Natural Resources and Environment

AGRICULTURE • RESOURCES • CONSERVATION • LAND MANAGEMENT

DARRIMAN 1 W440

WELL SUMMARY

1 Folio No	2 Referred to	3 Date	4 Clearing Officer's Initials	1 Folio No.	2 Referred to	3 Date	4 Clearing Officer's Initials

FILE COVER INSTRUCTIONS FOR ACTION OFFICERS

(1) FOLIO NUMBERS: Each subject paper attached to a file is to be given a consecutive number by the attaching officer. Papers must not be removed from or attached to a file without approval.

(2) REFERRAL TO OTHER OFFICERS: When an Officer completes action on the file and further action is required by some other Officer, please initial Column (4) and on the next vacant line, enter the relevant folio number in Column (1), indicate to whom the file is to be forwarded in Column (2) and record the date in Column (3).

(3) BRING UP MARKINGS: When action on a file is required at a later date, the officer will initial Column (4) and, on the next vacant line, enter the relevant folio number in Column (1), then write "B/U" followed by the action officer's name in Column (2) and the date the file is required in Column (3).

(4) PUTAWAY MARKINGS: When ALL action on a file is completed the officer concerned will initial Column (4) and, on the next vacant line, write "P/A" in column (2).

REGISTRY MUST BE NOTIFIED OF ANY FILE MOVEMENTS BETWEEN OFFICERS

LOCATION

EARLIER FILES	LATER FILES	RECORDS DISPOSITION

RELEVANT FILES

File No.	Subject

SYMBOLS FOR ACTION OFFICERS

EXECUTIVE

Secretary	SEC
Deputy Secretary	DS
Executive Director Portfolio Management	EDPM
Executive Director Performance Evaluation	EDPE
Executive Director Primary Industries and Chief Scientist	EDPI,CS
Executive Director Catchment Mgt & Sustainable Agriculture	EDCMSA
Executive Director Minerals and Petroleum	EDMP
Executive Director Forests Service	EDFS
Executive Director Parks, Flora and Fauna	EDPF
Executive Director Land Victoria	EDLV
Executive Director Regional Services	EDRS

CORPORATE MANAGEMENT

General Manager Corporate Services	GMCS
Chief Finance Officer	CFNO
Manager Information Technology Strategies	MITS
Director Capital Policy	DCP
Director Human Resources	DHR
Director Planning & Budget	DPB
Director Information Technology & Telecommunications	DITT
Director Business Reform	DBR
Manager Business Improvement	MBI
Manager Administrative Policy & Procedures	MAPP
Manager Metropolitan Administrative Operations	MMAO
Manager Corporate Communications & Information	MCCI
Manager Electronic Information Services	MEIS
Manager Library & Information Services	MLIS

MINERALS AND PETROLEUM

Manager Petroleum Development	MPD
Manager Geological Survey Victoria	MGSV
Manager Mineral & Petroleum Operations	MMPO
Manager Minerals Development	MMD
Manager Extractive Industries	MEI
Manager Minerals & Petroleum Titles	MMPT

PRIMARY INDUSTRIES & CHIEF SCIENTIST

Manager Chemical Standards Branch	MCSB
Manager Plant Standards	MPS
Chief Veterinary Officer	CVO
Director Bureau of Animal Welfare	DBAW
Director Fisheries	DF
Director Quality Assurance	DQA
Director Agribusiness	DA

PERFORMANCE EVALUATION

Chief Economist	CE
Manager Internal Audit & Risk Mgt Policy	MIARMP
Manager Strategic Quality Assurance	MSQA

CATCHMENT MGT & SUSTAINABLE AGRICULTURE

Program Manager Pest Plants & Animals	PMPPA
Director Catchment & Water Resources	DCWR
Director Sustainable Development	DSD
Director Office of Rural Affairs	DORA
Director Natural Resource Policy	DNRP

FORESTS SERVICE

Manager Commercial Forestry	MCF
Chief Fire Officer	CFO
Manager Forest Management	MFM
Manager Regional Forests Agreements	MRFA

PARKS, FLORA & FAUNA

Manager Parks & Reserves	MPR
Manager Business Management Parks, Flora & Fauna	MBMPFF
Manager Flora & Fauna	MFF
Manager Coasts & Ports	MCP

LAND VICTORIA

Director Geospatial Information	DGI
Director Resources & Reform	DRR
Surveyor General	SG
Valuer General	VG
Director Land Registry	DLR
Director Crown Land Management	DCLM

PORTFOLIO MANAGEMENT

Director Water Agencies	DWA
Manager Portfolio Coordination	MPC
Manager Environmental Policy	MEP
Manager Policy Support	MPOS
Director Media	DM

DARRIMAN-1

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ATTACHMENTS

PE904200

This is an enclosure indicator page.
The enclosure PE904200 is enclosed within the container PE905434 at this location in this document.

The enclosure PE904200 has the following characteristics:

ITEM_BARCODE	= PE904200
CONTAINER_BARCODE	= PE905434
NAME	= Darriman Well Card
BASIN	= GIPPSLAND
PERMIT	= PPL157
TYPE	= WELL
SUBTYPE	= WELL_CARD
DESCRIPTION	= Darriman 1 Well Card.
REMARKS	=
DATE_CREATED	= 3/09/55
DATE_RECEIVED	=
W_NO	= W440
WELL_NAME	= Darriman-1
CONTRACTOR	= Frome Lakes Pty Ltd
CLIENT_OP_CO	= Frome Lakes Pty Ltd

(Inserted by DNRE - Vic Govt Mines Dept)

WELL SUMMARY

Well: DARRIMAN No 1

Company: Frome-Lakes Pty. Ltd.

Location: Lat: 38°27'04"S

Long: 147° 00' 30"E

Parish: Darriman Allot.

Elevation: G.L. 116 feet. Datum.

Total Depth: 4913'.

Casing:

Drilled:

Hocking 1965.

(1) Haunted Hills / Boisdale Beds 0'-125'
Jemmys Point Formation 125'-150' - 9
Tambo River Formation 150'-260' - 30
Gippsland Limestone 260'-1485' - 1044 ✓
Lakes Entrance Form. Marly unit: 1485'-1670' 1359 ✓
Sandy unit: 1670'-1690' 1580 ✓
Latrobe Valley Coal Measures 1690'-3740' - 3230'
Basalt 3740'-4235' 3624 ✓
Strzelecki Groups 4235'- Total Depth.
-4119 ✓

(2) Consortium 1968.
(Tops. Subsea).

Sfloor	H.H.
+93'±	J.P.
-14'±	T.R.
-154'±	G.L.
-1369'	LEm
-1541'	LEgs
-1550'	LV f
-3616'	T Volcanics
-4071'	Childers.
-4117'	S.

Reference.

(1) ~~Hocking 1965~~.

2.0 Geological Significance of Darriman -1

(By: Richard L. Wood)

GEOLOGICAL SIGNIFICANCE OF DARRIMAN NO. 1 WELL

FROME REPORT NO. 8 (G)

By
Richard L. Wood

Frome-Lakes Proprietary, Limited
Melbourne, Australia

November 2, 1955

CONTENTS

LIST OF ILLUSTRATIONS

GEOLOGICAL SIGNIFICANCE OF DARRIMAN NO. 1 WELL

Richard L. Wood

ABSTRACT

The Darriman No. 1 well was drilled on a location approximately nine miles north-east of Woodside, Victoria. The location is situated on a local gravity high and a slightly folded, anticlinal structure, as determined by the seismograph. The well penetrated about 4200 feet of Tertiary rocks, and approximately 500 feet of Jurassic sediments. The Tertiary section consists of approximately 1700 feet of marine beds, 2000 feet of brown coal and lignitic sands, 450 feet of a basalt flow, and about 50 feet of basal gravel. The Jurassic sediments are continental sandstones and shales. No shows of oil or gas were observed in the well.

INTRODUCTION

Frome-Lakes Pty.Ltd., drilled their first exploratory oil well (Darriman No. 1) on a location one mile south of the Four Mile Creek road, three miles from the South Gippsland Highway, at Darriman, Victoria. The elevation of the well, above sea level, was 116 feet at the derrick floor and 108 feet at groundlevel. The drilling commenced on July 14, 1955, and ceased when the well was plugged and abandoned on September 5, 1955. Surface casing was set at 624 feet, and was completely cemented with 650 sacks of cement. A Brewster N-55 rig was used with $4\frac{1}{2}$ inch drill pipe and $8\frac{3}{4}$ inch bits. The maximum deviation

recorded was 1 degree at a depth of 4157 feet. The total depth drilled was 4730 feet and the electric log recorded a depth of 4726 feet. Two logs were run: one at a depth of 3837 feet and another at total depth to 4726 feet. A comprehensive coring program was carried out to obtain maximum information with minimum delay in drilling. Very few mechanical difficulties were incurred during the drilling. The cause of most down-time was caving in the coal zone, which accounted for bridges, tight zones, and loss of circulation, and pump trouble due to coal contaminated mud.

The object of drilling the Darriman No. 1 well was to test the oil possibilities of the marine Tertiary and the Upper Jurassic, as far as practicable in south Gippsland, Victoria.

The purpose of this report is to review the geology revealed by the drilling, and the significance it has on our thinking concerning future exploration work in Gippsland.

GEOLOGY

The Darriman No. 1 well penetrated all of the Tertiary formations known to unconformably overlie the Jurassic in the Gippsland Basin. The stratigraphy and structure of the Gippsland Basin have been reviewed by Evans (1954) and Boutakoff (1955), and this report will not go into regional details. Subdivision of the Tertiary as to age is still a controversial matter, but a study of the well logs indicates several definite lithological breaks, and correlation across the basin is therefore possible. The age determinations used in this report, however, are those of Crespin (1954).

Recent-Pleistocene orange brown clay was found just below the top soil to a depth of 23 feet in the Darriman No. 1 well. This clay rests conformably on the Jemmy's Creek formation (Lower Pliocene) which consists of yellow to white, coarse to fine very friable sands, with occasional limestone nodules. This formation is 107 feet thick with the bottom 20 feet consisting of an orange-brown, very fine, well consolidated, argillaceous sandstone. These sands contain no trace of oil or gas, and show very little water. A water bore, drilled to a depth of 200 feet on the well site, was dry.

The top of the polyzoal and shelly marls of the Mitchell River (Tambo River) formation (Upper Miocene) was found at a depth of 130 feet. A thickness of 1030 feet of soft marl, with occasional limestone bands, was penetrated.

The Gippsland Limestone formation (Lower Miocene) was entered at 1160 feet, and has a thickness of 325 feet. This formation consists of polyzoal limestone with a few soft marly bands. The lithologic break between marl and predominent limestone occurs at 1160 feet, but the paleontological break may occur slightly higher in the marl section.

The Lakes Entrance formation (Upper Eocene) lies conformably beneath the Gippsland limestone, and in the Darriman well, this consists of light green to greyish green, soft, fossiliferous marl, becoming glauconitic and slightly sandy towards the base. A total thickness of 203 feet was penetrated with the lowest 48 feet being highly glauconitic and containing a sandy zone between 1657 and 1665 feet. This sandy zone consists of tight, highly glauconitic, wet sandstone streaks in the marl.

