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COSTAIN AUSTRALIA LIMITED
MINING DIVISION

WOODBURY COAL PROJECT
TASMANIA

SIX MONTHLY REPORT FOR EXPLORATION LICENCE EL31/80

VOLUME 1.

C.K. BAKER

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SUMMARY

The Woodbury coal deposit, contained within Exploration Licence EL31/80, is currently held in the names of three joint venture partners:

Costain Australia Limited
Victor Petroleum and Resources Limited
Northwest Bay Company Pty. Ltd.

Costain Australia Limited is acting as Joint Venture Manager.

The 1984 exploration programme at Woodbury has included 25 open drill holes, 11 partly and fully cored HQ diamond drill holes and 3 100mm cored seam intersections: 1604.29 metres Of drilling in total. All holes have been geophysically logged. Cored coal intersections have been subjected to full float/sink testing. Thermal coal quality parameters have been determined on density composite samples.

Regional geological mapping and a ground magnetometer survey over the Woodbury coal deposit have been carried out.

The geological structure proposed for the coal measures in the Woodbury area consists of an east-west trending anticline plunging gently to the west. The lateral distribution of the principal economic seams, C and D, is largely governed by the present topography, the level of seam oxidation and two major faults.

Total in situ reserves for C and D Seams in the Main Reserve Block amount to 12.3 million tonnes at an average overburden ratio of 10.3 cubic metres per tonne in situ. Additional reserves are inferred in other areas: B Seam of the Main Block, the Sugarloaf, Northern and Western Reserve Blocks. Total in situ reserves may be as high as 23 million tonnes.

Results of testing to date confirm the following "as received" quality for a combined C and D Seam washed product:

Moisture	12%
Ash	24%
Volatile Matter	18%
Specific Energy	21.5 MJ/kg
Sulphur	<0.5%

The Volatile Matter Content averages 27.7% on a dry ash free basis.

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1. INTRODUCTION

1.1 Joint Venture Structure:

The Joint Venture Participants in the Woodbury Coal Project are:-

Costain Australia Limited	50%
Victor Petroleum & Resources Limited	40%
North West Bay Company Pty. Limited	10%

Costain Australia Limited is acting as Joint Venture Manager.

1.2 Mining Title:

The following Exploration Licences and Mining Lease Applications covering the Woodbury Coal Deposit have been transferred to the Joint Venture Parties:

Exploration License: 31/80
Mining Lease Applications: 1070 to 1078 inclusive.

The part of Exploration Licence 31/80 surrounding the Woodbury area covers an area of 766 square kilometres, as shown on Figure A. Mining Lease Applications, covering 16 square kilometres, are shown in Figure B.

LOCATION MAP OF WOODBURY COAL PROJECT

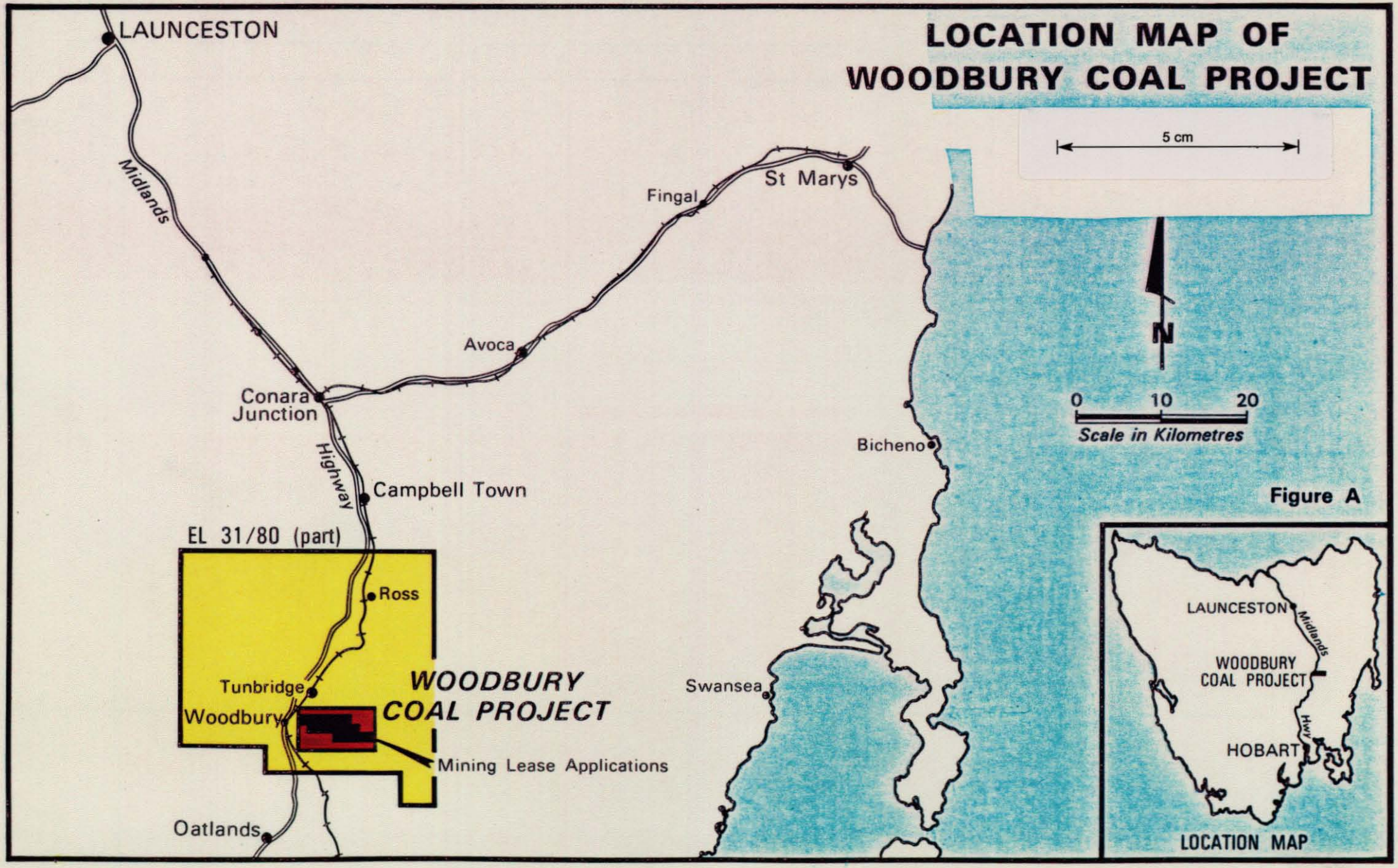
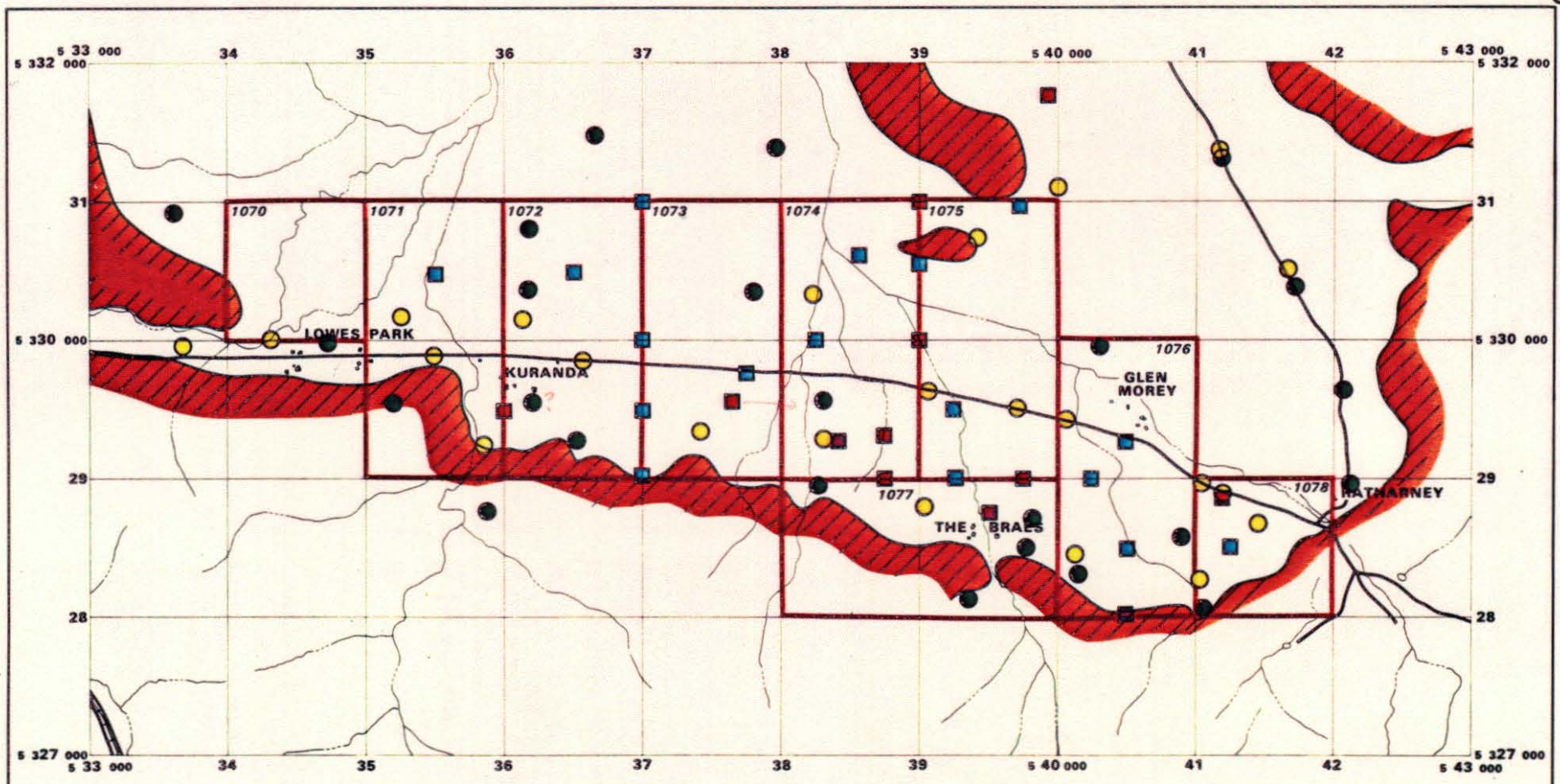


Figure A



LEGEND

- Drilling programme completed 1981
  - Open holes
  - H Q cored holes
- Current drilling programme
  - Open holes
  - H Q cored holes
  - Large diameter (100mm) cored holes
- Dolerite boundary
- 1074 Boundaries of Mining Lease Applications

5 cm

N

0 500 1000 metres

WOODBURY COAL PROJECT

MINING LEASE APPLICATIONS DRILL HOLE LOCATIONS

Figure B

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1.3 Location:

The Woodbury Coal Deposit is located in the Central Midlands of Tasmania, approximately 15 kilometres east of the Midland Highway and the main railway line connecting Hobart 80 kilometres to the south and Launceston 85 kilometres to the north.

The closest settlement is at Tunbridge, some 10 kilometres to the north, with the main population centres of Ross, 20 kilometres, and Campbell Town, 30 kilometres to the north, and Oatlands 15 kilometres to the south.

The Woodbury area consists of undulating pastoral lands which are principally used for grazing of sheep. The area is within a rainshadow with an average annual rainfall of 300 millimetres.

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2. THE 1984 EXPLORATION PROGRAMME

An infill drilling programme has been carried out during September-October, 1984 in order to further delineate the geological structure and nature of the Woodbury coal seams. This programme has been designed to supplement the 74 cored and open holes drilled in the Woodbury - Bells Lagoon area by Victor Petroleum and Resources Limited in 1981.

2.1 Exploration Drilling

The recently completed drilling programme at Woodbury covered the period 1 October to 9 November, 1984. Statistics of the drilling activities are shown in Table A1-1, Appendix 1. In summary 41 open, fully cored (HQ) and partly cored (HQ and 100mm diameter) holes have been drilled at Woodbury during the 1984 programme. The total metreage of 1604.29m corresponds to 1389.07m of open hole drilling (blade bit, R.A.B.), 34.00m hammer drilling, 164.57 HQ coring and 16.65m of 100mm diameter coring. Locations of drill holes from the 1984 programme, together with those from previous exploration of the Woodbury deposit used in the present compilation, are shown on Plan 1. *

The naming convention for boreholes drilled in the Woodbury area is based on three prefixes:

WDC - boreholes from the 1984 drilling programme
WDV - boreholes from the 1981 drilling programme
WDW - geophysically logged water bores.

On-site logging was carried out by geological personnel from Costain Australia Limited, with the assistance of contract staff from Petrocon, Hobart.

* All plans are contained in Volume 2.

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All drill logs were encoded into the on-site computer logging system of K.R. Johnson Associates (MicroVulcan). The exploration database has been progressively transferred to the KRJA Vulcan geological database for subsequent reserve calculation.

All drill hole logs are currently in computer identifiable code and are not yet available in "long hand" form. These will be provided in the following 6 monthly report (April, 1985).

Results of the 1984 drilling programme, including depths to roof and floor of correlated seams, seam thickness, borehole relative level and total depth are summarized graphically in Plans 2 and 3. Graphic logs for boreholes from the 1981 drilling programme, used in the present compilation are shown in Plans 4 and 5.

All drill holes have been geophysically logged using the down-hole methods of BPB Instruments (Australia) Pty. Ltd. The following sondes have been employed:

- background gamma;
- bed resolution and long spaced density;
- neutron;
- S.P. and resistance;
- 3 arm caliper.

Two sets of logs provided by BPB are currently in use by Costain. A full set will be forwarded to the Department of Mines with the following 6 monthly report (April, 1985).

2.2 Drill Site Rehabilitation

Attention has been paid to ensuring that minimum disturbance has resulted from drilling activities in the Woodbury area. The following rehabilitation work has been carried out:

- spreading and raking of cuttings;
- filling of holes, ruts, etc.;
- ensuring drill holes are capped and identified with a steel fence post.

No difficulties have been encountered with the landholders.

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2.3 Coal Testing

Potentially extractable coal seam intersections were sampled on a ply-by-ply basis and submitted to coal testing laboratories for analysis (SGS (Australia) Pty. Ltd., Sydney, Carbon Consulting International Pty. Ltd, Newcastle).

Table A2-1, Appendix 2, summarizes results from the testing and analysis of 14 seam splits from the 1984 drilling programme. The testing and analysis procedures and results are also contained in Appendix 2.

2.4 Magnetometer Survey

A ground magnetometer survey was carried out in the Woodbury area with two aims:

- to delineate the extent of intrusive dolerite units within the coal measures sequence;

- to identify magnetically anomalous areas as a possible indicator of structural features (faults) within the coal measures;

The survey was carried out using the dual magnetometer method. Values obtained from the roving magnetometer were corrected for variations in the daily magnetic flux using results from the base station magnetometer. PPM3 Proton Precession magnetometers from Australex Pty. Ltd., were employed for the survey.

As shown in Plan 6* north-south magnetic traverses are generally spaced at 200m intervals. Individual readings were carried out at 10 pace (approximately 8m) intervals.

Results are currently being compiled to show expanded scales of magnetic intensity and will be presented in the following 6 monthly report (April, 1985).

* Drafting of Plan 6 incomplete at time of report compilation. Plan will be presented in the following 6 monthly report.

2.5 Topographic Control and Borehole Collar Surveying

Topographic control has been provided by models prepared from 1:25,000 aerial photographic coverage. The resulting topographic map prepared in 1981, has been supplemented in peripheral areas by topographic information from enlargements from 1:25,000 Lands Department maps. For the purposes of reserve and burden volume calculation using computer methods the topographic information has been converted to computer compatible format and recontoured. The resulting topographic map is shown in Plan 7.

Borehole collars were surveyed by Mr. M.C. Forster, registered surveyor. Coordinates (A.M.G.) and collar relative levels (A.H.D.) are presented in Table A1-1, Appendix 1.

2.6 Statement of Expenditure

The following expenditure has been incurred by Costain Australia Limited during exploration in the Woodbury area for the period 1 November, 1983 to 31 October, 1984.

Item	$A
Assets - Miscellaneous Office Furniture	668.00
Drilling Expenditure	52,500.00
Coal Analysis	8,500.00
Associated Expenditure	6,435.23
Consultants' Fees	7,500.00
Entertainment and Travel	7,077.34
Telephone, Stationery, Postage	1,840.07
Rent	320.00
Salaries	22,453.75
Car Expenses	4,401.65
Licence Fees	20,280.00
TOTAL EXPENDITURE	131,976.04

3. GEOLOGY AND COAL RESERVE CALCULATION

3.1 Geological Relationships in the Woodbury Area

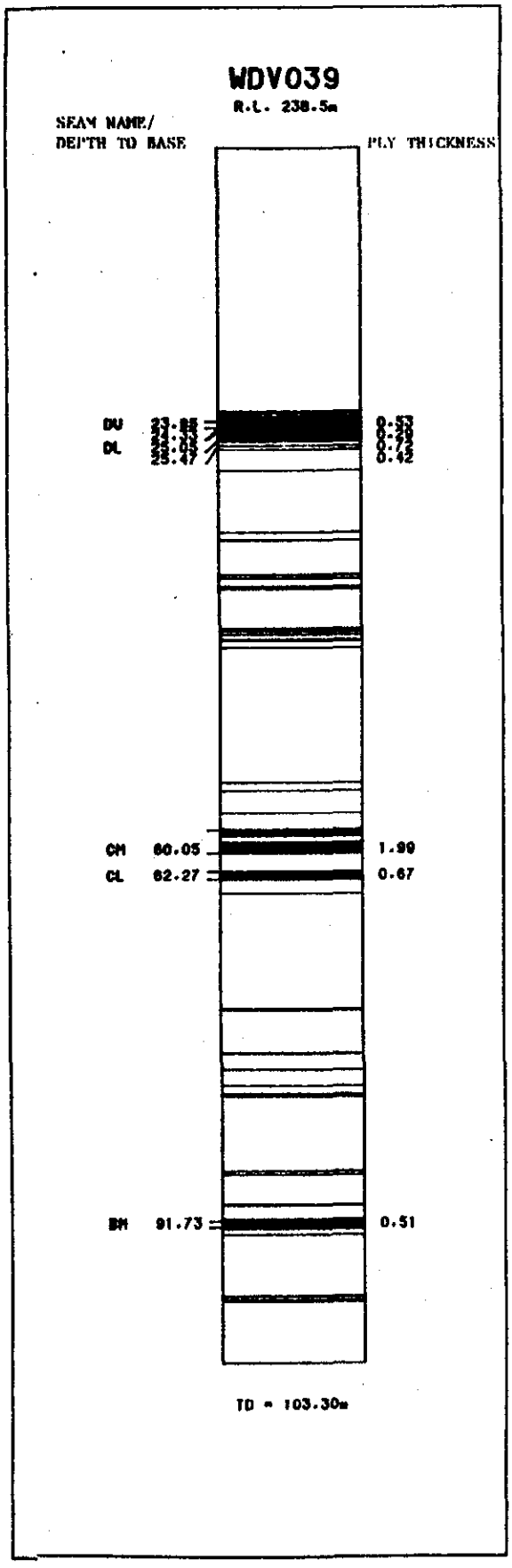
The middle to late Triassic stratigraphy of the Woodbury area consists of coal measures overlying a siltstone-mudstone sequence. The coal measures unit consists of a number of coal members, up to 2.5 metres in thickness, interbedded with lithic sandstone and minor siltstones and mudstones.

Descriptions of the regional geological setting has been covered in previous (unreferenced) reports to the Tasmanian Mines Department by Victor Petroleum and Resources Limited.

Five coal seams of potential economic importance have been identified and named Seams A, B, C, D and E in ascending stratigraphic order. Owing to uncertainties in correlation, seams in the western area have been identified as L, M, N, O and P. Attention has been focussed on seams D and C and to a lesser extent the B Seam, which for reasons discussed in Section 3.3, are of principal economic importance. A typical stratigraphic section is shown in Figure C.

Following an open hole and coring programme during 1984 coal seam correlations have been verified and a revised structural interpretation has been established for the Woodbury coal deposit.

In summary, the structure now proposed consists of an east-west trending anticline plunging gently to the west as shown in a schematic cross section and geological plan (Figures D and E), and borehole cross sections (*Plans 9 and 10*). *To the south of the* Woodbury Road, in the central Woodbury area, the seams dip at less than 1^{o}. The lateral distribution of the principal economic seams, B, C and D are largely governed by the present topography and the level of seam oxidation, which averages approximately 10 metres in depth.



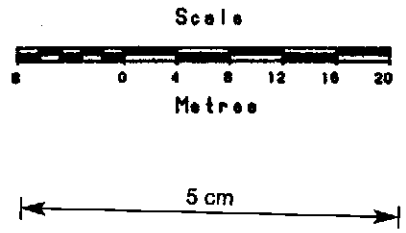


Figure C.

WOODBURY COAL PROJECT

COAL SEAM STRATIGRAPHY

(BORE HOLE NO. WDV039)

DATE: 23 JAN 85 | SCALE: | DRAWN BY: CBAKER | PLAN NO: 1984/08

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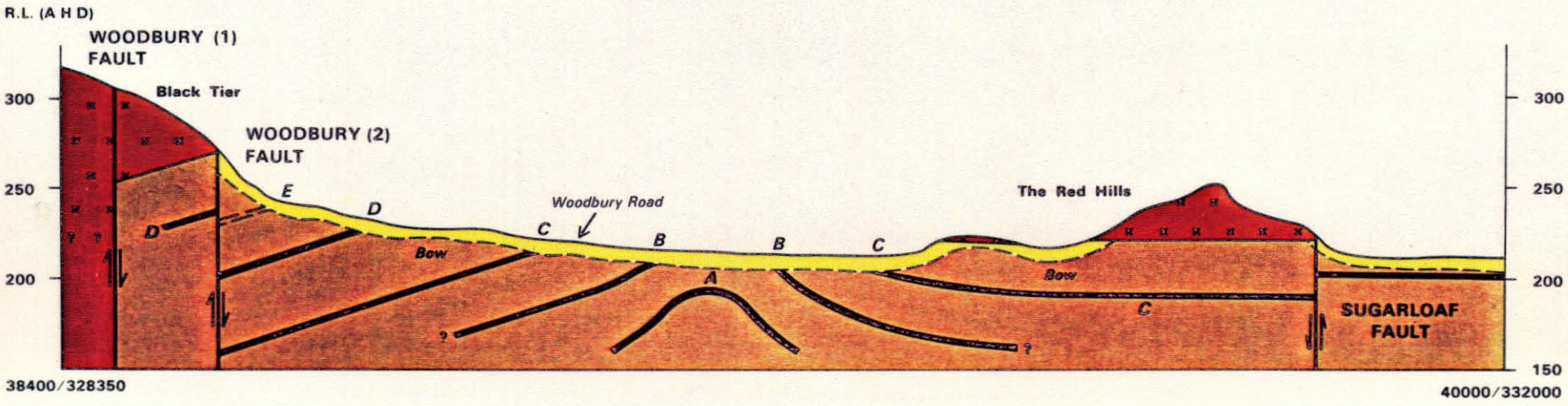
The Western Block seams are separated by a major north-easterly trending fault, the Tin Dish Fault. As drilling is at present incomplete in the western Woodbury area a more comprehensive interpretation of seam structures in this area has not been attempted.

As shown in Figure E the eastern area has been dissected by a major north westerly trending fault system (the Sugarloaf Fault). The coal measures sequence within this fault block have been down-thrown, juxtaposing B and D seams in the eastern area. Seams in this block dip at approximately 6^{o} to the south. Throws on the Sugarloaf Fault have been estimated at 60 metres at its south eastern extent. To the north of the Red Hills C seam is inferred to be down-thrown by 5 to 10 metres. It is anticipated that following a detailed review of results from the magnetometer survey a more precise positioning of these structural features can be attempted.



LEGEND

Jurassic dolerite

Triassic coal seams

WOODBURY COAL PROJECT

SCHEMATIC CROSS SECTION

Vertical Exaggeration 5:1

Horizontal Scale

0 0.5 1.0

kilometres

5 cm

Figure D

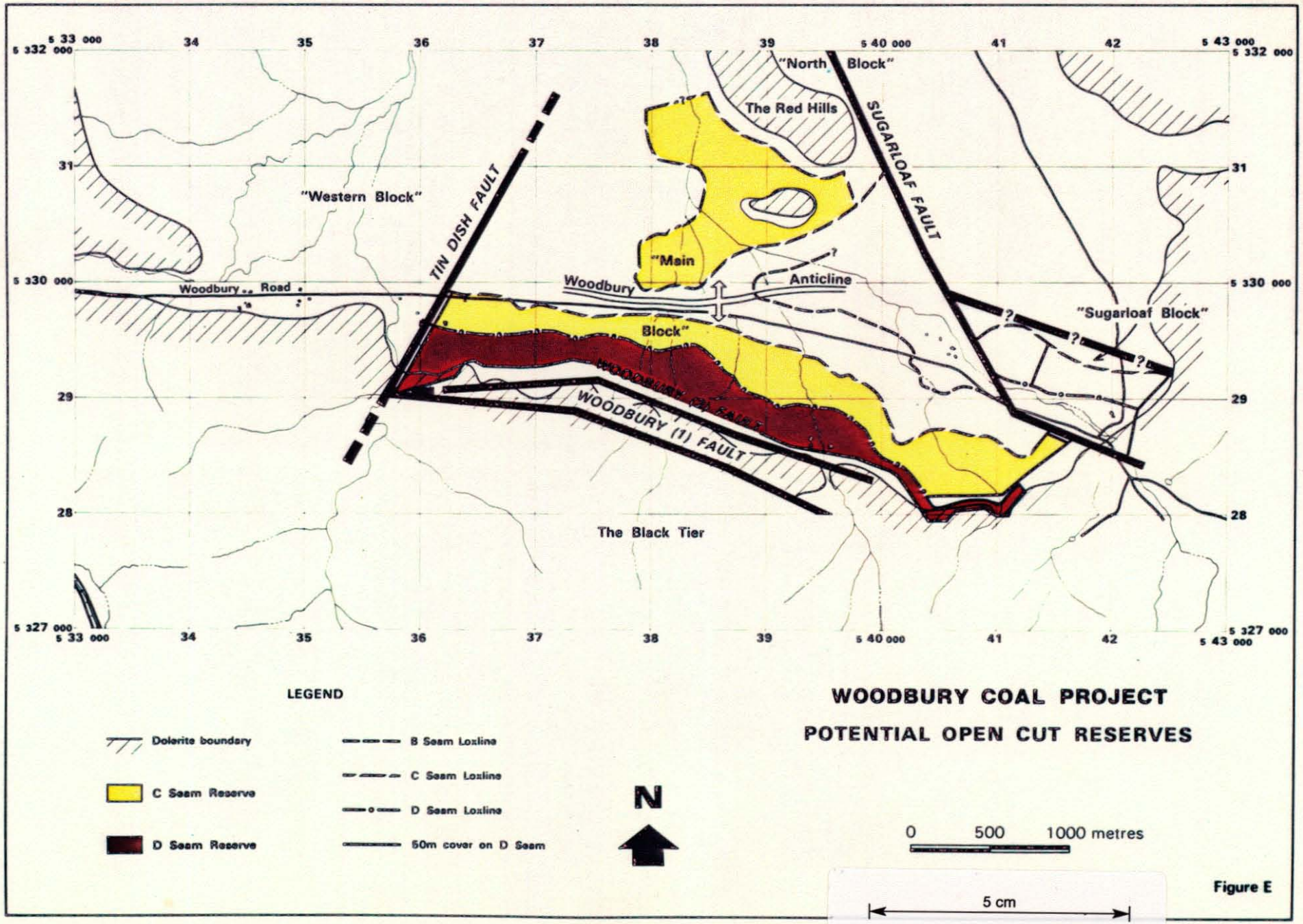


Figure E

020 To the south and east the coal measures may be faulted against horsts of Jurassic dolerite (The Black Tier). To the south two parallel faults have been identified, the Woodbury (1) and (2) Faults (Figure E) between which the coal measures have been up-faulted in relation to those of the main Woodbury area. Dolerite outliers forming the Red Hills are inferred to be thin intrusive sheets overlying the C seam. Preliminary drilling indicates that seams of economic potential exist in the area to the north of the Red Hills.

The northern extent of Triassic coal measures in the Woodbury area is defined by a major fault to the north of the Red Hills where a correlative of the Ross Sandstone (lower Triassic) is encountered.

Development of a Computer-Based Geological Model

Results from the 1984 exploration programme together with those from previous drilling programmes have been compiled for the purposes of developing a computer-based geological model of the Woodbury coal deposit and the subsequent calculation of coal and burden volumes.

The "Vulcan" software package of K. Robert Johnson Associates Pty. Ltd., Sydney, has been employed for the development of the model. In summary the stages involved in this study comprised the following:

a) Establishment of the exploration database.
Encoding of all exploration data, including borehole survey data, rocktype and depth to rock unit data.

b) Verification of all seam correlations.
The following seam split abbreviations have been employed (seams are listed in descending stratigraphic order).

