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HAREFIELD GEOLOGICAL REPORT

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CEPR 32/82

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General Borehole Data Summary

SUMMARY

The Harefield coal deposit is located 2 km south-west of St Marys in north-eastern Tasmania. It occupies an area of approximately 166 hectares in the northern portion of Exploration Licence EL 5/61, jointly held by the Shell Company of Australia Limited (60%) and Industrial and Mining Investigations Pty. Limited (40%). The region is one of traditional underground coal mining activity, and is well served by community and transport infrastructure. Exploration was conducted in two phases, an initial regional evaluation and a follow up reserve evaluation.

The deposit lies in a south-east portion of the Break O'Day plain at the foot of the Fingal Tier. The coal measure strata have a north-east to south-west strike and a gentle dip to the south-east. The reserves are bounded by faults, to the east and west subcrop to the north and mine depth limitations to the south. Within a 25 m stratigraphic interval of Triassic sediments there are four thin coal seams (DE, E2, E3 and DF) that develop sufficient local thickness to be mineable by conventional open cut methods.

The coal is similar in quality to other Tasmanian Triassic coals. A typical product specification of 11% total moisture, 22.5% maximum theoretical ash and 23 MJ/kg maximum specific energy (dry basis) is estimated at washery yields greater than 70%. This product should be comparable with the washed coal from the Mount Nicholas deposit.

Detailed seam correlations and analyses over a 400 m core hole grid area were used in conjunction with analytical and mining criteria to delineate the "Lightwood" and "Break O'Day" indicated reserve areas. The total in situ indicated coal reserves are 3.5 million tonnes, yielding a washed product of 2.75 million tonnes. The overburden ratio is 5.4 m³ per tonne in situ and 6.8 m³ per tonne of product coal.

This report brings the status of the Harefield deposit to Exploration Stage 2 - Commercial Evaluation, as outlined in the Australian Standard 2519 - 1982 Section 2.4. Further work would be required to advance to Stage 3 - Mine Planning.

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1. INTRODUCTION

1.1 Scope

This report presents a basic qualitative and quantitative description of the Harefield coal deposit in north eastern Tasmania. The data is derived from a two stage exploration programme which has evaluated the reserves to Indicated status.

Local topography, climate and infrastructure are briefly described as these subjects have been covered to a large extent in the Mount Nicholas deposit reports (Wollff et. al., 1981).

The account of coal quality is presented in a manner similar to that of the Mount Nicholas Geological Report (Patterson, 1982) to facilitate comparison of the two deposits.

1.2 Location, Access and Infrastructure

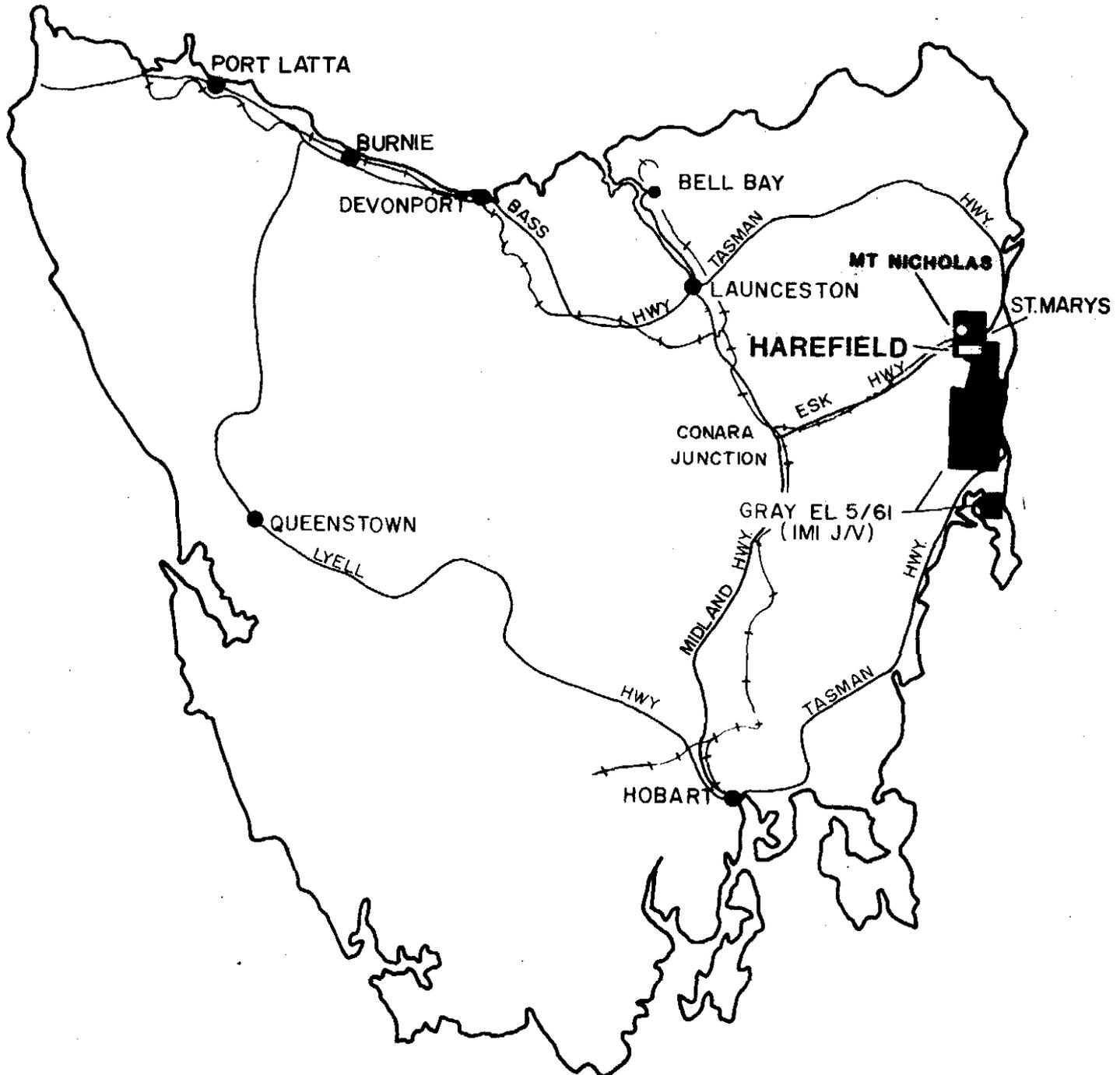
The Harefield deposit is located at the head of the Esk Valley in north eastern Tasmania (Figure 1). It lies on the south side of the valley, at an elevation of slightly less than 300 m above sea level.

St Marys (population 700), the nearest town, is some 2 km to the north east of the deposit, and contains a hospital, schools, shops and other community facilities. The deposit is accessible from the Tasman Highway at St Marys by the partially sealed Harefield road. The Cullenswood private gravel road extends south from the Esk Highway, 4 km west of St Marys, and provides general access to the Cullenswood coal reserve portion of the coal deposit (see Enclosure 1). There is a general system of farm tracks throughout the area which are suitable for dry weather traffic only.

The rail head at St Marys is linked with Hobart (170 km) and Bell Bay (140 km) and the transportation of coal by rail to coastal markets (Aplebaum 1981) appears viable.

HAREFIELD LOCATION MAP - TASMANIA

0 50 100 Km.



5 cm

Author : Coal Division	Date : Nov : 1982	Fig. 1
Report No. CEPR 32/82	Drawing No: C-1788	

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1.3 Topography and Climate

The topography of the area is that of a flat to slightly undulating plain that rises abruptly to the south, to the Fingal Tier, and drops slightly to the north to form a series of marshes in the winter. The deposit lies in a northeast to south west orientation between these extremes of topography.

The area is crossed by the Break O'Day River, non-perennial creeks, and numerous drains, which flow north to the centre of the valley, and then west down the Fingal Valley.

A 1:10,000 topographic and land tenure map, Enclosure 1, has been compiled from 414 surveyed points (0.1 m vertical and horizontal accuracy), Lands Department 1:20,000 topographic maps and enlarged air photographs. All drillholes have been surveyed except for GY 165 and GY 170. The elevation of Bench Mark 6 has not been measured, though this does not reflect on any other part of the survey points.

The climate of the area can be classified as cool temperate marine, with a rainfall varying from 1038 mm (100 rain days) at St Marys to 1278 mm (138 rain days) at Gray, 6 km south east of St Marys. Rainfall is greatest in the months of May to September although heavy rain can occur at any time of the year when moist onshore winds prevail.

Flooding of the Break O'Day Plain and the Fingal Valley to the west may occur several times a year, and occasionally disrupts road and rail transport. Fogs extending to west of Fingal are common during autumn and winter, and occasionally do not dissipate until early afternoon.

Mean maximum daily temperature varies between 21°C in mid-summer to 9°C in mid-winter. Minimum temperatures of less than -5°C are frequent in winter.

1.4 Mining and Land Tenure

The Harefield deposit is located within the northern end of Exploration Licence (EL) 5/61 (Gray) which was granted to Industrial and Mining Investigations Proprietary Limited (IMI) on the 23rd February, 1961. The Shell Company of Australia Limited (Shell) has since acquired a 60% interest in the EL.

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The region has a long history of coal mining (Wollff et. al., 1981), although there has been no previous mining within the Harefield area, nor in any part of the valley floor farm area.

Coal rights over the land are held by the Crown. All of the land under which coal occurs at Harefield is private property (Enclosure 1). The freehold title to the land has an improved value of approximately \$250 to \$300 per hectare. Property boundaries are defined by fences, creeks and roads. The land is used primarily for stock grazing with some winter and summer stock feed crops being grown. Trees and scrub cover about one-third of the area.

1.5 History of Exploration

The historic stratigraphic boreholes "Harefield" and "Killymoon" were drilled late last century, and are located on the Break O'Day Plain within the EL. The Harefield Borehole (Enclosure 1) recorded several thin seams at shallow depth while the Killymoon Borehole (located just south of the Esk Highway and Mt. Nicholas road junction) was sited below the general coal bearing sequence (Hills, 1922). Coal seams have been mined from outcrop on the adjacent Nicholas Range and Fingal Tier areas. Regional drilling conducted by Shell in 1980 indicated the possibility of coal seams may persist under the south side of the Break O'Day Plain.

1.5.1 1981 Programme

At the conclusion of the 1981 Mount Nicholas drilling programme two exploratory holes (GY 47 and GY 48) were located in the forestry area of the south side of the Break O'Day Plain to test indications of possible open cut coal shown by the interpreted regional structure. The results of these holes encouraged a follow up exploration programme of mapping, open and cored holes in the latter half of 1981 (Wollff, 1982).

The appropriate permits were obtained from the Department of Mines and Department of Forestry and notices of intention were circulated to the respective landholders. A Bank Guarantee of \$15,000 was arranged in compliance with Section 70(2) of the Mining Act 1929 as a performance deposit covering obligations of the Joint Venture.

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Open hole drilling was conducted on a one kilometre grid, with some core and open holes drilled on 500 m spacings. Hole depth varied from 12 to 50 m. Most of the holes were petrophysically logged by SIE Australia Pty Limited or BPB Instruments (Australia) Pty Limited (BPB), though some holes collapsed before logging could be carried out. The drillholes and selected topographic features were surveyed by Peacock Darcey & Anderson Pty Limited to a vertical and horizontal accuracy of 0.1 m. Drillholes were filled with rubble at the end of the programme. Coal samples were analysed at Australian Coal Industry Research Laboratories Limited (ACIRL). Geotechnical samples have been waxed and stored in Melbourne for future evaluation pending the outcome of mining studies of the coal reserve. The core has been photographed and is stored on site at the "Sunnybanks" property. Cuttings were left on site.

1.5.2 1982 Programme

Following the appraisal of the 1981 programme further exploration of the area was initiated, by obtaining the appropriate permits, arranging Bank Guarantees and circulating letters of intention to the respective landholders. A 400 m square grid was superimposed on the existing 1 kilometre drill grid by G.J. Walkem & Company (Contract C12/82), and located to a vertical and horizontal accuracy of 0.1 m. All drilling was contracted to the Tasmanian Department of Mines. Open hole drilling was used in the top portion of a redrill hole (GY 114R), otherwise all holes were fully cored. Table 1 presents the exploration statistics to date. Most of the holes were petrophysically logged by BPB though some holes collapsed before they could be logged. All holes were capped at the end of the programme to facilitate the ongoing recording of the groundwater table at these points.

Coal samples were analysed by Cargo Superintendents Company (A/sia) Pty Limited (Casco). The treatment of geotechnical samples, core (other than coal samples) and cuttings were as in the 1981 programme.

TABLE 1

EXPLORATION STATISTICS

(a)

DRILLING SUMMARY

	1981	1982	TOTAL
Number of holes	54	38*	92
Open hole meterage	1330	37	1367
Cored meterage	168	1137	1305
Total meters drilled	1498	1174	2670
Number of analysed seams	16	58	74

*Including one redrill

(b)

SEAM SUMMARY

SEAM NAME	NUMBER OF INTERSECTIONS	AVERAGE SAMPLE THICKNESS (m)	MINIMUM THICKNESS (m)	MAXIMUM THICKNESS (m)
DE	30	1.38	0.49	2.25
E2	26	0.63	0.23	1.40
E3	52	1.06	0.20	2.10
DF	23	0.87	0.31	1.35

(c)

WEATHERING PROFILE SUMMARY

	NUMBER OF INTERSECTIONS	AVERAGE DEPTH (m)	MINIMUM DEPTH (m)	MAXIMUM DEPTH (m)
Superficial Deposits	92	3.60	0.1	10.0
Base of Weathering	92	6.20	2.3	16.0

2. GENERAL GEOLOGY

2.1 Regional Setting

The Harefield coal deposit lies within the Permo-Triassic Tasmania Basin which extends over most of the eastern half of Tasmania. Unconformably underlying the basin is a basement of Siluro-Devonian sediments and Upper Devonian granite. Intruded into the basin, but now effectively overlying it, are dolerite sills emplaced during the Jurassic concurrent with an episode of major tensional faulting. Superficial deposits of alluvium and dolerite scree and colluvium have accumulated during recent phases of topographic evolution (Spry, & Banks, 1962).

2.2 Harefield Geology

2.2.1 General

The coal seams extend from underneath the Fingal Tier northwards to subcrop, and are confined to the east and west by normal faults. They are located in the lower section of the Triassic coal measures and are correlated to the Dalmayne E and F seams to the south, the Mount Nicholas lower seams to the north, and the Department of Mines H seam (DOM 85) to the southwest (Sansom et. al., 1983).

In the Harefield Borehole, the Triassic coal measure sediments extend for 55 m below the DF seam indicating that the main developed coal seam sequence is that outlined by the present exploration programme. Although soil blankets most of the area, outcrop mapping (Enclosure 2) was used to supplement the geological control obtained from drilling.

2.2.2 Stratigraphy and Coal Measure Sedimentation

The Parmeener Super Group has been divided into a Lower marine group (Permian) and an Upper group of essentially non-marine sediments. The Triassic coal measures make up the top portion of this Upper group.

Four seams, each with thicknesses extending into the 1 to 2 m range, were originally designated in descending order the DD, D2, D3 and D4 (Wollff, 1982) but have been renamed in descending order DE, E2, E3 and DF (see Figure 2) to conform with correlations recently established (Sansom et. al., 1983).

The sequence generally consists of a repetitive downward fining sequence from massive coarse lithic sandstone, to finer crossbedded sandstone with carbonaceous wisps, interbedded fine grained sandstone and siltstone, thinly bedded siltstone and mudstone with carbonaceous wisps, laminated mudstones and claystones, and laminites that grade into carbonaceous mudstone and coal. Beneath the coal the sequence grades rapidly from carbonaceous mudstone, interbedded mudstone, siltstone and fine grained sandstone with carbonaceous wisps to sandstone. This complete gradational sequence is not always fully developed, with various facies being omitted and sometimes repeated. The lateral extent of a prominent set of laminites has been traced for over a kilometre before it graded out to the west.

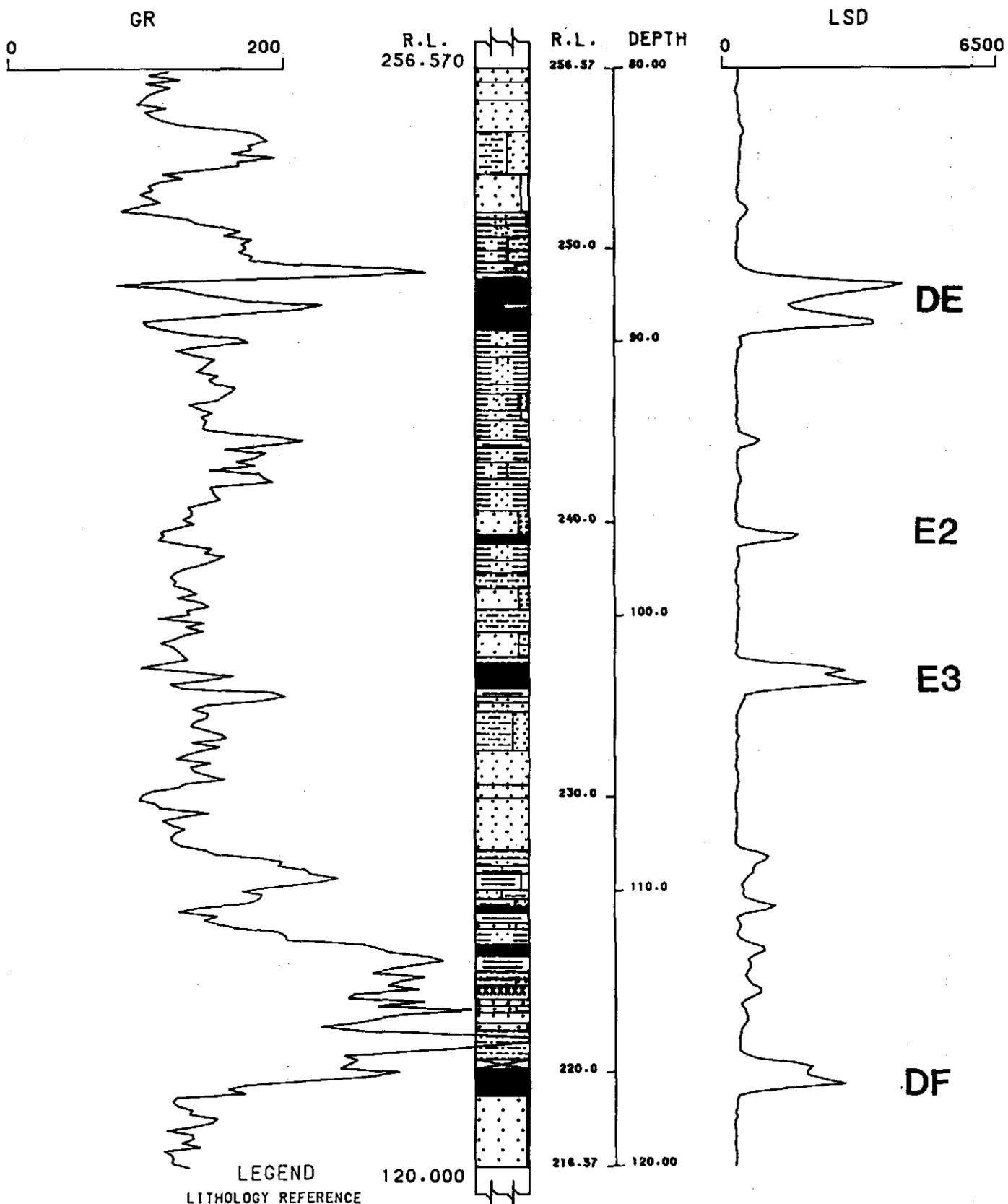
Seam washouts have been inferred in several drillholes (see Drillhole Seam Summary Tables - Appendix 1). The coal seams generally have gradational tops and bases, and are often prone to rapid lateral quality variation and some splitting, though individual plies and stone bands can often be traced over the entire area. The coal seams have a relatively high natural gamma response (80-150 API) and is similar to that of the sandstones and mudstones. Most Australian coals have a natural gamma response of less than 50 API. The carbonaceous mudstones generally have a very high response (200-300 API), indicating a potassium rich source sediment. The uranium levels of similar sequences at Mount Nicholas are low (1.6ppm), confirming potassium as the source of natural gamma radiation.

Within the coarser grained fresh sandstones are large individual lenticular calcareous cemented bodies with a general east west orientation (Figure 4). These are up to 1 m thick, 2 m wide and more than 4 m long, often with faint cross bedding, and moderately wide (Appendix 5) calcite filled jointing perpendicular to the axis. They have sharp contacts with the host sandstone, which has a very wide spaced calcite-free tight jointing that is not continuous with that of the calcareous

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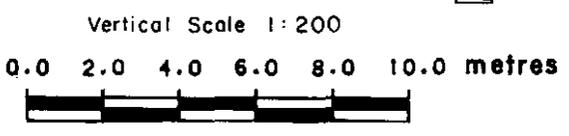
GY 47

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LEGEND 120.000
LITHOLOGY REFERENCE

- | | |
|-----------------------|---------------------|
| SANDSTONE | SILTSTONE |
| COAL | COAL STONY |
| MUDSTONE | NOT CORED/CORE LOSS |
| CARBONACEOUS MUDSTONE | TONSTEIN |
| | CLAYSTONE |



STRATIGRAPHIC SECTION

DATE: 02 / 12 / 82 FILE: SPL0001
 SPOOLED: 09:58 STARTED: 09:58

Author: Coal Division	Date: Nov. 1982	Fig. 2
Report No: CEPR 32/82	Drawing No: 2496	

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cemented bodies. These bodies may have been formed from evaporate concentrates of soluble elements in scour channels and holes that occupied the interstitial spaces of later sediment infillings.

The coal measure sequence appears to be consistent with that found at Mount Nicholas which is of an upper fluvial flood plain regime (Wollff et. al., 1981).

2.2.3 Coal Measure Structure

The coal seams dip at 30 m/km to the southeast within a graben bounded by north-south trending faults on the western and eastern flanks of the deposit. The subcrop limits the northern extent of the deposit. To the south the seams dip beneath the Fingal Tier, limiting the open cut potential of the deposit in that direction. There is a general dip consistency between all seams. The presence of faults has been interpreted from drill hole and outcrop data and the approximate position of all known faults have been plotted on the structure maps, Enclosures 4-7. Small fault bounded blocks to the east and west of the reserve area appear to have a more southerly dip and variable dip magnitude.

The two faults controlling the graben are the Mitchell Fault in the west and the Cornwall Fault in the east. The Mitchell Fault is interpreted from regional geological maps and the extrapolation of the recorded structures at Mount Nicholas, where it has a downthrow to the east of 90 m. This fault is shown in the previous geological report (Wollff, 1982) and lies to the west of the areas shown on Enclosures 4-7. The Cornwall Fault brings the western downthrown Triassic coal measures into contact with the Permian marine sediments. The minimum magnitude of this fault is estimated to be 60 m, as there are 55 m of Triassic sediments beneath the DF seam in the Harefield Borehole, and in turn, the DF seam subcrops adjacent to Permian marine sediments across this fault.

Within this graben there are three significant north-south trending normal faults that are all downthrown to the west (see Enclosures 4-7):

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The first significant fault occurs approximately 500 m west of the Cornwall fault with a displacement of approximately 60 m and trends towards, and possibly becomes a part of, the Cornwall fault at its northern end. To the southeast it isolates a small area of shallow coal that dips to the south at 35 metres per kilometre (m/km). Severe drag folding associated with this fault (dips from 35 to 40°) were encountered in GY 113. To the west of this fault the coal seams dip to the southeast at 30 m/km.

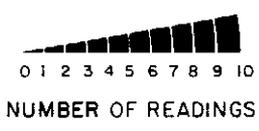
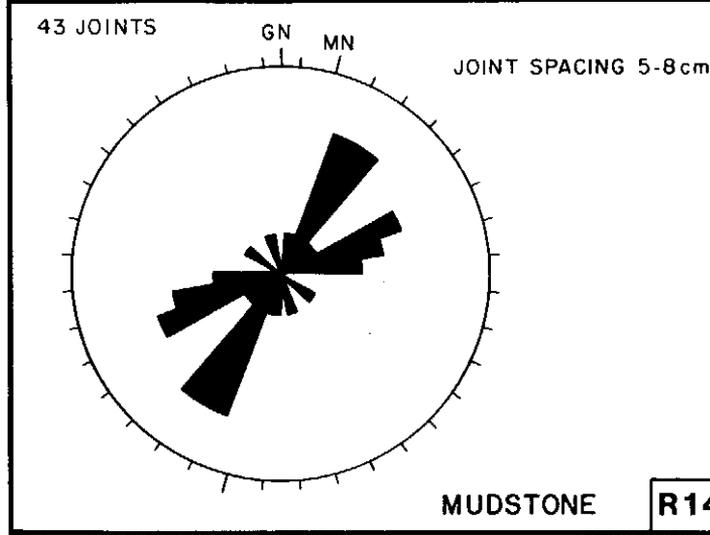
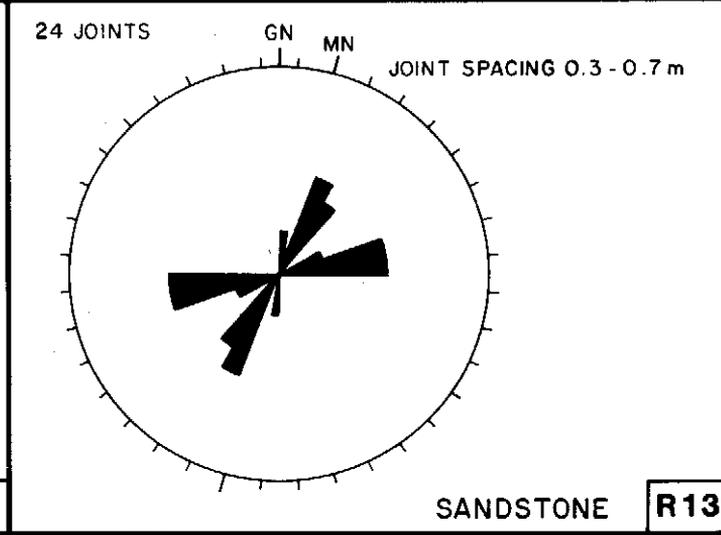
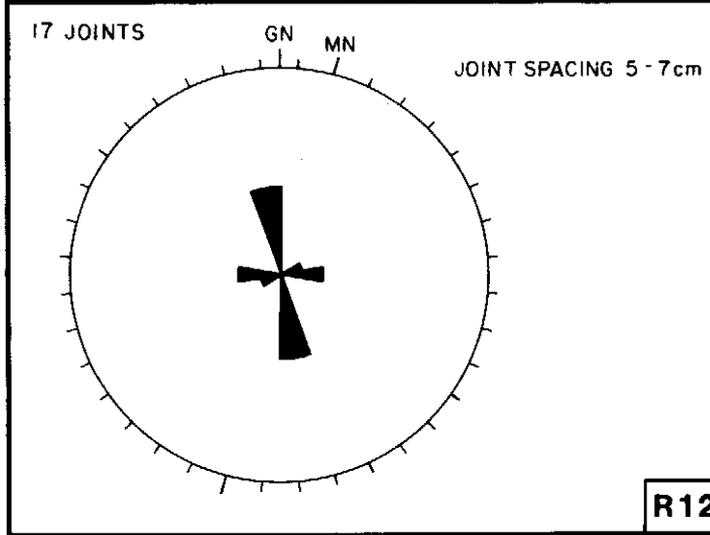
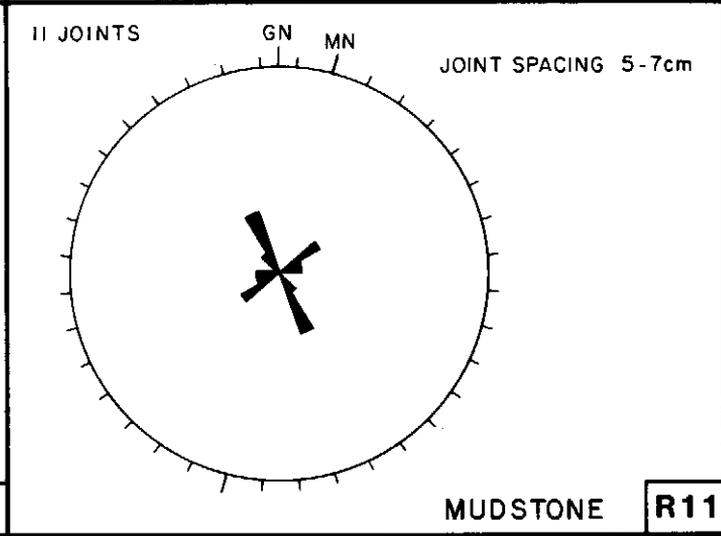
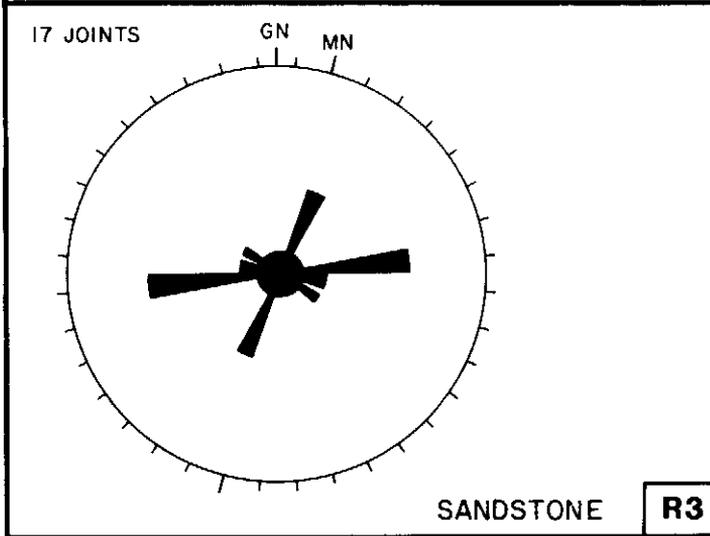
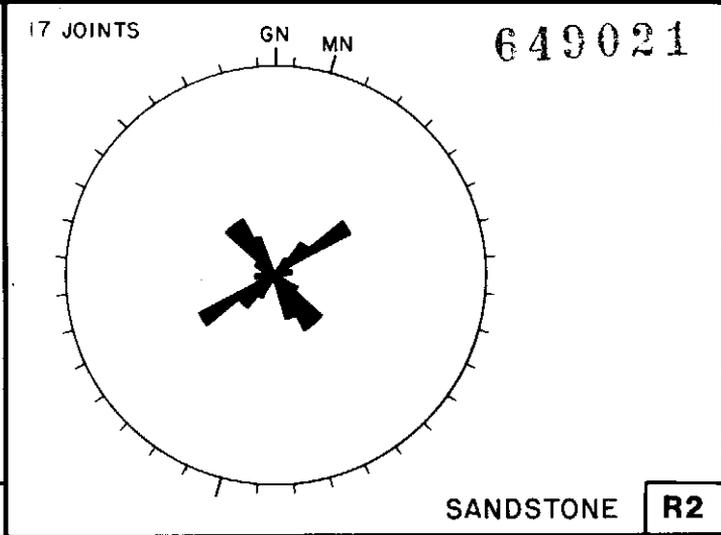
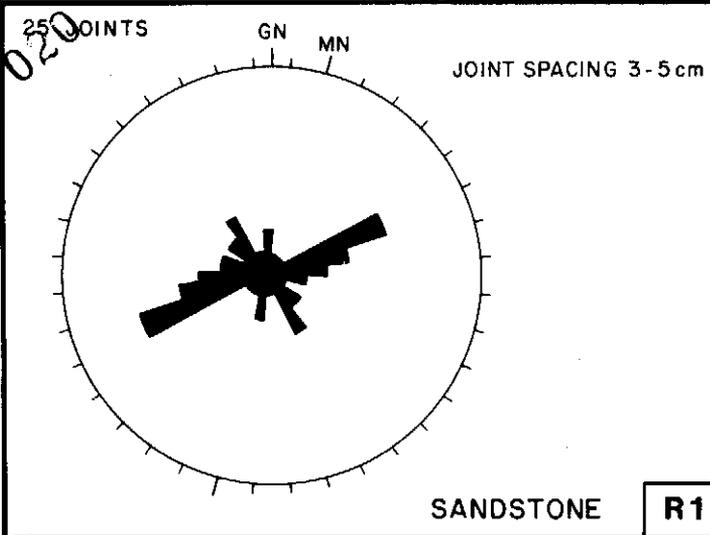
The second significant fault occurs a further 3 km to the west, with an estimated 35 m throw. It appears to be in general alignment with the interpreted fault between Department of Mines drillholes DOM 33 and DOM 36 on the southern flank of the Nicholas Range. To the west of this fault the coal seams appear to dip to the south at 100 m/km, though there is little drillhole control within this block.

The third significant fault occurs a further 500 m to the west, with an estimated 40 m throw. This fault appears to be in a general alignment with the Mount Nicholas eastern graben fault. To the west of this fault the coal seams appear to dip to the south at 15 to 25 m/km, though there is relatively poor control within this area.

Faults with displacements less than the total thickness of the interval of economic interest (22m) are here considered as minor faults. Four of these faults, with downthrows to the west and north have been recognized:

The first minor fault occurs in the east of the area. It is a north northeast striking fault with a 3 m throw which appears to deflect to the north in the vicinity of GY 110 and becomes less defined due to the limited drillhole control. The coal seams in the southeast portion of this block have a southeast to east dip of 30 m/km.

The second minor fault occurs approximately 2.5 km further west and is a north south striking fault with a throw of approximately 13 m, though this magnitude of throw is uncertain as drillholes GY 165 and GY 170 have not been surveyed. These two minor faults define the east and west limits of the Harefield coal reserves of this report as they are potential mine barriers. The seams in this block dip to the southeast

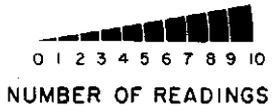
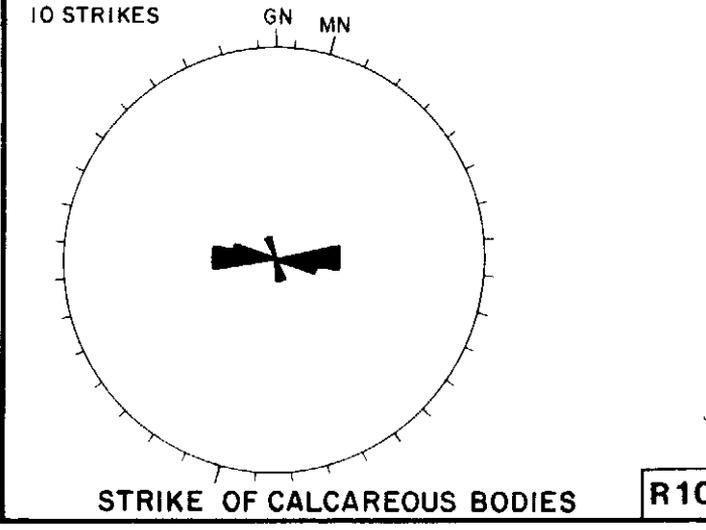
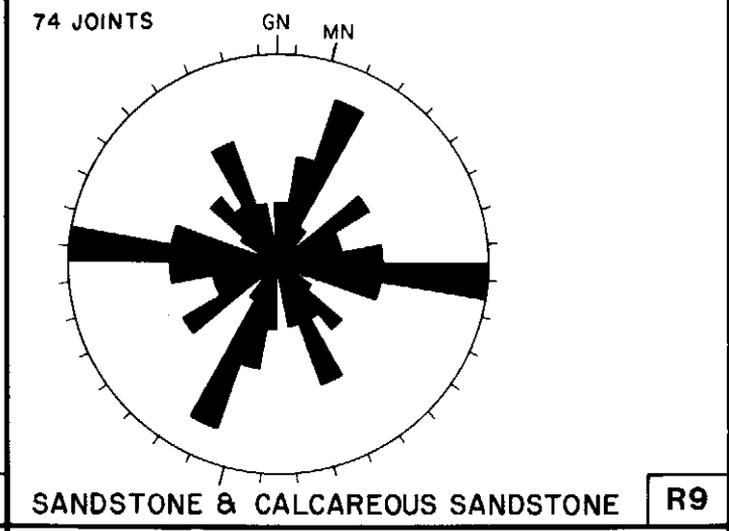
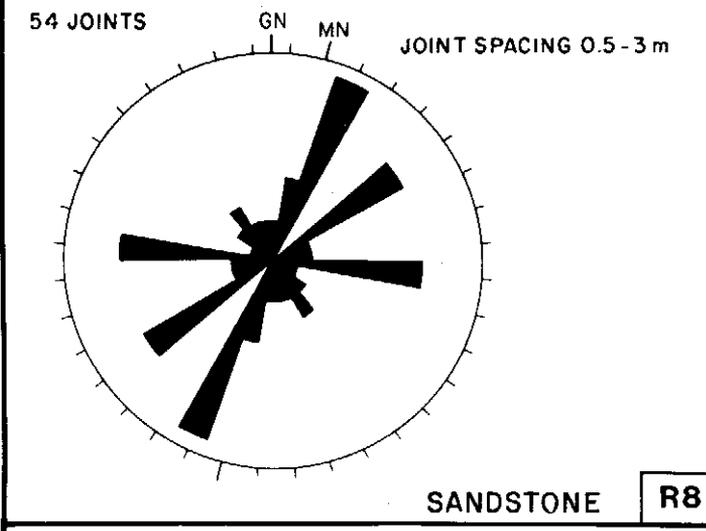
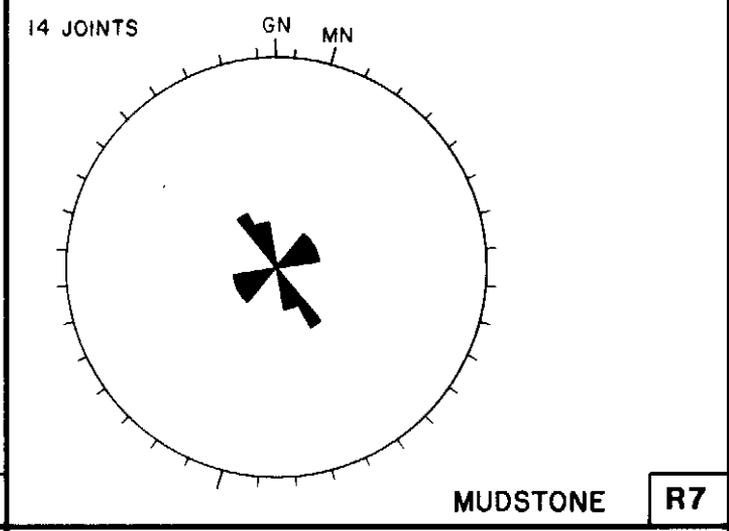
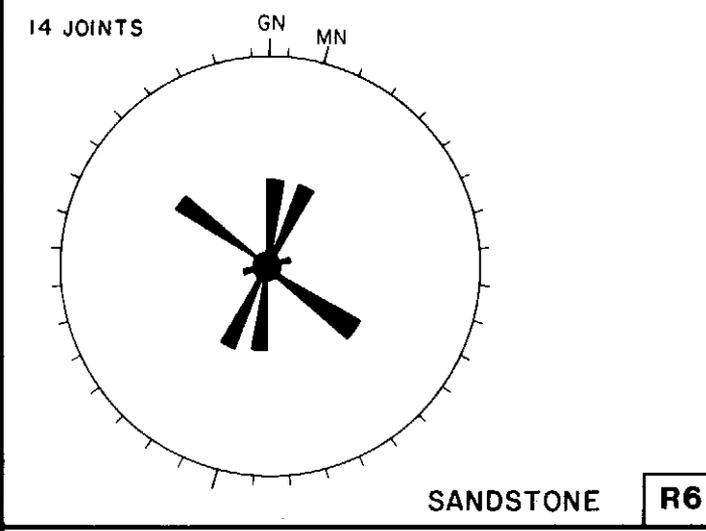
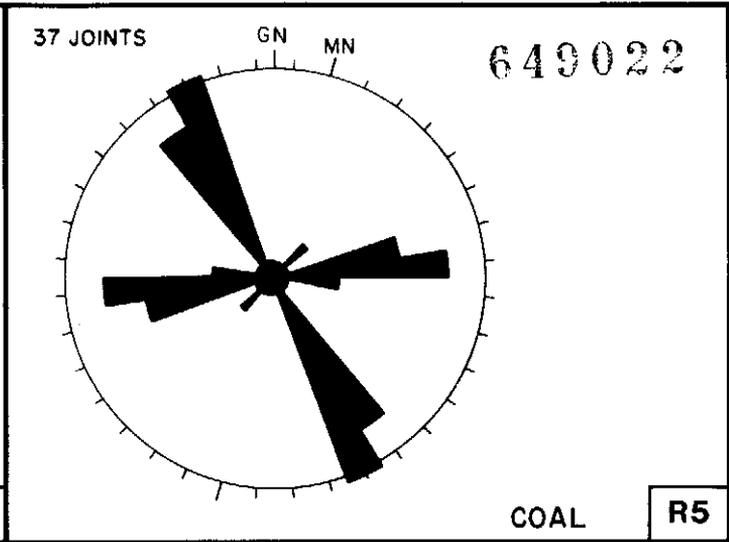
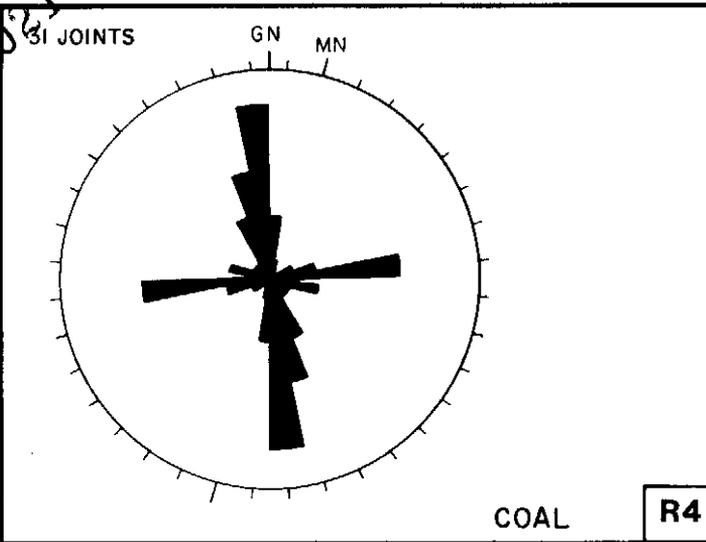


ROSE DIAGRAMS
BREAK O' DAY RIVER

See Enclosure 2 for Locations

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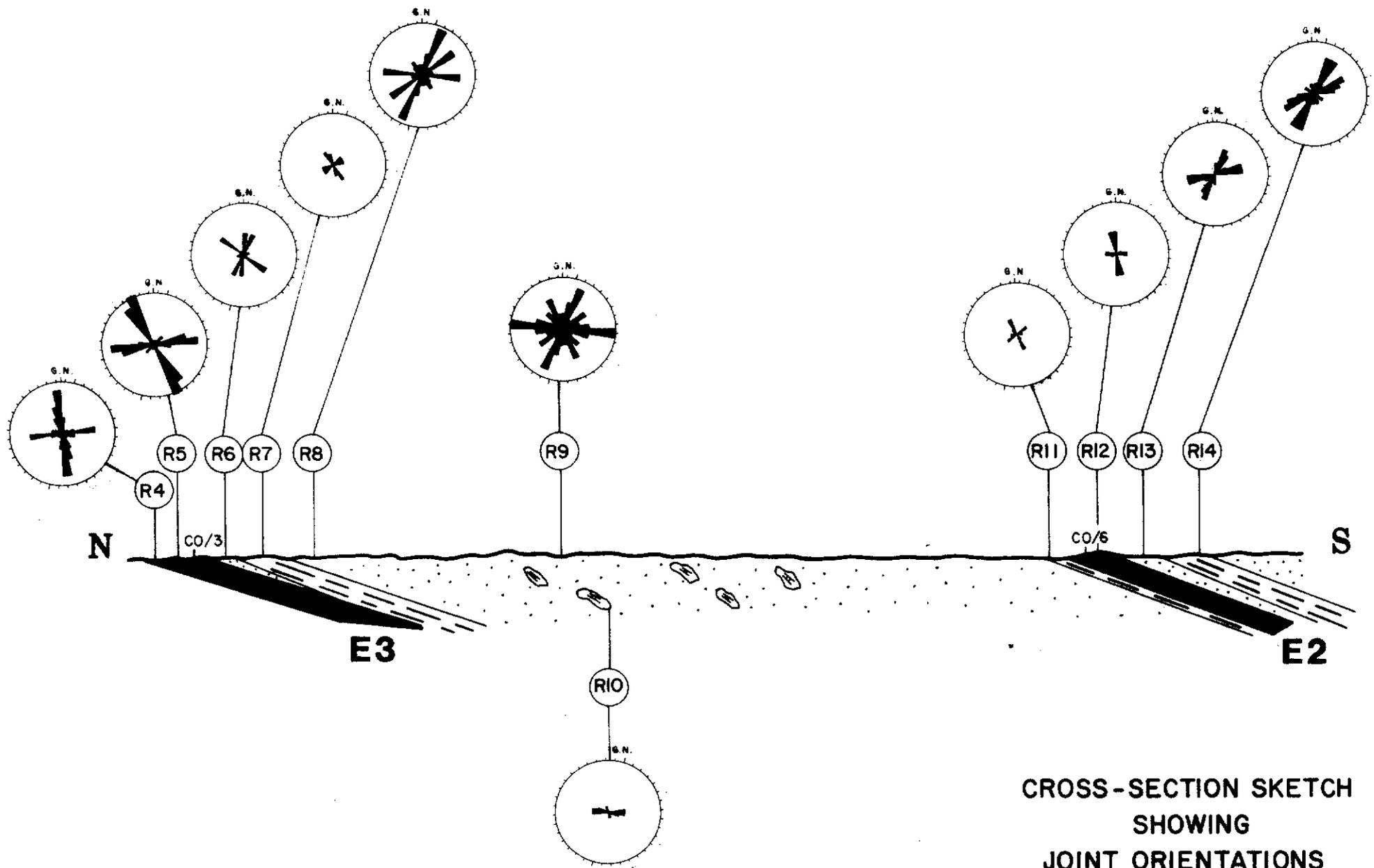


ROSE DIAGRAMS
LIGHTWOOD GULLY

See Enclosure 2 for Locations

Author : I. Wolff	Date : November 1982	Figure 4
Report No: CEPR 32/82	Drawing No: 2809	

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CROSS-SECTION SKETCH
SHOWING
JOINT ORIENTATIONS

649023

Author : Coal Division	Date : November 1982	Fig. 5
Report No: CEPR 32/82	Drawing No: 2810	

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at 30 m/km. This second minor fault trends southwards towards a possible convergence with the second significant fault. The coal seams in the included block have a dip to the southeast of 30 m/km.

The third minor fault occurs 1.5 km further to the west of the second minor fault, strikes to the north northeast and has a displacement of 15 m. On each side of this fault the coal seams appear to dip to the south at 15 to 25 m/km, though there is relatively poor control within this area. This fault appears to converge to the north with the third significant fault and possibly result in a combined throw similar to that observed on Mount Nicholas.

The fourth minor fault has been detected in the northeast and northwest of the area, has a general east-west strike and a 10 m downthrow to the north.

This fault pattern indicates major east west tension, with minor north south relief stresses, which is also reflected in the jointing patterns (Figures 3, 4 and 5). The western down step nature of the faulting, from the Cornwall fault towards the Mitchell fault, reduces the effective overall angle of the Cornwall fault and indicates that the jointing influenced by this faulting activity will have a western dip. The converging nature of the smaller faults with the larger faults may reflect underlying basement structural trends. The faulting has divided the coal seams into a number of tilt blocks, and the fault drag observed in GY 113 indicates that the sediments plastically deformed about the faults. The east-west striking minor fault maintains its alignment across the north-south faults, which may indicate that there has been minimal strike slip movement on the north-south trending faults, or that the east-west striking fault occurred at a later stage.

2.2.4 Igneous Intrusions

The intrusive rocks at Harefield are dolerites which conform to the general character of Tasmanian mid-Jurassic dolerites. A dyke was intersected from the surface in GY 70. Regional topographic trends suggest that this dyke may have a general east-west orientation although outcrop trace or geophysical investigation of this dyke has not been undertaken as it occurs well outside the coal reserve area.

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Immediately to the south of the Harefield area several closely spaced steeply dipping dykes were intersected in the lower part of the coal sequence in GY 48. On the Fingal Tier to the south of the Harefield area, adjacent to the second and third significant faults, is an extensive dolerite sill and plug system. Some fault blocks east of this system have coal seams dipping to the north, in reverse to the regional trend.

2.2.5 Superficial Deposits

There are two types of superficial deposits at Harefield.

- (1) A thin light brown sandy soil with rare dolerite alluvium which occurs on remnant topographic highs.
- (2) A black clay rich topsoil with underlying grey clay overlying abundant dolerite alluvium, with interstitial clay, which occurs as swamp infill over the lower topographic areas. (See Enclosure 3 and Plate 1.) In general the topsoil is 0.1 m thick.

The dolerite alluvium consists of moderate to well rounded fresh dolerite gravel, cobbles and boulders, with varying amounts of interstitial clay. The proportion of dolerite alluvium in each drillhole was estimated from drillhole records and displayed on Enclosure 3. The dolerite alluvium is often exposed over the surface. Adjacent to some of the creeks there are some concentrations of dolerite alluvium with very little soil component. The Break O'Day River contains an active dolerite cobble bed.



SOIL PROFILE OF SWAMP INFILL-Break O' Day River

(Note 1m tape)

Plate 1
649026

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3. MINING GEOLOGY

3.1 General

It is envisaged that coal will be extracted from the Harefield deposit using conventional open cut methods (Marchant, 1982). The coal reserves occur in two separate areas, the southern "Lightwood" reserves comprising the DE, E2 and E3 seams within a 15 m stratigraphic interval; and the "Break O'Day" reserves comprising the E3 and DF seams within a 7 m interval. The Harefield reserves occupy an area of 166.2 hectares and contain 19 million m³ of soil and rock for an overburden ratio of 6.8 (in situ) m³ per tonne (Table 13). The seams (approximately 1 m thick) dip to the southeast at 1 in 33, beneath a gently rising topography, and subcrop to the northwest beneath a soil profile ranging from 0 to 10m in thickness (average 4m). The maximum depth of excavation is envisaged to be 30 m.

Appendix 5 contains rock strength and discontinuity spacing definitions referred to in this report.

3.2 Overburden Characteristics

3.2.1 Superficial Deposits

The land is presently used for grazing and is occasionally sown for stock fodder crops. The topsoil is generally 0.1 m thick though no detailed studies have been conducted on the nature and distribution of soil types within the reserve area.

Within the Lightwood coal reserve area the superficial deposits are generally 4 m thick and vary from 1.7 m in the northwest to 7-8 m in the southeast (see Enclosure 3). Thickness trends indicate a palaeo channel swamp infill of thick dolerite rich alluvium to the north of, and generally parallel to, Lightwood Rivulet, which coincidentally overlies the deeper portions of the coal reserves. The total volume of superficial deposits in the Lightwood coal reserve area is 16 million m³ (Table 13). The dolerite rock content of the alluvium in the reserve area is estimated at 40% (volume) with variations from less than 20% in the south and northwest of the area to 70% in the north-east.

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Within the Break O'Day coal reserve area the superficial deposits are also generally 4 m thick but thin from 5 m in the west to less than 3 m to the east. A similar palaeo channel swamp infill of thick dolerite alluvium occurs to the east of, and trends parallel to the Break O'Day River, which, again overlies the deeper portions of the coal reserves. The total volume of superficial deposits in the Break O'Day coal reserve area is 3 million m³. The dolerite rock content of the alluvium in the reserve area is estimated at 40% with variations from less than 20%, to 90% at GY 111.

Active depositional areas of dolerite alluvium occur along the Lightwood Rivulet and the Break O'Day River.

3.2.2 Weathering Profile

The base of weathering is recorded in all drillholes as the boundary between joint-stained weakened rock and that of fresh unaltered rock (see Appendix 1). Outcrop and drillhole observations indicate that the depth of weathering beneath the superficial deposits is between 0.5 and 5 m and likely to vary erratically.

Drillhole intersections of coal seams within the weathered zone indicate the coal to be weak and weathered to varying degrees. Coal seams observed in stream outcrop have a fresh nature particularly where the coal is immediately overlain by sediments.

The finer grained and interbedded strata exhibit abundant discolouration and are generally more friable along bedding and jointing planes. The sandstones, which tend to be massive and widely jointed, exhibit a broad brown staining in the upper parts of the weathering profile that grades out to light grey towards the base of the weathering, though the noticeably reduced strength (weak to very weak) of the weathered sandstone persists to the base of weathering.

3.2.3 Overburden and Interburdens

The overburden and interburdens are composed of a variety of rock types consisting mainly of lithic sandstone, siltstone, mudstone, carbonaceous mudstone and coal, with interbedding of the medium and

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fine grained sediments being common. The rock types are essentially similar to those of Mount Nicholas.

Preliminary thin section work (Kuhn, 1982) indicates that the Triassic lithic sandstones in this district are composed of 60% rounded lithic fragments, including chert, 20% quartz (monocrystalline), 10% matrix of diagenetically altered clays, 5% feldspar (mostly plagioclase) and minor amounts of mica, mafic minerals and organic matter. The grain size distribution is generally about 40% fine grained and 60% medium to coarse grained with a sorting of 0.73, skewness 0.83 and median 401. Thus machine wear may be low, formation porosity may be low and spoil pile chemical deterioration may be rapid, affecting trafficability, stability and the quality of run-off water.

The outcrop expression of the lithic sandstones is that of massive to very faintly crossbedded light grey rocks with very wide to extremely widely spaced joints similar to those found at Mount Nicholas (Wollff et. al., 1982). The interbedded medium to fine grained rocks generally exhibit wide to very wide tight planar jointing systems similar to that of the massive lithic sandstones, but also exhibit a notable bedding plane fissility. The mudstones and other fine grained rocks generally display a close to moderately wide regular planar jointing system with a well developed bedding fissility.

Rapid slaking was observed in drill core sample of claystones, clayey mudstones and carbonaceous mudstones. Slow slaking was observed in silty carbonaceous mudstone and some mudstones, while the remaining siltstones and sandstones did not exhibit any slaking tendencies. The sediments were generally observed to have a lean plasticity.

3.2.4 Mining Floor

The detailed lithological and geotechnical descriptions of the seam floors have been recorded, and in some instances geotechnically sampled. Lateral correlation of detailed floor lithologies has not been undertaken, although the high consistency of correlatable coal plies in the reserve areas of the E3 and DF seams indicates that the immediate underlying floor lithologies may also have lateral consistency.

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In general the E3 seam floor consists of a few centimetres of high ash coal underlain by 0.3 m of mudstone with a high carbonaceous content (prone to slow slaking), that grades downwards into a moderately thin to moderately thick interbedded siltstone, mudstone and carbonaceous wisp sequence (prone to low bedding plane strength), and eventually into a coarser competent interbedded sandstone sequence.

In the Break O'Day reserve area the DF coal seam floor consists of approximately 1 m of carbonaceous mudstone that is prone to slaking, which grades downwards into a 2 m series of mudstones and carbonaceous mudstones before grading to competent interbedded sandstones and silt stones.

3.3 Groundwater

There are three sources of water that affect the mining of the Harefield coal reserves: rainwater, stream flow and groundwater. Details of rainfall have been referred to in Section 1.3 of this report, also the Mount Nicholas Mine Feasibility Study (Fluor, 1982), refers to rainfall measured by farmers throughout the district for many years. The Break O'Day River and Lightwood Rivulet, which cross the coal reserve areas, are non perennial streams which are prone to flooding several times a year. In recent months a stream gauge has been installed downstream of the confluence of these streams and is being monitored by the Tasmanian Department of Water Resources. No details of stream flows in the reserve areas are presently available.

The water table within the coal reserve areas is located near the base of the superficial deposits during the dry summer months (Appendix 6.1). No wet winter levels have been recorded to date, due to the unseasonal drought conditions (see Table 2): The hydraulic gradient drops down to the north and appears to follow the general topographic gradient. There is a hydraulic gradient drop of 28 m across the Lightwood reserve area. The lower profile of the superficial deposits may act as an aquifer where the dolerite alluvium is well developed, particularly in those areas adjacent to Lightwood Rivulet and the Break O'Day River.

Groundwater may be anticipated from the coal seams, which have close to moderately close spaced jointing. The open hole drilling programme

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TABLE 2
GROUNDWATER LEVEL FLUCTUATIONS

BOREHOLE NUMBER GY	DATE DRILLED	STANDING WATER LEVEL AFTER DRILLING (m)	WATER LEVEL 7/82 (m)	WATER LEVEL 28/10/82 (m)	WATER LEVEL 1/12/82 (m)
47	28/5/82	65.70	-	68.0	-
107	11/3/82	2.00	-	-	1.89
110	16/3/82	2.74	-	-	2.85
111	18/3/82	1.92	1.92	-	1.92
112	18/3/82	1.30	-	-	1.60
113	22/3/82	3.20	3.00	-	2.76
114	22/3/82	-	-	1.45	-
114R	12/5/82	1.02	1.02	-	1.72
115	23/3/82	3.15	-	-	2.20
118	24/3/82	0.57	-	1.125	1.46
125	6/4/82	2.14	-	2.25	2.36
126	8/4/82	2.44	-	-	3.07
129	15/4/82	2.60	2.60	-	2.96
131	16/4/82	4.16	-	-	4.34
133	19/4/82	3.04	-	-	3.00
134	20/4/82	0.61	-	-	1.37
139	23/4/82	0.80	-	-	1.50
140	27/4/82	2.00	-	-	2.32
144	3/5/82	3.62	-	-	3.70
145	7/5/82	2.27	2.27	-	2.26
147	10/5/82	2.46	2.46	-	2.65
148	11/5/82	3.60	3.60	-	3.66
149	12/5/82	2.97	2.97	-	2.83
150	13/5/82	2.03	2.03	-	3.00
152	19/5/82	3.63	1.52	-	1.80
153	20/5/82	1.14	-	-	0.59
154	24/5/82	2.17	-	-	Blocked
156	25/5/82	3.64	-	-	3.87
158	26/5/82	5.62	5.09	-	5.21
159	28/5/82	6.78	6.78	-	7.24
160	31/5/82	5.36	-	-	5.81
161	1/6/82	4.87	-	-	4.96
162	2/6/82	2.66	-	-	2.94
163	3/6/82	8.90	-	8.55	8.53
165	7/6/82	5.25	-	4.90	5.07
169	15/6/82	9.92	-	10.0	10.00
170	16/6/82	0.66	-	2.08	2.24
171	21/6/82	8.77	-	-	8.59
172	22/6/82	1.97	-	8.7	1.97

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indicated that the coal seams contain water, though only small to moderate flows were generally observed. In one instance, GY 68, large volumes of water were readily extracted from the shallow coal seam. In several instances temporary artesian flows were induced by the drilling which suggests that the coal seams are highly permeable.

The mudstones appeared to have poor permeability as thin beds could be blown dry by the air flush, although this was not possible with very thick to extremely thick beds, particularly those at some depth. The sandstones were generally found to be aquacludes.