Lying conformably below the Lakes Entrance formation is the Yallourn formation (Middle Eocene). This formation underlies the marine Tertiary, and consists of lignitiferous sands and brown coal seams. Immediately upon entering the Yallourn formation, a thick brown coal seam, 87 feet thick, was penetrated. These coal seams alternate with lignitiferous sands to a depth of 2204 feet, where another 64 foot thick coal seam is penetrated. Smaller coal seams and lignitiferous sands alternate to 3723 feet, where a basal gravel is encountered. The total thickness of the Yallourn formation (2044 feet) is the greatest thickness yet measured in the Gippsland Basin. Of this thickness approximately 542 feet is pure brown coal.

This basal gravel which is 9 feet thick, and contains pebbles up to $2\frac{3}{4}$" diameter, was wet in the Darriman well. It lies directly on the "Older Basalt" of the Narrican group (Lower Eocene). This Narrican group is not continuous throughout the Gippsland Basin, but is mainly present in western Gippsland. Tuffaceous material and extremely weathered basalt were found to a depth of 3810 feet, where dark green unweathered basalt was penetrated. There is one zone at 3902-3957 feet, consisting of soft brown and greenish blue claylike material, which shows some resistivity on the electric log; there were no signs of oil or gas at this horizon, but it may mark a zone of fresh artesian water. The basalt is 455 feet thick and directly overlies a basal gravel zone 46 feet thick, which also was wet and contained no shows of oil or gas.

The gravel beneath the basalt is basal Tertiary, and lies on the unconformity at the top of the Jurassic. The Jurassic rocks consist

of black carbonaceous shales, and feldspathic tight sandstones of continental origin. Approximately 500 feet of the Jurassic was penetrated with no signs of marine interfingering nor shows of oil or gas. The sands are very tight and alternate with shale bands to a depth of 4645 feet, where a thick section of sand is encountered. A core at total depth recovered 6 feet of tight feldspathic sandstone, with calcite veining and no shows of oil or gas. Core analyses of Jurassic shale and sandstone samples revealed porosities of 2.26% and 1.77% respectively, with the sandstone having permiability of only 0.227 milladarcys.

INTERPRETATION

The seismic survey of the Darriman structure indicated the possibility of there being from 2000 to 4000 feet of Tertiary sediments, slightly folded in an anticlinal structure. Prior to drilling Darriman No. 1, very little information was available to indicate the details of the Tertiary section, but it was hoped that it would include marine sediments. Plate 1. Figure A, is a compilation map of gravity and magnetic data showing the position of certain bores. Bore No. 1 is the Darriman No. 1 well which is situated over a slight gravity high in a region of low gravity values - thus indicating a fairly thick basin of sedimentation. The marine Tertiary was found to be structurally higher than to the north-east, but a thinning of this part of the section from north-east to south-west was noted. In Darriman No. 1, the Lakes Entrance formation was only about one-fourth as thick as it was found in the Hollands Landing bore (Bore No. 3 on Figure A. of Plate 1.) Block faulting, or movement of earlier block faults, has occurred after deposition of the brown coal

(Plate 1. Figure C.) and the block containing Darriman No. 1 well has been gradually upthrown during the deposition of the marine Tertiary in the Darriman area. The area between Lake Wellington and Lake King was a graben receiving thick marine sediments, while again to the east at Lakes Entrance, a comparatively thin layer was being deposited.

At the time of the deposition of the brown coal, the Gippsland Basin was structurally quiet. As the brown coal was being deposited, the western half of the Basin gradually subsided (Plate 1. Figure B.) into a broad down warp. A thick section of lignitiferous sands and brown coal seams was deposited equal in thickness to the whole marine Tertiary later deposited above it. The thick section of Tertiary in the Darriman structure indicated by geophysical evidence, thus unfortunately, from a petroleum point of view, turns out to be brown coal rather than marine Tertiary.

In addition to the great thickness of brown coal, an older Tertiary basalt is found overlying the Jurassic. The small eliptical magnetic highs to the north of the well site (Plate 1. Figure A.) now seem to indicate the main body of the basalt flow - the Darriman well would be on the flanks of this flow. Without the aid of another offset well or two, it is impossible to determine the structural position of the Darriman No. 1 well. From the seismic plot of dips, it still seems that the well is structurally high to the surrounding area, and that the seismic structure continues into the Jurassic.

No dips were evident in any cores taken in the Jurassic, so its structural attitude is unknown. The tightness of the Jurassic sands cored

dims the hope of the Jurassic as a reservoir rock. The fact that the 500 feet of Jurassic penetrated was continental sediments eliminates the possibility of the upper part of the Jurassic being a source bed for oil in this area.

ELECTRIC LOG INTERPRETATIONS

Two electric logs were run on the Darriman No. 1 well. The first was run to 3839 feet, and the second at completion of drilling, to total depth of 4730 feet. Both logs agree closely, showing only slight differences in the several curves, probably due to changes in the mud composition.

Formation breaks in the marl - limestone section of the well are not indicated by the electric log, and the formation tops are called on sample analysis. The sandy zones at the base of the Lakes Entrance formation are only slightly indicated on the electric log, their resistivity being very low and the sands being tight and wet. Sidewall cores were taken in the sandy zone, and they confirm that the sand is tight and barren. The sharp lithologic break from marl into brown coal is not prominently indicated on the electric log, but the coal seams, as distinct from the lignitic sands, are easily seen by changes in the resistivity and self-potential curves - the coal showing very low resistivity as would be expected. A sharp break from the coal and lignitic sand section into basalt is seen as the resistivity and self-potential curves pull into the shale line at 1688 feet. The basal gravel above the basalt shows very little resistivity and is wet - cores show no signs of oil or gas. Within the basalt at 3902-3957 feet, there is shown a zone of greater

resistivity. This zone consists of soft brown and bluish green clays, probably altered tuffaceous material, with no show of any oil or gas. The flat appearance of the deep penetration curve strongly suggests fresh water. Below the basalt, the basal Tertiary gravels show a very high self potential but little resistivity. The cores taken in these gravels indicate no signs of oil or gas. The Jurassic shales and sands show a minimum of relief on the electric log down to a depth of 4645 feet, where the sands contain very little interbedded shale and the self potential and resistivity curves register a thick body of sandstone. Cores taken within this zone and at the very bottom of the hole, show only a tight, wet, feldspathic sandstone, with no signs of oil or gas.

CONCLUSIONS AND RECOMMENDATIONS

1. In Darriman No. 1, the Lakes Entrance glauconitic sand was very poorly developed; it is tight and wet with no trace of oil or gas.
2. The unconformity gravels above and below the basalt were also wet with no shows of oil or gas.
3. Only a relatively small proportion of the thick section of Tertiary penetrated in this well was marine; the rest of the section was chiefly brown coal and a thick flow of basalt.
4. To the depth penetrated, the Jurassic was continental, and the sand porosity was too low to serve as a reservoir.

5. The objective oil horizons were penetrated and showed no trace of oil or gas; thus the Tertiary and the upper part of the Jurassic of southern Gippsland appear barren from the petroleum point of view.

It is recommended that for the present no further drilling in Gippsland be done until additional geological and geophysical work is accomplished, and a favourable site then selected for another Tertiary or possibly Devonian test. Attention should be directed to the eastern half of the Gippsland Basin, with emphasis on the Lakes Entrance area. Since the oil occurrences at Lakes Entrance are all associated with artesian water, a detailed study of the artesian water flow should be made in an effort to determine in what direction the oil may be migrating. A representative portion of the outcrop area of the Middle Devonian reef limestones near Buchan, Victoria, should be studied, and some detailed mapping done to indicate the structural trends of this limestone at depth near Lakes Entrance. The structure of the Tertiary and the adjacent outcropping Palaeozoic rocks near Lakes Entrance, should be studied with the aid of aerial photographs in conjunction with additional field work as required.

The presence of oil at Lakes Entrance is enough of a stimulant to warrant further exploration in eastern Gippsland. Until proof is found that this oil is migrating from an inaccessible source, or that it is merely a small residual film from an eroded source bed, the search for oil in Gippsland should not be abandoned.

BORE DATA

Bore No.	Name	Elevation	Total Depth	Completed In
1	Darriman No. 1	108'	4730'	Jurassic
2	Tanjil Pt. Addis No. 2	160'	2740'	Jurassic
3	Hollands Landing	10'	4004'	Jurassic
4	Boole Poole No. 1	10'	3111'	Jurassic
5	Govt. No. 1	9'	1404'	Granite

11.

SAND DATA SHEET

Age	Formation/Sand	Interval	Top subsea	Net oil sand	Net prod sand	Evaluation	Remarks
K	Lakes Entrance sand	1697 - 1665	- 1541				Glauconitic & wet
pK	Tallourn basal gravel	3723 - 3732	- 3607				Pebbles ¼"-¾" & wet
EL	Narrawarra basal gravel	4107 - 4233	- 4071				" " " "
J/S	Jurassic, sand "A"	4645 - T.D.	- 4529				Very low porosity and permeability

Electrical survey 629 - 4726 (B.H.C. Lane wells)	Coordinates 38° 26.5' S 147° 1.35' E		Total depth 4730	Plug back
Other surveys None	Grid	Location Victoria Australia	Completion Plugged & abandoned	Completion date September 9, 19
Date prepared September 28, 1959	Cores 630 - 4730	SWC. Ten	RTE. 116'	Well No. Darriman No. 1
Prepared by R.L. Wood	Maximum deviation & depth 1° at 417'		Area or field Victoria	

BIBLIOGRAPHY

BOUTAKOFF N. — A New Approach to Petroleum Geology and Oil Possibilities in Gippsland, Victorian Mining & Geological Journal, Vol. 5, Nos. 4-5, September 1954 - March 1955.

BORING RECORDS — Victorian Mines Department 1923 - 1939.

CRESPIN I. — Paleontological Review of Holland's Landing Bore, Gippsland Mining and Geological Journal, Victorian Mines Department, Vol. 2. No. 4, March 1941.

EVANS H.J. — Review of Gippsland Tertiary Basin, Frome Report, August 1954.