DU	-	D Seam, upper split
DL	-	D Seam, lower split
CU	-	C Seam, upper split
CM	-	C Seam, middle split
CL	-	C Seam, lower split
BT	-	B Seam, top split
BU	-	B Seam, upper split
BM	-	B Seam, middle split
BL	-	B Seam, lower split
AU	-	A Seam, upper split
AL	-	A Seam, lower split

As a result of previous manual reserve and midburden estimates and of coal quality restrictions it was decided to focus attention on splits of the C and D seams. Modelling of the BM Seam has been carried out for illustrative purposes only.

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c) Delineation of reserve limits which, for the Main Reserve Block include the following:

- Tin Dish Fault
- Sugarloaf Fault
- Woodbury Fault
- The occurence of dolerite sills to the north of the Woodbury Road, forming the Red Hills.
- Levels of oxidation for C and D Seams based on an average weathering depth of 10 metres.
- Lines of seam splitting.

The location of faults and seam L.O.X. lines are shown in Plan 8. Lines of seam splitting are identified on plans of seam thickness (Plans 13 - 17).

d) The computer-generated grid model is created using a triangulation or inverse-square interpolation method between drill hole located data points. For the purposes of this compilation a grid cell size of 100 x 100 metres was chosen to model seam structure, seam thickness and midburden thickness.

Delineation of the overall structure of the coal measures has been achieved using the middle split of the C Seam (CM) which shows the most widespread development. The strucutre grid generated for the CM Seam has therefore been adopted as the "datum" seam upon which the geological model of the Main Reserve Block of the Woodbury deposit has been based.

A countoured representation of the grid modelled structure of the floor of the CM seam is shown in Plan 11. Attention is drawn to the anticlinal structure inferred for the Woodbury coal measures. Location of the east-west trending anticline is shown in Figure D. Irregularities in the broadly east-west strike of the coal measures, in the area south of line 331000E are attributed to minor faults.

Structural representations of seams above CM have been established using a sequential addition of seam and midburden grids, for example:

CM seam roof grid = CM seam floor grid + CM seam thickness grid
CU seam floor grid = CM seam roof grid + midburden above CM grid.

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A contoured representation of the "grid added" structure of the DL seam is presented in Plan 12. Minor discrepancies from the true structural relative level of the DL Seam are noted and are probably attributable to difficulties in modelling seams adjacent to fault structures. It is considered unlikely that these discrepancies will result in significnt errors in the estimation of overburden quantities.

e) Variations in seam thickness are shown in contour maps of all splits of the C and D Seams. Plans 13 to 17 also show lines of seam splitting inferred from drill hole information.

f) It was found that the topographic surface (Plan 7) could be better modelled using a 50 x 50 metre grid size. For this reason overburden thickness (calculated by subtracting seam roof grid from topography grid) was also generated at a 50 metre grid size.

3.3 Coal Reserves

3.3.1 Statement of Reserves

Coal reserves and burden quantities have been calculated from the geological model described in the previous section. Coal and burden volumes calculated for conceptual mining strips are currently being compiled for mine feasibility studies (mining strips are shown in figure B). Results will be presented in full in the following 6 monthly report (April, 1985)

Prior to the development of the computer-based geological model a coal reserve estimate was made using manual calculation methods. Total reserve estimates of the Main Block, on which the present mining feasibility study has been based, are shown in Table 1A (refer also to Figure E). Total in situ reserves for C and D Seams amount to 12.3 million tonnes at an average overburden ratio of 10.3 cubic metres per tonne in situ. Additional reserves are inferred in other areas: B Seam of the Main Block, the Sugarloaf, Northern and Western Reserve Blocks (Figure E and Table 1B). Total in situ reserves may amount to 22 million tonnes.

Reserves have not been classified into measured and indicated categories. It is recognised that additional cored seam intersections are required to elevate reserve estimates to a measured status in several areas of the Woodbury Coal Deposit.

As a result of the recent drilling programme seam correlations have been verified and the structural geology of the coal measures sequence significantly simplified. Additional confidence must therefore be placed on the present statement of reserves.

3.3.2 Method of Reserve Calculation

In situ reserves have been calculated using the conventional "area of influence" polygon technique. Aggregate seam thicknesses have been measured from cored seam intersections, excluding coal members less than 0.2 metres in thickness. In areas of widely spaced cored

Table 1. Coal Reserves and Overburden

SEAM	LOCATION	COAL							OVERBURDEN		
		In Situ				ROM	Washery Yield	Saleable		Ratios	
		Area	Av. Thickness	R.D.						In Situ	Saleable
		km^2	m		MT	MT	%	MT	Mm^3	m^3/tonne	
A Main Block Reserves, C and D Seams											
C	Main Block - South	1.80	1.3	1.55	3.56	3.03	75	2.27	51.1	14.4	22.5
C	Main Block - North	1.42	1.2	1.55	2.67	2.27	75	1.70	25.6	9.6	15.1
C	Main Block - Sub Total	3.22		1.55	6.23	5.30	75	3.97	76.7	12.3	19.3
D	Main Block - South	1.53	2.4	1.65	6.06	5.15	65	3.35	49.9	8.3	14.9
	TOTAL, Main Block	4.75			12.29	10.45		7.32	126.6	10.3	17.3
B Additional Reserve Potential											
B	Main Block	0.81	1.5	1.65	2.0						
D	Sugarloaf Block	0.39	3.0	1.65	1.9						
C	Sugarloaf Block	0.31	1.3	1.55	0.6						
C	Northern Block	0.80	1.3	1.55	1.6						
LMN OP	Western Block				4.0						
	TOTAL Other Reserves	2.31			10.1						

TOTAL RESERVES **22.39MT**

026 intersections, seam thicknesses have been determined from open holes using the bed resolution density geophysical log, the results of which compare accurately with values obtained from cored intersections.

Saleable reserves for C and D seams have been estimated on the basis of:

- 85% mining yield
- 75% and 65% washery yield respectively to produce a 25% ash product.

3.3.3 Reserve Blocks of the Woodbury Coal Deposit

Four reserve blocks have been recognized within the Woodbury Coal Deposit. Their boundaries are largely based on two major fault systems, the Tin Dish and Sugarloaf Faults (Figure E).

a) The Main Reserve Block

The Main Reserve Block, in the central Woodbury area, has been divided into northern and southern areas. To the south the C and D Seams dip in a southerly direction. Reserve limits are based on the level of seam oxidation (averaging 10 metres in depth), and on a 50 metre stand-off to the Tin Dish and Sugarloaf Faults. The D Seam limit of oxidation has been chosen as the southerly extent of extractable C Seam reserves; D Seam is limited by the 50 metre overburden isopach.

To the north the C Seam dips gently towards the Red Hills. The apparently irregular seam subcrop has been attributed to low amplitude warps in the seam's structure together with an erratic depth of weathering.

Reserves of B Seam have been reduced compared to previous estimates owing to the revised structural interpretation. Coal from B Seam has not been included in the current feasibility study as a result of its low Volatile Matter Content. This seam lies below the D and C Seams and is possibly heat affected by igneous activity at depth. Further exploration may show higher levels of Volatile Matter Content within B Seam and allow its exploitation.

The uppermost coal member, E Seam, has not been considered owing to its restricted occurrence within the Main Reserve Block.

b) The Sugarloaf Block

Limited drill hole information indicates a resource amounting to approximately 2.5 million tonnes in situ of C and D Seams within this block in the eastern Woodbury area.

c) The Western Block

Exploration in the area to the west of the proposed Tin Dish Fault by Victor Petroleum and Resources Limited led to the delineation of some 4.6 million tonnes within 5 seams dipping gently to the west. Further exploration has not been undertaken during the recent programme. These reserves have not been included in the present mine plan owing to low apparent Volatile Matter Content of the seams.

An in situ reserve/resource of approximately 4 million tonnes has been estimated for the Western Block.

d) The Northern Block

Recent open hole and limited cored drilling has delineated a resource of C seam to the north of the Red Hills. Reserves have been conservatively estimated at 1.6 million tonnes. Encouraging results have been obtained from the last drill hole of the recently completed programme in which a largely unweathered seam section, of approximately 1.2 metres aggregate thickness, was encountered at a depth of 6.5 metes (WDC141, 39950/331700).

3.3.4 Comparison With Previous Reserve Estimates for the Woodbury Coal Deposit

The revised structural interpretation of the Triassic coal measures in the Woodbury area, together with restrictions imposed by the Volatile Matter Content of the product coal has resulted in a reduced estimate of coal reserves on which the current mine plan is based.

Estimates for the total coal reserve/resource in the Woodbury area are comparable to those presented by Victor Petroleum and Resources Limited and used in the previous submission. The recent drilling programme has delineated further reserves of C and D seam in the Sugarloaf Block. A significant reserve of C Seam may exist in the area to the north of the Red Hills, the Northern Reserve Block.

Details of adjustments to reserves, on a seam-by-seam basis are as follows:

a) D Seam

The overall in situ reserves of D Seam in the Main Block have not changed significantly following the recent recalculation of reserves. Additional reserves have been delineated within the western area of the Main Block. However, this additional tonneage has been reduced by the selective removal of non-coal partings within the D Seam.

In situ reserves of 6.1 million tonnes calculated in the present evaluation compares to 5.9 million tonnes previously calculated by Victor Petroleum and Resources Limited.

b) C Seam

A marked decrease has been observed in reserves of the C Seam within the Main Reserve Block. This adjustment is attributed to the revised interpretation which has imposed a greater southerly dip of the C Seam on the southern limits of the Woodbury Anticline than was proposed in earlier evaluation. The effect has been to constrain the northern extent of the C Seam by a revised limit of oxidation.

Total in situ reserves for the C Seam in the Main Block have been calculated at 6.2 million tonnes compared to 9.1 million tonnes previously reported.

c) B Seam

As a result of revised seam correlations the reserves of B Seam have been reduced : 2.0 million tonnes compared to 5.1 million tonnes previously reported. As discussed in Section 3.3, B Seam has not been included in the current mining plan owing to possible low levels of Volatile Matter Content.

d) Seams of the Western Reserve Block

Reserves of seams of the Western Block as calculated by Victor Petroleum and Resources Limited have been reduced by 0.6 million tonnes owing to an overlap with the Main Reserve Block. This has resulted from the positioning of the Tin Dish Fault at a different orientation to the formerly proposed Kuranda Graben.

4. COAL QUALITY

4.1 The Nature of Woodbury Coal

The Triassic coals in the Woodbury area are of moderate rank (medium to low volatile bituminous) and consist predominantly of durainous lithotypes. The elevated coal rank and high content of inertinite macerals (the latter being a property typical of Tasmanian coals) contributes to a higher specific energy (33 - 34 MJ/kg d.a.f.) and lower Volatile Matter Content (up to 31% d.a.f.) when compared to the stratigraphically equivalent coal measures of the the Fingal Valley.

According to the Seyler's classification the upper Woodbury seams are subhydrous ortho- to para-bituminous coals.

Owing to coal rank increase with depth (presumably due to the effects of deeper igneous activity in the Woodbury area and a corresponding decrease in Volatile Matter Content) the lowest seams, and those from the Western Reserve Block have been discounted from the total reserves at Woodbury.

4.2 Coal Washability

Float and sink testing carried out on samples obtained during the 1984 exploration programme has shown that beneficiation of the run of mine coal will be necessary. Results from the testing of slim and large diameter (100mm) core samples (presented in Appendix 2) excluding thicker non-coal partings which may be selectivly removed during mining, indicate that less than 25% ash content specification may be obtained at the following plant yields:

D Seam : 65% yield
C Seam : 75% yield

Washability test results from the 1984 drilling programme are currently being evaluated by coal preparation consultants in order to refine the above estimates.

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4.3 Product Coal Specification

Table 2 summarises an indicative average coal quality specification which is considerd to be achievable by blending washed coal from C and D seams. Coal quality parameters have been averaged from results presented in Appendix 2, in proportion to the in situ reserves of C and D seams.

Of major concern to the present programme has been the suitability of Woodbury coal to conventional combustion applications. The usual measure of ease of combustibility of a coal is Volitile Matter Content with a commonly cited acceptable minimum content of 25% (dry, ash free basis).

Results from the latest coal testing programme, together with analysis carried out on low ash (less than 40%) raw coal samples during the 1981 programme, show that Volatile Matter Contents of both C and D seams lie well above the minimum specification of 25% (dry, ash free basis).

These results, presented graphically in Figure F, show that the combination of C and D seams at average Volatile Matter content (d.a.f.) of 25% and 30.5% respectively results in an average value of 27.7% for the Main Block Reserves.

The average Volatile Matter Content for the Woodbury coal resource, including seams which have been eliminated on the basis of a 25% volatile matter (d.a.f.) cut off, has been estimated at 24.8% (d.a.f.). Sulphur levels of Woodbury coals are low. The average from 23 low ash (<40%) samples from all seams is 0.45%, ranging from 0.22 to 0.66%.

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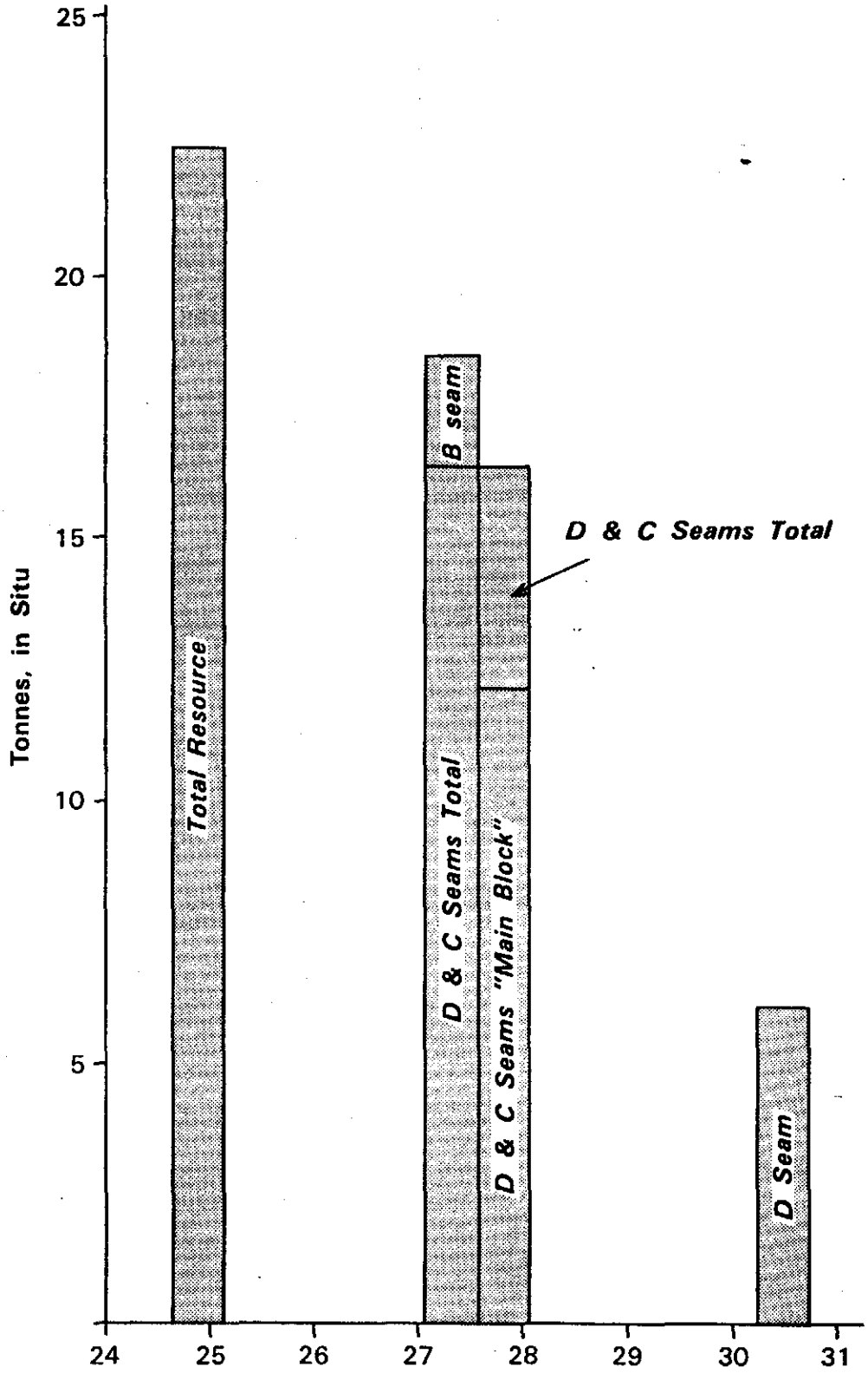
Table 2 Indicative Quality Specification for a Woodbury Washed Product Coal.

Coal Properties	Units	Basic Quality
Inherent moisture (air dried bassi)	%	4.2
Ash	%	24.0 *
Volatile Matter	%	17.8 *
Fixed Carbon	%	46.2
Sulphur - total	%	0.43
Specific Energy	MJ/kg	21.50
Hardgrove Grindability Index		75
Ash fusion characteristics (reducing atmosphere conditions)		
Initial deformation	°C	1260
Softening	°C	>1340 **
Hemisphere	°C	>1360 **
Flow	°C	>1390 **
Ultimate analysis (dry ash free basis)***		
Carbon	%	85.35
Hydrogen	%	4.62
Nitrogen	%	1.58
Sulphur	%	0.80
Phosphorus	%	0.09
Chlorine	%	>0.05
Analysis of Ash constitutents		
SiO_2	%	53.9
Al_2O_3	%	25.5
Fe_2O_3	%	3.49
TiO_2	%	1.09
CaO	%	9.48
MgO	%	2.82
Na_2O	%	0.26
K_2O	%	1.13
P_2O_5	%	0.06
Mn_3O_4	%	0.44

* Values at 4.2% inherent moisture (air dried basis):
Ash 26.1%
Volatile Matter 19.4%
Volatile Matter (d.a.f.) 27.7%

** Average includes values greater than 1500°C.

*** Determined on C seam only (average of 2 samples)



Cumulative Volatile Matter Content%
(dry, ash free basis)

WOODBURY COAL PROJECT

FIGURE F.

APPENDIX 1

WOODBURY COAL PROJECT
DRILLING STATISTICS

035

TABLE A1-1

DRILLING STATISTICS, WOODBURY COAL PROJECT
OCTOBER - NOVEMBER, 1984

Hole No.	Relative Level (M.A.H.S.)	Grid Co-Ordinates (A.M.G.) East	North	Date Commenced	Metreage Open Blades	Hole Hammer	Coring HQ	4"	Total Depth
WDC101	247.53	539 250	5329 000	1/10	54				54
102	257.88	541 258	5328 507	3/10	57				57
103	236.05	540 496	5329 230	3/10	51				51
104	234.32	540 255	5328 940	4/10	54				54
105	219.07	537 775	5329 770	8/10	50				50
106(R)	264.24	539 530	5328 687	8/10	5.9		66.1		72.0
107	238.62	538 545	5328 995	10/10	12		8.7		20.7 *
108	226.18	539 295	5329 500	11/10	48				48
109	215.07	539 000	5330 000	12/10	51				51
110	214.68	538 975	5330 025	12/10	15		15.4		30.4
111	244.69	537 000	5329 068	15/10	5	25			30
112	230.36	537 045	5329 370	16/10	54				54
113	226.43	536 070	5329 500	17/10	51	3			54
114				17/10	42				42
115				17/10	48				48
116	215.05	537 000	5330 000	18/10	51				51
117	266.29	539 530	5328 687	19/10	14.7	6		3.3	24.0
118(R)	237.82	538 438	5329 280	19/10	27				27
119	237.88	538 438	5329 280	20/10	16.6			4.65	21.25
120	223.69	538 050	5329 560	21/10	25.2		9.7		34.9
121	242.50	541 190	5328 880	22/10	30.2		5.2		35.4
122	288.60	540 520	5327 935	22/10	45				45
123	248.10	540 500	5328 490	22/10	20.8		5.9		26.7
124(R)	283.22	540 512	5327 970	23/10	24				24
125	283.22	540 512	5327 970	23/10	16.2			6.6	22.8
126	226.36	536 070	5329 500	25/10	10.1		14.0		24.1 *
127	215.32	539 009	5330 520	24/10	51				51
128	226.74	538 785	5329 340	25/10	18		18.0		36
129	226.77	538 785	5329 340	25/10	23.9		2.1		26
130	216.01	538 290	5329 935	29/10	13				13
131	211.74	539 002	5331 001	29/10	39				39
132	211.17	538 552	5330 585	29/10	36				36
133	211.65	539 003	5330 997	30/10	5.95		13.05		19.0 *
134	217.82	539 852	5330 790	30/10	40				40
135	208.84	538 520	5331 375	31/10	51				51
136	247.64	539 767	5329 002	31/10	45				45
137	247.64	539 767	5329 002	31/10	24.74		7.06		31.8
138	215.23	539 952	5331 650	1/11	69				69
139	213.63	540 040	5332 128	1/11	30				30
140	209.46	538 982	5332 352	1/11	58				58
141	215.23	539 952	5331 650	7/11	5.78		1.46		7.24
				TOTAL	1389.07	34.00	166.67	14.55	1604.29

* Poor core recovery. To be drilled

APPENDIX 2

WOODBURY COAL PROJECT

COAL TESTING RESULTS

TABLE A2-1 : SUMMARY OF COAL TESTING AND ANALYSIS FROM THE 1984 EXPLORATION PROGRAMME, WOODBURY COAL PROJECT.

Bore No.	Seam	Split	Depth to Base	Thickness	Float/Sink Yield *	Moisture	Ash	Volatile Matter	Fixed Carbon	Specific Energy	Total Sulphur	Volatile Matter	Specific Energy	HGI	Ash Fusion (Spherical)	Core Diameter
(WDC)			m	m	%	%	%	%	%	MJ/kg	%	%	MJ/kg		°C	
					air dried							dry, ash free				
106R	D	U	20.88	0.14	50.3		37.6									HQ
		L	22.90	1.42	60.3	4.6	26.5	20.6	48.3	23.5	0.37	29.9	34.12	75	>1500	
117	D	U	21.28	0.41												100mm
		L	23.04	1.22		4.0	25.8	21.1	49.1	24.4	0.49	31.3	34.76	56	>1500	
		U+L	23.04	1.63	79.1		26.3	20.7				29.5				
119R	D	U	17.66	0.75		4.0	22.1	22.8	51.1	23.4	0.40	30.9	32.88	65	1400	100mm
119	D	L	19.25	1.40		3.7	17.9	25.8	52.6	24.4	0.59	32.9	31.12	70	1340	100mm
	D	U+L	19.25	2.15	68.0 **		19.2	25.1				32.6				
121	D	U+L	31.07	2.86	53.7	5.7	26.9	20.5	46.9	22.14	0.18	30.4	32.66	78	1380	HQ
125	D	L	20.51	1.49	78.9	5.4	18.2	27.3				35.3				100mm
106	C	U	61.52	0.22	76.0		25.4									HQ
		L	65.43	1.22	71.6		21.9									
		U+L	65.43	1.44	72.2	3.3	22.9	17.7	56.1	25.30	0.56	24.0	34.28	81	1260	
120	C	M	26.44	0.85	87.0	2.8	21.2	19.4								HQ
		L	28.98	0.45	80.1	2.7	31.2	17.9								
		M+L	28.98	1.30	84.5	3.1	25.0	18.6	53.3	24.58	0.61	23.3	30.76	75	1280	
137	C	M	31.64	1.00	90.2 ***	4.0	26.6	17.9	51.5	23.33	0.50	25.8	33.46	78	1300	HQ
141R	C	M	6.90	0.97	96.3 ***	5.3	15.1	16.7	62.9	25.64	0.48	21.0	32.22	73	1310	HQ

Notes:
* Cumulative float yield at RD1.80, + 0.5mm fraction
** Cumulative float yield at RD1.80, + 0.063mm fraction
*** Cumulative float yield at RD1.80, + 0.5mm fraction, after water immersion pretreatment (see "Preparation of Sample" procedures for bores 137 and 141R

037

038

CCI/4147/4151/84

TESTING OF SAMPLES

FROM

WOODBURY SLIMCORE

WDC 106 AND WDC 106R

OCTOBER, 1984

039

234040

1. INTRODUCTION

Eight plies (1 - 8) from the Woodbury Slimcore WDC 106 were received at the CCI Newcastle Laboratory for testing and analysis.

2. SAMPLE TESTING

CCI is an accredited facility, registered with NATA, and the methods used appear on the following page.

The following testing procedure was followed:

- Apparent relative density on each ply.
- Each ply crushed to pass 11.2 mm.
- Plies 2 - 8 combined.
- Ply 1 and plies 2 - 8 dry screened at 0.50 mm.
- Ply 1 and plies 2 - 8 +0.50 mm subjected to float/sink testing at gravities of 1.40, 1.60, 1.80, 2.00, 2.20.
- Cumulative floats 1.80 composite constructed from ply 1 and plies 2 - 8 reserves.

3. RESULTS

Sample testing and analysis results are shown on the following pages.

040

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P.O. BOX 72 BROADMEADOW NSW 2292 AUSTRALIA
INCORPORATED IN NEW SOUTH WALES

234041

This Laboratory is registered by the National Association of Testing Authorities Australia. The test(s) herein have been performed in accordance with its terms of registration and in accordance with the following standards:-

Methods for the sampling of Hard Coal	AS1676 (1975)
Methods for Float & Sink Testing of Hard Coal and Presentation of Results	AS1661 (1979)
Size Analysis of Coal	BS1016-17 (1979) ISO1953 (1972)
Free Moisture of Coal & Total Moisture of Hard Coal	AS1038-21 (1983)
Apparent Relative Density (Coal)	AS1038-21 (1983)
Determination of the Relative Density of Hard Coal	AS1038-21 (1983)
Moisture in the Analysis Sample	AS1038-3 (1979)
Determination of Ash	AS1038-3 (1979)
Determination of Volatile Matter	AS1038-3 (1979)
Gross Specific Energy of Coal	AS1038-5 (1979)
Carbon & Hydrogen	AS1038-6 (1971)
Nitrogen	AS1038-6 (1971)
Carbon Dioxide	AS1038-6 (1971)
Total Sulphur	AS1038-6 (1971)
Total Sulphur in Coal (Leco High Temperature)	C.C.I. DIA Sept. 1981
Chlorine in Coal	AS1038-8 (1980)
Forms of Sulphur	AS1038-11 (1982)
Fusibility of Coal & Coke Ash	AS1038-15 (1972)
Analysis of Coal Ash (Bomb Digestion-Flame Atomic absorption Spectrometric Method)	AS1038-14.1 (1981)
Phosphorus in Coal (Bomb Digestion)	AS1038-9 (1977)
Method for Determining the Hardgrove Grindability Index of Hard Coal	AS1038-20 (1981)
Crucible Swelling Number	AS1038-12.1 (1979)
Gray King Coke Type	AS1038-12.2 (1980)
A.A. Dilatometer	ISO349 (1975)
Gieseler Plastometer	AS2137 (1981)

041

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234042

ORIGIN: Costain (Australia) Pty. Ltd. JOB NO. 4147

DESCRIPTION: Woodbury WDC 106 Slimcore DATE REC'D 25/10/84

REPORTED TO: Dr. C. K. Baker C.C.

Ply	Mass (g) (as received)	Apparent Relative Density
1	900	1.54
2	740	1.51
3	978	2.10
4	248	1.61
5	800	1.43
6	375	1.33
7	1356	1.43
8	223	1.63

Reported by

Date 8/11/84

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234043

ORIGIN: Costain (Australia) Pty. Ltd. JOB NO. 4147

DESCRIPTION: Woodbury WDC 106 Slimcore DATE REC'D 25/10/84

Ply 1

REPORTED TO: Dr. C. K. Baker c.c.

FLOAT AND SINK ANALYSIS

Apparent Relative Density		Fractional (% ad) Mass	Moisture	Ash	Volatile Matter	Cumulative (% ad) Mass	Ash
	F1.40	24.4	3.3	10.6	19.4	24.4	10.6
S1.40	F1.60	29.9	4.0	25.4	17.0	54.3	18.8
S1.60	F1.80	21.6	4.3	42.2	15.0	76.0	25.4
S1.80	F2.00	10.0	5.0	59.8	13.4	86.0	29.4
S2.00	F2.20	7.3	4.3	76.4	9.0	93.2	33.1
S2.20		6.8	4.0	85.0	7.5	100.0	36.6

Mass % -0.50 mm = 6.0

Moisture (% ad) = 3.9

Ash (% ad) = 42.8

Volatile Matter (% ad) = 15.7

Reported by [signature]

Date 8/11/84

043

234044

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INCORPORATED IN NEW SOUTH WALES

ORIGIN: Costain (Australia) Pty. Ltd. JOB NO. 4147

DESCRIPTION: Woodbury WDC 106 Slimcore Plies 2 - 8 DATE REC'D 25/10/84

REPORTED TO: Dr. C. K. Baker C.C.

