



WELL SUMMARY

FROM LAKES-4 (W449)

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).

LOCATION

REGISTRY MUST BE NOTIFIED OF ANY FILE MOVEMENTS BETWEEN OFFICERS

EARLIER FILES	LATER FILES	RECORDS DISPOSITION
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RELEVANT FILES

File No.	Subject

SYMBOLS FOR ACTION OFFICERS

EXECUTIVE

Secretary
Deputy Secretary
Executive Director Portfolio Management
Executive Director Performance Evaluation
Executive Director Primary Industries and Chief Scientist
Executive Director Catchment Mgt & Sustainable Agriculture
Executive Director Minerals and Petroleum
Executive Director Forests Service
Executive Director Parks, Flora and Fauna
Executive Director Land Victoria
Executive Director Regional Services

SEC
DS
EDPM
EDPE
EDPI,CS
EDCMSA
EDMP
EDFS
EDPF
EDLV
EDRS

PERFORMANCE EVALUATION

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

CE
MIARMP
MSQA

CATCHMENT MGT & SUSTAINABLE AGRICULTURE

Program Manager Pest Plants & Animals
Director Catchment & Water Resources
Director Sustainable Development
Director Office of Rural Affairs
Director Natural Resource Policy

PMPPA
DCWR
DSD
DORA
DNRP

CORPORATE MANAGEMENT

General Manager Corporate Services
Chief Finance Officer
Manager Information Technology Strategies
Director Capital Policy
Director Human Resources
Director Planning & Budget
Director Information Technology & Telecommunications
Director Business Reform
Manager Business Improvement
Manager Administrative Policy & Procedures
Manager Metropolitan Administrative Operations
Manager Corporate Communications & Information
Manager Electronic Information Services
Manager Library & Information Services

GMCS
CFNO
MITS
DCP
DHR
DPB
DITT
DBR
MBI
MAPP
MMAO
MCCI
MEIS
MLIS

FORESTS SERVICE

Manager Commercial Forestry
Chief Fire Officer
Manager Forest Management
Manager Regional Forests Agreements

MCF
CFO
MFM
MRFA

PARKS, FLORA & FAUNA

Manager Parks & Reserves
Manager Business Management Parks, Flora & Fauna
Manager Flora & Fauna
Manager Coasts & Ports

MPR
MBMPFF
MFF
MCP

LAND VICTORIA

Director Geospatial Information
Director Resources & Reform
Surveyor General
Valuer General
Director Land Registry
Director Crown Land Management

DGI
DRR
SG
VG
DLR
DCLM

MINERALS AND PETROLEUM

Manager Petroleum Development
Manager Geological Survey Victoria
Manager Mineral & Petroleum Operations
Manager Minerals Development
Manager Extractive Industries
Manager Minerals & Petroleum Titles

MPD
MGSV
MMPO
MMD
MEI
MMPT

PORTFOLIO MANAGEMENT

Director Water Agencies
Manager Portfolio Coordination
Manager Environmental Policy
Manager Policy Support
Director Media

DWA
MPC
MEP
MPOS
DM

PRIMARY INDUSTRIES & CHIEF SCIENTIST

Manager Chemical Standards Branch
Manager Plant Standards
Chief Veterinary Officer
Director Bureau of Animal Welfare
Director Fisheries
Director Quality Assurance
Director Agribusiness

MCSB
MPS
CVO
DBAW
DF
DQA
DA

FROME LAKES-4 (W449)

Well Summary Report

Table of Contents

Completion Report – Frome Lakes 1-5

Lithology

Weekly Reports

Hocking

Enclosures

Lithological Log

Gippsland Bores Table, 1 of 4

Gippsland Bores Table, 2 of 4

Gippsland Bores Table, 3 of 4

Gippsland Bores Table, 4 of 4

COMPLETION REPORT

Frome Report No. 7100-G-59

4 CHARTS

5 LITHO LOGS

5 MAPS

EXPLORATION DRILLING IN THE TERTIARY BASIN OF SOUTHEAST
GIPPSLAND, VICTORIA

by

Richard L. Wood

FROME-LAKES PROPRIETARY LTD.,
MELBOURNE, AUSTRALIA.

April, 1957.

Completion Report Frome Lakes Gippsland N°1
" " " N°1A
" " " N°2
" " " N°3
" " " N°4
" " " N°5

2/18.