3.0 LITHOLOGY

3.1 Lithological Descriptions

(from weekly sample reports)

DARRIMAN NO. 1

WEEKLY WELL SAMPLE REPORT NO. 2 PAGE NO. 1

WEEK ENDING JULY 24, 1955

INTERVAL SAMPLED	TYPE	LITHOLOGY	DIP	REMARKS
650 - 930'	DITCH	BUFF - LIGHT GREY FOSSILIFEROUS MARL WITH SPOTTY TRACES OF GLAUCONITE AND OCCASIONAL HARD LIMESTONE STREAKS		
930 - 940'	DITCH	TAN - LIGHT BROWN VERY FINELY CRYSTALLINE LIMESTONE		
940 - 976'	DITCH	LIGHT GREY SOFT FOSSILIFEROUS (POLYZOAL) MARL		
976 - 994'	CORE	LIGHT GREY SOFT FOSSILIFEROUS MARL WITH BROWN ARGILLACEOUS BANDS AND TRACES OF BROWN MICA AND GLAUCONITE	NONE APPARENT	CORE # 2 @ 976 - 94' RECOVERED 4' CORE HEAD JAMMED DUE TO LACK OF MUD PRESSURE AND FREQUENT STOPS IN CORING TILL PRESSURE REGAINED
994 - 1045'	DITCH	LIGHT GREY SOFT FOSSILIFEROUS MARL WITH GLAUCONITE AND PYRITE		
1045 - 1063'	CORE	LIGHT GREY - LIGHT BROWN SOFT FOSSILIFEROUS MARL WITH BROWN ARGILLACEOUS BANDING, SILICA NEEDLES, MICA AND GLAUCONITE	NONE APPARENT	CORE # 3 @ 1045 - 63' RECOVERED 9' 50% RECOVERY DUE TO MECHANICAL FAILURE - RUBBER DISK IN CORE BARREL SEALED IN MUD & 9' CORE UNDER HIGH PRESSURE AND ALLOWED ONLY 50% RECOVERY
1063 - 1081'	CORE	LIGHT GREY - TAN SOFT FOSSILIFEROUS MARL WITH SOME PYRITE, BROWN MICA AND GLAUCONITE	NONE APPARENT	CORE # 4 @ 1063 - 81 RECOVERED 15'

DARRIMAN NO. 1

WEEKLY WELL SAMPLE REPORT NO. 3 PAGE NO. 1

WEEK ENDING JULY 31, 1955

INTERVAL SAMPLED	TYPE	LITHOLOGY	DIP	REMARKS
1081-1160'	DITCH	TAN - LIGHT GREY VERY FINE GRANULAR FOSSILIFEROUS GLAUCONITIC MARL WITH LARGE FOSSIL FRAGMENTS		
160-1200'	DITCH	TAN-LIGHT GREY VERY FINELY CRYSTALLINE LIMESTONE WITH SOFT MARL STREAKS		
1200-1218'	CORE	TAN - LIGHT GREY FINELY GRANULAR fossiliferous AND glauconitic limestone	NONE	CORE # 5 CORED 1200-1218' RECOVERED 19'
1218-1265'	DITCH	TAN-LIGHT BROWN finely Granular Tight limestone		
1265-1285'	CORE	TAN-LIGHT GREY finely granular lime-stone with glauconite AND MICA	NONE	CORE # 6 CORED 1265-1285' RECOVERED 9'
1285-1385	DITCH	Tan finely granular limestone with some soft marl streaks		
1385-1399	CORE	Tan finely granular Tight pyritic limestone with brown soft marl streaks	NONE	CORE # 7 CORED 1385-1399' RECOVERED 14' Possible 60° normal faults at 1390' 5" and 1394' (slickensides?)
1399-1485	DITCH	LIGHT GREY VERY FINELY TEXTURED PYRITIC LIMESTONE		
1485-1655	DITCH	LIGHT GREEN SOFT ARGILLACEOUS MARL WITH PYRITE VEINS		
1655-1661	DITCH	GREENISH WHITE VERY FINE ANGULAR TIGHT SLIGHTLY CALCAREOUS SAND WITH GLAUCONITE AND PYRITE - NO SHOW		
1661-1679	DITCH	LIGHT GREEN SOFT GLAUCONITIC MARL		

DARRIMAN NO. 1

WEEKLY WELL SAMPLE REPORT NO. 3 PAGE NO. 2

WEEK ENDING JULY 31, 1955

INTERVAL SAMPLED	TYPE	LITHOLOGY	DIP	REMARKS
1678 - 1700'	DITCH	BROWN COAL		
1700 - 1721'	CORE	BROWN COAL	NONE	CORE # 8 CORED 1700-1721 RECOVERED 20'
1721 - 1742'	DITCH	BROWN COAL WITH STREAKS OF GREEN SOFT MARL		
1742 - 1761'	CORE	BROWN COAL	NONE	CORE # 9 CORED 1742-1761' RECOVERED 19'
1761 - 1781	DITCH	BROWN COAL WITH STREAKS OF GREEN SOFT MARL AND AT THE BASE UNCONSOLIDATED VERY FINE-SILT SAND		
1781 - 1800	CORE	BROWN VERY FINE ANGULAR-SILT FRIABLE (UNCONSOLIDATED) SLIGHTLY POROUS TO TIGHT LIGNITIFEROUS AND ARGILLACEOUS QUARTZ SAND	NONE	CORE # 10 CORED 1781-1800' RECOVERED 14' RECOVERED LOWER PART OF CORE AT A CONNECTION MADE AFTER FIRST 5 FEET CORED. CORE SMELLED OF H_2S
1800 - 1813	DITCH	SAME SAND AS IN ~~AB~~ CORE # 10		
1813 - 1822	DITCH	INTERBEDDED VERY FINE SILT, BROWN COAL STRINGERS AND VERY COURSE TO GRANULE ANGULAR POROUS SAND WITH SMALL QUARTZ PEBBLES		
1822 - 41	CORE	SAME SAND AS IN CORE # 10	NONE	CORE # 11 CORED 1822-1841 RECOVERED 1/2' POOR RECOVERY PROBABLY DUE TO COURSE PEBBLY SAND WASHING OUT OF CORE BARREL.
~~1841 - 61~~	~~CORE~~	1 FOOT BROWN COAL 5' LIGHT GREY ~~GREENISH~~ VERY FINE ANGULAR QUARTZ SAND WITH BROWN BANDING OF LIGNITIFEROUS SAND	NONE	~~CORE # 12 CORED 1841-1861 RECOVERED 6 FEET~~

DARRIMAN NO. 1

WEEKLY WELL SAMPLE REPORT NO. 3 PAGE NO. 3

WEEK ENDING JULY 31, 1955

INTERVAL SAMPLED	TYPE	LITHOLOGY	DIP	REMARKS
1841-1861	CORE	6" LIGHT GREY-BROWN VERY FINE ANGUAAR SILT-SAND 2' 6" BROWN COAL 1' LIGHT GREY COURSE-GRANULE QUARTZ SAND WITH SMALL ANGULAR PEBBLES. NO SHOW	NONE	CORE II 12 CORED 1841-1861' RECOVERED 4' POOR RECOVERY DUE TO USE OF CORE HEAD TO REAM HOLE AND BREAK LEDGES = PINS ON PLUG MUST HAVE BROKEN AND BARREL FILLED WITH CAVINGS.

DARRIMAN NO. 1

WEEKLY WELL SAMPLE REPORT NO. 4 PAGE NO. 1

WEEKENDING AUGUST 7, 1955

INTERVAL SAMPLED	TYPE	LITHOLOGY	DIP	REMARKS
1861-1880	CORE	1' BROWN COAL 5' LIGHT TAN-BROWN VERY FINE - SILT LIGNITIFEROUS FRIABLE - UNCONSOLIDATED SAND	NONE	CORE # 13, CORED 1861-80' RECOVERED 6'
1880-1927	DITCH	LIGNITIFEROUS SANDS WITH INTERCALATED BROWN COAL		
1927-1942	CORE	9" GREY FINE - CRSE SUBROUND QUARTZ SAND WITH LIGNITIFEROUS MATERIAL, MUSCOVITE PLATES AND SAND GRANULES VITR 3" BROWN COAL	NONE	CORE # 14 CORED 1927-42 RECOVERED 1'
1942-2005	DITCH	LIGNITIFEROUS SANDS WITH INTERCALATED BROWN COAL		
~~2200-2201~~	~~CORE~~	~~1/2' LIGHT BROWN VERY FINE - SILT LIGNITIFEROUS SAND~~	~~NONE~~	~~Co~~
2005-2024	CORE	—	—	CORE # 15 CORED 2005-24 RECOVERED 0'
2024-2043	CORE	—	—	CORE # 16 CORED 2024-43 RECOVERED 0'
2043-2062	CORE	—	—	CORE # 17 CORED 2043-62 RECOVERED 0'
2062-2081	CORE	3' LIGHT BROWN SPECKLED MICACEOUS + LIGNITIFEROUS VERY FINE - SILT SAND 1' BROWN COAL	NONE	CORE # 18 CORED 2062-81 RECOVERED 4'
2081-2200	DITCH	LIGNITIFEROUS SANDS WITH INTERCALATED BROWN COAL		
2200-2201	CORE	6" LIGHT BROWN VERY FINE - SILT LIGNITIFEROUS SAND	NONE	CORE # 19 CORED 2200-01 RECOVERED 1/2' CONES LOCKED

DARRIMAN NO. 1

WEEKLY WELL SAMPLE REPORT NO. 4 PAGE NO. 2

WEEK ENDING AUGUST 7, 1955

INTERVAL SAMPLED	TYPE	LITHOLOGY	DIP	REMARKS
2201-2212	DITCH	LIGNITIFEROUS SANDS WITH SOME BROWN COAL		
2212-2278	DITCH	BROWN COAL		
2278-2362	DITCH	WHITE COURSE ANGULAR UNCONSOLIDATED QUARTZ SAND		
2362-2390	DITCH	BROWN COAL		
2390-2405	DITCH	SAND WITH COAL		
2405-2420	DITCH	BROWN COAL		
2420-2456	DITCH	WHITE COURSE LOOSE SAND		
2456-2465	DITCH	BROWN COAL		
2465-2510	DITCH	LOOSE SAND		
2510-~~2595~~ 2700	DITCH	LIGNITIFEROUS SAND WITH INTERCALATED BROWN COAL		
~~2595~~ 2700-2725	DITCH	BROWN COAL		
2725-2770	DITCH	WHITE COURSE UNCONSOLIDATED SAND		
2770-2810	DITCH	SAND AND COAL STREAKS		
2810-2840	DITCH	BROWN COAL		
2840-2910	DITCH	SAND AND COAL STREAKS		
2910-2940	DITCH	BROWN COAL		
2940-3062	DITCH	SAND AND COAL INTERBEDDED		

DARRIMAN NO. 1

WEEKLY WELL SAMPLE REPORT NO. 5 PAGE NO. 1

WEEK ENDING AUGUST 14, 1955

INTERVAL SAMPLED	TYPE	LITHOLOGY	DIP	REMARKS
3062-3082	CORE	1/2' LIGHT GREY loose granule QUARTZ GRAVEL (3-4mm) 1' LIGHT GREY VERY FINE TEXTURED MICACEOUS AND CARBONACEOUS SAND	NONE	CORE # 20 CORED 3062 - 3082 RECOVERED 1 1/2'
3082-3102	CORE	———	—	CORE # 21 CORED 3082 - 3102 RECOVERED 0'
3102-3315	DITCH	WHITE VERY COURSE LOOSE QUARTZ SAND WITH INTERBEDDED BROWN COAL STREAKS		
3315-3330	DITCH	BROWN COAL		
3330-3400	DITCH	WHITE COURSE QUARTZ SAND WITH INTERCALATED BROWN COAL STREAKS		
3400-3412	DITCH	BROWN COAL		
3412-3535	DITCH	WHITE LOOSE QUARTZ SAND WITH BROWN COAL STRINGERS		
3535-3600	DITCH	SLIGHTLY SANDY BROWN COAL		
3600-3713	DITCH	WHITE SAND WITH BROWN COAL STREAKS		
3713-3723	DITCH	WHITE GRANULE LOOSE QUARTZ GRAVEL WITH PEBBLES.		
3723-3736	CORE	2 1/2' WHITE LOOSE QUARTZ GRAVEL 1/2' GRAVEL WITH LARGE 2-3" PEBBLES 1' WHITE - BLUE CLAYLIKE DEEPLY WEATHERED BASALT	NONE	CORE # 22 CORED 3723-3736 RECOVERED 4'

DARRIMAN NO. 1

WEEKLY WELL SAMPLE REPORT NO. 5 PAGE NO. 2

WEEK ENDING AUGUST 14, 1955

INTERVAL SAMPLED	TYPE	LITHOLOGY	DIP	REMARKS
3736-3744	CORE	1 1/2' DEEPLY WEATHERED BASALT LOOKS LIKE WHITE-BLUE VERY FINE TEXTURED CLAY	NONE	CORE # 23 CORED 3736 - 3744 RECOVERED 1 1/2'
3744-3750	CORE	6' DEEPLY WEATHERED BASALT WHITE - BLUE CLAY MATERIAL SHOWING REPLACED MINERALIZATION OR BANDING ALONG FLOW LINES - CONTAINS PYRITE NUGGETS.	NONE	CORE # 24 CORED 3744-3550 RECOVERED 6'
3750 - 3810	DITCH	ABOVE DEEPLY WEATHERED BASALT		
3810 - 3837	DITCH	DARK GREEN VERY FINE GRAINED OLIVINE BASALT, HARD AND FRESH, UNWEATHERED WITH LARGE DARK BROWN PHENOCRYSTS.		

