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CAPRICORN MINING LIMITED

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Capricorn Mining Limited
17-23 Queensbridge Street
SOUTH MELBOURNE
Victoria. 3205

REPORT: CAP 704/20

OPEN FILE

TASMANIAN COAL PROSPECTS

SIX-MONTHLY

PROGRESS REPORT

17th APRIL TO 16th OCTOBER, 1981

for

CAPRICORN MINING LIMITED

by

GENERAL GEOLOGICAL SERVICES

Work Order: CAP 704

December, 1981

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CAPRICORN MINING LIMITED

TASMANIAN COAL PROSPECTS

SIX-MONTHLY

PROGRESS REPORT

17th APRIL TO 16th OCTOBER, 1981

VOLUME I - REPORT

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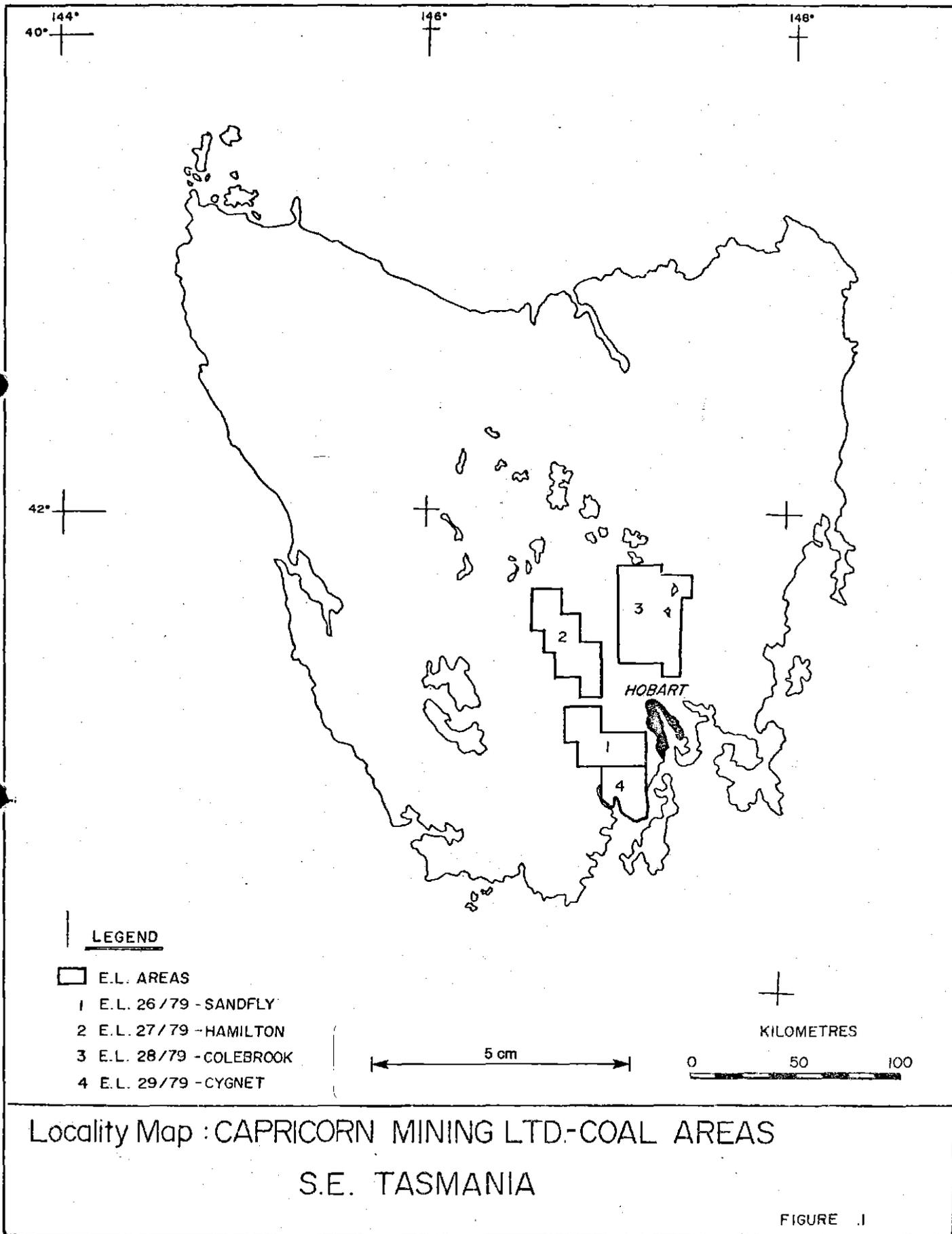
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SUMMARY

During the period from 17th April to 16th October 1981, a scout-drilling programme was carried out by General Geological Services on behalf of Capricorn Mining Limited as the culmination of a regional geological appraisal of the coal resources of four exploration licences in southern Tasmania (E.L.s 26/79, 27/79, 28/79 & 29/79). The drilling had commenced in the previous six-monthly period and, after twenty-seven rotary drillholes had been completed, heavy rain and resulting poor ground conditions necessitated suspension of the programme in early June.

The target formations are in the upper Parmeener Super-Group succession and embrace equivalents of the Cygnet Coal Measures (Late Permian) and the Kaoota Coal Measures (Middle to Late Triassic). Within this stratigraphic framework, drilling was directed towards two objectives: evaluation of coalfields centred around old collieries, and regional search for new prospective areas.

A total of 1,666 metres were drilled, of which 1,036 metres were cored; a core recovery of about 78% was achieved in the coal seams and 95% through the non-coal clastics. Significant coal seams (2 m to 3 m thick) were intersected in drillholes at Kaoota, Lawrenny and York Plains, and suggest substantial exploration potential in these areas. Details of continuity, splitting and lensing of seams have not been fully established yet and further drilling will be required before the geometry of the deposits can be determined and the reserves estimated. Increased slickensiding in the cores cannot be consistently correlated with the presence of nearby fault zones or with seam displacement.

A suite of geophysical logs were obtained and holes were lithologically logged and then sampled for coal analysis on both an individual ply and full seam basis. Results show that qualities are comparable with other Tasmanian coal, having relatively high ash, low sulphur and variable volatile matter. Direct effects of dolerite intrusion on coal properties are indicated in places, but cannot be proved. An attempt is made to identify coal seams on radioactivity profiles by means of density response.

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Stratigraphic units are provisionally identified from examination of lithologic logs of the drillhole sections. Rhythmic deposition of sediments is recognized in the Triassic coal measure sequences. Previous interpretations of Tasmanian coal deposition in fluvial environments in fluctuating coal regimes are elaborated (with the suggestion that upper deltaic plain tracts are involved) and compared to interpretations invoking low moor and plateau mires within the south polar permafrost zone. There are insufficient drillhole sections through the Permian coal measures for meaningful interpretation.

A pilot computer modelling exercise on drillhole data from the York Plains area resulted in the production of graphic displays of logs and sections and is believed to offer an efficient way of handling sub-surface data for future operations. Palynological examination of samples confirmed the commonly barren nature of Tasmanian Triassic sediments, probably resulting from heating effects of the Jurassic dolerite sills.

One exploration licence area (E.L. 29/79) and the western part of another (E.L. 26/79) have been nominated for relinquishment and final reports are in preparation.

Total expenditure by Capricorn Mining Limited on the project to date amounts to \$387,000, of which \$187,000 represents expenditure during the six-monthly period ending 16th October, 1981.

The report is largely a compilation of information deriving from office studies and field operations. Interpretations are mostly tentative and coal evaluation (including distribution, quality and reserves) is in general inconclusive owing to the sparseness of drillhole cover at this stage of the exploration programme.

The report is submitted in two volumes: the first contains 126 text pages including 27 tables, 5 figures, 4 data sheets and 6 appendices; the second has 3 sets of enclosures with 4 geological plans, 25 geophysical logs and 2 computer graphic displays.

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TASMANIAN COAL PROSPECTS

SIX-MONTHLY

PROGRESS REPORT

17th APRIL TO 16th OCTOBER, 1981

1. INTRODUCTION

1.1 Scope of Report

This progress report by General Geological Services, prepared on behalf of Capricorn Mining Limited, contains a record of all field investigations and data studies relating to the coal resources of four Tasmanian exploration licence areas (26/79, 27/79, 28/79 and 29/79) which have been undertaken since the last progress report was made in February 1981.

It deals with the activities of the company during a work programme originally proposed in 1979, and it is essentially a record of the last phase of a regional geological appraisal carried out in three parts as follows.

<u>Stage</u>	<u>Work Programme</u>
1	REGIONAL GEOLOGICAL APPRAISAL
Part A.	Preliminary reconnaissance
Part B.	Detailed geological mapping and sampling
Part C.	Geophysical and scout-drilling programmes

The report also includes preliminary assessment of the potential of each licence area for coal exploration.

A number of reports dealing with the Capricorn Licence areas have already been submitted to the Tasmanian Department of Mines and all the earlier data relevant to this progress report is presented again.

1.2 Project Objectives

The main objective of the regional appraisal (i.e. Stages 1A, 1B and 1C) was to provide reliable assessments of the following set of parameters governing the existence of economic coal deposits in the licence areas.

- (i) Variation in thickness and persistence in distribution of coal seams, with specific data on splittings and coalescence, lensing and pinchout, interbeds and partings.

- (ii) Chemical and physical properties of the coal in outcrop and drillhole samples.
- (iii) Attitude and dislocation of coal seams in terms of mean dips and degree of faulting and fracturing.
- (iv) Maximum and minimum of in-situ tonnages of coal reserves and estimates of opencast and underground tonnages.
- (v) Range of overburden thicknesses and ratios, with indication of oxidation depths due to weathering and cindering due to sill intrusion.
- (vi) Miscellaneous information on groundwater, topographic relief, land utilization, etc..

Another objective of the Stage 1 programme was to establish simple models for the depositional environments of the coal units in order to assist in understanding the existing distribution pattern of the deposits and to support predictions of new occurrences.

Ultimate aims of the first stage of the project were to selectively delineate areas with favourable prospects for further investigation and to nominate unfavourable areas for immediate relinquishment.

1.3

Tenement Details

Summaries of the original applications and subsequent issues of exploration licences are set out below, (Tables 2 and 3).

1.3.1

Licence application

Application	:	Capricorn Mining Ltd.
Address	:	17-23 Queensbridge Street, South Melbourne, Victoria, 3205
Minerals Sought	:	Coal (including Peat and Shale) only
Proposed programme	:	Regional Geological Appraisal
Marked out	:	10th July, 1979
Date Applied	:	14th September, 1979

Initial application data is presented in Table 1.

Table 1: Initial Application Data

Application	Area No.	Locality	Datum (grid co-ord)	Area (approx km ²)	Term (month)	Expenditure (proposed)
A	1	Sandfly	499,000mE 5,261,000mN	825	6	\$15,000
B	2	Hamilton	489,000mE 5,274,000mN	870	6	\$15,000
C	3	Colebrook	509,000mE 5,280,000mN	1,561	6	\$15,000
D	4	Cygnets	520,000mE 5,230,000mN	360	6	\$15,000
				3,616		\$60,000

Locations of licence areas are shown in Figure 1.

1.3.2 Licence issue

The Minister for Mines granted the exploration licence 26/79 (Area 1) in February 1980, and exploration licences 27/79 (Area 2), 28/79 (Area 3), and 29/79 (Area 4) on 21st April 1980. All these exploration licences were issued for a six-month term. The requested areas and datum points (Table 2) were accepted without modification.

Table 2: Licence Details

E.L.	Land District	Vicinity	Granted
26/79	Buckingham	Sandfly	-/2/80
27/79	Cumberland, Monmouth & Buckingham	Hamilton	21/4/80
28/79	Monmouth & Somerset	Colebrook	21/4/80
29/79	Buckingham	Cygnets	21/4/80

Detailed survey schedules for each licence area are listed in Section 7.3. The grid references are taken from the Tasmanian Land Department 1:100 000 topographic map series. The precise locations and dimensions of the four licence areas are shown on Figures 2a to 2d.

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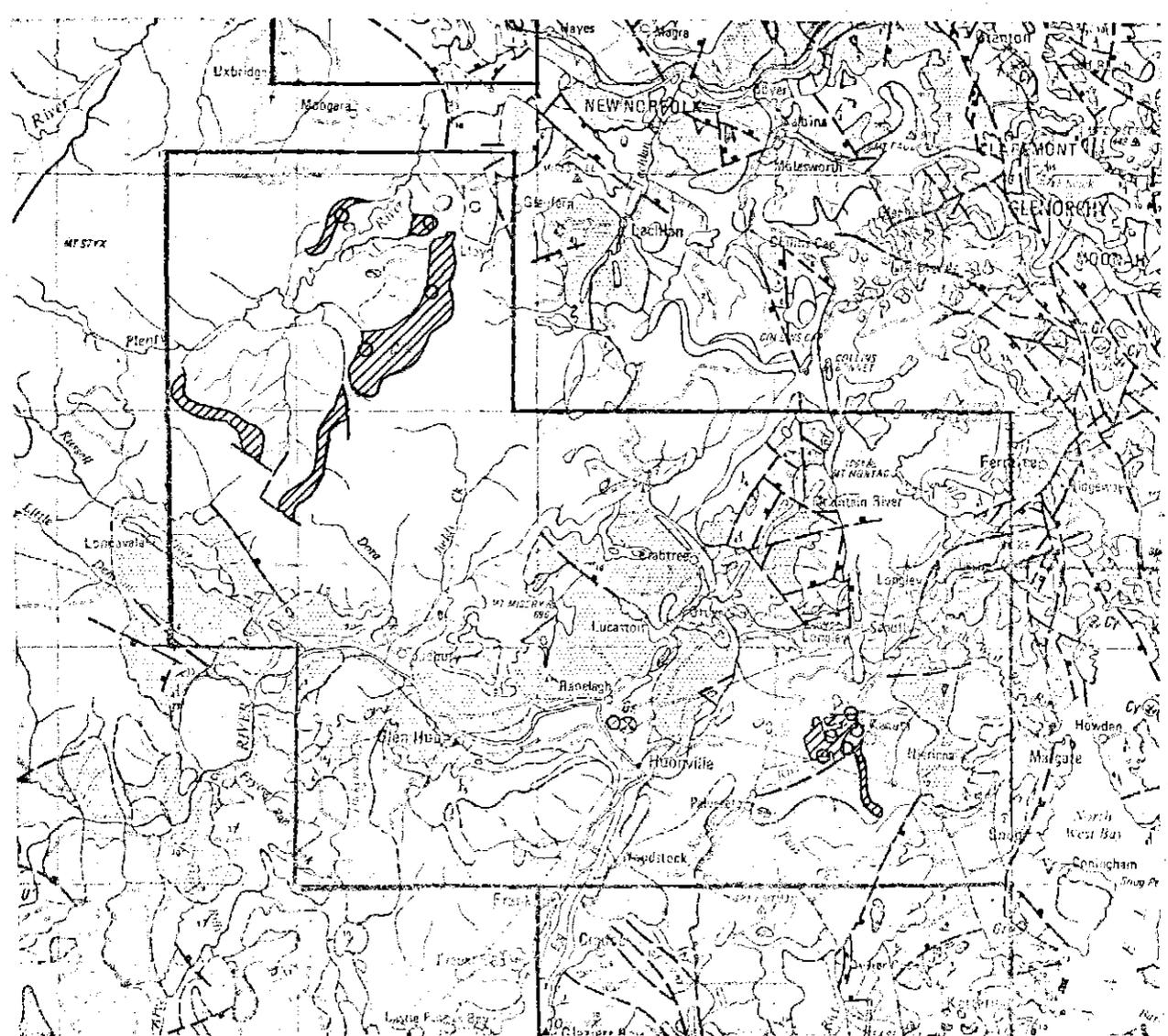
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CAPRICORN MINING LTD.

FIGURE 2a

LEGEND

-  E.L. AREA 26179
-  TRIASSIC COAL FORMATION
-  PROPOSED DRILLHOLE SITE



5 cm

LOCATION PLAN. E.L. AREA 1 SANDFLY TASMANIA

SCALE 1:250,000

CAPRICORN MINING LTD.

FIGURE 2b

LEGEND



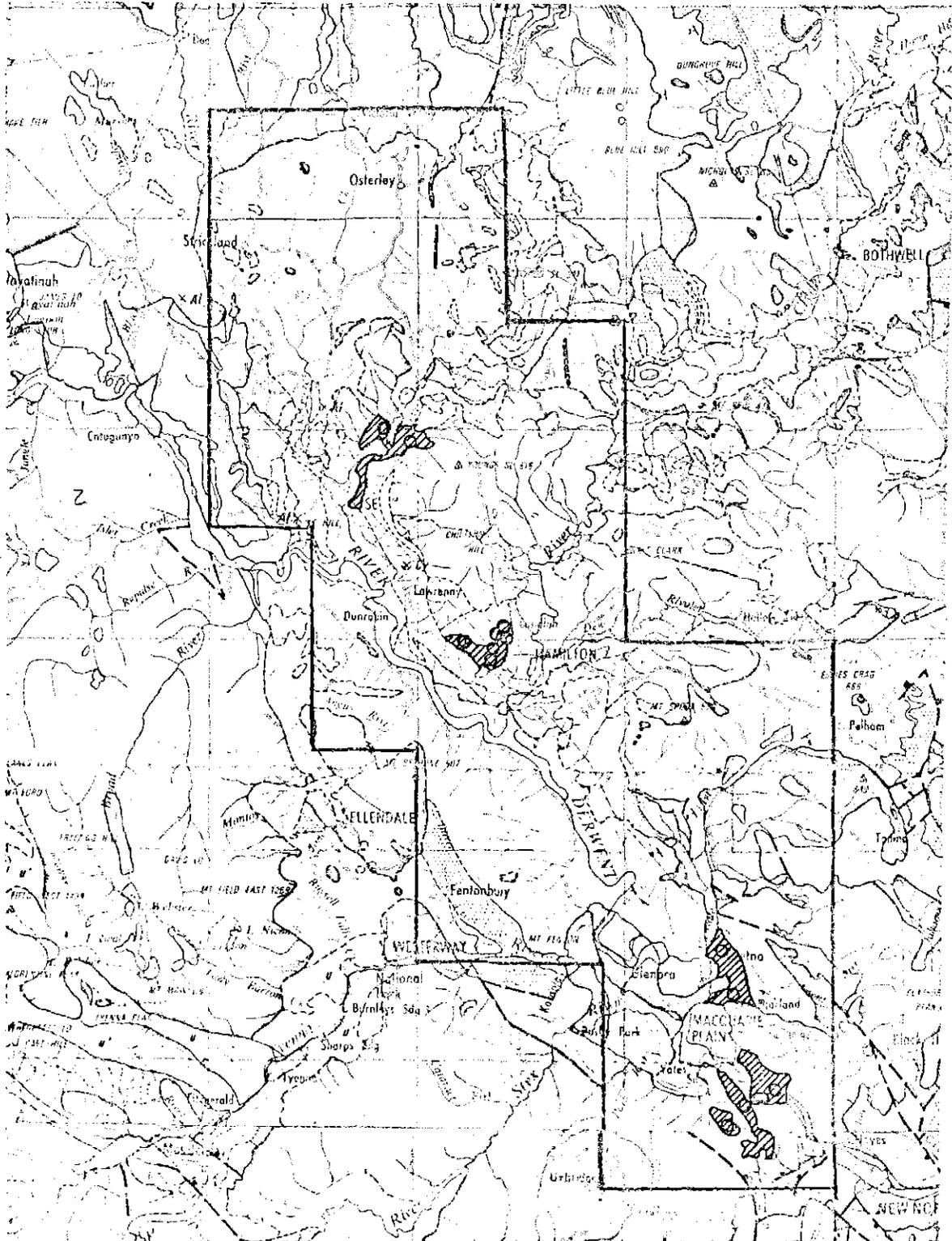
E.L. AREA 27/79



TRIASSIC COAL FORMATION



PROPOSED DRILLHOLE SITE



LOCATION PLAN. E.L. AREA 2 HAMILTON TASMANIA

5 cm

SCALE 1:250,000

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CAPRICORN MINING LTD.
FIGURE 2c

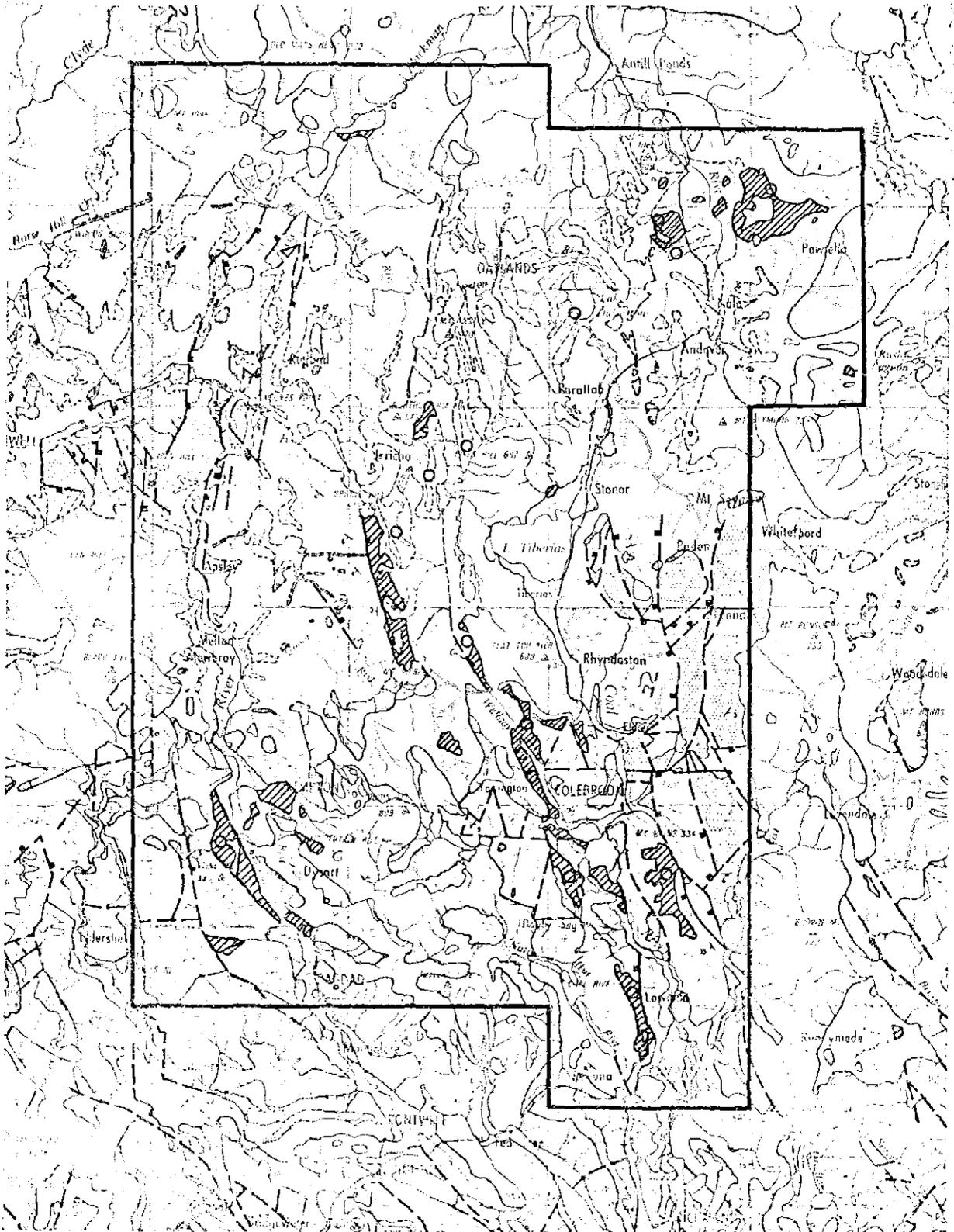
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LEGEND

 E.L. AREA 28/79

 TRIASSIC COAL FORMATION

 PROPOSED DRILLHOLE SITE



LOCATION PLAN. E.L. AREA 3
COLEBROOK TASMANIA

5 cm

SCALE 1:250,000

CAPRICORN MINING LTD.

FIGURE 2d

LEGEND



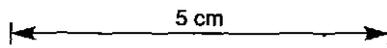
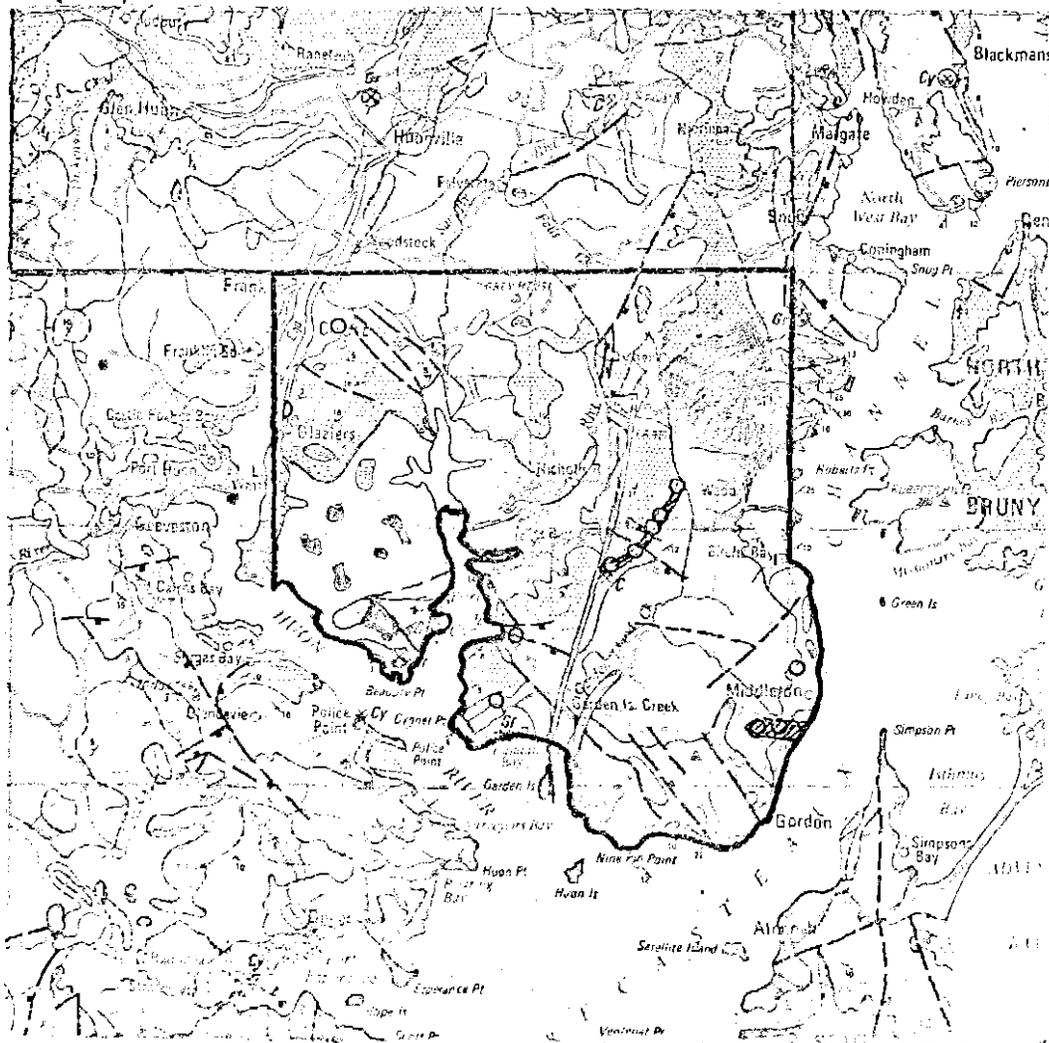
E.L. AREA 29/79



PERMIAN AND TRIASSIC COAL FORMATION



PROPOSED DRILLHOLE SITE



LOCATION PLAN. E.L. AREA 4 CYGNET TASMANIA

SCALE 1:250,000

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Reporting schedules required by the Department of Mines include:

- (i) statement of expenditure at end of each calendar month from date of licences,
- (ii) progress report of operations each month,
- (iii) complete records of all investigations undertaken during the term of the licences, and
- (iv) all information on any part of a licence area surrendered upon relinquishment.

1.3.3 Licence renewal

All licences were extended without change in November 1980 for six months from the first renewal date to 16th April 1981, and again in May 1981 for six months from the second renewal date to 16th October 1981. No areas were relinquished at the end of the first or second renewal periods.

Table 3: Licence Dates

<u>E.L.</u>	<u>Granted</u>	<u>Expired</u>	<u>Extended</u>	<u>Expired</u>	<u>Extended</u>	<u>Expired</u>
26/79	-/2/80	16/10/80	13/11/80	16/4/81	5/5/81	16/10/81
27/79	21/4/80	16/10/80	13/11/80	16/4/81	5/5/81	16/10/81
28/79	21/4/80	16/10/80	13/11/80	16/4/81	7/5/81	16/10/81
29/79	21/4/80	16/10/80	13/11/80	16/4/80	7/5/81	16/10/81

1.4 Location and Access

A summary of the main physical and cultural features of each licence area, with reference to the major known coalfields and collieries, are given below.

1.4.1 Area 1 (E.L. 26/79) - Sandfly/Kaoota coalfield

Location: The Sandfly/Kaoota coal mine area is located between Grey Mountain (elevation 831m) which is 8.5 km south-south-west and the Wellington Range (Mt. Wellington 1,270m) which is 15 km north-north-west. Distance from Margate to sea is 8.5 km east and 9.0 km west to the tidal estuary at Huonville.

Topography: Extremely rugged, comparatively youthful topography with elevations from 350 m to 575 m and slopes reaching 1 in 2.5. The highest hills and ridges have hard rock cappings formed by dolerite sills. The mine area is on a south-eastern spur of the Herringback - a mountain of elevation 660 m. The high ground is lightly forested with regrowth; the low ground is cleared for grazing and cultivation.

Drainage: Kaoota is situated on the divide between the southwesterly flowing streams to the Huon River estuary and easterly towards the D'Entrecasteaux Channel south of the Derwent River estuary. Streams are mountain torrents incised into the coal measure sequence. Main streams are the North West Bay River and Kellaways Creek (=Mountain River). No natural lakes occur, but there is a small artificial water storage on the headwater of the Allen's Rivulet 4 km east of the mine area.

Access: The Sandfly coal area is situated at Kaoota (not at Sandfly which is 5 km by road from Kaoota). Sandfly is at one end of the newly constructed freeway to Hobart (23 km), or via Kingston (26 km). An alternative route via the Huon Highway to Hobart (25.5 km) contains many sharp bends.

Services: Kaoota is midway between the main south-west power transmission line (3.5 km away) from Hobart to Huonville and the connecting line (1.5 km away) from Huonville to Electrona on the east coast.

Towns: Major population and industrial centres are at Hobart, Kingston, Margate, Snug, Huonville and Cygnet.

Ports: Small harbours are present at Kettering, Snug, Margate, Kingston and Cygnet. Deep water facilities are available at Hobart.

Weather: Annual rainfall at Cygnet is 890 mm. Average mean temperatures for the Huon Valley range from 16.6 to 5.5 degrees celsius. Frosts occur any time between April and November, but snow is uncommon except on Grey Mountain and Wellington Range and some higher ridges.

1.4.2 Area 2 (E.L. 27/79) - Lawrenny/Langloh coalfield

Location: The Lawrenny Coal Mine area is located 4 km north of the Derwent River midway between Lawrenny and Hamilton.

Topography: The area is one of low relief with undulating hills and broad relatively mature stream valleys. Slopes in the mine area are Jurassic dolerite in the form of massive sills, and to the north Tertiary scoreaceous and vesicular basalt caps the sandstones of the Permo-Triassic sediments. Elevations range from 120 to 320 m. The land has been cleared for grazing.

Drainage: Langloh is situated on the west bank of the small Ellangowan Creek which joins the Clyde River 2 km to the east, a tributary of the Derwent River. These rivers are dammed 4 km downstream from their junction to form the narrow Meadowbank Lake - a considerable reservoir some 15 km long.

Access: The Lawrenny Coal Mine area is situated at Langloh which is by road 6 km from Hamilton, 30 km from the Macquarie Plains railway siding, and 76 km from Hobart via the Lyell Highway.

Services: The Lawrenny Coal Mine area is 1 km from the main north-west power transmission line between Hobart and to the west coast. It is 15 km from the Derwent Valley railway line at Westerway and 3 km from the Meadowbank Lake reservoir.

Towns: Main population centres are at Hobart, New Norfolk, Hamilton, Ouse, and the Macquarie Plains area.

Ports: Nearest deep water facilities are at Hobart, though shallow draft vessels can reach New Norfolk on the Derwent River (42 km by road from Langloh).

Weather: Rainfall is relatively low; mean annual rainfall at Bushy Park is 580 mm. Temperatures in the Derwent Valley range from 17.0 to 5.9 degrees celsius.

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1.4.3 Area 3 (E.L. 28/79) - Colebrook/York Plains coalfields

Location: The Colebrook coal mine area is located 1 km north-west of the Colebrook township which is about 30 km north of Richmond. The York Plains coalfield covers an area to the north-east of Oatlands.

Topography: Both areas are of relatively low relief and the potential mine areas are across river flats between low hills.

Drainage: Colebrook is situated on the Wallaby Rivulet, a western tributary of the Coal River which flows southwards into Pitt Water below Richmond. York Plains straddles the Tin Dish Rivulet, an upper tributary of the Macquarie River which flows northwards via the Lake and South Esk Rivers to the Tamar River estuary at Launceston.

Access: The Colebrook area is close to Colebrook Station on the main rail line from Hobart to Launceston and is about 60 km from Hobart by both rail and sealed road. York Plains is about 40 km further north on the same railway and some 5 km east by dirt road from the Midland Highway and 10 km from Oatlands.

Services: The Colebrook and York Plains areas are served by normal local power lines and are close to town water supplies.

Towns: Main population and industrial centres are Hobart and the out-lying towns of Campara and Kempton, and Oatlands and Tunbridge in the midlands.

Ports: Deep water facilities are present at Hobart, with smaller harbours available at Bridgewater and Sorell. The coast to the east at Little Swanport is separated by rugged terrain.

Weather: Average annual rainfall at Oatlands is 570 mm; temperature range is 17.8 to 7.6 degrees celsius.

1.4.4 Area 4 (E.L. 29/79) - Mount Cygnet/Gordon coalfields

Location: The Mount Cygnet mining area is situated on the northern flank of Mount Cygnet (elevation 560m) and western flank of Heaney's Bluff (elevation 440m). Cygnet is from 10 to 15 km to the west. The Gordon coal area lies on the western shore of the D'Entrecasteaux Channel about 2 km south of Middleton.

Topography: The Mount Cygnet coal belt runs along steep rugged slopes with the highest ridges capped by dolerite. The Gordon area covers a small undulating coastal strip with surrounding low hills.

Drainage: Mount Cygnet and Heeneys Bluff are drained by tributaries of Gardners Creek which enters the Huon River estuary at Gardners Island Bay. The Gordon area is drained by the McKay Rivulet and other short streams.

Access: The Mount Cygnet coalfield is located south of the Woodbridge Hill Road south-west of Woodbridge (5 to 10 km) which is on the Channel Highway south of Hobart (42 km). The Gordon coal area is on the same highway south of Woodbridge (12 km).

Services: The Mount Cygnet and Gordon areas are serviced by local power lines. Water supplies at both locations are from nearby creeks.

Towns: Main settlements are Cygnet, Gardners Bay, Woodbridge, Middleborough and Gordon.

Ports: Many small harbour facilities exist around coastline including Cygnet and Kettering.

Weather: Average rainfall in the area is 910 mm; temperatures range from 16.6 to 5.3 degrees celsius.

2. PREVIOUS INVESTIGATIONS

The earliest discoveries of coal in Tasmania were made in the south-eastern part of the State. In 1824, J. Hobbs found coal seams in the cliff overlooking the sea at South Cape. Some years later these deposits were explored by the Imperial Government with convict labour, as were also the Recherche Bay seams found in 1834. Strzelecki visited Colebrook in 1834 and mentioned the discovery of coal by convicts at the site of the last operating mine. He also referred to the occurrence of the coal at several places around Hobart.

The first important development in the coal mining industry in Tasmania was the re-opening of the Colebrook mine in 1879. During the next twenty years a large quantity of steaming coal was sold to the Railways Department.

The large Cornwall and Fingal deposits were not discovered until 1886 but soon became the dominant coalfields of Tasmania, causing industrial interest to move from the south-eastern fields to the central north of the State.

Information dealing with the development of the early mines is meagre, and it was not until 1922 that the Tasmanian Department of Mines prepared a comprehensive report on the coal resources of the State. This report gives detailed accounts of the operation and production of the mines in the south-eastern region up until that time, including those now included in the Capricorn Mining exploration licence areas.

During the 1940's and up until 1972, small mines were spasmodically operated in the south-eastern region and produced supplies of relatively high quality steaming coal for use in local industries in Hobart. These mines gradually closed down as a result of change to cheaper hydro-electric power and because of the relatively depressed price of coal. The areas held by Capricorn Mining have remained virtually unexplored, except for coal geology studies and associated stratigraphic drilling carried out by the Department of Mines over the last twenty years.

2.1 Area 1 - (E.L. 26/79) - Sandfly

The first official report on coal prospects in the Sandfly area was prepared by Thureau (1881). Montgomery (1893) presented a report on the economics of the Sandfly Coal Mine which includes outcrop descriptions, drillhole logs and sample analyses. Montgomery concluded that the mine could be worked profitably. Twelvetrees (1903) reported on the Sandfly Coal Mines, and during the next fifteen years the main upper seams were mined and the coal railed to Margate and then shipped to Hobart. However, mining and marketing operations were not successful in the long term (Hills et al, 1922), and activity almost ceased from 1919 to 1937. Small-scale mining was carried on continuously through to 1971.

2.2 Area 2 - (E.L. 27/79) - Hamilton

Thureau (1883) reported on the Hamilton and Ouse coal deposits and briefly discussed the general relationships and the quality of the various coal beds. The Lawrenny (Langloh-Kimbolten) coalfield to the north of Hamilton was regarded by Montgomery (1894) as possessing the greatest potential following a detailed field survey.

Hills et al (1922) outlined the geology of the Lawrenny area and detailed the seam thickness and quality on the Lawrenny Coal Mine. A six-hole drilling programme was suggested by Carey (1946) to test the potential coal area near Ouse, but the work was never commenced.

2.3 Area 3 - (E.L. 28/79) - Colebrook

Early exploration in the Colebrook and York Plains districts was reported by Strzelecki (1845), Milligan (1849), Gould (1869) and Johnston (1888). A government report (1891-92), recording the results of a drillhole and a shaft at Colebrook, led to the Tasman Coal Mine producing from 1910 to 1919 and briefly in 1921. The Jerusalem Coal Mine was worked from 1843 until about 1849 and again from 1879 to 1890.

A small coalfield was predicted by Twelvetrees (c. 1900) at Mike Howe's Marsh on the basis of coal outcrops and test pits and reported by Hills et al (1922).

2.4

Area 4 - (E.L. 29/79) - Cygnet

Thureau (1881) reported on coal deposits in the Mount Cygnet area during the early development stage of the Mount Cygnet Mine. Coal was railed to Gardner's Bay and then shipped to Hobart.

Twelvetrees (1902) described the two main coal beds at Mount Cygnet Mine in the inclined adit, of which only the upper seam was extensively mined.

Hills et al (1922) recorded the earlier mining undertaken in the area. The main coal seam at the Mount Cygnet Mine was opened as trenches and as dip and strike tunnels at widely separated points along the outcrop. Intermittent extraction between 1881 and 1922 produced 70,000 tonnes.

Coal at the Heaney's Mine was worked along two strike tunnels for a production of 2,000 tonnes prior to 1902. The seams continue north-westward of Heaney's Mine onto Berry's property, where the upper seam was worked.

The upper Cygnet seam outcrops on the coastline near Gordon. A test tunnel and shafts were sunk around 1878. The shafts were abandoned at depths too shallow to intersect the coal.

3. PLANNED EXPLORATION3.1 Prospect Selection

The four exploration licence areas were selected on the basis of a data search and literature review which indicated that a number of known coalfields with disused collieries existed within 85 km of Hobart. Previous estimates of coal reserves and seam thicknesses are given in Table 4 below:

Table 4: Southern Tasmania Coalfields -
Estimated Reserves and Seam Occurrences

Exploration Licence	Prospect Area	Coalfield	Reserves (million tonnes)		No.	Seams Agg. thick (m)
			(1)	(2)		
26/79	Sandfly	Kaoota/Sandfly Mt. Lloyd	16.2	21.5	6-8	5.2
			-	1.0	3	2.9
27/79	Hamilton	Macquarie Plains	-	0.4	1	0.4
		Lawrenny	14.1	16.8	4-6	3.0-5.2
		Plenty	0.4	0.4	1	0.5
28/79	Colebrook	Colebrook	3.6	5.1	2	1.4
		Mike Howes Plain	2.7	2.7	1	1.1
		York Plains	0.2	0.2	2	2.1
		Kempton	-	0.2	1	0.5
29/79	Cygnet	Mt. Cygnet	0.4	0.9	2-4	1.2
		Gordon	-	0.2	1	0.5

(1) Hills et al (1922)

(2) General Geological Services (1980)

The prospective areas were delineated by reference to published geological sheets which show the map units with coal exploration potential (Table 5).

Table 5: Prospective Lithological Units

Geological Sheet (& Scale)	Age	Map Unit (Parmeener Super-Group)
(1:250 000) Oatlands Hobart	M. Triassic	Fluvio-lacustrine carbonaceous sequence
	U. Permian	Fresh-water sequence with some coal measures
	M. Permian	Fresh-water sequence with some coal measures
(1:50 000) Oatlands Brighton Hobart Kingborough	?U. Triassic	Lithic arkose and lutite with coal measures (Kaoota & New Town Coal Measures)
	U. Permian	Fresh-water feldspathic sandstone with rare coal seams (Cygnet Coal Measures)
	M. Permian	Non-marine sediments with occasional wood fragments (Faulkner Group)

3.2 Project Stages

As set out in the exploration licences (Report 704/1, September 1979) and reiterated in later reports and specifications (Report 704/2, October 1979 and Report 704/3, December 1979), the exploration project was originally planned in four stages as summarized in Table 6.

Table 6: Project Summary

Stage	Work Programme	Estimated Time	Estimated Expenditure
			<u>Year One</u>
<u>Stage 1</u>	<u>Regional Geological Appraisal</u>	12 months	\$ <u>120,000</u>
Part A	Preliminary reconnaissance	6 months	} \$ 42,000
Part B	Detailed geological mapping and sampling	6 months	
Part C	Geophysical Surveys & scout-drilling programmes	6 months	\$ 58,000
<u>Stage 2</u>	<u>Engineering & reverse economic studies</u>	6 months	\$ 20,000
			<u>Year Two</u>
<u>Stage 3</u>	<u>Detailed evaluation of coal deposits</u>	8 months	\$ <u>200,000</u>
Part A	Detailed drilling programme		
Part B	Sampling and assaying		
Part C	Final mapping		
<u>Stage 4</u>	<u>Feasibility Studies</u>	4 months	
			<u>Total Proposed Expenditure</u>
			\$ <u>320,000</u>

Details of the specific studies and operations carried out during each of the stages are given in the above-mentioned reports.

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3.3 Interim Reports

The first quarterly/interim report covered the period May to July 1980 (Report 704/8, "July" 1980 misdated). Apart from presenting an account of the operations performed to that date, it outlines the investigations planned for the next quarter. The report indicated that:

- (a) an integrated geological interpretation of all the data obtained from the preliminary phase (Stage 1A) of the regional imagery examination and field reconnaissance would be commenced. (See Section 5.1)
- (b) A generalised model for the depositional environment of the black coal in the Permian and Triassic Basins would be constructed and developed as the project progressed. (See Section 6).

The next quarterly progress report for August to October 1980 (Report 704/14, February 1981) again presents details of the operations performed to that date, and outlines the investigations planned for the next quarter.

Previous Capricorn Mining reports are listed in Table 7 below.

Table 7: Previous Capricorn Mining Reports

Stage	Report No.	Title (& Author)	Date
1 to 4	704/1	Report to Accompany Application for Exploration Licences (for coal only) in South Eastern Tasmania (by General Geological Services)	September 1979
1 to 4	704/2	Tasmanian Coal Exploration (by C. Glazebrook, General Geological Services)	October 1979
1A & B	704/3	Specification for Coal Exploration Programme (Parts 1 and 2) for Capricorn Mining Ltd. (by General Geological Services)	December 1979
1A & B	704/4 to 704/7 Apr/May	Monthly Reports on Exploration Work carried out on EL 26/79, 27/79, 28/79 and 29/79, during the month ending 31st May 1980, for Capricorn Mining Ltd. (by General Geological Services)	May 1980
1A & B	704/8	Tasmanian Coal Prospects Quarterly Interim Report for Capricorn Mining Ltd. (by General Geological Services)	(June 1980) July 1980
1A & B	704/9 to 704/12 May/June	Monthly Reports on Exploration Work carried out on EL 26/79, 27/79, 28/79 and 29/79, during the month ending 30th June 1980, for Capricorn Mining Ltd. (by General Geological Services)	July 1980
1A & B	704/13 to 704/16 June/July	Monthly Reports on Exploration Work carried out on EL 26/79, 27/79, 28/79 and 29/79, during the month ending 31st July 1980, for Capricorn Mining Ltd. (by General Geological Services)	August 1980
1A & B & C	July/Aug.	Monthly Reports on EL 26/79, 27/79, 28/79 and 29/79 for August 1980 (by General Geological Services)	September 1980
1A & B	704/17	Capricorn Mining Limited Tasmanian Coal Prospects (submitted to the Commercial Bureau [Aust.] Pty. Ltd., Melbourne and Moscow, by General Geological Services on behalf of Capricorn Mining Ltd)	September 1980
1B & C	Aug/Sept.	Monthly Reports on EL 26/79, 27/79, 28/79 and 29/79 for September 1980 (by General Geological Services)	October 1980
1B & C	Sept/Oct.	Monthly Reports on EL 26/79, 27/79, 28/79 and 29/79 for October 1980 (by General Geological Services)	November 1980
1C	704/18	Capricorn Mining Limited - Technical Specifications for Drilling of Coal Exploration Holes in Southern Tasmania (by General Geological Services)	December 1980

Stage	Report No.	Title (& Author)	Date
1B & C	Oct/Nov.	Monthly Reports on EL 26/79, 27/79, 28/79 and 29/79 for November 1980, (by General Geological Services)	December 1980
1C	Nov/Dec.	Monthly Reports on EL 26/79, 27/79, 28/79 and 29/79 for December 1980 (by General Geological Services)	January 1981
1A & B & C	704/19	Final Report of Southeastern Tasmanian Coal Prospects for Capricorn Mining Limited (by General Geological Services)	February 1981
1C	Dec/Jan.	Monthly Reports on EL 26/79, 27/79, 28/79 and 29/79 for January 1981 (by General Geological Services)	February 1981
1C	Jan/Feb.	Monthly Reports on EL 26/79, 27/79, 28/79 and 29/79 for February 1981 (by General Geological Services)	March 1981
1C	Feb/Mar.	Monthly Reports on EL 26/79, 27/79, 28/79 and 29/79 for March 1981 (by General Geological Services)	April 1981
1C	Mar/Apr.	Monthly Reports on EL 26/79, 27/79, 28/79 and 29/79 for April 1981 (by General Geological Services)	June 1981
1C	Apr/May	Monthly Reports on EL 26/79, 27/79, 28/79 and 29/79 for May 1981 (by General Geological Services)	July 1981
1C	May/June	Monthly Reports on EL 26/79, 27/79, 28/79 and 29/79 for June 1981 (by General Geological Services)	August 1981
1C	June/July	Monthly Reports on EL 26/79, 27/79, 28/79 and 29/79 for July 1981 (by General Geological Services)	September 1981
1C	July/Aug.	Monthly Reports on EL 26/79, 27/79, 28/79 and 29/79 for August 1981 (by General Geological Services)	October 1981
1C	Aug/Sept.	Monthly Reports on EL 26/79, 27/79, 28/79 and 29/79 for September 1981 (by General Geological Services)	November 1981
1A & C & C	704/20	Tasmanian Coal Prospects Progress Report April to October 1981, for Capricorn Mining Limited (by General Geological Services)	December 1981

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3.4 Operations Schedule

Geological reconnaissance of the four licence areas was carried out in February and March 1980.

Drillhole sites were selected in December 1980. Drilling operations and geophysical logging commenced on 23rd February 1981 and continued as shown in Table 8 below:

Table 8: Drilling Schedule

Area & Drillhole	Drilling Operations	
	Commenced	Completed
<u>E.L. 26/79 - SANDFLY</u>		
K-01	24/2/81	26/2/81
K-02	7/3/81	11/3/81
K-03	24/2/81	25/2/81
K-04	26/2/81	3/3/81
K-05	27/2/81	4/3/81
<u>E.L. 27/79 - HAMILTON</u>		
H-01	29/4/81	30/4/81
H-02a	30/4/81	2/5/81
H-02b	3/5/81	5/5/81
H-03	6/5/81	8/5/81
H-04	12/5/81	13/5/81
H-05	29/5/81	2/6/81
H-06	17/5/81	26/5/81
H-07	14/5/81	16/5/81
<u>E.L. 28/79 - COLEBROOK</u>		
O-01	24/3/81	25/3/81
O-02	26/3/81	31/3/81
O-03a	1/4/81	2/4/81
O-03b	3/4/81	4/4/81
O-04	7/4/81	8/4/81
O-05	5/4/81	6/4/81
O-06	8/4/81	9/4/81
O-07	21/4/81	22/4/81
O-09	23/4/81	28/4/81

Area & Drilling	Drilling Operations	
	Commenced	Completed
<u>E.L. 29/79 - CYGNET</u>		
C-01	4/3/81	5/3/81
C-02	5/2/81	9/3/81
C-03	10/3/81	12/3/81
C-04	17/3/81	18/3/81
C-05	17/3/81	19/3/81
C-06	19/3/81	20/3/81

Following heavy rains in southern Tasmania, drilling was suspended on 2nd June 1981 because of difficulties met in finding suitable alternative sites to those originally selected. Land owners claimed that drilling plant and auxiliary vehicles would cause serious damage to access tracks and pastures. The weather pattern during the next few months did not permit an improvement in the ground conditions until late in the year.

Design of a forward programme of exploration, including recommencement of the suspended scout drilling, is not presented in this report. Delays in receiving reports from consultants and service companies has not provided enough time to complete such plans for inclusion herein. A brief statement of proposed forward operations and expenditure was included with the renewal submission.

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4. GEOLOGICAL BACKGROUND

4.1 Structural Framework

A brief account of the major structural features relating to coal deposition and occurrence in southern Tasmania is given below.

4.1.1 Regional structure

Permo-Triassic sediments of the Parmeener Super-Group occur as a moderately thick sub-horizontal succession overlying, with pronounced angular unconformity, basement rocks of folded Precambrian and Palaeozoic strata intruded by late Devonian to early Carboniferous granites. Sedimentation since late Carboniferous time has been affected by Jurassic dolerite and Cretaceous syenite intrusion, tensional block faulting, and Tertiary basalt flows (Solomon, 1962).

Two large-scale uplifted stable blocks (Central Highlands and Ben Lomond Region) are separated by a complex downwarped belt (Midland Valley).

Faulting preceded and accompanied the Jurassic dolerite sill intrusion. Trends are dominantly north-north-west and presumably reflect Tabberabberan (Devonian) structural lineaments.

4.1.2 Structural elements

The Jurassic fault structures in turn exerted strong influence on the Tertiary fault system which prevails today. Major horsts (Hummocky Hills and Mt. Dromedary/Mt. Wellington) and grabens (Cressy/Port Sorrell, Tamar, Midlands, Oyster Bay and Derwent) developed during the late Cretaceous and early Tertiary. A narrow minor graben extends from near Richmond through Colebrook to Jericho (Banks, 1962). In the Cygnet area, a dome in Permian rocks shows thinning of Cygnet Coal Measures and basal Triassic on its flanks, suggesting movement in Permian time (Banks, 1962; Leaman, 1966; Naqui, 1966).

Most faults have significant throw and trend north-north-west, but other faults with transverse trends also exist and produce fault and tilt blocks. Faults are normal with dips varying from 45° to vertical. Many faults seem to be reactivated Devonian or Jurassic faults, with movement often in reverse direction to earlier displacement. Evidence for reversal of Jurassic fault movements in Tertiary times occurs in the Hobart area.

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4.1.3 Intrusive bodies

The Jurassic dolerite intrusions occur mostly in the form of sills and sometimes as slightly discordant sheets which cause weak doming of surrounding rocks in some areas. They are mainly intruded into the upper part of the Parmeener Super-Group and reach thicknesses of up to 500 m. Associated plug-like feeders, dykes and irregular bodies are known. The overlying Permo-Triassic sediments may have been largely eroded while still relatively unconsolidated. At Cygnet a laccolith and associated radial dyke swarm of syenitic rocks was intruded in Middle Cretaceous times.

Heating of sediments in proximity of the sills is evident in places, but usually not to any large degree. The coal in close contact with sills shows some charring effects. Both the relatively low volatile matter in many places and the often nearly barren nature of spore assemblages can be attributed to the heating effects of the dolerites.

4.2 Stratigraphic sequence

The Permo-Triassic succession (excluding the basal tillite) rarely exceeds 500 m in thickness. The tillites are extremely variable in their development and the lower parts are believed to be of Late Carboniferous age. Lateral changes in lithofacies are considerable, particularly near basement highs (Clarke & Banks 1975).

Two broad marine/freshwater depositional cycles are recognized in the lower part (Late Carboniferous to Permian) of the super-group. The overlying Triassic sequence as known is entirely non-marine. A depositional break is indicated at the base of the Triassic, but evidence has not yet been substantially documented.

Coal measures are best developed in the Triassic sediments, i.e. Kaoota Coal Measures. Some seams have formed in the regressive phases of the Permian depositional cycles, i.e. Mersey and Cygnet Coal Measures, though the former is not known to outcrop in southern Tasmania.

A compilation of the major Late Permian and Triassic stratigraphic units identified by the Tasmanian Geological Survey and, shown on published 1:50 000 map sheets, is presented in Table 9.

Tertiary beds of mid-Tertiary age exist in the Derwent graben.

Table 9: Stratigraphic Units

		KINGBOROUGH	HOBART	BRIGHTON	OATLANDS
		Farmer (1981)	Leaman (1971)	Leaman (1975)	Forsyth (1976)
TRIASSIC	UPPER	Rk Kaoota Coal Measures - dominantly feldspathic and lithic sandstone with subordinate mudstone and thin workable coals.	Ru Upper Triassic lithic arkose and lutite, coal bearing, undifferentiated.	Ru As for Hobart	Rg Lithic arkose with volcanic grains, interbedded minor mudstone and coal.
	LOWER	R _s Dominantly medium-coarse grained quartz sandstone with subordinate mudstone and minor clay pellet beds.	Rlm Predominantly massive quartz mudstone, minor quartz sandstone, occasional beds of lithic sandstone coal.	Rlm Predominantly massive quartz sandstone, occasional beds of lithic sandstone coal.	Rs Feldspathic and quartzose sandstone with interbedded mudstone and siltstone. Indicated are dominantly feldspathic sequence with occasional carbonaceous siltstone (Rsf), quartzose sandstone. Sequence of fine to medium grain size, commonly laminated (Rsg) with occasional carbonaceous siltstone (Rsq).
			Rlf Dominantly medium and fine quartz sandstone, minor mudstone. Much mica and graphite on bedding contains 10% feldspar - clay pellet lenses (Rlc)	Rlf As for Hobart, but without clay pellet lenses.	Rm Micaceous mudstone and interbedded micaceous, muddy, quartzose sandstone of very fine to fine grain size. Interbedded minor red beds and carbonaceous mudstone.
			Rlq Dominantly medium-coarse quartz sandstone with minor mudstone, minor mica, and feldspar content, contains clay pellet beds (Rlc)	Rlq As for Hobart	Rpr Quartzose sandstone of very fine to medium grain size, fining upward, with interbedded siltstone and clay pellet beds. Indicated are sequences with common mudstone horizons, micaceous sandstone, minor red beds and carbonaceous mudstone (Rpc).
	LOWER	Rls Thickly bedded, medium-coarse quartz sandstone with grit (Rlg) and very minor, usually black shale layers.	Rls As for Hobart	Rls Thickly bedded, medium to coarse grained quartz sandstone, very minor usually black shale layers.	
PERMIAN	UPPER	Pf Dominantly feldspathic sandstone with subordinate mudstone (Pf); with workable coals and a Permian flora, <u>Cygnets Coal Measures</u> (Pfc).	Pcm <u>Cygnets Coal Measures</u> - including quartz arkose, carbonaceous mudstone rocks containing carbonaceous fragments.	Pcm As for Hobart	Pj Freshwater predominantly feldspathic mudstone with rare coal seam; pebbly feldspathic sandstone, sandy pebbly conglomerate, mudstone, siltstone, occasionally carbonaceous.

4.2.1 Depositional basins

The composite Tasmania Basin contains the sediments of the Parmeener Super-Group. Its main axis is aligned along the Midlands downwarped belt. Two superimposed basinal units appear to be present: a Late Carboniferous to Permian basin and an overlying Triassic basin. The tectonic and depositional relationship between these successive basins is not clear, and the boundary between the Permian and Triassic periods has not yet been reliably established by palynological studies (Clarke & Banks, 1975).

The lower part of the Parmeener Super-Group is formed by glacial deposits alternating with marine and freshwater sediments (with coal measures) representing fluctuating conditions in an overall cold regime.

From palaeomagnetic determinations of Early to Late Triassic rocks, together with the evidence of coal measures, it is estimated that Tasmania was probably in palaeolatitudes of 70° to 75° south during those times (Schmidt & Embleton, 1980).

On the basis of floral origins of the extremely inertite-rich (80-90%) coal of the Duncan seam at Fingal in northeastern Tasmania, relatively dry cold conditions with almost continuous permafrost are proposed by Smyth (1980) to result in deposition of peat palsamires (i.e. blanket bogs or sheet mires), rather than peat formation in the well-drained backswamps of active river systems of meandering streams as postulated by Bacon (1979; 1980) and Kind (1980).

There is some conflict in interpretation of the content of the dominant coal forming floral assemblage present; Bacon lists ferns and cycads, whereas Smyth describes mosses and lichens.

Similar environmental conditions can be expected to have existed for deposition of the Kaoota Coal Measures in the Capricorn Mining licence areas.

MISREPRESENTATION
OF DATA

The fluvial environments discussed by Kind (1980) and Bacon (1980) for the non-coal clastics in the basin are not precluded by Smyth's (1980) interpretation of coal formation. The associated shales apparently were deposited in shallow lakes or under wetter conditions, and the sands are channel deposits of streams intersecting the plateau mires.

4.2.2

Stratigraphic age and correlation

Equivalents of the Late Permian Cygnet Coal Measures are not known in the Fingal area, although Early Triassic sediments occur. Equivalents of the Mersey Coal Measures of Middle Permian age are present in the subsurface in southern Tasmania.

The Duncan seam at Fingal is considered to be early Late Triassic and placed in the Craterisporites rotundis zone (Carnian age) by Forsyth (1980). Underlying basalts are dated at 253±5 m.y. (Calver & Castleden, 1980). Simple lithologic correlation suggests that the Kaoota Coal Measures are of similar age, though generally in the south (i.e. York Plains, Colebrook, Lawrenny, Kaoota) these beds are regarded to represent the upper equivalents only of the more complete Fingal section in the north (Turner, 1980).

A palynological determination of a coal sample from the Lawrenny Mine at Hamilton indicated an assemblage of undoubtedly Middle to early Late Triassic (Balme, 1980 - refer Appendix 3). The presence of abundant Aratrisporites spp. strongly suggests a Middle Triassic age. The seam is regarded as an equivalent of the Kaoota Coal Measures at Sandfly.

5. EXPLORATION ACTIVITIES AND RESULTS

5.1 Geological Reconnaissance

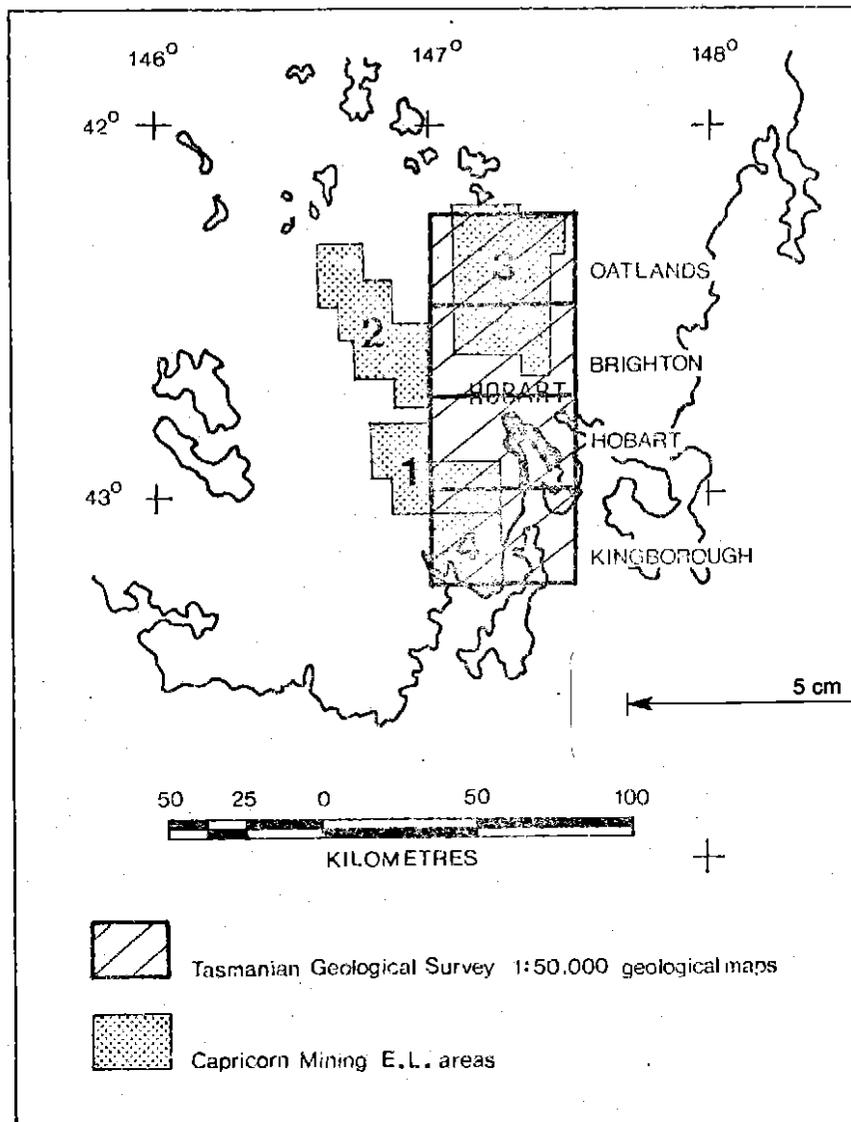
Initial reconnaissance and drillhole selection in the four exploration licence areas was made according to three orders of observation.

- (1) Areas around abandoned coal workings - with a view to delineation of "indicated" and "inferred" reserves
- (2) Areas of outcrop and shallow subcrop of Permian and Triassic coal measures - with an aim of finding "prognostic" reserves
- (3) Regional survey to assist interpretation of overall depositional environment - in order to establish basinal sedimentation patterns.

More than half the total area of the exploration licences is covered by 1: 50 000 published maps, but the western areas are mapped only at 1:250 000 which is inadequate for exploration purposes (Figure 3).

Composite geological plans showing main coal measure units are presented in Enclosure 1 of Volume II.

Figure 3: Existing Geological Mapping



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5.2

Drilling Operations

A summary of drilling equipment, and methods follows.

(a) Drilling Contractor

H. J. Stacpoole,
1 Lindsay Street,
Launceston, Tasmania...7250

(b) Drilling RigsPlant 1

Make: Foxmobile
Model: B40L
Rated Depth: 500+ metres at 75.8 mm diameter
Draw-works Capacity: main winch 3000 kg

Plant 2

Make: Gemco
Model: 210D
Rated Depth:
Draw-works Capacity:

Table 10 lists the drilling rig used for each drillhole.

(c) Drilling EquipmentPump 1

Type: John Bean, piston
Proposed Output: 60 gpm at 200 psi
Diesel Condition: new

Pump 2

Type: Mono
Proposed Output: 60 gpm at 300 psi
Diesel Condition: new

Air compressor

Type: Rotary screw
Make: Gardner Denver
Volume Capacity: 680 cpm
Pressure: 120 psi

Drill rods

Conventional Size: NW
length 100 m, diameter 112 mm.
Wireline Size: NQ, total length 300 m,
diameter 74 mm

Drill collars

Dimensions: 100 m

Core barrel

Type: NQ
Length: 3.15 m

(d) Drilling Details

Hole sizes and depths Refer to Table 10

Cored hole and open hole Refer to Table 10

Core recovery Refer to Table 12

Casing

During drilling: HQ, ($3\frac{3}{4}$ inch diameter) casing was used to prevent collapse and to overcome circulation loss.

Left in hole: casing ($4\frac{1}{2}$, $4\frac{3}{4}$ or 6 inches diameter) was left in the top section of most holes.

Refer to Table 11 for casing details.

Hole status

All holes were abandoned after backfilling and/or following side-wall collapse, then sealed by casing cap or by cement plug.

Hole locations

AMG grid co-ordinates for all drillholes are listed in Table 13.

Drillhole sites are shown on geological plans in Enclosure 1 of Volume II.

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Table 10: Drilling Details

Area & Drillhole	Open Hole		Cored Hole (NQ)		Total Depth (m)	Rig Type
	Diam. (in.)	Depth (m)	Diam. (in.)	Depth (m)		
<u>E.L. 26/79 - SANDFLY</u>						
K-01	4½	0 - 6.10	3	6.10 - 23.00	50.00	Gemco 210D
	2½ ¹⁵ / ₁₆	23.00 - 50.00				
K-02	3 ⁷ / ₈	0 - 5.10	3	5.10 - 147.95	147.95	Fox B40L
K-03	3 ⁷ / ₈	0 - 3.41	3	3.41 - 54.27	54.27	Fox B40L
K-04	3 ⁷ / ₈	0 - 5.10	3	5.10 - 78.09	78.09	Fox B40L
K-05	4½	0 - 12.00			50.00	Gemco 210D
	3 ⁷ / ₈	12.00 - 29.50				
	2½ ¹⁵ / ₁₆	29.50 - 50.00				
<u>E.L. 27/79 - HAMILTON</u>						
H-01	5	0 - 2.80	3	2.80 - 44.40	44.40	Fox B40L
H-02a	3 ⁷ / ₈	0 - 38.30			38.30	Fox B40L
H-02	3 ⁷ / ₈	0 - 48.00	3	48.00 - 78.40	78.40	Fox B40L
H-03	3 ⁷ / ₈	0 - 3.00	3	3.00 - 84.44	84.44	Fox B40L

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Area & Drillhole	Open Hole		Cored Hole (NQ)		Total Depth (m)	Rig Type
	Diam. (in.)	Depth (m)	Diam. (in.)	Depth (m)		
H-04	$3\frac{7}{8}$	0 - 21.28	3	21.28 - 45.10	245.54 45.10	Fox B40L
H-05	$3\frac{7}{8}$	0 - 3.70	3	3.70 - 135.47	135.47	Fox B40L
H-07	$3\frac{7}{8}$	0 - 15.72	3	15.72 - 47.92	86.00	Fox B40L
	$3\frac{7}{8}$	47.92 - 86.00				
<u>E.L. 28/79 - COLEBROOK</u>						
O-01	$3\frac{7}{8}$	0 - 5.85	3	5.85 - 54.59	54.59	Fox B40L
O-02	$3\frac{7}{8}$	0 - 5.75	3	5.75 - 48.63	48.63	Fox B40L
O-03a	$3\frac{7}{8}$	0 - 6.00	3	6.00 - 48.02	48.02	Fox B40L
O-03b	$3\frac{7}{8}$	0 - 12.00	3	12.00 - 53.40	53.40	Fox B40L
O-04	$3\frac{7}{8}$	0 - 32.70	3	32.70 - 50.73	50.73	Fox B40L
O-05	$3\frac{7}{8}$	0 - 51.00			51.00	Fox B40L
O-06	$5\frac{1}{2}$	0 - 1.70	3	1.70 - 46.15	46.15	Fox B40L
O-07	$3\frac{7}{8}$	0 - 29.60	3	29.60 - 47.34	47.34	Fox B40L
O-09	$3\frac{7}{8}$	0 - 12.84				Fox B40L

512.11

Area & Drillhole	Open Hole		Cored Hole (NQ)		Total Depth (m)	Rig Type
	Diam. (in.)	Depth (m)	Diam. (in.)	Depth (m)		
<u>E.L. 29/79 - CYGNET</u>						
C-01	$3\frac{7}{8}$	0 - 50.98			50.98	Gemco 310D
C-02	$4\frac{1}{2}$	0 - 1.30				Gemco 210D
	$3\frac{7}{8}$	1.30 - 31.05				
	$2\frac{15}{16}$	31.05 - 52.00			52.00	
C-03	$3\frac{7}{8}$	0 - 34.20			34.20	Gemco 210D
C-04	$3\frac{7}{8}$	0 - 3.00				Fox B40L
			3	3.00 - 42.28	42.28	
C-05	$3\frac{7}{8}$	0 - 20.00				Gemco 210D
			3	20.00 - 20.80		
			3	21.00 - 50.06	50.06	
C-06	$3\frac{7}{8}$	0 - 44.21			44.21	Fox B40L

273-73

043

Area & Drillhole	Reaming		Casing (HQ)		Circulation Loss Depth (metres)	Total Depth (metres)	Casing left in hole	
	Diameter (inches)	Depth (metres)	Diameter (inches)	Depth (metres)			Diameter (inches)	Depth (metres)
<u>E.L. 27/79 - HAMILTON</u>								
H-01	4½	0 - 1.50				44.00	4½	1.60
H-02a	4½	0 - 2.90				38.30	"	3.00
H-02	4½	0 - 3.10	"	0 - 48.00	3.20 - 47.00	78.40	"	3.20
H-03						84.44		
H-04	4½	0 - 2.80	"	0 - 21.00		45.10	"	2.90
H-05	4½	0 - 1.30	"					
	3 7/8	3.70 - 21.00	"	0 - 21.00		135.47	"	1.38
H-06	4½	0 - 3.10						
	3 7/8	13.30 - 57.00	"	0 - 57.00		157.06	"	3.20
H-07	4½	0 - 3.10	3 3/4	0 - 15.00		86.00	"	3.10

35

847045

044

Table 11: Casing Details

Area & Drillhole	Reaming		Casing (HQ)		Circulation Loss Depth (metres)	Total Depth (metres)	Casing left in hole	
	Diameter (inches)	Depth (metres)	Diameter (inches)	Depth (metres)			Diameter (inches)	Depth (metres)
<u>E.L. 26/79 - SANDFLY</u>								
K-01	4 $\frac{3}{4}$	0 - 1.30	3 $\frac{3}{4}$	0 - 15.00		50.00	4 $\frac{3}{4}$	1.30
	3 $\frac{7}{8}$	6.10 - 15.00						
K-02			"	0 - 5.10		147.95		
K-03	4 $\frac{1}{2}$	0 - 3.10						
	3 $\frac{3}{8}$	3.41 - 45.23	"	0 - 45.23		54.27	4 $\frac{1}{2}$	3.20
K-04	4 $\frac{1}{2}$	0 - 5.10						
	3 $\frac{7}{8}$	5.10 - 75.42	"	0 - 75.42	0 - 75.00	78.09	"	5.10
K-05	4 $\frac{3}{4}$	0 - 2.90						
	3 $\frac{7}{8}$	29.50 - 38.00	"	0 - 38.00	29.50 - 38.00	50.00	4 $\frac{3}{4}$	3.00

36

847046

Area & Drillhole	Reaming		Casing (HQ)		Circulation Loss Depth (metres)	Total Depth (metres)	Casing left in hole	
	Diameter (inches)	Depth (metres)	Diameter (inches)	Depth (metres)			Diameter (inches)	Depth (metres)
<u>E.L. 28/79 - COLEBROOK</u>								
0-01	4½	0 - 1.30						
	3⅞	5.85 - 45.49	3¾	0 - 45.49		54.59	4½	1.40
0-02	3⅞	5.75 - 39.62	"	0 - 39.62		48.63	-	-
0-03a	4½	0 - 3.20						
	3⅞	6.00 - 36.62	"	0 - 36.62		48.02	"	3.30
0-03b	5⅞	0 - 3.30						
	3⅞	12.00 - 33.00	"	0 - 33.00		53.40	6	3.30
0-04	4½	0 - 3.00						
	4½	32.70 - 33.00	"	0 - 33.00		50.73	4½	3.10
0-05	4½	0 - 3.20	"	0 - 41.00		51.00	"	3.30
0-06						46.15	6	1.70

Area & Drillhole	Reaming		Casing (HQ)		Circulation Loss Depth (metres)	Total Depth (metres)	Casing left in hole	
	Diameter (inches)	Depth (metres)	Diameter (inches)	Depth (metres)			Diameter (inches)	Depth (metres)
D-07	4½	0 - 3.20						
	3⅞	29.60 - 30.00	3¾	0 - 30.00		47.34	4½	3.30
D-09	4½	0 - 3.10						
	3⅞	12.84 - 18.00	"	0 - 18.00		100.00	"	3.20
<u>E.L. 29/79 - CYGNET</u>								
C-01	4½	0 - 3.30	3¾	0 - 35.97	3.00 - 34.00	50.98	"	3.30
C-02	3⅞		"	0 - 40.00		52.00		
C-03	5⅝	0 - 2.50	"	0 - 24.00	15.80 - 24.00	34.20	6	2.87
C-04	3⅞	3.00 - 36.14	"	0 - 36.14	3.00 - 35.10	42.28		
C-05	5⅝	0 - 2.80						
	3⅞	20.00 - 20.08	"	0 - 21.00		50.06	6	1.74
C-06	4½	0 - 3.10	"	0 - 33.10	31.00 - 33.10	44.21	6	3.30

Table 12: Core Recovery Data

Area & Drillhole	Core Run		Core Recovery	
	Depth (m)	Length (m)	Length (m)	Percentage (m)
<u>E.L. 26/79 - SANDFLY</u>				
K-01	Core recovery data not available Cored section 16.90 metres			
K-02	5.10 - 5.94	0.84	0.84	100
	5.94 - 8.86	2.92	2.23	76
	8.86 - 11.86	3.00	3.00	100
	11.86 - 14.86	3.00	3.00	100
	14.86 - 17.56	2.70	2.70	100
	17.56 - 20.67	3.11	3.11	100
	20.67 - 23.67	3.00	2.74	91
	23.67 - 26.62	2.95	2.95	100
	26.62 - 29.70	3.08	3.08	100
	29.70 - 32.80	3.10	3.10	100
	32.80 - 35.80	3.00	2.88	96
	35.80 - 38.80	3.00	3.00	100
	38.80 - 41.86	3.06	3.06	100
	41.86 - 44.90	3.04	3.04	100
	44.90 - 47.93	3.03	3.03	100
	47.93 - 50.99	3.06	3.06	100
	50.99 - 53.99	3.00	3.00	100
	53.99 - 56.99	3.00	3.00	100
	56.99 - 59.99	3.00	3.00	100
	59.99 - 63.07	3.08	3.08	100
	63.07 - 66.10	3.03	3.03	100
	66.10 - 69.16	3.06	3.06	100
	69.16 - 72.16	3.00	3.00	100
	72.16 - 75.16	3.00	3.00	100
	75.16 - 78.16	3.00	3.00	100
	78.16 - 81.16	3.00	3.00	100
	81.16 - 83.86	2.70	2.63	97
	83.86 - 86.86	3.00	3.00	100
	86.86 - 89.96	3.10	3.10	100
	89.96 - 93.07	3.11	3.11	100
	93.07 - 96.07	3.00	3.00	100
	96.07 - 99.06	2.99	2.99	100

Area & Drillhole	Core Run		Core Recovery	
	Depth (m)	Length (m)	Length (m)	Percentage (m)
	99.06 - 102.03	2.97	2.97	100
	102.03 - 105.13	3.10	3.10	100
	105.13 - 108.13	3.00	3.00	100
	108.13 - 111.13	3.00	2.97	99
	111.13 - 114.23	3.10	3.10	100
	114.23 - 117.27	3.04	3.04	100
	117.27 - 120.31	3.04	3.04	100
	120.31 - 123.45	3.14	3.14	100
	123.45 - 126.56	3.11	3.11	100
	126.56 - 129.63	3.07	3.07	100
	129.63 - 132.78	3.15	2.95	94
	132.78 - 135.78	3.00	3.00	100
	135.78 - 138.88	3.10	3.10	100
	138.88 - 141.88	3.00	2.85	95
	141.88 - 144.95	3.07	3.07	100
	144.95 - 147.95	3.00	1.70	57
K-03	3.41 - 6.21	2.80	2.03	72
	6.21 - 9.20	2.99	2.98	100
	9.20 - 11.90	2.70	2.52	93
	11.90 - 14.90	3.00	3.00	100
	14.90 - 18.00	3.10	3.10	100
	18.00 - 21.09	3.09	3.09	100
	21.09 - 24.13	3.04	3.04	100
	24.13 - 27.18	3.05	3.05	100
	27.18 - 30.18	3.00	3.00	100
	30.18 - 33.18	3.00	3.00	100
	33.18 - 36.26	3.08	3.08	100
	36.26 - 39.23	2.97	2.97	100
	39.23 - 42.23	3.00	2.80	93
	42.23 - 45.23	3.00	3.00	100
	45.23 - 48.23	3.00	3.00	100
	48.23 - 51.23	3.00	3.00	100
	51.23 - 54.27	3.04	3.04	100

Area & Drillhole	Core Run		Core Recovery	
	Depth (m)	Length (m)	Length (m)	Percentage (m)
K-04	5.10 - 5.90	0.80	0.10	12
	5.90 - 8.90	3.00	3.00	100
	8.90 - 11.90	3.00	1.80	60
	11.90 - 14.90	3.00	2.97	99
	14.90 - 17.90	3.00	2.94	98
	17.90 - 20.90	3.00	3.00	100
	20.90 - 24.00	3.10	3.10	100
	24.00 - 27.00	3.00	3.00	100
	27.00 - 30.02	3.02	3.02	100
	30.02 - 33.02	3.00	3.00	100
	33.02 - 36.05	3.03	3.03	100
	36.05 - 39.13	3.08	3.08	100
	39.13 - 42.13	3.00	3.00	100
	42.13 - 45.13	3.00	3.00	100
	45.13 - 48.13	3.00	3.00	100
	48.13 - 51.13	3.00	2.90	97
	51.13 - 54.13	3.00	3.00	100
	54.13 - 57.13	3.00	3.00	100
	57.13 - 60.13	3.00	3.00	100
	60.13 - 63.23	3.10	3.10	100
63.23 - 66.23	3.00	2.97	99	
66.23 - 69.38	3.15	3.15	100	
69.38 - 72.40	3.02	3.02	100	
72.40 - 75.42	3.02	3.02	100	
75.42 - 78.09	2.67	2.67	100	
K-05	Non-cored			

050

Area & Drillhole	Core Run		Core Recovery	
	Depth (m)	Length (m)	Length (m)	Percentage (m)
<u>E.L. 27/79 - HAMILTON</u>				
H-01	2.80 - 5.80	3.00	2.90	97
	5.80 - 8.80	3.00	2.85	95
	8.80 - 11.80	3.00	2.97	99
	11.80 - 14.80	3.00	2.94	98
	14.80 - 17.80	3.00	2.90	97
	17.80 - 20.80	3.00	2.96	98
	20.80 - 23.80	3.00	3.00	100
	23.80 - 26.83	3.03	3.03	100
	26.83 - 29.88	3.05	3.05	100
	29.88 - 32.88	3.00	3.00	100
	32.88 - 35.88	3.00	3.00	100
	35.88 - 38.88	3.00	3.00	100
	38.88 - 41.40	2.52	2.52	100
41.40 - 44.40	3.00	3.00	100	
H-02a	Non-cored			
H-02	48.00 - 51.08	3.08	3.08	100
	51.08 - 54.08	3.00	3.00	100
	54.08 - 57.08	3.00	3.00	100
	57.08 - 60.08	3.00	3.00	100
	60.08 - 63.18	3.10	3.10	100
	63.18 - 66.28	3.10	3.10	100
	66.28 - 69.35	3.07	3.07	100
	69.35 - 72.35	3.00	3.00	100
	72.35 - 75.40	3.05	3.05	100
	75.40 - 78.40	3.00	2.60	87
H-03	3.00 - 6.00	3.00	2.95	98
	6.00 - 9.00	3.00	2.87	96
	9.00 - 11.70	2.70	2.70	100
	11.70 - 14.60	2.90	2.90	100
	14.60 - 15.00	0.40	0.40	100
	15.00 - 18.00	3.00	3.00	100
	18.00 - 20.63	2.63	2.63	100
	20.63 - 21.11	0.48	0.48	100

Area & Drillhole	Core Run		Core Recovery	
	Depth (m)	Length (m)	Length (m)	Percentage (m)
	21.11 - 24.11	3.00	3.00	100
	24.11 - 27.15	3.04	3.04	100
	27.11 - 30.15	3.00	3.00	100
	30.15 - 33.21	3.06	3.06	100
	33.21 - 36.21	3.00	3.00	100
	36.21 - 39.26	3.05	3.05	100
	39.26 - 42.26	3.00	2.94	98
	42.26 - 45.26	3.00	2.94	98
	45.26 - 47.11	1.85	1.85	100
	47.11 - 48.26	1.15	1.15	100
	48.26 - 51.32	3.06	3.06	100
	51.32 - 54.32	3.00	3.00	100
	54.32 - 57.32	3.00	3.00	100
	57.32 - 60.37	3.05	3.05	100
	60.37 - 63.37	3.00	2.96	99
	63.37 - 66.37	3.00	3.00	100
	66.37 - 69.37	3.00	3.00	100
	69.37 - 72.23	2.86	2.86	100
	72.23 - 75.35	3.12	3.12	100
	75.35 - 78.40	3.05	3.05	100
	78.40 - 81.40	3.00	3.00	100
	81.40 - 84.44	3.04	3.04	100
H-04	21.28 - 23.96	2.68	2.25	84
	23.96 - 26.96	3.00	2.89	96
	26.96 - 29.96	3.00	3.00	100
	29.96 - 32.95	2.99	2.99	100
	32.95 - 36.04	3.09	3.09	100
	36.04 - 39.04	3.00	3.00	100
	39.04 - 42.04	3.00	3.00	100
	42.04 - 45.10	3.06	3.06	100

Area & Drillhole	Core Run		Core Recovery	
	Depth (m)	Length (m)	Length (m)	Percentage (m)
H-05	3.70 - 6.00	2.30	1.00	43
	6.00 - 9.00	3.00	2.45	82
	9.00 - 12.00	3.00	3.00	100
	12.00 - 15.00	3.00	2.03	68
	15.00 - 18.00	3.00	3.00	100
	18.00 - 21.00	3.00	1.85	62
	21.00 - 24.00	3.00	2.90	97
	24.00 - 27.00	3.00	3.00	100
	27.00 - 30.04	3.04	3.04	100
	30.04 - 33.04	3.00	2.71	90
	33.04 - 36.04	3.00	3.00	100
	36.04 - 39.04	3.00	3.00	100
	39.04 - 42.10	3.06	3.06	100
	42.10 - 45.10	3.00	3.00	100
	45.10 - 48.10	3.00	2.77	92
	48.10 - 51.14	3.04	3.04	100
	51.14 - 54.14	3.00	3.00	100
	54.14 - 57.14	3.00	3.00	100
	57.14 - 60.14	3.00	3.00	100
	60.14 - 63.14	3.00	3.00	100
	63.14 - 66.04	2.90	2.90	100
	66.04 - 69.04	3.00	3.00	100
	69.04 - 72.14	3.10	3.10	100
	72.14 - 75.14	3.00	2.92	97
	75.14 - 78.14	3.00	3.00	100
	78.14 - 81.14	3.00	3.00	100
81.14 - 84.14	3.00	3.00	100	
84.14 - 87.14	3.00	3.00	100	
87.14 - 90.14	3.00	2.75	92	
90.14 - 93.14	3.00	3.00	100	
93.14 - 96.15	3.01	3.01	100	
96.15 - 99.23	3.08	3.08	100	
99.23 - 102.29	3.06	3.06	100	
102.29 - 105.31	3.02	3.02	100	
105.31 - 108.33	3.02	3.02	100	
108.33 - 111.35	3.02	3.02	100	

Area & Drillhole	Core Run		Core Recovery	
	Depth (m)	Length (m)	Length (m)	Percentage (m)
	111.35 - 114.34	2.99	2.99	100
	114.34 - 117.39	3.05	3.05	100
	117.39 - 120.39	3.00	2.97	99
	120.39 - 123.42	3.03	3.03	100
	123.42 - 126.42	3.00	2.97	99
	126.42 - 129.42	3.00	3.00	100
	129.42 - 132.47	3.05	3.05	100
	132.47 - 135.47	3.00	3.00	100
H-06	13.30 - 15.30	2.00	1.80	90
	15.30 - 18.30	3.00	1.07	36
	18.30 - 21.30	3.00	1.98	66
	21.30 - 24.30	3.00	3.00	100
	24.30 - 27.30	3.00	2.97	99
	27.30 - 30.30	3.00	3.00	100
	30.30 - 33.38	3.08	3.08	100
	33.38 - 36.38	3.00	3.00	100
	36.38 - 39.40	3.02	3.02	100
	39.40 - 42.46	3.06	3.06	100
	42.46 - 45.46	3.00	3.00	100
	45.46 - 48.32	2.86	2.86	100
	48.32 - 51.47	3.15	3.15	100
	51.47 - 52.51	1.04	0.73	70
	52.51 - 54.47	1.96	1.96	100
	54.47 - 57.47	3.00	2.90	97
	57.47 - 60.47	3.00	3.00	100
	60.47 - 63.47	3.00	3.00	100
	63.47 - 66.47	3.00	3.00	100
	66.47 - 69.47	3.00	3.00	100
	69.47 - 72.47	3.00	2.70	90
	72.47 - 75.47	3.00	3.00	100
	75.47 - 78.07	2.60	2.60	100
	78.07 - 81.16	3.09	3.09	100
	81.16 - 84.29	3.13	3.13	100
	84.29 - 87.38	3.09	3.09	100
	87.38 - 90.47	3.09	3.09	100

Area & Drillhole	Core Run		Core Recovery	
	Depth	Length (m)	Length (m)	Percentage (m)
	90.47 - 92.87	2.40	2.40	100
	92.87 - 93.87	1.00	1.00	100
	93.87 - 96.97	3.10	3.10	100
	96.97 - 99.97	3.00	3.00	100
	99.97 - 102.97	3.00	2.98	99
	102.97 - 105.97	3.00	3.00	100
	105.97 - 108.97	3.00	3.00	100
	108.97 - 111.97	3.00	3.00	100
	111.97 - 114.97	3.00	2.70	90
	114.97 - 117.97	3.00	2.96	99
	117.97 - 120.97	3.00	3.00	100
	120.97 - 122.97	2.00	2.00	100
	122.97 - 123.97	1.00	1.00	100
	123.97 - 127.03	3.06	3.06	100
	127.03 - 130.03	3.00	3.00	100
	130.03 - 133.03	3.00	2.90	97
	133.03 - 135.83	2.80	2.80	100
	135.83 - 138.90	3.07	2.94	96
	138.90 - 141.94	3.04	3.04	100
	141.94 - 144.94	3.00	3.00	100
	144.94 - 147.99	3.05	3.05	100
	147.99 - 150.99	3.00	3.00	100
	150.99 - 154.06	3.07	3.07	100
	154.06 - 157.06	3.00	3.00	100
H-07	15.72 - 17.92	2.20	2.20	100
	17.92 - 20.92	3.00	3.00	100
	20.92 - 23.92	3.00	3.00	100
	23.92 - 26.92	3.00	3.00	100
	26.92 - 29.92	3.00	3.00	100
	29.92 - 32.32	2.40	2.40	100
	32.32 - 32.92	0.60	0.40	67
	32.92 - 35.82	2.90	2.90	100
	35.82 - 38.94	3.12	3.12	100
	38.94 - 41.92	2.98	2.98	100
	41.92 - 44.92	3.00	3.00	100
	44.92 - 47.92	3.00	3.00	100

Area & Drillhole	Core Run		Core Recovery	
	Depth (m)	Length (m)	Length (m)	Percentage (m)
<u>E.L. 28/79 - COLEBROOK</u>				
0-01	5.85 - 8.85	3.00	1.70	57
	8.85 - 11.85	3.00	2.90	97
	11.85 - 14.85	3.00	2.90	97
	14.85 - 17.85	3.00	2.90	97
	17.85 - 20.85	3.00	2.82	94
	20.85 - 24.02	3.17	3.17	100
	24.02 - 27.02	3.00	3.00	100
	27.02 - 30.02	3.00	3.00	100
	30.02 - 33.02	3.00	2.55	85
	33.02 - 36.02	3.00	0.55	18
	36.02 - 36.42	0.40	0.18	45
	36.42 - 39.42	3.00	2.80	93
	39.42 - 42.47	3.05	3.05	100
	42.47 - 45.49	3.02	3.02	100
	45.49 - 48.47	2.98	2.98	100
	48.47 - 51.51	3.04	3.04	100
51.51 - 54.59	3.08	3.08	100	
0-02	5.75 - 6.35	0.60	0.00	0
	6.35 - 9.35	3.00	2.20	73
	9.35 - 12.37	3.02	3.02	100
	12.37 - 15.37	3.00	3.00	100
	15.37 - 18.37	3.00	3.00	100
	18.37 - 21.37	3.00	3.00	100
	21.37 - 24.37	3.00	3.00	100
	24.37 - 27.37	3.00	3.00	100
	27.37 - 30.37	3.00	3.00	100
	30.37 - 33.37	3.00	3.00	100
	33.37 - 33.62	0.25	0.25	100
	33.62 - 36.62	3.00	2.72	91
	36.62 - 39.62	3.00	2.86	95
	39.62 - 42.62	3.00	2.77	92
42.62 - 45.63	3.01	3.01	100	
45.63 - 48.63	3.00	3.00	100	

Area & Drillhole	Core Run		Core Recovery	
	Depth (m)	Length (m)	Length (m)	Percentage (m)
0-03a	6.00 - 9.00	3.00	2.75	92
	9.00 - 12.00	3.00	2.83	94
	12.00 - 15.00	3.00	2.88	96
	15.00 - 18.00	3.00	2.90	97
	18.00 - 21.03	3.03	3.03	100
	21.03 - 24.03	3.00	3.00	100
	24.03 - 27.03	3.00	3.00	100
	27.03 - 30.03	3.00	3.00	100
	30.03 - 33.03	3.00	3.00	100
	33.03 - 36.03	3.00	2.92	97
	36.03 - 39.03	3.00	2.87	96
	39.03 - 42.03	3.00	2.84	95
	42.03 - 45.03	3.00	2.83	95
	45.03 - 48.02	2.99	2.99	100
0-03b	12.00 - 15.00	3.00	3.00	100
	15.00 - 18.00	3.00	3.00	100
	18.00 - 20.50	2.50	2.50	100
	20.50 - 23.50	3.00	3.00	100
	23.50 - 26.50	3.00	2.80	93
	26.50 - 29.50	3.00	3.00	100
	29.50 - 30.00	0.50	0.50	100
	30.00 - 33.00	3.00	2.01	67
	33.00 - 36.00	3.00	1.88	63
	36.00 - 39.00	3.00	2.48	100
	39.00 - 41.30	2.30	2.30	100
	41.30 - 44.30	3.00	3.00	100
	44.30 - 47.30	3.00	3.00	100
	47.30 - 50.30	3.00	2.98	99
50.30 - 53.40	3.10	3.10	100	
0-04	32.70 - 35.70	3.00	3.00	100
	35.70 - 38.73	3.03	3.03	100
	38.73 - 41.73	3.00	2.37	79
	41.73 - 44.73	3.00	2.80	93
	44.73 - 47.73	3.00	2.80	93
	47.73 - 50.73	3.00	3.00	100

Area & Drillhole	Core Run		Core Recovery	
	Depth (m)	Length (m)	Length (m)	Percentage (m)
0-05	Non-cored			
0-06	1.70 - 3.20	1.50	1.50	100
	3.20 - 6.24	3.04	3.04	100
	6.24 - 9.24	3.00	3.00	100
	9.24 - 12.24	3.00	3.00	100
	12.24 - 15.24	3.00	3.00	100
	15.24 - 18.29	3.05	3.05	100
	18.29 - 21.30	3.01	3.01	100
	21.30 - 24.35	3.05	3.05	100
	24.35 - 27.35	3.00	2.89	96
	27.35 - 30.35	3.00	0.00	0
	30.35 - 30.95	Reaming		
	30.95 - 33.25	2.30	2.24	87
	33.25 - 36.25	3.00	3.00	100
	36.25 - 39.35	3.10	3.10	100
	39.35 - 42.35	3.00	2.96	99
	42.35 - 45.35	3.00	3.00	100
	45.35 - 46.15	0.80	0.69	86
0-07	29.60 - 32.64	3.04	3.04	100
	32.64 - 35.64	3.00	2.90	97
	35.64 - 38.64	3.00	2.93	98
	38.64 - 41.64	3.00	2.47	82
	41.64 - 44.64	3.00	3.00	100
	44.64 - 47.34	2.70	2.54	94
0-09	12.84 - 14.84	2.00	1.56	78
	14.84 - 17.84	3.00	3.00	100
	17.84 - 18.32	0.48	0.48	100
	18.32 - 21.32	3.00	2.94	98
	21.32 - 24.32	3.00	2.80	93
	24.32 - 26.02	1.70	1.70	100
	26.02 - 26.10	Reamed		
	26.10 - 28.61	2.51	0.95	38
	28.61 - 30.11	1.50	1.45	97

Area & Drillhole	Core Run		Core Recovery	
	Depth (m)	Length (m)	Length (m)	Percentage (m)
	30.11 - 33.13	3.02	3.02	100
	33.13 - 36.13	3.00	2.77	92
	36.13 - 39.13	3.00	2.90	97
	39.13 - 42.13	3.00	2.93	98
	42.13 - 45.13	3.00	1.98	66
	45.13 - 48.13	3.00	2.28	76
	48.13 - 51.16	3.03	3.03	100
	51.16 - 54.21	3.05	3.05	100
	54.21 - 57.26	3.05	3.05	100
	57.26 - 60.26	3.00	3.00	100
	60.26 - 62.96	2.70	2.70	100
	62.96 - 65.99	3.03	3.03	100
	65.99 - 68.97	2.98	2.98	100
	68.97 - 70.99	3.02	3.02	100
	70.99 - 72.01	1.02	1.02	100
	72.01 - 75.11	3.10	3.10	100
	75.11 - 78.16	3.05	3.05	100
	78.16 - 81.16	3.00	3.00	100
	81.16 - 83.76	2.60	2.60	100
	83.76 - 86.76	3.00	2.90	97
	86.76 - 89.76	3.00	2.97	99
	89.76 - 92.75	2.99	2.99	100
	92.75 - 95.75	3.00	2.97	99
	95.75 - 98.75	3.00	3.00	100
	98.75 - 100.00	1.25	1.25	100

Area & Drillhole	Core Run		Core Recovery	
	Depth (m)	Length (m)	Length (m)	Percentage (%)
<u>E.L. 29/79 - CYGNET</u>				
C-01	Non-cored			
C-02	Non-cored			
C-03	Non-cored			
C-04	3.00 - 6.00	3.00	0.00	0
	6.00 - 9.00	3.00	2.61	87
	9.00 - 12.00	3.00	2.80	93
	12.00 - 15.00	3.00	2.85	95
	15.00 - 18.00	3.00	1.78	59
	18.00 - 21.00	3.00	2.97	99
	21.00 - 24.00	3.00	2.42	81
	24.00 - 27.10	3.10	3.10	100
	27.10 - 30.14	3.04	3.04	100
	30.14 - 33.14	3.00	3.00	100
	33.14 - 36.14	3.00	3.00	100
36.14 - 39.23	3.09	3.09	100	
39.23 - 42.28	3.05	3.05	100	
C-05	20.00 - 20.80	0.80	0.04	5
	21.00 - 23.98	2.98	2.30	77
	23.98 - 26.98	3.00	2.79	93
	26.98 - 29.98	3.00	3.00	100
	29.98 - 33.05	3.07	3.07	100
	33.05 - 36.10	3.05	3.05	100
	36.10 - 39.10	3.00	3.00	100
	39.10 - 42.10	3.00	3.00	100
	42.10 - 45.00	2.90	2.90	100
45.00 - 48.00	3.00	2.90	98	
48.00 - 50.06	2.06	2.06	100	

5.3 Geophysical Logging

Wire-line logging was carried out by Mitre Geophysics Pty. Ltd. The holes were logged for single point resistance, self potential, gamma, density and hole diameter using a SIE T450 electrically operated logger. A geophysical logging summary is presented in Table 13.