FLOAT AND SINK ANALYSIS

Apparent Relative Density		Fractional (% ad) Mass	Moisture	Ash	Volatile Matter	Cumulative (% ad) Mass	Ash
	F1.40	24.2	2.2	12.4	20.5	24.2	12.4
S1.40	F1.60	39.0	2.7	22.8	19.9	63.2	18.8
S1.60	F1.80	8.4	3.5	44.8	15.3	71.6	21.9
S1.80	F2.00	5.3	3.4	61.0	11.4	76.9	24.5
S2.00	F2.20	7.6	3.2	75.5	8.3	84.5	29.2
S2.20		15.5	3.1	83.6	7.4	100.0	37.6

Mass % -0.50 mm	=	6.4
Moisture (% ad)	=	2.9
Ash (% ad)	=	39.3
Volatile Matter (% ad)	=	17.6

Reported by

Date 8/11/84

044

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234045

ORIGIN: Costain (Australia) Pty. Ltd.

JOB NO. 4147

DESCRIPTION: Woodbury WDC 106 Slimcore
Plies 1 - 8 Composite

DATE REC'D 25/10/84

DATE TESTED 1/11/84

REPORTED TO: Dr. C. K. Baker

C.C.

ANALYSIS REPORT

Description: CF1.80 Composite

Sample No. 4147/4040

Relative Density		
Total Moisture (as)	%	
Moisture (ad)	%	3.3
ANALYSIS BASIS		ad
Ash	%	22.9
Volatile Matter	%	17.7
Fixed Carbon	%	56.1
Total Sulphur	%	0.56
Chlorine	%	
Phosphorus	%	
Specific Energy	MJ/kg	25.30
Carbon	%	62.95
Hydrogen	%	3.43
Nitrogen	%	1.22
Carbon Dioxide	%	0.48
DRY, ASH-FREE BASIS		
Volatile Matter	%	24.0
Specific Energy		34.28
Carbon	%	85.30
Hydrogen	%	4.65
Nitrogen	%	1.65
Sulphur	%	
Oxygen (diff.)	%	
Crucible Swelling Number		
Gray-King Coke Type		
Hardgrove Grindability Index		81 (49.2%)
ASH FUSION TEMPERATURES (reducing atmosphere)		
Deformation	°C	1220
Spherical	°C	1260
Hemisphere	°C	1320
Flow	°C	1360

REPORTED BY O'Gallagher

DATE 8/11/84

Analyses carried out in accordance with AS 1038 Parts 1-16 and ASK164 and where not available BS1016 Parts 1-16, unless otherwise stated

045

234046

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ORIGIN: Costain (Australia) Pty. Ltd. JOB NO. 4147

DESCRIPTION: Woodbury WDC 106 Slimcore DATE REC'D 25/10/84

Plies 1 - 8 Composite

REPORTED TO: Dr. C. K. Baker c.c.

Sample No: 4147/4040 CF1.80 Composite

ANALYSIS OF ASH:- AS1038 - 14.1 / Bomb Digestion method.

SiO_2	%	58.9
Al_2O_3	%	19.8
Fe_2O_3	%	4.92
CaO	%	7.28
MgO	%	3.59
TiO_2	%	1.04
Na_2O	%	0.19
K_2O	%	1.08
Mn_3O_4	%	0.11
SO_3	%	2.70
P_2O_5	%	0.070

Slagging Index (calc)	0.12
Fouling Index (calc)	0.04

(Ref. Schmidt R.A. Consumer Coal Criteria as a guide to exploration. Proceedings of 1st. International Coal Exploration Symposium, London, May 1976.)

Reported by

Date 8/11/84

046

234047

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ORIGIN: Costain (Australia) Ltd. JOB NO. 4147

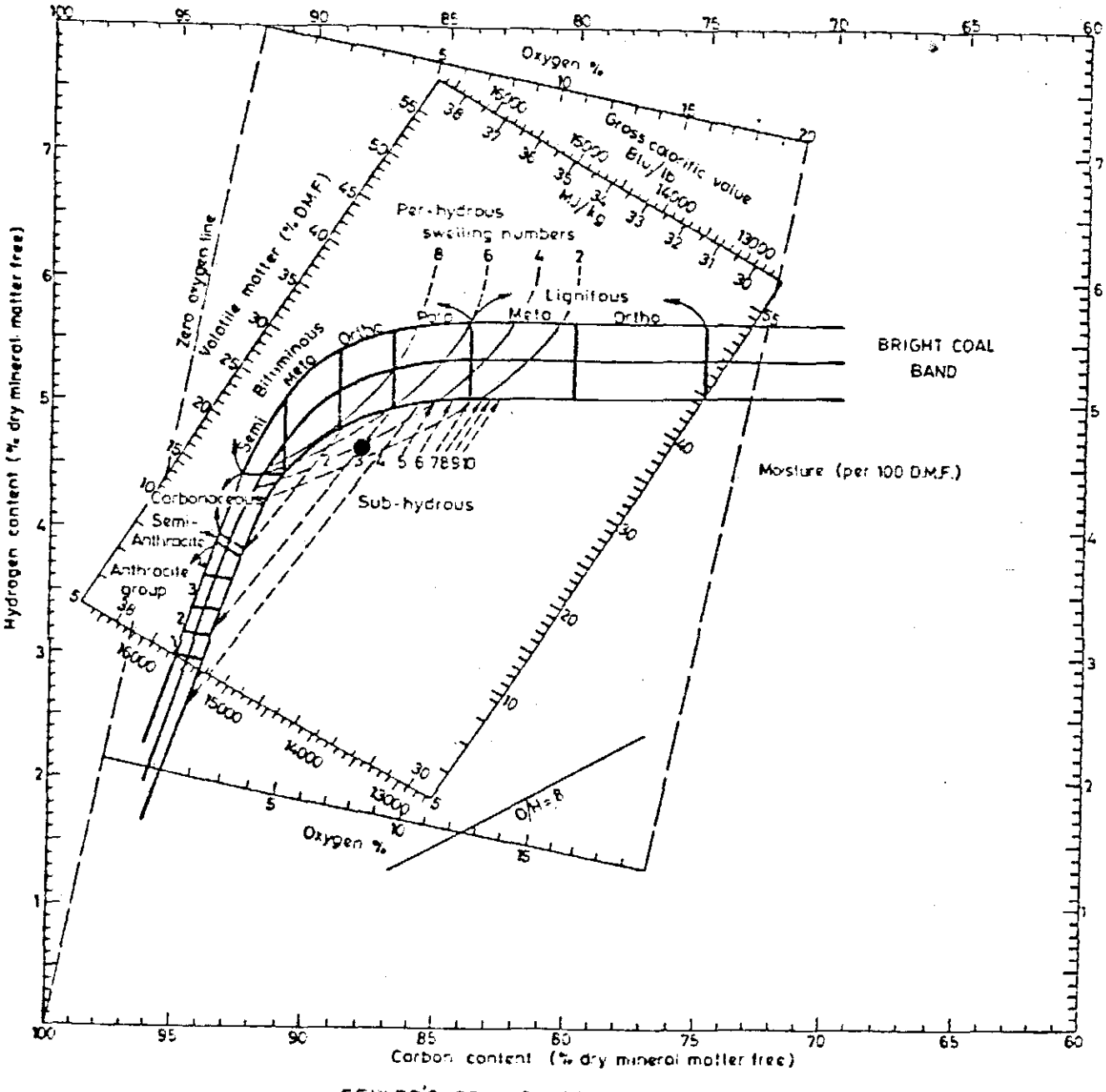
DESCRIPTION: Woodbury WDC 106 Slimcore DATE REC'D 25/10/84

Plies 1-8 CF1.80 Composite

REPORTED TO: Dr. C. K. Baker C.C.

Sample No: 4147/4040 ●

COAL CLASSIFICATION



SEYLER'S COAL CHART 47B

047

CCI

1. INTRODUCTION

Eight plies (1 - 8) from the Woodbury Slimcore WDC 106R were received at the CCI Newcastle Laboratory for testing and analysis.

2. SAMPLE TESTING

CCI is an accredited facility, registered with NATA, and the methods used appear on the following page.

The following testing procedure was followed:

- Apparent relative density on each ply.
- Each ply crushed to pass 11.2 mm.
- Plies 1 and 2 combined.
- Plies 5 and 6 combined.
- Plies 7 and 8 combined.
- Plies 1 - 2, ply 4, plies 5 - 6 and plies 7 - 8 dry screened at 0.50 mm.
- Plies 1 - 2, ply 4, plies 5 - 6 and plies 7 - 8 +0.50 mm subjected to float/sink testing at gravities of 1.40, 1.60, 1.80, 2.00, 2.20.
- Cumulative floats 1.80 composite constructed from plies 4 - 8 reserves.

3. RESULTS

Sample testing and analysis results are shown on the following pages.

048

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INCORPORATED IN NEW SOUTH WALES

234049

This Laboratory is registered by the National Association of Testing Authorities Australia. The test(s) herein have been performed in accordance with its terms of registration and in accordance with the following standards:-

Methods for the sampling of Hard Coal	AS1676 (1975)
Methods for Float & Sink Testing of Hard Coal and Presentation of Results	AS1661 (1979)
Size Analysis of Coal	BS1016-17 (1979) ISO1953 (1972)
Free Moisture of Coal & Total Moisture of Hard Coal	AS1038-21 (1983)
Apparent Relative Density (Coal)	AS1038-21 (1983)
Determination of the Relative Density of Hard Coal	AS1038-21 (1983)
Moisture in the Analysis Sample	AS1038-3 (1979)
Determination of Ash	AS1038-3 (1979)
Determination of Volatile Matter	AS1038-3 (1979)
Gross Specific Energy of Coal	AS1038-5 (1979)
Carbon & Hydrogen	AS1038-6 (1971)
Nitrogen	AS1038-6 (1971)
Carbon Dioxide	AS1038-6 (1971)
Total Sulphur	AS1038-6 (1971)
Total Sulphur in Coal (Leco High Temperature)	C.C.I. DIA Sept. 1981
Chlorine in Coal	AS1038-8 (1980)
Forms of Sulphur	AS1038-11 (1982)
Fusibility of Coal & Coke Ash	AS1038-15 (1972)
Analysis of Coal Ash (Bomb Digestion-Flame Atomic absorption Spectrometric Method)	AS1038-14.1 (1981)
Phosphorus in Coal (Bomb Digestion)	AS1038-9 (1977)
Method for Determining the Hardgrove Grindability Index of Hard Coal	AS1038-20 (1981)
Crucible Swelling Number	AS1038-12.1 (1979)
Gray King Coke Type	AS1038-12.2 (1980)
A.A. Dilatometer	ISO349 (1975)
Gieseler Plastometer	AS2137 (1981)

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234050

ORIGIN: Costain (Australia) Pty. Ltd.

JOB NO. 4151

DESCRIPTION: Woodbury WDC 106R Slimcore

DATE REC'D 29/10/84

REPORTED TO: Dr. C. K. Baker

C.C.

Ply	Mass (g) (as received)	Apparent Relative Density
1	852	1.77
2	1202	1.73
3	932	2.02
4	1500	1.47
5	394	1.91
6	1154	1.95
7	1720	1.75
8	1380	1.47

Reported by

Date 8/11/84

050

234051

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INCORPORATED IN NEW SOUTH WALES

ORIGIN: Costain (Australia) Pty. Ltd. JOB NO. 4151

DESCRIPTION: Woodbury WDC 106R Slimcore DATE REC'D 29/10/84

Plies 1 - 2

REPORTED TO: Dr. C. K. Baker c.c.

FLOAT AND SINK ANALYSIS

Apparent Relative Density		Fractional (% ad) Mass	Moisture	Ash	Volatile Matter	Cumulative (% ad) Mass	Ash
	F1.40	3.2	3.4	12.2	25.6	3.2	12.2
S1.40	F1.60	15.7	6.2	27.9	19.5	18.9	25.2
S1.60	F1.80	31.3	7.8	45.0	14.3	50.3	37.6
S1.80	F2.00	29.4	9.1	61.6	11.6	79.7	46.4
S2.00	F2.20	18.3	10.2	73.3	10.0	98.0	51.5
S2.20		2.0	7.6	77.8	11.8	100.0	52.0

Mass % -0.50 mm	=	9.4
Moisture (% ad)	=	8.4
Ash (% ad)	=	65.4
Volatile Matter (% ad)	=	10.7

Reported by

Date 8/11/84

051

234052

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INCORPORATED IN NEW SOUTH WALES

ORIGIN: Costain (Australia) Pty. Ltd.

JOB NO. 4151

DESCRIPTION: Woodbury WDC 106R Slimcore

DATE REC'D 29/10/84

Ply 3

REPORTED TO: Dr. C. K. Baker

C.C.

Ply 3

Relative Density	2.07
Ash (% ad)	77.3

Reported by

Date 8/11/84

234053

052

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INCORPORATED IN NEW SOUTH WALES

ORIGIN: Costain (Australia) Pty. Ltd. JOB NO. 4151

DESCRIPTION: Woodbury WDC 106R Slimcore DATE REC'D 29/10/84

Ply 4

REPORTED TO: Dr. C. K. Baker c.c.

FLOAT AND SINK ANALYSIS

Apparent Relative Density		Mass (% ad) Fractional	Cumulative
	F1.40	54.2	54.2
S1.40	F1.60	25.9	80.1
S1.60	F1.80	9.0	89.1
S1.80	F2.00	5.7	94.7
S2.00	F2.20	2.7	97.5
S2.20		2.5	100.0

Mass % -0.50 mm	=	6.0
Moisture (% ad)	=	3.9
Ash (% ad)	=	38.1
Volatile Matter (% ad)	=	21.9

Reported by D. Gallagher

Date 8/11/84

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234054

ORIGIN: Costain (Australia) Pty. Ltd.

JOB NO. 4151

DESCRIPTION: Woodbury WDC 106R Slimcore
Plies 5 - 6

DATE REC'D 29/10/84

REPORTED TO: Dr. C. K. Baker

C.C.

FLOAT AND SINK ANALYSIS

Apparent Relative Density		Mass (% ad) Fractional	Cumulative
	F1.40	1.0	1.0
S1.40	F1.60	2.8	3.8
S1.60	F1.80	15.0	18.8
S1.80	F2.00	34.6	53.4
S2.00	F2.20	44.6	98.0
S2.20		2.0	100.0

Mass % -0.50 mm	=	6.4
Moisture (% ad)	=	8.0
Ash (% ad)	=	67.9
Volatile Matter (% ad)	=	11.4

Reported by

Date 8/11/84

054

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234055

ORIGIN: Costain (Australia) Pty. Ltd. JOB NO. 4151

DESCRIPTION: Woodbury WDC 106R Slimcore Plies 7 - 8 DATE REC'D 29/10/84

REPORTED TO: Dr. C. K. Baker c.c.

FLOAT AND SINK ANALYSIS

Apparent Relative Density		Mass (% ad) Fractional	Cumulative
	F1.40	20.3	20.3
S1.40	F1.60	23.6	43.9
S1.60	F1.80	23.5	67.4
S1.80	F2.00	18.3	85.7
S2.00	F2.20	13.3	99.0
S2.20		1.0	100.0

Mass % -0.50 mm	=	10.2
Moisture (% ad)	=	4.7
Ash (% ad)	=	44.8
Volatile Matter (% ad)	=	20.2

Reported by

Date 8/11/84

234056

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ORIGIN: Costain (Australia) Pty. Ltd. JOB NO. 4151

DESCRIPTION: Woodbury WDC 106R Slimcore Plies 4 - 8 DATE REC'D 29/10/84

REPORTED TO: Dr. C. K. Baker c.c.

FLOAT AND SINK ANALYSIS

Apparent Relative Density		Mass*	Fractional (% ad) Moisture	Ash	Volatile Matter	Cumulative (% ad) Mass	Ash
	F1.40	23.8	2.7	9.6	24.2	23.8	9.6
S1.40	F1.60	18.8	4.3	27.6	20.0	42.6	17.5
S1.60	F1.80	17.7	6.9	48.5	15.2	60.3	26.6
S1.80	F2.00	19.3	8.1	62.8	12.1	79.6	35.4
S2.00	F2.20	18.7	9.0	74.1	10.1	98.3	42.7
S2.20		1.7	5.5	67.7	20.9	100.0	43.3

Mass % -0.50 mm	=	8.2	(Calc.)
Moisture (% ad)	=	5.2	(Calc.)
Ash (% ad)	=	48.1	(Calc.)
Volatile Matter (% ad)	=	18.8	(Calc.)

* Calculated

Reported by O'Gallagher

Date 8/11/84

056

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234057

ORIGIN: Costain (Australia) Pty. Ltd.

JOB NO. 4151

DESCRIPTION: Woodbury WDC 106R Slimcore Plies 4 - 8 Composite

DATE REC'D 29/10/84

DATE TESTED

REPORTED TO: Dr. C. K. Baker

C.C.

ANALYSIS REPORT

Description: Plies 4 - 8 CF1.80 Composite

Sample No. 4151/4212

Relative Density		
Total Moisture (as)	%	
Moisture (ad)	%	4.6
ANALYSIS BASIS		ad
Ash	%	26.5
Volatile Matter	%	20.6
Fixed Carbon	%	48.3
Total Sulphur	%	0.37
Chlorine	%	
Phosphorus	%	
Specific Energy	MJ/kg	23.50
Carbon	%	
Hydrogen	%	
Nitrogen	%	
Carbon Dioxide	%	
DRY, ASH-FREE BASIS		
Volatile Matter	%	29.9
Specific Energy	MJ/kg	34.12
Carbon	%	
Hydrogen	%	
Nitrogen	%	
Sulphur	%	
Oxygen (diff.)	%	
Crucible Swelling Number		
Gray-King Coke Type		
Hardgrove Grindability Index		75 (53.3%)
ASH FUSION TEMPERATURES (reducing atmosphere)		
Deformation	°C	1380
Spherical	°C	+1500
Hemisphere	°C	+1500
Flow	°C	+1500

NATA

This Laboratory is registered by the National Association of Testing Authorities. The tests reported herein have been performed in accordance with its terms of registration.

REPORTED BY Gallagher

DATE 8/11/84

Analyses carried out in accordance with AS1038 Parts 1-16 and ASK164 and where not available BS1016 Parts 1-16 unless otherwise stated

234058

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ORIGIN: Costain (Australia) Pty. Ltd. JOB NO. 4151

DESCRIPTION: Woodbury WDC 106R Slimcore DATE REC'D 29/10/84

Plies 4 - 8 Composite

REPORTED TO: Dr. C. K. Baker c.c.

Sample No: 4151/4212 CF1.80 Composite

ANALYSIS OF ASH:- AS1038 - 14.1 / Bomb Digestion method.

SiO_2	%	52.8
Al_2O_3	%	31.7
Fe_2O_3	%	1.93
CaO	%	5.76
MgO	%	2.28
TiO_2	%	1.34
Na_2O	%	0.28
K_2O	%	1.60
Mn_3O_4	%	0.10
SO_3	%	1.48
P_2O_5	%	0.085

Slagging Index (calc)	0.05
Fouling Index (calc)	0.04

(Ref. Schmidt R.A. Consumer Coal Criteria as a guide to exploration. Proceedings of 1st. International Coal Exploration Symposium, London, May 1976.)

Reported by

Date 8/11/84

234059

058

REF. Nº : G407

COSTAIN LARGE CORE

WDC 117

November, 1984.

059

234060

CARBON CONSULTING INTERNATIONAL PTY. LTD.
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INCORPORATED IN NEW SOUTH WALES

1. INTRODUCTION

A sample of coal from the Woodbury project was received at our CCI Gladstone Laboratory on October 25, 1984. The bore core, being broken into discrete plys was packed separately in plastic bags.

2. TESTING AND ANALYSES PROCEDURE

A flow diagram of the test procedure is shown in the appendix.

2.1 Preparation of Sample

Each bag of sample was air dried and then an ARD determination was carried out on each ply. As ply 5 was very sandy, no ARD was performed. Based on the results of the ARD's two samples were produced; sample 1 consisted of plies 1 to 3, and sample 2 plies 6 to 10. Plies 4 and 5 were not tested further.

2.2 Sample 1 Plies 1 to 3 (G407/735)

The sample was weighed and dry sized at 31.5, 16.0, 8.0, 4.0, 2.0 and 1.0mm. The -31.5mm fraction was drop shattered to pass 31.5mm. The sample was then size adjusted to fit the Rosin Rambler curve with a slope 0.65 and mean size of 8.0mm.

On completion of the size adjustment the sample was wet tumbled for 2 minutes 20 seconds, according to AS1661 part C, using a Hardgrove Grindability Index of 70. After wet screening at 0.5 mm w/w. the +0.5 mm was dried and a float/sink analysis was carried out at 1.40, 1.50, 1.60, 1.70, 1.80, 1.90, 2.00 and 2.20. All fractions were prepared and analysed for proximate analysis. The -0.5mm fraction was subsampled, prepared and analysed for proximate analysis.

2.3 Sample 2 Plies 6 to 10 (G407/736)

The sample was weighed and dry sized at 31.5, 16.0, 8.0, 4.0, 2.0 and 1.0mm. The +31.5mm fraction was drop shattered to pass 31.5mm, and the sample was then size adjusted to fit the Rosin Rambler curve with a slope of 0.65 and mean size of 8.0mm.

The sample was then wet tumbled for 2 minutes 20 seconds, according to AS1661 part C, using a Hardgrove Grindability Index of 70. After tumbling, the sample was deslimed at 0.5mm w/w.

2.3 Sample 2 Plies 6 to 10 (G407/736) (continued)

The +0.5mm w/w material was dry screened at 16.0, 8.0, 4.0, 2.0, 1.0 and 0.5mm w/w, reporting fractional Mass%.

The -8.0 + 0.5mm w/w material was recombined and float/sink analyses were carried out on the -31.5 + 16.0, -16.0 + 8.0 and -8.0 + 0.5mm w/w fractions.

On completion of the float/sink analysis, it was decided to analyse the products in the size fractions -31.5 + 8.0mm, -8.0 + 2.0mm and -2.0 + 0.5mm w/w. Accordingly the products from the -31.5 + 16.0 and -16.0 + 8.0mm float/sink analysis were combined, prepared and analysed for proximate analysis.

Each fraction of the -8.0 + 0.5mm w/w float/sink analysis was screened at 2.0mm, reweighed, prepared and analysed for proximate analysis.

The -0.5mm w/w material was deslimed at 0.063mm; the -0.063 fraction being subsampled, prepared and analysed for ash. A subsample of the +0.5mm w/w was dry screened at 0.5, 0.25, 0.125 and 0.063mm, with each size fraction being analysed for ash. A float/sink analysis was also carried out on the deslimed -0.5mm w/w material at densities of 1.40, 1.50, 1.60, 1.70, 1.80, 1.90, 2.00 and 2.20. The resulting fractions were prepared and analysed for proximate analysis.

2.4 Composite Analysis

A composite was made up of the cumulative floats 1.80 from each of the four size fractions that had been analysed in the proportions as supplied and this was analysed for proximate analysis, ash fusion temperature (reducing), total sulphur, gross specific energy, hardgrove grindability index and ash analysis.

2.5 Reference Methods

CCI Laboratories are accredited facilities registered with NATA and the methods used are outlined in the appendix.

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234062

ORIGIN: COSTAIN

JOB NO. G407/736

DESCRIPTION: WDC 117 PLIES 6 - 10

DATE REC'D 25/10/1984

REPORTED TO: MR. C. BAKER

C.C.

APPARENT RELATIVE DENSITY

PLY	ARD
1	1.54
2	2.07
3	1.71
4	2.06
5	Clay
6	1.38
7	1.92
8	1.58
9	1.79
10	1.51
8/9	1.50

REPORTED BY:

DATED: 19.11.84

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234063

ORIGIN: COSTAIN JOB NO. G407/735

DESCRIPTION: WDC 117 PLIES 1 - 3 DATE REC'D 25/10/1984

REPORTED TO: MR. C. BAKER c.c.

FLOAT AND SINK ANALYSIS

Minus 31.5mm Plus 0.5mm ww Mass % = 100.0

Size Fraction (mm)	Fractional Mass %	Moisture %	Ash %	Volatile Matter %	Fixed Carbon %	Cumulative Mass %	Cumulative Ash %
F1.40	22.5	3.7	16.2	23.9	56.2	22.5	16.2
S1.40 - F1.50	28.8	4.4	21.7	21.2	52.7	51.3	19.3
S1.50 - F1.60	27.0	5.1	31.3	18.9	44.7	78.3	23.4
S1.60 - F1.70	11.0	6.3	40.7	15.9	37.1	89.3	25.6
S1.70 - F1.80	3.6	7.2	49.4	14.0	29.4	92.9	26.5
S1.80 - F1.90	1.8	7.8	57.6	13.2	21.4	94.7	27.1
S1.90 - F2.00	1.1	8.2	64.3	12.2	15.3	95.8	27.5
S2.00 - F2.20	2.7	9.7	74.8	10.0	5:5	98.5	28.8
S2.20	1.5	-	70.9	-	-	100.0	29.4

REPORTED BY:

DATED: 19.11.84

063

234064

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ORIGIN: COSTAIN JOB NO. G407/736

DESCRIPTION: WDC 117 PLIES 6 - 10 DATE REC'D 25/10/1984

REPORTED TO: MR. C. BAKER C.C.

FLOAT AND SINK ANALYSIS

Minus 31.5mm Plus 8.00mm Mass % = 21.7

Size Fraction (mm)	Fractional Mass %	Moisture %	Ash %	Volatile Matter %	Fixed Carbon %	Cumulative Mass %	Ash %
F1.40	25.8	2.4	12.3	23.2	62.1	25.8	12.3
S1.40 - F1.50	31.9	3.0	22.6	22.7	51.7	57.7	18.0
S1.50 - F1.60	18.9	4.8	33.8	19.1	42.3	76.6	21.9
S1.60 - F1.70	10.0	6.1	41.7	17.5	34.7	86.6	24.2
S1.70 - F1.80	3.3	6.3	49.4	16.1	28.2	89.9	25.1
S1.80 - F1.90	9.6	8.0	58.2	12.2	21.6	99.5	28.3
S1.90 - F2.00	0.5	-	62.5	-	-	100.0	28.5
S2.00 - F2.20	0.0	-	-	-	-	100.0	28.5
S2.20	0.0	-	-	-	-	100.0	28.5

REPORTED BY:

DATED: 19.11.84

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234065

ORIGIN: COSTAIN

JOB NO. 6407/736

DESCRIPTION: WDC 117 PLIES 6 - 10

DATE REC'D 25/10/1984

REPORTED TO: MR. C. BAKER

C.C.

FLOAT AND SINK ANALYSIS

Minus 8.0mm + 2.0mm

Mass % = 28.5

Size Fraction (mm)	Fractional Mass %	Moisture %	Ash %	Volatile Matter %	Fixed Carbon %	Cumulative Mass %	Cumulative Ash %
F1.40	26.4	1.7	9.3	26.5	62.5	26.4	9.3
S1.40 - F1.50	14.9	3.1	22.7	21.6	52.6	41.3	14.1
S1.50 - F1.60	14.8	4.5	33.6	18.1	43.8	56.1	19.3
S1.60 - F1.70	11.5	5.5	41.9	16.0	36.6	67.6	23.1
S1.70 - F1.80	10.2	6.6	50.5	13.8	29.1	77.8	26.7
S1.80 - F1.90	13.9	7.2	58.4	12.3	22.1	91.7	31.5
S1.90 - F2.00	5.0	7.7	64.4	11.2	16.7	96.7	33.2
S2.00 - F2.20	2.7	9.1	73.8	10.5	6.6	99.4	34.3
S2.20	0.6	-	74.7	-	-	100.0	34.6

REPORTED BY:

DATED: 19.11.84

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234066

ORIGIN: COSTAIN

JOB NO. G407/736

DESCRIPTION: WDC 117 PLIES 6 - 10

DATE REC'D 25/10/1984

REPORTED TO: MR. C. BAKER

C.C.

FLOAT AND SINK ANALYSIS

Minus 2.0mm Plus 0.5mm ww

Mass % = 25.4

Size Fraction (mm)	Fractional Mass %	Moisture %	Ash %	Volatile Matter %	Fixed Carbon %	Cumulative Mass %	Cumulative Ash %
F1.40	22.7	2.0	8.3	26.5	63.2	22.7	8.3
S1.40 - F1.50	7.6	3.5	21.9	21.2	53.4	30.3	11.7
S1.50 - F1.60	6.6	4.7	32.9	17.9	44.5	36.9	15.5
S1.60 - F1.70	8.6	6.0	42.0	15.3	36.7	45.5	20.5
S1.70 - F1.80	12.2	7.0	50.2	13.6	29.2	57.7	26.8
S1.80 - F1.90	15.3	7.7	57.9	12.0	22.4	73.0	33.3
S1.90 - F2.00	11.1	8.2	65.5	10.9	15.4	84.1	37.6
S2.00 - F2.20	12.5	8.5	78.1	11.0	2.4	96.6	42.8
S2.20	3.4	-	78.2	-	-	100.0	44.0

REPORTED BY: E Dawson

DATED: 19.11.84

066

234067

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ORIGIN: COSTAIN JOB NO. G407/736

DESCRIPTION: WDC 117 PLIES 6 - 10 DATE REC'D 25/10/1984

REPORTED TO: MR. C. BAKER c.c.