DARRIMAN NO. 1

WEEKLY WELL SAMPLE REPORT NO. 6 PAGE NO. 1

WEEK ENDING AUGUST 21, 1953

INTERVAL SAMPLED	TYPE	LITHOLOGY	DIP	REMARKS
3837-3842	CORE	1/2' MIXED SOFT BROWN TUFF WITH CALCITE AND FRESH HARD DARK GREEN TO BLACK BASALT	NONE	CORE # 25 CORED 3837-3842 RECOVERED 1/2'
3842-3850	DITCH	DARK BROWN TO BLACK HARD BAKED LOOKING BROWN COAL WITH DARK BROWN TO BLACK CARBONACEOUS LOOKING BASALT AND MANY LOOSE VERY COURSE QUARTZ GRAINS		PROBABLY CAVING COAL AS SAMPLES CONTAMINATED AFTER TRIP.
3850-3970	DITCH	DARK GREEN TO BLACK VERY FINE GRAINED GROUND MASS WITH FINE TO MEDIUM GREEN, BROWN, AND BLACK ANGULAR TO SUB ANGULAR PHENOCRYSTS		
3970-3980	DITCH	BLUE TO GREEN SOFT CLAY WITH A PLASTIC LIKE LUSTER — ABUNDENT CHOCOLATE BROWN SOFT CLAY LIKE MATERIAL WITH LIGHT BLUE TO WHITE SUB ROUND PHENOCRYSTS.		
3980-4155	DITCH	DARK GREEN BASALT WITH SOME STREAKS OF VESICULAR BASALT WITH THE VESICULES FILLED BY CALCITE		
4155-4165	DITCH	TAN TO BUFF VERY FINELY CRYSTALLINE (LIMESTONE?) OR CALCITE SHOWING GRADATION INTO WEATHERED BASALT - TRACE OF GYPSUM NEEDLES		
4165-4182	DITCH	DARK GREEN FINE GRAINED BASALT WITH VARICOLORED PHENOCRYSTS		
4182-4185	DITCH	BLUE TO GREEN SOFT CLAY AND TRACE OF LOOSE COURSE QUARTZ SAND		

DARRIMAN NO. 1

WEEKLY WELL SAMPLE REPORT NO. 6 PAGE NO. 2

WEEK ENDING AUGUST 21, 1955

SIDE WALL CORE DESCRIPTIONS

INTERVAL SAMPLED	TYPE	LITHOLOGY	DIP	REMARKS
3877	CORE	FRESH HARD BASALT CONSISTING OF DARK GREEN VERY FINE GRAINED GROUND MASS WITH MEDIUM SIZE PHENOCRYSTS OF IDDINGSITE AND A FEW OF PYRITE - SEVERAL CALCITE AMYGDALES		DEPTHS ARE PIPE TALLY DEPTHS AND ARE 3' DEEPER THAN RECORDED BY LOGGING UNIT
3845	CORE	ORANGE TO RED WEATHERED TUFF WITH SMALL WHITE CRYSTALS SOME IN BANDS ~~DEFINING FOLIATION~~ SHOWING ORIGINAL BEDDING.		
3820	CORE	LIGHT GREY VERY FINE GRAINED WEATHERED AMYGDALOIDAL BASALT WITH LIGHT BROWN TO TAN AMYGDALES		
1678	CORE	LIGHT GREY HIGHLY GLAUCONITIC SOFT CLAY, GLAUCONITE GRAINS MEDIUM SIZE.		
1668	CORE	VERY LIGHT GREEN VERY FINE ANGULAR VERY TIGHT SLIGHTLY CALCAREOUS SAND WITH MANY FINE TO MEDIUM GLAUCONITE GRAINS AND A TRACE OF PYRITE		
1663	CORE	SAME SAND AS DESCRIBED IN CORE AT 1668		
1658	CORE	LIGHT GREEN SOFT HIGHLY FOSSILIFEROUS MARL WITH TRACE OF GLAUCONITE AND PYRITE		

DARRIMAN NO. 1

WEEKLY WELL SAMPLE REPORT NO. 7 PAGE NO. 1

WEEK ENDING AUGUST 28, 1955

INTERVAL SAMPLED	TYPE	LITHOLOGY	DIP	REMARKS
4185-4199	DITCH	TAN TO LIGHT GREY VERY FINE TO FINE ANGULAR TO SUBANGULAR SLIGHTLY POROUS TO TIGHT ARGILLACEOUS SAND STONE — SAMPLES CONTAIN MANY LOOSE VERY COURSE QUARTZ GRAINS AND GREEN SOFT CLAY		
4199-4219	CORE	2' COURSE QUARTZ SAND AND LARGE SAND STONE PEBBLES HELD TOGETHER BY GREEN SOFT CLAY — SANDSTONE PEBBLES ARE LIGHT GREEN VERY FINE SUBROUND VERY TIGHT AND HARD SANDSTONE	NONE	CORE # 26 CORED 4199-4219 RECOVERED 2' PEBBLES OF HARD SANDSTONE IN THE UN CONFORMITY GRAVEL MAY POSSIBLY BE REMNENTS OF CRETACEOUS WHICH IS OTHER WISE MISSING
4219-4239	CORE	1' SAME MATERIAL AS DESCRIBED IN CORE # 26 ABOVE	NONE	CORE # 27 CORED 4219-4239 RECOVERED 1'
4239-4247	DITCH	SAME GRAVEL AS DESCRIBED ABOVE		
4247-4295	DITCH	WHITE TO LIGHT GREY FINE TO MEDIUM SUBANGULAR TIGHT ARGILLACEOUS VERY FRIABLE SAND WITH MULTI-COLORED SAND GRAINS		
4295-4301	DITCH	LIGHT GREY VERY FINE TEXTURED SOFT CARBONACEOUS SHALE		
4301-4316	CORE	1 1/2' LIGHT GREENISH GREY VERY FINE TEXTURED COMPACTED CARBONACEOUS SHALE 1' DARK GREY VERY CARBONACEOUS SOFT SHALE 5 1/2' LIGHT grey VERY FINE TEXTURED HARD SLIGHTLY SILTY SHALE 1' GREY-BLACK VERY FINE HARD VERY CARBONACEOUS SHALE 2' GREY HARD CARBONACEOUS SHALE WITH SILT STREAKS 1' GREY VERY FINE TIGHT ARGILLACEOUS CARBONACEOUS SILT WITH MUSCOVITE FLAKES	NONE	CORE # 28 CORED 4301 - 4316 RECOVERED 12'

DARRIMAN NO. 1

WEEKLY WELL SAMPLE REPORT NO. 7 PAGE NO. 2

WEEK ENDING AUGUST 28, 1955

INTERVAL SAMPLED	TYPE	LITHOLOGY	DIP	REMARKS
4316 - 4375	DITCH	~~INTERBEDDED~~ LIGHT GREY FINE TO MEDIUM ROUND TO SUBROUND TIGHT ARGILLACEOUS CARBONACEOUS FRIABLE SANDSTONE ~~AND~~ INTERBEDDED WITH GREY VERY FINE VELVETY TEXTURED CARBONACEOUS SHALE - SOME SLIGHTLY SILTY.		
4375 - 4385	DITCH	BUFF FINE TO MEDIUM SUB ANGULAR TIGHT HARD CALCAREOUS SANDSTONE WITH GRAIN, BLACK, RED AND YELLOW GRAINS IN A BUFF CALCAREOUS MATRIX		
4385 - 4470	DITCH	GREY VERY FINE TEXTURED CARBONACEOUS SHALE BECOMING SILTY IN PLACES WITH INTER BEDDED GREY FINE TO MEDIUM SUB ANGULAR TIGHT FRIABLE ARGILLACEOUS SANDSTONE STREAKS		
4470 - 4490	CORE	3' GREY TO BLACK VERY FINE TEXTURED CARBONACEOUS SHALE 2' GREY SILTY SHALE 6' GREY VERY FINE TIGHT ARGILLACEOUS SILT WITH MICA AND CARBONACEOUS INCLUSIONS - SOME SMALL BLACK COAL STRINGERS 9' LIGHT GREY TO GREY BLACK FINE TO MEDIUM SUBANGULAR TIGHT ARGILLACEOUS AND CALCAREOUS SAND STONE WITH MICA AND CARBONACEOUS INCLUSIONS	NONE	CORE II 29 CORED 4470-90 RECOVERED 20' (100%)
~~4490 - 4612~~ 4490-4612	DITCH	BUFF TO TAN FINE TO MEDIUM SUBANGULAR TIGHT FRIABLE CALCAREOUS AND SLIGHTLY ARGILLACEOUS SAND STONE WITH QUARTZ VEINS INTERBEDDED WITH GREY VERY FINE TEXTURED BLOCKY HARD SHALE CONTAINING POSSIBLE CARBONIZED PLANT REMAINS AND BLACK CARBONACEOUS SPECKS		

R. L. Wood

DARRIMAN NO. 1

WEEKLY WELL SAMPLE REPORT NO. 8 PAGE NO. 1

WEEK ENDING AUGUST 4, 1955

INTERVAL SAMPLED	TYPE	LITHOLOGY	DIP	REMARKS
4612-4625	DITCH	TAN TO LIGHT GREY VERY FINE TO FINE ANGULAR TIGHT CALCAREOUS SAND WITH A TRACE OF GYPSUM AND CALCITE VEINING		
4625-4645	CORE	1' GREY VERY FINE TEXTURED MICACEOUS AND CARBONACEOUS SLIGHTLY ~~SILTY~~ SILTY SHALE. 1' GREY VERY FINE ANGULAR TIGHT CALCAREOUS SAND WITH GREEN GRAINS AND CARBONACEOUS STREAKS 5' GREY FINE SUBANGULAR TIGHT ARGILLACEOUS SAND WITH RED GREEN AND BLACK GRAINS AND BROWN MICA 2' GREY VERY FINE TEXTURED SILTY SHALE	NONE APPARENT	CORE # 30 CORED 4625-4645 RECOVERED 9'
4645-4710	DITCH	GREY VERY FINE ANGULAR TO SUBANGULAR TIGHT ARGILLACEOUS, SOME CALCAREOUS, FELSPATHIC "SALT AND PEPPER" SANDS WITH GREY VERY FINE TEXTURED CARBONACEOUS SHALE STREAKS.		SAMPLES VERY POOR DUE TO CAVING BROWN COAL AND LIGNITIFEROUS SANDS FROM ABOVE.
4710-4730	CORE	6' GREY VERY FINE TO FINE SUBANGULAR TIGHT ARGILLACEOUS FELSPATHIC SANDS WITH GREY BLACK AND WHITE GRAINS AND MANY CALCITE VEINS	NONE APPARENT	CORE # 31 CORED 4710-4730 RECOVERED 6'
		TOTAL DEPTH 4730		

3.2 Frome - Lakes Darriman - 1

Lithologic Log

1678
116
1562

F/L DARRIMAN No. 1

Location: Parish of Darriman, lat. 38°27'04"S, 147° 00' 30"E.
Elevation: 116 feet.
T.D. : ? 4913 feet.