TABLE OF CONTENTS

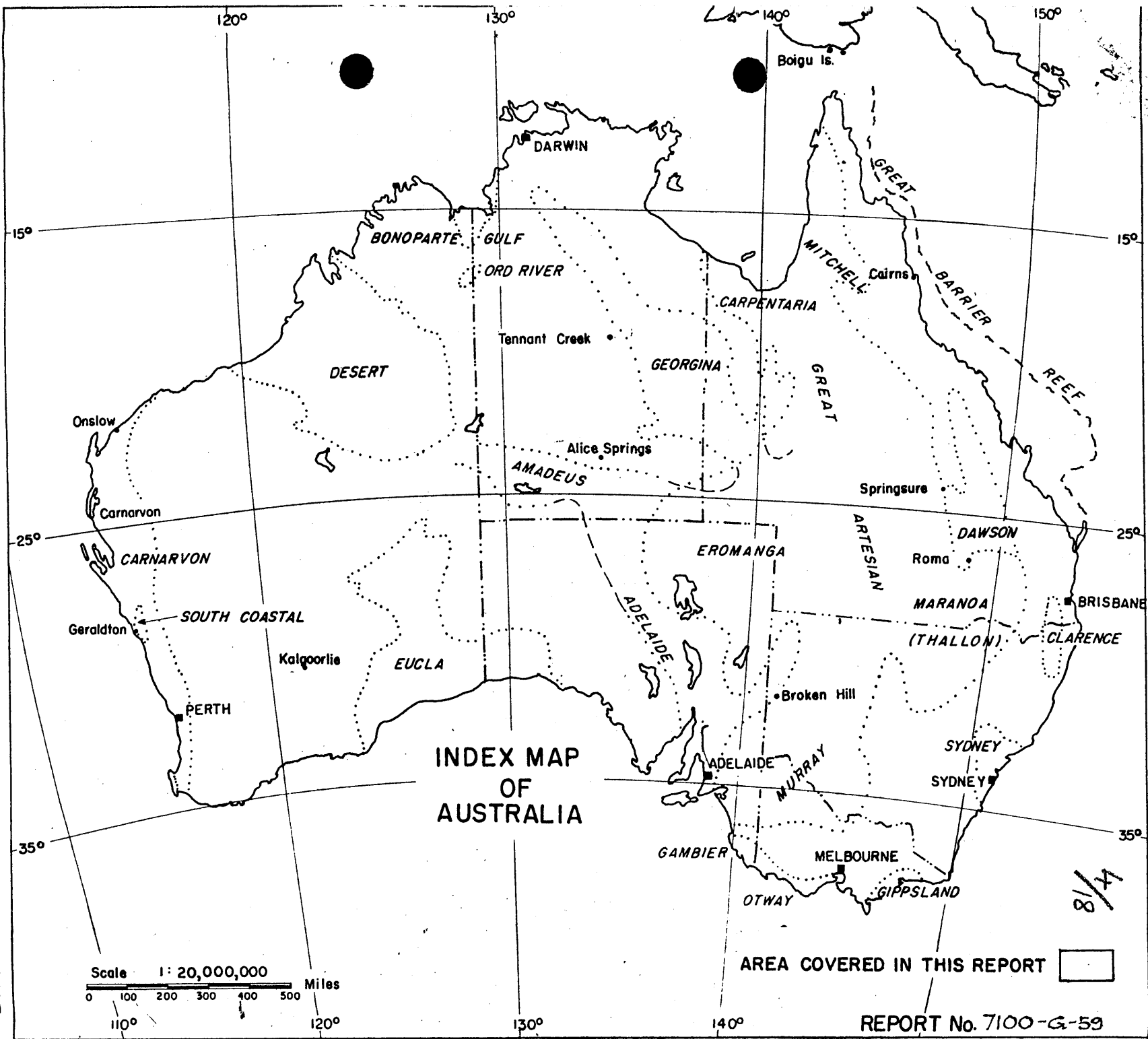
	<u>PAGE</u>
<u>ABSTRACT.</u>	
<u>INTRODUCTION</u>	
<u>OBJECTIVE</u>	1
<u>DRILLING LOCATIONS</u>	2
<u>GEOLOGY</u>	3
<u>APPENDIX</u> - Operational Notes on the Frome-Lakes Gippsland Wells	
<u>BIBLIOGRAPHY</u>	

LIST OF ILLUSTRATIONS

Index Map of Australia)	Frontispiece
Well Locality Map.)	Frontispiece
Plate 1: Lithologic Log of Gippsland No. 1 and 1A wells combined:	In Pocket
Plate 2: " " " " No. 2 Well	" "
Plate 3: " " " " No. 3 "	" "
Plate 4: " " " " No. 4 "	" "
Plate 5: " " " " No. 5 "	" "
Plate 6: Well Data Sheet MISSING 24-2-83	" "
Plate 7: Contour Map of the Base of the Tertiary System	" "
Plate 8: Isopach Map of the Yallourn Series	" "
Plate 9: Isopach Map of the Lakes Entrance Formation	" "
Plate 10: Contour Map of the Base of the Marine Tertiary	" "
Plate 11: Log Map of the Lakes Entrance Formation with Isopach Lines of the Glauconitic Sand.	" "

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Table: Data on Gippsland Bores.