3.4 Excavation Characteristics

3.4.1 Diggability

In the low lying areas the topsoil is a black clay rich soil that forms very broad hard peds when dry and has a boggy sticky nature when wet. In the slightly elevated areas the soil is light brown, often sandy and firm to soft (Appendix 5). Dolerite alluvium (gravel to boulders) is often present in the topsoil. These boulders form an open fabric in the soil, are subrounded and of very strong rock, and thus may affect the wear of the cutting edge of excavating machinery and aperture size of the scrapers.

All clearing, road and dam construction presently carried out in the district is done during the dry seasons.

The superficial deposits will have similar excavation characteristics to that of the topsoil but will vary significantly where the dolerite alluvium and overlying clay is well developed (see Plate 1). In damp to wet conditions, bulldozers constructing dams in the clay rich soil have been known to become bogged. In places the thick dolerite alluvium may develop imbricate structure which may reduce diggability. A reconnaissance seismic refraction survey (Hewson, 1982) indicated that the dolerite colluvium on Mount Nicholas had a highly variable seismic refraction only (250-1100 m/s) and it is anticipated that the dolerite alluvium at Harefield may have similar velocity characteristics.

Unconsolidated deposits of very strong doleritic coarse gravel and boulders present difficult drilling conditions in terms of bit wear,

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caving and jamming, hence it might be advisable to prestrip the alluvium prior to blast hole drilling of the remaining overburden.

The weathered rock is expected to have an uneven distribution both areally throughout the site and vertically within the weathering profile. Regional seismic refraction data (Leaman, 1980) indicates the velocity of weathered Triassic sandstone to be 900 - 2000 m/s. The velocities obtained at Harefield (Hewson, 1982) were 1200 - 2500 m/s for weathered Triassic sandstone. Variations in bedding partings and joint intervals will directly affect diggability, however, weathered rock would appear rippable by a D9 class of machine. Figure 5 shows the variation of joint orientations over a significant portion of the potential mining interval.

The unweathered Triassic strata comprise a variety of rock types with various strength, bedding and jointing characteristics all of which will affect the diggability. Some rock strength characteristics of the nearby Mount Nicholas rocks are included in Table 3 for consideration of the rippability of these rocks. The laboratory seismic values indicate that the fresh sediments appear to be marginally rippable, (towards the non-rippable end) for a D9 class of machine. In-hole BPB sonic velocities indicate the mudstones and siltstones to be 2600 m/s and sandstones to be 2900 m/s. Regional seismic refraction records (Leaman, 1980) indicates the Triassic sandstones to have a velocity of 2500 - 3500 m/s. Point load strength tests have been conducted over some of the Harefield drillhole cores, and the results are presented in Appendix 4. Similar testing on Mount Nicholas, which has a larger sample base, found that the point load strength corrected for core size [Is (50)] mean values in MN/m² to be: Mudstone 0.55, Siltstone 0.55, Sandstone 0.87, Calcareous sandstone 2.58 and Coal 0.53 (Wollff et. al., 1982). Various laboratory geotechnical tests were carried out on the Mount Nicholas Triassic sediments and parameters of rock behaviour are anticipated to be valid for the similar Harefield Triassic sediments.

Joint spacing in sandstones is very wide to extremely wide (1m - 3m), with prominent linear tight joints intersecting nearly perpendicularly with arcuate non penetrative secondary joints. Bedding spacing is very thick to extremely thick with individual sandstone beds in excess of 2.5m thick above the DE seam. It is thus concluded that a combination

TABLE 3

SUMMARY OF SONIC VELOCITIES AND ASSOCIATED ROCK STRENGTH TEST VALUES
FOR TASMANIAN COAL MEASURE ROCKS

SHELL GRAY SAMPLES	34T03	36T15	36T19	36T20	41T01	41T03
Rock Type	Mudstone	Sandstone	Sandstone	Mudstone	Mudstone	Fine Sandstone
Degree of Weathering	Fresh	Fresh	Fresh	Fresh	Fresh	Fresh
Density (kg/cubic metre)	2448	2385	2474	2380	2415	2415
P-Wave Velocity (m/sec)	2338	2988	2710	2560	3175	3409
S-Wave Velocity (m/sec)	918	1652	1464	1586	1435	2224
Dynamic E (GPa)	5.84	16.7	13.6	14.3	13.9	26.7
Dynamic Poison's Ratio	0.41	0.28	0.30	0.19	0.36	0.13
Static mid-third E (GPa)	1.68	2.13	2.79		3.65	8.95
Static mid-third V	0.42	0.34	0.35		0.34	0.31
Dynamic E/Static E	3.48	7.84	4.87		3.8	3.0
Brazilian Tensile Strength (MPa)	2.60	1.32	3.16			
Unconfined Compressive Strength (MPa)	20.5	15.6	17.3		27.3	41.7
Inferred ϕ	58°				45°	36°

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of moderate strength and very widely spaced discontinuities will preclude ripping as a viable excavation method for the sandstones.

Joint spacing in mudstones is moderately wide (0.06m - 0.2m), and in addition to the major and secondary sets there is sometimes a third set of joints which gives the mudstone a hexagonal fracture pattern. Bedding spacing varies from thickly laminated to thickly bedded. Facies variations between these extremes of sandstone and mudstone tend to have slightly broader jointing patterns than would be expected from a straight estimate of the proportions of the fine and coarse grained constituent sediments.

The calcareous sandstone lenticular bodies (Section 2.2.2) observed in outcrop and in drill section may cause problems in excavation. In-hole BPB sonic velocities of 3800 m/s confirm the higher strength of these bodies.

The coal seams at Harefield are similarly anticipated to have comparable strength and jointing characteristics to those found at Mount Nicholas. The in-hole BPB sonic velocity of the coal seams vary from 2200 m/s for stony coal to 2000 m/s for dull coal to dull coal with numerous bright bands. Various stone bands within the seams should facilitate bedding plane partings and thus ease of diggability, as will the moderately close spaced jointing pattern. The gradational seam boundaries may necessitate a high degree of operator skill during excavation.

3.4.2 Excavated Slopes

The superficial deposits, as will be exposed in upper part of the highwall and sidewalls, are generally unconsolidated and may be prone to sloughing into the pit. Similarly the underlying weathered zone will have weak joint cohesive strengths and be prone to small block tumbling failures.

It may be necessary to batter back the slopes in the superficial deposits and possibly part of all of the weathered zone, or alternatively leave a safety berm at the appropriate level, to accommodate intermittent small scale slips.

The stability of excavated slopes in unweathered rock will be governed largely by the orientation of the bedding planes. As the pit will be taken downdip from subcrop the bedding planes will dip into the highwall and thus present a stable orientation. The maximum face slope will be restricted by the joints which are usually orthogonal to the bedding, which in this case would be near vertical. Localised instability may occur through adversely orientated crossbedding or intersections of faults and isolated master joints, however, these factors are not considered significant enough to influence the general slope design.

It is suggested that overall slope angles of up to 65° would be permissible for slope heights up to 30m. Footwall slopes in alluvium should be stable at 35°. There could be a problem of seasonably high water tables within the superficial deposits which would be significantly manifest in the palaeo channels mentioned in subsection 3.2.1. This could result in increased flows from excavated faces, which, although not necessarily presenting a stability risk, will require a safety bench and interceptor drains to keep the water from flowing down the highwall, where it could be a detrimental effect on the stability of the bedrock.

For the groundwater within the coal seams it is presumed that in-pit pumping will create a normal drawdown condition within the highwall such that there is no threat to slope stability.

3.4.3 Spoil Slopes

In-pit spoiling will result in a heterogenous mixture of sound blasted rock, weathered rock, clay soil and dolerite gravel and boulders. The mudstones appear to be all susceptible to some degree to slaking. It is estimated that spoil piles should be stable at slopes of 1 in 1.5 (33.7°) although for transient in-pit spoiling individual slopes will presumably assume an angle of repose varying a few degrees above or below this value.

As the proposed mining operation is dip cut - strike advance, spoil piles will not normally be on an inclined pavement in a footwall situation, hence the potential for sliding on slaking induced failure

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surfaces parallel to the pavement should not materialise. It would be wise, however, to avoid ponding of water against the toe of spoil piles in the deeper parts of the pit as this will lend to a reduction in strength of the material in the base of the spoil pile.

3.4.4 Trafficability

The immediate floor of both the E3 and DF seams is composed of carbonaceous mudstone that may be prone to slaking. In the dry state this may be sufficiently strong to support heavy trucks, though once wetted, following a drying cycle, it is likely to incur severe rutting even under light trafficking. For the in-pit haul roads it will therefore be advisable to either remove this material down to a more suitable road formation or build up a sufficient thickness of base coarse using alternative material. A ready source for the latter would be the more resistant sandstone layers that could be selectively removed during mining or the dolerite gravels. Use of these materials with a pit side crusher could obviate the need to import crushed rock.

The slaking of spoil material may cause trafficability problems for truck hauls to discharge points on the spoil piles. Simple precautions such as ensuring roadways are cambered or graded to facilitate run-off and the prevention of ponding will help reduce softening and rutting.

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4. COAL DISTRIBUTION

4.1 General

Coal distribution information is based on the results of 92 drill holes, petrophysical logging (where available), outcrop mapping and accurate topographic surveying of drillhole collars and selected outcrops. Open holes are spaced on a one kilometre grid orientated normal to the strike as interpreted from regional geological structural trends. This spacing was reduced in some areas, and core holes drilled for increased geological control. A 400 m core hole grid was superimposed upon this initial grid for greater structural, analytical and correlation control.

Core loss was common in the sedimentary sequence and in the coal seams thus all seam intervals and coal ply details have been adjusted to the petrophysical intervals, where available.

The mining roof and floor was taken as the point where the RD of the seam material exceeded 1.80, corresponding to an ash content of approximately 50%.

4.2 Seam Correlation and Nomenclature

Seam correlations have been made using the macrolithology of the coal seams and adjacent sediments, petrophysical log character and spatial distributions. Seam correlations are tabulated on the drillhole seam summary table (Appendix 1) and displayed in the east-west and north-south cross sections (Enclosures 15 and 16). Regional correlation of these seams are referred to in Section 2.2.1.

Ply correlations have been made using detailed seam lithological descriptions and detailed BPB petrophysical logs. There were no unique beds or petrophysical responses, though some of the seams (E2 and E3) exhibited consistent identifiable bands and petrophysical log character. In the 1982 exploration programme all seams were sampled on a correlatable ply basis, and allocated similar sample numbers. There were three exceptions to this rule; where a band of coal with questionable ash content occurred adjacent to a ply stone band; where

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plies coalesced to form an interval too small to be subdivided for meaningful sampling; and where there was significant core loss (see Figures 6, 7, 8 and 9).

4.3 Structure and Depth

There are four recognised coal seams within the Harefield coal reserve area that occur at regular intervals over a stratigraphic interval of 22 m. Laterally the coal seams have a similar structure, with minor local variations due to the interseam sediments and the degree of coal seam development. One exception is represented by the washouts of the E2 seam.

The seams have a gentle uniform dip of 30 m/km to the south-east (Enclosures 4, 5, 6 & 7). General seam dips and faulting outside of this area has been described in Section 2.2.3 of this report.

The variation of depth to each coal seam is a function of the topography that rises gradually to the south and the dip of the coal seam to the southeast. The seams generally subcrop at three to four metres and increase in depth to the south south-east at a general rate of 35 m/km.

4.4 DE Seam

4.4.1 Thickness and Extent

The DE seam consists of a relatively thick (0.5 - 2.2 m) sequence of coal, stone banded coal and carbonaceous mudstone. The geological seam extends across the entire Harefield area (Enclosure 4), with a general thickening trend to the north-east. A composite of plies near the top of the seam has been examined in detail as a preferred mining section.

Within the Harefield reserve area, (Enclosure 8), the preferred mining section varies from 0.3 m to 1.1 m in an irregular manner with a north-west south-east orientation of the isopachs. Within the Lightwood reserve area the preferred mining section occupies 30.1 hectares with a weighted average thickness of 0.63 m (see Appendix 2).

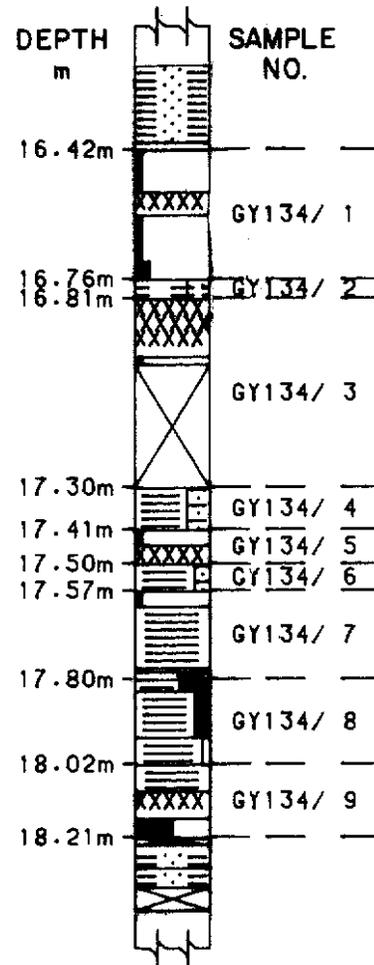
DETAILED SEAM INTERVAL

**GY 134
DE Seam**

COAL ANALYSIS

THICKNESS m	R.D.	MOISTURE %	ASH %	VOLATILE MATTER %
0.34	1.63	6.4	28.90	20.0
0.05	2.01		59.00	
0.49	1.64	6.8	29.70	18.6
0.11	2.03		62.20	
0.09	1.71		35.50	
0.07	2.26		72.70	
0.23	2.13		66.00	
0.22	1.89		52.20	
0.19	1.73		41.80	

BRIGHTNESS PROFILE



VERTICAL SCALE

1:20

0.4 0.2 0.0 0.2 0.4 0.6 0.8 1.0

METRES

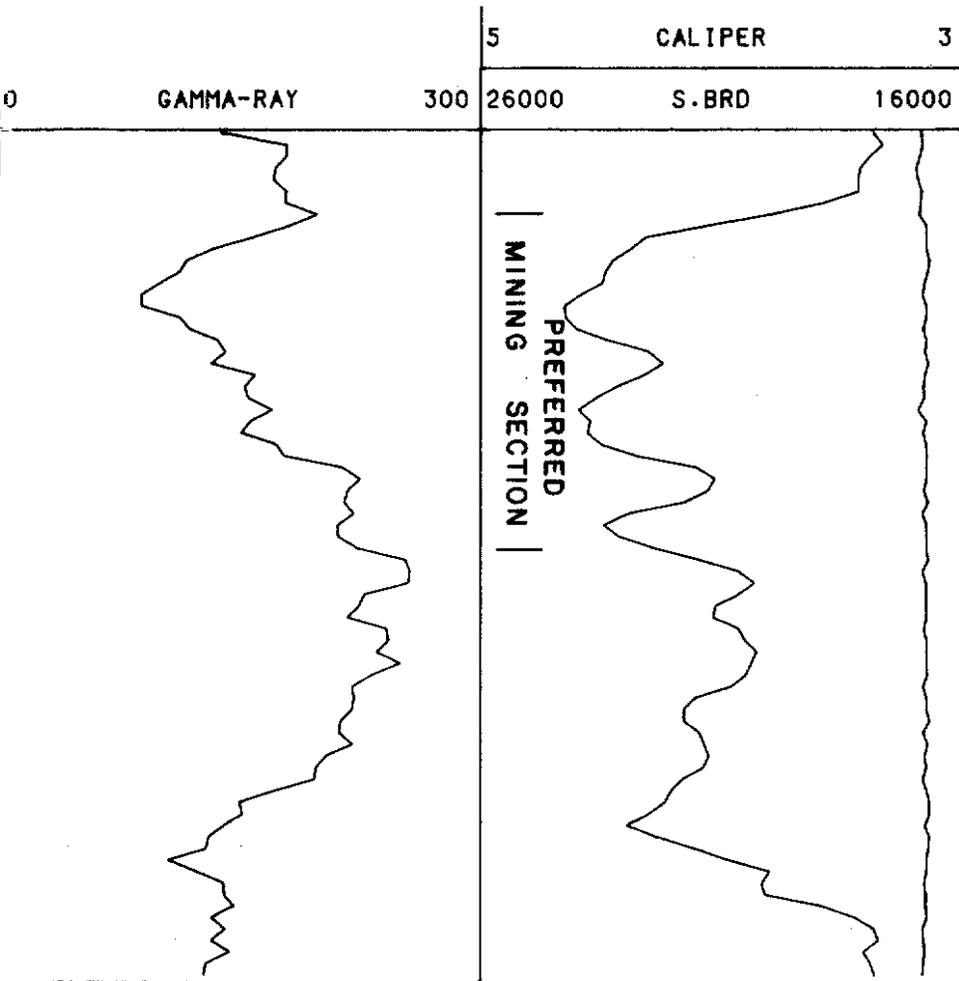
649040

LEGEND

- COAL - UNDIFFERENTIATED
- COAL - DULL WITH MINOR BRIGHT BANDS
- NOT CORED/CORE LOSS
- COAL - BRIGHT
- COAL - DULL
- SANDSTONE
- COAL - BRIGHT WITH DULL BANDS
- COAL - WEATHERED
- MUDSTONE
- COAL - INTERBANDED DULL AND BRIGHT
- COAL - CINDERED
- CARBONACEOUS MUDSTONE
- COAL - MAINLY DULL FREQ. BRIGHT BANDS
- COAL - STONY
- TONSTEIN

5 cm

Author: Coal Division	Date: November 1982	Fig. 6
Report No: CEPR 32/82	Drawing No: 2811	



4.4.2 Macrolithology

Figure 6 present a detailed seam lithology and petrophysical log in graphic form. Fifteen detailed lithological plies were identified and correlated in the field prior to sampling, which generally grouped the plies into nine sample intervals. Lateral variations of the seam profile were extensive. In general the relatively bright portions of the top and base of the seam persisted throughout the Harefield reserve area, though further west the basal portion of the coal seam graded into carbonaceous mudstone. The central banded portion of the seam varied significantly and tended to become thinner and poorer in coal quality to the south-west.

There were no persistent lithological marker bands within this seam, although two prominent gamma peaks (300 API) occurred at slightly varying positions within the central portion of the seam. There is often a slight gamma drop (100 API) associated with a long spaced density (LSD) peak of 300 standard density units (SDU) at the top of the seam.

The geological seam has a transitional roof and floor, though a thin seat earth is often developed on the floor of the seam.

4.4.3 Preferred Mining Section

The section generally correlates to the LSD peak and thins to the south-west as the lower plies of the section degrade in quality. It will require a high degree of operator skill in the selective mining of this section.

4.5 E2 Seam

4.5.1 Thickness and Extent

The seam extends across most of the area, but is washed out in the north-east and west of the Harefield reserve area (see Enclosure 5).

041

Within the Harefield reserve area, (Enclosure 9), the seam thickness varies in an irregular manner, with a general thickening trend to the south-east. Within the Lightwood reserve area the seam occupies 26.2 hectares with a weighted average thickness of 0.63 m (see Appendix 2).

4.5.2 Macrolithology

Figure 7 presents a detailed seam lithology and petrophysical log in graphic form. Five detailed lithological plies were identified and correlated in the field prior to sampling. Lateral variations of the seam profile were generally minor, and associated with variations in individual ply thickness and various degrees of roof and floor gradations.

There is one generally persistent lithological marker band within the seam. It is a brown mudstone band, with generally sharp boundaries, located in the middle of the seam profile. The band is readily identifiable on the Bed Resolution Density Log (BRD) but is too thin to register on the LSD log. The gamma ray log is generally unresponsive in this seam, although a faint low, 80 API, sometimes occurs with the thicker coal plies. The seam generally has a sharp to thin transitional roof and floor.

4.5.3 Preferred Mining Section

The section is composed of the dull coal plies adjacent to the central mudstone band and the adjacent coal plies where they were sufficiently developed. The central mudstone band is generally weak and may aid in the extraction of the seam.

4.5.5 Washouts

There are two broad areas where the seam is washed out completely, and no records of partial seam washouts. West of the Harefield reserve area a large ill-defined seam washout occurs in association with a 10 to 15 m thick medium to coarse grained sandstone. In the north-east of the Harefield reserve area the seam is washed out in an east-west arcuate area by a medium to coarse sandstone that thickens to the east in conjunction with a general facies change to a higher proportion of overlying coarser grained sediments (see cross-section Enclosure 16).

DETAILED SEAM INTERVAL

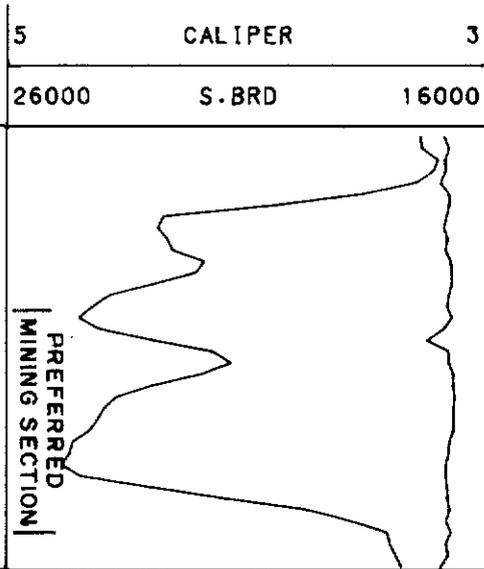
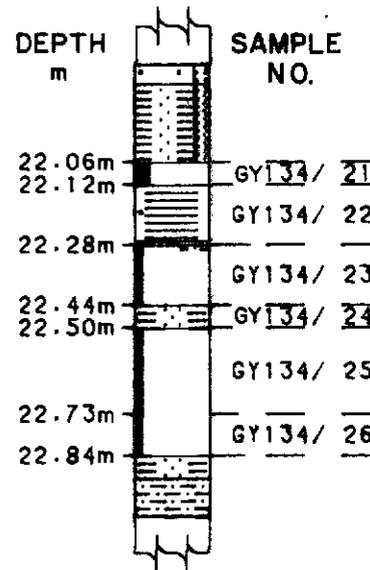
**GY 134
E2 Seam**

042

COAL ANALYSIS

THICKNESS m	R.D.	MOISTURE %	ASH %	VOLATILE MATTER %
0.06	1.63	6.2	29.50	24.0
0.16	1.83		49.30	
0.16	1.46	7.3	17.50	23.9
0.06	2.31		77.90	
0.23	1.55	6.6	22.50	22.5
0.11	1.49	5.7	19.60	27.3

BRIGHTNESS PROFILE



LEGEND

- | | | |
|---------------------------------------|-------------------------------------|-----------------------|
| COAL - UNDIFFERENTIATED | COAL - DULL WITH MINOR BRIGHT BANDS | NOT CORED/CORE LOSS |
| COAL - BRIGHT | COAL - DULL | SANDSTONE |
| COAL - BRIGHT WITH DULL BANDS | COAL - WEATHERED | MUDSTONE |
| COAL - INTERBANDED DULL AND BRIGHT | COAL - CINDERED | CARBONACEOUS MUDSTONE |
| COAL - MAINLY DULL FREQ. BRIGHT BANDS | COAL - STONY | TONSTEIN |

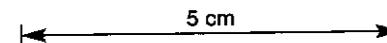
VERTICAL SCALE

1:20

0.4 0.2 0.0 0.2 0.4 0.6 0.8 1.0



METRES



Author: Coal Division	Date: November 1982	Fig. 7
Report No: CEPR 32/82	Drawing No: 2812	

649043

4.6 E3 Seam

4.6.1 Thickness and Extent

The seam extends across the entire area, (Enclosure 8). Within the Harefield reserve area (Enclosure 10), the seam varies in thickness from 0.4 m to 1.4 m, with a general thinning in a north-eastern portion of the area, and a general thickening trend to the south.

Within the Lightwood reserve area the seam occupies 118 hectares with a weighted average thickness of 1.17 m, and in the Break O'Day reserve area occupies 17.5 hectares with a weighted average thickness of 0.8 m (see Appendix 2).

4.6.2 Macrolithology

Figure 8 presents a detailed seam lithology and petrophysical log in graphic form. Seven detailed lithological plies were identified and correlated in the field prior to sampling. The seam exhibits very good lateral consistency except where it thins in the north-east of the area. The coal is dull with few bright bands.

There are two generally persistent lithological marker bands that divide the seam into thirds. The upper marker is a faintly observable very thin mudstone to carbonaceous mudstone band that exhibits a prominent response on the BRD log. The lower marker band is a white tonstein with well defined boundaries and has a prominent BRD log response. The top of the seam varies from a thin transition to sharply defined roof. The coal between the two marker beds often exhibits very faintly observable mudstone clasts and pellets which have a faint response on the BRD log and possibly contribute to the overall poor gamma response across the seam. Dull stony coal is often located at the base of the central coal ply. The base of the coal seam is usually transitional into a well developed carbonaceous mudstone which has an associated gamma peak.

4.6.3 Preferred Mining Section

The section comprises the entire seam, although in some instances thin ply samples of the coal immediately adjacent to the roof and floor are of marginal quality due to the nature of the transitional contacts.

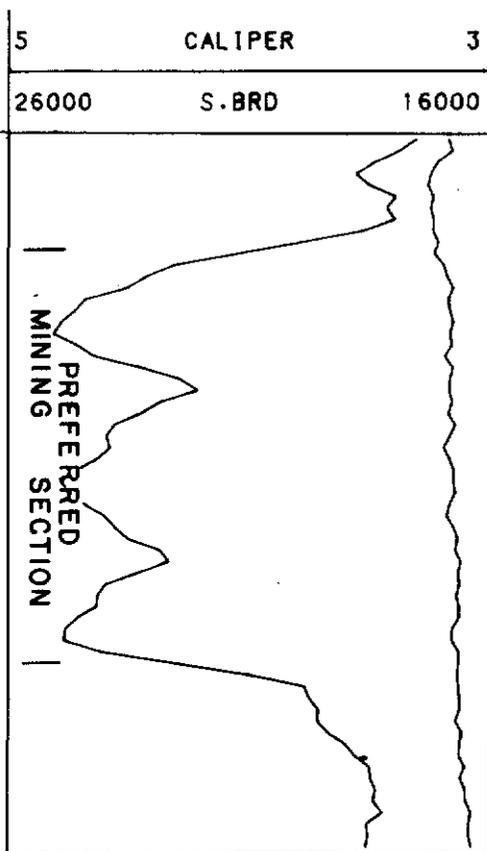
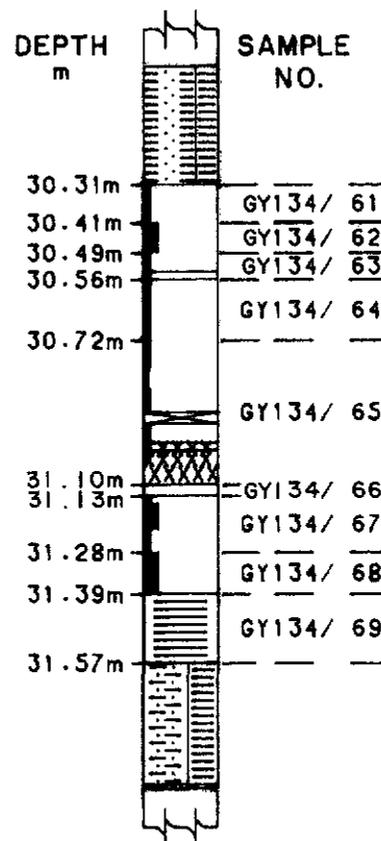
DETAILED SEAM INTERVAL

**GY 134
E3 Seam**

COAL ANALYSIS

THICKNESS m	R.D.	MOISTURE %	ASH %	VOLATILE MATTER %
0.10	1.67	6.3	33.90	16.5
0.08	1.39	6.9	11.70	35.6
0.07	1.50	6.0	19.00	23.2
0.16	1.71		36.90	
0.38	1.57		26.10	
0.03	2.33		78.80	
0.15	1.51	5.8	20.00	25.8
0.11	1.38	6.1	11.20	37.8
0.18	2.25		73.00	

BRIGHTNESS PROFILE



LEGEND

- | | | |
|---------------------------------------|-------------------------------------|-----------------------|
| COAL - UNDIFFERENTIATED | COAL - DULL WITH MINOR BRIGHT BANDS | NOT CORED/CORE LOSS |
| COAL - BRIGHT | COAL - DULL | SANDSTONE |
| COAL - BRIGHT WITH DULL BANDS | COAL - WEATHERED | MUDSTONE |
| COAL - INTERBANDED DULL AND BRIGHT | COAL - CINDERED | CARBONACEOUS MUDSTONE |
| COAL - MAINLY DULL FREQ. BRIGHT BANDS | COAL - STONY | TONSTEIN |

VERTICAL SCALE

1:20

0.4 0.2 0.0 0.2 0.4 0.6 0.8 1.0

METRES

5 cm

Author : Coal Division	Date : November 1982	Fig. 8
Report No: CEPR 32/82	Drawing No: 2813	

649045

4.7 DF Seam

4.7.1 Thickness and Extent

The seam appears to extend across most of the area, though preliminary assessments of its generally poor character in the western part of the area excluded it as a significant drilling target. Consequently there is little control of this seam beyond the north-east of the Harefield reserve area (Enclosure 11), where it varies in thickness from 0.3 m to 1.3 m. The seam has a thick east-west orientated ridge that thins to the north and south.

4.7.2 Macrolithology

Figure 9 presents a detailed seam lithology and petrophysical log in graphic form. Nine detailed lithological plies were identified and correlated in the field prior to sampling. Lateral variations of the seam profile were significant and generally associated with facies variations of coal, banded coal and carbonaceous mudstone, particularly at the base and central portions of the seam. A slight gamma low, (80 API), near the top of the seam and a generally correlatable gamma high, (170 API), near the base of the seam reflects the general coal quality trend of ash increasing towards the base of the seam. The seam generally has a sharp to thinly transitional roof and a transitional floor that grades into a well developed carbonaceous mudstone that has an associated gamma peak.

4.7.3 Preferred Mining Section

In general this section consists of the portion of the geological seam above the gamma peak and coincident with the LSD peak (1100 to 1300 SDU). Two thin distinct bands within this section will aid in the diggability of the coal seam.

DETAILED SEAM INTERVAL

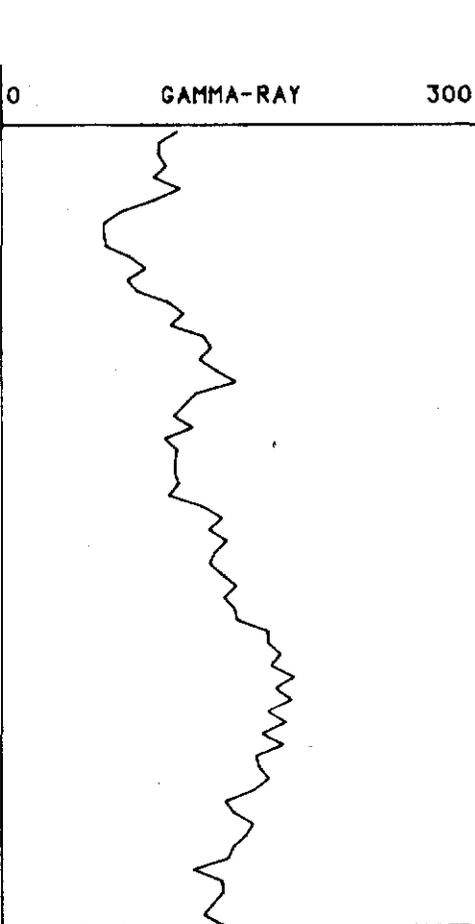
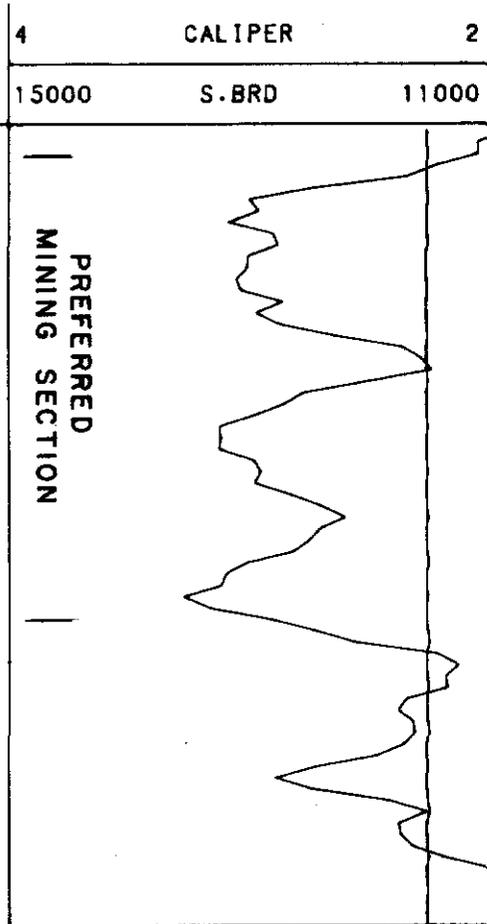
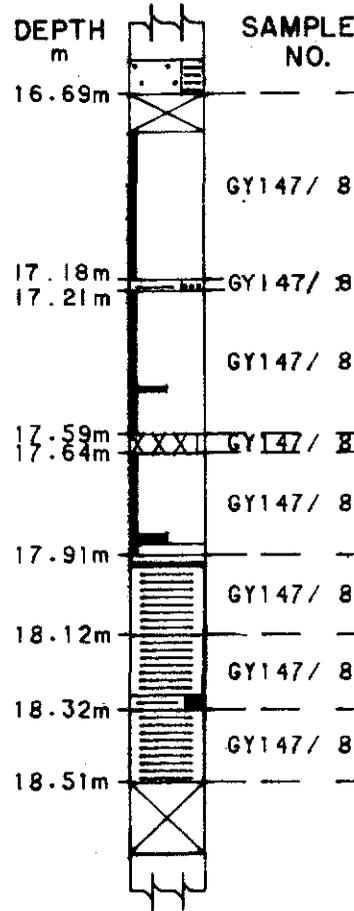
GY 147
DF Seam

46

COAL ANALYSIS

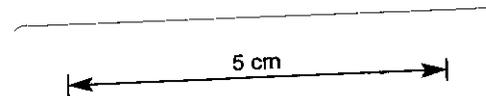
THICKNESS m	R.D.	MOISTURE %	ASH %	VOLATILE MATTER %
0.49	1.59	4.4	24.40	17.3
0.03	2.26	—	74.40	—
0.38	1.67	4.7	31.70	17.6
0.05	1.98	—	59.50	—
0.25	1.63	4.2	27.80	21.8
0.21	2.10	—	65.40	—
0.20	1.95	—	56.70	—
0.19	2.09	—	67.60	—

BRIGHTNESS PROFILE



LEGEND

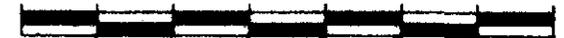
- COAL - UNDIFFERENTIATED
- COAL - BRIGHT
- COAL - BRIGHT WITH DULL BANDS
- COAL - INTERBANDED DULL AND BRIGHT
- COAL - MAINLY DULL FREQ. BRIGHT BANDS
- COAL - DULL WITH MINOR BRIGHT BANDS
- COAL - DULL
- COAL - WEATHERED
- COAL - CINDERED
- COAL - STONY
- NOT CORED/CORE LOSS
- SANDSTONE
- MUDSTONE
- CARBONACEOUS MUDSTONE
- TONSTEIN



VERTICAL SCALE

1:20

0.4 0.2 0.0 0.2 0.4 0.6 0.8 1.0



METRES

Author: Coal Division	Date: November 1982	Fig. 9
Report No: CEPR 32/82	Drawing No: 2814	

649047

047

5. BASIC COAL QUALITY

5.1 General

The discussion of coal quality in this report examines the basic float/sink tests and presents the proximate analysis data. Core loss was a significant factor in many of the seams sampled, (Appendix 1) and the evaluation of the analytical results bear a corresponding degree of confidence.

Coal quality data is derived from two exploration programmes that exhibit different philosophies of sampling and analysis. All analyses discussed in this report were determined on whole samples of NQ wireline triple tube core (nominal 45 mm diameter). All the coal seams consist of predominantly dull coal with varying proportions of dirt bands.

5.2 Sampling and Analytical Regime

5.2.1 1981 Programme

This programme was designed to complement the discovery of shallow coal at Harefield by providing an indication of raw and washed coal properties.

The coal seams were logged in detail in the field, correlated to petro-physical logs where available, photographed and sampled on a whole seam basis. This programme incorporates those analyses from drillholes GY 47, 80, 82, 84, 86, 90, 99, 100 and 102.

All samples were crushed to -25mm for float/sink testing at Relative Densities (RD) 1.60, 1.70 and 1.80. The mass yields, ash contents and apparent RD's were determined. The raw coal ash and apparent RD's were also determined. Further proximate and ultimate analysis was carried out on one sample from the E3 seam in GY 47. All analyses were conducted by ACIRL.

This exploration programme indicated that some of the seams were susceptible to rapid lateral and vertical facies changes, which affected the selection of the possible mining section, and that the coal analysis was similar to that of Mount Nicholas lower seams.

048

5.2.2 1982 Programme

Changes in the sampling procedure for the 1982 programme were directed towards detailed ply sampling, to give a greater range of selection of the preferred mining section; and towards a broader analytical regime (as outlined below) to provide a more accurate determination of the washed coal properties, in conjunction with the Mount Nicholas analytical programme.

The coal seams were logged in detail in the field, correlated on a ply by ply basis with reference to petrophysical logs where available, photographed, and sampled on a ply basis. Plies varied in thickness from 20 mm to 500 mm. Attempts to achieve a deposit wide ply consistency were only partially successful owing to variations in seam profiles and core loss. This programme incorporates all analyses from drillholes GY 107 to GY 172 (Appendix 6.3).

All samples were crushed to -5.6 mm by minimum fines technique. The plies were divided into appropriate fractions to determine sample mass, true RD, ash and proximate analysis for plies with an ash content less than 35%. Composite working sections, excluding roof and floor plies having an RD greater than 1.80, were reconstituted to determine float/sinks at RD's 1.40, 1.60, 1.70, 1.80 and 2.00. For the composite samples whose cumulative yield of float fraction nearest 20% ash was greater than 60%, the further analyses of true RD, proximate analysis, total sulphur and specific energy were determined. All analyses were conducted by Casco.

5.3 DE Seam

5.3.1 Raw Coal

In its raw state the DE coal showed a wide range of ash content (22.2 - 53.1%) reflecting a considerable variation in the porportion of dirt bands within the seam as well as a variation in the inherent ash of the coal itself (Table 4). The relationship between the relative density and the raw ash appears to be:

True RD = (0.01 x Ash) + 1.36 [Figure 15]

049

The overall high seam ash precludes the entire geological seam thickness from reserve considerations, thus a preferred mining section of a lower ash portion of the coal seam is reviewed for its thickness and raw ash variation in Enclosure 8.

5.3.2 Washability

Float sink plots for the DE coal seam are presented in Figure 10. The large spread of curves reflects the wide facies variation within the generally 'heavy dull' near density coal.

The cumulative yield for a 22.5% ash float varies from 17.5 - 100% with a 3.5 - 22.7% variation in yield for a 2.5% incremental ash. The separation efficiency varies from difficult to excessively difficult (visual comparison with Whitemore, 1979) about an RD of 1.70-1.80. The mudstone bands comprise about 10-25% of the coal seam sinks.

Table 4 presents a summary of the washability results for a potential product coal of 22.5% ash. These tabulations are further qualified by an incremental product of 2.5% ash (determined from variations of the washability curves) to facilitate a review of the coal resource potential at products between 20% and 25% ash.

Washability analysis of the preferred mining section within the upper section of the DE seam have not been undertaken. For the purpose of reserve calculations the relationship between yield and raw coal ash determined for the full seam (Figure 14) has been assumed to be valid for the preferred mining section.

5.3.3 Areal Ash Variation

The preferred mining section raw ash values are presented on Enclosure 8. The trends indicate a general increase in the south to south-east. Raw ash tends to increase with seam thickness, reflecting a general dependence of seam quality on the variation of included stone bands. A plot of the raw ash verses yield for ash at 22.5% (Figure 14) indicates that a raw ash of 32% will produce a laboratory yield of 70% float of product (22.5% ash). Because of the general lack of yield information within the Harefield reserve areas the 32% raw ash line has been plotted on Enclosure 8 and used in the delineation of seam reserves.

TABLE 4
SUMMARY OF RAW AND WASHED COAL PROPERTIES

DE SEAM

HOLE NO.	SAMPLE NO.	THICKNESS (m)	RAW COAL		PRODUCT COAL (22.5% ASH)			
			ASH %	RD*	YIELD %	RD OF SEPARATION	INCREMENTAL PRODUCT (±2.5% ASH)	
GY							INCREMENTAL YIELD	INCREMENTAL RD OF SEPARATION
47	47A02-4	1.87	36.9	1.62A	63.5	1.73	6.0	0.60
82	1-2	1.86	45.8	1.73A	27.6	1.60	9.0	0.05
84	1-2	1.51	51.6	1.78A	0	-	-	-
86	1-2	1.77	50.3	1.86A	0	-	-	-
90	1-2	1.70	53.1	1.80A	17.5	1.60	3.5	0.04
107	3-7	0.84	32.4	1.66T	76.5	1.76	14.5	0.15
114	5-13	1.43	44.6	1.78T	40.0	1.65	9.75	0.05
113	2-3	0.49	22.2	1.57T	100	(>1.98)	3.5	0.09
134	1-3	0.88	31.4	1.66T	76.5	1.73	16.0	0.11
140	1-3	0.60	34.0	1.68T	71.5	1.70	10.75	0.10
144	1-6	1.04	42.1	1.74T	39.5	1.72	7.25	0.06
154	1-5	1.18	33.4	1.64T	67.5	1.72	10.25	0.06
170	1-3	0.99	35.2	1.68T	70.5	1.74	22.75	0.10

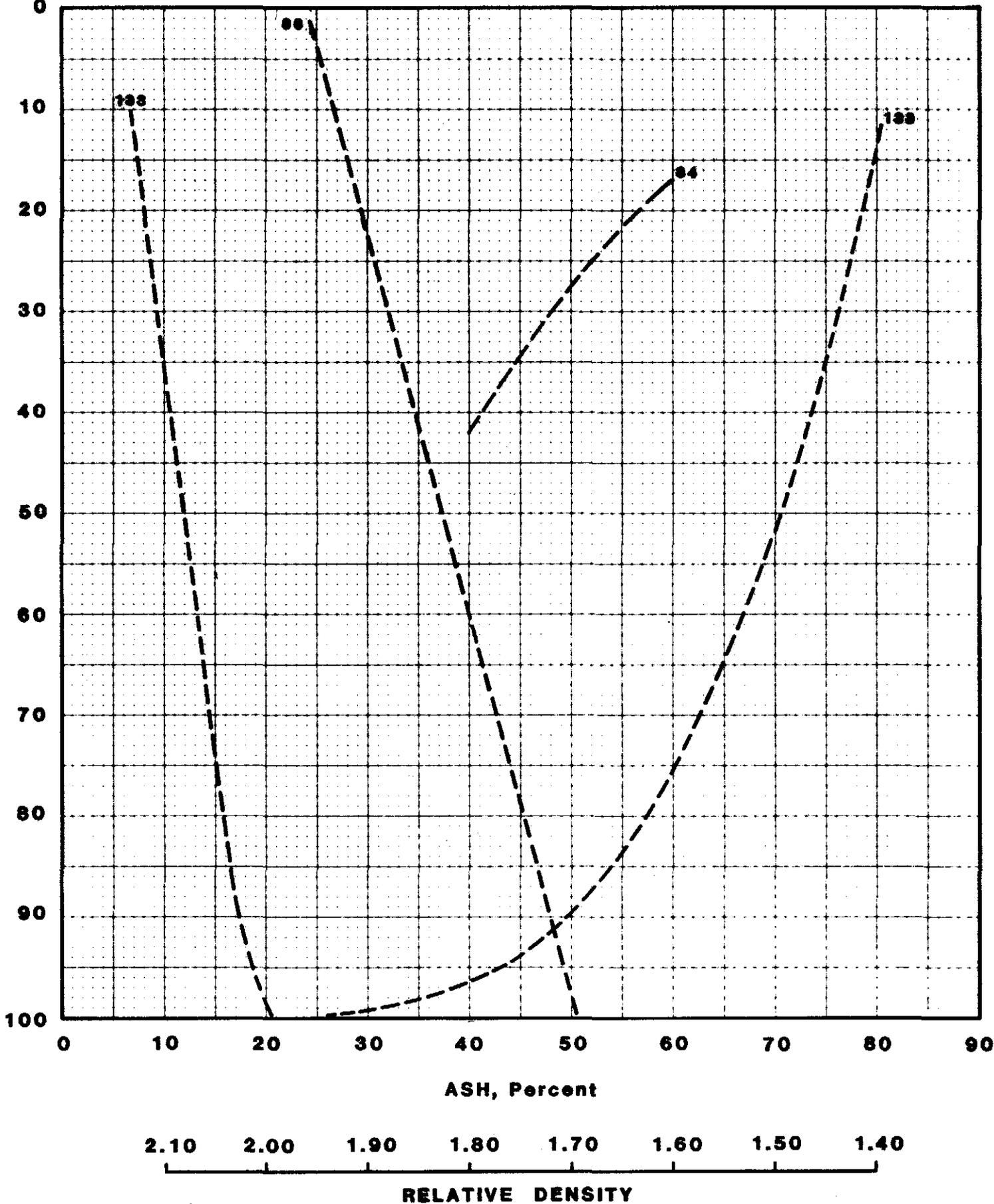
*A = Apparent

T = True

FLOAT/SINK CURVES DE SEAM

649052

051
0



LEGEND

- Indicated reserves, coal seam recovery > 95%
- Indicated reserves, coal seam recovery < 95%
- - - - Range of float/sink curves throughout Harefield
- 133 Drillhole number

Author: Coal Division	Date: November 1982
Report No: CEPR 32/82	Drawing No: 2815

Fig. 10

052

TABLE 5

PROXIMATE ANALYSIS OF CUMULATIVE FLOAT FRACTION

DE SEAM

HOLE NO. GY	SAMPLE NO.	THICKNESS (m)	CUMULATIVE FLOAT FRACTION	YIELD MASS	SAMPLE RD	PROXIMATE ANALYSIS (a.d.)				SPECIFIC ENERGY AIR DRIED MJ/KG	TOTAL SULPHUR AIR DRIED %
						MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %		
47	47A02-4	1.87	1.70	-	-	5.5	21.9	22.0	50.6	-	0.30*
82	1-2	1.86	1.70	44.8	-	-	27.9	-	-	-	-
84	1-2	1.51	1.70	28.5	-	-	28.7	-	-	-	-
86	1-2	1.77	1.70	32.8	-	-	32.9	-	-	-	-
90	1-2	1.70	1.70	26.1	-	-	27.7	-	-	-	-
107	3-7	0.84	1.70	69.2	1.54	5.5	21.4	23.7	49.4	22.86	0.29
114	5-13	1.43	1.70	47.6	-	-	24.6	-	-	-	-
133	2-3	0.49	1.80	96.1	1.49	5.2	19.8	24.4	50.6	23.76	0.36
134	1-3	0.88	1.70	72.4	-	-	22.0	-	-	-	-
140	1-3	0.60	1.70	71.3	-	-	22.7	-	-	-	-
144	1-6	1.04	1.70	36.8	-	-	22.0	-	-	-	-
154	1-5	1.18	1.70	59.4	-	-	20.9	-	-	-	-
170	1-3	0.99	1.70	63.4	-	-	26.0	-	-	-	-

* As received.

5.3.4 Proximate Analysis

Proximate analysis has been conducted on the float fractions of three of the 13 seam samples (Table 5). Inherent moisture varied from 5.2 - 5.5%. The volatile matter was calculated to be 31.8% on a dry ash free basis.

Specific energy analysis was conducted on two samples which recorded 22.86 and 23.76 MJ/kg on an air dried basis (a.d.). Total sulphur analysis was conducted on three samples and varied from 0.29 - 0.36%.

5.4 E2 Seam

5.4.1 Raw Coal

In its raw state the E2 seam showed a moderate range of ash content (17.8 - 30.0%) reflecting the variation in the proportion of the dirt bands and the transitional roof and floor boundaries (Table 6). Two samples are excluded from this range due to poor sample control with respect to the preferred mining section, GY 80 included a large argillaceous rich basal ply, and GY 90 had significant core loss in the coal. The relationship between the relative density and the raw ash (Section 5.7) appears to be:

$$\text{True RD} = (0.01 \times \text{Ash}) + 1.32 \quad [\text{Figure 15}]$$

5.4.2 Washability

Float sink plots for the E2 coal seam are presented in Figure 11. The separation efficiency varies from very easy to difficult about an RD of 1.60 - 1.70, with the prominent mudstone marker band comprising a significant proportion (5 - 20%) of the seam sinks. The cumulative yield for a 22.5% ash float varies from 85 - 100%, with a 5 - 11.5% variation in yield for a 2.5% incremental ash.

054

TABLE 6
SUMMARY OF RAW AND WASHED COAL PROPERTIES

E2 SEAM

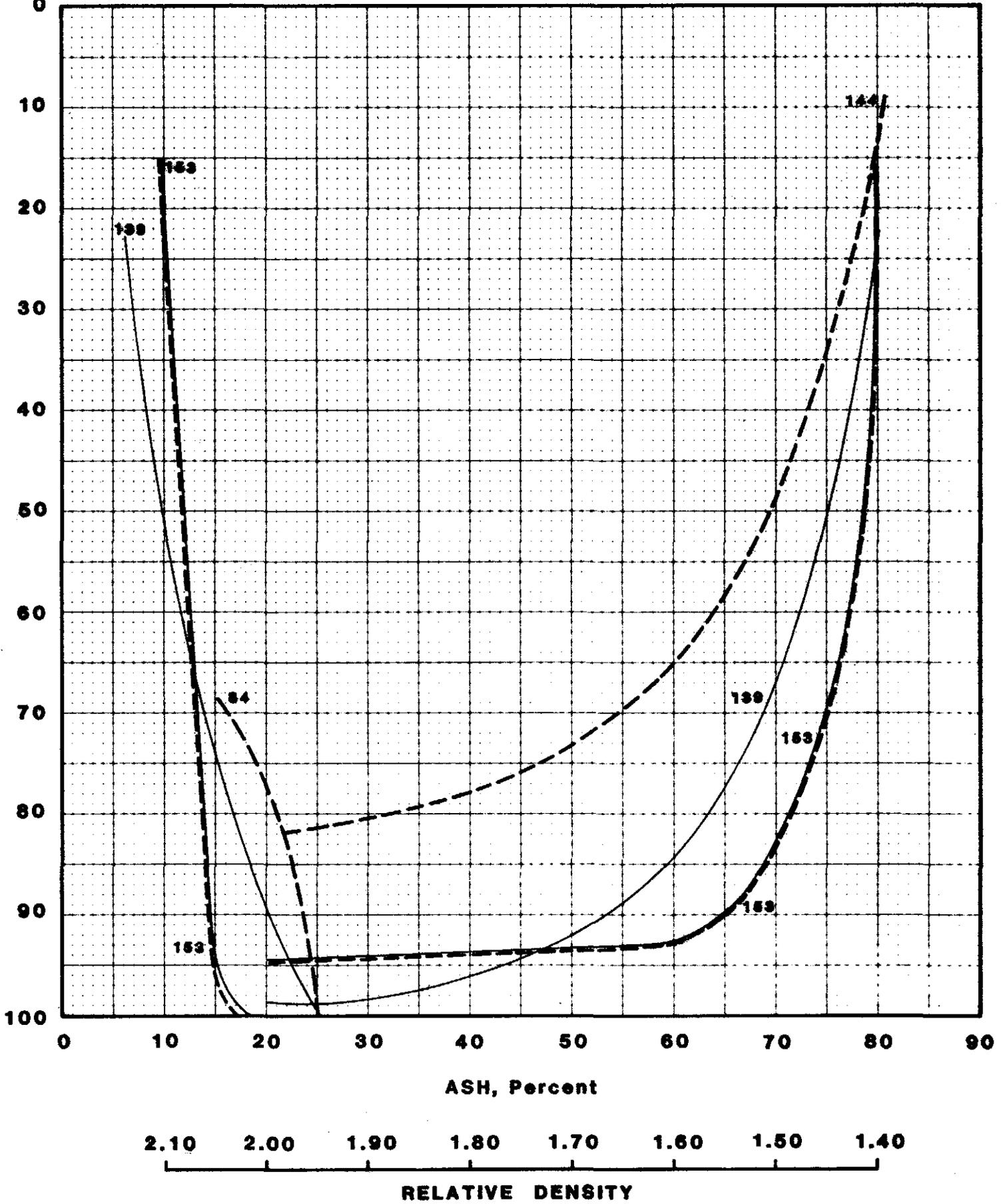
HOLE NO.	SAMPLE NO.	THICKNESS (m)	RAW COAL		PRODUCT COAL (22.5% ASH)			
			ASH %	RD*	YIELD %	RD OF SEPARATION	INCREMENTAL PRODUCT (±2.5% ASH)	
GY							INCREMENTAL YIELD	INCREMENTAL RD OF SEPARATION
80	1	0.71	47.8	1.79A	(5)	(>1.40)	3.25	0.08
84	3	0.76	24.1	1.47A	85	(1.84)	11.5	0.20
90	3	0.69	36.8	1.67A	62	1.68	8.0	0.08
126	21-25	0.81	26.6	1.58T	93.5	1.93	5.25	0.16
134	23-26	0.56	29.3	1.59T	94.5	(>2.10)	5.0	0
139	22-24	0.67	18.3	1.50T	100	(>2.10)	-	-
140	22-25	0.75	20.4	1.52T	100	(>2.10)	-	-
144	23-25	0.54	31.4	1.63T	90.0	(>2.10)	6.5	0.05
153	41-42	0.43	19.3	1.50T	100	(>2.10)	-	-

*A - Apparent
T - True

FLOAT/SINK CURVES E2 SEAM

649056

055



LEGEND

- Indicated reserves, coal seam recovery > 95%
- Indicated reserves, coal seam recovery < 95%
- — — Range of float/sink curves throughout Harefield
- 144 Drillhole number

5 cm

Author : Coal Division	Date : November 1982
Report No: CEPR 32/82	Drawing No: 2816

Fig. 11

TABLE 7

PROXIMATE ANALYSIS OF CUMULATIVE FLOAT FRACTION

E2 SEAM

HOLE NO. GY	SAMPLE NO.	THICKNESS (m)	CUMULATIVE FLOAT FRACTION	YIELD MASS	SAMPLE RD	PROXIMATE ANALYSIS (a.d.)				SPECIFIC ENERGY AIR DRIED MJ/KG	TOTAL SULPHUR AIR DRIED %
						MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %		
80	1	0.71	1.70	17.2	-	-	30.2	-	-	-	-
84	3	0.76	1.70	68.5	-	-	19.9	-	-	-	-
90	3	0.69	1.70	63.5	-	-	23.0	-	-	-	-
126	21-25	0.81	1.80	88.5	1.51	5.0	20.7	25.7	48.6	23.90	0.44
134	23-26	0.56	2.00	82.5	1.49	6.9	17.8	25.8	49.5	23.90	0.41
139	22-24	0.67	2.00	98.4	1.47	7.0	17.6	28.5	46.9	22.92	0.36
140	22-25	0.75	2.00	93.1	1.47	5.8	15.9	26.0	52.3	24.72	0.36
144	23-25	0.54	2.00	82.0	1.51	6.3	19.9	25.7	48.1	22.76	0.33
153	41-42	0.43	2.00	95.1	1.45	4.8	15.1	27.2	52.9	25.90	0.39

057

5.4.3 Areal Yield Variation

The yield values for a 22.5% ash product are presented on Enclosure 9. The iso yield lines trend north-west and south-east, with yield diminishing in the south-west and north-east, where the seam grades to a high ash coal and a carbonaceous mudstone.

5.4.4 Proximate Analysis

Proximate analysis has been conducted on the float fractions of 6 of the 9 seam samples (Table 7). The inherent moisture varied from 4.8 - 7.0% with a mean of 6.0%. The volatile matter was calculated to be 39.0% on a dry ash free basis.

Specific energy analysis varied from 22.76 - 25.90 MJ/kg with a mean of 24.0 MJ/kg a.d. Total sulphur varied from 0.33 - 0.44% with a mean of 0.38%.

5.5 E3 Seam

5.5.1 Raw Coal

In its raw state the E3 coal seam showed a wide range of ash content (19.0 - 38.9%) reflecting the facies variation of the coal seam in the north-east of the area, and the variable core recovery (Table 8). The relationship between the relative density and the raw ash appears to be:

$$\text{True RD} = (0.01 \times \text{Ash}) + 1.30 \quad \text{[Figure 15]}$$

5.5.2 Washability

Float sink plots for the E3 coal seam are presented in Figure 12. The cumulative yield for a 22.5% ash float varies from 47 - 100% with up to 13.7% variation in yield for a 2.5% incremental ash. One sample, GY 147, has a yield of 26% due to a local extreme facies variation. The separation efficiency varies from easy to very difficult about an RD of 1.60. Mudstone and tonstein marker bands generally comprise 5 - 15% of the coal seam as a sink fraction.