Interpretations by Mitre Geophysics Pty. Ltd. are given in Appendix 4 of Volume I. The geophysical logs are included in Enclosure 2 of Volume II.

Table 13: Geophysical Logging Summary

Area & Drillhole	GEOPHYSICAL METHODS metres					Total Depth metres	Location (AMG)
	Single Point Resistance	Self Potential	Natural Gamma	Density	Caliper		
<u>E.L. 26/79 - SANDFLY</u>							
K-01	5.2 - 17.6	5.2 - 17.5	0.4 - 17.6	0.7 - 17.5	0.8 - 18.1	50.00	512,660mE 5,236,150mN
K-02	73.2 - 148.0	73.3 - 148.0	1.0 - 147.8	1.5 - 148.0	1.0 - 148.0	147.95	511,670mE 5,236,680mN
K-03	5.7 - 12.3	5.8 - 12.5	0.5 - 12.3	0.6 - 12.0	0.8 - 12.6	54.27	513,240mE 5,236,820mN
K-05	20.4 - 49.9	20.7 - 50.0	0.5 - 49.8	0.7 - 50.0	7.8 - 23.4	50.00	511,780mE 5,236,770mN
<u>E.L. 27/79 - HAMILTON</u>							
H-01			0 - 44.0	0 - 44.0	0.7 - 44.5	44.40	484,550mE 5,290,550mN
H-02	13.7 - 69.2	13.8 - 69.3	1.0 - 78.3	0.8 - 77.7	0.7 - 67.4	78.40	483,360mE 5,290,740mN
H-03	29.2 - 84.0	29.2 - 84.0	0.2 - 84.0	2.3 - 84.0	0.9 - 84.0	84.44	483,860mE 3,290,410mN
H-04			0 - 44.5	1.0 - 42.8	1.0 - 43.8	45.10	483,950mE 5,290,060mN
H-05			0.6 - 135.8	0.4 - 135.5		135.47	482,820mE 5,289,170mN
H-06	17.2 - 56.4	17.2 - 56.4	0 - 152.8	0.5 - 156.6	0.7 - 53.3	157.06	482,000mE 5,290,060mN
H-07	Not logged						483,610mE 5,289,040mN

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Area & Drillhole	GEOPHYSICAL METHODS metres					Total Depth metres	Location (AMG)
	Single Point Resistance	Self Potential	Natural Gamma	Density	Caliper		
<u>E.L. 28/79 - COLEBROOK</u>							
0-01				0.2 - 54.0		54.59	538,500mE 5,320,000mN
0-02	7.2 - 45.5	7.2 - 45.5	0.5 - 45.5	0.6 - 45.0	0.5 - 45.5	48.63	540,020mE 5,321,240mN
0-03a			0 - 47.7	0 - 47.7		48.02	539,150mE 5,320,560mN
0-03b			0.2 - 53.0	0 - 53.0		53.40	536,080mE 5,318,100mN
0-04	2.9 - 50.0	3.0 - 50.0	0.5 - 50.0	3.2 - 45.0	0.5 - 50.0	50.73	520,800mE 5,323,760mN
0-05	2.6 - 50.1	2.6 - 50.1	0.7 - 50.5	0.5 - 50.5	0.5 - 51.0		523,660mE 5,307,260mN
0-06			0.7 - 45.7	0.5 - 45.0	0.5 - 45.7	46.15	540,080mE 5,322,340mN
0-07	4.7 - 39.7	4.7 - 39.7	0.7 - 39.8	4.4 - 39.5	0.7 - 41.0	47.34	529,350mE 5,291,310mN
0-09			0.5 - 100.0	0.8 - 100.0		100.00	529,130mE 5,291,760mN
<u>E.L. 29/79 - CYGNET</u>							
C-01	6.5 - 50.3	7.4 - 50.4	0.7 - 50.5	6.5 - 50.5	0.6 - 50.3	50.98	514,370mE 5,220,210mN
C-02			0.6 - 52.2	3.8 - 51.4	0.7 - 52.1	52.00	514,140mE 5,219,800mN
C-03	6.7 - 23.8	7.1 - 23.8	0.8 - 34.6	2.1 - 23.3	0.7 - 24.5	34.00	512,600mE 5,218,710mN
C-04	7.5 - 35.0	7.9 - 35.0	0.1 - 41.4	1.0 - 41.8	1.0 - 40.8	42.28	513,110mE 5,218,570mN
C-05	21.0 - 49.0	21.0 - 49.0	1.2 - 48.0	0.6 - 49.0		50.06	519,620mE 5,211,120mN
C-06	5.5 - 17.3	6.9 - 17.2	0.7 - 17.0	5.7 - 17.0	0.8 - 17.0	44.21	519,860mE 5,214,840mN

5.4 Lithological Logging

Examination and description of core and cuttings were carried out by M. Zapata, T. Hill and P. Darby.

Complete lithologic descriptions are included as Appendix 1 of Volume I. Samples are stored in shed at Launceston rented from H. J. Stacpoole, 1 Lindsay Street, Launceston, Tasmania...7250. Early in 1982 they will be removed to the Tasmanian Department of Mines core shed (presently under construction) if so required.

Computer graphic displays of five drillhole sections at York Plains, in the north-east of the licence area E.L. 28/79 - Colebrook, were completed by Control Data Australia Pty. Limited (CDA). These are presented as Figures in Enclosure 3 of Volume II. Computer holes YP 0001, YP 0002, YP 0003A, YP 0003B and YP 0006 correspond to Capricorn drillholes 0-01, 0-02, 0-03a, 0-03b and 0-06 respectively. A cross-section through the five drillholes was also prepared by CDA, using approximate site elevations and locations, and is also presented in Enclosure 3 of Volume II.

5.5 Coal Analysis

Samples taken during field reconnaissance from adits and outcrops were analysed by The Australian Mineral Development Laboratories (Amdel) and are shown in Table 14.

All drillhole analyses were carried out by SGS Australia Ltd. (SGS). Full seam coal analyses and individual ply coal analyses, together with their sampling details, are summarized in Tables 15, 16 and 17 respectively. Coal washability was tested by float/sink analyses and the results are given in Table 18.

Coal in drillhole H-03 from the interval 68.45 - 68.47 metres was examined petrographically by SGS. The report included in Appendix 2 of Volume I indicates that this sample is of medium volatile bituminous rank.

Original certificates for all analyses are also included in Appendix 2.

Table 14: Adit and Outcrop Sample Analyses

Area & Location	Sample Number	As Received				Moisture Free			Sulphur (Dry Coal Basis) %
		Moisture %	Ash %	Volatile Matter %	Fixed Carbon %	Ash %	Volatile Matter %	Fixed Carbon %	
<u>E.L. 26/79 - SANDFLY</u>									
Stan's Adit, Mouth	1-1-1	15.09	15.76	24.62	44.53	18.56	29.00	52.44	0.39
Stan's Adit, End	1-1-2	3.40	32.13	7.03	57.44	33.26	7.28	59.46	0.43
Kaoota, Sandfly Mine	1-2-1	2.73	92.31	4.50	0.46	94.90	4.62	0.48	<0.01
<u>E.L. 27/79 - HAMILTON</u>									
Langloch-Lawrenny Adit, Mouth	2-1-1	3.33	13.97	25.76	56.94	14.45	26.65	58.91	0.60
East Bank of Derwent River, Plenty	2-2-1	3.78	81.88	6.89	7.46	85.09	7.16	7.75	0.02
<u>E.L. 28/79 - COLEBROOK</u>									
Colebrook, Old Shaft	3-1-1	5.37	87.19	7.06	0.38	92.14	7.46	0.40	0.44
Jerusalem Coal Mine	3-2-1	0.78	82.35	6.05	10.82	82.99	6.10	10.90	0.06
Kempton Road Cutting	3-3-1	4.66	12.08	26.17	57.09	12.67	27.45	59.88	0.01
Coalmine Hill, York Plains	3-4-1	4.30	19.45	15.70	60.56	20.32	16.40	63.28	0.38
<u>E.L. 29/79 - CYGNET</u>									
Golden Beach, Upper Section	4-1-1	2.80	71.51	5.30	20.39	73.58	5.45	20.97	0.21
Golden Beach, Lower Section	4-1-2	3.37	90.30	4.42	1.92	93.44	4.57	1.99	0.04
Coal Mine Bay, Upper Section	4-2-1	2.26	75.56	6.64	15.55	77.30	6.59	15.91	0.17
Coal Mine Bay, Lower Section	4-2-2	1.76	91.81	4.49	1.95	93.45	4.57	1.98	<0.01
Heaney's Mine Adit	4-3-1	9.29	17.71	18.52	54.47	19.53	29.42	60.05	0.34
Heaney's Mine	4-3-2	9.99	18.77	19.76	51.48	20.86	21.95	57.19	0.36

Table 15: Full Seam Coal Analyses

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Thickness

Area & Drillhole	Depth metres	Inherent Moisture %	Ash %	Volatile Matter %	Fixed Carbon %
<u>E.L. 26/79 - SANDFLY</u>					
K-02	64.57 - 65.30	.73 1.4	60.7	11.5	26.4
	81.56 - 83.85	2.29 3.9	46.1	15.6	34.4
	102.56 - 103.04	.48 2.6	24.4	11.4	61.6
	106.34 - 107.11	.77 3.3	29.5	13.6	53.6
K-03	9.75 - 10.51	.76 2.8	32.2	6.8	58.2
<u>E.L. 27/79 - HAMILTON</u>					
H-01	13.92 - 16.23	2.31 4.4	35.1	14.3	46.2
	19.63 - 20.29	.66 8.9	76.4	7.9	6.8
H-03	42.31 - 44.19	1.88 9.1	62.1	10.0	18.8
	45.81 - 47.05	1.24 4.4	23.1	20.0	52.5
H-04	21.28 - 24.53	2.25 5.3	26.7	20.1	47.9
H-06	13.30 - 15.04	1.74 7.8	26.7	19.2	46.3
	17.23 - 18.30	1.07 7.3	24.8	23.5	44.4
	88.76 - 89.09	.33 6.1	51.4	16.8	25.7
H-07	15.73 - 16.94	1.21 7.0	31.9	25.3	35.8
<u>E.L. 28/79 - COLEBROOK</u>					
0-02	7.70 - 8.70	1.0 4.0	37.3	13.2	45.5
	31.07 - 31.75	.68 3.9	44.3	11.5	40.3
	32.98 - 37.37	3.29 4.3	44.5	10.6	40.6
0-03a	37.28 - 40.47	3.19 6.6	45.7	11.4	36.3
0-03b	34.35 - 36.06	1.71 2.3	22.3	14.3	61.1
0-09	26.62 - 27.05	.43 8.4	25.1	21.9	44.6

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Table 16: Individual Fly Coal Analyses

Area & Drillhole	Depth metres	<i>fw.</i> Moisture %	Ash %	Volatile Matter %	Fixed Carbon %	Relative Density
<u>E.L. 26/79 - SANDFLY</u>						
K-02	64.57 - 65.17	.60 1.4	52.6	13.8	32.2	1.79
	81.56 - 81.66	.10 2.8	35.0	17.6	44.6	1.57
	81.96 - 82.48	.52 4.0	40.07	17.1	38.2	1.77
	82.48 - 83.32	.84 4.2	31.1	19.8	43.9	1.76
	83.37 - 83.77	.40 4.2	27.4	19.1	49.3	1.53
	87.55 - 88.57	1.02 3.1	28.5	16.1	52.3	1.55
	106.34 - 106.92	.58 3.7	30.4	14.1	51.8	1.56
	106.93 - 107.11	.18 1.9	20.7	12.6	64.8	1.39
	110.21 - 110.51	.30 3.1	21.7	13.0	62.2	1.47
K-03	9.75 - 10.45	.70 2.8	25.8	7.0	64.4	
	10.45 - 10.51	.06 3.3	24.1	5.9	66.7	
	38.66 - 38.86	.20 1.6	22.3	7.2	68.9	
K-04	8.90 - 9.65	.75 3.9	21.5	24.9	49.7	
	52.62 - 52.87	.25 3.4	40.0	16.4	40.2	
<u>E.L. 27/79 - HAMILTON</u>						
H-01	13.92 - 14.48	.56 3.4	24.5	15.6	56.5	1.47
	14.52 - 14.69	.17 5.1	32.0	15.5	47.4	1.58
	14.80 - 15.07	.27 3.9	21.6	19.0	55.5	1.45
	15.11 - 15.43	.32 4.9	35.9	14.2	45.0	1.56
	15.61 - 16.23	.62 3.4	19.1	16.3	61.2	1.46
	17.57 - 17.64	.07 2.0	19.0	15.2	63.8	1.38
	17.80 - 18.94	1.14 3.7	18.2	16.7	61.4	1.44
	19.63 - 19.85	.22 2.9	23.6	16.4	57.1	1.46
	19.87 - 20.14	.27 5.1	26.6	13.9	54.4	1.45
	20.16 - 20.19	.03 4.5	30.0	14.6	50.9	1.48
	34.39 - 34.71	.32 5.4	55.2	7.5	31.9	1.77

Area & Drillhole	Depth metres	Moisture %	Ash %	Volatile Matter %	Fixed Carbon %	Relative Density
H-03	42.31 - 42.49	18 4.1	26.3	21.2	48.4	1.54
	42.51 - 42.98	17 6.1	27.2	18.6	48.1	1.48
	43.02 - 43.32	30 5.6	26.0	18.4	50.0	1.49
	43.33 - 44.19	8 6 4.8	22.2	20.3	52.7	1.46
	45.51 - 46.20	6 9 4.6	18.8	20.9	55.7	1.44
	46.24 - 47.05	8 1 4.4	19.9	20.7	55.0	1.44
	68.08 - 68.40	3 2 5.4	39.9	13.5	41.2	1.60
H-04	21.28 - 21.46	18 5.9	23.5	19.7	50.9	1.48
	21.49 - 21.82	33 5.1	25.6	20.6	48.7	1.47
	21.84 - 22.98	14 5.3	21.6	20.0	53.1	1.45
	23.03 - 23.53	50 5.2	17.5	20.3	57.0	1.41
	23.96 - 24.16	20 4.0	28.1	21.5	46.4	1.43
	24.18 - 24.53	35 4.9	26.1	26.1	51.2	1.49
H-05	49.08 - 49.21	13 7.2	33.1 ³	28.8	30.7	1.47
	60.14 - 60.89	75 6.2	39.5	27.6	26.7	1.58
	66.23 - 66.38	15 6.9	32.2	21.5	39.4	1.63
	70.16 - 70.24	08 7.8	50.2	22.7	19.3	1.56
	81.60 - 81.72	12 4.7	46.8	15.0	33.5	1.75
	92.44 - 93.04	60 4.9	27.0	19.6	48.5	1.55
	122.85 - 122.96	11 5.2	37.2	16.1	41.5	1.70
H-06	13.30 - 13.74	44 8.0	24.4	18.7	48.9	1.54
	13.77 - 14.59	82 8.3	23.8	21.2	46.7	1.53
	14.64 - 15.04	40 7.1	19.2	18.7	55.0	1.50
	17.23 - 18.21	9 8 7.7	15.2	26.2	50.9	1.47
	19.32 - 20.49	1 1 7 6.9	19.3	25.1	48.7	1.47
	71.84 - 72.17	33 9.6	51.0	13.4	26.0	1.89
	88.76 - 89.00	24 7.0	31.5	21.8	39.7	1.57
	106.24 - 106.40	16 5.8	33.7	25.4	35.1	1.52
	133.39 - 133.54	15 7.7	55.7	10.5	26.1	1.80
146.89 - 147.38	4 9 6.5	36.1	3.4	54.0	1.68	

F/S

F/S

Area & Drillhole	Depth metres	Moisture %	Ash %	Volatile Matter %	Fixed Carbon %	Relative Density
H-07	15.73 - 16.73	1.00 7.1	30.6	24.9	37.4	1.57
	16.74 - 16.94	.20 6.5	35.2	28.3	30.0	1.57
	22.60 - 22.80	.20 6.9	32.0	26.4	34.7	1.58
	26.68 - 26.75	.07 6.1	37.5	18.9	37.4	1.62
	37.06 - 37.18	.12 5.9	20.2	27.5	46.4	1.47
<u>E.L. 28/79 - COLEBROOK</u>						
0-01	5.85 - 6.88	1.03 3.6	34.6	8.9	52.9	1.58
	36.42 - 37.02	.60 3.3	25.3	11.8	59.6	1.47
0-02	8.01 - 8.70	.69 3.5	29.3	13.7	53.5	1.50
	31.07 - 31.49	.42 2.4	24.7	14.4	58.5	1.52
	31.60 - 31.76	.16 3.3	52.2	9.2	35.3	1.75
	32.98 - 33.31	.33 2.3	20.2	12.2	65.3	1.48
	33.34 - 33.45	.11 4.9	48.4	10.0	36.7	1.75
	33.62 - 34.20	.38 2.4	26.8	13.6	57.2	1.53
	34.35 - 34.57	.22 3.0	25.4	13.9	57.7	1.52
	34.68 - 35.18	.50 1.9	32.0	12.0	54.1	1.55
	35.26 - 35.51	.25 3.1	28.5	11.6	56.8	1.49
	35.60 - 36.30	.70 2.4	23.2	13.1	61.3	1.47
	36.86 - 37.37	.51 3.3	28.5	12.1	56.1	1.51
39.88 - 40.13	.25 2.0	25.2	12.7	60.1	1.48	
41.36 - 41.43	.07 2.3	36.5	8.9	52.3	1.62	
0-03a	37.36 - 37.52	.16 3.9	35.4	13.9	46.8	1.62
	37.60 - 37.74	.14 4.9	36.9	13.3	44.9	1.60
	37.84 - 37.96	.12 8.9	56.1	8.7	21.3	1.80
	38.14 - 38.35	.21 3.8	33.3	14.4	48.5	1.60
	38.48 - 38.85	.37 3.9	34.5	13.0	48.6	1.56
	39.11 - 39.34	.23 2.2	20.0	13.5	64.3	1.46
	39.52 - 39.72	.20 3.1	24.9	13.2	58.8	1.49
	39.86 - 40.47	.61 2.3	19.3	14.8	63.6	1.45

Area & Drillhole	Depth metres	Moisture %	Ash %	Volatile Matter %	Fixed Carbon %	Relative Density
0-03b	34.35 - 34.87	52 2.3	21.4	14.6	61.7	1.48
0-06	11.08 - 11.35	27 2.5	40.8	14.9	41.8	1.66
	32.45 - 32.75	30 3.5	39.3	7.3	49.9	1.61
	33.25 - 33.43	18 3.1	49.5	9.0	38.4	1.70
0-09	26.62 - 27.02	40 8.7	21.2	23.0	47.1	1.45

Table 17: Coal Ply and Seam Sampling Details

* Samples (of interbedded non-coal sediment and coal not previously analysed) combined with already analysed coal ply samples into composite full-seam samples.

Area & Drillhole	Composite Full-Seam (m)	Coal Ply and Interbed (m)	Lithology	
<u>E.L. 26/79 - SANDFLY</u>				
K-02	64.57 - 65.30	64.57 - 65.17	Coal	
		65.17 - 65.19	Sandstone *	
		65.19 - 65.23	Coal *	
		65.23 - 65.30	Coal *	
	81.56 - 83.85	81.56 - 81.66	Coal	
		81.66 - 81.96	Mudstone *	
		81.96 - 82.48	Coal	
		82.48 - 83.32	Coal	
		83.32 - 83.37	Carbonaceous mudstone *	
		83.37 - 83.77	Coal	
		83.77 - 83.88	Core loss	
	102.56 - 103.04	102.56 - 102.81	Coal (missing)	
		102.81 - 102.96	Carbonaceous mudstone *	
		102.96 - 103.04	Coal *	
	106.34 - 107.11	106.34 - 106.92	Coal	
106.92 - 106.93		Mudstone*		
106.93 - 107.11		Coal		
K-03	9.75 - 10.51	9.75 - 10.45	Coal	
		10.45 - 10.51	Coal *	
<u>E.L. 27/79 - HAMILTON</u>				
H-01	13.92 - 16.23	13.92 - 14.48	Coal	
		14.48 - 14.52	Clod *	
		14.52 - 14.69	Coal	
		14.69 - 14.80	Core loss	
		14.80 - 15.07	Coal	
		15.07 - 15.11	Carbonaceous mudstone *	
		15.11 - 15.43	Coal	
		15.43 - 15.61	Mudstone *	
		15.61 - 16.23	Coal	
	19.63 - 20.29	19.63 - 19.85	Coal	
		19.85 - 19.87	Clod *	
		19.87 - 20.14	Coal	
		20.14 - 20.16	Carbonaceous mudstone *	
		20.16 - 20.29	Coal	
	H-03	42.31 - 44.19	42.31 - 42.49	Coal
			42.49 - 42.51	Carbonaceous mudstone*
			42.51 - 42.98	Coal
42.98 - 43.02			Carbonaceous mudstone*	
43.02 - 43.32			Coal	
43.32 - 43.33			Carbonaceous mudstone*	
43.33 - 44.19			Coal	

Area & Drillhole	Composite Full-Seam (m)	Coal Ply and Interbed (m)	Lithology
		36.30 - 36.33	Mudstone *
		36.33 - 36.62	Core loss
		36.62 - 36.86	Carbonaceous mudstone*
		36.86 - 37.37	Coal
0-03a	37.28 - 40.47	37.28 - 37.33	Coal *
		37.33 - 37.36	Mudstone *
		37.36 - 37.52	Coal
		37.52 - 37.60	Mudstone *
		37.60 - 37.74	Inferior coal
		37.74 - 37.84	Carbonaceous mudstone *
		37.84 - 37.96	Coal
		37.96 - 38.14	Carbonaceous mudstone *
		38.14 - 38.35	Coal
		38.35 - 38.47	Mudstone *
		38.47 - 38.85	Coal
		38.85 - 39.03	Core loss
		39.03 - 39.11	Carbonaceous mudstone *
		39.11 - 39.34	Coal
		39.34 - 39.52	Mudstone *
		39.52 - 39.72	Coal
		39.72 - 39.86	Mudstone *
		39.86 - 40.47	Coal
0-03b	34.35 - 36.06	34.35 - 34.87	Coal
		34.87 - 36.00	Core loss
		36.00 - 36.06	Coal *
0-09	26.62 - 27.05	26.62 - 27.02	Coal
		27.02 - 27.05	Clod

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Table 18. Washability Tests

Area & Drillhole	Depth m	Float/Sink Analysis						Proximate Analysis		
		Relative Density		Fractional		Cumulative		Raw Coal		
		Float(F)	Sink(S)	Mass %	Ash %	Mass %	Ash %	Ash %	Relative Density	
<u>E.L. 26/79 - SANDFLY</u>										
K-02	64.57 - 65.17		1.55		9.8	34.0	9.8	34.0		
			1.60		7.7	34.4	17.5	34.2		
			1.70		31.4	44.6	48.9	40.9		
			1.80		30.6	52.3	79.5	45.3		
			1.90		12.5	60.2	92.0	47.3		
			2.00		2.2	63.8	94.2	47.7		
				2.00	5.8	71.9	100.0	49.1		
					94.0	49.1	94.0	49.1		
				Calculated +0.5 Analysed -0.5	6.0	43.9	100.0	48.8	52.6	1.79
	81.56 - 81.66		1.45		29.3	16.8	29.3	16.8		
			1.50	1.45	17.8	22.9	47.1	19.1		
			1.55	1.50	11.1	27.4	58.2	20.7		
			1.60	1.55	11.1	33.0	69.3	22.7		
			1.70	1.60	9.8	39.2	79.1	24.7		
				1.70	20.9	66.8	100.0	33.5		
					91.6	33.5	91.6	33.5		
				Calculated +0.5 Analysed -0.5	8.4	31.9	100.0	33.4	35.0	1.57

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Area & Drillhole	Depth m	Relative Density		Fractional		Cumulative		Raw Coal	
		Float(F)	Sink(S)	Mass %	Ash %	Mass %	Ash %	Ash %	Relative Density
	81.96 - 82.48	1.50		14.4	18.1	14.4	18.1		
		1.55	1.50	8.6	22.3	23.0	19.7		
		1.60	1.55	8.2	26.0	31.2	21.3		
		1.70	1.60	10.7	35.8	41.9	25.0		
		1.80	1.	15.5	44.7	57.4	30.3		
		1.90	1.80	6.6	52.1	64.0	32.6		
		2.00	1.90	5.5	57.5	69.5	34.6		
			2.00	30.5	76.4	100.0	47.3		
		Calculated	+0.5	95.2	47.3	95.2	47.3		
		Analysed	-0.5	4.8	45.9	100.0	47.2	40.0	1.77
	82.48 - 83.32	1.35		5.5	9.0	5.5	9.0		
		1.40		12.4	10.5	17.9	10.0		
		1.45		11.3	14.2	29.2	11.6		
		1.50		10.2	20.5	29.4	13.9		
		1.55		13.4	25.2	52.8	16.8		
		1.60		7.2	29.6	60.6	18.3		
		1.70		12.2	25.7	72.2	19.6		
		1.80		10.8	43.2	83.0	22.7		
		1.90		2.9	49.1	85.9	23.5		
		2.00		2.3	58.6	88.2	24.5		
			2.00	11.8	76.1	100.0	30.5		
		Calculated	+0.5	95.1	30.5	95.1	30.5		
		Analysed	-0.5	4.9	32.0	100.0	30.6	31.1	1.76

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Area & Drillhole	Depth	Relative Density		Fractional		Cumulative		Raw Coal	
		Float(F)	Sink(S)	Mass %	Ash %	Mass %	Ash %	Ash %	Relative Density
	83.37 - 83.77	1.35		15.5	9.2	15.5	9.2		
		1.40		20.4	11.0	35.9	10.2		
		1.45		17.0	14.6	52.9	11.6		
		1.50		9.1	20.0	62.0	12.9		
		1.55		4.3	25.6	66.3	13.7		
		1.60		3.5	32.1	69.8	14.6		
			1.60	30.2	58.9	100.0	28.0		
		Calculated	+0.5	96.3	28.0	96.3	28.0		
		Analysed	-0.5	3.7	35.9	100.0	28.3	27.4	1.53
	87.55 - 88.57	1.40		14.1	10.4	14.1	10.4		
		1.45		20.3	14.4	34.4	12.8		
		1.50		19.5	18.8	53.9	14.4		
		1.55		15.0	28.6	68.9	17.9		
		1.60		7.4	24.6	76.3	18.6		
		1.70		7.7	34.1	84.0	20.0		
		1.80		3.2	42.5	87.2	20.8		
		1.90		1.3	62.5	88.5	21.4		
			1.90	11.5	67.8	100.0	26.8		
		Calculated	+0.5	94.2	26.8	94.2	26.8		
		Analysed	-0.5	5.8	28.6	100.0	26.9	28.5	1.55

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Area & Drillhole	Depth m	Relative Density		Fractional		Cumulative		Raw Coal	
		Float(F)	Sink(S)	Mass %	Ash %	Mass %	Ash %	Ash %	Relative Density
	106.39 - 106.92	1.45		8.9	10.8	8.9	10.8		
		1.50		18.1	16.8	27.0	14.8		
		1.55		19.7	21.4	46.7	17.6		
		1.60		10.5	26.4	57.2	19.2		
		1.70		23.9	32.8	81.1	23.2		
		1.80		8.6	42.6	89.7	25.1		
			1.80	10.3	67.3	100.0	29.4		
		Calculated	+0.5	93.4	29.4	93.4	29.4		
		Analysed	-0.5	6.6	38.1	100.0	30.0	30.4	1.56
	106.93 - 107.11	1.40		22.2	7.0	22.2	7.0		
		1.45		53.3	9.4	75.5	8.7		
		1.50		11.8	13.7	87.3	9.4		
		1.55		3.3	50.3	90.6	14.6		
			1.55	9.4	50.3	100.0	14.6		
		Calculated	+0.5	91.0	14.6	91.0	14.6		
		Analysed	-0.5	9.0	19.9	100.0	15.1	64.8	1.39
	110.21 - 110.51	1.45		34.8	9.2	34.8	9.2		
		1.50		15.8	14.7	50.6	10.9		
		1.55		16.2	21.4	66.8	13.5		
		1.60		9.8	25.9	76.6	15.1		
		1.70		11.6	32.9	88.2	17.4		
			1.70	11.8	47.7	100.0	21.0		
		Calculated	+0.5	85.9	21.0	85.9	21.0		
		Analysed	-0.5	14.1	24.6	100.0	21.5	62.2	1.47

078

Area & Drillhole	Depth m	Relative Density		Fractional		Cumulative		Raw Coal	
		Float(F)	Sink(S)	Mass %	Ash %	Mass %	Ash %	Ash %	Relative Density
<u>E.L. 27/79 - HAMILTON</u>									
H-01	13.92 - 18.94	1.40		49.2	10.2	49.2	10.2		
		1.60	1.40	36.2	22.7	85.4	15.5		
		1.80	1.60	7.9	42.8	93.3	17.8		
			1.80	6.7	66.3	100.0	21.1	23.1	1.47
H-03	42.31 - 44.19	1.40		33.8	11.4	33.8	11.4		
		1.60	1.40	49.3	24.0	83.1	18.9		
		1.80	1.60	11.4	40.7	94.5	21.5		
			1.80	5.5	57.0	100.0	23.5	24.5	1.47
	45.81 - 47.05	1.40		55.8	10.1	55.8	10.1		
		1.60	1.40	31.8	22.2	87.6	14.5		
		1.80	1.60	8.5	40.2	96.1	16.8		
			1.80	56.3	100.0	100.0	18.3	19.4	1.44
H-04	21.28 - 24.53	1.40		43.6	10.2	43.6	10.2		
		1.50	1.40	30.1	20.0	73.7	14.2		
		1.60	1.50	11.2	28.0	84.9	16.0		
		1.70	1.60	6.4	36.8	91.3	17.5		
		1.80	1.70	5.3	43.4	96.6	18.9		
			1.80	3.4	56.1	100.0	20.2	23.07	1.54

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Area & Drillhole	Depth m	Relative Density		Fractional		Cumulative		Raw Coal		
		Float(F)	Sink(S)	Mass %	Ash %	Mass %	Ash %	Ash %	Relative Density	
H-06	13.30 - 15.04	1.40		44.3	13.8	44.3	13.8			
		1.50	1.40	23.6	19.3	67.9	15.7			
		1.60	1.50	15.0	28.0	82.9	17.9			
		1.70	1.60	6.2	36.0	89.1	19.2			
		1.80	1.70	4.1	43.9	93.2	20.3			
		1.80	6.8	51.2	100.0	22.4	22.9	1.53		
		17.23 - 18.21	1.40		72.0	10.7	72.0	10.7		
	1.50		1.40	15.6	16.7	87.6	11.8			
	1.60		1.50	4.4	26.9	92.0	12.7			
	1.70		1.60	0.9	26.9	92.9	12.7			
	1.80		1.70	0.5	26.9	93.4	12.7			
		1.80	6.6	47.6	100.0	15.0	15.2	1.47		
		88.76 - 89.00	1.40		44.9	13.8	44.9	13.8		
	1.50		1.40	22.6	22.3	67.5	16.6			
	1.60		1.50	6.1	34.5	73.6	19.7			
1.70	1.60		5.0	34.5	78.6	19.7				
1.80	1.70		3.1	34.5	81.7	19.7				
	1.80	18.3	72.7	100.0	29.4	31.5	1.57			

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Area & Drillhole	Depth m	Relative Density		Fractional		Cumulative		Raw Coal	
		Float(F)	Sink(S)	Mass %	Ash %	Mass %	Ash %	Ash %	Relative Density
H-07	15.73 - 16.94	1.40		22.8	13.6	22.8	13.6		
		1.50	1.40	25.1	20.7	47.9	17.3		
		1.60	1.50	25.1	20.7	47.9	17.3		
		1.70	1.60	12.2	38.9	75.0	23.3		
		1.80	1.70	12.6	49.3	87.6	27.0		
			1.80	12.4	58.4	100.0	30.9	31.4	1.57
<u>E.L. 28/79 - COLEBROOK</u>									
O-01	5.85 - 6.88	1.60		48.1	17.6	48.1	17.6		
		1.80	1.60	18.7	36.8	66.8	23.0		
		2.00	1.80	11.8	56.4	78.6	28.0		
			2.00	21.4	74.5	100.0	37.9	34.6	1.58
	36.42 - 37.02	1.40		41.1	8.9	41.1	8.9		
		1.60	1.40	31.3	20.1	72.4	13.7		
		1.80	1.60	11.3	42.2	83.7	17.6		
			1.80	16.3	63.6	100.0	25.1	25.3	1.47
O-02	8.01 - 8.70	1.40		24.2	10.0	24.2	10.0		
		1.60	1.40	40.2	24.5	64.4	19.1		
		1.80	1.60	16.7	41.2	81.1	23.6		
			1.80	18.9	60.7	100.0	30.6	29.3	1.50

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Area & Drillhole	Depth m	Relative Density		Fractional		Cumulative		Raw Coal	
		Float(F)	Sink(S)	Mass %	Ash %	Mass %	Ash %	Ash %	Relative Density
	31.07 - 37.37	1.40		25.8	9.2	25.8	9.2		
		1.60	1.40	44.6	20.4	70.4	16.3		
		1.80	1.60	10.2	39.4	80.6	19.2		
			1.80	19.4	67.9	100.0	28.7	28.5	1.52
	39.88 - 40.13	1.40		17.4	9.9	17.4	9.9		
		1.60	1.40	56.3	18.4	73.7	16.4		
		1.80	1.60	15.3	39.7	89.0	20.4		
			1.80	11.0	61.8	100.0	24.9	25.2	1.48
0-03a	37.36 - 40.47	1.40		32.0	11.2	32.0	11.2		
		1.60	1.40	33.1	23.1	65.1	17.3		
		1.80	1.60	17.9	43.3	83.0	22.9		
			1.80	17.0	64.9	100.0	30.0		
				19.2	11.4	19.2	11.4	28.5	1.54
0-03b	34.35 - 34.87	1.60	1.40	65.6	21.0	84.8	18.8		
		1.80	1.60	10.1	32.3	94.9	20.3		
			1.80	5.1	47.0	100.0	21.6	21.4	1.48

6. INTERPRETATION OF DATA

6.1 Coal Measures

6.1.1 Fault dislocation

E. L. 26/79 - Sandfly

The five holes drilled by Capricorn Mining in the vicinity of Kaoota were located in an area of relatively mild faulting, with only minor localised faults (initiated in Jurassic times) affecting continuity of seams. These faults had caused serious problems for extension of early underground workings and were a main cause of cessation of mining. Three known faults merit mention:

- (1) A north-northeasterly to northeasterly trending fault with a throw of 35 metres.

It is on the downthrown side of this fault, towards the east, that the Wallsend Coal Mine was located.

- (2) An unnamed northerly trending fault, 300 metres west of the township of Kaoota, with a throw of 18 metres.

The Sandfly Coal Mine is on the upthrown side of this fault and is located between the fault and another parallel fault, 250 metres to the east.

- (3) A northerly trending fault (as mentioned above), 50 metres to the west of Kaoota, with a throw of 10 metres.

The Sandfly Coal Mine is on the downthrown side of this fault.

Drillholes K-02, K-04 and K-05 were drilled on the upthrown side of fault (1) approximately 300 metres west-northwest, 260 metres northwest, and 25 metres west respectively from the fault-line. Fault (2) and fault (3), 250 metres to the west, are related step faults. Drillhole K-03 is located on the upthrown side of fault (3), 50 metres to the east of the fault-line. Drillhole K-01 was drilled 175 metres (approx.) south-southeast from Barkers Adit in a possible graben-type structure between fault (1) and fault (2), bounding the western margin of the Sandfly Coal Mine. Significant dolerite intrusions in the proximity of the coalfield could have intruded earlier fault zones or possible initiated faulting.

A study of lithologic logs from the Capricorn Mining operations reveals evidence of faulting in only drillhole K-02 where slickensiding was encountered at the following intervals:

<u>Drillhole K-02</u> (m)
30.66 - 31.69
66.10 - 66.92
85.16 - 86.85
87.55 - 88.57
89.60 - 89.78
105.16 - 106.34

E. L. 27/79 - Hamilton

To the northwest of the Lawrenny Mine, a Lower Miocene north-east trending fault, which possibly belongs to the Derwent Fault system, is thought to have controlled accumulation of approximately 300 metres of Tertiary clays and ferruginous sands on the downthrown side. If this suggestion is correct, coal-bearing Triassic rocks would underlie these lacustrine deposits (Carey, 1976).

Drillholes H-01, H-02, H-03 and H-04 were drilled in the vicinity of the mine, but were too far south of the above-mentioned fault to be affected by it. Drillhole H-01, however, showed evidence of slickensiding between 34.71 and 35.51 metres.

Approximately 60 metres to the south of the Ouse - Hamilton road, the coal-bearing Triassic rocks, which dip at approximately south 87° west, cease to outcrop and it is probable that the coal measures are downfaulted. Drillholes H-05, H-06 and H-07 are located on the upthrown side of this postulated fault. The strike of the fault is unknown but appears to have a northwesterly trend. Numerous slickensides occurring in H-05 and H-06 further support the probability of faulting in the area. Slickensides were encountered between the following intervals:

<u>Drillhole H-05</u> (m)	<u>Drillhole H-06</u> (m)	<u>Drillhole H-07</u> (m)
83.80 - 84.14	64.30 - 66.47	33.21 - 35.81
93.15 - 96.15	69.47 - 71.73	

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116.57 - 117.39 95.45 - 96.97
 120.36 - 122.85 102.97 - 105.97
 123.42 - 126.39 138.90 - 141.94
 141.94 - 144.94

E. L. 28/79 - Colebrook

Drillholes 0-01, 0-02, 0-03a, 0-03b, and 0-06 were all drilled in the York Plains - Mt. Pleasant region. With the exception of drillhole 0-03b, which was located on the downthrown side of a northwesterly trending fault, the remaining above-mentioned holes all recorded occurrences of slickensiding. In addition, they were all located on the upthrown side of this minor fault. Slickensides were intersected at the following intervals:

<u>Drillhole 0-01</u>	<u>Drillhole 0-02</u>	<u>Drillhole 0-03a</u>	<u>Drillhole 0-06</u>
(m)	(m)	(m)	(m)
27.52 - 28.42	27.37 - 27.42	38.35 - 38.47	32.75 - 33.17
	42.63 - 44.63		

Drillhole 0-04 was drilled in the Mike Howe's Marsh area. No faulting in the surroundings of the drillhole has been documented. Slickensides were intersected in the following intervals:

Drillhole 0-04
 (m)
 44.73 - 47.53
 48.92 - 49.62

Drillhole 0-05 was located east of the Jericho township in an area marked by the presence of northerly trending faults. This particular hole was sited 500 metres west of the fault in an undifferentiated Triassic unit on the upthrown side. Minor outcrops of the coal measures unit appear on the downthrown side of this fault.

Drillholes 0-07 and 0-09 were sited in the Colebrook region. Faults within this area are probably numerous but are difficult to detect. A large northwest-southeast fault forms the eastern boundary of the area, roughly along the line of the Wallaby Rivulet. The downthrow is to the southwest and at least 185 metres in magnitude. Both of the above-mentioned drillholes were located in the south of this fault

and possibly on the downthrown side. Slickensiding occurred at the following intervals:

<u>Drillhole 0-07</u>	<u>Drillhole 0-09</u>
(m)	(m)
30.30 - 31.17	23.05 - 23.11
40.40 - 40.92	62.92 - 62.96
	83.89 - 83.92
	85.93 - 86.59

E. L. 29/79 - Cygnet

A large and extensive north to northeasterly trending fault, which has been intruded by dolerite, dominates the Mount Cygnet area. All drillholes lie to the east of this fault in the downthrown side. Minor parallel faults, perpendicular to this major fault, trend to the southeast and offset the Cygnet Coal Measures, although the degree of throw has not been documented. Previous coal workings all took place on the upthrown sides of these minor faults.

Drillhole C-01 is located approximately 300 metres to the north and on the downthrown side of tow such minor faults. An earlier coal working is sited on the upthrown side of this fault, 100 metres due south of the fault-line.

Drillholes C-03 and C-04 were drilled in the Abels Bay Formation in an area that was unaffected by minor faulting; these faults lie 100 metres and 700 metres respectively from the major north to northeasterly trending fault.

Drillholes C-05 and C-06 were sited in the Gordon and Middleton areas respectively. No faulting within the proximity of these drillholes has been documented. Slickensiding was intersected in drillhole C-05 as follows:

Drillhole 0-05

(m)

23.92 - 24.03

6.1.2 Stratigraphic units

Stratigraphic units on the map sheets published by the Tasmanian Geological Survey have progressively changed as greater understanding of the stratigraphy has developed (Table 9). Identification of units intersected in the Capricorn drillholes is attempted in Table 19.

Table 19: Stratigraphic Units Intersected

Area & Drillhole	Interval (metres)	Map Unit	Rock Unit	Geological Map
<u>E.L. 26/79 - SANDFLY</u>				
K-01	0 - 50.00+	Rk	Kaoota Coal Measures	Kingborough 1:50,000
K-02	0 - 4.00	Qtd	Dolerite talus and scree	" "
	4.00 - 147.95+	Rk	Kaoota Coal Measures	" "
K-03	0 - 1.95	-	Clay	" "
	1.95 - 54.27+	Rk	Kaoota Coal Measures	" "
K-04	0 - 1.80	Qtd	Dolerite talus and scree	" "
	5.00 - 78.09+	Rk	Kaoota Coal Measures	" "
K-05	0 - 1.80	Qtd	Dolerite talus and scree	" "
	1.80 - 50.00+	Rk	Kaoota Coal Measures	" "
<u>E.L. 27/79 - HAMILTON</u>				
H-01	0 - 1.40	Qa	Alluvium	Oatlands 1:250,000
	1.40 - 44.40+	(Ru)	Kaoota Coal Measures	" "
H-02	0 - 1.00	-	Soil	" "
	1.00 - 78.40+	(Ru)	Kaoota Coal Measures equivalent	" "
H-02a	0 - 1.00	-	Soil	" "
	1.00 - 38.30+	(Ru)	Kaoota Coal Measures equivalent	" "
H-03	0 - 1.00	-	Soil	" "
	1.00 - 84.44+	(Ru)	Kaoota Coal Measures equivalent	" "
H-04	0 - 1.00	-	Soil	" "
	1.00 - 45.10+	(Ru)	Kaoota Coal Measures equivalent	" "
H-05	0 - 1.00	-	Soil	" "
	1.00 - 134.27	(Ru)	Kaoota Coal Measures equivalent	" "
	134.27 - 135.47+	Jd	Dolerite	" "
H-06	0 - 1.75	-	Soil	" "
	1.75 - 150.99	(Ru)	Kaoota Coal Measures equivalent	" "
	150.99 - 154.80	(Ru)	Metasediments	" "
	154.80 - 157.06+	Jd	Dolerite	" "
H-07	0 - 2.55	-	Clay	" "
	2.55 - 86.00+	(Ru)	Kaoota Coal Measures equivalent	" "

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Area & Drillhole	Interval (metres)	Map Unit	Rock Unit	Geological Map
<u>E.L. 28/79 - COLEBROOK</u>				
0-01	0 - 2.00	Qa	Alluvium	Oatlands 1:50,000
	2.00 - 48.47	Rg	Lithic arkose with volcanic grains, inter- bedded minor mudstone and coal measures	" "
	48.47 - 54.59+	Rg ?	" "	" "
0-02	0 - 1.75	Qa	Alluvium	" "
	1.75 - 47.00	Rg	Lithic arkose with volcanic grains, inter- bedded minor mudstone and coal measures	" "
	47.00 - 48.63+	Rg ?	" "	" "
0-03a	0 - 2.25	-	Soil	" "
	2.25 - 45.72	Rg	Lithic arkose with volcanic grains, inter- bedded minor mudstone and coal measures	" "
	45.72 - 48.02+	Rg ?	" "	" "
0-03b	0 - 1.25	-	Soil	" "
	1.25 - 53.40+	Rg ?	Lithic arkose with volcanic grains, inter- bedded minor mudstone and coal measures	" "
0-04	0 - 2.00		Alluvium	Oatlands 1:250,000
	2.00 - 50.73+	(Ru)?		
0-05	0 - 2.00	Qa	Alluvium	Oatlands 1:50,000
	2.00 - 51.00+	Rs ?	Feldspathic and quartzose sandstone with interbedded mudstone and siltstone	
0-06	0 - 1.00	-	Soil	" "
	1.00 - 45.88	Rg ?	Lithic arkose with volcanic grains, inter- bedded minor mudstone and coal measures	" "
	45.88 - 46.15+	Jd	Dolerite	

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Area & Drillhole	Interval (metres)	Map Unit	Rock Unit	Geological Map
O-07	0 - 1.00	-	Soil	Brighton 1:50,000
	1.00 - 42.32	Ru	Lithic arkose and lutite, coal bearing, undifferentiated	
	42.32 - 47.34+	Jd	Dolerite	
O-09	0 - 1.00	-	Soil	" "
	1.00 - 100.00+	Ru		
<u>E.L. 29/79 - CYGNET</u>				
C-01	0 - 3.00	-	Soil	Kingborough 1:50,000
	3.00 - 50.98+	Pfc	Cygnets Coal Measures, feldspathic sandstone with subordinate mudstone	
C-02	0 - 1.00	-	Soil	" "
	1.00 - 52.00+	Pa ?	Abels Bay Formation, siltstone, sandy siltstone and minor sandstone beds	
C-03	0 - 1.00	-	Soil	" "
	1.00 - 34.00+	Pa	Abels Bay Formation, siltstone, sandy siltstone and minor sandstone beds	
C-04	0 - 3.00	-	Soil	" "
	3.00 - 42.28+	Pfc	Cygnets Coal Measures, feldspathic sandstone with subordinate mudstone	
C-05	0 - 0.80	-	Soil	" "
	0.80 - 50.06+	Pfc	Cygnets Coal Measures, feldspathic sandstone with subordinate mudstone	
C-06	0 - 3.00	-	Soil	" "
	3.00 - 44.21+	Ru ?	Undifferentiated sediments	

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6.1.3 Depositional environmentsPermian

Interpretation of depositional environments for drillhole sections in the Cygnet area is hampered by a lack of information. Only three of the six holes drilled are thought to have intersected the coal measure unit.

The Cygnet Coal Measures appear to be discontinuous due to pre-Triassic erosion (Cook, 1975). Two seams of 0.5 metres and 0.3 metres respectively occur in the Cygnet area. As a result of the thermal effects of a Jurassic dolerite, the coal is of anthracitic rank. Spry and Banks (1962) suggest that Late Permian times in Tasmania were characterised by a sandy plain which extended across much of the island with the exception of the northeastern and possibly the northwestern regions. Lakes and swamps occurred within the plain and in some of these peat accumulated. The vegetation preserved is dominantly pteridospermatous but evidence of equisetals and larger woody gymnosperms is also present. Glossopteris angustifolia was also widespread during Late Permian times in what was essentially a cold, wet periglacial climate.

A cyclic sedimentation pattern is evident in core recovered from drillholes C-04 and C-05. Basal sandstone grades into sandy siltstone, mudstone, and finally into a coal sequence with many similarities to the Upper Triassic fluvial cycles. Sandstones tend to be massive, fine grained and well sorted in the basal interval and grade into a predominantly medium to coarse grained sandstone before grading back into an essentially fine grained sandstone. The sandstones in this sub-cycle are bioturbated in part and in the basal interval are prone to slumping features as a result of intraformational deformation. Load casts occur in the bottom section of drillhole C-05. Carbonaceous banding is prevalent within the sandstone, as is minor quantities of mica and pyrite.

It is thought that these sandstones are derived from a transition zone between point bar (ripple-cross bedded zone) and natural levee environments and even in part represent a flood-plain environment.

The sandstones are in turn overlain by definite overbank units including flood-plain and backswamp deposits which supported abundant plant and animal life. Siltstone, carbonaceous mudstone and coal were successively laid down in this environment, although the presence of minor pebble banks indicates brief times of high current activity.

Triassic

Examination of lithologic logs for holes drilled in the Sandfly, Hamilton and Colebrook licence areas reveals depositional cycles consistent with a fluvial environment. The cyclic nature of the Triassic sediments is characterised by:

- (1) A basal lithic sandstone unit of medium to coarse grain size grading to a fine grained sandstone.

These sandstones represent channel bar deposits with an occasional basal bedload zone. Mudstone clasts of subangular to rounded shape within the sandstones could be derived from hardened or curled mudflakes on the banks of a river or from dried out ox-bow lakes. The sandstone occasionally appears mottled and bioturbated in part, with mica associated with the finer sediments.

There is compatibility with a meander belt migrating across a wide flood-plain, since lithologic cycles tend to be well preserved and show little sign of denudation.

- (2) A sandy siltstone unit with occasional minor cross bedding, grading upwards from the basal sandstone.

This unit is interpreted as either upper point bar or natural levee bank deposits. The lack of steep cross bedding from drillhole data tends to support wide, low and flat point bar deposits.

- (3) A silt and mud unit transitionally overlying the silty sandstones.

The frequency of cycles present in the Kaoota area suggests a constant sweeping of the meandering stream across the flood-plain. Five cycles of a predominantly sandstone, siltstone, mudstone, and coal sequence were intersected in drillhole K-02, the deepest of all the holes drilled by Capricorn Mining in the Triassic, and as each cycle is preserved we can suggest that deposition was at least in equilibrium with subsidence (Bacon, 1979).

The unit represents overbank deposition in a flood-plain environment. Peat swamps developed on top of the overbank muds and periodic flooding of the river transported further fines into the swamp environment to produce mudstone/coal sequences. (Bacon, 1979) further suggests compaction of peat under its own weight to produce depressions within which sands and shales accumulated.

The return of the meandering stream truncates this succession of sediments and the cycle is repeated. The cyclic sediments are interpreted as typical of an upper deltaic plain tract. A reservation is suggested by the massive nature of the mottled mudstones with innumerable plant remains and minor roots which could represent a coastal swamp environment.

6.1.4. Coal Distribution

The distribution pattern of known outcrops and shallow subcrops of coal measures within the Parmeener Super-Group throughout the Tasmania Basin are shown in Figure 4, with the main categories discriminated as follows:

		Late Triassic	Kaoota Coal Measures
	Upper	Middle Triassic	
		Early Triassic	
		<hr/>	
Parmeener		Late Permian	Cygnets Coal Measures
Super-Group		Middle Permian	Mersey Coal Measures
	Lower	Early Permian	
		<hr/>	
		Late Carboniferous	

An attempt was made to discover whether any areal grading of clastics within each coal measure unit across its respective depositional sub-basin had occurred. The distance between each sampling location and the assumed margin of thick sedimentation in the Tasmania Basin was compared to coal analyses so as to see if a simple relationship existed. However, there was no obvious trend between high ash content and nearness to clastic provenance.

As expected for such apparently erratic distribution resulting from lensing coal seams and discrete pods, a single basinwide depositional system is most unlikely, and variation in ash content is probably related to local sedimentary sources scattered throughout the basin.

A summary of coal qualities (estimated from weighted averages) for all Tasmania Basin coals is given in Table 20.

Analytical values for volatile matter appear to be variable; a relationship with underlying dolerite sills is suggested but cannot be confirmed from existing drillhole data.

Table 20: Tasmania Basin Coal Seams Analyses

Coalfield Location	Ash	Volatile Matter	Fixed Carbon	Reference	
Kaoota	30.81	14.36	52.11	14a	
	26.55	17.40	63.70	5	
				9	
				11	
			13		
Hamilton	26.16	19.31	45.65	14b	
	15.66	21.96	56.54	5	
				7	
			10		
York Plains	29.38	11.92	53.26	14c	
	23.70	13.42	59.03	2	
			5		
Colebrook	29.38	23.00	47.10	14d	
	35.34	22.10	34.44	5	
Cygnets	20.17	13.60	66.76	5	
				12	
Mt. Lloyd	26.41	17.48	52.27	3	
				6	
				7	
Avoca	21.23	27.79	48.21	1	
				5	
				11	
Mike Howe's Marsh	15.90	19.30	47.75	5	
Mersey				5	
	- Railton	4.65	36.28	55.15	8
	- Spreyton	4.64	35.06	46.88	12
George Town	7.56	34.28	47.99	5	

N.B.: Refer to map (Fig. 4)

Coalfield Location	Ash	Volatile Matter	Fixed Carbon	Reference
Preolenna	13.76	-	-	5 12
Mt. Nicholas	20.30	25.12	49.65	5 11
Fingal	26.00	26.21	47.36	4 5 11
Dalmayne	23.00	20.21	52.21	5 11
Seymour, Douglas River, Denison River	22.25	24.25	49.75	5
Steep Creek	29.20	23.42	41.58	"
Mt. Paul	30.12	18.06	50.53	"
Buckland	14.34	18.42	47.41	"
Premaydena	38.50	7.58	48.72	"
Bruny Island	19.50	10.60	66.50	"
Strathblane	21.33	21.25	51.31	"
Catamaran	12.23	22.91	60.36	"

N.B.: Refer to map (Fig. 4)

References for Table 20

- 096
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 - a) Drillholes K-02, K-03, K-04
 - b) Drillholes H-01, H-03, H-04, H-05, H-06, H-07
 - c) Drillholes O-01, O-02, O-03a. O-03b, O-06
 - d) Drillhole O-09

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6.2 Coal Quality

6.2.1 Chemical properties

Analysis for moisture, ash, volatile matter, fixed carbon and density were carried out on coal samples and are presented in Table 16.

Results indicate a typically high ash consisting mainly of finely disseminated mineral matter, which after washing, could be expected to yield coal with about 20% to 25% ash.

Volatile matter appears highly variable. It has been recalculated on a dry ash free (d.a.f.) basis and these figures are given in Table 21 below. Content varies from over 30% to less than 10% but generally lies within the 25 - 30% range. Higher values (40-50%) suggest weathered coal, whereas lower values (< 20%), indicate the effect of dolerite intrusions (Read, 1981 - refer Appendix 2b).

6.2.2 Physical properties

Relative density calculation and washability tests were performed, and the results are presented in Table 18. No other physical tests have been carried out at this stage of the exploration programme. Specific energy, sulphur, Hardgrove grindability index and ash fusion could be obtained on representative seam sections to allow better assessment of the coal.

6.2.3 Radioactivity profiles

The density log is the most useful of the geophysical logs run since it defines coal occurrences. Coal responds more strongly than sandstones and mudstones. Coal occurrences interpreted from the density logs are presented in Table 22. Several of these coal occurrences are lithologically recorded as coal-free sediments or core loss.

Table 21:

Volatile Matter - Dry Ash Free Basis

Drillhole	Depth metres	Volatile Matter %	Drillhole	Depth metres	Volatile Matter %
<u>E.L. 26/79 - SANDFLY</u>					
K-02	64.57 - 65.17	30.0	K-03	9.75 - 10.45	9.8
	81.56 - 81.66	28.3		10.45 - 10.51	8.1
	81.96 - 82.48	30.5		38.66 - 38.86	9.5
	82.48 - 83.32	30.6			
	83.37 - 83.77	27.9			
	87.55 - 88.57	23.5			
	106.34 - 106.92	21.4			
	106.93 - 107.11	16.3			
110.21 - 110.51	17.3				
<u>E.L. 27/79 - HAMILTON</u>					
H-01	13.92 - 14.48	21.6	H-04	21.28 - 21.46	27.9
	14.52 - 14.69	24.6		21.49 - 21.82	29.7
	14.80 - 15.07	25.5		21.84 - 22.98	27.4
	15.11 - 15.43	24.0		23.03 - 23.53	26.3
	15.61 - 16.23	21.0		23.96 - 24.16	31.7
	17.57 - 17.64	19.2		24.18 - 24.53	25.8
	17.80 - 18.94	21.4			
	19.63 - 19.85	22.3	H-05	49.08 - 49.21	48.4
	19.87 - 20.14	20.4		60.14 - 60.89	50.8
	20.15 - 20.19	22.3		66.23 - 66.38	35.3
34.39 - 34.71	19.0		70.16 - 70.24	54.0	
H-03	42.31 - 42.49	30.5	81.60 - 81.72	30.9	
	42.51 - 42.98	27.9	92.44 - 93.04	28.8	
	43.02 - 43.32	26.9	122.85 - 122.96	28.0	
	43.33 - 44.19	27.8			
	45.51 - 46.20	27.3			
	46.24 - 47.05	27.3			
	68.08 - 68.40	24.7			

Drillhole	Depth metres	Volatile Matter %	Drillhole	Depth metres	Volatile Matter %
H-06	13.30 - 13.74	27.7	H-07	15.73 - 16.73	40.0
	13.77 - 14.59	31.2		16.74 - 16.94	48.5
	14.64 - 15.04	25.4		22.60 - 22.80	43.2
	17.23 - 18.21	34.0		26.68 - 26.75	33.6
	19.32 - 20.49	34.0		37.06 - 37.18	37.2
	71.84 - 72.17	34.0			
	88.76 - 89.00	35.4			
	106.24 - 106.40	42.0			
	133.39 - 133.54	28.7			
	146.89 - 147.38	5.9			

E.L. 28/79 - COLEBROOK

0-01	5.85 - 6.88	14.4	0-03a	37.36 - 37.52	22.9
	36.42 - 37.02	16.5		37.60 - 37.74	22.9
				37.84 - 37.96	24.9
0-02	8.01 - 8.70	20.4		38.14 - 38.35	22.9
	31.07 - 31.49	19.8		38.48 - 38.85	21.1
	31.60 - 31.76	20.7		39.11 - 39.34	17.4
	32.98 - 33.31	15.7		39.52 - 39.72	18.3
	33.34 - 33.45	21.4		39.86 - 40.47	18.9
	33.62 - 34.20	18.2			
	34.35 - 34.57	22.6	0-03b	34.35 - 34.87	19.1
	34.68 - 35.18	18.2			
	35.26 - 35.51	17.0	0-06	11.08 - 11.35	26.3
	35.60 - 36.30	17.6		32.45 - 32.75	12.8
	36.86 - 37.37	17.7		33.25 - 33.43	19.0
	39.88 - 40.13	17.4			
	41.36 - 41.43	14.3	0-09	26.62 - 27.02	32.8

Table 22: Density Response for Observed Carbonaceous Intervals

Drillhole	Cuttings and Core			Density Response		
	Interval (metres)	Thickness (metres)	Lithologic Log	Interval (metres)	Thickness (metres)	Interpreted Lithology
<u>E.L. 26/79 - SANDFLY</u>						
K-01	No coal intersected			No response		
K-02	31.69 - 31.70	0.01	inferior coal			
	35.42 - 35.70	0.28	coal			
	35.70 - 36.00	0.30	mudstone	35.5 - 36.0	0.5	coal
	40.90 - 41.20	0.30	arkosic sandstone	40.9 - 41.2	0.3	"
	64.57 - 65.17	0.60	coal			
	65.17 - 65.19	0.02	sandstone			
	65.19 - 65.30	0.11	coal			
	65.20 - 65.40	0.10	carbonaceous mudstone	64.8 - 65.4	0.6	"
	81.56 - 81.66	0.20	coal	No response		
	82.48 - 83.32	0.84	coal			
	83.32 - 83.37	0.05	carbonaceous mudstone			
	83.37 - 83.77	0.40	coal			
	83.77 - 84.10	0.33	mudstone, core loss	82.7 - 84.1	1.4	"
	87.55 - 88.57	0.02	coal			
	88.57 - 89.00	0.43	mudstone	87.9 - 89.0	1.1	"
	89.60 - 89.78	0.18	inferior coal	No response		
	102.50 - 102.56	0.06	mudstone			
	102.56 - 102.81	0.25	coal			
	102.81 - 102.96	0.23	carbonaceous mudstone			
	102.96 - 103.04	0.08	coal	102.5 - 103.2	0.7	"

HAVE THESE
NUMBERS NOT CONSISTANT
WITH ANALYSES:

Drillhole	Cuttings and Core			Density Response		
	Interval (metres)	Thickness (metres)	Lithologic Log	Interval (metres)	Thickness (metres)	Interpreted Lithology
	105.10 - 105.50	0.40	mudstone	105.1 - 105.5	0.4	coal
	106.34 - 107.11	0.77	coal			
	107.11 - 107.30	0.19	mudstone	106.6 - 107.3	0.7	"
	110.21 - 110.51	0.30	coal			
	110.51 - 110.80	0.29	mudstone	110.3 - 110.8	0.5	"
K-03	2.80 - 3.00	0.20	mudstone	2.8 - 3.0	0.2	inferior coal
	3.20 - 3.25	0.05	mudstone			
	3.25 - 3.41	0.06	coal			
	3.41 - 3.50	0.09	core loss	3.2 - 3.5	0.3	"
	9.90 - 10.45	0.55	inferior coal			
	10.45 - 10.51	0.06	coal			
	10.51 - 10.70	0.19	mudstone	9.9 - 10.7	0.8	coal
	38.66 - 38.86	0.20	coal	Not logged		
K-04	8.90 - 9.65	0.75	coal	Not logged		
	38.80 - 39.13	0.33	"			
	52.60 - 52.87	0.27	"			
K-05	5.80 - 6.40	0.60	sandstone	5.8 - 6.4	0.6	coal
	12.70 - 13.02	0.32	"			
	13.02 - 15.00	1.80	coal			
	15.00 - 15.90	0.90	mudstone	12.7 - 15.9	3.2	interbedded coal and inferior coal
	17.80 - 18.80	1.00	"	17.8 - 18.8	1.0	coal

Drillhole	Cuttings and Core			Density Response		
	Interval (metres)	Thickness (metres)	Lithologic Log	Interval (metres)	Thickness (metres)	Interpreted Lithology
<u>E.L. 27/79 - HAMILTON</u>						
H-01	6.70 - 7.00	0.30	arkosic sandstone	6.7 - 7.0	0.3	coal
	10.00 - 11.10	1.10	core loss, sandstone, mudstone	10.0 - 11.1	1.1	"
	13.92 - 14.48	0.56	coal			
	14.48 - 14.52	0.04	clod			
	14.52 - 14.69	0.17	coal			
	14.69 - 14.80	0.11	core loss			
	14.80 - 15.07	0.27	coal			
	15.07 - 15.11	0.04	carbonaceous mudstone			
	15.11 - 15.40	0.32	coal	14.1 - 15.3	1.2	interbedded coal and inferior coal
	15.61 - 16.23	0.62	coal			
	16.23 - 16.40	0.17	mudstone	15.7 - 16.4	0.7	coal
	17.57 - 17.64	0.07	mudstone			
	17.64 - 17.80	0.16	core loss			
	17.80 - 18.94	1.14	coal			
	18.94 - 19.00	0.06	mudstone	17.8 - 19.0	1.2	interbedded coal and inferior coal
	19.63 - 19.85	0.22	mudstone			
	19.85 - 19.87	0.02	clod			
	19.87 - 20.14	0.27	coal			
	20.14 - 20.16	0.02	carbonaceous mudstone			
	20.16 - 20.29	0.13	coal			
	20.29 - 20.30	0.01	mudstone	19.8 - 20.3	0.5	interbedded coal and inferior coal
	34.39 - 34.71	0.32	coal	34.3 - 34.8	0.5	coal

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Drillhole	Cuttings and Core			Density Response		
	Interval (metres)	Thickness (metres)	Lithologic Log	Interval (metres)	Thickness (metres)	Interpreted Lithology
H-02a	No coal intersected					
H-02	16.10 - 16.50	0.40	mudstone, siltstone	16.1 - 16.5	0.4	inferior coal
H-03	42.20 - 43.31	0.22	core loss, carbonaceous mudstone			
	42.31 - 42.49	0.18	coal			
	42.49 - 42.51	0.02	carbonaceous mudstone			
	43.02 - 43.32	0.30	coal			
	43.32 - 43.33	0.01	carbonaceous mudstone			
	43.33 - 44.19	0.86	coal			
	44.19 - 44.20	0.01	mudstone	42.2 - 44.2	2.0	interbedded coal and inferior coal
	45.80 - 45.81	0.01	mudstone			
	45.81 - 46.20	0.39	coal			
	46.20 - 46.24	0.04	clod			
	46.24 - 47.05	0.81	coal			
	47.05 - 47.10	0.05	mudstone	45.8 - 47.1	1.3	coal
	68.08 - 68.40	0.32	coal			
68.40 - 68.45	0.05	carbonaceous mudstone				
68.45 - 68.47	0.02	coal	68.1 - 68.4	0.3	interbedded coal and inferior coal	
H-04	20.70 - 21.28	0.58	carbonaceous mudstone and mudstone			
	21.28 - 21.46	0.18	coal			
	21.46 - 21.49	0.03	mudstone			
	21.49 - 21.82	0.33	coal			
	21.82 - 21.84	0.02	carbonaceous mudstone			
	21.84 - 22.98	1.14	coal			
	22.98 - 23.03	0.05	mudstone			

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Drillhole	Cuttings and Core			Density Response		
	Interval (metres)	Thickness (metres)	Lithologic Log	Interval (metres)	Thickness (metres)	Interpreted Lithology
	23.03 - 23.53	0.50	coal			
	23.53 - 23.96	0.43	core loss			
	23.96 - 24.16	0.20	coal			
	24.16 - 24.18	0.02	carbonaceous mudstone			
	24.18 - 24.53	0.35	coal			
	24.53 - 24.70	0.12	mudstone	20.7 - 24.7	4.0	interbedded coal and inferior coal
H-05	4.50 - 6.40	1.90	core loss, sandstone, mudstone	4.5 - 6.4	1.9	coal
	10.00 - 10.50	0.50	mudstone	10.0 - 10.5	0.5	"
	32.00 - 32.30	0.30	"	32.0 - 32.3	0.3	"
	42.05 - 42.10	0.05	coal			
	42.10 - 42.40	0.30	carbonaceous mudstone, mudstone	42.1 - 42.4	0.3	"
	48.90 - 49.08	0.18	carbonaceous mudstone			
	49.08 - 49.21	0.13	coal			
	49.21 - 49.50	0.29	mudstone	48.9 - 49.5	0.6	"
	60.14 - 60.89	0.75	coal			
	60.89 - 61.00	0.11	mudstone	60.5 - 61.0	0.5	"
	66.23 - 66.38	0.15	coal			
	66.38 - 66.80	0.42	mudstone	66.5 - 66.8	0.3	"
	70.16 - 70.24	0.18	coal			
	70.24 - 70.70	0.46	mudstone, siltstone	70.4 - 70.7	0.3	"
	81.60 - 81.72	0.12	coal			
	81.72 - 82.10	0.38	mudstone	81.8 - 82.1	0.3	"

Drillhole	Cuttings and Core			Density Response		
	Interval (metres)	Thickness (metres)	Lithologic Log	Interval (metres)	Thickness (metres)	Interpreted Lithology
	92.44 - 93.04	0.10	coal			
	93.04 - 93.30	0.26	mudstone	92.6 - 93.3	0.7	coal
	122.85 - 122.96	0.11	coal			
	122.96 - 123.30	0.34	mudstone	123.1 - 123.3	0.2	"
H-06	13.00 - 13.30	0.30	carbonaceous mudstone	13.0 - 13.3	0.3	"
	13.30 - 13.74	0.44	coal			
	13.74 - 13.77	0.03	carbonaceous shale			
	13.77 - 14.59	0.92	coal			
	14.59 - 14.64	0.05	carbonaceous mudstone			
	14.64 - 15.04	0.40	coal			
	15.04 - 15.50	0.46	core loss	13.3 - 15.5	2.2	interbedded coal and inferior coal
	15.50 - 16.50	1.00	"	15.5 - 16.5	1.0	coal
	16.50 - 17.23	0.73	"			
	17.23 - 18.20	0.98	coal	16.5 - 18.5	1.5	"
	18.50 - 19.32	0.82	core loss			
	19.32 - 20.49	1.17	coal	18.5 - 20.1	1.6	"
	71.84 - 72.17	0.33	coal			
	72.17 - 72.20	0.30	"	71.9 - 72.2	0.3	inferior coal
	75.50 - 75.80	0.30		75.5 - 75.8	0.3	"
	88.70 - 88.76	0.06				
	88.76 - 89.00	0.24	coal			
	89.00 - 89.07	0.07				
	89.07 - 89.09	0.02	coal			
	89.09 - 90.10	1.01		88.70 - 90.1	1.4	"

Drillhole	Cuttings and Core			Density Response		
	Interval (metres)	Thickness (metres)	Lithologic Log	Interval (metres)	Thickness (metres)	Interpreted Lithology
	106.20 - 106.24	0.04				
	106.24 - 106.40	0.16	coal	106.2 - 106.4	0.2	inferior coal
	113.80 - 114.40	0.60		113.8 - 114.4	0.6	"
	133.20 - 133.39	0.19				
	133.39 - 133.54	0.15	coal			
	113.54 - 133.60	0.06		133.2 - 133.6	0.4	"
	146.80 - 146.89	0.09				
	146.89 - 147.38	0.49	coal	146.8 - 147.3	0.5	"
H-07	15.66 - 15.72		Not logged			
	15.73 - 16.73					
	16.74 - 16.94					
	22.60 - 22.80					
	26.68 - 26.75					
	37.06 - 37.18					
<u>E.L. 28/79 - COLEBROOK</u>						
0-01	5.70 - 5.85	0.15				
	5.85 - 6.88	1.03	coal			
	6.88 - 8.00	1.12		5.7 - 8.0	2.3	coal
	32.80 - 33.02	0.22				
	33.02 - 33.57	0.55	coal			
	33.57 - 36.42	2.85	carbonaceous mudstone, core loss			
	36.42 - 37.02	0.60	coal	32.8 - 36.9	4.1	interbedded coal and inferior coal

Drillhole	Cuttings and Core			Density Response		
	Interval (metres)	Thickness (metres)	Lithologic Log	Interval (metres)	Thickness (metres)	Interpreted Lithology
0-02	5.75 - 7.15	0.60	core loss			
	7.15 - 7.20	0.05	carbonaceous mudstone	6.0 - 7.2	1.2	coal
	7.70 - 7.94	0.24	inferior coal	7.2 - 7.8	0.6	inferior coal
	7.80 - 8.01	0.21	mudstone, inferior coal			
	8.01 - 8.70	0.69	coal	7.8 - 8.5	0.7	coal
	30.90 - 31.07	0.17	sandstone			
	31.07 - 31.49	0.42	coal			
	31.49 - 31.50	0.01	mudstone	30.9 - 31.5	0.6	inferior coal
	31.60 - 31.76	0.16	coal	No response		
	32.30 - 32.98	0.68	mudstone			
	32.98 - 33.31	0.33	coal			
	33.31 - 33.34	0.03	mudstone			
	33.34 - 33.45	0.11	coal			
	33.45 - 33.62	0.17	mudstone			
	33.62 - 34.20	0.58	coal			
	34.20 - 34.35	0.15	mudstone			
	34.35 - 34.57	0.22	coal			
	34.57 - 34.68	0.11	mudstone			
	34.68 - 35.18	0.50	coal			
	35.18 - 35.26	0.08	mudstone			
	35.26 - 35.51	0.25	coal			
	35.51 - 35.60	0.09	mudstone			
	35.60 - 36.30	0.70	coal	32.3 - 36.0	3.7	interbedded coal and inferior coal
	36.40 - 37.00	0.60	core loss, carbonaceous mudstone	36.4 - 37.0	0.6	inferior coal
	36.86 - 37.37	0.51	coal	Nil		
	39.50 - 40.00	0.50	core loss, mudstone	39.5 - 40.0	0.5	"
	40.36 - 40.40	0.04	coal	No response		

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Drillhole	Cuttings and Core			Density Response		
	Interval (metres)	Thickness (metres)	Lithologic Log	Interval (metres)	Thickness (metres)	Interpreted Lithology
0-03a	3.40 - 5.20	1.80				inferior coal
	37.28 - 37.33	0.23	coal			
	37.33 - 37.36	0.03	mudstone			
	37.36 - 37.52	0.16	coal			
	37.52 - 37.84	0.32	mudstone			
	37.84 - 37.96	0.12	coal	37.4 - 37.9	0.5	interbedded coal and inferior coal
	38.14 - 38.35	0.21	coal	No response		
	38.14 - 38.47	0.07	mudstone			
	38.47 - 38.85	0.38	coal			
	38.85 - 38.90	0.05	core loss	38.4 - 39.0	0.6	coal
	39.11 - 39.34	0.23	coal			
	39.34 - 39.50	0.46	mudstone	39.2 - 39.5	0.3	"
	39.52 - 39.72	0.20	coal	No response		
	39.86 - 40.47	0.61	coal			
40.47 - 40.60	0.13	mudstone	40.0 - 40.6	0.6	"	
0-03b	30.98 - 31.19	0.21	coal	No response		
	31.40 - 32.20	0.20	mudstone	31.4 - 32.2	0.2	inferior coal
	34.87 - 36.00	1.13	coal	34.9 - 35.4	0.5	coal
	36.00 - 36.06	0.06	coal	No response		
	36.80 - 37.10	0.30	mudstone and sandy siltstone	36.8 - 37.1	0.3	inferior coal

Drillhole	Cuttings and Core			Density Response		
	Interval (metres)	Thickness (metres)	Lithologic Log	Interval (metres)	Thickness (metres)	Interpreted Lithology
0-04	14.80 - 15.90	1.10	siltstone	14.8 - 15.9	1.1	coal
	16.10 - 17.20	1.10	"	16.1 - 17.2	1.1	"
	17.40 - 17.70	0.30	"	17.4 - 17.7	0.3	"
	20.00 - 20.50	0.50	"	20.0 - 20.5	0.5	"
	21.80 - 22.70	0.90	"	21.8 - 22.7	0.9	"
	27.10 - 27.30	0.20	"	27.1 - 27.3	0.2	"
	27.90 - 28.30	0.40	"	27.9 - 28.3	0.4	"
	39.40 - 39.67	0.27	sandy siltstone			
	39.67 - 39.78	0.11	coal			
	39.78 - 40.00	0.22	sandy siltstone	39.4 - 40.0	0.6	inferior coal
41.40 - 41.80	0.40	"	41.4 - 41.8	0.4	"	
0-05	No coal intersected			No response		
0-06	10.10 - 10.50	0.40	sandstone	10.1 - 10.5	0.4	coal
	11.00 - 11.08	0.08				
	11.08 - 11.35	0.27	coal	11.0 - 11.3	0.3	inferior coal
	11.90 - 12.40	0.50	siltstone, mudstone	11.9 - 12.4	0.5	"
	26.80 - 27.90	1.10	sandstone, core loss.	26.8 - 27.9	1.1	coal
	31.50 - 31.90	0.40	arkosic sandstone, carbonaceous mudstone	32.1 - 32.4	0.3	inferior coal
	32.45 - 32.75	0.30	coal	No response		
	33.25 - 33.43	0.18	coal	No response		

Drillhole	Cuttings and Core			Density Response		
	Interval (metres)	Thickness (metres)	Lithologic Log	Interval (metres)	Thickness (metres)	Interpreted Lithology
O-07	3.90 - 4.10	0.20	arkosic sandstone	3.9 - 4.1	0.2	inferior coal
	6.30 - 6.60	0.30	"	6.3 - 6.6	0.3	"
	28.20 - 28.50	0.30	sandstone	28.2 - 28.5	0.3	"
O-09	4.20 - 5.80	1.60	sandstone	4.2 - 5.8	1.6	"
	11.10 - 11.40	0.30	"	11.1 - 11.4	0.3	"
	18.90 - 22.20	3.30	sandstone, coreloss	18.9 - 22.2	3.3	interbedded coal and inferior coal
	26.62 - 27.02	0.4	coal	No response		
	27.10 - 28.10	1.00	core loss	27.1 - 28.1	1.0	coal
	43.80 - 44.50	0.70	mudstone, core loss	43.8 - 44.5	0.7	"
	46.50 - 47.50	1.00	silty sandstone, sandstone, core loss	46.5 - 47.5	1.0	"
65.23 - 65.25	0.02	coal	No response			
<u>E.L. 29/79 - CYGNET</u>						
C-01	No coal intersected			No responses		
C-02	14.70 - 16.30	1.60	sandstone	14.7 - 16.3	1.6	coal
	20.20 - 20.50	0.30	"	20.2 - 20.5	0.3	"
	21.00 - 21.30	0.30	sandstone, siltstone	21.0 - 21.3	0.3	"

Drillhole	Cuttings and Core			Density Response		
	Interval (metres)	Thickness (metres)	Lithologic Log	Interval (metres)	Thickness (metres)	Interpreted Lithology
C-03	2.50 - 2.80	0.30	siltstone	2.5 - 2.8		inferior coal
	4.10 - 4.60	0.50	"	4.1 - 4.6		"
	15.90 - 16.50	0.60	argonite	15.9 - 16.5		cavity
C-04	6.70 - 7.10	0.40	sandstone	6.7 - 7.1	0.4	coal
	7.10 - 8.00	0.90	"	7.1 - 8.0	0.9	inferior coal
	8.00 - 8.80	0.80	"	8.0 - 8.8	0.8	coal
	11.00 - 11.40	0.40	"	11.0 - 11.4	0.4	inferior coal
	17.30 - 17.90	0.60	core loss	17.3 - 17.9	0.6	coal
	23.00 - 23.50	0.50	"	23.0 - 23.5	0.5	inferior coal
C-05	18.55 - 18.58	0.03	inferior coal	No response		
	19.20 - 19.25	0.05	"	" "		
	20.50 - 20.80	0.30	clod	20.5 - 20.8	0.3	coal
	20.80 - 21.80	1.00	carbonaceous mudstone, core loss	20.8 - 21.8	1.0	inferior coal
	21.80 - 22.30	0.40	"	21.8 - 22.3	0.5	coal
C-06	5.00 - 6.00	1.00	sandstone	5.0 - 6.0	1.0	coal

6.3 Coal Reserves

6.3.1 Seam thickness and correlation

Coal seam thickness appears highly variable. Table 23 below records coal seams intersected in each drillhole, their thickness and the stratigraphic unit.

The variability of the coal seams within each area suggests that they are formed separately in interconnected depressions. Rapid lateral changes of coal seams over short distances and the often prevalent faulting make correlation of seams from point to point difficult and unreliable at the present stage of exploration. C.D.A. compiled a graphic section of the five drillholes in the York Plains area (Section 5.1) and this is presented in Volume II. Direct lithological correlation is not possible until the elevations of each hole are calculated.

Table 23: Coal Seams

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Exploration Licence and Location	Drillhole	Total Depth (m)	Coal Seam Intersections (greater than 1m thickness)		Stratigraphic Unit
			Thickness(m)	Interval(m)	
<u>E.L. 26/79 - SANDFLY</u>					
Kaoota	K-01	50.00	Nil		
	K-02	147.95	2.2	81.6 - 83.8	Kaoota Coal Measures
			1.0	87.6 - 88.6	
	K-03	54.27	thin seams only		" "
	K-04	78.09	1.9	8.9 - 10.8	" "
K-05	50.00	2.0	13.0 - 15.0	" "	
<u>E.L. 27/79 - HAMILTON</u>					
Lawrenny	H-01	44.40	2.3	13.9 - 16.2	Un-named unit
			1.3	17.6 - 18.9	
	H-02a	38.30	Nil		" "
	H-02b	78.40	Nil		" "
	H-03	84.44	1.9	42.3 - 44.2	" "
			1.2	45.8 - 47.0	
	H-04	45.10	3.2	21.3 - 24.5	" "
	H-05	135.47	Nil		" "
	H-06	157.06	1.7	13.3 - 15.0	" "
			1.0	17.2 - 18.2	
1.2			19.3 - 20.5		
H-07	86.00	1.2	15.7 - 16.9	" "	

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Exploration Licence and Location	Drillhole	Total Depth (m)	Coal Seam Intersections (greater than 1m thickness)		Stratigraphic Unit
			Thickness(m)	Interval(m)	
<u>E.L. 28/79 - COLEBROOK</u>					
York Plains	0-01	54.59	1.0	5.9 - 6.9	Un-named unit
			1.0	36.0 - 37.0	
	0-02	48.63	1.0	7.7 - 8.7	" "
			3.3	33.3 - 36.6	
0-03a	48.02	2.0	38.5 - 40.5	" "	
	0-03b	53.40	1.7	34.4 - 36.1	" "
Mike Howe's Marsh	0-04	50.73	thin seams only		" "
Jericho	0-05	51.00	Nil		" "
York Plains	0-06	46.15	1.0	27.2 - 28.2	" "
Colebrook	0-07	47.34	Nil		" "
"	0-09	100.00	1.0	26.6 - 27.6	" "
<u>E.L. 29/79 - CYGNET</u>					
Mt. Cygnet	C-01	50.97	Nil		Cygnet Coal Measures
	C-02	52.00	Nil		
	C-03	34.00	Nil		
	C-04	42.28	1.0	17.0 - 18.0	
Gordon	C-05	50.06	thin seams only		
"	C-06	44.21	Nil		

6.3.2 Reserve estimates

Estimated reserves for southern Tasmania coalfields are presented in Table 4 above. A revised calculation by General Geological Services is also presented. The most significant discovery of the present scout drilling programme was the seams intersected in the York Plains area which proved to have a more extensive distribution than previously known. The five drillholes were sited approximately in line, and a three-dimensional model is not yet available. Further revision of reserve estimates would be inaccurate due to the geological limitations discussed below.

(1) Stratigraphic limitations.

Most holes have been abandoned at depths too shallow to determine the thickness and geological variation of the coal measures. Thus the presence of coal seams in the lower part of the measures has not been confirmed. Correlation and lateral delineation of seams within the coal basins need to be completed. Drillholes (i.e. at Lawrenny and Kaoota) must be surveyed because it is necessary that elevations and exact positions be determined before seams can be reliably identified.

(2) Structural limitations.

The coal measures in each area have been faulted over a period ranging from Permian to Tertiary. Much of this faulting was in the late Cretaceous and early Tertiary and involved reactivation of existing faults. The Sandly coal mine lies between two northerly trending faults. A north-east fault near the Lawrenny coal mine is responsible for the development of a thick sequence of Tertiary clays and ferruginous sands on the down-thrown side. These may overly the coal measure sequence. The two drillholes at Colebrook failed to intersect coal, although sited close to old shafts and workings, possibly due to an intervening major fault. For detailed discussion of faults refer to Section 6.1.1.

(3) Igneous intrusions

Extensive dolerite intrusions occurred during the Jurassic, and the coal measures were affected in part. The shape and extent of the intrusions are variable. A common occurrence is as dykes associated with tensional faults. The effect of the dolerite is to increase coal rank, and in extreme cases to carbonise coal making it uneconomical.

7. ECONOMIC EVALUATION

7.1 Coal Resource Exploration and Development

An exploration philosophy with obvious economic implication, provisionally established by General Geological Services during the field reconnaissance and confirmed by results of the scout-drilling programme, has been brought into focus by two extreme situations existing in the Capricorn Mining licence areas.

- (i) Areas where coal seams dip into steep hillsides, faulting is common, and dolerite cappings and scree are common: exploration and development is difficult, underground mining appears to be obligatory, but groundwater problems would be minimal.

