



Natural Resources and Environment

AGRICULTURE • RESOURCES • CONSERVATION • LAND MANAGEMENT

# WELL SUMMARY GROPER-1 (W538)

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 is to attaching of attached to (2) REFERRA completes required b (4) and on number in	FILE COVER MBERS: Each subject paper a be given a consecutive nur officer. Papers must not be rem o a file without approval. L TO OTHER OFFICERS: Whe action on the file and furth y some other Officer, please in the next vacant line, enter the Column (1), indicate to whom ded in Column (2) and record	nber by the oved from or en an Officer her action is hitial Column relevant folio the file is to	<ul> <li>(3) BRING required (4) and folio nu by the date the (4) PUTAW complet</li> </ul>	UP MARKINGS d at a later date, l, on the next va mber in Column action officer's n e file is required i AY MARKINGS: V ted the officer cor	: When action on a file is the officer will initial Column cant line, enter the relevant (1), then write "B/U" followed ame in Column (2) and the	LOCATION	

**EARLIER FILES** LATER FILES **RECORDS DISPOSITION** COMP 6-1 538. W. D. 196' RT GROPER-1 ESSO T.D. 3379, GLOMAR ITI RUN 1, 333-1568, SEPARATE LOGS 2 1519-3369 (1) ~ 1.E.S. 2 AND 5 5 i e 2 333 - 1559 / B.H.C.S/GR. " 1. ie e e 1519 - 3370. í. 2" ✓ B.H.C.S. 12. 1. F D.C./G.R. 1 1519 - 3369 " " 5 11 1C.D.M. "1. 5"+2". 1519-3365 CORE LAB MUDLOG. 1570'- 3379' COMPLETION COREGRAPH. CORES 11-15. CORE DESCRIPTIONS. 1-15 ESSO. S.W.C. ii 1600 - 3350 K FIELD DATA CORE ANALYSIS REPORT. CORES 11, 13415. \* LITHOLOGY FROM CORE LAB GRAPHOLOG" DATLY REPORTS - CULTINGS & CORES. descriptions V . " V TIME DEPTH CURVE. · COMPLETION REPORT. pulouly CORES. 15 CFF. 2800 33017' un come stone S.W.C. SHOT 37 REC 32. \* I.E.S. COMPLETION LOG RUNSI42. 2". Y MICROPALAEONTOLOGY REPORT BY D. TAYLOR . PLUS REVISION \* / PALYNOLOGY REPORT BY L STOVER & A.D. PARTRIDGE. \* JPALAEOZOIC GRANITIC ROCK REPORT BY J. BARRY HOCKING. \* PETROLOGICAL REPORT BY ANDEL XX STRUCTURE, ISOPACH MAPS & GEOLOGICAL CROSS SECTIONS A-A, B-B XX " CONTOURS LATROBE DELTA TOPOGRAPHIC SURFACE. \* \* MAP. BASEMENT COMPLEX. X WEEKLY REPORT. 6-1-1969. \* V WELL SUMMARY \* J ... COMPLETION REPORT INCLUDING STRATIGRAPHY. Cores 1-15 and cuttings 1570 - 3379 were received by B. M.R. 5/12/73

# **GROPER-1 (W538)**

# **Well Summary Report**

### **Table of Contents**

Well Summary

**Completion Report** 

Lithology Summary Sidewall Cores Core Thin Section Examinations

Palynology

Enclosures Mud Log (Grapholog) Completion Log (Induction-Electrical Log) Compensated Formation Density Log Compensated Sonic Log Time-Depth Curve Continuous Dipmeter Analysis Geological Cross-Section

.

# WELL SUMMARY

# REOEIVER (-2 JUN 1969) MINES DEP

#### GROPER 1 WELL SUMMARY

Type of Well:

Purpose of Well:

Exploratory.

Groper 1 well was located approximately 26 miles south-southeast of Perch 1 and 46 miles south-west of Kingfish 3.

The purpose of this well was to test the possible stratigraphic entrapment of hydrocarbons along the southern depositional limits of the Latrobe Delta Complex. Seismic mapping indicated that the Latrobe onlapped crystalline basement and was overlain by the Lakes Entrance Formation.

Prospective reservoir sands were anticipated in the Latrobe section which was mapped to be approximately 300 feet thick at the Groper 1 site.

Well Statistics:

Status:

Location:

Drilling Unit:

Elevation:

Water Depth:

Spudded;

Completed:

Operation Time:

Total Depth:

Casing:

Plugs:

Plugged and abandoned.

Latitude 38<sup>0</sup> 56<sup>1</sup> 20" S Longitude 147<sup>0</sup> 24<sup>1</sup> 56" E Shot Point 9969, Line EC 74.

Glomar III.

R.T. 31 feet above mean sea level.

196 feet.

December 18, 1968.

January 6, 1969.

20 days.

3379 feet.

30 inch at 332 feet;  $13^3/8$  inch at 1519 feet.

