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REPORT ON THE DEPARTMENT OF MINES COAL EXPLORATION PROGRAMME AT FINGAL Vol. 1.

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ABSTRACT

The Fingal coalfield comprises over 300 m of Triassic sediments including coal seams overlain by a 200-400 m dolerite sheet.

An area of 174 km is currently being explored by the Department of Mines.

At the time of writing, 65 km^2 of ground have been covered in the drilling programme, of this, 50 km^2 are within the exempt area and 15 km^2 now lie within the Cornwall Coal Company lease area.

Measured coal reserves for the Duncan seam to date have been estimated over 9.2 km^2 of exempt area and 9.2 km^2 of mining lease area.

These estimates are 34 million tonnes of *in situ* coal in each area making a total of 68 million tonnes.

Estimates of coal contained in other seams in the sequence and in other parts within the exempt area are currently being investigated.

1. INTRODUCTION

LOCATION

The Fingal Valley exempt area over which the Department of Mines has been conducting a coal exploration programme covers some 174 km^2 south-east of the township of Fingal. The exempt area is bounded by Exploration Licence 5/61 (Industrial and Mining Investigations with Shell Co of Australia Joint Venture), in the east; Exploration Licence 16/77 (Shell Company of Australia) in the west and the Duncan mine lease (Cornwall Coal Company N.L.) in the north-west. The location of the exempt area is shown in Figure 1.

TOPOGRAPHY, VEGETATION, AND LAND USE

Fingal Tier, which forms the northern boundary of the exempt area rises sharply from the southern extremity of the Fingal Valley; a wide flat valley cut by the Break O'Day River. Fingal Tier rises 700 m above sea level. The summit of the Tier is a fairly extensive plateau with many ridges and small hills rising 20-40 m above the main plateau.

Steep gullies leading down from the plateau are common as seen in Fingal Rivulet where the watercourse passes through a steep sided gorge. The streams are fed by patches of marshland found in depressions on the summit of the Tier and are directly dependant on rainfall for their permanence.

The slopes of Fingal Tier are covered with a dry sclerophyll forest, with tea-tree and bauera growing along the banks of streams. The summit is covered with a mosaic of dry sclerophyll and marshland sedges.

The Fingal Valley lends itself to farming, while mining and forestry are the chief land uses on Fingal Tier.

HISTORY OF THE PROJECT

Coal exploration commenced in the Fingal Valley in 1959 with a scout diamond drilling programme aimed at testing for continuation of the known and worked seams in the vicinity of the Duncan, Fingal and Valley coal mines near Fingal and the defunct Silkstone, Nicholas and Cornwall coal mines on the Nicholas Range. Thirteen holes were drilled to a total depth of 3000 m using one drilling rig over a 13 year period. In 1972, drilling commenced on a 25-hole, half-mile grid to prove a reserve of coal for power generation. This was converted to a kilometre grid in 1978. A second geologist joined the investigation in 1978 and a third geologist in 1980 to keep pace with the expanded drilling programme.

This exploration was carried out on land exempted from the Mining Act of 1929 which allows extensive rights to the Department of Mines for the purpose of its investigations.

In 1978, interest was centred on 94 km^2 entitled the 'Fingal Valley Exempt Area', Statutory Rule 1978/110 (amended S.R. 1964/167).

In 1979, two other areas were included:

(1) Mount St John Exempt Area, 78 km^2, S.R. 1979/107, and

(2) Fingal Exempt Area, 368 ha, S.R. 1979/107.

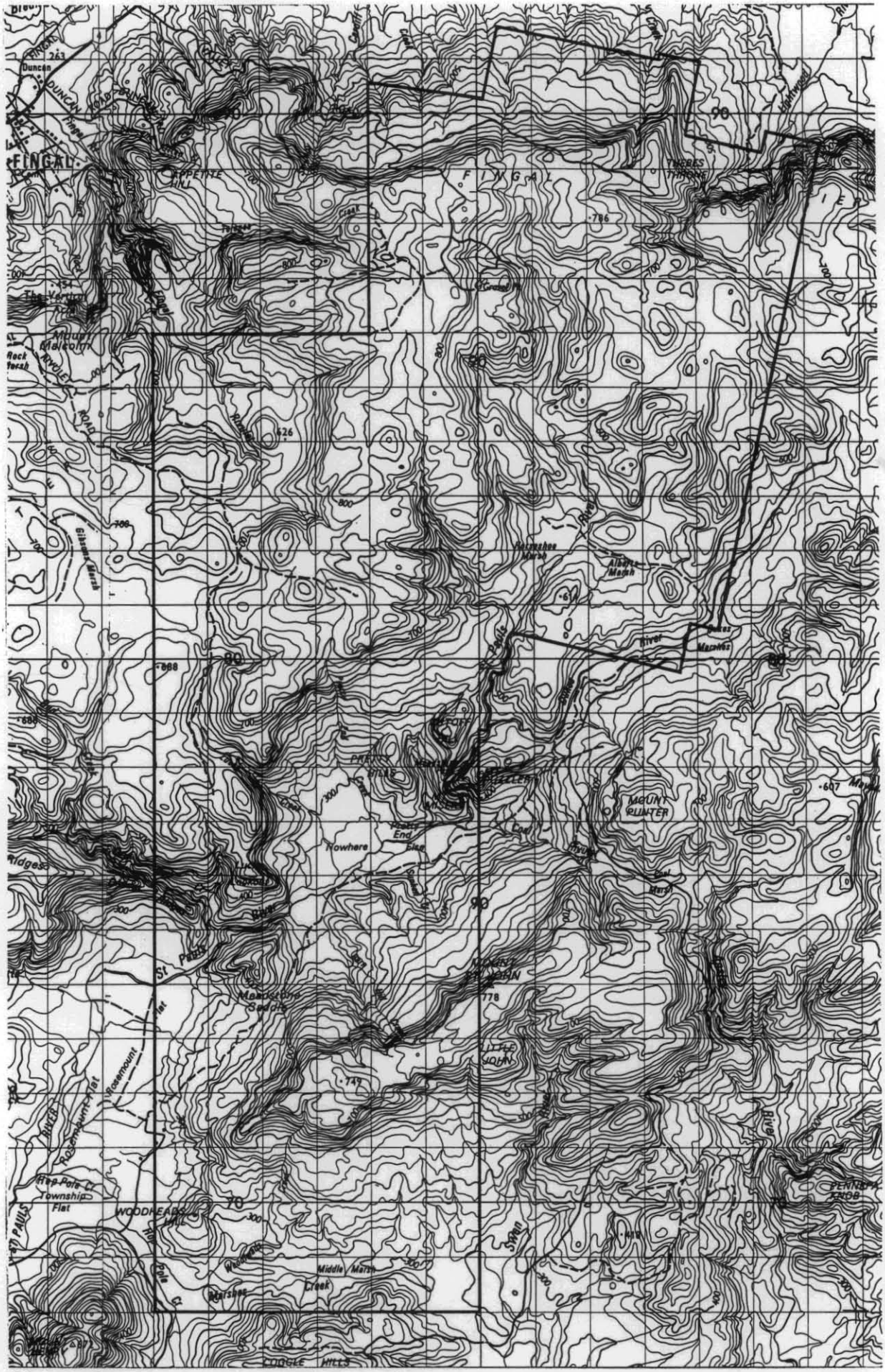

Figure 1. *Location map, showing the boundary of the Fingal Valley Exempt Area.*

(The latter was subsequently amended to Fingal Exempt Area, 176 ha, S.R. 1979/168).

The total area to be investigated by the Department of Mines is 174 km^2.

During the period 1972-1978 sixty-one holes were drilled to a total depth of 25 600 m and additional holes were drilled in neighbouring areas for other but related purposes. These include eight holes drilled to assist the coal company to locate new adit entries but do not include five holes drilled for stratigraphic control of the gravity survey in the coal-fields.

2. DRILLING INFORMATION

R. Billingham

In late 1978 a decision was made by the Department of Mines to increase the drilling rate of the coal exploration programme by moving all suitable drills to the Fingal Tier as they were released from other programmes. In early 1979 the Government of Tasmania approved the allocation of funds for a further expansion of the programme of coal drilling in the area adjacent to the Duncan Colliery which was exempt from the Mining Act. It was anticipated that by increasing the number of rigs available and the hours worked a drilling rate of 12 000 m per annum could be achieved. As a result of the expenditure the drilling rate in the exempt area increased from 1213 m in 1978 to 5267 m in 1979 and 11 143 m in 1980. In 1980 23 holes were completed.

DRILLING RIGS

In 1978 the rigs available for drilling deep holes were:

Longyear 38 - capacity 575 m NQ
Joy 30HD - capacity 450 m NQ
Edeco - capacity 385 m NQ

As coal intersections were required in NQ size (core diameter 47.6 mm) if possible, and some holes would be in excess of 600 m deep, it was obvious that larger drills would be required. The Joy 30HD rig was purchased in 1963 and parts were no longer available in Australia. As funds became available from Treasury in 1979 and 1980, new rigs were purchased and the Joy 30HD and Edeco were removed from Fingal.

The new rigs purchased and now drilling, are:

Longyear 44 - capacity 750 m HQ
Warman 1000 - capacity 850 m NQ (truck mounted)
Longyear 38 - capacity 575 m NQ
Longyear 44 - capacity 750 m HQ (truck mounted)

These units have capacity to pre-collar holes and to drill to coal in HQ size core size 63.5 mm if required, both of which assist in obtaining a satisfactory coal sample. With the old rigs it was frequently necessary to reduce the hole size from NQ to BQ core size 36.4 mm prematurely.

ACCESS TO SITE

The exempt area was traversed by old logging tracks which required clearing before drill sites and water holes could be constructed. The expanded programme necessitated major roadworks which were expensive and time consuming due to steep hillsides, deep gullies and rocky outcrops. Access was a particular problem during the wet weather. About 45 km of road were constructed or cleared in two years.

DRILLING CREWS

The new drills and expanded programme required the employment of additional labour and a re-organisation of the working hours. A total of 13 men were used permanently which allowed for five drilling crews of two men each, two spare men to help move rigs and cover for absenteeism, and one senior foreman to exercise daily supervision over all activities.

Improved drill utilisation was obtained by extending the daily hours worked to ten, and working through the normal December-January shutdown.

DRILLING PROBLEMS

The areas being investigated involved drilling through three totally different horizons.

Solid dolerite. Thicknesses of over 400 m of solid dolerite were encountered on the plateau, which posed problems only of time and drill capacity. It was hoped that the dolerite could be pre-collared to depth with a down-the-hole hammer using the Warman drill, but due to delays in receiving the new air compressor and establishing drill sites, this was not possible.

Dolerite talus. Overburden drilling through boulders and unconsolidated material is a major common problem for which there is no simple solution. Drilling on the scree covered slopes of the Fingal Valley proved to be very expensive in terms of both time and equipment.

Triassic sediments. Other than rapid wear on the drill string, no problems were encountered in the solid sandstone, but a few holes were lost due to our inability to penetrate running mud and swelling mudstones. Normal drilling techniques such as the use of drilling fluids, casing off and wedging were used to overcome these problems.

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3. GEOLOGY

The geology of the south side of the Fingal Valley and of the Mount St John area

C. Calver

Field observations were made during the 1979-1980 summer field season in two areas (Calver, *in* Baillie and Calver, 1980):

(1) the southern side of the Fingal Valley between the Esk Main Road and the edge of the Fingal Tier between the Duncan Road and Gray;

(2) the southern extension of the State Coal Reserve, in the north-western corner of the Bicheno quadrangle (Mount St John area).

The broad dolerite plateau between the Fingal Tier and the southern edge of the St Marys map sheet has been mapped previously by R.H. Castleden.

Mapping was done at a scale of 1:20 000. (Map no. 4633B, in Appendix A).

STRATIGRAPHY

Flat-lying marine sediments of Permian age (correlates of the Upper Marine sequence of the Lower Parmeener Supergroup) are conformably overlain by Triassic coal measures, up to 400 m thick, of the Upper Parmeener Supergroup. Jurassic dolerite intrudes the coal measures in both the areas mapped. Dolerite contacts are often transgressive; and an important aspect for initial coal exploration is to determine the configuration of the intrusions, and to locate faults. This is limited in the field by extensive talus cover, and lack of stratigraphic control in the thick coal measure sequence.

A tentative stratigraphy is shown in Table 1 (Legend). The rock types differentiated are described more fully below. The oldest unit mapped on the south side of the Fingal Valley is Permian limestone and calcareous mudstone (Pc). No rocks older than Triassic coal measures (Tc) crop out in the Mount St John area.

LOWER PARMEENER SUPERGROUP

Limestone and calcareous mudstone (Pc)

This unit is richly fossiliferous, with a highly variable terrigenous content. Relatively pure carbonate tends to be thick-bedded, with large brachiopods and bivalves in a medium- to coarse-grained, calcite-cemented, bioclastic matrix. With increasing terrigenous content this passes into calcareous, poorly sorted mudstone or siltstone, often leached of its carbonate content; and bryozoan-rich shale. These rock types are interbedded and are laterally variable on a finer-than-mappable scale. Glacially-derived dropstones, up to 0.5 m in diameter, composed of quartzite, quartz, conglomerate and granite are common. This unit crops out intermittently in creeks in the lowest parts of the floor of the Fingal Valley to the west of Cullenswood [EP945953].

Table 1. STRATIGRAPHY IN THE EXEMPT AREA

QUATERNARY	river gravels, alluvium, talus, dominantly dolerite colluvium, dominantly dolerite			
	EROSIONAL SURFACE			
TERTIARY	quartz gravels basalt			
	LOW ANGLE UNCONFORMITY			
JURASSIC	fine-grained dolerite dykes dolerite			
TRIASSIC	coal measure sequence quartz sandstone	Upper Freshwater sequence	UPPER	PARMEENER SUPER-GROUP
	LOW ANGLE UNCONFORMITY			
PERMIAN	pebbly mudstone	Upper Marine sequence	LOWER	

Pebbly sandstone (Psl)

This unit consists of thick-bedded to massive, unfossiliferous, poorly sorted, pebbly, fine sandstone or siltstone, with or without glauconite. Dropstones are abundant and may be concentrated into bands, forming horizons of open-framework conglomerate. To the east of Bedding Hill [EP910955] glauconite is present and may form up to 20% of the rock. This unit is 2-4 m thick in the area mapped.

Mudstone (Psm)

This is a poorly stratified, rather uniform, pale-to-medium-grey mudstone; dropstones are present. Close-spaced joints and fractures impart a hackly appearance to outcrops, which tend to break up into centimetre-size cuboidal fragments. A few more massive, poorly-sorted grey siltstone beds are present. This unit is approximately 30 m thick in the Fingal Valley, but elsewhere in the St Marys Quadrangle it is highly variable in thickness (2-50 m). It crops out only in creeks, and elsewhere is mapped on the basis of surface float.

UPPER PARMEENER SUPERGROUP

Triassic sediments paraconformably overlie the Permian mudstone formation (Pm). The contact is not exposed in the areas covered by this report, but elsewhere in the St Marys Quadrangle, there is a sharp lithologic discontinuity between the mudstone and overlying, well sorted, coarse quartz sandstone. There is usually a pebbly horizon at the base of the sandstone containing mudstone clasts probably derived from the underlying Permian.

Quartz sandstone (Ts)

Coarse- to fine-grained, well sorted white quartz sandstone. A few metres of basal subarkosic quartz grits and coarse sandstone, with quartz pebble conglomerate horizons, grade up into medium- to fine-grained sucrose quartz sandstones. Undulose bedding-planes and trough cross-bedding are usual, in beds up to 2 m thick.

Outcrops are rare apart from good exposure in Cardiff Creek [EP910877] where the formation is 20-30 m thick, grading up over several metres into lithic sandstone. Elsewhere it is mapped on the basis of abundant surface float.

Coal measures (Tc)

This unit is dominantly comprised of fine- to medium-grained lithic sandstone, with siltstone, mudstone, carbonaceous mudstone, coal, rare conglomerate, and rare tuff. The lack of stratigraphic control in the coal measures is caused by rapid lateral and vertical variation, the absence of marker beds, the uniformity of the dominant lithic sandstones throughout the sequence, and poor outcrop.

The lithic sandstones are well-sorted, grey-green in colour, medium- to thick-bedded, with undulose bedding planes; trough cross-bedding is often apparent.

Intraclasts, in the form of mudflakes and flattened wisps of coal are common, especially near the base of thick sandstone units. Carbonate cementation and partial replacement of the lithic sandstone has occurred in a few places, such as at EP974928, where large (1-1.5 m) carbonate nodules are aligned in parallel trains, indicating a joint control. Particularly massive lithic sandstone units often tend to form cliff lines.

Siltstones and mudstones contain a variable proportion of carbonaceous material, often in the form of well-preserved plant fossils.

Coal exposures, which may be of possible economic or stratigraphic significance, are given in Table 2.

Pebbly horizons are found in the coal measures, and seem to be more common in the upper part of the sequence. Pebbles are usually found scattered along sharp interfaces at the bases of the coarser lithic sandstone units. They are well-rounded, up to 150 mm in diameter, and are composed of resistant rock types such as quartzite, quartz, hornfels, chert, siliceous tuff, and rare granite. A conglomerate, similarly composed and about 2 m thick, crops out in Micks Creek at EP931901 and conglomerate boulders occur almost *in situ* at FP006891, near Gray.

Blocks of tuff, almost *in situ*, overlie a coal seam at EP865706 (Mount St John area). It is massive, uniform, white, rather poorly sorted with particles up to sand size; abundant glass shards are visible in thin-section.

The thickness of the coal measures varies according to the level of the base of the dolerite, but on field evidence it appears to reach a maximum of about 400 m in the area south and east of the Duncan Mine.

Table 2. SUMMARY OF COAL OUTCROPS

	Thickness (approx.)	*Description*	*Grid Ref.*	*Approx. Altitude (m)*
FINGAL VALLEY			EP	
1.	2 m, bottom not exposed	Coal overlain by lithic sandstone. Duncan Seam	844893	480
2.	2 m, bottom not exposed	Coal overlain by lithic sst. Old workings in Cardiff Creek	874903	400
3.	2 m	Old workings	876902	430
4.	0.5 m, bottom not exposed	Coal and grey clay (30%) overlain by lithic sst.	881906	400
5	1 m	Dull coal over and underlain by mudstone	928926	270
6.	1 m, contacts not exposed	Good-quality coal with some thin clay bands	933911	350
7.	0-7 m, bottom not exposed	Dull coal overlain by lithic sst.	929917	300
8.	1 m, contacts not exposed		932908	380
9.	1-2 m, contacts not exposed	Good-quality coal, with 30% thin beds of grey mudstone and sandstone	931903	480
10.	0.6 m, contacts not exposed		931901	500
11.	1 m, contacts not exposed	Poor quality coal, with carbonaceous siltstone	984930	257
MOUNT ST JOHN AREA				
1.	0.3 m, contacts not exposed		897755	430
2.	0.5 m, contacts not exposed	30% white clay bands	893750	420
3.	1 m, bottom not exposed	30% grey mudstone, overlain by tuff	865706	425
4.	0.5 m, contacts not exposed	Good quality coal, overlain by grey mudstone	863797	400

JURASSIC DOLERITE (Jdl)

A subdivision into fine, medium and coarse grain size with arbitrary divisions at 0.5 and 1.5 mm was made, but no attempt was made to map grain size variations in detail.

Fine-grained dolerite (<0.5 mm) is very dark in colour, with no regular jointing characteristic of coarser dolerites. Dolerite of this grain size is usually found to be in close proximity to a contact.

Medium-grained dolerite (0.5-1.5 mm) always has well-developed

columnar jointing, and a smaller-scale vertical platy joint pattern (parallel joints 5-20 mm apart).

Coarse-grained dolerite (>1.5 mm) is up to 4 mm in grain size in the Coggle Hills area, where columnar jointing tends to be poorly developed, outcrops tend to be low and rounded rather than columnar in a-pearance, eroding by exfoliation.

Occurrences of fine-grained dykes intruding the dolerite are indicated on Map 4633B. Typically, a limited area of dolerite contains many pale grey, aphanitic dykes up to 300 mm wide, with chilled margins, and very thin veins of quartz and black glass. The dykes are irregular, often sinuous, but tend to be roughly subhorizontal. The earlier dolerite usually shows evidence for brittle fracture at the time of intrusion of the dykes, which appear to be dilatational, with matching opposite sides. The three occurrences mapped by the writer were all intruding fine-grained dolerite [EP870890, EP880732, EP896690].

A dyke about 4 m thick intrudes lithic sandstone on the Meadstone Road at EP865740.

QUATERNARY

Dolerite talus (Qt)

This is composed of all sizes of boulders up to 10 m in diameter, usually in a matrix of clayey weathering products. Thick mantles of talus cover the slopes around the dolerite highland areas, and occupy a nearly continuous strip of land along the floor of the Fingal Valley.

Large talus boulders can usually be readily distinguished from outcrop by the absence of consistent vertical jointing (or the lack of any consistent jointing direction); variations in grain size between adjacent boulders; and lack of continuity of outcrop.

Isolated areas of talus, such as the occurrences on the floor of the Fingal Valley, may be erosional remnants of a once-continuous mass of talus, or may be lag deposits from relatively low-level intrusions.

Colluvium (Qc)

This consists of immature dolerite stream gravels composed of platy dolerite fragments, 50-200 mm in diameter, in a sandy or clayey matrix, usually showing imbrication.

Colluvium covers most of the southern side of the Fingal Valley. It is probably largely alluvial fan material derived from north-flowing streams. It reaches a maximum thickness of over 6 m near the foothills of the Tier, and thins northward.

Alluvium (Qa)

This consists of well-sorted, unconsolidated sands and gravels occupying low-lying areas adjacent to the Break-O-Day and St Pauls Rivers.

Swamp and marsh deposits, common in small basins on the high plateau south of the Fingal Tier, are included in this category.

STRUCTURE

Fingal Valley area

Between Smudgy Gully [EP870890] and Thebes [EP940890] the base of the sill appears to be nearly horizontal at about 650 m a.s.l. or rather lower (500-550 m) to the east of Ransom Creek [EP905900] where there is fault with a downthrow to the east. West of Smudgy Gully, the base of the sill rises further to over 700 m a.s.l. before descending rapidly to a low level (below 300 m) in the Fingal Rivulet.

There are three discrete bodies of dolerite, separated from the main sill, to the north of Appetite Hill/Smudgy Gully. The first is a roughly circular boss of dolerite [EP765905] about one kilometre in diameter with a steep transgressive contact at least on its eastern side. Extending south-west from this towards the Duncan Mine is a dyke-like body of dolerite which is well-expressed topographically. It is cut by creeks in two places, where outcrops of Triassic sandstone indicate that the 'dyke' is in fact discontinuous and is separate (at least at the surface) from the circular dolerite boss. Magnetometer traverses have confirmed that these occurrences are separated from the main sill to the south by a tract of intervening sediment thinly covered by talus.

To the east of Thebes Throne, the dolerite contact descends to about 360 m a.s.l. or lower, in the vicinity of Bare Rock. Further east, it rises again to about 500 m and it maintains this level down the eastern edge of the high, dolerite-capped plateau as far south as Bedggood Hill [FP040805].

A north-south fault downthrowing to the east at Ransom Creek can be inferred by the displacement of the gently south-east-dipping quartz sandstone from the foothills of the Tier to the central part of the Valley at Bedding Hill [EP910955]. The overall dip of the sediments, and hence the throw of the fault, are difficult to determine. A southerly component of dip of 2° would give a displacement of about 100 m. However, no such displacement has been found on the north side of the valley.

The inferred fault at Crouchs Creek, 2 km to the west and also downthrowing to the east, is suggested by a 20 m displacement in the level of the Triassic quartz sandstone.

Mount St John area

The high plateau which extends south-west of Mount St John is a remnant of a sill with a roughly horizontal base at about 500 m a.s.l. To the east of Little John, the base of the sill descends to 320 m a.s.l. in the Swan River, where the contact is exposed, and is conformably with horizontally-bedded lithic sandstone.

Triassic sediments crop out sparingly to the south of the Mount St John plateau, but south of the latitude of Woodheads Hill [EP848698], dolerite outcrops reappear. There is a general coarsening in grain size southwards towards the Coggle Hills. This may indicate a contact which dips gently to the south, to be well below 250 m at the latitude of Marshes Creek where very coarse-grained dolerite crops out.

Low-level dolerite outcrop also occurs in the St Pauls River, north-west of Meadstone Saddle. A zone of fine-grained dolerite at the southern side of this area [EP862746] suggests a steep transgressive contact. The

dolerite outliers on the slopes to the north west of Mount St John were distinguished from surrounding large talus boulders and recognised as outcrop on the basis of the criteria mentioned above, but are marked by '?' because of their lack of topographic relief, which is usually characteristic of true outcrop.

Sedimentology of the coal-bearing sequence on Fingal Tier: a summary

C.A. Bacon

The sedimentary sequence on Fingal Tier consists of silicalstic rocks of fluviatile origin belonging to the freshwater sequence of the Upper Parmeener Super Group which disconformably overlie glacio-marine mudstones of the Upper Marine Sequence of the Lower Parmeener Super Group (Bacon, 1980).

Quartz arenite

The lowest member of the freshwater sequence is a series of quartz arenites interbedded with siltstone and mudstone units; this member is less than 50 m thick.

In hand specimen the quartz arenites are white in colour with a sparkling appearance, probably due to the abundant quartz overgrowths. In thin section they are composed of well sorted, unimodal, close packed quartz grains, most of which are monocrystalline with undulose extinction and inclusions of sericite.

Lithic arenite

Lithic arenite is the dominant lithotype in the Upper Parmeener Super Group with individual rock units commonly being tens of metres thick. The thick units typically fine upwards. In hand specimen, the rocks are grey or mustard coloured and are often massively bedded.

Fluviatile structures such as cross-bedding, with dips of up to 40°, occur. Bottom contacts of individual units are frequently sharp and undulose, and dip at up to 20° to the core axis.

Bands of mudstone (with abundant slickensides), siltstone and clay pellet conglomerate are common. Mudstone and siltstone pellets also occur. Individual pellets range in size from a few millimetres to 45 mm in length. Coal debris occurs as flaser beds of coal, chunks of coal, massive bands of carbonaceous mudstone (rare), coaly partings and wispy carbonaceous laminae which are often contorted. Calcite veins and nodules are present, but not abundant. Some units have a secondary calcareous cement.

The lithic arenites have a closed, grain supported framework, very little matrix, and a unimodal grain size, ranging from 0.5 mm diameter in the coarse lithic arenites to 0.1 mm diameter in the fine arenites. Occasional samples are poorly sorted with a polymodal grain size distribution.

The clastic components include fragments of quartz, chert, volcanic glass, mudstone, siltstone, metamorphic rocks (*e.g.* phyllite, quartzite and schistose rocks), tuffs, chlorite, biotite, iron oxides, muscovite, heavy minerals such as rutile zircon, tourmaline, garnet, reworked pieces of calcite matrix, coal, plant fragments, plagioclase and less commonly K-feldspars.

Authigenic components include secondary chlorite, clay coatings on clastic grains, quartz overgrowths (rare) and the development of a calcareous cement.

Clay pellet conglomerate

Clay pellet conglomerate bands are usually not more than 100 mm thick and are composed of well-rounded, elongate clay pellets in a matrix of coarse lithic arenite. The clay pellets are composed of a matrix of quartz grains and clay.

Mudstone

Mudstone units are commonly less than one metre thick, but occasionally beds of 5-10 m occur. In hand specimen, the mudstones are coloured green, brown, black or grey, the last being the most common type. Abundant plant fossil debris, signs of bioturbation, frequent slickensides, rheomorphic slumping features, minor cross-bedding and occasional laminations are found. Contacts between mudstone, carbonaceous mudstone and coal are often gradational. Calcite veins and nodules are also found.

Carbonaceous mudstone

These mudstones invariably show gradational top and bottom contacts with non-carbonaceous mudstone or coal. The modal occurrence is in coal. In hand specimen, the carbonaceous mudstone shows frequent and fine laminations with many lenses and bands of non-carbonaceous mudstone, siltstone and clay. Slickensides are abundant, as are coaly debris, wispy coal laminae, coal clasts and plant fragments. The rocks are composed of fine-grained quartz, set in a fine-grained matrix of silt, clay and coal dust. The quartz grains are sub-rounded to sub-angular with moderate to high sphericity and are mono-crystalline with undulose extinction. The majority of the quartz grains, which comprise 40-50% of these rocks, are less than 0.1 mm in diameter. Plagioclase laths, usually andesine, occur in small quantities in some mudstones.

Shale

The shales of the Upper Parmeener Super Group are found almost exclusively interbedded with carbonaceous mudstone and coal. The fissility is produced by the parallel alignment of plates of muscovite and more commonly biotite. Plant fragments are very common in the shale, which also seems to contain a high proportion of calcium-montmorillonite.

Siltstone

Siltstones are coloured grey, dark grey or brown in hand sample and often display fine bedding, rheomorphic slumping and sigmoidal cross-bedding. Thin lenses of mudstone, fine lithic sandstone and clay are not uncommon, and the siltstone sometimes contains abundant plant fossil debris.

CONCLUSIONS

The fluvial system in which the Upper Parmeener Super Group siliclastics were deposited was characterised by meandering streams of moderate to low sinuosity, which changed course often; poorly developed levee banks; poorly developed channel bars; many point bars developed on abundant meanders; and many oxbow lakes in which mud was deposited and in which peat swamps formed.

Geological setting of the coal seams

Coal seams of workable thickness occur in Triassic sediments belonging to the Upper Parmeener Super Group, which overlie Lower Parmeener Super Group glacio-marine and freshwater strata. Basement rocks consist of micaceous arenites and lutites of Siluro-Devonian age (Mathinna Beds) which have locally been intruded by a suite of Devonian granitic rocks. The coal bearing sediments suffered intrusion by dolerite during Jurassic times, this has resulted in the presence of thick sills, minor dykes and major centres of intrusion ('feeders') in the sedimentary pile under investigation. Faulting, contemporaneous with dolerite intrusion and also of Tertiary(?) age, has caused periodic offsetting of the coal seams. Erosion to the present day has resulted in the formation of a landscape of rugged disposition, with dolerite talus mantling the areas of lower relief. The dolerite cap overlying the Triassic coal bearing sediments is on Fingal Tier commonly 200-400 m in thickness.

4. GEOPHYSICS

D.E. Leaman
R.G. Richardson

Geological methods provide only a skeletal exploration guide in this complex geological environment, even though the high relief terrain would be expected to aid exposure. Drilling superimposed on such a guide is a risky and generally unrepresentative gamble. Indeed, early drilling around Fingal revealed massive talus deposits and variable dolerite intrusions and shortened sections. Many holes were wasted or abandoned. Clearly, other means were needed to provide an indication, at least, of regions where the dolerite was very thick, feeders were present, windows were possible or the section was thick so enhancing the chance of encountering a useful seam set.

Six geophysical methods have been utilised in this environment; gravity, air and surface magnetics, resistivity, seismic reflection, radiometrics, and down hole logging.

GRAVITY SURVEYS

Two gravity surveys have been undertaken, one regional and one specific to the State Reserve on Fingal Tier. The regional survey covers the entire region defined as the East Coast Coalfields with a nominal station spacing of one kilometre (2800 km^2, 2600 stations), while the Fingal Tier coverage has a nominal 300 m spacing (180 km^2, 1600 stations).

Treatment of the Bouguer anomalies requires special processing and interpretation techniques, since all the target structures are normally above the geoid and there is no appropriate horizontal reference plane for modelling. Consequently, equivalent source methods have been used to derive continuations. In addition, the Bouguer anomalies have been analysed by a range of filters. After establishing appropriate criteria for assessment of the targets (within 750 m of the land surface), continuation and residuation enabled three dimensional modelling.

A qualitative interpretation has been provided for the entire regional survey which suggests that the Upper Parmeener Super-Group, including coal measures, is extensive and generally over 250 m thick across the entire field. Feeders and thick sheets possibly destroy about 15% of the possible volume. Some major faulting can be deduced. The general thickness of the dolerite sheets is extremely variable. Qualitative estimates may be based on the sign and value of the residual Bouguer anomaly. Large negative values (-40 to -60 $\mu m/s^2$) imply thick sedimentary sections, whether or not dolerite is present. Since the Permian, Triassic or dolerite contrasts yield residual attractions of -8.4, -13.4, and +6.7 $\mu m/s^2$ per 100 m, it will be apparent that positive values imply either much dolerite in a section or no significant section. The qualitative interpretation is vague for values in the range -20 to +10 $\mu m/s^2$ due to possible section combinations, but values outside this range can be unambiguously related to either thick sections or thick dolerite. Only the proportions are uncertain. Rapid estimates of this type must be verified quantitatively.

The regional core area has been evaluated by three-dimensional models. This zone was selected for analysis because it is the best

controlled and currently subject to detailed exploration. The analysis confirmed the suggestion of a general persistence of the coal measures at 250 - 350 m thick but found that faulting is common, including at least two sizeable grabens. Fault trends are NE-SW, N-S, E-W. In addition, feeders were found to be much smaller and more numerous than suspected and commonly occur as clusters. The general fault patterns and feeder distribution was revealed by modelling and analysis. The basis for modelling was available mapping and drilling control extrapolated by the requirements of the gravity field. Differences between observations and final model may be accounted for entirely by the thickness of slices used to make up the models (50-100 m); thinner units could not be justified on either cost or control grounds. It is possible that only about 10% of the entire region is lacking a thick section. Pre-Permian basement materials were also found to be variable and the extent of granite batholiths and stocks has been defined. Intrusion of a thick granodiorite sheet into the basement rocks near Gray has accounted for the anomalous qualitative estimates of sheet thickness in this part of the region.

The Fingal Tier detailed area has been treated by a similar filter, continuation and residual analysis. This has enabled improved definition of feeder position and size, limits of thickened sheets, sheet window location or thinnings and possible fault positions. The interpretation is summarised in Figure 2. An interpretation of this type can be used as a structural guide and a basis for drill site selection. The principal value relates to identification of marginal, promising or definitely excluded zones. The regional interpretation suggests the possibility of other promising areas at least comparable to the Fingal region.

Figure 2 also suggests the trend of any future mine planning should drilling confirm consistent and workable seams. The general distribution of intrusion (feeders and sheet truncations), escarpments and faulting suggests that three mines would be necessary for recovery (presuming the exclusion of shaft entry) in this zone.

MAGNETIC SURVEYS

A dual level (900, 1050 m) aeromagnetic survey of the Fingal Tier detailed area and some 54 km of selected but dispersed surface traversing have been undertaken. Surface surveys were mainly intended to evaluate the method as a means of locating geological boundaries in the area and so improve quality of mapping. The surface evaluation has established the method for this purpose and it is possible to resolve four conditions - coal measures, talus/coal measures, talus/dolerite, dolerite - by simple examination of frequency and amplitude fluctuations. A fluxgate magnetometer with 10nT sensitivity is adequate (strong gradients in some areas preclude the use of proton magnetometers) but the observation interval should not exceed 5 to 10 m.

The aerial survey was flown at two fixed heights to allow spectral and continuation analysis of the anomalies. A drape over the local terrain was not considered desirable or fully controllable and could be derived from the fixed flights in any case. The original objective of the survey was the provision of an independent structural control on dolerite forms, so reducing any inherent ambiguity in gravity interpretation. The success of the gravity survey overall, the limited interpretation accretion and confirmation provided by the magnetic survey, and the fact that many features could not have been resolved without the

gravity data, suggest that the aeromagnetic aproach is not particularly effective, though more rapid and less expensive.

Most of the structural information deduced from the magnetic surveys is included in Figure 3 and was based on observations at 1050 m which were found more relevant and less confusing than lower level data. Gradients and anomalies at this level can be definitely related to features displayed in the Bouguer anomalies. Even so the interpretation was patchy, and while intrusion margins were indicated, their sense and scale was not. Indeed many anomalies were enhanced due to the combination of several features in the same general locality. In general edges produce anomalies, feeder centres or talus/sedimentary tracts yield a nondescript field pattern. The lack of response over feeders was confirmed by susceptibility studies and surface profiles. The survey at 900 m provided more information on areas covered by talus or where the dolerite sheet has been eroded. However, due to the considerable terrain clearance variations (50-400 m) these observations are often misleading. The reduction of the 900 m survey to a 100 m drape by continuation enables rapid and clear identification of dolerite and non-dolerite areas, since the dolerite has a characteristic high amplitude cell pattern. However, attempts to interpret the drape results in terms of principal structures proved unsatisfactory due to the compound sources of many anomalies. At 100 m it is not possible to resolve these from local surface variations.

RESISTIVITY SURVEYS

Resistivity surveys have been used in other coal-bearing provinces for the location and tracing of seams. Such areas are generally free of severe topographical problems and lack the equivalent of dolerite cover. Electrical methods cannot be used on Fingal Tier for structural purposes since the average array would exceed 2-3 km and terrain-induced problems would be excessive and uncontrolled. Consequently sounding and traverse trials were made on the narrow coastal plain at Seymour where several seams occur within 40 m of the surface; gentle dips are known and faulting is suspected. Even in this environment the method failed to yield reproducible or consistent results; most problems were related to variable or low contrasts and erratic surface conditions.

SEISMIC REFLECTION SURVEYS

Reflection techniques, given the failure or inapplicability of the electrical approach, offered the only chance of improved structural resolution (over potential methods) and direct assessment of the stratigraphy and seam continuity. But varied geological environments have made evaluation difficult. The coastal environment at Seymour is akin to the established usage of the method except that the target seams are at very shallow depth requiring small charges and high sample rates. Results at Seymour, recorded using short spreads with 6-geophone arrays (28Hz), 10 m apart and shallow shot holes (1.2 m) were processed to reveal very shallow seams and some faulting. The electrical approach in the same area compares particularly poorly. However, good seismic results depend on shot placement and shot size (very small) in relatively unweathered coal measures.

The Fingal Tier type environment is quite unusual with velocities in excess of 5000 m/s within 5 m of the surface and persisting for more than 100-300 m. Three test traverses, including experiments with shot condition-depth and tamping, array geometry, single geophones

and processing parameters, have been fired. Best results have been achieved where shots are fired consistently within rock (6m deep) using single geophones. Lateral terrain effects and, apparently, jointing within the dolerite degrade the signals. The thickness of dolerite also affects the quality of the processed results. A substantial statics correction is also involved.

Feasibility traverse processing has been able to provide a general profile of the base of both dolerite and coal measures. Some disruptions are evident, but only fragments of two seam zones can be identified. More research is needed to improve the method resolution under traverse synthesis due to variability in properties of both the dolerite and the terrain.

In contrast, examination of filter-processed records for individual shots enables consistent picking of dolerite base, two coal measures reflectors, and base of coal measures. The coal measures reflectors appear to represent the Duncan and East Fingal seams.

The method is clearly viable in both environments but is expensive and does require, at the present time, more fine honing at processing stage for the dolerite environment.

DOWNHOLE LOGGING

Logging methods have been under-employed. In the initial stages of the programme (pre 1970) SP, resistivity and natural gamma logs were run to 300 m. The holes logged were not drilled on the dolerite cap. When drilling was commenced in dolerite the thickness of dolerite often exceeded the range of the logger. The tools available were not particularly appropriate to the project and logging ceased.

SUMMARY OF DOLERITE PROPERTIES

The properties of the Jurassic dolerite control the keys to resolution of the many structural problems associated with Tasmanian coal deposits and a current summary of relevant data is given below.

Heat capacity of the magma was very low. In consequence thermal metamorphic effects are generally minimal and restricted to zones rarely more than 5 m wide, or near pipes. Coal is rarely affected and thermal changes are of no exploration significance.

Magnetic properties may be extremely variable. Susceptibilities are very low, averaging 5-15 x 10^{-3} SI units. The remanent intensity is 0.08-0.60 Am^{-1}. Vertical component variations in the field may range from ± 500nT to ± 10 000nT.

Seismic velocities exceed 5000-6000 m/s in fresh rock, but the velocity is joint and weathering dependent and these properties generally reduce the resolving power of seismic methods. Velocities within the coal measures are in the general range 2200-3500 m/s.

Dolerite throughout the coalfields lacks extreme textural variations. The rock is generally dark and fine with a mean density of 2.83 t/m^3. Layering and differentiation, so characteristic of dolerite elsewhere, has not been recognised.

INTEGRATION OF SURVEY RESULTS

It is possible to synthesize some data from several methods; gravity, magnetic and reflection. Radiometric data has been excluded since the information, although extensive, has little real character. The seismic data can be assimilated in the form of additional control. Only the gravity and magnetic surveys are of comparable extent, detail and relevance. Since the gravity interpretation is more comprehensive and reliable, it is this interpretation which is revised to account for structural implications deduced from the magnetic surveys.

The revision is shown in Figure 3. Most of the features suggested magnetically relate directly to major sheet edges or pipes evident in the primary gravity interpretation. Several groups of features can only be understood in combination with the Bouguer anomalies, either observed or continued, since some anomalies have resulted from the interaction of up to four structures. However the magnetic surveys have suggested that some, more subtle, Bouguer variations are significant and most changes relate to the impact of such features.

Several trends were recorded in each survey and these are shown by firm lines. Others, unsupported, are indicated for completeness. It is not known how many of these features represent two-dimensional variations in the sheets or how many are faults. The largest known fault in the area occurs between grid lines 590000mE and 591000mE. Each method has recognised a structure in this zone - but some 800 m apart. It is possible that the structure is multiple with the main density contrast in the west and more recently disrupted dolerite, producing the magnetic anomaly, in the east.

CONCLUSIONS

Geophysical methods have been incorporated into an accelerated coal exploration programme in eastern Tasmania. This development was essential if the cost, efficiency and coverage of the drilling programme was to be optimised. Difficult geological conditions have left a legacy of ignorance concerning coal reserves and drilling is not an appropriate basis for a wide-ranging evaluation. Although a range of methods have been used, the gravity method has proven of most value, being able to resolve major faults, thick intrusions, feeders and estimate coal measures thickness. Grid drilling techniques in such areas have resulted in an information loss from one hole in eight. Use of the gravity method has enabled such losses to be avoided by appropriate siting of holes. The reflection method, after some further processing development, is likely to form a useful adjunct. Apart from surface magnetic boundary mapping, other methods are not recommended. The results to date are encouraging in the suggestion of the general extent of coal measures.

Complete details of the geophysical surveys are given elsewhere: gravity (Bulletin 60), magnetics (Unpublished Report 1980/46), radiometrics (UR 1980/51), seismic reflection (UR 1980/45, 1981/6), summary (UR 1980/49).

5. COAL TESTING

Analytical procedures

All proximate analyses in the exploration project were carried out in the Department of Mines laboratory. This laboratory is not equipped to perform these tests according to the requirements of the Standards Association of Australia. Check analyses have been carried out by the Joint Coal Board and discrepancies of one or two per cent occur. The discrepancies are not considered significant and would have little effect on the coal reserve estimate contained in this report.

Float/sink testing has not been performed as routine procedure in the testing of bore core from other exploration projects, due to the inadequacies of the laboratory already discussed. Such float/sink testing as has been done indicate that this coal has poor washing characteristics. This has been confirmed by washing tests carried by mainland coal laboratories. This is due to the high inherent ash of the coal, *i.e.* mineral matter contained in the coal itself as distinct from that present in bands within the coal and which is easily removed by washing. The inherent ash can only be liberated by crushing to such fineness that separation would be too costly to be practicable.

Bulk seam data

A three tonne bulk sample was taken from the Duncan mine in October 1979 for the purposes of conducting a series of tests so that a suitable testing procedure could be devised. The full details of the testing of this sample are relevant to the preceding topic and the laboratory report designated R786 is included in this report.

The proximate analyses and float/sink testing were done in the Departmental laboratory.

Additional testing was also carried out by ACIRL, Ryde in New South Wales:

Ultimate analysis
proximate analyses
forms of sulphur
Hardgrove grindability

and the uranium content was determined by the Australian Atomic Energy Commission.

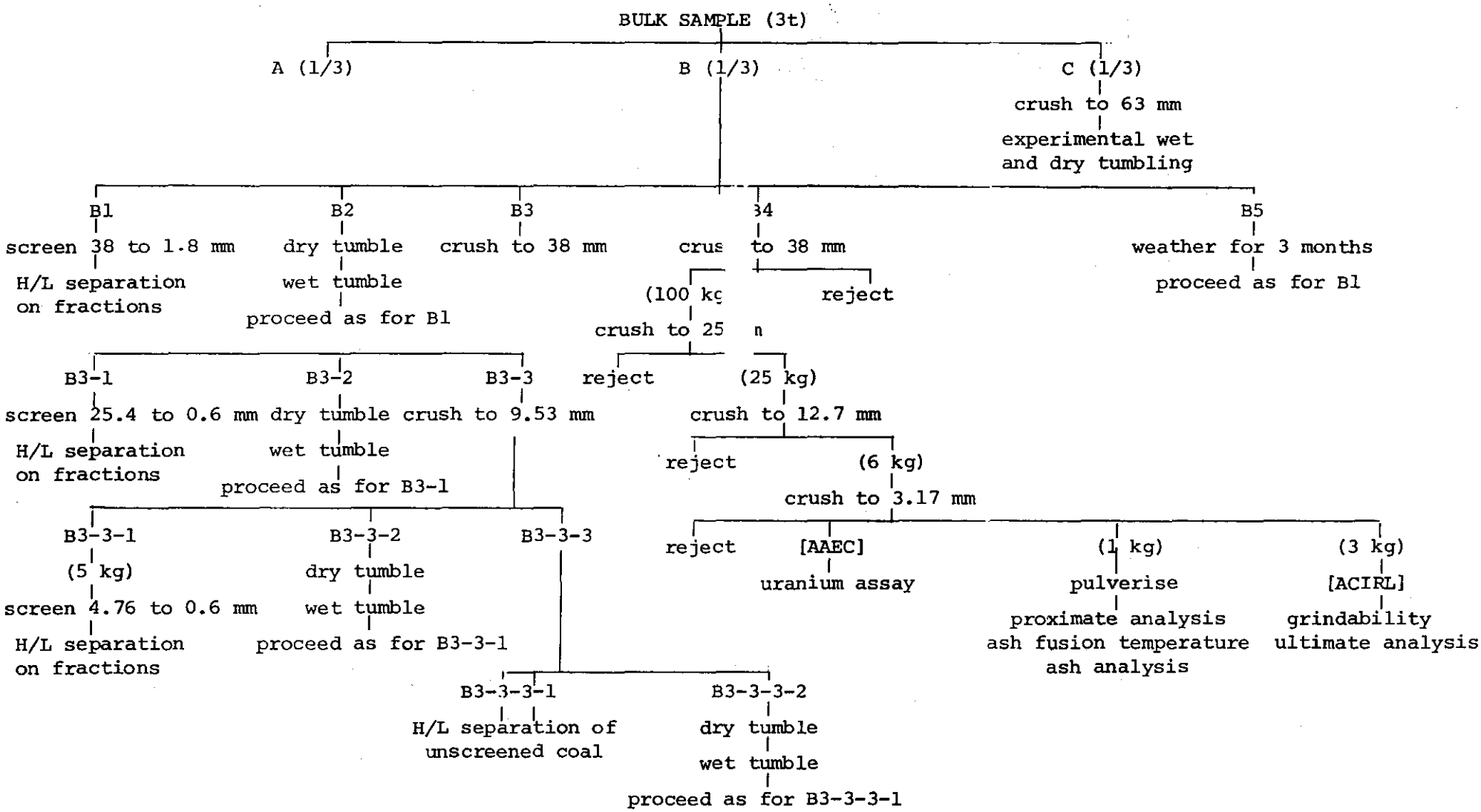
The purposes of this study were to

(1) Determine the effect of float/sink testing different size ranges of the same sample.

(2) Measure the effect of dry and wet drum tumbling sample treatment in the different size ranges (drum tumbling is designed to simulate handling and jig washery treatment).

A comprehensive treatment involving 44 separate float/sink tests was devised (see Figure 4).

This test programme produced no clear evidence of a relationship between results obtained from initially finely crushed core and coarsely



Note: Ash content will be determined in all products and proximate analysis with specific energy on all products with less than 30% ash.
In addition, a maceral analysis by CSIRO will be carried out on the production of the -2.36 mm to -1.18 mm screen fraction from B1 (see Tables - .)

Figure 4. *Flowchart for coal testing on bulk sample.*

crushed core.

A suggestion that beneficiation by washing and screening was made by the Chief Chemist and Metallurgist.

A study of Duncan mine coal*

H.K. Wellington

As very little has been determined on Fingal coal apart from proximate analyses a sample of this material was sent to ACIRL for a number of additional tests.

When it was found that shale in a pile of coal left in the open was breaking down apparently more rapidly than the coal material it was decided to investigate the nature of this break down.

All test work has been done in accordance with practices employed in this laboratory for many years. However it should be noted that these practices do not in many instances conform to currently published methods of bodies such as the Standards Association of Australia.

SAMPLE HANDLING AT LABORATORY

Three tonnes of coal (Reg. No. 791905) were taken from the Duncan mine bins and delivered to the laboratory. The coal was unloaded by hand into wheelbarrows working back along the tray of the truck cleaning up the coal as the face advanced.

The first barrow went to Dump A, the second to Dump B, the third to Dump C, the fourth to Dump A and so on until the lorry was unloaded. The dumps were on a concrete slab.

Dump A was screened to yield a run-of-mine sizing analysis.

Dump B was screened on 63 mm the oversize being hand spalled so all passed this screen.

Dump C was similarly treated so all passed 63 mm. The material was then mixed and cut into two halves, one half being reserved for experimental work, the other half was added to Dump B.

The enlarged Dump B was mixed then spread evenly on the ground. Working around the periphery shovelfuls were placed in turn into five drums thus giving samples B-1, B-2, B-3, B-4 and B-5.

Sample B-1 was screened and the size fractions heavy liquid separated.

Sample B-2 was given a water treatment, air dried then screened and the fractions heavy liquid separated. It was necessary to do this water treatment in several separate runs.

Sample B-3 was screened to pass 38 mm, the oversize being crushed to pass this screen. From this three samples were cut and treated as follows:

Sample B-3-1 was screened and the size fractions heavy liquid separated.

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* Ore Dressing Investigation R786.

Sample B-3-2 was water treated, air dried, screened and heavy liquid separated.

Sample B-3-3 screened on 9.5 mm and the oversize crushed to pass this screen. The sample was riffled down to get a kilogram for sizing and heavy liquid separation. The remainder was water treated, air dried, riffled to a kilogram for sizing and heavy liquid separation.

Sample B-4 was jaw crushed to pass 38 mm and then 100 kg was riffled out. This 100 kg was crushed to pass 25 mm then 25 kg was riffled out. This 25 kg was crushed to pass 12.7 mm and 6 kg was riffled out. This 6 kg was crushed to pass 3.17 mm then 3 kg was riffled out for ACIRL and 1 kg for analysis in this laboratory. A sample was also sent to AAEC, Lucas Heights for uranium assay.

Sample B-5 was left as a pile in the open from late October 1979 until April 1980 during which time the rainfall was only 150 mm. The sample was then rescreened and ash determined on the fractions.

HEAVY LIQUID SEPARATIONS

All samples for heavy liquid separation had the minus 0.6 mm material screened from them and excluded from testing except one. Samples were sized on 19.1, 9.53, 4.76, 2.36, 1.18 and 0.6 mm screens.

Samples B-1 and B-2 were screened on 38.1 mm in addition to those shown and likewise, B-3-1 and B-3-2 on 25.4 mm.

Heavy liquid separations were made at densities of 1.4, 1.6, 1.8 and 2.0 t/m^3. After separation fractions were washed with Shellite and air dried.

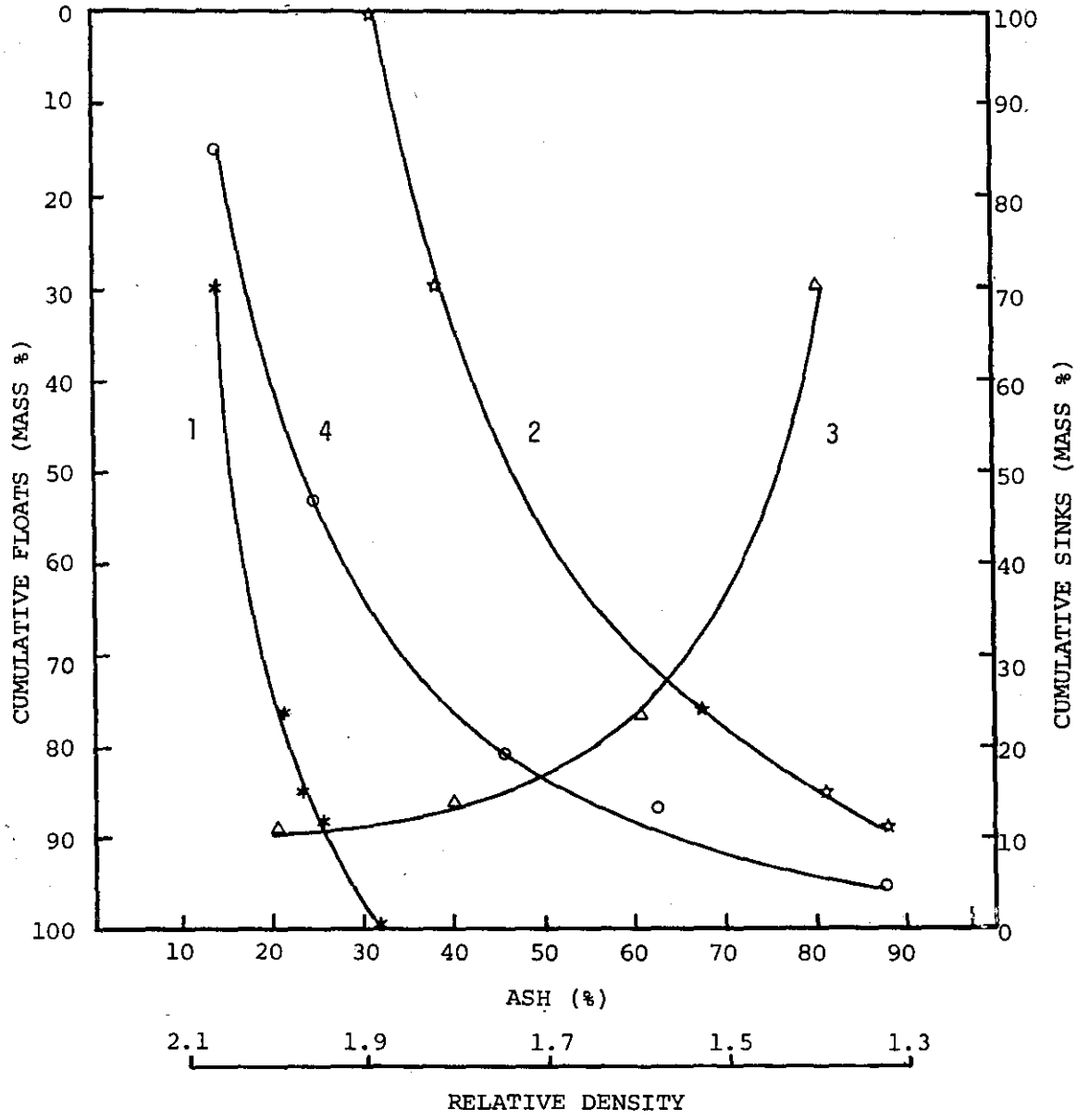
WATER TREATMENT

After some preliminary tumbling work the following procedures were adopted for the test work. In the case of sample B-2, water treatment was carried out batchwise. Each batch consisted of 20 kg of coal which was tumbled end for end in a 50 litre drum for 15 minutes. The drum rotated endwise 24 times per minute. At the end of the dry tumbling 30 litres of water was introduced and the coal was tumbled for a further 15 minutes. Fourteen batches of coal were tumbled.

The slime generated was decanted, and the residual coal was air dried. The slime from one decantation was saved and dried. The total slime produced was taken as 14 times the saved amount.

Sample B-3-2 was treated the same as sample B-2 except that it involved only five batches and the slime and fines generated were dried by lamp evaporation to remove the bulk of the water and finally air dried.

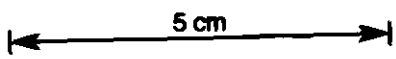
Sample B-3-3 which was -9.53 mm was given the water treatment by taking 2 kg of coal and dry tumbling for 15 minutes and then adding three litres of water and tumbling for a further 15 minutes. Three such batches were treated.



WASHABILITY CURVES

Curve 1: Cumulative floats
Curve 2: Cumulative sinks
Curve 3: Relative density
Curve 4: Instantaneous ash

Figure 5. *R786. Duncan run-of-mine coal. Sample B-1, -63, +0.6 mm.*



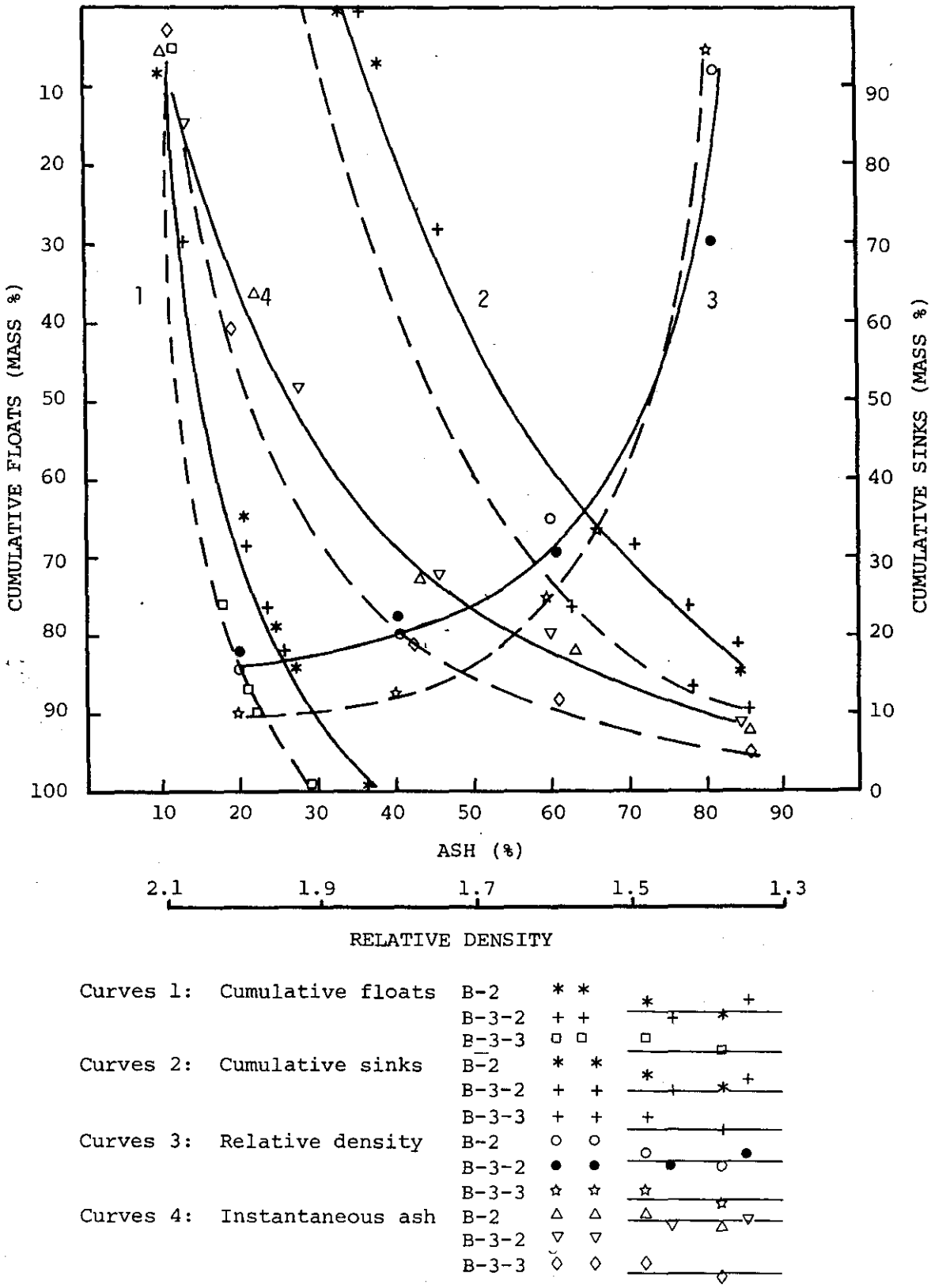


Figure 6. *R786. Duncan run-of-mine coal. Comparison of washability curves, after water treatment. Samples B-2 (-63,+4.75 mm); B-3-2 (-38,+4.75 mm) and B-3-3 (-9.53,+4.75 mm).*

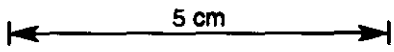


Table 3. PRODUCTS FROM DENSITY SEPARATIONS

Fraction		F/T ash	Density	% Mass			Remarks
Number	Size (mm)	(%)	(t/m^3)	F/T product	S/K reject	-0.6 mm untreated	
B-1	-63, +0.6	20	1.43	41	57	2	No water treatment
		25	1.47	54	44	2	
		30	1.52	64	34	2	
B-2	-63, +0.6	20	1.43	43	51	6	Water treated
		25	1.47	55	39	6	
		30	1.52	64	30	6	
B-3-1	-38, +0.6	20	(1.41)	43	53	4	( ) by extrapolation No water treatment
		25	1.42	56	40	4	
		30	1.47	65	31	4	
B-3-2	-38, +0.6	20	1.40	45	49	6	Water treated
		25	1.43	56	38	6	
		30	1.50	64	30	6	
B-3-3	-9.5, +0.6	20	1.46	41	47	12	No water treatment
		25	1.50	51	37	12	
		30	1.55	59	29	12	
B-3-3	-9.5, +0.6	20	1.47	40	46	14	Water treatment
		25	1.52	50	36	14	
		30	1.56	56	30	14	

Table 4. DENSITY SEPARATIONS TO GET A GIVEN ASH PRODUCT (all material +0.6 mm)

F/T ash (%)	Fraction		Density	% Mass			Remarks
	Number	Size (mm)	(t/m^3)	F/T product	S/K reject	-0.6 mm untreated	
20	B-1	-63, +0.6	1.43	41	57	2	No water treatment. ( ) by extrapolation
	B-3-1	-38, +0.6	(1.41)	43	53	4	
	B-3-3	-9.5, +0.6	1.46	41	47	12	
	B-2	-63, +0.6	1.43	43	51	6	Water treated
	B-3-2	-38, +0.6	1.40	45	49	6	
	B-3-3	-9.5, +0.6	1.47	40	46	14	
25	B-1	-63, +0.6	1.47	54	44	2	No water treatment
	B-3-1	-38, +0.6	1.42	56	40	4	
	B-3-3	-9.5, +0.6	1.50	51	37	12	
	B-2	-63, +0.6	1.47	55	39	6	Water treatment
	B-3-2	-38, +0.6	1.43	56	38	6	
	B-3-3	-9.5, +0.6	1.52	50	36	14	
30	B-1	-63, +0.6	1.52	64	34	2	No water treatment
	B-3-1	-38, +0.6	1.47	65	31	4	
	B-3-3	-9.5, +0.6	1.55	59	29	12	
	B-2	-63, +0.6	1.52	64	30	6	Water treatment
	B-3-2	-38, +0.6	1.50	64	30	6	
	B-3-3	-9.5, +0.6	1.56	56	30	14	

Table 5. DENSITY SEPARATIONS TO GET A GIVEN ASH PRODUCT (all material +4.75 mm)

F/T ash (%)	Fraction Number	Fraction Size (mm)	Density (t/m^3)	F/T * product (% mass)	Percentage of total mass+	Remarks
20	B-1	-63, +4.7	1.44	40	92.3	No water treatment ( ) by extrapolation
	B-3-1	-38, +4.7	(1.39)	40	85.9	
	B-3-3	-9.5, +4.7	1.43	42	37.8	
	B-2	-63, +4.7	1.42	35	81.9	Water treatment
	B-3-2	-63, +4.7	1.42	35	81.1	
	B-3-3	-9.5, +4.7	1.46	46	34.2	
25	B-1	-63, +4.7	1.47	51	92.3	No water treatment
	B-3-1	-38, +4.7	1.41	51	85.9	
	B-3-3	-9.5, +4.7	1.47	53	37.8	
	B-2	-63, +4.7	1.46	46	81.9	Water treatment
	B-3-2	-38, +4.7	1.46	46	81.1	
	B-3-3	-9.5, +4.7	1.51	60	34.2	
30	B-1	-63, +4.7	1.51	60	92.3	No water treatment
	B-3-1	-38, +4.7	1.46	60	85.9	
	B-3-3	-9.5, +4.7	1.52	63	37.8	
	B-2	-63, +4.7	1.50	55	81.9	Water treatment
	B-3-2	-38, +4.7	1.50	55	81.1	
	B-3-3	-9.5, +4.7	1.55	68	34.2	

* This is the percentage of product coal with the ash content shown derived from the size fraction shown, all fractions being +4.75 mm.

\+ This is the percentage of the total coal (after water treatment where applicable) in the size fraction being considered.

Table 6. SIZING ANALYSES OF COAL SAMPLES

Aperture (mm)	No Water Treatment						Water Treatment						Weathering	
	B-1		B-3-1		B-3-3		B-2		B-3-2		B-3-3(W)		B-5	
	Mass %	Cum. mass %	Mass %	Cum. mass %	Mass %	Cum. mass %	Mass %	Cum. mass %	Mass %	Cum. mass %	Mass %	Cum. mass %	Mass %	Cum. mass %
+38.1	36.5	36.5	-		-		25.0	25.0	-		-		22.5	22.5
+25.4	-		34.8	34.8	-		-		24.2	24.2	-		-	
+19.05	31.5	68.0	16.9	51.7	-		26.4	51.4	14.3	38.5	-		23.4	45.9
+9.53	18.0	86.0	25.2	74.9	-		19.0	70.4	28.0	66.5	-		20.3	66.2
+4.75	6.3	92.3	11.0	85.9	37.8	37.8	11.5	81.9	14.6	81.1	34.2	34.2	14.2	80.4
+2.36	2.5	94.8	5.2	91.1	26.2	64.0	6.8	88.7	6.2	87.3	26.3	60.5	8.1	88.5
+1.18	1.8	96.6	3.4	94.5	15.4	79.4	3.3	92.0	4.5	91.8	16.1	76.6	5.4	93.9
+0.60	1.2	97.8	2.0	96.5	8.7	88.1	1.8	93.8	2.7	94.5	9.2	85.8	2.8	96.7
-0.60	2.2	100	3.5	100	11.9	100	5.4	99.2	5.5	100	14.2	100	3.3	100
Slime	-		-		-		0.8	100	-		-		-	

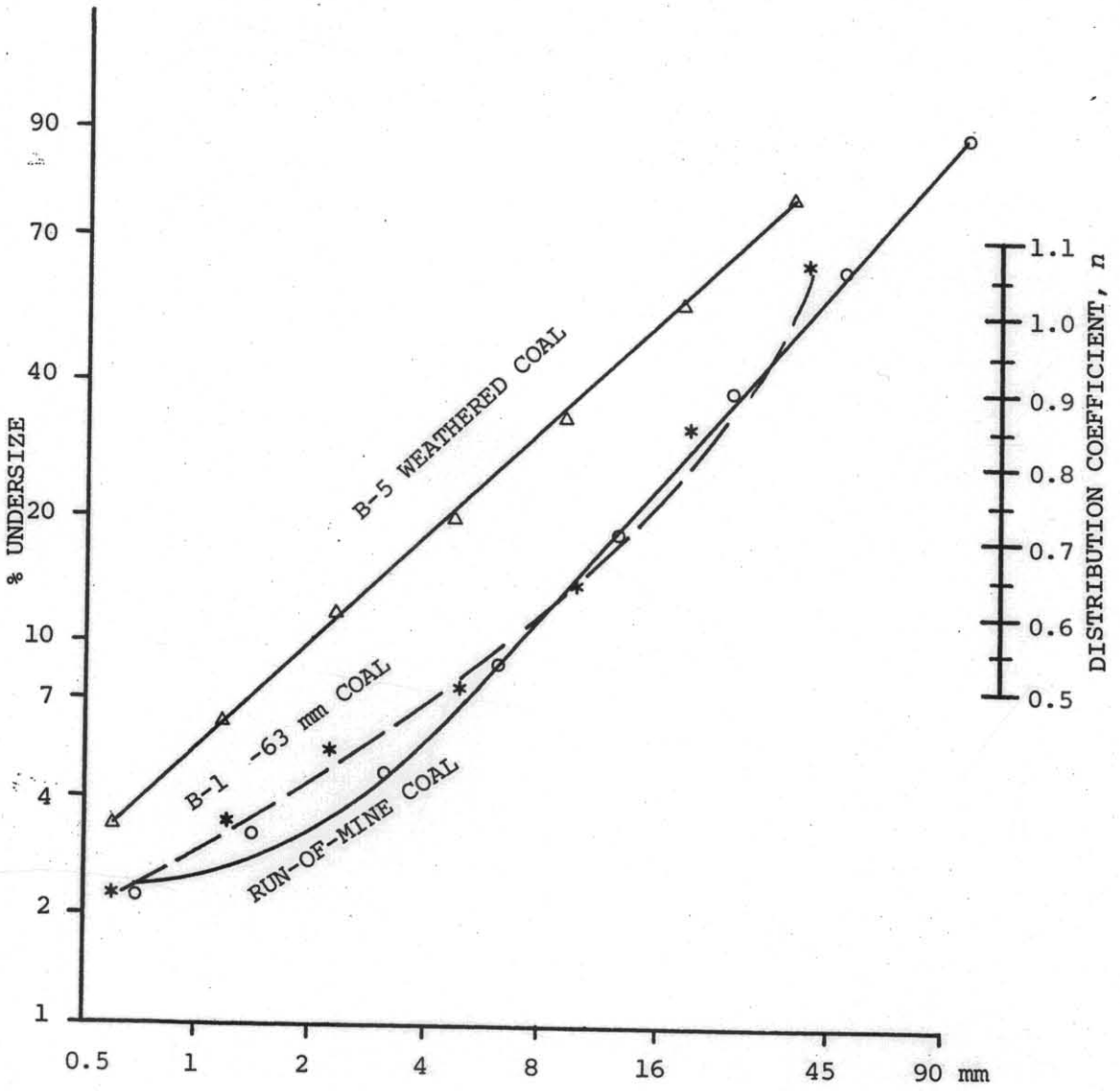
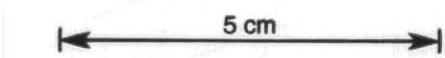


Figure 7. *Rosin-Rammler plot of sizing analyses of coals A-1, B-1 and B-5.*



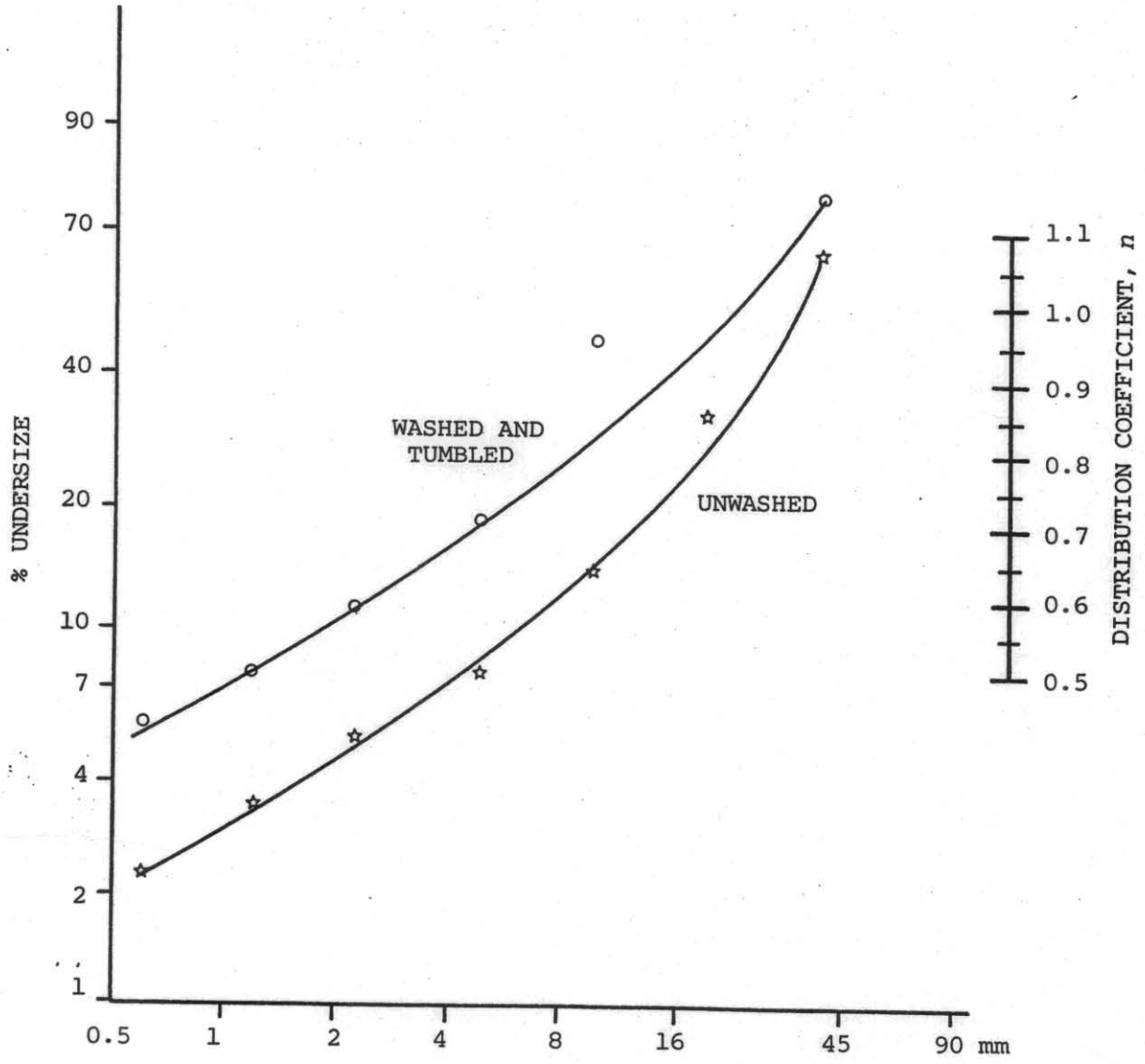
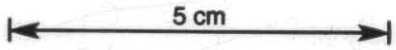


Figure 8. *Rosin-Rammler plot of sizing analysis, -63 mm coal.*



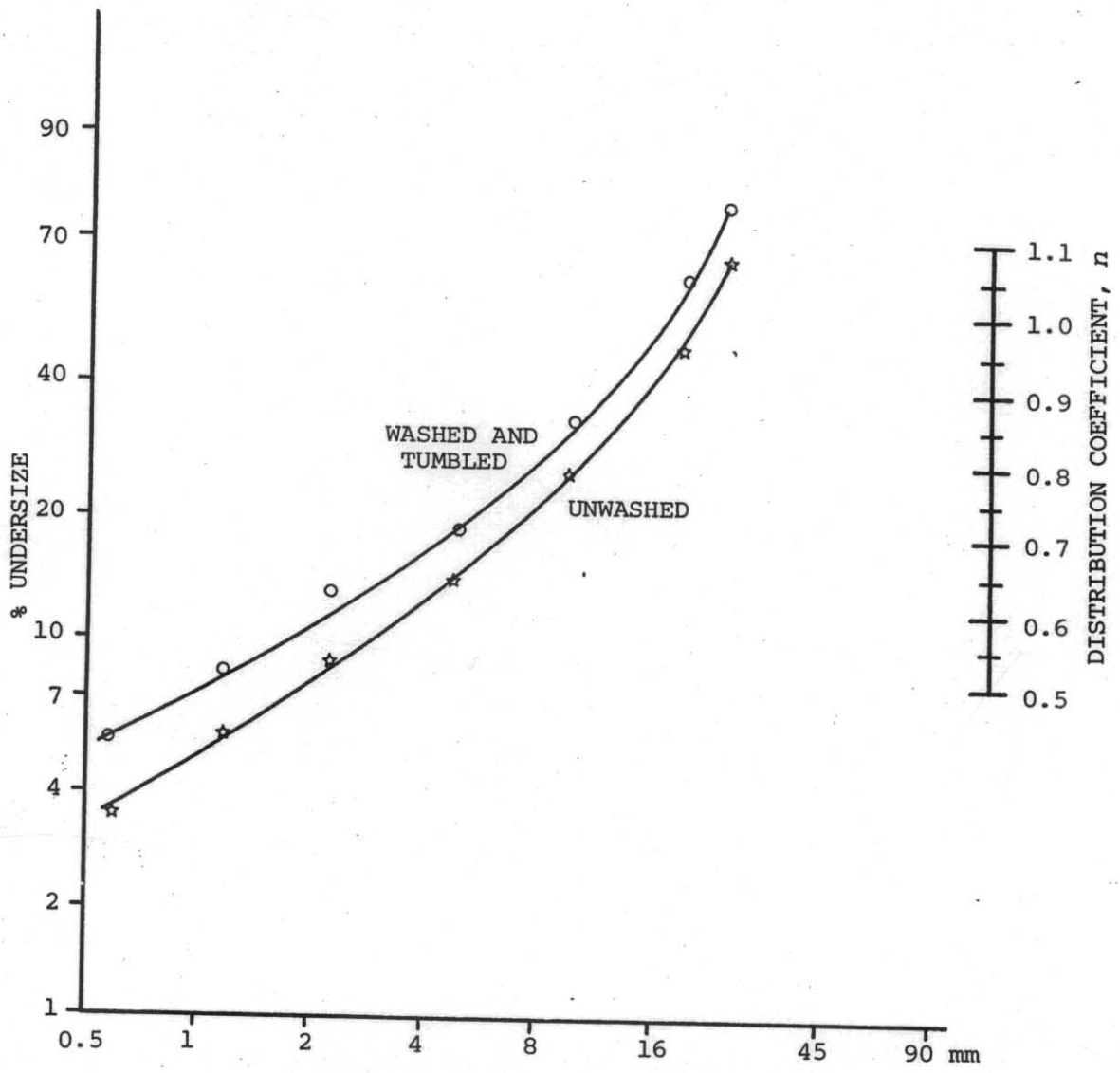
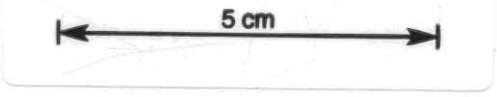


Figure 9. *Rosin-Rammler plot of sizing analysis, -38 mm coal.*



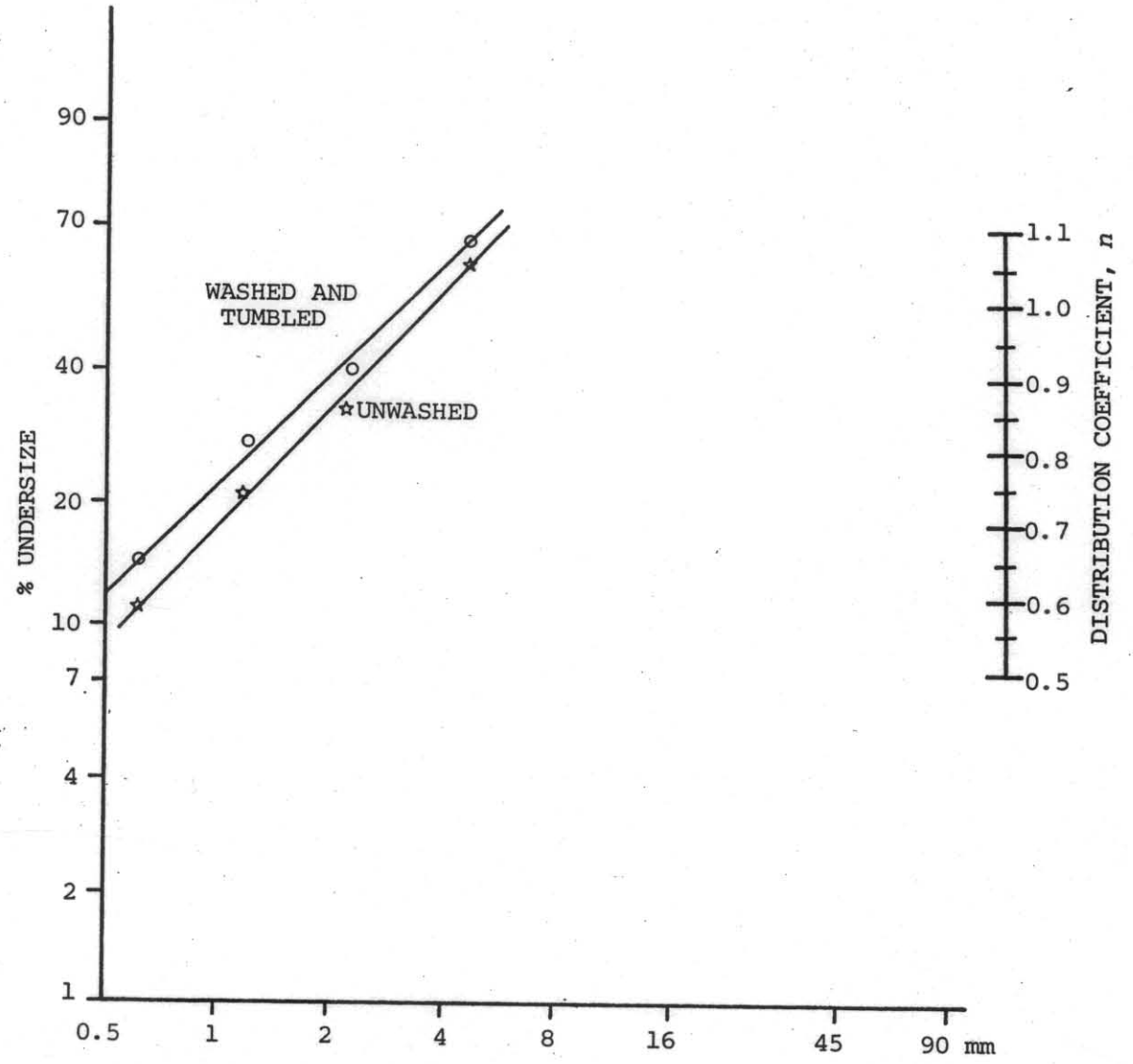


Figure 10. *Rosin-Rammler plot of sizing analysis, -9.53 mm coal.*

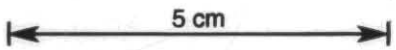


Table 7. COMPARISON OF ASH IN UNWEATHERED AND WEATHERED COAL

Aperture (mm)	Mined Coal B-1				Weathered Coal B-5			
	Mass (%)		Ash (%)	Cum. ash (%)	Mass (%)		Ash (%)	Cum. ash (%)
		Cum.				Cum.		
+38.1	36.5	36.5	30.9	30.9	22.5	22.5	26.6	26.6
+19.05	31.5	68.0	31.0	31.0	23.4	45.9	26.1	26.3
+9.53	18.0	86.0	31.1	31.0	20.3	66.2	28.3	26.9
+4.75	6.3	92.3	32.4	31.1	14.2	80.4	33.4	28.1
+2.36	2.5	94.8	33.3	31.1	8.1	88.5	43.6	29.5
+1.18	1.8	96.6	33.0	31.1	5.4	93.9	52.3	30.8
+0.60	1.2	97.8	34.0	31.2	2.8	96.7	53.2	31.5
-0.60	2.2	100	37.2	31.3	3.3	100	34.9	31.9
H	100		31.3		100		31.9	

Screen weathered coal on 9.53 mm to yield +9.53 66.2% of mass assaying 26.9% ash reject 41.6% ash
Screen weathered coal on 4.75 mm to yield +4.75 80.4% of mass assaying 28.1% ash reject 47.5% ash

PRESENTATION OF RESULTS

The results of heavy liquid separation tests on each size fraction of each sample are given in Tables 8-13 and Figures 5, 6.

In Tables 16 and 17 these reults have been presented to show the total floats etc in each density range. Table 16 show those for unwashed coals and Table 17 those for the same coals after being given a water treatment.

Washability curves have been done for each size of coal namely -63, +0.6 mm; -38, +0.6 mm and -9.5, +0.6 mm both for unwashed and water treated material. As all curves are of similar shape only that for Sample B-1 (-63, +0.6 mm) unwashed has been included. All the curves show the coal is difficult to wash. As there is insufficient data no curves for ± 0.1 relative density have been plotted.

Washability curves have also been drawn for the coarser material in each sample namely the +4.75 mm to see if any differences were apparent. The unwashed samples gave very similar curves but after water treatment the -9.5, +4.7 mm differed markedly from the other two. These curves have been included to show the differences.

From the washability curves the yields of coal with ash contents of 20, 25 and 30% have been obtained together with the density of separation indicated to achieve this result. These are presented in Table where the yields have been corrected for the untreated -0.6 mm material.

The data in Table 3 have been rearranged in Table 4. If heavy liquid separation results were independant of the size of the coal separated each group of three should give the same results. Curiously the (-38, +0.6 mm) results all show a lower separation density than those of the other two in each group. It may be worth noting that one operator did B-3-1 and B-3-2 (-38, +0.6 mm) and another did the rest.

Table 5 is similar to Table 4 but it deals only with coal coarser than 4.75 mm. Because of the greater size reduction to produce the -9.5 mm product only a little over a third of the total mass is being considered here in the finest sample whereas almost the whole mass is being included for the coarsest (-63 mm) sample.

SIZING RESULTS

The run-of-mine coal sized as follows:

Sample A

Aperture (mm)	*Mass (%)*	*Cum. Mass (%)*
+102	10.5	10.5
+51	25.4	35.9
+25.4	25.6	61.5
+12.7	20.4	81.9
+6.35	9.4	91.3
+3.17	4.0	95.3
+1.4	1.5	96.8
+0.7	1.0	97.8
-0.7	2.2	100

The sizings of samples used in heavy liquid tests are given in Table 6 together with the sizings of samples subjected to water treatment and weathering.

Rosin-Rammler plots (fig. 5-8) have been made to show the affect of water treatment on the sizing. It should be observed that none of the curves for 63 and 38 mm coals are straight lines. The plot for run-of-mine coal A, is a straight line except for the finest sizes. The weathered coal B-5, plots as a straight line, even though it was derived from B-1.

The results of weathering are given in Table 7. While it is not possible to get a low (20% ash) product quite a high yield (80%) of coarse (+4.7 mm) coal is possible at 28% ash. While the weathering time was longer than one would contemplate for a commercial operation this selective weathering and simple screening should be further investigated as it may be possible to accelerate the shale breakdown *e.g.* by spraying the dumps with water.

RESULTS OF ANALYSES ON HEAD SAMPLE 791905 (B-4)

The following results were obtained by ACIRL as furnished in their Report No. 01 - 1916 dated 11 January 1980,

On a dry ash free basis:	C	- 82.04%
	H	- 4.59%
	N	- 1.28%
	S	- 0.48%
	O	- 11.61%

On an as analysed basis:	Moisture	- 4.6%
	Ash	- 30.7%
	Sulphur	- 0.31%
	Carbonates (CO_2)	- 0.26%
Forms of sulphur -	Pyritic	- 0.13%
	Sulphate	- 0.02%
	Organic	- 0.16%

All of the foregoing determinations were done in accordance with BS 1016.

Hardgrove Grindability Index - 54

The above determination was done in accordance with AS K164 - 1977.

The following results were obtained in this laboratory using our normal laboratory procedures.

On an as received basis: Moisture - 3.7%

Proximate analysis on a moisture free basis -

V.C.M.	- 24.5%
Ash	- 31.3%
F.C. (by difference)	44.2%

Ash analysis	-	SiO_2	- 62.0%
		Al_2O_3	- 27.5%
		Fe_2O_3	- 4.2%
		MnO	- 0.09%
		P_2O_5	- 0.01%
		TiO_2	- 1.1%
		CaO	- 1.6%
		MgO	- 1.1%
		K_2O	- 1.4%
		Na_2O	- 0.41%
		SO_3	- 0.41%
		U	- <4 g/t

Ash Fusion Temperature - 1620°C (oxidizing atmosphere)

URANIUM CONTENT

Neutron activation in duplicate by the AAEC on B-4 gave:

2.6 ± 0.2 g/t U
2.5 ± 0.2 g/t U

If all the uranium in the coal was in the ash then the ash uranium content would have been 8 g/t which should have been detected in the Department's ash analysis. As it wasn't; perhaps it was lost in the ashing process.

DISCUSSION

The Rosin-Rammler Plots (fig. 5-8) show firstly the run-of-mine coal received contains more fines than it should otherwise the plot would have been a straight line as the product of a single breaking operation namely the continuous miner. This probably means more fines were gathered from the bottom of a bin or something of that nature.

The Rosin-Rammler plots for the -63 mm and -38 mm coals are curved, indication of the secondary breaking to pass these screens. The -9.5 mm plot is again a straight line indication of the dominating influence of the jaw crusher in reducing this sample from the larger size.

Probably most noteworthy is the straight line plot of B-5, the weathered coal derived from B-1. Not only could this indicate the weathering as a breaking operation obeying the observed rules of man made breakers but it also could support a theory that all the stockpile is weathering homogeneously and not just at the surface of the stockpile. Conversely it may be coincidence that the straight line resulted from the interaction of these two factors in this case.

The washability curves for all products examined are all very similar. They indicate the coal will be difficult to wash but beyond that because of the currently held view that washery design cannot be based on cores less than 200 mm diameter one should not go any further.

The water washing treatment given can be related neither to washery practice nor to ACIRL water washing practice. The curves given for +4.75 mm materials show a marked displacement of the -9.53 mm material but elsewhere no similar displacement of the curves was found.

In Table 3 the summary of coal yields for 20, 25 and 30% ash gives a uniform picture for each coal size with results for -63 mm, +0.6 mm and

-38 mm, +0.6 mm agreeing reasonably well for product yield if not for density of separation. The finer coal (-9.53 mm, +0.6 mm) whos a lower yield.

If each size of coal behaved in the same way, then each set of results in Table 4 should be identical within the limits of experimental error.

Bearing in mind the non-standard methods of analysis and the different operators employed it is probably best not to draw more than indications from this table, namely that:

(1) Water washing does not appear to affect the coal yield very much as indicated by subsequent heavy liquid separation tests.

(2) The yield of coal containing 20% ash would appear to be between 40 and 45%, of 25% ash between 50 and 56% and of 30% ash 56 and 65%. It is probably worth noting that the head assay is only just over 30% ash hence this low recovery is indicative of the poor washing characteristics of this coal.

Table 5, which summarises results on coarser material, does show greater differences between procedures and initial crushing size. In general the more finely crushed gave a better yield of coal but the amount of coal in this fraction is less than half that in the other fractions. Thus from a study of the coarser material the conclusions are:

(1) That water washing does have an effect in reducing the yield of coal from the coarser sizes and increasing the yield from more finely crushed coal.

(2) The -9.5 mm material behaves differently from the more coarsely crushed material and markedly so after water treatment.

Thus one has rather conflicting results hence the conclusion that much more work needs to be done on this coal.

Heavy liquid separation on -9.53 mm material from which the -0.6 mm material was not removed did not show any significant difference from the results obtained when this fine material was removed.

An examination of the ash analyses of the 1.4 F/T fractions will reveal that the ash values decrease as the sizing decreases. It is felt that this is because the coal absorbs the heavy liquid into the surface.

The overall specific gravity of a large piece of coal is not affected but the overall specific gravity of a small piece is largely affected, and thus a piece of coal containing 14% ash floats when large and sinks when small. The smaller the piece of coal the greater is the effect.

This is confirmed by the fact that the sum of the masses of the air dried density fractions of any size fraction in the lower range of sizes was greater than the original mass of the size fraction.

The weathering test is interesting. While expert opinion confirmed that shale breakdown in a stockpile was to be expected it dismissed this effect as being minimal over the whole body of such a stockpile as it was thought such shale breakdown would be confined to the outer surface of such a stockpile. However the Rosin-Rammler plot (straight line) and the results

in Table 7 show that something much more significant has occurred witness the decreased ash assays of the coarser material and the greatly increased ash assays of the finer material.

Compare these heavy liquid test results with those from the weathering test:

Ash in product coal (%)	*Coal yields (%)*	
	-63, +0.6 mm (ex Table)	*-63, +4.7 mm (ex Table)*
20	41	40 (37)
25	54	51 (47)
30	64	60 (55)

() Overall yields

Weathered -63 mm coal screened on 9.53 mm yielded a +9.5 mm product assaying 27% ash and containing 66% of the mass and a -9.5 mm product assaying 42% ash. If screened on 4.75 mm the corresponding results are +4.7 mm assaying 28% ash and containing 80% of the mass with the -4.7 mm fraction assaying 48% ash.

CONCLUSION

While a lot of work has been done in this project on heavy liquid separation of this coal no clear evidence has been produced of a relationship between results obtained from initially finely crushed coal and initially coarsely crushed coal. In fact the finding that such differences as may exist may be masked by the presence of fine coal is the main conclusion to be drawn regarding heavy liquid separations.

Due to absorption of the heavy liquid at the coal surface fine coal particles are made denser and hence respond in that way. Larger coal lumps having relatively much less surface area are not so affected.

The coal or more importantly the shale with it is affected by water but as it is unlikely any of our small bore core will be used for washery design tests this aspect is unlikely to be pursued further.

Weathering of the run-of-mine coal in surface stockpiles shows a preferential size reduction of the ash components. By following this line it may be possible to devise a simple beneficiation process.

During the progress of this project it was realised that our analytical methods and equipment fall short of present practice and hence results may not be acceptable universally.

As an overall conclusion while the application of currently accepted procedures to this coal do not offer much encouragement for beneficiation a radically different approach through screening and weathering may be worth investigation.

Table 8. HEAVY LIQUID TEST DATA. SAMPLE B1 (-63 mm).

1	2	3	4	5	6	7	8	9	10	11	12
				SIZE FRACTION BASIS							
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks			Mass (5)$-\frac{(2)}{2}$	Mass R.D.+0.1 Σ (2) R.D.-0.1
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%		
1.4 F/T	34.8	14.8	515.23	34.8	515.23	14.8	100.0	3090.10	(30.9)	17.4	-
1.4-1.6	41.7	24.1	1005.53	76.5	1520.76	(19.9)	65.2	2574.87	(39.5)	55.7	51.5
1.6-1.8	9.8	44.5	437.07	86.3	1957.83	(22.7)	23.5	1569.34	(66.9)	81.4	12.8
1.8-2.0	3.0	62.1	184.08	89.3	2141.91	(24.0)	13.7	1132.27	(83.0)	87.8	-
2.0 S/K	10.7	88.8	948.19	100.0	3090.10	(30.9)	10.7	948.19	88.8	94.7	-
+38.10mm	100.0	(30.9)									
1.4 F/T	36.9	14.8	546.60	36.9	546.60	14.8	100.0	3098.95	(31.0)	18.5	-
1.4-1.6	41.7	26.8	1119.12	78.6	1665.72	(21.2)	63.1	2552.35	(40.5)	57.8	50.6
1.6-1.8	8.9	46.2	409.82	87.5	2075.54	(23.7)	21.4	1433.23	(67.3)	83.1	11.9
1.8-2.0	3.0	62.8	186.86	90.5	2262.40	(25.0)	12.5	1023.41	(82.3)	89.0	-
2.0 S/K	9.5	88.4	836.55	100.0	3098.95	(31.0)	9.5	836.55	88.4	95.3	-
+19.05mm	100.0	(31.0)									
1.4 F/T	18.7	12.3	229.61	18.7	229.61	12.3	100.0	3112.21	(31.1)	9.4	-
1.4-1.6	57.3	23.2	1328.42	76.0	1558.03	(20.5)	81.3	2882.60	(35.4)	47.4	68.9
1.6-1.8	9.8	45.7	448.83	85.8	2006.86	(23.4)	24.0	1554.18	(64.6)	80.9	14.0
1.8-2.0	4.2	61.7	262.29	90.0	2269.15	(25.2)	14.2	1105.35	(77.6)	87.9	-
2.0 S/K	10.0	84.3	843.06	100.0	3112.21	(31.1)	10.0	843.06	84.3	95.0	-
+9.53mm	100.0	(31.1)									
1.4 F/T	15.9	10.6	169.08	15.9	169.08	10.6	100.0	3240.14	(32.4)	8.0	-
1.4-1.6	58.3	23.2	1351.60	74.2	1520.68	(20.5)	84.1	3071.06	(36.5)	45.1	66.9
1.6-1.8	8.6	42.8	370.18	82.8	1890.86	(22.8)	25.8	1719.46	(66.7)	78.5	12.9
1.8-2.0	4.3	61.6	263.38	87.1	2154.24	(24.7)	17.2	1349.28	(78.7)	85.0	-
2.0 S/K	12.9	84.4	1085.90	100.0	3240.14	(32.4)	12.9	1085.90	84.4	93.6	-
+4.75mm	100.0	(32.4)									

Table 8. HEAVY LIQUID TEST DATA. SAMPLE B1 (-63 mm).

1	13	14	15	16	17	18	19	20	21
	BULK SAMPLE BASIS								
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks		
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%
1.4 F/T	12.7	14.8	188.42	12.7	188.42	14.8	36.5	1130.05	(30.9)
1.4-1.6	15.2	24.1	367.72	27.9	556.14	(17.9)	23.8	941.63	(39.5)
1.6-1.8	3.6	44.5	159.84	31.5	715.98	(22.7)	8.6	573.91	(66.9)
1.8-2.0	1.1	62.1	67.32	32.6	783.30	(24.0)	5.0	414.07	(83.0)
2.0 S/K	3.9	88.8	346.75	36.5	1130.05	(30.9)	3.9	346.75	(88.8)
+38.10mm	36.5	(30.9)	1130.05						
1.4 F/T	11.6	14.8	172.08	11.6	172.08	14.8	31.5	975.62	(31.0)
1.4-1.6	13.2	26.8	352.33	24.8	524.41	(21.2)	19.9	803.54	(40.5)
1.6-1.8	2.8	46.2	129.02	27.6	653.43	(23.7)	6.7	451.21	(67.3)
1.8-2.0	0.9	62.8	58.83	28.5	712.26	(25.0)	3.9	322.19	(82.3)
2.0 S/K	3.0	88.4	263.36	31.5	975.62	(31.0)	3.0	263.36	88.4
+19.05mm	31.5	(31.0)	975.62						
1.4 F/T	3.4	12.3	41.45	3.4	41.45	12.3	18.0	561.81	(31.1)
1.4-1.6	10.3	23.2	239.80	13.7	281.25	(20.5)	14.6	520.36	(35.4)
1.6-1.8	1.8	45.7	81.02	15.5	362.27	(23.4)	4.3	280.56	(64.6)
1.8-2.0	0.7	61.7	47.35	16.2	409.62	(25.2)	2.5	199.54	(77.6)
2.0 S/K	1.8	84.3	152.19	18.0	561.81	(31.1)	1.8	152.19	84.3
+9.53mm	18.0	(31.1)	561.81						
1.4 F/T	1.0	10.6	10.60	1.0	10.60	10.6	6.3	203.20	(32.4)
1.4-1.6	3.7	23.2	84.77	4.7	95.37	(20.5)	5.3	192.60	(36.5)
1.6-1.8	0.5	42.8	23.21	5.2	118.58	(22.8)	1.6	107.83	(66.7)
1.8-2.0	0.3	61.6	16.52	5.5	135.10	(24.7)	1.1	84.62	(78.7)
2.0 S/K	0.8	84.4	68.10	6.3	203.20	(32.4)	0.8	68.10	84.4
+4.75mm	6.3	(32.4)	203.20						

Table 8. (continued)

1	2	3	4	5	6	7	8	9	10	11	12
				SIZE FRACTION BASIS							
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks			Mass $(5)-\frac{(2)}{2}$	Mass R.D.+0.1 Σ (2) R.D.-0.1
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%		
1.4 F/T	11.1	8.0	88.93	11.1	88.93	8.0	100.0	3329.19	(33.3)	5.6	-
1.4-1.6	57.1	20.7	1182.72	68.2	1271.65	(18.6)	88.9	3240.24	(36.5)	39.7	68.9
1.6-1.8	11.8	41.3	485.55	80.0	1757.20	(22.0)	31.8	2057.54	(64.8)	74.1	16.5
1.8-2.0	4.7	62.0	289.30	84.7	2046.50	(24.2)	20.0	1571.99	(78.6)	82.4	-
2.0 S/K	15.3	83.7	1282.69	100.0	3329.19	(33.3)	15.3	1282.69	83.7	92.4	-
+2.36mm	100.0	(33.3)									
1.4 F/T	12.6	7.5	94.71	12.6	94.71	7.5	100.0	3298.65	(33.0)	6.3	-
1.4-1.6	55.4	20.0	1107.69	68.0	1202.40	(17.7)	87.4	3203.94	(36.7)	40.3	65.0
1.6-1.8	9.6	40.3	384.92	77.6	1587.32	(20.5)	32.0	2096.25	(65.5)	72.8	14.8
1.8-2.0	5.2	57.6	299.08	82.8	1886.40	(22.8)	22.4	1711.33	(76.3)	80.2	-
2.0 S/K	17.2	81.9	1412.25	100.0	3298.65	(33.0)	17.2	1412.25	81.9	91.4	-
+1.18mm	100.0	(33.0)									
1.4 F/T	10.1	8.6	86.80	10.1	86.80	8.6	100.0	3397.74	(34.0)	5.1	-
1.4-1.6	52.5	18.3	960.75	62.6	1047.55	(16.7)	89.9	3310.94	(36.8)	36.4	64.4
1.6-1.8	11.9	38.9	464.64	74.5	1512.19	(20.3)	37.4	2350.19	(62.8)	68.6	17.9
1.8-2.0	6.0	55.8	335.83	80.5	1848.02	(22.9)	25.5	1885.55	(74.1)	77.5	-
2.0 S/K	19.5	79.7	1549.72	100.0	3397.74	(34.0)	19.5	1549.72	79.7	90.3	-
+600 µm	100.0	(34.0)									
-600 µm											
H											

Table 8. (continued)

1	13	14	15	16	17	18	19	20	21
				BULK SAMPLE BASIS					
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks		
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%
1.4 F/T	0.3	8.0	2.21	0.3	2.21	8.0	2.5	82.57	(33.3)
1.4-1.6	1.4	20.7	29.34	1.7	31.55	(18.6)	2.2	80.36	(36.5)
1.6-1.8	0.3	41.3	12.04	2.0	43.59	(22.0)	0.8	51.02	(64.8)
1.8-2.0	0.1	62.0	7.17	2.1	50.76	(24.2)	0.5	38.98	(78.6)
2.0 S/K	0.4	83.7	31.81	2.5	82.57	(33.3)	0.4	31.81	83.7
+2.36mm	2.5	(33.3)	82.57						
1.4 F/T	0.2	7.5	1.68	0.2	1.68	7.5	1.8	58.63	(33.0)
1.4-1.6	1.0	20.0	19.69	1.2	21.37	(17.7)	1.6	56.95	(36.7)
1.6-1.8	0.2	40.3	6.84	1.4	28.21	(20.5)	0.6	37.26	(65.5)
1.8-2.0	0.1	57.6	5.32	1.5	33.53	(22.8)	0.4	30.42	(76.3)
2.0 S/K	0.3	81.9	25.10	1.8	58.63	(33.0)	0.3	25.10	81.9
+1.18mm	1.8	(33.0)	58.63						
1.4 F/T	0.1	8.6	1.03	0.1	1.03	8.6	1.2	40.42	(34.0)
1.4-1.6	0.6	18.3	11.43	0.7	12.46	(16.7)	1.1	39.39	(36.8)
1.6-1.8	0.2	38.9	5.53	0.9	17.99	(20.3)	0.5	27.96	(62.8)
1.8-2.0	0.1	55.8	4.00	1.0	21.99	(22.9)	0.3	22.43	(74.1)
2.0 S/K	0.2	79.7	18.43	1.2	40.42	(34.0)	0.2	18.43	79.7
+600 µm	1.2	(34.0)	40.42						
-600 µm	2.2	37.2	81.00						
H	100.0	(31.3)	3133.30						

Table 9. HEAVY LIQUID TEST DATA. SAMPLE B2 (-63 mm). WATER TREATED.

1	2	3	4	5	6	7	8	9	10	11	12
	SIZE FRACTION BASIS										
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks			Mass $(5)\frac{(2)}{2}$	Mass R.D.+0.1 Σ (2) R.D.-0.1
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%		
1.4 F/T	50.0	15.3	765.54	50.0	765.54	15.3	100.0	2678.99	(26.8)	25.0	-
1.4-1.6	36.2	25.7	929.80	86.2	1695.34	(19.7)	50.0	1913.45	(38.3)	68.1	41.3
1.6-1.8	5.1	45.8	232.80	91.3	1928.14	(21.1)	13.8	983.65	(71.4)	88.8	6.6
1.8-2.0	1.5	56.1	84.54	92.8	2012.68	(21.7)	8.7	750.85	(86.3)	92.1	-
2.0 S/K	7.2	92.6	666.31	100.0	2678.99	(26.8)	7.2	666.31	92.6	96.4	-
+38.10 mm	100.0	(26.8)									
1.4 F/T	47.8	15.1	721.31	47.8	721.31	15.1	100.0	2579.02	(25.8)	23.9	-
1.4-1.6	39.3	26.3	1033.80	87.1	1755.11	(20.2)	52.2	1857.71	(35.6)	67.5	45.7
1.6-1.8	6.4	46.8	299.92	93.5	2055.03	(22.0)	12.9	823.91	(63.8)	90.3	8.8
1.8-2.0	2.4	62.9	148.48	95.9	2203.51	(23.0)	6.5	523.99	(80.4)	94.7	-
2.0 S/K	4.1	90.4	375.51	100.0	2579.02	(25.8)	4.1	375.51	90.4	98.0	-
+19.05 mm	100.0	(25.8)									
1.4 F/T	23.2	13.3	308.39	23.2	308.39	13.3	100.0	2897.33	(29.0)	11.6	-
1.4-1.6	57.1	23.1	1317.99	80.3	1626.38	(20.3)	76.8	2588.94	(33.7)	51.8	65.8
1.6-1.8	8.7	46.2	402.23	89.0	2028.61	(22.8)	19.7	1270.95	(64.3)	84.7	12.1
1.8-2.0	3.4	62.7	215.53	92.4	2244.14	(24.3)	11.0	868.72	(78.6)	90.7	-
2.0 S/K	7.6	85.8	653.19	100.0	2897.33	(29.0)	7.6	653.19	85.8	96.2	-
+9.53 mm	100.0	(29.0)									
1.4 F/T	8.0	10.2	81.81	8.0	81.81	10.2	100.0	3614.36	(36.1)	4.0	-
1.4-1.6	57.4	22.3	1279.80	65.4	1361.61	(20.8)	92.0	3532.55	(38.4)	36.7	71.9
1.6-1.8	14.5	43.4	630.52	79.9	1992.13	(24.9)	34.6	2252.75	(65.1)	72.7	18.8
1.8-2.0	4.3	62.5	269.96	84.2	2262.09	(26.8)	20.1	1622.23	(80.9)	82.1	-
2.0 S/K	15.8	85.9	1352.27	100.0	3614.36	(36.1)	15.8	1352.27	85.9	92.1	-
+4.75 mm	100.0	(36.1)									

Table 9. HEAVY LIQUID TEST DATA. SAMPLE B2 (-63 mm). WATER TREATED.

1	13	14	15	16	17	18	19	20	21
	BULK SAMPLE BASIS								
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks		
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%
1.4 F/T	12.5	15.3	191.26	12.5	191.26	15.3	25.0	669.30	(26.8)
1.4-1.6	9.0	25.7	232.29	21.5	423.55	(19.7)	12.5	478.04	(38.3)
1.6-1.8	1.3	45.8	58.16	22.8	481.71	(21.1)	3.5	245.75	(71.4)
1.8-2.0	0.4	56.1	21.12	23.2	502.83	(21.7)	2.2	187.59	(86.3)
2.0 S/K	1.8	92.6	166.47	25.0	669.30	(26.8)	1.8	166.47	92.6
+38.10 mm	25.0	(26.8)	669.30						
1.4 F/T	12.6	15.1	190.69	12.6	190.69	15.1	26.4	681.81	(25.8)
1.4-1.6	10.4	26.3	273.30	23.0	463.99	(20.2)	13.8	491.12	(35.6)
1.6-1.8	1.7	46.8	79.29	24.7	543.28	(22.0)	3.4	217.82	(63.8)
1.8-2.0	0.6	62.9	39.26	25.3	582.54	(23.0)	1.7	138.53	(80.4)
2.0 S/K	1.1	90.4	99.27	26.4	681.81	(25.8)	1.1	99.27	90.4
+19.05 mm	26.4	(25.8)	681.81						
1.4 F/T	4.4	13.3	58.65	4.4	58.65	13.3	19.0	551.04	(29.0)
1.4-1.6	10.8	23.1	250.67	15.2	309.32	(20.3)	14.6	492.39	(33.7)
1.6-1.8	1.7	46.2	76.50	16.9	385.82	(22.8)	3.8	241.72	(64.3)
1.8-2.0	0.7	62.7	40.99	17.6	426.81	(24.3)	2.1	165.22	(78.6)
2.0 S/K	1.4	85.8	124.23	19.0	551.04	(29.0)	1.4	124.23	85.8
+9.53 mm	19.0	(29.0)	551.04						
1.4 F/T	0.9	10.2	9.42	0.9	9.42	10.2	11.5	416.01	(36.1)
1.4-1.6	6.6	22.3	147.30	7.5	156.72	(20.8)	10.6	406.59	(38.4)
1.6-1.8	1.7	43.4	72.57	9.2	229.29	(24.9)	4.0	259.29	(65.1)
1.8-2.0	0.5	62.5	31.08	9.7	260.37	(26.8)	2.3	186.72	(80.9)
2.0 S/K	1.8	85.9	155.64	11.5	416.01	(36.1)	1.8	155.64	85.9
+4.75 mm	11.5	(36.1)	416.01						

Table 9. (continued)

1	2	3	4	5	6	7	8	9	10	11	12
				SIZE FRACTION BASIS							
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks			Mass (5) $-\frac{(2)}{2}$	Mass R.D.+0.1 Σ (2) R.D.-0.1
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%		
1.4 F/T	7.5	8.2	61.42	7.5	61.42	8.2	100.0	4308.37	(43.1)	3.8	-
1.4-1.6	47.2	22.2	1048.24	54.7	1109.66	(20.3)	92.5	4246.95	(45.9)	31.1	60.1
1.6-1.8	12.9	42.7	553.27	67.6	1662.93	(24.6)	45.3	3198.71	(70.6)	61.2	17.7
1.8-2.0	4.8	60.5	288.37	72.4	1951.30	(26.9)	32.4	2645.44	(81.8)	70.0	-
2.0 S/K	27.6	85.5	2357.07	100.0	4308.37	(43.1)	27.6	2357.07	85.5	86.2	-
+2.36 mm	100.0	(43.1)									
1.4 F/T	10.1	7.2	72.84	10.1	72.84	7.2	100.0	4305.54	(43.1)	5.1	-
1.4-1.6	39.6	19.9	788.52	49.7	861.36	(17.3)	89.9	4232.70	(47.1)	29.9	55.4
1.6-1.8	15.8	41.2	649.05	65.5	1510.41	(23.1)	50.3	3444.18	(68.5)	57.6	21.0
1.8-2.0	5.2	59.6	309.79	70.7	1820.20	(25.7)	34.5	2795.13	(81.0)	68.1	-
2.0 S/K	29.3	84.8	2485.34	100.0	4305.54	(43.1)	29.3	2485.34	84.8	85.4	-
+1.18 mm	100.0	(43.1)									
1.4 F/T	12.0	7.0	84.24	12.0	84.24	7.0	100.0	3879.80	(38.8)	6.0	-
1.4-1.6	40.8	19.0	774.43	52.8	858.67	(16.3)	88.0	3795.56	(43.1)	32.4	58.5
1.6-1.8	17.7	39.4	697.12	70.5	1555.79	(22.1)	47.2	3021.13	(64.0)	61.7	24.0
1.8-2.0	6.3	59.4	374.44	76.8	1930.23	(25.1)	29.5	2324.01	(78.7)	73.7	-
2.0 S/K	23.2	84.0	1949.57	100.0	3879.80	(38.8)	23.2	1949.57	84.0	88.4	-
+600 µm	100.0	(38.8)									
-600 µm											
Slimes											
H											

Table 9. (continued)

1	13	14	15	16	17	18	19	20	21
				BULK SAMPLE BASIS					
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks		
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%
1.4 F/T	0.5	8.2	4.16	0.5	4.16	8.2	6.8	292.03	(43.1)
1.4-1.6	3.2	22.2	71.05	3.7	75.21	(20.3)	6.3	287.87	(45.9)
1.6-1.8	0.9	42.7	37.50	4.6	112.71	(24.6)	3.1	216.82	(70.6)
1.8-2.0	0.3	60.5	19.55	4.9	132.26	(26.9)	2.2	179.32	(81.8)
2.0 S/K	1.9	85.5	159.77	6.8	292.03	(43.1)	1.9	159.77	85.5
+2.36 mm	6.8	(43.1)	292.03						
1.4 F/T	0.3	7.2	2.40	0.3	2.40	7.2	3.3	142.01	(43.1)
1.4-1.6	1.3	19.9	26.01	1.6	28.41	(17.3)	3.0	139.61	(47.1)
1.6-1.8	0.5	41.2	21.41	2.1	49.82	(23.1)	1.7	113.60	(68.5)
1.8-2.0	0.2	59.6	10.22	2.3	60.04	(25.7)	1.2	92.19	(81.0)
2.0 S/K	1.0	84.8	81.97	3.3	142.01	(43.1)	1.0	81.97	84.8
+1.18 mm	3.3	(43.1)	142.01						
1.4 F/T	0.2	7.0	1.55	0.2	1.55	7.0	1.8	71.42	(38.8)
1.4-1.6	0.8	19.0	14.26	1.0	15.81	(16.3)	1.6	69.87	(43.1)
1.6-1.8	0.3	39.4	12.83	1.3	28.64	(22.1)	0.8	55.61	(64.0)
1.8-2.0	0.1	59.4	6.89	1.4	35.53	(25.1)	0.5	42.78	(78.7)
2.0 S/K	0.4	84.0	35.89	1.8	71.42	(38.8)	0.4	35.89	84.0
+600 µm	1.8	(38.8)	71.42						
-600 µm	5.4	38.5	206.69						
Slimes	0.8	57.0	43.67						
H	100.0	(30.7)	3073.98						

Table 10. HEAVY LIQUID TEST DATA. SAMPLE B-3-1 (-38 mm).

1	2	3	4	5	6	7	8	9	10	11	12
	SIZE FRACTION BASIS										
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks			Mass $(5)-\frac{(2)}{2}$	Mass R.D.+0.1 Σ (2) R.D.-0.1
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%		
1.4 F/T	54.1	16.8	909.06	54.1	909.06	16.8	100.0	3055.88	(30.6)	27.1	-
1.4-1.6	26.2	28.2	738.78	80.3	1647.84	(20.5)	45.9	2146.82	(46.8)	67.2	33.0
1.6-1.8	6.8	47.2	320.21	87.1	1968.05	(22.6)	19.7	1408.04	(71.5)	83.7	9.6
1.8-2.0	2.8	67.8	188.38	89.9	2156.43	(24.0)	12.9	1087.83	(84.3)	88.5	-
2.0 S/K	10.1	88.8	899.45	100.0	3055.88	(30.6)	10.1	899.45	88.8	95.0	-
+25.4 mm	100.0	(30.6)									
1.4 F/T	63.3	17.4	1101.15	63.3	1101.15	17.4	100.0	3010.86	(30.1)	31.7	-
1.4-1.6	18.2	32.1	584.14	81.5	1685.29	(20.7)	36.7	1909.71	(52.0)	72.4	24.0
1.6-1.8	5.8	48.1	277.31	87.3	1962.60	(22.5)	18.5	1325.57	(71.6)	84.4	8.7
1.8-2.0	2.9	64.1	187.97	90.2	2150.57	(23.8)	12.7	1048.26	(82.2)	88.8	-
2.0 S/K	9.8	87.6	860.29	100.0	3010.86	(30.1)	9.8	860.29	87.6	95.1	-
+19.05 mm	100.0	(30.1)									
1.4 F/T	41.8	14.8	618.68	41.8	618.68	14.8	100.0	3119.38	(31.2)	20.9	-
1.4-1.6	37.0	27.5	1017.69	78.8	1636.37	(20.8)	58.2	2500.70	(43.0)	60.3	44.0
1.6-1.8	7.0	48.1	336.38	85.8	1972.75	(23.0)	21.2	1483.01	(70.0)	82.3	10.9
1.8-2.0	3.9	64.7	250.85	89.7	2223.60	(24.8)	14.2	1146.63	(80.8)	87.8	-
2.0 S/K	10.3	86.8	895.78	100.0	3119.38	(31.2)	10.3	895.78	86.8	94.9	-
+9.53 mm	100.0	(31.2)									
1.4 F/T	45.1	13.9	626.50	45.1	626.50	13.9	100.0	3236.32	(32.4)	22.6	-
1.4-1.6	29.0	28.4	823.81	74.1	1450.31	(19.6)	54.9	2609.82	(47.5)	59.6	37.9
1.6-1.8	8.9	46.5	413.14	83.0	1863.45	(22.5)	25.9	1786.01	(68.9)	78.6	13.9
1.8-2.0	5.0	64.8	325.99	88.0	2189.44	(24.9)	17.0	1372.87	(80.6)	85.5	-
2.0 S/K	12.0	87.2	1046.88	100.0	3236.32	(32.4)	12.0	1046.88	87.2	94.0	-
+4.75 mm	100.0	(32.4)									

Table 10. HEAVY LIQUID TEST DATA. SAMPLE B-3-1 (-38 mm).

1	13	14	15	16	17	18	19	20	21
	BULK SAMPLE BASIS								
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks		
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%
1.4 F/T	18.8	16.8	316.01	18.8	316.01	16.8	34.8	1062.65	(30.6)
1.4-1.6	9.1	28.2	256.90	27.9	572.91	(20.5)	16.0	746.64	(46.8)
1.6-1.8	2.4	47.2	111.39	30.3	684.30	(22.6)	6.9	489.74	(71.5)
1.8-2.0	1.0	67.8	65.77	31.3	750.07	(24.0)	4.5	378.35	(84.3)
2.0 S/K	3.5	88.8	312.58	34.8	1062.65	(30.6)	3.5	312.58	88.8
+25.4 mm	34.8	(30.6)	1062.65						
1.4 F/T	10.7	17.4	186.70	10.7	186.70	17.4	16.9	510.18	(30.1)
1.4-1.6	3.1	32.1	98.87	13.8	285.57	(20.7)	6.2	323.48	(52.0)
1.6-1.8	1.0	48.1	47.14	14.8	332.71	(22.5)	3.1	224.61	(71.5)
1.8-2.0	0.5	64.1	32.05	15.3	364.76	(23.8)	2.1	177.47	(82.2)
2.0 S/K	1.6	87.6	145.42	16.9	510.18	(30.1)	1.6	145.42	87.6
+19.05 mm	16.9	(30.1)	510.18						
1.4 F/T	9.7	14.8	143.41	9.7	143.41	14.8	23.2	722.69	(31.2)
1.4-1.6	8.6	27.5	235.68	18.3	379.09	(20.8)	13.5	579.28	(43.0)
1.6-1.8	1.6	48.1	77.92	19.9	457.01	(23.0)	4.9	343.60	(70.0)
1.8-2.0	0.9	64.7	58.23	20.8	515.24	(24.8)	3.3	265.68	(80.8)
2.0 S/K	2.4	86.8	207.45	23.2	722.69	(31.2)	2.4	207.45	86.5
+9.53 mm	23.2	(31.2)	722.69						
1.4 F/T	5.0	13.9	68.94	5.0	68.94	13.9	11.0	355.85	(32.4)
1.4-1.6	3.2	28.4	90.60	8.2	159.54	(19.6)	6.0	286.91	(47.5)
1.6-1.8	1.0	46.5	45.57	9.2	205.11	(22.5)	2.8	196.31	(68.9)
1.8-2.0	0.5	64.8	35.64	9.7	240.75	(24.9)	1.8	150.74	(80.6)
2.0 S/K	1.3	87.2	115.10	11.0	355.85	(32.4)	1.3	115.10	87.2
+4.75 mm	11.0	(32.4)	355.85						

Table 10. (continued)

1	2	3	4	5	6	7	8	9	10	11	12
	SIZE FRACTION BASIS										
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks			Mass $(5)\frac{(2)}{2}$	Mass R.D.+0.1 Σ (2) R.D.-0.1
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%		
1.4 F/T	47.1	13.8	650.26	47.1	650.26	13.8	100.0	3253.48	(32.5)	23.6	-
1.4-1.6	24.5	27.2	665.39	71.6	1315.65	(18.4)	52.9	2603.22	(49.2)	59.4	34.1
1.6-1.8	9.6	45.6	436.32	81.2	1751.97	(21.6)	28.4	1937.83	(68.2)	76.4	14.5
1.8-2.0	4.9	63.3	309.70	86.1	2061.67	(24.0)	18.8	1501.51	(79.7)	83.7	-
2.0 S/K	13.9	85.4	1191.81	100.0	3253.48	(32.5)	13.9	1191.81	85.4	93.1	-
+2.36 mm	100.0	(32.5)									
1.4 F/T	24.7	8.8	217.58	24.7	217.58	8.8	100.0	3257.03	(32.6)	12.4	-
1.4-1.6	48.2	23.2	1117.89	72.9	1335.47	(18.3)	75.3	3039.45	(40.4)	48.8	55.1
1.6-1.8	6.9	47.1	326.44	79.8	1661.91	(20.8)	27.1	1921.56	(70.9)	76.4	10.1
1.8-2.0	3.2	58.3	184.39	83.0	1846.30	(22.2)	20.2	1595.12	(79.1)	81.4	-
2.0 S/K	17.0	83.0	1410.73	100.0	3257.03	(32.6)	17.0	1410.73	83.0	91.5	-
+1.18 mm	100.0	(32.6)									
1.4 F/T	34.4	11.1	381.85	34.4	381.85	11.1	100.0	3231.98	(32.3)	17.2	-
1.4-1.6	34.9	23.6	824.81	69.3	1206.66	(17.4)	65.6	2850.13	(43.4)	51.9	46.5
1.6-1.8	11.6	43.7	505.77	80.9	1712.43	(21.2)	30.7	2025.32	(66.1)	75.1	14.8
1.8-2.0	3.2	62.1	198.86	84.1	1911.29	(22.7)	19.1	1519.55	(79.7)	82.5	-
2.0 S/K	15.9	83.2	1320.69	100.0	3231.98	(32.3)	15.9	1320.69	83.2	92.1	-
+600 µm	100.0	(32.3)									
-600 µm											
H											

Table 10. (continued)

1	13	14	15	16	17	18	19	20	21
	BULK SAMPLE BASIS								
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks		
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%
1.4 F/T	2.4	13.8	33.81	2.4	33.81	13.8	5.2	168.47	(32.5)
1.4-1.6	1.3	27.2	34.54	3.7	68.35	(18.4)	2.8	134.66	(49.1)
1.6-1.8	0.5	45.6	22.80	4.2	91.15	(21.6)	1.5	100.12	(68.2)
1.8-2.0	0.3	63.3	15.83	4.5	106.98	(24.0)	1.0	77.32	(79.7)
2.0 S/K	0.7	85.4	61.49	5.2	168.47	(32.5)	0.7	61.49	85.4
+2.36 mm	5.2	(32.5)	168.47						
1.4 F/T	0.9	8.8	7.42	0.9	7.42	8.8	3.4	111.06	(32.6)
1.4-1.6	1.6	23.2	38.12	2.5	45.54	(18.3)	2.5	103.64	(40.4)
1.6-1.8	0.2	47.1	11.13	2.7	56.67	(20.8)	0.9	65.52	(70.9)
1.8-2.0	0.1	58.3	6.28	2.8	62.95	(22.2)	0.7	54.39	(79.1)
2.0 S/K	0.6	83.0	48.11	3.4	111.06	(32.6)	0.6	48.11	83.0
+1.18 mm	3.4	(32.6)	111.06						
1.4 F/T	0.7	11.1	7.83	0.7	7.83	11.1	2.0	66.25	(32.3)
1.4-1.6	0.7	23.6	16.91	1.4	24.74	(17.4)	1.3	58.42	(43.4)
1.6-1.8	0.2	43.7	10.37	1.6	35.11	(21.2)	0.6	41.51	(66.1)
1.8-2.0	0.1	62.1	4.07	1.7	39.18	(22.7)	0.4	31.14	(79.7)
2.0 S/K	0.3	83.2	27.07	2.0	66.25	(32.3)	0.3	27.07	83.2
+600 µm	2.0	(32.3)	66.25						
-600 µm	3.5	36.3	125.58						
H	100.0	(31.2)	3122.73						

Table 11. HEAVY LIQUID TEST DATA. SAMPLE B3-2 (-38 mm). WATER TREATED

1	2	3	4	5	6	7	8	9	10	11	12
				SIZE FRACTION BASIS							
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks			Mass $(5)\frac{(2)}{2}$	Mass R.D.+0.1 Σ (2) R.D.-0.1
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%		
1.4 F/T	59.5	14.7	874.16	59.5	874.16	14.7	100.0	2531.77	(25.3)	29.8	-
1.4-1.6	25.1	26.8	671.84	84.6	1546.00	(18.3)	40.5	1657.61	(40.9)	72.1	33.9
1.6-1.8	8.8	44.7	394.87	93.4	1940.87	(20.8)	15.4	985.77	(63.7)	89.0	9.2
1.8-2.0	0.4	66.2	25.12	93.8	1965.99	(21.0)	6.6	590.90	(89.1)	93.6	-
2.0 S/K	6.2	90.5	565.78	100.0	2531.77	(25.3)	6.2	565.78	90.5	96.9	-
+25.4 mm	100.0	(25.3)									
1.4 F/T	51.4	14.4	740.35	51.4	740.35	14.4	100.0	2601.31	(26.0)	25.7	-
1.4-1.6	32.8	26.8	879.16	84.2	1619.51	(19.2)	48.6	1860.96	(38.3)	67.8	39.8
1.6-1.8	7.0	44.1	309.40	91.2	1928.91	(21.1)	15.8	981.80	(62.2)	87.7	10.7
1.8-2.0	3.7	59.6	219.63	94.9	2148.54	(22.6)	8.8	672.40	(76.7)	93.1	-
2.0 S/K	5.1	89.1	452.77	100.0	2601.31	(26.0)	5.1	452.77	89.1	97.5	-
+19.05 mm	100.0	(26.0)									
1.4 F/T	53.6	15.9	852.66	53.6	852.66	15.9	100.0	2925.02	(29.3)	26.8	-
1.4-1.6	26.8	29.3	783.22	80.4	1635.88	(20.4)	46.4	2072.36	(44.7)	67.0	33.1
1.6-1.8	6.3	45.6	287.15	86.7	1923.03	(22.2)	19.6	1289.14	(65.6)	83.6	11.4
1.8-2.0	5.1	59.2	303.71	91.8	2226.74	(24.3)	13.3	1001.99	(75.1)	89.3	-
2.0 S/K	8.2	85.0	698.28	100.0	2925.02	(29.3)	8.2	698.28	85.0	95.9	-
+9.53 mm	100.0	(29.3)									
1.4 F/T	29.3	12.8	374.50	29.3	374.50	12.8	100.0	3618.27	(36.2)	14.7	-
1.4-1.6	40.0	27.0	1080.48	69.3	1454.98	(21.0)	70.7	3243.77	(45.9)	49.3	47.9
1.6-1.8	7.9	45.4	357.72	77.2	1812.70	(23.5)	30.7	2163.29	(70.4)	73.3	13.2
1.8-2.0	5.3	59.6	315.49	82.5	2128.19	(25.8)	22.8	1805.57	(79.0)	79.9	-
2.0 S/K	17.5	84.9	1490.08	100.0	3618.27	(36.2)	17.5	1490.08	84.9	91.3	-
+4.75 mm	100.0	(36.2)									

Table 11. HEAVY LIQUID TEST DATA. SAMPLE B3-2 (-38 mm). WATER TREATED.

1	13	14	15	16	17	18	19	20	21
	BULK SAMPLE BASIS								
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks		
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%
1.4 F/T	14.4	14.7	211.74	14.4	211.74	14.7	24.2	613.24	(25.3)
1.4-1.6	6.1	26.8	162.74	20.5	374.48	(18.3)	9.8	401.50	(40.9)
1.6-1.8	2.1	44.7	95.64	22.6	470.12	(20.8)	3.7	238.76	(63.7)
1.8-2.0	0.1	66.2	6.08	22.7	476.20	(21.0)	1.6	143.12	(89.1)
2.0 S/K	1.5	90.5	137.04	24.2	613.24	(25.3)	1.5	137.04	90.5
+25.4 mm	24.2	(25.3)	613.24						
1.4 F/T	7.4	14.4	105.87	7.4	105.87	14.4	14.3	372.00	(26.0)
1.4-1.6	4.7	26.8	125.72	12.1	231.59	(19.2)	6.9	266.13	(38.3)
1.6-1.8	1.0	44.1	44.25	13.1	275.84	(21.1)	2.2	140.41	(62.2)
1.8-2.0	0.5	59.6	31.41	13.6	307.25	(22.6)	1.2	96.16	(76.7)
2.0 S/K	0.7	89.1	64.75	14.3	372.00	(26.0)	0.7	64.75	89.1
+19.05 mm	14.3	(26.0)	372.00						
1.4 F/T	15.0	15.9	238.43	15.0	238.43	15.9	28.0	817.93	(29.3)
1.4-1.6	7.5	29.3	219.01	22.5	457.44	(20.4)	13.0	579.50	(44.7)
1.6-1.8	1.8	45.6	80.30	24.3	537.74	(22.2)	5.5	360.49	(65.6)
1.8-2.0	1.4	59.2	84.93	25.7	622.67	(24.3)	3.7	280.19	(75.1)
2.0 S/K	2.3	85.0	195.26	28.0	817.93	(29.3)	2.3	195.26	85.0
+9.53 mm	28.0	(29.3)	817.93						
1.4 F/T	4.3	12.8	54.86	4.3	54.86	12.8	14.6	530.28	(36.2)
1.4-1.6	5.9	27.0	158.53	10.2	213.39	(21.0)	10.3	475.42	(45.8)
1.6-1.8	1.1	45.4	52.40	11.3	265.79	(23.5)	4.4	316.89	(70.4)
1.8-2.0	0.8	59.6	46.21	12.1	312.00	(25.8)	3.3	264.49	(79.0)
2.0 S/K	2.5	84.9	218.28	14.6	530.28	(36.2)	2.5	218.28	84.9
+4.75 mm	14.6	(36.2)	530.28						

Table 11. (continued)

1	2	3	4	5	6	7	8	9	10	11	12
				SIZE FRACTION BASIS							
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks			Mass $(5)-\frac{(2)}{2}$	Mass R.D.+0.1 Σ (2) R.D.-0.1
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%		
1.4 F/T	34.5	13.1	452.25	34.5	452.25	13.1	100.0	3953.21	(39.5)	17.3	-
1.4-1.6	21.7	26.5	573.95	56.2	1026.20	(18.3)	65.5	3500.96	(53.5)	45.4	37.0
1.6-1.8	15.3	41.0	627.08	71.5	1653.28	(23.1)	43.8	2927.01	(66.8)	63.9	19.7
1.8-2.0	4.4	60.0	264.28	75.9	1917.56	(25.3)	28.5	2299.93	(80.6)	73.7	-
2.0 S/K	24.1	84.4	2035.65	100.0	3953.21	(39.5)	24.1	2035.65	84.4	88.0	-
+2.36 mm	100.0	(39.5)									
1.4 F/T	36.9	13.7	506.07	36.9	506.07	13.7	100.0	3739.14	(37.4)	18.5	-
1.4-1.6	14.3	28.7	411.79	51.2	917.86	(17.9)	63.1	3233.07	(51.3)	44.1	35.8
1.6-1.8	21.5	41.5	890.15	72.7	1808.01	(24.9)	48.8	2821.28	(57.9)	62.0	32.7
1.8-2.0	11.2	52.7	590.90	83.9	2398.91	(28.6)	27.3	1931.13	(70.8)	78.3	-
2.0 S/K	16.1	83.5	1340.23	100.0	3739.14	(37.4)	16.1	1340.23	83.5	92.0	-
+1.18 mm	100.0	(37.4)									
1.4 F/T	20.0	8.0	159.72	20.0	159.72	8.0	100.0	3456.03	(34.6)	10.0	-
1.4-1.6	25.1	19.5	489.39	45.1	649.11	(14.4)	80.0	3296.31	(41.2)	32.6	59.7
1.6-1.8	34.6	38.4	1329.49	79.7	1978.60	(24.8)	54.9	2806.92	(51.1)	62.4	40.9
1.8-2.0	6.3	55.3	349.88	86.0	2328.48	(27.1)	20.3	1477.43	(72.7)	82.9	-
2.0 S/K	14.0	80.6	1127.55	100.0	3456.03	(34.6)	14.0	1127.55	80.6	93.0	-
+600 µm	100.0	(34.6)									
-600 µm											
H											

Table 11. (continued)

1	13	14	15	16	17	18	19	20	21
				BULK SAMPLE BASIS					
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks		
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%
1.4 F/T	2.1	13.1	27.92	2.1	27.92	13.1	6.2	244.04	(39.5)
1.4-1.6	1.3	26.5	35.43	3.4	63.35	(18.3)	4.1	216.12	(53.5)
1.6-1.8	1.0	41.0	38.71	4.4	102.06	(23.1)	2.8	180.69	(66.8)
1.8-2.0	0.3	60.0	16.31	4.7	118.37	(25.3)	1.8	141.98	(80.6)
2.0 S/K	1.5	84.4	125.67	6.2	244.04	(39.5)	1.5	125.67	84.4
+2.36 mm	6.2	(39.5)	244.04						
1.4 F/T	1.7	13.7	22.85	1.7	22.85	13.7	4.5	168.84	(37.4)
1.4-1.6	0.6	28.7	18.59	2.3	41.44	(17.9)	2.8	145.99	(51.3)
1.6-1.8	1.0	41.5	40.20	3.3	81.64	(24.9)	2.2	127.40	(57.9)
1.8-2.0	0.5	52.7	26.68	3.8	108.32	(28.6)	1.2	87.20	(70.8)
2.0 S/K	0.7	83.5	60.52	4.5	168.84	(37.4)	0.7	60.52	83.5
+1.18 mm	4.5	(37.4)	168.84						
1.4 F/T	0.5	8.0	4.26	0.5	4.26	8.0	2.7	92.20	(34.6)
1.4-1.6	0.7	19.5	13.06	1.2	17.32	(14.4)	2.2	87.94	(41.2)
1.6-1.8	0.9	38.4	35.47	2.1	52.79	(24.8)	1.5	74.88	(51.1)
1.8-2.0	0.2	55.3	9.33	2.3	62.12	(27.1)	0.6	39.41	(72.7)
2.0 S/K	0.4	80.6	30.08	2.7	92.20	(34.6)	0.4	30.08	80.6
+600 µm	2.7	(34.6)	92.20						
-600 µm	5.5	37.3	205.47						
H	100.0	(30.4)	3044.00						

Table 12. HEAVY LIQUID TEST DATA. SAMPLE B3-3 (-9.5 mm)

1	2	3	4	5	6	7	8	9	10	11	12
				SIZE FRACTION BASIS							
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks			Mass $(5)-\frac{(2)}{2}$	Mass R.D.+0.1 Σ (2) R.D.-0.1
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%		
1.4 F/T	13.8	10.6	146.91	13.8	146.91	10.6	100.0	3074.16	(30.7)	6.9	-
1.4-1.6	60.9	20.3	1235.70	74.7	1382.61	(18.5)	86.2	2927.25	(34.0)	44.3	69.8
1.6-1.8	8.9	42.4	375.83	83.6	1758.44	(21.0)	25.3	1691.55	(66.9)	79.2	12.4
1.8-2.0	3.5	62.3	219.67	87.1	1978.11	(22.7)	16.4	1315.72	(80.2)	85.4	-
2.0 S/K	12.9	85.1	1096.05	100.0	3074.16	(30.7)	12.9	1096.05	85.1	93.6	-
+4.75 mm	100.0	(30.7)									
1.4 F/T	9.3	10.3	96.22	9.3	96.22	10.3	100.0	2911.93	(29.1)	4.7	-
1.4-1.6	65.7	18.6	1222.89	75.0	1319.11	(17.6)	90.7	2815.71	(31.1)	42.2	75.8
1.6-1.8	10.1	41.4	416.05	85.1	1735.16	(20.4)	25.0	1592.82	(63.9)	80.1	13.5
1.8-2.0	3.4	59.2	201.10	88.5	1936.26	(21.9)	14.9	1176.77	(79.2)	86.8	-
2.0 S/K	11.5	85.1	975.67	100.0	2911.93	(29.1)	11.5	975.67	85.1	94.3	-
+2.36 mm	100.0	(29.1)									
1.4 F/T	8.5	9.4	79.83	8.5	79.83	9.4	100.0	2829.97	(28.3)	4.3	-
1.4-1.6	62.0	17.2	1065.74	70.5	1145.57	(16.3)	91.5	2750.14	(30.1)	39.5	75.1
1.6-1.8	13.1	38.2	502.63	83.6	1648.20	(19.7)	29.5	1684.40	(57.0)	77.1	17.2
1.8-2.0	4.1	56.1	228.16	87.7	1876.36	(21.4)	16.4	1181.77	(72.1)	85.7	-
2.0 S/K	12.3	77.4	953.61	100.0	2829.97	(28.3)	12.3	953.61	77.4	93.9	-
+1.18 mm	100.0	(28.3)									
1.4 F/T	11.0	9.4	103.56	11.0	103.56	9.4	100.0	2896.39	(29.0)	5.5	-
1.4-1.6	55.9	16.3	911.69	66.9	1015.25	(15.2)	89.0	2792.83	(31.4)	39.0	71.4
1.6-1.8	15.5	37.2	575.34	82.4	1590.59	(19.3)	33.1	1881.14	(56.9)	74.7	20.0
1.8-2.0	4.5	57.6	256.27	86.9	1846.86	(21.3)	17.6	1305.80	(74.3)	84.7	-
2.0 S/K	13.1	79.9	1049.53	100.0	2896.39	(29.0)	13.1	1049.53	79.9	93.5	-
+600 µm	100.0	(29.0)									
-600 µm H											

Table 12. HEAVY LIQUID TEST DATA. SAMPLE B3-3 (-9.5 mm)

1	13	14	15	16	17	18	19	20	21
	BULK SAMPLE BASIS								
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks		
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%
1.4 F/T	5.2	10.6	55.50	5.2	55.50	10.6	37.8	1161.38	(30.7)
1.4-1.6	23.0	20.3	466.83	28.2	522.33	(18.5)	32.6	1105.88	(34.0)
1.6-1.8	3.4	42.4	141.98	31.6	664.31	(21.0)	9.6	639.05	(66.9)
1.8-2.0	1.3	62.3	82.99	32.9	747.30	(22.7)	6.2	497.07	(80.2)
2.0 S/K	4.9	85.1	414.08	37.8	1161.38	(30.7)	4.9	414.08	(85.1)
+4.75 mm	37.8	(30.7)	1161.38						
1.4 F/T	2.5	10.3	25.19	2.5	25.19	10.3	26.2	762.30	(29.1)
1.4-1.6	17.2	18.6	320.13	19.7	345.32	(17.6)	23.7	737.11	(31.1)
1.6-1.8	2.6	41.4	108.92	22.3	454.24	(20.4)	6.5	416.98	(63.9)
1.8-2.0	0.9	59.2	52.65	23.2	506.89	(21.9)	3.9	308.06	(79.2)
2.0 S/K	3.0	85.1	255.41	26.2	762.30	(29.1)	3.0	255.41	85.1
+2.36 mm	26.2	(29.1)	762.30						
1.4 F/T	1.3	9.4	12.31	1.3	12.31	9.4	15.4	436.29	(28.3)
1.4-1.6	9.6	17.2	164.30	10.9	176.61	(16.3)	14.1	423.98	(30.1)
1.6-1.8	2.0	38.2	77.49	12.9	254.10	(19.7)	4.5	259.68	(57.0)
1.8-2.0	0.6	56.1	35.17	13.5	289.27	(21.4)	2.5	182.19	(72.1)
2.0 S/K	1.9	77.4	147.02	15.4	436.29	(28.3)	1.9	147.02	77.4
+1.18 mm	15.4	(28.3)	436.29						
1.4 F/T	1.0	9.4	8.99	1.0	8.99	9.4	8.7	251.46	(29.0)
1.4-1.6	4.9	16.3	79.15	5.9	88.14	(15.2)	7.7	242.47	(31.4)
1.6-1.8	1.3	37.2	49.95	7.2	138.09	(19.3)	2.8	163.32	(56.9)
1.8-2.0	0.4	57.6	22.25	7.6	160.34	(21.3)	1.5	113.37	(74.3)
2.0 S/K	1.1	79.9	91.12	8.7	251.46	(29.0)	1.1	91.12	79.9
+600 µm	8.7	(29.0)	251.46						
-600 µm	11.9	32.6	389.33						
H	100.0	(30.0)	3000.81						

Table 13. HEAVY LIQUID TEST DATA. SAMPLE B-3-3 (-9.5 mm). WATER TREATED

1	2	3	4	5	6	7	8	9	10	11	12
				SIZE FRACTION BASIS							
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks			Mass $(5)-\frac{(2)}{2}$	Mass R.D.+0.1 Σ (2) R.D.-0.1
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%		
1.4 F/T	6.0	11.0	66.23	6.0	66.23	11.0	100.0	2863.89	(28.6)	3.0	-
1.4-1.6	70.3	18.6	1307.77	76.3	1374.00	(18.0)	94.0	2797.66	(29.8)	41.2	80.8
1.6-1.8	10.5	42.3	442.79	86.8	1816.79	(20.9)	23.7	1489.89	(62.9)	81.6	13.8
1.8-2.0	3.3	60.4	198.63	90.1	2015.42	(22.4)	13.2	1047.10	(79.3)	88.5	-
2.0 S/K	9.9	85.6	848.47	100.0	2863.89	(28.6)	9.9	848.47	85.6	95.1	-
+4.75 mm	100.0	(28.6)									
1.4 F/T	8.6	8.3	71.26	8.6	71.26	8.3	100.0	3015.01	(30.2)	4.3	-
1.4-1.6	62.6	18.7	1171.38	71.2	1242.64	(17.4)	91.4	2943.75	(32.2)	39.9	74.8
1.6-1.8	12.2	39.1	476.89	83.4	1719.53	(20.6)	28.8	1772.37	(61.6)	77.3	16.4
1.8-2.0	4.2	56.2	236.25	87.6	1955.78	(22.3)	16.6	1295.48	(78.1)	85.5	-
2.0 S/K	12.4	85.6	1059.23	100.0	3015.01	(30.2)	12.4	1059.23	85.6	93.8	-
+2.36 mm	100.0	(30.2)									
1.4 F/T	10.1	7.6	76.45	10.1	76.45	7.6	100.0	2885.85	(28.9)	5.1	-
1.4-1.6	57.1	17.2	982.13	67.2	1058.58	(15.8)	89.9	2809.40	(31.2)	38.7	71.4
1.6-1.8	14.3	37.9	541.96	81.5	1600.54	(19.6)	32.8	1827.27	(55.6)	74.4	19.7
1.8-2.0	5.4	55.6	301.58	86.9	1902.12	(21.9)	18.5	1285.31	(69.3)	84.2	-
2.0 S/K	13.1	75.0	983.73	100.0	2885.85	(28.9)	13.1	983.73	75.0	93.5	-
+1.18 mm	100.0	(28.9)									
1.4 F/T	10.4	8.1	84.17	10.4	84.17	8.1	100.0	3174.62	(31.7)	5.2	-
1.4-1.6	49.6	16.8	832.84	60.0	917.01	(15.3)	89.6	3090.45	(34.5)	35.2	65.4
1.6-1.8	15.8	37.0	586.20	75.8	1503.21	(19.8)	40.0	2257.61	(56.4)	67.9	25.9
1.8-2.0	10.1	56.0	562.86	85.9	2066.07	(24.1)	24.2	1671.41	(69.1)	80.9	-
2.0 S/K	14.1	78.4	1108.55	100.0	3174.62	(31.7)	14.1	1108.55	78.4	92.0	-
+600 µm	100.0	(31.7)									
+600 µm											

Table 13. HEAVY LIQUID TEST DATA. SAMPLE B-3-3 (-9.5 mm). WATER TREATED

1	13	14	15	16	17	18	19	20	21
				BULK SAMPLE BASIS					
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks		
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%
1.4 F/T	2.0	11.0	22.62	2.0	22.62	11.0	34.1	978.06	(28.6)
1.4-1.6	24.0	18.6	446.62	26.0	469.24	(18.0)	32.1	955.44	(29.8)
1.6-1.8	3.6	42.3	151.22	29.6	620.46	(20.9)	8.1	508.82	(62.9)
1.8-2.0	1.1	60.4	67.84	30.7	688.30	(22.4)	4.5	357.60	(79.3)
2.0 S/K	3.4	85.6	289.76	34.1	978.06	(28.6)	3.4	289.76	85.6
+4.75 mm	34.2	(28.6)	978.06						
1.4 F/T	2.3	8.3	18.73	2.3	18.73	8.3	26.3	792.41	(30.2)
1.4-1.6	16.5	18.7	307.86	18.8	326.59	(17.4)	24.0	773.68	(32.2)
1.6-1.8	3.2	39.1	125.34	22.0	451.93	(20.6)	7.5	465.82	(61.6)
1.8-2.0	1.1	56.2	62.09	23.1	514.02	(22.3)	4.3	340.48	(78.1)
2.0 S/K	3.2	85.6	278.39	26.3	792.41	(30.2)	3.2	278.39	85.6
+2.36 mm	26.3	(30.2)	792.41						
1.4 F/T	1.6	7.6	12.28	1.6	12.28	7.6	16.1	463.47	(28.9)
1.4-1.6	9.2	17.2	157.73	10.8	170.01	(15.8)	14.5	451.19	(31.2)
1.6-1.8	2.3	37.9	87.04	13.1	257.05	(19.6)	5.3	293.46	(55.6)
1.8-2.0	0.9	55.6	48.43	14.0	305.48	(21.9)	3.0	206.42	(69.3)
2.0 S/K	2.1	75.0	157.99	16.1	463.47	(28.9)	2.1	157.99	75.0
+1.18 mm	16.1	(28.9)	463.4						
1.4 F/T	1.0	8.1	7.71	1.0	7.71	8.1	9.2	290.66	(31.7)
1.4-1.6	4.5	16.8	76.25	5.5	83.96	(15.3)	8.2	282.95	(34.5)
1.6-1.8	1.5	37.0	53.67	7.0	137.63	(19.8)	3.7	206.70	(56.4)
1.8-2.0	0.9	56.0	51.53	7.9	189.16	(24.1)	2.2	153.03	(69.1)
2.0 S/K	1.3	78.4	101.50	9.2	290.66	(31.7)	1.3	101.50	78.4
+600 µm	9.2	(31.7)	290.6						
-600 µm	14.3	34.5	495.91						
H	100.0	(30.2)	3019.7						

Table 14. HEAVY LIQUID TEST DATA. SAMPLE B3-3 (unsized)

1	2	3	4	5	6	7	8	9	10	11	12
	SIZE FRACTION BASIS										
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks			Mass $(5)-\frac{(2)}{2}$	Mass R.D.+0.1 Σ (2) R.D.-0.1
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%		
1.4 F/T	12.1	9.0	108.36	12.1	108.36	9.0	100.0	3001.42	(30.0)	6.1	-
1.6 F/T	57.5	18.6	1069.67	69.6	1178.03	(16.9)	87.9	2893.06	(32.9)	40.9	-
1.8 F/T	12.0	38.2	459.92	81.6	1637.95	(20.1)	30.4	1823.39	(59.9)	75.6	69.5
2.0 F/T	4.3	52.6	226.33	85.9	1864.28	(21.7)	18.4	1363.47	(74.1)	83.8	16.3
2.0 S/E	14.1	80.6	1137.14	100.0	3001.42	(30.01)	14.1	1137.14	80.6	93.0	-
	100.0	(30.01)	3001.42								

Table 15. PROXIMATE ANALYSES OF FLOAT PRODUCTS

Table	Product	% Ash	% V.S.M.	% F.C.	S.E. MJ/kg
8	+38.10 mm 1.4 F/T	14.8	28.5	56.7	
	+38.10 mm 1.4-1.6	24.1	24.5	51.4	
	+19.05 mm 1.4 F/T	14.8	29.2	56.0	27.9
	+19.05 mm 1.4-1.6	27.2	24.6	48.2	23.5
	+9.53 mm 1.4 F/T	12.3	30.7	57.0	28.6
	+9.53 mm 1.4-1.6	23.2	25.6	51.2	24.3
	+4.75 mm 1.4 F/T	10.6	32.3	57.1	29.3
	+4.75 mm 1.4-1.6	23.5	25.7	50.8	24.5
	+2.36 mm 1.4 F/T	8.0	33.9	58.1	30.7
	+2.36 mm 1.4-1.6	20.7	24.7	54.6	24.7
	+1.18 mm 1.4 F/T	7.5	35.4	57.1	30.3
	+1.18 mm 1.4-1.6	20.0	27.3	52.7	24.4
	+600 µm 1.4 F/T	8.6	37.8	53.6	29.8
	+600 µm 1.4-1.6	18.3	27.8	53.9	25.9
9	+38.10 mm 1.4 F/T	15.3	27.0	57.7	
	+38.10 mm 1.4-1.6	25.7	25.0	49.3	
	+19.05 mm 1.4 F/T	15.1	26.5	58.4	
	+19.05 mm 1.4-1.6	26.3	22.7	51.0	
	+9.53 mm 1.4 F/T	13.3	28.3	58.4	
	+9.53 mm 1.4-1.6	23.1	24.0	52.9	
	+4.75 mm 1.4 F/T	10.2	31.0	58.8	
	+4.75 mm 1.4-1.6	22.3	23.9	53.8	
	+2.36 mm 1.4 F/T	8.2	31.2	60.6	
	+2.36 mm 1.4-1.6	22.2	22.6	55.2	
	+1.18 mm 1.4 F/T	7.2	33.3	59.5	
	+1.18 mm 1.4-1.6	19.9	24.2	55.9	
	+600 µm 1.4 F/T	7.0	34.4	58.6	
	+600 µm 1.4-1.6	19.0	25.1	55.9	
12	+4.75 mm 1.4 F/T	10.6	32.6	56.8	25.2
	+4.75 mm 1.4-1.6	20.3	26.1	53.6	
	+2.36 mm 1.4 F/T	10.3	34.5	55.2	
	+2.36 mm 1.4-1.6	18.6	26.5	54.9	
	+1.18 mm 1.4 F/T	9.4	36.3	54.3	
	+1.18 mm 1.4-1.6	17.2	27.5	55.3	
	+600 µm 1.4 F/T	9.4	35.6	55.0	
	+600 µm 1.4-1.6	16.3	27.9	55.8	
13	+4.75 mm 1.4 F/T	11.0	36.1	52.9	
	+4.75 mm 1.4-1.6	18.6	27.8	53.6	
	+2.36 mm 1.4 F/T	8.3	35.2	56.5	
	+2.36 mm 1.4-1.6	18.7	27.0	54.3	
	+1.18 mm 1.4 F/T	7.6	34.3	58.1	
	+1.18 mm 1.4-1.6	17.2	27.4	55.4	
	+600 µm 1.4 F/T	8.1	33.2	58.7	
	+600 µm 1.4-1.6	16.8	25.3	57.9	
14	Unsized 1.4 F/T	9.0	33.3	57.7	
	Unsized 1.4-1.6	18.6	27.2	54.2	

Note: Number in table column refers to another table. There are no results from Tables 10 and 11.

Table 16. UNSCREENED COAL

1	2	3	4	5	6	7	8	9	10	11	12
	SIZE FRACTION BASIS										
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks			Mass $(5)-\frac{(2)}{2}$	Mass R.D.+0.1 Σ (2) R.D.-0.1
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%		
Σ1.4 F/T	30.0	(14.2)	426.76	30.0	426.76	(14.2)	100.0	3120.24	(31.2)	15.0	-
Σ1.4-1.6	46.4	(24.3)	1129.67	76.4	1556.43	(20.4)	70.0	2693.48	(38.5)	53.2	55.9
Σ1.6-1.8	9.5	(44.9)	426.81	85.9	1983.24	(23.1)	23.6	1563.81	(66.4)	81.2	12.9
Σ1.8-2.0	3.4	(61.9)	211.09	89.3	2194.33	(24.6)	14.1	1137.00	(80.9)	87.6	-
Σ2.0 S/K	10.7	(87.0)	925.91	100.0	3120.24	(31.2)	10.7	925.91	(87.0)	94.7	-
B1	100.0	(31.2)	3120.24								
Σ1.4 F/T	49.9	(15.9)	791.36	49.9	791.36	(15.9)	100.0	3105.22	(31.1)	25.0	-
Σ1.4-1.6	28.6	(28.0)	799.53	78.5	1590.89	(20.3)	50.1	2313.86	(46.2)	64.2	35.7
Σ1.6-1.8	7.1	(47.2)	337.55	85.6	1928.44	(22.5)	21.5	1514.33	(70.4)	82.1	10.6
Σ1.8-2.0	3.5	(65.2)	225.57	89.1	2154.01	(24.2)	14.4	1176.78	(81.9)	87.4	-
Σ2.0 S/K	10.9	(87.2)	951.21	100.0	3105.22	(31.1)	10.9	951.21	(87.2)	94.6	-
B3-1	100.0	(31.1)	3105.22								
Σ1.4 F/T	11.3	(10.3)	115.83	11.3	115.83	(10.3)	100.0	2965.67	(29.7)	5.7	-
Σ1.4-1.6	62.0	(18.9)	1170.19	73.3	1286.02	(17.5)	88.7	2849.84	(32.1)	42.3	72.6
Σ1.6-1.8	10.6	(40.5)	429.65	83.9	1715.67	(20.4)	26.7	1679.65	(63.0)	78.6	14.3
Σ1.8-2.0	3.7	(59.7)	219.25	87.6	1934.92	(22.1)	16.1	1250.00	(77.8)	85.8	-
Σ2.0 S/K	12.4	(83.2)	1030.75	100.0	2965.67	(29.7)	12.4	1030.75	(83.2)	93.8	-
B3-3	100.0	(29.7)	2965.55								
Σ1.4 F/T	12.0	9.0	108.36	12.0	108.36	9.0	100.0	3001.42	(30.0)	6.0	-
Σ1.4-1.6	57.5	18.6	1069.67	69.5	1178.03	(16.9)	88.0	2893.06	(32.9)	40.8	69.6
Σ1.6-1.8	12.1	38.2	459.92	81.6	1637.95	(20.1)	30.5	1823.39	(59.9)	75.6	16.4
Σ1.8-2.0	4.3	52.6	226.33	85.9	1864.28	(21.7)	18.4	1363.47	(74.1)	83.8	-
Σ2.0 S/K	14.1	80.6	1137.14	100.0	3001.42	(30.0)	14.1	1137.14	80.6	93.0	-
B3-3	100.0	(30.0)	3001.42								

Table 17. WATER TREATED COAL

1	2	3	4	5	6	7	8	9	10	11	12
	SIZE FRACTION BASIS										
Fraction	Per Cent		Ash	Cumulative Floats			Cumulative Sinks			Mass (5) $\frac{(2)}{2}$	Mass R.D.+0.1 Σ (2) R.D.-0.1
	Mass	Ash	Units	Mass%	Ash Units	Ash%	Mass%	Ash Units	Ash%		
Σ1.4 F/T	33.6	(14.5)	488.07	33.6	488.07	(14.5)	100.0	3008.12	(30.1)	16.8	-
Σ1.4-1.6	44.9	(24.1)	1081.20	78.5	1569.27	(20.0)	66.4	2520.05	(37.9)	56.1	53.4
Σ1.6-1.8	8.5	(44.7)	381.67	87.0	1950.94	(22.4)	21.5	1438.85	(66.9)	82.8	11.5
Σ1.8-2.0	3.0	(61.2)	180.14	90.0	2131.08	(23.7)	13.0	1057.18	(81.5)	88.5	-
Σ2.0 S/K	10.0	(87.4)	877.04	100.0	3008.12	(30.1)	10.0	877.04	(87.4)	95.0	-
B2	100.0	(30.1)	3008.12								
Σ1.4 F/T	48.0	(14.7)	704.76	48.0	704.76	(14.7)	100.0	3003.79	(30.0)	24.0	-
Σ1.4-1.6	28.3	(27.4)	775.56	76.3	1480.32	(19.4)	52.0	2299.03	(44.2)	62.2	37.7
Σ1.6-1.8	9.4	(43.5)	409.53	85.7	1889.85	(22.0)	23.7	1523.47	(64.4)	81.0	13.4
Σ1.8-2.0	4.0	(58.5)	233.85	89.7	2123.70	(23.7)	14.3	1113.94	(78.1)	87.7	-
Σ2.0 S/K	10.3	(85.8)	880.09	100.0	3003.79	(30.0)	10.3	880.09	(85.8)	94.9	-
B3-2	100.0	(30.0)	3003.79								
Σ1.4 F/T	8.0	(8.9)	71.67	8.0	71.62	(8.9)	100.0	2947.61	(29.5)	4.0	-
Σ1.4-1.6	63.3	(18.2)	1154.08	71.3	1225.70	(17.2)	92.0	2875.99	(31.3)	39.7	75.6
Σ1.6-1.8	12.3	(39.6)	487.19)	83.6	1712.89	(20.5)	28.7	1721.91	(60.0)	77.5	17.0
Σ1.8-2.0	4.7	(57.2)	268.41	88.3	1981.30	(22.4)	16.4	1234.72	(75.2)	86.0	-
Σ2.0 S/K	11.7	(82.4)	966.31	100.0	2947.61	(29.5)	11.7	966.31	(82.4)	94.2	-
B3-3											

6. THE COAL SEAMS

There are eight or more coal seams in the sequence. Some are little better than carbonaceous mudstones but all are characterised by high inherent ash content and a low content of bright coal. They are medium rank, high ash, low sulphur, steaming coals.

SEAM CORRELATION

No satisfactory marker horizons have been recognised to assist in correlation between boreholes and there are few distinctive features in the seams, which appear to be end members of a sequence of fluvial cycles. Recognition of individual seams is normally made on comparison of a complete sequence which necessitates drilling to considerable depth, sometimes 600 m to intersect the marine sequence at the base of the coal measures.

THE DUNCAN SEAM

This seam was named after the Duncan coal mine which is the biggest of the mines to have worked it. Others are the Fingal mine owned by Mr Yates and which now forms part of the neighbouring Duncan mine and the Valley and Barbers coal mines east of the Duncan mine. It is the most extensive seam so far as is known at present and the only one on which a coal reserve estimate has been made.

THE EAST FINGAL SEAM

This seam was named by the Joint Coal Board in an investigation of bore core from a drilling programme undertaken by the Hydro-Electric Commission in 1967.

It is similar to the Duncan seam but in most of the borehole intersections was found to be split into two seams with a varying band of intervening sediments. In a given area either, none, or rarely, both splits may be of workable thickness and quality. Determining the potential working areas of these seams has not yet been undertaken.

OTHER SEAMS

Several other seams in the sequence could be economically workable but insufficient work has yet been carried out for an assessment to be made. The main problem is that the seams may be workable only in patches and those patches may not have adit access. It is almost certainly not practicable to access such seams by shaft from the surface but they could possibly be accessed by underground shafts from workings on other seams.

7. PETROLOGY OF THE DUNCAN SEAM

M. Smyth

The pillar sample of the Duncan seam from the Duncan mine was 1.87 m thick and the coal has been divided into fourteen subsections on the visual estimation of variations in its lithotypes (Smyth, 1979). In fact, there was very little change in the macroscopic appearance of the coal, most of it being extremely dull.

ANALYSES

Each subsection was crushed to -1 mm, mounted in plastic, and the surface polished for petrographic analyses in reflected light under oil immersion. Both maceral and microlithotype analyses have been carried out in accordance with the recommendations of the International Committee for Coal Petrology. Measurements of the average reflectance of the vitrinite have also been done using green light at a wavelength of 546nm and with a measuring area of three square micrometres.

RESULTS

Results of the maceral analyses are given in Tables 18 and 20, which indicate the maceral groups and the breakdown of these, respectively.

Results of the microlithotype analyses are given in Table 19.

The average reflectance of the vitrinite is 0.57%. Since many reflectances are given in terms of maximum reflectance, the average reflectance can be converted using the equation:

$$\bar{R}_{max} = 1.066\ \bar{R}_{av} \qquad \text{(Ting, 1978).}$$

Mean maximum reflectance of the coal is 0.61%, placing it in the high volatile C bituminous coal rank range. (Stach *et al.*, 1975).

DISCUSSION

The coal from the Duncan seam has an extremely low vitrinite content and high inertinite content. It has the distinction of being the dullest, or most inertinite-rich coal analysed so far by CSIRO, out of about 150 Australian seams. What little vitrinite there is, is highest in the subsections B and O, both of which overlie a dirt band. This feature of relatively high vitrinite above a dirt band is found in most Australian coal seams. (Smyth and Cook, 1976).

Cutinite is the dominant exinite maceral in the seam, as has been found typically in other Australian Triassic coal seams (Cook, 1975).

Semifusinite is the dominant inertinite maceral in all subsections, except for C and M. Both of these subsections have high mineral contents also.

The average mineral matter content of the seam, 15%, (Table 18) is high. The most abundant mineral is clay which occurs as bands, lenses, infilling cell lumens in both vitrinite and semifusinite, small scattered aggregates and grains and rarely in vermicular form. Carbonate is locally abundant towards the top of the seam, as calcite veins. Quartz occurs

in most subsections as isolated grains, generally 50 μm or less in size. There are rare grains of pyrite in the coal, but not sufficient for even one to be counted, indicating that pyrite is <0.2% of the coal by volume.

The microlithotype compositions of the subsections are closely related to those of the macerals. Vitrite-plus-clarite is highest in subsections B and O; changes in durite and microite correspond with those in the inertodetrinite abundances, and semifusite-plus-fusite components vary with semifusinite-plus-fusinite. The much lower proportion of minerals counted as microlithotypes than as macerals indicates that the mineral matter is often less than 50 μm in size, and is dispersed through the coal.

The Triassic coal measures of Tasmania are tentatively correlated with the Nymboida Coal Measures in New South Wales and the Ipswich Coal Measures in Queensland (Noldart, 1975). The seams from the above coal measures all have moderate to high vitrinite contents and so are very different petrographically from the Duncan seam.

Although geological age does not necessarily have any bearing on petrography of a coal seam, the seam which the Duncan most resembles is the Triassic Callide seam from the Callide Basin. The Callide seam where analysed petrographically, has a vitrinite content of 16% and the petrographic profile of its microlithotypes is similar to that of the Duncan seam, with extremely low vitrite-plus-clarite and intermediates contents. The main difference between the Callide and Duncan seams is that the Callide is about ten times as thick as the Duncan.

Figures given for typical analyses of coal from the Duncan mine show volatile matter of 31.6% (d.a.f.) (Noldart, 1975). At the rank given by the reflectivity of the vitrinite in the seam, a volatile yield of about 44% (d.a.f.) might be expected from a coal with the more usual higher amount of vitrinite. The low volatile yield from the Duncan seam is another indication of its very inertinite-rich nature which in turn means that the coal formed under more oxidising conditions than is usual in a coal-forming environment.

Dull coal, or durain, enriched in semifusinite and fusinite with variable quantities of mineral sediment are considered by Smith (1962) to be due to the flooding of a bog surface by oxygenated water. The flood waters would carry mud and charred wood and provide an environment in which the processes of decay were largely aerobic. Although tyis type of coal formed only a small part of the seams described by Smith, such a description fits almost the whole of the Duncan seam. Where the mineral matter is extremely high, inertodetrinite is more abundant than semifusinite, but otherwise the coal is composed largely of semifusinite with a high mineral content.

Table 18. MACERAL GROUPS IN THE DUNCAN SEAM

Subsection	Lab No.	Thickness (mm)	Total vitrinite	Total exinite	Total Inertinite	Total minerals
	78675		15	2	70	13
A		50	18	2	80	mmf
	78676		42	2	31	25
B		50	57	2	41	mmf
	78677		5	3	52	40
C		140	8	5	87	mmf
	78678		9	7	70	14
D		220	10	8	82	mmf
	78679		7	6	73	14
E		120	8	7	85	mmf
	78680		1	6	79	14
F		100	1	7	92	mmf
	78681		3	7	72	18
G		150	4	8	88	mmf
	78682		4	3	77	16
H		100	4	4	92	mmf
	78683		3	5	84	8
J		180	3	6	91	mmf
	78684		3	6	82	9
K		180	3	7	90	mmf
	78685		13	6	71	10
L		120	14	7	79	mmf
	78686		5	6	67	22
M		200	7	8	85	mmf
	78687		11	4	76	9
N		150	12	4	84	mmf
	78688		33	5	53	9
O		70	36	5	59	mmf
Whole seam			8	5	72	15
		1830	9	6	85	mmf

mmf = mineral matter free
tr = trace

Table 19. MICROLITHOTYPE COMPOSITIONS OF THE SUBSECTIONS OF THE DUNCAN SEAM

Subsection	Lab No.	Thickness (mm)	Vitrite	Clarite	Intermediates	Durite	Microite	Semi-fusinite & Fusinite	Shaly Coal	Clay	Carbonate	Quartz
A	78675	50	12	-	8	4	5	58	11	2	-	tr
B	76	50	32	5	13	2	2	16	14	16	-	tr
C	77	140	4	tr	tr	5	41	8	14	27	-	1
D	78	220	4	2	10	11	14	51	6	5	1	tr
E	78679	120	4	-	4	15	31	37	6	2	1	-
F	80	100	-	-	1	6	37	42	5	4	-	1
G	81	150	2	tr	2	11	38	34	7	5	tr	1
H	82	100	2	-	2	7	31	42	6	6	3	1
J	78683	180	2	tr	2	17	16	58	3	1	1	1
K	84	180	1	-	3	11	22	58	3	2	tr	-
L	85	120	7	-	10	13	22	39	6	2	-	1
M	86	200	4	tr	11	12	36	18	12	6	-	1
N	87	150	8	tr	12	10	13	51	4	2	-	-
O	78688	70	26	-	16	12	10	27	6	3	-	tr
Composites												
Whole seam		1830	5	tr	6	11	24	40	7	6	tr	1
Whole seam mmf			6	tr	7	13	28	46	-	-	-	-

mmf = mineral matter free
tr = Trace

Table 20. MACERAL COMPOSITION OF THE SUBSECTIONS OF THE DUNCAN SEAM

Subsection	Lab No.	Thickness (mm)	Vitrinite	Sporinite	Cutinite	Lipto-detrinite Resinite	Micrinite	Inerto-detrinite	Semi-fusinite	Fusinite	Clay	Carbonate	Pyrite	Quartz
A	78675	50	15	-	2	-	1	15	48	6	13	-	-	tr
B	76	50	42	-	2	-	-	9	19	3	25	-	tr	tr
C	77	140	5	1	2	-	-	32	20	tr	39	-	-	1
D	78678	220	9	2	4	1	-	17	52	1	11	2	-	1
E	79	120	7	2	3	1	tr	21	51	1	12	1	-	1
F	80	100	1	2	3	1	-	25	54	tr	13	tr	-	1
G	78681	150	3	2	4	1	tr	31	41	tr	16	tr	-	2
H	82	100	4	1	2	tr	tr	21	55	1	13	2	-	1
J	83	180	3	1	3	1	-	17	65	2	7	1	-	tr
K	78684	180	3	1	4	1	tr	19	63	tr	8	tr	-	1
L	85	120	13	2	3	1	tr	19	51	1	9	tr	-	1
M	86	200	5	2	3	1	1	36	30	tr	20	-	-	2
N	87	150	11	1	3	tr	1	17	57	1	9	-	-	-
O	78688	70	33	2	2	1	2	15	36	tr	8	-	tr	1
Composites														
Whole seam (calc)		1830	8	1	3	1	tr	23	48	1	14	tr	tr	1
Whole seam mmf			10	1	4	1	tr	27	56	1	-	-	-	-

mmf = mineral matter free
tr = Trace

Contingencies such as faulting, variations in thickness and quality of seam and poor roof conditions could vary the total recovery from 30 to 80%.