- (ii) Areas where seams are nearly horizontal, relatively unfaulted and unintruded, with flat-lying sedimentary overburden: exploration and development is moderately easy, opencast mining is seemingly most suitable, but groundwater dewatering may be required.

Early mining ventures were initiated by the discovery of outcropping coal seams which were most commonly exposed on the steepest hillsides--predominantly the escarpment faces of tilt blocks revealing truncated bedding. The gentler dip slopes are less likely to reveal coal outcrops because they represent bedding plane surfaces. For these reasons, the early mines were sited in the rugged terrain created by differentially displaced and eroded blocks, which in turn are the result of extensive faulting and associated intrusive sills. The mine workings started as inclined adits into the hillsides, and were frequently limited by problems due to fault displacement, sill occurrence, groundwater drainage, and inclined tunnel haulage.

Recent drilling programmes by Capricorn Mining, and probably other companies, have concentrated on plains and undulating areas where faulting is not distinguishable by relief, and therefore more likely absent. These regions of subdued topography and generally

lower elevation tend to have the youngest Triassic formations (i.e equivalents of the Kaoota Coal Measures) most widely distributed at the surface. Furthermore, dolerite cappings and scree are absent, and if less faulting is assumed to exist, dolerite sills may also be less prevalent in the subsurface and heating effects on the coal volatiles less intensive than in areas of greater intrusion.

Most of the prospective areas within the Capricorn Mining licences can be placed in the above two categories i.e (i) and (ii), though a few appear to occupy an intermediate position i.e (iii) below.

- (i) E.L. 26/79 Kaoota (Sandfly Mine)
" (Wallsend Mine)
Mount Lloyd
- E.L. 28/79 Colebrook (Jerusalem Mine)
York Plains (Coal Mine Hill)
- E.L. 29/79 Mount Cygnet (Mount Cygnet Mine)
" " (Heaney's Mine)
- (ii) E.L. 27/79 Macquarie Plains - Plenty
Ouse - Osterley
- E.L. 28/79 Colebrook (Tasma Mine)
York Plains
Jericho - Oatlands
Mike Howe's Marsh
- (iii) E.L. 27/79 Hamilton (Lawrenny Mine)
- E.L. 28/79 York Plains (Mount Pleasant Mine)
Kempton
- E.L. 29/79 Gordon - Middleton

7.2 Coal Reserves and Extraction Potential

In the initial proposal by Capricorn Mining for coal exploration in southern Tasmania (Reports 704/1, 704/2 & 704/3), the work programme encompassing a Regional Geological Appraisal (Stage 1) was to be accompanied by Engineering and Reverse Economic Studies (Stage 2). This latter stage was intended to include a preliminary assessment of the economic potential and mining viability of the coal deposits as regards capital operating and infra-structure costs, extraction technology and environmental impact, and it was anticipated to be carried out over a six-month period during the first year.

However, the early drilling results did not prove sufficient grounds for undertaking such studies. The exploration targets were regionally and stratigraphically too widely distributed to enable intensive evaluation of the drilled sections. It was decided that a meaningful investigation of the combined mining and marketing could not be commenced until further exploration was carried out.

Capricorn Mining has meanwhile initiated an investigation of the in situ gasification potential of southern Tasmanian coals (Report 704/17). Basic data from previous coal studies and the progress results from the current drilling programme were submitted to the Commercial Bureau (Aust.) Pty. Ltd.. This information was then forwarded to that company's office in Moscow for assessment at Ushkin of the power generation feasibility of in situ deposits. It was anticipated that all relevant information on the main coal seams in the prospective coalfields at Kaoota, Lawrenny, Colebrook, York Plains and Cygnet (including various factors and parameters such as their complexity, structural attitude, thickness, roof and floor details, overburden ratio, fracturing and faulting, quality data, estimated reserves, aquifer and groundwater characteristics, soil properties, nature of terrain and hydrology, distance from proposed power generation plant, etc.) would be compared with values from coalfields with a long history of successful in situ gasification in the U.S.S.R., and that a conclusion on the economic viability of this extraction method for Tasmania would be reached. No reply has been received yet from this source, and it is suspected that the data collected by Capricorn Mining to date was insufficient for a positive opinion.

At this stage it is not possible to confirm or change the figures for estimated coal reserves in any of the coalfields listed in Table 4.

7.3 Areas Relinquished

Following regional geological appraisal and the scout-drilling programme, two areas were selected for relinquishment on the combined basis of limited coal potential and extreme exploration difficulty.

The western portion of E.L. 26/79 (Sandfly) covering coal measures in the Mount Lloyd and surrounding area was found to offer little access to drilling plants at present. Access tracks to target sites are extremely steep and rough and are masked by alternating sections of dolerite boulder scree and marshy flats. The cost of establishing an access was considered to be too great for such relatively high risk exploration.

The whole of E.L. 29/79 (Cynet) covering the Mount Cygnet and Gordon coal areas is regarded to be unattractive for further exploration. There are no suitable existing tracks for moving drilling rigs above the known coal seams at Mount Cygnet and Heaney's Bluff, where outcrop is near the base of steep slopes and scarps, and in the latter case beneath a ridge capped with dolerite.

The historic coal exposure on the coast at Gordon is very thin and was not found to occur inland in a hole drilled near an earlier coal shaft. Details of the areas submitted for renewal and relinquishment are presented on the following page. Figure 5 illustrates the current lease areas and those relinquished.

Final reports on these two areas nominated for relinquishment will be submitted shortly.

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7.3.1 Area 1 (E.L. 26/79) - Sandfly

Approximately half of this area has been relinquished. Grid co-ordinates defining this area are detailed below.

New schedule: commencing at the north west angle of the area whose grid co-ordinates are 499 000 metres E. 5 250 000 metres N. thence grid east to 520 000 metres E thence grid south to 5 230 000 N thence grid west to 499 000 metres E thence grid north to the point of commencement. Area is 420 square kilometres.

Area relinquished: commencing at the Posted Notice situated at a north east angle of Exploration Licence (No 26/79) area whose grid co-ordinates are 499 000 metres E 5 261 000 metres N thence grid south to 5 230 000 metres N thence grid west to 490 000 E thence grid north to 5 240 000 metres N thence grid west to 484 000 metres E thence grid north to 5 261 000 metres N thence grid east to the point of commencement. Area is 405 square kilometres.

7.3.2 Area 2 (E.L. 27/79) - Hamilton

The original lease area has been retained. Grid co-ordinates defining the area are listed below.

Lease area: commencing at the grid co-ordinates 500 000 metres E 5 290 000 metres N. 5 290 000 metres N. thence grid west to 490 000 metres E. 5 290 000 metres N. thence grid north to 4 900 000 metres E. 5 305 000 metres N. thence grid west to 484 000 metres E. 5 305 000 metres N. thence grid north to 484 000 metres E. 5 315 000 metres N. thence grid west to 470 000 metres E. 5 315 000 metres N. thence grid south to 470 000 metres E 5 295 000 metres N. thence grid east to 475 000 metres E. 5 295 000 metres N. thence grid south to 475 000 metres E. 5 285 000 metres N. thence grid south to 475 000 metres E. 5 285 000 metres N. thence grid east to 480, metres E. 5 285 000 metres N. thence grid south to 480 000 metres E. 5 274 000 metres N. thence grid east to 489 000 metres E. 5 274 000 metres N. thence grid south to 489 000 metres E. 5 264 000 metres N. thence grid east to 500 000 metres E. 5 264 000 metres N. thence grid north to the point of commencement.

7.3.3 Area 3 (E.L. 28/79) - Colebrook

The original lease area has been retained. Grid co-ordinates defining the area are listed below.

Lease area: commencing at the grid co-ordinates 509 000 metres E. 5 280 000 metres N. thence grid east to 530 000 metres E. 5 280 000 metres N. thence grid south to 530 000 metres E. 5 275 000 metres N. thence grid east to 540 000 metres E. 5 275 000 metres N. thence grid north to 540 000 metres E. 5 310 000 metres N. thence grid east to 546 000 metres E. 5 310 000 metres N. thence grid north to 546 000 metres E. 5 324 000 metres N. thence grid west to 530 000 metres E. 5 324 000 metres N. thence grid north to 530 000 metres E. 5 327 000 metres N. thence grid west to 509 000 metres E. 5 327 000 metres N. then grid south to the point of commencement.

7.3.4 Area 4 (E.L. 29/79) - Cygnet

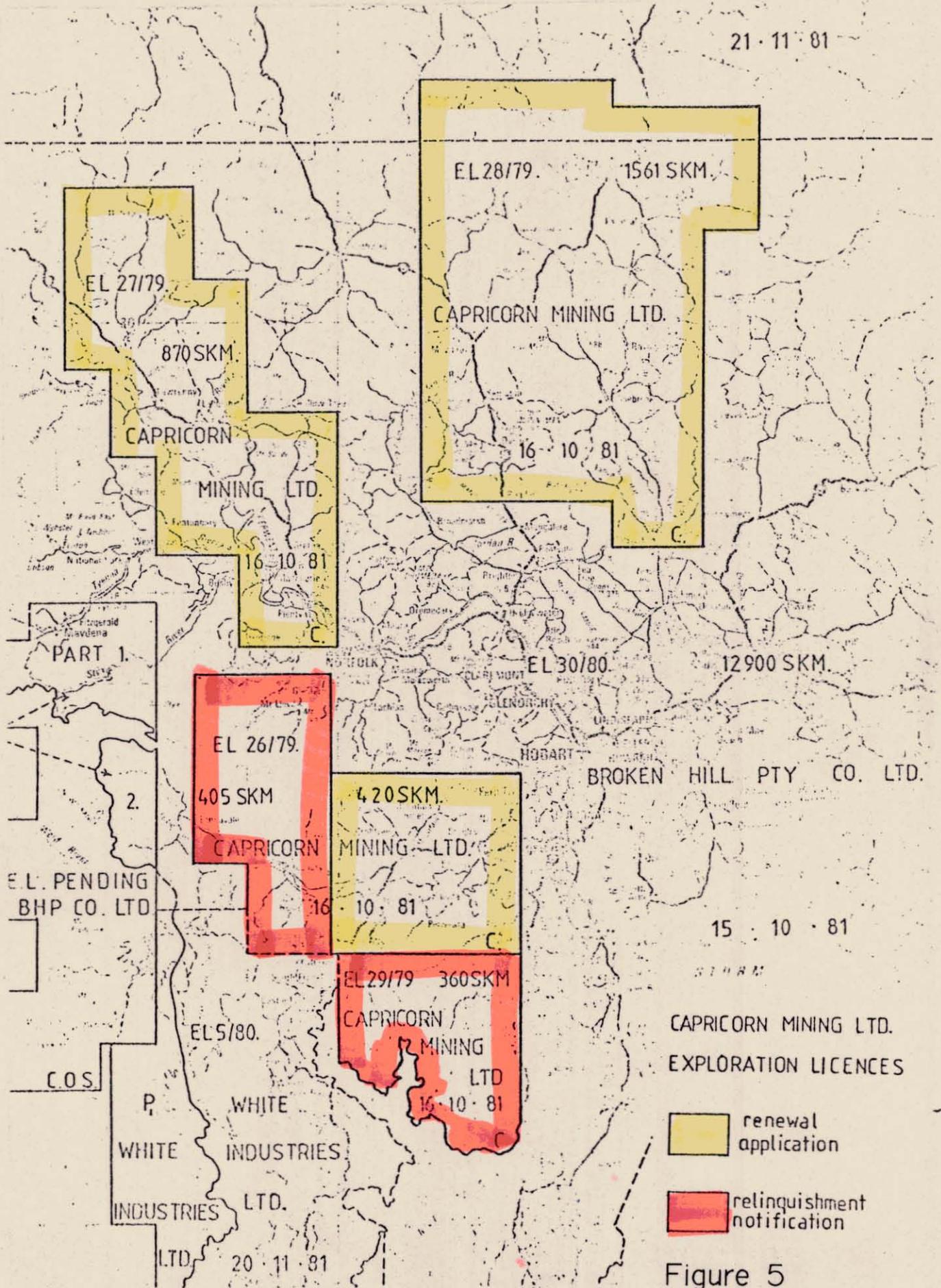
The total area has been relinquished. Grid co-ordinates defining this area are detailed below.

Area relinquished: commencing at the grid co-ordinates 520 000 metres E. 5 230 000 metres N. thence grid west to 500 000 metres E. 5 230 000 metres N. thence grid south to 500 000 metres E. 5 217 700 metres N. thence grid eastwards along the coast to 520 000 metres E. 5 218 400 metres N. thence grid north to the point of commencement.

The current lease areas and those relinquished are illustrated in Figure 5.

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CAPRICORN MINING LTD.
EXPLORATION LICENCES

- renewal application
- relinquishment notification

Figure 5

8. EXPENDITURETable 24: Administration Costs (+ Miscellaneous Costs)

	DATE ENDED	EXPLORATION LICENCE				TOTAL
		26/79	27/79	28/79	29/79	
		\$	\$	\$	\$	
MONTH	30 Apr. 80					
"	31 May 80	1,705	1,894	1,666	1,589	6,854
"	30 June 80	968	1,229	1,649	1,448	5,294
QUARTER 1						
QUARTER 1	30 June 80	2,673	3,123	3,315	3,037	12,148
MONTH	31 July 80	342	280	175	138	935
"	31 Aug. 80	240	168	145	112	665
"	30 Sep. 80	480	320	290	240	1,330
QUARTER 2		1,062	768	610	490	2,930
FINAL HALF YEAR		3,735	3,891	3,925	3,527	15,078
MONTH	31 Oct. 80	350	350	250	250	1,200
"	30 Nov. 80	250	250	150	150	800
"	31 Dec. 80	200	200	100	100	600
QUARTER 3		800	800	500	500	2,600
MONTH	31 Jan. 81	150	150	70	70	440
"	28 Feb. 81	2,850	140	140	3,270	6,400
"	31 Mar. 81	200	100	120	160	580
QUARTER 4		3,200	390	330	3,500	7,420
FINAL YEAR 1		7,735	5,081	4,755	7,527	25,098
MONTH	30 Apr. 81	140	220	280	500	1,140
"	31 May 81	120	600	160	100	980
"	30 June 81	110	520	140	100	870
QUARTER		370	1,340	580	700	2,990
MONTH	31 July 81	120	160	210	100	590
"	31 Aug. 81	130	250	320	100	790
"	30 Sep. 81	110	230	260	120	720
QUARTER 2		360	640	790	320	2,100
FINAL HALF YEAR		470	870	1,370	1,020	5,090

Table 25: Expenditure - Field Studies

G = Geology
 GP = Geophysical
 D = Drilling

PERIOD	DATE ENDED	EXPLORATION LICENCE				TOTAL
		26/79 \$	27/79 \$	28/79 \$	29/79 \$	
MONTH	30 Apr 80					
"	G 31 May 80	1,410	1,515	1,460	1,565	5,950
"	G 30 June 80	1,200	1,214	1,187	1,210	4,811
QUARTER 1						
QUARTER 1	30 June 80	2,610	2,729	2,647	2,775	10,761
MONTH	G 31 July 80	580	475	234	128	1,417
	G 31 Aug 80					
	G 30 Sep 80	300	300	300	300	1,200
QUARTER 2		880	775	534	428	2,617
FINAL HALF YEAR		3,490	3,504	3,181	3,203	13,378
MONTH	G 31 Oct 80	400	400	400	400	1,600
"	G 30 Nov 80	200	200	200	200	800
"	G 31 Dec 80	100	100	100	100	400
QUARTER 3		700	700	700	700	2,800
MONTH	G 31 Jan 81	70	70	70	70	280
	G 28 Feb 81	1,000		450	1,450	2,900
	GP " "	1,240			1,240	2,480
	D " "	13,500			13,500	27,000
"	G 31 Mar 81	2,400	560	1,180	1,750	5,890
	GP " "	3,200		1,550	2,200	6,950
	D " "	20,136		10,467	15,782	46,385
QUARTER 4		41,546	630	13,717	35,992	91,885
FINAL YEAR 1		45,736	4,834	17,598	39,895	108,063
MONTH	G 30 Apr 81	400	2,050	8,600	250	11,300
	GP " "	220	1,600	4,400		6,220
	D " "		6,070	25,270		31,340
"	G 30 May 81	350	14,800	1,500	150	16,800
	GP " "	160	7,150	420	110	7,840
	D " "		47,500	1,080		48,580
"	G 30 June 81	750	3,300	1,000	750	5,800
	GP " "		3,900			3,900
	D " "		8,800			8,800
QUARTER 1		1,880	95,170	42,270	1,260	140,580
MONTH	G 31 July 81		600	950		1,550
	GP " "		2,200			2,200
	D " "		1,320			1,320
"	G 31 Aug 81					
	GP " "					
	D " "					
"	G 30 Sep 81					
	GP " "					
	D " "					
QUARTER 2			4,120	950		5,070
FINAL HALF YEAR		1,880	99,290	43,220	1,260	145,650

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Table 26: Expenditure - Office Studies

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PERIOD	DATE ENDED	EXPLORATION LICENCE				TOTAL
		26/79	27/79	28/79	29/79	
		\$	\$	\$	\$	
MONTH	30 Apr. 80					
"	31 May 80	785	670	746	654	2,855
"	30 June 80	1,900	1,568	1,624	1,490	6,582
QUARTER 1						
QUARTER 1	30 June 80	2,685	2,238	2,370	2,144	9,437
MONTH	31 July 80	2,122	1,407	1,105	980	5,614
"	31 Aug. 80	1,829	1,103	934	780	4,646
"	30 Sep. 80	3,500	2,100	1,800	1,500	8,900
QUARTER 2		7,451	4,610	3,839	3,260	19,160
HALF YEAR		10,136	6,848	6,209	5,404	28,597
MONTH	31 Oct. 80	2,800	3,100	1,600	1,700	9,200
"	30 Nov. 80	2,300	2,800	1,500	1,500	8,100
"	31 Dec. 80	2,200	2,500	1,750	1,750	8,200
QUARTER 3		7,300	8,400	4,850	4,950	25,500
MONTH	31 Jan. 81	1,500	1,600	1,200	1,200	5,500
"	28 Feb. 81	1,300	670	420	2,770	5,160
"	31 Mar. 81	600	150	300	450	1,500
QUARTER 4		3,400	2,420	1,920	4,420	12,160
YEAR 1		20,836	17,668	12,979	14,774	66,257
MONTH	30 Apr. 81	300	1,100	2,300	150	3,850
"	31 May 81	150	3,200	1,050	150	4,550
"	30 June 81	250	3,000	1,500	250	5,000
QUARTER 1		700	7,300	4,850	550	13,400
MONTH	31 July 81	400	1,500	2,100	250	4,250
"	31 Aug. 81	1,100	2,890	4,200	770	8,960
"	30 Sep. 81	2,240	2,500	4,240	1,310	10,290
QUARTER 2		3,740	6,890	10,540	2,330	23,500
HALF YEAR		4,440	14,190	15,390	2,880	36,900

Table 27: Total Expenditure

PERIOD	DATE ENDED	EXPLORATION LICENCE				TOTAL
		26/79 \$	27/79 \$	28/79 \$	29/79 \$	
MONTH	30 Apr 80					
"	31 May 80	3,900	4,079	3,872	3,808	15,659
"	30 June80	4,068	4,011	4,460	4,148	16,687
QUARTER 1						
QUARTER 1	30 June80	7,968	8,090	8,332	7,956	32,346
MONTH	31 July80	3,044	2,162	1,514	1,246	7,966
"	31 Aug 80	2,069	1,271	1,079	892	5,311
"	30 Sep 80	4,280	2,720	2,390	2,040	11,430
QUARTER 2		9,393	6,153	4,983	4,178	24,707
FINAL HALF YEAR		17,361	14,243	13,315	12,134	57,053
MONTH	31 Oct 80	3,550	3,850	2,250	2,350	12,000
"	30 Nov 80	2,750	3,250	1,850	1,850	9,700
"	31 Dec 80	2,500	2,800	1,950	1,950	9,200
QUARTER 3		8,800	9,900	6,050	6,150	30,900
MONTH	31 Jan 81	1,720	1,820	1,340	1,340	6,220
"	28 Feb 81	19,890	810	1,010	22,230	43,940
"	31 Mar 81	26,536	810	13,617	20,342	61,305
QUARTER 4		48,146	3,440	15,967	43,912	111,465
FINAL YEAR 1		74,307	27,583	35,332	62,196	199,418
MONTH	30 Apr 81	1,060	11,040	40,850	900	53,850
"	31 May 81	780	73,250	4,210	510	78,750
"	30 June81	1,110	19,520	2,640	1,100	24,370
QUARTER 1		2,950	103,810	47,700	2,510	156,970
MONTH	31 July81	520	5,780	3,260	350	9,910
"	31 Aug 81	1,230	3,140	4,520	870	9,750
"	30 Sep 81	2,350	2,730	4,500	1,430	11,010
QUARTER 2		4,100	11,650	12,280	2,650	30,670
FINAL HALF YEAR		7,050	115,460	59,980	5,160	187,640

David Hill

David Hill
Accountant

Date: 7th December 1981

9.

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APPENDIX 1

LITHOLOGIC LOGS

by General Geological Services

Area 1 (E.L. 26/79) Drillholes : K-01, K-02, K-03, K-04, K-05

Area 2 (E.L. 27/79) Drillholes : H-01, H-02a, H-02, H-03, H-04
H-05, H-06, H-07.

Area 3 (E.L. 28/79) Drillholes : O-01, O-02, O-03a, O-03b, O-04,
O-05, O-06, O-07, O-09.

Area 4 (E.L. 29/79) Drillholes : C-01, C-02, C-03, C-04, C-05,
C-06.

<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 5.00	<u>Sandstone</u> : Light grey, fine to medium grained, poorly cemented, argillaceous matrix.
5.00 - 6.00	<u>Sandstone</u> : Light to dark grey, fine grained, well sorted, slightly micaceous, slightly carbonaceous; with argillaceous matrix.
6.00 - 7.00	<u>Mudstone and Sandstone</u> : interlayered: <u>Sandstone</u> ; as above. <u>Mudstone</u> ; light to dark grey, slightly micaceous, carbonaceous at times.
7.00 - 8.00	<u>Sandstone</u> : Light grey, fine grained, well sorted, slightly micaceous, argillaceous matrix.
8.00 - 9.00	<u>Mudstone and Sandstone</u> : interlayered, as above.
9.00 - 10.00	<u>Mudstone</u> : Light to dark grey, massive, blocky fracture, carbonaceous at times and slightly micaceous.
10.00 - 11.00	<u>Mudstone and Sandstone</u> : as above; interlayered.
11.00 - 15.50	<u>Sandstone</u> : Light to dark grey, fine to medium grained, sucrosic texture, argillaceous matrix, slightly micaceous; with carbonaceous banding throughout.
15.50 - 16.00	<u>Mudstone and Sandy Siltstone</u> : intermixed <u>Mudstone</u> : dark greyish green, massive, blocky fracture. <u>Sandy Siltstone</u> : dark grey, very fine grained, well cemented, slightly micaceous.
16.00 - 17.00	<u>Sandy Siltstone</u> : As above.
17.00 - 18.00	<u>Sandstone</u> : Light grey, fine to medium grained, argillaceous matrix, slightly micaceous,
18.00 - 19.00	<u>Mudstone</u> : Dark greyish-green, hard, brittle, splintery fracture.
19.00 - 20.00	<u>Sandstone</u> : Light grey, fine grained, well sorted, argillaceous matrix, slightly micaceous.
20.00 - 20.78	<u>Sandstone</u> : As above
20.78 - 21.50	<u>Core Loss</u>
21.50 - 22.80	<u>Sandstone</u> : Light grey, very fine grained, well sorted, slightly micaceous; with minor carbonaceous banding.
22.80 - 25.40	<u>Mudstone</u> : Light to dark grey, soft, flaggy, splintery, slightly micaceous.
25.40 - 30.60	<u>Sandy Siltstone</u> : Light grey, fine grained, argillaceous matrix, 35% mudstone.

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<u>Depth (m)</u>	<u>Lithologic Description</u>
30.60 - 37.80	<u>Sandstone</u> : Light grey, fine grained, well sorted, argillaceous, micaceous in part; with 10% mudstone and siltstone: interbedded and intermixed, grading into underlying unit.
37.80 - 38.60	<u>Mudstone</u> : Dark grey, hard, splintery in places.
38.60 - 40.00	<u>Sandy Siltstone</u> : Light to dark grey, fine - very fine grained, argillaceous matrix, micaceous in part.
40.00 - 41.00	<u>Silty Sandstone</u> : Light to dark grey, well sorted, argillaceous matrix, micaceous in part.
41.00 - 50.00	<u>Sandstone</u> : Light grey, fine grained, well sorted, argillaceous matrix, micaceous in part.
50.00 T.D.	

<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 4.00	<u>Alluvium/Colluvium</u> : Red-brown, silty to loamy soil, argillaceous matrix; with ubiquitous dolerite debris.
4.00 - 5.10	<u>Sandstone</u> : Yellow-brown, medium grained; dominantly feldspathic matrix; micaceous throughout (10%).
5.10 - 9.70	<u>Sandstone</u> : Arkosic, yellow-brown, hard, medium grained; moderately sorted and well cemented; dominantly feldspathic matrix, micaceous throughout, partly greywacke, with random carbonaceous wisps.
9.70 - 10.40	<u>Mudstone</u> : Yellow-brown, hard, blocky, indurated, ferruginous throughout, with plant vestiges along bedding plane, carbonaceous bending in centre of unit; approximate bedding dip of 3°.
10.40 - 11.86	<u>Sandstone</u> : As above; with carbonaceous wisps throughout, greywacke, slightly micaceous.
11.86 - 14.86	<u>Arkosic Sandstone</u> : Yellow-brown to light grey near top of unit; otherwise grey and occasionally white; medium grained, moderately sorted, well cemented, dominantly feldspathic matrix, partly greywacke and micaceous; with occasional carbonaceous wisps.
14.86 - 16.81	<u>Sandstone</u> : As above; arkosic, medium to coarse grained.
16.81 - 16.97	<u>Mudstone</u> : Light grey to dark grey, blocky, hard, indurated; with plant remains and carbonaceous blebs throughout.
16.97 - 17.59	<u>Arkosic Sandstone</u> : Light grey to yellow brown, coarse grained, moderately sorted, well cemented; partly greywacke, dominantly feldspathic matrix; with carbonaceous blebs towards base of unit.
17.59 - 20.67	<u>Arkosic Sandstone</u> : Yellow-brown, medium to coarse grained, slightly pebbly at times, moderately sorted, well cemented, dominantly feldspathic matrix, greywacke, micaceous throughout, with occasional carbonaceous specs and mudstone pellets.
20.67 - 23.41	<u>Arkosic Sandstone</u> : As above; fine-medium grained, becoming fine at top of section.
23.41 - 23.67	<u>Core Loss</u>
23.67 - 26.62	<u>Arkosic Sandstone</u> : Light grey to yellow brown, medium-coarse grained, moderately sorted, well cemented, dominantly feldspathic matrix, micaceous, slightly chloritic; with minor coal wisps and carbonaceous specs.

<u>Depth (m)</u>	<u>Lithologic Description</u>
26.62 - 29.70	<u>Arkosic Sandstone</u> : As above; well sorted, sucrosic texture, chloritic in part towards base of unit; with minor blebs of inferior coal.
29.70 - 29.83	<u>Arkosic Sandstone</u> : As above.
29.83 - 29.90	<u>Carbonaceous Mudstone</u> : Grading to inferior coal in places.
29.90 - 30.66	<u>Sandstone</u> : Light grey, medium-fine grained, well sorted and cemented, feldspathic matrix.
30.66 - 31.69	<u>Mudstone</u> : Light grey, blocky, hard, indurated, slightly slickensided.
31.69 - 31.70	<u>Inferior Coal</u> : Lamellae, dull.
31.70 - 32.27	<u>Mudstone</u> : Light grey and occasionally dark grey, blocky, micaceous throughout: with occasional carbonaceous blebs.
32.27 - 32.52	<u>Mudstone</u> : Dark grey, dominantly carbonaceous; with occasional inferior coal blebs, dull; grading to shale: blue, sub-fissile.
32.52 - 32.80	<u>Sandstone</u> : Light to dark grey, fine grained, moderately sorted, well cemented, feldspathic, lithic, carbonaceous blebs, bioturbated in part.
32.80 - 33.54	<u>Mudstone</u> : Light grey, hard, blocky, indurated, partly micaceous.
33.54 - 34.30	<u>Sandstone</u> : Light grey, fine-medium grained, well sorted, well cemented, feldspathic matrix, micaceous; with sporadic carbonaceous specs.
34.30 - 34.86	<u>Mudstone</u> : As above.
34.86 - 35.42	<u>Mudstone</u> : Light grey, hard, blocky, indurated carbonaceous bands in part, grading to siltstone in part.
35.42 - 35.70	<u>Coal</u> : Dull with minor bright bands; carbonaceous blebs in places, grading to carbonaceous shale in part; calcite veinlets.
35.70 - 36.50	<u>Mudstone</u> : As above
36.50 - 37.20	<u>Siltstone</u> : Light grey to dark grey, moderately sorted, well cemented, slightly micaceous; with abundant carbonaceous wisps; bedding dip of 3° (approx).
37.20 - 37.75	<u>Arkosic Sandstone</u> : Light grey to yellow-brown, feldspathic matrix.
37.75 - 37.89	<u>Mudstone</u> : Light grey to grey, blocky, hard, indurated, slightly carbonaceous, slightly micaceous, grading to sandstone towards base of unit.

Depth (m)Lithologic Description

37.89 - 38.80	<u>Arkosic Sandstone</u> : Yellow-brown, medium-coarse grained, moderately sorted, well cemented, sucrosic texture, slightly micaceous, partly greywacke, feldspathic matrix; carbonaceous wisps throughout.
38.80 - 40.26	<u>Arkosic Sandstone</u> : As above
40.26 - 41.86	<u>Arkosic Sandstone</u> : As above, light grey to occasionally dark grey, slightly chloritic; with carbonaceous banding in part towards base of unit.
41.86 - 44.90	<u>Sandstone</u> : Light grey, medium-coarse grained, moderately sorted, well cemented, partly greywacke, sucrosic texture, dominantly feldspathic matrix; with carbonaceous blebs throughout and carbonaceous banding in part.
44.90 - 47.93	<u>Sandstone</u> : As above; occasionally dark grey, slightly argillaceous.
47.93 - 50.99	<u>Sandstone</u> : As above; medium grained, carbonaceous banding and wisps in part, slightly micaceous and chloritic in part; kaolonitic traces.
50.99 - 53.99	<u>Sandstone</u> : As above but non-micaceous.
53.99 - 56.99	<u>Sandstone</u> : Light grey, fine-medium grained, well sorted, well cemented, dominantly feldspathic matrix, slightly micaceous, slightly greywacke with carbonaceous wisps.
56.99 - 59.99	<u>Sandstone</u> : As above but chloritic in part and with carbonaceous blebs in part.
59.99 - 63.07	<u>Sandstone</u> : As above but moderately sorted with occasional carbonaceous wisps.
63.07 - 64.57	<u>Sandstone</u> : As above, with increasing carbonaceous blebs.
64.57 - 65.17	<u>Coal</u> : Dull with minor bright bands.
65.17 - 65.19	<u>Sandstone</u> : Feldspathic matrix with mudstone interlamination.
65.19 - 65.23	<u>Coal</u> : Inferior and occasionally dull with minor bright bands.
65.23 - 65.30	<u>Coal</u> : Inferior coal grading to carbonaceous mudstone.
65.30 - 65.42	<u>Carbonaceous Mudstone</u>

<u>Depth (m)</u>	<u>Lithologic Description</u>
65.42 - 65.80	<u>Sandstone</u> : Light grey, occasionally dark grey, medium grained, moderately sorted, well cemented, feldspathic matrix, carbonaceous blebs throughout, large mudstone chips, minor calcite in part.
65.80 - 66.10	<u>Mudstone</u> : Light grey, hard, blocky, indurated, carbonaceous wisps.
66.10 - 66.92	<u>Mudstone</u> : Dark grey, hard, blocky, indurated, carbonaceous blebs throughout, slickensided, grading to inferior coal at random.
66.92 - 68.32	<u>Siltstone</u> : Light grey to dark grey, moderately sorted, well cemented, feldspathic matrix, carbonaceous banding throughout with minor mudstone interlamination.
68.32 - 69.16	<u>Sandy Siltstone</u> : Light grey to dark grey, moderately sorted, well cemented, slightly bioturbated, feldspathic; with carbonaceous bands.
69.16 - 72.16	<u>Sandstone</u> : Light grey, fine-medium grained, well sorted, well cemented; dominantly feldspathic matrix, slightly micaceous, chloritic in part; with carbonaceous wisps throughout.
72.16 - 75.16	<u>Sandstone</u> : Light grey, medium-coarse grained, well sorted, well cemented, sucrosic texture, fair porosity; slightly chloritic, partly micaceous, dominantly feldspathic, with occasional carbonaceous blebs.
75.16 - 78.16	<u>Sandstone</u> : Light grey, medium grained, well sorted, well cemented, dominantly feldspathic matrix, slightly chloritic, slightly micaceous; carbonaceous at random towards the base of this unit.
78.16 - 81.56	<u>Sandstone</u> : Light grey to occasionally grey, medium grained, moderately sorted, well cemented, partly greywacke, slightly chloritic, partly micaceous and calcite; with minor carbonaceous wisps and mudstone chips.
81.56 - 81.66	<u>Coal</u> : Dull with minor bright bands, grading to inferior coal at times.
81.66 - 81.96	<u>Mudstone</u> : Carbonaceous.
81.96 - 82.48	<u>Inferior Coal</u> : With minor bright lamellae and bands carbonaceous blebs throughout with 2cm of carbonaceous mudstone towards base of this unit.
82.48 - 83.32	<u>Coal</u> : Dull with minor bright bands, becoming inferior coal in places with occasional carbonaceous blebs, calcite veinlets in parts.
83.32 - 83.37	<u>Carbonaceous Mudstone</u> : grading to inferior coal

<u>Depth (m)</u>	<u>Lithologic Description</u>
83.37 - 83.77	<u>Coal</u> : Dull with minor bright bands; carbonaceous blebs in places.
83.77 - 83.85	<u>Core Loss</u>
83.85 - 84.75	<u>Mudstone</u> : Light grey to dark grey, blocky, indurated, partly pelletoid; with carbonaceous blebs throughout. grading to sandy siltstone towards base of unit.
84.75 - 85.16	<u>Sandy Siltstone</u> : Grey, feldspathic matrix, partly carbonaceous and slightly bioturbated, grading to sandstone in parts.
85.16 - 86.85	<u>Mudstone</u> : Grey to dark grey, hard, partly pelletoid, indurated, occasionally slickensided, carbonaceous, with minor inferior coal lamellae towards base of unit.
86.85 - 87.55	<u>Mudstone</u> : Light grey, blocky, indurated, carbonaceous towards base of unit.
87.55 - 88.57	<u>Coal</u> : Dull with minor bright bands, friable, slickensided; with random calcite veinlets.
88.57 - 89.60	<u>Mudstone</u> : As above, carbonaceous throughout.
89.60 - 89.78	<u>Inferior Coal</u> : grading to carbonaceous mudstone with minor bright bands towards base of unit, slickensided.
89.78 - 89.95	?
89.95 - 90.92	<u>Mudstone</u> : Light grey, becoming dark grey towards base of unit, blocky, indurated, carbonaceous throughout and slightly bioturbated.
90.92 - 91.16	<u>Siltstone</u> : Light grey, well sorted and cemented, feldspathic.
91.16 - 96.06	<u>Sandstone</u> : Light grey, fine-medium grained, well sorted and cemented, dominantly feldspathic matrix, slightly micaceous and chloritic with slightly sucrosic texture.
96.06 - 99.06	<u>Sandstone</u> : As above but medium - coarse grained, with occasional carbonaceous wisps and fair porosity.
99.06 - 101.54	<u>Sandstone</u> : Light grey to occasionally dark grey, moderately sorted, fine to medium grained, well cemented, feldspathic matrix and slightly micaceous; with carbonaceous banding.
101.54 - 102.03	<u>Mudstone</u> : Light grey to dark grey, blocky, hard, indurated, slightly bioturbated, carbonaceous throughout; with calcite veinlets.

<u>Depth (m)</u>	<u>Lithologic Description</u>
102.03 - 102.56	<u>Mudstone</u> : Dark grey, blocky, carbonaceous.
102.56 - 102.81	<u>Coal</u> : Dull with minor bright bands grading to inferior coal.
102.81 - 104.76	<u>Carbonaceous Mudstone</u> : With minor dull and bright bands grading to inferior coal.
102.96 - 103.04	<u>Coal</u> : Dull with minor bright bands grading to inferior coal.
103.04 - 105.11	<u>Mudstone</u> : Light grey to dark grey, slightly micaceous, indurated, blocky and calcite veinlets; with carbonaceous lamellae and plant vestige throughout.
105.11 - 105.16	<u>Clod</u> : Grading to carbonaceous shale.
105.16 - 106.34	<u>Mudstone</u> : Light to dark grey, blocky, indurated, slickensided, bioturbated and carbonaceous; grading to inferior coal at top of unit.
106.34 - 107.11	<u>Coal</u> : Dull with minor bright bands and sporadic carbonaceous blebs; with small mudstone band between 106.92 - 106.93.
107.11 - 108.13	<u>Mudstone</u> : Light grey, becoming dark grey at top of unit, blocky, indurated, carbonaceous at times.
108.13 - 108.31	<u>Mudstone</u> : As above with carbonaceous bands.
108.31 - 109.51	<u>Sandstone</u> : Light grey, fine to medium grained, moderately sorted, well cemented, feldspathic matrix, slightly micaceous; with carbonaceous stringers throughout and minor mudstone laminations.
109.51 - 110.21	<u>Mudstone</u> : Light grey to dark grey, hard, blocky, indurated and partly carbonaceous.
110.21 - 110.51	<u>Coal</u> : Dull
110.51 - 111.09	<u>Mudstone</u> : Dark grey, becoming light grey towards base of unit, blocky, indurated and carbonaceous,
111.09 - 111.13	<u>Core Loss</u>
111.13 - 112.13	<u>Mudstone</u> : Light grey, hard, blocky, indurated, grading to sandy siltstone towards base of unit.
112.13 - 114.23	<u>Sandstone</u> : Light grey, medium grained, well sorted and cemented, micaceous in places, feldspathic matrix; with occasional carbonaceous stringers.

Depth (m)Lithologic Description

114.23 - 117.27	<u>Sandstone</u> : Light grey, medium-coarse grained in places, moderately sorted, well cemented, sucrosic texture towards base of unit, fair porosity, partly greywacke, slightly micaceous, feldspathic matrix; with minor calcite veinlets and sporadic carbonaceous stringers.
117.27 - 120.31	<u>Sandstone</u> : Light grey, medium grained, well sorted and cemented, fair porosity, slightly micaceous, feldspathic matrix, sucrosic texture, argillaceous towards base of unit.
120.31 - 123.45	<u>Sandstone</u> : As above but chloritic in places, moderately sorted and medium to coarse grained.
123.45 - 126.56	<u>Sandstone</u> : As above but medium grained, slightly carbonaceous, and with occasional mudstone chips.
126.56 - 129.63	<u>Sandstone</u> : Light grey, fine-medium grained, well sorted and cemented, slightly greywacke and micaceous, chloritic in places; with slightly sucrosic texture and dominantly feldspathic matrix.
129.63 - 132.78	<u>Sandstone</u> : As above, medium grained, moderately sorted; with carbonaceous stringers and blebs.
132.78 - 138.88	<u>Sandstone</u> : As above but without carbonaceous stringers.
138.88 - 139.58	<u>Sandstone</u> : Light grey-dark-grey, fine grained, moderately sorted, well cemented, bioturbated, carbonaceous throughout, with minor carbonaceous shale laminations towards the base of this unit, dominantly feldspathic matrix.
139.58 - 141.66	<u>Mudstone</u> : Light grey, dark grey, blocky, slightly micaceous, indurated, partly bioturbated, with fine grained-sandstone interlamination towards base of this unit.
141.66 - 141.88	<u>Core Loss</u>
141.88 - 143.08	<u>Mudstone</u> : As above, moderately sorted, well cemented, light-grey, feldspathic matrix, occasional carbonaceous wisp and banding, slightly bioturbated, occasional calcite veinlets; grading to siltstone.
143.08 - 144.95	<u>Sandstone</u> : Light grey to dark grey, fine-medium grained, moderately sorted, well cemented, feldspathic matrix, partly bioturbated carbonaceous bands throughout, occasional carbonaceous blebs; with minor mudstone interlamination.
144.95 - 145.76	<u>Sandstone</u> : As above; without mudstone intercalations, minor calcite veinlets.

Depth (m)Lithologic Description

145.76 - 146.26

Siltstone: Grey to dark grey, moderately sorted, well cemented, feldspathic matrix, calcite veinlets, carbonaceous banding throughout.

146.26 - 146.69

Mudstone: Dark grey, blocky, indurated, hard, predominantly carbonaceous towards base of unit; subfissile, grading to clod in places.

146.69 - 147.95 T.D.

Core Loss

147.95 T.D.

<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 1.95	<u>Clay</u> : Soft, sticky, argillaceous matrix.
1.95 - 3.25	<u>Mudstone</u> : Light grey, soft.
3.25 - 3.41	<u>Coal</u> : Dull with minor bright bands; with minor carbonaceous blebs and sporadic interlamination of mudstone.
3.41 - 4.19	<u>Core Loss</u>
4.19 - 6.28	<u>Mudstone</u> : Light grey, moderately hard, blocky, splintery in places, indurated with occasional carbonaceous stringers.
6.28 - 9.48	<u>Sandstone</u> : Light grey to occasionally grey brown, fine-medium grained, well sorted, moderately sorted, feldspathic matrix, sucrosic texture in places, fair porosity; bedding dip of 2°. Carbonaceous banding near top of unit and carbonaceous wisps throughout decreasing towards base of unit.
9.48 - 9.75	<u>Mudstone</u> : Dark grey, carbonaceous, splintery, slightly indurated.
9.75 - 10.45	<u>Inferior Coal</u> : Dull
10.45 - 10.51	<u>Coal</u> : Bright with minor dull bands, friable.
10.51 - 16.58	<u>Mudstone</u> : Dark grey, firm, blocky, indurated, bioturbated in places; with carbonaceous banding.
16.58 - 17.88	<u>Mudstone</u> : Carbonaceous throughout with minor lamellae of siltstone towards base of unit; bedding dip of 3°.
17.88 - 21.09	<u>Sandstone</u> : Light grey to dark grey, fine grained, well sorted and cemented, dominantly feldspathic matrix, micaceous, carbonaceous wisps throughout; with minor Mudstone lamellae; dark grey, greywacke, slightly carbonaceous.
21.09 - 24.13	<u>Sandstone</u> : Light grey to dark grey, grading from sandy siltstone at top of unit into sandstone; fine to medium grained, moderately sorted, well cemented, feldspathic matrix, slightly micaceous, partly bioturbated; with carbonaceous banding throughout and occasional calcite veinlets.
24.13 - 27.18	<u>Sandstone</u> : Light grey to dark grey, medium grained, well sorted and cemented, fair porosity, slightly kaolinitic, feldspathic matrix; with carbonaceous banding and mottling.
27.18 - 33.18	<u>Sandstone</u> : As above with occasional coarse grains, moderate sorting and carbonaceous specs.

<u>Depth (m)</u>	<u>Lithologic Description</u>
33.18 - 36.26	<u>Sandstone</u> : As above, light grey to off white, medium grained, moderately sorted, well cemented, slightly micaceous, feldspathic matrix, slightly sucrosic texture; with carbonaceous blebs throughout and banding towards base of unit.
36.26 - 38.66	<u>Sandstone</u> : Light grey to dark grey, medium grained, moderately cemented and sorted, feldspathic matrix, occasionally calcitic, carbonaceous wisps throughout.
38.66 - 38.86	<u>Coal</u> : Dull with minor bright bands, friable.
38.86 - 39.23	<u>Mudstone</u> : Light grey to dark grey, firm, blocky, indurated, carbonaceous, bioturbated, with minor lamellae of siltstone.
39.23 - 44.17	<u>Mudstone</u> : As above; plant remnants, partly splintery; with equal amounts of siltstone and mudstone interlaminated between 42.86 - 44.17; <u>Siltstone</u> : light grey to dark grey, feldspathic, well cemented, indurated, carbonaceous.
44.17 - 45.23	<u>Sandy Siltstone</u> : Light to dark grey, well sorted and cemented, feldspathic matrix, slightly indurated, carbonaceous banding throughout; grading to fine grained sandstone at base of unit: occasionally crossbedded, dip of 2°.
45.23 - 51.23	<u>Sandstone</u> : Light grey to off-white, fine-medium grained, well sorted, moderately cemented, slightly micaceous, feldspathic matrix, sucrosic texture, minor carbonaceous mottling, chloritic between 49.23 - 50.43.
51.23 - 54.27	<u>Sandstone</u> : As above; moderately sorted, non-chloritic, fair porosity.
54.27 T.D.	

<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 5.00	<u>Alluvium/Colluvium</u> : red-brown silty loamy soil, argillaceous matrix, ubiquitous dolerite debris.
5.00 - 5.10	<u>Carbonaceous Shale</u> : with minor intercalations of inferior coal; dull; and carbonaceous blebs throughout.
5.10 - 5.20	<u>Carbonaceous Mudstone</u> : grading to inferior coal: friable.
5.20 - 5.90	<u>Core Loss</u> : possibly coal.
5.90 - 8.90	<u>Sandy Siltstone</u> : light grey, moderately sorted, poorly cemented, argillaceous matrix, micaceous, minor carbonaceous lamellae bands, grading in places to mudstone: light grey, moderately soft.
8.90 - 9.65	<u>Inferior Coal</u> : grading to coal: dull with minor bright bands.
9.65 - 10.85	<u>Core Loss</u> : presumably coal
10.85 - 11.90	<u>Mudstone</u> : light grey, soft, blocky, micaceous and carbonaceous in part.
11.90 - 14.90	<u>Mudstone</u> : light grey, moderately soft, blocky. abundant carbonaceous wisps, plant vestiges along bedding planes; becoming silty in places.
14.90 - 17.90	<u>Sandstone</u> : light grey, dark grey, off white, fine-medium grained, coarse at base of unit, moderately sorted and cemented, dominantly argillaceous matrix, slightly feldspathic, carbonaceous banding; with minor mudstone intercalations: light grey, blocky, soft.
17.90 - 20.10	<u>Sandstone</u> : light grey to off white, brown towards the base of unit, medium-coarse grained, well sorted, moderately cemented, carbonaceous mottling, dominantly feldspathic matrix.
20.10 - 20.90	<u>Arkosic Sandstone</u> : dark brown, medium-coarse grained, moderately sorted and cemented, sucrosic texture, dominantly feldspathic matrix, carbonaceous spotted, partly lithic.
20.90 - 24.00	<u>Arkosic Sandstone</u> : dark grey brown, medium-coarse grained, subrounded, to rounded, moderately sorted, well cemented, dominantly feldspathic matrix, micaceous, sucrosic texture, minor calcite veinlets.
24.00 - 27.90	<u>Arkosic Sandstone</u> : yellow-brown, medium-coarse grained, moderately sorted; pebbly in places, well cemented, sucrosic texture, fair porosity, dominantly feldspathic matrix, micaceous, slightly kaolinitic.

<u>Depth (m)</u>	<u>Lithologic Description</u>
27.90 - 30.02	<u>Sandstone</u> : light grey, fine-medium grained, moderately sorted, well cemented, feldspathic matrix, partly lithic, micaceous.
30.02 - 31.40	<u>Sandstone</u> : As above with carbonaceous stringers in places, bioturbated.
31.40 - 31.77	<u>Mudstone</u> : dark grey, blocky, firm, indurated matrix, carbonaceous, bedding dip of 4°, bioturbated in places.
31.77 - 36.05	<u>Sandstone</u> : fine-medium grained, well sorted and well cemented, partly lithic, dominantly feldspathic matrix.
36.05 - 39.13	<u>Arkosic Sandstone</u> : yellow-brown, fine-medium grained, moderately sorted, well cemented, feldspathic matrix, partly lithic, carbonaceous wisps, fair porosity; with lamellae of coal: dull with minor bright bands towards base of unit.
39.13 - 44.90	<u>Sandstone</u> : light grey, medium-coarse grained, occasional carbonaceous wisps.
44.90 - 45.13	<u>Sandstone</u> : light grey to off white, fine grained moderately sorted, well cemented, partly lithic, slightly argillaceous, occasionally feldspathic.
45.13 - 47.36	<u>Sandstone</u> : light grey to off white, fine grained to occasionally medium grained, well sorted and cemented, feldspathic matrix, lithic, slightly micaceous, arkosic in places.
47.36 - 48.13	<u>Mudstone</u> : light grey to dark grey, carbonaceous bands throughout, indurated, hard, blocky, with minor sandstone lamellae.
48.13 - 49.86	<u>Mudstone</u> : As above: slightly carbonaceous.
49.86 - 50.15	<u>Mudstone</u> : As above, carbonaceous wisps throughout, bioturbated.
50.15 - 50.18	<u>Mudstone</u> : Carbonaceous; blebs; grading to inferior coal: dull.
50.18 - 50.51	<u>Mudstone</u> : light to dark grey, hard, blocky, indurated, carbonaceous towards top of unit; bioturbated in places.
50.51 - 51.41	<u>Sandstone</u> : light grey to dark grey, fine grained, moderately sorted, well cemented, feldspathic matrix, micaceous, carbonaceous banding towards base of unit.

<u>Depth (m)</u>	<u>Lithologic Description</u>
51.41 - 51.57	<u>Mudstone</u> : light grey, blocky, hard, dominantly indurated.
51.57 - 52.47	<u>Sandstone</u> : light grey, moderately sorted, fine grained, feldspathic matrix, carbonaceous wisps.
52.47 - 52.60	<u>Mudstone</u> : light grey to dark grey, pelletoid, hard, indurated and carbonaceous.
52.60 - 52.87	<u>Coal</u> : bright with minor dull bands.
52.87 - 53.66	<u>Mudstone</u> : As above; slightly bioturbated.
53.66 - 56.78	<u>Sandstone</u> : light grey to dark grey, occasionally off white, medium grained, grading to fine grained at base of unit, moderately sorted and cemented, feldspathic matrix, carbonaceous wisps throughout, bioturbated, minor coal lamellae, calcite veinlets at random; becoming highly carbonaceous towards base of unit.
56.78 - 57.13	<u>Mudstone</u> : light grey to dark grey, blocky, moderately hard, indurated.
57.13 - 58.18	<u>Mudstone</u> : As above; bioturbated, carbonaceous banding throughout.
58.18 - 60.13	<u>Arkosic Sandstone</u> : yellow-brown, coarse grained, moderately sorted, well cemented, sucrosic texture, feldspathic matrix, carbonaceous blebs throughout, slightly argillaceous, calcite veinlets in places.
60.13 - 63.23	<u>Sandstone</u> : light grey to yellow-brown, coarse grained to occasionally very coarse grained, moderately sorted and cemented, feldspathic matrix, fair porosity, slightly micaceous, partly kaolinitic chloritic in part, minor carbonaceous blebs throughout; with minor lamellae of mudstone.
63.23 - 68.12	<u>Sandstone</u> : light grey to off white, medium-coarse grained, well sorted and cemented, feldspathic matrix, slightly lithic, with carbonaceous blebs throughout and carbonaceous bands towards base of unit.
68.12 - 68.18	<u>Mudstone</u> : red-brown, ferruginous, indurated; with carbonaceous wisps.
68.18 - 69.38	<u>Arkosic Sandstone</u> : yellow-brown, well sorted and cemented, medium-coarse grained, feldspathic matrix, partly ferruginous; with calcite veinlets near base of unit.

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Depth (m)Lithologic Description

69.38 - 72.40	<u>Arkosic Sandstone</u> : As above; moderately sorted, sucrosic texture, fair porosity, sporadic carbonaceous blebs.
72.40 - 75.02	<u>Arkosic Sandstone</u> : As above; fine to medium grained, chloritic in part, slightly micaceous.
75.02 - 75.42	<u>Sandstone</u> : light grey, fine-medium grained, well sorted and cemented, feldspathic matrix, carbonaceous blebs, chloritic in part, slightly micaceous.
75.42 - 78.09	<u>Arkosic Sandstone</u> : light grey, occasionally dark grey towards base of unit, predominantly feldspathic matrix, slightly chloritic, kaolinitic in part; with minor lamellae of coal towards base of unit.
78.09 T.D.	

<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 1.80	<u>Alluvium/Colluvium</u> : Yellow brown, silty loamy soil, with argillaceous, ferruginous weathered dolerite scree.
1.80 - 10.00	<u>Sandstone</u> : Light grey to yellow brown, medium grained, moderately sorted and cemented, partly argillaceous, dominantly feldspathic matrix, moderately porous, carbonaceous specs in places.
10.00 - 13.02	<u>Sandstone</u> : Light grey, medium grained to occasionally coarse grained, moderately sorted, fair porosity, slightly argillaceous, dominantly feldspathic matrix.
13.02 - 15.00	<u>Coal</u> : Dull with minor bright bands, occasional bright lamellae.
15.00 - 16.50	<u>Mudstone</u> : Light grey, soft; with traces of coal: dull with minor bright bands.
16.50 - 18.00	Drilling bit intersected old coal working shaft.
18.00 - 23.00	<u>Mudstone</u> : Light to dark grey, moderately soft, blocky, occasionally splintery; with 10% sandstone.
23.00 - 27.00	<u>Mudstone</u> : As above but with 30% <u>Sandstone</u> : light grey to occasionally off-white, medium - coarse grained, moderately sorted and cemented, partly kaolinitic, good visual porosity, carbonaceous speckles, sucrosic texture, feldspathic matrix.
27.00 - 30.00	<u>Sandstone</u> : As above but with fair porosity.
30.00 - 34.00	<u>Sandstone</u> : Light grey, fine-medium grained, moderately sorted and cemented, slightly argillaceous, feldspathic matrix, carbonaceous spotted in places.
34.00 - 41.00	<u>Sandstone</u> : Light grey, fine grained, well sorted, poorly cemented, argillaceous.
41.00 - 45.00	<u>Sandstone</u> : As above; well cemented, greywacke, slightly micaceous.
45.00 - 50.00	<u>Sandstone</u> : As above;
50.00 T. D.	

<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 0.80	<u>Alluvium</u> : Dark grey, silty loam, slightly ferruginous.
0.80 - 1.40	<u>Clay</u> : Red-brown, sticky, slightly ferruginous, with 20% sandstone.
1.40 - 2.80	<u>Sandstone</u> : Red-brown, fine grained, well sorted and cemented, dominantly feldspathic matrix, slightly ferruginous.
2.80 - 5.70	<u>Arkosic Sandstone</u> : Red-brown, fine-medium grained, well sorted and cemented, dominantly feldspathic matrix, slightly ferruginous, partly micaceous, weathered.
5.70 - 5.80	<u>Core Loss</u>
5.80 - 7.60	<u>Arkosic Sandstone</u> : as above.
7.60 - 8.32	<u>Sandstone</u> : Light grey, medium grained, well sorted and cemented, dominantly feldspathic matrix, slightly chloritic, partly micaceous.
8.32 - 8.65	<u>Sandstone</u> : Red-brown to yellow, medium grained, well sorted and cemented, dominantly feldspathic matrix, slightly micaceous, lithic.
8.65 - 8.80	<u>Core Loss</u>
8.80 - 9.88	<u>Sandstone</u> : Red-brown to light grey, medium grained, well sorted and cemented, slightly chloritic, dominantly feldspathic matrix, micaceous throughout.
9.88 - 10.18	<u>Core Loss</u>
10.18 - 10.70	<u>Sandstone</u> : Red-brown to yellow, medium grained, poorly sorted, well cemented; with mudstone chips throughout.
10.70 - 10.93	<u>Core Loss</u>
10.93 - 11.80	<u>Mudstone</u> : Light grey, soft, silty, blocky, plant vestiges along bedding planes, carbonaceous banding.
11.80 - 13.92	<u>Siltstone</u> : Light grey, well sorted and cemented, argillaceous matrix, slightly micaceous, grading to mudstone in places; carbonaceous towards base of unit.
13.92 - 14.48	<u>Coal</u> : Dull with minor bright bands; as lamellae.
14.48 - 14.52	<u>Clod</u>
14.52 - 14.69	<u>Coal</u> : Dull with bright bands.

<u>Depth (m)</u>	<u>Lithologic Description</u>
14.69 - 14.80	<u>Core Loss</u>
14.80 - 15.07	<u>Coal</u> : Dull with minor bright bands and lamellae; calcitic.
15.07 - 15.11	<u>Carbonaceous Mudstone</u> .
15.11 - 15.43	<u>Coal</u> : Dull with minor bright bands; with frequent bright bands towards base of unit.
15.43 - 15.61	<u>Mudstone</u> : Dark grey, carbonaceous.
15.61 - 16.23	<u>Coal</u> : Dull with minor bright bands; friable, calcitic.
16.23 - 17.57	<u>Mudstone</u> : Light grey, moderately soft, blocky, carbonaceous towards base of unit.
17.57 - 17.64	<u>Coal</u> : Dull with minor bright bands.
17.64 - 17.80	<u>Core Loss</u>
17.80 - 18.94	<u>Coal</u> : Bright and dull bands; calcitic.
18.94 - 19.63	<u>Mudstone</u> : Light to dark grey, blocky, soft, carbonaceous at top of unit.
19.63 - 19.85	<u>Coal</u> : Dull with minor bright bands, friable.
19.85 - 19.87	<u>Clod</u>
19.87 - 20.14	<u>Coal</u> : Dull with minor bright bands and lamellae.
20.14 - 20.16	<u>Carbonaceous Mudstone</u>
20.16 - 20.29	<u>Coal</u> : Dull with minor bright bands.
20.29 - 20.76	<u>Mudstone</u> : Light grey, moderately soft.
20.76 - 20.80	<u>Core Loss</u>
20.80 - 23.97	<u>Mudstone</u> : Light grey, blocky, moderately soft, slightly splintery and micaceous.
23.97 - 26.83	<u>Sandstone</u> : Light grey, fine to medium grained, well sorted and cemented, dominantly feldspathic matrix, micaceous.
26.83 - 32.44	<u>Sandstone</u> : As above; with carbonaceous blebs.
32.44 - 32.88	<u>Carbonaceous Mudstone</u> : Black to dark grey, blocky, occasionally splintery, slightly chloritic and carbonaceous.
32.88 - 33.16	<u>Mudstone</u> : With minor carbonaceous wisps.

<u>Depth (m)</u>	<u>Lithologic Description</u>
33.16 - 34.30	<u>Siltstone</u> : Light to dark grey, well sorted and cemented, occasionally grading to silty sandstone: dominantly feldspathic matrix, carbonaceous throughout.
34.30 - 34.39	<u>Carbonaceous Mudstone</u> : Dark grey, waxy.
34.39 - 34.71	<u>Coal</u> : Dull with minor bright bands, friable, calcitic.
34.71 - 35.51	<u>Mudstone</u> : Dark grey at top of unit, grading down to light grey, blocky, slightly micaceous, partly slickensided.
35.51 - 35.88	<u>Sandstone</u> : Light grey to grey, medium grained, well sorted and cemented, feldspathic matrix, carbonaceous throughout, pyritic.
35.88 - 38.88	<u>Sandstone</u> : Light grey to grey, medium grained, well sorted and cemented, dominantly feldspathic micaceous, slightly chloritic, lithic.
38.88 - 40.18	<u>Sandstone</u> : As above; carbonaceous.
40.18 - 40.95	} <u>Tuffaceous Sandstone</u> : Light grey to green, fine grained, feldspathic, lithic, calcite veinlets, chloritic.
40.95 - 42.66	
42.66 - 44.28	? <u>Metamorphic Rock</u> : Calc-silicates (chloritized)
44.28 - 44.40	<u>Tuffaceous Sandstone</u> : As above.
44.40 TD.	

DRILLHOLE H-02aDepth (m)Lithologic Description

0.00 - 38.30 T.D.

Same as for H02B for the interval
0 - 38.30 T.D.Due to drilling difficulties, H02
was relocated directly adjacent to
H02A and encountered identical geology
for the interval 0 - 38.30m.

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<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 1.00	<u>Soil</u>
1.00 - 10.50	<u>Sandstone</u> : Red-brown, fine grained to occasionally medium grained, well sorted and cemented, dominantly feldspathic matrix, slightly micaceous; with minor clay particles: red-brown, soft, sticky; slightly ferruginous.
10.50 - 11.00	<u>Sandstone</u> : As above: with intercalations of clayey siltstone: light grey, moderately soft, blocky, slightly micaceous.
11.00 - 12.00	<u>Sandstone and Mudstone</u> : Sandstone: As above. Mudstone: As above Sandstone/Mudstone ratio = 50:50
12.00 - 15.00	<u>Mudstone</u> : Light grey, moderately hard, flakey, indurated, slightly micaceous.
15.00 - 17.00	<u>Mudstone and Sandy Siltstone</u> : Mudstone, light grey, moderately hard, blocky, indurated, partly micaceous; Sandy Siltstone: Light grey, well sorted and cemented, feldspathic matrix. Mudstone/Sandy Siltstone ratio = 70:30
17.00 - 20.00	<u>Sandstone</u> : Light grey, fine grained, well sorted and cemented, dominantly feldspathic matrix, slightly micaceous.
20.00 - 27.00	<u>Sandstone</u> : As above; occasionally medium grained.
27.00 - 33.30	<u>Sandstone</u> : Light grey to occasionally red-brown, fine grained, well sorted and cemented, dominantly feldspathic matrix, chloritic in places, partly lithic.
33.00 - 38.30	<u>Sandstone</u> : As above but fine to medium grained.
38.30 - 47.90	<u>Sandstone</u> : Light grey to red-brown, fine to medium grained, well sorted and cemented, dominantly feldspathic matrix, micaceous and chloritic in places, lithic.
47.90 - 48.00	<u>Carbonaceous Mudstone</u>
48.00 - 50.80	<u>Sandstone</u> : As above, well sorted; with minor mudstone interlamination towards top of unit and carbonaceous mudstone towards base of unit.
50.80 - 50.88	<u>Carbonaceous Mudstone</u> : Dark grey, hard, indurated, pyritic.

<u>Depth (m)</u>	<u>Lithological Description</u>
50.88 - 51.98	<u>Sandstone</u> : Light grey, feldspathic, carbonaceous in places.
51.98 - 52.31	<u>Sandy Siltstone</u> : Light grey, well sorted and cemented, feldspathic matrix, slightly micaceous, indurated.
52.32 - 52.75	<u>Mudstone</u> : Slightly carbonaceous, indurated.
52.75 - 53.88	<u>Sandstone</u> : Light grey, fine grained, well sorted and cemented, feldspathic, lithic.
53.88 - 54.01	<u>Mudstone</u> : Light grey, hard, indurated.
54.01 - 57.08	<u>Sandstone</u> : Light grey, fine grained, well sorted and cemented, dominantly feldspathic matrix, lithic.
57.08 - 63.18	<u>Sandstone</u> : As above; fine to medium grained, slightly micaceous.
63.18 - 66.28	<u>Sandstone</u> : As above, fine-medium grained; with minor mudstone intercalations towards top of unit.
66.28 - 69.35	<u>Sandstone</u> : Light grey, medium grained with occasional coarse grains, well sorted and cemented, dominantly feldspathic matrix, chloritic throughout, slightly micaceous; with traces of marcasite.
69.35 - 72.35	<u>Sandstone</u> : Light grey to occasionally green, fine to medium grained, coarse towards base of unit, well sorted and cemented, feldspathic matrix, slightly micaceous, chloritic throughout, carbonaceous wisps towards base of unit, slightly pyritic.
72.35 - 75.40	<u>Sandstone</u> : Light grey, fine to medium grained, moderately sorted, well cemented, feldspathic matrix, lithic, chloritic throughout, partly micaceous, occasional mudstone chips.
75.40 - 78.00	<u>Sandstone</u> : Tuffaceous, light grey, fine to medium grained, well sorted and cemented, dominantly feldspathic matrix, lithic, chloritic throughout.
78.00 - 78.40	<u>Core Loss</u>
78.40	T.D.

<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 1.00	<u>Soil</u> : Red-brown to dark brown, sandy, loamy, slightly ferruginous with 5 to 20% clay material.
1.00 - 3.00	<u>Sandstone</u> : Red-brown to yellow, occasionally light grey, medium to occasionally coarse grained, moderately sorted, well cemented, feldspathic matrix, weathered.
3.00 - 5.95	<u>Sandstone</u> : Red-brown to yellow, medium grained, moderately sorted, well cemented, dominantly feldspathic matrix, slightly chloritic, micaceous in parts, occasional calcite veinlets.
5.95 - 6.00	<u>Core Loss</u>
6.00 - 8.76	<u>Sandstone</u> : Light grey, occasionally red-brown, medium to occasionally coarse grained, moderately sorted, well cemented, dominantly feldspathic matrix, lithic, chloritic in places; partly micaceous, with mudstone chips.
8.76 - 9.00	<u>Core Loss</u>
9.00 - 15.00	<u>Sandstone</u> : Light grey, medium to coarse grained, well sorted and cemented, sucrosic texture, dominantly feldspathic matrix, slightly micaceous.
15.00 - 20.63	<u>Sandstone</u> : As above; partly sucrosic texture.
20.63 - 21.11	<u>Sandstone</u> : Light grey, medium grained, well sorted and cemented, feldspathic, partly micaceous, slightly chloritic, lithic.
21.11 - 24.11	<u>Sandstone</u> : Light grey to grey, medium to coarse grained, moderately sorted, well cemented, feldspathic matrix, carbonaceous wisps throughout, chloritic, lithic in part, partly bioturbated.
24.11 - 27.15	<u>Sandstone</u> : Light grey, medium to coarse grained, partly sucrosic texture, well sorted and cemented, dominantly feldspathic matrix, slightly carbonaceous, lithic, chloritic, micaceous in places.
27.15 - 30.15	<u>Sandstone</u> : As above with increasing carbonaceous mudstone blebs, occasional calcite traces, chloritic, slightly pyritic.
30.15 - 33.21	<u>Sandstone</u> : Light grey to green, medium to coarse grained, well sorted and cemented, dominantly feldspathic matrix, chloritic, partly sucrosic texture, lithic, occasionally micaceous, slightly carbonaceous.

<u>Depth (m)</u>	<u>Lithologic Description</u>
33.21 - 36.21	<u>Sandstone</u> : Light grey to green, medium to coarse grained, well sorted and cemented, lithic, partly sucrosic texture, feldspathic, chloritic throughout, carbonaceous blebs in places.
36.21 - 39.26	<u>Sandstone</u> : Light grey to medium grained, well sorted and cemented, feldspathic matrix, chloritic throughout; slightly carbonaceous with carbonaceous mudstone lamellae towards base of unit.
39.26 - 39.46	<u>Sandstone</u> : As above, becoming carbonaceous towards base of unit; poorly sorted.
39.46 - 39.53	<u>Carbonaceous Mudstone</u> : Chloritic in places, pyritic; with lamellae of coal.
39.53 - 42.20	<u>Sandstone</u> : Light grey to green, coarse grained, moderately to well sorted, well cemented, feldspathic, chloritic throughout, lithic, carbonaceous wisps, sucrosic texture.
42.20 - 42.26	<u>Core Loss</u>
42.26 - 42.31	<u>Carbonaceous Mudstone</u> : Grading to inferior coal.
42.31 - 42.49	<u>Coal</u> : Dull with minor bright bands, and lamellae; calcite traces.
42.49 - 42.51	<u>Carbonaceous Mudstone</u>
42.51 - 42.98	<u>Coal</u> : Dull with minor bright bands and lamellae; calcite traces.
42.98 - 43.02	<u>Carbonaceous Mudstone</u>
43.02 - 43.32	<u>Coal</u> : Dull and bright bands, calcite veinlets.
43.32 - 43.33	<u>Carbonaceous Mudstone</u>
43.33 - 44.19	<u>Coal</u> : Dull with bright bands, minor carbonaceous blebs, calcitic.
44.19 - 45.19	<u>Mudstone</u> : Dark grey to the top of unit, grading to light grey, blocky, slightly indurated.
45.19 - 45.26	<u>Core Loss</u>
45.26 - 45.81	<u>Mudstone</u> : Light grey, blocky, moderately soft, carbonaceous wisp throughout, very carbonaceous at base of unit.
45.81 - 46.20	<u>Coal</u> : Db with minor Bd lamellae, calcitic, slightly pyritic.

<u>Depth (m)</u>	<u>Lithologic Description</u>
46.20 - 46.24	<u>Clod</u>
46.24 - 47.05	<u>Coal</u> : Db with minor Bd lamellae, calcitic, minor carbonaceous blebs.
47.05 - 47.11	<u>Mudstone</u> : As above
47.11 - 48.26	<u>Mudstone</u> : Light grey to dark grey, hard, blocky, indurated, slightly carbonaceous.
48.26 - 51.32	<u>Mudstone</u> : Light grey, occasionally grey, blocky in places, flakey, hard, indurated, occasional plant impressions, partly pelletoid, slightly carbonaceous.
51.32 - 52.36	<u>Mudstone</u> : Light grey, hard, blocky, indurated, slightly carbonaceous.
52.36 - 54.16	<u>Sandstone</u> : Light grey, fine to medium grained, well sorted and cemented, dominantly feldspathic matrix, slightly carbonaceous, lithic.
54.16 - 54.32	<u>Mudstone</u> : Light grey, hard, blocky, indurated.
54.32 - 58.01	<u>Sandstone</u> : Light grey, fine to medium grained, well sorted and cemented, dominantly feldspathic matrix, lithic, occasional carbonaceous bands, marcasite traces.
58.01 - 58.33	<u>Mudstone</u> : Light grey, hard, blocky, indurated.
58.33 - 60.37	<u>Sandstone</u> : Light grey, fine to medium grained, well sorted and cemented, dominantly feldspathic matrix, traces of marcasite, slightly carbonaceous.
60.37 - 63.33	<u>Sandstone</u> : Light grey, fine to medium grained, well sorted and cemented, dominantly feldspathic matrix, partly chloritic, lithic, slightly micaceous.
63.33 - 63.37	<u>Core Loss</u>
63.37 - 63.93	<u>Sandstone</u> : As above
63.93 - 63.98	<u>Carbonaceous Mudstone</u>
63.98 - 64.03	<u>Siltstone</u>
64.03 - 65.37	<u>Mudstone</u> : Light grey, hard, blocky, indurated, with plant impressions.
65.37 - 65.47	<u>Sandstone</u> : Fine grained, grading to sandy siltstone.

<u>Depth (m)</u>	<u>Lithologic Description</u>
65.47 - 65.75	<u>Mudstone</u> : Light grey, well sorted and cemented, dominantly feldspathic matrix; carbonaceous bands.
65.75 - 66.62	<u>Mudstone</u> : Light grey to dark grey, carbonaceous, indurated.
66.62 - 68.05	<u>Silty Sandstone</u> : Light grey, well sorted and cemented, dominantly feldspathic matrix, carbonaceous banding throughout, occasional slump features, bedding dip of 2°.
68.05 - 68.08	<u>Carbonaceous Mudstone</u>
68.08 - 68.40	<u>Coal</u> : Dull with minor bright bands.
68.40 - 68.45	<u>Carbonaceous Mudstone</u> : Light grey to dark grey.
68.45 - 68.47	<u>Coal</u> : Bright with minor dull bands.
68.47 - 68.57	<u>Carbonaceous Mudstone</u> : With Bd lamellae towards base of unit.
68.57 - 68.82	<u>Mudstone</u> : Carbonaceous towards top of unit.
68.82 - 69.02	<u>Sandstone</u> : Light grey, feldspathic.
69.02 - 69.37	<u>Mudstone</u> : Light grey, hard, blocky, indurated.
69.37 - 72.23	<u>Sandstone</u> : Light grey, medium to coarse grained, well sorted and cemented, feldspathic matrix, lithic, slightly micaceous.
72.23 - 75.35	<u>Sandstone</u> : Light grey, medium grained, well sorted and cemented, dominantly feldspathic matrix, micaceous throughout, lithic, chloritic in part, occasional carbonaceous blebs.
75.35 - 78.40	<u>Sandstone</u> : Light grey, medium grained, well sorted and cemented, dominantly feldspathic matrix, micaceous throughout, lithic, carbonaceous banding towards top unit; cross bedding features present.
78.40 - 81.40	<u>Sandstone</u> : Light grey, medium to coarse grained, well sorted and cemented, dominantly feldspathic matrix, lithic, slightly micaceous.
81.40 - 84.44	<u>Tuffaceous Sandstone</u> : Light grey, medium to coarse grained, sucrosic texture, dominantly feldspathic matrix, slightly chloritic, occasionally micaceous; with some carbonaceous mottling.
84.44	T.D.

<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 1.00	<u>Soil</u> : Red-brown, silty loam.
1.00 - 3.00	<u>Sandstone</u> : Red-brown, fine grained, well sorted and cemented, dominantly feldspathic, partly lithic, slightly ferruginous, occasionally micaceous, weathered.
3.00 - 17.80	<u>Sandstone</u> : Red-brown, fine to medium grained, well sorted and cemented, dominantly feldspathic matrix, partly lithic, slightly micaceous.
17.80 - 21.15	<u>Mudstone</u> : Light grey, soft, blocky, with minor intercalations of sandstone which might be a result of contamination (?)
21.15 - 21.28	<u>Carbonaceous Mudstone</u> : Grading to inferior coal.
21.28 - 21.46	<u>Coal</u> : Dull with minor bright bands and lamellae.
21.46 - 21.49	<u>Mudstone</u> : Light grey to dark grey, soft, carbonaceous.
21.49 - 21.82	<u>Coal</u> : Bright and dull bands and lamellae.
21.82 - 21.84	<u>Carbonaceous Mudstone</u>
21.84 - 22.98	<u>Coal</u> : Db with increasing Bd bands towards base of this unit.
22.98 - 23.03	<u>Mudstone</u> : Light grey, soft, carbonaceous throughout.
23.03 - 23.53	<u>Coal</u> : Dmb, occasional Db lamellae.
23.53 - 23.96	<u>Core Loss</u>
23.96 - 24.16	<u>Coal</u> : Db with minor bright bands.
24.16 - 24.18	<u>Carbonaceous Mudstone</u>
24.18 - 24.53	<u>Coal</u> : Bd with minor Db bands.
24.53 - 26.58	<u>Mudstone</u> : Light grey, soft, blocky, micaceous; partly indurated, grading to sandy siltstone towards base of unit.
26.58 - 26.85	<u>Sandstone</u> : Light grey, medium grained, moderately sorted and cemented, feldspathic matrix, micaceous throughout, slightly chloritic, carbonaceous wisps throughout.
26.85 - 26.96	<u>Core Loss</u>

<u>Depth (m)</u>	<u>Lithologic Description</u>
26.96 - 27.26	<u>Sandstone</u> : As above.
27.26 - 27.80	<u>Mudstone</u> : Light grey, moderately hard, blocky, indurated, partly micaceous; with minor sandstone interlamination.
27.80 - 29.95	<u>Sandstone</u> : Light grey, medium to coarse grained, well sorted and cemented, feldspathic matrix, micaceous throughout, slightly chloritic, sucrosic texture, occasional carbonaceous bands.
29.95 - 32.95	<u>Sandstone</u> : Light grey, medium grained, occasionally coarse grained, well sorted and cemented, sucrosic texture, dominantly feldspathic matrix, micaceous throughout, occasional carbonaceous bands, carbonaceous blebs in places.
32.95 - 36.40	<u>Sandstone</u> : Light grey, medium to coarse grained, well sorted and cemented, sucrosic texture, dominantly feldspathic matrix, lithic, micaceous throughout, chloritic, occasional carbonaceous blebs, traces of marcasite.
36.04 - 39.04	<u>Sandstone</u> : Light grey to occasional red-brown, coarse grained, sucrosic texture, moderately well sorted, well cemented, sub-angular to rounded, dominantly feldspathic matrix, lithic, chloritic throughout, micaceous, marcasitic, minor traces of calcite.
39.04 - 42.04	<u>Sandstone</u> : Partly tuffaceous, light grey, medium to coarse grained, well sorted and cemented, sucrosic texture, dominantly feldspathic matrix, micaceous throughout, slightly chloritic, lithic, occasional carbonaceous bands.
42.04 - 45.10	<u>Sandstone</u> : Light grey, medium to coarse grained, moderately well sorted, well cemented, sucrosic texture, dominantly feldspathic matrix, chloritic, slightly micaceous, traces of marcasite, minor mudstone chips.
45.10 T.D.	

DRILLHOLE H-05

<u>Depth (m)</u>	<u>Lithological Description</u>
0.00 - 1.00	<u>Soil</u> : Red-brown, sandy, loamy, slightly ferruginous, clayey in part, grading to underlying unit.
1.00 - 3.70	<u>Sandstone</u> : Red-brown to yellow, well sorted and cemented, medium to coarse grained, lithic, dominantly feldspathic matrix, slightly micaceous.
3.70 - 5.00	<u>Core Loss</u>
5.00 - 6.00	<u>Sandstone</u> : Red-brown, medium-coarse grained, well sorted and cemented, dominantly feldspathic matrix, lithic, partly micaceous.
6.00 - 8.45	<u>Mudstone</u> : Red-brown, moderately soft, sub-fissile in places, blocky, micaceous, ferruginous throughout.
8.45 - 9.00	<u>Core Loss</u>
9.00 - 12.00	* <u>Mudstone</u> : Light grey, occasionally red-brown, moderately soft, blocky, micaceous throughout.
12.00 - 14.03	<u>Sandstone</u> : Light grey to dark grey, fine to medium grained, occasionally coarse grained at base of unit, moderately well sorted and cemented, carbonaceous banding, micaceous, plant impressions along bedding plane.
14.03 - 15.00	<u>Core Loss</u>
15.00 - 18.00	<u>Sandstone</u> : Light grey, medium to coarse grained, well sorted and cemented, sucrosic texture, dominantly feldspathic matrix, micaceous throughout, chloritic in part, carbonaceous bands.
18.00 - 19.85	<u>Sandstone</u> : As above; poorly cemented.
19.85 - 21.00	<u>Core Loss</u>
21.00 - 23.90	<u>Sandstone</u> : Light grey, medium to coarse grained, well sorted and cemented, sucrosic texture, dominantly feldspathic matrix, partly micaceous.
23.90 - 24.00	<u>Core Loss</u>
24.00 - 27.00	<u>Sandstone</u> : Light grey, medium to coarse grained, well sorted, moderately cemented, sucrosic texture, predominantly feldspathic matrix, micaceous.

* Core was stuck in inner tube barrel. Determination of lithologic section based on shattered core.

<u>Depth (m)</u>	<u>Lithologic Description</u>
27.00 - 30.62	<u>Sandstone</u> : As above; carbonaceous in places.
30.62 - 30.70	<u>Mudstone</u> : Light grey, carbonaceous, partly pelletoid.
30.70 - 30.77	<u>Carbonaceous Mudstone</u> : Indurated, calcite veinlets.
30.77 - 30.89	<u>Mudstone</u> : Light grey, hard, indurated, carbonaceous blebs throughout.
30.89 - 31.04	<u>Sandstone</u> : Light grey, well sorted and cemented, feldspathic, micaceous.
31.04 - 31.80	<u>Mudstone</u> : Light grey, hard, soft at base of unit, indurated at top of unit, micaceous throughout.
31.80 - 32.09	<u>Core Loss</u>
32.09 - 33.34	<u>Mudstone</u> : Light grey, moderately hard, blocky, indurated, micaceous throughout.
33.34 - 33.54	<u>Siltstone</u> : Light grey, well cemented, feldspathic, indurated micaceous.
33.54 - 34.98	<u>Mudstone</u> : Dark grey, moderately hard, indurated, carbonaceous, micaceous throughout.
34.98 - 35.49	<u>Sandstone</u> : Light grey, well sorted and cemented, feldspathic, carbonaceous bands, occasionally bioturbated.
35.49 - 36.04	<u>Mudstone</u> : Grey to dark grey, hard, indurated, slightly micaceous, plant impressions, carbonaceous.
36.04 - 39.04	<u>Mudstone</u> : Light grey to grey, moderately hard, blocky, occasionally soft, indurated, micaceous, plant impressions along bedding plane.
39.04 - 42.05	<u>Mudstone</u> : Light grey to grey, moderately hard, blocky, sub-fissile, partly indurated, carbonaceous bands and blebs throughout, micaceous, plant impressions, grading to siltstone in places.
42.05 - 42.10	<u>Coal</u> : Dull with minor bright bands with occasional Db lamellae, carbonaceous blebs in places, calcitic.
42.10 - 43.36	<u>Mudstone</u> : Light grey to grey, carbonaceous, moderately hard, blocky, occasionally sub-fissile, indurated, plant impressions along bedding plane.

<u>Depth (m)</u>	<u>Lithological Description</u>
43.36 - 43.53	<u>Carbonaceous Mudstone</u> : Dark grey, hard, brittle, indurated, carbonaceous throughout; grading to inferior coal in places.
43.53 - 45.10	<u>Mudstone</u> : Light grey, moderately hard, indurated, micaceous, occasional carbonaceous bands.
45.10 - 47.30	<u>Mudstone</u> : Light grey, moderately hard, blocky, occasionally sub-fissile, indurated, micaceous, occasional plant impressions; grading to siltstone towards base of unit.
47.30 - 47.88	<u>Sandy Siltstone</u> : Light grey, well cemented, dominantly feldspathic matrix, partly indurated, micaceous; grading to fine grained sandstone in places and towards base of unit.
47.88 - 48.10	<u>Core Loss</u>
48.10 - 48.60	<u>Sandstone</u> : Light grey, fine grained, well sorted, feldspathic matrix, micaceous.
48.60 - 49.08	<u>Carbonaceous Mudstone</u> Dark grey, indurated, calcitic, grading in places to inferior coal: dull.
49.08 - 49.21	<u>Coal</u> : Db, friable.
49.21 - 54.14	<u>Mudstone</u> : Light grey, hard, blocky, indurated, occasionally sub-fissile, carbonaceous bands towards base of unit, plant impressions along bedding plane, micaceous.
54.14 - 55.74	<u>Mudstone</u> : Light grey to dark grey, hard, blocky, indurated, micaceous, carbonaceous banding, grading to siltstone in places.
55.74 - 57.14	<u>Sandy Siltstone</u> : Light grey, well cemented, dominantly feldspathic matrix, micaceous throughout, carbonaceous bands throughout, calcite veinlets.
57.14 - 59.96	<u>Sandy Siltstone</u> : Light grey to grey, well sorted and cemented, dominantly feldspathic matrix, micaceous throughout, carbonaceous banding in places, plant impressions along bedding plane; Grading to sandstone towards base of unit; <u>Sandstone</u> : medium grained, well sorted and cemented, feldspathic matrix, micaceous, slightly carbonaceous.
59.96 - 60.05	<u>Mudstone</u> : Light to dark grey, carbonaceous at top of unit.
60.05 - 60.14	<u>Carbonaceous Mudstone</u> : Grading to inferior coal.

<u>Depth (m)</u>	<u>Lithological Description</u>
60.14 - 60.89	<u>Coal</u> : Dull with minor bright bands and lamellae, hard, brittle, calcite veinlets.
60.89 - 62.73	<u>Mudstone</u> : Light grey to grey, hard, blocky, carbonaceous bands, micaceous, grading to siltstone in places, plant impressions along bedding plane.
62.73 - 63.14	<u>Sandstone</u> : Light grey, coarse grained, grading to fine grained at top of unit, well sorted and cemented, feldspathic, lithic in places.
63.14 - 66.23	<u>Mudstone</u> : Light grey to grey, hard, blocky, indurated, carbonaceous bands, plant impressions along bedding plane; with minor sandstone intercalations: light grey, well sorted, moderate to well cemented, medium grained, feldspathic, micaceous throughout.
66.23 - 66.38	<u>Coal</u> : Dull with bright bands and lamellae.
66.38 - 69.04	<u>Mudstone</u> : Light grey to occasionally dark grey, moderately hard, blocky, indurated, micaceous throughout, carbonaceous bands, grading to siltstone in places.
69.04 - 70.16	<u>Mudstone</u> : Light grey to dark grey, hard, blocky, indurated, micaceous, carbonaceous towards base of unit; with minor siltstone intercalations.
70.16 - 70.24	<u>Coal</u> : Dull with minor bright bands.
70.24 - 70.41	<u>Mudstone</u> : Light grey to dark grey, indurated, carbonaceous throughout.
70.41 - 72.06	<u>Siltstone</u> : Light grey to grey, well sorted, moderately cemented, slightly argillaceous, micaceous throughout, carbonaceous bands, plant impressions.
72.06 - 72.14	<u>Mudstone</u> : Grey to dark grey, indurated, carbonaceous throughout.
72.14 - 72.61	<u>Mudstone</u> : Grey to dark grey, indurated, micaceous, carbonaceous blebs.
72.61 - 72.81	<u>Sandstone</u> : Light grey, well sorted, feldspathic matrix.
72.81 - 75.14	<u>Mudstone</u> : Light grey to dark grey, hard, blocky, indurated, partly micaceous, occasional carbonaceous bands, becoming carbonaceous towards base of unit.
75.14 - 76.49	<u>Mudstone</u> : Light grey to dark grey, carbonaceous at top of unit, blocky, occasionally sub-fissile, indurated, micaceous throughout, plant impressions along bedding plane, grading to siltstone in places

<u>Depth (m)</u>	<u>Lithological Description</u>
76.49 - 77.15	<u>Siltstone</u> : Light grey to dark grey, well sorted and cemented, feldspathic matrix, micaceous, indurated, carbonaceous bands.
77.15 - 78.14	<u>Sandstone</u> : Light grey, medium grained to occasionally coarse grained, well sorted and cemented, feldspathic matrix, lithic, slightly micaceous, chloritic in part, plant impressions along bedding plane, carbonaceous bands and stringers throughout.
78.14 - 81.14	<u>Sandstone</u> : As above; light to dark grey, medium to coarse grained.
81.14 - 81.60	<u>Sandstone</u> : As above, sucrosic texture; with minor carbonaceous bands and coal stringers at random; with coal: dull with minor bright bands from 80.72 - 80.74.
81.60 - 81.72	<u>Coal</u> : Db, pyritic, calcite veinlets.
81.72 - 83.17	<u>Mudstone</u> : Light grey, hard, blocky, indurated, plant impressions along bedding plane, slightly micaceous.
83.17 - 83.80	<u>Sandstone</u> : Light grey, well sorted and cemented, medium grained, feldspathic matrix, carbonaceous wisps, lithic, partly micaceous, occasionally chloritic.
83.80 - 84.14	<u>Mudstone</u> : Light grey to grey, hard, blocky, indurated, slickensided, carbonaceous wisps, partly micaceous; grading to siltstone at the base of unit.
84.14 - 89.89	<u>Mudstone</u> : Light grey to grey, hard, blocky, indurated, micaceous in places, carbonaceous bands, plant remnants along bedding plane, partly pyritic.
89.89 - 90.14	<u>Core Loss</u>
90.14 - 92.44	<u>Mudstone</u> : As above, grading to siltstone towards base of unit.
92.44 - 93.04	<u>Coal</u> : Db, hard, brittle, conchoidal fracture, calcite veinlets.
93.04 - 93.15	<u>Mudstone</u> : Dark grey, hard, indurated, partly carbonaceous.
93.15 - 96.15	<u>Mudstone</u> : Light grey to dark grey, moderately hard, blocky, indurated, slightly micaceous, carbonaceous bands, plant vestiges along bedding plane, partly slickensided, calcite veinlets.

<u>Depth (m)</u>	<u>Lithological Description</u>
96.15 - 97.32	<u>Mudstone</u> : Light grey to grey, hard, blocky, indurated, carbonaceous bands, partly micaceous, grading to siltstone in places.
97.32 - 97.80	<u>Mudstone</u> : Dark grey to grey, indurated, carbonaceous.
97.80 - 99.23	<u>Siltstone</u> : Light grey, well cemented, feldspathic, indurated, carbonaceous bands, slump features present, partly bioturbated.
99.23 - 100.93	<u>Siltstone</u> : As above grading to sandstone.
100.93 - 102.29	<u>Mudstone</u> : Light grey to dark grey, hard, blocky, indurated, partly micaceous, carbonaceous towards top of unit, plant vestiges along bedding plane.
102.29 - 105.31	<u>Mudstone</u> : Light grey to grey, hard, blocky, indurated, slightly micaceous, carbonaceous bands towards base of unit, with occasional carbonaceous blebs.
105.31 - 106.98	<u>Mudstone</u> : As above grading to siltstone towards base of unit.
106.98 - 108.15	<u>Sandstone</u> : Light grey, fine to medium grained, well sorted and cemented, feldspathic matrix, micaceous in places, chloritic at random, carbonaceous bands throughout.
108.15 - 108.33	<u>Mudstone</u> : Dark grey, indurated, carbonaceous, micaceous in places.
108.33 - 110.31	<u>Mudstone</u> : Grey to dark grey, hard, blocky, indurated, micaceous, plant impressions, carbonaceous bands throughout, minor sandstone intercalations.
110.31 - 111.41	<u>Sandstone</u> : Light grey, medium grained, well sorted and cemented, dominantly feldspathic matrix, micaceous in places; with carbonaceous blebs.
111.41 - 113.11	<u>Mudstone</u> : Grey to dark grey, blocky, hard, indurated, carbonaceous throughout, partly micaceous.
113.11 - 114.35	<u>Siltstone</u> : Light grey, well sorted and cemented, dominantly feldspathic matrix, indurated, slightly micaceous, carbonaceous bands; grading to sandy siltstone.
116.57 - 117.39	<u>Mudstone</u> : Dark grey, moderately hard, indurated, carbonaceous throughout, micaceous, partly slickensided.

