



DOME FROME - LAKE TYERS - 3.

WELL SUMMARY  
DOME FROME  
LAKE TYERS 3  
W456

WELL SUMMARY

W456

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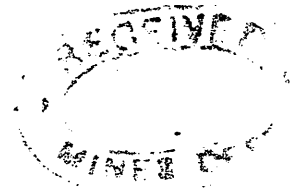
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FROME-BROKEN HILL CO., PTY., LTD.

REPORT 7100-G-63



SUMMARY OF DRILLING BY DOME OIL AND  
MINERAL SYNDICATE N.E. ON FROME-LAKES  
PETROLEUM PROSPECTING LICENCE AREA  
NO. 161, GIPPSLAND.

by

A. F. McQueen

Dome Frome N° 1  
" " 2  
" " 3  
" " 4

MELBOURNE,

April, 1958

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## INTRODUCTION

By an agreement dated 30th October, 1957 between Frome-Lakes Pty. Ltd. and Dome Oil and Mineral Syndicate No Liability, the latter company drilled four holes on Frome-Lakes' Petroleum Prospecting Licence area No. 161, Gippsland.

The well sites were selected by representatives of Dome Oil & Mineral Syndicate. Geologists of Frome-Broken Hill Pty. Ltd. visited the sites while drilling was in progress, and prepared geological bore logs. The holes are known by the prefix DOME-FROME No....., and locations are shown on Plate 1.

## DRILLING

Drilling commenced on 12th December, 1957 and was completed on 17th March, 1958. Drilling was carried out under contract to Dome Oil and Mineral Syndicate N.L. by W.L. Sides and Son, drilling contractors, using a Failing 1500 outfit mounted on a Ford F7 truck. Drilling mud used was of the water-bentonite type, and no unusual drilling problems were encountered. Cores were taken of basement in holes 1, 2 and 3, but no coring was carried out in bore No. 4.

## GEOLOGY

Holes Nos. 1, 2 and 3 are three to three and a half miles south of the northern margin of the Tertiary basin of Southeast Gippsland, and intersect basement under the Balcombian Stage Gippsland limestone at 560, 500 and 530 feet respectively.

Hole No. 4, six miles south of the northern margin of the basin, penetrated a much thicker section including Gippsland limestone, Lakes Entrance Formation and probably Yallourn Formation, before entering basement at 1,287 feet.

Plate 2 shows the general lithology of the bores, and the formations penetrated. The drilling results support fairly

closely Wood's (3) contour maps of the Tertiary System and some of its components in this area.

Each hole commences in the Upper Miocene Mitchellian Stage. In bores 2, 3 and 4, this unit is represented by unconsolidated quartz sand and gravels, which compare very closely with descriptions of the Pleistocene sands and gravels which form a mantle over the Tertiary rocks throughout most of the basin. However, in No. 1 well, similar sands and gravels lie between the bryozoal marls of the Mitchellian Stage and the polyzoal limestone of the Balcombian Stage Gippsland limestone. The Mitchellian Stage sands in the area under review are therefore a coarser facies than that described for this unit in other parts of the basin.

The Gippsland limestone in No. 4 well commences in a sandy facies which can be correlated with similar facies in wells 1, 2 and 3. (See Plate 2.)

In the coarse sands of the Mitchellian Stage there is an apparent thickening towards the edge of the basin. This may not be a true indication of the trend, as the sections in holes 2, 3 and 4 probably are not complete.

Similarly, in the sandy facies of the Gippsland limestone, there is an apparent thickening towards the edge of the basin. In this case, there is a variation in elevation at the top of the basement, which tends locally to be depressed to the north towards the edge of the basin.

No oil or gas shows were encountered during drilling of the holes, and as there was no known structural control in selection of the holes by Dome Oil and Mineral Syndicate, no new conclusion can be drawn regarding the relation of the structure and oil accumulation in this area.