L.V.C.M. range: 1678 — 4235 feet (2557 feet)

Lithologic Log:

1678 — 1770 : brown coal. (sometimes sli. gravelly)
1770 — 2205 : lt. bn. to gy. fine sand, carbonaceous (inc. plant) fragments, finely bedded (inc. cross-bd) in parts; thin brown coal beds.
2205 — 2270 : brown coal.
2270 — 2350 : white coarse sand.
2350 — 2410 : largely brown coal, sand at 2380-90ft.
2410 — 2445 : white coarse sand.
2445 — 2455 : brown coal.
2455 — 2510 : white coarse sand.
2510 — 2595 : brown coal, minor sand beds.
2595 — 2620 : lignitic sand
2620 — 2630 : brown coal
2630 — 2650 : lignitic sand
2650 — 2670 : brown coal
2670 - 2690 : lignitic sand
2690 — 2715 : brown coal
2715 — 2760 : lignitic sand
2760 — 2780 : brown coal.
2780 — 2800 : sand & coal streaks
2800 — 2815 : brown coal
2815 — 2905 : sand & coal streaks
2905 — 2930 : brown coal
2930 — 2950 : sand & coal streaks
2950 — 2965 : brown coal
2965 — 3045 : sand & minor coal.
3045 — 3060 : brown coal
3060 — 3310 : coarse sand (occasional gravel), minor coal
3310 — 3325 : brown coal.
3325 — 3340 : coarse sand
3340 — 3355 : brown coal

../2

Darr. No. 1 (contd)

3355 - 3375 : coarse sand
3375 - 3395 : brown coal
3395 - 3415 : coarse sand
3415 - 3435 : brown coal
3435 - 3530 : coarse sand, becoming fine
3530 - 3565 : largely brown coal.
3565 - 3700 : coarse sand, minor beds of brown coal.
3700 — 3725 : predominantly coarse quartz gravel & occasional rock fragments ~~traces of glauconite ... claystone~~
3725 — 3740 : largely lt. yellowish grey claystone, incl. pyrite nodules.
3740 — 3900 : partially weathered basalt (green, grey, red, white)
3900 — 3955 : rel. fresh hard green ? olivine basalt.
3955 — 4185 : as for 3740 - 3900ft.
4185 — 4235 : quartz pebbles, also pale green rel. tight ~~quartz~~ sandstone
4235 - : green mudstone, ? black carbonaceous material.

3740
4185
4235

3.3 Post-Mesozoic Stratigraphy in Frome-Lakes Darriman-1

(Lithologic Log).

Logs based on sample description.

POST-MESOZOIC STRATIGRAPHY IN FROME – LAKES DARRIMAN NO. 1

Location: Parish of Darriman, lat. 38° 27' 04"S, long. 147° 00' 30"E.

Elevation: 116 feet

T.D. : 4,723 feet.

Lithologic Log.

0 - 125 : fine to coarse sand, cemented ferruginous at base.

125 - 150 : yellow brown sandy shelly marl, also bryozoa & Ditrupa.

150 – 260 : grey partially glauconitic sandy marly limestone, sli. shelly, also minor Ditrupa & bryozoa.

260 – 470 : yellowish grey to light grey sandy limestone, with common Ditrupa, and bryozoa.

470 – 520 : lt. grey bryozoal marly limestone, with specks of glauconite.

520 – 570 : light grey to white bryozoal limestone, with Ditrupa, etc.

570 – 960 : predominantly as for 470-520 ft, also less common interbedded lithology as for 520-570 ft; have mollusca at various horizons.

960 – 1485 : grey marly limestone, relatively tight, also brownish grey marl (with bryozoal 'fronds'), also thin horizons of hard limestone.

~~1390 – 1485 : predominantly grey rather puggy sands, also thin hard limestones~~

1485 – 1690 : yellowish grey to greenish grey puggy foraminiferal marl, becoming quite glauconitic, pyritic, and also sandy at ≈ 1670 feet; & brown sucrosic glauc. dolomite bed between approx 1655 – 61 feet. (Poss lt gy. glauc slisdy marl at 1645 ft.)

1690 – 1770 : brown coal (sometimes slightly gravelly).

1770 – 2205 : light brown to grey fine sand with carbonaceous (inc. plant) fragments, finely bedded (inc. +-bedding) in parts, with thin beds of brown coal.

2205 – 2270 : brown coal.

2270 – 2350 : white coarse sand

2350 – 2410 : largely brown coal, sand at 2380-90 ft.

2410 – 2445 : white coarse sand

2445 – ~~2455~~ : brown coal

~~2455~~ – 2510 : white coarse sand

2510 – 2595 : brown coal, minor sand beds.

../2

2595 — 2620	:	lignitic sand
2620 — 2630	:	brown coal
2630 — 2650	:	lignitic sand.
2650 — 2670	:	brown coal
2670 — 2690	:	lignitic sand.
2690 — 2715	:	brown coal
2715 — 2760	:	lignitic sand
2760 — 2780	:	brown coal
2780 — 2800	:	sand & coal streaks
2800 — 2815	:	brown coal
2815 — 2905	:	sand & coal streaks
2905 — 2935	:	brown coal
2935 — 2950	:	sand and coal streaks
2950 — 2960 (approx)	:	brown coal
2960 — 3045	:	sand & minor coal
3045 — 3060	:	brown coal
3060 — 3310	:	coarse sand with occasional gravel, and minor coal
3310 — 3325	:	brown coal
3325 — 3340	:	coarse sand
3340 — 3355	:	brown coal
3355 — 3375	:	coarse sand
3375 — 3395	:	brown coal
3395 — 3415	:	coarse sand
3415 — 3435	:	brown coal
3435 — 3530	:	coarse sand, becoming fine.
3530 — 3565	:	largely brown coal
3565 — 3700	:	coarse sand, with minor beds of brown coal.
3700 — 3725	:	predominantly coarse gravel & occasional rock fragments
3725 — 3740	:	" light yellowish grey claystone, inc. pyrite nodules.
3740 — 3900	:	partially weathered basalt (green, grey, red, amhite)
3900 — 3955	:	rel. fresh hard green basalt.
3955 — 4185	:	as for 3740 - 3900 ft.
4185 — 4235	:	quartz pebbles, also pale green rel. tight sandstone
4235 —	:	green mudstone with black carbonaceous material

STRATIGRAPHY.

0 — 125 feet : Upper Pliocene to Recent.

Fine to coarse sands which are unfossiliferous. These possibly represent the upper unit of the Bushy Park Beds.

125 — 260 feet : Jemmys Point / Tambo River Formations

Faunas include bryozoa (typically the relatively shallow water sandy Cellaria sp.), Ditrupa + mollusca (particularly above 150 ft). Microfaunas consist of Cyperis anniculus + Elphidium imperatrix, Nonion victoriense, Valvulineria kalimnensis, common miliolids. Below 150 ft. the microfaunas are poorly preserved; they often occur as glauconitic moulds.

260 — 1485 feet : Gippsland Limestone.

~~Approximate subdivisions are as follows~~

~~Near~~ The usual subdivisions are very difficult to make because of a more complex facies picture.

Note : 1. Only 1 sample of Orbulina universa was found — at 450-60ft, + is rather worn.

2. rare fragments of Operculina victoriensis occur below 390ft It is more common below 420ft.

3. Amphistegina lessonii occurs below 470feet.

4. Lepidocyclina howchini occurs at 490 - 500 ft., 570 - approx. 640ft., then 760 - 960 ft. In the intervals where is does not occur, Operculina victoriensis + Ditrupa — more shallow water forms — are more common.

5. Below 960 ft. typical Longfordian faunas are encountered, eg. Globigerina apertura, G. woodi, Astrononion centroplax, Cibicides perforatus, etc.

Note also:

1. The sample at 380-90 ft. is identical to those between 150 & 260ft.
2. Sharks teeth are recorded at 460-70 ft. +510-20ft
3. Sponge spicules occur ~~below~~ between abt. 440 + 520ft. in the more marly lsts.
4. Miliolids + Nonion victoriense are recorded at least down to 500ft. (? contam^{n}).

.../4

1485 – 1690 feet : Lakes Entrance Formation.

Faunas differ from those above in that they contain an appreciable quantity of arenaceous species, eg. "Cyclammina" incisa, & "C." rotundata. Also we have ~~other~~ calcareous species indicating Carter's F.U.5. : Globigerina ampliapertura enaperturа, Astrononion centroplax, Cibicides perforatus, Gyroidina zealandica, also lagenids + miliolids.

1690 – 4235 feet : Latrobe Valley Coal Measures.

Non-marine sands, clays + coals of Lower Tertiary age.

Below 4235 feet : Strzelecki Group.

Non-marine mudstones, arkoses, etc of Mesozoic age.

CHARACTERISTICS OF THE LAKES ENTRANCE FORMATION

1, The top of the formation is picked according to :
   i. Lithology : appears more definite than other bores in area, ~~the~~ (??)
   ii. microfaunas.
2, A more definite ~~The~~ greenish colouration appears below approximately 1580ft, although it is always faint.
3, Samples of the e-log are too poor to pick a harder lt. gy. glauc. sandy marl as occurs in other bores in region.
4, Brown sucrosic glauconite-bearing ?dolomite occurs somewhere in the interval 1655–61ft.
5, Glauconite is abundant below approx. 1670 ft. Pyrite is very common also. Quartz is relatively common, becoming more so between 1680 + 90 ft. Pyrite is intimately associated with glauconite as "intergrowths" – typical of this particular interval.

3.4 Core / Cuttings Descriptions

Frome – Lakes Darrcmain No. 1

Cuttings Log.

10-20 : fine to coarse sand

—120 " " " .

120-30 : grit + brown clayey sandstone.

130-40 : yellow bn. sandy marl, shelly; also Ditrupa & bryozoa.

— also 140-50,

150-60 : gy. part. glauc. sandy marly lst, sli. shelly also Ditrupa

— also 160-70, 170-180, 180-190, 190-200, 200-210, 210-220, 220-230, 230-240, 240-250 . . . . 250-260.

260-70 : some yellow sdy. lst, + Ditrupa common, also Cellaria

— also 270-280

280-290 : yellowish white sdy. lst, Ditrupa v. common / abundant, Elph. parri.

290-300 : gy / yell. 50-50.

300-310 : yell-gy. sandy lst., Ditrupa, Cellaria etc

310-20 : mostly grey, glauc. sdy. mostly / most.

320-30 : ~~yell.~~ yell. & gy.

330-40 : gy.

340-50 : yell & gy.

350-60 : gy, some yell. NOTE : yellow appears to be due to oxid^n of glauconite.

360-70 : gy. some yellow

370-80 : gy.

380-90 : grey part. glauc. sandy marly lst, miliolids, shell frags

390-400 : pred. yellow sandy lst, Operc. vict. (unc) (fragmented) unc.

400-410 : pred. gy.

410-420 : " " still with Ditrupa traces, rare frag. Op. vict.

420-30 : pred. yell. sandy lst, Ditrupa, bryozoa + Op. vict all common.

430-440 : yell. & gy. : 50/50

440-50 : mostly gy.

450-60 : yell. + gy 50/50.

460-70 : mostly yellow, bryozoa v. common, shark's tooth.