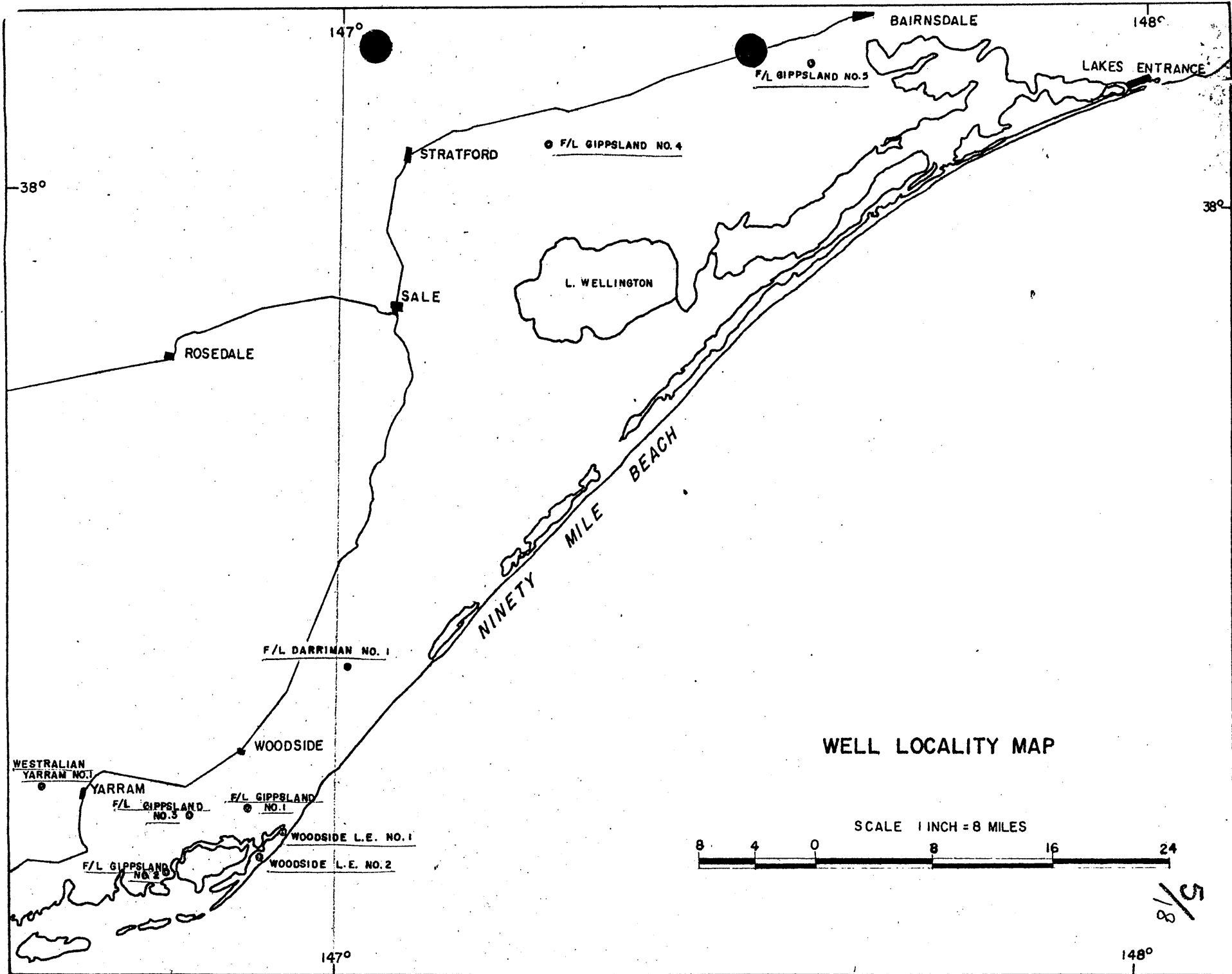
FRONTPIECE

Scale 1:20,000,000
 0 100 200 300 400 500 Miles

AREA COVERED IN THIS REPORT

REPORT No. 7100-G-59

1/8



6/18

EXPLORATION DRILLING IN THE TERTIARY BASIN OF SOUTHEAST
GIPPSLAND, VICTORIA

ABSTRACT

Frome-Lakes Gippsland wells were drilled through the base of the marine Tertiary on local gravity anomalies in southeast Gippsland. The wells were drilled to test the glauconitic sandstone, a shore line facies of the basal marine Tertiary formation. In some parts of the Gippsland basin this sandstone is known to contain small quantities of oil. All of the present wells penetrated the objective horizon with no indications of oil or gas.

Subsurface maps constructed from bore information do not indicate any features favouring Tertiary petroleum prospects. The Gippsland Tertiary oil appears to be unaffected by structure but to be preserved in small stratigraphic traps only. These traps are apparently the result of porosity and permeability variations within the glauconitic sandstone.

EXPLORATION DRILLING IN THE TERTIARY BASIN OF SOUTHEAST
GIPPSLAND, VICTORIA

7/18

By Richard L. Wood

Completion Report on
Frome Lakes ~~in~~ Gippsland 1

INTRODUCTION

2
3
4
5

In September 1956 Frome-Lakes Pty. Ltd. "spudded in" the first of a series of shallow exploratory wells in southeast Gippsland, Victoria. Five wells had been drilled by January 25, 1957 when the drilling program was suspended pending analysis of the results of the five wells drilled and a study of this data and that from other wells in the area. An exchange of information, well by well, was arranged between Frome-Lakes Pty. Ltd. and two other companies with adjacent areas, Woodside (Lakes Entrance) Oil Company and Westralian Oil Company.

In the light of the large amount of new information available as the result of the recent exploration wells in Gippsland, a revision of previous subsurface maps is necessary. This report will therefore be a completion report on the five Gippsland wells and will also include a set of revised subsurface maps similar to those in my report entitled "Subsurface Studies of East and South Gippsland, Victoria", May 1956.

Two new subsurface maps are included and discussed in this report. One of these maps the "Log Map of the Lakes Entrance Formation with Isopach Lines of the Glauconitic Sand" combines all of the present information directly relating to the Tertiary oil of Gippsland, and the major discussion will relate to this map.

OBJECTIVE

Frome-Lakes five shallow exploration wells were drilled for the purpose of testing the oil prospects of the marine Tertiary, mainly the basal member - the so-called glauconitic sandstone - from which small quantities of oil have been reported in several parts of Gippsland, chiefly the Lakes Entrance area.

DRILLING LOCATIONS

Frome Lakes drilled their Darriman No. 1 well in the southwestern part of their lease area hoping to find the glauconitic sandstone favourably developed in that area. No sign of oil was found in the Darriman well and the base of the marine Tertiary was not developed in a true sandstone facies.

When the Woodside (Lakes Entrance) Oil Company drilled a glauconitic sandstone facies with shows of oil in one of their wells southeast of Darriman and nearer to the granite outcrop at the southwestern edge of the basin, it became apparent that the elusive glauconitic sandstone must be a shore line facies of the basal marine section. With this idea in mind, Frome-Lakes decided to test the basal marine Tertiary within its licence area on gravity anomalies in localities more favourable for shore line development. The Darriman well, located on a seismic and gravity high suggested that gravity is related to structure in this area and therefore gravity highs were selected in four of the five wells drilled. No. 3 was located on a gravity low re-entrant to ensure gravity representation and geographic distribution in the southern part of the basin. No. 5, west of Bairnsdale, was located on both a gravity and topographic high.