<u>Depth (m)</u>	<u>Lithologic Description</u>
117.39 - 119.24	<u>Mudstone</u> : As above, grey to dark grey, blocky, grading to siltstone towards base of unit.
119.94 - 120.36	<u>Mudstone</u> : Light grey to grey, moderately hard, blocky, indurated, carbonaceous, plant vestiges in places, slightly micaceous.
120.36 - 122.85	<u>Mudstone</u> : Light grey, hard, blocky, indurated, micaceous in places, carbonaceous, slickensided in places.
122.85 - 122.96	<u>Coal</u> : Dull with minor bright bands with Bd lamellae.
122.96 - 123.42	<u>Mudstone</u> : Grey to dark grey, carbonaceous, hard, blocky, indurated.
123.42 - 126.39	<u>Mudstone</u> : Light grey to dark grey, moderately hard, blocky, indurated, carbonaceous, slightly micaceous, partly slickensided.
126.39 - 126.42	<u>Core Loss</u>
126.42 - 128.59	<u>Mudstone</u> : Grey to dark grey, hard, blocky, indurated, partly micaceous, carbonaceous throughout.
128.59 - 129.42	<u>Siltstone</u> : Light grey, well sorted and cemented, feldspathic matrix, micaceous, grading to fine grained sandstone in places.
129.42 - 129.82	<u>Mudstone</u> : Grey to dark grey, hard, blocky, indurated, partly micaceous, carbonaceous bands, grading to siltstone.
129.82 - 132.47	<u>Sandstone</u> : Light grey to grey, fine to medium grained, well sorted and cemented, dominantly feldspathic matrix, lithic, occasionally micaceous, chloritic at random; contact metamorphosed in part.
132.47 - 134.27	<u>Sandstone</u> : Light grey, well sorted and cemented, medium to coarse grained, lithic, contact metamorphosed in part.
134.27 - 135.47	<u>Dolerite</u> : Dark grey
135.47 T.D.	

<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 1.75	<u>Soil</u> : Red-brown, silty, loamy; with clay particles; red-brown, soft, sticky, argillaceous, slightly ferruginous.
1.75 - 11.00	<u>Sandstone</u> : Red-brown-yellow, fine to medium grained, well sorted, poorly cemented, dominantly feldspathic matrix, slightly micaceous, weathered, slightly clayey.
11.00 - 13.10	<u>Sandstone</u> : Light grey, fine to medium grained, well sorted, moderately cemented, dominantly feldspathic matrix, slightly micaceous.
13.10 - 13.30	<u>Carbonaceous Mudstone</u> : Grading to inferior coal in part.
13.30 - 13.74	<u>Coal</u> : Dull with minor bright bands
13.74 - 13.77	<u>Carbonaceous Shale</u> : Dark grey, sub-fissile.
13.77 - 14.59	<u>Coal</u> : Dull with minor bright bands with occasional Db.
14.59 - 14.64	<u>Carbonaceous Mudstone</u> : Dark grey, soft.
14.64 - 15.04	<u>Coal</u> : Dull with minor bright bands with minor Db laminations.
15.04 - 17.23	<u>Core Loss</u>
17.23 - 18.21	<u>Coal</u> : Db with occasional dull minor bright bands.
18.21 - 18.30	<u>Mudstone</u> : Light grey to dark grey, blocky, micaceous.
18.30 - 19.32	<u>Core Loss</u>
19.32 - 20.49	<u>Coal</u> : Dull with minor bright bands, grading to inferior coal; occasional Bd lamellae; calcitic.
20.49 - 21.30	<u>Mudstone</u> : Light grey, blocky, moderately hard, indurated, partly micaceous.
21.30 - 24.15	<u>Mudstone</u> : As above; micaceous in part with sporadic plant impressions along bedding plane.
24.15 - 24.30	<u>Core Loss</u>
24.30 - 24.93	<u>Mudstone</u> : As above.
24.93 - 27.27	<u>Sandstone</u> : Light grey, medium grained, sucrosic texture, well sorted and cemented, dominantly feldspathic matrix, micaceous throughout, lithic, pyritic.

<u>Depth (m)</u>	<u>Lithologic Description</u>
27.27 - 27.30	<u>Core Loss</u>
27.30 - 27.45	<u>Mudstone</u> : Light grey, blocky, indurated, slightly micaceous.
27.45 - 30.30	<u>Sandstone</u> : Light grey, medium-coarse grained, well sorted and cemented, sucrosic texture, dominantly feldspathic matrix, lithic in part, micaceous throughout.
30.30 - 33.38	<u>Sandstone</u> : Light grey, medium grained to occasionally coarse grained, sucrosic texture, well sorted and cemented, feldspathic matrix, slightly micaceous, pyritic and chloritic in part.
33.38 - 36.38	<u>Sandstone</u> : Light grey, medium grained, sucrosic texture, well sorted and cemented, dominantly feldspathic matrix, slightly micaceous, pyritic.
36.38 - 39.40	<u>Sandstone</u> : As above; medium-coarse grained, sucrosic texture.
39.40 - 42.46	<u>Sandstone</u> : Light grey to grey, medium-coarse grained, moderately well sorted and cemented, dominantly feldspathic matrix, slightly micaceous, carbonaceous blebs, mudstone chips.
42.46 - 45.46	<u>Sandstone</u> : Light grey, medium-coarse grained, moderately sorted, well cemented, slightly sucrosic texture, chloritic throughout, micaceous, lithic, occasional carbonaceous wisps.
45.46 - 48.32	<u>Sandstone</u> : Light grey, fine-coarse grained, well sorted and cemented, dominantly feldspathic matrix, micaceous, lithic, carbonaceous bands.
48.32 - 51.47	<u>Sandstone</u> : As above; medium-coarse grained.
51.47 - 52.20	<u>Sandstone</u> : As above; medium grained; with occasional carbonaceous blebs.
52.20 - 52.51	<u>Core Loss</u>
52.51 - 54.47	<u>Sandstone</u> : As above; medium grained, carbonaceous blebs.
54.47 - 57.42	<u>Sandstone</u> : Light grey, medium grained, moderately sorted, well cemented, dominantly feldspathic matrix, chloritic, slightly micaceous, occasional carbonaceous blebs, calcite veinlets at random; with mudstone chips towards base of unit.
57.42 - 57.47	<u>Core Loss</u>



SGS Australia Pty. Ltd.

Formerly General Superintendence Company Pty. Ltd.

Laboratories Division

COAL ANALYSIS REPORT

847176

REPORT No.: SL0877

DATE IN: 9/6/81

DATE OUT: 5/8/81

CLIENT: Capricorn Mining Pty Ltd
c/o General Geological Services

CLIENT REFERENCE:

ADDRESS: PO Box 326, Sth Melbourne Victoria 3205

RESULTS TO: Mr M Zapata

COPY TO: Mr R Glenie

SAMPLE REFERENCE:

<u>Sample No(s)</u>	<u>Moisture %</u>	<u>Volatile Matter %</u>	<u>Ash %</u>	<u>Fixed Carbon %</u>	<u>Relative Densit</u>
H4 21.28 - 21.46 metres	5.9	19.7	23.5	50.9	1.47
21.49 - 21.82 "	5.1	20.6	25.6	48.7	1.47
21.84 - 21.98 "	5.3	20.0	21.6	53.1	1.45
23.03 - 23.53 "	5.2	20.3	17.5	57.0	1.41
23.96 - 24.16 "	4.0	21.5	28.1	46.4	1.43
24.18 - 24.53 "	4.9	17.8	26.1	51.2	1.49

H. Read

Harold Read
Manager - Coal Exploration
Services



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SGS Australia Pty. Ltd.

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Formerly General Superintendence Company Pty. Ltd.

847177

Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0877

DATE IN: 9/6/81

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RESULTS TO: Mr M Zapata

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SAMPLE REFERENCE:

<u>Sample No(s)</u>	<u>Moisture %</u>	<u>Volatile Matter %</u>	<u>Ash %</u>	<u>Fixed Carbon %</u>	<u>Relative Densit</u>
<u>H5</u>					
49.08 - 49.21 metres	7.2	28.8	33.3	30.7	1.47
60.14 - 60.89 "	6.2	27.6	39.5	26.7	1.58
66.23 - 66.38 "	6.9	21.5	32.2	39.4	1.63
70.16 - 70.24 "	7.8	22.7	50.2	19.3	1.56
81.60 - 81.72 "	4.7	15.0	46.8	33.5	1.75
122.85 - 122.96 "	5.2	16.1	37.2	41.5	1.70
92.44 - 93.04 "	4.9	19.6	27.0	48.5	1.55

H. Read

 Harold Read
 Manager - Coal Exploration
 Services



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Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0810

DATE IN: 25.5.81

DATE OUT: 3.7.81

CLIENT: Capricorn Mining Pty. Ltd.,
C/o General Geological Services,
ADDRESS: P.O. Box 326, South Melbourne, Victoria.

CLIENT REFERENCE:

RESULTS TO: Mr. R. Glenie.

COPY TO:

SAMPLE REFERENCE: Bores 0-6, 0-9, H-1, H-3.

Depths shown are in metres.

45-81 in log

ANALYSIS	H-1	H-3	H-3	H-3	H-3	H-3	H-3
	34.39 - 34.71	42.31 - 42.49	42.51 - 42.98	43.02 - 43.32	43.33 - 44.19	45.51 - 46.20	46.24 - 47.05
Total Moisture %		.18	.47	.3	.26		
Moisture %	5.4	4.1	6.1	5.6	4.8	4.6	4.4
Ash %	55.2	26.3	27.2	26.0	22.2	18.8	19.9
Volatile Matter %	7.5	21.2	18.6	18.4	20.3	20.9	20.7
Fixed Carbon %	31.9	48.4	48.1	50.0	52.7	55.7	55.0
Crucible Swelling No.							
Specific Energy Mj/kg							
Total Sulphur %							
Carbon %							
Hydrogen %							
Nitrogen %							
Oxygen %							
Carbon Dioxide %							
Relative Density	1.77	1.54	1.48	1.49	1.46	1.44	1.44

DETERMINED IN ACCORDANCE WITH: AS1038

BASIS RESULTS REPORTED ON Air Dried.

H. Read
Harold Read
Manager - Coal Exploratic
Services



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Laboratories Division

847179

COAL ANALYSIS REPORT

REPORT No.: SL 0810

DATE IN: 25.5.81

DATE OUT: 3.7.81

CLIENT: Capricorn Mining Pty. Ltd.,
C/o General Geological Services,
ADDRESS: P.O. Box 326, South Melbourne, Victoria.

CLIENT REFERENCE:

RESULTS TO: Mr. R. Glenie.

COPY TO:

SAMPLE REFERENCE: Bores 0-6, 0-9, H-1, H-3.

Depths shown are in metres.

ANALYSIS	H - 3 68.08 - 68.40						
Total Moisture %							
Moisture %	5.4						
Ash %	39.9						
Volatile Matter %	13.5						
Fixed Carbon %	41.2						
Crucible Swelling No.							
Specific Energy Mj/kg							
Total Sulphur %							
Carbon %							
Hydrogen %							
Nitrogen %							
Oxygen %							
Carbon Dioxide %							
Relative Density	1.60						

DETERMINED IN ACCORDANCE WITH: AS1038

BASIS RESULTS REPORTED ON

Air Dried.



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H. Read
.....
Harold Read
Manager - Coal Exploration
Services

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SGS Australia Pty. Ltd.

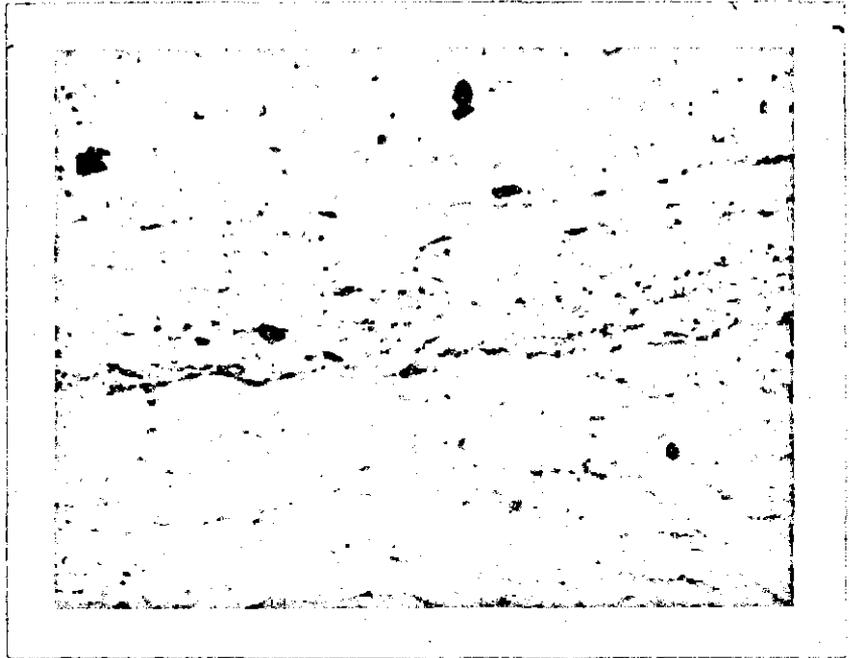
847180



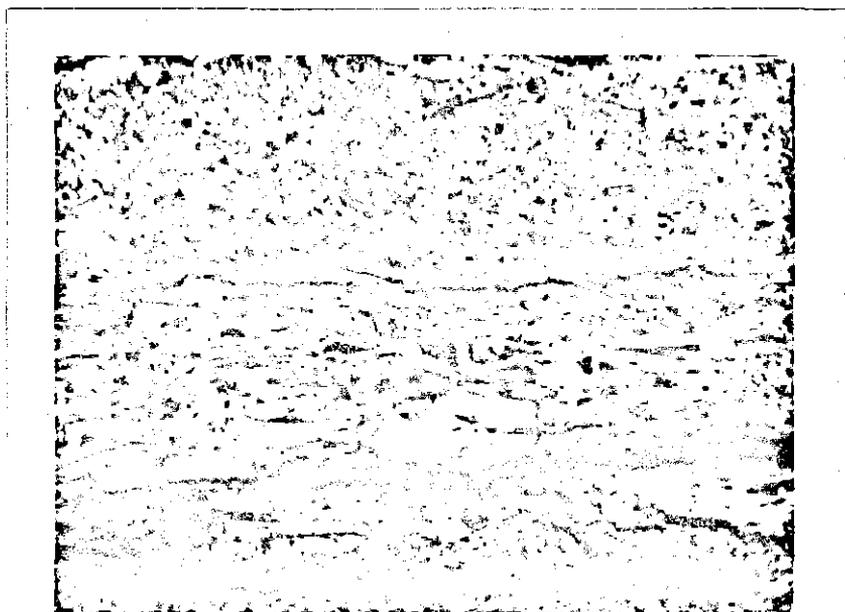
PETROGRAPHIC EXAMINATION OF SAMPLE H-3; 68.45m to 68.47m

The sample represents a 0.02m vitrain lens. It consists essentially of vitrinite with a slight trace of inertinite (inertodetrinite and micrinite). Minerals are finely disseminated clays and clay lenses, with very slight traces of fine pyrite.

Vitrinite reflectance is approximately 1.38%, (\bar{R}_o max), indicating the coal is medium volatile, bituminous rank.



Typical field: vitrinite with finely disseminated clays, Trace inertinite.
Field width 0.19um.



Vitrinite with clay infilling cell lumens. Field width 0.19um



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Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0810

DATE IN: 25/5/81

DATE OUT: 3/7/81

CLIENT: Capricorn Mining Pty Ltd
c/o General Geological Services
ADDRESS: P.O. Box 326; South Melbourne Victoria.

CLIENT REFERENCE:

RESULTS TO: Mr R. Glenie

COPY TO:

SAMPLE REFERENCE: Bore H-3. Composite 45.81 - 47.05 metres

Float/Sink Analysis

	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass %</u>	<u>Ash %</u>	<u>Mass %</u>	<u>Ash %</u>
Floats 1.40	55.8	10.1	55.8	10.1
S1.40 - F1.60	31.8	22.2	87.6	14.5
S1.60 - F1.80	8.5	40.2	96.1	16.8
Sinks 1.80	56.3	100.0	100.0	18.3

H. Read

Harold Read
Manager - Coal Exploration
Services



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<u>Depth (m)</u>	<u>Lithologic Description</u>
57.47 - 64.30	<u>Sandstone</u> : Light grey, medium-coarse grained, well sorted and cemented, dominantly feldspathic matrix, lithic, chloritic in part, micaceous, abundant calcite veinlets.
64.30 - 66.47	<u>Mudstone</u> : Light grey to grey, moderately hard, splintery, indurated, carbonaceous towards base of unit, slickensided in part.
66.47 - 69.47	<u>Mudstone</u> : Light grey, blocky to occasionally splintery, indurated, micaceous, siltstone in places, carbonaceous banding towards base of unit; grading to sandy siltstone in places.
69.47 - 71.73	<u>Mudstone</u> : Light grey to dark grey, hard, blocky, indurated, carbonaceous, banding, slightly slickensided.
71.73 - 71.84	<u>Carbonaceous Mudstone</u> : Hard, sub-fissile; grading to shale.
71.84 - 72.17	<u>Coal</u> : Inferior coal, dull; with carbonaceous blebs.
72.17 - 72.47	<u>Core Loss</u>
72.47 - 75.47	<u>Mudstone</u> : Light grey to grey, hard, blocky, indurated, slightly micaceous, carbonaceous in part.
75.47 - 75.74	<u>Mudstone</u> : Light grey, blocky, indurated, slightly micaceous.
75.74 - 75.88	<u>Carbonaceous Mudstone</u> : Grading to inferior coal in places.
75.88 - 78.07	<u>Mudstone</u> : Light grey, hard, blocky, indurated, slightly micaceous; with intercalations of sandstone: fine-medium grained, well sorted and cemented, feldspathic matrix, becoming more frequent towards base and grading into underlying unit.
78.07 - 81.16	<u>Sandstone</u> : Light grey, coarse grained, well sorted and cemented, sucrosic texture, micaceous, chloritic in part, feldspathic matrix, partly lithic, carbonaceous wisps in places.
81.16 - 84.29	<u>Sandstone</u> : As above; slightly micaceous, sub-angular to rounded, occasional carbonaceous banding.

<u>Depth (m)</u>	<u>Lithologic Description</u>
84.29 - 87.31	<u>Sandstone</u> : Light grey to grey, well sorted, moderately cemented, coarse grained, sucrosic texture, dominantly feldspathic matrix, chloritic in part, slightly micaceous, carbonaceous wisps with coal stringers of up to 2cm in thickness towards base of unit.
88.76 - 89.00	<u>Inferior Coal</u> : Dull, hard.
89.00 - 89.07	<u>Mudstone</u> : Light grey, blocky, hard, indurated.
89.07 - 89.09	<u>Coal</u> : Dull with minor bright bands.
89.09 - 89.42	<u>Mudstone</u> : Light grey, splintery, moderately hard, indurated.
89.42 - 90.47	<u>Mudstone</u> : As above; grading to siltstone in places.
90.47 - 92.87	<u>Mudstone</u> : Light grey to occasionally dark grey, blocky, hard, indurated, carbonaceous in part, plant impressions along bedding plane.
92.87 - 93.87	<u>Siltstone</u> : Light grey to dark grey, well cemented, indurated, carbonaceous bands throughout, feldspathic.
93.87 - 95.45	<u>Sandy Siltstone</u> : Well sorted and cemented, feldspathic matrix, indurated, micaceous in part, carbonaceous bands in places; grading to a fine grained sandstone.
95.45 - 96.97	<u>Mudstone</u> : Dark grey, hard, blocky, occasionally splintery, indurated, slickensided, carbonaceous, slightly micaceous, grading to siltstone in places.
96.97 - 99.97	<u>Siltstone</u> : Light grey to dark grey, well sorted and cemented, dominantly feldspathic matrix, lithic, carbonaceous bands throughout, micaceous, grading to mudstone in places.
99.97 - 102.95	<u>Sandy Siltstone</u> : As above; with slightly higher sand content.
102.95 - 102.97	<u>Core Loss</u>
102.97 - 105.97	<u>Mudstone</u> : Light grey to dark grey, splintery, blocky in part, indurated, plant impressions along bedding plane, slightly micaceous, carbonaceous throughout, slickensided; grading to carbonaceous shale towards base of unit.
105.97 - 106.24	<u>Carbonaceous Mudstone</u> :
106.24 - 106.40	<u>Coal</u> : Dull with minor bright bands; occasional carbonaceous blebs, hard.

<u>Depth (m)</u>	<u>Lithologic Description</u>
106.40 - 108.97	<u>Mudstone</u> : Light grey to grey, hard, blocky, indurated, carbonaceous bands, micaceous.
108.97 - 111.97	<u>Mudstone</u> : Light grey to dark grey, hard, blocky, indurated, micaceous in part, carbonaceous in places, calcite veinlets along fractures, occasional plant impressions along bedding plane; grading into underlying unit.
111.97 - 113.79	<u>Siltstone</u> : Light grey, well cemented, feldspathic matrix, indurated, micaceous, plant impressions.
113.86 - 113.98	<u>Mudstone</u> : Light cream, soft.
113.98 - 114.08	<u>Core Loss</u>
114.08 - 114.67	<u>Mudstone</u> : Light grey to grey, indurated, slightly micaceous.
114.67 - 117.93	<u>Mudstone</u> : Light grey to grey, blocky, hard, indurated, carbonaceous bands throughout, plant remnants along bedding plane, partly micaceous.
117.93 - 117.97	<u>Core Loss</u>
117.97 - 120.97	<u>Mudstone</u> : Grey to dark grey, hard, blocky, occasionally splintery, indurated, carbonaceous throughout, micaceous in part, plant remnants along bedding plane.
120.97 - 123.97	<u>Mudstone</u> : Grey to dark grey, moderately hard, blocky, indurated, carbonaceous throughout, micaceous, plant impressions along bedding plane; grading to siltstone; with slump features.
123.97 - 127.03	<u>Mudstone</u> : Light grey to dark grey, very hard, silicified, blocky, carbonaceous throughout, micaceous, slump features, plant impressions along bedding plane grading to siltstone in places.
127.03 - 130.03	<u>Mudstone</u> : As above; with carbonaceous spotting and bioturbated in part.
130.03 - 132.92	<u>Mudstone</u> : Light grey to dark grey, moderately hard, blocky, indurated, carbonaceous banding throughout, micaceous, plant impressions, slump features and increasing intercalations of siltstone: light-grey, moderately sorted, well cemented, feldspathic matrix, carbonaceous bands.
132.92 - 133.03	<u>Core Loss</u>
133.03 - 133.39	<u>Mudstone</u> : Light grey, hard, blocky, indurated, carbonaceous in part.

<u>Depth (m)</u>	<u>Lithologic Description</u>
133.39 - 133.54	<u>Coal</u> : Dull with minor bright bands, slickensided.
133.54 - 134.50	<u>Mudstone</u> : Light grey to grey, hard, blocky, indurated, slightly micaceous in part.
134.50 - 136.16	<u>Sandy Siltstone</u> : Light grey, moderately sorted, well cemented, feldspathic matrix, indurated.
136.15 - 138.84	<u>Mudstone</u> : Light grey to grey, hard, blocky, indurated, micaceous in part, carbonaceous bands.
138.84 - 138.90	<u>Core Loss</u>
138.90 - 141.94	<u>Mudstone</u> : Dark grey to occasionally light grey, hard, blocky, carbonaceous, micaceous, plant impressions along bedding plane, indurated, slickensided, grading into underlying unit.
141.94 - 144.94	<u>Carbonaceous Mudstone</u> : Dark grey, black, hard, blocky to sub-fissile in places, indurated, micaceous in part, abundant plant impressions along bedding plane, partly slickensided.
144.94 - 146.34	<u>Mudstone</u> : As above.
146.34 - 146.89	<u>Sandstone</u> : Tuffaceous, dark grey, fine-medium grained, well sorted and cemented, feldspathic matrix, lithic, micaceous, carbonaceous bands throughout, minor coal stringers.
146.89 - 147.38	<u>Coal</u> : Db, Bd; lamellae.
147.38 - 147.99	<u>Mudstone</u> : Dark grey, hard, blocky, indurated, plant impressions along bedding plane, carbonaceous, micaceous in part.
147.99 - 150.99	<u>Mudstone</u> : Light grey to grey, hard, silicified, blocky, indurated, bioturbated in part, slightly carbonaceous, plant impressions along bedding plane, slightly micaceous.
150.99 - 154.80	<u>Meta-Sediment</u> : Light grey, very hard, brittle, calcite veinlets, slightly micaceous, chloritized towards base of unit.
154.80 - 157.06	<u>Dolerite</u> : Dark grey, fine grained, glassy, chloritic along fracture zones, calcite veinlets.
157.06 T.D.	

<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 2.55	<u>Clay</u> : Red-brown, soft, sticky, ferruginous.
2.55 - 5.00	<u>Sandstone and Clay</u> : Sandstone; red-brown, fine grained, moderately sorted and cemented, dominantly feldspathic matrix, slightly argillaceous, micaceous in part: Clay: As above Sandstone/Clay ratio = 70:30
5.00 - 6.00	<u>Sandstone</u> : Red-brown-dark brown, fine grained, moderately sorted and cemented, dominantly feldspathic matrix, partly argillaceous; with minor clay material and carbonaceous material, 1-5% clod.
6.00 - 10.00	<u>Sandstone and Clay</u> : Sandstone; red-brown, fine grained, poorly sorted, moderately cemented, argillaceous matrix, partly feldspathic, micaceous. Clay: red-brown, soft, sticky, argillaceous matrix, slightly ferruginous. Sandstone/Clay ratio = 50:50
10.00 - 15.00	<u>Sandstone</u> : Light grey, fine grained, moderately well sorted and cemented, dominantly feldspathic matrix, micaceous throughout, occasionally carbonaceous.
15.00 - 15.66	<u>Sandstone</u> : As above with mudstone interlamination and 35% minor carbonaceous stringers increasing towards base of unit.
15.66 - 15.72	<u>Inferior Coal</u> : Grading to dull with minor bright bands in places.
15.72 - 15.73	<u>Clod</u>
15.73 - 16.73	<u>Coal</u> : Dull with minor bright bands, grading to Db in part.
16.73 - 16.74	<u>Carbonaceous Mudstone</u>
16.74 - 16.94	<u>Coal</u> : Db with minor bright bands, calcitic.
16.94 - 18.27	<u>Mudstone</u> : Light grey to dark grey near top of unit, moderately hard, blocky, occasionally splintery, indurated, plant impressions along bedding planes, frequent carbonaceous blebs and carbonaceous bands throughout; with sandstone intercalations.
18.27 - 19.59	<u>Mudstone</u> : Light grey, moderately soft, splintery, slightly micaceous; grading to siltstone towards base of unit.
19.59 - 20.58	<u>Core Loss</u>
20.58 - 20.92	<u>Mudstone</u> : Light grey, moderately hard, micaceous.

<u>Depth (m)</u>	<u>Lithologic Description</u>
20.92 - 22.46	<u>Mudstone</u> : Light grey, dark grey near top of unit, moderately soft, blocky, micaceous, carbonaceous at top of unit, plant impressions along bedding plane, carbonaceous bands throughout, grading to siltstone in places.
22.46 - 22.60	<u>Carbonaceous Mudstone</u> : Grading to inferior coal.
22.60 - 22.80	<u>Coal</u> : Db with occasional Bd lamellae; calcitic.
22.80 - 23.02	<u>Carbonaceous Mudstone</u> : Indurated, calcite veinlets.
23.02 - 23.92	<u>Mudstone</u> : Light grey, soft, blocky, micaceous, occasional carbonaceous wisps; grading to siltstone in places.
23.92 - 26.68	<u>Mudstone</u> : Light grey, dark grey towards base of unit, moderately soft, blocky, micaceous, carbonaceous bands throughout; with minor coal stringers towards base of unit, calcite veinlets.
26.68 - 26.75	<u>Coal</u> : Db with occasional calcite veinlets.
26.75 - 26.92	<u>Mudstone</u> : Light grey, blocky, soft, micaceous throughout.
26.92 - 29.92	<u>Mudstone</u> : Light grey to grey, moderately soft, sub-fissile splintery, dominantly micaceous throughout, carbonaceous bands, plant remnants along bedding plane, carbonaceous blebs throughout.
29.92 - 30.47	<u>Mudstone</u> : Light grey, soft, blocky, micaceous throughout, grading to siltstone in places.
30.47 - 31.19	<u>Mudstone</u> : Grey to dark grey, hard, blocky, indurated, carbonaceous, micaceous in part.
31.19 - 31.89	<u>Carbonaceous Mudstone</u> : Dark grey to black, hard, blocky, micaceous grading to inferior coal in places.
31.89 - 32.09	<u>Mudstone</u> : Light grey to dark grey, moderately soft, carbonaceous throughout, micaceous; grading to siltstone.
32.09 - 32.41	<u>Sandstone</u> : Light grey, fine grained, feldspathic, carbonaceous bands.
32.41 - 32.73	<u>Mudstone</u> : Light grey to dark grey, sub-fissile in part, blocky, micaceous, carbonaceous bands throughout.
32.73 - 32.91	<u>Core Loss</u>
32.91 - 33.21	<u>Carbonaceous Mudstone</u> : As above

<u>Depth (m)</u>	<u>Lithologic Description</u>
33.21 - 35.81	<u>Mudstone</u> : Light grey to dark grey, dominantly splintery, sub-fissile in places, moderately hard, partly indurated, occasionally slickensided, calcitic, carbonaceous, micaceous throughout, plant remnants along bedding planes.
35.81 - 37.06	<u>Mudstone</u> : Light grey to dark grey, blocky, splintery, moderately hard, indurated, micaceous, carbonaceous bands throughout, crossbedded in places, with coal stringers towards base of unit.
37.06 - 37.18	<u>Coal</u> : Db with minor carbonaceous blebs, calcitic.
37.18 - 38.92	<u>Mudstone</u> : Light grey to occasionally dark grey, blocky to splintery, indurated in part, micaceous throughout, carbonaceous bands; grading to siltstone in places: light grey, well sorted and cemented, argillaceous matrix, micaceous.
41.92 - 44.59	<u>Mudstone</u> : Light grey to dark grey, moderately hard, blocky, slightly micaceous, carbonaceous banding throughout, grading to very carbonaceous in part; with minor interlamination of sandy siltstone towards base of unit.
44.59 - 44.92	<u>Sandy Siltstone</u> : Grading to fine grained sandstone: well sorted and cemented, feldspathic matrix, slightly micaceous, occasional carbonaceous bands.
44.92 - 47.44	<u>Sandy Siltstone</u> : Grading to fine grained sandstone in places, moderately sorted, well cemented, dominantly feldspathic matrix, carbonaceous throughout, slightly argillaceous; with mudstone interlamination.
47.44 - 47.83	<u>Mudstone</u> : Dark grey, sub-fissile to blocky, moderately hard, carbonaceous, micaceous; with minor siltstone lamellae.
47.83 - 47.92	<u>Sandstone</u> : Light grey, moderately sorted, well cemented, feldspathic matrix, slightly carbonaceous micaceous.
47.92 - 52.00	<u>Sandstone</u> : Light grey to dark grey, fine grained, well sorted and cemented, dominantly feldspathic matrix, lithic, slightly carbonaceous, micaceous in part.
52.00 - 56.00	<u>Sandstone</u> : Light grey to grey, fine grained, well cemented, feldspathic matrix, lithic, slightly micaceous.
56.00 - 63.00	<u>Sandstone</u> : Light grey, fine grained, occasional silt particles, well sorted and cemented, dominantly feldspathic matrix, micaceous throughout, lithic, slightly carbonaceous.

<u>Depth (m)</u>	<u>Lithologic Description</u>
63.00 - 68.00	<u>Sandstone</u> : Grey to dark grey, fine grained, well sorted and cemented, feldspathic matrix, carbonaceous, micaceous at times, partly lithic.
68.00 - 73.00	<u>Sandstone</u> : Light grey to occasionally grey, fine grained, well sorted and cemented, lithic, dominantly feldspathic matrix, micaceous.
73.00 - 82.00	<u>Sandstone</u> : Light grey to occasionally red-brown, fine grained, well sorted and cemented, dominantly feldspathic matrix, slightly micaceous, lithic, carbonaceous spotted in places.
82.00 - 86.00	<u>Sandstone</u> : Grey to dark grey, fine grained, well sorted and cemented, dominantly feldspathic matrix, micaceous, lithic, slightly chloritic, carbonaceous.
86.00 T.D.	

<u>Depth (metres)</u>	<u>Lithologic Descriptions</u>
0 - 2.00	<u>Alluvium</u> : red-brown; slightly ferruginous.
2.00 - 3.20	<u>Sandstone</u> : red-brown, dominantly argillaceous matrix; slightly ferruginous.
3.20 - 3.64	<u>Carbonaceous Claystone</u> : black, soft, sub-fissile; very carbonaceous; grading to carbonaceous shale in part.
3.64 - 5.85	<u>Carbonaceous Mudstone</u> : dark grey, soft: traces of inferior coal increasing towards base of unit, grading to carbonaceous shale in part.
5.85 - 6.88	<u>Coal</u> : inferior, dull to bright, friable; minor calcite veining.
6.88 - 7.55	<u>Sandstone</u> : light grey, fine grained, moderately sorted and cemented, argillaceous matrix, carbonaceous; grading to sandy siltstone in part.
7.55 - 8.85	<u>Core Loss</u>
8.85 - 9.10	<u>Sandy Siltstone</u>
9.10 - 10.30	<u>Mudstone</u> : dark grey, blocky, moderately sorted; argillaceous, slightly indurated, carbonaceous.
10.30 - 11.75	<u>Sandstone</u> : light to dark grey, fine to medium grained, moderately cemented, dominantly feldspathic matrix.
11.75 - 11.85	<u>Core Loss</u>
11.85 - 14.75	<u>Sandstone</u> : light to dark grey, medium grained, moderately sorted and cemented, sucrosic texture, carbonaceous, slightly micaceous; with carbonaceous blebs.
14.75 - 14.85	<u>Core Loss</u>
14.85 - 17.75	<u>Sandstone</u> : as above; but with carbonaceous bands
17.75 - 17.85	<u>Core Loss</u>
17.85 - 20.67	<u>Sandstone</u> : light grey, medium to coarse grained, moderately sorted, well cemented, sucrosic texture, dominantly feldspathic matrix, kaolinitic, micaceous and chloritic in part; contains carbonaceous blebs.

Depth (metres)Lithologic Descriptions

20.67 - 20.85	<u>Core Loss</u>
20.85 - 24.02	<u>Sandstone</u> : As above
24.02 - 27.52	<u>Sandstone</u> : As above; but with calcite traces.
27.52 - 28.42	<u>Carbonaceous Mudstone</u> : Dark grey to black, blocky, indurated, very carbonaceous, slickensided, slightly argillaceous; with inferior coal lamellae.
28.42 - 28.52	<u>Sandstone</u> : As above.
28.52 - 30.02	<u>Mudstone</u> : Light to dark grey, splintery, very carbonaceous, carbonaceous wisps and bands, slightly indurated; contains plant remains, bioturbated in part; interlaminated with fine grained sandstone towards base of unit.
30.02 - 33.02	<u>Mudstone</u> : As above; but no sandstone present.
33.02 - 33.57	<u>Carbonaceous Mudstone</u> : Dark grey to black, friable; very carbonaceous, indurated, minor calcite veinlets; grading to inferior coal.
33.57 - 36.24	<u>Core Loss</u> (probably coal)
36.24 - 36.42	<u>Carbonaceous Mudstone</u> : Dark grey to black; interbedded with and grading to inferior coal.
36.42 - 37.02	<u>Coal</u> : Dull, earthy, inferior; contains carbonaceous mudstone bands.
37.02 - 37.93	<u>Mudstone</u> : Light to dark grey, fine grained, blocky, well sorted and cemented, indurated, carbonaceous; contains minor sandstone laminae. contains minor sandstone laminae.
37.93 - 39.19	<u>Sandstone</u> : Light grey, fine grained at top to coarse grained at base, moderately sorted, sucrosic texture, well cemented, dominantly feldspathic matrix, argillaceous and micaceous in part; carbonaceous banding in part.
39.19 - 39.42	<u>Core Loss</u>
39.42 - 42.47	<u>Sandstone</u> : Light grey, medium grained, sucrosic texture, well sorted and cemented, dominantly feldspathic matrix, lithic, micaceous in part.
42.47 - 45.49	<u>Sandstone</u> : As above but becoming fine grained at base; contains carbonaceous bands.

Depth (metres)Lithologic Descriptions

45.49 - 48.47

Sandstone: As above but fine grained at top to coarse grained at base.

48.47 - 51.51

Arkosic Sandstone: Light grey, sometimes dark grey, medium to coarse grained, moderately sorted, well cemented, dominantly feldspathic matrix, lithic, chloritic; contains some carbonaceous bands and blebs.

51.15 - 54.59

Arkosic Sandstone: Light grey, medium to coarse grained, well sorted and cemented, sucrosic texture, dominantly feldspathic matrix, chloritic, slightly lithic; contains carbonaceous blebs.

54.59 T.D.

DRILLHOLE 0-02

<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 1.75	<u>Alluvium</u> : Red-brown silty loamy soil, slightly ferruginous.
1.75 - 5.00	<u>Arkosic Sandstone</u> : Red-brown-yellow, fine-medium grained, moderately sorted, well cemented, dominantly feldspathic matrix.
5.00 - 5.50	As above with <u>Carbonaceous Mudstone</u>
5.50 - 5.75	<u>Carbonaceous Clay</u> : Dark grey, soft, sticky, waxy, grading to carbonaceous shale; minor traces of inferior coal: dull.
5.75 - 7.15	<u>Core Loss</u>
7.15 - 7.63	<u>Carbonaceous Mudstone</u> : Dark grey to black; grading to inferior coal in part, carbonaceous blebs throughout; minor Dmb lamellae, friable.
7.63 - 7.70	<u>Mudstone</u> :
7.70 - 7.94	<u>Inferior Coal</u> : With minor carbonaceous shale lamellae; occasionally Dmb
7.94 - 8.01	<u>Mudstone</u>
8.01 - 8.70	<u>Coal</u> : Dmb, Bd, friable, occasionally calcite.
8.70 - 8.96	<u>Carbonaceous Mudstone</u>
8.96 - 9.35	<u>Mudstone</u> : Light grey to occasionally dark grey, slightly carbonaceous.
9.35 - 12.10	<u>Sandstone</u> : Light grey, medium-coarse grained, well sorted and cemented, sucrosic texture, fair porosity, dominantly feldspathic matrix, slightly chloritic, micaceous in part.
12.10 - 12.37	<u>Mudstone</u> : Light grey, indurated in part.
12.37 - 15.37	<u>Sandstone</u> : Light grey, medium-coarse grained, sucrosic texture, fair porosity, dominantly feldspathic matrix, occasional carbonaceous blebs, chloritic, slightly micaceous, kaolinitic at random, with increasing carbonaceous stringers towards base of unit.
15.37 - 21.37	<u>Sandstone</u> : Light grey, medium grained, well sorted and cemented, partly sucrosic texture, dominantly feldspathic matrix, slightly micaceous, occasionally chloritic, kaolinitic in part.
21.37 - 24.37	<u>Sandstone</u> : Light grey, medium grained, well sorted and cemented, dominantly feldspathic matrix, slightly chloritic, micaceous throughout, occasional carbonaceous wisps.

<u>Depth (m)</u>	<u>Lithologic Description</u>
24.37 - 27.33	<u>Sandstone</u> : Light grey to grey in part, medium grained to occasionally coarse grained, sucrosic texture in part, predominantly feldspathic, micaceous and chloritic in part; with occasional mudstone chips, carbonaceous wisps and minor coal stringers increasing towards base of unit.
27.33 - 27.37	<u>Mudstone</u> : Light grey to dark grey, slightly carbonaceous.
27.37 - 27.42	<u>Mudstone</u> : Light grey to dark grey, slickensided.
27.42 - 31.07	<u>Sandstone</u> : Light grey, fine-medium grained, well sorted and cemented, dominantly feldspathic matrix, slightly micaceous, mudstone chips, slightly chloritic, occasional carbonaceous bands; with mudstone intercalations between 28.38 - 28.51m: moderately soft, blocky, indurated in part.
31.07 - 31.49	<u>Coal</u> : Dmb., minor carbonaceous blebs, calcite veinlets.
31.49 - 31.60	<u>Mudstone</u> : Light grey to dark grey, partly indurated, carbonaceous throughout.
31.60 - 31.76	<u>Coal</u> : Dmb; calcite veinlets.
31.76 - 32.61	<u>Mudstone</u> : Light grey to occasionally dark grey, indurated, carbonaceous bands; with coal: Dmb, lamellae towards centre of this unit, 3.5cm thick.
32.61 - 32.98	<u>Mudstone</u> : Light grey, moderately soft, blocky, carbonaceous wisps throughout.
32.98 - 33.31	<u>Coal</u> : Dull; contains minor bright bands and calcite veinlets.
33.31 - 33.34	<u>Mudstone</u> : As above
33.34 - 33.45	<u>Coal</u> : Inferior; grading to carbonaceous shale in part.
33.45 - 33.62	<u>Mudstone</u> : As above

<u>Depth (metres)</u>	<u>Lithologic Descriptions</u>
33.62 - 34.20	<u>Coal</u> : Dull; contains some bright bands and calcite veins; grading to inferior coal in part.
34.20 - 34.35	<u>Mudstone</u> : Light to dark grey, pelletoidal.
34.35 - 34.57	<u>Coal</u> : Dull, inferior; contains some bright bands and calcite veinlets.
34.57 - 34.68	<u>Mudstone</u> : As above but carbonaceous towards base.
34.68 - 35.18	<u>Coal</u> : Dull; contains some bright bands.
35.18 - 35.26	<u>Mudstone</u> : Dark grey, carbonaceous, pelletoidal.
35.26 - 35.51	<u>Coal</u> : As above.
35.51 - 35.60	<u>Mudstone</u> : Dark grey, carbonaceous.
35.60 - 36.30	<u>Coal</u> : Bright; contains some dull bands
36.30 - 36.33	<u>Mudstone</u> : As above.
36.33 - 36.62	<u>Core Loss</u>
36.62 - 36.86	<u>Carbonaceous Mudstone</u> : Grading to inferior coal in part.
36.86 - 37.37	<u>Coal</u> : Dull; contains some bright bands.
37.37 - 39.48	<u>Mudstone</u> : Light grey, moderately firm, blocky, indurated.
39.48 - 39.62	<u>Core Loss</u>
39.62 - 39.88	<u>Mudstone</u> : Dark grey, soft, waxy, splintery, carbonaceous, slightly micaceous.
39.88 - 40.13	<u>Core Loss</u> : Probably coal.
40.13 - 40.36	<u>Mudstone</u> : Light to dark grey, slightly micaceous, contains carbonaceous blebs, some coal, plant vestiges along bedding planes, slump features present.
40.36 - 40.40	<u>Coal</u> : As above

<u>Depth (metres)</u>	<u>Lithologic Descriptions</u>
40.40 - 41.36	<u>Mudstone</u> : As above
41.36 - 41.49	<u>Mudstone</u> : Light grey, indurated.
41.49 - 42.49	<u>Sandstone</u> : Light grey to grey, fine grained, moderately sorted, well cemented, feldspathic matrix, micaceous, contains some carbonaceous bands; winnowing features present; grading to sandy siltstone in part.
42.49 - 42.63	<u>Mudstone</u> : Light grey, moderately hard, dominantly feldspathic matrix, slightly indurated and micaceous contains some carbonaceous blebs; winnowing features present.
42.63 - 44.63	<u>Mudstone</u> : Light grey, moderately hard, blocky, indurated, slightly argillaceous, carbonaceous wisps, slickensided, with slump features.
44.63 - 45.63	<u>Sandstone</u> : Light grey, fine grained, dominantly feldspathic matrix, slightly lithic and micaceous, contains some carbonaceous blebs; winnowing features present.
45.63 - 47.00	<u>Sandstone</u> : Light grey to grey, fine grained, moderately sorted, well cemented, dominantly feldspathic matrix, slightly lithic and micaceous; contains carbonaceous bands, bioturbated in part.
47.00 - 48.63	<u>Arkosic Sandstone</u> : Light grey, medium grained, sometimes coarse, well sorted, well cemented, dominantly feldspathic matrix, slightly lithic, chloritic and kaolinitic.
48.63 T.D.	

<u>Depth (metres)</u>	<u>Lithologic Descriptions</u>
0 - 2.25	<u>Soil</u> : Red-brown; slightly ferruginous
2.25 - 7.00	<u>Sandstone</u> : Red-brown, medium grained, well sorted, moderately cemented, dominantly feldspathic matrix, slightly ferruginous and micaceous; contains carbonaceous stringers towards base.
7.00 - 9.00	<u>Sandstone</u> : Light grey, medium grained to occasionally fine grained, well sorted, well cemented, dominantly feldspathic matrix, micaceous, slightly chloritic; contains minor inferior coal stringers and calcite veinlets.
9.00 - 11.83	<u>Sandstone</u> : Light grey, medium to coarse grained, well sorted, well cemented, sucrosic texture, dominantly feldspathic matrix; fair porosity, slightly micaceous and chloritic; ; contains carbonaceous wisps; inferior coal inclusions increase towards the base.
11.83 - 12.00	<u>Core Loss</u>
12.00 - 14.88	<u>Sandstone</u> : As above; but with minor coal inclusion in the interval 12.98 - 13.05m.
14.88 - 15.00	<u>Core Loss</u>
15.00 - 17.90	<u>Sandstone</u> : As above
17.90 - 18.00	<u>Core Loss</u>
18.00 - 20.43	<u>Sandstone</u> : As above; but medium grained and no coal or carbonaceous inclusions.
20.43 - 20.53	<u>Carbonaceous Mudstone</u> : Indurated, pyritic.
20.53 - 21.03	<u>Sandstone</u> : Light grey, medium grained, well sorted, well cemented, sucrosic texture, feldspathic, slightly micaceous and chloritic; contains carbonaceous bands towards base.
21.03 - 24.03	<u>Sandstone</u> : Light grey, medium grained, well sorted, moderately cemented, dominantly feldspathic matrix, slightly chloritic and micaceous.

<u>Depth (metres)</u>	<u>Lithologic Descriptions</u>
24.03 - 27.03	<u>Sandstone</u> : Light grey, medium grained at top, fine to medium grained at base, moderately sorted, well cemented, dominantly feldspathic matrix, chloritic, slightly pyritic; contains carbonaceous stringers towards the top.
27.03 - 30.03	<u>Sandstone</u> : Light grey, medium grained, well sorted, moderately cemented, dominantly feldspathic matrix, slightly chloritic and pyritic.
30.03 - 31.69	<u>Sandstone</u> : Light grey, medium grained, well sorted, well cemented, dominantly feldspathic matrix, slightly chloritic; contains minor inferior coal stringers and calcite traces.
31.69 - 31.79	<u>Mudstone</u> : Dark grey, slightly carbonaceous.
31.79 - 31.98	<u>Sandstone</u> : Feldspathic matrix.
31.98 - 32.22	<u>Mudstone</u> : Grading to siltstone.
32.22 - 32.50	<u>Siltstone</u> : Argillaceous, slightly micaceous; contains some carbonaceous blebs.
32.50 - 32.81	<u>Mudstone</u> : Grading to siltstone in places.
32.80 - 33.02	<u>Sandstone</u> : Feldspathic matrix, slightly argillaceous and carbonaceous
33.02 - 35.95	<u>Sandstone</u> : Light grey, medium grained, well sorted, well cemented, sucrosic texture, dominantly feldspathic matrix, slightly chloritic, pyritic along fracture zones; contains some carbonaceous blebs.
35.95 - 36.03	<u>Core Loss</u>
36.03 - 37.28	<u>Sandstone</u> : Light grey, medium grained, well sorted, well cemented, sucrosic texture, feldspathic matrix; slightly chloritic; contains some carbonaceous blebs.
37.28 - 37.33	<u>Coal</u> : Dull, inferior; contains some carbonaceous blebs.
37.33 - 37.36	<u>Mudstone</u> : Slightly carbonaceous.
37.36 - 37.52	<u>Coal</u> : Dull with minor bright bands; grading to inferior coal in part,
37.52 - 37.60	<u>Mudstone</u> : Carbonaceous.

<u>Depth (metres)</u>	<u>Lithologic Descriptions</u>
37.60 - 37.84	<u>Carbonaceous Mudstone</u> : Grading to carbonaceous shale.
37.84 - 37.96	<u>Coal</u> : Dull with minor bright bands, contains carbonaceous blebs.
37.96 - 38.14	<u>Carbonaceous Mudstone</u> : Grading to inferior coal in part.
38.14 - 38.35	<u>Coal</u> : Dull with minor bright bands; contains some calcite veinlets.
38.35 - 38.47	<u>Mudstone</u> : Slickensided in part.
38.47 - 38.85	<u>Coal</u> : Dull with minor bright bands; grading to inferior coal in part.
38.85 - 39.03	<u>Core Loss</u> : Probably coal
39.03 - 39.11	<u>Carbonaceous Mudstone</u> : Grading to inferior coal in part.
39.11 - 39.34	<u>Coal</u> : Inferior; contains some bright bands
39.34 - 39.52	<u>Mudstone</u> : Carbonaceous.
39.52 - 39.72	<u>Coal</u> : Dull with minor bright bands.
39.72 - 39.86	<u>Mudstone</u> : Carbonaceous; with some inferior coal lamellae
39.86 - 40.47	<u>Coal</u> : Dull with minor bright bands.
40.47 - 41.39	<u>Mudstone</u> : Dark grey, sometimes black; carbonaceous, some carbonaceous bands; grading to siltstone in part.
41.39 - 41.86	<u>Mudstone</u> : Contains some carbonaceous wisps.
41.86 - 42.02	<u>Core Loss</u>
42.02 - 43.86	<u>Mudstone</u> : Grading to <u>Siltstone</u> <u>Mudstone</u> : Light grey, grey, soft, blocky. <u>Siltstone</u> : Light grey, grey, moderately sorted, well cemented; feldspathic, slightly micaceous, some carbonaceous banding; with some winnowing features.
43.86 - 44.54	<u>Sandstone</u> : Light grey, fine to medium grained, well sorted, well cemented, feldspathic matrix, slightly micaceous; contains carbonaceous wisps and blebs.

Depth (metres)Lithologic Descriptions

44.54 - 44.81

Sandstone: Light grey, medium grained, well sorted, well cemented, feldspathic matrix; slightly micaceous.

44.81 - 45.02

Core Loss

45.02 - 45.72

Arkosic Sandstone: Light grey, medium grained, well sorted, well cemented, sucrosic texture, dominantly feldspathic matrix, slightly micaceous

45.72 - 47.92

Sandstone: Light grey, grey, fine to medium grained, well sorted, well cemented, feldspathic matrix, slightly lithic and micaceous; contains carbonaceous bands, occasionally cross-bedded, dip approximately 3°; grading to sandy siltstone in part.

47.92 - 48.02

Arkosic Sandstone: Light grey, medium to coarse grained, well sorted, well cemented, feldspathic matrix, slightly lithic, micaceous and kaolinitic.

48.02 T.D.

DRILLHOLE 0-03b

<u>Depth (metres)</u>	<u>Lithologic Descriptions</u>
0 - 1.25	<u>Soil</u> : Red-brown, dark brown, slightly ferruginous and carbonaceous.
1.25 - 5.00	<u>Arkosic Sandstone</u> : Red-brown, yellow, fine to medium grained, moderately sorted, well cemented, dominantly feldspathic matrix, slightly lithic and micaceous.
5.00 - 9.00	<u>Arkosic Sandstone</u> : Light grey, red-brown, medium to coarse grained, moderately sorted, well cemented, sucrosic texture, dominantly feldspathic matrix, slightly lithic, carbonaceous,
9.00 - 12.00	<u>Core Loss</u>
12.00 - 15.00	<u>Arkosic Sandstone</u> : Light grey, medium to coarse grained, well sorted, well cemented, dominantly feldspathic matrix, slightly lithic, micaceous and kaolinitic.
15.00 - 17.91	<u>Sandstone</u> : Light grey, medium to coarse grained, subangular to subrounded grains, well sorted, well cemented, dominantly feldspathic matrix, slightly lithic, micaceous, kaolinitic; contains some carbonaceous blebs and pyrite.
17.91 - 18.00	<u>Core Loss</u>
18.00 - 20.50	<u>Sandstone</u> : Light grey, medium to coarse grained, sub angular to rounded grains, well sorted, well cemented, dominantly feldspathic matrix, slightly lithic, micaceous and chloritic; contains some carbonaceous blebs.
20.50 - 26.30	<u>Sandstone</u> : Light grey, medium grained, moderately sorted, well cemented, dominantly feldspathic matrix, slightly lithic, chloritic and kaolinitic.
26.30 - 26.50	<u>Core Loss</u>
26.50 - 29.50	<u>Sandstone</u> : Light grey, medium grained, sometimes coarse, sucrosic texture, well sorted, well cemented, dominantly feldspathic matrix, slightly lithic, micaceous and chloritic; contains carbonaceous blebs, increasing abundance towards base.

<u>Depth (metres)</u>	<u>Lithologic Descriptions</u>
29.50 - 30.00	<u>Core Loss</u>
30.00 - 30.89	<u>Sandstone</u> : Light grey, medium to coarse grained, dominantly feldspathic matrix.
30.89 - 30.98	<u>Carbonaceous Mudstone</u> : Dull grey, blocky
30.98 - 31.19	<u>Coal</u> : Inferior contains carbonaceous blebs, grading to carbonaceous mudstone in part.
31.19 - 32.01	<u>Mudstone</u> : Light grey, moderately soft, blocky, slightly indurated; contains some carbonaceous wisps, slump features present. sent.
32.01 - 33.00	<u>Core Loss</u>
33.00 - 34.35	<u>Sandy Siltstone</u> : Light grey to grey, moderately sorted, moderately cemented, feldspathic, slightly argillaceous and micaceous; contains some carbonaceous banding; grading to mudstone in part.
34.35 - 34.87	<u>Mudstone</u> : Light grey, moderately soft; contains carbonaceous wisps.
34.87 - 36.00	<u>Coal</u> : Dull with minor bright bands, inferior; contains some carbonaceous blebs and calcite veinlets.
36.00 - 36.06	<u>Coal</u> : Dull with minor bright bands.
36.06 - 37.02	<u>Mudstone</u> : Light to dark grey, moderately soft, carbonaceous, slightly indurated.
37.02 - 38.78	<u>Sandy Siltstone</u> : Light grey, moderately sorted, well cemented, dominantly feldspathic matrix.
38.78 - 39.00	<u>Core Loss</u>
39.00 - 41.30	<u>Sandy Siltstone</u> : Light grey, medium to fine grained, well sorted, well cemented; feldspathic, slightly lithic and micaceous; contains some winnowing features; grading to sandstone in part.
41.30 - 42.05	<u>Sandstone</u> : Light grey, fine grained, well sorted, well cemented, feldspathic matrix, slightly pyritic; contains carbonaceous bands.
42.05 - 42.91	<u>Sandstone</u> : As above; but medium to coarse grained; slightly chloritic and kaolinitic.

Depth (metres)Lithologic Descriptions

42.91 - 43.11

Sandstone: Light grey, fine grained, feldspathic.

43.11 - 44.24

Arkosic Sandstone: Light grey, coarse to very coarse grained towards base, subrounded to rounded grains, well sorted, well cemented, sucrosic texture, feldspathic matrix, good porosity, chloritic, slightly micaceous and kaolinitic.

44.24 - 44.30

Core Loss

44.30 - 47.30

Sandstone: Light grey, medium grained, coarsening towards base, well sorted, well cemented, sucrosic texture, dominantly feldspathic matrix, slightly micaceous and chloritic; contains some carbonaceous bands.

47.30 - 50.28

Sandstone: As above but medium to coarse grained.

50.28 - 50.30

Core Loss

50.30 - 53.40

Sandstone: Light grey, coarse grained, well sorted, well cemented, sucrosic texture, dominantly feldspathic matrix, micaceous, slightly lithic, chloritic and kaolinitic.

53.40 T.D.

<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 2.00	<u>Alluvium</u> : Red-brown-yellow, silty clayey soil, ferruginous throughout.
2.00 - 4.00	<u>Siltstone</u> : Light brown to red-brown, soft, moderately sorted, poorly cemented, argillaceous, minor mudstone interlamination, ferruginous throughout; with 30% clay particles.
4.00 - 8.00	<u>Siltstone</u> : Light grey, moderately sorted and cemented, dominantly argillaceous matrix, slightly ferruginous, 25% clay material particles.
8.00 - 15.00	<u>Siltstone</u> : Light grey, moderately sorted, poorly cemented, dominantly argillaceous matrix, minor mudstone intercalations; with 25% clay material particles.
15.00 - 24.00	<u>Siltstone</u> : Light grey to occasionally grey, moderately sorted and cemented, dominantly argillaceous matrix, carbonaceous-spotted in part, with minor mudstone intercalations: Light grey, moderately soft, predominantly argillaceous fabric; with 30% clay particles and 3% carbonaceous shale.
24.00 - 26.00	<u>Siltstone</u> : Light grey, occasionally grey, moderately sorted and cemented, dominantly argillaceous matrix, slightly feldspathic, carbonaceous spotted in part; with 25% clay particles.
26.00 - 29.00	<u>Siltstone</u> : Light grey, moderately spotted and cemented, carbonaceous spotted at random, dominantly argillaceous matrix, occasionally feldspathic; with 25% clay particles: Light grey, soft, sticky.
29.00 - 32.45	<u>Sandy Siltstone</u> : Light grey, moderately sorted and cemented, feldspathic in part; with 20% clay particles.
32.45 - 32.70	<u>Sandy Siltstone</u> : As above but with carbonaceous shale.
32.70 - 35.70	<u>Sandstone</u> : Light grey, fine grained, grading to coarse grained towards base of unit, moderately sorted, well cemented, dominantly feldspathic matrix, carbonaceous banding, micaceous and lithic in part.
35.70 - 39.67	<u>Sandstone</u> : Light grey, fine grained to occasionally medium grained, well sorted and cemented, dominantly feldspathic matrix, lithic in part, slightly micaceous, occasionally carbonaceous bands, hard.

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<u>Depth (m)</u>	<u>Lithologic Description</u>
39.67 - 39.78	<u>Coal</u> : Dmb.
39.78 - 40.67	<u>Mudstone</u> : Light grey, dark grey at top of unit, indurated in part, moderately soft, blocky, carbonaceous at top of unit; grading to siltstone in places.
40.67 - 41.19	<u>Sandy Siltstone</u> : Light grey to dark grey, moderately cemented, feldspathic matrix, slightly micaceous; with slump features.
41.19 - 41.73	<u>Core Loss</u>
41.73 - 44.26	<u>Mudstone</u> : Light grey to dark grey, moderately soft, blocky, indurated, minor siltstone intercalations increasing towards top of unit, slightly micaceous, minor carbonaceous bands to carbonaceous mudstone towards base of unit. with Siltstone: light grey, well sorted and cemented, feldspathic matrix.
44.26 - 44.73	<u>Core Loss</u>
44.73 - 47.53	<u>Mudstone</u> : Light grey to light green, moderately soft, splintery, occasionally sub-fissile, carbonaceous at top of unit, chloritic, slightly slickensided, occasionally grading to siltstone: Light grey to grey, moderately sorted and cemented, argillaceous matrix, slightly feldspathic.
47.53 - 47.73	<u>Core Loss</u>
47.73 - 48.40	<u>Siltstone</u> : Light grey, moderately soft, argillaceous matrix, feldspathic in part, occasionally carbonaceous, poorly sorted and cemented.
48.40 - 48.92	<u>Sandstone</u> : Medium-coarse grained, argillaceous matrix, feldspathic in part, occasionally carbonaceous wisps, chloritic and feldspathic in part.
48.92 - 49.62	<u>Mudstone</u> : Light grey, moderately soft, occasionally slickensided.
49.62 - 50.73	<u>Siltstone</u> : Light grey, moderately sorted and cemented, argillaceous matrix, slightly feldspathic, occasional calcite veinlets, carbonaceous at random; grading to sandy siltstone.
50.73	T.D.

<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 2.00	<u>Alluvium</u> : Red-brown to dark brown, silty loamy soil, ferruginous in part.
2.00 - 6.00	<u>Sandstone</u> : Red-brown, medium grained, moderately sorted, well cemented, dominantly feldspathic matrix, slightly lithic, ferruginous throughout.
6.00 - 10.00	<u>Sandy Siltstone</u> : Light grey, moderately sorted, poorly cemented, dominantly argillaceous matrix, slightly micaceous; grading to siltstone in places.
10.00 - 12.00	<u>Mudstone</u> : Light grey, moderately hard, blocky, partly indurated, slightly micaceous; with minor siltstone intercalations.
12.00 - 15.00	<u>Siltstone and Mudstone</u> : Intermixed and intercalated; <u>Siltstone</u> : Light grey, moderately sorted, well cemented, indurated, slightly argillaceous; <u>Mudstone</u> : As above. Siltstone/Mudstone ratio = 60:40
15.00 - 19.00	<u>Siltstone</u> : Light grey, hard, poorly sorted, well cemented, indurated, partly argillaceous with minor mudstone intercalations; <u>Mudstone</u> : Light grey, moderately hard, blocky to occasionally splintery, slightly indurated, micaceous in part.
19.00 - 25.00	<u>Mudstone</u> : Light grey to occasionally grey, moderately hard, brittle, splintery, occasionally sub-fissile, indurated, slightly micaceous; with minor interlamination of <u>siltstone</u> : Light grey, hard, moderately sorted, well cemented, indurated.
25.00 - 33.00	<u>Siltstone</u> : Light grey, moderately sorted, well cemented, slightly feldspathic matrix, argillaceous in part; intercalations of <u>mudstone</u> : light grey, moderately hard, blocky to occasionally splintery, brittle, indurated, micaceous in part.
33.00 - 37.00	<u>Mudstone</u> : Light grey to occasionally grey, moderately hard, brittle, blocky, sub-fissile in places, indurated, slightly micaceous.
37.00 - 42.00	<u>Siltstone</u> : Light grey to grey, moderately sorted and cemented, feldspathic matrix in part, slightly argillaceous; with <u>mudstone</u> intercalations: Light grey, hard, blocky, indurated, slightly micaceous.
42.00 - 43.00	<u>Siltstone</u> : Light brown, well sorted and cemented, dominantly argillaceous matrix, slightly feldspathic; with occasional <u>mudstone</u> interlamination.

Depth (m)Lithologic Description

43.00 - 46.00

Mudstone: Light grey to occasionally grey, splintery to slightly sub-fissile, indurated, micaceous in part: with intercalations of siltstone: light grey, moderately sorted and cemented, dominantly feldspathic matrix, slightly argillaceous.

46.00 - 51.00

Sandy Siltstone: Moderately sorted, well cemented, dominantly feldspathic matrix, slightly micaceous; grading to fine grained sandstone in places.

51.00 T.D.

<u>Depth (metres)</u>	<u>Lithologic Descriptions</u>
0 - 1.00	<u>Soil</u> : Red-brown, yellow, ferruginous.
1.00 - 1.70	<u>Arkosic Sandstone</u> : Red-brown, yellow, medium grained, feldspathic matrix.
1.70 - 5.57	<u>Arkosic Sandstone</u> : Red-brown, yellow, medium grained, well sorted, well cemented, sucrosic texture, dominantly feldspathic matrix, slightly lithic and micaceous, weathered.
5.57 - 6.24	<u>Sandstone</u> : Light grey, medium grained, well sorted, well cemented, dominantly feldspathic matrix, slightly lithic, micaceous.
6.24 - 9.24	<u>Sandstone</u> : Light grey, red-brown towards base and top, medium grained, sometimes fine, sucrosic texture, dominantly feldspathic matrix, micaceous, slightly lithic, chloritic, carbonaceous; contains some winnowing features.
9.24 - 11.08	<u>Sandstone</u> : Red-brown at top, light grey at base, medium grained, moderately sorted, well cemented, dominantly feldspathic matrix, slightly lithic and chloritic; increasingly carbonaceous towards base; contains calcite veinlets.
11.08 - 11.35	<u>Coal</u> : Dull, inferior fissile; contains carbonaceous blebs; grading to shale in part.
11.35 - 11.51	<u>Mudstone</u> : Light grey, soft, subfissile;
11.51 - 12.19	<u>Siltstone</u> : Light to dark grey, well sorted, well cemented, feldspathic, carbonaceous; grading to fine grained sandstone.
12.19 - 15.24	<u>Mudstone</u> : Light to dark grey, soft, friable, carbonaceous.
15.24 - 15.35	<u>Siltstone</u> : Light grey, feldspathic; contains carbonaceous bands.
15.35 - 15.63	<u>Mudstone</u> : Light grey; indurated; contains carbonaceous bands.
15.63 - 18.28	<u>Sandstone</u> : Light grey, medium grained, well sorted, well cemented, sucrosic texture, dominantly feldspathic matrix, slightly lithic and micaceous; contains some carbonaceous bands.

<u>Depth (metres)</u>	<u>Lithologic Descriptions</u>
18.28 - 21.30	<u>Sandstone</u> : Light grey, sometimes dark grey at top, fine grained at top to medium to coarse grained at base, well sorted, well cemented, sucrosic texture sometimes, dominantly feldspathic matrix, slightly lithic, micaceous and chloritic; contains carbonaceous bands at top and some winnowing features.
21.30 - 24.35	<u>Sandstone</u> : Light grey, sometimes dark grey, medium to coarse grained, sucrosic texture, dominantly feldspathic matrix, slightly lithic, micaceous and chloritic; contains winnowing features and some carbonaceous bands.
24.35 - 27.24	<u>Sandstone</u> : Light grey, medium grained, well sorted, well cemented, sucrosic texture, dominantly feldspathic matrix, slightly lithic and micaceous.
27.24 - 27.35	<u>Core Loss</u>
27.35 - 30.35	<u>Core Loss</u> : with 30% coal recovery
30.35 - 30.95	<u>Core Loss</u>
30.95 - 31.55	<u>Arkosic Sandstone</u> : Grey to dark grey, fine grained, medium towards base, well sorted, well cemented, dominantly feldspathic matrix, micaceous, carbonaceous, slightly lithic.
32.55 - 32.45	<u>Carbonaceous Mudstone</u> : Light grey to grey, moderately hard, blocky, indurated, micaceous.
32.45 - 32.75	<u>Coal</u> : Dark with minor bright bands; contains calcite veinlets.
32.75 - 33.19	<u>Mudstone</u> : Dark grey, moderately hard, brittle, carbonaceous, indurated, slickensided.
33.19 - 33.25	<u>Core Loss</u>
33.25 - 33.43	<u>Coal</u> : Inferior, dull; contains minor bright bands.
33.43 - 34.97	<u>Mudstone</u> : Light grey, blocky, indurated, slightly micaceous.
34.97 - 35.99	<u>Siltstone</u> : Light grey to grey, well sorted, well cemented, feldspathic, micaceous, slightly indurated contains carbonaceous banding.

Depth (metres)Lithologic Descriptions

35.99 - 39.35	<u>Sandstone</u> : Light grey, to occasionally grey, fine grained at top, medium elsewhere, well sorted, well cemented, dominantly feldspathic matrix, lithic, slightly micaceous and chloritic; contains carbonaceous bands and winnowing features.
39.35 - 42.31	<u>Sandstone</u> : Light grey, medium to coarse grained, well sorted, well cemented, dominantly feldspathic matrix, lithic, slightly micaceous and chloritic; contains carbonaceous bands at top.
42.31 - 42.35	<u>Core Loss</u>
42.35 - 45.86	<u>Arkosic Sandstone</u> : Light grey, medium grained, well sorted, well cemented, dominantly feldspathic matrix, slightly micaceous,
45.86 - 45.88	<u>Carbonaceous Mudstone</u> : As above
45.88 - 46.04	<u>Dolerite</u> :
46.04 - 46.15	<u>Core Loss</u> (Probably dolerite)
46.15 T.D.	

<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 1.00	<u>Soil</u> : Dark brown, silty, loamy, argillaceous; grading into sandstone: Red-brown, yellow, feldspathic matrix.
1.00 - 10.00	<u>Arkosic Sandstone</u> : Red-brown to occasionally yellow, fine-medium grained, occasionally coarse grained, moderately sorted, well cemented, dominantly feldspathic matrix, slightly micaceous, weathered; with minor mudstone inter laminations: Red-brown, moderately hard, blocky, indurated, ferruginous.
10.00 - 13.00	<u>Sandstone</u> : Light grey to occasionally red-brown, fine-medium grained, well sorted and cemented, dominantly feldspathic matrix, slightly micaceous, lithic in part.
13.00 - 23.00	<u>Sandstone</u> : Light grey to red-brown (contamination) fine grained to occasionally medium grained, well sorted and cemented, dominantly feldspathic matrix, micaceous in part, slightly lithic.
23.00 - 24.00	<u>Sandstone</u> : Light grey to grey, fine grained, well sorted and cemented, dominantly feldspathic matrix, slightly micaceous and carbonaceous.
24.00 - 28.80	<u>Sandstone</u> : Light grey, red-brown (contamination) fine-medium grained, well sorted and cemented, dominantly feldspathic matrix, slightly micaceous.
28.80 - 28.90	<u>Carbonaceous Mudstone</u> : Grading to carbonaceous shale.
28.90 - 29.60	<u>Sandstone</u> : Light grey to occasionally red-brown, fine grained, well sorted and cemented, dominantly feldspathic matrix, slightly micaceous, carbonaceous in places.
26.90 - 30.30	<u>Sandstone</u> : Dark grey, coarse grained, well sorted and cemented, slightly feldspathic, micaceous in places.
30.30 - 31.17	<u>Mudstone</u> : Light grey, moderately hard, blocky, partly slickensided, indurated, micaceous, calcite veinlets towards base.
31.17 - 32.27	<u>Sandstone</u> : Light grey, fine grained, well sorted and cemented, feldspathic matrix, slightly micaceous, winnowing intercalations.
32.27 - 32.64	<u>Sandstone</u> : Light grey, coarse grained, angular to sub rounded, moderately sorted and cemented, sucrosic texture, feldspathic matrix, micaceous throughout, occasional carbonaceous wisps.

<u>Depth (m)</u>	<u>Lithologic Description</u>
32.64 - 35.54	<u>Sandstone</u> : Light grey to grey, medium-coarse grained, sub rounded to rounded, well sorted, moderately cemented, sucrosic texture, dominantly feldspathic matrix, micaceous in places.
35.54 - 35.64	<u>Core Loss</u>
35.64 - 38.57	<u>Sandstone</u> : Light grey, medium-coarse grained, occasionally fine grained, sucrosic texture, well sorted and cemented, dominantly feldspathic matrix, lithic in part, micaceous in places, chloritic towards base of unit, calcitic veinlets, minor carbonaceous blebs.
38.57 - 38.64	<u>Core Loss</u>
38.64 - 40.40	<u>Sandstone</u> : Light grey, medium-coarse grained, sucrosic texture, well sorted and cemented, dominantly feldspathic matrix, chloritic throughout, slightly micaceous.
40.40 - 40.92	<u>Mudstone</u> : Light grey to green in places, hard, blocky, indurated, glauconitic, slickensided, calcareous in part with slump features, kaolinitic in part.
41.11 - 41.64	<u>Sandstone</u> : Light grey, medium grained, well sorted and cemented, feldspathic matrix, mudstone chips.
41.64 - 42.32	<u>Sandstone</u> : Light grey, medium grained, feldspathic matrix.
42.32 - 47.34	<u>Dolerite</u>
47.34 T.D.	

<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 1.00	<u>Soil</u> : Dark brown, silty, loamy; grading to sandstone towards base of unit: red-brown, yellow, feldspathic matrix.
1.00 - 7.00	<u>Sandstone</u> : Red-brown to occasionally yellow, moderately sorted and cemented, fine grained, dominantly feldspathic matrix, partly argillaceous; with 20% clay: red-brown, soft, sticky, ferruginous.
7.00 - 12.84	<u>Sandstone</u> : Red-brown to occasionally yellow, moderately sorted and cemented, fine grained, dominantly feldspathic matrix, argillaceous in part; with ferruginous gravel material and minor chert fragments.
12.84 - 13.28	<u>Core Loss</u>
13.28 - 14.84	<u>Sandstone</u> : Light grey, red-brown at top of unit, coarse grained, sucrosic texture, well sorted and cemented, sub-rounded to rounded, dominantly feldspathic matrix, micaceous throughout, chloritic in places, good visual porosity.
14.84 - 18.33	<u>Sandstone</u> : As above; light grey, medium to coarse grained, sub-angular, soft.
18.33 - 21.26	<u>Sandstone</u> : Light grey, coarse grained, moderately sorted and cemented, sucrosic texture, dominantly feldspathic matrix, micaceous throughout, chloritic in part, occasional mudstone chips, carbonaceous wisps at random, good visual porosity.
21.26 - 21.32	<u>Core Loss</u>
21.32 - 23.05	<u>Sandstone</u> : Light grey, coarse grained, moderately sorted, poorly cemented, sucrosic texture, dominantly feldspathic matrix, micaceous throughout, chloritic in part, carbonaceous wisps at random, good visual porosity.
23.05 - 23.11	<u>Mudstone</u> : Brown to dark, carbonaceous, slickensided.
23.11 - 24.11	<u>Sandstone</u> : Light grey, coarse grained, moderately sorted and cemented, feldspathic matrix, micaceous throughout, chloritic in places, occasional carbonaceous stringers, good visual porosity.
24.11 - 24.32	<u>Core Loss</u>
24.32 - 25.19	<u>Sandstone</u> : Light grey, fine grained, well sorted, moderately cemented, dominantly feldspathic matrix, micaceous in places.

<u>Depth (m)</u>	<u>Lithologic Description</u>
25.19 - 26.02	<u>Sandstone</u> : Light grey, medium grained, well sorted, poorly cemented, soft, sucrosic texture, feldspathic matrix, slightly micaceous, good visual porosity.
26.02 - 26.10	
26.10 - 26.48	<u>Sandstone</u> : Light grey, medium grained, feldspathic matrix.
26.48 - 26.62	<u>Carbonaceous Mudstone</u> : Dark grey, waxy, indurated in part.
26.62 - 27.02	<u>Coal</u> : Dmb, friable, badly broken.
27.02 - 27.05	<u>Clod</u>
27.05 - 28.61	<u>Core Loss</u>
28.61 - 30.06	<u>Sandstone</u> : Light grey, fine grained to occasionally medium grained, moderately sorted and cemented.
30.06 - 30.11	<u>Core Loss</u>
30.11 - 33.13	<u>Sandstone</u> : Light grey, medium grained, well sorted, moderately cemented, dominantly feldspathic matrix, chloritic; with minor intercalations of mudstone: indurated, chloritic; carbonaceous in places.
33.13 - 35.90	<u>Sandstone</u> : Light grey, medium to coarse grained, moderately sorted and cemented, sucrosic texture, feldspathic matrix, chloritic, slightly micaceous occasional carbonaceous blebs.
35.90 - 36.13	<u>Core Loss</u>
36.13 - 39.03	<u>Sandstone</u> : Light grey, medium to coarse grained, well sorted, moderately cemented, dominantly feldspathic matrix, chloritic, carbonaceous spotted in places, slightly micaceous.
39.03 - 39.13	<u>Core Loss</u>
39.13 - 42.07	<u>Sandstone</u> : Light grey, medium-coarse grained, moderately sorted and cemented, dominantly feldspathic matrix, slightly chloritic, micaceous in part.
42.07 - 42.13	<u>Core Loss</u>
42.13 - 42.72	<u>Sandstone</u> : Light grey, fine-medium grained, well sorted, moderately cemented, dominantly feldspathic matrix, slightly micaceous.

<u>Depth (m)</u>	<u>Lithologic Description</u>
42.72 - 42.86	<u>Carbonaceous Shale</u>
42.86 - 44.11	<u>Mudstone</u> : Light grey, dark grey in places, blocky, indurated, carbonaceous in places; with interlamination of fine grained sandstone; feldspathic.
44.11 - 45.13	<u>Core Loss</u> : Possibly coal.
45.13 - 47.37	<u>Silty Sandstone</u> : Light grey, well sorted, moderately cemented, dominantly feldspathic matrix, slightly argillaceous, carbonaceous banding, slightly micaceous, with intercalations of mudstone: Light grey to occasionally dark grey, blocky, moderately soft, indurated in part, slump features, carbonaceous blebs throughout.
47.37 - 47.41	<u>Sandstone</u> : Light grey, feldspathic matrix.
47.41 - 48.13	<u>Core Loss</u> : Presumably coal,
48.13 - 51.16	<u>Sandstone</u> : Light grey, medium grained to occasionally coarse grained, well sorted and cemented, dominantly feldspathic matrix, slightly micaceous, chloritic at random, carbonaceous wisps towards base of unit.
51.16 - 51.44	<u>Sandstone</u> : Light grey, fine grained, dominantly feldspathic matrix, slightly micaceous.
51.44 - 54.21	<u>Sandstone</u> : Light grey, coarse grained, well sorted and cemented, sucrosic texture, dominantly feldspathic matrix, micaceous at times, chloritic in part, lithic, hard.
54.21 - 58.56	<u>Sandstone</u> : Light grey, coarse grained, well sorted and cemented, moderately soft, sucrosic texture, dominantly feldspathic matrix, slightly chloritic, micaceous throughout, occasional carbonaceous stringers.
58.56 - 60.26	<u>Sandstone</u> : Light grey, fine-medium grained, well sorted and cemented, dominantly feldspathic matrix, slightly micaceous, chloritic at random, lithic.
60.26 - 62.92	<u>Sandstone</u> : Light grey, fine-medium grained, well sorted, well cemented, sucrosic texture in part, dominantly feldspathic matrix.
62.92 - 62.96	<u>Mudstone</u> : Light grey, carbonaceous, slickensided.
62.96 - 63.37	<u>Sandstone</u> : Light grey, medium-coarse grained, well sorted and cemented, feldspathic matrix.
63.37 - 63.81	<u>Sandstone</u> : Light grey, poorly sorted, well cemented, with increasing mudstone chips, feldspathic matrix, chloritic, carbonaceous wisps throughout.

<u>Depth (m)</u>	<u>Lithologic Description</u>
63.81 - 65.11	<u>Mudstone</u> : Light grey, moderately hard, blocky, indurated, slightly carbonaceous, minor sandstone inclusions, feldspathic, minor coal stringers, chloritic in part.
65.11 - 65.23	<u>Sandstone</u> : Light grey, poorly sorted, well cemented, dominantly feldspathic matrix, mudstone chips.
65.23 - 65.25	<u>Coal</u>
65.25 - 65.97	<u>Mudstone</u> : With sandstone inclusions.
65.97 - 68.17	<u>Mudstone</u> : Light grey to dark grey, blocky, indurated, slightly carbonaceous, sandstone inclusions.
68.17 - 68.98	<u>Sandstone</u> : Light grey to green, medium grained, well sorted and cemented, dominantly feldspathic matrix.
68.98 - 70.60	<u>Sandstone</u> : Light grey to green, well sorted and cemented, fine to medium grained, coarse grained towards base of unit, feldspathic, chloritic, lithic, slightly micaceous.
70.60 - 72.01	<u>Sandstone</u> : Light grey, medium-coarse grained, well sorted and cemented, sucrosic texture in part, dominantly feldspathic matrix, lithic in part, slightly micaceous, chloritic, carbonaceous wisps in places.
72.01 - 75.11	<u>Sandstone</u> : Light grey, medium to coarse grained, well sorted and cemented, sucrosic texture in part, dominantly feldspathic matrix, lithic in part, slightly chloritic, micaceous in places.
75.11 - 78.16	<u>Sandstone</u> : Light grey, medium grained-to occasionally coarse grained, well sorted and cemented, slightly sucrosic texture, feldspathic matrix, lithic in part, slightly chloritic, micaceous in places, occasional carbonaceous blebs.
78.16 - 81.16	<u>Sandstone</u> : Light grey, medium to coarse grained, well sorted and cemented, chloritic, dominantly feldspathic matrix, sucrosic texture in part, slightly micaceous, lithic in part.
81.16 - 83.76	<u>Sandstone</u> : Light grey, coarse towards top of unit, grading to medium grained, well sorted and cemented, dominantly feldspathic matrix, sucrosic texture in part, chloritic, slightly micaceous, lithic.
83.76 - 83.84	<u>Sandstone</u> : Dark grey, feldspathic matrix, carbonaceous throughout.

<u>Depth (m)</u>	<u>Lithologic Description</u>
83.84 - 83.92	<u>Carbonaceous Mudstone</u> : Indurated, slightly slickensided.
83.92 - 85.93	<u>Mudstone</u> : Light grey to dark grey, hard, blocky, indurated, carbonaceous throughout.
85.93 - 86.59	<u>Carbonaceous Mudstone</u> : Dark grey, blocky, hard, indurated, slightly slickensided, occasional calcite veinlets.
86.59 - 86.66	<u>Mudstone</u> : Carbonaceous, dark grey, partly waxy, indurated.
86.66 - 86.76	<u>Core Loss</u> : Mudstone
86.76 - 87.02	<u>Sandstone</u> : Dark grey, fine grained, well sorted and cemented, feldspathic matrix, carbonaceous throughout.
87.02 - 88.13	<u>Mudstone</u> : Light grey to dark grey, hard, blocky, indurated, carbonaceous in places, slightly micaceous.
88.13 - 89.72	<u>Sandstone</u> : Light grey, fine grained at top of unit, grading to medium grained, well sorted and cemented, dominantly feldspathic matrix, slightly micaceous.
89.72 - 89.75	<u>Core Loss</u>
89.75 - 92.75	<u>Sandstone</u> : Light grey to grey, fine-medium grained, occasionally coarse grained, well sorted and cemented, dominantly feldspathic matrix, carbonaceous, partly lithic, slightly chloritic, micaceous.
92.75 - 95.72	<u>Sandstone</u> : Light grey, medium grained, well sorted and cemented, dominantly feldspathic matrix, lithic in part, chloritic, slightly micaceous.
95.72 - 97.36	<u>Sandstone</u> : As above with specs of chlorite.
97.36 - 98.75	<u>Mudstone</u> : Light grey to off-white, occasionally green, blocky, chloritic, kaolinitic in part, indurated, slump features.
98.75 - 99.59	<u>Mudstone</u> : Off-white, hard, blocky, indurated, kaolinitic in part, calcitic, carbonaceous at random.
99.59 - 100.00 T.D.	<u>Sandstone</u> : Off-white, fine grained, well sorted and cemented, feldspathic, slightly micaceous, large mudstone inclusions towards base of unit, indurated.
100.00 T.D.	

<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 3.00	<u>Soil</u> : Dark grey, silty, loamy; with 30% clay particles.
3.00 - 8.00	<u>Sandstone</u> : Light grey to red brown, fine-medium grained, well sorted and cemented, feldspathic matrix, slightly ferruginous, chloritic in part, pyritic throughout.
8.00 - 11.00	<u>Sandstone</u> : Light grey to occasionally off white, fine-medium grained, hard, well sorted and cemented, dominantly feldspathic matrix, slightly chloritic, ferruginous in places, pyritic.
11.00 - 13.00	<u>Mudstone</u> : Light grey to dark grey, soft; with 50% sandstone: As above.
13.00 - 18.00	<u>Sandstone</u> : Light grey, fine grained, well sorted and cemented, hard, dominantly feldspathic matrix, pyritic throughout, greywacke.
18.00 - 27.00	<u>Sandstone</u> : Light grey, fine grained, moderately sorted, well cemented, dominantly feldspathic matrix, partly greywacke, micaceous throughout, slightly pyritic.
27.00 - 30.00	<u>Sandstone</u> : As above, but non-pyritic, moderately sorted, feldspathic.
30.00 - 36.00	<u>Sandstone</u> : Light grey to off white, fine grained, well sorted and cemented, hard, greywacke, dominantly feldspathic matrix, slightly chloritic, micaceous in places.
36.00 - 41.00	<u>Sandstone</u> : Light grey to off white, moderately sorted, well cemented, fine grained, carbonaceous wisps in places, micaceous throughout, hard, greywacke, dominantly feldspathic matrix.
41.00 - 44.00	<u>Sandstone</u> : Light grey to dark grey, fine grained to occasionally medium grained, well sorted, well cemented, dominantly feldspathic matrix, micaceous throughout, carbonaceous in places, partly lithic.
44.00 - 50.98	<u>Sandstone</u> : As above with carbonaceous wisps in places, slightly kaolinitic, hard.
50.98 T.D.	

<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 1.00	<u>Soil</u> : Dark brown, mainly fine sand-silt sized particles, 10% clay.
1.00 - 3.00	<u>Siltstone</u> : Light grey, sometimes slightly stained, iron weathered. Accessories minerals: slightly pyritic throughout, 12% mudstone.
3.00 - 7.00	<u>Siltstone</u> : Light grey, but not slightly stained as before, fresh, hard, well lithified.
7.00 - 13.00	<u>Sandstone and Siltstone</u> : Sandstone: light grey, fine-grained, well sorted, argillaceous matrix. Siltstone: light-grey, hard, well lithified with accessory minerals. Sandstone/Siltstone ratio = 50:50.
13.00 - 17.00	<u>Sandstone</u> : Light grey, fine grained, well sorted, argillaceous matrix, low porosity, 10% siltstone, accessory minerals: pyritic throughout.
17.00 - 21.00	<u>Sandstone</u> : Light grey, fine grained, well sorted, argillaceous matrix, low porosity.
21.00 - 22.00	<u>Sandstone and Siltstone</u> : Sandstone: light grey, fine grained, well sorted, argillaceous matrix, low porosity, pyritic throughout. Siltstone: light grey, hard, well lithified, argillaceous matrix, pyritic, chloritic throughout. Sandstone/Siltstone ratio = 40:60.
22.00 - 26.00	<u>Siltstone</u> : Light-grey, argillaceous matrix, brittle, well lithified, slightly chloritic, possible contamination in sample.
26.00 - 27.00	<u>Siltstone</u> : Light-grey, well lithified, slightly pyritic.
27.00 - 30.00	<u>Siltstone and Sandstone</u> : Siltstone: light-grey, flaggy at times: Sandstone: light-grey, fine grained, well sorted, argillaceous matrix, slightly pyritic throughout. Siltstone/Sandstone ratio = 60:40.
30.00 - 35.00	<u>Siltstone</u> : Light-grey, well lithified, argillaceous matrix, brittle.
35.00 - 38.00	<u>Siltstone and Sandstone</u> : Siltstone: light-grey, hard, well lithified, uniform appearance, pyritic throughout: Sandstone: light-grey, fine grained, well sorted, argillaceous matrix, pyritic throughout. Siltstone/Sandstone ratio = 70:30.

Depth (m)Lithologic Description

38.00 - 46.00

Siltstone and Sandstone: Siltstone: light-grey, hard, well lithified, argillaceous matrix.
Sandstone: some large quartz fragments present (2mm) slightly pyritic throughout.
Siltstone/Sandstone ratio = 90:10.

46.00 - 52.00 T.D.

Siltstone and Sandstone: Siltstone: grey to light-grey, hard, well lithified, argillaceous matrix.
Sandstone: accessory minerals, pyritic throughout.
Siltstone/Sandstone ratio - 90:10.

52.00 T.D.

Depth (m)Lithologic Description

0.00 - 1.00	<u>Soil</u> : Light tan, argillaceous.
1.00 - 4.00	<u>Siltstone</u> : Light tan, weathered, slightly argillaceous, feldspathic, slightly micaceous, pyritic in parts.
4.00 - 5.00	<u>As above</u> but grading into a fresh, light grey, feldspathic siltstone, towards end of section.
5.00 - 10.00	<u>Siltstone</u> : Light grey, fresh, hard, micaceous, feldspathic, with rare grains of chlorite.
10.00 - 11.00	<u>As above</u> , except that siltstone grades into a dark tan colour.
11.00 - 15.80	<u>As above</u>
15.80 - 16.40	<u>Argonite Crystals</u> : Black and white, needle shaped, soft, hollow, possibly in a cavity.
16.40 - 20.00	<u>Siltstone</u> : Light tan colour, micaceous, hard, slightly feldspathic, argillaceous.
20.00 - 21.00	<u>Siltstone</u> : Light grey, hard, slightly argillaceous feldspathic, micaceous.
21.00 - 22.00	<u>As above</u> but slightly darker.
22.00 - 32.00	<u>As above</u>
32.00 - 33.00	<u>As above</u> , but with minor calcite veins.
33.00 - 34.00	<u>As above</u>
34.00 T.D.	

<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 3.00	<u>Soil</u>
3.00 - 6.00	<u>Sandstone</u> : Red-brown, fine-medium grained, well sorted, poorly cemented, unconsolidated, dominantly feldspathic matrix, micaceous throughout, partly ferruginous.
6.00 - 8.61	<u>Sandstone</u> : Red-brown-yellow, medium-coarse grained, well sorted, poorly cemented, sucrosic texture, predominantly feldspathic matrix, partly ferruginous, micaceous throughout, good visual porosity, bedding dip 3°.
8.61 - 9.00	<u>Core Loss</u>
9.00 - 11.00	<u>Sandstone</u> : Red-brown-yellow to occasionally light grey, medium-coarse grained, well sorted, poorly cemented, dominantly feldspathic matrix, ferruginous throughout, slightly micaceous, weathered, good visual porosity.
11.80 - 12.00	<u>Core Loss</u>
12.00 - 13.31	<u>Sandstone</u> : As above with occasionally carbonaceous banding.
13.31 - 14.81	<u>Sandstone</u> : Light-grey to grey, medium grained, well sorted, moderately cemented, partly sucrosic texture, dominantly feldspathic matrix, carbonaceous banding, micaceous throughout, good visual porosity.
14.81 - 15.00	<u>Core Loss</u>
15.00 - 15.95	<u>Sandstone</u> : Red-brown-yellow, fine-medium grained, well sorted, moderately cemented, feldspathic matrix, micaceous throughout.
16.30 - 16.77	<u>Sandstone</u> : Light grey, fine-medium grained, well sorted, moderately cemented, feldspathic, carbonaceous bands, micaceous, grading to inferior coal in places: dull, lamellae.
16.77 - 16.87	<u>Siltstone</u> : Well sorted and cemented, feldspathic, partly micaceous, slightly argillaceous.
16.87 - 17.04	<u>Carbonaceous Mudstone</u> : Dark grey, blocky, grading to inferior coal: dull throughout with minor lamellae of shale, pyritic, carbonaceous.

