

## 4 TOWER HILL – RL 14/1988

In the period 1981 to 1984 CCC drilled 3 holes that are shown on Figure 8. The Triassic Coal Measures are equivalent to those at Fingal and the limited data available suggests that this area is best considered as a 2 Mt exploration target. The coal seams are less than 2 m thick, and the coal is not very deep, but not amenable to open cut extraction due to the steep slopes around Tower Hill. Access to the area is by a narrow gravel road and power would need to be brought into the area if mining was contemplated.

CEMENT AUSTRALIA

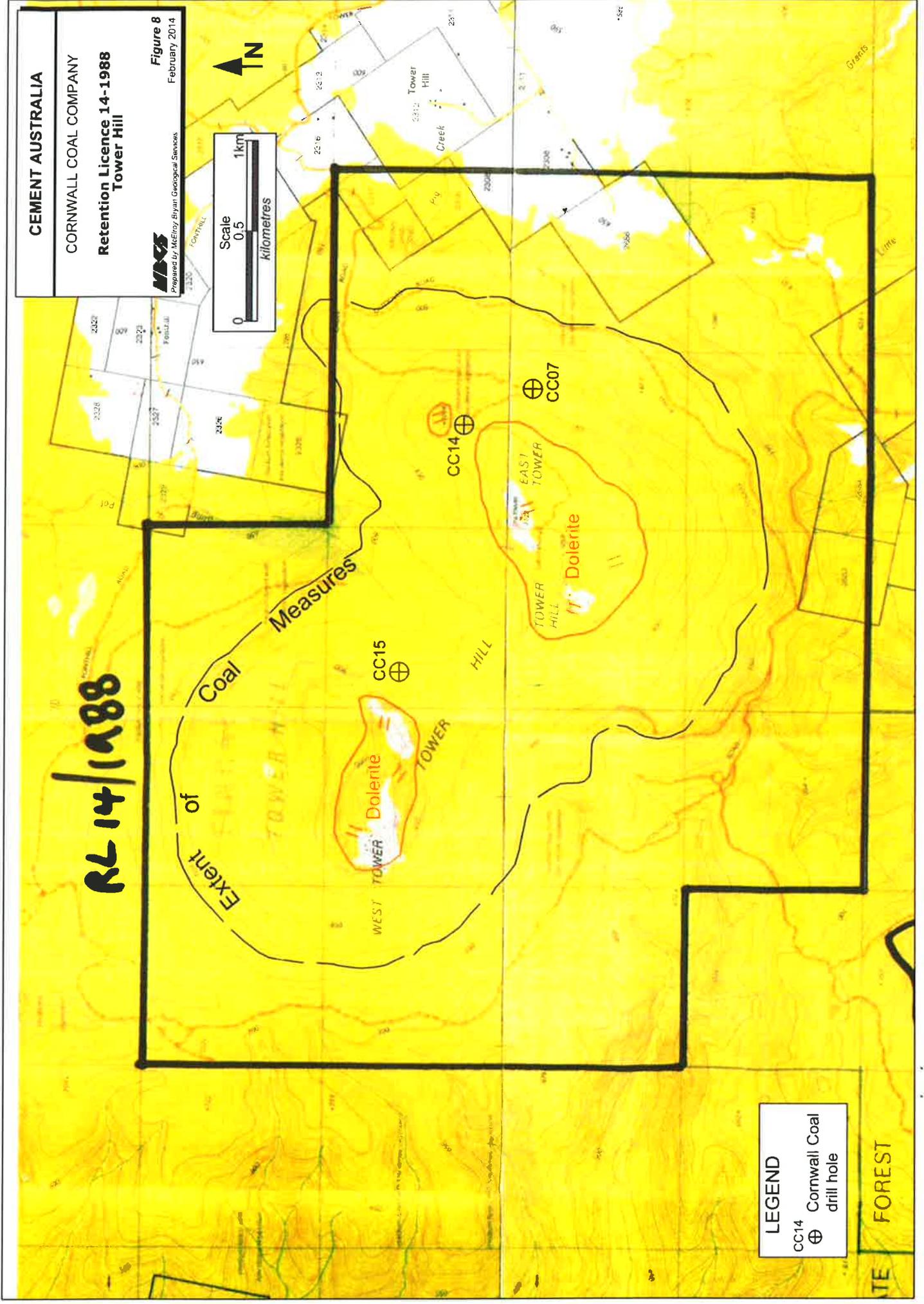
CORNWALL COAL COMPANY

Retention Licence 14-1988  
Tower Hill

Figure 8

February 2014

Prepared by McElroy Bryan Geological Services



RL 14/1988

Extent of  
Coal  
Measures

WEST TOWER  
Dolerite  
TOWER

HILL

EAST  
TOWER  
Dolerite  
TOWER  
HILL

CC15

CC14

CC07

LEGEND  
CC14  
⊕ Cornwall Coal  
drill hole

TE  
FOREST

**APPENDIX B MBGS REPORT ON TOWER HILL, 1984**

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REPORT ON COAL EXPLORATION  
PROGRAMME AT TOWER HILL  
WITHIN E.L. 50/82

REPORT PREPARED FOR  
CORNWALL COAL COMPANY N.L.