TABLE 8
SUMMARY OF RAW AND WASHED COAL PROPERTIES

E3 SEAM

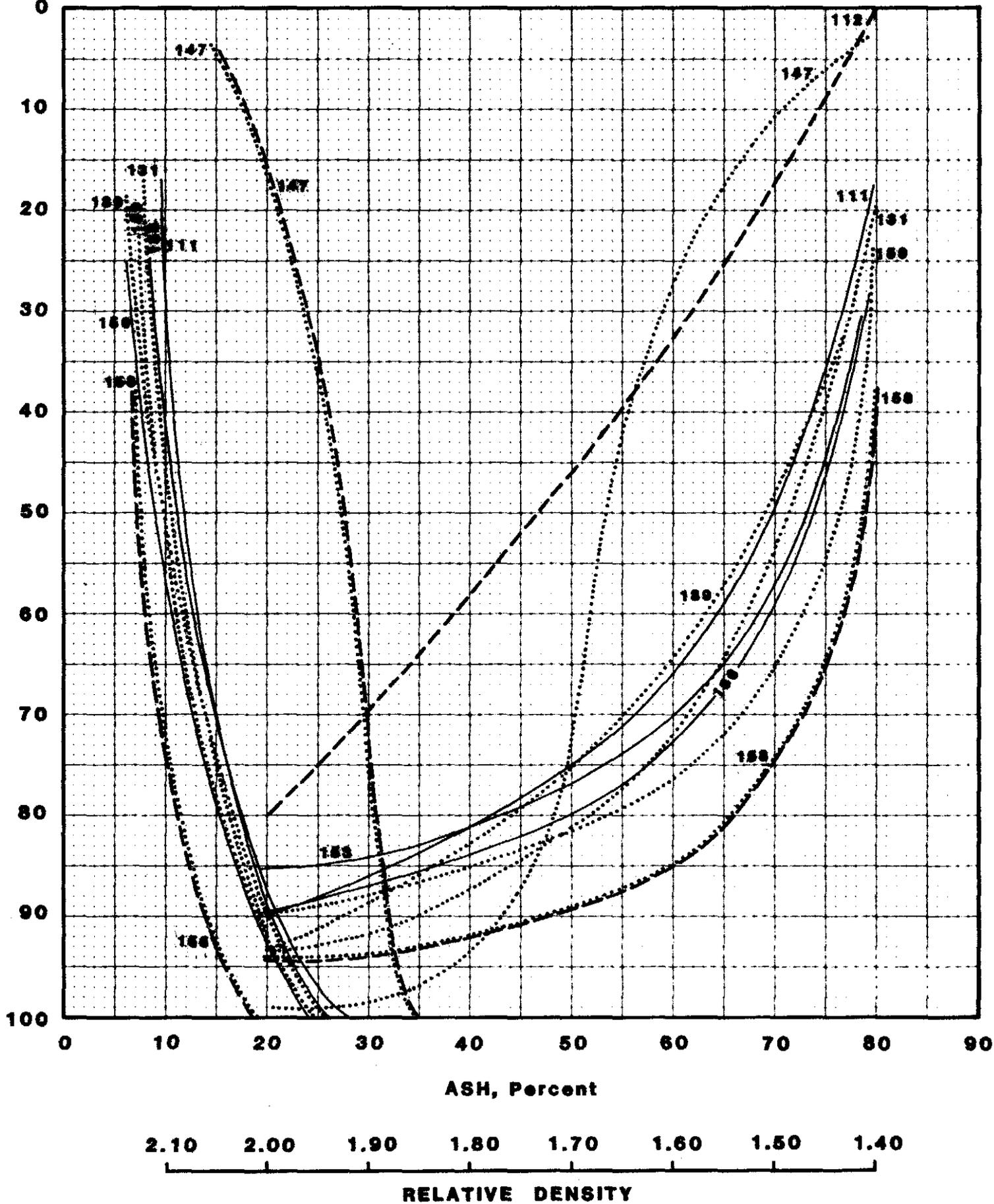
HOLE NO.	SAMPLE NO.	THICKNESS (m)	RAW COAL		PRODUCT COAL (22.5% ASH)			
			ASH %	RD*	YIELD %	RD OF SEPARATION	INCREMENTAL PRODUCT (±2.5% ASH)	
GY							INCREMENTAL YIELD	INCREMENTAL RD OF SEPARATION
47	47A05	0.85	31.1	1.6A	80.0	1.76	7.25	0.12
80	4	1.00	23.3	1.43A	98.5	(>2.10)	3.0	0
90	4	0.93	23.2	1.47A	98.5	(>2.10)	2.75	0
102	1	0.44	36.1	1.64A	0	(>1.6)	0	0
107	61-66	1.11	34.3	1.68T	73.0	1.77	7.75	0.06
110	61-66	0.79	35.5	1.69T	67.0	1.72	11.75	0.08
111	21-23	0.73	26.8	1.59T	95.0	(>2.10)	5.4	0.07
112	62-68	1.05	38.9	1.73T	47.0	1.70	9.25	0.04
114	61-68	1.11	31.6	1.63T	82.0	1.74	7.5	0.22
125	61-67	1.04	38.4	1.70T	72.5	1.88	7.35	0.20
126	61-67	1.06	28.8	1.60T	88.0	1.80	7.00	0.17
129	61-65	0.96	26.4	1.59T	92.5	1.88	7.5	0.19
131	61-66	0.85	25.4	1.58T	97.5	(>2.10)	4.0	0.09
133	61-67	0.98	28.7	1.60T	90.0	1.88	7.0	0.18
134	61-68	0.98	26.1	1.57T	94.5	1.98	6.75	0.18
139	61-67	1.16	25.8	1.58T	95.0	(>2.00)	5.5	0.09
140	61-66	1.07	23.6	1.55T	100.0	(>2.10)	5.0	0
144	62-69	1.00	21.8	1.52T	100.0	(>2.10)	2.0	0
145	61-67	0.66	35.2	1.68T	77.0	1.86	7.0	0.2
147	61-64	0.44	36.1	1.70T	26.0	1.59	10.0	0.05
148	21-25	0.40	30.7	1.62T	75.0	1.66	12.5	0.11
149	63-64	0.45	30.8	1.61T	77.5	1.71	13.75	0.11
153	61-68	1.28	26.2	1.59T	93.0	(>2.10)	5.0	0
154	61-66	1.24	22.2	1.55T	100.0	(>2.10)	2.5	0
156	61-67	1.18	25.1	1.56T	97.5	(>2.10)	4.0	0
158	61-64	1.11	19.0	1.52T	100	-	0	-
159	61-66	1.28	26.3	1.58T	97.5	(>2.10)	3.75	0
160	62-67	1.30	22.9	1.55T	100.0	-	2.0	2.10
165	61-66	1.14	25.2	1.54T	98.0	(>2.10)	2.0	0
169	61-67	1.24	25.9	1.57T	95.5	(>2.10)	4.25	0.05
170	61-67	0.92	27.5	1.60T	92.0	1.96	6.75	0.15
171	61-67	1.23	27.7	1.60T	92.0	(>2.10)	5.5	0.05
172	61-67	1.23	22.9	1.54T	99.5	(>2.10)	2.0	0

* A - Apparent
T - True

FLOAT/SINK CURVES E3 SEAM

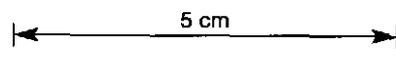
649060

059



LEGEND

- Indicated reserves, coal seam recovery > 95%
- Indicated reserves, coal seam recovery < 95%
- - - Range of float/sink curves throughout Harefield
- 131 Drillhole number



Author : Coal Division	Date : November 1982	Fig. 12
Report No: CEPR 32/82	Drawing No: 2817	

TABLE 9

PROXIMATE ANALYSIS OF CUMULATIVE FLOAT FRACTION

E3 SEAM

HOLE NO. GY	SAMPLE NO.	THICKNESS (m)	CUMULATIVE FLOAT FRACTION	YIELD MASS	SAMPLE RD	PROXIMATE ANALYSIS (a.d.)				SPECIFIC ENERGY AIR DRIED MJ/KG	TOTAL SULPHUR AIR DRIED %
						MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %		
47	47A05	0.85	1.70	75.7	-	-	21.2	-	-	-	-
80	4	1.00	1.70	88.4	-	-	17.1	-	-	-	-
90	4	0.93	1.70	88.5	-	-	17.2	-	-	-	-
102	1	1.44	1.70	75.2	-	-	29.3	-	-	-	-
107	61-66	1.11	1.70	-	1.49	5.5	19.5	24.9	50.1	23.14	0.27
110	61-66	0.79	1.70	64.1	1.53	6.5	22.0	23.1	48.4	22.34	0.35
111	21-23	0.73	2.00	89.8	1.53	6.3	20.7	24.7	48.3	22.16	0.35
112	62-68	1.05	1.70	48.1	-	-	22.7	-	-	-	-
114	61-68	1.11	1.70	79.2	1.52	5.5	22.2	24.9	47.9	22.92	0.35
125	61-67	1.04	1.70	64.3	1.49	5.5	20.2	24.9	49.6	23.68	0.38
126	61-67	1.06	1.80	82.5	1.50	4.5	20.2	25.9	49.4	24.00	0.45
129	61-65	0.96	1.70	81.0	1.52	6.3	19.7	24.9	49.1	23.72	0.30
131	61-66	0.85	2.00	93.5	1.52	4.3	20.6	25.8	49.3	24.12	0.40
133	51-67	0.98	1.70	78.9	1.48	6.1	19.1	27.7	47.1	24.10	0.49
134	61-68	0.98	1.80	86.5	1.50	6.3	19.5	27.6	46.6	23.60	0.48
139	61-67	1.16	1.80	82.5	1.47	6.0	17.5	27.9	48.6	23.96	0.42
140	61-66	1.07	2.00	93.1	1.48	5.3	19.1	27.9	47.7	24.08	0.48
144	62-69	1.00	2.00	93.8	1.49	5.0	18.0	28.5	48.4	24.32	0.40
145	61-67	0.66	1.70	68.6	1.52	6.0	20.0	24.8	49.2	23.74	0.39
147	61-64	0.44	1.70	73.2	-	-	29.7	-	-	-	-
148	21-25	0.40	1.60	65.4	1.51	5.6	20.7	25.6	48.1	23.58	0.40
149	63-64	0.46	1.70	75.6	1.53	5.5	22.5	23.7	48.3	24.12	0.34
153	61-68	1.28	2.00	85.7	1.52	5.4	19.6	28.6	46.4	23.82	0.46
154	61-66	1.24	2.00	95.7	1.50	5.5	18.9	28.3	47.3	23.76	0.40
156	61-67	1.18	2.00	89.2	1.52	6.2	18.8	26.3	48.7	24.00	0.44
158	61-64	1.11	2.00	93.9	1.44	5.5	14.4	27.9	57.2	25.80	0.34
159	61-66	1.28	2.00	89.4	1.50	6.0	19.3	26.4	48.3	24.08	0.40
160	62-67	1.30	2.00	93.2	1.48	4.4	17.8	29.9	47.9	24.28	0.45
165	61-66	1.14	2.00	91.5	1.50	4.9	19.3	27.8	48.0	24.38	0.39
169	61-67	1.24	2.00	90.8	1.53	5.3	20.7	27.3	46.7	23.74	0.19
170	61-67	0.92	1.80	83.0	1.52	4.0	20.2	26.4	49.4	23.66	0.39
171	61-67	1.23	2.00	86.6	1.52	4.4	20.1	27.6	47.9	24.14	0.18
172	61-67	1.23	2.00	91.8	1.47	5.3	17.9	28.2	48.6	24.72	0.22

060

-53-

649061

061

5.5.3 Areal Yield Variation

The yield values for a 22.5% ash float are presented on Enclosure 10. The iso yield lines have a broad south-east to north-west trend indicating a general consistency of coal quality over most of the area, except in the north-east where yield trends become erratic, reflecting facies changes in that region. A large area of 100% yield occurs in the south-west portion of the reserves.

5.5.4 Proximate Analysis

Proximate analysis has been conducted on the float fraction of 27 of the 33 seam samples. The inherent moisture varied from 4.0 - 6.5% with a mean of 5.4%. The volatile matter was calculated to be 35.5% on a dry ash free basis (see Table 9).

The specific energy varied from 22.16 - 25.80 MJ/kg with a mean of 23.85 MJ/kg a.d. Total sulphur varied from 0.18 - 0.49% with a mean of 0.37%.

5.6 DF Seam

5.6.1 Raw Coal

In its raw state the DF seam showed a wide range of ash content (29.6 - 42.1%) reflecting a variation in the proportion of dirt bands, and disseminated mud pellets and inherent ash. Higher ash values and corresponding coal washed properties are found in GY 47 but may not be representative due to significant coal core loss (Table 10). The relative density similarly varies from 1.64 to 1.72. The relationship between relative density and raw ash appears to be:

$$\text{True RD} = (0.01 \times \text{Ash}) + 1.41 \quad [\text{Figure 15}]$$

649063

TABLE 10
SUMMARY OF RAW AND WASHED COAL PROPERTIES

E3 SEAM

HOLE NO.	SAMPLE NO.	THICKNESS (m)	RAW COAL		PRODUCT COAL (22.5% ASH)			
			ASH %	RD*	YIELD %	RD OF SEPARATION	INCREMENTAL PRODUCT (±2.5% ASH)	
GY							INCREMENTAL YIELD	INCREMENTAL RD OF SEPARATION
47	47A05	1.12	43.9	1.82A	27.7	1.60	10.5	0.14
102	2	0.55	42.1	1.72A	42.5	1.60	15.8	0.09
110	82-86	1.01	31.9	1.68T	74.5	1.70	14.0	0.20
111	62-67	1.25	29.6	1.64T	80.0	1.70	8.25	0.15
112	81-83	0.40	37.9	1.72T	61.2	1.70	10.1	0.05
115	2-4	0.79	32.4	1.66T	76.5	1.77	10.3	0.09
145	81-84	0.71	32.0	1.65T	71.5	1.61	12.0	0.08
147	81-85	1.20	30.9	1.66T	81.5	1.80	7.25	0.19
148	62-66	1.02	43.3	1.75T	56.5	1.76	6.5	0.09

* A = Apparent

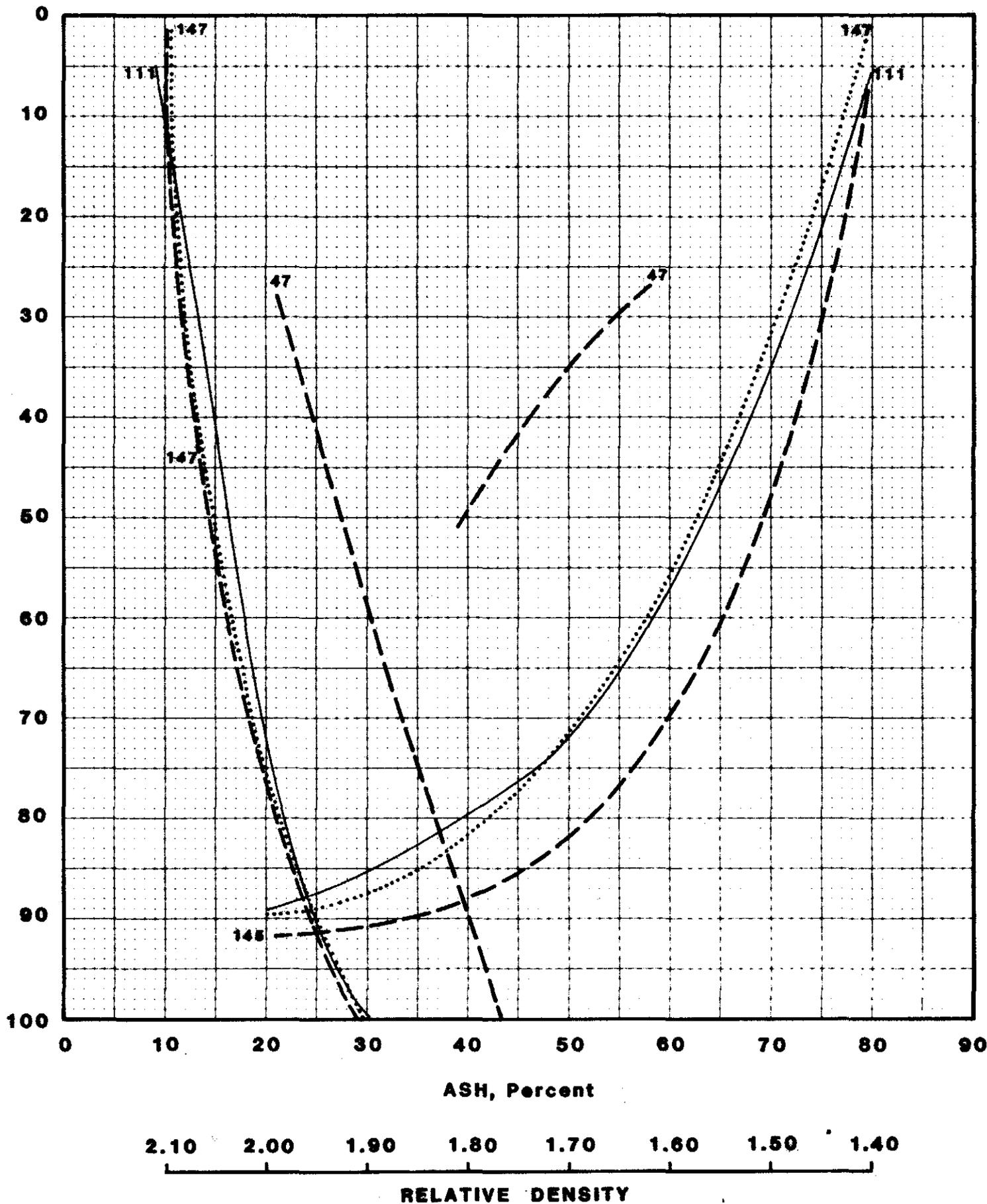
T = True

FLOAT/SINK CURVES DF SEAM

649064

063

CUMULATIVE YIELD



LEGEND

- Indicated reserves, coal seam recovery > 95%
- Indicated reserves, coal seam recovery < 95%
- - - Range of float/sink curves throughout Harefield
- III Drillhole number

5 cm

Author: Coal Division	Date: November 1982	Fig. 13
Report No. CEPR 32/82	Drawing No. 2818	

TABLE 11

PROXIMATE ANALYSIS OF CUMULATIVE FLOAT FRACTION

DF SEAM

HOLE NO. GY	SAMPLE NO.	THICKNESS (m)	CUMULATIVE FLOAT FRACTION	YIELD MASS	SAMPLE RD	PROXIMATE ANALYSIS (a. d.)				SPECIFIC ENERGY AIR DRIED MJ/KG	TOTAL SULPHUR AIR DRIED %
						MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %		
47	47A05	1.12	1.70	36.8	-	-	25.0	-	-	-	-
102	2	0.55	1.70	57.6	-	-	26.3	-	-	-	-
110	82-86	1.01	1.70	74.2	1.54	5.5	22.8	21.5	50.2	21.92	0.25
111	62-67	1.25	1.70	72.4	1.52	5.3	20.2	22.2	52.3	23.14	0.30
112	81-83	0.40	1.70	61.3	-	-	22.4	-	-	-	-
115	2-4	0.79	1.70	64.5	1.48	5.2	19.7	23.4	51.7	23.22	0.22
145	81-84	0.71	1.70	82.3	-	-	25.1	-	-	-	-
147	81-85	1.20	1.70	74.3	1.51	5.3	21.0	20.6	53.1	22.60	0.24
148	62-66	1.20	1.70	50.3	-	-	20.5	-	-	-	-

063

5.6.2 Washability

Float sink plots for the DF coal seam are presented in Figure 13. The separation efficiency is excessively difficult about an RD of 1.70, with mudstone bands comprising about 10-15% of the seam as sinks. The cumulative yield for a 22.5% ash float varies from 56.5 - 81.5% with a 6.5 -15.8% variation in yield for a 2.5% incremental ash.

5.6.3 Areal Yield Variation

The yield values for a 22.5% ash float are presented on Enclosure 10. The iso yield contours have a general east-west orientation with yields diminishing to the north and south, reflecting coal facies variations to highly banded and stony coal, and carbonaceous mudstone in these areas.

5.6.4 Proximate Analysis

Proximate analysis has been conducted on the float fraction of 4 of the 9 seam samples. The inherent moisture varied from 5.2 - 5.5% with a mean of 5.3%. The volatile matter was calculated to be 29.7% on a dry ash free basis. (See Table 11.)

The specific energy varied from 21.92 - 23.22 MJ/kg with a mean of 22.72 MJ/kg a.d. Total sulphur varied from 0.22 - 0.30% with a mean of 0.25%.

5.7 Coal Ash Derivative Parameters

Within the Indicated reserve areas at Harefield there are 9 cored holes from which 12 seam intervals have been composited for seam analyses. Six of the seam intervals have full seam core recoveries greater than 95%. Subsequently the delineation of reserves is based on the geological and analytical trends indicated by all the drillholes of the Harefield area. Similarly a review of the coal ash parameters is based on seam analysis data from all drillholes.

Figure 14 shows the relationship between raw coal ash and laboratory float yield for 22.5% ash float. The reserve criteria of 70% laboratory yield (for 22.5% ash) is related to the raw ash of each seam. In the DE seam a 32% raw ash coal quality criteria was used to delineate the indicated reserves (Enclosure 8). This relationship is somewhat lower than other Harefield seams and may indicate that the DE seam may have less inherent ash within the coal plies.

Figure 15 shows the relationship between raw coal ash (proximate analyses) and RD. Both true and apparent RD's are plotted as points for each seam. The relationship between true RD and raw coal ash for each seam, and the combined Harefield seams, are similar to that of Mount Nicholas.

DE Seam	True RD = (0.01 x Raw Ash) + 1.36
E2 Seam	True RD = (0.01 x Raw Ash) + 1.32
E3 Seam	True RD = (0.01 x Raw Ash) + 1.30
DF Seam	True RD = (0.01 x Raw Ash) + 1.41
Combined Seams	True RD = (0.01 x Raw Ash) + 1.33
Mount Nicholas	True RD = (0.01 x Raw Ash) + 1.30

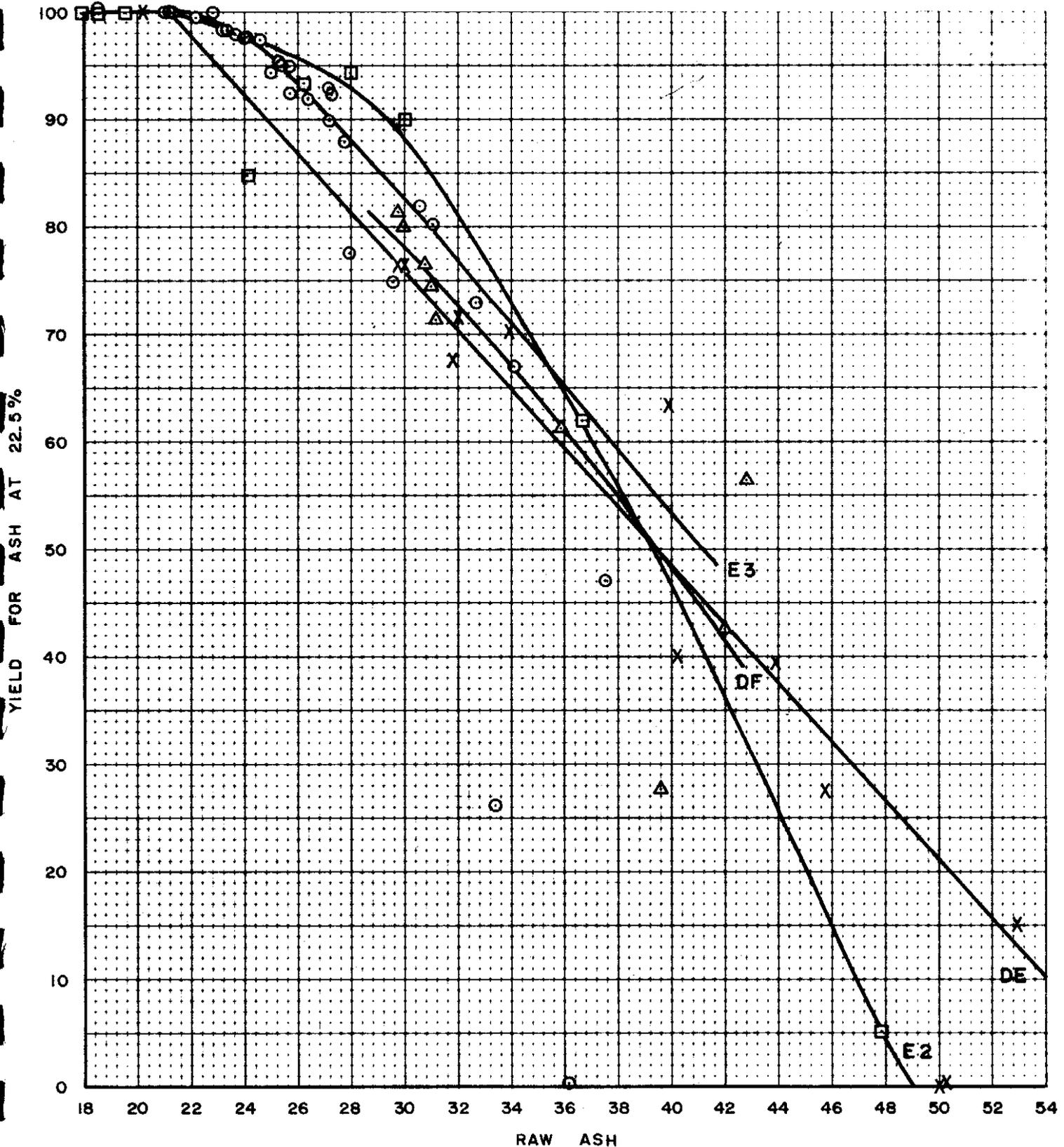
Figure 16 shows the relationship between specific energy (SE) and washed coal ash on a proximate and dry basis. The relationship between SE and washed coal ash on a dry basis is similar to that of Mount Nicholas.

Harefield SE	= 30.36 - 0.34 (Ash + Moisture)
Mount Nicholas SE	= 31.49 - 0.33 (Ash + Moisture)

067

RAW ASH vs. YIELD FOR 22.5% ASH

649068

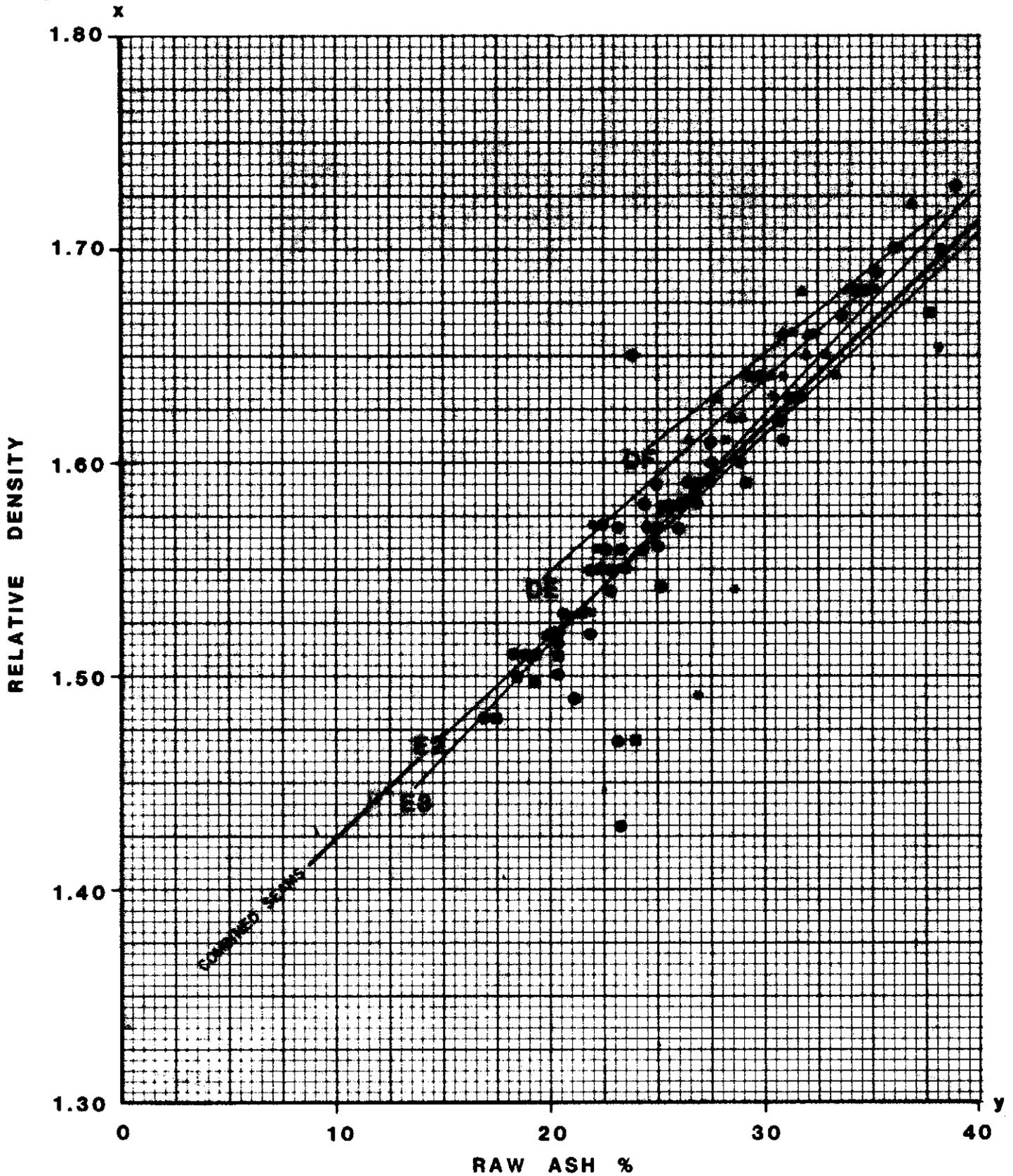


- DE SEAM X 70% Yield cut off at 32.0% Raw Ash
- E2 SEAM □ 70% Yield cut off at 34.6% Raw Ash
- E3 SEAM ○ 70% Yield cut off at 34.4% Raw Ash
- DF SEAM △ 70% Yield cut off at 33.0% Raw Ash

068

RAW ASH vs. RELATIVE DENSITY

649069

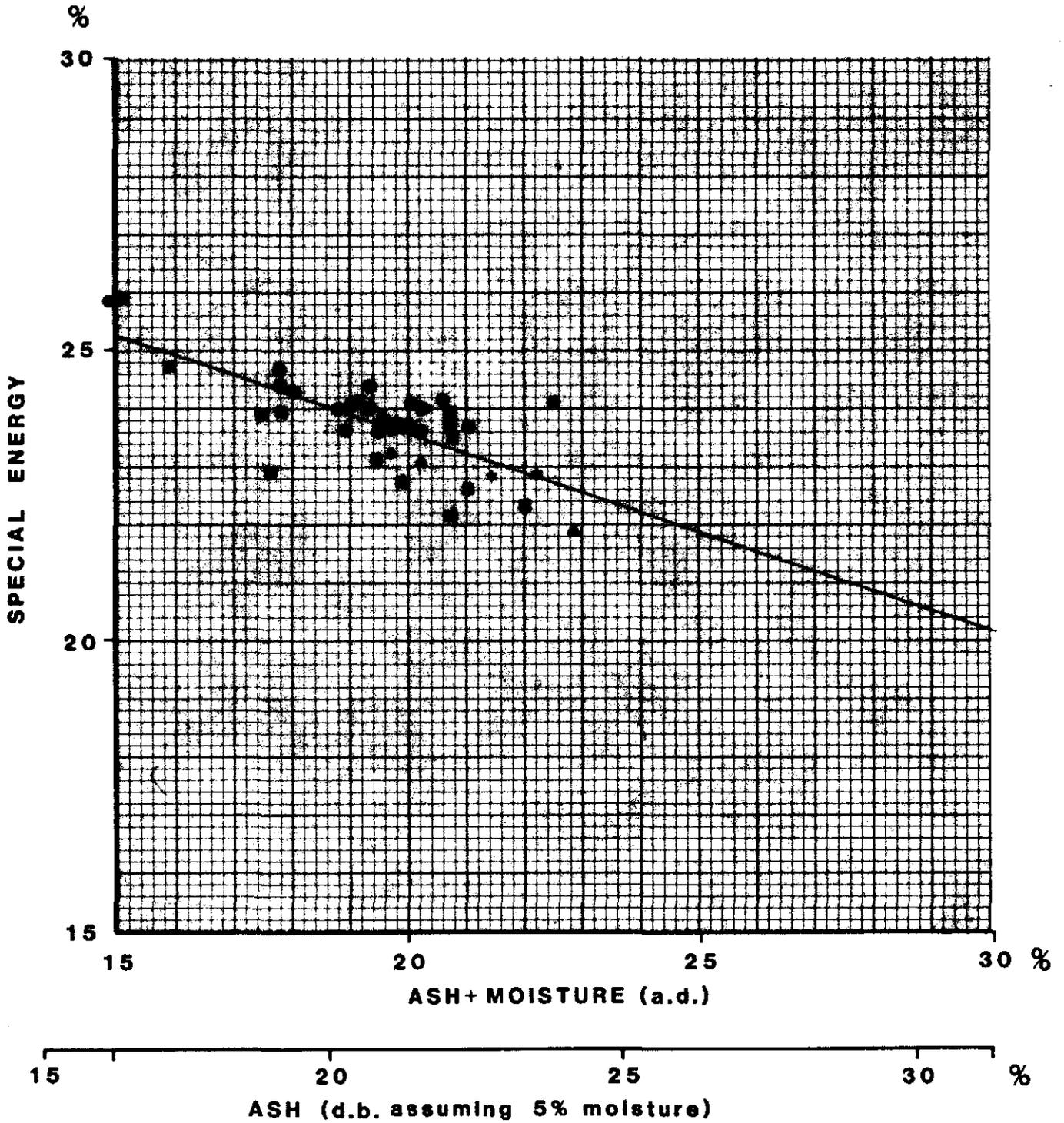


*	DE SEAM	TRUE RD	(0.01 x RAW ASH) + 1.364	FOR 8 SAMPLES	WITH 0.98	COEFF OF FIT
■	E2 SEAM	" "	(0.01 x " ") + 1.321	" 6	" "	0.99 " " "
●	E3 SEAM	" "	(0.01 x " ") + 1.302	" 27	" "	0.97 " " "
▲	DF SEAM	" "	(0.01 x " ") + 1.407	" 7	" "	0.96 " " "
	COMBINED SEAMS	" "	(0.01 x " ") + 1.329	" 50	" "	0.73 " " "

069

WASHED COAL ASH vs. SPECIFIC ENERGY

649070



SPECIFIC ENERGY = $30.364 - 0.34(\text{ASH} + \text{MOISTURE})$ COEFF. OF FIT (r) = 0.753 FOR 39 SAMPLES

5 cm

Author : Coal Division	Date : November 1982	Fig. 16
Report No: CEPR 32/82	Drawing No: 2821	

070

6. COAL RESERVES

6.1 General

The coal reserves of the Harefield area have been examined in the context of a supplementary reserve to the proposed Mount Nicholas operation.

The geological data provides structural control and consistency upon which reserve volumes, coal quality trends and mining constraints can be based. The coal reserves are accorded Indicated status under the criteria of Australian Standard 2519-1982; A1.2.2.

The Harefield coal reserve area is located between the first minor fault (Section 2.2.3), just west of the Harefield road, and the second minor fault lying just east of the Cullenswood private road. Enclosure 15 shows these areas. Within this area there are two coal deposits of Indicated reserves, "Lightwood" and "Break O'Day". The reserves are contained within four thin seams that occur at shallow depth over portions of four private properties.

6.2 Methodology and Criteria

The Indicated coal reserves are derived from geological and analytical data that has been manipulated with a variety of assessed mining and washplant criteria.

The analytical data provides coal quality trends and indications of washplant behaviour upon which reserve parameters and potential product specifications are based. Coal seams and constituent plies were sampled on correlatable intervals to assess consistency in coal quality trends. All samples were of NQ triple tube wireline core (nominal 45 mm diameter). Analyses from sampled core intersections with significant core loss (less than 95%) have not been discarded from the assessment, as the petrophysical logs have provided adequate lithological and analytical trends to facilitate the use of the available data. Within, and adjacent to, the reserve area there are 78 seam intersections, 55 seam samples and 347 analytical ply samples.

071

The geological structure, preferred mining section thickness and coal quality trends of each coal seam have been plotted on 1:10,000 scale maps (Enclosures 4-11). Depth maps to the top of the E2 and DF seams (Enclosures 12 and 13), and a combined coal reserve thickness map (Enclosure 14) have been constructed and plotted at 1:10,000 scale. Mining and coal quality criteria were then imposed on the in situ coal seams to delineate those reserves of suitable economic potential. The criteria used are:

- i) Coal reserves to be within the fault block bounded by the first and the second minor faults (see Section 2.2.3).
- ii) Seam thickness to be greater than 0.5 m.
- iii) Laboratory sample yield to be greater than 70% for a 22.5% ash content in the float fraction (interpreted from Fig 14 for DE seam).
- iv) Linear stripping ratio of 15:1 for combined Indicated reserve seam thickness.
- v) Total depth limit of 30 m to top of lowermost (E3 or DF) worked seams.
- vi) Potential pit sidewalls are to be linear and orientated down dip.

The reserves were subsequently delineated, and then divided into 28 blocks (Enclosure 15) on the basis of:

- i) Seam Reserve limits.
- ii) Depth ratio of 15:1 for the lowermost seam.
- iii) Proposed pit sidewalls where the reserves extend beyond the 15:1 depth ratio for the lowermost seam to encompass the depth ratio of 15:1 for combined seam thickness.
- iv) Property boundaries.

072

For each block the area was measured, and for each seam of reserve status within the block an assumed average thickness, yield and RD was estimated from the appropriate trend maps (Appendix 2). The reserves and washplant products were then computed for each reserve seam in each block (Appendix 2) in the following manner:

- i) Recoverable Reserves = In Situ reserves less wastage equivalent to 5 cm of coal thickness.
- ii) Dilution = A consistent 10 cm of overburden with an assumed RD of 2.40 and Raw Ash of 85%.
- iii) Run of Mine = Recoverable Reserves plus Dilution.
- v) Coarse Washed Product = 90% of Recoverable Reserves x Laboratory yield x a factor of 95% for washplant efficiency.
- vi) Fines = 5% of Run of Mine.
- vii) Slimes = 5% of Run of Mine.
- viii) Coarse Reject = 90% of Run of Mine less Coarse Washed Product.
- ix) Product = Coarse Washed Product plus Fines.

Reserves and washplant products were then summed (Appendix 2) according to:

- i) Reserve location (Lightwood or Break O'Day).
- ii) Mine accessibility, Initial areas - that have a 15:1 depth ratio of lowermost seam, and Extended areas - that encompass a depth ratio of 15:1 for combined seam reserve thickness.
- iii) Property (Cullenswood, Harefield, Londavera, Brooklyn).
- iv) Seam (DE, E2, E3, DF).

6.3 Seam Reserves

Enclosure 14 shows the seam distributions of the Indicated Reserves. The DE seam occurs predominantly in the three extended areas of Lightwood. The E2 seam encompasses a portion of the initial area and the associated extended area of Lightwood near GY 139. The E3 seam occurs throughout Lightwood and in the extended area of Break O'Day. The DF seam occurs throughout the area of Break O'Day.

Table 12 and Appendix 2 present a summary of reserve totals. The total Indicated reserves of Harefield are 3.5 million tonnes (mt) In Situ, 3.8 mt Run of Mine for 2.75 mt of Product.

The DE seam contains 7% (0.2 mt) of the total Product.
The E2 seam contains 7% (0.2 mt) of the total Product.
The E3 seam contains 72% (1.95 mt) of the total Product.
The DF seam contains 14% (0.4 mt) of the total Product.

The largest single component of the reserves is contained in the E3 seam of the Lightwood area, that occupies 118.1 ha and has a weighted average seam thickness of 1.17 m, raw RD of 1.56, and laboratory yield of 96%. This portion of the reserves contains 2.4 mt of Run of Mine for 1.8 mt of product.

6.4 Property Distribution of Reserves

Table 12 and Enclosure 14 show the property distributions of the Indicated reserves. The Indicated reserves occupy 91.0 ha of the Cullenswood property and contain 2.1 mt of in situ reserves that may yield 1.7 mt of product. Much of the land is covered by light scrub and the property boundary with Harefield is formed by the Lightwood Rivulet.

The Indicated reserves occupy a 25.2 ha corner of the Harefield property and contain 0.6 mt of in situ reserves that may yield 0.5 mt of product. The land is cleared and has a fence adjoining the Londavera area.

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The Indicated reserves occupy 10.0 ha of the Londavera property and contain 0.16 mt of in situ reserves that may yield 0.11 mt of product. The reserves are distributed over two small areas of cleared land.

The Indicated reserves occupy 22.5 ha of the Brooklyn property and contain 0.6 mt of in situ reserves that may yield 0.4 mt of product. The reserves are roughly bisected by the Break O'Day River.

6.5 Reserve Summary

There are nine cored holes (6 seam samples of reserve status) within the Indicated reserve areas, and 23 holes (40 seam samples) adjacent to the reserve areas which indicate coal structure and quality trends.

In Situ reserve calculations are modified by assumed mining and washery characteristics to provide an indication of reserve products.

The Indicated reserves are located in two areas, the Break O'Day reserves occupy 30.6 ha and are expected to produce 0.8 mt Run of Mine for a product of 0.5 mt. The Lightwood reserves occupy 118.1 ha and are expected to produce 2.8 mt Run of Mine for a product of 2.2 mt. Thus the total product of the area is indicated to be 2.7 mt.

The reserves are contained within four thin seams. The largest seam component of the reserves is that of the E3 seam which contains an expected 1.8 mt of product in the Lightwood area. The reserves are distributed over four private properties. The Cullenswood property contains the largest proportion of the reserves (1.7 mt of product).

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TABLE 12
SUMMARY OF RESERVE TOTALS

SEAM	BLOCK NO.	AREA HECTRE	WEIGHTED AVERAGE			INSITU RESERVES X 1000 TON	RECOVERABLE RESERVES X1000 TON	DILUTION X 1000 TON	RUN OF MINE X 1000 TON	CAUSE WASHED PRODUCT X1000 TON	FINES (UNWASHED) X 1000 TON	SLIMES (UNWASHED) X 1000 TON	CAUSE REJECT X 1000 TON
			THICKNESS m	RAW R.D.	YIELD %								
SEAM RESERVES													
DE		30.1	0.63	1.62	78	310	286	44	330	190	16	16	106
E2		26.2	0.63	1.60	91	262	241	39	280	188	14	14	64
E3		135.6	1.12	1.57	95	2381	2270	200	2641	1843	124	124	382
DF		30.6	1.09	1.64	77	549	524	45	569	345	28	28	168
TOTAL						3500	3320	330	3820	2570	180	180	720
PROPERTY DISTRIBUTION													
CULENSWOOD		91.0				2082	1981	182	2167	1600	108	108	349
HAREFIELD		25.2				626	587	72	656	464	33	33	129
LONDAVERA		10.0				161	143	15	168	100	8	8	51
BROOKLYN		22.5				633	601	59	819	402	33	33	191

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7. OVERBURDEN VOLUMES

7.1 General

The overburden associated with the in situ coal reserves comprises the various superficial horizons, in situ Triassic sediments and the included coal seams of non reserve status (Section 3). No detailed studies have been conducted on the vertical and horizontal distribution of the various types of rocks within the Triassic sediments. Subsequently, the overburden volumes have been calculated as simple volumes of soil (all superficial deposits) and rock for each of the inferred coal reserve blocks.

7.2 Methodology and Criteria

All volumes were calculated with vertical block sides and no allowances have been made for pit batter angles. No allowances have been made for variation in topography (less than 5 m) other than shown on the accompanying topographic map (Enclosure 1).

The depth of soil and its dolerite alluvium content were recorded in all drillholes (Appendix 1) and plotted (Enclosure 3). The volume of soil for each inferred coal reserve block was calculated (Appendix 3).

Soil Volume = Area x Assumed Average Thickness of Soil.

The total overburden to the roof of the lowermost coal seam reserves includes all overlying material other than coal seams of reserve status. Interburden and upper seam overburden have not been calculated separately. The total overburden and rock overburden volumes for each inferred coal reserve block was calculated (Appendix 3):

Assumed Average Total Thickness = Average depth to roof of basal reserve seam (Enclosures 12 & 13) less the sum of intervening reserve coal seam thicknesses.

Total Overburden Volume = Area x Assumed Average Total Thickness.

Rock Overburden Volume = Total Overburden less Soil Volume.

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7.3 Overburden Distribution

Table 13 presents a summary of overburden distributions compiled from an assessment of the reserve block overburden volumes (Appendix 2). The total overburden volume is divided into soil and rock volumes, as these materials may be handled separately during the mining cycle. The overburden ratio of the in situ reserves and product reserve has been calculated on a reserve area by property basis, to provide a guide as to the viability of each reserve area and each property area.

The Break O'Day reserve area has a slightly lower (5.4 m³/t in situ) overburden ratio than the Lightwood reserve area (5.8 m³/t in situ). The lowest overburden ratio (1.8 m³/t in situ) occurs on the Londavera blocks of the Break O'Day reserves, while the highest ratio (5.9 m³/t in situ) occurs on the Cullenswood blocks of the Lightwood reserves.

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TABLE 13
OVERBURDEN DISTRIBUTION

	VOLUME			IN SITU RESERVES		PRODUCT RESERVES	
	SOIL x 1000m ³	ROCK x 1000m ³	TOTAL x 1000m ³	COAL x 1000 TONNE	OVERBURDEN RATIO m ³ /t	COAL x 1000 TONNE	OVERBURDEN RATIO m ³ /t
LIGHTWOOD AREA							
Cullenswood Block No's 1-12,16,17,21	4195.8	8038.5	12234.3	2082	5.9	1708	7.2
Harefield Block No's 13-15,18,20	864.8	2732.8	3597.4	626	5.7	497	7.2
Londavera Block No. 22	57	47.5	104.5	18.5	5.6	13.3	7.9
TOTAL	5117.6	10818.8	15936.4	2726.5	5.8	2218.3	7.2
BREAK O'DAY AREA							
Londavera Block No's 23, 25	236	28.5	264.5	143.1	1.8	95.1	2.8
Brooklyn Block No's 24, 26-28	760	1829.5	2589.5	633	4.1	435	6.0
TOTAL	996	1858	2854	776.1	3.7	530.1	5.4
GRAND TOTAL	6113.6	12676.8	18790.4	3502.6	5.4	2748.4	6.8

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8. CONCLUSIONS

This report completes the Commercial Evaluation Exploration Stage for the economically interesting portions of the Harefield deposit. The structure, coal seam distribution and coal quality variations are reasonably defined for the two small reserve areas which can be mined by conventional open cut mining methods. The location of these areas is close enough to the planned Mount Nicholas mine to enable combined useage of the coal preparation plant and loading facilities.

The information contained in this report is of adequate detail to allow a preliminary feasibility study. If, as a result of such a study, it is indicated that the deposit is sufficiently attractive to justify further expenditure, the following additional information is needed to enable a detailed feasibility study:

- slim core drilling to raise reserves to measured status and to provide more detailed information on coal quality variations.
- large diameters drilling for washability testing.
- open hole drilling for more accurate definition of coal seam oxidation limits and faulting.
- studies of groundwater and environmental implications.

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APPENDIX 1
BOREHOLE SEAM SUMMARY

HAREFIELD, TASMANIA

BOREHOLE SEAM SUMMARY

EL 5/61.

083

HOLE NO.		GY47		GY49	GY50	GY51	GY52	GY53
R.L.	m.	336.57		262.13	268.90	255.95	252.0	249.86
HOLE TYPE		CORE		OPEN	OPEN	OPEN	OPEN	OPEN
SOIL DEPTH	m.	0		4.50	6.0	6.0	3.0	3.0
% DOLERITE	m.	0		0	50	75	50	60
B.W. DEPTH	m.	2.00		4.50	6.0	6.0	6.0	3.0
REST WATER DEPTH	m.	65.7		2.10	0.0	1.6	2.8	2.0
DE SEAM								
DEPTH	m.	87.70			26.50	7.34		
R.L. BASE	m.	247.00			241.40	246.97		
THICKNESS	m.	1.87			1.00+	1.64+		
E2 SEAM								
DEPTH	m.	97.01			31.00			
R.L. BASE	m.	239.22			235.90			
THICKNESS	m.	0.34+			2.00+			
E3 SEAM								
DEPTH	m.	101.81			45.70		12.64	6.72
R.L. BASE	m.	233.91			222.20		238.60	242.36
THICKNESS	m.	0.85			1.00+		0.76+	0.78+
DF SEAM								
DEPTH	m.	116.10		6.40			21.64	11.23
R.L. BASE	m.	219.35		254.58			228.48	238.13
THICKNESS	m.	% 1.12		1.15+			1.88	0.50+
OTHER COAL								
DEPTH	m.				16.70			
R.L. BASE	m.				249.40			
THICKNESS	m.				2.80*+			
TOTAL DEPTH	m.	124.50		57.0	48.0	19.0	33.0	27.0

*Denotes Split Seam
 GY50 seam has 1.80m of coal.
 + Not Sampled
 % Less than 95% recovery of core.

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HAREFIELD, TASMANIA

649085

BOREHOLE SEAM SUMMARY

EL 5/61.

HOLE NO.		GY54	GY55	GY56	GY57	GY58	GY59	GY60
R.L.	m.	249.06	263.91	277.05	246.55	270.75	252.0	262.91
HOLE TYPE		OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN
SOIL DEPTH	m.	0.35	2.10	3.10	2.80	2.90	2.20	5.00
% DOLERITE		0	0	40	0	0	100	0
B.W. DEPTH	m.	6.0	3.0	5.0	2.80	9.25	6.00	8.00
REST WATER DEPTH	m.	2.0	1.0	5.5	1.0	5.0	3.0	3.4
DE SEAM DEPTH	m.		2.10	30.80				
R.L. BASE	m.		259.56	244.75				
THICKNESS	m.		2.25+	1.50+				
E2 SEAM DEPTH	m.			35.00		5.8		
R.L. BASE	m.			241.05		264.45		
THICKNESS	m.		w	1.00+		0.5+		
E3 SEAM DEPTH	m.		21.83	42.80		9.25		
R.L. BASE	m.		241.21	233.05		260.40		
THICKNESS	m.		0.87+	1.20+		1.10+		
DF SEAM DEPTH	m.		29.30	55.00				
R.L. BASE	m.		233.91	221.05				
THICKNESS	m.		0.70+	1.00+				
OTHER COAL DEPTH	m.	22.80						22.20
R.L. BASE	m.	226.66						240.31
THICKNESS	m.	0.40+						0.40+
TOTAL DEPTH	m.	37.0	42.0	60.0	30.0	31.0	24.0	30.0

w - washout
 + - Not sampled

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HAREFIELD, TASMANIA

649086

BOREHOLE SEAM SUMMARY

EL 5/61.

HOLE NO.		GY61	GY62	GY63	GY64	GY65	GY66	GY67R
R.L.	m.	262.67	277.24	260.89	284.11	299.52	295.42	267.73
HOLE TYPE		OPEN						
SOIL DEPTH	m.	2.00	6.00	2.00	4.00	2.00	0.50	9.00
% DOLERITE		0	40	30	70	0	0	40
B.W. DEPTH	m.	5.00	6.00	10.00	7.00	4.00	3.00	11.50
REST WATER DEPTH	m.	4.8	DRY	1.7	1.6	14.5	9.6	2.1
DE SEAM DEPTH	m.				16.00	20.75	40.75	
R.L. BASE	m.				266.11	276.97	254.12	
THICKNESS	m.				2.00+	1.80*+	0.55+	
E2 SEAM DEPTH	m.	5.00			24.0			
R.L. BASE	m.	257.17			259.61			
THICKNESS	m.	0.50+			0.5	w		
E3 SEAM DEPTH	m.	10.65			29.00	37.30		
R.L. BASE	m.	251.67			253.11	261.02		
THICKNESS	m.	0.35+			2.00+	1.20+		
DF SEAM DEPTH	m.		10.00					
R.L. BASE	m.		266.74					
THICKNESS	m.		0.50+					
OTHER COAL DEPTH	m.							16.30
R.L. BASE	m.							251.13
THICKNESS	m.							0.30+
TOTAL DEPTH	m.	30.0	37.0	20.0	48.00	42.00	49.00	24.00

* Split Seam
 GY65 DD seam has 1.55m of coal.
 + - Not sampled
 w = washout

086

649087

HAREFIELD, TASMANIA

BOREHOLE SEAM SUMMARY

EL 5/61.

HOLE NO.		GY68	GY69	GY70	GY71	GY72	GY73	GY74
R.L.	m.	258.45	303.60	265.63	257.76	252.84	278.86	302.47
HOLE TYPE		OPEN						
SOIL DEPTH	m.	1.50	1.00	0.10	8.00	4.00	4.50	1.20
% DOLERITE		0	0	100	50	50	60	10
B.W. DEPTH	m.	4.20	6.00	15.00	10.90	10.30	10.65	8.00
REST WATER DEPTH	m.	2.0	4.1	12.5	DRY	2.8	4.0	1.6
DE SEAM DEPTH	m.						9.30	15.0
R.L. BASE	m.						268.21	
THICKNESS	m.						1.35+	?
E2 SEAM DEPTH	m.	5.60					15.8	
R.L. BASE	m.	252.55					261.56	
THICKNESS	m.	0.30+					1.50*+	
E3 SEAM DEPTH	m.	7.69						
R.L. BASE	m.	249.58						
THICKNESS	m.	1.18*+						
DF SEAM DEPTH	m.							
R.L. BASE	m.							
THICKNESS	m.							
OTHER COAL DEPTH	m.		3.50					
R.L. BASE	m.		298.60					
THICKNESS	m.		1.50+					
TOTAL DEPTH	m.	42.00	42.00	19.00	18.00	25.00	18.0	16.0

* Denotes Split Seam

GY68 D3 seam has 0.98m coal

GY73 D2 seam has 1.35m coal.

+ - Not Sampled.

HAREFIELD, TASMANIA

BOREHOLE SEAM SUMMARY

EL 5/61.

087

HOLE NO.		GY75	GY76	GY77	GY78	GY79	GY80	GY81
R.L.	m.	274.40	271.95	268.79	259.65	260.95	269.94	256.76
HOLE TYPE		OPEN	OPEN	OPEN	OPEN	OPEN	OPEN & CORE	OPEN
SOIL DEPTH	m.	8.00	4.30	10.00	3.75	0.10	4.50	0.30
% DOLERITE		100	40	100	0	0	0	0
B.W. DEPTH	m.	13.00	11.00	16.00	5.58	2.30	4.50	4.00
REST WATER DEPTH	m.	DRY	33.3	DRY	2.2	DRY	4.3	11.0
DE SEAM DEPTH	m.						4.50	
R.L. BASE	m.						264.64	
THICKNESS	m.						% 0.80+	
E2 SEAM DEPTH	m.						11.89	
R.L. BASE	m.						257.34	
THICKNESS	m.						0.71	
E3 SEAM DEPTH	m.				9.08	0.10	18.35	
R.L. BASE	m.				249.52	259.95	250.59	
THICKNESS	m.				1.05*+	>0.90+	1.00	
DF SEAM DEPTH	m.							
R.L. BASE	m.							
THICKNESS	m.							
OTHER COAL DEPTH	m.				12.78			
R.L. BASE	m.				246.53			
THICKNESS	m.				0.34+			
TOTAL DEPTH	m.	30.00	36.00	19.00	14.30	20.0	21.29	18.00

* Denotes Split Seam
 GY78 DD seam has 0.85m of coal.
 + - Not Sampled
 % - Less than 95% core recovery.
 > - Full seam not intersected.

HAREFIELD, TASMANIA

649089

BOREHOLE SEAM SUMMARY

EL 5/61.

HOLE NO.		GY82	GY83	GY84	GY85	GY86	GY87	GY88
R.L.	m.	261.47	264.92	270.29	273.31	275.09	272.33	272.50
HOLE TYPE		CORE	OPEN	CORE	OPEN	OPEN & CORE	OPEN	CORE
SOIL DEPTH	m.	2.00	0.10	2.00	0.80	2.00	2.00	2.90
% DOLERITE		30	0	40	0	0	50	40
B.W. DEPTH	m.	4.00	7.60	5.00	7.80	5.30	6.80	6.00
REST WATER DEPTH	m.	2.1	5.0	1.2	6.2	4.7	2.7	4.0
DE SEAM DEPTH	m.	20.46		18.52	5.50	17.36	3.20	27.20E
R.L. BASE	m.	239.15		250.26	265.51	255.87	268.73	244.3+
THICKNESS	m.	1.86		1.51	2.30*+	1.77	>0.40+	
E2 SEAM DEPTH	m.			24.25	12.30			
R.L. BASE	m.			246.04	258.71			
THICKNESS	m.			0.05	2.30P+		w	
E3 SEAM DEPTH	m.		6.90		18.40		21.10	
R.L. BASE	m.		257.22		253.61		250.13	
THICKNESS	m.		0.80+		1.30+		1.10+	
DF SEAM DEPTH	m.							
R.L. BASE	m.							
THICKNESS	m.							
OTHER COAL DEPTH	m.							
R.L. BASE	m.							
THICKNESS	m.							
TOTAL DEPTH	m.	24.45	18.00	25.26	30.00	22.40	30.00	27.17

* Denotes Split Seam
 GY85 DD seam has 1.70m coal.
 P denotes very poor quality
 E denotes correlation depth/estimated depth
 + - Not Sampled
 > - Full seam not intersected
 w - washout
 TCD142:F:6

HAREFIELD, TASMANIA

BOREHOLE SEAM SUMMARY

EL 5/61.

HOLE NO.		GY89	GY90	GY91	GY92	GY93	GY94	GY95
R.L.	m.	262.48	267.86	270.35	261.05	254.04	291.16	287.73
HOLE TYPE		OPEN	CORE	OPEN	OPEN	OPEN	OPEN	OPEN
SOIL DEPTH	m.	2.10	3.00	3.50	1.00	0.80	3.80	1.00
% DOLERITE		0	40	0	0	0	0	0
B.W. DEPTH	m.	4.00	5.50	7.10	3.50	3.00	4.10	4.20
REST WATER DEPTH	m.	0.5	3.4	0.0	0.5	DRY	DRY	DRY
DE SEAM DEPTH	m.		8.16					
R.L. BASE	m.		258.00					
THICKNESS	m.		% 1.70					
E2 SEAM DEPTH	m.		15.22	7.00				
R.L. BASE	m.		251.78	261.95				
THICKNESS	m.		0.69	1.40+				
E3 SEAM DEPTH	m.		23.08	15.80				
R.L. BASE	m.		243.85	253.55				
THICKNESS	m.		0.93	1.00+				
DF SEAM DEPTH	m.	4.70						
R.L. BASE	m.	256.98						
THICKNESS	m.	0.90+						
OTHER COAL DEPTH	m.							
R.L. BASE	m.							
THICKNESS	m.							
TOTAL DEPTH	m.	12.00	30.37	24.00	12.00	12.00	24.00	30.00

+ - Not Sampled.

% - Less than 95% recovery of core.

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HAREFIELD, TASMANIA

649091

BOREHOLE SEAM SUMMARY

EL 5/61.

HOLE NO.		GY96	GY97	GY98	GY99	GY100	GY101	GY102
R.L.	m.	299.90	277.89	266.09	266.54	262.01	259.44	254.15
HOLE TYPE		OPEN	OPEN	OPEN	CORE	CORE	CORE	CORE
SOIL DEPTH	m.	8.50	3.00	4.00	2.30	0.81	4.00	3.50
% DOLERITE		50	80	30	5	0	20	10
B.W. DEPTH	m.	9.50	5.00	5.50	6.00	3.99	5.00	6.00
REST WATER DEPTH	m.	DRY	0.6	1.6	-	0.6	1.9	-
DE SEAM DEPTH	m.			39.33				
R.L. BASE	m.			225.83				
THICKNESS	m.			1.38+				
E2 SEAM DEPTH	m.							
R.L. BASE	m.							
THICKNESS	m.							
E3 SEAM DEPTH	m.				7.01			12.52
R.L. BASE	m.				257.52			241.19
THICKNESS	m.				% 2.01+			0.44
DF SEAM DEPTH	m.				17.02	6.23		21.78
R.L. BASE	m.				248.68	254.52		231.82
THICKNESS	m.				0.84	% 1.26		0.55
OTHER COAL DEPTH	m.							25.86
R.L. BASE	m.							227.80
THICKNESS	m.							0.49
TOTAL DEPTH	m.	30.00	42.00	42.00	18.63	8.49	15.65	30.00

+ - Not Sampled

% - Less than 95% recovery of core

HAREFIELD, TASMANIA

BOREHOLE SEAM SUMMARY

EL 5/61.