FLOAT AND SINK ANALYSIS

Minus 0.5mm ww Plus 0.063mm Mass % = 24.4

Size Fraction (mm)	Mass %	Fractional Moisture %	Fractional Ash %	Fractional Volatile Matter %	Fractional Fixed Carbon %	Cumulative Mass %	Cumulative Ash %
F1.40	17.5	1.7	7.4	26.8	64.1	17.5	7.4
S1.40 - F1.50	5.3	3.1	17.6	22.8	56.5	22.8	9.8
S1.50 - F1.60	4.7	4.3	26.9	19.5	49.3	27.5	12.7
S1.60 - F1.70	6.1	5.7	37.9	16.4	40.0	33.6	17.3
S1.70 - F1.80	9.0	7.1	47.5	14.1	31.3	42.6	23.7
S1.80 - F1.90	10.2	8.2	55.6	12.2	24.0	52.8	29.8
S1.90 - F2.00	11.6	8.8	62.7	10.9	17.6	64.4	35.8
S2.00 - F2.20	25.3	9.0	73.2	9.8	8.0	89.7	46.3
S2.20	10.3	-	74.6	-	-	100.0	49.2

REPORTED BY: [signature]

DATED: 19.11.84

067

234068

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INCORPORATED IN NEW SOUTH WALES

ORIGIN: COSTAIN

JOB NO. G407/736

DESCRIPTION: WDC 117 PLIES 6 - 10

DATE REC'D 25/10/1984

REPORTED TO: MR. C. BAKER

C.C.

SIZE DISTRIBUTION

Size Fraction (mm)	Mass %	% Passing	Ash %
- 31.5 + 16.0	8.1	100.0	
- 16.0 + 8.0	11.7	91.9	
- 8.0 + 4.0	13.9	80.2	
- 4.0 + 2.0	12.1	66.3	
- 2.0 + 1.0	16.9	54.2	
- 1.0 + 0.5 WW	6.3	37.3	
- 0.5 WW + 0.5	7.3	31.0	51.1
- 0.5 + 0.25	7.9	23.7	48.9
- 0.25 + 0.125	4.6	15.8	48.7
- 0.125 + 0.063	2.4	11.2	50.9
- 0.063	8.8	8.8	56.0

REPORTED BY: R Howarth

DATED: 19.11.84

068

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234069

ORIGIN: COSTAIN

JOB NO. G407/736

DESCRIPTION: WDC 117 PLIES 6 - 10

DATE REC'D 25/10/1984

REPORTED TO: MR. C. BAKER

C.C.

CLEAN COAL COMPOSITE

Inherent Moisture %	(ad)	4.0
Ash %	(ad)	25.8
Volatile Matter %	(ad)	21.1
Fixed Carbon %	(ad)	49.1
Total Sulphur %	(ad)	0.49
Gross Specific Energy MJ/kg	(ad)	24.4
Hardgrove Grindability Index		70 (56)

Ash Fusion Temperatures (Reducing Atmosphere)

Deformation	°C	1520
Spherical	°C	+1600
Hemisphere	°C	+1600
Flow	°C	+1600

REPORTED BY:

DATED: 19.11.84

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INCORPORATED IN NEW SOUTH WALES

234070

ORIGIN: COSTAIN

JOB NO. G407/736

DESCRIPTION: WDC 117 PLIES 6 - 10

DATE REC'D 25/10/1984

REPORTED TO: MR. C. BAKER

C.C.

CLEAN COAL COMPOSITE

ANALYSIS OF ASH:- AS1038 - 14·1 / Bomb Digestion Method

SiO_2	%	53.0
Al_2O_3	%	33.5
Fe_2O_3	%	1.83
CaO	%	5.11
MgO	%	2.17
TiO_2	%	1.31
Na_2O	%	0.26
K_2O	%	1.39
Mn_3O_4	%	0.07
SO_3	%	1.78
P_2O_5	%	0.186

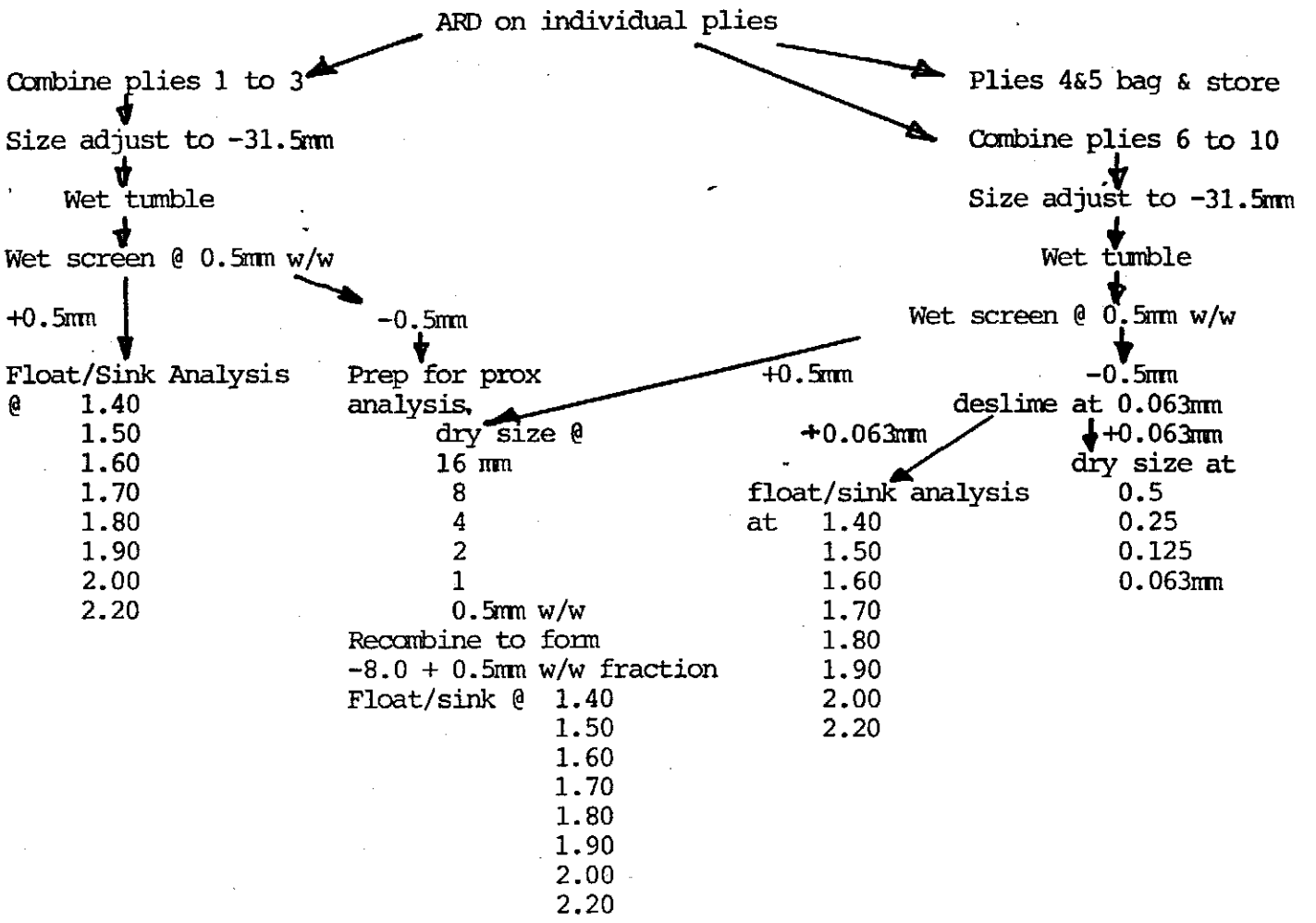
Reported by: P Howse

Date: 19.11.84

070

APPENDIX

COAL SAMPLE (AIR DRIED)



071

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TEST	S A A	BS	ISO	ASTM
Methods for the sampling of Hard Coal	AS1676	BS1017-1	ISO1988 E	D 2234
Methods for Float & Sink Testing of Hard Coal and Presentation of Results	AS1661			
Code of recommended practice for taking samples from coal seams in situ	ASCK5			
Size Analysis of Coal		BS1016-17	ISO1953	
Free Moistute of Coal & Total Moisture of Hard Coal	AS1038-1	BS1016-1		
Apparent Relative Density (Coal)	AS1038-21			
Determination of the Relative Density of Hard Coal	AS1038-21			
Moisture in the Analysis Sample	AS1038-3	BS1016-3		
Determination of Ash	AS1038-3	BS1016-3		
Determination of Volatile Matter	AS1038-3	BS1016-3		
Gross Specific Energy of Coal	AS1038-5			
Total Sulphur in Coal - High Temperature Method - Leco High Temp. Method	AS1038-6 CCI DIA-1981	BS1016-6		
Carbon & Hydrogen	AS1038-6			
Carbon Dioxide	AS1038-6			
Chlorine in Coal and Coke	AS1038-8	BS1016-8		
Caking & Swelling Properties of Coal - Crucible Swelling Number	AS1038-12.1	BS1016-12		
Fusibility of Coal & Coke Ash	AS1038-15			

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TEST	S A A	BS	ISO	ASTM
Methods for the sampling of Hard Coal	AS1676	BS1017-1	ISO1988E	D 2234
Methods for Float & Sink Testing of Hard Coal and Presentation of Results	AS1661			
Size Analysis of Coal		BS1016-17	ISO1953	
Free Moisture of Coal & Total Moisture of Hard Coal	AS1038-1	BS1016-1		
Apparent Relative Density (Coal)	AS1038-21			
Determination of the Relative Density of Hard Coal	AS1038-21			
Moisture in the Analysis Sample	AS1038-3	BS1016-3		
Determination of Ash	AS1038-3	BS1016-3		
Determination of Volatile Matter	AS1038-3	BS1038-3		
Gross Specific Energy of Coal	AS1038-5			
Carbon & Hydrogen	AS1038-6			
Nitrogen	AS1038-6			
Carbon Dioxide	AS1038-6			
Chlorine in Coal and Coke	AS1039-8			
Total Sulphur in Coal				
- High Temperature Method	AS1038-6	BS1016-6		
- Leco High Temp. Method	CCI DIA-1981			
Forms of Sulphur	AS1038-11			
Caking & Swelling Properties of Coal & Coke				
- Crucible Swelling Number	AS1038-12·1			
- Gray King Coke Type	AS1038-12·2			
Fusibility of Coal & Coke Ash	AS1038-15			
Analysis of Coal (Bomb Digestion-Flame Atomic Absorption Spectrometric Method)	AS1038-14·1			
Phosphorus in Coal (Bomb Digestion)	AS1038-9			
Method for Determining the Hardgrove Grindability Index of Hard Coal	AS1038-20			
A.A. Dilatometer			ISO 349	
Gieseler Plastometer	AS2137			

REF. Nº : G411

COSTAIN LARGE CORE

WDC 119

November, 1984.

074

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1. INTRODUCTION

A sample of coal from the Woodbury project was received at our CCI Gladstone Laboratory on October 29, 1984. The bore core, being broken into discrete plys was packed separately in plastic bags.

2. TESTING AND ANALYSES PROCEDURE

A flow diagram of the test procedure is shown in the appendix.

2.1 Preparation of Sample

Each bag of sample was air dried and an ARD determination was carried out on each ply. The plies 6 to 11 were then combined, weighed and dry sized at 31.5, 16.0, 8.0, 4.0, 2.0 and 1.0mm. Ply 12 was not tested further.

The +31.5mm fraction was drop shattered to pass 31.5mm and the sample was then size adjusted to fit the Rosin Rambler curve with a slope of 0.65 and mean size of 8.0mm.

On completion of the size adjustment the sample was wet tumbled for 2 minutes 20 seconds, according to AS1661 part C, using a Hardgrove Grindability Index of 70. After desliming at 0.5mm w/w, the +0.5mm w/w fraction was dry screened at 16.0, 8.0, 4.0, 2.0, 1.0 and 0.5mm w/w, and the fractional Mass% was recorded. The size fractions were then recombined to produce three samples for float/sink analysis; namely -31.5 + 8.0mm, -8.0 + 2.0mm and -2.0 + 0.5mm w/w.

A float/sink analysis was carried out on each size fraction at 1.40, 1.50, 1.60, 1.70, 1.80, 1.90, 2.00 and 2.20. Each fraction was prepared and analysed for proximate analysis.

The -0.5mm w/w material was deslimed at 0.063mm; the -0.063mm being subsampled and analysed for ash. A subsample of the -0.5mm w/w + 0.063mm fraction was obtained and screened at 0.5, 0.25, 0.125 and 0.063mm with each size fraction being analysed for ash. A float/sink analysis was also carried out on this size fraction at 1.40, 1.50, 1.60, 1.70, 1.80, 1.90, 2.00 and 2.20. Each fraction was prepared and analysed for proximate analysis.

2.2 Composite Analysis

A composite was made up of the cumulative floats 1.80 from each of the four size fractions that had been analysed in the proportions as supplied and this was analysed for proximate analysis, ash fusion temperature (reducing), total sulphur, gross specific energy, hardgrove grindability index and ash analysis.

2.3 Reference Methods

CCI Laboratories are accredited facilities, registered with NATA and the methods used are outlined in the appendix.

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ORIGIN: COSTAIN JOB NO. G411

DESCRIPTION: WDC 119 PLIES 6 - 12 DATE REC'D 29/10/1984

REPORTED TO: MR. C. BAKER c.c.

APPARENT RELATIVE DENSITY

PLY	ARD
6	1.35
7	1.44
8	2.06
9	1.67
10	1.57
11	1.45
12	2.11

REPORTED BY:

DATED: 19-11-84

076

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ORIGIN: COSTAIN

JOB NO. G411

DESCRIPTION: WDC 119 PLIES 6 - 12.

DATE REC'D 29/10/1984

REPORTED TO: MR. C. BAKER

C.C.:

FLOAT AND SINK ANALYSIS

Minus 31.5mm Plus 8.0mm

Mass % = 28.6

Size Fraction (mm)	Fractional Mass %	Moisture %	Ash %	Volatile Matter %	Fixed Carbon %	Cumulative Mass %	Cumulative Ash %
F1.40	57.9	3.6	11.7	27.2	57.5	57.9	11.7
S1.40 - F1.50	18.2	3.9	22.6	24.0	45.5	76.1	14.3
S1.50 - F1.60	6.1	4.2	29.6	26.3	39.9	82.2	15.4
S1.60 - F1.70	3.7	5.2	39.1	22.6	31.1	85.9	16.5
S1.70 - F1.80	3.5	4.9	45.9	21.6	27.6	89.4	17.6
S1.80 - F1.90	4.3	6.9	55.2	15.1	22.8	93.7	19.3
S1.90 - F2.00	4.3	7.2	61.6	13.4	17.8	98.0	21.2
S2.00 - F2.20	1.2	5.8	66.6	18.2	9.4	99.2	21.7
S2.20	0.8	-	73.3	-	26.7	100.0	22.2

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DATED: 19.11.84

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ORIGIN: COSTAIN JOB NO. G411

DESCRIPTION: WDC 119 PLIES 6 - 12 DATE REC'D 29/10/1984

REPORTED TO: MR. C. BAKER C.C.

FLOAT AND SINK ANALYSIS

Minus 8.0mm Plus 2.0mm Mass % = 31.7

Size Fraction (mm)	Fractional Mass %	Moisture %	Ash %	Volatile Matter %	Fixed Carbon %	Cumulative Mass %	Ash %
F1.40	41.3	2.8	9.3	29.1	58.8	41.3	9.3
S1.40 - F1.50	9.9	4.0	20.6	25.3	50.1	51.2	11.5
S1.50 - F1.60	6.6	4.1	28.8	23.1	44.0	57.8	13.5
S1.60 - F1.70	4.9	5.3	38.7	19.2	36.8	62.7	15.4
S1.70 - F1.80	8.2	5.8	47.0	16.1	31.1	70.9	19.1
S1.80 - F1.90	10.7	6.5	54.3	14.7	24.5	81.6	23.7
S1.90 - F2.00	8.8	6.7	61.7	13.9	17.7	90.4	27.4
S2.00 - F2.20	5.8	6.6	68.2	14.2	11.0	96.2	29.9
S2.20	3.8	-	73.4	-	26.0	100.0	31.5

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DATED: 19.11.84

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ORIGIN: COSTAIN JOB NO. G411

DESCRIPTION: WDC 119 PLIES 6 - 12 DATE REC'D 29/10/1984

REPORTED TO: MR. C. BAKER c.c.

FLOAT AND SINK ANALYSIS

Minus 2.0mm Plus 0.5mm ww Mass % = 19.3

Size Fraction (mm)	Fractional Mass %	Moisture %	Ash %	Volatile Matter %	Fixed Carbon %	Cumulative Mass %	Ash %
F1.40	36.8	3.1	8.2	28.7	60.0	36.8	8.2
S1.40 - F1.50	7.2	3.8	20.7	24.6	50.9	44.0	10.2
S1.50 - F1.60	4.6	4.5	30.2	21.9	43.4	48.6	12.1
S1.60 - F1.70	3.8	5.2	39.2	19.0	36.6	52.4	14.1
S1.70 - F1.80	6.5	5.9	48.0	16.0	30.1	58.9	17.8
S1.80 - F1.90	8.9	6.5	55.3	14.8	23.4	67.8	22.8
S1.90 - F2.00	8.5	6.7	62.4	13.6	17.3	76.3	25.4
S2.00 - F2.20	11.7	7.6	73.6	12.7	6.1	88.0	31.8
S2.20	12.0	-	78.9	-	21.1	100.0	37.5

REPORTED BY:

NATA

DATED: 19.11.84

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ORIGIN: COSTAIN JOB NO. G411

DESCRIPTION: WDC 119 PLIES 6 - 12 DATE REC'D 29/10/1984

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FLOAT AND SINK ANALYSIS

Minus 0.5mm ww Plus 0.063mm Mass % = 20.4

Size Fraction (mm)	Fractional Mass %	Moisture %	Ash %	Volatile Matter %	Fixed Carbon %	Cumulative Mass %	Ash %
F1.40	26.6	3.2	7.0	29.2	60.6	26.6	7.0
S1.40 - F1.50	8.0	4.3	16.3	24.8	54.6	34.6	9.2
S1.50 - F1.60	4.3	5.2	27.8	21.7	45.3	38.9	11.2
S1.60 - F1.70	3.7	5.9	37.3	19.4	37.4	42.6	13.5
S1.70 - F1.80	4.8	6.4	46.3	16.7	30.6	47.4	16.8
S1.80 - F1.90	6.2	6.7	53.3	15.3	24.7	53.6	21.0
S1.90 - F2.00	5.2	7.0	59.9	14.4	18.7	58.8	24.5
S2.00 - F2.20	13.2	7.5	72.3	12.9	7.3	72.0	33.2
S2.20	28.0		76.8		23.2	100.0	45.4

REPORTED BY: L Hoare

DATED: 19.11.84

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ORIGIN: COSTAIN JOB NO. G411

DESCRIPTION: WDC 119 PLIES 6 - 12 DATE REC'D 29/10/1984

REPORTED TO: MR. C. BAKER c.c.

SIZE DISTRIBUTION

Size Fraction (mm)	Mass %	% Passing	Ash %
- 31.5 + 16.0	11.1	100.0	
- 16.0 + 8.0	15.0	88.9	
- 8.0 + 4.0	16.8	73.9	
- 4.0 + 2.0	12.3	57.1	
- 2.0 + 1.0	14.0	44.8	
- 1.0 + 0.5 WW	3.6	30.8	
- 0.5 WW + 0.5	6.3	27.2	46.6
- 0.5 + 0.25	6.0	20.9	44.1
- 0.25 + 0.125	3.9	14.9	45.9
- 0.125 + 0.063	2.4	11.0	48.3
- 0.063	8.6	8.6	51.3

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ORIGIN: COSTAIN JOB NO. G411

DESCRIPTION: WDC 119 PLIES 6 - 12 DATE REC'D 29/10/1984

REPORTED TO: MR. C. BAKER c.c.

CLEAN COAL COMPOSITE

Inherent Moisture %	(ad)	3.7
Ash %	(ad)	17.9
Volatile Matter %	(ad)	25.8
Fixed Carbon %	(ad)	52.6
Total Sulphur %	(ad)	0.59
Gross Specific Energy MJ/kg	(ad)	24.4
Hardgrove Grindability Index		70 (56)

Ash Fusion Temperatures (Reducing Atmosphere)

Deformation	°C	1320
Spherical	°C	+1340
Hemisphere	°C	+1350
Flow	°C	+1370

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DATED: 19.11.84

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ORIGIN: COSTAIN JOB NO. G411

DESCRIPTION: WDC 119 PLIES 6 - 12 DATE REC'D 29/10/1984

REPORTED TO: MR. C. BAKER c.c.

CLEAN COAL COMPOSITE

ANALYSIS OF ASH:- AS1038 - 14·1 / Bomb Digestion Method

SiO_2	%	45.9
Al_2O_3	%	29.0
Fe_2O_3	%	3.36
CaO	%	10.8
MgO	%	2.30
TiO_2	%	0.95
Na_2O	%	0.09
K_2O	%	0.73
Mn_3O_4	%	0.21
SO_3	%	4.88
P_2O_5	%	0.084

Reported by:

Date: 19·11·84

083

APPENDIX

COAL SAMPLE (AIR DRIED)

ARD on individual plies (6 - 12)

- Combine Plies 6 - 11
  - Size adjust to -31.5mm
  - Wet tumble
  - Wet screen @ 0.50mm w/w
    - +0.5 mm w/w
      - dry size @
        - 16mm
        - 8
        - 4
        - 2
        - 1
        - 0.5mm w/w
      - Recombine fractions
        - -31.5 + 8.0, 8.0 + 2.0, 2.0 + 0.5mm w/w
        - Float/sink @ 1.40, 1.50, 1.60, 1.70, 1.80, 1.90, 2.00, 2.20
    - -0.5mm w/w
      - deslime @ 0.063mm
        - +0.063
          - dry size @
            - 0.5
            - 0.25
            - 0.125
            - 0.063mm
        - +0.063
          - float/sink @
            - 1.40
            - 1.50
            - 1.60
            - 1.70
            - 1.80
            - 1.90
            - 2.00
            - 2.20
- Ply 12 bag and store

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Methods for Float & Sink Testing of Hard Coal and Presentation of Results	AS1661			
Code of recommended practice for taking samples from coal seams in situ	ASCK5			
Size Analysis of Coal		BS1016-17	ISO1953	
Free Moistute of Coal & Total Moisture of Hard Coal	AS1038-1	BS1016-1		
Apparent Relative Density (Coal)	AS1038-21			
Determination of the Relative Density of Hard Coal	AS1038-21			
Moisture in the Analysis Sample	AS1038-3	BS1016-3		
Determination of Ash	AS1038-3	BS1016-3		
Determination of Volatile Matter	AS1038-3	BS1016-3		
Gross Specific Energy of Coal	AS1038-5			
Total Sulphur in Coal - High Temperature Method - Leco High Temp. Method	AS1038-6 CCI DIA-1981	BS1016-6		
Carbon & Hydrogen	AS1038-6			
Carbon Dioxide	AS1038-6			
Chlorine in Coal and Coke	AS1038-8	BS1016-8		
Caking & Swelling Properties of Coal - Crucible Swelling Number	AS1038-12·1	BS1016-12		
Fusibility of Coal & Coke Ash	AS1038-15			

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Methods for Float & Sink Testing of Hard Coal and Presentation of Results	AS1661			
Size Analysis of Coal		BS1016-17	ISO1953	
Free Moisture of Coal & Total Moisture of Hard Coal	AS1038-1	BS1016-1		
Apparent Relative Density (Coal)	AS1038-21			
Determination of the Relative Density of Hard Coal	AS1038-21			
Moisture in the Analysis Sample	AS1038-3	BS1016-3		
Determination of Ash	AS1038-3	BS1016-3		
Determination of Volatile Matter	AS1038-3	BS1038-3		
Gross Specific Energy of Coal	AS1038-5			
Carbon & Hydrogen	AS1038-6			
Nitrogen	AS1038-6			
Carbon Dioxide	AS1038-6			
Chlorine in Coal and Coke	AS1039-8			
Total Sulphur in Coal - High Temperature Method - Leco High Temp. Method	 AS1038-6 CCI DIA-1981	 BS1016-6		
Forms of Sulphur	AS1038-11			
Caking & Swelling Properties of Coal & Coke - Crucible Swelling Number - Gray King Coke Type	 AS1038-12·1 AS1038-12·2			
Fusibility of Coal & Coke Ash	AS1038-15			
Analysis of Coal (Bomb Digestion-Flame Atomic Absorption Spectrometric Method)	AS1038-14·1			
Phosphorus in Coal (Bomb Digestion)	AS1038-9			
Method for Determining the Hardgrove Grindability Index of Hard Coal	AS1038-20			
A.A. Dilatometer			ISO 349	
Gieseler Plastometer	AS2137			

CCI/4240/80

TESTING OF COAL FROM WOODBURY LARGE DIAMETER BORE

WDC 119R

DECEMBER, 1984

087

234088

1. INTRODUCTION

A sample of coal from the Woodbury project, Bore 119R Large Diameter was received at the CCI Newcastle Laboratory on the 5th December, 1984.

2. PROCEDURES

CCI Laboratories are accredited facilities registered with NATA and the methods used are outlined on the following pages.

2.1 Preparation of Sample

A flow diagram of the preparation procedure is shown in the appendix.

2.1.1 Each sample was air dried and an ARD determined.

2.1.2 Plies 01 -03 were combined.

2.1.3 The sample was dry sized at 31.5, 16.0, 8.0, 4.0 and 2.0 mm. The plus 31.5 mm fraction was drop shattered from 2 metres to pass 31.5 mm.

2.1.4 The sample was size adjusted to fit the Rosin Rammler curve with a slope of 0.65 and a mean size of 8.0 mm.

2.1.5 On completion of the size adjustment the sample was wet tumbled for 2 minutes 20 seconds with water mass equal to 3 times samples mass and steel cubes at the rate of 1 cube per 2.7 kg of sample. After drum tumbling the sample was deslimed over a 0.5 mm wedge wire screen.

2.1.6 The plus 0.5 mm w/w fraction was dry screened at 16.0, 8.0, 4.0, 2.0 and 1.0 reporting fractional mass %.

2.1.7 The size fractions were then recombined to produce three samples for float/sink analysis; namely -31.5 + 8.0 mm, -8.0 mm + 2.0 mm and -2.0 + 0.5 mm w/w. Float/sink analysis was carried out on each fraction at 1.40, 1.50, 1.60, 1.70, 1.80, 1.90, 2.00 and 2.20. Each fraction was prepared and analysed for proximate analysis.

2.1.8 The -0.5 mm w/w fraction was subsampled and prepared for ash. The remaining sample was deslimed at 0.063 mm; the -0.063 mm fraction being subsampled and prepared for ash.

2.1.9 A subsample of the -0.5 mm w/w + 0.063 mm fraction was screened at 0.50, 0.250, 0.125, and 0.063 mm, with each size fraction being prepared and analysed for ash.

2.1.10 A float/sink analysis was also carried out on the -0.5 mm w/w + 0.063 mm fraction at 1.40, 1.50, 1.60, 1.70, 1.80, 1.90, 2.00 and 2.20. Each fraction was prepared and analysed for proximate analysis.

2.2 Composite Analysis

A composite sample was made up of the cumulative floats 1.80 fractions and was prepared for proximate analysis, ash fusion temperatures (reducing), total sulphur, gross specific energy, hardgrove grindability index and ash analysis.

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Methods for the sampling of Hard Coal	AS1676 (1975)
Methods for Float & Sink Testing of Hard Coal and Presentation of Results	AS1661 (1979)
Size Analysis of Coal	BS1016-17 (1979) ISO1953 (1972)
Free Moisture of Coal & Total Moisture of Hard Coal	AS1038-21 (1983)
Apparent Relative Density (Coal)	AS1038-21 (1983)
Determination of the Relative Density of Hard Coal	AS1038-21 (1983)
Moisture in the Analysis Sample	AS1038-3 (1979)
Determination of Ash	AS1038-3 (1979)
Determination of Volatile Matter	AS1038-3 (1979)
Gross Specific Energy of Coal	AS1038-5 (1979)
Carbon & Hydrogen	AS1038-6 (1971)
Nitrogen	AS1038-6 (1971)
Carbon Dioxide	AS1038-6 (1971)
Total Sulphur	AS1038-6 (1971)
Total Sulphur in Coal (Leco High Temperature)	C.C.I. DIA Sept. 1981
Chlorine in Coal	AS1038-8 (1980)
Forms of Sulphur	AS1038-11 (1982)
Fusibility of Coal & Coke Ash	AS1038-15 (1972)
Analysis of Coal Ash (Bomb Digestion-Flame Atomic absorption Spectrometric Method)	AS1038-14.1 (1981)
Phosphorus in Coal (Bomb Digestion)	AS1038-9 (1977)
Method for Determining the Hardgrove Grindability Index of Hard Coal	AS1038-20 (1981)
Crucible Swelling Number	AS1038-12.1 (1979)
Gray King Coke Type	AS1038-12.2 (1980)
A.A. Dilatometer	ISO349 (1975)
Gieseler Plastometer	AS2137 (1981)

089

3. RESULTS

The results obtained are presented on the following pages, subdivided as follows:

3.1 Sample Pre-Treatment and Size Distributions

3.2 Beneficiation Testing

3.3 Composite Analysis

090

3.1 SAMPLE PRE-TREATMENT AND SIZE DISTRIBUTION

091

234092

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TELEX 20970 (AUSMCO)

ORIGIN: Costain (Australia) Pty. Ltd. JOB NO. 4240

DESCRIPTION: Woodbury WDC 119R DATE REC'D 5/12/84

Large Core DATE TESTED 6/12/84

REPORTED TO: Doctor C. K. Baker C.C.