BY

McELROY BRYAN AND ASSOCIATES PTY LIMITED

REPORT 60/1/5

J.H. BRYAN

DECEMBER 1984

## TOWER HILL - E.L 50/82

### 1. INTRODUCTION

This outlier of Triassic coal measures is located 15 km north-west of Fingal. The Triassic strata dip to the east-south-east at 2° - 5° and are overlain by Jurassic dolerites. On the lower slopes of Tower Hill there are sporadic outcrops of Permian strata. The dissected plateau at about 550 m which extends to the south and east of Tower Hill is the top of the Mathinna Beds. In 1979 Cornwall Coal Company N.L drilled a hole (DDH 7) on Tower Hill. In the 1984 exploration programme 3 holes were drilled on Tower Hill - DDHs 14, 15 and 19.

### 2. COAL GEOLOGY

Two seams designated A and B occur towards the top of the Triassic coal measures. Table TH 1 gives the thickness and coal quality data on these seams.

Seam A is thin, but the coal when washed would produce coal of acceptable quality at a yield of about 60%. The coal seam thins to the west and is only 1.16 m thick in DDH 19. In DDH 14 Seam A is just thick enough to mine and has a good sandstone roof. This seam also crops out on the eastern end of Tower Hill and would be accessible from the outcrop for mining.

Seam B is thickest in DDH 7, at 1.86 m, and washes to a 15.4% ash product. To the west in DDH 19 however this seam has deteriorated significantly, is only 0.79 m thick, and is comprised mostly of stony coal and carbonaceous claystone.

The reserves of potentially mineable coal at Tower Hill are confined to the eastern end of the area and the *in situ* reserves are estimated to be in the order of 2 million tonnes. The quality of saleable coal is estimated at about 600,000 tonnes on the basis of 50% mining recovery and 60% washing recovery.

Because of the rapid changes in seam thickness between drill holes additional drilling would be necessary to more precisely define the extent of mineable coal. This is not considered to be warranted at this time.



J.H. Bryan  
B.Sc.(Hons), Ph.D.M., Aus.I.M.M.

CORNWALL COAL COMPANY N.L.