091

HOLE NO.		GY107	GY110	GY111	GY112	GY113	GY114	GY114R
R.L.	m.	256.2	254.3	251.7	250.1	253.9	259.9	259.9
HOLE TYPE		CORE	CORE	CORE	CORE	CORE	CORE	OPEN & CORE
SOIL DEPTH	m.	3.15	4.04	3.68	2.55	2.22	2.10	
% DOLERITE		15	60	90	60	0	90	
B.W. DEPTH	m.	7.43	4.45	4.04	7.14	6.35	3.55	
REST WATER DEPTH	m.	2.00	2.74	1.95	1.30	3.20		1.02
DE SEAM DEPTH	m.	10.52					24.05	
R.L. BASE	m.	243.95					234.42	
THICKNESS	m.	0.84					1.43	
E2 SEAM DEPTH	m.							
R.L. BASE	m.							
THICKNESS	m.	w						
E3 SEAM DEPTH	m.	28.36	18.32	9.96	8.74		42.45	41.84
R.L. BASE	m.	226.73	234.88	240.74	240.05		216.34	216.93
THICKNESS	m.	1.11	0.79	0.73	1.05		% 1.11	% 1.13
DF SEAM DEPTH	m.		28.41	18.85	12.77			
R.L. BASE	m.		224.08	230.97	236.93			
THICKNESS	m.		1.01	1.25	0.40			
OTHER COAL DEPTH	m.							
R.L. BASE	m.							
THICKNESS	m.							
TOTAL DEPTH	m.	35.54	33.25	30.65	18.68	25.25	48.41	49.28

+ = Not Sampled
 % = Less than 95% recovery of core.
 w = washout.

HAREFIELD, TASMANIA

BOREHOLE SEAM SUMMARY

EL 5/61.

092

HOLE NO.		GY115	GY118	GY125	GY126	GY129	GY131	GY133
R.L.	m.	252.3	250.2	257.8	263.9	263.9	259.4	266.9
HOLE TYPE		CORE	CORE	CORE	CORE	CORE	CORE	CORE
SOIL DEPTH	m.	1.72	2.50	3.45	2.65	4.50	3.50	3.80
% DOLERITE		0	0	20	20	30	70	10
B.W. DEPTH	m.	3.60	3.98	4.00	2.70	4.65	6.96	4.90
REST WATER DEPTH	m.	3.15	0.57	2.14	2.44	2.60	4.16	3.04
DE SEAM DEPTH	m.			9.90	23.72	11.13		7.38
R.L. BASE	m.			245.84	238.33	250.64		257.64
THICKNESS	m.			% 2.06	% 1.85	2.13		% 0.49
E2 SEAM DEPTH	m.				29.37			15.76
R.L. BASE	m.				233.72			250.85
THICKNESS	m.			w	0.81	w		% 0.29+
E3 SEAM DEPTH	m.			29.24	37.78	28.93	7.09	24.08
R.L. BASE	m.			227.52	225.06	234.01	251.46	241.84
THICKNESS	m.			% 1.04	1.06	% 0.96	% 0.85	% 0.98
DF SEAM DEPTH	m.	7.59		38.09				
R.L. BASE	ft.	243.71		219.37				
THICKNESS	m.	0.79		0.34				
OTHER COAL DEPTH	m.							
R.L. BASE	m.							
THICKNESS	m.							
TOTAL DEPTH	m.	21.89	13.05	43.00	46.00	40.00	19.00	31.00

+ - Not Sampled
 % - Less than 95% recovery of core.
 w - washout.

HAREFIELD, TASMANIA

649094

BOREHOLE SEAM SUMMARY

EL 5/61.

093

HOLE NO.		GY134	GY139	GY140	GY144	GY145	GY147	GY148
R.L.	m.	266.50	265.30	272.70	275.50	255.50	253.20	257.50
HOLE TYPE		CORE						
SOIL DEPTH	m.	5.70	2.70	4.20	4.00	2.00	4.99	2.27
% DOLERITE		20	60	40	25	20	20	0
B.W. DEPTH	m.	6.20	3.21	5.80	8.49	5.28	5.29	2.56
REST WATER DEPTH	m.	0.61	0.80	2.00	3.62	2.27	2.46	3.60
DE SEAM DEPTH	m.	16.42		19.06	17.62			
R.L. BASE	m.	248.29		252.04	256.06			
THICKNESS	m.	% 0.88		% 0.60	% 1.04			
E2 SEAM DEPTH	m.	22.28	6.80	23.47	23.09			
R.L. BASE	m.	243.66	257.83	248.48	251.87	w		w
THICKNESS	m.	0.56	% 0.67	% 0.75	% 0.54			
E3 SEAM DEPTH	m.	30.31	13.72	31.27	30.46	18.12	7.48	13.94
R.L. BASE	m.	235.11	250.42	240.36	244.04	236.72	245.28	243.16
THICKNESS	m.	1.08	% 1.16	% 1.07	1.00	0.66	% 0.44	0.40
DF SEAM DEPTH	m.					27.33	16.69	23.64
R.L. BASE	m.					227.46	235.29	232.78
THICKNESS	m.					% 0.71	% 1.20	1.02
OTHER COAL DEPTH	m.							
R.L. BASE	m.							
THICKNESS	m.							
TOTAL DEPTH	m.	37.00	22.00	40.00	37.98	31.00	24.98	31.00

% = Less than 95% of core recovery.

w = Washout.

HAREFIELD, TASMANIA

649095

BOREHOLE SEAM SUMMARY

EL 5/61.

094

HOLE NO.		GY149	GY150	GY152	GY153	GY154	GY156	GY158
R.L.	m.	254.4	255.2	264.0	271.4	277.5	277.1	280.0
HOLE TYPE		CORE	CORE	CORE	CORE	CORE	CORE	CORE
SOIL DEPTH	m.	3.04	3.95	1.68	7.74	8.36	4.11	3.00
% DOLERITE		0	5	20	40	20	40	50
B.W. DEPTH	m.	3.87	4.29	6.44	10.11	8.42	4.97	6.81
REST WATER DEPTH	m.	2.97	2.03	3.63	1.14	2.17	3.64	5.62
DE SEAM DEPTH	m.					11.54		
R.L. BASE	m.					263.94		
THICKNESS	m.					% 1.18		
E2 SEAM DEPTH	m.				8.28	18.06	8.02	
R.L. BASE	m.				262.25	259.17	268.70	
THICKNESS	m.				% 0.43*	0.27	% 0.38+	
E3 SEAM DEPTH	m.	4.13		2.16	14.81	24.88	14.05	6.84
R.L. BASE	m.	249.82		260.48	255.31	251.38	261.83	272.05
THICKNESS	m.	% 0.45		% 1.36+	% 1.28	% 1.24	1.18	% 1.11
DF SEAM DEPTH	m.	14.32						
R.L. BASE	m.	238.73						
THICKNESS	m.	1.35						
OTHER COAL DEPTH	m.							
R.L. BASE	m.							
THICKNESS	m.							
TOTAL DEPTH	m	19.00	16.00	19.50	25.00	31.00	24.89	19.00

+ - Not Sampled
 * 0.44m core loss excluded
 % - Less than 95% of core recovered.

HAREFIELD, TASMANIA

649096

BOREHOLE SEAM SUMMARY

EL 5/61.

035

HOLE NO.		GY159	GY160	GY161	GY162	GY163	GY165	GY169
R.L.	m.	289.9	285.9	281.3	275.1	287.8	286.0	286.2
HOLE TYPE		CORE	CORE	CORE	CORE	CORE	CORE	CORE
SOIL DEPTH	m.	6.97	5.50	4.00	7.48	5.50	6.67	3.00
% DOLERITE		20	10	10	15	1	40	5
B.W. DEPTH	m.	7.17	9.57	4.00	8.63	7.96	7.30	9.86
REST WATER DEPTH	m.	6.78	5.36	4.87	2.66	8.90	5.25	9.92
DE SEAM DEPTH	m.		9.73					
R.L. BASE	m.		274.58					
THICKNESS	m.		% 1.59					
E2 SEAM DEPTH	m.	9.89	17.22				10.96	
R.L. BASE	m.	278.75	268.27				274.67	
THICKNESS	m.	1.26+	0.41+				0.37+	
E3 SEAM DEPTH	m.	16.06	23.48				15.39	9.86
R.L. BASE	m.	272.56	261.12				269.47	275.10
THICKNESS	m.	% 1.28	% 1.30				% 1.14	% 1.24
DF SEAM DEPTH	m.			10.81	10.72	27.37		28.83
R.L. BASE	m.			269.66	264.03	260.12		256.66
THICKNESS	m.			0.83+	% 0.35+	% 0.31+		0.71
OTHER COAL DEPTH	m.							
R.L. BASE	m.							
THICKNESS	m.							
TOTAL DEPTH	m.	36.76	28.00	24.97	16.00	31.00	25.00	34.44

N/S Not Sampled
 % - Less than 95% recovery of core.

HAREFIELD, TASMANIA

649097

BOREHOLE SEAM SUMMARY

EL 5/61.

036

HOLE NO.		GY170	GY171	GY172			
R.L.	m.	286.0	278.8	273.6			
HOLE TYPE		CORE	CORE	CORE			
SOIL DEPTH	m.	6.15	2.60	3.85			
% DOLERITE		20	0	10			
B.W. DEPTH	m.	7.35	7.17	7.63			
REST WATER DEPTH	m.	0.66	8.77	1.97			
DE SEAM DEPTH	m.	19.00		12.15			
R.L. BASE	m.	264.83		260.73			
THICKNESS	m.	0.99		% 0.72+			
E2 SEAM DEPTH	m.	26.30					
R.L. BASE	m.	259.21	w				
THICKNESS	m.	0.49					
E3 SEAM DEPTH	m.	32.62	20.94	29.24			
R.L. BASE	m.	252.24	256.64	243.13			
THICKNESS	m.	% 0.92	% 1.23	1.23			
DF SEAM DEPTH	m.						
R.L. BASE	m.						
THICKNESS	m.						
OTHER COAL DEPTH	m.						
R.L. BASE	m.						
THICKNESS	m.						
TOTAL DEPTH	m.	40.00	30.50	37.00			

+ - Not Sampled.
 % - Less than 95% recovery of core.
 w - Washout.

097

APPENDIX 2
COAL RESERVE TABLES

649099

038

BLOCK RESERVES

SEAM	BLOCK NO.	AREA HECTRE	ASSUMED AVERAGE			INSITU RESERVES X 1000 TON	RECOVERABLE RESERVES X1000 TON	DILUTION X 1000 TON	RUN OF MINE X 1000 TON	CAUSE WASHED PRODUCT X1000 TON	FINES (UNWASHED) X 1000 TON	SLIMES (UNWASHED) X 1000 TON	CAUSE REJECT X 1000 TON
			THICKNESS m	RAW R.D.	YIELD %								
DE	1	10.2	0.65	1.64	76	108.7	100.4	15.0	115.4	65.2	5.8	5.8	39.6
E3	1	10.2	1.30	1.57	96	208.2	200.2	15.0	215.2	164.3	10.8	10.8	29.4
DE	2	1.0	0.60	1.64	76	9.8	9.0	1.5	10.5	5.9	0.5	0.5	3.4
E3	2	1.0	1.30	1.57	96	20.4	19.6	1.5	21.1	16.1	1.0	1.0	2.9
E3	3	3.0	1.25	1.58	93	59.2	56.9	4.4	61.3	45.2	3.1	3.1	9.9
DE	4	0.2	0.51	1.63	78	1.7	1.5	0.3	1.8	1.0	0.1	0.1	0.6
E3	4	0.2	1.40	1.55	98	4.3	4.2	0.3	4.5	3.5	0.2	0.2	0.5
DE	5	18.2	1.25	1.57	96	357.2	342.9	26.8	369.7	281.4	18.5	18.5	51.2
DE	6	9.9	0.70	1.61	81	111.6	103.6	14.6	118.2	71.8	5.9	5.9	34.6
E3	6	9.9	1.30	1.55	100	199.5	191.8	14.6	206.4	164.0	10.3	10.3	21.7
E3	7	0.2	1.25	1.55	100	3.9	3.7	0.3	4.0	3.2	0.2	0.2	0.4
DE	8	1.8	0.65	1.61	81	18.8	17.4	2.6	20.0	12.0	1.0	1.0	6.0
E3	8	1.8	1.20	1.55	100	33.5	32.1	2.6	34.7	27.4	1.7	1.7	3.8
E3	9	10.1	1.15	1.55	98	180.0	172.2	14.8	187.0	144.3	9.4	9.4	24.1
E3	10	12.9	1.18	1.56	97	237.5	227.4	19.0	246.4	188.6	12.3	12.3	33.1
E3	11	6.7	1.18	1.58	93	124.9	119.6	9.8	129.5	95.1	6.5	6.5	21.4
E2	12	0.2	0.51	1.50	100	1.5	1.4	0.3	1.7	1.2	0.1	0.1	0.3
E3	12	0.2	1.15	1.57	96	3.6	3.4	0.3	3.8	2.8	0.2	0.2	0.5
DE	13	7.0	0.52	1.64	76	59.7	54.0	10.3	64.2	35.1	3.2	3.2	22.8
E2	13	7.0	0.60	1.57	95	65.9	60.4	10.3	70.7	49.1	3.5	3.5	14.6
E3	13	7.0	1.12	1.56	97	122.3	116.8	10.3	127.1	96.9	6.4	6.4	17.5
E2	14	3.2	0.63	1.62	90	32.7	30.1	4.7	34.8	23.1	1.7	1.7	8.2
E3	14	3.2	1.05	1.58	93	53.1	50.6	4.7	55.3	40.2	2.8	2.8	9.5
E2	15	4.6	0.67	1.62	90	49.9	46.2	6.8	53.0	35.6	2.6	2.6	12.1
E3	15	4.6	1.05	1.52	95	73.4	69.9	6.8	76.7	56.8	3.8	3.8	12.2
E2	16	8.0	0.62	1.57	95	77.9	71.6	11.8	83.3	58.2	4.2	4.2	16.9
E2	16	8.0	1.22	1.52	95	148.4	142.3	11.8	154.0	115.6	7.7	7.7	23.1
E3	17	1.4	1.22	1.56	97	26.6	25.6	2.1	27.6	21.2	1.4	1.4	3.7
E2	18	2.0	0.65	1.66	73	21.6	19.9	2.9	22.9	12.4	1.1	1.1	8.1
E3	18	2.0	1.10	1.56	97	34.3	32.8	2.9	35.7	27.2	1.8	1.8	5.0
F2	19	1.2	0.65	1.64	79	12.8	11.8	1.8	13.6	8.0	0.7	0.7	4.2
E3	19	1.2	1.30	1.56	97	24.3	23.4	1.8	25.2	19.4	1.3	1.3	3.2
E3	20	8.4	0.85	1.58	96	112.8	106.2	12.4	118.5	87.2	5.9	5.9	19.5
E3	21	6.0	1.15	1.56	97	107.6	103.0	8.8	111.8	85.4	5.6	5.6	15.2
E3	22	1.9	0.60	1.62	85	18.5	16.9	2.8	19.7	12.3	1.0	1.0	5.4
DF	23	6.2	1.10	1.64	76	111.8	106.8	9.1	115.9	69.4	5.8	5.8	34.9
DF	24	0.7	1.25	1.66	82	14.5	13.9	1.0	15.0	9.8	0.8	0.8	3.7
DF	25	1.9	0.98	1.68	72	31.3	29.7	2.8	32.5	18.3	1.6	1.6	11.0
DF	26	2.5	1.05	1.64	76	43.0	41.0	3.7	44.7	26.6	2.2	2.2	13.6
DF	27	1.8	1.10	1.65	74	32.7	31.2	2.6	33.8	19.7	1.7	1.7	10.7
E3	28	17.5	0.80	1.62	80	226.8	212.6	25.7	238.4	145.4	11.9	11.9	69.1
DF	28	17.5	1.10	1.64	78	315.7	301.4	25.7	327.1	201.0	16.4	16.4	93.4

-19-

039

649100

LIGHTWOOD AREA
SEAM RESERVES TO 15:1 DEPTH RATIO OF E3 SEAM

SEAM	BLOCK NO.	AREA HECTRE	WEIGHTED AVERAGE			INSITU RESERVES X 1000 TON	RECOVERABLE RESERVES X1000 TON	DILUTION X 1000 TON	RUN OF MINE X 1000 TON	CAUSE WASHED PRODUCT X1000 TON	FINES (UNWASHED) X 1000 TON	SLIMES (UNWASHED) X 1000 TON	CAUSE REJECT X 1000 TON
			THICKNESS m	RAW R.D.	YIELD %								
EXTENDED SEAM RESERVES TO 15:1 DEPTH RATIO OF COMBINED SEAMS													
CULENSWOOD BLOCKS													
DE - 2,4,8		3.0	0.62	1.62	79.1	30.3	27.9	4.4	32.3	18.9	1.6	1.6	10.0
E2 - 16,19		9.2	0.62	1.58	92.7	90.7	83.4	13.6	96.9	66.2	4.9	4.9	21.1
E3 - 2-5,8-11,16,17,19,21		70.5	1.20	1.56	96.1	1323.9	1265.6	103.7	1372.8	1042.8	68.7	68.7	192.1
TOTAL		70.5				1444.9	1376.9	121.7	1502.0	1127.9	75.2	75.2	223.2
HAREFIELD BLOCKS													
E2 - 15,18		6.6	0.66	1.63	84.9	71.5	66.1	9.7	75.9	48.0	3.7	3.7	20.2
E3 - 15,18,20		15.0	0.94	1.56	95.8	220.5	208.9	22.1	228.2	171.2	11.5	11.5	36.7
TOTAL		15.0				292.0	275.0	31.8	304.1	219.2	15.2	15.2	56.9
LONDAVERA BLOCKS													
E3 - 22		1.9	6.0	16.2	85	18.5	16.9	2.8	19.7	12.3	1.0	1.0	5.4
TOTAL RESERVES		87.4				1755.0	1669.0	156.0	1826.0	1359.0	91.0	91.0	285.0
CULENSWOOD BLOCKS													
DE - 1,6		20.1	0.67	1.62	78.5	220.3	204.0	29.6	233.6	137.0	11.7	11.7	73.2
E2 - 12		0.2	0.51	1.50	100	1.5	1.4	0.3	1.7	1.2	0.1	0.1	0.3
E3 - 1,6,7,12		20.5	1.30	1.56	98.0	415.2	399.1	30.2	429.4	334.3	21.5	21.5	52.0
TOTAL		20.5				637.0	604.5	60.1	664.7	472.5	33.3	33.3	125.5
HAREFIELD BLOCKS													
DE - 13		7.0	0.52	1.64	76	59.7	54.0	10.3	64.2	35.1	3.2	3.2	22.8
E2 - 13,14		10.2	0.61	1.59	93.3	98.6	90.5	15.0	105.5	72.2	5.2	5.2	22.8
E3 - 13,14		10.2	1.10	1.57	95.8	175.4	167.4	15.0	182.4	137.1	9.2	9.2	27.0
TOTAL		10.2				333.7	311.9	40.3	352.1	244.4	17.6	17.6	72.6
TOTAL EXTENDED RESERVES		30.7				971	916	100	1017	717	51	51	198

649101

100

BREAK O'DAY

SEAM RESERVES TO 15:1 DEPTH RATIO OF DF SEAM

SEAM	BLOCK NO.	AREA HECTRE	WEIGHTED AVERAGE			INSITU RESERVES X 1000 TON	RECOVER-ABLE RESERVES X1000 TON	DILUTION X 1000 TON	RUN OF MINE X 1000 TON	CAUSE WASHED PRODUCT X1000 TON	FINES (UNWASHED) X 1000 TON	SLIMES (UNWASHED) X 1000 TON	CAUSE REJECT X 1000 TON
			THICKNESS m	RAW R.D.	YIELD %								
LONDAVERA BLOCKS DF - 23,25		8.1	1.07	1.65	75.1	143.1	136.5	11.9	148.4	87.7	7.4	7.4	45.9
BROOKLYN BLOCKS DF - 24,26		3.2	1.09	1.65	77.5	57.5	54.9	4.7	59.7	36.4	3.0	3.0	17.3
TOTAL RESERVES		11.3	1.08	1.65	75.8	200.6	191.4	16.6	208.1	124.1	10.4	10.4	63.2
EXTENDED SEAM RESERVES TO 15:1 DEPTH RATIO OF COMBINED SEAMS													
BROOKLYN BLOCKS E3 - 28		17.5	0.80	1.62	80	226.8	212.6	25.7	238.4	145.4	11.9	11.9	69.1
DF - 27,28		19.3	1.10	1.64	77.6	348.4	332.6	28.3	360.9	220.7	18.1	18.1	104.1
TOTAL		19.3	0.96	1.63	78.6	575.2	545.2	54.0	599.3	366.1	30.0	30.0	173.2

649102

RESERVE TOTALS

SEAM	BLOCK NO.	AREA HECTARE	WEIGHTED AVERAGE			INSITU RESERVES X 1000 TON	RECOVERABLE RESERVES X1000 TON	DILUTION X 1000 TON	RUN OF MINE X 1000 TON	CAUSE WASHED PRODUCT X1000 TON	FINES (UNWASHED) X 1000 TON	SLIMES (UNWASHED) X 1000 TON	CAUSE REJECT X 1000 TON
			THICKNESS m	RAW R.D.	YIELD %								
LIGHTWOOD AREA													
SEAM RESERVES													
DE		30.1	0.63	1.62	78.1	310.3	285.9	44.3	330.1	191.0	16.5	16.5	106.0
E2		26.2	0.63	1.60	90.8	262.3	241.4	38.6	280.0	187.6	13.9	13.9	64.4
E3		118.1	1.17	1.56	96.3	2153.5	2057.9	173.8	2402.5	1697.7	111.9	111.9	313.2
TOTAL		118.1	0.99	1.57	94	2726	2585	257	3013	2076	142	142	484
PROPERTY DISTRIBUTION													
CULENSWOOD		91.0				2082	1981	182	2167	1600	108	108	349
HAREFIELD		25.2				626	587	72	656	464	33	33	129
LONDAVERA		1.9				18	17	3	20	12	1	1	5
BREAK O'DAY AREA													
SEAM RESERVES													
E3		17.5	0.80	1.62	80	226.8	212.6	25.7	238.4	145.4	11.8	11.9	69.1
DF		30.6	1.09	1.64	76.9	549.0	524.0	44.9	569.0	344.8	28.5	28.5	168.1
TOTAL		30.6				776	737	71	807	490	40	40	237
PROPERTY DISTRIBUTION													
LONDAVERA		8.1				143	136	12	148	88	7	7	46
BROOKLYN		22.5				633	601	59	819	402	33	33	191

APPENDIX 3
OVERBURDEN VOLUME TABLES

BLOCK NO.	AREA (HECT.)	ASSUMED AV. THICKNESS (m)	VOLUME ($m^3 \times 10^3$)	ASSUMED AV. THICKNESS OF E2 SEAM (m)	VOLUME OF E2 SEAM ($m^3 \times 10^3$)	ASSUMED AV. THICKNESS OF DE SEAM (m)	VOLUME OF DE SEAM ($m^3 \times 10^3$)	TOTAL OVERBURDEN VOLUME ($m^3 \times 10^3$)	ASSUMED AV. SOIL THICKNESS (m)	VOLUME OF SOIL OVERBURDEN ($m^3 \times 10^3$)	VOLUME OF ROCK OVERBURDEN ($m^3 \times 10^3$)
1	10.2	23.5	2397.0	-	-	0.65	66.30	2330.7	6.35	647.7	1683.0
2	1.0	16.5	165.0	-	-	0.60	6.00	159.0	6.50	65.0	94.0
3	3.0	11.5	345.0	-	-	-	-	345.0	6.39	191.7	153.3
4	0.2	20.5	40.0	-	-	0.51	3.16	36.8	6.00	12.0	24.8
5	18.2	13.0	2366.0	-	-	1.25	227.50	2138.5	4.50	819.0	1319.5
6	9.9	24.0	2376.0	-	-	0.70	69.30	2306.7	6.25	618.8	1687.9
7	0.2	20.0	40.0	-	-	0.65	1.30	38.7	4.70	9.4	29.3
8	1.8	16.0	288.0	-	-	0.65	11.70	276.3	4.40	79.2	197.1
9	10.1	11.0	1111.0	-	-	-	-	1111.0	4.40	444.4	666.6
10	12.9	11.0	1419.0	-	-	-	-	1419.0	3.90	503.1	915.9
11	6.7	11.0	737.0	-	-	-	-	737.0	4.45	298.2	438.8
12	0.2	18.0	36.0	0.51	1.02	-	-	35.0	5.50	11.0	24.0
13	7.0	22.0	1540.0	0.60	42.00	0.52	36.40	1461.6	4.63	324.1	1137.5
14	3.2	19.5	624.0	0.63	20.16	-	-	603.8	2.75	88.0	515.8
15	4.6	13.0	598.0	0.67	30.82	-	-	567.2	3.95	181.7	385.5
16	8.0	11.0	880.0	0.62	49.60	-	-	830.4	3.80	304.0	526.4
17	1.4	4.0	56.0	-	-	-	-	56.0	2.38	33.3	22.6
18	2.0	9.0	180.0	0.65	13.00	-	-	167.0	2.00	40.0	127.0
19	1.2	6.0	72.0	0.65	7.80	-	-	64.2	2.00	24.0	40.2
20	8.4	9.5	798.0	-	-	-	-	798.0	2.75	231.0	567.0
21	6.0	5.0	350.0	-	-	-	-	350.0	2.25	135.0	215.0
22	1.9	5.5	104.5	-	-	-	-	104.5	3.00	57.0	47.5
23	6.2	3.5	217.0	-	-	-	-	217.0	3.50	217.0	-
24	0.7	6.0	42.0	-	-	-	-	42.0	4.00	28.0	14.0
25	1.9	2.5	47.5	-	-	-	-	47.5	1.00	19.0	28.5
26	2.5	5.5	137.5	-	-	-	-	137.5	4.00	100.0	37.5
27	1.8	7.5	135.0	-	-	-	-	135.0	4.00	72.0	63.0
28	17.5	13.0	2275.0	-	-	-	-	2275.0	3.20	560.0	1715.0
	TOTAL	WEIGHTED AV. THICKNESS	TOTAL	-	-	-	-	TOTAL	-	TOTAL	TOTAL
	148.7	11.6	19376.5	-	-	-	-	18790.4	-	6113.6	12676.8

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APPENDIX 4

POINT LOAD TEST RESULTS

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KEY FOR POINT LOAD TEST DATA

TYPE OF TEST

PLA AXIAL
PLR DIAMETRICAL

FAILURE TYPE

NF NORMAL TENSILE FAILURE
PF PARTIAL FAILURE

PRIMARY LITHOLOGY

QUALIFYING LITHOLOGY

SS	SANDSTONE	CO	COALY
SC	COARSE GRAINED SANDSTONE	CS	CARBONACEOUS
SM	MEDIUM GRAINED SANDSTONE	LS	CALCAREOUS
SF	FINE GRAINED SANDSTONE	LT	LITHIC
ST	SILTSTONE	SA	ARENACEOUS
MS	MUDSTONE	SA	ARENACEOUS
MS	MUDSTONE	SL	SILTY
CM	CARBONACEOUS MUDSTONE	CL	ARGILLACEOUS
CS	CARBONACEOUS SHALE	FO	FOSSILIFEROUS
CO	COAL	BR	BRECCIATED
C1-C3	BRIGHT COAL	CR	CINDERED
C4	BANDED COAL	VC	VERY COARSE GRAINED
C5-C8	DULL COAL	MC	MEDIUM TO COARSE GRAINED
M1-M2	MID LUSTROUS COAL	MF	FINE TO MEDIUM GRAINED
TO	TONSTEIN	VF	VERY FINE GRAINED
DO	DOLERITE	VA	BANDS
		LM	LAMINAE
		MP	WITH MUD PELLETS
		WX	SLIGHTLY WEATHERED
		WE	MODERATELY WEATHERED
		WH	HIGHLY WEATHERED

POINT LOAD TEST RESULTS

BOREHOLE GY47

DEPTH (M)	THICKNESS (CM)	TYPE	LOAD (KN)	IS(SO) MN/M2	LITHOLOGY	FAILURE TYPE	CONDITION
8.02	5.0	PLA	0.1	0.04	SM	NF	MOIST
13.30	4.8	PLA	1.7	0.72	SM	NF	MOIST
22.10	5.0	PLA	0.2	0.08	SSMC	NF	MOIST
23.75	4.8	PLA	1.2	0.51	SF	NF	DRY
24.09	4.9	PLA	0.1	0.04	C7	NF	DRY
25.39	5.0	PLA	0.0	0.01	MS	PF	DRY
25.41	4.8	PLA	0.1	0.04	ST	NF	DRY
25.38	5.0	PLA	0.2	0.08	SC	NF	MOIST
24.55	5.0	PLA	0.1	0.04	SM	NF	MOIST
23.15	5.0	PLA	0.1	0.03	SM	PF	MOIST
41.69	4.7	PLA	0.0	0.02	SM	NF	MOIST
43.72	5.0	PLA	0.0	0.02	SC	NF	MOIST
43.45	5.1	PLA	0.1	0.03	SM	NF	MOIST
43.43	5.4	PLA	0.1	0.03	SM	NF	MOIST
43.58	5.6	PLA	0.0	0.01	SM	NF	MOIST
43.73	5.6	PLA	0.1	0.04	SM	NF	MOIST
43.68	4.0	PLA	0.5	0.25	ST	NF	DRY
43.94	4.5	PLA	1.6	0.79	MS	NF	DRY
43.00	5.0	PLA	0.3	0.17	MS	PF	DRY
43.46	4.0	PLA	0.3	0.14	MS	NF	DRY
43.00	4.5	PLA	4.3	1.93	MS	NF	DRY
43.23	4.9	PLA	2.5	1.04	MS	NF	DRY
43.00	4.6	PLA	0.5	0.20	SFST	NF	DRY
43.12	5.6	PLA	0.5	0.16	SM	PF	DRY
43.15	5.5	PLA	3.7	1.44	SSMF	NF	DRY
43.59	5.5	PLA	0.6	0.21	STCS	PF	DRY
43.09	4.8	PLA	0.3	0.13	STCS	NF	DRY
43.27	4.8	PLA	0.3	0.33	SF/GK	PF	DRY
43.60	5.0	PLA	4.5	1.80	SF/LN	PF	DRY
43.20	4.8	PLA	4.8	2.05	SMCS	NF	DRY
43.03	5.0	PLA	0.3	0.14	MSST	PF	DRY

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649107

POINT LOAD TEST RESULTS

BOREHOLE GY110

DEPTH (M)	THICKNESS (CM)	TYPE	LOAD (KN)	IS(50) MN/M2	LITHOLOGY	FAILURE TYPE	CONDITION
4.66	5.0	PLA	0.2	0.08	SM	PF	WET
4.86	4.4	PLA	3.6	1.73	SM	NF	WET
4.90	4.2	PLA	1.0	0.51	SM	NF	WET
7.24	5.3	PLA	0.3	0.11	SM	NF	WET
8.47	5.3	PLA	1.2	0.45	SM	NF	WET
8.82	4.6	PLA	0.2	0.09	SM	NF	WET
10.46	5.2	PLA	1.1	0.41	MS	PF	WET
11.00	4.9	PLA	0.7	0.29	ST	PF	WET
11.44	4.4	PLA	0.2	0.10	SF	PF	WET
11.90	4.7	PLA	1.4	0.61	ST	PF	MDIST
12.20	4.6	PLA	2.0	0.90	SF	NF	MOIST
12.70	5.5	PLA	0.3	1.20	SF	PF	DRY
13.20	4.4	PLA	0.4	0.21	CB	NF	WET
13.66	4.4	PLA	0.0	0.95	ST	NF	DRY
13.90	5.1	PLA	0.0	0.00	S4	NF	DRY
14.20	5.3	PLA	7.5	2.72	S4	PF	DRY
14.60	4.9	PLA	0.0	0.27	SSHF	NF	DRY
14.70	5.1	PLA	1.4	0.54	SSHC	PF	DRY
14.80	4.4	PLA	0.6	1.25	S4/MS	NF	DRY
14.88	4.4	PLA	1.5	0.63	MS	NF	DRY
15.00	5.3	PLA	0.5	1.01	ST/MS	PF	DRY
15.10	5.0	PLA	0.3	3.27	SM	NF	DRY
15.12	4.5	PLA	0.2	1.02	C6	PF	DRY
15.14	4.5	PLA	1.3	0.83	C4/C7	NF	DRY
15.16	4.4	PLA	3.3	1.58	C4/C4	NF	DRY
15.17	4.7	PLA	6.5	2.82	S4/S1	PF	DRY
15.18	5.0	PLA	0.3	0.91	SM	NF	DRY
15.20	5.1	PLA	1.6	0.62	S4/S1	PF	DRY

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649108

POINT LOAD TEST RESULTS

BOREHOLE GY111

DEPTH (M)	THICKNESS (CM)	TYPE	LOAD (KN)	IS(50) MN/M2	LITHOLOGY	FAILURE TYPE	CONDITION
4.20	4.0	PLA	0.3	0.19	SF	NF	DRY
5.00	4.0	PLA	0.1	0.06	SF	NF	DRY
6.70	4.0	PLA	0.0	1.03	MS	PF	DRY
7.34	4.0	PLA	0.1	1.16	MS	NF	DRY
8.35	4.0	PLA	0.7	1.49	ST	PF	DRY
9.53	4.3	PLA	1.4	0.70	ST	NF	DRY
10.05	4.6	PLA	1.4	0.63	CM	NF	DRY
11.03	4.6	PLA	5.5	2.47	ST	NF	DRY
12.87	4.4	PLA	4.5	0.77	SF/ST	NF	DRY
14.79	5.0	PLA	9.0	3.36	SM	NF	DRY
16.59	4.9	PLA	5.3	2.63	MS	NF	DRY
18.05	5.1	PLA	0.2	0.08	CR/CB	NF	DRY
18.81	5.0	PLA	0.4	0.16	MS	PF	DRY
20.13	4.6	PLA	0.6	1.32	ST/MS	NF	DRY
21.03	5.1	PLA	1.8	0.69	MS	NF	DRY
22.03	5.2	PLA	0.2	0.82	MS	NF	DRY
23.03	5.0	PLA	0.5	1.03	MS	NF	DRY
24.91	4.0	PLA	4.0	2.88	ST	PF	DRY
26.77	4.0	PLA	4.0	1.58	SM	PF	DRY
28.60	4.0	PLA	6.0	2.78	SM	PF	DRY
30.42	4.0	PLA	5.0	2.57	SM	PF	DRY

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649109

POINT LOAD TEST RESULTS

BOREHOLE GY118

DEPTH (M)	THICKNESS (CM)	TYPE	LOAD (KN)	IS(50) KN/M2	LITHOLOGY	FAILURE TYPE	CONDITION
3.03	5.3	PLA	1.0	0.36	SFWX	NF	DRY
4.03	5.0	PLA	0.2	0.03	SFWX	PF	DRY
5.03	5.0	PLA	2.3	0.91	SMP	NF	DRY
6.52	5.0	PLA	2.6	1.03	SMP	NF	DRY
10.71	4.88	PLA	2.3	0.97	ST	NF	DRY
10.80	5.0	PLA	5.2	2.05	SF	NF	DRY

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649110

POINT LOAD TEST RESULTS

BOREHOLE QY125

DEPTH (M)	THICKNESS (CM)	TYPE	LOAD (KN)	IS(50) MN/M2	LITHOLOGY	FAILURE TYPE	CONDITION
4.09	5.3	PLA	2.0	0.73	SF	NF	DRY
5.20	4.5	PLA	0.0	0.02	CSMS	NF	MOIST

110

649111

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APPENDIX 5

ROCK STRENGTH AND DISCONTINUITY SPACING DEFINITIONS

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ROCK STRENGTH DEFINITIONS

		Unconfined Compressive Strength MN/m ²
Very Strong Rock	- Requires several hammer blows to break intact material.	100-200
Strong Rock	- Requires one hammer blow to break hand held sample.	50-100
Moderately Strong Rock	- Cannot be cut with knife. Pick indents to 5mm.	12.5-50
Moderately Weak Rock	- Difficult to obtain shallow cuts. Pick indents deeply.	5.0-12.5
Weak Rock	- Cuts easily with knife. Material crumbles under pick blows	1.25-1.50
Very Weak Rock	- May be broken in the hand with difficulty.	0.60-1.25

SOIL STRENGTH DEFINITIONS

Very Soft	- Excudes between fingers when squeezed.
Soft	- Could be excavated with spade.
Firm	- Moulded by strong pressure of fingers.
Stiff	- Cannot be moulded by fingers.

DISCONTINUITY SPACING DEFINITIONS

BEDDING	JOINTING	SPACING DEFINITION
Very Thick	Very wide	0.6m - 2.0m
Thick	Wide	0.2m - 0.6m
Moderately Thick	Moderately wide	0.06m - 0.2m
Moderately Thin	Moderately close	20mm - 0.06m
Very Thin	Very close	< 6mm

The Shell Company of Australia Limited
Incorporated in Victoria

and

Industrial and Mining Investigations Pty. Limited
Incorporated in the A.C.T.

TASMANIA - GRAY E.L. 5/61

HAREFIELD
GEOLOGICAL REPORT

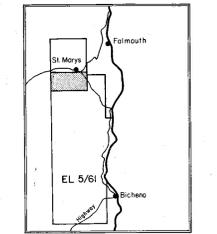
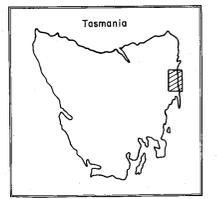
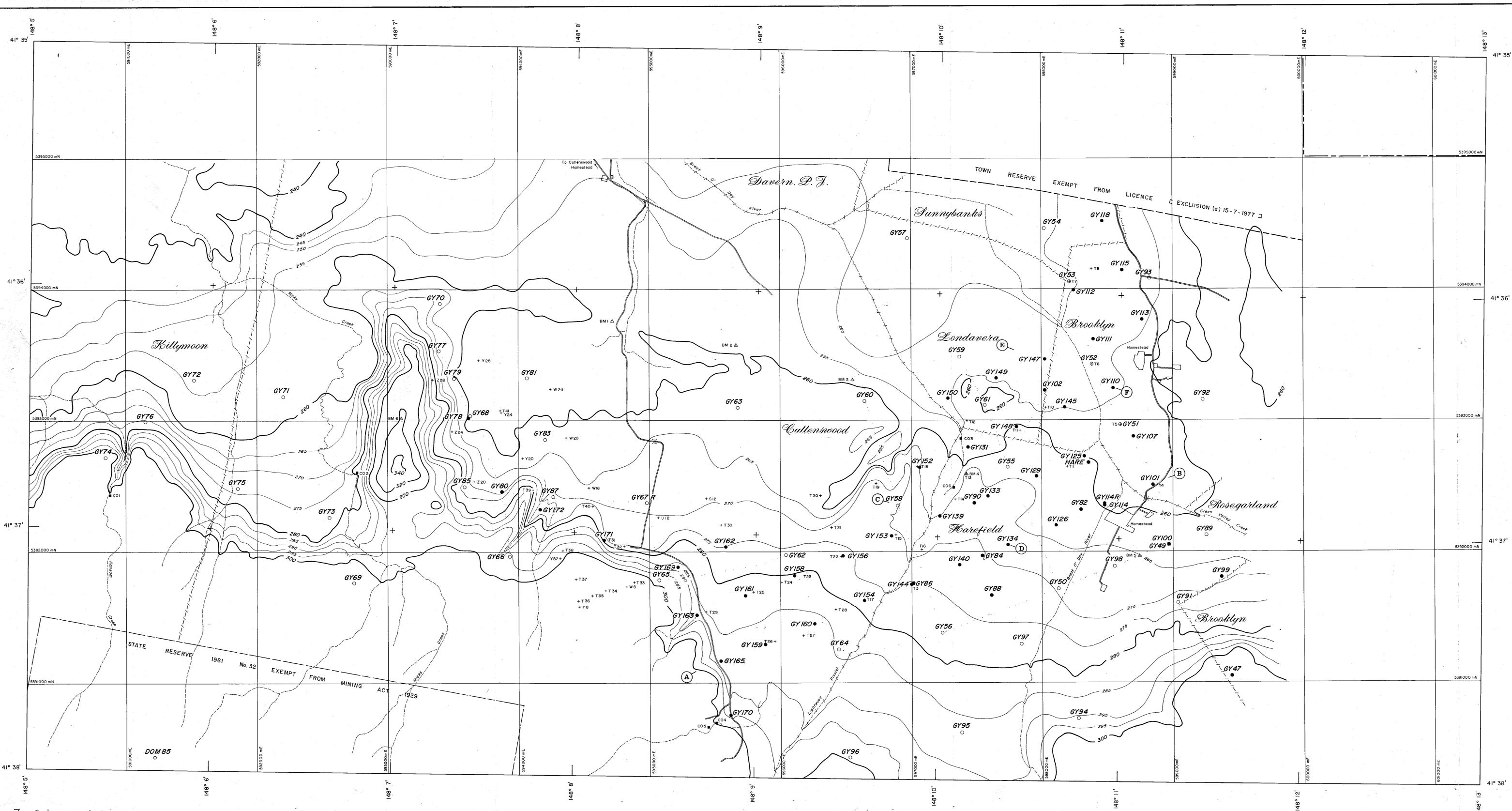
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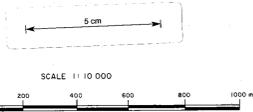
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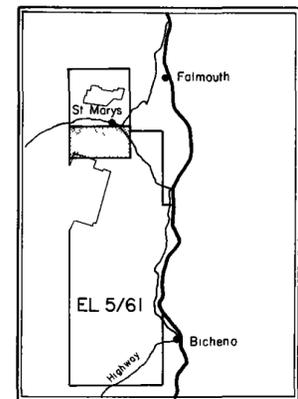
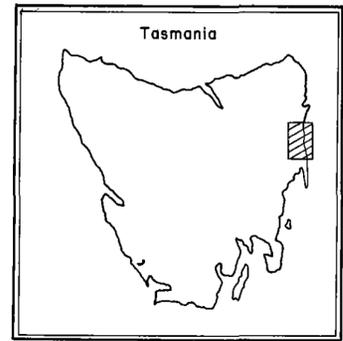
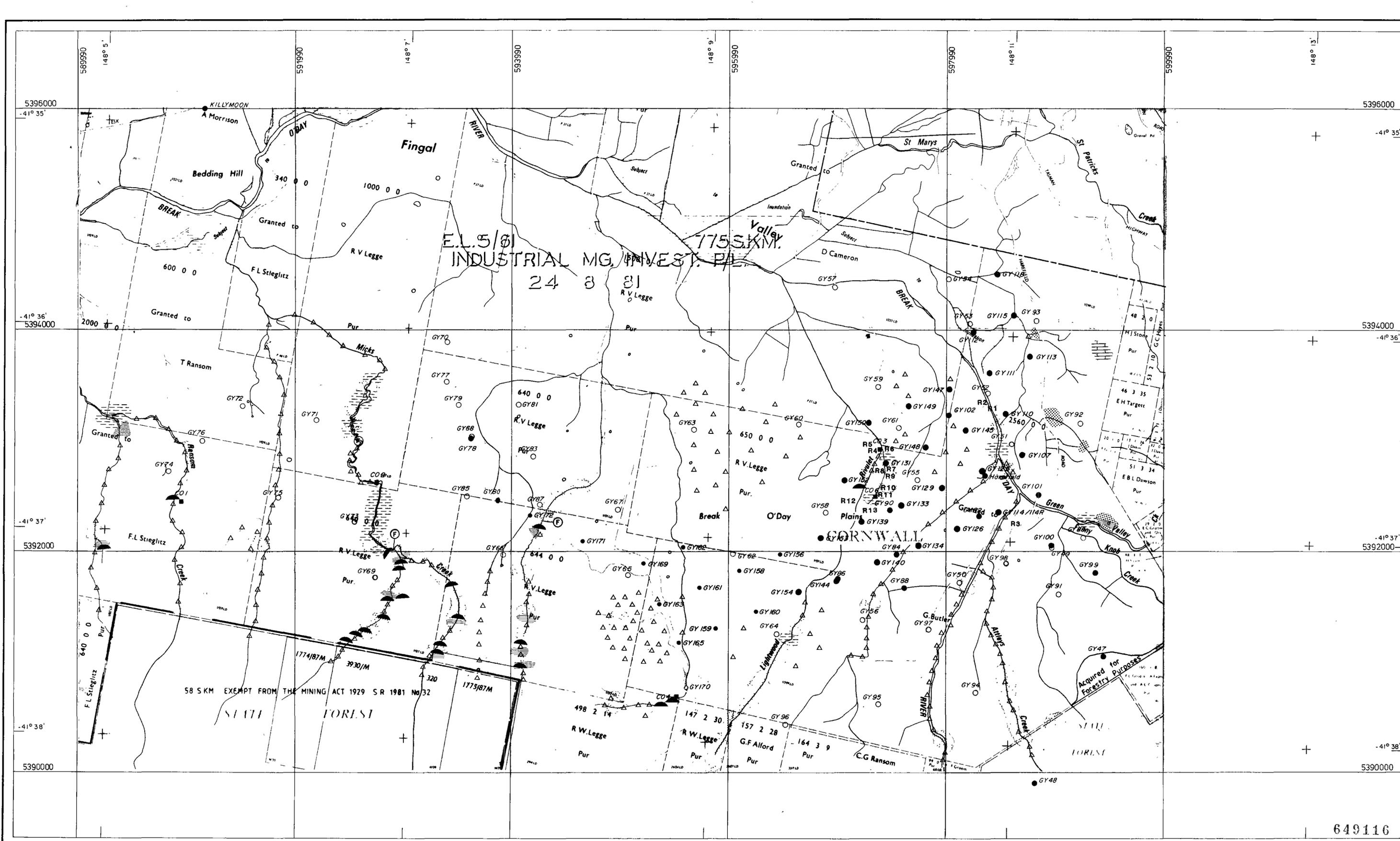
LEGEND

- Harefield* Property name
- Lease boundary and exempt areas
- Formed road
- Improvements
- Bridge
- - - - Property boundary
- - - - Creek forming property boundary
- Creek or river
- 260- Topographic contour (Australian Metric Grid)
- (A) (B) Section location
- △ BM 3 Bench Mark
- + T 13 Survey Peg
- CO 1 Surveyed Point
- GY 89 Open Drill Hole
- GY 90 Cored Drill Hole



Note: Contours are approximate
 Compiled from surveyed points (± 0.1m Horizontal & Vertical accuracy)
 Lands Department 1:20000 Topographic Map
 and enlarged at photo 16-177; 29.4.79

THE SHELL COMPANY OF AUSTRALIA LTD.
 TASMANIA - GRAY EL 5761
 HAREFIELD
TOPOGRAPHIC AND LAND TENURE MAP
 Scale 1:10 000
 Author: Coal Division Date: November 1982
 Report No: CEPR 32/82 Drawing No: 2822 Encl. 1



LEGEND

- GY56 Open hole
- GY88 Cored hole
- CO 1 Coal outcrop surveyed
- ⊕ Fault (no directions observed)
- R4 Joint measurements for rose diagrams
- △ △ △ Dolerite alluvium
- ▨ Mudstone
- ▨ Carbonaceous mudstone
- ▨ Sandstone
- ▨ Coal outcrop (seam correlation unknown)
- ▨ Limestone
- ▨ Quartz sandstone

5 cm

SCALE 1:20 000



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 TASMANIA — GRAY EL 5/61
 HAREFIELD

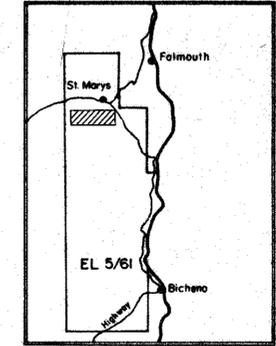
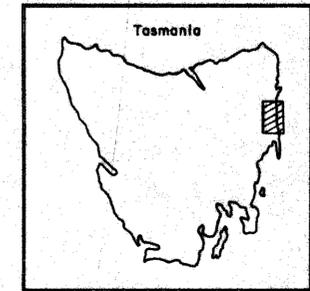
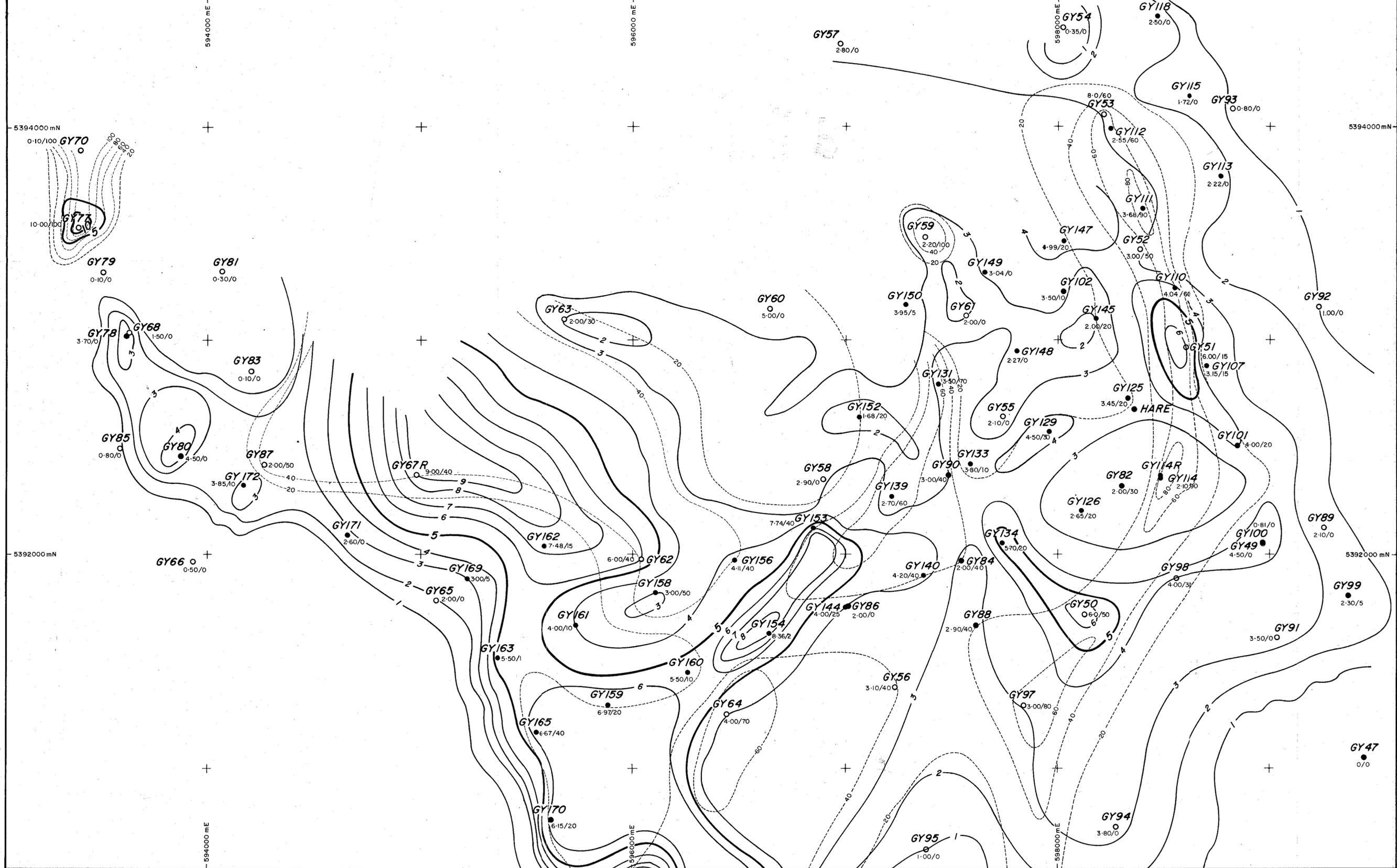
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Author Coal Division Date Oct. 1982
 Report No. CEPR 34/82 Drawing No. 2823

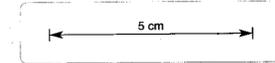
Encl. 2

649116

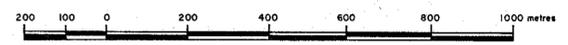


LEGEND

- Open drill hole
- Cored drill hole
- Soil isopach (m)
- - - - Dolerite Alluvium content as a percentage of the soil volume
- 3.50/0 Soil depth (m) / dolerite alluvium content %



SCALE 1:10 000



THE SHELL COMPANY OF AUSTRALIA LTD.