Ply	Mass (g) (as received)	Apparent Relative Density
01	3432	1.63
02	2710	1.69
03	2410	1.42

DROP SHATTER TEST

Coal was badly broken when received and only 4.7% was plus 31.5 mm. After the first drop only one lump of soft clay material remained and it was broken after another five (5) drops.

REPORTED BY L Howarth

DATE 28/12/84

234093

092

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ORIGIN: Costain (Australia) Pty. Ltd. JOB NO 4240

DESCRIPTION: Woodbury WDC 119R DATE REC'D 5/12/84

Large Core Plies 01 - 03 inclusive DATE TESTED 13/12/84

REPORTED TO: Doctor C. K. Baker C.C.

SIZE DISTRIBUTION

Size Fraction (mm)		Before Size Adjustment Mass% Fraction	Before Size Adjustment Cum Mass% Passing	After Size * Adjustment Mass% Fraction	After Size * Adjustment Cum Mass% Passing	After Wet Tumble Mass% Fraction	After Wet Tumble Cum Mass% Passing
-31.5	+16.0	14.3	85.7	14.3	85.7	5.1	94.9
-16.0	+ 8.0	28.3	57.4	22.7	63.0	12.2	82.7
- 8.0	+ 4.0	22.6	34.8	16.0	47.0	13.0	69.7
- 4.0	+ 2.0	11.3	23.5	13.0	34.0	9.8	59.9
- 2.0		23.5		34.0		59.9	

* Coal was in a badly broken state and insufficient material was +16 mm to enable target size to be achieved.

REPORTED BY A Trounson

DATE 28/12/84

093

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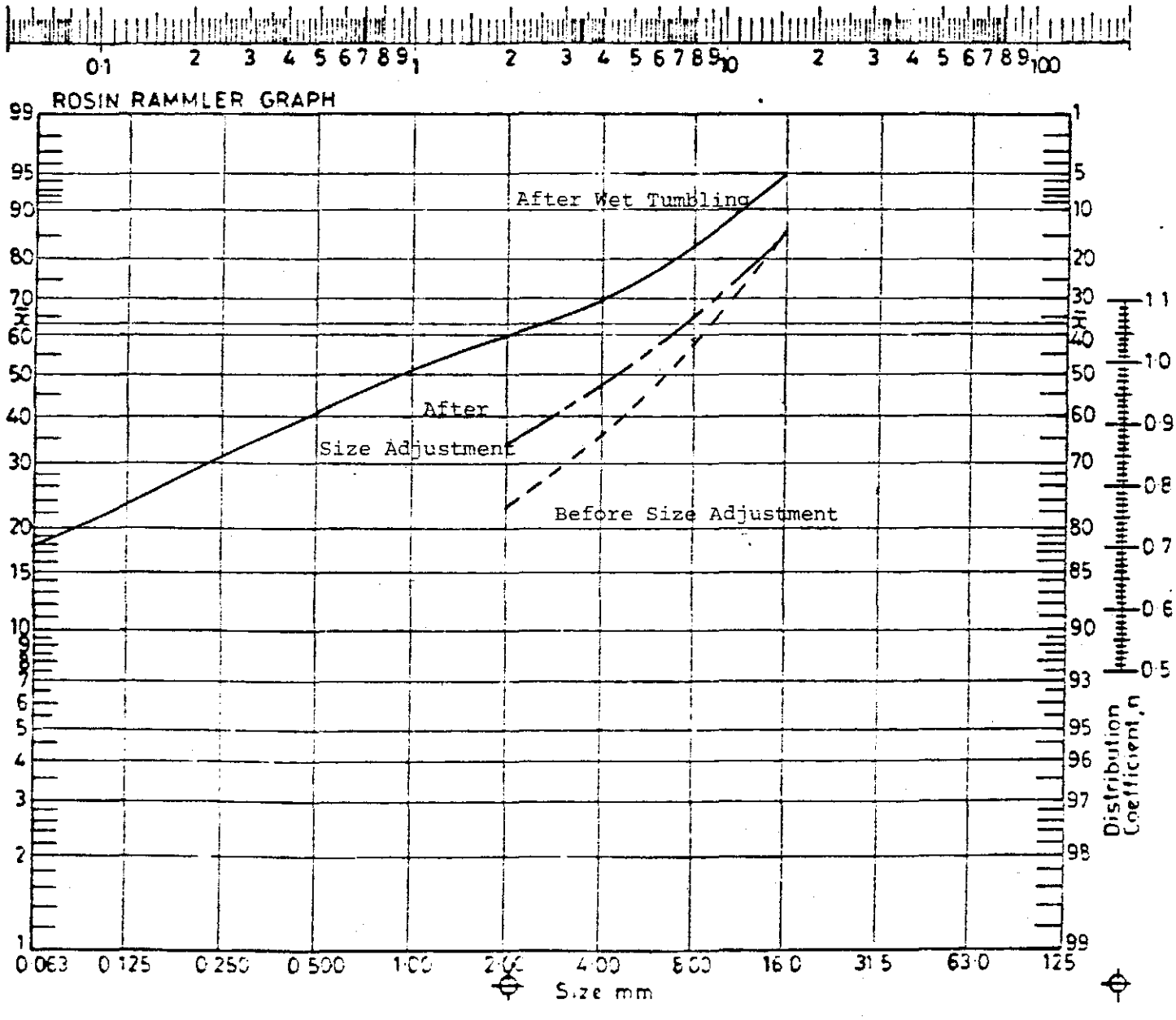
INCORPORATED IN NEW SOUTH WALES

ORIGIN: Costain (Australia) Pty. Ltd. JOB NO 4240

DESCRIPTION: Woodbury WDC 119R DATE REC'D 5/12/84

Large Core Plies 01 -03 inclusive

REPORTED TO: Doctor C. K. Baker CC



094

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TELEX 20970 (AUSMCO)

ORIGIN: Costain (Australia) Pty. Ltd. JOB NO 4240

DESCRIPTION: Woodbury WDC 119R DATE REC'D 5/12/84

Large Core Plies 01 - 03 inclusive DATE TESTED 13/12/84

REPORTED TO: Doctor C. K. Baker c.c.

SIZE DISTRIBUTION

Size Fraction (mm)	Mass% Fraction	Cum Mass% Passing	Ash(ad)% of Fraction
-31.5 + 16.0	5.1	94.9	
-16.0 + 8.0	12.2	82.7	
- 8.0 + 4.0	13.0	69.7	
- 4.0 + 2.0	9.8	59.9	
- 2.0 + 1.0	8.3	51.6	
- 1.0 + 0.5 w/w	1.7	49.9	
- 0.5 w/w + 0.50	9.6	40.3	55.5
- 0.50 + 0.250	8.5	31.8	62.9
- 0.250 + 0.125	8.2	23.6	70.1
- 0.125 + 0.063	5.7	17.9	71.3
- 0.063	17.9		68.4

Minus 0.5 mm w/w Head Ash (%ad) = 66.1

REPORTED BY L Nowak

DATE 28/12/84

3.2 BENEFICIATION TESTING

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234097

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ORIGIN: Costain (Australia) Pty. Ltd. JOB NO. 4240

DESCRIPTION: Woodbury WDC 119R DATE REC'D 5/12/84

Large Core Plies 01 - 03 inclusive DATE TESTED 12/12/84

REPORTED TO: Doctor C. K. Baker C.C.

FLOAT AND SINK ANALYSIS

Sample: -31.5 + 8.0 mm Mass % 17.3

Relative Density Fraction		Mass	Fractional % (ad) Moist	Ash	Vol.	Cumulative % (ad) Mass	Ash
	F1.40	54.4	3.2	13.5	26.8	54.4	13.5
S1.40	F1.50	26.0	4.2	22.0	21.3	80.4	16.2
S1.50	F1.60	14.1	5.0	31.5	20.5	94.5	18.5
S1.60	F1.70	2.7	4.0	37.2	20.8	97.2	19.0
S1.70	F1.80	1.2	4.3	46.1	19.6	98.4	19.4
S1.80	F1.90	NIL	-	-	-	98.4	19.4
S1.90	F2.00	0.7	4.0	56.8	24.0	99.1	19.6
S2.00	F2.20	0.5	3.0	56.2	28.9	99.6	19.8
S2.20		0.4	1.5	55.5	23.2	100.0	20.0

REPORTED BY K Nowak

DATE 28/12/84

234098

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ORIGIN: Costain (Australia) Pty. Ltd. JOB NO 4240

DESCRIPTION: Woodbury WDC 119R DATE REC'D 5/12/84

Large Core Plies 01 -03 inclusive DATE TESTED 12/12/84

REPORTED TO: Doctor C. K. Baker c.c.

FLOAT AND SINK ANALYSIS

Sample: -8.0 + 2.0 mm Mass % 22.8

Relative Density Fraction		Mass	Fractional % (ad) Moist	Ash	Vol.	Cumulative % (ad) Mass	Ash
	F1.40	37.3	3.3	11.8	27.7	37.3	11.8
S1.40	F1.50	23.0	4.2	20.5	21.0	60.3	15.1
S1.50	F1.60	15.0	5.1	30.8	20.0	75.3	18.2
S1.60	F1.70	8.1	5.5	39.4	18.2	83.4	20.3
S1.70	F1.80	5.9	5.7	46.8	16.0	89.3	22.0
S1.80	F1.90	3.5	5.9	54.0	16.4	92.8	23.2
S1.90	F2.00	2.2	5.5	61.5	16.6	95.0	24.1
S2.00	F2.20	2.0	5.6	67.5	16.9	97.0	25.0
S2.20		3.0	2.0	60.9	25.0	100.0	26.1

REPORTED BY L Crowder

DATE 28/12/84

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234099

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TELEX 20970 (AUSMCO)

ORIGIN: Costain (Australia) Pty. Ltd.

JOB NO. - 4240

DESCRIPTION: Woodbury WDC 119R

Large Core Plies 01 - 03 inclusive

DATE REC'D 5/12/84

DATE TESTED 12/12/84

REPORTED TO: Doctor C. K. Baker

C.C.

FLOAT AND SINK ANALYSIS

SAMPLE: -2.0 + 0.5 mm w/w

MASS % 10.0

Relative Density Fraction		Mass	Fractional % (ad) Moist	Ash	Vol.	Cumulative % (ad) Mass	Ash
	F1.40	25.4	3.2	9.9	28.5	25.4	9.9
S1.40	F1.50	23.4	4.4	18.1	23.4	48.8	13.8
S1.50	F1.60	14.6	5.4	27.1	20.9	63.4	16.9
S1.60	F1.70	8.4	5.5	37.4	19.9	71.8	19.3
S1.70	F1.80	5.5	5.7	46.1	17.1	77.3	21.2
S1.80	F1.90	3.0	5.7	50.3	17.4	80.3	22.3
S1.90	F2.00	6.7	7.4	57.3	17.0	87.0	25.0
S2.00	F2.20	4.6	6.6	68.4	15.2	91.6	27.2
S2.20		8.4	4.1	89.0	17.3	100.0	32.4

REPORTED BY L Howarth

DATE 28/12/84

099

234100

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ORIGIN: Costain (Australia) Pty. Ltd. JOB NO. 4240

DESCRIPTION: Woodbury WDC 119 DATE REC'D 5/12/84

Large Core Plies 01 -03 inclusive DATE TESTED 12/12/84

REPORTED TO: Doctor C. K. Baker C.C.

SINK AND FLOAT ANALYSIS

Sample: -0.5 w/w + 0.063 mm Mass % 32.0

Relative Density Fraction		Mass	Fractional % (ad) Moist	Ash	Vol.	Cumulative % (ad) Mass	Ash
	F1.40	7.0	3.8	12.9	31.0	7.0	12.9
S1.40	F1.50	6.2	5.1	19.6	23.8	13.2	16.0
S1.50	F1.60	5.4	5.9	29.9	20.3	18.6	20.1
S1.60	F1.70	5.0	6.7	39.5	19.0	23.6	24.2
S1.70	F1.80	3.8	7.2	46.2	17.2	27.4	27.2
S1.80	F1.90	4.7	9.6	54.3	15.6	32.1	31.2
S1.90	F2.00	4.9	10.0	59.8	14.6	37.0	35.0
S2.00	F2.20	14.3	10.4	69.3	12.7	51.3	44.6
S2.20		48.7	7.7	76.8	14.0	100.0	60.3

REPORTED BY K Howard

DATE 28/12/84

100

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234101

ORIGIN: Costain (Australia) Pty. Ltd. JOB NO. 4240

DESCRIPTION: Woodbury WDC 119R DATE REC'D 5/12/84

Large Core Plies 01 - 03 inclusive DATE TESTED 12/12/84

REPORTED TO: Doctor C. K. Baker C.C.

FLOAT AND SINK ANALYSIS

Calculated Overall Washability

Sample: -31.5 + 0.063 mm Mass % 82.1

Relative Density Fraction		Fractional % (ad) Mass	Fractional % (ad) Ash	Cumulative % (ad) Mass	Cumulative % (ad) Ash
	F1.40	27.6	12.4	27.6	12.4
S1.40	F1.50	17.1	20.5	44.7	15.5
S1.50	F1.60	11.0	30.2	55.8	18.4
S1.60	F1.70	5.8	38.9	61.6	20.3
S1.70	F1.80	4.0	46.4	65.6	21.9
S1.80	F1.90	3.2	53.7	68.8	23.4
S1.90	F2.00	3.5	59.4	72.3	25.1
S2.00	F2.20	6.8	68.9	79.1	28.9
S2.20		20.9	76.7	100.0	38.9

REPORTED BY L Howard

DATE 28/12/84

3.3 COMPOSITE ANALYSIS

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234103

ORIGIN: Costain (Australia) Pty. Ltd. JOB NO. 4240

DESCRIPTION: Woodbury WDC 119R DATE REC'D 5/12/84

Large Core Plies 01 - 03 inclusive DATE TESTED 12/12/84

REPORTED TO: Doctor C. K. Baker c.c.

ANALYSIS REPORT

Cumulative

F1.80 Composite

Relative Density		
Total Moisture (as)	%	
Moisture (ad)	%	4.0
ANALYSIS BASIS		ad
Ash	%	22.1
Volatile Matter	%	22.8
Fixed Carbon	%	51.1
Total Sulphur	%	0.40
Chlorine	%	
Phosphorus	%	
Specific Energy	MJ/kg	24.30
Carbon	%	
Hydrogen	%	
Nitrogen	%	
Carbon Dioxide	%	
DRY ASH-FREE BASIS		
Volatile Matter	%	30.9
Specific Energy	MJ/kg	32.88
Carbon	%	
Hydrogen	%	
Nitrogen	%	
Sulphur	%	
Oxygen (diff.)	%	
Crucible Swelling Number		
Gray-King Coke Type		
Hardgrove Grindability Index		
ASH FUSION TEMPERATURES (reducing atmosphere)		
Deformation	°C	1300
Spherical	°C	1400
Hemisphere	°C	1430
Flow	°C	1460

REPORTED BY L Nowak

DATE 28/12/84

Analyses carried out in accordance with AS1038 Parts 1-16 and ASK164 and where not available BS1016 Parts 1-16 unless otherwise stated

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234104

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INCORPORATED IN NEW SOUTH WALES

ORIGIN: Costain (Australia) Pty. Ltd. JOB NO. 4240

DESCRIPTION: Woodbury WDC 119R DATE REC'D 5/12/84

Large Core Plies 01 - 03 inclusive 12/12/84

REPORTED TO: Doctor C. K. Baker C.C.

Sample No: Cumulative F1.80 Composite

ANALYSIS OF ASH:- AS1038 - 14.1 / Bomb Digestion method.

SiO_2	%	60.0
Al_2O_3	%	24.8
Fe_2O_3	%	4.45
CaO	%	4.66
MgO	%	3.11
TiO_2	%	1.08
Na_2O	%	0.14
K_2O	%	0.56
Mn_3O_4	%	0.12
SO_3	%	1.38
P_2O_5	%	0.104

Slagging Index (calc) 0.06

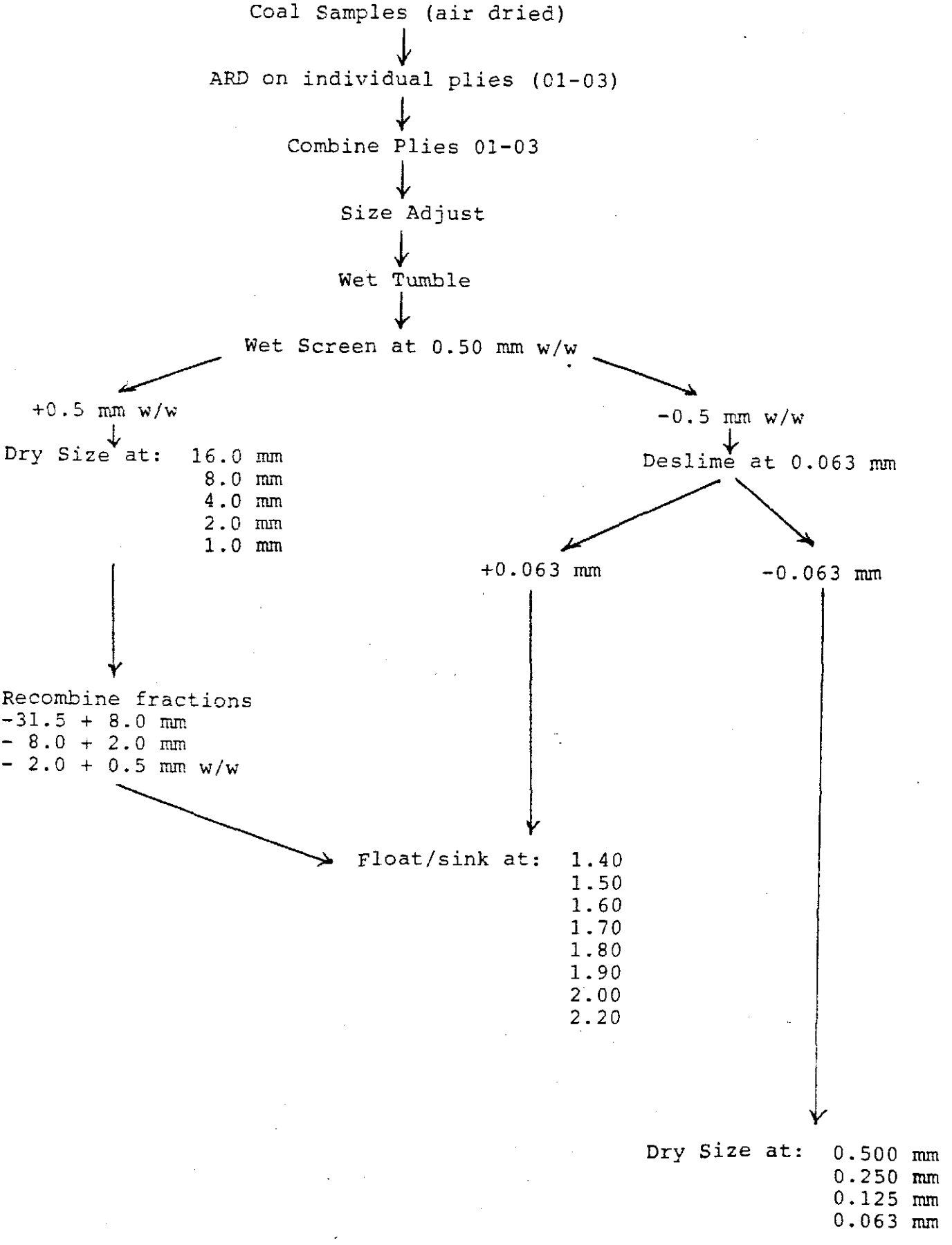
Fouling Index (calc) 0.02

(Ref. Schmidt R.A. Consumer Coal Criteria as a guide to exploration. Proceedings of 1st. International Coal Exploration Symposium, London, May 1976.)

Reported by L Howarth

Date 28/12/84

APPENDIX


Coal Samples (air dried)
ARD on individual plies (01-03)
Combine Plies 01-03
Size Adjust
Wet Tumble
Wet Screen at 0.50 mm w/w
+0.5 mm w/w
Dry Size at: 16.0 mm
8.0 mm
4.0 mm
2.0 mm
1.0 mm
Recombine fractions
-31.5 + 8.0 mm
- 8.0 + 2.0 mm
- 2.0 + 0.5 mm w/w
-0.5 mm w/w
Deslime at 0.063 mm
+0.063 mm
-0.063 mm
Float/sink at: 1.40
1.50
1.60
1.70
1.80
1.90
2.00
2.20
Dry Size at: 0.500 mm
0.250 mm
0.125 mm
0.063 mm

234106

105

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

COSTAIN AUSTRALIA LIMITED
MINING DIVISION
WOODBURY PROJECT OFFICE
POST OFFICE BOX 58
OATLANDS TASMANIA 7120

REPORT NO SL 2860 . CLIENT REF. NO .....
DATE SAMPLES IN 24/10/84 . DATE REPORT OUT 16/11/84

REPORT TITLE: ANALYSES OF COAL FROM WDC 120, WOODBURY PROJECT.

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 1038 Pt.6	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

Core samples supplied by client.

All analyses on air dried basis.

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SGS Australia Pty. Ltd.
Incorporated in New South Wales

Sydney

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

Costain Australia Limited
Mining Division
Woodbury Project Office
Post Office Box 58
Oatlands, Tasmania 7120

Sydney 16th November, 1984

Your ref.: Our ref.: SL2860

Woodbury Project - Coal Core from WDC 120

Seven samples of coal seam core were received for testing as requested by C. Baker.

Test Procedure

1. Air dry and weigh
2. Determine ARD (see Table 1)
3. Prepare composite plies 1-5 and 6 + 7
4. Crush minus 11.2 mm, minimum fines
5. Float/sink separate plus 0.5 mm at 1.40, 1.50, 1.60, and 1.80; proximate analysis on each fraction and on raw minus 0.5 mm (see Tables 2,3, and 4)
6. Prepare 'washed composite' as cumulative floats 1.80 from plies 1-7 inclusive; made up on length x ARD basis.
   Determine Relative density, proximate analysis, sulphur, specific energy, carbon, hydrogen, nitrogen, carbon dioxide, ash fusion (reducing atmosphere) and ash analysis.

Results, which are tabulated below, were telephoned to C. Baker on 2/11/84.

TABLE 1

Ply no.	Reported length (m)	mass (g)	Apparent Relative Density *
1	0.23	847	1.49
2	0.17	945	1.36
3	0.12	466	1.44
4	0.04	299	2.5 estimated
5	0.29	1112	1.44
6	0.27	686	1.72
7	0.18	760	1.53

SGS Australia Pty. Ltd.

REPORT No: SL2860

COAL ANALYSIS REPORT

TABLE 2

Composite Plies 1-5 incl.

	Mass%	Moisture%	Ash%	VM%	FC%
+ 0.5 mm	91.1	3.0	27.2	18.9	50.9
- 0.5 mm	8.9	3.8	39.3	18.5	38.4
	100.0	3.1	28.3	18.9	49.7

Float/Sink Separation of + 0.5 mm material

	Fractional					Cumulative				
	Mass%	Moist.%	Ash%	VM%	FC%	Mass%	Moist%	Ash%	VM%	FC%
Floats 1.40	32.9	2.2	9.4	21.5	66.9	32.9	2.2	9.4	21.5	66.9
S1.40-F1.50	24.2	3.0	19.7	19.4	57.9	57.1	2.5	13.8	20.6	63.1
S1.50-F1.60	17.7	3.6	29.5	17.3	49.6	74.8	2.8	17.5	19.8	59.9
S1.60-F1.80	12.2	3.0	44.2	16.5	36.3	87.0	2.8	21.2	19.4	56.6
Sinks 1.80	13.0	4.3	66.9	15.6	13.2	100.0	3.0	27.2	18.9	50.9

TABLE 3

Composite Plies 6 + 7

	Mass%	Moisture%	Ash%	VM%	FC%
+ 0.5 mm	90.6	2.8	39.2	16.8	41.2
- 0.5 mm	9.4	3.0	45.7	15.2	36.1
	100.0	2.8	39.8	16.6	40.8

Float/Sink Separation of + 0.5 mm material

	Fractional					Cumulative				
	Mass%	Moist.%	Ash%	VM%	FC%	Mass%	Moist%	Ash%	VM%	FC%
Floats 1.40	11.4	1.9	9.9	21.5	66.7	11.4	1.9	9.9	21.5	66.7
S1.40-F1.50	18.5	3.0	20.4	18.0	58.6	29.9	2.5	16.4	19.3	61.8
S1.50-F1.60	17.4	2.5	31.3	20.0	46.2	47.3	2.6	21.9	19.6	55.9
S1.60-F1.80	32.8	2.8	44.6	15.5	37.1	80.1	2.7	31.2	17.9	48.2
Sinks 1.80	19.9	3.3	71.3	12.3	13.1	100.0	2.8	39.2	16.8	41.2

Colin Meads
Manager Laboratories

SGS Australia Pty. Ltd.

REPORT No: SL2860

COAL ANALYSIS REPORT

TABLE 3 (cont.)

Calculated Composite Plies 1 - 7 incl.

	Mass%	Moisture%	Ash%	VM%	FC%
+ 0.5 mm	90.9	2.9	31.4	18.1	47.6
- 0.5 mm	9.1	3.5	41.6	17.3	37.6
	100.0	3.0	32.3	18.0	46.7

Calculated Float/Sink Separation of + 0.5 mm material

	Fractional					Cumulative				
	Mass%	Moist.%	Ash%	VM%	FC%	Mass%	Moist.%	Ash%	VM%	FC%
Floats 1.40	25.4	2.2	9.5	21.5	66.8	25.4	2.2	9.5	21.5	66.8
S1.40-F1.50	22.2	3.0	19.9	19.0	58.1	47.6	2.6	14.4	20.3	62.7
S1.50-F1.60	17.6	3.2	30.1	18.2	48.5	65.2	2.7	18.6	19.8	58.9
S1.60-F1.80	19.4	2.9	44.4	15.9	36.8	84.6	2.8	24.5	18.9	53.8
Sinks1.80	15.4	3.8	68.9	14.1	13.2	100.0	2.9	31.4	18.1	47.6

Colin Meads
Manager - Laboratories

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234110

SGS Australia Pty. Ltd.

REPORT No: SL2860

Analysis of Composite Plies 1-7 incl.
Plus 0.5 mm Cumulative floats 1.80

Analysis \ Sample Ref.		*	**	***			
Total Moisture	%						
Moisture	%	3.1	-	-			
Ash	%	25.0	25.8	-			
Volatile Matter	%	18.6	19.2	25.8			
Fixed Carbon	%	53.3	55.0	74.2			
Crucible Swelling No.							
Specific Energy	Mj/Kg	24.58	25.37	34.19			
Total Sulphur	%	0.61	0.63	0.85			
Carbon	%	61.4	63.4	85.4			
Hydrogen	%	3.29	3.40	4.58			
Nitrogen	%	1.08	1.11	1.50			
Oxygen(plus errors)	%	5.52	5.66	7.67			
Carbon Dioxide	%	1.20	1.24	1.67			
Chlorine	%						
Relative Density		1.51	-	-			
Hardgrove Grindability Index		75(47)	-	-			

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

Temperatures °C at Characteristic Shapes						
Initial Deformation	1200					
Spherical	1280					
Hemispherical	1310					
Flow	1340					
Comments:						

BASIS RESULTS REPORTED ON * Air dried
** Dry
*** Dry ash free

Colin Meads
Manager-Laboratories

234111

SGS Australia Pty. Ltd.

REPORT No: SL2860

Analysis of Composite Plies 1-7 incl.
Plus 0.5 mm Cumulative floats 1.80

COAL ASH ANALYSIS REPORT

Sample Ref. / Ash Constituent						
SiO_2 %	59.0					
Al_2O_3 %	22.2					
Fe_2O_3 %	3.31					
CaO %	7.2					
MgO %	2.77					
Na_2O %	0.36					
K_2O %	1.42					
TiO_2 %	0.85					
Mn_3O_4 %	0.12					
SO_3 %	2.60					
P_2O_5 %	0.034					
BaO %	0.059					
SrO %	0.049					
ZnO %	0.011					

DETERMINED BY Sydney LAB

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

Colin Meads
Manager - Laboratories

234112

SGS Australia Pty. Ltd.

REFERENCE: NL/7691

CLIENT: COSTAIN AUSTRALIA LIMITED

REPORT: WOODBURY PROJECT
WDC 121

234113

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

78/80 Denison St.,
Carrington NSW 2294.
Telephone (049) 69 2222.
Telex AA28327.

