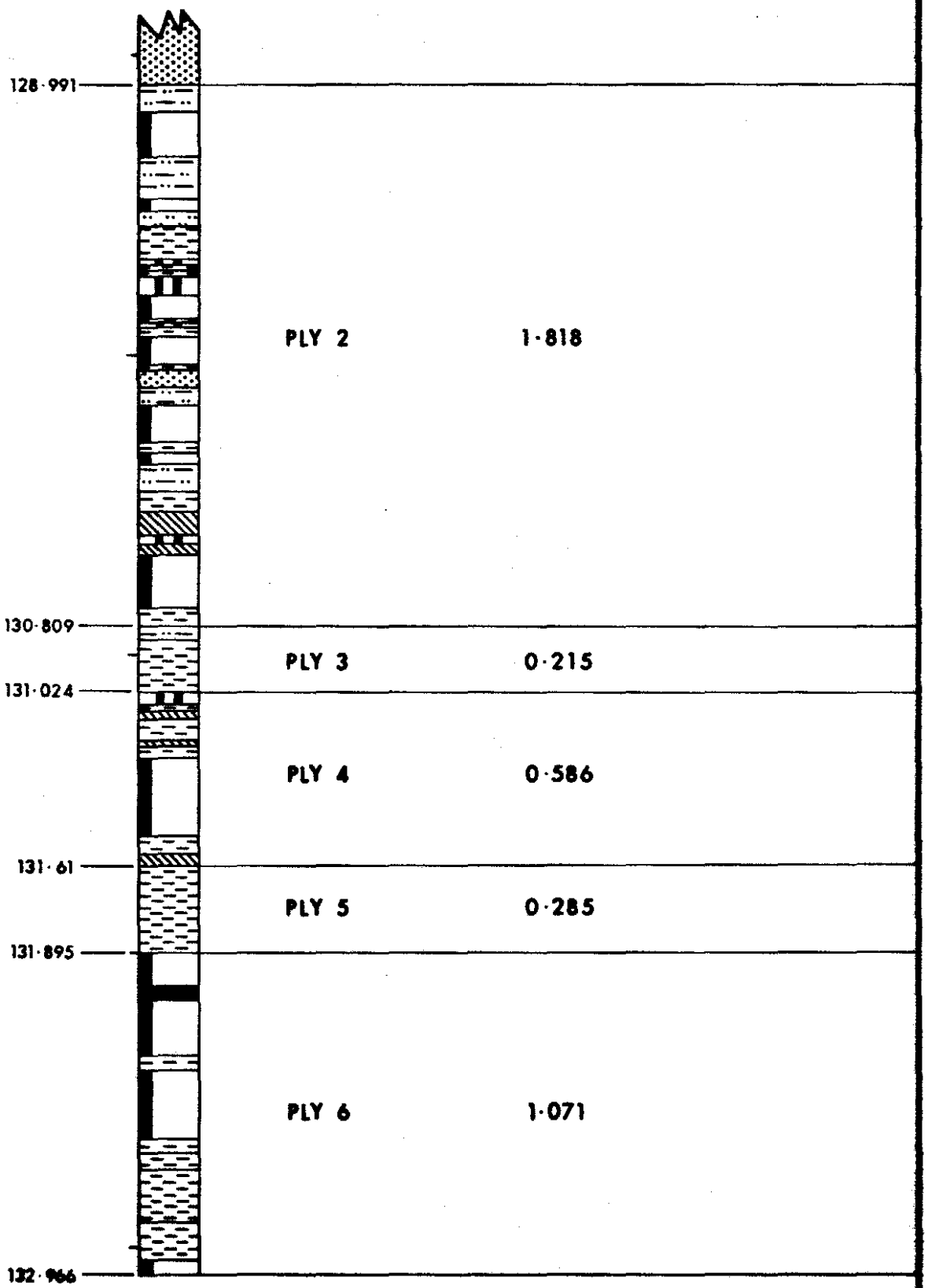
241118

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 3





SCALE 1:20 DRAWN C.F.R.P. DATE October, 1984 PAGE 2 OF 4

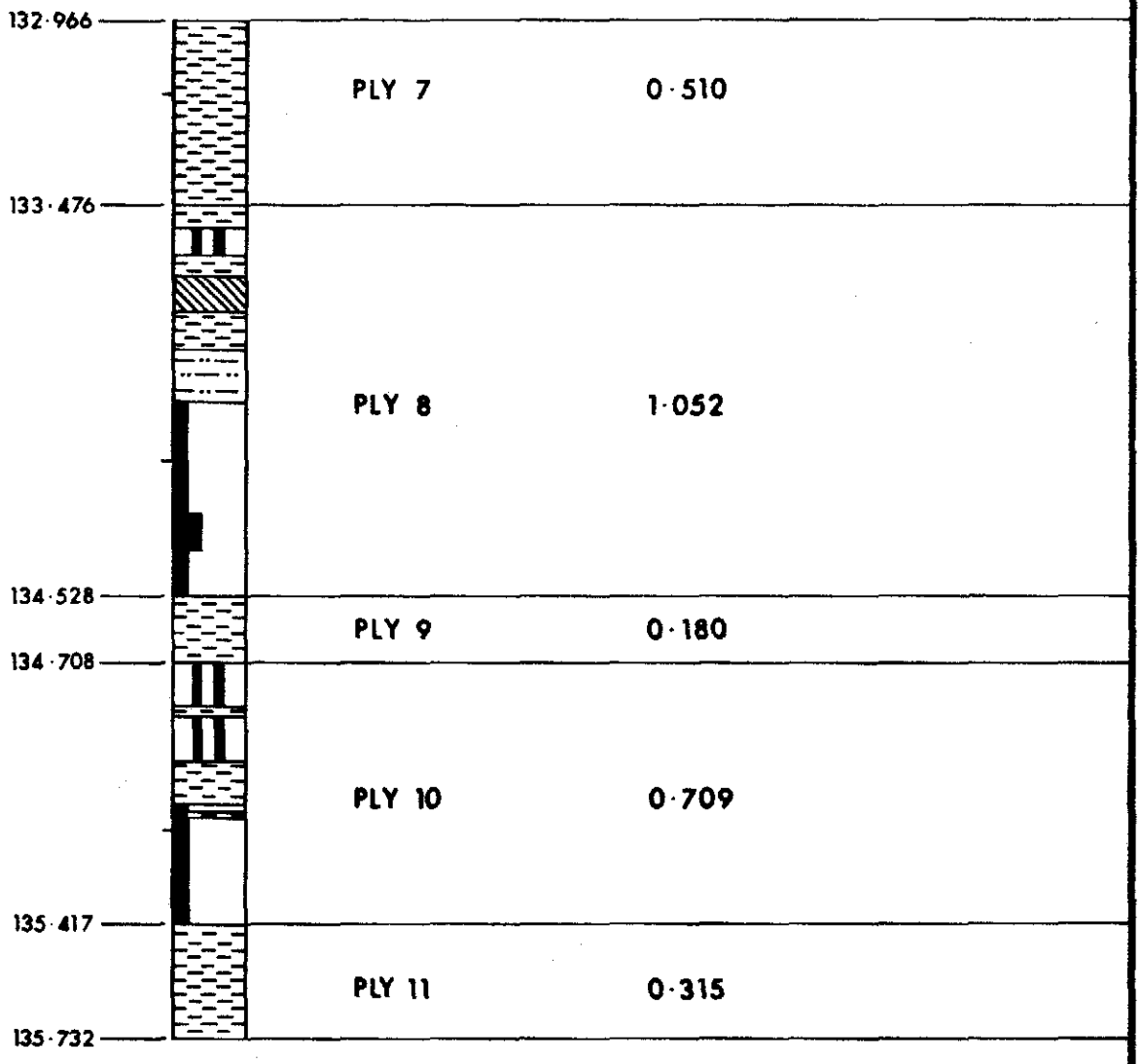
094

241119

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 3



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SCALE 1:20 DRAWN C.F.R.P. DATE October, 1984 PAGE 3 OF 4

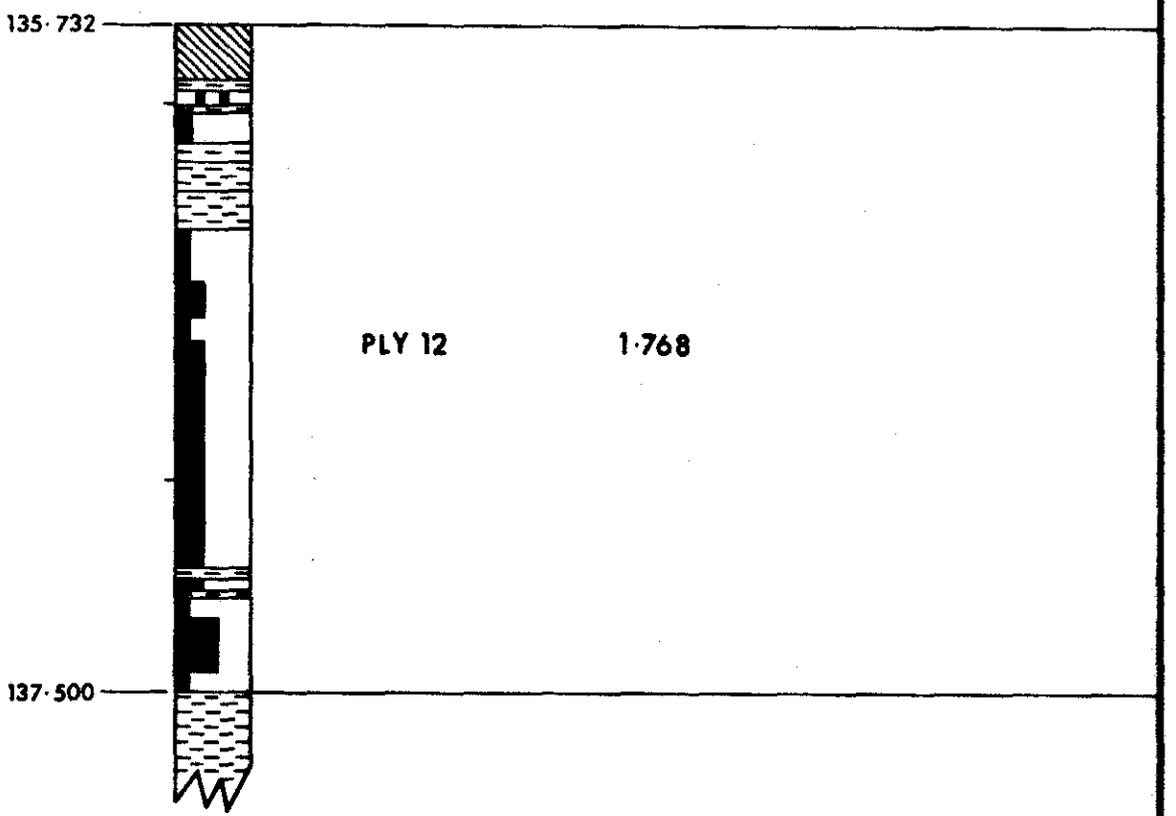
095

241120

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 3



5 cm

SCALE 1:20 · DRAWN C.F.R.P. DATE October, 1984 PAGE 4 OF 4

241121

096

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
156 Mowbray Road
Willoughby, N.S.W. 2068

Attn: MR. C. PARBURY

REPORT NO SL 2859 . CLIENT REF. NO .....