Improving the predictability of mining conditions would necessitate decreasing the borehole interval. This is not practicable on Fingal Tier where most of the coalfield is overlain by a dolerite sheet of 200-400 m thickness and boreholes can be as deep as 600 m and the cost per hole on a contract basis is as much as $30 000.

The borehole interval in this project was one kilometre over most of the area and two kilometres over the remainder.

In the following statement of reserves, mining reocvery and washery yield are not considered except in the most generaly terms.

COAL RESERVE STATEMENT

The Duncan seam is continuous over a large area of the Fingal exempt area (see maps 4721/1, 4721/4 and map 4690/7, structural contours of roof). It has a raw ash value on a dry basis (db) of (<40% (db)) with an average figure of 30% (db) upon analysis of the most favourable part of the seam (see maps: total seam isopachs, map 4690/8, working section isopachs, map 4690/9, total seam isoash, map 4690/10, working section isoash, map 4690/11).

To arrive at an estimate of measured *in situ* reserves, a calculation was made within the following parameters:

(1) from the total seam thickness a working section of less than 40% ash (raw, d.b.) has been extracted. This working section is between 1.5 m and 3.0 m in thickness.

(2) the area of calculation must be devoid of major faulting.

(3) the area between working section isopachs has been calculated by planimeter in steps of 0.2 m on the Duncan seam working section isopach map 4690/9.

(4) the density of the coal has been taken as 1600 kg m^{-3}.

In situ coal reserves are:

	Area (km)	*Volume of coal x 10^6 m^3*	*Mass at RD = 1.6 x 10^6 tonnes*
Exempt area	9.2	21	34
Mining lease	9.2	21	34
Total	18.4	42	68

This reserve estimate diminishes according to the percentage mining recovery and the washery yield.

If the parameters were adjusted to include coal down to one metre thickness and up to 60% ash the total seam estimate would be 110 million tonnes (mining lease plus exempt area).

The calculation on which this reserve estimate is made is given in Table 21.

The conversion of coal volume to mass requires a density factor. That chosen is 1.6 (equivalent to an ash content of 30%).

It should be pointed out that the estimated reserve increases as the density factor increases, *i.e.* as the coal ash increases.

Estimates for other seams in the sequence will be included in volume II of this report.

There is an additional area of 50 km^2 drilled south and east of the area for which reserves have been estimated in which drilling to date has not progressed sufficiently for a reserve to be estimated. Drilling is continuing in these areas.

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Table 21. CALCULATION OF COAL RESERVE ESTIMATE

Map area symbol	Total area		Mining lease		Av. contour interval	Volume ($m^3 \times 10^4$)	
	Map area (cm^2)	Area (ha)	Map area* (cm^2)	Area (ha)		Total area	Mining lease
A	6.5	26.0	4.2	16.8	1.5	39.00	25.20
B1	35.4	141.6	25.6	102.4	1.9	269.04	194.56
B2	27.4	109.6	22.8	91.2	1.7	186.32	155.04
B3	9.0	36.0	7.0	28.0	1.55	55.80	43.40
C1	0.3	1.2	0.3	1.2	1.6	1.92	1.92
C2	3.0	12.0	3.0	12.0	1.7	20.4	20.4
C3	6.0	24.0	6.0	24.0	1.9	45.6	45.6
D1	31.7	126.8	0.6	2.4	1.9	240.92	4.56
$D2^1$	1.2	4.8			1.7		
$D2^2$	14.3	57.2			1.7	269.28	
$D2^3$	13.4	53.6			1.7		
$D2^4$	10.7	42.8			1.7		
D3	22.3	89.2			1.6	142.72	
E1	73.0	292.0	46.6	186.4	2.5	730.00	466.00
$E2^a$	42.8	171.2	37.6	150.4	2.7	462.24	406.08
$E2^b$	30.4	121.6			2.7	328.32	
$E3^a$	0.8	3.2	0.8	3.2	2.8	8.96	8.96
$E3^b$	9.7	38.8			2.8	108.64	
F1	80.8	323.2	42.5	170.0	2.3	743.36	391.00
$F2^a$	10.6	42.4	10.6	42.4	2.1	89.04	89.04
$F2^b$	25.8	103.2	18.5	74.0	2.1	216.72	155.40
$F2^c$	29.8	119.2	2.6	10.4	2.1	250.32	21.84
$F3^a$	0.8	3.2	0.8	3.2	2.5	8.0	8.0
$F3^b$	2.3	9.2	2.3	9.2	2.5	23.0	23.0
F4	1.0	4.0	1.0	4.0	2.6	10.4	10.4
				Totals:		4 250.36	2 070.50

* see Figure (Map) 4690/9.

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LIST OF RECENT DEPARTMENTAL REPORTS

Unpublished reports:

1976/14	Diamond drilling for coal in the Fingal area.	V. M. Threader
1978/16	An estimate of the coal resource of the Fingal area.	V. M. Threader
1978/39	East Coast coal project gravity survey. Preliminary report. Part 1. Survey details and qualitative interpretation.	D. E. Leaman
1979/15	East Coast Coal Project gravity survey. Preliminary report. Part 2. First progress report, December 1978 - June 1979.	D. E. Leaman
1979/54	East Coast Coal Project gravity survey. Preliminary report. Part 3. Second progress report, July 1979 - January 1980.	D. E. Leaman
1980/13	The geology of the Mt Nicholas, Fingal Valley and Mt St John areas.	P. W. Baillie C. Calver
1980/21	Sedimentology of the Freshwater Sequence, Upper Parmeener Super-Group on Fingal Tier.	C. A. Bacon
1980/27	Barium-bearing heulandite from DDH 55, Fingal.	D. C. Green
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1980/46	Magnetic survey, Fingal Tier region.	D. E. Leaman R. G. Richardson
1980/49	Geophysical exploration of the East Coast coalfields, Tasmania: a summary.	D. E. Leaman
1980/51	Radiometric survey, Fingal Tier.	D. E. Leaman
1981/6	Fingal Tier seismic reflection traverses 1 and 2.	R. G. Richardson D. E. Leaman

Unnumbered Unpublished reports are included under References, p.78.

APPENDIX A

General information maps and tabular data

Table A-1. *DRILL HOLE LOCATIONS AND COLLAR ELEVATIONS A-2.*

Map 4633. TOPOGRAPHICAL MAP SHOWING BOREHOLE LOCATIONS, FINGAL VALLEY EXEMPT AREA

4633A. LAND OWNERSHIP, MT ST JOHN

4633B. GEOLOGICAL MAP, FINGAL VALLEY EXEMPT AREA

Table A-1. DRILL HOLE LOCATIONS AND COLLAR ELEVATIONS

DDH No.	Easting (m)	Northing (m)	Level (m)
DOM 1	584453	5387990	525.5
2	585344	5388092	608.7
3	585529	5388506	641.9
4	588032	5389999	546.8
5	587035	5389374	575.8
6	586187	5388579	739.8
7	586095	5387915	619.7
8	589793	5399657	560.5
9	588702	5401002	450.2
10	587995	5400162	527.9
11	587821	5400073	500.2
12	587816	5399779	574.9
13	591967	5401970	536.4
14	588384	5389039	662.0
15	588142	5387979	766.3
16	589656	5386946	837.0
16B	589653	5386933	834.1
17	588085	5387885	777.5
18	579211	5376590	664.5
19	587233	5388295	847.2
20	588884	5388677	811.0
21	537379	5387365	758.5
22	586294	5373414	407.4
23	588575	5387335	804.6
24	589313	5387760	830.8
25	588094	5388535	784.1
26	585602	5386673	733.8
27	586664	5386968	745.7
28	582264	5386855	442.0
29	582003	5385109	686.4
30	584953	5387561	519.4
31	589551	5388735	829.6
Waratah Creek (outcrop)	584369	5387493	410.4
Cornwall 1	596328	5400593	624.8
Cornwall 2	596125	5400132	≈624.5
32	584649	5387867	533.3
33	593770	5398700	509.3
34A	584310	5389219	478.0
34B	584228	5389354	466.4
35	588478	5389500	630.8
36	594048	5398509	436.2
37	588097	5389662	596.3
38	587951	5386903	810.2
39	587224	5386540	778.7
40	586728	5385786	724.3
41	588949	5386618	812.4
42	588516	5385917	813.1
43	587864	5385657	785.1
44	585907	5386010	668.5
45	589749	5385088	707.8
46	590032	5386888	772.9
47	589126	5389948	ground 587.3 collar 587.4

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Table A-1. (continued)

DDH No.	Easting (m)	Northing (m)	Level (m)
48	590064	5390018	ground 610.6 collar 610.8
49	591007	5390003	598.5
50	591939	5389903	563.2
51	592715	5389846	534.3
52	590324	5389038	795.8
53	588076	5384684	795.1
54	591021	5388112	711.8
55	591126	5387069	626.4
56	592886	5386808	701.0
57	587913	5383734	803.0
58	586763	5383968	637.9
59	587494	5382058	802.3
60	586038	5381636	725.2
61	586760	5385011	639.3
62	584367	5383489	704.5
63A	589819	5386004	751.2
63B	589792	5385902	746.4
64	585114	5380032	626.0
65	585601	5385115	572.7
66	591979	5389037	778.2
67	584136	5381975	742.0
68	592064	5387912	779.1
69	593017	5387754	715.1
70	591243	5385885	603.6
71	592905	5386048	653.9
72	591054	5385192	580.8
73	591886	5386843	706.8
74	592215	5385722	643.0
75	584421	5384507	585.2
76	586327	5379532	745.8
77	587891	5381024	732.4
78	586301	5383073	646.5
79	594214	5384798	675.7

APPENDIX B

Maps and tabular data relating to the Duncan seam

Table B-1. SUMMARY OF DUNCAN SEAM DATA B-2.

Map

4690/7. DUNCAN SEAM: STRUCTURE CONTOURS OF THE ROOF

4690/8. DUNCAN SEAM: TOTAL SEAM ISOPACHS

4690/9. DUNCAN SEAM: WORKING ISOPACHS (SEAM >1.5 m THICK AND ASH CONTENT <40%)

4690/10. DUNCAN SEAM: TOTAL SEAM ISOASH, (MASS % DRY BASIS)

4690/11. DUNCAN SEAM: WORKING SECTION ISOASH (MASS %, DRY BASIS)

Section

4721/1. N-S. 588000mE

4721/2. E-W. 5387000 mN

4721/3. E-W. 5386000 mN

4721/4. SW-NE

4721/5. E-W. 5388000 mN

4721/6. N-S. 591000 mE

4721/7. NW-SE. (No.1)

4721/8. N-S. 586700 mE

4721/9. N-S. 589000 mE

4721/10. E-W. 5389000 mN

4721/11. E-W. 5390000 mN

4721/12. N-S. 590000 mE

4721/13. N-S. 593000 mE

4721/14. NW-SE. (No.2)

4721/15. N-S. (592000 mE)

Table B-1. SUMMARY OF DUNCAN SEAM DATA

DDH No.	Depth from (m)	Depth to (m)	Recovery (m)	Seam Interval (m)	Working Section (m)	Ash content, mass%, dry basis		
						Plys	Whole seam	Working Section
2	176.99	178.69	1.70	2.00	2.00	23.2	25.0	25.0
	178.71	178.99	0.28			49.9		
3	210.21	211.56	1.35	2.34	2.34 or 1.70	23.7	32.9	27.4
	211.56	211.91	0.35			42.8		
	211.91	212.55	0.64			48.2		
4	122.73	123.44	0.71	0.71	-	47.9		
	127.87	128.40	0.51	0.51	-	52.3		
5	143.00	144.02	0.91	1.02		26.8		
	147.14	148.95	1.80	1.81	1.81	30.7		
6	305.05	305.97	0.69	2.75	2.75	22.3	26.7	26.7
	305.97	306.88	0.69			19.8		
	306.88	307.80	0.69			38.0		
7	183.54	185.01	1.47	2.23	2.23	24.4	29.5	29.5
	185.01	185.77	0.76			39.4		
8-16	either lie outside the exempt area or were abandoned							
17	380.11	381.43	1.32	1.32	-	34.3		
18	Duncan seam intruded by dolerite							
19	428.25	429.80	0.55	1.55	1.55	32.6	25.0	25.0
			1.00			21.6		
20	412.78	413.94	1.16	2.32	2.32	34.7	31.8	31.8
	413.94	415.10	1.16			28.9		
21	348.04	349.07	1.03	2.07	2.07	26.8	26.7	26.7
	349.07	350.11	1.04			26.5		
22	79.28	79.83	0.45	0.45	-	24.3	24.3	-

Table B-1. (continued)

DDH No.	Depth from (m)	Depth to (m)	Recovery (m)	Seam Interval (m)	Working Section (m)	Ash content, mass%, dry basis		
						Plys	Whole seam	Working Section
23	412.30	-	0.99	2.83	2.83	31.1	27.0	27.0
	-	-	0.97			27.6		
	-	415.13	0.77			21.6		
24	441.12	441.22	0.10	2.53	2.13	21.8	36.3	28.6
	441.52	442.18	0.66			31.6		
	442.18	442.91	0.73			19.4		
	442.91	443.65	0.74			35.2		
25	376.07	376.45	0.38	1.64		51.2	42.7	
	376.45	376.99	0.54			23.5		
	376.99	377.14	0.15			44.2		
	377.28	377.71	0.43			33.2		
26	310.35	310.57	0.22	2.60	2.60	26.8	34.6	34.6
	310.57	310.70	0.13			100.0		
	310.70	311.07	0.37			28.7		
	311.07	311.08	0.01			100.0		
	311.08	311.68	0.60			29.6		
	311.68	312.18	0.50			29.8		
	312.18	312.55	0.37			28.0		
	312.55	312.60	0.05			44.9		
	312.60	312.95	0.35			38.5		
27	334.13	334.28	0.15	2.59	2.59	48.3	34.4	34.4
	334.28	334.36	0.08			100		
	334.36	334.44	0.08			22.8		
	334.44	334.51	0.07			100		
	334.51	334.81	0.30			22.8		
	334.81	335.11	0.30			26.6		
	335.11	335.19	0.08			100		
	335.19	335.37	0.15			24.1		
	335.37	336.04	0.55			24.1		
	336.04	336.72	0.55			29.0		

Table B-1. (continued)

DDH No.	Depth from (m)	Depth to (m)	Recovery (m)	Seam Interval (m)	Working Section (m)	Ash content, mass%, dry basis		
						Plys	Whole seam	Working Section
28	collar elevation below the Duncan seam							
29	Duncan seam intruded by dolerite							
30	71.49	71.77	0.28	2.32	2.32	28.2	40.6	40.6
	71.77	72.01	0.24			56.1		
	72.01	72.35	0.33			35.9		
	72.35	72.49	0.13			100		
	72.49	72.87	0.37			27.7		
	72.90	72.81	0.88			25.0		
31	431.67	432.17	0.50	0.50	-	-	-	
32	82.24	83.09	0.85	1.63	1.63	43.4	39.5	39.5
	83.17	83.87	0.70			27.8		
33-36	lie outside the exempt area, failed to intersect the Duncan seam or were abandoned							
37	180.30	180.48	0.16	2.07	-	59.1	47.2	
	180.48	181.26	0.78			27.4		
	181.67	181.84	0.17			44.5		
	181.86	182.23	0.37			25.4		
	182.23	182.37	0.13			43.0		
38	411.58	414.65	2.28	5.89	2.49	90.1	63.0	26.1
	414.65	417.14	2.49			26.1		
	417.14	417.47	0.33			87.1		
39	365.71	368.18	2.47	5.30	2.83	85.8	55.9	31.2
	368.18	369.25	1.07			39.1		
	369.25	371.01	1.76			26.3		
40	307.84	308.29	0.45	3.19	1.59	65.5	49.7	29.1
	308.29	309.88	1.45			29.1		
	309.88	311.03	1.15			72.2		

Table B-1. (continued)

DDH No.	Depth from (m)	Depth to (m)	Recovery (m)	Seam Interval (m)	Working Section (m)	Ash content, mass%, dry basis		
						Plys	Whole seam	Working Section
41	404.27 404.64 405.84	404.64 405.84 406.98	0.37 1.20 1.14	2.71	2.71	36.4 27.4 32.6	30.8	30.8
42	423.95 424.44 425.72	424.44 425.72 426.77	0.49 1.28 1.05	2.82	2.82	40.6 24.4 31.9	29.68	29.68
43	386.30 387.67	387.67 388.87	1.37 1.20	2.57	2.57	27.8 28.7	27.9	27.9
44	250.16 251.51	251.51 252.89	1.35 1.38	2.73	2.73	29.8 26.6	28.2	28.2
45	309.55	310.90	1.35	1.35	-			
46	371.33 372.91	372.91 373.47	1.58 0.56	2.14	1.58	31.6 84.7	45.4	31.6
47-48	pre-collared only							
49	Duncan seam not present							
50-51	current drilling (March 1981)							
52	411.99	412.81	0.81	0.81	-	58.2	58.2	-
53	396.67	399.03	2.36	2.36	2.36	26.4	26.4	26.4
54	Duncan seam not sampled because of dolerite roof							
55	297.60	299.19	1.59	1.59	-	54.1	54.1	-
56	Duncan seam not identified (drill hole abandoned)							

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Table B-1. (continued)

DDH No.	Depth from (m)	Depth to (m)	Recovery (m)	Seam Interval (m)	Working Section (m)	Ash content, mass%, dry basis		
						Plys	Whole seam	Working Section
57	416.04	419.16	3.12	3.12	1.72	awaiting analytical data (March 1981)		
58	229.56	230.73	1.17	1.17	-			
59	423.29	424.03	0.74	0.74	-			
60	324.79	325.52	0.73	0.73	-			
61	228.47	228.67	0.20	2.49	-			
	228.67	229.62	0.95					
	229.62	231.16	1.54					
62	Duncan seam not present as dolerite has intruded below the level of this seam							
63A-63B	pre-collared only							
64	Duncan seam not present owing to multiple dolerite intrusions							
65	dolerite has intruded to below the level of the Duncan seam							
66	477.56	478.13	0.27	0.27	-	-	-	-
67	dolerite has intruded to below the level of the Duncan seam							
68	481.74	482.56	0.80	1.98	-	51.4	62.14	
	482.56	483.72	1.16			69.3		
69	Duncan seam has a dolerite roof							
70	dolerite has intruded to below the level of the Duncan seam							
71	378.12	379.37	1.25	1.25	-	-		
	383.15	383.85	0.70	0.70	-	-		
72	Duncan seam not present							
73	397.02	398.00	0.98	0.98	-	53.3		

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Table B-1. (continued)

DDH No.	Depth from (m)	Depth to (m)	Recovery (m)	Seam Interval (m)	Working Section (m)	Ash content, mass%, dry basis		
						Plys	Whole seam	Working Section
74	354.64	355.90	1.26	1.26	-	56.0		
75	dolerite has intruded to below the level of the Duncan seam							
76	current drilling (March 1981)							
77	current drilling (March 1981)							
78	current drilling (March 1981)							
79	current drilling (March 1981)							

APPENDIX C

Maps and tabular data related to the dolerite thickness, quartzose sandstone and Upper Parmeener Super-Group on Fingal Tier

Table C-1. DETAILS RELATING TO DOLERITE, QUARTZOSE SANDSTONE AND LOWER PARMEENER SUPER-GROUP SEDIMENTS IN EACH DRILL HOLE. C-2.

Map 4690/1. ISOPACH MAP OF THE DOLERITE CAP ON FINGAL TIER

4690/2. STRUCTURE CONTOUR MAP OF THE BASE OF THE DOLERITE ON FINGAL TIER

4690/3. STRUCTURE CONTOUR MAP OF THE SURFACE OF THE LOWER PARMEENER SUPER-GROUP ON FINGAL TIER

4690/4. STRUCTURE CONTOUR MAP OF THE SURFACE OF THE QUARTZOSE SANDSTONE UNIT AT THE BASE OF THE UPPER PARMEENER SUPER-GROUP, FINGAL TIER

4690/5. ISOPACH MAP OF THE UPPER PARMEENER SUPER-GROUP ON FINGAL TIER

4690/6. ISOPACH MAP OF THE QUARTZOSE SANDSTONE UNIT AT THE BASE OF THE UPPER PARMEENER SUPER-GROUP, FINGAL TIER

TABLE C-1. Details relating to dolerite, quartzose sandstone and Lower Parmeener Super-Group sediments in each drill hole

Diamond drill hole number	Collar elevation (m,a.s.l.)	Depth to base of dolerite (talus*), m.	Dolerite (talus*) base R.L., (m,a.s.l.)	Depth to top of Quartzose sandstone unit (m)	Quartzose sandstone surface R.L., (m, a.s.l.)	Depth to Permian (m)	Permian surface R.L. (m,a.s.l.)	Depth of DDH which terminated in Triassic sediments, (m)	Triassic intersected to R.L. (m, a.s.l.)	Total depth of DDH (m)	Quartzose sandstone thickness (m)	Upper Parmeener Super-Group thickness (m)
FINGAL												
1	525.5	27.0*	498.5	216.41	309.09	n.r.	-	217.93	307.57	217.93	-	>190.93
2	608.7	60.35*	548.35	n.r.	-	n.r.	-	184.0	424.7	184.0	-	>123.65
3	641.9	88.39*	553.51	n.r.	-	n.r.	-	216.71	425.19	216.71	-	>128.32
4	546.8	12.48*	534.32	245.06	301.74	254.2	292.6	-	-	330.12	9.14	241.72
5	575.8	6.10*	569.7	n.r.	-	n.r.	-	269.60	306.2	269.60	-	>263.50
6	739.8	129.54	610.26	432.21	307.59	451.1	288.7	-	-	457.81	18.89	321.56
7A	619.7	9.14*	610.56	n.r.	-	n.r.	-	52.12	567.58	52.12	-	>42.98
7B	619.7	30.49*	589.21	312.93	306.77	341.58	278.12	-	-	351.74	28.65	311.09
14	662.0	300*(?)	362(?)	n.r.	-	n.r.	-	n.r.	-	300(?)	-	-
15	766.3	74.7	691.6	n.r.	-	n.r.	-	n.r.	-	74.7	-	-
16A	837.0	263.0	574	n.r.	-	n.r.	-	364.25	472.75	364.25	-	>101.25
16B	834.1	≈260	≈574.1	n.r.	-	n.r.	-	(?)	(?)	(?)	-	-
17	777.5	323.46	454.04	497.09	280.41	n.r.	-	505.29	272.21	505.29	-	>181.83
19	847.2	246.90	600.3	n.r.	-	n.r.	-	313.15	534.05	313.15	-	>66.25
20	811.0	246.81	564.19	n.r.	-	n.r.	-	465.54	345.46	465.54	-	>218.73
21	758.5	282.54	475.96	482.41	276.09	491.94	266.56	-	-	502.40	9.53	209.40
23	804.6	341.01	463.59	544.59	260.01	545.96	258.64	-	-	553.63	1.37	204.95
24	830.8	385.91	444.89	n.r.	-	n.r.	-	523.26	307.54	523.26	-	>137.35
25	784.1	193.83	590.27	498.46	285.64	511.02	273.08	-	-	525.93	12.56	317.19
26	733.8	240.80	493.0	446.60	287.2	n.r.	-	459.22	274.58	459.22	-	>218.42
27	745.7	259.91	485.79	454.20	291.5	478.53	267.17	-	-	487.96	24.33	218.62
30	519.4	27.0*	492.4	213.35	306.05	231.85	287.55	-	-	254.85	18.50	204.85
31	829.6	302.29	527.31	559.59	270.01	565.99	263.61	-	-	575.98	6.40	263.70

Note: n.r. = not reached

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Table C-1. (continued)

Diamond drill hole number	Collar elevation (m,a.s.l.)	Depth to base of dolerite (talus*), m	Dolerite (talus*) base R.L.,(m,a.s.l.)	Depth to top of Quartzose sandstone unit (m)	Quartzose sandstone surface R.L., (m, a.s.l.)	Depth to Permian (m)	Permian surface R.L.,(m,a.s.l.)	Depth of DDH which terminated in Triassic sediments, (m)	Triassic intersected to R.L., (m,a.s.l.)	Total depth of DDH (m)	Quartzose sandstone thickness (m)	Upper Parmeener Super-Group thickness (m)
32	533.3	40.2*	493.1	224.49	308.81	256.02	277.28	-	-	274.67	31.53	215.82
34A	478.0	-	-	n.r.	-	n.r.	-	65.32	412.68	65.32	-	>65.32
34B	466.4	-	-	n.r.	-	n.r.	-	47.18	419.22	47.18	-	>47.18
35	630.8	94.6*	536.2	n.r.	-	n.r.	-	n.r.	-	94.60	-	-
37	596.3	48.88*	547.42	295.81	300.49	309.16	287.14	-	-	311.72	13.35	260.28
38	810.2	340.19	470.01	535.14	275.06	552.14	258.06	-	-	558.59	17.00	211.95
39	778.7	295.21	483.49	492.35	286.35	518.30	260.4	-	-	522.26	25.95	223.09
40	724.3	235.69	488.61	442.55	281.75	461.23	263.07	-	-	465.80	18.68	225.54
41	812.44	227.82	584.62	539.22	273.22	569.98	242.46	-	-	584.93	30.76	342.16
42	813.1	338.90	474.2	540.96	272.14	570.94	242.16	-	-	576.83	29.98	232.04
43	785.1	315.01	470.09	503.02	282.08	n.r.	-	506.03	297.07	506.03	-	>191.02
44	668.5	178.16	490.34	338.99	329.51	402.64	265.86	-	-	407.23	63.65	224.48
45	707.8	126.00	581.8	440.25	267.55	468.74	239.06	-	-	471.22	28.49	342.74
46A	772.9	38.08	734.82	n.r.	-	n.r.	-	-	-	38.08	-	-
46B	773.0	199.89	573.11	513.72	259.28	545.85	227.15	-	-	547.21	32.13	345.96
47	587.33	44.16*	543.17	n.r.	-	n.r.	-	n.r.	-	44.16	-	-
48	610.56	45.68*	564.88	n.r.	-	n.r.	-	n.r.	-	45.68	-	-
49	598.52	165.15	433.37	395.77	202.75	408.87	189.65	-	-	414.04	13.10	243.72
50	≈550	21.34*	≈528.66	n.r.	-	n.r.	-	n.r.	-	21.34	-	-
51	≈540	15.24	≈524.76	n.r.	-	n.r.	-	n.r.	-	15.24	-	-
52	795.8	411.93	383.87	538.93	256.87	552.82	242.98	-	-	557.42	13.89	140.89
53	795.1	212.70	582.4	n.r.	-	n.r.	-	467.85	327.25	467.85	-	>255.15
54	711.8	391.55	320.25	511.86	199.94	524.09	187.71	-	-	530.45	12.23	132.54
55	626.4	98.01	528.39	427.91	198.49	441.84	184.56	-	-	470.65	13.93	343.83
56	701.0	198.05	502.95	n.r.	-	n.r.	-	405.44	295.56	405.44	-	>207.39

Note: n.r. = not reached

Table C-1. (continued)

Diamond drill hole number	Collar elevation (m,a.s.l.)	Depth to base of dolerite (talus*), m	Dolerite (talus*) base R.L.,(m,a.s.l.)	Depth to top of Quartzose sandstone unit (m)	Quartzose sandstone surface R.L., (m, a.s.l.)	Depth to Permian (m)	Permian surface R.L., (m,a.s.l.)	Depth of DDH which terminated in Triassic sediments, (m)	Triassic intersected to R.L., (m,a.s.l.)	Total depth of DDH (m)	Quartzose sandstone thickness (m)	Upper Parmeener Super-Group thickness (m)
57	803.4	247.86	555.54	551.31	252.09	570.17	233.23	-	-	573.80	18.86	322.31
58	637.9	9.00*	628.9	360.0	277.9	392.16	245.74	-	-	399.00	32.16	383.16
59	802.3	232.13	570.17	548.5	253.8	n.r.	-	572.68	229.62	572.68	>24.18	>342.68
60	725.2	134.34	590.86	453.79	271.41	n.r.	-	474.0	251.20	474.0	>20.21	>339.66
61	639.3	150.10	489.2	364.50	274.80	394.96	244.34	-	-	402.0	30.46	244.86
62	704.5	338.15	366.35	422.72	281.78	450.76	253.74	-	-	452.83	28.04	112.61
63A	751.2	24.38*	726.82	n.r.	-	n.r.	-	n.r.	-	24.38	-	-
63B	746.4	16.76*	729.64	n.r.	-	n.r.	-	n.r.	-	16.76	-	-
64	626.0	124.20	501.8	369.0	257.0	392.81	233.19	-	-	397.02	23.81	268.61
65		155.20										
66	778.2	426.17	352.03	-	-	-	-	585.61	192.59	585.61	-	>159.44
67	742.0	≈432	≈310									
68	779.1	452.6	326.5	602.75	176.35	614.11	164.99	-	-	620.69	11.36	161.51
69	715.1	441.82	273.28	537.42	177.68	n.r.	-	546.11	168.99	546.11	-	>104.29
70	603.6	349.18	254.42	406.15	197.45	n.r.	-	416.27	187.33	416.27	-	>67.09
71	653.9	234.30	419.6			n.r.	-	489.50	164.4	489.50		>255.20
72	580.8	342.65	238.15	373.15	207.35	382.40	198.40	-	-	391.00	8.95	39.75
73	706.8	196.56	511.24	n.r.	-	n.r.	-	496.69	210.11	496.69	-	>301.13
74	≈643.0	176.93	466.07	430.43	212.57	477.21	165.79	-	-	481.23	46.78	300.28
75	585.2	≈209	≈376.2									
76	≈740	≈301	≈439									
77	≈750	≈119	≈631									

Note: n.r. = not reached

Table C-1. (continued)

Diamond drill hole number	Collar elevation (m,a.s.l.)	Depth to base of dolerite (talus*), m	Dolerite (talus*) base R.L.,(m,a.s.l.)	Depth to top of Quartzose sandstone unit (m)	Quartzose sandstone surface R.L., (m, a.s.l.)	Depth to Permian (m)	Permian surface R.L., (m,a.s.l.)	Depth of DDH which terminated in Triassic sediments, (m)	Triassic intersected to R.L., (m,a.s.l.)	Total depth of DDH	Quartzose sandstone thickness (m)	Upper Parmeener Super-Group thickness (m)
MT NICHOLAS												
8	560.5	0.10*	560.4	215.37	345.13	227.46	333.04	-	-	250.70	12.09	227.36
9	450.2	0	0	87.58(?)	362.62(?)	88.39	361.81	-	-	236.52	0.81(?)	88.39
10	527.9	43.28*	484.62	n.r.	-	n.r.	-	-	-	43.28	-	-
11	500.2	42.06*	458.14	n.r.	-	n.r.	-	139.57	360.63	139.57	-	>97.51
12	574.9	44.60*	530.3	208.82	366.08	218.19	356.71	-	-	223.93	9.37	173.59
13	536.4	1.52*	534.88	n.r.	-	n.r.	-	228.50	307.9	228.50	-	>226.98
33	509.3	15.62*	493.68	188.73	320.57	198.34	310.96	-	-	199.56	9.61	182.72
36	436.2	11.50*	424.7	n.p.	-	124.30	311.9	-	-	133.26	-	112.80
MERRYWOOD												
18	664.5	371.50	293	n.r.	-	n.r.	-	424.80	239.7	424.80	-	>53.3
LOCHABER												
22	407.4	0	407.4	n.r.	-	n.r.	-	228.56	178.84	228.56	-	>228.56
THE BARE ROCK												
28	442.0	0	442.0	116.26	325.74	150.57	291.43	-	-	160.48	34.31	150.57
29	686.4	346.10	340.3	394.02	292.38	424.63	261.77	-	-	431.43	30.61	78.53

Note: n.r. = not reached n.p. = not present

96/26

94/95

1981/10. Report on the Department of Mines coal exploration programme at Fingal. Volume 2: Logs of diamond-drill holes.

V.M. Threader
R.H. Castleden
C.A. Bacon

This report contains microfiche of the detailed drill logs of diamond-drill holes drilled on Fingal Tier as part of the Department of Mines coal exploration programme. Hole locations are shown on Figure 1.

FICHE OF FINGAL DDH LOGS

Fiche	*From*	*To*	*DDH Holes*
1	1/1	20/8	1, 2, 3, 4, 5, 6, 7, 7B, 14, 15, 16A, 17, 19, 20
2	20/9	27/9	20, 21, 23, 24, 25, 26, 27
3	27/10	37/11	27, 30, 31, 32, 34A, 34B, 37
4	37/12	40/10	37, 38, 39, 40
5	40/11	43/5	41, 42, 43
6	43/6	46B/9	43, 44, 45, 46A, 46B
7	46B/10	52/13	46B, 47, 48, 49, 50, 51, 52
8	52/14	55/7	52, 53, 54, 55
9	55/8	57/27	55, 56, 57
10	57/28	59/19	57, 58, 59
11	59/20	64/11	59, 61, 62, 63A, 63B, 64
12	64/12	71/9	64, 66, 68, 69, 70, 71
13	71/10	74/11	71, 72, 73, 74
Suppl. 1	60/1	76/16	60, 65, 75, 76
Suppl. 2			
1	50/1	79/23	50, 51, 79
2	80/1	82/21	80, 81, 82
3	83/1	85/9	83, 84, 85

[30 March 1981]

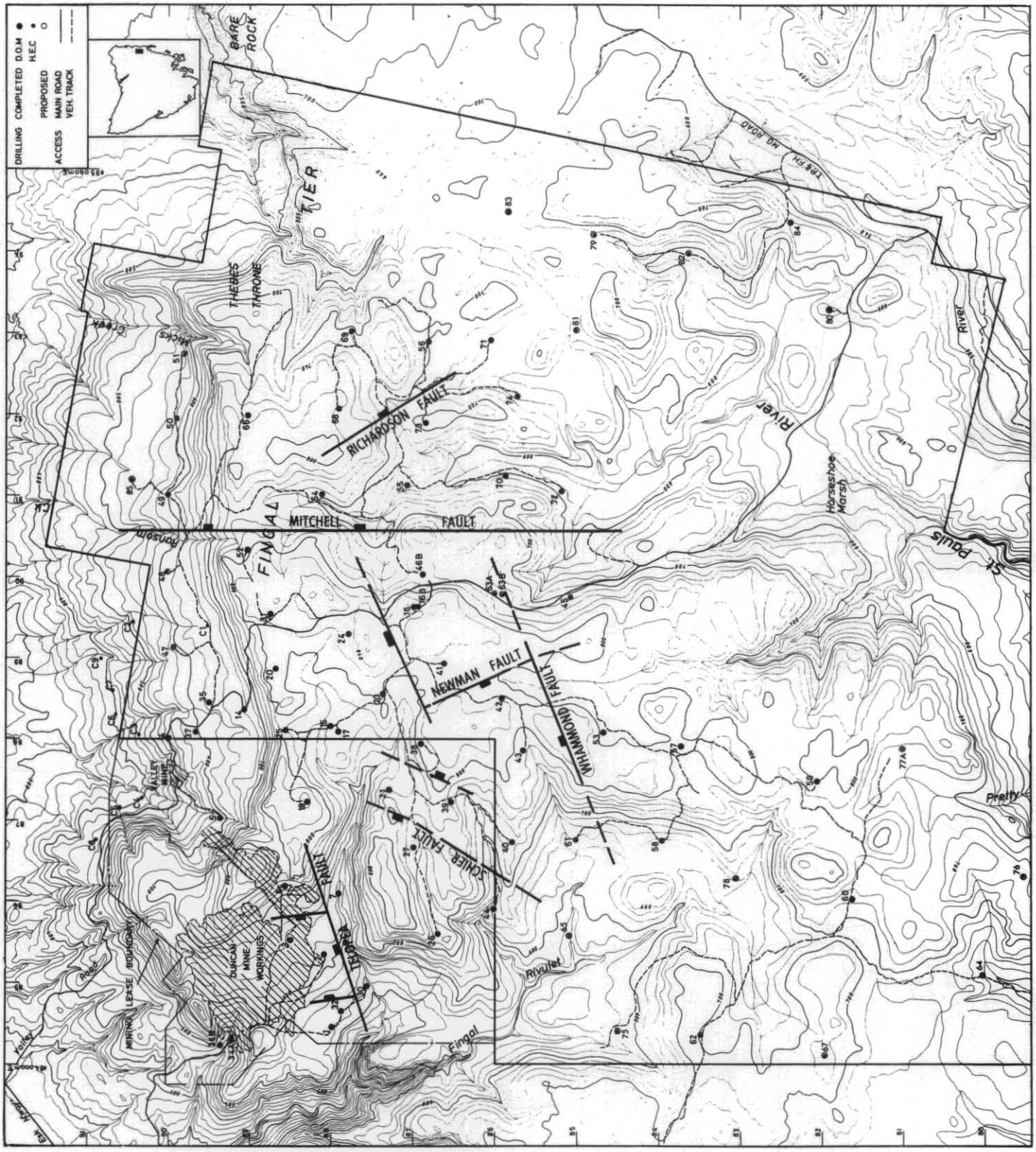

Figure 1. *Location of drill holes and major faulting (Fault locations from mapping by C.R. Calver)*

DRILLING TARGET: Duncan Seam 70.41 - 72.77, East Fingal Seam 116.0 - 116.59

REMARKS: Average recovery 98% 27.13 - 217.93 m

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	%	moisture	Ash	ASSAY RESULTS Vol.	Fc	S	Spec.En mj/kgm
			548	116.00	116.59	0.58	100	6.3	33.3	22.4	44.3	0.28	21.4

GEOLOGICAL LOG — Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	27.13			No core		
27.13	27.89	0.74		Mudstone		
27.89	31.65	3.68		Lithic sandstone		
31.65	35.97	4.23		Grey mudstone with carbonaceous bands		
35.97	53.54	7.42		Lithic sandstone		
53.54	56.59	2.91		Grey mudstone grading into sandstone		
56.59	57.15	0.55		Coarse sandstone		
57.15	58.19	1.02		Current bedded siltstone		
58.19	70.41	2.18		Lithic sandstone with a clay pebble, conglomerate at base		
70.41	72.77	2.31		Interbedded mudstone and sandstone beds with 6 low grade coal beds (203, 102, 381, 432, 203, 508 mm)		
72.77	79.73	6.82		Interbedded grey mudstone and carbonaceous shale		
79.73	114.94	35.48		Lithic sandstone with few thin mudstone and carbonaceous beds (this unit grades from the overlying mudstone). A 76 mm clay pebble conglomerate bed at 94.26 and 51 mm at 86.87.		
114.94	116.00	1.04		Mudstone		
116.00	116.59	0.55		Coal (proximate analysis No. 548)		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 1	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:-
Yates Colliery (8 ch, from SW corner of Lease 16M/49 on bearing 040°N)			
R.L. OF SITE:- 1724.2 (Mines Dept, Survey 1966)	SITE SURVEY ON MAP No.		CORE SIZE:-
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 15/10/59
INCLINATION OF HOLE:- Vertical	DRILL:-		COMPLETED:- 15/7/60
CO-ORDS OF SITE:- 84458799	DRILLER:- D. Hardman		FINAL DEPTH (m):- 217.93 m

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FINGAL No. 1 (Contd...) GEOLOGICAL LOG Page:- 2

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
116.59	124.79	8.04		Mudstone		
124.79	133.99	9.02		Lithic sandstone with a 76 mm clay pebble conglomerate at 128.02		
133.99	139.29	5.19		Mudstone (carbonaceous at top), grading into current bedded sandstone and finally into lithic sandstone.		
139.29	145.16	5.75		Lithic sandstone becoming coarse grained towards base.		
145.16	146.61	1.42		Grey mudstone grading into sandstone at base.		
146.61	152.48	5.75		Lithic sandstone.		
152.48	158.27	5.67		Mudstone carbonaceous in part with 279 mm coal seam at 153.54		
158.27	167.13	8.68		Lithic sandstone		
167.13	170.08	2.89		Grey mudstone with carbonaceous bands		
170.08	172.21	2.09		Black mudstone		
172.21	172.82	0.60		Lithic sandstone with carbonaceous bands		
172.82	175.87	2.99		Grey mudstone		
175.87	177.09	1.20		Carbonaceous mudstone and occasional thin coal bands		
177.09	180.19	3.04		Grey mudstone, 102 mm coal band at 179.60		
180.19	180.24	0.05		Coal		
180.24	181.36	1.10		Mudstone		
181.36	184.10	2.69		Interbedded sandstone, mudstone and siltstone, coal 51 mm at 183.13		
184.10	188.37	4.18		Shale with clay pebble conglomerate at 187.76		
188.37	190.55	2.14		Current bedded siltstone		
190.55	191.06	0.50		Interbedded sandstone and mudstone		
191.06	196.01	4.85		Lithic sandstone		
196.01	202.69	6.55		Interbedded sandstone, siltstone and mudstone		
202.69	207.34	4.56		Lithic sandstone with 76 mm conglomerate band at 203.12		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FINGAL No. 1 (Contd.) GEOLOGICAL LOG Page:- 3

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
207.34	209.40	2.02		Grey mudstone grading into sandstone at base		
209.40	216.41	6.87		Fine grained sandstone grading into medium grained sandstone at base		
216.41	217.93	1.49		Clean grey (quartzose) sandstone - probably near the base of the Triassic succession (about 30 m above the Permian contact).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

DRILLING TARGET:- Duncan Seam 176.99 - 178.99

REMARKS:- Average recovery 90% 60.35 - 184.00 m

SURVEY DATA			ASSAY DATA											
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS moisture	Ash	Vol	FC	S	S.E. mj/kgm
			1450	176.99	178.69	1.70	100	5.0	23.2	28.6	48.2	0.32	24.3
			1451	178.71	178.99	0.28	100	4.1	49.9	24.5	25.5		

GEOLOGICAL LOG Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	60.35	19.81	33	Scree		
60.35	63.40	3.05	80	Lithic sandstone		
63.40	65.23	1.83	80	Carbonaceous shale		
65.23	69.19	10.67		Lithic sandstone		
69.19	70.99	1.80		Coal and coaly shale		
70.99	98.07	7.08		Lithic sandstone with mudstone bands and minor coaly bands		
98.07	98.15	0.08		Clay pellet conglomerate		
98.15	104.24	6.09	100	Brown mudstone grading into siltstone. 98.68 - 99.67 carbonaceous		
104.24	127.69	3.45		Lithic sandstone with grey shale and carbonaceous shale bands and a 76 mm conglomerate band at 118.95		
127.69	136.55	8.86		Shale; a black coaly shale at top grading downwards into brown mudstone, siltstone and finally sandstone		
136.55	140.06	3.51		Lithic sandstone		
140.06	144.48	4.42		Grey mudstone grading into siltstone and sandstone		
144.48	155.30	10.82		Lithic sandstone becoming coarse towards base		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 2	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:-

(2 ch W of midpoint of west boundary of Lease 16M/49)

R.L. OF SITE:- 608.7 (Mines Dept. Survey 1966)	SITE SURVEY ON MAP No.:-	CORE SIZE:-
BEARING OF HOLE:-	AIR PHOTO No.:-	COMMENCED:- 18/7/60
INCLINATION OF HOLE:- Vertical	DRILL:-	COMPLETED:- 29/9/61
CO-ORDS OF SITE:- 85348809	DRILLER:- D.R. Hardman	FINAL DEPTH (m):- 184.00 m

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FINGAL No. 2 (Contd.) GEOLOGICAL LOG Page:- 2

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
155.30	155.88	0.58		Coal with 76 mm shale		
155.88	158.67	2.79		Grey mudstone grading into sandstone		
158.67	176.58	17.91		Fine grained sandstone grading into medium grained sandstone at 160.63 clay pebble conglomerate at 170.84		
176.58	176.61	0.03		Carbonaceous shale		
176.61	176.99	0.38		Coal		
176.99	177.01	0.02		Carbonaceous shale		
177.01	178.69	1.68		Coal		
178.69	178.71	0.02		Carbonaceous shale		
178.71	178.99	0.28		Coal		
178.99	180.62	1.63		Grey shale and carbonaceous shale		
180.62	181.46	0.84		Lithic sandstone		
181.46	181.97	0.51		Grey shale and carbonaceous shale		
181.97	184.00	2.03		Lithic sandstone		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:- Duncan Seam 210.21 - 212.55

REMARKS:- Average Recovery 95%

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moist.	Ash	Vol	F.C.	S	S.E. mj/kg
			3640	156.36	156.97	0.56	95	4.7	25.7	28.8	45.6	0.42	23.5
			3641	187.48	188.21	0.61	95	5.1	56.0				
			3642	210.21	211.56	1.27	95	4.3	23.7	26.3	49.9	0.63	23.8
			3643	211.56	211.91	0.31	95	3.3	42.8	28.5	28.6	0.28	17.1
			3644	211.91	212.55	0.43	67	3.5	48.2	22.6	29.8	0.28	15.0

GEOLOGICAL LOG

Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	88.39	-		Dolerite scree		
88.39	88.54	0.15		Weathered coaly mudstone		
88.54	90.53	1.99		Weathered grey mudstone		
90.53	94.87	4.34		Grey mudstone with thin light and dark bands		
94.87	97.15	2.28		Lithic sandstone		
97.15	97.46	0.31		Vitreous coal band		
97.46	101.09	3.63		Dark grey mudstone, a few bands of coaly shale at top and a band of 152 mm lithic sandstone at 99.67		
101.09	128.80	7.71		Lithic sandstone with occasional coaly bands; a 610 mm band of current bedded siltstone at 123.52		
128.80	128.96	0.16		152 mm coal		
128.96	129.67	0.71		Coal and coaly shale		
129.67	134.04	4.37		Dark shale		
134.04	142.19	8.15		Fine grained lithic sandstone		
142.19	143.59	1.40		Coaly shale		
143.59	144.42	0.83		Grey mudstone		
144.42	152.04	7.62		Medium grained lithic sandstone		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 3	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:-

Drilled on Crown Land 12 chains from NE corner of Lease 26M/49 (Yeat's Colliery) on bearing 293°N

R.L. OF SITE:- 641.9 (Mines Dept. Survey 1966)	SITE SURVEY ON MAP No.:-		CORE SIZE:-
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 11/10/61
INCLINATION OF HOLE:- Vertical	DRILL:-		COMPLETED:- 18/7/62
CO-ORDS OF SITE:- 85538851	DRILLER:- D.R. Hardman		FINAL DEPTH (m):- 216.71 m

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FINGAL No. 3 (Contd.) GEOLOGICAL LOG Page:- 2

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
152.04	152.17	0.13		Coaly shale		
152.17	156.36	4.19		Coarse lithic sandstone with few thin coal and coaly bands		
156.36	156.97	0.51	95	Coal		
156.97	162.53	5.56		Grey mudstone		
162.53	170.15	7.62		Lithic sandstone, few thin coal partings at top		
170.15	171.98	1.83		Mudstone, coaly at top		
171.98	187.48	5.50		Lithic sandstone coarse at base		
187.48	188.21	0.61	95	Coal with shaly bands		
188.21	188.52	0.31		Coaly shale		
188.52	189.23	0.71		Dark grey shale		
189.23	203.73	4.50		Lithic sandstone		
203.73	203.94	0.21		Dark brown carbonaceous shale		
203.94	210.19	7.25		Lithic sandstone with thin coaly bands		
210.19	210.21	0.12		25 mm coaly shale		
210.21	211.56	1.35	95	Coal with coaly shale bands		
211.56	211.91	0.35	95	Shaly coal		
211.91	212.55	0.64	67	Coal		
212.55	213.21	0.66		Medium grey mudstone		
213.21	216.71	3.50		Medium grained lithic sandstone		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:- Fingal No. 4

REMARKS:- Duncan Seam 122.73 - 123.44 m and 127.89 - 128.40 m, East Fingal Seam 160.45 - 160.91 m and ASSAY DATA 165.51 - 166.12 m

SURVEY DATA						RECOVERY		ASSAY RESULTS					
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	metres	%	Moist	Ash	Vol	F.C.	S	S.E.
Surface	V	Vert.	232	43.08	43.69	.23	30	4.1	30.8	24.1	45.1	.30	21.0
60.96	V	89°15'	308	71.07	71.93		90	6.2	35.3	23.3	41.4	.35	19.3
70.10	wedge	88°45'	309	72.69	73.99	1.17		4.9	19.4	32.3	48.3	.53	25.1
75.34	159.30	88°10'		113 69	114.45	0.68	90	3.1	62.4	14.6	22.9		
100.58	V	90°00'		122.73	123.44	.38	53	3.8	47.9	18.7	33.4		
115.82	161.45	88°45'		127.89	128.40	.46	97	3.7	52.3	19.6	28.0		
137.16	V	90°00'		160.45	160.91	.46	100	3.5	27.4	28.1	44.5	.46	22.0
152.40	V	89°49'		165.51	166.12	.61	100	3.5	29.3	24.2	46.4	.80	22.2
				177.75	178.16	.41	100	3.7	37.4	26.6	36.0		
				180.14	180.75	.61	100	3.4	22.6	26.1	51.3	.40	24.5
				186.15	186.61	.46	100	2.8					

GEOLOGICAL LOG

Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	12.48	3.81	30	Mud and weathered dolerite		
12.48	16.76	2.29	54	Brown friable sandstone		
16.76	18.90	2.13	100	Grey mudstone with carbonaceous flecks		
18.90	20.73	0.68	56	Shale and shaly coal		
20.73	21.34	0.61	100	Coaly shale		
21.34	21.49	0.15	100	Coal		
21.49	21.79	0.23	75	Grey-brown mudstone		
21.79	21.84	0.05	100	Coal		
21.84	27.43	3.66)		Grey shale, few coal at 25.30 m		
27.43	28.35	)		Grey sandy mudstone		
28.35	43.08	)		Grey to brown medium to coarse grained lithic sandstone probable faults at 32.16 and 32.99 m, both 20° to core, also fault gouge at 335.30 m		
43.08	43.69	0.23)		Coal (sampled)		
43.69	44.15	0.51)		Black and grey carbonaceous mudstone		
44.15	44.25	0.10)		Coal		
44.25	44.37	0.13)		Soft grey clay		
44.37	44.53	0.15)		Coal		
44.53	46.23	1.89)		Grey and black shale with narrow bands of coal		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 4	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:-
T.B.M. Road, approximately ½m beyond access road to Valley Mine			
R.L. OF SITE:- 546.7 (Mines Dept. Survey 1966)	SITE SURVEY ON MAP No.:		CORE SIZE:- NX to 11.58 BX to 27.43, AX to 330.12
BEARING OF HOLE:-	AIR PHOTO No.:- F206:0-73.76		COMMENCED:- 24/8/62
INCLINATION OF HOLE:- Vertical (approx.)	DRILL:- 73.76 to EOH, B12		COMPLETED:- 30/7/65
CO-ORDS OF SITE:- State Grid 88039000	DRILLER:- A. Roberts D. Hardman		FINAL DEPTH (m):- 330.12

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FINGAL No. 4 (Contd.) GEOLOGICAL LOG Page:- 2

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
46.23	46.38	0.15)		Light grey mudstone		
46.38	46.46	0.08)		Coal		
46.46	51.05	4.13	90	Grey mudstone		
51.05	69.04	16.19		Grey to brown, medium grained lithic sandstone with occasional coaly and shaly partings, slight fracturing (10° to core) at 60.96 m		
69.04	69.16	0.12	100	Brown, shaly coal		
69.16	71.07	1.72	90	Grey mudstone, slightly carbonaceous		
71.07	71.93	0.77		Shaly coal and .05 m shale band at 71.38 m		
71.93	72.69	0.68		Grey mudstone		
72.69	73.99	1.17		Coal		
73.99	74.24	0.22		Black mudstone		
74.24	74.68	0.40		Grey sandy mudstone with some carbonaceous matter		
74.68	77.42	2.47		Fine lithic sandstone		
77.42	85.34	7.13		Coarse lithic sandstone with few coaly partings		
85.34	85.95	0.55		Mudstone and sandstone mixture - Breccia conglomerate		
85.95	92.20	5.62		Grey lithic sandstone with few shale and coal pennies		
92.20	93.57	1.23		Mixture of mudstone bands and lithic sandstone		
93.57	98.55	4.48		Medium to coarse lithic sandstone		
98.55	99.21	0.59		Grey shale		
99.21	100.53	1.11		Dark carbonaceous shale with .08 m coaly band at 100.48 m		
100.53	101.40	0.87		Dark brown carbonaceous shale		
101.40	101.70	0.27		Dull coal		
101.70	103.33	1.47		Dark brown carbonaceous shale becoming lighter towards base		
103.33	109.02	5.12		Fine lithic sandstone, shaly 107.90 - 108.51 m		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FINGAL No. 4 (Contd.) GEOLOGICAL LOG Page:- 3

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
109.02	113.54	3.17		Lithic sandstone with few coaly bands		
113.54	113.69	0.14		Dull dark brown carbonaceous shale		
113.69	114.45	0.68		Coal		
114.45	114.81	0.15	43	Grey clay		
114.81	115.67	0.61	66	Grey mudstone		
115.67	115.75	0.08	100	Grey clay		
115.75	117.04	0.71	55	Grey mudstone		
117.04	117.12	0.08	100	Coaly shale		
117.12	122.73	0.94	36	Grey mudstone		
122.73	123.44	0.38	53	Coal		
123.44	123.65	0.20	100	Grey mudstone		
126.65	123.75	0.10	100	Coaly mudstone		
123.75	124.51	0.05	7	Coal		
124.51	125.25	0.30	41	Grey mudstone		
125.25	126.01	0.61	80	Coaly mudstone		
126.01	127.89	1.83	98	Grey mudstone with coaly fragments, in places, coaly shale		
127.89	128.40	0.46	97	Coal with narrow clay partings		
128.40	129.69	1.30	100	Grey mudstone with coaly fragments		
129.69	130.02	0.18	53	Coal		
130.02	131.06	1.04	100	Grey mudstone		
131.06	139.75	8.53	99	Lithic sandstone with coaly bands at:- 389.25, 403.20, 405.90 - 407.70, 409.50 - 410.40 m		
139.75	141.12	0.76	55	Grey mudstone with coaly bands		
141.12	141.27	0.15	100	Shaly coal		
141.27	142.54		100	Grey mudstone		
142.54	142.39	0.05	100	Coal		
142.39	142.54	0.15	100	Fine grained sandstone with coaly bands		
142.54	143.89	0.99	73	Coaly mudstone		
143.89	144.17	0.23	82	Coal		
144.17	144.93	0.15	20	Grey mudstone		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FINGAL No. 4 (Contd.) GEOLOGICAL LOG Page:- 4

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
144.93	145.39	0.30	67	Coaly mudstone		
145.39	146.91	1.22	80	Fine grained sandstone with coaly partings and patches of coal		
146.91	147.07	0.13	97	Coaly mudstone		
147.07	160.45	13.41	100	Lithic sandstone with carbonaceous bands at: 153.10, 153.47, 154.53, 154.69, 155.35, 155.45 m		
160.45	160.91	0.46	100	Coal		
160.91	161.24	0.15	50	Black shale		
161.24	165.35	3.05	83	Grey mudstone		
165.35	165.38	0.03	100	Friable carbonate rock		
165.38	165.43	0.05	100	Hard black coaly shale with calcite veins		
165.43	165.51	2.74	90	Grey mudstone with coaly bands		
165.51	166.12	0.61	100	Coal		
166.12	171.91	2.74	100	Grey mudstone with coaly bands		
171.91	174.65	1.60	58	Grey sandstone with occasional streaks of dark fine grained mudstone - increases to 50% over last .91 m		
174.65	174.96	0.30	100	Coal		
174.96	175.41	0.46	100	Black shale		
175.41	176.35	0.91	99	Lithic sandstone with coaly fragments		
176.35	177.75	1.47	92	Grey mudstone		
177.75	178.16	0.41	100	Coal		
178.16	179.17	1.32	75	Dark grey sandstone		
179.17	180.14	0.63	64	Grey mudstone		
180.14	180.21	0.08	100	Black shale		
180.21	180.75	0.53	100	Coal		
180.75	180.90	0.15	100	Black shale		
180.90	186.15	4.50	86	Grey mudstone		
186.15	186.61	0.46	100	Coal		
186.61	186.77	0.15	100	Fine grained sandstone or siltstone		
186.77	188.37	1.55	96	Sandstone with occasional shaly partings - carbonate veins at 187.76 m Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FINGAL No. 4 (Contd.)		GEOLOGICAL LOG			Page:- 5	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
188.37	192.76	3.58	82	Grey with carbonate bands		
192.76	193.12	0.28	80	Sandstone		
193.12	194.01	0.84	95	Black shale		
194.01	196.55	2.44	97	Grey mudstone		
196.55	217.30	12.04	58	Lithic sandstone		
217.30	218.01	0.61	86	Lithic sandstone with coal fragments and partings (217.63 - 217.70 m)		
218.01	221.59	3.51	75	Interbedded sandstone and mudstone		
221.59	224.49	2.74	95	Lithic sandstone with random mudstone fragments and partings		
224.49	231.19	6.40	95	Lithic sandstone		
231.19	231.32	0.13	100	Dull coal		
231.32	232.87	1.68	90	Banded siltstone		
232.87	233.40	0.46	85	Lithic sandstone		
233.40	233.78	0.38	100	Grey mudstone		
233.78	234.39	0.61	100	Fine grained sandstone with mudstone laminations		
234.39	238.66	4.27	100	Dark grey mudstone with fine grained sandstone laminations		
238.66	239.57	0.61	66	Sandstone with shaly partings		
239.57	239.80	0.23	100	Coaly shale with fine grained calcite		
239.80	241.02	0.91	100	Lithic sandstone		
241.02	241.48	0.46	100	Dark grey to black shale		
241.48	241.71	0.15	66	Lithic sandstone		
241.71	245.06	1.83	66	Becoming sandy toward base		
245.06	254.20	8.23	90	Coarse grained cream coloured sandstone with pebbly sections and coaly partings		
254.20	254.43	0.23	100	Transitions from sandstone to mudstone		
254.43	256.97	2.59	90	Dark grey uniform mudstone (Permian beds)		
256.97	309.32	50.29	91	Dark grey uniform mudstone with occasional calcite beds and scattered angular grits		
309.32	310.08	0.76	100	Medium grey coarse grained sandstone		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FINGAL No. 4 (Contd.) GEOLOGICAL LOG Page:- 6

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
310.08	314.25	3.81	96	Dark grey mudstone with scattered pebbles		
314.25	315.16	1.07	86	Grey coarse grained sandstone, scattered pyrite crystals		
315.16	330.12	14.33	96	Limestone shaly in part, with green (Glauconite) patches near start, becoming uniform buff colour towards end of hole.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:- 180.29 - 183.03, 188.67 - 189.89

REMARKS:- Duncan Seam 143.0 - 144.02, 147.14 - 148.95; East Fingal Seam

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moist	Ash	Vol	F.C.	S.	S.E.
			1	96.62	97.54	.76	83	6.0	36.5				
			2	99.67	100.89	1.22	100	4.9	26.3	28.7	45.0	.41	22.9
			3	143.00	144.02	.91	90	3.9	26.8	26.3	46.8	.34	23.3
			4	147.14	148.95	1.80	90	4.3	30.7	23.5	45.8	.26	21.3
			5	180.29	183.03	.81	37	3.2	35.8	23.3	40.8	-	
			6	188.67	189.89	1.02	83	3.7	48.2	19.6	32.2	-	

GEOLOGICAL LOG Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	2.44			No core		
2.44	6.10	.61	5	Dolerite (probably scree)		
6.10	7.71	.30	62	Carbonaceous mudstone		
7.71	8.23	.30	62	Light grey mudstone		
8.23	10.06	1.52	83	Light grey fine grained sandstone		
10.06	26.52	14.63	87	Lithic sandstone, coaly streaky and fragments at 20.12 - 20.88 m and shale fragments at 22.71 - 22.86 m		
26.52	27.13	.53	86	Fine grained sandstone with streaks of black shale		
27.13	38.71	8.53	74	Lithic sandstone, highly carbonaceous shale 29.87 - 30.18 m and shale with carbonaceous fragments 30.33 - 30.48 m		
38.71	39.22	.51	100	Shaly coal with .05 m clay seam		
39.22	40.74	1.52	100	Grey mudstone		
40.74	40.94	.20	100	Coal containing .03 m clay seam and shaly fragments		
40.94	60.50			Lithic sandstone with coal and shaly fragments 50.29 - 50.90 m		
		.15)		Coal		
		.10)	100	Dark grey mudstone		
		.23)		Light grey clay		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 5	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:- No.3 to 10.67m BX to 155.14 m, NX to 25.60 m AX to 269.60 m
In head waters of Cardiff Creek 1287.5 m from BH 4 on bearing of 262°M			
R.L. OF SITE:- 575.8 (Mines Dept. Survey 1966)	SITE SURVEY ON MAP No.:		CORE SIZE:-
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 20/8/65
INCLINATION OF HOLE:- Vertical	DRILL:- 12B		COMPLETED:- 29/10/64
CO-ORDS OF SITE:- 87058937	DRILLER:- G. Burns		FINAL DEPTH (m):- 269.60 m

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FINGAL No. 5 (Contd.) GEOLOGICAL LOG Page:- 2

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
60.50	61.11	.13)		Coal		
61.11	64.62	3.51	100	Mudstone grading into fine grained sandstone at base		
64.62	75.90	11.28	100	Lithic sandstone, streaked with thin shale bands		
75.90	96.62	20.42	98	Lithic sandstone, coaly bands at 79.65, 79.76, 86.26, 86.87, 91.44, 91.74 m		
96.62	97.54	.76	83	Coaly lithic sandstone grading into coaly shale		
97.54	99.67	1.98	93	Black shale grading into dark grey mudstone with silty fractions		
99.67	100.89	1.22	100	Coal		
100.89	103.94	2.74	90	Grey mudstone		
103.94	104.39	.46	100	Dull coal		
104.39	107.29	2.90	100	Grey mudstone		
107.29	107.52	.23	100	Lithic sandstone		
107.52	109.04	1.52	100	Grey mudstone becoming silty towards base		
109.04	110.95	2.82	100	Fine grained lithic sandstone		
110.95	122.83	11.89	100	Lithic sandstone with shaly fragments		
122.83	123.06	.23	100	Black mudstone		
123.06	123.67	.61	100	Grey mudstone		
123.67	126.03	2.36	100	Lithic sandstone streaked with shaly bands, becoming predominantly mudstone towards base		
126.03	127.56	1.37	90	Dark grey mudstone		
127.56	143.00	15.44	100	Lithic sandstone with coaly fragments, 142.04 - 143.00 m		
143.00	144.02	.91	90	Coal		
144.02	144.22	.20	100	Dull coal		
144.22	147.14	2.44	91	Light grey crumbly mudstone		
147.14	148.95	1.80	90	Coal		
148.95	150.72	1.75)	88	Light brown clay		
150.72	151.38	.36)				
151.38	155.45	3.81	93	Dark grey mudstone		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FINGAL No. 5 (Contd.) GEOLOGICAL LOG Page:- 3

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
155.45	155.75	.25	83	Coal		
155.75	158.19	2.13	100	Fine grained sandstone with coaly partings and fragments		
158.19	158.27	.08	100	Grey shale with coaly partings		
158.27	158.80	.53	100	Coal with shaly partings		
158.80	173.76	14.96	100	Lithic sandstone		
173.76	175.08	1.07	80	Grey mudstone		
175.08	175.18	.10	100	Coal		
175.18	176.33	1.14	100	Fine grained sandstone with coaly partings		
176.33	178.31	1.37	69	Black grading downwards into laminated siltstone		
178.31	180.29	1.98	100	Fine grained laminated sandstone grading downwards into coarse grained sandstone		
180.29	182.45	.76	35	Coal (176.33 - 180.29 m, a graded unit)		
182.45	183.03	.05	6	Fragments of coal		
183.03	188.67	5.54	100	Grey mudstone with occasional calcite partings		
188.67	188.70	.03	100	Calcite seam		
188.70	189.05	.30		Coal		
189.05	189.15	.10	83	Mudstone		
189.15	189.89	.61		Coal		
189.89	193.24	3.20	96	Mudstone		
193.24	196.60	3.35	100	Current bedded siltstone, graded unit		
196.60	199.80	3.66	87	Sandstone		
199.80	199.97	.15	86	Coal		
199.97	202.08	2.13	78	Laminated coaly siltstone		
202.08	205.41	3.20	96	Lithic sandstone		
205.41	205.49	.08	100	Coal		
205.49	205.79	.30	100	Fine grained sandstone		
205.79	206.10	.30	100	Siltstone		
206.10	207.01	.91	100	Coal		
207.01	211.84	3.96	82	Mudstone		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FINGAL No. 5 (Contd.)		GEOLOGICAL LOG			Page:- 4
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core / Sample
211.84	222.20	9.75	94	Siltstone	
222.20	225.09	2.90	100	Medium grained brown sandstone - slightly carbonaceous	
225.09	226.06	.76	77	Medium grained grey sandstone with coaly bands	
226.06	226.97	.91	100	Coarse grained grey gritty sandstone with coaly bands	
226.97	227.08	.10	100	Coaly siltstone	
227.08	231.34	4.27	100	Grey mudstone	
231.34	236.98	5.54	98	Lithic sandstone with coaly partings and fragments (233.78 to 234.39 m. Siltstone fragments inclusions)	
236.98	237.01	.03	100	Coal	
237.01	237.31	.30	100	Mudstone	
237.31	238.02	.71	100	Banded siltstone	
238.02	238.35	.33	100	Banded brown mudstone	
238.35	244.75	5.64	81	Fine grained grey sandstone, current bedded and banded	
244.75	251.61	6.55	96	Medium grained grey lithic sandstone with inclusions of siltstone fragments	
251.61	254.51	2.90	100	Medium grained lithic sandstone with coaly bands	
254.51	258.47	3.96	100	Medium grained lithic sandstone with very few coaly partings	
258.47	258.93	.30	66	Lithic sandstone with siltstone inclusions	
258.93	259.23	.30	100	Grey shale with coaly bands	
259.23	259.69	.30	75	Fine grained laminated sandstone	
259.69	260.76	.91	86	Lithic sandstone	
260.76	264.87	4.11	100	Fine grained laminated sandstone with coaly bands	
264.87	266.09	1.22	100	Dark grey shale, becoming silt grade towards base	
266.09	269.60	4.27	98	Clean grey sandstone with coaly bands. Shale bands at 267.31 - 267.61 m and 268.83 - 268.91 m	

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

DRILLING TARGET:-

REMARKS:- Duncan Seam 305.05 - 307.80 East Fingal Seam 343.20 - 344.72 m

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moist	Ash	Vol.	F.C.	S.E.	
			827/1	219.76	220.52	0.76			57.3				
			2	220.68	221.44	0.76			43.3				
			3	248.62	249.63	1.01	100						
			774/1	305.05	305.97	0.69		4.4	22.3	23.3	54.4	23.5	
			2	305.97	306.88	0.69	90	3.3	19.8	27.5	52.6	24.9	
			3	306.88	307.80	0.69		2.9	38.0	26.9	35.1	19.0	
			827/4	343.20	344.73	1.52	100		39.4				

GEOLOGICAL LOG

Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	129.54	app	95	Jurassic dolerite. Bottom .91 m is fine grained due to chilling at contact.		
129.54	130.45	0.91	100	Indurated sediments, dark grey and flint-like. Dolerite sediment contact is inclined at 50° to core length (i.e. dip 40°).		
130.45	131.98	1.52	100	Lithic sandstone with black banding.		
131.98	133.81	1.83	100	Fine grained lithic sandstone.		
133.81	137.77	3.96	100	As above with black banding. Current bedded in part.		
137.77	146.30	8.15	95	Lithic sandstone. 139.62 m band of clean fine grained sandstone 140.51 - 142.04 m dark grey banding 142.04 - 142.34 and 144.17 - 144.78 m clay pellet conglomerate.		
146.30	146.46	0.15	100	Black shale.		
146.46	146.76	0.15	100	Lithic sandstone.		
146.76	148.29	1.52	100	Current bedded banded siltstone.		
148.29	158.80	10.52	100	Current bedded lithic sandstone. 152.40 - 152.70 m banded mudstone.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 6	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:-
1722.12 m from Duncan adit portal on 100° M			0.32 (no. 4) 32-72 (no. 3) 72-350 (N 350-825 (B 825-1502 (A
R.L. OF SITE:- 739.75 m	SITE SURVEY ON MAP No.:-		CORE SIZE:-
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 19/11/65
INCLINATION OF HOLE:- Vertical	DRILL:- 12B		COMPLETED:- 8/2/68
CO-ORDS OF SITE:- 86198858	DRILLER:- D. Hardman		FINAL DEPTH (m):- 457.81

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FINGAL No. 6 (Contd.) GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
148.29	158.80	10.52	100	153.31, 153.62 and 156.36 m siltstone bands 158.19 m coaly band 158.50 - 158.80 m colour change to yellow (weathered)		
158.80	165.20	6.10	98	Lithic sandstone 159.18 - 159.46 m coaly lenses 159.46 - 164.82 m change to yellow feldspathic		
165.20	171.25	6.05	100	Interbedded carbonaceous mudstone, coal and clay:- 0.38 m Coal 0.08 m Mudstone 0.10 m Coaly mudstone 0.23 m Clay 0.56 m Dull coal with mudstone partings 0.08 m Mudstone 0.10 m Dull coal 0.08 m Mudstone 0.10 m Dull coal 0.51 m Clay stone 0.43 m Dull coal 0.25 m Mudstone or clay 1.37 m Dull coal with mudstone partings 0.66 m Mudstone 0.91 m Coal with mudstone partings 0.05 m Mudstone 0.15 m Dull coal 6.05 m		
171.25	172.54	1.30	100	Mudstone		
172.54	187.53	14.99	100	Lithic sandstone, fine grained at top and grading into overlying mudstone. Medium grained below 176.17 m. At 176.78 - 0.08 m Very coarse open textured lithic sandstone. At 178.54 - .05 m clay pellet conglomerate.. 176.56, 177.32, 177.70 m mudstone bands 179.83 - 182.88 m coaly partings in fine grained sandstone. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FINGAL No. 6 (Contd.) — GEOLOGICAL LOG — Page:- 3

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
172.54	187.53	14.99	100	182.88 - 185.93 m medium grained. 185.93 m sharp change to underlying banded siltstone. 186.99 m grading to medium and coarse underlying sandstone with coal lenses at base.		
187.53	187.83	0.30	100	Clay pellet conglomerate with coal lenses.		
187.83	188.37	0.53	100	Black and grey shale.		
188.37	190.50	2.13	100	Grey shale. Banded and current bedded interbedded grey siltstone and mudstone becoming coarser at base.		
190.50	219.76	29.26	100	Lithic sandstone. 190.50 - 192.02 m fine grained 192.02 m coarse to medium grained, fining upwards 201.78 m clay pellet conglomerate (.05m) 202.08 m coal lenses over .08 m 205.84 - 206.50 m coarse lithic sandstone containing coaly partings 206.50 - 206.65 m coal 207.65 - .03 m vitreous coal 207.95 - 208.18 m grain size grades upwards from coarse at base to fine, and changes back to coarse at top. 211.05 - 213.36 m grain size changed from medium at base to coarse at top 213.46 - 213.66 m mudstone band grading upwards into lithic sandstone 213.97 - .08 m scattered clay pellet conglomerate 214.27 - 214.53 m mudstone 216.26 - 216.87 m coaly partings 217.02 - 217.22 m clay pellet conglomerate 217.40 - 217.78 m coaly portions in lithic sandstone with a siltstone band at each end. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FINGAL No. 6 (Contd.) GEOLOGICAL LOG Page:- 4

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
190.50	219.76	29.26	100	217.78 - 218.24 m fine grained with banded siltstone, grading to medium grained at base. 218.39 .03 m vitreous coal.		
219.76	221.87	2.11		0.15 m Vitreous coal 0.58 m Carbonaceous mudstone } Sample No.1 0.03 m Vitreous coal 0.18 m Brown clay 0.28 m Carbonaceous mudstone 0.20 m Vitreous coal 0.03 m Brown clay } Sample No.2 0.15 m Vitreous coal 0.05 m Brown clay 0.15 m Vitreous coal 1.80 m		
221.87	222.50	0.63	100	Grey mudstone with .23 m clay at 222.12 m.		
222.50	228.90	6.40	100	Interbedded mudstone and current bedded siltstone grading into sandstone at base.		
228.90	243.41	14.50	100	Lithic sandstone. 231.04 m - 231.50 m Coaly partings 232.33 - 233.02 m Coal lenses 233.63 - 233.93 m Coarse grained 233.93 - 234.09 m Medium grained 234.09 - 234.59 m Fine grained and interbedded with banded siltstone 238.96 - 241.00 m Medium grained with occasional clean fine grained sandstone bands, grading into finer material at top 241.00 - 241.20 m Coarse grained 241.20 - 242.20 m Fine grained and banded and containing carbonaceous partings grades into coarse grained at base 242.29 - 242.60 m Coal lenses 243.15 - 243.41 m Coal lenses. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FINGAL No. 6 (Contd.) GEOLOGICAL LOG Page:- 5

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
243.41	246.81	3.40	100	Coarse grained lithic sandstone. 244.02 - 244.35 m Coal lenses 244.65 - 244.88 m Medium grained 245.59 - 245.75 m Clay pellet conglomerate.		
246.81	246.96	0.15	100	Coal.		
246.96	247.52	0.51	100	Grey siltstone.		
247.52	248.62	1.07	99	Laminated grey mudstone.		
248.62	249.63	0.76	76	Coal containing a .05 m and a 12 mm clay band (sampled).		
249.63	251.31	0.61		Grey mudstone grading into siltstone and feldspathic sandstone towards base.		
251.31	252.98	1.52	95	Medium grained lithic sandstone.		
252.98	256.03	3.05	100	Grey mudstone with .03 m calcite vein at 254.51 m.		
256.03		0.18		Fine grained sandstone.		
		0.36		Grey mudstone.		
		0.30	100	Medium grained lithic sandstone.		
	256.95	0.03		Grey mudstone.		
256.95	260.71	3.76	100	Medium grained lithic sandstone with clean fine grained grey sandstone bands. 259.38 - 259.54 m 256.69 - 260.22 m		
260.71	264.87	4.17	100	Mudstone, carbonaceous: 260.71 - 260.99 m and coal: 263.99 - 263.65 m (vitreous in middle)		
264.87	266.70	1.40	95	Interbedded mudstone and siltstone becoming coarser at base to interbedded sandstone and siltstone.		
266.70	279.91	13.21	100	Medium grained lithic sandstone. 267.46 - 267.61 m coarse grained 267.92 - 268.07 m fine sandstone band 269.29 - 274.40 m coarse grained coaly lenses and irregular patches for 1.07 m from 269.60 and at 271.27 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FINGAL No. 6 (Contd.) GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
266.70	279.91	13.21	100	274.40 .03 m fine grained black banded section 274.42 - 274.57 m coarse grained		
279.91	281.23	1.30	90	Banded mudstone .05 m dark grey at start, 280.11 - 280.42 m silicified. .30 m		
281.23	282.09	0.81	90	Coal.		
282.09	283.34	1.24	100	Grey mudstone.		
283.34	284.40	1.07	100	Interbedded mudstone and current bedded siltstone grading into sandstone at base.		
284.40	304.80	20.40	100	Medium grained lithic sandstone with coaly partings 285.47 - 286.13 m. 290.93 - 291.92 m Fine grained 296.88 - 297.56 m Clay pellet conglomerate 298.55 - 301.22 m Fine-medium grained 299.31 - 299.39 m Coal lenses and flecks 299.62 - 299.69 m " " " 299.92 - 299.95 m " " " 301.22 - 301.68 m " " " 303.28 - 303.30 m " " "		
304.80	307.85	2.74	90	Coal 0.08 m Shaly coal 0.05 m Coal 0.13 m Dark grey mudstone 1.68 m Coal 0.03 m Grey mudstone 0.53 m Coal 0.25 m Coaly shale 2.74 m		
		Samples				
307.85	308.74	0.63	70	Grey mudstone.		
308.74	318.13	9.35	89	Lithic sandstone. 308.74 - 309.68 m medium grained 309.68 - 318.13 m coarse grained		
318.13	318.69	0.56	100	Grey mudstone with carbonaceous mottling and .03 m carbonaceous mudstone at top.		
318.69	319.23	0.53	100	Fine grained lithic sandstone interbedded with fine banded siltstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FINGAL No. 6 (Contd.) GEOLOGICAL LOG Page:- 7

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
319.23	319.43	0.20	100	Dull coal.		
319.43	319.89	0.46	100	Banded mudstone.		
319.89	320.04	0.15	100	Banded siltstone.		
320.04	321.89	0.83	100	Fine grained sandstone.		
321.89	335.51			Medium grained lithic sandstone grading to coarse at 330.40 m.		
335.51	335.81	0.30	100	Fine grained lithic sandstone.		
335.81	336.17	0.20	100	Clay pellet conglomerate.		
336.17	345.34	9.17	100	Banded mudstone grading into siltstone at base, 341.25 - 341.63 m coal 343.20 - 344.73 m coal, containing two .03 m mudstone bands.		
345.34	354.48	8.99	99	Lithic sandstone, fine grained at top and grading to coarse at 348.39 - 349.61 m.		
354.48	354.89	0.41	100	.15 m coal and .25 m coaly shale.		
354.89	358.32	2.62	85	Grey mudstone with a fine grained lithic sandstone band at 356.62 - 356.92 m.		
358.32	358.60	0.23	85	Fine grained sandstone with interbedded mudstone.		
358.60	365.76	1.52	85	Medium grained lithic sandstone with interbedded banded mudstone 360.86 - 361.14 m.		
365.76	368.50	2.21	85	Banded mudstone grading to siltstone at base. 365.96 - 366.04 m carbonaceous 366.04 - 366.29 m lithic sandstone		
368.50	372.01	3.28	85	Lithic sandstone, coarse grained below 370.94 m.		
372.01	373.38	1.02	80	Carbonaceous mudstone, coal at base.		
373.38	376.73	3.15	85	Grey mudstone grading down to siltstone at 374.60 m and fine grained sandstone at base.		
376.73	379.09	2.36	100	Medium-fine lithic sandstone with interbedded current bedded-sandstone, 378.74 - 379.09 m.		
379.09	382.27	2.79	95	Fine grained lithic sandstone.		
382.27	383.59	1.32	100	Medium grained lithic sandstone. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FINGAL No. 6 (Contd.) — GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
383.59	392.13	7.92	95	Grey mudstone with slightly carbonaceous sections.		
392.13	398.37	5.79	93	Grey current bedded and banded siltstone.		
398.37	398.68	0.30	100	Fine grained current bedded sandstone.		
398.68	402.03	3.25	98	Medium grained lithic sandstone.		
402.03	404.16	2.13	100	Grey mudstone, carbonaceous at base.		
404.16	407.21	3.05	100	Grey siltstone.		
407.21	407.52	0.30	100	Fine grained lithic sandstone.		
407.52	414.99	7.47	100	Medium grained lithic sandstone with carbonaceous partings at 408.74 - 409.04 m and clay pellets at 412.09 - 412.24 m.		
414.99	415.44	0.53	100	Banded siltstone.		
415.44	417.42	1.98	100	Medium grained lithic sandstone.		
417.42	417.88	0.46	100	Grey siltstone with carbonaceous bands.		
417.88	422.45	4.57	100	Medium grained lithic sandstone, clay pellet conglomerate band at 421.23 - 421.69 m.		
422.45	422.91	0.46	100	Fine grained lithic sandstone.		
422.91	425.12	1.83	82	Banded siltstone - fine grained sandstone.		
425.12	432.21	6.78	100	Banded mudstone - siltstone.		
432.21	451.10	17.98	94	Medium grained creamy sandstone interbedded with dark grey to black very fine grained sandstone bands.		
451.10	455.37	3.35	95	Banded sandstone - siltstone.		
455.37	457.81	2.44	100	Banded mudstone with scattered grits.		
				The Permian Boundary is at 451.10 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

DRILLING TARGET:-

REMARKS: Hole abandoned due to jamming of rods

SURVEY DATA			ASSAY DATA									
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS				

GEOLOGICAL LOG

Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	9.14			No core		
9.14	20.12	10.06	93	Iron stained, medium-coarse grained lithic sandstone. Bedding 65° to core length. .03 m band of clay pellets at 10.52 m and coaly partings 14.63 - 20.12 m		
20.12	45.57	20.42	80	Lithic sandstone: 20.12 - 24.38 medium grained (broken core 22.86 - 26.06 m). 24.38 - 26.06 m fine grained 26.06 - 26.97 m medium grained 26.97 - 28.96 m coal partings 26.97 - 29.72 m coarse grained 29.72 - 30.78 m medium grained with clay pellets 30.78 - 31.09 m fine grained with clay pellets 31.09 - 36.58 m medium grained with coal partings 35.66 - 36.80 m and 33.53 - 37.19 m calcareous 36.58 - 36.80 m fine grained		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 7	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:-
27 ch S of BH6 on bank of Waratah Creek			
R.L. OF SITE:- 619.7	SITE SURVEY ON MAP No.:		CORE SIZE:- No.3 0-5, No. 4 5-30, NX 30-171
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 18/3/69
INCLINATION OF HOLE:- Vertical	DRILL:- 12B		COMPLETED:- 26/4/69
CO-ORDS OF SITE:- 86099791	DRILLER:- D. Hardman		FINAL DEPTH (m):- 52.12 m

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FINGAL No. 7 (Contd.) — GEOLOGICAL LOG — Page:- 2

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				36.80 - 45.57 m medium grained with coal partings 38.30 - 38.71 m 43.89 - 44.20 m - 45.11 - 45.42 m and clay pellets 38.30 - 38.71 m.		
45.57	52.12	4.57	68	Interbedded coal and mudstone: .46 Dull coal .38 Carbonaceous clay .41 Carbonaceous mudstone .28 White sandstone .20 Grey clay in part calcareous .38 Coaly shale .25 Calcareous clay .91 Coaly shale .25 Coal with vitreous bands, bedding at 70° to core length 1.22 Dark grey shale, brecciated over last metre		
				HOLE ABANDONED		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

DRILLING TARGET:- Duncan Seam 183.54 - 185.77 m, East Fingal Seam 228.37 - 230.35 m

REMARKS:- Core recovery 54.86 m to E.O.H. 100% (uneconomic)

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moist	Ash	Vol	F.C.	S.E.	
			682317	183.54	185.01			4.72	24.4	27.3	51.0	23.2	
			682318	185.01	185.77			3.80	39.4	38.4	22.2	18.4	

GEOLOGICAL LOG

Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
30.48	45.42	14.33	96	Lithic sandstone 33.15 - 33.22 m clay pellets 33.45 - 33.53 m calcareous 34.98 - 36.58 m calcareous 35.97 - 37.34 m coaly lenses 38.25 - 38.40 m coaly lenses 42.98 - 45.42 m coaly lenses		
45.42	45.85	0.43	100	Coal Interbedded coal, carbonaceous mudstone, mudstone and clay - Details:		
45.85	55.02	5.18	57	Dark grey crumbly mudstone .33 m Carbonaceous mudstone .13 m Brown crumbly calcareous mudstone .15 m Coal .08 m Interbedded carbonaceous and brown mudstone, last .08 m calcareous .30 m Dull coal or carbonaceous mudstone .41 m Light grey friable calcareous mudstone .28 m Dark brown mudstone .58 m Coal .15 m Carbonaceous mudstone .23 m		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 7B	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:- NO 3 0 - 30.48 NX 30.48 - 109.73 BX 109.73 - 201.78 AX 201.78 - 351.74
Approximately 15.24 m N of No. 7			
R.L. OF SITE:- 619.7	SITE SURVEY ON MAP No.:-		CORE SIZE:-
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- BX to 200.56 18/3/68
INCLINATION OF HOLE:- Vertical	DRILL:- 12B		COMPLETED:- 26/4/69
CO-ORDS OF SITE:- 86108791	DRILLER:- D. Hardman		FINAL DEPTH (m):- 351.74

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FINGAL No. 7B (Contd.) GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
45.85	55.02	5.18	57	Friable light grey calcareous mudstone .15 m Carbonaceous mudstone .13 m Friable light grey calcareous mudstone .36 m Carbonaceous at base Friable light grey mudstone .58 m Carbonaceous mudstone .86 m		
55.02	62.48	7.46	100	Interlaminated, current bedded, mudstone and siltstone, the siltstone fraction increases towards base and grades into fine sandstone		
62.48	64.31	1.83		Lithic sandstone, fine grained at top grading to coarse at base		
64.31	65.23	0.92		Interbedded sandstone and siltstone		
65.23	66.14	0.91		Lithic sandstone with .03 - .05 m coal lenses		
66.14	67.36	1.22		Brown mudstone		
67.36	67.51	0.15		Black mudstone		
67.51	67.89	0.38		Grey mudstone		
67.89	68.05	0.16		Siltstone		
68.05	69.27	1.22		Interbedded fine grained sandstone and siltstone		
69.27	70.41	0.14		Fine grained sandstone		
70.41	99.97	29.56		Medium grained lithic sandstone Coal partings at 75.13 m 76.66 m 79.55 m Coal lenses at 85.80 - 85.95 m 86.49 - 86.56 m 86.87 - 86.94 m .03 m of coal at 88.09 m 90.30 - 90.37 m 91.14 - 91.44 m 91.90 - 92.35 m 96.62 - 96.93 m 97.54 - 98.76 m (faint only) Coarse grained 84.73 - 85.34 m		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FINGAL No. 7B (Contd.)				GEOLOGICAL LOG	Page:- 3	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
70.41	99.97	29.56	100	Mudstone band 92.35 - 92.51 m Calcareous at 75.18 - 75.39 m and clay pellets at 96.77 - 96.82 m		
99.97	101.19	1.22		Coal .23 m Carbonaceous mudstone 0.38 m Coal .41 m Containing 2 thin brown mudstone bands		
101.19	101.75	0.56		Coal with clay bands at 101.25 - 101.27 m		
101.75	102.03	0.28		Grey clay calcareous at base		
102.03	102.16	0.13		Coal		
102.16	102.23	0.07		Light brown mudstone containing a .03 m coal lens		
102.23	102.82	0.69		Grey shaly siltstone		
102.82	104.65	1.83		Dark grey shale containing .025 m coal near top		
104.65	108.25	3.60		Banded siltstone with current bedded sections, fine banding over bottom 1.22 m		
108.25	117.96	9.71		Medium grained lithic sandstone, upper contact sharp calcareous 111.25 - 111.35 m		
117.96	118.21	0.25		Medium grained lithic sandstone with interbedded dark grey siltstone		
118.21	124.56	6.35		Medium grained lithic sandstone with carbonaceous partings, calcareous 119.94 - 120.09 m		
124.56	124.71	0.15		Coal		
124.71	126.85	2.14		Medium grained lithic sandstone		
126.85	127.41	0.56		Coarse grained lithic sandstone containing coal lenses and clay pellets		
127.41	127.74	0.33		Dull coal		
127.74	129.46	1.72		Fine banded mudstone becoming silty towards base		
129.46	129.84	0.38		Coarse grained lithic sandstone containing coal lenses and clay pellets		
129.84	130.35	0.51		Grey mudstone with sharp upper contact and gradational bottom contact		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FINGAL No. 7B (Contd.) — GEOLOGICAL LOG — Page:- 4

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
130.35	131.52	1.17	100	Coal containing a calcareous clay band at 130.45 - 130.53 m		
131.52	134.75	3.23		Fine banded, current bedded siltstone with some mudstone sections		
134.75	135.23	0.58		Interbedded lithic sandstone and grey siltstone		
135.23	136.12	0.89		Medium grained lithic sandstone		
136.12	136.47	0.35		Grey siltstone		
136.47	136.98	0.51		Medium grained lithic sandstone		
136.98	137.31	0.33		Interbedded siltstone and medium grained lithic sandstone		
137.31	137.74	0.43		Banded siltstone		
137.74	162.26	24.52		Medium grained to coarse grained lithic sandstone with fine grained sections at: 139.19 - 139.34 m 139.60 - 140.82 m 141.12 - 141.33 m 141.63 - 141.81 m Calcareous sections at: 141.81 - 142.70 m 144.58 - 145.03 m 145.62 - 145.90 m 147.52 - 147.68 m Carbonaceous mudstone at: 148.95 - 149.12 m Carbonaceous partings at: 157.28 m 158.01 m 158.34 m 162.05 m Clay pellets at: 160.25 m 161.67 - 161.82 m 162.05 - 162.26 m		
162.26	162.74	0.48		Coal		
162.74	162.94	0.20		Mudstone		
162.94	163.17	0.23		Coal		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FINGAL No. 7B (Contd.) GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
163.17	163.40	0.23	100	Dark grey mudstone		
163.40	163.53	0.13		Coal		
163.53	164.59	1.06		Grey mudstone grading to siltstone at base		
164.59	166.40	1.81		Current bedded siltstone grading to sandstone at base.		
166.40	179.93	3.53		Lithic sandstone, fine grained at top, medium grained below 168.25 m. Clay pellets and coal lenses over bottom 1.22 m		
179.93	180.26	0.33		Carbonaceous mudstone containing .03 m of vitreous coal near top.		
180.26	180.39	0.13		Dark brown mudstone		
180.39	182.98	1.59		Grey mudstone, shaly in part and soft clayey at base, calcareous sections		
182.98	183.08	0.10		Carbonaceous mudstone		
183.08	183.29	0.21		Grey mudstone gradational at base		
183.29	183.54	0.25		Carbonaceous mudstone or dull coal		
183.54	185.01	1.47		Coal		
185.01	185.77	0.76		Shaly coal - made up of interlaminated shale and vitreous coal		
185.77	186.61	0.83		Fine grained brown lithic sandstone		
186.61	200.18	13.57		Medium grained lithic sandstone, brown at top and grey below 187.76 m. Slightly coarser grained over bottom .91 m. A .05 m mudstone pellet at 194.54 m 194.84 - 195.12 m Fine grained 195.30 - 195.99 m 196.90 - 197.05 m 199.77 - 199.90 m Coal partings and lenses		
200.18	200.36	0.18		Carbonaceous mudstone		
200.36	200.56	0.20		Coal		
200.56	201.63	1.07		Interbedded grey mudstone and siltstone. At 201.07 m a .10 m hard light grey mudstone, carbonaceous at base.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FINGAL No. 7B (Contd.) — GEOLOGICAL LOG — Page:- 6

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
201.63	206.07	4.44		Medium grained lithic sandstone, calcareous from 201.78 to 202.31 m.		
206.07	212.17	6.10		Coarse grained lithic sandstone 206.15 - 206.73 m coal lenses 206.45 - 209.58 m) calcareous 210.90 - 211.05 m)		
212.17	221.21	9.04		Medium grained lithic sandstone with occasional coarse grained bands, an irregular coaly parting 45° to core length. 214.07 - 214.40 m calcareous 214.45 - 214.63 m scattered coaly lenses 215.42 - 215.44 m) calcareous 215.57 m) 215.65 - 215.75 m 215.95 - 216.15 m scattered clay pellets and a .03 m coal lens 216.28 - 216.36 m calcareous 217.86 - 217.91 m clay pellets and coal lenses		
221.21	222.35	1.14		Probable fault zone - medium grained lithic sandstone and finely banded mudstone-siltstone, bedding disturbed and inclined at 35° to core length in mudstone		
222.35	224.33	1.98		Medium grained lithic sandstone with scattered coal partings		
224.33	225.53	1.20		Medium grained lithic sandstone		
225.53	225.78	0.25		Coal		
225.78	226.47	0.68		Grey mudstone grades up into coal		
226.47	227.38	0.91		Grey siltstone grades up into mudstone		
227.38	228.37	0.99		Grey mudstone		
228.37	228.50	0.13		Coal		
228.50	230.35	1.85		Carbonaceous mudstone		
230.35	237.29	6.94		Medium grained lithic sandstone grades into overlying bed. Coarse grained below 231.65, 234.39 - 234.82 m calcareous		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FINGAL No. 7B (Contd.) GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
237.29	237.72	0.43		Coal, upper contact sharp and lower contact gradational		
237.72	238.00	0.28		Carbonaceous mudstone		
238.00	238.43	0.43		Grey mudstone grades into overlying bed		
238.43	239.57	1.14		Grey siltstone		
239.57	239.90	0.33		Grey mudstone		
239.90	240.87	0.97		Grey banded siltstone		
240.87	241.73	1.85		Grey banded mudstone		
241.73	243.00	1.27		Grey interbanded siltstone and fine grained sandstone		
243.00	249.12	6.12		Medium grained lithic sandstone 244.58 - 244.60 m) coal partings 244.70 - 244.93 m) 244.93 - 245.01 m) 245.14 - 245.19 m) 245.85 - 246.33 m calcareous 247.68 - 247.80 m coal partings		
249.12	249.33	0.21		Hard stoney coal with a sharp upper contact and gradational lower contact		
249.33	255.17	5.84		Lithic sandstone with coal partings down to 251.54 m and coarse grained below 252.98 m, 254.41 - 254.51 m, clay pellet conglomerate		
255.17	255.98	0.81		Coal. Sharp upper and lower contacts		
255.98	257.86	1.88		Grey siltstone, grading upwards into mudstone over .08 m		
257.86	261.06	3.20		Interbedded lithic sandstone and banded fine grained sandstone/siltstone		
261.06	266.67	5.61		Medium grained lithic sandstone, coarse grained at base		
266.67	272.47	5.80		Grey mudstone		
272.47	273.35	0.88		Grey siltstone		
273.35	275.84	2.49		Medium grained lithic sandstone		
275.84	278.89	3.05		Fine grained lithic sandstone, interbedded with banded current bedded siltstone over bottom .15 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FINGAL No. 7b (Contd.) GEOLOGICAL LOG Page:- 8

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
278.89	279.20	0.31		Light grey medium coarse grained lithic sandstone containing disconformable coal lenses		
279.20	279.83	0.63		Hard carbonaceous mudstone, sharp upper contact and gradational lower contact		
279.83	280.49	0.66		Current bedded siltstone		
280.49	281.38	0.89		Grey mudstone		
281.38	282.17	0.79		Light grey fine grained clean sandstone with irregular black banding		
282.17	283.08	0.91		Banded siltstone		
283.08	285.83	2.75		Banded mudstone with some silty portions		
285.83	286.31	0.48		Hard stoney coal with sharp upper and gradational lower contacts		
286.31	289.46	3.15		Fine grained clean sandstone with occasional fine banded siltstone portions		
289.46	295.66	6.20		Current bedded siltstone		
295.66	308.38	2.72		Medium grained light grey lithic sandstone with occasional banded portions 297.87 m Coaly partings 298.70 - 298.78 m) 301.12 - 301.19 m) 297.87 - 297.99 m) Clay pellet conglomerate 302.29 - 302.54 m) 302.69 - 303.02 m) 303.17 - 303.28 m) 304.24 - 305.00 m) 305.49 - 305.59 m) 305.92 - 305.99 m) 307.85 - 308.38 m)		
308.38	309.22	0.84		Grey mudstone, gradational upper contact		
309.22	312.93	3.71		Interbanded siltstone and dark grey mudstone		
312.93	319.74	6.81		Clean light grey to white sandstone with gradational upper contact and containing portions of interbanded mudstone and siltstone and a black carbonaceous mudstone band at 318.03 - 313.21 m with a sharp upper and gradational lower contact.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FINGAL No. 7B (Contd.) — GEOLOGICAL LOG — Page:- 9

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
319.74	327.23	7.49		Medium-coarse grained cream coloured sandstone. Black carbonaceous mudstone 324.13 - 324.69 m with sharp upper and gradational lower contacts		
327.23	328.73	1.50		Current bedded banded siltstone greenish colour towards base, gradational upper and lower contacts		
328.73	341.58	2.85		Off white, medium-coarse sandstone with fine black banding. Green colour at base. 333.93 - 334.26 m Black mudstone 338.61 - 339.75 m Banded siltstone grading upwards into black mudstone		
341.58	351.74	10.16		Dark grey uniform mudstone-siltstone with scattered rounded 6 mm white grits. A 25 mm calcareous nodule at 349.91 m. The Triassic/Permian contact is at 341.58 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:-

REMARKS:- **Abandoned**

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS					

GEOLOGICAL LOG — Logged by:-

FROM metrev	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				Drilled at base of escarpment of Fingal Tier. Abandoned after repeated attempts to penetrate dolerite scree.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 14	MAP SHEET No.	DISTRICT	LOCATION OF SITE:-
Abandoned in overburden			
R.L. OF SITE:- 662.0	SITE SURVEY ON MAP No.:		CORE SIZE:- BQ
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 14/7/71
INCLINATION OF HOLE:- Vertical	DRILL:- Edeco		COMPLETED:- 1/9/72
CO-ORDS OF SITE:- 88388904	DRILLER:- L. Freeman		FINAL DEPTH (m):- app. 300 m

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DRILLING TARGET:-

REMARKS:- Abandoned in dolerite.

SURVEY DATA			ASSAY DATA											
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS						

GEOLOGICAL LOG

Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				Rods jammed in joints in dolerite. (Joints contained calcite, chabazite and montmorillonite).		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 15	MAP SHEET No.	DISTRICT	LOCATION OF SITE:-
FINGAL TIER			
R.L. OF SITE:- 766.3 m	SITE SURVEY ON MAP No.:-		CORE SIZE:-
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- January 1973
INCLINATION OF HOLE:- Vertical	DRILL:- Edeco		COMPLETED:- January 1973
CO-ORDS OF SITE:- 88148798	DRILLER:- L. Freeman		FINAL DEPTH (m):- 74.70 m

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DRILLING TARGET:-

REMARKS:- Abandoned, jammed rods.

SURVEY DATA			ASSAY DATA											
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moist	Ash	VCM	FL	Cal Val	
			5	356.43	357.30	0.87	100		48.8			ND	
			6	357.30	357.93	0.63	100		25.8			22.6	
			composite	356.43	357.93	1.50	100	2.5	38.5	23.2	35.8	ND	
			1	328.80	328.96	0.16	100		26.9			23.9	
			2	328.96	329.47	0.51	100		58.5			ND	
			3	329.47	330.38	0.91	100		25.5			23.2	
			4	330.38	330.90	0.52	100		58.9			ND	
			composite	328.80	330.90	2.10	100	1.4	42.0	16.4	40.1	ND	

GEOLOGICAL LOG Logged by:-

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	263.30			Dolerite.		
263.30	270.85	7.43	98	Medium-fine grained lithic sandstone.		
270.85	287.61	16.76	100	Medium grained lithic sandstone with scattered clay pellets at 270.85 - 270.67 m, 277.67 - 277.87 m and 279.93 - 273.03 m.		
287.61	290.19	1.90	77	Grey siltstone, current bedded in part.		
290.19	293.45	3.26	100	Fine grained sandstone.		
293.45	297.11	3.05	82	Medium grained lithic sandstone.		
297.11	303.11	3.97	66	Dark grey mudstone, carbonaceous at bottom.		
303.11	306.06	2.59	88	Coal: .38 m Dull coal, shaly in part .23 m Dull coal .30 m Carbonaceous sandstone 1.68/2.59 m Carbonaceous mudstone		
306.06	306.70	0.61	95	Grey mudstone.		
306.70	307.98	1.22	95	Coal: .64 m Carbonaceous mudstone .23 m Dull coal with few bright bands .35 m Carbonaceous mudstone 1.27 m		
307.98	308.69	0.67	95	Grey mudstone.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 16A	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:-
R.L. OF SITE:- 837.0 m	SITE SURVEY ON MAP No.:		CORE SIZE:- BQ
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 17/7/74
INCLINATION OF HOLE:- Vertical	DRILL:- 30 HD		COMPLETED:- 18/4/75
CO-ORDS OF SITE:- EP89658693	DRILLER:- G. Baker		FINAL DEPTH (m):- 364.25 m

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16A GEOLOGICAL LOG Page:- 2

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
308.69	318.59	9.85	99	Grey medium grained lithic sandstone, gradational bottom contact.		
318.59	322.11	3.52	100	Medium-coarse grained black lithic sandstone containing minute fragments of coal.		
322.11	323.77	1.73		Medium grained lithic sandstone.		
323.77	324.01	0.24		Coarse grained lithic sandstone.		
324.01	324.29	0.28	95	Fine grained dark grey banded sandstone.		
324.29	324.41	0.11		Medium.		
324.41	324.50	0.09		Coarse.		
324.50	325.47	0.92		Medium-coarse.		
325.47	328.80	3.17		Carbonaceous mudstone.		
328.80	330.90	2.10	100	Coal: 0.16 m bright coal) 0.51 m dull coal } Sample 0.91 m bright coal) 0.52 m dull coal) 2.10 m		1 2 3 4
330.90	331.02	0.12	100	Carbonaceous mudstone, bottom contact gradational.		
331.02	331.43	1.41	100	Grey mudstone.		
331.43	331.92	0.49	100	Fine grained lithic sandstone.		
331.92	333.17	0.25	100	Dark grey siltstone.		
333.17	333.26	0.09	100	Dark grey fine grained lithic sandstone.		
333.26	333.45	0.19	100	Light grey medium-fine grained lithic sandstone containing black siltstone beds up to 0.03 m.		
333.45	338.92	5.47	100	Medium grained lithic sandstone with occasional banded sections at top becoming coarser at bottom with gradational contact.		
338.92	339.00	0.08		Coarse grained lithic sandstone with coal partings.		
339.00	339.55	0.55		Fine grained lithic sandstone.		
339.55	339.87	0.32				
339.87	340.83	1.00		Medium-coarse grained lithic sandstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

16A — GEOLOGICAL LOG — Page:- 3

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
340.87	345.00	4.13		Medium grained lithic sandstone banded 341.40 - 341.50 m and 343.82 - 344.07 m.		
345.00	351.91	11.91	100	Medium-fine grained lithic sandstone becoming coarser at base. Banding 345.00 - 345.40 m Current bedding 345.40 - 345.65 m Clay pellet conglomerate 347.63 - 347.66 m Scattered coal lense 347.66 - 348.45 m Siltstone banding 348.45 - 348.66 m Scattered coal lense 348.66 - 350.02 m		
351.91	352.06	0.14	95	Dark grey mudstone.		
352.06	352.19	0.12	93	Cream clay.		
352.19	358.03	5.84	100	Coal: 0.04 Coal .04 Cream clay .12 Coal 2.29 Carbonaceous mudstone .18 Cream clay .07 Soft coal .72 Carbonaceous mudstone .29 Cream clay .41 Carbonaceous mudstone .05 Cream clay .29 Coal .12 Cream clay .92 Coal .07 Hard clay band .10 Coal 1.31 Carbonaceous mudstone 7.02		5 6
358.03	364.25	5.60	90	Mudstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

DRILLING TARGET:- 425.05 - 423.05

REMARKS:- Duncan Seam 380.11 - 381.43, East Fingal Seam 418.90 - 419.60,

SURVEY DATA			ASSAY DATA											
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moist	Ash	Vol	F.C.	S.E.	
			1	348.98	350.32	1.27	95	4.5	24.8	27.3	47.6	24.9	
			2	354.34	355.14	0.80	100	4.1	28.7	27.1	44.2	24.3	
			3	380.11	381.43	1.32	100	4.1	34.3	25.8	39.9	18.8	approx
			4	418.90	419.60	0.70	83	3.7	38.8	21.4	40.0	17.2	"
			5	423.05	425.05	2.00	100	3.6	26.3	22.9	49.8	24.3	

GEOLOGICAL LOG Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	323.46			Dolerite		
				(0.46 dull coal		
				(0.04 brown shaly band		
				(0.18 dull coal		
				(0.27 brown shaly band		
323.46	325.64	2.13	97	Coal (0.42 dull coal with few vitreous bands		
				(0.16 coal		
				(0.08 band		
				(0.52 coal		
325.64	328.19	2.53	99	Banded mudstone		
328.19	328.64	0.45		Banded sandstone		
328.64	331.60	2.93		Black mudstone		
331.60	333.38	1.78	100	Very fine grained dark grey sandstone coarser at base		
333.38	333.55	0.17		Medium-fine grained lithic sandstone		
333.55	333.66	0.11		Very fine grained dark grey sandstone		
333.66	338.29	4.62		Medium grained lithic sandstone		
338.29	339.51	0.89	74	Medium-coarse grained lithic sandstone with coal leases and clay pellets		
339.51	340.44	0.68		Medium grained lithic sandstone		
340.44	340.75	0.23		Medium-fine grained lithic sandstone		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 17	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:-
			Fingal Tier
			BX 12.11 - 404.81
R.L. OF SITE:- 777.5	SITE SURVEY ON MAP No.:-		CORE SIZE:- BQ 404.81 - EOH
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 25/1/73
INCLINATION OF HOLE:- Vertical	DRILL:- Edeco		COMPLETED:- 14/9/73
CO-ORDS OF SITE:- 88088788	DRILLER:- L. Freeman G. Baker		FINAL DEPTH (m):- 505.29 m

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FINGAL No. 17 (Cont.) GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
340.75	343.80	3.00	97	Medium grained lithic sandstone		
343.80	345.72	1.88		Coarse grained lithic sandstone with scattered clay pellets		
345.72	346.24	0.50		Medium-coarse grained lithic sandstone		
346.24	346.74	0.48		Coal and slickensided dark grey mudstone		
346.74	346.90	0.14		Grey mudstone		
346.90	347.58	0.68	100	Fine grained banded sandstone		
347.58	348.41	0.84		Medium-fine grained lithic sandstone		
348.41	348.88	0.47		Fine grained banded sandstone		
348.88	348.98	0.10		Black mudstone		
348.98	349.14	0.16		(Coal		
349.14	349.31	0.17	95	(Grey mudstone (broken core)		
349.31	349.51	0.20		(Dull coal		
349.51	349.59	0.08		(Grey mudstone (broken core)		
349.59	349.95	0.36		(Dull coal with some bright bands (approx. 5-10°)		
349.95	350.32	0.30		(Coal with some bright sections (50%)		
350.32	352.75	1.94		Grey mudstone		
352.75	353.00	0.20		Fine grained lithic sandstone (broken core)		
353.00	353.41	0.40	98			
353.41	354.34	0.92		Siltstone-mudstone with gradational bottom contact		
354.34	355.14	0.80	100	Dull coal		
355.14	356.26	1.10		Mudstone with gradational top contact		
356.26	356.67	0.40		Mudstone with calcareous bands		
356.67	356.98	0.30		Coal		
356.98	358.31	1.30		Mudstone, siltstone banding at base		
358.31	359.38	1.07		Medium grained lithic sandstone		
359.38	360.08	0.70	100	Very fine grained sandstone		
360.08	362.15	1.83		Medium-coarse grained lithic sandstone Calcareous 361.75 - 361.85		
362.15	363.93	1.75	98	Medium-coarse grained lithic sandstone		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FINGAL No. 17 (Contd.) — GEOLOGICAL LOG — Page:- 3

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
363.93	365.55	1.59		Coarse grained lithic sandstone with scattered coal fragments		
365.55	372.37	6.70		Medium-coarse lithic sandstone		
372.37	372.47	0.10	97	As above with clay pellets		
372.47	372.67	0.20		Grey mudstone		
372.67	373.67	0.97		Medium-coarse grained lithic sandstone		
373.67	374.66	0.96		Fine grained lithic sandstone, current bedded with coaly bands to 374.39		
374.66	374.90	0.23		Dull coal with a few vitreous bands. Sharp top contact.		
374.90	375.17	0.26		Black mudstone sharp top contact		
375.17	379.27	4.00		Grey mudstone (broken core), carbonaceous mudstone 377.13 - 377.53		
379.27	380.11	0.84		Dull coal/carbonaceous mudstone		
380.11	381.43	1.32		Dull coal (bottom 8 cms not sampled)		
381.43	382.42	0.99		Fine grained lithic sandstone		
382.42	383.96	1.54		Medium-fine grained lithic sandstone		
383.96	390.01	6.05		Coarse grained lithic sandstone		
390.01	392.25	2.18	97	Medium-coarse grained lithic sandstone		
392.25	394.83	2.51		Coarse grained lithic sandstone. A fracture runs sub parallel to core 393.00 - 395.00 and core is broken		
394.83	395.65	0.80	100	Medium-fine grained lithic sandstone with carbonaceous flecks		
395.65	397.20	1.55				
397.20	397.37	0.17		Fine banded sandstone		
397.37	398.90	1.53		Fine grained lithic sandstone with minute carbonaceous flecks		
398.90	405.53	6.58	99	Medium-coarse lithic sandstone with occasional coal flecks and a vitreous coal band at 402.70		
405.53	406.95	1.40		Medium grained lithic sandstone		
406.95	407.29	0.34		Grey mudstone		
407.29	407.63	0.30		Banded sandstone with gradational bottom contact		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FINGAL No. 17 (Contd.) GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
407.63	408.09	0.45		Medium-fine grained lithic sandstone		
408.09	408.23	0.14		Grey mudstone with gradational bottom contact		
408.23	408.74	0.50		Fine grained lithic sandstone with gradational bottom contact		
408.74	408.98	0.24		Banded siltstone with gradational bottom contact		
408.98	409.28	0.30		Carbonaceous mudstone		
409.28	409.43	0.15		Carbonaceous sandstone		
409.43	411.85	2.32	96	Current bedded siltstone grading up from mudstone		
411.85	413.45	1.60	100	Current bedded dark green siltstone		
413.45	414.42	0.97		Medium-fine grained lithic sandstone interbedded with banded siltstone		
414.42	418.34	3.92		Banded siltstone		
418.34	419.60	1.26		Coal 418.90 - 419.60 (0.70)		
419.60	420.20	0.60	83	Carbonaceous mudstone		
420.20	421.60	1.40	100	Grey mudstone		
421.60	422.49	0.73	82	Fine grained banded sandstone		
422.49	423.00	0.33	60	Banded mudstone		
423.00	425.05	1.85	92	Coal 422.78 - 423.85 coal 423.85 - 423.87 band 423.87 - 423.89 dull coal 423.89 - 423.93 band 423.93 - 425.02 coal		
425.05	425.08	0.06	100	Mudstone		
425.08	425.13	0.05		Band		
425.13	425.27	0.14		Carbonaceous mudstone		
425.27	426.10	0.83	77	Banded fine grained sandstone		
426.10	426.20	0.08				
426.20	427.00	0.77	100	Grey mudstone		
427.00	428.43	1.43				
428.43	431.85	3.42		Fine grained banded sandstone, calcareous at top		
431.85	432.67	0.80	97	Banded mudstone Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FINGAL No. 17 (Contd.) GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
432.67	434.60	1.88		Fine grained lithic sandstone, gradational top contact		
434.60	434.66	0.06	99	Medium grained lithic sandstone with fine black banding		
434.66	434.91	0.25		Black siltstone both contacts gradational		
434.91	435.11	0.20		Medium grained lithic sandstone with fine black banding		
435.11	437.87	2.73		Medium grained lithic sandstone		
437.87	438.20	0.33		Coal grading up into black mudstone sharp top contact		
438.20	439.12	0.88	96	Dark grey mudstone		
439.12	439.79	0.65		Coal		
439.79	441.19	1.35		Grey mudstone		
441.19	441.53	0.33		Fine grained banded sandstone		
441.53	446.93	5.40	100	Light grey fine grained carbonaceous sandstone		
446.93	448.05	1.12		Banded fine grained sandstone		
448.05	448.65	0.54		Medium grained lithic sandstone with clay pellet bands		
448.65	449.30	0.85	98	Grey mudstone		
449.30	449.74	0.43				
449.74	450.04	0.29		Current bedded siltstone		
450.04	450.23	0.19		Dark grey mudstone		
450.23	452.78	2.51		Brown banded siltstone		
452.78	454.10	1.32	100	Black siltstone		
454.10	455.14	1.04		Grey mudstone		
455.14	456.76	1.62		Fine grained lithic sandstone		
456.76	461.33	4.57		Medium-fine grained lithic sandstone, coaly bands and irregular bedding 461.33 - 461.82		
461.33	464.09	2.76		Medium grained lithic sandstone		
464.09	464.29	0.20		Banded medium grained lithic sandstone		
464.29	464.37	0.08		Clay pellet conglomerate		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FINGAL No. 17 (Contd.) — GEOLOGICAL LOG — Page:- 6

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
464.37	471.04	6.67		Medium grained lithic sandstone, scattered clay pellets 465.31 - 465.48, carbonaceous banding 470.63 - 471.04		
471.04	471.33	0.29		Grey siltstone - bedding at 40° to core length		
471.33	471.67	0.31	92	Banded medium grained lithic sandstone		
471.67	472.35	0.49		Medium-fine grained lithic sandstone		
472.35	472.85	0.36		Dark grey mudstone		
472.85	474.13	0.92		Banded medium-fine grained lithic sandstone		
474.13	475.94	1.81	100	Grey siltstone		
475.94	476.60	0.66		Banded fine grained lithic sandstone		
476.60	487.44	10.78		Medium grained lithic sandstone banded 479.11 - 479.25 calcareous 482.64 - 483.80 484.58 - 485.41		
487.44	489.82	2.76	100	Interbedded dark grey siltstone and fine grained sandstone		
489.82	490.80	0.64		Grey mudstone		
490.80	491.40	0.46		Medium-fine grained lithic sandstone		
491.40	491.68	0.28		Fine grained lithic sandstone, banded at base		
491.68	492.23	0.55		Grey mudstone		
492.23	493.24	1.01	100	Fine grained lithic sandstone		
493.24	494.57	1.37		Dark grey siltstone grading to mudstone at base		
494.57	494.82	0.26		Calcareous sandstone		
494.82	495.44	0.64		Grey siltstone		
495.44	496.05	0.62		Calcareous sandstone		
496.05	497.09	1.04	100	Grey siltstone		
497.09	505.29	8.14	99	Cream sandstone with black banding from 497.30		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

DRILLING TARGET:- Duncan Seam 428.25 - 429.80 m, Hole abandoned above East Fingal Seam due to inadequacy of rig.

REMARKS:-

SURVEY DATA			ASSAY DATA											
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moisture	Ash	Vol.	F.C.			
			1	428.25	428.80	0.52	95	5.5	32.6	21.0	46.3			
			2	428.80	429.80	0.95		5.1	21.6	28.6	49.8			

GEOLOGICAL LOG

Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	246.90			Dolerite.		
246.90	247.20	0.30	100	Sandstone with clay pellet bands.		
247.20	248.67	1.47		Fine grained banded sandstone.		
248.67	250.58	1.91		Medium-coarse banded sandstone.		
250.58	250.89	0.31		White mudstone, green tint near top.		
250.89	252.89	2.00		Light grey lithic sandstone.		
252.89	255.29	2.40		White mudstone.		
255.29	256.46	1.17		Dark green mudstone.		
256.46	257.09	0.63		Medium-fine dark grey sandstone with 1 cm mudstone bands 2 - 10 cm apart.		
257.09	257.80	0.71		As above with fewer mudstone bands.		
257.80	292.37	34.57		Medium-coarse lithic sandstone with mudstone bands, clay pellets 281.17 - 281.19 m 281.33 - 281.48 m 284.23 - 285.00 m 285.15 - 285.33 m 288.02 - 288.04 m Thin coal bands 287.10 - 292.37 m		
292.37	294.02	1.65	100	Carbonaceous mudstone.		
294.02	294.50	0.48		Grey mudstone.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 19	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:-
			NX to 8.05 BQ to 428.0
R.L. OF SITE:- 847.2 m	SITE SURVEY ON MAP No.:		CORE SIZE:- AQ to 455.0
BEARING OF HOLE:- Vertical	AIR PHOTO No.:-		COMMENCED:- 4/2/74
INCLINATION OF HOLE:-	DRILL:- Edeco		COMPLETED:- 7/11/74
CO-ORDS OF SITE:- EP87238830	DRILLER:- L. Freeman L. Newman		FINAL DEPTH (m):- 455.00 m

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19	GEOLOGICAL LOG	Page:– 2

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
294.50	297.44	2.94		Carbonaceous mudstone and dull coal.		
297.44	297.80	0.36		Light grey crumbly mudstone.		
297.80	298.20	0.40		Grey mudstone.		
298.20	303.54	0.34		Carbonaceous mudstone.		
303.54	306.00	9.61		Fine grained sandstone banded in part.		
306.00	313.15	7.15		Fine-medium grained lithic sandstone with coal lenses at bottom, mudstone band 312.00 - 312.10 m.		
313.15	313.29	0.14	100	Mudstone.		
313.29	314.27	0.98	100	Coal: 0.04 m Bright coal 0.28 m Stoney coal 0.26 m Mudstone 0.40 m Coal (sharp bottom contact) 0.98 m		
314.27	318.14	3.29	85	Current bedded light green lithic sandstone with bands of carbonaceous mudstone < 1 cm. Coal lenses near bottom. Sharp bottom contact. Calcareous bottom.		
318.14	321.80	3.66		Fine grained dark grey sandstone. Calcareous 320.70 - 321.00 m.		
321.80	323.91	2.11		Medium grained lithic sandstone.		
323.91	324.15	0.15	)	Mudstone.		
324.15	326.24	1.33	) 63	Coal.		
326.24	326.83	0.37	)	Mudstone.		
326.83	350.33	23.50		Medium grained lithic sandstone (and coal lenses) with clay pellet bands and coal lenses.		
350.33	352.77	2.37	97	Coal: 0.09 m Coal 0.48 m Carbonaceous mudstone 0.08 m Yellow clay 0.47 m Mudstone in part carbonaceous 0.63 m Stoney coal 0.58 m Coal with light bands 0.04 m Carbonaceous mudstone		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

19	GEOLOGICAL LOG	Page:- 3

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
352.77	359.94	7.25		Grey mudstone with soft clay bands at: 354.65 - 354.69 m 356.42 - 356.49 m 356.66 - 356.70 m 356.90 - 357.18 m 358.11 - 358.14 m Carbonaceous 356.77 - 356.90 m		
359.94	362.68	2.71		Fine grained banded and current bedded sandstone to siltstone.		
362.68	374.00	9.12		Medium grained lithic sandstone with scattered coal lenses (1-2 mm) down to 367.29 m.		
374.00	374.44	0.43		Carbonaceous mudstone.		
374.44	374.48	0.04	) 73	Soft clay.		
374.48	375.51	0.75	)	Grey mudstone.		
375.51	377.19	1.23	)	Interbedded sandstone and mudstone.		
377.19	377.59	0.43	)	Current bedded siltstone.		
377.59	379.27	1.12	69	Coal: 0.23 m Carbonaceous mudstone 0.08 m Clay 0.17 m Carbonaceous mudstone 0.64 m Coal (gradational bottom contact) 1.12 m		
379.27	379.54	0.27	100	Grey mudstone.		
379.54	383.48	3.94	100	Current bedded grey mudstone to siltstone with interbedded sandstone beds up to 2 cm.		
383.48	383.53	0.05	100	Clay.		
383.53	384.28	0.75	100	Coal.		
384.28	385.23	1.00		Current bedded mudstone.		
385.23	385.56	0.27		Medium grained lithic sandstone, sharp bottom contact.		
385.56	387.87	2.37		Mudstone banded in part.		
387.87	388.77	0.93		Stoney coal.		
388.77	391.40	4.83		Grey mudstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

19				GEOLOGICAL LOG	Page:- 4	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
391.40	393.90	2.50		Fine grained banded sandstone with inter-bedded mudstone up to 20 cm.		
393.90	404.31	10.41		Medium grained lithic sandstone.		
404.31	405.51	1.20	86	Carbonaceous mudstone, dull coal in part .01 m clay at 404.34 m .30 m mudstone at 404.71 m		
405.51	405.69	0.15	86	Dark grey mudstone.		
405.69	420.30	13.39	86	Medium grained lithic sandstone, interbedded mudstone bands 1-2 cm near bottom.		
420.30	421.30	0.82	86	Current bedded siltstone.		
421.30	421.44	0.12		Medium grained lithic sandstone with clay pellets.		
421.44	422.14	0.70	100	Coal.		
422.14	422.34	0.12	65	Hard grey clay.		
422.34	424.50	1.50	65	Dark grey clay, in part and carbonaceous, in part current bedded.		
424.50	426.60	1.40	65	Medium-fine grained, lithic sandstone with interbedded mudstone bands, gradational bottom contact.		
426.60	428.10	0.90	65	Banded mudstone, carbonaceous at bottom.		
428.10	429.80	1.60	95	Coal (Sampled 428.25 - 428.80 m 428.80 - 429.80 m)		
429.80	430.50	0.70	100	Mudstone.		
430.50	444.36	3.86		Medium grained lithic sandstone, fine grained at top.		
444.36	446.36	2.00		Carbonaceous mudstone, 100 mm of clay at 444.58 m.		
446.36	447.89	1.53		Grey mudstone.		
447.89	455.00	7.11		Medium grained lithic sandstone, fine grained at top.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

DRILLING TARGET:- Duncan Seam 412.78 - 415.10 m, East Fingal Seam 454.64 - 456.40 m, 458.27 - 460.21 m.

REMARKS -

SURVEY DATA			ASSAY DATA									
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moist	Ash	VCM	FC	Cal Val
				364.72	365.85	1.05	94	6.6	20.7	32.2	47.1	29.4
				412.78	413.94	1.16	100	5.3	34.7	21.8	43.5	20.7
				413.94	415.10	1.16	100	5.5	28.9	27.3	43.8	24.4
				454.64	456.40	0.88	53	5.0	33.5	21.3	45.2	21.5
				458.27	459.45	1.08	92	4.9	25.0	24.9	50.1	24.7
				459.55	460.21	0.56	91	5.2	38.2	21.8	40.0	20.0

GEOLOGICAL LOG — Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	246.81			Dolerite.		
246.81	246.88	0.07	100	Mudstone indurated.		
246.88	266.43	19.55		Lithic sandstone (green colouration) at top, i.e. near dolerite contact. Medium 15.06 m Medium coarse 3.66 m Medium coarse with clay pellets 0.14 m Medium coarse with clay pellets 0.33 m Medium coarse with clay pellets 0.11 m Coarse 0.25 m 19.55 m		
266.43	267.34	0.92		Mudstone.		
267.34	268.35	1.02		Fine lithic sandstone with occasional fine banding.		
268.35	271.96	3.63		Laminite (sandstone siltstone 50:50) 0.24 m Laminite (sandstone siltstone 70:30) 0.92 m Medium lithic sandstone 0.11 m Laminite (sandstone siltstone) 2.36 m 3.63 m		
271.96	272.15	0.19		Mudstone.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 20	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:-
R.L. OF SITE - 811.0 m	SITE SURVEY ON MAP No.:		CORE SIZE:- NX to 40.86 m BQ to 465.54 m
BEARING OF HOLE:-	AIR PHOTO No.:- 12B 25/7/74-18/10/74		COMMENCED:- 25/7/74
INCLINATION OF HOLE - Vertical	DRILL:- Edeco 2/5/75-14/10/75		COMPLETED:- 14/10/75
CO-ORDS OF SITE - EP88888868	DRILLER:- L. Newman		FINAL DEPTH (m):- 465.54 m

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20				GEOLOGICAL LOG		Page:- 2	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION		SECTION Core	SECTION Sample
272.15	272.32	0.21	93	Medium-fine sandstone.			
272.32	277.27	4.55		Mudstone:			
				Carbonaceous - sharp angular (50°) bottom contact	0.46 m		
				Grey - gradational bottom contact	1.70 m		
				Carbonaceous gradational bottom contact	0.90 m		
				Siltstone gradational bottom contact	0.40 m		
				Grey - carbonaceous at top	0.79 m		
				Siltstone	0.30 m		
					4.55 m		
277.27	279.10	1.70	90	Laminite.			
279.10	285.59	6.03		Interbedded mudstone and coal:			
				Buff coloured but dark green at top	0.65 m		
				Carbonaceous	0.11 m		
				Grey	0.34 m		
				Carbonaceous	0.25 m		
				Grey	0.52 m		
				Coal	0.45 m		
				Clay	0.26 m		
				Carbonaceous	0.56 m		
				Coal, clay and mudstone	0.51 m		
				Mudstone	0.20 m		
				Coal	0.22 m		
				Grey	0.14 m		
				Carbonaceous	0.10 m		
				Sandstone	0.04 m		
				Soft clay	0.50 m		
				Carbonaceous	0.20 m		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

20 GEOLOGICAL LOG Page:- 3

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				Clay 0.04 m Carbonaceous 0.03 m Clay 0.02 m Carbonaceous 0.89 m 6.03 m		
285.59	287.59	1.92	97	Fine sandstone.		
287.59	290.49	2.80		Laminite.		
290.49	291.09	0.57		Medium-coarse lithic sandstone.		
291.09	292.86	1.71		Laminite.		
292.86	303.41	10.15		Lithic sandstone: Medium 0.43 m Medium fine banded 0.21 m Medium fine 0.33 m Medium coarse with coal lenses 0.21 m Fine 0.02 m Medium with clay coal and siltstone bands 5.51 m Medium 4.64 m 10.15 m		
303.41	304.03	0.60		Fine banded sandstone.		
304.03	308.37	4.17		Lithic sandstone: Fine 0.59 m Fine with coal and clay fragments 0.19 m Medium fine 1.03 m Mudstone 0.27 m Medium fine 0.26 m Medium fine with coal and clay fragments 0.85 m Medium coarse with scattered coal and clay fragments 0.42 m Medium with mudstone fragments 0.56 m 4.17 m		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

20 GEOLOGICAL LOG Page:- 4

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
308.20	310.47	2.06	92	Dull coal: 0.13 m Dull coal 0.10 m Carbonaceous mudstone 0.25 m Dull coal with bright bands 0.07 m Hard grey claystone 0.48 m Bright coal 0.08 m Dull coal 0.25 m Soft yellow clay with carbonaceous fragments 0.11 m Dull coal 0.09 m Soft yellow clay 0.50 m Dull coal with numerous light brown clay bands 2.06 m		
310.47	313.43	2.82	95	Grey mudstone.		
313.43	315.48	2.05	100	Fine grained lithic sandstone.		
315.48	322.25	6.81	99	Medium grained lithic sandstone.		
322.25	323.13	0.88	100	Fine grained lithic sandstone.		
323.13	326.13	2.48	83	Medium coarse lithic sandstone containing bands, lenses and pebbles of clay and coal in top metre.		
326.13	331.25	3.31	65	Medium grained lithic sandstone.		
331.25	332.93	1.63	98	Coarse grained lithic sandstone.		
332.93	332.98	0.05	93	Greasy black shale.		
332.98	334.43	1.35	93	Black mudstone.		
334.43	339.75	4.54	85	Coal: 0.20 m Coal 0.20 m Clay 0.14 m Coal 0.02 m Clay 0.11 m Coal 0.01 m Clay 0.09 m Coal 0.04 m Clay 0.21 m Coal		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

20	GEOLOGICAL LOG	Page:– 5

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				0.27 m Clay 0.06 m Coal 0.20 m Stoney coal 0.32 m Coal 0.05 m Coal with interbedded brown clay bands 0.47 m Coal 0.03 m Band 0.08 m Coal 0.03 m Band 0.02 m Coal 0.03 m Band 0.17 m Coal 0.16 m Shaly coal 0.06 m Coal 0.28 m Carbonaceous mudstone 0.42 m Laminated mudstone 0.04 m Claystone 0.25 m Soft dull coal 0.07 m Claystone, clay pellets at top 0.24 m Dull coal 0.21 m Claystone 0.06 m Coal 4.54 m		
339.75	343.10	3.35	100	Mudstone, laminated with 1 cm sandstone bands at base.		
343.10	358.65	15.08	97	Lithic sandstone.		
358.65	344.41			1.27 m fine-medium		
344.41	347.96			3.44 m medium-coarse		
347.96	348.13			0.17 m fine		
348.13	348.23			0.10 m medium-coarse		
348.23	348.44			0.20 m fine		
348.44	349.20			0.74 m medium-coarse, numerous coaly partings and mudstone bands up to 1.5 cm.		
349.20	349.68			0.47 m fine with some clay partings		
349.68	350.39			0.68 m medium-coarse		
350.39	350.68			0.28 m fine		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

20		GEOLOGICAL LOG			Page:- 6	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
350.68	350.87			0.19 m medium-coarse		
350.87	351.09			0.21 m fine		
351.09	351.43			0.33 m medium-fine with clay and coaly partings		
351.43	352.33			0.87 m medium-fine		
352.33	353.15			0.80 m medium		
353.15	353.35			0.20 m medium with coaly partings		
353.35	355.95			2.52 m medium		
355.95	356.80			0.83 m medium with coaly partings and clay pellets		
356.80	357.26			0.44 m medium-fine		
357.26	358.02			0.74 m medium		
358.02	358.65			0.60 m medium-coarse		
358.65	358.77	0.11	93	Mudstone.		
358.77	361.14	2.21	93	Medium-coarse lithic sandstone with 0.33 m clay pellet conglomerate at top.		
361.14	361.19	0.04		Carbonaceous shale.		
361.19	361.28	0.08		Medium coarse lithic sandstone.		
361.28	361.96	0.64		Mudstone.		
361.96	362.10	0.13		Carbonaceous shale.		
362.10	362.21	0.10		Clay.		
362.21	362.78	0.53		Dull coal, bright at base gradational bottom contact.		
362.78	362.92	0.13		Siltstone, gradational bottom contact.		
362.92	363.46	0.50		Fine grained sandstone.		
363.46	363.86	0.38		Mudstone.		
363.86	363.92	0.06		Carbonaceous shale.		
363.92	364.63	0.66		Mudstone.		
364.63	364.72	0.08		Calcareous mudstone.		
364.72	365.85	1.05		Coal (bright, splintery).		
365.85	367.64	1.66		Mudstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

20	GEOLOGICAL LOG	Page:- 7

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
367.64	368.51	0.80		Current bedded siltstone and fine lithic sandstone. Laminite beds approximately 1-2 cm.		
368.51	388.06	26.63	96	Lithic sandstone: Fine 0.39 m Medium fine 0.34 m Medium coarse 0.76 m Fine 0.41 m Current bedded 0.08 m Medium fine 1.43 m Medium 6.55 m In part calcareous and in part with coal lenses Medium coarse 5.05 m Clay pellet conglomerate 0.32 m Medium coarse 0.92 m Coarse 0.97 m Coarse with coaly partings 0.31 m Medium coarse 0.75 m Medium coarse with coaly partings 0.18 m Medium coarse 0.23 m (Longitudinal fracture 371-372 and 376-378 possibly a fault).		
388.06	388.38	30		Mudstone.		
388.38	388.57	18		Siltstone.		
388.57	388.94	36		Fine lithic sandstone.		
388.94	389.53	56		Banded mudstone.		
389.53	390.29	73		Banded carbonaceous mudstone.		
390.29	390.34	05		Mudstone.		
390.34	390.40	06		Carbonaceous mudstone.		
390.40	391.49	1.04		Grey mudstone.		
391.49	391.63	0.13		Carbonaceous mudstone.		
391.63	391.17	0.52		Sandstone-siltstone laminite, 1 cm beds.		
391.17	393.01	0.77	92	Mudstone.		
393.01	393.50	0.46		Siltstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

20 GEOLOGICAL LOG Page:- 8

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
393.50	394.66	1.06		Sandstone-current bedded siltstone laminite 1 cm beds.		
394.66	396.54	1.72		Fine lithic sandstone.		
396.54	397.31	0.71		Siltstone.		
397.31	407.46	9.32		Lithic sandstone:		
				Medium 3.09 m		
				Medium with coaly partings 0.40 m		
				Medium with clay partings 1.83 m		
				Fine with coaly partings 0.91 m		
				Medium-coarse 0.75 m		
				Medium 0.48 m		
				Medium-coarse 1.22 m		
				Light coloured medium 0.64 m		
				9.32 m		
407.46	408.09	0.66	100	Carbonaceous mudstone.		
408.09	408.27	0.18		Coal.		
408.27	408.94	0.71		Soft grey clay.		
408.94	409.13	0.19		Mudstone.		
409.13	409.27	0.15		Carbonaceous mudstone.		
409.27	409.35	0.08		Clay.		
409.35	409.54	0.20		Carbonaceous mudstone.		
409.54	412.40	2.98		Mudstone in part laminated.		
412.40	412.50	0.18		Calcite.		
412.50	412.78	0.22		Mudstone, gradational bottom contact.		
412.78	415.20	2.42	100	Coal:		
				Coal-bright 0.08 m		
				0.02 m clay band		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

20	GEOLOGICAL LOG	Page:- 9

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				Coal 1.20 m		
				0.01 m clay band		
				Coal 0.05 m		
				0.03 m clay band		
				Coal 0.05 m		
				0.01 m clay band		
				Coal 0.17 m		
				0.02 m clay band		
				Coal 0.40 m		
				0.20 m clay band		
				Shaly coal 0.35 m		
415.20	416.87	1.64	97	Mudstone.		
416.87	417.12	0.24		Siltstone.		
417.12	417.59	0.46		Fine lithic sandstone.		
417.59	417.70	0.11		Mudstone.		
417.70	417.78	0.08		Carbonaceous mudstone.		
417.78	417.83	0.05		Mudstone (fretting).		
417.83	420.12	2.27		Sandstone-siltstone laminite.		
420.12	422.20	2.01		Fine lithic sandstone.		
422.20	422.43	0.22		Mudstone.		
422.43	422.92	0.47	100	Carbonaceous mudstone.		
422.92	423.33	0.41		Fine lithic sandstone, light coloured at base.		
423.33	424.71	1.38		Fine lithic sandstone, banded and current bedded.		
424.71	425.10	0.44		Siltstone.		
425.10	425.57	0.42		Carbonaceous mudstone in part shaly coal.		
425.57	425.85	0.28		Mudstone.		
425.85	426.66	0.81		Lithic sandstone: Medium-fine 0.55 m; Fine 0.26 m; 0.81 m		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

20	GEOLOGICAL LOG	Page:– 10

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
426.66	427.96	1.30		Mudstone.		
427.96	437.39	9.17	97	Lithic sandstone:		
				Fine, banded in part 0.56 m		
				Light grey, calcareous 0.96 m		
				Light grey 1.18 m		
				Medium 2.42 m		
				Fine with carbonaceous banding 0.53 m		
				Medium 1.52 m		
				Fine 0.27 m		
				Medium 1.73 m		
				9.17 m		
437.39	438.05	0.92	100	Mudstone.		
438.05	438.49	0.44	99	Coal.		
438.49	439.03	0.52		Sandstone-siltstone laminite, 1 cm units.		
439.03	439.39	0.36		Medium-fine lithic sandstone with occasional banding.		
439.39	442.91	3.46		Banded mudstone.		
442.91	443.98	0.99		Medium lithic sandstone.		
443.98	444.99	1.05		Mudstone.		
444.99	454.64	10.28		Lithic sandstone:		
				Medium 3.05 m		
				Fine 0.37 m		
				Medium 6.86 m		
				10.28 m		
454.64	455.03	0.21	53	Carbonaceous mudstone.		
455.03	456.40	0.67		Coal.		
456.40	456.50	0.10		Carbonaceous mudstone.		
456.50	458.24	1.61	92	Laminite sandstone/mudstone (3:1).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

20	GEOLOGICAL LOG	Page:– 11

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
458.24	460.21	1.79	91	**Coal:** Carbonaceous mudstone 0.03 m Coal 1.08 m Stone band 0.12 m Coal 0.56 m 1.79 m		
460.21	461.96	1.73		**Laminite, siltstone/mudstone (3:1).**		
461.96	462.65			**Mudstone.**		
462.65	463.23			**Fine lithic sandstone.**		
463.23	465.54			**Mudstone.**		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

DRILLING TARGET:- Duncan Seam 348.04 - 350.11 m, East Fingal Seam 395.75 - 397.45 m

REMARKS:-

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moist	Ash	Vol.	F.C.	Cal Val	
				348.04	349.07	1.03	100	5.3	26.8	25.1	48.1	25.5	
				349.07	350.11	1.04	100	4.4	26.5	29.1	44.4	25.1	
				395.75	396.51	0.76	100	4.2	30.2	22.2	47.6	23.0	
				396.51	397.45	0.94	100	4.1	24.1	25.7	50.2	24.4	
				414.46	415.28	0.82	98	4.5	35.6	23.6	40.8	21.8	

GEOLOGICAL LOG

Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	282.54			Dolerite.		
282.54	283.42	1.88	100	Grey mudstone.		
283.42	285.63	2.10	96	Fine grained banded sandstone with gradation -al bottom contact.		
285.63	287.93	1.90	82	Medium-fine grained lithic sandstone with occasional thin black siltstone bands, thicker towards bottom.		
287.93	289.83	1.57		Medium-coarse lithic sandstone with occasional black siltstone bands, gradational bottom contact.		
289.83	290.62	0.65		Light grey medium-fine lithic sandstone.		
290.62	292.47	1.53		Medium-coarse lithic sandstone with clay pellets and coal lenses at top.		
292.47	292.61	0.12		Black mudstone.		
292.61	292.66	0.04		Medium-coarse lithic sandstone.		
292.66	293.14	0.39		Black mudstone containing some fine grained lithic sandstone fragments.		
293.14	295.76	2.16		Medium-coarse lithic sandstone.		
295.76	295.87	0.11		Grey mudstone.		
295.87	295.90	0.03		Coal.		
295.90	295.98	0.08		Soft clay.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 21	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:-
R.L. OF SITE:- 758.5 m	SITE SURVEY ON MAP No.:		CORE SIZE:- BQ
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 11/11/74
INCLINATION OF HOLE:- Vertical	DRILL:- 30HD		COMPLETED:- 11/11/75
CO-ORDS OF SITE:- EP87388736	DRILLER:- G. Baker		FINAL DEPTH (m):- 502.40 m

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21 GEOLOGICAL LOG Page 2

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
295.98	296.80	0.82		Dull coal, no bands.		
296.80	297.30	0.50		Fine grained grey sandstone.		
297.30	298.10	0.80		Grey mudstone.		
298.10	298.65	0.55		Fine grained grey sandstone.		
298.65	299.24	0.59		Grey mudstone.		
299.24	300.84	1.69	90	Fine grained sandstone with occasional black banding.		
300.84	303.62	2.49		Dark grey mudstone containing fine grained sandstone fragments.		
303.62	304.74	1.00		Fine grained banded sandstone.		
304.74	305.55	0.73		Medium grained lithic sandstone.		
305.55	306.83	1.15	100	Fine grained lithic sandstone banded at bottom.		
306.83	308.47	1.63		Grey mudstone, gradational bottom contact.		
308.47	309.07	0.58		Fine grained black banded lithic sandstone.		
309.07	310.78	1.70	99	Banded mudstone.		
310.78	311.56	0.78		Carbonaceous mudstone.		
311.56	311.99	0.42		Medium-fine lithic sandstone with scattered clay pellets.		
311.99	313.22	1.23		Grey mudstone (appears finely fragmental).		
313.22	313.37	0.15		Fine grained banded sandstone.		
313.37	324.23	10.80		Lithic sandstone: Medium sandstone 5.14 m Medium coarse sandstone 0.46 m Medium 5.10 m		
324.23	325.85	1.62	100	Laminite (sandstone-mudstone).		
325.85	326.53	0.68		Dull coal: Coal 0.00 - 0.18 m Band 0.18 - 0.21 m Coal 0.21 - 0.42 m Band 0.42 - 0.45 m		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

21	GEOLOGICAL LOG	Page – 3

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				Coal 0.45 - 0.60 m		
				Shaly coal 0.60 - 0.70 m		
326.53	326.94	0.42		Mudstone.		
326.94	341.81	15.27		Lithic sandstone:		
				Fine with gradational bottom contact 0.48 m		
				Medium fine 1.09 m		
				Fine, laminated with gradational bottom contact 0.19 m		
				Medium fine 0.15 m		
				Laminated 0.20 m		
				Medium 8.63 m		
				Medium with clay pellets 0.35 m		
				Medium 1.10 m		
				Medium with clay pellet laminite (sandstone/siltstone) 0.66 m		
				Medium with clay pellet 2.42 m		
				15.27 m		
341.81	342.34	0.50		Coal.		
342.34	348.04	5.70	100	Mudstone (softens readily when wet), carbonaceous at base.		
348.04	350.11	2.07		Coal (70% bright).		
350.11	350.41	0.30		Mudstone, carbonaceous at top.		
350.41	350.50	0.09		Coal.		
350.50	350.83	0.33		Laminite (mudstone-siltstone).		
350.83	364.03	13.20	100	Lithic sandstone:		
				Medium-fine gradational bottom contact 7.94 m		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

21	GEOLOGICAL LOG	Page - 4

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				Fine, gradational bottom contact 0.08 m Medium-fine gradational bottom contact 0.20 m Medium-fine, scattered clay pellets 0.30 m Medium-fine, coal partings 0.05 m Medium-fine 0.80 m Medium, sharp bottom contact 3.83 m 13.20 m		
364.03	364.19	0.16	97	Mudstone with coal partings, in partly shaly coal.		
364.19	364.48	0.29		Coal, gradational bottom contact. Coal 0.17 m Dirt band 0.04 m Coal 0.04 m 0.25 m		
364.48	365.30	0.82		Laminite mudstone/siltstone (black) gradational bottom contact.		
365.30	380.43	14.67		Lithic sandstone: Medium fine (some black banding) 1.58 m Medium 0.62 m Medium-fine 0.37 m Medium-fine with coal partings 0.13 m Medium, calcareous 0.49 m Medium 0.87 m Medium-fine, dark grey with coaly parting 0.54 m		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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21 GEOLOGICAL LOG Page 5

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION		SECTION Core	SECTION Sample
				Medium, calcareous	1.00 m		
				Medium with fine dark grey coaly parting	0.16 m		
				Medium	3.18 m		
				Medium, calcareous	0.71 m		
				Medium	1.04 m		
				Medium-fine with coal and clay pellets	0.52 m		
				Medium	2.54 m		
				Medium fine calcareous	0.92 m		
					14.67 m		
380.43	384.68	3.21	74	Interbedded sequence:			
				Laminite	0.54 m		
				Sandstone	0.05 m		
				Mudstone	0.25 m		
				Mudstone and Sandstone Interbedded	0.55 m		
				Laminite	1.82 m		
					3.21 m		
384.68	385.68	0.84	84	Siltstone.	0.84 m		
385.68	385.82	0.12		Laminite.	0.12 m		
385.82	386.08	0.22		Fine-medium lithic sandstone.	0.22 m		
386.08	386.77	0.58		Mudstone.	0.58 m		
386.77	387.28	0.43		Laminite (sandstone/mudstone).	0.43 m		
387.28	388.05	0.65		Mudstone, carbonaceous at base.	0.65 m		
388.05	389.07	0.86		Stoney coal.	0.86 m		
389.07	389.78	0.60		Mudstone, some silty bands.	0.60 m		
389.78	395.75	5.00		Lithic sandstone:			
				Medium gradational bottom contact.	0.11 m		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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21	GEOLOGICAL LOG	Page - 6

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION		SECTION Core	SECTION Sample
				Fine	0.52 m		
				Medium	0.21 m		
				Laminite (sandstone/ mudstone)	0.49 m		
				Medium-fine sharp bottom contact	3.67 m		
					5.00 m		
395.75	397.48	1.73	100	Coal:			
				Coal	395.75 - 396.51 m (Sample)		
				Stoney band	396.51 - 396.61 m		
				Coal	396.61 - 397.45 m (Sample)		
				Carbonaceous Mudstone	397.45 - 397.48 m		
397.48	400.38	2.84	98	Interbedded sequence:			
				Medium lithic sandstone	0.26 m		
				Laminite (siltstone-mudstone)	0.10 m		
				Gradational bottom contact, medium lithic sandstone	0.44 m		
				Mudstone (2 cm clay at base)	0.49 m		
				Coal	0.03 m		
				Mudstone	0.18 m		
				Fine lithic sandstone	0.32 m		
				Mudstone in part current bedded. Fine lithic sandstone in partly current bedded	0.06 m		
				Mudstone	0.62 m		
				Interbedded sandstone and mudstone	0.22 m		
				Lithic sandstone	2.84 m		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

21				GEOLOGICAL LOG	Page - 7	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
400.38	413.01	12.83	96	Medium-fine sandstone, banded black in part 2.35 m Medium 9.02 m		
413.01	414.46	1.45	100	Mudstone: Grey 0.24 m Black 0.45 m Grey 0.44 m Black 0.31 m 1.44 m		
414.46	415.28	0.82	100	Splintery coal: Coal 0.00 - 0.41 m Coal 0.41 - 0.44 m claystone excluded from sample Coal 0.44 - 0.57 m Coal 0.57 - 0.59 m claystone excluded from sample Coal 0.59 - 0.82 m		
415.28	416.93	1.65	100	Mudstone.		
416.93	417.61	0.68		Laminite sandstone/siltstone 1:1 (>1 cm).		
417.61	418.78	1.17		Siltstone.		
418.78	419.69	0.91		Medium-fine lithic sandstone.		
419.69	419.82	0.13		Current bedded siltstone.		
419.82	420.73	0.91		Medium-fine lithic sandstone.		
420.73	420.90	0.17		Laminite sandstone/siltstone.		
420.90	427.20	6.30		Medium-fine lithic sandstone.		
427.20	429.03	1.69		Brown claystone.		
429.03	432.72	3.42		Mudstone.		
432.72	445.43	11.76		Medium-fine lithic sandstone with few banded sections.		
445.43	446.94	1.40		Dark grey mudstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

21	GEOLOGICAL LOG	Page:- 8

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
446.94	447.04	0.09		Fine lithic sandstone.		
447.04	448.56	1.41	92	Dark grey mudstone, lower 0.40 m containing interlaminated sandstone bands.		
448.56	449.13	0.53		Lithic sandstone with interbedded current bedded siltstone, upper 0.20 m disturbed bedding.		
449.13	449.89	0.70		Medium lithic sandstone.		
449.89	450.68	0.73		Mudstone.		
450.68	450.92	0.22		Lithic sandstone.		
450.92	451.77	0.79		Laminite mudstone-sandstone 3:1 (1 cm).		
451.77	453.95	2.02		Medium lithic sandstone.		
453.95	455.00	0.96		Medium calcareous lithic sandstone.		
455.00	456.60	1.60		Laminite sandstone-siltstone 1:1 (1 cm).		
456.60	461.53	4.68		Medium-fine lithic sandstone.		
461.53	461.78	0.24		Fine lithic sandstone.		
461.78	461.82	0.04		Vitreous coal.		
461.82	461.88	0.57		Laminite siltstone-sandstone 2:1.		
461.88	462.12	0.23		Fine lithic sandstone.		
462.12	462.17	0.05		Coal.		
462.17	463.56	1.32		Laminite sandstone-siltstone 1:1 (1 cm).		
463.56	464.50	0.95		Medium lithic sandstone.		
464.50	466.50	1.68	89	Mudstone.		
466.50	471.32	4.27		Laminite, mudstone-siltstone 3:1 (cm) with few interbedded calcareous sandstone bands near bottom.		
471.32	476.41	4.51		Medium-coarse calcareous sandstone with few interbedded laminite bands near top and bottom.		
476.41	482.18	5.11		Dark grey mudstone, .04 m coal at 476.10 m medium-coarse mudstone, white sandstone.		
482.18	482.41	0.20		Mudstone, gradational bottom contact.		
482.41	491.94	8.45		Medium-coarse micaceous white sandstone (.04 m grit band at bottom).		
491.94	502.40	9.78		Dark grey mudstone with scattered white grits - (Permian System). Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:- Duncan Seam 412.30 - 415.13 m, East Fingal Seam 460.91 - 462.05 m

REMARKS

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moist	Ash	Vol.	F.C.	S.E.	
			1	366.04	366.47	0.43	99	5.2	35.8	25.4	38.8	18.8	
			2	366.55	367.16	0.61		2.7	19.1	32.1	48.8	24.5	
			3	373.13	374.15	1.02	100	2.5	36.1	28.2	35.7	19.5	
			4	374.90	375.85	0.80	84	2.7	29.6	28.9	41.2	21.5	
			5	410.33	411.08	0.75	100	2.7	29.0	26.8	44.1	22.3	
			6	412.30	413.29	0.89	90	2.6	27.7	25.8	46.5	21.7	
			7	413.29	414.36	0.97	100	1.9	20.2	31.1	48.7	24.8	
			8	414.36	415.13	0.70	90	2.5	36.2	27.6	36.2	19.8	
			9	460.91	461.11	0.20	100	4.8	39.4	21.6	39.0	18.4	
			10	461.13	461.44	0.30	98	4.7	30.0	22.2	47.7	20.9	
			11	461.44	461.71	0.27	98	3.8	60.6	15.0	24.3	10.2	
			12	461.80	462.05	0.25	98	5.6	46.1	23.0	30.9	15.6	

GEOLOGICAL LOG — Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	341.01	341.01	100	Dolerite.		
341.01	341.69	0.68		Carbonaceous mudstone, indurated at top (0.35 m).		
341.69	347.40	5.71		Mudstone.		
347.40	348.23	0.83		Siltstone.		
348.23	349.13	0.90	99	Laminite (sandstone/siltstone).		
349.13	351.18	2.03		Lithic sandstone, medium-fine.		
351.18	353.32	2.11		Lithic sandstone, medium.		
353.32	356.22	2.90	100	Lithic sandstone, medium with coaly partings.		
356.22	357.24	1.00	97	Lithic sandstone, medium with mudstone pellets.		
357.24	357.51	0.26		Lithic sandstone, medium.		
357.51	357.65	0.14		Coal.		
357.65	359.66	1.95		Lithic sandstone, medium with coal bands and lenses and clay pellets.		
359.66	361.35	1.69	100	Lithic sandstone, medium.		
361.35	362.99	1.64	100	Lithic sandstone, medium with coal bands and lenses.		
362.99	363.38	0.39		Mudstone, carbonaceous, in part coal.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 23	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:-
			FINGAL TIER
R.L. OF SITE:- 804.6 m	SITE SURVEY ON MAP No.:-		CORE SIZE:- NMLQ
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 25/3/76
INCLINATION OF HOLE:- Vertical	DRILL:- 30HD		COMPLETED:- 1/3/77
CO-ORDS OF SITE:- 885887734	DRILLER:- L. Newman		FINAL DEPTH (m):- 553.63 m

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23				GEOLOGICAL LOG	Page:- 2	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
363.38	363.74	0.36				
363.74	365.92	2.18		Laminite, sandstone/siltstone.		
365.92	366.04	0.12		Mudstone.		
366.04	366.16	0.12	) 99	Coal section: Coal (10% vitreous)		
366.16	366.21	0.05	)	(1.12 m) Clay band)		1
366.21	366.47	0.26	)	Coal (10% vitreous)		
366.47	366.51	0.04		Clay band		
366.51	366.53	0.02		Carbonaceous mudstone.		
366.53	366.55	0.02		Clay band.		
366.55	367.16	0.61		Coal (15-20% vitreous).		2
367.16	370.25	3.08		Mudstone.		
370.25	371.15	0.89		Lithic sandstone - medium.		
371.15	371.53	0.38	98	Lithic sandstone - medium with interbedded 2 cm siltstone bands.		
371.53	372.60	1.05		Lithic sandstone - fine.		
372.60	373.13	0.52		Mudstone with 0.1 m clay in middle.		
373.13	373.21	0.08	100	COAL SECTION: Coal.	)	
373.21	373.25	0.04		(1.02 m) Clay band.	)	
373.25	373.38	0.13		Coal.	)	
373.38	373.40	0.02		Clay band.	)	
373.40	373.44	0.04		Coal.	)	
373.44	373.45	0.01		Clay band.	)	3
373.45	373.62	0.17		Coal.	)	
373.62	373.64	0.02		Stone band.	)	
373.64	374.15	0.51		Coal.	)	
374.15	374.90	0.75		Mudstone.	)	
374.90	375.18	0.24	84	Coal.	)	
375.18	375.20	0.20		(0.8 m) Stone band.	)	
375.20	375.28	0.06		Coal.	)	
375.28	375.29	0.01		Stone band.	)	4
375.29	375.49	0.17		Coal.	)	
375.49	375.50	0.01		Stone band. Continued over	)	

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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Index Page:-

23	GEOLOGICAL LOG	Page:- 3

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
375.50	375.54	0.03		Vitreous coal.		)
375.54	375.56	0.02		Stone band.		)
375.56	375.58	0.02		Vitreous coal.		)
375.58	375.61	0.02		Stone band.		)
375.61	375.73	0.10		Coal.		)
375.73	375.85	0.10		Vitreous coal.		)
375.85	376.37	0.44	83	Mudstone.		
376.37	377.33	0.79		Laminite.		
377.33	377.71	0.37	97	Interbedded mudstone and fine lithic sandstone.		
377.71	383.33	5.54	98	Medium lithic sandstone.		
383.33	384.37	1.03	98	Mudstone.		
384.37	392.44	7.98		Lithic sandstone - medium.		
392.44	393.30	0.86	100	Lithic sandstone - medium with interbedded coal bands and lenses.		
393.30	394.40	1.10		Mudstone.		
394.40	394.87	0.47		Laminite.		
394.87	395.48	0.61		Mudstone.		
395.48	395.87	0.37	93	Laminite.		
395.87	396.34	0.44		Medium lithic sandstone.		
396.34	39[illegible].94	1.50		Laminite.		
397.94	399.29	1.26		Lithic sandstone - medium.		
399.29	409.36	9.43		Lithic sandstone - medium with clay pellets.		
409.36	409.73	0.35		Lithic sandstone - medium.		
409.73	410.05	0.30		Clay pellet conglomerate.		
410.05	410.23	0.16		Mudstone.		
410.23	410.33	0.10	100	Clay pellet conglomerate.		
410.33	411.08	0.75		Coal.		
411.08	411.28	0.20		Mudstone.		
411.28	411.96	0.68		Swelling clay.		
411.96	412.30	0.34		Mudstone, in part carbonaceous.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

23				GEOLOGICAL LOG	Page:- 4	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
412.30	412.42	0.11	90	**COAL SECTION**: Coal.		)
412.42	412.56	0.13		(2.56 m) Calcite.		) 6
412.56	412.75	0.17		Coal.		)
412.75	412.80	0.05		Stone band.		)
412.80	414.44	1.48		Coal.		) 7
414.44	414.47	0.03		Stone band.		)
414.47	415.13	0.59		Coal.		) 8
415.13	416.13	0.90	89	Mudstone.		
416.13	416.29	0.14		Laminite (sandstone/siltstone).		
416.29	419.26	2.65		Lithic sandstone - medium-fine.		
419.26	422.26	3.00	100	Lithic sandstone - medium (with laminated sections).		
422.26	423.15	0.85	94	Lithic sandstone - medium.		
423.15	423.68	0.50		Lithic sandstone - clay pellet conglomerate.		
423.68	424.54	0.81		Lithic sandstone - medium.		
424.54	424.65	0.10		Carbonaceous mudstone.		
424.65	424.90	0.24		Lithic sandstone - medium.		
424.90	425.15	0.24		Lithic sandstone - clay pellet conglomerate.		
425.15	425.20	0.04		- medium.		
425.20	428.20	2.96	98	- medium.		
428.20	428.52	0.32	100	- fine.		
428.52	428.71	0.19		- medium.		
428.71	428.75	0.04		- fine.		
428.75	429.37	0.62		- medium.		
429.37	429.57	0.20		Carbonaceous mudstone.		
429.57	429.71	0.14		Clay pellet conglomerate.		
429.71	429.92	0.21		Mudstone, carbonaceous.		
429.92	430.22	0.30		Mudstone.		
430.22	430.34	0.12		Mudstone, carbonaceous.		
430.34	431.07	0.73		Interbedded mudstone and sandstone with clay pellets.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

23 GEOLOGICAL LOG Page:- 5

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
431.07	436.35	5.26	99	Lithic sandstone - medium.		
436.35	437.16	0.80		- fine.		
437.16	437.44	0.28	98	- medium.		
437.44	438.31	0.85		- medium-coarse.		
438.31	438.67	0.36		- medium.		
438.67	439.78	1.09		- medium-coarse.		
439.78	440.31	0.52		- medium-fine.		
440.31	440.40	0.09		- medium-coarse.		
440.40	440.87	0.46		Mudstone, slightly carbonaceous, slicken-sided.		
440.87	441.78	0.89		Lithic sandstone - fine.		
441.78	442.09	0.30		Mudstone.		
442.09	442.32	0.23		Coal.		
442.32	443.17	0.83		Laminite.		
443.17	444.77	1.60	100	Laminite.		
444.77	446.53	1.76		Sandstone, fine, dark grey with siltstone bands.		
446.53	449.04	2.51		Lithic sandstone, medium with siltstone bands, fewer at base.		
449.04	449.15	1.22		Lithic sandstone, medium with siltstone bands.		
449.15	451.50	1.09		Interbedded sandstone and siltstone, in part black banded.		
451.50	452.54	0.98		Laminite.		
452.54	453.20	0.62		Carbonaceous mudstone.		
453.20	453.57	0.35		Interbedded sandstone and carbonaceous mudstone.		
453.57	454.56	0.94		Coal, dull, in part carbonaceous shale.		
454.56	455.15	0.55		Grey mudstone.		
455.15	456.56	1.40	99	Sandstone, fine with occasional fine banded.		
456.56	457.35	0.79	99	Lithic sandstone - medium.		
457.35	457.88	0.53		Mudstone.		
457.88	457.99	0.11		Claystone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

23				GEOLOGICAL LOG	Page:- 6	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
457.99	458.44	0.44		Mudstone.		
458.44	458.57	0.13		Fine sandstone with gradational contacts.		
458.57	459.49	0.91		Interbedded mudstone and fine sandstone.		
459.49	459.72	0.23	98	Lithic sandstone, medium-fine, gradational bottom contact.		
459.72	460.91	1.18		Mudstone.		
460.91	461.11	0.20		COAL SECTION: Coal.		) 9
461.11	461.13	0.02		Calcite.		
461.13	461.44	0.30		Coal.		) 10
461.44	461.62	0.18		Stoney coal.		)
461.62	461.66	0.04		Claystone.		) 11
461.66	461.71	0.05		Coal.		)
461.71	461.80	0.09		Claystone.		
461.80	462.05	0.25		Shaley coal.		) 12
462.05	462.19	0.13		Carbonaceous mudstone.		
462.19	463.66	1.45	98	Mudstone.		
463.66	463.78	0.11		Carbonaceous mudstone with 0.05 m claystone in middle.		
463.78	464.50	0.72	99	Sandstone, fine, minor siltstone banding.		
464.50	464.93	0.43		Fine sandstone.		
464.93	465.28	0.35		Mudstone, banded.		
465.28	466.07	0.79		Sandstone, fine, minor siltstone banding.		
466.07	466.47	0.40		Mudstone.		
466.47	467.22	0.74		Sandstone, fine minor siltstone banding.		
467.22	467.56	0.34		Interbedded sandstone and siltstone.		
467.56	468.73	1.17		Mudstone.		
468.73	470.37	1.63		Interbedded sandstone and siltstone.		
470.37	471.39	1.02		Mudstone.		
471.39	471.80	0.41		Mudstone, slightly carbonaceous.		
471.80	472.75	0.94		Laminite, sandstone - carbonaceous mudstone.		
472.75	474.72	1.96		Lithic sandstone, medium with fine carbonaceous banding.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

23				GEOLOGICAL LOG	Page:- 7	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
474.72	477.34	2.61		Lithic sandstone, medium.		
477.34	477.44	0.10	96	Carbonaceous mudstone.		
477.44	477.46	0.02		Brown clay.		
477.46	477.49	0.03		Mudstone, carbonaceous.		
477.49	477.89	0.38				
477.89	477.98	0.09		Claystone.		
477.98	478.09	0.11		Mudstone, carbonaceous.		
478.09	478.28	0.18		Mudstone.		
478.28	478.48	0.19		Mudstone, banded.		
478.48	478.73	0.24		COAL SECTION: Coal.		
478.73	478.75	0.02		Brown clay.		
478.75	478.77	0.02		Coal.		
478.77	480.02	1.20		Mudstone.		
480.02	486.94	6.89		Laminite: mudstone-siltstone with swelling clay.		
486.94	489.76	2.82	99	Lithic sandstone, medium-fine.		
489.76	489.88	0.12		Carbonaceous mudstone.		
489.88	493.03	3.14		Brown clay - very friable.		
493.03	494.84	1.83	100	Laminite.		
494.84	494.92	0.08		Carbonaceous mudstone.		
494.92	496.09	10.10		Lithic sandstone, medium-fine.		
505.01	505.19	0.18		Mudstone, carbonaceous.		
505.19	506.98	1.80		Mudstone.		
506.98	507.33	0.35		Mudstone, dark grey.		
507.33	510.85	3.54		Mudstone, light grey.		
510.85	511.18	0.33		Lithic sandstone, fine.		
511.18	511.67	0.50	100	Mudstone.		
511.67	512.05	0.38		Lithic sandstone, fine.		
512.05	513.00	0.95		Interbedded mudstone and sandstone.		
513.00	513.75	0.75		Mudstone.		
513.75	514.05	0.30		Interbedded mudstone and sandstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
514.05	514.18	0.13		Mudstone.		
514.18	514.36	0.19	100	Mudstone (in part, dark grey).		
514.36	514.90	0.54		Lithic sandstone, fine.		
514.90	515.26	0.36		Mudstone, dark grey.		
515.26	515.47	0.21		light grey.		
515.47	515.79	0.32		dark grey.		
515.79	516.59	0.80		light grey.		
516.59	516.88	0.29		mostly dark grey.		
516.88	517.32	0.44		light grey.		
517.32	517.37	0.06	100	Sandstone, fine.		
517.37	519.75	2.39		Mudstone, mostly light grey.		
519.75	519.85	0.10		(clay).		
519.85	519.87	0.02		carbonaceous.		
519.87	519.96	0.09		(clay).		
519.96	520.05	0.09		carbonaceous.		
520.05	520.07	0.02		(clay).		
520.07	520.24	0.17		carbonaceous.		
520.24	520.48	0.24		light grey.		
520.48	520.88	0.40		dark grey.		
520.88	521.93	1.05		light grey.		
521.93	522.11	0.18		Lithic sandstone.		
522.11	522.76	0.65		Interbedded, mudstone-sandstone.		
522.76	523.37	0.61		Mudstone.		
523.37	524.50	1.13	99	Dark brown with few sandstone bands.		
524.50	524.66	0.16		Sandstone, fine.		
524.66	524.99	0.33		Mudstone.		
524.99	525.14	0.15		Sandstone, medium, light grey.		
525.14	525.42	0.28		Mudstone.		
525.42	525.90	0.48		Lithic sandstone, fine.		
525.90	526.80	0.88		Mudstone.		
526.80	526.90	0.10		Lithic sandstone, fine. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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23				GEOLOGICAL LOG	Page:- 9	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
526.90	527.65	0.73		Interbedded fine lithic sandstone and mudstone.		
527.65	528.18	0.52		Mudstone, dark grey.		
528.18	528.66	0.46		Interbedded fine lithic sandstone and mudstone.		
528.66	529.65	0.97		Mudstone.		
529.65	529.87	0.22		Lithic sandstone, medium.		
529.87	530.31	0.44		Mudstone.		
530.31	530.79	0.48		Mudstone, (dark grey).		
530.79	531.01	0.22		Lithic sandstone, medium.		
531.01	531.76	0.75		Interbedded mudstone and sandstone.		
531.76	532.53	0.86		Mudstone.		
532.53	533.62	1.07		Interbedded mudstone and sandstone.		
533.62	533.99	0.36		Mudstone.		
533.99	534.49	0.49		Sandstone, medium, light grey with dark grey siltstone banding.		
534.49	535.48	0.97		Dark grey mudstone.		
535.48	536.37	0.88	98	Sandstone medium, light grey with dark grey siltstone banding.		
536.37	536.60	0.23		Dark grey mudstone.		
536.60	538.18	1.56		Sandstone, medium light grey with dark grey siltstone banding.		
538.18	538.33	0.15		Dark grey mudstone.		
538.33	539.38	1.05		Sandstone, medium, light grey with dark grey siltstone banding.		
539.38	541.35	1.98		Dark grey mudstone.		
541.35	541.57	0.22		Sandstone, medium, light grey with dark grey siltstone banding.		
543.68	544.04	0.35		Dark grey mudstone.		
544.04	544.59	0.54		Sandstone, medium light grey with dark grey siltstone banding.		
544.59	545.96	1.37	100	Quartzose sandstone, coarse, cream coloured with irregular black banding.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

23	GEOLOGICAL LOG	Page:- 10

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
545.96	547.61	1.65	)	Siltstone, dark grey to black with scattered angular grits (Permian).		
547.61	550.63	3.01	)99			
550.63	553.63	1.30	)43			

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

DRILLING TARGET:- Duncan Seam 441.12 - 443.65 m, East Fingal Seam 496.22 - 497.78 m

REMARKS:-

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moist	Ash	Vol	F.C.	S.E.	
			1	397.23	397.46	0.23	100	3.6	39.9	18.9	41.2	18.5	
			2	397.55	398.23	0.68	100	3.2	27.0	25.9	46.7	22.2	
			3	401.44	401.58	0.14	100	2.4	20.0	33.8	46.2	24.3	
			4	401.63	402.49	0.85	99	3.4	27.1	28.9	44.0	21.5	
			5	441.12	441.22	0.10	100	3.0	21.8	29.6	48.6	24.6	
			6	441.52	442.18	0.66	100	3.1	31.6	23.4	45.0	20.5	
			7	442.18	442.91	0.73	100	1.9	19.4	29.7	50.9	25.1	
			8	442.91	443.65	0.74	100	1.5	35.2	30.6	34.2	20.1	
			9	496.22	496.85	0.63	100	3.1	28.0	25.7	46.3	22.1	
			10	497.01	497.17	0.16	100	3.8	35.0	20.2	44.8	19.3	
			11	497.23	497.78	0.55	100	2.9	29.4	26.3	44.3	21.7	

GEOLOGICAL LOG — Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	385.91	385.91	100	Dolerite.		
385.91	386.03	0.12	100	Clay pellet conglomerate.		
386.03	386.64	0.61		Lithic sandstone - coarse.		
386.64	387.18	0.54		Lithic sandstone - coarse, coarse and fine interbedded.		
387.18	387.61	0.42	97	Lithic sandstone - fine.		
387.61	387.97	0.35		- medium and fine, interbedded.		
387.97	389.98	1.98	98	- medium in part, black banded.		
389.98	390.51	0.53		- medium coarse.		
390.51	390.57	0.05		- medium with clay pellets.		
390.57	390.73	0.16		- coarse.		
390.73	391.19	0.45		- medium.		
391.19	391.28	0.09		Crumbly carbonaceous mudstone.		
391.28	393.37	2.06		Lithic sandstone, medium, clay pellets at top.		
393.37	393.84	0.46		Interbedded mudstone and siltstone clay pellets at base, gradational bottom contact.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 24	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:-
			FINGAL TIER
R.L. OF SITE:- 830.8	SITE SURVEY ON MAP No.:-		CORE SIZE:- BMLQ
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 12/4/76
INCLINATION OF HOLE:- Vertical	DRILL:- Edeco		COMPLETED:- 30/10/76
CO-ORDS OF SITE:- 89318776	DRILLER:- M. Schier		FINAL DEPTH (m):- 523.26 m