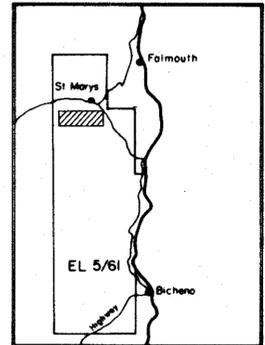
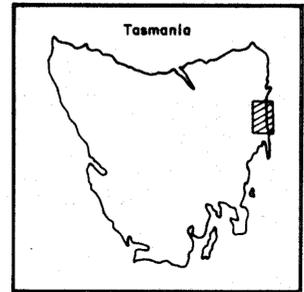
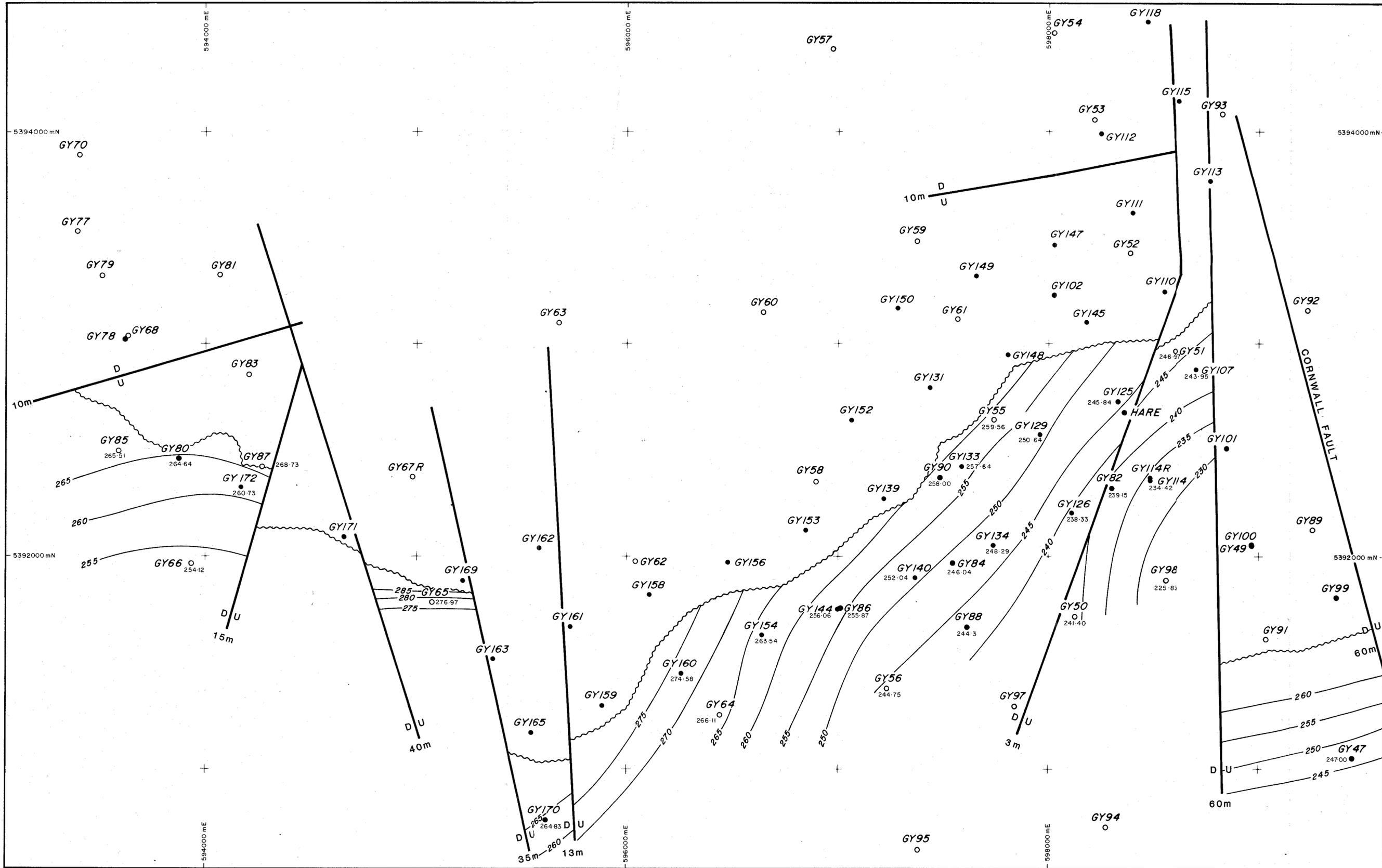
TASMANIA - GRAY EL 5/61
HAREFIELD

SOIL DEPTH AND DOLERITE ALLUVIUM CONTENT

Scale 1:10 000

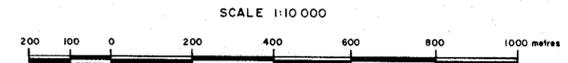
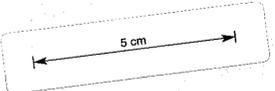
Author: Coal Division Date: November 1982
Report No: CEPR 32/82 Drawing No: 2824

649117 Encl. 3



LEGEND

- Open drill hole
- Cored drill hole
- Subcrop
- 10m D U Fault with indicated vertical displacement
- 250— Structure contour base of geological seam (m/AHD)
- 234.42 R.L. base of seam



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 TASMANIA - GRAY EL 5/61
 HAREFIELD

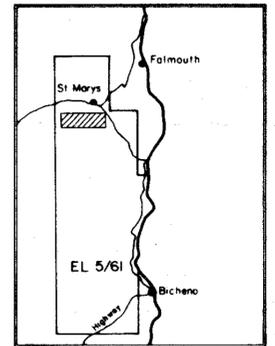
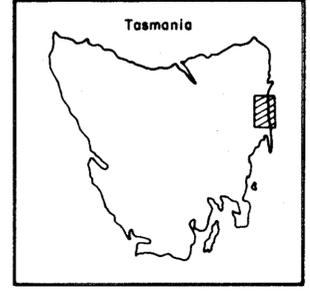
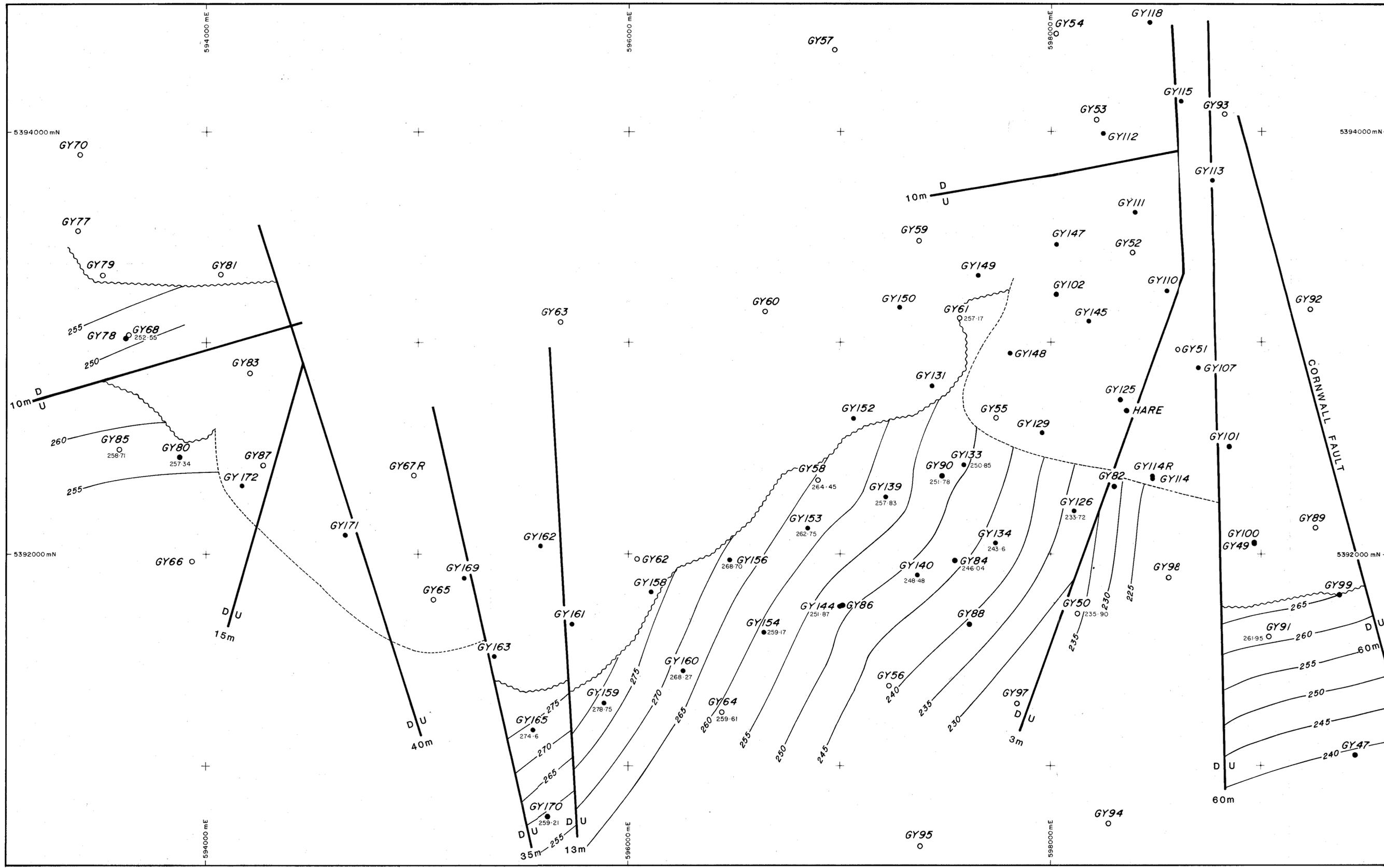
**DE SEAM
 STRUCTURE CONTOURS**

Scale 1:10 000

Author: Cool Division	Date: November 1982	Encl. 4
Report No: CEPR 32/82	Drawing No: 2825	

649118

70099

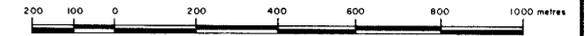


LEGEND

- Open drill hole
- Cored drill hole
- Washout
- 10m D U Fault with indicated vertical displacement
- 250 Structure contour base of geological seam (m/MHD)
- 221.05 R. L. base of seam



SCALE 1:10 000



THE SHELL COMPANY OF AUSTRALIA LTD.
 TASMANIA - GRAY EL 5/61
 HAREFIELD

**E2 SEAM
 STRUCTURE CONTOURS**

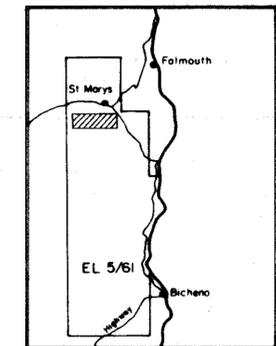
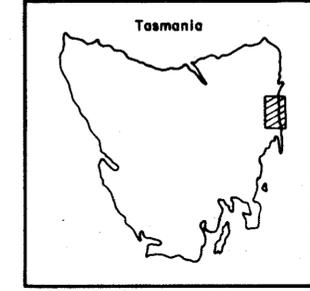
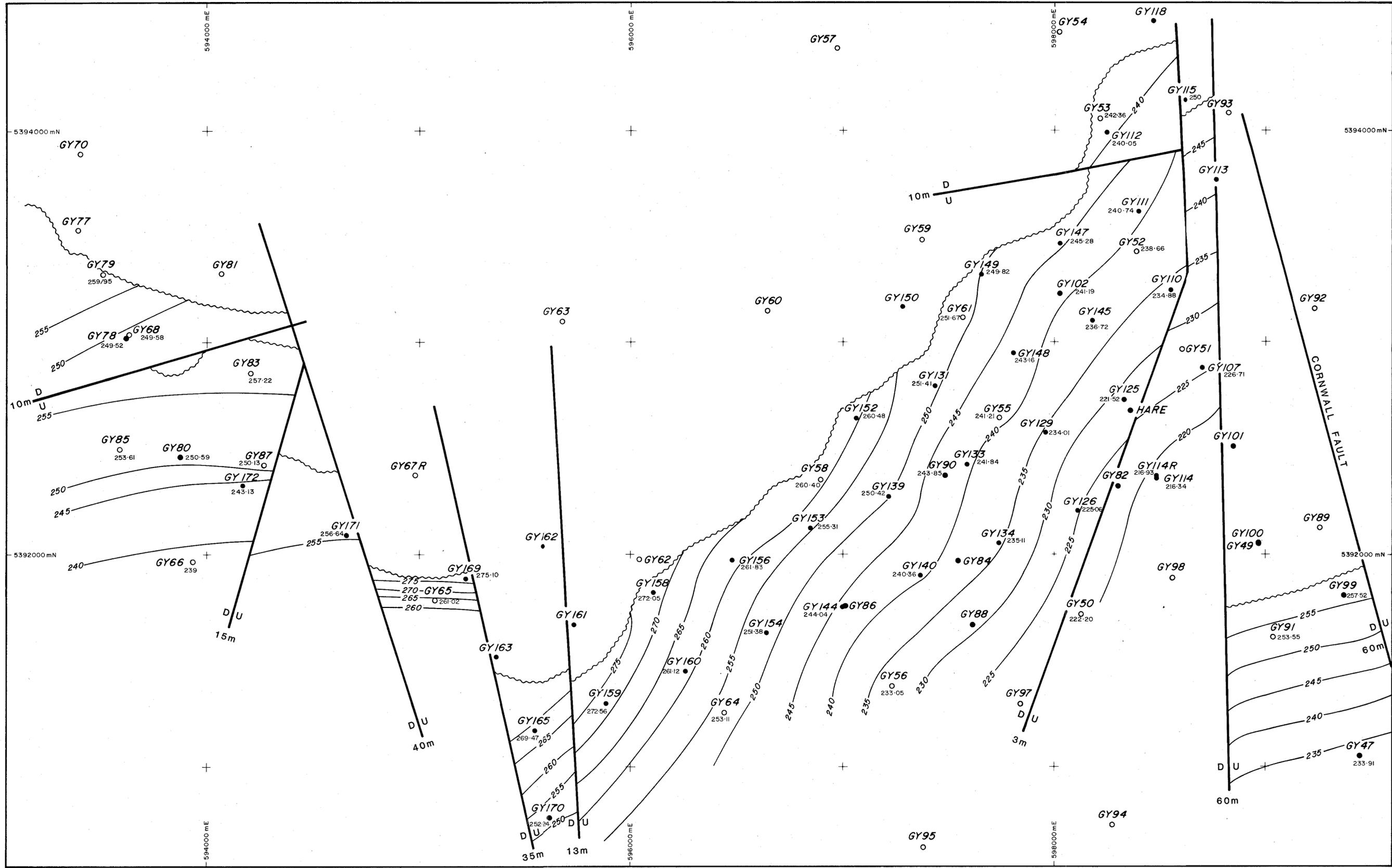
Scale 1:10 000

Author: Coal Division	Date: November 1982
Report No: CEPR 32/82	Drawing No: 2826

Encl. 5

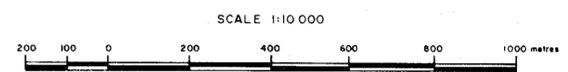
640119

7010



LEGEND

- Open drill hole
- Cored drill hole
- Subcrop
- 10m $\begin{matrix} D \\ U \end{matrix}$ Fault with indicated vertical displacement
- 250 Structure contour base of geological seam (m-AHD)
- 222.20 R.L. to base of seam



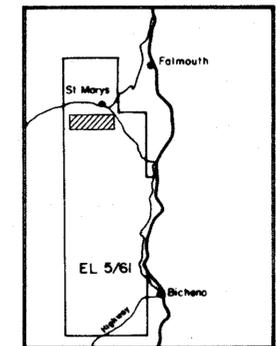
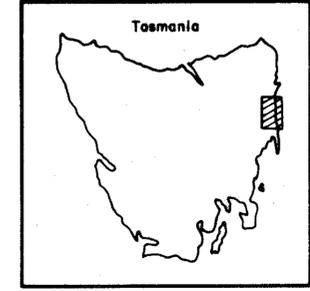
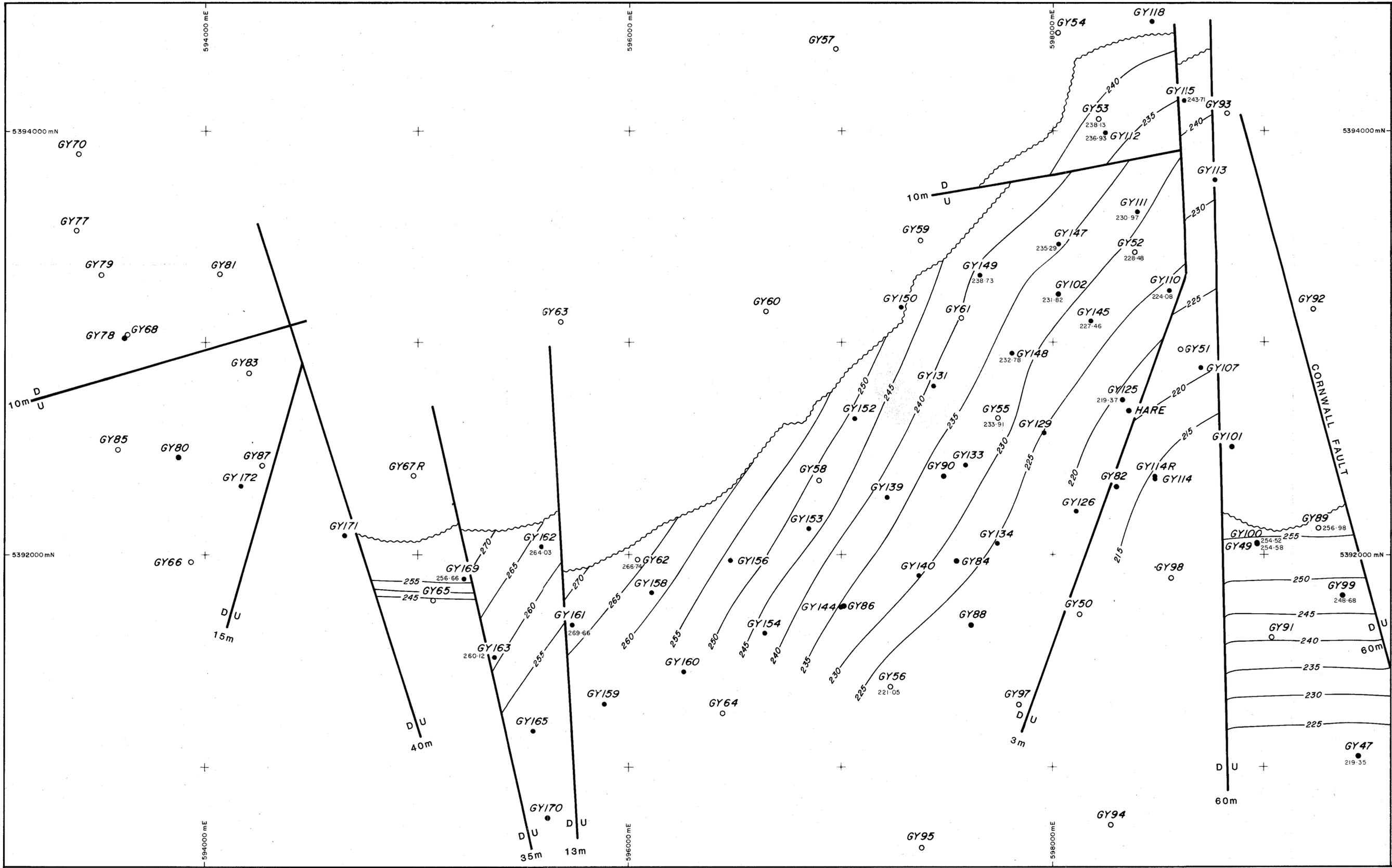
THE SHELL COMPANY OF AUSTRALIA LTD.
TASMANIA - GRAY EL 5/61
HAREFIELD

**E 3 SEAM
STRUCTURE CONTOURS**

Scale 1:10,000

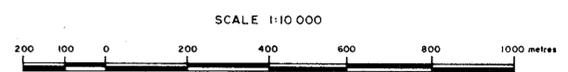
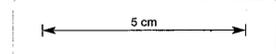
Author: Coal Division	Date: November 1982	Encl. 6
Report No. CEPR 32/82	Drawing No 2827	

649120



LEGEND

- Open drill hole
- Cored drill hole
- Subcrop
- 10m $\frac{D}{U}$ Fault with indicated vertical displacement
- 250— Structure contour base of geological seam (m/AHD)
- 214.37 R.L. base of seam



THE SHELL COMPANY OF AUSTRALIA LTD.
 TASMANIA - GRAY EL 5/61
 HAREFIELD

**DF SEAM
 STRUCTURE CONTOURS**

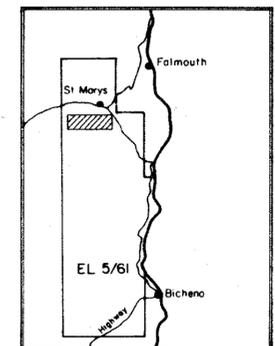
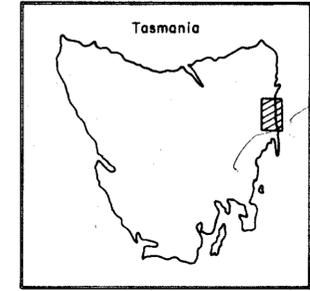
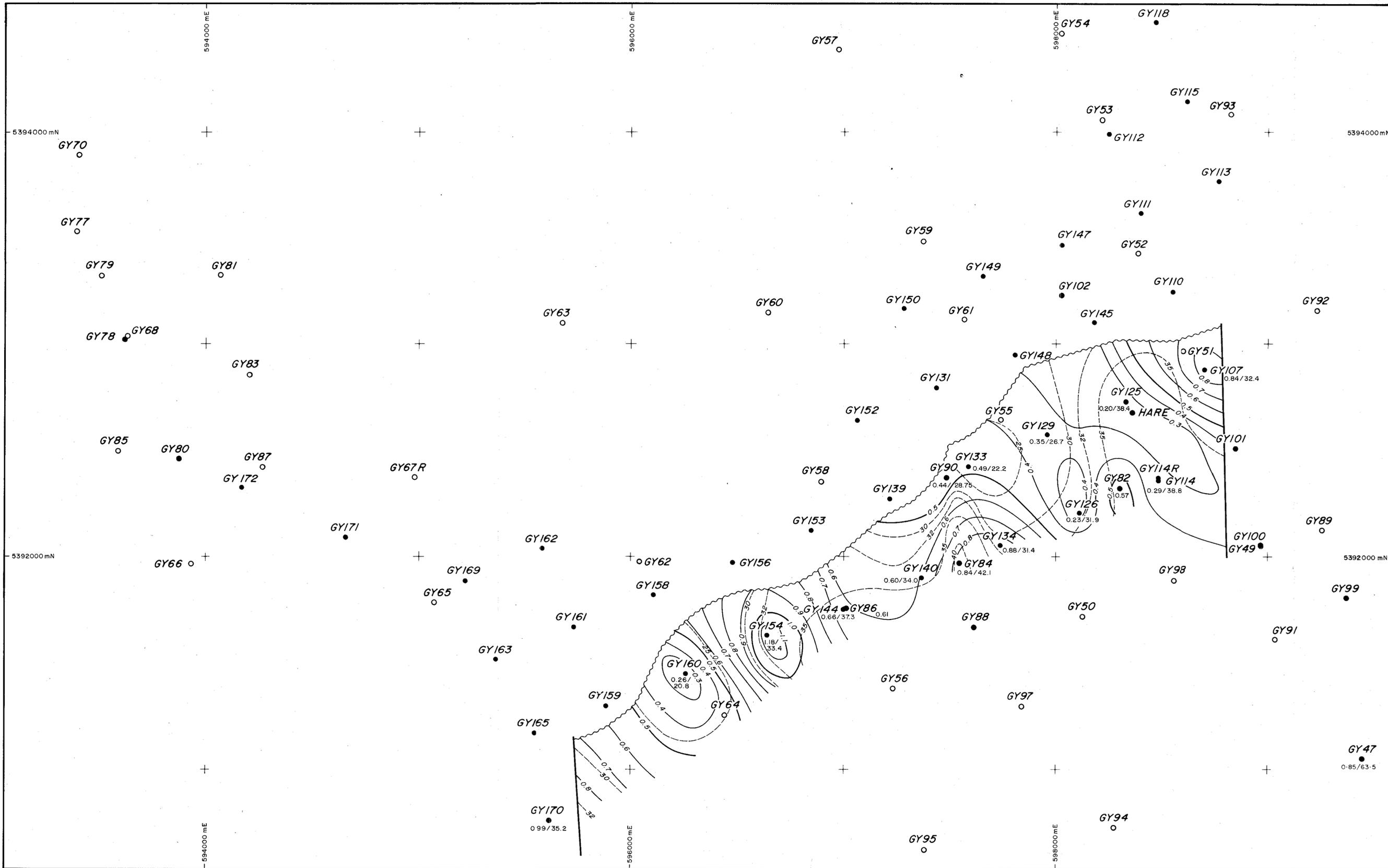
Scale 1:10,000

Author: Coal Division	Date: November 1982
Report No: CEPR 32/82	Drawing No: 2828

Encl. 7

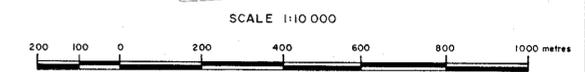
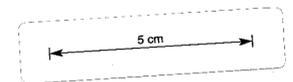
649121

7012



LEGEND

- GY 51 Open drill hole
- GY 90 Core drill hole
- 0.6 — Isopach (m)
- 80 --- Isoash (%)
- ~~~~~ Subcrop
- Fault
- 0.29/38.8 Seam thickness / % Yield (for 22.5% Ash)



THE SHELL COMPANY OF AUSTRALIA LTD.
 TASMANIA - GRAY EL 5/61
 HAREFIELD

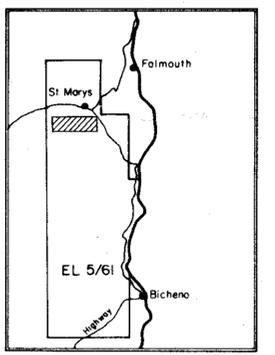
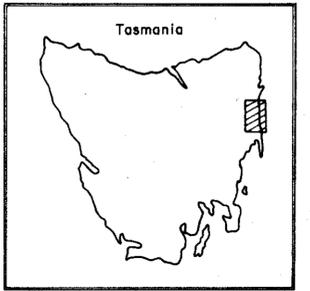
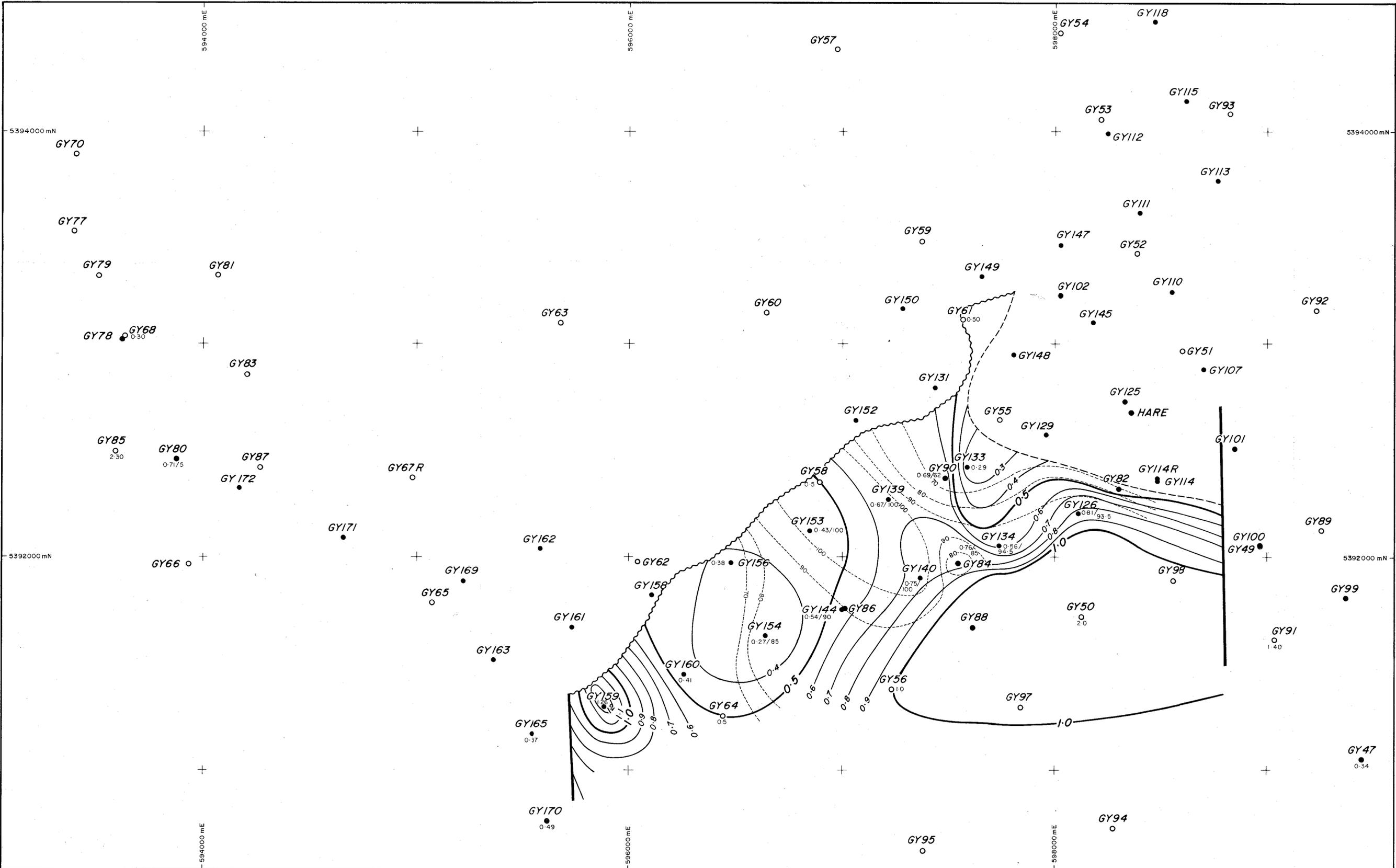
**DE SEAM
 PREFERRED WORKING SECTION
 THICKNESS AND RAW ASH**

Scale 1:10 000

Author: Coal Division	Date: November 1982	Encl. 8
Report No: CEPR 32/82	Drawing No: 2829	

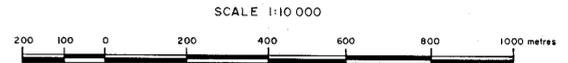
649122

7013



LEGEND

- Open drill hole
- Cored drill hole
- ~ Subcrop
- Fault
- 0.3 Isopach (m)
- Washout
- 80 Isoyield % (for 22.5% Ash)
- 0.81/93.5 Seam thickness / % yield (for 22.5% Ash)



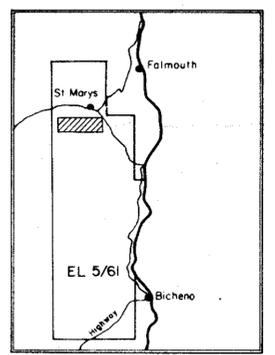
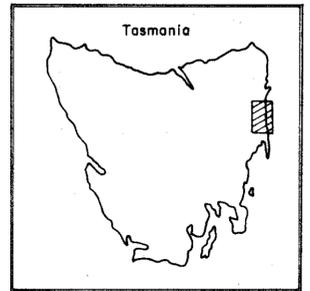
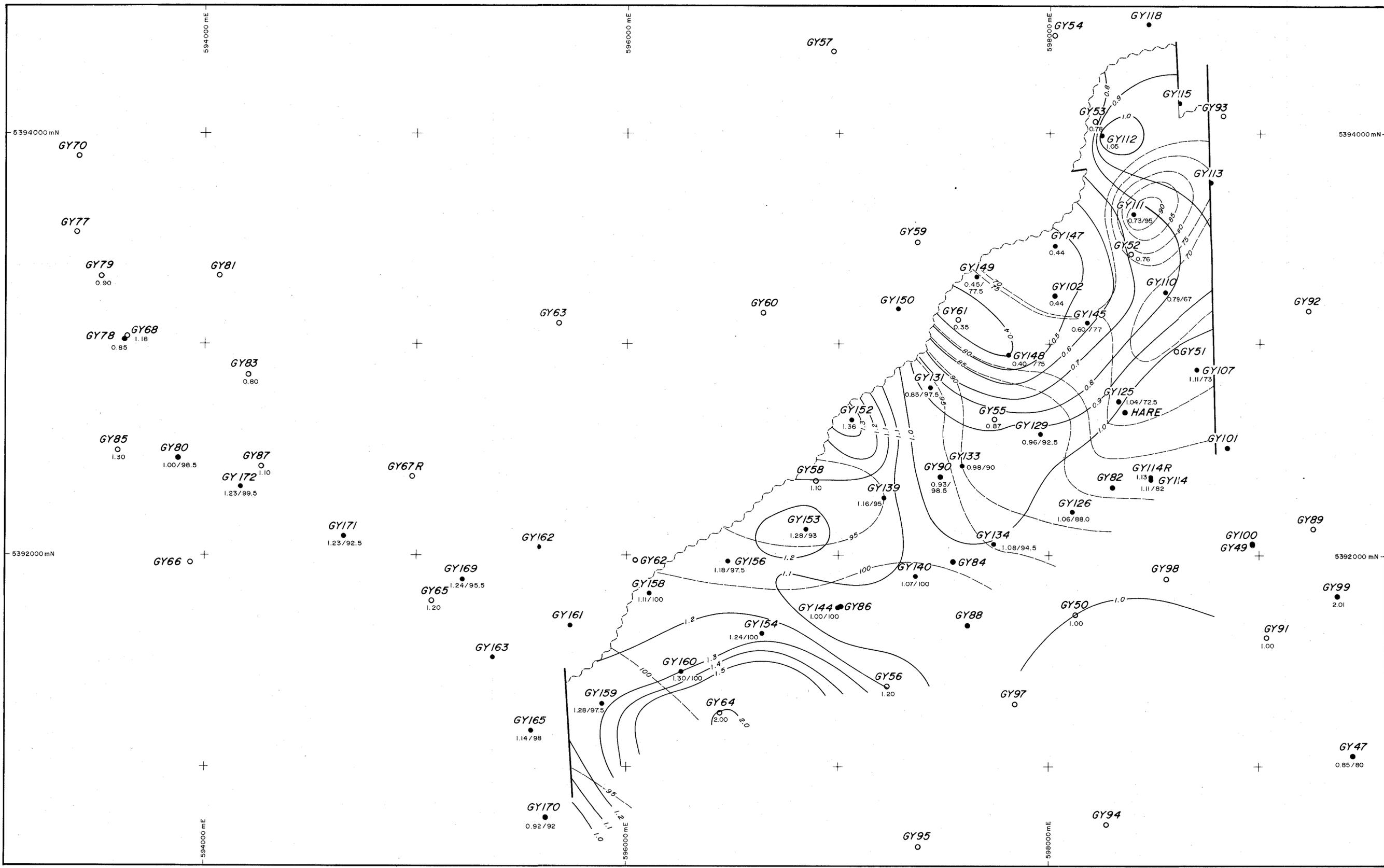
THE SHELL COMPANY OF AUSTRALIA LTD
 TASMANIA - GRAY EL 5/61
 HAREFIELD

**E2 SEAM
 PREFERRED WORKING SECTION
 THICKNESS & YIELD FOR 22.5% ASH**
 Scale 1:10,000

Author: Coal Division	Date: November 1982
Report No: CEPR 32/82	Drawing No: 2830

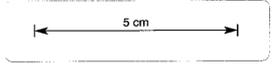
Encl. 9

649123

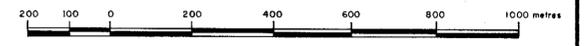


LEGEND

- GY 51 Open drill hole
- GY 90 Core drill hole
- 0.6 — Isopach (m)
- 80 --- Isoyield % (for 22.5% Ash)
- ~~~~~ Subcrop
- Fault
- 0.96/92.5 Thickness / % yield (for 22.5% Ash)



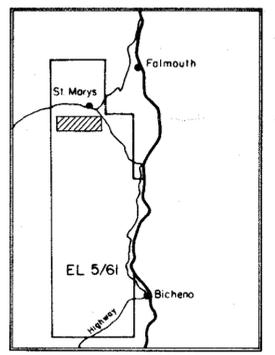
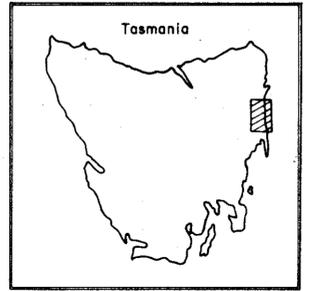
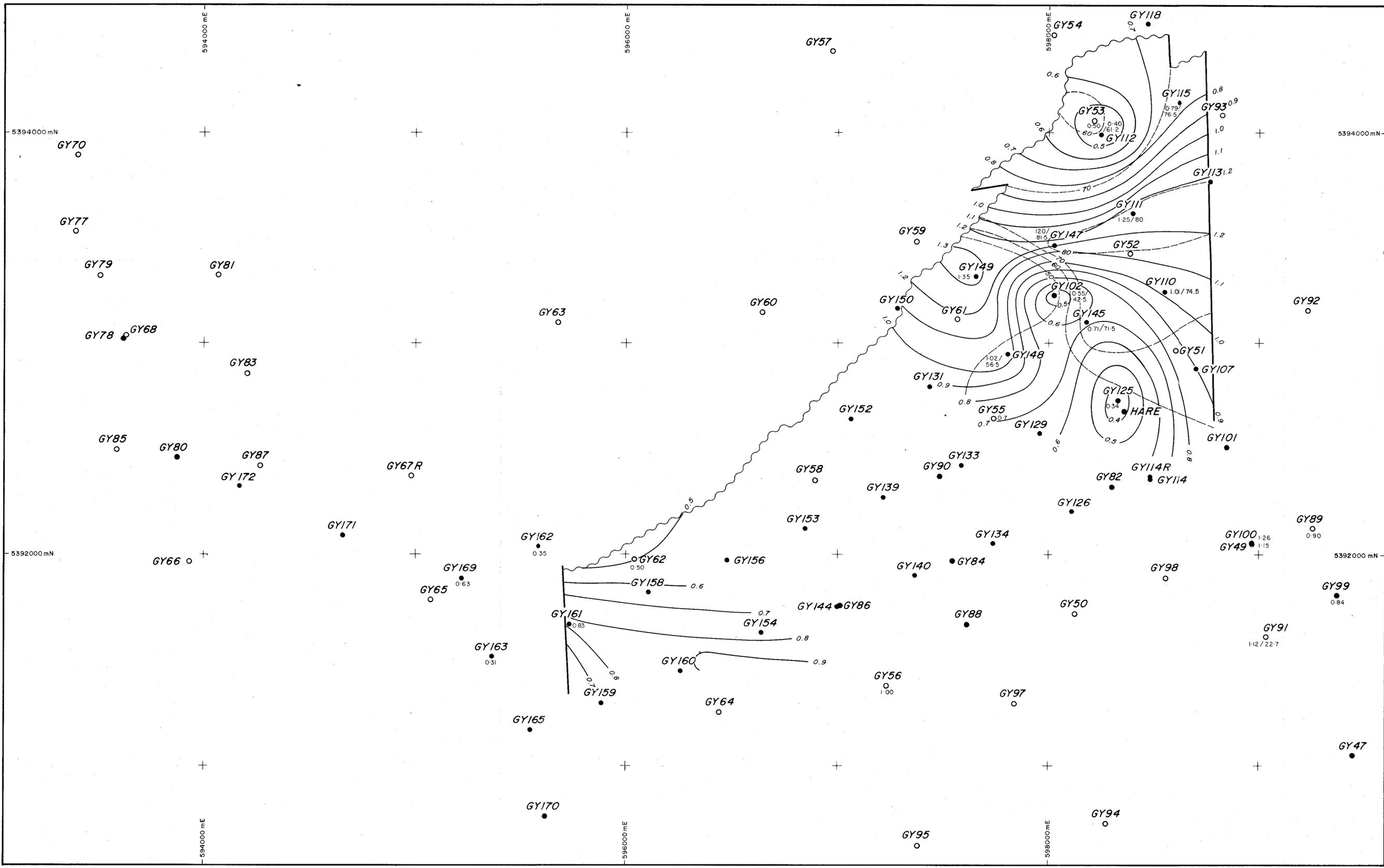
SCALE 1:10 000



THE SHELL COMPANY OF AUSTRALIA LTD.
 TASMANIA - GRAY EL 5/61
 HAREFIELD
E3 SEAM 7015
PREFERRED WORKING SECTION
THICKNESS & YIELD FOR 22.5% ASH
 Scale 1:10 000

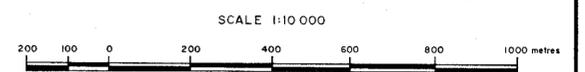
Author: Coal Division	Date: November 1982	Encl. 10
Report No: CEPR 32/82	Drawing No: 2831	

