



DOME FROME - LAKE TYERS - 4

WELL SUMMARY  
DOME FROME  
LAKE TYERS 4  
W457

WELL SUMMARY

W457

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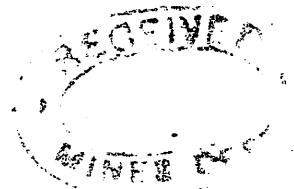
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FROME-BROKEN HILL CO., PTY. LTD.

REPORT 7100-G-63



SUMMARY OF DRILLING BY DOME OIL AND  
MINERAL SYNDICATE N.L. 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 new 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 2.3 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



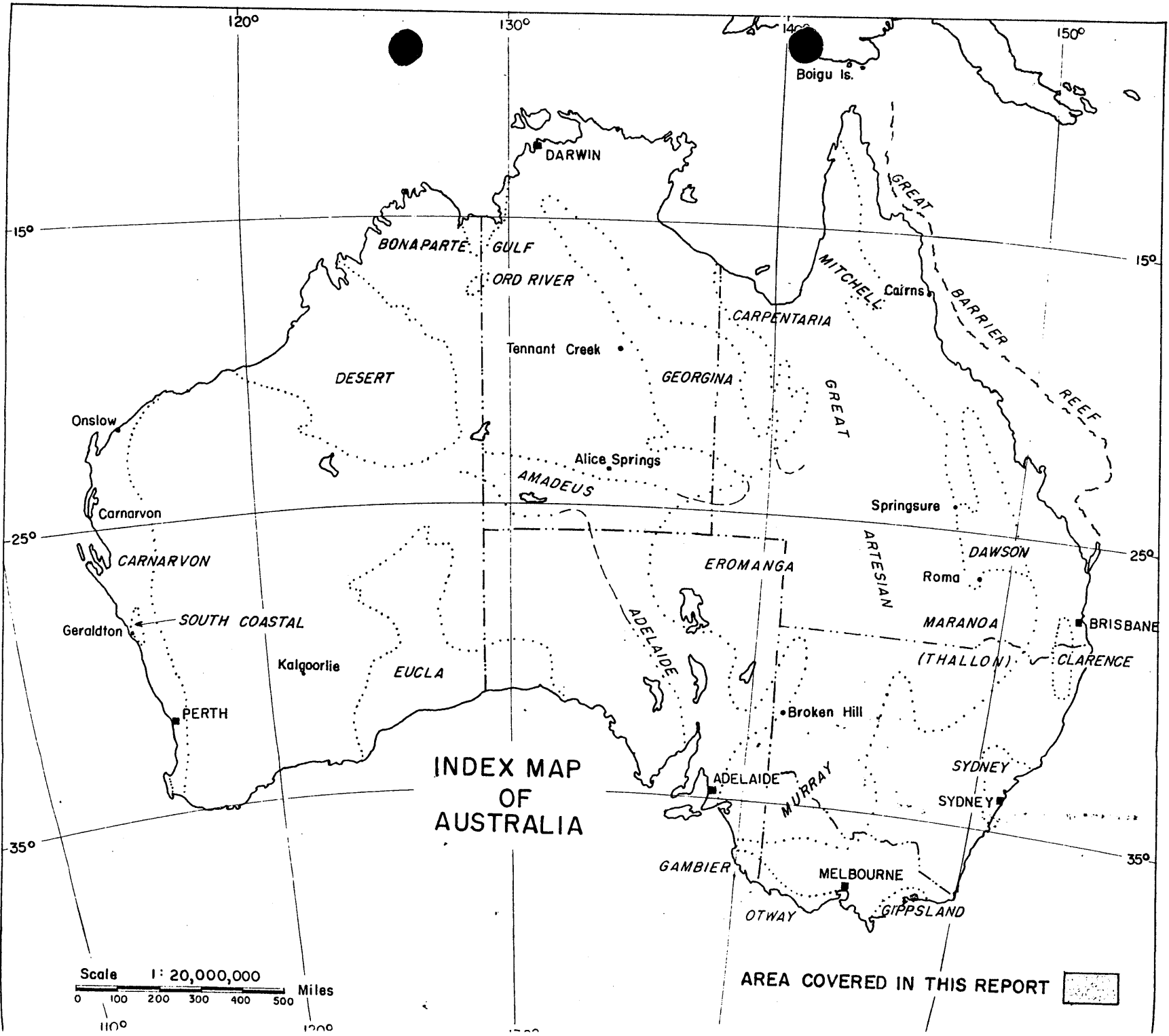
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1. Boutakoff, N. "A New Approach to Petroleum Geology and Oil Possibilities in Gippsland".  
Min. & Geol. Jour. (Victoria) Vol. 5  
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2. Crespin, I. "The Stratigraphy of the Tertiary Marine Rocks in Gippsland, Victoria".  
Bull. (Palaeontological Series No. 4) Dept.  
of Supply and Shipping. Min. Resources Survey.  
Com. of Australia, Canberra, 1943.
3. Heiland, C.A. "Geophysical Exploration"  
Prentice-Hall Inc., New York, 1951.
4. Wood, R.L. "Exploration Drilling in the Tertiary Basin of Southeast Gippsland, Victoria".  
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April, 1957.

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

PE905459

This is an enclosure indicator page.  
The enclosure PE905459 is enclosed within the  
container PE904228 at this location in this  
document.