Although part of the Lakes Entrance Formation was intersected in No. 4 well, the basal glauconitic sandstone as recorded in Lakes Entrance bores was not present. The Lakes Entrance Formation wedges out between No. 4 and No. 3 holes and it is probable that the basal glauconitic sand, which is oil-bearing at Lakes Entrance, wedges

out between Dome-Frome No. 4 well and Bore No. 7, Parish of Colquhoun, and Cobden's No. 1 bore. Although Lakes Entrance Formation and glauconitic sand is not recorded in the latter bore, there is a section of 1334 feet above the Yallourn Formation in this hole which has not been described, and it is probable that some of this section represents Lakes Entrance Formation.

A bore sunk by the Department of Public Works at the Lake Tyers Mission Station reached a depth of 1,305 feet. The site of this bore is shown on Plate 1 as PWD No. 1.

From 145 to 980 feet in this bore, strata logged were blue marl and polyzoal limestone, which appear to be the equivalent of the Gippsland limestone.

From 980 to 1302 feet occur brown micaceous clay, glauconite and sandstone, which can be correlated with the Lakes Entrance Formation. This thickness (322 feet) is much greater than that recorded for the Lakes Entrance Formation in Dome-Frome No. 4 (170 feet). The log of the bore indicates the presence of the basal glauconitic sandstone which is absent in Dome-Frome No. 4. Water was produced from the glauconitic sand, but there have been no reports of the occurrence of oil in this well at Lake Tyers.

The presence of the glauconitic sand in this bore, and the lack of proof that glauconitic sand was not intersected in Cobden's Bore, indicates that the boundary of this member, as mapped by Wood (4, Plate 11), can be extended to the east.

Whether or not oil could be present along the line of wedge out of the glauconitic sand in this area is open to conjecture, but drilling of the Dome-Frome wells has revealed no now conditions which might be considered favourable to accumulation of petroleum in this area. Gravity contours do not help in clarifying the matter.

The Dome-Frome wells are situated between a gravity low to the east, in the vicinity of the Nowa Nowa arm of Lake Tyers, and a gravity high northeast of Nos. 1 and 2 holes (See Plate 2). The depths to phyllite basement in hole No. 1 is 530 feet and to quartz

porphyry basement in hole No. 3 is 560 feet. The density of phyllite ranges from 2.68 to 2.8 and quartz porphyry from 2.55 to 2.73 (3). This small variation in rock density and thickness would not provide the gravity variation shown by the Bouguer anomaly values in the area. It appears, therefore, that gravity values reflect variations in basement rock rather than structure in the Tertiary. This is supported by the fact that contours of Bouguer gravity anomalies are parallel to the direction of thickening of Tertiary sediments and not parallel to the regional strike of those sediments.

Boutakoff (1) ascribes the gravity low in the area of the Nowa Nowa arm of Lake Tyers to a tectonic depression, the axis of which runs north-south through the centre of the gravity low.

#### CONCLUSIONS:

Drilling by Dome Oil and Mineral Syndicate N.L. on Frome-Lakes Petroleum Prospecting Licence Area No. 161 has confirmed previous views about the attitude of the Tertiary sediments in this area, but has not provided any new positive data about possible petroleum accumulation in the area.