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24	GEOLOGICAL LOG	Page :- 2

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
393.84	394.49	0.64		Lithic sandstone - medium.		
394.49	394.58	0.09		- medium coarse with coal and carbonaceous mudstone bands.		
394.58	396.41	1.80		- medium.		
396.41	396.74	0.33	98	- medium with clay pellets and lenses.		
396.74	397.04	0.30		Mudstone, gradational bottom contact.		
397.04	397.15	0.10		COAL SECTION: Coal.		
397.15	397.22	0.07		(1.17 m) Mudstone.		
397.22	397.46	0.23		Coal.		
397.46	397.48	0.02		Mudstone.		
397.48	397.51	0.03		Carbonaceous mudstone.		
397.51	397.55	0.03		Mudstone.		
397.55	398.23	0.68		Coal.		
398.23	398.63	0.39		Mudstone.		
398.63	398.93	0.30	100	Laminite, mudstone, siltstone.		
398.93	399.71	0.78		Mudstone, in part laminite.		
399.71	400.11	0.40		Fine lithic sandstone.		
400.11	401.35	1.24		Mudstone.		
401.35	401.44	0.09		Soft clay.		
401.44	401.58	0.14	98	COAL SECTION: Coal.		
401.58	401.63	0.05		(1.04 m) Claystone.		
401.63	402.49	0.85		Coal.		
402.49	402.58	0.09		Carbonaceous shale.		
402.58	415.33	12.54		Laminite mudstone/siltstone.		
415.33	416.66	1.32		Lithic sandstone: medium coarse.		
416.66	417.33	0.66		- coarse.		
417.33	417.40	0.07		- coarse with clay pellet band.		
417.40	418.19	0.77		- medium with clay pellets and coal lenses.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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24				GEOLOGICAL LOG	Page:- 3	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
418.19	421.80	3.58	99	Lithic sandstone: medium (sharp bottom contact).		
421.80	422.62	0.81		Interbedded siltstone and fine sandstone, (current bedded at base).		
422.62	423.16	0.54		Laminite: mudstone/siltstone.		
423.16	423.28	0.12		Laminite: sandstone/siltstone.		
423.28	423.33	0.05		Carbonaceous mudstone.		
423.33	424.26	0.92		Laminite: sandstone/siltstone.		
424.26	424.36	0.10		Sheared mudstone.		
424.36	425.36	0.99		Laminite: sandstone/siltstone.		
425.36	425.62	0.26		Carbonaceous mudstone.		
425.62	425.86	0.23		Laminite: sandstone/siltstone.		
425.86	426.49	0.62	98	Lithic sandstone: medium.		
426.49	426.80	0.31		Lithic sandstone: medium interbedded with mudstone.		
426.80	428.83	1.99		- medium.		
428.83	430.75	1.80	93	- medium coarse.		
430.75	438.52	7.27		- medium.		
438.52	438.74	0.21		Coal.		
438.74	438.87	0.12		Carbonaceous mudstone.		
438.87	439.78	0.85		Clay swelling, friable when dry.		
439.73	440.73	0.89		Mudstone, in part carbonaceous.		
440.73	441.12	0.36		Mudstone, carbonaceous.		
441.12	441.22	0.10	97	COAL SECTION: Coal.		5
441.22	441.52	0.30		(2.53 m) Mudstone.		
441.52	443.65	2.13		Coal.		6,7,8
443.65	443.70	0.05		Carbonaceous mudstone.		
443.70	444.17	0.46		Mudstone.		
444.17	445.48	1.28		Siltstone, interbedded with fine sandstone (at base).		
445.48	473.62	27.49		Medium lithic sandstone.		
473.62	475.03	1.38		Mudstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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GEOLOGICAL LOG

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
475.03	479.12	4.00		Laminite sandstone/mudstone at top and sandstone/siltstone at base.		
479.12	495.44	15.94		Medium lithic sandstone.		
495.44	495.95	0.50		Mudstone, gradational bottom contact.		
495.95	496.03	0.08		Siltstone.		
496.03	496.22	0.18		Mudstone.		
496.22	496.85	0.63	98	COAL SECTION: Coal.		9
496.85	497.01	0.16		(1.54 m) Claystone.		
497.01	497.17	0.16		Coal.		10
497.17	497.23	0.06		Claystone.		
497.23	497.78	0.53		Coal.		11
497.78	498.65	0.88	100	Laminite, mudstone/siltstone.		
498.65	499.44	0.80		Mudstone.		
499.44	508.67	9.30		Laminite sandstone/siltstone.		
508.67	514.33	5.70		Medium lithic sandstone.		
514.33	520.77	6.50		Laminite, mudstone/siltstone, carbonaceous at top.		
520.77	523.26	2.50		Medium lithic sandstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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DRILLING TARGET:- Duncan Seam 376.07 - 377.71 m, East Fingal Seam 417.73 - 419.31 m, 420.98 - 422.95 m

REMARKS:-

SURVEY DATA

DEPTH metres	Bearing mag.	Inclin. degs

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moist	Ash	Vol	F.C.	S.E.
1	376.07	376.45	0.37	99	4.2	51.2	18.3	30.5	14.1
2	376.45	376.99	0.53		4.0	23.5	30.2	46.3	24.5
3	376.99	377.14	0.15		3.5	44.6	27.8	27.6	18.0
4	377.28	377.71	0.42		3.4	33.2	28.3	38.5	21.4
5	417.73	418.42	0.69	100	3.4	37.3	22.3	40.4	19.3
6	418.42	418.61	0.19		2.6	40.8	28.1	31.1	19.2
7	418.64	418.73	0.09		3.7	52.9	25.2	21.9	13.7
8	418.76	418.89	0.13		3.2	22.1	27.2	50.7	25.3
9	418.92	419.10	0.18		2.7	31.7	33.1	35.2	21.8
10	419.13	419.31	0.18		2.8	48.1	20.6	31.3	15.8

GEOLOGICAL LOG

Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	193.83	193.83	100	Dolerite.		
193.83	194.27	0.42	95	Chilled dolerite.		
194.27	194.83	0.54		Indurated mudstone.		
194.83	194.94	0.10		Indurated carbonaceous mudstone.		
194.94	195.14	0.19		Indurated fine sandstone.		
195.14	196.50	1.30		Lithic sandstone, medium.		
196.50	198.86	2.31	98	- pale grey banded.		
198.86	198.92	0.06		- pale green with mud pellets.		
198.92	198.94	0.02		- Pale green.		
198.94	200.73	1.77		Mudstone containing algal remains.		
200.73	202.93	2.20		Mudstone, irregularly interbedded with sandstone (70:30).		
202.93	203.80	0.86	98	Lithic sandstone, medium-coarse.		
203.80	215.44	11.56	99	Lithic sandstone, medium-coarse, slightly carbonaceous.		
215.44	229.83	13.85	97	Lithic sandstone, medium-coarse, green, paler at base.		
229.83	232.13	2.08	90	Lithic sandstone, medium.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:-	MAP SHEET No.	DISTRICT	LOCATION OF SITE:-
25	8514N 49	FINGAL	FINGAL TIER NQWL to 384.00 m

R.L. OF SITE:- 784.1 m	SITE SURVEY ON MAP No..	CORE SIZE:- BQWL to 525.93 m
BEARING OF HOLE:-	AIR PHOTO No.:-	COMMENCED:- 22/10/76
INCLINATION OF HOLE:- Vertical	DRILL:- Edeco	COMPLETED:- 26/5/77
CO-ORDS OF SITE:- EP88098853	DRILLER:- M. Schier	FINAL DEPTH (m):- 525.93 m

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25				GEOLOGICAL LOG	Page:- 2	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
232.13	232.23	0.09		Mudstone, slightly carbonaceous.		
232.23	233.14	0.84		Medium lithic sandstone.		
233.14	234.59	1.38		- with clay pellets.		
234.59	236.33	1.65		- with clay pellets and coal lenses.		
236.33	236.42	0.09		Carbonaceous mudstone.		
236.42	236.95	0.51		Carbonaceous sandstone.		
236.95	237.48	0.51		Interbedded mudstone and current bedded sandstone.		
237.48	238.83	1.29	95	Mudstone, banded, in part carbonaceous.		
238.83	239.43	0.61	100	Mudstone, banded, in part carbonaceous.		
239.43	239.91	0.48		Mudstone, soft carbonaceous, crumbly.		
239.91	240.16	0.25		Swelling clay.		
240.16	240.21	0.05		Mudstone, soft carbonaceous, crumbly.		
240.21	240.49	0.28		Swelling clay.		
240.49	240.77	0.28		Mudstone, carbonaceous, in part coal.		
240.77	240.83	0.06		Fine sandstone.		
240.83	241.52	0.69		Claystone.		
241.52	241.59	0.07		Swelling clay.		
241.59	241.61	0.02		Carbonaceous mudstone.		
241.61	241.65	0.04		Swelling clay.		
241.65	241.72	0.07		Carbonaceous mudstone.		
241.72	241.82	0.10		Swelling clay.		
241.82	241.95	0.13	94	Carbonaceous mudstone.		
241.95	242.00	0.04		Swelling clay.		
242.00	242.04	0.04		Carbonaceous mudstone.		
242.04	242.23	0.18		Swelling clay.		
242.23	242.60	0.35		COAL SECTION: Coal.		
242.60	242.61	0.01		Stone band.		
242.61	242.66	0.04		Coal.		
242.66	242.67	0.01		Stone band.		
242.67	242.80	0.13		Coal.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

25	GEOLOGICAL LOG	Page:- 3

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
242.80	242.84	0.03		COAL SECTION: Stone band.		
242.84	242.88	0.04		(Contd.) Coal.		
242.88	242.92	0.04		Stone band.		
242.92	243.06	0.13		Coal.		
243.06	243.14	0.08		Mudstone.		
243.14	243.28	0.13		Swelling clay.		
243.28	243.38	0.09		Carbonaceous mudstone.		
243.38	243.43	0.05		Brown clay.		
243.43	243.54	0.10		Carbonaceous mudstone.		
243.54	244.12	0.55		Clay with slightly carbonaceous bands.		
244.12	244.60	0.45		Coal.		
244.60	244.83	0.21		Mudstone, pale grey.		
244.83	244.90	0.07	93	Claystone.		
244.90	245.70	0.75		Coal.		
245.70	245.80	0.09		Clay.		
245.80	245.82	0.02		Coal.		
245.82	245.92	0.10		Clay.		
245.92	246.05	0.12		Coal with a .02 m band.		
246.05	246.14	0.08		Brown clay.		
246.14	246.15	0.01		COAL SECTION: Coal.		
246.15	246.16	0.01		Carbonaceous mudstone.		
246.16	246.43	0.27		Coal.		
246.43	246.64	0.18		Clay.		
246.64	246.75	0.10		Carbonaceous mudstone.		
246.75	247.36	0.57		Clay, slight green colouration.		
247.36	247.59	0.22		Mudstone, carbonaceous.		
247.59	247.64	0.05		Mudstone.		
247.64	247.65	0.01		Mudstone, carbonaceous.		
247.65	247.68	0.02		Brown clay.		
247.68	247.88	0.19	99	Mudstone, carbonaceous.		
247.88	247.89	0.01		Clay.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moist	Ash	Vol.	F.C.	S.E.
11	420.98	421.71	0.73	100	3.4	26.5	25.1	48.4	23.5
12	421.73	422.06	0.33		4.1	30.9	22.8	46.3	21.9
13	422.21	422.95	0.74		3.6	22.5	30.1	47.4	25.4

25				GEOLOGICAL LOG	Page:- 4	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
247.89	248.02	0.13		Mudstone, carbonaceous.		
248.02	248.03	0.01		Clay.		
248.03	248.06	0.03		Mudstone, carbonaceous.		
248.06	248.07	0.01		Clay.		
248.07	248.14	0.07		Mudstone, carbonaceous.		
248.14	248.15	0.01		Clay.		
248.15	248.25	0.10		Coal with minor clay bands.		
248.25	248.37	0.12		Laminite - clay and carbonaceous mudstone.		
248.37	248.44	0.07		Clay.		
248.44	248.48	0.04		Carbonaceous mudstone.		
248.48	248.50	0.02		Clay.		
248.50	248.62	0.12		Coal.		
248.62	248.63	0.01		Carbonaceous mudstone.		
248.63	249.52	0.88		Mudstone.		
249.52	250.02	0.50		Lithic sandstone, fine.		
250.02	250.62	0.60		Lithic sandstone, medium-fine.		
250.62	253.53	2.90	100	- medium-fine, current bedded.		
253.53	258.16	1.60	98	- medium-coarse in part carbonaceous.		
258.16	256.83	1.63		- medium faintly banded.		
256.83	259.83	3.00	100	- interbedded medium and medium-coarse.		
259.83	260.09	0.26	97	- medium-coarse with coal lenses.		
260.09	260.25	0.15		- coarse containing 2 mm vitreous coal.		
260.25	260.39	0.14		- fine.		
260.39	260.84	0.44		- medium-coarse with lenses of vitreous coal.		
260.84	260.98	0.13		- medium-coarse.		
260.98	261.44	0.45		- fine banded, current bedded.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

25	GEOLOGICAL LOG	Page:- 5

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
261.44	261.52	0.08		Lithic sandstone, medium.		
261.52	262.10	0.56		- medium with coal lenses.		
262.10	262.31	0.21		Mudstone.		
262.31	262.37	0.06		Medium lithic sandstone.		
262.37	262.41	0.04		Mudstone.		
262.41	262.50	0.08		Fine sandstone.		
262.50	262.55	0.05		Mudstone with carbonaceous banding.		
262.55	262.61	0.06		Lrown clay.		
262.61	262.64	0.03		Mudstone, carbonaceous.		
262.64	262.67	0.03		Mudstone.		
262.67	262.79	0.12		Fine sandstone.		
262.79	262.83	0.03		Soft clay.		
262.83	263.38	0.53	96	Lithic sandstone: coarse dip 15°.		
263.38	365.31	1.86		- medium-coarse, carbonaceous.		
265.31	265.67	0.35		- light grey with occasional black banding.		
265.67	266.09	0.42		- light grey.		
266.09	267.62	1.50	98	- light grey, banded.		
267.62	267.97	0.34		- light grey.		
267.97	268.31	0.34		Carbonaceous mudstone.		
268.31	268.83	0.50		Lithic sandstone, medium-coarse, dip 20° with scattered coal lenses.		
268.83	269.17	0.32	93	Lithic sandstone, medium-coarse.		
269.17	269.51	0.32		- medium-coarse with scattered coal lenses.		
269.51	270.04	0.50		- medium, banded.		
270.04	270.18	0.13	93	Dull coal.		
270.18	270.59	0.38		Lithic sandstone, medium-coarse, with coal lenses.		
270.59	270.75	0.15		COAL SECTION: Coal.		
270.75	270.77	0.02		(1.62 m) Stone band.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

25 GEOLOGICAL LOG Page:- 6

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
270.77	271.11	0.32		COAL SECTION: Coal.		
271.11	271.21	0.09		(Contd.) Mudstone.		
271.21	271.42	0.20		Coal.		
271.42	271.47	0.05		Stone band.		
271.47	271.79	0.30		Coal.		
271.79	271.83	0.03		Carbonaceous mudstone.		
271.83	272.02	0.19	98	Coal.		
272.02	272.03	0.01		Stone band.		
272.03	272.05	0.02		Carbonaceous mudstone.		
272.05	272.09	0.04		Stone band.		
272.09	272.29	0.20		Carbonaceous mudstone.		
272.29	272.72	0.42		Mudstone.		
272.72	273.03	0.30		Lithic sandstone - fine.		
273.03	273.77	0.73		- medium.		
273.77	274.83	1.04		- medium-coarse.		
274.83	277.48	2.65	100	- medium-coarse.		
277.48	277.57	0.09		- fine, current bedded.		
277.57	278.51	0.93		- medium-coarse.		
278.51	279.71	1.16	97	- medium.		
279.71	279.97	0.26		- medium with clay pellets and coal lenses.		
279.97	280.21	0.23		- medium-coarse.		
280.21	280.56	0.34		- medium.		
280.56	280.83	0.26		- medium, pale grey.		
280.83	281.67	0.84	99	- medium.		
281.67	281.69	0.02		Calcite.		
281.69	281.78	0.09		Lithic sandstone - medium.		
281.78	281.87	0.08		- medium with coal lenses.		
281.87	282.21	0.34		- medium.		
282.21	282.31	0.10		Carbonaceous mudstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

25	GEOLOGICAL LOG	Page:- 7

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
282.31	282.37	0.06		Lithic sandstone - medium.		
282.37	282.45	0.08		- medium with clay pellets.		
282.45	282.52	0.07		Medium lithic sandstone.		
282.52	282.67	0.15		- coal lenses.		
282.67	282.83	0.15				
282.83	282.95	0.12		- coal lenses.		
282.95	283.78	0.83				
283.78	283.83	0.04		- calcite veins.		
283.83	286.83	3.00	100			
286.83	287.20	0.37	99	- calcareous.		
287.20	288.39	1.18				
288.39	288.73	0.34		- pellets of clay, and carbonaceous mudstone.		
288.73	290.45	1.69	98			
290.45	290.51	0.06		- coal lenses.		
290.51	292.55	1.98		- calcareous.		
292.55	294.24	1.64	96			
294.24	295.57	1.28		COAL SECTION: Soft crumbly coal with indistinct stone bands.		
295.57	295.83	0.25		(3.19 m) Mudstone.		
295.83	296.34	0.50	98	Coal.		
296.34	296.44	0.10		Interbedded coal and stone bands.		
296.44	296.68	0.24		Coal.		
296.68	296.71	0.03		Stone band.		
296.71	297.04	0.32		Coal.		
297.04	297.07	0.03		Stone band.		
297.07	297.29	0.22		Coal.		
297.29	297.33	0.03		Stone band.		
297.33	297.43	0.10		Coal.		
297.43	297.52	0.09		Carbonaceous mudstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

25	GEOLOGICAL LOG	Page:- 8

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
297.52	299.58	1.99	96	Mudstone.		
299.58	299.61	0.03		Coal.		
299.61	299.68	0.06		Mudstone.		
299.68	299.72	0.04		Coal.		
299.72	299.77	0.05		Interbedded coal and mudstone.		
299.77	299.91	0.13		Brown claystone.		
299.91	299.94	0.03		Carbonaceous mudstone.		
299.94	300.19	0.23		Mudstone.		
300.19	301.38	1.12	94	Lithic sandstone - fine.		
301.38	301.83	0.42		- medium-fine.		
301.83	302.39	0.56	99	- medium-fine, calcareous.		
302.39	304.83	2.41		- Medium-fine, current bedded.		
304.83	305.34	0.52	100	- Medium-fine.		
305.34	305.94	0.60		- Medium-fine with thin carbonaceous bands.		
305.94	306.75	0.81		- Medium-fine.		
306.75	313.54	6.67	98	- Medium-coarse with thin carbonaceous bands.		
313.54	313.83	0.29		- Medium-coarse with coal lenses.		
313.83	314.26	0.43	100	- Medium-coarse with coal lenses and clay pellets.		
314.26	316.83	2.57		- Medium.		
316.83	319.04	2.13	96	- Medium-coarse with a sub-vertical 3 mm clay parting (fault?)		
319.04	319.24	0.20		- Medium-coarse with clay pellets and coal lenses.		
319.24	320.45	1.18	97	- Medium-coarse.		
320.45	320.56	0.11	98	- Medium-coarse with clay pellets and coal lenses.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
320.56	321.17	0.60		Lithic sandstone - medium-coarse.		
321.17	322.83	1.63		- medium.		
322.83	322.93	0.10		- Carbonaceous mudstone and sandstone.		
322.93	323.22	0.29		- Medium lithic sandstone with coal lenses.		
323.22	323.34	0.12		- Mudstone.		
323.34	323.41	0.07		- Medium lithic sandstone.		
323.41	323.65	0.23		COAL SECTION: Coal.		
323.65	323.67	0.02		(0.91 m) Stone band.		
323.67	324.34	0.66		Coal.		
324.34	326.24	1.87	99	Mudstone.		
326.24	326.32	0.08	100	Swelling clay.		
326.32	326.45	0.13		COAL SECTION: Coal.		
326.45	326.48	0.03		(0.99 m) Clay.		
326.48	326.61	0.13		Coal.		
326.61	326.63	0.02		Clay.		
326.63	327.28	0.65		Coal.		
327.28	327.31	0.03		Carbonaceous mudstone.		
327.31	330.88	3.57		Laminite, mudstone/siltstone.		
330.88	331.09	0.21		Carbonaceous mudstone.		
331.09	331.25	0.16	100	Laminite, mudstone/siltstone.		
331.25	331.41	0.16		Mudstone.		
331.41	331.97	0.56		Fine lithic sandstone.		
331.97	332.58	0.61		Banded mudstone.		
332.58	333.11	0.53		Laminite, sandstone/siltstone.		
333.11	334.63	1.52		Interbedded sandstone and siltstone, irregular and bedding.		
334.63	334.83	0.20		Lithic sandstone - medium.		
334.83	335.61	0.78		- Medium, scattered mudstone partings.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

25				GEOLOGICAL LOG	Page:- 10	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
335.61	337.30	1.69		Lithic sandstone - medium-coarse.		
337.30	338.34	1.04	99	- Medium.		
338.34	340.47	2.12		- Medium-coarse.		
340.47	340.83	0.35		- Medium.		
340.83	342.01	1.18	100	- Medium, vertical calcite vein.		
342.01	342.55	0.54		- Medium-coarse.		
342.55	342.79	0.24		- Medium-coarse with clay pellets.		
342.79	343.29	0.50		- Medium-coarse.		
343.29	344.24	0.95	99	- Medium.		
344.24	344.31	0.07		- Medium with clay pellets.		
344.31	346.12	1.80		- Medium.		
346.12	346.83	0.70		- Medium with clay pellets.		
346.83	347.23	0.40		Mudstone.		
347.23	347.30	0.07		Medium lithic sandstone with clay pellets.		
347.30	350.02	2.71	100	Medium lithic sandstone.		
350.02	350.35	0.33		Banded mudstone.		
350.35	350.54	0.19		COAL SECTION: Dull earthy coal.		
350.54	350.69	0.15		(1.12 m) Mudstone.		
350.69	350.73	0.04		Dull coal.		
350.73	350.76	0.03		Swelling clay.		
350.76	351.40	0.64		Dull coal.		
351.40	351.47	0.07		Carbonaceous mudstone.		
351.47	352.15	0.68		Mudstone.		
352.15	352.43	0.28		Lithic sandstone, fine, banded.		
352.43	352.88	0.45		- medium-fine.		
352.88	352.99	0.11		- fine, banded.		
352.99	357.99	4.90	98			
357.99	358.12	0.12	99	Lithic sandstone, medium with fine carbonaceous banding. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

25	GEOLOGICAL LOG	Page:- 11

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
357.99	358.41	0.29		Lithic sandstone - medium.		
358.41	358.61	0.19		- Medium with fine carbonaceous banding.		
358.61	366.70	8.06		- Medium.		
366.70	367.35	0.64		Fine sandstone.		
367.35	367.74	0.39		Medium-fine lithic sandstone.		
367.74	367.83	0.08		Transition bed.		
367.83	368.45	0.62		Fine sandstone, gradational contacts.		
368.45	368.52	0.07		Medium lithic sandstone.		
368.52	369.03	0.51		Coal.		
369.03	370.18	1.15		Swelling clay.		
370.18	370.31	0.13		Mudstone: in part carbonaceous.		
370.31	370.38	0.07		Mudstone, carbonaceous.		
370.38	370.43	0.05		Mudstone.		
370.43	370.59	0.16		Mudstone, carbonaceous, in part coal.		
370.59	371.20	0.60		Mudstone.		
371.20	371.25	0.05	100	Fine lithic sandstone.		
371.25	371.29	0.04		Grey mudstone.		
371.29	371.83	0.54		Fine lithic sandstone.		
371.83	372.41	0.58		Medium lithic sandstone.		
372.41	376.07	3.66	99	Laminite.		
376.07	376.45	0.37		COAL SECTION: Shaly, in part stoney coal.		1
376.45	376.99	0.53		(1.64 m) Coal.		2
376.99	377.14	0.15		Stoney coal with vitreous bands.		3
377.14	377.28	0.13		Interbedded stone bands and shaly coal.		
377.28	377.71	0.42		Coal with 10% vitreous coal bands.		4
377.71	377.89	0.18		Shaly, in part stoney coal.		
377.89	379.05	1.13		Mudstone.		
379.05	379.83	0.75		Fine sandstone.		
379.83	380.07	0.24	100	Mudstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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25	GEOLOGICAL LOG	Page:- 12

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
380.07	380.89	0.82		Laminite, siltstone/current bedded sandstone.		
380.89	386.98	6.09		Medium lithic sandstone.		
386.98	387.42	0.44		Dull coal.		
387.42	387.52	0.10		Mudstone.		
387.52	387.65	0.13		Dull coal.		
387.65	388.44	0.78		Mudstone.		
388.44	388.61	0.17		Interbedded mudstone and banded siltstone.		
388.61	389.55	0.92		Medium-fine lithic sandstone.		
389.55	389.99	0.43		Mudstone.		
389.99	390.42	0.42		Dull coal.		
390.42	390.88	0.46		Mudstone.		
390.88	391.01	0.12		Fine banded sandstone.		
391.01	391.80	0.78		Mudstone.		
391.80	391.85	0.05		Dull coal.		
391.85	392.03	0.17		Mudstone.		
392.03	403.22	11.18	100	Medium-fine lithic sandstone.		
403.22	403.71	0.49		Mudstone with carbonaceous banding in part.		
403.71	403.82	0.11		Lithic sandstone, medium.		
403.82	403.98	0.16		- Medium, in part banded.		
403.98	404.15	0.16		- Medium.		
404.15	405.08	0.87	93	- Medium-fine.		
405.08	405.28	0.19		Banded mudstone, gradational bottom contact.		
405.28	405.56	0.26		Medium-fine lithic sandstone.		
405.56	405.71	0.14		Banded mudstone.		
405.71	405.91	0.19		Dull coal.		
405.91	406.34	0.40		Laminite: fine sandstone/carbonaceous siltstone(60:40).		
406.34	406.80	0.43		Laminite: sandstone/siltstone 30:70.		
406.80	408.43	1.60	99	Mudstone, carbonaceous banding.		
408.43	408.51	0.08		Mudstone, carbonaceous, gradational bottom contact.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

25 GEOLOGICAL LOG Page:- 13

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
408.51	410.25	1.74		Medium lithic sandstone with carbonaceous banding.		
410.25	411.49	1.18		Mudstone with occasional sandstone bands.		
411.49	412.11	0.59		Medium-fine lithic sandstone.		
412.11	412.46	0.34		Mudstone.		
412.46	412.63	0.16		Transition bed.		
412.63	412.86	0.22		Medium-fine lithic sandstone.		
412.86	413.39	0.50		Mudstone.		
413.39	414.07	0.67		Dull coal.		
414.07	417.73	3.63	99	Interbedded sandstone and mudstone.		
417.73	418.42	0.69	100	COAL SECTION: Dull coal.		5
418.42	418.61	0.19		(1.58 m) Dull lustre coal.		6
418.61	418.64	0.03		Stone band.		
418.64	418.73	0.09		Dull coal with vitreous bands and 1 cm stone lense.		7
418.73	418.76	0.03		Stone band.		
418.76	418.89	0.13		Dull lustre coal.		8
418.89	418.92	0.03		Stone band.		
418.92	419.10	0.18		Vitreous and dull lustre coal (70:30).		9
419.10	419.13	0.03		Stone band.		
419.13	419.31	0.18		Dull coal.		10
419.31	420.74	1.43		Current bedded siltstone.		
420.74	420.98	0.24		Mudstone.		
420.98	421.71	0.73		COAL SECTION: Dull lustre coal.		11
421.71	421.73	0.02		Stone band.		
421.73	422.06	0.33		Dull coal.		12
422.06	422.21	0.15		Stone band.		
422.21	422.95	0.74		Dull lustre and vitreous coal (10:90).		13
422.95	423.02	0.07	97	Fine lithic sandstone, gradational bottom contact.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

25	GEOLOGICAL LOG	Page:- 14

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
423.02	424.59	1.54		Banded mudstone.		
424.59	424.60	0.01		Coal.		
424.60	424.62	0.02		Clay band.		
424.62	424.67	0.05		Coal.		
424.67	424.81	0.14		Mudstone.		
424.81	425.05	0.23		Transition bed.		
425.05	425.46	0.40	99	Fine lithic sandstone.		
425.46	425.61	0.15		Mudstone.		
425.61	426.85	1.24		Interbedded sandstone and mudstone (70:30).		
426.85	428.36	1.51		(30:70).		
428.36	429.44	1.08	99	(70:30).		
429.44	431.04	1.60		Fine lithic sandstone, current bedded and fine carbonaceous banding, gradational bottom contact.		
431.04	431.82	0.77	98	Laminite-sandstone/carbonaceous siltstone.		
431.82	431.96	0.14		Carbonaceous mudstone, gradational bottom contact.		
431.96	437.37	5.38		Medium lithic sandstone with carbonaceous banding.		
437.37	437.47	0.10	100	Mudstone, banded.		
437.47	437.74	0.27		Mudstone, carbonaceous.		
437.74	437.97	0.23		Medium lithic sandstone, slightly carbonaceous.		
437.97	438.09	0.12		Banded mudstone.		
438.09	438.37	0.28		Dull coal.		
438.37	438.70	0.33		Claystone.		
438.70	439.35	0.65		Dull coal.		
439.35	440.87	1.52		Mudstone.		
440.87	441.43	0.56		Fine lithic sandstone.		
441.43	443.38	1.95		Laminite - sandstone/siltstone.		
443.38	444.86	1.48		Laminite - sandstone/siltstone, irregular bedding.		
444.86	445.25	0.39		Dull coal.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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Index Page:-

25				GEOLOGICAL LOG	Page:- 15	
FROM	TO	RECOVERY		DESCRIPTION	SECTION	
metres	metres	metres	%		Core	Sample
445.25	445.72	0.47		Mudstone.		
445.72	448.46	2.74		Interbedded sandstone and mudstone.		
448.46	449.68	1.22		Mudstone.		
449.68	450.12	0.43		Coal.		
450.12	453.82	3.69		Medium lithic sandstone, carbonaceous gradational bottom contact.		
453.82	455.32	1.50		Medium lithic sandstone, carbonaceous bands and clay pellets near bottom.		
455.32	455.78	0.45		Medium lithic sandstone, carbonaceous.		
455.78	457.87	2.09		Medium lithic sandstone, finer at top.		
457.87	459.13	1.25		Laminite - sandstone/siltstone.		
459.13	463.21	4.07		Lithic sandstone - medium.		
463.21	463.49	0.27		- Medium with clay pellets.		
463.49	464.42	0.93		- Medium.		
464.42	464.67	0.25		- Fine.		
464.67	464.93	0.25		- Medium.		
464.93	466.44	1.48	98	- Medium with coal lenses.		
466.44	467.46	nil				
467.46	468.26	0.80	100	Mudstone.		
468.26	468.56	0.30		Laminite, current bedded sandstone/siltstone.		
468.56	469.56	1.00		Medium lithic sandstone with occasional bands of current bedded siltstone.		
469.56	469.65	0.09		Carbonaceous mudstone.		
469.65	469.80	0.15		Medium lithic sandstone.		
469.80	471.12	1.32		Laminite - sandstone/siltstone.		
471.12	471.47	0.33	95	Mudstone: banded.		
471.47	471.95	0.46		Mudstone: slightly carbonaceous.		
471.95	472.67	0.69		Medium lithic sandstone.		
472.67	472.82	0.15		Fine sandstone.		
472.82	474.01	1.13		Lithic sandstone - medium-fine.		
474.01	476.84	2.83	100	- Medium.		

Continued over

ASSAY DATA

SAMPLE No.	FROM	TO	RECOVERY		ASSAY RESULTS									
	metres	metres	metres	%										

25				GEOLOGICAL LOG	Page:- 16	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
476.84	477.05	0.21		Lithic sandstone - medium with carbonaceous banding.		
477.05	478.90	1.86		- Medium.		
478.90	479.00	0.10		- Medium with clay pellets.		
479.00	479.39	0.39		- Medium.		
479.39	479.54	0.15		- Medium.		
479.54	480.12	0.58		- Medium with occasional clay pellets.		
480.12	480.28	0.11	67	- Medium.		
480.28	480.70	0.29		Mudstone, carbonaceous at top.		
480.70	483.23	1.71		Laminite, sandstone/siltstone.		
483.23	483.48	0.25	100	Laminite.		
483.48	483.81	0.33		Mudstone, dark grey.		
483.81	484.23	0.42		Mudstone, light grey.		
484.23	484.48	0.25		Transition bed.		
484.48	484.88	0.40		Laminite, sandstone/siltstone.		
484.88	486.39	1.51		Medium-fine lithic sandstone.		
486.39	487.42	1.03		Medium-fine lithic sandstone, banded.		
487.42	487.48	0.06		Coal.		
487.48	487.81	0.33		Laminite-fine sandstone/current bedded siltstone.		
487.81	488.60	0.79		Banded mudstone.		
488.60	488.78	0.18		Banded siltstone.		
488.78	488.96	0.18		Banded sandstone.		
488.96	489.95	1.00		Medium lithic sandstone.		
489.95	491.22	1.27		Banded mudstone.		
491.22	491.98	0.76		Mudstone.		
491.98	492.23	0.25		Transition bed.		
492.23	495.06	2.78	98	Laminite - sandstone/siltstone.		
495.06	495.37	0.31		Dark grey siltstone.		
495.37	495.48	0.11		Dark grey sandstone.		
495.48	495.84	0.36		Dark grey siltstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

25				GEOLOGICAL LOG	Page:- 17	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
495.84	498.46	2.62		Interbedded light grey sandstone and dark grey siltstone.		
498.46	499.26	0.80	100	Cream coloured quartz sandstone, thin black banding.		
499.26	500.97	1.71		Cream coloured quartz sandstone, broad black banding.		
500.97	502.60	1.62	99	Dark grey mudstone.		
502.60	502.95	0.35		Transition bed.		
502.95	506.54	3.57	99	Quartz sandstone, light grey with siltstone banding.		
506.54	507.68	1.14		Quartz sandstone, cream with scattered pebbles.		
507.68	510.73	0.80	26	Quartz sandstone, grey with scattered grits.		
510.73	511.02	0.25	85	Quartz sandstone, grey with scattered grits.		
511.02	525.93	14.45	95	Dark grey siltstone (Permian).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:- Duncan Seam 310.35 - 312.95 m

REMARKS:- East Fingal Seam 354.60 - 356.67 m

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moist	Ash	Vol.	F.C.	S.E.	
			1	310.35	310.57	0.22	100	3.8	26.8	34.4	38.8	23.2	
			2	310.70	311.07	0.37		4.9	28.7	26.1	45.2	22.6	
			3	311.08	311.68	0.60		4.2	29.6	27.8	42.6	21.5	
			4	311.68	312.18	0.50		4.5	29.8	26.6	43.6	22.0	
			5	312.18	312.55	0.37		5.2	28.0	24.0	48.0	22.3	
			6	312.55	312.60	0.05		4.0	44.9	28.0	27.1	18.0	
			7	312.60	312.95	0.35		4.4	38.5	23.9	37.6	19.3	

GEOLOGICAL LOG

Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	240.86	240.86	100	Dolerite.		
240.86	243.36	2.50	100	Indurated claystone, banded.		
243.36	245.30	1.94		- non-banded.		
245.30	246.71	1.41		Fine banded sandstone.		
246.71	247.73	1.02		Interbedded mudstone and medium lithic sandstone.		
247.73	254.60	6.85		Medium lithic sandstone with occasional fine banding.		
254.60	256.25	1.64	99	Mudstone, carbonaceous, interbedded with sandstone at top.		
256.25	256.76	0.50		Mudstone, slightly carbonaceous.		
256.76	257.60	0.83		- Grey, slight banding.		
257.60	259.01	1.41		- Grey.		
259.01	259.78	0.77		- Carbonaceous.		
259.78	259.93	0.15		Clay.		
259.93	260.65	0.71		Mudstone, carbonaceous.		
260.65	264.50	3.85		Mudstone, grey.		
264.50	265.50	1.00		Lithic sandstone, fine.		
265.50	288.78	23.23		Lithic sandstone, medium.		
288.78	288.87	0.09		Clay pellet conglomerate.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 26	MAP SHEET No. (8514N) 49	DISTRICT FINGAL	LOCATION OF SITE:-
			FINGAL TIER
R.L. OF SITE:- 733.8 m	SITE SURVEY ON MAP No.:		CORE SIZE:- NQWL
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 31/3/77
INCLINATION OF HOLE:- Vertical	DRILL:- Longyear 38		COMPLETED:- 16/6/77
CO-ORDS OF SITE:- EP85608667	DRILLER:- L. Newman		FINAL DEPTH (m):- 459.22 m

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26	GEOLOGICAL LOG	Page:- 2

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
288.87	289.00	0.13		Mudstone.		
289.00	289.35	0.36		Mudstone, carbonaceous.		
289.35	289.73	0.38		Mudstone.		
289.73	290.46	0.73		Mudstone.		
290.46	290.69	0.23		Mudstone, carbonaceous.		
290.69	302.67	11.29	94	Medium lithic sandstone.		
302.67	302.79	0.12	100	Mudstone.		
302.79	303.83	1.04		Medium lithic sandstone.		
303.83	304.37	0.54		Interbedded mudstone and sandstone.		
304.37	305.47	1.10		Sandstone, fine banded, current bedded.		
305.47	307.67	2.19	99	Sandstone, medium lithic.		
307.67	308.43	0.76		Sandstone, medium lithic with coal partings.		
308.43	308.61	0.18		Sandstone, medium-coarse lithic, gradational bottom contact.		
308.61	308.73	0.11		Dull coal or carbonaceous mudstone.		
308.73	310.35	1.62	100	Laminite-sandstone/siltstone (70:30).		
310.35	310.45	0.10		COAL SECTION: Dull lustre coal.		1
310.45	310.57	0.12		Dull coal with vitreous bands.		
310.57	310.62	0.05		Carbonaceous mudstone.		
310.62	310.70	0.08		Mudstone.		
310.70	311.07	0.37		Dull coal.		2
311.07	311.08	0.01		Stone band.		
311.08	311.19	0.11		Dull lustre coal.		
311.19	311.20	0.01		Vitreous coal.		
311.20	311.32	0.12		Dull lustre coal with vitreous bands.		
311.32	311.42	0.10		Dull coal.		3
311.42	311.43	0.01		Stone band.		
311.43	311.68	0.25		Dull lustre coal.		
311.68	312.18	0.50		Dull lustre coal.		4
312.18	312.55	0.37		Dull coal in part crumbly.		5

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moist	Ash	Vol.	F.C.	S.E.
8	354.60	354.89	0.28	99	4.1	42.5	19.2	38.3	15.8
9	355.02	355.19	0.16		4.0	33.9	22.5	43.6	19.1
10	355.19	355.65	0.45		3.7	32.7	22.9	44.8	20.4
11	355.65	355.95	0.28		3.7	54.7	18.5	26.8	12.9
12	356.13	356.44	0.30		3.5	27.5	25.9	46.6	22.0
13	356.44	356.55	0.10		3.6	55.0	17.1	27.9	12.6
14	356.55	356.67	0.12		4.3	30.6	21.9	47.5	20.7

26				GEOLOGICAL LOG		Page:- 3
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
312.55	312.60	0.05		COAL SECTION: Shaly coal.		6
312.60	312.95	0.35		(Contd.) Stoney coal.		7
312.95	314.02	1.05	98	Mudstone.		
314.02	314.70	0.67		Lithic sandstone - fine.		
314.70	315.92	1.22	100	- medium-fine.		
315.92	325.69	9.73		- medium.		
325.69	329.74	4.03	99	- Medium with clay pellets.		
329.74	330.20	0.46		- Medium with scattered clay pellets.		
330.20	331.61	1.41		- Medium.		
331.61	331.90	0.29		Mudstone.		
331.90	350.24	18.28	100	Current bedded siltstone.		
350.24	351.43	1.20		Carbonaceous mudstone.		
351.43	353.59	2.18	100	Laminite, mudstone/siltstone.		
353.59	353.88	0.29		Mudstone, carbonaceous.		
353.88	354.60	0.70				
354.60	354.89	0.28	99	COAL SECTION: Dull lustre coal.		8
354.89	354.93	0.04		Stone band.		
354.93	354.95	0.02		Coal.		
354.95	355.02	0.07		Stone band.		
355.02	355.19	0.16		Dull lustre coal with hackly fracture.		9
355.19	355.22	0.03		Dull coal.	)	
355.22	355.23	0.01		Vitreous coal.	)	
355.23	355.34	0.11		Dull lustre coal with hackly fracture.	))	10
355.34	355.65	0.30		Dull coal.	)	
355.65	355.95	0.28		Stoney coal.		11
355.95	356.13	0.18		Stone band.		
356.13	356.23	0.09		Dull lustre coal with hackly fracture.	))	12
356.23	356.44	0.21		Dull coal. Continued over	)	

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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26	GEOLOGICAL LOG	Page:- 4

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
356.44	356.55	0.10		COAL SECTION: Stony coal.		13
356.55	356.67	0.12		(Contd.) Dull lustre coal.		14
356.67	356.75	0.07		Dull coal with stone bands.		
356.75	356.88	0.12	98	Mudstone.		
356.88	361.69	4.76		Laminite - sandstone/siltstone.		
361.69	363.23	1.53	99	Laminite, sandstone/siltstone current bedded.		
363.23	364.45	1.22		Mudstone, carbonaceous, coal at base.		
364.45	365.58	1.13		Mudstone.		
365.58	365.78	0.20		Laminite - sandstone/siltstone.		
365.78	366.44	0.66	100	Mudstone.		
366.44	366.45	0.01		Mudstone, carbonaceous.		
366.45	366.47	0.02		Clay.		
366.47	366.88	0.41		Mudstone.		
366.88	367.28	0.40		Laminite - sandstone/siltstone.		
367.28	367.37	0.08		Medium-fine lithic sandstone.		
367.37	367.62	0.25		Mudstone.		
367.62	367.71	0.09		Medium-fine lithic sandstone.		
367.71	369.59	1.87		Interbedded medium-fine lithic sandstone and current bedded siltstone.		
369.59	369.89	0.30		Dark grey siltstone.		
369.89	370.79	0.90		Interbedded medium-fine lithic sandstone and current bedded siltstone.		
370.79	371.89	1.10		Medium lithic sandstone.		
371.89	372.29	0.40	99	Clay bedded conglomerate.		
372.29	372.48	0.19		Current bedded siltstone.		
372.48	374.74	2.26		Medium-fine lithic sandstone.		
374.74	374.89	0.14		Mudstone.		
374.89	375.39	0.50		Mudstone, carbonaceous.		
375.39	377.92	2.48		Medium lithic sandstone, calcareous, siltstone bands.		
377.92	379.53	1.60		Medium lithic sandstone, calcareous.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

26				GEOLOGICAL LOG	Page:- 5	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
379.53	380.26	0.72		Medium lithic sandstone.		
380.26	380.45	0.19		Banded mudstone.		
380.45	380.88	0.43		Dull coal.		
380.88	380.93	0.04		Clay.		
380.93	381.83	0.90	99	Dull coal.		
381.83	383.01	1.18		Mudstone gradational bottom contact.		
383.01	383.90	0.87		Mudstone swelling.		
383.90	384.44	0.52	95	Laminite, swelling clay/current bedded siltstone.		
384.44	384.69	0.24		Fine lithic sandstone, slightly swelling.		
384.69	384.78	0.08		Swelling clay.		
384.78	385.55	0.74		Medium-fine lithic sandstone.		
385.55	386.01	0.44		Dark grey siltstone.		
386.01	386.21	0.20		Lithic sandstone, medium.		
386.21	386.38	0.16		Lithic sandstone, fine.		
386.38	386.69	0.30		Lithic sandstone, medium.		
386.69	386.73	0.03		Siltstone.		
386.73	386.92	0.19	99	Interbedded siltstone and sandstone.		
386.92	393.63	6.67		Medium lithic sandstone.		
393.63	398.41	4.75		Claystone.		
398.41	398.54	0.13		Medium lithic sandstone.		
398.54	398.73	0.19		Medium lithic sandstone with interbedded carbonaceous siltstone bands.		
398.73	399.01	0.28		Banded siltstone.		
399.01	400.42	1.41	100	Laminite, sandstone/siltstone (60:40).		
400.42	400.55	0.13	100	Interbedded clay and carbonaceous mudstone.		
400.55	400.91	0.36		Mudstone, carbonaceous.		
400.91	401.71	0.80		Mudstone.		
401.71	402.44	0.73		Laminite, mudstone/siltstone.		
402.44	403.84	1.40		Fine lithic sandstone.		
403.84	403.89	0.05		Mudstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

26				GEOLOGICAL LOG	Page:- 6	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
403.89	404.23	0.34		Calcareous lithic sandstone.		
404.23	404.53	0.30		Siltstone, current bedded at base.		
404.53	414.33	9.79	99	Laminite, fine sandstone/current bedded siltstone.		
414.33	414.53	0.20	100	Dark grey mudstone, sharp angular upper contact (fault?) gradational bottom contact.		
414.53	414.89	0.36		Laminite, sandstone, current bedded mudstone sharp bottom contact.		
414.89	415.88	0.99		Interbedded medium-fine lithic sandstone and mudstone (80:20).		
415.88	415.96	0.08		Laminite, mudstone/sandstone.		
415.96	416.08	0.12		Mudstone, gradational bottom contact.		
416.08	416.18	0.10		Medium lithic sandstone.		
416.18	416.76	0.58		Interbedded sandstone and siltstone (70:30).		
416.76	417.12	0.36		Laminite, sandstone/siltstone.		
417.12	417.19	0.07	100	Mudstone.		
417.19	417.79	0.60		Interbedded sandstone and mudstone.		
417.79	419.58	1.79		Mudstone.		
419.58	420.32	0.74		Laminite, sandstone/mudstone.		
420.32	420.45	0.13		Medium lithic sandstone with mudstone bands.		
420.45	420.54	0.09		Dark grey mudstone with scattered sandstone bands.		
420.54	420.70	0.16		Sandstone with mudstone pellets irregular bedding.		
420.70	420.80	0.10		Mudstone.		
420.80	421.13	0.33		Laminite, mudstone/sandstone.		
421.13	421.65	0.52		Mudstone.		
421.65	421.72	0.07		Sandstone, gradational bottom contact.		
421.72	421.82	0.10		Siltstone.		
421.82	422.26	0.44		Mudstone.		
422.26	422.88	0.62		Laminite, siltstone/sandstone.		
422.88	422.92	0.04		Coal. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

26				GEOLOGICAL LOG	Page:- 7	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
422.92	422.95	0.03		Sandstone with coaly streaks.		
422.95	422.97	0.02		Mudstone.		
422.97	423.44	0.47		Laminite, sandstone/siltstone.		
423.44	426.80	3.36		Sandstone with bands of current bedded siltstone.		
426.80	428.49	1.69		As above with mud pellets and coaly streaks.		
428.49	429.15	0.66		Medium lithic sandstone.		
429.15	434.39	5.22	99	Medium lithic sandstone with faint carbonaceous partings.		
434.39	434.62	0.23		Laminite, sandstone/siltstone.		
434.62	434.71	0.09		Medium lithic sandstone with scattered carbonaceous partings.		
434.71	435.43	0.71	99	Laminite, sandstone/siltstone.		
435.43	435.81	0.38		Mudstone.		
435.81	436.14	0.33		Laminite, sandstone/siltstone.		
436.14	437.35	1.21		Mudstone.		
437.35	438.67	1.31		Laminite, sandstone/siltstone, slumped bedding in top 20 cm.		
438.67	439.08	0.41	100	Mudstone,		
439.08	439.15	0.07		Mudstone, carbonaceous.		
439.15	439.31	0.16		Mudstone.		
439.31	439.56	0.25		Laminite, sandstone/siltstone.		
439.56	439.82	0.26		Mudstone, gradational bottom contact.		
439.82	439.92	0.10		Medium-fine lithic sandstone gradational bottom contact.		
439.92	440.45	0.53		Mudstone.		
440.45	440.49	0.04		Medium lithic sandstone.		
440.49	440.62	0.13		Mudstone.		
440.62	440.98	0.36		Medium lithic sandstone.		
440.98	442.06	1.08	99	Medium lithic sandstone with interbedded siltstone bands.		
442.06	442.31	0.25	99	Mudstone.		
442.31	443.93	1.61		Light grey medium lithic sandstone with interbedded siltstone bands. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

26 GEOLOGICAL LOG Page:- 8

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
443.93	443.95	0.02		Carbonaceous mudstone.		
443.95	443.97	0.02		Light grey medium lithic sandstone with interbedded siltstone bands.		
443.97	444.34	0.36		Mudstone.		
444.34	444.86	0.52	100	Interbedded sandstone and siltstone.		
444.86	445.61	0.75		Mudstone, carbonaceous at base.		
445.61	445.68	0.07		Mudstone, carbonaceous at base, shaly texture.		
445.68	445.87	0.19		Mudstone, slightly carbonaceous.		
445.87	445.97	0.10		Mudstone, carbonaceous.		
445.97	446.14	0.17		Mudstone.		
446.14	446.17	0.03		Mudstone, carbonaceous, shaly texture.		
446.17	446.22	0.05		Mudstone, carbonaceous.		
446.22	446.38	0.16		Mudstone.		
446.38	446.60	0.22		Laminite, sandstone/siltstone.		
446.60	447.28	0.68	100	Light grey medium-fine quartz sandstone with current bedded siltstone bed.		
447.28	452.00	4.68	98	Light grey medium-fine quartz sandstone with carbonaceous bands.		
452.00	453.16	1.14		Light grey medium-fine quartz sandstone.		
453.16	456.87	3.68	99	Light grey medium-fine quartz sandstone with scattered disoriented plates of carbonaceous siltstone, sharp bottom contact.		
456.87	457.86	0.99	100	Dark grey siltstone with scattered plant fragments and gradational bottom contact.		
457.86	459.22	1.36		Light grey medium quartz sandstone with faint siltstone bands, scattered plant fragments and white mottling (feldspar?)		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

DRILLING TARGET:- Duncan Seam 331.51 - 336.72 m,

REMARKS:- East Fingal Seam 372.71 - 374.74 m. 377.21 - 378.79 m

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moist	Ash	Vol.	F.C.	S.E.	
			1	331.51	332.02	0.51	100	2.4	40.7	22.6	36.7	19.4	
			2	334.13	334.28	0.15	100	3.3	48.3	30.6	21.1		
			3	334.36	334.44	0.08	100	3.3	22.8	15.2	62.0	24.6	
				334.51	334.81	0.30	100						
			4	334.81	335.11	0.30	100	3.4	26.6	24.7	48.7	23.5	
			5	335.19	335.37	0.15	81	3.2	24.1	26.2	49.7	24.7	
			6	335.37	336.04	0.55	82	2.9	24.1	29.8	46.1	25.2	
			7	336.04	336.72	0.55	82	2.4	29.0	27.2	43.7	23.4	

GEOLOGICAL LOG

Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	259.91	259.91	100	Dolerite.		
259.91	262.85	2.94		Indurated clay, in part carbonaceous.		
262.85	264.87	2.02		Dark grey mudstone, in part carbonaceous, gradational bottom contact.		
264.87	265.90	1.03		Fine sandstone.		
265.90	267.48	1.58	99	Laminite, sandstone/siltstone.		
267.48	267.85	0.37		Medium-fine lithic sandstone.		
267.85	268.86	1.00		Laminite, sandstone/siltstone.		
268.86	270.32	1.46		Medium lithic sandstone.		
270.32	270.59	0.26		Laminite, sandstone/siltstone.		
270.59	270.73	0.14		Medium lithic sandstone.		
270.73	270.75	0.02		Clay pellet conglomerate.		
270.75	271.18	0.43		Lithic sandstone, medium, calcareous.		
271.18	271.97	0.78		Lithic sandstone, laminated medium and fine.		
271.97	272.32	0.35		Lithic sandstone, calcareous with coal lenses and kaolinite filled joints.		
272.32	272.96	0.63		Lithic sandstone, calcareous.		
272.96	273.00	0.04		Mudstone.		
273.00	273.20	0.20		Clay pellet conglomerate.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 27	MAP SHEET No. 49 (8514N)	DISTRICT FINGAL	LOCATION OF SITE:- FINGAL TIER
R.L. OF SITE:- 745.7 m	SITE SURVEY ON MAP No.:		CORE SIZE:- BQ(WL) to NQ (WL) to 401.76 m End
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 8/6/77
INCLINATION OF HOLE:- Vertical	DRILL:- Edeco		COMPLETED:- 15/9/77
CO-ORDS OF SITE:- EP86668697	DRILLER:- M. Schier		FINAL DEPTH (m):- 487.96 m

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
273.20	273.84	0.64		Medium-fine lithic sandstone.		
273.84	274.06	0.21		Light grey medium lithic sandstone with coal lenses up to 1 cm.		
274.06	274.39	0.33	99	Medium lithic sandstone.		
274.39	274.65	0.26		Medium lithic sandstone with very thin coal partings.		
274.65	274.74	0.09		Medium lithic sandstone.		
274.74	274.78	0.04		Carbonaceous siltstone.		
274.78	279.07	4.26	100	Calcareous medium lithic sandstone.		
279.07	279.14	0.07		Mudstone.		
279.14	279.33	0.19		Coal.		
279.33	279.99	0.66		Mudstone, banded with coal fragments.		
279.99	280.13	0.14		Mudstone, dark grey, contains 2 x 2 cm coal bands.		
280.13	280.88	0.75		Mudstone, banded.		
280.88	280.93	0.05		Mudstone.		
280.93	281.07	0.14		Mudstone, carbonaceous.		
281.07	281.11	0.04		Clay.		
281.11	281.37	0.26		Shaly coal.		
281.37	281.39	0.02		Carbonaceous sh[illegible].		
281.39	281.44	0.05		Clay.		
281.44	281.47	0.03		Carbonaceous mudstone.		
281.47	281.99	0.52		Coal, gradational bottom contact.		
281.99	282.16	0.17		Medium-fine lithic sandstone.		
282.16	283.91	1.75		Mudstone, banded.		
283.91	284.04	0.13		Mudstone.		
284.04	284.11	0.06		Mudstone, carbonaceous.		
284.11	284.18	0.07		Clay.		
284.18	284.20	0.02		Carbonaceous mudstone.		
284.20	284.55	0.33		Fine lithic sandstone.		
284.55	285.40	0.80		Laminite, siltstone/mudstone.		
285.40	285.46	0.05		Coal.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moist	Ash	Vol.	F.C.	S.E.
8	372.71	372.84	0.13	100	4.6	37.5	24.1	38.4	19.7
	372.88	373.07	0.19	100					
9	373.07	373.47	0.40	100	4.8	42.0	18.9	39.1	17.5
10	373.47	373.93	0.46	100	6.5	56.3	20.3	23.4	
11	373.93	374.00	0.07	100	4.4	59.5	18.9	21.6	
	374.04	374.36	0.31	100					
	374.42	374.67	0.23	95					
	374.70	374.74	0.04	100					

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27				GEOLOGICAL LOG	Page:- 3	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
285.46	285.49	0.03		Clay.		
285.49	285.69	0.19		Carbonaceous mudstone.		
285.69	286.47	0.73		Laminite, sandstone/siltstone.		
286.47	286.60	0.12		Medium lithic sandstone.		
286.60	286.63	0.03		Siltstone.		
286.63	286.70	0.07		Medium lithic sandstone.		
286.70	286.71	0.01		Siltstone.		
286.71	300.32	13.69		Medium lithic sandstone, clay pellets at base.		
300.32	300.75	0.42	99	Siltstone, gradational bottom contact.		
300.75	300.96	0.21		Lithic sandstone, fine.		
300.96	304.93	3.93		- medium.		
304.93	310.90	5.97		- Medium with angular fractures.		
310.90	311.96	1.00		- Medium.		
311.96	312.33	0.35		- Medium with carbonaceous mudstone lense.		
312.33	312.44	0.10		Banded carbonaceous mudstone.		
312.44	312.60	0.15		Medium lithic sandstone, green with carbonaceous mudstone lenses.		
312.60	312.96	0.34		Medium lithic sandstone, grey with carbonaceous mudstone lenses.		
312.96	313.09	0.12		Carbonaceous mudstone.		
313.09	313.64	0.52		Coal (broken core).		
313.64	313.80	0.15		Carbonaceous mudstone.		
313.80	314.03	0.22	100	Coal.		
314.03	314.13	0.10		Mudstone.		
314.13	316.49	2.36		Laminite, sandstone/siltstone.		
316.49	317.06	0.57		Medium lithic sandstone.		
317.06	317.11	0.05		Siltstone.		
317.11	317.20	0.09		Fine lithic sandstone with coaly partings.		
317.20	317.24	0.04		Clay pellet conglomerate.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

27	GEOLOGICAL LOG	Page:- 4

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
317.24	319.90	2.66		Lithic sandstone - medium.		
319.90	320.87	0.97	99	- Medium-coarse.		
320.87	321.04	0.17		- Medium-fine with coaly partings.		
321.04	322.45	1.40		- Medium-coarse.		
322.45	322.65	0.20		- Medium-coarse with coal fragments.		
322.65	324.95	2.29		- Medium-coarse.		
324.95	325.90	0.95		- Medium.		
325.90	326.81	0.92		- Medium with few coaly partings.		
326.81	326.85	0.04		- Medium with siltstone pebble.		
326.85	326.93	0.08		- Medium-coarse with coal bands and clay lenses.		
326.93	328.67	1.74		- Medium.		
328.67	328.72	0.05		- Medium with siltstone pebbles.		
328.72	328.79	0.07		- Medium-coarse.		
328.79	328.82	0.03		- Medium with siltstone pebbles.		
328.82	331.59	2.74	98	Medium lithic sandstone.		
331.59	332.16	0.55	96	Coal.		
332.16	334.52	2.27		Mudstone containing bands of swelling clay.		
334.52	334.56	0.04		COAL SECTION: Carbonaceous mudstone.		
334.56	334.78	0.21		(1.58 / 2.38 m) Coal.		
334.78	334.81	0.03		Clay.		
334.81	334.89	0.08		Coal.		
334.89	334.91	0.01		Clay.		
334.91	336.05	0.27	23	Coal (very broken).		
336.05	336.25	0.20	100	Coal.		
336.25	336.54	0.29		Carbonaceous mudstone.		
336.54	336.90	0.36		Coal.		
336.90	336.99	0.09		Carbonaceous mudstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moist	Ash	Vols.	F.C.	S.E.
12	377.21	377.41	0.20	100	4.2	48.7	17.8	33.4	
13	377.44	377.61	0.17	100	4.0	44.8	19.6	35.6	
14	377.65	377.80	0.15	100	4.1	38.4	21.2	40.5	18.4
15	377.87	378.79	0.36	39	3.2	29.5	27.7	42.8	22.4

27	GEOLOGICAL LOG	Page:- 5

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				Deflection re-drilling of coal section:		
331.51	332.02	0.51	100	Coal.		1
332.02	334.06	2.04		Mudstone with bands of swelling clay.		
334.06	334.13	0.07		**COAL SECTION:** Carbonaceous mudstone with plant fossils.		
334.13	334.28	0.15		(2.58 - 2.66 m) Dull coal.		2
334.28	334.36	0.08		Stone band.		
334.36	334.40	0.04		Coal.		3
334.40	334.44	0.04		Vitreous coal.		3
334.44	334.51	0.07		Stone band.		
334.51	334.81	0.30		Coal.		3
334.81	335.11	0.30		Coal, dull lustre.		4
335.11	335.19	0.08		Stone band.		
335.19	335.37	0.15	82	Coal (broken core).		5
335.37	336.04	0.55		Coal (broken core).		6
336.04	336.72	0.55		Coal (broken core).		7
336.72	336.92	0.20	100	Carbonaceous mudstone.		
336.92	337.22	0.23		Mudstone.		
337.22	337.29	0.07		Mudstone, carbonaceous.		
337.29	337.66	0.37		Interbedded brown medium lithic sandstone and siltstone.		
337.66	337.91	0.25		Lithic sandstone - brown medium.		
337.91	338.54	0.63		- Medium.		
338.54	338.65	0.11	98	- Medium with coal lenses.		
338.65	340.78	2.11		- Medium.		
340.78	340.83	0.05		Siltstone.		
340.83	340.87	0.03		Lithic sandstone - medium.		
340.87	343.91	3.01	99	- Medium-coarse.		
343.91	344.30	0.39		- Coarse with coal fragments.		
344.30	345.59	1.28		- Medium-coarse.		
345.59	345.64	0.05		- Medium-fine with coal partings. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

27				GEOLOGICAL LOG	Page:- 6	
FROM	TO	RECOVERY		DESCRIPTION	SECTION	
metres	metres	metres	%		Core	Sample
345.64	346.91	1.25		Lithic sandstone, medium coarse.		
346.91	347.59	0.68	99	- medium fine.		
347.59	348.92	1.33		- coarse.		
348.92	349.22	0.30		- medium fine.		
349.22	351.27	2.04		- medium coarse.		
351.27	352.05	0.78		- medium.		
352.05	352.51	0.29	63	Interbedded mudstone, coal and clay.		
352.51	352.63	0.12	100	Mudstone.		
352,63	352.69	0.06		Mudstone, carbonaceous.		
352.69	352.91	0.22		Mudstone.		
352.91	353.08	0.17	99	Laminite.		
353.08	353.34	0.24		Fine lithic sandstone.		
353.34	353.88	0.56		Laminite, sandstone/current bedded siltstone.		
353.88	354.81	0.92		Lithic sandstone, fine.		
354.81	355.18	0.37		- fine with coal laminae.		
355.18	355.91	0.72		- fine.		
355.91	358.91	2.95	98	- medium with calcite veins.		
358.91	359.30	0.39	99	- medium.		
359.30	359.58	0.28		- medium with clay pellets.		
359.58	360.21	0.62		- medium.		
360.21	360.22	0.01		Carbonaceous mudstone.		
360.22	360.87	0.65		Medium lithic sandstone.		
360.87	360.94	0.06		Siltstone.		
360.94	360.99	0.05		Medium lithic sandstone.		
360.99	361.17	0.18		Medium lithic sandstone, fractured, with pyrite crystals.		
361.17	363.04	1.79	94	Medium lithic sandstone.		
363.04	363.49	0.43		Medium lithic sandstone with coal and mudstone fragments.		
363.49	363.85	0.34		Banded mudstone.		
363.85	364.19	0.32		Carbonaceous siltstone.		
364.19	365.19	0.94	93	Fine lithic sandstone. Continued over		

ASSAY DATA

SAMPLE No.	FROM	TO	RECOVERY		ASSAY RESULTS									
	metres	metres	metres	%										

27				GEOLOGICAL LOG		Page:- 7	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION		SECTION Core	SECTION Sample
365.19	366.52	1.28		Laminite, sandstone/siltstone.			
366.52	368.53	0.04	100	Clay pellet conglomerate.			
368.53	369.14	0.61		Medium lithic sandstone with coal and siltstone partings.			
369.14	369.46	0.32		Mudstone.			
369.46	370.05	0.30	50	Mudstone, carbonaceous.			
370.05	372.71	2.68	100	Mudstone.			
372.71	372.84	0.13		COAL SECTION:	Coal.		8
372.84	372.88	0.04		(1.97/2.02 m)	Stone band.		
372.88	373.07	0.19			Coal.		8
373.07	373.47	0.40			Coal.		9
373.47	373.93	0.46			Shaley coal.		10
373.93	374.00	0.07	95		Dull coal.		11
374.00	374.04	0.04			Calcite.		
374.04	374.36	0.31			Shaley coal.		11
374.36	374.42	0.05			Stone band.		
374.42	374.67	0.24			Dull coal.		11
374.67	374.70	0.03	100		Stone band.		
374.70	374.74	0.04			Vitreous coal.		11
374.74	374.78	0.04			Carbonaceous mudstone.		
374.78	375.18	0.40		Mudstone.			
375.18	376.15	0.97		Laminite, fine sandstone/siltstone.			
376.15	377.17	1.02		Mudstone.			
377.17	377.21	0.04		COAL SECTION:	Carbonaceous mudstone.		
377.21	377.41	0.20		(1.06/1.62 m)	Coal.		12
377.41	377.44	0.03			Stone band.		
377.44	377.61	0.17			Coal.		13
377.61	377.65	0.04			Stone band.		
377.65	377.80	0.15			Coal.		14
377.80	377.87	0.07			Stone band.		
377.87	378.79	0.36	39		Coal.		15
378.79	379.07	0.28	100	Mudstone.			

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

27

GEOLOGICAL LOG

Page:- 8

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
379.07	379.93	0.86		Current bedded siltstone.		
379.93	380.37	0.44		Mudstone.		
380.37	380.42	0.05		Siltstone.		
380.42	380.55	0.13		Mudstone.		
380.55	381.66	1.11		Laminite, mudstone/siltstone.		
381.66	382.13	0.47		Laminite, sandstone/current bedded siltstone.		
382.13	382.34	0.21		Sandstone with few siltstone bands.		
382.34	382.38	0.04		Current bedded siltstone.		
382.38	383.35	0.93	96	Medium lithic sandstone.		
383.35	383.46	0.09	88	Laminite.		
383.46	386.08	2.34	93	Medium lithic sandstone.		
386.08	386.25	0.17	99	Siltstone.		
386.25	387.40	1.15		Medium lithic sandstone.		
387.40	387.64	0.24		Medium lithic sandstone with carbonaceous partings.		
387.64	388.52	0.88		Medium lithic sandstone.		
388.52	389.38	0.84	96	Laminite, mudstone/siltstone.		
389.38	389.78	0.39		Coal.		
389.78	390.05	0.26		Carbonaceous mudstone.		
390.05	390.22	0.17		Lithic sandstone, medium, siltstone fragments, bands.		
390.22	392.24	1.96		Lithic sandstone, medium, siltstone.		
392.24	393.07	0.83	100	- medium-fine.		
393.07	393.16	0.09		- medium-fine, carbonaceous siltstone.		
393.16	395.12	1.96		- medium-fine, siltstone bands.		
395.12	396.08	0.96		Coal.		
396.08	396.46	0.38		Mudstone, carbonaceous, coal in part, algae impressions.		
396.46	396.76	0.30		Mudstone.		
396.76	396.94	0.18		Siltstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

27				GEOLOGICAL LOG	Page:- 9	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
396.94	397.92	0.98		Mudstone.		
397.92	400.26	2.32		Claystone.		
400.26	400.56	0.30		Calcite.		
400.56	401.40	0.83		Claystone.		
401.40	401.76	0.36		Medium lithic sandstone.		
401.76	406.91	5.16		Medium lithic sandstone, occasional coal bands.		
406.91	406.95	0.04	99	Coal.		
406.95	408.02	1.07		Mudstone.		
408.02	409.96	1.92		Claystone, brown.		
409.96	410.87	0.87		Claystone, grey, gradational bottom contact.		
410.87	411.72	0.82		Banded mudstone.		
411.72	412.93	1.15		Mudstone.		
412.93	414.30	1.37		Laminite, mudstone/siltstone.		
414.30	420.61	6.31		Laminite, sandstone/siltstone.		
420.61	420.64	0.03		Coal.		
420.64	420.68	0.04		Lithic sandstone with scattered pebbles.		
420.68	420.88	0.20		Coal.		
420.88	422.79	1.91	97	Mudstone.		
422.79	423.16	0.37	100	Mudstone, banded, carbonaceous at base.		
423.16	425.29	2.12		Mudstone.		
425.29	425.66	0.37	99	Fine lithic sandstone.		
425.66	426.85	1.18		Mudstone.		
426.85	427.07	0.22		Coal or carbonaceous mudstone.		
427.07	427.45	0.38		Light grey medium sandstone with occasional carbonaceous siltstone banding.		
427.45	427.68	0.23		Fine sandstone.		
427.68	428.49	0.80		Medium lithic sandstone.		
428.49	428.58	0.09		Dark grey mudstone.		
428.58	429.21	0.63		Light grey mudstone.		
429.21	429.75	0.54		Interbedded medium lithic sandstone and mudstone (70:30).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

27	GEOLOGICAL LOG	Page:- 10

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
429.75	430.19	0.44		Dark grey mudstone (60:40).		
430.19	430.63	0.44		Interbedded medium lithic sandstone and mudstone.		
430.63	431.38	0.74		Mudstone (50:60).		
431.38	431.83	0.45	100	Interbedded medium lithic sandstone and mudstone.		
431.83	432.83	1.00		Mudstone (50:60).		
432.83	436.03	3.20		Interbedded medium lithic sandstone and mudstone.		
436.03	436.08	0.05		Mudstone (crumbly).		
436.08	436.20	0.12		Mudstone, carbonaceous or dull coal, (50:50).		
436.20	437.71	1.51		Interbedded medium lithic sandstone and mudstone.		
437.71	438.52	0.80	99	As above tending towards laminite.		
438.52	438.72	0.20		Medium lithic sandstone.		
438.72	439.02	0.30		Laminite, medium lithic sandstone/siltstone.		
439.02	439.62	0.60		Light brown medium lithic sandstone with siltstone partings.		
439.62	439.92	0.29		Laminite, medium lithic sandstone/siltstone.		
439.92	441.54	1.61		Laminite, medium lithic sandstone/siltstone (60:40).		
441.54	443.57	2.02		Medium lithic sandstone.		
443.57	443.90	0.32		Mudstone.		
443.90	443.99	0.09		Mudstone, carbonaceous.		
443.99	445.25	1.25		Mudstone.		
445.25	445.32	0.07		Mudstone, carbonaceous.		
445.32	445.47	0.16	99	Mudstone.		
445.47	445.56	0.09		Mudstone, carbonaceous.		
445.56	445.94	0.37		Lithic sandstone, fine with occasional siltstone banding.		
445.94	446.65	0.71		Lithic sandstone, medium-fine.		
446.65	447.56	0.90		Mudstone, gradational bottom contact.		
447.56	447.85	0.29		Medium-fine lithic sandstone.		
447.85	448.66	0.80		Mudstone. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

27 GEOLOGICAL LOG Page - 11

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
448.66	448.92	0.25		Interbedded mudstone and sandstone.		
448.92	449.47	0.55		As above, tending towards laminite.		
449.47	449.70	0.23		Fine lithic sandstone.		
449.70	451.60	1.90		Interbedded mudstone and sandstone, in part laminite.		
451.60	451.85	0.25		Fine lithic sandstone.		
451.85	452.34	0.48		Mudstone.		
452.34	452.54	0.20	100	Medium lithic sandstone.		
452.54	454.20	1.66		Interbedded sandstone and mudstone, gradational bottom contact.		
454.20	457.92	3.72		Quartz sandstone with occasional carbonaceous siltstone bands.		
457.92	460.14	2.20	99	Interbedded mudstone and lithic sandstone.		
460.14	460.94	0.79		Quartz sandstone (green-ferrous at top) with carbonaceous siltstone banding.		
460.94	464.58	3.61		Quartz sandstone.		
464.58	466.94	2.34		Interbedded carbonaceous mudstone and greenish, lithic sandstone.		
466.94	468.65	1.70		Quartz sandstone with carbonaceous siltstone banding.		
468.65	469.35	0.70		Laminite, dark grey (carbonaceous) siltstone /fine.		
469.35	469.93	0.57		Quartz sandstone/greenish sandstone with scattered white grits.		
469.93	470.23	0.30		Interbedded fine quartz sandstone and finer less quartzose sandstone.		
470.23	471.26	1.03		As above with siltstone bands.		
471.26	471.29	0.03		Mudstone.		
471.29	473.05	1.75	99	Dark grey mudstone with scattered grits.		
473.05	473.30	0.25	100	As above but carbonaceous and gradational bottom contact.		
473.30	473.76	0.46		Coarse quartz gritty sandstone.		
473.76	476.89	3.13		Fine light grey sandstone with siltstone banding.		
476.89	477.99	1.10		Medium quartz sandstone. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

27	GEOLOGICAL LOG	Page:- 12

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
477.99	478.19	0.20		Laminite, quartz sandstone/carbonaceous siltstone, gradational bottom contact.		
478.19	478.49	0.30		Quartz sandstone.		
478.49	478.53	0.04		Grit.		
478.53	478.94	0.40		Dark grey mudstone with scattered grits.		
478.94	479.98	1.04		Greenish mudstone with scattered grits.		
479.98	487.96	7.98		Dark grey mudstone with scattered grits.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

DRILLING TARGET: Duncan Seam 71.49 - 73.81 m

REMARKS: East Fingal Seam 118.71 - 120.79 m

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS moist	Ash	Vols.	F.C.	excluded %	from sample
			1	71.49	71.77	0.28	100	5.2	28.2	23.0	48.8		
			2	71.77	72.01	0.23	96	4.3	56.1	17.2	26.7		
			3	72.01	72.35	0.33	97	3.8	35.9	21.6	42.5		
			-	72.35	72.49	0.13							
			4	72.49	72.87	0.37		4.3	27.7	26.0	46.3		
			-	72.87	72.90	0.03							
			5	72.90	73.81	0.88		3.9	25.0	29.2	45.8		0.18m
Float concentrate contained 68.8% of S.G.								1.6					
composite				71.49	73.81	1.77	96	3.7	20.8	27.7	51.5		
Total seam including dirt bands						2.25	96		40.6				

GEOLOGICAL LOG — Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	27.00			Dolerite scree.		
27.00	27.55	0.30	55	Mudstone.		
27.55	27.89	0.34	100	Mudstone.		
27.89	28.05	0.16		Lithic sandstone, fine.		
28.05	28.26	0.21		Siltstone.		
28.26	29.26	1.00		Interbedded sandstone and siltstone.		
29.26	29.48	0.22	98	Laminite, sandstone/siltstone.		
29.48	29.90	0.41		Lithic sandstone, fine.		
29.90	31.65	1.72		Lithic sandstone, medium-coarse, coal fragments.		
31.65	31.74	0.09		Mudstone, carbonaceous.		
31.74	32.20	0.45		Sandstone, scattered mudstone fragments.		
32.20	33.37	1.15		Siltstone, in part laminite.		
33.37	33.51	0.14		Siltstone, gradational bottom contact.		
33.51	34.13	0.61		Mudstone.		
34.13	34.98	0.84		Laminite, sandstone/mudstone.		
34.98	35.05	0.06		Sandstone.		
35.05	35.27	0.22	99	Siltstone.		
35.27	35.67	0.40		Mudstone, carbonaceous.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 30	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:- FINGAL
R.L. OF SITE 119.4 m	SITE SURVEY ON MAP No.:		CORE SIZE:- NQWL
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 3/2/78
INCLINATION OF HOLE:- Vertical	DRILL:- Longyear 38		COMPLETED:- 20/4/78
CO-ORDS OF SITE - EP84958756	DRILLER:- L. Newman		FINAL DEPTH (m):- 254.85 m

M1029

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30	GEOLOGICAL LOG	Page:- 2

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
35.67	35.84	0.17		Sandstone, carbonaceous.		
35.84	36.85	1.01		Sandstone, fine.		
36.85	37.45	0.60		Sandstone, laminated.		
37.45	47.01	9.50	99	Lithic sandstone, medium.		
47.01	50.78	3.75		Lithic sandstone, scattered coal fragments.		
50.78	50.81	0.03		- calcareous.		
50.81	50.83	0.02		- with coal partings.		
50.83	51.09	0.26		- with coal partings and scattered clay pellets.		
51.09	51.28	0.19		Clay pellet conglomerate, coal fragments.		
51.28	51.58	0.29		Lithic sandstone, medium.		
51.58	51.62	0.04		- medium clay pellets.		
51.62	51.75	0.13		- medium.		
51.75	52.24	0.48		COAL SECTION: Coal.		
52.24	52.34	0.10		(1.41 m) Band.		
52.34	52.62	0.28		83% coal Coal.		
52.62	52.76	0.14		Mudstone.		
52.76	53.18	0.41		Coal.		
53.18	53.63	0.44		Mudstone.		
53.63	53.64	0.01		Coal.		
53.64	53.86	0.22		Claystone.		
53.86	54.05	0.19		Siltstone.		
54.05	54.18	0.13		Sandstone, fine, current bedded.		
54.18	54.34	0.15		Interbedded, fine sandstone and mudstone.		
54.34	54.84	0.50		Sandstone fine, in part current bedded. Gradational bottom contact.		
54.84	55.17	0.32		Laminite, siltstone/sandstone.		
55.17	55.27	0.10		Sandstone, fine, coaly partings and clay pellets.		
55.27	58.04	2.74		Lithic sandstone, medium.		
58.04	60.01	1.96		- medium-coarse, gradational bottom contact.		
60.01	68.39	8.31		- medium. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS % Moist	Ash	Vols	FC		excluded from sample
6	118.71	119.14	0.42	98	4.8	45.1	15.4	39.5		0.03m
7	119.14	119.62	0.47	97	3.9	44.0	19.0	37.0		0.07m
8	119.62	120.79	1.14	97	3.5	32.5	24.5	43.0		0.08m
Float concentrate contained 45.5% of SG 1.6:										
Composite	119.01	120.79	1.78		5.2	16.8	27.6	55.6		
(0.17 m excluded from sample)										
Total seam including dirt bands			2.03			42.6				

30	GEOLOGICAL LOG	Page:- 3

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
68.39	68.77	0.37		Lithic sandstone, medium-coarse.		
68.77	70.22	1.44		- medium-fine.		
70.22	70.64	0.42		- medium with coal lenses and clay pellets.		
70.64	71.19	0.54		Mudstone.		
71.19	71.49	0.30		Lithic sandstone.		
71.49	71.68	0.19	98	COAL SECTION: Dull lustre coal.		1
71.68	71.69	0.01		(2.25 m core 85% coal) Vitreous coal.		
71.69	71.77	0.08		Dull lustre coal.		
71.77	72.01	0.23		Dull shaly coal.		2
72.01	72.23	0.21		Dull lustre coal.		3
72.23	72.35	0.12		Dull lustre coal with vitreous bands.		
72.35	72.49	0.13		Mudstone.		-
72.49	72.87	0.37		Lustre coal.		4
72.87	72.90	0.03		Claystone band.		-
72.90	73.04	0.14		(* Dull coal with vitreous bands		
73.04	73.09	0.05		excluded from sample) * Mudstone.		
73.09	73.12	0.03		Vitreous coal.		
73.12	73.18	0.05		* Mudstone.		
73.18	73.21	0.03		Carbonaceous mudstone with vitreous bands.		5
73.21	73.26	0.05		* Carbonaceous mudstone.		
73.26	73.29	0.03		Dull coal.		
73.29	73.32	0.03		* Mudstone.		
73.32	73.81	0.47		Dull coal.		
73.81	73.97	0.16	100	Mudstone.		
73.97	74.90	0.93		Laminite, sandstone/siltstone.		
74.90	75.73	0.83		Coal.		
75.73	75.98	0.25		Mudstone.		
75.98	76.51	0.53		Sandstone, fine, current bedded, in part laminite.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

30 GEOLOGICAL LOG Page - 4

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
76.51	77.26	0.70	92	Lithic sandstone, medium-fine.		
77.26	77.65	0.36		- medium.		
77.65	77.69	0.03		- medium-fine carbonaceous partings. (Longitudinal fracture 78-80)		
77.69	79.64	1.80		- medium.		
79.64	80.38	0.73	98	" " - medium-coarse.		
80.38	80.59	0.21		" " - medium-coarse clay pellets.		
80.59	82.25	1.63		" " - medium-coarse.		
82.25	82.35	0.10		" " - medium-coarse clay pellets.		
82.35	84.38	2.01	99	" " - medium.		
84.38	85.61	1.22		" " - medium, coal partings and lenses.		
85.61	85.71	0.10		" " - medium, clay pellets at base.		
85.71	86.36	0.65		Clay pellet conglomerate.		
86.36	86.88	0.51	98	Lithic sandstone, medium, coal lenses.		
86,88	89.95	3.03		- medium.		
89.95	90.67	0.71		- medium, coal partings.		
90.67	94.34	3.64		- medium.		
94.34	94.60	0.25		- medium, clay pellets.		
94.60	106.40	11.64		- medium-coarse.		
106.40	106.66	0.25		Clay pellet conglomerate.		
106.66	108.09	1.43	99	Lithic sandstone, fine.		
108.09	111.60	3.51		- medium.		
111.60	111.66	0.06		- medium, coaly partings.		
111.66	112.68	1.01	98	- medium.		
112.68	114.15	1.46		- medium-coarse, sharp bottom contact.		
114.15	114.38	0.22		- medium, carbonaceous.		
114.38	114.57	0.19		Interbedded carbonaceous and non-carbonaceous sandstone, disordant bedding.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

30	GEOLOGICAL LOG	Page:– 5

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
114.57	114.80	0.23		Laminite, sandstone/carbonaceous siltstone.		
114.80	115.12	0.31		Siltstone, carbonaceous.		
115.12	115.17	0.05		Lithic sandstone, medium.		
115.17	115.50	0.33		Mudstone.		
115.50	116.18	0.67		Coal.		
116.18	116.99	0.80		Laminite, sandstone/siltstone.		
116.99	118.71	1.70		Mudstone.		
118.71	119.01	0.29	97	COAL SECTION: Dull coal.		
119.01	119.04	0.03		(2.03 m core *Mudstone.		6
119.04	119.14	0.10		92% coal) Dull coal.		
119.14	119.21	0.07		Banded dull and dull lustre coal.		
119.21	119.22	0.01		* *Mudstone.		
119.22	119.26	0.04		(excluded Dull coal.		7
119.26	119.32	0.06		from sample) *Mudstone.		
119.32	119.62	0.29		Dull coal.		
119.62	119.70	0.08		Dull lustre coal.		
119.70	119.76	0.05		*Mudstone.		
119.76	119.89	0.13		Dull lustre coal.		
119.89	119.91	0.02		*Mudstone.		8
119.91	119.96	0.05		Dull lustre coal.		
119.96	119.97	0.01		*Mudstone.		
119.97	120.79	0.80		Dull lustre coal.		
120.79	121.65	0.83		Mudstone.		
121.65	121.97	0.32		Laminite, sandstone/mudstone.		
121.97	122.77	0.80		Mudstone.		
122.77	123.04	0.27		Laminite, sandstone/carbonaceous siltstone.		
123.04	123.43	0.39		Lithic sandstone, fine.		
123.43	123.53	0.10		Laminite, sandstone/carbonaceous siltstone.		
123.53	124.66	1.13		Lithic sandstone, medium.		
124.66	124.68	0.02		Siltstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

30				GEOLOGICAL LOG	Page:- 6	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
124.68	126.80	2.10		Lithic sandstone, medium, occasional bands of sandstone and carbonaceous siltstone.		
126.80	127.64	0.83		Lithic sandstone, medium.		
127.64	128.51	0.87		Calcareous sandstone.		
128.51	128.60	0.09		Lithic sandstone, medium-fine.		
128.60	128.70	0.10		- medium, clay pellets.		
128.70	130.60	1.90		- medium-fine.		
130.60	131.50	0.90		- medium-fine, scattered clay pellets.		
131.50	131.56	0.06	99	Coal.		
131.56	131.61	0.05		Mudstone.		
131.61	131.96	0.35		Laminite, sandstone/current bedded siltstone in part interbedded.		
131.96	132.18	0.22		Mudstone.		
132.18	132.84	0.66		Interbedded sandstone and current bedded siltstone.		
132.84	133.44	0.60		Mudstone in part carbonaceous, slickensided and broken core.		
133.44	133.51	0.07		Siltstone.		
133.51	133.63	0.11		Mudstone.		
133.63	133.76	0.13		Siltstone.		
133.76	134.49	0.73		Interbedded sandstone and current bedded siltstone.		
134.49	134.74	0.25		Mudstone.		
134.74	134.80	0.06		Mudstone, soft.		
134.80	135.11	0.31		Mudstone.		
135.11	135.20	0.09		Siltstone.		
135.20	135.32	0.12		Mudstone.		
135.32	135.37	0.05	100	Laminite, sandstone/mudstone.		
135.37	135.48	0.11		Interbedded sandstone and mudstone.		
135.48	142.79	7.27	98	Lithic sandstone, medium, sharp bottom contact.		
142.79	143.32	0.52		Coal, shaly in part gradational bottom contact. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

30				GEOLOGICAL LOG	Page:- 7	
FROM	TO	RECOVERY		DESCRIPTION	SECTION	
metres	metres	metres	%		Core	Sample
143.32	146.01	2.66		Lithic sandstone, medium with dark siltstone bands and lenses.		
146.01	149.04	3.00	99	Lithic sandstone, medium.		
149.04	150.11	1.06		- medium, with few siltstone bands.		
150.11	151.46	1.34		Dull coal, sharp top and gradational bottom contacts.		
151.46	152.31	0.84		Mudstone, gradational bottom contact.		
152.31	155.55	3.24		Laminite, sandstone/siltstone, 60:40.		
155.55	155.62	0.07		Clay pellet conglomerate.		
155.62	157.71	2.06		Lithic sandstone, medium.		
157.71	157.91	0.20		- fine.		
157.91	158.14	0.22		- medium-fine.		
158.14	158.29	0.15		- fine.		
158.29	158.53	0.24		- highly calcareous.		
158.53	163.65	5.12		- calcareous over bottom 30 cm.		
163.65	164.29	0.63		Mudstone.		
164.29	165.22	0.92		Laminite, sandstone/mudstone.		
165.22	171.03	5.86		Mudstone, in part banded.		
171.03	171.22	0.19		Sandstone, coarse.		
171.22	171.40	0.18		Mudstone.		
171.40	173.05	1.65		Coal or carbonaceous mudstone.		
173.05	173.97	0.92		Mudstone - swells and collapses after exposure.		
173.97	174.60	0.63		Mudstone.		
174.60	175.09	0.49		Siltstone.		
175.09	175.79	0.70		Mudstone.		
175.79	176.12	0.33		Calcareous sandstone.		
176.12	176.35	0.23		Mudstone.		
176.35	177.07	0.71		Sandstone, fine, in part banded.		
177.07	177.60	0.53		Laminite, sandstone/siltstone.		
177.60	177.65	0.05		Coal (sharp top and bottom contacts)		

Continued over

ASSAY DATA

SAMPLE No	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

30				GEOLOGICAL LOG	Page:- 8	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
177.65	177.87	0.21		Mudstone.		
177.87	179.30	1.41		Laminite, sandstone/siltstone.		
179.30	180.37	1.07		Mudstone.		
180.37	180.88	0.50		Sandstone, fine, in part laminated, gradational bottom contact.		
180.88	189.04	8.11		Lithic sandstone, medium.		
189.04	189.40	0.36		Laminite, sandstone/siltstone.		
189.40	189.81	0.40		Laminite, sandstone/siltstone, current bedding.		
189.81	191.42	1.58		Lithic sandstone, medium.		
191.42	193.22	1.80		- medium, occasional current bedding.		
193.22	194.22	1.00		- medium, calcareous.		
194.22	194.36	0.14		- medium, clay pellets.		
194.36	195.38	1.02	100	- medium.		
195.38	195.60	0.22		- medium, clay pellets.		
195.60	197.42	1.82		- medium.		
197.42	197.50	0.08		- medium, clay pellets.		
197.50	201.08	3.49	97	- medium.		
201.08	202.18	1.10	100	Laminite, sandstone/siltstone.		
202.18	202.56	0.38		Mudstone.		
202.56	202.95	0.39		Siltstone.		
202.95	203.22	0.27		Laminite, sandstone/siltstone.		
203.22	203.58	0.36		Sandstone, fine.		
203.58	204.61	1.03	99	Lithic sandstone, medium-fine.		
204.61	204.89	0.28		Laminite, sandstone/siltstone.		
204.89	205.65	0.76		Siltstone.		
205.65	205.81	0.16		Laminite, sandstone/siltstone.		
205.81	206.08	0.27		Lithic sandstone.		
206.08	206.98	0.90		Mudstone, gradational bottom contact.		
206.98	209.39	2.41		Laminite, sandstone/siltstone 60:40.		
209.39	209.60	0.21		Sandstone, fine.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

30	GEOLOGICAL LOG	Page:- 9

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
209.60	209.78	0.18		Sandstone, fine, brown.		
209.78	213.35	3.53		Laminite, fine dark sandstone/coarse light sandstone.		
213.35	214.95	1.59		Sandstone, white, black siltstone banding.		
214.95	215.50	0.55		Siltstone, black.		
215.50	216.08	0.57		Sandstone, white, black siltstone banding.		
216.08	216.87	0.70	88	Mudstone, black.		
216.87	221.70	4.81	99	Sandstone, brown with black banding.		
221.70	224.70	2.98		Sandstone, light brown, coarse.		
224.70	225.19	0.48	97	Sandstone, brown.		
225.19	225.53	0.33		Transition.		
225.53	229.62	4.03	99	Laminite, white sandstone/black siltstone irregular bedding in part and current bedded in part.		
229.62	231.85	2.23	100	Laminite, as above but irregular bedding.		
231.85	236.71	4.86		Black siltstone with scattered grits.		
236.71	238.55	1.83	99	Black mudstone with scattered grits, gradational and bottom contact.		
238.55	241.60	1.43		Sandstone, white, current bedded, fine siltstone bands.		
241.60	241.79	0.19		Black siltstone with scattered grits.		
241.79	242.06	0.27		Sandstone, white, coarse, 2 cm grit band at base.		
242.06	254.85	12.75		Black mudstone with scattered grits.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:- Duncan Seam 431.67 - 432.17 m (unconfirmed)

REMARKS:- East Fingal Seam 481.91 - 485.46 m

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moist	Ash	Vols.	F.C.	% excluded from sample	
			1	309.92	310.23	0.31	100	7.6	71.8	3.8	24.4		
			-	310.23	310.35	0.12							
			2	310.35	310.83	0.48		8.3	74.5	7.2	18.3		0.06m
			-	310.83	311.10	0.27							
			3	311.10	312.74	1.64		6.5	86.3	6.4	7.3		
			-	312.74	313.24	0.50							
			4	313.24	313.96	0.72		4.1	77.0	6.6	16.4		
Float concentrate contained 0.3% of SG							1.6						

GEOLOGICAL LOG Logged by:- V.M. Threader

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	302.29	302.29	100	Dolerite.		
302.29	302.89	0.60		Mudstone, indurated, carbonaceous.		
302.89	309.92	7.03		Mudstone, indurated.		
309.92	310.23	0.31		COAL SECTION: Indurated coal.		1
310.23	310.35	0.12		Mudstone.		-
310.35	310.50	0.15		Coal.		
310.50	310.56	0.06		Mudstone (excluded from sample).		2
310.56	310.83	0.27		Coal.		
310.83	311.10	0.27		Mudstone.		
311.10	312.74	1.64		Dull coal (10% vitreous).		3
312.74	313.24	0.50		Mudstone.		
313.24	313.96	0.72		Dull coal.		4
313.96	314.95	1.00	100	Mudstone, carbonaceous.		
314.95	316.88	1.93		Sandstone, slightly carbonaceous, irregular bedding.		
316.88	319.88	3.00		Sandstone, slightly carbonaceous.		
319.88	322.18	2.30		Lithic sandstone, medium.		
322.18	322.58	0.40		Lithic sandstone, fine.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 31	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:- FINGAL TIER
			NQ: 0 - 425.91 m
R.L. OF SITE:- 828.9 m	SITE SURVEY ON MAP No.:		CORE SIZE:- BQ:425.91-575.98
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 23/2/78
INCLINATION OF HOLE:- Vertical	DRILL:- Edeco		COMPLETED:- 20/6/78
CO-ORDS OF SITE:- EP89558873	DRILLER:- M. Schier		FINAL DEPTH (m):- 575.98 m

M1029

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
322.58	323.03	0.45	99	Lithic sandstone, medium.		
323.03	324.01	0.98		Interbedded medium and fine, current bedded lithic sandstone with carbonaceous siltstone banding.		
324.01	325.14	1.13		Lithic sandstone, medium-fine, current bedded.		
325.14	325.16	0.02	99	Quartz pebble conglomerate.		
325.16	326.00	0.83		Laminite, sandstone/carbonaceous siltstone (70:30).		
326.00	326.06	0.06		Lithic sandstone.		
326.06	326.64	0.58		Coal or carbonaceous mudstone, sharp top and bottom contacts.		
326.64	327.43	0.78		Lithic sandstone, medium, irregular carbonaceous siltstone banding.		
327.43	327.80	0.37		Lithic sandstone, fine.		
327.80	328.26	0.45		- fine, irregular carbonaceous banding.		
328.26	329.90	1.63	100	Laminite, sandstone/carbonaceous siltstone (50:50).		
329.90	331.30	1.40		Laminite, sandstone/carbonaceous siltstone (70:30).		
331.30	331.58	0.28		Core loss.		
331.58	332.46	0.88	98	Sandstone, disoriented carbonaceous siltstone fragments.		
332.46	332.97	0.51		Lithic sandstone, medium-fine banded, parting at 10° to core length, sandstone is fragmented and contains calcite crystals.		
332.97	334.95	1.96	100	Interbedded sandstone and carbonaceous siltstone.		
334.95	334.97	0.02		Sandstone.		
334.97	335.45	0.48		Mudstone.		
335.45	335.71	0.26		Swelling clay.		
335.71	335.81	0.10		COAL SECTION: Coal.		5
335.81	336.53	0.72		Swelling, carbonaceous clay.		
336.53	337.49	0.96		Coal.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS % Moist	Ash	Vols	F.C.		Excluded from sample				
5	335.71	335.81	0.10		9.7	76.4	11.4	12.2		-				
-	335.81	336.53	0.72											
6	336.53	337.89	1.36		2.5	38.9	19.8	41.3		0.07m				
-	337.89	337.91	0.02											
7	337.91	338.61	0.70		3.3	57.5	15.2	27.3		0.17m				
-	338.61	339.42	0.81											
8	339.42	340.09	0.67		2.3	70.3	10.3	19.4		-				
-	340.09	340.43	0.34											
9	340.43	340.86	0.43		5.7	73.9	10.3	15.8		0.14m				
Float concentrate contained 17.1% SG 1.6														

31				GEOLOGICAL LOG	Page:- 3	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
337.49	337.52	0.03		COAL SECTION: X Band.		
337.52	337.75	0.23		(Contd.) Coal.		
337.75	337.77	0.02		X Band.		
337.77	337.84	0.07		(X - excluded from sample) (Coal.		6
337.84	337.86	0.02		X(Band.		
337.86	337.89	0.03		Broken core (Dull coal.		
337.89	337.91	0.02	100	Band.		
337.91	338.12	0.21		Coal.		
338.12	338.16	0.04		X Band.		
338.16	338.32	0.16		Coal.		7
338.32	338.40	0.08		X Band.		
338.40	338.56	0.16		Coal.		
338.56	338.61	0.05		X Band.		-
338.61	339.42	0.81		Mudstone, clay bands.		
339.42	340.09	0.67		Coal, mostly dull, 10% vitreous.		
340.09	340.15	0.06		Carbonaceous mudstone.		8
340.15	340.32	0.17		Clay.		
340.32	340.43	0.11		Carbonaceous mudstone.		
340.43	340.54	0.11		Dull coal.		9
340.54	340.68	0.14		X Band.		
340.68	340.86	0.18		Dull coal.		
340.86	343.08	2.22		Mudstone.		
343.08	343.90	0.82		Laminite, sandstone/siltstone, current bedded in part, gradational bottom contact.		
343.90	346.87	2.97		Lithic sandstone, medium with occasional bands of laminite.		
346.87	349.90	3.08		Lithic sandstone, medium.		
349.90	352.85	2.94		- medium, faint banding, sub-vertical calcite veins 351-352.		
352.85	354.22	1.37		- medium, banded.		
354.22	354.36	0.14		Core loss.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

31 GEOLOGICAL LOG Page:- 4

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
354.36	354.60	0.24		Lithic sandstone, medium, banded, partings carbonaceous.		
354.60	355.07	0.47		Lithic sandstone, medium, banded.		
355.07	355.85	0.78		- medium.		
355.85	356.31	0.46		- medium, scattered clay pellets and coal lenses.		
356.31	356.35	0.04		- medium, clay pellets.		
356.35	358.16	1.84		- medium, faint banding.		
358.16	358.28	0.12		Lithic sandstone, fine, carbonaceous siltstone banding.		
358.28	358.70	0.42		COAL SECTION: (5.69 m core 81% coal) Dull coal.		
358.70	358.90	0.20		Light brown clay.		
358.90	358.94	0.04		Dull coal.		
358.94	358.97	0.03		Clay.		
358.97	359.09	0.12		Dull coal.		
359.09	359.11	0.02		Claystone.		
359.11	359.36	0.25		Dull coal with clay lenses.		
359.36	359.53	0.17		Dull coal with claystone bands.		
359.53	359.61	0.08		Dull coal.		
359.61	359.63	0.02		Brown claystone.		
359.63	359.83	0.20		Dull coal.		
359.83	360.13	0.29		Carbonaceous clay, gradational bottom contact.		
360.13	360.49	0.36		Dull coal with claystone bands.		
360.49	360.54	0.05		Brown clay.		
360.54	360.82	0.28		Dull coal.		
360.82	360.91	0.08		Clay.		
360.91	362.53	1.61		Dull coal.		
362.53	362.67	0.14		Interbedded claystone and coal.		
362.67	363.21	0.54		Dull coal with 3 cm vitreous coal.		

Continued over

ASSAY DATA

Additional samples on East Fingal seam 8/3/79

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Ash
	481.91	483.40	1.49	100	36.2
	483.40	483.75	0.35		100
	483.75	485.46	1.71		32.8
		3.55	3.55		Weighted mean Ash content 41.6%

31				GEOLOGICAL LOG	Page:- 5	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
363.21	363.28	0.07		COAL SECTION: (Contd.) Brown claystone, sharp top and bottom contacts dip 20° at base.		
363.28	363.59	0.31	100	Dull coal, gradational bottom contact.		
363.59	363.77	0.18		Brown claystone.		
363.77	364.02	0.25		Dull coal.		
364.02	364.32	0.30		Mudstone.		
364.32	364.41	0.09		Core loss.		
364.41	364.88	0.47		Mudstone, faintly banded, grades into siltstone at base.		
364.88	367.10	2.22		Laminite, sandstone/siltstone.		
367.10	367.40	0.30		Lithic sandstone, medium, banded.		
367.40	367.73	0.33		Laminite, sandstone/siltstone.		
367.73	368.40	0.67		Lithic sandstone, faint banding.		
368.40	370.90	2.50		Laminite, siltstone/mudstone (current bedded).		
370.90	371.74	0.85		Transition beds.		
371.74	373.41	1.67		Lithic sandstone, medium, clay and coal lenses and pellets.		
373.41	373.89	0.48		Lithic sandstone, medium, slight banding.		
373.89	375.07	1.18	99	- medium-fine, coaly partings.		
375.07	375.91	0.83		- medium-fine.		
375.91	376.54	0.68		- medium, calcareous.		
376.54	376.69	0.15		Interbedded calcareous, lithic sandstone and banded siltstone.		
376.69	377.12	0.42	100	Lithic sandstone, medium.		
377.12	377.73	0.61		- medium, clay pellets, coal partings.		
377.73	378.14	0.41		Mudstone, occasional carbonaceous partings.		
378.14	379.89	1.75		Lithic sandstone, medium.		
379.89	379.91	0.02		Siltstone, dip 40°.		
379.91	380.52	0.61		Lithic sandstone, medium.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

31				GEOLOGICAL LOG	Page:- 6	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
380.52	381.07	0.55		Lithic sandstone, medium, carbonaceous partings.		
381.07	381.23	0.16		Core loss.		
381.23	382.56	1.33		Lithic sandstone, medium, faint banding.		
382.56	382.79	0.23		- medium, carbonaceous partings and clay pellets.		
382.79	382.91	0.12		- medium.		
382.91	383.77	0.86		- medium-fine.		
383.77	383.87	0.10		Lithic sandstone, medium, coal partings and fragments.		
383.87	385.33	1.46	100	Lithic sandstone, medium, scattered mud pellets.		
385.33	385.40	0.07		Transition.		
385.40	385.72	0.32		COAL SECTION: Coal.		
385.72	386.09	0.37	99	(1.32 m core Banded mudstone.		
386.09	386.19	0.10		47% coal) Coal.		
386.19	386.32	0.13		Clay, swelling.		
386.32	386.61	0.29		Coal, (broken).		
386.61	386.73	0.12		Claystone.		
386.73	387.02	0.29		Coal.		
387.02	387.80	0.78		Mudstone.		
387.80	388.18	0.38		Sandstone, swelling.		
388.18	388.96	0.77		Mudstone, banded.		
388.96	389.05	0.09		Clay, swelling.		
389.05	389.11	0.06		COAL SECTION: Coal (broken).		
389.11	389.13	0.02		(0.98 m core Clay, swelling.		
389.13	389.25	0.12		93% coal) Coal.		
389.25	389.28	0.03		Clay, swelling.		
389.28	389.36	0.08		Coal.		
389.36	389.38	0.02		Clay, swelling.		
389.38	390.03	0.65		Coal.		
390.03	391.37	1.34		Mudstone, banded. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

31				GEOLOGICAL LOG	Page:- 7	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
391.37	391.62	0.25		Interbedded siltstone and sandstone.		
391.62	391.88	0.25		Lithic sandstone, fine-medium.		
391.88	392.45	0.57	100	- fine-medium, faint banding.		
392.45	393.36	0.91		- medium.		
393.36	393.65	0.29		- medium-fine.		
393.65	394.38	0.73		- medium, faint banding.		
394.38	395.16	0.78		- medium-fine.		
395.16	395.31	0.15		- medium.		
395.31	396.10	0.79		- medium-fine, carbonaceous partings.		
396.10	398.14	2.04		- medium, faint banding.		
398.14	398.52	0.38		- medium-fine.		
398.52	400.07	1.55		- medium.		
400.07	402.79	2.72		- medium-fine.		
402.79	403.92	1.13		- medium, mud pellets and coal partings.		
403.92	404.65	0.73	100	Lithic sandstone, medium-fine, faint banding.		
404.65	404.91	0.26		Interbedded medium and fine lithic sandstone, carbonaceous partings.		
404.91	406.90	1.99		Lithic sandstone, medium-fine, sharp angular bottom contact, few mudstone fragments.		
406.90	413.58	6.68		Interbedded medium and medium-fine lithic sandstone, faint banding, scattered mudstone fragments.		
413.58	414.12	0.54		Interbedded mudstone and sandstone.		
414.12	414.46	0.34		Laminite, mudstone/sandstone.		
414.46	414.76	0.30		Coal, broken, gradational bottom contact.		
414.76	414.99	0.23		Mudstone, banded, swelling.		
414.99	415.23	0.24		Coal.		
415.23	416.09	0.86		Sandstone, fine, swelling.		
416.09	417.40	1.31		Lithic sandstone, fine-medium, few mudstone bands.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

31	GEOLOGICAL LOG	Page:- 8

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
417.40	417.47	0.07		Clay pellet conglomerate.		
417.47	417.65	0.18		Lithic sandstone, fine.		
417.65	418.41	0.76		- fine-medium, faintly band -ed.		
418.41	420.90	2.49		- medium.		
420.90	421.09	0.19		- medium, carbonaceous partings.		
421.09	421.96	0.87		- fine-medium, banded.		
421.96	424.93	2.98		Interbedded medium and medium-fine lithic sandstone, occasional carbonaceous partings.		
424.93	425.91	0.98		Lithic sandstone, medium-fine, calcareous.		
425.91	426.92	1.01		- medium-fine, calcareous.		
426.92	430.85	3.93		- medium-fine.		
430.85	431.19	0.34		Mudstone.		
431.19	431.67	0.48		Lithic sandstone, mud pellets.		
431.67	432.17	0.50		Dull coal.		
432.17	432.33	0.16		Mudstone.		
432.33	433.01	0.68		Clay, swelling.		
433.01	434.67	1.65		Mudstone.		
434.67	436.17	1.50		Laminite, mudstone/sandstone.		
436.17	436.97	0.80		Mudstone.		
436.97	439.90	1.27	43	Mudstone (lost core).		
439.90	440.20	0.30	99	Mudstone.		
440.20	441.26	1.06		Laminite.		
441.26	443.37	2.10	100	Mudstone.		
443.37	443.53	0.16		Transition.		
443.53	448.87	5.32	99	Lithic sandstone, medium.		
448.87	451.83	2.94		- medium-coarse.		
451.83	452.97	1.14		- medium.		
452.97	453.18	0.21		Mudstone.		
453.18	453.48	0.29		Coal, clay bands.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

31				GEOLOGICAL LOG	Page:- 9	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
453.48	453.73	0.25		Mudstone.		
453.73	454.46	0.73		Lithic sandstone, medium, gradational bottom contact.		
454.46	454.89	0.61		Mudstone.		
454.89	455.56	0.48	100	Laminite, mudstone/lithic sandstone.		
455.56	456.48	0.92		Lithic sandstone, fine.		
456.48	464.63	8.15	98	- medium-fine.		
464.63	464.83	0.20		Mudstone, gradational bottom contact.		
464.83	465.84	1.00		Laminite, mudstone/sandstone.		
465.84	466.81	0.96		Mudstone.		
466.81	466.94	0.12	100	Coal, 2 cm clay band.		
466.94	467.59	0.65		Sandstone, fine.		
467.59	467.84	0.25		Laminite.		
467.84	469.07	1.23		Banded mudstone.		
469.07	469.84	0.77		Laminite.		
469.84	470.56	0.72		Laminite, sandstone/carbonaceous siltstone.		
470.56	473.42	2.86		Interbedded sandstone/carbonaceous siltstone (60:40).		
473.42	474.03	0.61	99	Lithic sandstone, medium, carbonaceous siltstone banding.		
474.03	475.90	1.85		Laminite, sandstone/siltstone, in part fine sandstone, siltstone banding.		
475.90	476.43	0.53	98	Mudstone.		
476.43	477.74	1.28		Laminite, mudstone/sandstone (70:30).		
477.74	478.14	0.40		Sandstone, fine, siltstone banding, gradational bottom contact.		
478.14	479.68	1.52		Laminite, sandstone/siltstone.		
479.68	480.57	0.88		Laminite, carbonaceous siltstone/sandstone.		
480.57	480.89	0.31		Lithic sandstone, medium-fine.		
480.89	481.62	0.73	98	Laminite, sandstone/siltstone.		
481.62	481.84	0.21		Mudstone, banded.		
481.84	483.31	1.47	100	COAL SECTION: Coal.		
483.31	483.64	0.33		(3.62 m, core Mudstone. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

31				GEOLOGICAL LOG	Page:- 10	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
483.64	485.46	1.82		COAL SECTION: 91% coal) Coal (sharp bottom contact).		
485.46	485.59	0.13		Lithic sandstone, medium, calcareous.		
485.59	487.37	1.78		Laminite, mudstone/siltstone.		
487.37	487.39	0.02	12	Clay, swelling (0.15 m core loss).		
487.39	487.62	0.08	100	Mudstone, dark grey.		
487.62	494.65	7.03		Laminite, sandstone/siltstone.		
494.65	494.93	0.28		Mudstone, carbonaceous.		
494.93	495.28	0.35		Sandstone, carbonaceous.		
495.28	495.88	0.60		Laminite, carbonaceous mudstone/sandstone gradational bottom contact.		
495.88	496.86	0.97		Lithic sandstone, carbonaceous siltstone partings.		
496.86	498.56	1.70		Interbedded medium lithic sandstone and carbonaceous siltstone, gradational bottom contact.		
498.56	499.88	1.31	99	Lithic sandstone, medium-coarse.		
499.88	500.97	1.09	100	- medium.		
500.97	501.06	0.09		Coal.		
501.06	501.27	0.21		Clay, swelling.		
501.27	501.65	0.38		Laminite, carbonaceous mudstone/current bedded siltstone.		
501.65	501.78	0.13		Sandstone, fine.		
501.78	502.58	0.80		Interbedded fine sandstone and siltstone in part laminite.		
502.58	502.81	0.23		Mudstone.		
502.81	503.28	0.47	98	Coal, claystone bands.		
503.28	504.19	0.90		Laminite, sandstone/siltstone.		
504.19	506.07	1.84	100	Mudstone.		
506.07	507.06	0.99		Coal.		
507.06	507.30	0.24		Loss?		
507.30	508.84	1.54	100	Mudstone.		
508.84	509.02	0.18		Sandstone, in part laminite, gradational bottom contact.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

31				GEOLOGICAL LOG	Page:- 11	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
509.02	511.58	2.56		Laminite, sandstone/mudstone.		
511.58	511.83	0.25		Coal, sharp top and bottom contacts.		
511.83	514.13	2.30	100	Mudstone, brown, algal, gradational bottom contact.		
514.13	515.01	0.87	99	Sandstone, dark brown fine gradational bottom contact.		
515.01	516.44	0.43		Laminite, sandstone/carbonaceous siltstone.		
516.44	516.71	1.27		Mudstone, banded.		
516.71	516.93	0.22		Interbedded sandstone and mudstone.		
516.93	517.39	0.46		Laminite, sandstone and mudstone.		
517.39	517.84	0.45		Lithic sandstone, medium.		
517.84	517.92	0.08		- medium, carbonaceous partings.		
517.92	518.79	0.87		- medium.		
518.79	519.03	0.24		- fine, carbonaceous siltstone partings.		
519.03	528.87	9.80		- medium.		
528.87	529.85	0.97		- clay pellets.		
529.85	530.04	0.19		- fine.		
530.04	530.27	0.23		- light grey mottling cale?		
530.27	532.91	2.63		- medium,in part calcareous.		
532.91	533.29	0.38	100	- mudstone and coal fragments.		
533.29	535.34	2.05		- medium-fine.		
535.34	536.02	0.68	99	Laminite, mudstone/siltstone.		
536.02	536.38	0.36		Lithic sandstone, medium.		
536.38	537.13	0.75		Laminite, mudstone/siltstone.		
537.13	537.46	0.33		Lithic sandstone, clay pellets and coal lenses.		
537.46	541.89	4.41		Laminite, sandstone/carbonaceous siltstone.		
541.89	543.78	1.88		As above, vertical bedding in part.		
543.78	546.26	2.47		Lithic sandstone, medium.		
546.26	546.68	0.42	100	Clay pellet conglomerate.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

31	GEOLOGICAL LOG	Page:- 12

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
546.68	547.28	0.60		Laminite.		
547.28	547.88	0.60		Lithic sandstone, medium-fine, occasional siltstone banding.		
547.88	547.92	0.04		Siltstone.		
547.92	548.20	0.28		Lithic sandstone, medium.		
548.20	548.32	0.12		Interbedded sandstone and siltstone.		
548.32	550.30	2.00		Lithic sandstone, medium-fine, occasional siltstone banding.		
550.30	550.60	0.27		Laminite, carbonaceous siltstone/sandstone.		
550.60	551.98	1.37	99	Laminite, sandstone/siltstone (80:20).		
551.98	553.30	1.31		Lithic sandstone, medium.		
553.30	553.83	0.53	99	Mudstone.		
553.83	553.98	0.14		Lithic sandstone, medium.		
553.98	554.11	0.13	100	Lithic sandstone, medium-fine.		
554.11	554.20	0.09		- fine.		
554.20	554.62	0.42		- medium.		
554.62	554.92	0.30		Mudstone.		
554.92	558.25	3.33		Laminite, sandstone/mudstone.		
558.25	558.44	0.19		Lithic sandstone, medium, gradational top and bottom contacts.		
558.44	558.87	0.43		Laminite, carbonaceous mudstone/siltstone.		
558.87	559.09	0.22		Laminite, mudstone/sandstone.		
559.09	559.59	0.50		Laminite, sandstone/siltstone.		
559.59	559.91	0.32		Sandstone, siliceous, medium-coarse.		
559.91	560.43	0.52	100	Interbedded sandstone and mudstone.		
560.43	560.63	0.20		Sandstone, siliceous, carbonaceous impurities.		
560.63	561.46	0.83		Laminite, siliceous sandstone/dark grey siltstone.		
561.46	564.17	2.71		Sandstone, siliceous, black siltstone banding.		
564.17	564.52	0.35		Lithic sandstone containing biotite flakes and a mud pellet band.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

31	GEOLOGICAL LOG	Page:- 13

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
564.52	565.99	2.70		Siliceous sandstone, greenish-white medium-fine, micaceous bands, thin mud pellet band at 565.50 m.		
565.99	575.98	9.99		Mudstone/siltstone, dark greenish-grey to black with angular grits and occasional quartz or quartz sandstone pebbles up to 3 cm (Permian beds).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

DRILLING TARGET:- Upper Marine Sequence of the Parmeener Super Group.

REMARKS:- Possibly - workable coal seams between depths of 82.24m - 83.87m and 184.69m - 186.05m.

SURVEY DATA			ASSAY DATA									
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS				

GEOLOGICAL LOG

Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0	40.20	3.50	9	Dolerite talus and weathered sandstone.		
40.20	44.16	3.96	100	Lithic sandstone, fine-medium-grainsize, light-grey-green with bottom 30cm indurated. Sparse biotite-flakes up to 1mm.		
44.16	44.34	0.18		Lithic sandstone, medium, some plant-fossil fragments and mud-pellets less than 1cm long.		
44.34	44.57	0.23		Carbonaceous mudstone, grey-green in colour, black banding throughout.		
44.57	44.60	0.03	Dull	coal with less than 5% bright bands.		
44.60	44.66	0.06		Carbonaceous mudstone, slickensiding at base.		
44.66	45.28	0. 62		Mudstone, black at top to grey-green at base, slickensiding at 44.84m, 45.08m, and 45.16m. Plant-fossil fragments from 44.66m to 44.86m.		
45.28	47.11	1.83		Laminite, sandstone-siltstone (50:50), occasional plant-fossil fragments. Bedding dips at 30° from 46.81m to 47.11m.		
47.11	47.49	0.38		Carbonaceous mudstone.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 32	MAP SHEET No. 49	DISTRICT Fingal	LOCATION OF SITE:- FINGAL TIER
R.L. OF SITE:- 533.3m	SITE SURVEY ON MAP No.:		CORE SIZE:- NQ: 0 - 134.05 BQ: 134.05-274.67
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 18.5.78
INCLINATION OF HOLE:- Vertical	DRILL:- Longyear 38		COMPLETED:- 8.8.78
CO-ORDS OF SITE:- 584648.5E 5307687.3N	DRILLER:- L. Newman		FINAL DEPTH (m):- 274.67

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GEOLOGICAL LOG — Page:- 2

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
47.49	47.52	0.03	100	Siltstone, brown-white.		
47.52	49.57	2.05		Laminite, mudstone-siltstone, black-grey at top to light-grey-green at base. Plant-fossil fragments throughout. Bedding dips at up to 20° at top and bottom.		
49.57	54.72	5.15	100	Lithic sandstone, fine-medium with occasional plant-fossil fragments and carbonaceous partings.		
54.72	61.44	6.69	99	Lithic sandstone, medium, grey-green, occasional coal fragments, mud-pellets and carbonaceous partings. Bottom contact dips at 30°		
61.44	64.07	2.63	100	Lithic sandstone, fine-medium.		
64.07	64.60	0.53	100	Dull coal, broken-up, sparse sub-vertical kaolin bands 1mm thick. Carbonaceous mudstone band from 64.18m to 64.20m.		
64.60	64.76	0.12	75	Mudstone, grey-green, clay base.		
64.76	65.35	0.59	100	Dull coal, less than 5% bright bands. Gradational bottom contact.		
65.35	67.04	1.69		Laminite, siltstone-mudstone, with occasional carbonaceous partings and coaly fragments.		
67.04	67.79	0.75		Lithic sandstone, fine-medium.		
67.79	68.15	0.36		Laminite, siltstone-sandstone, truncation at 68.00m.		
68.15	72.31	4.16	100	Lithic sandstone, fine-medium, grey, occasional carbonaceous parting and medium lithic sandstone horizons.		
72.31	77.10	4.79		Lithic sandstone, medium, grey-green, porous, sparse carbonaceous-banding.		
77.10	80.60	3.50		Lithic sandstone, fine-medium, occasional carbonaceous parting and 2cm mud-pellets.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

32 — GEOLOGICAL LOG — Page:- 3

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
80.60	81.89	1.29	100	Laminite, siltstone/MLSS (50:50), occasional carbonaceous bands and bedding dipping at 30°.		
81.89	82.24	0.35		Conglomerate, mud-pellet, green-grey, abundant coaly fragments, quartsite pebbles at base (2 cm diameter, sub-rounded), slickenside at 82.00 m.		
82.24	82.29	0.05		Coal Section: Dull coal with<5% bright bands.		
82.29	82.30	0.01		X Clay band, brown.		
82.30	82.77	0.47		Dull coal with<5% bright bands.		1
82.77	82.78	0.01		X Clay band, brown.		
82.78	83.09	0.31		(X=excluded from sample) Dull coal with<5% bright bands.		
83.09	83.17	0.08		Mudstone, grey, slickenside at base.		
83.17	83.37	0.20		Coal Section: Dull coal.		
83.37	83.38	0.01		Stone band.		
83.38	83.60	0.22		Dull coal.		2
83.60	83.61	0.01		X Stone band.		
83.61	83.87	0.26		Dull coal. (X=excluded from sample).		
83.87	86.04	2.17		Laminite, siltstone/mudstone, carbonaceous laminae and bands dipping at up to 60°, gradational bottom contact.		
86.04	86.33	0.29		Dull coal.		
86.33	86.58	0.25		Carbonaceous mudstone.		
86.58	86.61	0.03		Claystone band, brown.		
86.61	86.72	0.11		Dull coal/carbonaceous mudstone (50:50) interbedded, occasional mudstone bands.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS %Moisture as received	On Dry Basis %Ash	%V.C.M.	%F.C.	%Mass
1	82.24	83.09	0.85	100	5.3	43.4	21.5	35.1	
2	83.17	83.87	0.70	100	5.6	27.8	27.0	45.2	
		Composite of samples 1 and 2 was heavy liquid separated at 1.6 t/m³ and the heavy liquid float products assayed.							
1 &2					6.9	20.9	28.9	50.2	57.9

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
85.72	85.89	0.17	100	Mudstone, grey-green, plant-fossil fragments, thin brown-black bands at top.		
86.89	88.05	1.16		Laminite, siltstone-sandstone with thin black bands throughout. Gradational bottom contact.		
88.05	88.50	0.45		Mudstone, grey-green, increasing frequency of black bands towards base.		
88.50	89.22	0.72		Carbonaceous mudstone, dull-coal partings throughout, occasional siltstone and sandstone bands and plant-fossil fragments.		
89.22	90.49	1.27		Laminite, siltstone - sandstone, increasing grainsize towards base, occasional carbonaceous mudstone partings containing plant-fossil fragments.		
90.49	90.85	0.36		Lithic sandstone, fine, 0.5cm carbonaceous-mudstone band at 90.62m. Gradational bottom contact.		
90.85	92.16	1.31		Lithic sandstone, fine-medium, occasional carbonaceous partings and plant-fossil fragments. Gradational bottom contact.		
92.16	93.66	1.50		Lithic sandstone, medium, occasional mud-pellets and carbonaceous-mudstone partings.		
93.66	93.94	0.28		Lithic sandstone, fine-medium, bedding dipping at 30° in places, carbonaceous partings.		
93.94	95.31	1.37		Lithic sandstone, occasional carbonaceous partings, bedding dipping at 30° and sparse 1cm mud-pellets.		
95.31	95.36	0.05		Carbonaceous mudstone.		
95.36	95.47	0.11		Conglomerate, mud-pellet, sandstone and mudstone matrix.		

Continued over

ASSAY DATA Note: bracketed figures are calculated.

SAMPLE No.	FROM metres	TO metres		Fraction	Feed % Mass	Feed % Ash	Cum.Floats % Mass	Cum.Floats % Ash	Cum.Sinks % Mass	Cum.Sinks % Ash	% Ash Distr.	S.E. (MJ/kg)	Ash Fusion °C
Composite of Samples 1 and 2 (including stone bands)	82.24	83.87	100%	F/T 1.4	19.4	12.8	19.4	12.8	100	(44.0)	5.6		
				F/T 1.6	23.4	26.6	42.8	(20.5)	80.6	(51.5)	14.3		
				F/T 1.8	12.9	41.4	55.7	(25.3)	57.2	(61.7)	12.1		
				S/K 1.8	44.3	67.6	100	(44.0)	44.3	67.6	68.0		
				Head	100.0	(44.0)					100		
							Assays (% dry basis)						
							Ash	Vol.	F.C.	S			
				C/F/T 1.6	42.8	20.5	20.1	23.6	47.3	0.31	19.9	25.3	1400
				C/S/K 1.6	57.2	61.7	62.2	21.7	21.8	0.26	80.1	-	-
				Head	100	44.0					100		

GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
95.47	101.24	5.77	100	Lithic sandstone, medium, occasional carbonaceous partings, plant-fossil fragments and faint banding. 10 cm mud-pellet at 98.14m.		
101.24	101.61	0.36	99	Lithic sandstone, fine-medium, coaly partings from from 101.35m to 101.37m. Gradational bottom contact.		
101.61	124.44	22.83	100	Lithic sandstone, medium, occasional carbonaceous partings and mud-pellets (e.g.119.84). Thin mudstone horizons at 107.75, 107.89, 107.96. Fine-medium lithic sandstone from 111.00 to 112.50 with gradational top and bottom contacts.		
124.44	124.50	0.06		Mudstone with 1cm carbonaceous mudstone on top. Sharp top and bottom contacts dipping at 20°.		
124.50	126.11	1.61		Lithic sandstone, medium, grey.		
126.11	126.93	0.82		Mudstone, grey-green, slickensiding from 126.11 to 126.31 in particular, and sparsely throughout the interval 126.31 to 126.93. Gradational bottom contact.		
126.93	127.27	0.34		Laminite, siltstone-mudstone. Gradational bottom contact.		
127.27	127.52	0.25		Mudstone, grey, sparse banding.		
127.52	128.02	0.50	100	Dull coal. Top contact dips at 20°.		
128.02	130.00	1.97	99	Laminite, siltstone-sandstone, plant-fossil fragments and sparse carbonaceous partings throughout. Gradational bottom contact.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

GEOLOGICAL LOG — Page:- 6.

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
130.00	130.96	0.96	100	Lithic sandstone, fine, sparse banding. Gradational bottom contact.		
130.96	132.26	1.30		Lithic sandstone, fine-medium, grey, sparse black bands.		
132.26	132.68	0.42		Mudstone, grey. Gradational bottom contact.		
132.68	133.25	0.57		Siltstone, grey, truncation of the bedding dipping at 30° at 133.10. Gradational bottom contact.		
133.25	133.85	0.60		Laminite, mudstone-siltstone, occasional thin black and green-grey carbonaceous mudstone and coal bands.		
133.85	134.05	0.20	100	Dull coal - carbonaceous mudstone (70:30 approximately), <5% bright bands.		
134.05	134.28	0.20	87	Dull coal, broken, irregular bottom contact which dips at <5°.		
134.28	134.38	0.10	100	Carbonaceous mudstone, coaly partings and fossil-plant fragments. Interdigitating bottom contact from 134.35 to 134.38.		
134.38	135.06	0.68	100	Mudstone, grey-green, horizons of siltstone, occasional carbonaceous partings and fossil-plant fragments.		
135.06	135.41	0.35		Mudstone, as above except this is broken ground.		
135.41	135.80	0.39		Laminite, siltstone-mudstone, grey-green. Gradational bottom contact.		
135.80	136.10	0.30		Laminite, mudstone-carbonaceous mudstone.		
136.10	136.23	0.13		Sandstone, grey, indurated.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

GEOLOGICAL LOG — Page:- 7

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
136.23	136.40	0.17	100	Laminite, siltstone-mudstone, grey, with sparse, black showings. 2 mm thick carbonaceous parting with a 15° dip near the top.		
136.40	136.64	0.24		Laminite, siltstone-sandstone, with occasional mudstone band.		
136.64	136.73	0.09		Lithic sandstone, fine, grey.		
136.73	136.74	0.01		Mudstone band, grey.		
136.74	136.79	0.05		Lithic sandstone, fine, truncated bedding. Gradational bottom contact.		
136.79	138.04	1.25		Lithic sandstone, fine-medium. 10 cm of medium-grainsize lithic sandstone banding at base. Occasional fossil-plant fragment and <5 cm mud pellets.		
138.04	143.01	4.97		Lithic sandstone, medium, grey, 2 cm mud pellets common from 142.73 to 143.01, occasional carbonaceous parting and plant-fossil fragment.		
143.01	145.29	2.28		Lithic sandstone, fine-medium, occasional thin carbonaceous band. Gradational bottom contact. Thin calcite veins at top.		
145.29	145.41	0.12		Lithic sandstone, medium, high clay content in matrix, numerous carbonaceous spots and partings. Sharp bottom contact.		
145.41	145.76	0.35		Lithic sandstone, fine-medium, bedding dips at 20°, occasional thin carbonaceous bands and spots.		
145.76	145.78	0.02	100	Siltstone band. Top contact dips at 20°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
145.78	146.45	0.67	100	Laminite, sandstone-siltstone, sub-horizontal banding.		
146.45	147.21	0.74	97	Siltstone, slickensiding at 146.74, 147.08, 147.18		
147.21	147.23	0.02	100	Clay band, cream in colour, bottom contact dips at 20°.		
147.23	147.25	0.02	100	Carbonaceous mudstone, indurated.		
147.25	147.98	0.72	99	Laminite, sandstone-siltstone, occasional carbonaceous partings, bedding sub-horizontal but dips at 20° occasionally.		
147.98	148.29	0.31	100	Lithic sandstone, fine, occasional siltstone band, faint banding throughout.		
148.29	148.50	0.21		Laminite, siltstone-sandstone, some truncated bedding towards base.		
148.50	149.28	0.78		Lithic sandstone, fine, siltstone pebbles towards base.		
149.28	150.69	1.41	100	Laminite, siltstone-sandstone, blue-grey to grey, sparse mudstone bands and carbonaceous partings 4mm thick. Calcite vein dipping at 45° at 149.80. Truncated bedding dips at 10° towards base.		
150.69	153.82	3.12	99	Lithic sandstone, fine-medium, occasional carbonaceous partings and bedding dipping at 10° to 20°.		
153.82	154.23	0.41	100	Laminite, siltstone-sandstone, truncated bedding at top.		
154.23	156.00	1.77		Lithic sandstone, fine-medium, with sub-horizontal carbonaceous partings occasionally dipping at 20°.		
156.00	156.74	0.74	100	Lithic sandstone, medium, grey.		
156.74	157.88	1.13	99	Laminite, carbonaceous siltstone-sandstone, plant-fossil fragments and carbonaceous laminae throughout.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

GEOLOGICAL LOG — Page:- 9

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
157.88	162.75	4.87	100	Lithic sandstone, medium, occasional carbonaceous-mudstone bands and coaly partings throughout, bedding varies from sub-horizontal to 15°. Fossil-plant debris on some horizons.		
162.75	162.91	0.16		Dull coal.		
162.91	162.96	0.05		Laminite, siltstone-carbonaceous mudstone.		
162.96	162.99	0.03		Carbonaceous mudstone with some dull coal.		
162.99	163.03	0.04		Clay band, creamy-brown, friable.		
163.03	163.14	0.11		Carbonaceous mudstone with some dull coal.		
163.14	163.34	0.20		Laminite, siltstone-carbonaceous mudstone.		
163.34	163.41	0.07		Dull coal with brown-black surface colouration.		
163.41	163.46	0.05	100	Laminite, carbonaceous mudstone-fine-medium lithic sandstone.		
163.46	163.90	0.43	98	Dull coal with 10% bright bands.		
163.90	167.43	3.53	100	Laminite, siltstone-fine lithic sandstone, coal at 164.82 to 164.86. Slickensiding at 164.72, 164.74, 164.80, 165.22, 165.24, 165.29, 165.36. Sub-horizontal bedding with patches of truncated bedding at 166.60. Slickenside development in a faulted area between 167.21 and 167.27.		
167.43	167.59	0.16	100	Lithic sandstone, fine-medium, grey, horizontal bedding.		
167.59	167.94	0.35		Laminite, siltstone-sandstone.		
167.94	168.00	0.06		Lithic sandstone, fine-medium, scouring at base during deposition.		
168.00	168.10	0.10	100	Laminite, siltstone-sandstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
168.10	168.65	0.55	100	Lithic sandstone, fine, grey.		
168.65	168.79	0.14		Laminite, siltstone-sandstone.		
168.79	168.84	0.05		Lithic sandstone, fine-medium.		
168.84	168.88	0.04		Laminite, siltstone-sandstone, truncated bedding towards base.		
168.88	175.98	7.10		Lithic sandstone, fine-medium to medium, occasional carbonaceous partings and fossil plant fragments.		
175.98	176.17	0.19		Dull coal with occasional 3mm-thick bright bands, grades down to a carbonaceous mudstone.		
176.17	178.83	2.66		Laminite, siltstone-sandstone. Bedding dips at 45° from 176.17 to 176.50. Slickensiding at 177.12 and 177.17.		
178.83	179.74	0.91		Carbonaceous mudstone.		
179.74	181.12	1.38		Laminite, carbonaceous mudstone-medium lithic sandstone. Sub-horizontal slickenside near base.		
181.12	181.36	0.24	100	Laminite, siltstone-mudstone.		
181.36	182.41	1.04	99	Laminite, siltstone-sandstone, bedding dips at 10°.		
182.41	183.04	0.63	100	Shale, grey.		
183.04	183.60	0.56		Laminite, siltstone-mudstone, sub-horizontal banding.		
183.60	183.70	0.10		Siltstone, grey-white, indurated.		
183.70	183.76	0.06		Siltstone, grey, sub-horizontal bands of mudstone.		
183.76	184.51	0.75		Shale, grey.		
184.51	184.62	0.11		Lithic sandstone, fine-medium, grey, with occasional thin carbonaceous-mudstone bands. Gradational bottom contact.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
184.62	184.69	0.07	100	Carbonaceous mudstone.		
184.69	185.50	0.81		Coal section: Dull coal with 10% bright coal.		3
185.50	185.51	0.01		Mudstone band, grey		
185.51	186.05	0.54		Dull coal with 10% bright coal.		
186.05	186.13	0.08		Carbonaceous mudstone.		
186.13	187.68	1.55		Mudstone, grey, fossil-plant fragments, thin black-grey banding throughout.		
187.68	187.92	0.24		Laminite, carbonaceous mudstone-siltstone.		
187.92	188.03	0.11		Carbonaceous mudstone, banded with grey mudstone.		
188.03	188.14	0.11		Laminite, siltstone-mudstone, with plant-fossil fragments throughout.		
188.14	188.28	0.14		Dull coal, carbonaceous mudstone 2cm thick at top and bottom.		
188.28	188.35	0.07		Mudstone, grey, banded, occasional plant-fossil fragments.		
188.35	188.52	0.17		Dull coal, sharp top and bottom contacts.		
188.52	189.75	1.23		Laminite, siltstone-sandstone grading to a banded black-grey mudstone at base.		
189.75	189.78	0.03		Siltstone, black. Gradational bottom contact.		
189.78	190.06	0.28		Mudstone, slickensiding at 189.88.		
190.06	190.32	0.26		Lithic sandstone, fine, contorted bedding.		
190.32	190.52	0.20		Laminite, siltstone-sandstone, black-grey-brown-white laminations.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS % Moisture (as received)	On Dry Basis %Ash	%V.C.M.	%F.C.	% Mass
3	184.69	186.05	1.36	100	3.4	23.5	32.4	44.1	
	Sample 3 was heavy liquid separated at 1.6t m^{-3} and the heavy liquid float products assayed.								
3					5.6	15.8	36.0	48.2	83.5

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
190.52	190.72	0.20	100	Laminite, carbonaceous mudstone-siltstone-sandstone, sub-horizontal bedding.		
190.72	190.95	0.23		Lithic sandstone (sub-greywacke), fine, grey, occasional fossil-plant fragments.		
190.95	191.015	0.065		Clay, abundant fossil-plant fragments.		
191.015	191.03	0.015		Mudstone, grey, occasional fossil-plant fragments.		
191.03	191.41	0.38		Laminite, mudstone-siltstone, slickensiding from 191.26 to 191.30, irregular bottom contact dips at 50°.		
191.41	191.59	0.18	100	Dull coal, gradational bottom contact.		
191.59	191.72	0.12	92	Mudstone, grey.		
191.72	192.58	0.85	99	Laminite, bedding dips at 5°, occasional carbonaceous partings.		
192.58	193.07	0.48	98	Shale, grey, occasional fossil-plant fragments.		
193.07	193.54	0.47	100	Laminite, sandstone-siltstone grading to a mudstone-siltstone laminite at base.		
193.54	193.91	0.37		Laminite, carbonaceous siltstone-sandstone, grey and black laminations becoming banding in places. Irregular bottom contact.		
193.91	195.01	1.10		Mudstone, grey, siltstone banding, occasional fossil-plant fragments, slickensiding at 194.02, 194.03, 194.10, 194.34.		
195.01	197.99	2.98		Laminite, sandstone-siltstone, grey-white, sub-horizontal bedding becoming planar cross-bedding towards base.		

Continued over

ASSAY DATA Note: bracketed figures are calculated.

SAMPLE No.	FROM metres	TO metres			Feed % Mass	Feed % Ash	Cum.Floats % Mass	Cum.Floats % Ash	Cum.Sinks % Mass	Cum.Sinks % Ash	% Ash Distr.	S.E. MJ/kg	Ash Fusion	PC
Sample 3			F/T	1.4	51.3	9.0	51.3	9.0	100	(21.4)	21.6			
			F/T	1.6	30.1	24.8	81.4	(14.8)	48.7	(34.4)	34.9			
			F/T	1.8	10.2	42.6	91.6	(17.9)	18.6	(50.1)	20.3			
			S/K	1.8	8.4	59.1	100	(21.4)	8.4	59.1	23.2			
			Head		100	(21.4)					100			
							Assay (% Dry Basis)							
							Ash	Vol.	F.C.	S				
			C/F/T	1.6	81.4	14.8	14.8	36.2	51.0	0.49	56.5	28.3	1670	
			C/S/K	1.6	18.6	50.1	49.3	25.0	25.7	0.15	43.5	-	-	
			Head		100	21.4					100			

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
197.99	202.87	4.88	100	Lithic sandstone, fine-medium, grey, muscovitic, occasional horizons of siltstone-sandstone laminite, planar cross-bedding from 198.57 to 199.09, occasio· fossil-plant fragments throughout, irregular pebbly bottom contact.		
202.87	207.23	4.34	99	Lithic sandstone, medium, grey with white speckles, pebble band from 204.53 to 204.62 and from 207.05 to 207.15. Slightly calcareous matrix.		
207.23	208.77	1.54	100	Lithic sandstone, fine-medium, grey, siltstone banding at base.		
208.77	210.58	1.81		Lithic sandstone, medium, grey to green-grey, gradational bottom contact, occasional siltstone bands, carbonaceous partings and coaly laminations.		
210.58	211.04	0.46		Shale. Gradational bottom contact.		
211.04	211.19	0.15		Lithic sandstone, fine-medium, irregular bottom contact dips at 40°.		
211.19	211.30	0.11		Mudstone, green-grey, disturbed bedding.		
211.30	211.35	0.05	100	Lithic sandstone, medium, green-grey.		
211.35	211.97	0.60	97	Siltstone, grey-black, gradational bottom contact.		
211.97	215.59	3.62	100	Lithic sandstone, fine-medium, grey, bedding dips at 20° at top, sparse siltstone-bands throughout, pebble conglomerate from 212.41 to 212.46, occasional fossil-plant fragments and coaly partings towards base.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
215.59	224.49	8.90	100	Laminite, siltstone-sandstone, slickensiding at top, bedding irregular, occasional mudstone banding, fossil-plant debris towards base, more slidensiding at 222.34, 222.43,222.58,222.65,222.82 and 223.79.		
224.49	225.58	1.09		Quartzose sandstone,grey-white, irregular siltstone banding, occasional carbonaceous partings.		
225.58	226.27	0.69		Laminite, siltstone-sandstone, occasional fossil-plant debris. Gradational bottom contact.		
226.27	226.57	0.30		Lithic sandstone, fine-medium, occasional whispy carbonaceous-partings dipping at 20°.		
226.57	226.81	0.24		Quartzose sandstone, medium, occasional siltstone band.		
226.81	227.28	0.47		Quartzose sandstone, fine-medium, bedding dips at 20° to 30° in parts.		
227.28	227.45	0.17		Laminite, siltstone-sandstone, black-grey.		
227.45	227.53	0.08		Carbonaceous mudstone, brown-black, gradational bottom contact.		
227.53	228.30	0.77		Quartzose sandstone, fine-medium, irregular siltstone banding.		
228.30	229.60	1.30		Laminite, siltstone-fine-medium quartzose sandstone, occasional carbonaceous parting, sparse cross-bedding.		
229.60	229.78	0.18		Lithic sandstone, fine-medium, contains fine-scale festoon cross-bedding.		
229.78	231.65	1.87		Laminite, siltstone-fine-medium lithic sandstone, grey-black, steeply dipping cross-bedding, occasional carbonaceous mudstone bands.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
231.65	231.96	0.31	100	Siltstone, blue-grey, occasional mudstone bands.		
231.96	232.18	0.22		Lithic sandstone, medium, occasional grey siltstone bands.		
232.18	232.43	0.25	100	Laminite, siltstone-sandstone, sub-horisontal bedding.		
232.43	232.56	0.12	92	Carbonaceous mudstone, sparse siltstone bands, coaly towards base.		
232.56	232.61	0.05	100	Carbonaceous mudstone, 2 cm of dull coal at top.		
232.61	232.96	0.35		Lithic sandstone, fine. Gradational bottom contact.		
232.96	233.54	0.58		Lithic sandstone, fine-medium, sparsely quartzose; carbonaceous-partings and bedding dipping at irregular angles.		
233.54	234.31	0.77		Laminite, siltstone-mudstone-sandstone, sparse clay and carbonaceous partings, sub-horizontal bedding. Slickensides at 234.15 dipping at 10°.		
234.31	235.23	0.92		Quartzose sandstone, fine-medium, white-grey, carbonaceous partings dipping at 20° throughout.		
235.23	235.49	0.26		Laminite, sandstone-siltstone (90:10), occasional carbonaceous partings.		
235.49	235.55	0.06		Laminite, sandstone-siltstone.		
235.55	235.62	0.07		Sandstone, grey, bedding dips at 10°.		
235.62	235.85	0.23		Laminite, mudstone-siltstone, occasional shaly horizons, cross-bedding throughout, fossil-plant fragments. Gradational bottom contact.		
235.85	236.04	0.19	100	Quartzose sandstone, fine-medium, white, grey-green siltstone banding.		
236.04	236.30	0.24	92	Quartzose sandstone, fine-medium, cross-bedding at base, occasional steeply-dipping bands of carbonaceous mudstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

GEOLOGICAL LOG — Page:- 16

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
236.30	236.56	0.26	100	Lithic sandstone, fine-medium, grey-brown, contains sparse fossil-plant debris.		
236.56	237.07	0.50	98	Laminite, shale-siltstone-sandstone, grey-green, contains cross-bedding, coaly partings. Gradational bottom contact.		
237.07	238.62	1.53	99	Quartzose sandstone, fine-medium, sole markings, cross-bedding, occasional carbonaceous partings and fossil-plant fragments.		
238.62	238.91	0.29	100	Quartzose sandstone, medium, carbonaceous partings. Gradational bottom contact.		
238.91	239.20	0.28	97	Quartzose sandstone, fine-medium occasional carbonaceous bands.		
239.20	239.67	0.47	100	Quartzose sandstone, fine-medium, occasional 1 mm thick siltstone bands.		
239.67	239.90	0.23		Sandstone, fine, grey, shaly horizons.		
239.90	244.64	4.74		Lithic sandstone, medium, poorly sorted, occasional fossil-plant debris.		
244.64	250.61	5.97		Siltstone, grey-black, shaly horizons, sub-horizontal bedding, sparse, angular quartz-clasts, sparse fossil-plant debris.		
250.61	250.71	0.10		Sandstone, fine-medium, green-grey-brown, slickensiding from 250.68 to 250.70.		
250.71	251.27	0.56		Siltstone, grey, grades to a laminated mudstone - siltstone at base.		
251.27	251.31	0.04		Carbonaceous siltstone. Gradational bottom contact.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
251.31	252.14	0.83	100	Sandstone, fine-medium, green-brown, grading to a brown mudstone at base.		
252.14	252.27	0.13		Mudstone, shaly, brown.		
252.27	253.34	1.07		Shale, black, coaly partings towards base. Gradational bottom contact.		
253.34	253.65	0.31		Sandstone, fine-medium, brown-green, sparse fossil-plant debris.		
253.65	254.12	0.47		Lithic sandstone, medium, grey-brown, fossil-plant debris throughout.		
254.12	254.67	0.55		Carbonaceous siltstone, coaly partings at base.		
254.67	255.48	0.81		Lithic sandstone, coarse-grained, mud-pellets throughout, grey-green in colour.		
255.48	256.02	0.54		Siltstone, grey-black, muscovitic, occasional slickensides dipping at 45°.		
256.02	268.66	12.64		Siltstone, grey-black, 1 mm to 1 cm angular quartz-clasts throughout, 3 cm quartzite pebble at 267.56, occasional slickensides.(Upper Marine Sequence of the Parmeener Super Group).		
268.66	269.81	1.15		Quartzose sandstone, poorly-sorted, pebbly base.		
269.81	274.67	4.86		Siltstone, grey-black, minor sandstone bands, sparsely fossiliferous (marine), quartzitic pebble band from 273.00 to 273.06.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:- East Pingal seam at the Duncan Mine portal.

REMARKS:- Top of the seam is at an R.L. of 437.4 m and is 3.14 m thick.

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS					

GEOLOGICAL LOG

Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0	3.42	1.12	33	Dolerite talus.		
3.42	5.82	0.91	38	Weathered sandstone.		
5.82	5.92	0.10	100	Carbonaceous mudstone, sub-horisontal bedding.		
5.92	14.96	9.04	100	Lithic sandstone, medium, occasional coaly material, poorly-calcareous matrix, predominantly horisontal bedding.		
14.96	15.57	0.61		Mudstone, predominantly carbonaceous, sparse coal-partings.		
15.57	15.65	0.08		Claystone.		
15.65	15.83	0.18		Lithic sandstone, fine-medium.		
15.83	15.94	0.11		Mudstone, grey-white, slickensides at base.		
15.94	37.11	21.17	100	Lithic sandstone, medium, occasional carbonaceous parting and coaly fragments.		
37.11	37.28	0.17		Carbonaceous mudstone.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 34A	MAP SHEET No. 49	DISTRICT PINGAL	LOCATION OF SITE:-
			DUNCAN MINE PORTAL
R.L. OF SITE:- 478.0m	SITE SURVEY ON MAP No.:		CORE SIZE:- NQ
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 29/8/78
INCLINATION OF HOLE:- Vertical	DRILL:- F20C		COMPLETED:- 7/9/78
CO-ORDS OF SITE:- 584509.6E 5389218.6N	DRILLER:- D. Summers		FINAL DEPTH (m):- 65.32

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
37.28	38.02	0.74	100	Mudstone, grey, slickensides at base.		
38.02	40.29	2.27		Laminite, mudstone-siltstone, sparse truncated - bedding.		
40.29	40.58	0.29		Mudstone, grey.		
40.58	41.00	0.42		Carbonaceous mudstone (coaly in parts).		1
41.00	41.26	0.26		Dull coal.		
41.26	41.28	0.02		Mudstone,		
41.28	41.60	0.32		Coal section: Dull coal.		
41.60	41.64	0.04		x Mudstone band.		2
41.64	41.82	0.18	100	(x = excluded Dull Coal. from sample)		
41.82	42.39	0.48	84	Mudstone (carbonaceous in part).		
42.39	42.49	0.10	100	Coal section: Dull coal.		
42.49	42.58	0.09		x Mudstone band containing algal mats.		3
42.58	43.72	1.14		(x = excluded from sample) Dull coal with 5% bright bands.		
43.72	43.95	0.23		Shale		
43.95	46.27	2.32		Laminite, siltstone-sandstone, sparse plant-fossil fragments.		
46.27	46.49	0.22	100	Shale.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	%Moisture as received	On Dry Basis %Ash	On Dry Basis %V.C.M.	On Dry Basis %F.C.	% Mass (Composite)	
1	40.58	41.00	0.42	100	5.3	54.3	16.4	29.3		
2	41.28	41.82	0.54	100	5.5	27.6	23.5	48.9		
3	42.39	43.72	1.33	100	5.1	23.8	24.0	52.2		
	Composite of samples 1 to 3 was heavy liquid separated at 1.6 t/m³ and the heavy liquid float products assayed.									
1 to 3 Composite					8.7	17.9	27.0	55.1	65.1	

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GEOLOGICAL LOG

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
46.49	48.93	2.44	100	Lithic sandstone, fine, occasional siltstone-bands and -laminations.		
48.93	65.32	16.39	100	Lithic sandstone, medium, sparse plant-fossil debris, cross-bedding from 60.45m to 60.65m occasional coaly partings, finer-grained sandstone towards base.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:- East Fingal seam.

REMARKS:- Top of the East Fingal seam is at R.L. 437.3m and is 3.09m thick.

SURVEY DATA			ASSAY DATA							
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Specific Gravity (t/m³)	ASSAY RESULTS (On dry basis) % Ash	
			1	29.09	29.18	0.09	100	Disintegrated	65.5	
			2	29.18	29.22	0.04	100	1.70	44.8	
			3	29.22	29.51	0.28	97	1.53	30.4	
			4	29.54	29.69	0.14	93	1.57	36.2	
			5	29.70	29.93	0.21	91	1.53	33.4	
			6	29.96	30.01	0.04	80	1.66	44.0	
			7	30.02	30.24	0.20	91	1.46	30.2	
			8	30.26	30.42	0.15	94	1.55	36.1	
			9	30.42	30.46	0.04	100	1.83	61.4	
			10	30.47	30.60	0.12	92	1.56	38.8	
			11	30.60	30.69	0.07	78	1.70	50.4	
			12	30.82	30.87	0.05	100	1.74	52.2	

GEOLOGICAL LOG — Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	3.07	2.50	81	Weathered, iron-stained, medium-grained lithic sandstone.		
3.07	23.43	18.76	92	As above.		
23.43	24.43	1.00	100	Laminite, mudstone/carbonaceous mudstone (laminations <5mm thick) (50:50).		
24.43	24.73	0.20	67	Carbonaceous mudstone.		
24.73	24.89	0.06	38	Laminite, mudstone/carbonaceous mudstone (50:50).		
24.89	26.18	1.09	84	Siltstone, cross-bedded. Mudstone from 24.89m to 25.41m.		
26.18	27.71	1.53	100	Fine-grained lithic sandstone (FLSS). Cross-bedded.		
27.71	27.98	0.27	100	Carbonaceous mudstone. Mudstone from 27.97m to 27.98m.		
27.98	28.13	0.15		Dull coal.		
28.13	28.73	0.60		FLSS. Cross-bedded. Gradational bottom contact (GBC).		
28.73	29.09	0.36		Mudstone.		
29.09	29.18	0.09	100	Coal section: Carbonaceous mudstone. (X = excluded from sample).		1

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 34B	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:- DUNCAN PORTAL (near coal bins)
R.L. OF SITE:- 466.4m	SITE SURVEY ON MAP No.:		CORE SIZE:- NQ
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 1/2/79
INCLINATION OF HOLE:- Vertical	DRILL:- F200		COMPLETED:- 13/2/79
CO-ORDS OF SITE:- 584227.9E 5389353.9N	DRILLER:- D. Summers		FINAL DEPTH (m):- 47.18m

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FROM metres	TO metres	RECOVERY metres	RECOVERY %		DESCRIPTION	SECTION Core	SECTION Sample
29.18	29.22	0.04	100		Carbonaceous mudstone.		2
29.22	29.51	0.28	97		Dull coal.		3
29.51	29.54	0.03	100	X	Claystone band.		
29.54	29.69	0.14	93		Dull coal		4
29.69	29.70	0.01	100	X	Stone band.		
29.70	29.93	0.21	91		Dull coal.		5
29.93	29.96	0.02	67	X	Brown, mudstone-band.		
29.96	30.01	0.04	80		Dull coal.		6
30.01	30.02	0.01	100	X	White stone-band, 30° dip.		
30.02	30.24	0.20	91		Dull coal.		7
30.24	30.26	0.02	100	X	Carbonaceous mudstone.		
30.26	30.42	0.15	94		Dull coal.		8
30.42	30.46	0.04	100		Carbonaceous mudstone.		9
30.46	30.47	0.01	100	X	White mudstone-band.		
30.47	30.60	0.12	92		Dull coal. Thin (<1mm) sub-vertical kaolin veins.		10
30.60	30.69	0.07	78		Dull coal/carbonaceous mudstone (50:50).		11
30.69	30.79	0.09	90	X	Mudstone.		
30.79	30.82	0.03	100	X	White stone-band with development of pyrite throughout.		
30.82	30.87	0.05	100		Dull coal.		12
30.87	30.88	0.01	100	X	White stone-band.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Specific Gravity (t/m^3)	ASSAY RESULTS (On Dry Basis) %Ash
13	30.88	31.07	0.17	89	1.44	21.7
14	31.11	31.24	0.11	85	1.74	56.9
15A	31.24	31.48	0.21	88	1.28	16.9
15B	31.48	31.72	0.21	88	1.43	27.1
15C	31.72	31.95	0.15	65	1.22	14.5
15D	31.95	32.18	0.15	65	1.30	15.7
			1.29			100

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34B	GEOLOGICAL LOG				Page:- 3	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
30.88	31.07	0.17	89	Dull coal.		13
31.07	31.11	0.04	100	XWhite mudstone-band.		
31.11	31.24	0.11	85	Carbonaceous mudstone.		14
31.24	32.18	0.72	77	Dull coal with 5% bright bands, friable towards base.		15A, B, C, D.
32.18	33.28	1.00	91	Mudstone.		
33.28	33.51	0.18	78	Grey siltstone.		
33.51	34.52	0.91	90	Fine-medium-grained lithic sandstone (FMLSS). Mudstone from 34.42 m to 34.52 m.		
34.52	34.65	0.11	85	Carbonaceous mudstone.		
34.65	35.12	0.42	89	Mudstone.		
35.12	35.18	0.05	83	Medium-grained lithic sandstone (MLSS).		
35.18	38.33	3.15	100	Fine-grained lithic sandstone, sparse cross-bedding.		
38.33	47.18	7.66	87	MLSS. Sparse carbonaceous debris. Bedding dips at up to 20° occasionally.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% Moisture (as received)	ASSAY RESULTS (On Dry Basis) %Ash	%V.C.M.	%F.C.	%Mass
	A composite sample, weight proportional to the respective footage. The composite was heavy liquid separated at 1.6t/m³ and the heavy liquid float and sink products assayed.				excluding samples 2,6,9,11,12, was made on a basis for each sample, the weight being prop-				
Composite sample:-									
Float Product					4.2	18.0	28.6	53.4	52.1
Sink Product					4.3	31.3	26.6	42.1	47.9

DRILLING TARGET:- Upper Marine Sequence of the Parmeener Super Group.

REMARKS:- Possible working sections between R.L.'s of 492.75 m to 490.98 m,

SURVEY DATA			ASSAY DATA 490.87 m to 489.02 m and					ASSAY RESULTS 416.00 m to 413.93 m.					
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %						

GEOLOGICAL LOG

Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0	48.88			Dolerite talus		
48.88	49.45	0.57	100	Medium-grained lithic sandstone (MLSS) and subordinate carbonaceous mudstone, highly weathered, iron-stained.		
49.45	49.66	0.21		Carbonaceous mudstone with patches of dull coal containing sparse bright-bands.		
49.66	49.69	0.03		Clay band, white-grey-brown in colour.		
49.69	49.73	0.04		Carbonaceous mudstone.		
49.73	49.89	0.16		Mudstone, light-brown, sparse plant-fossil debris, clay content of 25%.		
49.89	50.08	0.19	100	Dull coal with 5% bright bands.		
50.08	50.56	0.45	94	Claystone, white-brown, plant-fossil debris, occasional 1 cm thick bands of blue-grey mudstone.		
50.56	50.92	0.36	100	Carbonaceous mudstone.		
50.92	51.24	0.31	97	Mudstone, white abundant clay-pellets, sparse plant-fossil fragments.		
51.24	52.02	0.77	99	Carbonaceous mudstone.		
52.02	52.11	0.09	100	Mudstone, white-brown.		
52.11	52.14	0.03		Carbonaceous mudstone.		
52.14	52.25	0.11	100	Mudstone, white-grey.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 37	MAP SHEET No. 49	DISTRICT Fingal	LOCATION OF SITE:- Valley Road
R.L. OF SITE:- 596.3 m	SITE SURVEY ON MAP No.:-		CORE SIZE:- NQ: 0-228.71 BQ: 228.71-311.72
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 30/10/78
INCLINATION OF HOLE:- Vertical	DRILL:- Longyear 38		COMPLETED:- 22/3/79
CO-ORDS OF SITE:- 588097.3E 5389662.2N	DRILLER:- L. Newman		FINAL DEPTH (m):- 311.72

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
52.25	52.36	0.11	100	Carbonaceous mudstone.		
52.36	52.40	0.04		Mudstone, grey-white.		
52.40	52.41	0.01		Carbonaceous mudstone band.		
52.41	52.50	0.09		Mudstone, brown-grey.		
52.50	52.73	0.23	100	Carbonaceous mudstone.		
52.73	52.91	0.17	94	Mudstone.		
52.91	53.07	0.16	100	Carbonaceous mudstone, disturbed bedding.		
53.07	53.14	0.07		Claystone, white-brown.		
53.14	53.62	0.48		Mudstone/claystone (50:50), green-white.		
53.62	53.81	0.19		Carbonaceous mudstone.		
53.81	53.87	0.06		Mudstone, grey-brown.		
53.87	53.89	0.02		Carbonaceous mudstone.		
53.89	53.91	0.02		Mudstone, brown-green.		
53.91	54.11	0.20		Carbonaceous mudstone.		
54.11	54.14	0.03		Mudstone, white-brown, disturbed bedding, irregular bottom contact.		
54.14	54.26	0.12		Carbonaceous mudstone.		
54.26	54.28	0.02		Mudstone, brown.		
54.28	54.33	0.05		Carbonaceous mudstone.		
54.33	54.61	0.28		Laminite, carbonaceous mudstone/mudstone (50:50), sparse coal-horizons, disturbed bedding.		
54.61	54.67	0.06		Claystone, swells on contact with water.		
54.67	54.83	0.16		Mudstone with subordinate carbonaceous mudstone and coal horizons, disturbed bedding.		
54.83	55.06	0.23		Mudstone, blue-grey.		
55.06	56.30	1.24		Laminite, mudstone/siltstone (50:50).		
56.30	60.48	4.18		Laminite, fine-grained lithic sandstone (FLSS)/ siltstone, (50:50), subordinate mudstone bands, disturbed bedding, occasional cross-bedding.		
60.48	61.00	0.52		Interbedded FLSS/MLSS (50:50), subordinate siltstone, carbonaceous mudstone and coal debris bands.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
61.00	70.54	9.54	100	MLSS, grey-white, sparse siltstone laminae, cross-bedding and coal debris.		
70.54	71.39	0.85		Mud-pellets, coal debris and carbonaceous mudstone bands in a matrix of MLSS.		
71.39	77.05	5.66		MLSS, abundant carbonaceous mudstone and siltstone laminae. Disturbed bedding from 72.72 m to 73.22 m. Coal debris from 76.85 m to 77.05 m. Irregular bottom contact.		
77.05	77.22	0.17		Carbonaceous-mudstone/mudstone, interbedded.		1
77.22	77.53	0.31		Carbonaceous mudstone.		2
77.53	77.59	0.06		Dull coal.		3
77.59	77.91	0.32		Carbonaceous mudstone.		4
77.91	78.02	0.11		Claystone, brown.		
78.02	78.12	0.10		Mudstone, grey, grades down to a carbonaceous mudstone at base.		
78.12	78.28	0.16		Claystone, white-brown.		
78.28	78.35	0.07		Carbonaceous mudstone.		
78.35	78.71	0.36		Mudstone, grey. Carbonaceous laminae towards base.		
78.71	78.76	0.05		Carbonaceous mudstone.		
78.76	78.83	0.07		Dull coal.		5
78.83	79.17	0.34		Carbonaceous mudstone.		
79.17	79.52	0.35		Dull coal with sparse bright bands from 79.28 m to 79.52 m.		6
79.52	79.57	0.05		Mudstone.		
79.57	79.62	0.05		Carbonaceous mudstone.		
79.62	79.90	0.28		Dull coal with occasional bright bands.		7
79.90	79.92	0.02		Mudstone, brown.		
79.92	79.93	0.01		Carbonaceous mudstone.		
79.93	79.95	0.02		Mudstone, brown.		
79.95	80.12	0.17		Carbonaceous mudstone/dull coal (50:50)		8
80.12	80.14	0.02		Mudstone, grey.		
80.14	80.15	0.01		Carbonaceous mudstone.		
80.15	80.19	0.04	100	Mudstone, grey. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	"As received" % Moisture	ASSAY RESULTS "Dry Basis" % Ash	% Vol.	% F.C.
1	77.05	77.22	0.17	100	4.6	66.1	—	—
2	77.22	77.53	0.31	100	4.2	68.9	—	—
3	77.53	77.59	0.06	100	4.1	40.2	25.4	34.4
4	77.59	77.91	0.32	100	3.9	72.1	—	—
5	78.76	78.83	0.07	100	3.2	45.1	29.8	25.1
6	79.17	79.52	0.35	100	3.0	29.1	24.9	46.0
7	79.62	79.90	0.28	100	2.5	22.2	32.0	45.8
8	79.95	80.12	0.17	100	2.6	46.4	22.4	31.2

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sampl.
80.19	80.21	0.02	100	Carbonaceous mudstone.		
80.21	80.23	0.02		Mudstone, grey.		
80.23	80.33	0.10		Carbonaceous mudstone.		9
80.33	80.36	0.03		Mudstone, grey.		
80.36	80.54	0.18		Carbonaceous mudstone/dull coal with occasional bright bands (5%), interbedded (60:40).		10
80.54	81.14	0.60		Mudstone, grey.		
81.14	81.19	0.05		Mudstone, brown.		
81.19	81.24	0.05		Carbonaceous mudstone.		
81.24	81.25	0.01		Mudstone, brown.		
81.25	81.34	0.09		Mudstone, grey.		
81.34	81.40	0.06		Claystone, white.		
81.40	81.42	0.02		Carbonaceous mudstone.		
81.42	81.47	0.05		Mudstone, brown.		
81.47	81.48	0.01		Carbonaceous mudstone.		
81.48	81.76	0.28		Mudstone, grey.		
81.76	81.86	0.10		Carbonaceous mudstone.		
81.86	82.81	0.95		Mudstone, grey, occasional slickensides.		
82.81	85.65	2.84		Laminite, siltstone/mudstone (60:40), sparse slickensides, MLSS laminae from 85.37 m to 85.65 m, disturbed bedding from 84.87 m to 85.37 m.		
85.65	87.15	1.50		MLSS, grey-white, massive. Gradational bottom contact (GBC).		
87.15	88.03	0.88		Laminite, MLSS/siltstone (50:50) GBC.		
88.03	89.40	1.37		MLSS, massive.		
89.40	89.74	0.34		Laminite, MLSS/siltstone (50:50).		
89.74	103.55	13.81	100	MLSS, grey-white, predominantly massive. Pyrite development in sub-vertical joints from 91.51 m to 92.27 m, mudstone band from 94.25 m to 94.30 m, coaly debris from 94.30 m to 94.35 m, sparse carbonaceous laminae from 95.29 m to 97.61 m, mud pellets and coaly debris from 98.19 m to 92.29 m, sparse fine-medium-grained lithic sandstone (FMLSS) bands from 98.29 m to 101.30 m. Coaly laminae (dipping at angles of up to 45°) from 100.30 m to 101.30 m, sparse coal debris and laminae (dipping at 20°) from 102.55 m to 103.55 m.		

continued over

ASSAY DATA ASSAY RESULTS

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	"As received" % Moisture	% Ash	Assay Results "Dry Basis" % Vol	% F.C.
9	80.23	80.33	0.10	100	4.7	63.5	-	-
10	80.36	80.54	0.18	100	1.5	47.8	22.6	29.6
11	103.55	103.70	0.15	100	3.1	27.5	26.2	46.3
12	103.70	103.76	0.06	100	2.8	37.4	25.7	36.9
13	103.80	104.01	0.20	100	2.5	26.1	26.1	47.8
14	104.01	104.06	0.05	100	2.2	44.6	20.1	35.3
15	104.10	104.19	0.09	100	4.6	67.3	-	-
16	104.20	104.30	0.10	100	4.7	60.2	-	-
17	104.33	104.39	0.06	100	4.1	55.5	-	-
18	104.39	104.67	0.28	100	2.0	20.3	33.6	46.1

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GEOLOGICAL LOG

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
103.55	103.59	0.04	100	Dull coal with 5% bright bands.	)	
103.59	103.60	0.01		Stone band, creamy-brown.	)	
103.60	103.69	0.09		Dull coal.	)	11
103.69	103.70	0.01		Stone band, creamy-brown.	)	
103.70	103.76	0.06		Carbonaceous mudstone.		12
103.76	103.81	0.05		Shale band, creamy-brown.		12A
103.81	104.01	0.20		Dull coal with kaolin-coated cleat surfaces.		13
104.01	104.06	0.05		Carbonaceous mudstone. GBC.		14
104.06	104.08	0.02		Mudstone, brown.	)	
104.08	104.09	0.01		Carbonaceous mudstone.	)	14A
104.09	104.10	0.01		Shale band, creamy-brown.	)	
104.10	104.19	0.09		Carbonaceous mudstone, sparse mudstone-laminae.		15
104.19	104.20	0.01		Shale band, creamy-brown.		15A
104.20	104.30	0.10		Carbonaceous mudstone. GBC.		16
104.30	104.33	0.03		Shale band, brown.		16A
104.33	104.39	0.06		Carbonaceous mudstone.		17
104.39	104.67	0.28		Dull coal with 5% bright bands. Cleat surfaces are coated with kaolinite.		18
104.67	104.71	0.04		Mudstone/MLSS (50:50) band, shaly, brown.		18C
104.71	104.80	0.09		Carbonaceous mudstone.	)	19
104.80	104.89	0.09		Dull coal.	)	
104.89	104.96	0.07		Carbonaceous mudstone.		20
104.96	104.99	0.03		Stone band, creamy-brown.		20A
104.99	105.08	0.09		Carbonaceous mudstone.		21
105.08	105.11	0.03		Stone band, brown.	)	
105.11	105.14	0.03		Carbonaceous mudstone GBC.	)	21A
105.14	105.15	0.01		Stone band.	)	
105.15	105.32	0.17		Dull coal.		22
105.32	105.43	0.11		Shale band, cream.		
105.43	105.52	0.09	100	Carbonaceous mudstone.		23
105.52	105.96	0.42	95	Dull coal.		24
105.96	105.97	0.01	100	Stone band, carbonaceous.		24A
105.97	106.41	0.42	95	Dull coal.		25

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	As received % Moisture	ASSAY RESULTS "Dry Basis" % Ash	% Vol.	% F.C.
19	104.71	104.89	0.18	100	1.8	25.3	26.4	48.3
20	104.89	104.96	0.07	100	2.4	34.1	23.8	42.1
21	104.99	105.08	0.09	100	3.4	70.2	-	-
22	105.15	105.32	0.17	100	1.8	32.9	21.7	45.4
23	105.43	105.52	0.09	100	5.9	71.9	-	-
24	105.52	105.96	0.42	95	4.8	27.4	25.0	47.6
25	105.97	106.41	0.42	95	4.8	37.2	22.4	40.4
26	106.41	106.52	0.11	100	4.5	51.6	-	-
27	106.52	106.65	0.13	100	5.1	66.3	-	-
28	106.65	106.99	0.32	94	4.5	19.5	27.1	53.4
29	106.99	107.28	0.28	97	4.3	52.9	-	-

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37				GEOLOGICAL LOG	Page:- 6	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
106.41	106.52	0.11	100	Dull coal/carbonaceous mudstone (50:50).		26
106.52	106.65	0.13	100	Carbonaceous mudstone.		27
106.65	106.99	0.32	94	Dull coal.		28
106.99	107.28	0.28	97	Carbonaceous mudstone, sparse bright-coal-bands.		29
107.28	107.40	0.12	100	Mudstone, brown.		
107.40	107.49	0.09		Carbonaceous mudstone.		
107.49	108.71	1.22		Laminite, carbonaceous mudstone/green-grey mudstone and shale (50:50), disturbed bedding throughout, slickensides at 107.63 m, 107.66 m, 107.75 m, 107.89 m, 108.06 m. GBC.		
108.71	109.46	0.75		Shale, grey GBC.		
109.46	109.71	0.25		Siltstone, grey.		
109.71	110.60	0.89		FMLSS, grey-white, carbonaceous laminae and current-bedding from 110.27 m to 110.37 m.		
110.60	110.74	0.14		Laminite, carbonaceous mudstone/FMLSS (50:50), sparse bright-coal bands.		
110.74	113.06	2.32		MLSS, grey-white, massive.		
113.06	113.18	0.12		FMLSS.		
113.18	117.02	3.84		MLSS, grey-white, coaly debris from 116.40 m to 117.02 m, bottom contact dips at 30°.		
117.02	117.22	0.20		FLSS, indurated, slickenside dipping at 30° at 117.07m.		
117.22	118.64	1.42		MLSS, grey-white, coaly debris from 117.64 m to 118.64 m. Basal contact dips at 20°.		
118.64	119.10	0.46		Laminite, siltstone/FLSS, cross-bedding dips at up to 20°, whispy carbonaceous laminae.		
119.10	128.59	9.49		MLSS, grey-white, coaly debris from 119.38 m to 119.68 m, from 124.48 m to 124.57 m, from 126.05 m to 126.18 m, from 126.52 m to 126.62 m and from 126.72 m to 126.80 m. Mud-pellets from 121.84 m to 122.22 m, from 124.48 m to 124.57 m and from 125.07 m to 125.25 m. Bedding dips at 20° from 123.30 m to 123.62 m. Basal contact dips at 30°.		
128.59	128.68	0.09		Dull coal.		
128.68	129.50	0.82		Siltstone, grey, slickensides dipping at 45° at 128.84 m, 129.18 m, 129.22 m, 129.35 m, 129.39 m, 129.46 m. GBC.		
129.50	129.64	0.14	100	Carbonaceous mudstone. Continued over		

ASSAY DATA

Note: All figures in brackets are calculated

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	H.L. Density	H.L. Fraction	Percent Mass	Percent *Ash	Cum. Percent Mass	Cum. Percent *Ash	Cum. Percent Mass	Cum. Percent *Ash	Percent Ash Distribution
Composite 1 (composite of samples 11 to 22, including stone bands)					1.4	Float	13.8	9.4	13.8	9.4	100	(48.8)	2.7
					1.6	Float	29.3	23.0	43.1	(18.6)	86.2	(55.2)	13.8
					1.8	Float	7.8	44.1	50.9	(22.5)	56.9	(71.7)	7.0
					1.8	Sink	49.1	76.1	100	(48.8)	49.1	76.1	76.5
						Head	100	(48.8)					100
									Dry Basis, Percent				S.E.
									Vol.	F.C.	S		MJ/kg
Composite 1 (as above)					1.6	Float	43.1	18.3	29.5	52.2	0.31	26.0	16.2
					1.6	Sink	56.9	71.8	15.9	12.3	0.02	-	83.8
						Head	100	(48.7)					100

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* All ash figures quoted are on a "dry basis"

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
129.64	129.71	0.07	100	Mudstone band, creamy-brown, coaly debris.		
129.71	129.82	0.11		Carbonaceous mudstone.		
129.82	130.02	0.20		Dull coal with <5% bright bands, slickenside at 129.96 m. Slickensided basal contact dips at 30°.		
130.02	130.32	0.30		Siltstone, slickenside dipping at 45° at 130.11 m, shaly at base.		
130.32	130.82	0.50		MLSS, slickenside dipping at 45° at 130.39 m.		
130.82	131.27	0.45		Mudstone, grey, slickensides at 130.88 m, 130.92 m, 130.99 m, 131.10 m, 131.14 m.		
131.27	131.29	0.02		Carbonaceous mudstone.		
131.29	131.37	0.08		Shale, creamy-green-grey.		
131.37	131.49	0.12		Dull coal with 5% bright bands.		30
131.49	131.53	0.04		Black mud with ground-up pieces of coal.		31
131.53	131.55	0.02		Dull coal.		32
131.55	131.63	0.08		Clay, creamy; mudstone, carbonaceous, ground-up.		
131.63	132.22	0.59		Dull coal with 5% bright bands, kaolinite on cleat. GBC.		33
132.22	132.30	0.08		Mudstone, black-grey. GBC.		
132.30	132.58	0.28		Siltstone, grey. GBC.		
132.58	133.15	0.57		Mudstone, grey.		
133.15	133.42	0.27		Siltstone, grey, cross-bedded.		
133.42	134.71	1.29	100	FLSS, dark-grey and light-grey laminae, cross-bedded.		
134.71	136.22	1.49	99	FLSS, interbedded with cross-bedded FLSS, abundant carbonaceous laminae dipping at up to 20°. GBC.		
136.22	136.50	0.28	100	MLSS, grey-white, featureless.		
136.50	136.95	0.45		FLSS, sparse cross-bedding.		
136.95	140.74	3.79		MLSS, grey-white, sparse mud-pellet bands and carbonaceous laminae.		
140.74	140.75	0.01		Siltstone, grey, dipping at 30°.		
140.75	142.51	1.76		FMLSS, fines upward, GBC.		
142.51	142.56	0.05		Mud-pellet band, pellets up to 4 cm diameter, long axis of pellets is sub-horizontal, FLSS matrix. GBC.		
142.56	146.78	4.22		MLSS, grey-white, fines upward, sparse coal debris, carbonaceous laminae and mud pellets. GBC.		
146.78	147.04	0.26		MLSS (75%); coal debris, carbonaceous mudstone laminae mud pellets (25%). GBC.		
147.04	148.40	1.36		MLSS, grey-white, sparse coal debris, carbonaceous laminae and mud-pellets. Irregular bottom contact.		