470-80 : as above, Amphist. lessonii.

Darr. No 4.

K	210-410
M	420-565
B	575-1175
Bat.	1180-1245

Op. vict. 900

Darr No. 3

K	62-88
M	88-169
B	179-289
Bat	290-559
Longf.	569-1069
J.	1079-1207

CHECK SAMPLES

F/L D.1

12

F/L D. 1
contd

480-90 : gy. sandy marly lst, yell. sandy lst : 50/50.
490-500 : as above, mostly yellow, Lepidocyclina, & some Ditr., Amph less. & Op. vict
500-10 : lt. gy sl marly lst. (glauc.) } sponge spics
510-20 : - - - ~~sharks tooth~~
520-30 : lt gy / white lst (glauc tr), Ditr., Op. vict. bryozoa. Amph less
530-40 : as above
540-50 : " " Op. v., D, + bryoz. in part are v. common,
550-60 : white lst (glauc tr), Op v + bryoz. v. abundant, also Elph. (cf. E. parvu)
560-70 : as above,
570-80 : largely gy. marly lst, small sponge spics., glauc. tr, bryozoa, Amphist. lessonii far more common than above, also Lepidocyclina -
580-90 : as above.
590-600 : as above, also Op. vict.

~~[illegible]~~ CORE 1 : refer later.

650-60 : rounded quartz gravel (?contam.) + ? sandy lst., also bryozoa, Ditrupa + Op. vict.
660-70 : as above, Op. vict not v. comm.
670-80 : pred. gy. marly lst., glauc. tr., Lepidocyclina.
680-90 : as above, no Leps observed, Op. vict. rel. common.
690-700 : lst / marly lst. Op vict common.
700-10 : ~~as~~ marly lst./lst., as above.
- also 710-20, 720-30, 730-40, 740-50, 750-60
760-70 : marly lst / lst. Op. vict., Amph. less., bryozoa, Lepidocyclina. [rel. common.
- also 770-80 (Lep.) 780-90 (Lep.), 790-800, 800-810 (Lep), 810-20 (no Lep), 820-30 (Lep.), 830-40 (L.), 840-50 (L.) (Lep), 850-60 (L.) (Lep), 860-70 (L.), 870-80 (L.), 880-90 (L), 890-900 (no L. observ. - dr. mud), 900-910 (L) ↑ traces of Op. vic. coming back in, 910-20 (L.)

920-30 : as above, no Leps obsd, Amph. less. rel. common.
- also 930-40
940-50 : as above, with Leps
- also 950-60

F/L D.1
(cont'd)

960-70 : gy. marly lst., rel, tight & partially rec'd.

X CORE

1000-10 : gy. marly lst. (glauc tr.) too messy to observe Lepts.
—also 1010-20, 1020-30

1030-40 : v. light limestone, sli. marly

1040-50 : gy. marly lst (glauc. tr.), rather contam'd (inc. dead grass)

1080-90 as above

—also 1090—, 1100-, 1110-, 1120-, 1130-40, 1140-50
same & chips quite hards, small glauc. pellets not uncommon.

1150-60 : pred. rel. hard limestone (white-lt gy)

1160-70 : lst. & marly lst. 50/50.

1170-80 : pred. rather tight gy. marly lst. (still glauc tr.)

—also 1180-90, 1190-1200,

1200-10 : chips of lt gy. limest. & marly lst, often hard.
... 1250-60

1280-90 : soft gy. marl

—also 1290-, 1300-10.

1385 circ. chips of hard gy. marly lst.

1391 : as above, more commonly flaky puggy gy. foram. marl.

↓

1490-1500 : ? sl. more yellowish

[samples 1500-1600 accidentally not obt'd. from frame.] 1500-1600 as above, v. ft. gwish tinge, little more obvious @ ≈ 1580'

1600-10 : yellowish (sl. greenish tinge) puggy foram. marl.

↓

1630-60 : occ. glauc. pellets & pyrite

1660-70 : glauc pellets & pyrite more common; traces of qz sand.

1670-80 : marl chips, also glauc. pellets, pyrite & occ. quartz sand

1680-90 . . — , latter 3 more common. occ. qzs of tight x-tine glauc. calc' sandst. (sugary-looking)

1700 : Coal rubbish.

* WEEKLY DRILLING REPTS.
* FROME'S INFORMATION (?)
* EL. LOG.
* Palynology (??)

DARRIMAN No. 1 – cuttings.

1490 - 1580 : lt. brnish gy. marl.

[redacted] ??

1742 - [redacted]/0 : bn. coal/lignoous clay, sand noticeable @ 1866-76 @ 1950-60 @ 1970-75 } prob. contam.

1822 - 2024 (no particularly boundary, just arbitrary)

Dirty gy. sandy grit – circ. samples 2005

2024 - 2220 : coal + "sand", in various ppns. (coarse sand, some grit)

2024 (circ) : coal > sand
2043 (circ) : C ≈ S.
2075 - 82 : S >> C.
2080 - 2105 : C >> S
2105 - 2135 : C > S
2135 - 2155 : S > C
2155 - 2200 : C ≈ S
2200 - 2220 : C > S

2220 - 2300 : bn coal (more at top) + lignoous clay (more at base) sand @ 2378.

2300 - 2380 : coal + sand, in varying amounts.

2300 - 20 : S > C
2320 - 25 : C > S
[redacted] : S > C
2355 - 2365 : [redacted]
2365 - 2380 : C > S
[redacted]

2380 - 2435 : brown coal, minor sand @ 2390 - 2400 [redacted]

2435 - [redacted] : bn. coal + 'sand'

2435 - 2480 : coal > sand
2480 - 2510 : S. >> C
2510 - 2520 : C > S

2520 - 2630 : bn. coal, v. little 'sand'
@ 2540-50 : grit, + coal

2630 - [redacted] : bn coal + sand'

2630 - 50 : C ≈ S
[redacted] C >> S
2650 - 80 ↗ [redacted]
2690 - 2710 : S > C
2710 - 2840 : C >> S
2840 - 2880 : S > C
2880 - 2910 : S ≈ C
[redacted]

2880 circ. : virt. all bn. coal

2910 - 2940 : bn. coal

* upper Coals seem to be more earthy-looking ??

2940 - 3070 : bn. coal + sand

2940 - 3030 : C > S.
3030 - 3050 : S ≥ C.
3050 - 3070 : C > S.
3070 - 3140 : C >> S

gravel, though not abundant

prob bn coal ± small amt. of contamination)

∠ 3062: bn. coal.

3062-69 : gravel + grit, also coal.

3140 - 50 : bn. coal

3150 - 3190 : bn. coal ≫ sand

3190 - 3300 : loose sand + grit, qy. 3150-3185, particles of bn. coal (not common).

3300 - 3310 : bn. coal + sand (C ≫ S.)

3310 - 3410 : grit + sand, often with powdery cement.

3410 - 3430 : bn coal, some grit.

3430 - 3500 : grit + sand, assoc^d powdery clay (pres. drilling mud).

3500 - 3520 : coal fragments, also sand + grit.

3540 - 3550 : ~~Coal~~ v. fine sand, rare grit, coal fragments.

3550 - 3610 : bn. coal.

3610 - 3630 : bn. coal + lighter bn. clay.

? 3630 - ~~3970~~ 3723 : bn. coal + minor grit + sand

3940 - 3960 : bn. coal (quite brittle)

3960 - 3970 : pale greenish greeny material.

? CIRC 3970 - 3980 : greenish + reddish material, lumps of coal (≤ one or 2 ins. across)

3980 - 4140 : greenish crystalline material.

DARRIMAN NO. 1
— cuttings

4120-30 lgn. crystalline material.
4130-40: ——
4140-50: —, also pieces of coal.
4150-60: ——
4160-70: high ppn. of coal — contamination is apparent.
4170-80: ——
4180-90: → v. brittle
4200: chips of coal, some basalt, also some grit.
4214: 100% brown coal (pinkish tinge)
4219: virtually all a 'blackish' bn. coal
dark grey
4226: chips of coal & basaltic material.
4233: ——
4239: ——
4250-60: ? (v. little samples)
4280-90: pale greenish powder etc ?? ← colour change
4295: ——
4340-50: ? (v. little samples)
4360-70: ? "
4370-80: bn. coal, occ. pieces of greasy pale gn. material.
4380-90: (large pieces)
4390-4400: v. bad contamination, high ppn. of marl.

— etc.

COPY

Page 1071.

DARRIMAN - 1

CORE ANALYSIS RESULTS BY B.M.R.

FROME-LAKES PTY. LTD.

WELL.	DEPTH	Core Nos.	POROSITY %	PERMEABILITY TO NITROGEN HORIZONTAL	VERTICAL.
DARRIMAN NO. 1	632 - 633	1	49.2	216	180
	645 - 646	1	43.2	2808	1930
	977 - 979	2	55.0	51	7
	1048 -1049	3	41.4	34	4
	1064 -1066	4	46.4	12	6
	1201 -1202	5	36.8	78	47
	1268 -1269	6	41.9	3	1
	1278 -1279	6	40.5	11	6
	1390 -1391	7	7.9	0	0
	1398 -1399	7	21.8	0	0
Brown Coal	1703 -1704	8	Brown Coal		
	1743 -1744	9	Brown Coal		
	1789 -1790	10	31.5	12	16
	1799 -1800	10	29.4	16	5
	1860 -1861	12	Brown Coal		
Brown Coal	1875 -1876	13	Brown Coal		
	2078 -2080	18	Brown Coal		
X	3081 -3082	20	Too soft to cut		
	3739 -3740	22 & 23	Too soft to cut		
	3747 -3748	24	30.7	Sample Split	4
	4199 -4200	26	12.6	Insufficient Sample	
X	4309 -4310	28	Too fragmentary		
	4474 -4475	29	Insufficient Sample		
	4912 -4913	?	17.2	0	0

24 Samples submitted for analysis.

Should last sample be from 4712'-4713' or 4912'-4913'.

This papers is the only place where depth below 4730' are mentioned all other documents show 4730' as T.D.

From Report 7100-G-40 Gun Barrel T.D. of 4730.

DARRIMAN No. 1 (contd.) — cores.

Core 8: (a) -(e), 1700-21: Brown coal.
rec. 20'

Core 9, 1742-61: (a) Brown coal
rec. 19'. (b) " "
(c) " "
(d) " "
(e) " "
(f) " "

Core 10, 1781-1800: (a) friable buff brn. (brn. gy) to light gy silty sand with black plant fragments (some v. well preserved) [like L.E. mat'l] [3'] — v. high porosity.
rec. 14'.
(b) friable brnish. gy to gy. silty sand, ~~v. friable~~ plant fragments not v. common; bottom piece has small lenses of coaly material (1" long, etc), showing micro-cross-bedding [3'].
(c) as above, generally more brownish in colour [3']
(d) as above, plant frags. rel. common. [1.5']

Core 11, 1822-41: finely-bedded brownish gy sand, brown lignitic clay
rec ½' porous, tight

Core 12, 1841-61:
rec 4' TOP Brown coal.
BOTT. 1860-61:

Core 13, 1861-80: TOP 1861-62 missing.
rec. 6' * Brnish. gy clayey to silty sand, traces of white mica, pockets (1" to 2" long) of brn. coal; occasional v. thin laminations of brn. lignitic clay. [≈2'6"]
~~* Brown coal~~ as above [≈6"]
* Lt. gy silty sand & sometimes clay laminations, v. thin (≈2'6") [1'6" of tray]
— extremely friable, more sandy (i.e. less silty) & v. porous at base. — v. lt. gy.