TABLE TH 1

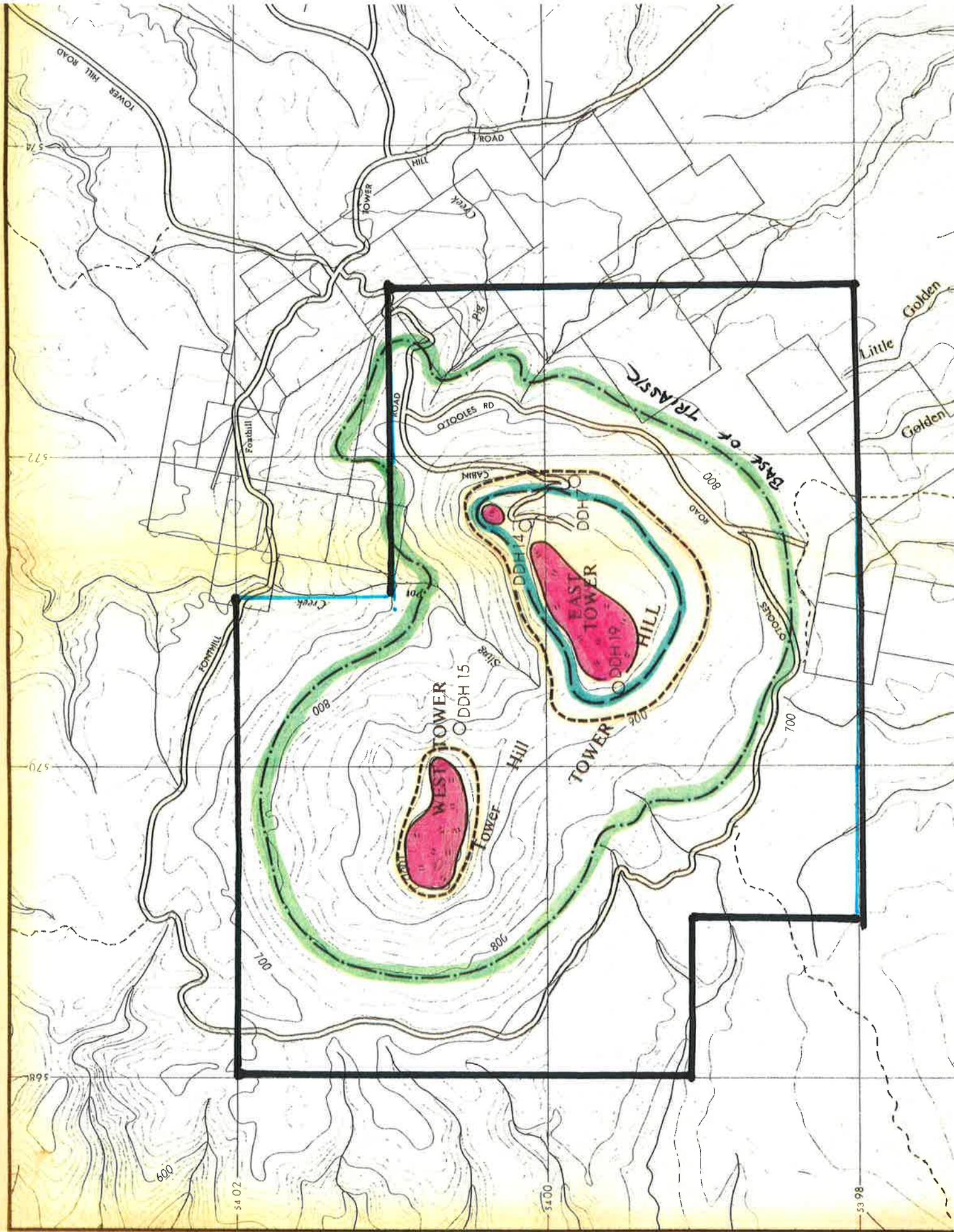
SUMMARY OF COAL SEAM DATA

TOWER HILL -  
EL 50/82

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)							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	20 x 0.5mm %	-0.5mm %	Ash %	R.D.	Ash %
DDH 7	930	B	1.86	19.70	3.9	37.6	21.8	36.7	1.64	1.60	53.3	1.43	3.8	15.4	26.4	54.4	0.41	27.08	97.3	2.7	42.0	2.00	42.0
DDH 14	990	* (1)	0.825	37.15	4.2	36.0	20.7	39.1	1.66	1.60	60.2	1.46	3.2	20.3	29.9	46.6	0.49	25.96	95.7	4.3	45.9	2.08	70.1
		A (2)	1.47	56.14	3.5	40.2	23.3	33.0	1.69	1.60	67.7	1.45	3.2	15.5	27.8	53.5	0.47	27.34	97.8	2.2	29.6	-	-
		B (3)	1.39	81.495	3.9	29.8	24.1	42.2	1.58	1.70	75.1	1.49	3.0	17.8	27.5	51.7	0.47	26.42	97.8	2.2	29.6	2.03	65.0
		* (4)	0.610	86.950	4.1	16.2	27.3	52.4	1.46														
DDH 15	940	NO COAL INTERSECTED																					
DDH 19	1000	A(1)	1.16	38.81	3.3	37.2	25.0	34.5	1.61	1.60	65.3	1.45	3.4	19.6	31.0	46.0	0.54	26.18	96.0	4.0	42.7	-	-
		B	0.79	91.21	NOT ANALYSED																		2.10