NOTES ON THE ACCOMPANYING PLATES

Plates 1-5 are the individual lithologic logs of the Gippsland wells. A drilling rate log is plotted against the detailed 10 foot descriptive log of the lithology.

Plate 6 is a well data sheet. This sheet shows generalized stratigraphic sections of the Gippsland wells, two Woodside (Lakes Entrance) Oil Company wells and one Westralian Oil Company well. A brief resumé of operational and testing data accompanies each section.

Plates 7-9 are revised subsurface maps which have been reviewed in detail in my previous report "Subsurface Studies of South and East Gippsland, Victoria" (May 1956). The addition of the results of the

9/18

recent exploration drilling in Gippsland brings these maps up to date and fills in some detail especially in the south-western section of our licence area.

Plate 10 is a new subsurface map contoured on the base of the marine Tertiary in the Lakes Entrance/Sale/Woodside area. All depths have been computed from mean sea level. The base of the marine Tertiary is taken to be the base of the glauconitic sandstone where present, alternatively the top of the Yallourn formation.

The bore information for the construction of plates 7-10 is listed in Table 1 accompanying this report.

GEOLOGY

The stratigraphy and structure of the Gippsland Tertiary Basin have been reviewed in detail by Evans (1954) and Boutakoff (1955) and this will not be discussed in this report in any more detail than revealed in the individual wells.

The five Gippsland wells penetrated all of the known marine Tertiary formations present in Gippsland. The No. 5 well penetrated the entire Tertiary section and was abandoned below sands correlated with the Yallourn formation in metamorphic rocks of assumed Ordovician age.

Four of the wells penetrated the glauconitic sandstone with no indications of any oil or gas. One well penetrated a deeper-water limestone facies of the glauconitic sand and it also had no indications of any oil or gas.

The thickness of the formations encountered in the five wells are recorded in the following table - (See also Plate 6, Well Data Sheet).

Formation and Age (Crespin 1954)	Lithology	Thickness in feet				
		No. 1	No. 2	No. 3	No. 4	No. 5
Jemmy's Point L. Pliocene	Clay and sands with shelly bands	578	370	657	360	394
Mitchell R. U. Miocene	Sandy marl, marl - glauconitic in places	628	625	493	390	256
Gippsland Limestone L. Miocene	Polyzoal lime- stones and marls	565	499	625	670	260
Lakes Entrance Miocene	Fine-grained marls, some places micaceous becoming glauconitic and sandy towards the base	166	68	90	327	440
Yallourn M. Eocene	Lignitic sands and clays with intercalated brown coal seams	21+	5+	11.5+	68+	135

Plates 7 and 10 illustrate structural conditions in the Tertiary, but it is emphasised that these maps, as well as Plates 8 and 9, represent regional trends rather than a detailed picture of conditions, as close bore control is lacking over a large part of the area under review.

The most prominent feature of Plate 10, "Contour Map of the Base of the Marine Tertiary" is the large synclinal trough developed through Lake Wellington and Seacombe to the southeast. This regional low is presumably the eastward extension of the Latrobe Valley syncline.

Three faults in the southern half of the area are suggested by the bore information, as plotted on the subsurface maps. It is felt they may have been pre-Tertiary faults that have been active during

11/18

the deposition of the Tertiary. The large east-west fault known as the Rosedale fault has been substantiated by surface evidence.

Within the wedge formed by the two faults south of the Latrobe River the base of the marine Tertiary appears to form a nose pitching to the northeast. Detailed bore information is lacking in this area and the contours are incomplete.

A second synclinal trough is suggested in the Woodside area, plunging east-southeast. Information from several recent wells in that area suggest that the basin rises rapidly to the west with the marine Tertiary practically disappearing in the Westralian Yarram No. 1 Well about two miles west of Yarram.

As a result of the large number of bores drilled in the Lakes Entrance area, more precision is possible in contouring. A large inset of this area is shown on Plate 10 to include the detail. The main feature of this inset is a structural terrace dipping gently southward. The slope of the base of the marine Tertiary breaks and becomes more gentle between bores 95 and 96 and forms the structural terrace. Only the base of the marine Tertiary which is the glauconitic sandstone in this area is affected by this feature. Since the larger accumulation of oil from this sandstone is located on the southern slope of the structural terrace around Foster's bore (No. 104), it appears that this feature may have more control over the small accumulation of oil in that area.

Plate No. 11 entitled "Log Map of the Lakes Entrance Formation with Isopach Lines of the Glauconitic Sand" is the major plate in this report. Compiled on this plate is all of the presently known pertinent information relating to the main occurrence of Tertiary oil in Gippsland.

Its purpose is to depict by lithologic logs, electric logs where possible, the lithologic development of the Lakes Entrance formation. The map shows the areal distribution of this stratigraphic interval, each log being shown on the map at the location of the bore from which it was derived. The oil-bearing basal sandstone member is not present throughout the basin as glauconitic sand but Isopach lines of this sand or its equivalent have been superimposed upon the log map, and oil shows are indicated against the pertinent logs.

12/18

Only three electric logs were available when compiling the map. Most of the information is from drillers' logs from bores dating back as far as 1924. Except for a few bores from which cores were examined by the Commonwealth Palaeontologist, the bores were drilled without any geologic supervision. Therefore, there are no stratigraphic divisions for most bores and they must be interpreted from the lithologic descriptions which in practically all cases are anything but definite and provide no information as to porosity and permeability. Since most of the bores were drilled for oil, the depth and thickness of the potential reservoir rock, the glauconitic sand, is fairly accurate. Table I shows the information from which the map was constructed. Where the records appeared contradictory the figures that seemed more reliable were used.