DATE SAMPLES IN . 22/10/84 . DATE REPORT OUT . 2/11/84 . .

REPORT TITLE: ANALYSES OF BORECORE SAMPLES
DDH 3, 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 1676	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

Borecore samples supplied by client.

097

SGS Australia Pty. Ltd.

REPORT No: SL 2859

Analysis \ Sample Ref.		PLY 1		PLY 2		PLY 3	
		20x0 mm	-0.5mm	20x0 mm	-0.5mm	20x0 mm	-0.5mm
Total Moisture	%						
Moisture	%	3.4		3.7			
Ash	%	42.9	55.7	75.2	76.5	85.1	84.5
Volatile Matter	%	22.1		10.9			
Fixed Carbon	%	31.6		10.2			
Crucible Swelling No.							
Specific Energy	Mj/kg						
Total Sulphur	%						
Carbon	%						
Hydrogen	%						
Nitrogen	%						
Oxygen(plus errors)	%						
Carbon Dioxide	%						
Chlorine	%						
Relative Density		1.70		2.20			
Mass	(kg)	4.16	0.29	5.82	0.14	0.69	0.04

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

098

SGS Australia Pty. Ltd.

241123

REPORT No: SL 2859

Analysis \ Sample Ref.		PLY 4, 5, 6		PLY 7		PLY 8, 9, 10	
		20x0 mm	-0.5 mm	20x0 mm	-0.5 mm	20x0 mm	-0.5 mm
Total Moisture	%						
Moisture	%	5.9				3.6	
Ash	%	70.2	77.2	82.1	81.8	63.4	68.5
Volatile Matter	%	11.3				14.2	
Fixed Carbon	%	12.6				18.8	
Crucible Swelling No.							
Specific Energy	Mj/kg						
Total Sulphur	%						
Carbon	%						
Hydrogen	%						
Nitrogen	%						
Oxygen(plus errors)	%						
Carbon Dioxide	%						
Chlorine	%						
Relative Density		2.10				1.95	
Mass	(kg)	5.23	0.37	1.26	0.18	5.30	0.25

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

099

SGS Australia Pty. Ltd.

241124

REPORT No: SL 2859

Analysis \ Sample Ref.		PLY 11 20x0 mm	PLY 11 -0.5mm	PLY 12 20x0 mm	PLY 12 -0.5mm		
Total Moisture	%						
Moisture	%			3.5			
Ash	%	83.1	82.8	50.6	41.3		
Volatile Matter	%			21.1			
Fixed Carbon	%			24.8			
Crucible Swelling No.							
Specific Energy	Mj/kg						
Total Sulphur	%						
Carbon	%						
Hydrogen	%						
Nitrogen	%						
Oxygen(plus errors)	%						
Carbon Dioxide	%						
Chlorine	%						
Relative Density				1.82			
Mass	(kg)	0.87	0.05	4.32	0.09		

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

100

SGS Australia Pty. Ltd.

241125

REPORT No: SL 2859

FLOAT/SINK ANALYSIS
DDH 3, ST. PAUL'S RIVER

Analysis \ Sample Ref.		PLY 1		PLY 12			
		20x0.5mm F1.60	20x0.5mm S1.60	20x0.5mm F1.60	20x0.5mm S1.60		
Total Moisture	%						
Moisture	%	3.2		3.9			
Ash	%	20.7	64.4	15.6	70.6		
Volatile Matter	%	29.6		32.5			
Fixed Carbon	%	46.5		48.0			
Crucible Swelling No.							
Specific Energy	Mj/kg	25.08		26.78			
Total Sulphur	%	0.38		0.57			
Carbon	%						
Hydrogen	%						
Nitrogen	%						
Oxygen(plus errors)	%						
Carbon Dioxide	%						
Chlorine	%						
Relative Density			1.96		2.10		

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

COAL ANALYSIS REPORT

FLOAT/SINK ANALYSIS, PLY 1

Relative Density	Fractional %		Cumulative %	
	Mass	Ash	Mass	Ash
F1.60	49.5	20.7	49.5	20.7
S1.60	50.5	64.4	100.0	42.8

FLOAT/SINK ANALYSIS, PLY 12

F1.60	38.5	15.6	38.5	15.6
S1.60	61.5	70.6	100.0	49.4

COLIN MEADS
MANAGER
LABORATORIES

St Pauls River DDH 3, Ply 1
from 92.210m to 93.956m; Thickness: 1.746m

St Pauls River DDH 3, Plies 2 to 12
from 128.991m to 137.500m

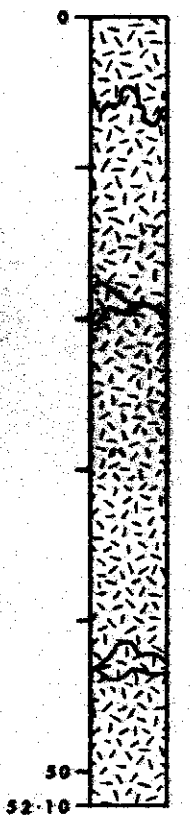
103

241128

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 4



5 cm

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

104

241129

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 ABANDONED

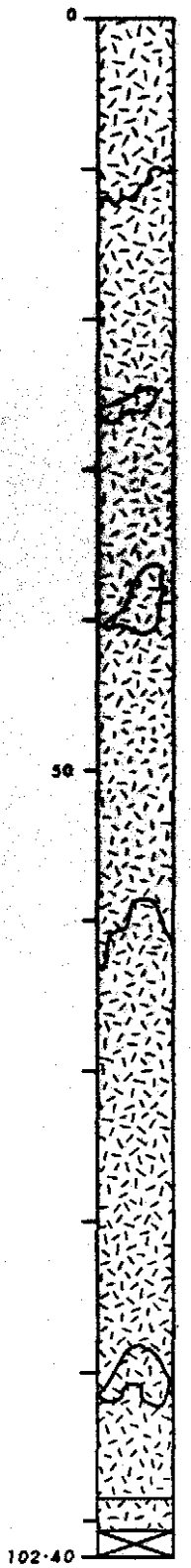
105

241130

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 5



5 cm

SCALE 1:500 DRAWN C.F.R.P. DATE

106

241131

CORNWALL COAL ST PAULS RIVER D.D.H. 5

Location:	Mt St John South	Logged by:	C.F.R. Parbury
AMG Co-ordinates:	E 589 400	Drilled by:	Stacpoole Drilling
	N 5371 500		
Collar R.L.:	470 m approx.	Commenced:	7.10.84
Total Depth:	102.40 m	Completed:	23.10.84

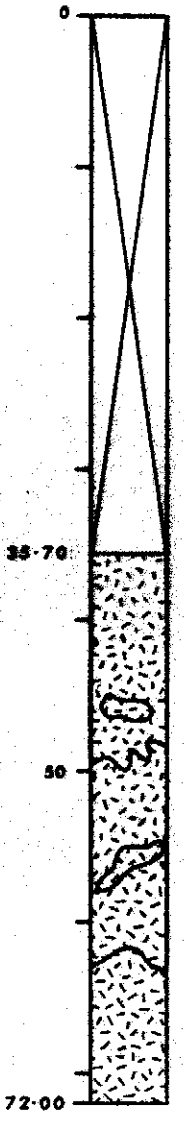
	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
DOLERITE SCREE, green grey	98.60	98.60	
SANDSTONE, light brown, coarse, lithic, weathered	0.20	98.80	
CORE LOSS	0.60	99.40	
SANDSTONE, light brown, fine to medium, weathered, iron stained	1.00	100.40	
SAND ? no core recovery, large amount of sand in water return, cannot get back to bottom of hole	2.00	102.40	BASE OF HOLE HOLE ABANDONED

107

CORNWALL COAL COMPANY N.L. 241132

St Pauls River

DDH 6



5 cm

SCALE 1:500 DRAWN C.F.R.P. DATE 4/12/84 PAGE 1 OF 1

108

241133

CORNWALL COAL ST PAULS RIVER D.D.H. 6

Location: Mt Puzzler
AMG Co-ordinates: E 588 200
N 5379 800
Collar R.L.: 570 m approx.
Total Depth: 72.00 m

Logged by: J.H. Bryan
Drilled by: Stacpoole Drilling
Commenced: 8.10.84
Completed: 17.10.84

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
OPEN HOLE - Hammer 4½", no record of strata	35.70	35.70	
DOLERITE, grey to brown, slightly weathered to fresh with abundant joints at angles 30° - 60° to core axis, core broken and mostly in lengths less than 10cm (recovery approx. 95%)	18.30	54.00	NQ Core 35.70 - 72.00 m
DOLERITE (decomposed) and CLAY, recovery 30%, water loss here very substantial and resulting in drilling problems for remainder of hole	2.70	56.70	
DOLERITE, grey, fine grained, fresh, core in sticks up to 20cm	9.30	66.00	
DOLERITE, badly broken, moderately weathered, water loss	0.20	66.20	
DOLERITE, grey, ironstaining on joints, core broken in lengths < 10 cm	5.80	72.00	

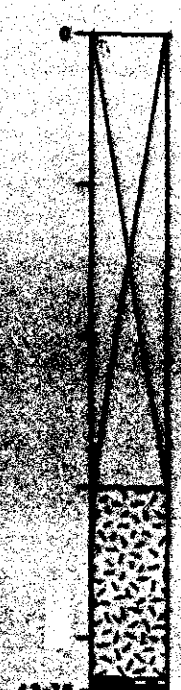
BASE OF HOLE

109

CORNWALL COAL COMPANY N.L. 241134

St Pauls River

DDH 7



5 cm

SCALE 1:500 DRAWN C.F.R.P. DATE 4/12/84 PAGE 1 OF 1

110

241135

CORNWALL COAL ST PAULS RIVER D.D.H. 7

Location: Mt Puzzler
AMG Co-ordinates: E 588 312
N 5378 750
Collar R.L.: 460 m approx.
Total Depth: 43.15 m