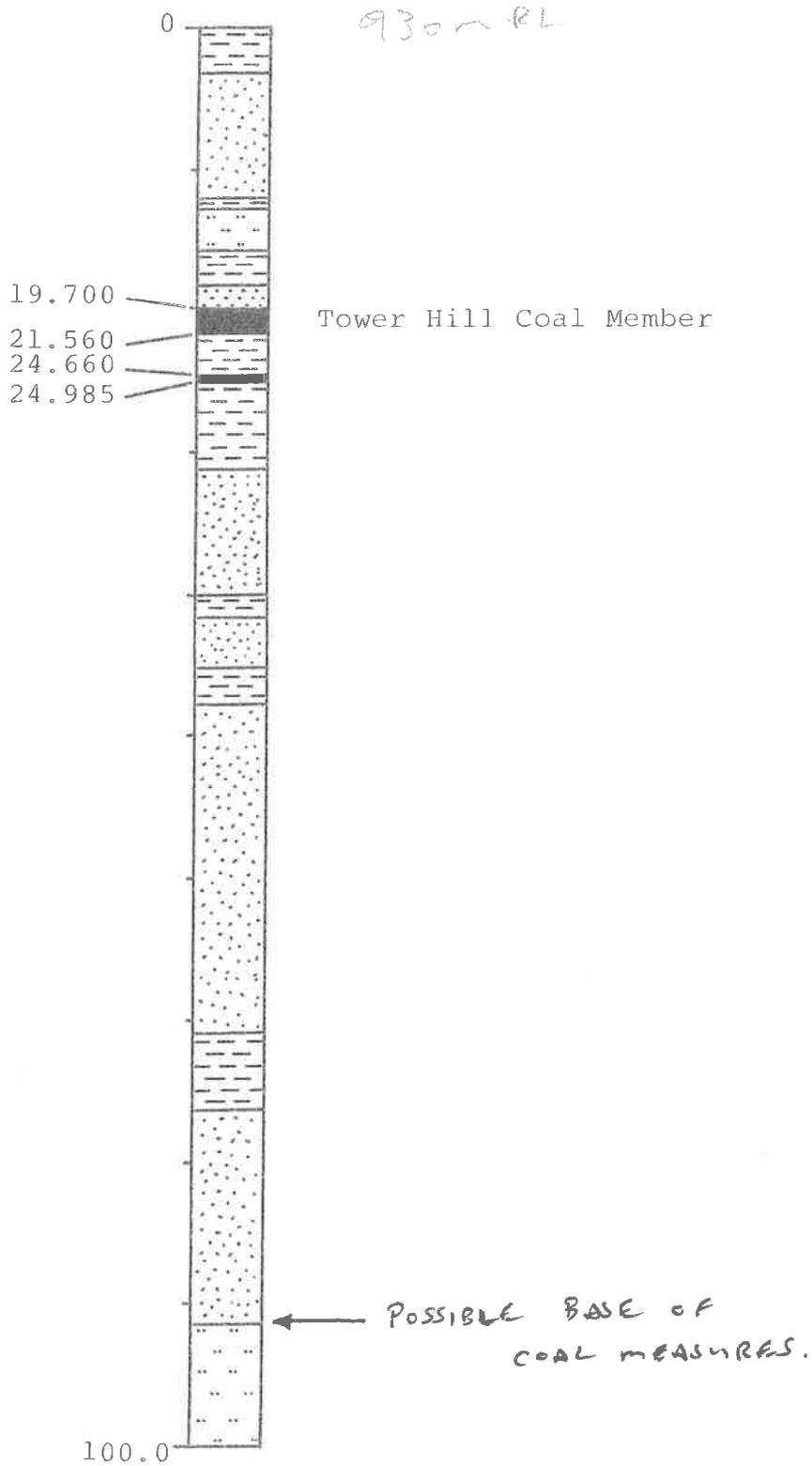
\* Minor coal interval

PL 14/1088



# TOWER HILL

CORNWALL COAL TOWER HILL D.D.H. 7



Prepared by  
MCELROY BRYAN & ASSOCIATES PTY LTD  
for

CORNWALL COAL COMPANY

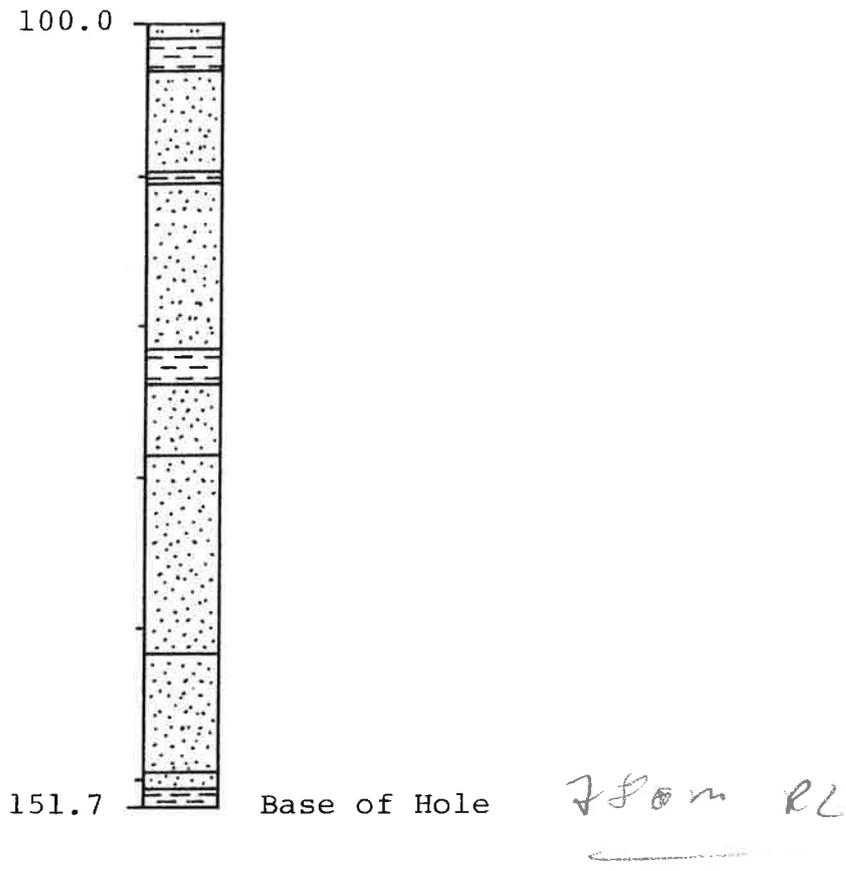
DRAWN BY C.F.R.P. DATE JANUARY 1980

GRAPHIC SECTION

SCALE 1:500

PAGE 1 of 2

CORNWALL COAL TOWER HILL D.D.H. 7



Prepared by  
M<sup>C</sup>ELROY BRYAN & ASSOCIATES PTY LTD  
for

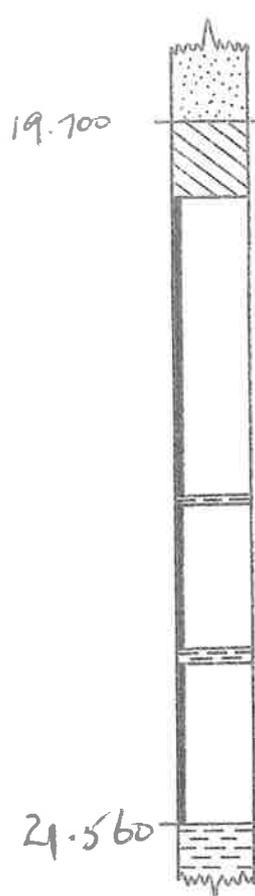
GRAPHIC SECTION

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SCALE 1:500

PAGE 2 of 2

Tower Hill Coal Member

GRAPHIC LOG (DEPTHS IN METRES)	PLY No.	PLY THICKNESS (m)	WT %	ASH %	C.S. No.	INCL. BANDS	EXCL. BANDS
	701	1.86					

Prepared by  
MCELROY BRYAN & ASSOCIATES PTY LTD  
for

COAL SECTION

CORNWALL COAL COMPANY

DRAWN BY C.F.R.P. DATE JANUARY 1980

SCALE 1:20

PAGE 1 of 1



# SGS Australia Pty. Ltd.

formerly

**General Superintendence Company Pty. Ltd.**

Page 1 of 2

## Sydney

74 McEvoy Street,  
Alexandria, N.S.W.,  
P.O. Box 163, Redfern, 2016  
Tel.: ~~69-7625~~ 699-7625  
Telex: AA 22395  
Cables: Supervise

Client: Cornwall Coal Company  
C/- McElroy Bryan & Associates  
Pty. Ltd.  
68 Alfred Street,  
Milsons Point N.S.W. 2061.

Report No.: Lc/2314

Date Received: 30/11/79

Date Out: 7/12/79

Your ref.:

Our ref.:

Sample Reference: 1 Sample from Fingal Valley Tasmania

Identified as: DDH CC7 Sample 701

Sample Processing: Mass of core was taken 'as received'. It was hand crushed to pass a 20mm screen and a raw coal sample split out.