A.F. McQueen



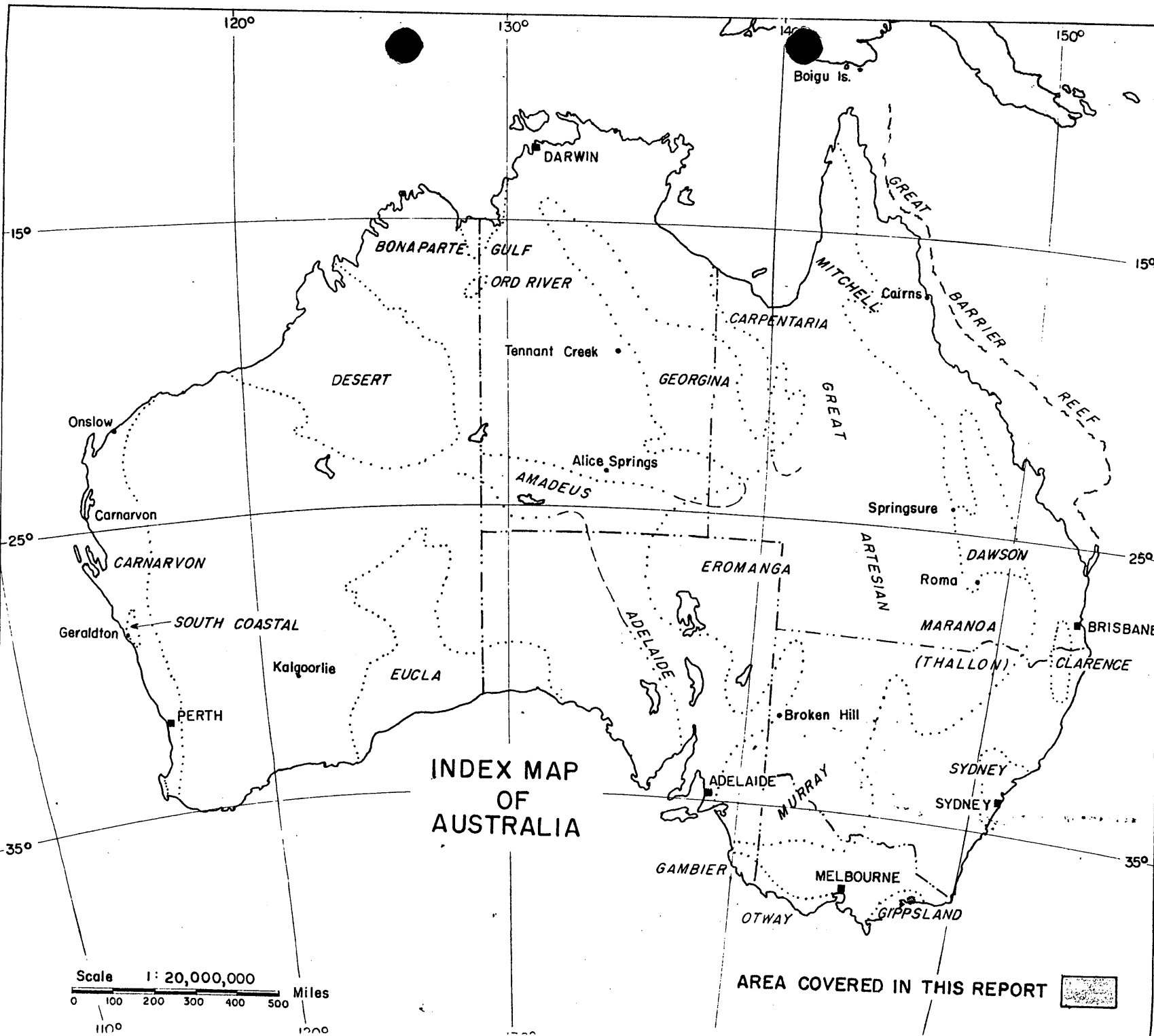
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1. Boutakoff, N. "A New Approach to Petroleum Geology and Oil Possibilities in Gippsland".  
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Com. of Australia, Canberra, 1943.
3. Heiland, C.A. "Geophysical Exploration"  
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APPENDIX I

OPERATIONAL DATA - DOME-FRONE BORES

Bore No.	1	2	3	4
Map Reference Hartland 1 mile sheet )	942377	967393	049404	007342
Approximate elevation Derrick floor	130 feet	50 feet	20 feet	140 feet
Date commenced	10 Dec.1957	10 Jan.1958	14 Feb.1958	4 Mar. 1958
Date Abandoned	18 Lec.1957	6 Feb.1958	27 Feb.1958	17 Mar.1958
Total Depth	564 feet	557 feet	582 feet	1300 feet
Petroleum Indications	Nil	Nil	Nil	Nil



FRONTPIECE

PE905461

This is an enclosure indicator page.  
The enclosure PE905461 is enclosed within the  
container PE904226 at this location in this  
document.