Continued over

ASSAY DATA

ASSAY RESULTS

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	H.L. Density	H.L. Fraction	Percent Mass	Percent *Ash	Cum. Mass	Cum. *Ash	Per-cent	Cum. Mass	Cum. *Ash	Per-cent	Ash Distribution
Composite 2 (composite of samples 23 to 29, including stone bands)					1.4	F/T	26.0	6.7	26.0	6.7		100	(40.2)		4.3
					1.6	F/T	22.8	25.2	48.8	(15.3)		74.0	(52.0)		14.3
					1.8	F/T	10.9	44.5	59.7	(20.7)		51.2	(63.9)		12.1
					1.8	S/K	40.3	69.1	100	(40.2)		40.3	69.1		69.3
						H	100	(40.2)						100	
									Dry Basis, Percent			S.E.			
									Vol.	F.C.		S.	MJ/kg		
Composite 2 (as above)					1.6	F/T	48.8	14.8	30.2	55.0		0.27	26.9		18.1
					1.6	S/K	51.2	63.9	18.3	17.8		0.12	-		81.9
						H	100	(39.9)						100	

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
148.40	148.47	0.07	100	Siltstone, grey-white, coaly band at base, matrix occupies 25%, irregular bottom contact.	MLSS	
148.47	148.63	0.16		MLSS, grey-white, irregular bottom contact.		
148.63	148.97	0.34		MLSS/coal debris, mudstone bands (50:50), irregular bedding.		
148.97	155.95	6.98		MLSS, grey-white, mud-pellet band from 149.68 m to 149.73 m (mud-pellets up to 3 cm in diameter), disturbed carbonaceous laminae from 151.93 m to 152.16 m. Carbonaceous laminae, mud-pellets, coal debris and cross-bedding (dipping at 30°) occur from 152.41 m to 152.65 m.		
155.95	157.13	1.18		Shale/carbonaceous shale (75:25), slickensides dipping at 45° at 156.49 m and 156.63 m. GBC.		
157.13	157.65	0.52		Siltstone, shaly, slickenside dipping at 45° from 157.60 m to 157.65 m. GBC.		
157.65	157.87	0.22		FLSS, disturbed bedding.		
157.87	158.04	0.17		Shale, grey, slickenside dipping at 20° at base.		
158.04	158.10	0.06		Dull coal. GBC.		
158.10	158.33	0.23		Carbonaceous shale.		
158.33	158.36	0.03		Shale, grey, GBC.		
158.36	158.61	0.25		Siltstone, shaly, black-grey GBC.		
158.61	158.94	0.33	100	Laminite, MLSS/shale (60:40) GBC.		
158.94	160.55	1.51	94	Shale, grey, slickenside dipping at 45° from 158.98 m to 159.02 m, coal debris and carbonaceous laminae from 159.14 m to 159.44 m.		
160.55	161.05	0.42	84	Dull coal with < 5% bright bands. Broken core. GBC.		
161.05	161.35	0.30	100	Shale, grey-brown.		
161.35	162.38	1.03	100	Shale/siltstone (50:50), interbedded, abundantly slickensided.		
162.38	163.10	0.48	67	FMLSS, carbonaceous mudstone and siltstone laminae, bedding dips at up to 20°. GBC.		
163.10	163.36	0.26	100	Shale, grey.		
163.36	164.12	0.76		MLSS, coaly debris and carbonaceous laminae from 163.56 m to 163.76 m. GBC.		
164.12	164.35	0.23	100	Siltstone, shaly in part, disturbed bedding dipping at 25° from 164.12 m to 164.25 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	"As received" % Moisture	"Dry Basis" % Ash	% Vol.	% F.C.
30	131.37	131.49	0.12	100	4.5	16.1	38.2	45.7
31	131.49	131.53	0.04	100	9.3	70.9	-	-
32	131.53	131.55	0.02	100	5.3	17.6	38.5	43.9
33	131.63	132.22	0.59	100	4.7	17.8	23.8	58.4
34	171.00	171.48	0.48	100	3.9	19.0	30.1	50.9
35	171.48	171.78	0.30	100	2.5	48.7	24.4	26.9

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
164.35	165.35	1.00	100	FLSS, fissile in part, sparse plant-fossil debris, cross-bedded and laminated towards base. GBC.		
165.35	171.00	5.65		MLSS, grey-white, sparse carbonaceous laminae (dipping at up to 20°) and cross-bedding from 165.35 m to 167.26 m, abundant coal debris, plant-fossil fragments and mudstone bands from 170.31 m to 170.74 m.		
171.00	171.48	0.48		Dull coal with < 5% bright bands. GBC.		34
171.48	171.78	0.30	100	Laminite, dull coal/carbonaceous mudstone (25:75). GBC.		35
171.78	174.26	2.37	96	Shale, grey, sparse slickensides, fissile. Shale is green-grey from 174.16 m to 174.26 m. GBC.		
174.26	174.32	0.06	100	Carbonaceous mudstone. GBC.		
174.32	174.55	0.23		Mudstone grey, irregular bottom contact.		
174.55	174.61	0.06		Mudstone/coal (50:50) irregularly interbanded, irregular bottom contact.		
174.61	174.75	0.14		Mudstone, grey; carbonaceous mudstone band from 174.69 m to 174.70 m, bedding dips at 20° from 174.70 m to 174.75 m.		
174.75	175.00	0.25		Carbonaceous mudstone/dull coal (80:20). GBC.		
175.00	175.56	0.56		Mudstone, grey, slickenside at 175.30 m, grades to a siltstone from 175.26 m to 175.56 m. GBC.		
175.56	176.71	1.15	100	FLSS, grey-white, cross-bedded, sparse grey siltstone banding, sparse small-scale, sub-vertical faults, calcite vein (1 cm thick) dipping at 20° at 176.43 m.		
176.71	179.23	2.52	98	Mudstone, grey, sparse slickensides from 176.81 m to 179.23 m, irregular bedding, coal debris and plant-fossil fragments from 176.81 m to 179.23 m.		
179.23	180.30	1.07	100	Laminite, siltstone/shale (40:60), sub-horizontal bedding. GBC.		
180.30	180.48	0.16	89	Carbonaceous mudstone, sparse coal bands. GBC.		36
180.48	181.26	0.78	100	Dull coal with 5% bright bands. Kaolinite on sub-vertical cleat. Broken core. GBC.		37
181.26	181.27	0.01	100	Carbonaceous mudstone.		)
181.27	181.34	0.07	100	Mudstone (grey) from 181.27 m to 181.29 m, slickenside dipping at 30° at 181.28 m. (continued over) Laminite, coal/white siltstone (50:50) from 181.29 m to 181.31 m, secondary calcite from 181.31 m to 181.34 m, bottom contact dips at 30°.		)

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	"As received" % Moisture	ASSAY RESULTS "Dry Basis" % Ash	% Vol.	% F.C.	
36	180.30	180.48	0.16	89	4.7	59.1	-	-	
37	180.48	181.26	0.78	100	3.8	27.4	22.5	50.1	
38	181.67	181.84	0.17	100	4.6	44.5	23.7	31.8	
39	181.86	182.23	0.37	100	3.1	25.4	26.0	48.6	
40	182.23	182.37	0.13	93	3.3	43.0	24.1	32.9	
41	186.22	186.64	0.42	100	3.5	24.8	32.0	43.2	
42	186.64	186.76	0.12	100	3.8	61.1	-	-	
43	219.71	220.62	0.91	100	3.2	43.4	25.0	31.6	0.04 m excluded
44	222.23	223.66	1.42	99	3.8	24.3	29.2	46.5	0.05 m "

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
181.34	181.67	0.33	100	Grey mudstone/carbonaceous mudstone (70:30), interbedded, irregular bedding dips at up to 20°, fault (dipping at 45° and showing slickenside development) from 181.50 m to 181.55 m, irregular slickensides dipping at 10° from 181.64 m to 181.65 m.		37
181.67	181.68	0.01		Siltstone band, grey-white	)	
181.68	181.75	0.07		Dull coal with 5% bright bands. Broken core.	)	
181.75	181.76	0.01		Siltstone band, white-grey.	)	38
181.76	181.78	0.02		Dull coal.	)	
181.78	181.79	0.01		Bright coal.	)	
181.79	181.84	0.05		Dull coal with 5% bright bands.	)	
181.84	181.86	0.02		Mudstone band, grey-white.		38A
181.86	182.23	0.37	100	Dull coal with 5% bright bands. Preferential fracture along cleat.		39
182.23	182.29	0.05	83	Dull coal. Broken core.	)	
182.29	182.30	0.01	100	Mudstone band, grey-brown.	)	40
182.30	182.37	0.07	100	Dull coal with 5% bright bands and 10% claystone pellets.	)	
182.37	182.83	0.46	100	Laminite, mudstone/siltstone (50:50), grey, irregular bedding, abundant plant-fossil fragments in fissile sections.		
182.83	183.85	1.01	99	Shale, irregular bedding dipping at up to 20°, slickensides at 183.06 m (10° dip), 183.42 m (30° dip) and 183.50 m (45° dip), secondary calcite from 183.23 m to 183.27 m, dull coal with 10% bright bands from 183.73 m to 183.75 m, plant-fossils from 183.65 m to 183.85 m with accompanying carbonaceous mudstone laminae and coal debris. GBC.		
183.85	185.88	2.03	100	Siltstone, blue-grey, minor shale bands, sparse plant fossil debris, coaly debris and carbonaceous laminae. Minor irregular bedding. Slickensides at 184.23 m, 184.59 m, 184.92 m, 185.12 m, 185.18 m to 185.24 m (45° dip), and from 185.80 m to 185.85 m (45° dip). GBC.		
185.88	186.22	0.34	100	Shale, minor carbonaceous mudstone bands, abundant slickensides from 185.96 m to 186.20 m, sparse irregular bedding. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	H.L. Depth	H.L. Factor	Percent Mass	Percent *Ash	Cum. Percent Mass	Cum. Percent *Ash	Cum. Percent Mass	Cum. Percent *Ash	Perc. Ash Distribution
Composite 3 (Composite of samples 36 to 40, including stone bands).					1.4	F/T	11.5	11.0	11.5	11.0	100	(47.3)	2.7
					1.6	F/T	33.3	24.5	44.8	21.0)	88.5	(52.0)	17.3
					1.8	F/T	13.9	43.7	58.7	26.4)	55.2	(68.5)	12.8
					1.8	S/K	41.3	76.9	100	(47.3)	41.3	76.9	67.2
						H	100	(47.3)					100
									Dry Basis, Percent			S.E.	
									Vol.	F.C.	S	MJ/kg.	
Composite 3 (As above)					1.6	F/T	44.8	20.4	27.9	51.7	0.3	25.0	19.5
					1.6	S/K	55.2	68.3	16.1	15.6	0.0	-	80.5
						H	100	(46.8)					100

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
186.22	186.64	0.42	100	Dull coal with <5% bright bands, sub-vertical cleat. Broken core.		41
186.64	186.68	0.04		Shale band, white-grey, irregular carbonaceous laminae.		
186.68	186.69	0.01		Carbonaceous shale. GBC.		
186.69	186.71	0.02		Carbonaceous mudstone with 20% coal laminae.		42
186.71	186.73	0.02		Carbonaceous shale, slickensided.		
186.73	186.74	0.01		Bright coal, friable.		
186.74	186.76	0.02		Dull coal with 5% bright bands.		
186.76	187.71	0.95		FLSS, grey-white, cross-bedding from 187.20 m to 187.71 m. GBC.		
187.71	187.84	0.13		Mudstone, grey. GBC.		
187.84	188.13	0.29	100	FLSS, grey, slickensides from 187.87 m to 187.96 m, sparse cross-bedding, minor mudstone bands. GBC.		
188.13	188.38	0.22	88	Shale, grey, abundant, plant fossils. GBC. Broken core.		
188.38	188.47	0.09	100	Shale, grey-black, irregular bedding, slickenside from 188.39 m to 188.44 m (45° dip). Broken core.		
188.47	188.49	0.02		Dull coal. Broken core.		
188.49	188.56	0.07		Carbonaceous shale, slickenside from 188.50 m to 188.53 m laminated bedding towards base. Broken core.		
188.56	188.59	0.03	100	Dull coal.		
188.59	188.74	0.14	93	Carbonaceous shale, abundant slickensides, mudstone laminae from 188.59 m to 188.6 m. Broken core.		
188.74	188.77	0.03	100	Claystone band, creamy-brown, irregularly-dipping top- and bottom-contacts. Broken core.		
188.77	188.92	0.14	93	Dull coal with 5%bright bands. Broken core.		
188.92	189.61	0.69	100	Mudstone, grey, slickensides (dipping at 45°) from 189.11 m to 189.15 m, from 189.22 m to 189.29 m and from 189.42 m to 189.49 m. GBC.		
189.61	190.01	0.40	100	Siltstone, grey. GBC.		
190.01	200.03	10.00	99	MLSS, grey, irregular laminations of carbonaceous siltstone/MLSS (30:70) from 190.01 m to 190.19 m and from 190.29 m to 190.54 m, irregular-bedding with carbonaceous-laminae and coal-debris from 193.20 m to 193.96 m. Mudstone from 200.01 m to 200.03 m. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
200.03	200.40	0.37	100	Mudstone, grey, slickensides from 200.23 m to 200.26 m, and from 200.32 m to 200.35 m (conjugate) with 30° dips. GBC.		
200.40	200.56	0.16		FLSS, grey-white.		
200.56	200.83	0.27		Mudstone, grey, slickenside from 200.74 m to 200.77 m, minor carbonaceous laminae and plant-fossil debris.		
200.83	201.08	0.25		Carbonaceous mudstone, brown sub-greywacke bands from 200.92 m to 200.93 m and from 200.95 m to 200.96 m.		
201.08	202.29	1.21		FMLSS, grey, sparse carbonaceous-mudstone and irregular-bedding. GBC.		
202.29	203.14	0.85		Laminite, carbonaceous mudstone/grey mudstone (50:50), minor truncated bedding and MLSS laminae.		
203.14	206.04	2.90		Carbonaceous mudstone/FLSS/mudstone, interbedded. Irregular- and cross-bedding throughout.		
206.04	207.14	1.10	100	MLSS/(carbonaceous mudstone/grey mudstone laminite), interbedded (50:50), sparse cross-bedding and load casts.		
207.14	211.26	4.11	99	MLSS, grey-white, sparse mud-pellet bands, irregular- and cross-bedding, carbonaceous mudstone band from 210.27 to 210.28 m, coal debris from 210.45 m to 210.46 m.		
211.26	211.47	0.21	100	FMLSS, grey-white.		
211.47	219.71	8.24	100	MLSS, grey-white, sparse carbonaceous laminae and coaly debris.		
219.71	219.75	0.04		Dull coal with <5% bright bands, slickenside at base.		43A
219.75	219.79	0.04		XClaystone, brown-grey. GBC (X = excluded from sample.)		
219.79	219.82	0.03		Dull coal.		
219.82	219.87	0.05		Carbonaceous mudstone. GBC.		
219.87	220.42	0.55		Dull coal with <5% bright bands, slickenside from 220.12 m to 220.20 m (45° dip).		43B
220.42	220.44	0.02		Claystone band, brown-cream, 20° dip.)		
220.44	220.50	0.06		Dull coal with 5% bright bands. GBC.)		43C
220.50	220.57	0.07	100	Carbonaceous mudstone. GBC.)		
				Continued over		cont.

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
220.57	220.62	0.05	100	Carbonaceous mudstone, abundant slickensides, broken ground. GBC.		(Cont.) 43C
220.62	221.28	0.64	97	Mudstone, grey, irregular coaly-laminae, abundant slickensides. GBC.		
221.28	221.80	0.52	100	Siltstone, grey, minor shale. GBC.		
221.80	222.23	0.43		Mudstone, grey, irregular carbonaceous-laminae, bedding dips at up to 20°, secondary calcite at base. GBC.		
222.23	222.43	0.20		Dull coal (X = excluded from sample)		44A
222.43	222.44	0.01	100	X Mudstone band, brown, slickenside at base.		
222.44	222.50	0.05	83	Carbonaceous mudstone. GBC.		44B
222.50	222.65	0.15	100	Dull coal. GBC.		44C
222.65	222.67	0.02		X Dirty mudstone band, sandy, 10° dip. GBC.		
222.67	223.44	0.77		Dull coal with <5% bright bands, carbonaceous mudstone from 222.97 m to 222.99 m.		44D, E, F, G
223.44	223.46	0.02		X Claystone band, brown.		
223.46	223.66	0.20		Dull coal with <5% bright bands, bottom contact dips at 5°. Very irregular slickenside from 223.60 m to 223.68 m.		44H
223.66	224.23	0.57	100	Siltstone, grey, with minor mudstone. GBC.		
224.23	227.34	3.07	99	Mudstone/siltstone, interbedded, irregular carbonaceous laminae and bedding dipping at up to 45°, slickensides from 226.43 m to 226.47 m, at 226.68 m, at 227.12 m and from 227.17 m to 227.22 m (45° dip), coaly debris from 225.57 m to 225.62 m, cross-bedding at base. GBC.		
227.34	228.47	1.13	100	FLSS/siltstone/mudstone, interbedded, laminated, sparsely irregular- and cross-bedded.		
228.47	232.69	4.15	98	MLSS, sparse cross-bedding, carbonaceous laminae from 228.54 m to 228.56 m, from 229.11 m to 229.16 m and from 231.69 m to 232.69 m. Broken ground from 228.71 m to 230.37 m.		
232.69	232.73	0.04	100	Carbonaceous mudstone. GBC.		
232.73	232.80	0.07		Dull coal, slickenside (dipping at 45°) at base.		
232.80	232.85	0.05		Carbonaceous mudstone. GBC.		
232.85	233.50	0.65	100	Laminite, carbonaceous mudstone/cross-bedding from 233.11 m to 233.16 m. GBC. Continued over MLSS (50:50)		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
233.50	235.81	2.31	100	MLSS, abundant carbonaceous siltstone/ mudstone laminae. GBC.		
235.81	238.25	2.44		MLSS, grey, fines-down from 235.81 m to 236.79 m, interbedded with FMLSS from 236.79 m to 238.25 m, irregular bottom contact.		
238.25	238.70	0.45		MLSS with carbonaceous laminae and clay matrix (40%). GBC.		
238.70	238.91	0.21		Laminite, MLSS/carbonaceous mudstone, sparsely cross-bedded. GBC.		
238.91	239.36	0.45		Carbonaceous mudstone with minor MLSS laminae, clay matrix (40%). GBC.		
239.36	239.74	0.38		Mudstone, grey, sparse slickensides. GBC.		
239.74	239.95	0.21		Carbonaceous mudstone, claystone bands from 239.92 m to 239.95 m. GBC.		
239.95	240.41	0.46		Dull coal, calcite/kaolinite at base, sparse small-scale faulting.		
240.41	241.07	0.66		Mudstone, grey, slickensides throughout, sparse coaly-debris.		
241.07	241.08	0.01		Claystone band, grey-green-cream.		
241.08	241.24	0.16		Mudstone, grey, sparse disturbed-bedding. GBC.		
241.24	241.46	0.22		Siltstone, grey.		
241.46	243.04	1.58		FLSS, occasional carbonaceous laminae, fault from 242.20 m to 242.27 m.		
243.04	244.26	1.22		Siltstone, grey, sparse cross-bedding. GBC.		
244.26	244.70	0.44		Mudstone, grey, abundant slickensides (45° dip).		
244.70	245.40	0.70	100	Carbonaceous mudstone with 10% dull coal, slickenside from 244.93 m to 244.97 m, brown clay bands from 244.83 m to 244.84 m and from 245.23 m to 245.26 m.		
245.40	245.63	0.22	96	Mudstone, grey, slickensides at 245.40 m and from 245.50 m to 245.52 m, carbonaceous debris throughout. GBC.		
245.63	245.96	0.33	100	FMLSS. GBC.		
245.96	247.86	1.88	99	Siltstone/FMLSS, interbedded, sparse cross-bedding and carbonaceous laminae, slickenside at 246.58 m to 246.60 m. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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GEOLOGICAL LOG

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
247.86	248.25	0.39	100	Mudstone, grey, minor siltstone laminae.		
248.25	248.30	0.05		Carbonaceous mudstone with (25%) bright coal and (10%) clay bands. GBC.		
248.30	248.42	0.12	100	Mudstone, grey, slickensided, sparse plant-fossils.		
248.42	249.87	1.44	99	Mudstone/siltstone, grey, interbedded (50:50), slickensides from 248.64 m to 248.81 m, from 249.48 m to 249.54 m, from 249.59 m to 249.62 m and from 249.77 m to 249.81 m. GBC.		
249.87	249.90	0.03	100	Carbonaceous mudstone. Friable grey-mudstone band from 249.825 m to 249.875 m. GBC.		
249.90	250.01	0.11		Carbonaceous siltstone, brown clay pellets becoming predominant at base. GBC.		
250.01	250.92	0.91	100	Claystone, silty, brown. Indurated carbonaceous siltstone band, from 250.08 m to 250.11 m. GBC.		
250.92	251.46	0.53	98	Carbonaceous shale. Carbonaceous mudstone/(heavy dull coal with minor kaolinite and pyrite)(50:50) band from 251.18 m to 251.35 m. Slickenside at 251.14 m. GBC.		
251.46	251.95	0.49	100	Mudstone, black-brown, subordinate shale, core breaks irregularly. GBC.		
251.95	252.19	0.24		Siltstone, brown-grey, subordinate brown-clay and poorly-sorted dirty FMLSS bands. GBC.		
252.19	252.66	0.47		Carbonaceous shale, richly plant-fossiliferous, abundant coal-debris. GBC.		
252.66	253.41	0.75	100	Siltstone, brown-grey, sparse plant-fossil and coal debris, cross-bedding from 252.71 m to 252.76 m and from 253.11 m to 253.41 m. GBC.		
253.41	254.67	1.24	98	Mudstone, grey, subordinate shale bands.		
254.67	257.78	3.11	100	FMLSS, 10% quartzose grains, grey-brown, sparse carbonaceous laminae. GBC.		
257.78	263.30	5.52		MLSS, grey-white, bedding dips at up to 5° (planar cross-bedding), cross-bedding from 260.39 m to 260.43 m, sparse carbonaceous mudstone bands, coal-debris and carbonaceous laminae from 260.64 m to 260.68 m.		
263.30	263.63	0.33	100	FMLSS/siltstone (50:50), grey, interbanded, cross-bedded. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

37				GEOLOGICAL LOG	Page:- 16	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
263.63	268.70	5.07	100	MLSS, grey-white, sparse grey-siltstone laminae from 263.63 m to 263.73 m and from 266.44 m to 266.49 m (10° dip), coal debris and carbonaceous laminae from 266.49 m to 266.52 m and from 268.60 m to 268.70 m. Truncated bottom contact dips at 10°.		
268.70	269.95	1.25		Laminite, grey-siltstone/FMLSS, occasional lenticular laminae, sparsely cross-bedded, minor MLSS bands, mingr grey-black siltstone laminae (dipping at 5° and cross-bedded) from 269.75 m to 269.95 m. GBC.		
269.95	270.93	0.98		MLSS, grey-white, abundant irregular coaly-laminae and bands. Bottom contact dips at 10°.		
270.93	271.01	0.08		Laminite, grey-black siltstone/grey MLSS (30:70), bedding dips at 10°. Irregular, dipping bottom-contact.		
271.01	272.48	1.47		Mudstone, shaly, silty, grey, bedding dips at up to 45°. Grey-white siltstone with FMLSS laminae from 271.68 m to 272.48 m. Bottom contact dips at 5°.		
272.48	274.64	2.16		MLSS, grey-white, sparse traces of coal and carbonaceous laminae. Irregular bottom contact dips at 20°.		
274.64	274.87			FLSS, grey-black, minor siltstone laminae and bands. Irregular bottom contact dips at 45°.		
274.87	274.99	0.12		FMLSS, irregularly banded with grey siltstone.		
274.99	277.23	2.24		MLSS, grey-white, sparse grey-black siltstone pebbles (up to 0.5 cm in diameter) from 274.99 m to 275.57 m. Irregular sub-vertical joints from 275.52 m to 275.77 m and from 276.86 m to 277.23 m, (the latter is filled with calcite.) Irregular bottom contact dips at 45°.		
277.23	277.36	0.13		Laminite, siltstone/FLSS (40:60), grey-black, cross-bedding common (slump features?). Bottom contact dips at 5°.		
277.36	277.59	0.23	100	MLSS, grey-white, sparse grey-black siltstone pebbles and bands. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

37 GEOLOGICAL LOG Page:- 17

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
277.59	277.73	0.14	100	Siltstone/MLSS (60:40), interbedded, grey-black; siltstone pebbles and bands in the MLSS horizons. Bottom contact dips at 10°.		
277.73	277.97	0.24		MLSS, grey-white, sub-horizontal grey-black siltstone band from 277.83 m to 277.84 m, joint (45° dip) from 277.81 m to 277.86 m. Irregular bottom contact.		
277.97	278.56	0.59		Breccia, intraformational (Reworked siltstone laminae and bands in matrix of MLSS). GBC.		
278.56	278.87	0.31		MLSS, grey-white, irregular bottom contact.		
278.87	279.07	0.20	100	Breccia, intraformational. GBC.		
279.07	286.29	7.20	99	MLSS, grey-white, sparsely quartzose (10%), sparse carbonaceous laminae, debris and plant fossils. Grey-black FLSS band from 287.70 m to 284.73 m. Grey mudstone band from 285.27 m to 285.29 m, minor slickensides. Slickenside (45° dip) at base.		
286.29	287.04	0.75	100	Laminite, FLSS/siltstone (50:50), grey-black, cross-bedded, bedding dips at up to 5°.		
287.04	289.99	2.95		MLSS, grey-white, sparsely quartzose, minor carbonaceous-mudstone and siltstone laminae (dipping at up to 5°) from 287.04 m to 287.29 m and from 287.48 m to 289.99 m. GBC.		
289.99	290.10	0.11		MLSS, abundant coaly debris and contorted carbonaceous laminae. GBC.		
290.10	290.12	0.02		MLSS, grey-white. GBC.		
290.12	290.17	0.05		Mud-pellet conglomerate band; pink, grey, white, black-pellets, diameters range from 0.20 cm to 1.0 cm. GBC.		
290.17	290.26	0.09		MLSS, grey-white.		
290.26	290.46	0.20		FLSS, minor grey-black siltstone laminae.		
290.46	290.50	0.04		Siltstone, grey-black.		
290.50	290.59	0.09		Laminite, FMLSS/siltstone (50:50), grey-black.		
290.59	290.81	0.22	100	FMLSS, grey-white, abundant coaly debris, mud-pellets and coaly laminae, slickensides (30° dip) from 290.71 m to 290.73 m, from 290.72 m to 290.75 m and from 290.78 m to 290.80 m. Irregular, sub-horizontal bottom-contact.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

37				GEOLOGICAL LOG	Page:- 18	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
290.81	291.34	0.53	100	MLSS, 20% quartzose, black-grey laminae dipping at 5° from 291.14 m to 291.34 m. GBC. (Poorly-sorted, disturbed-bedding generally).		
291.34	291.96	0.62		Laminite, siltstone/FMLSS, grey-black, bedding dips at 5° from 291.34 m to 291.84 m, sparse cross-bedding. GBC.		
291.96	292.36	0.40		Siltstone, grey, disturbed-bedding throughout. Irregular bottom contact dips at 20°.		
292.36	292.69	0.33		FMLSS, coaly fragments common, disturbed-bedding, minor siltstone, slickenside from 292.36 m to 292.41 m. Sinusoidal-wave-form bottom-contact.		
292.69	292.83	0.14	100	FMLSS, grey-white, slickensides from 292.81 m to 292.86 m. Faulted bottom-contact.		
292.83	293.37	0.53	98	Siltstone, grey-black, sub-vertical joints from 293.02 m to 293.12 m and from 293.25 m to 293.47 m, slickenside dipping at 30° from 293.15 m to 293.18 m. GBC.		
293.37	293.57	0.19	95	FLSS, disturbed-bedding, minor dark-grey siltstone and coaly laminae. GBC.		
293.57	294.18	0.61	100	FMLSS, grey-white, abundant siltstone laminae and bands. 45° dip, normal-fault from 293.82 m to 293.87 m with accompanying joints and secondary calcite development. Irregular siltstone-laminae dipping at 45° from 294.13 m to 294.18 m. Bottom contact dips at 5°.		
294.18	294.72	0.54		Laminite, FLSS/siltstone (40:60), brecciated, secondary calcite development throughout. Broken core from 294.64 m to 294.72 m. GBC.		
294.72	295.39	0.67		FLSS, grey-white, abundant siltstone-bands and laminae, minor brecciated horizons with accompanying secondary calcite. Broken ground from 294.98 m to 295.03 m and from 295.16 m to 295.26 m. GBC.		
295.39	295.59	0.20	100	Siltstone, grey, abundant joints dipping at 60°, broken ground from 295.54 m to 295.59 m. GBC.		
295.59	295.81	0.22	100	MLSS, 10% quartzose, slickensides Continued over (from 295.71m to 295.81 m) dipping at up to 60°, faulted at base.		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
295.81	299.66	3.85	100	Medium-grained quartzose sandstone (MQSS), irregular bedding, abundant black-grey siltstone-bands and -laminae, disturbed bedding from 295.98 m to 296.58 m and from 299.26 m to 299.66 m, interbedded with siltstone from 296.58 m to 299.50 m, minor coaly-laminae and -bedding dipping at up to 20°.		
299.66	301.36	1.67	98	Cross-bedded dark-grey siltstone with sub-ordinate FMQSS-laminae and -bands, minor irregular bedding, slickenside from 300.47 m to 300.50 m, broken ground from 301.14 m to 301.24 m. Bottom contact dips at 5°.		
301.36	302.48	1.12	100	Carbonaceous mudstone with minor FMQSS laminae, abundant plant-fossil fragments. FMQSS band from 301.58 m to 301.59 m, slickensides dipping at 45° from 301.62 m to 301.64 m and from 302.01 m to 302.05 m, slickenside dipping at 30° from 301.98 m to 302.00 m, joint (dipping at 45°) from 302.36 m to 302.41 m. GBC.		
302.48	302.65	0.17		FMQSS/black siltstone, interbedded, minor contorted-bedding and joint development.		
302.65	309.16	6.51		MQSS, white-grey, porous, abundant carbon-aceous-siltstone laminae dipping at up to 10°, minor contorted-bedding. Coarse-grained from 308.17 m to 308.67 m. Quartz-clasts up to 1 cm in diameter from 309.11 m to 309.16 m. Irregular bottom contact (Disconformity?).		
309.16	311.72	2.56	100	Green-black siltstone with abundant angular quartz-clasts with diameters up to 1 cm, abundant slickensides throughout, minor development of sub-vertical joints. (Upper Marine Sequence of the Parmeener Super Group).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:- Pre-collar BH38 using a Failing percussion-drilling rig.

REMARKS:- Drilling stopped as insufficient compressor capacity to blow ground-water out of hole, and unreasonable bit wear.

SURVEY DATA								ASSAY RESULTS					
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %						

GEOLOGICAL LOG

Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	1.52	chips		16.5 cm hammer-bit drilled through jointed -dolerite-boulders and clay.		
1.52	12.19	chips		14.0 cm hammer-bit drilled through very-hard grey-dolerite.		
12.19	74.56	chips		10.2 cm hammer-bit drilled through very-hard grey-dolerite.		
				(1.52 m of 15.2 cm diameter casing and 3.05 m of 12.7 cm diameter casing remains in this hole prior to diamond drilling).		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DRILL RECORD

HOLE No.:- 38	MAP SHEET No. 49	DISTRICT Fingal	LOCATION OF SITE:-
Fingal Tier near headwaters of Telopea Creek			
R.L. OF SITE:- 810.2 m	SITE SURVEY ON MAP No.:		CORE SIZE:- No core; dolerite chips
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 13th June, 1979
INCLINATION OF HOLE:- Vertical	DRILL:- Failing		COMPLETED:- 20th June, 1979
CO-ORDS OF SITE:- 587950.5E 5386902.8N	DRILLER:- K. Richardson R. Stevens		DEPTH (m):- 74.56

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DRILLING TARGET:- Upper Marine Sequence of the Parmeener Super-Group.

REMARKS:- The roof of the probable Duncan Seam is at an R.L. of 395.55 m. Seam thickness is 2.49 m.

SURVEY DATA			ASSAY DATA					ASSAY RESULTS					
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %						

GEOLOGICAL LOG

Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0	74.56	chips		Dolerite, grey. (Pre-collared using a percussion drilling rig - see separate drill record).		
74.56	340.19	265	99	Dolerite, grey, medium grainsize, predominantly massive core sticks, minor quartz and chlorite veins. (A section through the dolerite has been assembled and stored for any future analytical work which may be undertaken in this area. This section consists of (approximately) 10 cm of dolerite sampled at 3 m intervals). Abundant sub-vertical to sub-horizontal joints throughout. In the basal 2 m the dolerite is fine-grained with abundant green (pyroxene?) phenocrysts up to 1 mm in any one dimension; joints, dipping at from 45° to 60°, have a spacing of 1 cm; minor sub-vertically-dipping quartz-veins up to 3 mm in width. Glassy from 339.89 m to 340.19 m with abundant white phenocrysts (2 mm x 3 mm) from 340.04 m to 340.19 m. Undulose bottom contact dipping at 10°.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 38	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:-
			FINGAL TIER near headwaters of Telopea Creek
R.L. OF SITE:- 810.2 m	SITE SURVEY ON MAP No.:-		CORE SIZE:- NQ: 74.56-419.29 BQ:419.29-558.59
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 3rd Oct., 1979
INCLINATION OF HOLE:- Vertical	DRILL:- Joy-Sullivan 30HD		COMPLETED:- 8th Nov., 1979
CO-ORDS OF SITE:- 5 587 950.5E 5 386 902.8N	DRILLER:- D. Summers, A. Dawson, D. Whammond, W. West		FINAL DEPTH (m):- 558.59

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+ zeolite

38 GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
340.19	340.54	0.35	100	COAL SECTION: Carbonaceous mudstone, thermally metamorphosed, abundant sub-vertically to sub-horizontally dipping white carbonate veins and + red (thermally metamorphosed kaolinite?) veins. Bottom-contact (BC) dips at 30°.		
340.54	340.57	0.03		Dull coal/bright coal (50:50), hornfelsed (anthracitic?), distorted bedding, abundant carbonate and red mineral (see above) on cleat surface, minor disseminated pyrite (marcasite?). BC dips at 10°.		1A
340.57	341.04	0.47		Dull coal, hornfelsed (chertified?), minor joints (dipping at approximately 45°), occasional slickensides and bright-coal bands (composed of algal mats?). Gradational bottom-contact (GBC).		
341.04	341.06	0.02	100	Carbonaceous mudstone, hornfelsed, abundant slickensides and joints.		
341.06	341.37	0.27	87	Dull coal, hornfelsed (thermally metamorphosed), abundant sub-vertically-dipping carbonate and red mineral (see above) veins on cleat surfaces.		
341.37	341.51	0.14	100	Bright coal, breaks readily into shards which possess conchoidally-fractured surfaces (thermally metamorphosed).		
341.51	341.78	0.27	100	Dull coal, thermally metamorphosed, broken-core, slickensided, abundant red mineral deposits on cleat surfaces. Slickenside (sub-horizontally dipping) at base.		1B
341.78	341.88	0.10		Breccia, thermally metamorphosed carbonaceous siltstone, abundant red (thermally metamorphosed kaolinite?) veins. BC dips at 45°.		
341.88	341.93	0.05	100	Carbonaceous mudstone, thermally metamorphosed. BC dips at 10°.		
341.93	342.27	0.34	100	Heavy dull coal, thermally metamorphosed, minor sub-vertically dipping carbonate veins. GBC.		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% Ash (Oven-dried basis)
1A	340.19	341.37	1.14	97	74.4
1B	341.37	342.64	1.27	100	69.5
1C	342.64	344.63	1.99	100	65.0
1D	344.63	346.19	1.56	100	90.6

38 GEOLOGICAL LOG Page:- 3 of 18

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
342.27	342.30	0.03	100	COAL SECTION: (cont.) Carbonaceous sandstone (greywacke?) GBC.		
342.30	342.55	0.25		Heavy dull coal, thermally metamorphosed, minor sub-vertically dipping carbonate veins. GBC.		1B (cont)
342.55	342.64	0.09		Carbonaceous sandstone, abundant clay matrix (greywacke?). Stepped bottom-contact with an average dip of 10°.		
342.64	342.91	0.27		Heavy dull coal, minor carbonate veins, BC dips at 5°		
342.91	343.04	0.13		Bright coal, well-developed cleat, minor carbonate veins, BC dips at 2°		
303.04	343.37	0.33		Heavy dull coal, minor carbonate deposits on sub-vertically dipping cleat surfaces.		1C
343.37	343.95	0.58		Dull coal/bright coal (50:50), thermally metamorphosed. BC dips at 5°.		
343.95	344.29	0.34		Carbonaceous mudstone, thermally metamorphosed, abundant sub-vertically and sub-horizontally dipping slickensides from 344.18m to 344.23 m.		
344.29	344.63	0.34		Heavy dull coal/carbonaceous mudstone (50:50), minor sub-vertically dipping carbonate veins, GBC.		
344.63	344.95	0.32		Mudstone, dark-grey. GBC		
344.95	345.22	0.27		Fine-grainsize lithic sandstone (FLSS), dark-grey, silty, bedding dips at up to 10° GBC.		1D
345.22	345.56	0.34		Mudstone, grey, shaly. GBC		
345.56	345.61	0.05		Mudstone, dark-grey, minor creamy clasts (1mm). undulose bottom-contact.		
345.61	345.93	0.32		Mudstone, carbonaceous, minor joints and slickensides dipping at up to 60°. GBC.		
345.93	346.19	0.26		Siltstone, carbonaceous, shaly.		
346.19	346.37	0.18		Mudstone, grey, shaly, joint (dipping at 45°) from 346.31 m to 346.37 m. GBC.		
346.37	349.05	2.68	100	Silstone, light-grey, silicified, sandy, muddy at top, bedding dips at 20°, minor elongate mudstone lenticles.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

38 GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
349.05	349.26	0.21	100	Fine-medium-grainsize lithic sandstone (FMLSS), abundant carbonaceous laminae and cross-bedding dipping at up to 20° BC dips at 2°.		
349.26	349.76	0.50		Medium-grainsize lithic sandstone (MLSS), poorly silicified (effects of thermal metamorphism?) GBC.		
349.76	351.01	1.25		FMLSS, light-grey, minor bands of MLSS and mud-pellets, Bottom-contact dips at 2°.		
351.01	353.29	2.28		Coarse-grainsize lithic sandstone (CLSS), grey-white, massively-bedded, MLSS towards base. Core has parted along sub-vertically-dipping joints from 352.51 m to 353.01 m. GBC.		
353.29	365.55	12.26		MLSS, minor silty bands and laminae (dipping at up to 10°) from 353.29 m to 356.29 m, minor CLSS at 356.19 m, minor CLSS and FMLSS intervals from 356.29 m to 362.29 m; abundant mud-pellets, carbonaceous laminae (dipping at 30°) and coaly debris from 356.59 m to 357.39 m, from 358.29 m to 358.79 m, from 361.99 m to 362.09 m, and from 362.99 m to 364.89 m; minor coaly debris at base. BC dips at 5°.		
365.55	365.66	0.11		COAL SECTION: Dull coal/carbonaceous mudstone (50:50).		)
365.66	365.75	0.09		Claystone, brown, shaly, BC dips at 5°.		)
365.75	365.99	0.24		Dull coal, sub-vertically dipping joint from 365.85 m to 365.99 m. Undulose bottom-contact (UBC).		)
365.99	366.03	0.04		Claystone, brown, shaly		)
366.03	366.06	0.03		Dull coal. BC dips at 2°.		) 2
366.06	366.08	0.02		Claystone, brown, shaly		)
366.08	366.75	0.67		Dull coal, minor carbonate veins and sub-vertically dipping cleat.		)
366.75	367.53	0.78		Siltstone, light-grey, carbonaceous from 366.75 m to 366.85 m. GBC.		
367.53	374.54	7.01	100	Mudstone, grey; silty, abundant carbonaceous laminae and coaly debris, minor slickensides, bedding dips at up to 20° from 367.53 m to 368.17m;		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	(Oven-dried basis) ASSAY RESULTS %Ash	%Vol.	%F.C.
2	365.55	366.75	1.20	100	38.9	25.5	35.6

38				GEOLOGICAL LOG	Page:- 5 of 18	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				(continued) minor carbonaceous mudstone from 368.17 m to 368.21 m; shaly brown claystone from 369.79 m to 369.99 m; minor sandy intervals and cross-bedding from 370.29 m to 371.59 m; carbonaceous mudstone intervals and slickensides from 371.29 m to 374.54 m.		
374.54	374.57	0.03	100	Dull coal.		
374.57	374.58	0.01		Claystone, brown, shaly.		
374.58	375.00	0.42		Dull coal, broken core, minor bright bands, slickensides at base. GBC.		
375.00	375.41	0.41		Dark-grey mudstone/carbonaceous mudstone (50:50), abundant slickensides, minor coaly laminae.		
375.41	376.81	1.40		Mudstone, blue-grey, shaly with minor slickensides from 375.41 m to 376.01 m. GBC.		
376.81	377.20	0.39		Dull coal. BC dips at 5°.		
377.20	377.27	0.07		Mudstone, grey-brown. GBC.		
377.27	380.12	2.85		Mudstone, grey-blue, silty, minor shale and slickensides, fine-grainsize lithic sandstone (FLSS) towards base. GBC.		
380.12	380.20	0.08		FLSS, grey. BC dips at 5°.		
380.20	392.30	12.10	100	Medium-grainsize lithic sandstone (MLSS), grey, massively bedded; abundant sub-vertically dipping joints from 380.37 m to 383.47 m and from 384.45 m to 385.80 m; siltstone, fine-medium grainsize lithic sandstone (FMLSS) bands and minor carbonaceous laminae (bedding dipping at up to 10°) from 380.37 m to 383.47 m; grey-white from 383.47 m to 384.45 m; FMLSS, silty, grey, minor plant-fossil debris and carbonaceous laminae (dipping at up to 5°) from 384.45 m to 386.42 m, shaly from 385.80 m to 386.42 m, GBC at 386.42 m; coaly debris and mud-pellet band from 388.27 m to 388.72 m; mud-pellet bands (dipping at up to 20°) with flattened elongate pellets from 388.82 m to 389.27 m; coaly debris from 389.32 m to 389.62 m; sub-vertically dipping joints from 390.22 m to 390.72 m. Irregular, sub-horizontal BC.		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
392.30	392.69	0.39	100	Carbonaceous mudstone/dark-grey mudstone, interbedded (40:60), abundant slickensides and sub-vertically dipping joints, wispy coaly lenticles. GBC.		
392.69	393.13	0.44		Laminite, FMLSS/grey mudstone (60:40), silty, abundant carbonaceous laminae and cross-bedding (dipping at up to 10°). GBC.		
393.13	395.58	0.45		FMLSS, light-grey, minor mud-pellet bands, carbonaceous laminae, bioturbation? and mudstone bands. GBC.		
395.58	393.79	0.21		Carbonaceous mudstone/grey-green mudstone, interbanded (40:60), bedding dips at up to 5°. GBC.		
393.79	394.33	0.54		COAL SECTION: Dull coal, minor carbonaceous mudstone bands, minor bright coal laminae, well-developed cleat, bedding dips at up to 5°. GBC. (not sampled)		
394.33	395.25	0.92		Mudstone, grey, abundant slickensides (dipping at between 20° and 45°), minor coaly debris and carbonaceous mudstone, bands, silty and sandy towards BC, minor sub-vertically dipping joints (results in broken core in places). GBC.		
395.25	395.60	0.35		Siltstone, grey, sandy, minor festoon cross-bedding dipping at 5°. GBC.		
395.60	396.42	0.82		FMLSS, light-grey, minor planar cross-bedding (dipping at up to 5°), carbonaceous laminae towards base. GBC.		
396.42	411.58	15.16	100	MLSS, light-grey, massive bedding (dipping at up to 10°); minor carbonaceous laminae from 396.42 m to 396.72 m; FMLSS and minor carbonaceous laminae from 400.00 m to 403.85 m; minor mud-pellet bands from 401.29 m to 403.85 m; minor sub-vertically dipping joints from 406.84 m to 407.54 m, from 409.37 m to 409.87 m and from 410.59 m to 411.58 m; minor coaly debris from 407.24 m to 407.54 m; minor FLSS bands from 409.87 m to 410.02 m; bedding dips at 5° from 409.87 m to 410.29 m; carbonaceous and grey mudstone pebbles and cobbles from 411.08 m to 411.58 m. BC dips at 5°.		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
411.58	412.02	0.44	100	COAL SECTION: (Duncan Seam) Dull coal, cleat dips at up to 45°, bedding dips at up to 5°, minor bright laminae. GBC.		3A
412.02	414.25	1.44	65	Shale, grey, very flaky.		
414.25	414.65	0.40	100	Mudstone grey-blue, carbonaceous in part. Irregular BC dips at 10°.		
414.65	414.76	0.11		Heavy dull coal, minor brown claystone laminae. GBC.		
414.76	414.80	0.04		Grey-blue mudstone. GBC dips at 5°.		
414.80	414.90	0.10		Dull coal, bright coal towards BC with 1 mm wide carbonate veins coating the cleat. GBC dips at 5°.		
414.90	414.94	0.04		Claystone, grey-brown, nodules of carbonaceous mudstone, contorted bedding. BC dips at 5°.		3B
414.94	415.14	0.20		Dull and bright coal, interbanded (50:50), carbonate coating on the cleat in the bright coal bands, minor carbonaceous mudstone and brown claystone bands. GBC.		
415.14	417.14	2.00		Dull coal, abundant carbonate-coated sub-vertically dipping cleat, 10% bright coal bands, bedding dips at from 2° to 5°, broken core from 415.14 m to 415.44 m and from 416.09 m to 417.14 m due to abundant cleat, carbonaceous mudstone band from 416.73 m to 416.75 m. Obscure BC.		
417.14	417.47	0.33		Siltstone, grey, carbonaceous in part, brecciated from 417.14 m to 417.24 m, minor dull coal/carbonaceous mudstone (50:50) band from 417.34 m to 417.44 m. GBC.		3C
417.47	418.73	1.26	100	FMLSS, grey, clayey, silty, minor carbonaceous laminae, bedding dips at up to 5°. BC dips at 10°.		

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Oven-dried basis %Ash	%Vol.	%F.C.
3A	411.58	414.65	2.28	74	90.1		
3B	414.65	417.14	2.49	100	26.1		
3C	417.14	417.47	0.33	100	87.1		

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
418.73	431.78	13.05	100	MLSS, grey, massive; bedding dips at up to 5° from 419.29 m to 422.22 m; minor carbonaceous laminae from 421.77 m to 421.87 m; minor coaly debris from 422.22 m to 425.22 m; minor FMLSS intervals from 425.22 m to 428.24 m; abundant coaly debris and mud-pellets from 425.72 m to 428.22 m; coarse-grainsize lithic sandstone (CLSS) with mudstone cobbles and coaly debris from 428.54 m to 429.04 m and from 430.95 m to 431.15 m; bedding dips at up to 5° from 430.37 m to 431.25 m. BC dips at 10°.		
431.78	432.16	0.38		Dull coal/brown claystone/blue-grey mudstone/bright coal, interbanded (50:10:30:10), bedding dips at 10°. Irregular, undulose BC.		
432.16	432.32	0.16		Siltstone, grey, muddy, wispy carbonaceous lenticles and laminae, minor plant-fossil fragments. BC dips at 5°.		
432.32	432.39	0.07		Mudstone, carbonaceous. Irregular, undulose BC.		
432.39	432.51	0.12		Mudstone, grey, silty, wispy carbonaceous laminae. GBC.		
432.51	432.73	0.22		Siltstone, grey, sandy, wispy carbonaceous laminae. GBC.		
432.73	434.19	1.46		FMLSS, light-grey, minor carbonaceous lamina dipping at up to 20°, minor coaly debris. BC dips at 10°.		
434.19	446.75	12.56		MLSS, light-grey, massive bedding; FMLSS from 434.57 m to 435.37 m; carbonate in matrix and minor carbonaceous laminae from 435.17 m to 435.37 m; sub-vertically dipping joints from 434.57 m to 435.37 m and from 437.67 m to 438.27 m; coaly debris from 441.92 m to 442.12 m, from 444.22 m to 444.52 m and from 445.42 m to 445.82 m; bedding dips at up to 10° from 443.22 m to 446.17 m; minor carbonate in matrix from 446.17 m to 446.52 m; FMLSS from 446.32 m to 446.52 m. BC dips at 10°.		
446.75	446.98	0.23		Dull coal, abundant brown claystone lenticles and balls. Undulose BC.		
446.98	447.92	0.94	100	FLSS, grey-green, minor mudstone bands, clayey, silty. GBC.		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
447.92	452.05	4.23	100	Laminite, grey mudstone/carbonaceous mudstone (50:50), silty; abundant plant-fossil fragments plus minor coaly laminae and shaly intervals with cross-bedding and flaser bedding from 449.17m to 452.05m. Irregular BC dips at 5°.		
452.05	454.12	2.07		MLSS, grey, massive bedding; minor carbonaceous mudstone bands and laminae (dipping at up to 10°) and minor coaly debris from 452.17m to 454.12m. BC dips at 10°.		
454.12	455.19	1.07		Mudstone, grey-blue; abundant slickensides (dipping at up to 45°), wispy carbonaceous laminae and minor carbonaceous mudstone from 454.12m to 454.65m; silty and sandy with minor contorted bedding and carbonaceous laminae dipping at up to 10°. GBC		
455.19	455.85	0.66		FLSS, grey, bioturbated (?) from 455.19m to 455.29m. GBC		
455.85	457.06	1.21		Mudstone, grey-blue, minor slickensides and wispy carbonaceous laminae; sandy bands, laminae and cross-bedding from 456.66m to 457.06m. GBC		
457.06	457.51	0.45		Laminite, carbonaceous mudstone/grey mudstone (40:60), bedding dips at 5°. GBC		
457.51	458.01	0.50		COAL SECTION: Carbonaceous mudstone, sandy, minor slickensides, brown claystone bands from 457.81m to 457.91m. Slickenside (dipping at 30°) at base. (East Fingal) (Seam (Upper) (Split))		
458.01	458.70	0.69		Dull coal, abundant slickensides and minor carbonate veins on the cleat foom 458.01m to 458.11m and from 458.21m to 458.51m (broken core)		
458.70	458.72	0.02		Carbonate band, brown, clayey wispy coaly laminae. Irregular BC dips at 5°.		
458.72	458.96	0.24		Dull coal/carbonaceous mudstone interbedded (50/50), cleat dips at 60°. GBC.		

cont....

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Oven-dried basis % Ash
4A	457.51	460.53	3.02	100	67.2

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
458.96	458.99	0.03		Siltstone, white-grey, clayey GBC.		
458.99	459.17	0.18		Dull coal. Irregular BC.		
459.17	459.18	0.01		Carbonate band, brown, wispy coaly laminae. BC dips at 10°.		
459.18	459.42	0.24	100	Dull coal. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

38 GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
459.42	459.70	0.28	100	COAL SECTION: (cont) Laminite, dull coal carbonaceous mudstone (40:60), abundant claystone laminae and pellets, shaly. Slickenside (dipping at 20°) at base.		
459.70	460.12	0.42		Carbonaceous mudstone/heavy dull coal (50:50). BC dips at 10°.		
460.12	460.15	0.03		Mudstone, white-grey, carbonaceous, sandy bedding dips at 10°. Slickenside (dipping at 30°) at base.		
460.15	460.50	0.35		Carbonaceous mudstone/heavy dull coal (50:50). BC dips at 10°.		
460.50	460.53	0.03		Claystone, khaki, shaly. BC dips at 10°.		
460.53	460.73	0.20		Mudstone, brown, very hard (ferruginous?), clayey (pyrite), minor carbonaceous wisps, contorted bedding.		
460.73	461.11	0.38		MLSS, grey, massive bedding, minor mudstone laminae at base.		
461.11	462.24	1.13		Mudstone, blue-grey, minor sandy bands and slickensides (dipping at 45°).		
462.24	463.32	1.08		COAL SECTION: (East Pingal) (Lower Split) Dull coal, well-developed subvertically dipping cleat (core is broken as a result), minor slickensides and carbonate veins, shaly carbonaceous claystone with minor carbonate bands from 462.99m to 463.04m. GBC		
463.32	463.60	0.28		Carbonaceous mudstone/dull coal (50/50).		
463.60	463.63	0.63		Siltstone, white-grey, shaly from 463.60m to 463.61m. Undulose BC		
463.63	464.22	0.59	100	Dull coal, broken core and brown shaly mudstone bands form 463.63m to 463.78m, brown shaly claystone from 463.92m to 463.95m, well-developed cleat (broken core) from 463.96m to 464.10m, shaly brown claystone from 464.14m to 464.17m, slickenside (dipping at 30°) at base. BC dips at 5°.		

ASSAY

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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38 GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
464.22	464.23	0.01	100	Mudstone, grey. GBC.		
464.23	464.89	0.66		MLSS, grey, minor carbonaceous laminae and silty bands dipping at up to 10°, minor coaly debris and wispy carbonaceous laminae with distorted silty bands from 464.84 m to 464.89 m. BC dips at 30°.		
464.89	465.38	0.49		Mudstone, grey; abundant slickensides, plant-fossils, and coaly debris; minor cross-bedding; silty; minor carbonaceous mudstone intervals; abundant wispy carbonaceous laminae.		
465.38	465.43	0.05		Dull coal/grey-brown mudstone/grey-brown claystone (60:20:20), shaly, bedding dips at 5°. GBC.		
465.43	465.46	0.03		Carbonaceous mudstone with abundant bright coal laminae and lenticles (dipping at up to 2°). GBC.		
465.46	466.15	0.69		Interbanded grey FMLSS/FLSS (70:30), minor carbonaceous laminae (dipping at 5°) and plant-fossil debris, slickensided grey mudstone from 465.46 m to 465.66 m. GBC.		
466.15	466.55	0.40		MLSS, grey, massive bedding, abundant carbonate in matrix, minor CLSS bands (with high porosity) dipping at 10°, coaly debris from 466.4 5 m to 466.50 m. Interdigitating BC dips at 20°.		
466.55	467.10	0.55		Mudstone, grey; minor coaly debris, slickensides, carbonaceous laminae and plant-fossils. GBC.		
467.10	470.06	2.96		Dark-grey mudstone/grey FMLSS, interbanded (50:50), silty; minor slickensides, carbonate-coated joints (dipping at from 45° to 60°), flaser bedding, contorted bedding, bioturbation?, shaly bands festoon cross-bedding, micro-faults and slumping (1 cm movement). GBC.		
470.06	470.90	0.84		FMLSS, grey-white, abundant carbonaceous laminae and mudstone bands (dipping at 5°), minor carbonate in matrix and sub-vertically dipping joints with carbonate infilling. Irregular, jointed BC.		
470.90	471.53	0.63	100	Siltstone, grey, disturbed and slumped bedding (soft-sediment deformation), rollover structures, minor sandy bands and laminae. BC dips at 20°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
471.53	471.85	0.32	100	FMLSS, grey-white, minor carbonaceous laminae and grey siltstone bands and laminae, minor cross-bedding and festoon cross-bedding (dipping at 5°) towards base. GBC.		
471.85	472.90	1.05		Grey siltstone/grey mudstone (60:40), minor sandy bands and laminae, laminite occassionally, minor cross-bedding (dipping at 5°). GBC.		
472.90	472.98	0.08		Carbonaceous mudstone, minor grey mudstone laminae and lenticles. BC dips at 2°.		
472.98	473.03	0.05		Dull coal/bright coal (70:30). BC dips at 2°.		
473.03	473.22	0.19		Carbonaceous siltstone (greywacke?), minor plant-fossil debris, shaly; sandy and clayey from 473.11 m to 473.22 m; minor-cross-bedding dipping at 5°) Irregular BC dips at 2°.		
473.22	473.82	0.60		FMLSS/carbonaceous and dark-grey muddy siltstone (60:40); minor cross-bedding, flaser bedding, disturbed bedding and MLSS bands (dipping at up to 5°). GBC.		
473.82	475.28	1.46		MLSS, grey-white, minor carbonaceous laminae (dipping at up to 5°), irregular truncated surface at 475.16 m. BC dips at 5°.		
475.28	476.87	1.59		Light-grey FMLSS/carbonaceous, siltstone (50:50), interbedded and interbanded with minor laminite, minor cross-bedding (dipping at up to 5°). BC dips at 2°.		
476.87	477.49	0.62		Grey MLSS/CLSS (50:50); abundant coaly debris, carbonate veins (containing crystalline calcite) dipping sub-vertically; minor carbonaceous clayey bands and laminae; minor mud-pellet bands and laminae dipping at up to 10° (clasts 1mm in diameter), BC dips 5°.		
477.49	477.80	0.31		Heavy dull coal/carbonaceous mudstone (40:60), abundant (sub-vertically dipping) cleat (carbonate coated,) very shaly in part, minor slickensides dipping at 30°; white, shaly claystone lenticular band dipping at 5° from 477.77 m to 477.80 m. GBC dips at 5°.		
477.80	478.50	0.70		Shale, grey, minor FMLSS bands, clayey. Irregular, undulose BC.		
478.50	478.56	0.60	100	Laminite, dull coal/bright coal (50:50). GBC.		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
478.56	478.74	0.18	100	Shale, grey, highly slickensided, very crumbly, GBC.		
478.74	479.06	0.32		Dull coal with minor bright coal bands and laminae, abundant carbonate on surfaces of sub-vertically dipping cleat; white-brown shaly claystone bands and lenticles from 478.85 m to 478.87 m, from 478.90 m to 478.94 m and from 478.96 m to 479.00m		
479.06	480.36	1.30		Mudstone, grey, very shaly from 479.06 m to 479.11 m abundant wispy coaly laminae; silty, sandy and shaly with minor cross-bedding (dipping at up to 20°) from 479.26 m to 480.36 m. GBC.		
480.36	485.03	4.67		Laminite, grey-white FMLSS/grey siltstone (50:50) minor cross-bedding 480.36 m to 481.36 m, network of interlocking carbonate veins from 480.96 m to 481.21 m, shaly in part, minor carbonate matrix. GBC.		
485.03	491.51	6.48		MLSS, grey, massive bedding ; FMLSS from 485.03 m to 485.41 m and from 487.36 m to 487.71 m; minor carbonaceous laminae (dipping at up to 5°) from 487.81 m to 488.21 m and from 490.68 m to 491.38 m; minor coaly debris towards base.		
491.51	495.58	4.07	100	Mudstone, brown, very hard; green (pyrite?) disseminated grains from 493.41 m to 493.61 m and minor amounts elsewhere; silty, clayey, sandy from 494.86 m to 495.58 m. GBC.		
495.58	497.17	1.57	99	Carbonaceous mudstone/MLSS (50:50), grey-brown-black, minor distrubed bedding dipping at 10°.		
497.17	499.34	2.17	100	Mudstone, grey, shaly; slickensides from 497.17 m to 497.47 m; laminated with minor light-grey mudstone; sandy bands (dipping at up to 10°) from 498.84 m to 499.34 m BC dips at 10°.		
499.34	509.86	10.45	99	FMLSS/MLSS (40:60), grey, bedding dips at up to 10°, minor carbonaceous laminae; mud-pellets and coaly debris from 503.68 m to 504.03 m; minor coaly debris from 509.54 m to 509.64 m. Undulose BC dips at 5°.		
509.86	510.29	0.42	98	FMLSS/grey siltstone, interbanded (50:50); bedding dips at 10°, minor cross-bedding. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

38				GEOLOGICAL LOG		Page:- 14 of 18
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
510.29	511.75	1.44	99	Mudstone, grey abundant slickensides; carbonaceous mudstone from 510.41m to 510.47m; laminite (carbonaceous mudstone/grey mudstone (50:50)), from 511.24m to 511.58m; dull coal from 511.65m to 511.72m.		
511.75	512.69	0.93	99	FMLSS, grey, very sparsely quartzose; laminite (dull coal/carbonaceous mudstone/FMLSS (50:40:10)) from 511.75m to 512.03m; interbanded FMLSS/carbonaceous mudstone (50:50) from 512.17m to 512.31m.GBC.		
512.69	513.89	1.18	98	MLSS, grey, minor carbonaceous laminae and coaly laminae (dipping at 2°), sparsely quartzose. BC is stepped, slickensided and microfaulted and has an average dip of 5°.		
513.89	514.43	0.54	100	Mudstone, dark-grey, silty, abundant slickensides, minor plant-fossil debris. Slickensided BC.		
514.43	514.58	0.15		Dark-grey mudstone/light-grey MLSS, interbanded (60:40); silty; lenticular-, flaser- and cross-bedding (dips 5°) minor. GBC dips at 5°.		
514.58	514.95	0.37		Mudstone, dark-grey, carbonaceous from 514.89m to 514.93 m, minor bioturbated (?) quartzose (10%) MLSS from 514.93 m to 514.94m, disturbed bedding from 514.93 m to 514.95m, laminite from 514.94m to 514.95m; 4mm wide burrow (?) runs from this unit to 514.99m. BC dips at 2°.		
514.95	515.74	0.79	100	Light-grey FMLSS/dark-grey silty mudstone (60:40), interbanded and laminated from 514.95 to 515.38m. contorted, interdigitating BC 515.38m to 515.53m: dark-grey mudstone with light-grey laminae and bands of FMLSS (10% quartzose) and minor lenticular and flaser bedding. 515.53m to 515.74m: Siltstone, light grey,minor disturbed and contorted bedding, minor dark-grey mudstone bands and laminae. GBC.		
515.74	517.28	1.51	98	Mudstone, grey, shaly in part, minor slickensides (part cone-in-cone), minor dark-grey mudstone and laminite bands, minor microfaulting (soft-sediment?), minor lenticular and flaser bedding. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

38				GEOLOGICAL LOG	Page:- 15 of 18	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
517.28	517.62	0.34	100	Interbanded and laminated light-grey FMLSS/grey muddy siltstone (50:50); minor bioturbation (?), lenticular bedding, cross-bedding and wispy carbonaceous laminae.		
517.62	517.88	0.26		Carbonaceous mudstone, shaly in part, minor plant-fossil fragments and coaly laminae; carbonaceous and grey siltstone with abundant burrows and bioturbation (?). GBC.		
517.88	518.32	0.44		Siltstone, grey; brown mudstone with abundant slickensides from 517.88 m to 517.98 m; minor wispy carbonaceous striae. GBC.		
518.32	518.66	0.34		Interbanded light-grey MLSS/grey silty mudstone (30:70). BC dips at 2°.		
518.66	518.94	0.28		MLSS, light-grey, massive-bedding; minor FMLSS interval with carbonate-coated slickensides and bedding (dipping at 5°) from 518.79 m to 518.94 m. BC is stepped and partially slickensided, with an average dip of 2°.		
518.94	519.41	0.47		Mudstone, grey, minor dark-grey/grey mudstone (50:50) laminite.		
519.41	519.97	0.56		FMLSS, abundant slickensides, minor silty bands and laminae, carbonate-infilled fault with a throw of 2 cm (soft-sediment slumping (?)) towards base.		
519.97	521.85	1.88		Mudstone, grey, silty; carbonaceous siltstone from 520.47 m to 520.85 m; slickensided heavy dull coal (with bedding dipping at 5° and minor grey mudstone lenticles and laminae) from 521.18 m to 521.35 m; grey, flaky shale from 521.35 m to 521.45 m; carbonaceous mud-stone and dull coal from 521.45 m to 521.49 m; slickensided grey mudstone from 521.49 m to 521.59 m. GBC.		
521.85	523.51	1.66	100	Grey siltstone/light-grey FLSS (50:50), minor banding and laminae dipping at up to 5°. GBC dips at 5°.		
523.51	527.52	3.93	98	FMLSS, light-grey, abundant lenticular carbon-aceous laminae. Dipping at 5°, minor cross-bedding and sub-vertically dipping jointing, minor silty bands and laminae. BC dips at 2°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

38				GEOLOGICAL LOG	Page:- 16 of 18	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
527.52	527.99	0.46	98	Mudstone, grey; carbonaceous from 527.52 m to 527.60 m; minor laminite with dark-grey mudstone. GBC.		
527.99	528.79	0.80	100	Laminite, dark-grey/grey mudstone (50:50), bedding dips at 5°; carbonaceous mudstone/dull coal (50:50), shaly and poorly laminated from 528.04 m to 528.19 m; silty carbonaceous mudstone from 528.63 m to 528.79 m. GBC.		
528.79	528.82	0.03	100	MLSS, white, black, poorly sorted. Undulose BC dips at 10°.		
528.82	529.54	0.71	99	FMLSS, grey and dark-grey bands; minor siltstone, mudstone and FLSS laminae dipping at 5°; minor cross-bedding; bioturbation (?) from 528.82 m to 529.02 m. BC dips at 10°.		
529.54	530.27	0.72	99	MLSS, white-grey, abundant carbonate in matrix, secondary calcite veins interlocking in an en-echelon tension gash-like structure. (limestone).		
530.27	531.74	1.44	98	MLSS, light-grey, minor carbonaceous laminae and grey mudstone bands; dark-grey mudstone and minor sandy bands and carbonaceous laminae from 530.37 m to 530.82 m. BC dips at 2°.		
531.74	532.72	0.96	98	Mudstone, dark-grey, carbonaceous in part, slickensided zone from 532.62 m to 532.66 m. GBC.		
532.72	534.09	1.34	98	FMLSS, grey, minor laminae and bands of siltstone, mudstone and FLSS; burrows from 532.72 m to 533.22 m; predominantly mudstone from 533.49 m to 534.05 m; laminite (dull coal/bright coal/grey mudstone (50:30:20)) from 534.05 m to 534.09 m.		
534.09	535.14	1.05	100	FMLSS/mudstone, grey, 50:50. GBC.		
535.14	535.26	0.12		Transition zone (MLSS/medium-grainsize quartzose sandstone (MQSS) (50:50)), poorly-sorted, carbonaceous laminae dipping at 2°. GBC.		
535.26	535.75	0.49	100	MQSS, grey-white; abundant cross-bedding and dark-grey and carbonaceous bands and laminae dipping at up to 10°, minor burrows and wispy carbonaceous laminae.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

38				GEOLOGICAL LOG	Page:-17 of 18	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
535.75	536.30	0.55	100	FMLSS/grey siltstone/carbonaceous mudstone (20:30:50), minor burrows and banding, some lenticular; sparse cross-bedding.		
536.30	542.37	6.07		MQSS, minor bands and laminae of carbonaceous and grey mudstone and siltstone, minor bioturbation (?); sub-vertically dipping joint with carbonate-infilling from 536.47 m to 536.59 m; silty mudstone (interbanded with FLSS and FQSS) from 536.30 m to 536.62 m and from 536.90 m to 537.08 m; minor carbonaceous laminae dipping at up to 30°; minor festoon cross-bedding; carbonaceous siltstone with minor FLSS bands and laminae from 537.93 m to 538.05 m; FMLSS, dark-grey, poorly-sorted (greywacke (?)) with a 2 cm-wide sinuous burrow from 538.05 m to 538.05 m to 538.56 m; sparkling milky-white in colour from 541.37 m to 542.37 m; minor sub-vertically dipping jointing.		
542.37	543.29	0.92		Mudstone, carbonaceous, silty, minor coaly bands and laminae, sandy towards base.		
543.29	549.36	6.07		MQSS (see description of 6.07 m unit of MQSS above); milky-white in colour; large-scale planar cross-bedding (dipping at up to 20°); minor burrows and festoon cross-bedding; cark-grey to carbonaceous mudstone and siltstone bands and laminae from 546.98 m to 547.19 m, from 547.39 m to 547.66 m and from 548.96 m to 549.36 m. GBC.		
549.36	552.08	2.72	100	Fine-medium grainsize quartzose sandstone (FMQSS), milky-white from 550.46 m to 552.08 m; abundant green-grey and carbonaceous bands and laminae from 549.66 m to 550.46 m; grey siltstone with angular quartz-clasts (3 mm in diameter) from 549.36 m to 549.66 m; slickensided and stepped BC. Gritty from 552.05 m to 552.08 m.		
				(BASE OF "TRIASSIC" SUCCESSION UPPER PARMEENER SUPER-GROUP)		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

38	GEOLOGICAL LOG	Page:- 18 of 18

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
552.08	558.59	6.51	100	Siltstone, dark-grey, abundant angular quartz grits (up to 5 mm in diameter); grey-blue carbonate vein (5 mm wide) dipping at 20° from 552.11 m to 552.12 m; brown and clayey from 552.08 m to 552.23 m; joint (dipping at 45°) from 552.33 m to 552.38 m; carbonate veins (en-echelon tension gash-like structure) from 552.43 m to 552.51 m; shaly from 552.68 m to 552.98 m; minor slickensides and shale development from 553.88 m to 554.33 m; angular, grey, tabular, quartzite cobble (at least 1 cm x 3 cm), from 556.37 m to 556.41 m; conglomerate band consisting of quartzitic cobbles with long axes dipping from 45° to 60° to sub-vertically and quartzose grit from 556.93 m to 557.01 m.		

(UPPER MARINE SEQUENCE OF THE LOWER PARMEENER SUPER-GROUP).

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:- Upper Marine Sequence of the Parmeener Super Group.

REMARKS:- The roof of the probable Duncan seam is at an R.L. of 410.49 m and is 2.83 m thick.

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS					

GEOLOGICAL LOG

Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	28	7	25	Dolerite talus (dolerite boulders, red clay and dolerite grit).		
28	295.21	267	99	Dolerite, grey, fine-medium grainsize to medium grainsize, abundant sub-vertical to sub-horizontal joints, minor quartz-veins and intersections of chlorite, ?talc and calcite. (Approximately 0.10 m of dolerite has been sampled at 3 m intervals and stored for future analysis). Towards 294 m, the dolerite is fine-grained, grading down to dolerite which, at the contact, consists of 2 mm green-grey cuboidal phenocrysts (?pyroxene) in a glassy dark-grey groundmass. The bottom contact is irregular, dipping at between 5° to 10°.		
295.21	296.72	1.51	100	Mudstone, hornfelsed, silicified; green, grey and white interbanded mudstone and claystone bands; minor siltstone bands (apparently hornfelsed to a lesser degree than the mudstone and claystone bands); abundant microfaulting (normal throw); ?sideritic veins (up to 3 mm thick) in sub-vertically dipping joints; minor slickensides and mudstone laminae; minor contorted bedding dipping at up to 20°. Gradational bottom contact (GBC).		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 39	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:- FINGAL TIER
R.L. OF SITE:- 778.67m	SITE SURVEY ON MAP No.:-		CORE SIZE:- NQ
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 12th July 1979
INCLINATION OF HOLE:- Vertical	DRILL:- Longyear 38		COMPLETED:- 6th Sept. 1979
CO-ORDS OF SITE:- 587 224.1E 5 386 540.0N	DRILLER:- G. Mitchell, S. Mitchell		FINAL DEPTH (m):- 522.26

M1020

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
296.72	297.50	0.78	100	Interbanded, carbonaceous mudstone/grey mudstone/ cindered dull coal (30:50:20), hornfelsed, minor laminae and slickensides, broken core (from drilling). GBC.		
297.50	299.56	2.06		Mudstone, grey, hornfelsed, minor siltstone bands and laminae; abundant joints (dipping at between 45° and 60°) from 298.53 m to 299.56 m; bedding dips at 5° in part, green-grey mudstone at base, broken core from 299.40 m to 299.56 m; slickenside from 299.45 m to 299.49 m.		
299.56	299.57	0.01		Dull coal/carbonaceous mudstone (50:50), hornfelsed.		
299.57	299.92	0.35		Carbonaceous mudstone, minor calcareous veins in sub-vertically dipping joints. GBC.		
299.92	300.08	0.16		Siltstone, grey, grades to fine-grainsize lithic sandstone (FLSS) at base, slickensides (dipping at 45°) from 299.96 m to 300.00 m and from 300.04 m to 300.08 m. GBC.		
300.08	302.22	2.14		Laminite, fine-medium grainsize lithic sandstone (FMLSS)/ grey siltstone and mudstone (50:50), minor contorted flaser- and cross-bedding dipping at up to 30°, minor intraformational conglomerate bands and coaly laminae, slickensides (dipping at 45°) from 300.26 m to 300.30 m and from 300.84 m to 300.89 m, sigmoidal slickenside (dipping sub-vertically) from 300.45 m to 300.58 m, grades to MLSS at base. GBC.		
302.22	320.82	18.60	100	Medium grainsize lithic sandstone (MLSS), grey, abundant coaly debris and carbonaceous laminae (?cindered) and contorted bedding (dipping at up to 30°) from 302.22 m to 305.63m, minor carbonaceous mudstone and siltstone bands from 302.80 m to 307.30 m, minor cross-bedding, mud-pellet conglomerate band from 306.87 m to 306.94 m, FMLSS bands from 307.30 m to 308.60 m, coaly debris and carbonaceous laminae (dipping at up to 20°) from 309.33 m to 309.55 m; minor coaly debris and carbonaceous mudstone pebbles and bands, and carbonaceous laminae (dipping at up to 30°) from 309.85 m to 310.17m,		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

39		GEOLOGICAL LOG		Page:- 3	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core / Sample
				carbonaceous mudstone bands and laminae from 310.70 m to 311.30 m; coaly debris, slickensides (dipping at 45°), carbonaceous mudstone pebbles and coarse-grainsize lithic sandstone (CLSS) from 311.43 m to 311.58 m; minor carbonaceous laminae (dipping at 5°) and coaly debris from 314.07 m to 314.27 m; minor grey mudstone pebbles and slickensides from 314.52 m to 314.64 m; minor carbonaceous laminae (dipping at 5°) from 316.74 m to 316.84 m ; FMLSS bands from 318.66 m to 318.79 m and from 318.97 m to 319.07 m; coaly debris, carbonaceous laminae and mudstone pebbles from 320.45 m to 320.55 m. Bottom contact dips at 10°.	
320.82	322.00	1.18	100	FMLSS, grey-white, minor carbonaceous laminae dipping at 5°. GBC.	
322.00	324.13	2.13		MLSS, minor coaly debris from 323.13 m to 323.63 m, grey mudstone band from 323.63 m to 323.64 m, grey mudstone cobble from 323.69 m to 323.76 m, carbonaceous mudstone band from 323.96 m to 324.00 m; slickensided grey and carbonaceous mudstone with minor mud-pellets from 324.05 m to 324.13 m. Bottom contact dips at 5°.	
324.13	324.83	0.70		FMLSS, grey, massive bedding dipping at 5°, clayey. Bottom contact dips at 10°.	
324.83	325.06	0.23		FLSS, grey, abundant carbonaceous laminae, minor mudstone pebbles, bedding dips at 5°.	
325.06	325.34	0.28		Intraformational conglomerate (grey mudstone cobbles in a matrix of MLSS), shaly, minor coaly debris. Undulose bottom contact.	
325.34	325.94	0.60		FLSS, grey, abundant carbonaceous laminae (dipping at up to 10°), minor mudstone pebbles and bands from 325.71 m to 325.94 m, abundant coaly debris. GBC.	
325.94	328.23	2.29	100	MLSS, grey, massive bedding dipping at up to 5°, carbonaceous laminae and coaly debris from 327.30 m to 327.52 m. Irregular bottom-contact.	

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

39				GEOLOGICAL LOG	Page:- 4	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
328.23	328.45	0.22	100	FLSS; minor MLSS bands, coaly debris, mud-pellets and carbonaceous mudstone bands.		
328.45	328.50	0.05		Dull and bright coal (50:50). GBC.		
328.50	328.53	0.03		Carbonaceous mudstone. Irregular bottom contact dips at 5°.		
328.53	329.94	1.41		Mudstone, grey, minor carbonaceous mudstone bands and slickensides. Irregular bottom-contact dips at 5°.		
329.94	330.34	0.40		Dull coal, minor bright coal (5%) and carbonaceous mudstone bands (10%); grey-brown, clayey mudstone bands from 330.05 m to 330.06 m, from 330.11 m to 330.12 m and from 330.19 m to 330.25 m. GBC.		
330.34	330.67	0.33		Interbanded, grey mudstone/carbonaceous mudstone (50:50) with minor coaly laminae. Undulose bottom contact.		
330.67	331.48	0.81		Mudstone, grey, silty towards base, minor slickensides and jointing from 331.17 m to 331.48m. Irregular bottom contact.		
331.48	331.50	0.02		FLSS, grey, massive. Irregular bottom contact.		
331.50	348.00	16.50	100	MLSS, grey, massive bedding, calcareous veins (dipping at 45°) from 331.61 m to 331.71 m and from 332.13 m to 332.25 m, contorted and lenticular carbonaceous laminae (dipping at 10°) from 334.10 m to 334.30 m; sub-vertically dipping joint from 335.25 m to 335.64 m and from 337.38 m to 337.57 m, minor carbonaceous laminae from 337.38 m to 337.57 m, minor lengths of core with rippled -surface (from drilling), FMLSS interval from 340.67 m to 342.67 m, minor calcareous matrix from 341.67 m to 343.65 m, minor carbonaceous laminae from 342.47m to 343.65 m, mudstone band from 344.67 m to 344.79 m; minor mudstone bands, carbonaceous laminae, mudstone pebbles, coaly debris and slickensides from 344.79 m to 348.00 m, joint (dipping at 45°) from 347.90 m to 348.00 m. Distinct, sub-horizontally-dipping bottom-contact.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
348.00	348.17	0.17	100	Mudstone, grey, minor slickensides at base. GBC.		
348.17	348.26	0.09	100	Laminite, carbonaceous mudstone/grey mudstone (50:50), mind micro-faulting and contorted bedding. Undulose, irregular bottom-contact dips at 2°.		
348.26	348.50	0.21	88	Dull coal, minor bright-coal bands, sub-vertically dipping kaolinite veins, minor carbonaceous mudstone bands, broken core from 348.44 m to 348.50 m.		
348.50	348.59	0.09	100	Carbonaceous mudstone. Bottom contact dips at 10°.		
348.59	348.78	0.19		Dull coal, carbonaceous mudstone from 348.70 m, to 348.78 m.		
348.78	349.39	0.61		Mudstone, grey, silty at base, minor carbonaceous mudstone bands ; slickensides from 348.80 m to 348.88 m, from 348.90 m to 348.92 m and from 349.03 m to 349.04 m. Bottom contact dips at 5°.		
349.39	349.71	0.32		FLSS, grey and dark-grey, gently-dipping cross-bedding . GBC.		
349.71	356.76	7.05		FMLSS, grey, minor MLSS intervals, minor carbonacous laminae dipping at up to 5°, minor FLSS intervals. GBC.		
356.76	365.71	8.95		MLSS, grey, massive bedding, minor carbonaceous laminae dipping at up to 10°, FMLSS interval from 358.40 m to 362.50 m. Bottom contact dips at 2°.		
365.71	366.01	0.30		COAL SECTION: Dull coal, 10% bright-coal bands. GBC.		1A
366.01	366.15	0.14		(DUNCAN SEAM)! Carbonaceous mudstone, minor lenticular grey-brown-white mudstone bands. GBC.		
366.15	366.32	0.17		Mudstone, grey, silty, slickenside (dipping at 45°) from 366.18 m to 366.22 m. GBC.		
366.32	367.59	1.27		Shale, grey, clayey, minor slickensides and calcareous veins. GBC.		
367.59	368.18	0.59	100	Mudstone, grey, shaly, abundant slickensides (dipping at 30° to 45°) and joints, minor calcareous veins, green shale from 368.12 m to 368.18 m. Bottom contact dips at 30.		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% Ash (Oven-dried basis)
1A	365.71	368.18	2.47	100	85.8 (roof)
1B	368.18	369.25	1.07	100	39.1
1C	369.25	371.01	1.76	100	26.3 (floor)
Weighted average (1B and 1C)					31.1

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
368.18	368.25	0.07	100	COAL SECTION: (cont.) Carbonaceous mudstone; brown, dusty stain on surface when dry; minor sub-vertically dipping 1 mm thick calcareous veins. GBC.		
368.25	368.31	0.06		Heavy dull coal, slickenside (dipping at 30°) from 368.29 m to 368.31 m. GBC.		
368.31	368.43	0.12		Dull coal, minor calcareous veins (1 mm thick and dipping from 45° to 90°) on cleat surface. GBC.		
368.43	368.48	0.05		Bright coal bands (20%), brown claystone (50%), carbonaceous mudstone laminae and debris (30%). GBC.		
368.48	368.56	0.08		Dull coal, bright coal laminae (10%), abundant sub-vertically dipping ?kaolinite veins. GBC.		1B
368.56	368.59	0.03		Carbonaceous mudstone (20%), bright coal (40%), white claystone bands and laminae (40%). GBC.		
368.59	369.07	0.48		Dull coal with 5% bright coal bands and laminae, sub-vertically dipping cleat (0.01 m spacing) with kaolinite-coated surfaces, minor clay pellets and dispersed clayey clasts, bright coal and creamy-brown claystone band (dipping at 3°) from 369.01 m to 369.02 m. GBC.		
369.07	369.18	0.11		Dull coal with minor grey mudstone laminae and bright coal bands, minor ?kaolinite veins on sub-vertically dipping cleat surfaces. GBC.		
369.18	369.25	0.07	100	Interbanded, grey-brown clayey mudstone/bright cellular-textured coal (50:50), minor carbonaceous mudstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
369.25	370.30	1.05	100	COAL SECTION: Dull coal, 5% bright- coal bands; (cont.) Kaolinite coating on sub-vertically-dipping cleat-surfaces, minor claystone and carbonaceous mudstone bands and laminae; broken core due to well-developed sub-horizontally- and sub-vertically-dipping cleat.		
370.30	370.44	0.14		Laminite, dull coal/bright coal (70:30), minor dull coal bands, lenticular bright coal laminae (dipping at up to 5°), core parts readily along sub-vertically-dipping cleat. Compacted and sub-vertically-dipping 1 to 2mm-wide ?rootlet from 370.42 m to 370.44 m. Bottom contact dips at 5°.		10
370.44	370.45	0.01		Bright coal band dipping at 5°, well-developed cleat, microfault offsets this band by 0.01 m in the centre of the core.		
370.45	370.46	0.01		Claystone, white-grey, lenticular, microfault (dipping at 45°) offsets this band by 0.01 m. Bottom contact (on either side of the microfault) dips at 5°.		
370.46	370.54	0.08		Dull coal with minor bright-coal laminae. GBC.		
370.54	370.66	0.12		Laminite, dull coal/bright coal/grey mudstone (60:20:20). GBC. Well-developed sub-vertically-dipping cleat.		
370.66	371.01	0.35		Dull coal, bright coal from 370.99 m to 371.01 m, core broken along sub-vertically-dipping cleat (0.01 m spacing).		
371.01	371.04	0.03	100	Carbonaceous mudstone/grey mudstone (50:50), minor plant-fossil fragments and carbonaceous debris, sub-vertically-dipping joint through centre of core. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

39				GEOLOGICAL LOG	Page:- 8	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
371.04	371.55	0.51	100	Mudstone, grey, silty. Irregular bottom contact.		
371.55	371.62	0.07		FLSS, brown-grey, 50% clay matrix. Bottom contact dips at 10°.		
371.62	371.72	0.10		Mudstone, grey-brown, silty. GBC.		
371.72	372.44	0.72		Mudstone/siltstone (50:50), grey and grey-brown, minor carbonaceous laminae dipping at 5°, sandy at base. GBC.		
372.44	372.89	0.45		FMLSS, grey to grey-brown. GBC.		
372.89	373.34	0.45		Interbedded, FMLSS/grey mudstone (50:50), minor carbonaceous laminae dipping at up to 5°. GBC.		
373.34	373.40	0.06		Transition zone (FMLSS and mudstone grading to MLSS).		
373.40	387.36	13.96		MLSS, grey, abundant massive-bedding, joints (dipping from 45° to 90°) from 375.34 m to 376.34 m, mud-pellets (up to 0.03 m diameter) from 380.79 m to 380.89 m, grey mudstone and siltstone pebbles and cobbles (up to 0.10m in diameter) with minor carbonaceous mudstone bands and coaly debris from 380.89 m to 381.49 m, minor FLSS and FMLSS beds with carbonaceous laminae (dipping at 5°) from 381.49 m to 383.29 m, CLSS interval from 383.29 m to 384.01 m, rippled core surface (due to drilling) from 384.49 m to 384.99 m, minor carbonaceous laminae (dipping at up to 10°) from 384.99 m to 385.99 m and from 386.10 m to 387.36 m, minor cross-bedding and grey mudstone bands (contorted and dipping at up to 30°) with FMLSS intervals from 383.89 m to 387.36 m, grey-green from 387.16 m to 387.36 m, irregular bottom-contact dips at 25°.		
387.36	387.56	0.20	100	Laminite, brown mudstone/grey mudstone/bright coal (50:30:20), contorted bedding and disseminated pyrite/marcasite? from 387.36 m to 387.46 m.GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
387.56	387.62	0.06	100	Grey mudstone/brown-grey claystone (50:50). Undulose bottom-contact.		
387.62	387.67	0.05		Dull coal/carbonaceous shale (50:50), calcareous vein (1 mm wide and dipping at 45°) from 387.62 m to 387.67 m. Undulose bottom-contact.		
387.67	387.81	0.14		Dull coal, minor bright-coal laminae, minor breaks in core along sub-vertically-dipping cleat. GBC.		
387.81	387.95	0.14		Laminite, brown mudstone/grey mudstone/bright coal (50:30:20). Undulose bottom-contact.		
387.95	388.89	0.94		Interbedded, grey mudstone/FMLSS (50:50), bedding dips at up to 30°, minor fine-scale cross-bedding from 388.84 m to 388.89 m, twin joints (0.01 m separation and dipping at 45°) from 388.45 m to 388.55 m, intraformational conglomerate (contorted clastic?dyke) from 388.59 m to 388.89 m. GBC.		
388.89	401.96	13.07	100	MLSS, grey, predominantly massive bedding; large-scale cross-bedding and contorted bedding with ? rollover structures, brown muddy laminae and bands and minor carbonaceous laminae (dipping at up to 30°) from 389.29 m to 389.59 m; intraformational conglomerate (siltstone, mudstone pebbles and cobbles up to 0.10 m in diameter, angular to rounded) from 391.42 m to 391.87 m; abundant carbonaceous laminae (dipping at 5°) from 391.21 m to 391.25 m; FMLSS interval from 390.92 m to 391.12 m; coaly debris and carbonaceous laminae (dipping at 10°) from 390.79 m to 390.88 m; joints (dipping at between 45° and 60°) with minor calcareous veins from 390.69 m to 390.75 m, from 390.71 m to 390.75 m, from 390.62 m to 390.72 m (conjugate), from 390.48 m to 390.57 m, from 390.04 m to 390.12 m and from 389.98 m to 390.06 m; CLSS from 392.91 m to 393.59 m; FMLSS intervals with minor coaly debris from 394.15 m to 394.63 m, from 394.63 m to 395.81 m, from 399.27 m to 399.82 m and from 400.96 m to 401.96 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				Minor coaly debris, carbonaceous laminae, mud-pellets (o.02 m in diameter) and planar cross-bedding (dipping at up to 5°) from 400.42 m to 401.02 m and from 401.42 m to 401.96 m.GBC.		
401.96	404.10	2.14	100	FMLSS, grey, minor massive bedding, minor carbonaceous laminae from 401.96 m to 402.06 m and from 402.42 m to 402.59 m, grey mudstone and MLSS bands from 402.42 m to 402.59 m, intraformational conglomerate from 402.59 m to 403.16 m with calcareous matrix from 402.91 m to 403.16 m (FMLSS band).		
404.10	405.18	1.08		Mudstone, blue-grey, silty, shaly. Broken core and ground-up sludge (clayey) from 405.08 m to 405.18 m. GBC.		
405.18	406.15	0.97		FMLSS, abundant carbonaceous-mudstone and - siltstone bands and laminae, minor cross-bedding (dipping at up to 5°). Ground-up sludge zone from 406.05 m to 406.12 m. Bottom contact dips at 5°.		
406.15	408.21	2.06		Laminite, grey mudstone/carbonaceous mudstone (60:40), minor silty and sandy laminae, slickensides (dipping at 45°) from 406.81 m to 406.86 m and from 407.24 m to 407.28 m. Undulose bottom-contact.		
408.21	408.30	0.09		MLSS, abundant mud-pellets (5mm diameter), minor mudstone laminae. Bottom contact dips at 10°.		
408.30	409.04	0. 74		Mudstone, dark-grey; minor silty, sandy and carbonaceous laminae; shaly MLSS with calcareous en-echelon tension-gash-like structures from 408.82 m to 409.04 m (with minor dark-grey silty mudstone bands).		
409.04	410.14	1.10	100	Mudstone, grey, massive bedding, slickenside zone from 409.44 m to 409.59 m; calcareous band with coaly debris and minor plant-fossil fragments from 409.72 m to 409.77 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
410.14	410.77	0.63	100	Laminite, dark-grey mudstone/grey siltstone/light-grey FLSS (30:50:20), bedding dips at up to 10°, slickenside zone from 410.75 m to 410.77 m. Slickensided bottom-contact.		
410.77	410.86	0.09		COAL SECTION: Carbonaceous mudstone/heavy dull coal (60:40), slickenside zone (slickensides dipping at up to 30°) resulting in broken core from 410.77 m to 410.83 m.		
410.86	410.95	0.09		Dull coal, minor bright-coal laminae. Bottom contact dips at 10°.		
410.95	410.98	0.03		Claystone, grey-brown, minor carbonaceous laminae and calcareous veins. Undulose bottom-contact.		
410.98	411.04	0.06		Heavy dull coal.	2A	
411.04	411.06	0.02		Shale, grey-brown, minor plant-fossil fragments.		
411.06	411.37	0.31		Interbanded, heavy dull coal/carbonaceous mudstone (50:50), minor brown mudstone laminae dipping at up to 5°. GBC.		
411.37	412.12	0.75		Dull coal, minor carbonaceous- and brown-mudstone laminae and bands, sub-vertically-dipping cleat (core breaks readily), cellular-textured bright coal with intermeshing 1 mm thick calcareous veins from 411.61 m to 411.68 m.		
412.12	412.13	0.01		Mudstone, grey, lenticular band.		
412.13	412.58	0.45	100	Dull coal; heavy dull coal and carbonaceous mudstone bands (25%); 0.01 m cleat spacing (with herringbone fracture pattern) from 412.21 m to 412.26 m; abundant grey and carbonaceous mudstone bands (dipping at 5°) from 412.26 m to 412.34 m; core parts readily along sub-horizontally and sub-vertically dipping cleat-surfaces; red-brown surficial coloration from 412.43 m to 412.58 m. Bottom contact dips at 5°.	2B	

(to be cont.)

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% Ash (Oven-dried basis)
2A	410.77	412.13	1.36	100	53.9
2B	412.13	413.32	1.19	100	55.3

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
412.58	412.64	0.06	100	COAL SECTION: (cont.) Laminite, dull coal/bright coal (70:30), minor carbonaceous mudstone. Bottom contact dips at 5°.		2B (cont.)
412.64	412.67	0.03		Claystone, brown, shaly.		
412.67	412.70	0.03		Heavy dull coal.		
412.70	412.71	0.01		Mudstone, grey-brown, minor carbonaceous laminae at base.		
412.71	412.75	0.04		Claystone, brown, shaly, flakey.		
412.75	412.88	0.13		Dull coal, sigmoidal cleat dipping at 45° from 412.83 m to 412.88 m.		
412.88	412.91	0.03		Laminite, brown mudstone/carbonaceous mudstone (50:50), shaly, clayey, calcareous at base. Irregular, undulose bottom-contact.		
412.91	412.98	0.07		Claystone, brown; calcareous band (with a texture similar to en-echelon tension gashes) at base. Irregular bottom contact.		
412.98	413.29	0.31		Dull coal, abundant slickensides (dipping between 45° and 60°), kaolinite on sub-vertically dipping cleat. Slickenside at base.		
413.29	413.32	0.03		Dull coal/grey mudstone (50:50), abundant slickensides and broken core. Slickenside at base.		
413.32	416.16	2.84	100	Mudstone, grey, silty, minor carbonaceous flecks, slickenside (dipping at 30°) from 413.39 m to 413.41 m, slickenside (dipping at 45°) from 413.59 m to 413.67 m and from 416.03 m to 416.09 m, carbonaceous mudstone/dull coal band from 415.73 m to 415.81 m, slickenside zone from 415.12 m to 415.17 m, minor plant-fossil fragments, slickenside (dipping at 20°) from 416.13 m to 416.16 m. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

39				GEOLOGICAL LOG	Page:- 13	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
416.16	416.70	0.54	100	Interbanded, grey FMLSS/grey mudstone/ carbonaceous mudstone (60:30:10). GBC.		
416.70	417.88	1.18		Mudstone, grey, minor carbonaceous laminae and coaly debris, bedding dips at up to 10°, slickenside (dipping at 30°) at 416.92 m, broken core (from drilling) from 416.92 m, to 417.02 m, slickenside (dipping at 60°) from 417.32 m to 417.43 m; contorted FMLSS bands with minor carbonaceous laminae from 417.46 m to 417.69 m; joint (dipping sub-vertically) from 417.52 m to 417.69 m; slickenside zone (slickensides dipping at 60°) with thin calcareous veins from 417.69 m to 417.82 m;laminite (dark-grey and light-grey mudstone) from 417.73 m to 417.88 m. Irregular bottom-contact dips at 10°.		
417.88	417.93	0.05		COAL SECTION: Heavy dull coal/carbonaceous mudstone (50:50), brown claystone from 417.88 m to 417.89 m. GBC.		
417.93	418.23	0.30		Dull coal with sub-vertically dipping cleat. GBC.		
418.23	418.24	0.01		Dull coal/carbonaceous mudstone/ grey mudstone (Transition zone).		3A
418.24	418.29	0.05		Claystone, brown. GBC.		
418.29	418.59	0.30		Dull coal; heavy dull coal from 418.49 m to 418.59 m. Undulose bottom contact.		
418.59	418.62	0.03		Claystone/brown-grey mudstone (50:50). Irregular bottom-contact dips at 10°.		3B (to be Cont.)
418.62	418.64	0.02		Carbonaceous mudstone.Irregular bottom-contact.		
418.64	418.69	0.05	100	Claystone/brown-grey mudstone (50:50). GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% Ash (Oven-dried basis)
3A	417.88	418.59	0.71	100	52.2
3B	418.59	419.36	0.77	100	45.5

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
418.69	418.77	0.08	100	COAL SECTION: (cont.) Dull coal/carbonaceous mudstone (60:40). GBC.		
418.77	418.80	0.03		Laminite, dull coal/grey mudstone (60:40).		3B (cont.)
418.80	419.36	0.56	100	Dull coal, minor brown mudstone bands and laminae from 418.87 m to 418.90 m. Undulose GBC dips at 5°		
419.36	420.77	1.39	99	Mudstone, grey, silty, clayey, minor carbonaceous laminae dipping at 10° from 419.53 m to 419.93 m, laminite (grey and carbonaceous mudstone/grey siltstone/FMLSS (50:25:25)) with minor cross-bedding from 419.63 m to 420.05 m; slickenside zone (broken core), shaly, coaly debris and carbonaceous laminae (bedding dipping at 20°) from 420.08 m to 420.73 m; bright coal from 420.05 m to 420.08 m; lenticular creamy-brown claystone band with irregular top and bottom contacts from 420.73 m to 420.75 m.		
420.77	421.06	0.29	100	Siltstone, grey, minor mottled FLSS bands.		
421.06	421.69	0.63		FMLSS, grey, minor cross-bedding (dipping at 10°), minor coaly debris and carbonaceous laminae, minor MLSS at base.		
421.69	422.03	0.34		Mudstone, grey, minor coaly debris and carbonaceous laminae from 421.87 m to 421.98 m, slickenside (dipping at 45°) from 421.94 m to 421.98 m. GBC.		
422.03	422.91	0.88		FLSS, grey, silty, contorted carbonaceous laminae from 422.15 m to 422.45 m, minor FMLSS bands and cross-bedding. GBC.		
422.91	423.91	1.00		Interbanded, FMLSS/dark-grey siltstone/grey mudstone, minor laminae, abundant fine-scale cross-bedding (dipping at 10°), abundant FMLSS from 423.31 m to 423.91 m. GBC.		
423.91	424.46	0.55	100	FMLSS, grey, minor FLSS and siltstone bands. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
424.46	435.42	10.96	100	MLSS, grey, abundant massive bedding, coaly debris at 424.56 m, minor FMLSS intervals, broken core from 425.94 m to 425.99 m, coaly debris with carbonaceous laminae and clay bands from 428.64 m to 428.94 m; interbanded MLSS/grey and carbonaceous mudstone and siltstone (50:50) (bedding dipping at up to 20°) from 428.94 m to 429.16 m (with minor intra-formational conglomerate); laminite (carbonaceous mudstone/brown claystone (70:30)) and minor cross-bedding (dipping at 10°) from 430.05 m to 430.38 m; abundant carbonaceous bands and laminae and coaly debris from 430.38 m to 432.01 m;		
435.42	436.02	0.60		Laminite, grey mudstone/dark-grey mudstone (50:50), silty, fine-scale cross-bedding. GBC.		
436.02	436.32	0.30		COAL SECTION: Carbonaceous mudstone; minor grey mudstone laminae. GBC.		4A
436.32	436.98	0.66		Interbanded, clayey grey FMLSS/carbonaceous mudstone (60:40), minor dark-grey mudstone laminae and fine-scale cross-bedding. GBC.		4A
436.98	437.16	0.18		Carbonaceous mudstone, minor grey mudstone laminae. Undulose bottom-contact.		4A
437.16	437.40	0.24		Dull coal, minor crumbly bright-coal bands, sub-vertically dipping cleat, grey-brown mudstone band from 437.34 m to 437.35 m, grades to heavy dull coal at base.		4B
437.40	437.43	0.03		Claystone, creamy-brown. Bottom contact dips at 5°.		4B
437.43	437.56	0.13	100	Dull coal/carbonaceous mudstone (50:50), minor bright-coal bands and laminae, bedding dips at 10. GBC.		4B

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% Ash (Oven-dried basis)
4A	436.02	437.16	1.14	100	84.0
4B	437.16	437.56	0.40	100	56.7

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
437.56	439.33	1.77	100	Mudstone, grey, silty, clayey, abundant slickensides and calcareous veins. GBC.		
439.33	440.05	0.72		Shale, grey-green, clayey (swells when wet), slickenside (dipping at 45°) from 439.39 m to 439.44 m. GBC.		
440.05	443.18	3.13		Mudstone, grey, silty, clayey, cross-bedding (dipping at up to 30°) from 440.05 m to 440.20 m, abundant siltstone laminae, abundant bedding dipping at 5°, calcareous band from 441.37 m to 441.51 m, sandy towards base. GBC.		
443.18	446.45	3.27		MLSS, grey, minor bands and laminae of carbonaceous mudstone, bedding dips at 5°, abundant CLSS and FMLSS intervals, abundant coaly debris and carbonaceous laminae from 445.84 m to 446.04 m. GBC.		
446.45	447.31	0.86		FMLSS/MLSS (50:50), grey, massive bedding. Irregular bottom-contact dips at 5°.		
447.31	447.40	0.09		Mudstone, grey-brown, minor bright coaly laminae dipping at 5°, lenticular mudstone bands. Slickensided bottom contact.		
447.40	448.38	0.98		Mudstone, grey-blue, minor carbonaceous laminae and slickensides. GBC.		
448.38	448.52	0.14		Transition zone (interbedded mudstone/claystone). GBC.		
448.52	450.40	1.88		Claystone, grey-brown, minor grit, abundant carbonaceous debris and slickensides from 449.53 m to 449.98 m, slickenside (dipping at 30°) from 450.14 m to 450.18 m. GBC.		
450.40	451.43	1.03		Claystone, green-grey, shaly. GBC.		
451.43	452.03	0.60	100	Transition zone (Laminite, dark-grey mudstone/green-grey shaly claystone (50:50)). GBC.		
452.03	452.98	0.89	94	Shale, grey, minor carbonaceous laminae at 452.03 m. GBC.		
452.98	453.11	0.13	100	Laminite, grey shale/carbonaceous shale (50:50). GBC.		
453.11	453.17	0.06	100	Carbonaceous mudstone, silty. Bottom contact dips at 5°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

39	GEOLOGICAL LOG	Page:- 17

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
453.17	453.69	0.52	100	Mudstone, grey, abundant coaly debris from 453.17 m to 453.47 m, bedding dips at 20°, silty from 453.49 m to 453.69 m. GBC.		
453.69	454.61	0.92		Laminite, siltstone/mudstone (50:50), grey. GBC.		
454.61	456.07	1.46		Laminite, FMLSS/carbonaceous mudstone (70:30), fine-scale cross-bedding from 455.87 m to 456.07 m. GBC.		
456.07	457.10	1.03		Laminite, FMLSS/grey and darkgrey mudstone and siltstone (70:30), abundant cross-bedding. GBC.		
457.10	457.77	0.67		FMLSS, brown-grey, clayey, muddy, calcareous matrix, very hard. Irregular bottom-contact.		
457.77	460.63	2.86		FMLSS, grey, minor carbonaceous laminae from 457.77 m to 458.57 m, massive bedding from 458.57 m to 459.08 m; minor dark-grey siltstone laminae and bands, carbonaceous laminae and abundant fine-scale trough cross-bedding from 459.08 m to 460.63 m.		
460.63	461.27	0.64		MLSS, grey, massive. Bottom contact dips at 15°.		
461.27	462.23	0.96		Laminite, grey FLSS/dark-grey siltstone (50:50), bedding dips at 5°, minor grey mudstone bands and laminae. GBC.		
462.23	462.52	0.29		Transition zone.		
462.52	466.56	4.04		MLSS, grey, massive bedding, minor carbonaceous laminae from 463.72 m to 464.22 m, abundant carbonaceous laminae and coaly debris with minor cross-bedding (dipping at 5°); slickenside (dipping at 30°) at 466.56 m.		
466.56	469.21	2.65	100	Mudstone, grey, silty, sandy; carbonaceous mudstone intervals from 466.61 m to 466.81 m, from 467.19 m to 467.25 m and from 467.81 m to 467.86 m; slickensides (dipping at 45°) at 466.56 m, from 467.16 m to 467.26 m (zone) and from 467.56 m to 467.93 m (zone;); laminite (dark-grey mudstone/grey mudstone (50:50)) from 468.37 m to 468.67 m; dull coal from 468.67 m to 468.74 m and from 468.81 m to 468.90 m; carbonaceous mudstone from 468.90 m to 468.98 m;		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

39	GEOLOGICAL LOG				Page:- 18
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core / Sample
				medium-grainsize quartzose sandstone (MQSS) with abundant coaly traces and bioturbation from 468.99 m to 469.21 m. GBC.	
469.21	469.40	0.19	100	Interbanded, carbonaceous mudstone/dirty FMLSS (50:50), silty, muddy, flaser bedding, minor bioturbation, minor laminae. Bottom contact dips at 5°.	
469.40	472.66	3.25	99	Laminite, FMLSS/grey mudstone (50:50); slickensides (dipping at 30°) from 470.75 m to 470.79 m, from 470.83 m to 470.85 m and from 470.89 m to 470.91 m; shaly; minor carbonaceous mudstone; broken core (due to abundant slickensides) from 470.94 m to 471.04 m; carbonaceous shale from 470.94 m to 470.96 m; bedding dips at up to 20°; microfault with 0.01 m normal throw at 60° from 471.21 m to 471.29 m; slickenside (dipping at 45°) from 471.33 m to 471.37 m; contorted bedding and minor bioturbation from 471.39 m to 471.61 m. Irregular bottom-contact.	
472.66	474.55	1.89	100	Mudstone, grey; slickensides (dipping at 30°) from 472.67 m to 472.70 m and from 472.78 m to 472.82 m (results in broken core); core parts readily along cone-in-cone structure and sub-horizontally dipping bedding-planes; minor coaly debris; abundant slickensides from 473.98 m to 474.55 m. Slickensided basal-contact.	
474.55	476.49	1.94		Interbanded, FMLSS/grey mudstone/grey siltstone (30:40:30), abundant laminae, minor slickensides, bedding dips at 10°. Bottom contact dips at 10°.	
476.49	476.52	0.03		Laminite, dull coal/bright coal (50:50). Bottom contact dips at 2°.	
476.52	476.58	0.06		Claystone, brown-grey, shaly, abundant coaly debris.	
476.58	476.64	0.06		Heavy dull coal.	
476.64	476.69	0.05		Carbonaceous mudstone. GBC.	
476.69	476.75	0.06	100	Carbonaceous mudstone, silty, minor grey FLSS laminae, abundant plant-fossil debris. GBC.	

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
476.75	476.87	0.12	100	Laminite, grey FLSS/carbonaceous mudstone (50:50), minor coaly laminae, abundant flaser bedding. Bottom contact dips at 5°.		
476.87	477.42	0.55		Mudstone, grey, silty, slickenside (dipping at 30°) from 476.92 m to 476.95 m. GBC.		
477.42	477.54	0.12		Interbanded, FLSS/grey siltstone (50:50), contorted bedding (dipping at 10°). GBC.		
477.54	479.63	2.09		Interbedded, FLSS/MLSS (50:50); abundant carbonaceous laminae and coaly debris with minor cross-bedding; bedding dips at 20° from 479.13 m to 479.63 m. GBC.		
479.63	480.27	0.64		Transition zone (interbanded, FLSS/grey siltstone/grey mudstone (40:30:30)). GBC.		
480.27	482.13	1.86		Mudstone, grey, silty, muscovitic, minor sandy cross-bedded laminae. GBC.		
482.13	482.24	0.11		Transition zone (grey siltstone with minor mud-pellets and carbonaceous laminae). GBC.		
482.24	484.10	1.86		Interbanded, MQSS/carbonaceous siltstone (70:30), green-grey at top grading to grey-white at base, abundant carbonaceous laminae, minor bioturbation and contorted bedding (dipping at 10°). Irregular bottom-contact dips at 5°.		
484.10	484.23	0.13		Mudstone, grey, carbonaceous at base, slickenside (dipping at 20°) from 484.10 m to 484.12 m.		
484.23	484.27	0.04		Bright coal.		
484.27	484.35	0.08		Carbonaceous mudstone, silty at base. Irregular bottom-contact dips at 5°.		
484.35	485.93	1.58		FMLSS, green-grey, clayey, minor whispy carbonaceous laminae dipping at 5°. Bottom contact dips at 5°.		
485.93	486.01	0.08		Mudstone, dark-grey. GBC.		
486.01	486.96	0.95		FMLSS, green-grey, clayey, carbonaceous laminae dipping at 5°; silty calcareous pebbles from 486.41 m to 486.44 m; sub-vertically-dipping joint from 486.68 m to 486.96 m. Bottom contact dips at 5°.		
486.96	487.87	0.91	100	Mudstone, grey, minor FLSS intervals and carbonaceous laminae. Bottom contact dips at 10°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

39 GEOLOGICAL LOG Page:- 20

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
487.87	488.55	0.68	100	FMLSS, clayey, green-grey, minor carbonaceous laminae. Bottom contact dips at 5°.		
488.55	489.27	0.71		Mudstone; grey, grading to dark-grey; carbonaceous at base. GBC.		
489.27	492.35	3.08		Interbanded, grey-green FLSS and FMLSS/grey mudstone and dark-grey siltstone (50:50); minor disturbed bedding, cross-bedding and bioturbation; brown, clayey, hard FMLSS from 489.68 m to 489.78 m; carbonaceous mudstone bands from 491.05 m to 491.10 m; abundant carbonaceous laminae from 492.11 m to 492.35 m.		
492.35	493.17	0.82		MQSS, white; carbonaceous mudstone bands from 492.51 m to 492.55 m, from 492.93 m to 492.95 m and from 492.98 m to 493.13 m. GBC.		
493.17	494.13	0.96		Mudstone, grey, abundant carbonaceous laminae and FMLSS bands, calcareous interval (with an internal structure similar to en-echelon tension gashes). GBC.		
494.13	496.50	2.37		MQSS, white; abundant vertical burrows, carbonaceous laminae and bedding dipping at 20°; laminite (carbonaceous siltstone/mudstone (50:50)) from 494.96 m to 495.01 m; dull coal from 495.15 m to 495.20 m; carbonaceous mudstone/siltstone laminae from 495.68 m to 496.09 m and from 496.14 m to 496.20 m. Irregular bottom-contact dips at 5°.		
496.50	496.88	0.38		Mudstone, grey, shaly. Irregular bottom-contact.		
496.88	497.70	0.82		Laminite, grey mudstone/green-grey MQSS (50:50). Irregular bottom-contact. Minor irregular bedding and bioturbation; shaly.		
497.70	497.82	0.12		Siltstone, carbonaceous, minor coaly laminae. Irregular bottom-contact dips at 5°.		
497.82	498.15	0.33		Interbanded, MQSS/carbonaceous mudstone and siltstone, minor laminae, irregular bedding (dipping at 5°), minor bioturbation and calcareous matrix. GBC.		
498.15	506.00	7.85	100	MQSS, white with carbonaceous laminae; abundant cross-bedding and bioturbation;		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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39	GEOLOGICAL LOG	Page:- 21

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				brown claystone, calcareous matrix, carbonaceous laminae and CLSS bands from 502.14 m to 502.44 m; dull coal from 503.44 m to 503.50 m; interbedded shaly carbonaceous mudstone/shaly grey mudstone (50:50) from 503.50 m to 503.80 m.		
506.00	506.38	0.38	100	Laminite, grey mudstone/MQSS (50:50).		
506.38	506.67	0.25	86	Shale, grey.		
506.67	506.83	0.16	100	Siltstone, grey, minor grey-brown mudstone bands and laminae, minor 3 mm-diameter angular quartz grits. GBC.		
506.83	506.99	0.16		Transition zone (bioturbated coarse-grainsize quartzose sandstone (CQSS) with minor carbonaceous laminae. Interdigitating bottom-contact.		
506.99	510.24	3.25		Fine-medium grainsize quartzose sandstone (FMQSS), green-grey-white, abundant cross-bedded carbonaceous laminae. GBC.		
510.24	518.30	8.06		MQSS, white, green, large-scale planar cross-bedding (dipping at up to 30°), minor CQSS, muscovitic (and other minor rock fragments and feldspar), abundant carbonaceous laminae, minor fine-scale cross-bedding.		
518.30	522.26	3.96	100	Mudstone, green-grey, muscovitic, silty, abundant quartz grits and quartzitic pebbles up to 0.02 m in diameter; shaly; undulose, very-green muscovitic contact at 519.16 m; some pebbles (up to 0.03 m in diameter) have their long axes vertically orientated; dark-grey to grey silty mudstone from 519.69 m to 522.26 m. (Upper Marine Sequence of the Parmeener Super Group).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DEPARTMENT OF MINES—TASMANIA

DRILLING TARGET:- Upper Marine Sequence of the Parmeener Super Group.

REMARKS:- The roof of the probable Duncan seam is at an R.L. of 416.16m. This seam has a thickness of 3.05m.

SURVEY DATA

DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS					

GEOLOGICAL LOG

Logged by:- R.Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0	19	13	100	Dolerite talus (surficial soils and weathered dolerite).		
19	194.68	175.68	100	Dolerite, grey, very hard, medium gr insize. (0.10 m has been sampled at approximately 3 m intervals).		
194.68	235.69	41.01	100	Dolerite, broken ground, basal 1-2 m is fine-grained with abundant joints (sub-horizontal to 60° dip). Basal 30 cm is glassy ground-mass with 1 - 3 mm diameter cuboidal and spherical very dark grey to green-black pyroxene (?) phenocrysts. Bottom contact dips 5 - 10°.		
235.69	235.77	0.08	100	Hornfelsed, green-grey banded silicified mudstone.		
235.77	236.59	0.82	100	Hornfelsed, green-grey mudstone, banded with purple, white and green. Highly slickensided, jointed and silicified. Red mineral (clinoptilolite) on joints from 236.07m to 236.37m.		
236.59	239.08	2.45	98	Green-grey mudstone, carbonaceous and flinty from 236.59m to 236.79m. Unit is coloured grey and black. Core breaks readily. Unit is hornfelsed and silicified. Hornfelsed medium-grainsize lithic sandstone (MLSS) to fine-medium-grainsize lithic sandstone (FMLSS) from 238.08m to 239.08m.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 40	MAP SHEET No. 49	DISTRICT Fingal	LOCATION OF SITE:- Fingal Tier
R.L. OF SITE:- 724.3m	SITE SURVEY ON MAP No.:		CORE SIZE:- NQ
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 17th Sept., 1979
INCLINATION OF HOLE:- Vertical	DRILL:- Longyear 38		COMPLETED:- 30th Oct., 1979
CO-ORDS OF SITE:- E 585 727.7 N 5 385 786.3	DRILLER:- C.Mitchell, S.Mitchell D.Whammond, W.West.		FINAL DEPTH (m):- 465.80

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
239.08	241.02	1.91	100	Hornfelsed MLSS, abundant sub-vertical joints wide, dipping 45°-60°, breccia zones between 239.78 - 240.78 SBC.		
241.02	241.79	0.77	100	Grey hornfelsed, silstone, minor FLSS laminae, green hornfelsed flinty mudstone from 241.02-.17; breccia zone 5 mm wide dipping 45° from 241.52-.62, horizontal gradational bottom contact.		
241.79	242.03	0.24	100	Brecciated carbonaceous siltstone.		
242.03	242.33	0.30	100	Brecciated FMLSS; carbonaceous, abundant slickensides in which sense of movement is sideways; horizontal gradational bottom contact.		
242.33	245.05	2.72	100	Dark grey MLSS, abundant carbonaceous laminae and bands, abundant trough cross bedding, joints dipping at up to 60° at approx. 50 cm intervals throughout the unit, minor carbonate infilling on joints.		
245.05	247.45	2.40	100	MLSS with abundant coaly debris and contorted bedding dipping at up to 20°; Core broken from 246.45 - 247.45 m; carbonate on cleat.		
247.45	248.05	0.60	100	MLSS, dirty grey colour, core broken generally split down centre with splits from 45° to sub vertical; no cross bedding.		
248.05	251.05	3.00	100	MLSS, core broken due to sub-vertical joints, carbonaceous in parts. Bedding dips up to 5°, minor carbonaceous laminae but no cross bedding.		
251.05	253.45	2.34	100	As above, broken due to jointing from 251.05 - .55; massive with minor carbonaceous laminae dipping at up to 10°. from 251.55 - 253.45. Loss of 6 cm in-between 251.05 - 253.45;		
253.45	256.16	2.71		MLSS with minor angular mud pellet band from 254.47 - 251.49, minor sub-horizontal carbonaceous laminae, SBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

40	GEOLOGICAL LOG	Page:- 3/17

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
256.16	256.35	0.19	51	Cindered coal with carbonate on cleat , sbc		
256.35	256.41	0.06	51	Carbonaceous shale, hornfelsed, SBC		
256.41	256.80	0.20	51	As above, broken core - small chips over basal 10 cm, i.e. 256.70 - .80; 19 cm less in this unit, SBC.		
256.80	257.05	0.25	100	Brecciated grey FLSS interbedded with siltstone 50/50.		
257.05	258.51	1.46	100	As above, with FLSS/siltstone/mudstone 40/40/20, sharp bottom contact dipping at 50°.		
258.51	258.61	0.10	100	Brown-grey shale with abundant clay; carbonaceous, slickensided bottom contact.		
258.61	259.61	1.00	100	Interbedded siltstone and mudstone 50/50, with minor grey FLSS bands, vertical burrows 4 mm wide, minor cross-bedding and contorted bedding.		
259.61	260.05	0.44	100	As above but with 60% mudstone		
260.05	262.57	2.52	100	As above but with 50% mudstone and minor slickensides, dull coal with shaly carbonaceous-brown claystone band from 261.78 - .39.		
262.57	263.04	0.47	100	MLSS, grey, minor grey mudstone and siltstone bands.		
263.04	265.66	2.62	100	MLSS bedding dips upt to 10°, abundant carbonate matrix from 264.74 - 265.38.		
265.66	266.03	0.37	100	MLSS, massive		
266.03	267.83	1.80	100	MLSS, bottom contact sharp and dips 2°.		
267.83	268.41	0.58	100	Heavy dull coal with brown claystone bands from 268.10 - .14, 268.22 - .23 and minor slickensides GBC		
268.41	268.52	.11	100	Carbonaceous mudstone GBC		
268.52	269.06	.54	100	Brown grey mudstone with abundant slickensides dipping at up to 45° from 268.52 - .82.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

40 GEOLOGICAL LOG Page:- 4/17

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
269.06	269.69	0.63	100	Brown mudstone with minor FMLSS intervals, GBC.		
269.69	271.76	2.07	100	Grey mudstone with minor FMLSS intervals up to 40 cm in length, bedding dips up to 10° minor cross bedding and siltstone laminae.		
271.76	272.03	0.27	100	As above, abundant MLSS bands and X-bedded laminae.		
272.03	272.48	0.45	100	Interbedded FLSS/grey siltstone 70/30, with minor cross bedding, GBC.		
272.48	275.07	2.59	100	MLSS, grey, massive, with minor carbonaceous laminae and FLSS beds.		
275.07	281.14	6.07	100	MLSS, grey, massive, minor carbonaceous laminae and siltstone cobbles from 275.85 - .90 m.		
281.14	284.17	3.03	100	MLSS, with abundant carbonate in the matrix, limestone from 282.64 - 283.14; abundant coaly debris.		
284.17	287.07	2.90	100	MLSS, with grey siltstone pebbles from 264.51 - .56, minor carbonaceous laminae, abundant coaly debris and mud pellets from 286.77 - 287.07 m; undulosed bottom contact		
287.07	287.11	0.04	100	Dark grey slickensided mudstone.		
287.11	287.36	0.25	100	Carbonaceous mudstone; shaley, minor dull coal bands, abundant slickensides, GBC.		
287.36	287.91	0.55	100	Dark grey mudstone, silty, minor slickenside and interdigitating bottom contact.		
287.91	288.39	0.48	100	Interbedded FMLSS and grey siltstone (70:30) GBC.		
288.39	290.14	1.75	100	FMLSS with minor MLSS, coloured grey, unit featureless and massive.		
290.14	290.17	0.03	100	As above.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

40	GEOLOGICAL LOG	Page:- 5/17

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
290.17	293.17	3.00	100	FMLSS with occasional MLSS patches, coloured grey, unit massive, with minor carbonaceous laminae from 290.17 - 290.97 and a carbonaceous matrix.		
293.17	296.17	3.00	100	FMLSS; from 294.17 - 296.17 MLSS with minor carbonaceous laminae and coaly debris.		
296.17	299.22	3.05	100	As above (MLSS) with bedding dipping at up to 20°, minor coaly laminae and an intraformational conglomerate from 297.57 - 298.27m. Slickensided with abundant pellets and cobbles from 298.44 - 298.48m and from 298.77 - 298.87m abundant carbonate in matrix.		
299.22	302.25	3.04	100	MLSS, grey, massive, bedding dips up to 10° with minor carbonaceous laminae and coaly debris.		
302.25	305.22	2.97	100	MLSS, abundant grey mudstone beds, carbonaceous laminae and coaly debris dipping at up to 10° from 304.99 - 305.15.		
305.22	307.84	2.62	100	MLSS, with abundant coaly debris with mud pellets; FLSS to CLSS beds dipping at up to 30° from 305.72 - 307.84 sharp undulose bottom contact dips 5°.		
				COAL SECTION		
307.84	307.99	0.15	100	DUNCAN Dull coal with 10% bright bands		
307.99	308.21	0.22	100	SEAM Brown grey slickensided mudstone very shaley.		
308.21	308.29	0.08	100	Carbonaceous mudstone with abundant green elongate clay pellets and abundant slickensides. GBC.		1A
308.29	308.35	0.06	100	Heavy dull coal with abundant carbonate on cleat, minor slickensiding and brown clay lenticules.		1B

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Oven Dry Basis								
					Ash	%V.C.M.	%F.C.						
1A	307.84	308.29	0.45	100	65.5	-	-						

40				GEOLOGICAL LOG		Page:- 6/17	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION		SECTION Core	SECTION Sample
				COAL SECTION			
308.35	308.57	0.22	100	DUNCAN SEAM (CONT)	Dull coal, minor clay lenticules, pellets carbonate on cleat, bright coal in basal 5mm; contains plant fossils		
308.57	308.61	0.04	100		Pink-brown claystone, minor carbonaceous lenticules, sandy laminae at base, gritty poorly sorted over basal 2mm, bottom contact undulose.		1B
308.61	308.73	0.12	100		Dull coal, 10% bright bands		
308.73	308.77	0.04	100		Contorted laminite, carbonaceous mudstone, with pink-brown claystone 50/50; minor clay pellets. SBC, dips 2°.		
308.77	309.88	0.97	87		Dull coal, 10% bright bands, 14cm loss in this unit; abundant calcite coated cleats and joints with en echelon tension gash structure in places. Core breaks readily, CORE LOSS from 309.34 - 309.48m.		
309.88	310.43	0.55	100		Grey mudstone with contorted carbonaceous mudstone from 310.33 - 310.43, with abundant clay lenticules, undulose bottom contact dipping 2°.		1C
310.43	311.03	0.60	100		Dull coal with 5% bright bands and claystone intervals from 310.60 - 310.62, and 310.73 - 310.75; core breaks readily.		
311.03	311.93	0.90	100		Grey-brown mudstone, very shaley, GBC.		
311.93	311.99	0.06	100		Grey siltstone. GBC.		
311.99	312.24	0.25	100		Grey cross bedded FLSS, GBC.		
312.24	314.18	1.94	100		FMLSS, minor contorted bedding, cross bedding and carbonaceous laminae.		
314.18	314.55	0.37	100		Grey, massive MLSS with bedding dipping at up to 5°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% ASH	% VOL	% FC	ASSAY RESULTS
1B	308.29	309.88	1.45	100	29.1	25.1	48.5	
1C	309.88	311.03	1.15	100	72.2	–	–	

40	GEOLOGICAL LOG	Page:- 7/17

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
314.55	317.17	2.62	100	Grey massive MLSS but with grey mudstone and siltstone interval from 315.05 - .25 m, minor cross bedding.		
317.17	320.19	3.02	100	Grey MLSS with minor carbonaceous laminae from 317.52 - .62 m and a siltstone pebble at 319.89 - .91 m.		
320.19	320.66	0.47	100	Grey MLSS with minor carbonaceous laminae from 320.34 - .44 m.		
320.19	323.15	2.49	100	MLSS, grey, massive.		
323.15	326.18	3.03	100	As above with a mud-pellet band from 323.36 - .41 m, minor coaly blocks and laminae from 325.18 - 326.18 m.		
326.18	326.71	0.53	100	MLSS with abundant coaly debris and mud pellets, x-bedded MLSS from 326.63 - .71 m.		
326.71	329.15	2.44	100	MLSS, grey-white in colour, massive, no coaly debris, abundant carbonate in matrix, FMLSS from 326.71 - .81.		
329.15	332.18	3.03	100	MLSS with minor FMLSS and FLSS intervals. Minor coaly debris and mud pellets from 331.18 - 332.58.		
332.18	332.56	0.68	100	MLSS, massive.		
332.86	335.18	2.32	100	Massive MLSS with calcareous matrix.		
335.18	338.20	3.02	100	Massive MLSS.		
338.20	338.99	0.79	100	Massive, grey MLSS with minor CLSS towards base.		
339.99	341.19	2.20	100	MLSS with minor coaly debris from 340.89 - 341.19.		
341.19	344.19	3.00	100	Grey massive MLSS with wispy, contorted coaly debris from 341.34 - .69.		
344.19	345.09	0.90	100	Grey, MLSS, minor carbonaceous laminae.		
345.09	347.20	2.11	100	Grey massive MLSS with minor FMLSS intervals and abundant carbonaceous laminae from 346.30 - 347.20.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

40 GEOLOGICAL LOG Page:- 8/17

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
347.20	348.87	1.67	100	MLSS, core is ripple-marked, with = 10cm from 347.87 - 348.87 Abundant coaly debris and flattened 3 cm long mud pellets from 347.42 - .78 m.		
348.57	348.98	0.11	100	Grey mudstone with minor dark grey laminae, flaser bedding and micro-faulting with 1 mm throw. Horizontal GBC.		
348.98	349.31	0.33	100	Carbonaceous siltstone.		
349.31	349.39	0.08	100	Carbonaceous mudstone, undulosed BC		
349.39	350.07	0.68	100	Laminite, dark grey to carbonaceous mudstone/ grey mudstone (40:60), abundant slickensides with 20° - 45° dip, minor micro-faulting with throws of 1-3mm. GBC.		
350.07	350.34	0.27	100	Carbonaceous siltstone GBC.		
350.34	352.41	2.07	100	Interbanded MLSS and FMLSS with grey and carbonaceous siltstone and mudstone (60:40), minor laminite of above lithologies; minor flaser cross bedding dipping up to 10°.		
352.41	353.53	1.12	100	MLSS, grey, abundant carbonaceous laminae, and CLSS intervals, minor coaly debris and bedding dipping up to 20° from 352.41-353.24 calcareous matrix with wispy carbonaceous laminae and mud pellets from 353.24-353.53; flattended mud pellet band at 353.48 - .53 with pellets 5mm in diameter.		
353.83	354.71	1.18	100	Grey mudstone with minor dark grey laminae, possible dissolution features from 353.53-.56 m.		
				COAL SECTION		
				East Fingal Upper Split		
354.71	355.12	0.41	100	Dark grey mudstone with minor soft sediment microfaulting and flaser bedding abundant slickensides towards past GBC.		2A

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS %ASH	%VOL	%FC							
2A	354.71	356.23	1.52	100	70.2									
2B	356.23	357.26	1.03	100	40.9	20.6	38.5							
2C	362.12	363.05	0.93	100	84.7									

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40				GEOLOGICAL LOG		Page:- 9/17
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				COAL SECTION CONT.		
355.12	355.70	0.58	100	EAST FINGAL UPPER SPLIT carbonaceous mudstone, minor slickensides and heavy dull coal bands.		2A
355.70	355.84	0.14	100	carbonaceous mudstone laminated with creamy claystone, (50:50), beds lenticules brecciated 1cm wide calcite vein dipping 50° from 355.78 - 355.89; brown-pink minerals present, probably dolomite.		
355.84	356.18	0.34	100	heavy dull coal with minor bright laminae abundant creamy-brown lenticular claystone bands, GBC.		
356.18	356.23	0.05	100	carbonaceous graywacke with abundant clay matrix.		
356.23	356.39	0.16	100	Heavy dull coal. GBC.		2B
356.39	356.43	0.04	100	Creamy brown claystone with wispy coaly debris, SBC, dips 5°.		
356.43	356.46	0.03	100	Carbonaceous mudstone with minor coaly laminae, undulose BC dips 5°.		
356.46	356.48	0.02	100	Creamy-pink disturbed and contorted claystone band with wispy lenticular flaser bedding very irregular undulosed.	BC	
356.48	357.10	0.62	100	Dull coal with abundant carbonate on sub-vertical cleats, bright coal bands with abundant carbonate in basal 3cm i.e. from 357.07 - 357.10m, SBC.		
357.10	357.26	0,16	100	Shaley heavy dull coal with dull coal (50:50) with abundant kaolinite on slickenside dipping 30° from 357.15 - 357.20; abundant carbonate on sub-vertical cleat, claystone bands from 357.21 - 357.23, carbonate in matrix. Slickensided bottom contact.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Ash %	VCM %	FC %
2A	354.71	356.23	1.52	100	70.2		
2B	356.23	357.26	1.03	100	40.9		

40				GEOLOGICAL LOG		Page:- 10/17
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
357.26	357.80	0.54	100	Brown-grey mudstone from 357.26 - .36, remainder of unit is brown mudstone with abundant slickensides, wispy contorted carbonaceous laminae and bedding dipping up to 10°. GBC. Possibly a seat earth or paleosol.		
357.80	361.27	3.47	100	Grey mudstone, silty, with minor slickensides, plant fossil debris and carbonaceous intersals, slickensided. BC dipping at 30°.		
361.27	362.10	0.83	100	FMLSS, grey in colour with minor flaser x-bedding, minor dark grey mudstone laminae.		
362.10	362.20	0.10	100	Grey siltstone.		
362.20	362.96	0.76	100	Grey shaley.		
362.96	363.14	0.18	100	Grey mudstone.		
				COAL SECTION (not sampled)		
363.14	363.58	0.44	100	Heavy dull coal, minor carbonate on cleat, abundant white wispy claystone pellets and lenticules.		2C
363.58	363.95	0.37	100	Dull coal.		
363.95	364.40	0.45	100	Brown grey clayey FLSS and siltstone, with abundant plant fossils; a greywacke.		
364.40	365.33	0.93	100	Interbedded grey mudstone and FLSS, (60:40) with minor plant-fossils, wispy carbonaceous laminae, and cross bedding.		
365.33	380.31	14.98	100	Interbedded FLSS and FMLSS (50:50) with abundant slickensides, coaly debris, and bioturbation from 366.81-367.28 and grey, mudstone with minor creamy-pink brown claystone bands from 365.51 - .98. Cross-bedded silty grey mudstone interval from 368.63-369.18, massive from 370.39-371.34, with minor cross-bedding dipping at up to 10° from 371.34-374.31, minor carbonate matrix from 375.46-377.33; carbonaceous mudstone and grey mudstone pellets and carbonaceous laminae with abundant coaly debris from 379.23 - .58 m.		
380.31	380.81	0.50	100	MLSS with abundant mud pellet conglomerate bands, minor carbonaceous laminae coaly debris and slickensides. GBC dips 2°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
380.81	381.02	0.21	100	Grey mudstone with a slickenside dipping 30° from 380.83 - .87 m. GBC.		
				COAL SECTION		
				East Fingal Lower Split		
381.02	381.58	0.56	100	Carbonaceous mudstone, with minor heavy dull coal.		3
381.58	382.03	0.45	100	Dark grey mudstone, GBC.		
382.03	382.26	0.23	100	Laminite of brown-grey FMLSS and carbonaceous siltstone, (40/60).		
382.26	382.36	.10	100	Dull coal with minor bright bands.		
382.36	382.40	0.04	100	Laminite of FMLSS/siltstone, (40/60). GBC.		
382.40	382.54	0.14	100	Carbonaceous mudstone with minor dull coal, claystone lenticles and laminae. Slickenside dipping at 30° from 382.50 - .53. GBC.		
382.54	382.60	0.06	100	Brown-pink claystone.		
382.60	382.65	0.05	100	Dull coal.		
382.65	382.80	0.15	100	Slickensided brown-grey mudstone, GBC.		
382.80	386.66	3.86	100	Grey silty mudstone with minor slickensides and coaly debris, minor cross bedding, clayey intervals, minor carbonaceous laminae and sandy intervals, GBC.		
356.66	387.60	0.96	100	FMLSS, grey, massive, with minor carbonaceous laminae dipping at 10° from 386.66 - .96.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
387.60	392.27	4.67	100	FMLSS with minor MLSS intervals. Abundant MLSS intervals from 290.27-292.27.		
392.27	392.77	0.50	100	MLSS, grey, massive SBC, dips 5°.		
392.77	392.80	0.03	100	Dull coal GBC		
392.80	393.19	0.39	100	Grey mudstone with minor carbonaceous laminae and slickensides from 392.80 -.98 GBC.		
393.19	396.59	3.40	100	Grey brown clayey mudstone probably a pyritic shale; green-blade specks of a sulphide mineral abundant; grades to green in colour from 395.43-395.53; green colouring is concentrated in clumps. GBC.		
396.59	397.38	0.79	100	Grey mudstone with minor green patches- possibly glauconite or pyrite. Gritty clasts are also common. GBC		
397.38	398.23	0.85	100	Laminite of carbonaceous mudstone, and grey mudstone (30:70); with dull coal from 398.15-398.23 m. Band of sandy quartz-rich carbonate with flaser bedding from 398.13-.15 m; undulating bottom contact.		
398.23	398.61	0.36	100	Sandy clayey grey-brown bioturbated greywacke (?).		
398.61	400.25	1.64	100	Grey-brown slickensided mudstone, with silty carbonaceous mudstone bands and slickensides from 399.47-.67 carbonaceous from 399.67-.72; slickenside dipping 30° dipping 30° at base side dipping 30° at base.		
400.25	401.27	1.02	100	FLSS, light grey with abundant dark grey and grey mudstone and siltstone bands and laminae with minor cross bedding.		
401.27	403.06	1.79	100	Grey mudstone with silty white 'spots' 1 mm in diameter from 402.64 - .68m, and abundant slickensides from 402.77 - 403.06 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

40	GEOLOGICAL LOG	Page:- 13/17

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
403.06	403.71	0.65	100	Interbedded FMLSS and grey carbonaceous siltstone, (70:30).		
403.71	405.80	1.39	93	MLSS, grey, massive, bedding dipping at 5°. Minor large-scale planar cross bedding, carbonaceous laminae and coaly debris. 14 cm of loss in this unit, loss scattered throughout unit.		
405.80	406.64	0.77	92	Interbanded FMLSS and carbonaceous mudstone (70:30); 7 cm loss in this unit, GBC.		
406.64	408.53	1.81	94	MLSS, grey, massive with minor carbonaceous laminae dipping at up to 10°; abundant carbonate in matrix 8 cm loss from 406.64-407.50; GBC, dips 10°.		
408.53	411.34	2.81	100	Laminite of FLSS and grey mudstone, 50/50 with minor silty bands and laminae, minor cross-bedding dipping up to 10°, minor plant fossil debris.		
411.34	412.34	1.00	100	FMLSS with abundant carbonaceous laminae, bedding dipping up to 5°.		
412.34	412.46	0.12	100	Dull coal with bright coal (60:40) with well developed cleats, carbonate on cleats; core broken slickensides at base.		
412.46	413.40	0.94	100	Interbedded mudstone/FLSS/siltstone (50:40:10) with abundant slickensides; swirl marks, contorted disturbed bedding and beds dipping up to 45°. GB.		
				Laminite of FMLSS and siltstone (70:30); bioturbated with vertical burrows, bedding dips up to 20°. Burrows extend down to 413.66. Undulose bottom contact.		
413.62	414.47	0.85	100	Grey siltstone.		
414.47	414.92	0.45	100	Grey mudstone; slickensides from 414.59-414.66. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

40	GEOLOGICAL LOG	Page:- 14/17

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
414.92	415.02	0.10	100	Shaley carbonaceous mudstone with abundant plant fossils, irregular, undulose bottom contact.		
415.02	415.23	0.21	100	Heavy dull coal with abundant grey siltstone lenticules and minor bright coal laminae; joints with dips from 45° to sub-vertical. GBC.		
415.23	415.43	0.20	100	Biotubated MLSS, grey-white in colour with abundant contorted coaly laminae, undulose bottom contact.		
415.43	415.98	0.55	100	Grey MLSS interlaminated with dark grey siltstone (80:20); abundant bioturbation, GBC.		
515.98	416.34	0.36	100	Grey-white MLSS with minor coaly debris and carbonaceous laminae. Cross bedding from 416.29 - .34 m GBC.		
416.34	416.60	0.24	100	Interbanded grey siltstone and FLSS (50/50), with cross bedding dipping up to 10°; sub-vertical (worm burrows from 416.34 - .43 bottom contact undulose, dips 5°.		
416.60	417.43	0.83	100	Grey-white massive MLSS with minor coaly debris from 417.00- .10; SBC, dips 2°.		
417.43	417.82	0.39	100	Grey mudstone with minor silty and shaley lenticules, GBC.		
417.82	418.50	0.68	100	Interbanded MLSS (grey) and bioturbated dark grey mudstone; beds lenticular, unit (50:50), minor flaser bedding from 418.20-.50, GBC.		
418.50	422.55	4.05	100	Interbedded grey-white MLSS, grey siltstone dark grey mudstone, (50:30:20), minor bioturbation, lenticular beds carbonaceous laminae, and cross bedding. Interval of heavy dull coal from 421.81 - .91 m, festoon cross bedding in basal 3 m along with abundant slickensides GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

40 GEOLOGICAL LOG Page:- 15/17

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
422.55	423.35	0.80	100	Grey mudstone GBC.		
423.35	424.06	0.71	100	Interbanded grey mudstone and grey FMLSS (50:50) with abundant disturbed bedding.		
424.06	424.77	0.71	100	Grey siltstone, slightly carbonaceous and sandy from 424.57 - .77 m; SBC dips 2°.		
424.77	424.86	0.09	100	Laminite of dull and bright coal, (60:40) SBC, dips 5°.		
424.86	425.54	0.68	100	Grey siltstone, shaly, mudstone from 424.86 - 425.06 m; sandy from 425.44 - 425.54 m.		
425.54	428.96	3.42	100	Interbedded MLSS, grey-white in colour and grey siltstone, (80:20) with minor festoon x-bedding, contorted and disturbed bedding dipping at up to 10°, abundant carbonaceous laminae. MLSS/siltstone (60:40) from 428.51 - 428.96 m with bedding dipping at up to 5°.		
428.96	434.44	6.52	100	MLSS, grey-white, massive with minor carbonaceous laminae, bedding dipping up to 10° and minor FMLSS intervals. Mud pellets from 433.59 - .59 m, SBC.		
434.44	434.61	0.15	100	Carbonaceous mudstone and grey mudstone (50:50) with abundant plant fossil debris, GBC.		
434.61	436.90	2.29	100	Interbedded light grey FMLSS and dark grey siltstone (70:30) with minor bioturbation; From 435.28 - .47 m unit consists of heavey dull coal: and carbonaceous mudstone (60:40) with sparse cross bedding GBC.		
436.90	439.07	2.17	100	Grey shaley mudstone with minor FMLSS bands and carbonaceous laminae from 438.45 - .95 m GBC.		
439.07	440.07	1.00	100	Interbedded FMLSS, grey siltstone and dark grey mudstone (50:30:20) with minor bioturbation and carbonaceous bands SBC, dips 5°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

40				GEOLOGICAL LOG	Page:- 16/17	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
440.07	441.29	0.55	100	Interbedded dark grey mudstone and grey FLSS 60:40; silty, with minor cross bedding, minor slickensides, undulose. BC. FMLSS, replaced almost completely by carbonate; secondary en eschelon tension gash structures, wary, veins of carbonate, unit extremely hard, undulose. BC.		
441.29	442.55	1.26	100	FMLSS, light grey, minor coaly debris, subvertical joint from 441.64-442.05, dips 5°, minor bioturbation from 442.05-.07 m. Almost completely replaced by carbonate from 440.55-442.55. GBC.		
442.55	442.72	0.17	100	Interbanded FMLSS and FMQSS (60:60); silty; muddy; bioturbated, with bedding dipping up to 10°. GBC.		
442.72	446.58	3.88	100	Interbedded white MQSS and dark grey carbonaceous siltstone (60:40), muddy, bioturbated with abundant carbonaceous laminae and minor dull coal bands; abundant bioturbation.		
446.58	449.20	2.62	100	Sparkling in hand specimen, abundant carbonaceous laminae and bands from 446.98-447.58 m abundant large scale cross bedding and fine scale festoon cross bedding from 446.58 - .98 m; undulating bottom contact.		
449.20	451.20	2.00	100	Carbonaceous and grey mudstone, (50:50); abundant slickensides from 449.42-.57 m, bedding dips at up to 5°; minor plant fossil debris; minor FMQSS beds; brown claystone band from 450.05-.09 m; sub-vertical joint from 451.00-451.35 m. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

GEOLOGICAL LOG

40

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
451.20	452.33	1.13	100	Interbedded dark grey siltstone and FMQSS, grey-white in colour, (70:30), bedding dipping at 10°, minor carbonaceous laminae.		
452.33	453.03	0.70	100	Grey slickensided mudstone with abundant plant fossil debris, abundant wispy carbonaceous laminae and coaly laminae.GBC.		
453.03	454.51	1.48	100	Interbedded FMQSS and MQSS with grey and carbonaceous mudstone and dark grey siltstone, (25:20:30:25); abundant mudstone and siltstone laminae with minor bioturbation and cross bedding; unit shaley in part,		
454.51	490.95		100	MQSS, grey-white, abundant festoon cross bedding and carbonaceous laminae dipping at up to 10°, sub-vertical joints from 454.51 - 454.71m; and from 456.41 - 475.71 m resulting in broken core, massive from 458.58-459.38m, minor dark grey siltstone MQSS laminite (50:50) interval from 459.44-459.53m and from 460.18 - 460.38m; abundant festoon cross bedding, GBC.		
				BASE OF FRESHWATER SEQUENCE OF UPPER PARMEENER SUPERGROUP; TOP OF GLACIO-MARINE SEQUENCE OF PARMEENER SUPERGROUP.		
460.95	461.55		100	Grey mudstone with minor angular quartz clasts, minor FMQSS.		
461.55	465.80		93	Grey mudstone with abundant angular quartz clasts, silty and shaley from 461.55 - 461.65; quartz grits 3mm in diameter; 8cm core loss from this unit.		
				END OF HOLE AT 465.80m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:- Upper Marine Sequence of the Parmeener Super Group

REMARKS:- The base of the probable Duncan seam is at an R.L. of 405.42 m. The seam has a thickness of 2.71 m.

SURVEY DATA			SAMPLE	FROM	TO	RECOVERY		ASSAY RESULTS					
DEPTH metres	Bearing mag.	Inclin. degs	No.	metres	metres	metres	%						

GEOLOGICAL LOG

Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0	227.82			Dolerite. Fine-grainsize at base. Irregular, undulose bottom-contact (0.1 m of dolerite was sampled at 3 m intervals. This core has been preserved for future analysis).		
227.82	230.43	2.61	100	Medium-grainsize lithic sandstone (MLSS), grey-white, indurated from 227.82 m to 227.86 m, sparse pebbles, black rock-fragments (10%), disturbed bedding, minor planar cross-bedding (dip up to 15°). Gradational bottom-contact (GBC).		
230.43	232.29	1.86		Siltstone, grey, bands and laminae of MLSS. GBC.		
232.29	232.78	0.49		MLSS, grey-white, disturbed bedding from 232.49 m to 232.78 m.		
232.78	233.72	0.94		Mudstone, grey-green, indurated. Banded GBC.		
233.72	236.07	2.35		Interbanded fine-medium grainsize lithic sandstone (FMLSS)/siltstone (50:50), green-grey, occasional laminite development, minor cross-bedding and disturbed bedding.		
236.07	237.33	1.26	100	Siltstone, green-grey, indurated, mudstone from 236.07 m to 236.33 m, 45° dip slickenside (poorly-developed) from		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 41	MAP SHEET No. 49	DISTRICT Fingal	LOCATION OF SITE:-
			FINGAL TIER
R.L. OF SITE:- 812.4 m	SITE SURVEY ON MAP No.:		CORE SIZE:- NQ: 0 - 377.68 m BQ: 377.68 - 584.93 m
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 13th Feb., 1979
INCLINATION OF HOLE:- Vertical	DRILL:- Edeco		COMPLETED:- 6th June, 1979
CO-ORDS OF SITE:- 588949.3E 5386618.3N	DRILLER:- M. Schier, R. McDonald, L. Newman J. Baker		FINAL DEPTH (m):- 584.93

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41				GEOLOGICAL LOG	Page:- 2	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				236.33 m to 236.39 m. Sub-vertically-dipping joint displaying micro-faulting from 236.98 m to 237.33 m.		
237.33	240.35	3.02	100	Interbanded FMLSS/siltstone (50:50), green-grey, occasional laminite development, minor cross-bedding and disturbed bedding. Micro-fault (< 5 mm movement) in centre of core from 238.64 m to 238.70 m. Bedding dipping at up to 20° is common. Light-brown-grey FMLSS predominates from 239.05 m to 240.35 m. GBC.		
240.35	249.26	8.91		MLSS, light-brown-grey with grey-white bands and laminae, minor FMLSS, cross-bedding common from 240.35 m to 241.25 m, sub-vertical joints from 241.00 m to 241.35 m, bedding dips at 20° from 241.74 m to 241.94 m, part of a fining-up sequence, sub-vertical joint with a thin coating of calcite from 242.94 m to 244.94 m and showing minor micro-faulting. Grey-white, washed-out, speckly MLSS from 244.94 m to 249.26 m. Continuous core sticks. Mud-pellet band from 246.94 m to 247.14 m (< 5 mm diameter pellets), brown contorted laminae with a flat mud-pellet at the base from 246.14 m to 246.44 m, bedding dips at up to 30° from 248.23 m to 248.43 m. Mud-pellets, disturbed-bedding, brown disturbed-laminae from 248.43 m to 248.88 m. Irregular, undulose bottom-contact.		
249.26	250.37	1.11		Siltstone, indurated, light-brown-grey, minor contorted bedding, sub-vertically dipping joint from 249.26 m to 249.76 m, indurated fine-grainsize lithic sandstone (FLSS) towards base. Bottom contact dips at 5°.		
250.37	252.01	1.64		MLSS, grey-white, bedding (massive) dips at 5°. Mudstone pebbles from 250.37 m to 250.47 m. Irregular bottom-contact dips at 15°.		
252.01	253.30	1.29	100	FMLSS, grey-white with grey bands and laminae, abundant cross-bedding; carbonaceous laminae from 253.00 m to 253.10 m. Joint, dipping at 55°, from 252.64 m to 252.74 m. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

41	GEOLOGICAL LOG	Page:- 3

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
253.30	265.86	12.56	100	MLSS, grey-white, spasmodic black stains, abundant grey mud-pellets up to 3 cm in diameter from 253.30 m to 253.94 m, from 257.14 m to 257.73 m, and from 259.16 m to 259.32 m. Sparse black-grey mud pellets from 254.32 m to 254.92 m and from 260.93 m to 261.93 m. Minor contorted bedding from 253.30 m to 253.92 m, from 254.32 m to 254.92 m and from 255.32 m to 256.22 m. Minor carbonaceous laminae. Sub-horizontal bedding from 256.18 m to 256.88 m, but dips at up to 20° from 258.93 m to 259.93 m. Black-grey in colour from 260.23 m to 265.86 m. Sparse cross-bedding from 260.93 m to 261.93 m, and bedding dips at up to 20° from 262.88 m to 265.86 m. Coaly debris from 264.28 m to 264.68 m. Slickensides dipping at 45° at 264.41 m and at 264.60 m.		
265.86	268.90	2.83	93	MLSS, black-grey, abundant coaly bands, laminae and debris throughout, contorted bedding from 265.86 m to 266.36 m, mud-pellets from 268.60 m to 268.70 m.		
268.90	271.90	2.92	97	MLSS, black-grey, coaly traces from 268.90 m to 268.95 m, cross-bedding and black-grey laminae from 268.90 m to 270.78 m, bedding dips at up to 20° from 270.20 m to 270.78 m, contorted bedding with accompanying coaly traces from 270.30 m to 270.78 m, bedding is sub-horizontal from 270.78 m to 271.90 m. 0.08 m of core loss occurred between 270.65 m and 270.73 m.		
271.90	277.12	5.22	100	MLSS, black-grey from 271.90 m to 273.90 m, grey-white from 273.90 m to 274.92 m, sparse cross-bedding (dipping at up to 20°) from 271.90 m to 273.90 m, carbonaceous mudstone bands and laminae from 272.40 m to 272.70 m and from 274.92 m to 277.12 m, black-grey-white, from 274.92 m to 277.12 m. Abundant mud-pellets from 276.92 m to 277.12 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

41 GEOLOGICAL LOG Page:- 4

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
277.12	277.91	0.66	84	Carbonaceous mudstone, coaly traces, shaly; contorted laminite of FMLSS/carbonaceous mudstone from 277.12 m to 277.42 m.		
277.91	278.37	0.46	100	Carbonaceous mudstone, silty in part, shaly, minor sub-vertical joints. GBC.		
278.37	278.93	0.56		Interbedded FLSS/siltstone from 278.37 m to 278.65 m. FLSS/carbonaceous mudstone laminite from 278.65 m to 278.93 m. Bedding is sub-horizontal. GBC.		
278.93	279.58	0.65		Carbonaceous siltstone, shaly. GBC.		
279.58	280.15	0.57		Carbonaceous shale, minor sub-vertical joints, sand and clay comprise 40%.		
280.15	280.35	0.20		COAL SECTION: Dull coal with minor sub-vertical kaolinite and calcite veins.		1A
280.35	280.53	0.18		Carbonaceous shale with sparse algal mats.		1B
280.53	280.77	0.24		Dull coal with sparse algal mats.		
280.77	280.91	0.14		Carbonaceous shale		1C
280.91	281.37	0.46		Dull and bright coal/carbonaceous mudstone laminite (50:50), shaly, minor sub-vertical kaolinite (and calcite?) veins, slickenside dipping at 45°, from 280.94 m to 280.97 m.		1D
281.37	282.98	1.61		Interbanded siltstone/FLSS (50:50). GBC.		
282.98	283.78	0.80		Mudstone, grey.		
283.78	284.06	0.28	100	Claystone, shaly, abundant mud-pellets at base.		
284.06	286.56	2.39	96	Carbonaceous mudstone, sparse shaly and dull-coal bands, particularly from 286.09 m to 286.30 m. Shaly claystone from 284.88 m to 285.08 m.		
286.56	287.06	0.50	100	Shale, clayey, grey-green.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS % Moisture (as received)	On Dry Basis % Ash	% Vol.	%F.C.	F.C./Vol.
1A	280.15	280.35	0.20	100	1.6	24.6	9.7	65.7	6.8
1B	280.35	280.77	0.42	100	4.0	58.6	-	-	-
1C	280.77	280.91	0.14	100	5.7	88.2	-	-	-
1D	280.91	281.37	0.46	100	4.4	55.8	-	-	-
Composite of samples 1A, 1B, 1C, 1D					4.0	55.3	-	-	-

41 GEOLOGICAL LOG Page:- 5

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
287.06	288.61	1.55	100	Carbonaceous mudstone with minor carbonaceous shale bands and dull coal intervals (especially from 287.56 m to 288.61 m). Slickenside at 288.21 m. GBC.		
288.61	295.34	6.73		Laminite, FLSS/siltstone (60:40), grey, abundant cross-bedding (grey, white disturbed-laminae). Dark-green, mottled, pyritic interval from 290.52 m to 290.69 m. GBC.		
295.34	296.33	0.99		MLSS, massive sub-horizontal bedding, minor whispy carbonaceous-laminae.		
296.33	296.87	0.54		Carbonaceous shale/dull coal, interbedded (60:40). GBC.		
296.87	297.30	0.43		Carbonaceous mudstone/MLSS, interbedded (60:40), bedding dips at 20° from 297.10 m to 297.30 m. Bottom contact dips at 20°.		
297.30	298.48	1.18		Laminite, MLSS/siltstone (70:30), poorly-developed laminae, disturbed bedding, bedding dips at up to 20° at base. GBC.		
298.48	300.35	1.87		FMLSS, grey-white, minor carbonaceous laminae, bedding dips at up to 20°, abundant cross-bedding, slickenside dipping at 30° at base. Minor coal bands.		
300.35	301.74	1.39		COAL SECTION: Carbonaceous mudstone with minor dirty MLSS and shale bands.		2A, 2B
301.74	302.20	0.46		Dull coal and carbonaceous mudstone (70:30). GBC.		3
302.20	302.35	0.15		Shale, clayey, green-grey and black-grey in colour. GBC.		
302.35	302.48	0.13		Carbonaceous mudstone with minor algal mats and dull-coal bands.		
302.48	302.51	0.03		Mudstone band, grey-white.		4
302.51	302.60	0.09		Carbonaceous mudstone. GBC.		
302.60	302.73	0.13		Claystone, shaley, brown.		
302.73	302.75	0.02		Carbonaceous mudstone.		
302.75	302.78	0.03	100	Mudstone, grey-brown-white.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	%Moisture (as received)	ASSAY RESULTS On Dry Basis %Ash	%Vol.	%F.C.	F.C./Vol.
2A	300.35	300.92	0.57	100	7.0	78.7	-	-	-
2B	300.92	301.74	0.82	100	8.4	83.2	-	-	-
3	301.74	302.20	0.46	100	4.6	36.7	28.4	34.9	1.2
4	302.20	302.78	0.58	100	6.6	77.3	-	-	-
5A	302.78	303.25	0.47	100	4.3	55.8	-	-	-
5B	303.25	303.88	0.63	100	4.4	71.1	-	-	-
6A	303.88	304.92	1.04	100	3.6	42.2	27.6	30.2	1.1
6B	304.92	305.45	0.53	85	4.5	31.6	33.7	34.7	1.0
7	305.45	305.90	0.45	100	4.2	58.6	-	-	-
Composite 2A and 2B					8.0	81.4	-	-	-

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
302.78	303.13	0.35	100	COAL SECTION: (cont.) Heavy dull coal with minor algal mats. GBC.		
303.13	303.25	0.12		Mudstone band, brown-grey, minor algal mats, bottom contact dips at 30°.		5A
303.25	303.43	0.18		Laminite, dull coal/carbonaceous mudstone (50:50). GBC.		5B
303.43	303.88	0.45		Carbonaceous mudstone with minor bands of grey mudstone.		
303.88	304.08	0.20		Dull coal with minor carbonaceous mudstone and grey mudstone bands.		
304.08	304.15	0.07		Mudstone with minor carbonaceous bands.		
304.15	304.19	0.04		Carbonaceous mudstone. GBC.		
304.19	304.42	0.23		Dull coal, minor jointing and white mud-pellets. GBC.		6A
304.42	304.47	0.05		Mudstone band, grey-brown.		
304.47	304.92	0.45	100	Dull coal with minor bright coal bands, sub-vertical joint (cleat?) development, friable in part.		
304.92	305.14	0.14	64	Dull coal. (Ground-up core).		
305.14	305.17	0.03	100	Mudstone band, brown-grey.		
305.17	305.45	0.28		Dull coal, minor bright bands, kaolinite developed on cleat, irregular bottom contact.		6B
305.45	305.54	0.09		Mudstone/carbonaceous mudstone, interbanded, secondary pyrite development from 305.45 m to 305.47 m. GBC.		
305.54	305.58	0.04		Carbonaceous mudstone.		7
305.58	305.585	0.005		Mudstone band.		
305.585	305.66	0.075		Dull coal.		
305.66	305.76	0.10		Mudstone, blue-grey, cream, interbanded; minor coal band.	GBC	
305.76	305.90	0.14	100	Dull Coal.		

ASSAY DATA

Note: bracketed figures are calculated.

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Fraction	Feed % Mass	Feed % Ash	Cum. Floats % Mass	Cum. Floats % Ash	Cum. Sinks % Mass	Cum. Sinks % Ash	% Ash Dist.	S.E. (MJ/kg)	Ash Fusion °C
Composite of 6A and 6B					F/T1.4	21.4	8.2	21.4	8.2	100.0	(39.0)	4.5		
					F/T1.6	31.5	21.5	52.9	(16.1)	78.6	(47.4)	17.4		
					F/T1.8	12.6	39.6	65.5	(20.6)	47.1	(64.7)	12.8		
					S/K1.8	34.5	73.9	100.0	(39.0)	34.5	73.9	65.3		
					H	100.0	(39.0)					100.0		

		Assays % (Dry Basis) Ash	Vol.	F.C	S		S.E. (MJ/kg)	Ash Fusion °C
C/F	T1.6	52.9	16.1	16.3	35.7	48.0	0.38	21.9	26.4	1540
C/S	K1.6	47.1	64.7	65.6	22.1	12.3	0.09	78.1		
H			100.0	39.0				100.0		

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
305.90	306.61	0.71	100	Carbonaceous mudstone, abundant slickensides, pink-grey mudstone band from 305.96 m to 306.00 m, disturbed bedding and grey mudstone laminae and bands from 306.21 to 306.61. Slickenside at base dipping at 45°.		
306.61	307.25	0.64		Mudstone, grey, minor siltstone-bands and disturbed bedding. GBC.		
307.25	310.72	3.47		Laminite, FLSS/siltstone, grey-black (70:30), minor cross-bedding and coal debris. Undulose bottom contact.		
310.72	312.60	1.88		MLSS, grey-white. GBC.		
312.60	313.63	1.03		Laminite, FLSS/siltstone (70:30). GBC.		
313.63	322.87	9.24		MLSS, grey-white, bedding dipping at up to 20° from 315.37 m to 315.87 m, mud-pellets and coal traces from 317.45 m to 318.68 m, coal debris and contorted bedding and coal laminae from 319.98 m to 320.52 m, from 321.20 m to 321.70 m, and from 322.49 m to 322.87m.		
322.87	323.75	0.88		Laminite, FLSS/siltstone (70:30), undulose bedding dipping at up to 20°. Basal contact dips at 20°.		
323.75	326.31	2.56		MLSS, minor FLSS bands and coal traces, mud-pellets towards base which dips at 20°.		
326.31	326.96	0.65		COAL SECTION: Carbonaceous shale, algal mats from 326.76 m to 326.96 m, friable from 326.86 m to 326.96 m. GBC.		8
				* denotes an interval not sampled for analysis.		
326.96	327.45	0.49	100	Interbanded mudstone/carbonaceous mudstone (40:60) with minor dull-coal bands.		
327.45	328.47	0.16	16	* Claystone, shaly.		
328.47	328.62	0.15	100	Dull coal, broken core.		9
328.62	328.85	0.23		Interbanded carbonaceous mudstone/mudstone (60:40), shaly. GBC.		
328.85	329.08	0.23	100	Dull coal, broken core. GBC.	(cont.)	

Continued over

ASSAY DATA

Note: Bracketed figures are calculated.

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %		Feed % Frac.	Feed % Mass	Feed % Ash	Cum. Floats% Mass	Cum. Floats% Ash	Cum Sinks% Mass	Cum Sinks% Ash	%Ash Dist.		
Composite of 6A and 6B			5A, 5B,	F/T		1.4	12.2	9.3	12.2	9.3	100.0	(50.6)	2.3		
				F/T		1.6	22.9	23.5	35.1	(18.6)	87.8	(56.4)	10.6		
				F/T		1.8	16.5	43.2	51.6	(26.4)	64.9	(68.0)	14.1		
				S/K		1.8	48.4	76.4	100.0	(50.6)	48.4	76.4	73.0		
				H			100.0	(50.6)					100.0		
									Assays % (Dry Basis) Ash	Vol.	F.C.	S		S.E. (MJ/kg)	Ash Fusion °C
				C/F/T		1.6	35.1	18.6	17.3	35.9	46.8	0.38	12.9	25.9	1490
				C/S/K		1.6	64.9	68.0	68.6	20.9	10.5	0.10	87.1		
				H			100.0	50.6					100.0		

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
329.08	329.29	0.21	100	COAL SECTION: (contd.) Interbanded carbonaceous mudstone/mudstone (60:40), shaly. GBC.	9 (Cont.)	
329.29	329.38	0.09		Dull coal.		
329.38	329.58	0.20		Dull coal, broken core, GBC.		
329.58	330.28	0.70		Interbedded dull coal/carbonaceous mudstone/mudstone, broken core (where coal), subvertical joints. GBC.	10	
330.28	330.53	0.25		Carbonaceous mudstone/mudstone, interbedded. GBC.		
330.53	331.09	0.56		Mudstone, grey-brown-pink, carbonaceous laminae from 330.53 m to 330.73 m. GBC.		
331.09	333.07	1.98		Siltstone, grey; minor FLSS bands, contorted bedding and grey-white banding from 332.47 m to 333.07 m. GBC.		
333.07	333.70	0.63		Laminite, carbonaceous mudstone/mudstone (50:50), minor disturbed bedding, predominantly mudstone from 333.50 m to 333.70 m. GBC.		
333.70	334.60	0.90		Mudstone, grey-brown, minor coaly debris, slickenside dipping at 45° at 334.30 m, minor disturbed bedding, sparse clay-pellets from 334.20 m to 334.60 m. GBC.		
334.60	334.73	0.13		Claystone, dirty, poorly-sorted, brown-grey, abundant algal mats. Bottom contact is undulose and dips at 10°.		
334.73	334.88	0.15		Shale, brown-grey from 334.73 m to 334.81 m, grades to grey towards base, minor black rock fragments (coal debris?). GBC.		
334.88	335.31	0.43		FLSS, massive bedding, clean, well-sorted. GBC.		
335.31	336.74	1.43		FLSS, shaly, minor mud-pellets, cone-in-cone parting of core, minor disturbed bedding and cross-bedding. 25% mudstone matrix towards base. 45° dip slickenside from 335.70 m to 335.84 m. GBC.		

Continued over

ASSAY DATA

Note: bracketed figures are calculated.

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %		Feed % Frac.	Feed % Mass	Feed % Ash	Cum.Floats% Mass	Cum.Floats% Ash	Cum.Sinks% Mass	Cum.Sinks% Ash	%Ash Distn.		
Composite of 6A, and 7			6B		F/T	1.4	19.1	8.6	19.1	8.6	100.0	(42.8)	3.8		
					F/T	1.6	26.0	21.6	45.1	(16.1)	80.9	(50.9)	13.1		
					F/T	1.8	11.9	39.7	57.0	(21.0)	54.9	(64.8)	11.1		
					S/K	1.8	43.0	71.7	100.0	(42.8)	43.0	71.7	72.0		
					H		100.0	(42.8)					100.0		
									Assays % (Dry Basis)					S.E. (MJ/kg)	Ash Fusion°C
									Ash	Vol.	F.C.	S			
					C/F/T	1.6	45.1	16.1	15.7	40.0	44.3	0.41	16.9	26.7	1590
					C/S/K	1.6	54.9	64.8	65.8	25.2	9.0	0.05	83.1		
					H		100.0	42.8					100.0		

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
336.74	337.35	0.61	100	Interbedded FMLSS/MLSS (50:50) with sparse silty intervals; sharp contacts between beds, some of which show grading. Minor cross-bedding. Individual beds are up to 0.15 m thick. GBC.		
337.35	337.56	0.21	100	FMLSS, grey, shaly, up to 50% mudstone matrix. GBC.		
337.56	337.84	0.19	68	Siltstone, grey, sandy, minor light-coloured laminae from 337.83 m to 337.84 m. Undulose, sub-horizontal bottom contact.		
337.84	339.61	1.77	100	Interbedded FLSS/FMLSS with sparse silty horizons, grey and black-grey beds with sharp contacts, carbonaceous-laminae development near basal contact. Transitional contact from 339.56 m to 339.61 m.		
339.61	340.59	0.98	100	Coarse-grained lithic sandstone (CLSS), grey, minor FMLSS bands, sparse carbonaceous laminae. GBC.		
340.59	352.95	12.22	99	MLSS, grey, minor coal debris, coaly laminae, cross bedding, CLSS and FMLSS bands, bedding dipping at up to 20°. 0.14 m core loss between 345.93 m and 346.07 m. Abundant coaly debris, bedding (occasionally disturbed) dipping at up to 30°, calcareous bands, brown shale-bands and minor showings of siltstone pebbles and mud-pellet bands, CLSS intervals and slickensides from 348.16 m to 349.10 m. Coal debris, coaly laminae and siltstone pebbles from 350.00 m to 350.43 m. Mud pellet band from 352.90 m to 352.95 m. Basal contact dips at 10°.		
352.95	353.13	0.18	100	Mudstone, grey, carbonaceous laminae from 352.95 m to 353.00 m. Abundant plant-fossil fragments and slickensides. Undulose bottom contact dipping at 20°.		
353.13	353.24	0.11	100	CLSS, bedding dipping at up to 30°, abundant siltstone pebbles and pellets with their long axes aligned along the bedding plane. Irregular, sharp bottom-contact.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% Moisture (as received)	ASSAY RESULTS On Dry Basis % Ash	% Vol.	% F.C.		
8	326.31	327.45	1.14	100	7.7	77.2	-	-		
9	328.47	329.38	0.91	100	5.2	54.3	-	-		
10	329.38	330.28	0.90	100	4.9	44.3	27.9	27.8		
11	355.15	356.46	1.31	100	6.8	34.8	33.4	31.8		

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
353.24	353.74	0.50	100	Dull coal with sparse bright bands from 353.24 m to 353.28 m, irregular cleat surfaces contain calcite; joint (dipping at 50°) from 353.24 m to 353.38 m, minor slickensides, broken core from 353.38 m to 353.43 m and from 353.55 m to 353.69 m, kaolinite on some cleat surfaces, mudstone band from 353.425 m to 353.43 m. Transition zone from 353.71 m to 353.74 m (Laminite, coal/mudstone (50:50)).		
353.74	354.39	0.65		FLSS, grey, minor siltstone bands becoming laminae towards base. Undulose slickenside (dipping at 50°) from 353.75 m to 353.84 m. Sparse coaly debris, 45° dip slickenside from 354.34 m to 354.39 m. GBC.		
354.39	355.15	0.76		Laminite, FLSS/siltstone (75:25), mudstone at base, abundant slickensides from 354.39 m to 354.62 m and from 355.05 m to 355.15 m, minor carbonaceous laminae and plant-fossil fragments from 355.05 m to 355.15 m also. Irregular bottom-contact.		
355.15	355.27	0.12		COAL SECTION: Dull coal with minor bright bands. GBC.		
355.27	355.40	0.13		Shale, brown, friable, clayey, calcareous.		
355.40	355.67	0.27		Dull coal with minor bright bands. GBC.		
355.67	355.72	0.05		Shale, brown, plant-fossil fragments.		11
355.72	355.74	0.02		Dull coal. GBC.		
355.74	355.76	0.02		Shale, brown, minor plant-fossil fragments.		
355.76	356.46	0.70	100	Dull coal, sparse bright bands, broken core, carbonaceous mudstone from 355.76 m to 355.81 m. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Frac.	Feed % Mass	Feed % Ash	Cum. Floats % Mass	Cum. Floats % Ash	Cum. Sinks % Mass	Cum. Sinks % Ash	% Ash Distr.	Assays % (Dry Basis) Ash	Assays % (Dry Basis) Vol.	Assays % (Dry Basis) F.C.	Assays % (Dry Basis) S	S.E. (MJ/kg)	Ash Fusion °C
Composite of samples 9 and 10					F/T 1.4	17.1	9.4	17.1	9.4	100.0	(47.4)	3.4						
					F/T 1.6	25.3	24.0	42.4	(18.1)	82.9	(55.2)	12.8						
					F/T 1.8	9.8	46.7	52.2	(23.5)	57.6	(68.9)	9.7						
					S/K 1.8	47.8	73.4	100.0	(47.4)	47.8	73.4	74.1						
					H	100.0	(47.4)					100.0						
					C/F/T 1.6	42.4	18.1	18.0	36.8	45.2	0.35	16.2	26.0	1630				
					C/S/K 1.6	57.6	68.9	69.3	22.6	8.1	0.08	83.8						
					H	100.0	47.4					100.0						

Note: Bracketed figures are calculated.