Plug No.l 1380 to 1570 feet; Plug No.2 400 to 600 feet.

.../2

Page 2.

GROPER -1

Mud Logging:

Electric Logging:

Corelab logged the well from 1570 feet to total depth.

IES	Run 1 Run 2	333 - 1568 feet 1519 - 3369 feet
Sonic	Run l Run 2	333 - 1559 feet 1519 - 3370 feet
FDC	Run 1	1519 - 3369 feet
CDM	Run l	1519 - 3369 feet

Coring:

The section from 2800 to 3307 feet was continuously cored with a total of 15 cores being cut. Total footage cut was 495 feet and recovery was 327.5 feet or 66%.

Sidewall cores were cut with a recovery of 4 from 7 shot.

#### Core Analysis:

Depth	Hor. Perm.	<u>Vert. Perm</u> .	Porosity	Water	<u>Oil</u>
3160	229	102	22.3	84.3	3.4(tar)
3163.5	4520	1035	13.5	86.7	0.0
3211	0.8	0.8	24.5	93.1	0.0
3213	0.14	0.14	17.8	92.7	0.0
3290	471	436	18.7	89.9	0.0

Hydrocarbons:

No hydrocarbon shows were encountered during drilling, although Core-9 (glauconitic sandstone) from 3057 to 3105 feet, was reported to have a petroliferous odour.

#### Stratigraphy:

Formation	Age	Top(RT)	Subsea	Thickness
Water		31 ft		190 ft
Gippsland	Miocene and younger.	221 ft	- 190 ft	2429 ft
Lakes Entrance	Oligocene.	2650 ft	-2619 ft	463 ft
Latrobe Delta	Eocene.	3113 ft	-3082 ft	227 ft
Basement <b>(</b> Grani	te).	3340 ft	-3309 ft	39+ ft

#### Gippsland Formation

1570 - 2650 feet:

<u>Marl</u>: light grey, soft, fossiliferous, silty, sandy, some glauconite, some unconsolidated skeletal <u>limestone</u>.

Lakes Entrance Formation:

2650 - 3113 feet:

<u>Mudstone</u>: grey green, firm to hard, very glauconitic, calcareous, burrowed, massive, silty and sandy, with glauconitic <u>sandstone</u> at base.

GROPER-1

#### Latrobe Delta Formation:

3113 - 3340 feet:

<u>Sandstone</u>, <u>Shale</u> and minor <u>Coal</u>. <u>Sandstone</u>: very fine to granular, grading to conglomerate in part buff to light brown grey, poorly sorted, subangular to subrounded quartz, unconsolidated, silty in part. <u>Shale</u>: dark grey to grey black, firm, slightly fissile, carbonaceous, silty in part. <u>Coal</u>: black, brittle.

<u>Basement</u>:

3340 - T.D.:

<u>Granite</u>: porphyritic, pink orthoclase, biotite, abundant quartz, chloritic.

Melbourne MZ:JHM 13.1.69 COMPLETION REPORT



# WELL COMPLETION REPORT

GROPER 1

J.L. Elliott W.D. Laporte

j 👫 a staarra

. May 7, 1969.

### GROPER 1.

Purpose of Well: .

This wildcat was drilled to test the stratigraphic entrapment of hydrocarbons along the southern updip limit of the Latrobe Delta Complex. Here the Latrobe onlaps granite basement and is overlain by the Lakes Entrance Formation. The updip limit of the Latrobe forms an irregular outline, resulting from topographic and structural undulations of the basement surface. A Lakes Entrance top seal and basement bottom seal, required for a stratigraphic trap, are present.

trup, are pre			•		•	
<u>Well Sta</u> Latitude Longitude	38 <sup>0</sup>	56' 20 24' 56	'' S '' E			
Seismic S.P. Gippsland Ba Rotary table	asin, Vio	ctoria,	Austi		· .	Ø
190' December 18, January 8, 1				•	•	
3379'. Dry and abar 30" @ 332' 13-1/8" @ 15						0
No perforati	lons.					Volumente
# 1 157	0 <b>'-1</b> 380	2	00 sa	cks ceme	ent.	

Location:

Elevation:

Water Depth:

Spudded:

Completed:

Total Depth:

Well Status:

Casing:

Perforations:

Plugs:

Cores:

1570'-1380' 600'- 400'

# 2

200 sacks cement. 150 sacks cement.

A total of fifteen conventional cores were cut in Groper 1; ten in the Lakes Entrance Formation and five in the Latrobe Delta Complex.

Core	Interval	Cut.	Recovery
1	2800-2854 '	<u>Cut</u> . 54'	54 '
2	<b>2</b> 854-2856'	2'	0'
3	· 2856-2861'	5'	4"
4	<b>2</b> 866-2875'	91	4'
5	<b>2</b> 875-2891'	16'	112'
6	<b>2</b> 891-2951'	60'	60'
7	<b>2</b> 951-3005'	54'	31'
8	<b>30</b> 05-3057 '	52'	52'
9	<b>30</b> 57-3105'	48'	, 45'
10.	3105-3142'	37 '	17 '
11	<b>3142-3164</b>	22'	10'
12	3164-3205'	41'	12'
13	3205-3263'	58'	12'
14	3263-3280'	17'	8'
15	3280-3307 '	27 '	11'

A total of 37 sidewall cores were shot in the interval 1195-3350', with 32 recovered.