The enclosure PE905461 has the following characteristics:

- ITEM\_BARCODE = PE905461
- CONTAINER\_BARCODE = PE904226
  - NAME = Dome Frome Lake Tyers 3 Gravity Map
  - BASIN = GIPPSLAND
  - ON\_OFF = ONSHORE
  - PERMIT = PPL161
  - TYPE = GENERAL
  - SUBTYPE = GRAV\_MAP
- DESCRIPTION = Dome Frome Lake Tyers 3 Bouguer Anomaly  
Map, Hartland Area, Victoria, showing  
locations of nearby wells.
- REMARKS =
- DATE\_CREATED = 31/12/55
- DATE\_RECEIVED = 31/07/58
  - W\_NO = W456
  - WELL\_NAME = Dome Frome Lake Tyers 3
  - CONTRACTOR = Frome-Lakes Pty Ltd. (Exploration  
Department)
  - CLIENT\_OP\_CO = Frome-Broken Hill Co. Pty. Ltd.

(Inserted by DNRE - Vic Govt Mines Dept)

PE905462

This is an enclosure indicator page.  
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container PE904226 at this location in this  
document.

The enclosure PE905462 has the following characteristics:

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- CONTAINER\_BARCODE = PE904226
  - NAME = Dome Frome Bores, Compative Lithology
  - BASIN = GIPPSLAND
  - ON\_OFF = ONSHORE
  - PERMIT = PPL161
  - TYPE = WELL
  - SUBTYPE = STRAT\_COL
- DESCRIPTION = Compative Litholgy Dome From Bores  
(Plate 2).
- REMARKS =
- DATE\_CREATED = 30/04/58
- DATE\_RECEIVED = 31/07/58
  - W\_NO = W456
  - WELL\_NAME = Dome Frome Lake Tyers 3
  - CONTRACTOR = Frome-Lakes Pty Ltd. (Exploration  
Department)
  - CLIENT\_OP\_CO = Frome-Broken Hill Co. Pty. Ltd.

(Inserted by DNRE - Vic Govt Mines Dept)

2.0. WELL SUMMARY CARD

PE904227

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The enclosure PE904227 is enclosed within the  
container PE904226 at this location in this  
document.

The enclosure PE904227 has the following characteristics:

ITEM\_BARCODE = PE904227  
CONTAINER\_BARCODE = PE904226  
NAME = well card  
BASIN = GIPPSLAND  
PERMIT =  
TYPE = WELL  
SUBTYPE = well card  
DESCRIPTION = well card Dome Frome Lake Tyers 3  
REMARKS =  
DATE\_CREATED = 14/02/1958  
DATE\_RECEIVED =  
W\_NO = W456  
WELL\_NAME = Dome Frome Lake Tyers 3  
CONTRACTOR = Dome Oil & Minerals Syndicate NL  
CLIENT\_OP\_CO = Dome Oil & Minerals Syndicate NL

(Inserted by DNRE - Vic Govt Mines Dept)

### 3.0. LITHOLOGY



DOME FROME NO. 3.

Copy of log given in Weekly Work Record submitted by DOMS.

0' -	1'	Topsoil	
	4'	Brown clay	
	10'	Sandy clay	
	30'	Fine sand	
	33'	Sandy limestone	
	40'	" "	
	66'	" "	
	85'	Coarse gravels	
	120'	Grey Marls	
	177'	" "	
	178'	Mud sand	
	280'	Grey Marl (with hard bands)	
	290'	Sand and shell	
	297'	Grey Marl	
	303'	Hard limestone	
	437'	Grey marl with hard bands.	120' of 6 $\frac{1}{2}$ " Collard Casing in hole.
	465'	Grey marl	
	467'	Hard band (Limestone)	
	496'	Grey marl	
	536'	Limestone and marl	
	559'	Igneous rock	
	582'	Igneous rock (coring)	

COPY.

MINES DEPARTMENT.

VICTORIA.

Mines (Petroleum) Act 1935.  
SECTION 45.