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
356.46	358.76	2.30	100	Laminite, FLSS/siltstone (75:25), shaly, minor cross-bedding, plant-fossil debris and coaly-laminae and traces. Slickensides from 357.09 m to 357.14 m (dipping at 45°) and from 358.31 m to 358.27 m (dipping at 30°). Transitional bottom contact from 358.36 m to 358.76 m.		
358.76	359.31	0.55		Siltstone, grey, 25% clay matrix, shaly, transition to FMLSS from 359.16 m to 359.31 m.		
359.31	361.58	2.27		Laminite, FLSS/siltstone (60:40), interbanded in places, FMLSS from 359.31 m to 359.41 m, mudstone from 361.28 m to 361.58 m. Slickenside at base.		
361.58	361.72	0.14		Shale, calcareous, clayey, flakey, friable.		
361.72	361.90	0.18		Mudstone, grey, slickenside (dipping at 45°) from 361.72 m to 361.76 m; sparse carbonaceous laminae. Dip on basal contact is 10°.		
361.90	361.95	0.05		COAL SECTION: Dull coal, slickenside (showing secondary calcite development from 361.93m to 361.95m.		12A
361.95	361.99	0.04		Carbonaceous shale, very soft and friable.		
361.99	362.11	0.12		Dull coal, sub-vertical cleat with calcite infilling. Transition to mudstone from 362.05 m to 362.11 m.		
362.11	362.14	0.03		Shale, brown, flakey, calcareous.		
362.14	362.22	0.08		Interbanded carbonaceous mudstone and mudstone, abundant slickensiding, shaly.		
362.22	362.84	0.62		Dull coal, broken core from 362.22 m to 362.25 m and from 362.45 m to 362.65 m. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS % Moisture (as received)	On Dry Basis % Ash	% Vol.	% F.C.
12A	361.90	362.84	0.94	100	5.4	37.0	31.5	31.5
12B	362.84	363.69	0.81	95	4.7	49.9	27.8	22.3

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
362.84	362.93	0.09	100	COAL SECTION: (cont.) Laminite, carbonaceous mudstone/mudstone (50:50). GBC.		
362.93	363.09	0.12	75	Dull coal, friable, with minor brown claystone laminae from 362.93 m to 363.01 m. GBC.		
363.09	363.31	0.22	100	Dull coal, mudstone band (white) from 363.14 m to 363.15 m. Broken core.		12B
363.31	363.33	0.02		Mudstone band, white-grey.		
363.33	363.49	0.16		Dull coal, kaolinite on sub-vertical cleat. GBC.		
363.49	363.69	0.20		Interbanded carbonaceous mudstone/coal (50:50), slickenside from 363.53 m to 363.56 m. GBC.		
363.69	365.25	1.56		Mudstone, grey, minor disturbed bedding, carbonaceous laminae and coaly debris. Slickenside (dipping at 45°) from 364.34 m to 364.38 m.		
365.25	367.61	2.36		Interbanded grey mudstone/grey-white siltstone (50:50), abundant cross-bedding and features of disturbed bedding; laminated in places. Slickensides from 365.43 m to 365.46 m and from 366.05 m to 366.53 m (abundant slickensides dipping at 30°, and microfaults with < 0.01 m movement in the latter zone).		
367.61	368.23	0.62		Laminite, FLSS/siltstone (50:50), minor cross-bedding, GBC.		
368.23	379.39	11.16	100	MLSS, grey, minor horizons of FLSS and CLSS. Carbonaceous laminae, siltstone pebbles and coaly debris occur from 368.23 m to 370.57 m, from 376.40 m to 376.45 m, from 376.86 m to 377.16 m, from 377.40 m to 377.45 m, from 378.74 m to 378.93 m and from 379.15 m to 379.34 m. Bedding occasionally dipping at up to 20°.		

Continued over

ASSAY DATA

Note: Bracketed figures are calculated

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %		Feed % Frac	Feed % Mass	Feed % Ash	Cum. Floats% Mass	Cum. Floats% Ash	Cum. Sinks% Mass	Cum. Sinks% Ash	%Ash Dist.	Assays % (Dry Basis) Ash	Assays % (Dry Basis) Vol.	Assays % (Dry Basis) F.C.	Assays % (Dry Basis) S	MJ/kg	S.E. Ash Fusion °C
Composite of samples 12A and 12B					F/T	1.4	23.3	13.7	23.3	13.7	100.0	(41.0)	7.8						
					F/T	1.6	37.2	25.8	60.5	(21.1)	76.7	(49.3)	23.4						
					F/T	1.8	8.7	48.1	69.2	(24.5)	39.5	(71.3)	10.2						
					S/K	1.8	30.8	77.9	100.0	(41.0)	30.8	77.9	58.6						
					H		100.0	(41.0)					100.0						
					C/F/T	1.6	60.5	21.1	21.0		39.9	39.1	0.41	31.2	25.2	1560			
					C/S/K	1.6	39.5	71.3	71.5		25.1	3.4	0.30	68.8					
					H		100.0	41.0						100.0					

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
379.39	379.52	0.13	100	Laminite, carbonaceous mudstone/mudstone (60:40). GBC.		
379.52	380.17	0.65		Siltstone, grey, minor FLSS and mudstone bands, sparse disturbed-bedding. GBC.		
380.17	382.13	1.96		Mudstone, minor FLSS and siltstone bands, sparse disturbed-bedding, sparsely laminated. GBC.		
382.13	382.53	0.40		Carbonaceous siltstone with minor FLSS bands and laminae. GBC.		
382.53	383.48	0.95		Laminite, FMLSS/carbonaceous mudstone (70:30). GBC.		
383.48	383.89	0.41		FLSS, grey-white, sparse plant-fossil debris. GBC.		
383.89	384.81	0.92	100	Laminite, grey FLSS/grey-black siltstone (50:50), minor cross-bedding, basal contact dips at 20°.		
384.81	402.10	14.18	82	MLSS, grey-white, predominantly massive-bedding, interbedded with minor FMLSS; minor siltstone and carbonaceous laminae. Abundant mud-pellets, mudstone bands, coaly debris, CLSS bands and slickensides from 397.54 m to 399.07 m. (Majority of core loss is from the interval 399.07 m to 402.10 m).		
402.10	402.15	0.05	100	Mudstone, grey, abundant slickensides, minor carbonaceous laminations dipping at up to 45°. Irregular, sharp bottom-contact.		
402.15	404.25	2.10	100	MLSS, grey-white, bedding dipping at up to 20°, abundant carbonaceous laminae, minor coaly debris, CLSS bed from 402.15 m to 402.51 m, FMLSS band from 402.51 m to 402.58 m. Mud-pellets from 402.15 m to 402.30 m, calcareous matrix from 402.51 m to 404.25 m, cross-bedding from 404.03 m to 404.25 m, sub-vertical calcite vein from 402.88 m to 403.25 m, joints dipping at 60° from 403.45 m to 403.57 m and from 403.65 m to 403.70 m. Sharp, undulose bottom-contact.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
404.25	404.27	0.01	50	Mudstone, creamy-grey, shaly.		
404.27	404.64	0.37	100	COAL SECTION: Dull coal with <5% bright bands, well-developed cleat (core breaks readily), mudstone band from 404.56 m to 404.59 m.		13A
404.64	405.84	1.20		Dull coal with minor bright bands, broken core (well-developed cleat?), minor kaolinite and calcite on cleat surfaces.		13B
405.84	406.98	1.14		Dull coal with minor mudstone laminae and bands from 406.54 m to 406.98 m; slickensiding (dipping at up to 45°) in carbonaceous mudstone from 406.64 m to 406.69 m and at 406.84 m.		13C
406.98	407.01	0.03		Mudstone, grey-brown, slickenside (dipping at 20°) at base.		
407.01	407.07	0.06		Carbonaceous mudstone. GBC.		
407.07	407.70	0.63		Mudstone, grey-brown, clayey, shaly, minor carbonaceous debris.		
407.70	407.81	0.11		Transition zone.		
407.81	408.46	0.65		Interbedded FLSS/siltstone (40:60), grey. Undulose, sharp bottom-contact.		
408.46	409.83	1.37		FMLSS, fining upwards, bedding dipping at up to 15°. GBC.		
409.83	437.18	27.35	100	MLSS, grey to grey-white; minor calcareous matrix, coaly debris and carbonaceous laminae. CLSS bands and beds from 414.05m to 414.93 m and from 422.32 m to 423.32 m. Carbonaceous laminae from 413.51 m to 413.73 m. Mud-pellets, siltstone cobbles and coaly fragments from 415.28 m to 415.76 m, bedding dipping at up to 15° (predominantly sub-horizontal). Mud-pellet from 435.01 m to 435.03 m, siltstone band from 436.81 m to 436.82 m, coaly debris from 437.14 m to 437.18 m. Irregular bottom contact dipping at 20°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS % Moisture (as Received)	On Dry Basis % Ash	% Vol.	% F.C.
13A	404.27	404.64	0.37	100	5.7	36.4	30.0	33.6
13B	404.64	405.84	1.20	100	5.0	27.4	29.8	42.8
13C	405.84	406.98	1.14	100	3.7	32.6	31.0	36.4
Composite	13A,	13B and	13C		(4.5)	(30.8)	(30.3)	(38.9)

* bracketed figures are calculated.

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
437.18	438.12	0.94	100	FMLSS, green-grey, dull coal from 437.48 m to 437.50 m, MLSS beds from 437.82 m to 438.12 m, coaly debris and laminae (dipping at up to 20°) from 437.72 m to 438.05. Sharp, irregular bottom-contact.		
438.12	438.74	0.62		Mudstone, grey, abundant carbonaceous laminae and partings, minor carbonaceous mudstone bands, bedding dipping at up to 30°.		
438.74	440.26	1.52		Interbedded grey mudstone/siltstone (60:40), minor FLSS bands, slickenside (dipping at 45°) from 440.13 m to 440.16 m. Sharp, irregular bottom contact.		
440.26	440.35	0.09		Carbonaceous mudstone/dull coal (60:40). GBC.		
440.35	440.55	0.20		FLSS, brown, indurated, minor carbonaceous debris. GBC.		
440.55	441.12	0.57		FLSS, grey, cross-bedding from 440.82 m to 441.12 m. GBC.		
441.12	443.41	2.29		Laminite, FLSS/black siltstone and mudstone (30:70) grading down to grey/black-mudstone laminite (60:40). Slickensides (dipping at between 30° and 45°) from 441.34 m to 441.39 m, from 442.14 m to 442.17 m, from 442.53 m to 442.59 m, from 442.68 m to 442.71 m, from 442.73 m to 442.76 m, from 442.78 m to 442.80 m and from 443.17 m to 443.22 m. Abundant cross-bedding. Bedding dipping at up to 30° from 441.91 m to 443.41 m. GBC.		
443.41	444.38	0.97		Laminite, carbonaceous mudstone/grey mudstone (50:50), slickenside (dipping at 45°) from 444.13 m to 444.17 m. GBC.		
444.38	444.58	0.20		Transition zone. Interbedded carbonaceous siltstone/FLSS/mudstone.		
444.58	449.53	4.95	100	MLSS, grey-white, abundant carbonaceous laminae and partings dipping at up to 15°, minor calcareous matrix, abundant mudpellets from 446.08 m to 446.38 m.		

Continued over

ASSAY DATA

Note: Bracketed figures are calculated

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Feed %	Cum. Floats%		Cum.Sinks%		%Ash		
					Frac	Mass	Ash	Mass	Ash	Mass	Ash	Dist.
Composite	of samples			F/T	1.4	24.1	9.7	24.1	9.7	100.0	(29.8)	7.8
	13A, 13B			F/T	1.6	47.7	22.8	71.8	(18.4)	75.9	(36.1)	36.6
	and 13C			F/T	1.8	12.0	42.8	83.8	(21.9)	28.2	(58.7)	17.3
				S/K	1.8	16.2	70.6	100.0	(29.8)	16.2	70.6	38.3
				H		100.0	(29.8)					100.0
								Assays %(Dry Basis)				
								Ash	Vol.	F.C.	S	(MJ/kg)
				C/F/T	1.6	71.8	18.4	18.6	35.9	45.5	0.35	44.4
				C/S/K	1.6	28.2	58.7	59.4	24.1	16.5	0.21	55.6
				H		100.0	29.8					100.0

S.E.	Ash Fusion °C
25.4	1590

41	GEOLOGICAL LOG	Page:- 16

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
449.53	450.10	0.57	100	CLSS, grey, minor carbonaceous laminae and coaly partings, bedding dipping at 15°. Undulose, sharp bottom-contact.		
450.10	450.41	0.31		Siltstone, steeply-dipping (60°) carbonaceous laminae, minor coaly debris, slickenside (dipping at 45°) from 450.36 m to 450.41 m. GBC.		
450.41	450.77	0.36		Interbedded grey siltstone/laminite (50:50) (Laminite is FMLSS/carbonaceous mudstone (70:30)). Minor disturbed bedding in the laminite. GBC.		
450.77	452.56	1.79		Laminite, grey mudstone/carbonaceous siltstone (50:50), minor FMLSS laminae. Grading down to a MLSS/carbonaceous siltstone (50:50) laminite from 452.05 m to 452.55 m. Slickenside (dipping at 45°) from 452.38 m to 452.41 m. Minor disturbed bedding (dipping at up to 10°) and cross-bedding. Undulose, irregular bottom-contact.		
452.56	452.57	0.01		COAL SECTION: Carbonaceous shale/brown shale (50:50), clayey, abundant plant fossils, irregular bottom-contact.		
452.57	453.04	0.47		Dull coal, minor mudstone laminae and bright-coal laminae. Cleat (dipping at 45°) from 452.89 m to 453.04 m.		14A
453.04	453.05	0.01		Claystone, grey-brown, non-swelling, shaly, abundant plant fossil debris.		
453.05	453.28	0.23		Dull coal.		
453.28	453.39	0.11		Heavy dull coal.		
453.39	453.43	0.04		Dull coal.		
453.43	453.72	0.29	100	Carbonaceous mudstone, friable, shaly, abundant algal mats, slickenside (dipping at 45°) at 453.53 m.		14B

Continued over

(Contd.)

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
453.72	453.99	0.08	30	COAL SECTION: (cont.) Shale, grey, friable.		(cont)
453.99	454.30	0.31	100	Heavy dull coal, mudstone band from 454.03 m to 454.04 m, carbonaceous shale band from 454.12 m to 454.16m, slickenside (dipping at 45°) from 454.16 m to 454.23 m, slickenside (dipping at 30°) from 454.28 m to 454.30 m, minor cleat and slickenside development from 454.23 m to 454.28 m.		14B
454.30	454.95	0.65		Interlaminated carbonaceous mudstone, siltstone and sandstone; shaly. Irregular, dipping bottom-contact.		14C
454.95	461.94	6.99		MLSS, grey, massive bedding, minor mudstone laminae (dipping at 20°) from 455.95 m to 456.35 m, minor calcareous matrix, minor FLSS bands. Irregular bottom-contact dipping at 20°.		
461.94	462.56	0.62		COAL SECTION: Dull coal, broken core, brown shale-band from 462.00 m to 462.02 m.		
462.56	462.57	0.01		Mudstone, brown.		15
462.57	462.67	0.10		Dull coal with 20% bright laminae and bands. Irregular bottom-contact dipping at 20°.		
462.67	463.11	0.44		FLSS, abundant carbonaceous laminae and disturbed bedding, slickenside from 462.76 m to 462.80 m. GBC.		
463.11	463.52	0.41		Siltstone, grey, abundant slickensides (dipping at up to 45°). GBC.		
463.52	464.00	0.48	100	Mudstone, grey, abundant slickensides, minor disturbed bedding and carbonaceous laminae. Slickenside (dipping at 45°) at base.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS % Moisture (as received)	On Dry Basis % Ash	% Vol.	% F.C.
14A	452.56	453.39	0.83	100	6.5	45.1	27.4	27.5
14B	453.39	454.30	0.72	79	10.0	76.4	-	-
14C	454.30	454.95	0.65	100	3.7	82.8	-	-
15	461.94	462.67	0.73	100	5.3	30.4	29.5	40.1

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
464.00	464.29	0.11	38	Interbanded greyshale, carbonaceous shale and secondary (?) calcite, slickenside (dipping at 45°) at base.		
464.29	465.43	1.14	100	Mudstone, grey, silty, minor plant-fossil debris. Slickensides (dipping at 45°) from 464.35m to 464.39m and from 464.60m to 464.62m. Abundant slickensides from 465.23m to 465.43m. Carbonaceous laminae (dipping at up to 20°) from 464.95m to 465.05m. GBC.		
465.43	465.87	0.44		FLSS, grey, minor carbonaceous-laminae dipping at 30°. GBC.		
465.87	466.31	0.44		MLSS, grey, calcareous matrix; abundant carbonaceous-laminae and cross-bedding (bedding dipping at up to 20°) from 466.10m to 466.31m Bottom contact dipping at 10°.		
466.31	467.46	1.15		Mudstone, grey, minor slickensides and carbonaceous laminae.		
467.46	468.50	1.04		Laminite, FMLSS/grey siltstone (70:30), minor interbanding and cross-bedding, abundant disturbed-bedding. GBC.		
468.50	470.54	2.04		FMLSS, grey, minor carbonaceous laminae (dipping at 15°), shaly. Bottom contact dipping at 5°.		
470.54	471.09	0.55		Siltstone, grey, minor cross-bedding, grading down to a grey mudstone from 470.89m to 471.09m. GBC.		
471.09	471.43	0.34		Carbonaceous mudstone with minor bands of carbonaceous FMLSS, silty from 471.33m to 471.43m. GBC.		
471.43	472.02	0.59		Laminite, MLSS/carbonaceous siltstone (60:40), laminae are poorly-developed, minor disturbed bedding dipping at up to 15°. GBC.		
472.02	477.05	5.03	100	MLSS, grey, abundant carbonaceous laminae and coaly debris, minor disturbed bedding dipping at up to 20°, mud-pellets from 474.29m to 474.44m, minor siltstone bands and laminae (containing carbonaceous debris) from 474.44m to 474.94m. Bottom-contact dips at 5°.		

Continued over

ASSAY DATA

Note: Bracketed figures are calculated.

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %		Feed % Frac.	Feed % Mass	Feed % Ash	Cum. Floats % Mass	Cum. Floats % Ash	Cum. Sinks % Mass	Cum. Sinks % Ash	% Ash Distr.		
Composite of samples 14A, and 14C				14B		F/T 1.4	2.7	15.9	2.7	15.9	100.0	(66.1)	0.6		
						F/T 1.6	9.7	24.9	12.4	(23.0)	97.3	(67.5)	3.7		
						F/T 1.8	17.4	49.9	29.8	(38.7)	87.6	(72.2)	13.2		
						F/K 1.8	70.2	77.7	100.0	(66.1)	70.2	77.7	82.5		
						H	100.0	(66.1)					100.0		
									Assays % (Dry Basis)					S.E.	Ash
									Ash	Vol.	F.C.	S		(MJ/kg)	Fusion °C
					C/	F/T 1.6	12.4	23.0	22.7	38.0	39.3	0.45	4.3	24.8	1510
					C/	F/K 1.6	87.6	72.2	72.6	21.3	6.1	0.09	95.7		
					H		100.00	66.1					100.0		

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41				GEOLOGICAL LOG		Page:- 19
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
477.05	477.99	0.49	52	Carbonaceous siltstone with grey mudstone laminae from 477.05 m to 477.10 m, shaly, algal mats from 477.96 m to 477.99 m. GBC.		
477.99	478.83	0.84	100	Laminite, FMLSS/carbonaceous siltstone (40:60), laminae are poorly lenticular and cross-bedded, shaly from 478.58 m to 478.73 m. Bottom contact dips at 10°.		
478.83	478.96	0.13	100	Dull coal, sparse bright-bands and algal mats, kaolinite on sub-vertical cleat surfaces.		
478.96	479.41	0.03	7	Shale, grey-black and brown, soft, friable, sparsely carbonaceous.		
479.41	479.49	0.08	100	Siltstone, grey, minor sandy-bands, shaly, minor plant-fossil debris. GBC.		
479.49	482.49	3.00		Laminite, mudstone/siltstone (60:40), shaly (particularly from 480.49 m to 482.49 m), slickensides (dipping at 45°) from 480.41 m to 480.45 m and from 480.83 m to 480.87 m, secondary calcite veins from 481.06 m to 481.12 m, cross-bedding dipping at up to 20° from 481.49 m to 482.49 m, minor swelling-clays in matrix. GBC.		
482.49	485.32	2.83		Laminite, cream FLSS/grey siltstone (60:40), shaly; calcareous matrix, minor cross-bedding, bedding dips at up to 10°, FLSS predominates from 484.32 m to 485.32 m, secondary calcite veins from 484.24 m to 484.33 m. GBC.		
485.32	488.57	3.25		MLSS, grey, massive, mud-pellet band and coaly debris from 486.31 m to 486.57 m, minor CLSS bands; carbonaceous laminae (dipping at 5°) from 488.41 m to 488.51 m. Bottom contact dips at 10°.		
488.57	488.84	0.27		Mudstone, grey, minor siltstone-and carbonaceous-laminae, slickenside zone from 448.80 m to 448.84 m. GBC.		
488.84	489.33	0.49		Siltstone, grey. GBC.		
489.33	491.52	2.19	100	Laminite, FLSS/grey siltstone (60:40), bedding dipping at up to 20°, abundant cross-bedding, sparse flaser bedding, sygmoidal slickenside from 489.39 m to 489.44 m. GBC. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %

41	GEOLOGICAL LOG	Page:- 20

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
491.52	491.86	0.34	100	Interbedded grey siltstone/MLSS (70:30).		
491.86	492.85	0.99		MLSS, grey, minor CLSS.		
492.85	492.87	0.02		Mudstone, grey-brown, broken and abraded core.		
492.87	493.20	0.33	100	Carbonaceous mudstone, shaly. GBC.		
493.20	495.41	2.15	97	FLSS, carbonaceous, shaly, silty, minor plant-fossils. GBC.		
495.41	497.99	2.28	88	Laminite, MLSS/carbonaceous mudstone (60:40), silty, minor cross-bedding, bedding dipping at up to 10°, mud-pellets and coal debris from 496.09 m to 496.29 m. Irregular bottom-contact dipping at 5°. (Core loss from 495.41 m to 495.71 m).		
497.99	512.55	14.56	100	MLSS, grey-green, bedding dipping at up to 10° from 497.99 m to 500.45 m, mud-pellet band from 503.66 m to 503.68 m, cross-bedding from 503.68 m to 503.83 m (bedding dipping at up to 20°), siltstone laminae from 503.83 m to 504.03 m, minor coaly debris and laminae (dipping at up to 30°) from 505.73 m to 507.29 m, FMLSS band from 508.30 m to 508.65 m, grey-white from 509.57 m to 512.55 m, calcareous matrix from 511.26 m to 512.55 m, FMLSS with carbonaceous laminae from 510.74 m to 510.87 m, coaly debris and laminae from 511.17 m to 511.27 m and from 512.35 m to 512.55 m. Irregular bottom-contact dipping at 20°.		
512.55	512.65	0.10		Mudstone, grey, abundant slickensides. GBC.		
512.65	514.21	1.56		Siltstone, grey, grading down to a mudstone, carbonaceous towards base, plant-fossil at 513.65m, slickensides (dipping at between 30° and 45°) from 512.71 m to 512.77 m, from 512.85 m to 512.88 m, from 512.94 m to 512.96 m, from 513.50 m to 513.52 m, from 513.60 m to 513.62 m, from 513.86 m to 513.88 m, from 514.04 m to 514.06 m, at 514.08 m and from 514.13 m to 514.16 m. GBC.		
514.21	515.83	1.62	100	Interbedded FMLSS and carbonaceous mudstone, MLSS towards base, cross - and disturbed-bedding, plant-fossil-and coal-debris. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

41				GEOLOGICAL LOG	Page:- 21	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
515.83	516.25	0.42	100	Carbonaceous mudstone, shaly, grading down to grey mudstone. Bottom-contact dipping at 25°.		
516.25	517.33	1.08		Interbedded and interbanded FMLSS/grey mudstone, silty. GBC.		
517.33	518.40	1.07		Laminite, FLSS/grey and carbonaceous mudstone (50:50). GBC.		
518.40	518.70	0.30		Mudstone, black-grey. GBC.		
518.70	518.81	0.11		Mudstone, grey. Broken core. GBC.		
518.81	519.01	0.20		Siltstone, grey. GBC.		
519.01	519.24	0.23		Mudstone, grey, minor carbonaceous laminae. GBC.		
519.24	519.62	0.38		Siltstone, grey, minor mudstone bands. GBC.		
519.62	519.80	0.18		Laminite, carbonaceous mudstone/grey mudstone/ grey FLSS (50:40:10). GBC.		
519.80	519.92	0.12	100	FMLSS, minor disturbed-carbonaceous-laminae. GBC.		
519.92	521.70	1.25	70	Mudstone, grey, abundant slickensides from 519.92 m to 520.58 m, shaly; broken core from 519.98 m to 520.08 m; minor siltstone beds, carbonaceous-mudstone beds and FMLSS bands from 521.20 m to 521.70 m. GBC.		
521.70	522.29	0.59	100	Siltstone, grey, minor plant-fossil fragments, slickenside (dipping at 30°) from 522.21 m to 522.24 m, shaly from 522.26 m to 522.29 m.		
522.29	522.31	0.02		Claystone, brown, shaly, sugar-like texture (20%) with clay (80%). Bottom contact dips at 10°.		
522.31	522.59	0.28		Carbonaceous mudstone, minor plant-fossil fragments, heavy dull-coal from 522.31 m to 522.36 m, multiple slickensides (dipping at 30°) from 522.42 m to 522.44 m and from 522.51 m to 522.53 m. Bottom contact dips at 15°.		
522.59	522.87	0.28		FLSS/siltstone and mudstone bands (70:30)flaser bedding from 522.59 m to 522.60 m, bedding dips at up to 30° from 522.76 m to 522.79 m, slickensides (dipping at 50°) from 522.70 m to 522.76 m and from 522.79 m to 522.83 m. GBC.		
522.87	523.03	0.16	100	Mudstone, dark-grey, minor cone-in-cone slickensiding. Bottom contact dips at 10°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

41				GEOLOGICAL LOG		Page:- 22
FROM	TO	RECOVERY		DESCRIPTION	SECTION	
metres	metres	metres	%		Core	Sample
523.03	523.08	0.05	100	Laminite, carbonaceous mudstone/FLSS (60:40), bedding dips at 10°.GBC.		
523.08	523.42	0.34		Mudstone, dark-grey, silty, minor plant-fossil fragments, carbonaceous in part. GBC.		
523.42	524.57	1.15		Interbanded and interbedded FLSS/siltstone with minor grey mudstone, calcareous matrix from 524.06 m to 524.16 m, calcite veination from 523.99 m to 524.05 m, slickensides (dipping at 30°) from 523.97 m to 524.00 m, from 524.17 m to 524.19 m and from 524.40 m to 524.41 m, bedding occasionally dipping at 20°.		
524.57	526.05	1.48		FMLSS, grey, minor contorted laminae from 524.57 m to 524.87 m. Bottom contact dips at 5°.		
526.05	526.35	0.30		Siltstone, grey, minor plant-fossil fragments. GBC.		
526.35	526.52	0.17		MLSS, grey, siltstone pebble from 526.50 m to 526.52m.		
526.52	526.77	0.25		Mudstone, grey, minor cone-in-cone slickensides. GBC.		
526.77	527.11	0.34		Laminite, dark-grey siltstone/FLSS (40:60), cross-bedded. GBC.		
527.11	527.41	0.30		FMLSS, grey, minor dark-grey siltstone bands and laminae. Irregular bottom contact.		
527.41	527.54	0.13		Mudstone, grey. Irregular bottom contact.		
527.54	527.59	0.05		Heavy dull coal. GBC.		
527.59	527.61	0.02		FMLSS, carbonaceous. Irregular bottom-contact with small-scale neptunian dykes into the unit below.		
527.61	528.05	0.44		MLSS, grey, minor dark-grey siltstone bands from 527.91 m to 527.93 m. Bottom contact dips at 10° with MLSS fingers penetrating 0.02 m into the unit below.		
528.05	528.28	0.23		Laminite, dark-grey to carbonaceous siltstone/FMLSS (50:50), poorly-sorted. Bottom contact dips at 10°.		
528.28	529.88	1.60		Interbanded FLSS/siltstone/mudstone (40:20:40), grey mudstone predominates from 528.80 m to 529.88 m, slickensides in carbonaceous mudstone (resulting in broken core) from 529.58 m to 529.66 m. Undulose bottom - contact dips at 5°.		
529.88	530.67	0.79	100	FMLSS, grey, minor cross-bedded dark-grey siltstone bands and laminae from 529.88 m to 530.18 m. Bottom contact dips at 5°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM	TO	RECOVERY		ASSAY RESULTS									
	metres	metres	metres	%										

41	GEOLOGICAL LOG				Page:- 23	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
530.67	530.88	0.21	100	Siltstone, grey, laminated from 530.67 m to 530.72 m. Irregular bottom-contact.		
530.88	531.06	0.18		Carbonaceous mudstone. GBC.		
531.06	532.25	1.19	100	FMLSS, grey, minor dark-grey siltstone bands and laminae.		
532.25	532.84	0.59	0	Core loss.		
532.84	533.40	0.56	100	Mudstone, grey. GBC.		
533.40	533.59	0.19		FMLSS, grey. Bottom contact dips at 5°.		
533.59	533.68	0.09		Laminite, dark-grey siltstone/FMLSS (60:40), minor grey-mudstone bands.		
533.68	534.03	0.35		Mudstone, grey. GBC.		
534.03	534.36	0.33		Dark-grey mudstone/siltstone (50:50), carbonaceous in part. Irregular bottom-contact.		
534.36	534.41	0.05		FMLSS, dark-grey. GBC.		
534.41	537.33	2.92		Laminite, FMLSS/grey mudstone/grey siltstone (20:40:40), 0.005 m diameter vertical MLSS bands from 535.17 m to 535.28 m. GBC.		
537.33	537.58	0.25		Mudstone, grey. GBC.		
537.58	538.72	1.14		Interbedded MLSS/medium-grained quartzose sandstone (MQSS) (70:30), minor cross-bedding, minor carbonaceous siltstone and mudstone laminae, ? bioturbated from 537.76 m to 538.08 m. Bottom contact dips at 10°.		
538.72	538.92	0.20		Siltstone, dark-grey. GBC.		
538.92	539.22	0.30		Interbanded FMLSS/grey siltstone (50:50), distorted bedding (?bioturbation).		
539.22	539.45	0.23		MQSS/MLSS (50:50).		
539.45	539.65	0.20		Mudstone, grey. Undulose bottom-contact.		
539.65	539.90	0.25		MQSS. GBC.		
539.90	541.15	1.25		Laminite, FMLSS/dark-grey siltstone (50:50), minor irregular bedding dipping at up to 10°. Irregular, sub-horizontal bottom-contact.		
541.15	541.85	0.70		Carbonaceous siltstone, minor plant-fossils. GBC.		
541.85	541.99	0.14		Laminite, FMLSS/dark-grey siltstone (50:50). Bottom contact dips at 15°.		
541.99	544.99	3.00	100	MQSS, grey-white, minor carbonaceous laminae and coaly debris, bedding dips at up to 20°. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

41	GEOLOGICAL LOG	Page:- 24

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
544.99	545.08	0.09	100	Carbonaceous siltstone, minor plant-fossils.		
545.08	545.21	0.13		Laminite, FMLSS/dark-grey siltstone (50:50).		
545.21	545.30	0.09		MQSS, grey-white, minor carbonaceous laminae and coaly debris.		
545.30	545.65	0.35		Laminite, FMLSS/dark-grey siltstone (50:50).		
545.65	545.78	0.13		MQSS, grey-white. Bottom contact dips at 5°.		
545.78	545.86	0.08		Carbonaceous mudstone. GBC.		
545.86	546.08	0.22		Shale, brown-grey, friable, sticky when wet. GBC.		
546.08	546.29	0.21		Carbonaceous mudstone, sub-vertical joint runs down the centre of the core. GBC.		
546.29	546.36	0.07		Dull coal, irregular sub-vertical joint runs down the centre of the core. Irregular sub-horizontal bottom-contact.		
546.36	546.55	0.19		Siltstone, dark-grey, minor mudstone-bands, irregular sub-vertical joint runs down the centre of the core. Bottom contact dips at 5°.		
546.55	549.00	2.45		MLSS, minor carbonaceous laminae and bands, minor coaly debris and mud-pellets (diameter up to 0.02 m) minor grey-siltstone bands. Quartzose (40%) from 547.84 m to 549.00 m, minor coarse-grained intervals.		
549.00	549.20	0.20		Interbedded heavy dull coal/MQSS/shaly brown mudstone (30:40:30), slickenside (dipping at 30°) from 549.15 m to 549.17 m. GBC.		
549.20	551.85	2.65		MQSS, grey-white, abundant carbonaceous laminae, ?bioturbation from 549.70 m to 549.90 m, green tint from 550.70 m to 551.00 m, carbonaceous siltstone pebbles from 551.80 m to 551.85 m. GBC.		
551.85	564.18	12.33	100	MQSS grey-white, 20% MLSS in matrix. Poorly-sorted, muddy siltstone from 552.35 m to 552.75 m, minor plant-fossil debris and carbonaceous laminae, bedding dips at up to 20°, interbedded with carbonaceous siltstone from 562.07 m to 562.79 m and from 563.65 m to 564.04 m, laminite (MQSS/carbonaceous siltstone (80:20)) from 562.79 m to 563.37 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

41	GEOLOGICAL LOG	Page:- 25

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
564.18	567.59	3.41	100	Siltstone, black-grey, minor plant-fossil fragments and carbonaceous debris, minor sub-angular to angular quartzose-grits, minor laminae and bands of MLSS and carbonaceous mudstone. GBC.		
567.59	567.65	0.06		Transition zone.		
567.65	568.17	0.52		MLSS, grey-green, 25% mudstone in matrix, 20% quartzose; minor siltstone laminae. Bottom contact dips at 10°.		
568.17	568.83	0.66		MLSS, dirty, poorly-sorted, carbonaceous from 568.17 m to 568.27 m, minor bands of siltstone and mudstone. GBC.		
568.83	569.39	0.56		Mudstone, grey-brown, green conglomeritic MLSS band from 568.86 m to 568.92 m, slickenside (dipping at 45°) from 596.16 m to 569.23 m, sparse carbonaceous laminae (dipping at up to 5°) from 569.24 m to 569.39 m. GBC.		
569.39	569.91	0.52		Conglomerate, green-grey with flattened mud-pellets from 569.39 m to 569.49 m, 20% grey mudstone matrix, angular black siltstone and quartzitic pebbles; sub-angular to sub-rounded green-schistose, quartzitic and granitic pebbles from 569.85 m to 569.91 m.		
569.91	569.98	0.07		Mudstone, green-grey. Undulose, irregular bottom contact.		
569.98	584.93	14.95	100	Siltstone, grey-black, abundant angular quartz-grits, minor pebbles up to 0.04 m in diameter (sub-angular to angular), minor mudstone. Sub-rounded pebble 0.04 m in diameter at 576.87 m, ?bioturbation from 577.17 m to 577.57 m, pebbly and ?bioturbated from 578.05 m to 580.92 m, sub-vertical joints from 580.45 m to 581.95 m, minor poorly-sorted coarse-grained beds. (Upper Marine Sequence of the Parmeener Super Group).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:- Upper Marine Sequence of the Parmeener Super Group.

REMARKS:- The top of the Duncan seam is at an R.L. of 389.15 m. The seam is 2.82 m thick.

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS					

GEOLOGICAL LOG — Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	338.90	338	99	Dolerite, grey, massive, fine-medium to medium grainsize, occasional joint-fillings and veins of quartz, chlorite, calcite; abundant sub-vertical to sub-horizontal joints. (Approximately 0.1 m of dolerite has been sampled every 3 m for future analysis).		
338.90	339.62	0.72	100	Dolerite, grey, massive, fine-grainsize with minor phenocrysts up to 1 mm, 0.15 m spacing of joints dipping at 45°. Gradational bottom contact (GBC).		
339.62	340.10	0.48		Dolerite, glassy-groundmass, abundant dark-green to black rectangular pyroxene phenocrysts up to 3 mm in any dimension. Sub-vertical to sub-horizontal, irregular, white, quartz-veins (less than 5 mm wide) from 339.62 m to 339.92 m.		
340.10	340.12	0.02		Dolerite/Upper-Freshwater-Sequence-of-the-Parmeener-Super-Group contact-zone, dipping at 35°.		
340.12	340.14	0.02		Medium-grainsize lithic sandstone (MLSS), grey, hornfelsed, minor black-grey laminae of fine-grainsize lithic sandstone (FLSS), sub-horizontal bedding.		
340.14	341.35	1.21	100	Laminite, MLSS/carbonaceous siltstone (60:40),		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 42	MAP SHEET No. 49	DISTRICT Fingal	LOCATION OF SITE:- Fingal Tier
R.L. OF SITE:- 813.1 m	SITE SURVEY ON MAP No.:		CORE SIZE:- NQ: 0.00-456.37 m BQ: 456.37 m - 576.83 m
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 5/4/79
INCLINATION OF HOLE:- Vertical	DRILL:- Longyear 38		COMPLETED:- 26/6/79
CO-ORDS OF SITE:- 588516.4E 5385916.7N	DRILLER:- C. Mitchell, S. Mitchell		FINAL DEPTH (m):- 576.83

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				minor bands of MLSS, indurated, grey-black, abundant cross-bedding. Undulose GBC.		
341.35	352.78	11.43	100	MLSS, grey, bedding dips at up to 5° from 341.35 m to 341.73 m. Planar cross-bedding (dipping at up to 20°) from 341.76 m to 341.96 m and from 343.18 m to 343.67 m. Pebble band (consisting of sub-rounded pebbles up to 0.03 m in diameter) and coaly debris from 343.71 m to 343.76m. Siltstone pebble from 344.42 m to 344.44 m. Preferential sub-horizontal partings from 344.53 m to 344.72 m, with carbonaceous parting dipping at 30° at 344.72 m. Whispy carbonaceous laminae from 344.72 m to 345.02 m and a grey-siltstone pebble-band from 345.11 m to 345.13 m. Coaly debris and carbonaceous laminae (dipping at 45°) from 346.51 m to 346.95 m. Fine-medium grainsize lithic sandstone (FMLSS) with whispy carbonaceous laminae from 346.95 m to 347.56 m. Grey mudstone band from 347.56 m to 347.61 m and siltstone from 347.61 m to 347.66 m. 2 mm-wide calcite-vein (dipping at 70°) from 347.26 m to 347.52 m. Coaly debris from 348.22 m to 348.52 m and from 349.02 m to 349.28 m. Grey siltstone band from 349.53 m to 349.61 m. Bedding dips at up to 5° from 349.70 m to 350.70 m, and dips at up to 10° from 350.70 m to 351.20 m and from 351.90 m to 352.20 m. Coaly debris from 351.37 m to 351.39 m. Bottom contact dips at 5°.		
352.78	352.81	0.03		COAL SECTION: Dull coal.	)	
352.81	352.82	0.01		Dull coal, shaly.	)	
352.82	352.88	0.06		Dull coal.	)	
352.88	352.89	0.01		Cream-coloured mudstone band.	)	1A
352.89	352.94	0.05		Dull coal.	)	
352.94	352.98	0.04		Creamy-brown shale band.	)	
352.98	353.11	0.13		Dull coal.	)	
353.11	353.22	0.11		Heavy dull coal.	)	
353.22	353.39	0.17	100	Interbanded heavy dull coal/creamy-brown mudstone (50:50).	)	(cont.)

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	%Moisture as received	ASSAY RESULTS (On Dry Basis) % Ash	% Vol.	% F.C.
1A	352.78	353.82	1.04	100	6.1	58.3	-	-
1B	353.82	355.95	2.13	100	4.5	46.6	25.6	27.8
1C	355.95	356.08	0.13	100	4.4	79.2	-	-

42	GEOLOGICAL LOG	Page:- 3

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
353.39	353.60	0.21	100	COAL SECTION: (cont.) Bright coal.	)	1A (cont.)
353.60	353.82	0.22		Creamy-green-brown claystone, shaly.	)	
353.82	353.94	0.12		Heavy dull coal grading to carbonaceous mudstone at base.	)	
353.94	354.03	0.09		Dull coal; core parts readily towards the base.	)	
354.03	354.16	0.13		Interbanded heavy dull coal/brown mudstone (50:50).	)	
354.16	354.51	0.35		Dull coal with 10% bright bands.	)	
354.51	354.59	0.08		Creamy-brown claystone, very hard (indurated).	)	
354.59	354.71	0.12		Carbonaceous mudstone.	)	
354.71	354.77	0.06		Heavy dull coal.	)	
354.77	355.25	0.48		Dull coal with 10% bright bands.	)	
355.25	355.32	0.07		Heavy dull coal.	)	
355.32	355.39	0.07		Carbonaceous mudstone, with minor brown mudstone bands dipping at 5°.	)	1B
355.39	355.42	0.03		Dull coal.	)	
355.42	355.44	0.02		Carbonaceous mudstone.	)	
355.44	355.54	0.10		Dull coal.	)	
355.54	355.56	0.02		Laminite, Dull coal/creamy-brown mudstone (50:50).	)	
355.56	355.76	0.20		Dull coal with minor bright bands.	)	
355.76	355.82	0.06		Interbanded carbonaceous mudstone/ heavy dull coal (50:50).	)	
355.82	355.85	0.03		Creamy-brown mudstone.	)	
355.85	355.93	0.08		Dull coal with 10% bright bands.	)	
355.93	355.95	0.02		Heavy dull coal.	)	
355.95	356.08	0.13		Mudstone, black-brown, minor coaly debris, plant-fossils at 356.05 m.	)	1C
356.08	356.66	0.58	100	Mudstone, grey, minor coaly debris, slickensides (dipping at 30°) at 356.37 m, 356.43 m, 356.46 m and 356.55 m.		

Continued over

ASSAY DATA Note:- bracketed figures are calculated.

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Fraction	Feed % Mass	Feed % Ash	Cum. Floats% Mass	Cum. Floats% Ash	Cum. Sinks% Mass	Cum. Sinks% Ash	%Ash Distr.	Assays % (Dry Basis) Ash	Mol.	F.C.	S	S.E. (MJ/kg)	Ash fusion°C
Washability tests of composite of samples 1A and 1B					F/T1.4	10.9	7.5	10.9	7.5	100.0	(50.7)	1.6						
					F/T1.6	24.0	21.2	34.9	(16.9)	89.1	(56.0)	10.1						
					F/T1.8	13.8	40.1	48.7	(23.5)	65.1	(68.8)	10.9						
					S/K1.8	51.3	76.5	100.0	(50.7)	51.3	76.5	77.4						
					Head	100.0	(50.7)					100.0						
					C/F/T1.6	34.9	16.9	17.2	32.5	50.3	0.44	11.7					26.1	1350
					C/S/K1.6	65.1	68.8	68.2	22.1	9.7	0.01	88.3					-	-
					Head	100	(50.7)					100						

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
356.66	357.31	0.65	100	Siltstone, grey, minor plant-fossil fragments, slickenside (dipping at 20°) from 356.67 m to 356.68 m. Gradational bottom contact (GBC).		
357.31	357.61	0.30		Mudstone, grey, shaly. GBC.		
357.61	357.87	0.26		Laminite, grey mudstone/brown mudstone/dull and bright coal (40:40:20). GBC.		
357.87	358.06	0.19		Mudstone, brown-grey. GBC.		
358.06	358.21	0.15		Siltstone, grey. GBC.		
358.21	360.59	2.38		Interbanded grey siltstone/fine medium grainsize lithic sandstone (FMLSS) (50:50), shaly from 359.25 m to 360.59 m, swollen and cracked core from 360.24 m to 360.59 m. GBC.		
360.59	360.74	0.15		Siltstone, grey. GBC.		
360.74	361.26	0.52		Mudstone, grey, slickensides (dipping at up to 45°) from 361.09 m to 361.16 m and from 361.21 m to 361.26 m. GBC.		
361.26	361.46	0.20		Claystone, creamy-green, swollen core, very shaly. Bottom contact dips at 20°.		
361.46	361.63	0.17		Siltstone, brown-black, shaly, clayey, poorly-sorted, grades to FMLSS at base. GBC.		
361.63	361.93	0.30		MLSS, grey, abundant contorted carbonaceous laminae and coaly debris, minor cross-bedding. GBC.		
361.93	376.03	14.10	100	MLSS, grey, minor poorly-sorted beds; minor mud-pellets, coaly debris and coarse-grained lithic sandstone (CLSS) beds from 361.93 m to 362.69 m. Coaly debris and whispy, contorted carbonaceous laminae (dipping at up to 10°) from 363.77 m to 363.84 m. Minor cross-bedding, coaly debris and carbonaceous laminae (dipping at up to 10°) from 367.23 m to 368.73 m. Calcareous matrix from 368.23 m to 368.93 m. Massive bedding from 365.66 m to 367.16 m. Siltstone band from 368.84 m to 368.87 m. Minor carbonaceous laminae from 370.41 m to 370.61 m and from 373.13 m to 373.30 m. Carbonaceous mudstone with abundant slickensides and coaly debris from 373.60 m to 373.75 m. Grey siltstone pebbles (flat and up to 0.04 m long) from 375.77 m to 375.83 m. Mud pellets from 375.93 m to 376.03 m. Irregular, undulose bottom-contact dipping at 10°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS % Moisture (as received)	(On Dry Basis) %Ash	%Vol.	%F.C.
2A	376.03	376.55	0.52	100	4.6	78.3	-	-
2B	376.55	377.72	1.17	100	4.9	32.4	32.6	35.0

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
376.03	376.18	0.15	100	COAL SECTION: Dull coal.		
376.18	376.55	0.37		Mudstone, grey, shaly, abundant slickensides; minor whispy contorted carbonaceous laminae and coaly debris. GBC.		2A
376.55	376.65	0.10		Dull coal with 10% bright bands. GBC.		
376.65	376.77	0.12		Claystone, creamy- grey-white, shaly. GBC.		
376.77	377.00	0.23		Dull coal. GBC.		
377.00	377.04	0.04		Carbonaceous mudstone with minor creamy-brown mudstone bands, slickenside (dipping at 30°) from 377.00 m to 377.04 m.		2B
377.04	377.43	0.39		Dull coal with 5% bright bands. GBC.		
377.43	377.63	0.20		Bright coal. GBC.		
377.63	377.72	0.09		Dull coal.		
377.72	378.85	1.13		Siltstone, grey. GBC.		
378.85	382.43	3.58		Mudstone, grey, abundant plant-fossil fragments at 378.85 m, minor shaly bands and silty intervals, slickensides (dipping at 30°) from 379.00 m to 379.05 m, from 379.92 m to 379.78 m, from 380.49 m to 380.52 m, from 381.99 m to 382.00 m, from 382. 06 m to 382.10 m, from 382.20 m to 382.24 m and from 382.24 m to 382.34 m. Coaly debris from 381.98 m to 382.78 m, silty and sandy beds from 382.23 m to 382.43 m. GBC.		
382.43	384.12	1.69		FMLSS, grey, shaly from 382.62 m to 383.12 m, bedding dips at 20° at 383.02 m, sparse siltstone and carbonaceous laminae, slickenside (dipping at 45°) from 383.45 m to 383. 53 m, calcite concretion and coaly debris from 384.07 m to 384.11 m. Bottom contact dips at 20°.		
384.12	385.36	1.24	100	Mudstone, grey, abundant plant-fossil fragments, minor slickensides and coaly debris from 384.12 m to 384.42 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Fraction	Feed% mass	Feed% ash	Cum.Floats% mass	Cum.Floats% ash	Cum.Sinks % mass	Cum.Sinks % ash	%Ash distr.	Assays % (Dry Basis) ash	Vol.	F.C.	S	S.E. (MJ/kg)	Ash c fusion °C
Washability tests of composite of samples 2A and 2B.					F/t1.4	29.9	9.7	29.9	9.7	100.0	(48.4)	6.0						
					F/t1.6	22.5	23.0	52.4	(15.4)	70.1	(64.8)	10.7						
					F/t1.8	4.7	42.1	57.1	(17.6)	47.6	(84.6)	4.1						
					S/k1.8	42.9	89.3	100.0	(48.4)	42.9	89.3	79.2						
					Head	100.0	(48.4)					100.0						
					1.6 C/F/T	52.4	15.4						15.4	36.9	47.7	0.46	16.7	27.6	1360
					C/S/K1.6	47.6	84.6						83.9	15.9	0.2	<0.01	83.3	-	-
					Head	100.0	(48.4)					100.0						

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				Slickenside (dipping at 30°) from 384.30 m to 384.35 m, greysiltstone with minor mudstone bands and laminae from 384.34 m to 384.65 m; shaly grey mudstone from 384.66 m to 385.04 m; slickenside (dipping at 30°) from 385.06 m to 385.10 m; slickenside (dipping at 20°) at base.		
385.36	385.49	0.13	100	COAL SECTION: Heavy dull coal with <1% bright bands.		
385.49	385.51	0.02		Carbonaceous shale.		
385.51	385.66	0.15		Dull coal with calcite coating on sub-vertical cleat surfaces. GBC.		
385.66	385.76	0.10		Dull coal with sandy areas <0.01m long and <3mm thick, calcite coating on sub-vertical cleat surfaces.		
385.76	385.77	0.01		Dull coal, broken core (from drilling).		
385.77	386.01	0.24		Dull coal with <1% bright laminae. Sub-vertical cleat from 385.77 m to 385.85 m.		
386.01	386.03	0.02		Laminite, secondary calcite/dull coal (60:40).		3A
386.03	386.42	0.39		Dull coal with <5% mudstone bands (<0.5cm thick), minor bright coal laminae. Sub-horizontal breaks in the core at 386.07m, 386.09 m, 386.12m, 386.22, 386.25 m and from 386.34 m to 386.37m. Cleat (dipping at 70°) from 386.25m to 386.32m.		
386.42	386.43	0.01		FMLSS, white-grey, muddy, dirty.		
386.43	386.65	0.22		Dull coal. Sub-horizontal breaks in core at 386.48 m and 386.58 m. GBC.		
386.65	386.69	0.04		Carbonaceous mudstone.		
386.69	386.79	0.10	100	Laminite, heavy dull coal/bright coal/grey mudstone (40:10:50). GBC.		3B

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	%Moisture (as received)%	ASSAY RESULTS (Dry Basis) Ash	% Vol.	% F.C.
3A	385.36	386.65	1.33	100	4.9	41.1	28.4	30.5
3B	386.65	386.79	0.14	100	4.2	72.1	-	-

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GEOLOGICAL LOG

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
386.79	386.88	0.09	100	Mudstone, grey, minor carbonaceous mudstone and coaly traces, slickenside (dipping at 30°) from 386.82 m to 386.85 m. Bottom contact dips at 5°.		
386.88	388.20	1.32		Mudstone, grey, minor silty bands, expansive shaly interval from 387.58 m to 388.20 m, slickensides (dipping at 45°) from 386.90 m to 386.93 m and from 387.50 m to 387.58 m; slickenside (dipping at 30°) from 387.16 m to 387.19 m. GBC.		
388.20	388.32	0.12		Transition zone. GBC.		
388.32	389.34	1.02		FMLSS, grey, minor carbonaceous laminae (abundant from 388.32 m to 388.52 m), minor cross-bedding and MLSS beds towards base. GBC.		
389.34	402.38	13.04		MLSS, grey, massive bedding, minor carbonaceous laminae dipping at up to 20°, sub-vertical joints from 395.73 m to 396.28 m and from 396.27 m to 396.44 m, shaly band from 395.98 m to 396.08 m, siltstone-pebbles and mud-pellets (up to 0.05 m long and 0.03 m thick) from 396.05 m to 396.13 m, from 398.11 m to 398.20 m and from 402.14 m to 402.38 m, coaly debris from 396.27 m to 396.44 m, from 399.21 m to 399.41 m and from 401.65 m to 402.15 m, coarse-grained lithic sandstone (CLSS) from 402.18 m to 402.38 m. Irregular, undulose bottom contact dips at 20°.		
402.38	402.48	0.10	100	Carbonaceous shale with minor dull coal bands, abundant slickensides dipping at up to 30°. Broken core.		
402.48	402.81	0.25	76	Mudstone, grey, ground-up core, minor coaly debris, slickenside (dipping at 30°) at base.		
402.81	402.97	0.16	100	Mudstone, grey, minor carbonaceous laminae from 402.92 m to 402.97 m. Core breaks readily. GBC.		
402.97	403.76	0.79		FMLSS, grey, sub-vertical joints from 402.97 m to 403.37 m, sparse cross-bedding and carbonaceous laminae.		
403.76	404.34	0.58	100	Interbedded grey mudstone/siltstone/FLSS (50:30:20), minor mudstone laminae and sub-vertical joints. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

42				GEOLOGICAL LOG	Page:- 8	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
404.34	404.47	0.13	100	Interbanded grey mudstone/carbonaceous mudstone (50:50). GBC.		
404.47	404.64	0.17		Heavy dull coal/carbonaceous mudstone (50:50). GBC.		
404.64	404.81	0.17		Carbonaceous mudstone containing abundant plant-fossil fragments. GBC.		
404.81	405.03	0.22		Mudstone, grey. GBC.		
405.03	405.81	0.78		Interbanded FMLSS/grey mudstone (30:70) with abundant coaly debris and carbonaceous laminae, broken core from 405.03 m to 405.53 m, sub-vertical joints from 405.03 m to 405.43 m. GBC.		
405.81	405.83	0.02		FMLSS, grey, abundant 0.5 cm diameter mud-pellets. GBC.		
405.83	406.84	1.01		Interbedded FLSS/FMLSS (50:50), grey, siltstone from 406.81 m to 406.84 m, joints (dipping at 60°) from 406.34 m to 406.84 m. GBC.		
406.84	407.65	0.81		Interbanded FLSS/grey siltstone (50:50). GBC.		
407.65	409.18	1.53		FMLSS, grey, abundant carbonaceous laminae, beds of grey siltstone and FLSS from 408.43 m to 408.51 m and from 408.67 m to 409.18 m.		
409.18	410.53	1.35		MLSS, grey, massive bedding, sub-vertically dipping joint from 410.18 m to 410.43 m.		
410.53	410.63	0.10		Grey siltstone/FLSS (50:50). GBC.		
410.63	410.83	0.20		Interbedded grey siltstone/grey FMLSS (60:40), sparse cross-bedding dipping at up to 10°. GBC.		
410.83	411.77	0.94		MLSS, grey, massive bedding, minor carbonaceous partings. GBC.		
411.77	414.18	2.41		FMLSS, grey, massive bedding, minor banding due to grainsize variations, bedding dips at 5° from 413.68 m to 413.98 m.		
414.18	422.06	7.88	100	MLSS, grey, massive, siltstone pebbles (0.02 m long and 0.01 m thick) from 416.51 m to 416.55 m, mudstone pebbles (up to 0.05 m in diameter and 0.03 m thick) from 417.07 m to 417.16 m, carbonaceous laminae (dipping at 10°) from 417.27 m to 417.30 m, coaly debris and carbonaceous laminae (dipping at up to 20°) from 417.54 m to 417.74 m, calcareous matrix and bedding dipping at up to 15° Continued over from 417.96 m to 418.20 m.		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				carbonaceous laminae from 418.11 m to 418.29 m, joints (dipping at 60°) from 418.57 m to 418.77 m and from 418.86 m to 419.06 m, coaly debris from 418.69 m to 418.82 m, minor carbonaceous laminae (dipping at up to 5°) from 419.05 m to 419.71 m, minor CLSS bands from 419.71 m to 422.06 m, coaly debris associated with mud-pellet bands from 420.28 m to 420.31 m, from 420.58 m to 420.61 m, from 420.99 m to 421.00 m and from 421.16 m to 421.61 m; joint (dipping at 60°) from 421.61 m to 421.81 m; sparse, whispy carbonaceous-laminae from 421.75 m to 422.96 m. Slickensided, irregular (stepped) bottom-contact dips at 10° to 20°.		
422.06	422.19	0.13	100	Mudstone. GBC.		
422.19	422.27	0.08		Heavy dull coal. GBC.		
422.27	422.30	0.03		Carbonaceous mudstone. G B C.		
422.30	422.60	0.30		Mudstone, grey, sparse plant-fossil debris, shaly from 422.45 m to 422.60 m.GBC.		
422.60	423.58	0.98		Shale, grey-green, secondary calcite veins up to 4 mm wide from 422.99 m to 423.10 m.		
423.58	423.71	0.13		Transition zone (Shaly to massive mudstone). Bottom contact dips at 10°.		
423.71	423.95	0.24		Mudstone, grey, minor coaly laminae containing abundant plant-fossil fragments, calcite nodule at 423.71m.		
423.95	424.01	0.06		COAL SECTION: Heavy dull coal/carbonaceous mudstone (50:50). GBC.		4A
424.01	424.29	0.28		Dull coal, minor bright bands, calcite on sub-vertical cleat.		4A
424.29	424.32	0.03		Mudstone, creamy-grey-brown, clay occupies approximately 50%.		4A
424.32	424.40	0.08		Carbonaceous mudstone/grey mudstone (50:50), minor calcite laminae, resinous coal at 424.40 m.		4A
424.40	424.44	0.04		Heavy dull coal, minor calcite.GBC.		4A

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS % Moisture (as received)	(On Dry Basis) % Ash	% Vol.	%F.C.
4A	423.95	424.44	0.49	100	3.8	40.6	29.6	29.8
4B	424.44	425.72	1.28	100	3.8	24.4	28.6	47.0
4C	425.72	426.77	1.05	100	3.1	31.9	30.3	37.8

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
424.44	425.72	1.28	100	COAL SECTION: (Contd.) Dull coal with 10% bright coal. Abundant sub-vertical en-echelon fractures (<5 mm spacing) from 424.47 m to 424.84 m and from 424.92 m to 425.47 m.		4B
425.72	426.26	0.54		Dull coal with minor bright coal, minor en-echelon fracturing from 425.82 m to 425.92 m. Crumbly coal from 425.99 m to 426.19 m. GBC.		4C
426.26	426.30	0.04		Carbonaceous mudstone/brown mudstone (50:50), abundant slickensides. GBC.		
426.30	426.32	0.02		Mudstone, creamy-grey, 25% clay.		
426.32	426.77	0.45		Dull coal, system of radiating fractures (dipping from 70° to 45° from 426.37 m to 426.67 m, bright coal bands from 426.67 m to 426.77 m.		
426.77	427.99	1.22		Mudstone, grey, abundant plant-fossils, abundant slickensides, high-degree of fracturing (dipping sub-vertically and with spacing of less then 0.01 m). Breccia zone and minor micro-faulting from 427.97 m to 428.00 m. Fracture pattern is radial with minor orthogonal fractures linking one radial fracture to the next. GBC.		
427.99	428.29	0.30		Siltstone, grey, minor carbonaceous laminae dipping at up to 5°. Fracture pattern as for unit above. GBC.		
428.29	429.64	1.35		FLSS, grey, minor sub-horizontal carbonaceous laminae, bedding dips at up to 10°. GBC.		
429.64	429.85	0.21		FMLSS, grey, massive.		
429.85	429.88	0.03		MLSS, grey, massive.		
429.88	431.41	1.53	100	Siltstone, grey, massive, laminated bedding from 431.21 m to 431.41 m. Cross-bedded bottom contact.		

Continued over

ASSAY DATA Note: bracketed figures are calculated.

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Fraction	Feed % Mass	Feed % Ash	Cum. Floats % Mass	Cum. Floats % Ash	Cum. Sinks % Mass	Cum. Sinks % Ash	%Ash Dist.	S.E. MJ/kg	Ash fusion °C
Washability tests on a composite of samples 4B and 4C.					F/T1.4	16.4	9.3	16.4	9.3	100.0	(27.1)	5.6		
					F/T1.6	58.4	19.7	74.8	(17.4)	83.6	(30.6)	42.4		
					F/T1.8	10.0	39.3	84.8	(20.0)	25.2	(56.0)	14.4		
					S/K1.8	15.2	66.9	100.0	(27.1)	15.2	66.9	37.6		
					Head	100.0	(27.1)					100.0		
								Assays % (Dry Basis)						
								Ash	Vol.	F.C.	S.			
					C/F/T1.6	74.8	17.4	17.2	29.9	52.9	0.32	48.0	26.6	1620
					C/S/K1.6	25.2	56.0	56.0	22.9	21.1	0.10	52.0	-	-
					Head	100.0	(27.1)					100.0		

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
431.41	442.11	10.70	100	MLSS, grey, massive. Coaly debris and carbonaceous laminae from 431.71 m to 432.01 m, from 434.82 m to 434.92 m, from 436.65 m to 436.87 m, from 437.00 m to 437.16 m and from 438.39 m to 438.49 m. Joint (dip varying between 45° and 60°) from 433.19 m to 433.49 m. 0.5 cm thick carbonaceous mudstone band (dipping at 10°) at 434.68 m. Mud-pellet and siltstone-pebble-conglomerate from 436.65 m to 436.87 m (clasts up to 0.03 m in diameter), from 438.39 m to 438.49 m (clasts up to 0.01 m in diameter) and from 441.77 m to 442.11m. Bedding dips at up to 20° (predominantly sub-horizontal). Bottom contact dips at 5°.		
442.11	442.34	0.23		Laminite, carbonaceous mudstone/grey mudstone (50:50), minor shale and coaly laminae, minor slickensides, bedding dips at 10° or less. Flakey claystone from 442.24 m to 442.34 m. Bottom contact dips at 5°.		
442.34	442.48	0.14		Dull coal with 5% bright bands. GBC.		
442.48	442.62	0.14		Heavy dull coal with prominent sub-vertically-dipping cleat. GBC.		
442.62	442.82	0.20		Grey mudstone, silty. GBC.		
442.82	444.91	2.09		FLSS, grey, minor, FMLSS, siltstone and MLSS intervals, cross-bedding from 443.24 m to 443.74 m.		
444.91	445.20	0.29		MLSS, grey, massive bedding. Bottom contact dips at 5°.		
445.20	445.66	0.46		Siltstone, grey, grading down to FLSS. GBC.		
445.66	445.85	0.19		FMLSS, grey, massive. Bottom contact dips at 5°.		
445.85	446.38	0.53		FLSS, grey, massive, carbonaceous laminae from 446.23 m to 446.38 m.		
446.38	456.46	10.08	100	MLSS, grey, sub-horizontal bedding. FLSS beds from 446.80 m to 447.47 m. FMLSS interval from 450.10 m to 451.95 m. Coaly debris from 447.54 m to 447.59 m, from 448.47 m to 449.11 m, from 449.52 m to 449.54 m (with an accompanying mudstone pebble), from 433.82 m to 455.32 m and from 456.28 m to 456.46 m.		

Continued over

ASSAY DATA Note: bracketed figures are calculated.

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Fraction	Feed % Mass	Feed % Ash	Cum.Floats% Mass	Cum.Floats% Ash	Cum.Sinks% Mass	Cum.Sinks% Ash	%Ash Distr.	S.E. (MJ/kg)	Ash fusion, °C
Washability tests on a composite of samples 4A, 4B and 4C.					F/Tl.4	18.4	10.0	18.4	10.0	100.0	(29.9)	6.2		
					F/Tl.6	50.5	20.6	68.9	(17.8)	81.6	(34.4)	34.7		
					F/Tl.8	9.4	39.3	78.3	(20.3)	31.1	(56.9)	12.3		
					S/Kl.8	21.7	64.5	100.0	(29.9)	21.7	64.5	46.8		
					Head	100.0	(29.9)					100.0		
								Assays % (Dry Basis)						
								Ash	Vol.	F.C.	S.			
					C/F/Tl.6	68.9	17.8	17.5	31.1	51.4	0.31	40.9	26.7	1570
					C/S/Kl.6	31.1	56.9	57.0	25.7	17.3	0.11	59.1	-	-
					Head	100.0	(29.9)					100.0		

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				Bedding dips at up to 20° from 450.72m to 450.76m, and at 5° from 455.32 m to 455.74m. Green-grey from 456.30 m to 456.46 m. mud-pellet conglomerate from 456.42 m to 456.46 m. Irregular bottom-contact dips at 10°.		
456.46	456.62	0.16	100	Mudstone, green-grey, abundant coaly flecks and plant-fossil debris. Bottom contact dips at 30°.		
456.62	456.63	0.01		FMLSS, green-grey, minor elongate mud-pellets up to 0.01m in length. Bottom contact dips at 10°.		
456.63	459.15	2.52		FLSS, green-grey from 456.63m to 457.43 m and the remainder is white-grey (? calcareous matrix). 4mm wide calcite veins (dipping at 60°) and joints (dipping at between 45° and 60°) from 457.69 m to 457.88 m. Joint (dipping at 45°) from 458.43 m to 458.49 m. Minor MLSS at base.		
459.15	460.03	0.88		Siltstone, grey, minor laminae and bands of mudstone and FMLSS, slickenside (dipping at 30°) from 459.24 m to 459.27 m. GBC.		
460.03	460.42	0.39		Mudstone, grey, minor dark-grey mudstone bands and laminae, silty, slickenside (dipping at 20°) from 460.20 m to 460.22 m, minor plant-fossils. Bottom contact dips at 5°.		
460.42	460.50	0.08		Carbonaceous shale, minor plant-fossil fragments. GBC.		
460.50	460.85	0.35		FMLSS, grey-black-brown, muddy. GBC.		
460.85	461.46	0.61		FMLSS, grey, minor MLSS bands, abundant carbonaceous mudstone bands and laminae, minor cross-bedding and coaly debris. Sub-vertical streak with a faint carbonaceous boundary (?bioturbation) from 460.85 m to 461.10 m.		
461.46	462.47	1.01		Siltstone, grey, minor mudstone laminae. GBC.		
462.47	463.04	0.57		Laminite, grey mudstone/grey siltstone (50:50), minor carbonaceous and dark-grey laminae, minor cross-bedding, grading down to siltstone at base. GBC.		
463.04	464.34	1.30		Siltstone, grey, minor mudstone bands. GBC.		
464.34	465.09	0.75	100	FLSS, grey, abundant cross-bedded carbonaceous laminae. Bottom contact dips at 20°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
465.09	465.30	0.21	100	Mudstone, grey, abundant slickensides (dipping at 45°). Irregular bottom-contact.		
465.30	466.13	0.83		FLSS, grey, ?bioturbation from 465.57 m to 465.90 m.		
466.13	467.03	0.90		Mudstone, grey, minor siltstone laminae and bands, minor cross-bedding from 466.13 m to 466.33 m, micro-fault (less than 2 mm throw) from 466.98 m to 467.08 m. GBC.		
467.03	467.29	0.26		Laminite, carbonaceous mudstone/grey mudstone (40:60). GBC.		
467.29	467.41	0.12		Laminite, carbonaceous mudstone/FLSS/grey mudstone (20:50:30), rollover sedimentary features in bedding from 467.38 m to 467.41 m. GBC.		
467.41	467.51	0.10		Siltstone, grey. GBC.		
467.51	467.59	0.08		Laminite, carbonaceous mudstone/grey mudstone (40:60). GBC.		
467.59	467.67	0.08		Siltstone, grey. GBC.		
467.67	467.90	0.23		Laminite, grey mudstone/carbonaceous mudstone (60:40). GBC.		
467.90	468.08	0.18		Siltstone, brown-black-grey, shaly, dirty. GBC.		
468.08	468.83	0.75		Laminite, dark-grey and carbonaceous mudstone and siltstone/MLSS (60:40), minor irregular bedding.		
468.83	469.13	0.30		COAL SECTION: Dull coal, broken core (0.05 m cleat spacing). GBC.		5A
469.13	470.09	0.96		Dull coal with abundant (less than 5 mm thick) mudstone laminae. Mudstone bands from 469.18 m to 469.19 m, from 469.22 m to 469.23 m, from 469.45 m to 469.46 m and from 469.69 m to 469.70 m; calcareous band from 469.50 m to 469.53 m. Friable, ground-up core from 469.76 m to 469.81 m - poor cleat development elsewhere. GBC.		
470.09	470.13	0.04	100	Carbonaceous mudstone. GBC. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moisture (as received)	(Dry Basis) % Ash	% Vol.	% F.C.
5A	468.83	470.13	1.30	100	3.6	47.1	24.0	28.9

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
470.13	470.51	0.38	100	Mudstone, grey, abundant plant-fossil fragments and whispy carbonaceous laminae. GBC.		
470.51	472.32	1.81		Mudstone, grey, minor FLSS and siltstone intervals. GBC.		
472.32	473.07	0.75		FLSS, grey, minor cross-bedding and carbonaceous laminae, MLSS band from 473.01 m to 473.04 m. Bottom contact dips at 5°.		
473.07	473.19	0.12	100	MLSS, minor carbonaceous laminae dipping at 10°, minor coaly debris. Bottom contact dips at 5°.		
473.19	473.38	0.17	89	Mudstone, grey, shaly, sticky when wet. GBC.		
473.38	473.69	0.31	100	FLSS, grey.		
473.69	474.63	0.94		Mudstone, grey, minor siltstone and FLSS intervals, minor plant-fossil fragments. GBC.		
474.63	474.87	0.24		Mudstone, dark-grey. GBC.		
474.87	476.15	1.28		Siltstone, grey, slickenside (dipping at 30°) from 474.93 m to 474.96 m, minor sygmoidal cross-bedding, minor grey mudstone laminae, minor FMLSS bands and laminae. Undulose bottom-contact.		
476.15	476.70	0.55		COAL SECTION: Dull coal with calcite and kaolinite veins in claystone from 476.15 m to 476.17 m, slickenside (dipping at 10°) at base.		5B
476.70	477.04	0.34		Carbonaceous mudstone, minor light-grey siltstone laminae. GBC.		
477.04	477.21	0.17		Heavy dull coal.		
477.21	477.26	0.05		Calcite veins (partial cone-in-cone structure) and coaly laminae. Irregular bottom-contact.		
477.26	477.32	0.06		Dull coal.		
477.32	477.68	0.36	100	Mudstone, grey, shaly from 477.38 m to 477.68 m, slickenside (dipping at 30°) from 477.36 m to 477.39 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS % Moisture (as received)	ASSAY RESULTS % Ash (Dry Basis)
5B	476.15	477.32	1.17	100	4.5	59.7

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
477.68	478.45	0.47	61	Mudstone, grey, abundant slickensides from 478.68 m to 480.15 m.		
478.45	481.23	2.78	100	Mudstone, grey. Dull coal with calcite (veins and nodules) and pale-grey claystone bands from 478.72 m to 478.80 m. FLSS with cross-bedded dark-grey siltstone laminae from 479.07 m to 479.49 m. Grey siltstone interval from 479.80 m to 480.21 m. Minor slickensides, carbonaceous laminae and plant-fossil fragments from 480.65 m to 480.84 m. Bottom contact dips at 5°.		
481.23	481.52	0.29		FLSS, minor dark-grey laminae.		
481.52	481.57	0.05		FMLSS, grey. GBC.		
481.57	481.60	0.03		FLSS, grey. GBC.		
481.60	483.09	1.49		FMLSS, grey, massive. GBC.		
483.09	484.19	1.10		MLSS, grey, massive, calcareous matrix, minor coaly debris and carbonaceous laminae from 483.62 m to 484.19 m. GBC.		
484.19	484.43	0.24		FLSS, grey. GBC.		
484.43	484.68	0.25		Laminite, FLSS/carbonaceous mudstone (70:30). GBC.		
484.68	485.02	0.34		FLSS, grey.		
485.02	485.63	0.61		Laminite, FLSS/carbonaceous mudstone (60:40). GBC.		
485.63	486.80	1.17		MLSS, grey-white, massive, matrix is sparsely calcareous.		
486.80	487.02	0.22		Carbonaceous mudstone with minor dull coal from 486.80 m to 486.90 m, minor grey-mudstone laminae, shaly at base. GBC.		
487.02	487.19	0.17		Transition zone.		
487.19	487.74	0.55		Laminite, MLSS/carbonaceous mudstone (80:20), minor irregular-bedding and cross-bedding (dipping at up to 10°). GBC.		
487.74	491.54	3.80		MLSS, grey-white, abundant carbonaceous laminae (dipping at 15°) from 487.74 m to 488.98 m, minor carbonaceous laminae (dipping at 10°) from 488.98 m to 491.54 m. Bottom contact dips at 5°.		
491.54	492.58	1.04	100	Laminite, grey siltstone/grey mudstone (50:50), minor FLSS intervals. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
492.58	493.00	0.42	100	Heavy dull coal, slickenside (dipping at 45°) from 492.86 m to 492.91 m. GBC.		
493.00	493.35	0.35		Carbonaceous mudstone, slickenside (dipping at 30°) from 493.31 m to 493.34 m. GBC.		
493.35	493.99	0.64		Laminite, carbonaceous mudstone/creamy-brown FLSS (80:20), irregular-bedding and cross-bedding dipping at up to 10°, slickenside (dipping at 45°) from 493.93 m to 493.98 m. GBC.		
493.99	494.28	0.29		Interbedded heavy dull coal/carbonaceous mudstone, minor creamy-brown claystone bands, abundant slickensides, irregular bedding and microfaulting. GBC.		
494.28	495.36	1.08		Mudstone, grey, slickensides (dipping at 30°) approximately every 0.20 m, minor coaly debris and plant-fossil fragments, minor silty intervals. GBC.		
495.36	495.72	0.36		Laminite, FLSS/carbonaceous mudstone (80:20), creamy-white, shaly, minor clay fraction in matrix. GBC.		
495.72	496.46	0.74		Siltstone, grey, minor shale and claystone. GBC.		
496.46	497.38	0.92		Shale, creamy-grey-brown, minor clay fraction in matrix, expands when wet, very soft. GBC.		
497.38	497.68	0.30		Laminite, FLSS/carbonaceous mudstone (80:20), creamy-white, shaly, minor clay fraction in matrix. GBC.		
497.68	499.91	2.23		Siltstone, grey, shaly from 498.34 m to 499.91 m, minor light-grey FLSS laminae and calcite veins from 498.34 m to 498.74 m (calcite vein (4 mm thick and dipping at 30°)) from 498.53 m to 498.56 m.		
499.91	500.08	0.17		Calcite concretion, very hard; pitted surface. Bottom contact dips at 10°.		
500.08	502.44	2.36		FLSS, grey, shaly from 500.08 m to 500.28 m, minor carbonaceous laminae from 501.20 m to 502.44 m. GBC.		
502.44	502.93	0.49	100	MLSS, grey, shaly, abundant mud-pellets, minor carbonaceous laminae.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
502.93	502.99	0.06	100	Carbonaceous mudstone.		
502.99	503.98	0.99		Mudstone, grey, minor carbonaceous laminae, silty from 503.58 m to 503.98 m, minor irregular bedding, slickenside (dipping at 45°) from 503.08 m to 503.13 m. GBC.		
503.98	504.20	0.22		Laminite, grey siltstone/grey-white FLSS/ carbonaceous laminae (45:45:10). Irregular bottom-contact dips at 5°, subvertically dipping ? bioturbation scar from 504.10 m to 504.20 m.		
504.20	506.10	1.90		FMLSS, grey, abundant grey-siltstone bands and laminae, minor carbonaceous laminae, minor irregular- and cross-bedding, minor bands and laminae of MLSS and sparse plant-fossil fragments from 505.01 m to 506.10 m.		
506.10	506.53	0.43		Mudstone, grey, minor plant-fossil fragments, shaly. GBC.		
506.53	506.87	0.34		Mudstone, dark-grey, minor plant-fossil fragments. GBC.		
506.87	506.95	0.08		Carbonaceous mudstone. GBC.		
506.95	507.07	0.12		Heavy dull coal, minor algal mats. GBC.		
507.07	507.44	0.37		Carbonaceous mudstone, minor heavy dull coal bands, minor poorly-sorted MLSS bands and mud-pellets (less than 2 mm diameter). GBC.		
507.44	509.31	1.87		Interbanded, MLSS/carbonaceous mudstone (50:50), minor laminae, coal debris and cross-bedding (dipping at 20°). Clay-pellet conglomerate from 509.06 m to 509.31 m. Slickenside (dipping at 40°) from 509.28 m to 509.31 m.		
509.31	509.81	0.50		Siltstone, dark-grey to carbonaceous, minor MLSS intervals, abundant plant-fossils on bedding-plane, slickenside (dipping at 45°) from 509.31 m to 509.36 m, minor coaly debris. Bottom contact dips at 5°.		
509.81	510.23	0.42		CLSS, grey, minor carbonaceous banding and bedding dipping at 10°, minor mud-pellets up to 3 mm in grainsize. Bottom contact dips at 15°.		
510.23	513.45	3.22	100	FMLSS, grey, minor carbonaceous laminae, bedding dipping at up to 10°. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
513.45	521.37	7.92	100	MLSS, grey, cross-bedding from 513.81 m to 514.11 m, grey siltstone pebbles and conglomerate from 514.35 m to 514.91 m, from 515.93 m to 516.11 m and from 516.66 m to 516.71 m, coaly debris from 518.36 m to 518.51 m, carbonaceous laminae from 520.50 m to 520.51 m and from 521.33 m to 521.37 m, bedding dips at up to 10°, minor calcareous matrix. Bottom contact dips at 5°.		
521.37	521.76	0.39		Interbanded, grey, FMLSS/siltstone (50:50), minor laminae, channel?scour deposit from 521.43 m to 521.57 m, cross-bedding from 521.71 m to 521.76 m.		
521.76	522.28	0.52		Interbedded, grey-white MLSS/dark-grey FMLSS, minor irregular bedding and cross-bedding. Bottom contact dips at 5°.		
522.28	523.28	1.00		MLSS, grey, abundant coaly debris, minor slickensided mudstone-pellets, bedding dips at up to 30°.		
523.28	523.41	0.13		FMLSS, grey, sub-horizontal bedding, minor carbonaceous partings from 523.38 m to 523.41 m. GBC.		
523.41	524.26	0.85		MLSS, grey-white, massive bedding. GBC.		
524.26	524.64	0.38		Interbedded, grey-white MLSS/grey FMLSS (50:50), abundant coaly debris. Irregular bottom-contact dips at 10°.		
524.64	525.87	3.03		Mudstone, grey, abundant plant-fossil debris, minor coaly debris and carbonaceous mudstone intervals, shaly, minor disturbed bedding, silty from 524.64 m to 524.84 m and from 525.77 m to 525.87 m, slickensides at 525.53 m and from 525.57 m to 525.62 m, from 525.71 m to 525.73 m and from 525.84 m to 525.87 m.		
525.87	526.98	1.11		FMLSS, grey, cross-bedded, abundant carbonaceous laminae.		
526.98	527.06	0.08	100	Interbanded, grey FMLSS/carbonaceous mudstone, minor laminae, minor?bioturbation.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
527.06	527.49	0.43	100	FMLSS, grey, minor carbonaceous laminae and bands from 527.21 m to 527.41 m, minor flaser bedding, very disturbed bedding from 527.39 m to 527.49 m. GBC.		
527.49	527.84	0.35		Interbanded, grey siltstone/white-grey FMLSS (50:50), minor laminae; minor cross-bedding, lenticular bedding, sigmoidal bedding and disturbed bedding. GBC.		
527.84	528.26	0.42		FMLSS, grey, minor lenticular carbonaceous laminae and cross-bedding. Bottom contact dips at 5°.		
528.26	528.43	0.17		Interbanded, grey siltstone/white-grey FMLSS (50:50), minor laminae. Bottom contact dips at 10°.		
528.43	528.77	0.34		Laminite, dark-grey mudstone/light-grey siltstone (50:50), minor cross-bedding and plant-fossil debris. Irregular bottom-contact.		
528.77	529.43	0.66		Interbanded, grey mudstone/white-grey FMLSS (60:40), minor laminae and cross-bedding, minor lenticular laminae and disturbed bedding.		
529.43	529.74	0.31		Mudstone, dark-grey, irregular bedding, minor carbonaceous debris, MLSS bands from 529.64 m to 529.74 m. GBC.		
529.74	530.16	0.42		MLSS, grey-white, minor grey and dark-grey mudstone and siltstone bands and laminae. GBC.		
530.16	530.56	0.40		Laminite, siltstone/mudstone/MLSS (25:25:50).		
530.56	530.69	0.13		Mudstone, grey-brown. GBC.		
530.69	530.77	0.08		FMLSS, grey. Irregular bottom-contact.		
530.77	531.10	0.33		Laminite, grey FLSS/carbonaceous mudstone, silty, minor disturbed bedding. GBC.		
531.10	531.42	0.32		Siltstone, grey, minor FLSS and mudstone laminae. GBC.		
531.42	532.61	1.19	100	Mudstone, grey, minor disturbed bedding and plant-fossil fragments, silty and carbonaceous towards base, slickenside (dipping at 30°) from 531.95 m to 531.97 m, slickenside (dipping at 45°) from 531.99 m to 532.02 m. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

42	GEOLOGICAL LOG	Page:- 20

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
532.61	533.05	0.44	100	FMLSS, porous, secondary calcareous cement, minor carbonaceous laminae and mudstone bands. GBC.		
533.05	535.04	1.99		Mudstone, grey, minor slickensides and FLSS and siltstone bands and laminae, shaly in part, minor disturbed bedding, carbonaceous from 533.25 m to 533.55 m.		
535.04	536.34	1.30		FMLSS, grey mudstone and siltstone bands and laminae from 535.04 m to 535.64 m. GBC.		
536.34	536.38	0.04		Bright coal, broken core.		
536.38	536.47	0.09		Claystone, brown, shaly, crumbly. Bottom contact dips at 5°.		
536.47	536.71	0.24		Interbanded, carbonaceous mudstone/brown-grey mudstone (50:50), minor carbonaceous debris. GBC.		
536.71	536.93	0.22		Laminite, grey FMLSS/grey and grey-brown siltstone (60:40).		
536.93	536.97	0.04		Interbanded, bright coal/brown mudstone (50:50). GBC.		
536.97	537.48	0.51		FMLSS, grey mudstone from 536.97 m to 537.07 m (very broken core), minor siltstone bands.		
537.48	540.96	3.48		FLSS, grey, muscovitic, silty, minor mudstone and LSS bands and laminae, minor carbonaceous laminae and bedding dipping at up to 10°, slickenside at 538.48 m, calcareous band at 538.88 m, minor fine-medium grainsize quartzose sandstone (FMQSS) bands towards base. GBC.		
540.96	542.31	1.35		Interbanded, white-grey FMQSS/grey muddy siltstone, greenish in part, minor cross-bedding and irregular bedding dipping at up to 10°, abundant carbonaceous debris and plant-fossil fragments. GBC.		
542.31	544.56	2.25	100	Medium-grainsize quartzose sandstone (MQSS). White, abundant carbonaceous laminae and bands, minor cross-bedding (dipping at 10°), muscovitic, coarse-grainsize quartzose sandstone (CQSS) bands dipping at up to 30° from 543.97 m to 544.56 m. Irregular bottom-contact.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
544.56	544.63	0.07	100	Mudstone, grey, shaly, abundant plant-fossil fragments, carbonaceous bands and slickensides towards base. GBC.		
544.63	544.71	0.08		Bright coal, 10% dull coal. GBC.		
504.71	544.75	0.04		Carbonaceous mudstone, grading to brown-grey mudstone at base, minor laminae. GBC.		
544.75	544.97	0.22		Mudstone, grey, minor carbonaceous debris. GBC.		
544.97	545.51	0.54		Laminite, FLSS and FMLSS/grey silty mudstone (40:60), disturbed bedding, minor carbonaceous laminae and coaly debris. GBC.		
545.51	545.85	0.34		Mudstone, grey, minor silty and sandy intervals, minor carbonaceous mudstone and plant-fossil debris towards base. GBC.		
545.85	546.91	1.06		FMLSS, grey-white, abundant grey bands and laminae of mudstone and siltstone, minor FLSS intervals, minor undulose bedding dipping at 5°. GBC.		
546.91	547.54	0.63		Mudstone, grey, minor laminae of muddy FLSS. GBC.		
547.54	547.83	0.29		FLSS, mudstone laminae from 547.54 m to 547.64 m, grading to FMLSS at base.		
547.83	547.95	0.12		Laminite, grey siltstone/grey mudstone (50:50), minor plant-fossil debris. GBC.		
547.95	549.12	1.17		Mudstone, grey, minor siltstone laminae, grading to grey-black mudstone at base, plant-fossils at base, GBC.		
549.12	552.10	2.98		MLSS, grey-white, minor FLSS intervals, abundant bands and laminae of grey mudstone and siltstone, abundant coaly and plant-fossil debris, bedding dips at up to 20° from 551.29 m to 551.49 m, calcareous band (radiating trapezoidal internal structure) at 551.59 m. GBC.		
552.10	552.48	0.38		Transition zone, ? bioturbate, abundant MQSS. GBC.		
552.48	553.85	1.37		MQSS, white, sparkly, ? bioturbation from 552.58 m to 552.78 m and from 552.94 m to 553.04 m, faint carbonaceous laminae dipping at up to 20° from 553.04 m to 553.76 m.		
553.85	554.41	0.56		Mudstone, grey and carbonaceous, minor MQSS intervals and lode casts, disturbed bedding. Dipping bottom contact.		
554.41	556.05	1.64	100	MQSS, white, irregular sub-vertical joint from 554.41m to 554.91 m, abundant intervals of grey and carbonaceous mudstone, indurated MLSS at base, ? bioturbation (vertical and sub-horizontal ? burrows) from 555.01 m to 555.41 m.		

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
556.05	556.81	0.76	100	Siltstone, grey, sandy, muscovitic, brown mudstone from 556.05 m to 556.25 m, minor carbonaceous debris. GBC.		
556.81	557.56	0.75		Laminite, MLSS and MQSS/grey and carbonaceous mudstone and siltstone (50:50), lenticular bedding, minor cross-bedding (dipping at up to 20°). GBC.		
557.56	559.72	2.16		MQSS, white, abundant carbonaceous laminae dipping at up to 10°, minor disturbed bedding, joint (dipping at 45°) from 558.49 m to 558.59 m, minor coaly debris from 558.79 m to 559.72 m.		
559.72	560.42	0.70		Mudstone, carbonaceous and grey, grading down to dirty brown-grey MLSS with minor MQSS and bands of grey muddy siltstone. GBC.		
560.42	562.85	2.43		MQSS, white, minor MLSS intervals and carbonaceous laminae dipping at 20°, minor lenticular and disturbed bedding, minor coaly debris from 562.80 m to 562.85 m accompanied by CLSS and mud-pellets, joint (dipping at 45°) from 563.10 m to 563.20 m.		
562.85	563.48	0.63		Mudstone, grey, minor carbonaceous horizons and coaly laminae. GBC.		
563.48	564.02	0.54		Transition zone (grey mudstone with dirty MLSS and minor MQSS).		
564.02	570.30	6.28		MQSS, white, abundant carbonaceous laminae and cross-bedding (dipping at up to 20°), greenish interval from 565.33 m to 565.73 m, calcareous matrix from 569.40 m to 569.70 m.		
570.30	570.57	0.27		Interbanded, green-grey MQSS/carbonaceous mudstone (50:50). GBC.		
570.57	570.94	0.37		Mudstone, grey, minor plant-fossils. GBC.		
570.94	576.83	5.89	100	Siltstone, grey, muscovitic, abundant angular quartz-clasts (up to 4 mm in diameter); abundant slickensides(dipping at 45°) and trace plant-fossils from 570.94 m to 571.53 m, shaly in part, minor sandy intervals. (Upper Marine Sequence of the Parmeener Super Group).		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:- Upper Marine Sequence of the Parmeener Super Group.

REMARKS:- Hole stopped in quartzose sandstone. The top of the probable Duncan seam is at an R.L. of 398.80 m and is 2.57 m thick.

SURVEY DATA			SAMPLE	FROM	TO	RECOVERY		ASSAY RESULTS					
DEPTH metres	Bearing mag.	Inclin. degs	No.	metres	metres	metres	%						

GEOLOGICAL LOG — Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	315.61	315	99	Dolerite, abundant sub-vertical jointing, fine-medium to medium grainsize, veins of quartz, calcite and chlorite occasionally. Basal 0.61 m is fine-grained with sub-vertical jointing. Predominantly massive sticks of core. (Approximately 0.10 m of dolerite has been sampled at 3 m intervals, and stored for future analysis).		
315.61	315.64	0.03	100	Breccia zone. Top and bottom contacts are undulose and sub-horizontal.		
315.64	315.70	0.06		COAL SECTION: Carbonaceous mudstone, very hard, coked, minor red ?sideritic veins, interlocking plates of cindered coal.		1A
315.70	315.79	0.09		Carbonaceous mudstone, minor red ?sideritic veins.		
315.79	315.87	0.08	100	Cindered coal, interlocking framework of carbon platelets, red ?sideritic veins throughout.	to be (cont.)	

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 43	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:-
FINGAL TIER			NQ: 0.00-401.21
R.L. OF SITE:- 785.1 m	SITE SURVEY ON MAP No.:-		CORE SIZE:- BQ: 401.21-506.03
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 9th May, 1979
INCLINATION OF HOLE:- Vertical	DRILL:- Joy-Sullivan 30HD		COMPLETED:- 7th Sept., 1979
CO-ORDS OF SITE:- 587 863.6E 5 385 657.1N	DRILLER:- D. Whammond, D. Summers, A. Dawson		FINAL DEPTH (m):- 506.03

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
315.87	316.04	0.17	100	COAL SECTION: (Contd.) Cindered coal, abundant algal mats, abundant red ?sideritic veins, shaly, calcareous band at 315.97 m (3 mm thick), abundant coked bands and laminae.		
316.04	316.12	0.08		Carbonaceous mudstone/cindered coal (50:50), penny bands of ?aragonite (dipping at 10°), slickensides and calcareous laminae from 316.06 m to 316.09 m, minor red ?sideritic veins.		1A (Contd.)
316.12	316.16	0.04		Carbonaceous mudstone, shaly, coked, abundant slickensides.		
316.16	316.24	0.08		Interbanded, dull coal/bright coal/carbonaceous mudstone (25:25:50), red ?sideritic veins, shaly towards base. Gradational bottom contact (GBC).		
316.24	316.40	0.16		Bright coal/dull coal (50:50), shaly towards base, minor red ?sideritic veins.		
316.40	316.64	0.24		Carbonaceous shale, clayey, coked, minor silty bands, abundant joints and slickensides (dipping at 30°).		
316.64	316.88	0.24		Dull coal/carbonaceous mudstone (50:50), very hard, abundant slickensides (dipping at 45°), coked, shaly at base.		1B (to be Contd)
316.88	316.94	0.06		Carbonaceous shale, minor red ?sideritic veinlets.		
316.94	317.27	0.33	100	Bright coal/dull coal (60:40), cindered, calcite (?kaolinite) on cleat surfaces, minor carbonaceous mudstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% Moisture (as received)	Oven dried basis % Ash	% Vol.	%F.C.
1A	315.64	316.64	1.00	100	7.7	77.6	-	-
1B	316.64	317.49	0.85	100	5.5	65.9	-	-
1C	317.49	318.85	1.16	85	3.2	38.9	13.9	47.2
1D	318.85	319.46	0.61	100	2.1	79.2	-	-
1E	319.46	319.84	0.38	100	2.9	91.5	-	-

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
317.27	317.35	0.08	100	COAL SECTION: (cont.) Carbonaceous mudstone, very hard but brittle, muscovitic.		1B (cont)
317.35	317.49	0.14	100	Carbonaceous mudstone/dull coal (50:50), coked.		
317.49	318.85	1.16	85	Dull coal, coked, minor bright coal and carbonaceous mudstone bands, abundant calcite (?kaolinite) on sub-vertical cleat surfaces, shaly and crumbly in part. (Loss has occurred between 318.49 m and 318.69 m).		1C
318.85	319.46	0.61	100	Carbonaceous mudstone/dull and bright coal bands (80:20), conjugate slickensides from 318.85 m to 318.95 m. GBC.		1D
319.46	319.84	0.38		Carbonaceous mudstone, shaly, slickensided breccia zone (5 mm wide and dipping at 45°) from 319.77 m to 319.82 m. GBC.		1E
319.84	321.48	1.64		Mudstone, grey, carbonaceous from 320.21 m to 320.31 m, shaly from 320.21 m to 320.71 m, silty from 321.18 m to 321.48 m. GBC.		
321.48	322.69	1.21		Shale, grey.		
322.69	322.79	0.10		Mudstone, green-grey, shaly, clayey.		
322.79	323.01	0.22		Mudstone, dark-grey; creamy claystone band from 322.85 m to 322.86 m, flakey, shaly; slickenside (dipping at 45°) from 322.95 m to 322.99 m; shaly from 322.95 m to 323.01 m. GBC.		
323.01	323.21	0.20	100	Siltstone, grey, muscovitic. GBC.		

Continued over

ASSAY DATA Note: bracketed figures are calculated.

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Fraction	Feed (%) mass	Feed (%) ash	Cum. Floats % mass	Cum. Floats % ash	Cum. Sinks % mass	Cum. Sinks % ash	% Ash Dist.		
Washability tests on a composite of samples 1A, 1B and 1C.					F/T 1.4	3.4	7.7	3.4	7.5	100	(60.0)	0.4		
					F/T 1.6	18.7	16.6	22.1	(15.2)	96.6	(61.8)	5.2		
					F/T 1.8	8.8	38.0	30.9	(21.7)	77.9	(72.7)	5.6		
					S/K 1.8	69.1	77.1	100	(50.0)	69.1	77.1	88.8		
					Head	100	(60.0)					100		
								Ash	On Dry Vol.	Basis (%) F.C.	S		S.E. MJ/kg	A.F., °C
					C/F/T 1.6	22.1	15.2	14.5	10.7	74.8	0.36	5.6	29.1	1260
					C/S/K 1.6	77.9	72.7	73.5	16.1	10.4	<0.01	94.4	-	-
					Head	100	60.0					100		

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
323.21	324.19	0.98	100	Fine-grainsize lithic sandstone (FLSS) grading to fine-medium grainsize lithic sandstone (FMLSS) and medium-grainsize lithic sandstone (MLSS) at base, grey, abundant carbonaceous laminae and contorted bedding (dipping at up to 10°), muscovitic, plant-fossils on bedding planes. GBC.		
324.19	335.38	11.19		MLSS, grey-white, massive bedding (dipping at up to 10°), minor carbonaceous laminae from 324.19 m to 327.64 m; minor coaly debris and coarse-grainsize lithic sandstone (CLSS) intervals; minor carbonaceous laminae (dipping at up to 10°) from 328.81 m to 329.21 m, from 329.31 m to 329.63 m, from 330.81 m to 331.61 m, from 334.07 m to 334.12 m, from 334.24 m to 334.34 m, from 334.63 m to 335.21 m and at 335.23 m; FLSS interval from 329.63 m to 330.11 m; mudstone and siltstone pebbles, bedding dipping at up to 20° from 330.81 m to 331.41 m; intraformational conglomerate from 331.41 m to 331.61 m; grey-blue mudstone from 332.62 m to 332.84 m; slickenside (dipping at 20°) from 332.76 m to 332.78 m; mudstone pebbles from 332.84 m to 333.11 m and from 334.63 m to 335.21 m; joints (dipping sub-vertically) from 334.35 m to 334.75 m and from 335.24 m to 335.38 m, twin joints (dipping at 45°) from 335.13 m to 335.21 m; slickenside (dipping at 10°), at 334.91 m. Undulose, irregular bottom-contact.		
335.38	335.51	0.13		COAL SECTION: Bright coal, abundant slickensides.		2A (to be Cont)
335.51	335.70	0.19		Laminite, grey-blue mudstone/dark-grey and carbonaceous mudstone (60:40), clayey, abundant slickensides and plant-fossil fragments, disseminated pyrite. GBC.		
335.70	335.79	0.09	100	Interbanded, dull coal/carbonaceous mudstone (50:50). GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% Moisture (as received)	On Dry Basis % Ash	% Vol.	% F.C.
2A	335.38	335.84	0.46	100	3.4	67.9	-	-
2B	335.84	336.74	0.90	100	3.0	24.9	32.1	43.0

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
335.79	335.84	0.05	100	COAL SECTION: (cont.) Claystone, brown-grey, shaly, micaceous.		2A
335.84	336.74	0.90		Dull coal, minor crumbly bright-coal bands, slickensides and brown-clay band from 336.09 m to 336.12 m, undulose and lenticular pyritic band from 336.52 m to 336.54 m; strong cleat development from 335.84 m to 336.44 m.		2B
336.74	336.99	0.25		Siltstone, grey. GBC.		
336.99	337.44	0.45		FLSS, grey. GBC.		
337.44	338.11	0.67		Mudstone, grey; minor slickensides, twisted carbonaceous laminae and coaly debris. GBC.		
338.11	338.21	0.10		FLSS, grey, clayey. GBC.		
338.21	339.20	0.99	100	Interbedded, siltstone/FLSS (50:50), minor plant-fossil debris and muscovite flakes on bedding planes. GBC.		
339.20	345.99	6.75	99	Mudstone, blue-grey, slickensides (dipping at 45°) every 0.40 m, minor carbonaceous laminae and plant-fossil fragments, shaly in part; claystone interval (brown, flakey) from 339.49 m to 339.58 m, slickenside (dipping at 45°) from 339.47 m to 339.52 m. Undulose bottom-contact.		
345.99	346.30	0.31	100	Dull coal/heavy dull coal (50:50), minor bright-coal laminae. GBC.		
346.30	348.42	2.12		Mudstone, blue-grey; abundant slickensides (dipping at 45°), carbonaceous mudstone, dull coal and brown claystone bands from 347.57 m to 348.02 m (the last three lithologies particularly abundant from 347.74 m to 347.96 m). GBC.		
348.42	349.54	1.12		FLSS, grading to siltstone at base, minor siltstone banding.		
349.54	349.97	0.43		MLSS, grey-white, massive bedding.		
349.97	350.21	0.24	100	Siltstone, grey.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
350.21	363.73	13.52	100	MLSS, grey-white, minor carbonaceous laminae; siltstone pebbles and bands at 350.22 m to 350.25 m, from 350.66 m to 350.85 m, from 351.82 m to 351.86 m and from 359.51 m to 360.01 m; minor bedding dipping at up to 30°. Sub-horizontal bottom-contact.		
363.73	365.21	1.48		Mudstone, grey-blue, grading down to FMLSS, minor cross-bedding and carbonaceous laminae (dipping at 5°).		
365.21	365.37	0.16		FMLSS. Irregular bottom-contact.		
365.37	365.67	0.30		Mudstone, blue-grey, slickenside from 365.57 m to 365.62 m.		
365.67	366.01	0.34		Interbedded blue-grey mudstone/carbonaceous mudstone. GBC.		
366.01	366.30	0.29		Mudstone, brown-grey, abundant slickensides, shaly, clayey.		
366.30	366.63	0.33		Interbedded, heavy dull coal/brown-grey mudstone (50:50), minor bright coal bands.		
366.63	368.01	1.38		Siltstone, grey, minor mudstone bands, FMLSS bands towards base; abundant slickensides, bright coal laminae, shaly claystone - and carbonaceous - mudstone - bands and plant-fossil fragments from 367.16 m to 367.45 m.		
368.01	368.68	0.67	100	Intraformational conglomerate (interbedded, grey-blue siltstone/grey-white FMLSS (50:50)).		
368.68	386.30	17.57	99	MLSS, minor carbonaceous laminae and coaly debris, abundantly massively bedded, claystone band from 374.30 m to 374.35 m (carbonaceous), mud-pellet band with minor calcareous matrix from 316.61 m to 316.77 m, slickenside (dipping at 30°) from 380.23 m to 380.25 m, brown-grey siltstone band from 381.58 m to 381.69 m, slickenside (dipping at 45°) from 381.59 m to 381.64 m, bedding dips at 10° at 381.69 m, minor FMLSS and CLSS with abundant coaly debris and mud-pellet bands (bedding dipping at up to 20°) from 381.69 m to 386.21 m, large - scale cross-bedding from 383.21 m to 386.21 m, slickenside (dipping at 45°) and joints (dipping sub-vertically) from 383.61 m 383.71 m. Bottom contact dips at 5°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
386.30	386.60	0.30	100	COAL SECTION: Dull coal, penny stone band (slickensided, dipping at 5°) at 386.31 m, poorly-developed cleat (dipping sub-vertically), bright-coal laminae from 386.440 m to 386.445 m, broken coal from 386.58 m to 386.60 m.		
386.60	386.63	0.03		Mudstone, brown-grey, clayey, carbonaceous in part, clay-pellets up to 3 mm in diameter. Undulose, irregular bottom-contact dips at 2°.		
386.63	386.72	0.09		Dull coal, 25% bright coal laminae and bands, joint (dipping sub-vertically) from 386.63 m to 386.72 m.		
386.72	386.79	0.07		Dull coal, minor bright coal laminae, lenticular creamy-brown clayey mud-stone band from 386.720 m to 386.725 m.		
386.79	387.18	0.39		Dull coal, cleat (dipping sub-vert-ically), minor calcareous veins. Bottom contact dips at 10°. Broken core.		
387.18	387.22	0.04		Bright coal, very hard, minor cellular-textured resinous coal (?exinite), interlocking network of ?kaolinite veins. Irregular bottom contact.		3A
387.22	387.32	0.10		Dull coal, minor bright-coal bands and laminae from 387.22 m to 387.26 m.		
387.32	387.33	0.01		Mudstone, brown, poorly carbonaceous.		
387.33	387.38	0.05		Interbanded, dull coal/bright coal (50:50), minor clay-pellets and -laminae.		
387.38	387.40	0.02		Claystone, creamy-brown, abundant plant-fossil fragments and coaly debris.		
387.40	387.67	0.27	100	Dull coal, well developed cleat (dipping sub-vertically), minor bright-coal-bands and -laminae.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% Moisture (as received)	On Dry Basis % Ash	% Vol	%F.C.
3A	386.30	387.67	1.37	100	2.8	27.8	29.1	43.1
3B	387.67	388.87	1.20	100	2.3	28.7	29.6	41.7

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
387.67	387.72	0.05	100	COAL SECTION: (Contd.) Dull coal, 25% bright-coal bands, minor calcareous veins. GBC. Broken core.		
387.72	387.84	0.12		Dull coal, 25% bright coal bands.		
387.84	387.85	0.01		Bright coal, kaolinite on sub-vertically-dipping cleat.		
387.85	388.02	0.17		Dull coal, 25% bright coal bands.		
388.02	388.07	0.05		Resinous coal with cellular texture (?exinite microlitho type), minor carbonaceous mudstone and bright coal bands. GBC.		
388.07	388.26	0.19		Dull coal.		
388.26	388.29	0.03		Laminite, carbonaceous mudstone/ white-grey claystone (70:30).		
388.29	388.40	0.11		Dull coal, minor bright coal.		3B
388.40	388.44	0.04		Carbonaceous mudstone, minor clay-pellets, abundant vermiform platelets and phenocrysts of pink-brown ?aragonite at 388.44 m.		
388.44	388.50	0.06		Heavy dull coal, very hard.		
388.50	388.58	0.08		Interbanded, dull coal/carbonaceous mudstone (50:50), cleat (dipping sub-vertically).		
388.58	388.87	0.29		Dull coal, minor bright-coal bands, cleat (dipping sub-vertically). Bottom contact dips at 5°. Broken core.		
388.87	389.56	0.69		Mudstone, blue-grey, minor plant-fossil fragments and carbonaceous debris. GBC.		
389.56	390.08	0.52		Siltstone, grey. GBC.		
390.08	391.16	1.08		FLSS, grey. GBC.		
391.16	391.62	0.46	100	FMLSS, grey. GBC.		
391.62	410.86	19.10	99	MLSS, massive bedding, minor FMLSS, FLSS and CLSS bands, minor carbonaceous laminae, mud-pellets and coaly debris, grey-white.		
410.86	410.97	0.10	91	Mudstone, grey, minor carbonaceous mudstone and coaly debris, abundant slickensides. GBC.		
410.97	411.07	0.10	100	Conglomerate (mudstone-pebbles). Undulose bottom-contact.		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Fraction	Feed % mass	Feed % ash	Cum. Floats % mass	Cum. Floats % ash	Cum. Sinks % mass	Cum. Sinks % ash	% Ash Distr.	S.E. MJ/kg	A.F. °C
Washability tests on a composite of samples 3A and 3B					F/T 1.4	24.5	9.8	24.5	9.8	100	(27.1)	8.8		
					F/T 1.6	49.8	20.7	74.3	(17.1)	75.5	(32.8)	38.0		
					F/T 1.8	10.1	42.3	84.4	(20.1)	25.7	(56.1)	15.8		
					S/K 1.8	15.6	65.1	100	(27.1)	15.6	65.1	37.4		
					Head	100	(27.1)					100		
								Dry Basis %						
								Ash	Vol.	F.C.	S			
					C/F/T 1.6	74.3	17.1	17.4	32.5	50.1	0.35	46.8	26.6	1520
					C/S/K 1.6	25.7	56.1	57.0	25.0	18.0	0.11	53.2	-	-
					Head	100	27.1					100		

43	GEOLOGICAL LOG	Page:- 9

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
411.07	411.42	0.35	100	MLSS, grey-white, minor coaly debris and CLSS intervals with sub-vertically-dipping joints from 411.27 m to 411.42 m. Bottom contact dips at 30°.		
411.42	411.56	0.14		Carbonaceous mudstone, shaly, bedding dips at 20°, minor coaly debris, clayey. Bottom contact dips at 20°.		
411.56	411.93	0.37		MLSS, grey, massive bedding, minor coaly debris.		
411.93	411.99	0.06		Dull coal. GBC.		
411.99	412.18	0.19		Carbonaceous mudstone, minor bright coal bands, shaly, minor slickensides (dipping at 30°). Irregular, undulose bottom-contact.		
412.18	412.70	0.52		Mudstone, grey, slickenside (dipping at 45°) from 412.21 m to 412.26 m, silty from 412.40 m to 412.70 m. GBC.		
412.70	413.34	0.64		FLSS, abundant carbonaceous laminae (dipping at 5°), minor microfaulting (normal faults dipping at 45°), cross-bedding from 413.12 m to 413.34 m, bedding dipping at 10°, irregular joint (dipping sub-vertically) from 413.12 m to 413.34 m. GBC.		
413.34	413.44	0.10		Mudstone, grey, irregular joint (dipping sub-vertically) from 413.34 m to 413.44 m. Undulose, irregular bottom-contact.		
413.44	413.51	0.07		Carbonaceous mudstone/grey mudstone (70:30), minor coaly laminae and debris. Bottom contact dips at 20°.		
413.51	413.65	0.14		FLSS grading to MLSS, grey. Irregular bottom contact dips at 30°.		
413.65	413.86	0.21		Mudstone, grey, slickenside (dipping at 45°) from 413.83 m to 413.87 m.		
413.86	414.46	0.60	100	FMLSS, grey-white, minor calcareous matrix and coaly debris. GBC.		
414.46	425.24	10.55	98	MLSS, grey-white, massive bedding, minor carbonaceous laminae and coaly debris, minor mudpellet bands and FLSS bands (particularly from 422 m to 425 m). Bottom contact dips at 5°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
425.24	425.85	0.21	34	Mudstone, grey-blue, shaly.		
425.85	426.35	0.50	100	Interbanded, MLSS/carbonaceous siltstone (70:30), abundant carbonaceous laminae, minor cross-bedding (dipping at 5°). GBC.		
426.35	428.33	1.72	87	Laminite, grey-blue mudstone/grey FMLSS (70:30), minor cross-bedding (dipping at up to 10°). GBC.		
428.33	428.85	0.52	100	MLSS, grey, minor carbonaceous mudstone bands and laminae, bedding dips at 5°. GBC.		
428.85	429.07	0.22		Mudstone, dark-grey. GBC.		
429.07	429.37	0.30		Interbanded, dark-grey mudstone/MLSS (60:40). GBC.		
429.37	429.93	0.56	100	MLSS, grey, abundant dark-grey mudstone bands and laminae (dipping at 5°). Broken core (from drilling) from 429.83 m to 429.93 m.		
429.93	431.12	0.06	5	Grey shale. Ground away by drilling.		
431.12	432.15	1.03	100	Mudstone, blue-grey, silty, minor FLSS intervals.		
432.15	432.57	0.12	29	Mudstone, blue-grey. Ground away by drilling. Minor plant-fossil fragments.		
432.57	434.36	1.79	100	COAL SECTION: Dull coal with minor bright-coal bands and laminae and sparse carbonate and kaolinite on cleat surfaces. Close ly spaced cleat (resulting in broken core) from 432.87 m to 432.99 m, from 433.04 m to 433.23 m and from 433.29 m to 433.38 m. Cleat (dipping at 45°) from 433.51 m to 433.57 m, from 433.64 m to 433.72 m and from 433.92 m to 433.98 m. White FLSS bands with minor calcareous matrix from 432.61 m to 432.62 m, from 432.64 m to 432.65 m and from 433.58 m to 433.61 m. Carbonaceous mudstone bands from 432.60 m to 432.61 m, from 432.65 m to 432.71 m, from 433.23 m to 433.29 m and from 433.95 m to 433.97 m. Laminite (carbonaceous mudstone/grey mudstone (50:50)) from 433.48 m to 433.52 m and from 433.83 m to 433.86 m.		4 (to be Con-t.)

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% Moisture (as received)	Dry Basis, % Ash	Vol.	F.C.
4	432.57	434.36	1.79	100	2.5	39.9	25.5	34.6
5A	438.58	439.65	1.07	100	4.7	50.8	-	-
5B	439.65	440.73	1.08	100	4.9	72.7	-	-

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				COAL SECTION: (cont.) Grey-brown mudstone with coal lenticles (bottom contact dips at 5°) from 433.89 m to 433.91 m. Heavy dull coal from 433.40 m to 433.45 m. Coal with cellular texture and calcareous-veins from 433.86 m to 433.89 m. Carbonaceous mudstone from 434.14 m to 434.22 m. Minor calcareous veins at base. Bottom contact dips at 2°.		4 (cont)
434.36	438.56	4.07	97	Mudstone, grey, speckly, silty. Slickensides (dipping at 45°) from 437.52 m to 437.62 m. Irregular bottom-contact.		
438.56	438.58	0.02	100	Claystone, brown, abundant calcareous veins and carbonaceous flecks.		
438.58	439.05	0.47		COAL SECTION: Dull coal, well-developed cleat. GBC.		
439.05	439.07	0.02		Carbonaceous mudstone. GBC.		5A
439.07	439.41	0.34		Dull coal, well-developed (sub-vertically dipping) cleat. Bottom contact dips at 10°.		
439.41	439.65	0.24		Carbonaceous mudstone, shaly, abundant plant-fossil fragments.		
439.65	439.94	0.29		Siltstone, grey-blue, muddy, abundant carbonaceous flecks. GBC.		
439.94	440.12	0.18		Carbonaceous mudstone, shaly. Broken core from 440.07 m to 440.12 m.		
440.12	440.17	0.05		Interbanded, carbonaceous FMLSS/ brown mudstone (40:60). GBC.		5B
440.17	440.39	0.22		Heavy dull coal, well-developed cleat. GBC.		
440.39	440.43	0.04		Carbonaceous shale. Slickenside (dipping at 30°) at base.		(to be cont).
440.43	440.58	0.15		Dull coal, well-developed cleat.		
440.58	440.61	0.03	100	Laminite, creamy-brown claystone/ carbonaceous mudstone (50:50), minor lenticular laminae. Bottom contact dips at 5°.		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Fraction	Feed % mass	Feed % ash	Cum. Floats % mass	Cum. Floats % ash	Cum. Sinks % mass	Cum. Sinks % ash	%Ash Distr.		
Washability tests on sample 4.					F/T 1.4	7.0	10.7	7.0	10.7	100	(38.9)	1.9		
					F/T 1.6	44.0	20.7	51.0	(19.3)	93.0	(41.0)	23.5		
					F/T 1.8	13.7	39.6	64.7	(23.6)	49.0	(59.2)	13.9		
					S/K 1.8	35.3	66.8	100	(38.9)	35.3	66.8	60.7		
					Head	100	(38.9)					100		
								On Dry Basis %					S.E. MJ/kg	A.F., °C
								Ash	vol.	F.C.	S			
					C/F/T 1.6	51.0	19.3	19.6	29.1	51.3	0.33	25.4	25.9	1600
					C/S/K 1.6	49.0	59.2	59.4	22.3	18.3	0.09	74.6	-	-
					Head	100	38.9					100		

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
440.61	440.69	0.08	100	COAL SECTION: (cont.) Dull coal. Bottom contact dips at 5°.		
440.69	440.73	0.04		Laminite, dull coal/grey mudstone (60:40), contorted lenticular laminae dipping at up to 10°. Undulose bottom contact dips at 5°.		5B (cont)
440.73	443.12	2.39		Mudstone, grey, minor slickensides (dipping at 45°), bedding dips at up to 30° from 440.73 m to 442.43 m, carbonaceous mudstone with abundant slickensides and calcareous bands from 441.45 m to 441.49 m, bright coal from 442.17 m to 442.21 m. Minor shaly horizons. Carbonaceous bands and contorted bedding from 440.73 m to 441.23 m. Sandy from 442.82 m to 443.12 m. GBC.		
443.12	444.32	1.20	100	FLSS, grey, minor carbonaceous laminae and cross-bedding (dipping at up to 10°).		
444.32	457.45	13.07	99	MLSS, grey, massive bedding, minor carbonaceous laminae, minor calcareous matrix, minor FLSS bands.		
457.45	459.50	2.05	100	COAL SECTION: Heavy dull coal/carbonaceous mudstone (50:50), shaly, minor grey siltstone laminae from 458.12 m to 459.50 m. GBC.		6A
459.50	459.85	0.35		Laminite, carbonaceous mudstone/grey siltstone (50:50), minor grey-brown mudstone and grey FLSS laminae and bands, minor slickensides (dipping at 45°).		6B
459.85	461.46	1.61		Mudstone, grey, minor grey-brown shaly and sandy intervals, minor carbonaceous laminae and contorted bedding. GBC.		
461.46	467.12	5.66	100	FMLSS, grey-green, minor carbonaceous laminae and FLSS bands, minor clayey and silty intervals, calcareous matrix from 465.32 m to 465.53 m, expansive-clay matrix from 465.53 m to 466.16 m. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% Moisture (as received)	Dry Basis, % Ash	Vol.	F.C.
6A	457.45	459.50	2.05	100	5.6	78.9	-	-
6B	459.50	459.85	0.35	100	5.6	81.9	-	-

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
467.12	468.22	1.10	100	MLSS, grey-brown, abundant expansive-clay matrix.		
468.22	468.26	0.04		Dull coal. GBC.		
468.26	468.30	0.04		Carbonaceous mudstone, minor coaly debris and carbonaceous laminae. Irregular bottom-contact.		
468.30	469.20	0.90		Mudstone, grey, contorted and whispy carbonaceous laminae, minor slickensides. GBC.		
469.20	470.72	1.52		FMLSS, grey, minor mudstone and carbonaceous laminae (dipping at up to 5°).		
470.72	471.04	0.32		Siltstone, grey, minor dark-grey laminae (dipping at 5°), sandy in part.		
471.04	471.49	0.45		Laminite, grey siltstone/dark-grey mudstone (40:60). GBC.		
471.49	471.83	0.34		Mudstone, grey, abundant slickensides, grades to dark-grey mudstone at base.		
471.83	472.74	0.91		Carbonaceous mudstone, sandy at base. GBC.		
472.74	473.58	0.84	100	MLSS, carbonaceous, minor contorted bedding and mud-pellets. GBC.		
473.58	476.03	2.40	98	Interbanded MLSS/carbonaceous mudstone (60:40), fissile in part.		
476.03	485.10	9.07	100	MLSS, grey, massive bedding, green-grey in part, bedding dips at up to 10°; minor carbonaceous laminae, coaly debris, FLSS and FMLSS bands and mud-pellet conglomerate bands. Bottom contact dips at 20°.		
485.10	487.53	2.43		Siltstone, abundant plant-fossil fragments, dark-grey and light-grey bands, minor fine-scale cross-bedding and sedimentary ?rollover structures, abundant carbonaceous laminae, minor FLSS bands. GBC.		
487.53	489.20	1.67	100	FMLSS, grey-white, minor fine-scale trough cross-bedding and whispy carbonaceous laminae, grey siltstone interval from 488.80 m to 488.92 m, minor pyrite phenocrysts and calcite deposits on the surface of a sub-vertically-dipping irregular joint from 487.53 m to 489.09 m; carbonaceous mudstone/dull coal (50:50) from 489.13 m to 489.16 m. Irregular bottom contact dips at 5°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

43	GEOLOGICAL LOG	Page:- 14

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
489.20	490.31	1.11	100	Mudstone, grey, carbonaceous mudstone and dull coal bands from 489.92 m to 490.00 m and from 490.15 m to 490.27 m; slickensides (dipping between 30° and 45°) from 489.51 m to 489.54 m, from 489.61 m to 489.67 m, from 489.67 m to 489.70 m, from 489.76 m to 489.77 m, from 490.07 m to 490.08 m and from 490.27 m to 490.29 m. Interdigitating bottom-contact.		
490.31	490.59	0.28		Interbedded, MLSS/medium-grainsize quartzose sandstone (MQSS) (50:50), bioturbated. GBC.		
490.59	492.13	1.54		Interbedded, MLSS/grey mudstone (50:50), slickenside zone from 490.60 m to 490.69 m and from 490.83 m to 491.01 m (dipping at 60°), broken core from 490.83 m to 491.01m.		
492.13	492.27	0.14		Carbonaceous shale, calcite vein from 492.14 m to 492.15 m, clayey.		
492.27	492.84	0.57		Interbanded, grey MLSS/dark-grey shaly mudstone (40:60), abundant slickensides (resulting in broken core) from 492.75 m to 492.84 m. Undulose bottom-contact.		
492.84	493.76	0.92		FMLSS, grey, 20% MQSS from 492.84 m to 493.04 m, joint (dipping at 45° and calcareous coating on surface) from 492.86 m to 492.93 m, minor carbonaceous laminae (dipping at 5°). Irregular undulose bottom-contact.		
493.76	494.47	0.71		Laminite, carbonaceous shale/grey shale (60:40).		
494.47	497.22	2.75		Siltstone, grey, minor grey and carbonaceous mudstone intervals, abundant cross-bedding from 496.62 m to 497.22 m, slickenside (dipping at 30°) from 495.76 m to 495.79 m. GBC.		
497.22	498.41	1.19		Mudstone, grey, abundant slickensides (dipping at up to 60°) from 497.72 m to 498.41 m, carbonaceous band from 498.29 m to 498.41 m. Slickensided bottom-contact.		
498.41	499.00	0.59	100	MLSS, grey, abundant dark-grey siltstone bands and laminae, abundant vertical ?bioturbate structures. Irregular bottom-contact.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

43				GEOLOGICAL LOG	Page:- 15	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
499.00	499.86	0.86	100	Mudstone, grey, minor slickensides and shaly intervals. GBC.		
499.86	499.88	0.02		Dull coal/carbonaceous mudstone (50:50).		
499.88	499.94	0.06		Claystone, brown-grey, flakey.		
499.94	500.03	0.09		Dull coal/carbonaceous mudstone (50:50).		
500.03	510.76	1.73		Mudstone, grey, abundant slickensides and plant-fossil fragments, shaly; carbonaceous mudstone/slickensided dull coal (50:50) from 500.43 m to 500.57 m.		
501.76	501.96	0.20		FMLSS, grey, calcareous matrix, radiating calcareous veins. Slickensided bottom-contact.		
501.96	502.30	0.34		FMLSS, grey, minor fine-scale trough cross-bedding.		
502.30	502.75	0.45		Mudstone, grey, shaly. GBC.		
502.75	503.62	0.87		FMLSS, dark-grey, abundant siltstone and mudstone bands and laminae, lenticular MQSS bands from 503.32 m to 503.62 m, joint (dipping sub-vertically) from 503.42 m to 503.72 m. GBC.		
503.62	504.18	0.56		Interbanded, MQSS/dark-grey and carbonaceous mudstone (60:40), disturbed bedding dipping at 5°. GBC.		
504.18	505.80	1.62		MQSS, abundant grey and carbonaceous siltstone bands and laminae, fine-scale cross-bedding, broken core from 505.65 m to 505.80 m. Irregular, undulose bottom-contact.		
505.80	506.03	0.23	100	Laminite, FLSS/mudstone (60:40), grey-green, fine-scale cross-bedding. (Drilling discontinued in basal quartzose sandstone of the Upper Freshwater Sequence of the Parmeener Super Group).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:- Upper Marine Sequence of Parmeener Super Group

REMARKS:-

SURVEY DATA			ASSAY DATA											
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS						

GEOLOGICAL LOG Logged by:-

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0	176.09	176.09	100	Dolerite, hard, medium grained; (0.10 m has been sampled every 3 m and stored for future use).		
176.09	177.87	1.78	100	Medium-grained dolerite with abundant sub-horizontal to sub-vertical joints predominantly at 30°-60° and spaced from 1-5 cm apart. GBC.		
177.87	178.16	0.29	100	Fine grained dolerite grading to glassy at the contact with angular dark-green to black phenocrysts being abundant, size of phenocrysts is 1-2 mm^c. Bottom contact is gently undulose and dipping at 5°.		
178.16	181.46	3.30	96	Thermally metamorphosed interbanded mudstone, siltstone and claystone; abundant algal mats, shaley, brittle, coloured green, cream, grey, blue-grey and purple, but generally black in appearance. Core parts readily "blotchy" appearance; many microfaults with throws of 1 cm or so. Lenticular bands and mud pellets common; occasional biotite flakes 1 mm wide, bedding dips 20°. Light in colour from 179.09-181.46 m.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 44	MAP SHEET No.	DISTRICT FINGAL	LOCATION OF SITE:-
FINGAL TIER			
R.L. OF SITE:- 668.5	SITE SURVEY ON MAP No.:		CORE SIZE:- NQ
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:-
INCLINATION OF HOLE:- 90°	DRILL:- LONGYEAR 44		COMPLETED:- 19/12/1979
CO-ORDS OF SITE:- 556,907.4 E 5,336,009.9 N	DRILLER:- G. Mitchell; S. Mitchell; D. Summers A. Dawson		FINAL DEPTH (m):- 107.28m

M1029

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				Core loss of 12cm from 178.16 - 179.09m; loss due to core being ground away. Recovery of this interval is 87%. GBC.		
181.46	185.29	3.83	100	Hornfelsed MLSS, with minor FMLSS bands minor small scale cross bedding dipping up to 10° creamy-white in colour, with abundant biotite flakes 1.2mm wide. Minor carbonaceous intervals and bands from 182.15 - 185.09m, along with minor sub-vertical jointing; abundant small scale festoon cross bedding from 185.40 - 185.49m. Bottom contact dips 15° and is extremely irregular and undulosed.		
185.29	186.26	0.97	100	Interbanded mudstone and siltstone with abundant jointing. Unit hornsfelsed. White and pink calcite veins and 'blobs' from 185.73 - 183.84m. A slickenside zone dipping 30° runs from 185.79 - 185.84m; a slickenside with a 15° dip occurs from 186.14 - 186.19m, dark grey mudstone interval from 185.94 - 186.26m. Breccia zone from 185.79 - 185.84m, with green mudstone and calcite intermixed. GBC.		
186.26	189.10	2.84	100	Interbanded white-grey MLSS with calcareous matrix, carbonaceous dark grey mudstone and grey FMLSS, (40:20:40). Cross bedding common unit is laminated in places with irregular and disturbed bedding common; bedding dips up to 30°. FMLSS interval from 187.68 - 188.66m. Flattened mudstone pellets from 187.93 - 188.08m. Bottom contact dips 30° and interdigitates with lower unit.		
189.10	195.31	6.21	100	MLSS with abundant carbonaceous debris in carbonate rich matrix. Quartz rich from 189.10 - 190.10m; minor cross bedding and abundant bands of carbonaceous mudstone and siltstone		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				Bedding dips up to 30°; most bedding however dips between 0-10°. Minor bright coal bands and lenticules and bands of carbonate on cleat surfaces. Sub-vertical joint from 190.57-190.80 m. Abundant coaly debris and mud pellet bands from 193.88-194.08 m; mud pellets and minor carbonate in matrix from 195.6-31 m. Carbonaceous mudstone interval from 195.15-.23 m, SBC, dips 5°.		
				COAL SECTION		
195.31	196.13	0.82	100	Interbedded dull coal and carbonaceous mud-stone, shaley, with bedding dipping at 10°.		
				(NOT SAMPLED) Abundant calcite on cleats in coal; minor bright coal bands and minor slickensides, undulose bottom contact.		
196.13	198.90	2.77	100	Interbanded light and dark grey mudstone and siltstone (80/20), with minor cross bedding, and abundant lenticular bands and laminae; minor bioturbation from 195.31-197.08; abundant sinuous sub-vertical burrows up to 10 cm long plus FMLSS bands and beds from 197.08-198.87. Slickensides with dips up to 30°-45° common from 198.07-198.87. Bottom contact slickensided, top of contact at 198.87, bottom of contact at 198.90.		
				COAL SECTION		
198.90	199.66	0.76	100	(not sampled) Interbedded dull and bright coal with carbonaceous shale and carbonaceous mudstone (20:30:30:20). Abundant calcite on cleat; cleat has en-eschelon form. Minor red mineral (siderite or baked kaolinite).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

44	GEOLOGICAL LOG	Page:- 4/15

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
199.66	200.72	1.06	100	Interbanded light grey mudstone and siltstone (80/20) with abundant slickensides from 199.66 - .76 m. Predominantly dark grey mudstone (80%) from 200.38 - .72 m, minor laminae and sparse cross bedding and slickensides dipping at 45° from 200.38 - 77 m, carbonaceous mudstone and shale interval from 202.12 - .58 m; dull coal and carbonaceous shale interval from 202.90 - 203.06 m. Abundant sub-vertical streaks (probably bioturbation) and sub-vertical jointing common.		
200.72	204.43	3.71	100	FMLSS, grey white with contorted and disturbed bedding. Minor dark grey siltstone bands.		
204.43	207.24	2.81	100	Interbanded grey mudstone and siltstone with occasional (bioturbation, disturbed bedding, abundant FLSS and FMLSS bands, minor carbonaceous laminae. Interdigitating bottom contact with minor brown shale band from 207.54 - .57 m.		
207.24	211.23	3.89	100	Grey-white, massive MLSS with minor carbonaceous streaks, bedding dips up to 5°. SBC, dips 5°.		
				COAL SECTION		
211.23	211.32	0.09	100	(Not sampled) Carbonaceous mudstone, poorly shaley with minor dull coal		
211.32	211.42	0.10	100	Grey brown mudstone with minor carbonaceous flecks, irregular and undulosed top and bottom contacts.		
211.42	211.79	0.37	100	Dull coal with minor carbonaceous mudstone bands and bright coal bands, slickensides from 211.42 - .49 m. GBC		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				COAL SECTION - cont..		
211.79	212.04	0.25	100	Interbanded dull coal, carbonaceous mudstone and grey mudstone, with minor bright coal laminae. GBC; slickenside dipping 30° from 211.86-90 m.		
212.04	212.21	0.17	100	Grey silty mudstone, GBC.		
212.31	212.36	0.32	100	Light grey mudstone, silty, sandy, with minor cross bedding and carbonaceous flecks and steaks; minor slickensides dipping at 10°. GBC.		
212.36	212.94	0.58	100	FMLSS with minor silty bands, GBC.		
212.94	214.26	1.32	100	Interbanded FLSS, grey, with siltstone and mudstone, (30:40:30). Minor cross bedding dipping up to 10°, undulose, irregular bottom contact dipping at 20°.		
214.26	215.80	1.54	100	MLSS, grey and white in colour, massive, with minor silty bands dipping at 5°. GBC, dips 2°.		
215.80	218.55	2.75	100	Interbanded FLSS, siltstone and mudstone (30:40:30) with abundant MLSS intervals from 217.10-218.10 m; and a mud pellet conglomerate band from 217.60-218.10 m; minor cross bedding; GBC.		
218.55	227.64	9.09	100	MLSS, grey-white in colour, massive, minor coaly debris and carbonaceous laminae from 219.32-220.72 m, 223.30-224.41 m, minor CLSS intervals. GBC.		
227.64	228.72	1.08	100	Grey mudstone with abundant slickensides dipping 30-45° from 227.64-84 m; interval of interlaminated FLSS and siltstone (70:30) from 228.01-41 m; abundant bioturbation.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

44	GEOLOGICAL LOG	Page:- 6/15

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				COAL SECTION		
228.72	229.00	0.32	100	(Not sampled) Grey mudstone with carbonaceous mudstone (30:70); abundant irregular bedding and lenticules from 228.72-.92 m. GBC		
229.00	229.15	0.11	100	Slickensided, jointed, carbonaceous mudstone with some heavy dull coal, shale band from 229.07-.09 m; slickensides dip 45° and are spaced 1 cm apart. GBC		
229.15	229.31	0.16	100	Grey-brown clayey mudstone, shaley over basal 8 cm, with abundant carbonaceous streaks.		
229.31	229.45	0.14	100	Dull coal with sub-vertical cleat, GBC		
229.45	229.73	0.28	100	Grey mudstone with abundant carbonaceous flecks and streaks; a slickenside zone, runs from 229.78-.84 m; carbonaceous band from 229.89-.91 m, slickensided. BC		
229.73	229.85	0.12	100	Dull coal with minor, clay pellets, bright laminae, greywacke bands and a calcite vein running from 229.73-.18 m.		
229.85	229.89	0.04	100	Dull and bright coal laminite, (60:40), SBC dipping at 5°.		
229.89	230.51	0.62	100	Grey mudstone with abundant sub-vertical jointing, minor coaly debris and carbonaceous flecks, slickenside zone from 230.05-230.27 m (core very broken).		
230.51	231.20	0.69	100	FLSS, grey, silty, with minor grey mudstone, slickenside dipping 45° runs from 230.64 m -.69 m, festoon cross bedding and finely laminated FLSS and FMLSS from 230.92-231.20 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

44 GEOLOGICAL LOG Page:- 7/15

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
231.20	233.35	2.15	100	FMLSS, grey-white in colour, massive, banded and laminated from 231.89 - 232.10 m, with FLSS and interlaminated siltstone, (60:40), minor cross bedding and carbonaceous laminae over this interval.		
233.35	242.38	8.92	100	MLSS, grey-white in colour with minor FMLSS and CLSS intervals; very minor coaly debris from 334.85 - .95 m, minor carbonaceous laminae from 233.65 - .80 m; occasional sharp bedding contacts in MLSS, FMLSS interval from 237.36 - 239.09m ; continuous fining upwards sequences in MLSS; mud pellets 1 cm long and 3 mm wide at 241.69 m; sub-horizontal carbonaceous laminae from 239.49 - .89 m. Slickensided bottom contact; carbonate on joints; contad undulosed.		
242.38	243.23	0.85	100	Laminite of grey and dark-grey mudstone with minor carbonaceous laminae from 242.38 - 42m; abundant secondary carbonate occurring as interlocking veinlets; slickensides from 242.38 - .42 m (see sketch); 242.37 242.38 and also from 242.44 - .48 (dip 10°), from 242.59-.65m, (dip 45°); from 242.73 - .77 m, (dip 30°) and from 242.99 - 243.02 m; (dip 30°). Abundant filamental plant fossils at 242.80m; abundant normal microfaults with throw 1 - 3 mm; these are syn-depositional. SBC, dips 10°, bedding dips 10°.		
243.23	243.49	0.26	100	Grey silty mudstone with minor dark grey laminae dipping up to 5°; microfaulting common. SBC, dips 5°.		
243.49	243.52	0.03	100	CLSS, SBC, dips 5°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
243.52	244.02	0.50	100	Interbedded MLSS and FMLSS (50:50), massive, planar bedding with minor CLSS intervals, GBC, dips 2°.		
244.02	247.17	3.15	100	MLSS, massive, with minor mud and clay pellets, coaly debris, bands and laminae. Sub horizontal bedding; minor CLSS intervals, contorted bedding, carbonaceous laminae and coaly debris from 245.69-78 m, and from 245.97-246.15 m together with minor flattened mud pellets, wispy carbonaceous flecks, traces and laminae dipping at up to 5° from 246.93-247.16 m. Undulosed bottom contact dipping at 10°.		
247.17	248.30	1.13	100	FMLSS, grey-white, abundant carbonaceous laminae, festoon cross bedding dipping up to 30°; undulosed-ripple-marked bottom contact with = 1 mm to 1.5mm; amplitude = 3 mm.		
248.30	250.16	1.86	100	MLSS with minor CLSS bands, grey-white, abundant coaly debris and laminae, irregular bedding dipping up to 45° with minor grey-brown mudstone and coal laminae, massive from 249.02-250.16 m, dull coal band from 249.84-249.91 m; core broken from 249.91-98 m, irregular bottom contact dips 5°.		
				COAL SECTION		
250.16	250.25	0.10	100	(Duncan Seam) Dull coal, well jointed, broken core, 25% broken bands and laminae with kaolinite on cleat, GBC.		1A
250.26	250.32	0.06	100	Dull coal, brown, oxidized surface, minor bright laminae. GBC.		
250.32	250.36	0.04	100	Dark brown, grey shale, very broken and swollen, GBC.		
250.36	250.39	0.03	100	Carbonaceous shale, core solid but parts readily. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				COAL SECTION (cont.)		
250.39	25.78	0.39	100	Dull coal with abundant bright bands and laminae minor mudstone laminae. Sub-vertical joint down the core, coated with calcite, CBC.		
250.78	250.81	0.03	100	Carbonaceous mudstone and creamy pink to brown claystone band, with minor bright coal laminae, wavy, undulosed bottom contact.		
250.81	250.92	0.11	100	Dull coal, well jointed. SBC.		
250.92	250.95	0.03	100	Laminite of dull and bright coal, (50:50); carbonate band from 250.945 m - 250.950 m, CBC		1A
250.95	251.00	0.05	100	Carbonaceous shale with abundant carbonaceous flakes and debris. Dull coal bands from 250.985 - 250.995 m; carbonate band from 250.995 m - 251.000m. SBC.		
251.00	251.51	0.51	100	Dull coal with minor sub-vertical jointing, minor carbonate and mudstone laminae and thin bands, with en-eschelon tension gash structures and sub-vertical carbonate veins from 251.27 - .36 m, 251.365 - .370 m, carbonate coated sub-vertical joint from 251.37 - .51 m, SBC		
251.51	251.75	0.24	100	Bright and dull coal, interbanded, (50:50); well jointed resulting in broken core.		1B
251.75	252.78	1.03	100	Dull coal, minor bright bands and laminae with carbonate bands from 251.86 - .87 m, 252.46 - .47 m; mudstone bands from 251.86 - .87 m 251.89 - .90 m, 252.29 - .30 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				COAL SECTION cont..		
				Carbonaceous mudstone and mud pellets from 252.33-252.34 m, 252.58-252.42-46 m. Abundant joints and well developed cleats over basal 30 cm (252.48-78 m). GBC.		
252.78	252.89	0.11	100	Carbonaceous and dark brown shale, slickenside from 252.85-.89 m dipping 45°; other minor slickensides present, GBC.		
252.89	253.14	0.25	100	Brown-grey shale, GBC.		
253.14	254.03	0.89	100	Brown mudstone with minor silty bands, GBC.		
254.03	254.12	0.09	100	FMLSS GBC dips 2°.		
254.12	254.36	0.24	100	Grey siltstone with sandy laminae, undulose. BC.		
254.36	255.53	1.17	100	FMLSS with carbonaceous laminae dipping 10°, festoon cross bedding and silty laminae, GBC.		
255.53	260.24	4.71	100	MLSS, massive, rare silty laminae, mud pellets, carbonaceous bands and laminae.		
260.24	266.21	5.97	100	FMLSS, massive, minor CLSS bands, minor mud pellets.		
266.21	294.50	28.29	100	MLSS with minor coaly debris and minor FMLSS intervals, CLSS interval from 272.47-.57 m, bedding dips up to 10°, carbonate in matrix from 275.27-278.25, some silty laminae, wispy carbonaceous laminae and mud pellets, mudstone band with GBC, GTC from 287.24-290.30; minor cross bedding in MLSS, GBC.		
294.50	294.68	0.18	100	Grey mudstone, abundant slickensides and contorted wispy carbonaceous laminae, undulosed bottom contact.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				COAL SECTION		
				East Fingal Upper Split		
294.68	294.80	0.12	100	Dull coal. GBC.		
294.80	294.85	0.05	100	Creamy brown-grey shale with abundant low angle slickensides and coaly debris.		
294.85	295.17	0.32	100	Dull coal with minor bright bands; brown-cream claystone from 295.090-295.095 m, GBC.		
295.17	295.42	0.25	100	Carbonaceous mudstone and heavy dull coal 50/50 with minor bright laminae, BC dips 2°.		
295.42	295.54	0.12	100	Carbonaceous sandy siltstone with minor bright coal laminae, undulosed bottom contact.		2A
295.54	295.59	0.05	100	Carbonaceous mudstone, with secondary carbonate in a herring-bone pattern, GBC.		
295.59	295.73	0.14	100	Dull coal, abundant sub-vertical carbonate veins 0.5 mm-2.0 mm wide. Undulosed BC.		
295.73	295.98	0.23	100	Dull coal with kaolinite on cleats, minor slickensides, slickensided BC.		
295.98	296.21	0.23	100	Heavy dull coal and carbonaceous mudstone 60/40; bedding dips at 5°. GBC dipping 5°.		2B
296.21	296.24	0.03	100	Green clayey greywacke.		
	296.41	0.17	100	Carbonaceous shale, slickensided bottom contact dipping 20°.		
296.41	296.46	0.05	100	Secondary carbonate, brown, bands dipping at 20°, irregular base.		
296.46	296.70	0.24	100	Heavy dull coal and carbonaceous mudstone (60:40) with abundant slickensides, brecciated, with carbonate veins over top 10 cm. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				COAL SECTION - (cont.)		
296.70	297.30	0.60	100	Dull coal with sub-vertical joints and minor sub-vertical carbonate veins, and calcite crystals 1 mm? GBC. Shale bands from 297.13 - .16m (black) and 297.19 - .23 m (brown)		2B
297.30	302.32	5.02	100	Grey mudstone with minor plant fossil debris, wispy contorted carbonaceous laminae; slickensides common; minor sandy bands; minor silty laminae, occasional sandy intervals and abundant biotubation.		
302.32	303.97	1.65	100	FLSS, with festoon cross bedding, minor carbonaceous laminae and abundant grey mudstone bands and laminae. GBC.		
				COAL SECTION		
				East Fingal Lower Split		
303.97	304.12	0.15	100	Heavy dull coal with abundant brown mud pellets 1 - 4 mm diameter, minor slickensides GBC.		
304.12	304.77	0.65	100	Dull coal with minor bright bands and laminae, abundant calcite on cleat, GBC.		
304.77	309.90	5.13	100	Grey, silty mudstone with minor carbonaceous laminae and minor cross bedding from 304.87 - 305.27; slickensides dipping at up to 30° common; very irregular BC.		
309.90	314.31	4.41	100	FMLSS, grey-white, with abundant silty laminae and minor cross bedding, bedding dipping up to 5°, SBC dips 2°.		
314.31	315.10	0.79	100	Grey mudstone with abundant dark grey laminae GBC.		
315.10	315.46	0.36	100	Laminite of carbonaceous and grey mudstone 80:20		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

44	GEOLOGICAL LOG	Page:- 13/15

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
315.46	315.57	0.11	100	Greywacke with clay pellets 1 mm^2 in a clay matrix; hard; induration. GBC.		
315.57	318.31	2.74	100	Interbanded and laminated FMLSS and carbonaceous mudstone 50/50; bedding dips 5°, occasional clay pellets and minor cross bedding, GBC.		
318.31	320.17	1.86	100	MLSS, grey-white, massive, bedding dipping up to 5°, minor coaly debris, laminated and bands.		
				COAL SECTION		
320.17	320.53	0.36	100	Carbonaceous mudstone with minor heavy dull coal. GBC.		
320.53	321.63	1.10	100	Carbonaceous mudstone with minor slickensides. GBC.		
321.63	322.92	1.29	100	Interbanded FMLSS and grey siltstone 70/30 with minor mudstone laminae, GBC.		
322.92	326.28	3.36	100	Interbanded siltstone and FMLSS 50/50.		
326.28	336.45	10.17	100	MLSS, grey, massive, bedding slips 5°, rare coaly debris. GBC.		
336.45	336.63	0.18	100	Interbedded grey siltstone and grey FMLSS 50/50. GBC.		
336.63	336.85	0.22	100	Grey mudstone, GBC.		
336.85	337.51	0.66	100	Carbonaceous mudstone. GBC.		
337.51	338.99	1.48	100	Interbedded brown-grey and carbonaceous mudstone 40-60, minor clayey laminae, minor coal bands undulosed. BC.		
338.99	339.44	0.45	100	FMQSS, minor carbonaceous laminae, GBC.		
339.44	339.87	0.43	100	Light grey shale. GBC.		
339.87	341.16	1.29	100	Grey siltstone.		
341.16	344.18	3.02	100	FLSS with abundant festoon cross bedding, bands and laminae of siltstone.		
344.18	344.77	0.59	100	Grey mudstone with abundant slickensides, BC dips 5°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

44				GEOLOGICAL LOG	Page:- 14/15	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
344.77	353.19	8.42	100	MLSS, with minor FMLSS intervals and carbonaceous laminae, SBC		
353.19	353.95	0.76	100	Grey siltstone, GBC		
353.95	356.45	0.50	100	Interbedded carbonaceous and grey mudstone		
356.45	356.52	0.07	100	Interbanded dull coal and carbonaceous mudstone, SBC dips 5°		
356.52	356.97	0.45	100	FMQSS, interbanded with carbonaceous mudstone over top 0.08 m;		
356.97	357.05	0.08	100	Carbonaceous mudstone GBC		
357.05	358.83	1.78	100	FMLSS, interbanded with mud over top 0.03 m; SBC, dips 2°		
358.83	359.07	0.24	100	Grey shale, GBC		
359.07	359.20	0.13	100	FMLSS, some carbonaceous bands		
359.20	359.60	0.40	100	Carbonaceous mudstone SBC		
359.60	365.94	6.34	100	Grey mudstone, abundant FLSS laminae and FQSS bands, GBC		
365.94	366.11	0.17	100	Carbonaceous mudstone SBC		
366.11	366.17	0.06	100	Brown claystone SBC		
366.17	366.33	0.16	100	Dull coal GBC		
366.33	367.31	0.98	100	Grey mudstone, silty at base		
367.31	374.46	7.15	100	FMLSS with minor cross bedding and minor silty bands, bedding dipping 10° SBC		
374.66	378.31	3.85	100	FLSS and grey siltstone, interbedded, 50/50		
378.31	383.95	5.64	100	Interbedded grey FLSS mudstone and siltstone 50/30/20. SBC dips 20°		
383.95	384.38	0.43	100	Carbonaceous mudstone		
384.38	389.95	5.57	100	MQSS, white, bedding dipping up to 45° with abundant bioturbation, coaly debris and mudstone bands		
389.95	391.45	1.50	100	Carbonaceous mudstone, SBC dips 2°.		
391.45	392.22	0.77	100	MQSS, abundant bioturbation and coaly debris.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

44	GEOLOGICAL LOG	Page:- 15/15

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
392.22	392.84	0.62	100	FQSS, GBC.		
392.84	393.90	1.06	100	MQSS, 20 cm loss in this unit, GBC.		
393.90	396.46	2.56	100	Carbonaceous siltstone, GBC.		
396.46	402.64	6.18	100	MQSS, bedding dips at 5°, abundant coaly laminae; GBC. Top of glacio-marine sequence of Upper Parmeener Super Group at 402.64 m.		
402.64	407.23	4.59	100	Grey mudstone with angular, scattered quartz grits. END OF HOLE AT 407.23 m		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

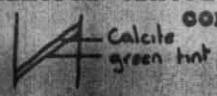
DRILLING TARGET:- Top of the Glaciomarine sequence of the Lower Parmeener Super Group

REMARKS:-

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS					

GEOLOGICAL LOG

Logged by:- C.A. Bacon

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0	123.00	123.00	100	Medium grained dolerite; grainsize decreases with depth. A joint dips 70° at 71.10 m, and is encrusted with a pale green tinted white mineral, probably a zeolite. From 99.00 - 99.10 m a small joint dips 70° and is coated with calcite. Sparse sub-vertical jointing occurs from 100 m to the base of the dolerite. A fracture zone dipping at 70° runs from 101.00 - 101.15 m. Multiple fractures occur over the interval 108.00 - 111.00 m, with white calcite encrusting most of the fractures. A tongue of white calcite or zeolite occurs at 123.00 m, the tongue dips 70° and is comprised of a white mineral tinted with green and pink. A fracture dips at 70° from 117.50 m to 118.50 m and is filled with a white mineral tinted green at the point of contact with the dolerite. 		
123.00	126.00	3.00	100	Very fine grained dolerite with severe sub-vertical joints		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:-	MAP SHEET No.	DISTRICT	LOCATION OF SITE:-
DOM Fingal DDH No. 45	49		FINGAL TIER, on the western side of the Valley Road

R.L. OF SITE:- 707.8 m	SITE SURVEY ON MAP No.:-		CORE SIZE:- NQ
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 19/6/80
INCLINATION OF HOLE:- -90°	DRILL:- Warman 1000		COMPLETED:- 22/7/80
CO-ORDS OF SITE:- 589 749 mE 5 385 088 mN	DRILLER:- K. Richardson R. Stevens		FINAL DEPTH (m):- 471.22 m

M1899

Index Page:-

FINGAL No. 45 (Contd.) GEOLOGICAL LOG Page:- 2/24

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
126.00	126.20	0.00		Core loss of approx. 0.20 m.		
126.20	126.56	0.36	100	Hornfels, pale green in colour, very hard; "swirling patterns" of disturbed bedding evident when core is wetted. Occasional black and white bands 1 cm wide at 22-23 and 30-31. Bottom contact undulose, irregular and dips at 30°.		
126.56	127.55	0.99	100	Fine grainsize lithic sandstone (FLSS), hard, barren, with bedding dipping at up to 30°; and abundant wispy carbonaceous laminae. Bottom contact diffuse, melanged and dipping at approximately 10°.		
127.55	127.93	0.38	100	Medium grained dolerite, bottom contact undulose.		
127.93	127.98	0.05	100	Conglomerate band of assorted pebbles, in a dolerite matrix, pebbles well baked; they have been picked up by dolerite magma. Pebbles very hard baked sediment. Red zeolite microphenocrysts (clinoptilolite) are abundant. Unit melds in with underlying dolerite.		
127.98	128.60	0.62	100	Medium grained dolerite, bottom contact involuted.		
128.60	129.00	0.40	100	Glassy dolerite with abundant microphenocrysts 1 mm², grey in colour with abundant sub-vertical jointing. Sharp bottom contact (SBC) dipping at 5°.		
129.00	130.70	1.70	100	Hornfels, core badly broken. Colour is predominantly pale green with bands of darker green, blue, cream, beige and black. The hornfels is very hard. Disturbed bedding and 'swirling' patterns common. Gradational bottom contact (GBC).		
130.70	134.75	4.05	100	Dark grey hornfels with a hint of green, no swirling patterns; rock very hard and siliceous. Thermal alteration effects decrease in severity with depth. Laminae of FLSS and silt may be clearly seen at the base of this unit. GBC.		
134.75	138.01	3.26	100	FLSS interbedded with siltstone, 70/30; beds greater than 1 cm wide. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FINGAL No. 45 (Contd.) GEOLOGICAL LOG Page:- 3/24

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
138.01	138.51	0.50	100	FLSS interbedded with minor silt, 95/5. Silt content decreases gradually with depth. Minor mud pellet bands at 138.27 m, 138.37 m, 138.41 m and 138.51 m with pellets ranging in size from 0.1 cm to 0.3 cm. GBC.		
138.51	141.00	2.37	95	FLSS, grey, core broken over the interval 138.88 - 139.09 m with core loss of 0.12 m over this interval.		
141.00	141.20	0.20	100	FLSS, grey, massive and barren, GBC.		
141.20	147.94	6.61	98	Medium to fine-medium grained lithic sandstone (FMLSS), massive and barren. Core broken from 144.35 - 144.50 m, with core loss of 0.16 m over this interval. Mud and clay pellets ranging in size from 1.5 cm x 1.0 cm to 0.5 cm x 0.5 cm occur from 147.60 - 147.62 m. SBC, dips at 5°.		
147.94	148.65	0.71	100	Siltstone, tinged pink, fine grained, SBC, dips at 5°.		
148.65	149.28	0.63	100	FLSS, tinged pink with abundant biotite grains. GBC.		
149.28	153.07	3.79	100	FLSS interlaminated with siltstone, 90/10; unit is tinged pink, and has brown mudstone bands with sharp top and bottom contacts (STC, SBC) at 148.39 - .40 m, 150.04 - .07 m, 150.11 - .13 m, 150.355 - .360 m, 150.510 - .515 m, 151.730 - .735 m, 152.07 - .09 m, 152.16 - .17 m, and from 152.760 - .765 m. A joint 2 mm wide dips at 70° from 152.20 - 152.47 m. GBC.		
153.07	154.22	1.15	100	FLSS, grey, with abundant silty laminae. GBC.		
154.22	156.06	1.84	100	Medium grained lithic sandstone (MLSS), grey, barren. Irregularly shaped pebbles of pink-tinged FLSS and silt occur over the interval 155.34 - .44 m.		
156.06	157.09	1.03	100	MLSS, grey and massive, with wispy carbonaceous laminae over the intervals 156.14 - .18 m, and 156.19 - .20 m. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FINGAL No. 45 (Contd.) GEOLOGICAL LOG Page:- 4/24

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
157.09	157.43	0.34	100	FLSS with abundant wispy carbonaceous laminae, SBC.		
157.43	166.09	8.66	100	FMLSS, grey, massive, with a mudstone and clay pellet band from 157.93 - .98 m; pellets range in size from 0.1 x 0.5 cm to one pellet 5.0 x 1.5 cm. Abundant wispy carbonaceous laminae and silty laminae from 159.00 - 162.00; mudstone pellets over the interval 162.50 - 162.55 m; occasional coaly bands less than 1 mm wide. SBC.		
				COAL SECTION (not sampled)		
166.09	166.21	0.12	100	Heavy dull coal.		
166.21	166.22	0.01		Dull coal (mineral charcoal?)		
166.22	166.47	0.25		Heavy dull coal with 10% bright bands and few cleats with calcite infilling. Sample of calcite removed at 166.20 m.		
166.47	166.63	0.16		Carbonaceous siltstone.		
166.63	166.655	0.025		Heavy dull coal.		
166.655	167.150	0.495		Black carbonaceous siltstone.		
167.150	168.25	1.10		Siltstone laminite of carbonaceous and non-carbonaceous siltstone, GBC.		
168.25	169.12	0.87	100	Siltstone/FLSS laminite, 80/20, minor festoon cross bedding, dipping at up to 10°. GBC.		
169.12	170.20	1.08	100	FLSS with abundant wispy carbonaceous laminae dipping at 5°. Carbonaceous material content increases with depth. GBC.		
170.20		0.23	91	Carbonaceous mudstone with sparse plant debris. GBC.		
		0.015		Dull coal, GBC.		
		0.30		Carbonaceous mudstone.		
		0.105		Dull coal with 5% bright bands and calcite on abundant cleats. GBC.		
		0.47		Sandy carbonaceous mudstone, (20/80), black in colour, massive, GBC. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
		0.32	91	Interbedded FLSS and carbonaceous mudstone (20/80); GBC.		
		0.135		Mudstone, poorly carbonaceous and dark grey in colour. SBC.		
		0.015		Paleosol (?), dark grey in colour; composed of quartz grits in a matrix of silt and clay. SBC.		
		0.23		Mudstone, dark grey and massive. GBC.		
		1.58		Mudstone with 10% sand; finely laminated with laminae 1 mm wide; bedding severely disturbed. GBC.		
	173.97	0.16		Carbonaceous mudstone, laminated, with occasional plant fossils, e.g. Dicroidium odontopteroides, GBC.		
173.97	174.45	0.48	100	Interbedded carbonaceous and non carbonaceous mudstone, 50/50, banded black and grey, GBC.		
174.45	174.70	0.25		Grey mudstone with disturbed bedding, GBC.		
174.70	175.35	0.65		Siltstone, with 10% FLSS; black in colour, carbonaceous. GBC.		
175.35	176.55	1.20	100	Mudstone, sandy, light grey in colour with occasional slickensides; core broken. GBC.		
176.55	176.90	0.35		Mudstone, sandy, blue-green-grey in colour; core broken into small angular blocks.		
				COAL SECTION (not sampled)		
176.90	176.94	0.04		Dull coal with 10% bright bands, core broken.		
176.94	176.99	0.05		Heavy dull coal with abundant laminae of carbonaceous mudstone.		
176.99	177.05	0.06		Bright coal; laminated with laminae 1 mm wide; abundant cleats coated with calcite; granular fabric.		
177.05	177.065	0.015		Dull coal.		
177.065	177.085	0.02	100	Bright coal with calcite nodule, irregularly shaped. Sample of calcite removed labelled 177.18 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FINGAL No. 45 (Contd.) GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
177.085	177.10	0.015	100	Dull coal.		
177.10	177.105	0.005		Bright band of coal.		
177.105	177.125	0.020		Dull shaley coal.		
177.125	177.135	0.010		Dull sandy coal.		
177.135	177.17	0.035		Dull coal with 5% bright bands.		
177.17	177.195	0.025		Bright band of coal.		
177.195	177.23	0.035		Dull coal.		
177.23	177.30	0.070		Heavy dull coal; core broken, slickenside at base, SBC.		
177.30	179.75	2.45		FLSS laminated with mudstone, 80/20, with 'worm burrow' type structures from 177.30 - .50 m. Core broken from 177.55 - .75 m. SBC.		
179.75	180.14	0.39	100	Mudstone, grey-green in colour, finely laminated, core broken; irregular bottom contact.		
180.14	180.40	0.26		Mudstone, pale grey in colour with abundant sand; sand content increases with depth, GBC.		
180.40	180.41	0.01		MLSS, SBC.		
180.41	180.83	0.42		Carbonaceous mudstone laminated with brown siltstone, 60/40; carbonaceous content decreases with depth. GBC.		
180.83	182.00	1.17		Mudstone, poorly carbonaceous, laminated with grey mudstone, 50/50; core broken. GBC.		
182.00	183.13	1.13		Carbonaceous sandy mudstone, with mudstone/ FLSS (90:10).		
183.13	183.15	0.02		Dull coal with 15-20% bright bands.		
183.15	188.83	5.68		Laminite of siltstone and mudstone, 20/80; grey in colour; slickenside dipping 70° from 185.80 - 185.90 m. Band of coal 0.5 cm wide from 188.250 - .255 m, GBC.		
188.83	189.20	0.37		Interbedded carbonaceous and non carbonaceous mudstone, beds 0.5 cm wide, with minor siltstone beds; abundant microfaults with throws of approximately 1 to 3 mm; SBC, dips at 25°. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FINGAL No. 45 (Contd.) GEOLOGICAL LOG Page:- 7/24

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
189.20	190.42	1.22	100	MLSS, barren, with rare wispy carbonaceous laminae. SBC dips at 2°.		
				COAL SECTION (not sampled)		
190.42	190.505	0.085		Carbonaceous mudstone, SBC.		
190.505	190.71	0.205		Heavy dull coal, GBC.		
190.71	190.85	0.14		Laminite of heavy dull coal and carbonaceous mudstone, 50/50, with 10% bright bands, GBC.		
190.85	190.89	0.04		Carbonaceous mudstone with rare bright bands, GBC.		
190.89	190.93	0.04		Carbonaceous mudstone with no bright bands, SBC.		
190.93	190.96	0.03		Dull coal, SBC.		
190.96	191.24	0.28		Carbonaceous mudstone, SBC.		
191.24	191.28	0.04		Brown shale, GBC.		
191.28	191.33	0.05		Laminite of dull coal and mudstone, 50/50.		
191.33	191.42	0.09		Carbonaceous mudstone, finely banded with silt laminae.		
191.42	191.97	0.48	87	Siltstone, grey in colour.		
191.97	192.01	0.04	100	Mudstone, green in colour, SBC.		
192.01	192.02	0.01	100	Shale, beige in colour, SBC.		
192.02	194.07	2.05	100	FLSS with silt, 50/50, massive sandy siltstone. GBC.		
194.07	199.04	4.86	98	FMLSS with abundant festoon cross bedding, dipping at up to 10°; abundant silt laminae, rheomorphic slumping common in silt laminae. Silt content up to 20%. SBC.		
				COAL SECTION		
199.04	199.20	0.16	100	Heavy dull coal with carbonaceous mudstone 50/50, GBC.		
199.20	199.23	0.03		Coal pellets, 3 mm x 3 mm size, in carbonaceous mudstone. GBC.		
199.23	199.28	0.05	100	Heavy dull coal with carbonaceous mudstone, 50/50. GBC.		1A

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
199.28	199.32	0.04	100	Coal pellet conglomerate in carbonaceous mudstone.		
199.32	199.37	0.05		Heavy dull coal with carbonaceous mudstone, 50/50, GBC.		
199.37	199.56	0.19		Coarse to medium grained lithic sandstone (CLSS), SBC.		
199.56	199.75	0.19		Heavy dull coal with FLSS laminae, GBC.		1A
199.75	199.80	0.05		Sandy coal.		
199.80	199.95	0.15		Carbonaceous mudstone and heavy dull coal, 50/50.		
199.95	200.06	0.11		Dull coal.		
200.06	200.20	0.14		Dull coal with carbonaceous mudstone 50/50. SBC.		
200.20	200.42	0.22		White shale, SBC.		
200.42	200.73	0.31		Heavy dull coal.		
200.73	200.79	0.06		Paleosol?		1B
200.79	201.02	0.23		Heavy dull coal.		
201.02	201.28	0.26		Heavy dull coal, few bright bands.		
201.28	201.43	0.15		Pale green clayey mudstone, finely laminated, SBC, dips at 10°.		
201.43	201.46	0.03		Heavy dull coal, SBC, dips at 10°.		
201.46	201.76	0.30		Green mudstone, SBC.		
201.76	202.09	0.33	100	Dull coal, SBC.		1C
202.09	202.62	0.53	)	Green mudstone, core broken, SBC.		
202.62	202.86	0.14	)85	Dull coal, no bright bands, core broken, SBC.		
202.86	202.95	0.09	100	Green clayey mudstone, SBC.		
202.95	203.35	0.40		Dull coal, with 1% bright bands, SBC.		
203.35	203.39	0.04		Sandy clayey mudstone, SBC.		
203.39	203.68	0.29	100	Dull coal with 1% bright bands, GBC.		1D
203.68	203.72	0.04		Brown mudstone with abundant carbonaceous banding, SBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Moist %	Ash %	Vol. %	F.C. %	ASSAY RESULTS
1A	199.04	200.42	1.38	100	6.4	76.9			
1B	200.42	201.28	0.86	100	3.1	55.2			
1C	201.28	202.95	1.57	94	8.3	83.2			
1D	202.95	203.72	0.77	100	5.1	37.0	28.6	34.4	

FINGAL No. 45 (Contd.) GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
203.72	203.87	0.15	100	FLSS, barren, GBC.		
203.87	204.13	0.26		FLSS, carbonaceous. GBC.		
204.13	204.17	0.04		Mudstone, green, SBC.		
204.17	204.27	0.10		Shale, grey, GBC.		
204.27	204.55	0.28		Carbonaceous mudstone, black in colour, core broken, GBC.		
204.55	205.17	0.62		FLSS with occasional mudstone and wispy carbonaceous laminae, GBC.		
205.17	205.27	0.10		Mudstone, green and shaley; SBC.		
205.27	205.48	0.21		Carbonaceous mudstone with FLSS, 50/50, massive, GBC.		
205.48	205.56	0.08		Mudstone, green, GBC.		
205.56	205.86	0.30		Interbedded sandy carbonaceous mudstone and beds of CLSS, SBC.		
205.86	206.23	0.37		Mudstone, pale green in colour, friable, occasional flecks of coaly debris.		
206.23	207.20	0.97		COAL SECTION: Laminite of carbonaceous mudstone and brown siltstone, 50/50. Hard white mudstone bands from 206.69 - 206.74 m, and from 260.950 - .955 m, GBC.		2A Roof
207.20	207.95	0.75		Heavy dull coal and carbonaceous mudstone, 50/50.		
207.95	208.68	0.73		Dull coal with 10% bright bands, and hard white mudstone bands from 208.36 - .40 m, 208.57 - .62 m, mudstone bands show STC and SBC; white clay band from 208.66 - .68 m. GBC.		2B 208.36
208.68	208.74	0.06		Heavy dull coal, GBC.		2C
208.74	208.96	0.22		Dull coal with calcite coating on abundant cleats, GBC.		Floor
208.96	210.00	1.04		Mudstone, light grey, with abundant wispy carbonaceous laminae.		
210.00	210.05	0.05		Dull coal, core broken into small chips.		
210.05	210.30	0.25		Dull coal.		
210.30	213.00	2.70		FLSS laminated with mudstone 50/50, with abundant plant fragments and joints from 211.43 - 211.73 m dipping at 70°. GBC.		
213.00	213.30	0.30		FLSS laminated with mudstone 70/30, laminae 1 mm wide, abundant cross bedding.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Moist %	Ash %	Vol. %	F.C. %	ASSAY RESULTS
2A	206.23	207.20	0.97	100	6.9	83.2			
2B	207.20	208.36	1.16	100	4.5	53.3			
2C	208.36	208.96	0.60	100	4.0	62.1			

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
213.30	216.00	2.70	100	FMLSS with abundant silt laminae, and wispy coaly laminae dipping at up to 10°; minor cross bedding dipping at up to 10°. GBC.		
216.00	216.35	0.35		Mudstone, grey, fractured, GBC.		
216.35	217.46	1.11		Laminite of FLSS/siltstone, 50/50, SBC, dips at 5°.		
217.46	227.13	9.67		MLSS, barren, massive, with rare wispy carbonaceous laminae, occasional mudstone pellets, core broken from 221.00 m - 224.00 m. Scattered brown siltstone pellets over 225.89 m - .94 m; green mudstone pellets from 225.13 m - 226.13 m, SBC, dips at 10°.		
				COAL SECTION		
227.13	227.17	0.04		Dull coal with 1% bright bands.		
227.17	227.20	0.03		Clay, beige in colour, shaley.		
227.20	227.38	0.18		Dull coal, with 2% bright bands.		
227.38	227.61	0.23		Dull coal interbedded with beige clay; beds 1 cm wide, bedding disturbed and irregular. SBC, dips at 10°.		3A
227.61	227.79	0.18		Dull coal, with 1% bright bands, SBC.		
227.79	228.05	0.26		Clay, beige in colour, shaley, SBC.		
228.05	228.14	0.09		Heavy dull coal and carbonaceous mudstone, (50:50), GBC.		
228.14	228.15	0.01		Clay band, hard, beige in colour, SBC.		
228.15	228.29	0.14		Dull coal.		
228.29	228.32	0.03		Clay, beige.		3B
228.32	228.59	0.27		Dull coal, core broken; calcite on abundant cleats, SBC.		
228.59	228.71	0.12		Mudstone, white and hard with abundant feathery calcite 'stringers', SBC.		
228.71	228.81	0.10	100	Carbonaceous sandy mudstone, GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Moist %	Ash %	Vol. %	F.C. %	ASSAY RESULTS
3A	227.13	227.79	0.66	100	5.6	59.8			
3B	227.79	228.81	1.02	100	7.2	69.2			
3C	228.81	229.96	1.15	100	4.4	51.6			

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
228.81	228.93	0.12	100	COAL SECTION: (Contd.) Dull coal, with calcite or kaolinite, on abundant cleats.		
228.93	229.42	0.49	100	Dull coal, with calcite or kaolinite on abundant cleats; a white mudstone band with SBC from 229.38 - .40 m; SBC.		
229.42	229.96	0.54	100	Heavy dull coal, with white mudstone bands from 229.52 - 229.54 m, 229.63 - .64 m; latter band of mudstone contains small intraformational conglomerate pebbles 1-5 mm diameter, STC,SBC for mudstone bands. SBC for whole unit.		3C
229.96	230.04	0.08	100	Carbonaceous shale, SBC.		
230.04	231.05	1.01	100	Mudstone, pale green with abundant plant debris, bioturbation (?), and wispy carbonaceous laminae, GBC.		
231.05	231.92	0.87	100	FLSS, bedding horizontal. SBC.		
231.92	231.98	0.06	100	Clay, coloured beige, SBC.		
231.98	232.06	0.08	100	Carbonaceous mudstone sandy, SBC.		
232.06	232.11	0.05	100	Clay, brown, SBC.		
232.11	232.16	0.05	100	Carbonaceous mudstone, sandy, GBC.		
232.16	232.46	0.30	100	Mudstone, brown, clayey, SBC.		
232.46	232.70	0.24	100	Mudstone, hard and white, SBC.		
232.70	232.75	0.05	100	Mudstone, green, core broken; slickenside dipping at 45° from 232.75 - .77 m.		
232.75	233.00	0.25	100	Mudstone, green, massive.		
233.00	233.51	2.51	100	Mudstone, green, with a slickenside dipping at 45° from 233.00 - .04 m, 233.10 - .13 m; 233.64-66 m; 233.98 - 234.05 m, and abundant slickensides from 334.09 - 334.57 m. GBC.		
235.51	237.98	2.47	100	FLSS with abundant cross bedding and abundant mud laminae, GBC.		
237.98	238.98	1.00	100	FMLSS, massive; minor cross bedding; GBC. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
238.98	242.06	3.08	100	MLSS with occasional wispy carbonaceous laminae; massive.		
242.06	244.25	2.19	100	MFLSS, with coaly debris from 243.61 - .83 m; and green mud pellets 1.5 cm x 0.5 cm from 243.96 - 244.06 m. Irregular bottom contact.		
244.25	244.35	0.10	100	Mudstone, green with flecks of calcite, rounded 'scoured' bottom contact.		
244.35	244.65	0.30	100	MLSS, grey; abundant coaly debris and silt laminae, GBC.		
244.65	245.99	1.34	100	MLSS, massive, coaly debris from 245.89 - .99 m. SBC.		
245.99	246.16	0.17	100	Mudstone, dark grey, SBC.		
246.16	249.27	3.11	100	MLSS, massive, with a dark grey mudstone band at 248.98 - .99 m; 0.5 cm coal at 249.030 - .035 m; and shale pellets 5 cm x 2 cm from 249.17 - .27 m. SBC, dips at 10°.		
249.27	249.70	0.43	100	Mudstone, green, with multiple slickensides and coaly bands from 249.270 - .275 m; 249.40 - .43 m, 249.57 - .62 m; and a coal clast from 249.66 - .70 m. SBC, dips at 10°.		
249.70	251.42	1.72	100	MLSS, massive, SBC.		
251.42	251.53	0.11	100	Dull coal with 10% bright bands, SBC.		4A (Roof)
251.53	251.55	0.02	100	Mudstone, brown; with abundant black carbonaceous bands, SBC.		
251.55	252.00	0.45	100	Mudstone, grey-green; abundant slickensides; occasional plant fragments; abundant FLSS laminae. SBC.		
252.00	252.14	0.14	100	COAL SECTION: Heavy dull coal with carbonaceous mudstone, (50:50); 2% bright bands; SBC.		
252.14	252.22	0.08	100	Mudstone, white, shaley, friable; irregular bottom contact.		
252.22	252.50	0.28	100	Heavy dull coal with carbonaceous mudstone (50:50); no bright bands; abundant silt laminae.		4B