<u>Depth (m)</u>	<u>Lithologic Description</u>
17.04 - 18.00	<u>Core Loss</u> : Presumably coal
18.00 - 21.21	<u>Carbonaceous Mudstone</u> : Dark grey to occasionally black, micaceous, carbonaceous sandstone banding increasing towards base of this unit, slightly bioturbated, bedding dip of 3°, partly pyritic with minor intercalations of inferior coal.
21.21 - 22.63	<u>Sandy Siltstone</u> : Well sorted and cemented, carbonaceous banding throughout, bioturbated, feldspathic, partly lithic, micaceous, minor intercalations of mudstone; grading to sandstone in places.
22.63 - 22.91	<u>Mudstone</u> : Dark grey, blocky, hard, carbonaceous, pyritic in places, indurated, micaceous occasionally grading to inferior coal
22.91 - 23.41	<u>Siltstone</u> : Feldspathic, micaceous throughout, occasionally calcitic; grading to sandy siltstone in places.
23.41 - 24.00	<u>Core Loss</u> :
24.00 - 27.10	<u>Sandstone</u> : Light grey to dark grey, fine grained, moderately sorted, well cemented, dominantly feldspathic matrix, micaceous, partly bioturbated, slightly lithic, hard, with carbonaceous banding.
27.10 - 30.14	<u>Sandstone</u> : As above, well sorted, non-bioturbated, with carbonaceous stringers throughout.
30.14 - 36.14	<u>Sandstone</u> : As above with carbonaceous bands.
36.14 - 38.90	<u>Sandstone</u> : Light grey, dark grey at base of unit, fine grained, moderately sorted, well cemented, dominantly feldspathic matrix, slightly lithic, micaceous, bioturbated in places, occasional carbonaceous blebs.
38.90 - 39.23	<u>Mudstone</u> : Dark grey, blocky, indurated, carbonaceous, micaceous, slightly bioturbated.
39.23 - 39.59	<u>Siltstone</u> : Light grey to dark grey, well sorted and cemented, feldspathic, micaceous, carbonaceous bands throughout.
39.59 - 42.28	<u>Mudstone</u> : Dark grey, blocky, hard, indurated, carbonaceous, calcite veinlets in places, pyritic.
42.28	T. D.

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<u>Depth (m)</u>	<u>Lithologic Description</u>
0.00 - 0.80	<u>Soil</u> : Dark brown, argillaceous.
0.80 - 2.80	<u>Clay</u> : Light grey to light tan, with very fine grained, light grey, feldspathic sand. Claystone/Sandstone ratio = 90:10
2.80 - 4.00	<u>Sandy Clay</u> : Light yellow, with fine grained sand: light grey, feldspathic. Claystone/Sandstone ratio = 70:30
4.00 - 5.00	<u>Clay</u> : Orange - light tan, with minor light grey, feldspathic, fine grained sand particles. Claystone/Sandstone ratio = 90:10
5.00 - 8.00	<u>Sandy Clay</u> : Light tan colour, very soft, with fine grained feldspathic sand of light grey colour. Claystone/Sandstone ratio = 60:40
8.00 - 10.00	<u>Sandy Clay</u> : Becoming light grey with minor tan wisps. Claystone/Sandstone ratio = 70:30
10.00 - 12.00	<u>As above</u> but with clay altering to a tan colour.
12.00 - 13.00	<u>As above</u> but with sand grains showing less sorting. Claystone/Sandstone ratio = 60:40
13.00 - 14.00	<u>As above</u> : Sand grains becoming fine to medium-fine in size, feldspathic.
14.00 - 15.00	<u>Clayey Sand</u> : Light grey, fine grained. Sandstone/Claystone ratio = 60:40
15.00 - 18.00	<u>Clayey Sandstone</u> : Light grey, well sorted, medium to fine grained with light grey clay. Sandstone/Claystone ratio = 80:20
18.00 - 18.55	<u>Sand</u> : Light grey, medium to fine grained, moderate sorting. Sandstone/Claystone ratio = 90:10
18.55 - 18.58	<u>Inferior Coal</u> : Dull with minor bright bands.
18.58 - 19.20	<u>Sandstone</u> : Light grey, medium to fine grained, with minor carbonaceous mudstone bands throughout.
19.20 - 19.85	<u>Sandstone</u> : Light grey, medium grained; with carbonaceous mudstone bands.
19.85 - 20.00	<u>Carbonaceous Mudstone</u> : Hard, blocky, micaceous, minor coal stringers.

Depth (m)Lithologic Description

20.00 - 20.80	<u>Clod</u> : Black, soft, sticky. (Core loss 0.76mts)
20.80 - 21.00	<u>Carbonaceous Mudstone</u> : Soft but becoming hard at base of unit, micaceous, blocky.
21.00 - 21.50	<u>Core Loss</u> : Possible carbonaceous mudstone.
21.50 - 22.10	<u>Carbonaceous Mudstone</u> : Dark grey to black, micaceous pyritic in part, hard, light grey silty banding.
22.10 - 22.34	<u>Core Loss</u> :
22.34 - 24.46	<u>Carbonaceous Mudstone</u> : Dark grey to black, micaceous, pyritic in part, hard, with light grey silty bands showing cross stratification and coarsening up at top of unit. Slickensided between 23.92 - 24.03; convolute lamination near base of unit.
24.46 - 24.67	<u>Core Loss</u> : Possible shattered or weathered mudstone.
24.67 - 26.00	<u>Silty Sandstone</u> : Light to dark grey, feldspathic, lithic, fine grained, well sorted, moderately cemented, carbonaceous mudstone bands throughout; grades into underlying unit.
26.00 - 30.10	<u>Sandstone</u> : Light grey, feldspathic, moderately sorted, fine to medium grained between 26.00 - 26.52, coarse grained, slightly silty at top of unit; with thick very micaceous carbonaceous bands between 26.52 - 30.10; grades into underlying unit.
30.10 - 31.66	<u>Sandy Siltstone</u> : Light grey to dark grey, hard, very micaceous, feldspathic. Grading into a dark mudstone at base of unit.
31.66 - 33.05	<u>Sandstone</u> : White to light grey, feldspathic, lithic, well cemented, fine to medium grained, moderately sorted; with quartzite pebbles: white, poorly sorted, sub angular to sub rounded between 31.66 - 31.89.
33.05 - 33.71	<u>Sandstone</u> : Light grey, fine grained, well sorted, feldspathic; with carbonaceous mudstone bands: micaceous, hard and blocky.
33.71 - 34.02	<u>Carbonaceous Mudstone</u> : Micaceous, hard, blocky.
34.02 - 36.10	<u>Sandstone</u> : Light grey, feldspathic, very micaceous, fine grained, well sorted, moderately cemented, lithic, slightly silty at base of unit.

Depth (m)Lithologic Description

- 36.10 - 40.19 Silty Sandstone: Light grey, feldspathic, well sorted, moderately cemented, fine grained, calcite veins between 36.17 - 36.40m, carbonaceous banding throughout. Grades into underlying unit.
- 40.19 - 44.68 Carbonaceous Mudstone: Hard, blocky, pyritic throughout, very pyritic in places, micaceous at top of section and decreasing towards base of unit. Becoming very silty between 44.18 - 44.68m, grading into a silty sandstone, with minor bands of silty sandstone less than 1cm thick throughout. Deformation and slump features between 44.18 - 44.68m.
- 44.68 - 45.03 Silty Sandstone: Light grey, well sorted, moderately cemented, feldspathic, micaceous, fine grained; with flame structures.
- 45.03 - 50.06 Carbonaceous Mudstone: Hard, blocky, with fine bands of light grey silty sandstone. Abundant deformation features between 49.63 - 50.06m.
- 50.06 T.D.

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Depth (m)Lithologic Description

0.00 - 3.00	<u>Soil</u> : Red-brown, sandy, slightly silty, argillaceous matrix, ferruginous throughout, with 35% clay particles.
3.00 - 9.00	<u>Sandstone</u> : Red-brown to occasionally yellow, fine grained, well sorted, well cemented, dominantly feldspathic matrix, ferruginous, with <u>Clay</u> : Red-brown, soft, sticky, argillaceous matrix, ferruginous. Sandstone/Claystone ratio = 90:10
9.00 - 17.00	<u>Sandstone</u> : Red-brown to yellow, fine-medium grained, dominantly feldspathic matrix, well sorted and cemented, lithic, ferruginous.
17.00 - 21.00	<u>Sandstone</u> : Red brown to occasionally light-grey, fine-medium grained, moderately sorted, well cemented, dominantly feldspathic matrix, ferruginous, slightly argillaceous.
21.00 - 25.00	<u>Sandstone</u> : Red brown to light grey, fine-medium grained, moderately sorted, well cemented, feldspathic matrix, ferruginous.
25.00 - 29.00	<u>Sandstone</u> : Light grey to occasionally red-brown, moderately sorted, well cemented, partly lithic, predominantly feldspathic matrix, ferruginous throughout.
29.00 - 35.00	<u>Sandy Siltstone</u> : Light grey, well sorted and cemented, dominantly feldspathic matrix, partly argillaceous, hard.
35.00 - 44.21	<u>Sandy Siltstone</u> : Light grey, well sorted and cemented, slightly lithic, dominantly feldspathic matrix, occasionally micaceous, grading to siltstone in places: light grey to occasionally red-brown, well sorted and cemented, dominantly feldspathic matrix, partly lithic.
44.21 T. D.	

Depth (m)Lithologic Description

30.60 - 37.80

Sandstone: Light grey, fine grained, well sorted, argillaceous, slightly micaceous; with 10% Mudstone and Siltstone.

37.80 - 38.60

Mudstone: Dark grey, hard, splintery in places.

38.60 - 40.00

Sandy Siltstone: Light to dark grey, fine to very fine grained, argillaceous matrix, slightly micaceous.

40.00 - 41.00

Silty Sandstone: light to dark grey, fine to very fine grained, argillaceous matrix, slightly micaceous.

41.00 - 50.00

Sandstone: light grey, fine grained, well sorted, argillaceous matrix, slightly micaceous.

50.00 T. D.

APPENDIX 2

COAL ANALYSIS REPORTS

- a. by AMDEL (The Australian Mineral Development Laboratories)
- b. by SGS Australia Pty. Ltd.



847232

The Australian
Mineral Development
Laboratories

amdel

3/0/0 - AC 1457/81

Flemington Street, Frewville,
South Australia 5063
Phone Adelaide 79 1662
Telex AA 82520

NATA CERTIFICATE

18 December 1980

Please address all
correspondence to
P.O. Box 114 Eastwood
SA 5063
In reply quote:

Mr R Glenie
Project Geologist
General Geological Services
Exploration, Mining, Petroleum
and Ground Water Consultants
PO Box 326
SOUTH MELBOURNE VIC 3205

REPORT AC 1457/81

YOUR REFERENCE:

Letter of 10 September 1980

IDENTIFICATION:

As listed

DATE RECEIVED:

16 September 1980

D.K. Rowley
Manager
Analytical Chemistry Division

A.B. Bowditch

for Norton Jackson
Managing Director

dam

Pilot Plant: Osman Place
Thebarton S.A.
Telephone 438053
Branch Laboratory: Perth



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AC 1457/81
page 2

ANALYSIS % Dry Coal Basis

SAMPLE MARK	SULPHUR S
1-1-1	0.39
1-1-2	0.43
1-2-1	< 0.01
2-1-1	0.60
2-2-1	0.02
3-1-1	0.44
3-2-1	0.06
3-3-1	0.01
3-4-1	0.38
4-1-1	0.21
4-1-2	0.04
4-2-1	0.17
4-2-2	< 0.01
4-3-1	0.34
4-3-2	0.36

Method; S2

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Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL 0504

DATE IN: 10/3/81

DATE OUT: 9/4/81

CLIENT: General Geological Services

CLIENT REFERENCE:

ADDRESS: P.O. Box 326, South Melbourne VIC. 3205

RESULTS TO: R. Glenie

COPY TO:

SAMPLE REFERENCE: K03; K04.

ANALYSIS		K03 9.75- 10.45	K03 10.45- 10.51	K03 38.66- 38.86		K04 8.90- 9.65	K04 52.62- 52.87.
Total Moisture	%						
Moisture	%	2.8	3.3	1.6		3.9	3.4
Ash	%	25.8	24.1	22.3		21.5	40.0
Volatile Matter	%	7.0	5.9	7.2		24.9	16.4
Fixed Carbon	%	64.4	66.7	68.9		49.7	40.2
Crucible Swelling No.							
Specific Energy Mj/kg							
Total Sulphur	%						
Carbon	%						
Hydrogen	%						
Nitrogen	%						
Oxygen	%						
Carbon Dioxide	%						

DETERMINED IN ACCORDANCE WITH: AS1038

BASIS RESULTS REPORTED ON Air Dried.

H. Read

Harold Read
Manager - Coal Exploration Services



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Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0565

DATE IN: 27/3/81

DATE OUT: 28/4/81

CLIENT: General Geological Services

CLIENT REFERENCE:

ADDRESS: 153 Dorcas Street, South Melbourne, Vic. 3205

RESULTS TO: Mr. A. Hill.

COPY TO:

SAMPLE REFERENCE:

Analysis of Drillhole No: B.A. (K02)

Nine samples were received at SGS on 27/3/81, representing sections of core from drillhole BA between 64.57 and 110.51 metres, as detailed on the following pages. Each sample was weighed as received, then crushed to a nominal topsize of 12.5mm ($\frac{1}{2}$ "), with minimum fines. After air drying a raw coal fraction was split out and crushed to minus 72 mesh for analysis. Each was analysed for proximate analysis and relative density.

The remaining three quarters of the sample was sized at 0.5mm to remove fines, then float/sink analysed at gravities related to the ash content already determined in the proximate analysis of the raw coal fractions. Each float/sink fraction was analysed for ash and a float/sink table constructed. These include results for the sizing and ash content of the minus 0.5mm material, allowing a total ash content balance to be calculated and compared with the raw coal ash.

.....*H. Read*.....

Harold Read
Manager - Coal Exploration
Services





Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0565

DATE IN: 27/3/81

DATE OUT: 28/4/81

CLIENT: General Geological Services

CLIENT REFERENCE:

ADDRESS: 153 Dorcas Street, South Melbourne, Vic. 3205

RESULTS TO: Mr A. Hill.

COPY TO:

SAMPLE REFERENCE:

Drillhole no: BA (K02)

Section 64.57 - 65.17 metres

Mass received 1.720 kg.

Raw Coal Analysis

Relative density	1.79
Inherent Moisture	1.4 %
Ash	52.6 %
Volatile Matter	13.8 %
Fixed Carbon	32.2 %

Crushed to minus 12.5mm (minimum fines)

<u>Sizing:</u>	Mass %
Plus 0.5mm	94.0
Minus 0.5mm	6.0

Float/sink analysis of 12.5 x 0.5mm fraction

	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass %</u>	<u>Ash %</u>	<u>Mass %</u>	<u>Ash %</u>
F1.55	9.8	34.0	9.8	34.0
F1.60	7.7	34.4	17.5	34.2
F1.70	31.4	44.6	48.9	40.9
F1.80	30.6	52.3	79.5	45.3
F1.90	12.5	60.2	92.0	47.3
F2.00	2.2	63.8	94.2	47.7
Sink 2.00	5.8	71.9	100.0	49.1
Plus 0.5mm (by calculation)	94.0	49.1	94.0	49.1
Minus 0.5mm (by analysis)	6.0	43.9	100.0	48.8

H. Read

Harold Read
Manager - Coal Exploration Services



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Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0565

DATE IN: 27/3/81

DATE OUT: 28/4/81

CLIENT: General Geological Services

CLIENT REFERENCE:

ADDRESS: 153 Dorcas Street, South Melbourne, Vic. 3205

RESULTS TO: Mr. A. Hill.

COPY TO:

SAMPLE REFERENCE:

Drillhole no: BA (K02)

Section 81.56m - 81.66m

Mass received 0.280 kg.

Raw Coal

Relative density	1.57
Moisture	2.8 %
Ash	35.0 %
Volatile Matter	17.6 %
Fixed Carbon	44.6 %

Crushed to minus 12.5mm (minimum fines)

Sizing : + 0.5mm	91.6 %
- 0.5mm	8.4 %

Float/Sink Separation of +0.5mm

	Fractional		Cumulative	
	Mass %	Ash %	Mass %	Ash %
Floats 1.45	29.3	16.8	29.3	16.8
S1.45 F 1.50	17.8	22.9	47.1	19.1
S1.50 F 1.55	11.1	27.4	58.2	20.7
S1.55 F 1.60	11.1	33.0	69.3	22.7
S1.60 F 1.70	9.8	39.2	79.1	24.7
Sinks 1.70	20.9	66.8	100.0	33.5
Calculated +0.5	91.6	33.5	91.6	33.5
Analysed -0.5	8.4	31.9	100.0	33.4

H. Read

Harold Read
Manager - Coal Exploration Services



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



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847238

Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0565

DATE IN: 27/3/81

DATE OUT: 28/4/81

CLIENT: General Geological Services

CLIENT REFERENCE:

ADDRESS: 153 Dorcas Street, South Melbourne, Vic. 3205

RESULTS TO: Mr. A. Hill.

COPY TO:

SAMPLE REFERENCE:

Drillhole No BA (K02)

Section 81.96m - 82.48m

Mass received 1.368 kg

Raw Coal Analysis

Relative density	1.77
Moisture	4.0 %
Ash	40.7 %
Volatile Matter	17.1 %
Fixed Carbon	38.2 %

Crushed to Minus 12.5mm (minimum fines)

Sizing: +0.5mm	95.2 %
-0.5mm	4.8 %

Float/Sink Separation of + 0.5mm

	Fractional		Cumulative	
	Yield %	Ash %	Yield %	Ash %
Floats 1.50	14.4	18.1	14.4	18.1
S 1.50 F1.55	8.6	22.3	23.0	19.7
S 1.55 F1.60	8.2	26.0	31.2	21.3
S 1.60 F1.70	10.7	35.8	41.9	25.0
S 1.70 F1.80	15.5	44.7	57.4	30.3
S 1.80 F1.90	6.6	52.1	64.0	32.6
S 1.90 F2.00	5.5	57.5	69.5	34.6
Sinks 2.00	30.5	76.4	100.0	47.3

Calculated +0.5mm	95.2	47.3	95.2	47.3
Analysed -0.5mm	4.8	45.9	100.0	47.2

H. Read

 Harold Read
 Manager - Coal Exploration
 Services



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847239

Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0565

DATE IN: 27/3/81

DATE OUT: 24/4/81

CLIENT: General Geological Services

CLIENT REFERENCE:

ADDRESS: 153 Dorcas Street, South Melbourne, Vic. 3205

RESULTS TO: Mr. A. Hill.

COPY TO:

SAMPLE REFERENCE:

Drillhole No BA (K02)

Section 82.48 - 83.32

Mass received 2.518kg

Raw Coal

Relative density	1.76
Moisture	4.2 %
Ash	31.1 %
Volatile Matter	19.8 %
Fixed Carbon	43.9 %

Crushed to minus 12.5mm (minimum fines)

Sizing	+ 0.5mm	95.1 %
	- 0.5mm	4.9 %

Float/Sink Separation of + 0.5mm

	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass %</u>	<u>Ash %</u>	<u>Mass %</u>	<u>Ash %</u>
F 1.35	5.5	9.0	5.5	9.0
F 1.40	12.4	10.5	17.9	10.0
F 1.45	11.3	14.2	29.2	11.6
F 1.50	10.2	20.5	39.4	13.9
F 1.55	13.4	25.2	52.8	16.8
F 1.60	7.2	29.6	60.0	18.3
F 1.70	12.2	25.7	72.2	19.6
F 1.80	10.8	43.2	83.0	22.7
F 1.90	2.9	49.1	85.9	23.5
F 2.00	2.3	58.6	88.2	24.5
S 2.00	11.8	76.1	100.0	30.5
Plus 0.5mm (by calculation)	95.1	30.5	95.1	30.5
Minus 0.5mm (by analysis)	4.9	32.9	100.0	30.6

H. Read

Harold Read
Manager - Coal Exploration
Services



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Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0565

DATE IN: 27/3/81

DATE OUT: 28/4/81

CLIENT: General Geological Services

CLIENT REFERENCE:

ADDRESS: 153 Dorcas Street, South Melbourne, Vic. 3205

RESULTS TO:

COPY TO:

SAMPLE REFERENCE:

DRILLHOLE No BA (K02)Section 83.37 - 83.77m

Mass received 0.975kg

Raw Coal

Relative density	1.53
Moisture	4.2 %
Ash	27.4 %
Volatile Matter	19.1 %
Fixed Carbon	49.3 %

Crushed to Minus 12.5mm (minimum fines)

Sizing	+ 0.5mm	96.3 %
	- 0.5mm	3.7 %

Float/Sink Separation of +0.5mm

	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass %</u>	<u>Ash %</u>	<u>Mass %</u>	<u>Ash %</u>
F 1.35	15.5	9.2	15.5	9.2
F 1.40	20.4	11.0	35.9	10.2
F 1.45	17.0	14.6	52.9	11.6
F 1.50	9.1	20.0	62.0	12.9
F 1.55	4.3	25.6	66.3	13.7
F 1.60	3.5	32.1	69.8	14.6
S 1.60	30.2	58.9	100.0	28.0
Plus 0.5mm (by calculation)	96.3	28.0	96.3	28.0
Minus 0.5mm (by analysis)	3.7	35.9	100.0	28.3

..... *H. Read*

Harold Read
Manager - Coal Exploration
Services



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Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0565

DATE IN: 27/3/81

DATE OUT: 28/4/81

CLIENT: General Geological Services

CLIENT REFERENCE:

ADDRESS: 153 Dorcas Street, South Melbourne, Vic. 3205

RESULTS TO: Mr. A. Hill.

COPY TO:

SAMPLE REFERENCE:

DRILLHOLE No BA (K02)Section 87.55 - 88.57m

Mass received 2.563kg

Raw Coal

Relative density	1.55
Moisture	3.1 %
Ash	28.5 %
Volatile Matter	16.1 %
Fixed Carbon	52.3 %

Crushed to minus 12.5mm (minimum fines)

Sizing	+ 0.5mm	94.2 %
	- 0.5mm	5.8 %

Float/Sink Separation of +0.5mm

	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass %</u>	<u>Ash %</u>	<u>Mass %</u>	<u>Ash %</u>
F 1.40	14.1	10.4	14.1	10.4
F 1.45	20.3	14.4	34.4	12.8
F 1.50	19.5	18.8	53.9	14.4
F 1.55	15.0	28.6	68.9	17.9
F 1.60	7.4	24.6	76.3	18.6
F 1.70	7.7	34.1	84.0	20.0
F 1.80	3.2	42.5	87.2	20.8
F 1.90	1.3	62.5	88.5	21.4
S 1.90	11.5	67.8	100.0	26.8
Plus 0.5mm (by calculation)	94.2	26.8	94.2	26.8
Minus 0.5mm (by analysis)	5.8	28.6	100.0	26.9

..... *H. Read*

Harold Read
Manager - Coal Exploration
Services



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Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL 565

DATE IN: 27/3/81

DATE OUT: 28/4/81

CLIENT: General Geological Services

CLIENT REFERENCE:

ADDRESS: 153 Dorcas Street, South Melbourne, Vic. 3205

RESULTS TO: Mr. A. Hill.

COPY TO:

SAMPLE REFERENCE:

DRILLHOLE No. BA (K02)Section 106.39 - 106.92m

Mass received 1.544kg

Raw Coal

Relative density	1.56
Moisture	3.7 %
Ash	30.4 %
Volatile Matter	14.1 %
Fixed Carbon	51.8 %

Crushed to Minus 12.5mm (minimum fines)

Sizing	+ 0.5mm	93.4 %
	- 0.5mm	6.6 %

Float/Sink Separation of +0.5mm

	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass %</u>	<u>Ash %</u>	<u>Mass %</u>	<u>Ash %</u>
F 1.45	8.9	10.8	8.9	10.8
F 1.50	18.1	16.8	27.0	14.8
F 1.55	19.7	21.4	46.7	17.6
F 1.60	10.5	26.4	57.2	19.2
F 1.70	23.9	32.8	81.1	23.2
F 1.80	8.6	42.6	89.7	25.1
S 1.80	10.3	67.3	100.0	29.4
Plus 0.5mm (by calculation)	93.4	29.4	93.4	29.4
Minus 0.5mm (by analysis)	6.6	38.1	100.0	30.0

.....
H. Read

Harold Read
 Manager - Coal Exploration
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Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0565

DATE IN: 27/3/81

DATE OUT: 28/4/81

CLIENT: General Geological Services

CLIENT REFERENCE:

ADDRESS: 153 Dorcas Street, South Melbourne, Vic. 3205

RESULTS TO: Mr. A. Hill.

COPY TO:

SAMPLE REFERENCE:

DRILLHOLE No BA (K02)Section 106.93 - 107.11m

Mass received 0.430kg

Raw Coal

Relative density	1.39	
Moisture	1.9	%
Ash	20.7	%
Volatile Matter	12.6	%
Fixed Carbon	64.8	%

Crushed to Minus 12.5mm (minimum fines)

Sizing	+0.5mm	91.0 %
	-0.5mm	9.0 %

Float/Sink Separation of +0.5mm

	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass %</u>	<u>Ash %</u>	<u>Mass %</u>	<u>Ash %</u>
F 1.40	22.2	7.0	22.2	7.0
F 1.45	53.3	9.4	75.5	8.7
F 1.50	11.8	13.7	87.3	9.4
F 1.55	3.3		90.6	
S 1.55	9.4	50.3	100.0	14.6
Plus 0.5mm (by calculation)	91.0	14.6	91.0	14.6
Minus 0.5mm (by analysis)	9.0	19.9	100.0	15.1

..... *H. Read*

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Manager - Coal Exploration
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COAL ANALYSIS REPORT

REPORT No.: SL0565

DATE IN: 27/3/81

DATE OUT: 28/4/81

CLIENT: General Geological Services

CLIENT REFERENCE:

ADDRESS: 153 Darcas Street, South Melbourne, Vic. 3205

RESULTS TO: Mr. A. Hill.

COPY TO:

SAMPLE REFERENCE:

DRILLHOLE No BA (K02)

Section 110.21 - 110.51m

Mass received 0.752kg

Raw Coal

Relative density	1.47
Moisture	3.1 %
Ash	21.7 %
Volatile Matter	13.0 %
Fixed Carbon	62.2 %

Crushed to Minus 12.5mm (minimum fines)

Sizing	+ 0.5mm	85.9 %
	- 0.5mm	14.1 %

Float/Sink Separation of +0.5mm

	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass %</u>	<u>Ash %</u>	<u>Mass %</u>	<u>Ash %</u>
F 1.45	34.8	9.2	34.8	9.2
F 1.50	15.8	14.7	50.6	10.9
F 1.55	16.2	21.4	66.8	13.5
F 1.60	9.8	25.9	76.6	15.1
F 1.70	11.6	32.9	88.2	17.4
S 1.70	11.8	47.7	100.0	21.0
Plus 0.5mm (by calculation)	85.9	21.0	85.9	21.0
Minus 0.5mm (by analysis)	14.1	24.6	100.0	21.5

H. Read

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SGS Australia Pty. Ltd.

Sydney

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

Page 1 of 9

847245

Capricorn Mining Pty. Ltd.,
C/o General Geological Services.,
P.O. Box 326,
South Melbourne, Vic. 3205.

Date: 19th June, 1981.

Your ref.:

Our ref. SLO630

ATTENTION: MR. R. GLENIE

ANALYSIS OF COAL SAMPLES

Core Samples representing holes 0-1, 0-2, 0-3A, 0-3B have been analysed for proximate analysis and relative density. A total of 24 samples were analysed.

Washability studies were conducted on single plies of reasonable length (> 0.5 metres) and ash (<40%). Composites of continuous coal plies were also prepared and washed. Each sample was washed at three gravities, chosen to give a reasonably even separation of the sample. Ash was determined for each fraction and cumulative mass and ash figures are presented.

Proximate analysis and relative density of the raw coals is presented on page 2.

The washability tables are presented on pages 3 to 9.

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RAW COAL ANALYSIS

<u>Sample Reference:</u>	<u>Moisture %:</u>	<u>Ash %:</u>	<u>Volatile Matter %:</u>	<u>Fixed Carbon %:</u>	<u>Relative Densit</u> %
<u>0 - 1</u>					
5.85- 6.88 Metres	3.6	34.6	8.9	52.9	1.58
36.42-37.02 Metres	3.3	25.3	11.8	59.6	1.47
<u>0 - 2</u>					
8.01- 8.70 Metres	3.5	29.3	13.7	53.5	1.50
31.07-31.49 Metres	2.4	24.7	14.4	58.5	1.52
31.60-31.76 Metres	3.3	52.2	9.2	35.3	1.75
28.98-33.31 Metres	2.3	20.2	12.2	65.3	1.48
33.34-33.45 Metres	4.9	48.4	10.0	36.7	1.75
33.62-34.20 Metres	2.4	26.8	13.6	57.2	1.53
34.35-34.57 Metres	3.0	25.4	13.9	57.7	1.52
34.68-35.18 Metres	1.9	32.0	12.0	54.1	1.55
35.26-35.51 Metres	3.1	28.5	11.6	56.8	1.49
35.60-36.30 Metres	2.4	23.2	13.1	61.3	1.47
36.86-37.37 Metres	3.3	28.5	12.1	56.1	1.51
39.88-40.13 Metres	2.0	25.2	12.7	60.1	1.48
41.36-41.43 Metres	2.3	36.5	8.9	52.3	1.62
<u>0 - 3A</u>					
37.36-37.52 Metres	3.9	16 x 35.4 ✓	13.9	46.8	1.62
37.60-37.74 Metres	4.9	08 x 36.9 ✓	13.3	44.9	1.60
37.84-37.96 Metres	8.9	12 x 56.1 ✓	8.7	21.3	1.80
38.14-38.35 Metres	3.8	12 x 33.3 ✓	14.4	48.5	1.60
38.48-38.85 Metres	3.9	13 x 34.5 ✓	13.0	48.6	1.56
39.11-39.34 Metres	2.2	16 x 20.0 ✓	13.5	64.3	1.46
39.52-39.72 Metres	3.1	23 x 24.9 ✓	13.2	58.8	1.49
39.86-40.47 Metres	2.3	18 x 19.3 ✓	14.8	63.6	1.45
<u>0 - 3B</u>					
34.35-34.87 Metres	2.3	107 21.4	14.6	61.7	1.48

Determined in accordance with AS 1038

AIR DRIED BASIS.



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107
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H. Read
.....
Harold Read
Manager - Coal Exploration
Services.

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Formerly General Superintendence Company Pty. Ltd.

Laboratories Division

COAL ANALYSIS REPORT

REPORT NO: SLO630

DATE IN: 13/4/81

DATE OUT: 18/6/81

CLIENT: General Geological Services

CLIENT REFERENCE:

ADDRESS: P.O. Box 326, South Melbourne, Victoria. 3205

RESULTS TO: MR. R. GLENIE

COPY TO:

SAMPLE REFERENCE: Composite 1. Hole 0 - 1 Depth: 5.85 - 6.88 Metres.

1.03

MASS (as analysed) 0.40 kg

Float / Sink Analysis

	<u>Relative Density</u>	<u>Fractional</u>		<u>Cumulative</u>	
		<u>Mass %</u>	<u>Ash %</u>	<u>Mass %</u>	<u>Ash %</u>
Float	1.60	48.1	17.6	48.1	17.6
S1.60 - F1.80		18.7	36.8	66.8	23.0
S1.80 - F2.0		11.8	56.4	78.6	28.0
Sinks	2.0	21.4	74.5	100.0	37.9

H. Read

Harold Read
Manager - Coal Exploration
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847248

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Laboratories Division

COAL ANALYSIS REPORT

REPORT NO: SLO630

DATE IN: 13/4/81

DATE OUT: 19/6/81

CLIENT: General Geological Services

CLIENT REFERENCE:

ADDRESS: P.O. Box 326, South Melbourne, Victoria. 3205.

RESULTS TO: MR. R. GLENIE

COPY TO:

SAMPLE REFERENCE: Composite 2 Hole 0 - 1 Depth: 36.42 - 37.02 Metres.

MASS (as analysed) 0.40 kg

Float / Sink Analysis

	<u>Relative Density</u>	<u>Fractional</u>		<u>Cumulative</u>	
		<u>Mass %</u>	<u>Ash %</u>	<u>Mass %</u>	<u>Ash %</u>
Float	1.40	41.1	8.9	41.1	8.9
S1.40 - F1.60		31.3	20.1	72.4	13.7
S1.60 - F1.80		11.3	42.2	83.7	17.6
Sinks	1.80	16.3	63.6	100.0	25.1

H. Read

.....
 Harold Read
 Manager - Coal Exploration
 Services.



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Laboratories Division

COAL ANALYSIS REPORT

REPORT NO: SL 0630 DATE IN: 13/4/81 DATE OUT: 19/6/81
 CLIENT: General Geological Services CLIENT REFERENCE:
 ADDRESS: P.O. Box 326, South Melbourne, Victoria. 3205.
 RESULTS TO: MR. R. GLENIE COPY TO:
 SAMPLE REFERENCE: Composite 5 Hole 0 - 2 Depth: 39.88-40.13 Metres.

MASS (as analysed) 0.40 kg

Float / Sink Analysis

<u>Relative Density</u>	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass %</u>	<u>Ash %</u>	<u>Mass %</u>	<u>Ash %</u>
Floats 1.40	17.4	9.9	17.4	9.9
S1.40 - F1.60	56.3	18.4	73.7	16.4
S1.60 - F1.80	15.3	39.7	89.0	20.4
Sinks 1.80	11.0	61.8	100.0	24.9

H. Read

 Harold Read
 Manager - Coal Exploration
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Laboratories Division

COAL ANALYSIS REPORT

REPORT NO: SL 0630

DATE IN: 13/4/81

DATE OUT: 19/6/81

CLIENT: General Geological Services

CLIENT REFERENCE:

ADDRESS: P.O. Box 326, South Melbourne, Victoria. 3000

RESULTS TO: MR. R. GLENIE

COPY TO:

SAMPLE REFERENCE: Composite 7 Hole 0 - 3B Depth: 34.35 - 34.87 Metres.

MASS (as analysed) 0.40 kg.

Float / Sink Analysis

<u>Relative Density</u>	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass %</u>	<u>Ash %</u>	<u>Mass %</u>	<u>Ash %</u>
Float	19.2	11.4	19.2	11.4
S1.40 - F1.60	65.6	21.0	84.8	18.8
S1.60 - F1.80	10.1	32.3	94.9	20.3
Sinks 1.80	5.1	47.0	100.0	21.6

H. Read

Harold Read
 Manager - Coal Exploration
 Services



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847254

**SGS Australia Pty. Ltd.****Sydney**

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

Capricorn Mining Pty Ltd
c/o General Geological Services
PO Box 326
SOUTH MELBOURNE, VICTORIA

Your ref.:

Our ref.: SL0810

Attention: Mr. R. GlenieReport on Coal Testing - Bores 0-6, 0-9, H-1, H-3

Samples from above boreholes have been analysed for proximate analysis and relative density. Sample H-3 68.45 - 68.47 metres required maceral analysis and vitrinite reflectance only. See pages 2-6.

Composites were prepared from plies of continuous coal sections exceeding 1 metre in length and with a calculated ash of <40%.

These sections are: H-1, 13.92 - 14.48 metres
H-3, 42.31 - 44.19 metres
H-3, 45.81 - 47.05 metres

. 56
1. 8 8
1. 2 4 ← . 62

Each composite was washed at gravities of 1.40, 1.60 and 1.80. Ash was determined on each float fraction and on each sinks 1.80 fraction. Washability tables have been calculated for these composites. See pages 7 to 9.

.....*H. Read*.....

Harold Read
Manager - Coal Exploration
Services



SGS Australia Pty. Ltd.

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Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0810

DATE IN: 25/5/81

DATE OUT: 3/7/81

CLIENT: Capricorn Mining Pty Ltd
 c/o General Geological Services
 ADDRESS: P.O. Box 326, South Melbourne, Victoria

CLIENT REFERENCE:

RESULTS TO: Mr R. Glenie

COPY TO:

SAMPLE REFERENCE: Bores 0-6, 0.9, H-1, H-3
 Depths shown are in metres.

18.94
 13.92
 → 5.02

ANALYSIS	0-6 11.08- 11.35	0-6 32.45- 32.75	0-6 33.25- 33.43	0-9 26.62- 27.02	H-1 13.92- 14.48	H-1 14.52- 14.69	H-1 14.80- 15.07
Total Moisture %	2.7	3	1.8	4.0	5.6	1.7	2.3
Moisture %	2.5	3.5	3.1	8.7	3.4	5.1	3.9
Ash %	40.8	39.3	49.5	21.2	24.5	32.0	21.6
Volatile Matter %	14.9	7.3	9.0	23.0	15.6	15.5	19.0
Fixed Carbon %	41.8	49.9	38.4	47.1	56.5	47.4	55.5
Crucible Swelling No.							
Specific Energy Mj/kg							
Total Sulphur %							
Carbon %							
Hydrogen %							
Nitrogen %							
Oxygen %							
Carbon Dioxide %							
Relative Density	1.66	1.61	1.70	1.45	1.47	1.58	1.45

DETERMINED IN ACCORDANCE WITH: AS1038

BASIS RESULTS REPORTED ON: Air dried.

H. Read
 Harold Read
 Manager - Coal Exploration
 Services



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SGS Australia Pty. Ltd.

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Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0810

DATE IN: 25.5.81

DATE OUT: 3/7/81

CLIENT: Capricorn Mining Pty Ltd
 c/o General Geological Services
 ADDRESS: P.O. Box 326, South Melbourne, Victoria.

CLIENT REFERENCE:

RESULTS TO: Mr R. Glenie

COPY TO:

SAMPLE REFERENCE: Bores 0-6, 0-9, H-1, H-3.
 Depths shown are in metres

ANALYSIS	H-1						
	15.11- 15.43	15.61- 16.23	17.57- 17.64	17.80- 18.94	19.63- 19.85	19.87- 20.14	20.16- 20.19
Total Moisture %	32	62	07	14			
Moisture %	4.9	3.4	2.0	3.7	2.9	5.1	4.5
Ash %	35.9	19.1	19.0	18.2	23.6	26.6	30.0
Volatile Matter %	14.2	16.3	15.2	16.7	16.4	13.9	14.6
Fixed Carbon %	45.0	61.2	63.8	61.4	57.1	54.4	50.9
Crucible Swelling No.							
Specific Energy Mj/kg							
Total Sulphur %							
Carbon %							
Hydrogen %							
Nitrogen %							
Oxygen %							
Carbon Dioxide %							
Relative Density	1.56	1.46	1.38	1.44	1.46	1.45	1.48

DETERMINED IN ACCORDANCE WITH: AS 1038

BASIS RESULTS REPORTED ON Air dried

Harold Read
 Manager - Coal Exploration
 Services



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Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0877

DATE IN: 9/6/81

DATE OUT: 5/8/81

CLIENT: Capricorn Mining Pty Ltd
c/o General Geological Services

CLIENT REFERENCE:

ADDRESS: PO Box 326, Sth Melbourne Victoria 3205

RESULTS TO: Mr M Zapata

COPY TO: Mr R Glenie

SAMPLE REFERENCE:

<u>Sample No(s)</u>	<u>Moisture %</u>	<u>Volatile Matter %</u>	<u>Ash %</u>	<u>Fixed Carbon %</u>	<u>Relative Densit</u>
H6					
13.30 - 13.74 metres	8.0	18.7	24.4	48.9	1.54
13.77 - 14.59 "	8.3	21.2	23.8	46.7	1.53
14.64 - 15.04 "	7.1	18.7	19.2	55.0	1.50
17.23 - 18.21 "	7.7	26.2	15.2	50.9	1.47
19.32 - 20.49 "	6.9	25.1	19.3	48.7	1.47
71.84 - 72.17 "	9.6	13.4	51.0	26.0	1.89
88.76 - 89.00 "	7.0	21.8	31.5	39.7	1.57
06.24 -106.40 "	5.8	25.4	33.7	35.1	1.52
33.39 -133.54 "	7.7	10.5	55.7	26.1	1.80
46.89 -147.38 "	6.5	3.4	36.1	54.0	1.68

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 Harold Read
 Manager - Coal Exploration
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ADDRESS: PO Box 326, Sth Melbourne Victoria 3205

RESULTS TO: Mr M Zapata

COPY TO: Mr R Glenie

SAMPLE REFERENCE:

<u>Sample No(s)</u>	<u>Moisture %</u>	<u>Volatile Matter %</u>	<u>Ash %</u>	<u>Fixed Carbon %</u>	<u>Relative Densit</u>
<u>H7</u>					
15.73 - 16.73 metres	7.1	24.9	30.6	37.4	1.57
16.74 - 16.94 "	6.5	28.3	35.2	30.0	1.57
22.60 - 22.80 "	6.9	26.4	32.0	34.7	1.58
26.68 - 26.75 "	6.1	18.9	37.6	37.4	1.62
37.06 - 37.18 "	5.9	27.5	20.2	46.4	1.47

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Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0877

DATE IN: 9/6/81

DATE OUT: 5/8/81

CLIENT: Capricorn Mining Pty Ltd
c/o General Geological Services

CLIENT REFERENCE:

ADDRESS: PO Box 326, Sth Melbourne Victoria 3205

RESULTS TO: Mr M Zapata

COPY TO: Mr R Glenie

SAMPLE REFERENCE:

Float/sink analysis of 12.7 x 0mm

Composite 1

H4 21.28 - 24.53 metres

<u>Relative Density</u>	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass %</u>	<u>Ash %</u>	<u>Mass %</u>	<u>Ash %</u>
Floats 1.40	43.6	10.2	43.6	10.2
S1.40 - F1.50	30.1	20.0	73.7	14.2
S1.50 - F1.60	11.2	28.0	84.9	16.0
S1.60 - F1.70	6.4	36.8	91.3	17.5
S1.70 - F1.80	5.3	43.4	96.6	18.9
Sinks 1.80	3.4	56.1	100.0	20.2

Calculated raw coal ash : 22.6 %

.....*H. Read*.....

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Manager - Coal Exploration
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Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0877

DATE IN: 9/6/81

DATE OUT: 5/8/81

CLIENT: Capricorn Mining Pty Ltd

CLIENT REFERENCE:

ADDRESS: c/o General Geological Services
PO Box 326, Sth Melbourne Victoria 3205

RESULTS TO: Mr M Zapata

COPY TO: Mr R Glenie

SAMPLE REFERENCE:

Float/sink analysis of 12.7 x Omm

Composite 2

H6 13.30 - 15.04 metres

<u>Relative Density</u>	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass %</u>	<u>Ash %</u>	<u>Mass %</u>	<u>Ash %</u>
Floats 1.40	44.3	13.8	44.3	13.8
S1.40 - F1.50	23.6	19.3	67.9	15.7
S1.50 - F1.60	15.0	28.0	82.9	17.9
S1.60 - F1.70	6.2	36.0	89.1	19.2
S1.70 - F1.80	4.1	43.9	93.2	20.3
Sinks 1.80	6.8	51.2	100.0	22.4

Calculated raw coal ash : 22.6 %

.....*H. Read*.....
 Harold Read
 Manager - Coal Exploration
 Services



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Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0877

DATE IN: 9/6/81

DATE OUT: 5/8/81

CLIENT: Capricorn Mining Pty Ltd
c/o General Geological Services
ADDRESS: PO Box 326, Sth Melbourne Victoria 3205

CLIENT REFERENCE:

RESULTS TO: Mr M Zapata

COPY TO: Mr R Glenie

SAMPLE REFERENCE:

Float/sink analysis of 12.7 x 0mm

Composite 3

H6 17.23 - 18.21 metres

<u>Relative Density</u>	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass %</u>	<u>Ash %</u>	<u>Mass %</u>	<u>Ash %</u>
Floats 1.40	72.0	10.7	72.0	10.7
S1.40 - F1.50	15.6	16.7	87.6	11.8
S1.50 - F1.60	4.4	26.9	92.0	12.7
S1.60 - F1.70	0.9		92.9	
S1.70 - F1.80	0.5		93.4	
Sinks 1.80	6.6	47.6	100.0	15.0

Raw coal ash : 15.2 %

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Harold Read
Manager - Coal Exploration
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Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0877

DATE IN: 9/6/81

DATE OUT: 5/8/81

CLIENT: Capricorn Mining Pty Ltd
c/o General Geological Services

CLIENT REFERENCE:

ADDRESS: PO Box 326, Sth Melbourne Victoria 3205

RESULTS TO: Mr M Zapata

COPY TO: Mr R Glenie

SAMPLE REFERENCE:

Float/sink analysis of 12.7 x 0mm

Composite 4

H6 88.76 - 89.00

Relative Density	Fractional		Cumulative	
	Mass %	Ash %	Mass %	Ash %
Floats 1.40	44.9	13.8	44.9	13.8
S1.40 - F1.50	22.6	22.3	67.5	16.6
S1.50 - F1.60	6.1	34.5	73.6	19.7
S1.60 - F1.70	5.0		78.6	
S1.70 - F1.80	3.1		81.7	
Sinks 1.80	18.3	72.7	100.0	29.4

Raw coal ash : 31.5 %

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Laboratories Division

COAL ANALYSIS REPORT

REPORT No.: SL0877

DATE IN: 9/6/81

DATE OUT: 5/8/81

CLIENT: Capricorn Mining Pty Ltd
c/o General Geological Services

CLIENT REFERENCE:

ADDRESS: PO Box 326, Sth Melbourne Victoria 3205

RESULTS TO: Mr M Zapata

COPY TO: Mr R Glenie

SAMPLE REFERENCE:

Float/sink analysis of 12.7 x 0mm

Composite 5

H7 15.73 - 16.94 metres

<u>Relative Density</u>	<u>Fractional</u>		<u>Cumulative</u>	
	<u>Mass %</u>	<u>Ash %</u>	<u>Mass %</u>	<u>Ash %</u>
Floats 1.40	22.8	13.6	22.8	13.6
S1.40 - F1.50	25.1	20.7	47.9	17.3
S1.50 - F1.60	14.9	29.6	62.8	20.2
S1.60 - F1.70	12.2	38.9	75.0	23.3
S1.70 - F1.80	12.6	49.3	87.6	27.0
Sinks 1.80	12.4	58.4	100.0	30.9

Calculated raw coal ash : 31.4 %

.....*H. Read*.....
 Harold Read
 Manager - Coal Exploration
 Services



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SGS Australia Pty. Ltd.

Sydney

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

19 Camden Way
BIDWELL

Attention: Mr M Zapata

7th August, 1981

Your ref.:

Our ref.:

Mr M Zapata,

Dear Sir,

Attached are 20 proximate analyses of full seam sections as requested in your letter of June 23rd. These figures have been derived by analysis of the twenty samples of carbonaceous mudstone submitted by you and the subsequent mathematical combination of these results with those already obtained on the coal samples submitted on previous occasions. Composite results were obtained using a weighting factor for each result based on relative density x length for each ply. It was thus necessary to analyse each mudstone sample for relative density as well as proximate analysis. This method was chosen to avoid possible bias in results produced by mixing a small high-ash sample with a larger coal sample. If further analysis is required on these sections, in particular specific energy, composites will be physically prepared and analysed as per your instructions.

Yours faithfully

H. Read

Harold Read
Manager - Coal Exploration
Services



SGS Australia Pty. Ltd.

Sydney

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

General Geological Services,
17/23 Queensbridge Street,
South Melbourne Victoria
3205

Attention: Mr. R. Glenie

Your ref.:

Our ref.: HR/cak

14th December, 1981

Dear Rob,

Sorry to have taken so long replying but was side-tracked by several problems in laboratory.

I hope the following notes are of value in planning further exploration in your Tasmanian coal areas.

1. Coal Quality.

The coal seams intersected to-date are typically high ash resulting mainly from finely disseminated mineral matter, which after washing, could be expected to yield coal with about 20% to 25% ash.

Volatile matter appears highly variable, from over 30% (calculated dry ash free) to less than 10% (d.a.f.). This variation results from the effect of dolerite intrusions (or flows) on the coal seams.

In general, your coal is similar to other known Tasmanian coal. Its likely use is a fuel coal for either power generation or cement kilns.

Clearly poorer quality (high ash) coals are better suited to any local markets, but as these are limited at present in Tasmania, the next likely areas to pursue are cement plants in South-East Asia and Korea. These generally contract for cheaper coal, delivered in small shipments, e.g. 10,000 tonnes as most plants have limited unloading and storage facilities. A possible avenue to pursue more information on possible markets is through trading houses such as Shell or Mitsui.

2. Coal Analysis.

Proximate analysis is available on raw coal and limited float/sink samples.

Specific energy, sulphur, Hardgrove grindability index and ash fusion should be obtained on limited representative seam sections, to allow better assessment of the coal.

...../2

3. Coal Exploration.

The few holes drilled to date have all been abandoned at shallow depths, apparently without penetrating the entire coal measures.

A priority of any further work should be stratigraphic drilling to determine the thickness and geological variation of the coal measures; the presence of coal seams in the lower part of the measures and attempt coal seam correlation within the coal basins.

Existing bore logs suggest the seams are subject to considerable lateral variation over short distances, which, with the presence of dolerite intrusions, will make exploration difficult.

Please contact me if you have any queries or if I can be of further assistance.

Yours faithfully,

H. Read

Harold Read
Manager - Coal Exploration Services

APPENDIX 3

PALYNOLOGICAL REPORT - "Permian and Triassic Sediments from
Tasmania"

by B. E. Balme

Palynological Report No. 374

Permian and Triassic Sediments from TasmaniaIntroduction

Palynological preparations from 12 samples of coal and carbonaceous sediments were examined in October 1980. Details of the sample locations supplied by General Geological Services were as follows:

- 1-1-2 Sandfly Mine Kaoota
- 1-2-1 Sandfly Mine Kaoota (spoil)
- 2-1-1 Lawreny Mine, Hamilton
- 2-2-1 Road cutting, Plenty
- 2-3-1 Rotherwood, Ouse
- 3-1-1 Old Shaft, Colebrook
- 3-2-1 Jerusalem Coal Mine, Colebrook
- 3-3-1 Road cutting, Kempton
- 3-4-1 Coalmine Hill Mine, York Plains (spoil)
- 4-1-1 Marine Cliff, Gordon
- 4-2-1 Marine Cliff, Coal Mine Bay, Cygnet
- 4-3-1 Heeney Mine, Mount Cygnet.

Only three of the maceration residues yielded recognisable plant microfossils. These were 2-1-1, 3-1-1 and 4-2-2 and of these only 2-1-1 contained spores and pollen grains that were well enough preserved to identify with confidence. The only organic material in the other 8 samples was abundant opaque or nearly opaque carbonised fragments and the sediments appear to have been heated beyond the temperature at which the derivatives of sporopollenin are totally decomposed. In my experience this is frequently so in Tasmanian Late Permian and Triassic sequences.

Sample 2-1-1

Spores and pollen grains were abundant in the maceration residues although most specimens were poorly preserved and difficult to free from the coal

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substance. The assemblage does not appear diverse but this may be because only the common species could be identified unequivocally.

Forms identified:

Aratrisporites spp. DOMINANT

Falcisporites australis (de Jersey) COMMON

Alisporites parvus de Jersey

Cycadopites sp.

Lundbladispora denmeadi (de Jersey)

Dictyophyllidites mortoni (de Jersey)

Osmundacidites sp.

Age

The assemblage is undoubtedly Middle or early Late Triassic but it is difficult to give a firmer opinion that this, partly because of the poor quality of the assemblage and partly because of the lack of adequate standards for comparison. Playford (1965) found Aratrisporites to be abundant only in the Tiers Formation in the Poatina section and for this reason a Middle Triassic age is favoured for Sample 2-1-1. However, more data from the Tasmanian Triassic are needed before more definite conclusions are drawn.

8th October 1980.



B.E. Balme

Reference

Playford, G. (1966) : Plant microfossils from Triassic sediments near Poatina, Tasmania. J. geol. Soc. Aust. 12 (2), 173-210.

APPENDIX 4

GEOPHYSICAL LOGGING REPORT - "A Summary Report on Geophysical Well-Logs in Bore-Holes for Coal, S.E. Tasmania" - Part 1

by Mitre Geophysics Pty. Ltd.

Part 2 contains geophysical logs for the following drillholes and is enclosed in Volume II.

Geophysical logs for the following drillholes are enclosed in Part 2.

Area 1 E.L. 26/79 K-01, K-02, K-03, K-05

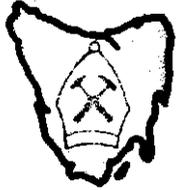
Area 2 E.L. 27/79 H-01, H-02, H-03, H-04, H-05, H-06

Area 3 E.L. 28/79 O-01, O-02, O-03a, O-03b, O-04, O-05, O-06, O-09

Area 4 E.L. 29/79 C-01, C-02, C-03, C-04, C-05, C-06

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MITRE GEOPHYSICS PTY LTD

MINERAL EXPLORATION AND ENGINEERING CONSULTANTS

DUGGS LANE ELLIOTT TASMANIA 7325 PHONE 004-363143

A SUMMARY REPORT ON
GEOPHYSICAL WELL-LOGS IN
BORE-HOLES FOR COAL, S.E. TASMANIA

for

GENERAL GEOLOGICAL SERVICES

by

Dr. J.R. BISHOP

GG8/MG81/15
November, 1981

CONTENTS

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Introduction	1
Results	3
(a) Kacota	4
(b) Hamilton	5
(c) Oatlands	7
(d) Cygnet	9
Conclusions	11
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LIST OF TABLES AND FIGURES

- Table 1: Summary of well-logs in the Kaoota area
Table 2: Summary of well-logs in the Hamilton area
Table 3: Summary of well-logs in the Oatlands area
Table 4: Summary of well-logs in the Cygnet area
- Figure 1: Exploration licence boundaries and bore hole locations
(scale 1:500,000)

In separate volume

Geophysical well-logs for the following bore-holes:-

<u>Kaoota:</u>	K01, K02, K03, K05
<u>Hamilton:</u>	H01, H02, H03, H04, H05, H06
<u>Oatlands:</u>	O-01, O-02, O-03A, O-03B, O-04, O-05, O-06, O-07, O-09
<u>Cygnet:</u>	C01, C02, C03, C04, C05, C06



Abstract

Mitre Geophysics undertook responsibility for the production and interpretation of the geophysical well-logging which formed part of an exploration program for coal carried out by General Geological Services on behalf of Capricorn Mining Ltd.

The area explored was covered by four EL's (EL's 26/79, 27/79, 28/79 and 29/79) located in south eastern Tasmania. A total of twenty seven holes were drilled of which twenty five were logged. The holes were logged for single point resistance, self potential, gamma, density and hole diameter using a SIE T450 electrically operated logger owned by GGS.

The density log proved the most useful and it confirmed the coal bands recorded in the geological log for all occurrences except at two thin (less than 5cm.) bands of "inferior coal". The density log also defined several instances of coal where there had been significant or total loss of core; and further, several zones were defined as possible coal bands in sections of hole, both cored and uncored, which had been geologically logged as coal-free sediments.

In this summary report there has been no attempt at interpretation of the electric and gamma logs for lithological-type or for correlation purposes. Brief summaries of the density logs are given in the Results where they pertain to possible coal. Holes in which more coal has been interpreted are listed below.

- (a) Sandfly (EL 26/79) - K02, K05.
- (b) Hamilton (EL 27/79) - H01, H05, H06.
- (c) Oatlands (EL 28/79) - O-01, O-02, O-03B, O-04, O-07, O-09.
- (d) Cygnet (EL 29/79) - C04, C05.



Introduction

A drilling program was undertaken by General Geological Services (GGS) for Capricorn Mining Ltd. in south eastern Tasmania as part of an exploration program for coal. The holes were drilled during the first half of 1981 and were logged with electrical and nuclear probes. The drilling program was curtailed by access problems caused by heavy rains. This report gives a brief summary of the well-logging results from the project to date.

The logging was carried out using an electrically driven SIE T450 logger. Physical properties logged were (single-point) resistance and self potential, natural gamma, density and caliper (i.e. hole diameter). The equipment was operated by Mr. K. Denwer, who was employed by GGS but who operated under Mitre Geophysics' Dept. of Health licence to handle radioactive materials. The single-point resistance probe measures the resistance between the electrode at the end of the cable and an electrode close to the equipment. This probe shows qualitative changes in resistance down-hole. (However, for this project, the actual value of resistance was recorded, to act as a check on operation and to optimise the logs.) Single-point resistance probes are usually used where the true resistivity is not required; they give good definition of lithological boundaries, and the apparent resistivity always increases or decreases with the true resistivity (which is not always the case with multiple-electrode arrays). Usually, in a given sequence, sandier horizons will be more resistive, while shaley horizons (with a higher clay content) will be less resistive. Coal is often more resistive than other lithologies.

Similarly, the self-potential (SP) log shows a qualitative change in voltage between the same two electrodes used for the resistance logging (but for the same reasons as the resistance logging, absolute values of SP were recorded). The voltages measured by the SP log mostly arise from electrochemical potentials at the contacts between the drilling mud and the formation waters. Sandstones (permeable rocks) will cause a more negative potential; shales a more positive one. Thus the SP log is also a good indicator of lithological boundaries.



The gamma probe employs a small scintillometer to record the levels of (natural) gamma radiation down-hole (usually about equal contributions of uranium, thorium and potassium). Typically, the gamma probe will show an increased response in shales and a decrease in sandstones and limestones. Thus the gamma log will often correlate with the SP log. However in areas of low activity, the statistical variations may be as large as the lithological changes. Gamma probes may be used in cased as well as in dry holes.

The density probe is actually a transmitted gamma log. A source of gamma rays (caesium 137 in this case) is placed at the bottom of the probe which contains a scintillometer. The higher the formation density, the lower the number of gamma rays reaching the detector (a bowspring is used to press the tool against the wall). To give actual densities, the instrument must be calibrated for source intensity, detector sensitivity, mud density and particularly, hole diameter. The equipment used for this project was not calibrated by the supplier (SIE), however an approximate calibration may be done by measuring the densities of uniform sequences of rocks. This was not considered necessary here, given the reconnaissance nature of the project. In evaluation programs the density tool is often used, since a relationship can usually be found between density and ash content of the coal (see for example, Tixier and Alger, 1970). Kowalski and Holter (1976) show that by also logging the acoustic velocity, carbon and moisture contents may also be determined.

It can be seen from many of the logs in this report that although the density log is not a good discriminator of lithological type, it is a direct, but non-unique discriminator of coal. That is, coal, with other less dense beds, will appear on the log as a zone of increased gamma counts. Thus the density log has been the most useful tool for this project.

As mentioned above, density logs are sensitive to hole diameter: a local 'wash out' will appear as a less dense zone. To remove this ambiguity, a caliper log is run, which measures (continuously) the hole diameter. Coal seams often wash out and the density log then records a combined effect of increased hole diameter and a less dense strata: in a calibrated system, the effect of the diameter change can be quantified.



Because of the poor ground conditions, some of the holes were logged with gamma and density inside the rods. For these holes there is no caliper information to assist in the interpretation of the density logs, but from holes which also show normal logging results, e.g. C04, it can be seen that meaningful logs were obtained.

The bore holes were drilled within four different exploration licences held by Capricorn Mining Ltd. These are:

- (1) EL 26/79 of 825 sq. km. Drill holes in this area have been designated 'K' for Kaoota, a small village near which the holes were drilled. The project has used the name 'Sandfly' to describe this EL (Sandfly is also the name of a village in the area).
- (2) EL 27/79 of 870 sq. km. Drill holes in this area have been designated 'H' for Hamilton, a major town in the centre of the EL.
- (3) EL 28/79 of 1561 sq. km. Drill holes in this area have been designated 'O' for Oatlands, a large town in the EL.
- (4) EL 29/79 of 360 sq. km. Drill holes in this area have been designated 'C' for Cygnet, a large town in the EL.

Results

The well logs from each hole have been drafted on to sheets at a scale of 1:100. The sheets constitute Volume II of this report. The description given of the results below is mainly a summary of the density log responses, and whether these are likely to be due to coal. No attempt has been made at providing a lithological interpretation of the logs or to correlate across the holes. These can be provided in a final report at the completion of the project.

In the description of the results, the depths, unless otherwise stated, refer to the centre of the response: these are sometimes at variance with the geological log, but only discrepancies of one metre or more have been mentioned.



In the tables, the heights and locations of the hole collars have been taken from the state 1:100,000 topographic maps. Thus the accuracy of the heights is no better than plus or minus 10m. (and in areas of steep terrain, much worse); and the positioning is only accurate to plus or minus 50m. For three holes, C06, K02, K04, the indicated positions have to be verified.

Sandfly (EL 26/79)

Five holes were drilled at Kaoota. The holes were collared on the Triassic and four of the five holes intersected coal (in the Kaoota Coal Measures). The 1:250,000 state geological map 'Hobart' indicates an old coal mine near the holes.

K01

All five logs were run, but these extended to less than 20m. in a 50m. hole. No coal was recorded in the geological log and no responses, indicating possible coal, were recorded on the density log (.7m. to 17.5m.).

K02

All five logs were run to 148m. in a 148m. hole. Coal was recorded at the following intervals in the geological log: 35.5m., 64.7m., 83m., 88m., 102.5m., 106.7m. and 110.3m. All these gave responses on the density log. A density log response was also obtained at 40.9m. suggesting about .2 to .4m. of coal (recorded as sandstone in the geological log: the hole was cored from 5.1m. to 147.9m.). "Clod" (carbonaceous clay) at 105.1m. also gave a density response. (It is noted that the coal at 88m. showed as a very resistive zone on the single point resistance log and also gave negative SP and low gamma responses.)

The density log showed large variations in the top 22m. which were not reflected in either the geological or caliper logs. The density log was run without a bowspring and the variations may be due to the probe turning in the hole. (There is possibly less tendency for this to happen at depth, where it is under greater pressure.)

K03

All five logs were run, but to only about 13m. in a 54m. hole. The density log responded to coal at 10m. as noted in the geological log (which also recorded coal at 39m.).

K04

This hole was not logged, but coal was intersected.

K05

All five logs were run to the end of the hole (50m.). This was an open hole (no coring). A response in the density log was obtained at 6m., coincident with a large (local) increase in hole diameter: such washouts usually occur in less competent strata (e.g. coal), but this section was logged as a uniform sandstone.

Coal at 14.8m. was reflected in the density log and a large response was also recorded coincident with a cavity at 16.5 to 18m. (thought to be an adit in coal?).

Hamilton (EL 27/79)

Seven holes were drilled at Hamilton. Six were collared on the Upper Triassic west north west of Hamilton and these intersected coal. The seventh (H02) drilled (?) below the Upper Triassic, did not. The 1:250,000 state geological map 'Oatlands' shows an old coal mine here, in what is believed to be an equivalent of the Kacoota Coal Measures.

H01

No electric logs were run, but the nuclear and caliper logs extended to the end of the hole (44m.). Density log responses were recorded at 14m. to 20m. and at 34.4m. which corresponded with coal as recorded in the geological log. Responses were also obtained at 6.7m. and 10m. which suggest coal (or other less-dense rock-type). However the geological log recorded sandstone at this level: the hole was cored from 2.8m. to 44.4m.

H02

All five logs were run to near the end of the hole (at 78m.). No coal was recorded in the geological log and no responses, indicating possible coal, were recorded on the density log (.8 - 77.7m.).

H03

All five logs were run to the end of the 84m. hole. Density log responses were obtained at 43m., 46m. and 68m. which corresponded with the recording of coal in the geological log.

H04

No electric logs were run, but the nuclear and caliper extended to near the end of the 45m. hole. The density log showed a broad response to coal bands recorded on the geological log between 21m. and 24.5m. The density log indicated the zone may start at 20.5m. (and finish at 24.5m.).

H05

Only the gamma and density logs were run, to the end of the hole at 135.5m. Responses in the density log at 42m., 49m., 60.5m., 66.5m., 70.5m., 81.8m., 92.7m. and 123m. corresponded with coal as recorded in the geological log (some of these were very minor occurrences). A response at 32m. is similar to the .05m. coal occurrence at 42m. ("core loss" was recorded in the geological log at 32m.) and a smaller response at 75m. (where the geological log recorded mudstone). The hole was cored from 3.7m. to 135.47m.

H06

Gamma and density logs were run to near the end of the 157m. hole: the electric and caliper logs were run to about 55m. Responses in the density log from 13m. to 20m. corresponded with coal bands as noted in the geological log. A very large response at 15.5m. corresponded with "core loss" in the geological log and a good quality coal, .3m. to .5m. thick, is suggested.

Other minor responses at 72m., 75.5m., 88.7m., 106m., 113.8m. and 133.3m. corresponded with thin bands of coal (generally less than .2m.)



or, for the response at 75.5m., carbonaceous mudstone. A density response at 146.8m. was similar to that at 88.7m. (.2m. of inferior coal), but "sandstone" was recorded in the geological log (no caliper information at this depth).

H07

This hole was not logged, but coal was intersected.

Oatlands (EL 28/79)

Nine holes were drilled in the 'Oatlands' EL. Holes O-01, O-02, O-03A, O-03B and O-06 were drilled east of York Plains: old coal mines are indicated on the 1:50,000 series geological map 'Oatlands' near O-03B and about 700m. south east of O-02. O-04 was drilled north west of Oatlands at 'Mike Howes Marsh', O-05 was drilled near Jericho, and O-07 and O-09 were drilled north west of Colebrook: O-08 was not drilled. All holes were collared in the Upper Triassic, a coal-bearing lithic arkose and lutite believed to be an equivalent of the Kaoota Coal Measures. Coal was recorded in six of the holes and a possible coal intersection has been interpreted in a seventh hole.

O-01

Only the density log was run, to the end of the hole at 55m. Responses were obtained at 6m. which corresponded with coal recorded in the geological log. A similar but slightly lower response was recorded from 32.5m. to 36.5m.; this corresponded to "core loss" in the geological log from 36.24m. to 37.02m. Thus coal seems likely in this interval (although there is no caliper log information to allow a more definite interpretation).

O-02

All five logs were run to 45m. in a 49m. hole. The density response at 6m. to "inferior coal" plus "core loss" to 7.15m. suggests that the coal continues to 7.15m. The density log also responded to coal at 39.5m. A 'banded' response in this log from 30.5m. to 37m. corresponded with coal bands in mudstone. Two very minor occurrences at 41.36 -41.43m.



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and 42.49 - 42.63m. were also reflected in the density log.

O-03A

Gamma and density logs only were run to the end of this 48m. hole. A broad response in the density log from 37m. to 40.5m. corresponded with coal bands in mudstone as noted in the geological log. Atypically, the bottom of the density log shows an increase; this may be due to a wash out at the end of the hole, although the geological log records a "well-cemented" sandstone.

O-03B

Gamma and density logs only were run to the end of the hole at 53m. A very strong density response was obtained at 35m. corresponding with the core loss recorded in the geological log from 34.87m. to 36m. The slight density log response from 31m. to 32m. probably corresponds with the core loss from 32m. to 33m. recorded in the geological log. This latter response suggests a carbonaceous mudstone or very inferior coal, while the former suggests a better quality coal.

O-04

All logs except density were run to the end of the hole at 50m.: the density log extended to 45m. Responses in the density log from 14.8m. to 22.3m. suggest coal bands. The geological log of this uncored section recorded siltstone with some mudstone. The 'in-between' responses of the density log could reflect carbonaceous mudstone in siltstone, but the responses at 14.8m. and 22.3m. suggest coal.

O-05

All five logs were run to the end of the hole at 51m. No coal was recorded in the geological log and no responses, indicating possible coal, were recorded on the density log (.5m. to 50.5m.).

O-06

No electric logs were run, but the nuclear and caliper reached the end of the hole at 46m. A very good density log response at 10.3m. corresponded with coal recorded in the geological log at 11.3m. Another good response from 26m. to 27.7m. can be equated to "core loss, 30% coal" from 27.35m. to 30.35m. And density log responses at 31.5m. and



32.3m. correspond with coal recorded in the geological log at 32.5m. and 33.3m.

O-07

All five logs were run to 40m. in a 47m. hole. A minor density response at 6.5m. may be only partly due to a wash out and a less competent strata is likely (the geological log of this uncored section records 'sandstone'). A weak response from 28m. to 29.5m. corresponds with 10cm. of carbonaceous shale recorded in the geological log (i.e. the density log suggests a thicker sequence of less-dense rock). The hole was cored from 29.6m.

O-08

This hole was not drilled.

O-09

Gamma and density logs only were run to the end of the hole at 100m. Poor density responses were recorded at 4 - 5.5m. and at 11m. The geological log shows 'sandstone' at these intervals (the coring was from 12.9m. to 100m.). A response from 18m. to 22m. corresponds to sandstone, with some mudstone, some of which is carbonaceous, and "good visual porosity" recorded in the geological log.

A response at 27.3m. is equivalent to coal in the geological log between 26.6m. and 27m. Very good responses were obtained in the density log at 43.7m. and 46.6m. and these correspond to "core loss" zones at 44.11 to 45.13m. and 47.41 to 48.13m: coal bands are likely.

Cygnets (EL 29/79)

Six holes were drilled in the 'Cygnets' EL. Holes C01 to C04 were located east south east of Cygnets near an old coal mine, C05 was located near the coast north of Gordon, again near an old coal mine. The location of C06 was in doubt at the writing of this report, but was possibly collared in Triassic rocks north of Middleton. The coal



sought in these holes occurs in the Cygnet Coal Measures which, unlike the Triassic Kacota Coal Measures and its equivalents, are in the Upper Permian. Coal was intersected in only one hole, and possible coal beds have been interpreted in another. Thus the Cygnet area was the most disappointing, but it is known that at least one hole (C02) was drilled below the level of the (main?) coal seam.

C01

All five logs were run to the end of the hole at 51m. No coal was recorded in the geological log and no responses, indicating possible coal, were recorded on the density log.

C02

All five logs were run to the end of the hole at 52m. No coal was recorded in the geological log. Poor responses occurred in the density log at 12 to 16m. and at 20.2 and 21m. which are unlikely to signify coal (the geological log recorded sandstone/siltstone).

C03

All five logs were run: the gamma log extended to the end of the hole at 34m., the others extended to less than 24m. Density responses occurred at 2.5m. and 4m., probably entirely due to wash outs. A large response at 16m. is entirely due to a cavity.

C04

All five logs were run: the electric logs to 35m. and the nuclear and caliper logs to near the end of the hole at 42m. Density responses occurred at 6.7m., 11m., 17.4m. (a very good response) and 23m. These correspond to core losses at 8.6 to 9m., 11.8 to 12m., 17 to 18m. and 23.4 to 24m. The caliper log shows no wash outs and coal bands seem likely.

The gamma log is unusual in this hole; two thin zones show anomalously high gamma counts, these occur at 26m. and 32.8m. within sandstone. Unlike the high gamma response in C05, there is no corresponding high resistivity response.

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C05

All five logs were run to near the end of the hole at 50m. Inferior coal between 18.55 and 18.58m. and between 19.2 and 19.25m. was not seen in the density log (too thin for too low a quality). Density responses were obtained at 20.5m. and 21.7m. Both corresponded to core losses in the geological log (the shallower one, which has the weaker density response, had 4cm. of 'clod' in the 80cm. interval); coal bands are suggested.

A high gamma response was obtained at 30.5m: the zone also had a high resistivity response. It occurred within a sandy siltstone.

C06

All five logs were run to 17m. in this 44m. hole. No coal was recorded in the geological log and no responses, indicating possible coal, were recorded on the density log from 6m. to 17m.

Conclusions

The geophysical well logs, particularly density, have proved essential to the program: in thirteen holes the geophysics suggested more coal than was originally indicated. These occurrences are:

- (a) Sandfly: at K02 a coal seam, .2 to .4m. thick is indicated at 41m. in a cored section of the hole which was logged as sandstone.
 - : at K05 a density response at 6m. was coincident with a wash out. Logged as a (uniform) sandstone, a less-competent rock-type seems likely (e.g. coal or carbonaceous mudstone).
- (b) Hamilton: at H01 two density responses at 6.7m. and 10m. are indicative of coal. These occur within a cored section of the hole logged as sandstone.
 - : at H05 a core loss at 32m. is likely to contain a thin band (.05m?) of coal. At 75m., in a cored section recorded as mudstone, a very weak density response suggests



a carbonaceous mudstone or inferior coal.

- : at H06 a good density response at 15.5m. (logged as core loss), suggests a coal seam up to .5m. thick.
- (c) Oatlands :
- at O-01 coal is likely within the section 36.24m. to 37.02m. logged as core loss.
 - : at O-02 a core loss beneath an inferior coal at 6m. is also likely to be at least partly (inferior) coal.
 - : at O-03B a strong density response at 35m. corresponding to core loss from 34.87m. to 36m. is probably coal.
 - : at O-04 an uncored section of the hole between 14.8m. and 22.3m. logged as siltstone with some mudstone, possibly contains coal at 14.8m. and 22.3m., with carbonaceous mudstone or inferior coal in between.
 - : at O-07 there is a possibility of coal or carbonaceous mudstone at 6.5m., which is in an uncored section of the hole logged as sandstone.
 - : at O-09 good responses at 43.7m. and 46.6m. correspond with sections of core loss and coal is likely at these intervals. Poor responses at 4m. to 5.5m. and at 11m., within an uncored section logged as sandstone, may indicate poor coal or a more porous sandstone.
- (d) Cygnet :
- at C04 density responses at 6.7m., 11m., 17.4m. (a very good response), and 23m. correspond with intervals of no core recovery and coal is likely.
 - : at C05 responses at 20.5m. and 21.7m. correspond with intervals of core loss; coal is likely at the latter and 'clod' or inferior coal at the former.

This project was strictly a reconnaissance program and the geophysical logging was probably correctly used to confirm the coal bands geologically logged and to define likely areas of coal not recorded in the geological log. In any follow up program, geophysical logging can be used to



greater effect and it may be worth describing a 'high resolution' mode used to determine or verify coal seam thickness. In this mode the recorder scale is set at 4cm. = 1m. (instead of the normal 1cm. = 1m.) and the logging speed is slowed down to about 3m. per minute (from the more usual 6m. per minute). Marginally better results can be obtained by removing the spacer, but this is probably not warranted if using the probe in its normal mode and then immediately relogging the zones of interest with the high resolution mode. This mode is also more accurate if using the density log to provide quantitative information about the coal. As mentioned in the introduction, ash content can be determined from the density and, if used in conjunction with a velocity log, carbon and moisture content can also be determined. The electric and gamma logs can be used for determining lithological type and particularly the boundaries between different rock-types (not attempted for this summary report). More sophisticated logging equipment, using other types of tools (e.g. the neutron log) as well as variations of the logs used here, are also available and can provide additional information.

It was not an aim of this report to comment on the amount or worth of the coal defined by the program, but it is noted that significant intersections have been made and that these have been substantially increased by the use of geophysical well-logs.

J.R. Bishop

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847289.

14.

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TABLE 1

GEOPHYSICAL WELL-LOGS OF THE KAOOTA AREA

<u>BORE HOLE</u>	<u>G E O P H Y S I C A L M E T H O D S</u> (intervals logged in metres)					<u>TOTAL DEPTH</u>	<u>PROSP. ZONES INTERP'D</u>	<u>APPROX. HEIGHT A.S.L.</u> (m)	<u>APPROX. LOCATION (AMG)</u>
	Single Point Resistance	Self Potential	Natural Gamma	Density	Caliper				
K01	5.2 - 17.6	5.2 - 17.5	.4 - 17.6	.7 - 17.5	.8 - 18.1	50.00		460	512,700mE 5,237,700mN
K02	73.2 -148.0	73.3 - 148.0	1.0 - 147.8	1.5 -148.0	1.0 -148.0	147.95	P ^c	470	511,800mE * 5,236,500mN
K03	5.7 - 12.3	5.8 - 12.5	.5 - 12.3	.6 - 12.0	.8 - 12.6	54.27	P ^c	500	512,900mE 5,236,700mN
K04	not logged					78.09	c	460	511,750mE * 5,236,250mN
K05	20.4 - 49.9	20.7 - 50.0	.5 - 49.8	.7 - 50.0	7.8 - 23.4	50.00	P ^c	370	511,500mE 5,236,000mN

^c coal noted in geological log

* position to be verified

TABLE 2

GEOPHYSICAL WELL-LOGS OF THE HAMILTON AREA

<u>BORE HOLE</u>	<u>G E O P H Y S I C A L M E T H O D S</u> (intervals logged in metres)					<u>TOTAL DEPTH</u>	<u>PROSP. ZONES INTERP'D</u>	<u>APPROX. HEIGHT A.S.L. (m)</u>	<u>APPROX. LOCATION (AMG)</u>
	Single Point Resistance	Self Potential	Natural Gamma	Density	Caliper				
H01			0 - 44.0	0 - 44.0	.7 - 44.5	44.4	P ^c	175	483,900mE 5,290,700mN
H02	13.7 - 69.2	13.8 - 69.3	1.0 - 78.3	.8 - 77.7	.7 - 67.4	78.4		225	483,150mE 5,291,000mN
H03	29.2 - 84.0	29.2 - 84.0	.2 - 84.0	2.3 - 84.0	.9 - 84.0	84.44	P ^c	200	483,650mE 5,290,450mN
H04			0 - 44.5	1.0 - 42.8	1.0 - 43.8	45.1	P ^c	185	483,850mE 5,290,150mN
H05			.6 - 135.8	.4 - 135.5		135.47	P ^c	100	483,050mE 5,288,800mN
H06	17.2 - 56.4	17.2 - 56.4	0 - 152.8	.5 - 152.6	.7 - 53.3	157.06	P ^c	105	483,500mE 5,288,900mN
H07	not logged						c	130	481,850mE 5,290,200mN

^c coal noted in geological log

TABLE 3

GEOPHYSICAL WELL-LOGS OF THE OATLANDS AREA

<u>BORE HOLE</u>	<u>G E O P H Y S I C A L M E T H O D S</u> (intervals logged in metres)					<u>TOTAL DEPTH</u>	<u>PROSP. ZONES INTERP'D</u>	<u>APPROX. HEIGHT A.S.L. (m)</u>	<u>APPROX. LOCATION (AMG)</u>
	Single Point Resistance	Self Potential	Natural Gamma	Density	Caliper				
O-01				.2 - 54.0		54.59	P ^C	370	538,200mE 5,319,700mN
O-02	7.2 - 45.5	7.2 - 45.5	.5 - 45.5	.6 - 45.0	.5 - 45.5	48.63	P ^C	450	540,000mE 5,321,350mN
O-03A			0 - 47.7	0 - 47.7		48.02	P ^C	395	539,200mE 5,320,600mN
O-03B			.2 - 53.0	0 - 53.0		53.40	P?	460	535,900mE 5,318,150mN
O-04	2.9 - 50.0	3.0 - 50.0	.5 - 50.0	3.2 - 45.0	.5 - 50.0	50.73	P ^C	600	520,900mE 5,323,600mN
O-05	2.6 - 50.1	2.6 - 50.1	.7 - 51.0	.5 - 50.5	.5 - 51.0	51.00		395	523,700mE 5,307,150mN
O-06			.7 - 45.7	.7 - 45.0	.5 - 45.7	46.15	P ^C	440	539,900mE 5,322,200mN
O-07	4.7 - 39.7	4.7 - 39.7	.7 - 39.8	4.4 - 39.5	.7 - 41.0	47.34		210	529,400mE 5,291,150mN
O-08	was not drilled								
O-09			.5 - 100.0	.8 - 100.0		100.00	P ^C	220	529,200mE 5,291,500mN

^C coal noted in geological log

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TABLE 4

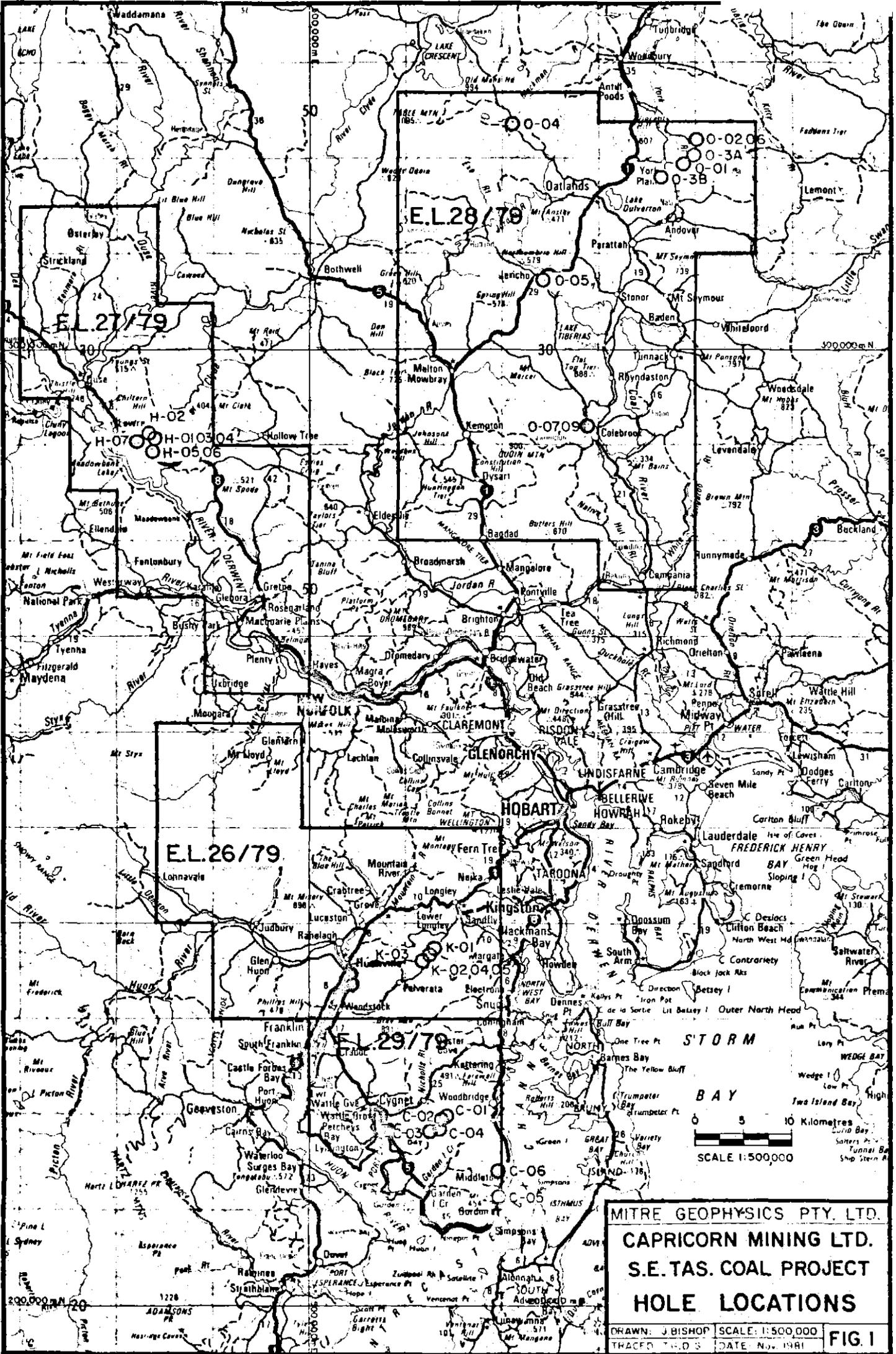
G E O P H Y S I C A L W E L L - L O G S O F T H E C Y G N E T A R E A

<u>BORE HOLE</u>	<u>G E O P H Y S I C A L M E T H O D S</u> (intervals logged in metres)					<u>TOTAL DEPTH</u>	<u>PROSP. ZONES INTERP'D</u>	<u>APPROX. HEIGHT A.S.L.</u> (m)	<u>APPROX. LOCATION (AMG)</u>
	Single Point Resistance	Self Potential	Natural Gamma	Density	Caliper				
C01	6.5 - 50.3	7.4 - 50.4	.7 - 50.5	6.5 - 50.5	.6 - 50.3	50.98		390	514,600mE 5,220,050mN
C02			.6 - 52.2	3.8 - 51.4	.7 - 52.1	52.00		270	514,150mE 5,219,800mN
C03	6.7 - 23.8	7.1 - 23.8	.8 - 34.6	2.1 - 23.3	.7 - 24.5	34.00		250?	512,900mE 5,218,450mN
C04	7.5 - 35.0	7.9 - 35.0	.1 - 41.4	1.0 - 41.8	1.0 - 40.8	42.28	P	230?	513,500mE 5,218,750mN
C05	21.0 - 49.0	21.0 - 49.0	1.2 - 48.0	.6 - 49.0		50.06	P ^c	20	519,700mE 5,211,400mN
C06	5.5 - 17.3	6.9 - 17.2	.7 - 17.0	5.7 - 17.0	.8 - 17.0	44.21		110	519,350mE * 5,214,450mN

^c coal noted in geological log

* position to be verified

847293



MITRE GEOPHYSICS PTY. LTD.
 CAPRICORN MINING LTD.
 S.E. TAS. COAL PROJECT
 HOLE LOCATIONS

DRAWN: J BISHOP SCALE: 1:500,000
 TRACED T.O.S. DATE: Nov. 1981

FIG. 1

APPENDIX 5

COMPUTER PRINT-OUT OF LITHOLOGIC LOGS FOR YORK PLAINS AREA (E.L. 28/79)

by Control Data Australia Pty. Ltd.

Computer graphic display of lithologic logs
and section for York Plains Area (E.L. 28/79)
is enclosed in Volume II

DATE - 06 OCT 81
PROJECT - YK PLN

GENERAL GEOLOGICAL SERVICES
YORK PLAINS

BORDATA V 1.1

BOREHOLE INFORMATION

* YP 1 *

COLLAR COORDINATES

NORTHING 19900.00
EASTING 38400.00
ELEVATION 369.000

THE COLLAR COORDINATES AND ELEVATION
UNITS ARE IN METRES

FINAL LENGTH OF HOLE 54.590 METRES DATE STARTED / / 0
PRE-COLLAR DEPTH 0.000 METRES DATE FINISHED / / 0



DATE - 06 OCT 81
PROJECT - YK PLV

GENERAL GEOLOGICAL SERVICES
YORK PLAINS

BORDATA V 1.1

BOREHOLE LOG

* YP 1 *

SEAM CODE NO.	INTERVAL FROM (METRES)	TO (METRES)	APPARENT THICKNESS (METRES)	LITHOLOGY DESCRIPTION	ANALYSIS SAMPLE NO.
13	0.000	2.000	2.000	ALLUVIUM, RED-BROWN, SLIGHTLY FERRUGINOUS.	
14	2.000	3.200	1.200	SANDSTONE, RED-BROWN, SLIGHTLY FERRUGINOUS, WITH DOMINANTLY ARGILLACEOUS MATRIX.	
15	3.200	3.640	.440	CLAYSTONE, CARBONACEOUS BLACK, SOFT, FISSILE, VERY CARBONACEOUS; GRADES TO CARBONACEOUS SHALE IN PART.	
16	3.640	5.850	2.210	CARBONACEOUS MUDSTONE, DARK GREY, SOFT; ALSO CONTAINS TRACE OF COAL, DULL, INFERIOR INCREASING DOWN; GRADES TO CARBONACEOUS SHALE IN PART.	
17	5.850	6.880	1.030	COAL 1-10% BRIGHT, INFILLING, FRIABLE, WITH FINE CALCITE IN VEINS.	
18	6.880	7.550	.670	SANDSTONE, LIGHT GREY, FINE GRAINED, MODERATELY SORTED, MODERATELY CEMENTED, CARBONACEOUS, WITH ARGILLACEOUS MATRIX; GRADES TO SANDY SILTSTONE IN PART.	
19	7.550	8.850	1.300	CORE LOSS.	
20	8.850	9.100	.250	SANDY SILTSTONE.	
21	9.100	10.300	1.200	MUDSTONE, DARK GREY, MODERATELY SORTED, BLOCKY, CARBONACEOUS, SLIGHTLY LITHIC, ARGILLACEOUS.	
22	10.300	11.750	1.450	SANDSTONE, LIGHT TO DARK GREY, FINE TO MEDIUM GRAINED, MODERATELY CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, VERY SLIGHTLY TO SLIGHTLY GLAUCONITIC.	
23	11.750	11.850	.100	CORE LOSS.	
24	11.850	14.750	2.900	SANDSTONE, LIGHT TO DARK GREY, MEDIUM GRAINED, MODERATELY SORTED, MODERATELY CEMENTED, WITH CARBONACEOUS BLEBS, SLIGHTLY MICACEOUS, SUGROSIC TEXTURE, CARBONACEOUS.	
25	14.750	14.850	.100	CORE LOSS.	
26	14.850	17.750	2.900	SANDSTONE, AS ABOVE, WITH CARBONACEOUS BANDS, SLIGHTLY GLAUCONITIC.	
27	17.750	17.850	.100	CORE LOSS.	
28	17.850	20.670	2.820	SANDSTONE, LIGHT GREY, MEDIUM TO COARSE GRAINED, MODERATELY SORTED, SUGROSIC TEXTURE, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, KADLINITIC, MICACEOUS, GLAUCONITIC, IN PART, AND CARBONACEOUS BLEBS.	
29	20.670	20.850	.180	CORE LOSS.	
30	20.850	24.820	3.170	SANDSTONE, AS ABOVE, WITH CARBONACEOUS BLEBS.	
31	24.820	27.520	3.500	SANDSTONE, AS ABOVE; ALSO CONTAINS TRACE OF CALCITE.	
32	27.520	28.420	.900	CARBONACEOUS MUDSTONE, DARK TO VERY DARK GREY, BLOCKY, LITHIC, EXTREMELY CARBONACEOUS, SLIGHTLY ARGILLACEOUS; CONTAINING LAMELLAE OF COAL, DULL, INFERIOR, SLICKENSIDING.	
33	28.420	28.520	.100	SANDSTONE, AS ABOVE.	
34	28.520	30.020	1.500	MUDSTONE, LIGHT TO DARK GREY, EXTREMELY CARBONACEOUS, SPLINTERY, WITH CARBONACEOUS WISPS, SLIGHTLY LITHIC, PLANT FRAGMENTS, BIOTURBATED IN PART, AND SANDSTONE INTERLAMINATED, FINE GRAINED, TOWARDS BASE.	