REPORT NO: NL/7691 CLIENT REF. NO: .....
DATE SAMPLES IN: 29/10/84 DATE REPORT OUT: 2/1/85
SAMPLED IN ACCORDANCE WITH: AS 2646 Part 6
Coal received as core

REPORT TITLE: WDC 121 (Woodbury Project)

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

DETERMINED BY THIS LABORATORY NATA Reg. 1397

	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 (High temp)
	AS 1038 Pt.12.1	Crucible Swelling Number
	AS 1038 Pt.12.2	Gray King Coke Type
	AS 1038 Pt.15	Fusibility of Ash
	AS 1038 Pt.20	Hardgrove Grindability Index
	AS 1038 Pt.21	Relative Density (Density bottle)
	AS 1661	Float/Sink Testing
	AS 2137	Gieseler Plastometer
		(..... stirring method)
	BS 1016 Pt.17	Size Analysis
*	LECO Method	Total Sulphur
	CRL Method	Carbon Dioxide

DETERMINED IN SGS SYDNEY LABORATORY NATA Reg. 1062

**	AS 1038 Pt. 9	Phosphorus
	AS 1038 Pt.11	Forms of Sulphur
***	AS 1038 Pt.14.1	Ash Analysis
	AS 2486	Reflectance of Vitrinite
	AS 2515	Maceral Analysis
	ISO 349	Audibert Arnu Dilatometer
	ISO 1018	Moisture Holding Capacity

DETERMINED IN SGS PERTH LABORATORY NATA Reg. 905

	XRF	Ash Analysis

SGS Australia Pty. Ltd.

REPORT No: NL/7691

CLIENT: COSTAIN AUSTRALIA LIMITED

COAL ANALYSIS REPORT

AREA: Woodbury Project (Tasmania)

SAMPLE NO.	MASS RECEIVED (kg)	* APPARENT RELATIVE DENSITY
WDC 121/01	2.098	1.69
WDC 121/02	0.726	1.44
WDC 121/03	0.502	1.90
WDC 121/04	1.614	1.72
WDC 121/05	2.166	1.66
WDC 121/06	0.342	1.46
WDC 121/07	1.036	1.84
WDC 121/08	0.416	1.93
WDC 121/09	1.680	1.47

* NOT NATA ENDORSED

234115

SGS Australia Pty. Ltd.

REPORT No: NL/7691

CLIENT: Costain Australia Limited

COAL ANALYSIS REPORT

AREA: Woodbury Project (Tasmania)

CONDITIONS: Coal crushed to -11.2mm

SIZING ANALYSIS

SCREEN SIZE	FRACTIONAL %				CUMULATIVE %			
	MASS	M ad	V ad	A ad	MASS	M ad	V ad	A ad
-11.2 +0.5mm	85.92	7.8	17.0	45.0	85.92	7.8	17.0	45.0
-0.5 +ZERO mm	14.08	7.5	15.0	50.2	100.00	7.8	16.7	45.7

FLOAT/SINK ANALYSIS (-11.2 +0.5mm) 85.92% MASS OF SAMPLE

RELATIVE DENSITY FRACTION	FRACTIONAL %				CUMULATIVE %			
	MASS	M ad	V ad	A ad	MASS	M ad	V ad	A ad
FLOAT - 1.40	13.79	3.4	25.4	9.1	13.79	3.4	25.4	9.1
1.40 - 1.50	11.54	4.2	22.0	18.2	25.33	3.8	23.9	13.2
1.50 - 1.60	11.95	5.6	19.6	31.2	37.28	4.4	22.5	19.0
1.60 - 1.80	16.46	7.4	16.5	45.4	53.74	5.3	20.7	27.1
1.80 - 2.00	28.02	10.1	13.2	61.7	81.76	6.9	18.1	38.9
SINK - 2.00	18.24	11.7	12.0	72.0	100.00	7.8	17.0	45.0

234116

SGS Australia Pty. Ltd.

REPORT No: NL/7691

CLIENT: Costain Australia Limited

COAL ANALYSIS REPORT

AREA: Woodbury Project (Tasmania)

HOLE NO: 121/01-09

SAMPLE DESCRIPTION: (-11.2 +0.5mm) CF1.80

ANALYSIS			
Moisture (adb) %		5.7	4.18 (5 BB.)
Ash (adb) %		26.9	
Volatile Matter (adb) %		20.5	
*Total Sulphur (adb) %		0.18	
Specific Energy Kcal/Kg	GAD	5255	22.14
	DAF	7800	32.66
Carbon Dioxide (adb) %		1.09	

ASH FUSION °C (red atm)	
Initial deformation	1330
Spherical	1380
Hemispherical	1410
Flow	1450

Hardgrove Grindability Index 78 (43)

NOTE:

Petrographic sample despatched to C. Baker

.....

KEN R. WILSON

LABORATORY MANAGER.

234117

SGS Australia Pty. Ltd.

REFERENCE: NL/7691

CLIENT: COSTAIN AUSTRALIA LIMITED.

REPORT: WOODBURY PROJECT

WDC 125

234118

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

78/80 Denison St.,
Carrington NSW 2294.
Telephone (049) 69 2222.
Telex AA28327.

REPORT NO: NL/7691 CLIENT REF. NO: .....
DATE SAMPLES IN: 29/10/84 DATE REPORT OUT: 3/1/84
SAMPLED IN ACCORDANCE WITH: AS 2646 Part 6
Coal received as core

REPORT TITLE: WDC 125 (Woodbury Project)

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

DETERMINED BY THIS LABORATORY NATA Reg. 1397

	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 (High temp)
	AS 1038 Pt.12.1	Crucible Swelling Number
	AS 1038 Pt.12.2	Gray King Coke Type
	AS 1038 Pt.15	Fusibility of Ash
	AS 1038 Pt.20	Hardgrove Grindability Index
	AS 1038 Pt.21	Relative Density (Density bottle)
	AS 1661	Float/Sink Testing
	AS 2137	Gieseler Plastometer
		(..... stirring method)
	BS 1016 Pt.17	Size Analysis
*	LECO Method	Total Sulphur
	CRL Method	Carbon Dioxide

DETERMINED IN SGS SYDNEY LABORATORY NATA Reg. 1062

**	AS 1038 Pt. 9	Phosphorus
	AS 1038 Pt.11	Forms of Sulphur
***	AS 1038 Pt.14.1	Ash Analysis
	AS 2486	Reflectance of Vitrinite
	AS 2515	Maceral Analysis
	ISO 349	Audibert Arnu Dilatometer
	ISO 1018	Moisture Holding Capacity

DETERMINED IN SGS PERTH LABORATORY NATA Reg. 905

	XRF	Ash Analysis

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SGS Australia Pty. Ltd.

REPORT No: NL/7691

CLIENT: Costain Australia Limited

COAL ANALYSIS REPORT

AREA: Woodbury Project (Tasmania)

SAMPLE NO.	MASS RECEIVED (kg)	* APPARENT RELATIVE DENSITY
WDC 125/01	2.122	1.35
WDC 125/02	3.394	1.59
WDC 125/03	3.808	1.31
WEC 125/04	1.296	1.33
WDC 125/05	3.724	1.63

* NOT NATA ENDORSED

SGS Australia Pty. Ltd.

REPORT No: NL/7691

CLIENT: Costain Australia Limited

COAL ANALYSIS REPORT

AREA: Woodbury Project (Tasmania)

CONDITION: Raw coal crushed to -31.5mm

SIZING ANALYSIS

SCREEN SIZE	FRACTIONAL % MASS	CUMULATIVE % MASS
-31.5 +16.0mm	26.84	26.84
-16.0 +8.0mm	29.04	55.88
-8.0 +4.0mm	15.54	71.42
-4.0 +2.0	9.45	80.87
-2.0 +1.0mm	8.95	89.82
-1.0 +ZERO mm	10.18	100.00

SGS Australia Pty. Ltd.

REPORT No: NL/7691

CLIENT: Costain Australia Limited

COAL ANALYSIS REPORT

AREA: Woodbury Project (Tasmania)

CONDITIONS: Size adjusted coal to $n = 0.65$, $\bar{x} = 8mm$

SIZING ANALYSIS

SCREEN SIZE	FRACTIONAL % MASS
-31.5 +16.0mm	20.0
-16.0 +8.0mm	17.5
-8.0 +4.0mm	15.0
-4.0 +2.0mm	15.0
-2.0 +1.0mm	10.0
-1.0 +ZERO mm	22.5

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SGS Australia Pty. Ltd.

REPORT No: NL/7691

CLIENT: Costain Australia Limited

COAL ANALYSIS REPORT

AREA: Woodbury Project (Tasmania)

CONDITIONS: Wet Tumble

SIZING ANALYSIS

SCREEN SIZE (mm)	FRACTIONAL % MASS	CUMULATIVE % MASS
- 31.5 + 16.0	11.68	11.68
- 16.0 + 8.0	14.79	26.47
- 8.0 + 2.0	22.59	49.06
- 2.0 + 0.5 w/w	21.90	70.96
- 0.5 w/w + 0.5	2.06	73.02
- 0.5 + 0.25	4.29	77.31
- 0.25 + 0.125	3.32	80.63
- 0.125 + 0.063	2.52	83.15
- 0.063 + ZERO	16.85	100.00

SGS Australia Pty. Ltd.

234123

REPORT No: NL/7691

CLIENT: Costain Australia Limited

COAL ANALYSIS REPORT

AREA: Woodbury Project (Tasmania)

COAL DESCRIPTION: -31.5 +16.0mm 11.68% MASS OF SAMPLE

FLOAT/SINK ANALYSIS

RELATIVE DENSITY FRACTION	FRACTIONAL % MASS	CUMULATIVE % MASS
FLOAT - 1.40	79.95	79.95
1.40 - 1.50	1.67	81.62
1.50 - 1.60	3.86	85.48
1.60 - 1.70	1.67	87.15
1.70 - 1.80	3.21	90.36
1.80 - 1.90	1.16	91.52
1.90 - 2.00	2.31	93.83
2.00 - 2.20	5.40	99.23
SINK - 2.20	0.77	100.00

NOTE:
Float/sink testing carried out before changes in insutrctions to combine size fractions (-31.5 +8mm).For float/sink testing see Page 8.

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234124

SGS Australia Pty. Ltd.

REPORT No: NL/7691

CLIENT: Costain Australia Limited

COAL ANALYSIS REPORT

AREA: Woodbury Project (Tasmania)

COAL DESCRIPTION: -16.0 +8.0mm 14.79% MASS OF SAMPLE

FLOAT/SINK ANALYSIS

RELATIVE DENSITY FRACTION	FRACTIONAL % MASS	CUMULATIVE % MASS
FLOAT - 1.40	59.33	59.33
1.40 - 1.50	6.89	66.22
1.50 - 1.60	9.39	75.61
1.60 - 1.70	2.70	78.31
1.70 - 1.80	2.80	81.11
1.80 - 1.90	2.10	83.21
1.90 - 2.00	4.50	87.71
2.00 - 2.20	7.59	95.30
SINK - 2.20	4.70	100.00

NOTE:
Float/sink testing carried out before changes in insutrctions to combine size fractions (-31.5 +8mm). For float/sink testing see Page 8.

SGS Australia Pty. Ltd.

REPORT No: NL/7691

CLIENT: Costain Australia Limited

COAL ANALYSIS REPORT

AREA: Woodbury Project (Tasmania)

COAL DESCRIPTION: -31.5 +8.0mm 26.47% MASS OF SAMPLE

FLOAT/SINK ANALYSIS

RELATIVE DENSITY FRACTION	FRACTIONAL % MASS	M ad	V ad	A ad	CUMULATIVE % MASS	M ad	V ad	A ad
FLOAT - 1.40	68.43	3.5	26.9	15.7	68.43	3.5	26.9	15.7
1.40 - 1.50	4.59	4.0	20.7	33.1	73.02	3.5	26.5	16.8
1.50 - 1.60	6.95	3.9	19.3	41.4	79.97	3.6	25.9	18.9
1.60 - 1.70	2.25	3.4	17.9	52.8	82.22	3.6	25.7	19.9
1.70 - 1.80	2.98	5.7	15.5	62.0	85.20	3.6	25.3	21.3
1.80 - 1.90	1.68	4.8	14.3	66.7	86.88	3.7	25.1	22.2
1.90 - 2.00	3.53	5.8	10.1	72.7	90.41	3.7	24.5	24.2
2.00 - 2.20	6.62	5.6	10.0	78.0	97.03	3.9	23.5	27.9
SINK - 2.20	2.97	2.9	7.2	85.1	100.00	3.8	23.0	29.6

NOTE:

Above table composited from (-31.5 +16.0mm) and (-16.0 +8.0mm) pages 6 and 7 respectively.

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234126

SGS Australia Pty. Ltd.

REPORT No: NL/7691

CLIENT: Costain Australia Limited

COAL ANALYSIS REPORT

AREA: Woodbury Project (Tasmania)

COAL DESCRIPTION: -8.0 +0.5mm w/w 44.49% MASS OF SAMPLE

FLOAT/SINK ANALYSIS

RELATIVE DENSITY FRACTION	FRACTIONAL % MASS	CUMULATIVE % MASS
FLOAT - 1.40	49.74	49.74
1.40 - 1.50	13.50	63.24
1.50 - 1.60	6.32	69.56
1.60 - 1.70	4.31	73.87
1.70 - 1.80	3.52	77.39
1.80 - 1.90	3.52	80.91
1.90 - 2.00	5.66	86.57
2.00 - 2.20	9.71	96.28
SINK - 2.20	3.72	100.00

NOTE:

Float/sink testing carried out before changes in instructions to float/sink size fractions (-8.0 +2.0mm) and (-2.0 +0.5mm w/w). See pages 10 and 11 for the required sized float/sink analysis.

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SGS Australia Pty. Ltd.

REPORT No: NL/7691

CLIENT: Costain Australia Limited

COAL ANALYSIS REPORT

AREA: Woodbury Project (Tasmania)

COAL DESCRIPTION: -8.0 +2.0mm 22.59% MASS OF SAMPLE

FLOAT/SINK ANALYSIS

RELATIVE DENSITY FRACTION	FRACTIONAL % MASS	M ad	V ad	A ad	CUMULATIVE % MASS	M ad	V ad	A ad
FLOAT - 1.40	48.78	3.2	30.9	9.8	48.78	3.2	30.9	9.
1.40 - 1.50	13.36	4.8	23.8	24.1	62.14	3.5	29.4	12.
1.50 - 1.60	7.46	3.3	22.9	36.0	69.60	3.5	28.7	15.
1.60 - 1.70	4.48	5.0	22.6	42.1	74.08	3.6	28.3	17.
1.70 - 1.80	3.50	5.5	20.4	52.9	77.58	3.7	28.0	18.
1.80 - 1.90	3.31	6.7	18.7	60.8	80.89	3.8	27.6	20.
1.90 - 2.00	5.77	6.7	17.3	67.7	86.66	4.0	26.9	23.
2.00 - 2.20	10.02	5.0	16.6	76.2	96.68	4.1	25.8	28.
SINK - 2.20	3.32	2.5	10.4	84.4	100.00	4.1	25.3	30.

SGS Australia Pty. Ltd.

REPORT No: NL/7691

CLIENT: Costain Australia Limited

COAL ANALYSIS REPORT

AREA: Woodbury Project (Tasmania)

COAL DESCRIPTION: -2.0 +0.5mm w/w 21.90% MASS OF SAMPLE

FLOAT/SINK ANALYSIS

RELATIVE DENSITY FRACTION	FRACTIONAL % MASS	M ad	V ad	A ad	CUMULATIVE % MASS	M ad	V ad	A ad
FLOAT - 1.40	50.75	4.2	31.3	8.6	50.75	4.2	31.3	8.
1.40 - 1.50	13.65	5.9	26.0	20.7	64.40	4.6	30.2	11.
1.50 - 1.60	5.15	4.6	24.0	30.1	69.55	4.6	29.7	12.
1.60 - 1.70	4.15	7.4	23.3	36.4	73.70	4.7	29.4	13.
1.70 - 1.80	3.55	7.0	21.4	48.5	77.25	4.8	29.0	15.
1.80 - 1.90	3.68	7.2	20.9	53.9	80.93	4.9	28.6	17.
1.90 - 2.00	5.55	8.3	17.5	66.5	86.48	5.2	27.9	20.
2.00 - 2.20	9.37	6.0	17.2	71.4	95.85	5.2	26.9	25.
SINK - 2.20	4.15	4.8	10.8	79.9	100.00	5.2	26.2	27.

234129

SGS Australia Pty. Ltd.

REPORT No: NL/7691

CLIENT: Costain Australia Limited

COAL ANALYSIS REPORT

AREA: Woodbury Project (Tasmania)

COAL DESCRIPTION: -0.5mm w/w +0.063mm 12.19% MASS OF SAMPLE

FLOAT/SINK ANALYSIS

RELATIVE DENSITY FRACTION	FRACTIONAL % MASS	M ad	V ad	A ad	CUMULATIVE % MASS	M ad	V ad	A ad
FLOAT - 1.40	37.61	8.3	29.8	8.6	37.61	8.3	29.8	8.
1.40 - 1.50	15.84	7.5	26.6	14.8	53.45	8.1	28.9	10.
1.50 - 1.60	10.31	7.3	24.4	23.2	63.76	7.9	28.1	12.
1.60 - 1.70	4.61	7.4	23.3	32.4	68.37	7.9	27.8	13.
1.70 - 1.80	2.41	8.6	21.3	41.7	70.78	7.9	27.6	14.
1.80 - 1.90	1.91	8.1	20.2	49.2	72.69	7.9	27.4	15.
1.90 - 2.00	1.93	7.9	18.4	56.3	74.62	7.9	27.2	16.
2.00 - 2.20	11.31	7.7	15.9	68.1	85.93	7.9	25.7	23.
SINK - 2.20	14.07	7.8	12.5	75.3	100.00	7.9	23.8	30.

.....

KEN R. WILSON
LABORATORY MANAGER.

129

CCI/4238/84 234130

TESTING OF COAL FROM WOODBURY SLIMCORE

WDC 137

DECEMBER, 1984

1. INTRODUCTION

Five plies (01 - 05) from the Woodbury Slimcore WDC 137 were received at the CCI Newcastle Laboratory on the 5th December, 1984.

2. PROCEDURES

CCI Laboratories are accredited facilities registered with NATA and the methods used are outlined on the following pages.

2.1 Preparation of Sample

The following testing procedure was followed:

- Apparent relative density on each ply.
- Each ply crushed to -11.2 mm.
- Plies 01 to 05 inclusive combined.
- Sample dry screened at 0.5 mm.
- Minus 0.5 mm fraction subsampled and prepared for proximate analysis.
- Plus 0.5 mm fraction was soaked in water for two hours to break down clay material.
- Sample wet screened at 0.50 mm.
- Minus 0.5 mm fraction subsampled and prepared for proximate analysis.
- Plus 0.50 mm fraction subjected to float/sink testing at 1.40, 1.60, 1.80, 2.00 and 2.20

2.2 Composite Analysis

A cumulative floats 1.80 composite was prepared and analysed for proximate analysis, ash fusion temperatures (reducing), total sulphur, gross specific energy, hardgrove grindability index and ash analysis.

3. RESULTS

Sample testing and analysis results are shown on the following pages.

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PHONE (049) 694899 TELEX 28245 (CCIAUS)
P.O. BOX 72 BROADMEADOW NSW 2292 AUSTRALIA
INCORPORATED IN NEW SOUTH WALES

234132

This Laboratory is registered by the National Association of Testing Authorities Australia. The test(s) herein have been performed in accordance with its terms of registration and in accordance with the following standards:-

Methods for the sampling of Hard Coal	AS1676 (1975)
Methods for Float & Sink Testing of Hard Coal and Presentation of Results	AS1661 (1979)
Size Analysis of Coal	BS1016-17 (1979) ISO1953 (1972)
Free Moisture of Coal & Total Moisture of Hard Coal	AS1038-21 (1983)
Apparent Relative Density (Coal)	AS1038-21 (1983)
Determination of the Relative Density of Hard Coal	AS1038-21 (1983)
Moisture in the Analysis Sample	AS1038-3 (1979)
Determination of Ash	AS1038-3 (1979)
Determination of Volatile Matter	AS1038-3 (1979)
Gross Specific Energy of Coal	AS1038-5 (1979)
Carbon & Hydrogen	AS1038-6 (1971)
Nitrogen	AS1038-6 (1971)
Carbon Dioxide	AS1038-6 (1971)
Total Sulphur	AS1038-6 (1971)
Total Sulphur in Coal (Leco High Temperature)	C.C.I. DIA Sept. 1981
Chlorine in Coal	AS1038-8 (1980)
Forms of Sulphur	AS1038-11 (1982)
Fusibility of Coal & Coke Ash	AS1038-15 (1972)
Analysis of Coal Ash (Bomb Digestion-Flame Atomic absorption Spectrometric Method)	AS1038-14.1 (1981)
Phosphorus in Coal (Bomb Digestion)	AS1038-9 (1977)
Method for Determining the Hardgrove Grindability Index of Hard Coal	AS1038-20 (1981)
Crucible Swelling Number	AS1038-12.1 (1979)
Gray King Coke Type	AS1038-12.2 (1980)
A.A. Dilatometer	ISO349 (1975)
Gieseler Plastometer	AS2137 (1981)

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PHONE (049) 69 4899
PO BOX 72 BROADMEADOW NSW 2292 AUSTRALIA
TELEX 20970 (AUSMCO)

234133

ORIGIN: Costain (Australia) Pty. Ltd.

JOB NO. 4238

DESCRIPTION: Woodbury WDC 137 Slimcore

DATE REC'D 5/12/84

DATE TESTED 5/12/84

REPORTED TO: Doctor C. K. Baker

C.C.

Ply	Mass(g) (as received)	Apparent Relative Density
01	622	1.52
02	724	1.62
03	846	1.40
04	930	1.39
05	474	1.57

REPORTED BY L Howarth

DATE 28/12/84

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234134

CARBON CONSULTING INTERNATIONAL PTY LTD
22 LAMBTON ROAD BROADMEADOW NSW 2292
PHONE (049) 69 4899
P.O. BOX 72 BROADMEADOW NSW 2292 AUSTRALIA
TELEX 20970 (AUSMCO)

ORIGIN: Costain (Australia) Pty. Ltd. JOB NO. 4238

DESCRIPTION: Woodbury WDC 137 Slimcore DATE REC'D 5/12/84

Plies 01 - 05 inclusive DATE TESTED 17/12/84

REPORTED TO: Doctor C.K. Baker C.C.

FLOAT AND SINK ANALYSIS

(Plus 0.50 mm)

Relative Density Fraction		Mass	Fractional % (ad) Moist	Ash	Vol.	Cumulative % (ad) Mass	Ash
	F1.40	21.8	2.9	13.2	19.6	21.8	13.2
S1.40	F1.60	47.5	5.1	25.9	17.1	69.3	21.9
S1.60	F1.80	20.9	5.4	42.1	14.1	90.2	26.6
S1.80	S2.00	7.4	5.4	59.4	11.3	97.6	29.1
S2.00	S2.20	1.5	5.6	68.5	10.8	99.1	29.7
S2.20		0.9	1.3	60.2	26.1	100.0	29.9

	Dry Size Fraction	Wet Size Fraction
Mass % minus 0.50 mm (of original sample)	8.5	5.6
Moisture (% ad)	2.8	4.4
Ash (% ad)	38.9	56.0
Volatile Matter (% ad)	17.1	12.3

REPORTED BY A Nowak

DATE 28/12/84

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PHONE (049) 694899 TELEX 28245 (CCIAUS)
P.O. BOX 72 BROADMEADOW NSW 2292 AUSTRALIA

234135

ORIGIN: Costain (Australia) Pty. Ltd. JOB NO 4238

DESCRIPTION: Woodbury WDC 137 Slimcore DATE REC'D 5/12/84

Plies 01 -05 inclusive DATE TESTED 27/12/84

REPORTED TO: Doctor C. K. Baker C.C

ANALYSIS REPORT

Cumulative
F1.80 Composite
5177

Relative Density		
Total Moisture (as)	%	
Moisture (ad)	%	4.0
ANALYSIS BASIS		ad
Ash	%	26.6
Volatile Matter	%	17.9
Fixed Carbon	%	51.5
Total Sulphur	%	0.50
Chlorine	%	
Phosphorus	%	
Specific Energy	MJ/kg	23.33
Carbon	%	
Hydrogen	%	
Nitrogen	%	
Carbon Dioxide	%	
DRY, ASH-FREE BASIS		
Volatile Matter	%	25.8
Specific Energy	MJ/kg	33.46
Carbon	%	
Hydrogen	%	
Nitrogen	%	
Sulphur	%	
Oxygen (diff.)	%	
Crucible Swelling Number		
Gray-King Coke Type		
Hargrove Grindability Index		78
ASH FUSION TEMPERATURES (reducing atmosphere)		
Deformation	°C	1200
Spherical	°C	1300
Hemisphere	°C	1330
Flow	°C	1400

REPORTED BY L Nawab

DATE 28/12/84

Analyses carried out in accordance with AS 1038 Parts 1-16 and AS 1164 and where not available BS 1016 Parts 1-16, unless otherwise stated

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P.O. BOX 72 BROADMEADOW NSW 2292 AUSTRALIA
INCORPORATED IN NEW SOUTH WALES

234136

ORIGIN: Costain (Australia) Pty. Ltd. JOB NO. 4238

DESCRIPTION: Woodbury WDC 137 Slimcore DATE REC'D 5/12/84

Plies 01 - 05 inclusive

REPORTED TO: Doctor C. K. Baker c.c.

Sample No: 5177

Cumulative F1.80 Composite

ANALYSIS OF ASH:- AS1038 - 14.1 / Bomb Digestion method.

SiO_2	%	65.8
Al_2O_3	%	19.3
Fe_2O_3	%	4.18
CaO	%	3.46
MgO	%	3.46
TiO_2	%	0.86
Na_2O	%	0.15
K_2O	%	0.88
Mn_3O_4	%	0.09
SO_3	%	1.25
P_2O_5	%	0.035

Slagging Index (calc) 0.07

Fouling Index (calc) 0.02

(Ref. Schmidt R.A. Consumer Coal Criteria as a guide to exploration. Proceedings of 1st. International Coal Exploration Symposium, London, May 1976.)

Reported by A Trowell

Date 28/12/84

CCI/4239/84

TESTING OF COAL FROM WOODBURY SLIMCORE

WDC 141 R

DECEMBER, 1984

137

1. INTRODUCTION

Six plies (01 - 06) from the Woodbury Slimcore WDC 141R were received at the CCI Newcastle Laboratory on the 5th December, 1984.

2. PROCEDURES

CCI Laboratories are accredited facilities registered with NATA and the methods used are outlined on the following pages.

2.1 Preparation of Sample

The following testing procedure was followed:

- Apparent relative density on each ply.
- Each ply crushed to -11.2 mm.
- Plies 01 to 06 inclusive combined.
- Sample dry screened at 0.5 mm.
- Minus 0.5 mm fraction subsampled and prepared for proximate analysis.
- Plus 0.5 mm fraction was soaked in water for two hours to dissolve clay material.
- Sample wet screened at 0.5 mm.
- Minus 0.5 mm fraction subsampled and prepared for proximate analysis.
- Plus 0.5 mm fraction subjected to float/sink testing at 1.40, 1.60, 1.80, 2.00 and 2.20.

2.2 Composite Analysis

A cumulative floats 1.80 composite was prepared and analysed for proximate analysis, ash fusion temperatures (reducing), total sulphur, gross specific energy, hardgrove grindability index and ash analysis.

3. RESULTS

Sample testing and analysis results are shown on the following pages.

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234139

CARBON CONSULTING INTERNATIONAL PTY LTD.
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PHONE (049) 694899 TELEX 28245 (CCIAUS)
P.O. BOX 72 BROADMEADOW NSW 2292 AUSTRALIA
INCORPORATED IN NEW SOUTH WALES

This Laboratory is registered by the National Association of Testing Authorities Australia. The test(s) herein have been performed in accordance with its terms of registration and in accordance with the following standards:-

Methods for the sampling of Hard Coal	AS1676 (1975)
Methods for Float & Sink Testing of Hard Coal and Presentation of Results	AS1661 (1979)
Size Analysis of Coal	BS1016-17 (1979) ISO1953 (1972)
Free Moisture of Coal & Total Moisture of Hard Coal	AS1038-21 (1983)
Apparent Relative Density (Coal)	AS1038-21 (1983)
Determination of the Relative Density of Hard Coal	AS1038-21 (1983)
Moisture in the Analysis Sample	AS1038-3 (1979)
Determination of Ash	AS1038-3 (1979)
Determination of Volatile Matter	AS1038-3 (1979)
Gross Specific Energy of Coal	AS1038-5 (1979)
Carbon & Hydrogen	AS1038-6 (1971)
Nitrogen	AS1038-6 (1971)
Carbon Dioxide	AS1038-6 (1971)
Total Sulphur	AS1038-6 (1971)
Total Sulphur in Coal (Leco High Temperature)	C.C.I. DIA Sept. 1981
Chlorine in Coal	AS1038-8 (1980)
Forms of Sulphur	AS1038-11 (1982)
Fusibility of Coal & Coke Ash	AS1038-15 (1972)
Analysis of Coal Ash (Bomb Digestion-Flame Atomic absorption Spectrometric Method)	AS1038-14.1 (1981)
Phosphorus in Coal (Bomb Digestion)	AS1038-9 (1977)
Method for Determining the Hardgrove Grindability Index of Hard Coal	AS1038-20 (1981)
Crucible Swelling Number	AS1038-12.1 (1979)
Gray King Coke Type	AS1038-12.2 (1980)
A.A. Dilatometer	ISO349 (1975)
Gieseler Plastometer	AS2137 (1981)

234140

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PHONE (049) 69 4899
PO BOX 72 BROADMEADOW NSW 2292 AUSTRALIA
TELEX 20970 (AUSMCO)

ORIGIN Costain (Australia) Pty. Ltd. JOB NO 4239

DESCRIPTION Woodbury WDC 141R Slimcore DATE REC'D 5/12/84

DATE TESTED 5/12/84

REPORTED TO Doctor C.K. Baker C.C.