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Moist %	Ash %	Vol. %	F.C. %	ASSAY RESULTS
4A	251.42	252.22	0.80	100	5.7	77.3			
4B	252.22	253.36	1.14	100	6.4	32.7	33.3	34.0	
5	260.64	262.27	1.63	100	5.6	36.5	31.0	32.5	
6	309.55	310.90	1.35	100	3.8	45.5	25.8	28.7	(Duncan)
7	361.91	362.935	1.025	100	4.7	43.3	23.8	32.9	(East Fingal Upper Split)
8	370.19	371.26	1.07	100	5.9	48.0	25.2	26.8	(East Fingal Lower Split)
9	388.75	389.32	0.57	100	0.9	48.8	24.7	26.5	

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
252.50	252.55	0.05	100	COAL SECTION: Shale, white; SBC.		
252.55	252.585	0.035		(Contd.) Dull coal.		
252.585	252.60	0.015	100	Shaley mudstone.		4B
252.60	253.31	0.71	100	Dull coal, SBC.		
253.31	253.36	0.05	100	Carbonaceous mudstone, brown; irregular bottom contact.		
253.36	256.64	3.28	100	FLSS; bedding horizontal with abundant silt laminae and 10% mudstone laminae, GBC.		
256.64	257.98	1.34	100	MLSS, massive; rare wispy carbonaceous laminae, SBC.		
257.98	258.30	0.32	100	Mudstone, green-grey, GBC.		
258.30	258.65	0.35	100	Mudstone, carbonaceous; bedding horizontal; GBC.		
258.65	260.20	1.55	100	FLSS; abundant cross bedding slipping at up to 10°; abundant wispy carbonaceous laminae, SBC.		
260.20	260.35	0.15	100	Mudstone, grey; laminated; SBC.		
260.35	260.42	0.07	100	COAL SECTION: Heavy dull coal with carbonaceous mudstone 50/50; abundant shaley laminae. SBC.		
260.42	260.43	0.01	100	Mudstone; white-grey; sandy, SBC.		
260.43	260.47	0.04		Heavy dull coal, SBC, dips at 5°.		
260.47	260.51	0.04		Shale, pale brown, sandy, SBC.		
260.51	260.64	0.13		Mudstone, blue-grey, horizontal laminae 1 mm wide, irregular bottom contact.		
260.64	260.67	0.03	100	Heavy dull coal.		
260.67	260.68	0.01		Dirt band.		
260.68	260.73	0.05		Heavy dull coal.		5
260.73	260.74	0.01		Bright coal.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

45

GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
260.74	262.27	1.53		**COAL SECTION:** (Contd.) Heavy dull coal, with 10% bright bands and abundant silt laminae from 261.97 - 262.27 m; undulose bottom contact.		5
262.27	263.15	0.88	100	Mudstone; dark grey; abundant plant fragments; contains 10% sand; sand content increases with depth, GBC.		
263.15	263.30	0.15	75	Mudstone, sandy; core broken, GBC.		
263.30	264.01	0	0	Core loss, 0.71 m.		
264.01	266.00	1.99	100	FMLSS, massive, GBC.		
266.00	276.66	10.66		MLSS, massive; 0.5 cm coal from 267.60 - .605 m; GBC.		
276.66	277.16	0.50	100	MCLSS, massive, with mudstone pellet at 276.96 m, SBC.		
277.16	278.01	0.85	100	Mudstone, grey, with abundant plant fragments; slickensides from 277.16 - .22 m and from 277.53 - 61 m; GBC.		
278.01	278.11	0.10	100	Mudstone, grey, sandy; GBC.		
278.11	278.60	0.49		FLSS with angular conglomerate pebbles 3-6 mm in diameter at base.		
278.60	278.62	0.02	100	Conglomerate of angular cobbles 3-6 mm in diameter, SBC.		
278.62	278.64	0.02	100	Mudstone, dark grey.		
278.64	278.79	0.15		FLSS interbedded with dark grey mudstone, 50/50. GBC.		
278.79	279.04	0.25	100	Mudstone, grey, GBC.		
279.04	279.12	0.08		Carbonaceous mudstone interbedded with grey mudstone, beds 2 cm wide.		
279.12	279.36	0.24	100	Carbonaceous mudstone, brown, and heavy dull coal, (50:50), slickenside dipping 45° at 279.22 m. GBC.		
279.36	279.58	0.22	100	FLSS laminated with siltstone and mudstone (20:40:40), SBC.		
279.58	279.585	0.005	100	Shale, beige, SBC.		
279.585	279.60	0.015	100	Mudstone, grey.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

45 GEOLOGICAL LOG Page:- 15/24

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
279.60	279.66	0.06	100	Carbonaceous mudstone, black, GBC.		
279.66	282.85	3.19		FLSS, grey, laminated with green mudstone, (50:50); mudstone content decreases with depth; abundant wispy carbonaceous laminae and cross bedding dipping at 10°. GBC.		
282.85	299.79	16.94	100	MLSS, massive, wispy carbonaceous laminae dipping at 5° from 285.15 - .35 m, bands of pink and green mudstone pellets 1-3 mm diameter dipping at 5° from 291.47 - 292.83 m; interval of green mudstone from 293.28 - .35 m; coaly debris from 297.59 - .79 m, mudstone pellets from 297.79 - .90 m and from 297.94 - 298.04 m; pellets up to 5 cm diameter. Small (1-3 mm diameter) mud pellets in bands dipping at 5° from 298.82 - 299.54 m; coal band at 299.78 - 299.79 m; SBC.		
299.79	300.45	0.66	100	Mud pellet conglomerate, composed of large mudstone and siltstone pellets, 1-5 cm x 1.5 - 4 cm in size. Pellets coloured green, brown, red with many irregular shapes. Bioturbation (?) or disturbed bedding common, GBC.		
300.45	309.55	9.10	100	MLSS, massive, minor coaly debris, SBC.		
309.55	309.75	0.20	100	COAL SECTION: Heavy dull coal with calcite on abundant cleats, SBC, dips at 15°.		
	(Duncan Seam?)					
309.75	309.93	0.18	100	MLSS with coal clasts 5 cm x 3 cm, SBC, dips at 10°.		6
309.93	310.90	0.97	100	Dull coal; band of sandy coal from 310.34 - .37 m. SBC.		
310.90	311.56	0.66	100	Carbonaceous mudstone laminated with dark grey mudstone (20:80); abundant shale and FLSS laminae; colour becomes lighter and FLSS content increases with depth. GBC.		
311.56	313.01	1.45	100	FLSS, extensively cross-bedded; occasional wispy carbonaceous laminae. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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45 GEOLOGICAL LOG Page:- 16/24

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
313.01	331.91	18.90	100	MFLSS, massive, rare wispy carbonaceous laminae; clay and mud pellet conglomerate band from 319.14 - 319.32 m; occasional coaly debris; sandstone coloured grey-white; siltstone and mudstone pellets with coaly debris from 327.68 - .80 m; large mudstone pellet 12 cm long from 331.71 - 331.83 m; irregular top and bottom contacts; GBC.		
331.91	332.15	0.24	100	Grey mudstone interval; abundant wispy carbonaceous laminae, SBC, dips at 10°.		
332.15	333.12	0.97	100	MLSS, massive, GBC.		
333.12	336.14	3.02	100	MFLSS, rare coaly debris and wispy carbonaceous laminae, occasional cross bedding dipping up to 5°.		
336.14	345.47	9.33	100	MLSS, massive; a carbonaceous mudstone pellet 2.5 cm x 0.5 cm at 389.65 m; SBC, dips at 20°.		
345.47	345.59	0.12	100	Mudstone, grey, laminated with 20% FLSS; rare cross bedding and occasional wispy carbonaceous laminae. SBC, dips at 10°.		
345.59	347.23	1.64	100	FLSS, massive, GBC.		
347.23	349.27	2.04	100	MFLSS with wispy carbonaceous laminae from 348.94 - .96 m; GBC.		
349.27	350.33	1.06	100	FLSS; abundant wispy carbonaceous laminae.		
350.33	357.35	7.02	100	MFLSS, massive; wispy carbonaceous laminae from 355.00 - 356.00; GBC.		
357.35	359.32	1.97	100	FLSS; rare wispy carbonaceous laminae, with 0.5 cm coal from 358.410 - .415 m, GBC.		
359.32	360.41	1.09	100	MFLSS, with patches of coaly debris from 360.73 - .76 m; 360.83 - .85 m; 361.01 - .02 m, 361.18 - .38 m; one grey siltstone pellet 1 cm x 3 cm at 361.49 m; SBC.		
360.41	361.91	1.50	100	Siltstone, grey; laminated with laminae 1 mm wide; abundant wispy carbonaceous horizontal laminae, GBC. COAL SECTION		
361.91	362.27	0.36	100	Carbonaceous mudstone and heavy dull coal (50:50). Continued over		7

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

45	GEOLOGICAL LOG	Page:- 17/24

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
362.27	362.935	0.665	100	Dull coal; less than 2% bright bands; few cleats.		7
362.935	363.25	0.315	100	Siltstone, with 5% FLSS and abundant coaly debris.		
363.25	369.65	6.40	100	MFLSS; banded; minor cross bedding; coal pellet conglomerate from 367.84 - .845 m. SBC.		
369.65	370.19	0.54	100	COAL SECTION: Siltstone, grey, with occasional plant fragments, GBC.		
370.19	370.47	0.28	100	Heavy dull coal with carbonaceous mudstone (80:20); slickensides dipping 45° from 370.26 - .28 m and from 370.29 - .31 m; kaolinite on slickensides. Band of sandy coal from 370.40 - .43 m. GBC.		
370.47	370.57	0.10	100	Heavy dull sandy coal with a slickenside dipping 45° at 370.57 m.		
370.57	370.63	0.06	100	Heavy dull coal with carbonaceous mudstone (50:50); with abundant sand grains.		8
370.63	370.95	0.32	100	Heavy dull coal with slickensides at 370.81 - .84 m (dips at 45°); at 370.89 m (horizontal) and at 370.89 - .90 m (dips at 70°) SBC.		
370.95	370.99	0.04	100	Clay, brown and friable, slumped bottom contact.		
370.99	371.26	0.27	100	Heavy dull coal, irregular slumping bottom contact.		
371.26	371.51	0.25	100	Grey siltstone, GBC.		
371.51	372.77	1.26	100	Grey siltstone interbedded with FLSS (50:50); minor cross bedding dipping at up to 5°; slickensides from 372.15 - .22 m, 372.18 - .23 m and from 372.60 - .62 m. SBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
372.77	372.80	0.03	100	Dull coal, SBC.		
372.80	372.83	0.03		Clay, white. SBC.		
372.83	372.95	0.12		Mudstone, dark grey, GBC.		
372.95	373.35	0.40		FLSS interbedded with grey siltstone, (70:30), GBC.		
373.35	374.68	1.33	100	FLSS; rare wispy carbonaceous laminae, SBC, dips at 5°.		
374.68	374.78	0.10	100	FLSS interbedded with grey siltstone, 50:50, irregular bottom contact, dips at 5°.		
374.78	374.81	0.03	100	FLSS, GBC.		
374.81	375.21	0.30	75	Mudstone, grey, core broken, loss of 10 cm in this unit. SBC.		
375.21	376.70	1.49	100	Siltstone interlaminated with mudstone, (50:50); bedding horizontal; 'worm burrow' type structures from 376.25 - .35 m with 0.5 cm coal at 376.25 m. Minor disturbed bedding, sandy from 376.40 - .70 m, GBC.		
376.70	377.95	1.25	100	FLSS interlaminated with siltstone, (50:50); GBC.		
377.95	378.88	0.93	100	FLSS, massive, SBC.		
378.88	380.72	1.84	100	FLSS interlaminated with siltstone, (50:50); laminae horizontal, occasional plant fragments; severely disturbed bedding (bioturbation ?) from 380.69 - .72 m; GBC.		
380.72	381.11	0.39	100	Siltstone interlaminated with mudstone (50:50), laminae horizontal, GBC.		
381.11	381.27	0.16	100	Carbonaceous mudstone, GBC.		
381.27	381.37	0.10	100	FLSS with abundant wispy carbonaceous laminae, GBC.		
381.37	381.72	0.35	100	Carbonaceous sandy mudstone, GBC.		
381.72	382.21	0.49	100	FLSS, carbonaceous, with abundant wispy carbonaceous laminae. GBC.		
382.21	382.75	0.54	100	FLSS, massive; rare wispy carbonaceous laminae.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
382.75	387.52	4.77	100	FMLSS, bedding dips at 5°; minor coaly debris and abundant wispy carbonaceous laminae. SBC.		
387.52	387.77	0.25	100	Carbonaceous mudstone with band of brown shale pellets 1 mm diameter from 387.68 - .71 m. GBC.		
387.77	387.80	0.03	100	Shale, brown, SBC.		
387.80	387.90	0.10		Carbonaceous mudstone with minor silt content.		
387.90	388.00	0.10	100	Siltstone, brown interlaminated with carbonaceous mudstone, (50:50).		
388.00	388.58	0.58	100	Siltstone, carbonaceous; laminated with laminae 1 mm wide; slickenside from 388.21 - .23 m, GBC.		
388.58	388.75	0.17		FLSS interlaminated with carbonaceous siltstone, (50:50); erosional sharp, bottom contact.		
388.75	388.785	0.035		COAL SECTION: Heavy dull coal.		
388.785	388.82	0.035		Mud pellet conglomerate; pellets 2-4 mm x 1 mm, GBC.		
388.82	388.84	0.02		Heavy dull coal and carbonaceous mudstone (50:50), GBC.		
388.84	388.865	0.025		Heavy dull coal, sandy, GBC.		
388.865	388.93	0.065		Heavy dull coal and carbonaceous mudstone, (50:50), GBC.		9
388.93	388.94	0.01		Dull sandy coal, GBC.		
388.94	389.25	0.31		Dull coal with 5% bright bands.		
389.25	389.32	0.07		Heavy dull coal, GBC.		
389.32	390.57	1.25		Brown siltstone, 0.5 cm coal at 390.48 m, GBC.		
390.57	403.36	12.79	100	FMLSS, massive; slickensides from 390.65 - .67 m; 390.68 - .73 m; multiple slickensides over the interval 390.82 - .88 m; a grey mudstone band Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				from 399.63 - .66 m; calcite replacement from 398.03 - 398.30 m, SBC.		
403.36	405.66	2.30	100	Laminite of FLSS and siltstone, (50:50); dark grey in colour; laminae 1 mm wide dips at up to 20°; abundant wispy carbonaceous laminae and some disturbed bedding.		
405.66	408.89	3.23	100	MLSS with siltstone/mudstone laminite bands from 405.79 - 405.86 m and from 405.95 - 405.99 m; band of dull coal from 405.98 - .99 m; mudstone/siltstone laminite band showing rheomorphic slumping from 405.94 - .98 m; grey mudstone interval from 406.31 - 406.33 m; grey mudstone pellet from 406.31 - .33 m; long axis of pellet parallel with core axis; pellet 3 cm x 1 cm; mud pellets in MCLSS matrix from 406.51 - .56 m; MLSS is quartz-rich; abundant wispy carbonaceous laminae. SBC.		
408.89	409.63	0.74	100	MCLSS, quartz rich, with abundant mudstone pellets 1 mm - 3 mm diameter; occasional coal debris; 'pink' silt and grey mud pellet conglomerate bands from 409.37 - .38 m; 409.40 - .44 m; carbonaceous mudstone band from 409.56 - .57 m. SBC.		
409.63	409.66	0.03	100	MCLSS, massive, tinged green.		
409.66	410.37	0.71	100	FLSS, massive, with rare mud pellets, SBC.		
410.37	418.67	8.30	100	FMSS, light grey, with irregularly shaped mudstone clasts from 410.27 - 410.49 m; clasts up to 5 cm x 3 cm; coal debris from 412.89 - .99 m; core broken from 416.57 - .67 m; rare wispy carbonaceous laminae; coal debris from 417.12 - .17 m; 417.29 - .30 m; 417.46 - .47 m; 417.98 - 418.03 m; 418.10 - .17 m and from 418.23 - .24 m. Calcite 'nodule' from 418.27 - 418.67 m. Very irregular bottom contact, with calcite 'nodule' intruding into underlying unit. Bottom contact dips at 70° from 418.63 - 418.67 m. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
418.67	419.07	0.40	100	Mudstone, grey-green; core badly broken; extensive slickensides; some 'feathery' calcite veins from 418.97 - 419.04 m. SBC.		
419.07	426.09	7.02	100	FMLSS, massive, rare wispy carbonaceous laminae. SBC.		
426.09	427.11	1.02	100	Mudstone, grey with sandy calcite structures, possibly infilling worm burrows (?) from 426.51 - .53 m. SBC, dips at 25°.		
427.11	429.28	2.17	100	MLSS, massive, with occasional mudstone pellets, SBC.		
429.28	429.83	0.55	100	FLSS; abundant wispy carbonaceous laminae, SBC, dips at 2°.		
429.83	430.37	0.54	100	Mudstone/siltstone laminite; (50:50); occasional wispy carbonaceous laminae, GBC.		
430.37	432.00	1.63	100	Mudstone, grey; laminated with siltstone and FLSS (60:30:10); occasional disturbed bedding and rare wispy carbonaceous laminae. GBC.		
432.00	432.13	0.13	100	Carbonaceous siltstone, brown; GBC.		
432.13	432.28	0.15	100	Laminite of carbonaceous siltstone and green-grey mudstone, GBC.		
432.28	432.83	0.55	100	Mudstone, green-grey; slickenside from 432.59 - .63 m; GBC.		
432.83	433.03	0.20	100	Carbonaceous mudstone with abundant mudstone laminae.		
433.03	433.69	0.66	100	Green mudstone with abundant plant fragments, GBC.		
433.69	434.29	0.60	100	Mudstone, green-grey; interbedded with FLSS; (50:50); mud pellet conglomerate band from 434.69 - .71 m; pellets 7 mm x 3 mm; SBC.		
434.29	434.71	0.42	100	Mudstone, green; contains 5% sand. SBC.		
434.71	435.51	0.80	100	Siltstone; dark brown; SBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
435.51	435.58	0.07	100	Shale; brown; sandy and friable; SBC.		
435.58	435.71	0.13	100	Siltstone, brown; rare plant fragments; coal band 1 cm wide from 435.60 - .61 m and FLSS laminae from 435.69 - .71 m.		
435.71	436.11	0.40	100	Mudstone; grey; abundant slickensides; 'greasy' to touch.		
436.11	436.56	0.45	100	Siltstone, brown; few plant fragments; scoured bottom contact with small mudstone pellets above base.		
436.56	437.21	0.65	100	Mudstone, grey; GBC.		
437.21	438.31	1.10	100	FLSS with mudstone laminae and bands, (70:30); disturbed bedding in mudstone bands. GBC.		
438.31	438.71	0.40	100	Siltstone, grey-brown, SBC.		
438.71	438.99	0.28	100	Siltstone and mudstone laminite, (50:50), grey-green, GBC.		
438.99	439.37	0.38	100	FLSS with abundant silt laminae and wispy carbonaceous laminae; calcite in matrix from 439.32 - .37 m.		
439.37	440.25	0.88	100	FLSS and siltstone laminite (60:40); grey in colour, SBC.		
440.25	441.79	1.54	100	FQSS with abundant wispy carbonaceous laminae.		
441.79	442.64	0.85	100	FLSS and siltstone laminite, (80:20); grey in colour, SBC.		
442.64	442.85	0.21	100	Carbonaceous siltstone, GBC.		
442.85	442.90	0.05		Green mudstone, GBC.		
442.90	443.02	0.12		Heavy dull coal, GBC.		
443.02	443.09	0.07		Green mudstone, GBC.		
443.09	443.85	0.76		FLSS with abundant mud and silt laminae; (FLSS:mudstone:siltstone in the proportions 60:20:20).		
443.85	445.50	1.65	100	FLSS with very small mud pellets (1-2 mm diameter) and occasional wispy carbonaceous laminae.		
445.50	445.89	0.39	100	Mudstone; grey; silty. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

45				GEOLOGICAL LOG	Page:- 23/24	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
445.89	446.13	0.24	100	FLSS with very small mud pellets (1-2 mm diameter) and occasional wispy carbonaceous laminae; irregular BC, dips at 20°.		
446.13	447.03	0.90	100	Mudstone, grev; slickenside dipping 45° from 446.53 - .55m, GBC.		
447.03	450.64	3.61	100	FMLSS, quartz rich, massive; rare wispy carbonaceous laminae, SBC.		
450.64	451.45	0.81	100	Laminite of grey mudstone, FLSS and FQSS, (60:20:20), GBC.		
451.45	452.30	1.35	100	FLSS, quartz rich; abundant wispy carbonaceous laminae dipping at up to 30°.		
452.80	452.83	0.03	100	Mudstone, grey, GBC.		
452.83	453.73	0.90	100	Mudstone and FLSS laminite, (50:50), grey in colour, disturbed bedding; GBC.		
453.73	454.21	0.48	100	FQSS with abundant wispy carbonaceous laminae, 'bioturbation' and 'worm burrow' like structures. SBC.		
454.21	454.29	0.08	100	Dull coal, irregular bottom contact.		
454.29	454.68	0.39	100	FQSS laminated with silt, (60:40), GBC.		
454.68	455.09	0.41	100	Siltstone, grey-brown, with abundant FQSS laminae; FQSS content decreases with depth. SBC.		
455.09	455.73	0.64		Laminite of brown siltstone and mudstone with abundant plant fragments; 0.5 cm coal at 454.76 m; GBC.		
455.73	458.80	3.07	100	Fine-medium grained quartzose sandstone (FMQSS) with abundant wispy carbonaceous laminae and coaly debris from 455.09 - .11 m; SBC.		
458.80	459.14	0.34		Siltstone, carbonaceous, dark brown in colour.		
459.14	459.30	0.16	100	FQSS, fine grained quartzose sandstone and siltstone laminite, (80:20); GBC.		
459.30	460.13	0.83	100	FQSS with abundant wispy carbonaceous and silt laminae, GBC.		
460.13	460.50	0.37	100	MQSS with abundant coaly debris, wispy carbonaceous laminae and some 'bioturbation' (?), undulose bottom contact.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

45 GEOLOGICAL LOG Page:- 24/24

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
460.50	460.62	0.12	100	Laminite of siltstone and mudstone, (50:50); grey in colour; abundant plant fragments, GBC.		
460.62	460.89	0.27	100	MQSS, as above. GBC.		
460.89	461.14	0.25	100	Laminite of siltstone and mudstone, as above.		
461.14	461.36	0.22	100	Laminite of FQSS and siltstone, (50:50), GBC.		
461.36	461.50	0.14	100	FQSS, massive; GBC.		
461.50	461.66	0.16	100	Laminite of FQSS and siltstone, (50:50), irregular bottom contact, dips at 20^{0}.		
461.66	463.76	2.10	100	FMQSS with abundant coaly debris, wispy carbonaceous laminae and disturbed bedding. GBC.		
463.76	464.30	0.54	100	Coarse quartzose sandstone CQSS, GBC.		
464.30	464.42	0.12	100	Laminite of FQSS, siltstone and mudstone (20:40:40) with white flecks of calcite and quartz clasts, reworked from the underlying mudstones. GBC.		
464.42	464.58	0.16		CQSS, massive.		
464.58	468.74	4.16	100	Laminite of FQSS, siltstone and mudstone (20:40:40) with angular quartz chips and flecks of calcite, as above. Laminae 1 mm wide, SBC. Contact between freshwater sequence of Upper Parmeener Supergroup and Glacio-Marine Sequence of lower Parmeener Supergroup at 468.74 m.		
468.74	469.02	0.28	100	Greywacke composed of pebbles 1-5 mm diameter in a matrix of mud and sand; dark grey in colour; small dropstones less than 1 cm diameter common; abundant angular quartz grits, and flecks of calcite. SBC.		
469.02	469.74	0.72	100	Greywacke as above, tinged pink, SBC.		
469.74	471.22	1.48	100	Mudstone; green; massive, abundant angular quartz grits 1 mm^{2}. END OF HOLE AT 471.22 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

DRILLING TARGET:- Pre-collar BH 46A using a Failing percussion-drilling rig.

REMARKS:- Drilling stopped as there was unreasonable bit-wear and excess groundwater in this hole.

SURVEY DATA			ASSAY DATA											
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS						

GEOLOGICAL LOG

Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	3.05	chips		16.5 cm hammer-bit drilled through hard, grey dolerite.		
3.05	7.62	chips		14.0 cm hammer-bit drilled through very-hard grey-dolerite.		
7.62	38.08	chips		10.2 cm hammer-bit drilled through very-hard grey-dolerite.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DRILL RECORD

HOLE No.:- 46A	MAP SHEET No. 49	DISTRICT Fingal	LOCATION OF SITE:-

Fingal Tier on an abandoned spot-mill site adjacent to the Valley Road.

R.L. OF SITE:- 772.9 m	SITE SURVEY ON MAP No.:-	CORE SIZE:- No core; dolerite chips
BEARING OF HOLE:-	AIR PHOTO No.:-	COMMENCED:- 21st June, 1979
INCLINATION OF HOLE:- Vertical	DRILL:- Failing	COMPLETED:- 25th June, 1979
CO-ORDS OF SITE:- 590 032.1 E 5 386 888.1 N	DRILLER:- K. Richardson, ~~B. Stevens~~	FINAL DEPTH (m):- 38.08

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DRILLING TARGET:- Upper glacio-marine sequence of the Parmeener Supergroup.

REMARKS:- Drilling problems; unable to case off (rotary rig); site temporarily abandoned on 4th December, 1979.

SURVEY DATA			ASSAY DATA					ASSAY RESULTS					
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %						

GEOLOGICAL LOG — Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	9.00	chips		Pre-collared through surficial soil and weathered dolerite with 11.4 cm - diameter hammer-bit, then cemented prior to diamond drilling.		
9.00	199.00	190.00	100	Massive dolerite, grey; abundant zones of granophyre; chlorite, zeolite, talc occur in joints, shear-zones and veins; 5 cm of dolerite has been sampled at 3 m intervals and stored for possible future analytical work, the remainder has been abandoned on site. Grainsize ranges from fine-medium to coarse.		
199.00	199.89	0.89		Dolerite; fine-grainsize grading to glassy with depth; grey-green in colour; abundant slickensides and jointing (dipping sub-vertically and spaced at 5 mm separations); minor brecciation; abundant cuboidal pyroxene (?) phenocrysts (1 mm in diameter); minor glassy-black veins up to 5 mm in width and dipping at up to 60° (small amount reacts with 20% solution of HCl) from 199.29 m to 199.89 m. Bottom-contact (BC) dips at from 10° to 20°, and occurs from 199.86 m to 199.89 m.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- DOM FINGAL DDH 46B and Deepened (1980)	MAP SHEET No. 49	DISTRICT Fingal	LOCATION OF SITE:- Fingal Tier on an abandoned spot-mill site adjacent to the Valley Road.
R.L. OF SITE:- 773 m	SITE SURVEY ON MAP No.:- N/a		CORE SIZE:- NQ:0 - 265.06 m
BEARING OF HOLE:- -	AIR PHOTO No.:- N/a		COMMENCED:- 19/9/79
INCLINATION OF HOLE:- Vertical	DRILL:- Mayhew 1000		COMPLETED:- 4/12/79
CO-ORDS OF SITE:- 590 029 mE 5 386 893 mN	DRILLER:- G. Hasell, K. Barrett		FINAL DEPTH (m):- 265.06 m

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
199.89	223.00	23.11	100	Medium-grainsize lithic sandstone (MLSS); massively-bedded; grey; hornfelsed (thermally metamorphosed) and appears similar to dolerite; bedding dips at up to 20°; minor hornfelsed mud-and clay-pellets; sub-vertically-dipping joints coated with quartz (1 to 3 mm in width) and spaced at from 30 cm to 50 cm; hornfelsed siltstone/mudstone (50:50), cross-bedded, from 210.83 m (top contact finishes at 210.91 m) to 212.25 m; surface of the core etches to a green-colour when treated with a 20% solution of HCl (possibly reacting with a coating of drilling solutions on the core). Gradational bottom-contact (GBC).		
223.00	229.00	6.00		Fine-medium grainsize lithic sandstone (FMLSS), grey-green; minor sub-vertically-dipping carbonate (calcite (?)) veins; hornfelsed. GBC.		
229.00	241.33	12.33		Mudstone, grey-green; hornfelsed; broken core from 229 m to 232 m (abundant slickensides); minor shaly intervals; algal mats from 232.0 m to 232.1 m; sticky, white claystone from 232.0 m to 232.1 m; grey, red and green bands from 234.2 m to 235.0 m; abundant sub-vertically-dipping jointing and kaolinite intervals from 235 m to 238 m; white-purple silicified (thermally metamorphosed (?)) kaolinite bands from 238 m to 241.3 m. GBC.		
241.33	242.23	0.90		Siltstone/FMLSS (50:50), interbedded; hornfelsed; silicified; grey-green in colour. GBC.		
242.23	247.30	5.07		MLSS, indurated; hornfelsed (very hard); sub-vertically-dipping joint from 243.2 m to 243.7 m; light-grey in colour. GBC.		
247.30	254.65	7.35	100	FMLSS, light-grey; massively-bedded; hornfelsed; minor indurated mudstone intervals; bedding dips at up to 20° from 254.45 m to 254.65 m. Irregular BC dips at 10°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
254.65	259.31	4.50	97	Mudstone, grey and green-grey; hornfelsed (silicified); massive; partly fissile; abundant green and white claystone intervals; shaly; abundant algal mats. GBC.		
259.31	264.09	4.78	100	Siltstone/mudstone (50:50), interbedded; irregularly bedded; banding dips at up to 10°; hornfelsed; abundant joints dipping at up to 60°; grades to massively-bedded, silty, hornfelsed FLSS. GBC.		
264.09	265.06	0.97	100	FLSS, massively-bedded; grey-white; minor mudstone and siltstone bands and laminae dipping at up to 5°; minor FMLSS intervals from 264.14 m to 264.34 m and from 264.9 m to 265.04 m. (End of drilling by the rotary rig on this hole).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

DRILLING TARGET:- Upper glacio-marine sequence of the Parmeener Supergroup.

REMARKS:- Drilling recommenced on this site on 25th January, 1980. Roof of the Duncan seam occurs at 401.67 m a.s.l.

SURVEY DATA			ASSAY DATA					ASSAY RESULTS					
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %						

GEOLOGICAL LOG

Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	265.06	0	0	Redrill of cement left in the drill-hole from the previous attempt at drilling (see first three pages of the geological log for DOM FINGAL DDH 46B).		
265.06	283.89	18.83	100	MLSS; silty from 265.06 m to 265.26 m; grey-white in colour; massively-bedded; very hard (hornfelsed); minor FMLSS intervals and bedding dipping at up to 5° from 265.06 m to 283.89 m; minor cross-bedding from 266.69 m to 266.79 m; calcite-infilling (veins) joints dipping sub-vertically from 269.4 m to 269.55 m and from 269.9 m to 270 m; sub-vertically -dipping joint from 270.5 m to 271.03 m; minor elongate (flattened) mud-pellets (1 cm in length) from 271.23 m to 271.98 m; bedding dips at up to 5° from 272 m to 275 m; mud-pellet from 273.88 m to 273.94 m; minor carbonaceous laminae from 276.89 m to 277.09 m; broken mudstone shards from 283.84 m to 283.89 m. Irregular bottom-contact (BC) dips at 10°.		
283.89	283.96	0.07	100	Mudstone, grey, hornfelsed; broken core due to slickensides; slickenside dipping at 30° at 283.96 m.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:-	MAP SHEET No.	DISTRICT	LOCATION OF SITE:-
DOM FINGAL DDH 46B and Deepened (1980)	49	FINGAL	Fingal Tier on an abandoned spot-mill site adjacent to the Valley Road. NQ: 0 - 345.73 m

R.L. OF SITE:- 773 m	SITE SURVEY ON MAP No. N/a	CORE SIZE:-	BQ: 345.73 - 547.21 m
BEARING OF HOLE:- -	AIR PHOTO No.:- N/a	COMMENCED:-	25/1/80
INCLINATION OF HOLE:- Vertical	DRILL:- Longyear 44	COMPLETED:-	6/3/80
CO-ORDS OF SITE:- 590 029 mE 5 386 893 mN	DRILLER:- C. Mitchell, S. Mitchell	FINAL DEPTH (m):-	547.21 m

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
283.96	284.01	0.05	100	Medium-grainsize lithic sandstone (MLSS), grey-white.		
284.01	284.02	0.01		COAL SECTION: (minor thermal metamorphism(?)) Carbonaceous mudstone, hornfelsed.		
284.02	284.32	0.30		Mudstone, grey, hornfelsed but shaly; breaks readily.		
284.32	284.56	0.24		Heavy dull coal, hornfelsed, shaly, minor carbonate.		
284.56	284.63	0.07		Mudstone, grey, shaly.		
284.63	284.94	0.31		Carbonaceous mudstone/heavy dull coal (50:50); hornfelsed (?); abundant carbonate on cleat.		1A
284.94	285.41	0.47		Heavy dull coal/carbonaceous mudstone (75:25); minor carbonate on cleat; very hard, brittle and silicified; minor sub-vertically-dipping jointing and cuboidal fracture. GBC.		
285.41	285.66	0.25		Carbonaceous mudstone.		
285.66	285.73	0.07		Mudstone, grey, minor coaly flecks. BC dips at 30° from 285.72 m to 285.74 m.		
285.73	285.96	0.23	100	Carbonaceous mudstone/grey mudstone (50:50), interbanded; lenticular bedding from 285.77 m to 285.83 m; minor slickensides and microfaults; carbonaceous mudstone from 285.86 m to 285.96 m; minor pyrite from 285.95 m to 285.96 m; red zeolite (clinoptilolite (?) or heulandite (?) - electron microprobe analysis by Dr. D.C. Green of the Department of Mines indicates that what CSIRO indicated to be clinoptilolite may be heulandite) on joint surfaces. Continued over		1B

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Proximate analysis results (Oven dry basis) % ash	% volatiles	% fixed carbon
1A	284.01	285.66	1.65	100	82.6	*	*
1B	285.66	287.04	1.38	100	83.7	*	*
1C	287.04	288.46	1.42	100	82.0	*	*
1D	288.46	289.20	0.74	100	62.1	*	*

* denotes: not determined

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
285.96	286.37	0.41	100	COAL SECTION: (Contd.) Mudstone, grey; lenticular heavy dull coal bands (dipping at up to 10°) from 286.02 m to 286.05 m, from 286.19 m to 286.20 m, from 286.23 m to 286.25 m and from 286.26 m to 286.31 m.		1B
286.37	287.04	0.67		Carbonaceous mudstone/grey mudstone (80:20), inter-bedded; minor dull coal; abundant irregular joints with calcite (?) coating; minor sub-horizontally-dipping slickensides. GBC.		
287.04	288.46	1.42		Heavy dull coal/carbonaceous mudstone (50:50); minor thermal metamorphism (?); abundant sub-vertically-dipping irregular joints with minor heulandite (?) veins; abundant slicken-sides; carbonaceous mudstone pellets from 287.50 m to 287.59 m; dark grey carbonaceous mudstone from 287.46 m to 287.78 m and from 288.10 m to 288.23 m; irregularly-bedded carbonaceous and sandy lenticles (overturned bedding (?)) dipping at up to 10° from 288.39 m to 288.46 m. Bottom contact (BC) dips at 2°.		1C
288.46	288.69	0.23		Heavy dull coal; silicified; brittle; abundant sub-vertically-dipping carbon-ate veins.		1D
288.69	288.70	0.01	100	Carbonaceous mudstone; bedding dips at 2°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
288.70	288.81	0.11	100	COAL SECTION: (Contd.) Carbonaceous mudstone/grey mudstone (70:30); inter-banded. BC dips at 5°.		
288.81	288.84	0.03		Bright coal (exinite (?), cuboidal fragments up to 4 mm in length)/sandy greywacke (30:70).		
288.84	288.92	0.08		Carbonaceous mudstone/bright coal (70:30); coked (?); hornfelsed (?); bedding dips at up to 5°; abundant slickensides. Micro-faulted, stepped BC. Minor carbonate-coated sub-vertically-dipping joints.		1D
288.92	288.96	0.04		Carbonaceous mudstone with minor dark-grey mudstone lenticles.		
288.96	289.17	0.21		Bright coal, coked (?); minor carbonaceous mud-stone bands.		
289.17	289.20	0.03	100	Carbonaceous shale; minor grey mudstone laminae.		
				(BASE OF COAL SECTION)		
289.20	290.29	1.06	97	Mudstone, grey; minor carbonaceous mudstone from 289.45 m to 289.65 m; abundant wispy carbonaceous flecks; light-and dark-grey mudstone (50:50) laminite from 289.89 m to 290.04 m. GBC.		
290.29	290.94	0.65	100	Siltstone, grey; sandy; minor light-and dark-grey bands and irregular bedding. BC dips at 2°.		
290.94	292.16	1.22		Laminite, light-grey mudstone/dark-grey mudstone (50:50); minor carbonaceous bands and laminae; irregular, lenticular and flaser bedding; grades to carbonaceous mudstone from 291.86 m to 292.16 m. GBC.		
292.16	293.05	0.89	100	Mudstone, grey; very irregular and disturbed bedding; overturned bedding and current-marks abundant; grades with depth to massive grey mudstone. continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
293.05	293.68	0.63	0	**Core loss.**		
293.68	294.03	0.35	100	**Carbonaceous mudstone. GBC.**		
294.03	294.20	0.17		**Siltstone, grey. GBC.**		
294.20	296.00	1.80		Fine-grainsize lithic sandstone (FLSS); grey-white; abundant silty and mudstone bands and laminae; abundant festoon cross-bedding from 295.67 m to 296.00 m. GBC.		
296.00	299.01	3.01		FMLSS, grey-white; massively bedded; minor cross-bedding and silty bands dipping at up to 5°; grades to MLSS from 297.5 m to 299.01 m. GBC.		
299.01	307.81	8.80		MLSS, grey-white; abundant carbonaceous laminae dipping at up to 5°; minor FMLSS intervals and bedding dipping at up to 10°; predominantly massively-bedded; abundant coaly debris and carbonaceous laminae from 304 m to 305 m; carbonaceous laminae dipping at up to 5° from 307 m to 307.8 m. GBC.		
307.81	308.14	0.33		FLSS, blue-grey; silty; disturbed bedding (bioturbation (?)) dips at up to 45°; speckled in appearance; elongate (2 cm x 0.4 cm) brown clay-pellets from 308.11 m to 308.14 m. BC dips at 30°.		
308.14	308.24	0.10		Carbonaceous mudstone/dark-grey mudstone (50:50), interbedded, shaly; aoundant slickensides, mud-pellets and MLSS intervals; irregular bedding dips at up to 20°. GBC.		
308.24	310.73	2.49		Coarse-grainsize lithic sandstone (CLSS), grey-white; abundant carbonaceous laminae and coaly debris; irregular bedding dips at up to 20°; abundant mud-pellets (up to 20 cm in diameter) dipping at up to 60° and abundantly slickensided (black, glassy surfaces); minor bright coal bands up to 3 cm thick. GBC.		
310.73	312.82	2.09	100	MLSS, massively-bedded; grey-white in colour; bedding dips sub-horizontally (relative to core axis) at approximately 2°. Undulose, rippled BC. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
312.82	312.93	0.11	100	COAL SECTION: (not sampled) Bright coal/dull coal (40:60), interbanded. Undulose BC dips at 5°.		
312.93	313.04	0.11		Carbonaceous mudstone/grey mudstone/shale (40:30:30), interbanded; minor bright coal bands; abundant slickensides; sygmoidal slickenside at base. GBC.		
313.04	313.16	0.12		Bright coal; grades to dull coal with depth; abundant sub-vertically dipping carbonate veins (up to 5 mm in width). BC dips at 30° and runs from 313.16 m to 313.19 m (slickensided).		
313.16	314.39	1.23		Mudstone, grey-brown; silty (particularly from 314 m to 314.39 m); minor wispy carbonaceous flecks; slickensides dipping at 60° at 313.16 m and at 313.78 m. GBC dips at 5°.		
314.39	316.53	2.14		FLSS, grey, abundant carbonaceous laminae and festoon cross-bedding (dipping at up to 20°); minor dark- and light-grey mudstone laminite from 316.33 m to 316.53 m; minor FMLSS intervals. Irregular GBC.		
316.53	316.64	0.11		Mudstone, grey-brown; contorted bedding and coaly debris and laminae; minor slickensides. Rippled BC dips at 5°.		
316.64	316.70	0.06		COAL SECTION: Bright coal. BC dips at 2°.		
316.70	316.76	0.06		Carbonaceous mudstone; minor lenticular grey-mudstone bands and laminae; grades to a shale with depth. GBC.		
316.76	316.93	0.17	100	Claystone, grey-green; shaly; abundant disseminated carbonaceous flecks (pseudomorphs after biotite (?)).		2

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS: Proximate analysis results (oven dry basis) % ash	% volatiles	% fixed carbon
2	316.64	317.96	1.29	98	45.7	11.0	43.3

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
316.93	317.07	0.14	100	COAL SECTION: (Contd.) Dull coal with minor bright laminae dipping at up to 5°. GBC.		
317.07	317.28	0.20	95	Dull coal/carbonaceous mudstone (50:50), interbanded; bedding dips at up to 10°; abundant slickensides (dipping at less than 30°); shaly in part; minor bright coal bands. BC dips at 5°.		2
317.28	317.91	0.61	97	Bright coal/dull coal (40:60), interbanded; bedding dips at up to 5° (relative to core axis). BC dips at 2°.		
317.91	317.96	0.05	100	Laminite, carbonaceous mudstone/grey mudstone/dull coal (40:30:30); bedding dips at up to 5°. GBC dips at 5°.		
317.96	319.09	1.12	99	Siltstone, grey-brown; mudstone from 317.96 m to 318.11 m; abundant FLSS, FMLSS and mudstone bands; minor cross-bedding and joints dipping at 45°. GBC dips at 2°.		
319.09	320.81	1.72	100	Mudstone, light-grey; minor wispy carbonaceous flecks and laminae; minor slickensides; silty; large shards of broken core due to abundant slickensiding and jointing from 319.89 m to 320.07 m; disturbed and lenticular bedding and abundant coaly laminae and carbonaceous mudstone bands (dipping at up to 20°) from 320.07 m to 320.81 m. Ripply BC.		
320.81	320.85	0.04		COAL SECTION: Carbonaceous mudstone, shaly; minor dull coal.		
320.85	320.90	0.05	100	Mudstone, grey, shaly; clayey; abundant carbonaceous flecks; minor subhorizontally dipping slickensides; sandy at the base. Involute, lobate BC.		3A

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Proximate analysis (Oven dry basis) % ash	% volatiles	% fixed carbon
3A	320.81	321.95	1.14	100	38.9	13.8	47.3
3B	321.95	322.94	0.99	100	44.5	13.0	42.5

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
320.90	321.95	1.05	100	COAL SECTION: (Contd.) Dull coal with minor bright bands; carbonaceous mudstone from 321.03 m to 321.08 m, from 321.32 m to 321.33 m and from 321.44 m to 321.49 m; brown shale from 321.22 m to 321.26 m; poorly-developed cleat and carbonate veins; minor slickensides; fusinite from 321.92 m to 321.94 m.		3A
321.95	322.94	0.99		Dull coal with minor bright bands (split from sample 3A for sampling purposes only); abundant brown clay-pellets (1 to 3 mm in diameter); bedding dips at up to 5°; carbonaceous mudstone from 321.95 m to 322.00 m; white-cream mudstone from 322.07 m to 322.08 m, from 322.28 m to 322.29 m, from 322.39 m to 322.40 m, from 322.55 m to 322.56 m and from 322.76 m to 322.79 m. Ripply, mud-pellet-littered BC.		3B
				(BASE OF COAL SECTION).		
322.94	325.42	2.48		Mudstone, brown-grey; slickensides from 322.94 m to 322.99 m and from 323.08 m to 325.42 m (dip at up to 60°); silty; minor FLSS intervals; minor banding and laminations dipping at up to 5°; minor coaly debris, irregular bedding and wispy carbonaceous flecks. GBC.		
325.42	325.74	0.32		FMLSS, grey-white/siltstone, grey (50:50), interbanded; minor carbonaceous laminae dipping at up to 5°; minor clastic dykes (?) or bioturbation (?) (contorted, sub-vertically-dipping worm-burrows (?) 3 to 4 mm in diameter). Undulose BC. (Transition zone).		
325.74	326.10	0.36	100	FMLSS, abundant festoon cross-bedding dipping at up to 5°; abundant carbonaceous laminae. GBC. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
326.10	328.69	2.59	100	FMLSS/FLSS/MLSS/siltstone/mudstone (60:10:10 10:10) interbedded; minor festoon cross-bedding dipping at up to 10°; minor carbonaceous mudstone bands, laminae and lenticles. BC dips at 2°.		
328.69	341.97	13.28		MLSS, grey-white; predominantly massive bedding; clean unit; sub-horizontally dipping bedding from 328.69 m to 329.11 m; bedding dips at 5° from 329.11 m to 332 m; minor FMLSS intervals from 332 m to 338 m; minor carbonaceous laminae dipping at up to 5° from 335 m to 338 m; bedding dips at from 5° to 30° from 338.2 m to 338.94 m; abundant coaly debris, carbonaceous laminae, irregular bedding and minor sub-horizontally- to sub-vertically-dipping elongate 1 to 2 cm diameter grey mud-pellets from 339.14 m to 339.84 m; mudstone band (dipping at 45°) and irregular 5 cm-diameter mudstone cobbles near 341.17 m; minor carbonate matrix and coarse-grainsize lithic sandstone (CLSS) from 341.17 m to 341.97 m; coaly debris, mud-pellets (0.5 cm to 3 cm in diameter) and mudstone bands from 341.56 m to 341.84 m.		
341.97	342.16	0.19		FMLSS/siltstone/mudstone (30:30:40), interbanded; abundant wispy carbonaceous laminae; minor undulose bedding dips at up to 30°. Irregular, contorted BC.		
342.16	342.21	0.05		COAL SECTION: (not sampled) Dull coal with minor bright laminae; minor calcite (kaolinite (?)) on cleat.		
342.21	342.40	0.19		Mudstone, grey/dark-grey interbanded; irregular undulose bedding; minor carbonaceous laminae dipping at up to 5°. Irregular BC dips at 5°.		
342.40	342.65	0.25	100	Heavy dull coal; abundant brown clay-pellets 1 to 5 mm in diameter (effervesce when treated with a 20% HCl solution); Continued over dark-brown mudstone from		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				COAL SECTION: 342.51 m to 342.55 m. GBC.		
342.65	342.74	0.09	100	(not sampled) (Contd.) Brown-grey mudstone; trace rootlets (?) (sub-vertically- and sub-horizontally-dipping wispy carbonaceous laminae). GBC.		
342.74	342.84	0.10		Carbonaceous mudstone; lenticular brown-grey mudstone bands from 342.76 m to 342.80 m; grades to heavy dull coal at the base; abundant slickensides with carbonate matrix from 342.81 m to 342.84 m. Slickensided BC.		
342.84	342.90	0.06		Mudstone, grey; abundant slickensides dipping at from 10° to 45°; wispy, irregular carbonaceous laminae.		
342.90	342.97	0.07		Carbonaceous mudstone; abundant dull coal bands; abundant slickensides dipping at from 30° to 45°; irregular, undulose bedding dips at up to 20°.		
342.97	345.55	2.58		Mudstone, grey; abundant slickensides and wispy, irregular carbonaceous laminae; 45°-dip fault with ≥3 cm of normal throw and slickensides associated with it from 344.01 m to 344.12 m; silty from 344.16 m to 345.55 m with minor acicular plant-fossil debris and wispy carbonaceous laminae; minor contorted, irregular trace-fossils (rootlets (?)). GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
345.55	352.12	6.57	100	FMLSS, grey-white; abundant cross-bedding and wispy carbonaceous laminae and bands (dipping at up to 20°) from 345.55 m to 345.73 m; abundant FLSS and siltstone bands and laminae from 345.73 m to 347.5 m; abundant contorted bedding (slump or rollover structures) dipping at 30° from 345.8 m to 346.1 m; minor cross-bedding from 346.42 m to 346.47 m; minor cross-bedded carbonaceous laminae from 347.5 m to 352.12 m (bedding dips at up to 10°); minor carbonaceous bands; core has a rippled surface near 351 m; abundant angular mud-pellets, mudstone bands and carbonaceous laminae (dipping at up to 10°) from 351.82 m to 352.12 m. BC dips at 5°.		
352.12	353.38	1.26		MLSS, grey-white, massively-bedded; abundant angular mud-pellets, mudstone bands and carbonaceous laminae (dipping at up to 10°) from 353.18 m to 353.38 m. Irregular, slickensided BC.		
353.38	354.20	0.82		Mudstone, grey; minor slickensides dipping at from 30° to 60°; abundant wispy, sub-vertically-dipping, contorted, carbonaceous trace-fossils (rootlets (?)). Undulose, sub-horizontally-dipping BC.		
354.20	371.33	17.13	100	MLSS, grey-white; massively-bedded; clean; minor ripply-surface on core from drilling action; mud-pellets and mudstone bands from 354.20 m to 354.32 m; inter-bedded with FMLSS and 10% fine-medium-grainsize quartzose sandstone (FMQSS) with abundant festoon-cross-bedded carbonaceous laminae and black and green bands (with minor irregular pyritic-lenticles up to 10 mm in length at 365.07 m) from 363.59 m to 364.51 m and from 364.95 m to 365.07 m; FMLSS with minor lenticular and cross-bedded carbonaceous laminae from 365.51 m to 365.91 m; FLSS with mud-pellets, angular mudstone shards and cobbles, rounded quartzitic-pebbles (up to 3 cm in length) and minor carbonate matrix from 367.18 m to 367.92 m; FMLSS Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				intervals from 369.02 m to 371.33 m. Undulose BC dips at 5°.		
371.33	371.42	0.09	100	COAL SECTION: Dull coal with 25% bright laminae.		
371.42	371.47	0.05		(Duncan seam (?)) Bright coal, minor carbonate (?) on cleat.		
371.47	371.52	0.05		Dull coal with 25% bright laminae; minor carbonate on cleat.		
371.52	371.56	0.04		Interbanded bright and dull coal (50:50), minor carbonate on cleat. Occasional sub-horizontally-dipping to sub-vertically-dipping joints from 371.33 m to 372.91 m.		4A
371.56	372.34	0.78		Dull coal with 25% bright laminae and bands.		
372.34	372.42	0.08		Carbonaceous mudstone with minor bright coal laminae.		
372.42	372.44	0.02		Carbonaceous mudstone with creamy-white clay-pellets (up to 1 mm in diameter).		
372.44	372.59	0.15		Dull coal with 25% bright laminae.		
372.59	372.62	0.03		Interbanded bright and dull coal and dark-grey mudstone.		
372.62	372.91	0.29		Dull coal with 25% bright laminae and bands. GBC.		
372.91	373.01	0.10		Dark-grey mudstone, poorly carbonaceous, minor slickensides. Slickensided GBC.		
373.01	373.26	0.25	100	Mudstone, grey, silty; wispy (trace-fossil) rootlets (?); minor slickensides. GBC dips at 10° and is slickensided.		4B

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS: Proximate analysis results (oven dry basis) % ash	% volatiles	% fixed carbon
4A	371.33	372.91	1.58	100	31.6	23.1	45.3
4B	372.91	373.47	0.56	100	84.7	*	*

* denotes: not determined (% ash > 50%)

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
373.26	373.41	0.15	100	COAL SECTION: (Contd.) Dull coal with minor dark-grey mudstone bands and laminae. Sharp bottom-contact; (SBC)(Generally the contacts are assumed to be sharp unless otherwise stated).		4B
373.41	373.47	0.06		Carbonaceous mudstone, grey-brown; shaly in part; minor sub-horizontally-dipping to 30° dip slickensides. GBC.		
				(BASE OF COAL SECTION)		
373.47	373.64	0.17		Mudstone, light-grey-brown; slickenside dipping at 20° from 373.59 m to 373.64 m. GBC.		
373.64	391.36	17.72		FMLSS, grey-brown, clayey; grey-brown, siltstone from 374.26 m to 374.54 m; grey, silty FLSS with minor cross-bedded carbonaceous bands and laminae dipping at from 5° to 10° from 374.94 m to 375.18 m, from 375.35 m to 375.69 m (not silty from 375.45 m to 375.69 m); massively-bedded elsewhere; minor carbonaceous laminae dipping at up to 10° from 381.2 m to 384.2 m; grey-white in colour from 386 m to 391.36 m.		
391.36	391.37	0.01		COAL SECTION: (not sampled) Carbonaceous mudstone with bright coal laminae. Undulose BC dips at 5°.		
391.37	391.46	0.09		Mudstone, grey; abundant contorted rootlets (?); carbonaceous mudstone lenticles towards the base. Involute BC.		
391.46	391.53	0.07		Bright coal (lenticular)/ grey mudstone/carbonaceous mudstone laminite; disturbed (flaser (?)) bedding. Irregular, cuspate BC dips at 5°.		
391.53	391.55	0.02	100	Bright coal. BC dips at 10°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
391.55	391.59	0.04	100	COAL SECTION: (not sampled) Mudstone, grey-brown. BC dips at 5°.		
391.59	391.61	0.02		(Contd.) Shale, cream in colour. BC dips at 10°.		
391.61	391.63	0.02		Carbonaceous mudstone; minor bright coal laminae. BC dips at 5°.		
391.63	391.65	0.02		Brown mudstone, minor root-lets (?). GBC.		
391.65	391.74	0.09		Dull coal with minor bright laminae and clay pellets 1 to 2 mm in diameter.		
391.74	391.82	0.08		Dull coal with minor bright bands and laminae; well-developed cleat (results in broken core). Irregular, sub-horizontally-dipping BC.		
391.82	392.50	0.68		Mudstone, grey, abundant wispy carbonaceous laminae (occasionally contorted and dipping at up to 30°; minor carbonaceous bands and lenticles: GBC dips at 10°.		
392.50	392.59	0.09		Carbonaceous mudstone with minor bright coal laminae. GBC.		
392.59	393.55	0.96		FLSS, grey; silty from 392.59 m to 392.79 m; minor wispy dark-grey cross-bedding. GBC.		
393.55	399.40	5.85		FMLSS, grey-white; minor FLSS intervals from 393.55 m to 394.15 m; grey siltstone from 394.15 m to 394.40 m; minor carbonaceous laminae dipping at up to 20° and MLSS intervals from 394.4 m to 395.17 m; carbonate matrix from 396.47 m to 398.17 m; massively-bedded elsewhere.		
399.40	404.61	5.21		MLSS, grey-white; massively bedded; minor coaly debris and carbonate matrix from 401.52 m to 401.56 m; carbonate matrix from 404.5 m to 404.61 m. Stepped BC dips at 5°.		
404.61	405.22	0.61	100	Mudstone, grey; silty at the top; minor slickensides and acicular plant-fossil fragments; minor contorted Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				rootlets (?) dipping at up to 10°; carbonaceous bands from 404.95 m to 405.00 m; dull coal from 404.98 m to 404.99 m. Faulted, slickensided BC (slickenside dips at 60°).		
405.22	405.31	0.09	100	COAL SECTION: (not sampled) Carbonaceous mudstone. GBC.		
405.31	405.37	0.06		Heavy dull coal.		
405.37	405.39	0.02		Creamy-brown claystone.		
405.39	405.40	0.01		Heavy dull coal. GBC.		
405.40	405.43	0.03		Creamy-brown claystone; sub-horizontally-dipping slickensides; minor 1 mm-diameter clay-pellets; trace rootlets (?). Undulose, irregular BC.		
405.43	405.68	0.25		Dull coal, minor bright laminae; kaolinite on the cleat. BC dips at 5°.		
405.68	405.82	0.14		FLSS, grey-white; 20% fine-grainsize quartzose sandstone (FQSS); abundant wispy, lenticular carbonaceous laminae dipping at up to 20°; minor trace fossils (rootlets (?) or burrows (?)). GBC.		
405.82	405.86	0.04		Dull coal; well-developed sub-vertically dipping cleat. Sygmoidal BC.		
405.86	406.15	0.29		FLSS, grey-white; 10% FQSS; minor cross-bedding and carbonaceous trace-fossils (rootlets (?)); abundant carbonaceous lenticles and bands with disturbed, irregular bedding from 405.92 m to 406.05 m. GBC.		
406.15	406.28	0.13		FMLSS, light-grey, massively-bedded. Lobate BC.		
406.28	406.72	0.44		Siltstone, dark-grey/FLSS, grey (50:50); interbanded and laminated; minor mudstone and lenticular bedding. Irregular, disturbed BC.		
406.72	406.87	0.15		Mudstone, grey, silty.		
406.87	406.95	0.08	100	Laminite, carbonaceous mudstone/grey mudstone (50:50); minor sub- Continued over		

ASSAY DATA

SAMPLE No	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				lenticular bedding (bioturbation (?)). BC dips at 5°.		
406.95	407.02	0.07	100	Mudstone, creamy-grey, shaly. GBC.		
407.02	407.41	0.39		Mudstone, brown-grey, poorly carbonaceous; minor slickensides dipping at from 45° to sub-horizontally. GBC.		
407.41	407.56	0.15		Mudstone, olive-green; minor slickensides dipping at 45°. Cuspate, irregular BC.		
407.56	407.72	0.16		Siltstone, olive-green-grey; minor irregular dark lenticles and bands. Irregular, sharp BC.		
407.72	426.53	18.81		MLSS, grey-white; FMLSS from 407.91 m to 409.17 m; predominantly massive-bedding; angular mudstone pebbles from 407.72 m to 407.8 m; bedding dips at 5° from 410.78 m to 411.18 m; FMLSS intervals and rippled core-surface (from drilling) from 411.18 m to 414.19 m; minor carbonaceous laminae dipping at up to 20° from 413.08 m to 413.38 m; carbonaceous laminae and contorted coaly lenticles and debris from 414.56 m to 414.62 m; FMLSS from 418.16 m to 419.16 m; minor cross-bedding and carbonaceous laminae (dipping at up to 10°) from 418.26 m to 419.16 m; minor carbonaceous bands and laminae from 419.81 m to 420.21 m; minor secondary (?) carbon-ate in matrix with minor carbonaceous laminae and debris from 420.2 m to 423.2 m; abundant carbonaceous laminae and coaly debris with carbonate in the matrix from 424.52 m to 425.02 m; abundant mud-pellets and coaly debris and bands from 426.25 m to 426.53 m. BC dips at 10°.		
426.53	426.84	0.31		COAL SECTION: Dull coal; minor slicken-sides dipping at 30°; minor carbonate on joints associated with the slick-ensides; bedding dips at up to 10°. BC dips at 5°.		5A
426.84	426.86	0.02	100	Shale, grey-olive; very flakey. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS		
					Proximate analysis results (oven dry basis)		
					% ash	% volatiles	% fixed carbon
5A	426.53	426.84	0.31	100	31.6	18.4	50.0
5B	430.71	432.48	1.70	96	39.4	19.7	40.9

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
426.86	426.91	0.05	100	Mudstone, grey, shaly. BC dips at 10°.		
426.91	426.94	0.03		Carbonaceous mudstone with secondary (?) carbonate laminae. GBC.		
426.94	430.71	3.77		Mudstone, grey; wispy contorted carbonaceous laminae, minor slickensides and minor silty and sandy intervals from 426.94 m to 429.25 m; minor irregular bedding and abundant rootlets (?) and sandy and silty bands and laminae from 429.25 m to 430.71 m; carbonaceous mudstone with minor coaly laminae, slickensides and contorted bedding from 429.9 m to 430 m. BC dips at 10°.		
430.71	430.79	0.08		COAL SECTION: Carbonaceous mudstone; brown claystone band dipping at 10° from 430.71 m to 430.72 m; abundant elongate clay-pellets 1 mm to 10 mm in length. GBC.	)	
430.79	430.96	0.17		Heavy dull coal with minor clay-pellets and-laminae. GBC.	)	
430.96	431.18	0.22		Dull coal; minor slicken-sides; minor contorted claystone lenticles and pellets from 431.1 m to 431.18 m; slickensided and broken zone with carbonate coating the surfaces from 431.06 m to 431.09 m. GBC.	)	5B
431.18	431.23	0.05		Claystone, white; abundant wispy carbonaceous laminae; carbonaceous mudstone and brown clay-pellets from 431.19 m to 431.20 m.	)	
431.23	431.44	0.21	100	Dull coal with heavy dull coal from 431.23 m to 431.32 m; slickensided and broken core from 431.35 m to 431.46 m; sub-vertically -dipping carbonate vein associated with Continued over	)	

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				slickensides from 431.34 m to 431.44 m. GBC.		
431.44	431.49	0.05	100	COAL SECTION: (Contd.) Mudstone, grey-brown; minor bright coal lenticles; abundant wispy carbonaceous laminae.		
431.49	432.26	0.77	100	Dull coal, 25% bright bands from 432.06 m to 432.26 m, minor bright laminae elsewhere; well-developed sub-vertically-dipping cleat from 431.49 m to 431.89 m; dark-grey (carbonaceous) mudstone from 431.83 m to 431.86 m; heavy dull coal from 431.86 m to 431.90 m; contorted mudstone laminae from 431.90 m to 431.92 m; minor mud-pellets and-lenticles from 431.92 m to 431.97 m.		5B
432.26	432.48	0.15	68	Dull coal; very broken and ground-away core. BC dips at 5°.		
432.48	434.35	1.87	100	Mudstone, grey; abundant wispy carbonaceous laminae and coaly debris and slickensides; minor acicular plant-fossil fragments and cross-bedding; FLSS from 432.48 m to 432.78 m and from 433.21 m to 433.48 m. GBC.		
434.35	435.26	0.91		FMLSS, minor cross-bedded carbonaceous laminae. GBC.		
435.26	437.23	1.97		Siltstone/FLSS/mudstone (10:60:30), inter-banded; minor flaser and cross-bedding; abundant slickensides from 436.26 m to 436.76 m dipping at 45°. GBC.		
437.23	438.65	1.42		FMLSS, minor silty intervals. BC dips at 2° (relative to core axis).		
438.65	441.14	2.49	100	Mudstone, grey; sandy intervals with cross-bedded laminae and bands from 440.54 m to 441.14 m; sandy/silty laminite with flaser bedding and rootlets (?) from 439.85 m to 440.65 m. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
441.14	442.61	1.47	100	FMLSS, massively-bedded; abundant carbonaceous laminae and cross-bedding from 441.52 m to 441.72 m and from 442.34 m to 442.61 m. Undulose BC dips at 5°.		
442.61	443.26	0.65		Laminite, light-grey mudstone/dark-grey mudstone (50:50); minor silty and sandy bands and laminae. GBC.		
443.26	443.61	0.35		COAL SECTION: Heavy dull coal, abundant mudstone laminae. GBC.		6
443.61	444.77	1.16		Carbonaceous siltstone/carbonaceous mudstone (50:50), interbanded; sandy; minor irregular bedding dipping at up to 10°; coaly debris; grades to a sandier unit with depth. GBC.		
444.77	444.92	0.15		Dull coal interbanded with MLSS. GBC.		
444.92	448.59	3.67		MLSS, grey-white; carbonaceous laminae dipping at up to 10° from 444.92 m to 445.42 m.		
448.59	448.79	0.20		Carbonaceous mudstone. GBC.		
448.79	448.99	0.20		Mudstone, dark-grey. GBC.		
448.99	450.09	1.10		Siltstone, dark-grey; minor sandy laminae; shaly; poorly carbonaceous. GBC.		
450.09	450.29	0.20		FMLSS, dark-grey; minor carbonaceous laminae; abundant plant-fossil debris. GBC.		
450.29	450.64	0.35		FMLSS, grey; abundant irregularly-bedded dark-grey and carbonaceous bands and laminae; minor carbonate coated slickensides dipping at 45°. GBC.		
450.64	450.94	0.30	100	COAL SECTION: (not sampled) Dull coal; bedding dips at up to 5°; minor bright laminae and slickensides (carbonate-coated and dipping at 20°); minor sandy intervals. Irregular, ragged BC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS
					Proximate analysis results (oven dry basis)
					% ash / % volatiles / % fixed carbon
6	443.26	444.92	1.66	100	82.4 / * / *

* denotes: not determined (% ash > 50%)

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
450.94	458.34	7.40	100	Mudstone, grey; abundant slickensides and sandy bands from 450.94 m to 451.24 m; shaly from 451.94 m to 453.30 m; sub-horizontally dipping secondary carbonate veins from 452.50 m to 452.78 m; silty from 453.30 m to 458.34 m with minor carbonate veins up to 3 cm in width and dipping at up to 45°; expansive clays in matrix from 456.84 m to 458.34 m; sandy from 457.84 m to 458.34 m. GBC.		
458.34	458.89	0.55		FMLSS, minor carbonaceous-and dark-grey-mudstone laminae. GBC.		
458.89	461.38	2.49		MLSS, grey-white; minor carbonate matrix and minor mud-pellet bands.		
461.38	463.24	1.86		Mudstone, grey; minor slickensides and wispy contorted carbonaceous laminae; minor cream-coloured shale bands at 461.62 m; dark mudstone bands and laminae and coaly lenticles, irregular bedding and sub-horizontally-dipping slickensides from 461.62 m to 461.78 m; abundant flaser-bedded silty and sandy laminae from 462.4 m to 463.2 m; slickensides dipping at 60° from 463.14 m to 463.24 m.		
463.24	463.52	0.28		COAL SECTION: (not sampled) Heavy dull coal, grades to dull coal at base; broken core (due to abundant closely-spaced cleating) from 463.42 m to 463.52 m. GBC.		
463.52	463.62	0.10		Carbonaceous mudstone; minor brown-grey mudstone bands and pellets (1 mm in diameter). GBC.		
463.62	464.45	0.83		Claystone, brown; abundant green and grey (sulphide (?)) blebs dispersed throughout and surrounded by black haloes with a diameter of approximately 1 cm. (Sample 8046-1 was extracted from 463.85 m to 463.89 m. Sample 8046-2 was extracted from 464.36 m to 464.38 m). GBC.		
464.45	465.01	0.56	100	Siltstone, green-grey, clayey; dispersed 1 mm-diameter green clasts. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				(Sample 8046-3 was taken from 464.65 m to 464.70 m). GBC.		
465.01	465.48	0.47	100	Mudstone, brown-grey, shaly. GBC.		
465.48	466.75	1.27		Siltstone, grey; sandy; minor darker bands and laminae dipping at up to 5°; muddy bands towards the base. GBC dips at 5°.		
466.75	466.98	0.28		Laminite, mudstone/siltstone/carbonaceous mudstone (50:40:10); abundant slickensides and normal microfaults. BC dips at 5°. Bedding dips at 5°.		
466.98	467.11	0.13		Mudstone, grey/carbonaceous mudstone (50:50); interbanded; bedding dips at up to 5°; minor slickensides. BC dips at 5°.		
467.11	467.16	0.05		FMLSS, white; minor carbonaceous laminae. BC dips at 5°.		
467.16	467.23	0.07		Carbonaceous mudstone; irregular bedding. Irregular undulose BC.		
467.23	470.19	2.96		Mudstone, grey; abundant flaser-and cross-bedded silty and sandy bands and laminae; abundant slickensides (breccia zone (?) from 467.43 m to 467.73 m; secondary (?) carbonate interval (breccia infilling (?) from 467.65 m to 467.85 m. GBC.		
470.19	472.81	2.62		FMLSS, grey; minor cross-bedded silty intervals dipping at up to 10°. GBC.		
472.81	493.47	20.66		MLSS, grey-white; minor carbonaceous mudstone and coaly lenticles and carbonate matrix; abundant coaly debris from 477 m to 477.45 m and from 479.2 m to 479.9 m; bedding dips at up to 10° from 477.5 m to 480.4 m; minor silty bands dipping at up to 10° from 480.4 m to 482.5 m; minor mud-pellets and carbonaceous laminae from 483.4 m to 484.2 m; predominantly massively-bedded; minor carbonate matrix from 486.4 m to 489.4 m; grey mudstone bands and pellets from 489.44 m to 489.64 m. BC dips at 2°.		
493.47	493.53	0.06		COAL SECTION: Dull coal. GBC.		
493.53	493.73	0.20	100	(not sampled) Mudstone, grey/carbonaceous mudstone (80:20), interlaminated. GBC. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
493.73	493.83	0.10	100	COAL SECTION: (not sampled) (Contd.) Carbonaceous mudstone/dark-grey mudstone (50:50), interbanded; irregular bedding. Disturbed, involute BC.		
493.83	494.00	0.17		Heavy dull coal; carbonaceous mudstone from 493.89 m to 493.92 m; creamy khaki-coloured shale from 493.92 m to 493.94 m; minor slickensides. GBC.		
494.00	495.14	1.14		Siltstone, grey; minor sandy and mudstone bands and laminae; minor irregular- and cross-bedding.		
495.14	495.25	0.11		COAL SECTION: (not sampled) Dull coal/carbonaceous mudstone (50:50); minor plant-fossils. GBC.		
495.25	495.35	0.10		Mudstone, brown-grey; silty towards the base. GBC.		
495.35	497.98	2.63		Siltstone, grey; grey mudstone with minor carbonaceous bands and slickensides from 495.50 m to 495.70 m; minor FMLSS intervals; sub-vertically-dipping worm-burrows from 495.70 m to 496 m; grey-brown mudstone intervals from 496.75 m to 497 m and from 497.65 m to 497.98 m. GBC.		
497.98	498.21	0.23		Shale, brown; very flakey; sub-horizontally-dipping 2 to 5 mm-wide carbonate veins from 498.03 m to 498.07 m; dull coal from 498.12 m to 498.15 m.		
498.21	498.46	0.25		COAL SECTION: (not sampled) Dull coal; minor sub-horizontally-dipping slickensides and shale laminae; heavy dull coal from 498.36 m to 498.46 m. BC dips at 2°.		
498.46	507.44	8.98	100	Siltstone, grey/mudstone, brown-grey/FMLSS, white-grey (40:40:20), interbedded; minor acicular plant-fossil debris and cross-bedding, sub-vertically-dipping worm-burrows (?) and banding from 498.46 m to 501.55 m; laminite in part; minor carbonaceous mudstone and Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				disturbed bedding from 501.55 m to 504.58 m; indurated lithic and white-green quartzose sandstone from 505.13 m to 505.23 m; carbonaceous mudstone from 506.33 m to 506.43 m and from 506.84 m to 506.99 m; poorly-developed laminite from 505.34 m to 506.64 m; overturned bedding from 507.34 m to 507.44 m. Rippled BC dips at 5°.		
507.44	507.66	0.22	100	FMLSS, green-grey; minor (10%) quartzose; joint dipping at 70° from 507.61 m to 507.87 m.		
507.66	507.76	0.10		FLSS, grey/siltstone, grey (40:60), inter-banded; undulose bedding dips at up to 10°; minor cross-bedding.		
507.76	508.20	0.44		FMLSS, grey; minor (10%) quartzose component.		
508.20	508.27	0.07		FMLSS, grey/siltstone, grey (50:50), inter-bedded; bedding dips at up to 10°. BC dips at 10°.		
508.27	511.88	3.61		Siltstone, grey; dark-grey siltstone from 508.88 m to 509.04 m; interbanded grey FLSS/grey siltstone with cross-bedding dipping at up to 10° from 509.04 m to 509.27 m; grey FMLSS from 509.27 m to 509.33 m; dark grey-brown (poorly carbon-aceous) mudstone from 509.77 m to 510.22 m; laminated carbonaceous mudstone and grey FLSS (60:40) with minor cross-bedding and lenticles dipping at up to 10° from 510.28 m to 510.37 m; minor carbonate veins from 510.37 m to 510.39 m; abundant FLSS bands from 510.65 m to 511.88 m with minor contorted lenticular bedding dipping at up to 10°, plant-fossils and carbonaceous debris. GBC.		
511.88	512.63	0.75		Mudstone, grey/siltstone, dark-grey (50:50) laminite; minor cross- and lenticular-bedding dipping at up to 5°. GBC.		
512.63	513.06	0.43	100	Mudstone, dark-grey to carbonaceous; minor coaly and sandy bands; abundant sub-horizontal to 45° dip slickensides. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
513.06	513.72	0.66	100	Siltstone, grey; muddy at the top; abundant sandy bands and laminae dipping at up to 5°. GBC.		
513.72	513.78	0.06		(Transition zone) FMLSS and fine-medium grainsize quartzose sandstone (FMQSS) (50:50); silty; grey to grey-white in colour; poorly-sorted. GBC.		
513.78	515.02	1.24		(Top of the basal quartzose sandstone unit of the Upper Parmeener Supergroup in North-East Tasmania) Medium-grainsize quartzose sandstone (MQSS), white; abundant carbonaceous bands and laminae dipping at up to 20°; sporadic cross-bedding. BC dips at 2°.		
515.02	515.99	0.97		Mudstone, dark-grey; shaly in part; minor slickensides; carbonaceous intervals. GBC.		
515.99	516.35	0.36		MQSS, white; abundant carbonaceous bands and laminae dipping at up to 20°; minor cross-bedding. GBC.		
516.35	516.66	0.31		(Transition zone) MQSS, off-white (dirty); abundant wispy carbonaceous laminae; poorly-sorted.		
516.66	516.84	0.18		Mudstone, dark-grey; shaly in part; minor carbonaceous intervals and slickensides; coaly from 516.74 m to 516.84 m. Undulose BC.		
516.84	522.80	5.96		MQSS, white; abundant carbonaceous laminae, irregular and contorted bedding; minor bioturbation from 516.84 m to 517.24 m; abundant cross-bedded carbonaceous laminae dipping at up to 20° from 518.50 m to 519.80 m; massive bedding with minor wispy carbonaceous laminae from 521.10 m to 522.10 m; carbonaceous mudstone and grey mudstone shards with coaly lenticles, mud-pellets (up to 1 cm long by 3 mm thick) and large-scale cross-bedding dipping at up to 20° from 522.10 m to 522.80 m. Gently-sygmoidal BC.		
522.80	522.87	0.07	100	Carbonaceous mudstone, silty.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
522.87	523.06	0.19	100	MQSS, white; abundant carbonaceous bands and laminae. Undulose BC.		
523.06	523.44	0.38		Carbonaceous mudstone, silty/fine-grainsize quartzose sandstone (FQSS) (70:30), inter-banded; bedding dips at up to 5° (relative to core axis). BC dips at 2°.		
523.44	525.22	1.78		MQSS, white; abundant carbonaceous bands and laminae dipping at up to 20°; minor cross-bedding; massively-bedded from 523.64 m to 524.21 m.		
525.22	525.84	0.62		Mudstone, grey; silty; carbonaceous from 525.22 m to 525.32 m; bioturbated dirty FMQSS from 525.32 m to 525.43 m; carbonaceous, silty mudstone from 525.43 m to 525.62 m.		
525.84	533.99	8.15		MQSS, white; abundant festoon-cross-bedding and bioturbation from 525.84 m to 529.91 m; gritty coarse-grainsize quartzose sandstone (CQSS) bands with dark-grey mudstone bands (sub-horizontally dipping) from 529.91 m to 533.99 m; minor mud-pellets (3 cm x 1 cm) from 530.93 m to 531.95 m.		
533.99	537.78	3.79	0	Lost core.		
537.78	538.01	0.23	100	Siltstone, grey; minor bands and beds of MLSS (10% quartzose); minor sub-vertically-dipping joints.		
538.01	538.22	0.21	0	Lost core.		
538.22	542.09	3.87	100	Siltstone, grey; minor intervals of MLSS (10% quartzose) and sub-vertically-dipping joints; minor slickensides dipping at 45° (particularly at 541.29 m). GBC.		
542.09	544.36	2.27		Siltstone, dark-grey; muddy; minor grits and plant-fossils.		
544.36	544.44	0.08		Carbonaceous siltstone. GBC.		
544.44	544.94	0.50	100	Siltstone, grey/FMLSS, light-grey (50:50), interbanded; contorted, irregular and lenticular bedding. GBC dips at 5°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
544.94	545.47	0.53	100	MQSS, white; minor intervals of CQSS; bright coal bands from 545.34 m to 545.35 m and from 545.50 m to 545.51 m. GBC.		
545.47	545.85	0.38		Conglomerate; CQSS matrix with pebbles up to 4 cm x 4 cm consisting of green, white and black quartzite, reef-quartz, mudstone and siltstone. Sharp, irregular BC. (Base of the Upper-Parmeener Supergroup freshwater sequence in N.E. Tasmania).		
545.85	547.21	1.36		Siltstone, grey; abundant angular quartz-grits (1 mm x 3 mm); minor lenticular mudstone bands. (Top of the upper glacio-marine sequence of the Lower Parmeener Supergroup in N.E. Tasmania).		
				(End of Department of Mines Fingal Diamond Drill Hole number 46B and Deepened (1980) at a depth of 547.21 m).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:- Pre-collar BH47 using a Failing percussion-drilling rig.

REMARKS:- Drilling stopped due to the sides of the hole caving and preventing the driving of casing.

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS					

GEOLOGICAL LOG

Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	32.00	chips		16.5 cm hammer-bit drilled through dolerite boulders and clay.		
32.00	44.16	chips		14.0 cm hammer-bit drilled through dolerite boulders and clay. (9.14 m of 15.2 cm diameter casing and 19.81 m of 12.7 cm diameter casing remains in this hole).		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DRILL RECORD

HOLE No.:- 47	MAP SHEET No. 49	DISTRICT Fingal	LOCATION OF SITE:-

Northern slopes of the Fingal Tier near the headwaters of Crouchs Creek.

R.L. OF SITE:- 587.33 m	SITE SURVEY ON MAP No.:-	CORE SIZE:- No core; dolerite chips
BEARING OF HOLE:-	AIR PHOTO No.:-	COMMENCED:- 2nd August 1979
INCLINATION OF HOLE:- Vertical	DRILL:- Failing	COMPLETED:- 22nd August 1979
CO-ORDS OF SITE:- 589 126.4E 5 389 948.4N	DRILLER:- K. Richardson R. Stevens	FINAL DEPTH (m):- 44.16 m

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DRILLING TARGET:- Pre-collar BH48 using a Failing percussion-drilling rig.

REMARKS:- Drilling stopped due to caving.

SURVEY DATA			ASSAY DATA											
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS						

GEOLOGICAL LOG

Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	38.08	chips		16.5 cm hammer-bit drilled through dolerite boulders and clay.		
38.08	41.12	chips		14.0 cm hammer-bit drilled through dolerite boulders and clay.		
41.12	45.68	chips		10.2 cm hammer-bit drilled through dolerite boulders and clay. (casing remains in this hole).		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DRILL RECORD

HOLE No.:- 48	MAP SHEET No. 49	DISTRICT Fingal	LOCATION OF SITE
Northern slopes of Fingal Tier			
R.L. OF SITE:- 610.56 m	SITE SURVEY ON MAP No.:		CORE SIZE:- No core; dolerite chips
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 5th July, 1979
INCLINATION OF HOLE:- Vertical	DRILL:- Failing		COMPLETED:- 11th July, 1979
CO-ORDS OF SITE:- 590 064.1E 5390 018.1N	DRILLER:- K. Richardson		FINAL DEPTH (m):- 45.68

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DRILLING TARGET:- Pre-collar BH 49 using a Failing percussion-drilling rig.

REMARKS:- Drilling stopped in solid dolerite. Hole standing up unaided and left for completion by diamond drilling.

SURVEY DATA								ASSAY RESULTS					
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %						

GEOLOGICAL LOG

Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	12.19	chips		16.5 cm hammer-bit drilled through massive dolerite boulders.		
12.19	19.81	chips		14.0 cm hammer-bit drilled through massive dolerite boulders.		
19.81	37.00	chips		10.2 cm hammer-bit drilled through massive dolerite boulders. (casing remains in this hole).		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DRILL RECORD

HOLE No.:- 49	MAP SHEET No. 49	DISTRICT Fingal	LOCATION OF SITE:-

Northern Slopes of Fingal Tier

R.L. OF SITE:- 598.52 m	SITE SURVEY ON MAP No.:	CORE SIZE:- No core, dolerite chips
BEARING OF HOLE:- 203° magnetic	AIR PHOTO No.:-	COMMENCED:- 11th July, 1979
INCLINATION OF HOLE:- 2°	DRILL:- Failing	COMPLETED:- 17th July, 1979
CO-ORDS OF SITE:- 591 006.5E 5 390 003.2N	DRILLER:- K. Richardson	FINAL DEPTH (m):- 37.00

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DRILLING TARGET:-	Upper glacio-marine sequence of the Lower Parmeener Supergroup.
REMARKS:-	Duncan seam was not recognised.

SURVEY DATA			ASSAY DATA									
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS				

GEOLOGICAL LOG — Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	37.00	chips	-	Dolerite talus (pre-collared using a percussion drilling rig - see separate drill record).		
37.00	165.15	125.60	98	Dolerite talus, minor amounts of clay between dolerite boulders. Core is massive dolerite with abundant sub-vertical to sub-horizontal joints, and minor intervals of pebbly, broken dolerite. All joints show the influence of weathering (either sub-aerial weathering or weathering due to percolating ground-water). Very broken ground at base, minor secondary calcite.		
165.15	165.32	0.17	100	Mudstone, dark-grey, shaly, abundant sub-horizontal slickensides. Slickensided bottom-contact.		
165.32	165.78	0.46		Claystone, grey, weathered, very pliable. Gradational bottom-contact (GBC).		
165.78	165.97	0.19		Mudstone, dark-grey, shaly, abundant slickensides (dipping at up to 30°) and coaly debris. Slickensided bottom-contact.		
165.97	166.03	0.06		Mudstone, blue-grey, abundant slickensides. GBC.		
166.03	166.21	0.18	100	Mudstone, dark-blue-grey, abundant slickensides (breccia zone), sub-horizontally-dipping slickenside at bottom-contact.		

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:-	MAP SHEET No. 49	DISTRICT Fingal	LOCATION OF SITE:-
DOM Fingal DDH 49 and Deflection 1	Northern slopes of Fingal Tier near the head waters of Ransom Creek.		

R.L. OF SITE:- 598.52 m	SITE SURVEY ON MAP No.:-	CORE SIZE:- NQ: 36.37 - 233.55 BQ:233.55 - 373.84
BEARING OF HOLE:- 203° magnetic	AIR PHOTO No.:- -	COMMENCED:- 2nd August, 1979
INCLINATION OF HOLE:- 2°	DRILL:- Edeco	COMPLETED:- 13th November, 1979
CO-ORDS OF SITE:- 591 006.5 E 5 390 003.2 N	DRILLER:- R. McDonald, R. Lohrey L. Newman	FINAL DEPTH (m):- 373.84

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
166.21	167.58	1.37	100	Mudstone, brown-grey, bedding dips at up to 20°, minor bioturbation, silty, wispy coaly flecks, grades down to fine-grainsize lithic sandstone (FLSS). GBC.		
167.58	169.11	1.53		FLSS, silty, minor mudstone bands, minor slickensides (dipping at 30°) and minor joints (dipping at up to 60°); green spotted sulphide (?) interval from 168.85 m to 169.01 m.		
169.11	170.45	1.34		Fine-medium-grainsize lithic sandstone (FMLSS)/FLSS/ mudstone (25:25:50), interbanded and laminated, silty, abundant trough cross-bedding, minor carbonaceous laminae, predominantly FMLSS grading to medium-grainsize lithic sandstone (MLSS) from 170.15 m to 170.45 m. Sub-vertically dipping joint throughout. GBC.		
170.45	179.34	8.89		MLSS, grey, massive bedding, sub-vertically dipping joints from 170.45 m to 176.30 m (calcite crystals, less than 2 mm in length, occupy joint surfaces), minor carbonaceous laminae, cross-bedding from 170.80 m to 171.80 m, cone-in-cone structure from 170.45 m to 171.39 m; bedding dips at up to 10° from 173.25 m to 176.83 m, and at 30° from 176.83 m to 179.34 m; abundant coaly debris from 177.08 m to 177.53 m, FMLSS from 177.73 m to 178.83 m, siltstone pebble band dipping at 20° and rounded quartzitic pebbles at 178.98 m, coaly debris from 178.98 to 179.34 m. GBC.		
179.34	182.86	2.82		FMLSS, minor carbonaceous laminae and coaly debris from 179.34 m to 180.34 m, pebbles and abundant coaly debris from 181.96 m to 182.16 m. GBC.		
182.16	186.35	4.19		MLSS, grey, massive bedding, minor carbonaceous laminae (dipping at up to 10°) from 185.46 m to 186.35 m. Bottom contact (BC) dips at 10°.		
186.35	187.00	0.65	100	Carbonaceous siltstone and mudstone/FLSS (60:40), interbanded, abundant contorted trough cross-bedding dipping at up to 10°, minor laminae, minor syn-depositional slumping at base. Bottom contact dips at 5°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
187.00	188.15	1.15	100	MLSS, grey-white; abundant bands and laminae of grey siltstone and carbonaceous mudstone, contorted bedding, syn-depositional slump features; minor mud-pellet bands and bioturbation. GBC.		
188.15	189.14	0.99		Siltstone and FLSS, dark grey/carbonaceous mudstone (60:40), interbanded, shaly, minor plant fossils and plant-fossil fragments; sub-vertically dipping joints from 188.28 m to 188.53 m and from 188.58 m to 188.94 m; sandy towards base with minor laminations.		
189.14	191.32	2.18		MLSS, grey-white, abundant coaly debris and carbonaceous laminae from 189.64 to 191.22 m, minor bioturbation from 190.54 m to 190.74 m, sub-vertically dipping joints from 189.64 m to 191.14 m. Undulose and irregular bottom-contact dips at up to 5°.		
191.32	191.48	0.16		COAL SECTION: Heavy dull coal with carbonaceous mudstone (25%), core breaks readily along sub-vertically dipping cleat. GBC.		
191.48	191.57	0.09		Claystone, shaly brown; carbonaceous mudstone balls and lenticles from 191.48 m 191.53 m; slickenside dipping at 10° from 191.52 m to 191.53 m; slickenside dipping at 30° from 191.54 m to 191.59 m is conjugate with the slickensided bottom-contact dipping at 30°.		
191.57	192.03	0.46		Heavy dull doal/dull coal (50:50), inter-bedded; minor bright laminae; abundant brown claystone lenticles from 191.57 m to 191.64 m, abundant sub-vertically dipping cleat.		1A
192.03	192.22	0.19		Claystone, brown-grey, shaly, abundant slickensides, coaly debris from 192.03 m to 192.07 m. Bottom contact (BC) dips at 10° and is slickensided.		
192.22	192.41	0.19		Dull coal/carbonaceous mudstone (50:50), interbanded, broken core due to the abundance of cleating and 30° to sub-vertically dipping slickensides. GBC.		
192.41	192.79	0.38	100	Claystone, brown/carbonaceous mudstone (30:70), core breaks readily due to the abundance of slickensides dipping at 45°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS (dry basis) % Ash	% Volatiles	% Fixed Carbon
1A	191.32	192.79	1.47	100	73.0		
1B	192.79	194.48	1.69	100	48.3	20.5	31.2
1C	194.48	196.70	2.22	100	76.1		
1D	196.70	198.80	2.10	100	64.9		
1E	198.80	200.93	2.13	100	45.8	17.8	36.4
1F	200.93	202.31	1.38	100	92.9		
1G	202.31	204.82	2.51	100	82.5		
1H	204.82	207.27	2.45	100	35.2	24.9	39.9
1J	207.27	208.21	0.94	100	76.2		

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
192.79	193.99	1.20	100	COAL SECTION: (cont.) Dull coal/bright coal (50:50); brown-grey claystone bands from 193.07 m to 193.10 m, from 193.35 m to 193.36 m, from 193.52 m to 193.53 m, from 193.54 to 193.57 m and from 193.60 m to 193.61 m; abundant 45° to sub-vertically dipping cleat (minor kaolinite on cleat) and slickensides; abundant clay pellets and clay lenticles.		
193.99	194.02	0.03		Claystone, brown, slickensides.		1B
194.02	194.04	0.02		Carbonaceous mudstone, minor plant-fossil fragments.		
194.04	194.39	0.35		Carbonaceous shale; creamy shaly claystone bands from 194.04 m to 194.06 m, from 194.24 m to 194.28 m, from 194.30 m to 194.31 m and from 194.36 m to 194.39 m.		
194.39	194.46	0.07		Dull coal, abundant 45° to sub-vertically dipping cleat.		
194.46	194.48	0.02		Carbonaceous shale.		
194.48	194.51	0.03		Claystone, creamy-brown, shaly. Sygmoidal slickenside at base with an average dip of 20°.		
194.51	194.61	0.10		Dull coal.		
194.61	194.65	0.04		Carbonaceous mudstone, heavy dull coal (50:50).		
194.65	194.71	0.06		Claystone, creamy-brown, shaly.		
194.71	194.80	0.09		Carbonaceous mudstone/claystone, creamy-brown (50:50), interbanded, shaly.		1C
194.80	194.85	0.05		Dull coal.		
194.85	194.87	0.02		Claystone, creamy brown, abundant carbonaceous mudstone lenticles.		
194.87	194.97	0.10		Dull coal.		
194.97	195.06	0.09		Claystone, creamy-brown, joint (dipping at 45°) from 194.97 m to 195.06 m.		
195.06	195.10	0.04		Heavy dull coal.		
195.10	195.12	0.02		Claystone, creamy-brown, abundant lenticular carbonaceous laminae and plant-fossil debris.		
195.12	195.21	0.09		Dull coal.		
195.21	195.23	0.02		Claystone, creamy-white. GBC.		
195.23	195.31	0.08	100	Heavy dull coal. GBC. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
195.31	195.55	0.24	100	COAL SECTION: (cont.) Claystone, creamy-brown, minor carbonaceous bands dipping at up to 5°, very shaly. BC dips at 20°.		
195.55	195.66	0.11		Dull coal/carbonaceous mudstone (50:50), brown-grey; carbonate on cleat surface, abundant 1-2 mm diameter clay pellets.		
195.66	196.35	0.69		Carbonaceous mudstone/dull coal (70:30), interbedded; minor claystone bands from 195.84 m to 195.85 m, from 196.06 to 196.09 m and from 196.23 m to 196.27 m (dipping at 10°)		1C
196.35	196.70	0.35		Claystone, creamy-brown, intricate network of abundant carbonate veins dipping at up to 45°; dull coal band from 196.42 m to 196.45 m.		
196.70	197.19	0.49		Carbonaceous mudstone/claystone, creamy-brown (60:40), interbedded, bedding dips at 5°, minor heavy dull coal, carbonate veins from 196.74 m to 196.75 m.		
197.19	197.71	0.52		Dull coal/bright coal (50:50), minor carbonaceous mudstone bands, sub-vertically dipping carbonate-coated cleat, slickenside dipping at 45° from 197.40 m to 197.45 m, claystone and carbonate band from 197.49 m to 197.50 m. GBC.		
197.71	197.91	0.20		Claystone, brown/carbonaceous mudstone (70:30), interbedded, shaly, bedding dips at up to 10°. BC dips at 5°.		1D
197.91	198.19	0.28		Dull coal, minor bright bands, carbonate-coated sub-vertically dipping cleat, slickenside dipping at 30° from 198.06 m to 198.10 m.		
198.19	198.28	0.09		Claystone, creamy-brown, shaly. GBC.		
198.28	198.80	0.52		Dull coal/carbonaceous mudstone/brown claystone (20:40:40), interbanded, bedding dips at 10°, minor lenticular bands. BC dips at 2°.		
198.80	198.81	0.01		Claystone, brown, friable.		
198.81	199.01	0.20		Claystone, white, very soft and sticky.		
199.01	199.02	0.01		Carbonaceous mudstone.		
199.02	199.04	0.02		Claystone, white, shaly.		
199.04	199.08	0.04		Carbonaceous mudstone. Interdigitating BC.		1E
199.08	199.19	0.11	100	Claystone, white-grey, shaly. BC dips at 2°. (Part of this unit has been washed away during drilling, resulting in 100% linear recovery, but 60% volumetric recovery).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

49

GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
199.19	199.66	0.47	100	COAL SECTION: (cont.) Carbonaceous mudstone/claystone, brown (70:30), interbedded, shaly, abundant slickensides dipping at 45°. BC dips at 5°.		)
199.66	200.93	1.27		Dull coal, minor bright bands dipping at 10°, creamy-brown claystone from 200.23 m to 200.26 m, carbonaceous shale from 200.26 m to 200.31 m, zone of 45° dipping slickensides from 199.96 m to 200.06 m, minor carbonate on cleat surface, carbonaceous mudstone from 200.59 m to 200.75 m, slickenside zone (with broken core as a result) from 200.81 m to 200.93 m.		) 1E
200.93	202.31	1.38		Mudstone/siltstone (60:40), grey, shaly, carbonaceous at 201.02 m; minor plant-fossil fragments, laminae and cross-bedding; minor contorted bedding dipping at 5°; grey mudstone from 202.11 m to 202.31 m; white claystone band at 202.31 m. Sygmoidal slickenside at BC.		) 1F
202.31	202.70	0.39		Dull coal/carbonaceous mudstone/grey siltstone/brown claystone (10:10:50:30), interbedded; minor clay pellets, flaser bedding and carbonaceous laminae; abundant slickensides dipping at 20° from 202.31 m to 202.39 m; brown, shaly claystone from 202.60 m to 202.70 m. BC dips at 5°		)
202.70	203.60	0.90		Dull coal; carbonaceous mudstone bands from 203.03 m to 203.07 m, from 203.10 m to 203.29 m (shaly), from 203.34 m to 203.38 m (shaly); brown claystone from 202.78 m to 202.79 m, from 202.88 to 202.90 m, from 203.29 m to 203.29 m to 203.34 m; sub-vertically dipping cleat from 203.37 to 203.47 m; abundant bright coal laminae from 203.47 m to 203.60 m; carbonaceous mudstone at base. GBC.		) 1G
203.60	203.64	0.04		Claystone, brown-grey, shaly.		)
203.64	203.84	0.20		Claystone, grey, shaly. Neptunian dyke from below penetrates 1 cm into this unit.		)
203.84	204.00	0.16		Dull coal, minor grey mudstone bands and laminae.		)
204.00	204.03	0.03		Claystone, brown, shaly. Irregular BC.		)
204.03	204.11	0.08		Heavy dull coal. BC dips at 2°.		)
204.11	204.24	0.13		Carbonaceous mustone/brown claystone (40:60), interbedded. Undulose BC.		)

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
204.24	204.58	0.34	100	COAL SECTION: (cont.) Dull coal, minor mudstone laminae dipping at 5°, sub-vertically dipping cleat. Interdigitating BC.		
204.58	204.66	0.08		Claystone, brown-grey, BC dips at 5°.		1G
204.66	204.82	0.16		Carbonaceous mudstone, abundant white-grey and brown mudstone lenticles. BC dips at 10°.		
204.82	207.27	2.45		Dull coal (This is probably the best working section in this large seam). Sub-horizontal parting approximately every 10 cm, bedding dips at up to 10° (minor), 10% bright coal bands and laminae; white-grey claystone bands from 204.90 m to 204.91 m, from 204.94 m to 204.97 m, from 205.02 m to 205.03 m, from 205.25 m to 205.26 m, from 205.28 m to 205.29 m, from 205.31 m to 205.33 m, from 205.35 m to 205.36 m, from 205.59 m to 205.64 m (as lenticles only), from 205.69 m to 205.71 m, from 205.93 m to 205.94 m, from 206.13 m to 206.17 m, from from 206.27 m to 206.29 m and from 205.36 m to 205.51 m; carbonaceous mudstone from 206.17 m to 206.27 m; slickensides dipping at 30° from 206.03 m to 206.06 m; minor carbonate on sub-vertically dipping cleat; lenticular white mudstone band distorted by a bright coal band from 207.06 m to 207.08 m; brown-grey mudstone from 206.80 to 206.84 m; abundant 5 mm clay pellets from 206.84 m to 206.92 m; slickenside zone from 206.92 m to 207.04 m and sub-vertically dipping cleat.		1H
207.27	207.42	0.15		Claystone, white-creamy-brown, minor coaly flecks and lenticles, slickenside at base.		
207.42	207.55	0.13		Bright coal/dull coal (50:50), minor broken core, cleat dipping at 60° with carbonate coating the surface. GBC.		
207.55	207.63	0.08		Mudstone, creamy-white, minor carbonaceous laminae and bands, minor slickensides. Undulose BC.		1J
207.63	207.94	0.31		Laminite, bright coal/dull coal/carbonaceous mudstone (20:30:50). Slickenside zone from 207.69 m to 207.73 m. Slickensided BC dipping at 45° from 207.94 m to 207.97 m.		
207.94	208.21	0.27	100	Mudstone, grey-brown, minor slickensides and broken core, minor coaly debris. GBC.		

(BASE OF COAL SECTION)

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
208.21	209.53	1.32	100	Siltstone, grey-brown, minor mudstone intervals and shaly horizons, bedding dips at 5°.		
209.53	212.54	3.01		Siltstone, grey/FLSS, grey-white (30:70); abundant trough cross-bedding dipping at up to 10°, minor carbonaceous laminae, FLSS grades to FMLSS at the base. GBC.		
212.54	225.64	13.10		MLSS, grey-white, massively-bedded; mud-pellets from 212.70 m to 212.74 m; coaly debris from 212.80 to 212.91 m; carbonaceous laminae from 213.49 m to 214.24 m and at 214.84 m; sub-vertically dipping joints from 214.45 m to 214.79 m and from 214.84 to 215.47 m; coaly debris, mud-pellets and carbonaceous laminae (dipping at up to 20°) from 215.55 to 216.37 m and from 217.71 to 218.49 m; minor carbonaceous laminae and mudstone lenticles from 218.56 m to 219.34 m; minor mudstone bands from 220.38 m to 220.64 m; carbonaceous mudstone and mudstone pebbles and cobbles from 221.96 m to 222.36 m; minor carbonaceous flecks from 223.74 m to 224.14 m; mudstone pebble at 222.85 m; abundant carbonate matrix from 219.34 m to 225.64 m. Irregular, jagged BC.		
225.64	226.05	0.41		Mudstone, grey-green, shaly (crumbles readily), abundant light-grey mudstone laminae, slickenside dipping at 30° from 225.86 m to 225.90 m, abundant disturbed bedding showing soft-sediment deformation from 225.95 m to 226.05 m, minor wispy carbonaceous laminae.		
226.05	226.26	0.21		COAL SECTION: (not sampled) Dull coal/carbonaceous mudstone (50:50), interbanded and laminated, minor bright coal laminae and grey mudstone lenticles. GBC.		
226.26	226.37	0.11		Claystone, brown, shaly, swells when wet, carbonaceous and slickensided from 226.26 m to 226.31 m. Undulose BC.		
226.37	226.44	0.07		Dull coal with minor bright coal laminae. Irregular BC.		
226.44	226.54	0.10	100	Claystone, brown, shaly, swells when wet.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
226.54	226.58	0.04	100	COAL SECTION: Dull coal with minor bright laminae. GBC.		
226.58	226.61	0.03		(cont.) Claystone, brown, shaly, swells when wet. Sub-horizontal slickenside at base.		
226.61	226.66	0.05		Dull coal with minor bright coal laminae. GBC.		
226.66	227.59	0.93		Siltstone, grey/FLSS, grey (50:50), minor grey mudstone; grey-brown mudstone with abundant slickensides (resulting in broken core) from 226.66 m to 226.86 m; shaly in part. GBC.		
227.59	230.58	2.99		Mudstone, grey/FLSS and FMLSS, grey/siltstone, grey (50:30:20), interlocking network of carbonate veins dipping from 45° to sub-horizontally from 229.03 m to 229.10 m. GBC.		
230.58	233.55	2.97	100	Mudstone, grey-blue, minor silty intervals; carbonaceous mudstone from 231.32 m to 231.39 m and from 231.40 m to 231.41 m; light brown, shaly, claystone from 231.39 m to 231.49 m; minor FMLSS and FLSS intervals dipping at up to 45° from 231.58 m to 233.55 m; abundant slickensides from 232.95 to 233.55 m.		
233.55	236.55	1.88	63	FMLSS, grey/mudstone, grey-blue (60:40), interbedded, silty; minor cross-bedding (dipping at up to 20°), plant-fossil fragments, coaly laminae and debris; minor slickensides from 234.83 m to 235.43 m; 1.12 m of core loss from 235.43 m to 236.55 m.		
236.55	237.41	0.86	100	Siltstone, grey, minor FMLSS laminae, minor flaser bedding, bedding dips at 5°. GBC.		
237.41	237.76	0.35		Mudstone, grey, minor dark-grey mudstone laminae. GBC.		
237.76	239.70	1.94		Laminite, mudstone, grey/mudstone, dark-grey (70:30), minor cross-bedding dipping at up to 10°. GBC.		
239.70	240.27	0.57		Siltstone, grey, minor mudstone bands and laminae.		
240.27	240.30	0.03		FLSS, cross-bedded (bedding dips at up to 10°), grey. GBC.		
240.30	246.40	6.10		MLSS, grey, massively bedded, carbonate matrix from 242.33 m to 243.53 m, minor carbonaceous laminae from 244.56 m to 245.56 m (dipping at up to 10°) and from 245.96 m to 246.40 m. GBC.		
246.40	248.18	1.78	100	FMLSS, grey, massively bedded.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
248.18	253.13	4.95	100	MLSS, grey, massive; abundant coaly debris, slickensided mud-pellets and carbonaceous laminae from 251.34 to 251.64 m; flattened mud-pellets (up to 10 cm in diameter), slickensides and minor coaly debris from 251.64 m to 252.33 m. Undulose BC dips at 5°.	m	
253.13	253.42	0.29		FLSS, grey, minor carbonaceous laminae dipping at 5°. BC dips at 2°.		
253.42	253.87	0.45		COAL SECTION: Dull coal, minor bright coal bands and carbonaceous mudstone laminae.		
(not sampled)						
253.87	254.51	0.64		Mudstone, grey-brown, abundant wispy contorted carbonaceous laminae and slickensides (dipping at 30°) near the base. BC (dipping at 30°) runs from 254.49 m to 254.51 m.		
254.51	255.57	1.06		FLSS, grey, minor grey siltstone and FMLSS intervals, minor cross-bedding and carbonaceous laminae. GBC.		
255.57	256.57	1.00		FMLSS, grey, abundant dark-grey siltstone and carbonaceous mudstone laminae, minor cross-bedding. GBC.		
256.57	267.59	11.02		MLSS, grey, massively bedded; coarse-grainsize lithic sandstone (CLSS) towards 258.67 m; minor wispy carbonaceous laminae, coaly debris and contorted bedding from 261.66 m to 261.96 m; minor FMLSS intervals from 264.26 m to 264.72 m. GBC.		
267.59	267.86	0.27	100	Mud-pellet conglomerate, pellets up to 4 cm in diameter, flattened. Irregular, stepped BC dips on average at 30°.		
267.86	269.31	1.41	97	Mudstone, grey, MLSS and siltstone beds dip at 20°, abundant slickensides from 268.71 to 269.31 m. Irregular BC.		
269.31	271.70	2.39	100	FMLSS, minor carbonaceous laminae (dipping at up to 20°) and coaly debris; CLSS from 270.74 m to 270.88 m. GBC.		
271.70	271.98	0.28		CLSS/FMLSS (40:60), interbanded, dull coal band dipping at 10° from 271.95 m to 271.98 m. GBC.		
271.98	274.63	2.65	100	CLSS, minor MLSS intervals. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

49	GEOLOGICAL LOG	Page:- 11/21

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
274.63	304.18	29.55	100	MLSS, grey, massively bedded, minor coaly debris; minor FMLSS intervals particularly from 275.43 m to 278.37 m and from 281.90 m to 284.46 m; coaly debris from 274.63 m to 278.37 m, from 279.17 m to 279.57 m, from 283.19 m to 284.09 m, from 286.46 m to 287.45 m, from 287.55 m to 288.05 m, from 290.61 m to 290.93 m, from 301.76 m to 302.16 m and from 302.72 m to 302.97 m; bedding dips at up to 20° from 275.43 m to 278.37 m; coaly laminae dip at up to 45° from 290.61 m to 290.93 m; bedding is predominantly sub-horizontal and massive; minor bands of FMLSS and coarse-grainsize lithic sandstone (CLSS) from 282.69 m to 284.46 m; CLSS with flattened and rounded clay and carbonaceous mudstone pellets from 286.46 m to 287.50 m; intra-formational conglomerate from 293.76 m to 294.01 m; minor carbonaceous laminae from 298.35 m to 299.05 m; CLSS from 299.36 m to 301.56 m and from 302.87 m to 304.18 m. Undulose bottom contact (BC) dips at 2°.		
304.18	304.38	0.20		Dull coal/carbonaceous mudstone/grey mudstone (50:40:10), interbanded and laminated.		
304.38	304.76	0.38		Mudstone, grey, wispy carbonaceous laminae; dull coal/carbonaceous mudstone (50:50) bands from 304.56 to 304.59 m and from 304.65 m to 304.72 m (the latter with accompanying slickensides). Gradational bottom contact (GBC).		
304.76	305.28	0.52		Siltstone/FMLSS (50:50), interbanded, bioturbated, minor festoon cross-bedding dipping at 5°, minor wispy carbonaceous laminae.		
305.28	305.40	0.12		CLSS, massively bedded.		
305.40	305.70	0.30		FLSS, minor bands of grey siltstone, grades to an interbanded siltstone/mudstone at base, bedding dips at 5°. GBC.		
305.70	308.40	2.70	100	Mudstone, grey, abundant wispy contorted carbonaceous laminae, minor coal bands and coaly debris; minor slickensides, festoon cross-bedded carbonaceous laminae from 308.10 m to 308.40 m, minor FMLSS intervals from 306.86 m to 308.40 m. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
308.40	313.49	5.09	100	Siltstone, grey/FLSS, grey/MLSS, grey (60:20:20), interbanded, minor grey mudstone, shaly in part, minor slickensides, abundant carbonaceous laminae showing festoon cross-bedding (dipping at 10°), minor plant-fossil debris; secondary carbonate concretion exhibiting cone-in-cone structure from 309.90 m to 310.10 m; minor grey-white MLSS bands (dipping at 5°) towards the base. GBC.		
313.49	319.56	6.07		MLSS, grey-white, minor planar cross-bedding (dipping at up to 10°) from 313.49 m to 313.69 m; minor quartzose sandstone (with bedding dipping at up to 20°) and carbonaceous laminae from 317.48 m to 319.56 m. Irregular BC dips at 2°.		
319.56	319.58	0.02		Carbonaceous mudstone. GBC.		
319.58	319.93	0.35		FMLSS, black-grey, dirty (abundant silty and muddy bands - banded greywacke?), slickenside dipping at 45° from 319.68 m to 319.76 m. GBC.		
319.93	320.49	0.56		Laminite, banded greywacke (as above)/carbonaceous mudstone and siltstone (60:40).		
320.49	320.76	0.27		MLSS, grey-white, minor quartzose sandstone and carbonaceous bands and laminae (occasionally contorted), abundant wispy carbonaceous flecks. Undulose BC dips at 2°.		
320.76	321.34	0.58		Laminite, carbonaceous mudstone/grey mudstone (70:30), shaly, minor coaly intervals, bedding dips at 5°. BC dips at 2°.		
321.34	321.84	0.50		MLSS/CLSS (50:50), grey, minor carbonaceous laminae and coaly debris. BC dips at 5°.		
321.84	322.58	0.74		Heavy dull coal/carbonaceous mudstone/grey-brown clayey FMLSS (60:30:10), interbanded and laminated, minor disturbed bedding dipping at up to 5°, minor bright coal laminae. BC dips at 2°.		
322.58	322.69	0.11		FMLSS, grey-white. BC dips at 2°.		
322.69	323.06	0.37		Mudstone, grey, silty, bedding dips at up to 10°, slickenside dipping at 45° from 322.69 m to 322.76 m with minor slickensides from 322.93 m to 323.06 m, minor shaly intervals. Slickenside at BC dips at 30°.		
323.06	323.34	0.28		Dull coal/carbonaceous mudstone (50:50), abundant slickensides, shaly at base. GBC.		
323.34	326.44	3.10	100	Mudstone/siltstone (60:40), interbedded, shaly, grey, minor sandy intervals and plant-fossil fragments, crumbly from 323.34 m to 325.34 m, abundant wispy carbonaceous laminae and slickensides from 325.14 m to 326.44 m. Sub-horizontally dipping undulose BC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
326.44	329.73	3.39	100	MLSS, grey, minor carbonaceous laminae showing festoon cross-bedding dipping at up to 5°; minor silty, FLSS and FMLSS intervals; grey mudstone (with minor grey mudstone/carbonaceous mudstone (50:50) laminite) from 329.43 m to 329.73 m. Parabolic slickensided BC.		
329.73	331.23	1.50		COAL SECTION: Heavy dull coal/carbonaceous mudstone/ dull coal (50:30:20), interbanded; minor grey mudstone and brown clay pellets (< 5 mm diameter) from 330.25 m to 330.38 m; minor broken core; well-developed cleat.		
331.23	332.24	1.01		Dull coal; solid and hard white mudstone/ claystone bands from 331.57 m to 331.59 m, from 331.63 m to 331.66 m and from 331.89 m to 331.94 m (the latter dipping at 5°); well-developed cleat from 331.94 m to 322.24 m. GBC.		2
332.24	332.71	0.47		Dull coal/bright coal (75:25), interbanded, carbonate development on the cleat.		
332.71	341.52	8.81		FMLSS/mudstone (50:50), interbedded, silty; minor quartzose sandstone, carbonaceous laminae and slickensides; minor contorted bedding dipping at up to 10°; minor bioturbation; abundant wispy carbonaceous flecks and laminae in the mudstone from 335.16 m to 338.79 m; interbanded with minor laminite from 338.79 m to 341.52 m together with abundant festoon cross-bedding and carbonaceous laminae dipping at up to 5°; minor flaser bedding from 338.79 m to 341.52 m. Slickensided BC dipping at 30° from 341.49 to 341.52 m.		
341.52	342.07	0.55		COAL SECTION: (not sampled) Dull coal, grey mudstone from 341.55 m to 341.56 m and from 341.81 m to 341.83 m. GBC.		
342.07	342.13	0.06		Carbonaceous mudstone. GBC dips at 10°.		
342.13	342.28	0.15		Mudstone, brown-grey, silty, becoming carbonaceous towards the base. GBC.		
342.28	342.49	0.21	100	FMLSS/carbonaceous mudstone (50:50), interbanded, disturbed bedding, minor bioturbation. GBC.		
342.49	348.71	6.18	99	MLSS, white-grey, abundant carbonaceous laminae dipping at up to 10°, minor carbonaceous mudstone bands, massive from 346.94 m to 348.71 m.		
348.71	350.10	1.39	0	Core ground away during drilling; traces remaining indicate this section to be mudstone (similar to the underlying lithology).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Oven dry basis % ash	% volatiles	% fixed carbon
2	329.73	332.71	2.98	100	43.5	21.5	35.0

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
350.10	351.64	1.54	100	Mudstone, grey, silty; minor sandy and carbonaceous bands and laminae; from 351.24 m to 351.64 m there are minor swirl marks, dark-grey mudstone/light-grey mudstone (50:50) laminite with wispy, contorted coaly laminae. Undulose GBC.		
351.64	351.79	0.15		Siltstone, carbonaceous, clayey. Irregular BC.		
351.79	352.32	0.53		Mudstone, grey-brown, sandy, silty, slickenside dipping at 45° from 351.80 m to 351.84 m. GBC.		
352.32	352.79	0.47		COAL SECTION: Mudstone, poorly carbonaceous, grey-brown, shaly, minor slickensides; sub-horizontally dipping secondary carbonate veins from 352.55 m to 352.65 m; grey-blue mudstone from 352.65 m to 352.79 m; slickenside dipping at 30° from 352.77 m to 352.79 m. (This is a roof sample of the seam following).		3A
352.79	354.19	1.40		Dull coal, minor heavy dull coal, broken core due to the well-developed 1 cm spaced cleat, minor bright coal bands and laminae.		3B
354.19	355.80	1.61		Claystone, grey-brown, abundant plant debris, slickenside dipping at 30° from 354.98 m to 355.02 m; sandy with minor carbonaceous laminae from 355.20 m to 355.80 m; minor bioturbation (sub-vertically dipping burrows outlined by wispy carbonaceous streaks). GBC.		
355.80	356.19	0.39	100	Mudstone, grey, silty, minor plant-fossil debris. GBC.		
356.19	359.64	3.08	90	Mudstone, dark-grey/siltstone, grey/FMLSS, light-grey (50:20:30), interbedded, minor shaly intervals and carbonaceous laminae accompanied by minor carbonate bands and matrix, minor dull coal bands with broken-up core from 358.90 m to 359.64 m.		
359.64	362.26	2.62	100	Mudstone, brown; minor carbonaceous mudstone and clay pellets (up to 2 mm in diameter) with accompanying algal mats, bioturbation and abundant spore-like balls (up to 3 mm in diameter) from 359.64 m to 360.04 m and from 360.91 m to 360.99 m; slickenside dipping at 60° from 361.13 m to 361.19 m; white-grey speckles (1 mm in diameter) from 361.20 m to 362.26 m. GBC.		
362.26	362.76	0.50	100	Siltstone, dark-grey, sandy (greywacke ?). GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Oven dried basis % ash	% volatiles	% fixed carbon
3A	352.32	352.79	0.47	100	91.1	*	*
3B	352.79	354.19	1.40	100	45.9	18.9	35.2

* : Not analysed.

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
362.76	364.05	1.29	100	Mudstone, dark-grey/siltstone, dark-grey, sandy (greywacke ?) (70:30), interbanded and laminated; minor disturbed bedding and lenticular bands; bedding dips at up to 10°; medium-to coarse-grainsize lithic sandstone with minor clay pellets (up to 3 mm in diameter) from 363.85 m to 364.05 m.		
364.05	366.25	2.14	97	Mudstone, grey, abundant bands of clay-pellet conglomerate; disturbed bedding (dipping at 20°) and shaly bands from 364.58 m to 364.77 m; minor dark-grey mudstone/light-grey mudstone (50:50) laminite from 364.77 m to 364.97 m; abundant slickensides in grey mudstone and sandy intervals exhibiting disturbed bedding (dipping between 45° and 60°) from 364.97 m to 366.25 m. GBC.		
366.25	373.84	7.52	99	FMLSS/MLSS (50:50), interbedded; minor carbonaceous laminae and cross-bedding becoming abundant and festoon cross-bedded towards the base; joints (dipping at 60° to sub-vertically) occur every 0.80 m; minor dark-grey siltstone from 371.56 m to 371.86 m; wispy carbonaceous laminae dipping at 5° from 370.96 m to 373.84 m; minor green-coloured intervals from 372.76 m to 373.84 m. Finish of drilling. 3° deflection was drilled commencing at 355.50 m. (see over)		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

DRILLING TARGET:- Lower Parmeener Supergroup (lithostratigraphic).

REMARKS:- Wedged off on DOM Fingal DDH 49 at a depth of 355.50 m.

SURVEY DATA			ASSAY DATA											
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS						

GEOLOGICAL LOG

Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
355.50	356.15	0.65	100	Mudstone, grey-blue, minor plant-fossil fragments, silty, abundant irregular carbonaceous streaks. GBC.		
356.15	359.04	2.89		Mudstone, grey-blue/FLSS, grey (60:40), interbanded; abundant small-scale cross-bedding, microfaulting and lenticular bands; silty, but shaly towards the base; minor plant-fossils and plant-fossil fragments.		
359.04	359.28	0.24		Dull coal, slickenside dipping at 45° (resulting in broken core) from 359.04 m to 359.09 m; bright coal with abundant closely-spaced cleat surfaces containing minor calcite and abundant kaolinite from 359.26 m to 359.27 m. GBC.		
359.28	359.41	0.13		Carbonaceous mudstone/brown-grey mudstone (60:40), interbanded, shaly, minor clay pellets (up to 2 mm in diameter) from 359.28 m to 359.30 m. GBC.		
359.41	361.85	2.44	100	Mudstone, light- and dark-brown, clayey; minor shaly bands, algal mats, slickensiding and carbonaceous flecks; creamy-white speckly appearance from 360.56 m to 361.85 m; dark-brown to creamy-grey-white secondary clasts (prisms with dimensions of 2 mm x 0.5 mm some with hollow centres - shells ?, pumice fragments ?. These clasts are sub-angular to sub-rounded and show a cemented crinkly texture and possess a very hard surface) form as 2 mm thick laminae from 361.26 m to 361.31 m. GBC.		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:-	MAP SHEET No. 49	DISTRICT Fingal	LOCATION OF SITE:-
DOM Fingal DDH 49, Deflection 1			Northern slopes of Fingal Tier near the head waters of Ransom Creek.

R.L. OF SITE:- 598.52 m	SITE SURVEY ON MAP No.:- N/A	CORE SIZE:- AQ
BEARING OF HOLE:- not measured	AIR PHOTO No.:- N/A	COMMENCED:- 29th November, 1979
INCLINATION OF HOLE:- 3° wedge	DRILL:- Edeco	COMPLETED:- 11th December, 1979
CO-ORDS OF SITE:- 591 006.5 m E 5 390 003.2 m N	DRILLER:- R. McDonald, R. Lohrey L. Newman	FINAL DEPTH (m):- 414.04

M1029

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
361.85	362.98	1.13	100	Siltstone, grey and dark-grey, clayey, sandy towards base, minor plant-fossil fragments and coaly laminae (with kaolinite on cleat), cream-coloured flecks from 361.85 m to 362.00 m. GBC.		
362.98	363.34	0.36		Siltstone, dark-grey/sandstone, abundant 1 mm diameter clay pellets (70:30), interbanded. GBC. (Transition zone).		
363.34	363.78	0.44		Clay-pellet sandstone/black siltstone (80:20), interbanded; abundant clay lenticles and minor coaly lenticles; fusinite (?) lamina at base. BC dips at 1° (relative to drill core axis).		
363.78	363.87	0.09		Mudstone, grey, bioturbation (?), minor clay-pellet conglomerate bands.		
363.87	364.60	0.73		Mud-pellet conglomerate; minor slickensides and white, speckled matrix of MLSS; mud-pellets are grey and elongate (2 cm x 0.5 cm to 0.5 cm x 0.2 cm); bedding dips at up to 30°; microfaulting (soft-sediment-deformation) in minor laminite (grey mudstone/carbonaceous mudstone (80:20)).		
364.60	364.94	0.34		MLSS/grey mudstone (60:40) showing very disturbed bedding; minor slickensides and carbonaceous debris; slickenside dipping at 45° from 364.92 m to 364.94 m.		
364.94	365.51	0.57		Laminite, dark-grey mudstone/light-grey mudstone (30:70), abundant slickensides, bedding dips at up to 20°, white sandy flecks towards the base; shaly from 365.43 m to 365.51 m. GBC.		
365.51	365.68	0.17		Mud-pellet conglomerate; white and speckly MLSS matrix which becomes more abundant towards the base. GBC.		
365.68	371.16	5.48	100	MLSS, grey-white; bedding dips at 2° to 5°; minor FLSS and FMLSS intervals with minor carbonaceous laminae from 365.68 m to 366.96 m; fine-scale cross-bedded FMLSS with carbonaceous laminae from 367.17 m to 367.56 m; minor cross-bedded, silty FMLSS from 368.26 m to 368.98 m; sub-vertically dipping joint (resulting in split core) from 368.98 m to 369.58 m; minor carbonaceous laminae from 368.58 m to 370.15 m; minor 10 cm long sub-vertically dipping joints from 370.76 m to 371.16 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
371.16	371.44	0.28	100	FLSS, grey, silty, minor slickensides dipping at 45°, minor FMLSS bands. GBC.		
371.44	373.68	2.24		FLSS/FMLSS (50:50), interbanded; abundant fine-scale cross-bedding; minor carbonaceous laminae; sub-vertically dipping joint from 371.58 to 371.68 m (resulting in broken core). GBC.		
373.68	381.31	7.63		MLSS, grey, minor FMLSS intervals from 373.68 m to 375.28 m; siltstone from 375.23 m to 375.27 m; massive-bedding from 375.28 m to 381.31 m; abundant sub-vertically dipping jointing (resulting in split and broken core) from 375.28 m to 378.48 m; minor carbonaceous laminae and mud-pellets from 375.28 m to 375.78 m; 3 joints with 2 cm separations and dipping at 60° from 378.18 m to 378.48 m; jointing and calcite veins from 378.87 m to 379.17 m; siltstone band from 380.17 m to 380.20 m; bedding dips at 5° (relative to drill core axis) from 380.20 m to 380.44 m.		
381.31	381.59	0.28		Carbonaceous mudstone, abundant slickensides. GBC.		
381.59	381.85	0.26		Laminite, carbonaceous mudstone/grey FLSS (70:30), lenticular bedding, minor slickensiding. GBC.		
381.85	383.20	1.35		FMLSS, grading to MLSS at base, abundant carbonaceous bands and laminae and slickensides dipping at 30°; minor contorted bedding and microfaulting in carbonaceous mudstone from 383.06 m to 383.20 m; abundant elongate mud-pellet lenticles from 383.10 m to 383.20 m. Interdigitating BC.		
383.20	348.18	0.98		FMLSS, grey, minor silty bands and laminae. Undulose BC dips at 2°.		
384.18	384.32	0.14		Carbonaceous mudstone with abundant grey mudstone laminae and lenticles. Irregular BC dips at 30°.		
384.32	384.39	0.07		FMLSS, grey, dirty, abundant carbonaceous debris, slickenside from 384.36 m to 384.39 m (slickensided BC).		
384.39	385.32	0.93	100	Mudstone, grey, shaly from 384.39 m to 384.69 m; 2 slickensides dipping at 30° and with a separation of 1 cm occur in carbonaceous mudstone between 384.72 m and 384.75 m; creamy brown claystone and clay pellets from 384.75 m to 384.77 m; dull coal with minor bright coal laminae from 384.77 m to 384.86 m; laminite (carbonaceous mudstone/grey mudstone (50:50)) with lenticular bedding from 384.86 m to 385.32 m. Irregular BC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

49				GEOLOGICAL LOG	Page:- 19/21	
FROM	TO	RECOVERY		DESCRIPTION	SECTION	
metres	metres	metres	%		Core	Sample
385.32	386.75	1.43	100	Mudstone, grey, abundant silty and sandy bands and laminae, minor slickensides, sandy towards the base, bedding dips at up to 10°. GBC.		
386.75	386.82	0.07		Dull coal with abundant grey mudstone laminae.		
386.82	386.98	0.16		FMLSS with disturbed bedding and carbonaceous flecks (hard and grey). Greywacke (?).		
386.98	387.05	0.07		Carbonaceous mudstone with abundant plant-fossils. GBC.		
387.05	393.56	6.51		Mudstone, grey, abundant silty and sandy bands and laminae; shaly; abundant jointing (broken core) from 387.44 m to 388.24 m; minor laminite development; minor cross-bedding and sandy bands and laminae dipping at up to 10° from 387.14 m to 393.18 m; minor slickensides from 392.88 m to 393.18 m; abundant slickensides from 393.18 m to 393.56 m. Sygmoidal slickenside dipping at 30° at base.		
393.56	394.41	0.85		MLSS, grey-white, abundant carbonate matrix and coaly debris.		
394.41	395.77	1.36		Mudstone, grey; FMLSS band from 395.09 m to 395.16 m; 1 cm diameter rounded pebble from 394.57 m to 394.58 m; slickenside zone (dipping at 45°) from 394.75 m to 394.85 m; sub-horizontal bedding; minor shaly intervals. Undulose BC.		
395.77	396.18	0.41		FMLSS/FLSS/fine-grainsize quartzose sandstone (FQSS) (40:40:20), interbedded, minor silty and muddy bands and laminae. GBC.		
396.18	397.88	1.70		Fine-medium grainsize quartzose sandstone (FMQSS), white-grey, abundant carbonaceous laminae and lenticles, festoon cross-bedding dipping at 20°, minor coaly debris and irregular bedding. Irregular BC dips at 10° (relative to drill-core axis).		
397.88	398.56	0.68		Mudstone, shaly, dark-grey, minor silty and sandy bands, abundant plant-fossil debris. BC dips at 2° (relative to drill-core axis).		
398.56	399.22	0.66	100	FMLSS/FLSS/FQSS (40:40:20), interbedded, minor silty and muddy bands and laminae, shaly towards base. BC dips at 2° (relative to drill-core axis).		

Continued over

ASSAY DATA

SAMPLE No.	FROM	TO	RECOVERY		ASSAY RESULTS									
	metres	metres	metres	%										

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
399.22	399.42	0.20	100	Shale, dark-grey, abundant plant-fossil debris.		
399.42	399.95	0.53		FLSS, grey, silty, minor FQSS (< 10%), shaly in part, minor plant-fossil debris. GBC.		
399.95	400.26	0.31		FLSS/FQSS/mudstone, grey, silty (50:10:40), interbanded; minor cross-bedding and irregular bedding, minor bioturbation (worm burrows (?)). GBC.		
400.26	401.01	0.75		FMLSS, light-grey, minor fine-medium grainsize quartzose sandstone (FMQSS), bedding dips at up to 5°, MLSS from 400.36 m to 400.51 m. BC dips at 2° (relative to drill-core axis).		
401.01	401.14	0.13		Shale, dark-grey, minor sandy and silty bands, minor festoon cross-bedding. BC dips at 5° (relative to drill-core axis).		
401.14	401.24	0.10		FMLSS, light-grey, minor FMQSS. Irregular BC.		
401.24	401.40	0.16		Shale, dark-grey, minor sandy and silty bands and festoon cross-bedding. BC dips at 2° relative to drill-core axis.		
401.40	402.86	1.46		FMLSS, minor FMQSS; dark-grey shale from 401.55 m to 401.58 m, from 401.61 m to 401.80 m, from 401.90 m to 402.00 m, from 402.41 m to 402.44 m, from 402.57 m to 402.63 m and from 402.72 m to 402.77 m; minor irregular bedding, cross-bedding (dipping at 10°) and mudstone laminae and lenticles. GBC.		
402.86	403.74	0.88		Shale, dark-grey; silty and sandy from 402.86 m to 403.06 m and from 403.33 m to 403.74 m; minor plant-fossil debris. BC dips at 10° (relative to drill-core axis).		
403.74	405.15	1.41		FMLSS, minor FMQSS; abundant dark-grey silty and muddy bands, laminae and lenticles; minor cross-bedding dipping at up to 20°; carbonaceous shale from 404.41 m to 404.45 m; coarse-grainsize lithic sandstone (CLSS) from 404.45 m to 404.65 m; carbonaceous siltstone from 404.91 m to 405.00 m; FMQSS from 405.00 m to 405.15 m. GBC.		
405.15	405.78	0.63		FMQSS/medium-grainsize quartzose sandstone (MQSS) (50:50), interbedded; minor silty bands. Broken, irregular BC.		
405.78	406.15	0.37	100	Shale, dark-grey, silty, abundant plant-fossil debris. Undulose bottom-contact.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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Index Page:-

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
406.15	406.44	0.29	100	FMQSS, grey-white, abundant silty bands and laminae, minor festoon cross-bedding (dipping at up to 10°). GBC.		
406.44	406.85	0.41		MLSS/MQSS (50:50), minor carbonaceous laminae, abundant mudstone clasts up to 1 mm in diameter, dark-grey siltstone from 406.74 m to 406.79 m.		
406.85	408.73	1.88		MQSS, grey-white; minor carbonaceous laminae; dark-grey siltstone from 406.85 m to 406.95 m; coarse-grainsize quartzose sandstone (CQSS) from 407.10 m to 407.29 m, from 407.63 m to 408.20 m and from 408.20 m to 408.25 m (the latter with abundant mud-pellets); carbonaceous mudstone from 407.29 m to 407.40 m and from 407.57 m to 407.63 m; dull coal from 407.40 m to 407.47 m; brown-grey claystone from 407.47 m to 407.57 m; abundant mud-pellets and mudstone shards from 407.70 m to 408.20 m; pebbly conglomerate from 408.63 m to 408.73 m. GBC.		
408.73	408.87	0.14		MQSS/grey mudstone (50:50), irregular bedding, abundant mud-pellets. *(Transition Zone).* *(Base of the Upper Parmeener Supergroup).*		
408.87	410.03	1.16		Shale, grey, abundant quartz-grit (up to 3 mm in diameter), abundant sub-horizontal and sub-vertical carbonate veins; FMQSS bands from 409.22 to 409.23 m, from 409.25 m to 409.26 m and from 409.58 m to 409.78 m. GBC. *(The top of this unit forms the top of the upper glacio-marine sequence of the Lower Parmeener Supergroup in this diamond drill-hole).*		
410.03	414.04	4.01	100	Dark-grey silty shale; abundant sub-vertically dipping joints and slickensides; granitic cobble from 411.19 m to 411.22 m; quartzitic cobble (from the Mathinna Beds (?)) from 411.05 m to 411.10 m.		
				[END OF DOM FINGAL DDH 49 and DEFLECTION 1.]		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:- Pre-collar BH50 using a Failing percussion drilling rig.

REMARKS:- Drilling stopped due to caving.

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS					

GEOLOGICAL LOG Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	13.71	chips		16.5 cm hammer-bit drilled through dolerite boulders and clay.		
13.71	21.34	chips		14.0 cm hammer-bit drilled through dolerite boulders and clay. (7.62 m of 15.2 cm diameter casing remains in this hole).		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DRILL RECORD

HOLE No.:- 50	MAP SHEET No. 49	DISTRICT Fingal	LOCATION OF SITE:-
Northern slopes of Fingal Tier			
R.L. OF SITE:- approx. 550 m	SITE SURVEY ON MAP No.:		CORE SIZE:- No core; dolerite chips.
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 19th July, 1979
INCLINATION OF HOLE:- Vertical	DRILL:- Failing		COMPLETED:- 30th July, 1979
CO-ORDS OF SITE:- 591 939.3E 5 389 903.0N	DRILLER:- K. Richardson		FINAL DEPTH (m):- 21.34 m

M1026

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DRILLING TARGET:- Pre-collar BH51 using a Failing percussion-drilling rig.

REMARKS:- Drilling stopped due to caving.

SURVEY DATA			ASSAY DATA											
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS						

GEOLOGICAL LOG

Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	12.19	chips		16.5 cm hammer-bit drilled through dolerite boulders and clay.		
12.19	15.24	chips		14.0 cm hammer-bit drilled through dolerite boulders and clay. (7.62 m of 15.2 cm diameter casing remains in this hole).		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DRILL RECORD

HOLE No.:- 51	MAP SHEET No. 49	DISTRICT Fingal	LOCATION OF SITE:- Northern slopes of Fingal Tier
R.L. OF SITE:- approx. 540 m	SITE SURVEY ON MAP No.:		CORE SIZE:- No core; dolerite chips.
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 31st July, 1979
INCLINATION OF HOLE:- Vertical	DRILL:- Failing		COMPLETED:- 1st August, 1979
CO-ORDS OF SITE:- 592 715 mE 5 380 846 mN	DRILLER:- K. Richardson		FINAL DEPTH (m):- 15.24

M1629

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DOM FINGAL DDH 52

DRILLING TARGET:- Upper glacio-marine sequence of the Parmeener Supergroup.

REMARKS:- Dolerite has intruded at the level of the probable Duncan seam.

SURVEY DATA			ASSAY DATA										
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS					

GEOLOGICAL LOG

Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	411.93	411.93	100	Dolerite; rubble from 0 m to 0.30 m; solid grey dolerite with brown lateritised joints dipping sub-horizontally to 45° relative to the core axis from 0.30 m to 9.3 m; grainsize ranges up to 4 mm (2 mm average) from 0.30 m to 365 m; (10 cm of core has been extracted from the end of each 3 m run and stored for future analysis); grainsize in detail: 1 mm to 2 mm from 0.3 m to 44 m with coarser interval (up to 5 mm) at 29 m and minor irregular igneous layering; phenocrysts up to 1 cm x 3 mm with intermixed and irregular layering. Of the dolerite resulting in a blue-grey-green colouration from 44 m to 62 m; at 62 m there is a weathered joint dipping at 60° which has a weathered zone 2 cm wide, the dolerite is green-grey with phenocrysts up to 3 mm in diameter; white-grey dolerite with 1 cm long plagioclase phenocrysts and irregular, intermixed green-grey mottled dolerite layers from 71 m to 74 m; from 74 m to 188 m the average grainsize is 1 mm to 2 mm with minor irregular layers and acicular plagioclase crystals up to 5 mm in length, colouration is white-grey with Continued over:-		

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:-	MAP SHEET No.	DISTRICT	LOCATION OF SITE:-
DOM FINGAL DDH Number 52	49	FINGAL	Northern lip of the Fingal Tier adjacent to the Valley Road NW: 0 - 12 m

R.L. OF SITE:- 795.8 m	SITE SURVEY ON MAP No.:- N/A	CORE SIZE:- NQ: 12 m - ~~557.42 m~~
BEARING OF HOLE:- -	AIR PHOTO No.:- N/A	COMMENCED:- 30th May, 1980
INCLINATION OF HOLE:- Vertical	DRILL:- Longyear 38	COMPLETED:- 25th July, 1980
CO-ORDS OF SITE:- 590 324 mE 5 389 038 mN	DRILLER:- D. Summers A. Dawson	FINAL DEPTH (m):- 557.42

M1029

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				minor dark-grey and green-grey intervals; 2 cm wide weathered joints dipping sub-vertically from 173 m to 188 m; 1 mm to 2 mm average grainsize and white-blue-grey in colour from 188 m to 365 m; white-grey with 1 mm grainsize from 365 m to 398 m; 0.5 mm-grainsize from 398 m to 410.70 m; 1 mm to 2 mm grainsize layer dipping at 45° from 410.70 m to 411.20 m; white-grey layer dipping at 45° from 411.20 m to 411.40 m with grainsize 0.5 mm; 1 mm to 2 mm prismatic and spheroidal phenocrysts (showing a foliation dipping at 45° relative to the core axis) from 411.40 m to 411.75 m, phenocrysts are green- black and the matrix is green-grey; black-green glassy groundmass with 1 mm diameter green-black phenocrysts (pyroxene (?)), white zeolite (?) and red clinoptilolite (heulandite (?)) in basal 5 cm of the interval 411.75 m to 411.93 m. 1 m to 2 m megascopic layering with up to 1 cm long plagioclase (?) laths and green-grey matrix from 47 m to 74 m; from 56 m to 58 m the feldspar phenocrysts are up to 2 cm long (very coarse) and are accompanied by powdery green-black material in a 1 cm-wide sub-vertically-dipping joint (Specimen 8052-2 from 58 m); dolerite is chloritic, brown-stained (lateritised) and well-jointed from 62 m to 68 m and from 86 m to 95 m (very weathered); abundant sub-vertically-dipping joints, brown weathering and green chloritised intervals from 172 m to 190 m; weathered (brown-staining), 60° dip joints, chloritic and white zeolite (?) (Specimen 8052-1 from 261 m) in a coarser-grained dolerite layer with plagioclase up to 1 cm in length from 260 m to 261 m; Specimen 8052-3 (from 304 m) is of white material (calcite (?)) which occurs on joints (spaced at 10 m to 20 m intervals) from 235 m to 383 m; dolerite is massive generally; sub-vertically-dipping jointing with 5 cm spacing from 383 m to 395 m; Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				jointing dips irregularly and has a spacing of 1 cm to 2 cm from 395 m to 404 m and 1 m spacing from 404 m to 411 m. Base of the dolerite is sub-horizontal, undulose, irregular and occurs from 411.92 m to 411.93 m. (Sample 8052-4 has been taken from the dolerite contact from 411.84 m to 411.99 m and contains clinoptilolite (?), white mineral (calcite (?)) and hornfelsed carbonaceous mudstone).		
411.93	411.99	0.06	100	COAL SECTION: Thermally metamorphosed (hornfelsed) carbonaceous mudstone.		8052-4
411.99	412.16	0.17		Dull coal/heavy dull coal (50:50), interbanded; irregular bedding dipping at up to 5°; hornfelsed. Gradational bottom-contact (GBC).		
412.16	412.29	0.13		Carbonaceous mudstone, minor slickensides dipping at up to 45°. Sharp bottom-contact (all contacts are assumed to be sharp unless otherwise stated).		
412.29	412.80	0.51	100	Dull coal; hornfelsed; minor calcite (?) infilling breccia-like joints; irregular carbonaceous mudstone bands dipping at up to 5° from 412.47 m to 412.55 m; broken core (due to well-developed cleat) from 412.63 m to 412.68 m; highly slickensided with broken core from 412.68 m to 412.80 m; brown-black mudstone from 412.75 m to 412.80 m; slickenside from 412.75 m to 412.82 m (45° dip). GBC.		1
				(BASE OF COAL SECTION)		

Continued over

ASSAY DATA

Joint Coal Board Results

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Moisture, air-dried (% W/W)	Proximate analysis (dry basis) (% W/W) Ash	Vol.	F.C.	Specific Energy MJ/kg (gross) dry basis (db)	dry ash-free basis (daf)
1	411.99	412.80	0.81	100	3.8	58.2	9.3	32.5	11.84	28.32

Density Fraction		Weight %	Ash %	Cumulative Floats Weight %	Cumulative Floats Ash %	Cumulative Sinks Weight %	Cumulative Sinks Ash %
	F 1.30	nil	-	nil	-	100.00	54.5
S 1.30	F 1.45	nil	-	nil	-	100.00	54.5
S 1.45	F 1.60	9.5	24.8	9.5	24.8	100.00	54.5
S 1.60	F 1.80	7.0	33.4	16.5	28.4	90.5	57.7
S 1.80		83.5	59.7	100.0	54.5	83.5	59.7

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
412.80	413.10	0.30	100	Mudstone, brown-grey; silty; minor carbonaceous flecks. GBC.		
413.10	414.26	1.16		Siltstone, grey; minor fine-grainsize lithic sandstone (FLSS) intervals. GBC.		
414.26	415.29	1.03		Fine-medium-grainsize lithic sandstone (FMLSS); massively bedded; dark-grey siltstone with disturbed bedding, occasional FMLSS bands and intervals dipping at up to 30° from 414.72 m to 415.29 m; minor siltstone/carbonaceous laminae/FLSS cross-bedding dipping at up to 10° and overturned bedding from 415.19 m to 415.29 m. GBC.		
415.29	416.29	1.00		Siltstone, grey; minor light-grey siltstone banding; broken core due to sub-vertically-dipping jointing from 415.82 m to 415.94 m; slickenside dipping at 45° from 415.94 m to 416.00 m; light-grey and grading to FLSS towards the base. Irregular bottom-contact (BC).		
416.29	422.58	6.29		Medium-grainsize lithic sandstone (MLSS); minor FMLSS intervals; angular siltstone cobble from 421.82 m to 421.84 m. BC dips at 2°.		
422.58	435.05	12.47		FMLSS; bedding dips at up to 5°; minor FLSS intervals and carbonaceous laminae; minor coaly debris and laminae (dipping at up to 10°) from 429.10 m to 429.14 m, from 429.53 m to 429.76 m and from 429.85 m to 429.93 m; minor MLSS intervals; irregular siltstone band (cobble (?)) from 430.22 m to 430.24 m; grey-black siltstone with slickensided top and bottom contacts from 431.04 m to 431.19 m; grades to MLSS towards the base; carbonate matrix from 432.18 m to 433.38 m; FLSS, siltstone and carbonaceous laminae from 432.30 m to 433.45 m; minor cross-bedding dipping at up to 10° from 433.23 m to 433.45 m; minor coaly debris from 434.25 m to 435.05 m. Undulose BC dips at 2°.		
435.05	436.79	1.74	100	Siltstone, grey; dark-grey mudstone from 435.79 m to 436.79 m; abundant slickensides dipping at from 0° to 60°; Continued over		

ASSAY DATA
Department of Mines Results

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moisture air-dried (% W/W)	ASSAY RESULTS Ash Analysis (dry basis) (% W/W)
1	411.99	412.80	0.81	100	3.3	57.4

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				30° dip slickenside at base accompanied by a 1 cm throw normal fault. Irregular, faulted Bottom-contact (BC).		
436.79	436.95	0.16	100	COAL SECTION: (East Fingal Seam(?)) Dull coal; claystone from 436.82 m to 436.83 m and at 436.88 m (thin band). Cuspate (hollowed-out) BC.		
436.95	437.01	0.06		Claystone, brown-black; shaly.		2A (roof)
437.01	437.06	0.05		Dull coal. Ripply (undulose) BC.		
437.06	437.75	0.69		Mudstone, grey; silty at top; grades to dark-grey to carbonaceous at the base; slickenside dipping at 45° from 437.31 m to 437.36 m. Slickensided, irregular BC.		
437.75	437.85	0.10		Heavy dull coal. GBC.		
437.85	438.55	0.70		Dull coal; abundant carbonate veins, cleat and jointing (result in broken core); minor white-clay bands.		2B (main working section)
438.55	438.59	0.04		Claystone, grey; bedding dips at up to 5°. BC dips at 5°.		
438.59	438.63	0.04		Dull coal; bedding dips at up to 5°; abundant carbon-ate on cleat.		
438.63	438.67	0.04		Grey mudstone, silty; abundant brown-black plant-fossil debris; irregular (ripply) bedding. GBC.		
438.67	438.75	0.08		Dull coal. Slickensided BC.		
438.75	438.84	0.09		Mudstone, grey-blue; carbonaceous laminae and irregular bedding in top 5 cm. GBC.		
438.84	438.87	0.03	100	Dull coal; (abundant kaolinite on cleat and wispy carbonate veins Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Proximate analysis results (dry basis) %Ash	%Volatile Matter	%Fixed Carbon	Moisture as received % W/W
2A	436.79	437.75	0.96	100	82.5	—	—	3.8
2C	439.84	441.70	1.86	100	91.1	—	—	3.3

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				on joints and elsewhere; occasionally grades to heavy dull coal; minor plant-fossil debris and slickensides. This section in brackets refers to all dull coal in the working section).		
438.87	438.95	0.08	100	COAL SECTION: (East Fingal Seam(?)) (Contd.) Grey mudstone/carbonaceous laminae (60:40); irregular bedding dips at up to 10°; shaly in basal 5 cm.		
438.95	438.98	0.03		Dull coal. GBC dips at 2°.		
438.98	439.04	0.06		Grey mudstone; irregular bedding dips at up to 5°. Undulose, irregular BC.		
439.04	439.06	0.02		Bright coal.		2B (main working section)
439.06	439.10	0.04		Laminite, mudstone/dull coal (60:40); irregular laminae dip at up to 5°.		
439.10	439.61	0.51		Dull coal; minor pink claystone bands and white (1 cm wide) carbonate bands, particularly from 439.24 m to 439.25 m; minor slickensides. GBC.		
439.61	439.84	0.23		Dull coal/pink-grey mudstone (60:40), interbedded; minor irregular bedding dipping at up to 5°. GBC dips at 2°.		
439.84	439.94	0.10	100	Grey mudstone; (abundant slickensides dipping at up to 60° (45° average dip), greater than or equal to 5 cm of normal fault movement along the predominant slickensides; irregular bedding dips at up to 20°- section in brackets is typical of the mudstone in this floor sample) Continued over		2C (floor)

ASSAY DATA

Joint Coal Board Results

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Moisture, air-dried (% W/W)	Proximate analysis (dry basis) (% W/W) Ash	Vol.	F.C.	Specific Energy MJ/kg (gross) dry basis (db)	dry ash-free basis (daf)
2B	437.75	439.84	2.09	100	4.0	53.4	20.1	26.5	13.61	29.20

Density Fraction		Weight %	Ash %	Cumulative Floats Weight%	Cumulative Floats Ash%	Cumulative Sinks Weight%	Cumulative Sinks Ash%
	F 1.30	nil	-	nil	-	100.0	52.0
S 1.30	F 1.45	9.1	13.2	9.1	13.2	100.0	52.0
S 1.45	F 1.60	21.7	25.1	30.8	21.6	90.9	55.9
S 1.60	F 1.80	18.2	39.8	49.0	28.4	69.2	65.6
S 1.80		51.0	74.8	100.0	52.0	51.0	74.8

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
439.94	440.04	0.10	100	COAL SECTION: (East Fingal Seam(?)) (Contd.) Dull coal and carbonaceous mudstone bands in grey mudstone; irregular bedding dips at up to 20°.		
440.04	440.12	0.08		Grey mudstone.		
440.12	440.15	0.03		Interbanded dull coal and carbonaceous mudstone (50:50).		
440.15	440.30	0.15		Grey mudstone.		
440.30	440.43	0.13		Dull coal/carbonaceous mudstone (50:50); interbanded.		
440.43	440.55	0.12		Grey mudstone.		
440.55	440.67	0.12		Dull coal/carbonaceous mudstone (50:50), interbanded.		2C
440.67	440.85	0.18		Grey mudstone.		(floor)
440.85	440.89	0.04		Dull coal/carbonaceous mudstone (50:50), interbanded.		
440.89	441.08	0.19		Grey mudstone.		
441.08	441.11	0.03		Dull coal/carbonaceous mudstone (50:50), interbanded.		
441.11	441.20	0.09		Grey mudstone.		
441.20	441.22	0.02		Dull coal/carbonaceous mudstone (50:50), interbanded.		
441.22	441.35	0.13		Grey mudstone.		
441.35	441.70	0.35		Dull coal/carbonaceous mudstone (50:50), interbanded. GBC dips at 5°.		
				(BASE OF COAL SECTION)		
441.70	441.90	0.20		Mudstone, blue-grey; silty; rippled core surface from drilling (wavelength equals 2 cm). GBC.		
441.90	442.10	0.20		FLSS, blue-grey, massive. GBC.		
442.10	446.41	4.31		FMLSS, grey-white; minor MLSS intervals and mudstone bands; minor coaly debris (fossilised bark, etc.). BC dips at 5°.		
446.41	447.60	1.19	100	MLSS, grey-white; massive; minor carbonate matrix. GBC.		

Continued over

ASSAY DATA

Department of Mines Results

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moisture as received (% W/W)	ASSAY RESULTS Ash Analysis (dry basis) (% W/W)
2B	437.75	439.84	2.09	100	3.4	53.0

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
447.60	448.82	1.22	100	FMLSS, grey-white; minor carbonate matrix. Sygmoidal BC dips at 5°.		
448.82	453.26	4.44		MLSS, grey-white; massive; minor coaly debris and laminae from 449.27 m to 449.31 m, from 450.29 m to 450.35 m and from 452.11 m to 453.26 m (with FMLSS intervals); core surface is rippled from drilling (wavelength equals 4 cm) from 452.11 m to 453.26 m. BC dips at 2°.		
453.26	453.30	0.04	100	COAL SECTION: (attenuated) Dull coal; brown coating on core from 453.28 m to 453.30 m. Undulose BC dips on average at 2°.		
453.30	458.05	4.75		Mudstone, grey-blue; silty; abundant plant-fossils and plant-fossil debris; contorted sub-vertically-dipping wispy carbonaceous laminae (rootlets (?)) from 453.30 m to 453.40 m and from 454.65 m to 455 m; sygmoidal slickenside dipping on average at 45° from 453.62 m to 453.67 m; stepped slickenside dipping at 60° from 454.27 m to 454.36 m; carbonaceous mudstone and dull coal bands from 453.47 m to 453.51 m and from 453.59 m to 453.67 m; 30° dip slickensides from 455.47 m to 455.50 m, from 455.60 m to 455.63 m and from 458.05 m to 458.08 m; 45° dip slickensides from 455.68 m to 455.73 m, from 456.24 m to 456.30 m and from 457.95 m to 458 m; conjugate slickensides dipping at 30° from 455.53 m to 455.57 m; conjugate slickenside dipping at 45° from 455.88 m to 456.04 m; abundant silty and FLSS intervals from 456.40 m to 458.05 m. GBC.		
458.05	461.04	2.99		FMLSS, grey-white; minor carbonaceous mudstone wispy laminae and bands; grey-blue mudstone/siltstone (50:50) from 458.10 m to 458.84 m and from 460.80 m to 461.04 m; secondary (?) carbonate matrix and wispy irregular, breccia-like sub-vertical to sub-horizontal carbonate veins from 458.84 m to 459.30 m; core surface is rippled from 459.10 m to 460.60 m (wavelength equals 6 cm); 30° dip slickensides from 458.44 m to 458.47 m, from Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				459.72 m to 459.75 m and from 460.91 m to 460.91 m to 460.94 m (sygmoidal); calcite vein up to 2 cm in width and dipping at 45° (shear zone (?)) from 460.81 m to 460.88 m; 60° dip slickenside from 458.46 m to 458.52 m; 45° dip slickensides from 458.62 m to 458.68 m (sygmoidal), from 459.11 m to 459.17 m and from 459.52 m to 459.59 m. BC dips at 5°.		
461.04	462.93	1.89	100	Mudstone, grey-blue; silty; 30° dip slickensides from 461.11 m to 461.14 m, from 461.31 m to 461.34 m, from 461.47 m to 461.50 m, at 461.58 m and from 461.62 m to 461.64 m; sygmoidal 45° dip slickenside from 461.73 m to 461.77 m; sub-horizontal, conjugate shaly zone from 461.79 m to 461.84 m; shaly and dark-grey from 462.14 m to 462.26 m; 45° coaly interval from 462.23 m to 462.29 m; sandy from 462.26 m to 462.93 m; 60° dip stepped slickenside from 462.54 m to 462.64 m. GBC.		
462.93	464.02	1.09		Carbonaceous mudstone/grey mudstone (25:75), laminite; flaser-bedded; minor cross-bedding dipping at up to 5°; scour marks; abundant slickensides with the most prominent being from 463.14 m to 463.18 m (30° dip), from 463.28 m to 463.31 m (30° dip), at 463.34 m (sub-horizontal), from 463.66 m to 463.69 m (30°), from 463.72 m to 463.75 m (30°), from 463.77 m to 463.80 m (30°), from 463.85 m to 463.88 m (30°) and from 463.95 m to 464 m (45°). GBC.		
464.02	465.83	1.81		Sandstone, dark-grey; silty; poorly-sorted; dirty; poorly carbonaceous; minor mudstone bands and bedding dipping at up to 20° from 464.18 m to 464.23 m; irregular mudstone/siltstone/sandstone bedding and banding prominent from 464.45 m to 465.83 m (shaly in part); calcite-coated (1 mm to 2 mm thick) slickenside dipping at 60° from 465.64 m to 465.73 m. GBC.		
465.83	466.17	0.34	100	FMLSS, light-grey; abundant mudstone and siltstone bands and laminae (dark-grey)		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				dipping at up to 20°; minor poorly-developed irregular cross-bedding. GBC.		
466.17	468.74	2.57	100	FMLSS, grey-white; minor carbonaceous laminae; minor MLSS bands; bedding dips at up to 10°; sub-vertically-dipping jointing resulting in broken core from 466.45 m to 466.81 m; mud-pellets from 468.38 m to 468.43 m, abundant coaly debris, carbonaceous bands and laminae and cross-bedding (dipping at up to 10°) on a scale of 10 cm to 20 cm from 467.14 m to 468.74 m. Irregular BC dips (on average) at 5° relative to the core axis).		
468.74	470.31	1.57		Siltstone, grey-blue; carbonate matrix with sub-vertically-dipping joint through the centre from 469.96 m to 470.27 m; bioturbation from 469.49 m to 469.59 m; sub-horizontally-dipping slickenside at 469.95 m; conjugate (30° dip) slickensides from 469.13 m to 469.19 m (shear zone); 30° dip slickenside from 468.74 m to 468.78 m; 45° dip slickensides from 468.88 m to 468.94 m, from 469.05 m to 469.10 m and from 469.81 m to 469.86 m, 2 mm-wide and 1 cm-long sandstone dykes occur at the BC. BC dips at 5°.		
470.31	472.45	2.14		FMLSS, light-blue-grey; core has a rippled surface (wavelength equals 4 cm); dark-grey silty mudstone bands from 470.69 m to 470.78 m and from 470.98 m to 471.04 m; slickensides dipping at 45° from 470.76 m to 470.78 m, from 470.98 m to 471.03 m and from 471.33 m to 471.37 m; carbonaceous debris and wispy coaly laminae dipping at up to 20° from 472.07 m to 472.16 m. Sygmoidal BC dips at 5°.		
472.45	472.55	0.10	100	COAL SECTION: (attenuated) Dull coal; bedding dips at 30° at base and dips at 5° at the top; brecciated calcite and (1 mm diameter) mudstone shards from 472.45 m to 472.47 m; sheared bands and laminae with abundant (30° to 10° dip slickensides are Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				common. BC dips at 30°.		
472.55	473.13	0.58	100	FLSS, dark-grey to light-grey; silty; bedding dips at up to 30°; minor sub-vertically-dipping calcite veins (1 mm in width), carbonaceous laminae and plant-fossil debris; grades to FMLSS from 472.83 m to 473.13 m. Faulted BC (normal 60°-dip fault with a throw greater than 5 cm).		
473.13	474.85	1.36	79	Mudstone, grey; abundant slickensides and shearing in breccia zones infilled (recemented) with calcite; very-hard; minor plant-fossil debris; slickensided, shaly zone from 473.54 m to 474.07 m; light-brown claystone interval from 474.07 m to 474.09 m; broken, rubbly, ground-away core from 473.17 m to 474.85 m. GBC.		
474.85	481.00	6.15	100	FLSS, light-grey/mudstone, grey to dark-grey (50:50), interbedded; FLSS predominates in top 1 m; silty; minor cross-bedding dipping at up to 10°; coaly debris from 476.01 m to 476.08 m; abundant banding with bedding dipping at up to 10°; minor flaser bedding, slickensides and joints; minor carbonaceous bands and laminae dipping at up to 10°; FLSS predominates in basal 1 m; minor FMLSS intervals; contorted, disturbed (overturned, rolled, swirled) bedding, flaser bedding and small scale cross-bedding common from 479.78 m to 481.00 m. GBC dips at 5°.		
481.00	483.43	2.43		FMLSS, grey-white; massive-bedding; minor carbonate matrix; dark-grey siltstone (mudstone bands and pebbles from 481.21 m to 481.27 m; sub-vertically-dipping joints from 481.30 m to 482.24 m; MLSS in places; minor silty laminae with bedding dipping at up to 5° from 482.24 m to 483.43 m. BC dips at 2°.		
483.43	483.63	0.20	100	Mudstone, grey/mudstone, dark-grey-blue (75:25), interbanded and laminated; minor flaser bedding. BC dips at 2°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
483.63	483.85	0.22	100	COAL SECTION: (attenuated) Dull coal; minor white-grey claystone laminae; broken core due to abundant sub-vertically-dipping joints. GBC.		
483.85	484.18	0.33		Claystone, brown/carbonaceous mudstone/brown FLSS (50:25:25), interbanded; irregular bedding dips at up to 20°; transition zone to unit below from 484.03 m to 484.18 m. GBC.		
484.18	487.24	3.06		FMLSS; abundant brown claystone bands from 484.18 m to 484.58 m; abundant carbonaceous mudstone bands and laminae dipping at up to 5° from 484.58 m to 485.24 m; minor cross-bedding dipping at up to 10° from 485.24 m to 487.24 m. GBC.		
487.24	489.05	1.81		MLSS, grey-blue-white; massive bedding dips at up to 5° (10° towards base); sparse carbonaceous laminae; minor carbonate matrix from 488.19 m to 489.05 m. BC dips at 5°.		
489.05	489.41	0.36		FMLSS, grey-white; minor rippled core-surface from drilling; minor wispy cross-bedded carbonaceous laminae dipping at up to 10°. BC dips at 2°.		
489.41	490.29	0.88		MLSS, grey-white; abundant carbonate matrix from 489.41 m to 489.56 m; large-scale cross-bedding dipping at up to 20°; minor coaly debris and carbonaceous laminae. Undulose BC dips at 2°.		
490.29	494.86	4.57	100	Mudstone, blue-grey (most prominent colour)-brown; carbonaceous with abundant slickensides from 490.29 m to 490.49 m; conjugate slickensides from 491.87 m to 491.93 m (30° dip), from 491.93 m to 491.97 m (30° dip) and from 492.02 m to 492.07 m (45° dip); shaly from 491.14 m to 491.19 m, from 491.25 m to 491.38 m and from 494.09 m to 494.27 m; sygmoidal 45°-dip slickenside from 491.79 m to 491.84 m; brown claystone predominates from 491.74 m to 491.99 m; carbonaceous mudstone from 493.04 m to 493.24 m (slickenside Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				dipping at 30° at base); sygmoidal 30° dip slickenside from 492.34 m to 492.36 m; conjugate slickenside zone from 492.46 m to 492.52 m; green colour from 494.27 m to 494.37 m; secondary carbonate interlaminated with green-brown claystone containing biotite (?) pseudomorphs from 494.28 m to 494.35 m (BC dips at 10°); conjugate 30° dip slickensides from 494.39 m to 494.46 m; irregular bedding with wispy carbonaceous laminae from 494.35 m to 494.51 m; bright coal debris with abundant carbonate on cleat from 494.51 m to 494.59 m (irregular top and bottom contacts); zone of sygmoidal slickensides dipping at from 45° to 60° from 494.70 m to 494.77 m; slickenside zone dipping at 30° from 494.83 m to 494.86 m. BC dips at 2°.		
494.86	495.69	0.83	100	COAL SECTION: Dull coal; well-developed cleat (result is that core breaks readily along joint planes dipping at from 0° to 90°, but predominantly at 60° relative to the core axis); minor bright coal (10%). Irregular GBC.		3
495.69	495.74	0.05		Carbonaceous mudstone with abundant secondary (?) carbonate, bright coal bands and laminae; irregular bedding. Irregular BC dips at 5°.		8052-5
				(BASE OF COAL SECTION)		
495.74	500.08	4.34	100	Mudstone, blue-grey-brown; slickensides zone (dipping at from 0° to 30° relative to the core axis) from 495.74 m to 495.84 m; minor plant-fossils and carbonaceous laminae and debris from 496.06 m to 496.44 m; 45° dip slickenside from 496.25 m to 496.30 m; conjugate slickensides dipping at 45° from 496.99 m to 497.06 m; FLSS with wispy, lenticular irregular bedding dipping at up to 5° and minor cross-bedding from 497.07 m to Continued over		

ASSAY DATA

Joint Coal Board Results

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Moisture, air-dried (% w/w)	Proximate analysis (dry basis) (% w/w) Ash	Vol.	F.C.	Specific Energy MJ/kg (gross) dry basis (db)	dry ash-free basis (daf)
3	494.86	495.69	0.83	100	3.8	49.7	16.1	34.2	15.01	29.83

Density Fraction		Weight %	Ash %	Cumulative Floats Weight,%	Cumulative Floats Ash,%	Cumulative Sinks Weight,%	Cumulative Sinks Ash,%
	F 1.30	nil	-	nil	-	100.0	48.1
S 1.30	F 1.45	3.3	13.8	3.3	13.8	100.0	48.1
S 1.45	F 1.60	14.8	23.5	18.1	21.7	96.7	49.3
S 1.60	F 1.80	24.3	39.5	42.4	31.9	81.9	53.9
S 1.80		57.6	60.0	100.0	48.1	57.6	60.0

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				497.28 m; dark-grey and light-grey mudstone with grey-white FLSS intervals abundant from 497.28 m to 498.08 m; minor small-scale (festoon) cross-bedding; contorted sub-vertically-dipping burrows from 497.63 m to 498.08 m; minor carbonate veins and matrix from 497.88 m to 497.93 m; grades to FLSS from 499.78 m to 500.08 m; slickensided coaly shards and bands from 499.35 m to 499.45 m (sub-horizontal slickenside and sygmoidal 60° dip slickenside); 30° dip slickensides from 499.06 m to 499.10 m and from 499.47 m to 499.50 m (undulose); 45° dip slickenside from 498.57 m to 498.62 m; conjugate slickenside zone dipping at 30° and 60° from 499.73 m to 499.83 m. GBC.		
500.08	501.78	1.70	100	FLSS, silty; massive; minor dark-grey mudstone bands from 500.23 m to 501.73 m; carbonaceous mudstone/dark-grey mudstone (50:50) laminite from 501.73 m to 501.78 m. GBC.		
501.78	502.78	1.00		Claystone, brown; silicified (?); abundant black spots and shards (biotite-pseudomorphs (?)); minor platy brown flecks; shaly in part; very minor slickensides dipping at 45°; mottled with 1 mm diameter clasts from 502.68 m to 502.78 m. (Interesting environment of deposition - needs further study).		
502.78	503.98	1.20	100	Claystone; brown/mudstone, grey-black (50:50), interbanded; minor carbonaceous bands from 502.78 m to 503.18 m; bedding dips at up to 30° near 502.8 m but grades to sub-horizontal by 503.18 m; abundant creamy-brown mottled clasts (diameter up to 2 mm) with green cores and outer brown (weathered (?)) runs (glauconite (?) reworked from the Lower Parmeener Supergroup ?), concentration of the clasts decreases with depth (interesting environment of deposition - needs further study); bedding dips at up to 5° from 503.28 m to 503.98 m (clast diameter less than 0.5 mm). GBC.		

Continued over

ASSAY DATA

Department of Mines Results

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Moisture as received (% W/W)	Proximate analysis (dry basis) (% W/W) Ash	Vol.	F.C.	Specific Energy (MJ/kg)(dry basis)
3	494.86	495.69	0.83	100	3.3	48.2	20.6	31.2	14.9

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
503.98	504.80	0.82	100	Mudstone, silty; dark-grey-brown in colour; minor sandy clasts; 45°-dip slickenside from 504.34 m to 504.42 m. GBC. (Transition zone).		
504.80	505.65	0.85		FMLSS, dark-grey/FMLSS, carbonaceous (50:50); abundant coaly laminae and debris; irregular bedding; poorly-sorted with abundant claystone in the matrix from 505.09 m to 505.65 m. Flame-structured BC dips at 5°.		
505.65	506.65	1.00		Mudstone, grey; abundant slickensides and shaly, particularly from 506.42 m to 506.65 m; dark-grey in colour at the base. Irregular BC.		
506.65	506.84	0.19		MLSS, grey-white; contorted bedding (swirl marks) dipping at up to 45°; abundant silty bands and laminae. BC dips at 5° (relative to core axis).		
506.84	509.14	2.30		Siltstone, grey; sandy; shaly in part; slickensides dipping at 45° from 507.04 m to 507.10 m, from 508.25 m to 508.31 m and from 509.04 m to 509.10 m. BC dips at 2°.		
509.14	509.38	0.24		MLSS/FLSS/siltstone (50:25:25), interbanded; cross-bedding dips at up to 5°; minor carbonaceous laminae; slickenside dipping at 45° from 509.22 m to 509.29 m. BC dips at 5°.		
509.38	530.75	21.37	100	MLSS, grey-white; massive; minor mudstone, siltstone and carbonaceous laminae dipping at up to 5° from 509.38 m to 509.98 m; carbonaceous laminae dipping at 2° at 512.87 m and at 514.93 m; minor carbonaceous laminae from 514.01 m to 514.17 m and from 514.40 m to 514.73 m; coaly debris from 515.07 m to 515.23 m; dull coal from 515.16 m to 515.20 m; mud-pellets with grey and carbonaceous mudstone bands dipping at up to 45° and slickensides from 515.39 m to 515.93 m; coaly debris and wispy laminae from 515.86 m to 515.93 m, from 516.82 m to 517.09 m and from 517.99 m to Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				518.04 m; minor FMLSS intervals from 519.32 m to 530.75 m; carbonaceous mudstone band (BC dipping at 20°) from 519.23 m to 519.34 m; carbonaceous mudstone, brown claystone and grey slickensided mudstone bands in minor carbonate matrix from 519.63 m to 520.04 m; minor plant-fossil debris from 521.14 m to 530.75 m; wispy, contorted carbonaceous laminae from 521.98 m to 522.23 m; carbonaceous laminae dipping at up to 20° from 523.88 m to 524.13 m; abundant (but not predominant) carbonaceous laminae from 524.33 m to 527.50 m (dip at up to 2°); minor carbonaceous laminae dipping at up to 2° and mudstone shards and bands from 527.52 m to 527.55 m and from 527.76 m to 527.84 m; bedding dips at 2° from 530.32 m to 530.75 m. Sygmoidal BC dipping at 45° occurs from 530.73 m to 530.75 m.		
530.75	531.27	0.52	100	Siltstone, grey; sandy; minor 30° dip slickensides and plant-fossil debris; bedding dips at up to 30°; siltstone pebbles from 530.65 m to 530.75 m. Sygmoidal BC dips at 10°.		
531.27	533.61	2.34		Conglomerate, intraformational; siltstone bands from 531.45 m to 531.82 m, from 532.63 m to 533.02 m and from 533.17 m to 533.36 m. Stepped BC.		
533.61	534.37	0.76		Mudstone, grey; silty. Sygmoidal BC.		
534.37	534.65	0.28		MLSS/mudstone (50:50), interbanded; abundant slickensides where mudstone. Slickensided BC.		
534.65	534.87	0.22		MLSS, grey-white; massive. BC dips at 10°.		
534.87	536.28	1.41		FMLSS, grey; silty; bedding dips at up to 5°. GBC.		
536.28	537.24	0.96		MLSS, massive; intraformational conglomerate at base. Interdigitating BC.		
537.24	537.48	0.24		Siltstone, grey. Interdigitating BC.		
537.48	538.93	1.45		MLSS, grey; massively-bedded. GBC.		
538.93	539.62	0.69	100	Fine-medium-grainsize quartzose sandstone (FMQSS)/carbonaceous mudstone/ Continued over		

ASSAY DATA

SAMPLE No	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				grey FLSS (40:30:30), interbanded; ripply bedding dipping at up to 5°; lenticular, wispy carbonaceous laminae. Undulose BC. (Transition zone which marks the top of the basal quartzose sandstone unit of the Upper Parmeener Supergroup in N.E. Tasmania).		
539.62	542.33	2.71	100	Medium-grainsize quartzose sandstone; milky-white and sparkly; abundant wispy, contorted carbonaceous laminae and festoon cross-bedding; minor sub-vertically dipping jointing from 541.12 m to 541.92 m.		
542.33	542.59	0.26		Mudstone, grey-blue; slickenside dipping at 45° from 542.57 m to 542.62 m. GBC.		
542.59	546.30	3.71		FLSS, grey-white; dark-grey-brown mudstone from 543.58 m to 543.90 m; bedding dips at up to 10°; minor carbonate matrix, FMQSS (10%) and bedding dipping at up to 20° from 545.4 m to 546.30 m.		
546.30	547.46	1.16		Mudstone, grey; minor FLSS bands and carbonaceous mudstone bands and laminae; silty in part. GBC.		
547.46	547.85	0.39		Coarse-grainsize quartzose sandstone (CQSS)/ coarse-grainsize lithic sandstone (CLSS), interbedded (50:50); minor mudstone bands and laminae from 547.62 m to 547.77 m. GBC.		
547.85	548.16	0.31		Medium-grainsize quartzose sandstone (MQSS); irregular bedding; sub-vertically-dipping worm-burrows (?) from 548.04 m to 548.15 m.		
548.16	548.35	0.19		Fine-grainsize quartzose sandstone (FQSS), grey-brown; grades with depth to dark-grey, silty mudstone. GBC.		
548.35	548.57	0.22		MQSS/MLSS (50:50), interbedded.		
548.57	549.94	1.37		Siltstone, grey; minor carbonaceous bands and FMLSS bands. GBC.		
549.94	550.45	0.51	100	MQSS, white (splotchy); carbonaceous bands and laminae and bioturbation (?) from 550.25 m to 550.45 m. Undulose BC dips at 5°.		