649124



LEGEND

- GY 51 Open drill hole
- GY 90 Core drill hole
- 0.6 — Isopach (m)
- 80 — Isoyield % (for 22.5% Ash)
- ~~~~~ Subcrop
- Fault
- 1-02/56.5 Thickness / % Yield (For 22.5% Ash)



THE SHELL COMPANY OF AUSTRALIA LTD.
 TASMANIA - GRAY EL 5/61
 HAREFIELD

**DF SEAM
 PREFERRED WORKING SECTION
 THICKNESS & YIELD FOR 22.5% ASH**

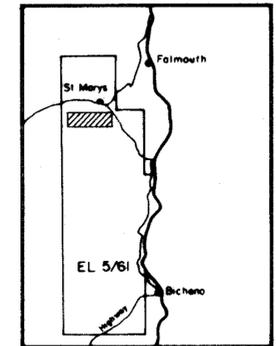
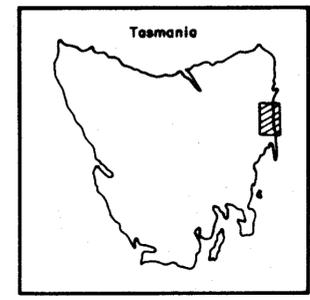
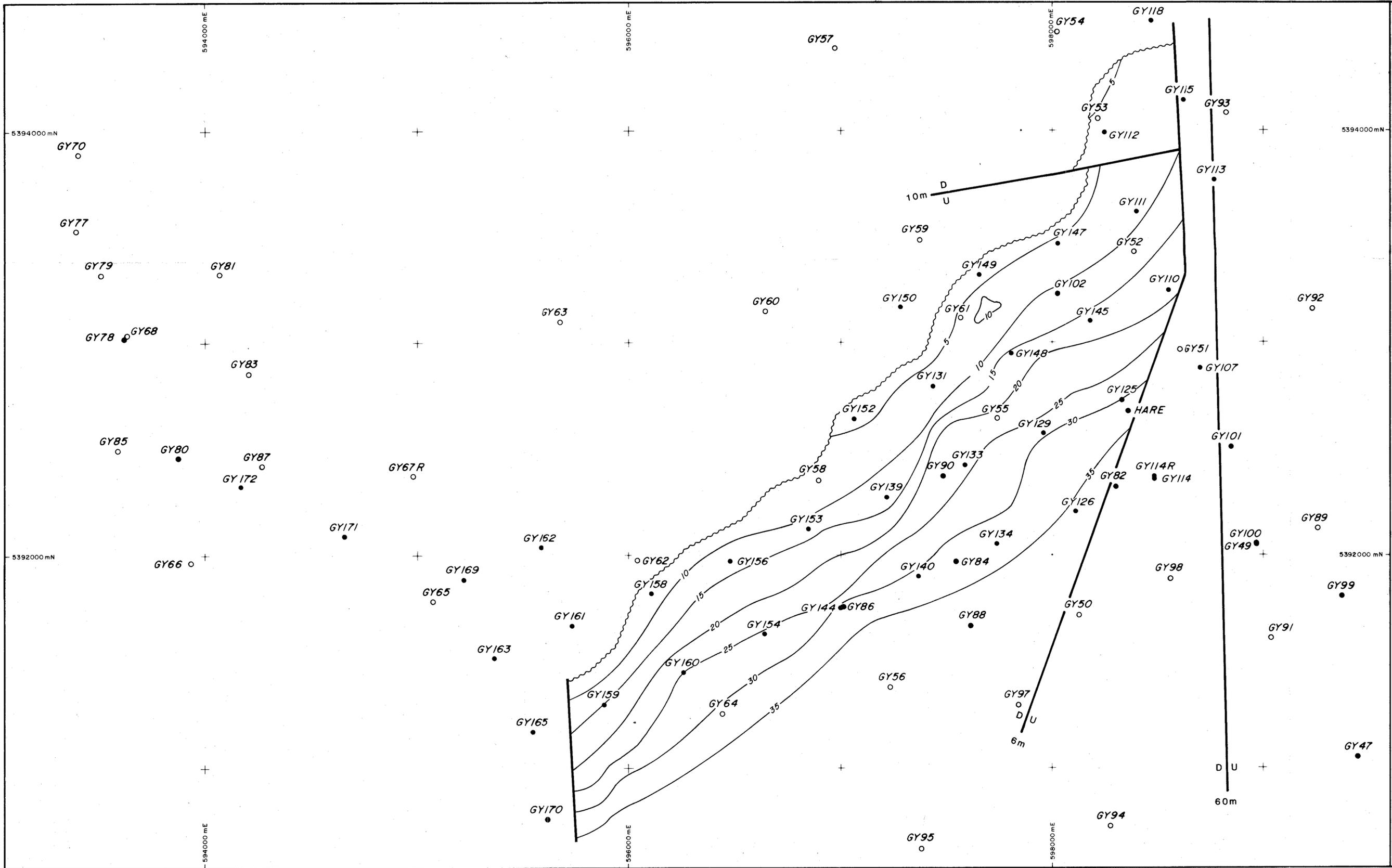
Scale 1:10,000

Author: Coal Division	Date: November 1982
Report No: CEPR 32/82	Drawing No: 2832

Encl. II

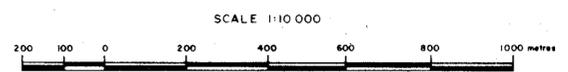
649125

7016



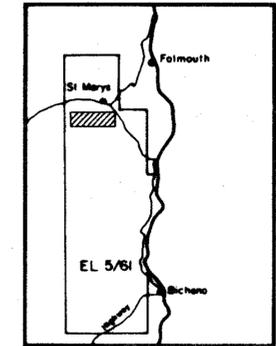
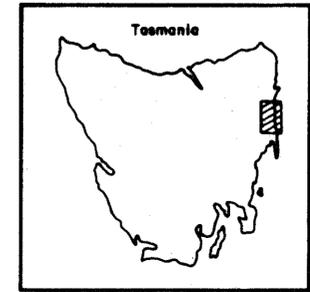
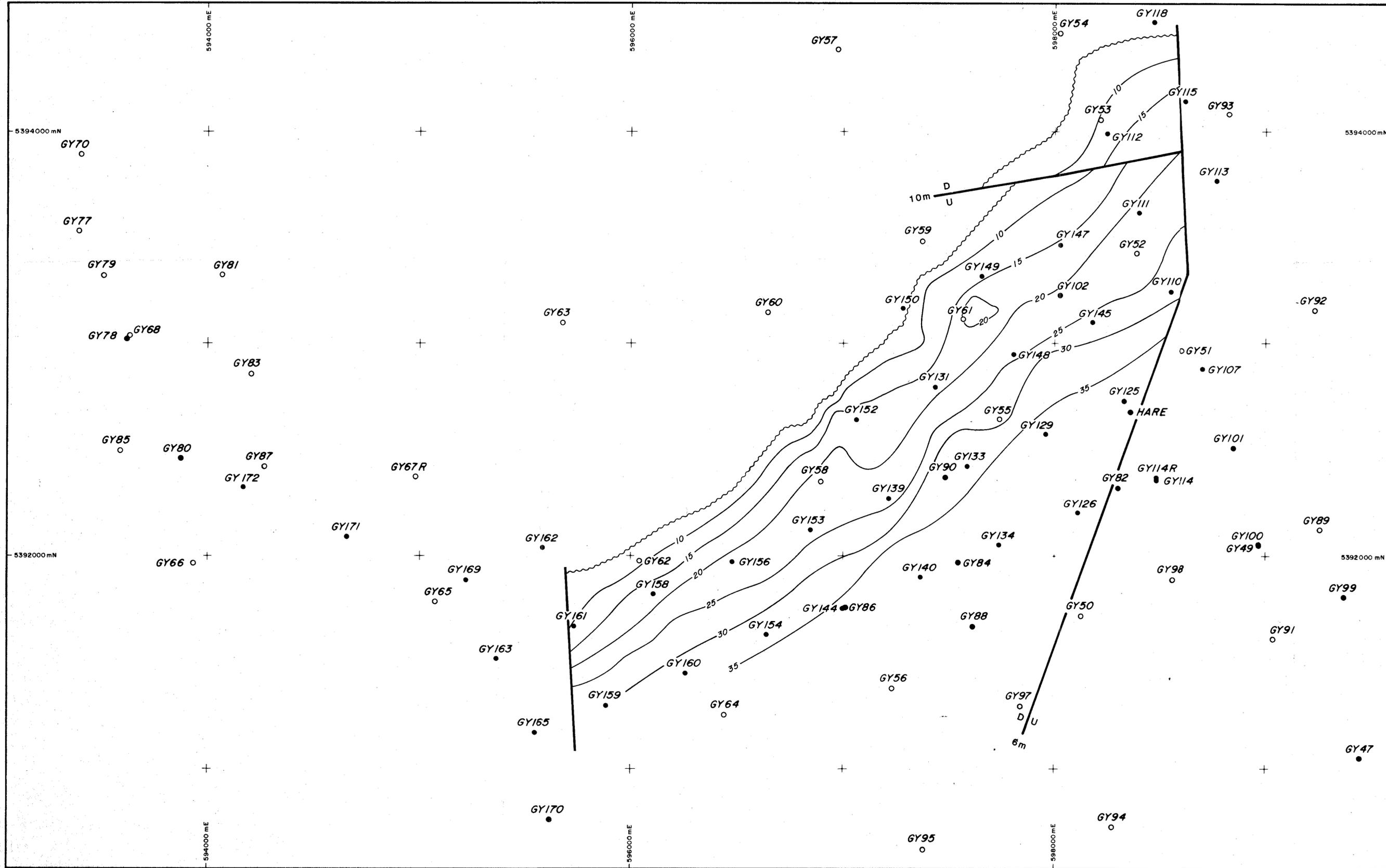
LEGEND

- Open drill hole
- Cored drill hole
- Subcrop
- 10m $\frac{D}{U}$ Fault with indicated vertical displacement
- 15 Overburden isopach (m)



THE SHELL COMPANY OF AUSTRALIA LTD.			
TASMANIA - GRAY EL 5/61 HAREFIELD			
E3 SEAM DEPTH TO ROOF			
Scale 1:10,000			
Author: Coal Division	Date: November 1982	7027	
Report No: CEPR 32/82	Drawing No: 2833		
		Encl. 12	

649126

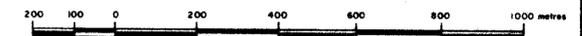


LEGEND

- Open drill hole
- Cored drill hole
- Subcrop
- 10m $\begin{matrix} D \\ U \end{matrix}$ Fault with indicated vertical displacement
- 15 — Overburden isopach (m)

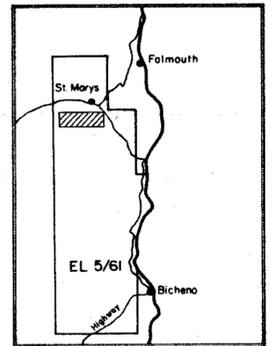
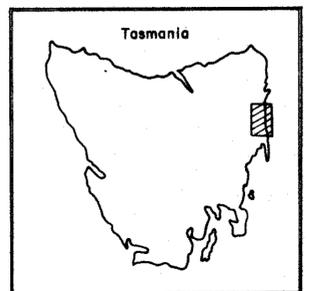
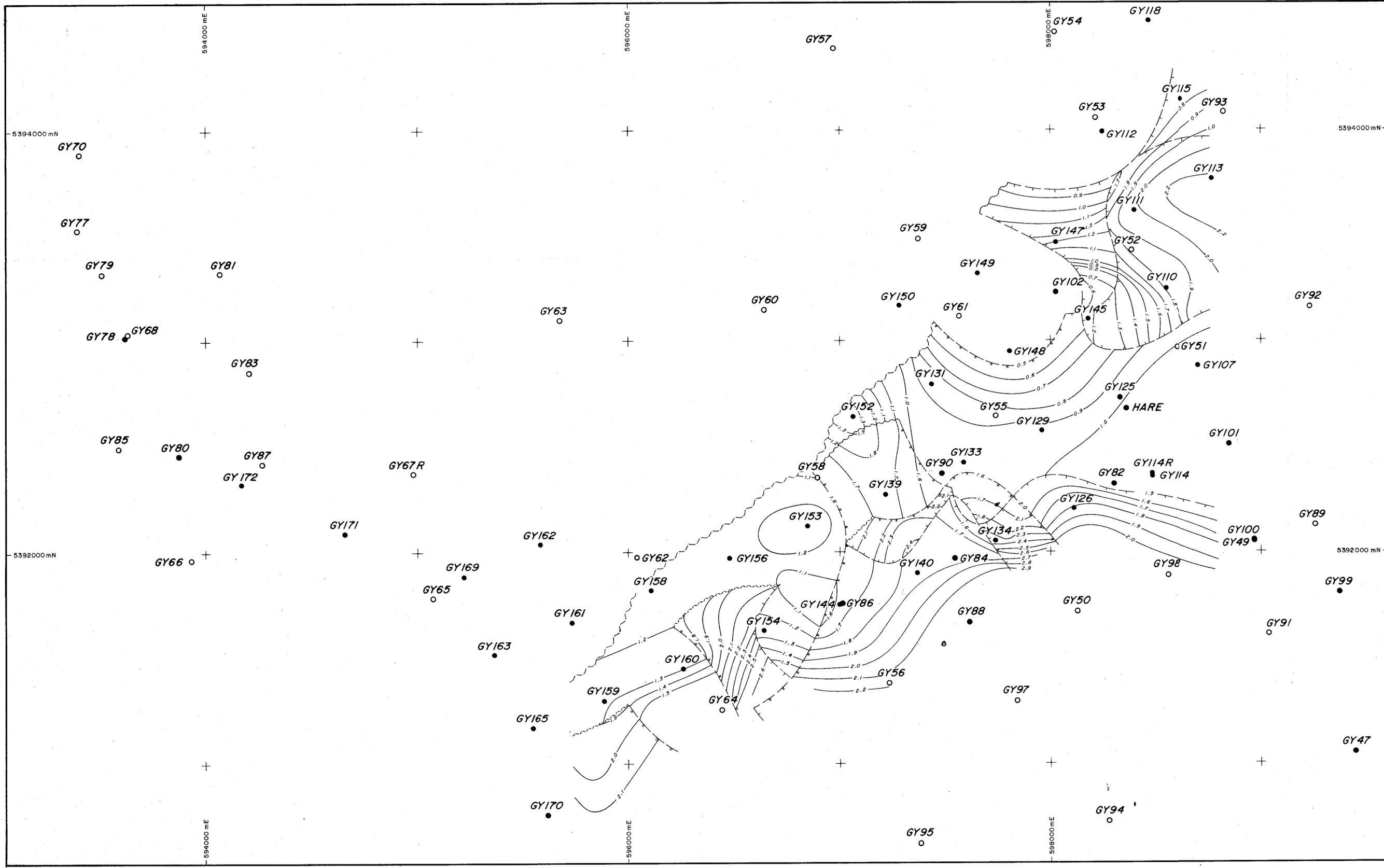


SCALE 1:10 000



THE SHELL COMPANY OF AUSTRALIA LTD.		
TASMANIA - GRAY EL 5/61 HAREFIELD		
DF SEAM DEPTH TO ROOF		
7028		
Scale 1:10 000		
Author: Coal Division	Date: November 1982	Encl. 13
Report No. CEPR 32/82	Drawing No. 2834	

649127



LEGEND

- GY51 Open drill hole
- GY90 Core drill hole
- 1.9 — Combined seams isopach (m)
- — — Seam reserve minimum thickness limitation
- — — Seam reserve minimum yield limitation
- ~~~~~ Subcrop DE seam
- ~~~~~ Subcrop E2 seam
- ~~~~~ Subcrop E3 seam
- ~~~~~ Subcrop DF seam



200 100 0 200 400 600 800 1000 metres

THE SHELL COMPANY OF AUSTRALIA LTD.

TASMANIA - GRAY EL 5/61
HAREFIELD

**COMBINED SEAMS
RESERVE THICKNESS**

Scale 1:10,000

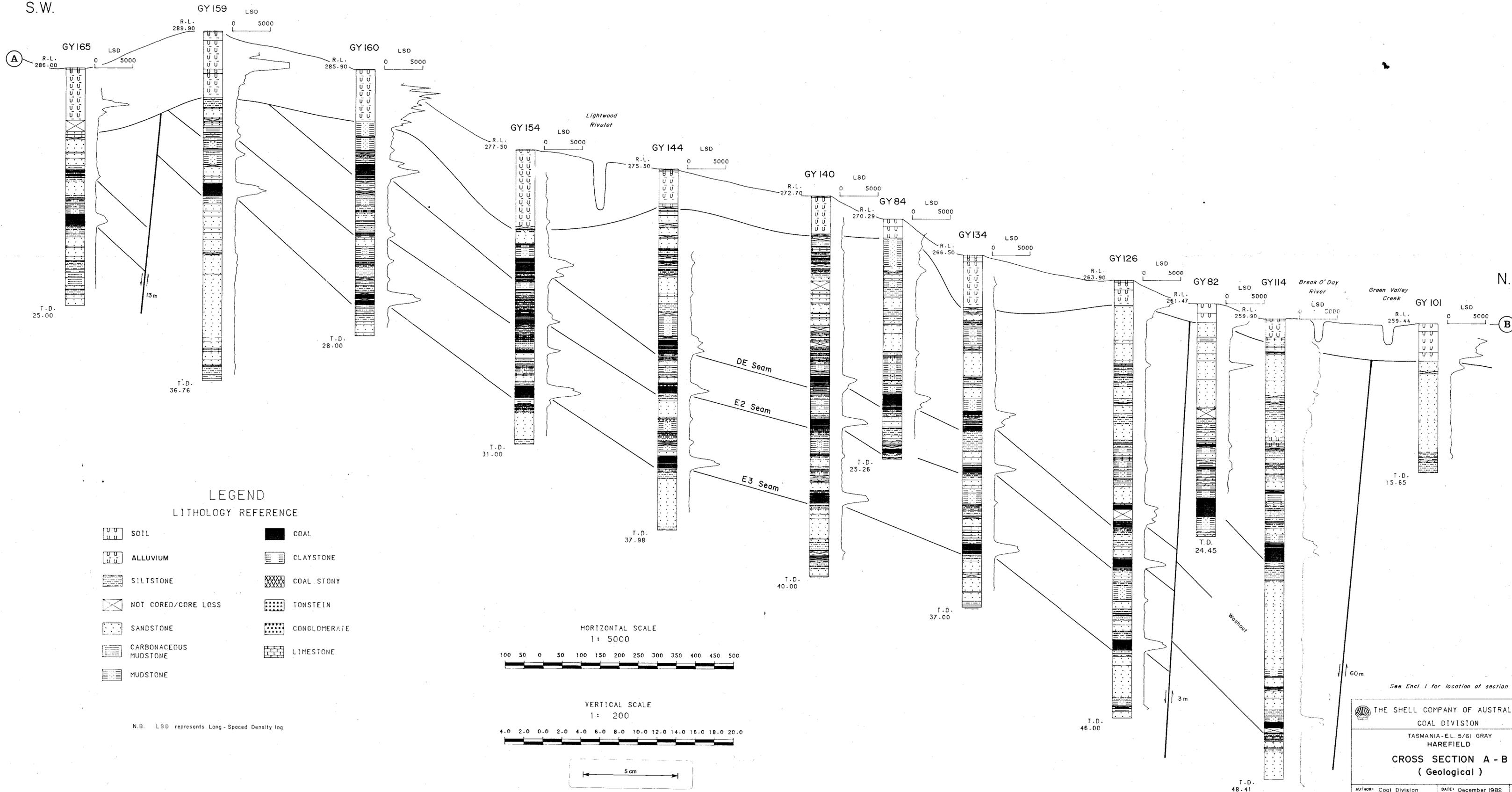
Author: Coal Division Date: November 1982
Report No: CEPR 32/82 Drawing No: 2835 Encl. 14

649128

7019

S.W.

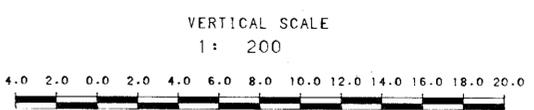
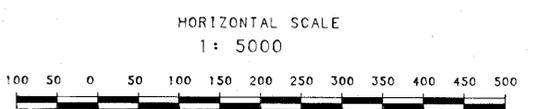
N.E.



LEGEND
LITHOLOGY REFERENCE

- | | | | |
|--|-----------------------|--|--------------|
| | SOIL | | COAL |
| | ALLUVIUM | | CLAYSTONE |
| | SILTSTONE | | COAL STONY |
| | NOT CORED/CORE LOSS | | TONSTEIN |
| | SANDSTONE | | CONGLOMERATE |
| | CARBONACEOUS MUDSTONE | | LIMESTONE |
| | MUDSTONE | | |

N.B. LSD represents Long-Spaced Density log



THE SHELL COMPANY OF AUSTRALIA LTD.
COAL DIVISION
TASMANIA - EL. 5/61 GRAY
HAREFIELD

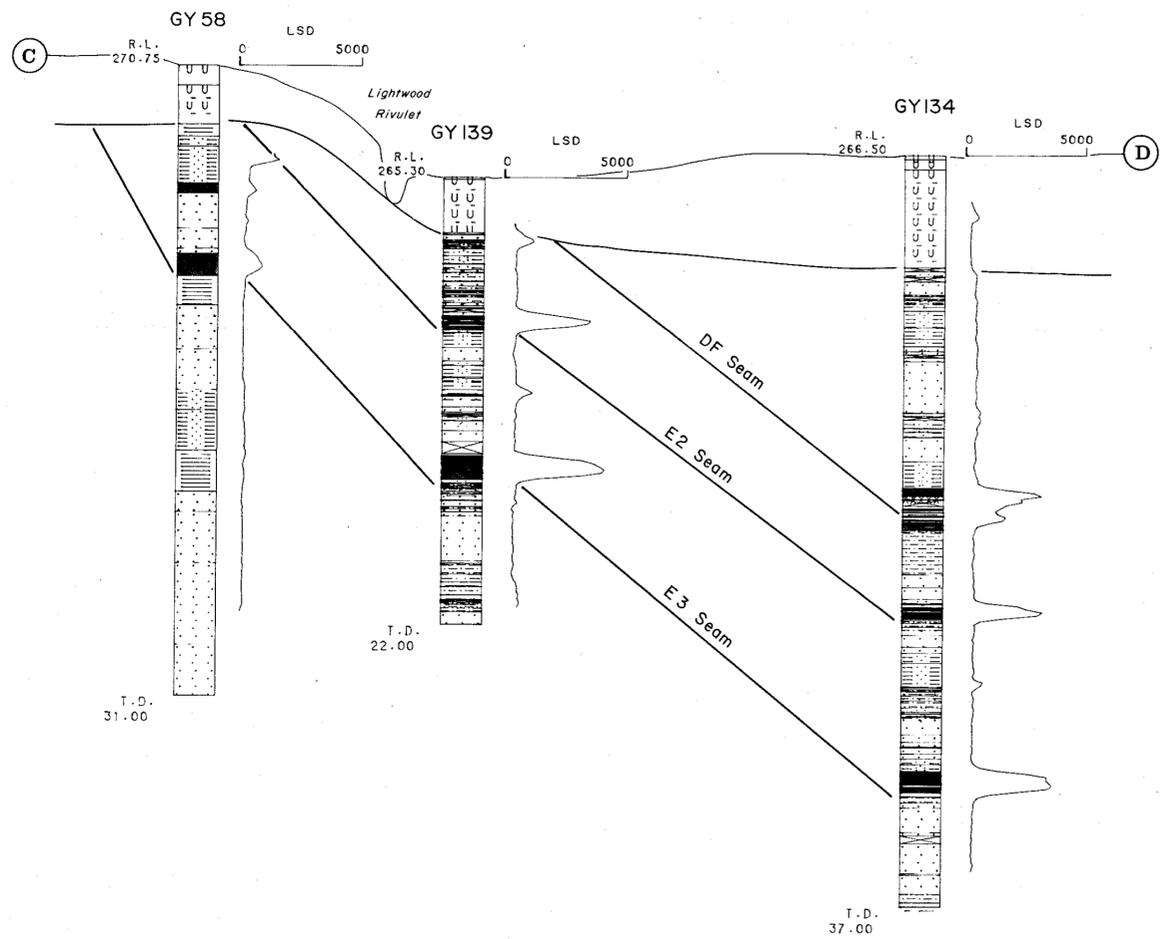
CROSS SECTION A - B
(Geological)

AUTHOR: Coal Division	DATE: December 1982	ENCL. 16
REPORT NO: CEPR 32/82	DRAWING NO: 2837	

640130

N.W.

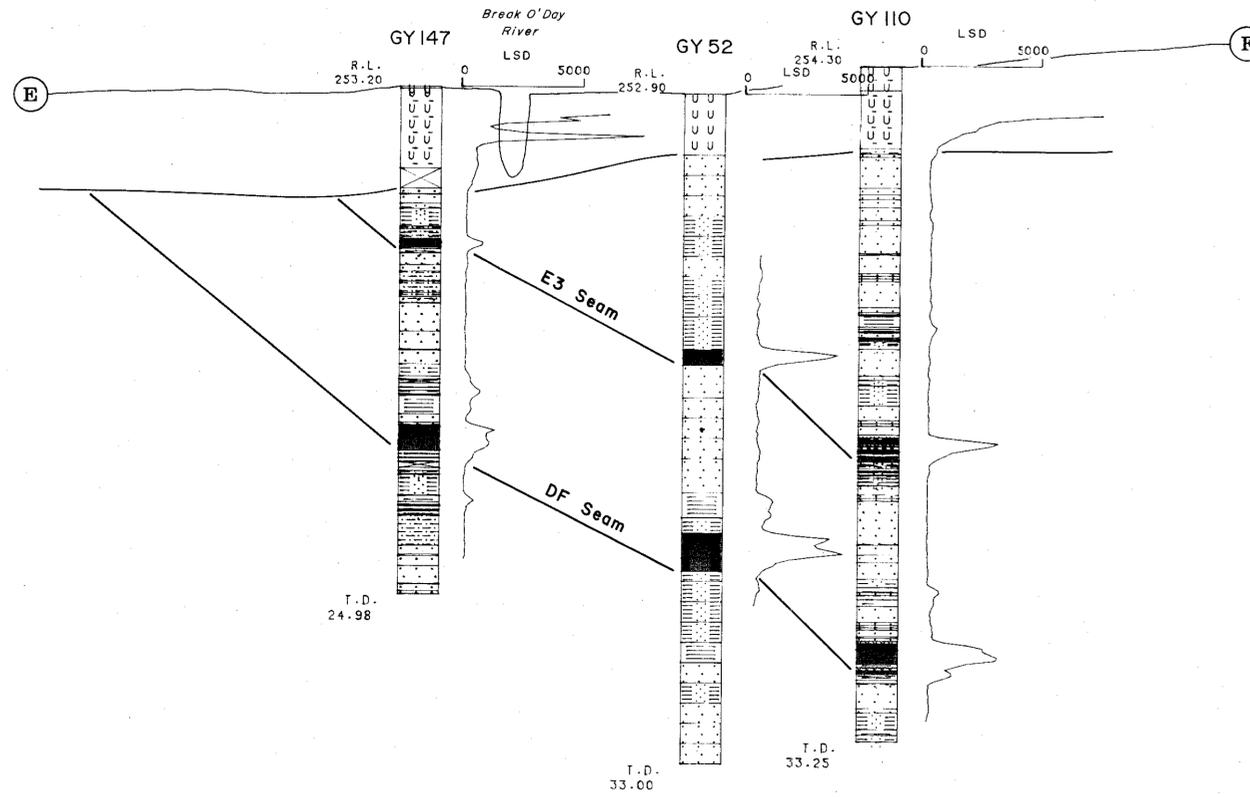
S.E.



Cross Section
LIGHTWOOD INDICATED COAL RESERVE

N.W.

S.E.



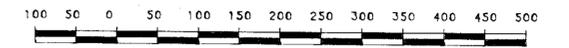
Cross Section
BREAK O'DAY INDICATED COAL RESERVE

LEGEND
LITHOLOGY REFERENCE

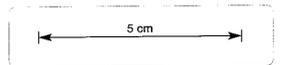
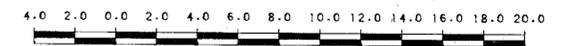
- | | | | |
|--|---------------------------|--|-----------------------|
| | SOIL | | COAL |
| | CLAY/SILT/ALLUVIUM/GRAVEL | | CLAYSTONE |
| | LIMESTONE | | COAL STONY |
| | NOT CORED/CORE LOSS | | CARBONACEOUS MUDSTONE |
| | SANDSTONE | | CONGLOMERATE |
| | SILTSTONE | | TONSTEIN |
| | MUDSTONE | | |

N.B. LSD represents Long - Spaced Density log.

HORIZONTAL SCALE
1: 5000



VERTICAL SCALE
1: 200



See Encl. 1 for location of sections

THE SHELL COMPANY OF AUSTRALIA LTD.
COAL DIVISION
TASMANIA-E.L. 5/61 GRAY
HAREFIELD
CROSS SECTIONS C-D and E-F
(Reserve Areas)

649131

AUTHOR: Coal Division	DATE: December 1982	ENCL. 17
REPORT NO: CEPR 32/82	DRAWING NO: 2838	

THE SHELL COMPANY OF AUSTRALIA LTD.

GENERAL BOREHOLE DATA SUMMARY

GRAY

OPEN FILE

MICROFILMED

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649132

USER: TDCHNB -AT

C4REPT. REPT

WWWW WWW WW W W W W WWW
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J of M	A.O.	C.G.	E.O.	D.S.M.E.
				Registrar
Received Answered				19 JAN 1983
DEPT. OF MINES				E & IL
REF. No. 461/83				

LABEL: PRT200 -FORM

SPOOLED: 82-12-22. 10:18

STARTED: 82-12-22. 10:26, ON: AMLC BY: PRO

PRINTED ON THE SHELL AUSTRALIA COAL DIVISION PRIME 250-II

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1056
649133

THE SHELL COMPANY OF AUSTRALIA LTD.

GENERAL BOREHOLE DATA SUMMARY

GRAY

LEGEND

BOREHOLE TYPE

CHIP CHIP HOLE
CORE CORE HOLE
BORE WATER BORE
SHAFT SHAFT
REDR REDRILL
REVS REVERSE CIRC

UNIT

MM MILLIMETRES
M METRES

INFORMATION AVAILABLE

S SAMPLES
L LITHOLOGICAL DESCRIPTION
A ANALYSES
W WIRELINE LOGS
T GEOTECHNICAL DATA
(Y YES N NO)

DRILLING FLUID

X AIR
D WATER INJECTION WITH DETERGENT
A FRESH WATER
O MUD
M BENTONITIC MUD
B BRAN
Y OTHERS

WATER LEVEL

INIT - WATER LEVEL AT THE TIME OF FIRST INTERSECTION
STAND - WATER LEVEL AT THE TIME OF PETROPHYSICAL WIRELINE LOGGING

COLLAR ELEVATION REFERENCE

MSL METRES ABOVE SEA LEVEL

DATA SOURCE

SCOA SHELL COMPANY OF AUSTRALIA LTD.

GENERAL BOREHOLE DATA SUMMARY

STATE TASMANIA
 BASIN TASMANIA
 PROSPECT GRAY

BOREHOLE NAME	TYPE	DATA SOURCE	GRID		ELEVATION MSL	DATE DRILLING COMMENCED	TOTAL DRILL DAYS	TOTAL DRILLED DEPTH	HOLE SIZE MM	CORE SIZE MM	WATER-LEVEL		DRILL FLUID	DEPTH WIRELINE LOGGED	INFORMATION AVAILABLE				
			EASTING M	NORTHING M							INIT M	STAND M			S	L	A	V	A
GY 47	CORE	SCOA	599,449	5,391,050	336.57	28/5/81	4	124.50	96.1	47.6					Y	Y	N	N	Y
GY 48	CORE	SCOA	598,407	5,389,955	340.71	2/6/81	8	160.55	96.1	47.6					N	Y	N	N	N
GY 49	CHIP	SCOA	598,970	5,392,051	262.13	12/11/81	1	49.00	126.9		3.0	2.10	X	54.00	N	Y	N	Y	N
GY 50	CHIP	SCOA	598,128	5,391,718	268.90	12/11/81	1	48.00	139.6		2.8	0.00	X		N	Y	N	Y	N
GY 51	CHIP	SCOA	598,603	5,392,966	255.95	12/11/81	1	48.00	126.9		4.0	1.60	X	16.00	N	Y	N	Y	N
GY 52	CHIP	SCOA	598,389	5,393,426	252.90	12/11/81	1	33.00	126.9		12.0	2.80	X	31.00	N	Y	N	Y	N
GY 53	CHIP	SCOA	598,216	5,394,055	249.86	16/11/81	1	27.00	126.9		23.0	2.00	X	24.00	N	Y	N	Y	N
GY 54	CHIP	SCOA	598,025	5,394,462	249.06	16/11/81	1	37.00	139.6		3.1	2.00	X	34.00	N	Y	N	Y	N
GY 55	CHIP	SCOA	597,742	5,392,645	263.91	16/11/81	1	42.00	139.6		3.0	1.00	X	40.00	N	Y	N	Y	N
GY 56	CHIP	SCOA	597,238	5,391,377	277.05	16/11/81	1	60.00	139.6		53.0		X		N	Y	N	Y	N
GY 57	CHIP	SCOA	596,977	5,394,387	246.55	17/11/81	1	30.00	139.6		4.7	1.00	X	29.00	N	Y	N	Y	N
GY 58	CHIP	SCOA	596,899	5,392,351	270.75	17/11/81	1	31.00	139.6		23.0	5.00	X	27.00	N	Y	N	Y	N
GY 59	CHIP	SCOA	597,377	5,393,484	252.00	17/11/81	1	24.00	139.6		DRY HOLE		X	23.00	N	Y	N	Y	N
GY 60	CHIP	SCOA	596,648	5,393,146	262.91	17/11/81	1	30.00	139.6		26.0	3.40	X	26.00	N	Y	N	Y	N
GY 61	CHIP	SCOA	597,569	5,393,114	262.67	17/11/81	1	30.00	139.6		11.0	4.80	X	28.00	N	Y	N	Y	N
GY 62	CHIP	SCOA	596,045	5,391,975	277.24	18/11/81	1	37.00	139.6		DRY HOLE		X		N	Y	N	Y	N
GY 63	CHIP	SCOA	595,681	5,393,097	260.89	18/11/81	1	20.00	139.6		17.0		X	17.00	N	Y	N	Y	N
GY 64	CHIP	SCOA	596,443	5,391,232	284.11	18/11/81	1	48.00	139.6		16.0		X		N	Y	N	Y	N
GY 65	CHIP	SCOA	595,076	5,391,783	299.52	18/11/81	1	42.00	139.6		18.0	14.50	X	41.00	N	Y	N	Y	N
GY 66	CHIP	SCOA	593,935	5,391,966	295.42	18/11/81	1	49.00	139.6		17.0	9.60	X	48.00	N	Y	N	Y	N
GY 67	CHIP	SCOA	594,981	5,392,374	267.73	18/11/81	1	6.00	139.6		DRY HOLE		X		N	Y	N	Y	N
GY 67R	CHIP	SCOA	594,983	5,392,376	267.73	18/11/81	1	24.00	139.6		6.0	2.10	X	23.00	N	Y	N	Y	N
GY 68	CHIP	SCOA	593,633	5,393,036	258.45	19/11/81	1	42.00	139.6		5.6	2.00	X	40.00	N	Y	N	Y	N
GY 68R	CHIP	SCOA	593,635	5,393,038	258.45	19/11/81	1	7.00	139.6		5.6	2.00	X	5.40	N	Y	N	Y	N
GY 69	CHIP	SCOA	592,744	5,391,764	303.60	19/11/81	1	42.00	139.6		11.0	4.10	X	37.00	N	Y	N	Y	N
GY 70	CHIP	SCOA	593,404	5,393,891	265.63	19/11/81	1	19.00	139.6		12.5		X		N	Y	N	Y	N
GY 71	CHIP	SCOA	592,205	5,393,183	257.76	19/11/81	1	18.00	139.6		DRY HOLE		X	13.00	N	Y	N	Y	N
GY 72	CHIP	SCOA	591,525	5,393,309	252.84	20/11/81	1	25.00	139.6		DRY HOLE		X	23.00	N	Y	N	Y	N
GY 73	CHIP	SCOA	592,555	5,392,264	278.86	19/11/81	1	18.00	139.6		DRY HOLE		X	14.00	N	Y	N	Y	N
GY 74	CHIP	SCOA	590,847	5,392,720	302.47	20/11/81	1	14.00	139.6		16.0		X	13.75	N	Y	N	Y	N
GY 75	CHIP	SCOA	591,854	5,392,483	274.40	20/11/81	1	30.00	139.6		DRY HOLE		X		N	Y	N	Y	N
GY 76	CHIP	SCOA	591,131	5,392,993	271.95	23/11/81	1	36.00	139.6		33.3		X	34.00	N	Y	N	Y	N
GY 77	CHIP	SCOA	593,395	5,393,530	268.79	23/11/81	1	19.00	139.6		DRY HOLE		X	18.00	N	Y	N	Y	N
GY 78	CORE	SCOA	593,620	5,393,020	259.65	24/11/81	1	14.30	75.7	45.1		2.20	A	14.00	Y	Y	Y	Y	N
GY 79	CHIP	SCOA	593,510	5,393,320	260.95	23/11/81	1	30.00	139.6		DRY HOLE		A	29.00	N	Y	Y	Y	N
GY 80	CORE	SCOA	593,875	5,392,459	269.94	24/11/81	1	21.29	75.7	45.1		4.30	A	21.00	Y	Y	Y	Y	N
GY 81	CHIP	SCOA	594,068	5,393,323	256.76	23/11/81	1	18.00	139.6		11.0		X	17.00	N	Y	Y	Y	N
GY 82	CORE	SCOA	598,301	5,392,320	261.47	25/11/81	1	24.45	75.7	45.1		2.10	A	24.00	Y	Y	Y	Y	N
GY 83	CHIP	SCOA	594,207	5,392,856	264.92	24/11/81	1	18.00	139.6		12.0	5.00	X	15.00	N	Y	Y	Y	N
GY 84	CORE	SCOA	597,548	5,391,970	270.29	26/11/81	1	25.26	75.7	45.1		1.20	A	24.00	Y	Y	Y	Y	N
GY 85	CHIP	SCOA	593,591	5,392,495	273.31	24/11/81	1	30.00	139.6		12.8	6.20	X	29.00	N	Y	Y	Y	N
GY 86	CORE	SCOA	597,015	5,391,757	275.09	27/11/81	1	22.40	75.7	45.1		4.70	A	21.00	Y	Y	Y	Y	N
GY 87	CHIP	SCOA	594,269	5,392,420	272.33	24/11/81	1	30.00	139.6		13.0	2.70	X	25.00	N	Y	Y	Y	N
GY 88	CORE	SCOA	597,617	5,391,667	272.50	30/11/81	1	27.17	75.7	45.1		4.00	A	12.12	N	Y	N	Y	N
GY 89	CHIP	SCOA	599,259	5,392,124	262.48	25/11/81	1	12.00	139.6		5.0		X	10.00	N	Y	N	Y	N
GY 90	CORE	SCOA	597,487	5,392,372	267.86	30/11/81	1	30.37	75.7	45.1		3.40	A	30.00	Y	Y	Y	Y	N
GY 91	CHIP	SCOA	599,039	5,391,611	270.35	25/11/81	1	24.00	139.6		8.0	0.00	X	23.00	N	Y	N	Y	N
GY 92	CHIP	SCOA	599,235	5,393,155	261.05	25/11/81	1	12.00	139.6		3.0		X		N	Y	N	Y	N
GY 93	CHIP	SCOA	598,826	5,394,082	254.04	25/11/81	1	12.00	139.6		DRY HOLE		X	11.60	N	Y	N	Y	N
GY 94	CHIP	SCOA	598,276	5,390,725	291.16	26/11/81	1	24.00	139.6		DRY HOLE		X		N	Y	N	Y	N
GY 95	CHIP	SCOA	597,386	5,390,620	287.73	26/11/81	1	30.00	139.6		DRY HOLE		X	26.00	N	Y	N	Y	N
GY 96	CHIP	SCOA	596,529	5,390,433	299.90	26/11/81	1	30.00	139.6		DRY HOLE		X		N	Y	N	Y	N
GY 97	CHIP	SCOA	597,842	5,391,293	277.89	27/11/81	1	42.00	139.6		6.0		X	40.00	N	Y	N	Y	N
GY 98	CHIP	SCOA	598,557	5,391,888	266.09	1/12/81	1	42.00	139.6		23.5	1.60	X	42.90	N	Y	N	Y	N
GY 99	CORE	SCOA	599,373	5,391,807	266.54	2/12/81	1	18.63	75.7	45.1			A		Y	Y	Y	Y	N
GY 100	CORE	SCOA	598,969	5,392,055	262.01	2/12/81	1	8.49	75.7	45.1		60	A	7.87	Y	Y	Y	Y	N
GY 101	CORE	SCOA	598,850	5,392,509	259.44	3/12/81	1	13.65	75.7	45.1		1.90	A	15.37	N	Y	N	Y	N
GY 102	CORE	SCOA	598,028	5,393,228	254.15	3/12/81	1	30.00	75.7	45.1			A		Y	Y	Y	Y	N
GY 107	CORE	SCOA	598,700	5,392,878	256.20	11/03/82	01	35.54	75.7	45.1		2.00	A	31.35	Y	Y	Y	Y	Y
GY 110	CORE	SCOA	598,548	5,393,248	254.30	16/03/82	01	33.25	75.7	45.1		2.74	A	33.00	Y	Y	Y	Y	Y
GY 111	CORE	SCOA	598,397	5,393,618	251.70	18/03/82	01	30.65	75.7	45.1		1.92	A	27.45	Y	Y	Y	Y	Y
GY 112	CORE	SCOA	598,245	5,393,988	250.10	18/03/82	01	18.68	75.7	45.1		1.30	A	18.00	Y	Y	Y	Y	N
GY 113	CORE	SCOA	598,767	5,393,769	253.90	22/03/82	01	25.25	75.7	45.1		3.20	A	24.00	N	Y	N	Y	N
GY 114	CORE	SCOA	598,480	5,392,357	259.90	22/03/82	02	48.41	75.7	45.1			A		Y	Y	Y	N	N

649135

GENERAL BOREHOLE DATA SUMMARY

STATE TASMANIA
 BASIN TASMANIA
 PROSPECT GRAY

BOREHOLE NAME	DATA TYPE	SOURCE	GRID		ELEVATION MSL	DATE DRILLING COMMENCED	TOTAL DRILL DAYS	TOTAL DRILLED DEPTH	HOLE SIZE MM	CORE SIZE MM	WATER-LEVEL		DRILL FLUID	DEPTH WIRELINE LOGGED	INFORMATION AVAILABLE				
			EASTING M	NORTHING M							INIT M	STAND M			S	L	A	W	T
GY114R	CORE	SCDA	598,480	5,392,370	259.90	12/05/82	1	49.28	75.7	45.1		1.02	A	49.35	Y	Y	Y	Y	N
GY 115	CORE	SCDA	598,616	5,394,140	252.30	23/03/82	01	21.86	75.7	45.1		3.15	A	20.40	Y	Y	Y	Y	N
GY 118	CORE	SCDA	598,464	5,394,510	250.20	24/03/82	1	13.03	75.7	45.1		57	A		N	Y	N	N	Y
GY 123	CORE	SCDA	598,329	5,392,727	257.80	6/04/82	1	43.00	75.7	45.1		2.14	A	40.95	Y	Y	Y	Y	Y
GY 126	CORE	SCDA	598,110	5,392,203	263.90	8/04/82	2	46.00	75.7	45.1		2.44	A	45.45	Y	Y	Y	Y	N
GY 129	CORE	SCDA	597,959	5,392,575	263.90	15/04/82	1	40.00	75.7	45.1		2.60	A	37.35	Y	Y	Y	Y	N
GY 131	CORE	SCDA	597,438	5,392,794	259.40	16/04/82	1	19.00	75.7	45.1		4.16	A	18.45	Y	Y	Y	Y	N
GY 133	CORE	SCDA	597,589	5,392,424	266.90	19/04/82	1	30.97	75.7	45.1		3.04	A	30.45	Y	Y	Y	Y	N
GY 134	CORE	SCDA	597,740	5,392,054	266.50	20/04/82	1	37.00	75.7	45.1		61	A	36.00	Y	Y	Y	Y	N
GY 139	CORE	SCDA	597,219	5,392,273	265.30	23/04/82	1	22.00	75.7	45.1		80	A	21.45	Y	Y	Y	Y	N
GY140	CORE	SCDA	597,370	5,391,903	272.70	27/04/82	3	40.00	75.7	45.1		2.00	A	38.40	Y	Y	Y	Y	N
GY144	CORE	SCDA	597,000	5,391,751	275.90	03/05/82	2	37.00	75.7	45.1		3.62	A	36.45	N	Y	Y	Y	N
GY143	CORE	SCDA	598,178	5,393,097	255.00	07/05/82	1	31.00	75.7	45.1		2.27	A	29.40	Y	Y	Y	Y	N
GY147	CORE	SCDA	598,027	5,393,467	253.20	10/05/82	1	25.00	75.7	45.1		2.46	A	23.40	Y	Y	Y	Y	N
GY148	CORE	SCDA	597,808	5,392,946	257.50	11/05/82	1	31.00	75.7	45.1		3.60	A	29.40	Y	Y	Y	Y	N
GY149	CORE	SCDA	597,656	5,393,315	254.40	12/05/82	1	19.00	75.7	45.1		2.97	A	18.45	Y	Y	Y	Y	N
GY150	CORE	SCDA	597,286	5,393,144	255.20	13/05/82	1	16.00	75.7	45.1		2.03	A		Y	Y	Y	N	N
GY152	CORE	SCDA	597,067	5,392,643	264.00	19/05/82	1	19.50	75.7	45.1		3.63	A	7.35	Y	Y	N	Y	N
GY153	CORE	SCDA	596,849	5,392,121	271.40	20/05/82	1	25.00	75.7	45.1		1.14	A	24.45	N	Y	Y	Y	N
GY154	CORE	SCDA	596,641	5,391,631	277.50	24/05/82	1	31.00	75.7	45.1		2.17	A	30.45	Y	Y	Y	Y	N
GY156	CORE	SCDA	596,479	5,391,970	277.10	25/05/82	1	34.89	75.7	45.1		3.64	A	23.40	Y	Y	Y	Y	N
GY158	CORE	SCDA	596,108	5,391,818	280.00	26/05/82	1	19.00	75.7	45.1		3.62	A	18.45	Y	Y	Y	Y	N
GY159	CORE	SCDA	595,890	5,391,297	289.90	28/05/82	1	36.76	75.7	45.1		6.78	A	36.45	Y	Y	Y	Y	N
GY160	CORE	SCDA	596,260	5,391,449	285.90	31/05/82	1	27.94	75.7	45.1		3.36	A	26.00	Y	Y	Y	Y	N
GY161	CORE	SCDA	595,739	5,391,667	281.30	01/06/82	1	24.97	75.7	45.1		4.87	A	24.90	Y	Y	Y	Y	N
GY162	CORE	SCDA	595,587	5,392,037	275.10	02/06/82	1	16.00	75.7	45.1		2.66	A	15.50	Y	Y	Y	Y	N
GY163	CORE	SCDA	595,368	5,391,516	287.80	03/06/82	3	25.00	75.7	45.1		8.90	A	29.00	N	Y	Y	Y	N
GY165	CORE	SCDA	595,550	5,391,170	286.00	07/06/82	1	25.00	75.7	45.1		3.25	A	22.00	Y	Y	Y	Y	N
GY169	CORE	SCDA	595,221	5,391,806	286.20	15/06/82	1	34.40	75.7	45.1		9.92	A	32.00	Y	Y	Y	Y	N
GY170	CORE	SCDA	595,620	5,390,760	286.00	16/06/82	1	40.00	75.7	45.1		66	A	38.00	Y	Y	Y	Y	N
GY171	CORE	SCDA	594,661	5,392,088	278.80	21/06/82	1	30.50	75.7	45.1		8.77	A	28.00	Y	Y	Y	Y	N
GY172	CORE	SCDA	594,174	5,392,323	273.60	22/06/82	1	37.00	75.7	45.1		1.97	A	34.00	Y	Y	Y	Y	N

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OK, * PRODUCE A GENERAL BOREHOLE REPORT FOR LEASE GRAY

Page 1

OK, * PRODUCE A GENERAL BOREHOLE REPORT FOR LEASE GRAY

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649138

THE SHELL COMPANY OF AUSTRALIA LTD.

SUMMARY OF LOGS ON IMF

GRAY

007

649139

THE SHELL COMPANY OF AUSTRALIA LTD.

LEGEND

LOG	DESCRIPTION
901	ELEC. LOG 1/200
913	NEUT. NEUT 1/200
914	G-RAY LOG 1/200
916	S. NEUTNEUT 1/200
917	S. BRD LOG 1/200
918	S. LSD LOG 1/200
922	S. CALIPER 1/200
926	SONIC LOG 1/200
973	NEUT. NEUT 1/ 20
974	G-RAY LOG 1/ 20
976	S. NEUTNEUT 1/ 20
977	S. BRD 1/ 20
978	S. LSD 1/ 20
982	S. CALIPER 1/ 20

PETROPHYSICS LOG IMF SUMMARY REPORT

STATE TASMANIA (6045)
 BASIN TASMANIA (390)
 PROSPECT GRAY (4061)

BOREHOLE	901	913	914	916	917	918	922	926	973	974	976	977	978	982
1000047 (GY47)	X	X	X		X	X	X		X		X	X	X	X
1000048 (GY48)			X		X	X	X						X	
49 (GY49)			X		X	X	X						X	
51 (GY51)	X		X		X	X	X		X		X	X	X	X
52 (GY52)			X		X	X	X		X		X	X	X	X
53 (GY53)			X		X	X	X						X	
54 (GY54)			X		X	X	X						X	
55 (GY55)			X		X	X	X		X		X	X	X	X
57 (GY57)			X		X	X	X						X	
58 (GY58)			X		X	X	X						X	
59 (GY59)			X		X	X	X						X	
60 (GY60)			X		X	X	X						X	
61 (GY61)			X		X	X	X						X	
63 (GY63)			X		X	X	X						X	
65 (GY65)			X		X	X	X	X	X	X	X	X	X	X
66 (GY66)			X		X	X	X						X	
6000067 (GY67R)			X		X	X	X						X	
68 (GY68)			X		X	X	X		X		X	X	X	X
6000068 (GY68R)			X		X	X	X						X	
69 (GY69)			X		X	X	X						X	
71 (GY71)			X		X	X	X						X	
72 (GY72)			X		X	X	X						X	
73 (GY73)			X		X	X	X						X	
74 (GY74)			X		X	X	X						X	
76 (GY76)			X		X	X	X						X	
77 (GY77)			X		X	X	X						X	
1000078 (GY78)			X		X	X	X						X	
79 (GY79)			X		X	X	X						X	
1000080 (GY80)			X		X	X	X						X	
81 (GY81)			X		X	X	X						X	
1000082 (GY82)			X		X	X	X						X	
83 (GY83)			X		X	X	X						X	
1000084 (GY84)			X		X	X	X		X		X	X	X	X
85 (GY85)			X		X	X	X						X	
1000086 (GY86)			X		X	X	X		X		X	X	X	X
87 (GY87)			X		X	X	X						X	
1000088 (GY88)			X		X	X	X						X	
89 (GY89)			X		X	X	X						X	
1000090 (GY90)			X		X	X	X		X		X	X	X	X
91 (GY91)			X		X	X	X						X	
93 (GY93)			X		X	X	X						X	
96 (GY96)			X		X	X	X						X	
97 (GY97)			X		X	X	X						X	
98 (GY98)			X		X	X	X		X		X	X	X	X
1000100 (GY100)			X		X	X	X		X		X	X	X	X
1000101 (GY101)			X		X	X	X						X	
1000107 (GY107)			X	X	X	X	X		X		X	X	X	X
1000110 (GY110)	X	X	X	X	X	X	X		X		X	X	X	X
1000111 (GY111)			X		X	X	X						X	
1000112 (GY112)			X	X	X	X	X		X		X	X	X	X
1000113 (GY113)	X		X		X	X	X						X	
2000114 (GY114R)			X		X	X	X	X			X	X	X	X
1000115 (GY115)			X		X	X	X		X		X	X	X	X
1000125 (GY125)			X	X	X	X	X		X		X	X	X	X
1000126 (GY126)			X		X	X	X		X		X	X	X	X
1000129 (GY129)			X		X	X	X		X		X	X	X	X
1000131 (GY131)			X		X	X	X		X		X	X	X	X
1000133 (GY133)			X	X	X	X	X		X		X	X	X	X
1000134 (GY134)		X	X		X	X	X		X	X	X	X	X	X
139 (GY139)			X		X	X	X		X		X	X	X	X
1000140 (GY140)			X		X	X	X		X		X	X	X	X
1000144 (GY144)			X		X	X	X		X		X	X	X	X
1000145 (GY145)			X		X	X	X		X		X	X	X	X
1000147 (GY147)			X		X	X	X		X		X	X	X	X
1000148 (GY148)			X		X	X	X		X		X	X	X	X
1000149 (GY149)			X		X	X	X		X		X	X	X	X
1000152 (GY152)			X		X	X	X		X		X	X	X	X

600

649141

PETROPHYSICS LOG IMF SUMMARY REPORT

STATE TASMANIA (6045)
 BASIN TASMANIA (390)
 PROSPECT GRAY (4061)

<u>BOREHOLE</u>	901	913	914	916	917	918	922	926	973	974	976	977	978	982
1000153 (GY153)		X		X	X	X	X		X		X	X	X	X
1000154 (GY154)		X		X	X	X	X		X		X	X	X	X
1000156 (GY156)		X		X	X	X	X		X		X	X	X	X
1000158 (GY158)		X		X	X	X	X		X		X	X	X	X
1000159 (GY159)		X		X	X	X	X		X		X	X	X	X
1000160 (GY160)		X		X	X	X	X		X		X	X	X	X
1000161 (GY161)		X		X	X	X	X							
1000162 (GY162)		X		X	X	X	X							
1000163 (GY163)		X		X	X	X	X							
1000165 (GY165)		X		X	X	X	X		X		X	X	X	X
1000169 (GY169)		X		X	X	X	X		X		X	X	X	X
1000170 (GY170)	X	X		X	X	X	X		X		X	X	X	X
1000171 (GY171)		X		X	X	X	X		X		X	X	X	X
1000172 (GY172)		X		X	X	X	X		X		X	X	X	X

010

649142

THE SHELL COMPANY OF AUSTRALIA LTD.

RAW COAL PLY ANALYSIS

GRAY

110

649143

THE SHELL COMPANY OF AUSTRALIA LTD.

RAW COAL PLY ANALYSIS

LEGEND

TOTAL MOISTURE BASIS

A AIR DRIED
 T AS RECEIVED
 B TOTAL
 Q BED
 E EQUILIBRIUM
 E ESTIMATED VALUE

INHERENT MOISTURE BASIS

E AIR DRIED
 E ESTIMATED VALUE

TOTAL SULPHUR BASIS

A AIR DRIED
 R AS RECEIVED
 R DRY BASIS

ASH/VOLATILE MATTER/FIXED CARBON BASIS

A AIR DRIED
 R AS RECEIVED
 D DRY BASIS
 D DRY, ASH FREE
 C DRY, MINERAL MATTER FREE
 M MOIST, ASH FREE
 E ESTIMATED VALUE

SPECIFIC ENERGY BASIS

A AIR DRIED
 R AS RECEIVED
 D DRY BASIS
 D DRY, ASH FREE
 C DRY, MINERAL MATTER FREE
 M MOIST, ASH FREE

INTERVAL MARKER CODE

COLS 1-2: MEMBER/MARKER
 COL 3: SUBSEAM
 COL 4: SEAM SPLIT
 COL 5: SUBSPLIT

U8 - MT. NICHOLAS UPPER 8
 M1 - MT. NICHOLAS MIDDLE 1
 M2 - MT. NICHOLAS MIDDLE 2
 M3 - MT. NICHOLAS MIDDLE 3
 L1 - MT. NICHOLAS LOWER 1
 L2 - MT. NICHOLAS LOWER 2
 DD - DALMAYNE D
 DDU - DALMAYNE D UPPER
 DDM - DALMAYNE D MIDDLE
 DDL - DALMAYNE D LOWER
 D2 - HAREFIELD 2
 D3 - HAREFIELD 3
 D4 - HAREFIELD 4
 DE - DALMAYNE E

SAMPLE NUMBER

* NOT SAMPLED - ASSUMED ANALYSIS

012

649144

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY47

SAMPLE SIZE : - 25.0 + 0.0 MM

SAMPLE NUMBER	BEAM CODE	DEPTH TO-BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
47A01		87.70	0.27	2.17									
47A02	DE	87.78	0.28	1.69					71.2				
47A03	DE	89.24	1.26	1.64					40.7				
47A04	DE	89.57	0.30	1.49					38.4				
CALCULATED COMPOSITE OF SAMPLES 47A02-4										27.1			
	DE	89.57	1.87	1.62					36.9				
47A05	E3	102.66	0.85	1.60					31.1				
47A06		102.92	0.26	2.27					77.5				
47A07	DF	117.22	1.12	1.82					43.9				
CALCULATED COMPOSITE OF SAMPLES 2-4													
	DE	89.57	1.87	1.87					36.9				

010

649145

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY80

SAMPLE SIZE : - 25.0 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	-----PROXIMATE ANALYSIS-----				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SMELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
1	E2	12.60	0.71	1.79									
2		13.35	0.39	1.85					47.8				
3		15.19	0.85	1.49					53.0				
4	E3	19.35	1.00	1.43					24.7				
									23.3				

014

649146

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY82

SAMPLE SIZE : - 25.0 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER	
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %				
1	DE	21.59	1.13	1.75										
2	DE	22.32	0.73	1.69										
CALCULATED COMPOSITE OF														
	DE	22.32	1.86	1.73										

015

649147

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY84

SAMPLE SIZE : - 25.0 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	-----PROXIMATE ANALYSIS-----				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
1	DE	19.36	0.84	1.67									
2	DE	20.03	0.67	1.92					42.1				
CALCULATED COMPOSITE OF									61.9				
	DE	20.03	1.51	1.78	1-2				51.6				
3	E2	24.57	0.76	1.47					24.1				
	DE	20.03	1.51	1.78					51.6				

016

649148

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY90

SAMPLE SIZE : - 25.0 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
1	DE	8.60	0.44	1.54									
2	DE	9.86	1.26	1.89					28.7				
CALCULATED COMPOSITE OF SAMPLES 1-2									60.0				
	DE	9.86	1.70	1.80					53.1				
3	E2	15.91	0.69	1.67					36.8				
4	E3	24.01	0.93	1.47					23.2				
	DE	9.86	1.70	1.80					53.1				

810

649150

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : 0Y99

SAMPLE SIZE : - 25.0 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	-----PROXIMATE ANALYSIS-----				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
1	DF	17.86	0.84	1.72					42.3				

610

649151

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY100

SAMPLE SIZE : - 25.0 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	-----PROXIMATE ANALYSIS-----				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
1	DF	7.49	1.26	1.72				45.2					

020

649152

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY107

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
1	DE	10.46	0.11	1.90	0.253								
2	DE	10.52	0.06	2.23	0.262								
3	DE	10.81	0.29	1.60	0.489								
4	DE	10.87	0.06	1.87	0.143		6.9	27.2	17.8	48.1			
5	DE	11.13	0.26	1.61	0.388		5.4	27.3	23.3	43.8			
6	DE	11.18	0.03	2.01	0.135			61.8					
7	DE	11.36	0.18	1.64	0.335		4.0	30.8	24.4	40.8			
8	DE	11.45	0.09	1.79	0.235			46.1					
9	DE	11.64	0.19	2.02	0.386			62.1					
10	DE	11.73	0.11	1.98	0.232		4.0	24.7	24.7	46.6			
11	DE	11.80	0.03	2.40	0.136			81.6					
12	DE	11.97	0.17	1.88	0.452			47.6					
13	DE	12.18	0.21	1.48	0.419		5.8	15.0	31.5	47.7			
14	DE	12.20	0.02	2.35	0.069			78.3					
15	DE	12.23	0.03	1.88	0.113			51.8					
61	E3	28.52	0.16	1.63	0.279		5.5	28.5	19.4	46.6			
62	E3	28.78	0.26	1.33	0.362		5.4	17.9	24.3	52.4			
63	E3	28.82	0.04	1.97	0.111			60.3					
64	E3	28.99	0.17	1.70	0.421			37.3					
65	E3	29.02	0.03	2.92	0.078			84.1					
66	E3	29.47	0.43	1.69	1.074			36.1					
CALCULATED COMPOSITE OF		SAMPLES		3-7									
DE	11.36	0.84	1.66					32.4					
CALCULATED COMPOSITE OF		SAMPLES		3, 5, 7									
DE	11.36	0.73	1.61					28.2					
CALCULATED COMPOSITE OF		SAMPLES		61-66									
E3	29.47	1.11	1.68					34.3					
CALCULATED COMPOSITE OF		SAMPLES		61, 62									
E3	29.47	0.42	1.57					22.1					
CALCULATED COMPOSITE OF		SAMPLES		3-13	ALTERNATIVE PLYGROUP								
DE	12.18	1.66	1.72					38.6					
CALCULATED COMPOSITE OF		SAMPLES		1-15	ALTERNATIVE PLYGROUP								
DE	12.25	1.90	1.76					41.8					

022

649154

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY110

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
61	E3	18.42	0.10	1.61	0.176		6.3	26.6	18.3	48.8			
62	E3	18.72	0.30	1.55	0.605		6.9	21.9	21.3	49.9			
63	E3	18.74	0.02	2.31	0.043			76.8					
64	E3	18.99	0.23	1.73	0.508			40.9					
65	E3	19.04	0.05	2.36	0.137			78.3					
66	E3	19.11	0.07	1.59	0.135		6.1	23.8	24.3	45.8			
67	E3	19.23	0.12	2.53	0.449			83.4					
68	E3	19.42	0.19	1.77	0.357			42.1					
69		19.49	0.07	2.39	0.254			80.9					
81	DF	28.41	0.10	1.87	0.286			48.7					
82	DF	28.71	0.30	1.64	0.670		5.3	29.7	16.6	48.4			
83	DF	28.74	0.03	2.38	0.108			78.8					
84	DF	29.29	0.35	1.63	1.324		5.9	28.5	18.2	47.4			
85	DF	29.32	0.03	2.08	0.090			65.8					
86	DF	29.42	0.10	1.59	0.244		5.3	23.9	24.8	46.0			
87	DF	29.59	0.17	2.14	0.339			68.4					
88	DF	29.73	0.14	1.84	0.332			48.6					
89	DF	29.84	0.11	1.98	0.327			60.9					
90	DF	30.22	0.38	1.92	1.045			54.5					
CALCULATED COMPOSITE OF		DF	SAMPLES	61-66									
E3	19.11	0.79	1.69					35.5					
CALCULATED COMPOSITE OF		DF	SAMPLES	61, 62, 66									
E3	19.11	0.47	1.57					23.2					
CALCULATED COMPOSITE OF		DF	SAMPLES	82-86									
DF	29.42	1.01	1.68					31.9					
CALCULATED COMPOSITE OF		DF	SAMPLES	82, 84, 86									
DF	29.42	0.95	1.62					28.4					
CALCULATED COMPOSITE OF		DF	SAMPLES	61-68 ALTERNATIVE PLYGROU									
E3	19.42	1.10	1.79	P				44.0					
CALCULATED COMPOSITE OF		DF	SAMPLES	81-90 ALTERNATIVE PLYGROU									
DF	30.22	1.91	1.80	P				44.6					

023

649155

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY111

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
21	E3	10.48	0.52	1.51	0.841		6.3	18.4	22.7	52.6			
22	E3	10.49	0.01	2.04	0.053			63.6					
23	E3	10.69	0.20	1.78	0.426			43.1					
61	DF	18.85	0.20	2.09	0.578			64.7					
62	DF	19.38	0.33	1.62	1.202	5.7		27.1	20.3	46.9			
63	DF	19.41	0.03	2.27	0.104			74.6					
64	DF	19.47	0.06	1.88	0.134			51.7					
65	DF	19.66	0.19	1.55	0.438	3.4		22.8	20.5	51.3			
66	DF	20.03	0.37	1.63	0.609	3.3		28.8	20.5	45.4			
67	DF	20.10	0.07	1.53	0.216	5.2		19.6	24.6	50.6			
68	DF	20.14	0.04	1.91	0.101			52.4					
69	DF	20.27	0.13	1.86	0.322			50.6					
70	DF	20.43	0.16	2.01	0.448			59.8					
71	DF	20.70	0.27	1.68	0.647	5.0		33.5	18.0	43.5			
72	DF	20.73	0.03	2.01	0.077			61.2					
CALCULATED COMPOSITE OF		COMPOSITE OF	SAMPLES	21-23				26.8					
E3		10.69	0.73	1.59				18.4					
CALCULATED COMPOSITE OF		COMPOSITE OF	SAMPLES	21,23				29.6					
E3		10.69	0.32	1.51				35.4					
CALCULATED COMPOSITE OF		COMPOSITE OF	SAMPLES	62-67				26.5					
DF		20.10	1.25	1.64				39.1					
CALCULATED COMPOSITE OF		COMPOSITE OF	SAMPLES	62-71 ALTERNATIVE PLYGROU									
DF		20.70	1.85	1.70	P								
CALCULATED COMPOSITE OF		COMPOSITE OF	SAMPLES	62,65-67									
DF		20.10	1.16	1.61									
CALCULATED COMPOSITE OF		COMPOSITE OF	SAMPLES	62-72 ALTERNATIVE PLYGROU									
DF		20.73	2.08	1.73	P								

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : 0Y112

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
61	E3	8.74	0.26	1.79	0.698								
62	E3	8.99	0.25	1.62	0.519		5.3	27.6	21.1	46.0			
63	E3	9.02	0.03	1.75	0.080			41.8					
64	E3	9.11	0.09	1.64	0.235		4.9	29.2	19.0	46.9			
65	E3	9.14	0.03	2.37	0.109			78.7					
66	E3	9.30	0.16	1.68	0.420		4.9	34.0	18.2	42.9			
67	E3	9.38	0.08	1.68	0.232			35.4					
68	E3	9.79	0.41	1.80	0.571			45.4					
69	E3	9.85	0.06	2.13	0.147			67.2					
70	E3	10.05	0.20	1.93	0.352			54.4					
81	DF	12.90	0.13	1.98	0.250		4.9	24.0	19.9	51.2			
82	DF	12.95	0.09	2.27	0.111			75.5					
83	DF	13.17	0.22	1.68	0.308		5.1	34.1	23.2	37.6			
CALCULATED COMPOSITE OF		DF	SAMPLES	62-68									
E3	9.79	1.05	1.73					38.9					
CALCULATED COMPOSITE OF		DF	SAMPLES	62, 64, 66									
E3	9.79	0.30	1.64					30.0					
CALCULATED COMPOSITE OF		DF	SAMPLES	81-83									
DF	13.17	0.40	1.72					37.9					
CALCULATED COMPOSITE OF		DF	SAMPLES	81, 83									
DF	13.17	0.35	1.64					30.5					
CALCULATED COMPOSITE OF		DF	SAMPLES	61-70 ALTERNATIVE PLYGROU									
E3	10.05	1.57	1.78	P				43.3					

024

649157

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : OY114

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SMELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
1	DE	23.77	0.18	2.02	0.505			59.8					
2	DE	23.80	0.03	2.31	0.980			76.6					
3	DE	23.95	0.15	1.76	0.316			43.2					
4	DE	24.05	0.10	2.06	0.337			65.1					
5	DE	24.34	0.29	1.71	0.618			38.8					
6	DE	24.43	0.09	1.93	0.279			56.8					
7	DE	24.66	0.23	1.73	0.442			40.1					
8	DE	24.77	0.11	2.14	0.306			67.7					
9	DE	24.95	0.18	1.64	0.369		5.3	30.4	20.8	43.5			
10	DE	24.99	0.04	2.47	0.103			82.5					
11	DE	25.15	0.16	1.98	0.399			60.8					
12	DE	25.41	0.26	1.67	0.540		6.0	34.6	16.8	42.6			
13	DE	25.48	0.07	1.44	0.138		6.7	13.2	33.0	47.1			
61	E3	42.50	0.03	1.68	0.134		6.3	34.8	18.0	40.9			
62	E3	42.67	0.17	1.43	0.297		5.5	15.3	23.9	33.3			
63	E3	42.70	0.03	2.33	0.079			77.6					
64	E3	42.72	0.02	2.07	0.067			65.8					
65	E3	42.85	0.13	1.65	0.156		5.5	33.3	19.8	41.4			
66	E3	42.88	0.03	2.34	0.103			78.3					
67	E3	43.53	0.65	1.59	0.208		5.2	27.0	23.6	44.2			
68	E3	43.56	0.03	1.66	0.048		3.9	33.8	22.9	39.4			
69		43.62	0.06	2.13	0.159			68.6					
CALCULATED COMPOSITE OF		DE	25.48	1.43	1.78			44.6					
CALCULATED COMPOSITE OF		DE	25.48	0.51	1.63			30.5					
CALCULATED COMPOSITE OF		E3	43.56	1.11	1.63			31.6					
CALCULATED COMPOSITE OF		E3	43.56	1.03	1.58			26.7					
CALCULATED COMPOSITE OF		DE	25.48	1.89	1.83	ALTERNATIVE PLYGROUP		48.0					

025

649158

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : 0Y114R

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
61	E3	41.88	0.04	1.67	0.077			35.5					
62	E3	42.12	0.24	1.68	0.497	6.4	33.0	21.2	39.4				
63	E3	42.37	0.43	1.61	0.085	4.6	26.3	25.0	44.1				
64	E3	42.60	0.04	2.43	0.122		80.3						
65	E3	42.84	0.24	1.43	0.381	6.2	13.2	30.4	50.2				
66	E3	42.97	0.13	1.54	0.062	3.9	22.1	34.3	39.7				
CALCULATED COMPOSITE OF SAMPLES				61-66									
E3		42.97	1.13	1.61			27.7						
CALCULATED COMPOSITE OF SAMPLES				62, 63, 65, 66									
E3		42.97	1.05	1.58			24.7						

020

649159

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY115

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	-----PROXIMATE ANALYSIS-----				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
1	DF	7.59	0.17	1.97	0.855								
2	DF	7.99	0.40	1.63	0.939								
3	DF	8.01	0.02	2.34	0.074		5.4	28.0	18.1	48.5			
4	DF	8.38	0.37	1.65	0.824		5.0	79.2	21.1	40.5			
5	DF	8.51	0.13	1.83	0.323			47.5					
6	DF	8.64	0.13	1.96	0.414			57.3					
7	DF	8.70	0.06	2.20	0.182			71.8					
8	DF	8.90	0.20	1.57	0.481		5.6	22.3	19.4	52.7			
9	DF	8.95	0.05	2.08	0.157			64.9					
CALCULATED COMPOSITE OF		DF	SAMPLES	2-4									
	DF	8.38	0.79	1.66				32.4					
CALCULATED COMPOSITE OF		DF	SAMPLES	2,4									
	DF	8.38	0.77	1.64				30.6					
CALCULATED COMPOSITE OF		DF	SAMPLES	2-8 ALTERNATIVE PLYGROUP									
	DF	8.90	1.31	1.72				37.7					
CALCULATED COMPOSITE OF		DF	SAMPLES	1-9 ALTERNATIVE PLYGROUP									
	DF	8.95	1.53	1.76				41.2					

027

649160

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY125

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
1	DE	10.60	0.70	1.85	0.261			50.6					
2	DE	10.68	0.08	2.24	0.275			75.6					
3	DE	11.00	0.30	1.88	0.384			50.6					
4	DE	11.07	0.07	1.97	0.184			58.2					
5	DE	11.27	0.20	1.71	0.472			39.4					
6	DE	11.44	0.17	2.04	0.524			64.3					
7	DE	11.53	0.09	2.07	0.268			66.2					
8	DE	11.67	0.14	1.74	0.343			42.0					
9	DE	11.96	0.29	1.56	0.602			24.6	23.2	45.9			
61	E3	29.46	0.30	1.58	0.184		6.3	29.7	24.8	43.6			
62	E3	29.61	0.15	1.46	0.313		5.3	14.6	23.7	56.4			
63	E3	29.63	0.08	2.23	0.044			72.7					
64	E3	29.69	0.08	1.84	0.209			51.8					
65	E3	29.90	0.21	1.59	0.383		3.2	26.8	20.6	47.4			
66	E3	30.04	0.14	2.46	0.134			83.2					
67	E3	30.28	0.24	1.55	0.754		5.7	25.2	24.5	44.6			
68	E3	30.31	0.03	1.98	0.062			59.6					
81	DE	38.43	0.34	1.68	0.768		4.7	34.9	18.3	42.1			
CALCULATED COMPOSITE OF													
E3		30.28	1.04	1.70				38.4					
CALCULATED COMPOSITE OF													
E3		30.28	0.82	1.55				23.9					
CALCULATED COMPOSITE OF													
DE		11.96	2.06	1.84				49.4					

820

649161

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : QY126

SAMPLE SIZE : - 3.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS			TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %			
1		23.72	0.05	2.09	0.150			66.6				
2	DE	23.95	0.23	1.66	0.577		4.9	31.9	18.5	44.7		
3	DE	24.00	0.05	1.68	0.081			35.5				
4	DE	25.11	1.11	1.72	0.144			40.1				
5	DE	25.33	0.24	2.18	0.732			69.8				
6	DE	25.57	0.24	1.60	0.528		5.3	27.4	24.9	42.4		
7		25.62	0.05	1.97	0.099			57.2				
21	E2	29.90	0.13	1.76	0.347			43.6				
22	E2	29.70	0.20	1.48	0.419		5.2	17.7	26.0	51.1		
23	E2	29.73	0.03	2.26	0.213			75.2				
24	E2	30.11	0.38	1.52	0.731		4.8	19.2	26.4	49.6		
25	E2	30.18	0.07	1.56	0.164		5.5	23.9	29.0	41.6		
61	E3	37.87	0.09	1.66	0.215		4.2	33.0	19.2	43.6		
62	E3	38.13	0.26	1.58	0.573		4.1	26.6	23.7	43.6		
63	E3	38.14	0.01	1.93	0.037			55.1				
64	E3	38.33	0.39	1.60	0.864		4.6	27.4	22.7	45.3		
65	E3	38.56	0.03	2.48	0.120			83.0				
66	E3	38.80	0.24	1.46	0.475		4.9	15.4	30.6	49.1		
67	E3	38.84	0.04	1.79	0.106			46.0				
68		38.91	0.07	2.16	0.198			70.1				
CALCULATED COMPOSITE OF				SAMPLES	21-25							
	E2	30.18	0.81	1.58				26.6				
CALCULATED COMPOSITE OF				SAMPLES	22, 24, 25							
	E2	30.18	0.65	1.51				19.3				
CALCULATED COMPOSITE OF				SAMPLES	61-67							
	E3	38.84	1.06	1.60				28.8				
CALCULATED COMPOSITE OF				SAMPLES	61, 62, 64, 66							
	E3	38.84	0.78	1.57				25.0				
CALCULATED COMPOSITE OF				SAMPLES	2-6							
	DE	25.57	1.87	1.76				42.3				
CALCULATED COMPOSITE OF				SAMPLES	1-7							
		25.62	1.97	1.97				43.4				

0-20

649162

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY129

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	-----PROXIMATE ANALYSIS-----				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
1	DE	11.22	0.09	1.87	0.171								
2	DE	11.57	0.35	1.61	0.877		3.9	50.4					
3	DE	11.75	0.18	1.87	0.500			26.7	19.4	48.0			
4	DE	11.78	0.03	2.44	0.109			49.3					
5	DE	12.01	0.23	2.07	0.755			82.6					
6	DE	12.17	0.16	1.71	0.379			65.5					
7	DE	12.22	0.05	2.04	0.185			38.8					
8	DE	12.33	0.31	1.68	0.731			69.6					
9	DE	12.64	0.11	2.17	0.335			35.4					
10	DE	12.77	0.13	1.62	0.294	4.5		70.3					
11	DE	12.90	0.13	2.01	0.411		4.5	28.1	20.1	47.3			
12	DE	13.26	0.03	1.49	0.072	3.8		60.6					
61	E3	29.36	0.37	1.56	0.723	5.8		17.1	31.1	46.0			
62	E3	29.36	0.06	1.91	0.335	5.4		23.4	22.0	49.2			
63	E3	29.36	0.16	1.65	0.066			52.4					
64	E3	29.33	0.01	2.46	0.251	5.5		30.2	21.3	43.0			
65	E3	29.89	0.36	1.51	0.003			82.8					
					0.305		5.2	19.7	25.8	49.3			
CALCULATED COMPOSITE OF													
	E3	29.89	0.96	1.59				26.4					
CALCULATED COMPOSITE OF													
	E3	29.89	0.89	1.56				23.2					
CALCULATED COMPOSITE OF													
	DE	13.26	2.04	1.76				42.4					
CALCULATED COMPOSITE OF													
	DE	13.26	2.13	1.77				42.8					

030

649163

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY131

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	-----PROXIMATE ANALYSIS-----				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
61	E3	7.26	0.17	1.51	0.336		4.4	18.9	24.9	51.8			
62	E3	7.39	0.13	1.72	0.218			36.7					
63	E3	7.62	0.23	1.58	0.220	2.3	29.0	25.5	47.2				
64	E3	7.64	0.02	2.63	0.077			83.7					
65	E3	7.88	0.24	1.46	0.473	4.4	14.3	30.0	51.3				
66	E3	7.94	0.06	1.57	0.100	1.5	26.0	32.8	39.7				
CALCULATED COMPOSITE OF		SAMPLES		61-66									
E3		7.94	0.85	1.58				25.4					
CALCULATED COMPOSITE OF		SAMPLES		61, 63, 65, 66									
E3		7.94	0.70	1.52				20.1					

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649164

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY133

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS			TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %			
1		7.38	0.06	2.08	0.133							
2	DE	7.39	0.021	1.63	0.137		4.8	61.1				
3	DE	7.87	0.028	1.51	0.356		4.7	27.1	19.5	48.6		
4	DE	8.03	0.16	1.83	0.379			18.1	25.6	51.6		
5	DE	8.19	0.16	2.03	0.308			45.5				
6	DE	8.41	0.022	1.84	0.084			61.5				
7	DE	8.59	0.18	2.10	0.441			48.4				
8	DE	8.76	0.17	1.76	0.407			65.4				
9	DE	8.91	0.15	2.07	0.464			48.1				
10	DE	9.16	0.025	1.98	0.735			65.9				
11	DE	9.26	0.10	1.98	0.128	7.7		59.0				
61	E3	24.11	0.03	1.73	0.067		7.7	21.6	29.9	40.8		
62	E3	24.22	0.11	1.53	0.206	5.2		37.1				
63	E3	24.49	0.27	1.67	0.116		5.2	18.3	25.8	50.7		
64	E3	24.73	0.24	1.92	0.408		5.2	36.4				
65	E3	24.77	0.04	2.54	0.141			18.8	25.4	50.6		
66	E3	24.99	0.22	1.44	0.373	6.1		83.1				
67	E3	25.06	0.07	1.64	0.169			15.4	30.5	48.0		
68		25.35	0.29	2.18	0.957			35.9				
	CALCULATED COMPOSITE OF							67.1				
	DE	7.87	0.49	1.57				22.2				
	CALCULATED COMPOSITE OF											
	E3	25.06	0.98	1.60				28.7				
	CALCULATED COMPOSITE OF											
	E3	25.06	0.37	1.49				21.2				
	CALCULATED COMPOSITE OF											
	DE	9.26	1.88	1.82				47.3				
	CALCULATED COMPOSITE OF											
	DE	9.26	1.94	1.83				47.8				

0320

649165

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY134

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
1	DE	16.76	0.34	1.63	0.623		6.4	28.9	20.0	44.7			
2	DE	16.81	0.05	2.01	0.129			39.0					
3	DE	17.30	0.49	1.64	0.460		6.8	29.7	18.6	44.9			
4	DE	17.41	0.11	2.03	0.332			62.2					
5	DE	17.90	0.09	1.71	0.172			35.9					
6	DE	17.97	0.07	2.26	0.248			72.7					
7	DE	17.80	0.23	2.13	0.638			46.0					
8	DE	18.02	0.22	1.89	0.451			52.2					
9	DE	18.21	0.19	1.73	0.438			41.8					
21	E2	22.12	0.06	1.63	0.137		6.2	29.3	24.0	40.3			
22	E2	22.28	0.16	1.83	0.421			49.3					
23	E2	22.44	0.16	1.46	0.374		7.3	17.3	23.9	51.3			
24	E2	22.90	0.06	2.31	0.182			77.9					
25	E2	22.73	0.23	1.55	0.516		6.6	22.5	22.5	48.4			
26	E2	22.84	0.11	1.49	0.192		5.7	19.6	27.3	47.4			
61	E3	30.41	0.10	1.67	0.206		6.3	33.9	16.5	43.3			
62	E3	30.49	0.08	1.39	0.089		6.9	11.7	33.6	45.8			
63	E3	30.56	0.07	1.50	0.310		6.0	19.0	23.2	51.8			
64	E3	30.72	0.16	1.71	0.148			36.9					
65	E3	31.10	0.28	1.55	0.475		5.5	23.1	24.7	46.7			
66	E3	31.13	0.03	2.33	0.093			78.8					
67	E3	31.28	0.15	1.51	0.293		5.8	20.0	25.8	48.4			
68	E3	31.39	0.11	1.38	0.174		6.1	11.2	37.8	44.9			
69	E3	31.57	0.18	2.28	0.587			73.0					
CALCULATED COMPOSITE OF SAMPLES 1-3													
DE	17.30	0.88	1.66					31.4					
CALCULATED COMPOSITE FOR SAMPLE 1													
DE	17.30	0.83	1.64					29.4					
CALCULATED COMPOSITE OF SAMPLES 23-26													
E2	22.84	0.56	1.59					29.3					
CALCULATED COMPOSITE FOR SAMPLE 23													
E2	22.84	0.50	1.51					20.3					
CALCULATED COMPOSITE OF SAMPLES 61-68													
E3	31.39	1.08	1.57					26.1					
CALCULATED COMPOSITE OF SAMPLES 61, 62, 63, 65, 67, 68													
E3	31.39	0.79	1.51					21.1					
CALCULATED COMPOSITE OF SAMPLES 1-5 ALTERNATIVE PLYGROUP													
DE	17.50	1.08	1.70					35.5					
CALCULATED COMPOSITE OF SAMPLES 1-9 ALTERNATIVE PLYGROUP													
DE	18.21	1.79	1.80					44.7					
CALCULATED COMPOSITE OF SAMPLES 21-26 ALTERNATIVE PLYGROU													
E2	22.84	0.78	1.65	P				33.9					

380

649166

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY139

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
21	E2	6.80	0.16	1.80	0.401								
22	E2	7.00	0.20	1.50	0.246	8.0	18.0	22.8	51.2				
23	E2	7.09	0.09	1.62	0.209	7.3	27.2	19.8	43.7				
24	E2	7.47	0.28	1.47	0.511	6.7	16.2	25.3	51.8				
61	E3	13.78	0.06	1.62	0.195	6.2	26.8	19.8	47.2				
62	E3	14.03	0.25	1.48	0.280	6.0	15.0	24.9	54.1				
63	E3	14.06	0.03	2.09	0.090		64.9						
64	E3	14.45	0.39	1.39	0.412	6.0	24.2	23.1	46.7				
65	E3	14.47	0.02	2.21	0.040		72.2						
66	E3	14.82	0.38	1.53	0.717	6.3	23.3	26.1	44.3				
67	E3	14.88	0.06	1.75	0.166		41.9						
CALCULATED COMPOSITE OF		SAMPLES		22-24									
E2		7.47	0.47	1.30			18.3						
CALCULATED COMPOSITE OF		SAMPLES		61-67									
E3		14.88	1.16	1.38			25.8						
CALCULATED COMPOSITE FOR		SAMPLE		61									
E3		14.88	1.03	1.55			22.0						
CALCULATED COMPOSITE OF		SAMPLES		21-24	ALTERNATIVE PLYGROU								
E2		7.47	0.83	1.56	P		24.8						

034

649167

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY140

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
1	DE	19.24	0.18	1.60	0.401		6.7	26.6	19.0	47.7			
2	DE	19.31	0.07	1.97	0.383			57.5					
3	DE	19.66	0.35	1.67	0.337		6.0	32.1	19.4	42.5			
4	DE	19.72	0.06	1.88	0.165			51.3					
5	DE	20.04	0.30	2.17	0.283			69.3					
6	DE	20.30	0.26	2.07	0.357			65.6					
7	DE	20.66	0.36	2.04	0.766			63.4					
21	E2	23.47	0.18	1.74	0.421			43.3					
22	E2	23.76	0.29	1.50	0.470		6.2	18.4	23.2	32.2			
23	E2	23.79	0.03	2.11	0.127			66.5					
24	E2	24.13	0.36	1.43	0.466		3.4	19.1	26.1	33.4			
25	E2	24.22	0.07	1.57	0.188		3.6	26.3	32.0	35.9			
61	E3	31.33	0.06	1.63	0.113		3.1	30.3	18.5	46.1			
62	E3	31.55	0.22	1.44	0.323		3.3	14.5	31.8	48.4			
63	E3	31.61	0.26	1.76	0.138			42.1					
64	E3	32.12	0.51	1.51	0.438		4.9	19.3	26.5	49.3			
65	E3	32.15	0.03	2.49	0.100			81.8					
66	E3	32.34	0.19	1.54	0.172		6.0	20.8	28.1	45.1			
CALCULATED COMPOSITE OF		DE	19.66	0.60	1.68			34.0					
CALCULATED COMPOSITE OF		DE	19.66	0.53	1.65			30.3					
CALCULATED COMPOSITE OF		E2	24.22	0.75	1.52			20.4					
CALCULATED COMPOSITE OF		E2	24.22	0.72	1.48			17.6					
CALCULATED COMPOSITE OF		E3	32.34	1.07	1.55			23.6					
CALCULATED COMPOSITE OF		E3	32.34	0.98	1.51			19.3					
CALCULATED COMPOSITE OF		E2	24.22	0.94	1.56			25.6					
CALCULATED COMPOSITE OF		DE	20.66	1.60	1.93			55.6					

030

649168

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY144

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
1	DE	17.85	0.19	1.64	0.064		5.9	30.9	19.4	43.8			
2	DE	18.05	0.20	1.73	0.635			40.6					
3	DE	18.32	0.27	1.69	0.383			39.1					
4	DE	18.46	0.14	1.78	0.245			46.4					
5	DE	18.94	0.08	1.89	0.233			52.6					
6	DE	18.70	0.16	1.86	0.316			51.1					
7	DE	18.84	0.14	2.09	0.349			67.8					
8	DE	19.17	0.33	1.91	0.993			53.6					
9	DE	19.36	0.19	1.63	0.376		5.3	30.4	17.3	47.0			
10	DE	19.44	0.08	2.02	0.187			62.1					
21	E2	22.47	0.33	1.85	0.630			50.4					
22	E2	22.99	0.12	2.06	0.294			66.0					
23	E2	23.28	0.19	1.37	0.393		6.7	24.3	18.9	50.1			
24	E2	23.53	0.07	2.27	0.180			74.3					
25	E2	23.63	0.28	1.31	0.533		5.6	20.2	23.6	50.6			
61	E3	30.46	0.03	1.84	0.089			50.7					
62	E3	30.53	0.07	1.44	0.154		6.0	14.1	36.2	43.7			
63	E3	30.72	0.19	1.47	0.322		4.8	16.6	24.0	54.6			
64	E3	30.74	0.02	2.06	0.063			66.2					
65	E3	30.80	0.06	1.71	0.157			38.6					