Logged by: C.F.R. Parbury
Drilled by: Stacpoole Drilling
Commenced: 20.10.84
Completed: 24.10.84

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
DOLERITE SCREE drilled by hammer	30.00	30.00	
DOLERITE SCREE, dark grey green, medium sized crystals	12.40	42.40	Open hole Hammer 0 - 30 m
CLAYSTONE, tan brown, weathered, ironstained	0.065	42.465	
CLAYSTONE, brown, dark grey	0.030	42.495	NQ Core 30 - 43.150r
COAL, dull	0.030	42.525	
MUDSTONE, black, coaly	0.210	42.735	
CORE LOSS	0.415	43.150	

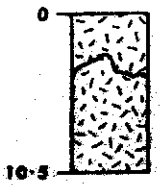
HOLE ABANDONED

241136

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 8



5 cm

SCALE 1:500 DRAWN C.F.R.P. DATE 4/12/84 PAGE 1 OF 1

112

241137

CORNWALL COAL ST PAULS RIVER D.D.H. 8

Location: Royal George
AMG Co-ordinates: E 581 810
N 5366 000
Collar R.L.: 520 m approx.
Total Depth: 10.50 m

Logged by: C.F.R. Parbury
Drilled by: Stacpoole Drilling
Commenced: 20.10.84
Completed: 21.10.84

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SCREE, open hole	10.50	10.50	

HOLE ABANDONED

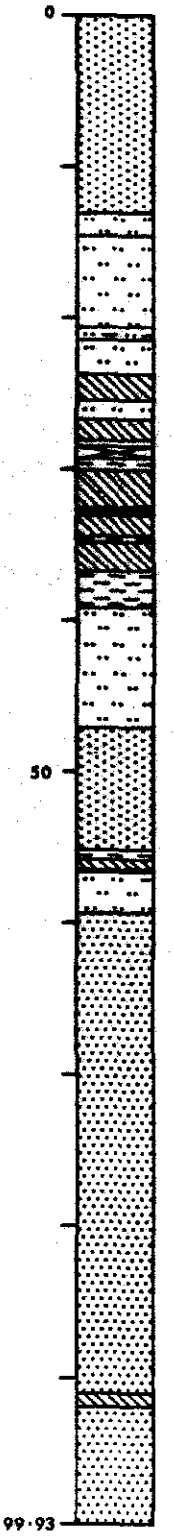
113

241138

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 8a



5 cm

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

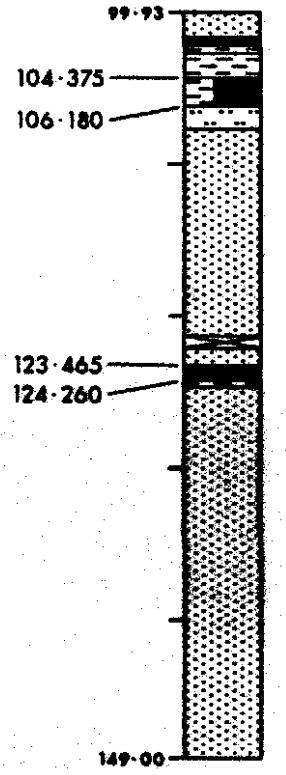
114

241139

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 8a



5 cm

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

115

241140

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	

112

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	

118

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	

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	)

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	

121

241146

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

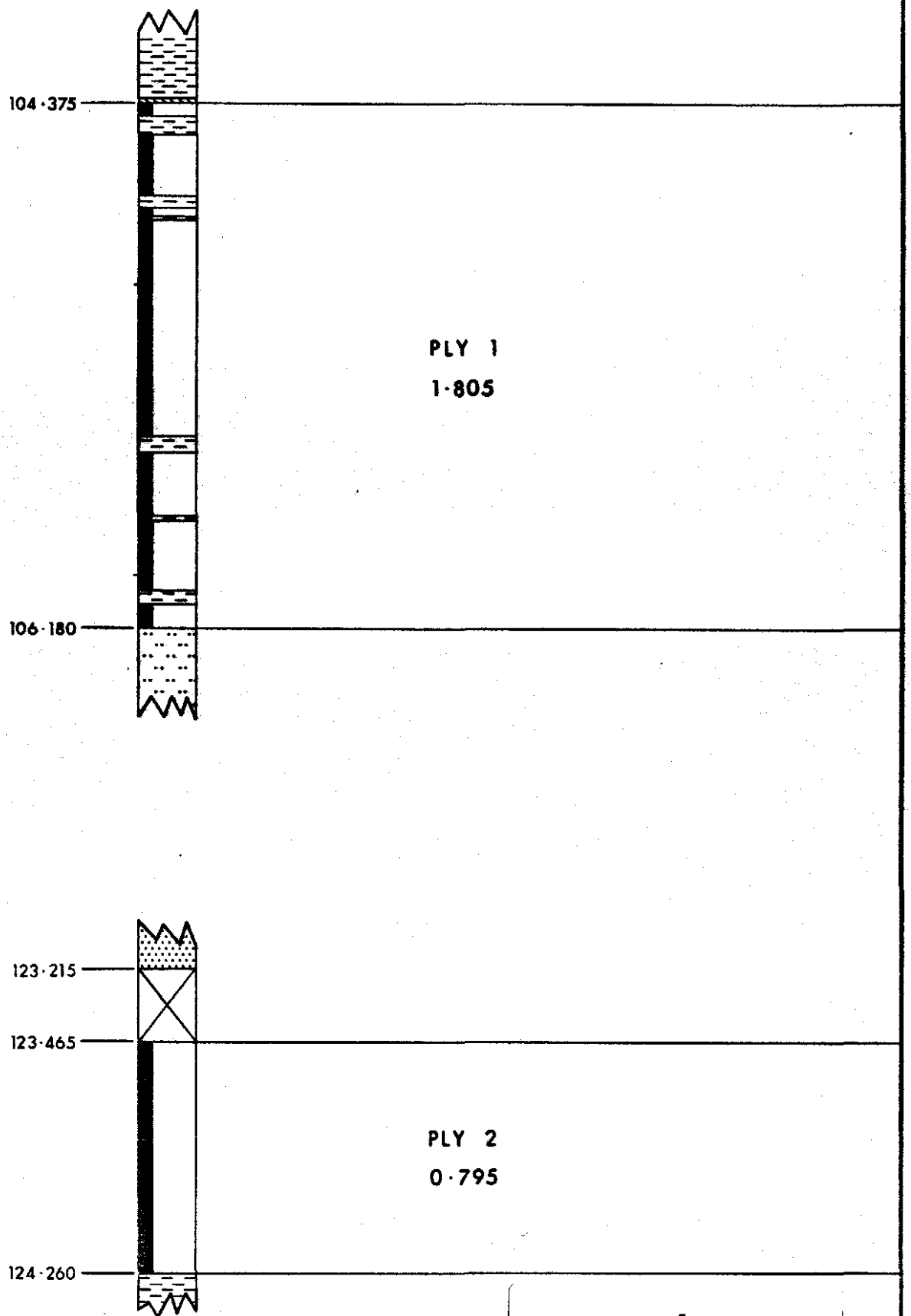
122

241147

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 8a



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

123

241148

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. 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 8 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 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.

124

241149

SGS Australia Pty. Ltd.

REPORT No: SL 2877

Analysis \ Sample Ref.		20.0mm x 0 DDH 8A Ply 1 (1.805m)	20.0mm x 0 DDH 8A Ply 2 (0.795m)		20.0mm x 0.5 DDH 8A Ply 1 F1.60	0.5 x 0 DDH 8A Ply 1 S1.60	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		4.13		0.18

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

125

241150

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 PL 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

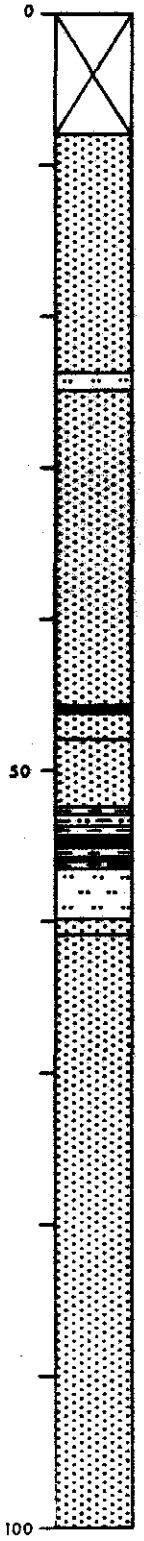
127

241152

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 9



5 cm

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

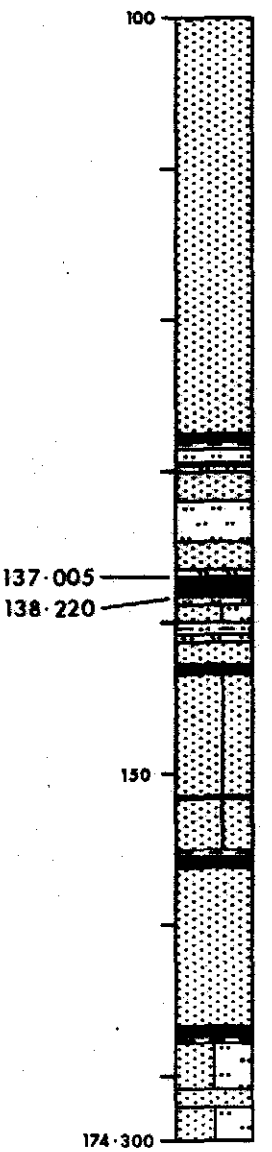
128

241153

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 9



5 cm

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

129

CORNWALL COAL ST PAULS RIVER DDH 9

Location: Mt St John South
AMG Co-ordinates: E 586 400
N 5370 000
Collar R.L.: 340 m approx.
Total Depth: 174.300 m

Logged by: C.G. Lancaster
Drilled by: Stacpoole Drilling
Commenced: 24.10.84
Completed: 30.10.84

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
NOT CORED:open hole to 7.90 m	7.900	7.900	
SANDSTONE, light grey, mostly medium to coarse with minor very coarse phases and bands, lithic, numerous carbonaceous and coaly partings and laminae at top some planar others wavy, bedding very thin to thick, parallel to wavy, fissile to blocky, broken in places (thinner breaks may be related to weathering), sorting moderate to good	15.810	23.710	
SILTSTONE, grey to dark grey, sporadic irregular coaly laminae, carbonaceous and plant remains throughout, relatively soft, weathering induced dessication features, friable, grades to sand-stone at base, bedding wavy to irregular	1.080	24.790	