Continued over

ASSAY DATA

SAMPLE No	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
550.45	551.86	1.41	100	Siltstone, grey; minor FMLSS and FQSS bands.		
551.86	551.93	0.07		CQSS, white; abundant quartzite (green and grey) pebbles up to 1 cm in diameter. Irregular, interdigitating BC.		
551.93	552.53	0.60		Mudstone, dark-grey/FMLSS/FMQSS (50:25:25), interbedded. Ripply undulose BC.		
552.53	552.82	0.29		MQSS, white; minor MLSS; highly-jointed. Sygmoidal BC dips at 5°. (Base of Upper Parmeener Supergroup in N.E. Tasmania).		
552.82	557.42	4.60		Siltstone, grey-green; abundant angular quartz grits; abundant slickensides and joints (but not predominant). (Start of this unit is the top of the Lower Parmeener Supergroup in N.E. Tasmania). (End of Department of Mines FINGAL Diamond Drill Hole Number 52 at a depth of 557.42 m).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

DDH 53

DRILLING TARGET: Upper Parmeener Supergroup to below the East Fingal Lower Split.

REMARKS: Roof of the probable Duncan seam is at an elevation of 398.43 m above sea level in this diamond drill-hole. The seam has a thickness of 2.36 m.

SURVEY DATA			ASSAY DATA					ASSAY RESULTS					
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %						

GEOLOGICAL LOG — Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	9.00	6.00	67	Quaternary dolerite talus (dolerite boulders, clay) overlying weathered dolerite.		
9.00	212.70	200.00	98	Dolerite, black-grey from 9 m to 90 m; grey from 90 m to 209 m; green-black-grey from 209 m to 212.70 m; 2 mm-grainsize (average) to a depth of approximately 150 m, then grading to 1 mm-grainsize to a depth of 200 m, then grading to a grain-size of between 0.5 mm to 1 mm to a depth of 209 m; from approximately 209 m to the base of this dolerite sill, the dolerite is fine-grained grading to a glassy groundmass with tabular, acicular and prismatic green pyroxene phenocrysts ranging from a length of 0.5 mm to 2 mm and a width of 0.25 mm to 1 mm; minor jointing; 60° dip joint at 211.50 m; possibly layers of hornfelsed lithic sand-stone or multiple dolerite intrusions from 211.50 m to 212.70 m; (sample 8053-1A is of dolerite adjacent to the contact from 212.60 m to 212.68 m; sample 8053-1B from 212.68 m to 212.79 m is of the contact plus conglomerate in the vicinity of the contact). Irregular bottom-contact dips at from 10° to 20° (15° average) - irregularities are on a fine-scale (less than 1 cm). Continued over:-		

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:-	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:-
DOM FINGAL DDH Number 53			Fingal Tier to the west of the headwaters of Fingal Rivulet NW: 0 - 9 m

R.L. OF SITE:- 795.1 m	SITE SURVEY ON MAP No. N/A	CORE SIZE NQ: 9 - 389.06 BQ:389.06-467.85
BEARING OF HOLE:- -	AIR PHOTO No. - N/A	COMMENCED:- 2/7/80
INCLINATION OF HOLE:- Vertical	DRILL:- Joy-Sullivan 30HD	COMPLETED:- 22/8/80
CO-ORDS OF SITE:- 588 076 mE 5 384 684 mN	DRILLER:- D. Whammond L. Lavelle	FINAL DEPTH (m):- 467.85

M1029

Index Page:-

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
212.70	218.47	5.77	100	Conglomerate (fine-medium-grainsize lithic sandstone (FMLSS)/medium-grainsize lithic sandstone (MLSS) (50:50), interbedded with abundant conglomerate bands); hornfelsed; conglomerate intervals from 212.70 m to 212.84 m, from 212.99 m to 213.09 m, from 213.15 m to 213.38 m, from 213.80 m to 213.87 m, from 214.83 m to 214.96 m, from 215.05 m to 215.36 m, from 215.83 m to 215.95 m, from 216.13 m to 216.16 m, from 216.29 m to 216.62 m, from 217.00 m to 217.09 m, from 217.20 m to 217.66 m, from 217.90 m to 218.01 m and from 218.05 m to 218.35 m; predominantly grey-green in colour; bedding dips at up to 20°; minor large-scale planar cross-bedding; lithic fragments are green, white and brown; minor claystone bands; pebbles constituting the conglomerate bands are silicified and green, brown and grey in colour - these pebbles are quartzites, acidic pyroclastics and siltstones and are sub-rounded to rounded, predominantly elongate and are up to greater than 5 cm in diameter. Bottom-contact (BC) dips at 5°.		
218.47	219.25	0.78		Fine grainsize lithic sandstone (FLSS), green-grey-brown; hornfelsed (thermally metamorphosed); sub-horizontally-dipping bedding. Undulose BC.		
219.25	219.50	0.25		Mudstone, green-white; silty; silicified (hornfelsed). Undulose BC dips at 2° relative to core axis.		
219.50	219.69	0.19		Claystone, green-white; mottled; bedding dips at up to 5°; hornfelsed; green and brown laminite from 219.64 m to 219.69 m.		
219.69	220.16	0.47	100	Siltstone, light brown-grey; muddy; silicified; bedding dips at up to 5° but is predominantly sub-horizontal; joint dipping at 45° from 219.85 m to 219.96 m; minor black (carbonaceous (?)) laminae from 220.06 m to 220.16 m. Gradational bottom-contact (GBC). (Sample 8053-2 is from 220.06 m to 220.12 m).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

53

GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
220.16	221.30	1.14	100	FLSS/siltstone (70:30), interbanded; hornfelsed; abundant small-scale (festoon) cross-bedding; minor light-brown, light-green and cream-grey bands; bedding dips at up to 5°; sub-vertically-dipping joints occur in the centre of the core. Ripply BC dips at 2°.		
221.30	221.50	0.20		Siltstone; green-purple, white, green, light-brown bands; sub-horizontally-dipping bedding; hornfelsed; minor sub-vertically-dipping joints. GBC.		
221.50	222.61	1.11		Siltstone; white-green with minor brown, purple and grey bands; hornfelsed; bedding dips at up to 10°. GBC.		
222.61	222.78	0.17		Siltstone; green, black, white interbanded; hornfelsed. GBC.		
222.78	230.43	7.65		FLSS, brown-grey; hornfelsed; silty; abundant sub-vertically-dipping joints from 222.78 m to 224.10 m with minor green-grey intervals and sub-horizontal bedding; 60°-dip joint infilled with calcite from 225.10 m to 225.22 m; 60°-dip joint from 226.90 m to 227.17 m; broken zones from 224.10 m to 224.50 m, from 225.10 m to 225.50 m, from 226.30 m to 226.50 m and from 226.90 m to 227.10 m; grades to a washed-out brown-green-grey colour with depth; minor sub-vertically-dipping joints from 227.67 m to 230.43 m together with abundant mudstone, siltstone and FLSS bands and irregular and cross-bedding dipping at up to 10°; 1 cm-offset normal fault from 229.95 m to 230.10 m.		
230.43	231.38	0.95		FLSS, green-brown/siltstone (50:50), interbedded; minor shaly bands; pebbly at the base. GBC. (Effects of thermal metamorphism due to dolerite intrusion decline and become negligible with depth during this unit).		
231.38	238.77	7.39	100	MLSS, green and brown; weathered (ferruginuous brown stain); swelling clays from 231.78 m to 231.88 m; shaly in part (bedding parts at 1 to 5 cm intervals) from 231.38 m to 233 m; minor Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

53

GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				deep grey-blue bands dipping at up to 10° with abundant weathered irregular clay laminae and minor carbonaceous laminae from 234.87 m to 235.37 m; grades with depth to FMLSS from 235.75 m to 238.77 m; grey-green from 237.27 m to 238.27 m; carbonaceous from 238.62 m to 238.77 m. GBC.		
238.77	239.46	0.69	100	FLSS, carbonaceous; bedding dips at up to 2°; grades to siltstone with depth. GBC. (The top of this unit marks the commencement of a carbonaceous lithic sandstone sequence, which occurs to a depth of 259.50 m).		
239.46	240.30	0.84		MLSS, carbonaceous; abundant bright coaly laminae and thin bands (less than 1 cm in width) dipping at up to 10° (carbonate on the cleat of the coaly laminae). BC dips at 2°.		
240.30	241.31	1.01		FLSS, carbonaceous; carbonaceous mudstone pebbles up to 2 cm long and 5 cm wide from 240.70 m to 240.90 m; bedding dips at up to 5°; minor bright crumbly-coal laminae from 241 m to 241.31 m. GBC.		
241.31	244.73	3.27	96	FMLSS, carbonaceous; bedding dips at between 10° and 20° from 241.31 m to 241.73 m; core parts readily every 1 to 5 cm from 241.73 m to 243.40 m; rounded, elongate quartzite pebble 2 cm in length at 242.43 m; minor bright coal laminae and carbonaceous mudstone pellet bands dipping at up to 10° and minor MLSS intervals from 241.73 m to 244.73 m; grades to grey colour from 242.40 m to 243.40 m; minor carbonaceous laminae dipping at up to 5° from 242.90 m to 243.40 m; poorly carbonaceous with bedding dipping at up to 5° from 243.4 m to 244.73 m; carbonaceous mudstone bands and pellets from 244.01 m to 244.03 m, from 244.09 m to 244.13 m, from 244.21 m to 244.24 m and from 244.43 m to 244.73 m (interbanded and dipping at up to 10°). GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
244.73	253.03	8.24	99	FMLSS/MLSS (50:50), interbedded; carbonaceous; large-scale planar cross-bedding dips at up to 20°; interbanded with carbonaceous mudstone bands and pellets from 245.43 m to 245.50 m and from 245.78 m to 246.58 m; contorted bedding and slickensided carbonaceous mudstone dipping at up to 30° from 246.58 m to 247.10 m; carbonaceous mudstone pellets dipping at up to 10° from 247.15 m to 247.30 m and from 247.39 m to 247.45 m (BC dips at 30°); carbonaceous silty mudstone from 247.45 m to 247.53 m; sub-horizontally-dipping carbonaceous mudstone pebbles from 247.57 m to 247.67 m, from 248.29 m to 248.42 m and from 249.05 m to 249.09 m; contorted bedding with core parting readily every 1 to 5 cm from 249.52 m to 250.17 m; sub-vertically-to 45°-dipping joints resulting in split core from 250.55 m to 250.80 m; wispy carbonaceous mudstone bands and laminae dipping at up to 10° from 250.5 m to 251.5 m; poorly carbonaceous from 251.5 m to 253.03 m; disturbed, swirled bedding from 251.9 m to 252.35 m and from 252.52 m to 253.03 m; abundant carbonaceous mudstone shards from 252.73 m to 253.03 m. Ragged, irregular BC.		
253.03	253.74	0.71	100	Carbonaceous mudstone; abundant slickensides (resulting in broken core). Slickensided BC dips at 45°.		
253.74	256.66	2.92		FMLSS, poorly carbonaceous; carbonaceous mud-pellet debris with abundant sub-vertically-dipping joints resulting in broken core from 253.74 m to 254.14 m; carbonaceous siltstone and mudstone bands and laminae with minor cross-bedding dipping at up to 10° from 254.34 m to 255.04 m and from 255.84 m to 256.14 m. BC dips at 2°.		
256.66	264.11	7.45	100	MLSS, grey-black; poorly carbonaceous; minor carbonaceous siltstone and mudstone bands and laminae dipping at up to 10° with minor large-scale cross-bedding; minor fine-grainsize quartzose		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				sandstone (FQSS) and fine-medium-grainsize quartzose sandstone (FMQSS); minor FMLSS intervals; abundant 45° to 60° dip joints (resulting in broken core) from 263.49 m to 264.11 m. Undulose BC dips at 10°.		
264.11	265.56	1.45	100	Mudstone, dark-grey; disturbed bedding dipping at up to 45°; minor light and dark-grey mudstone laminite dipping at up to 45°; slickenside dipping at up to 45° from 263.07 m to 263.16 m; sub-vertically-dipping joint filled with calcite from 265.12 m to 265.52 m; sub-horizontally-dipping bedding from 265.32 m to 265.52 m; minor MLSS matrix (breccia-like) towards base. Ripply BC dips at 2°.		
265.56	265.82	0.26		COAL SECTION: Dull coal; 10% bright bands. (not sampled) GBC.		
265.82	266.07	0.25		Carbonaceous siltstone. GBC.		
266.07	274.66	8.59		FLSS, grey and dark-grey/siltstone, grey (50:50), interbanded; disturbed bedding at top; minor festoon cross-bedding from 266.07 m to 267.31 m; grades to mudstone at 267.31 m; dark-grey mudstone predominant from 267.31 m to 268.52 m; shaly in part from 267.31 m to 268.60 m; calcite-coated joints from 269.87 m to 270.00 m and from 270.22 m to 270.42 m; interbanded dull coal/carbonaceous mudstone from 268.60 m to 269.12 m; breccia-zone (rubbly core) from 270.00 m to 270.12 m; minor sub-vertically-dipping joints; greenish swelling clay from 272.13 m to 272.58 m; carbonaceous mudstone from 272.62 m to 272.93 m; abundant joints (breccia-zone) from 273.08 m to 273.28 m; banded FLSS predominates from 273.66 m to 274.66 m. GBC.		
274.66	277.67	3.01	100	FMLSS, white/carbonaceous siltstone (60:40), interbanded; disturbed, irregular bedding (scour and swirl marks); minor cross-bedding dipping at up to 20°; minor carbonaceous mudstone bands and laminae; abundant festoon cross-bedding from 275.25 m to 277.67 m; abundant Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

53				GEOLOGICAL LOG	Page:- 7/30	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				lenticles, shards and laminae of carbonaceous mudstone from 275.25 m to 277.67 m and minor quartzose component (10%). GBC from 276.67 m to 277.67 m.		
277.67	278.17	0.50	100	FMLSS, white/FQSS, white (90:10), interbedded; minor disturbed carbonaceous laminae dipping at up to 20°; sub-vertically-dipping joint from 277.67 m to 278.07 m with acicular calcite crystals up to 3 mm in length on the joint surface. GBC.		
278.17	280.02	1.85		MLSS, grey-green; abundant carbonaceous mudstone bands and laminae dipping at up to 5°; bedding dips at up to 10°. BC dips at 5°.		
280.02	280.70	0.68		FMLSS, white/FQSS, white (90:10), interbedded; abundant carbonaceous bands and (less than 5 mm diameter) flattened mudstone shards. Undulose BC.		
280.70	282.26	1.56		FLSS, grey; minor light and dark bands and laminae; minor festoon cross-bedding dipping at up to 5°; en-echelon jointing (resulting in broken core) from 280.87 m to 281.70 m. Slickensided BC dips at 30°.		
282.26	282.29	0.03		Dull coal. Sub-horizontally-dipping BC.		
282.29	282.40	0.11		Shale, brown. GBC.		
282.40	284.83	2.43		Mudstone, green-grey-brown; shaly; minor slickensides from 282.80 m to 282.96 m; carbonaceous mudstone from 282.96 m to 283.05 m; grey-white from 283.04 m to 283.24 m; breccia (shear (?)-zone dipping at 45° from 283.39 m to 283.49 m; light-grey-brown with abundant sub-vertically-dipping joints spaced at 20 cm intervals (resulting in broken core) from 283.70 m to 284.83 m; shaly band from 284.24 m to 284.27 m.		
284.83	285.16	0.33	100	Shale, cream-green-white; deteriorated to rubbly core; up to 1 mm-diameter brown flakey rock fragments and clasts; brown in colour from 285.15 m to 285.16 m. Sharp, minor undulose, sub-horizontally-dipping BC.		

Continued over

ASSAY DATA

SAMPLE No	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS								

53				GEOLOGICAL LOG	Page:- 8/30	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
285.16	285.24	0.08	100	**COAL SECTION:** Dull coal. GBC.		
285.24	285.79	0.55		Carbonaceous mudstone, brown; shaly in part; minor algal mats; broken rubbly core from 285.59 m to 285.79 m.		
285.79	286.59	0.80		Carbonaceous mudstone; minor dull and bright coal bands and brown mudstone bands; broken core.		1A
286.59	286.70	0.11		Claystone, brown-grey-shaly; minor algal mats. GBC.		
286.70	286.79	0.09		Mudstone, cream; shaly. BC dips at 2°.		
286.79	286.83	0.04		Carbonaceous mudstone.		
286.83	286.90	0.07		Mudstone, creamy-brown; shaly. BC dips at 2°.		
286.90	287.26	0.36		Carbonaceous mudstone. BC dips at 2°.		
287.26	287.41	0.15		Shale, creamy; flaky.		
287.41	287.43	0.02		Mudstone, mottled-brown-white; 1 cm wide irregular burrow passes 3 cm into unit below. Undulose (ripply) BC.		1B
287.43	287.78	0.35		Carbonaceous mudstone; creamy mudstone from 287.46 m to 287.48 m, from 287.53 m to 287.55 m and from 287.57 m to 287.58 m; brown mudstone from 287.70 m to 287.73 m.		
287.78	287.87	0.09		Laminite, bright coal/dull coal (50:50); sub-vertically-dipping carbonate-veins on joints and well-developed cleat in bright bands.		
287.87	287.92	0.05	100	Dull coal; sub-vertically-dipping carbonate veins; bright coal from 287.91 m to 287.92 m.		

Continued over

PROXIMATE ANALYSIS

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% moisture (W/W)	% volatiles (W/W)	% volatiles d.b.	% ash (W/W)	% ash d.b.	% F.C. (W/W)	% F.C. d.b.	S.E. (MJ/kg)
1A	285.16	286.59	1.43	100	-	-		79.4		-		-
1B	286.59	288.20	1.61	100	-	-		75.6		-		-
1C	288.20	289.73	1.53	100	-	-		82.9		-		-
1D	289.73	290.45	0.72	100	-	-		61.3		-		-
1E	290.45	290.83	0.38	100	-	-		88.0		-		-
1F	290.83	291.39	0.56	100	-	-		58.3		-		-
1G	291.39	291.75	0.36	100	-	-		90.2		-		-
1H	291.75	292.38	0.63	100	-	-		87.7		-		-
1I	292.38	294.01	1.63	100	-	-		52.1		-		-
1J	294.01	296.11	2.10	100	2.3	21.0		48.9		30.1		15.1

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
287.92	288.07	0.15	100	COAL SECTION: (Contd.) Dull coal and interbanded dull coal/FLSS; shear zone (bottom of shear zone extends to 288.09 m); crumbly dull coal with brown claystone in the interstices of the 10 cm wide and 45°-dip shear zone which extends from 287.92 m to 288.09 m.		
288.07	288.20	0.13		Dull coal. BC dips at 5°.		
288.20	288.25	0.05		Shale, creamy-brown; abundant sub-horizontally-dipping secondary carbonate veins. Undulose BC dips at 2°.		
288.25	289.51	1.26		Carbonaceous mudstone; brown claystone from 288.29 m to 288.34 m, from 289.05 m to 289.07 m and from 289.47 m to 289.51 m; creamy-white claystone from 288.27 m to 288.29 m, from 288.99 m to 289.05 m, from 289.13 m to 289.18 m and from 289.48 m to 289.49 m; interbanded carbonaceous and brown mudstone with irregular bedding dipping at up to 45° from 289.27 m to 289.40 m; carbonaceous mudstone with abundant 0.5 mm diameter brown mudstone clasts from 288.34 m to 288.46 m, at 288.82 m and at 288.90 m. Undulose BC dips at 5°.		1C
289.51	289.73	0.22		Shale, creamy-brown-white.		
289.73	290.45	0.72	100	Dull coal; minor bright bands; carbonaceous mudstone from 289.89 m to 289.99 m and from 290.38 m to 290.45 m; brown-black mudstone from 289.99 m to 290.01 m, at Continued over		1D

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				290.08 m and from 290.12 m to 290.14 m (irregular); white mudstone from 289.82 m to 289.83 m. Sygmoidal BC dips at 30° from 290.43 m to 290.45 m.		
290.45	290.83	0.38	100	COAL SECTION: (Contd.) Shale, creamy-green-white; coaly shards and bands with irregular sub-horizontally- to sub-vertically-dipping carbonate veins from 290.45 m to 290.56 m. BC dips at 5°.		1E
290.83	291.39	0.56		Dull coal; broken core along well-developed cleat; creamy-brown claystone from 291.09 m to 291.14 m. Undulose (ripply) BC dips at 5°.		1F
291.39	291.75	0.36		Shale, creamy-brown-grey; carbonaceous mudstone from 291.49 m to 291.52 m. BC dips at 5°.		1G
291.75	291.99	0.24		Carbonaceous mudstone/dull coal (50:50); abundant clay pellets (up to 3 cm diameter), ripply bedding and brown mudstone bands and pellets. BC dips at 2°.		1H
291.99	292.38	0.39		Shale, creamy milky-white-green. Minor rippled BC.		
292.38	292.69	0.31		Dull coal/carbonaceous mudstone (50:50); minor bright bands; minor brown, dusty coating on core surface. GBC.		1I
292.69	292.86	0.17		Dull coal.		
292.86	292.91	0.05		Shale, green-grey.		
292.91	293.44	0.53	100	Dull coal; joint dipping at 60° from 292.93 m to 293.02 m; sub-vertically-dipping carbonate veins Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				from 292.91 m to 293.11 m; brown-grey mudstone and carbonaceous mudstone bands from 293.13 m to 293.24 m and from 293.37 m to 293.38 m. GBC.		
293.44	293.81	0.37	100	COAL SECTION: (Contd.) Bright coal/dull coal (50:50), interbanded; 1 cm separated sub-vertically-dipping cleat; crumbly core; creamy mudstone from 293.50 m to 293.51 m. GBC.		
293.81	293.90	0.09		Carbonaceous mudstone; minor grey mudstone bands. BC dips at 2°.		
293.90	294.01	0.11		Claystone, brown; abundant carbonaceous shards. Irregular, ragged BC dips at up to 5°. Slickenside dipping at 45° from 293.97 m to 294.02 m.		
294.01	294.10	0.09		Dull coal. Slickensided BC dips at 45°.		
294.10	294.44	0.34		Dull coal; shear zone; broken core from 294.10 m to 294.32 m; crumbly from 294.32 m to 294.44 m. GBC.		
294.44	294.59	0.15		Dull coal/brown-grey claystone (50:50), interbedded; crumbly, disturbed core. GBC.		
294.59	295.20	0.61	100	Dull coal; white claystone from 294.66 m to 294.69 m (interbanded), from 294.78 m to 294.80 m, from 295.03 m to 295.04 m (pellets and bands) and from 295.17 m to 295.20 m (interbanded with brown clay pellets and dull coal with minor carbonate); carbonaceous mudstone from 294.80 m to 294.92 m.		1J

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
295.20	295.49	0.29	100	COAL SECTION: (Contd.) Bright coal; crumbly; abundant cleat. GBC.		
295.49	295.94	0.45		Bright coal/dull coal (50:50), interbanded; pyrite nodules up to 2 cm in diameter from 295.49 m to 295.52 m accompanied by minor brown mudstone bands; minor carbonate on cleat of bright coal; breaks readily along well-developed cleat; brown-grey-white claystone band from 295.69 m to 295.75 m. GBC.		
295.94	296.11	0.17		Bright coal/dull coal/carbonaceous mudstone (10:50:40), interbanded. Irregular GBC.		
				(BASE OF COAL SECTION)		
296.11	298.44	2.33		Siltstone/mudstone (50:50), interbedded; grey-white; carbonaceous from 296.24 m to 296.32 m; minor slickensides dipping at up to 45°; dark grey-brown from 296.11 m to 296.61 m; grades to FLSS with siltstone and mudstone bands from 297.64 m to 298.44 m. GBC.		
298.44	302.91	4.47		FLSS, light-grey/FMLSS, dark-grey (60:40), interbanded; massively festoon cross-bedded (dipping at up to 5°). GBC.		
302.91	316.32	13.41	100	FMLSS, grey-white; minor light-and dark-grey bands, predominantly massive but with faint large-scale planar cross-bedding from 302.91 m to 307.40 m; MLSS with coaly shards, mudstone laminae and mud-pellets up to 2 cm in diameter from 309.70 m to 309.82 m; conglomeritic band with sub-rounded and up to 3 cm-long pebbles (long axis vertical) of grey quartzite and siltstone with minor coaly laminae from 309.94 m to 310.00 m; minor MLSS from 310.41 m to 316.32 m; carbonate matrix from 310.67 m to 311.51 m; coaly Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				shards and laminae in irregular bedding from 311.85 m to 312.29 m; green-grey-mud-pellets (up to 1 cm in diameter) in MLSS matrix from 312.29 m to 312.39 m; interbanded FLSS/FMLSS (50:50) with minor carbonaceous laminae dipping at up to 5° from 312.39 m to 313.47 m; coarse-grain-size lithic sandstone (CLSS) from 313.77 m to 313.80 m (dipping at 5°); abundant coaly debris and laminae dipping at up to 20° from 313.49 m to 313.77 m and from 314.47 m to 315.63 m. BC dips at 5°.		
316.32	318.06	1.74	100	MLSS, grey; massively-bedded; coaly debris and mud-pellets from 317.42 m to 317.48 m and from 317.72 m to 318.06 m. GBC dips at 5°.		
318.06	318.33	0.27		FMLSS, grey-brown; massively-bedded. BC dips at 2°.		
318.33	318.36	0.03		COAL SECTION: Dull coal. GBC.		
318.36	318.41	0.05		Carbonaceous mudstone.		
318.41	318.42	0.01		White-grey claystone.		
318.42	318.44	0.02		Carbonaceous mudstone.		
318.44	318.45	0.01		White-grey claystone.		
318.45	318.53	0.08		Dull coal.		
318.53	318.66	0.13		Siltstone, carbonaceous; poorly-sorted; sandy; dirty.		
318.66	318.70	0.04		Carbonaceous mudstone.		
318.70	318.73	0.03		Brown-black mudstone.		2A
318.73	318.89	0.16		Dull coal. GBC.		
318.89	319.05	0.16		Dull coal with abundant white mud-pellets up to 1 cm in diameter.		
319.05	319.16	0.11		Siltstone, carbonaceous; poorly-sorted; sandy; dirty.		
319.16	319.38	0.22		Mudstone, brown; shaly; carbonaceous in part; bedding dips at up to 5°.		
319.38	319.42	0.04	100	Carbonaceous mudstone.		

Continued over

PROXIMATE ANALYSIS

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% moisture (W/W)	% volatites (W/W)	% volatites d.b.	% ash (W/W)	% ash d.b.	% F.C. (W/W)	% F.C. d.b.	S.E. (MJ/kg)
2A	318.33	319.44	1.11	100	-	-		71.9		-		-
2B	319.44	320.68	1.24	100	-	-		69.0		-		-
2C	320.68	321.58	0.90	100	-	-		59.8		-		-
2D	321.58	323.01	1.23	86	3.3	24.1		36.3		39.6		19.9
2E	323.01	324.00	0.99	100	-	-		74.0		-		-

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
319.42	319.44	0.02	100	COAL SECTION: (Contd.) Heavy dull coal. BC dips at 5°.		2A (Cont.)
319.44	319.46	0.02		Claystone, creamy-brown; sandy; lenticular bedding. Irregular, involute BC dips at 5°.		
319.46	319.51	0.05		Dull coal, good cleat develop-ment; grades to carbon-aceous mudstone in basal 1 cm. BC dips at 5°.		
319.51	319.52	0.01		Claystone, creamy-brown; sandy; lenticular bedding. Undulose, ripply BC dips at 2°.		
319.52	319.56	0.04		Dull coal; well-developed cleat; grades to carbon-aceous mudstone in basal 1 cm. Interdigitating BC dips at 5°.		
319.56	319.62	0.06		Heavy dull coal; abundant irregular coaly lenticles dipping at 5° and creamy-grey clay pellets. Inter-digitating BC. Sub-vertical joint through centre of the core.		2B
319.62	319.74	0.12		Mudstone, brown; shaly from 319.70 m to 319.74 m; minor algal mats on carbonaceous laminae and bands; sub-vertically-dipping joint from 319.62 m to 319.70 m. Irregular BC dips at 2°.		
319.74	319.95	0.21		Dull coal; minor 5° dip car-bonaceous mudstone bands from 319.74 m to 319.82 m; well-developed cleat coated with kaolinite. Undulose BC dips at 2°.		
319.95	320.04	0.09	100	Carbonaceous mudstone/white-brown claystone (50:50), interbanded; Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				irregular bedding dips at up to 5°; swirl marks and grey alongate mud-pellets (up to 3 cm in diameter) from 319.99 m to 320.04 m. Undulose (ripply) BC dips at 5°.		
320.04	320.08	0.04	100	COAL SECTION: (Contd.) Bright coal/carbonaceous mudstone (25:75), interbanded; abundant cream-brown mudstone lenticles and laminae. Rippled, lenticular BC.		
320.08	320.23	0.15		Heavy dull coal; sandy; irregular bedding and mudstone lenticles dip at up to 5°. BC dips at 2°.		
320.23	320.24	0.01		Claystone, creamy-brown; bedding dips at 2°. Irregular BC dips at 2°.		
320.24	320.32	0.08		Heavy dull coal; abundant fusinite blebs and plant stems; minor elongate grey mud-pellets (1 cm x 0.2 cm). BC dips at 5°.		2B (Contd.)
320.32	320.41	0.09		Dull coal/bright coal (60:40), interbanded; bedding dips at 2°; brown stain on core surface where there is dull coal; abundant calcite (?) on closely-spaced (5 mm separation) sub-vertically-dipping cleat; minor elongate mud-pellets. Slickensided faulted BC dips at 30°.		
320.41	320.68	0.27	100	Shale, grey-green; abundant carbonate and 1 mm-diameter biotite (?) flakes; 1 cm to 2 cm wide sub-horizontally-dipping to 30° dip calcite veins with associated "Christmas tree" structure from 320.41 m to 320.54 m; flakey from 320.54 m to 320.68 m; abundant Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				plant-fossil debris at base. BC dips at 5°.		2B (Contd.)
320.68	320.78	0.10	100	COAL SECTION: (Contd.) Dull coal; bedding dips at up to 2°; minor sub-vertically-dipping calcite veins. Undulose GBC dips at 2°.		
320.78	320.81	0.03		Mudstone, cream-brown; grades to white-grey at base; abundant flattened 1 mm-diameter clay clasts. BC dips at 2°.		
320.81	329.92	0.11		Dull coal; minor brown claystone pellets and lenticles; minor carbonaceous mudstone from 320.87 m to 320.92 m. Irregular, undulose BC dips at 2°.		
320.92	320.93	0.01		Claystone, brown; irregular bedding dips at 2°; abundant 1 mm-diameter clay clasts. Irregular, cuspate BC dips at 2°.		2C
320.93	320.94	0.01		Carbonaceous mudstone; minor heavy dull coal. GBC dips at 2°.		
320.94	320.97	0.03		Mudstone; creamy-brown; banded; abundant clay clasts 1-2 mm in diameter. Irregular BC with small-scale carbonaceous mudstone dykes dip at 2°.		
320.97	321.01	0.04		Carbonaceous mudstone; minor grey mudstone laminae. BC dips at 2°.		
321.01	321.02	0.01	100	Carbonaceous mudstone with abundant brown-clay stringers (less than 0.5 cm in length); abundant brown laminae.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
321.02	321.37	0.35	100	COAL SECTION: (Contd.) Bright coal/dull coal (50:50), interbanded; abundant irregularly-dipping lenticles of bright coal; minor creamy mudstone lenticles; minor calcite on cleat (developed on bright coal); minor sub-horizontal partings; core breaks readily on sub-vertically-dipping cleat and joints. Sygmoidal BC dips at 5°.		2C (Contd.)
321.37	321.48	0.11		Brown shale/creamy-grey mudstone (50:50); interbanded; abundant creamy clay-pellets up to 1cm in diameter; minor secondary carbonate band ("Christmas-tree" structure) and clay-pellets from 321.39 m to 321.42 m. Rippled BC dips at 2°.		
321.48	321.58	0.10	100	Carbonaceous mudstone; abundant brown mudstone and claystone clasts (5 mm diameter) and lenticles.		
321.58	323.01	1.23	86	Bright coal/dull coal (25:75), interbanded; well-developed cleat results in broken core in part; minor sub-vertically-dipping calcite veins; abundant calcite on sub-vertically-dipping cleat where bright coal; creamy-brown mudstone bands and lenticles (occasionally dipping at up to 5°) from 321.66 m to 321.67 m, from 321.70 m to 321.71 m, from 321.77 m to 321.78 m, from 321.88 m to 321.89 m, from 322.02 m to 322.03 m, from 322.05 m to 322.06 m, from 322.09 m t… Continued over		2D

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				322.10 m, from 322.45 m to 322.46 m and from 322.47 m to 322.48 m; abundant 60° to sub-vertically-dipping cleat (5 mm to 2 cm spacing) results in broken core from 322.52 m to 322.86 m; abundant kaolinite on cleat; abundant brown clay-pellets from 322.58 m to 322.62 m; abundant grey mudstone bands from 322.90 m to 322.94 m. BC dips at 2°.		2D (Contd.)
323.01	324.00	0.99	100	COAL SECTION: (Contd.) Dull coal/grey mudstone/ bright coal/carbonaceous mudstone (30:50:10:10), interbanded; calcite on sub-vertically-dipping cleat of bright coal; abundant disturbed bedding (dipping at 10°), lenticles and rollover-bedding structures; minor laminite of above lithologies; minor 45° dip sygmoidal slickensides. Slickensided BC dips at 45°.		2E
				(BASE OF COAL SECTION)		
324.00	324.36	0.36		Mudstone, brown-grey; minor slickensides; abundant wispy coal stringers dipping at up to 45°; silty from 324.16 m to 324.36 m. BC dips at 5°.		
324.36	326.57	2.21		FLSS, grey/FMLSS, light-grey (50:50), interbanded; abundant dark-grey siltstone and mudstone bands; minor cross-bedding and carbonaceous laminae; 2° calcite vein (thin, sub-horizontal) from 325.50 m to 325.52 m; grades to mudstone at base; 45° dip slickenside from 326.55 m to 326.59 m. GBC.		
326.57	326.80	0.23	100	Mudstone, dark-grey-blue; slickenside dipping at 30° from 326.62 m to 326.66 m. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				BC dips at 10°.		
326.80	326.83	0.03	100	Mudstone, grey; bedding dips at up to 10°; abundant carbonaceous laminae from 326.80 m to 326.81 m. BC dips at 5°.		
326.83	326.92	0.09		Shale, cream-brown; sticky. Irregular, sub-horizontally-dipping BC.		
326.92	326.93	0.01		COAL SECTION: (not sampled) Bright coal; well-developed cuboidal cleat.		
326.93	326.94	0.01		Shale, brown. Rippled BC.		
326.94	326.97	0.03		Dull coal; minor bright laminae; creamy mudstone lenticles (less than 5 mm in thickness) at base.		
326.97	327.09	0.12		Dull coal/carbonaceous mudstone (40:60), interbanded, minor bright coal shards and lenticles; bedding dips at up to 5°; brown stain on core surface occasionally. GBC.		
				(BASE OF ATTENUATED COAL SECTION)		
327.09	329.27	2.18		FLSS, grey-white/mudstone, grey (50:50), interbedded; silty; minor shaly intervals, slickensides, bright coal lenticles, flecks, debris and bands; abundant irregular bedding (dips at up to 30° from 328.03 m to 328.43 m); siltstone shards and white clasts (2-4 mm in diameter) from 329.12 m to 329.17 m. Undulose BC dips at 10°.		
329.27	330.01	0.74		FMLSS, minor FLSS and MLSS intervals from 329.27 m to 329.67 m; siltstone and mudstone pellets and bands from 329.37 m to 329.52 m.		
330.01	335.71	5.70	100	MLSS, grey; minor carbonate matrix from 330.11 m to 330.61 m; bedding dips at up to 10° from 330.01 m to 334.50 m and then at up to 30° from 334.50 m to 335.71 m; minor coaly laminae, lenticles and shards from 330.61 m to 330.81 m, from Continued over		

ASSAY DATA

SAMPLE No	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				331.32 m to 331.36 m, from 331.47 m to 334.50 m and from 334.95 m to 335.40 m (abundant); predominantly massive bedding; flattened (elongate) sub-horizontally-dipping mudstone and siltstone pellets from 335.44 m to 335.62 m. BC dips at 10°.		
335.71	335.91	0.20	100	COAL SECTION: Dull coal/grey-brown mudstone (50:50), interbanded; lenticular bedding dips at up to 10°; slickenside dipping at 45° from 335.90 m to 335.96 m. Slickensided; irregular BC. (not sampled)		
				(BASE OF ATTENUATED COAL SECTION)		
335.91	337.15	1.24		Siltstone, light-grey/mudstone, grey (50:50), interbanded; minor FLSS intervals; irregular bedding (rollovers, cross-bedding, truncated bedding) dips at up to 45°. BC dips at 2°.		
337.15	337.55	0.40		Coarse-grainsize lithic sandstone (CLSS)/ MLSS (50:50); abundant brown-grey clay pellets (up to 2 cm in length) and mudstone shards (up to 5 cm in length); minor coaly debris. Sygmoidal BC (cuspate).		
337.55	341.27	3.72		MLSS, grey-white; FMLSS with bedding dipping at 5° from 338.35 m to 338.70 m; dull coal shards and mud-pellets from 338.70 m to 338.77 m; carbonate matrix from 338.77 m to 339.56 m; abundant grey mudstone clasts, pellets and bands (dipping at up to 20°) from 338.77 m to 339.36 m; minor coaly debris and mud-pellets from 339.36 m to 340.58 m; abundant irregular coaly lenticles and laminae, mud-pellets and mudstone cobbles from 340.63 m to 341.08 m. Sygmoidal BC dips at 2°.		
341.27	341.36	0.09	100	COAL SECTION: Dull coal/bright coal (50:50), laminite; bedding dips at up to 5°. Slickensided, irregular BC.		3A

Continued over

PROXIMATE ANALYSIS

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% moisture (W/W)	% volatiles (W/W, d.b.)	% ash (W/W, d.b.)	% F.C. (W/W, d.b.)	G.E. (MJ/kg)
3A	341.27	341.84	0.57	100	-	-	88.7	-	-
3B	341.84	343.29	1.45	100	4.2	26.0	34.8	39.2	20.7

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
341.36	341.84	0.48	100	COAL SECTION: Mudstone, grey; abundant slickensides and contorted, irregular coaly flecks and debris. Slickensided BC dips at 15° and is irregular.		3A (Contd.)
341.84	341.94	0.10		Dull coal/bright coal/grey mudstone (40:30:30), interbanded; abundant bands and lenticles; irregular bedding dips at up to 20°. GBC.		
341.94	342.11	0.17		Dull coal; abundant grey mudstone laminite from 341.95 m to 342.00 m. GBC.		
342.11	342.26	0.15		Shale, creamy brown-grey. Undulose BC dips at 2°.		
342.26	342.51	0.25		Dull coal; minor sub-vertically-dipping calcite veins and joints through centre of the core. Undulose GBC.		3B
342.51	342.56	0.05		Shale, brown; carbonaceous from 342.51 m to 342.53 m. BC dips at 2°.		
342.56	343.29	0.73		Dull coal/bright coal (75:25); interbanded; well-developed sub-vertically-dipping cleat; core breaks readily; minor calcite on cleat and carbonate veins; minor grey mudstone laminae from 342.56 m to 342.61 m.		
				(BASE OF COAL SECTION)		
343.29	343.66	0.37		Siltstone, grey; muddy; abundant carbonaceous flecks throughout. GBC.		
343.66	346.87	3.21	100	Mudstone, grey; abundant coaly lenticles and laminae dipping at up to 30°; minor FLSS intervals; shaly; carbonate-rich FLSS (swells when wet) from 344.89 m to 345.76 m; minor slickensides; sub-vertically-dipping worm-burrows (?) from 345.56 m to 345.76 m; secondary carbonate Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				band and veins ("Christmas tree" structure) from 345.26 m to 345.36 m; dull coal from 346.36 m to 346.37 m; brown shale from 346.37 m to 346.46 m. GBC.		
346.87	347.66	0.79	100	FLSS, grey-white; cross-bedded with abundant carbonaceous bands and laminae; festoon cross-bedding dipping at up to 5° and ripply, undulose flaser bedding; minor plant-fossil debris; muscovitic, GBC.		
347.66	347.97	0.31		Mudstone, grey; abundant wispy carbonaceous flecks. Sygmoidal, stepped BC dips at 5°. Slickenside from 347.75 m to 347.83 m.		
347.97	348.32	0.35		COAL SECTION: (not sampled) Dull coal/brown shale/carbonaceous mudstone (40:30:30), interbedded. GBC.		
348.32	348.40	0.08		Mudstone, dark-grey. Irregular undulose BC.		
				(BASE OF ATTENUATED COAL SECTION)		
348.40	353.11	4.71		Mudstone, light-grey; shaly (swollen core, flaky) from 349.16 m to 349.93 m; carbonaceous mudstone (broken core) from 349.93 m to 350.00 m; interbedded with FLSS with minor flaser-and festoon cross-bedding from 350.80 m to 352.50 m; sub-vertically-dipping worm-burrows from 350.90 m to 351.15 m; irregular carbonaceous bands and laminae dipping at up to 20° from 353.06 m to 353.11 m. Irregular, flaser-bedded BC dips at 5°.		
353.11	353.44	0.33		COAL SECTION: (not sampled) Carbonaceous mudstone/heavy dull coal (70:30), interbanded; abundant brown mudstone laminae and bands. BC dips at 2°.		
				(BASE OF ATTENUATED COAL SECTION)		
353.44	354.99	1.55	100	Mudstone, grey; silty; abundant irregular bedding; dark-grey slickensided zone from 353.80 m to 354.04 m. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
354.99	355.33	0.34	100	Carbonaceous mudstone with abundant dark-grey shaly bands (354.99 m to 355.05 m) and pink mudstone bands (355.10 m to 355.14 m - faulted with a 2 cm throw, and at 355.25 m - dips at 5°); Sygmoidal BC dips at 2°.		
355.33	355.94	0.61		Mudstone, grey and grey-brown; shaly; abundant slickensides and distorted bedding; minor carbonaceous and coaly intervals. Irregular, flame-structured BC.		
355.94	357.03	1.09		Mudstone, grey-blue; silty; minor slickensides. BC dips at 5°.		
357.03	358.47	1.44		Siltstone, grey, muddy/FLSS, light-grey (70:30), interbanded; bedding dips at up to 20° (irregular, lenticular) sub-vertically-dipping joints (resulting in broken core) from 358.17 m to 358.47 m. BC dips at 5°.		
358.47	362.07	3.60		MLSS, grey; massive; minor mud-pellets; carbonaceous laminae in FLSS from 361.34 m to 361.46 m. BC dips at 2°.		
362.07	369.28	7.21		FMLSS, grey-white; massive; minor banding from 362.07 m to 362.37 m; abundant carbonate matrix from 363.68 m to 364.84 m; dull coal band with coaly shards and laminae and disturbed bedding from 365.41 m to 365.48 m; intermittent mudstone clasts and coaly debris from 366.74 m to 367.93 m.		
369.28	370.80	1.52		MLSS, grey; massive; CLSS from 370.50 m to 370.80 m. Basin-shaped BC dips at 20° (average 10°) and is slickensided from 370.78 m to 370.82 m.		
370.80	372.52	1.72	100	Mudstone, grey; silty; minor slickensides; carbonaceous mudstone from 371.24 m to 371.31 m; grey siltstone and FLSS bands with irregular bedding from 371.28 m to 371.68 m; abundant slickensides from 372.03 m to 372.52 m; carbonaceous mudstone/dull coal bands from 372.30 m to 372.35 m (slickenside at base) and from 372.43 m to 372.48 m. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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53				GEOLOGICAL LOG	Page:- 24/30	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
372.52	373.67	1.15	100	FLSS, grey; minor banding; abundant sub-vertically-dipping rootlets (?) up to 30 cm in length. BC dips at 2°.		
373.67	373.86	0.19		Mudstone, grey-blue; slickenside at base. GBC.		
373.86	374.00	0.14		Laminite, grey mudstone/carbonaceous mudstone (50:50); minor lenticular and undulose bedding dips at up to 5°; dull coal bands from 373.89 m to 373.93 m and from 373.97 m to 373.99 m. BC dips at 5°.		
374.00	374.20	0.20		Heavy dull coal; mudstone shards towards base. Irregular, flaser-bedded BC.		
374.20	374.32	0.12		Mudstone, grey; silty. BC dips at 2°.		
374.32	374.49	0.17		Heavy dull coal; grades to carbonaceous mudstone with depth. Rippled BC dips at 2°.		
374.49	375.56	1.07		Carbonaceous mudstone/blue-grey mudstone/dark-grey FMLSS (40:30:30), interbanded; bedding dips at 10° from 375.36 m to 375.56 m; sygmoidal slickenside from 375.15 m to 375.26 m; slickenside zone from 374.75 m to 374.95 m. Irregular BC (with stringer of mudstone penetrating into unit below) dips at 10°.		
375.56	381.84	6.28		FMLSS, grey-white; wispy carbonaceous lenticles and coaly debris from 375.56 m to 375.66 m; shaly from 376.11 m to 376.25 m; massive carbonate matrix (limestone) with white and cream-brown streaks (aragonite (?)) from 376.25 m to 376.37 m; predominantly massively-bedded; coaly lenticles and debris from 378.90 m to 379.02 m and from 377.08 m to 377.14 m. GBC.		
381.84	395.08	13.15	99	MLSS, grey-white; bedding dips at up to 5°; carbonate bands (veins) and coaly laminae from 382.40 m to 382.50 m; clay-pellets from 383.22 m to 383.25 m, from 386.47 m to 386.52 m and from 386.77 m to 386.82 m; FMLSS from 384.14 m to 384.74 m; minor carbonate matrix (locally abundant) from 385.92 m to 395.08 m; massively-bedded; carbonaceous laminae from Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				383.33 m to 383.36 m, from 384.18 m to 384.44 m and from 385.44 m to 385.79 m; coaly laminae from 386.67 m to 386.82 m and from 387.12 m to 387.52 m; minor CLSS intervals from 385.92 m to 387.84 m; mudstone and shale cobbles from 393.55 m to 393.72 m and from 394.55 m to 394.63 m; coaly debris from 394.63 m to 394.73 m, from 393.48 m to 393.55 m and from 394.84 m to 394.99 m. BC dips at 5°.		
395.08	396.67	1.54	97	FMLSS, grey-white/siltstone, grey/mudstone (50:25:25), interbanded; abundant carbonaceous laminae (laminite in part); minor cross-bedding dipping at up to 5°; massively bedded FMLSS from 396.59 m to 396.67 m. Minor ripples on BC.		
396.67	396.72	0.05	100	COAL SECTION: Dull coal, shaly; minor bright bands. GBC.		
396.72	396.87	0.15		(Duncan seam (?)) Dull coal; minor bright bands.		
396.87	396.90	0.03		Carbonaceous and brown mudstone.		
396.90	398.45	1.55		Dull coal; minor bright bands; well-developed sub-vertically-dipping cleat; abundant calcite (?) (kaolinite (?)) on cleat and as sub-vertically-dipping veins; well-developed "pack-of-cards" cleat (dipping at up to 60°) from 397.07 m to 397.37 m.		4
398.45	398.48	0.03		Carbonaceous and brown mudstone.		
398.48	398.63	0.15		Dull coal; minor bright bands.		
398.63	398.64	0.01		Carbonaceous and brown mudstone.		
398.64	398.95	0.31	100	Dull coal; minor bright bands; well-developed sub-vertically-dipping cleat with minor		

Continued over

PROXIMATE ANALYSIS

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% moisture (W/W)	% volatiles (W/W, d.b.)	% ash (W/W, d.b.)	% F.C. (W/W, d.b.)	S.E. (MJ/kg)
4	396.67	399.03	2.36	100	2.3	26.4	28.3	45.3	23.1

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				calcite (?) coatings and veins; mudstone band dipping at 2° at 398.88 m. GBC.		4 (cont.)
398.95	399.03	0.08	100	COAL SECTION: (Contd.) Carbonaceous mudstone; grades with depth to black/brown mudstone. GBC.		
				(BASE OF COAL SECTION)		
399.03	399.26	0.23		Carbonaceous mudstone/brown mudstone (50:50), shaly. GBC.		
399.26	399.86	0.60		Mudstone, brown; swollen core; shaly in part; minor carbonaceous flecks; silty at base. GBC.		
399.86	415.53	15.67		MLSS; brown-grey from 399.86 m to 402.2 m, grey-white from 402.2 m to 415.53 m; minor mud-pellets (up to 3 cm in diameter) mudstone bands and coaly debris from 401.69 m to 404.76 m; CLSS from 404.76 m to 406.31 m; minor coaly debris dipping at up to 10° from 404.76 m to 407.78 m; carbonate matrix from 406.31 m to 415.53 m; FMLSS from 409.26 m to 410.23 m; predominantly massively-bedded. Irregular BC.		
415.53	415.94	0.41		Mudstone, grey; carbonaceous mudstone shard from 415.64 m to 415.75 m (10 cm x 2 cm, sub-vertical-dip). Irregular BC.		
415.94	442.11	26.17	100	MLSS, grey-white; coaly debris with bedding dipping at up to 20° from 415.94 m to 416.13 m; predominantly massive bedding with minor banding; minor carbonate in matrix (abundant from 438.35m to 440.85 m); bedding dips at 5° from 426.64 m to 428.80 m; coaly debris from 421.56 m to 421.76 m; FMLSS from 421.80 m to 423.30 m; green-grey, brown and black with irregular bedding, abundant coaly debris and contorted carbonaceous laminae and lenticles from 428.80 m to 429.59 m; coaly laminae and debris from 432.12 m to 432.42 m (minor mud-pellets in top 5 cm); green-grey from 436.89 m to 438.35 m, white-grey-brown from 438.35 m to Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				440.85 m and grey-white from 440.85 m to 442.11 m; joint dipping at 45° from 437.30 m to 437.41 m; wispy carbonaceous laminae and brown mudstone with contorted, irregular bedding from 437.49 m to 437.83 m. BC dips at 5°.		
442.11	442.21	0.10	100	Carbonaceous mudstone. Rippled (undulose) BC dips at 10°.		
442.21	442.94	0.73	100	FMLSS, grey-white; abundant sub-horizontally -dipping carbonaceous bands and laminae; ground-away, rubbly core. BC dips at 5°.		
442.94	443.93	0.99	0	Core loss.		
443.93	444.00	0.07	100	Carbonaceous mudstone.		
444.00	444.27	0.27		FMLSS, grey-white; minor coaly debris. Cuspate BC.		
444.27	444.49	0.22		Mudstone, dark-grey; carbonaceous from 444.27 m to 444.42 m. Irregular GBC.		
444.49	445.51	1.02		Laminite, dark-grey mudstone/grey mudstone (60:40); minor carbonaceous laminae. GBC.		
445.51	446.25	0.74		FMLSS, grey-white; abundant carbonaceous mudstone and brown mudstone bands and laminae. Irregular (ragged) BC.		
446.25	446.87	0.62		Mudstone, grey-blue; minor plant-fossil debris.		
446.87	446.98	0.11		COAL SECTION: (East Fingal Upper Split(?)) Carbonaceous mudstone; abundant irregularly-bedded dark-green laminae and lenticles. Irregular, involute BC.		
446.98	448.42	1.44	100	Dull coal; minor cleat develo -pment; brown mudstone from 447.09 m to 447.10 m, from 447.44 m to 447.45 m, at 447.28 m and from 447.59 m to 447.61 m; carbonaceous shale from 447.15 m to 447.19 m; creamy-white mudstone band at 447.38 m and from 447.39 m to 447.41 m; bright coal from Continued over		5A

PROXIMATE ANALYSIS

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% moisture (W/W)	% moisture d.b.	% volatiles (W/W)	% volatiles d.b.	% ash (W/W)	% ash d.b.	% F.C. (W/W)	% F.C. d.b.	S.E. (MJ/KG)
5A	446.87	448.42	1.55	100	2.8		21.0		40.5		38.5		18.5

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				447.71 m to 447.72 m; carbonaceous mudstone from 447.61 m to 447.66 m; minor sub-vertically-dipping wispy calcite veins from 447.45 m to 448.42 m. Rippled BC.		5A
				(BASE OF COAL SECTION)		
448.42	448.43	0.01	100	Laminite, brown mudstone/carbonaceous mudstone (50:50); bedding dips at 2°. Sygmoidal BC dips at 2°.		
448.43	448.71	0.28		Carbonaceous mudstone; grades to dark-grey siltstone with depth. GBC.		
448.71	449.40	0.69		FLSS, light-grey; minor lighter and dark bands; dark-grey silty mudstone from 448.80 m to 448.90 m. GBC.		
449.40	449.65	0.25		Siltstone, grey; muddy towards the base. Rippled BC.		
449.65	449.66	0.01		Carbonaceous mudstone. GBC.		
449.66	453.72	4.06		Mudstone, grey; minor slickensides; abundant silty bands; minor wispy carbonaceous laminae and plant-fossil debris; poorly carbonaceous with irregular bedding from 450.21 m to 450.41 m and from 451.94 m to 452.11 m; sub-horizontally-dipping carbonate band with irregular bedding from 452.06 m to 452.08 m; FLSS from 452.63 m to 453.37 m. Irregular, undulose (ragged) BC.		
453.72	453.74	0.02		COAL SECTION: Carbonate band; secondary (?); brown-white. BC dips at 2°. (East Fingal Lower Split(?))		
453.74	454.40	0.66		Dull coal; massive; broken core due to sub-vertically-dipping cleat. Rippled BC.		5B
454.40	454.41	0.01	100	Shale, brown; sub-horizontally-dipping secondary carbonate veins. Irregular BC.		

Continued over

PROXIMATE ANALYSIS

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	% moisture (W/W)	% volatiles (W/W, d.b.)	% ash (W/W, d.b.)	% F.C. (W/W, d.b.)	S.E. MJ/kg
5B	453.72	454.97	1.25	100	3.8	21.1	36.9	42.0	19.8
5C	454.97	455.45	0.48	100	-	-	92.9	-	-
5D	455.45	456.47	1.02	100	-	-	65.4	-	-

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
454.41	454.48	0.07	100	COAL SECTION: (East Fingal Lower Split(?)) Mudstone, brown; shaly. Ripply BC dips at 2°.		
454.48	454.85	0.37		Dull coal; massive; broken core due to abundant cleat. GBC.		5B (Contd.)
454.85	454.91	0.06		Carbonaceous mudstone. GBC.		
454.91	454.97	0.06		Dull coal.		
454.97	455.45	0.48		Mudstone, grey; silty; minor wispy carbonaceous laminae; grades with depth to carbonaceous mudstone from 455.35 m to 455.45 m with minor (3 mm-diameter) grey mud-pellets. GBC.		5C
455.45	455.54	0.09		Carbonaceous mudstone. GBC.		
455.54	455.68	0.14		Heavy dull coal. GBC.		
455.68	455.84	0.16		Dull coal. Poorly-undulose BC.		
455.84	455.89	0.05		Shale, brown-grey; swells when wet (75% volumetric recovery, but 100% linear recovery). Poorly-cuspate BC.		
455.89	455.96	0.07		Dull coal; sticky, mucky band from 455.93 m to 455.95 m. GBC.		5D
455.96	456.02	0.06		Carbonaceous shale; minor brown-grey lenticles; (50% volumetric recovery), BC dips at 2°.		
456.02	456.28	0.26		Dull coal; minor heavy dull coal and plant-fossil debris. GBC.		
456.28	456.47	0.19	100	Carbonaceous mudstone; silty and sandy from 456.37 m to 456.47 m; minor mud-pellets and mudstone lenticles from 456.42 m to 456.47 m. Irregular BC dips at Continued over 2°.		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

53				GEOLOGICAL LOG	Page:- 30/30	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				(BASE OF COAL SECTION)		
456.47	457.10	0.63	100	Mudstone, grey; minor slickensides and carbonaceous laminae (contorted, irregular); minor dull coal laminae at base. Irregular, ripply BC dips at 2°.		
457.10	457.15	0.05		Shale, pale brown-grey; abundant secondary carbonate. Undulose BC.		
457.15	457.19	0.04		Carbonaceous mudstone; abundant slickensides results in broken core. GBC.		
457.19	457.42	0.23		Mudstone, grey; silty. Undulose (rippled) BC.		
457.42	458.73	1.31		Siltstone, grey; sandy; minor slickensides; carbonaceous mudstone lenticles from 458.29 m to 458.39 m; FMLSS from 458.68 m to 458.73 m.		
458.73	458.78	0.05		Claystone, grey; sticky; abundant carbonaceous debris. Undulose BC dips at 2°.		
458.78	459.27	0.49		FLSS, light-grey/siltstone, grey (50:50). GBC.		
459.27	459.96	0.69		FLSS, grey-white; massively-bedded. GBC.		
459.96	460.53	0.57		FMLSS, grey-white; massively-bedded.		
460.53	460.80	0.27		FLSS, grey-white; abundant siltstone and mudstone bands and laminae; abundant cross-bedded wispy carbonaceous laminae dipping at up to 10°. Cuspate BC.		
460.80	467.85	7.05	100	FMLSS, minor MLSS intervals; grey-white; massively-bedded; carbonaceous laminae from 463.07 m to 463.77 m; minor carbonaceous laminae from 467.35 m to 467.85 m; sticky carbonaceous mudstone from 467.35 m to 467.41 m.		
				(BASE of DOM FINGAL DDH Number 53 at a depth of 467.85 m).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

M 1446

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DRILLING TARGET:- Upper glacio-marine sequence of the Lower Parmeener Supergroup.

REMARKS:- Dolerite has intruded at the level of the probable Duncan seam.

SURVEY DATA			ASSAY DATA											
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS						

GEOLOGICAL LOG

Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	12.00	10.5	88	3 m of loose, surficial talus was drilled before encountering solid grey dolerite which was weathered. During drilling this diamond drill-hole lost and gained water periodically.		
12.00	391.55	375	99	Medium-grainsize, grey, hard dolerite (approximately 5 cm of core has been sampled every 3 m and stored for any possible future analytical work - the remainder of the dolerite is stored at the drill-site); sub-vertical to sub-horizontal joints throughout; generally massive; minor green-white veins (calcite and chlorite (?)) and shear zones; minor white zeolite (?) and quartz veins; abundant sub-vertically dipping joints from approximately 383 m to the sedimentary sequence; dolerite is green-grey, fine-medium grained from 380 m to 390 m (approximately), grading to fine-grainsize dolerite from 390 m to 391 m; from 391 m to 391.55 m the dolerite is glassy with 1 mm green phenocrysts; sub-vertically dipping joints (1 to 5 cm spacing) are abundant from 389 m to 391 m; minor zeolitic veins (1 to 3 mm in		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:-	MAP SHEET No.	DISTRICT	LOCATION OF SITE:-
DOM FINGAL DDH Number 54	49	FINGAL	Headwaters of St. Pauls River on the Fingal Tier

R.L. OF SITE:- 711.8 m	SITE SURVEY ON MAP No. N/A	CORE SIZE:-	NW: 0 = 12.00 m NQ: 12.00-404.20 m BQ: 404.20-530.45 m
BEARING OF HOLE:- -	AIR PHOTO No. - N/A	COMMENCED:-	22/11/79
INCLINATION OF HOLE:- Vertical	DRILL:- Joy-Sullivan 30HD	COMPLETED:-	20/2/80
CO-ORDS OF SITE:- 391 020.7mE 5 388 111.9mN	DRILLER:- D. Whasmond, W. West L. Newman, R. Sobier	FINAL DEPTH (m):-	530.45

M1020

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				width) occur from 391 m to 391.55 m together with minor slickensiding; joint (dipping at 60°) commences at 391.25 m, and appears to form a boundary between fine-grainsize dolerite and glassy dolerite (hornfels (?)); conjugate slickensides intersect at a depth of 391.45 m; dolerite is similar to green-grey mudstone (hornfels (?)) from 391.40 m to 391.55 m. Undulose, irregular sub-horizontally dipping bottom contact (BC).		
391.55	391.60	0.05	100	COAL SECTION; (not sampled) Carbonaceous mudstone with minor calcite veins and microfaulting. Irregular BC dips at 5°.		
391.60	391.70	0.10		Mudstone, grey, slickensided. Sygmoidal BC dips at 10°.		
391.70	392.20	0.50		Carbonaceous mudstone/bright coal/dull coal (60:20:20), interbanded; bedding dips at up to 20°; abundant carbonate (calcite (?)) on irregular joints; coal is highly slickensided and brecciated. Gradational bottom-contact (GBC).		
392.20	393.31	1.11		Mudstone, grey, silty; abundant slickensides (dipping at from 45° to sub-vertically relative to core axis) and micro-faults (with up to 1 cm offsets); minor carbonate (calcite (?)) veins dipping sub-horizontally to sub-vertically; abundant wispy, contorted coaly and carbonaceous flecks; undulose and lenticular bedding from 392.8 m to 393.31 m. GBC.		
393.31	393.69	0.38		Mudstone, grey, sandy bands and laminae dipping at 30°.		
393.69	395.05	1.36	100	Fine-medium grainsize lithic sandstone (FMLSS), white-grey, massive bedding; minor cross-bedding from 393.69 m to 393.79 m. BC dips at 5°. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
395.05	422.55	27.50	100	Medium-grainsize lithic sandstone (MLSS), grey-white; bedding dips at up to 5° from 395.05 m to 395.20 m and at up to 10° (with minor FMLSS) from 395.20 m to 398.20 m; abundant coaly debris and laminae (contorted) dipping at up to 30° from 399.05 m to 399.70 m; bedding dips at 5° elsewhere from 398.20 m to 404.20 m; generally massive bedding; mud-pellets (5 cm in diameter), coaly debris and irregular carbonaceous laminae (dipping at up to 10°) from 404.97 m to 405.30 m; minor joints (dipping at from 30° to 60°) from 407.83 m to 407.98 m; sub-vertically dipping joint from 407.27 m to 407.67 m; grades with depth to FMLSS from 407.22 m to 410.19 m, then reverts to MLSS via a sharp BC; FMLSS with abundant wispy, lenticular coaly laminae from 411.79 m to 412.55 m; bright coal band dipping at 20° from 412.16 m to 412.17 m; abundant mud-pellets and quartzitic cobbles from 412.39 m to 412.55 m (slickensides in carbonaceous mudstone during this interval); coarse-grainsize lithic sandstone (CLSS) from 412.55 m to 413.14 m; minor CLSS intervals from 413.22 m to 414.82 m; bright coal bands and brown mudstone (with black laminae dipping at 60°) from 415.10 m to 415.18 m; coaly debris and laminae (dipping at up to 10°) from 415.18 m to 415.29 m and from 415.94 m to 416.04 m; CLSS from 415.18 m to 416.14 m and from 417.40 m to 421.23 m; minor coaly debris 419.67 m to 419.68 m; mud-pellets from 420.13 m to 420.18 m. BC dips at 2°.		
422.55	422.78	0.23	100	COAL SECTION: (not sampled) Dull coal; abundant irregularly-dipping sub-vertical cleat; minor bright coal laminae; crumbly zone from 422.74 m to 422.76 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
422.78	422.81	0.03	100	COAL SECTION: (not sampled) (Contd.) Mudstone, grey; abundant acicular fossil-plant debris. BC dips at 10°.		
422.81	422.89	0.08	100	Dull coal with abundant bright coal and carbonaceous mudstone laminae. GBC.		
422.89	422.92	0.03		Mudstone, grey; abundant acicular fossil-plant debris. BC dips at 10°.		
422.92	422.97	0.05		Heavy dull coal; minor bright coal lepticles (dipping at 10°). GBC.		
422.97	423.00	0.03		Bright coal with abundant carbonate on cleat.		
423.00	423.06	0.06		Mudstone, grey, shaly; abundant slickensides and plant-fossil debris.		
423.06	424.45	1.39		Brecciated and sheared (fault (?)) zone.		
423.06	423.22	0.16		Dull coal and carbonaceous mudstone; brecciated dull coal with minor bright laminae from 423.06 m to 423.12 m and from 423.15 m to 423.19 m; very soft and friable coal in a breccia and slickenside zone from 423.12 m to 423.15 m; bright and dull coal laminite from 423.19 m to 423.22 m. Faulted BC (offset unknown) dips at 0° to 45° (relative to core axis).		
423.22	423.24	0.02		Carbonaceous and grey shale in a slickenside zone dipping at 45°.		
423.24	423.30	0.06	100	Dull coal, slickensided and brecciated; crumbles readily; brown clay band dipping at 45° at the base of this unit. BC dips at 45°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
423.30	423.67	0.37	100	COAL SECTION: (Not sampled) (Contd.) Mudstone, grey, shaly, abundant slickensides dipping at 45°; very shaly area (breccia and shear zone) from 423.39 m to 423.57 m and from 423.64 m to 423.71 m (dipping at 45°).		
423.67	423.73	0.06		Dull coal; brown shaly clay-stone band dipping at 45° from 423.67 m to 423.68 m.		
423.73	423.85	0.12		Mudstone, grey; highly slickensided and shaly; abundant plant-fossil debris.		
423.85	423.90	0.05		Carbonaceous mudstone/grey mudstone/bright coal laminae breccia zone.		
423.90	424.00	0.10		Mudstone, grey/carbonaceous mudstone, shaly, breccia and slickenside zone.		
424.00	424.04	0.04		Mudstone, grey; minor carbonaceous laminae and bands; abundant slickensides (faulted (?)); shaly.		
424.04	424.06	0.02		Carbonaceous shale, friable, core is ground-up.		
424.06	424.23	0.17		Mudstone, grey; abundant slickensides and carbonaceous bands and laminae dipping at up to 5°; abundant plant-fossil debris.		
424.23	424.26	0.03		Mudstone, grey; 45° dip slickensides with 5 mm separation.		
424.26	424.31	0.05	100	Mudstone, grey and dark-grey; abundant joints dipping at 45°; core parts readily.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
424.31	424.45	0.14	100	COAL SECTION: (not sampled) (Contd.) Mudstone, grey, shaly; abundant slickensides and jointing dipping at from 45° to 60°. BC dips at 20°.		
424.45	424.49	0.04		Carbonaceous mudstone, minor brown and grey mudstone bands dipping at 20°. BC dips at 20°.		
424.49	424.52	0.03		Mudstone, grey. Undulose BC dips at 10°.		
424.52	424.62	0.10		Carbonaceous mudstone/grey mudstone, interbanded; lenticular bedding dipping at up to 10°. BC dips at 5°.		
424.62	424.65	0.03		Mudstone, grey; wispy and irregular carbonaceous laminae and bands. BC dips at 10°.		
424.65	424.75	0.10		Mudstone, grey/carbonaceous mudstone (50:50); minor bright coal laminae and mud-pellets; minor grey-mudstone lenticles. GBC.		
				(BASE OF COAL SECTION)		
424.75	424.87	0.12		FMLSS, grey, massive. Undulose GBC.		
424.87	424.92	0.05		Siltstone, grey. BC dips at 2°.		
424.92	441.36	16.44	100	MLSS, grey, massive; abundant sub-vertically to 45° dip joints from 424.92 m to 425.55 m; silty bands and laminae with minor carbonaceous mudstone laminae and festoon cross-bedding from 426.64 m to 427.21 m; bright coal laminae, coaly debris and carbonate matrix from 428.47 m to 428.65 m and from 430.34 m to 430.49 m; minor FMLSS intervals from 431.17 m to 434.17 m; grades with depth to FMLSS from 434.2 m to 437 m (sharp BC); minor carbonaceous laminae dipping at up to 10°		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				from 437.14 m to 439.23 m; minor FMLSS bands dipping at 2° from 439.23 m to 441.36 m. Irregular BC with mudstone shards and pellets from 441.30 m to 441.36 m.		
441.36	447.78	6.42	100	Mudstone, grey; minor carbonaceous bands and laminae, secondary carbonate veins and trace carbonaceous sub-vertically dipping worm-burrows (?) from 442.66 m to 442.86 m; minor slickensides; primary (?) carbonate in matrix from 443.89 m to 444 m; bedding dips at up to 20° from 443.14 m to 446.12 m; silty and sandy from 445.1 m to 446.6 m; minor festoon cross-bedding from 446.12 m to 446.6 m; shaly and slickensided from 447.1 m to 447.4 m; sandy and silty from 447.4 m to 447.78 m. Sygmoidal BC dips at 5°.		
447.78	449.07	1.29		FMLSS, massive, minor MLSS intervals; abundant carbonate in matrix. BC dips at 45°.		
449.07	449.96	0.89		Mudstone, grey, abundant slickensides; breccia zone from 449.07 m to 449.22 m; shaly with abundant carbonaceous mudstone fragments from 449.8 m to 449.96 m. Sub-horizontally-dipping BC.		
449.96	450.13	0.17		COAL SECTION: Dull coal. Sharp bottom (not sampled) contact dips at 10°.		
450.13	450.19	0.06		FMLSS, white-grey-brown, minor quartzose (<5%); abundant irregular carbonaceous laminae and carbonaceous trace-fossils (rootlets (?)). BC dips at 10°.		
450.19	450.41	0.22		Fine-grainsize lithic sandstone (FLSS), grey-brown, silty; minor irregular bedding and carbonaceous bands; clayey. GBC.		
450.41	450.67	0.26	100	Laminite, grey mudstone/carbonaceous mudstone (50:50); sub-vertically-dipping worm-burrows (?). BC dips at 5° (relative to core axis).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

54 GEOLOGICAL LOG Page:- 8/17

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
450.67	451.46	0.79	100	Mudstone, grey; minor carbonaceous mudstone intervals with irregular and disturbed bedding; shaly with abundant plant-fossil debris from 451.18 m to 451.37 m. GBC.		
451.46	452.82	1.36		Mudstone/FLSS (50:50), interbedded, silty; minor laminae dipping at up to 10°; carbonaceous laminae near 452.1 m; laminite of above lithologies from 452.2 m to 452.8 m; irregular, disturbed, lenticular bedding from 452.62 m to 452.82 m; slickenside dipping at 45° from 452.79 m to 452.82 m; grades to sandy with depth. BC dips at 5°.		
452.82	453.02	0.20		Carbonaceous mudstone; abundant grey mudstone laminae; minor lenticular and flaser bedding; shaly and slickensided from 452.87 m to 452.92 m; minor sub-vertically-dipping joints; FMLSS from 453.01 m to 453.02 m. Irregular, undulose BC dips at 2° (relative to core axis).		
453.02	454.05	1.03		Mudstone, grey; abundant slickensides; centrally located sub-vertically-dipping joint from 453.75 m to 454.75 m; silty. Undulose BC dips at 5°.		
454.05	458.60	4.55	100	FMLSS; abundant FLSS and siltstone intervals (bands and laminae); minor cross-bedding; bedding (light-grey with darker-grey bands) dips at up to 5°; minor cross-bedding; abundant silty and mudstone bands with minor cross-bedding from 455.98 m to 456.82 m; grey mudstone with abundant slickensides from 456.82 m to 457.29 m; abundant carbonate in the matrix from 457.55 m to 458.14 m; joints (dipping at 45°) spaced at 10 cm intervals occur from 455.3 m to 458.6 m (results in broken core); abundant silty and mudstone bands dipping at up to 2° from 458.1 m to 458.6 m. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

54 GEOLOGICAL LOG Page:- 9/17

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
458.60	460.16	1.56	100	Mudstone, grey; minor silty and sandy bands and dark-grey mudstone intervals; minor laminite dipping at up to 10° from 459.66 m to 460.16 m; minor sub-vertically-dipping joints. GBC dips at 2°.		
460.16	460.28	0.12		Laminite, grey mudstone/dark-grey mudstone (50:50); carbonaceous from 460.23 m to 460.28 m; bedding dips at up to 5°. BC dips at 5°.		
460.28	460.92	0.64		COAL SECTION: (not sampled) Carbonaceous mudstone; abundant slickensides from 460.28 m to 460.33 m; minor cleat and joint development; minor shaly intervals; minor grey mudstone bands and laminae from 460.72 m to 460.92 m. GBC dips at 2°.		
460.92	462.28	1.36		Carbonaceous mudstone/FLSS (60:40), inter-banded; silty; bedding dips at up to 10°; minor irregular and lenticular bedding; minor slickensides. BC dips at 10° with sub-horizontally-dipping slickenside conjugate to it.		
462.28	462.58	0.30		Mudstone, grey; secondary carbonate features from 462.31 m to 462.39 m (sygmoidal, en-echelon, sub-vertically to sub-horizontally dipping veins of calcite, plus carbonate matrix from 462.31 m to 462.35 m); pebbly and disturbed bedding with carbonaceous bands dipping at 5° from 462.43 m to 462.58 m. GBC.		
462.58	462.84	0.26		Carbonaceous mudstone/FLSS (60:40), inter-banded; silty; minor irregular and lenticular bedding; minor slickensides; mud-pellets and carbonaceous mudstone bands from 462.77 m to 462.84 m. BC dips at 5°.		
462.84	463.12	0.28	100	Laminite, grey mudstone/carbonaceous mudstone (60:40), minor coaly laminae dipping at up to 5°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

54 GEOLOGICAL LOG Page:- 10/17

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
463.12	463.30	0.18	100	**COAL SECTION:** Dull coal with carbonaceous mudstone from 463.12 m to 463.14 m; crumbly; core breaks readily. GBC.		
463.30	463.39	0.09		Carbonaceous mudstone/heavy dull coal (50:50), crumbly from 463.34 m to 463.39 m. BC dips at 10°.		
463.39	463.42	0.03		White-grey-brown claystone band with abundant wispy carbonaceous material.		
463.42	463.47	0.05		Carbonaceous mudstone/heavy dull coal (50:50); crumbly. GBC.		
463.47	463.55	0.08		Dull coal, minor sub-vertically-dipping jointing. GBC.		
463.55	463.60	0.05		Carbonaceous mudstone with brown-grey mudstone laminae and abundant irregularly-bedded bands (dipping at up to 10°) of elongate, brown mud- and clay-pellets (less than 5 mm in diameter). Sygmoidal BC dips at 10°.		1A
463.60	463.64	0.04		Carbonaceous mudstone/heavy dull coal (50:50), crumbly. GBC dips at 5°.		
463.64	464.17	0.53		Dull coal, abundant sub-horizontal and sub-vertically-dipping cleat; broken core. BC dips at 5°.		
464.17	464.19	0.02		Claystone, grey-brown; wispy carbonaceous laminae; undulose bedding (ripply). Undulose BC.		
464.19	464.31	0.12	100	Carbonaceous mudstone with abundant plant-fossil debris. BC (which starts at 464.28 m) dips at 30°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS
					Proximate analysis results (dry basis)
					% ash / % volatiles / % fixed carbon
1A	463.12	464.31	1.19	100	56.7 / * / *

* denotes: "not determined"

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
464.31	465.37	1.06	100	Grey mudstone/grey siltstone (50:50), interbedded; sandy in part; bedding dips at up to 10°; minor darker bands and laminae and irregular bedding; abundant 60° to sub-vertically-dipping joints.		
465.37	466.17	0.80	0	Lost core.		
466.17	466.54	0.27	73	COAL SECTION: Dull coal, abundant sub-vertically-dipping cleat; broken core.		
466.54	466.57	0.03	100	Mudstone, brown-grey-purple.		
466.57	466.75	0.09	50	Dull coal, broken and ground-away core.		
466.75	466.76	0.01	100	Mudstone, white; grey-brown clay pellets (1 mm diameter).		
466.76	466.79	0.03		Dull coal, broken core. BC dips at 2°.		
466.79	466.84	0.05	100	Mudstone, white; grey-brown-white clay pellets (up to 1 mm in diameter) and wispy carbonaceous laminae. BC dips at 2°.		1B
466.84	467.10	0.16	62	Dull coal; broken and ground-away core; friable.		
467.10	467.29	0.19	100	Dull coal with abundant bright bands and laminae.		
467.29	467.30	0.01		Claystone, brown-grey-purple; wispy carbonaceous laminae.		
467.30	467.49	0.19		Dull coal, minor bright coal bands; well-developed sub-vertically-dipping cleat; abundant bright bands from 467.44 m to 467.49 m. BC dips at 5°.		
467.49	467.91	0.42	100	Siltstone, brown-grey, clayey; abundant carbonaceous laminae (dipping at up to 10°) and trace-fossils (rootlets (?)); abundant joints dipping at 45°; carbonaceous mudstone lenticles and bands from 467.79 m to 467.82 m; minor cross-bedding Continued over.		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS: Proximate analysis results (dry basis) % ash	% volatiles	% fixed carbon
1B	466.17	467.49	1.03	78	39.3	22.7	38.0

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				with carbonaceous laminae dipping at up to 10° from 467.82 m to 467.89 m. GBC.		
467.91	468.54	0.63	100	FLSS, grey-white; abundant sub-vertically to 45° dip joints coated with minor amounts of carbonate (calcite (?)); minor cross-bedding and carbonaceous laminae with dark mudstone bands from 468.26 m to 468.51 m; abundant jointing with minor brecciation from 468.49 m to 468.54 m. Brecciated, irregular BC.		
468.54	471.69	1.56	50	Mudstone, grey; abundantly brecciated; elongate pebbles and angular blocks (from 2 cm to 8 cm in length) dip irregularly; generally crushed and sheared in appearance; slickenside zone (dipping at from 60° to 80°) containing sandy and carbonaceous laminae and pebbles and angular blocks from 468.92 m to 469.08 m; slickensides (dipping at 45°) from 469.20 m to 469.23 m, from 469.28 m to 469.32 m and from 469.53 m to 469.63 m; dark-grey mudstone and brown claystone with angular blocks and pellets (brecciated and dipping sub-vertically) from 469.66 m to 470.10 m; slickensided contact zone from 469.66 m to 469.70 m. Core loss occurs at the base of this unit.		
471.69	476.16	4.47	100	FLSS, grey; brecciated from 471.69 m to 471.89 m; minor darker laminae dipping at up to 5°; minor cross-bedded carbonaceous laminite from 473 m to 473.15 m; predominantly massive from 474.76 m to 476.16 m; coaly debris and lenticles with MLSS matrix (grades to with depth) from 475.9 m to 476.16 m. GBC.		
476.16	489.60	13.44	100	MLSS, grey-white; abundant coaly lenticles and debris from 476.16 m to 476.56 m; minor FMLSS intervals and mud-pellets from 477.26 m to 477.29 m and 477.44 m to 477.47 m; coaly lenticles, debris and mud-pellets (dipping at up to 30°) from		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				479.1 m to 479.24 m, from 480.01 m to 480.58 m and from 481.28 m to 481.53 m; abundant carbonate matrix from 478.88 m to 479.33 m and from 481.3 m to 481.7 m; minor mud-pellets from 481.66 m to 481.71 m; abundant angular mud-pellets, coaly debris and coarse-grainsize lithic sandstone (CLSS) from 481.9 m to 482.1 m; minor carbonaceous laminae, angular mud-pellets, coaly debris and coaly lenticles from 484.13 m to 485.03 m; carbonate matrix from 486.96 m to 488.64 m; intraformational conglomerate from 486.25 m to 487.08 m and from 488 m to 488.17 m; coaly debris and mud-pellets from 488.34 m to 488.64 m with bedding dipping at up to 20°. GBC.		
489.60	490.14	0.54	100	FMLSS, grey-white, massively-bedded. BC dips at 2°.		
490.14	490.41	0.27		Mudstone, grey, shaly, minor slickensides.		
490.41	490.55	0.14		COAL SECTION: (not sampled) Dull coal/bright coal (50:50); cream-brown clay-pellet (up to 1 mm in diameter) band from 490.43 m to 490.44 m. GBC. (Attenuated coal seam).		
490.55	490.93	0.38		FLSS; abundant carbonaceous, silty and grey mudstone laminae; abundant irregular, lenticular and flaser bedding; minor sub-vertically-dipping trace rootlets (?) or worm-burrows (?).		
490.93	490.96	0.03		Dull coal. GBC.		
490.96	490.99	0.03		Carbonaceous mudstone. GBC.		
490.99	491.05	0.06		Siltstone, dark-grey, carbonaceous in part. GBC.		
491.05	491.45	0.40		Siltstone, dark-grey, muddy; minor coaly lenticles; sandy towards the base. GBC.		
491.45	491.59	0.14	100	FLSS, abundant carbonaceous bands and laminae dipping at up to 5°. BC dips at 2°.		

Continued over

ASSAY DATA

SAMPLE No	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
491.59	492.13	0.54	100	FMLSS; minor FLSS intervals, darker bands and irregular bedding. BC dips at 5°.		
492.13	492.18	0.05		COAL SECTION: Dull coal. Interdigitating, lenticular BC, dipping at 5°. (Attenuated coal seam). (not sampled)		
492.18	492.54	0.36		Claystone, brown; irregular bedding; grades with depth to brown-grey mudstone with abundant dark-grey mudstone bands and laminae. Undulose BC dips at 5°.		
492.54	492.99	0.45		Mudstone, grey; minor shaly intervals; minor slickensides. GBC.		
492.99	498.07	5.08		FMLSS, grey-white, massively-bedded; minor mud-pellets from 492.99 m to 493.2 m; MLSS from 494.98 m to 495.6 m and from 496.34 m to 497.46 m (bedding dipping at up to 5°); carbonate matrix (massive limestone (?)) from 497.1 m to 497.46 m; cross-bedded carbonaceous laminae (dipping at up to 5°) from 494.50 m to 494.98 m, from 495.80 m to 496 m and from 497.46 m to 497.55 m. GBC.		
498.07	503.19	5.12		MLSS, grey-white, predominantly massively bedded; minor scattered coaly debris and laminae; minor carbonate matrix; abundant coaly laminae and debris, CLSS matrix, carbonaceous mudstone intervals, bedding dipping at up to 30° and carbonate matrix in CLSS for basal 10 cm from 502.43 m to 503.19 m. BC dips at 5°.		
503.19	503.70	0.51		Mudstone, grey; abundant light- and dark-grey bands and laminae; silty; minor scattered plant-fossil debris. GBC.		
503.70	506.57	2.87		Grey siltstone/grey FLSS (60:40), inter-banded; minor mudstone bands; minor cross-bedding and laminite dipping at up to 5°.		
506.57	508.27	1.70	100	FMLSS, grey-white, massive; minor carbon-aceous laminae dipping at up to 5°. Irregular, stepped BC dips at 10°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

54 — GEOLOGICAL LOG — Page:- 15/17

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
508.27	509.81	1.54	100	Grey mudstone/dark-grey mudstone (60:40), interbanded; irregular, flaser and lenticular bedding; minor cross-bedding; silty and sandy. GBC.		
509.81	511.68	1.87		Mudstone, grey; silty; minor plant-fossil debris and FLSS intervals. GBC.		
511.68	511.86	0.18		CLSS, grey-white; clasts are up to 3 mm in diameter. Undulose BC.		
511.86	512.52	0.66		Carbonaceous siltstone/FMLSS/fine-medium grainsize quartzose sandstone (FMQSS) (40:30:30), interbanded. GBC. (This unit forms a transition zone. The top of the unit below is the start of the quartzose sandstone (QSS) sequence which occurs at the base of the upper fresh-water sequence of the Parmeener Supergroup in North-east Tasmania).		
512.52	514.37	1.85		FMQSS, creamy-white in colour; grades to medium-grainsize quartzose sandstone (MQSS) with depth; minor FMLSS intervals, irregular and disturbed cross-bedding; abundant carbonaceous laminae; bright coal shards, debris and bands from 513.32 m to 513.42 m; mud-pellets (up to 5 mm in diameter) coaly debris and disturbed bedding (dipping at up to 20°) from 513.72 m to 514.08 m. GBC.		
514.37	514.46	0.09		Siltstone, grey; sandy from 514.44 m to 514.46 m. BC dips at 2°.		
514.46	514.63	0.17		Mudstone, grey; grades to dark-grey and carbonaceous with depth. BC is poorly cuspate.		
514.63	514.88	0.25		FMQSS, minor carbonaceous laminae dipping at up to 10°. BC dips at 2° and is lobate.		
514.88	515.44	0.56		Siltstone, dark-grey, sandy; mudstone from 514.88 m to 515.03 m; abundant bands of FMQSS from 515.14 m to 515.44 m.		
515.44	517.29	1.85	100	MQSS; abundant coaly debris; abundant carbonaceous bands and laminae; minor disturbed cross-bedding dipping at up to		

Continued over

ASSAY DATA

SAMPLE No	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

54				GEOLOGICAL LOG	Page:- 16/17	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				10°; minor massive bedding; abundant mud-pellets (3 cm x 1 cm), coaly debris and carbonaceous laminae from 516.34 m to 516.75 m.		
517.29	518.09	0.80	100	Mudstone, grey; grades with depth to siltstone then to mudstone banded with fine-grainsize quartzose sandstone (FQSS) over the basal 50 cm. GBC.		
518.09	524.09	6.00		MQSS, white; abundant carbonaceous laminae and bands dipping at up to 10°; minor cross-bedding from 518.09 m to 519.01 m; festoon cross-bedding from 519.86 m to 520.76 m; bioturbation (sub-vertically dipping worm-burrows (?)) from 519.86 m to 520.51 m and from 521.39 m to 521.45 m; irregular bedding with irregular and undulose carbonaceous laminae (dipping at up to 10°) from 521.47 m to 522.11 m; mud-pellet band from 519.52 m to 519.58 m; grey shaly mudstone from 519.59 m to 519.86 m and from 520.99 m to 521.29 m; minor festoon cross-bedding and irregular bedding dipping at up to 20° from 522.75 m to 524.09 m; coarse-grainsize quartzose sandstone (CQSS) from 523.79 m to 524.09 m; quartzitic cobbles from 524.04 m to 524.09 m. Irregularly-cuspate, disturbed BC dips (on average) at 5°. (Base of the upper freshwater sequence of the Parmeener Supergroup).		
524.09	526.17	2.08		(The interval 524.09 m to 526.17 m represents a transition zone during which there is an interdigitation of marine and freshwater sequences).		
524.09	525.22	1.13		Siltstone, grey; abundant angular quartz-grits; dark-grey, green-grey and muddy in part; shaly from 524.19 m to 524.49 m. GBC.		
525.22	526.17	0.95	100	FMQSS; angular grits; rounded cobbles (up to 5 cm in length) from 526.07 m to 526.17 m. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

54 GEOLOGICAL LOG Page:- 17/17

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
526.17	530.45	4.28	100	Siltstone, dark-grey; abundant angular quartz-grits, angular cobbles and quartzitic pebbles with long axes at high angles to the bedding. (Top of this unit forms the top surface (proper) of the upper glacio-marine sequence of the Parmeener Supergroup). (Base of DOM FINGAL DDH Number 54 at a depth of 530.45 m).		

Continued over

ASSAY DATA

SAMPLE No	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

M 1446

Index Page:-

DRILLING TARGET:- Base of the Upper Parmeener Supergroup

REMARKS:- The roof of the probable Duncan seam as at an R.L. of 328.8 m.

SURVEY DATA			ASSAY DATA Seam width is 1.59 m.											
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS						

GEOLOGICAL LOG Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0	1.25	chips	0	HW-sized roller-bit used to penetrate surficial gravels, which are part of the mantle of Quaternary dolerite talus which covers solid Jurassic dolerite outcrop in this area.		
1.25	28.00	12.65	47	Dolerite talus with weathered solid-dolerite from 9 m to 28 m.		
28.00	98.01	70.01	100	Solid but partly-weathered dolerite to 41 m; yellow lateritised (?) dolerite (granular-1 mm to 3 mm grainsize) from 41 m to 43 m; solid dolerite with minor sub-horizontal to sub-vertical weathered (brown-stained) joints from 43 m to 60 m; 10 cm long samples of dolerite have been stored in the core trays awaiting future analyses - these samples represent depths of (approximately) 59 m, 61 m, 62 m, 65 m, 68 m, 71 m, 74 m, 77 m, 80 m, 83 m, 84 m (shows a 10 cm thick coarser-grained layer), 86 m, 89 m and 92 m. The grainsize in these samples is 1 mm in the matrix with phenocrysts up to 3 mm long. At 92 m the phenocrysts reach a maximum length of 2 mm, but by 97.67 m, this maximum is 0.5 mm (1 mm at 95 m). Closely-spaced (1-5 cm) sub-vertical jointing becomes prominent from 90 m to 98 m. Light-grey to 96 m, then dark-grey to 98 m.		

Continued over.

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:-	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE -
DOM FINGAL DDH 55			Headwaters of St Pauls River on the Fingal Tier

R.L. OF SITE:- 626.4 m	SITE SURVEY ON MAP No. -	CORE SIZE -	HQ: 0 - 55.00 NQ: 55.00 - 470.65
BEARING OF HOLE:- -	AIR PHOTO No. -	COMMENCED -	26th November, 1979
INCLINATION OF HOLE:- Vertical	DRILL - Longyear 44	COMPLETED -	18th January, 1980
CO-ORDS OF SITE:- 591 126.3 E 5 387 068.9 N	DRILLER - C. Mitchell, S. Mitchell	FINAL DEPTH (m):-	470.65

M1029

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55	GEOLOGICAL LOG	Page:- 2/22

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				(continued from previous page) Dolerite is fine-grained and contains abundant green-grey 1 mm long phenocrysts (microporphyry (?)) from 96 m to 98.01 m. Near the contact (base of the dolerite sill) the joints dip at from 45° to 60°. There is a prominent joint from 97.89 m to 97.93 m, and a prominent joint also from 98.03 m to 98.06 m (both dipping at approximately 45°). Numbered samples have been taken of the dolerite:- 8055-1 from 34 m, 8055-2 from 43 m and 8055-3 from 97.89 m to 98.06 m.		
98.01	98.12	0.11	100	CONTACT ZONE. Diffuse, interdigitating contact; very irregular; steeply dipping (60° ± 20°). Consists of medium-grainsize lithic sandstone (MLSS) containing 1 cm-long flattened pebbles dipping (in alignment with bedding) at an angle of 20°; thermally metamorphosed (hornfelsed).		
98.12	102.16	4.04	100	Conglomerate, hornfelsed, interbanded with festoon-cross-bedded MLSS, minor lithic sandstone (LSS) and mudstone laminae, minor joints dipping at 45°; pebbles up to 3 cm wide and 5 cm long are abundant and comprise Permian (?) siltstones, granitic cobbles, acid (?) volcanics (feldspar phenocrysts in quartzite) and quartzitic pebbles probably derived from the Mathinna Beds; most cobbles are well-rounded, elongate and spherical. The proportion of green mudstone in the matrix increases towards the base, which is pebbly. MLSS intervals occur from 98.12 m to 98.55 m, from 99.03 m to 99.30 m, from 99.64 m to 99.79 m, from 100.16 m to 100.42 m, from 100.50 m to 100.66 m and from 100.90 m to 101.04 m. Conglomerate bands occur elsewhere except for 101.36 m to 101.94 m which consists of green hornfelsed banded mudstone with minor intraformational conglomerate. Two numbered samples have been extracted from this unit:- 8055-4 from 99.30 m to 99.43 m (conglomerate with acid volcanics (?), etc.) and 8055-5 from 100.43 m to 100.56 m (conglomerate with Permian (?) pebbles and acid volcanics (?)).		

Continued over

ASSAY DATA

SAMPLE No	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

55	GEOLOGICAL LOG	Page:- 3/22

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
102.16	109.36	7.10	99	Fine-medium grainsize lithic sandstone (FMLSS), hornfelsed, grey-green, bedding dips at up to 10°, 10 cm of core loss between 103.55 m and 103.65 m, shaly matrix from 103.65 m to 104.55 m, white FMLSS in places (see sample 8055-6), minor laminae and bedding dipping at up to 20°, mud-pellet conglomerate from 104.55 m to 104.75 m and from 107.07 m to 107.52 m, fine-grainsize lithic sandstone (FLSS) from 107.57 m to 108.50 m. Sample number 8055-6 has been taken from 104.94 m to 105.07 m - this will be examined in thin section (similar to preceding and subsequent samples extracted from this drill-core).		
109.36	124.71	15.35	100	FLSS, grey-white, hornfelsed (flinty), minor pebbly intervals and mudstone bands and laminae, minor sub-vertically dipping joints and soft-sediment deformation (vertical micro-faults), 1 cm wide calcite vein dipping at 60° from 115.52 m to 115.65 m, minor FMLSS intervals from 115.70 m to 124.71 m, brown-grey-white in colour from 118.73 m to 124.71 m, minor brown mudstone bands and pebbles from 118.73 m to 121.71 m, minor carbonate veins dipping at up to 60° from 119 m to 121 m, grades to MLSS at the base. Samples 8055-7 (from 114.74 m to 114.80 m) and 8055-8 (from 120.83 m to 120.95 m) have been extracted for further work.		
124.71	131.60	6.89		FMLSS, grey-white, speckled surface from 124.71 m to 128.70 m, bedding dips at 5° from 124.71 m to 127.70 m and at up to 10° from 127.70 m to 131.60 m, minor carbonaceous laminae and coaly debris, minor brown and grey mudstone clasts and bands, large volcaniclastic cobble from 130.05 m to 130.12 m (rounded), conglomerate band at 131.60 m. Sample 8055-9 has been extracted from 130.01 m to 130.12 m.		
131.60	138.21	6.61	100	MLSS, grey-white, partially-hornfelsed, minor FLSS bands from 134 m to 136 m; minor FLSS bands and carbonaceous laminae from 137.20 m to 137.28 m; coaly bands (fusain and clarain), laminae and debris from 137.71 m to 138.21 m; minor mud-pellets from 138.16 m to 138.21 m. Gradational bottom contact (GBC).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

55	GEOLOGICAL LOG	Page:- 4/22

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
138.21	144.57	6.36	100	FMLSS, massively-bedded, hornfelsed (?), minor quartzose component (see sample 8C55-10), grades to MLSS and carbonaceous laminae from 142.57 m to 142.77 m, minor cross-bedding and carbonaceous laminae from 143.44 m to 143.74 m, minor carbonaceous laminae from 142.77 m to 143.00 m. Sample 8055-10 has been extracted from 139.62 m to 139.71 m to check the quartzose component percentage and degree of thermal metamorphism present (if any).		
144.57	148.77	4.20		MLSS, white-grey, partially-hornfelsed clay matrix (see sample 8055-11, which is from 145.13 m to 145.18 m), abundant, carbonaceous laminae dipping at up to 5°, minor slickensides, abundant hornfelsed mudstone and carbonaceous mudstone bands from 145.73 m to 148.77 m; minor flaser bedding and other small-scale sedimentary structures; intraformational conglomerate from 147.99 m to 148.33 m; minor quartzose component from 148.27 m to 148.77 m; black-grey FLSS band from 148.57 m to 148.62 m.		
148.77	151.73	2.96		Laminite, FMLSS, grey-white/carbonaceous FLSS and siltstone (50:50), partially-hornfelsed (?), abundant festoon cross-bedding from 148.77 m to 150.47 m, grades to a banded unit at the base, bedding dips at up to 5°.		
151.73	155.20	3.47		MLSS, grey-white; minor quartzose sandstone, carbonaceous bands and coaly flecks in the matrix; sub-horizontally dipping bedding. Bottom contact (BC) dips at 10°.		
155.20	155.60	0.40		Mud-pellet conglomerate, intraformational partly, minor quartzitic cobbles. Scoured BC.		
155.60	155.83	0.23		Mudstone, blue-grey, slickensided, brown-grey at top. BC dips at 5°.		
155.83	157.42	1.59		Carbonaceous mudstone/carbonaceous siltstone/carbonaceous FLSS to MLSS (40:20:40), interbanded, laminated in part, abundant sub-vertically dipping joints and slickensides. GBC dips at 5°.		
157.42	158.53	1.11	100	FLSS, grey, shaly, minor carbonaceous and light-grey bands and laminae, minor cross-bedding and siltstone laminite. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

55

GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
158.53	159.03	0.50	100	Siltstone, light-grey. GBC.		
159.03	159.66	0.63		Laminite, light-grey mudstone/dark-grey mudstone (60:40). GBC.		
159.66	159.79	0.13		Shale, light-grey, silty. (The base of this unit marks the start of a carbonaceous sequence which runs to a depth of 173.85 m).		
159.79	161.10	1.31		Siltstone, dark-grey to black, sandy, minor coaly debris, carbonaceous in part. GBC.		
161.10	161.62	0.52		FLSS/carbonaceous mudstone/mud-pellet bands (mud-pellets up to 5 mm x 3 mm)/bright-coal laminae (50:25:20:5). GBC.		
161.62	161.76	0.14		COAL SECTION: Bright coal with carbonate on the cleat.		
161.76	162.06	0.30		(not sampled) Carbonaceous shale/carbonaceous mudstone/bright coal with carbonate and clinoptilolite (called 'siderite' in earlier logs, but has since been identified by CSIRO using XRD) development on the cleat (20:60:20), interbedded. GBC.		
162.06	162.83	0.77		Mudstone, grey, swirl-marks in the bedding, carbonaceous traces, minor slickensides (typical of the type of mudstone which occurs under many coal seams). GBC.		
162.83	163.43	0.60		FLSS, light-grey, abundant silty and carbonaceous laminae, minor cross-bedding, minor carbonate deposits in sub-vertical to 45° dipping joints. GBC.		
163.43	163.54	0.11		Mudstone, dark-grey, silty.		
163.54	163.88	0.34		Mudstone, light-cream-grey, trace carbonaceous flecks, sub-vertically dipping clinoptilolite veins, shaly at top and bottom. Irregular BC dips at 5°. Sample 8055-12 has been extracted from 163.56 m to 163.76 m to examine the clinoptilolite (which was identified by CSIRO from samples 8055-13 and 8055-14), the trace plant-fossils (?) and clay type in this mudstone.		
163.88	164.39	0.51	100	COAL SECTION: (not sampled for proximate analysis) Dull coal/carbonaceous mudstone (50:50), crumbly, sub-vertical jointing, slickenside (dipping at 45°) at base, shaly in part, red mineral in breccia-like joints (this red mineral is clinoptilolite (a member of the Zeolite group of minerals) and it has an XRD derived formula of:- $Na_{2.3}\ K_{1.7}\ Ca_{0.5}\ Mg_{0.2}\ Al_{0.2}\ (Si_{30}\ Al_6)_{0.72}.24H_2O$ one of the mordenite group of the zeolites).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

55	GEOLOGICAL LOG	Page:- 6/22

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				GBC. [Sample 8055-13 from 164.22 m to 164.30 m contained clinoptilolite, which was initially examined and the mineral recognised by CSIRO].		
164.39	164.68	0.29	100	Mudstone, grey, shaly, minor sandy bands, normal fault (dipping at 45°) from 164.51 m to 164.63 m. Undulose BC.		
164.68	165.38	0.70		COAL SECTION: Carbonaceous mudstone/dull coal (50:50), (not sampled) crumbly, shaly in part, minor sandy matrix, minor clinoptilolite veins. GBC dips at 10°.		
165.38	166.15	0.77		Mudstone, creamy-grey, shaly in part; dark-grey in colour at the top and bottom of this unit. Similar lithology to that in sample 8055-12.		
166.15	166.26	0.11		Siltstone, dark-grey, sandy, clinoptilolite and calcite (?) in sub-vertically dipping joints. Undulose bottom-contact dips at 5°.		
166.26	166.32	0.06		COAL SECTION: Carbonaceous mudstone with minor dull (not sampled) coal, abundant sub-vertically dipping joints coated with clinoptilolite.		
166.32	166.38	0.06		Shale, grey, poorly carbonaceous, silty. GBC.		
166.38	166.82	0.44		Bright coal/carbonaceous mudstone (60:40), interbedded; dull coal with clinoptilolite on sub-vertically dipping joints from 166.42 m to 166.48 m; interbanded bright coal/dull coal (75:25) with minor pyrite and clinoptilolite coating the cleat from 166.56 m to 166.63 m; bright crumbly coal with calcite on cleat from 166.71 m to 166.79 m. GBC. (BASE OF COAL SECTION)		
166.82	169.82	3.00		Mudstone, dark-grey, silty, minor bright-coal laminae; abundant sub-vertical jointing and minor slickensides; core parts readily; shaly from 168.42 m to 169.82 m; carbonaceous from 166.82 m to 167.47 m, from 167.70 m to 168.19 m and from 168.24 m to 168.49 m. GBC.		
169.82	171.07	1.25		Laminite, dark-grey mudstone/light-grey mudstone (50:50), shaly, abundant sub-vertically dipping partings (joints (?)); grey-green mudstone from 170.55 m to 171.07 m (very crumbly). Irregular BC dips at 5°.		
171.07	173.85	2.78	100	Mudstone, grey, minor laminite (as above), minor wisps of disturbed bedding; slickenside (dipping at 60°) from 171.23 m to 171.35 m; silty cross-bedding common from 171.40 m to 173.85 m; sandy from 172.60 m to 172.90 m and from 173.65 m to 173.85 m; 2 mm normal-offset micro-fault from 173.16 m to 173.48 m. Sharp bottom-contact (SBC) dips at 5° (unless stated otherwise, all contacts are assumed to be sharp).		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
173.85	181.13	7.28	100	MLSS, grey; poorly carbonaceous from 173.85 m to 175.35 m; bedding dips at up to 10° from 173.85 m to 175.95 m; abundant coaly debris from 175.35 m to 175.95 m; minor FMLSS intervals and bright coal laminae from 175.95 m to 178.92 m; conglomerate (mud-pellets and bright-coal bands, laminae and shards in a coarse-grainsize lithic sandstone (CLSS) matrix) with bedding dipping at up to 20° from 178.30 m to 178.86 m; dull coal with abundant carbonate on the cleat and minor mud-pellets from 178.86 m to 178.95 m; minor cross-bedding dipping at up to 30° from 178.95 m to 181 m; abundant festoon cross-bedding from 181 m to 181.13 m; carbonaceous matrix (increasing in concentration with depth) from 180.10 m to 181.13 m.		
181.13	181.29	0.16		COAL SECTION: Dull coal; minor carbonaceous mudstone bands and laminae; abundant carbonate on sub-vertically dipping cleat. Irregular BC. This unit has no clinoptilolite, and is not hornfelsed.		
181.29	181.36	0.07		Mudstone, shaly, grey-brown; minor (0.5 mm diameter) white clasts. Sub-horizontally dipping irregular BC.		1A
181.36	181.57	0.21		Dull coal with minor bright-coal laminae, irregular bedding, abundant carbonate on sub-vertically dipping cleat. GBC.		
181.57	181.68	0.11		Shale, dark-grey, minor carbonaceous shale, very crumbly. Irregular BC dips at 5°.		
181.68	181.80	0.12		Dull coal with abundant bright bands and laminae; very sparse carbonate (calcite (?)) coating poorly-developed sub-vertically dipping cleat. GBC.		
181.80	182.42	0.62		Dull coal with minor bright coal bands and laminae, minor clay pellets, minor carbonate on poorly-developed sub-vertically dipping cleat.		1B
182.42	182.64	0.22		Carbonaceous mudstone, shaly (results in broken core), abundant slickensides. GBC.		
182.64	182.95	0.31		Heavy dull coal with minor carbonaceous mudstone bands; minor clinoptilolite and calcite (?) on poorly-developed cleat. GBC.		
182.95	183.01	0.06	100	Shale, grey, minor slickensides, sub-vertically-dipping jointing enables shale to break-up more readily.		

Continued over

ASSAY DATA

SAMPLE No	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS (Oven dry basis) % Ash	% volatiles	% fixed carbon
1A	181.13	181.68	0.55	100	67.5	*	*
1B	181.68	183.59	1.91	100	61.8	*	*
1C	183.59	185.89	2.30	100	46.7	17.3	36.0
1D	185.89	186.45	0.56	100	72.7	*	*

* denotes: "not analysed"

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
183.01	183.06	0.05	100	COAL SECTION: (cont.) Heavy dull coal/carbonaceous mudstone (50:50), slickensided and friable from 183.01 m to 183.05 m. Undulose bottom-contact (BC) dips at 5°.	)	
183.06	183.10	0.04		Carbonaceous mudstone with minor grey mudstone laminae. Irregular BC dips at 2°.	)	1B
183.10	183.55	0.45		Dull coal with minor bright-coal bands and laminae, negligible cleat and carbonate development.	)	
183.55	183.59	0.04		Mudstone, grey, clayey, friable (but not a shale).	)	
183.59	185.89	2.30		Dull coal with minor bright bands and laminae (very consistent lithology for a coal seam), very minor carbonate development on the cleat, sparse brown-grey clay pellets (1 - 2 cm in diameter); heavy dull coal with minor carbonaceous mudstone bands, jointing and slicken-siding from 184.19 m to 184.45 m; heavy dull coal/carbonaceous mudstone (50:50) from 184.92 m to 185.14 m.	)	1C
185.89	185.95	0.06		Mudstone, dark-grey-brown.	)	
185.95	186.14	0.19		Dull coal/bright coal/carbonaceous mudstone (40:20:40), interbanded. GBC.	)	
186.14	186.21	0.07		Mudstone, dark-grey-brown, shaly, sub-vertically-dipping joints. Bottom contact (BC) dips at 2°.	)	1D
186.21	186.45	0.24		Dull coal with minor heavy dull coal and carbonaceous mudstone bands. Cusp-shaped BC dips at 30° on opposing sides of the cusp.	)	
				(BASE OF COAL SECTION).		
186.45	189.44	2.99		Shale, grey-brown; minor carbonaceous laminae, disturbed bedding and slickensides; expansive clays (resulting in very friable and broken core) with some sand from 187.20 m to 187.90 m; minor coaly flecks, sub-horizontally dipping carbonate veins and slickensides from 187.90 to 189.44 m; grades to a silty shale with depth. GBC.		
189.44	190.37	0.93	100	Fine-grainsize lithic sandstone (FLSS), grey and grey-green, grades to FMLSS with depth; abundant cross-bedding and carbonaceous laminae dipping at up to 10°; minor banding;		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

55	GEOLOGICAL LOG	Page:- 9/22

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				minor intraformational lithic sandstone (LSS) broken bands and cobbles from 190.37 m to 190.44 m. Involute, irregular BC.		
190.37	208.25	17.88	100	Medium-grainsize lithic sandstone (MLSS), grey, massive, minor carbonaceous laminae; bedding dips at up to 10° from 191.90 m to 193.40 m; mud-pellet conglomerate from 200.61 m to 200.67 m; grey siltstone band from 200.67 m to 200.72 m; grey-brown silty mudstone from 201.46 m to 201.54 m; broken core (cone-in-cone structure) from 202.47 m to 202.93 m; joints dipping at 60° from 202.04 m to 202.20 m, from 202.34 m to 202.51 m, from 202.44 m to 202.62 m, from 203.33 m to 204.53 m and from 205.63 m to 205.95 m; mud-pellet conglomerate from 204.09 m to 204.33 m; coaly debris from 204.80 m to 204.81 m and from 205.07 m to 205.13 m; wispy carbonaceous laminae from 205.63 m to 205.77 m; sub-vertically-dipping joints from 205.95 m to 206.75 m; minor wispy carbonaceous laminae from 205.95 m to 206.35 m; abundant coaly debris and laminae from 207.49 m to 207.97 m. Irregular BC.		
208.25	208.27	0.02		COAL SECTION: (not sampled) Carbonaceous mudstone. Undulose bottom-contact (BC).		
208.27	208.42	0.15		Shale, creamy-grey, very friable. Irregular BC dips at 5°.		
208.42	208.45	0.03		Carbonaceous mudstone with minor dull coal. GBC dips at 10°.		
208.45	208.49	0.04		Mudstone, cream-grey-brown, shaly, minor coaly laminae and debris. Slickensided BC dips at 10°.		
208.49	208.58	0.09		Carbonaceous mudstone/heavy dull coal (50:50). GBC dips at 5°.		
208.58	208.62	0.04		Mudstone, cream-grey-brown, shaly in part, slickensides near the base. Irregular BC dips at 10°.		
208.62	208.80	0.18		Heavy dull coal/carbonaceous mudstone (50:50). GBC.		
208.80	208.88	0.08		Shale, cream-grey-brown, minor coaly debris.		
208.88	208.97	0.09		Heavy dull coal/carbonaceous mudstone (50:50). GBC.		
208.97	209.13	0.16		Carbonaceous mudstone. GBC.		
209.13	209.20	0.07		Claystone, cream-grey-brown, poorly shaly, dirty, minor joints dipping at 45°.		
209.20	209.23	0.03	100	Heavy dull coal.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

55 GEOLOGICAL LOG Page:- 10/22

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
209.23	210.17	0.94	100	COAL SECTION: (not sampled) Shale, dark-grey, abundant slickensides. Pebbly, disturbed (involute) BC.		
210.17	210.23	0.06		(cont.) FMLSS, grey. Irregular BC dips at 15°.		
210.23	210.39	0.16		Mudstone, grey, with shaly grey-green claystone from 210.31 m to 210.39 m.		
210.39	211.01	0.62		Laminite, carbonaceous mudstone/cream-grey-brown shaly siltstone (40:60); minor bright and dull coal bands from 210.39 m to 210.54 m; slickensides and sub-vertically-dipping joints become prominent with depth. GBC.		
211.01	211.71	0.70		Laminite, dark-grey mudstone/light-grey mudstone (50:50), silty; irregular and disturbed bedding (flaser bedding, rollovers). GBC.		
211.71	212.52	0.81		Mudstone, grey, silty, minor plant-fossils, shaly with depth, minor light- and dark-grey laminite; laminae of carbonaceous and brown mudstone from 212.50 m to 212.52 m.		
212.52	214.28	1.76		COAL SECTION: Carbonaceous mudstone, shaly (crumbles readily), abundant slickensides; brown mudstone band from 213.48 m to 213.50 m; sandy laminae and bands from 213.55 m to 214.08 m; grey-black shale band from 214.14 m to 214.17 m; heavy dull coal from 214.07 m to 214.14 m and from 214.17 m to 214.28 m. BC dips at 5°.		2A
214.28	214.67	0.39		Shale/mudstone, interbanded; cream-grey shale (very crumbly and expansive-when-wet) from 214.28 m to 214.44 m; cream-grey mudstone from 214.44 m to 214.49 m; from 214.50 m to 214.53 m and from 214.56 m to 214.67 m; carbonaceous mudstone from 214.49 m to 214.50 m and from 214.53 m to 214.56 m; slickenside (dipping at 45°) from 214.61 m to 214.65 m. Irregular, but sub-horizontally-dipping, BC.		2B
214.67	214.95	0.28	100	Heavy dull coal with minor silty and clayey bands dipping at up to 5°; minor normal-offset (2 mm) microfaults dipping at approx. 45°; minor slickensides. GBC.		2C

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Analysis results (dry basis) % ash	% volatiles	% fixed carbon
2A	212.52	214.28	1.76	100	74.9	*	*
2B	214.28	214.67	0.39	100	91.3	*	*
2C	214.67	216.68	2.01	100	60.7	*	*
2D	216.68	217.00	0.32	100	81.8	*	*

* denotes: not determined.

55	GEOLOGICAL LOG	Page:- 11/22

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
214.95	216.25	1.30	100	COAL SECTION: (cont.) Heavy dull coal with abundant shale and mudstone bands from 215.02 m to 215.05 m, from 215.09 m to 215.10 m, from 215.12 m to 215.13 m, from 215.15 m to 215.19 m, from 215.22 m to 215.27 m, from 215.36 m to 215.37 m, from 215.45 m to 215.47 m (dipping at 10°), from 215.82 m to 215.86 m and from 215.91 m to 216.02 m; abundant clay-pellets (1 to 2 mm in diameter) from 215.52 m to 215.83 m; slickensides (dipping at 60°) from 215.05 m to 215.15 m and from 215.33 m to 215.48 m. GBC.		2C
216.25	216.68	0.43		Dull coal with abundant bright coal laminae and bands; carbonate coating on poorly-developed cleat and in other sub-vertically-dipping joints; creamy-brown mudstone from 216.37 m to 216.42 m.		
216.68	217.00	0.32		Dull coal/grey mudstone (40:60), interbanded and laminated; irregular bedding (undulose, flaser and lenticular). GBC.		2D
217.00	219.38	2.38		Shale, light-grey, massive. GBC.		
219.38	220.48	1.10		Laminite, light-grey mudstone/dark-grey mudstone (50:50), abundant slickensides and flaser bedding.		
220.48	220.98	0.50		Mudstone, light-grey, disturbed bedding. GBC.		
220.98	223.98	3.00		Shale, grey; light-grey mudstone/dark-grey mudstone (50:50) laminite (poorly-developed) from 220.98 m to 221.80 m; light-grey flinty mudstone from 222.98 m to 223.38 m; carbonaceous mudstone from 223.38 m to 223.48 m; minor expansive clays; sandy. GBC.		
223.98	226.03	2.05		Shale, grey/siltstone, grey (50:50), interbanded; sandy; bedding dips at up to 10°; slickensides and joints are common; minor bright coal bands and laminae. BC dips at 10°.		
226.03	234.57	8.54	100	MLSS, grey; mud-ball (rollover structure (?)) from 226.07 m to 226.15 m; bedding dips at up to 40° from 226.03 m to 226.99 m; minor mud-pellet bands from 226.33 m to 226.43 m; cone-in-cone jointing from 227.04 m to 227.64 m and from 228.54 m to 229.74 m; abundant sub-vertically dipping joints from 226.63 m to 226.99 m; bedding dips at up to 10° from 226.99 m to 230.01 m and is generally massive; bedding dips at up to 15° from 230.01 m to 234.57 m; minor carbonate in the matrix from 230.01 m to 234.57 m; mud-pellet band from 230.36 m to 230.56 m; minor FMLSS and cross-bedding; minor coaly debris from 231.41 m to 231.51 m; abundant coaly		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

55

GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				debris and mud-pellets from 233.02 m to 233.06 m and from 234.12 m to 234.57 m; LSS from 232 m to 234.57 m is similar to sample 8055-11.		
234.57	236.39	1.82	100	FMLSS, dark-grey in colour, abundant cross-bedding dipping at up to 10°. Irregular BC with shards and bands of LSS producing an interdigitating effect.		
236.39	244.08	7.69		MLSS, grey-white, abundant coaly debris, minor mud-pellets, bedding dips at up to 20°; massive from 239.59 m to 239.99 m and from 240.49 m to 241.49 m; mud-pellet conglomerate with coaly and shaly debris from 241.57 m to 242.47 m. Stepped and irregular bottom-contact (BC) dips at up to 30°.		
244.08	244.21	0.13		COAL SECTION: Carbonaceous mudstone/dull coal (50:50), bedding dips at up to 30°, minor slickensides. BC dips at 30° (starts at 244.21 m).		3
244.21	244.35	0.14		Mudstone, cream-grey-white, shaly, abundant carbonaceous flecks.		
244.35	244.65	0.30		Dull coal, minor bright bands, bedding dips at up to 5°; slickenside (dipping at 45°) from 244.56 m to 244.62 m; carbonate (calcite (?)) coated sub-vertically dipping joint from 244.45 m to 244.57 m. BC dips at 5°.		
244.65	244.83	0.18		Carbonaceous shale/brown mudstone (shaly)/heavy dull coal (40:40:20), interbanded. BC dips at 2°.		
244.83	245.39	0.56		Dull coal; minor bright bands; minor slickensides and heavy dull coal; shaly in part.		
245.39	245.81	0.42		Mudstone, light-grey, silty, sandy, minor cross-bedding and carbonaceous flecks.		
245.81	246.02	0.21		MLSS, grey-white, minor silty bands. GBC.		
246.02	246.65	0.63		Shale, light-grey, expansive (when wet), sandy. GBC.		
246.65	249.99	3.34		Mudstone, grey, shaly, abundant slickensides; minor carbonaceous mudstone bands dip at up to 10°; plant-fossils from 249.89 m to 249.99 m. Slickensided and faulted BC dips at 30° (throw on this normal (?) fault is greater than 5 cm).		
249.99	250.01	0.02		COAL SECTION: Dull coal. BC dips at 10°.		4
250.01	250.07	0.06		Shale, cream-grey.		
250.07	250.19	0.12		Dull coal.		
250.19	250.25	0.06	100	Shale, brown.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS		
					Analysis results (dry basis)		
					% ash	% volatiles	% fixed carbon
3	244.08	245.39	1.31	100	45.2	20.9	33.9
4	249.99	252.16	2.17	100	39.5	25.9	34.6

55				GEOLOGICAL LOG		Page:- 13/22
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
250.25	252.16	1.91	100	COAL SECTION: (cont.) Dull coal, minor bright bands; brown shaly mudstone bands from 250.38 m to 250.40 m, at 250.42, from 250.45 m to 250.48 m, from 250.64 m to 250.65 m and from 250.84 m to 250.85 m; brown-cream mudstone bands from 251.16 m to 251.19 m, at 251.32 m, from 251.35 m to 251.37 m, at 251.48 m, from 251.69 m to 251.70 m, from 251.91 m to 251.95 m, at 252.11 m and from 252.14 m to 252.16 m. GBC dips at 2°.	))))))))))))	4
252.16	253.16	1.00		Shale, light-grey, minor slickensides and carbonaceous laminae.		
253.16	253.71	0.55		FMLSS, white-grey; grades with depth to MLSS; massive and sub-horizontal bedding; FLSS from 253.38 m to 253.44 m. GBC.		
253.71	266.58	12.87		MLSS, grey-white, massive bedding; minor FMLSS intervals; sparse carbonaceous laminae and debris (apart from abundant coaly debris from 265.35 m to 265.75 m; minor coarse-grainsize lithic sandstone (CLSS) from 258.76 m to 260.06 m.		
266.58	266.72	0.14		Mudstone/dull coal (50:50), brown-grey, shaly, bedding dips at 10°.		
266.72	269.68	2.96		MLSS, grey-white, massive bedding, sparse carbonaceous laminae and debris.		
269.68	270.40	0.72		Conglomerate, mud-pellet, abundant coaly debris.		
270.40	270.67	0.27		FLSS, grey, massive.		
270.67	270.89	0.22		Dull coal.		
270.89	271.14	0.25		Mudstone, brown, shaly, abundant slickensides.		
271.14	271.28	0.14		Bright coal.		
271.28	271.63	0.35		Mudstone, brown; abundant concentric joints; fault zone (?) with BC dipping at 45° from 271.57 m to 271.63 m.		
271.63	275.47	3.84		MLSS, grey-white; abundant joints dipping at 45° to 60°; bedding dips at up to 20°; minor coaly debris. GBC.		
275.47	284.09	8.62		FMLSS, grey-white, bedding dips at up to 20° from 278.58 m to 279.08 m with minor mud-pellets (1 cm in diameter) and wispy carbonaceous laminae; massive bedding (dipping at up to 5°) and minor MLSS, carbonaceous laminae and fossilised bark (?) stems from 281.13 m to 284.09 m. GBC.		
284.09	284.59	0.50		MLSS, grey-white; minor carbonaceous laminae dipping at up to 5°. GBC.		
284.59	285.24	0.65	100	FMLSS, minor festoon cross-bedding (dipping at up to 5°) and carbonaceous laminae. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

55	GEOLOGICAL LOG	Page:- 14/22

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
285.24	285.79	0.55	100	MLSS, minor CLSS, abundant coaly laminae and debris.		
285.79	285.94	0.15		Mudstone, bedding dips at up to 60° (probably a loose boulder). Ragged and involute BC.		
285.94	286.65	0.71		MLSS, minor coaly debris, bright coal band at 286.55 m. BC dips at 30°.		
286.65	286.80	0.15		Mudstone, grey-brown, bedding dips at up to 45°, abundant wispy carbonaceous flecks, shaly from 286.65 m to 286.66 m. Irregular BC with mud-pellets up to 3 cm in length. [Sample 8055-15 has been extracted from 286.66 m to 286.80 m to investigate the environment of deposition].		
286.80	286.82	0.02		Mud-pellet conglomerate.		
286.82	287.67	0.85		MLSS, abundant CLSS, minor FMLSS; abundant coaly debris and contorted grey-brown mudstone laminae and debris (as for sample 8055-15); bedding dips at up to 20° from 287.12 m to 287.67 m; brown, dusty palaeosol (?) at 287.47 m. GBC.		
287.67	288.82	1.15		MLSS, grey-white, minor carbonaceous flecks and debris; sub-horizontal bedding. BC dips at 20°.		
288.82	289.32	0.50		FMLSS, carbonaceous, abundant carbonaceous mudstone bands and laminae. Cross-bedded BC.		
289.32	297.60	8.28		MLSS, grey-green; mud-pellets and steeply-dipping (60°) carbonaceous FMLSS bands from 289.62 m to 289.87 m; sub-vertically-dipping jointing (resulting in broken core) from 289.83 m to 290.13 m; abundant jointing, brown mud-pellets and bands and coaly laminae from 290.13 m to 290.93 m; massive MLSS from 290.93 m to 294.03 m, from 294.43 m to 294.73 m and from 295.23 m to 297.60 m; green-grey MLSS with brown mudstone pebbles, laminae and bands and minor coaly laminae from 294.03 m to 294.43 m and from 294.73 m to 295.23 m (with abundant CLSS and bedding dipping at up to 35°). BC dips at 10°.		
297.60	299.19	1.59	100	COAL SECTION: Dull coal, minor bright coal bands, well-developed sub-vertically-dipping cleat with minor calcite (?) on cleat surfaces; brown mudstone bands from 297.97 m to 298.00 m, from 298.77 m to 298.80 m and from 299.12 m to 299.14 m; grey mudstone bands with abundant carbonaceous flecks from 298.09 m to 298.12 m (contorted, lenticular band), from 298.18 m to 298.25 m, from 298.48 m to 298.50 m and from 298.86 m to 299.03 m (with slickensides); carbonaceous mudstone from 298.03 m to 298.04 m, from 298.39 m to 298.45 m and from 298.80 m to 298.84 m. Continued over		5

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS		
					Analysis results (dry basis)		
					% ash	% volatiles	% fixed carbon
5	297.60	299.19	1.59	100	54.1	*	*

* denotes: not determined.

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
299.19	302.12	2.93	100	Mudstone, grey, minor silty intervals, abundant coaly laminae and bands with slickensides and minor contorted bedding. GBC.		
302.12	305.18	3.06		FMLSS, minor MLSS and FLSS, minor cross-bedding and bedding dipping at up to 5°; minor carbonaceous laminae and mudstone bands from 302.12 m to 303.2 m and from 304.2 m to 305.18 m. GBC.		
305.18	327.34	22.16		MLSS, grey-white, massive (bedding dips at up to 5°), minor FLSS from 305.18 m to 306.20 m, minor FMLSS intervals; minor carbonate matrix from 311 m to 313 m; coaly debris and carbonaceous laminae from 311.90 m to 312.10 m; wispy brown mudstone laminae and bands and contorted bedding from 321.49 m to 322.14 m; bright coaly debris and bedding dipping at up to 50° from 322.04 m to 322.14 m; light-grey mudstone (sharp top and bottom contacts) with abundant wispy carbonaceous flecks and contorted bedding from 322.29 m to 322.55 m; minor carbonaceous flecks and coaly debris and laminae from 324.26 m to 326.56 m (bedding dips at up to 5°).		
327.34	328.93	1.59		Mudstone, grey; wispy contorted carbonaceous laminae and flecks, minor bright coal and carbonaceous mudstone bands from 327.56 m to 327.64 m; abundant contorted bedding and slickensides dipping at from 20° to 45°. BC dips at 5°.		
328.93	329.04	0.11		Carbonaceous mudstone, brown mudstone pellets from 328.93 m to 328.96 m.		
329.04	329.05	0.01		Mudstone, brown, bedding dips at 5°.		
329.05	329.09	0.04		Carbonaceous mudstone. GBC.		
329.09	329.20	0.11		Dull coal, abundant slickensides. A sygmoidal 45° dip slickenside intersects the sharp BC and passes into the unit below.		
329.20	329.24	0.04		Mudstone, grey-brown, abundant slickensides and carbonaceous laminae. GBC.		
329.24	329.34	0.10		Claystone, white, muddy, silty; abundant contorted cross-bedding and carbonaceous flecks and laminae. Involute GBC.		
329.34	329.46	0.12		Bright coal, minor lenticular mudstone and siltstone bands, minor carbonaceous mudstone laminae. Irregular BC dips at 2°.		
329.46	329.81	0.35		FLSS, silty, bioturbated; minor carbonaceous laminae; abundant trace worm-burrows (?) lined with carbonaceous material (or are these trace root-fossils (?)). GBC.		
329.81	330.21	0.40	100	Laminite, dark-grey mudstone/light-grey mudstone (50:50); sub-vertical burrow (?) from 329.91 m to 330.06 m; silty; flaser and lenticular bedding; minor carbonaceous laminae and low-angle cross-bedding. BC dips 2°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

55	GEOLOGICAL LOG	Page:- 16/22

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
330.21	330.37	0.16	100	Mudstone, grey; mudstone pellets, carbonaceous mudstone laminae, contorted bedding and carbonaceous mudstone bands increase in frequency of occurrence with depth. GBC.		
330.37	330.75	0.38		Mudstone, pale blue-grey, abundant carbonaceous flecks and contorted bedding. GBC.		
330.75	331.71	0.96		FLSS; abundant dark-grey and carbonaceous mudstone laminae and bands, festoon cross-bedding, lenticular carbonaceous laminae and bedding dipping at up to 10°; worm-burrow (?) from 330.75 m to 330.85 m. GBC.		
331.71	332.80	1.09		FLSS grading to FMLSS with depth; minor sub-horizontally dipping carbonaceous laminae; coaly debris from 332.75 m to 332.80 m. Irregular, contorted bottom-contact (BC).		
332.80	335.27	2.47		Mudstone, grey; abundant slickensides, wispy carbonaceous flecks, bedding dipping at up to 30°; becomes silty with depth and grades into the unit below. GBC.		
335.27	337.37	2.10		FLSS, grey-white/siltstone, grey (70:30), interbanded; contorted and undulose cross-bedding dipping at up to 10°; carbonate vein dipping at 60° from 335.32 m to 335.57 m. GBC.		
337.37	339.70	2.33		Mudstone, grey; abundant slickensides from 338.07 m to 338.27 m; brown mudstone band with sharp top and bottom contacts (dipping at 30°) from 337.87 m to 338.02 m (similar lithology to sample 8055-15); silty and massive from 338.27 m to 339.70 m. BC dips at 5°.		
339.70	339.98	0.28		Carbonaceous mudstone, sandy, bedding dips at up to 20°, slickensides (dipping at 60°) from 339.82 m to 339.88 m. Involute, cuspate BC dipping at 20°.		
339.98	340.11	0.13		Mudstone, grey, silty. Irregular, sub-horizontally dipping BC.		
340.11	341.12	1.01		Laminite, grey mudstone/carbonaceous mudstone (60:40); minor sandy laminae and light-grey mudstone bands; abundant flaser, contorted, undulose and lenticular bedding. GBC.		
341.12	341.41	0.29		Carbonaceous mudstone, minor sandy bands. GBC.		
341.41	342.06	0.65		FMLSS/carbonaceous siltstone (60:40), interbanded; lenticular, contorted, flaser and undulose cross-bedding dipping at up to 20°. Irregular, stepped BC dips at 10°.		
342.06	342.14	0.08		Mudstone, grey; silty; minor coaly flecks; bedding dips at up to 20°. Sharp, sub-horizontally-dipping BC.		
342.14	344.01	1.87	100	COAL SECTION: Dull coal with minor bright coal bands; bright coal from 343.71 m to 344.01 m; poorly-developed cleat; minor carbonate (calcite (?)) coating the cleat from 343.86 m to 344.01 m; minor mud-pellets Continued over	)))))	6A

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				COAL SECTION: (cont.) (less than 5 mm in diameter) from 342.34 m to 342.54 m; cream-brown mudstone bands from 342.74 m to 342.76 m, from 342.96 m to 342.97 m (contorted), from 343.14 m to 343.17 m, from 343.20 m to 343.23 m, from 343.28 m to 343.29 m, from 343.39 m to 343.42 m (vermiform and lenticular band at 343.42 m) and from 343.96 m to 343.98 m (wispy). BC dips at 2°.		6A
344.01	346.10	2.09	100	Siltstone, grey; sandy; minor carbonaceous laminae and slickensides; mudstone from 344.28 m to 344.48 m; minor silty/sandy laminite and cross-bedding; worm-burrow (?) from 344.58 m to 344.78 m; minor contorted bedding; slickenside (dipping at 45°) from 345.90 m to 345.95 m. Ripply BC dips at 5°.		
346.10	348.23	2.13		COAL SECTION: Dull coal with abundant bright coal bands; well-developed cleat coated with carbonate (calcite (?)) which increases in frequency of occurrence with depth; minor mud-pellets from 347.31 m to 348.23 m; broken core due to close cleat spacing from 346.76 m to 347.07 m; creamy-white-brown mudstone bands from 346.12 m to 346.19 m (carbonaceous), from 346.27 m to 346.42 m, from 346.64 m to 346.67 m, from 346.71 m to 346.76 m and from 347.07 m to 347.11 m; carbonaceous mudstone bands from 347.47 m to 347.48 m, from 347.50 m to 347.52 m (lenticular), from 348.17 m to 348.19 m (laminite with coal) and from 348.20 m to 348.23 m. Irregular BC dips at 5°.		6B
348.23	348.57	0.34		FLSS, silty; cross-bedding dipping at up to 20°; minor siltstone and carbonaceous mudstone bands and laminae. GBC dips at 5°.		
348.57	350.71	2.14		Mudstone, grey; shaly in part; minor siltstone laminite; bedding dips at up to 20°; wispy contorted carbonaceous flecks and laminae; abundant coaly debris and 45° dip slickensides; bright coal from 350.36 m to 350.41 m. GBC.		
350.71	352.65	1.94	100	Siltstone, grey; minor grey-mudstone intervals and dark-grey-mudstone and siltstone bands and laminae; abundant slickensides (dipping at 45°) and sub-vertically dipping joints. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS		
					Proximate analysis results (dry basis)		
					% ash	% volatiles	% fixed carbon
6A	342.14	344.01	1.87	100	29.2	19.7	51.1
6B	346.10	348.23	2.13	100	38.9	22.6	38.5

55	GEOLOGICAL LOG	Page:- 18/22

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
352.65	353.31	0.66	100	FLSS, light-grey; minor carbonaceous laminae; worm-burrows (dipping sub-vertically) from 352.73 m to 352.84 m and from 353.07 m to 353.25 m; normal fault (offset unknown) dipping at 45° from 352.68 m to 352.77 m; minor FMLSS and cross-bedding; breccia zone (dipping at 60°) with abundant secondary crystalline calcite from 352.85 m to 353.01 m; secondary calcite vein from 353.00 m to 353.08 m. GBC.		
353.31	353.62	0.31		FMLSS, grey-white, minor carbonaceous laminae. Irregular, sub-horizontally-dipping BC.		
353.62	354.67	1.05		Mudstone, grey; minor light-grey mudstone bands and laminae; abundant joints (dipping at from 45° to 60°) with minor fault movement; minor sandy cross-bedding and slickensides; wispy carbonaceous laminae; breccia zones from 353.74 m to 353.92 m (C-shaped) and from 354.21 m to 354.54 m. Sub-horizontally-dipping, irregular BC.		
354.67	358.37	3.70		FMLSS, grey; massive; joints dipping at 60° are common, and these joints have calcite coatings from 355.62 m to 355.72 m, from 356.00 m to 356.12 m (3 cm wide vein) and from 357.44 m to 357.84 m (1 mm wide veins on numerous joints); dark-grey mudstone from 354.76 m to 354.80 m; minor FLSS and MLSS bands and carbonaceous mudstone laminae (with bedding dipping at up to 5°) from 357.67 m to 358.37 m. Undulose BC.		
358.37	358.48	0.11		Mudstone, grey, minor grey- and dark-grey-mudstone laminite. GBC.		
358.48	358.73	0.25		Carbonaceous mudstone; minor heavy dull coal; minor 60° dip joint. GBC.		
358.73	359.51	0.78		Carbonaceous siltstone, sandy, bedding dips at up to 5°. GBC.		
359.51	360.41	0.90		FMLSS/carbonaceous siltstone (40:60), interbanded; minor contorted and cross-bedding. GBC.		
360.41	361.28	0.87		MLSS, abundant carbonaceous mudstone and siltstone bands and laminae dipping at up to 10°. GBC.		
361.28	362.62	1.34		MLSS, minor carbonaceous mudstone bands, pebbles and laminae; minor 60°-dip joints coated with calcite; sparse coaly debris. Undulose BC.		
362.62	364.55	1.93		MLSS, grey-white, massive bedding, minor carbonaceous laminae dipping at up to 5°. Irregular BC.		
364.55	364.92	0.37		Carbonaceous mudstone with minor heavy dull coal beds and grey mudstone laminae. GBC.		
364.92	365.32	0.40		Carbonaceous mudstone/grey-pink MLSS (40:60), inter-banded, clayey. GBC.		
365.32	365.50	0.18	100	MLSS, grey-pink, clayey, minor carbonaceous mudstone and coaly laminae increasing in frequency of occurrence with depth. Irregular BC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

55	GEOLOGICAL LOG	Page:- 19/ 22

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
365.50	365.61	0.11	100	Siltstone, grey/mudstone, grey (50:50), minor coaly flecks. Stepped, irregular BC dips at 10°.		
365.61	366.06	0.45		COAL SECTION: Dull coal with minor bright bands. Irregular, cuspate BC.	)	
366.06	366.08	0.02		Mudstone, creamy-white.	)	
366.08	366.13	0.05		Heavy dull coal. Undulose BC.	)	
366.13	366.16	0.03		Mudstone, creamy-white.	)	
366.16	366.52	0.36		Heavy dull coal/carbonaceous mudstone (50:50); minor carbonate (calcite (?)) on sub-vertically-dipping joints; grades to carbonaceous mudstone with depth. Flame-structures occur at the bottom contact, and these are involute and very irregular.	)	7
				(BASE OF COAL SECTION)		
366.52	368.36	1.84		Mudstone, grey, shaly, massive; carbonaceous mudstone from 366.57 m to 366.59 m; sandy and clayey (expansive) from 367.46 m to 368.36 m; minor slickensides; sub-horizontally-dipping carbonate (calcite (?)) band from 367.77 m to 367.78 m. GBC.		
368.36	370.06	1.70		Shale, light-grey; expansive clays in matrix; grades to shaly FMLSS with depth. GBC.		
370.06	377.90	7.84		MLSS, grey-white, minor FMLSS intervals, massive, bedding dips at up to 10°; sub-horizontally-dipping carbonaceous laminae from 374.41 m to 374.81 m; minor carbonate in matrix from 374 m to 377 m. BC dips at 5°.		
377.90	378.55	0.65		Mudstone, grey; abundant slickensides dipping at from 40° to 60°; abundant contorted wispy carbonaceous laminae and flecks; grades to carbonaceous mudstone from 378.48 m to 378.55 m with undulose and lenticular bedding. BC forms a shallow depression.		
378.55	378.72	0.17		COAL SECTION: Bright coal with minor carbonate (calcite (?)) on cleat surfaces. GBC.		
(not sampled)						
378.72	378.88	0.16		Dull coal with minor carbonaceous mudstone intervals. GBC.		
378.88	378.92	0.04		Carbonaceous mudstone. GBC.		
378.92	381.60	2.68	100	Claystone, grey-brown in colour; minor carbonaceous flecks, carbonaceous mudstone bands and sub-vertically-dipping joints; core breaks readily by cuboidal fracture; minor slickensides from 380.4 m to 381.6 m. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS		
					Proximate analysis results (dry basis)		
					% ash	% volatiles	% fixed carbon
7	365.61	366.52	0.91	100	51.1	*	*

* denotes: not determined

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
381.60	385.26	3.66	100	Siltstone, grey, sandy, massive; grey-green from 383.4 m to 385.26 m. GBC.		
385.26	388.39	3.13		FMLSS, grey-white; massive; sub-horizontally-dipping bedding; light-grey-green in colour in places. GBC.		
388.39	403.70	15.31		MLSS, grey-white; predominantly massive bedding dipping at up to 5°; calcite and coaly debris from 392.34 m to 392.39 m; grey slickensided mudstone from 392.51 m to 392.69 m; carbonaceous mudstone and mud-pellets from 393.07 m to 393.23 m; coaly debris from 393.54 m to 393.67 m, from 394.39 m to 394.45 m, from 394.51 m to 394.74 m, from 396.13 to 396.81 m and from 397.02 m to 397.19 m; FMLSS intervals from 393.23 m to 393.54 m, from 393.67 m to 394.39 m; from 394.45 m to 394.51 m, from 395.84 m to 396.13 m, from 396.81 m to 397.02 m and from 397.19 m to 397.94 m; grey siltstone from 394.74 m to 395.80 m; minor coaly debris and mud-pellets from 400.4 m to 400.9 m; minor carbonaceous laminae and cross-bedding from 401.4 m to 403.7 m; coaly debris from 402.7 m to 403.7 m. BC dips at 5°.		
403.70	404.18	0.48		Mudstone, grey; bright coal from 403.70 m to 403.72 m; minor lenticular and flaser bedding; minor light-grey mudstone bands. Irregular, undulose BC.		
404.18	404.35	0.17		Carbonaceous mudstone with minor heavy dull coal intervals at depth; grades to sandy with depth.		
404.35	404.53	0.18		Mudstone, grey, GBC.		
404.53	404.99	0.46		Siltstone, grey, sandy, contorted bedding; minor worm-burrows (?). GBC.		
404.99	405.39	0.40		Laminite, dark-grey mudstone/light-grey mudstone; slickenside with associated normal fault (approx. 2 cm offset) at 405.39 m.		
405.39	405.71	0.32		Mudstone, grey, dirty; minor carbonaceous mudstone (occasional laminite development); sandy; bioturbated (burrows (?)); this unit is probably a greywacke. GBC.		
405.71	406.47	0.76		FLSS, grey; abundant dark-grey mudstone bands and laminae; lenticular bedding. GBC.		
406.47	406.68	0.21		Laminite, dark-grey mudstone/grey mudstone (40:60).		
406.68	406.96	0.28		Laminite, brown-black coal/grey mudstone (50:50); grades to minor pink-brown mudstone with depth; bright coal from 406.94 m to 406.96 m. Irregular, undulose BC.		
406.96	407.68	0.72		Mudstone, grey; minor slickensides and wispy carbonaceous flecks and laminae. GBC.		
407.68	408.09	0.41		FLSS/siltstone (50:50), interbanded; irregular bedding; minor slickenside at 408.05 m. GBC.		
408.09	408.85	0.76		FMLSS, grey-white, massive.		
408.85	409.25	0.40	100	Mudstone, grey-brown/siltstone, grey (60:40), inter-banded. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
409.25	410.21	0.96	100	Siltstone, grey, sandy, minor cross-bedding from 409.9 m to 410.21 m, slickenside at 410.2 m. BC dips at 5°.		
410.21	410.65	0.44		Carbonaceous mudstone, abundant slickensides, minor plant-fossils. GBC.		
410.65	413.75	3.10		Mudstone, grey; sandy; silty. GBC.		
413.75	420.38	6.63		FMLSS, grey, massive; minor mud-pellets from 416.4 m to 419.5 m; grey-white in colour from 414.95 m to 416.5 m due to carbonate (calcite (?)) in the matrix. GBC.		
420.38	420.48	0.10		Intraformational mud-pellet conglomerate; slickenside (with an indeterminant amount of movement (normal (?) fault) from 420.48 m to 420.53 m (dips at approximately 45°).		
420.48	420.67	0.19		Carbonaceous mudstone. BC dips at 5°.		
420.67	421.78	1.11		FMLSS, minor bioturbation (worm-burrows (?)); abundant siltstone and mustone bands and laminae; minor carbonaceous laminae and disturbed bedding. GBC.		
421.78	422.52	0.74		Mudstone, grey; abundant slickensides from 422.2 m to 422.5 m.		
422.52	423.68	1.16		FMLSS, grey-white, minor carbonaceous laminae dipping at up to 5°; grades to silty FMLSS with depth. GBC.		
423.68	424.30	0.62		Mudstone, dark-grey, carbonaceous in part. GBC.		
424.30	427.91	3.61		Mudstone, grey, silty; minor sandy and silty bands and laminae; undulose, lenticular bedding dipping sub-horizontally (relative to core axis); minor carbonaceous and FLSS intervals from 425.46 m to 427.91 m; breccia zone (normal (?) fault) dipping at 60° from 426.06 m to 426.26 m; minor cross-bedding.		
427.91	428.11	0.20		Medium-grainsize quartzose sandstone (MQSS); dark-grey with abundant plant-fossil debris at the base of this unit.		
428.11	428.49	0.38		Mudstone, grey; minor silty cross-bedding. GBC.		
428.49	429.09	0.60		Fine-medium grainsize quartzose sandstone (FMQSS); grey-white in colour; abundant carbonaceous mudstone bands, laminae and matrix; minor coaly debris and bright coal bands; minor irregular and lenticular bedding. GBC.		
429.09	429.90	0.81		MQSS, grey-white; abundant carbonaceous laminae (dipping at up to 10°); minor bright-coal bands and cross-bedding. Irregular BC.		
429.90	430.38	0.48		FMQSS, milky-white; minor irregular bedding and lenticular carbonaceous mudstone bands.		
430.38	430.57	0.19		Carbonaceous mudstone/heavy dull coal (50:50).		
430.57	431.20	0.63		FMQSS, milky-white, sparkly; minor bioturbation (sub-vertically-dipping worm-burrows (?)). GBC.		
431.20	441.84	10.64	100	MQSS, milky-white, sparkly; abundant carbonaceous laminae and bands and cross-bedding dipping at up to 20° (10° from 431 m to 435 m); minor pebbly and gritty		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

55	GEOLOGICAL LOG	Page:- 22/22

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				intervals; minor coarse-grainsize quartzose sandstone (CQSS) from 433.50 m to 433.70 m; massively-bedded, clean, sparkly from 436.69 m to 437.89 m; worm-burrows (sub-vertically dipping) from 438.1 m to 438.4 m; minor grey silty mudstone intervals; disturbed bedding ("rollover" structures) from 438.54 m to 438.69 m. Cuspate, undulose BC.		
				[Base of the upper freshwater sequence of the Parmeener Supergroup].		
441.84	*445.23*	*3.39*	*100*	*(The interval 441.84 m to 445.23 m represents a transition zone during which there is an inter-digitation of marine and freshwater sequences).*		
441.84	444.14	2.30		Siltstone, grey; abundant angular quartz-grits (up to 3 mm in length) and FMQSS intervals; minor plant-fossil debris; abundant slickensides (dipping at 45°) from 443.73 m to 443.93 m. GBC.		
444.14	444.43	0.29		CQSS, green-white; pink-brown-green mud-pellets and gritty mudstone intervals; minor carbonaceous laminae dipping at 5°. GBC.		
444.43	445.23	0.80		Siltstone, grey-brown; abundant slickensides from 444.5 m to 444.8 m; sub-horizontally aligned quartz-grits and elongate mud-pellets (up to 1 cm in length). GBC.		
445.23	446.05	0.82		Mudstone, grey-green; abundant angular quartz-grits, quartzitic clasts, quartzite pebbles and granitic cobbles. GBC.		
				[Top of this unit forms the top surface (proper) of the upper glacio-marine sequence of the Parmeener Supergroup].		
446.05	470.65	24.60	100	Siltstone, dark-grey; abundant angular and sub-rounded quartz-grits, quartzite pebbles and granitic cobbles (long axes are predominantly sub-horizontally aligned with some dipping at up to 30°); shaly with 10 cm long cobbles dipping sub-vertically from 446.5 m to 450 m; minor breccia development from 452.5 m to 461.6 m along 1 cm wide calcite-coated sub-vertically-dipping joints; secondary calcite "pine-tree" veins from 463.6 m to 463.7 m.		
				[Base of DON FINGAL DDH Number 55 at a depth of 470.65 m].		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:- Upper Marine Sequence of the Parmeener Super Group

REMARKS:- Thermal alteration of sediments to 16 m below the dolerite sediment contact.

SURVEY DATA			ASSAY DATA									
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS					

GEOLOGICAL LOG — Logged by:- C.A. Bacon

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	12.00	0	0	Overburden, dolerite talus; clay and boulders.		
12.00	184.00	172.00	100	Medium to medium-coarse grained dolerite.		
184.00	198.05	14.05	100	Fine-grained-dolerite, becoming glassy towards the base; contact between dolerite and sandstone at 198.05 m. Contact slightly dipping at 5° to core axis; calcite veins dipping at 60° to core axis in basal few cm of dolerite; sediment mixed with dolerite (melange) from 197.70 - 197.78 m.		
198.05	199.87	1.79	98	CLSS; chloritized matrix over top 10 cm with quartz veins also over top 10 cm, remainder massive and barren. Calcite laminae with 5° dip 198.71 - 79 m, red mineral (1 mm grains) near top.		
199.87	200.20	0.33	100	Coarse lithic sandstone, (CLSS), barren.		
200.20	201.72	1.52	100	Clay pellet conglomerate, pellets up to 10 cm diameter with sparse pyrite grains. Pink clay pellet (baked) from 200.84 - 200.92 m. Calcareous matrix from 200.98 to 201.11 m.		
201.72	202.29	0.57	100	Very coarse lithic sandstone; (CLSS), with abundant small (1 cm diameter) clay pellets. Continued over:-		

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- 56	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:- FINGAL TIER
R.L. OF SITE:- 701.00 m	SITE SURVEY ON MAP No.:-		CORE SIZE:- NQ: 0-348.93 m; BQ: 348.93-405.44 m
BEARING OF HOLE:-	AIR PHOTO No.:-		COMMENCED:- 7/1/80
INCLINATION OF HOLE:- 90°	DRILL:- Edeco		COMPLETED:- 3/4/80
CO-ORDS OF SITE:- 592 886.0 mE, 5 386 808.0 mN	DRILLER:- R. McDonald		FINAL DEPTH (m):- 405.44 m

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56				GEOLOGICAL LOG	Page:- 2 /17	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
202.29	202.86	0.57	100	CLSS, bedding dips 5 - 10° to core axis, rare lenses of small clay pellets 2 - 5 mm in diameter.		
202.86	205.79	2.93	100	CLSS, with chloritic matrix; calcareous laminae dip 5 - 10°; clay pellet band from 203.02 - 203.38 m, with pellets mostly 1 cm diameter, occasional pebbles 5 cm diameter.		
205.79	206.61	0.82	100	Medium-grainsize lithic sandstone (MLSS), banded with alternating white and brown bands, bedding dips at 5 - 10°. Gradational bottom contact, GBC.		
206.61	206.71	0.10	100	Clay pellet conglomerate, with pellets up to 10 cm.long and 2 cm wide. GBC.		
206.71	206.75	0.04	100	MLSS, banded. GBC.		
206.75	206.86	0.10	90	Clay pellet conglomerate; clay pellets in a CLSS matrix, GBC.		
206.86	208.49	1.63	100	CLSS with very coarse lithic sandstone towards base; matrix chloritic. Clay bands (possibly ash) at 208.08 - 208.11 m and 208.21 - 208.28 m, GBC.		
208.49	208.84	0.35	100	Red siltstone.		
208.84	209.71	0.87	100	Red siltstone, laminae horizontal; sandy towards base. Sharp bottom contact, SBC.		
209.71	210.97	1.26	100	C-MLSS, barren; small red siltstone clasts abundant between 210.77 - 210.85 m. SBC. Fault with throw off 1 cm at base; sub-vertical; slickenside on fault.		
210.97	211.34	0.37	100	Green siltstone; fine grained laminated unit with horizontal bedding; unit chloritized and hornsfelsed; undulating bottom contact.		
211.34	211.74	0.40	100	Claystone, white, hard, hornfelsed. Chloritized towards top of unit.		
211.74	211.84	0.10	100	FLSS, irregular faulted top contact with claystone: throw of microfaults 2 mm.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
211.84	214.79	2.95	100	FLSS, with chloritized matrix in bands 1 cm wide; banded appearance of unit due to alternation of chloritized/nonchloritized matrix. Slickenside 70° to core axis from 211.93 - 212.00 m. Calcite veins from 212.33 - 212.49 m. Quartz filling in joint from 212.67 - 212.72 m. Silty patches over basal 1 m, bedding dips 5° and is occasionally offset by high angled calcite veins.		
214.79	216.26	1.47	100	MFLSS with slickensides at 215.19 - 215.23 m and 215.46 - 215.50 m; carbonaceous laminae 215.29 - 215.31 m. Bottom contact irregular; dips 10°. Coal bands and debris in basal 10 cm.		
216.26	216.54	0.28	100	Carbonaceous siltstone, with plant fragments and fine horizontal laminae; at base laminae dip at 20°. GBC.		
216.54	216.61	0.07	100	Interlaminated carbonaceous siltstone and MLSS. Laminae lenticular, irregular, dips of laminae up to 5°. GBC.		
216.61	217.22	0.61		Interbedded: carbonaceous siltstone and fine grainsize lithic sandstone, FLSS. 0.05 carbonaceous siltstone, GBC. 0.08 laminite 1 cm wide beds of carbonaceous siltstone and FLSS, GBC. 0.06 Carbonaceous siltstone, SBC. 0.07 MFLSS, GBC. 0.06 Carbonaceous siltstone, GBC. 0.05 FLSS with wispy carbonaceous laminae, GBC. 0.06 Carbonaceous siltstone, GBC. 0.09 FLSS with abundant wispy carbonaceous laminae. 0.09 Carbonaceous siltstone laminated with FLSS, fine laminae, GBC. The above interbedded unit displays minor cross bedding; individual beds dipping at up to 5°. Continued over		

ASSAY DATA

SAMPLE No	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
217.22	217.56	0.34	100	MFLSS with sparse coaly laminae, GBC.		
217.56	217.80	0.24	100	MLSS, massive.		
217.80	223.79	5.99	100	MLSS with abundant coaly bands, coaly laminae; siltstone and claystone pellets; abundant coaly debris; intraformational clay pellet conglomerate from 219.10 - 219.55 m. Bedding dips at 10° to core axis.		
223.79	226.37	2.58	100	MLSS, massive.		
226.37	226.79	0.42	100	Conglomerate composed of mud and clay pellets, most lenticular in shape in a matrix of MLSS.		
226.79	226.98	0.19	100	MLSS interval, barren, massive.		
226.98	230.12	1.05	33	Conglomerate composed of hard, rounded quartzite pebbles set in a matrix of LSS. Core loss 2.05 m in this unit.		
230.12	231.63	1.51	100	F-MLSS, massive, with coaly debris in basal 30 cm.		
231.63	232.97	0.76	56	COAL SECTION: Carbonaceous shale with clay laminae; greasy to touch. (0.17) Dull coal with kaolinite in veins, GBC. (0.25) Dark grey siltstone with abundant bright laminae, top contact dips 20°, GBC. (0.34) Core loss in this unit: 0.58 m.		
232.97	233.67	0.70	100	FLSS, barren.		
233.67	235.17	1.50	100	MLSS, bedding dipping at 5°, abundant wispy coaly laminae.		
235.17	235.76	0.59	100	FLSS, bedding horizontal, laminae 1 mm wide, GBC.		
235.76	241.62	5.86	100	Siltstone, dark grey with occasional plant fragments interbedded with FLSS over top 30 cm; bedding dips up to 10°; abundant low angle cross bedding from 238.76 - 239.63 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
241.62	241.87	0.25	100	Siltstone, dark grey; as above. Basal 10 cm shows turbulent bedding with siltstone clasts in a sandy siltstone matrix; core broken. GBC.		
241.87	244.42	2.55	100	MLSS with rare coaly wispy laminae which dip 5° to core axis. Rare cross-bedding mostly barren.		
244.42	247.60	3.18	100	MLSS, barren, as above; mud pellets in top 10 cm.		
247.60	249.02	1.42	100	MLSS, as above, with rare coal debris. Abundant irregular coal lenses, coaly laminae and bands over basal 20 m.		
249.02	249.32	0.30	100	FLSS with abundant silt lenses, abundant coaly debris, 1 cm band of coal at 6 cm from top of unit. Undulose GBC with 10° dip.		
249.32	249.62	0.30	100	COAL SECTION: Dull coal with 20% bright bands, kaolinite on sub-vertical cleats, SBC, dip 50°.		
249.62	249.63	0.01	100	Carbonaceous claystone, BC dips 10°.		2
249.63	249.81	0.18	100	Heavy dull coal with 10% bright bands.		
249.81	250.10	0.29	100	Carbonaceous mudstone with minor bright banding, slickenside at 45° to core axis at base.		
250.10	250.57	0.45	96	Dark grey, poorly carbonaceous sandy mudstone.		
250.57	251.05	0.48	100	Dark grey mudstone, massive, slickenside on top contact, 45° to core axis.		
251.05	251.12	0.07	100	Claystone, yellow, greasy to touch with STC and SBC.		
251.12	251.26	0.14	100	Heavy dull coal with 10% bright bands.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Moist %	Ash %	V.C.M. %	F.C. %	ASSAY RESULTS on a dry basis
2	249.32	249.81	0.49	100	3.0	58.8	14.2	31.0	

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
251.26	251.46	0.20	100	COAL SECTION: (Contd.) Sandy mudstone, poorly carbonaceous SBC, dip 5°.		
251.46	251.56	0.10	100	Beige coloured claystone, massive.		
251.56	251.90	0.34	100	Mudstone, poorly carbonaceous fine horizontal laminae, alteration of sandy-non sandy laminae has resulted in a banded appearance.		
251.90	251.92	0.02	100	Clay with abundant carbonaceous material. GTC, GBC.		
251.92	252.00	0.08	100	Dull coal with fine clay laminae, slickensides abundant, kaolinite on sub-vertical cleats, STC.		
252.00	252.06	0.06	100	Brown mudstone.		
252.06	252.08	0.02	100	Dull coal with few bright bands.		
252.08	252.11	0.03	100	Dark grey mudstone.		
252.11	252.16	0.05	100	Carbonaceous mudstone, SBC.		
252.16	252.25	0.09	100	Claystone with carbonaceous debris. Sharp top contact (STC), gradational bottom contact (GBC).		
252.25	252.49	0.24	100	Sandy grey mudstone, laminae fine, horizontal; carbonaceous over basal 0.02 m.		
252.49	252.50	0.01	100	Claystone.		
252.50	252.65	0.15	100	Grey mudstone, massive. GBC.		
252.65	253.56	0.85	100	FLSS, sub-vertical worm burrow over top 10 cm; top 10 cm severely bioturbated, abundant low angle festoon cross-bedding. *		
253.56	255.90	2.34	100	FLSS, grey, with minor irregular bedding, minor slickensides (dips 45°), silty and muddy intervals 1 cm wide, minor low angle cross bedding, minor bioturbation, bedding dips up to 30°; Continued over		

* Core loss of 6 cm between 250.57 - 253.56 m.

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

bedding. Probable 2 cm loss.

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				minor wispy coaly laminae.		
255.90	258.87	2.97	100	FMLSS, grey in colour, abundant festoon cross-bedding, silty laminae dip 20°. Rare carbonaceous laminae. GBC.		
258.87	259.51	0.64	100	MLSS, barren, abundant festoon cross-bedding; FMLSS interbedded with siltstone over 259.09 - 259.14 m.		
259.51	262.50	2.99	100	MLSS, barren; clay pellet conglomerate band from 259.74 - 259.78 m. Cross-bedded siltstone band 260.15 - 260.17 m; abundant coaly debris 261.77 - 262.08 m.		
262.50	263.71	1.21	100	MLSS as above. Abundant coaly debris from 263.05 - 263.26 m; clay pellet band 262.91 - 262.94 m; pellets at 90° to core axis pellets 1 cm long. Gradational top and bottom contacts, GTC, GBC.		
263.71	264.78	1.07	100	Mudstone, green in colour, disturbed bedding, abundant bioturbated rare siltstone clasts; slickenside at 45° at base; coal debris above base GBC.		
264.78	265.53	0.75	100	Siltstone, abundant mud laminae, bedding horizontal, bioturbated, abundant coaly laminae; disturbed bedding.		
265.53	267.47	1.94	100	Sandy siltstone, with abundant FLSS bands; abundant plant fragments (Xylopteris - like flora); coaly debris in top 30 cm; bedding dips at up to 30°. SBC, dips 5 - 10°.		
267.47	268.27	0.80	100	Massive grey siltstone, barren, sandy and bioturbated towards the base.		
268.27	269.59	1.32	100	Interlaminated FLSS/siltstone; 40/60; minor disturbed bedding and carbonaceous laminae; very minor cross bedding.		
269.59	271.17	1.58	100	MLSS interbedded with siltstone; (50/50) bands 1 cm wide; siltstone shows abundant low angle cross bedding. GTC; sharp, undulose bottom contact, dips 10°.		
271.17	271.53	0.34	94	Dark grey siltstone with abundant silty laminae and lenses; minor disturbed bedding. Probable 2 cm loss.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

very carbonaceous over top 30 cm;

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
271.53	273.63	2.10	100	Dark grey siltstone with minor festoon x-bedding, rare siltstone pellets 0.3 cm in diameter; large siltstone and mudstone pellets occur over basal 5 cm in sandy siltstone matrix. GBC.		
273.63	273.88	0.25	100	FLSS, bedding horizontal, massive.		
273.88	274.23	0.35	100	FMLSS, barren and massive.		
274.23	274.56	0.33	100	MLSS, Barren.		
274.56	275.70	1.14	100	MLSS, barren with minor carbonaceous laminae.		
275.70	276.41	0.71	100	Grey siltstone, minor carbonaceous debris, massive, SBC.		
276.41	276.58	0.15	88	COAL SECTION: 0.08 White claystone, friable, chloritic towards top. 0.02 Dull coal with few bright bands. 0.05 Cream claystone with carbonaceous debris.		
276.58	277.55	0.97	100	Grey siltstone interlaminated with FLSS, bedding horizontal, abundant bioturbation, coaly debris, few small clay pellets.		
277.55	278.71	1.16	100	FLSS interbedded with grey siltstone, sparse coaly debris, 10 cm MLSS at base with siltstone bands; unit silt 70% and FLSS 30%; at base FLSS 70% and silt 30%. SBC, dip 2°.		
278.71	279.16	0.45	100	Green mudstone, barren, laminae horizontal, beds 1.2 mm wide, abundant calcite veins, 15 - 21 cm from top; veins horizontal; SBC dips 45°; contact undulose.		
279.16	279.92	0.76	100	Black siltstone with abundant coaly debris and coaly lenses; bedding dips up to 45° towards top of bed; bedding horizontal base; abundant small rounded mud pellets 3 mm in diameter.		
279.92	280.02	0.10	100	Mudstone with sparse carbonaceous debris; irregular undulose bottom contact.		
280.02	280.51	0.49	100	Light grey mudstone; abundant bioturbation, and disturbance of carbonaceous laminae; very carbonaceous over top 30 cm; Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				siltstone bands 1 mm wide; bedding horizontal sub-vertical worm burrows at base.		
280.51	280.64	0.13	100	COAL SECTION: Heavy dull coal, few bright bands cream mudstone, abundant carbonaceous lenses; severe bioturbation and disturbed bedding; sandy towards base; SBC, dips 5°.		
280.64	283.15	2.51	100	FLSS-interlaminated with siltstone (30/70); minor s-bedding, slickensides at 45° to core 282.78 m and 282.85 m SBC, horizontal.		
283.15	283.41	0.26	100	COAL SECTION: Cream mudstone with abundant biotite (pyrophyllite)- grains 0.5 mm in diameter; speckled appearance massive, SBC, undulosed BC.		
283.41	283.46	0.05	100	Heavy dull coal SBC.		
283.46	283.54	0.08	100	Cream clayey mudstone with abundant biotite grains, as above.		
283.54	284.62	1.08	100	Grey mudstone with siltstone laminae, bands of sand and silt; carbonaceous siltstone laminae common towards base; abundant slickensides, bedding horizontal, coaly laminae common; carbonaceous over top 20 cm.		
284.62	285.62	1.00	100	Siltstone; grey in colour, finely laminated minor bioturbation; rare sandy laminae; abundant; coaly laminae; carbonaceous over basal 5 cm.		
285.62	286.39	0.77	100	White, hard, coherent, fine grained rock with rare horizontal bedding; contains fine quartz and pyrite grains, possibly an Ignimbrite.		
286.39	286.58	0.19	100	Coal with 5% bright bands.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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56	GEOLOGICAL LOG	Page:- 10/17

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
286.58	287.98	1.40	100	Green mudstone, massive, slickensides at 286.60 m; 286.83 m; worm burrows and/or tree roots 287.25 - 29 m. Abundant wispy carbonaceous laminae, bioturbation and disturbed bedding. Rare plant fragments; sandy 287.32 - 287.48 m. GBC.		
287.98	288.28	0.30	100	FLSS interlaminated with siltstone, 50/50 abundant festoon x-bedding; slickenside at 45° at 288.18 m. GBC.		
288.28	289.55	1.27	100	FMLSS interbedded with siltstone, 80/20; individual beds up to 5 cm wide, x-bedding in silt sections. Very occasional wispy coaly laminae.		
289.55	292.53	2.98	100	FMLSS with festoon x-bedding 289.80 - 290.20 m; rare silt bands 1 cm wide wispy carbonaceous laminae from 292.28 - 292.45 m; unit largely massive.		
292.53	295.61	3.08	100	FMLSS; massive; sparse coaly debris and calcareous matrix; 1 cm wide calcite vein 294.29 m; mudstone band 3 cm wide at 294.36 m; abundant coaly debris at 294.46 m and from 294.61 - 295.01 m. Festoon x-bedding and bioturbation 294.88 - 295.11 m, coarser MLSS towards base (over last 1 m).		
295.61	298.59	2.98	100	MLSS, massive.		
298.59	301.68	3.09	100	MLSS with coaly debris from 298.73 - 298.89 m, 200.18 - 300.20 m.		
301.68	302.60	0.92	100	MLSS, white abundant coaly debris, bedding dips 30°, silty interval from 302.28 - .38 m SBC.		
302.60	302.76	0.16	100	COAL SECTION: Dull coal, 5% bright bands.		
302.76	302.85	0.09	100	Beige claystone.		
302.85	303.50	0.64	99	Dull coal, 10% bright bands, sub-vertical cleat and clay lenticules, sandy over basal 0.01 m. GBC.		3A
303.50	303.67	0.17	100	Beige claystone with plant fragments.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Moist %	Ash %	V.C.M. %	F.C. %	ASSAY RESULTS on a dry basis
3A	302.60	303.50	0.89	99	5.3	45.2	24.8	30.0	
3B	303.50	304.81	1.30	99.5	5.7	52.1	24.1	23.8	
3C	305.58	307.61	1.95	94	4.8	69.2	18.2	12.6	

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
303.67	303.71	0.04	100	COAL SECTION: (Contd.) Carbonaceous claystone with few bright bands and many clay lenses.		
303.71	304.03	0.32	100	Dull coal, basal 15 cm heavy dull coal, abundant clay lenticules and laminae.		
304.03	304.14	0.11	100	Pale grey mudstone with wispy carbonaceous laminae.		
304.14	304.18	0.04	100	Heavy dull coal with 10% bright bands, and abundant mudstone lenticules, GTC, GBC.		3B
304.18	304.22	0.04	100	Beige claystone, abundant carbonaceous laminae.		
304.22	304.36	0.14	100	Dull coal, sub-vertical cleats with kaolinite, 10% bright bands. GBC.		
304.36	304.40	0.04	100	Grey mudstone, SBC. Abundant wispy coaly laminae.		
304.40	304.59	0.18	95	Dull coal with heavy dull coal 50/50, abundant cleats.		
304.59	304.81	0.22	100	Dull coal with 5% bright bands, clay and sand laminae. SBC.		
304.81	305.58	0.77	100	Claystone, beige, sandy at top of unit, laminae fine, horizontal; abundant sandy laminae towards base.		
305.58	305.77	0.19	100	Mudstone, richly carbonaceous, finely laminated with heavy dull coal, 50/50. Mudstone laminae at base.		3C
305.77	305.89	0.12	100	Brown clay.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

3 cm.