The logs show the Lakes Entrance formation to consist mainly of marl which towards the base becomes glauconitic and either arenaceous or calcareous depending mainly on the distance from the old shore line. They also roughly indicate the shape of the Tertiary basin. In the southwest the formation thins rapidly from Woodside to Yarram as shown by the three Frome-Lakes bores. Two miles west of Yarram in the Westralian Yarram No. 1 there is present no marine formation recognisable as the Lakes Entrance. North of the Ninety Mile Beach the formation thins against Jurassic and Palaeozoic hills. East of Lakes Entrance, the Lakes Entrance formation might be abruptly cut out. At Lakes Entrance the thickness is fairly uniform with glauconitic sand at the base.

In Cobden's bore (No. 116) there is no glauconitic sand recorded and possibly no Lakes Entrance formation. The records are not very clear. Gravity and magnetic data for that area suggest the presence of a fault to the east of which crystalline basement and old Palaeozoic rocks are probably near the surface.

The isopach map of the glauconitic sand suggests three main areas of sand deposition separated by two marine embayments. Oil and gas have been reported from all three sand areas, with the best shows from the thicker sand deposits. The Lakes Entrance Field, with glauconitic sand thickness up to 85 feet, has actually produced small

quantities of oil. The large map does not show the sand at Lakes Entrance in detail. An inset showing all of the bores drilled in that area indicates which bores contained oil and where they are located in relation to the reservoir thickness.

Near Lake Wellington oil was reported in two bores. Oil and gas shows were reported from the glauconitic sand in the Amalgamated Oil Bore No. 1 (No. 48). In the Pelican Point bore (No. 50) which did not penetrate to the glauconitic sand, numerous shows of oil and gas were reported from the limestone above the Lakes Entrance formation. Frome-Lakes Gippsland No. 4 bore was drilled west of these bores and penetrated a thinner section of glauconitic sand with no shows. Frome-Lakes Gippsland No. 5 well was drilled to the north of the Amalgamated Oil bore, and although encountering a similar very sandy facies of the Lakes Entrance formation, did not contain any oil or gas in the glauconitic sand. A thin film of oil was noticed momentarily when the first sand sample was washed, but this film could not be reproduced or any other indication of oil observed.

CONCLUSIONS

Considering their favourable distribution for adequately testing the Woodside-Yarram area, the results of the exploration wells drilled by Frome-Lakes, Woodside Oil Co. and Westralian Oil Ltd. must be accepted as condemning the southern part of the Gippsland Basin as a potential source of commercial oil, whether structure or porosity variation is the controlling factor in accumulation. Further, the Frome-Lakes Stratford and Bairnsdale wells finally discourage the idea that the northern marginal zone might be favourable.

Analysis of the log map, Plate 11, suggests that the oil in the marine Tertiary of Gippsland does not follow any definite pattern of accumulation. No bores with shows of oil were drilled on definite structures, while all Frome-Lakes bores including the

14/18

Darriman No. 1 bore were drilled on either gravity or seismic structure and those that penetrated glauconitic sand had no shows of oil or gas. The Tertiary oil appears not to be controlled by structure but must accumulate in small stratigraphic traps associated with porosity variation in the glauconitic sandstone. A complicating and discouraging feature is the appearance of fresh water in the glauconitic sands throughout the region, denoting considerable flushing.

Isopach map, Plate 11, shows two areas where there appears to be a thickening of the glauconitic sandstone and near which some shows of oil have been reported in bores. No structural association is suggested by aeromagnetism or gravity however. These areas are about the same size as Lake Entrance, but the depth to the glauconitic sand is much deeper - greater than 2,600 feet at Lake Victoria and greater than 1,300 feet at Lake King.

The description of the glauconitic sandstone in the bore logs is not sufficiently detailed to allow a comparison of porosity and permeability between different areas. We are therefore unable to say whether the Lakes Victoria and King areas are more or less favourable in this respect than the Lakes Entrance area. It is probable that they are more or less the same and that consequently no accumulation of oil large enough to justify the great expense of probing for stratigraphic traps can be expected.

APPENDIX

15/18

OPERATIONAL NOTES ON THE FROME-LAKES
GIPPSLAND WELLS

The Gippsland wells were drilled for Frome-Lakes Pty. Ltd. by a local contractor, W. L. Sides and Son, with a Failing 1500 rotary plant. The standard Failing was supplemented by additional equipment such as shale shaker, weight indicator, and blowout preventor etc. This was the contractor's first oil drilling venture with rotary equipment and some difficulties were experienced while drilling the No. 1 well with both men and equipment. These difficulties were overcome once a pattern for drilling was set up and the balance of the wells were drilled quite smoothly and efficiently.

Plate No. 6 "Well Data Sheet" sets out the basic information for each of the Gippsland wells with a lithologic section. Recently drilled competitors' wells are included on this plate with as much information as is available at present.

Presented below in tabulated form are the operational details of the five Frome-Lakes wells for reference and comparison.