* CHS = core-head sample

Core 14, 1927-42: rec. 1'
TOP: loosely cemented grey sand (med. c.f. those above) sub-angular, v. porous
- traces of bn. coal, also pitted in places (??)
BOTTOM lignous clay (almost bn. coal) & fine bn.gy silty sand

Core 15: ?
Core 16, 2024 CHS* 2043: contamination, but including bn. silty clay. } ??
Core 17, 2043 CHS = 2063: as above
Core 18, 2062-81: rec. 4'
* bn. lignous clayey (to silty) sand, v. finely bedded or laminated horizons of black v.fine mica
- black planty pieces, becoming micaceous throughout. Sim. to Marlo samples
[2']
* becoming rich in coalified plant frags
* bn coal [1']
2079-80: as above the coal [×6"].
Core 19, 2200 C.H.S. -01: rec ½' : bn. lignous sandy clay, traces of white mica, also coal fragments (looks contaminated)
B

Core 20, 3062-82: rec. 1½'
TOP lt. ~~brownish~~ tight gy. silstone, quite hard ~~lt~~, small black plant chips, some v. nice plant remains [1'] (NOTE grit coals come as contamination)
A
3081-82: tight bn. lignous clayey silt, v. microscopic bedding, black coalified plant material in v. thin layers. [small bag]

Core 22, 3723-26: rec. 4'.
* Bag: bn. coal pieces.
* Bn. coal cemented by contamination. [1']
* 3 bags : bn coal frags.
* Siliceous pebbles : 4" long
* v. dense v.lt yellowish gy ? claystone, appears to have v.faint bedding. [× 6"-1'].
* Bag: same, + pebbles.

3¾ × 3½ × 2
3½ × 3 × 1½

[redacted]

TOP (rec. 1½)

Core 23, 3736-44 : much contamination.
~~1¼~~ *easily fragmented pale brish gy. claystone.
[2 bags]

~~Core 24~~ BOTT: 3739-40 (bag) : as above, also igneous material with reddish bn. patches.

~~BOX~~.

Core No 24, 3744-53 : (rec 6') * light grish gy/ to lt. gy, v. dense ? igneous rock, with very fine lath-like crystals in maitrix.
- occ. reddish bn patches ; easily fragmented.
* 3747-48 : greenish white pres. weathered igneous rock, sl. greasy texture ; v. easily fragmented ← [3']

* as above [1'6"]
* red patches become v. common, also thin veins, v. highly fragmentary ; and becoming yellowish brown in colour ~~also~~ [for about 1'] ← [another 3']

Core 25, 3837-42 rec. 1½' Bag: * greenish rock, red ? crystals.
* contam.
*Bag : as above.

Core 26, 4195-4219 rec. 2' : * contamination, but includes fragments of greenish material [6"]
4199-4200: *Bag : pebbles of quartz, also pale, greenish sandstone, mixed in with pale greenish sandstone.
? ----→ Bag : v. dense pale gn. quartz sandstone. |||

Core 27, 4219-39 rec. 1'. : largely contamination, also one or two lumps (pebble-like) of v. dense greyish green sandstone (not quite as quartz-rich as that above)

Core 28, 4301-16 rec. 12' : TOP ~~rel.~~ easily fragmented green mudstone, largely sandy in parts, specks of carbonaceous material + some v. well preserved plant material in mudstone parts.

Sst (arkose) 3"×2"×1"

?9δ 2¼"×2¼"×1¼"

One ? nodule of dk.gn basalt 3½"×2¼"×1

etc.

BH. 10.00 am Thurs. 9

FROME-LAKES
DARRIMAN
No. 1

CORES.

CORE 1
630-50. (a) relatively friable (or powdery) lt. gy. marly limestone.
– minor bryozoa, occ. small pelecypods.
– virtually absent in other parts of core.
(b) core become light & v. porous.
– thin interbedded yellowish ? sandy lst with Operculina, Ditrupa, & large mesh-like bryozoa.
– then powdery marly lst. as before.
(c) material sl. less marly inorganic (pred. bryozoal) material becoming more common.
(d) } as above, only more so, fine org. debitus, also Chlamys etc.
(e) } – sli sandy (looks it) & yellowish.
– one rather cemented piece c Operc. & Ditrupa (not abundant).

CORE 2
976-994: * lt. gy. marly lst, traces of bryozoa & hard grey pelecypod casts.
* also brownish gy. marl c bryozoal fronds.

CORE 3
1045-63: (a) lt. & gy. bryozoal marly lst. (sli. more clayey than 630-50ft).
– gradations between "limestone" & "marl", variations in core amount of organic material. Traces of mollusca (eg. Chlamys).

(b) as above, dark gy. clayey marl (c flattened white bryozoal traces) at base.

CORE 4
1063-81 (a) lt. gy marly lst./lst, bryozoal debris & small grey molluscs (& larger non-grey moll.)

(b) mostly lt gy. marl, occ rel. large pelecypods.
– base more limey & rel. hard.
(c) yell. gy marly lst + limey marl, fine bryozoal debris not uncommon. (sometimes quite hard)
(d) as above

../2

F/L. Draw. No. 1

CORE No. 5

1200-18 : (a) H. gy. rel. light marly lst, v. fine bryozoal traces.
sli more marly in parts.

½ way

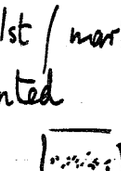
yellowish ? sli sandy lst with coarse bryozoa cylindrical type, rel. hard + limey.
- occas mollusca.

— bryozoal marly lst. at base.

(b) yellowish gy marly lst / lst in contact with grey clayey marl. Latter no more than 1 ft. thick in contact with white (v. lt. gy) bryozoal lst. (poro. sli marly)

(c) lt gy marly lst.

(d) v. lt. gy. lst / marly lst, v. fine glauc. specks throughout
— grades into white bryozoal lst
- organic debris tends to concentrate along rather porous horizons



(inc. Opere. (fr.), bryozoa, int. moll. casts).

~~boring~~

- back to gy. marly lst.

(e) dk gy clayey marl, gy. marly lst, + about 1'6" of rather hard white bryozoal lst.

(f) gy. clayey marl, white lst, + yellowish white lst / marly lst with organic horizons — strongly recemented (even pelecypod int. casts are "furry").

- Some of latter yellow + ? sandy, occ long Ditrupa tubes, also mollusca.

bedding not definite: rarely > 2'

CORE 6.

1265 -85 : (a) v. lt. yellowish gy marly lst → gy. clayey marl. → yell. gy marl - all with v. fine (3D) bryozoal debris.

(b) gy marly lst / marl, bryozoa.

(c) brownish gy., as above.

(d) [redacted] , occ. gy. clayey marl & occ. mollusca.

(e)

(f) pred. yellowish gy rather puggy marl, fine bryozoa.

CORE 7

1395 - 1399 :

(a) yellowish gy. hard lst / marly lst, molluscas bryozoa traces.
- grades into grey clayey with occ. mollusca, then flattened whitish bryozoal traces.
- v. hard gy lst. at base

(b) grey marl
- yellowish gy. marly limestone.
- sli. yell. gy. puggy marl, traces of bryozoa, also forams.
- also hard lst.

(c) lt. gy. marl, fine white bryozoal traces.
- occ. hard lst, one slickensided core.

(d) gy. clayey marl, yellowish gy clayey (puggy marl) + yell. gy. marly lst.

COMP. ANALYSIS		Carb	Sand	Clay-silt
Cores @	630	70·2	7·4	22·4
	650	83·8	9·0	7·2.

F/L Darrimain No. 1

Residues.

130 - 40 :
quite sandy. shell fragments, traces of bryozoa & Ditrupa.

150-60 : fine-grained, sand not common (inc. glauconite), Ditrupa more common, shell fragments less common.

250-60 : as above, bryozoa sli. more common.

280-90 :

●

380-90 : as for 250-60

430-40 : rex^d limestone, glauc. ox^d. to limonite, no Ditrupa, minor bryozoa.

630 (CORE) : abundant bryozoa & organic debris; traces of glauc. pellets. (Cellaria common)

630 (CORE) : as above, white instead of grey) seemingly diff^t. bryozoa.

● [bryozoa indicate sli. deeper water: less cellaria, etc.]

976-94 : predominantly bryozoal debris, also foraminifera.

1490 - 1500 : bryozoa & foraminifera
glauc & quartz grains, also pyrite.

53

$\phi_{84} = 2.$

$\phi_{50} = 2.32$

$\phi_{16} = 2.12$

Parameters :

Md ϕ = 2.32

σ_ϕ (deviation) = 0.21

α_ϕ skewness = $\frac{0.01}{0.21} \approx 0.05$ (negligible).

Sorting coeff^t =

Darriman No. 1 Bore. (< 30# samples) 240 - 500

(1) 490-500: bryozoal debris. mere traces of qz. sd., glauc tr. G

(2) 480-90: " G

(3) 470-80, more yellowish, some Ditr., occ. qz. grains, still lot of reX^{n}, Y

~~G. bispk. (?)~~ Notorotalia rel. common.

(4) 4~~8~~0-~~6~~0: as above but quartz appreciably more common, some glauc. Y — lot of reX^{n}.

(5) 4~~4~~0-~~5~~0: " : mostly fine but occ. larger qns Y

(6) 430-40: " Y

(1) 420-30 ", some larger qns. also, Ditr. rel common, no appar. glauc. || Y

(2) 410-20: qy., less sand, appreс. ~~some~~ glauc., consid. reX^{n} G

(3) 400-10 " G

(4) 390-400: yellowish again, sand v. common, l mi - glauc, Ditr. frags. Y

(5) ~~400~~ 380 - 390: qy, glauc quite common, also apprec. larger part. rounded quartz grains.

cf Tambo River.

— Strong reX^{n}, shelly detritus rather worn. G

~~(6) 360-70~~

(6) 360-70: ~~§~~ as above, ~~...~~ fine qz. not abundant (as above) glauc. rel. rare G

coarser qz. still rel. common.

~~(1) 350-60~~

— 260: glauc. sandy marly lst

260 — 470: interbedded yellowish qy sandy limestone, and lt. qy ~~...~~ partially sandy marly lst, both bryozoal.

470 — : lt. qy bryozoal marly lst.

. Darr. (contd)

(1) 350-60 : gy, v. limited gg. sand G

(2) 340-50 : yellowish, sand, Ditrupa frags. Y

(3) 330-40 : : gy-, rel sandy inc. coarser part. rounded qns, bryozoa. G

(4) 320-30 : yellowish, common sand, Ditrupa frags. Y

(5) 310-40 : gy., but reasonable ppns. of fine sand, also some coarser grains. G

(6) 300-10 : yellow, sandy, Ditrupa frags. Y

(1) ~~290-300~~ 290-300 : greyish, sandy. G

(2) ~~280-90~~ 280-90 : v. yellow → orange: iron stng, not abundantly sandy (gg.), Ditrupa. Y

(3) ~~270-80~~ 270-80 : gyish / yellow. Not abundantly sandy, some coarser rounded qns. Y/G

(4) 260-70 ~~260-70~~ : as above, even more defnte. mixture of both types. Y/G

(5) 250-60 ~~250-60~~ : gyish, sand fine to coarse, glauc. (inc. mouldo), minor bryozoa & Ditrupa (eg. Cellaria). Tambo R. G

(6) 240-50 : as above G

Microfaunas:

Floats (sample < 30-mesh)

470-80: G. bispherica, miliolids, sponge spics.