CORNWALL COAL ST PAULS RIVER DDH 9

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE, light grey, medium to coarse, lithic, minor silty horizons, sporadic irregular carbonaceous and coaly wisps and blebs and planar laminae, several well rounded pebbles in top 0.050 m, bedding thin to thick, massive in basal 6 m, parallel to wavy, mostly blocky with some slabby and flaggy sections in the centre (possibly weathering induced), abrupt basal contact, sorting mostly good	21.075	45.865	
COAL, dull with minor bright bands, sporadic calcite veinlets	0.235	46.100	
SANDSTONE, grey, fine, numerous very fine and silty interbeds, lithic, abundant silty matrix, moderately soft, core broken and fretted (weathering), bedding laminated to very thin, parallel to wavy, fissile and flaggy	1.850	47.950	
SANDSTONE, light grey to grey, fine to medium, lithic, grades to coarse at base, siltstone band 0.230 m thick in centre, core surface fretted and soft, bedding thin to medium, parallel to sub-parallel, blocky to massive	4.280	52.230	

CORNWALL COAL ST PAULS RIVER DDH 9

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE, light grey, fine to very fine, numerous silty laminae, lithic, soft and fretted (weathering), sporadic carbonaceous partings, bedding laminated, wavy to sub-parallel	0.440	52.670	
CLAYSTONE, brownish-grey, completely fretted and friable, grades to underlying unit	0.300	52.970	
SILTSTONE, grey, soft and friable, fretted at top 0.500 m, minor very fine sandy phases, laminated, grades to underlying unit	0.740	53.710	
CLAYSTONE, dark brown to black, carbonaceous in part, soft and friable,grades to underlying unit	0.170	53.880	
CLAYSTONE, grey, friable and crumbly, soft (weathering), core completely shattered in places	0.510	54.390	
COAL, dull to stony, soft puggy claystone band (0.015 m thick) at top	0.375	54.765	
, bright	0.025	54.790	
, stony to dull with minor bright bands, thin carbonaceous claystone laminae at base	0.110	54.900	

CORNWALL COAL ST PAULS RIVER DDH 9

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, grey to black, carbonaceous in part, soft and crumbly at top half	0.080	54.980	
COAL, dull with minor bright bands	0.040	55.020	
, bright	0.035	55.055	
CLAYSTONE, dark grey to black, carbonaceous in part, thin coaly wisps, soft, crumbly	0.055	55.110	
CLAYSTONE, grey to black, carbonaceous bands in places, soft and completely crumbly, friable (weathering)	0.610	55.720	
COAL, dull with minor bright bands	0.085	55.805	
CLAYSTONE, speckled grey-brown	0.020	55.825	
COAL, stony to dull with minor bright bands, broken in basal half	0.130	55.955	
CLAYSTONE AND COAL INTERBEDDED, ratio 70:30. Claystone, dark grey-black, carbonaceous in part; coal, dull, core broken and friable in places	0.440	56.395	
SILTSTONE, grey, soft, crumbly and friable, very fine sandy phases at base	3.370	59.765	

CORNWALL COAL ST PAULS RIVER DDH 9

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE, light grey to grey, fine to very fine, lithic, numerous silty phases at top, bedding laminated to thin, wavy to parallel, soft and crumbly	1.125	60.890	
SANDSTONE, light grey, medium to coarse, lithic, minor irregular siltstone and carbonaceous inclusions particularly 86.00 - 92.50 m and 116.50 - 118.00 m, bedding mostly massive, wavy to parallel, splitting mostly massive with some sporadic crumbly flaggy sections at 86.00 - 92.50 m, hard and competent basal 10.00 m	66.620	127.510	
COAL, dull with minor bright bands, stony at top	0.090	127.600	
CLAYSTONE, dark grey to black, carbonaceous in part, moderately hard	0.225	127.825	
COAL, dull to stony	0.065	127.890	
CLAYSTONE, black, carbonaceous to coaly	0.040	127.930	
COAL, dull to stony	0.265	128.195	
SANDSTONE, light grey, medium, lithic	0.035	128.230	

CORNWALL COAL ST PAULS RIVER DDH 9

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, dark grey to black, carbonaceous to coaly in part at top and base	0.290	128.520	
CLAYSTONE, grey, carbonaceous at base	0.080	128.600	
COAL, stony to dull with minor bright bands	0.035	128.635	
SILTSTONE, grey, plant remains on partings, core broken and crumbly near base, fissile to flaggy	0.890	129.525	
COAL, dull, broken	0.130	129.655	
SILTSTONE, grey, numerous carbonaceous remains on laminations, fissile at top, sandy at base, grades to underlying unit	0.515	130.170	
SANDSTONE, light grey, fine at top, grading to medium at base, lithic, sporadic irregular carbonaceous and coaly inclusions	1.880	132.050	
CORE LOSS	0.300	132.350	
SILTSTONE, grey to dark grey, carbonaceous in places, numerous fine sandy phases, core broken in places, minor irregular coaly laminae	2.420	134.770	

CORNWALL COAL ST PAULS RIVER DDH 9

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE, light grey, fine, lithic, sporadic silty phases and laminae, bedding very thin to medium, wavy to subparallel, slabby to blocky	1.765	136.535	
SILTSTONE, grey, minor subhorizontal slickensided surfaces, carbonaceous parting(0.020 m thick) near base, flaggy to fissile and crumbly at base, slickensided surface 45° dip 0.100 m from base	0.470	137.005	
COAL, dull	0.020	137.025	
CLAYSTONE, brown, fissile	0.020	137.045	
COAL, stony to dull, slickensided surface near top	0.530	137.575	)
CLAYSTONE, speckled brown	0.015	137.590	)
COAL, dull	0.025	137.615	)
CLAYSTONE, speckled brown	0.015	137.630	) PLY 1
COAL, dull with minor bright bands	0.050	137.680	) Thickness
, mainly dull	0.130	137.810	) 1.175m
, dull with minor bright bands	0.115	137.925	)
, dull	0.105	138.030	)
, dull with numerous bright bands, broken in part	0.080	138.110	)
, dull	0.080	138.190	)
, dull with numerous bright bands	0.030	138.220	)

CORNWALL COAL ST PAULS RIVER DDH 9

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, black, carbonaceous	0.095	138.315	
SILTSTONE, grey to dark grey, carbonaceous near base, fissile and crumbly, grades to underlying unit	0.455	138.770	
SANDSTONE AND SILTSTONE LAMINITE, ratio 70:30. Sandstone, light grey, fine, lithic; siltstone, grey, bedding parallel to subparallel, planar and smooth, bioturbation in places, minor small scale faulting and other small scale sedimentary deformation	1.300	140.070	
SILTSTONE AND CARBONACEOUS SHALE LAMINITE: ratio 70:30. Siltstone, grey to dark grey; carbonaceous shale, black, bedding wavy to subparallel, fissile in places	0.830	140.900	
SILTSTONE, grey, grades to very fine sandstone at base, minor bioturbation, grades to underlying unit	0.485	141.385	
SANDSTONE, light grey to grey, fine to very fine, lithic, numerous silty phases, bedding laminated to thin, wavy to subparallel, flaggy, carbonaceous in part at base	1.475	142.860	

CORNWALL COAL ST PAULS RIVER DDH 9

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, coaly	0.070	142.930	
COAL, stony	0.100	143.030	
, dull with minor bright bands	0.300	143.330	
SANDSTONE AND SILTSTONE INTERBEDDED, ratio 60:40. Sandstone, light grey to grey, fine to very fine, lithic; siltstone, grey to dark grey, carbonaceous near base of unit, bedding laminated to thin, wavy to subparallel, mostly flaggy at top to slabby at base	8.200	151.530	
COAL, stony to dull with minor bright bands	0.150	151.680	
SANDSTONE AND SILTSTONE INTERBEDED, ratio as for 8.200 m unit above	3.515	155.195	
CLAYSTONE, grey to dark grey, carbonaceous in part, numerous siltstone nodules	0.335	155.530	
CLAYSTONE, brown to dark brown	0.035	155.565	
CLAYSTONE, carbonaceous to coaly	0.075	155.640	
CLAYSTONE, brown	0.015	155.655	
COAL, dull with minor bright bands, broken	0.150	155.805	

CORNWALL COAL ST PAULS RIVER DDH 9

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
COAL, dull with numerous bright bands, broken	0.280	156.085	
, dull with minor bright bands	0.195	156.280	
SILTSTONE, grey, grades to underlying unit, flaggy	0.380	156.660	
SANDSTONE, light grey, grading from fine at top to coarse at base, lithic, bedding thin to thick, sub-parallel, thin laminite section in centre, sorting very good, blocky to massive	10.085	166.745	
COAL, dull	0.670	167.415	
CLAYSTONE, speckled dark brown to brown, carbonaceous at top	0.040	167.455	
CLAYSTONE, carbonaceous to coaly	0.180	167.635	
SANDSTONE AND SILTSTONE LAMINITE, ratio 50:50. Sandstone, light grey to grey, fine to medium, lithic; siltstone, grey to dark grey, bedding subparallel to wavy,subplanar, flaggy to slabby	2.600	170.235	
SANDSTONE, light grey, medium to coarse, lithic, numerous irregular siltstone lenticles and wisps	0.225	170.460	

CORNWALL COAL ST PAULS RIVER DDH 9

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE AND SILTSTONE LAMINITE, as for 2.600 m unit above	0.320	170.780	
SANDSTONE, light grey, coarse, lithic, bedding thin, subparallel, blocky to massive	1.180	171.960	
SANDSTONE AND SILTSTONE LAMINITE, ratio 50:50. Sandstone, light grey to grey, fine to coarse, lithic; siltstone, grey to dark grey, carbonaceous in part, bedding wavy to subparallel, flaggy to slabby	2.340	174.300	