16/18

Location (Refer: Well Locality Map)	No. 1 Approx. 4 miles south of Woodside, Vic.	No. 1A 8 miles SE of Yarram	No. 2 8 miles ESE of Yarram	No. 3 9½ miles east of Stratford	No. 4 3 miles SW of Bairnsdale	
Elevation (1) Derrick Floor	36'	37'	15'	30'	126'	253'
(2) Ground Level	33.5'	33.5'	12'	27'	123'	250'
Date commenced	24.9.56	9.10.56	3.11.56*	15.11.56	18.12.56	10.1.57
Date abandoned	4.10.56	28.10.56	15.12.56	30.11.56	8. 1.57	25.1.57
Casing (1) Length	582'	615'	1065'	783'	488'	423'
(2) Size	6½" O.D.	6½" O.D.	6" O.D.	6½" O.D.	6½" O.D.	6" O.D.
(3) Cement	at bottom W/25 sks.	to surface W/95 sks.	to surface W/133 sks.	to surface W/100 sks.	to surface W/60 sks.	to surface W/56 sks.
Total depth	790'	1962'	1552'	1876' 6"	1815'	1550'
Drilled	790'	1904'	1518'	1866' 6"	1745'	1495'
Cored	-	58'	34'	10'	70'	55'
Recovery	-	8'	25.5'	1'	28'	16.25'
	-	14%	75%	10%	40%	30%
Max. deviation	-	0°	0°	2°	2°	5°
Depth of "	-	998'	1500'	1500'	1500'	1000'
Testing Program	-	Bailed glauconitic sand zone- no shows of oil or gas	Bailed as in No.1A No shows	Bailed as in No.1A No shows	Bailed as in No. 1A No shows	Bailed as in No.1A No shows
Hole troubles	Well aban- doned with "frozen pipe" at 769' recovered later	Tight hole at 750' - changed mud - no further difficulty	Core barrel stuck 3 days at 621' - no further trouble	None	None	None
Test bailing						
+ Mud level	Not tested	No record	108'	122'	97'	114'
+ Mud down level		No record	240'	148'	213'	333'
+ Equilibrium level on standing		45'	Flowing	35'	98'	258'
Gallons bailed		No record	2400	2700	2500	3600
Oil or Gas show		Nil	Nil	Nil	Nil	Nil

* Suspended 10-11 to 10-12.56

+ Depth below well head

For completeness a few general and a few qualifying statements are necessary.

7⁷/₈ inch hole was drilled from the surface in all wells into a solid marl where casing was set. At that point either 6¹/₂ inch O.D. or 6 inch O.D. casing was cemented as indicated in Table I. The hole was then reduced to about 5³/₄ inch depending on the size of bits available and this reduced hole was carried down to total depth.

Hole trouble started in the No. 1 well after it had reached a depth of 790 feet in soft sand. While making a trip the pipe became frozen at 769 feet. The well finally had to be abandoned and the No. 1A well started 80 feet away. The reason for the pipe becoming "frozen" was thought to be poor mud. A local clay had been used with Bentonite on the No. 1 well. A pure Bentonite mud was used on the remaining wells with no further tight hole problems.

Loss of circulation while coring on the No. 2 well resulted in a 3 day fishing job - there was no repetition of this type of trouble either.

A coring program had been set up to obtain maximum information with minimum coring. It was intended, as a rule, to core only the prospective oil horizon, the "glauconitic sand" zone, but the program was flexible and the well site geologist was authorized to call for a core at any time considered necessary. A total of 227 feet were cored for all the wells with a 34.7% recovery of 78³/₄ feet.

All cores proved to be barren of oil or gas but as a final check before abandoning the wells each hole was bailed as quickly as possible until the fluid level could be lowered no further and then maintained at that state for about 1/2 - 1 hour. The well was then allowed to rest approximately 30 minutes until equilibrium fluid level under normal conditions was reached. After resting a further sample was dipped from the top of the column to be checked for signs of oil or gas. No indications of oil or gas were observed throughout the bailing tests.

18/18

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- Victorian Mines Dept. "Records of Boring Operations", Dept. of Mines, Victoria, 1919-1950.
- Woolnough, W. G. "Origin of Mud Island near Paynesville", Proc. Roy. Soc. Victoria, Vol. XLII, No. 2, 1930.

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LITHOLOGY
- WEEKLY REPORTS

VICTORIA

Mines (Petroleum) Act, 1935.
Section 45.

Record of Work at ...GIPPSLAND NO. 4..... bore on

* Petroleum Prospecting Licence Number157..... during week
* ~~Petroleum-Mineral-Lease~~
ending ~~Midnight, December. 23,~~ 19.56.

DEPTH	DESCRIPTION OF STRATA
0-120'	Reddish iron stained white coarse quartz sand
120-140'	Dark chocolate brown pliable tight sandy clay
140-310'	White, yellow, dark grey medium to very coarse poorly sorted sand
310-360'	White to yellow brown very coarse to granule quartz gravel with pyrite
360-450'	Buff to tan medium soft sandy marl with many gastropods fragments and forams
450-500'	White to greenish very fine soft shelly marl with a trace of glauconite

Notes by Driller in Charge (State in notes whether water, gas or petroleum has been met with, and, if so, give depth and nature of occurrence, also depth to which casing has been inserted and cemented.)

6 1/2" OD casing was set at 488 feet and cemented to the surface. No traces of oil, gas, or artesian water observed in this well to date.

SIGNED Secretary

LEGAL MANAGER Frome Lakes Pty. Ltd. COV.

J. J. Thomas
15.1.57

Date .10../...1../.57.. .

N.B. - The Act also requires the Minister to be notified immediately water, gas or petroleum is encountered.

Analyses of water, gas and oil should be submitted if available.

MINES DEPARTMENT

VICTORIA

2/4

Mines (Petroleum) Act, 1935.
Section 45.

Record of Work atGippsland No. 4..... bore on

* Petroleum Prospecting Licence Number ...157..... during week
* ~~Petroleum-Mineral-Lease~~
ending .Midnight.December.30. 19.56.