The enclosure PE905459 has the following characteristics:

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CONTAINER\_BARCODE = PE904228  
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BASIN = GIPPSLAND  
ON\_OFF = ONSHORE  
PERMIT = PPL161  
TYPE = GENERAL  
SUBTYPE = GRAV\_MAP  
DESCRIPTION = Dome Frome Lake Tyers 4 Bouguer Anomaly  
Map, Hartland Area, Victoria, showing  
locations of nearby wells.  
REMARKS =  
DATE\_CREATED = 31/12/55  
DATE\_RECEIVED = 31/07/58  
W\_NO = W457  
WELL\_NAME = Dome Frome Lake Tyers 4  
CONTRACTOR = Frome-Lakes Pty Ltd. (Exploration  
Department)  
CLIENT\_OP\_CO = Frome-Broken Hill Co. Pty. Ltd.

(Inserted by DNRE - Vic Govt Mines Dept)

PE905460

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The enclosure PE905460 has the following characteristics:

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CONTAINER\_BARCODE = PE904228  
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          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 = W457  
    WELL\_NAME = Dome Frome Lake Tyers 4  
    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

PE904229

This is an enclosure indicator page.  
The enclosure PE904229 is enclosed within the  
container PE904228 at this location in this  
document.

The enclosure PE904229 has the following characteristics:

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- CONTAINER\_BARCODE = PE904228
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  - BASIN = GIPPSLAND
  - ON\_OFF = ONSHORE
  - PERMIT = PPL161
  - TYPE = WELL
  - SUBTYPE = CARD
- DESCRIPTION = Dome Frome Lake Tyers 4 Well Card
- REMARKS =
- DATE\_CREATED = 30/04/58
- DATE\_RECEIVED = 31/07/58
  - W\_NO = W457
  - WELL\_NAME = Dome Frome Lake Tyers 4
- CONTRACTOR = Frome-Lakes Pty Ltd. (Exploration  
Department)
- CLIENT\_OP\_CO = Frome-Broken Hill Co. Pty. Ltd.

(Inserted by DNRE - Vic Govt Mines Dept)

3.0. LITHOLOGY



DOME FROME NO. 4.

Copy of log given in Weekly Work Record submitted by *Company.*

0' - 3'	Fine sand
3' - 7'	Sandy clays
7' - 62'	Fine sand
62' - 64'	Sand
64' - 77'	Silty clay and large stones
77' - 138'	Sandstone with bands of clay
138' - 260'	Grey marl
260' - 350'	Limestone
350' - 510'	Grey marl
510' - 622'	Limestone 140' of 6½" Collar <sup>d</sup> casing in hole.
622' - 768'	Limestone and marl with hard bands.
768' - 1125'	Limestone and marl
1125' - 1230'	Marl, limestone and sand drifts.
1230' - 1291'	Shelly marl, sandstone and quartzite
1291' - 1300'	Sandstone and quartzite

Drilling completed at 1300'

~~Drilled from~~ ~~March 1958 to March 1958~~'.

MINES DEPARTMENT

VICTORIA

Dome Frome - Lake Jagers - 4.

Mines (Petroleum) Act, 1935.  
Section 45.

Record of Work at .... Dome Frome No. 4 ..... bore on

\* Petroleum Prospecting Licence Number ..... during week  
\* Petroleum Mineral Lease  
ending .... March, 8th ..... 19.58

DEPTH	DESCRIPTION OF STRATA
0' - 3'	Fine Sand
3' - 7'	Sandy clays
7' - 62'	Fine sand
62' - 64'	Sand
64' - 77'	Silty clay and large stones
77' - 138'	Sandstone with bands of clay
138' - 260'	Grey Marl
260' - 350'	Limestone
350' - 510'	Grey Marble
510' - 622'	Limestone

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.)

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

SIGNED .....

LEGAL MANAGER ..... COY.

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.

MINES DEPARTMENT

VICTORIA

Mines (Petroleum) Act, 1935.  
Section 45.

Record of Work at ..... Dome Frome No. 4. .... bore on

\* Petroleum Prospecting Licence Number ..... during week  
\* Petroleum Mineral Lease ending ..... 15th March, ..... 1958.

DEPTH	DESCRIPTION OF STRATA
622' - 768'	Limestone and marl with hard bands.
768' - 1125'	Limestone and Marl,
1125' - 1230'	Marl, limestone and sand drifts.

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

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

28 MAR 1958.

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

MINES DEPARTMENT

VICTORIA

Mines (Petroleum) Act, 1935.  
Section 45.

Record of Work at ..... Dome Frome No. 4. ..... bore on

\* Petroleum Prospecting Licence  
\* Petroleum Mineral Lease Number ..... during week  
ending .. 22nd. March, ..... 19.58.

*2200' from top*

DEPTH	DESCRIPTION OF STRATA
1230' - 1291'	Shelly marl, sandstone and quartzite.
1291' - 1300'	Sandstone and quartzite.
	Drilling completed at 1300'

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.)

.....  
.....  
.....  
.....  
.....

SIGNED ..... L.C.Cooke.

LEGAL MANAGER ..... DOME OIL & MINERALS SYNDICATE  
..... NO LIABILITY.

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

28 MAR 1958.

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.

4. MISCELLANEOUS  
CORRESPONDENCE

C O P Y

Frose-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-Frose Pores Nos. 2, 3 and 4, as submitted by Dome Oil and Minerals Syndicate N.L.

Yours very truly,

(M. Osborne)  
General Manager

AMQ/ml.

*D. Thomas*

*Q.*  
9-4-58