BASE OF HOLE

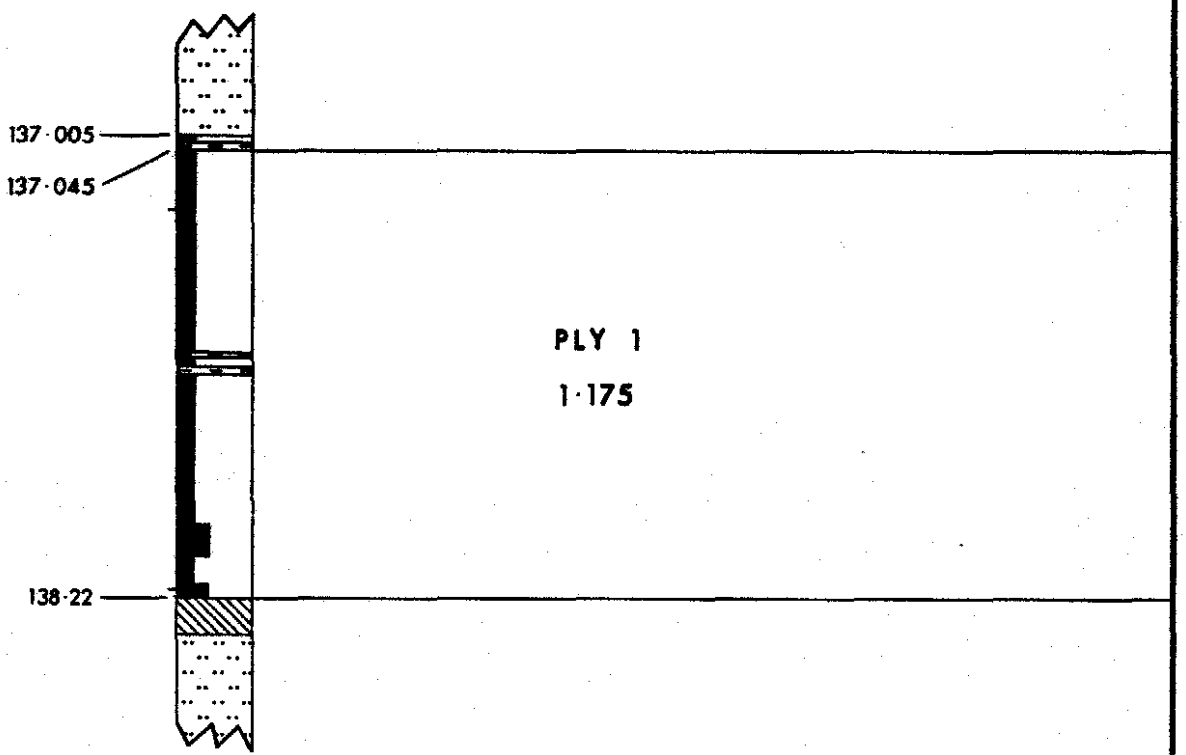
140

241165

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 9



5 cm

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

141

241166

SGS Australia Pty. Ltd.
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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~~	~~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.

142

241167

SGS Australia Pty. Ltd.

REPORT No: SL 2880

Analysis / Sample Ref.		20 x 0mm St. Pauls River DDH 9 Ply 1	0.5 x 0mm St. Pauls River DDH 9 Ply 1		20 x 0.5mm St. Pauls River DDH9/Ply1 F 1.60	St. Pauls River DDH9/Ply1 S 1.60	
Total Moisture	%	1.175m					
Moisture	%	2.8			3.2		
Ash	%	23.1	31.3		15.8	63.7	
Volatile Matter	%	23.4			24.1		
Fixed Carbon	%	50.7			56.9		
Crucible Swelling No.							
Specific Energy Mj/kg							
Total Sulphur	%						
Carbon	%						
Hydrogen	%						
Nitrogen	%						
Oxygen(plus errors)	%						
Carbon Dioxide	%						
Chlorine	%						
Relative Density		1.57			1.45	2.06	
Mass (kg)		2.56	0.04				

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

143

SGS Australia Pty. Ltd.

241168

REPORT No: SL 2880

COAL ANALYSIS REPORT

FLOAT / SINK ANALYSIS

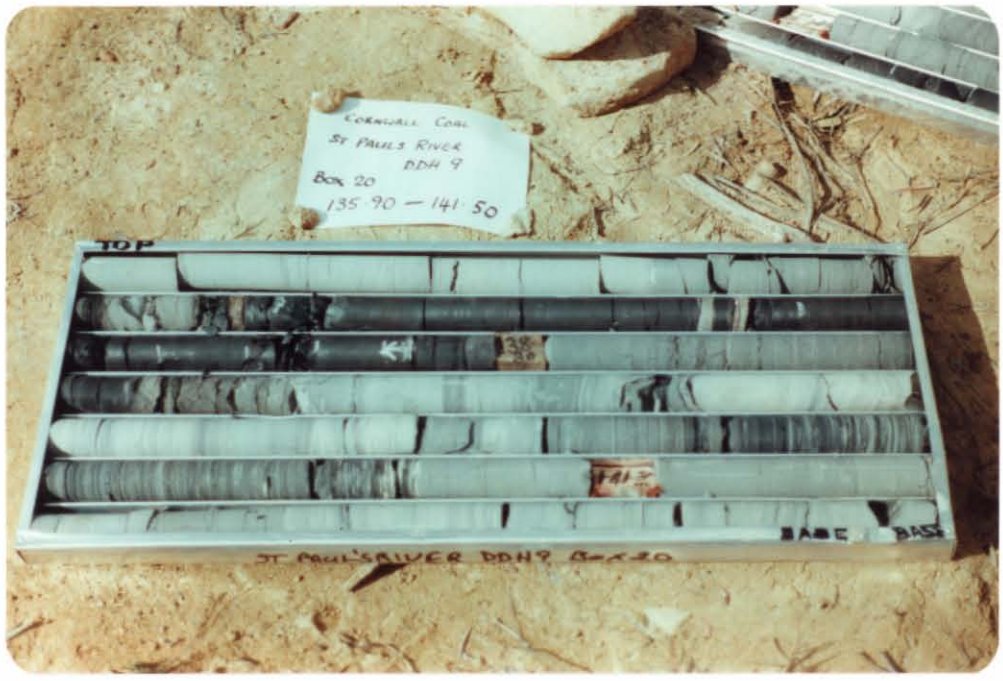
ST. PAUL'S RIVER DDH 9 PLY 1

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

.....
COLIN MEADS
MANAGER - LABORATORIES



Cornwall Coal St Pauls River DDH 9 - Ply 1

from 137.045 m to 138.22 m - Thickness 1.175m

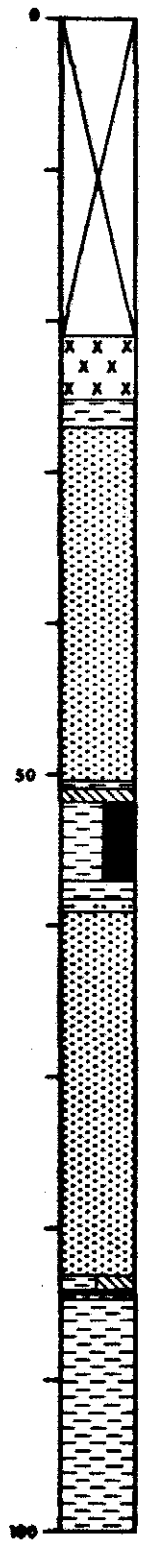
145

241170

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 10



5 cm

SCALE 1:500 DRAWN G.P.M. DATE November, 1984 PAGE 1 OF 2

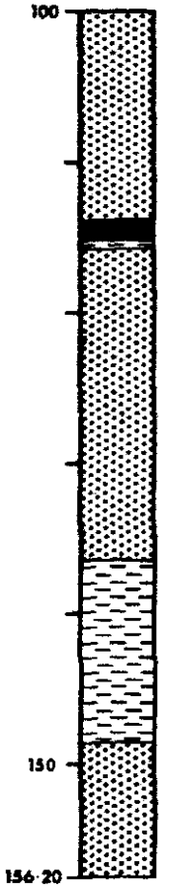
146

241171

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 10



5 cm

SCALE 1:500 DRAWN G.P.M. DATE November, 1984 PAGE 2 OF 2

147

241172

CORNWALL COAL ST PAULS RIVER D.D.H. 10

Location: Mt Puzzler
AMG Co-ordinates: E 588 750
N 5378 690
Collar R.L.: 440 m approx.
Total Depth: 156.20 m

Logged by: J.H. Bryan
Drilled by: Stacpoole Drilling
Commenced: 26.10.84
Completed: 7.10.84

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
OPEN HOLE TO 21.0 m	21.00	21.00	
DOLERITE, broken core	4.25	25.25	
CLAYSTONE, grey	1.75	27.00	
SANDSTONE, grey, lithic, fine, occasional coaly wisps, some siltstone interbeds up to 0.6m thick, and minor thin grey claystone bands, sandstone becoming coarser towards base up to 5cm across in sandstone towards base	23.41	50.41	
CLAYSTONE, grey/brown, carbonaceous in part	0.20	50.61	
CLAYSTONE, black, with grey claystone interbeds and some coaly fragments	0.26	50.87	
CLAYSTONE, black, coaly in part and with mid grey claystone flecks or pellets	0.79	51.66	

CORNWALL COAL ST PAULS RIVER D.D.H. 10

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
COAL, dull and bright with calcite on cleats	0.13	51.79	
, dull	0.24	52.03	
CLAYSTONE, black to mid grey with irregular coal bands, carbonaceous up to 0.020 m thick	0.46	52.49	PLY 1 Thickness 0.950 m
COAL, dull and bright	0.12	52.61	
CLAYSTONE, grey, soft, low strength	0.28	52.89	PLY 2 Thickness 0.28 m
COAL, dull with minor bright bands	0.29	53.18	
CLAYSTONE, brown, tuffaceous ?	0.02	53.20	
COAL, dull to stony	0.19	53.39	PLY 3 Thickness 0.58 m
CLAYSTONE, black and dark brown interbedded, coaly in part	0.08	53.47	
CLAYSTONE, light grey, soft	0.05	53.52	
COAL, dull to stony	0.03	53.55	
CLAYSTONE, brown, hard	0.04	53.59	PLY 4
COAL, dull	0.15	53.74	Thickness 0.38 m
CLAYSTONE, grey, soft	0.11	53.85	

CORNWALL COAL ST PAULS RIVER D.D.H. 10

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
COAL, dull	0.35	54.20	PLY 5 Thickness 0.93 m
CLAYSTONE, black, coaly in part	0.12	54.32	
COAL, dull, with occasional very thin grey claystone bands 2-3 mm thick	0.46	54.78	
CLAYSTONE, grey and brown, hard with irregular coaly bands	0.27	55.05	
CLAYSTONE, grey with siltstone interbeds	1.32	56.37	
CLAYSTONE, brown/grey/black, carbonaceous with coaly wisps	0.31	56.68	
COAL, dull	0.03	56.71	
CLAYSTONE, brown/black, carbonaceous	0.17	56.88	
CLAYSTONE, grey, soft	1.24	58.12	
SILTSTONE, grey, clayey in part	0.750	58.87	
SANDSTONE, grey, medium/coarse, lithic	17.90	76.77	
CLAYSTONE, grey	0.29	77.06	
SANDSTONE, grey, fine grained	1.30	78.36	
SANDSTONE, grey, coarse, lithic with claystone blocks, clasts etc up to 20cm thick	4.61	82.97	