W 456

Record of Work at Dome Frome No. 3. bore on

\*Petroleum Prospecting Licence Number during week  
\*Petroleum Mineral Lease

ending 22nd. February 19 58

DEPTH	DESCRIPTION OF STRATA
0' - 1'	Topsoil
1' - 4'	Brown clay
4' - 10'	Sandy clay
10' - 30'	Fine sand
30' - 33'	Sandy limestone.
33' - 40'	" "
40' - 66'	" "
66' - 85'	Coarse gravel.
85' - 120'	Grey Marle
120' - 177'	" "
177' - 178'	Mud sand
178' - 280'	Grey marl (with hard bands)
280' - 290'	Sand and Shell.
290' - 297'	Grey Marle.
297' - 303'	Hard Limestone.
303' - 437'	Grey marle with hard bands.

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

120' of 6 1/2" Collared Casing in hole.

Signed L.C. Cooke.  
DOME OIL & MINERALS SYNDICATE  
NO LIABILITY

Legal Manager Coy.

28 MAR. 1958.

Date / /

\* Strike out words not applicable.

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

**EXTRACT FROM THE MINES (PETROLEUM) ACT 1935,  
AS AMENDED BY THE MINES (PETROLEUM) ACT 1939.**

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*Section 19.*—(1) The holder of a licence shall employ in drilling operations only such methods of drilling as are capable of yielding a core or other samples as is or are prescribed or is or are approved by the Minister.

(2) In the event of water associated with a petroleum deposit being encountered in the course of drilling operations, the holder of the licence shall immediately report the same in writing to the Minister and state the steps taken to deal with it.

(3) In the event of the continuance of drilling operations after water has been encountered as aforesaid, the holder of the licence shall shut off all water so encountered and take such other steps as may be prescribed.

(4) In the event of traces of petroleum, including natural gas, appearing during drilling operations, the holder of the licence shall immediately report the same to the Minister, and shall carry out such operations to test the extent and value of the occurrence of such petroleum as the Minister by notice in writing directs.

(5) In the event of preliminary tests indicating the probability of payable petroleum, the holder of the licence shall—

- (a) immediately report thereon to the Minister in writing; and
- (b) carry out thereafter such operations as may be necessary to test the value of the occurrence of such petroleum as may be approved by the Minister.

*Section 45.*—Every licensee and lessee shall keep a log, in the form prescribed by the Minister, of all the wells drilled by him showing the strata and character of the ground passed through by the drill, which log or a copy thereof shall from time to time be furnished to the Minister upon demand.

*Section 48.*—Every licensee and every lessee, unless in any case wholly or partially excused from so doing by the Minister, shall properly case each well with casing in accordance with the best approved methods, landing and effectually cementing one or more strings of the casing in clay or other water-impervious strata or formation between all water-bearing sands or strata and any underlying petroleum deposit, and generally shall take all such steps as are reasonably necessary for effectually shutting off all water overlying and underlying the petroleum deposits, and for effectually preventing any water from penetrating such petroleum deposits.

**EXTRACT FROM THE MINES (PETROLEUM) ACT 1939.**

*Section 7 (6).*—Every licensee shall—

- (a) retain for a period of not less than twelve months all cores obtained by drilling and representative samples of other specimens obtained from the land . . . . and, when so required by the Minister, forward the same to the Minister.

MINES DEPARTMENT

VICTORIA

2

Mines (Petroleum) Act, 1935.  
Section 45.

Record of Work at ..... DOME FROME NO. 3. ..... bore on

\* Petroleum Prospecting Licence Number ..... during week  
\* Petroleum Mineral Lease ending ..... 1st. March, 1958. ....

DEPTH	DESCRIPTION OF STRATA
437' - 465'	Grey Marl.
465' - 467'	Hard Band (limestone)
467' - 496'	Grey Marl
496' - 536'	Limestone and marl.
536' - 559'	Igneous Rock.
559' - 582'	" " (Coring)

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.)

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SIGNED L.C. Cooke.....  
LEGAL MANAGER ..... DOME OIL & MINERALS SYNDICATE  
..... NO LIABILITY ..... COY.

28 MAR 1958.

Date ...../...../.....

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.

Reg. Office - 422 Collins St., Melbourne.  
L.C.COOKE, Manager.

40. MISCELLANEOUS  
CORRESPONDENCE

COPY

FROME-LAKES PROPRIETARY LIMITED

95 Collins Street,  
Melbourne C.1

February 28, 1958.