Ply	Mass (g) (as received)	Apparent Relative Density
01	Unable to test (Soft Broken Coal)	
02	1078	1.54
03	982	1.29
04	892	1.47
05	418	1.60
06	1050	1.39

REPORTED BY L Howarth

DATE 28/12/84

234141

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22 LAMBTON ROAD BROADMEADOW NSW 2292
PHONE (049) 69 4899
PO BOX 72 BROADMEADOW NSW 2292 AUSTRALIA
TELEX 20970 (AUSMCO)

ORIGIN: Costain (Australia) Pty. Ltd. JOB NO 4239

DESCRIPTION: Woodbury WDC 14:R Slimcore DATE REC'D 5/12/84

Plies 01 - 06 inclusive DATE TESTED 17/12/84

REPORTED TO: Doctor C. K. Baker C.C.

FLOAT AND SINK ANALYSIS

(Plus 0.5 mm)

Relative Density Fraction		Mass(ad)	Fractional % Moist(ad)	Fractional % Ash(ad)	Cumulative % Vol(ad)	Cumulative % Mass(ad)	Cumulative % Ash(ad)
	F1.40	38.2	3.3	7.2	16.5	38.2	7.2
S1.40	F1.60	49.3	5.8	17.3	17.2	87.5	12.9
S1.60	F1.80	8.8	6.4	35.2	15.4	96.3	14.9
S1.80	F2.00	2.4	4.7	56.5	11.6	98.7	15.9
S2.00	F2.20	0.6	4.5	69.1	9.4	99.3	16.3
S2.20		0.7	5.2	76.8	9.8	100.0	16.7

	Dry Size Fraction	Wet Size Fraction
Mass % minus 0.50 mm (of original sample)	12.7	23.0
Moisture (%ad)	7.0	7.5
Ash (%ad)	28.5	36.6
Volatile Matter (%ad)	17.9	18.8

REPORTED BY L Trowbridge

DATE 28/12/84

234142

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PHONE (049) 69 4895 TELEX 28245 (CCIAUS)
P.O. BOX 72 BROADMEADOW NSW 2292 AUSTRALIA

ORIGIN Costain (Australia) Pty. Ltd. JOB NO 4239

DESCRIPTION Woodbury WDC 141B Elimoore DATE REC'D 5/12/84

Plies 01 - 06 inclusive DATE TESTED 27/12/84

REPORTED TO Doctor C. K. Baker c c

ANALYSIS REPORT

Cumulative

F1.80 Composite
5176

Relative Density		
Total Moisture (ar)	%	
Moisture (ad)	%	5.3
ANALYSIS BASIS		ad
Ash	%	15.1
Volatile Matter	%	16.7
Fixed Carbon	%	62.9
Total Sulphur	%	0.48
Chlorine	%	
Phosphorus	%	
Specific Energy	MJ/kg	25.64
Carbon	%	
Hydrogen	%	
Nitrogen	%	
Carbon Dioxide	%	
DRY ASH-FREE BASIS		
Volatile Matter	%	21.0
Specific Energy	MJ/kg	32.22
Carbon	%	
Hydrogen	%	
Nitrogen	%	
Sulphur	%	
Oxygen (diff)	%	
Crucible Swelling Number		
Gray-King Coke Type		
Hardgrove Grindability Number		73
ASH FUSION TEMPERATURES (reducing atmosphere)		
Deformation	°C	1170
Spherical	°C	1310
Hemispherical	°C	1350
Fluid	°C	1400

REPORTED BY K Nowak

DATE 28/12/84

Analyses carried out in accordance with AS1038 Parts 1 to 6 and AS1514 and where not available BS1016 Parts 1 to 5 unless otherwise stated.

234143

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PHONE (049) 694899 TELEX 28245 (CCIAUS)
P.O. BOX 72 BROADMEADOW NSW 2292 AUSTRALIA
INCORPORATED IN NEW SOUTH WALES

ORIGIN: Costain (Australia) Pty. Ltd. JOB NO. 4239

DESCRIPTION: Woodbury WDC 141R Slimcore Plies 01 - 06 inclusive DATE REC'D 5/12/84

REPORTED TO: Doctor C. K. Baker C.C.

Sample No: 5178 Cumulative FI.80 Composite

ANALYSIS OF ASH:- AS1038 - 14.1 / Bomb Digestion method.

SiO_2	%	56.2
Al_2O_3	%	27.7
Fe_2O_3	%	3.28
CaO	%	5.03
MgO	%	5.02
TiO_2	%	0.99
Na_2O	%	0.56
K_2O	%	1.22
Mn_3O_4	%	0.17
SO_3	%	1.20
P_2O_5	%	0.039

Slagging Index (calc) 0.08

Fouling Index (calc) 0.10

(Ref. Schmidt R.A. Consumer Coal Criteria as a guide to exploration. Proceedings of 1st. International Coal Exploration Symposium, London, May 1976.)

Reported by L Howard

Date 28/12/84

234144

152

COSTAIN AUSTRALIA LIMITED
MINING DIVISION

WOODBURY COAL PROJECT
TASMANIA

SIX MONTHLY REPORT FOR
EXPLORATION LICENCE EL31/80

VOLUME 2.

C.K. BAKER

JANUARY 1985

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(Vol 2)

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234146

Plan 6 : Ground Magnetometry

NOTE : Drafting of Plan 6 incomplete at time of report compilation. Plan will be forwarded in the following 6 monthly report (April, 1985).

NB: NOT RECIEVED
NOT ON MICROFICHE.

154

N

Scale
200 0 100 200 300 400 500
Metres

5 cm

234147

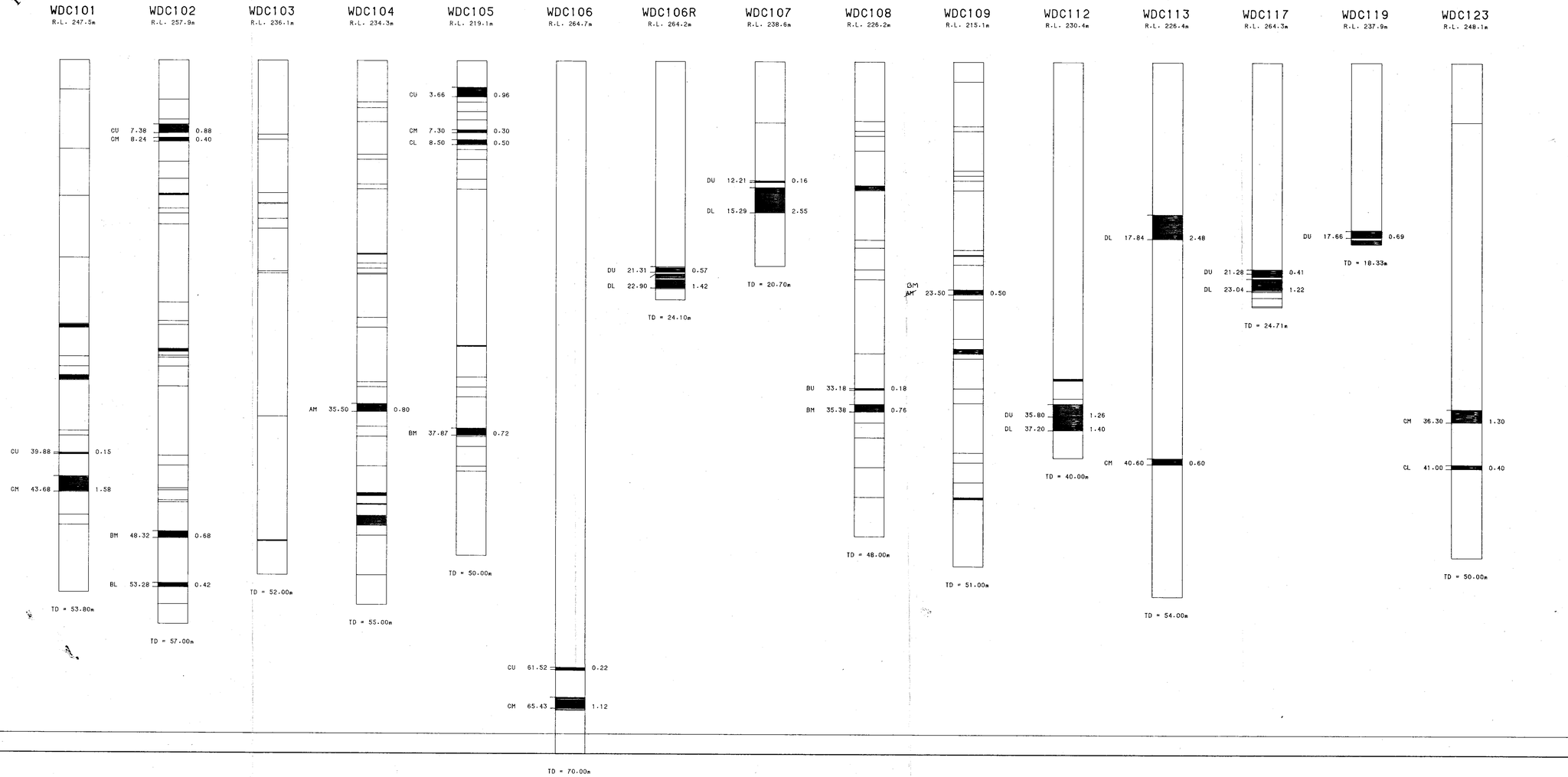
WOODBURY COAL PROJECT

BOREHOLE LOCATIONS

85-2331 (Vol 2)

DATE: 23-JAN-85	SCALE: 1:10000	DRAWN BY: CKB	PLAN NO: 1984/01

155



VERTICAL SCALE 1:200

Scale

4 0 2 4 6 8 10

Metres

5cm

234148

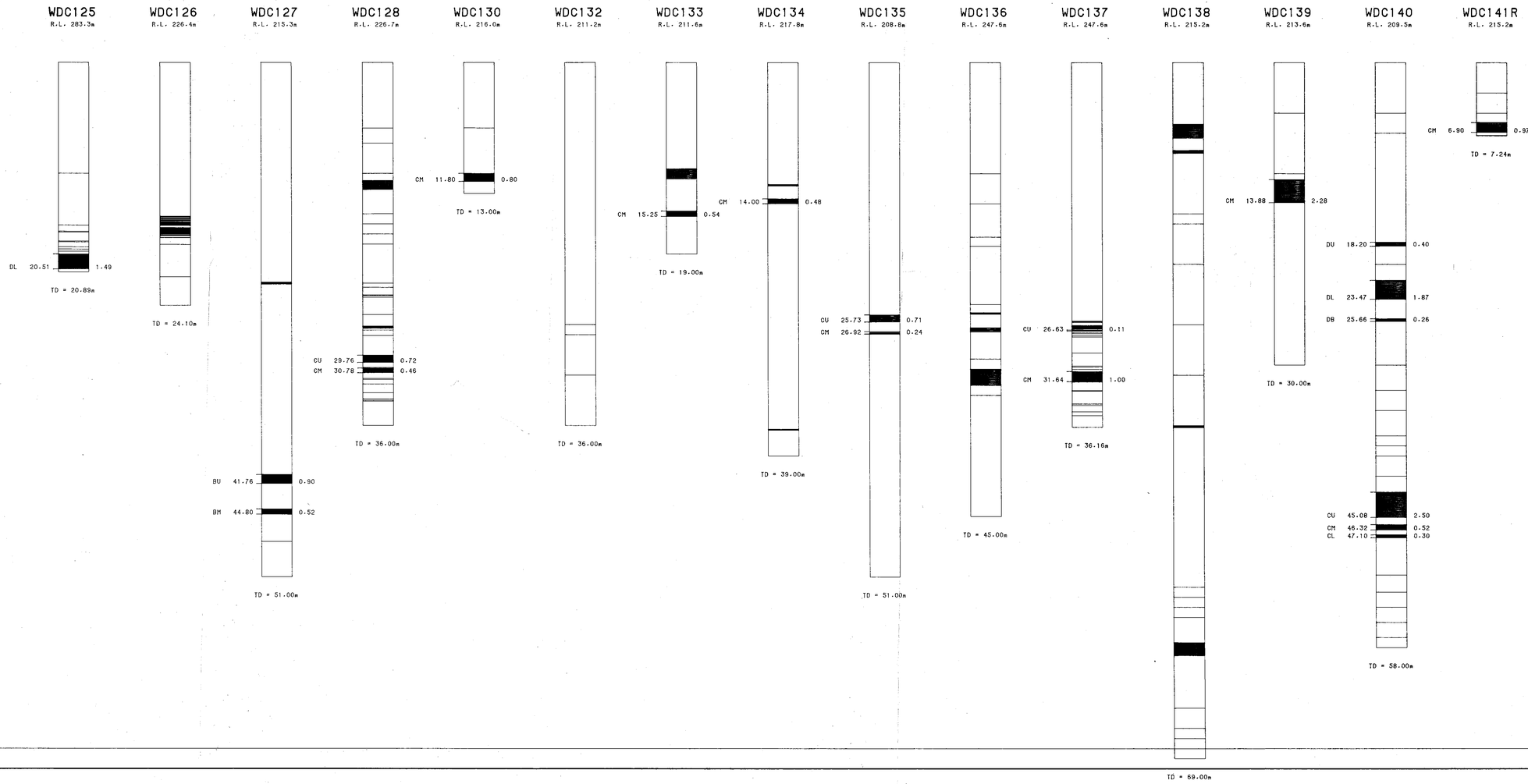
WOODBURY COAL PROJECT

BOREHOLE GRAPHIC SECTIONS
SECTION 001
WDC SERIES BORES - 1 OF 2

RS-3891 (Vol 2)

DATE: 03 DEC 84 | SCALE: 1:200 | DRAWN BY: CBAKER | PLAN NO: 1984/02

156



VERTICAL SCALE 1:200

Scale

4 0 2 4 6 8 10

Metres

5cm

234149

WOODBURY COAL PROJECT

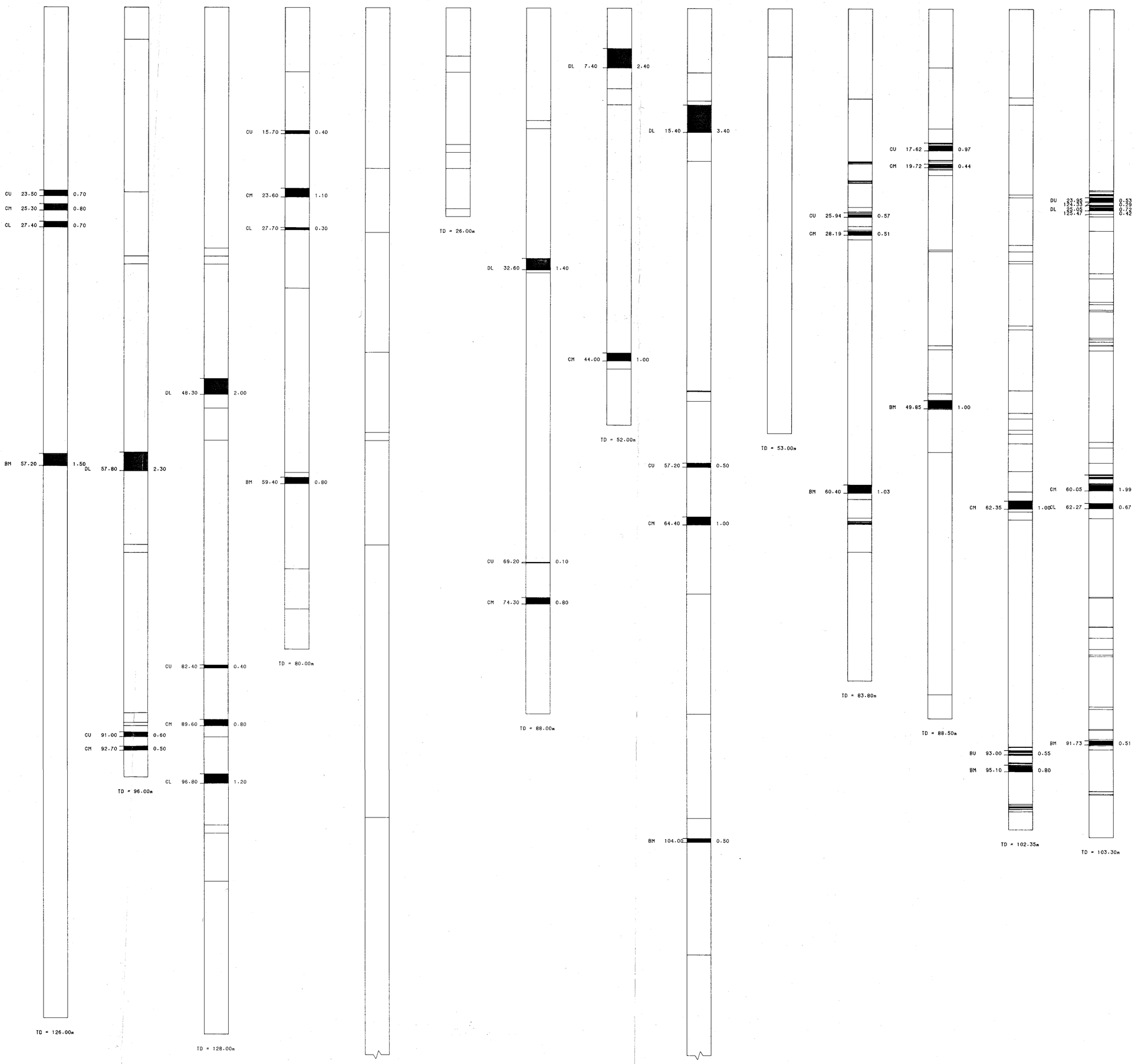
BOREHOLE GRAPHIC SECTIONS

SECTION 002

WDC SERIES BORES - 2 OF 2

85-233 (Volume 2)

DATE: 03 DEC 84 | SCALE: 1:200 | DRAWN BY: CBAKER | PLAN NO: 1984/03



234150

WOODBURY COAL PROJECT

BOREHOLE GRAPHIC SECTIONS

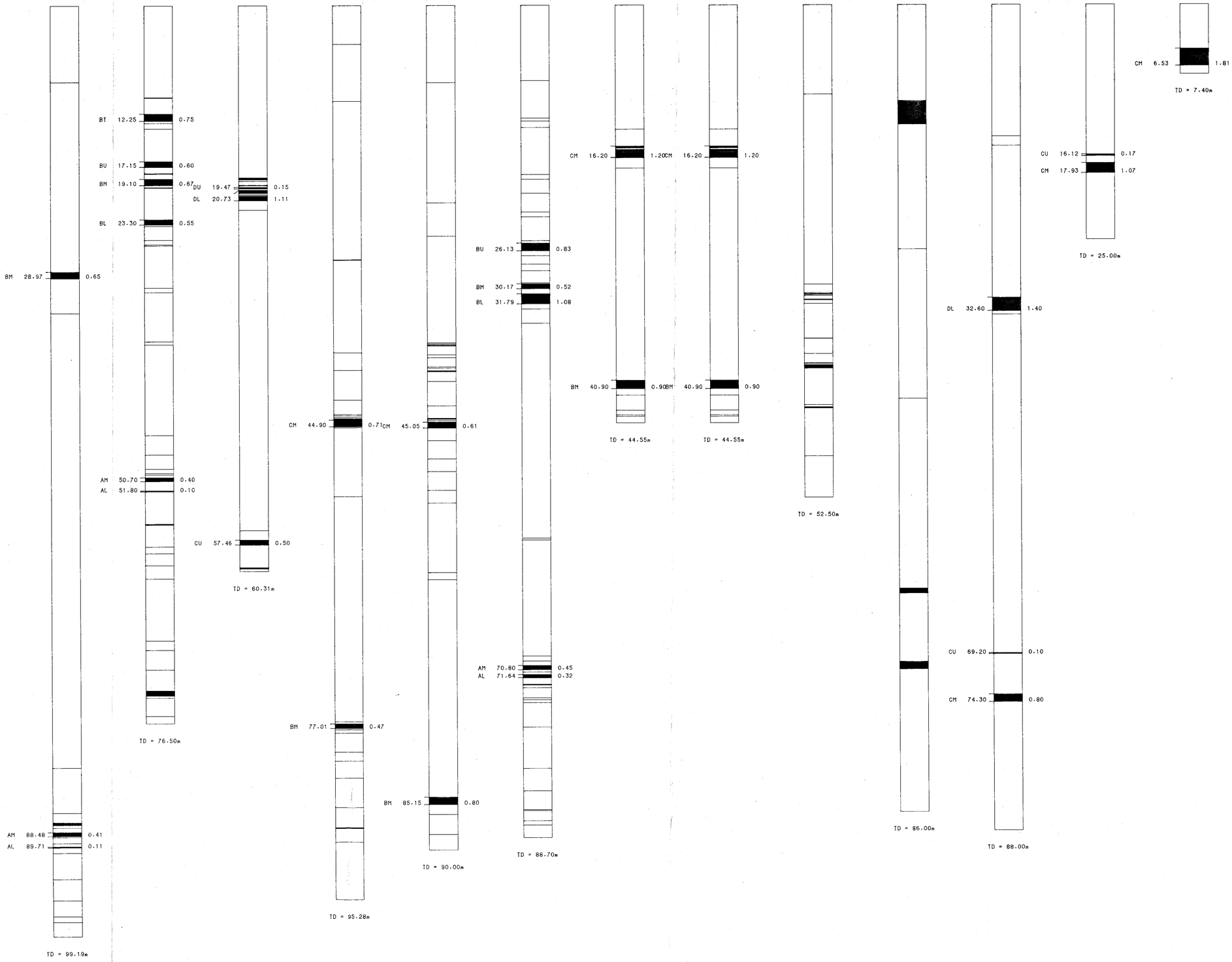
SECTION 003

WDV SERIES BORES - 1 OF 2

6848

355-2231 (Volume 3)

DATE: 03 DEC 84 | SCALE: 1:200 | DRAWN BY: CBAKER | PLAN NO: 1384/04



VERTICAL SCALE 1:200

Scale

4 0 2 4 6 8 10

Metres

5 cm

234151

WOODBURY COAL PROJECT

BOREHOLE GRAPHIC SECTIONS

SECTION 004

WDV/W SERIES BORES - 2 OF 2

6849

35-3331 (Vol 2)

DATE: 03 DEC 84 | SCALE: 1:200 | DRAWN BY: CBAKER | PLAN NO: 1984/05

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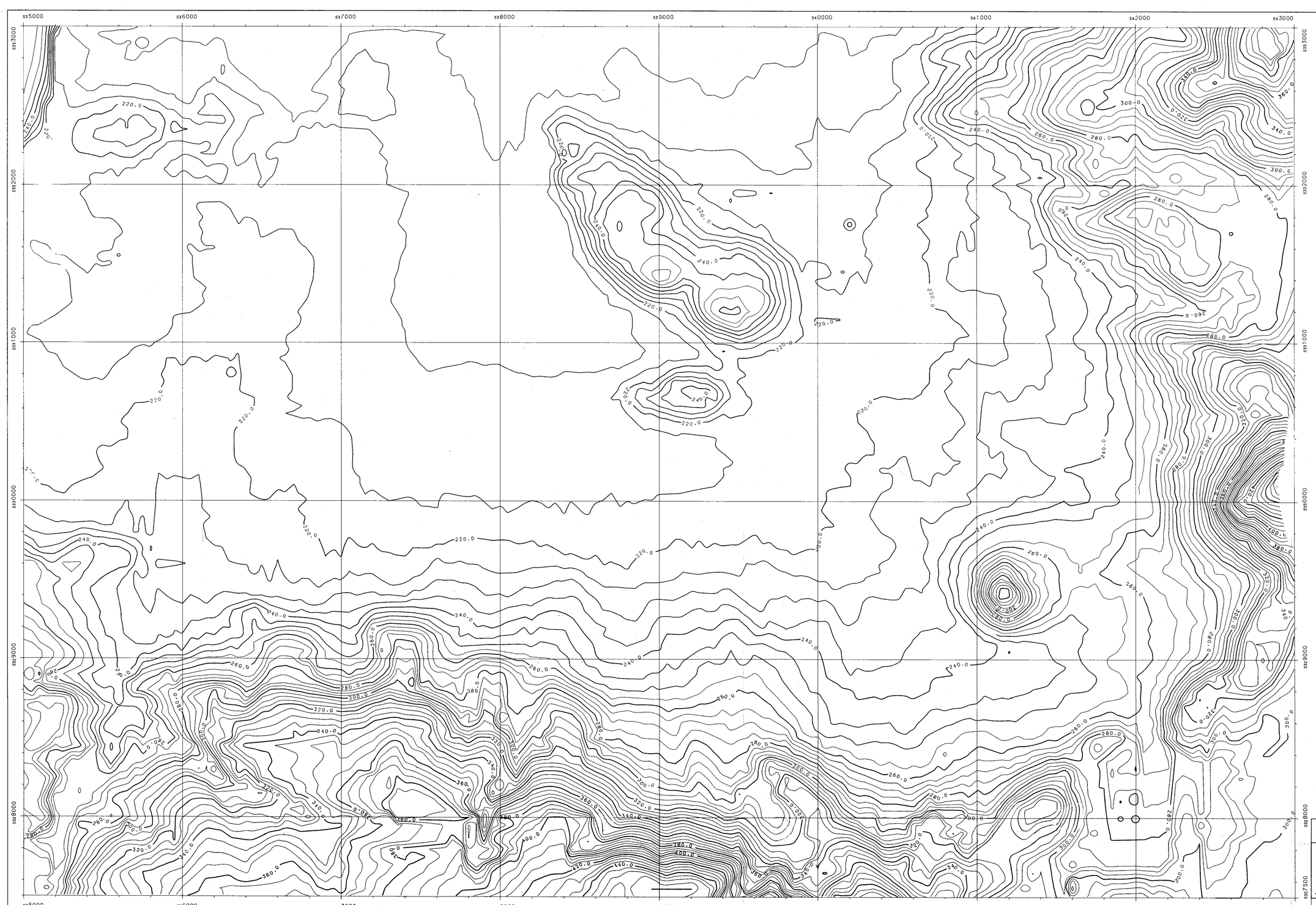
7332000 7331000 7330000 7329000 7328000 7327500



N

Scale

200 0 100 200 300 400 500

Metres

5 cm

234152

WOODBURY COAL PROJECT

TOPOGRAPHY

(50m grid size)

6851

85-8321 (Vol 2)

DATE: 8-JAN-85	SCALE: 1:10000	DRAWN BY: CKB	PLAN NO: 1984/07

535000 536000 537000 538000 539000 540000 541000 542000 543000

333000 332000 331000 330000 329000 328000 327500

TIN DISH FAULT

SUGARLOAF FAULT

"KURANDA"

"GLEN MOREY"

"RATHARNEY"

"THE BRAES"

B1 N5 D2 E6 B2' N5' B1' E6'

N

Scale

200 0 100 200 300 400 500

Metres

B1 ⊗→ Location of borehole/model cross sections.