150

CORNWALL COAL ST PAULS RIVER D.D.H. 10

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, black/grey	0.10	83.07	
CLAYSTONE, grey, soft, ? tuffaceous	0.15	83.22	
CLAYSTONE, black, coaly in part	0.40	83.62	
CLAYSTONE, brown, soft, tuffaceous ?	0.04	83.66	
COAL, dull, laminated	0.03	83.69	
CLAYSTONE, grey, soft, tuffaceous ?	0.02	83.71	
COAL, dull, laminated	0.04	83.75	
CLAYSTONE, grey, soft	0.18	83.93	
COAL, dull	0.27	84.20	
SANDSTONE, grey, fine, clayey	0.40	84.60	
CLAYSTONE, light grey to dark grey with coaly partings and some siltstone phases	4.26	88.86	
COAL, dull to stony	0.19	89.05	
CLAYSTONE, as for 4.26 m unit above	3.83	92.88	
CLAYSTONE, black, coaly in part, grading to brown/grey claystone at base	0.67	93.55	

CORNWALL COAL ST PAULS RIVER D.D.H. 10

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, grey, soft, grey siltstone interbeds towards base (grading to fine sandstone)	6.70	100.25	
SANDSTONE, grey, medium grained, lithic	1.80	102.05	
SANDSTONE, grey, fine grained, lithic	3.96	106.01	
SANDSTONE, grey, medium to coarse, lithic, becoming coarser at base	8.05	114.06	
COAL, dull	0.49	114.55	)
CLAYSTONE, grey, soft	0.10	114.65	)
COAL, dull	0.50	115.15	)
CLAYSTONE, grey, hard with carbonaceous wisps	0.05	115.20	) PLY 6 Thickness 1.19 m
COAL, dull with minor bright bands	0.05	115.25	)
CLAYSTONE, grey, soft	0.46	115.71	
SANDSTONE, grey, medium, lithic, occasional coaly blocks up to 6 cm and coaly wisps	20.80	136.51	
COAL, dull and bright	0.04	136.55	

CORNWALL COAL ST PAULS RIVER D.D.H.10

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, grey and fine grained sandstone interbedded	1.00	137.55	
COAL, dull	0.05	137.60	
CLAYSTONE, grey/brown, soft	0.05	137.65	
CLAYSTONE, black, coaly in part	0.04	137.69	
CLAYSTONE, grey interbedded with fine grained grey sandstone and occasional thin carbonaceous claystone bands up to 3 cm thick	4.25	141.94	
COAL, dull	0.07	142.01	
CLAYSTONE, grey to grey/green, soft	6.63	148.64	
SANDSTONE, grey, coarse, lithic, massive with no joints or open bedding planes	7.56	156.20	

BASE OF HOLE

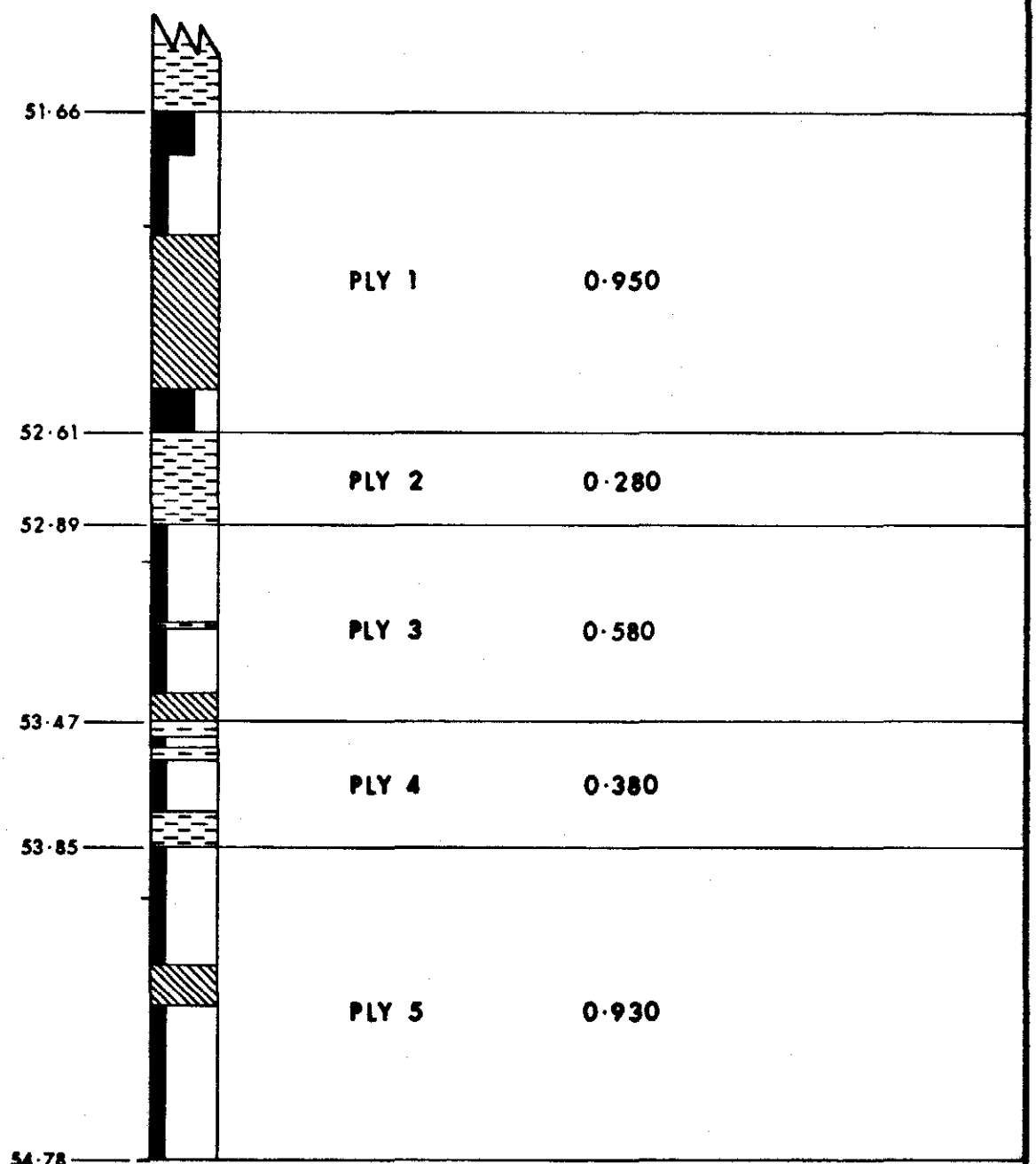
153

241178

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 10



5 cm

SCALE 1:20 DRAWN C.G.L. DATE November, 1984 PAGE 1 OF 2

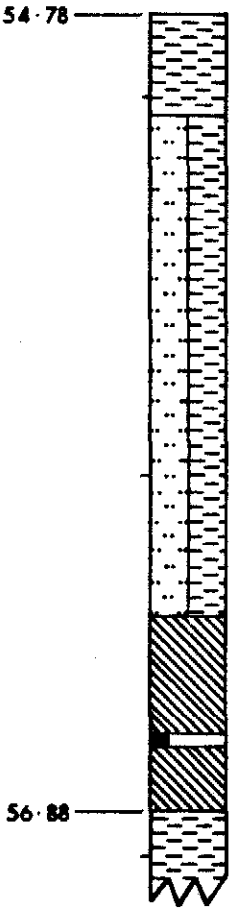
154

241179

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 10



5 cm

SCALE 1:20 DRAWN C.G.L. DATE November, 1984 PAGE 2 OF 2

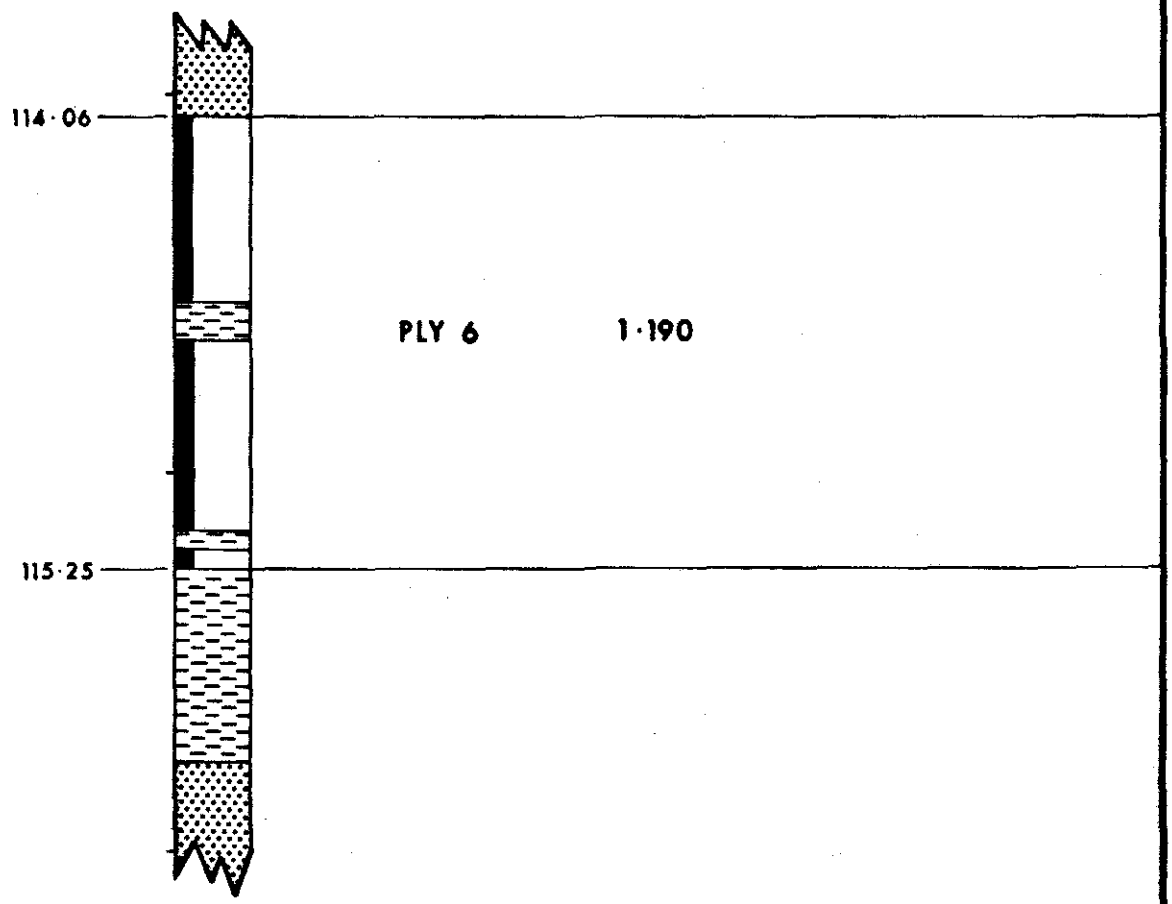
155

241180

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 10



5 cm

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

156

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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 1676 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.