The Hon. Minister for Mines,  
Department of Mines,  
Treasury Gardens,  
Melbourne C.2

Dear Sir,

Petroleum Prospecting Licence No.161

We submit herewith details of Dome Oil & Minerals  
Syndicate exploration well No.3 as required by regulations under  
the Mines (Petroleum) Act.

- |   |  |
|---|--|
| (a) <u>Designation:</u>                                       | Dome Frome No.3  |
| (b) <u>Location:</u>  | County Tambo, Parish<br>Tildesley west. State forest<br>land near boundary of<br>allotment No.3, on narrow<br>neck in big meander of Lake<br>Tyers Nowa Nowa arm, $6\frac{3}{4}$ miles<br>north north-east of<br>entrance to lake. |
| (c) <u>Distance from<br/>nearest boundary of<br/>Licence:</u> | Half a mile.   |
| (d) <u>Height of Derrick<br/>Floor:</u>                       | Approximately 20 feet above<br>sea level.  |
| (e) <u>Diameter of well at<br/>surface:</u>                   | $7\frac{7}{8}$ "   |
| (f) <u>Depth proposed:</u>                                    | Maximum 2,000 feet, or to<br>basement rocks if less than<br>2,000 feet.  |
| (g) <u>Drilling method:</u>                                   | Rotary.  |
| (h) <u>Extent of Coring:</u>                                  | As required.   |

It is regretted that we are unable to give a more  
precise description of the location because of the absence of any  
identifiable fixed points in the area, the survey pegs of allotment  
3 not having been found.

Yours truly,

Sgd. N.Osborne  
General Manager.

Dome Oil & Minerals Synd. N.L. & Frome Lakes Pty Ltd. Dome Frome No 3

Spudded 14 Feb. 1958. El. 20. D.F. ( Lat.  $37^{\circ}46'06''S$  ) Ph. Colquhoun  
Abandoned 27 Feb. 1958. T.D. 582 ( Long.  $148^{\circ}07'36''E$  ) East (?)  
W456

location Hartland 1 mile sheet. 0419404

No indications of oil or gas.

Quartz Kaphyry at 530'

location Co. Jambo. Ph. Zilobesley West. State forest land near  
boundary of allot. No 3. on narrow neck in big meander of  
Lake Dyer - Nawa Nawa arm,  $6\frac{3}{4}$  mls NNE of lake entrance.  
Dia. of well at surface =  $7\frac{7}{8}$ ".

120' of  $6\frac{1}{2}$ " cased casing in hole.

C O P Y

Frome-Broken Hill Co. Pty. Ltd.,  
95 Collins Street,  
MELBOURNE, C.1.

1st April, 1958.

The Hon. Minister for Mines,  
Treasury Gardens,  
MELBOURNE, C.2.

Dear Sir,

Petroleum Prospecting Licence No. 161

Attached for your information, in accordance with the Mines (Petroleum) Act, 1935, are copies of the Record of Work at Dome-Frome Bores Nos. 2, 3 and 4, as submitted by Dome Oil and Minerals Syndicate N.L.

Yours very truly,

(W. Osborne)  
General Manager

AMQ/ml.

*Dr. Mooney*  
*9-4-58*



COPY

FROME-LAKES PROPRIETARY LIMITED

95 Collins Street,  
Melbourne C.1

February 28, 1958.

Hon. Minister for Mines,  
Department of Mines,  
Treasury Gardens,  
Melbourne C.2

Dear Sir,

Petroleum Prospecting Licence No.161

We hereby request consent on behalf of Dome Oil & Minerals Syndicate N.L. to drill, in accordance with the terms of their agreement with Frome-Lakes Pty.Ltd., in the Parish of Colquhoun east, County Tambo, on a location in state forest land near Lake Tyers, Blackfellow arm, about half a mile west of the boundary of the aboriginal reserve and three miles north of the entrance to the lake.

Location details as required by the Mines (Petroleum) Act will be submitted following establishment of the drilling rig on site.

Yours truly,

Sgd. N.Osborne  
General Manager.

No 43