66	E3	31.28	0.48	1.49	0.600		4.9	17.4	27.9	49.8			
67	E3	31.38	0.82	2.38	0.067			79.0					
68	E3	31.39	0.89	1.48	0.117		5.1	17.9	26.3	50.7			
69	E3	31.46	0.07	1.50	0.113		4.6	18.5	34.6	42.3			
CALCULATED COMPOSITE OF SAMPLES 1-6													
DE		18.70	1.04	1.74				42.1					
CALCULATED COMPOSITE FOR SAMPLE 1													
DE		17.85	0.19	1.64				30.9					
CALCULATED COMPOSITE OF SAMPLES 23-25													
E2		23.63	0.54	1.63				31.4					
CALCULATED COMPOSITE OF SAMPLES 23, 25													
E2		23.63	0.47	1.53				21.9					
CALCULATED COMPOSITE OF SAMPLES 62-69													
E3		31.46	1.00	1.52				21.8					
CALCULATED COMPOSITE OF SAMPLES 62, 63, 66, 68, 69													
E3		31.46	0.90	1.48				17.1					
CALCULATED COMPOSITE OF SAMPLES 1-9 ALTERNATIVE PLYGROUP													
DE		19.36	1.70	1.79				45.7					

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY145

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
61	E3	18.23	0.11	1.59	0.267		6.6	26.3	19.6	48.5			
62	E3	18.35	0.12	1.46	0.234		6.1	19.6	22.0	36.3			
63	E3	18.39	0.04	1.83	0.111			49.2					
64	E3	18.44	0.03	2.23	0.161			74.4					
65	E3	18.70	0.26	1.61	0.622		6.2	27.9	23.0	42.9			
66	E3	18.73	0.03	2.47	0.103			82.7					
67	E3	18.78	0.03	1.98	0.113		6.2	24.5	31.7	37.6			
81	DF	27.53	0.20	1.56	0.497		5.3	25.2	25.4	44.1			
82	DF	27.70	0.17	1.63	0.386		5.3	30.7	21.2	42.8			
83	DF	27.75	0.03	2.03	0.134			63.7					
84	DF	28.04	0.29	1.65	0.343		5.3	30.3	19.6	44.8			
CALCULATED COMPOSITE OF													
E3	18.78	0.66	1.68					35.2					
CALCULATED COMPOSITE OF													
E3	18.78	0.34	1.57	SAMPLES 61, 62, 65, 67				24.7					
CALCULATED COMPOSITE OF													
DF	28.04	0.71	1.63	SAMPLES 81-84				32.0					
CALCULATED COMPOSITE OF													
DF	28.04	0.66	1.62	SAMPLES 81, 82, 84				28.9					
CALCULATED COMPOSITE OF													
	23.63	0.99	1.76	SAMPLES 21-25 ALTERNATIVE PLYGROU P				43.0					

037

649170

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY147

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS			TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %			
61	E3	7.38	0.10	1.68	0.041		6.0	34.1	19.6	40.3		
62	E3	7.71	0.13	1.73	0.250			39.3				
63	E3	7.86	0.13	1.69	0.291			35.7				
64	E3	7.92	0.06	1.66	0.135		5.1	33.1	19.1	42.7		
81	DF	17.18	0.49	1.59	0.829		4.4	24.4	17.3	33.9		
82	DF	17.21	0.03	2.26	0.166			74.4				
83	DF	17.39	0.03	1.67	0.872		4.7	31.7	17.6	46.0		
84	DF	17.64	0.03	1.98	0.148			59.3				
85	DF	17.91	0.23	1.63	0.331		4.2	27.8	21.8	46.2		
86		18.12	0.21	2.10	0.792			65.4				
87		18.32	0.20	1.99	0.331			36.7				
88		18.51	0.19	2.09	0.368			67.6				
CALCULATED COMPOSITE OF SAMPLES 61-64												
	E3	7.92	0.44	1.70				36.1				
CALCULATED COMPOSITE OF SAMPLES 61, 64												
	E3	7.92	0.16	1.67				33.7				
ANALYSED COMPOSITE OF SAMPLES 81-85												
	DF	17.91	1.20	1.66				30.9				
ANALYSED COMPOSITE OF SAMPLES 81, 83, 85												
	DF	17.91	1.12	1.63				27.7				
CALCULATED COMPOSITE OF SAMPLES 81-88 ALTERNATIVE PLYGROU												
		18.51	1.80	1.79	P			43.3				

830

649171

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY148

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
21	E2	13.99	0.05	1.73	0.129								
22	E2	14.05	0.06	1.62	0.138		7.0	30.2	20.5	42.3			
23	E2	14.06	0.01	2.25	0.018			74.2					
24	E2	14.24	0.18	1.56	0.387		6.2	24.2	22.6	47.0			
25	E2	14.34	0.10	1.61	0.184		3.6	30.1	27.0	39.3			
61	E3	23.64	0.12	1.92	0.331			56.0					
62	E3	23.99	0.35	1.59	0.808		4.9	26.8	25.5	42.8			
63	E3	24.17	0.18	2.32	0.613			81.4					
64	E3	24.45	0.28	1.60	0.643		5.3	28.3	19.0	47.4			
65	E3	24.47	0.03	2.34	0.116			79.4					
66	E3	24.66	0.19	1.69	0.421			37.9					
67	E3	24.72	0.06	1.94	0.172			56.4					
68	E3	24.87	0.19	2.26	0.507			75.0					
CALCULATED COMPOSITE OF		E2		SAMPLES	21-25								
CALCULATED COMPOSITE OF		E2		SAMPLES	22, 24, 25			30.7					
CALCULATED COMPOSITE OF		E2		SAMPLES	22, 24, 25				27.0				
CALCULATED COMPOSITE OF		E3		SAMPLES	62-66					43.3			
CALCULATED COMPOSITE OF		E3		SAMPLES	62, 64					27.5			
CALCULATED COMPOSITE OF		E3		SAMPLES	61-68 ALTERNATIVE PLYGROU P					49.4			

630

649172

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY149

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
61	E3	3.94	0.07	1.56	0.143		5.4	21.0	24.5	49.1			
62	E3	4.13	0.19	1.87	0.386			47.6					
63	E3	4.25	0.12	1.69	0.298		5.0	31.9	18.0	45.1			
64	E3	4.98	0.33	1.60	0.246		4.0	30.4	21.4	44.2			
81	DF	14.40	0.08	1.70	0.251			37.1					
82	DF	14.46	0.06	2.59	0.217			87.9					
83	DF	14.75	0.27	1.69	0.684		4.4	28.3	19.2	48.1			
84	DF	14.78	0.23	2.33	0.092			78.8					
85	DF	15.20	0.42	1.61	1.001		4.7	26.9	18.2	50.2			
86	DF	15.25	0.08	2.08	0.168			64.9					
87	DF	15.38	0.13	1.73	0.236			40.6					
88	DF	15.51	0.13	2.05	0.424			62.6					
89	DF	15.62	0.11	2.01	0.413			58.6					
90	DF	15.67	0.08	1.76	0.142			46.1					
ANALYSED COMPOSITE OF SAMPLES 63-64													
E3		4.98	0.43	1.61				30.8					
CALCULATED COMPOSITE OF SAMPLES 61-64 ALTERNATIVE PLYGROU													
E3		4.98	0.71	1.68				34.9					
CALCULATED COMPOSITE OF SAMPLES 83-85													
DF		15.20	0.74	1.65				30.4					
CALCULATED COMPOSITE OF SAMPLES 81-90													
DF		15.67	1.35	1.79				43.6					

040

649173

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : QY153

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
41	E2	8.75	0.03	1.75	0.034								
42	E2	9.15	0.40	1.48	0.328								
61	E3	14.90	0.09	1.60	0.173		4.3	17.3	24.0	54.2			
62	E3	15.19	0.09	1.52	0.498		4.9	25.8	19.4	49.9			
63	E3	15.22	0.09	1.97	0.118		5.3	20.2	23.2	51.3			
64	E3	15.74	0.09	1.59	0.838		5.0	24.2	25.6	45.2			
65	E3	15.76	0.09	1.89	0.040			51.2					
66	E3	15.91	0.15	1.50	0.310		5.5	19.2	32.0	43.3			
67	E3	16.00	0.09	1.44	0.047		5.0	14.9	37.3	43.2			
68	E3	16.09	0.09	1.91	0.316			30.2					
CALCULATED COMPOSITE OF SAMPLES				41-42									
E2		9.15	0.43	1.50				19.3					
CALCULATED COMPOSITE FOR SAMPLE				42									
E2		9.15	0.40	1.48				17.3					
CALCULATED COMPOSITE OF SAMPLES				61-68									
E3		16.09	1.28	1.59				26.2					
CALCULATED COMPOSITE OF SAMPLES				61, 62, 64, 66, 67									
E3		16.09	1.14	1.55				22.0					

041

649174

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY154

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
1	DE	11.74	0.20	1.46	0.289		5.7	16.4	24.4	53.5			
2	DE	11.92	0.18	1.72	0.296			43.0					
3	DE	12.26	0.44	1.69	0.327			39.1					
4	DE	12.40	0.04	2.00	0.089			61.1					
5	DE	12.72	0.38	1.58	0.317		5.3	25.2	19.3	50.2			
6	DE	12.88	0.16	2.03	0.281			60.0					
7	DE	13.08	0.12	2.04	0.367			62.4					
8	DE	13.20	0.00	1.83	0.392			47.7					
9	DE	13.56	0.00	1.66	0.167		5.4	32.0	20.8	41.8			
21	E2	17.33	0.00	1.91	0.513			55.1					
22	E2	17.72	0.00	2.40	0.719			74.2					
23	E2	17.94	0.00	2.09	0.571			66.0					
24	E2	18.06	0.00	2.17	0.328			69.1					
25	E2	18.33	0.00	1.65	0.361		7.2	31.1	18.9	42.8			
26	E2	18.33	0.00	1.63	0.073		6.0	28.6	23.9	41.9			
61	E3	24.92	0.00	1.63	0.094		5.4	27.4	20.4	46.8			
62	E3	25.23	0.00	1.57	0.451		5.8	23.7	24.7	43.8			
63	E3	25.28	0.00	1.94	0.044			56.0					
64	E3	25.92	0.00	1.31	0.943		5.7	18.3	27.2	48.8			
65	E3	25.93	0.00	2.07	0.038			63.2					
66	E3	26.12	0.19	1.94	0.341		5.1	21.7	29.4	43.8			
CALCULATED COMPOSITE OF		DE	12.72	1.18	1.64			33.4					
CALCULATED COMPOSITE OF		DE	12.72	0.52	1.53			22.0					
CALCULATED COMPOSITE OF		E3	26.12	1.24	1.55			22.2					
CALCULATED COMPOSITE OF		E3	26.12	1.20	1.53			20.7					
CALCULATED COMPOSITE OF		DE	13.56	2.02	1.72			40.2					
CALCULATED COMPOSITE OF		E2	18.33	1.01	2.01			59.2					
CALCULATED COMPOSITE OF		E2	18.33	0.27	1.65			30.8					

042

649173

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY156

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	-----PROXIMATE ANALYSIS-----				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
61	E3	14.08	0.03	1.69	0.057								
62	E3	14.27	0.19	1.55	0.399	6.2	22.6	24.9	46.3				
63	E3	14.45	0.18	1.56	0.376	5.6	23.9	21.5	49.0				
64	E3	14.90	0.03	1.95	0.133			37.1					
65	E3	15.65	0.53	1.49	1.107	6.6	18.3	28.5	46.6				
66	E3	15.98	0.03	2.41	0.118			81.9					
67	E3	15.23	0.15	1.52	0.290	6.4	20.2	28.6	44.8				
68	E3	15.27	0.04	1.93	0.111			34.4					
69	E3	15.34	0.07	2.27	0.261			76.8					
CALCULATED COMPOSITE OF		SAMPLES		61-67									
E3		15.23	1.18	1.56				25.1					
CALCULATED COMPOSITE OF		SAMPLES		62, 63, 65, 67									
E3		15.23	1.07	1.52				20.3					

043

649176

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY158

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
61	E3	7.67	0.83	1.50	0.529		5.5	15.9	25.5	53.1			
62	E3	7.71	0.04	2.28	0.128			76.2					
63	E3	7.90	0.19	1.49	0.343		5.6	16.9	28.4	49.1			
64	E3	7.95	0.05	1.38	0.044		5.2	7.4	36.3	51.1			
CALCULATED COMPOSITE OF		SAMPLES		61-64									
E3		7.95	1.11	1.52				19.0					
CALCULATED COMPOSITE OF		SAMPLES		61, 63, 64									
E3		7.95	1.07	1.49				15.7					

044

649177

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY159

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	BEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
61	E3	16.44	0.38	1.50	0.530		6.1	17.1	24.2	52.6			
62	E3	16.51	0.07	2.04	0.191			60.7					
63	E3	17.09	0.38	1.53	1.020		6.3	23.5	23.6	46.6			
64	E3	17.15	0.06	2.15	0.183			67.3					
65	E3	17.27	0.12	1.52	0.323		5.5	18.7	25.5	50.3			
66	E3	17.34	0.07	1.46	0.083		4.5	16.0	34.1	45.3			
67		17.44	0.30	2.33	0.983			78.2					
CALCULATED COMPOSITE OF				SAMPLES	61-66								
E3		17.34	1.28	1.58				26.3					
CALCULATED COMPOSITE OF				SAMPLES	61, 63, 65, 66								
E3		17.34	1.13	1.52				20.5					

0470

649178

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY160

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
1	DE	9.82	0.09	1.43	0.055		5.7	13.8	27.7	52.8			
2	DE	9.96	0.14	1.66	0.387		5.6	31.9	23.0	39.5			
3	DE	10.04	0.08	2.36	0.273			78.7					
4	DE	10.48	0.44	1.82	0.632			46.7					
5	DE	10.74	0.26	1.32	0.742		5.4	20.8	21.3	52.5			
6	DE	10.76	0.02	1.68	0.007		5.7	34.3	20.1	39.9			
7	DE	11.19	0.43	1.78	0.324			42.9					
8	DE	11.32	0.13	1.60	0.251		6.1	26.2	26.8	40.9			
9	DE	11.36	0.04	2.06	0.109			64.1					
62	E3	23.86	0.38	1.93	0.238		4.9	19.4	25.6	50.1			
63	E3	23.94	0.08	1.94	0.033			33.8					
64	E3	24.60	0.66	1.47	1.066		5.7	16.8	26.1	51.4			
65	E3	24.62	0.02	2.43	0.110			81.1					
66	E3	24.70	0.08	1.93	0.137		6.0	21.0	28.2	44.8			
67	E3	24.78	0.08	1.91	0.198		5.3	20.1	30.3	44.3			
68	DE	25.01	0.23	2.37	0.392			80.6					
CALCULATED COMPOSITE OF				SAMPLES	62-67								
	E3	24.78	1.30	1.93				22.9					
CALCULATED COMPOSITE OF				SAMPLES	62, 64, 66, 67								
	E3	24.78	1.20	1.91				18.1					
CALCULATED COMPOSITE OF				SAMPLES	1-8								
	DE	11.32	1.59	1.73				39.6					

046

649179

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : QY165

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
61	E3	15.52	0.13	1.62	0.332		4.3	28.8	24.6	42.3			
62	E3	15.72	0.20	1.48	0.270		4.4	14.8	28.8	52.0			
63	E3	15.79	0.07	2.00	0.192			60.3					
64	E3	16.30	0.51	1.49	0.963		5.5	21.4	26.3	46.8			
65	E3	16.32	0.02	2.36	0.069			80.4					
66	E3	16.53	0.21	1.45	0.303		5.3	17.4	31.0	46.3			
67	E3	16.58	0.03	2.20	0.197			75.0					
CALCULATED COMPOSITE OF		COMPOSITE OF	SAMPLES	61-66									
	E3	16.53	1.14	1.54				25.2					
CALCULATED COMPOSITE OF		COMPOSITE OF	SAMPLES	61, 62, 64, 66									
	E3	16.53	1.05	1.50				20.4					

047

649180

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY169

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
61	E3	10.09	0.23	1.52	0.385		6.0	20.7	22.4	50.9			
62	E3	10.14	0.05	1.99	0.100			39.5					
63	E3	10.78	0.64	1.54	0.273		5.2	22.5	27.4	44.9			
64	E3	10.80	0.02	2.31	0.051			78.8					
65	E3	10.86	0.06	1.93	0.134		7.1	21.1	28.8	43.0			
66	E3	11.05	0.19	1.51	0.099		5.8	19.7	28.3	46.2			
67	E3	11.10	0.05	1.76	0.077			43.5					
81	DF	29.91	0.81	2.06	0.264			64.7					
82	DF	29.46	0.55	1.71	1.315			38.6					
83	DF	29.54	0.08	1.85	0.168			48.5					
CALCULATED COMPOSITE OF													
E3		11.10	1.24	1.57				25.9					
CALCULATED COMPOSITE OF													
E3		11.10	1.12	1.53				21.6					
CALCULATED COMPOSITE OF													
DF		29.54	1.44	1.91				54.9					
CALCULATED COMPOSITE OF													
DF		29.54	0.63	1.73				39.9					

048

649181

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY170

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
1	DE	19.38	0.38	1.56	0.888		5.9	22.3	23.2	48.6			
2	DE	19.34	0.16	1.77	0.418			42.7					
3	DE	19.99	0.48	1.75	1.174			42.2					
4	DE	20.29	0.30	2.36	1.079			78.7					
5	DE	20.34	0.03	2.26	0.159			73.8					
6	DE	20.86	0.93	2.33	1.808			77.6					
7	DE	20.89	0.03	2.31	0.100			76.7					
8	DE	21.04	0.13	1.92	0.349			52.2					
9	DE	21.12	0.08	1.70	0.217			36.6					
10	DE	21.15	0.03	2.38	0.086			78.7					
11	DE	21.17	0.08	1.65	0.050		7.1	30.3	28.2	34.2			
61	E3	32.69	0.07	1.57	0.105		5.1	22.9	20.1	51.9			
62	E3	33.04	0.38	1.48	0.300		6.8	13.9	24.2	53.1			
63	E3	33.09	0.08	1.97	0.141			58.4					
64	E3	33.16	0.07	1.81	0.188			45.9					
65	E3	33.45	0.29	1.66	0.320		5.6	30.1	20.9	43.4			
66	E3	33.46	0.01	2.17	0.053			69.0					
67	E3	33.54	0.08	1.49	0.484		6.5	18.4	28.0	47.1			
68	E3	33.76	0.22	2.26	0.130			74.6					
CALCULATED COMPOSITE OF		SAMPLES		1-3									
DE		19.99	0.99	1.68				35.2					
CALCULATED COMPOSITE FOR SAMPLE		1											
DE		19.99	0.38	1.56				22.3					
CALCULATED COMPOSITE OF		SAMPLES		61-67									
E3		33.54	0.92	1.60				27.5					
CALCULATED COMPOSITE OF		SAMPLES		61, 62, 65, 67									
E3		33.54	0.79	1.56				22.3					
CALCULATED COMPOSITE OF		SAMPLES		1-11 ALTERNATIVE PLYGROUP									
DE		21.17	2.17	1.98				57.9					

049

649182

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : QY171

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
61	E3	21.08	0.14	1.63	0.295		3.9	30.7	22.0	43.4			
62	E3	21.30	0.22	1.57	0.519		4.3	24.7	22.1	48.9			
63	E3	21.34	0.04	2.41	0.120			80.6					
64	E3	21.86	0.32	1.58	0.615		4.7	25.2	25.8	44.3			
65	E3	21.88	0.02	2.47	0.096			82.0					
66	E3	22.08	0.20	1.47	0.392		4.7	14.4	34.2	46.7			
67	E3	22.17	0.09	1.48	0.183		4.2	16.4	29.1	50.3			
CALCULATED COMPOSITE OF		E3		22.17	1.23			27.7					
CALCULATED COMPOSITE OF		E3		22.17	1.17			23.4					
				SAMPLES 61-67									
				SAMPLES 61, 62, 64, 66, 67									

050

649183

RAW COAL PLY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY172

SAMPLE SIZE : - 5.6 + 0.0 MM

SAMPLE NUMBER	SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE RELATIVE DENSITY	SAMPLE MASS KG	TOTAL MOISTURE %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	SPECIFIC ENERGY (MJ/KG)	CRUCIBLE SWELLING NUMBER
							INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %			
61	E3	29.29	0.05	1.67	0.110		4.9	34.6	21.4	39.1			
62	E3	29.38	0.29	1.55	0.634		5.6	23.2	22.4	48.8			
63	E3	29.62	0.04	2.04	0.130			63.6					
64	E3	30.22	0.60	1.49	1.174		5.5	17.1	30.3	47.1			
65	E3	30.24	0.02	2.14	0.085			68.7					
66	E3	30.42	0.18	1.49	0.371		6.1	17.3	30.5	45.9			
67	E3	30.47	0.05	1.59	0.078		3.3	26.2	27.7	42.8			
CALCULATED COMPOSITE OF		COMPOSITE OF	SAMPLES	61-67									
E3		30.47	1.23	1.54				22.9					
CALCULATED COMPOSITE OF		COMPOSITE OF	SAMPLES	61, 62, 64, 66, 67									
E3		30.47	1.17	1.52				19.9					

100

649184

THE SHELL COMPANY OF AUSTRALIA LTD.

WASHABILITY ANALYSIS

GRAY

053

649186

THE SHELL COMPANY OF AUSTRALIA LTD.

WASHABILITY ANALYSIS

LEGEND

SAMPLE STATE

COL 1-11:	WET TUMBLED	
	DRY TUMBLED	
	BROKEN	BROKEN - NOT TUMBLED
	FROTH CONC.	FROTH FLOTATION CONCENTRATES
	TAILINGS	
COL 12:	blank	
COL 13:	S	SINK FRACTION
COL 14-17:	N. NN	SEPARATION RELATIVE DENSITY
COL 18:	-	
COL 19:	F	FLOAT FRACTION
COL 20-23:	N. NN	SEPARATION RELATIVE DENSITY

INTERVAL MARKER CODE

COLS 1-2:	MEMBER/MARKER
COL 3:	SUBSEAM
COL 4:	SEAM SPLIT
COL 5:	SUBSPLIT
UB	- MT. NICHOLAS UPPER B
M1	- MT. NICHOLAS MIDDLE 1
M2	- MT. NICHOLAS MIDDLE 2
M3	- MT. NICHOLAS MIDDLE 3
L1	- MT. NICHOLAS LOWER 1
L2	- MT. NICHOLAS LOWER 2
DD	- DALMAYNE D
DDU	- DALMAYNE D UPPER
DDM	- DALMAYNE D MIDDLE
DDL	- DALMAYNE D LOWER
D2	- HAREFIELD 2
D3	- HAREFIELD 3
D4	- HAREFIELD 4
DE	- DALMAYNE E

PCO

649187

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY47

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
SAMPLE 47A02									
DE	87.98	0.28	- 25.0 + 0.0	BROKEN	F1.60	22.2	12.1	22.2	17.1
					S1.60-F1.70	21.9	33.0	44.1	22.5
					S1.70-F1.80	9.1	46.2	53.2	26.5
					S1.80	46.8	56.8	100.0	40.7
SAMPLE 47A03									
DE	89.24	1.26	- 25.0 + 0.0	BROKEN	F1.60	42.8	18.0	42.8	18.0
					S1.60-F1.70	16.5	34.5	59.3	27.6
					S1.70-F1.80	7.7	45.5	67.0	25.2
					S1.80	33.0	63.1	100.0	38.4
SAMPLE 47A04									
DE	89.57	0.33	- 25.0 + 0.0	BROKEN	F1.60	72.1	15.2	72.1	15.2
					S1.60-F1.70	9.2	37.0	81.3	17.7
					S1.70-F1.80	3.1	41.1	84.4	18.5
					S1.80	15.6	73.3	100.0	27.1
CALCULATED COMPOSITE OF SAMPLES 47A02-4									
DE	89.57	1.87	- 25.0 + 0.0	BROKEN	F1.60	44.3	16.8	44.3	16.8
					S1.60-F1.70	16.2	34.3	60.5	21.5
					S1.70-F1.80	7.2	45.0	67.7	24.0
					S1.80	32.3	63.9	100.0	36.9
SAMPLE 47A05									
E3	102.66	0.85	- 25.0 + 0.0	BROKEN	F1.60	65.3	18.8	65.3	18.8
					S1.60-F1.70	10.4	36.3	73.7	21.2
					S1.70-F1.80	6.8	45.9	82.5	23.2
					S1.80	17.3	68.0	100.0	31.1
SAMPLE 47A06									
	102.92	0.26	- 25.0 + 0.0	BROKEN	F1.60	0.5	26.0	0.5	26.0
					S1.60-F1.70	0.0		0.5	26.0
					S1.70-F1.80	0.0		0.5	26.0
					S1.80	99.3	77.8	100.0	77.3
SAMPLE 47A07									
DF	117.22	1.12	- 25.0 + 0.0	BROKEN	F1.60	27.6	22.8	27.6	22.8
					S1.60-F1.70	9.2	31.7	36.8	25.0
					S1.70-F1.80	16.0	38.8	52.8	29.2
					S1.80	47.2	60.3	100.0	43.9

5150

649185

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY80

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
SAMPLE 1									
E2	12.60	0.71	- 25.0 + 0.0	BROKEN					
					F1.60	10.8	26.4	10.8	26.4
					S1.60-F1.70	6.4	36.9	17.2	30.2
					S1.70-F1.80	24.2	47.1	41.4	40.1
					S1.80	58.6	53.3	100.0	47.8
SAMPLE 2									
	13.35	0.39	- 25.0 + 0.0	BROKEN					
					F1.60	0.4	36.2	0.4	36.2
					S1.60-F1.70	4.9	40.4	5.3	40.1
					S1.70-F1.80	33.0	44.9	38.3	44.2
					S1.80	61.7	58.5	100.0	53.0
SAMPLE 3									
	15.19	0.85	- 25.0 + 0.0	BROKEN					
					F1.60	91.8	21.9	91.8	21.9
					S1.60-F1.70	1.1	38.1	92.9	22.1
					S1.70-F1.80	0.5	41.4	93.4	22.2
					S1.80	6.6	59.7	100.0	24.7
SAMPLE 4									
E3	19.35	1.00	- 25.0 + 0.0	BROKEN					
					F1.60	82.8	15.7	82.8	15.7
					S1.60-F1.70	5.6	37.1	88.4	17.1
					S1.70-F1.80	0.6	43.7	89.0	17.2
					S1.80	11.0	72.5	100.0	23.3

056

649189

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY82

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
SAMPLE 1									
DE	21.59	1.13	- 25.0 + 0.0	BROKEN	F1.60	19.7	26.1	19.7	26.1
					S1.60-F1.70	22.5	35.4	42.2	31.1
					S1.70-F1.80	23.1	44.2	65.3	35.7
					S1.80	34.7	63.3	100.0	45.3
SAMPLE 2									
DE	22.32	0.73	- 25.0 + 0.0	BROKEN	F1.60	40.0	20.0	40.0	20.0
					S1.60-F1.70	8.9	39.1	48.9	23.5
					S1.70-F1.80	7.3	45.6	56.2	26.3
					S1.80	43.8	72.5	100.0	46.6
CALCULATED COMPOSITE OF SAMPLES 1-2									
DE	22.32	1.86	- 25.0 + 0.0	BROKEN	F1.60	27.5	22.7	27.5	22.7
					S1.60-F1.70	17.3	36.2	44.8	27.9
					S1.70-F1.80	17.0	44.3	61.8	32.4
					S1.80	38.2	67.5	100.0	45.8

057

649190

HASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY84

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
SAMPLE 1									
DE	19.36	0.84	- 25.0 + 0.0	BROKEN					
					S1.60-F1.60	28.1	22.2	28.1	22.2
					S1.60-F1.70	14.4	36.6	44.5	27.5
					S1.70-F1.80	14.0	22.9	58.5	26.4
					S1.80	41.5	57.4	100.0	39.3
SAMPLE 2									
DE	20.03	0.67	- 25.0 + 0.0	BROKEN					
					S1.60-F1.60	7.0	30.6	7.0	30.6
					S1.60-F1.70	4.1	39.3	11.1	33.8
					S1.70-F1.80	14.8	49.1	25.9	42.3
					S1.80	74.1	68.6	100.0	61.9
CALCULATED COMPOSITE OF SAMPLES 1-2									
DE	20.03	1.51	- 25.0 + 0.0	BROKEN					
					S1.60-F1.60	18.0	23.8	18.0	23.8
					S1.60-F1.70	10.5	37.1	28.5	28.7
					S1.70-F1.80	14.4	35.5	42.9	31.0
					S1.80	57.1	64.4	100.0	50.1
SAMPLE 3									
E2	24.57	0.76	- 25.0 + 0.0	BROKEN					
					S1.60-F1.60	68.6	15.0	68.6	15.0
					S1.60-F1.70	17.9	38.7	86.5	19.9
					S1.70-F1.80	6.6	45.6	93.1	21.7
					S1.80	6.9	56.7	100.0	24.1

850

649191

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY86

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
SAMPLE 1									
DE	18.40	0.99	- 25.0 + 0.0	BROKEN					
					F1.60	7.3	26.9	7.3	26.9
					S1.60-F1.70	16.1	36.7	23.4	33.6
					S1.70-F1.80	12.5	43.8	35.9	37.2
					S1.80	64.1	59.9	100.0	51.7
SAMPLE 2									
DE	19.22	0.78	- 25.0 + 0.0	BROKEN					
					F1.60	18.8	25.5	18.8	25.5
					S1.60-F1.70	26.7	37.5	45.5	32.5
					S1.70-F1.80	12.8	45.7	58.3	35.4
					S1.80	41.7	67.1	100.0	48.6
CALCULATED COMPOSITE OF SAMPLES 1-2									
DE	19.22	1.46	- 25.0 + 0.0	BROKEN					
					F1.60	12.2	26.0	12.2	26.0
					S1.60-F1.70	20.6	37.0	32.8	32.9
					S1.70-F1.80	12.7	44.7	45.5	36.2
					S1.80	54.5	62.2	100.0	50.4

650

649192

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY90

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
SAMPLE 1									
DE	8.60	0.44	- 25.0 + 0.0	BROKEN					
					F1.60	58.7	20.1	58.7	20.1
					S1.60-F1.70	16.8	36.8	75.5	23.8
					S1.70-F1.80	21.3	42.0	96.8	27.8
					S1.80	3.2	55.9	100.0	28.7
SAMPLE 2									
DE	9.86	1.26	- 25.0 + 0.0	BROKEN					
					F1.60	5.5	28.4	5.5	28.4
					S1.60-F1.70	6.6	39.8	12.1	34.6
					S1.70-F1.80	6.3	44.6	18.4	38.0
					S1.80	81.6	64.9	100.0	60.0
CALCULATED COMPOSITE OF SAMPLES 1-2									
DE	9.86	1.70	- 25.0 + 0.0	BROKEN					
					F1.60	17.3	22.2	17.3	22.2
					S1.60-F1.70	8.8	38.9	26.1	27.7
					S1.70-F1.80	9.7	43.2	35.8	31.9
					S1.80	64.2	64.9	100.0	53.1
SAMPLE 3									
E2	15.91	0.69	- 25.0 + 0.0	BROKEN					
					F1.60	50.3	18.6	50.3	18.6
					S1.60-F1.70	13.3	39.7	63.6	23.0
					S1.70-F1.80	8.0	46.2	71.6	25.6
					S1.80	28.4	65.0	100.0	36.8
SAMPLE 4									
E3	24.01	0.93	- 25.0 + 0.0	BROKEN					
					F1.60	85.4	16.4	85.4	16.4
					S1.60-F1.70	3.1	38.7	88.5	17.2
					S1.70-F1.80	1.6	49.4	90.1	17.7
					S1.80	9.9	73.5	100.0	23.2

090

649193

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY99

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE			
					MASS%	ASH%	MASS%	ASH%		
SAMPLE 1										
DF	17.86	0.84	- 25.0 + 0.0	BROKEN						
					S1.60	F1.60	33.9	25.2	33.9	25.2
					S1.60	F1.70	23.6	37.6	57.5	30.3
					S1.70	F1.80	13.0	46.0	70.5	33.2
					S1.80		29.5	64.0	100.0	42.3

190

649194

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY100

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASSX	ASHX	MASSX	ASHX	
SAMPLE 1									
DF	7.49	1.26	- 25.0 + 0.0	BROKEN					
					F1.60	40.9	27.5	40.9	27.5
					S1.60-F1.70	17.6	26.9	58.5	27.3
					S1.70-F1.80	7.0	44.4	65.5	29.1
					S1.80	34.5	70.6	100.0	43.4

062

649195

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY102

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
SAMPLE 1									
E3	12.96	0.44	- 25.0 + 0.0	BROKEN					
					S1.60-F1.60	57.0	27.6	57.0	27.6
					S1.60-F1.70	18.2	34.5	75.2	29.3
					S1.70-F1.80	8.3	43.4	83.5	30.7
					S1.80	16.5	63.8	100.0	36.1
SAMPLE 2									
DF	22.33	0.55	- 25.0 + 0.0	BROKEN					
					S1.60-F1.60	42.3	22.6	42.3	22.6
					S1.60-F1.70	15.3	36.5	57.6	26.3
					S1.70-F1.80	11.5	41.4	69.1	28.8
					S1.80	30.9	71.8	100.0	42.1
SAMPLE 3									
	26.35	0.49	- 25.0 + 0.0	BROKEN					
					S1.60-F1.60	0.1	22.9	0.1	22.9
					S1.60-F1.70	3.0	39.6	3.1	39.1
					S1.70-F1.80	40.2	43.4	43.3	43.1
					S1.80	56.7	59.4	100.0	52.3

890

649196

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY107

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 3-7									
DE	11.36	0.84	- 5.6 + 0.0	BROKEN					
					S1.40-F1.40	2.4	11.3	2.4	11.3
					S1.40-F1.60	53.9	19.3	56.3	19.3
					S1.60-F1.70	12.9	30.3	69.2	21.3
					S1.70-F1.80	9.8	37.2	79.0	23.2
					S1.80-F2.00	9.2	48.2	88.2	25.8
					S2.00	11.8	60.7	100.0	30.5
ANALYSED COMPOSITE OF SAMPLES 61-66									
E3	29.47	1.11	- 5.6 + 0.0	BROKEN					
					S1.40-F1.40	6.1	6.0	6.1	6.0
					S1.40-F1.60	42.4	17.2	48.5	15.8
					S1.60-F1.70	14.3	31.4	62.8	19.3
					S1.70-F1.80	13.5	41.2	76.3	23.2
					S1.80-F2.00	12.0	51.1	88.3	27.0
					S2.00	11.7	76.1	100.0	32.7

064

649197

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY110

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASSX	ASHX	MASSX	ASHX	
ANALYSED COMPOSITE OF SAMPLES 61-66									
E3	19.11	0.79	- 5.6 + 0.0	BROKEN					
					S1.40 - F1.40	1.7	7.3	1.7	7.3
					S1.40 - T1.60	44.4	18.6	46.1	18.2
					S1.60 - T1.70	18.0	31.9	64.1	21.9
					S1.70 - T1.80	14.0	40.2	78.1	25.2
					S1.80 - T2.00	7.7	49.3	85.8	27.4
					S2.00	14.2	75.6	100.0	34.2
ANALYSED COMPOSITE OF SAMPLES 82-86									
DF	29.42	1.01	- 5.6 + 0.0	BROKEN					
					S1.40 - F1.40	0.7	7.9	0.7	7.9
					S1.40 - T1.60	46.9	18.8	47.6	18.6
					S1.60 - T1.70	26.6	29.7	74.2	22.6
					S1.70 - T1.80	8.4	39.2	82.6	24.3
					S1.80 - T2.00	7.0	49.3	89.6	26.2
					S2.00	10.4	72.0	100.0	31.0

HASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : QY111

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 21-23									
E3	10.69	0.73	- 5.6 + 0.0	BROKEN					
					S1.40-F1.40	16.9	9.5	16.9	9.5
					S1.40-F1.60	49.8	15.9	66.7	14.3
					S1.60-F1.70	8.4	28.1	75.1	15.8
					S1.70-F1.80	5.9	37.3	81.0	17.4
					S1.80-F2.00	8.8	48.9	89.8	20.5
					S2.00	10.2	68.6	100.0	23.4
ANALYSED COMPOSITE OF SAMPLES 62-67									
DF	20.10	1.25	- 5.6 + 0.0	BROKEN					
					S1.40-F1.40	5.9	9.1	5.9	9.1
					S1.40-F1.60	31.2	18.4	37.1	17.4
					S1.60-F1.70	15.3	30.2	52.4	20.1
					S1.70-F1.80	7.3	40.0	59.7	22.0
					S1.80-F2.00	9.1	52.2	68.8	25.1
					S2.00	11.0	69.8	100.0	30.0

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY112

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 62-68									
E3	9.79	1.05	- 5.6 + 0.0	BROKEN					
					S1.40 F1.40	2.5	9.8	2.5	9.8
					S1.60 F1.60	30.3	19.3	32.8	18.6
					S1.70 F1.70	13.3	31.6	46.1	23.7
					S1.80 F1.80	9.7	38.8	57.8	25.4
					S1.80 F2.00	23.0	47.8	80.8	31.8
					S2.00	19.2	61.4	100.0	37.5
ANALYSED COMPOSITE OF SAMPLES 81-83									
DF	13.17	0.40	- 5.6 + 0.0	BROKEN					
					S1.40 F1.40	7.7	10.7	7.7	10.7
					S1.60 F1.60	39.8	20.6	47.5	19.0
					S1.70 F1.70	13.8	33.9	61.3	22.4
					S1.80 F1.80	13.9	42.0	75.2	26.0
					S1.80 F2.00	8.6	51.3	83.8	28.6
					S2.00	16.2	74.0	100.0	36.0

067

649200

HASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY114

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 5-13									
DE	25.48	1.43	- 5.6 + 0.0	BROKEN					
					F1.40	4.7	11.9	4.7	11.9
					S1.40-F1.60	23.8	21.7	28.5	20.1
					S1.60-F1.70	19.1	31.4	47.6	24.6
					S1.70-F1.80	13.1	40.9	60.7	28.1
					S1.80-F2.00	12.4	53.2	73.1	32.4
					S2.00	26.9	69.2	100.0	42.3
ANALYSED COMPOSITE OF SAMPLES 61-68									
E3	43.56	1.11	- 5.6 + 0.0	BROKEN					
					F1.40	11.9	9.5	11.9	9.5
					S1.40-F1.60	43.1	19.1	55.0	17.0
					S1.60-F1.70	24.2	34.0	79.2	22.2
					S1.70-F1.80	5.6	40.6	84.8	23.4
					S1.80-F2.00	2.3	53.3	87.3	24.3
					S2.00	12.7	73.8	100.0	30.6

890

649201

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY115

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 2-4									
DF	8.38	0.79	- 5.6 + 0.0	BROKEN					
					F1.40	8.2	9.3	8.2	9.3
					S1.40	41.0	17.8	49.2	16.4
					S1.60	13.3	31.0	64.3	19.9
					S1.75	17.0	39.8	81.3	24.0
					S1.80	8.4	47.7	89.9	26.2
					S2.00	10.1	72.0	100.0	30.8

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY125

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 61-67									
E3	30.28	1.04	- 5.6 + 0.0	BROKEN					
					S1.40-F1.40	13.2	7.7	13.2	7.7
					S1.40-F1.60	37.1	19.4	50.3	16.3
					S1.60-F1.70	14.0	33.0	64.3	20.0
					S1.70-F1.80	5.8	40.9	70.1	21.7
					S1.80-F2.00	3.2	51.0	73.3	23.0
					S2.00	26.7	76.8	100.0	37.3

070

649203

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : QY126

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 21-25									
E2	30.18	0.81	- 5.6 + 0.0	BROKEN					
					F1.40	16.6	9.3	16.6	9.3
					S1.40-F1.60	55.3	18.3	71.9	16.2
					S1.60-F1.70	7.9	36.9	79.8	18.3
					S1.70-F1.80	8.7	44.6	88.5	20.9
					S1.80-F2.00	4.9	33.6	93.4	22.6
					S2.00	6.6	77.0	100.0	26.2
ANALYSED COMPOSITE OF SAMPLES 61-67									
E3	38.84	1.06	- 5.6 + 0.0	BROKEN					
					F1.40	20.4	7.7	20.4	7.7
					S1.40-F1.60	45.0	19.6	65.4	15.9
					S1.60-F1.70	11.2	34.6	76.6	18.6
					S1.70-F1.80	5.9	43.9	82.5	20.4
					S1.80-F2.00	10.0	33.2	92.5	24.0
					S2.00	7.5	75.5	100.0	27.8

071

649204

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : QY129

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 61-65									
E3	29.89	0.96	- 5.6 + 0.0	BROKEN					
					F1.40	13.3	8.9	13.3	8.9
					T1.40	50.2	18.2	63.5	16.3
					F1.70	17.9	32.9	81.0	19.8
					T1.70	7.9	40.3	88.9	21.6
					F2.00	5.0	47.8	93.9	23.0
					T2.00	6.1	67.2	100.0	25.7

072

649205

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : 0Y131

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASSX	ASHX	MASSX	ASHX	
ANALYSED COMPOSITE OF SAMPLES 61-66									
E3	7.94	0.85	- 5.6 + 0.0	BROKEN					
					S1.40 - F1.40	18.4	7.5	18.4	7.5
					S1.60 - F1.60	54.6	16.8	73.0	14.5
					S1.70 - F1.70	7.4	35.4	80.4	16.4
					S1.80 - F1.80	7.3	42.8	87.7	18.6
					S1.80 - F2.00	5.8	49.5	93.5	20.5
					S2.00	6.5	75.2	100.0	24.1

073

649206

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY133

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASSX	ASHX	MASSX	ASHX	
ANALYSED COMPOSITE OF SAMPLES 2-3									
DE	7.87	0.49	- 5.6 + 0.0	BROKEN					
					S1.40-F1.40	11.7	6.6	11.7	6.6
					S1.40-F1.60	63.6	17.2	75.3	15.6
					S1.60-F1.70	13.6	33.9	90.9	18.6
					S1.70-F1.80	3.2	34.7	96.1	19.8
					S1.80-F2.00	3.2	30.5	99.3	20.8
					S2.00	0.7	70.8	100.0	21.1
ANALYSED COMPOSITE OF SAMPLES 61-67									
E3	25.06	0.98	- 5.6 + 0.0	BROKEN					
					S1.40-F1.40	21.2	8.1	21.2	8.1
					S1.40-F1.60	43.7	14.7	66.9	16.0
					S1.60-F1.70	12.0	35.4	78.9	19.0
					S1.70-F1.80	7.0	43.4	85.9	21.0
					S1.80-F2.00	6.3	52.1	92.4	23.2
					S2.00	7.6	76.8	100.0	27.2

07A

649207

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY134

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 1-3									
DE	17.30	0.88	- 5.6 + 0.0	BROKEN					
					F1.40	3.3	12.0	3.3	12.0
					S1.40-F1.60	54.7	20.9	58.0	20.0
					S1.60-F1.70	14.4	30.1	72.4	22.0
					S1.70-F1.80	11.5	38.0	83.9	24.2
					S1.80-F2.00	7.9	51.9	91.8	26.6
					S2.00	8.2	66.6	100.0	29.8
ANALYSED COMPOSITE OF SAMPLES 23-26									
E2	22.84	0.56	- 5.6 + 0.0	BROKEN					
					F1.40	13.7	8.1	13.7	8.1
					S1.40-F1.60	38.6	16.4	72.3	14.8
					S1.60-F1.70	3.6	33.7	75.9	15.7
					S1.70-F1.80	4.9	40.8	80.4	17.1
					S1.80-F2.00	2.1	52.9	82.5	18.0
					S2.00	17.5	73.6	100.0	28.1
ANALYSED COMPOSITE OF SAMPLES 61-68									
E3	31.39	1.08	- 5.6 + 0.0	BROKEN					
					F1.40	23.8	7.9	23.8	7.9
					S1.40-F1.60	44.1	19.1	67.9	15.2
					S1.60-F1.70	10.5	32.8	78.4	17.5
					S1.70-F1.80	8.1	40.9	86.5	19.7
					S1.80-F2.00	8.3	49.6	94.8	22.3
					S2.00	5.2	73.7	100.0	25.0

075

649208

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY139

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASSX	ASHX	MASSX	ASHX	
ANALYSED COMPOSITE OF SAMPLES 22-24									
E2	7.47	0.67	- 5.6 + 0.0	BROKEN					
					F1.40	20.7	8.4	20.7	8.4
					S1.40-F1.60	66.9	16.9	87.6	14.9
					S1.60-F1.70	3.4	33.4	91.0	15.6
					S1.70-F1.80	6.1	41.1	97.1	17.2
					S1.80-F2.00	1.3	52.7	98.4	17.7
					S2.00	1.6	72.4	100.0	18.3
ANALYSED COMPOSITE OF SAMPLES 61-67									
E3	14.88	1.16	- 5.6 + 0.0	BROKEN					
					F1.40	22.9	6.2	22.9	6.2
					S1.40-F1.60	49.7	17.1	68.6	13.3
					S1.60-F1.70	5.1	33.4	73.7	14.8
					S1.70-F1.80	8.8	41.0	82.5	17.6
					S1.80-F2.00	11.0	50.4	93.9	21.9
					S2.00	6.5	71.6	100.0	24.7

076

649209

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY140

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASSX	ASHX	MASSX	ASHX	
ANALYSED COMPOSITE OF SAMPLES 1-3									
DE	19.66	0.60	- 5.6 + 0.0	BROKEN					
					S1.40 F1.40	3.5	10.2	3.5	10.2
					S1.60 F1.60	54.6	21.2	58.1	20.5
					S1.70 F1.70	13.2	32.0	71.3	22.7
					S1.80 F1.80	7.8	44.9	79.1	24.9
					S1.80 F2.00	9.7	52.9	88.8	27.9
					S2.00	11.2	67.5	100.0	32.3
ANALYSED COMPOSITE OF SAMPLES 22-25									
E2	24.22	0.75	- 5.6 + 0.0	BROKEN					
					S1.40 F1.40	24.3	7.5	24.3	7.5
					S1.60 F1.60	62.3	16.9	86.6	14.3
					S1.70 F1.70	4.2	32.7	91.0	19.1
					S1.70 F1.80	1.4	42.2	92.4	19.5
					S1.80 F2.00	0.7	52.9	93.1	19.8
					S2.00	6.9	69.9	100.0	19.5
ANALYSED COMPOSITE OF SAMPLES 61-66									
E3	32.34	1.07	- 5.6 + 0.0	BROKEN					
					S1.40 F1.40	30.2	8.4	30.2	8.4
					S1.60 F1.60	47.5	18.9	77.7	14.8
					S1.60 F1.70	7.8	33.9	85.5	16.6
					S1.70 F1.80	4.0	42.4	89.5	17.7
					S1.80 F2.00	3.6	51.9	93.1	19.0
					S2.00	6.9	73.7	100.0	22.8

270

649210

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY144

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 1-6									
DE	18.70	1.04	- 5.6 + 0.0	BROKEN					
					F1.40	0.7	7.5	0.7	7.5
					S1.40-F1.60	20.6	16.4	21.3	16.1
					S1.60-F1.70	15.9	30.0	36.8	22.0
					S1.70-F1.80	11.6	39.3	48.4	26.1
					S1.80-F2.00	22.6	50.7	71.0	33.9
					S2.00	29.0	69.3	100.0	44.2
ANALYSED COMPOSITE OF SAMPLES 23-25									
E2	23.63	0.54	- 5.6 + 0.0	BROKEN					
					F1.40	12.2	7.4	12.2	7.4
					S1.40-F1.60	53.0	16.3	65.2	14.6
					S1.60-F1.70	8.0	31.3	73.2	16.5
					S1.70-F1.80	3.7	41.6	76.9	17.7
					S1.80-F2.00	5.1	51.9	82.0	19.8
					S2.00	18.0	76.4	100.0	30.0
ANALYSED COMPOSITE OF SAMPLES 62-69									
E3	31.46	1.00	- 5.6 + 0.0	BROKEN					
					F1.40	37.8	8.6	37.8	8.6
					S1.40-F1.60	43.7	18.9	81.5	14.1
					S1.60-F1.70	4.5	35.5	86.0	15.2
					S1.70-F1.80	2.8	42.6	88.8	16.1
					S1.80-F2.00	5.0	52.2	93.8	18.0
					S2.00	6.2	71.3	100.0	21.3

078

649211

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY145

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 61-67									
E3	18.78	0.66	- 5.6 + 0.0	BROKEN					
					F1.40	10.8	8.2	10.8	8.2
					S1.40-F1.60	43.0	18.6	53.8	16.9
					S1.60-F1.70	14.8	32.2	68.6	19.9
					S1.70-F1.80	6.0	41.7	74.6	21.7
					S1.80-F2.00	4.9	52.5	79.5	23.6
					S2.00	20.5	73.2	100.0	34.1
ANALYSED COMPOSITE OF SAMPLES 81-84									
DF	28.04	0.71	- 5.6 + 0.0	BROKEN					
					F1.40	8.7	9.9	8.7	9.9
					S1.40-F1.60	36.8	21.3	45.5	19.1
					S1.60-F1.70	36.8	32.4	82.3	25.1
					S1.70-F1.80	5.1	42.1	87.4	26.1
					S1.80-F2.00	3.6	54.3	91.0	27.2
					S2.00	9.0	72.0	100.0	31.2

079

649212

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY147

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 61-64									
E3	7.92	0.44	- 5.6 + 0.0	BROKEN					
					S1.40-F1.40	3.8	15.1	3.8	15.1
					S1.40-F1.60	23.7	24.4	29.5	23.2
					S1.60-F1.70	43.7	34.1	73.2	29.7
					S1.70-F1.80	20.8	41.2	94.0	32.3
					S1.80-F2.00	3.3	49.8	99.3	33.2
					S2.00	0.7	69.9	100.0	33.4
ANALYSED COMPOSITE OF SAMPLES 81-85									
DF	17.91	1.20	- 5.6 + 0.0	BROKEN					
					S1.40-F1.40	2.4	10.1	2.4	10.1
					S1.40-F1.60	33.3	17.3	55.7	17.0
					S1.60-F1.70	18.6	32.6	74.3	20.9
					S1.70-F1.80	7.2	40.5	81.5	22.6
					S1.80-F2.00	8.1	51.3	89.6	23.2
					S2.00	10.4	69.7	100.0	24.8

080

649213

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY148

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 21-25									
E2	14.34	0.40	- 5.6 + 0.0	BROKEN					
					F1.40	7.3	10.9	7.3	10.9
					S1.40-F1.60	38.1	22.0	65.4	20.8
					S1.60-F1.70	14.7	35.9	80.1	23.2
					S1.70-F1.80	7.2	42.4	87.3	24.8
					S1.80-F2.00	5.8	51.9	93.1	26.4
					S2.00	6.9	71.8	100.0	29.6
ANALYSED COMPOSITE OF SAMPLES 62-66									
E3	24.66	1.02	- 5.6 + 0.0	BROKEN					
					F1.40	6.4	10.4	6.4	10.4
					S1.40-F1.60	32.0	18.8	38.4	17.4
					S1.60-F1.70	11.9	30.4	50.3	20.3
					S1.70-F1.80	9.6	39.6	59.9	23.3
					S1.80-F2.00	7.7	49.8	67.6	26.3
					S2.00	32.4	77.1	100.0	42.9

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY149

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASSX	ASHX	MASSX	ASHX	
ANALYSED COMPOSITE OF SAMPLES 63-64									
E3	4.58	0.45	- 5.6 + 0.0	BROKEN					
					F1.40	1.0	11.8	1.0	11.8
					S1.40-F1.60	57.4	19.3	58.4	19.2
					S1.60-F1.70	17.2	32.2	75.6	22.1
					S1.70-F1.80	9.6	40.4	85.2	24.2
					S1.80-F2.00	12.7	47.6	97.9	27.2
					S2.00	2.1	64.0	100.0	28.0

082

649215

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY153

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASSX	ASHX	MASSX	ASHX	
ANALYSED COMPOSITE OF SAMPLES 41-42									
E2	9.15	0.43	- 5.6 + 0.0	BROKEN					
					S1.40 F1.40	14.4	9.4	14.4	9.4
					S1.40 F1.60	78.5	13.1	92.9	14.2
					S1.60 F1.70	0.4	34.1	93.3	14.3
					S1.70 F1.80	1.2	42.3	94.5	14.7
					S1.80 F2.00	0.6	51.4	95.1	14.9
					S2.00	4.9	74.4	100.0	17.8
ANALYSED COMPOSITE OF SAMPLES 61-68									
E3	16.09	1.28	- 5.6 + 0.0	BROKEN					
					S1.40 F1.40	26.2	8.2	26.2	8.2
					S1.40 F1.60	44.5	18.9	70.7	14.9
					S1.60 F1.70	6.4	34.0	77.1	16.5
					S1.70 F1.80	4.0	41.3	81.1	17.7
					S1.80 F2.00	4.6	51.5	85.7	19.6
					S2.00	14.3	73.0	100.0	27.2

880

649216

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY154

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 1-5									
DE	12.72	1.18	- 5.6 + 0.0	BROKEN					
					S1.40-F1.40	3.6	7.9	3.6	7.9
					S1.40-F1.60	37.8	17.7	41.4	16.8
					S1.60-F1.70	18.0	30.2	59.4	20.9
					S1.70-F1.80	24.6	40.1	84.0	26.3
					S1.80-F2.00	8.6	49.4	92.6	28.6
					S2.00	7.4	72.6	100.0	31.9
ANALYSED COMPOSITE OF SAMPLES 61-66									
E3	26.12	1.24	- 5.6 + 0.0	BROKEN					
					S1.40-F1.40	36.1	7.5	36.1	7.5
					S1.40-F1.60	42.9	19.3	79.0	13.9
					S1.60-F1.70	4.4	35.6	83.4	15.1
					S1.70-F1.80	6.5	41.8	89.9	17.0
					S1.80-F2.00	5.8	50.2	95.7	19.0
					S2.00	4.3	65.4	100.0	21.0

084

649217

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY156

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASSX	ASHX	MASSX	ASHX	
ANALYSED COMPOSITE OF SAMPLES 61-67									
E3	15.23	1.18	- 5.6 + 0.0	BROKEN					
					S1.40-F1.40	24.3	5.9	24.3	5.9
					S1.40-F1.60	48.9	17.8	73.2	13.8
					S1.60-F1.70	6.7	32.9	79.9	15.4
					S1.70-F1.80	3.3	41.3	83.2	16.3
					S1.80-F2.00	6.0	50.3	89.2	18.8
					S2.00	10.8	67.3	100.0	24.0

085

649218

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY158

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 61-64									
E3	7.95	1.11	- 5.6 + 0.0	BROKEN					
					F1.40	37.8	6.8	37.8	6.8
					S1.40-F1.60	47.3	17.3	85.1	24.1
					S1.60-F1.70	3.3	31.6	88.4	55.7
					S1.70-F1.80	3.2	36.9	91.6	92.6
					S1.80-F2.00	1.9	46.6	93.5	139.2
					S2.00	6.1	72.9	100.0	189.5

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY159

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASSX	ASHX	MASSX	ASHX	
ANALYSED COMPOSITE OF SAMPLES 61-66									
E3	17.34	1.28	- 5.6 + 0.0	BROKEN					
					F1.40	23.7	7.4	23.7	7.4
					S1.40-F1.40	49.6	18.0	73.3	14.6
					S1.60-F1.70	8.1	33.4	81.4	16.4
					S1.70-F1.80	3.9	42.6	85.3	17.6
					S1.80-F2.00	4.1	52.5	89.4	19.2
					S2.00	10.6	70.2	100.0	24.6

087

649220

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY160

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 62-67									
E3	24.78	1.30	- 5.6 + 0.0	BROKEN					
					F1.40	26.0	5.9	26.0	5.9
					S1.40-F1.60	53.0	17.3	79.0	13.5
					S1.60-F1.70	6.3	33.0	85.3	19.0
					S1.70-F1.80	2.1	40.3	87.4	15.6
					S1.80-F2.00	3.8	51.1	93.2	17.8
					S2.00	6.8	68.0	100.0	21.2

880

649221

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : QY165

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASSZ	ASHX	MASSZ	ASHX	
ANALYSED COMPOSITE OF SAMPLES 61-66									
E3	16.53	1.14	- 5.6 + 0.0	BROKEN					
					F1.40	28.2	8.4	28.2	8.4
					S1.40-F1.60	47.2	18.3	75.4	14.6
					S1.60-F1.70	7.1	34.6	82.5	16.3
					S1.70-F1.80	4.3	42.9	86.8	17.6
					S1.80-F2.00	4.7	51.7	91.5	19.4
					S2.00	8.5	70.5	100.0	23.7

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY169

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 61-67									
E3	11.10	1.24	- 5.6 + 0.0	BROKEN					
					S1.40-F1.40	34.7	8.7	34.7	8.7
					S1.40-F1.60	37.3	20.3	72.0	14.7
					S1.60-F1.70	8.6	34.4	80.6	16.8
					S1.70-F1.80	3.9	43.6	84.1	17.9
					S1.80-F2.00	6.7	54.8	90.8	20.6
					S2.00	9.2	71.7	100.0	25.3

060

649223

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

091

BOREHOLE : GY170

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASSZ	ASHZ	MASSZ	ASHZ	
ANALYSED COMPOSITE OF SAMPLES 1-3									
DE	19.99	0.99	- 5.6 + 0.0	BROKEN					
					F1.40	7.4	10.0	7.4	10.0
					S1.40-F1.60	35.5	24.0	42.9	21.6
					S1.60-F1.70	20.9	35.1	63.4	26.0
					S1.70-F1.80	14.9	43.1	78.3	29.2
					S1.80-F2.00	19.7	50.0	98.0	33.4
					S2.00	2.0	67.0	100.0	34.1
ANALYSED COMPOSITE OF SAMPLES 61-67									
E3	33.54	0.92	- 5.6 + 0.0	BROKEN					
					F1.40	18.4	9.0	18.4	9.0
					S1.40-F1.60	49.3	18.9	67.7	16.2
					S1.60-F1.70	9.3	34.6	77.0	18.4
					S1.70-F1.80	6.0	42.0	83.0	20.1
					S1.80-F2.00	9.7	51.3	92.7	23.4
					S2.00	7.3	70.5	100.0	26.8

649224

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

092

BOREHOLE : QY171

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 61-67									
E3	22.17	1.23	- 5.6 + 0.0	BROKEN					
					S1.40-F1.40	32.7	9.0	32.7	9.0
					S1.60-F1.60	37.7	20.0	70.4	14.9
					S1.60-F1.70	6.9	34.8	77.3	16.7
					S1.70-F1.80	5.1	43.6	82.4	18.3
					S1.80-F2.00	4.2	51.9	86.6	20.0
					S2.00	13.4	74.6	100.0	27.3

649225

WASHABILITY ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

093

BOREHOLE : GY172

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE SIZING MM	SAMPLE STATE	FRACTIONAL		CUMULATIVE		
					MASS%	ASH%	MASS%	ASH%	
ANALYSED COMPOSITE OF SAMPLES 61-67									
E3	30.47	1.23	- 5.6 + 0.0	BROKEN					
					F1.40	39.4	8.6	39.4	8.6
					S1.40-F1.60	39.3	19.9	78.7	14.2
					S1.60-F1.70	6.0	33.7	84.7	15.6
					S1.70-F1.80	3.3	41.2	88.0	16.6
					S1.80-F2.00	3.8	51.7	91.8	18.0
					S2.00	8.2	69.0	100.0	22.2

649226

USER: TDCHNB -AT

WASHCOAL REPORT

094


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649227

095

THE SHELL COMPANY OF AUSTRALIA LTD.

WASHED COAL / COMPOSITE ANALYSIS

GRAY

649228

THE SHELL COMPANY OF AUSTRALIA LTD.

WASHED COAL / COMPOSITE ANALYSIS

090

LEGEND

TOTAL MOISTURE BASIS

A AIR DRIED
 T AS RECEIVED
 B TOTAL
 Q BED
 E EQUILIBRIUM
 E ESTIMATED VALUE

INHERENT MOISTURE BASIS

E AIR DRIED
 E ESTIMATED VALUE

TOTAL SULPHUR BASIS

A AIR DRIED
 R AS RECEIVED
 R DRY BASIS

ASH/VOLATILE MATTER/FIXED CARBON BASIS

A AIR DRIED
 R AS RECEIVED
 D DRY BASIS
 D DRY, ASH FREE
 C DRY, MINERAL MATTER FREE
 M MOIST, ASH FREE
 E ESTIMATED VALUE

SPECIFIC ENERGY BASIS

A AIR DRIED
 R AS RECEIVED
 D DRY BASIS
 D DRY, ASH FREE
 C DRY, MINERAL MATTER FREE
 M MOIST, ASH FREE

SAMPLE STATE

COL 1-4:	WTFR	NET TUMBLED. FRACTIONAL
	DTCU	DRY TUMBLED. FRACTIONAL
	WTCU	NET TUMBLED. CUMULATIVE
	DTCU	DRY TUMBLED. CUMULATIVE
	FR	BROKEN - NOT TUMBLED. FRACTIONAL
	CU	BROKEN - NOT TUMBLED. CUMULATIVE
	BROK	BROKEN - NOT TUMBLED.
COL 5:	blank	
COL 6:	S	SINK FRACTION