847297

DATE - 06 OCT 81
PROJECT - YK PLN

GENERAL GEOLOGICAL SERVICES
YORK PLAINS

BORDATA V 1.1

B O R E H O L E L O G

* Y P 1 *

CD 0024
REF. NO. 1115 HS
WATER RESOURCES DIVISION

SEAM CODE NO.	INTERVAL FROM (METRES) TO (METRES)	APPARENT THICKNESS (METRES)	L I T H O L O G Y D E S C R I P T I O N	ANALYSIS SAMPLE NO.
	30.020 33.020	3.000	MUDSTONE, AS ABOVE, NO SANDSTONE PRESENT.	
	33.020 33.570	.550	CARBONACEOUS MUDSTONE, DARK TO VERY DARK GREY, FRIABLE, LITHIC, EXTREMELY CARBONACEOUS; CONTAINING VEINS OF CALCITE; GRADES TO COAL, DULL, INFERIOR.	
	33.570 36.240	2.670	LOST CORE PROBABLY COAL.	
	36.240 36.420	.180	CARBONACEOUS MUDSTONE, DARK TO VERY DARK GREY; GRADES TO COAL, DULL, INFERIOR; CONTAINING INTERBEDDING OF COAL, DULL, INFERIOR.	
	36.420 37.020	.600	COAL <1% BRIGHT, INFILLING, WITH CARBONACEOUS MUDSTONE BANDS.	
	37.020 37.930	.910	MUDSTONE, LIGHT TO DARK GREY, FINE GRAINED, WELL SORTED, BLOCKY, WELL CEMENTED, LITHIC, SLIGHTLY ARGILLACEOUS; CONTAINING VERY RARE TO RARE LAMINAE OF SANDSTONE, SLIGHTLY CARBONACEOUS.	
	37.930 39.190	1.260	SANDSTONE, LIGHT GREY, FINE AT TOP, COARSE AT BASE, MODERATELY SORTED, WITH DOMINANTLY FELDSPATHIC MATRIX, ARGILLACEOUS, IN PART MICACEOUS, SUCROSIK TEXTURE, APPARENT DIP OF WC DEGREES, AND CARBONACEOUS BANDS, IN PART.	
	39.190 39.420	.230	CORE LOSS.	
	39.420 42.470	3.050	SANDSTONE, LIGHT GREY, MEDIUM GRAINED, WELL SORTED, WELL CEMENTED, SUCROSIK TEXTURE, WITH DOMINANTLY FELDSPATHIC MATRIX, LITHIC, MICACEOUS, GLAUCONITIC IN PART.	
	42.470 45.490	3.020	SANDSTONE, AS ABOVE, BECOMING FINE AT BASE, WITH CARBONACEOUS BANDS.	
	45.490 48.470	2.980	SANDSTONE, AS ABOVE, FINE AT TOP, COARSE AT BASE NO GLAUCONITE.	
	48.470 51.510	3.040	ARKOSIC SANDSTONE, LIGHT TO DARK GREY, MEDIUM TO COARSE GRAINED, MODERATELY SORTED, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, LITHIC, GLAUCONITIC, AND CARBONACEOUS BANDS, AND CARBONACEOUS BLEBS.	
	51.510 54.590	3.080	ARKOSIC SANDSTONE, LIGHT GREY, MEDIUM TO COARSE GRAINED, WELL SORTED, WELL CEMENTED, SUCROSIK TEXTURE, WITH DOMINANTLY FELDSPATHIC MATRIX, GLAUCONITIC, SLIGHTLY LITHIC, AND CARBONACEOUS BLEBS.	

----- END OF HOLE AT 54.590 METRES -----



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DATE - 06 OCT 81
PROJECT - YK PLN

GENERAL GEOLOGICAL SERVICES
YORK PLAINS

BORDATA V 1.1

BOREHOLE INFORMATION

* YP 2 *

COLLAR COORDINATES

NORTHING 21200.00
EASTING 40300.00
ELEVATION 445.000

THE COLLAR COORDINATES AND ELEVATION
UNITS ARE IN METRES

FINAL LENGTH OF HOLE 48.630 METRES DATE STARTED / / 0
PRE-COLLAR DEPTH 0.000 METRES DATE FINISHED / / 0



847299

DATE - 06 OCT 81
PROJECT - YK PLN

GENERAL GEOLOGICAL SERVICES
YORK PLAINS

BDRDATA V 1.1

BOREHOLE LOG

* YP 2 *

RAI No. 1115 HE (CD 90-3)

SEAM CODE NO.	INTERVAL FROM (METRES)	INTERVAL TO (METRES)	APPARENT THICKNESS (METRES)	LITHOLOGY DESCRIPTION	ANALYSIS SAMPLE NO.
12	0.000	1.750	1.750	ALLUVIUM, RED-BROWN, SLIGHTLY FERRUGINOUS.	
12	1.750	5.000	3.250	ARKOSIC SANDSTONE, RED-BROWN, FINE TO MEDIUM GRAINED, MODERATELY SORTED, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY GLAUCONITIC.	
17	5.000	5.500	.500	ARKOSIC SANDSTONE, AS ABOVE; ALSO CONTAINS 30 PERCENT CARBONACEOUS MUDSTONE.	
19	5.500	5.750	.250	CLAY, CARBONACEOUS DARK GREY, SOFT, STICKY, WAXY, DULL; ALSO CONTAINS TRACE OF COAL; DULL, INFERIOR; GRADES TO CARBONACEOUS SHALE.	
21	5.750	7.150	1.400	CORE LOSS.	
22	7.150	7.630	.480	CARBONACEOUS MUDSTONE, VERY DARK GREY, WITH CARBONACEOUS BLEBS; ALSO CONTAINS TRACE OF COAL 1-10% BRIGHT, FRIABLE; GRADES TO COAL, DULL, INFERIOR IN PART.	
24	7.630	7.700	.070	MUDSTONE, ARGILLACEOUS.	
26	7.700	7.940	.240	COAL, DULL, INFERIOR, CARBONACEOUS SHALE, WITH BRIGHT BANDS.	
27	7.940	8.010	.070	MUDSTONE, AS ABOVE.	
28	8.010	8.760	.690	COAL 1-10% BRIGHT, SLIGHTLY CALCAREOUS, FRIABLE.	
29	8.760	8.960	.260	CARBONACEOUS MUDSTONE, AS ABOVE.	
30	8.960	9.350	.390	MUDSTONE, LIGHT GREY, SOMETIMES DARK GREY, ARGILLACEOUS, SLIGHTLY CARBONACEOUS.	
32	9.350	12.100	2.750	SANDSTONE, LIGHT GREY, MEDIUM TO COARSE GRAINED, WELL SORTED, WELL CEMENTED, SUCROSIC TEXTURE, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY GLAUCONITIC, SLIGHTLY MICACEOUS, FAIR POROSITY.	
35	12.100	12.370	.270	MUDSTONE, LIGHT GREY, SLIGHTLY LITHIC, SLIGHTLY ARGILLACEOUS.	
36	12.370	15.370	3.000	SANDSTONE, LIGHT GREY, MEDIUM TO COARSE GRAINED, SUCROSIC TEXTURE, WITH DOMINANTLY FELDSPATHIC MATRIX, GLAUCONITIC, SLIGHTLY MICACEOUS, SLIGHTLY KAOLINITIC, AND CARBONACEOUS BLEBS, AND CARBONACEOUS STRINGERS, INCREASING DOWN.	
40	15.370	21.370	6.000	SANDSTONE, LIGHT GREY, MEDIUM GRAINED, WELL SORTED, WELL CEMENTED, SUCROSIC TEXTURE, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY MICACEOUS, GLAUCONITIC, KAOLINITIC.	
43	21.370	24.370	3.000	SANDSTONE, AS ABOVE, WITH CARBONACEOUS WISPS.	
44	24.370	27.330	2.960	SANDSTONE, LIGHT GREY, MEDIUM GRAINED, SOMETIMES COARSE AND GREY, SUCROSIC TEXTURE, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY GLAUCONITIC, SLIGHTLY MICACEOUS; CONTAINING WELL BLEBS OF MUDSTONE, WITH CARBONACEOUS WISPS, AND COAL STRINGERS.	
48	27.330	27.370	.040	MUDSTONE, LIGHT TO DARK GREY, ARGILLACEOUS, SLIGHTLY CARBONACEOUS.	
49	27.370	27.420	.050	MUDSTONE, AS ABOVE, SLICKENSIDING.	



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847300

DATE - 06 OCT 81
PROJECT - YK PLN

GENERAL GEOLOGICAL SERVICES
YORK PLAINS

BORDATA V 1.1

BOREHOLE LOG

* YP 2 *

SEAM CODE NO.	INTERVAL FROM (METRES)	INTERVAL TO (METRES)	APPARENT THICKNESS (METRES)	LITHOLOGY DESCRIPTION	ANALYSIS SAMPLE NO.
	27.420	31.070	3.650	SANDSTONE, LIGHT GREY, FINE TO MEDIUM GRAINED, WELL SORTED, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY MICACEOUS, GLAUCONITIC, AND CARBONACEOUS BANDS, AND INTERCALATED GREY MUDSTONE, BLOCKY, ARGILLACEOUS, SLIGHTLY LITHIC, MODERATELY SOFT, 28. 39M TO 28.51M.	
	31.370	31.490	.420	COAL 1-10% BRIGHT, WITH CARBONACEOUS BLEBS, AND CALCITE IN VEINS.	
	31.490	31.600	.110	MUDSTONE, LIGHT TO DARK GREY, CARBONACEOUS, SLIGHTLY LITHIC, ARGILLACEOUS.	
	31.600	31.760	.160	COAL 1-10% BRIGHT, AS ABOVE.	
	31.760	32.610	.850	MUDSTONE, LIGHT GREY, DARK GREY SOMETIMES, LITHIC, SLIGHTLY ARGILLACEOUS, WITH CARBONACEOUS BANDS; CONTAINING LAMELLAE OF COAL 1-10% BRIGHT, INCREASE TOWARDS 32.00M.	
	32.610	32.980	.370	MUDSTONE, LIGHT GREY, MODERATELY SORTED, BLOCKY, SLIGHTLY ARGILLACEOUS, WITH CARBONACEOUS WISPS.	
	32.980	33.310	.330	COAL 1-10% BRIGHT, WITH CALCITE IN VEINS, INERTINITE VISIBLE.	
	33.310	33.340	.030	MUDSTONE, AS ABOVE.	
	33.340	33.450	.110	COAL, DULL, INFERIOR; GRADES TO CARBONACEOUS SHALE IN PART.	
	33.450	33.620	.170	MUDSTONE, AS ABOVE.	
	33.620	34.200	.580	COAL 1-10% BRIGHT, WITH CALCITE IN VEINS; GRADES TO COAL, DULL, INFERIOR.	
	34.200	34.350	.150	MUDSTONE, LIGHT TO DARK GREY, ARGILLACEOUS, PELLETOIDAL.	
	34.350	34.570	.220	COAL 1-10% BRIGHT, WITH CALCITE IN VEINS.	
	34.570	34.680	.110	MUDSTONE, AS ABOVE, CARBONACEOUS TOWARDS BASE.	
	34.680	35.180	.500	COAL 1-10% BRIGHT.	
	35.180	35.260	.080	MUDSTONE, DARK GREY, CARBONACEOUS, PELLETOIDAL.	
	35.260	35.510	.250	COAL 1-10% BRIGHT, AS ABOVE.	
	35.510	35.600	.090	MUDSTONE, DARK GREY, ARGILLACEOUS, CARBONACEOUS.	
	35.600	36.300	.700	COAL 10-40% BRIGHT.	
	36.300	36.330	.030	MUDSTONE, AS ABOVE.	
	36.330	36.620	.290	CORE LOSS.	
	36.620	36.860	.240	CARBONACEOUS MUDSTONE; GRADES TO COAL, DULL, INFERIOR IN PART.	
	36.860	37.370	.510	COAL 1-10% BRIGHT.	
	37.370	39.480	2.110	MUDSTONE, LIGHT GREY, SOFT TO MEDIUM, BLOCKY, LITHIC, SLIGHTLY ARGILLACEOUS.	
	39.480	39.620	.140	CORE LOSS.	
	39.620	39.880	.260	MUDSTONE, DARK GREY, SOFT, WAXY, CARBONACEOUS, ARGILLACEOUS, SLIGHTLY MICACEOUS, SPLINTERY.	



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DATE - 06 OCT 81
PROJECT - YK PLN

GENERAL GEOLOGICAL SERVICES
YORK PLAINS

BORDATA V 1.1

BOREHOLE LOG

* YP 2 *

CD 8731
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CD 8731

SEAM CODE NO.	INTERVAL FROM (METRES)	INTERVAL TO (METRES)	APPARENT THICKNESS (METRES)	LITHOLOGY DESCRIPTION	ANALYSIS SAMPLE NO.
	39.880	40.130	.250	LOST CORE PROBABLY COAL.	
	40.130	40.360	.230	MUDSTONE, LIGHT TO DARK GREY, SLIGHTLY MICACEOUS, SLIGHTLY ARGILLACEOUS, WITH CARBONACEOUS BLEBS; ALSO CONTAINS COAL, PLANT IMPRESSIONS, SLUMPED BEDDING.	
	40.360	40.400	.040	COAL, AS ABOVE.	
	40.400	41.360	.960	MUDSTONE, AS ABOVE.	
	41.360	41.490	.130	MUDSTONE, LIGHT GREY, LITHIC, SLIGHTLY ARGILLACEOUS.	
	41.490	42.490	1.000	SANDSTONE, LIGHT TO DARK GREY, FINE GRAINED, MODERATELY SORTED, WELL CEMENTED, WITH FELDSPATHIC MATRIX, MICACEOUS, AND CARBONACEOUS BANDS, WINNOWING; GRADES TO SANDY SILTSTONE IN PART.	
	42.490	42.630	.140	MUDSTONE, IN LOWER THIRD, MEDIUM HARD, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY LITHIC, MICACEOUS, AND CARBONACEOUS BLEBS, WINNOWING.	
	42.630	44.630	2.000	MUDSTONE, LIGHT GREY, MEDIUM HARD, BLOCKY, LITHIC, SLIGHTLY ARGILLACEOUS, CARBONACEOUS, WITH CARBONACEOUS WISPS, SLICKENSIDING, SLUMPED BEDDING.	
	44.630	45.630	1.000	SANDSTONE, LIGHT GREY, FINE GRAINED, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY LITHIC, MICACEOUS, AND CARBONACEOUS BLEBS, WINNOWING.	
	45.630	47.000	1.370	SANDSTONE, LIGHT TO DARK GREY, FINE GRAINED, MODERATELY SORTED, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY LITHIC, MICACEOUS, AND CARBONACEOUS BANDS, BIOTURBATED IN PART.	
	47.000	48.630	1.630	ARKOSIC SANDSTONE, LIGHT GREY, MEDIUM TO COARSE GRAINED, MODERATELY SORTED, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY LITHIC, GLAUCONITIC, KAOLINITIC.	
				----- END OF HOLE AT 48.630 METRES -----	



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847302

DATE - 05 OCT 81
PROJECT - YK PLN

GENERAL GEOLOGICAL SERVICES
YORK PLAINS

BORDATA V 1.1

BOREHOLE INFORMATION

* YP 3A *

COLLAR COORDINATES

NORTHING 20700.00
EASTING 39200.00
ELEVATION 390.000

THE COLLAR COORDINATES AND ELEVATION
UNITS ARE IN METRES

FINAL LENGTH OF HOLE 48.020 METRES DATE STARTED / / 0
PRE-COLLAR DEPTH 0.000 METRES DATE FINISHED / / 0

Ref No 0115 NS
DD 86/21
NSC/GE/AB/007/01/01/01

801

847303



DATE - 06 OCT 81
PROJECT - YK PLN

GENERAL GEOLOGICAL SERVICES
YORK PLAINS

BORDATA V 1.1

B O R E H O L E L O G

* YP 3A *

REF NO THIS W/S

NUMBER OF PAGES

SEAM CODE NO.	INTERVAL FROM (METRES)	TO (METRES)	APPARENT THICKNESS (METRES)	LITHOLOGY DESCRIPTION	ANALYSIS SAMPLE NO.
	0.000	2.250	2.250	ALLUVIUM, RED-BROWN, SLIGHTLY FERRUGINOUS.	
	2.250	7.000	4.750	SANDSTONE, RED-BROWN, MEDIUM GRAINED, WELL SORTED, MODERATELY CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY FERRUGINOUS, MICACEOUS, AND CARBONACEOUS STRINGERS, TOWARDS BASE.	
	7.000	9.000	2.000	SANDSTONE, LIGHT GREY, MEDIUM GRAINED, WELL SORTED, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY GLAUCONITIC; CONTAINING VERY RARE STRINGERS OF COAL, DULL, INFERIOR, WITH CALCITE IN VEINS.	
	9.000	11.830	2.830	SANDSTONE, LIGHT GREY, MEDIUM TO COARSE GRAINED, WELL SORTED, WELL CEMENTED, SUCROSIIC TEXTURE, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY MICACEOUS, GLAUCONITIC, AND CARBONACEOUS WISPS; CONTAINING INCLUSIONS OF COAL, DULL, INFERIOR INCREASING DOWN, FAIR POROSITY.	
	11.830	12.000	.170	CORE LOSS.	
	12.000	14.880	2.880	SANDSTONE, AS ABOVE; CONTAINING VERY RARE INCLUSIONS OF COAL, IN INTERVAL 12.98-13.05M.	
	14.880	15.000	.120	CORE LOSS.	
	15.000	17.900	2.900	SANDSTONE, AS ABOVE.	
	17.900	18.000	.100	CORE LOSS.	
	18.000	20.430	2.430	SANDSTONE, AS ABOVE, MEDIUM GRAINED, NO COAL OR CARBONACEOUS INCLUSION.	
	20.430	20.530	.100	CARBONACEOUS MUDSTONE, SLIGHTLY ARGILLACEOUS, LITHIC, PYRITIC.	
	20.530	21.030	.500	SANDSTONE, LIGHT GREY, MEDIUM GRAINED, WELL SORTED, WELL CEMENTED, SUCROSIIC TEXTURE, FELDSPATHIC, SLIGHTLY MICACEOUS, WITH CARBONACEOUS BANDS, TOWARDS BASE, GLAUCONITIC.	
	21.030	24.030	3.000	SANDSTONE, LIGHT GREY, MEDIUM GRAINED, WELL SORTED, MODERATELY CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY GLAUCONITIC, MICACEOUS.	
	24.030	27.030	3.000	SANDSTONE, LIGHT GREY, MEDIUM GRAINED, AT TOP, FINE TO MEDIUM AT BASE, MODERATELY SORTED, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, GLAUCONITIC, SLIGHTLY PYRITIC, AND CARBONACEOUS STRINGERS, TOWARDS TOP.	
	27.030	30.030	3.000	SANDSTONE, LIGHT GREY, MEDIUM GRAINED, WELL SORTED, MODERATELY CEMENTED, WITH FELDSPATHIC MATRIX, SLIGHTLY GLAUCONITIC, PYRITIC.	
	30.030	31.690	1.660	SANDSTONE, LIGHT GREY, MEDIUM GRAINED, WELL SORTED, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY GLAUCONITIC; CONTAINING RARE STRINGERS OF COAL, DULL, INFERIOR; ALSO CONTAINS TRACE OF CALCITE.	



DATA Services

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847304

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DATE - 06 OCT 81
PROJECT - YK PLN

GENERAL GEOLOGICAL SERVICES
YORK PLAINS

BORDATA V 1.1

BOREHOLE LOG

* YP 3A *

SEAM CODE NO.	INTERVAL FROM (METRES)	INTERVAL TO (METRES)	APPARENT THICKNESS (METRES)	LITHOLOGY DESCRIPTION	ANALYSIS SAMPLE NO.
****	****	****	****	*****	*****
	31.690	31.790	.100	MUDSTONE, DARK GREY, ARGILLACEOUS, SLIGHTLY CARBONACEOUS.	
	31.790	31.980	.190	SANDSTONE, WITH FELDSPATHIC MATRIX, SLIGHTLY GLAUCONITIC.	
	31.980	32.220	.240	MUDSTONE, ARGILLACEOUS; GRADES TO SILTSTONE.	
	32.220	32.500	.280	SILTSTONE, ARGILLACEOUS, SLIGHTLY MICACEOUS, WITH CARBONACEOUS BLEBS.	
	32.500	32.810	.310	MUDSTONE; GRADES TO SILTSTONE IN PART.	
	32.810	33.020	.210	SANDSTONE, WITH FELDSPATHIC MATRIX, SLIGHTLY ARGILLACEOUS, CARBONACEOUS.	
	33.020	35.950	2.930	SANDSTONE, LIGHT GREY, MEDIUM GRAINED, WELL SORTED, WELL CEMENTED, SUCROSIC TEXTURE, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY GLAUCONITIC, AND CARBONACEOUS BLEBS, AND PYRITE ON FRACTURE PLANES.	
	35.950	36.030	.080	CORE LOSS.	
	36.030	37.280	1.250	SANDSTONE, LIGHT GREY, MEDIUM GRAINED, WELL SORTED, WELL CEMENTED, SUCROSIC TEXTURE, WITH FELDSPATHIC MATRIX, SLIGHTLY GLAUCONITIC, AND CARBONACEOUS BLEBS.	
	37.280	37.330	.050	COAL, DULL, INFERIOR, WITH CARBONACEOUS BLEBS.	
	37.330	37.360	.030	MUDSTONE, ARGILLACEOUS, SLIGHTLY CARBONACEOUS.	
	37.360	37.520	.160	COAL 1-10% BRIGHT; GRADES TO COAL, DULL, INFERIOR IN PART.	
	37.520	37.600	.080	MUDSTONE, ARGILLACEOUS, CARBONACEOUS.	
	37.600	37.840	.240	CARBONACEOUS MUDSTONE; GRADES TO CARBONACEOUS SHALE.	
	37.840	37.960	.120	COAL 1-10% BRIGHT, WITH CARBONACEOUS BLEBS.	
	37.960	38.140	.180	CARBONACEOUS MUDSTONE; GRADES TO COAL, DULL, INFERIOR IN PART.	
	38.140	38.350	.210	COAL 1-10% BRIGHT, WITH CALCITE IN VEINS.	
	38.350	38.470	.120	MUDSTONE, ARGILLACEOUS, SLICKENSIDING.	
	38.470	38.850	.380	COAL 1-10% BRIGHT; GRADES TO COAL, DULL, INFERIOR IN PART.	
	38.850	39.030	.180	LOST CORE PROBABLY COAL.	
	39.030	39.110	.080	CARBONACEOUS MUDSTONE; GRADES TO COAL, DULL, INFERIOR IN PART.	
	39.110	39.340	.230	COAL 1-10% BRIGHT.	
	39.340	39.520	.180	MUDSTONE, ARGILLACEOUS, CARBONACEOUS.	
	39.520	39.720	.200	COAL 1-10% BRIGHT.	
	39.720	39.860	.140	CARBONACEOUS MUDSTONE, CARBONACEOUS; CONTAINING LAMELLAE OF COAL, DULL, INFERIOR.	
	39.860	40.470	.610	COAL 1-10% BRIGHT.	
	40.470	41.390	.920	CARBONACEOUS MUDSTONE, DARK GREY, SOMETIMES BLACK, ARGILLACEOUS, CARBONACEOUS, WITH OCCASIONAL CARBONACEOUS BANDS; GRADES TO SILTSTONE IN PART.	



847303

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DATE - 06 OCT 81
PROJECT - YK PLN

GENERAL GEOLOGICAL SERVICES
YORK PLAINS

BORDATA V 1.1

BOREHOLE LOG

* YP 3A *

REL NO 1115 RS

REL NO 1115 RS

SEAM CODE NO.	INTERVAL FROM (METRES)	TO (METRES)	APPARENT THICKNESS (METRES)	LITHOLOGY DESCRIPTION	ANALYSIS SAMPLE NO.
****	****	****	****	*****	*****
	41.390	41.860	.470	MUDSTONE, ARGILLACEOUS, WITH CARBONACEOUS WISPS.	
	41.860	42.020	.160	CORE LOSS.	
	42.020	43.860	1.840	MUDSTONE, LIGHT GREY, SOFT, BLOCKY, ARGILLACEOUS; GRADES TO LIGHT GREY SILTSTONE, MODERATELY SORTED, WELL CEMENTED, FELDSPATHIC, SLIGHTLY MICACEOUS, WINNOWING, WITH CARBONACEOUS BANDS.	
	43.860	44.540	.680	SANDSTONE, LIGHT GREY, FINE TO MEDIUM GRAINED, WELL SORTED, WELL CEMENTED, WITH FELDSPATHIC MATRIX, SLIGHTLY MICACEOUS, AND CARBONACEOUS WISPS, AND CARBONACEOUS BLEBS.	
	44.540	44.810	.270	SANDSTONE, LIGHT GREY, MEDIUM GRAINED, WELL SORTED, WELL CEMENTED, WITH FELDSPATHIC MATRIX, SLIGHTLY MICACEOUS.	
	44.810	45.020	.210	CORE LOSS.	
	45.020	45.720	.700	ARKOSIC SANDSTONE, LIGHT GREY, MEDIUM GRAINED, WELL SORTED, WELL CEMENTED, SUCROSCIC TEXTURE, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY MICACEOUS, GLAUCONITIC.	
	45.720	47.920	2.200	SANDSTONE, LIGHT GREY, FINE TO MEDIUM GRAINED, WELL SORTED, WELL CEMENTED, WITH FELDSPATHIC MATRIX, SLIGHTLY LITHIC, MICACEOUS, AND CARBONACEOUS BANDS, CROSS BEDDING, APPARENT DIP OF 3 DEGREES; GRADES TO SANDY SILTSTONE IN PART.	
	47.920	48.020	.100	ARKOSIC SANDSTONE, LIGHT GREY, MEDIUM TO COARSE GRAINED, WELL SORTED, WELL CEMENTED, WITH FELDSPATHIC MATRIX, SLIGHTLY LITHIC, MICACEOUS, KAOLINITIC.	

----- END OF HOLE AT 48.020 METRES -----



847306

DATE - 06 OCT 81
PROJECT - YK PLN

GENERAL GEOLOGICAL SERVICES
YORK PLAINS

BORDATA V 1.1

BOREHOLE INFORMATION

* YP 3B *

COLLAR COORDINATES

NORTHING 17800.00
EASTING 35900.00
ELEVATION 412.000

THE COLLAR COORDINATES AND ELEVATION
UNITS ARE IN METRES

FINAL LENGTH OF HOLE 53.400 METRES DATE STARTED / / 0
PRE-COLLAR DEPTH 0.000 METRES DATE FINISHED / / 0



306

847307

305

DATE - 06 OCT 81
PROJECT - YK PLN

GENERAL GEOLOGICAL SERVICES
YORK PLAINS

BORDATA V 1.1

BOREHOLE LOG

* YP 39 *

REL TO 1115 NS
COR 1021
MAG 11 1115 NS
MAG 11 1115 NS

SEAM CODE NO.	INTERVAL FROM (METRES)	TO (METRES)	APPARENT THICKNESS (METRES)	LITHOLOGY DESCRIPTION	ANALYSIS SAMPLE NO.
12	0.000	1.250	1.250	ALLUVIUM, RED-BROWN, FERRUGINOUS, CARBONACEOUS.	
13	1.250	5.000	3.750	ARKOSIC SANDSTONE, RED, BROWN YELLOW, FINE TO MEDIUM GRAINED, MODERATELY SORTED, WELL CEMENTED, WITH FELDSPATHIC MATRIX, SLIGHTLY LITHIC, MICACEOUS.	
14	5.000	9.000	4.000	ARKOSIC SANDSTONE, LIGHT GREY, WELL CEMENTED, SUCROSIC TEXTURE, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY LITHIC, CARBONACEOUS, GLAUCONITIC.	
15	9.000	12.000	3.000	CORE LOSS.	
16	12.000	15.360	3.000	ARKOSIC SANDSTONE, LIGHT GREY, FINE TO MEDIUM GRAINED, WELL SORTED, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY LITHIC, MICACEOUS, GLAUCONITIC, KAOLINITIC.	
17	15.000	17.910	2.910	SANDSTONE, LIGHT GREY, FINE TO MEDIUM GRAINED, SUBANGULAR TO SUBROUNDED, WELL SORTED, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY LITHIC, MICACEOUS, KAOLINITIC, AND CARBONACEOUS BLEBS; ALSO CONTAINS PYRITE.	
18	17.910	18.000	.090	CORE LOSS.	
19	18.000	20.500	2.500	SANDSTONE, LIGHT GREY, FINE TO MEDIUM GRAINED, SUBANGULAR TO SUBROUNDED, WELL SORTED, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY LITHIC, GLAUCONITIC, MICACEOUS, AND CARBONACEOUS BLEBS.	
20	20.500	26.300	5.800	SANDSTONE, LIGHT GREY, MEDIUM GRAINED, MODERATELY SORTED, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY LITHIC, GLAUCONITIC, KAOLINITIC, WINNOWING.	
21	26.300	26.500	.200	CORE LOSS.	
22	26.500	29.500	3.000	SANDSTONE, LIGHT GREY, MEDIUM GRAINED, SOMETIMES COARSE, WELL SORTED, SUCROSIC TEXTURE, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY LITHIC, MICACEOUS, GLAUCONITIC, AND CARBONACEOUS BLEBS.	
23	29.500	30.000	.500	CORE LOSS.	
24	30.000	30.890	.890	SANDSTONE, LIGHT GREY, MEDIUM TO COARSE GRAINED, WITH DOMINANTLY FELDSPATHIC MATRIX.	
25	30.890	30.980	.090	CARBONACEOUS MUDSTONE, DARK GREY, BLOCKY, ARGILLACEOUS.	
26	30.980	31.190	.210	COAL, DULL, INFERIOR, WITH CARBONACEOUS BLEBS; GRADES TO CARBONACEOUS MUDSTONE IN PART.	
27	31.190	32.310	.820	MUDSTONE, LIGHT GREY, SOFT TO MEDIUM, BLOCKY, ARGILLACEOUS, SLIGHTLY LITHIC, WITH CARBONACEOUS WISPS, SLUMPED BEDDING.	
28	32.010	33.000	.990	CORE LOSS.	



847308

DATE - 06 OCT 81
PROJECT - YK PLN

GENERAL GEOLOGICAL SERVICES
YORK PLAINS

BORDATA V 1.1

BOREHOLE LOG

* YP 38 *

REF NO. 1116 US
MILWAUKEE FIELD OFFICE

SEAM CODE NO.	INTERVAL FROM (METRES) TO (METRES)	APPARENT THICKNESS (METRES)	LITHOLOGY DESCRIPTION	ANALYSIS SAMPLE NO.
13	33.000 34.350	1.350	SANDY SILTSTONE, LIGHT GREY, MODERATELY SORTED, MODERATELY CEMENTED, FELDSPATHIC, SLIGHTLY ARGILLACEOUS, MICACEOUS, WITH CARBONACEOUS BANDS; GRADES TO MUDSTONE IN PART.	
16	34.350 34.870	.520	MUDSTONE, LIGHT GREY, SOFT TO MEDIUM, WITH CARBONACEOUS WISPS.	
17	34.870 36.000	1.130	COAL 1-10% BRIGHT, INFERIOR, WITH CARBONACEOUS BLEBS, AND CALCITE IN VEINS.	
19	36.000 36.060	.060	COAL 1-10% BRIGHT.	
20	36.060 37.020	.960	MUDSTONE, LIGHT TO DARK GREY, SOFT TO MEDIUM, ARGILLACEOUS, CARBONACEOUS, SLIGHTLY LITHIC.	
22	37.020 38.760	1.760	SANDY SILTSTONE, LIGHT GREY, MODERATELY SORTED, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX.	
24	38.760 39.000	.220	CORE LOSS.	
25	39.000 41.300	2.300	SANDY SILTSTONE, LIGHT GREY, FINE TO MEDIUM GRAINED, WELL SORTED, WELL CEMENTED, FELDSPATHIC, SLIGHTLY LITHIC, MICACEOUS, WINNOWING; GRADES TO SANDSTONE IN PART.	
28	41.300 42.050	.750	SANDSTONE, LIGHT GREY, FINE GRAINED, WELL SORTED, WELL CEMENTED, WITH FELDSPATHIC MATRIX, SLIGHTLY PYRITIC, AND CARBONACEOUS BANDS.	
30	42.050 42.910	.860	SANDSTONE, AS ABOVE, MEDIUM TO COARSE GRAINED, SLIGHTLY GLAUCONITIC, KAOLINITIC.	
32	42.910 43.110	.200	SANDSTONE, LIGHT GREY, FINE GRAINED, FELDSPATHIC.	
33	43.110 44.240	1.130	ARKOSIC SANDSTONE, LIGHT GREY, COARSE TO VERY COARSE GRAINED, SUBROUNDED TO ROUNDED, WELL SORTED, WELL CEMENTED, SUCROSIC TEXTURE, WITH FELDSPATHIC MATRIX, GLAUCONITIC, SLIGHTLY MICACEOUS, KAOLINITIC, COARSE TOWARDS BASE, GOOD POROSITY.	
34	44.240 44.300	.060	CORE LOSS.	
38	44.300 47.300	3.000	SANDSTONE, LIGHT GREY, MEDIUM GRAINED, COARSENING TOWARDS BASE, WELL SORTED, WELL CEMENTED, SUCROSIC TEXTURE, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY MICACEOUS, GLAUCONITIC, AND CARBONACEOUS BANDS.	
42	47.300 50.280	2.980	SANDSTONE, AS ABOVE, MEDIUM TO COARSE GRAINED.	
43	50.280 50.300	.020	CORE LOSS.	
44	50.300 53.400	3.100	SANDSTONE, LIGHT GREY, COARSE GRAINED, WELL SORTED, WELL CEMENTED, SUCROSIC TEXTURE, WITH DOMINANTLY FELDSPATHIC MATRIX, MICACEOUS, SLIGHTLY LITHIC, GLAUCONITIC, KAOLINITIC.	

----- END OF HOLE AT 53.400 METRES -----



847300

DATE - 06 OCT 81
PROJECT - YK PLN

GENERAL GEOLOGICAL SERVICES
YORK PLAINS

BORDATA V 1.1

BOREHOLE INFORMATION

* YP 6 *

COLLAR COORDINATES

NORTHING 22100.00
EASTING 39900.00
ELEVATION 448.000

THE COLLAR COORDINATES AND ELEVATION
UNITS ARE IN METRES

FINAL LENGTH OF HOLE 46.150 METRES DATE STARTED / / 0
PRE-COLLAR DEPTH 0.000 METRES DATE FINISHED / / 0

808

847310

REF ID: T115 HS 08 0281

REF ID: T115 HS 08 0281

DATE - 06 OCT 81
PROJECT - YK PLN

GENERAL GEOLOGICAL SERVICES
YORK PLAINS

BORDATA V 1.1

BOREHOLE LOG

* YP 6 *

DR 2701

101 No 1115 MS

NO. 101 No 1115 MS

SEAM CODE NO.	INTERVAL FROM (METRES)	TO (METRES)	APPARENT THICKNESS (METRES)	LITHOLOGY DESCRIPTION	ANALYSIS SAMPLE NO.
	0.000	1.000	1.000	ALLUVIUM, RED-BROWN, YELLOW, FERRUGINOUS.	
	1.000	1.700	.700	ARKOSIC SANDSTONE, YELLOW RED-BROWN, MEDIUM GRAINED, WITH FELDSPATHIC MATRIX.	
	1.700	5.570	3.870	ARKOSIC SANDSTONE, YELLOW RED-BROWN, WELL SORTED, MEDIUM HARD, WELL CEMENTED, SUCROSIC TEXTURE, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY LITHIC, MICACEOUS, WEATHERED.	
	5.570	6.240	.670	SANDSTONE, LIGHT GREY, MEDIUM GRAINED, WELL SORTED, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY LITHIC, MICACEOUS, KAOLINITIC.	
	6.240	9.240	3.000	SANDSTONE, LIGHT GREY RED-BROWN TOWARDS TOP AND BASE, MEDIUM GRAINED, SUCROSIC TEXTURE, WITH DOMINANTLY FELDSPATHIC MATRIX, MICACEOUS, SLIGHTLY LITHIC, GLAUCONITIC, CARBONACEOUS, WINNOWING.	
	9.240	11.080	1.840	SANDSTONE, MEDIUM GRAINED, MODERATELY SORTED, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY LITHIC, GLAUCONITIC, CARBONACEOUS INCREASING DOWN, AND CALCITE IN VEINS, RED-BROWN AT TOP LIGHT GREY AT BASE.	
	11.080	11.350	.270	COAL, DULL, INFERIOR, FISSILE, WITH CARBONACEOUS BLEBS; GRADES TO SHALE IN PART.	
	11.350	11.510	.160	MUDSTONE, LIGHT GREY, SOFT, ARGILLACEOUS, SUBFISSILE.	
	11.510	12.190	.680	SILTSTONE, LIGHT TO DARK GREY, WELL SORTED, WELL CEMENTED, FELDSPATHIC, CARBONACEOUS; GRADES TO SANDSTONE, FINE GRAINED.	
	12.190	15.240	3.050	MUDSTONE, LIGHT TO DARK GREY, SOFT, FRIABLE, ARGILLACEOUS, CARBONACEOUS.	
	15.240	15.350	.110	SILTSTONE, LIGHT GREY, FELDSPATHIC, WITH CARBONACEOUS BANDS.	
	15.350	15.630	.280	MUDSTONE, LIGHT GREY, LITHIC, WITH CARBONACEOUS BANDS.	
	15.630	18.280	2.650	SANDSTONE, LIGHT GREY, MEDIUM GRAINED, WELL SORTED, WELL CEMENTED, SUCROSIC TEXTURE, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY LITHIC, MICACEOUS, AND CARBONACEOUS BANDS.	
	18.280	21.300	3.020	SANDSTONE, LIGHT GREY, WELL SORTED, WELL CEMENTED, SUCROSIC TEXTURE, FINE GRAINED AT TOP COARSE AT BOTTOM SOMETIMES DARK GREY AT TOP, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY LITHIC, MICACEOUS, GLAUCONITIC, AND CARBONACEOUS BANDS, AT TOP, WINNOWING.	
	21.300	24.350	3.050	SANDSTONE, LIGHT GREY, MEDIUM TO COARSE GRAINED, SOMETIMES DARK GREY, SUCROSIC TEXTURE, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY LITHIC, MICACEOUS, GLAUCONITIC, WINNOWING, AND CARBONACEOUS BANDS.	
	24.350	27.240	2.890	SANDSTONE, LIGHT GREY, MEDIUM GRAINED, WELL SORTED, WELL CEMENTED, SUCROSIC TEXTURE, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY LITHIC, MICACEOUS.	



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847311

DATE - 06 OCT 81
PROJECT - YK PLN

GENERAL GEOLOGICAL SERVICES
YORK PLAINS

BORDATA V 1.1

B O R E H O L E L O G

* YP 5 *

SEAM CODE NO.	INTERVAL FROM (METRES)	INTERVAL TO (METRES)	APPARENT THICKNESS (METRES)	LITHOLOGY DESCRIPTION	ANALYSIS SAMPLE NO.
*****	*****	*****	*****	*****	*****
	27.240	27.350	.110	CORE LOSS.	
	27.350	30.350	3.000	CORE LOSS, WITH 30% COAL RECOVERY.	
	30.350	30.950	.600	CORE LOSS.	
	30.950	31.550	.600	ARKOSIC SANDSTONE, MID TO DARK GREY, FINE GRAINED, MEDIUM TOWARDS BASE, WELL SORTED, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, MICACEOUS, CARBONACEOUS, SLIGHTLY LITHIC.	
	31.550	32.450	.900	CARBONACEOUS MUDSTONE, LIGHT TO MID GREY, MEDIUM HARD, BLOCKY, LITHIC, MICACEOUS, SLIGHTLY ARGILLACEOUS.	
	32.450	32.750	.300	COAL 1-10% BRIGHT, WITH CALCITE IN VEINS.	
	32.750	33.190	.440	MUDSTONE, DARK GREY, MEDIUM HARD, BRITTLE, LITHIC, CARBONACEOUS, SLICKENSIDING.	
	33.190	33.250	.060	CORE LOSS.	
	33.250	33.430	.180	COAL 1-10% BRIGHT.	
	33.430	34.970	1.540	MUDSTONE, LIGHT GREY, BLOCKY, LITHIC, SLIGHTLY ARGILLACEOUS, MICACEOUS.	
	34.970	35.990	1.020	SILTSTONE, LIGHT TO MID GREY, WELL SORTED, WELL CEMENTED, FELDSPATHIC, MICACEOUS, SLIGHTLY LITHIC, WITH CARBONACEOUS BANDS.	
	35.990	39.350	3.360	SANDSTONE, LIGHT TO MID GREY, FINE AT TOP MEDIUM ELSEWHERE, WELL SORTED, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, LITHIC, SLIGHTLY MICACEOUS, GLAUCONITIC, WINNOWING, AND CARBONACEOUS BANDS.	
	39.350	42.310	2.960	SANDSTONE, LIGHT GREY, MEDIUM TO COARSE GRAINED, WELL SORTED, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, LITHIC, SLIGHTLY MICACEOUS, GLAUCONITIC, AND CARBONACEOUS BANDS, AT TOP.	
	42.310	42.350	.040	CORE LOSS.	
	42.350	45.860	3.510	ARKOSIC SANDSTONE, LIGHT GREY, MEDIUM GRAINED, WELL SORTED, WELL CEMENTED, WITH DOMINANTLY FELDSPATHIC MATRIX, SLIGHTLY MICACEOUS, GLAUCONITIC.	
	45.860	45.860	.020	CARBONACEOUS MUDSTONE, AS ABOVE.	
	45.860	46.040	.180	DOLERITE.	
	46.040	46.150	.110	CORE LOSS.	
				----- END OF HOLE AT 46.150 METRES -----	



847312

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APPENDIX 6

MINERAL INDUSTRY UNPUBLISHED REPORT DATA SHEET

by General Geological Services

DEPARTMENT OF MINES - TASMANIA MINERAL INDUSTRY UNPUBLISHED REPORT DATA SHEET		REPORT NUMBER	TCR 81-
		<input type="checkbox"/> CF	<input type="checkbox"/> RF <input type="checkbox"/> OF
AUTHOR(S): GENERAL GEOLOGICAL SERVICES		DATE: JANUARY 1982	
TITLE: TASMANIAN COAL PROSPECTS, SIX-MONTHLY PROGRESS REPORT 17th APRIL to 16th OCTOBER, 1981			
COMPANY(S): CAPRICORN MINING LTD. AUSTRALIAN SHALE AND COAL N.L. (until June, 1981)			
FORMAT: No. of Volumes: 2 Structure: Vol. 1 = Text (126 pp); 6 appendices Vol. 2. = Drillhole Location Plans; Geophysical Well Logs; Computer Graphic Display of Lithologic Logs		COMPANY REF. (if any): CAP 704/20	
LICENCE / LEASE: E.L. 29/79 [CAPRICORN MINING LTD.]			
LOCALITY: SK55- <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input checked="" type="checkbox"/> 8			
Map sheet: 8311 - III (Dover), 8311 - IV (Cygnet)			
Geographic: CYGNET (not in title) Gordon Beach, Heaney's Bluff, Albert Creek, Mount Cygnet			
MAPPING - GEOLOGICAL <input checked="" type="checkbox"/> Surface - scale: reconnaissance <input type="checkbox"/> Mine/Underground	GEOPHYSICS GND/AIR <input type="checkbox"/> Magnetic <input type="checkbox"/> Electromagnetic <input type="checkbox"/> Radiometric <input type="checkbox"/> A.P. <input type="checkbox"/> S.P. <input type="checkbox"/> E.P. <input type="checkbox"/> E.I.P./M.I.P. <input type="checkbox"/> Resist. <input type="checkbox"/> Gravity <input type="checkbox"/> Seismic - Refraction <input type="checkbox"/> Seismic - Reflection <input checked="" type="checkbox"/> On-shore <input type="checkbox"/> Off-shore <input checked="" type="checkbox"/> Well-logging bore hole	GEOCHEMISTRY <input type="checkbox"/> Stream Sediment <input type="checkbox"/> Soil: <input checked="" type="checkbox"/> Rock - chip <input type="checkbox"/> Gossan <input type="checkbox"/> Water: <input type="checkbox"/> Biogeochemistry <input type="checkbox"/> Cu <input type="checkbox"/> Pb <input type="checkbox"/> Zn <input type="checkbox"/> Sn <input type="checkbox"/> W <input type="checkbox"/> Mo <input checked="" type="checkbox"/> Rock: <input checked="" type="checkbox"/> Maj. <input type="checkbox"/> Tr.	<input type="checkbox"/> PETROLOGY <input type="checkbox"/> ORE GENESIS <input type="checkbox"/> ORE RESERVES <input type="checkbox"/> FEASIBILITY STUDY <input type="checkbox"/> MINERAL PROCESSING <input type="checkbox"/> MINING <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> ENGINEER. GEOLOGY <input type="checkbox"/> INDUST. MINERALS <input type="checkbox"/> CONSTRUCT. MAT. <input checked="" type="checkbox"/> FUELS: COAL
DRILLING <input checked="" type="checkbox"/> Diamond <input checked="" type="checkbox"/> Percussion Auger <input checked="" type="checkbox"/> Rotary <input checked="" type="checkbox"/> Logs-lithologic <input checked="" type="checkbox"/> Analysis - coal <input type="checkbox"/> Metallic Minerals <input type="checkbox"/> Non-metallic Minerals			
MINERALS: COAL			
MINE / DEPOSIT NAME(S): Mount Cygnet Coal Mine Heaney's Bluff Coal Mine			
OTHER KEYWORDS: Cygnet Coal Measures Drilling and wireline logging programme			
ANNOTATION: Six holes drilled; Total metreage = 273.73 m. Total open hole metreage = 204.59 m; Total core metreage = 69.14 m.			

DEPARTMENT OF MINES - TASMANIA MINERAL INDUSTRY UNPUBLISHED REPORT DATA SHEET		REPORT NUMBER	TCR 81 -
		<input type="checkbox"/> ICF	<input type="checkbox"/> IRF <input type="checkbox"/> IOF
AUTHOR(S): GENERAL GEOLOGICAL SERVICES		DATE: JANUARY, 1982	
TITLE: TASMANIAN COAL PROSPECTS, SIX-MONTHLY PROGRESS REPORT 17th APRIL to 16th OCTOBER, 1981			
COMPANY(S): CAPRICORN MINING LTD.			
FORMAT: No. of Volumes: 2 Structure: Vol. 1 = Text (126 pp); 6 appendices Vol. 2 = Drillhole Location Plans; Geophysical Well Logs; Computer Graphic Display of Lithologic Logs		COMPANY REF. (if any): CAP 704/20	
LICENCE / LEASE: E.L. 26/79 [CAPRICORN MINING LTD.]			
LOCALITY: SK55- <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input checked="" type="checkbox"/> 8			
Map sheet: 8211 - I (Geevston), 8212 - II (Moogara), 8311 - IV (Cygnet), 8312 - III (New Norfolk)			
Geographic: SANDFLY (not in title) Kaoota, Mount Lloyd			
MAPPING - GEOLOGICAL <input checked="" type="checkbox"/> Surface - scale: reconnaissance <input type="checkbox"/> Mine/Underground	GEOPHYSICS GND/AIR <input type="checkbox"/> Magnetic <input type="checkbox"/> Electromagnetic <input type="checkbox"/> Radiometric <input type="checkbox"/> A.P. <input type="checkbox"/> S.P. <input type="checkbox"/> E.P. <input type="checkbox"/> E.I.P./M.I.P. <input type="checkbox"/> Resist. <input type="checkbox"/> Gravity <input type="checkbox"/> Seismic - Refraction <input type="checkbox"/> Seismic - Reflection <input type="checkbox"/> On-shore <input type="checkbox"/> Off-shore <input checked="" type="checkbox"/> Well-logging bore hole	GEOCHEMISTRY <input type="checkbox"/> Stream Sediment <input type="checkbox"/> Soil: <input checked="" type="checkbox"/> Rock - chip <input type="checkbox"/> Gossan <input type="checkbox"/> Water: <input type="checkbox"/> Biogeochemistry <input type="checkbox"/> Cu <input type="checkbox"/> Pb <input type="checkbox"/> Zn <input type="checkbox"/> Sn <input type="checkbox"/> W <input type="checkbox"/> Mo <input checked="" type="checkbox"/> Rock: <input checked="" type="checkbox"/> Maj. <input type="checkbox"/> Tr.	<input type="checkbox"/> PETROLOGY <input type="checkbox"/> ORE GENESIS <input type="checkbox"/> ORE RESERVES <input type="checkbox"/> FEASIBILITY STUDY <input type="checkbox"/> MINERAL PROCESSING <input type="checkbox"/> MINING <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> ENGINEER. GEOLOGY <input type="checkbox"/> INDUST. MINERALS <input type="checkbox"/> CONSTRUCT. MAT. <input checked="" type="checkbox"/> FUELS: COAL
DRILLING <input checked="" type="checkbox"/> Diamond <input checked="" type="checkbox"/> Percussion Auger <input checked="" type="checkbox"/> Rotary <input checked="" type="checkbox"/> Logs - lithologic <input checked="" type="checkbox"/> Analysis coal <input type="checkbox"/> Metallic Minerals <input type="checkbox"/> Non-metallic Minerals			
MINERALS: COAL			
MINE / DEPOSIT NAME(S): Sandfly Coal Mine, Wallsend Coal Mine, Mount Lloyd prospect.			
OTHER KEYWORDS: Kaoota Coal Measures Drilling and wireline logging programme			
ANNOTATION: Five holes drilled. Total metreage = 380.31 m Total open hole metreage = 96.71 m; Total core metreage = 283.60 m; Coal seams of 2.0 and 2.2 m intersected.			

DEPARTMENT OF MINES - TASMANIA MINERAL INDUSTRY UNPUBLISHED REPORT DATA SHEET		REPORT NUMBER TCR 81- <input type="checkbox"/> ICF <input type="checkbox"/> RF <input type="checkbox"/> OF
AUTHOR(S): GENERAL GEOLOGICAL SERVICES		
DATE: JANUARY, 1982		
TITLE: TASMANIAN COAL PROSPECTS, SIX-MONTHLY PROGRESS REPORT 17th APRIL to 16th OCTOBER, 1981		
COMPANY(S): CAPRICORN MINING LTD.		
FORMAT: No. of Volumes: 2 Structure: Vo. 1 = Text (126 pp); 6 appendices Vol. 2 = Drillhole Location Plans; Geophysical Well Logs; Computer Graphic Display of Lithologic Logs.		
COMPANY REF. (if any): CAP 704/20		
LICENCE / LEASE: E.L. 27/79 [CAPRICORN MINING LTD.]		
LOCALITY: SK55- <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input checked="" type="checkbox"/> 6 <input type="checkbox"/> 7 <input checked="" type="checkbox"/> 8		
Map sheet: 8212 - I (Glenora), 8212 - II (Moogara), 8212 - IV (Ellendale) 8213 - II (Clyde), 8213 - III (Ouse)		
Geographic: HAMILTON (not in title) Lawrenny, Langloh, Maquarie Plains, Plenty, Ouse		
MAPPING - GEOLOGICAL <input checked="" type="checkbox"/> Surface - scale : reconnaissance <input type="checkbox"/> Mine/Underground	GEOPHYSICS GND/AIR <input type="checkbox"/> Magnetic <input type="checkbox"/> Electromagnetic <input type="checkbox"/> Radiometric <input type="checkbox"/> A.P. <input type="checkbox"/> S.P. <input type="checkbox"/> E.P. <input type="checkbox"/> E.I.P./M.I.P. <input type="checkbox"/> Resist. <input type="checkbox"/> Gravity <input type="checkbox"/> Seismic - Refraction <input type="checkbox"/> Seismic - Reflection <input checked="" type="checkbox"/> On - shore <input type="checkbox"/> Off-shore <input checked="" type="checkbox"/> Well-logging bore hole	GEOCHEMISTRY <input type="checkbox"/> Stream Sediment <input type="checkbox"/> Soil : <input checked="" type="checkbox"/> Rock - chip <input type="checkbox"/> Gossan <input type="checkbox"/> Water : <input type="checkbox"/> Biogeochemistry <input type="checkbox"/> Cu <input type="checkbox"/> Pb <input type="checkbox"/> Zn <input type="checkbox"/> Sn <input type="checkbox"/> W <input type="checkbox"/> Mo <input checked="" type="checkbox"/> Rock: <input checked="" type="checkbox"/> Maj. <input type="checkbox"/> Tr.
DRILLING <input checked="" type="checkbox"/> Diamond <input checked="" type="checkbox"/> Percussion <input type="checkbox"/> Auger <input checked="" type="checkbox"/> Rotary <input checked="" type="checkbox"/> Logs - lithologic <input checked="" type="checkbox"/> Analysis - coal <input type="checkbox"/> Metallic Minerals <input type="checkbox"/> Non-metallic Minerals		<input type="checkbox"/> PETROLOGY <input type="checkbox"/> ORE GENESIS <input type="checkbox"/> ORE RESERVES <input type="checkbox"/> FEASIBILITY STUDY <input type="checkbox"/> MINERAL PROCESSING <input type="checkbox"/> MINING <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> ENGINEER. GEOLOGY <input type="checkbox"/> INDUST. MINERALS <input type="checkbox"/> CONSTRUCT. MAT. <input checked="" type="checkbox"/> FUELS: COAL
MINERALS: COAL		
MINE / DEPOSIT NAME(S): Lawrenny Coal Mine		
OTHER KEYWORDS: Kaoota Coal Measures equivalent. Drilling and wireline logging programme.		
ANNOTATION: Eight holes drilled. Total metreage = 512.11 m Total open hole metreage = 170.88 m; Total core metreage = 341.23 m. Coal seams of 3.2 and 2.3 m intersected.		

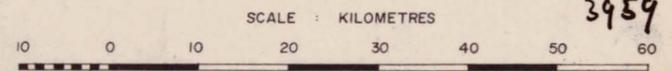
DEPARTMENT OF MINES - TASMANIA MINERAL INDUSTRY UNPUBLISHED REPORT DATA SHEET		REPORT NUMBER TCR 81-
AUTHOR(S): GENERAL GEOLOGICAL SERVICES		DATE: JANUARY 1982
TITLE: TASMANIAN COAL PROSPECTS, SIX-MONTHLY PROGRESS REPORT 17th APRIL to 16th OCTOBER, 1981		
COMPANY(S): CAPRICORN MINING LTD. AUSTRALIAN SHALE AND COAL N.L. (until June, 1981)		
FORMAT: No. of Volumes: 2 Structure: Vol. 1 = Text (126 pp); 6 appendices Vol. 2 = Drillhole Location Plans; Geophysical Well Logs; Computer Graphic Display of Lithologic Logs		COMPANY REF. (if any): CAP 704/20
LICENCE / LEASE: E.L. 28/79 [CAPRICORN MINING LTD.]		
LOCALITY: SK55- <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input checked="" type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8		
Map sheet: 8312 - I (Brighton), 8312 - IV (Broadmarsh), 8313 - I (Tunbridge) 8313 - II (Oatlands), 8313 - III (Bothwell), 8313 - IV (Interlaken) 8413 - III (Stonehenge), 8413 - IV (Morriston)		
Geographic: (not in title) COLEBROOK, York Plains, Mike Howe's Marsh, Jericho		
MAPPING - GEOLOGICAL <input checked="" type="checkbox"/> Surface - scale : reconnaissance <input type="checkbox"/> Mine/Underground	GEOPHYSICS GND/AIR <input type="checkbox"/> Magnetic <input type="checkbox"/> Electromagnetic <input type="checkbox"/> Radiometric <input type="checkbox"/> A.P. <input type="checkbox"/> S.P. <input type="checkbox"/> E.P. <input type="checkbox"/> E.I.P./M.I.P. <input type="checkbox"/> Resist. <input type="checkbox"/> Gravity <input type="checkbox"/> Seismic - Refraction <input type="checkbox"/> Seismic - Reflection <input checked="" type="checkbox"/> On-shore <input type="checkbox"/> Off-shore <input checked="" type="checkbox"/> Well-logging bore hole	GEOCHEMISTRY <input type="checkbox"/> Stream Sediment <input type="checkbox"/> Soil : <input checked="" type="checkbox"/> Rock - chip <input type="checkbox"/> Gossan <input type="checkbox"/> Water : <input type="checkbox"/> Biogeochemistry <input type="checkbox"/> Cu <input type="checkbox"/> Pb <input type="checkbox"/> Zn <input type="checkbox"/> Sn <input type="checkbox"/> W <input type="checkbox"/> Mo <input checked="" type="checkbox"/> Rock: <input checked="" type="checkbox"/> Moj. <input type="checkbox"/> Ir.
DRILLING <input checked="" type="checkbox"/> Diamond <input checked="" type="checkbox"/> Percussion Auger <input checked="" type="checkbox"/> Rotary <input checked="" type="checkbox"/> Logs - lithologic <input checked="" type="checkbox"/> Analysis - coal <input type="checkbox"/> Metallic Minerals <input type="checkbox"/> Non-metallic Minerals	<input type="checkbox"/> PETROLOGY <input type="checkbox"/> ORE GENESIS <input type="checkbox"/> ORE RESERVES <input type="checkbox"/> FEASIBILITY STUDY <input type="checkbox"/> MINERAL PROCESSING <input type="checkbox"/> MINING <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> ENGINEER. GEOLOGY <input type="checkbox"/> INDUST. MINERALS <input type="checkbox"/> CONSTRUCT. MAT. <input checked="" type="checkbox"/> FUELS: COAL	
MINERALS: COAL		
MINE / DEPOSIT NAME(S): York Plains Coal Mine, Mike Howe's Marsh prospect, Jerusalem Coal Mine, Tasma Coal Mine		
OTHER KEYWORDS: Kaoota Coal Measures equivalent Drilling and wireline logging programme		
ANNOTATION: Control data - digitised representation of lithologic logs in York Plains region. Nine holes drilled; Total metreage = 499.86 m Total open hole metreage = 157.44 m; Total core metreage = 342.42 m Coal seam of 3.3 m and 2.0 m intersected.		

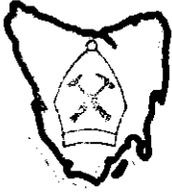


EXPOSURES OF PERMIAN AND TRIASSIC COAL-BEARING UNITS IN THE TASMANIA BASIN

847318

- Kaoota Coal Measures and equivalents.
- Cygnet Coal Measures and equivalents.
- Mersey Coal Measures and equivalents.
- Limits of thick Permo-Triassic sediments.





MITRE GEOPHYSICS PTY LTD

MINERAL EXPLORATION AND ENGINEERING CONSULTANTS

BUGGS LANE ELLIOTT TASMANIA 7325 PHONE 004-363143

A SUMMARY REPORT ON
GEOPHYSICAL WELL-LOGS IN BORE-HOLES FOR COAL, S.E. TASMANIA

VOLUME TWO

FIGURES

Kaoota: K01, K02, K03, K05

Hamilton: H01, H02, H03, H04, H05, H06

Oatlands: O-01, O-02, O-03A, O-03B, O-04, O-05, O-06, O-07, O-09

Cynnet: C01, C02, C03, C04, C05, C06

17th APRIL TO 16th OCTOBER, 1981

VOLUME II - FIGURES

Enclosure

CONTENTS

of M	A.O.	C.O.	E.O.	D.S.M.E.
Received	21 JAN 1982			CAI
Answered				
DEPT. OF MINES				
REF. No: 552/82				

1. Drillhole Location Plans

- Area 1 E.L. (Sandfly)
- Area 2 E.L. (Hamilton)
- Area 3 E.L. (Colebrook)
- Area 4 E.L. (Cygnet)

2. Geophysical Well-Logs (Part 2)

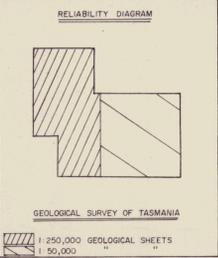
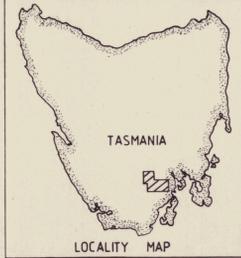
- Area 1 Drillholes: K-01, K-02, K-03, K-05
- Area 2 Drillholes: H-01, H-02, H-03, H-04, H-05, H-06
- Area 3 Drillholes: O-01, O-02, O-03a, O-03b, O-04, O-05,
O-06, O-07, O-09
- Area 4 Drillholes: C-01, C-02, C-03, C-04, C-05, C-06

by Mitre Geophysics Pty. Ltd.

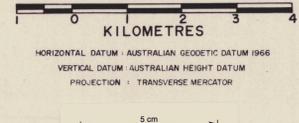
3. Computer Graphic Display of Lithologic Logs and Section for York Plains Area (E.L. 28/79)

by Control Data Australia Pty. Ltd.

3960



**TASMANIAN E.L. AREA 1
BASE MAP**
Scale 1 : 50,000



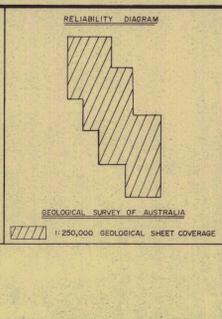
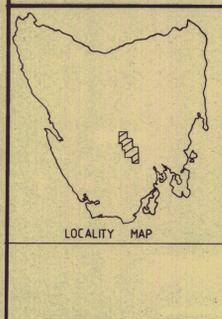
HORIZONTAL DATUM : AUSTRALIAN GEODETIC DATUM 1966
VERTICAL DATUM : AUSTRALIAN HEIGHT DATUM
PROJECTION : TRANSVERSE MERCATOR

REFERENCE	DESCRIPTION
QUATERNARY	Alluvial, deluvial and eolian deposits. Basalt and detrital derived deposits. Basaltic rocks.
TERTIARY	Synclitic rocks.
CRETACEOUS	
JURASSIC	Doleritic rocks.
TRIASSIC	KAODIA COAL MEASURES AND EQUIVALENTS * Dominantly non-marine sandstones with minor mudstones.
PERMIAN	CYONET COAL MEASURES AND EQUIVALENTS * Dominantly marine shales with interbedded and basal sandstones and glacial deposits.

* Includes Quaternary sediment cover in places
○ Drillhole completed
○ Drillhole abandoned

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AREA 1 EL. 26 / 79

847321



**TASMANIAN E.L. AREA 2
BASE MAP**

Scale 1 : 50,000

0 1 2 3 4
KILOMETRES

HORIZONTAL DATUM AUSTRALIAN GEODETIC DATUM 1966
VERTICAL DATUM AUSTRALIAN HEIGHT DATUM
PROJECTION TRANSVERSE MERCATOR

REFERENCE

- QUATERNARY & TERTIARY: Alluvial, paludal and colluvial deposits. Basalt and dolerite derived deposits. Basaltic rocks.
- CRETACEOUS: Synclitic rocks.
- JURASSIC: Doleritic rocks.
- TRIASSIC: **KADOTIA COAL MEASURES AND EQUIVALENTS*** Dominantly non-marine sandstone with minor mudstones. **CRONET COAL MEASURES AND EQUIVALENTS*** Dominantly marine shales with interbedded and basal sandstone and glacial deposits. *Limit of prospective undifferentiated Triassic units.*
- PERMIAN: Includes Quaternary sediment - cover in places.

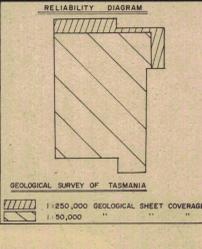
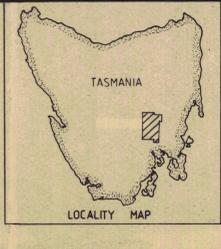
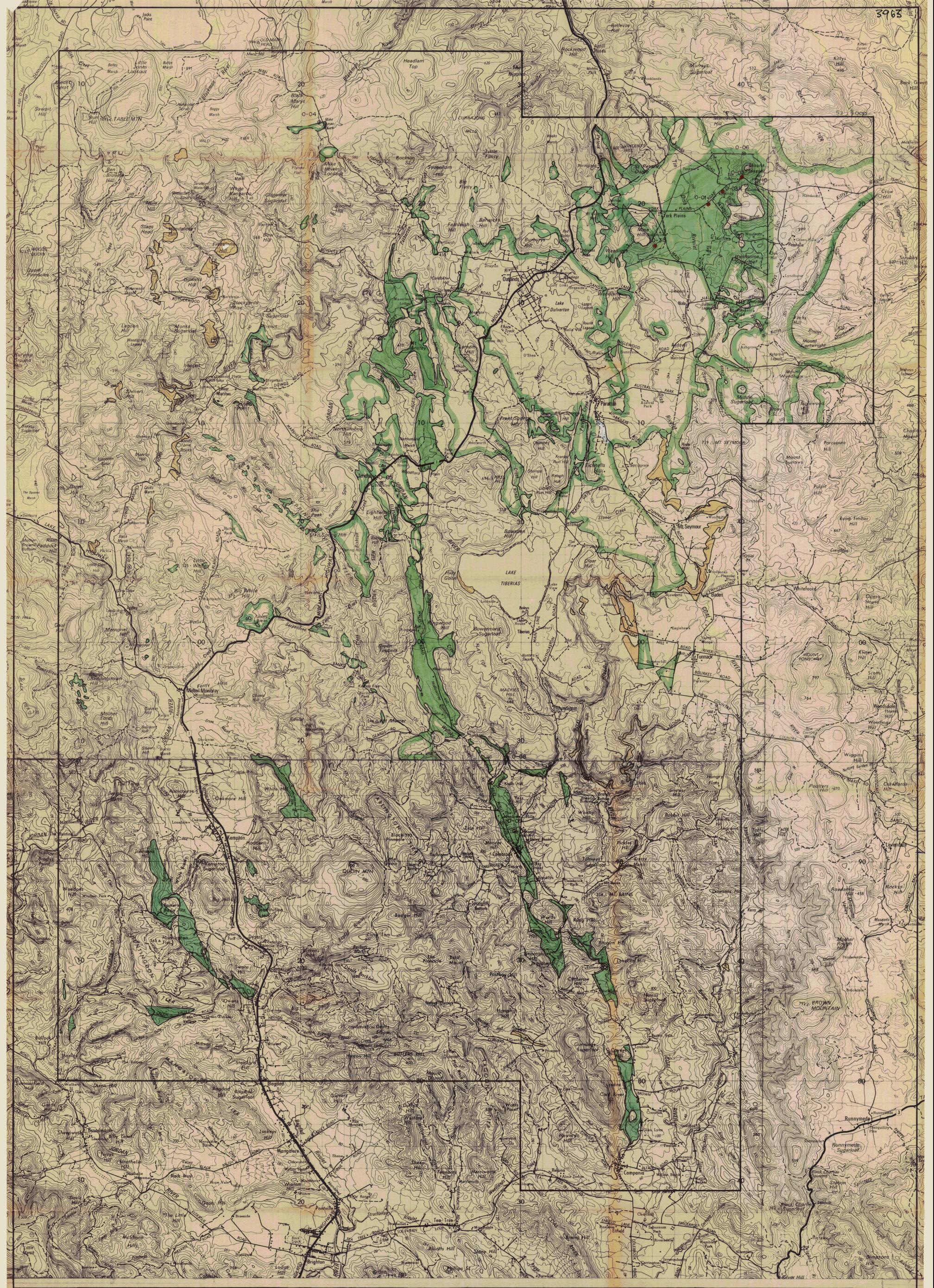
Drillhole completed
 Drillhole planned

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AREA 2 E.L.27/79

847322

3061



**TASMANIAN E.L. AREA 3
BASE MAP**

Scale 1 : 50,000



HORIZONTAL DATUM: AUSTRALIAN GEODETIC DATUM 1966
VERTICAL DATUM: AUSTRALIAN HEIGHT DATUM
PROJECTION: TRANSVERSE MERCATOR

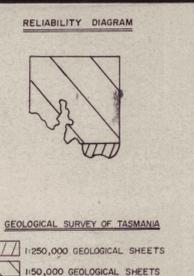


REFERENCE

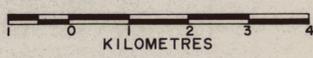
- QUATERNARY Alluvial, paludal and aeolian deposits. Basalt and diatrite derived deposits. Basaltic rocks.
- CRETACEOUS Synclinal rocks.
- JURASSIC Diabrotic rocks.
- TRIASSIC **PADOA COAL MEASURES AND EQUIVALENTS *** Dominantly non-marine sandstones with minor mudstones.
- PERMIAN **CYGNET COAL MEASURES AND EQUIVALENTS *** Dominantly marine shales with minor interbedded and basal sandstones and glacial deposits.
- Limit of prospective underflowing Triassic units.
- Includes Quaternary sediment cover in places.
- Drains planned.

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AREA 3 E.L. 28 / 79

847323



**TASMANIAN E.L. AREA 4
BASE MAP**
Scale 1 : 50,000



HORIZONTAL DATUM : AUSTRALIAN GEODETIC DATUM 1966
VERTICAL DATUM : AUSTRALIAN HEIGHT DATUM
PROJECTION : TRANSVERSE MERCATOR

CAPRICORN MINING LTD.
AREA 4 E.L. 29/79

REFERENCE

QUATERNARY	Alluvial, paludal and oceanic deposits. Basalt and dolerite derived deposits. Basaltic rocks.
TERTIARY	Synclastic rocks.
CRETACEOUS	Doleritic rocks.
JURASSIC	KAQOOTA COAL MEASURES AND EQUIVALENTS *
TRIASSIC	Dominantly non-marine sandstone with minor mudstones.
PERMIAN	CYGNET COAL MEASURES AND EQUIVALENTS *
	Dominantly marine shales with interbedded and basal sandstone and glacial deposits.

* Includes Quaternary sediment-cover in places
 ⊗ Drillhole completed
 ○ Drillhole planned

847324

3964

82-1682-212

SINGLE POINT RESISTANCE

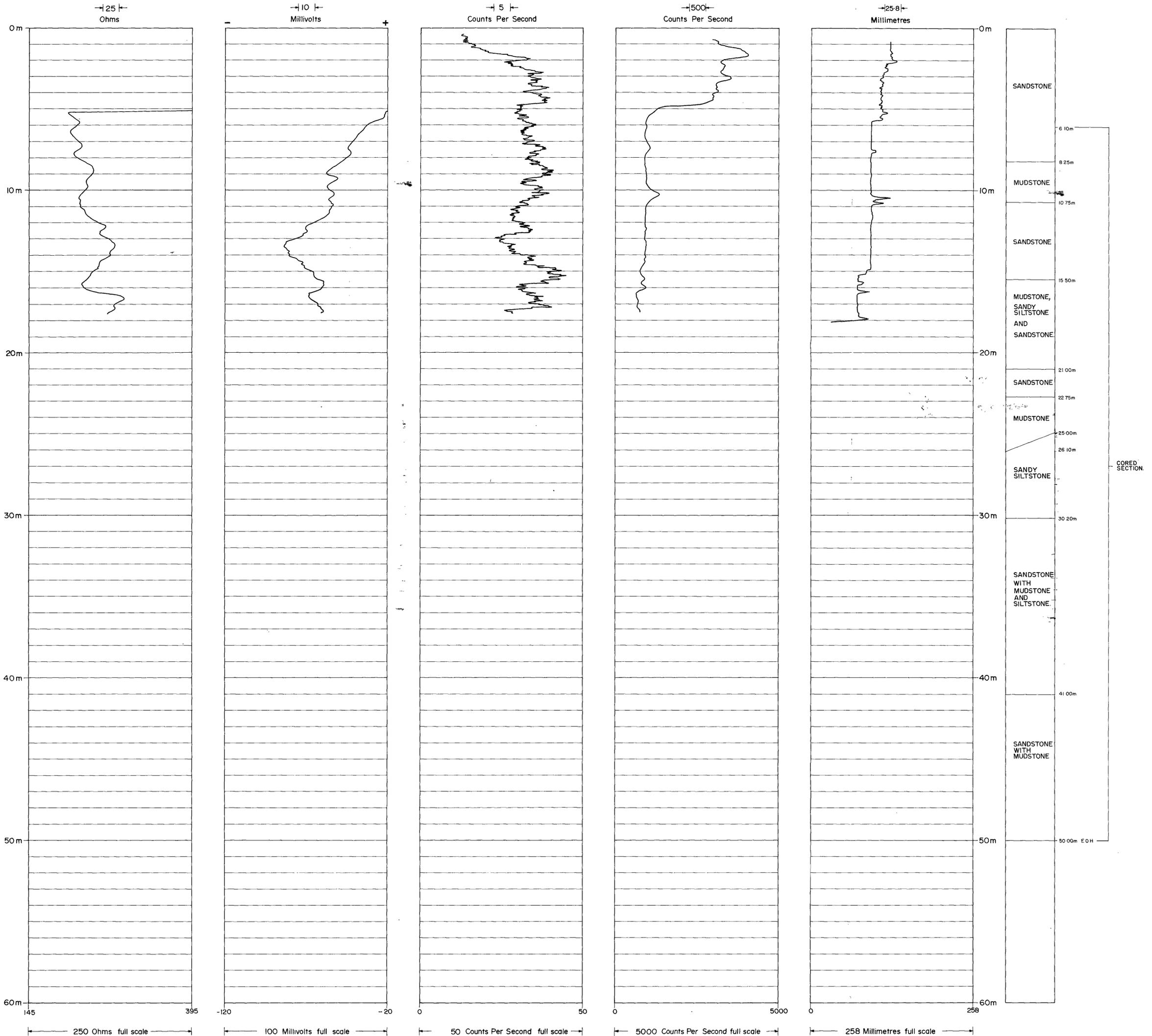
SELF POTENTIAL

NATURAL GAMMA

DENSITY

CALIPER

GEOLOGY



- NOTES:
1. Logging rates: electrical logs 15m/min. nuclear logs 6m/min.
 2. Time constants: 2 secs. for gamma and density logs
 3. Spacing on density probe, 35cm.

847525

5 cm

MITRE GEOPHYSICS PTY. LTD.

GEOPHYSICAL WELL-LOGS

KAOOTA AREA

HOLE NO. K 01

DRAWN J.B.	VERTICAL SCALE 1:100	FIG.
TRACED T.G.D.S.	DATE LOGGED 12.3.1981	

32-1682 2/2

SINGLE POINT RESISTANCE

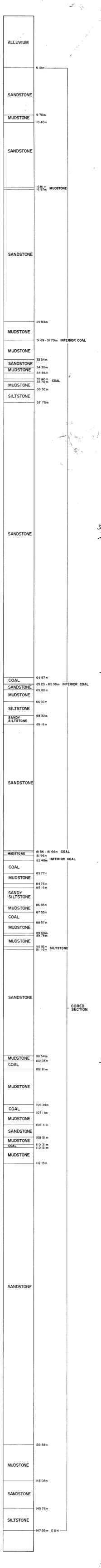
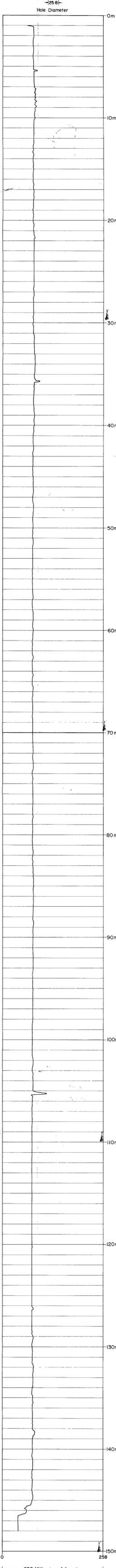
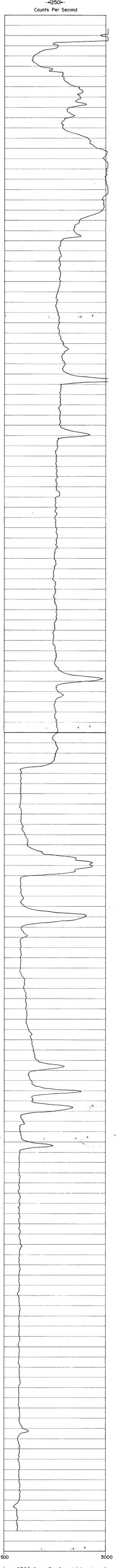
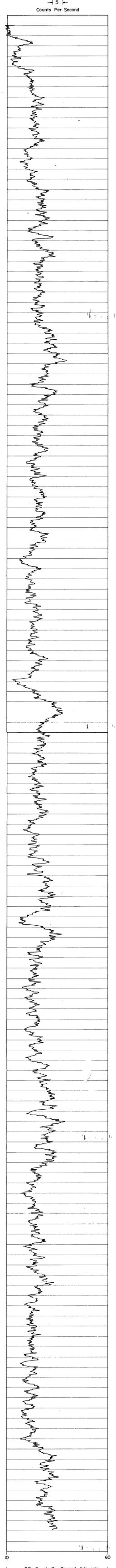
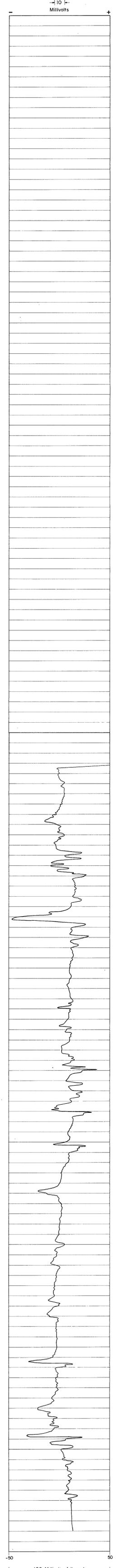
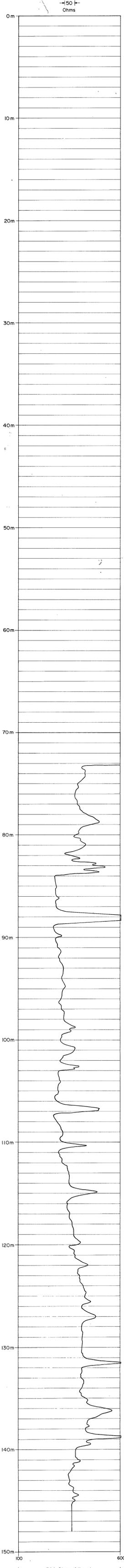
SELF POTENTIAL

NATURAL GAMMA

DENSITY

CALIPER

GEOLOGY



NOTE: No Bowstring

500 Ohms full scale 100 Millivolts full scale 50 Counts Per Second full scale 2500 Counts Per Second full scale 258 Millimetres full scale

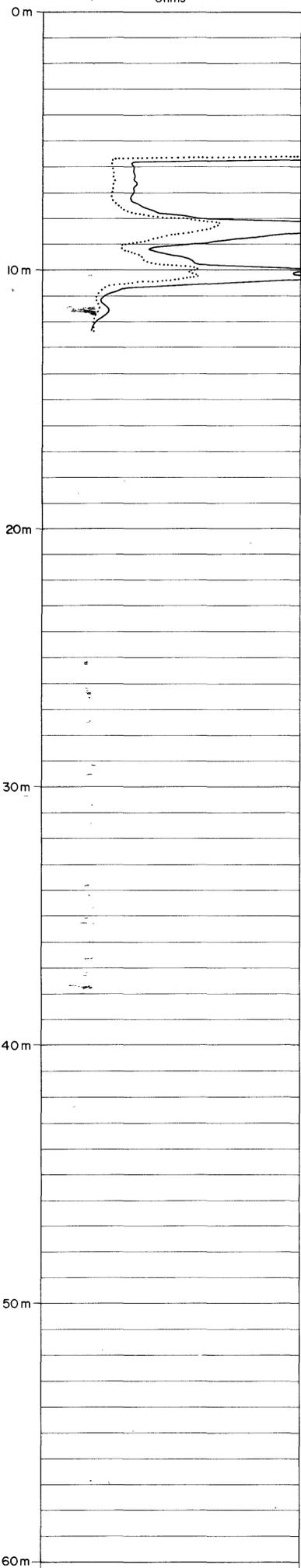
NOTES:
 1. Logging rates: electrical logs 15m/min.
 nuclear logs 6m/min.
 2. Time constants: 2 sec for gamma and density logs.
 3. Spacing on density probe: 35cm.

S 4 7 3 2 G
 5cm

MITRE GEOPHYSICS PTY. LTD.
 GEOPHYSICAL WELL-LOGS
 KAOOTA AREA
 HOLE NO. K 02
 DRAWN: JB VERTICAL SCALE: 1:100
 TRACED: T.E.D.S. DATE LOGGED: 14.4.1981 FIG.

SINGLE POINT RESISTANCE

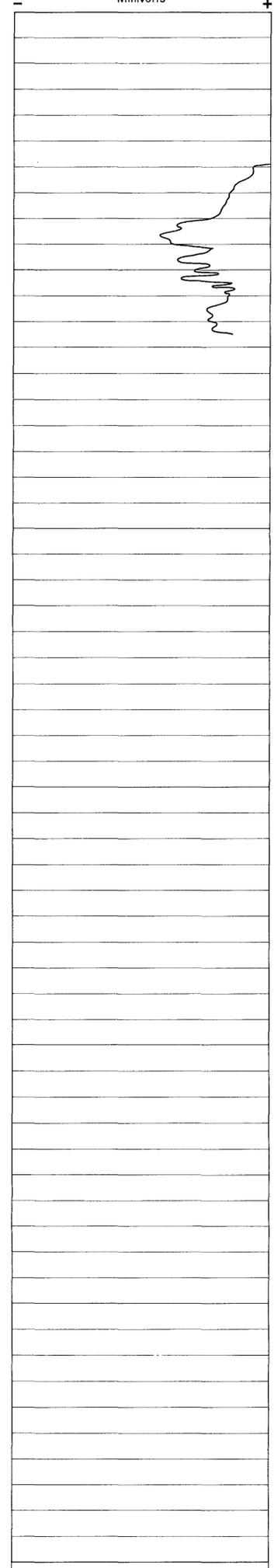
25
50
Ohms



190 440
250 Ohms full scale
500 Ohms full scale

SELF POTENTIAL

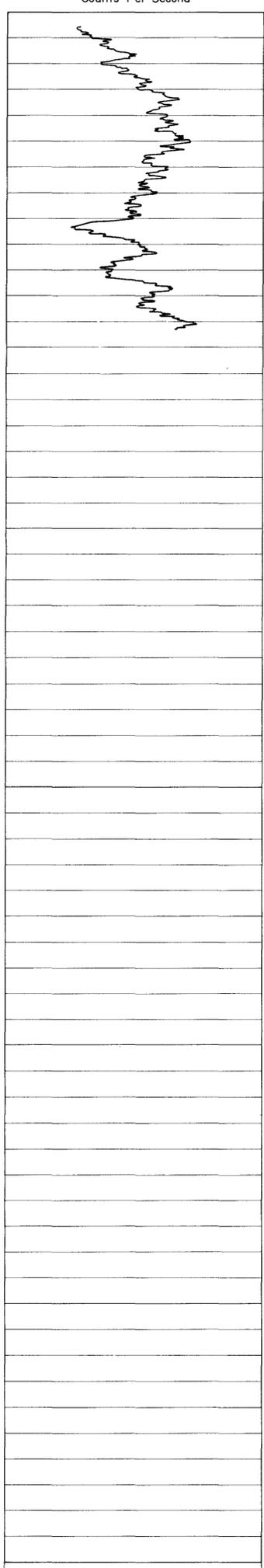
10
Millivolts



100 Millivolts full scale

NATURAL GAMMA

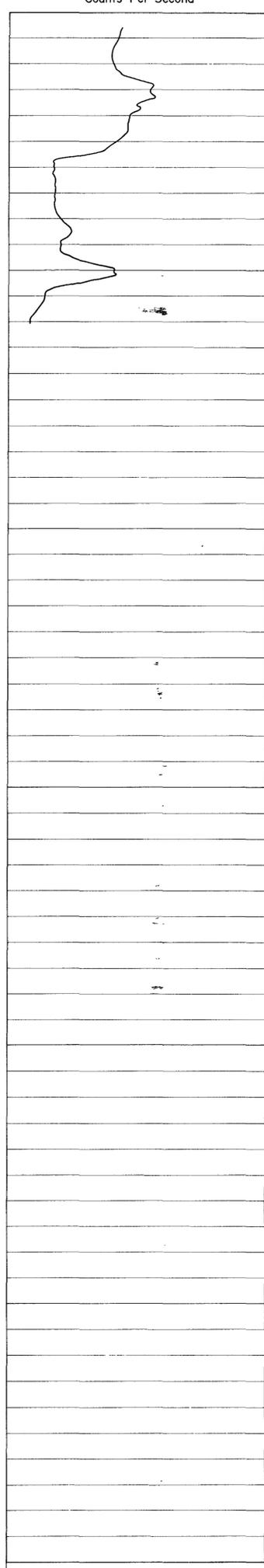
5
Counts Per Second



50 Counts Per Second full scale

DENSITY

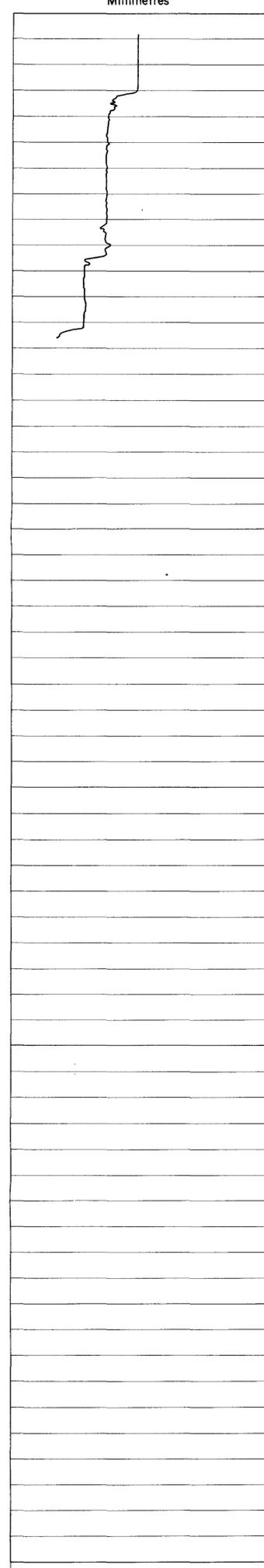
500
Counts Per Second



5000 Counts Per Second full scale

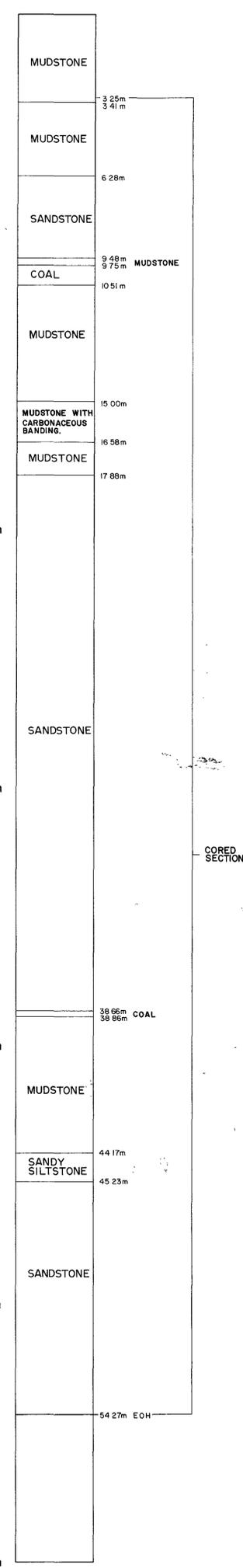
CALIPER

(hole diameter)
25.8
Millimetres



258 Millimetres full scale

GEOLOGY



NOTES

1. Logging rates: electrical logs 15m/min.
nuclear logs 6m/min.
2. Time constants: 2 secs. for gamma and density logs.
3. Spacing on density probe: 35cm.

847327

5 cm

MITRE GEOPHYSICS PTY. LTD.
GEOPHYSICAL WELL-LOGS
KAOOTA AREA
HOLE NO. K 03

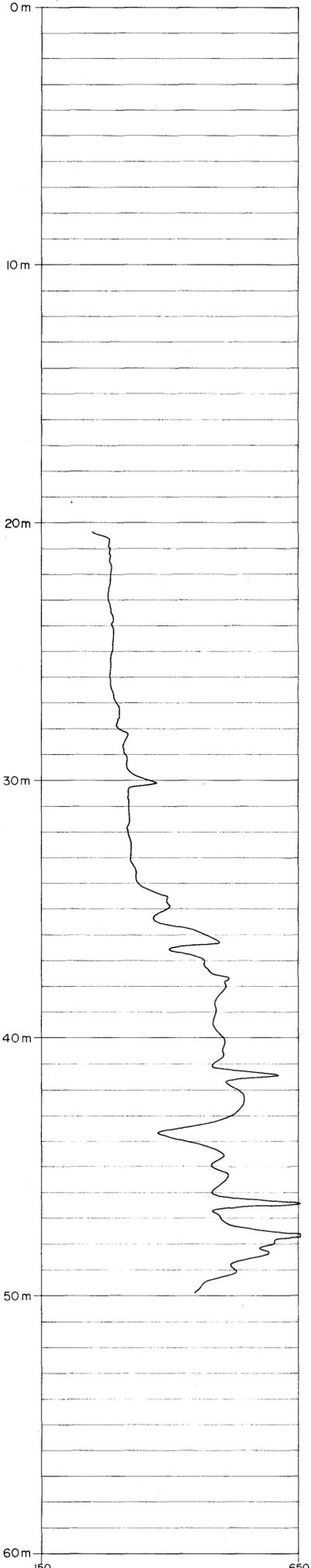
DRAWN: J.B. VERTICAL SCALE: 1:100
TRACED: T.G.D.S. DATE LOGGED: 8 3 1981 FIG.