The raw coal sample was tested for proximate analysis and relative density.

Sample was dry screened at 0.5mm.

The 20 x 0.5mm fraction was then float/sink separated at 1.60 R.D.

After air-drying each gravity fraction was weighed and crushed to minus 3mm.

The 20mm x 0.5mm float 1.60, sink 1.60 and minus 0.5mm fraction were analysed for ash and R.D. (no R.D. on minus 0.5mm). The float 1.60 fraction was also analysed for proximate analysis, sulphur, specific energy, crucible swelling number.

Results: Refer to Tables 1 - 5 Sample 701

.....  
David Wilson  
Chief Chemist - Sydney Coal Laboratory

7/12/1979



Lc/2314

7/12/79

FINGAL VALLEY, TASMANIA

SAMPLE 701 DDH 701

Mass (as received) 3.300 kg

Relative Density 1.64

TABLE 1: CRUSHING AND DRY SCREENING AT 0.5mm

	<u>Mass %</u>
20mm x 0.5mm	97.3
Minus 0.5mm	2.7

TABLE 2: RAW COAL ANALYSIS

Moisture %	3.9
Ash %	37.6
Volatile Matter %	21.8
Fixed Carbon %	36.7

TABLE 3: FLOAT/SINK ANALYSIS OF 20mm x 0.5mm MATERIAL

<u>Relative Density</u>	<u>FRACTIONAL</u>		<u>CUMULATIVE</u>	
	<u>Mass %</u>	<u>Ash %</u>	<u>Mass %</u>	<u>Ash %</u>
Floats 1.60	53.3	15.4	53.3	15.4
Sinks 1.60	46.7	61.7	100.0	37.0
Plus 0.5mm (by calculation)	97.3	37.0	97.3	37.0
Minus 0.5mm (by analysis)	2.7	42.0	100.0	37.1

TABLE 4: ANALYSIS OF 20mm x 0.5mm FLOATS 1.60

Moisture %	3.8
Ash %	15.4
Volatile Matter %	26.4
Fixed Carbon %	54.4
Sulphur %	0.41
Crucible Swell Number	½
Specific Energy MJ/kg	27.08
Relative Density	1.43

TABLE 5: ANALYSIS OF 20mm x 0.5mm SINKS 1.60

Relative Density	2.00
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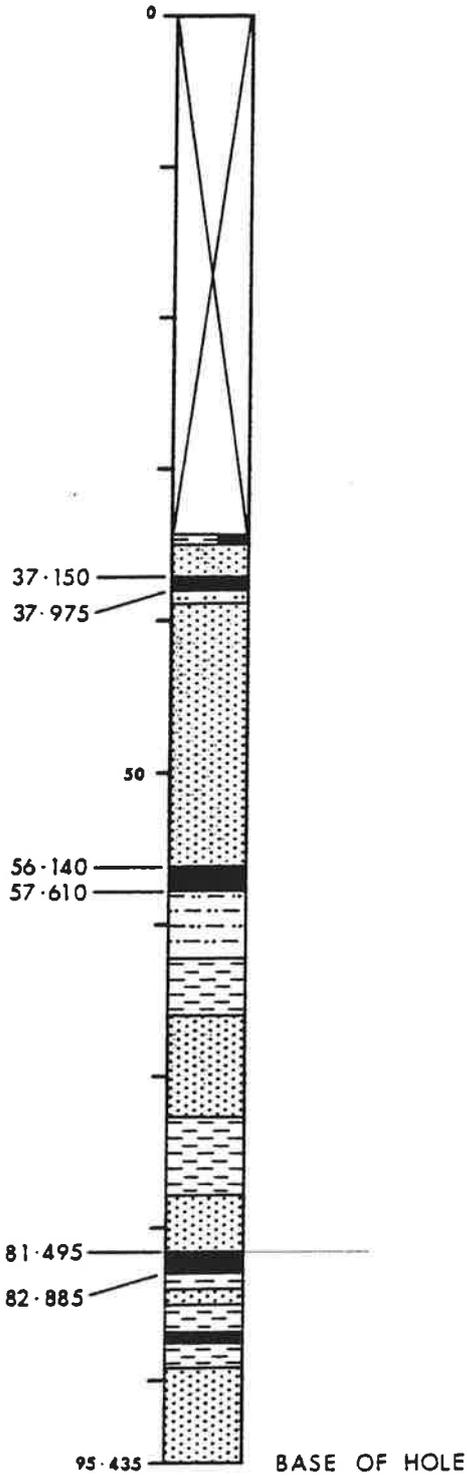