157

241182

SGS Australia Pty. Ltd.

REPORT No: SL 2877

RAW COAL (20mm x 0)

Analysis / Sample Ref.		DDH 10 Ply 1 (0.950m)	DDH 10 Ply 2 (0.280m)	DDH 10 Ply 3 (0.580m)	DDH 10 Ply 4 (0.380m)	DDH 10 Ply 5 (0.930m)	DDH 10 Ply 6 (1.190m)
Total Moisture	%						
Moisture	%	5.2		4.5		4.4	4.5
Ash	%	46.9	81.9	40.1	69.0	47.9	40.7
Volatile Matter	%	19.0		22.6		19.4	20.8
Fixed Carbon	%	28.9		32.8		28.3	34.0
Crucible Swelling No.							
Specific Energy	Mj/kg						
Total Sulphur	%						
Carbon	%						
Hydrogen	%						
Nitrogen	%						
Oxygen(plus errors)	%						
Carbon Dioxide	%						
Chlorine	%						
Relative Density		1.75	-	1.64	-	1.75	1.65
Mass (kg)		2.36	0.85	1.39	1.21	2.31	2.84

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

158

241183

SGS Australia Pty. Ltd.
Incorporated in New South Wales

Sydney

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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 Bryan

Your ref.: Our ref.: SL 2901 30th November, 1984

Dear Dr. Bryan,

Please find enclosed additional Float / Sink Data on DDH 10 St. Pauls River.

This supplements the analytical data previously reported in SL 2877.

Yours faithfully,

....

R. E. GUYOT
MANAGER - COAL LABORATORY

Report
NL 7842

DD 13

0.007 straight

SGS Australia Pty. Ltd.
(Incorporated in N.S.W.)

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

Attn : Dr. John Bryan

REPORT NO SL 2901	CLIENT REF. NO
DATE SAMPLES IN 2/11/84	DATE REPORT OUT 30/11/84

REPORT TITLE: ADDITIONAL ANALYSIS ON DDH 10 St PAULS RIVER COMPOSITE OF PLIES 1 - 5

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 (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

Borecore Samples Supplied By Client.

REPORT NO : SL 2901

INTRODUCTION (Refer SL 2877)

Additional work on DDH 10, St. Paul's River cores included the following :-

A composite of raw coal plies 1 to 5 inclusive was prepared, sized at 0.5mm and the -20.0 + 0.5mm Material separated at Relative Densities 1.60 and 1.70.

Ashes were determined on the raw -20.0 + 0.5mm and -0.5 + 0mm coal and on the Floats 1.70 and Sinks 1.70. Proximate analyses, Sulphur and Specific Energy were determined on the Floats 1.60.

These results are reported on page 3 of 3.

161

241186

SGS Australia Pty. Ltd.

REPORT No: SL 2901

DDH 10 - COMPOSITE PLIES 1 - 5 INCLUSIVE

COAL ANALYSIS REPORT

Composite prepared on " weighted basis ", calculated from ply lengths and relative densities.

	Mass %	Ash %	
20 x 0.5mm	98.2	50.9	calc. from Float/Sink Separation
- 0.5mm	1.8	68.0	
	100.0	51.2	

(53.1 calculated from raw ply analyses)

FLOAT / SINK SEPARATION OF 20 x 0.5mm MATERIAL

	FRACTIONAL		CUMULATIVE	
	Mass%	Ash%	Mass%	Ash%
Floats 1.60	35.5	21.1	35.5	21.1
S 1.60 - F 1.70	6.3	41.3	41.8	24.1
Sinks 1.70	58.2	70.2	100.0	50.9

20 x 0.5mm Floats 1.60

Relative Density		1.51
Moisture	%	5.0
Ash	%	21.1
Volatile Matter	%	26.9
Fixed Carbon	%	47.0
Sulphur	%	0.46
Specific Energy MJ/kg		24.36

(Mass % and Analyses on Air Dried Basis)

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COLIN MEADS
MANAGER - LABORATORIES

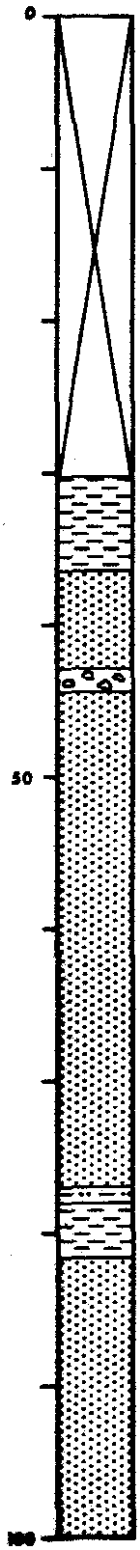
162

241187

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 11



5 cm

SCALE 1:500 DRAWN G.P.M. DATE November, 1984 PAGE 1 OF 2

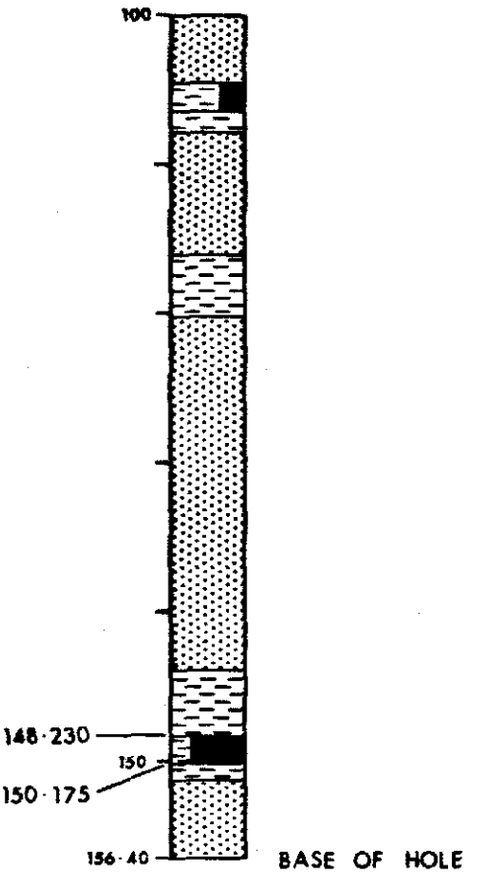
163

241188

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 11



5 cm

SCALE 1:500 DRAWN G.P.M. DATE November, 1984 PAGE 2 OF 2

CORNWALL COAL ST PAULS RIVER D.D.H. 11

Location: Mt St John North
AMG Co-ordinates: E 588 400
N 5373 500
Collar R.L.: 500 m
Total Depth: 156.40 m

Logged by: J.H. Bryan
Drilled by: Stacpoole Drilling
Commenced: 31.10.84
Completed: 10.11.84

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
NON-CORE TRICONE ROLLER BIT - DOLERITE SCREE	30.35	30.35	
CLAYSTONE, grey, reddish brown and greenish grey	1.30	31.65	
CLAYSTONE, light grey, soft, badly fretted in core box	2.79	34.44	
CLAYSTONE, grey green and grey, soft	1.96	36.40	
SANDSTONE, grey/green, clayey, soft gradational contact with unit above	1.16	37.56	
SANDSTONE, greenish grey, medium to coarse, lithic, greenish colour changes to grey and sandstone becomes coarse grained at 40.70 m	5.24	42.80	
CONGLOMERATE, grey/green, grading to coarse sandstone, lithic, numerous claystone clasts and fewer hard pellets and granules	1.64	44.44	
CLAYSTONE, grey/green, soft	0.24	44.68	

CORNWALL COAL ST PAULS RIVER D.D.H. 11

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SANDSTONE, grey, medium/coarse with occasional pebble bands and sporadic claystone clasts up to 20 cm across	9.525	54.205	
CLAYSTONE, grey/green, soft	2.555	56.760	
SANDSTONE, grey, medium grained, lithic, with conglomeratic phases up to 1.3 m thick	19.730	76.490	
COAL, dull and bright	0.065	76.555	
SANDSTONE, grey, medium grained, lithic	0.315	76.870	
CLAYSTONE, grey/brown, soft	0.040	76.910	
SANDSTONE, grey, medium grained, lithic	0.025	76.935	
MUDSTONE, black and grey/brown, soft	1.125	78.060	
CLAYSTONE, grey, soft, with siltstone interbeds and minor coaly lenses	3.530	81.590	
SANDSTONE, grey, lithic, fine to medium grained with some claystone interbeds	21.110	102.700	
COAL, dull and bright	0.045	102.745	
SANDSTONE, grey, medium, lithic with coaly lenses and some claystone clasts	1.220	103.965	

CORNWALL COAL ST PAULS RIVER D.D.H. 11

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
SILTSTONE, brown, hard with numerous coaly partings and/or wisps - disturbed bedding	0.170	104.135	
SANDSTONE, grey, medium, lithic	0.625	104.760	
COAL, dull with minor bright bands	0.360	105.120	
CLAYSTONE, grey, soft	0.280	105.400	
CLAYSTONE, brown, soft	0.060	105.460	
CLAYSTONE, grey, soft	0.680	106.140	
COAL, dull with minor bright bands	0.170	106.310	
CLAYSTONE, grey/brown, hard	0.025	106.335	
COAL, dull with minor bright bands	0.130	106.465	
MUDSTONE, black, coaly in part	0.320	106.785	
CLAYSTONE, grey and brown, soft	0.770	107.555	
SANDSTONE, grey, fine grained, lithic	0.110	107.665	
CLAYSTONE, grey, soft	0.240	107.905	
SANDSTONE, grey, lithic, fine to medium, massive	8.255	116.160	
CLAYSTONE AND CLAYEY SANDSTONE, grey/green	1.370	117.530	

CORNWALL COAL ST PAULS RIVER D.D.H. 11

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, black, grey and grey/ brown, soft	1.400	118.930	
CLAYSTONE, grey/brown with sandy and silty interbeds	0.800	119.730	
SANDSTONE, grey, fine, lithic	0.270	120.000	
CLAYSTONE, grey with some carbonaceous lenses	0.580	120.580	
SANDSTONE, grey, lithic, fine at top but grading to medium and coarse towards the base - includes irregular coaly fragments, wisps and occasional pebbly bands	22.510	143.090	
COAL, dull and bright	0.090	143.180	
CLAYSTONE, grey with coaly partings and lenses	1.820	145.000	
CLAYSTONE,dark brown to buff coloured, ? tuffaceous and with occasional carbonaceous and coaly bands	2.000	147.000	
COAL, dull with minor bright bands	0.140	147.140	
CLAYSTONE, dark brown to buff, as for 2.000 m unit above	0.620	147.760	
CLAYSTONE, black, coaly in part	0.130	147.890	