	F	FLOAT FRACTION
COL 7-10:	N. NN	SEPARATION RELATIVE DENSITY

649229

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

097

BOREHOLE : GY47

SAMPLE SIZE : - 25.0 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
SAMPLE 47A02	87.98	0.28	FR F1.60	22.2		12.1						
			FR F1.70	21.9		33.0						
			FR F1.80	9.1		46.2						
			FR S1.80	46.8		56.8						
SAMPLE 47A03	89.24	1.26	FR F1.60	42.8		18.0						
			FR F1.70	16.3		34.3						
			FR F1.80	7.7		45.3						
			FR S1.80	33.0		65.1						
SAMPLE 47A04	89.57	0.33	FR F1.60	72.1		15.2						
			FR F1.70	9.2		37.0						
			FR F1.80	3.1		41.1						
			FR S1.80	15.6		73.3						
CALCULATED COMPOSITE OF SAMPLES 47A02-4	89.57	1.87	FR F1.60	44.3		16.8						
			FR F1.70	16.2		34.3						
			FR F1.80	7.2		45.0						
			FR S1.80	32.3		63.9						
SAMPLE 47A05	102.66	0.85	FR F1.60	65.3		18.8						
			FR F1.70	10.4		36.3						
			FR F1.80	6.8		45.9						
			FR S1.80	17.5		68.0						
SAMPLE 47A06	102.92	0.26	FR F1.60	0.5		26.0						
			FR F1.70	0.0								
			FR F1.80	0.0								
			FR S1.80	99.5		77.8						
SAMPLE 47A07	117.22	1.12	FR F1.60	27.6		22.8						
			FR F1.70	9.2		31.7						
			FR F1.80	16.0		38.8						
			FR S1.80	47.2		60.3						
SAMPLE 47A01	87.70	0.27	CU S1.80			71.2						
SAMPLE 47A02	87.98	0.28	CU F1.60	22.2		12.1						
			CU F1.70	44.1		22.3						
			CU F1.80	53.2		26.5						
			CU S1.80			40.7						
SAMPLE 47A03	89.24	1.26	CU F1.60	42.8		18.0						
			CU F1.70	59.3		22.6						
			CU F1.80	67.0		25.2						
			CU S1.80			38.4						
SAMPLE 47A04	89.57	0.33	CU F1.60	72.1		15.2						
			CU F1.70	81.3		17.7						

649230

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

098

BOREHOLE : QY47

SAMPLE SIZE : - 25.0 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
					INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %				
			CU F1.80	84.4		18.5						
			CU S1.80			27.1						
SAMPLE 47A20	89.57	1.87	CU F1.70		5.5	21.9	22.0	50.6	0.30 (A)			
SAMPLE 47A05	102.66	0.85	CU F1.60	65.3		18.8						
			CU F1.70	75.7		21.2						
			CU F1.80	82.5		23.2						
			CU S1.80	100.0		31.1						
SAMPLE 47A06	102.92	0.26	CU F1.60	0.5		26.0						
			CU F1.70	0.5								
			CU F1.80	0.5								
			CU S1.80	100.0		77.5						
SAMPLE 47A07	117.22	1.12	CU F1.60	27.6		22.8						
			CU F1.70	34.8		25.0						
			CU F1.80	52.8		29.2						
			CU S1.80	100.0		43.9						

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY80

SAMPLE SIZE : - 25.0 + 0.0 MM

039

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
SAMPLE	1 12.60	0.71	FR F1.60	10.8		26.4						
			FR F1.70	6.4		36.3						
			FR F1.80	24.2		47.1						
			FR S1.80	38.6		53.3						
SAMPLE	2 13.35	0.39	FR F1.60	0.4		36.2						
			FR F1.70	4.9		40.4						
			FR F1.80	33.0		44.9						
			FR S1.80	61.7		58.3						
SAMPLE	3 13.19	0.85	FR F1.60	91.8		21.9						
			FR F1.70	1.1		38.1						
			FR F1.80	0.3		41.4						
			FR S1.80	6.6		59.7						
SAMPLE	4 19.35	1.00	FR F1.60	82.8		15.7						
			FR F1.70	5.6		37.1						
			FR F1.80	0.6		43.7						
			FR S1.80	11.0		72.3						
SAMPLE	1 12.60	0.71	CU F1.60	10.8		26.4						
			CU F1.70	17.2		30.2						
			CU F1.80	41.4		40.1						
			CU S1.80	100.0		47.8						
SAMPLE	2 13.35	0.39	CU F1.60	0.4		36.2						
			CU F1.70	5.3		40.1						
			CU F1.80	38.3		44.2						
			CU S1.80	100.0		53.0						
SAMPLE	3 13.19	0.85	CU F1.60	91.8		21.9						
			CU F1.70	92.9		22.1						
			CU F1.80	93.4		22.2						
			CU S1.80	100.0		24.7						
SAMPLE	4 19.35	1.00	CU F1.60	82.8		15.7						
			CU F1.70	88.4		17.1						
			CU F1.80	89.0		17.2						
			CU S1.80	100.0		23.3						

649232

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

100

BOREHOLE : GY82

SAMPLE SIZE : - 25.0 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
					INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %				
SAMPLE 1	21.39	1.13	FR F1.60	19.7			26.1					
			FR F1.70	22.5			35.4					
			FR F1.80	23.1			44.2					
			FR S1.80	34.7			63.3					
SAMPLE 2	22.32	0.73	FR F1.60	40.0			20.0					
			FR F1.70	8.9			39.1					
			FR F1.80	7.3			43.6					
			FR S1.80	43.8			72.9					
CALCULATED COMPOSITE OF SAMPLES 1-2												
	22.32	1.86	FR F1.60	27.5			22.7					
			FR F1.70	17.3			36.2					
			FR F1.80	17.0			44.3					
			FR S1.80	38.2			67.9					
SAMPLE 1	21.39	1.13	CU F1.60	19.7			26.1					
			CU F1.70	42.2			31.1					
			CU F1.80	65.3			35.7					
			CU S1.80	100.0			49.3					
SAMPLE 2	22.32	0.73	CU F1.60	40.0			20.0					
			CU F1.70	48.9			23.9					
			CU F1.80	56.2			26.4					
			CU S1.80	100.0			46.6					

649233

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

101

BOREHOLE : GY84

SAMPLE SIZE : - 25.0 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
SAMPLE 1	19.36	0.84	FR F1.60	28.1		22.2						
			FR F1.70	16.4		36.6						
			FR F1.80	14.0		22.9						
			FR S1.80	41.5		57.4						
SAMPLE 2	20.03	0.67	FR F1.60	7.0		30.6						
			FR F1.70	4.1		39.3						
			FR F1.80	14.8		49.1						
			FR S1.80	74.1		68.6						
CALCULATED COMPOSITE OF SAMPLES 1-2												
	20.03	1.31	FR F1.60	18.0		23.8						
			FR F1.70	10.3		37.1						
			FR F1.80	14.4		35.5						
			FR S1.80	57.1		64.4						
SAMPLE 3	24.57	0.76	FR F1.60	48.6		15.0						
			FR F1.70	17.9		38.7						
			FR F1.80	6.6		45.6						
			FR S1.80	6.9		56.7						
SAMPLE 1	19.36	0.84	CU F1.60	28.1		22.2						
			CU F1.70	44.3		27.3						
			CU F1.80	58.5		31.2						
			CU S1.80	100.0		42.1						
SAMPLE 2	20.03	0.67	CU F1.60	7.0		30.6						
			CU F1.70	11.1		33.8						
			CU F1.80	23.9		42.3						
			CU S1.80	100.0		61.9						
SAMPLE 3	24.57	0.76	CU F1.60	48.6		15.0						
			CU F1.70	48.3		19.9						
			CU F1.80	93.1		21.7						
			CU S1.80	100.0		24.1						

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY86

SAMPLE SIZE : - 25.0 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INNERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
SAMPLE 1	18.40	0.99	FR F1.60	7.3		26.9						
			FR F1.70	16.1		36.7						
			FR F1.80	12.9		43.8						
			FR S1.80	64.1		39.9						
SAMPLE 2	19.22	0.78	FR F1.60	18.8		25.5						
			FR F1.70	24.7		37.5						
			FR F1.80	12.8		45.7						
			FR S1.80	41.7		67.1						
CALCULATED COMPOSITE OF SAMPLES 1-2												
	19.22	1.46	FR F1.60	12.2		26.0						
			FR F1.70	20.6		37.0						
			FR F1.80	12.7		44.7						
			FR S1.80	34.5		62.2						
SAMPLE 1	18.40	0.99	CU F1.60	7.3		26.9						
			CU F1.70	23.4		33.6						
			CU F1.80	35.9		37.2						
			CU S1.80	100.0		31.7						
SAMPLE 2	19.22	0.78	CU F1.60	18.8		25.5						
			CU F1.70	43.3		32.9						
			CU F1.80	38.3		35.4						
			CU S1.80	100.0		48.6						

102

649235

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

103

BOREHOLE : GY90

SAMPLE SIZE : - 25.0 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
SAMPLE 1	8.60	0.44	FR F1.60	38.7		20.1						
			FR F1.70	16.8		34.8						
			FR F1.80	21.3		42.0						
			FR S1.80	3.2		55.9						
SAMPLE 2	9.86	1.26	FR F1.60	5.5		28.4						
			FR F1.70	6.6		39.8						
			FR F1.80	6.3		44.6						
			FR S1.80	81.6		64.9						
CALCULATED COMPOSITE OF SAMPLES 1-2												
	9.86	1.70	FR F1.60	17.3		22.2						
			FR F1.70	8.8		38.3						
			FR F1.80	9.7		43.2						
			FR S1.80	64.2		64.9						
SAMPLE 3	15.91	0.69	FR F1.60	50.3		18.6						
			FR F1.70	13.3		39.7						
			FR F1.80	8.0		46.2						
			FR S1.80	28.4		65.0						
SAMPLE 4	24.01	0.93	FR F1.60	85.4		16.4						
			FR F1.70	3.1		38.7						
			FR F1.80	1.6		45.4						
			FR S1.80	9.9		73.9						
SAMPLE 1	8.60	0.44	CU F1.60	38.7		20.1						
			CU F1.70	73.5		23.8						
			CU F1.80	96.8		27.8						
			CU S1.80	100.0		28.7						
SAMPLE 2	9.86	1.26	CU F1.60	5.5		28.4						
			CU F1.70	12.1		34.6						
			CU F1.80	18.4		38.0						
			CU S1.80	100.0		60.0						
SAMPLE 3	15.91	0.69	CU F1.60	50.3		18.6						
			CU F1.70	63.6		23.0						
			CU F1.80	71.6		25.6						
			CU S1.80	100.0		36.8						
SAMPLE 4	24.01	0.93	CU F1.60	85.4		16.4						
			CU F1.70	88.5		17.2						
			CU F1.80	90.1		17.7						
			CU S1.80	100.0		23.2						

649236

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

104

BOREHOLE : GY99

SAMPLE SIZE : - 25.0 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
					INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %				
SAMPLE	1 17.86	0.84	FR F1.60	33.9		28.2						
			FR F1.70	23.6		37.6						
			FR F1.80	13.0		46.0						
			FR S1.80	29.9		64.0						
			CU F1.60	33.9		28.2						
			CU F1.70	37.9		30.3						
			CU F1.80	70.9		33.3						
			CU S1.80	100.0		42.3						

649237

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

105

BOREHOLE : GY100

SAMPLE SIZE : - 25.0 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
SAMPLE	1 7.49	1.26	FR F1.60	40.9		27.5						
			FR F1.70	17.6		26.9						
			FR F1.80	7.0		44.4						
			FR S1.80	34.3		70.6						
			CU F1.60	40.9		27.5						
			CU F1.70	38.3		30.3						
			CU F1.80	63.3		31.8						
			CU S1.80	100.0		43.2						

649238

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

106

BOREHOLE : GY102

SAMPLE SIZE : - 25.0 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
					INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %				
SAMPLE 1	12.96	0.44	FR	F1.60	57.0							
			FR	F1.70	18.2		27.6					
			FR	F1.80	8.3		34.9					
			FR	S1.80	16.5		43.4					
SAMPLE 2	22.33	0.55	FR	F1.60	42.3							
			FR	F1.70	13.3		22.6					
			FR	F1.80	11.5		36.9					
			FR	S1.80	30.9		41.4					
SAMPLE 3	26.35	0.49	FR	F1.60	0.1							
			FR	F1.70	3.0		22.9					
			FR	F1.80	40.2		39.6					
			FR	S1.80	56.7		43.4					
SAMPLE 1	12.96	0.44	CU	F1.60	57.0							
			CU	F1.70	73.2		27.6					
			CU	F1.80	83.5		29.3					
			CU	S1.80	100.0		30.7					
SAMPLE 2	22.33	0.55	CU	F1.60	42.3							
			CU	F1.70	37.6		22.6					
			CU	F1.80	69.1		26.3					
			CU	S1.80	100.0		28.8					
SAMPLE 3	26.35	0.49	CU	F1.60	0.1							
			CU	F1.70	3.1		22.9					
			CU	F1.80	43.3		39.1					
			CU	S1.80	100.0		43.1					

649239

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY107

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 3-7												
	11.36	0.84	FR F1.40	2.4		11.3						
			FR F1.60	53.9		19.3						
			FR F1.70	12.9		30.3						
			FR F1.80	9.8		37.2						
			FR F2.00	9.2		48.2						
			FR S2.00	11.8		63.7						
ANALYSED COMPOSITE OF SAMPLES 61-66												
	29.47	1.11	FR F1.40	6.1		6.0						
			FR F1.60	42.4		17.2						
			FR F1.70	14.3		31.4						
			FR F1.80	13.3		41.2						
			FR F2.00	12.0		51.1						
			FR S2.00	11.7		76.1						
CALCULATED COMPOSITE OF SAMPLES 3-7												
	11.36	0.84	CU F1.40	2.4		11.3						
			CU F1.60	56.3		19.2						
			CU F1.70	69.2		21.3						
			CU F1.80	79.0		23.2						
			CU F2.00	88.2		25.8						
			CU S2.00	100.0		30.9						
ANALYSED COMPOSITE OF SAMPLES 3-7												
			CU F1.70	69.2	5.5	21.4	23.7	49.4	0.29		22.86	1.54
CALCULATED COMPOSITE OF SAMPLES 61-66												
	29.47	1.11	CU F1.40	6.1		6.0						
			CU F1.60	48.5		15.8						
			CU F1.70	62.8		19.3						
			CU F1.80	76.3		23.2						
			CU F2.00	88.3		27.0						
			CU S2.00	100.0		32.7						
ANALYSED COMPOSITE OF SAMPLES 61-66												
			CU F1.70		5.5	19.5	24.9	50.1	0.27		23.14	1.49

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

108

BOREHOLE : GY110

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ANALYSIS ASH %	VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 61-66												
	19.11	0.79	FR F1.40	1.7		7.3						
			FR F1.60	44.4		18.6						
			FR F1.70	18.0		31.9						
			FR F1.80	14.0		40.2						
			FR F2.00	7.7		49.3						
			FR S2.00	14.2		75.6						
ANALYSED COMPOSITE OF SAMPLES 82-86												
	29.42	1.01	FR F1.40	0.7		7.9						
			FR F1.60	46.9		18.8						
			FR F1.70	26.6		29.7						
			FR F1.80	8.4		34.2						
			FR F2.00	7.0		49.3						
			FR S2.00	10.4		72.0						
CALCULATED COMPOSITE OF SAMPLES 61-66												
	19.11	0.79	CU F1.40	1.7		7.3						
			CU F1.60	46.1		18.2						
			CU F1.70	64.1		31.9						
			CU F1.80	78.1		35.2						
			CU F2.00	85.8		37.4						
			CU S2.00	100.0		54.2						
ANALYSED COMPOSITE OF SAMPLES 61-66												
			CU F1.70	64.1	6.5	22.0	23.1	48.4	0.35		22.34	1.53
CALCULATED COMPOSITE OF SAMPLES 82-86												
	29.42	1.01	CU F1.40	0.7		7.9						
			CU F1.60	47.6		18.6						
			CU F1.70	74.2		22.6						
			CU F1.80	82.6		24.3						
			CU F2.00	89.6		26.2						
			CU S2.00	100.0		31.0						
ANALYSED COMPOSITE OF SAMPLES 82-86												
			CU F1.70	74.2	5.5	22.8	21.5	50.2	0.25		21.92	1.54

649241

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY111

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 21-23												
	10.69	0.73	FR F1.40	16.9			9.9					
			FR F1.60	49.8			15.9					
			FR F1.70	8.4			28.1					
			FR F1.80	5.9			37.3					
			FR F2.00	8.8			48.9					
			FR S2.00	10.2			68.6					
ANALYSED COMPOSITE OF SAMPLES 62-67												
	20.10	1.23	FR F1.40	5.9			9.1					
			FR F1.60	51.2			18.4					
			FR F1.70	13.3			30.2					
			FR F1.80	7.5			40.0					
			FR F2.00	9.1			52.2					
			FR S2.00	11.0			69.8					
CALCULATED COMPOSITE OF SAMPLES 21-23												
	10.69	0.73	CU F1.40	16.9			9.9					
			CU F1.60	66.7			14.3					
			CU F1.70	75.1			15.8					
			CU F1.80	81.0			17.4					
			CU F2.00	89.8			20.5					
			CU S2.00	100.0			25.4					
ANALYSED COMPOSITE OF SAMPLES 21-23												
			CU F2.00	89.8	6.3	20.7	24.7	48.3	0.35		22.16	1.53
CALCULATED COMPOSITE OF SAMPLES 62-67												
	20.10	1.23	CU F1.40	5.9			9.1					
			CU F1.60	57.1			17.4					
			CU F1.70	72.4			20.1					
			CU F1.80	79.9			22.0					
			CU F2.00	89.0			25.1					
			CU S2.00	100.0			30.0					
ANALYSED COMPOSITE OF SAMPLES 62-67												
			CU F1.70	72.4	5.3	20.2	22.2	52.3	0.30		23.14	1.52

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649242

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY112

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	PROXIMATE ANALYSIS			FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
					INHERENT MOISTURE %	ASH %	VOLATILE MATTER %					
ANALYSED COMPOSITE OF SAMPLES 62-68												
	9.79	1.03	FR F1.40	2.3			9.8					
			FR F1.60	30.3			19.3					
			FR F1.70	15.3			31.6					
			FR F1.80	9.7			38.8					
			FR F2.00	23.0			47.8					
			FR S2.00	19.2			61.4					
ANALYSED COMPOSITE OF SAMPLES 81-83												
	13.17	0.40	FR F1.40	7.7			10.7					
			FR F1.60	39.8			20.6					
			FR F1.70	13.8			33.9					
			FR F1.80	13.9			42.0					
			FR F2.00	8.6			51.3					
			FR S2.00	16.2			74.0					
CALCULATED COMPOSITE OF SAMPLES 62-68												
	9.79	1.03	CU F1.40	2.3			9.8					
			CU F1.60	32.8			18.6					
			CU F1.70	48.1			22.7					
			CU F1.80	57.8			33.4					
			CU F2.00	80.8			31.8					
			CU S2.00	100.0			37.3					
CALCULATED COMPOSITE OF SAMPLES 81-83												
	13.17	0.40	CU F1.40	7.7			10.7					
			CU F1.60	47.3			19.0					
			CU F1.70	61.3			22.4					
			CU F1.80	75.2			26.0					
			CU F2.00	83.8			28.6					
			CU S2.00	100.0			36.0					

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY114

SAMPLE SIZE : - 5.6 + 0.0 MM

111

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 5-13												
	25.48	1.43	FR F1.40	4.7			11.9					
			FR F1.60	23.8			21.7					
			FR F1.70	19.1			31.4					
			FR F1.80	13.1			40.9					
			FR F2.00	12.4			53.2					
			FR S2.00	26.9			69.2					
ANALYSED COMPOSITE OF SAMPLES 61-68												
	43.56	1.11	FR F1.40	11.9			9.5					
			FR F1.60	43.1			19.1					
			FR F1.70	24.2			34.0					
			FR F1.80	3.6			40.6					
			FR F2.00	2.9			53.5					
			FR S2.00	12.7			73.8					
CALCULATED COMPOSITE OF SAMPLES 5-13												
	25.48	1.43	CU F1.40	4.7			11.9					
			CU F1.60	28.5			20.1					
			CU F1.70	47.6			24.6					
			CU F1.80	60.7			28.1					
			CU F2.00	73.1			32.4					
			CU S2.00	100.0			42.3					
CALCULATED COMPOSITE OF SAMPLES 61-68												
	43.56	1.11	CU F1.40	11.9			9.5					
			CU F1.60	35.0			17.0					
			CU F1.70	79.2			22.0					
			CU F1.80	84.8			23.4					
			CU F2.00	87.3			24.3					
			CU S2.00	100.0			30.6					
ANALYSED COMPOSITE OF SAMPLES 61-68												
			CU F1.70	79.2	5.5	22.2	24.9	47.4	0.35		22.92	1.52

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : QY115

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
					INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %				
ANALYSED COMPOSITE OF SAMPLES 2-4												
	8.38	0.79	FR F1.40	8.2			9.3					
			FR F1.60	41.0			17.8					
			FR F1.70	15.3			31.0					
			FR F1.80	17.0			39.8					
			FR F2.00	8.4			47.7					
			FR S2.00	10.1			72.0					
CALCULATED COMPOSITE OF SAMPLES 2-4												
			CU F1.40	8.2			9.3					
			CU F1.60	49.32			16.4					
			CU F1.70	64.33			19.9					
			CU F1.80	81.33			24.0					
			CU F2.00	89.9			26.2					
			CU S2.00	100.0			30.8					
ANALYSED COMPOSITE OF SAMPLES 2-4												
			CU F1.70	64.5	5.2	19.7	23.4	51.7	0.22		23.22	1.48

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649245

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : 0Y125

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
					INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %				
ANALYSED COMPOSITE OF SAMPLES 61-67												
	30.28	1.04	FR F1.40	13.2			7.7					
			FR F1.60	37.1			19.4					
			FR F1.70	14.0			33.0					
			FR F1.80	5.8			40.9					
			FR F2.00	3.2			51.0					
			FR S2.00	26.7			76.8					
CALCULATED COMPOSITE OF SAMPLES 61-67												
			CU F1.40	13.2			7.7					
			CU F1.60	30.3			16.3					
			CU F1.70	64.3			20.0					
			CU F1.80	70.1			21.7					
			CU F2.00	73.3			23.0					
			CU S2.00	100.0			37.3					
ANALYSED COMPOSITE OF SAMPLES 61-67												
			CU F1.70	64.3	5.5	20.0	24.9	49.6	0.38		23.68	1.49

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649246

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

11A

BOREHOLE : GY126

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 21-25												
	30.18	0.81	FR F1.40	16.6			9.3					
			FR F1.60	35.3			18.3					
			FR F1.70	7.9			36.9					
			FR F1.80	8.7			44.6					
			FR F2.00	4.9			53.6					
			FR S2.00	6.6			77.0					
ANALYSED COMPOSITE OF SAMPLES 61-67												
	38.84	1.06	FR F1.40	20.4			7.7					
			FR F1.60	49.0			19.6					
			FR F1.70	11.2			34.6					
			FR F1.80	3.9			43.9					
			FR F2.00	10.0			53.2					
			FR S2.00	7.5			75.5					
CALCULATED COMPOSITE OF SAMPLES 21-25												
	30.18	0.81	CU F1.40	16.6			9.3					
			CU F1.60	71.9			16.2					
			CU F1.70	79.8			18.3					
			CU F1.80	88.5			20.9					
			CU F2.00	93.5			22.6					
			CU S2.00	100.0			26.2					
ANALYSED COMPOSITE OF SAMPLES 21-25												
			CU F1.80	88.5	5.0	20.7	25.7	48.6	0.44		23.90	1.51
CALCULATED COMPOSITE OF SAMPLES 61-67												
	38.84	1.06	CU F1.40	20.4			7.7					
			CU F1.60	69.4			15.9					
			CU F1.70	76.6			18.6					
			CU F1.80	82.5			20.4					
			CU F2.00	92.5			24.0					
			CU S2.00	100.0			27.8					
ANALYSED COMPOSITE OF SAMPLES 61-67												
			CU F1.80	82.5	4.5	20.2	25.9	49.4	0.45		24.00	1.50

649247

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY129

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 61-65												
	29.89	0.96	FR F1.40	13.3			8.9					
			FR F1.60	30.2			18.2					
			FR F1.70	17.5			32.3					
			FR F1.80	7.9			40.3					
			FR F2.00	5.0			47.8					
			FR S2.00	6.1			67.2					
CALCULATED COMPOSITE OF SAMPLES 61-65												
			CU F1.40	13.3			8.9					
			CU F1.60	43.3			16.3					
			CU F1.70	81.0			19.8					
			CU F1.80	88.9			21.6					
			CU F2.00	93.9			23.0					
			CU S2.00	100.0			25.7					
ANALYSED COMPOSITE OF SAMPLES 61-65												
			CU F1.70	81.0	6.3	19.7	24.9	49.1	0.30		23.72	1.52

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

116

BOREHOLE : GY131

SAMPLE SIZE : - 5.6 + 0.00 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	PROXIMATE ANALYSIS			FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
					INHERENT MOISTURE %	ASH %	VOLATILE MATTER %					
ANALYSED COMPOSITE OF SAMPLES 61-66												
	7.94	0.85	FR F1.40	18.4			7.5					
			FR F1.60	34.6			16.8					
			FR F1.70	7.4			35.4					
			FR F1.80	7.3			42.8					
			FR F2.00	5.8			49.5					
			FR S2.00	6.5			75.2					
CALCULATED COMPOSITE OF SAMPLES 61-66												
			CU F1.40	18.4			7.5					
			CU F1.60	73.0			14.5					
			CU F1.70	80.4			16.4					
			CU F1.80	87.7			18.6					
			CU F2.00	93.5			20.5					
			CU S2.00	100.0			24.1					
ANALYSED COMPOSITE OF SAMPLES 61-66												
			CU F2.00	93.5	4.3	20.6	25.8	49.3	0.40		24.12	1.52

649249

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY133

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 2-3												
	7.87	0.49	FR F1.40	11.7			6.6					
			FR F1.60	43.6			17.2					
			FR F1.70	13.6			33.3					
			FR F1.80	3.2			39.7					
			FR F2.00	3.2			50.9					
			FR S2.00	0.7			70.9					
ANALYSED COMPOSITE OF SAMPLES 61-67												
	25.06	0.98	FR F1.40	21.2			8.1					
			FR F1.60	43.7			19.7					
			FR F1.70	12.0			35.4					
			FR F1.80	7.0			43.4					
			FR F2.00	6.3			52.1					
			FR S2.00	7.6			76.9					
CALCULATED COMPOSITE OF SAMPLES 2-3												
	7.87	0.49	CU F1.40	11.7			6.6					
			CU F1.60	73.3			13.6					
			CU F1.70	90.9			18.6					
			CU F1.80	96.1			19.8					
			CU F2.00	99.3			20.9					
			CU S2.00	100.0			21.1					
ANALYSED COMPOSITE OF SAMPLES 2-3												
			CU F1.80	96.1	5.2	19.8	24.4	50.6	0.36		23.76	1.49
CALCULATED COMPOSITE OF SAMPLES 61-67												
	25.06	0.98	CU F1.40	21.2			8.1					
			CU F1.60	66.9			16.0					
			CU F1.70	78.9			19.0					
			CU F1.80	85.9			21.0					
			CU F2.00	92.4			23.2					
			CU S2.00	100.0			27.2					
ANALYSED COMPOSITE OF SAMPLES 61-67												
			CU F1.70	78.9	6.1	19.1	27.7	47.1	0.49		24.10	1.48

117

649250

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY134

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 1-3												
	17.30	0.88	FR F1.40	3.3			12.0					
			FR F1.60	54.7			20.5					
			FR F1.70	14.4			30.1					
			FR F1.80	11.5			38.0					
			FR F2.00	7.9			51.5					
			FR S2.00	8.2			66.6					
ANALYSED COMPOSITE OF SAMPLES 23-26												
	22.84	0.56	FR F1.40	13.7			8.1					
			FR F1.60	58.6			16.4					
			FR F1.70	3.6			33.7					
			FR F1.80	4.5			40.8					
			FR F2.00	2.1			52.5					
			FR S2.00	17.5			75.6					
ANALYSED COMPOSITE OF SAMPLES 61-68												
	31.39	1.08	FR F1.40	23.8			7.9					
			FR F1.60	44.1			19.1					
			FR F1.70	10.5			32.8					
			FR F1.80	8.1			40.9					
			FR F2.00	8.3			49.6					
			FR S2.00	5.2			73.7					
CALCULATED COMPOSITE OF SAMPLES 1-3												
	17.30	0.88	CU F1.40	3.3			12.0					
			CU F1.60	58.0			20.0					
			CU F1.70	72.4			22.0					
			CU F1.80	83.9			24.2					
			CU F2.00	91.8			26.6					
			CU S2.00	100.0			29.8					
CALCULATED COMPOSITE OF SAMPLES 23-26												
	22.84	0.56	CU F1.40	13.7			8.1					
			CU F1.60	72.3			14.8					
			CU F1.70	78.9			15.7					
			CU F1.80	80.4			17.1					
			CU F2.00	82.5			18.0					
			CU S2.00	100.0			28.1					
ANALYSED COMPOSITE OF SAMPLES 23-26												
			CU F2.00	82.5	6.9	17.8	25.8	49.5	0.41		23.90	1.49
CALCULATED COMPOSITE OF SAMPLES 61-68												
	31.39	1.08	CU F1.40	23.8			7.9					
			CU F1.60	67.9			15.2					
			CU F1.70	78.4			17.3					
			CU F1.80	86.5			19.7					
			CU F2.00	94.8			22.3					
			CU S2.00	100.0			25.0					
ANALYSED COMPOSITE OF SAMPLES 61-68												
	31.39	0.98	CU F1.80	86.5	6.3	19.5	27.6	46.6	0.48		23.60	1.50

811

649251

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : QY139

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLF STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 22-24												
	7.47	0.67	FR F1.40	20.7			8.4					
			FR F1.60	64.9			16.9					
			FR F1.70	3.4			33.4					
			FR F1.80	6.1			41.1					
			FR F2.00	1.3			52.7					
			FR S2.00	1.6			72.4					
ANALYSED COMPOSITE OF SAMPLES 61-67												
	14.88	1.16	FR F1.40	22.9			6.2					
			FR F1.60	45.7			17.1					
			FR F1.70	8.1			33.4					
			FR F1.80	8.8			41.0					
			FR F2.00	11.0			50.4					
			FR S2.00	6.3			71.6					
CALCULATED COMPOSITE OF SAMPLES 22-24												
	7.47	0.67	CU F1.40	20.7			8.4					
			CU F1.60	87.6			14.9					
			CU F1.70	91.0			15.6					
			CU F1.80	97.1			17.2					
			CU F2.00	98.4			17.7					
			CU S2.00	100.0			18.3					
ANALYSED COMPOSITE OF SAMPLES 22-24												
			CU F2.00	98.4	7.0	17.6	28.5	46.9	0.36		22.92	1.47
CALCULATED COMPOSITE OF SAMPLES 61-67												
	14.88	1.16	CU F1.40	22.9			6.2					
			CU F1.60	68.6			13.5					
			CU F1.70	73.7			14.8					
			CU F1.80	82.3			17.6					
			CU F2.00	93.3			21.3					
			CU S2.00	100.0			24.7					
ANALYSED COMPOSITE OF SAMPLES 61-67												
			CU F1.80	82.3	6.0	17.3	27.9	48.6	0.42		23.96	1.47

611

649252

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY140

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 1-3												
	19.66	0.60	FR F1.40	3.5		10.2						
			FR F1.60	34.6		21.2						
			FR F1.70	13.2		32.0						
			FR F1.80	7.8		44.9						
			FR F2.00	9.7		52.9						
			FR S2.00	11.2		67.3						
ANALYSED COMPOSITE OF SAMPLES 22-25												
	24.22	0.75	FR F1.40	24.3		7.5						
			FR F1.60	62.3		16.9						
			FR F1.70	4.2		32.7						
			FR F1.80	1.4		42.2						
			FR F2.00	0.7		52.9						
			FR S2.00	6.9		69.9						
ANALYSED COMPOSITE OF SAMPLES 61-66												
	32.34	1.07	FR F1.40	30.2		8.4						
			FR F1.60	47.9		18.9						
			FR F1.70	7.8		33.9						
			FR F1.80	4.0		42.4						
			FR F2.00	3.6		51.9						
			FR S2.00	6.9		73.7						
CALCULATED COMPOSITE OF SAMPLES 1-3												
	19.66	0.60	CU F1.40	3.5		10.2						
			CU F1.60	38.1		20.3						
			CU F1.70	71.3		22.7						
			CU F1.80	79.1		24.9						
			CU F2.00	88.8		27.9						
			CU S2.00	100.0		32.3						
CALCULATED COMPOSITE OF SAMPLES 22-25												
	24.22	0.75	CU F1.40	24.3		7.5						
			CU F1.60	84.8		14.3						
			CU F1.70	91.0		15.1						
			CU F1.80	92.4		15.3						
			CU F2.00	93.1		15.8						
			CU S2.00	100.0		19.3						
ANALYSED COMPOSITE OF SAMPLES 22-25												
			CU F2.00	93.1	5.8	15.9	26.0	52.3	0.36		24.72	1.47
CALCULATED COMPOSITE OF SAMPLES 61-66												
	32.34	1.07	CU F1.40	30.2		8.4						
			CU F1.60	77.7		14.8						
			CU F1.70	85.5		15.6						
			CU F1.80	89.3		17.7						
			CU F2.00	93.1		19.0						
			CU S2.00	100.0		22.8						
ANALYSED COMPOSITE OF SAMPLES 61-66												
			CU F2.00	93.1	5.3	19.1	27.9	47.7	0.48		24.08	1.48

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649253

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY144

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 1-6												
	18.70	1.04	FR F1.40	0.7		7.5						
			FR F1.60	20.6		16.4						
			FR F1.70	15.8		30.0						
			FR F1.80	11.6		39.3						
			FR F2.00	22.6		50.7						
			FR S2.00	29.0		69.3						
ANALYSED COMPOSITE OF SAMPLES 23-25												
	23.63	0.54	FR F1.40	12.2		7.4						
			FR F1.60	50.0		16.3						
			FR F1.70	8.0		31.3						
			FR F1.80	3.7		41.6						
			FR F2.00	5.1		51.9						
			FR S2.00	18.0		76.4						
ANALYSED COMPOSITE OF SAMPLES 62-69												
	31.46	1.00	FR F1.40	37.8		8.6						
			FR F1.60	43.7		18.9						
			FR F1.70	4.5		35.5						
			FR F1.80	2.8		42.6						
			FR F2.00	5.0		52.2						
			FR S2.00	6.2		71.3						
CALCULATED COMPOSITE OF SAMPLES 1-6												
	18.70	1.04	CU F1.40	0.7		7.5						
			CU F1.60	21.3		16.1						
			CU F1.70	36.8		22.0						
			CU F1.80	48.4		25.1						
			CU F2.00	71.0		33.9						
			CU S2.00	100.0		44.2						
CALCULATED COMPOSITE OF SAMPLES 23-25												
	23.63	0.54	CU F1.40	12.2		7.4						
			CU F1.60	65.2		14.6						
			CU F1.70	73.2		16.3						
			CU F1.80	76.9		17.7						
			CU F2.00	82.0		19.8						
			CU S2.00	100.0		30.0						
ANALYSED COMPOSITE OF SAMPLES 23-25												
			CU F2.00	82.0	6.3	19.9	25.7	48.1	0.33		22.76	1.51
CALCULATED COMPOSITE OF SAMPLES 62-69												
	31.46	1.00	CU F1.40	37.8		8.6						
			CU F1.60	81.9		14.1						
			CU F1.70	86.0		15.2						
			CU F1.80	88.8		16.1						
			CU F2.00	93.8		18.0						
			CU S2.00	100.0		21.3						
ANALYSED COMPOSITE OF SAMPLES 62-69												
			CU F2.00	93.8	5.0	18.0	28.5	48.4	0.40		24.32	1.49

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649254

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY145

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 61-67				18.78	0.66							
			FR F1.40	10.8			8.2					
			FR F1.60	43.0			18.6					
			FR F1.70	14.8			32.2					
			FR F1.80	6.0			41.7					
			FR F2.00	4.9			52.5					
			FR S2.00	20.3			73.2					
ANALYSED COMPOSITE OF SAMPLES 81-84				28.04	0.71							
			FR F1.40	8.7			9.9					
			FR F1.60	36.8			21.3					
			FR F1.70	36.8			32.4					
			FR F1.80	3.1			42.1					
			FR F2.00	3.6			54.3					
			FR S2.00	9.0			72.0					
CALCULATED COMPOSITE OF SAMPLES 61-67				18.78	0.66							
			CU F1.40	10.8			8.2					
			CU F1.60	53.8			16.9					
			CU F1.70	68.6			19.9					
			CU F1.80	74.6			21.7					
			CU F2.00	79.3			23.6					
			CU S2.00	100.0			34.1					
ANALYSED COMPOSITE OF SAMPLES 61-67						6.0	20.0	24.8	49.2	0.39	23.74	1.52
			CU F1.70	68.6								
CALCULATED COMPOSITE OF SAMPLES 81-84				28.04	0.71							
			CU F1.40	8.7			9.9					
			CU F1.60	45.3			19.1					
			CU F1.70	82.3			23.1					
			CU F1.80	87.4			26.1					
			CU F2.00	91.0			27.2					
			CU S2.00	100.0			31.2					

122T

020255

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : QY147

SAMPLE SIZE : - 5.6 + 0.00 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ANALYSIS ASH %	VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 61-64												
	7.92	0.44	FR F1.40	3.8		15.1						
			FR F1.60	25.7		24.4						
			FR F1.70	43.7		34.1						
			FR F1.80	20.8		41.2						
			FR F2.00	5.3		49.8						
			FR S2.00	0.7		69.9						
ANALYSED COMPOSITE OF SAMPLES 81-85												
	17.91	1.20	FR F1.40	2.4		10.1						
			FR F1.60	53.3		17.3						
			FR F1.70	18.6		32.6						
			FR F1.80	7.2		40.5						
			FR F2.00	8.1		51.3						
			FR S2.00	10.4		69.7						
CALCULATED COMPOSITE OF SAMPLES 61-64												
	7.92	0.44	CU F1.40	3.8		15.1						
			CU F1.60	29.3		24.4						
			CU F1.70	73.2		34.1						
			CU F1.80	94.0		41.2						
			CU F2.00	99.3		49.8						
			CU S2.00	100.0		69.9						
CALCULATED COMPOSITE OF SAMPLES 81-85												
	17.91	1.20	CU F1.40	2.4		10.1						
			CU F1.60	53.7		17.0						
			CU F1.70	74.3		30.9						
			CU F1.80	81.3		40.6						
			CU F2.00	89.6		51.3						
			CU S2.00	100.0		69.8						
ANALYSED COMPOSITE OF SAMPLES 81-85												
			CU F1.70	74.3	5.3	21.0	20.6	53.1	0.24		22.60	1.51

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649256

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY148

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ANALYSIS ASH %	VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 21-25												
	14.34	0.40	FR F1.40	7.3		10.9						
			FR F1.60	59.1		22.0						
			FR F1.70	14.7		33.9						
			FR F1.80	7.2		42.4						
			FR F2.00	5.8		51.9						
			FR S2.00	6.9		71.8						
ANALYSED COMPOSITE OF SAMPLES 62-66												
	24.66	1.02	FR F1.40	6.4		10.4						
			FR F1.60	32.0		18.8						
			FR F1.70	11.9		30.4						
			FR F1.80	9.6		39.6						
			FR F2.00	7.7		49.8						
			FR S2.00	32.4		77.1						
CALCULATED COMPOSITE OF SAMPLES 21-25												
	14.34	0.40	CU F1.40	7.3		10.9						
			CU F1.60	69.4		20.8						
			CU F1.70	80.1		23.2						
			CU F1.80	87.3		24.8						
			CU F2.00	93.1		26.4						
			CU S2.00	100.0		29.6						
ANALYSED COMPOSITE OF SAMPLES 21-25												
			CU F1.60	65.4	5.6	20.7	25.6	48.1	0.40		23.58	1.51
CALCULATED COMPOSITE OF SAMPLES 62-66												
	24.66	1.02	CU F1.40	6.4		10.4						
			CU F1.60	38.4		17.4						
			CU F1.70	50.3		20.3						
			CU F1.80	59.9		23.3						
			CU F2.00	67.6		26.3						
			CU S2.00	100.0		42.9						

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649257

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY149

SAMPLE SIZE : - 3.6 + 0.00 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	PROXIMATE ANALYSIS			TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
					INHERENT MOISTURE %	ASH %	ANALYSIS VOLATILE MATTER %				
ANALYSED COMPOSITE OF SAMPLES 63-64											
	4.38	0.45	FR F1.40	1.0			11.8				
			FR F1.60	57.4			19.3				
			FR F1.70	17.2			32.2				
			FR F1.80	9.6			40.4				
			FR F2.00	12.7			47.6				
			FR S2.00	2.1			64.0				
CALCULATED COMPOSITE OF SAMPLES 63-64											
			CU F1.40	1.0			11.8				
			CU F1.60	58.4			19.3				
			CU F1.70	73.6			22.1				
			CU F1.80	83.2			24.2				
			CU F2.00	97.9			27.2				
			CU S2.00	100.0			28.0				
ANALYSED COMPOSITE OF SAMPLES 63-64											
			CU F1.70	75.6	5.5	22.5	23.7	48.3	0.34	24.12	1.53

1221

649258

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY153

SAMPLE SIZE : - 5.6 + 0.00 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MAGG %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
					INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %				
ANALYSED COMPOSITE OF SAMPLES 41-42												
	9.15	0.43	FR F1.40	14.4			9.4					
			FR F1.60	78.5			15.1					
			FR F1.70	0.4			34.1					
			FR F1.80	1.2			42.3					
			FR F2.00	0.6			51.4					
			FR S2.00	4.9			74.4					
ANALYSED COMPOSITE OF SAMPLES 61-68												
	16.09	1.28	FR F1.40	26.2			8.2					
			FR F1.60	44.5			18.9					
			FR F1.70	6.4			34.0					
			FR F1.80	4.0			41.3					
			FR F2.00	4.6			51.5					
			FR S2.00	14.3			73.0					
CALCULATED COMPOSITE OF SAMPLES 41-42												
	9.15	0.43	CU F1.40	14.4			9.4					
			CU F1.60	92.9			14.2					
			CU F1.70	93.3			14.3					
			CU F1.80	94.5			14.7					
			CU F2.00	95.1			14.9					
			CU S2.00	100.0			17.8					
ANALYSED COMPOSITE OF SAMPLES 41-42												
			CU F2.00	95.1	4.8	15.1	27.2	52.9	0.39		25.90	1.45
CALCULATED COMPOSITE OF SAMPLES 61-68												
	16.09	1.28	CU F1.40	26.2			8.2					
			CU F1.60	70.7			14.9					
			CU F1.70	77.1			16.5					
			CU F1.80	81.1			17.7					
			CU F2.00	85.7			19.6					
			CU S2.00	100.0			27.2					
ANALYSED COMPOSITE OF SAMPLES 61-68												
			CU F2.00	85.7	5.4	19.6	28.6	46.4	0.46		23.82	1.52

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY154

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 1-5												
	12.72	1.18	FR F1.40	3.6			7.9					
			FR F1.60	37.8			17.7					
			FR F1.70	18.0			30.2					
			FR F1.80	24.6			40.1					
			FR F2.00	8.6			49.4					
			FR S2.00	7.4			72.6					
ANALYSED COMPOSITE OF SAMPLES 61-66												
	26.12	1.24	FR F1.40	36.1			7.5					
			FR F1.60	42.9			19.3					
			FR F1.70	4.4			35.6					
			FR F1.80	6.3			41.8					
			FR F2.00	5.8			50.2					
			FR S2.00	4.3			65.4					
CALCULATED COMPOSITE OF SAMPLES 1-5												
	12.72	1.18	CU F1.40	3.6			7.9					
			CU F1.60	41.4			16.8					
			CU F1.70	59.4			20.9					
			CU F1.80	84.0			26.5					
			CU F2.00	92.6			28.6					
			CU S2.00	100.0			31.9					
CALCULATED COMPOSITE OF SAMPLES 61-66												
	26.12	1.24	CU F1.40	36.1			7.5					
			CU F1.60	79.0			13.9					
			CU F1.70	83.4			15.1					
			CU F1.80	89.9			17.0					
			CU F2.00	95.7			19.0					
			CU S2.00	100.0			21.0					
ANALYSED COMPOSITE OF SAMPLES 61-66												
			CU F2.00	95.7	5.5	18.9	28.3	47.3	0.40		23.76	1.50

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649260

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY156

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 61-67												
	15.23	1.18	FR F1.40	24.3			5.9					
			FR F1.60	48.9			17.8					
			FR F1.70	6.7			32.9					
			FR F1.80	3.3			41.3					
			FR F2.00	6.0			30.3					
			FR S2.00	10.8			67.3					
CALCULATED COMPOSITE OF SAMPLES 61-67												
			CU F1.40	24.3			5.9					
			CU F1.60	73.2			13.8					
			CU F1.70	77.9			13.4					
			CU F1.80	83.2			16.3					
			CU F2.00	89.2			18.8					
			CU S2.00	100.0			24.0					
ANALYSED COMPOSITE OF SAMPLES 61-67												
			CU F2.00	89.2	6.2	18.8	26.3	48.7	0.44		24.00	1.52

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : QY158

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 61-64												
	7.95	1.11	FR F1.40	37.8		6.8						
			FR F1.60	47.5		17.5						
			FR F1.70	3.5		31.6						
			FR F1.80	3.2		36.9						
			FR F2.00	1.9		46.6						
			FR S2.00	6.1		72.5						
CALCULATED COMPOSITE OF SAMPLES 61-64												
			CU F1.40	37.8		6.8						
			CU F1.60	85.3		12.8						
			CU F1.70	88.8		13.5						
			CU F1.80	92.0		14.3						
			CU F2.00	93.9		15.0						
			CU S2.00	100.0		18.5						
ANALYSED COMPOSITE OF SAMPLES 61-64												
			CU F2.00	93.9	5.5	14.9	27.9	57.2	0.34		25.80	1.44

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649262

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : QY159

SAMPLE SIZE : - 5.6 + 0.00 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MSS %	PROXIMATE ANALYSIS			FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
					INHERENT MOISTURE %	ASH %	VOLATILE MATTER %					
ANALYSED COMPOSITE OF SAMPLES 61-66												
	17.34	1.28	FR F1.40	23.7			7.4					
			FR F1.60	49.6			18.0					
			FR F1.70	8.1			33.4					
			FR F1.80	3.9			42.6					
			FR F2.00	4.1			52.5					
			FR S2.00	10.6			70.2					
CALCULATED COMPOSITE OF SAMPLES 61-66												
			CU F1.40	23.7			7.4					
			CU F1.60	73.3			14.6					
			CU F1.70	81.4			16.4					
			CU F1.80	83.3			17.6					
			CU F2.00	89.4			19.2					
			CU S2.00	100.0			24.6					
ANALYSED COMPOSITE OF SAMPLES 61-66												
			CU F2.00	89.4	6.0	19.3	26.4	48.3	0.40		24.08	1.50

130T

649263

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY160

SAMPLE SIZE : - 5.6 + 0.00 MM

SEAM CODE	DEPTH TO-BASE M	THICKNESS M	SAMPLE STATE	YIELD MSS %	PROXIMATE ANALYSIS			FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
					INHERENT MOISTURE %	ASH %	VOLATILE MATTER %					
ANALYSED COMPOSITE OF SAMPLES 62-67												
	24.78	1.30	FR F1.40	26.0			5.9					
			FR F1.60	53.0			17.3					
			FR F1.70	6.3			33.0					
			FR F1.80	2.1			40.3					
			FR F2.00	3.8			51.1					
			FR S2.00	6.8			68.0					
CALCULATED COMPOSITE OF SAMPLES 62-67												
			CU F1.40	26.0			5.9					
			CU F1.60	79.0			13.3					
			CU F1.70	85.3			15.0					
			CU F1.80	87.4			13.6					
			CU F2.00	93.2			17.8					
			CU S2.00	100.0			21.2					
ANALYSED COMPOSITE OF SAMPLES 62-67												
			CU F2.00	93.2	4.4	17.8	29.9	47.9	0.45		24.28	1.48

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649264

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : QY165

SAMPLE SIZE : - 5.6 + 0.00 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	PROXIMATE ANALYSIS				TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
					INHERENT MOISTURE %	ASH %	VOLATILE MATTER %	FIXED CARBON %				
ANALYSED COMPOSITE OF SAMPLES 61-66												
	16.53	1.14	FR F1.40	28.2			8.4					
			FR F1.60	47.2			18.3					
			FR F1.70	7.1			34.6					
			FR F1.80	4.3			42.9					
			FR F2.00	4.7			51.7					
			FR S2.00	8.5			70.9					
CALCULATED COMPOSITE OF SAMPLES 61-66												
			CU F1.40	28.2			8.4					
			CU F1.60	75.4			14.6					
			CU F1.70	82.5			16.3					
			CU F1.80	85.8			17.6					
			CU F2.00	91.5			19.4					
			CU S2.00	100.0			23.7					
ANALYSED COMPOSITE OF SAMPLES 61-66												
			CU F2.00	91.5	4.9	19.3	27.8	48.0	0.39		24.38	1.50

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649265

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY169

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MSS %	PROXIMATE ANALYSIS			TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
					INHERENT MOISTURE %	ASH %	VOLATILE MATTER %				
ANALYSED COMPOSITE OF SAMPLES 61-67											
	11.10	1.24	FR F1.40	34.7			8.7				
			FR F1.60	37.3			20.3				
			FR F1.70	8.6			34.4				
			FR F1.80	3.3			43.6				
			FR F2.00	6.7			54.8				
			FR S2.00	9.2			71.7				
CALCULATED COMPOSITE OF SAMPLES 61-67											
			CU F1.40	34.7			8.7				
			CU F1.60	72.0			14.7				
			CU F1.70	80.6			16.8				
			CU F1.80	84.1			17.9				
			CU F2.00	90.8			20.6				
			CU S2.00	100.0			25.3				
ANALYSED COMPOSITE OF SAMPLES 61-67											
			CU F2.00	90.8	5.3	20.7	27.3	46.7	0.41	23.74	1.53

138T

649266

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY170

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPL STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 1-3												
	19.99	0.99	FR F1.40	7.4			10.0					
			FR F1.60	35.9			24.0					
			FR F1.70	20.8			35.1					
			FR F1.80	14.9			43.1					
			FR F2.00	19.7			50.0					
			FR S2.00	2.0			67.0					
ANALYSED COMPOSITE OF SAMPLES 61-67												
	33.54	0.92	FR F1.40	18.4			9.0					
			FR F1.60	49.3			18.9					
			FR F1.70	9.3			34.6					
			FR F1.80	6.0			42.0					
			FR F2.00	9.7			51.3					
			FR S2.00	7.3			70.9					
CALCULATED COMPOSITE OF SAMPLES 1-3												
	19.99	0.99	CU F1.40	7.4			10.0					
			CU F1.60	42.9			21.6					
			CU F1.70	63.4			26.0					
			CU F1.80	78.3			29.2					
			CU F2.00	98.0			33.4					
			CU S2.00	100.0			34.1					
CALCULATED COMPOSITE OF SAMPLES 61-67												
	33.54	0.92	CU F1.40	18.4			9.0					
			CU F1.60	67.7			16.2					
			CU F1.70	77.0			18.4					
			CU F1.80	83.0			20.1					
			CU F2.00	92.7			23.4					
			CU S2.00	100.0			26.8					
ANALYSED COMPOSITE OF SAMPLES 61-67												
			CU F1.80	83.0	4.0	20.2	26.4	49.4	0.39		23.66	1.52

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649267

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY171

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 61-67												
	22.17	1.23	FR F1.40	32.7		9.0						
			FR F1.60	37.7		20.0						
			FR F1.70	6.9		34.8						
			FR F1.80	5.1		43.6						
			FR F2.00	4.2		51.9						
			FR S2.00	13.4		74.6						
CALCULATED COMPOSITE OF SAMPLES 61-67												
			CU F1.40	32.7		9.0						
			CU F1.60	70.4		14.9						
			CU F1.70	77.3		16.7						
			CU F1.80	82.4		18.3						
			CU F2.00	86.6		20.0						
			CU S2.00	100.0		27.3						
ANALYSED COMPOSITE OF SAMPLES 61-67												
			CU F2.00	86.6	4.4	20.1	27.6	47.9	0.39		24.14	1.52

WASHED COAL / COMPOSITE ANALYSIS

GRAY

(ALL RESULTS ON AIR DRIED BASIS
UNLESS OTHERWISE INDICATED BY
LETTER SYMBOL BETWEEN BRACKETS)

BOREHOLE : GY172

SAMPLE SIZE : - 5.6 + 0.0 MM

SEAM CODE	DEPTH TO BASE M	THICKNESS M	SAMPLE STATE	YIELD MASS %	INHERENT MOISTURE %	PROXIMATE ASH %	ANALYSIS VOLATILE MATTER %	FIXED CARBON %	TOTAL SULPHUR %	CRUCIBLE SWELLING NUMBER	SPECIFIC ENERGY (MJ/KG)	SAMPLE RELATIVE DENSITY
ANALYSED COMPOSITE OF SAMPLES 61-67												
	30.47	1.23	FR F1.40	39.4		8.6						
			FR F1.60	39.3		19.9						
			FR F1.70	6.0		33.7						
			FR F1.80	3.3		41.2						
			FR F2.00	3.8		51.7						
			FR S2.00	8.2		69.0						
CALCULATED COMPOSITE OF SAMPLES 61-67												
			CU F1.40	39.4		8.6						
			CU F1.60	78.7		14.2						
			CU F1.70	84.7		15.6						
			CU F1.80	88.0		16.6						
			CU F2.00	91.8		18.0						
			CU S2.00	100.0		22.2						
ANALYSED COMPOSITE OF SAMPLES 61-67												
			CU F2.00	91.8	5.3	17.9	28.2	48.6	0.46		24.72	1.47

196T

649269