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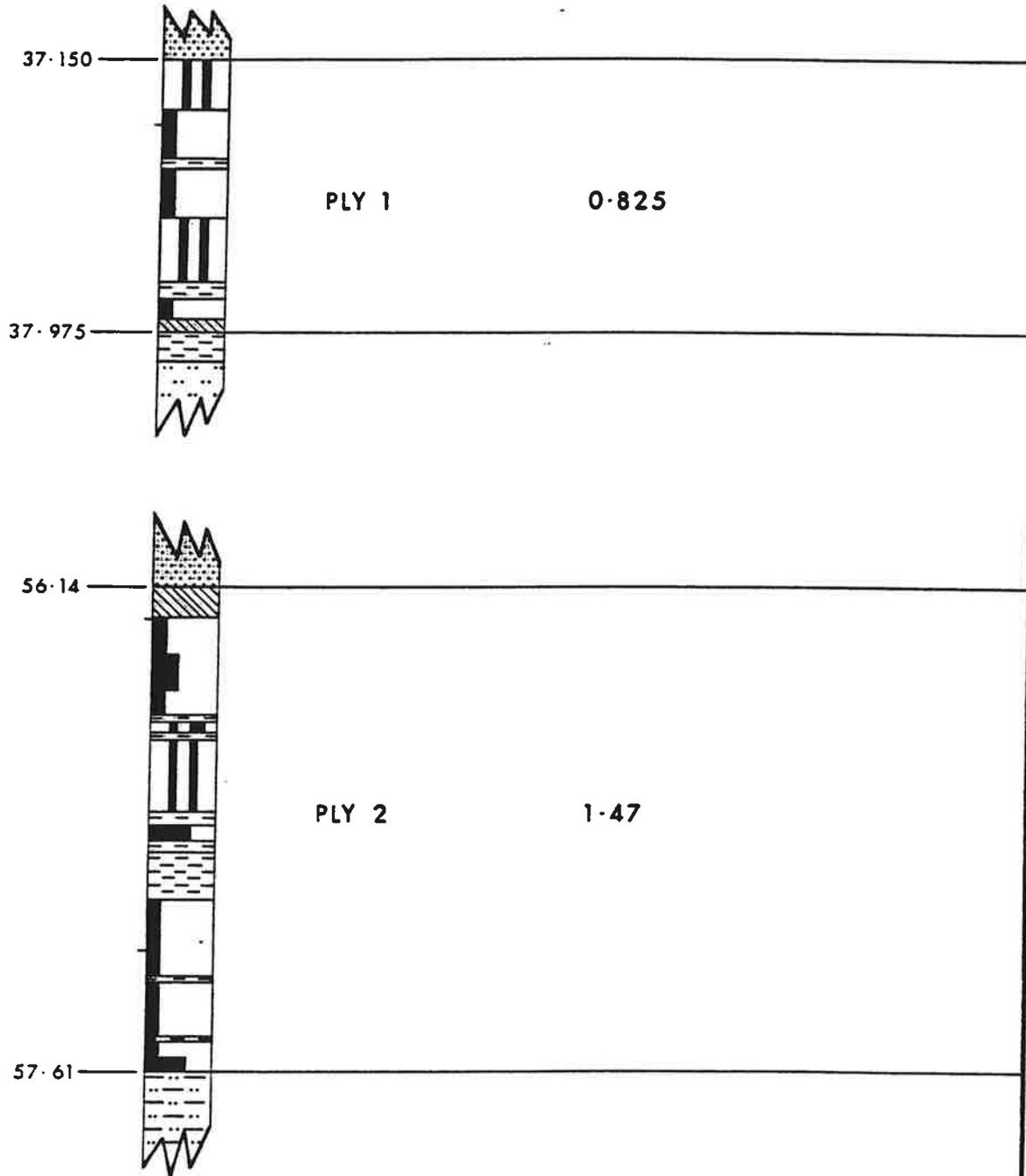
# CORNWALL COAL COMPANY N.L.