234153

5 cm

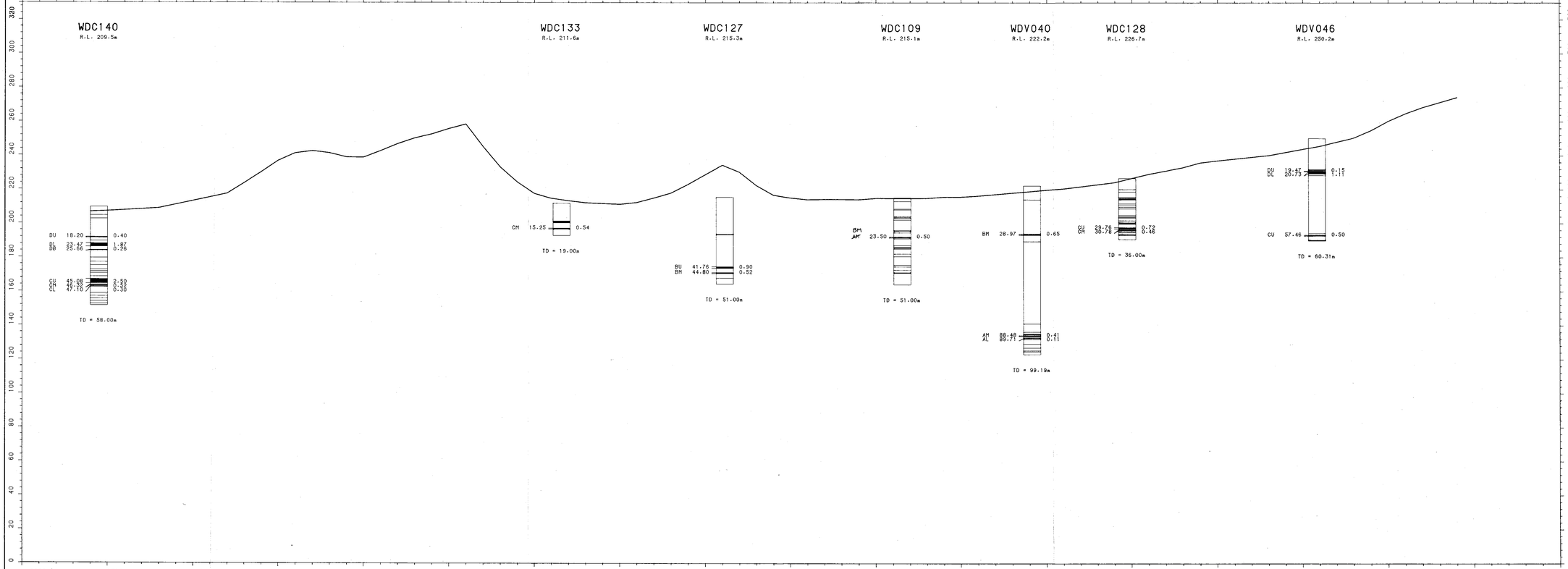
WOODBURY COAL PROJECT

SEAM LOX LINES
FAULTS
MINING STRIPS

G950

85-2331 (Vol 2)

DATE: 21-JAN-85	SCALE: 1:10000	DRAWN BY: CKB	PLAN NO: 1984/56



VERTICAL SCALE 1:1000

Scale

20 0 10 20 30 40 50

Metres

HORIZONTAL SCALE 1:5000

Scale

100 0 50 100 150 200 250

Metres

5cm

234154

WOODBURY COAL PROJECT

BOREHOLE CROSS SECTION B1

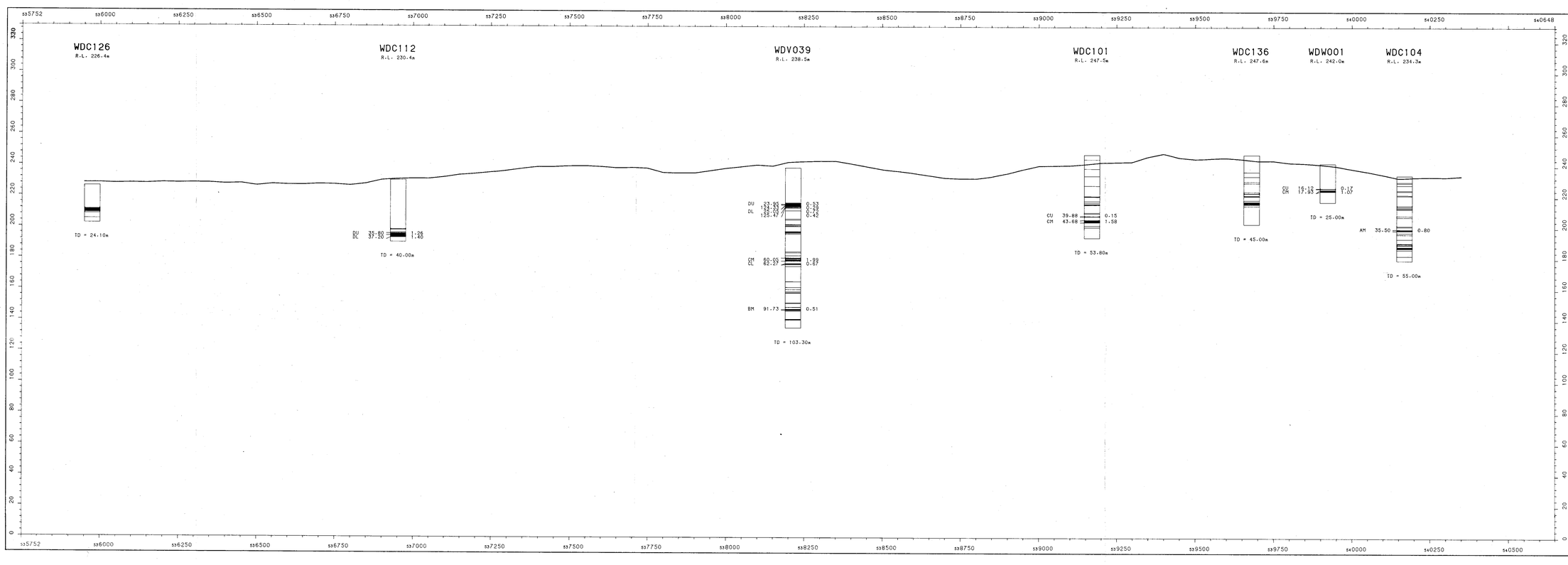
B1 - B1'

NORTH - SOUTH

6852

85-2338 (Vol 2)

DATE: 16-DEC-84	SCALE: 1:5000	DRAWN BY: CKB	PLAN NO: 1984-09



VERTICAL SCALE 1: 1000

Scale

20 0 10 20 30 40 50

Metres

HORIZONTAL SCALE 1:5000

Scale

100 0 50 100 150 200 250

Metres

5cm

234155

WOODBURY COAL PROJECT

BOREHOLE CROSS SECTION B2

B2 - B2'

EAST - WEST

85-231 (Volume 2) 6864

DATE: 16-DEC-84	SCALE: 1:5000	DRAWN BY: CKB	PLAN NO: 1384/10

s35000 s36000 s37000 s38000 s39000 s40000 s41000 s42000 s43000

s333000 s332000 s331000 s330000 s329000 s328000 s327500

WDC140
63.14

WDC139
199.75

WDC141R
208.33

WDC135
181.92

WDC133
196.35

WDV025
194.32

WDC134
203.82

C Seam L.O.X

200.0

WDV032
191.31

WDC130
204.21

WDV037
208.05

C Seam L.O.X

WDC105
211.77

WDW002
212.72

DCM3
220.00

WDC120
194.67

WDV001
200.94

200.0

WDC113
185.83

180.0

WDC128
195.86

WDV039
178.44

180.0

WDV002
161.92

DCM1
160.00

DCM4
160.00

WDC101
203.85

WDC137
216.00

WDW001
224.07

C Seam L.O.X

WDV014
208.82

WDC106
199.22

200.0

WDV013
198.64

WDC123
211.80

WDV047
208.85

WDV004
231.27

WDC102
249.64

WDV053
254.58

WDV003
179.43

WDV048
225.76

220.0

180.0

WDV015
218.42

DCM2
147.00

200.0

Scale
200 0 100 200 300 400 500
Metres

234156

5 cm

WOODBURY COAL PROJECT

C SEAM, MIDDLE SPLIT
(CM SEAM)
STRUCTURE FLOOR

85-2331 (V61 2)

6855

DATE: 21-JAN-85	SCALE: 1:10000	DRAWN BY: CKB	PLAN NO: 1984/11

535000 536000 537000 538000 539000 540000 541000 542000 543000

7533000 7532000 7531000 7530000 7529000 7528000 7527500

D Seam L.O.X.

200.0

200.0

220.0

200.0

240.0

D Seam L.O.X.

220.0

WC/23

WC/22

WC/23

Scale

200 0 100 200 300 400 500

Metres

6 cm

234157

WOODBURY COAL PROJECT

D SEAM, LOWER SPLIT

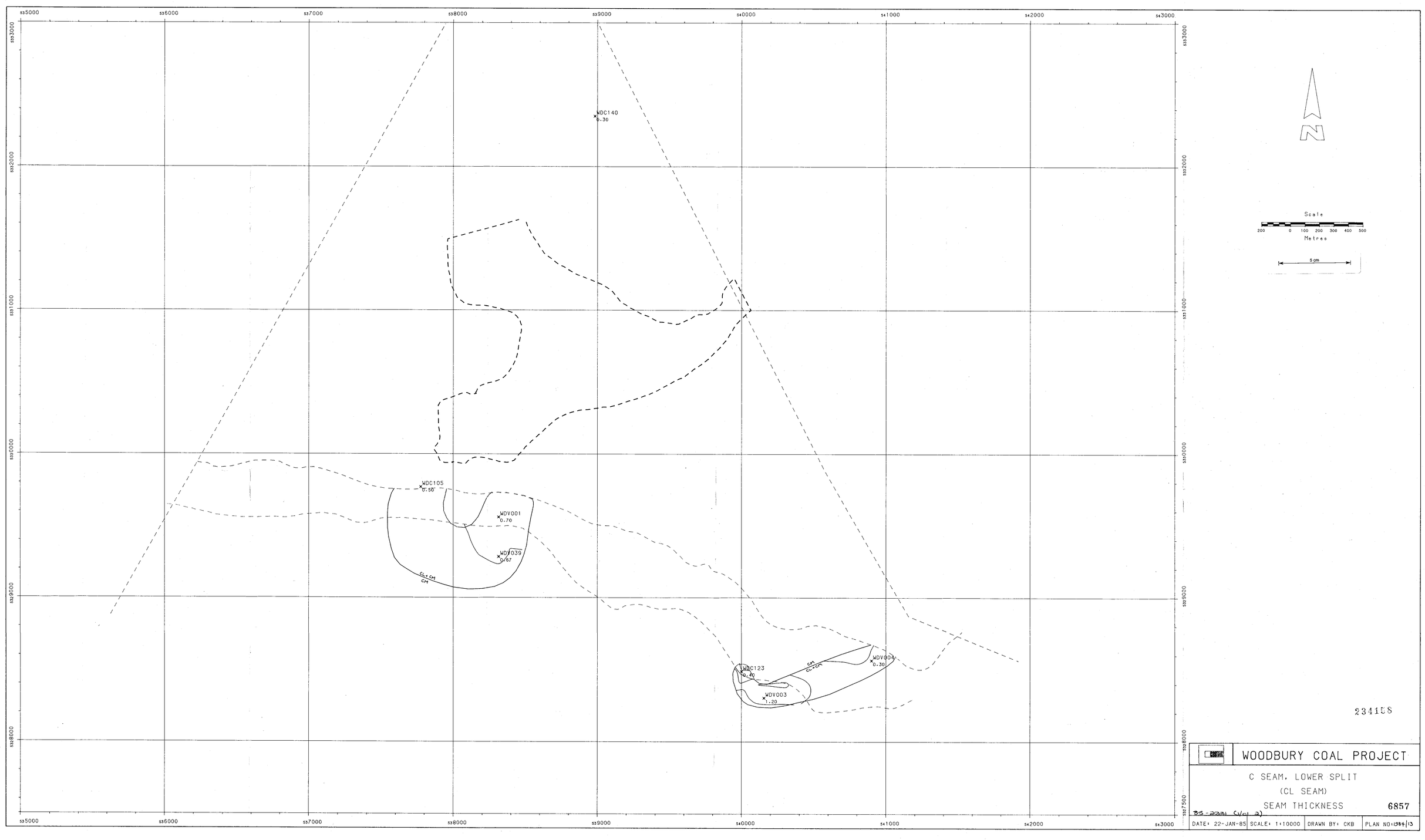
(DL SEAM)

STRUCTURE FLOOR

6856

85-2331 (Vol 2)

DATE: 22-JAN-85	SCALE: 1:10000	DRAWN BY: CKB	PLAN NO: 1924/12



N

Scale

200 0 100 200 300 400 500

Metres

5 cm

234108

WOODBURY COAL PROJECT

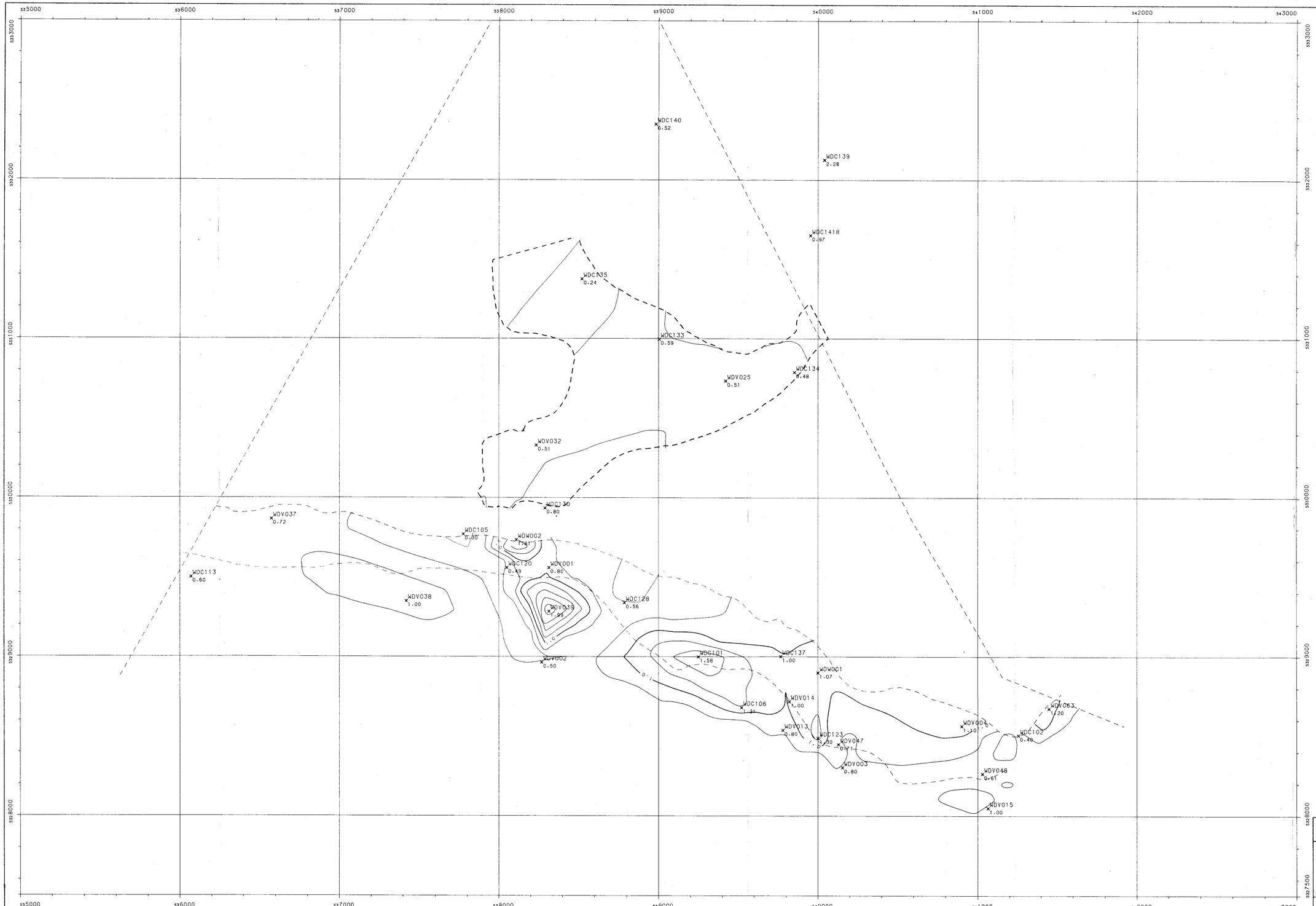
C SEAM, LOWER SPLIT

(CL SEAM)

SEAM THICKNESS 6857

85-2221 (Vol 2)

DATE: 22-JAN-85 | SCALE: 1:10000 | DRAWN BY: CKB | PLAN NO: 1984/13


WDC140
0.52
WDC139
2.28
WDC141R
0.97
WDC135
0.24
WDC133
0.59
WDV025
0.51
WDC134
0.48
WDV032
0.51
WDC130
0.80
WDV037
0.72
WDC105
0.60
WDW002
1.81
WDC120
0.49
WDV001
0.80
WDC113
0.60
WDV038
1.00
WDV039
1.99
WDC128
0.56
WDV002
0.50
WDC101
1.58
WDC137
1.00
WDW001
1.07
WDC106
1.21
WDV014
1.00
WDV013
0.80
WDC123
1.30
WDV047
0.71
WDV004
1.10
WDV063
1.20
WDC102
0.48
WDV003
0.80
WDV048
0.61
WDV015
1.00
N
5 cm
Scale
200 0 100 200 300 400 500
Metres
234159
WOODBURY COAL PROJECT
C SEAM, MIDDLE SPLIT
(CM SEAM)
SEAM THICKNESS
6858
DATE: 22-JAN-85
SCALE: 1:10000
DRAWN BY: CKB
PLAN NO: 1984/4

535000 536000 537000 538000 539000 540000 541000 542000 543000

333000 332000 331000 330000 329000 328000 327500

WDC140
2.50

WDC135
0.71

WDV025
0.57

WDV032
0.97

WDC105
0.96

WDC120
0.85

WDV001
0.70

WDC128
0.72

WDV002
0.60

WDC101
0.15

WDC137
0.11

WDV001
0.12

WDV046
0.50

WDC106
0.22

WDV013
0.10

WDV004
0.40

WDC102
0.88

WDV003
0.40

WDV015
0.50

CM
CU+CM

5 cm

Scale

200 0 100 200 300 400 500

Metres

234160

WOODBURY COAL PROJECT

C SEAM, UPPER SPLIT

(CU SEAM)

SEAM THICKNESS 6859

85-2321 (Vol 2)

DATE: 22-JAN-85 | SCALE: 1:10000 | DRAWN BY: CKB | PLAN NO: 1984/15

535000 536000 537000 538000 539000 540000 541000 542000 543000

5333000 5332000 5331000 5330000 5329000 5328000 5327500

WDC140
-.87

WDC113
2.48

WDC112
1.40

WDV039
.72

WDC119
1.60

WDV002
2.30

WDC107
2.55

WDV046
1.14

WDC106R
1.82

WDV014
2.40

WDV013
1.40

WDV003
2.00

WDV015
1.38

WDC125
1.49

0.0
2.0
3.0

N

Scale
200 0 100 200 300 400 500
Metres

5 cm

234161

WOODBURY COAL PROJECT

D SEAM, LOWER SPLIT
(DL SEAM)
SEAM THICKNESS

6860

85-2331 Cvol2

DATE: 22-JAN-85	SCALE: 1:10000	DRAWN BY: CKB	PLAN NO: 1984/16

535000 536000 537000 538000 539000 540000 541000 542000 543000

5333000 5332000 5331000 5330000 5329000 5328000 5327500

WDC140
0.40

WDC112
1.26

WDV039
0.53

WDC119
0.74

WDC107
0.16

WDV046
0.20

WDC108R
0.67

1.0

1.0

Du+ PL

Du+ PL

5 cm

Scale

200 0 100 200 300 400 500

Metres

234162

WOODBURY COAL PROJECT

D SEAM, UPPER SPLIT

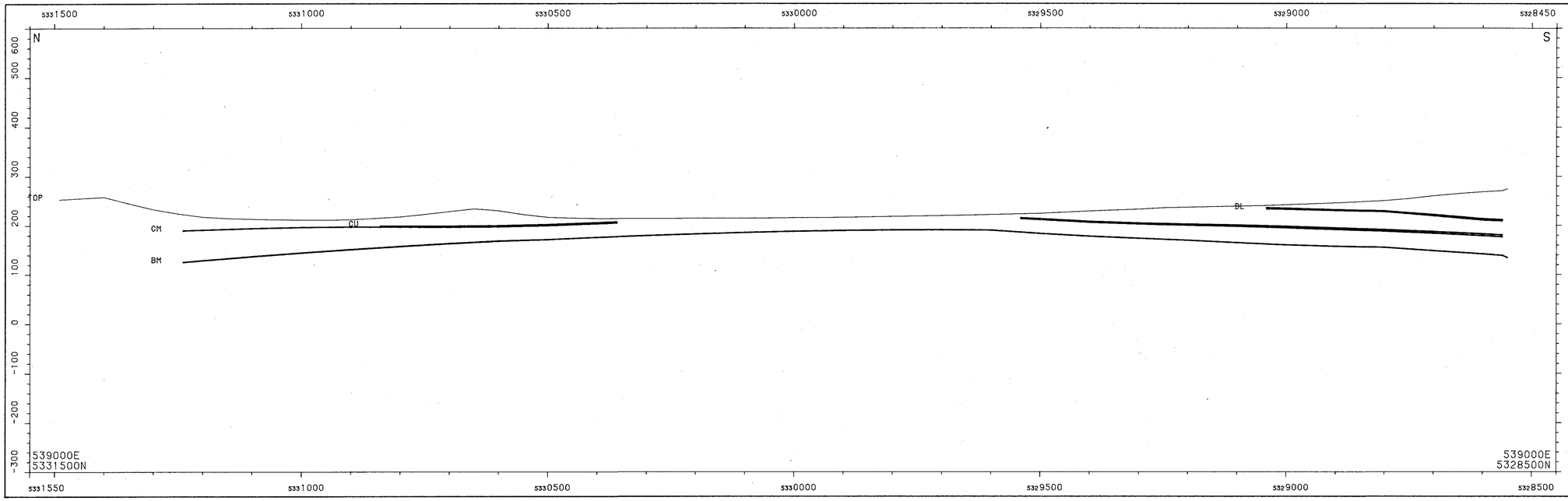
(DU SEAM)

SEAM THICKNESS

6861

80-233L CWL 2)

DATE: 22-JAN-85 | SCALE: 1:10000 | DRAWN BY: CKB | PLAN NO: 1984/17



Scale

100 0 50 100 150 200 250

Metres

VERTICAL EXAGGERATION 1:1

CANMET

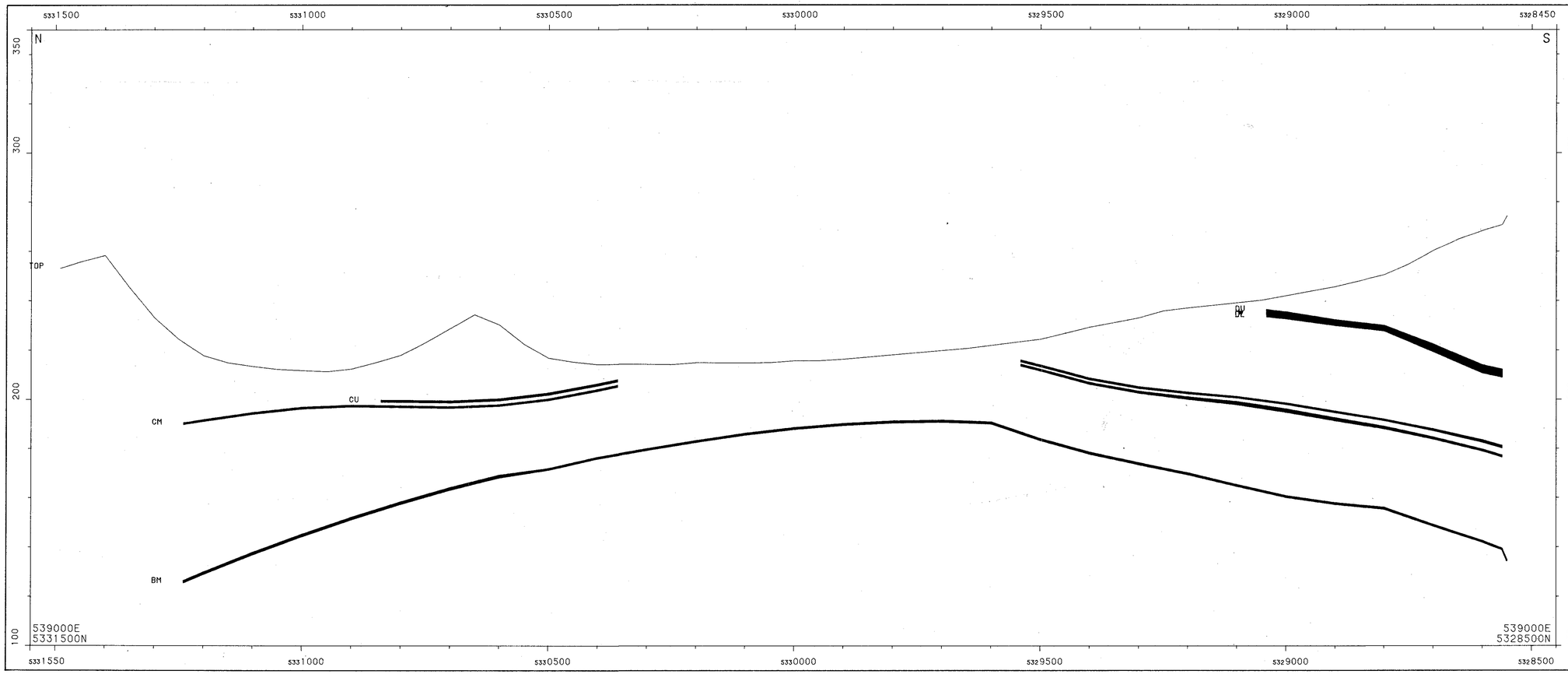
WOODBURY COAL PROJECT

MODEL CROSS SECTION N5

N5 to N5' ? ΔW

Vertical Exaggeration = 1 : 1

DATE: 23-JAN-85 | SCALE: 5000 | DRAWN BY: CKB | PLAN NO: 1984/43



Scale

100 0 50 100 150 200 250

Metres

VERTICAL EXAGGERATION 5:1

5 cm

234163

CANMET

WOODBURY COAL PROJECT

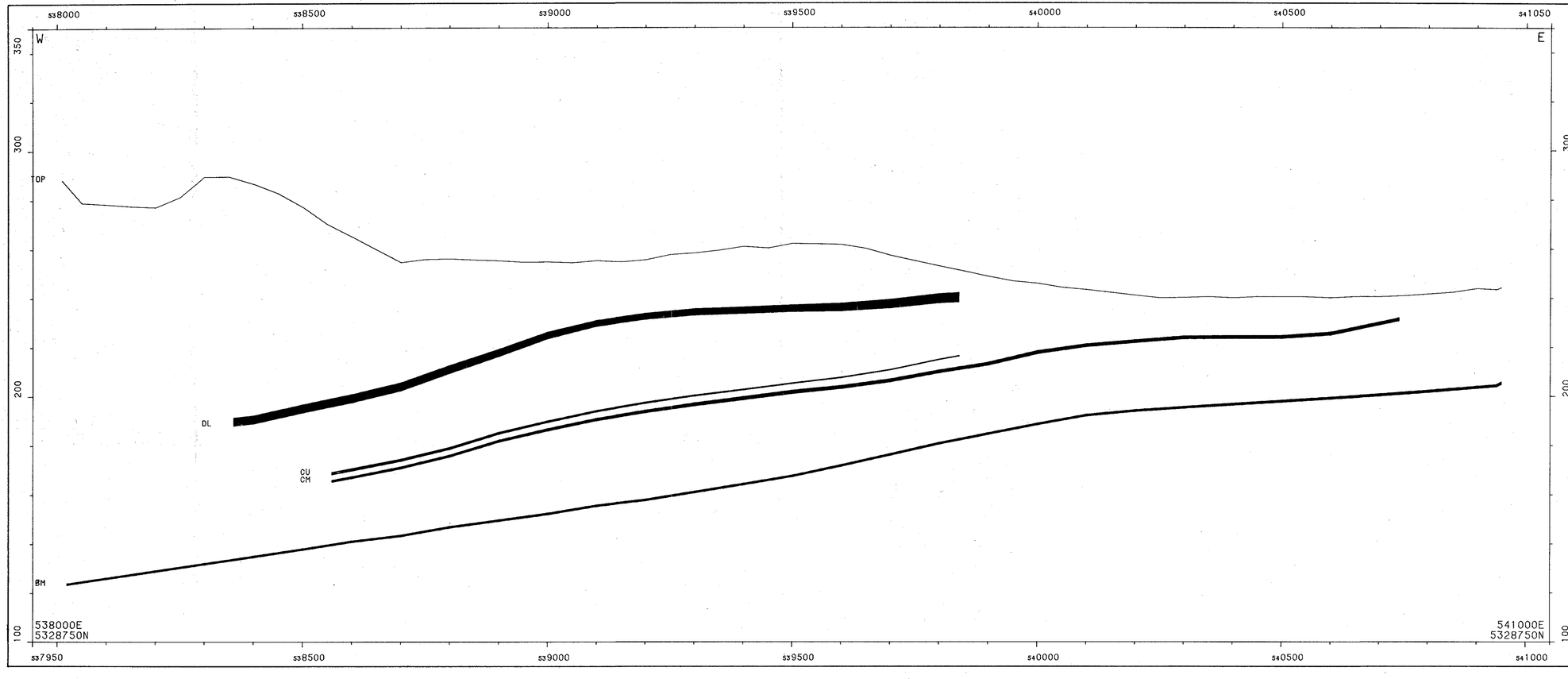
MODEL CROSS SECTION N5

N5 to N5'

Vertical Exaggeration = 5 : 1

85-233I CVol 3)

DATE: 10-JAN-85 | SCALE: 5000 | DRAWN BY: CKB | PLAN NO: 1984/27



Scale

100 0 50 100 150 200 250

Metres

VERTICAL EXAGGERATION 5:1

5 cm

234164

WOODBURY COAL PROJECT

MODEL CROSS SECTION E6

E6 to E6'

Vertical Exaggeration = 5 : 1

6853

85-2331 Civil 5

DATE: 9-JAN-85 | SCALE: 5000 | DRAWN BY: CKB | PLAN NO: 1984/19