Continued

56	GEOLOGICAL LOG	Page:- 12/17

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
305.89	306.26	0.37	100	COAL SECTION: (Contd.) Dull coal with mudstone bands, 50/50.		
306.26	306.27	0.01	100	Sandy clay, piece removed.		
306.27	306.35	0.07	90	Dull coal.		
306.35	306.36	0.01	100	Sandy clay (possibly ash); piece removed.		
306.36	306.66	0.30	100	Dull coal.		
306.66	306.71	0.05	100	Beige clay (possibly ash); piece removed; 2 mm band of calcite at base.		3C
306.71	306.95	0.24	100	Dull coal.		
306.95	306.96	0.01	100	Beige clay.		
306.96	307.12	0.16	100	Dull coal.		
307.12	307.16	0.03	75	Grey mudstone - small piece removed.		
307.16	307.165	0.005	100	Dull coal.		
307.165	307.19	0.025	100	Brown mudstone - small piece removed.		
307.19	307.54	0.27	80	Dull coal/mudstone 50/50.		
307.54	307.61	0.07	100	Grey mudstone.		
307.61	307.76	0.15	100	Green mudstone with plant fragments, fine grained, abundant coaly debris.		
307.76	308.40	0.64	100	Richly carbonaceous siltstone with abundant sand grains, plant debris, brown silty lenticles; claystone interval 307.77 - 307.79 m, 307.86 - 307.87 m, 308.02 - 308.05 m, 308.05 m, 308.09 - 308.10 m; 308.14 - 308.17 m, 308.23 - 308.26 m; unit is bioturbated with 3% bright coal bands.		
308.40	309.21	0.81	100	Massive grey finely laminated mudstone, few plant fragments and rare worm burrows, inclined at 70° near base of unit. Slickenside at 45° at 309.16 m; GBC, with mud pellets 2 cm diameter over basal 3 cm.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

56 GEOLOGICAL LOG Page:- 13/17

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
309.21	309.43	0.22	100	COAL SECTION: Dull coal with calcite veins and 10% bright coal.		
309.43	310.37	0.94	100	Massive grey mudstone with abundant plant debris; carbonaceous over 309.83 - .91 m; slickenside dipping 60° at 309.98 m.		
310.37	310.61	0.24	100	Heavy dull coal interbedded with siltstone; 50/50; finely laminated.		
310.61	310.81	0.20	100	Carbonaceous siltstone with brown silt lenses, 5% bright bands, abundant coaly debris. GBC.		
310.81	311.19	0.38	100	Grey mudstone with wispy coaly debris, massive; GBC.		
311.19	311.22	0.03	100	Carbonaceous siltstone.		
311.22	311.62	0.40	100	Pale green mudstone with abundant biotite, grains, 1 mm^2, finely laminated, some plant debris.		
311.62	311.83	0.21	100	Heavy dull coal with abundant silt lenses.		
311.83	312.03	0.20	100	Pale green mudstone.		
312.03	313.00	0.88	95	Interbedded pale green mudstone, and carbonaceous siltstone, abundant coaly debris, fine laminations and sandy lenses. GBC.		
313.00	313.93	0.93	100	Pale green mudstone, finely laminated with rheomorphic slumping, bioturbation and occasional wispy carbonaceous laminae; rare clay pellets 2 mm diameter.		
313.93	315.31	1.38	100	Carbonaceous siltstone with abundant sand grains; claystone band at 314.33 - 314.37 m; coal pellets at 314.15 - 314.18 m.		
315.31	315.43	0.12	100	Heavy dull coal with few bright bands and abundant silty laminae; slickenside at base, GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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GEOLOGICAL LOG

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
315.43	315.94	0.51	100	Green mudstone with abundant wispy carbonaceous laminae; coal band 2 mm wide at 315.44 m; 2 cm FLSS at 315.46 cm sandy towards base, GBC.		
315.94	320.58	4.64	100	MFLSS, barren, massive, rare wispy carbonaceous laminae.		
320.58	323.56	2.98	100	MLSS, massive.		
323.56	329.78	6.22	100	MFLSS, massive, rare wispy carbonaceous laminae.		
329.78	330.08	0.30	100	CORE LOSS 0.30 m at this point.		
330.08	330.93	0.85	100	COAL SECTION: Heavy dull coal, sandy over basal 0.5 cm; abundant sandy and silty laminae.		
330.93	331.30	0.37	100	Pale green clay with rare biotite grains, plant fragments and fine laminations.		4A
331.30	332.77	1.47	100	Heavy dull coal, no bright bands, interbedded with silt 50/50; FLSS lenses and laminae. Clay band 2 cm wide at 331.87 m. Sandy over 332.03 - 332.28 m. Slickenside at 332.16 m.		4B
332.77	333.42	0.65	100	Heavy dull coal, as above with clay bands at 332.91 - .95 m, 333.07 - .08 m, fine laminations and 5% bright bands; silty towards base.		
333.42	335.75	2.32	99	Massive grey mudstone interbedded with FLSS 80/20; occasional biotite grains; fine banding in parts; minor low angle cross bedding; slickenside at 60° near base.		
335.75	336.78	1.03	100	Massive grey mudstone, as above; slickenside 45° to core axis at base.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Ash %	ASSAY RESULTS on a dry basis
4A	330.08	331.30	1.22	100	82	
4B	331.30	333.42	2.12	100	74	

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
336.78	338.75	1.97	100	Laminite of dull carbonaceous siltstone, brown siltstone and green siltstone, 50/25/25; finely laminated, with rare plant fragments.		
338.75	339.60	0.85	100	Massive grey mudstone, finely banded beige claystone (interbedded) with moderate amount of bioturbation.		
339.60	340.80	1.20	100	Carbonaceous mudstone with FLSS laminations (50/50); bright bands of coal (5-10%) over basal 0.50 m; silty towards base; abundant wispy carbonaceous laminae and coaly debris over basal 0.50 m. Core broken over basal 15 cm. SBC.		
340.80	341.75	0.80	84	FLSS with abundant bioturbation and irregularly shaped pieces of silt and mud possibly carried into place by burrowing organisms. Burrows common, up to 5 cm long and 1 cm wide. Clay pellets over basal 25 cm. Joint dipping 70° at 341.30 m. Core loss in this unit 0.15 m.		
341.75	344.75	2.20	73	MFLSS with occasional coal debris and patches of calcareous matrix; occasional silty patches, bedding horizontal. Core loss 0.80 m at 342.72 m to 343.52 m.		
344.75	348.93	4.18	100	MLSS with sparse coaly debris slickenside from 247.63 - .73 m. Start of BQ core at 348.93 m.		
348.93	351.65	2.72	100	MLSS, barren, core broken.		
351.65	351.80	0.15		Carbonaceous mudstone, GTC, SBC.		
351.80	351.90	0.10		Interbedded mudstone and FLSS 50/50.		
351.90	361.45	9.55		FLSS, barren; calcite replacement from 355.08 - 355.18 m; occasional mudstone pellets and coaly debris.		
361.45	361.69	0.24		Silty carbonaceous mudstone.		
361.69	362.39	0.70	100	FMLSS, barren.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
362.39	363.59	1.20	100	FLSS, barren, rare festoon cross bedded patches, beds dipping at up to 10°.		
363.59	365.04	1.45		Green mudstone with coaly laminations.		
365.04	365.10	0.06		COAL SECTION Dull coal interbedded with mudstone, 50/50. EAST FINGAL UPPER SPLIT?		
365.10	365.46	0.36		Clay band.		
365.46	365.54	0.08		Dull coal with mudstone 50/50.		5A
365.54	365.60	0.06		Clay band.		
365.60	365.74	0.14		Dull coal.		
365.74	366.61	0.87		Mudstone with sandy bands and laminae.		
366.61	368.04	1.43		Heavy dull coal.		5B
368.04	368.93	0.89		Sandy mudstone with abundant coaly debris and bioturbation. SBC.		
368.93	369.60	0.67	100	FLSS, muddy, cross bedding over top 0.5 m.		
369.60	381.04	8.54	75	FMLSS, barren; core losses of 2.90 m total in this unit due to grinding away of core surfaces. Core broken. Occasional clay pellets and wispy coaly laminae.		
381.04	381.57	0.53	100	COAL SECTION: Heavy dull coal. EAST FINGAL LOWER SPLIT?		6.
381.57	381.67	0.10	100	Dull coal.		
381.67	382.37	0.40	57	Grey mudstone, broken; loss of .30 m in this unit due to core grinding away.		
382.37	382.47	0.10	100	Heavy dull coal.		
382.47	383.82	1.35	100	Pale/green mudstone, sandy towards base, GBC.		
383.82	384.57	0.75	100	FLSS.		
384.57	387.47	2.90	100	FMLSS with FLSS, intervals, GBC.		
387.47	402.39	12.00	85	MLSS; sparse coaly debris, losses of 0.66 m at 388.36 - .96 m, loss of 0.37 m at 396.39 - .76 m, loss of 0.90 m at 398.89 m. Occasional mudstone pellets and coaly debris, minor FMLSS, and FLSS intervals, occasional slickensides.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Moist %	Ash %	V.C.M. %	F.C. %	ASSAY RESULTS on a dry basis
5A	365.04	365.74	0.70	100	9.9	74.6	23.7	1.7	
5B	366.61	368.04	1.43	100	5.2	49.2	25.4	25.4	
6	381.04	381.57	0.53	100		22.1			

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
402.39	405.44	3.05	100	FMLSS, barren, few slickensides. END OF HOLE AT 405.44 m.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DRILLING TARGET:- Upper glacio-marine sequence of the Lower Parmeener Supergroup.

REMARKS:- Roof of the probable Duncan seam is at an elevation of 387.36 m a.m.s.l. The seam is 3.12 m thick with a working section of 1.72 m.

SURVEY DATA

DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres
DOM FINGAL DDH 57					
Fingal Tier on the eastern side of the headwaters of Fingal Rivulet					
R.L. 803.4 m			SITE SURVEY ON MAP No.: N/A		CORE SIZE: HQ: 0 to 60.07 m
BEARING -			AIR PHOTO No.:- N/A		COMMENCED: 16th July, 1980
INCLINATION Vertical			DRILL: Longyear 44		COMPLETED: 30/9/80
CO-ORDS 5 387 913 mE 5 383 734 mN			DRILLER: C. Mitchell, R. Schier, S. Mitchell		FINAL DEPTH (m): 573.80 m

GEOLOGICAL LOG

Logged by:- R. Castleden.

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0	247.86	247.86	100	Dolerite; weathering along joints from 0 to 5 m; solid dolerite from the commencement of drilling; coarse grainsize from 0 to 50 m with feldspar, laths up to 5 mm in length; purple-grey in colour from 11 m to 33 m; grey to dark-grey in colour elsewhere except for the interval 160 m to 227 m where the dolerite is light-grey; predominantly uniform and massive; medium-coarse grainsize from 50 m grading to medium-grainsize then to fine-grainsize (from 220 m to 247 m); granophyric layers (from 30 m to 34 m; pink and white (calcite (?) and/or zeolite (?)) sub-vertically-dipping vein from 103 m to 105 m; abundant sub-vertically-dipping joints from 237 m to 247.86 m; grey-green with green 1 to 3 mm-diameter cuboidal and rectangular phenocrysts (microporphyritic texture) from 247 m to 247.86 m; light-green-grey and glassy with less than 1 mm-diameter white phenocrysts from 247.6 m to 247.86 m. (Approximately 10 to 20 cm of core has been sampled at 3 m intervals and stored for possible future analytical work).		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:- DOM FINGAL DDH 57

MAP SHEET No. 49

DISTRICT FINGAL

LOCATION OF SITE:- Fingal Tier on the eastern side of the headwaters of Fingal Rivulet

R.L. OF SITE:- 803.4 m

SITE SURVEY ON MAP No.:- N/A

CORE SIZE:- NQ: 60.07 m to 573.80 m

BEARING OF HOLE:- -

AIR PHOTO No.:- N/A

COMMENCED:- 16th July, 1980

INCLINATION OF HOLE:- Vertical

DRILL:- Longyear 44

COMPLETED:- 30/9/80

CO-ORDS OF SITE:- 5 387 913 mE 5 383 734 mN

DRILLER:- C. Mitchell, R. Schier, S. Mitchell

FINAL DEPTH (m):- 573.80 m

M1029

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
247.86	249.68	1.82	100	Interbanded, contact thermally-metamorphosed (hornfelsed) mudstone and siltstone; dark-green-grey from 247.86 m to 247.98 m; minor sub-vertically- to sub-horizontally-dipping calcite veins throughout; brecciated and faulted purple siltstone from 247.98 m to 248.15 m with an undulose bottom-contact dipping at 45°; light-green with an undulose bottom-contact (BC) dipping at 5° from 248.15 m to 248.17 m; black-brown grading to light-brown with an irregular BC from 248.17 m to 248.26 m; light-green grading to light-red-brown with a gradational bottom-contact (GBC) from 248.26 m to 248.74 m; light-green with abundant white bands from 248.74 m to 248.88 m and an undulose BC dipping at 5°; speckly black spots in white matrix and a GBC from 248.88 m to 249 m; light purple-green and irregular BC dipping at 10° from 249 m to 249.04 m; white with sharp BC (all contacts are assumed to be sharp unless otherwise stated) dipping at 10° from 249.04 m to 249.07 m; interbanded purple and dark-green from 249.07 m to 249.12 m with BC dipping at 5°; white with red-brown and green splotches and bands from 249.12 m to 249.22 m with GBC; white and minor grey splotches from 249.22 m to 249.39 m; interbanded light-green/white/purple from 249.39 m to 249.42 m; dark-green from 249.42 m to 249.43 m with BC dipping at 5°; white from 249.43 m to 249.48 m with faulted BC; dark-green with an irregular BC from 249.48 m to 249.50 m; red-brown from 249.50 m to 249.66 m; grey-white from 249.66 m to 249.67 m; dark-green from 249.67 m to 249.68 m. GBC.		
249.68	251.61	1.93	96	Siltstone; hornfelsed; brown-green-grey; abundant sub-vertically-dipping joints.		
251.61	252.68	1.07	100	Fine lithic sandstone (FLSS); brown-green-grey; minor grey-green bands and cross-bedding dipping at up to 5°. Gradational bottom contact (GBC). Hornfelsed. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

57	GEOLOGICAL LOG	Page:- 3/41

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
252.68	253.59	0.91	100	Fine-medium grainsize lithic sandstone (FMLSS); grey with minor light red-brown bands and laminae dipping at up to 10°; hornfelsed; sub-vertically-dipping joint from 253.18 m to 253.58 m. GBC.		
253.59	289.53	35.89	99	Medium-grainsize lithic sandstone (MLSS); grey-white; hornfelsed from 253.59 m to approximately 260 m; predominantly massive bedding; minor white bands and laminae from 253.59 m to 256 m dipping at up to 5°; 45°-dip joint from 255.27 m to 255.37 m; minor FMLSS intervals from 255.95 m to 256.7 m; sub-vertically-dipping joints from 256.13 m to 256.39 m, from 256.51 m to 256.86 m, from 257.81 m to 258.21 m and from 258.81 m to 259.41 m; minor grey elongate mud-pellets dipping at up to 5° from 258.41 m to 258.51 m; minor FMLSS and carbonaceous laminae dipping at up to 5° from 259.73 m to 262.7 m; normal microfault (5 mm throw) from 261.28 m to 261.38 m; disturbed bedding from 261.73 m to 261.83 m; grey mudstone with sandy intervals dipping at up to 60° from 261.83 m to 262.07 m; coaly lenticles and mud-pellets from 262.15 m to 262.58 m dipping at 5°; sub-vertically-dipping joint from 259.84 m to 260.09 m; light-grey with dark-grey bands from 259.73 m to 262.70 m; interbanded with FMLSS and FLSS from 262.79 m to 263.35 m; abundant coaly debris from 263.67 m to 264.04 m with irregular bedding; abundant bright coal laminae and lenticles dipping at up to 10° and with abundant carbonate (calcite (?)) on cleat and large-scale planar cross-bedding from 264.04 m to 264.42 m; dark-grey FLSS with abundant carbonaceous laminae dipping at up to 10° and top and bottom contacts dipping at 10° with coaly debris at base from 264.44 m to 264.69 m; minor carbonaceous debris and coaly lenticles with bedding dipping at up to 20° from 264.69 m to 265.7 m; dark-grey (1 cm x 0.5 cm) mud-pellets from 264.52 m to 264.58 m; minor mud- Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				pellets, coaly lenticles and carbonaceous laminae (dipping at up to 10°) from 265.7 m to 268.7 m; dark-grey mudstone from 267.87 m to 268.05 m with minor quartzose sandstone towards base; 60° dip joint from 266 m to 266.08 m; minor FMLSS, massive-bedding and less than 10% quartzose sandstone from 268.7 m to 271.72 m; minor carbonaceous laminae from 268.7 m to 269.1 m dipping at up to 10°; mud-pellets from 269.42 m to 269.5 m; light-grey FMLSS with carbonaceous and dark-grey siltstone bands and laminae dipping at up to 10° from 271.72 m to 272.13 m; FMLSS from 272.13 m to 272.28 m with GBC and bedding dipping at up to 20°; mud-stone shards and lenticles from 272.36 m 272.45 m; minor quartzose component (10%) from 272.13 m to 274.71 m grading to dark-grey and carbonaceous towards base; coaly and muddy shards, pellets and lenticles from 273.38 m to 273.48 m; festoon cross-bedded FLSS and FMLSS with minor fine-grainsize quartzose sandstone (FQSS) from 273.58 m to 274.70 m with minor dark-grey silty bands and bedding dipping at up to 10°; minor coaly lentic-les, mud-pellets, festoon cross-bedding, minor (less than 10%) quartzose component, dark-grey to carbonaceous, bedding dipping at up to 10° (carbonaceous laminae) and core parting sub-horizontally every 0.05 m to 0.10 m from 274.71 m to 277.72 m; light and dark-grey with minor banding from 277.72 m to 280.24 m; carbonaceous laminae dipping at up to 30°, 279.92 m to 280.12 m; minor FMLSS and dusky in colour from 280.24 m to 280.69 m; bedding dipping at up to 30°, minor FMLSS and quartzose component (10%) from 280.69 m to 283.69 m; carbonaceous mudstone and mud-pellets from 281.99 m to 282.14 m; dark-grey from 282.19 m to 284.12 m (carbonaceous in part); abundant irregularly-bedded carbonaceous laminae and coaly lenticles from 282.86 m to 283.69 m; FMLSS with 10% Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				fine-medium grainsize quartzose sandstone from 285.6 m to 285.74 m and from 286.1 m to 289.53 m; minor dark-grey to carbonaceous (dusky-coloured) intervals from 283.69 m to 286.7 m; coarse-grainsize lithic sandstone (CLSS) from 285.74 m to 286.1 m dipping at 20°; coaly debris from 286.21 m to 286.7 m; light-grey carbonaceous siltstone (dipping at 5°) from 286.71 m to 286.75 m; core parts subhorizontally every 5 to 10 cm from 286.7 m to 288.28 m; silty and carbonaceous bands and laminae from 288.28 m to 289.53 m; coaly debris from 289.33 m to 289.53 m.		
289.53	289.56	0.01	33	COAL SECTION: Bright coal; abundant kaolinite (?) on cleat. GBC.		
289.56	289.61	0.05	100	Heavy dull coal; minor sandy clasts; minor dull coal laminae. Irregular BC.		
289.61	289.64	0.03		Carbonaceous mudstone; sandy heavy dull coal band dips at 10° from 289.61 m to 289.64 m.		
289.64	289.86	0.22		Interbanded bright and dull coal (75:25); abundant kaolinite (?) on cleat; minor mud-pellets. GBC. Brown carbonaceous band from 289.83 m to 283.84 m.		
289.86	290.14	0.28		Brown-grey mudstone; minor coaly laminae dipping at up to 5°. GBC dips at 5°.		
290.14	290.19	0.05		Carbonaceous mudstone; shaly; minor coaly lenticles. GBC.		
290.19	290.32	0.13		Heavy dull coal with 25% bright laminae. GBC.		
290.32	290.35	0.03	100	Carbonaceous mudstone; minor plant-fossils. GBC.		
				(BASE OF COAL SECTION)		
				Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
290.35	294.19	3.84	100	Dark-grey mudstone; silty in places; abundant carbonate-coated sub-vertically-dipping joints from 290.35 m to 291.05 m; minor 30° dip slickensides; bright coal band from 292.11 m to 292.14 m dipping at 10°; abundant sub-vertically-dipping jointing from 292.45 m to 292.95 m; sandy towards base. GBC.		
294.19	300.07	5.88		Interbanded dark-grey and carbonaceous silty mudstone/creamy-white FLSS to FMLSS (50:50); abundant irregular bedding and carbonaceous laminae dipping at up to 5°; abundant lenticular and small-scale cross-bedding; minor quartzose sandstone (10%); slickenside dipping at 45° from 296.57 m to 296.62 m; abundant festoon-cross-bedding and brown carbonaceous lenticles and laminae from 296.22 m to 298.48 m; bedding dips at up to 30° towards 298.48 m; sub-vertically-dipping joints from 299.58 m to 299.88 m; irregular bedding dipping at up to 20°; abundant lenticular bands, minor bioturbation and quartzose component up to 20% from 298.48 m to 300.07 m.		
300.07	300.30	0.23	0	Core loss.		
300.30	301.48	1.18	100	Interbanded FMLSS/mudstone (50:50); brown-black carbonaceous mudstone shards and irregular bands abundant; bedding dips at up to 30°; broken and ground away core from 300.30 m to 300.60 m.		
301.48	304.56	3.08		Grey-white FMLSS; minor carbonaceous laminae and lenticles; bedding (predominantly massive) dips at up to 20°; minor silty and FLSS intervals; grades to MLSS at base; sub-vertically-dipping joint from 304.79 m to 306.29 m.		
304.56	304.74	0.18	0	Core loss.		
304.74	307.72	2.98	100	Grey-white FMLSS; coaly debris from 306.3 m to 306.56 m; conglomerate band of a reworked siliclastic and pyroclastic conglomerate from 306.6 m to 306.67 m; minor darker laminae; predominantly		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				massive; grey mudstone cobbles and pellets from 307.66 m to 307.75 m. BC dips at 10° and is undulose.		
307.72	307.75	0.03	100	COAL SECTION: Carbonaceous mudstone; abundant coaly lenticles; bedding dips at 10°. Irregular BC.		
307.75	307.78	0.03		FMLSS, grey; abundant 1 cm x 0.5 cm mudstone pellets and coaly shards. Irregular BC dips at 5°.		
307.78	307.85	0.07		Dull coal; 25% bright bands; minor sub-vertically-dipping joints. Sharp, sub-horizontally-dipping BC.		
307.85	307.90	0.05		Grey-brown shaly mudstone; minor wispy carbonaceous flecks.		
307.90	308.17	0.27		Carbonaceous mudstone; abundant sub-vertically-dipping joints; sandy from 307.90 m to 307.93 m and sandy lenticles elsewhere; minor heavy dull coal towards base; minor slickensides; brown mudstone bands from 308.09 m to 308.11 m and from 308.14 m to 308.15 m (lenticular, dipping at up to 10°). BC dips at 5°.		
308.17	308.23	0.06		Dull coal; 10% bright laminae; sub-vertical joint through centre of core. BC dips at 2°.		
308.23	308.28	0.05		Carbonaceous mudstone; sub-vertical joint results in broken core.		
308.28	308.30	0.02	100	Grey-black-brown mudstone; abundant claystone clasts; abundant sub-vertically-dipping joints. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
308.30	308.35	0.05	100	COAL SECTION: (Contd.) Dull coal; broken-core due to abundant sub-vertically-dipping joints. GBC.		
308.35	308.36	0.01		Carbonaceous mudstone, shaly; minor coaly lenticles. GBC.		
308.36	308.42	0.06		Grey-brown shale; grades to brown shaly claystone at base; sub-vertically-dipping joint through centre of core. Irregular but sharp BC.		
308.42	308.43	0.01		Carbonaceous mudstone; minor coaly lenticles; sub-vertical joints.		
308.43	308.46	0.03		Shaly carbonaceous mudstone with abundant brown clay clasts; 30° dip slickenside from 380.43 m to 380.48 m.		
308.46	308.59	0.13		Carbonaceous mudstone; abundant silty lenticles and sandy bands; sub-vertically-dipping joints result in broken core. Irregular BC.		
308.59	308.63	0.04		Pink-brown shaly claystone; abundant carbonaceous mudstone shards; white sandy clasts towards base.		
308.63	308.77	0.14		Dull coal; minor bright laminae; 45° dip slickenside from 308.63 m to 308.68 m; minor elongate white-grey clay pellets; shaly at base. GBC.		
308.77	308.85	0.08		Interbanded carbonaceous mudstone/heavy dull coal (80:20); minor bright laminae; minor grey-brown mudstone bands. GBC.		
308.85	308.97	0.12	100	Carbonaceous mudstone, brown-grey mudstone (60:40); abundant sandy Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				clasts; irregular wispy coaly lenticles (dipping at 30° to 45°); shaly; minor slickensides. GBC. Brown-grey shale at base.		
308.97	309.01	0.04	100	COAL SECTION: (Contd.) Carbonaceous mudstone; sub-vertical joints; minor heavy dull coal. GBC.		
309.01	309.15	0.14		Brown-black-grey shale; abundant sub-vertical to 45° dip joints and slickensides; clayey; minor carbonaceous bands at base. GBC.		
309.15	309.27	0.12		Heavy dull coal/carbonaceous mudstone (50:50); abundant sub-vertical joints (with minor carbonate (?) infilling).		
309.27	309.33	0.06		Grey-brown clayey, sandy, mudstone; carbonate on sub-vertical joints; minor carbonaceous clasts and lenticles. Irregular BC.		
309.33	309.38	0.05	100	Heavy dull coal; broken core due to sub-vertically-dipping joints.		
309.38	309.44	0.04	67	Grey-brown carbonate-rich clayey mudstone; abundant carbonaceous flecks.		
309.44	309.66	0.17	77	Dull coal; minor (1%) bright bands; sub-vertically-dipping carbonate-coated joints. Undulose BC.		
309.66	309.72	0.06	100	Grey-brown carbonate-rich clayey mudstone with minor coaly shards; shaly from 309.69 m to 309.72 m.		
309.72	309.79	0.07	100	Dull coal; sub-vertical joint; minor carbonaceous mudstone bands. Continued over GBC.		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
309.79	309.86	0.07	100	COAL SECTION: (Contd.) Carbonaceous mudstone; minor heavy dull coal; minor sub-vertical joints; core parts readily along sub-horizontal planes. GBC.		
309.86	309.92	0.06		Brown-black-grey clayey mudstone; white sandy clasts towards base. BC dips at 2°.		
309.92	310.10	0.18		Heavy dull coal; sub-vertically-dipping joints; mudstone lenticles and shards (sub-horizontal to sub-vertical in disposition); minor white, irregularly-bedded sandy clasts from 309.96 m to 310 m. GBC.		
310.10	310.37	0.27		Carbonaceous, grey and brown mudstone; shaly in basal 10 cm; minor lenticular bedding and black mudstone shards. GBC.		
310.37	310.68	0.31		Carbonaceous mudstone with minor heavy dull coal; sub-vertical joints and minor brown-grey mudstone lenticles and bands from 310.44 m to 310.46 m and from 310.47 m to 310.49 m; minor carbonate (?) on sub-vertical joint planes; minor lenticular brown-grey mudstone bands and shards from 310.49 m to 310.58 m. Undulose BC.		
310.68	310.94	0.26		Creamy khaki-brown shale; clayey; minor carbonaceous flecks; brown-black in basal 2 cm. GBC.		
310.94	311.41	0.47	100	Dull coal; minor heavy dull coal; bedding dips at up to 2°; minor Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				lenticles of white-grey mudstone and bright coal; minor sub-vertically-dipping joints infilled with calcite (?); grey-brown clayey mottled mudstone band from 311.23 m to 311.26 m. Irregular BC.		
311.41	311.49	0.08	100	COAL SECTION: (Contd.) Creamy khaki-brown clayey shale; parts readily.		
311.49	311.51	0.02		Carbonaceous mudstone.		
311.51	311.65	0.14		Cream-brown clayey shale; minor coaly shards and clay-pellets.		
311.65	311.66	0.01		Carbonaceous mudstone.		
311.66	311.71	0.05		Cream-brown clayey shale. Irregular, lenticular BC.		
311.71	311.87	0.16		Heavy dull coal; minor carbonaceous mudstone; abundant brown-black clay pellets. BC dips at 5°.		
311.87	312.32	0.45		Cream-brown clayey shale; slickenside zone from 312.15 m to 312.27 m; predominantly massive; abundant carbonaceous shards. Undulose BC.		
312.32	312.40	0.08		Dull coal; abundant grey mudstone shards and minor pellets; minor carbonaceous mudstone.		
312.40	312.53	0.13		Interlaminated dull coal/bright coal (75:25); minor elongate grey mudstone lenticles and shards.		
312.53	312.61	0.08	100	Carbonaceous mudstone with brown stains on surface of core; wispy, irregular calcite (?) veins. Irregular, undulose BC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
312.61	312.64	0.03	100	COAL SECTION: (Contd.) Carbonaceous mudstone and dull coal; shaly at base; minor bright laminae in top 1 cm. Irregular, slickensided BC.		
312.64	312.69	0.05		Creamy khaki-green-brown clayey shale with abundant slickensides and minor carbonaceous flecks. Undulose, ripply BC.		
312.69	312.83	0.14		Dull coal; 25% bright laminae; sub-vertically-dipping calcite (?)-coated joints.		
312.83	313.02	0.19		Dull coal; minor brown mudstone lenticles. GBC.		
313.02	313.18	0.16		Dull coal with 10% bright bands and laminae; minor calcite veins dipping sub-vertically and coating the cleat; bedding dips at 10° at base. Undulose, irregular BC.		
313.18	313.25	0.07		Carbonaceous mudstone with brown stains on surface of core; wispy, irregular grey mudstone lenticles; undulose bedding dips at up to 5°; mottled brown-black surface. BC dips at 10°.		
313.25	313.38	0.13		Dull coal; 5% bright laminae; minor white sandy laminae (lenticular in part) from 3 cm to 5 cm; sub-vertical calcite (?)-coated joints. BC dips at 5°.		
313.38	313.57	0.19	100	Carbonaceous mudstone grading to khaki-green-brown clayey shale; abundant black flecks throughout; minor grey sandy Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

cm; carbonaceous

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				clasts from 313.38 m to 313.43 m; minor slickensides; abundant carbonaceous flecks and shards. BC dips at 2°.		
313.57	313.69	0.12	100	COAL SECTION: (Contd.) Dull coal; minor bright bands and carbonaceous mudstone.		
313.69	313.72	0.03		Grey-brown mottled mudstone with 2 cm x 1 cm pellet from 313.69 m to 313.7 m; minor, wispy carbonaceous lenticles. BC dips at 5°.		
313.72	313.87	0.15		Dull coal; minor grey-brown mudstone lenticles from 313.73 m to 313.76 m; bright band at base.		
313.87	313.95	0.08		Brown-grey shaly mudstone; minor carbonaceous flecks. BC dips at 10°.		
313.95	314.11	0.16		Interbanded dull and bright coal (75:25); abundant grey mud-pellets and lenticles from 313.95 m to 314 m; abundant subvertical calcite veins (irregular) GBC.		
314.11	314.42	0.31		Dull coal; minor bright laminae and mudstone bands from 314.13 m to 314.14 m and from 314.32 m to 314.42 m. GBC dips at 5°. Grades to carbonaceous mudstone in basal 5 cm.		
314.42	314.67	0.25		Brown-green-grey, clayey, shaly mudstone; massive. BC dips 2°.		
314.67	315.21	0.54	100	Dull coal; grades from heavy dull coal at top to bright coal at base; minor mudstone lenticles and laminae; well-developed calcite-coated cleat in basal 10 cm; carbonaceous		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION		SECTION Core	SECTION Sample
					mudstone bands in basal 3 cm.		
315.21	315.28	0.07	100	COAL SECTION: (Contd.)	Brown-grey clayey mudstone with clayey pellets and carbonaceous bands; irregular bedding. Irregular, undulose BC dips at 5°.		
315.28	315.34	0.06			Carbonaceous mudstone; minor brown-grey mudstone lenticles. GBC.		
315.34	315.35	0.01			Brown-grey mudstone.		
315.35	315.92	0.57			Interbedded dull coal/bright coal (50:50); abundant calcite (?) on cleat of bright coal; minor sub-vertical joints; minor heavy dull coal intervals; grades to carbonaceous mudstone in basal 5 cm. GBC.		
315.92	315.96	0.04			Brown-grey mudstone; clayey; carbonaceous mudstone at top. Irregular BC.		
315.96	315.97	0.01			Carbonaceous mudstone.		
315.97	315.98	0.01			Brown-grey mudstone; lenticular. BC dips 5°.		
315.98	316.01	0.03			Carbonaceous mudstone; minor heavy dull coal band.		
316.01	316.27	0.26			Dull coal; 25% bright coal with abundant sub-vertical to 60°-dip cleat and joint-ing; mudstone laminae at 316.21 m; grades to carbon-aceous mudstone at base. GBC dips at 2°.		
316.27	316.31	0.04			Pink-brown-grey mudstone; clayey; mottled surface; minor carbonaceous lenticles.		
316.31	316.35	0.04	100		Dull coal; grey mudstone laminae in basal 1 cm. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
316.35	316.83	0.48	100	COAL SECTION: (Contd.) Interbedded dull coal/bright coal (75:25); bright coal is very friable (cuboidal fracture) and breaks (crumbles) readily; minor grey mudstone shards from 316.4 m to 316.42 m; broken core from cleat and sub-vertical joints. Interbedded dull coal/bright coal (75:25); bright coal not friable; core is broken due to abundant sub-vertical and sub-horizontal cleating and jointing.		
316.83	316.92	0.09		Interbanded dull coal/carbonaceous mudstone/brown-grey mudstone (25:50:25); minor irregular bedding dipping at up to 5°.		
316.92	317.16	0.24		Interbedded dull coal/bright coal (75:25); abundant calcite (?) on cleat. GBC.		
317.16	317.22	0.06		Carbonaceous mudstone. GBC.		
				(BASE OF COAL SECTION)		
317.22	317.68	0.46		Grey mudstone; silty; abundant coaly shards and lenticles (dipping at up to 45°). GBC.		
317.68	318.08	0.40		Grey siltstone. GBC.		
318.08	318.71	0.63		Light-grey FLSS; abundant dark-grey siltstone and FMLSS bands. GBC.		
318.71	320.17	1.46		Light-grey FMLSS; minor FLSS, siltstone and mudstone bands; bedding dips at up to 5°. GBC.		
320.17	341.18	21.01	100	MLSS, light-grey to grey-white; massive bedding (dips at up to 5°); minor carbonate matrix from 320.86 m to 328.94 m; coaly debris from 326.96 m to 327.56 m and from 328.01 m to 328.11 m with bedding dipping at up to 10° during these intervals; bedding dips at up to 5° from 328.55 m to 328.94 m with minor Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				carbonate matrix; coaly debris from 328.94 m to 329.04 m; mudstone with coaly debris from 331.49 m to 331.57 m; coaly debris from 331.57 m to 332.07 m; minor carbonaceous laminae dipping at up to 10° from 332.57 m to 333.77 m; conglomerate band with rounded green cobbles from 333.82 m to 333.87 m; abundant mud-pellets from 333.87 m to 334.27 m; minor coaly debris from 334.65 m to 334.75 m, from 337.38 m to 337.58 m, from 337.58 m to 337.68 m (with minor carbonate matrix), from 337.82 m to 337.95 m, from 338.33 m to 338.42 m, from 339.68 m to 339.98 m and from 340.41 m to 340.44 m (bright coal); minor cross-bedded carbonaceous laminae dipping at up to 5° from 335 m to 335.30 m; minor FMLSS from 339.08 m to 340.58 m. BC dips at 2°.		
341.18	341.65	0.47	100	COAL SECTION: Interbedded carbonaceous mud-stone/brown mudstone (50:50). BC dips at 5°.		
341.65	341.71	0.06		Dull coal; bright band at base. BC dips at 2°.		
341.71	341.75	0.04		White-grey clayey mudstone; minor carbonaceous lenticles.		
341.75	341.86	0.11		Dull coal; 5% bright laminae; minor carbonaceous mudstone laminae. GBC.		
341.86	341.89	0.03		Brown-grey claystone grading to khaki at base; minor white clay-pellets and slickensides. BC dips at 5°.		
341.89	342.01	0.12		Dull coal/carbonaceous mud-stone (50:50). GBC.		
342.01	342.11	0.10		Carbonaceous mudstone grading to brown-khaki claystone with minor carbonaceous flecks.		
342.11	342.13	0.02	100	Dull coal. BC dips at 2°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
342.13	342.14	0.01	100	COAL SECTION: (Contd.) Brown-grey claystone.		
342.14	342.18	0.04		Dull coal. GBC.		
342.18	342.21	0.03		Carbonaceous mudstone. Interdigitating BC.		
342.21	342.35	0.14		Dull coal. GBC.		
342.35	342.38	0.03		Interbanded grey claystone/ carbonaceous mudstone (50: 50); lenticular bands.		
342.38	342.48	0.10		Interbanded carbonaceous mudstone/dull coal (75:25); bedding dips at up to 5°. GBC.		
342.48	342.52	0.04		Brown-grey claystone; minor carbonaceous flecks. GBC.		
342.52	342.58	0.06		Carbonaceous mudstone; minor heavy dull coal. GBC.		
342.58	342.63	0.05		Brown-grey mudstone; minor carbonaceous shards; poorly shaly. BC dips at 2°.		
342.63	342.79	0.16		Dull coal; minor grey mud- stone lenticles; grades to carbonaceous mudstone at base. GBC.		
342.79	343.07	0.28		Grey-green shale. BC dips at 5°. Minor slickensides from 342.79 m to 342.84 m.		
343.07	343.39	0.32		Dull coal/bright coal (75: 25) interbanded; bedding dips at up to 5°. GBC.		
343.39	343.44	0.05		Carbonaceous mudstone; shaly in part; minor brown-grey mudstone. GBC.		
343.44	343.76	0.32		Carbonaceous mudstone/heavy dull coal (50:50); minor brown claystone bands from 343.61 m to 343.76 m. GBC.		
343.76	343.84	0.08	100	Brown-grey mudstone. Irregular BC dips at 2°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
343.84	344.12	0.28	100	COAL SECTION: (Contd.) Heavy dull coal with abundant brown mudstone laminae.		
344.12	344.81	0.69		Interbanded dull coal/bright coal (75:25); minor brown-grey mudstone bands from 344.33 m to 344.34 m, from 344.49 m to 344.52 m, at 344.62 m and carbonaceous mudstone from 344.75 m to 344.81 m; bedding dips at up to 10°. GBC.		
344.81	344.87	0.06		Interbanded carbonaceous mudstone/brown-grey mudstone (50:50).		
344.87	344.98	0.11		Dull coal; minor bright laminae; bedding dips at 5°; grades to carbonaceous mudstone at base. BC dips at 15°. Brown mudstone lenticular band at base.		
				(BASE OF COAL SECTION)		
344.98	346.29	1.31		Interbanded carbonaceous mudstone/dark-brown-grey mudstone; (25:75); 45° dip slickenside from 345.08 m to 345.13 m; abundant wispy coaly lenticles from 344.98 m to 345.13 m with bedding dipping at up to 20°; minor slickensides, abundant microfaults, lenticular bedding (dips at up to 10°) and shaly in part from 345.13 m to 346.29 m. GBC.		
346.29	349.37	3.08		Grey mudstone; massive from 346.29 m to 346.62 m; silty and minor slickensides from 346.62 m to 349.04 m; khaki-brown claystone with minor calcite veins from 348.42 m to 348.51 m and an interdigitating BC dipping at 45°; carbonaceous mudstone from 348.51 m to 348.72 m; silty towards base. GBC.		
349.37	352.62	3.25	100	FLSS; bedding dips at up to 5° from 349.37 m to 349.62 m; grey-white from 349.37 m to 352.62 m and is 10% quartzose; grades to fine-medium-grainsize Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

predominantly massive.

Continued over

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				quartzose sandstone (FMQSS) with abundant festoon cross-bedded carbonaceous laminae.		
352.62	366.55	13.93	100	MLSS with abundant coaly debris and carbonaceous laminae; irregular bedding dips at up to 20° from 352.62 m to 358.59 m; sporadic coaly debris, mud-pellets, carbonaceous laminae and minor carbonate matrix from 358.59 m to 361.2 m; bright coal bands and mud-pellets from 361.04 m to 361.14 m; massive bedding from 361.24 m to 364.63 m; minor mud-pellets and coaly debris from 361.65 m to 364.63 m and from 365.37 m to 365.98 m (bedding dipping at up to 30°). BC dips at 2°.		
366.55	367.05	0.50		COAL SECTION: Dull coal; broken core due to abundant sub-vertically-dipping cleat. GBC.		
367.05	367.08	0.03		Carbonaceous mudstone. GBC. (BASE OF COAL SECTION)		
367.08	367.48	0.40		Grey FMLSS. GBC. Silty in top 12 cm.		
367.48	368.65	1.17		Dark-grey silty mudstone; minor slickensides from 367.63 m to 368.65 m. GBC.		
368.65	369.12	0.47		Light-grey FMLSS; massive. Stepped BC dips at 2°.		
369.12	369.88	0.76		Dark-grey silty mudstone; minor carbonaceous laminae and slickensides towards 369.88 m; carbonaceous mudstone from 369.85 m to 369.88 m dipping at 30°. BC dips at 30°.		
369.88	370.07	0.19		Brown-grey khaki shale with secondary (?) carbonate veins (massive from 370.01 m to 370.07 m).		
370.07	370.13	0.06		Interbanded dull coal and carbonaceous mudstone (50:50). BC dips at 2°.		
370.13	372.21	2.08		FMLSS; light-and dark-grey; minor carbonaceous laminae (poorly cross-bedded) from 370.13 m to 370.63 m; massive from 370.63 m to 372.21 m; minor carbonaceous laminae from 370.78 m to 370.88 m. BC dips at 2°.		
372.21	373.34	1.13	100	Dark-grey mudstone; minor silty bands; predominantly massive.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
373.34	373.64	0.30	100	Carbonaceous mudstone; shaly in part; abundant slickensides from 373.49 m to 373.64 m. GBC.		
373.64	375.32	1.68		Dark-grey mudstone; minor slickensides and plant-fossil debris; green-brown claystone from 373.96 m to 374.01 m. Ripply BC dips at 5°. Silty in part.		
375.32	375.33	0.01		COAL SECTION: Dull coal. BC dips at 2°.		
375.33	375.34	0.01		Brown-grey mudstone.		
375.34	376.42	1.08		Dull coal; well-developed cleat and sub-vertical joints along which core breaks readily; bedding dips at up to 2°; grey mudstone laminae at 375.91 m, from 375.95 m to 375.96 m and from 376.31 m to 376.32 m. GBC.		
376.42	376.59	0.17		Interbanded carbonaceous mudstone and brown-grey mudstone; minor slickensides; bedding dips at up to 5°. Irregular BC dips at 2°. (BASE OF COAL SECTION)		
376.59	377.48	0.89		Dark-grey mudstone; abundant slickensides from 376.59 m to 376.65 m; grades to silty at 377.32 m; silty from 377.32 m to 377.48 m. BC dips at 5°.		
377.48	381.04	3.56		FMLSS, grey-white; 10% quartzose; massive; FLSS from 380.24 m to 381.04 m with minor carbonaceous laminae and festoon cross-bedding.		
381.04	382.76	1.72		MLSS, grey-white; planar cross-bedding dipping at up to 15° from 381.04 m to 381.24 m. BC dips at 2°.		
382.76	383.46	0.70		FLSS grading to MLSS at base; grey-white; massive. GBC.		
383.46	387.21	3.75	100	MLSS, grey-white; minor coaly debris; bedding dips at up to 5° from 383.46 m to 385.42 m; massive with minor Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				coaly laminae dipping at up to 2° from 385.42 m to 387.21 m. GBC.		
387.21	390.74	3.53	100	FMLSS, grades to FLSS with depth.		
390.74	391.89	1.15		MLSS; minor coaly debris, particularly from 391.64 m to 391.74 m where it is abundant; coaly debris and mud-pellets from 391.74 m to 391.84 m.		
391.89	392.64	0.75		FMLSS. BC dips at 10°.		
392.64	392.89	0.25		MLSS.		
392.89	394.74	1.85		Dark-grey mudstone; silty; wispy carbonaceous laminae; carbonaceous mudstone from 392.96 m to 392.98 m; bedding dips at up to 10°; minor slickensides; light-grey silty and sandy bands towards the base with 5° dip carbonaceous laminae in dark-grey mudstone matrix; carbonaceous from 393.98 m to 394.09 m; disturbed, irregular bedding from 394.03 m to 394.13 m; minor festoon cross- bedding from 394.12 m to 394.52 m. BC dips at 5°.		
394.74	394.86	0.12		Carbonaceous mudstone/blue-grey mudstone and carbonaceous mudstone laminite, inter-banded (40:50:10); disturbed flaser bedding dipping at up to 5°; minor slickensides and microfaults. Cross-bedded BC dips at 5°.		
394.86	395.02	0.16		COAL SECTION: (not sampled) Dull coal with 5% bright laminae; irregular bedding (truncated at top contact) dips at up to 10°; abundant slickensides and minor carbonaceous mudstone laminae from 394.97 m to 395.02 m. Slickensided BC dips at 5°. (BASE OF COAL SECTION)		
395.02	395.07	0.05		Light khaki-grey clayey mudstone; abundant slickensides (sygmoidal, sub-horizontal to 20° dip). Slickensided BC dips at 10°.		
395.07	395.72	0.65	100	Dark-grey mudstone grading to grey-brown and sandy towards base; abundant 45° to 60° dip slickensides and joints; Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				silty from 395.17 m to 395.72 m; GBC.		
395.72	396.48	0.76	100	FMLSS/MLSS (50:50), interbanded; abundant siltstone and mudstone bands, irregular bedding (rollovers, cross-bedding) dipping at up to 20°; abundant mud-pellets and coaly debris from 396.18 m to 396.48 m. Irregular BC.		
396.48	413.34	16.86	100	MLSS; white-grey; massive bedding; intra-formational elongate mud-pellet conglomerate from 396.55 m to 396.68 m; coaly laminae dipping at up to 5° from 396.93 m to 396.95 m; bedding dips at up to 5° from 396.48 m to 399.97 m; minor coaly lenticles dipping at up to 20° from 400.25 m to 400.55 m; bedding dipping at up to 5° with minor FMLSS intervals and carbonaceous laminae from 401.56 m to 403.77 m; blue-grey mudstone with abundant coaly debris and slickensides, carbonaceous mudstone pellets and bands dipping at up to 45° (wispy, lenticular) and sharp, but slickensided, BC dipping at 60° from 407.89 m to 408.81 m; minor mudstone debris and pellets from 408.81 m to 409.11 m; generally massive and featureless from 407.76 m to 412.75 m; coaly debris, lenticles and carbonaceous laminae dipping at up to 5° from 412.01 m to 412.59 m; mud-pellets and siltstone interval from 412.59 m to 412.68 m; minor elongate mud-pellets and dispersed mudstone shards from 412.85 m to 413.23 m.		
413.34	416.04	2.70	100	FMLSS, grey-white with minor MLSS intervals; dispersed wispy carbonaceous flecks from 414.32 m to 415.08 m; interbanded FMLSS/carbonaceous mudstone (50:50) with minor laminite from 415.14 m to 415.4 m; minor sub-horizontally-dipping coaly lenticles from 415.40 m to 415.75 m; wispy carbonaceous mudstone laminae and lenticles from 415.86 m to 415.96 m; grey siltstone band dipping at 2° from 415.98 m to 416.01 m; grey-white MLSS with mud-pellets and shards (up to 2 cm x 1 cm) from Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				416.00 m to 416.04 m. BC dips at 30° from 416.01 m to 416.04 m.		
416.04	416.10	0.06	100	COAL SECTION: (Duncan seam(?)) Blue-grey mudstone; 30° dip slickenside from 416.02 m to 416.05 m; wispy, irregular coaly lenticles dipping at up to 5°. Undulose BC dips at 5°.		
416.10	416.12	0.02		Dull and bright coal laminite; bedding dips at 5°; minor carbonaceous mudstone laminae. Irregular, undulose BC dips at 5°.		
416.12	416.15	0.03		Blue-grey mudstone; abundant wispy coaly and carbonaceous lenticles; bedding dips at up to 5°. Undulose BC dips at up to 5° (2° average).		
416.15	416.16	0.01		Dull coal/bright coal laminite; irregular, undulose bedding dips at up to 5° (similar to the BC).		A (roof)
416.16	416.18	0.02		Blue-grey mudstone; abundant wispy coaly and carbonaceous lenticles; minor irregular and disturbed faint flaser bedding. BC dips at 2°.		
416.18	416.20	0.02		Dull coal grading to carbonaceous mudstone; bedding dips at 2°. GBC.		
416.20	416.23	0.03		Blue-grey mudstone; clayey; silty. BC dips at 5°.		
416.23	416.27	0.04		Heavy dull coal with minor carbonaceous mudstone bands. BC dips at 2°.		
416.27	416.28	0.01	100	Brown carbonaceous shaly claystone; bedding dips at 2°. BC dips at 2° Continued over		B (roof)

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
416.28	416.30	0.02	100	COAL SECTION: (Duncan seam(?)) (Contd.) Dull coal; minor bright lenticles. Undulose BC dips at 2°.		
416.30	416.31	0.01		Carbonaceous brown shaly claystone; minor coaly lenticles. BC dips at 2°.		
416.31	416.62	0.31		Dull coal; sub-vertically-dipping joints (2 to 3 cm separation) results in broken core; grey mudstone lenticle at 416.42 m; minor bright laminae and lenticles; minor kaolinite (?) on sub-vertically-dipping cleat. GBC.		
416.62	416.65	0.03		Pink-grey-brown claystone with coaly flecks.		
416.65	416.70	0.05		Dull coal; abundant (25%) bright laminae and lenticles.		
416.70	416.72	0.02		Bright coal; abundant kaolinite (?) on sub-vertically-dipping cleat.		B (roof)
416.72	416.74	0.02		Dull coal; minor calcite (?) on sub-vertically-dipping joints.		
416.74	416.78	0.04		Bright coal; minor dull coal laminae; abundant cleat with minor kaolinite (?) coating. Undulose BC dips at up to 2°.		
416.78	416.83	0.05		Shaly carbonaceous mudstone/ dark-brown carbonaceous claystone (80:20) laminite; minor coaly lenticles; irregular bedding. GBC.		
416.83	416.85	0.02		Grey-blue shaly mudstone; minor coaly lenticles. Wispy, undulose BC.		
416.85	416.87	0.02	100	Dull coal/bright coal laminite (50:50); minor Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				carbonaceous mudstone laminae and lenticles.		
416.87	416.90	0.03	100	COAL SECTION: (Duncan Seam(?)) (Contd.) Grey-blue shaly mudstone; 45° dip slickensided from top to base; minor coaly lenticles and lenticular bedding.		
416.90	416.96	0.06		Dull coal; broken core due to sub-vertically-dipping joints through the centre of the core; minor bright coaly lenticles dipping at up to 5°. BC dips at 2°.		B (roof)
416.96	417.01	0.05		Dark blue-grey mudstone; broken core due to sub-vertically-dipping joints running through the centre of the core (continue into unit below); minor wispy undulose coaly lenticles. BC dips at 5°.		
417.01	417.08	0.07		Dull coal; minor bright laminae; abundant calcite on sub-vertically-dipping joints and cleat.		
417.08	417.09	0.01		Bright coal/calcite laminite (50:50); sub-horizontally-dipping bedding (relative to core axis). Undulose BC dips at 2°.		C (main working section)
417.09	417.69	0.60	100	Dull coal; minor bright bands; sub-vertically-dipping calcite veins (1 mm wide) in top 10 cm; broken core due to abundant sub-vertically-dipping joints (0.5 cm to 2 cm spacing between joints); minor kaolinite (?) on cleat in basal 20 cm; minor mudstone lenticles.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
417.69	417.70	0.01	100	COAL SECTION: (Duncan seam(?)) (Contd.) Carbonaceous mudstone grading to grey pink-brown mudstone; lenticular bedding. BC dips 2°.		
417.70	417.71	0.01		Bright coal; abundant cleat with minor kaolinite (?) coating; broken core due to joints.		
417.71	418.37	0.66		Dull coal; minor bright lenticles; broken core due to abundant sub-vertically-dipping joints; minor kaolinite on joint surfaces; siderite (?) on joint surfaces from 417.98 m to 418.73 m together with calcite; grey mudstone lenticles from 417.86 m to 417.87 m and from 417.96 m to 417.97 m; brown-black core surface from 418.33 m to 418.37 m; bright coal laminae from 418.36 m to 418.37 m. BC dips at 2°.		C (main working section)
418.37	418.38	0.01		Carbonaceous mudstone; minor coaly lenticles.		
418.38	418.41	0.03		Bright coal with minor (10%) dull coal laminae; kaolinite on sub-vertically-dipping cleat; sub-vertically-dipping joints. BC dips at 2°.		
418.41	418.44	0.03		Dull coal with bright lenticles; bedding dips at up to 5°; abundant sub-vertically-dipping joints (0.5 cm to 2 cm spacing).		
418.44	418.47	0.03	100	Interbanded bright and dull coal (75:25); abundant kaolinite on cleat; sub-vertically-dipping joints result in broken core; minor laminite. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
418.47	418.51	0.04	100	COAL SECTION: (Duncan seam(?)) (Contd.) Dull coal; minor (20%) bright coal laminae and thin bands, minor coaly lenticles; abundant sub-vertically-dipping joints.		C
418.51	418.52	0.01		Grey-brown claystone; minor white clayey clasts (1 mm in diameter). BC dips at 2°.		(main working section)
418.52	418.73	0.21		Dull coal; minor bright laminae; abundant sub-vertically-dipping joints.		
418.73	418.78	0.05		Carbonaceous mudstone; minor thin wispy coaly lenticles. GBC.		D
418.78	419.16	0.38		Carbonaceous mudstone grading to dark-grey clayey mud-stone at base; minor coaly flecks. GBC.		(floor)
				(BASE OF COAL SECTION)		
419.16	419.81	0.65		FMLSS, brown-grey; 10% quartzose; minor silty intervals.		
419.81	425.84	6.03		FMLSS, grey-white; massive bedding; 10% quartzose; FLSS from 423.19 m to 423.42 m; MLSS from 423.42 m to 424 m and from 424.69 m to 425.61 m (BC dips at 5°); FLSS with carbonaceous laminae spaced at approximately 0.5 cm intervals from 423.99 m to 424.12 m; minor carbonaceous laminae and mud-pellets from 424.64 m to 424.69 m; mud-pellets from 424.87 m to 424.90 m and from 425.42 m to 425.47 m; CLSS from 425.42 m to 425.61 m; FLSS with carbonaceous laminae spaced at approximately 1 cm intervals from 425.61 m to 425.84 m and from 425.84 m to 425.91 m.		
425.84	448.42	22.58	100	MLSS, grey-white; massive; minor dispersed coaly debris and FMLSS intervals; coaly debris and shards from 429.29 m to 429.39 m, from 430.90 m to 431.30 m and from 433.30 m to 433.60 m; coaly debris from 434.53 m to 434.63 m; coaly Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				bands from 437.46 m to 432.51 m; grey mudstone and carbonaceous mudstone with minor coaly bands from 438.05 m to 438.29 m (elongate mud-pellets dipping at up to 30° in basal 5 cm); CLSS from 438.09 m to 438.18 m; mud-pellet (rounded, elongate) from 439.10 m to 439.11 m; rippled core surface (wavelength of 5 cm) from 445.84 m to 448.42 m. BC dips at 2°.		
448.42	449.23	0.81	100	Grey mudstone; abundant slickensides and wispy carbonaceous laminae; abundant disturbed bedding (dipping at up to 30°). GBC.		
449.23	449.57	0.34		Grey siltstone. GBC.		
449.57	449.72	0.15		Grey mudstone; minor wispy carbonaceous laminae. GBC.		
449.72	451.32	1.60		FLSS; abundant carbonaceous bands and laminae; minor mudstone intervals; minor sandy intervals in basal 20 cm; minor festoon cross-bedding from 450 m to 451.32 m. GBC.		
451.32	451.85	0.53		FMLSS, grey-white; minor mudstone bands and wispy carbonaceous lenticles; vertical worm burrow (?) at base extends 3 cm into unit below.		
451.85	451.92	0.07		Silty grey mudstone.		
451.92	452.09	0.17		Silty FLSS, grey; minor carbonaceous laminae dipping at up to 2°.		
452.09	452.10	0.01		COAL SECTION: Dull coal.		
452.10	452.11	0.01		(East Fingal Upper Split(?)) Grey FLSS.		
452.11	452.12	0.01		Dull coal.		
452.12	452.13	0.01		Brown mudstone with carbonaceous mudstone lenticles; lenticular bedding. Undulose BC dips at 2°.		
452.13	452.20	0.07		Dull coal; sub-vertically-dipping joints. GBC.		
452.20	452.23	0.03	100	Heavy dull coal; sandy (0.5 mm diameter clasts); minor carbonaceous Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				mudstone bands. Sub-horizontally-dipping BC.		
452.23	452.24	0.01	100	COAL SECTION: (East Fingal Upper Split(?)) (Contd.) Brown mudstone; clayey; abundant carbonaceous flecks, lenticles and laminae. BC dips at 2°.		
452.24	452.35	0.11		Dull coal; sub-vertically-dipping joints result in broken core; grades to carbonaceous mudstone at base.		
452.35	452.39	0.04		Interbanded carbonaceous mudstone and black-grey sandy siltstone (50:50); minor wispy carbonaceous lenticles and lenticular bedding.		
				(BASE OF COAL SECTION)		
452.39	452.58	0.19		Grey FLSS, minor festoon-cross-bedded-carbonaceous-mudstone laminae. GBC.		
452.58	452.90	0.32		Laminite, grey FLSS/carbonaceous mudstone and dark-grey mudstone (50:50); minor flaser and lenticular bedding; worm-burrows (sinuous) from 452.58 m to 452.63 m.		
452.90	453.27	0.37		Grey muddy siltstone; minor FLSS intervals and sub-vertically-dipping carbonaceous trace-fossils (rootlets (?)). GBC.		
453.27	453.70	0.43		Grey mudstone; mottled with green-grey claystone (irregularly distributed); carbonaceous laminae (irregular, wispy) dip at up to 45°. GBC.		
453.70	453.99	0.29		Grey siltstone; massive; minor grey mudstone intervals from 453.7 m to 453.8 m and from 453.9 m to 453.99 m. BC dips at 2°.		
453.99	454.87	0.88		Grey FMLSS; massive bedding; minor siltstone, mudstone bands and carbonaceous laminae. GBC.		
454.87	455.56	0.69	100	MLSS, grey-white; massive bedding; minor carbonaceous laminae dipping at up to 2°. Undulose BC dips at 5°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
455.56	455.83	0.27	100	Interbedded dark-grey silty mudstone/grey FLSS with carbonaceous lenticles (80:20); bedding dips at up to 5°.		
455.83	456.16	0.33		FLSS, grey; abundant carbonaceous laminae and minor flaser and festoon cross-bedding (dipping at up to 5°); dark-grey mudstone in basal 5 cm. BC dips at 2°.		
456.16	456.98	0.82		Light-grey MLSS; massive; minor dark-grey laminae. BC dips at 2°.		
456.98	459.14	2.16		Grey FMLSS; massive; minor darker laminae; (exactly as above); carbonaceous laminae from 458.24 m to 458.66 m and from 458.99 m to 459.14 m. GBC.		
459.14	462.12	2.98		MLSS, grey-white; massive; bedding dips at up to 5°; minor lenticular carbonaceous laminae from 461.09 m to 461.49 m; abundant elongate (5 cm x 1 cm) mud-pellets and coaly debris from 461.56 m to 462.12 m. BC dips at 2°.		
462.12	462.93	0.81		Grey mudstone, silty; minor sandy bands; wispy carbonaceous laminae. GBC.		
462.93	463.48	0.55		Grey mudstone, shaly; abundant coaly flecks and carbonaceous lenticles; bedding dips at up to 5°. BC dips at 5°. Abundant plant-fossil debris.		
463.48	463.70	0.22		COAL SECTION: (East Fingal Lower split(?)) Carbonaceous mudstone/heavy dull coal (50:50); brown mud-pellets from 463.52 m to 463.55 m; abundant (1 mm diameter) sandy clasts. Irregular BC. Minor brown mudstone pellets elsewhere (5 mm diameter).	))))))))	A (top of main working section)
463.70	463.71	0.01		Brown/black carbonaceous mud-stone (50:50) laminite. BC dips at 2°.	)))))	
463.71	463.72	0.01		Creamy pink-brown claystone; lenticular bedding. Irregular BC dips at 2°.	)))))	
463.72	464.00	0.28	100	Dull coal; abundant sub-vertically-dipping jointing; minor heavy dull Continued over	)))))	

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				coal. BC dips at 2°.		
464.00	464.02	0.02	100	COAL SECTION: (East Fingal Lower split(?)) (Contd.) White sandy claystone; abundant wispy carbonaceous lenticles; sub-vertical joints result in broken core.		
464.02	464.05	0.03		Dull coal. GBC. Sub-vertical joints.		A (top of main working section)
464.05	464.07	0.02		Creamy pink-brown claystone; minor carbonaceous lenticles. BC dips at 2°.		
464.07	464.20	0.13		Dull coal; abundant sub-vertically-dipping joints results in broken core; minor bright laminae.		
464.20	464.22	0.02		Grey-brown claystone; minor wispy carbonaceous lenticles. BC dips at 2°.		
464.22	465.04	0.82		Dull coal, 20% bright bands; broken core due to abundant sub-vertically-dipping joints and cleat (0.2 cm to 2 cm joint spacing). BC dips at 2°.		B (bottom of main working section)
465.04	465.05	0.01		Brown claystone band; minor (1 mm diameter) clasts.		
465.05	465.11	0.06		Bright and dull coal laminite (50:50); minor lenticular bedding; grades to carbonaceous mudstone at base. GBC.		
				(BASE OF COAL SECTION)		
465.11	465.31	0.20		Dark-grey mudstone grading to grey mudstone at base; carbonaceous from 465.11 m to 465.16 m. GBC.		
465.31	465.94	0.63		Interbedded light-grey sandy siltstone/grey silty mudstone (60:40). BC dips at 5°.		
465.94	469.94	4.00	100	MLSS, grey-white; massive; FMLSS from 465.94 m to 466.5 m and from 466.72 m to 466.80 m (both units with minor		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				carbonaceous laminae and festoon cross-bedding); minor carbonaceous laminae from 467.7 m to 467.98 m, from 468.49 m to 468.72 m and from 469.62 m to 469.66 m. BC dips at 10°.		
469.94	470.16	0.22	100	FMLSS, grey; minor carbonaceous laminae from 469.94 m to 469.97 m; bedding dips at up to 5°; minor coaly lenticles at 470.07 m.		
470.16	472.50	2.34		MLSS, grey-white; grades with depth to FMLSS; bedding dips at up to 5°; green, grey, pink, black, brown rock fragments; massively bedded. BC dips at 2°.		
472.50	472.51	0.01		COAL SECTION: Shale, olive-green-grey. BC dips at 2°. Minor carbonaceous laminae and debris.	)	
472.51	472.69	0.18		Dull coal; minor joints, cleat and thin sub-vertical calcite veins.	)	
472.69	472.70	0.01		Shale; brown; carbonaceous.	)	
472.70	472.86	0.16		Dull coal; minor joints, cleat and thin sub-vertical calcite veins.	)	
472.86	472.89	0.03		Dull coal; broken core (parts readily on bedding plane).	)	
472.89	472.98	0.09		Heavy dull coal; slickenside dipping at 45° from 472.95 m to 472.98 m. Slickensided BC dips at 45° (shiny, calcite-coated).	)	A
472.98	473.02	0.04		Shale, brown; abundant carbonaceous debris.	)	
473.02	473.32	0.30		Dull coal; minor sub-vertical calcite veins. GBC.	)	
473.32	473.37	0.05	100	Interbanded dull coal/carbonaceous mudstone (50:50); minor bright bands and laminae; grades to dark-grey mudstone with depth.	)	

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
473.55	473.55	0.18	100	COAL SECTION: (Contd.) Mudstone, grey. GBC. Minor slickensides, plant-fossil debris, bioturbation.	)	
473.55	473.74	0.19		Laminite, siltstone, light-grey/mudstone, grey (75:25); abundant FLSS; minor irregular bedding and bioturbation. GBC.	)	B
473.74	473.95	0.21		Laminite, mudstone, grey/dark-grey (50:50); fissile; poorly carbonaceous. GBC.	)	
473.95	473.97	0.02		Carbonaceous mudstone. GBC.	)	
473.97	473.99	0.02		Heavy dull coal.	)	
473.99	474.02	0.03		Interbanded white-brown mudstone/carbonaceous mudstone; abundant contorted brown clay burrows.	)	
474.02	474.05	0.03		Mudstone; dirty; brown-grey.	)	
474.05	474.07	0.02		Carbonaceous mudstone; grey mudstone lenticle at base.	)	
474.07	474.12	0.05		Dull coal; minor sub-vertical cleat.	)	C
474.12	474.13	0.01		Mudstone, brown; carbonaceous.	)	
474.13	474.57	0.44		Dull coal, minor bright coal; broken core in part (abundant cleat).	)	
474.57	474.59	0.02		Laminite, dull coal/bright coal (50:50). BC dips at 2°.	)	
474.59	474.60	0.01		Mudstone, brown; clayey; carbonaceous.	)	
474.60	474.65	0.05		Dull coal; minor bright laminae.	)	
				(BASE OF COAL SECTION)		
474.65	474.78	0.13	100	Mudstone, silty, light-grey; abundant coaly debris and laminae and contorted carbonate veins. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
474.78	475.05	0.27	100	FLSS, grey and light-grey; minor carbonaceous laminae; minor cross-bedding.		
475.05	475.97	0.92		Siltstone, grey; fissile in part; muddy; slickenside zone in basal 15 cm.		
475.97	476.00	0.03		Carbonate veins and bands; minor carbonaceous debris; some bands very hard. BC dips at 2°.		
476.00	476.03	0.03		Carbonaceous mudstone; abundant bright coal laminae and lenticles. GBC dips at 5°.		
476.03	476.13	0.10		Mudstone, grey; silty; minor carbonaceous laminae and debris. BC dips at 2°.		
476.13	480.59	4.46		Interbanded FLSS, light-grey/siltstone, grey (60:40); minor mudstone and FMLSS intervals; minor cross-bedding dipping at up to 5°; festoon cross-bedding in basal 40 cm.		
480.59	481.39	0.80		MLSS, grey-white; minor carbonate matrix from 480.64 m to 480.79 m; minor carbonaceous laminae and cross-bedding 45-80.		
481.39	483.40	2.01		FMLSS, grey-white; massive; bedding dips at up to 5°. GBC. Abundant coaly debris and carbonaceous laminae from 483.04 - .40 m.		
483.40	484.85	1.45		MLSS, grey-white; massive. Undulose BC.		
484.85	484.97	0.12		Carbonaceous mudstone.		
484.97	485.29	0.32		Slickensided BC dips at 45°.		
485.29	485.62	0.33		Interbanded and laminated carbonaceous siltstone/dark-grey FLSS (50:50); minor disturbed bedding. GBC.		
485.62	488.02	2.40		FMLSS, grey-white; abundant carbonaceous bands and laminae dipping at up to 15°; minor carbonate matrix; minor coaly debris.		
488.02	489.04	1.02				
489.04	489.55	0.51		MLSS, grey-white; massive. BC dips at 2°.		
489.55	489.65	0.10		Laminite, FLSS, light-grey/siltstone, grey (50:50); minor dark-grey bands.		
489.65	489.83	0.18	100	COAL SECTION: Carbonaceous mudstone; fissile.	}	A

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
489.83	489.88	0.05	100	COAL SECTION: (Contd.) Dull coal; minor bright bands and laminae and calcite veins.		
489.88	489.89	0.01		Shale, brown-green-grey. Undulose, irregular BC dips at up to 5°.		A
489.89	489.97	0.08		Carbonaceous mudstone; grades with depth to dark-grey mudstone. GBC.		(Contd.)
489.97	490.15	0.18		Mudstone, dark-grey; grades to grey with depth; silty. Bioturbated BC.		
490.15	490.30	0.15		Interbanded and laminated FLSS, siltstone and mudstone (75:15:10). BC dips at 2°.		
490.30	490.55	0.25		Heavy dull coal; grades to carbonaceous mudstone with depth; minor grey lenticles.		
490.55	490.56	0.01		Shale, brown-grey.		
490.56	490.62	0.06		Laminite, carbonaceous mudstone/light-grey mudstone (lenticular bedding) (50:50).		B
490.62	490.84	0.22		Dull coal, abundant bright laminae and sub-vertical cleat; minor calcite veins.		
490.84	490.85	0.01		Mudstone, grey; cross-bedding dips at up to 2°.		
490.85	491.00	0.15		Dull coal; minor calcite veins. BC dips at 5°.		
				(BASE OF COAL SECTION)		
491.00	491.25	0.25		Mudstone, brown; grades to grey with depth. GBC.		
491.25	495.23	3.98	100	Siltstone, grey; abundant mudstone intervals; minor FLSS intervals; minor bands (light and dark) and coaly debris.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

57	GEOLOGICAL LOG	Page:- 36/41

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
495.23	498.06	2.83	100	FMLSS, grey-white; minor carbonaceous laminae dipping at 5° from 495.23 m to 495.38 m; mud-pellets from 497.37 m to 497.48 m; minor carbonaceous laminae in basal 30 cm; grades to MLSS with depth.		
498.06	502.96	4.90		MLSS; carbonaceous laminae from 498.06 m to 498.36 m; massively bedded.		
502.96	507.80	4.84		Mudstone, grey; abundant shaly and sandy intervals; minor cross-bedding and coaly debris; FLSS from 503.16 m to 504.06 m; bioturbated; abundant mudstone intervals; grades to brown-green with green and black clasts. GBC.		
507.80	510.41	2.61		Carbonaceous mudstone.		
510.41	511.09	0.68		Interbanded carbonaceous mudstone/CLSS/mud-pellet bands; bedding dips at up to 5°.		
511.09	512.02	0.93		FLSS, grey; grades to FMLSS in part; abundant dark-grey bands and siltstone cobble bands.		
512.02	533.07	21.05		FMLSS, grey-white; massive; minor coaly debris and carbonaceous laminae dipping at up to 20°; minor carbonate matrix; grades to FLSS with depth.		
533.07	535.10	2.03		Interbedded green-grey FLSS/grey mudstone/carbonaceous mudstone (60:30:10); minor irregular bedding and bioturbation.		
535.10	536.36	1.26		Mudstone, dark-grey/carbonaceous (75:25), interbedded; minor coaly intervals, laminite and shale; minor slickensides. GBC.		
536.36	538.90	2.54	100	FMLSS, grey-white; minor slickensides; minor grey mudstone and carbonaceous mudstone bands and laminae; minor festoon cross-bedding dipping at up to 5°; grey silty mudstone with laminae and lenticles of FMLSS from 538.08 m to 538.10 m (undulose, lenticular BC); minor small-scale planar cross-bedding from 538.10 m to 538.42 m and from 538.54 m to 538.90 m (BC dips at 2°); dark-grey silty mudstone from 538.42 m to 538.48 m (BC dips at 2°); thin.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				wispy carbonaceous laminae dipping at up to 5° from 538.27 m to 538.32 m; laminite of dark-grey mudstone/FMLSS (50:50) with lenticular bedding and minor low-angle small scale undulose cross-bedding (BC is undulose and cross-bedded) from 538.48 m to 538.54 m. BC dips at 2°.		
538.90	539.97	1.07	100	FLSS, light-grey; abundant festoon cross-bedded carbonaceous laminae dipping at up to 5°; abundant carbonaceous bands dipping at up to 5° from 539.33 m to 539.56 m; abundant clasts and (1 cm in length) mudstone and siltstone shards from 539.95 m to 539.97 m. Irregular, involute BC.		
539.97	540.09	0.12		Siltstone, grey; FLSS bands and laminae dipping at up to 45°. Irregular, flame-structured BC dips at 5°.		
540.09	540.10	0.01		FMLSS, light-grey. BC dips at 2°.		
540.10	540.21	0.11		FLSS, light-grey; abundant festoon cross-bedded carbonaceous laminae dipping at 5°. BC dips at 2°.		
540.21	542.99	2.78		FMLSS, grey-white; small-scale planar cross-bedding; minor festoon cross-bedding. Rippled BC dips at 2°.		
542.99	543.04	0.05		FLSS, grey; silty; bioturbation (?); minor carbonaceous flecks. Undulose BC.		
543.04	543.07	0.03		Interbanded grey and cream-grey sandy siltstone (50:50); rippled bedding. BC dips at 5°.		
543.07	543.10	0.03		Carbonaceous mudstone; minor sandy laminae.		
543.10	543.13	0.03		Siltstone, grey; sandy; abundant carbonaceous flecks. GBC.		
543.13	543.17	0.04		Interbanded grey FLSS/carbonaceous siltstone (80:20); undulose (rippled) bedding; abundant carbonaceous flecks and debris. Irregular, undulose BC.		
543.17	543.98	0.81	100	Mudstone, grey; abundant carbonaceous flecks; dull coal from 543.26 m to 543.28 m and from 543.94 m to 543.97 m (grades to carbonaceous mudstone then dark-grey mudstone with depth with abundant		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

57	GEOLOGICAL LOG	Page:- 38/ 41

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				slickensides and shaly in part). GBC.		
543.98	544.14	0.16	100	FLSS, light-grey; massive; abundant carbonaceous flecks; grey mudstone from 544.07 m to 544.08 m. GBC.		
544.14	544.61	0.47		Interbedded dark-grey mudstone/FLSS, grey (60:40); bedding dips at up to 10°. GBC.		
544.61	545.26	0.65		Interbedded FMLSS, grey-white/FLSS, light-grey/siltstone, grey (40:40:20); abundant sub-vertical worm-burrows (?); minor carbonaceous debris; minor carbonaceous laminae and faint cross-bedding dipping at up to 2°; muddy in basal 10 cm. Flame-structured BC.		
545.26	545.44	0.18		Carbonaceous mudstone, silty. CBC.		
545.44	545.45	0.01		FMLSS, white; brown clay and carbonaceous mudstone matrix. Lobate BC.		
545.45	545.61	0.16		Mudstone, grey; silty; minor dark-grey laminae and bands. GBC.		
545.61	545.79	0.18		Interbedded light-grey FLSS/grey siltstone (50:50). GBC.		
545.79	546.11	0.32		FLSS, light-grey; abundant festoon cross-bedding dipping at from 5° to 10°; abundant carbonaceous laminae and lenticles. GBC.		
546.11	547.14	1.03		FMLSS, light-grey; massive; small-scale cross-bedding dipping at up to 5°. FLSS and FMLSS from 546.43 m to 546.65 m and from 546.16 m to 546.21 m.		
547.14	547.55	0.41		Mudstone, grey; slickenside shear zone dipping at 45° from 547.36 m to 547.57 m. GBC.		
547.55	547.86	0.31		Interbanded light-grey FLSS/grey siltstone (50:50); minor bioturbation and lenticular bedding dipping at 2°. GBC.		
547.86	548.10	0.24		Mudstone, grey; silty and sandy laminae. GBC.		
548.10	549.02	0.92	100	Mudstone, dark-grey; carbonaceous mudstone from 548.40 m to 548.86 m; very irregular 1 to 3 mm in diameter white worm-burrows (?) from 548.64 m to 548.71 m; Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				silty, grading to sandy at base, from 548.86 m to 549.02 m.		
549.02	550.49	1.47	100	Interbedded light-grey FMLSS/grey FLSS/ dark-grey siltstone; FLSS/FMLSS laminae from 549.02 m to 549.21 m and from 549.94 m to 550.35 m; bioturbation from 549.21 m to 549.53 m; irregular bedding, cross-bedding, lenticular and disturbed bedding and minor festoons (dipping at up to 10°) from 549.21 m to 549.94 m; FMLSS with faint festoon cross-bedding from 550.35 m to 550.49 m. BC dips at 2°.		
550.49	550.86	0.37		Mudstone, grey; silty; minor sandy lenticles. GBC dips at 5°.		
550.86	551.22	0.36		Carbonaceous mudstone, silty in part; sandy grey band dipping at up to 5° from 550.86 m to 550.87 m; laminite of grey siltstone/ carbonaceous mudstone (50:50) with lenticular bedding from 550.91 m to 550.94 m; dark-grey FLSS from 550.94 m to 551 m; grades with depth to dark-grey mudstone. GBC.		
551.22	551.31	0.09		Mudstone, shaly; grey-green; abundant slickensides; abundant 1 mm-in-diameter intraclasts and carbonaceous stringers. GBC dips at 10°.		
551.31	551.38	0.07		FMLSS; 10% quartzose sandstone (QSS); rippled bedding; massive, speckly from 551.31 m to 551.34 m; carbonaceous bands, lenticles and bioturbation from 551.34 m to 551.38 m. GBC. (Top of this unit forms the top of the basal quartzose sandstone unit of the Upper Division of the Parmeener Super Group in N.E. Tasmania).		
551.38	552.10	0.72	100	Medium-grainsize quartzose sandstone (MQSS); milky-white-green; abundant sub-vertical worm-burrows and carbonaceous laminae and disturbed bedding; laminite in part; abundant muscovite, plant-fossil debris, festoon cross-bedding and bioturbation. BC dips at 5°.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
552.10	552.26	0.16	100	Mudstone, dark-grey; grades to carbonaceous mudstone at base. Irregular BC dips at 5°.		
552.26	552.96	0.70		MQSS (exactly as from 551.38 m to 552.10 m). GBC.		
552.96	553.08	0.12		Fine-grainsize quartzose sandstone (FQSS); grey; laminated (similar to MQSS above). GBC.		
553.08	553.34	0.26		Mudstone, dark-grey; carbonaceous in part; minor slickensides and abundant muscovite flakes; sandy, silty bands and lenticles from 553.09 m to 553.13 m. GBC.		
553.34	553.58	0.24		Siltstone; dark-grey to carbonaceous; abundant carbonaceous FLSS bands; minor lenticular and disturbed bedding (abundant from 553.51 m to 553.58 m). Rippled, irregular BC.		
553.58	553.59	0.01		MQSS/carbonaceous siltstone (50:50); disturbed bedding. Irregular BC.		
553.59	554.02	0.43		MQSS, milky-white-green; minor carbonaceous laminae and festoon cross-bedding; abundant 2 mm-in-diameter muscovite flakes; bioturbated, plant-fossil debris, minor laminite. Bioturbated, flame-structured, rippled BC.		
554.02	554.09	0.07		Carbonaceous mudstone, silty; grades to sandy with depth. Irregular, bioturbated and rippled BC.		
554.09	570.17	16.08		MQSS, milky-white; minor massive-bedding; green in part; abundant sub-vertical worm-burrows (?), carbonaceous laminae and disturbed bedding; abundant muscovite, plant-fossil debris, festoon cross-bedding and laminite in part. Irregular BC dips at 2°. (Base of the Upper Division of the Parmeener Super-Group in N.E. Tasmania).		
570.17	571.20	1.03	100	Mudstone, light-green; minor scattered quartz grits. GBC. (Top of this unit forms the top of the Lower Division of the Parmeener Super-Group in N.E. Tasmania).		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

57				GEOLOGICAL LOG	Page:- 41/41	
FROM	TO	RECOVERY		DESCRIPTION	SECTION	
metres	metres	metres	%		Core	Sample
571.20	573.80	2.60	100	Siltstone, dark-green-grey; muscovitic; scattered quartz grits and pebbles. (Base of Department of Mines Fingal Diamond Drill Hole, Number 57, at a depth of 573.80 m).		

Continued over

ASSAY DATA

SAMPLE No.	FROM	TO	RECOVERY		ASSAY RESULTS									
	metres	metres	metres	%										

DRILLING TARGET:-	Glacio Marine Sequence of the Lower Parmeener Super Group
REMARKS:-	

SURVEY DATA			ASSAY DATA											
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS						

GEOLOGICAL LOG — Logged by:- C.A. Bacon

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	8.90	0	0	Dolerite boulders and yellow clay forming a thin veneer of talus over the coal measure sequence.		
8.90	10.37	1.47	100	Coarse lithic sandstone (CLSS) with occasional "gravelly" quartz grits and rounded mudstone cobbles. Sparse coaly debris; core broken from 9.60 m - 9.80 m. Gradational bottom contact (GBC).		
10.37	11.99	1.62	100	Medium to coarse grained lithic sandstone (MCLSS) with no quartz grits. Joints appear at 10.99 m, 11.07 m, 11.56 m, and at 11.67 m. Core broken over basal 10 cm, from 11.89 - 11.99 m. GBC.		
11.99	12.56	0.57	100	Very coarse grained lithic sandstone (CLSS) with abundant mudstone and claystone pellets, quartz "gravelly grits" and small quartzite pebbles from 1-2 cm to 2-3 cm in diameter.		
12.56	15.45	2.89		MCLSS, yellow in colour with horizontal bedding and large irregularly shaped mudstone pellets 5 cm x 2-3 cm scattered over the interval from 14.92 m - 15.02 m.		
15.45	21.00	4.55	100	Medium to fine-medium-grained lithic sandstone (FMLSS), yellow in colour with very occasional quartzite pebbles, (5 cm x 3 cm) and occasional mudstone Continued over:-		

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:-	MAP SHEET No. 49	DISTRICT FINGAL	LOCATION OF SITE:-
DOM FINGAL DDH 58			In the headwaters of Fingal Rivulet on Fingal Tier

R.L. OF SITE:- 637.90 m		SITE SURVEY ON MAP No.:	CORE SIZE:- NQ
BEARING OF HOLE:- 90°		AIR PHOTO No.:-	COMMENCED:-
INCLINATION OF HOLE:-		DRILL:- Warman 1000	COMPLETED:- 4/9/80
CO-ORDS OF SITE:-	586 763 mE 5 383 968 mN	DRILLER:- K. Richardson R. Stevens	FINAL DEPTH (m):- 399.00 m

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				pellets. Core broken from 18.30 m - 18.37 m. GBC.		
21.00	22.00	1.00	100	MCLSS, yellow in colour with occasional mudstone and claystone pellets. Sharp bottom contact (SBC).		
22.00	22.20	0.20		Clay, with abundant sand grains. GBC.		
22.20	27.02	4.82		Medium grained lithic sandstone (MLSS); yellow in colour; abundant clay in matrix from 22.20 m - 22.30 m; core broken over the interval from 22.51 m - .54 m; bedding horizontal; abundant clay laminae throughout unit.		
27.02	29.15	2.13		MCLSS, white-grey in colour with abundant small clay and mudstone pellets, some tinged pink. Bedding horizontal. Bottom contact is severely eroded, and is scoop-shaped.		
29.15	30.02	0.87		Conglomerate, consisting of rounded pebbles in a matrix of MCLSS. The pebbles are of green and white quartzite, mudstone, lithic sandstone, all are well rounded to sub-angular. A hard black rounded pebble may be basalt. GBC.		
30.02	30.25	0.23		MCLSS, grey in colour, massive. GBC.		
30.25	30.85	0.60		Conglomerate, as described above. GBC.		
30.85	32.20	1.35		MCLSS, grey in colour, massive. GBC.		
32.20	34.32	2.12		FMLSS, grey in colour, massive.		
34.32	35.22	0.90		MCLSS, with abundant claystone and mudstone pellets; pellets ranging in colour from green, pink, grey and black. Siltstone and MLSS clasts also common. All pellets are 1 cm in diameter. GBC.		
35.22	35.96	0.74		CLSS with abundant larger predominantly quartzite pellets 2-3-5 cm in diameter.		
35.96	36.03	0.07		Laminite of white clay and mudstone.		
36.03	36.51	0.48	100	Interbedded mudstone and MCLSS, with abundant wispy carbonaceous laminae and abundant mudstone pellets, undulose bottom contact.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

58				GEOLOGICAL LOG	Page:- 3	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
36.51	36.75	0.24	100	Mudstone, grey, bedding disturbed, core fractured; small microfault with throw of 1 cm dips 70° from 36.58 m - 36.64 m. Swirling patterns formed by wispy carbonaceous laminae.		
36.75	36.94	0.19		Mudstone, grey, core broken.		
36.94	37.19	0.25		Mudstone, grey, laminated, core not broken.		
37.19	37.28	0.09		Mudstone, grey, core broken. GBC.		
37.28	42.00	4.72		FMLSS, yellow, core broken from 37.28 m - 37.58 m; abundant mudstone and claystone pellets from 37.28 m - 37.88 m. Bedding horizontal. Core broken from 41.68 m - 41.76 m.		
42.00	45.00	1.60	53	FMLSS; core broken. Core loss of 1.40 m in this unit.		
45.00	45.57	0.57	100	FMLSS, grey, massive, with occasional wispy carbonaceous laminae. SBC.		
45.57	46.11	0.52	96	COAL SECTION: Dull coal with abundant clay laminae, core broken, coal weathered, 2 cm core loss. GBC.		1A
46.11	46.61	0.48	96	Mudstone, grey, massive, multiple fractures dipping at 70° to core axis. SBC. 2 cm Core loss.		
46.61	46.73	0.12	100	Heavy dull coal, GBC.		1B
46.73	47.35	0.62		FMLSS, with 30% clay, grey in colour, weathered, soft, with abundant wispy carbonaceous laminae. SBC.		
47.35	47.57	0.22		Heavy dull coal.		
47.57	47.85	0.28		Dull coal.		1C
47.85	48.00	0.12	80	Dull coal, core broken into small chips, 3 cm Core loss.		
48.00	48.12	0.12	100	Mudstone, carbonaceous, black in colour, core broken into chunks; abundant clay in matrix.		1D

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Ash %
1A	45.57	46.11	0.52	96	
1B	46.11	47.35	1.22	98	94.3
1C	47.35	48.00	0.62	95	66.9
1D	48.00	49.12	1.12	100	94.8

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
48.12	49.12	1.00	100	Mudstone, dark-grey, massive, fractures in core from 48.74 m - 48.84 m dipping at 70°. Silt content increases with depth. GBC.		1D
49.12	49.62	0.50		Siltstone, carbonaceous.		
49.62	50.63	1.01		Siltstone, grey, bedding horizontal, minor disturbed bedding.		
50.63	51.18	0.45		Siltstone, grey, with 10% FLSS. FLSS content increases with depth. SBC dipping at 30°.		
51.18	59.93	8.75		FMLSS, grey with abundant wispy carbonaceous laminae, and cross-bedding dipping at up to 5-10°; occasional coaly debris, band of coal 1 cm wide from 59.57 m - .58 m. GBC.		
59.93	60.43	0.50		FLSS, grey, massive, carbonaceous.		
60.43	61.78	1.35	100	FLSS, interbedded with siltstone (50:50); abundant coaly debris and wispy carbonaceous laminae from 59.37 m - 59.41 m.		
61.78	62.53	0.50	66	Mudstone, grey, silty, massive. Core broken from 61.78 m - 62.03 m (10 cm core loss) and from 62.18 m - 62.53 m (45 cm core loss). GBC.		
62.53	64.04	1.51	100	FLSS interbedded with siltstone, (10:90); finely laminated, carbonaceous scooped-silt eroded bottom contact, dipping at 5°.		
64.04	68.08	3.96	98	FMLSS with occasional coaly bands, wispy carbonaceous laminae; mudstone pellets from 64.67 m - 64.74 m, and from 65.84 m - 65.88 m. Core broken from 65.60 m - 65.84 m with a core loss of 8 cm over this interval. Clay and mudstone pellets from 66.75 m - 66.88 m. SBC, dipping at 10°.		
68.08	68.56	0.48	100	FLSS; abundant wispy carbonaceous laminae dipping at up to 10°; occasional mudstone pellets. SBC, dipping at 10°.		
68.56	73.49	4.93	100	FMLSS, grey, massive, occasional wispy carbonaceous laminae, 1 cm bands of coal at 70.04 m - .05 m and at 71.72 m - .73 m; core broken from 69.69 m - 69.92 m, 70.17 m - 70.75 m, and from 71.85 m - 72.00 m. Core has expanded due to breakage.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				Core broken from 73.39 m - 73.59 m; SBC.		
73.49	73.85	0.36	100	Mudstone, grey, laminated, SBC.		
73.85	75.00	1.15		FMLSS, dark grey, abundant coaly debris; core broken from 74.05 m - 74.30 m.		
75.00	78.12	3.12		FMLSS, grey, massive, occasional wispy carbonaceous laminae. Core broken over top 10 cm and from 77.80 m - 77.90 m; core expanded due to breakage; core broken from 78.00 m - 78.08 m. GBC.		
78.12	81.67	3.55		FLSS, grey, silty, laminae horizontal. GBC.		
81.67	87.00	5.33		FMLSS, grey, massive, with occasional black specks (biotite ?) and occasional coaly debris; core broken 86.06 m - 86.15 m, 86.60 m - 86.65 m; core expanded.		
87.00	87.99	0.99		FMLSS, white, slightly baked, abundant silt laminae, and wispy carbonaceous laminae common. Sharp undulosed bottom contact.		
				Dolerite intrusion:		
87.99	88.56	0.57		Fine grained dolerite, green in colour with abundant microphenocrysts 1 mm^2 and numerous clasts of sediment. Grades into a grey medium grained dolerite.		
88.56	89.63	1.07		Medium grained dolerite, grey in colour with abundant sub-vertical fractures filled with a white mineral, (zeolite or calcite). Grades black into a fine grained dolerite.		
89.63	89.90	0.27		Fine grained green dolerite; core badly broken over basal 25 cm, sharp bottom contact dipping at 30°.		
89.90	90.01	0.11		MLSS, hard, dark grey in colour, SBC.		
90.01	90.31	0.30		COAL SECTION: Heavy dull coal, baked by overlying dolerite. Core broken over top 7 cm.		
90.31	90.43	0.12		Carbonaceous siltstone, core broken, SBC.		2
90.43	90.49	0.06		Carbonaceous shale, core broken; SBC.		
90.49	90.59	0.10	100	Heavy dull coal, few bright bands, GBC. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	Ash %	ASSAY RESULTS
2	90.01	91.29	1.28	100	61.0	

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
90.59	90.63	0.04	100	COAL SECTION: (Contd.) Shale, brown, friable, SBC.		
90.63	90.98	0.35		Dull coal, calcite on rare cleats; 5% bright bands; shaley over top 5 cm; core broken. GBC.		
90.98	91.08	0.10		Mudstone, dark grey-black; carbonaceous; core badly broken.		2
91.08	91.16	0.08		Dirt band, broken shaley material with small clasts and grains of quartz; core very broken, SBC.		
91.16	91.185	0.025		Heavy dull coal, SBC.		
91.185	91.190	0.005		Mudstone, white, SBC.		
91.90	91.29	0.10		Dull coal, 10% bright bands, SBC.		
91.29	93.25	1.96		Mudstone, light-grey, massive, abundant sub-vertical joints, shaley towards base, core broken, GBC.		
93.25	93.82	0.57		Shale interbedded with grey mudstone, abundant carbonaceous laminae, minor cross-bedding, core broken, SBC.		
93.82	94.22	0.40		Mudstone, green-grey, slickensided, SBC.		
94.22	94.43	0.21		Mudstone, pale-green, with abundant shaley laminae, SBC.		
94.43	94.48	0.05		Siltstone, black, shaley, abundant biotite and muscovite flakes; SBC.		
94.48	95.08	0.60		Laminite of carbonaceous and non-carbonaceous mudstone; slickenside at base.		
95.08	95.71	0.63		Mudstone, grey, massive, GBC.		
95.71	97.09	1.38		Mudstone, dark grey, carbonaceous, abundant shale and sand laminae, becomes sandier towards base.		
97.09	98.12	1.03	100	FLSS, white, with minor cross-bedding, and abundant carbonaceous laminae, interlaminated with carbonaceous siltstone; (50:50). GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
98.12	106.20	8.08	100	FMLSS, white, with rare wispy carbonaceous laminae dipping at up to 20°, a 1 cm band of dark grey siltstone from 98.39 m - 98.40 m; abundant dark-grey silty laminae from 99.33 m - 99.36 m; 99.46 m - 99.56 m; 99.71 m - .72 m; a black grey siltstone interval from 99.76 m - 99.75 m; wispy carbonaceous laminae dipping at up to 30° common from 100.56 m - 100.76 m; siltstone clasts, with irregular shapes from 101.56 m - 101.71 m. Occasional black siltstone bands and coaly laminae from 102.00 m - 105.00 m.		
106.20	112.91	6.71		FMLSS, grey, massive, band of bright coal 110.52 m - 110.54 m; grey mudstone pellets 0.5cm - 1.5 cm in diameter 112.67 m - 112.91 m; SBC.		
112.91	113.15	0.24		Carbonaceous mudstone, with abundant elongate mudstone pellets 2-5 mm wide x 2-10 mm long. Irregular eroded bottom contact.		
113.15	113.25	0.10		COAL SECTION: Shale, silty and very micaceous, SBC.		
113.25	113.30	0.05		Dull coal, shaley, GBC.		
113.30	113.35	0.05		Heavy dull coal and carbonaceous mudstone, (50:50); GBC.		
113.35	113.38	0.08		Mudstone, white, occasional wispy carbonaceous laminae; micaceous, SBC.		3A
113.38	113.445	0.065		Heavy dull coal with carbonaceous mudstone, (50:50); SBC.		
113.445	113.45	0.005		Mudstone, sandy, tinged pink, SBC.		
113.45	113.47	0.020		Heavy dull coal and carbonaceous mudstone, (50:50), GBC.		
113.47	113.485	0.015	100	Dull coal and carbonaceous mudstone with grey mudstone pellets, GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Ash %	V.C.M. %	F.C. %	Moist %	S.E. MJ/Kg
3a	112.91	114.48	.57	100	77.7				
3b	114.48	115.375	0.895	100	76.7				
3c	115.375	115.955	0.41	71	90.7				
3d	115.955	117.37	1.415	100	57.9				
3e	117.37	119.205	1.835	100	58.8				
3f	119.205	121.29	2.085	100	38.0	26.2	35.8	2.1	19.0

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
113.485	113.54	0.055	100	COAL SECTION: (Contd.) Mudstone, white, sandy, micaceous; SBC.		3A
113.54	113.57	0.03		Heavy dull coal.		
113.57	113.62	0.05		Mudstone, white, sandy, micaceous. SBC.		
113.62	113.635	0.015		Dull coal.		
113.635	113.65	0.015		Mudstone pellet micro-conglomerate; pellets tinged pink; GBC.		
113.65	113.71	0.06		Heavy dull coal.		
113.71	113.74	0.03		Heavy dull coal and carbonaceous mudstone with grey to pink mudstone micro-pellets ranging in size from 1-3 mm x 2-8 mm long; SBC.		
113.74	113.78	0.04		Siltstone, black, carbonaceous, SBC.		
113.78	113.785	0.005		Mudstone, brown, silty, SBC.		
113.785	113.80	0.015		Mudstone, grey-brown; sandy, abundant rheomorphic slumping; SBC.		
113.80	113.805	0.005		Mudstone, brown, silty, carbonaceous laminae 1 mm wide at base, SBC.		
113.805	113.815	0.01		Mudstone, grey, micaceous, GBC.		
113.815	113.83	0.015		Mudstone, grey, sandy and shaley, SBC.		
113.83	113.837	0.007		CLSS, band, SBC.		
113.837	113.85	0.008		Mudstone, brown, shaley, SBC.		
113.85	114.07	0.22		Mudstone, black, carbonaceous, sandy, abundant pale grey mudstone clasts and abundant shale laminae.		
114.07	114.11	0.04		Carbonaceous mudstone, brown, SBC.		
114.11	114.14	0.03		Mudstone, white, shaley, SBC.		
114.14	114.25	0.11		COAL SECTION: Carbonaceous mudstone with very minor dull coal bands, SBC.		
114.25	114.47	0.22	100	Mudstone, white, shaley, SBC.		3A

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
114.47	114.48	0.01	100	COAL SECTION: (Contd.) Shale, brown, SBC.		3A
114.48	114.74	0.26		Dull coal; 5% bright bands; SBC.		
114.74	114.77	0.03		Mudstone, grey-brown, flecked with carbonaceous material, SBC.		
114.77	114.93	0.16		Heavy dull coal, SBC.		
114.93	114.96	0.03		Mudstone, white, shaley, flecked with carbonaceous material, SBC.		3B
114.96	114.97	0.01		Carbonaceous mudstone.		
114.97	115.13	0.16		Mudstone, grey-green, massive, GBC.		
115.13	115.16	0.03		Shale, white, SBC.		
115.16	115.24	0.08		Carbonaceous mudstone with abundant grey-green mudstone pellets; SBC.		
115.24	115.26	0.02		Mudstone, pale brown, shaley; SBC.		
115.26	115.29	0.03		Mudstone, carbonaceous, black; SBC.		
115.29	115.335	0.045		Mudstone, pale brown, shaley, SBC.		
115.335	115.375	0.04	100	Mudstone, black, carbonaceous, SBC.		
115.375	115.955	0.41	71	COAL SECTION: Mudstone, pale green, core broken, slickensides common, SBC.		3C
115.955	116.30	0.345	100	Heavy dull coal.		
116.30	116.315	0.015		Shaley mudstone, brown, with abundant coaly laminae; SBC.		
116.315	116.33	0.015		Bright coal with calcite 'streaks'; SBC.		3D
116.33	116.365	0.035		Shaley mudstone, dark grey, carbonaceous, SBC.		
116.365	116.44	0.075		Shale, grey, with carbonaceous flecks; core broken. SBC.		
116.44	117.00	0.56		Dull coal, SBC.		
117.00	117.005	0.005		Sandy coal, SBC.		
117.005	117.23	0.225	100	Dull coal, SBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
117.23	117.37	0.14	100	COAL SECTION: (Contd.) Mudstone, pale grey-green, shaley, SBC.		3D
117.37	117.48	0.11		Dull coal, with white mudstone bands from 117.41 m - 117.415 m; and from 117.435 m - 117.44 m. SBC.		3E
117.48	117.52	0.04		Mudstone, white, carbonaceous flecks; SBC.		
117.52	117.68	0.16		Dull coal, GBC.		
117.68	117.81	0.13		Interbedded dull coal and white mudstone; (20:80), GBC.		
117.81	117.92	0.11		Dull coal, SBC.		
117.92	117.95	0.03		Mudstone, white, SBC.		
117.95	118.25	0.30		Dull coal, GBC.		
118.25	118.28	0.03		Mudstone, black, carbonaceous, sharp, irregular BC.		
118.28	118.46	0.18		Mudstone, green-grey, core broken; sandy; SBC.		
118.46	118.54	0.08		Heavy dull coal, GBC.		
118.54	119.08	0.54		Dull coal, 5% bright bands, rare mudstone pellets 5 mm diameter towards base, SBC.		
119.08	119.14	0.06		Mudstone, light grey, abundant carbonaceous flecks, (possibly ash ?) eroded BC.		
119.14	119.205	0.065		Micro-conglomerate of mudstone and claystone pellets 1-5 mm diameter, some pellets very hard (reworked ash ?), very irregular bottom contact, carbonaceous stringers over basal 0.01 m, together with claystone-mudstone pellets.		3E
119.205	119.21	0.005		Coal, bright, SBC.		
119.21	119.24	0.03		Mudstone, dark grey, SBC.		3F
119.24	119.25	0.01	100	Mudstone, white, hard, SBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
119.25	119.255	0.005	100	COAL SECTION: (Contd.) Dull coal.		
119.255	119.27	0.015		Mudstone, white, hard, SBC.		3F
119.27	119.35	0.08		Dull coal with many white mudstone and claystone laminae.		
119.35	119.62	0.27		Dull coal with 10% bright bands, SBC.		
119.62	119.63	0.01		Mudstone band, hard, white, SBC.		
119.63	119.915	0.285		Dull coal, 10% bright bands, SBC.		
119.915	119.92	0.005		Mudstone band, white, hard, SBC.		
119.92	119.935	0.015		Dull coal, 10% bright bands, SBC.		
119.935	119.94	0.005		Mudstone band, white, hard, SBC.		
119.94	119.95	0.01		Dull coal, SBC.		
119.95	119.99	0.04		Ash band, white, hard, sparse carbonaceous flecks, irregular wavy BC.		
119.99	120.01	0.02		Dull coal.		
120.01	121.29	1.28		Dull coal, core broken, abundant cleats, SBC.		3F
121.29	122.23	0.94		Mudstone, grey, massive, core broken.		
122.33	144.48	22.15	100	FMLSS, grey, massive, core broken over top 30 cm; core expanded due to breakage; occasional coaly debris and coaly bands; band of bright coal from 129.78 m - 129.79 m. Coal bands from 130.16 m - 130.17 m; 130.28 m - 130.285 m; 131.76 m - 131.79 m; 131.84 - 131.90 m. Calcite replacement over the interval from 136.35 m - 136.40 m; a grey mudstone interval from 136.84 m - 137.10 m; mudstone interval shows sharp top and bottom contacts. Abundant coaly debris and minor coaly bands from 138.00 m - 141.00 m. Mudstone band from 140.60 m - 140.70 m, SBC. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
144.48	144.685	0.205	100	COAL SECTION: Dull coal, SBC.		4A
144.685	144.705	0.02		Dull sandy coal, SBC.		
144.705	144.815	0.11		Dull coal, SBC.		
144.815	144.82	0.005		Bright coal, SBC.		
144.82	144.825	0.005		Dull coal, SBC.		
144.825	144.84	0.015		Mudstone, carbonaceous, sandy, SBC.		
144.84	144.845	0.005		Shale, brown, SBC.		
144.845	144.85	0.005		Dull coal, SBC.		
144.85	144.86	0.01		Shale, brown, SBC.		
144.86	144.925	0.065		Dull coal, SBC.		
144.925	144.98	0.055		Shale, pale brown, SBC.		
144.98	145.30	0.32		Dull coal with 5% bright bands and abundant calcite on cleats.		
145.30	145.46	0.16		Mudstone, grey-green, abundant biotite grains, core broken, GBC.		4A
145.46	145.87	0.41		Dull coal, 5% bright bands, calcite on abundant cleats.		4B
145.87	146.27	0.40		Interlaminated brown shale, black carbonaceous mudstone and dull coal, (20:20:60); dark brown in colour, abundant coaly debris. GBC.		
146.27	146.91	0.64		Mudstone, dark grey, occasional coaly debris, core broken, GBC.		
146.91	146.92	0.01		Mudstone, grey, sandy, SBC.		
146.92	154.28	7.36		FMLSS, grey, laminated, with a few rare wispy carbonaceous laminae, core jointed. GBC.		
154.28	157.28	3.00		MLSS, grey, massive coaly laminae over basal 40 cm, SBC.		
157.28	157.76	0.48	100	Siltstone, dark grey, sandy, abundant shaley laminae, GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS Ash %	V.C.M. %	F.C. %	Moist %	S.E. MJ/Kg
4a	144.48	145.87	1.39	100	41.0	24.8	34.2	3.2	17.9
4b	145.87	146.27	0.40	100	66.0				
5	174.30	175.37	1.02	99	32.7				
6	185.01	185.77	0.76	100	50.3				
7	229.56	230.73	1.17	100	42.6	19.5	37.9	3.0	17.5
8	272.75	274.93	2.07	92	35.4	23.4	41.2	1.7	20.1
9	281.24	282.08	0.84	100	37.9				

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
157.76	159.22	1.46	100	FLSS, grey, finely banded, core broken from 158.16 m - 158.31 m, with rare wispy carbonaceous laminae; GBC.		
159.22	165.59	6.37		MLSS, grey, massive, bedding dipping at up to 20°; rare wispy carbonaceous laminae and occasional coaly debris; occasional shaley laminae; SBC.		
165.59	165.62	0.03		Volcanogenic sandstone, tinged green with calcite veins cutting through rock. Abundant cuboidal pyrite crystals, 1 mm diameter. SBC.		
165.62	165.625	0.005		Calcite vein; SBC.		
165.625	166.12	0.495		MLSS, tinged green; abundant wispy carbonaceous laminae; SBC.		
166.12	166.41	0.29		MCLSS; tinged green; with abundant mud and clay pellets 2-3 mm in diameter; abundant coaly debris; coal band 2 mm wide at base. SBC.		
166.41	166.51	0.10		Calcite partially replacing MLSS; a calcite-rich MLSS, SBC.		
166.51	167.91	1.40		MLSS, with abundant coaly debris and clay and mud pellets, 1 cm coal at 166.88 m - .89 m, 167.24 m - .25 m, 167.58 m - .59 m; 0.5 coal at 167.11 m - .115 m.		
167.91	171.00	0.43		MLSS grey, massive coaly debris over top 8 cm.		
171.00	172.38	1.38		MLSS, grey; mudstone clasts with irregular shapes and ranging in size from 2 mm - 30 mm in diameter from 171.16 m - 171.27 m, SBC.		
172.38	172.41	0.03		COAL SECTION: Dull coal, SBC.		
172.41	172.415	0.005		Shale, dark brown, SBC.		
172.415	172.45	0.035		Dull coal, SBC.		
172.45	172.46	0.01		White shale, SBC.		
172.46	172.58	0.12	100	Mudstone, grey, massive, slickenside dipping 45° from 10-12; minor slickensides common.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
172.58	172.595	0.015	100	COAL SECTION: (Contd.) Mudstone, shaley, grey-white, SBC.		
172.595	172.60	0.005		Mudstone, carbonaceous, GBC.		
172.60	172.61	0.01		Dull coal, SBC.		
172.61	172.68	0.07	100	Mudstone, grey-white shaley and sandy, SBC.		
172.68	174.30	1.45	90	Mudstone, light-grey, massive, numerous slickensides: 172.68 m - 172.78 m; core broken from 172.68 m - 172.78 m. White clay band, 173.37 m - 173.38 m; rare wispy carbonaceous laminae, GBC. Core loss of 17 cm in this unit.		
174.30	174.34	0.04	100	Mudstone, grey, shaley, GBC.		
174.34	174.39	0.05		Heavy dull coal, GBC.		
174.39	174.45	0.06		Shale, beige, abundant carbon-aceous debris, SBC.		
174.45	174.64	0.19	100	Dull coal, 5% bright bands, SBC.		
174.64	174.705	0.055	80	Shale, beige, friable, SBC.		5
174.705	174.73	0.025	100	Heavy dull coal with carbon-aceous mudstone, 50-50.		
174.73	175.37	0.64		Dull coal, no cleats, 5% bright bands, GBC.		
175.37	175.40	0.03	100	Shaley mudstone, GBC.		
175.40	175.95	0.40	73	Mudstone, grey, massive, minor disturbed bedding, wispy carbonaceous laminae, core broken from 175.99 - 175.12 m, core loss of 15 cm in this unit. GBC.		
175.95	176.81	0.86	100	Mudstone, sandy; slickensides 175.38 m - .42 m; 175.96 m - 176.02 m; shaley 175.88 m - 176.13 m; few wispy carbonaceous flecks.		
176.81	176.82	0.01	100	Shale, brown, STC, SBC.		
176.82	176.87	0.04	80	Mudstone, sandy, slickensided; core broken. Core loss 0.01 m; SBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
176.87	176.89	0.02	100	Dull coal, slickensided, core broken, GBC.		
176.89	176.96	0.06	86	Clay, light brown interveined with calcite 'stringers' friable core broken, core loss 0.01 m; SBC.		
176.96	176.99	0.03	100	Carbonaceous mudstone, clayey.		
176.99	180.31	3.32		Mudstone, interlaminated with FLSS, grey, finely laminated, core broken over top 20 cm, SBC.		
180.31	180.36	0.05		Siltstone, carbonaceous, abundant plant fragments, SBC.		
180.36	180.40	0.04		Shale, grey, GBC.		
180.40	180.41	0.01		Shale, brown, GBC.		
180.41	180.435	0.025		Dull coal.		
180.435	180.46	0.025		Claystone, beige, shaley.		
180.46	180.47	0.01		Mudstone, carbonaceous, GBC.		
180.47	183.01	2.54		Mudstone, light grey, interbedded with shaley, light grey mudstone; sandy towards base; GBC.		
183.01	185.01	2.00		FMLSS, interbedded with grey mudstone; SBC.		
185.01	185.06	0.05		COAL SECTION: Dull coal, SBC.		
185.06	185.08	0.02		Shale, white, SBC.		
185.08	185.27	0.19		Carbonaceous mudstone, silty, SBC.		
185.27	185.28	0.01		Shale, brown, SBC.		
185.28	185.325	0.055		Heavy dull coal, and carbonaceous mudstone, (50:50); SBC.		
185.325	185.33	0.005		FLSS, band, SBC.		6
185.33	185.44	0.11		Dull coal with few (2%) bright bands and rare shale laminae; GBC.		
185.44	185.545	0.105		Dull coal, SBC.		
185.545	185.575	0.03		Shale, brown, SBC.		
185.575	185.65	0.075	100	Dull coal, calcite on abundant cleats, SBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
185.65	185.66	0.01	100	COAL SECTION: (Contd.) Shale, brown, SBC.		
185.66	185.715	0.055		Dull coal, with shale laminae; (90:10) GBC.		6
185.715	185.72	0.005		Bright coal.		
185.72	185.77	0.05	100	Dull coal, with 5% bright bands; SBC.		
185.77	186.00	0.20	87	Mudstone, grey, shaley, core crushed; 3 cm core loss; GBC.		
186.00	186.77	0.77	100	Mudstone, grey, sandy, shaley, massive; few slickensides.		
186.77	187.34	0.53	93	FLSS, grey, massive; core broken; core loss of 4 cm in this unit; SBC.		
187.34	201.34	14.00	100	MLSS, grey, massive; rare silt laminae; rare coaly debris and occasional mudstone pellets; core broken from 192.90 m - 193.00 m; core loss of 4 cm in this interval. SBC.		
201.34	201.61	0.27		Mudstone, grey, massive; minor rootlet structures; GBC.		
201.61	201.73	0.12		Shale, dark brown, carbonaceous; abundant plant fragments; bedding severely disturbed; (bioturbated ?) SBC.		
201.73	202.09	0.36		Mudstone, light grey, massive; small carbonaceous flecks; (rootlets ?); core broken over basal 10 cm.		
202.09	202.40	0.31		FLSS, grey, with abundant wispy carbonaceous laminae, SBC.		
202.40	203.00	0.60		MLSS, grey, massive.		
203.00	203.12	0.12		MLSS, grey, massive, SBC.		
203.12	203.63	0.51		Mudstone, light grey, shaley, finely laminated; rheomorphic slumping over basal 2 cm; SBC.		
203.63	203.645	0.015	100	Siltstone, black, sandy; GBC.		
203.645	203.70	0.035	50	Siltstone, black, carbonaceous; interlaminated with green mudstone (50:50); GBC: core broken. Core loss of 2 cm in this unit.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

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FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
203.70	204.07	0.17	45	Siltstone, black, carbonaceous, shaley, core broken; core loss of 20 cm in this unit; rare plant debris; GBC.		
204.07	204.54	0.47	100	Mudstone, grey core scattered shaley with abundant carbonaceous material. SBC abundant slickensides.		
204.54	204.77	0.23		Shale, dark grey abundant carbonaceous material, core broken. SBC.		
204.77	204.00	0.23		Siltstone, black with abundant plant fragments, shaley and broken over basal 10 cm. SBC.		
204.00	211.03	7.03		MLSS, grey, massive, rare wispy carbonaceous laminae, core broken over 205.30 m - 206.00 m; core broken 209.96 m - 209.98 m;		
211.03	226.13	15.10		MLSS, grey, massive; with occasional wispy carbonaceous laminae; rare coaly debris and coaly bands; an irregularly shaped grey-green mudstone clast from 213.30 m - 213.40 m; abundant coaly debris from 275.00 m - 275.40 m; SBC.		
226.13	226.23	0.10		COAL SECTION: Dull coal, SBC.		
226.23	226.26	0.03		(not sampled) Mudstone, shaley, green-grey in colour, abundant plant fragments. SBC.		
226.26	226.53	0.27	100	Dull coal, abundant calcite on cleats, 5% bright bands, core badly broken. Slickenside on bottom contact, dipping at 70°.		
226.53	228.00	1.43	99	Mudstone, green-grey, massive, core broken. Core loss of 4 cm in this unit.		
228.00	229.56	1.49	97	Mudstone, grey-green; sandy; core broken; abundant slickensides dipping at 45-70° to the core axis; rare wispy carbonaceous laminae dipping at up to 15°; GBC.		
229.56	229.615	0.055	100	COAL SECTION: Mudstone and dull coal laminite; (50:50), small microfault with throw 1 mm, disturbed mudstone lenses 2 mm x 20 mm; SBC.		7

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

58	GEOLOGICAL LOG	Page:- 18

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
229.615	229.62	0.005	100	**COAL SECTION:** (Contd.) Dull coal.		
229.62	229.63	0.01		Mudstone, grey, SBC.		
229.63	230.73	1.10		Dull coal, core broken, calcite abundant cleats; brown shale band 230.47 m - .475 m; 5% bright bands, core broken over basal 10 cm; GBC.		7
230.73	231.26	0.53	100	Mudstone, grey, shaley, friable; becoming siltier towards the base. GBC.		
231.26	231.74	0.38	75	Mudstone, pale grey, with abundant FLSS grains; core broken; GBC. Core loss of 10 cm in this unit.		
231.74	235.00	2.12	94	FMLSS, grey, massive, core broken and ground over basal 10 cm. Core loss 14 cm at base of this unit.		
235.00	251.53	16.53	100	FMLSS, grey, massive, occasional wispy carbonaceous laminae and coaly debris, mudstone clasts from 241.00 m - 241.05 m, and 242.12 m - 242.24 m; GBC.		
251.53	256.95	5.42		MLSS, grey, massive, SBC.		
256.95	257.20	0.25		Ignimbrite (?) hard, black in colour with abundant rheomorphic slumping over top 8 cm. Sharp top and bottom contacts, BC dips at 30°. Sample 58A.		
257.20	259.78	2.58		MLSS, grey, massive.		
259.78	262.08	2.30		FMLSS, grey, massive, SBC.		
262.08	262.13	0.05		Mudstone, grey, massive, SBC.		
262.13	262.22	0.09		FMLSS, with abundant wispy carbonaceous laminae; scattered mudstone clasts over basal 5 cm; SBC.		
262.22	263.95	1.73		Mudstone, light-grey, massive, GBC.		
263.95	264.80	0.85		Mudstone, light-grey, interbedded with FLSS, (50:50); rare wispy carbonaceous laminae, GBC.		
264.80	266.52	1.72	100	Mudstone, grey, massive, finely laminated; SBC; core broken.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

58				GEOLOGICAL LOG	Page:- 19	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
266.52	266.78	0.26	100	COAL SECTION: Heavy dull coal, SBC.		
266.78	267.81	1.03	100	Mudstone, grey, sandy, interbedded and interlaminated with carbonaceous mudstone, (60:40); finely laminated.		
267.81	269.65	1.70	93	Laminite of mudstone and siltstone; banded grey and light-grey, core broken. GBC.		
269.65	272.75	3.10	100	FMLSS, grey, massive, abundant wispy carbonaceous laminae; clay and mudstone pellets from 270.86 m - 271.79 m; a coal band 0.5 cm wide from 271.48 m - 271.485 m; core broken from 270.25 m - 270.65 m; lifter marks on broken core.		
272.75	272.80	0.05		COAL SECTION: Dull coal, core broken, irregular top contact.		
272.80	273.00	0.20		Dull coal, sandy, SBC.		
273.00	273.01	0.01		Claystone band, white, hard; ?Volcanic Ash? SBC.		
273.01	273.26	0.25		Dull coal; core broken.		
273.26	273.28	0.02		Dull coal with FLSS laminae.		
273.28	273.32	0.04		Dull coal, SBC.		
273.32	273.42	0.10	100	Claystone band, white, hard ?Volcanic Ash? SBC.		
273.42	273.725	0.285	95	Dull coal, core broken, SBC.		
273.725	273.75	0.025	100	Claystone band, white, hard ?Volcanic Ash?; abundant wispy carbonaceous traces, SBC.		8
273.75	273.77	0.02		Dull coal.		
273.77	273.78	0.01	100	Claystone band, white, hard, ?Volcanic Ash?; riddled with wispy carbonaceous laminae, SBC.		
273.78	274.91	0.98	87	Dull coal, calcite on abundant cleats, 10% bright bands, coal core broken; SBC.		
274.91	274.93	0.02	100	Carbonaceous mudstone and elongated grey mudstone micropellets and Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

58	GEOLOGICAL LOG	Page:- 20

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				lenses, GBC.		
274.93	275.99	1.06	100	COAL SECTION: Mudstone, light-grey, massive, (Contd.) GBC.		
275.99	276.79	0.80		FLSS, grey, with minor wispy carbonaceous laminae, core broken; GBC.		
276.79	278.17	1.38		MFLSS, grey, massive, SBC.		
278.17	281.24	3.07		FLSS, grey, silty, massive, finely laminated, rare wispy carbonaceous laminae with slickensides from 278.27 m - .37 m; and from 280.49 m - .69 m; SBC.		
281.24	282.08	0.84		COAL SECTION: Dull coal, core broken.		9
282.08	282.09	0.01		Dirt band.		
282.09	283.35	1.26		Mudstone, pale grey, laminated with FLSS (60:40); SBC.		
283.35	283.95	0.60		Mudstone, laminite of grey (non-carbonaceous) and black (carbonaceous) mudstones. Finely banded. Small (1-5 mm diameter) mudstone pellets compacted together in basal 20 cm; core broken; GBC.		
283.95	284.05	0.10		Mudstone, carbonaceous, core broken, undulose bottom contact.		
284.05	284.09	0.04		Shale, black, friable.		
284.09	284.23	0.14		Shale, beige, with calcite veins and abundant carbonaceous material; SBC.		
284.23	284.49	0.26		Siltstone, carbonaceous, micaceous, core broken; SBC.		
284.49	286.58	2.09		Mudstone, pale grey, massive, core broken; shaley from 285.70 m - 285.80 m, slickensides common; sandy towards base. GBC.		
286.58	290.47	3.89		FLSS, grey, interbedded and interlaminated with pale grey mudstone; (50:50).		
290.47	290.99	0.52		MFLSS, with common mudstone and carbonaceous laminae.		
290.99	291.11	0.12		Mudstone, brown-grey in colour; core fractured; SBC.		
291.11	291.18	0.07		Carbonaceous mudstone, core broken; SBC.		
291.18	291.21	0.03	100	Shale, beige in colour; core broken, SBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

58 GEOLOGICAL LOG Page:- 21

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
291.21	291.41	0.20	100	Carbonaceous mudstone with abundant clay; sticky to touch; black in colour; SBC.		
291.41	291.77	0.36		FLSS interbedded with mudstone, (80:20); abundant coaly debris over top 3 cm; GBC.		
291.77	292.06	0.29		Siltstone, dark grey in colour; SBC.		
292.06	292.42	0.36		Carbonaceous mudstone; clayey; black in colour; sticky to touch, minor shale bands 1 mm wide; GBC.		
292.42	292.44	0.02		Siltstone and mudstone, interlaminated; laminae 1 mm wide, minor festoon cross-bedding. SBC.		
292.44	295.73	3.29		MFLSS with minor coaly debris and rare clay pellets. Band of bright coal from 294.57 m - 294.575 m. Abundant coaly debris over basal 50 cm. GBC.		
295.73	296.49	0.76		FLSS interlaminated with siltstone; carbonaceous, unit black-grey in colour; core broken. GBC.		
296.49	296.505	0.015		Shale, black, GBC.		
296.505	296.67	0.165		Carbonaceous mudstone laminated with non-carbonaceous mudstone and FLSS, 80:10:10. Unit black in colour with light-grey (FLSS) laminae. SBC.		
296.67	296.77	0.10		Mudstone, green-grey, shaley. SBC.		
296.77	296.85	0.08		Mudstone, green-grey, finely laminated, non-shaley. SBC.		
296.85	297.00	0.15		Mudstone, green-grey, shaley. GBC.		
297.00	297.40	0.40		Mudstone, grey-green, shaley.		
297.40	297.75	0.35		FLSS, interlaminated with mudstone, (50:50). Minor cross-bedding, laminae 1 mm wide. SBC.		
297.75	297.79	0.04		FLSS with 50% mud in matrix, severely disturbed, bioturbated ?. SBC.		
297.79	297.81	0.02		FLSS interlaminated with mudstone, (50:50). SBC.		
297.81	298.17	0.36	100	Siltstone, grey, SBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

58	GEOLOGICAL LOG	Page:- 22

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
298.17	298.87	0.30	43	Mudstone, brown, shaley in parts; core broken; clay in matrix. Core loss of 40 cm in this unit; GBC.		
298.87	299.28	0.41	100	Mudstone, interbedded with FLSS, beds 1 cm wide. Brown in colour; GBC.		
299.28	299.71	0.43	100	Siltstone and mudstone interlaminated and interbedded with FLSS; (20:20:60); GBC.		
299.71	300.00	0.21	72	FMLSS, massive, core broken over basal 5 cm, with core loss of 8 cm; SBC.		
300.00	300.01	0.01	100	Paleosol (?); white clay embedded with small angular quartz grits. SBC.		
300.01	306.60	6.59	100	FMLSS, massive, with occasional calcite veins and calcite replacement from 301.55 m - 301.74 m; band of coaly debris 1 cm wide from 306.05 m - 306.06 m.		
306.60	310.58	3.64	91	FMLSS, grey, abundant wispy carbonaceous laminae, core broken; core loss of 34 cm; SBC.		
310.58	311.22	0.64	100	Mudstone, grey, rare slickensides and coaly debris; GBC.		
311.22	311.38	0.16		Mudstone interbedded with FMLSS; GBC.		
311.38	313.11	1.73		FMLSS with occasional wispy carbonaceous laminae; SBC.		
313.11	314.31	1.20	100	Mudstone, green-grey, laminated with dark grey siltstone; (50:50).		
314.31	314.50	0.16	84	Carbonaceous siltstone, core fractured and broken, core loss 3 cm.		
314.50	314.63	0.13	100	Dull coal, SBC.		
314.63	314.76	0.13		Dirt band or paleosol; clay and shale with small grits of quartz and hard mudstone, SBC.		
314.76	315.12	0.36		Carbonaceous shaley mudstone, core broken, GBC.		
315.12	316.17	1.05		Carbonaceous siltstone, sandy with minor shale laminae, sand content increases with depth; minor 'dirt bands' 1-2 mm wide.		
316.17	317.78	1.61	100	FMLSS, with abundant coaly debris and laminae; minor cross-bedding; minor		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				dirt bands; and small mudstone pellets 5 mm x 5 mm to 2 mm x 2 mm in size common over the intervals 316.87 m - 317.17 m and from 317.59 m - 317.67 m. SBC.		
317.78	323.34	5.56	100	FMLSS, grey, massive, mudstone pellets from 317.97 m - 318.08 m.		
323.34	331.32	7.98		MLSS, grey in colour, massive, with occasional patches of coaly debris from 324.67 m - 325.03 m; 325.79 m - 325.85 m; sparse wispy carbonaceous laminae; coaly debris from 326.75 m - 326.95 m; coal band from 326.20 m - 326.205 m. Clay pellets 330.86 m - 330.96 m; coal debris scattered from 330.00 m - 331.32 m.		
331.32	339.40	8.08		MLSS, massive, core broken, coaly debris from 331.32 m - 331.52 m. Irregularly shaped mudstone clasts from 332.98 m - 333.08 m; 333.68 m - 334.03 m; wispy carbonaceous laminae from 333.38 - 333.64 m; 336.13 - 336.29 m; irregularly shaped mudstone clasts from 336.33 m - 336.65 m; 337.13 m - 337.29 m; and from 337.43 m - 338.63 m.		
339.40	340.06	0.66		MLSS, massive, rare coaly debris, and occasional wispy carbonaceous laminae. SBC.		
340.06	340.85	0.79		MFLSS, massive, with abundant carbonaceous laminae, GBC.		
340.85	341.55	0.70		MLSS, with occasional claystone and mudstone irregularly shaped clasts. SBC.		
341.55	341.99	0.44		Mudstone, green, finely laminated, occasional wispy carbonaceous laminae; GBC.		
341.99	342.06	0.07		Mudstone, black, carbonaceous. GBC.		
342.06	342.99	0.93		FLSS, grey, massive, rare wispy carbonaceous laminae.		
342.99	343.74	0.75		Mudstone, with occasional shale bands, GBC.		
343.74	344.07	0.33		Carbonaceous mudstone with shale bands, (80:20); and occasional sandstone laminae.		
344.07	347.31	3.24	100	FLSS, buff coloured; massive, with rare wispy carbonaceous laminae and rare mudstone clasts. SBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

58 GEOLOGICAL LOG Page:- 24

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
347.31	347.59	0.28	100	FLSS, laminated with carbonaceous siltstone (50:50).		
347.59	347.93	0.34		FLSS, light grey, with common carbonaceous laminae and silty laminae. SBC.		
347.93	348.42	0.49		FLSS, dark grey, with abundant carbonaceous laminae and silty laminae. GBC.		
348.42	353.88	5.46		FLSS, light grey, with rare wispy carbonaceous laminae. Band of angular to rounded mudstone and siltstone clasts from 349.14 m - 349.33 m; and from 350.72 m - 350.98 m. Further, bands from 351.03 m - 351.63 m; 351.93 m - 352.65 m; 352.93 m - 353.88 m; SBC.		
353.88	354.07	0.19		Carbonaceous siltstone with rare plant fossils.		
354.07	355.22	1.15		Mudstone, interlaminated and interbedded with FLSS, grey-green in colour. GBC.		
355.22	355.82	0.60	100	Mudstone, dark green, finely laminated.		
355.82	356.06	0.11	46	Mudstone, dark green; slickensided; core loss of 13 cm in this unit.		
356.06	356.18	0.12	100	FMLSS, massive, tinged green over top 5 cm.		
356.18	356.78	0.60		Mudstone, green, finely laminated, minor disturbed bedding, abundant sand laminae, minor wispy carbonaceous laminae.		
356.78	357.31	0.53		Carbonaceous siltstone, black; rare plant fragments, finely laminated, core broken from 356.94 m - 357.02 m, GBC.		
357.31	358.64	1.33		FLSS, interbedded with mudstone (50:50); FLSS, grey, and mudstone green in colour. GBC.		
358.64	359.31	0.67		Mudstone, green in colour, silty, finely laminated, FLSS band from 359.11 m - 359.21 m; carbonaceous over top 5 cm; SBC.		
359.31	359.63	0.32		Carbonaceous siltstone, black.		
359.63	360.00	0.37		Mudstone, green, with a few quartz sandstone laminae and abundant wispy carbonaceous laminae.		
360.00	361.00	1.00	100	Medium grained quartzose sandstone (MQSS), with abundant coaly debris, and Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

58 GEOLOGICAL LOG Page:- 25

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				interbedded with green mudstone over top 19 cm.		
361.00	362.90	1.88	99	MQSS, clean, sparkling, moderate amount of coaly debris. Core broken 362.78 m - 362.83 m.		
362.90	363.01	0.11	100	Siltstone, green-black, sharp top and bottom contacts.		
363.01	364.07	1.06	100	MQSS, interbedded with khaki-coloured mudstone (50:50) from 363.48 m - 363.86 m. Abundant wispy carbonaceous laminae.		
364.07	365.92	1.83	99	FQSS, massive; coaly laminae over top 15 cm; core broken 364.50 m - 364.65 m; rare wispy carbonaceous laminae; grades gradually into coarser grained quartzose sandstone. GBC.		
365.92	373.35	7.43	100	MQSS, massive, rare wispy carbonaceous laminae, sparkling, clean and white; carbonaceous laminae dipping at from 372.23 m - 372.33 m; 372.89 m - 372.91 m; 372.99 m - 373.16 m; clast of FLSS, 373.31 SBC dipping at 10°. -.33 m;		
373.35	373.42	0.07		Shale, brown, core badly broken; clayey; rock greasy to touch. SBC.		
373.42	373.75	0.33		MQSS, interlaminated with green-brown mudstone, (50:50), SBC.		
373.75	376.80	3.05		FMQSS, white, clean, rare wispy carbonaceous laminae. SBC.		
376.80	377.30	0.50		FQSS, interlaminated with green mudstone, (50:50), abundant wispy carbonaceous laminae.		
377.30	377.43	0.13		Siltstone, black, with rare quartz grits.		
377.43	380.35	2.92		FMQSS, massive.		
380.35	380.68	0.33		Medium grained quartzose sandstone, (MQSS), massive. SBC.		
380.68	380.98	0.30		MQSS, laminated with green mudstone (50:50), GBC.		
380.98	383.35	2.37	100	MQSS, massive; rare wispy carbonaceous laminae, GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
383.35	386.70	3.35	100	FQSS, laminated with green mudstone; wispy carbonaceous laminae abundant; calcite chips common and are scattered throughout unit.		
386.70	387.01	0.31		MQSS, massive, SBC.		
387.01	387.67	0.66		FQSS, laminated with green mudstone (50:50) and calcite chips. SBC.		
387.67	387.98	0.31		MQSS, massive, GBC.		
387.98	388.44	0.46		FQSS, interlaminated with green mudstone, (50:50).		
388.44	388.46	0.02	100	Mudstone, grey, SBC.		
388.46	388.80	0.31	91	FLSS, quartz rich, massive, SBC.		
388.80	388.98	0.17	94	FLSS, laminated with grey-green mudstone, (50:50), GBC.		
388.98	389.58	0.60	100	FQSS, interbedded with brown-grey mudstone; beds 5 cm wide.		
389.58	390.64	0.97	91	Mudstone, grey-green, shaley and sandy; rare wispy carbonaceous laminae and abundant sandy laminae, core broken, SBC.		
390.64	391.50	0.86	100	Coarse quartzose sandstone, CQSS, carbonaceous in parts, white in colour, speckled with quartz grits and chips of calcite. GBC.		
391.50	392.16	0.66		Very coarse quartzose sandstone with abundant quartz grits and clay clasts up to 1 cm in diameter. Occasional wispy carbonaceous laminae; few coal chips, quartzite pebbles 1 cm diameter over basal 10 cm. Sharp, erosional bottom contact. BASE OF FRESHWATER SEQUENCE OF UPPER PARMEENER SUPER GROUP. TOP OF UPPER GLACIO-MARINE SEQUENCE OF THE PARMEENER SUPER GROUP.		
392.16	399.00	6.84	100	Green mudstone flecked with white calcite and quartz grits. Laminations horizontal. Minor shale bands 1 mm wide from 397.87 m - 397.92 m; irregular quartzite clast (from the Mathinna Beds ?) - a dropstone ? from 398.63 m - 398.67 m. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

DDH 59

DRILLING TARGET:- Base of the Upper Parmeener Supergroup.

REMARKS:- Drilling halted prematurely due to mechanical failure of diamond drilling rig.

SURVEY DATA			ASSAY DATA									
DEPTH metres	Bearing mag.	Inclin. degs	SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS				

GEOLOGICAL LOG

Logged by:- R. Castleden

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
0.00	232.13	232.13	100	Dolerite, massive, grey; medium-grainsize (0.3 cm to 0.5 cm from 0 m to 90 m) and uniform throughout; minor sub-vertically-dipping calcite and chlorite veins from 61-62 m, from 95-96 m, from 134-135 m, from 156-162 m, from 182-183 m, from 186-187 m and from 197-198 m; granophyric zones with white calcite (?) (zeolite(?)) up to 2 cm in diameter from 224-225 m; pink-white-green sub-vertically-dipping veins from 225 m to base; minor sub-vertically-dipping jointing throughout, but common in basal 20 cm; grey-white in colour in basal 2 m; green-grey and glassy in basal 50 cm with green phenocrysts up to 1 mm in diameter. Irregular, stepped bottom-contact (BC) dips at 10°. (15 cm of core has been sampled at 3 m intervals and stored for future analytical work).		
232.13	235.09	2.96	100	Medium-grainsize lithic sandstone (MLSS), grey-white; texture similar to overlying dolerite; massively-bedded; hornfelsed; minor mud-pellets from 232.34 m to 232.38 m; heulandite (?) vein 1-2 mm in thickness and dipping sub-vertically from 232.99 m to 233.08 m; sub-vertically-		

Continued over:-

DEPARTMENT OF MINES—TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No.:-	MAP SHEET No.	DISTRICT	LOCATION OF SITE:-
DOM FINGAL DDH Number 59	49	FINGAL	North of the headwaters of Pretty End Creek on the Fingal Tier plateau

R.L. OF SITE:-	802.3 m	SITE SURVEY ON MAP No.:-	N/A	CORE SIZE:-	NQ
BEARING OF HOLE:-	-	AIR PHOTO No.:-	N/A	COMMENCED:-	8/8/80
INCLINATION OF HOLE:-	Vertical	DRILL:-	Longyear 38	COMPLETED:-	25/9/80
CO-ORDS OF SITE:-	587 494 mE 5 382 058 mN	DRILLER:-	D. Summers, A. Dawson, R. Schier	FINAL DEPTH (m):-	572.68

M1029

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59				GEOLOGICAL LOG	Page:- 2/40	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				dipping heulandite (?) veins from 233.18 m to 233.41 m and from 233.88 m to 234.28 m; pebble (grey quartzite) band from 233.83 m to 233.87 m; sub-horizontally-dipping bedding. GBC.		
235.09	236.14	1.05	100	Fine-medium grainsize lithic sandstone (FMLSS), grey-white with green-grey bands dipping at up to 5°; minor fine-grainsize lithic sandstone (FLSS) and siltstone intervals; hornfelsed; sub-vertically-dipping calcareous (?) veins (up to 1 cm wide) from 235.39 m to 236.24 m; conglomeritic interval (green-grey siltstone cobbles) from 235.98 m to 236.06 m. GBC.		
236.14	241.06	4.92		Coarse-grainsize lithic sandstone (CLSS), speckly green-grey-white; abundant cobbles and pebbles (green-grey siltstone and grey quartzite); hornfelsed; FMLSS and MLSS intervals; sub-horizontally-dipping bedding; minor imbrication in the conglomeritic intervals; some of the cobbles have a highly siliceous matrix with feldspar phenocrysts (white and green) up to 3 mm in length; FLSS from 238.13 m to 238.51 m (bottom-contact (BC) dips at 5°); hornfelsed siliceous green-grey-brown mudstone with irregular bedding and sandy intervals from 240.26 m to 240.70 m (BC dips at 10°). BC dips at 2°. Gritty, pebbly intervals from 239.98 m to 240.21 m and from 240.70 m to 241.06 m.		
241.06	243.13	2.07		Hornfelsed, interbedded FLSS/siltstone (50:50); bioturbation (?) from 241.28 m to 241.36 m; minor microfaults and irregular white veins; minor festoon cross-bedding, lenticular bedding and disturbed bedding (dipping at up to 5°); white-grey hornfelsed claystone (?) from 242.55 m to 243.13 m. GBC.		
243.13	245.05	1.92	100	Interbanded, hornfelsed, 20% quartzose, FLSS/MLSS (50:50); green-grey and brown-grey banding; rock-fragments are green and red-brown; minor festoon cross-bedding. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

59				GEOLOGICAL LOG	Page:- 3/40	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
245.05	251.13	6.08	100	FMLSS, hornfelsed; brown-grey with minor green-grey bands; 45°-dip joint from 245.34 m to 245.48 m; interbedded MLSS/CLSS (50:50) from 247.11 m to 247.64 m; sub-vertically-dipping calcite vein from 247.60 m to 248.31 m; abundant light-grey banding dipping at up to 5° from 248.21 m to 251.17 m; FLSS dipping at 5° from 249.52 m to 249.63 m; MLSS from 249.69 m to 250.63 m and from 250.84 m to 250.90 m; pebble band from 251.14 m to 251.17 m.		
251.13	251.30	0.13		MLSS, grey-white (speckly). GBC. Conglomerate band from 251.13 m to 251.17 m.		
251.30	251.73	0.43		Conglomerate; MLSS matrix 10%; abundant pebbles and cobbles of quartzite, acid pyroclastics, slate and siltstone, sub-rounded, elongate to spherical in shape; green, grey, white, black, pink, brown in colour; undulose BC.		
251.73	251.85	0.12		Laminite, carbonaceous mudstone/dark-grey mudstone (75:25); minor dull coal; thermally metamorphosed (hornfelsed); grades to dark-grey mudstone at base; 10°-dip slickenside near base; cellular (bark-like) texture in part. GBC (minor flame structures ?).		
251.85	252.12	0.27		Claystone, pink-brown; hornfelsed; abundant sub-vertically-dipping joints and carbonaceous wisps. Irregular BC. Flakey, paper-thin mineral on joints.		
252.12	252.68	0.56		Claystone, green-white; hornfelsed; abundant sub-vertically-dipping joints; minor silicified laminae and contorted bedding. BC dips at 5°. (Tuff ?)		
252.68	252.81	0.13		Interbanded and laminated carbonaceous mudstone/dull coal (50:50); abundant green clasts and pellets; lenticular bedding. Interdigitating BC.		
252.81	253.09	0.28	100	Claystone, white and grey; sub-vertically-dipping joints coated with heulandite (?) (red mineral) and calcite (?) (possibly a clear zeolite); minor brown flecks (phlogopite (?)) and carbonaceous		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				wisps; microfaults at base. Sharp BC (assumed for all contacts unless otherwise stated). Hornfelsed.		
253.09	253.13	0.04	100	Carbonaceous mudstone/dull coal (50:50), interbanded; hornfelsed; 2 cm-spacing for sub-vertically-dipping joints (minor red heulandite (?)).		
253.13	253.17	0.04		Minor grey lenticles. Undulose BC.		
253.17	253.30	0.13		Claystone; cream grey-green; abundant red heulandite (?) (dispersed throughout); shaly; minor slickensides; minor carbonaceous wisps; minor shards at base. BC dips at 2°. Hornfelsed.		
253.30	253.43	0.13		Heavy dull coal, hornfelsed; grades to carbonaceous mudstone with depth; kaolinite (?) on cleat; cellular-texture in part (bark ?); minor slickensides; abundant lenticles. GBC.		
253.43	253.51	0.08		Mudstone, grey; slickensides; minor wispy coaly debris. GBC. Hornfelsed.		
253.51	253.85	0.34		Mudstone, light-grey; minor slickensides and joints; hornfelsed; minor wispy coaly shards. GBC.		
253.85	253.94	0.09		Mudstone, dark-grey; minor slickensides. GBC. Hornfelsed.		
253.94	254.00	0.06		Carbonaceous mudstone grading to dull coal with depth; minor kaolinite on cleat; minor bright laminae. Undulose BC. Hornfelsed.		
254.00	257.97	3.97		Interbanded dark-grey mudstone/grey siltstone/light-grey FLSS (25:50:25); minor slickensides where mudstone; minor well-preserved plant-fossil leaves and stems; fault from 255.00 m to 255.06 m; minor disturbed bedding, lenticles and laminite; abundant sub-vertically-dipping joints through centre of the core; minor cross-bedding; hornfelsed. BC dips at 5°.		
257.97	272.30	14.33	100	FMLSS, grey; minor intervals of MLSS and FLSS; minor cross-bedding, carbonaceous laminae and jointing; bedding dips at up to 10°; coaly debris and mudstone Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

59				GEOLOGICAL LOG	Page:- 5/40	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				lenticles (dipping at up to 30°) from 261.65 m to 262.25 m; massive; minor elongate dark-grey siltstone cobbles from 266.13 m to 266.18 m; dark-grey siltstone and mudstone cobbles from 267.21 m to 267.26 m and from 268.21 m to 268.26 m; faint festoon cross-bedding and carbonaceous laminae from 269.36 m to 269.81 m; dark-grey mudstone and siltstone bands and laminae from 269.96 m to 270.01 m; minor dark-grey siltstone pellets at 271.26 m. BC dips at 2°.		
272.30	272.77	0.47	100	Intraformational conglomerate and dark-grey siltstone intervals. Irregular BC.		
272.77	273.55	0.78		Carbonaceous mudstone, silty; minor slickensides and jointing; mud-pellet conglomerate from 273.35 m to 273.55 m with minor coaly debris.		
273.55	278.07	4.52		FMLSS with MLSS and FLSS intervals; carbonaceous from 273.55 m to 275.15 m; coaly debris from 279.95 m to 275.15 m; minor dark-grey and carbonaceous bands and laminae dipping at up to 5°. Undulose BC.		
278.07	280.68	2.61		Dark-grey mudstone; silty; carbonaceous in part; broken core; minor slickensides; shaly in part; grades to sandy with depth. GBC.		
280.68	294.37	13.69	100	FMLSS, grey; abundant dark-grey bands and festoon cross-bedding from 280.68 m to 283.12 m; minor carbonaceous matrix; bedding dips at up to 5° from 280.68 m to 284.18 m; minor MLSS and FLSS intervals and minor carbonaceous lenticles from 284.18 m to 285.51 m; coaly debris, dark-grey bands (distorted, dipping at up to 10°) from 286.51 m to 286.91 m; carbonaceous matrix and coaly debris from 287.7 m to 288.6 m and from 288.7 m to 289.1 m; minor dark-grey to carbonaceous FLSS intervals with abundant carbonaceous laminae from 287.2 m to 290.23 m; minor festoon cross-bedded carbonaceous FLSS from 290.68 m to 291.28 m, from 292.03 m to 292.23 m and from 292.73 m to Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				292.88 m; massive from 293.18 m to 293.62 m; abundant coaly debris from 293.82 m to 294.12 m. BC dips at 5°.		
294.37	294.90	0.53	100	COAL SECTION: Mudstone, dark-grey; abundant slickensides; grades to carbonaceous mudstone with depth. GBC.		A
294.90	295.17	0.27		Carbonaceous mudstone grading to heavy dull coal with depth; shaly at base; abundant plant debris.		
295.17	295.44	0.27		Dull coal; kaolinite on cleat; minor bright laminae dipping at up to 5°. GBC.		
295.44	295.54	0.10		Carbonaceous shale; minor slickensides.		
295.54	295.60	0.06		Carbonaceous mudstone/heavy dull coal (50:50).		
295.60	295.78	0.18		Laminite, bright coal/dull coal (50:50). GBC.		
295.78	295.86	0.08		Heavy dull coal; abundant joints (irregular); minor bright laminae and lenticles from 295.84 m to 295.86 m.		B
295.86	295.93	0.07		Carbonaceous shale. GBC.		
295.93	296.10	0.17		Interbanded dull coal/bright coal (75:25); minor laminite; abundant kaolinite on cleat; minor disturbed bedding towards base.		
				(BASE OF COAL SECTION)		
296.10	297.10	1.00		Mudstone, dark-grey; carbonaceous in part; minor slickensides and calcite-coated joints; silty in part. GBC.		
297.10	297.74	0.64		Siltstone; dark-grey; minor shale and mudstone bands; minor clayey matrix. GBC.		
297.74	298.61	0.87	100	Mudstone, dark-grey; silty; shaly intervals from 297.85 m to 297.9 m and from 298.3 m to 298.37 m; minor slickensides Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

59	GEOLOGICAL LOG	Page:- 7/

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				and sub-vertically-dipping joints.		
298.61	298.80	0.19	100	Mudstone, brown-grey; shaly; clayey. GBC.		
298.80	298.89	0.09		Shale, green-grey; abundant 1 mm brown flecks (phlogopite (?)); abundant lithic fragments at base.		
298.89	299.26	0.37		Siltstone; dark-grey; muddy.		
299.26	299.39	0.13		Mud; brown-grey and carbonaceous; coaly debris; soft and sticky.		
299.39	300.01	0.62		Mudstone, light-grey; minor sub-vertical joints; clayey in part. GBC.		
300.01	300.32	0.31		Siltstone, grey; minor brown-grey clayey matrix; grades to sandy with depth. GBC.		
300.32	301.72	1.40		Interbanded carbonaceous mudstone/FMQSS (50:50); minor interbedded intervals; abundant festoon cross-bedding, lenticles and disturbed bedding; abundant FMLSS.		
301.72	302.19	0.47		Minor flaser bedding and flame structures from 301.72 m to 302.19 m. BC dips at 5°.		
302.19	302.50	0.31		FMQSS/FMLSS (50:50); abundant small-scale festoon cross-bedding and minor carbonaceous laminae. Undulose BC dips at 5°.		
302.50	303.19	0.69		Carbonaceous siltstone/carbonaceous mudstone (50:50); abundant brown-grey sandy bands and laminae; minor disturbed bedding and coaly debris. Involute BC.		
303.19	303.99	0.80		FMQSS/FMLSS (25:75); abundant banding; minor festoon cross-bedding; minor microfaults from 303.19 m to 303.29 m; bedding dips at up to 5° from 303.79 m to 303.99 m.		
303.99	304.41	0.42		Interbanded FMQSS/FMLSS (50:50) and silty carbonaceous mudstone (50:50); minor cross-bedding and flaser bedding. BC dips 2°.		
304.41	304.74	0.33		FMQSS/FMLSS (50:50), grey-white; abundant carbonaceous laminae and bands; minor festoon cross-bedding. GBC.		
304.74	305.49	0.75	100	FMLSS, light-grey; minor quartzose component; minor cross-bedding; carbonaceous mudstone from 305.12 m to 305.17 m dipping at 5°. Irregular BC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

59				GEOLOGICAL LOG	Page:- 8/40	
FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
305.49	305.74	0.25	100	FMLSS/FMQSS (75:25); abundant contorted laminae and bands of carbonaceous mudstone. GBC.		
305.74	308.56	2.82		MLSS, grey; grades with depth to FMLSS; abundant coaly debris and carbonaceous laminae from 305.81 - .89 m and from 306.19 - 307.19 m; minor irregular bedding from 305.74 m to 308.29 m; minor MLSS intervals. GBC (interbedded).		
308.56	309.34	0.78		FMLSS grading to FLSS with depth. BC dips at 5°. Abundant carbonaceous laminae and coaly debris from 309.16 m to 309.34 m.		
309.34	313.43	4.09		MLSS, light-grey; minor FMLSS and FLSS intervals; coaly debris and FLSS bands (minor cross-bedding) from 309.38 m to 309.79 m; grey silty mudstone from 309.96 m to 310.1 m; mudstone and siltstone shards and cobbles from 310.1 m to 310.7 m; abundant poorly festoon-cross-bedded carbonaceous laminae from 311.78 m to 313.18 m.		
313.43	313.50	0.07		COAL SECTION: Dull coal; minor clay pellets in basal 4 cm; minor bright laminae.		
313.50	313.55	0.05		Mudstone, grey.		
313.55	313.59	0.04		Shale, olive-green-grey.		
313.59	313.70	0.11		Dull coal; abundant bright laminae. BC dips at 2° (interbanded).		
313.70	313.82	0.12		Dark-grey mudstone; silty; minor wispy coaly bands and lenticles. Involute BC.		A
313.82	313.91	0.09		Claystone; cream-brown-grey grading to spotted brown with depth. BC dips at 2°.		
313.91	313.98	0.07		Heavy dull coal; minor mudstone lenticles.		
313.98	314.00	0.02		Brown mudstone; lenticular bedding; minor carbonaceous mudstone.		
314.00	314.13	0.13	100	Dull coal. Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
314.13	314.19	0.06	100	COAL SECTION: (Contd.) Interbanded heavy dull coal/ brown clayey mudstone (50: 50). Irregular bedding.		
314.19	314.30	0.11		Shale, cream-grey; minor slickensides; interbanded brown and grey.		A
314.30	314.34	0.04		Heavy dull coal.		(Contd.)
314.34	314.40	0.06		Carbonaceous siltstone; brown bands at base.		
314.40	314.52	0.12		Heavy dull coal/carbonaceous mudstone (50:50); inter-banded; bedding dips at 5°.		
314.52	314.57	0.05		Interbanded carbonaceous mudstone/brown silty clay-stone; shaly.		
314.57	314.60	0.03		Carbonaceous mudstone.		
314.60	314.66	0.06		Brown speckled mudstone/ carbonaceous mudstone (50: 50); interbanded. BC dips at 5°.		
314.66	314.74	0.08		Shale, brown grading with depth to cream-grey.		
314.74	314.77	0.03		Heavy dull coal. Undulose BC.		
314.77	314.80	0.03		Shale, brown-grey.		
314.80	314.84	0.04		Heavy dull coal.		
314.84	314.86	0.02		Shale, brown-grey.		B
314.86	314.97	0.11		Dull coal; abundant cleat and joints; minor bright laminae and mudstone lenti-cles.		
314.97	315.00	0.03		Mudstone, brown-grey; lenti-cular bedding. BC dips at 2°.		
315.00	315.11	0.11		Dull coal; minor grey specks intermittently.		
315.11	315.13	0.02		Bright coal.		
315.13	315.16	0.03	100	Dull coal.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
315.16	315.21	0.05	100	COAL SECTION: (Contd.) Carbonaceous mudstone. Irreg-ular BC.	)	
315.21	315.24	0.03		Dull coal, minor carbonaceous mudstone.	)	
315.24	315.28	0.04		Brown clayey mudstone; poorly-shaly. BC dips 2°.	)	
315.28	315.39	0.11		Dull coal; minor joints; minor silty bands from 315.29 m - .31 m. BC dips at 2°.	)	B (Contd.)
315.39	315.50	0.11		Mudstone, creamy-brown inter-banded with carbonaceous mudstone (75:25); minor disturbed bedding.	)	
315.50	315.71	0.21		Dull coal; minor bright bands and laminae; grades with depth to carbonaceous mud-stone. BC dips at 5°. Minor carbonate veins and sub-vertical joints.	)	
315.71	315.74	0.03		Shale; cream-brown.	)	
315.74	315.84	0.10		Dull coal grading to carbon-aceous mudstone with depth; abundant brown mudstone bands and lenticles.	)	
315.84	316.05	0.21		Mudstone, brown; shaly towards base; minor poorly-carbonaceous intervals. GBC.	)	
316.05	316.29	0.24		Heavy dull coal/dull coal (interbedded 50:50); minor brown shaly mudstone.	)	C
316.29	316.31	0.02		Mudstone, cream-grey.	)	
316.31	316.33	0.02		Carbonaceous mudstone; brown mudstone lenticles. GBC.	)	
316.33	316.36	0.03		Mudstone, brown.	)	
316.36	316.38	0.02		Carbonaceous mudstone.	)	
316.38	316.39	0.01	100	Mudstone, brown-grey; abun-dant carbonaceous pellets (up to 1 cm in length).	)	

continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
316.39	316.43	0.04	100	COAL SECTION: (Contd.) Carbonaceous mudstone with thin brown mudstone laminae at 316.41 m.		
316.43	316.46	0.03		Mudstone, cream-grey. GBC.		
316.46	316.59	0.13		Brown shaly mudstone; minor lenticular bedding and carbonaceous mudstone bands.		C (Contd.)
316.59	316.67	0.08		Heavy dull coal.		
316.67	316.76	0.09		Shale, brown-grey; minor carbonate band from 316.73 m to 316.74 m. BC dips at 2°.		
316.76	316.89	0.13		Heavy dull coal; grades with depth to spotted carbonaceous mudstone.		
316.89	316.93	0.04		Mudstone, cream-brown.		
316.93	316.95	0.02		Dull coal.		
316.95	317.01	0.06		Mudstone, pink-brown; disturbed bedding; abundant bands and lenticles of carbonaceous mudstone. Undulose BC dips at 2°.		
317.01	317.14	0.13		Heavy dull coal with brown-grey mudstone from 317.04 - .05 m (dipping at 2°). BC dips at 2°.		D
317.14	317.17	0.03		Mudstone, cream-brown; lenticular bedding. Interdigitating BC.		
317.17	317.27	0.10		Heavy dull coal grading to carbonaceous mudstone with depth; abundant mudstone flecks and spots from 317.21 m to 317.27 m.		
317.27	317.54	0.27		Claystone, cream-grey-brown; shaly in part; abundant brown flecks. BC dips at 2°.		
317.54	317.73	0.19	100	Carbonaceous mudstone; minor shale and slicken- Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				sides towards base. GBC.		
317.73	317.82	0.09	100	COAL SECTION: (Contd.) Shale; brown-black; clayey.		
317.82	318.02	0.20		Heavy dull coal; abundant clay-pellets and brown lenticles from 317.82 m to 317.88 m; bedding dips at 2°. BC dips at 5°.		D (Contd.)
318.02	318.06	0.04		Carbonaceous mudstone; abundant brown mudstone lenticles. BC dips at 5°.		
318.06	318.32	0.26		Shale, grey-green-brown.		
318.32	318.42	0.10		Heavy dull coal.		
318.42	318.54	0.12		Bright coal/dull coal (50:50); minor laminae.		
318.54	318.63	0.09		Heavy dull coal; grades to carbonaceous mudstone with depth.		
318.63	318.69	0.06		Shale, brown; spotted; black towards base.		
318.69	318.96	0.27		Heavy dull coal; abundant brown mudstone bands and lenticles dipping at up to 5° from 318.84 m to 318.96 m.		E
318.96	319.22	0.26		Mudstone, grey; shaly; clayey; grades to dark-grey in basal 5 cm. BC dips at 15°.		
319.22	319.25	0.03		Carbonaceous mudstone. Disturbed GBC.		
319.25	319.29	0.04		Shale, brown-cream.		
319.29	319.43	0.14		Heavy dull coal/carbonaceous mudstone (50:50), interbanded; abundant lenticles, pellets and bands of brown and grey mudstone. GBC dips at 5°.		
319.43	319.84	0.41	100	Shale, brown grey from 319.43 m to 319.63 m; green-grey elsewhere; clayey with minor carbonaceou		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				intervals from 319.43 m to 319.58 m. Undulose BC dips at 5°.		E (Contd.)
319.84	320.00	0.16	100	COAL SECTION: (Contd.) Carbonaceous mudstone; disturbed bedding; abundant brown bands and lenticles. Disturbed, but sub-horizontal BC.		
320.00	320.08	0.08		Shale, green-grey. BC dips at 2°.		
320.08	320.41	0.33		Carbonaceous mudstone with minor dull coal and brown mudstone bands; grades to dull coal with depth.		F
320.41	320.88	0.47		Dull coal; minor grey mudstone bands and lenticles; minor bright bands; bedding dips at up to 5°. BC dips at 2°.		
320.88	321.01	0.13		Shale, green-grey; abundant slickensides. Irregular BC dips at 5°.		
321.01	321.09	0.08		Dull coal/carbonaceous mudstone (50:50). GBC.		
321.09	321.13	0.04		Mudstone, grey.		
321.13	321.23	0.10		Heavy dull coal/carbonaceous mudstone (50:50), minor brown bands. BC dips at 2°.		
321.23	321.35	0.12		Shale, grey-brown; clayey; abundant slickensides. BC dips at 2°.		
321.35	321.38	0.03		Carbonaceous mudstone. BC dips at 2°.		G
321.38	321.42	0.04		Mudstone, light-grey; minor carbonaceous bands dipping at 2°.		
321.42	321.77	0.35	100	Dull coal; minor heavy dull coal and sparse bright laminae; minor clay-pellets.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
321.77	321.80	0.03	100	COAL SECTION: (Contd.) Interbanded carbonaceous mudstone/grey mudstone (50:50); flaser-bedded.		G (Contd.)
321.80	322.11	0.31		Shale, brown-green; minor carbonate bands and slicken-sides.		
322.11	322.76	0.65		Dull coal, minor bright bands; minor grey mudstone bands and clay pellets.		
322.76	322.82	0.06		Interbanded dull coal/brown mudstone/bright coal/grey mudstone/carbonaceous mudstone (all in approximately equal proportions); disturbed and lenticular bedding.		
322.82	322.91	0.09		Mudstone, cream-brown-pink. Disturbed BC.		H
322.91	322.96	0.05		Interbanded dull coal/bright coal/grey mudstone (50:25:25); lenticular and irregular bedding.		
322.96	322.98	0.02		Mudstone, brown-grey; poorly shaly. Undulose BC dips at 2°.		
322.98	323.16	0.18		Dull coal.		
323.16	323.19	0.03		Brown mudstone. BC dips at 2°.		
323.19	323.52	0.33		Dull coal; minor bright bands towards base; minor grey mudstone laminae and bands from 323.27 m to 323.52 m.		I (main working section)
323.52	323.54	0.02		Mudstone, brown; minor lenticular grey bands. BC dips at 2°.		
323.54	323.61	0.07		Carbonaceous mudstone; minor dull coal and grey mudstone bands and laminae.		
323.61	323.65	0.04	100	Mudstone, brown-pink-grey; minor coaly shards. Irregular BC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
323.65	323.75	0.10	100	COAL SECTION: (Contd.) Heavy dull coal; good cleat and joint development. BC dips at 2°.		
323.75	324.01	0.26		Dull coal/bright coal (75:25); minor cleat, sub-vertical joints and mud-stone laminae.		I (main working section)
324.01	324,03	0.02		Mudstone, brown-grey; poorly carbonaceous.		
324.03	324.44	0.41		Dull coal/bright coal (50:50), interbanded with occasional laminite, brown-grey mudstone from 324.05 m - .06 m; good cleat development (kaolinite coating on bright coal).		
324.44	324.90	0.46		Dark-grey mudstone, poorly carbonaceous; abundant bright coal lenticles; minor irregular bedding.		J (floor)
				(BASE OF COAL SECTION)		
324.90	326.35	1.45		Mudstone, grey; abundant light-grey bands and laminae; minor flaser and disturbed bedding; silty in part. GBC.		
326.35	327.71	1.36		Laminite, dark-grey mudstone/light-grey mud-stone (50:50); minor flaser bedding.		
327.71	346.88	19.17		MLSS, grey-white; minor FMLSS and FLSS intervals; minor coaly debris; predominantly massive; minor coaly debris from 331.50 m to 331.9 m, from 334.30 m to 334.50 m, from 340 m to 340.6 m (bedding up to 30°), mudstone cobbles) and from 341.4 m to 341.6 m; minor carbonaceous laminae from 342.35 m to 344.4 m. BC dips at 2°.		
346.88	347.14	0.26		COAL SECTION: Carbonaceous mudstone. GBC.		
347.14	347.26	0.12	100	Interbanded carbonaceous mudstone/grey silty mudstone (50:50). GBC.		A
347.26	347.38	0.07	58	Carbonaceous mudstone.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
347.38	347.41	0.03	100	COAL SECTION: (Contd.) Mudstone, brown; broken core. GBC.		
347.41	347.80	0.39		Heavy dull coal with carbonaceous mudstone (50:50); grey mudstone interval from 347.47 m to 347.51 m; brown mudstone from 347.7 m to 347.73 m.		A (Contd.)
347.80	348.01	0.21		Mudstone, brown; shaly in part; minor carbonaceous bands; minor slickensides.		
348.01	348.10	0.09		Heavy dull coal. GBC.		
348.10	348.16	0.06		Interbanded brown mudstone/ carbonaceous mudstone (50:50); minor lenticular bedding; microfault at base.		
348.16	348.25	0.09		Shale; brown-grey grading to green-grey with depth. Irregular BC.		B
348.25	348.46	0.21		Dull coal; minor cleat development. Undulose BC.		
348.46	348.48	0.02		Shale, olive-green-brown.		
348.48	348.54	0.06		Dull coal. GBC.		
348.54	348.57	0.03		Carbonaceous brown mudstone; shaly.		
348.57	348.65	0.08		Dull coal. GBC.		
348.65	348.85	0.20		Brown mudstone; shaly in part; carbonaceous from 348.65 - .70 m.		
348.85	348.89	0.04		Heavy dull coal. Undulose BC.		
348.89	348.91	0.02		Mudstone, grey; shaly in part.		
348.91	349.73	0.82	100	Dull coal; mudstone bands from 348.94 - .95 m, from 348.98 - .99 m, (5°-dip), from 349.21 m to 349.24 m (interbanded with bright coal), at 349.35 m Continued over		C

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				from 349.39 m to 349.42 m (shaly) and from 349.53 m to 349.59 m; grades to carbonaceous mudstone over basal 10 cm. GBC.		C
349.73	349.93	0.20	100	COAL SECTION: (Contd.) Shale, brown-grey grading to green-grey with depth; secondary (?) complex carbonate vein system from 349.76 m to 349.88 m.		(Contd.)
349.93	350.21	0.28		Interbanded dull coal/bright coal (75:25), brown lenticular mudstone laminae from 349.98 m - 350.03 m; minor kaolinite on cleat and carbonate veins. GBC.		
350.21	350.33	0.12		Carbonaceous mudstone; brown and grey lenticles, bands and pellets; brown shale (slickensided top dipping at 30°) in basal 4 cm.		
350.33	350.40	0.07		Dull coal/brown mudstone (25:75); interbanded. GBC.		D
350.40	350.45	0.05		Dull coal.		(main working
350.45	350.50	0.05		Mudstone, grey and brown-grey with minor carbonaceous intervals; minor disturbed bedding. BC dips at 2°.		section)
350.50	350.60	0.10		Heavy dull coal; minor brown clay-pellets and grey mudstone lenticles.		
350.60	350.80	0.20		Dull coal; minor cleat. GBC.		
350.80	351.27	0.47		Interbanded dull coal/bright coal (75:25), abundant cleat (kaolinite coated) and joints; minor mudstone lenticles and bands (dipping at 5°) from 351.07 m to 351.27 m.		
351.27	351.87	0.60	100	Carbonaceous mudstone, brown; grey bands and lenticles from 351.27 m to Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				351.33 m, 351.39 m to 351.43 m, from 351.44 m to 351.46 m (microfaulted), from 351.51 m to 351.52 m, from 351.56 m to 351.57 m, from 351.58 m to 351.59 m and from 351.71 m to 351.72 m; dull coal from 351.61 m to 351.87 m.		D (main working section) (Contd.?)
351.87	352.04	0.17	100	COAL SECTION: (Contd.) Mudstone, dark-grey; abundant bright-coal lenticles; disturbed bedding dips at 5°. GBC.		E (floor)
352.04	352.91	0.87		Interbanded dark-grey mudstone/grey mudstone (50:50); carbonaceous in part; minor coaly laminae dipping at up to 5°. GBC.		
				(BASE OF COAL SECTION)		
352.91	353.33	0.42		Mudstone, grey; minor slickensides; grades to siltstone with depth. GBC.		
353.33	353.85	0.52		Siltstone, grey; minor light-grey sandy bands and laminae. GBC.		
353.85	357.44	3.59		FMLSS/MLSS/FLSS (30:20:50), interbedded; abundant carbonaceous laminae (minor festoon cross-bedding dipping at up to 5°); minor siltstone intervals. GBC.		
357.44	372.58	15.14		MLSS, grey-white; minor coaly debris occasionally; bedding dips at up to 10°; minor mudstone from 365.35 m to 365.65 m. Undulose BC.		
372.58	377.74	5.16		Mudstone, grey; silty in part; shaly; disturbed bedding (dipping at 45° with minor slickensides) from 372.58 m to 373.08 m; sandy at 374.6 m; minor slickenside zones and distorted carbonaceous laminae with bedding dipping at up to 5° and minor laminite from 374.65 m to 377.74 m. GBC.		
377.74	377.90	0.16	100	COAL SECTION: (not sampled) Mudstone, dark-grey; abundant cone-in-cone slickensides; lenticular, Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				disturbed bedding; minor brown and black plant-fossil debris. GBC.		
377.90	377.97	0.07	100	COAL SECTION: (not sampled) Heavy dull coal. BC dips at 2°.		
377.97	378.03	0.06		(Contd.) Shale, brown; abundant carbonaceous debris and brown, shiny (phlogopite (?)) flakes. Slickensided, microfaulted BC dips at 10°.		
378.03	378.20	0.17		Heavy dull coal; minor slickenside (30° dip) from 378.12 - .16 m; bedding dips at 2°; minor grey mudstone lenticles and pellets from 378.13 - .17 m. GBC dips at 5°.		
378.20	378.24	0.04		Mudstone, grey-blue; abundant carbonaceous flecks.		
378.24	378.33	0.09		Dull coal; minor bright laminae; grades to brown-black shaly carbonaceous mudstone with depth; minor brown clay-pellets and bedding dipping at up to 5°. BC dips at 2°.		(Contd.)
378.33	378.36	0.03		Shale; cream-yellow-grey. BC dips at 5°.		
378.36	378.41	0.05		Dull coal; yellow-grey shale band at 378.37 m; sparse bright laminae. BC dips at 5°.		
378.41	378.43	0.02		Shale, grey-brown; minor carbonaceous laminae towards base.		
378.43	378.48	0.05		Dull coal; minor bright laminae. GBC dips at 2°.		
378.48	378.58	0.10	100	Mudstone, grey; shaly; abundant slickensides and coaly flecks. Flame-structures on BC from 378.57 m Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				to 378.59 m. BC dips at 5°.		
378.58	378.60	0.02	100	COAL SECTION: (not sampled) (Contd.) Laminite, dull coal/bright coal (50:50); ripply bedding dipping at 2°; abundant mudstone lenticles. GBC.		(Contd.)
378.60	378.70	0.10		Dull coal; minor sub-vertically-dipping kaolinite veins; minor carbonaceous mudstone; bright coal bands from 378.62 - .64 m and at 378.67 m (dipping at 10°). BC dips at 2°.		
				(BASE OF COAL SECTION)		
378.70	381.77	3.07		Mudstone, grey; silty; minor slickensides; sandy in part; abundant coaly laminae and slickensides with disturbed bedding from 378.96 m to 379.25 m; wispy carbonaceous laminae (with dull coal band at base) from 379.44 m to 379.65 m; minor laminae and banding from 380.23 m to 381.77 m; abundant wispy carbonaceous laminae (dipping at up to 5°) from 380.88 m to 381.10 m; dull coal from 381.1 m to 381.13 m; brown shale from 381.67 m to 381.74 m; bright coal from 381.74 m to 381.79 m. GBC.		
381.77	383.38	1.61		FLSS, light-grey; abundant carbonaceous bands and laminae (festoon cross-bedded in part and dipping at up to 10°); abundant sub-vertically-dipping jointing; minor FMLSS intervals; silty. GBC.		
383.38	384.46	1.08		Siltstone, light-grey to grey; grades with depth to mudstone; minor light-grey sandy bands and laminae (faint cross-bedding in part). BC dips at 2°.		
384.46	384.59	0.13		COAL SECTION: Heavy dull coal; shaly from 384.49 - .52 m; minor carbonaceous mudstone from 384.56 - .59 m; minor bright laminae. GBC.		
384.59	385.74	1.15	100	Dull coal; abundant bright bands and laminae Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				well-developed cleat and joints (45° to sub-vertical dip - results in broken core); minor kaolinite on cleat (bright coal); dark-grey lenticular mudstone bands from 385.18 - .19 m; white-pink claystone bands (dipping at 2°) from 385.39 - .4 m and from 385.56 m to 385.57 m.		(Contd.)
385.74	385.94	0.20	100	COAL SECTION: (Contd.) Laminite, dull coal/carbonaceous mudstone/bright coal (50:40:10); abundant slickensides and disturbed, irregular, lenticular bedding; abundant kaolinite (?) on slickenside surfaces; minor brown-grey mudstone laminae. GBC.		
				(BASE OF COAL SECTION)		
385.94	386.04	0.10		Mudstone, dark-grey; abundant coaly laminae and clay-pellet shards. GBC.		
386.04	386.44	0.40		Mudstone, grey; minor slickensides, carbonaceous flecks, coaly debris; silty towards base.		
386.44	398.55	12.11		FMLSS, grey-white; silty FLSS from 388.55 m to 388.76 m; minor carbonaceous laminae and bedding dipping at up to 5°; grey siltstone and mudstone shards, bands and intervals from 386.54 m to 386.99 m; predominantly MLSS from 390.8 m to 398.55 m with minor siltstone cobble intervals and coaly debris. BC dips at 10°.		
398.55	399.52	0.63		FLSS, grey-white; minor carbonaceous laminae from 399.34 - .52 m. BC dips at 5°.		
399.52	401.23	1.71		MLSS, grey-white; grades to FMLSS with depth. BC dips at 2°.		
401.23	401.70	0.47	100	COAL SECTION: Dull coal; grey mudstone from 401.34 - .35 m; broken core (well-developed cleat); well-developed Continued over		

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS									

FROM metres	TO metres	RECOVERY metres	RECOVERY %	DESCRIPTION	SECTION Core	SECTION Sample
				sub-vertical joint through centre of the core. GBC.		
401.70	401.77	0.07	100	COAL SECTION: (Contd.) Interbanded carbonaceous mudstone/brown shale/grey mudstone (40:20:40); 5°-dip bands. BC dips at 5°.		
401.77	402.11	0.34		Dull coal; well-developed sub-vertical joints (minor kaolinite coating).		
402.11	402.12	0.01		Brown claystone; predominantly 1 mm-diameter clay pellets. Bedding dips at 2°.		
402.12	402.22	0.10		Dull coal; minor bright laminae and bands.		
402.22	402.26	0.04		Heavy dull coal.		
402.26	402.35	0.09		Dull coal with minor bright laminae dipping at up to 5°.(Contorted, irregular BC dips at 10°).		
				(BASE OF COAL SECTION)		
402.35	402.57	0.22		Siltstone, brown-grey; shaly; clayey; swells when wet.		
402.57	421.88	19.31		FMLSS, grey-white; massive bedding; sparse carbonaceous laminae; minor FLSS and MLSS intervals from 402.57 m to 406.97 m; predominantly MLSS from 406.97 m; minor coaly debris from 408.7 m to 408.9 m and from 413.7 m to 414.55 m (carbonate matrix and abundant grey siltstone and mudstone cobbles); minor coaly debris and carbonaceous laminae from 415.06 m to 421.88 m; bedding dips at up to 10° from 419.45 m to 420 m; CLSS from 420.5 m to 420.8 m; carbonate matrix from 420.8 m to 421.88 m. BC dips at 2°.		
421.88	423.23	1.35	100	FLSS, grey; abundant light-grey silty and sandy bands; minor festoon cross-bedding; minor plant-fossil debris on the bedding plane. GBC.		

Continued over

ASSAY DATA

SAMPLE No.	FROM metres	TO metres	RECOVERY metres	RECOVERY %	ASSAY RESULTS