## Tower Hill

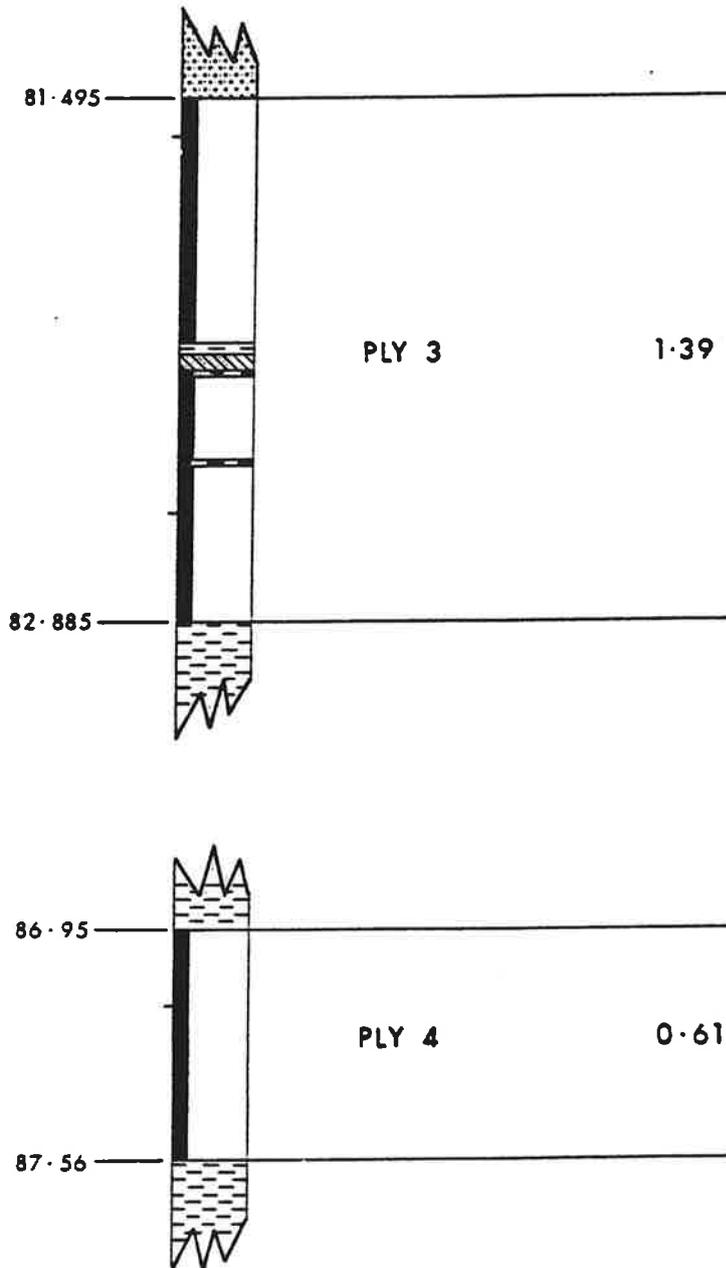
### DDH 14



**CORNWALL COAL COMPANY N.L.**  
**Tower Hill**  
**DDH 14**



**CORNWALL COAL COMPANY N.L.**  
**Tower Hill**  
**DDH 14**





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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 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
<del>AS 1676</del> xxxxxxxxxxxxxx	<del>Sampling</del>
AS 2137	Gieseler Plastometer (Dis-continuous stirring method)
AS 2486	Reflectance of Vitrinite
AS 2515	Maceral Analysis
ISO 349	Audibert Arnu Dilatometer
ISO 335	Roga Index
ISO 1018	Moisture Holding Capacity
BS 1016 Pt.17	Size Analysis
LECO Method	Total Sulphur

Samples supplied by client.



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

FUSIBILITY OF COAL ASH ( Atmosphere): Sintered Alumina Support

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

BASIS RESULTS REPORTED ON Air Dried

.....  
COLIN MEADS  
MANAGER - LABORATORIES



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COAL ANALYSIS REPORT

FLOAT / SINK ANALYSIS

ST. PAUL'S RIVER DDH 9 PLY 1

<u>Relative Density</u>	<u>Fractional (%)</u>		<u>Cumulative (%)</u>	
	<u>Mass</u>	<u>Ash</u>	<u>Mass</u>	<u>Ash</u>
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

<u>Relative Density</u>	<u>Fractional (%)</u>		<u>Cumulative (%)</u>	
	<u>Mass</u>	<u>Ash</u>	<u>Mass</u>	<u>Ash</u>
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




**SGS Australia Pty. Ltd.**

REPORT NO: SL 2882

CORNWALL COAL COMPANY

DDH14 - Ply 3

RAW COAL

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

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

Float / Sink Separation of 20 x 0.5mm Material

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



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.....  
 COLIN MEADS  
 MANAGER - LABORATORIES