82-1682 2/2

3966

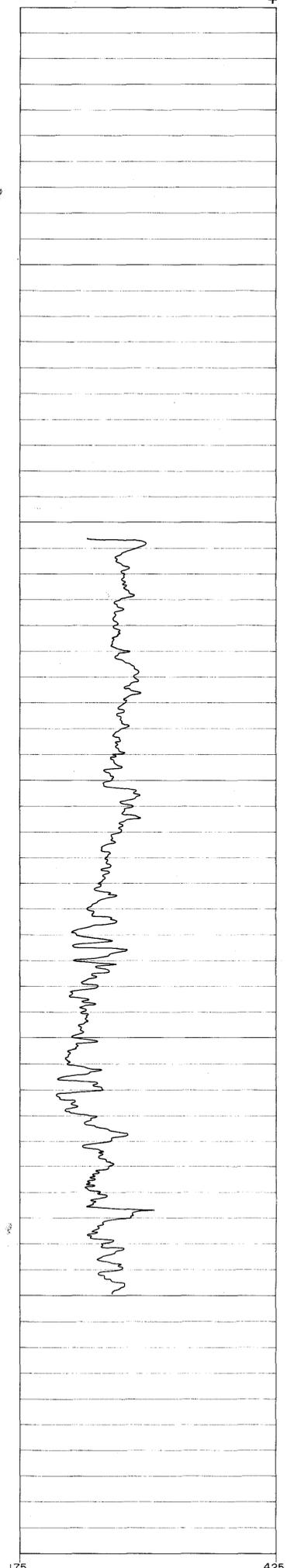
SINGLE POINT RESISTANCE

50 Ohms



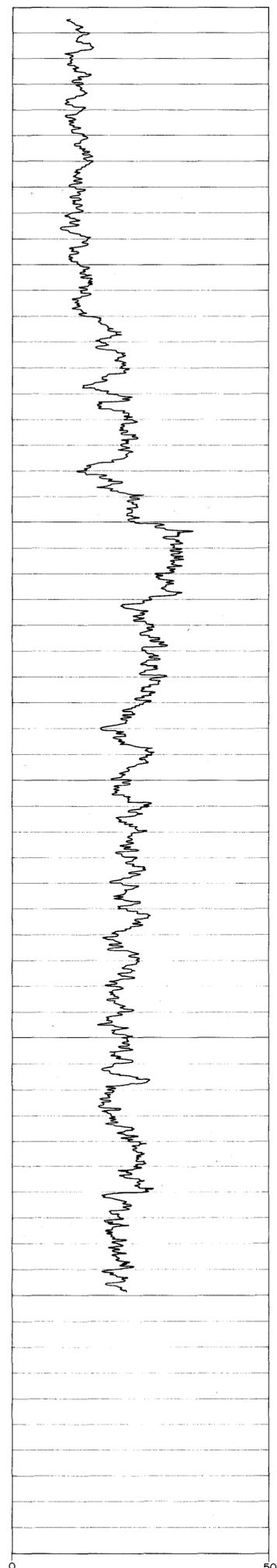
SELF POTENTIAL

25 Millivolts



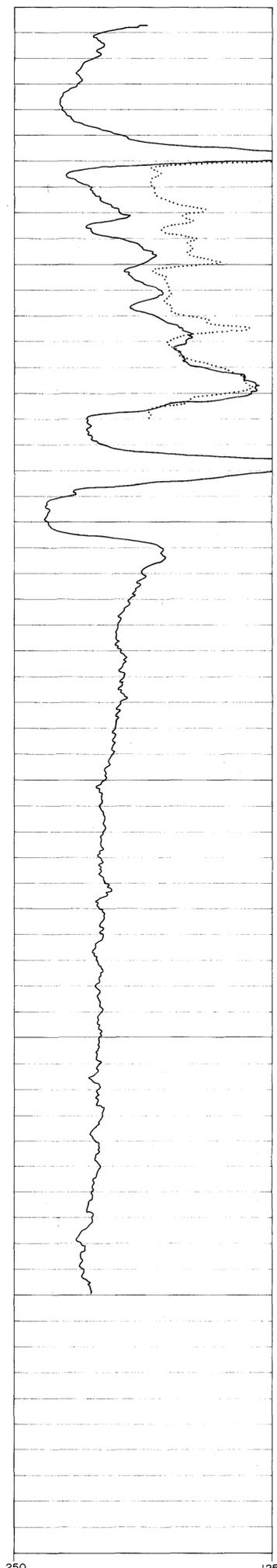
NATURAL GAMMA

5 Counts Per Second



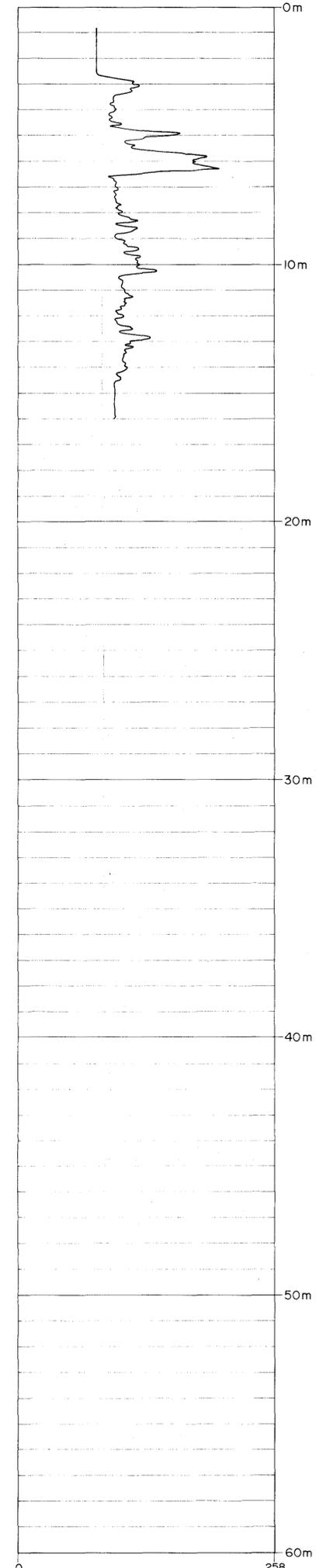
DENSITY

100
500 Counts Per Second

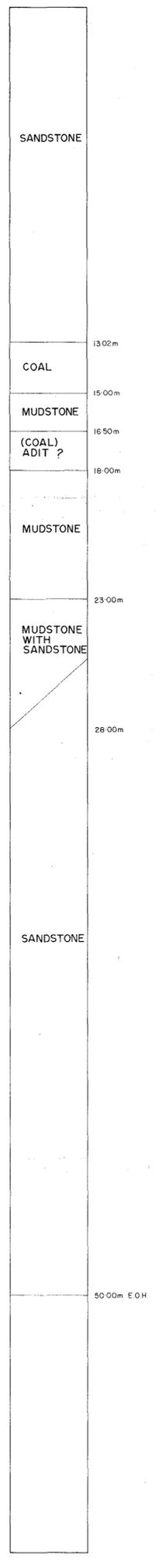


CALIPER

(hole diameter)
25.8 Millimetres



GEOLOGY



NOTES:

1. Logging rates: electrical logs 15m/min.
nuclear logs 6m/min.
2. Time constants: 2 secs for gamma and density logs.
3. Spacing on density probe: 35cm.

847328

5 cm

MITRE GEOPHYSICS PTY. LTD.
GEOPHYSICAL WELL-LOGS
KAOOTA AREA
HOLE NO. K 05

DRAWN: J.B. VERTICAL SCALE: 1:100
TRACED: T.G.D.S. DATE LOGGED: 8.3.1981 FIG

82-1682 a/2

SINGLE POINT RESISTANCE

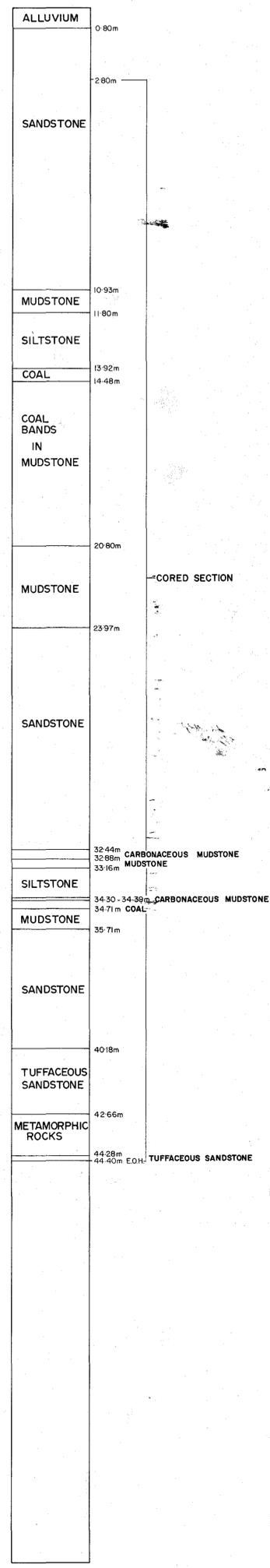
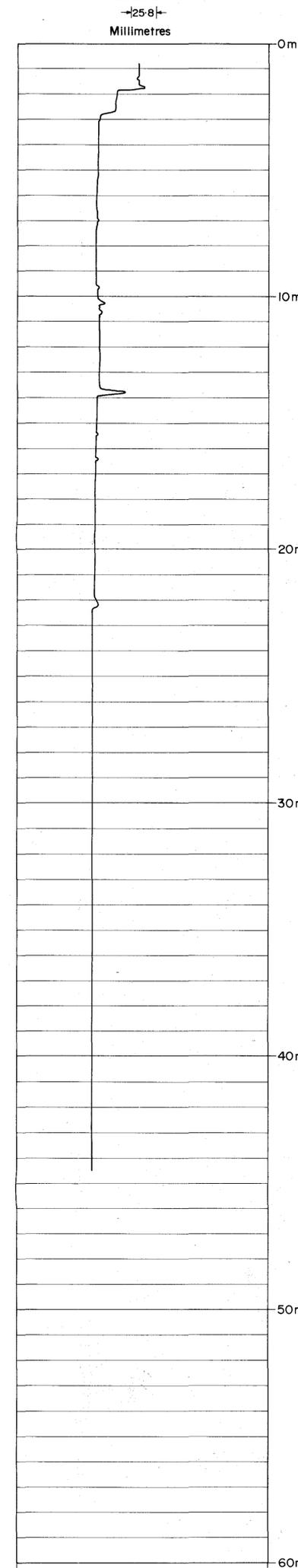
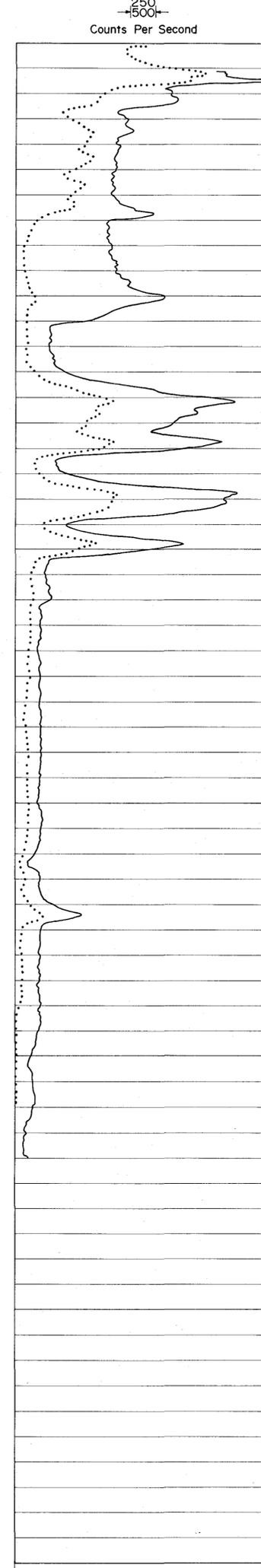
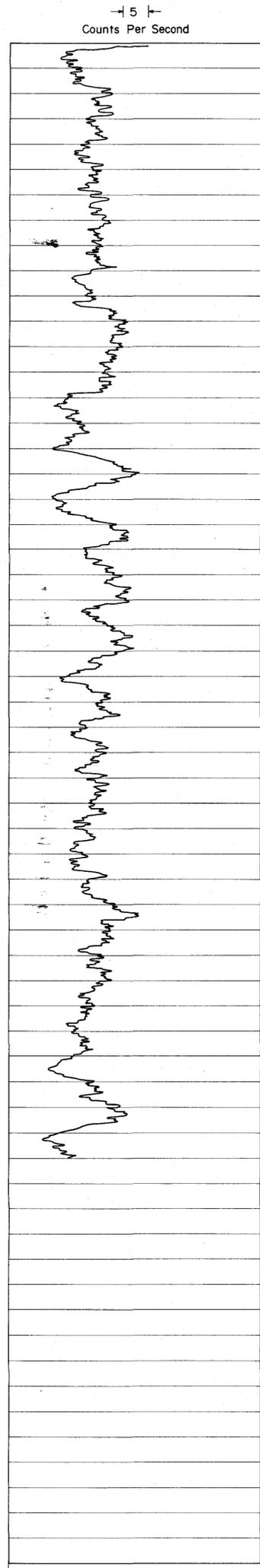
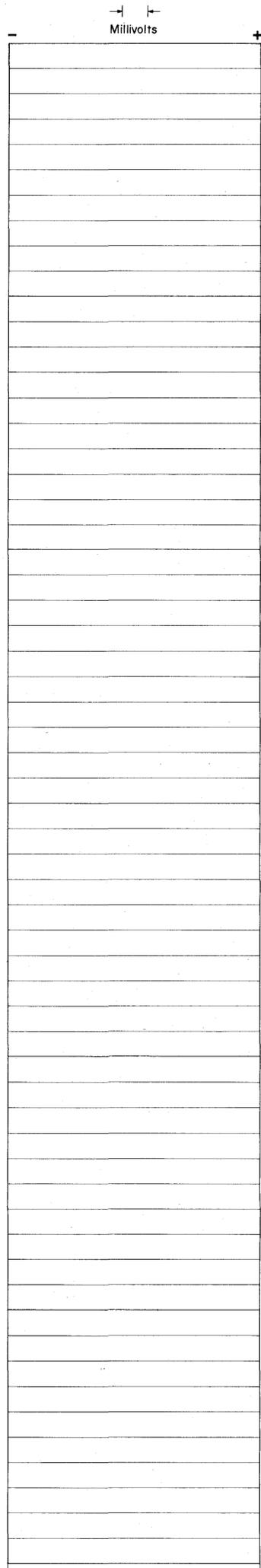
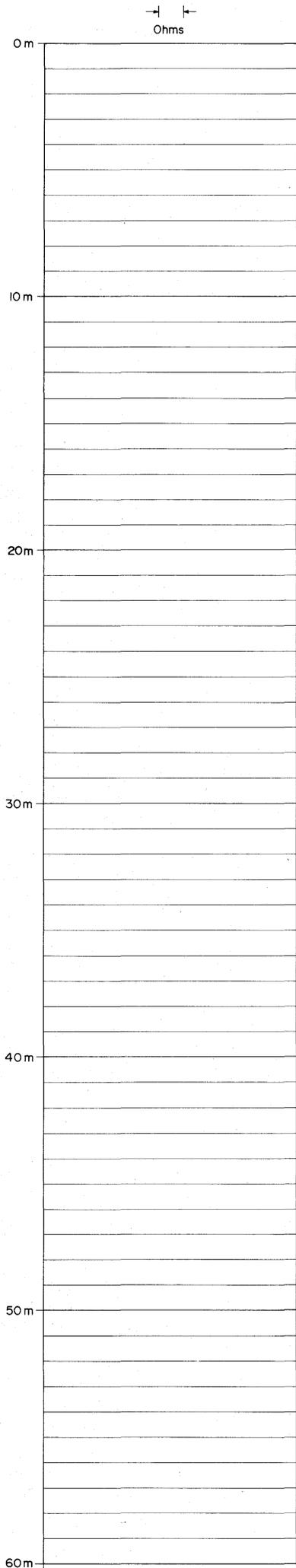
SELF POTENTIAL

NATURAL GAMMA

DENSITY

CALIPER

GEOLOGY



Ohms full scale

Millivolts full scale

50 Counts Per Second full scale

2500 Counts Per Second full scale
5000 Counts Per Second full scale

258 Millimetres full scale

NOTES:

1. Logging rates: electrical logs 15m/min.
nuclear logs 6m/min.
2. Time constants: 2 secs. for gamma and density logs.
3. Spacing on density probe, 35cm.

- Short spacer used with bowspring.
- Logged in rods - no bowspring.

847329

5 cm

3969

MITRE GEOPHYSICS PTY. LTD.
GEOPHYSICAL WELL-LOGS
HAMILTON AREA
HOLE NO. H O I

DRAWN: J.B. VERTICAL SCALE: 1:100
TRACED: T.G.D.S. DATE LOGGED: 30.4.1981

FIG.

82-1632 2/2

SINGLE POINT RESISTANCE

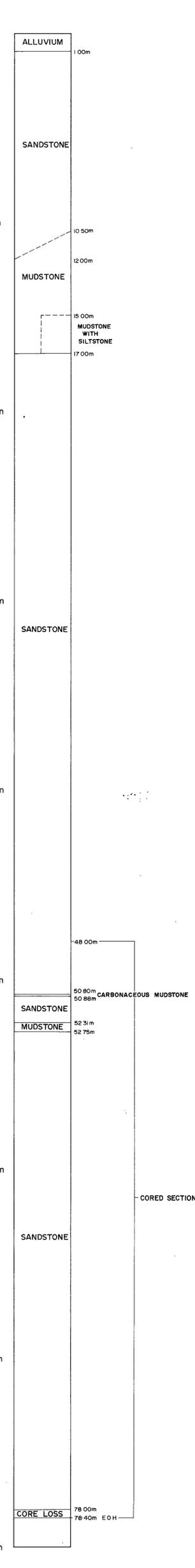
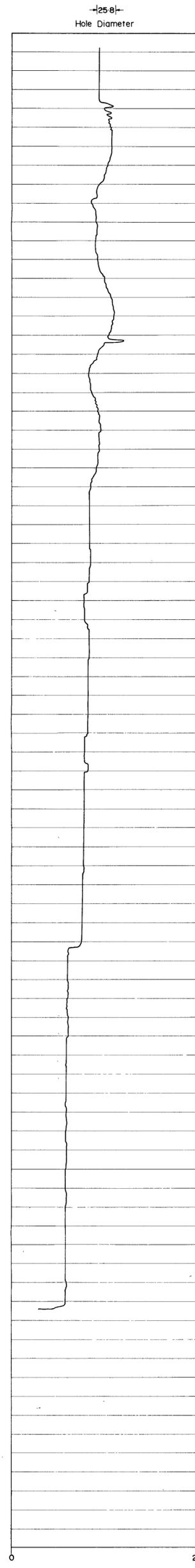
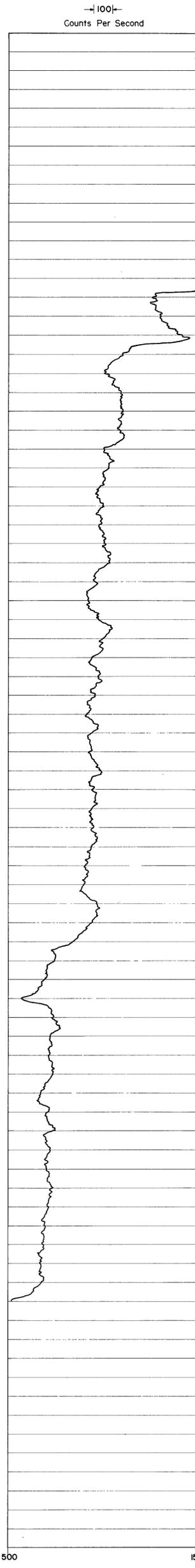
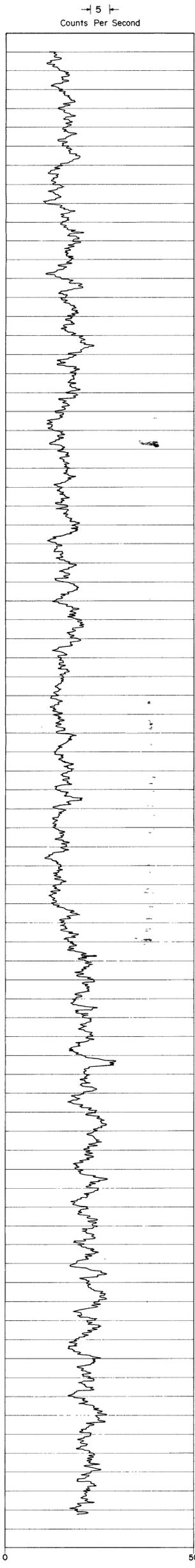
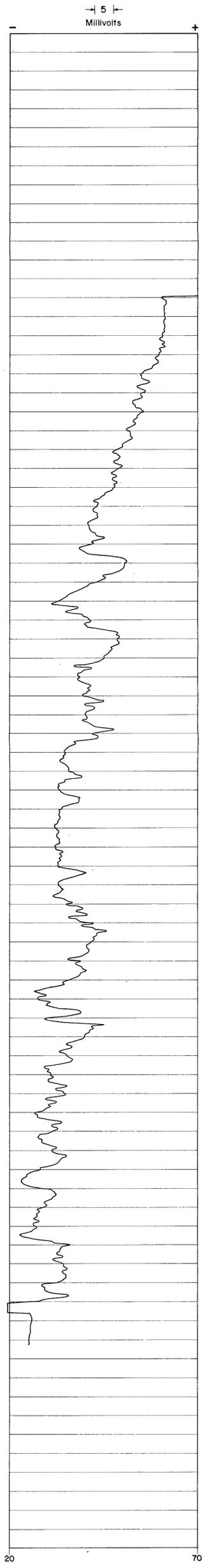
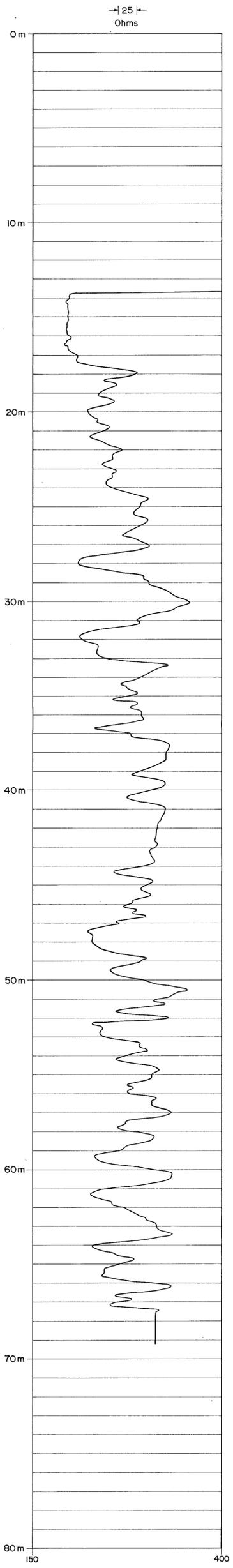
SELF POTENTIAL

NATURAL GAMMA

DENSITY

CALIPER

GEOLOGY



NOTES:
1. Logging rates: electrical logs 15m/min.
nuclear logs 6m/min
2. Time constants: 2 secs for gamma and
density logs.
3. Spacing on density probe: 35cm.

847330
5cm 3970

MITRE GEOPHYSICS PTY. LTD.
GEOPHYSICAL WELL- LOGS
HAMILTON AREA
HOLE NO. H02
DRAWN JB VERTICAL SCALE: 1:100
TRACED T.G.D.S DATE LOGGED: 5.5.1981 FIG.

82-1682 2/2

SINGLE POINT RESISTANCE

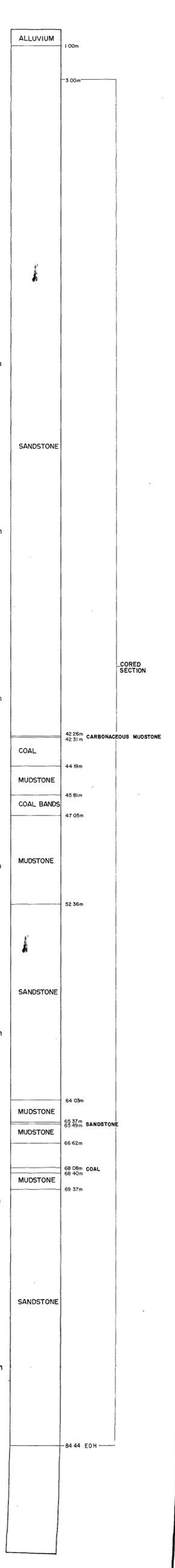
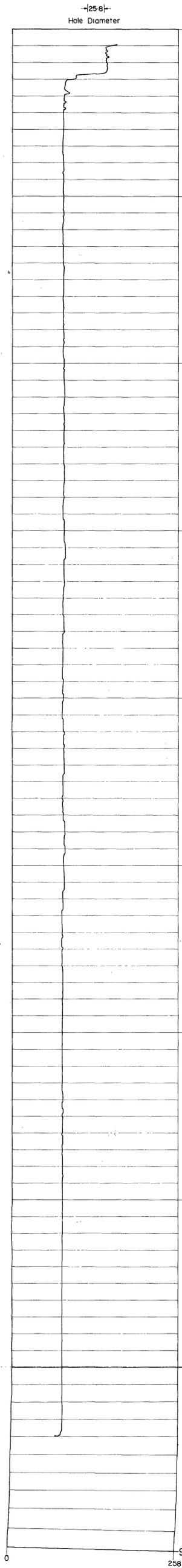
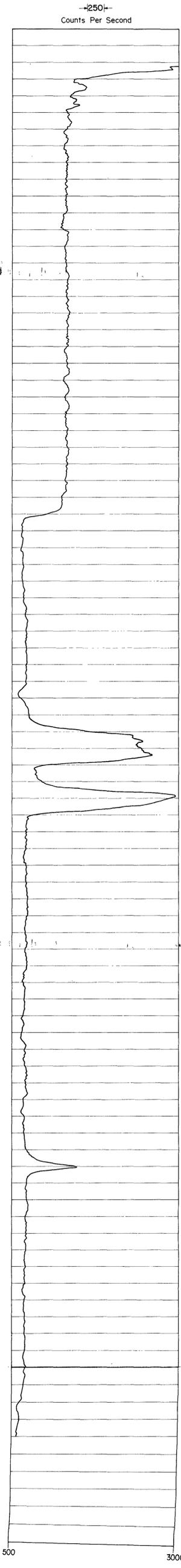
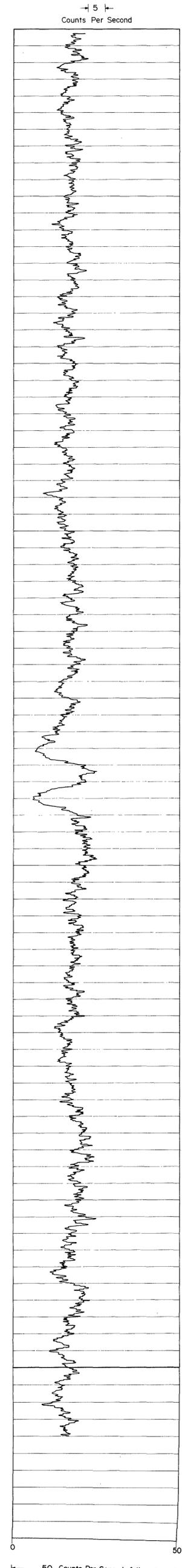
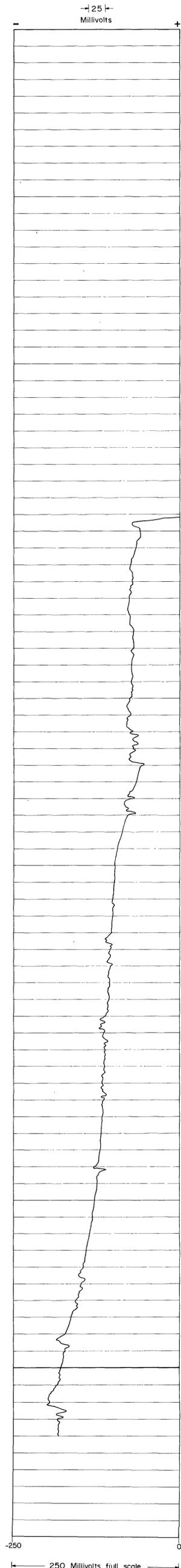
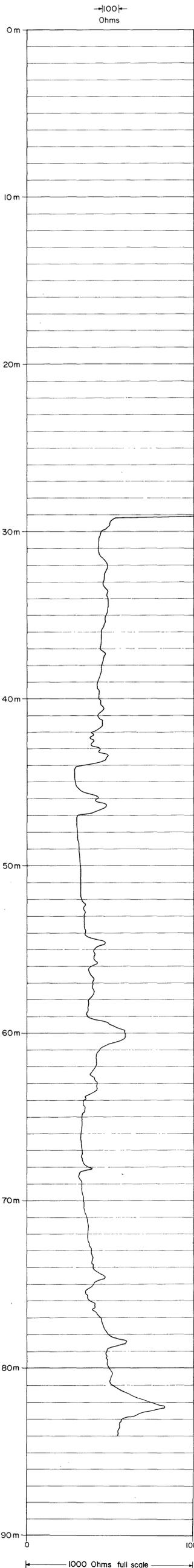
SELF POTENTIAL

NATURAL GAMMA

DENSITY

CALIPER

GEOLOGY



NOTES:
 1. Logging rates: electrical logs 15m/min, nuclear logs 6m/min.
 2. Time constants: 2secs for gamma and density logs.
 3. Spacing on density probe: 35cm.

847331

5 cm

9571

MITRE GEOPHYSICS PTY. LTD.
 GEOPHYSICAL WELL-LOGS
 HAMILTON AREA
 HOLE NO. H 03

DRAWN: J.B. VERTICAL SCALE: 1:100
 TRACED: T.B.D.S. DATE LOGGED: 12.5.98

FIG.

22-1082 dz

SINGLE POINT RESISTANCE

Ohms

SELF POTENTIAL

Millivolts

NATURAL GAMMA

Counts Per Second

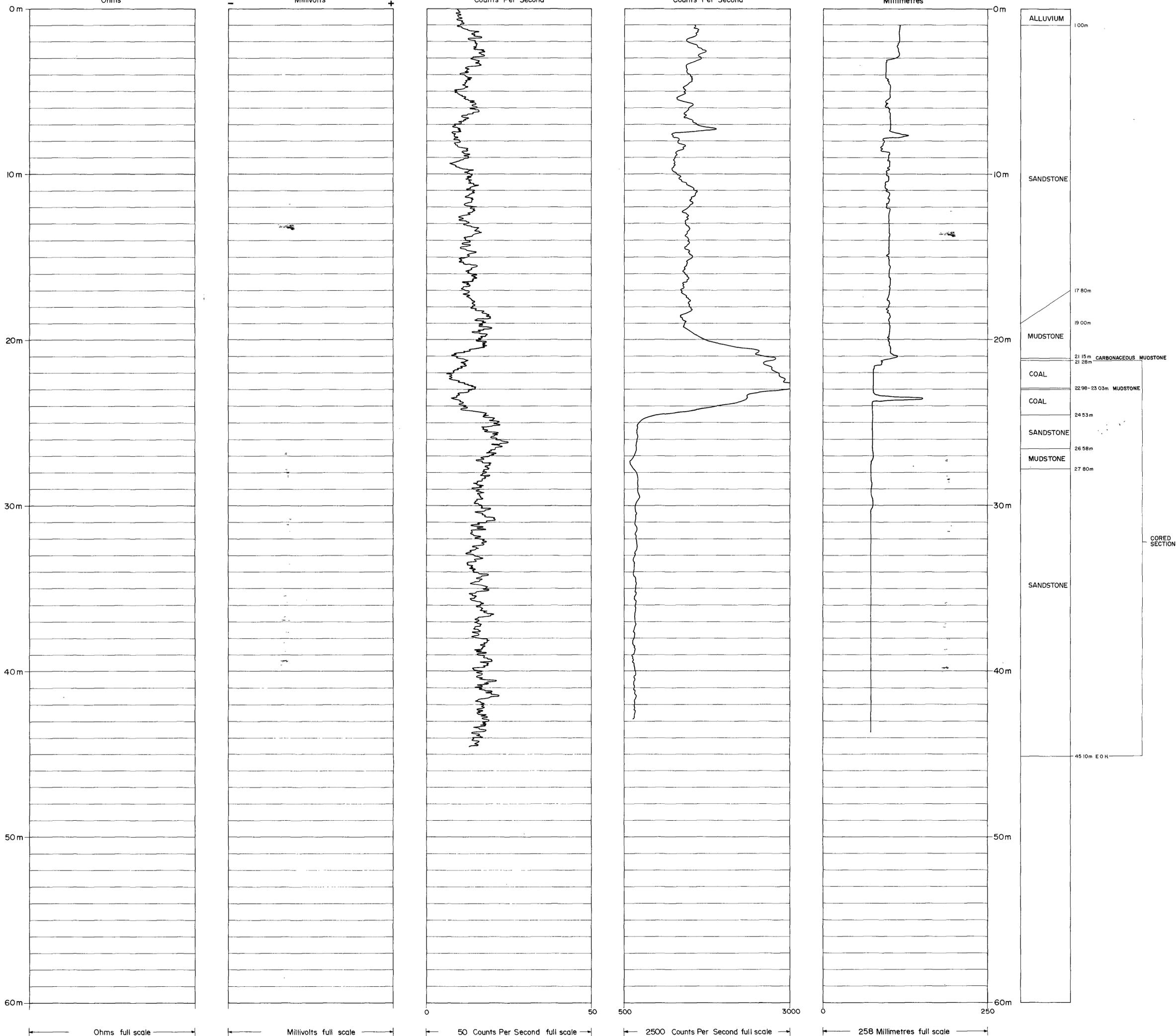
DENSITY

Counts Per Second

CALIPER

(hole diameter)
Millimetres

GEOLOGY



847332

5 cm

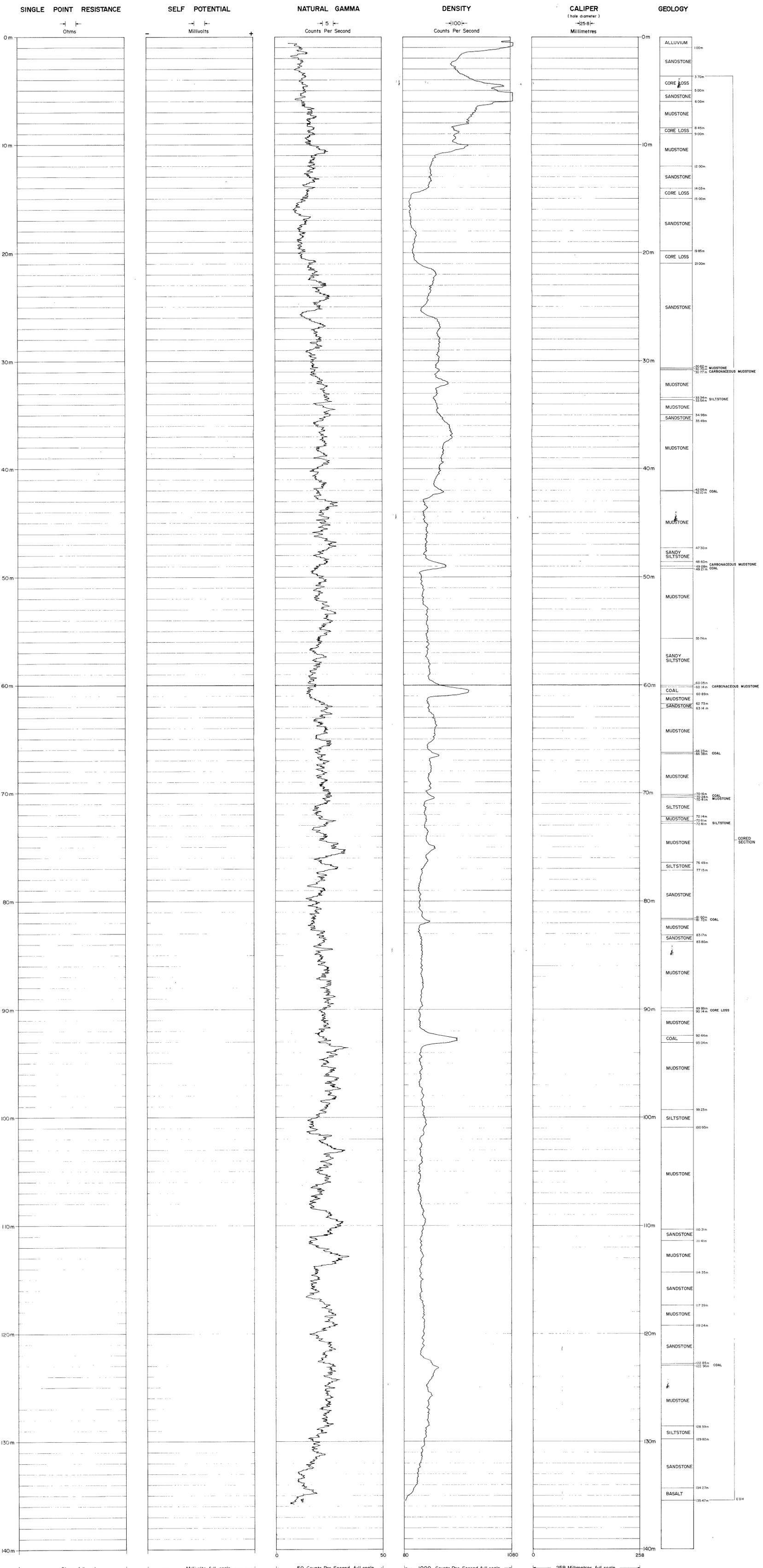
3873

NOTES:

1. Logging rates: electrical logs 15m/min.
nuclear logs 6 m/min.
2. Time constants: 2 secs for gamma and density logs
3. Spacing on density probe: 35cm.

MITRE GEOPHYSICS PTY. LTD.	
GEOPHYSICAL WELL- LOGS	
HAMILTON AREA	
HOLE NO. H 04	
DRAWN J.B.	VERTICAL SCALE: 1:100
TRACED T.G.D.S.	DATE LOGGED 13 8 1981
FIG.	

82-182 2/2



NOTE: Logged inside rods
no bowstring.

- NOTES:
- Logging rates: electrical logs 15m/min
nuclear logs 6m/min
 - Time constants: 2 secs for gamma and density logs.
 - Spacing on density probe: 35cm

847333

5m

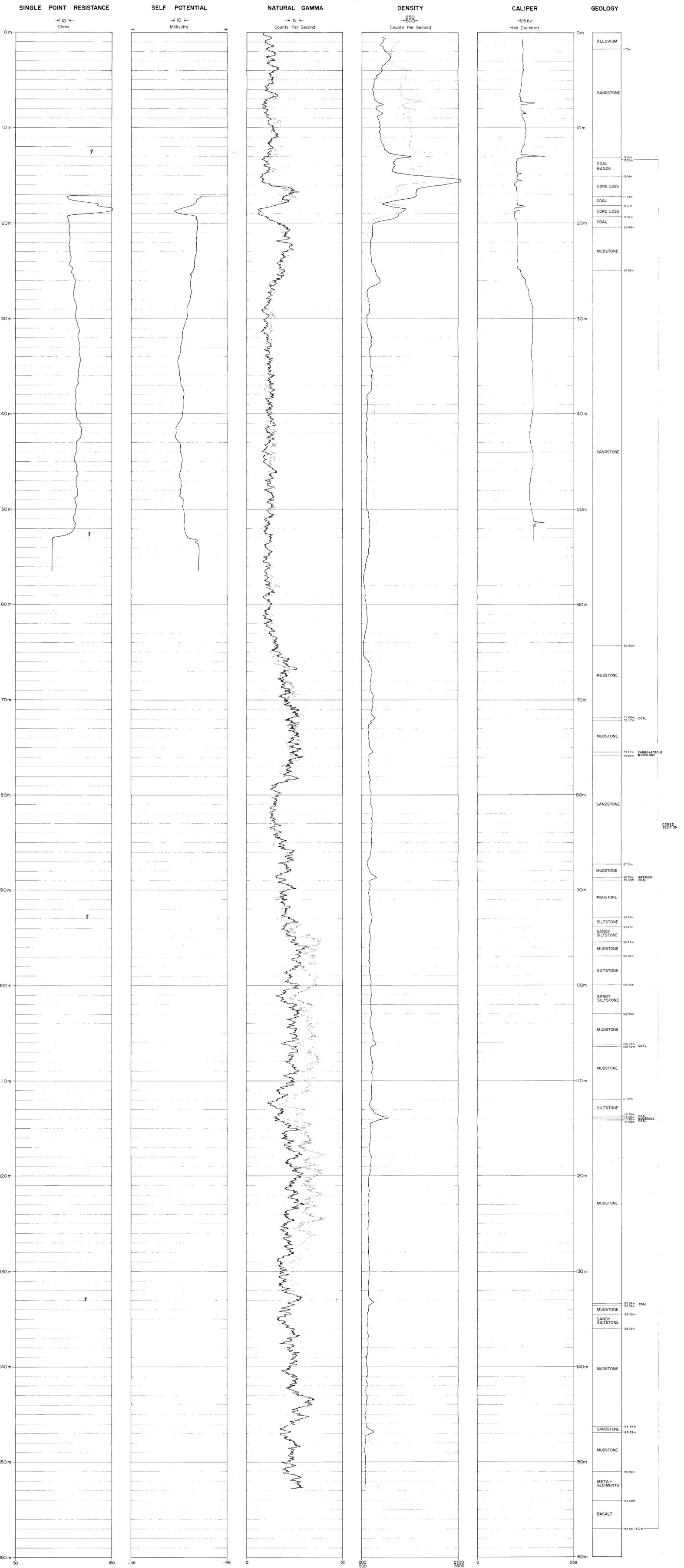
3967

MITRE GEOPHYSICS PTY. LTD.
 GEOPHYSICAL WELL- LOGS
 HAMILTON AREA
 HOLE NO. H 05

DRAWN JB VERTICAL SCALE 1:100
 TRACED T.B.S DATE LOGGED 3 6 1982

52-163 3/2

FIG.



100 Ohms full scale 100 Millivolts full scale 50 Counts Per Second full scale 2500 Counts Per Second full scale / 5000 Counts Per Second full scale 258 Millimetres full scale

NOTE: Logged inside rods - no bowstring

NOTES:
 1. Logging rates: electrical logs 15m/min, nuclear logs 6m/min
 2. Time constants: 2 secs for gamma and density logs.
 3. Spacing on density probe: 35cm

847334
 5cm
 3972

MITRE GEOPHYSICS PTY. LTD.
 GEOPHYSICAL WELL- LOGS
 HAMILTON AREA
 HOLE NO. H06

DRAWN: JB VERTICAL SCALE: 1:100
 TRACED: TGD DATE LOGGED: 22.5.98 FIG.

SINGLE POINT RESISTANCE

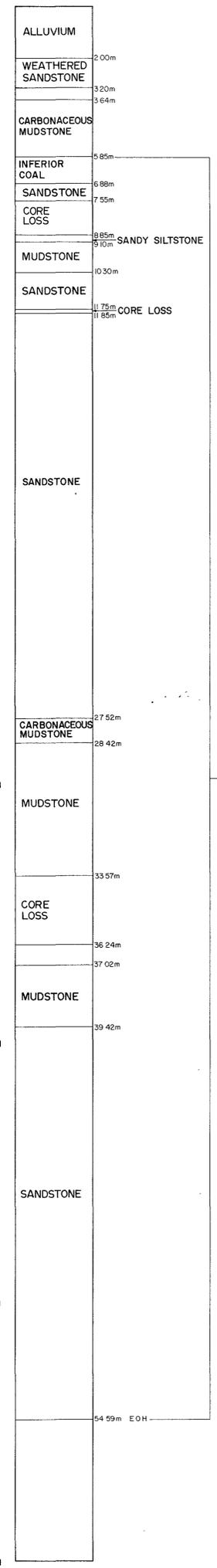
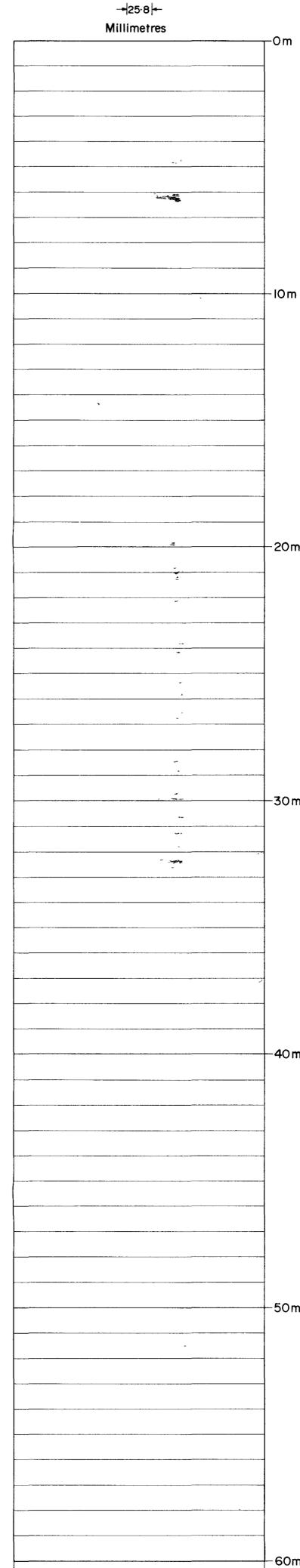
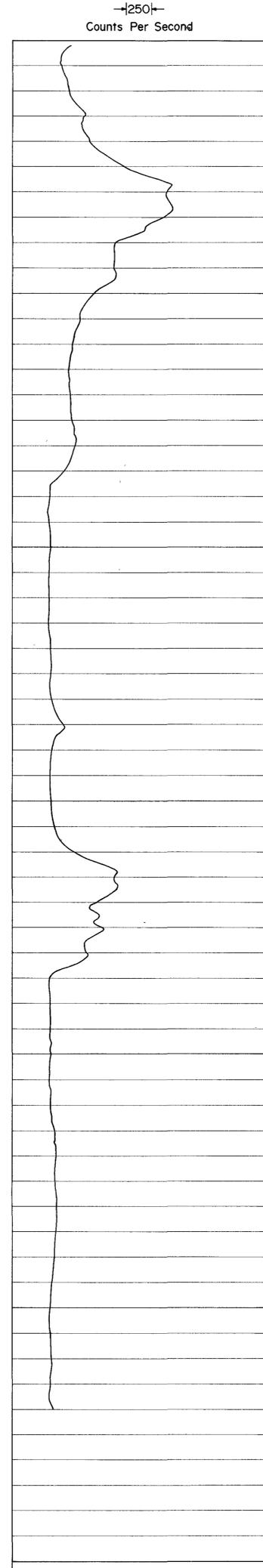
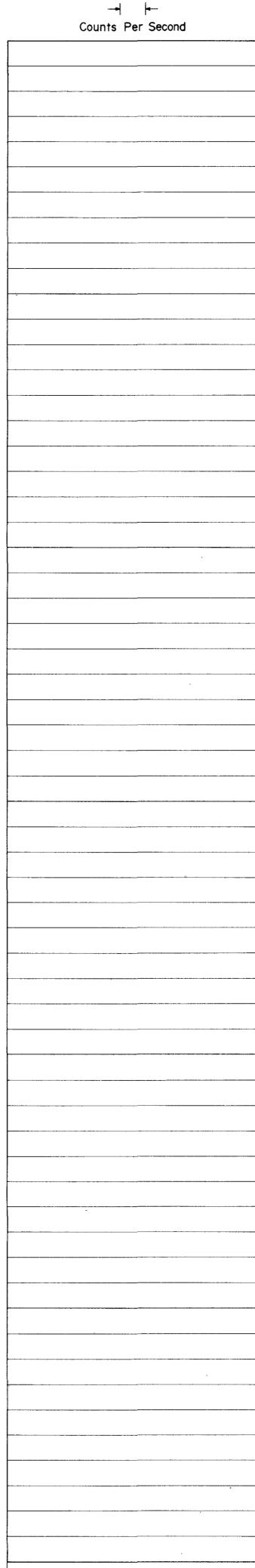
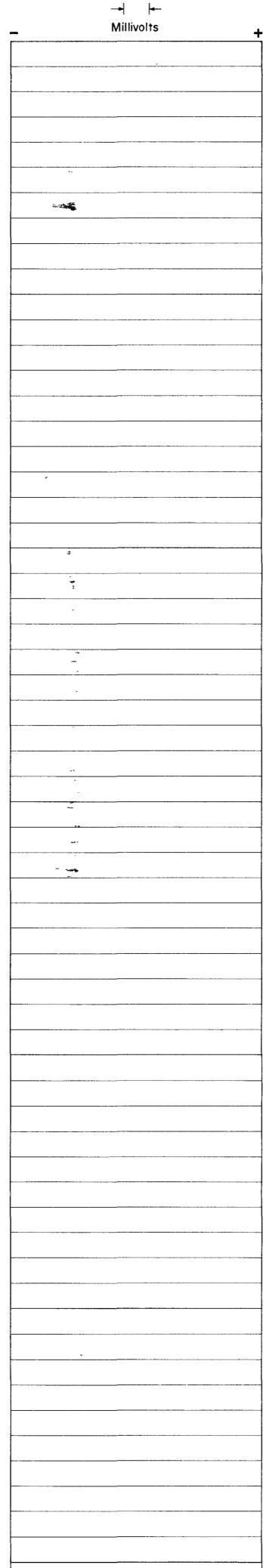
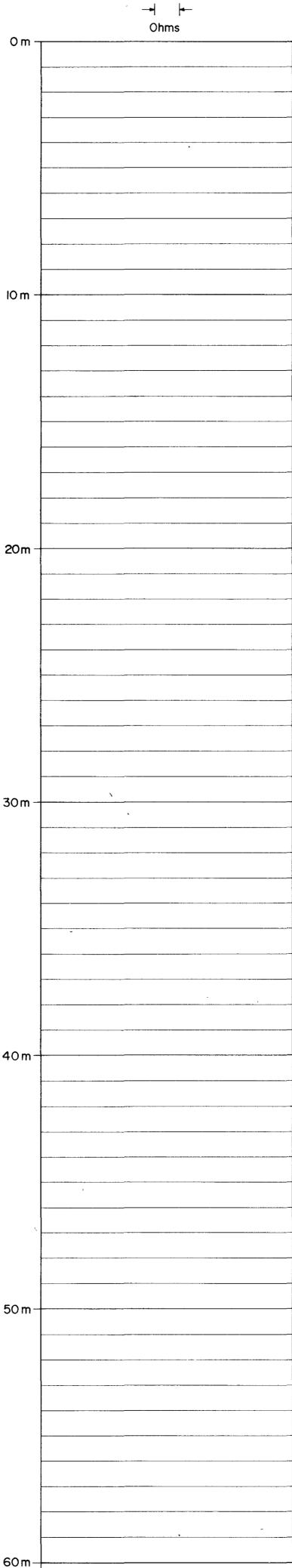
SELF POTENTIAL

NATURAL GAMMA

DENSITY

CALIPER

GEOLOGY



Ohms full scale

Millivolts full scale

Counts Per Second full scale

2500 Counts Per Second full scale

258 Millimetres full scale

847335

5 cm 3974

- NOTES:
1. Logging rates: electrical logs 15m/min. nuclear logs 6m/min.
 2. Time constants: 2 secs. for gamma and density logs.
 3. Spacing on density probe, 35cm.

MITRE GEOPHYSICS PTY. LTD.

GEOPHYSICAL WELL- LOGS

OATLANDS AREA

HOLE NO. O-O1

DRAWN: J.B. VERTICAL SCALE: 1:100
 TRACED: T.G.D.S. DATE LOGGED: 25.3.1981

FIG.

82-1632 22

SINGLE POINT RESISTANCE

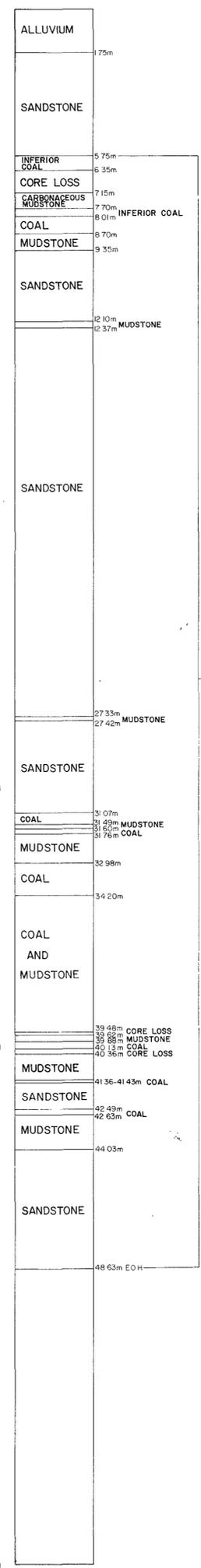
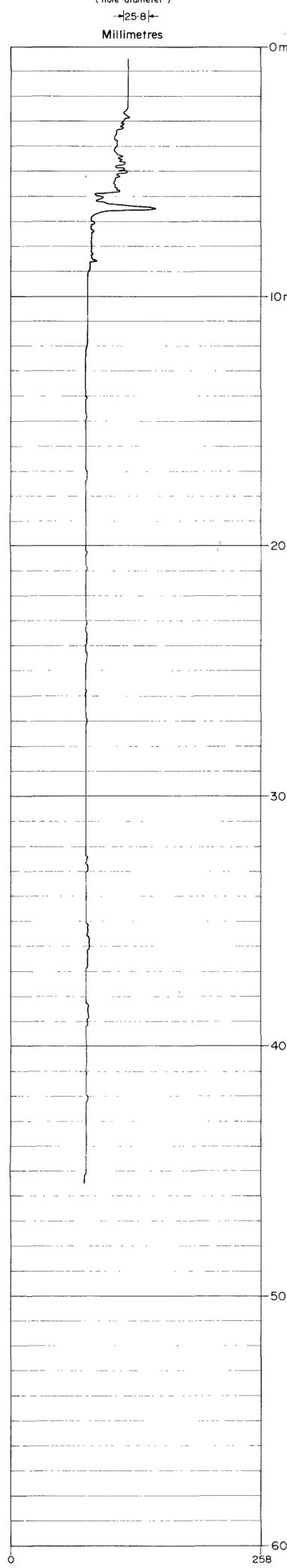
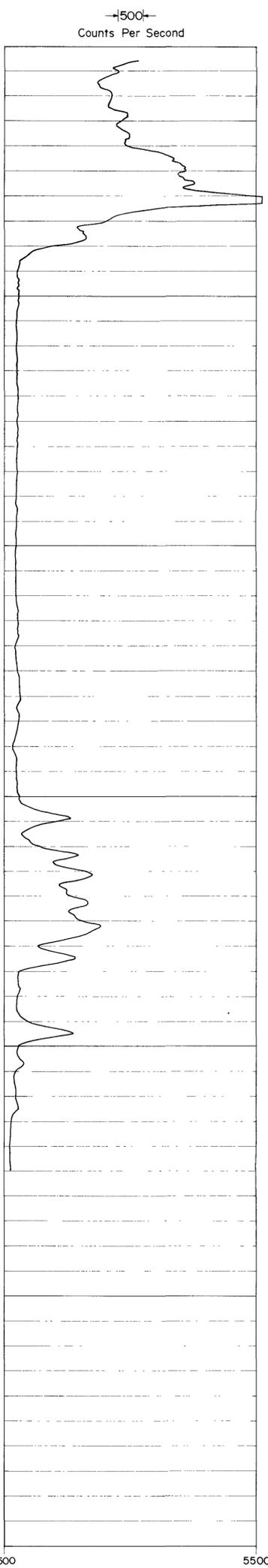
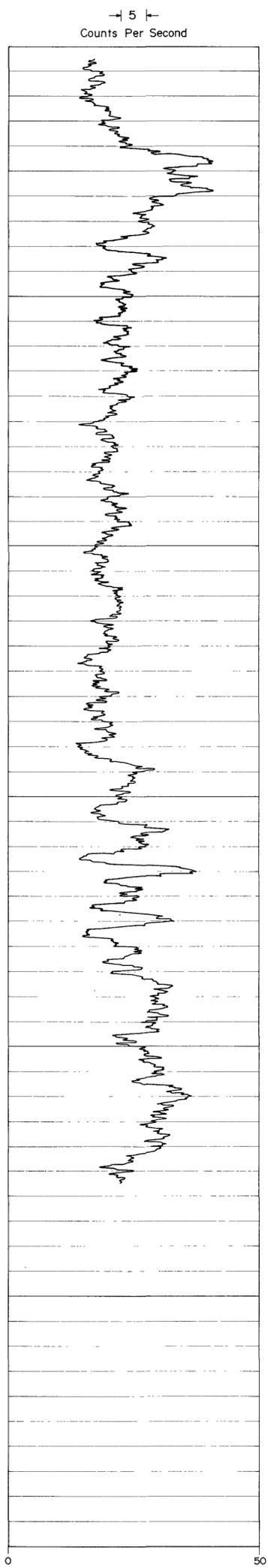
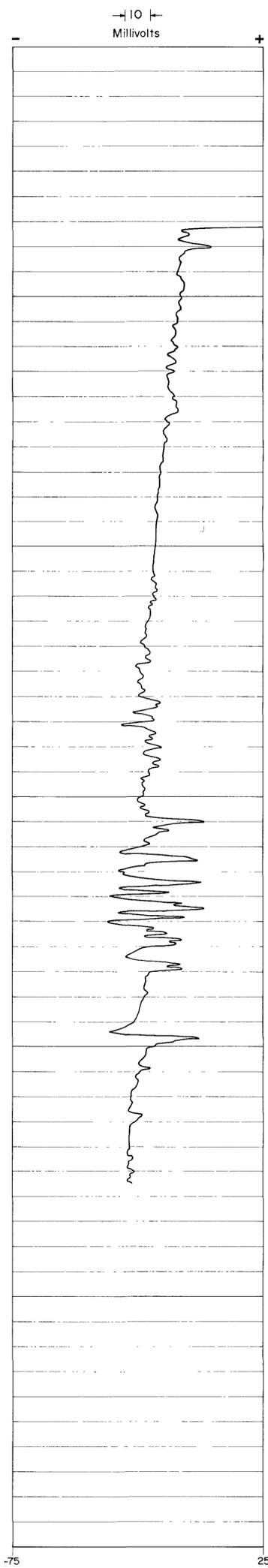
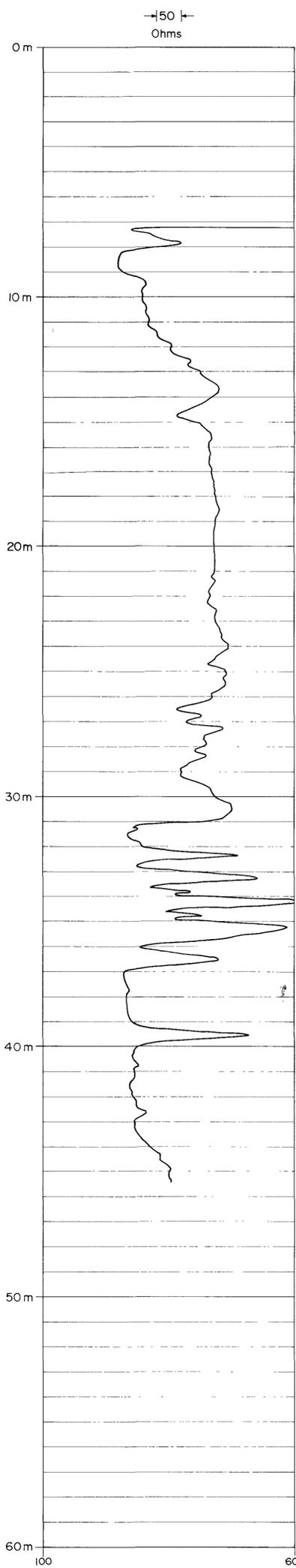
SELF POTENTIAL

NATURAL GAMMA

DENSITY

CALIPER

GEOLOGY



500 Ohms full scale

100 Millivolts full scale

50 Counts Per Second full scale

5000 Counts Per Second full scale

258 Millimetres full scale

NOTE: Logged in rods
-no bowspring

- NOTES:
- 1 Logging rates: electrical logs 15m/min.
nuclear logs 6m/min.
 - 2 Time constants: 2 secs for gamma and density logs
 - 3 Spacing on density probe: 35cm.

847336

5cm

3875

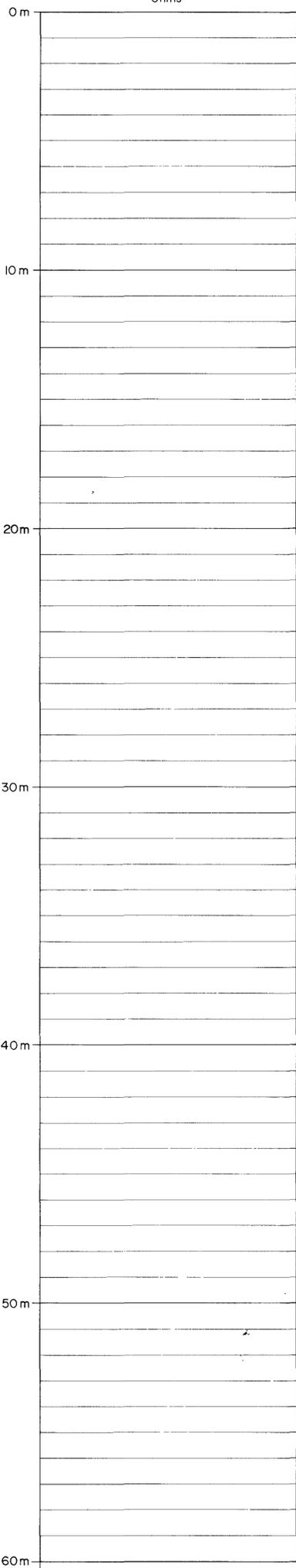
MITRE GEOPHYSICS PTY. LTD.
GEOPHYSICAL WELL- LOGS
OATLANDS AREA
HOLE NO. 0-02

DRAWN J.B. VERTICAL SCALE 1:100
TRACED T.G.D.S. DATE LOGGED 2.4.1981 FIG.

82-1682 2/2

SINGLE POINT RESISTANCE

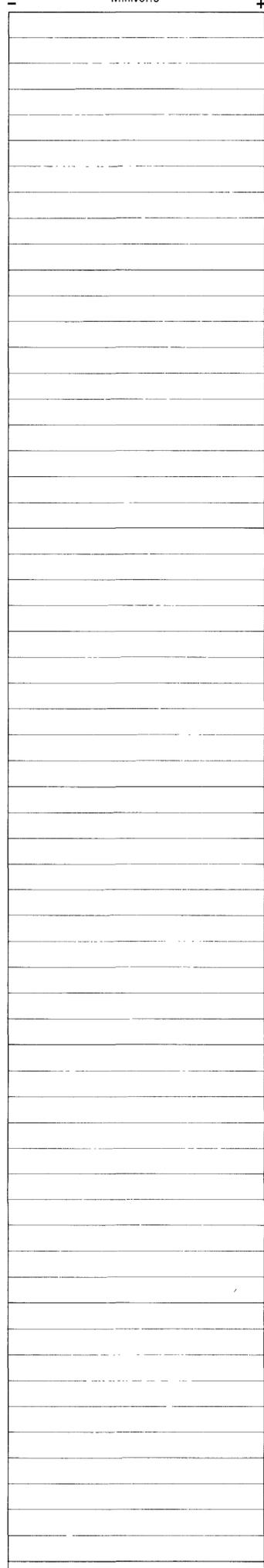
Ohms



Ohms full scale

SELF POTENTIAL

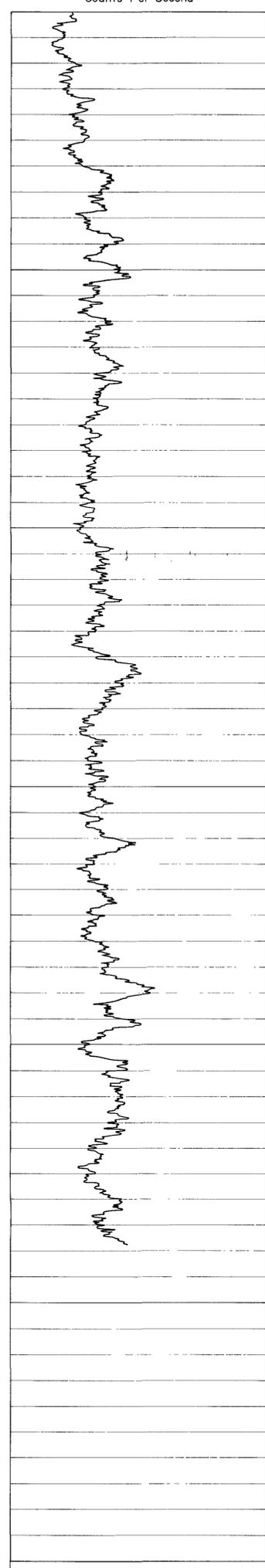
Millivolts



Millivolts full scale

NATURAL GAMMA

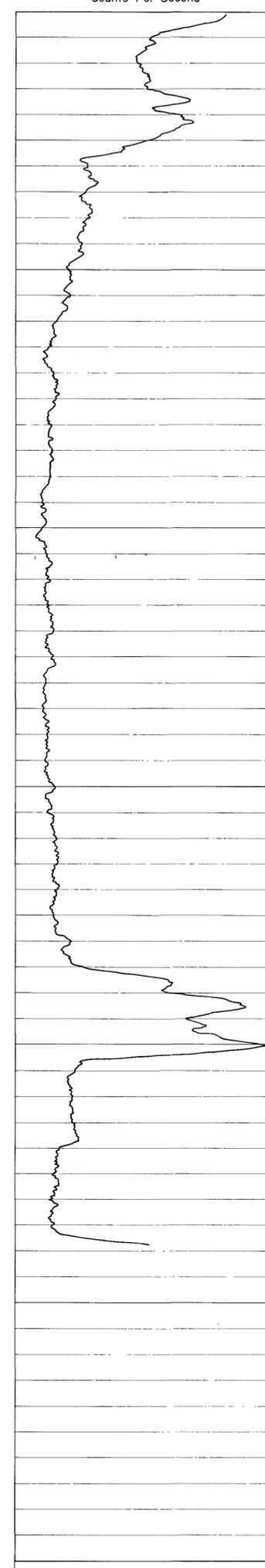
Counts Per Second



50 Counts Per Second full scale

DENSITY

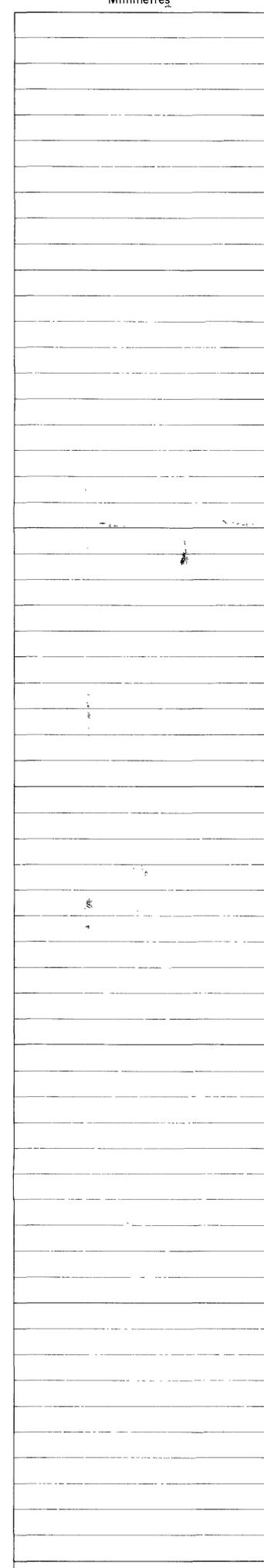
Counts Per Second



1000 Counts Per Second full scale

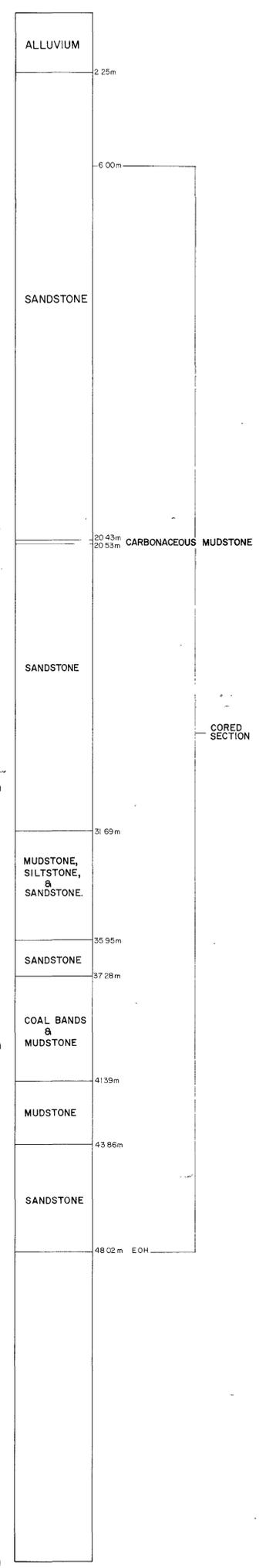
CALIPER

(hole diameter)
Millimetres



258 Millimetres full scale

GEOLOGY



NOTE Logged in rods
- no bowspring

NOTES:

1. Logging rates - electrical logs 15m/min.
nuclear logs 6m/min.
2. Time constants: 2 secs for gamma and density logs
3. Spacing on density probe, 35cm.

847337

5 cm

3976

MITRE GEOPHYSICS PTY. LTD.
GEOPHYSICAL WELL-LOGS
OATLANDS AREA
HOLE NO. 0-03A

DRAWN J.B. VERTICAL SCALE 1:100
TRACED T.G.D.S. DATE LOGGED 2 4 1981 FIG.

82-1682 2/2

SINGLE POINT RESISTANCE

Ohms

SELF POTENTIAL

Millivolts

NATURAL GAMMA

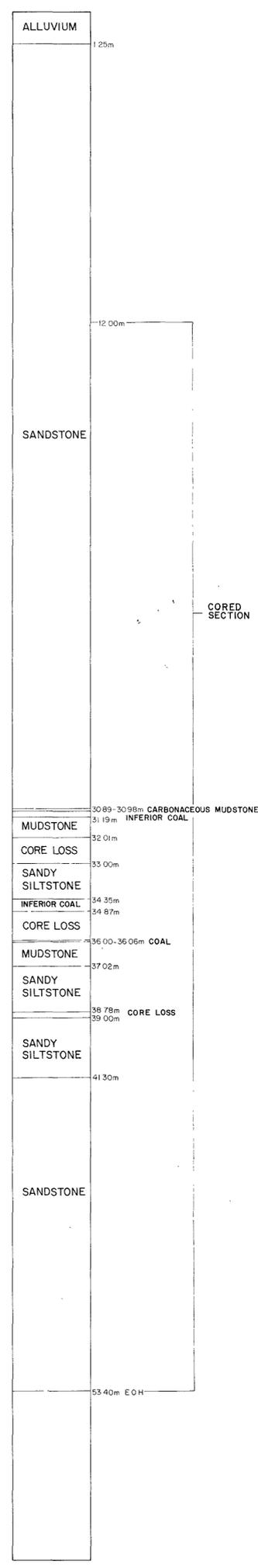
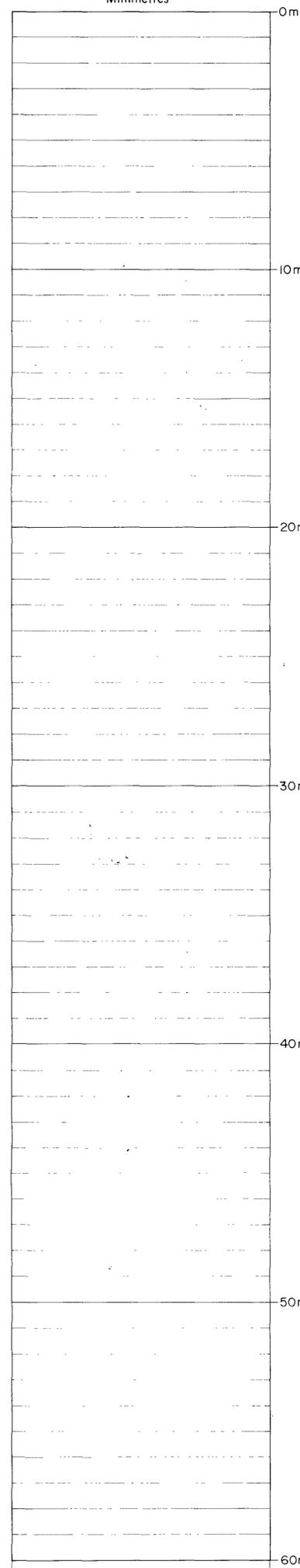
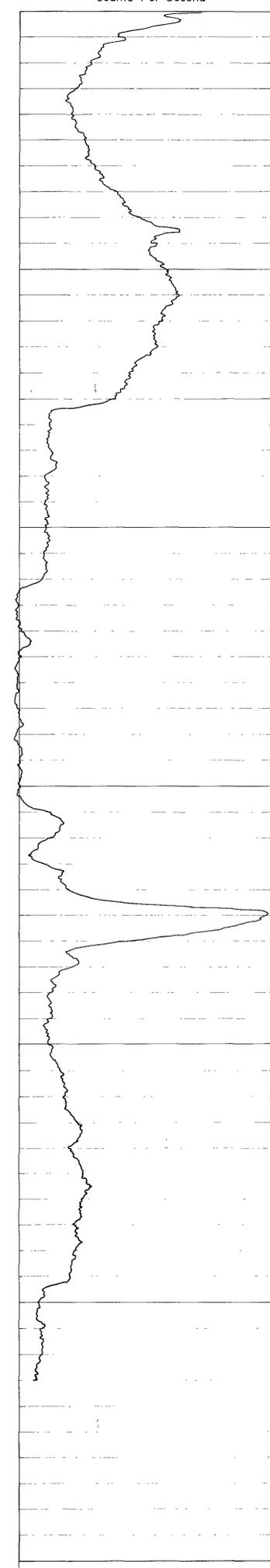
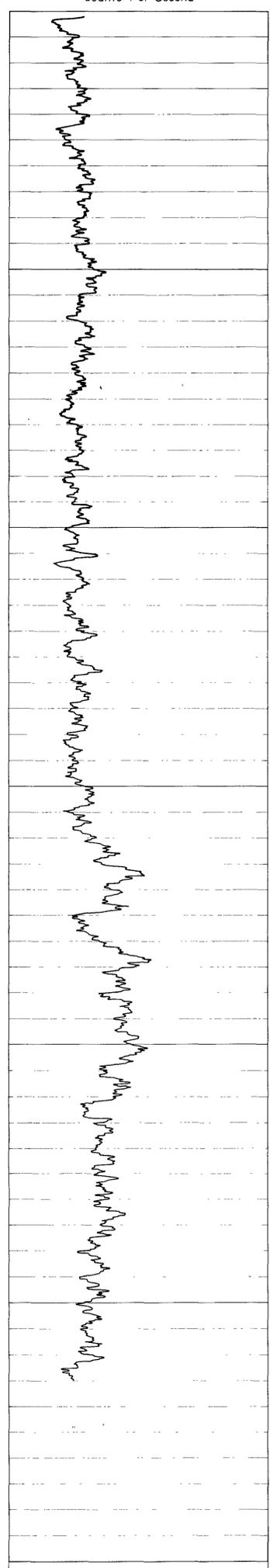
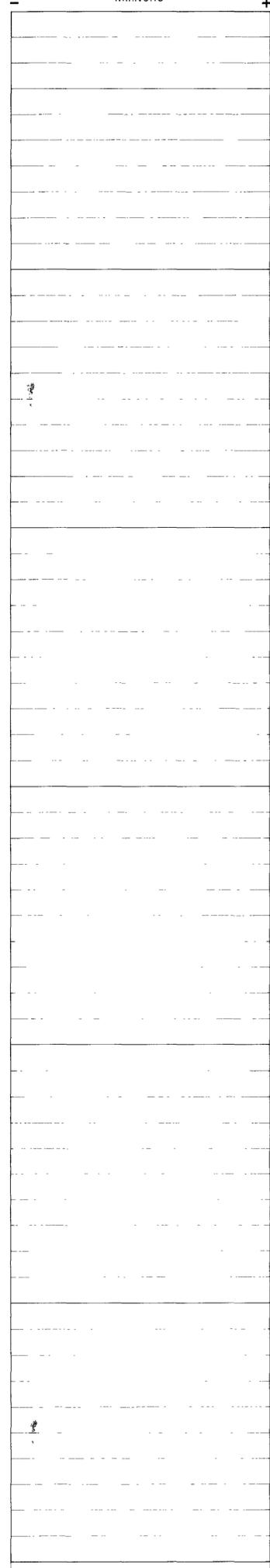
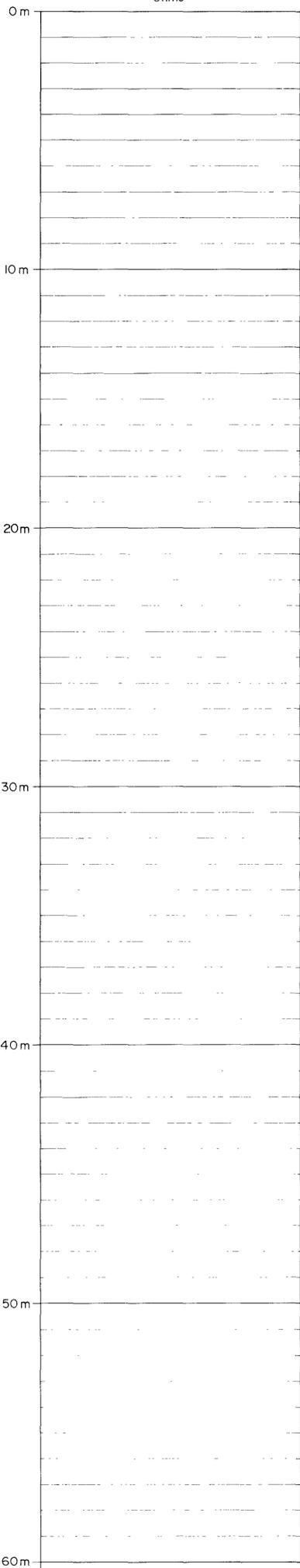
Counts Per Second

DENSITY

Counts Per Second

CALIPER
(hole diameter)
Millimetres

GEOLOGY



CORED SECTION

Ohms full scale

Millivolts full scale

50 Counts Per Second full scale

1000 Counts Per Second full scale

258 Millimetres full scale

NOTE Logged in rods
- no bowspring

- NOTES:
- 1 Logging rates - electrical logs 15m/min.
nuclear logs 6m/min.
 - 2 Time constants - 2 secs for gamma and density logs
 - 3 Spacing on density probe 35cm

847338

5 cm

3577

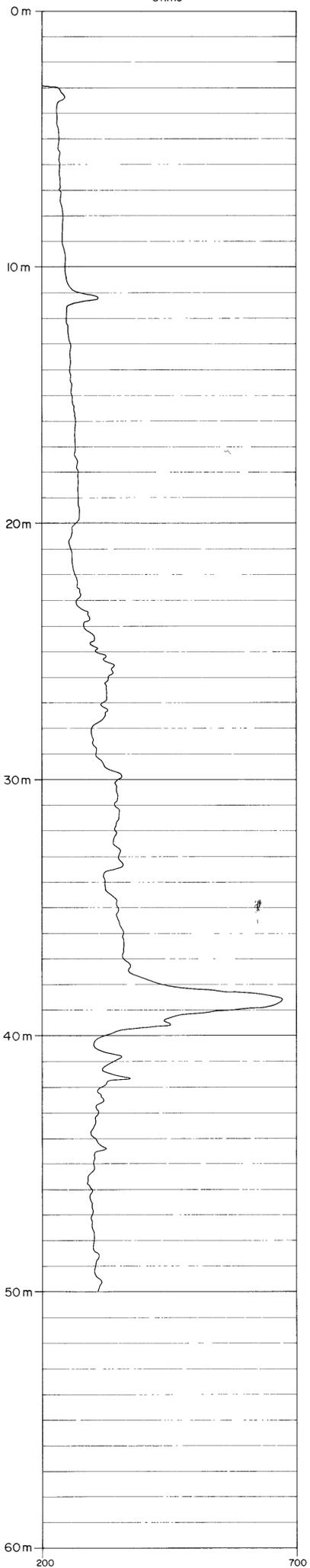
MITRE GEOPHYSICS PTY. LTD.
GEOPHYSICAL WELL-LOGS
OATLANDS AREA
HOLE NO. O-03B

DRAWN J.B. VERTICAL SCALE 1:100
TRACED T.G.D.S. DATE LOGGED 4.4.1981 FIG

82-1692 2/2

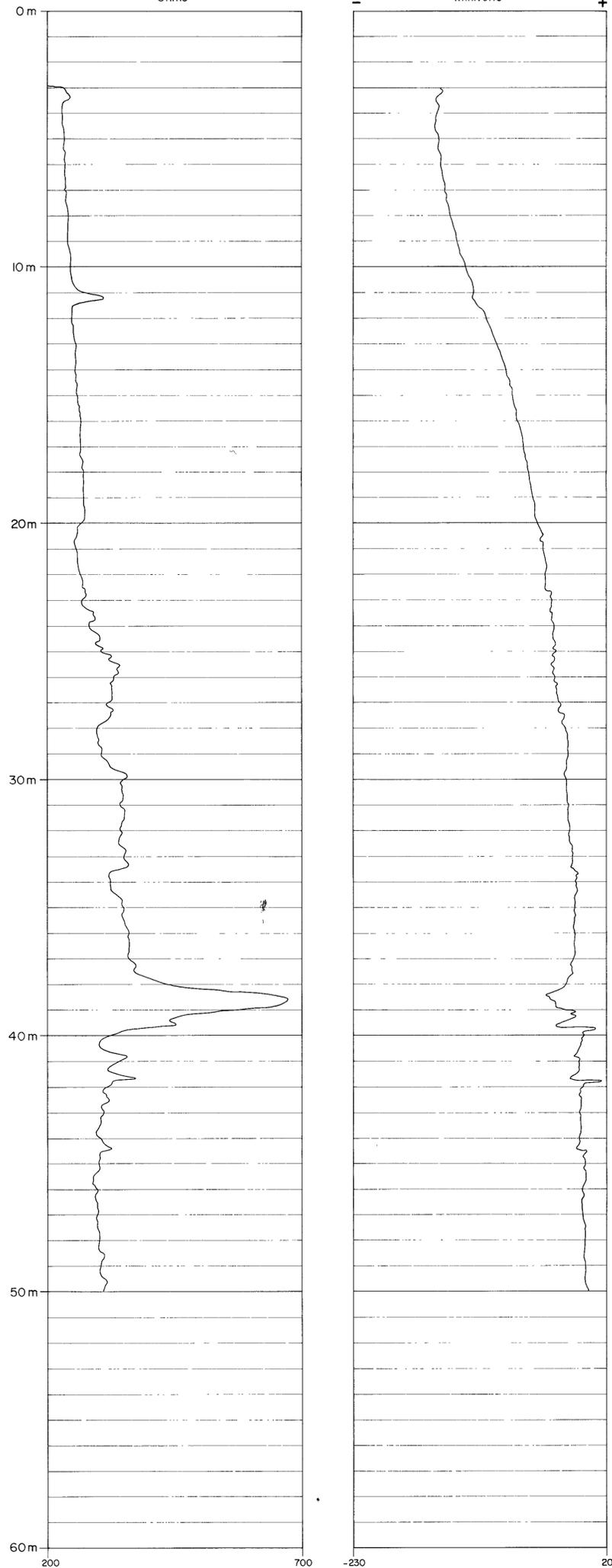
SINGLE POINT RESISTANCE

50 Ohms



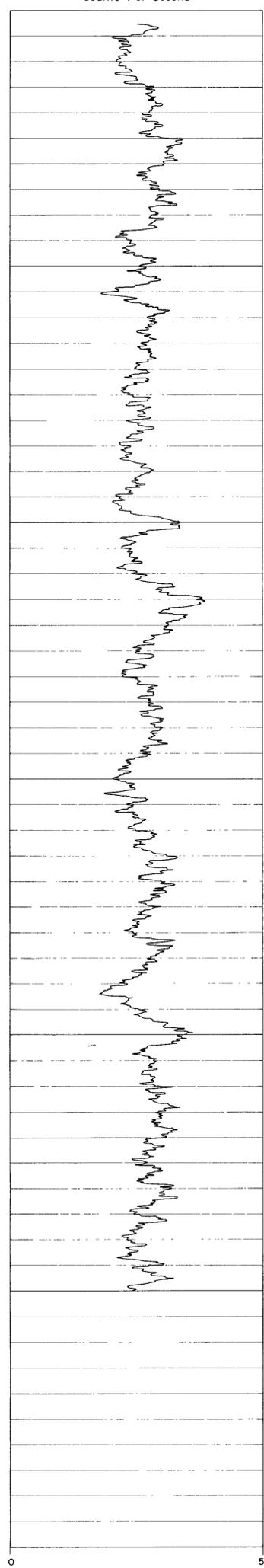
SELF POTENTIAL

25 Millivolts



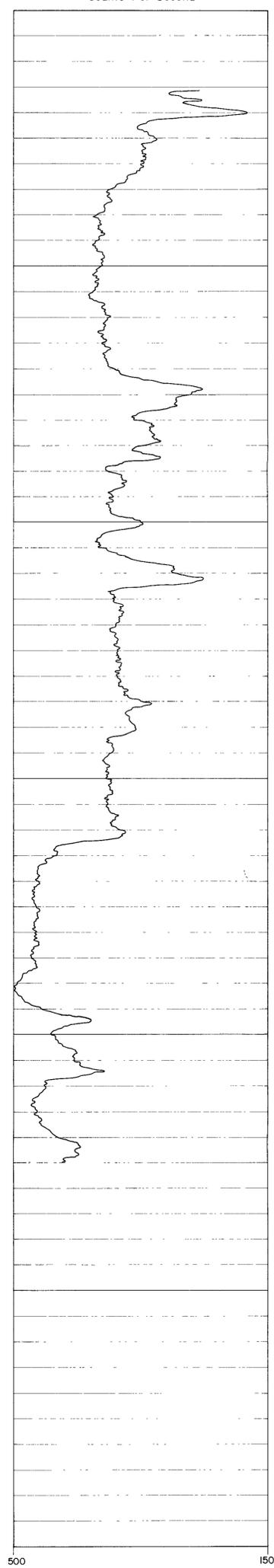
NATURAL GAMMA

5 Counts Per Second



DENSITY

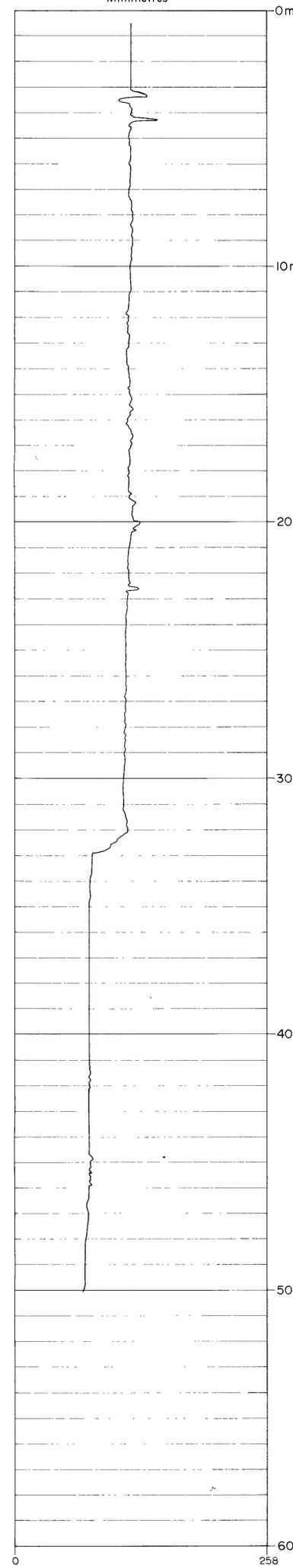
100 Counts Per Second



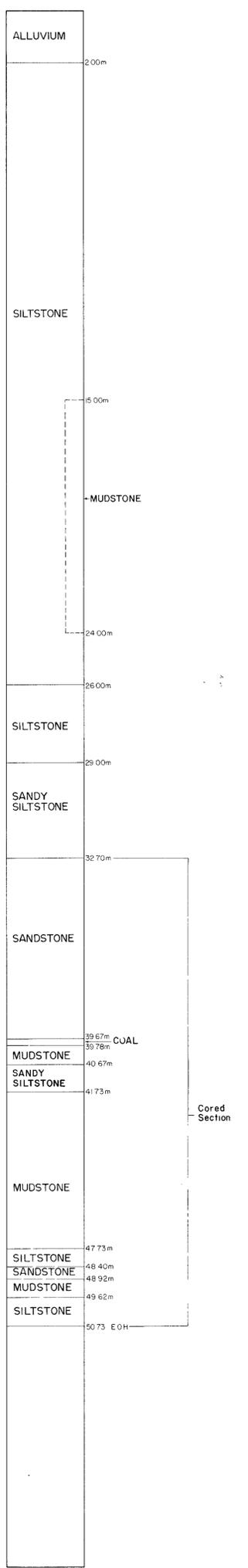
CALIPER

(hole diameter)

25.8 Millimetres



GEOLOGY



NOTES:

- 1 Logging rates: electrical logs 15m/min.
nuclear logs 6m/min.
- 2 Time constants: 2 secs for gamma and density logs
- 3 Spacing on density probe: 35cm.