DEPTH	DESCRIPTION OF STRATA
500-620'	Light grey soft shelly bryozoal marl with hard limestone bands.
620-750'	Light grey very fine textured fossiliferous marl with gypsum needles and glauconite.
750-800'	Light brown granular glauconitic foraminiferal limestone
800-900'	Light brown soft sticky highly shelly glauconitic foraminiferal marl.
900-1010'	White granular porous polyzoal limestone.
1010-1130'	Light grey granular soft sugary textured marl - marl pyritic and glauconitic 1080-1130'
1130-1240'	Brown crystalline hard tight fossiliferous limestone.
1240-1311'	Light brown granular soft sticky slightly micaceous pyritic and glauconitic marl.

Notes by Driller in Charge (State in notes whether water, gas or petroleum has been met with, and, if so, give depth and nature of occurrence, also depth to which casing has been inserted and cemented.)

There have been no indications of oil, gas, or artesian water in this bore to date.

D. J. ...
15.1.57

SIGNED Secretary
LEGAL MANAGER .Frome Lakes Pty. Ltd. COY.

Date .10../...1../..57. .

N.B. - The Act also requires the Minister to be notified immediately water, gas or petroleum is encountered.

Analyses of water, gas and oil should be submitted if available.

MINES DEPARTMENT

3/4

VICTORIA

Mines (Petroleum) Act, 1935.
Section 45.

Record of Work at Gippsland No. 4 bore on

* Petroleum Prospecting Licence Number ... 157 during week
* ~~Petroleum Mineral Lease~~
ending ~~Midnight Sunday 6 Jan 1957~~.

DEPTH	DESCRIPTION OF STRATA
1311-1370'	Grey very fine textured glauconitic, pyritic, foraminiferal marl.
1370-1420'	Buff granular limestone
1420-1620'	Light greenish grey very fine velvety textured pyritic foraminiferal marl.
1620-1730'	Brown soft micaceous, carbonaceous, glauconitic marl - highly glauconitic at base.
1730-1747'	Green soft friable highly glauconitic and pyritic argillaceous marly sandstone.
1747-1757'	Brown very soft lignite quartz sand.

Notes by Driller in Charge (State in notes whether water, gas or petroleum has been met with, and, if so, give depth and nature of occurrence, also depth to which casing has been inserted and cemented.)

No indications of any oil, gas, or artesian water encountered in this bore to date.

[Handwritten signature]
15.1.57

SIGNED
Secretary

LEGAL MANAGER Frome Lakes Pty. Ltd. COY.

Date ... 10. / ... 1. / ... 57. .

N.B. - The Act also requires the Minister to be notified immediately water, gas or petroleum is encountered.

Analyses of water, gas and oil should be submitted if available.

4/4

MINES DEPARTMENT
VICTORIA

Mines (Petroleum) Act, 1935.
Section 45.

Record of Work at Gippsland No. 4 bore on

* Petroleum Prospecting Licence Number 157 during week
~~* Petroleum Prospecting Licence~~ January,
ending Midnight, Sunday 13/... 1957.

DEPTH	DESCRIPTION OF STRATA
1757 - 1810'	Light grey very coarse to granule round quartz sand - lignitic stained.
1810 - 1815'	Solid brown coal.
1815'	Total depth.

Notes by Driller in Charge (State in notes whether water, gas or petroleum has been met with, and, if so, give depth and nature of occurrence, also depth to which casing has been inserted and cemented.)

No indications of gas, oil or artesian water observed in this bore.

H.C. Earren
17.1.57

SIGNED H.C. Earren.
LEGAL MANAGER FROME-LAKES PTY. LTD. COY.

Date ..17.../...1.../.57.. .

N.B. - The Act also requires the Minister to be notified immediately water, gas or petroleum is encountered.
Analyses of water, gas and oil should be submitted if available.

LITHOLOGY

- HOCKING

BASIC INFORMATIONCompany: Frome-Lakes Pty.Ltd.Date Drilled: 18 Dec. 1956 to 8 Jan 1957Location: Parish of Yeerung; 37°59'08", 147°15'30"Elevation: G.L. 123 ft., D.F. 126 ft.Total Depth: 1815 ft.Present Sample Availability: Predominantly cuttings, some cores, stored by Victorian Mines Dept.Source of Log: Weekly drilling reports (filed at the Petroleum and Natural Gas Branch); the accompanying graphic log, with accompanying sample(inc.core) descriptions, is from an unpublished report of the Frome-Broken Hill Co. Pty. Ltd, (also from the Petroleum files).

LOG

0-120 ft: Reddish iron-stained white coarse quartz sand
120-140 ft: Dark chocolate brown pliable tight sandy clay
140-310 ft: White, yellow, dark grey medium to very coarse poorly sorted sand
310-360 ft: White to yellow brown very coarse to granule quartz gravel with pyrite
360-450 ft: Buff to tan medium soft sandy marl with many gastropod fragments and forams
450-500 ft: White to greenish very fine soft shelly marl with a trace of glauconite
500-620 ft: Light grey soft shelly bryozoal marl with hard limestone bands
620-750 ft: Light grey very fine textured fossiliferous marl with gypsum needles and glauconite
750-800 ft: Light brown granular glauconitic foraminiferal limestone
800-900 ft: Light brown soft sticky highly shelly glauconitic foraminiferal marl
900-1010 ft: White granular porous polyzoal limestone
1010-1130 ft: Light grey granular soft sugary textured marl - marl, pyritic and glauconitic, 1080-1130 ft.
1130-1240 ft: Brown crystalline hard tight fossiliferous limestone
1240-1311 ft: Light brown granular soft sticky slightly micaceous pyritic and glauconitic marl
1311-1370 ft: Grey very fine textured glauconitic, pyritic, foraminiferal marl
1370-1420 ft: Buff granular limestone
1420-1620 ft: Light greenish grey very fine velvety textured pyritic foraminiferal marl
1620-1730 ft: Brown, soft, micaceous, carbonaceous, glauconitic marl - highly glauconitic at base
1730-1747 ft: Green soft friable highly glauconitic and pyritic argillaceous marly sandstone
1747-1757 ft: Brown very soft lignite quartz sand
1757-1810 ft: Light grey very coarse to granule round quartz sand - lignitic stained
1810-1815 ft: Solid brown coal.