450-60: 1 Orb. universa (see. cement, 'outer shell' blotting out clarity of pores +/or apertures) miliolids, Nonion victoriensis, sponge spics.

440-50: Sponge spic.

430-40: —

420-30: Nonion vict

410-20: —

400-10: — (meaning 'nothing')

390-400: —

380-90: —

360-70: —

350-60: —

340-50: —

330-40: —

320-30: —

310-20: —

300-10: Cancris auriculus, ? Valvulineria kalaminensis.

290-300: Nonion victoriense, Cellaria sp.

../2

280 - 90 : —

270 - 80 : —
260 - 70 : —
250 - 60 : Nonion victoriense

240-50 : miliolids, Nonion victoriense, Cancris auriculus,
Valvulineria kalminensis.

4.0 PALYNOLOGY

4.1 Report on the Tertiary Foraminifera from Darriman-1, Golden Beach-1A, and Colquhoun-4, Gippsland Basin VICTORIA.

(By: Alan R. Lloyd)

* Refer to ATTACHMENT 1

4.2 Palynological Examination of Rosedale, Darriman and Darwin Meadows wells.

(By: M.E. Dettmann)

(4-11-65)

BY M.E. DETTMANN.

PALYNOLOGICAL EXAMINATION OF ROSEDALE, DARRIMAN, AND TARWIN MEADOWS WELLS

Samples of 19 cores were submitted for palynological examination by Haematite Explorations Pty. Ltd. from three wells sunk in eastern Victoria. The wells and the intervals examined include: Rosedale well between 2469 and 5836 feet, Darriman well between 4309 and 4475 feet, and Tarwin Meadows well between 304 and 2572 feet. The majority of the samples yielded identifiable spores and pollen grains, but the microfloras are generally poorly preserved. Moreover, the plant matter contained in samples from between 5243 and 5836 feet in Rosedale well has been carbonized such that identifiable spores and pollen grains appear to be lacking. As outlined below the productive samples contain microfloras that conform with the Lower Cretaceous assemblages described by Dettmann (1963) from South-eastern Australia. The presence of these microfloras enables correlation of the well sequences both with each other and with Lower Cretaceous sediments at other localities in Gippsland. Details of the microfloral sequence in each of the wells follows (see also Table 1).

Rosedale well

Samples from the lower part (5243 - 5836 feet) of the sequence failed to produce identifiable spores and pollen grains and thus no age assessment can be made on palynological grounds. Sediments between 4747 and 5065 feet yielded only a few poorly preserved spores and pollen grains that signify an Upper Mesozoic age, but possess little stratigraphical value within the Upper Mesozoic.

More diverse and better preserved microfloras were obtained from the remainder of the sequence (between 2469 and 4496 feet). Samples between 3447 and 4496 feet yielded *Dictyotosporites speciosus* Cookson & Dettmann in association

with Cyclosporites hughesi (Cookson & Dettmann). The combined occurrence of these species indicates the presence of the older category of the Valanginian-Aptian Speciosus Assemblage that was described by Dettmann (1965). Comparable microfloras were obtained in Wellington Park No.1 well between 6845 and 9019 feet (Dettmann 1965).

The two uppermost samples (2469-83 feet and 3208-28 feet) are also of Valanginian-Aptian age since Dictyotosporites speciosus occurs at 2469-83 feet. However, neither Cyclosporites hughesi nor Crybelosporites striatus (Cookson & Dettmann) was observed and there is thus insufficient evidence to determine whether the microflora belongs to the older or younger categories of the Speciosus Assemblage. Although no precise correlation can be achieved, the horizons between 2469 and 3228 feet in Rosedale well can be regarded as equivalents of at least part of the sequence between 5818 and 9019 feet in Wellington Park No.1 well.

Darriman well

Neither of the two samples examined provided abundant microfloras. That obtained from 4474-75 feet includes Crybelosporites striatus and Coptospora striata Dettmann which indicate the presence of either the younger (Aptian) category of the Speciosus Assemblage or the Aptian-Albian Paradoxa Assemblage. It should be noted that Coptospora striata possesses a restricted stratigraphical range in sediments of the Otway Basin where it extends from the uppermost horizons containing the Speciosus Assemblage to the lowermost beds that have yielded the Paradoxa Assemblage. This evidence indicates that the deposits at 4474-75 feet in Darriman well are similar in age or younger than those between 5818 and 4340 feet in Wellington Park No1 well.

The sample from 4309-10 feet provided only a few spores and pollen grains

that are of little stratigraphical significance within the Upper Mesozoic.

Tarwin Meadows well

Samples from between 600 and 2872 feet yielded restricted microfloras in which Dictyotosporites speciosus is a component. Thus, the Valanginian-Aptian Speciosus Assemblage is represented at these horizons. Beds at [illegible] feet also yielded Cooksonites variabilis Pocock which indicates the presence of the older category of the Speciosus Assemblage and suggests correlation of the beds with those at 6845 feet in Wellington Park No.1 well and at 5977 feet in Bengworden South No.1 well (see Dettmann 1965).

The succeeding horizons (600-1610 feet) that contain Dictyotosporites speciosus are probable equivalents of at least part of the sequence between 3818 and 6845 feet in Wellington Park No.1 well, but the absence of Cyclosporites hughesi and Crybelosporites striatus within the Tarwin Meadows interval precludes precise correlation.

The uppermost horizon (304-14 feet) lacked diagnostic species of the Speciosus and Paradoxa Assemblages. However, the presence of Pilosisporites notensis Cookson & Dettmann indicates an age no younger than Aptian.

References

Dettmann, M.E. 1963. Upper Mesozoic microfloras from south-eastern Australia. Proc. Roy. Soc. Vict., 77, 1-148.

Dettmann, M.E. 1965. Palynological report on Woodside Wellington Park No.1 well. Unpublished report submitted to Haematite Explorations Pty. Ltd. 9/8/65.

4th November, 1965.

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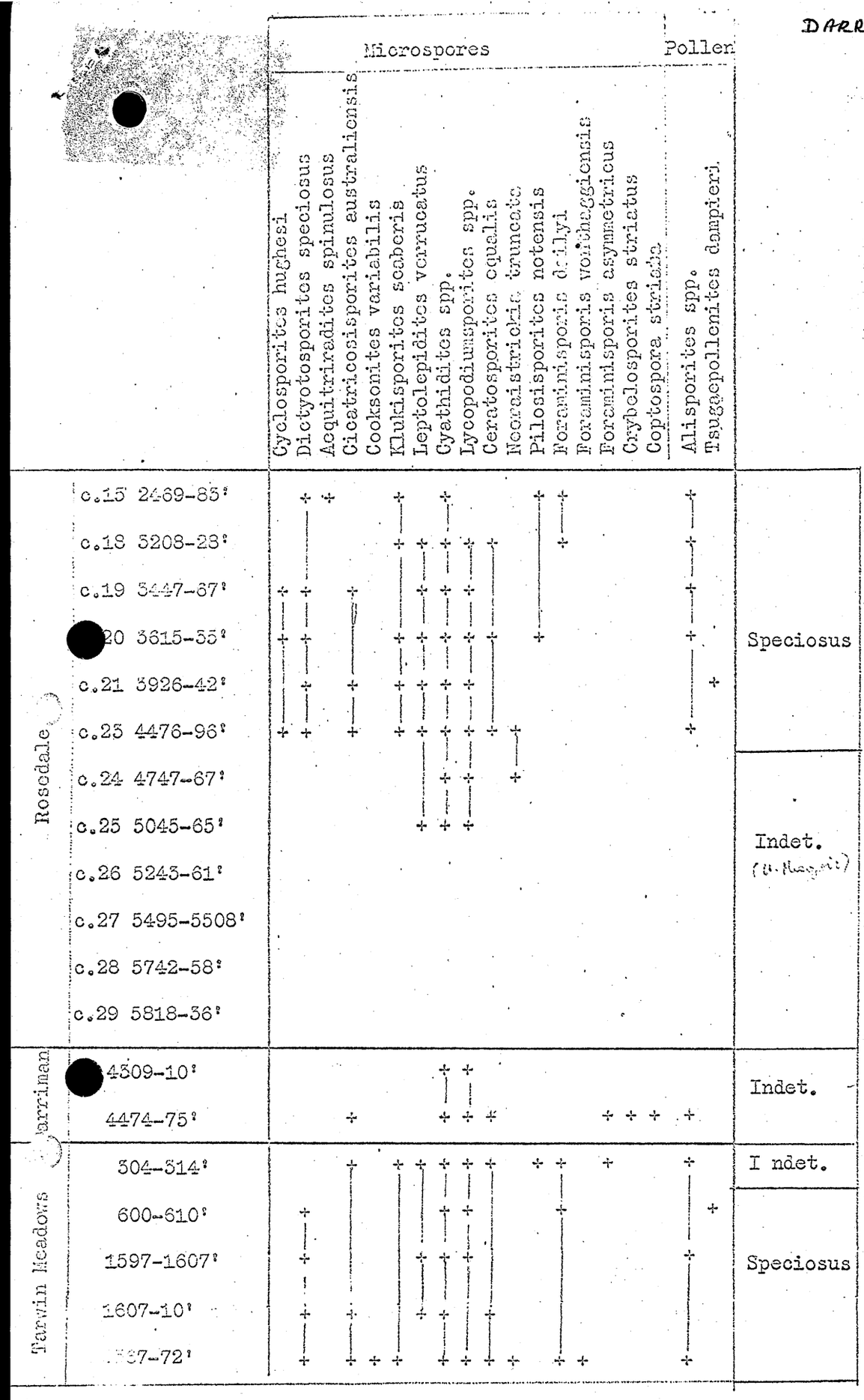

Table 1: Distribution of selected spore and pollen species from Rosedale, Darriman, and Tarwin Meadows wells.

\+ - species present

5.0 ENCLOSURES

5.1 Lithological Log

5.2 Electric Well Log

PE904201

This is an enclosure indicator page.
The enclosure PE904201 is enclosed within the container PE905434 at this location in this document.

The enclosure PE904201 has the following characteristics:

ITEM_BARCODE	= PE904201
CONTAINER_BARCODE	= PE905434
NAME	= Lithologic Log
BASIN	= GIPPSLAND
PERMIT	=
TYPE	= WELL
SUBTYPE	= well log
DESCRIPTION	= Lithologic Log Darriman 1
REMARKS	=
DATE_CREATED	= 05/08/1955
DATE_RECEIVED	=
W_NO	= W440
WELL_NAME	= Darriman 1
CONTRACTOR	= Frome Lakes P/L
CLIENT_OP_CO	= Frome Lakes P/L

(Inserted by DNRE - Vic Govt Mines Dept)

PE904202

This is an enclosure indicator page.
The enclosure PE904202 is enclosed within the container PE905434 at this location in this document.

The enclosure PE904202 has the following characteristics:

ITEM_BARCODE	= PE904202
CONTAINER_BARCODE	= PE905434
NAME	= Electric Well Log
BASIN	= GIPPSLAND
PERMIT	=
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Electric Well Log Darriman 1
REMARKS	=
DATE_CREATED	= 01/09/1955
DATE_RECEIVED	=
W_NO	= W440
WELL_NAME	= Darriman-1
CONTRACTOR	= Oil Drilling & Exploration
CLIENT_OP_CO	= Frome Lakes P/L

(Inserted by DNRE - Vic Govt Mines Dept)