847339

5 cm

3978

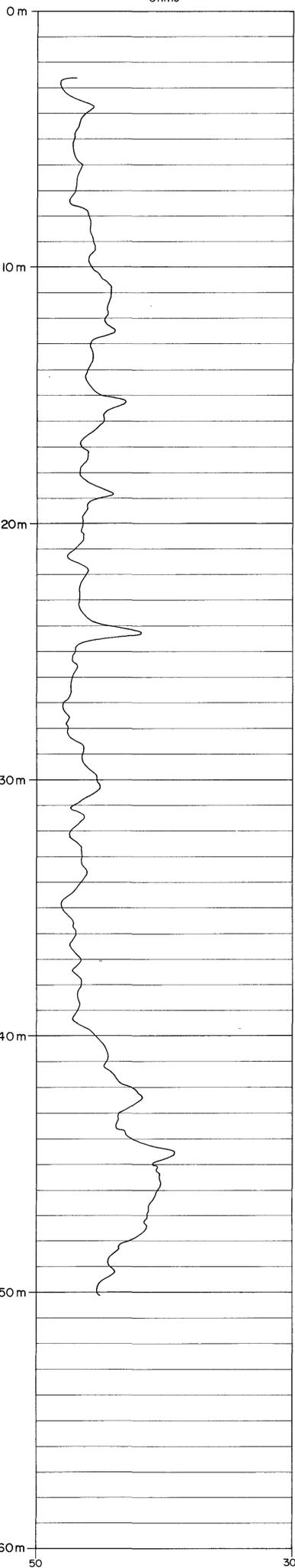
MITRE GEOPHYSICS PTY. LTD.
GEOPHYSICAL WELL-LOGS
OATLANDS AREA
HOLE NO.0-04

DRAWN J.B. VERTICAL SCALE 1:100
 TRACED T.G.D.S. DATE LOGGED 9/4/1981 FIG.

82-1682 212

SINGLE POINT RESISTANCE

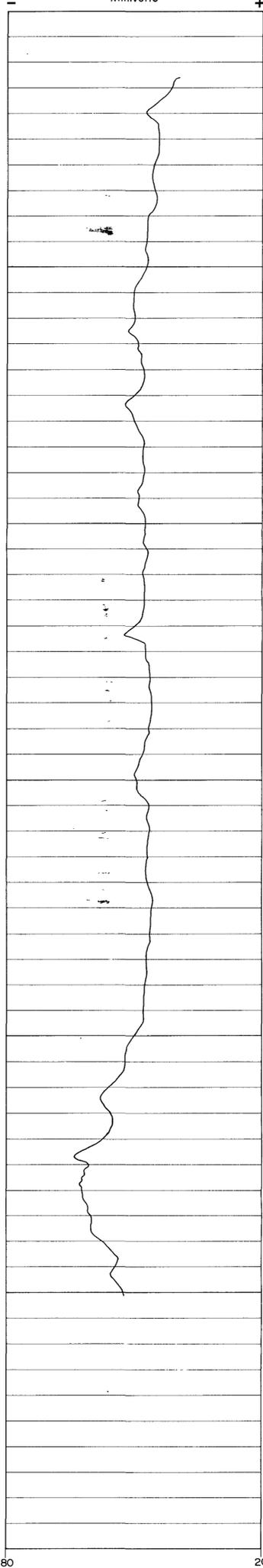
← 25 →
Ohms



← 250 Ohms full scale →

SELF POTENTIAL

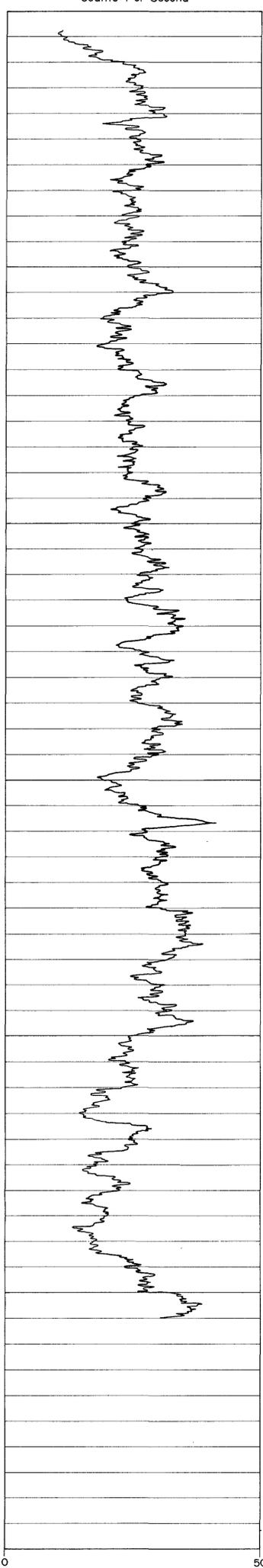
← 10 →
Millivolts



← 100 Millivolts full scale →

NATURAL GAMMA

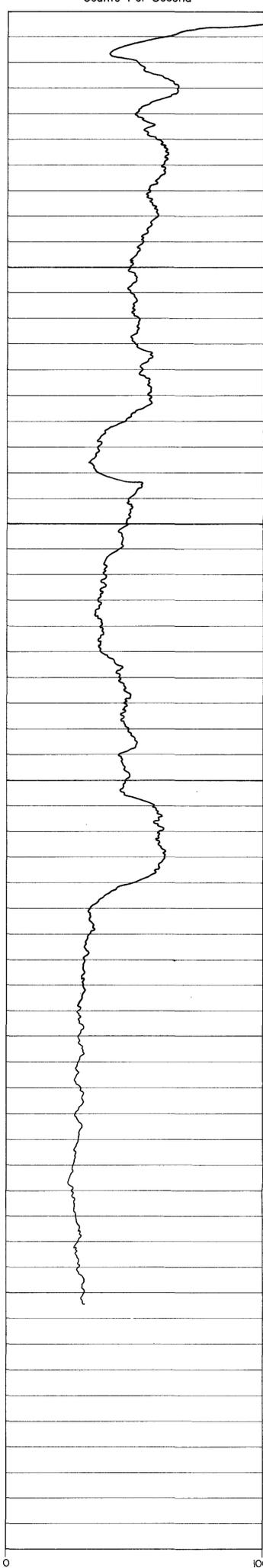
← 5 →
Counts Per Second



← 50 Counts Per Second full scale →

DENSITY

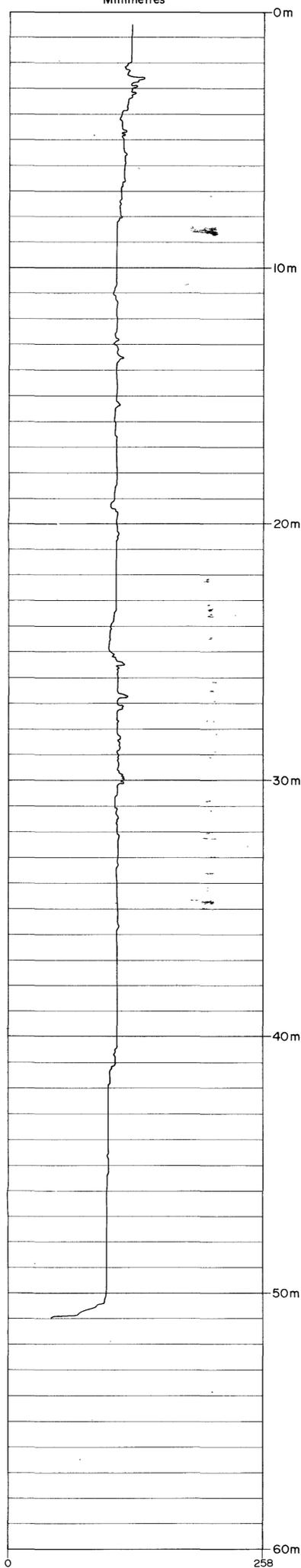
← 100 →
Counts Per Second



← 1000 Counts Per Second full scale →

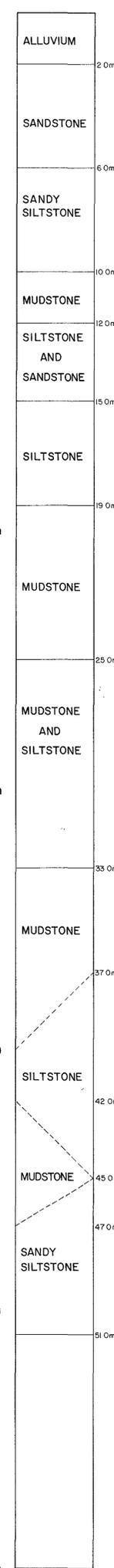
CALIPER

(hole diameter)
← 25.8 →
Millimetres



← 258 Millimetres full scale →

GEOLOGY



NOTES:

1. Logging rates: electrical logs 15m/min.
nuclear logs 6m/min.
2. Time constants: 2 secs. for gamma and density logs
3. Spacing on density probe, 35cm.

847340

5 cm

5879

MITRE GEOPHYSICS PTY. LTD.
GEOPHYSICAL WELL - LOGS
OATLANDS AREA
HOLE NO. O-05

DRAWN: J.B. VERTICAL SCALE: 1:100
TRACED: T.G.D.S. DATE LOGGED: 6.4.1981 FIG.

82-1682 2/2

SINGLE POINT RESISTANCE

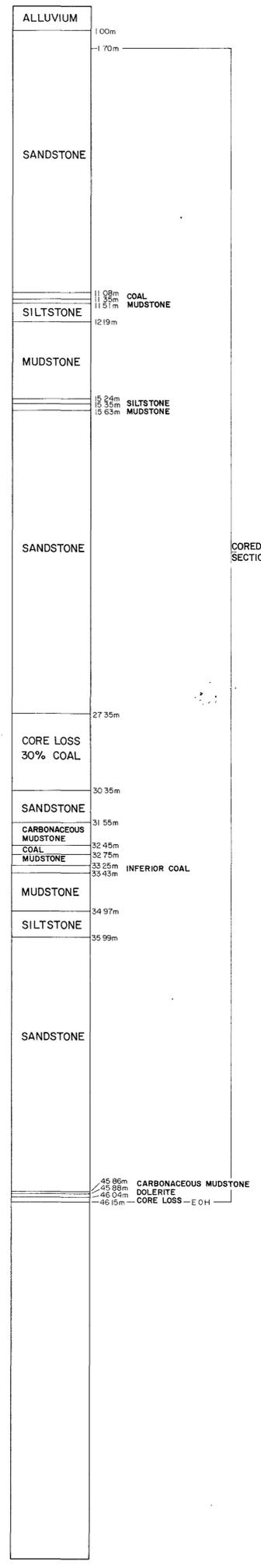
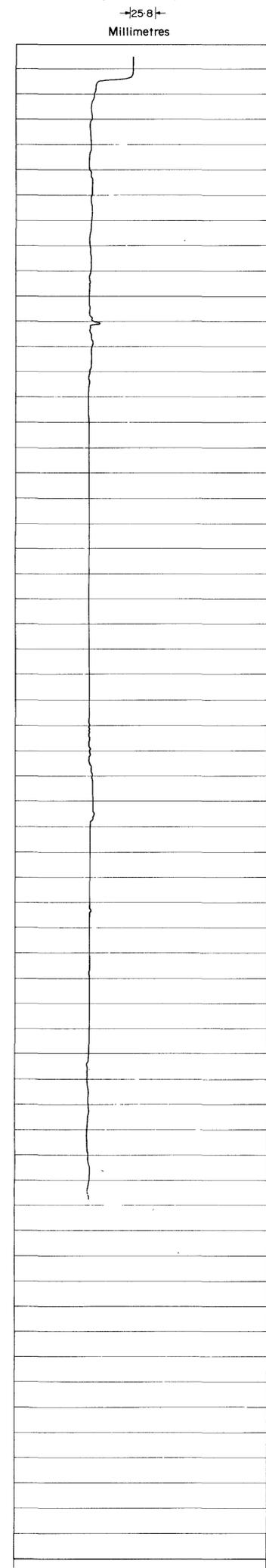
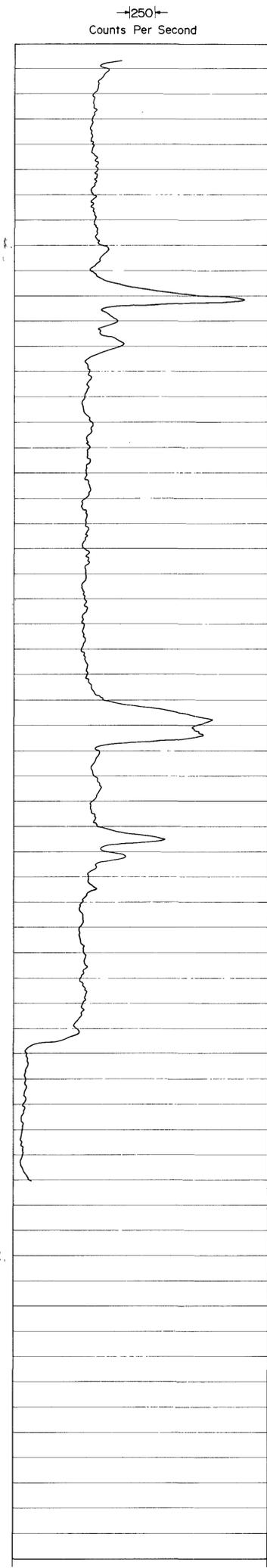
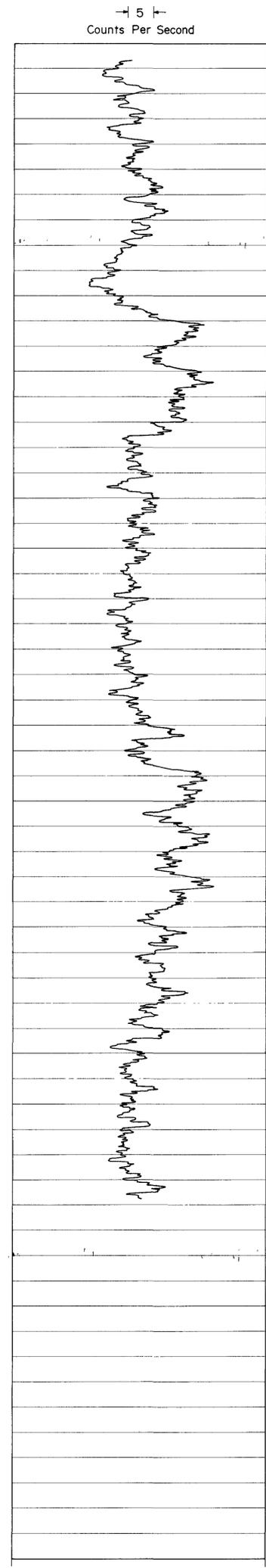
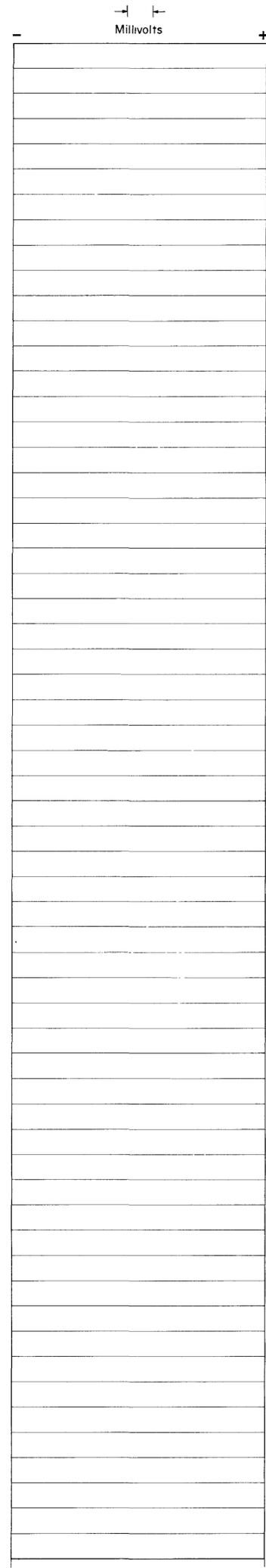
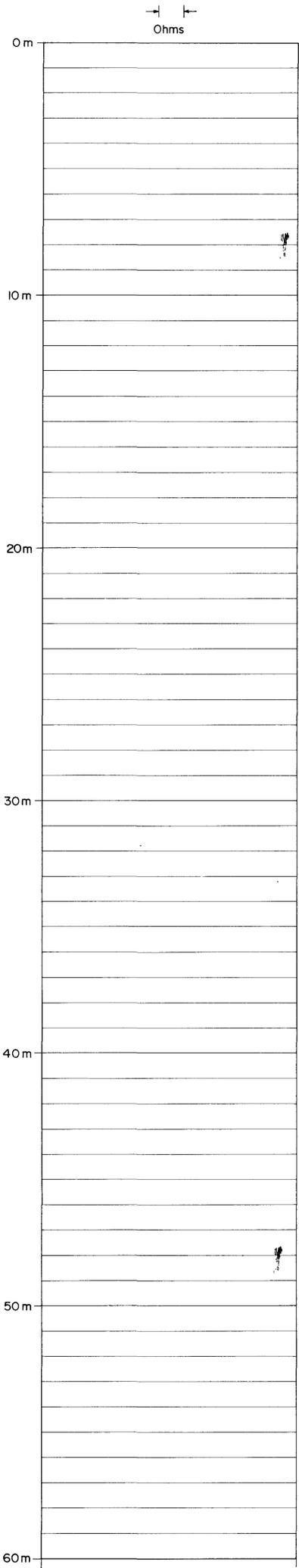
SELF POTENTIAL

NATURAL GAMMA

DENSITY

CALIPER

GEOLOGY



Ohms full scale

Millivolts full scale

50 Counts Per Second full scale

2500 Counts Per Second full scale

258 Millimetres full scale

- NOTES:
1. Logging rates: electrical logs 15m/min.
nuclear logs 6m/min.
 2. Time constants: 2 secs for gamma and density logs
 3. Spacing on density probe: 35cm.

847341
5 cm
3960
0868

MITRE GEOPHYSICS PTY. LTD.
GEOPHYSICAL WELL - LOGS
OATLANDS AREA
HOLE NO. 0-06

DRAWN J.B. VERTICAL SCALE 1:100
 TRACED T.G.D.S. DATE LOGGED 10 4 1981

FIG.

82-1482 2/2

SINGLE POINT RESISTANCE

25 Ohms

SELF POTENTIAL

10 Millivolts

NATURAL GAMMA

5 Counts Per Second

DENSITY

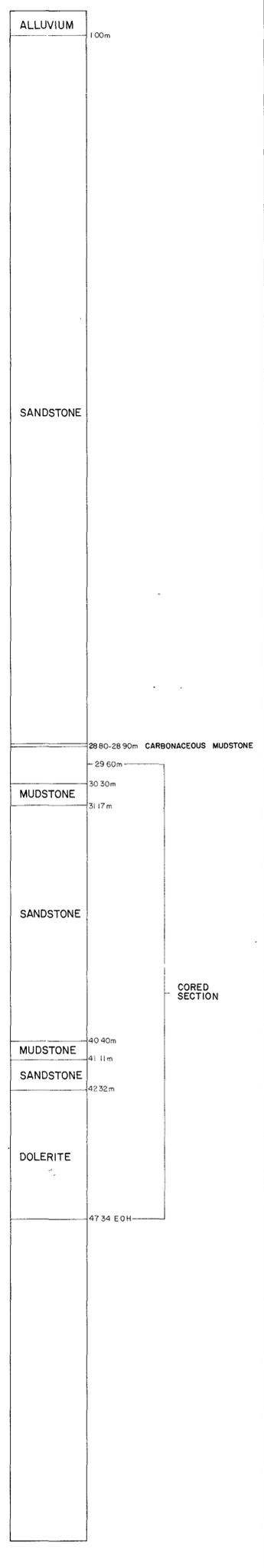
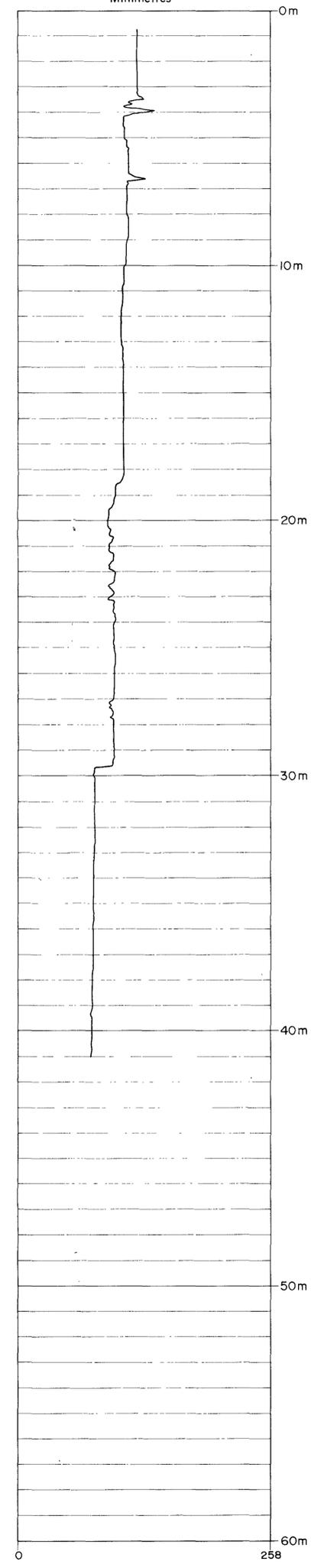
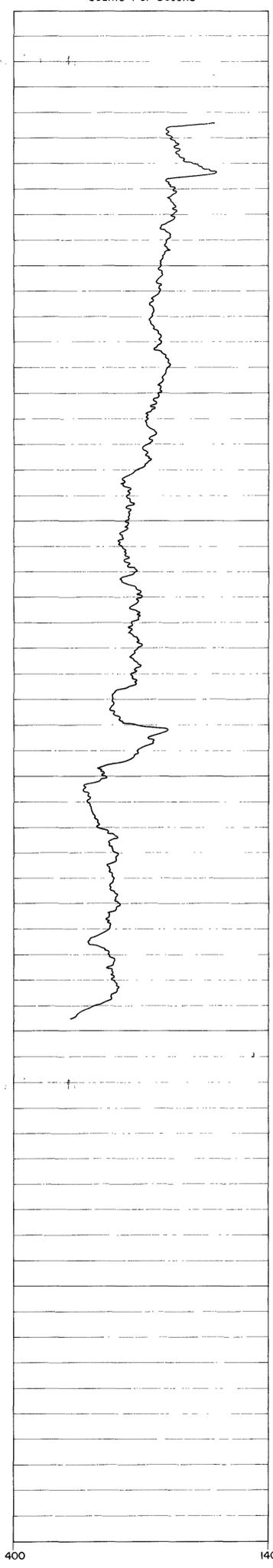
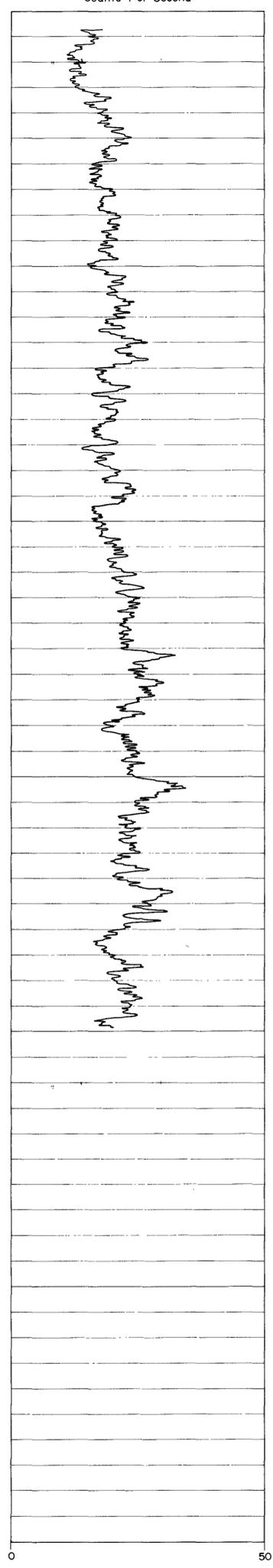
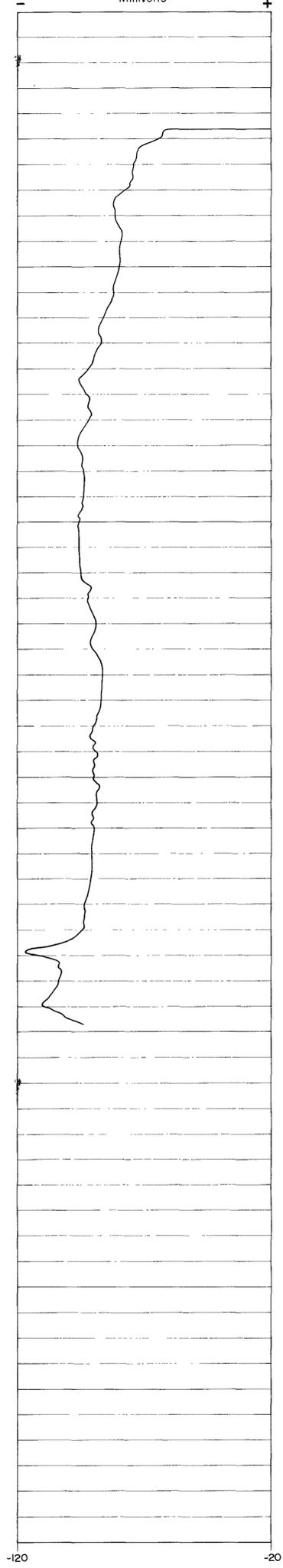
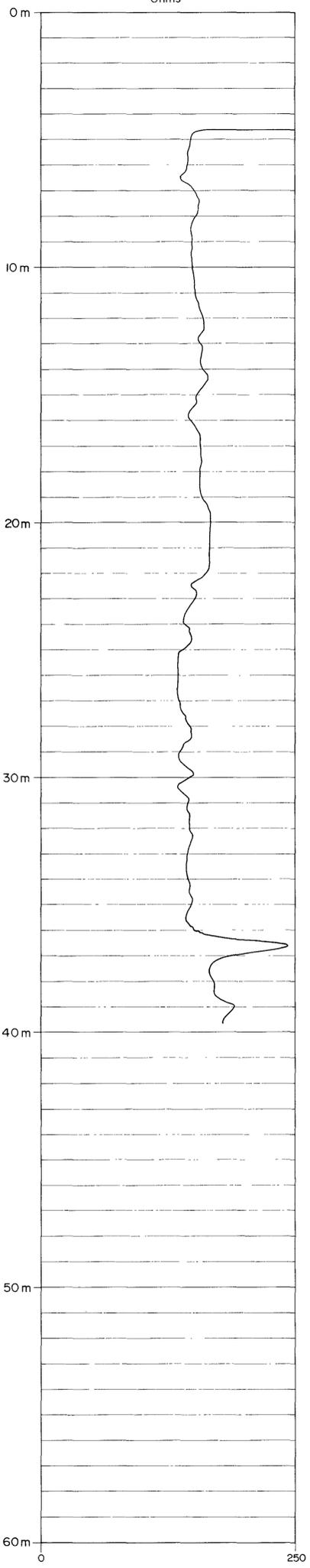
100 Counts Per Second

CALIPER

(hole diameter)

25.8 Millimetres

GEOLOGY



250 Ohms full scale

100 Millivolts full scale

50 Counts Per Second full scale

1000 Counts Per Second full scale

258 Millimetres full scale

- NOTES:
1. Logging rates - electrical logs 15m/min. nuclear logs 6m/min.
 2. Time constants: 2 secs. for gamma and density logs
 3. Spacing on density probe, 35cm.

847342

5 cm

3081

MITRE GEOPHYSICS PTY. LTD.
 GEOPHYSICAL WELL-LOGS
 OATLANDS AREA
 HOLE NO. 0-07

DRAWN J.B. VERTICAL SCALE 1:100
 TRACED T.G.D.S. DATE LOGGED 25/4/1981

FIG.

82-162a 2/2

SINGLE POINT RESISTANCE

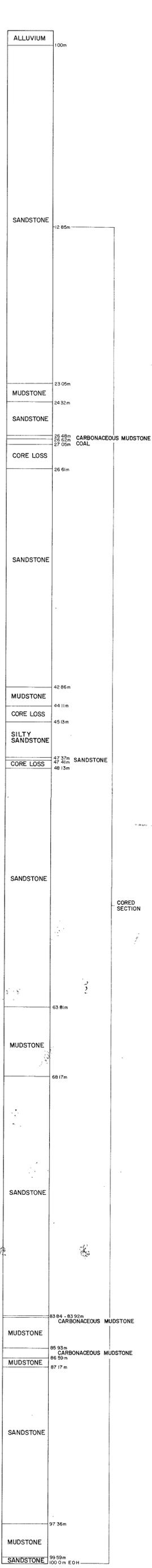
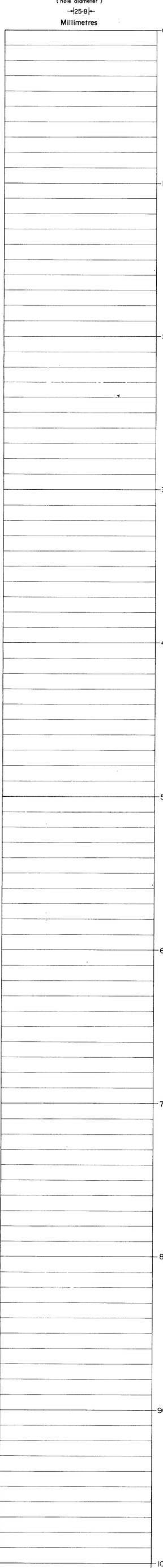
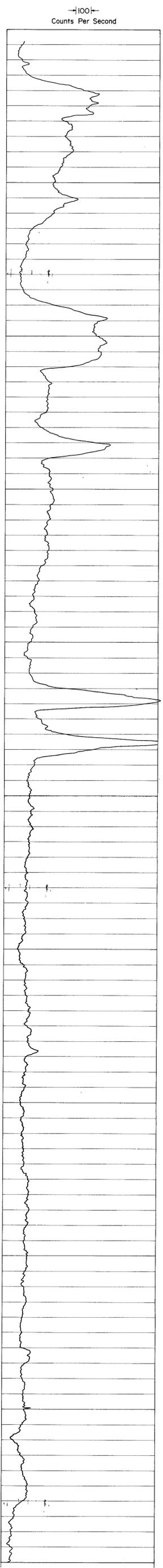
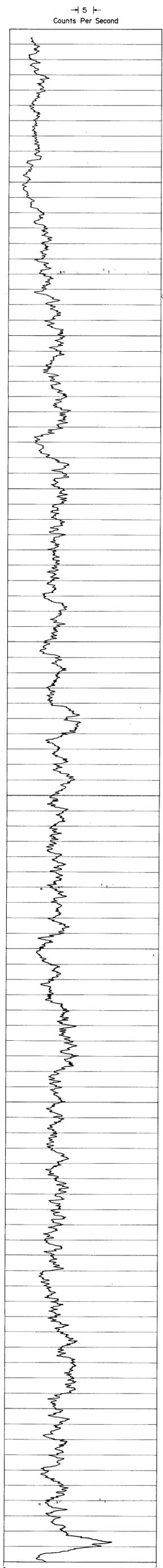
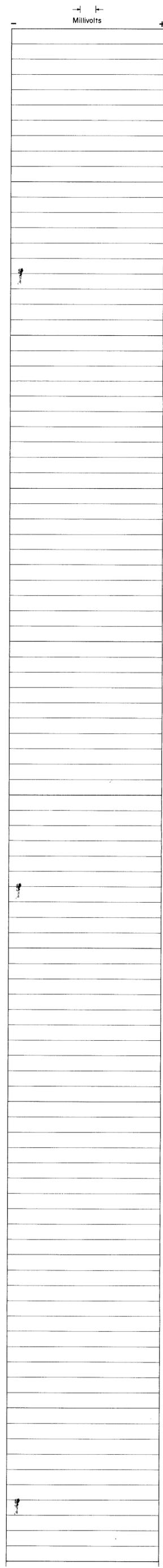
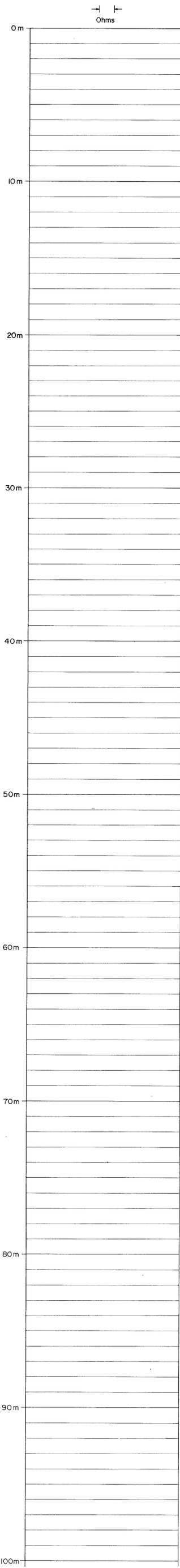
SELF POTENTIAL

NATURAL GAMMA

DENSITY

CALIPER

GEOLOGY



Ohms full scale Millivolts full scale 50 Counts Per Second full scale 1000 Counts Per Second full scale 258 Millimetres full scale

NOTE: Logged in rods - no bowstring.

- NOTES:
1. Logging rates: electrical logs 15m/min. nuclear logs 6m/min.
 2. Time constants: 2 secs. for gamma and density logs.
 3. Spacing on density probe, 35cm.

841343

3082

5 cm

MITRE GEOPHYSICS PTY. LTD.

GEOPHYSICAL WELL- LOGS

OATLANDS AREA

HOLE NO.0-09

DRAWN J.B. VERTICAL SCALE: 1:100

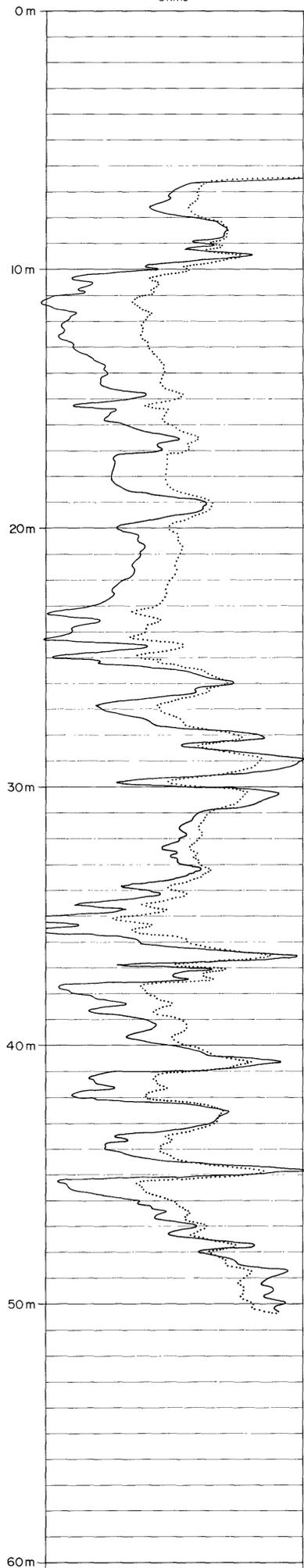
TRACED T.G.D.S. DATE LOGGED 28 4 1981

FIG.

32-162 2/2

SINGLE POINT RESISTANCE

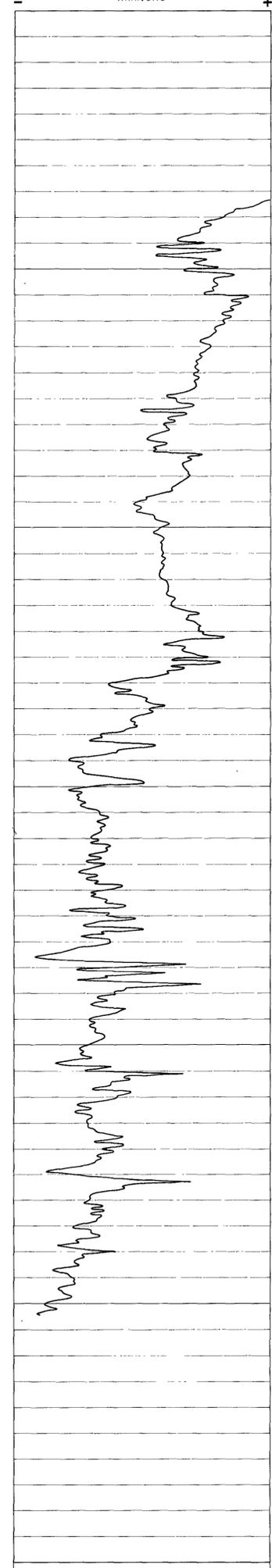
25
50
Ohms



250 Ohms full scale
500 Ohms full scale

SELF POTENTIAL

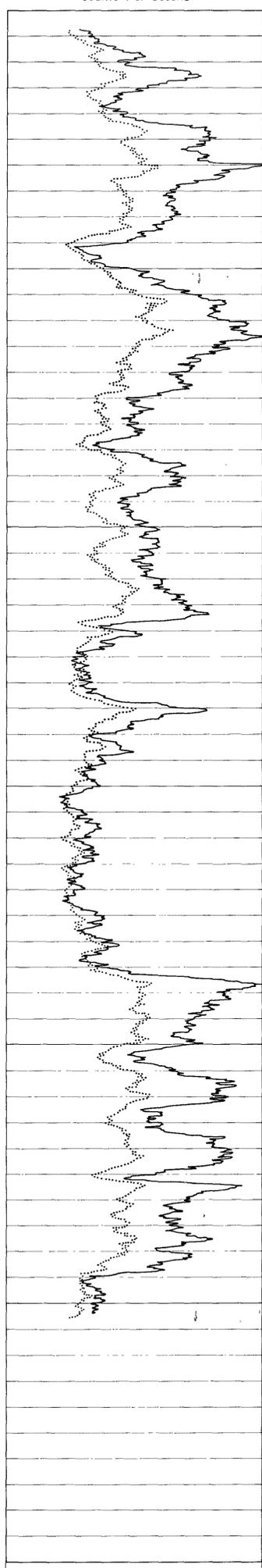
10
Millivolts



100 Millivolts full scale

NATURAL GAMMA

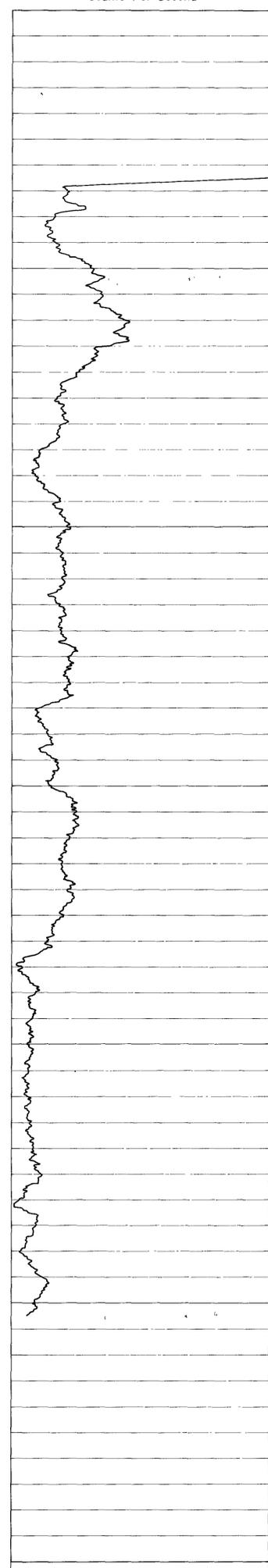
5
10
Counts Per Second



50 Counts Per Second full scale
100 Counts Per Second full scale

DENSITY

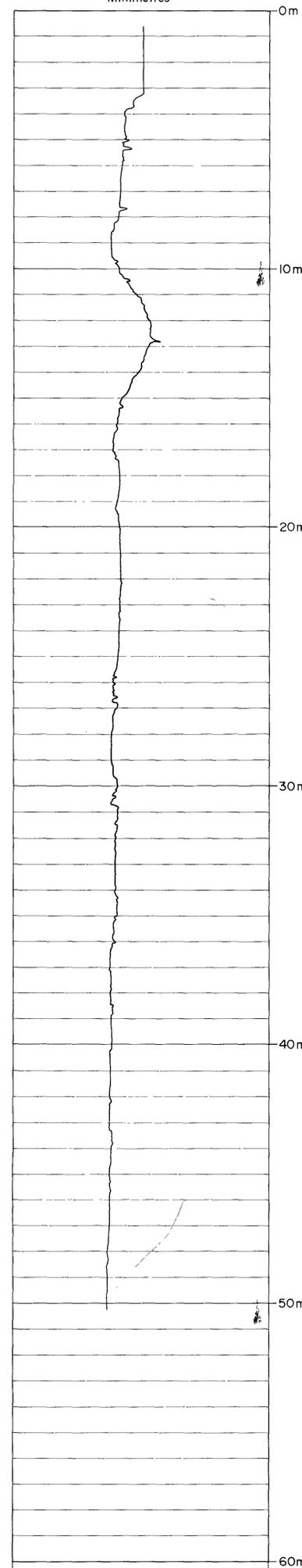
100
Counts Per Second



1000 Counts Per Second full scale

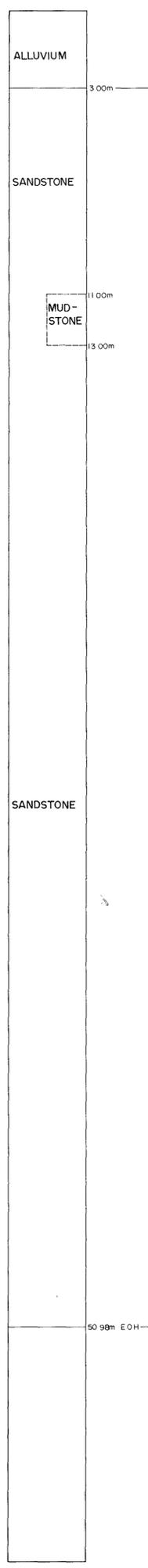
CALIPER

(hole diameter)
25.8
Millimetres



258 Millimetres full scale

GEOLOGY



NOTES:

1. Logging rates: electrical logs 15m/min.
nuclear logs 6m/min.
2. Time constants: 2 secs. for gamma and density logs
3. Spacing on density probe, 35cm.

847344

5 cm

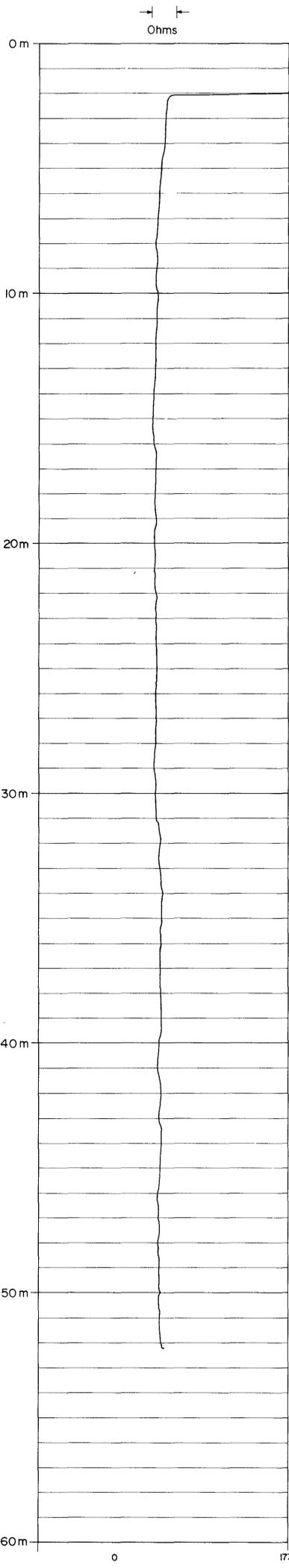
3903

MITRE GEOPHYSICS PTY. LTD.
GEOLOGICAL WELL-LOGS
MT. CYGNET AREA
HOLE NO. C O I

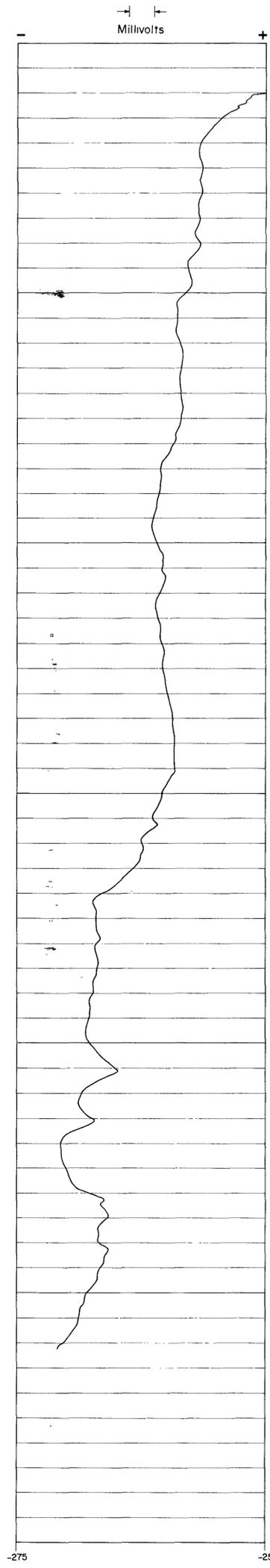
DRAWN J.B. VERTICAL SCALE 1:100
TRACED T.G.D.S. DATE LOGGED 9.3.1981 FIG.

82-1682

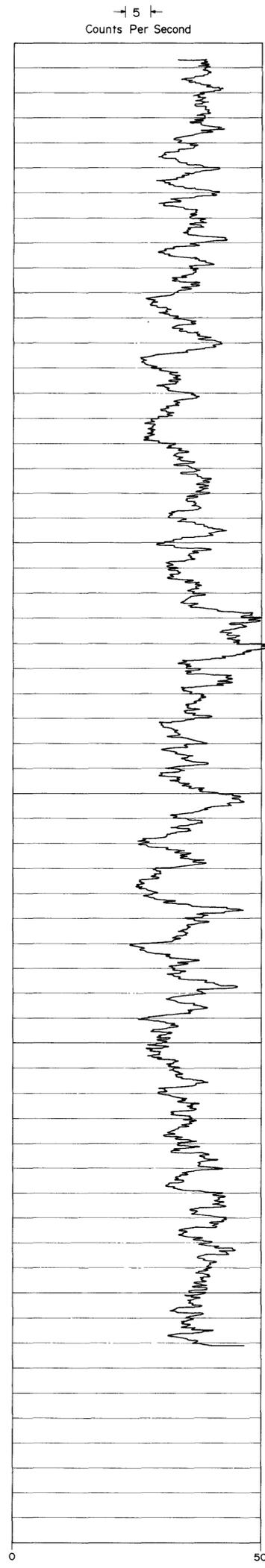
SINGLE POINT RESISTANCE



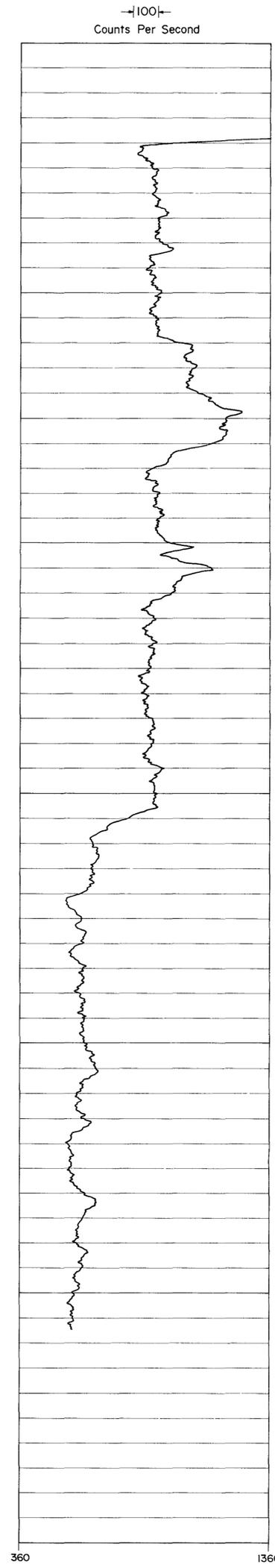
SELF POTENTIAL



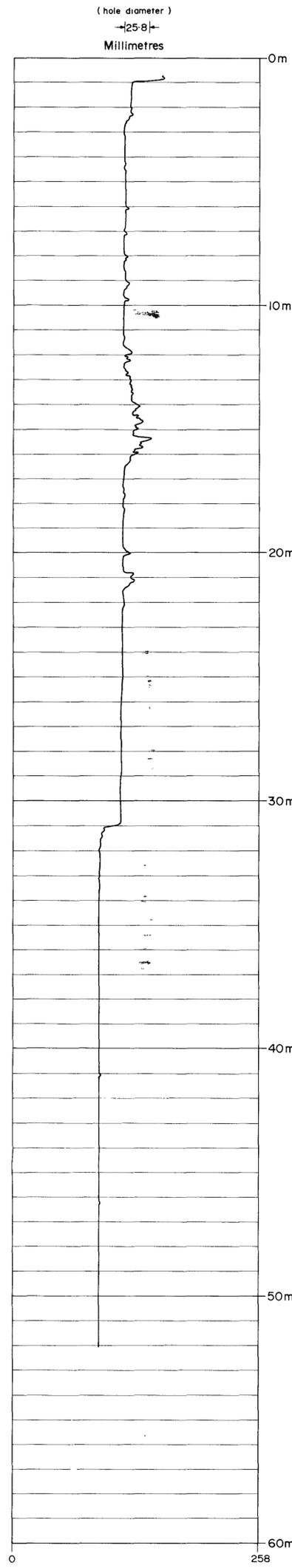
NATURAL GAMMA



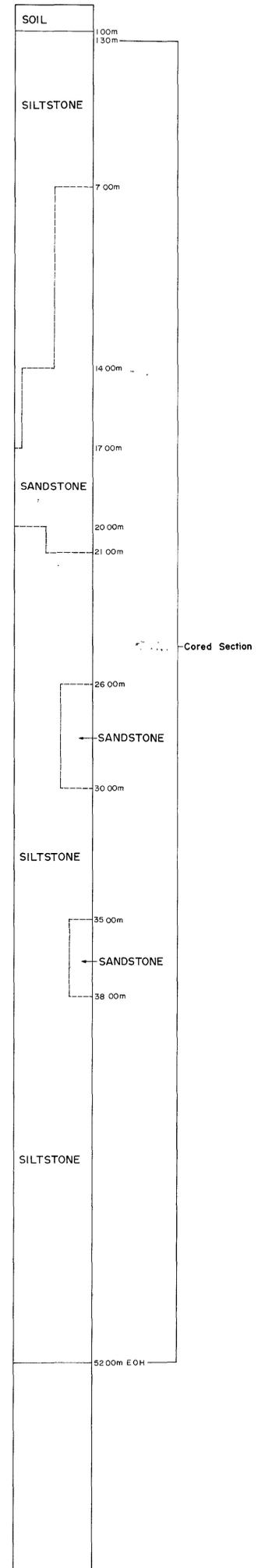
DENSITY



CALIPER



GEOLOGY



NOTE: Saltwater used for drilling fluid.

- NOTES:
1. Logging rates - electrical logs 15m/min. nuclear logs 6m/min.
 2. Time constants - 2 secs. for gamma and density logs.
 3. Spacing on density probe: 35 cm.

847345

5 cm

3064

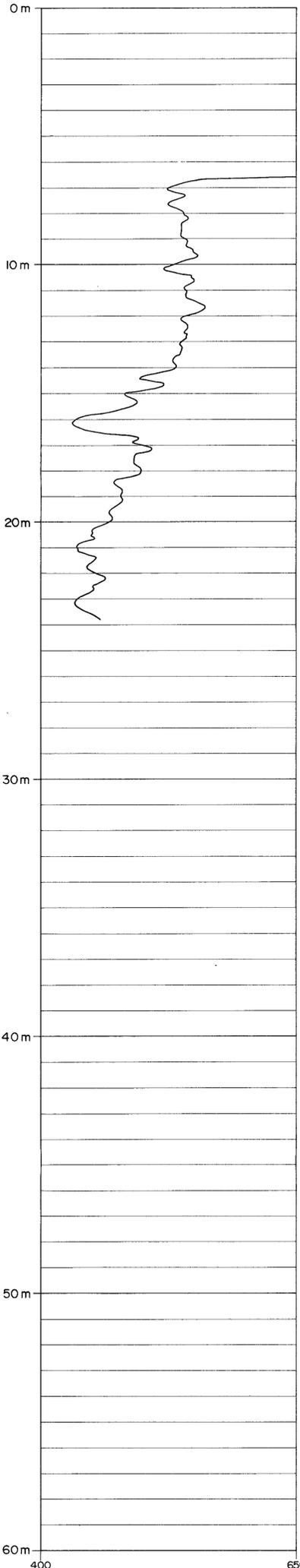
MITRE GEOPHYSICS PTY. LTD.
 GEOPHYSICAL WELL-LOGS
 MT. CYGNET AREA
 HOLE NO. C 02

DRAWN J.B. VERTICAL SCALE: 1:100
 TRACED T.G.D.S. DATE LOGGED 11/3/1981 FIG.

82-1632

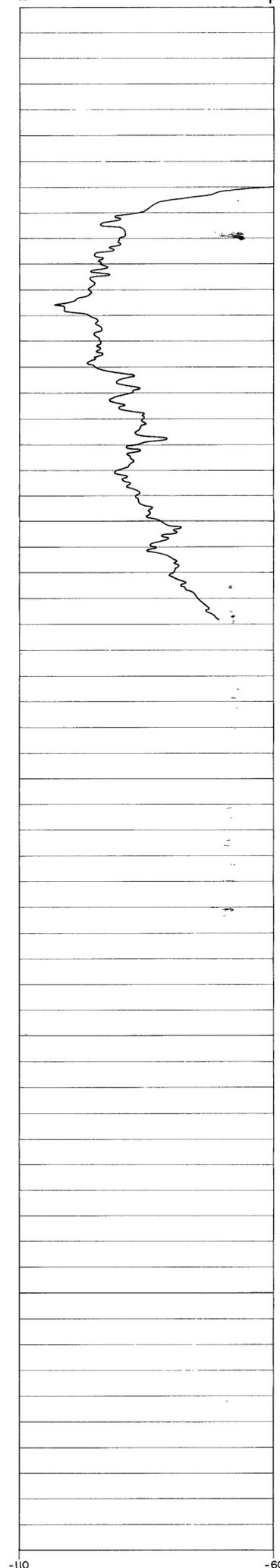
SINGLE POINT RESISTANCE

25 Ohms



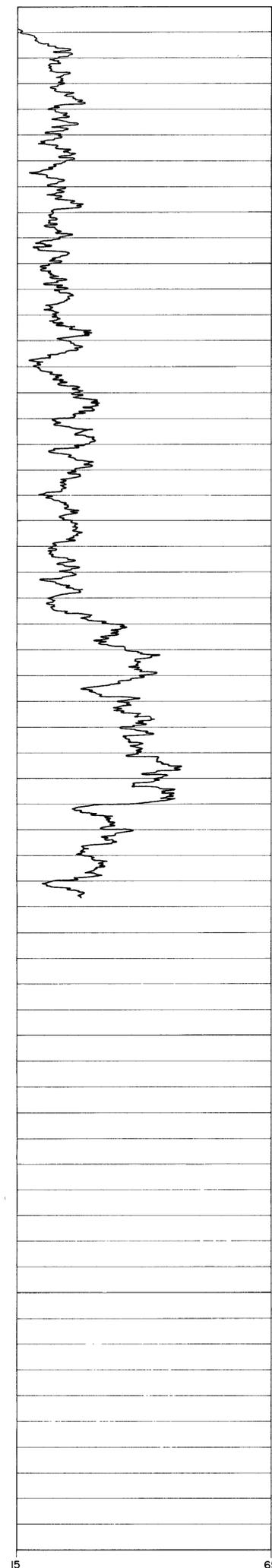
SELF POTENTIAL

5 Millivolts



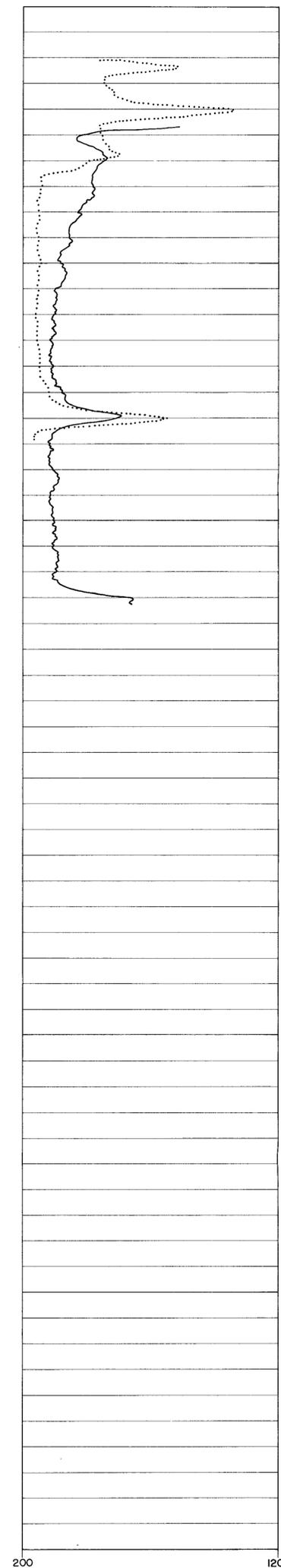
NATURAL GAMMA

5 Counts Per Second



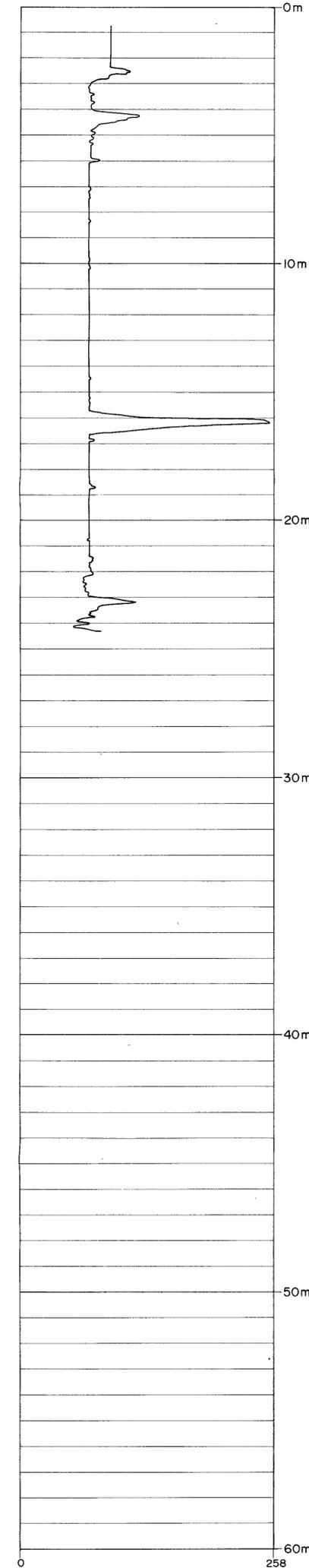
DENSITY

100
500 Counts Per Second

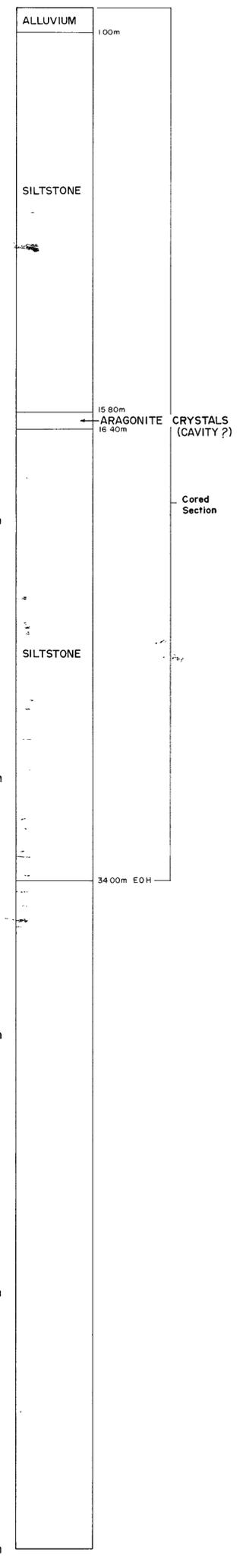


CALIPER

(hole diameter)
25.8 Millimetres



GEOLOGY



250 Ohms full scale

50 Millivolts full scale

50 Counts Per Second full scale

1000 Counts Per Second full scale
5000 Counts Per Second full scale

258 Millimetres full scale

847346

NOTES:

1. Logging rates - electrical logs 15m/min. nuclear logs 6m/min.
2. Time constants: 2 secs for gamma and density logs.
3. Spacing on density probe, 35cm.

5 cm 3585

MITRE GEOPHYSICAL PTY. LTD.

GEOPHYSICAL WELL - LOGS

MT. CYGNET AREA

HOLE NO. C 03

DRAWN J.B. VERTICAL SCALE 1:100
TRACED T.G.D.S. DATE LOGGED: 15.3.1981 FIG.

82-1682 2/2

SINGLE POINT RESISTANCE

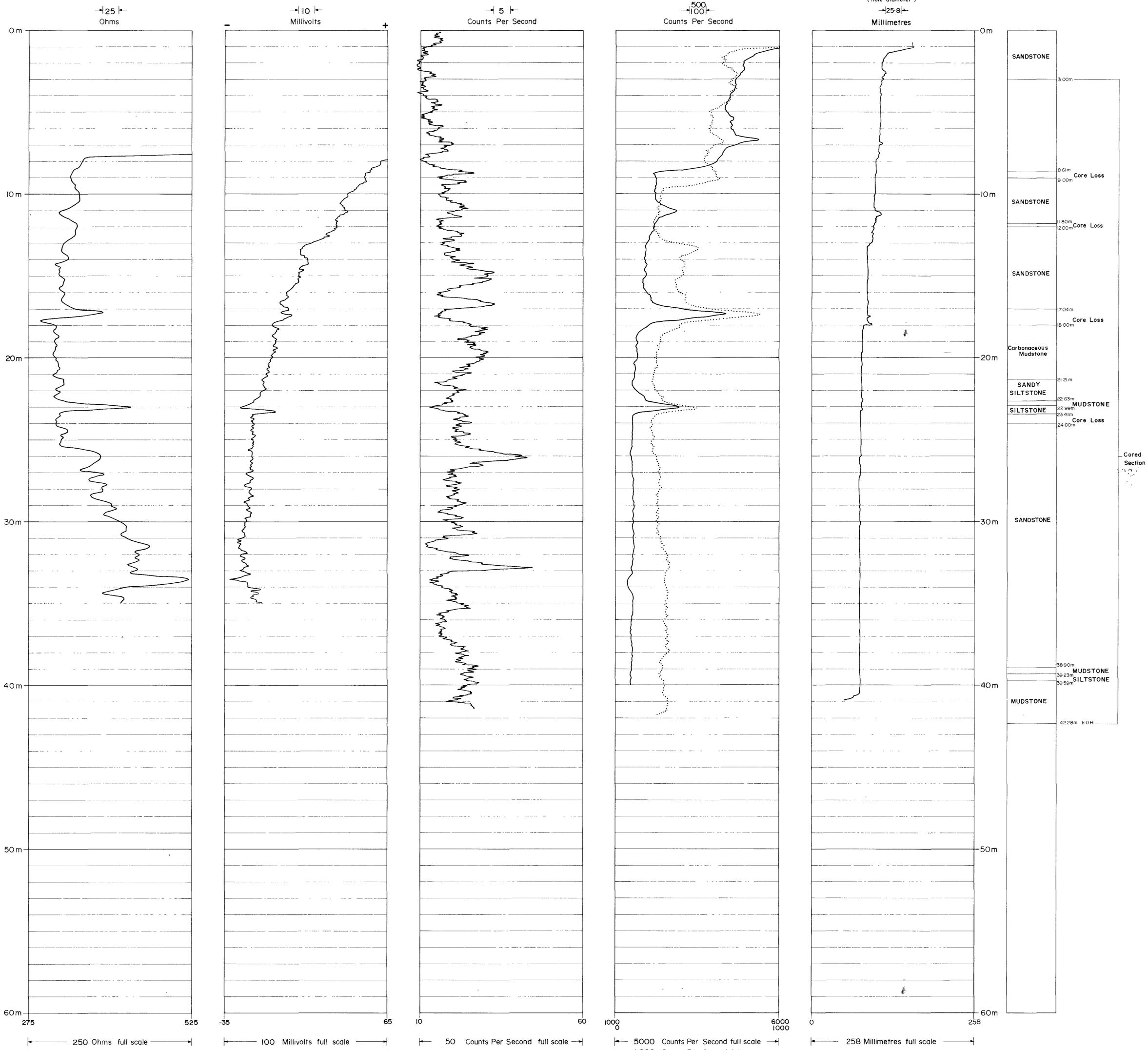
SELF POTENTIAL

NATURAL GAMMA

DENSITY

CALIPER

GEOLOGY



NOTES:
 1. Logging rates: electrical logs 15m/min, nuclear logs 6m/min.
 2. Time constants: 2 secs. for gamma and density logs.
 3. Spacing on density probe: 35cm.

— Short spacer used with bowspring (spacing = 30 cm)
 No bowspring, through rods (Standard spacing)

847347
 3986

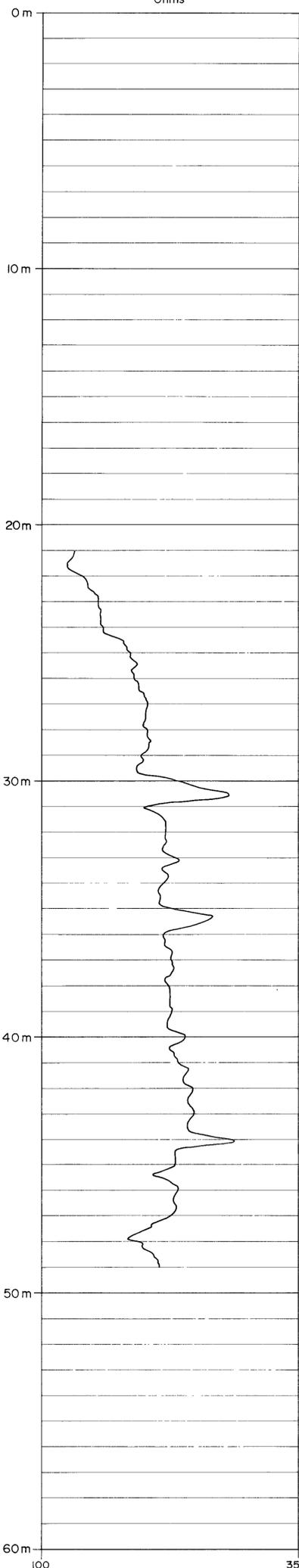
MITRE GEOPHYSICS PTY. LTD.
GEOPHYSICAL WELL- LOGS
MT. CYGNET AREA
HOLE NO. C 04

DRAWN J.B.	VERTICAL SCALE 1:100	FIG.
TRACED T.G.D.S.	DATE LOGGED 18.3.1981	

82-168a 2/2

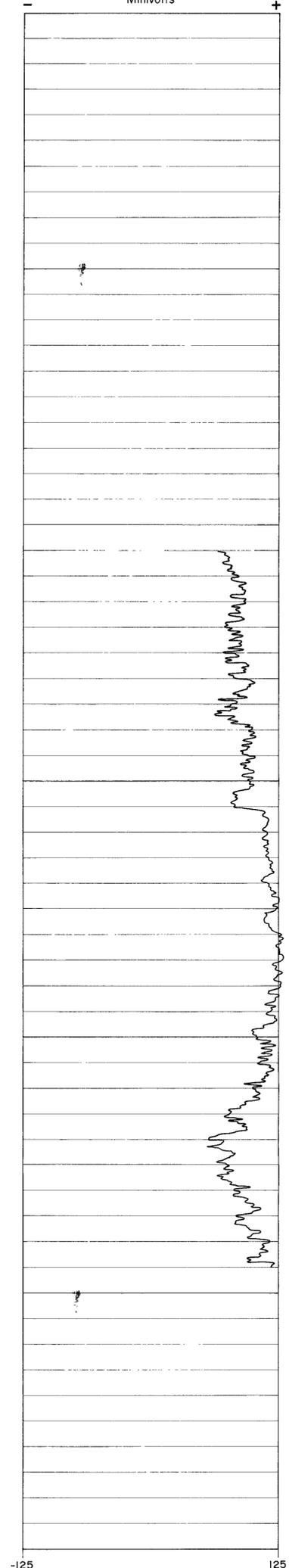
SINGLE POINT RESISTANCE

25 Ohms



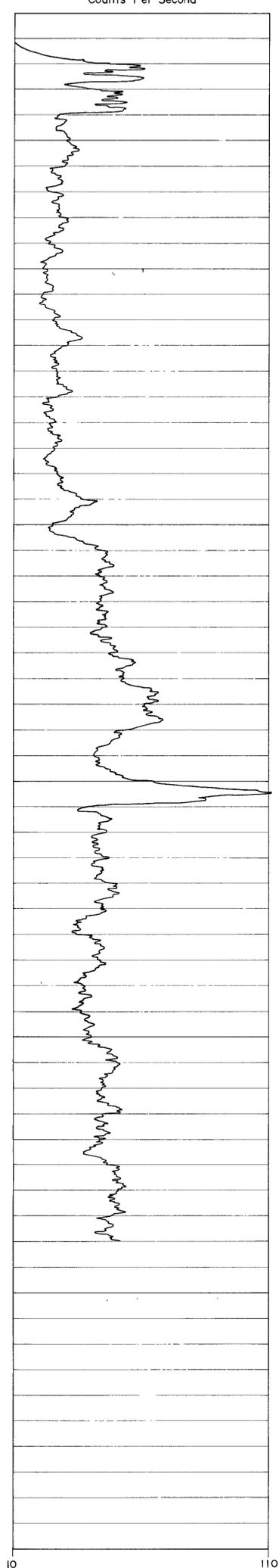
SELF POTENTIAL

25 Millivolts



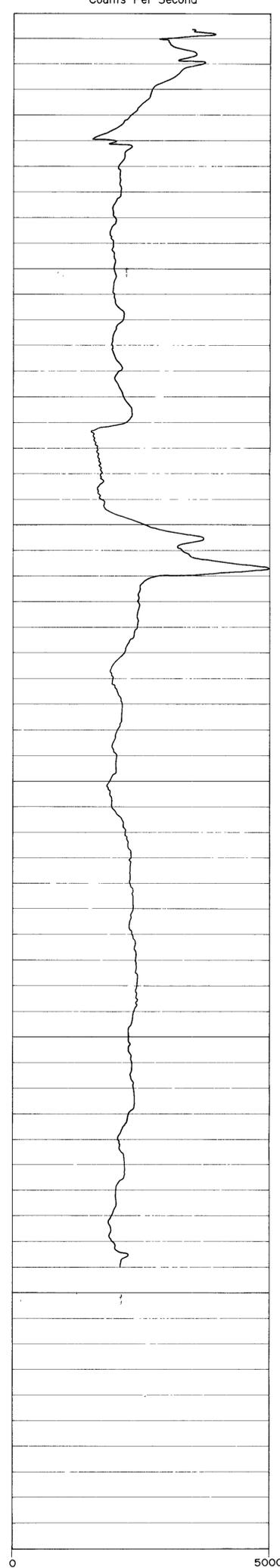
NATURAL GAMMA

10 Counts Per Second



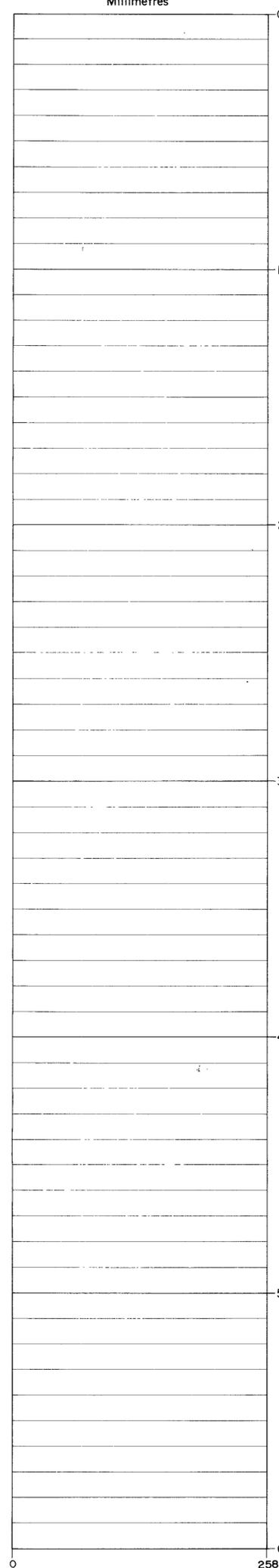
DENSITY

500 Counts Per Second

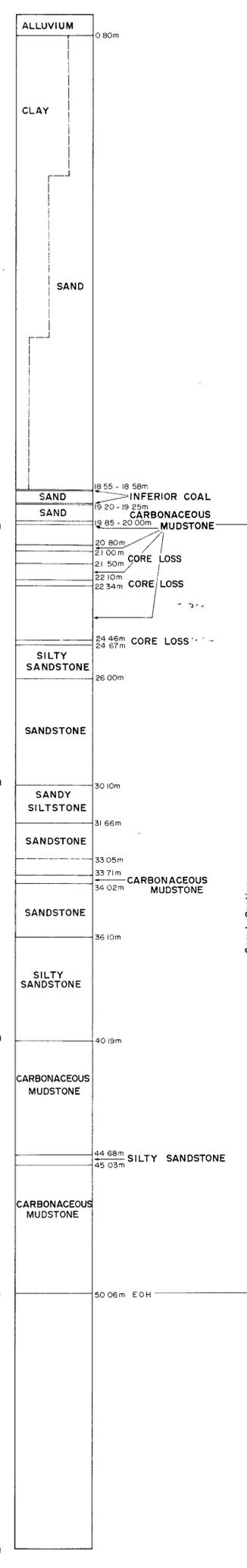


CALIPER

(hole diameter)
25.8 Millimetres



GEOLOGY



250 Ohms full scale

250 Millivolts full scale

100 Counts Per Second full scale

5000 Counts Per Second full scale

258 Millimetres full scale

NOTES:
1. Logging rates: electrical logs 15m/min.
nuclear logs 6m/min.
2. Time constants: 2 secs. for gamma and
density logs.
3. Spacing on density probe: 35cm.

NOTES:
Short spacer used.
Spacing = 30cms.

5 cm 3667

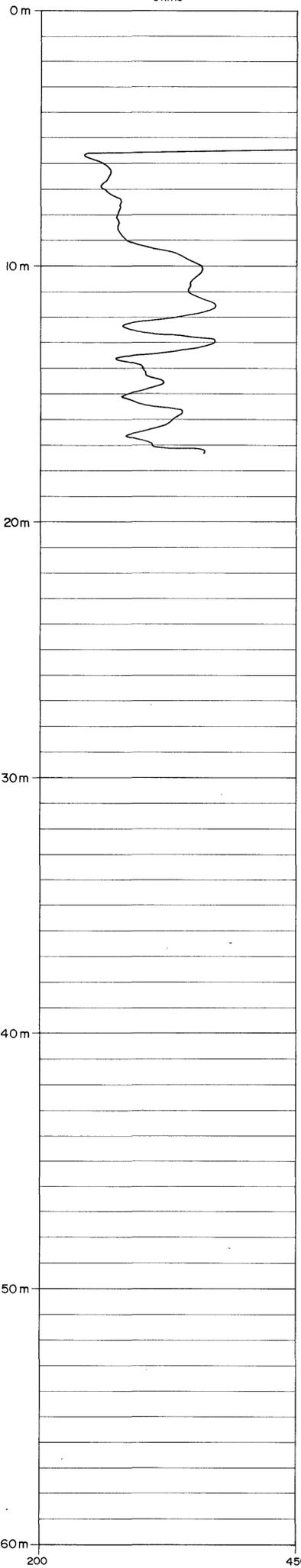
MITRE GEOPHYSICS PTY. LTD.
GEOPHYSICAL WELL - LOGS
MT. CYGNET AREA
HOLE NO. C05.

DRAWN J.B. VERTICAL SCALE 1:100
 TRACED T.G.D.S. DATE LOGGED 19.3.1981 FIG.

82-168a 2/2

SINGLE POINT RESISTANCE

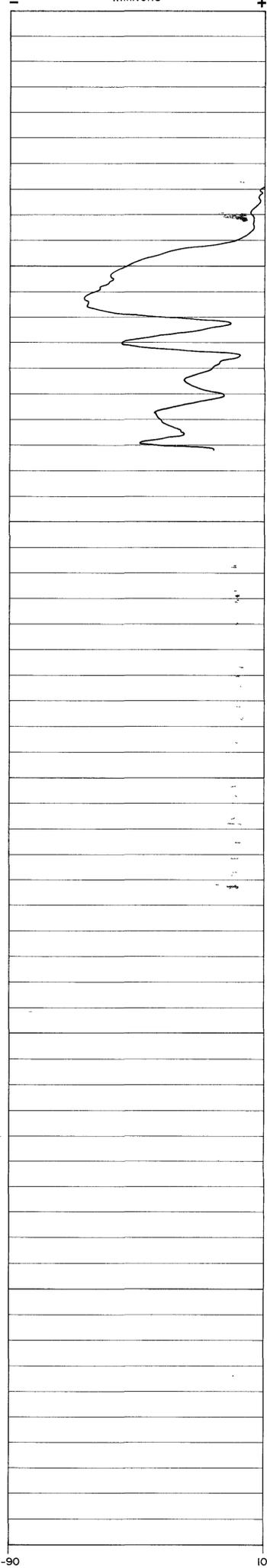
← 25 →
Ohms



← 250 Ohms full scale →

SELF POTENTIAL

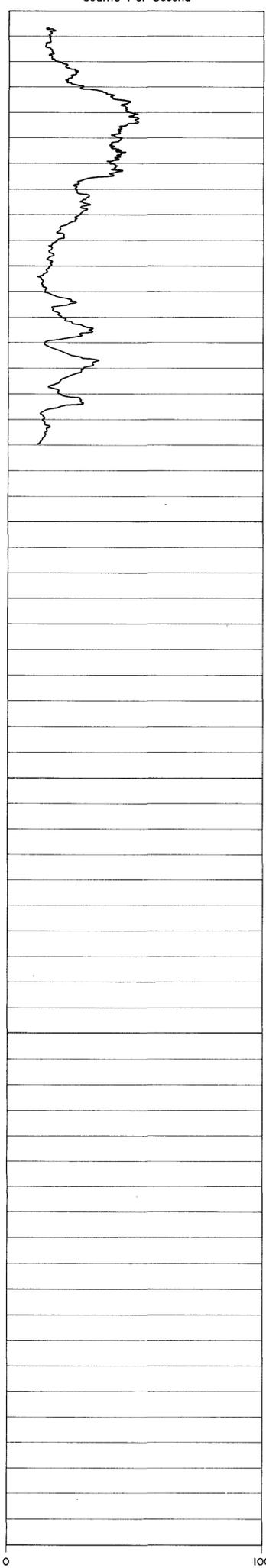
← 10 →
Millivolts



← 100 Millivolts full scale →

NATURAL GAMMA

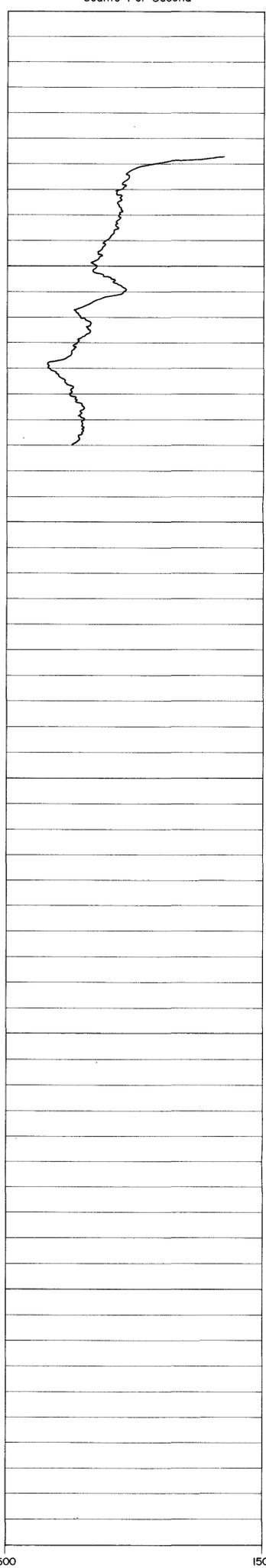
← 10 →
Counts Per Second



← 100 Counts Per Second full scale →

DENSITY

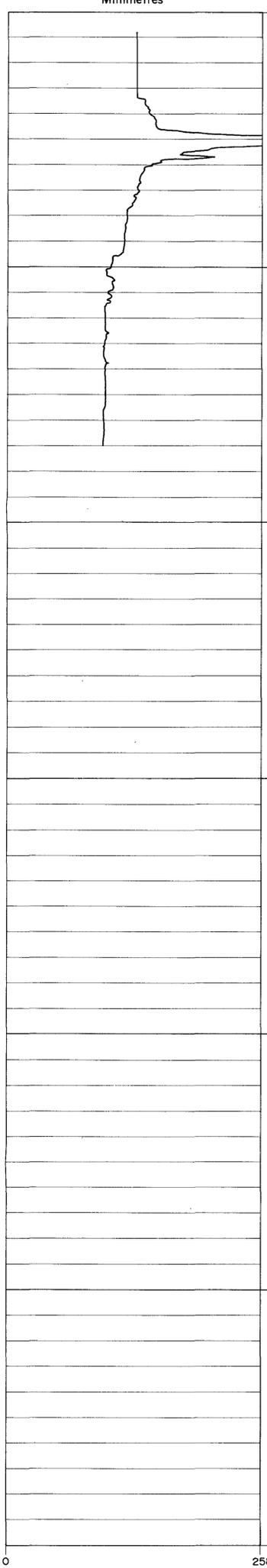
← 100 →
Counts Per Second



← 1000 Counts Per Second full scale →

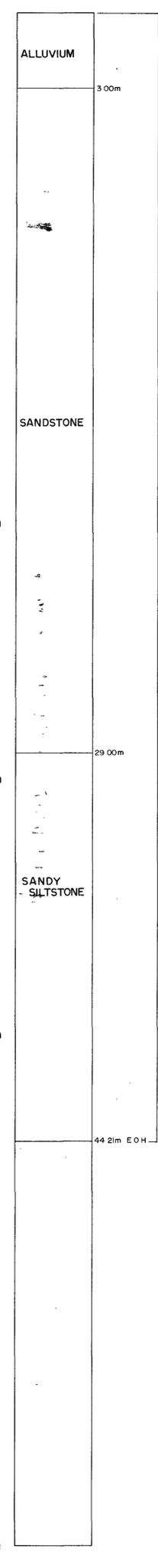
CALIPER

(hole diameter)
← 25.8 →
Millimetres



← 258 Millimetres full scale →

GEOLOGY



Cored Section

NOTES:

1. Logging rates: electrical logs 15m/min.
nuclear logs 6m/min.
2. Time constants: 2 secs. for gamma and density logs
3. Spacing on density probe: 35cm.

847349

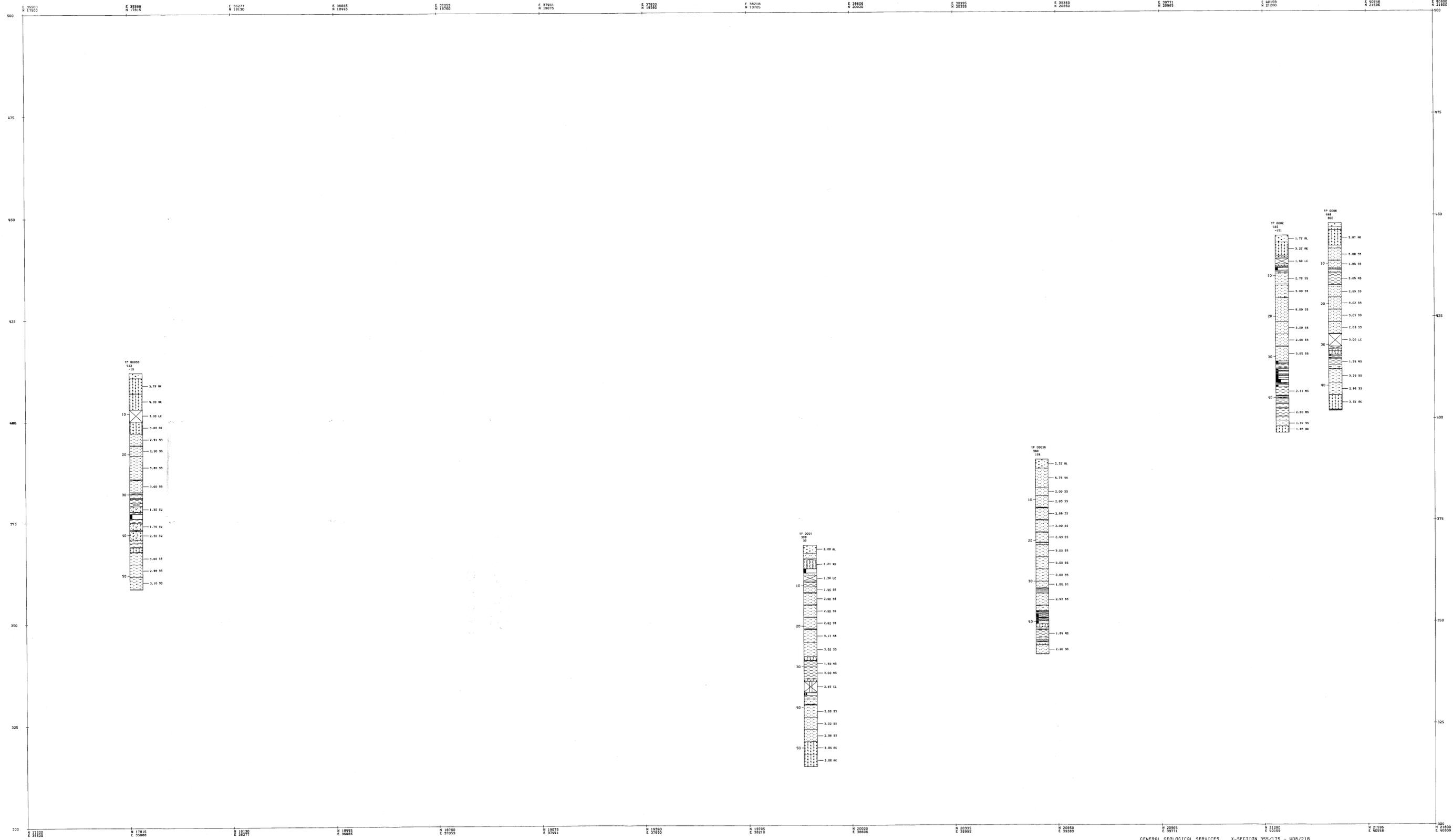
← 5 cm →

3988

MITRE GEOPHYSICS PTY. LTD.
GEOPHYSICAL WELL-LOGS
MT. CYGNET AREA
HOLE NO. C 06

DRAWN J.B. VERTICAL SCALE 1:100
TRACED T.G.D.S. DATE LOGGED 21/3/1981 FIG.

82-1682 2/2



GENERAL GEOLOGICAL SERVICES X-SECTION 355/175 - 408/218
 BEGINNING EASTING (X) = 35500 BEGINNING NORTHING (Y) = 17500
 SLOPE = 39 DEGREES SEARCH WIDTH = 2000
 HORIZONTAL SCALE 1-5000 VERTICAL SCALE 1-250

- DB CONG. 0-425 BRECHT
- DM CONG. 1-125 BRECHT
- DD CONG. 1-125 BRECHT
- LC CONG. LESS
- CL CONG. LESS
- AY CLAY
- AL ALUMINUM
- YS CLAYSTONE
- MS MUDSTONE
- ST SILTSTONE
- AK ARKIC SANDSTONE
- SS SANDSTONE
- DL DOLOMITE
- CC CONG.
- DI CONG. DOL. IMPURE
- SU SANDY SILTSTONE
- XM CONGLOMERATE SANDSTONE

*** PLOT CREATED: 06 OCT 81 14.13.25. ***

*** END OF PLOT ***

847351

GENERAL GEOLOGICAL SERVICES
 YORK PLAINS
 +
 BOREHOLE LOG
 YP 0001

SCALE 1:200

EASTING	NORTHING	SURFACE RL	FINAL DEPTH
38400.00	19900.00	369.00	54.59

- DM
COAL 1-10% BRIGHT
- DD
COAL <1% BRIGHT
- LC
CORE LOSS
- CL
LOST CORE PROBABLY COAL
- AL
ALLUVIUM
- YS
CLAYSTONE
- MS
MUDSTONE
- AK
ARKOSIC SANDSTONE
- SS
SANDSTONE
- SW
SANDY SILTSTONE
- XM
CARBONACEOUS MUDSTONE

5 cm

DEPTH	THICK- NESS	LITHO- LOGY	SEAM NAME	COMMENTS
0.00				
10.00				
20.00				
30.00				
40.00				
50.00				
54.59				END OF HOLE

847354

GENERAL GEOLOGICAL SERVICES
YORK PLAINS
+
BOREHOLE LOG
YP 0003B

SCALE 1:200

EASTING	NORTHING	SURFACE RL	FINAL DEPTH
35900.00	17800.00	412.00	53.40

-  DM
CORAL 1-10% BRIGHT
-  LC
CORE LOSS
-  AL
ALLUVIUM
-  MS
MUDSTONE
-  AK
ARKOSIC SANDSTONE
-  SS
SANDSTONE
-  DI
CORAL, OULL, INFERIOR
-  SW
SANDY SILTSTONE
-  XM
CARBONACEOUS MUDSTONE

5 cm

*** PLOT CREATED: 06 OCT 81 13.44.43. ***

*** END OF PLOT ***