STRATIGRAPHIC SUBDIVISION

The writer has not logged the samples of this well, nor has he (nor any other officer of the Geological Survey) washed them for forams. Consequently , the subdivision below is a provisional one based only on the logs already provided:

Post-JEMMYS POINT FORMATION: 0-360 ft
JEMMYS POINT & TAMBO RIVER
FORMATIONS: 360-500 ft
GIPPSLAND LIMESTONE: 500-1420 ft
LAKES ENTRANCE FORMATION: 1420-1747 ft
LATROBE VALLEY COAL MEASURES: 1747-1815 ft (T.D.)

Barry Hocking

J.B. HOCKING,
Geologist

15.7.68

PE603438

This is an enclosure indicator page.
The enclosure PE603438 is enclosed within the
container PE906120 at this location in this
document.

The enclosure PE603438 has the following characteristics:

- ITEM_BARCODE = PE603438
- CONTAINER_BARCODE = PE906120
- NAME = Lithological Log
- BASIN = GIPPSLAND
- PERMIT = PPL 157
- TYPE = WELL
- SUBTYPE = WELL_LOG
- DESCRIPTION = Lithological Log of Frome Lakes-4
- REMARKS = also has lithological descriptions
alongside
- DATE_CREATED = 08/01/1957
- DATE_RECEIVED =
- W_NO = W449
- WELL_NAME = FROME LAKES-4
- CONTRACTOR =
- CLIENT_OP_CO = FROME-LAKES PTY LTD

(Inserted by DNRE - Vic Govt Mines Dept)

PE906121

This is an enclosure indicator page.
The enclosure PE906121 is enclosed within the
container PE906120 at this location in this
document.

The enclosure PE906121 has the following characteristics:

ITEM_BARCODE = PE906121
CONTAINER_BARCODE = PE906120
NAME = Table of Gippsland Bores 1 of 4
BASIN = GIPPSLAND
PERMIT = PPL 157
TYPE = WELL
SUBTYPE = DIAGRAM
DESCRIPTION = Data Table of Gippsland bores
containing data on location and
stratigraphic depths 1 of 4.
REMARKS =
DATE_CREATED = 30/04/1957
DATE_RECEIVED =
W_NO = W449
WELL_NAME = FROME LAKES-4
CONTRACTOR =
CLIENT_OP_CO = FROME-LAKES PTY LTD

(Inserted by DNRE - Vic Govt Mines Dept)

PE906122

This is an enclosure indicator page.
The enclosure PE906122 is enclosed within the
container PE906120 at this location in this
document.

The enclosure PE906122 has the following characteristics:

ITEM_BARCODE = PE906122
CONTAINER_BARCODE = PE906120
NAME = Table of Gippsland Bores 2 of 4
BASIN = GIPPSLAND
PERMIT = PPL 157
TYPE = WELL
SUBTYPE = DIAGRAM
DESCRIPTION = Data Table of Gippsland bores
containing data on location and
stratigraphic depths 2 of 4.
REMARKS =
DATE_CREATED = 30/04/1957
DATE_RECEIVED =
W_NO = W449
WELL_NAME = FROME LAKES-4
CONTRACTOR =
CLIENT_OP_CO = FROME-LAKES PTY LTD

(Inserted by DNRE - Vic Govt Mines Dept)

PE906123

This is an enclosure indicator page.
The enclosure PE906123 is enclosed within the
container PE906120 at this location in this
document.

The enclosure PE906123 has the following characteristics:

ITEM_BARCODE = PE906123
CONTAINER_BARCODE = PE906120
NAME = Table of Gippsland Bores 3 of 4
BASIN = GIPPSLAND
PERMIT = PPL 157
TYPE = WELL
SUBTYPE = DIAGRAM
DESCRIPTION = Data Table of Gippsland bores
containing data on location and
stratigraphic depths 3 of 4.
REMARKS =
DATE_CREATED = 30/04/1957
DATE_RECEIVED =
W_NO = W449
WELL_NAME = FROME LAKES-4
CONTRACTOR =
CLIENT_OP_CO = FROME-LAKES PTY LTD

(Inserted by DNRE - Vic Govt Mines Dept)

PE906124

This is an enclosure indicator page.
The enclosure PE906124 is enclosed within the
container PE906120 at this location in this
document.

The enclosure PE906124 has the following characteristics:

ITEM_BARCODE = PE906124
CONTAINER_BARCODE = PE906120
NAME = Table of Gippsland Bores 4 of 4
BASIN = GIPPSLAND
PERMIT = PPL 157
TYPE = WELL
SUBTYPE = DIAGRAM
DESCRIPTION = Data Table of Gippsland bores
containing data on location and
stratigraphic depths 4 of 4.
REMARKS =
DATE_CREATED = 30/04/1957
DATE_RECEIVED =
W_NO = W449
WELL_NAME = FROME LAKES-4
CONTRACTOR =
CLIENT_OP_CO = FROME-LAKES PTY LTD

(Inserted by DNRE - Vic Govt Mines Dept)