**SGS Australia Pty. Ltd.**

REPORT NO: SL 2882

CORNWALL COAL COMPANY

DDH14 - P1y 4

RAW COAL

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

<u>Mass %</u>	<u>Ash%</u>
---------------	-------------

20 x 0.5mm	
- 0.5mm	

NOT REQUIRED

Float / Sink Separation of 20 x 0.5mm Material

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

NOT REQUIRED

F 1.60  
Material

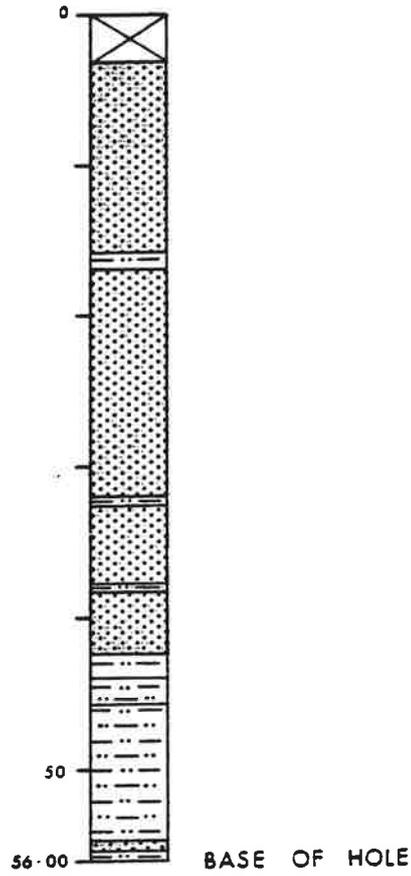
Yield	%	
Relative Density		
Moisture	% (Air Dried)	
Ash	% (Air Dried)	
Volatile Matter	% (Air Dried)	NOT REQUIRED
Fixed Carbon	% (Air Dried)	
Sulphur	% (Air Dried)	
Specific Energy	Mj/kg	



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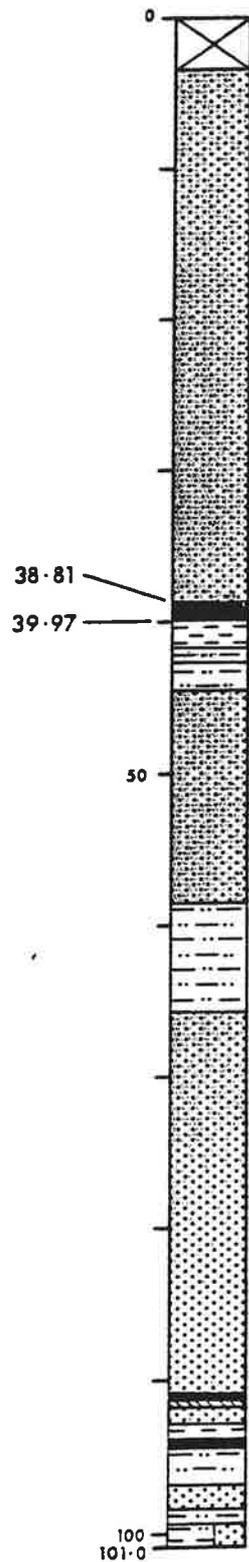
**CORNWALL COAL COMPANY N.L.**  
**Tower Hill**  
**DDH 15**



# CORNWALL COAL COMPANY N.L.

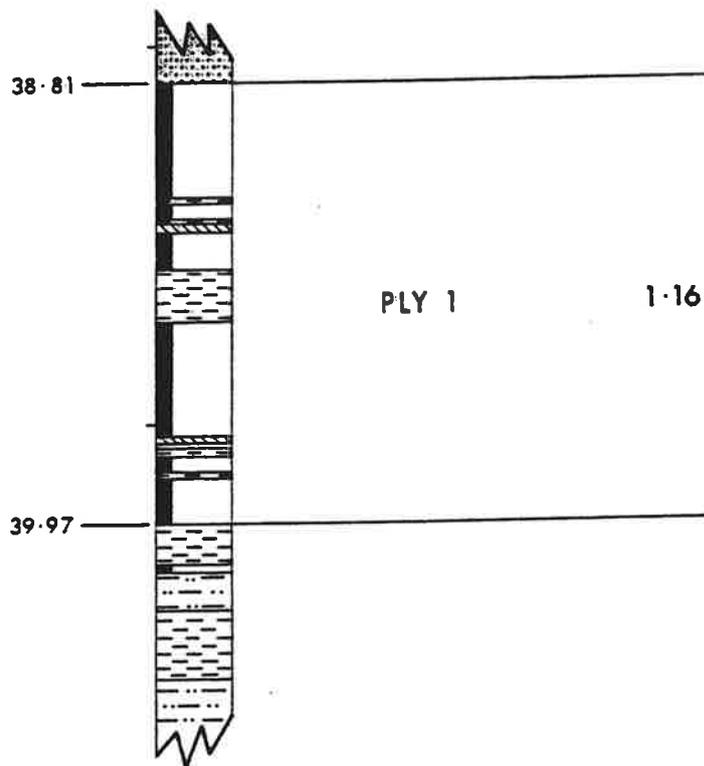
## Tower Hill

### DDH 19



# CORNWALL COAL COMPANY N.L.

## DDH 19





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P. O. BOX 34  
WILLOUGHBY N.S.W. 2068

ATTN : DR. JOHN H. BRYAN

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

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

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

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

BORECORE SUPPLIED BY CLIENT.

ALL MASSES AND ANALYSES ON AIR DRIED BASIS.



Report No : SL 2904

INTRODUCTION

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

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

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

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

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

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



COAL ANALYSIS REPORT

DDH 19, Ply 1

Raw Coal ( -20mm + 0 )

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

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

Float / Sink Separation - 20 + 0.5mm Material

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

- 20 + 0.5mm Floats 1.60

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

COLIN MEADS  
MANAGER - LABORATORIES



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