CORNWALL COAL ST PAULS RIVER D.D.H. 11

	Estimated Thickness (m)	Estimated Depth to Base of Stratum (m)	Remarks
CLAYSTONE, grey or buff coloured, soft	0.340	148.230	Very poor roof
COAL, dull with minor claystone bands	0.250	148.480	
CLAYSTONE, grey/brown, soft	0.070	148.550	
COAL, dull to stony	0.395	148.945	PLY 1
, dull with minor bright bands	0.300	149.245	
CLAYSTONE, grey and brown, soft	0.200	149.445	Thickness 1.945m
COAL, dull	0.105	149.550	
CLAYSTONE, black, coaly in part	0.315	149.865	
COAL, dull	0.310	150.175	
CLAYSTONE, grey/buff, hard, carbonaceous at top	0.225	150.400	
CLAYSTONE, black, coaly	0.365	150.765	
COAL, bright	0.045	150.810	
CLAYSTONE, dark grey/brown with coaly laminae and penny bands	0.260	151.070	
COAL, bright	0.030	151.100	
CLAYSTONE, black, carbonaceous	0.140	151.240	
SANDSTONE, grey, fine grained at top, grading down to medium/coarse, lithic at base of hole	5.160	156.400	

BASE OF HOLE

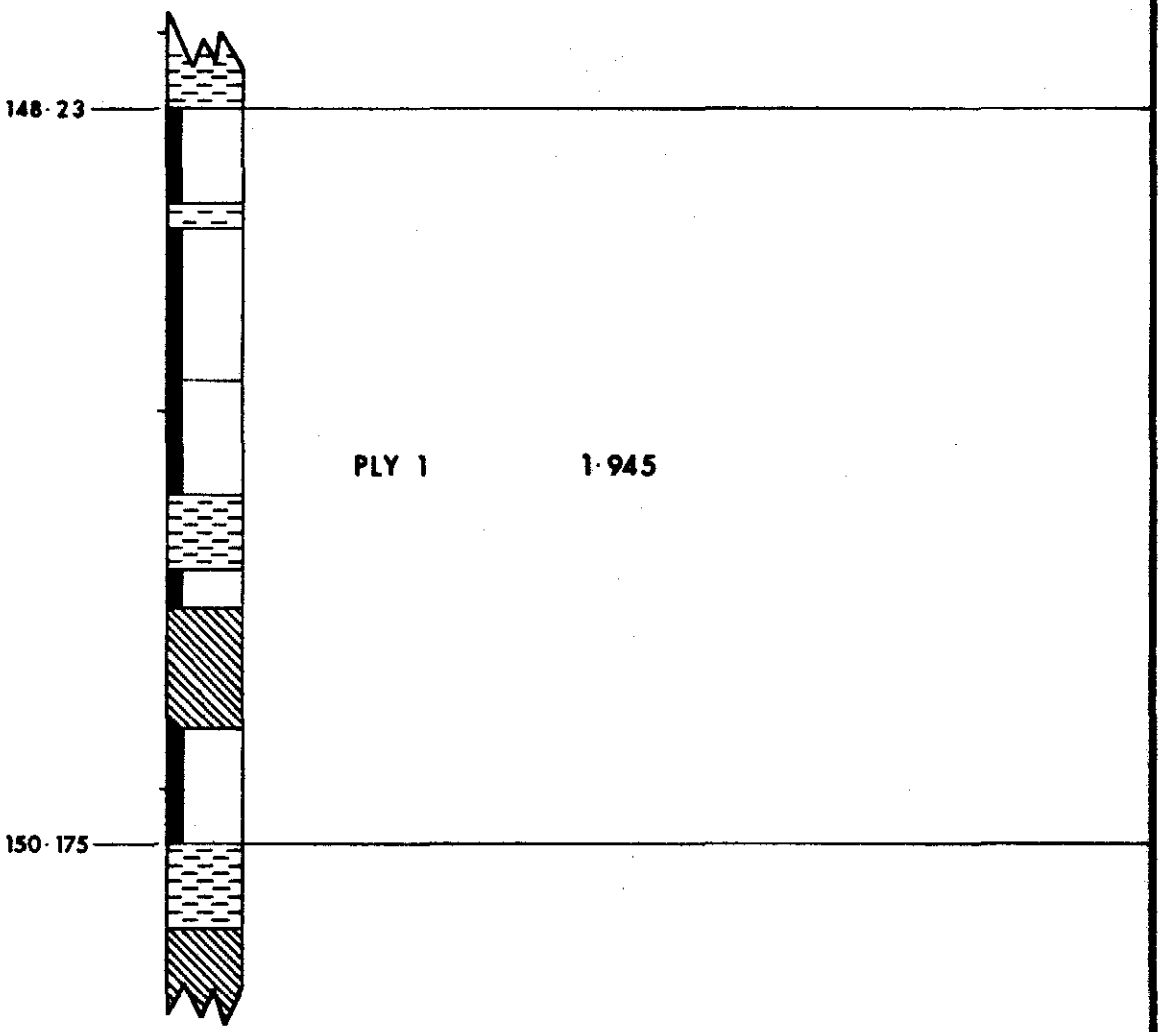
241194

169

CORNWALL COAL COMPANY N.L.

St Pauls River

DDH 11



5 cm

SCALE 1:20 DRAWN C.F.R.P. DATE 5/12/84 PAGE 1 OF 1

170

241195

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 P/L
P. O. Box 34
Willoughby N.S.W. 2068

Attn : Dr. John H. Bryan

REPORT NO SL 2882 CLIENT REF. NO Letter JHB:AJ 15/11/84
DATE SAMPLES IN 16/11/84 DATE REPORT OUT 23/11/84

REPORT TITLE: CORNWALL COAL COMPANY DDH14, DDH16, ST. PAUL's RIVER DDH11.

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 (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

Borecore samples supplied by McElroy Bryan & Associates Pty Limited.

241196

SGS Australia Pty. Ltd.

REPORT NO : SL 2882

INTRODUCTION

The following samples were received at SGS Sydney Laboratory on 16/11/84;

Cornwall Coal Company	DDH 14	Ply 3
" " "	DDH 14	Ply 4
" " "	DDH 16	Ply 1
" " "	St. Paul's River DDH 11	Ply 1

The samples were prepared and analysed as requested by letter JHB : AJ 15/11/84, and as discussed by telephone with Dr. J. Bryan.

Raw coal samples were analysed for relative density and proximate analysis;

Float / Sink separation of plus 0.5mm material (except DDH 14 Ply 4)

Float 1.60 samples were analysed for relative density, proximate analysis, sulphur, specific energy;
cumulative float 1.70 samples were similarly analysed for DDH16 and DDH14 Ply 3.

Results are tabulated on pages 3 - 6 incl.

241197

SGS Australia Pty. Ltd.

REPORT NO: SL 2882

CORNWALL COAL COMPANY
ST.PAUL'S RIVER DDH 11 - Ply 1

RAW COAL

Mass Received			5.600 kg
Relative Density			1.84
Moisture	%	(air dried)	5.5
Ash	%	(air dried)	53.4
Volatile Matter	%	(air dried)	17.5
Fixed Carbon	%	(air dried)	23.6

	Mass %	Ash%
20 x 0.5mm	96.8	53.2 (calc)
- 0.5mm	3.2	54.1
	100.0	53.2 (calc)

Float / Sink Separation of 20 x 0.5mm Material

	Fractional		Cumulative	
	Mass%	Ash%	Mass%	Ash%
Floats 1.60	34.1	21.5	34.1	21.5
S 1.60 - F 1.70	7.4	37.8	41.5	24.4
Sinks 1.70	58.5	73.6	100.0	53.2

			F 1.60 Material
Yield	%		34.1
Relative Density			1.47
Moisture	%	(Air Dried)	3.6
Ash	%	(Air Dried)	21.5
Volatile Matter	%	(Air Dried)	28.9
Fixed Carbon	%	(Air Dried)	46.0
Sulphur	%	(Air Dried)	0.44
Specific Energy	Mj/kg	(Air Dried)	24.94

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COLIN MEADS
MANAGER - LABORATORIES

173

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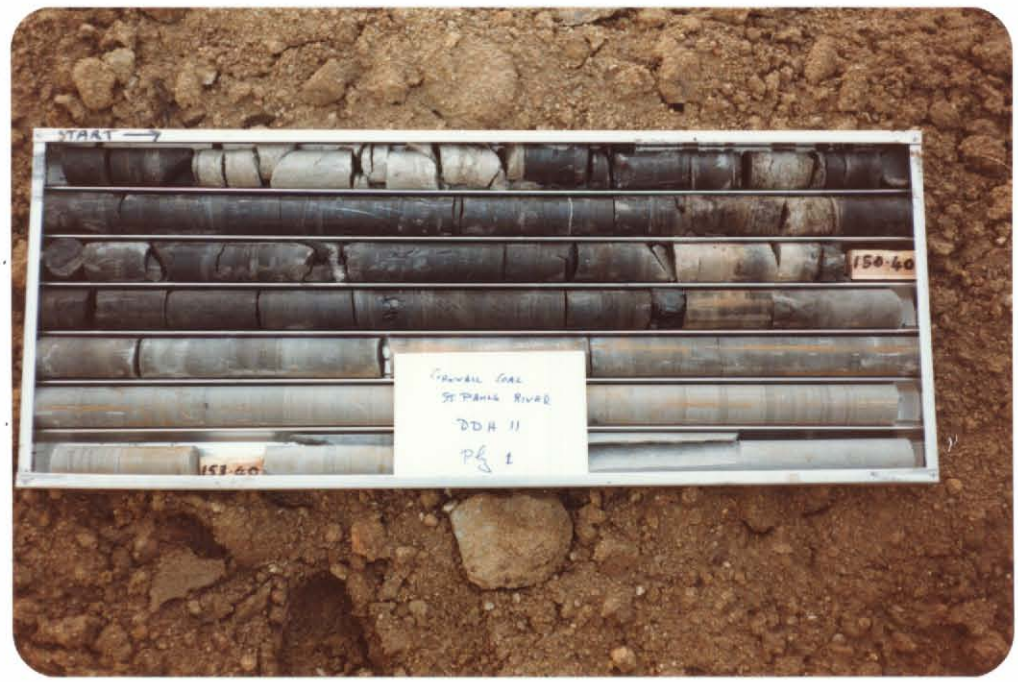

Cornwall Coal St Pauls River DDH 11, Ply 1
from 148.23m to 150.175m; Thickness: 1.945m