Well was logged by Core Laboratories over the interval 1585' to total depth. Electric Logs: Induction Electric Log 33691 333' -Sonic-SP **3**33' ••• 3370' Formation Density-Gamma Ray 1519' 3369' ---

### Velocity Survey.

Dipmeter

None.

Hydrocarbons:

Mud Logs:

.

Wireline Formation Test: ·

No wireline.tests were run on Groper 1.

**1**519'

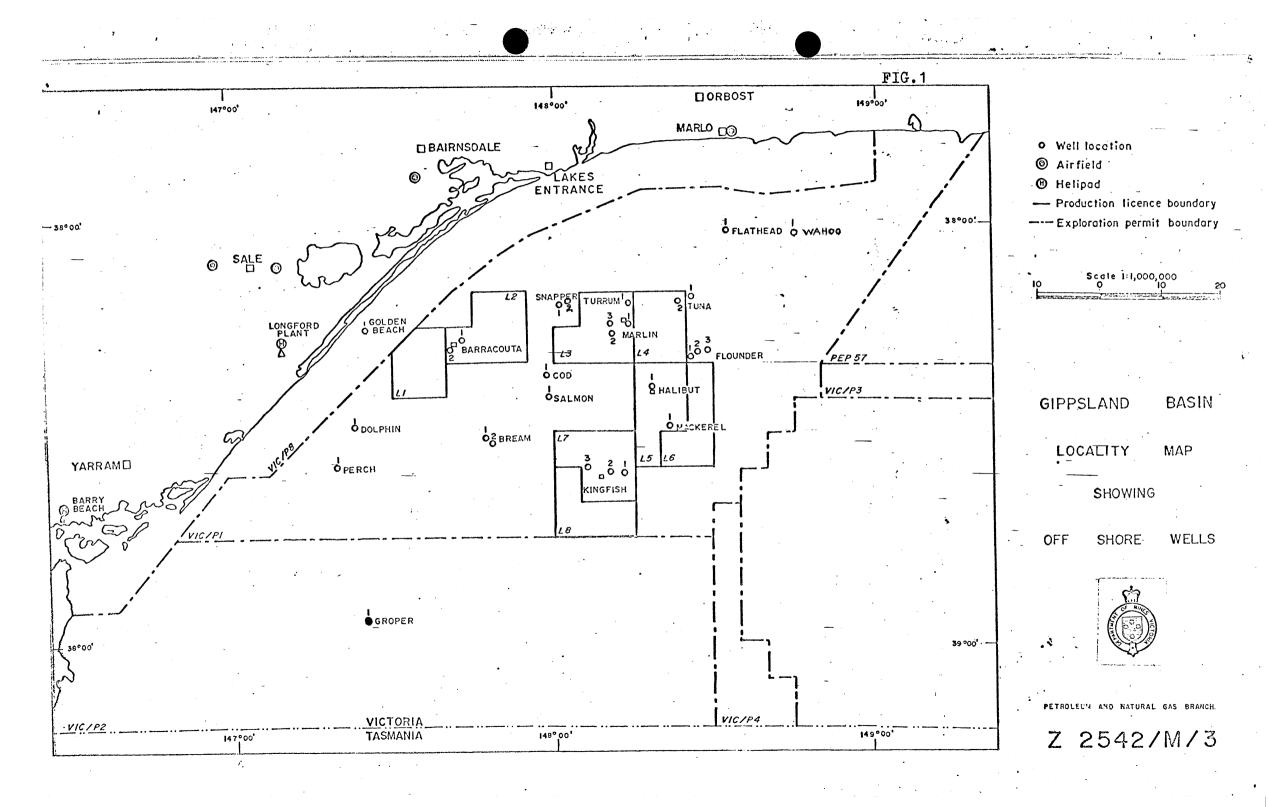
3370'

-

à 9

Ŋ

þ



#### WELL COMPLETION REPORT

#### GROPER-1



Formation	Top	Thickness
Gippsland Formation		+ 2300'
Lakes Entrance Formation	2650(-2619	a) 465'
Latrobe Delta Complex	<b>3115(-</b> 3084	) 205'
Weathered Granite	3320(-3289	) 20'
Granite	3340(-3309	) + 39'

#### Miocene

Gippsland Formation: The Gippsland Formation at Groper 1 consists of <u>skeletal limestones</u> with interbedded <u>marls</u>. The marls increase downwards and give way to mudstone in the lower portion of the section.

<u>Skeletal limestone;</u> (calcarenite) soft, argillaceous, white to mottled, white and yellowbrown, very fine to coarse, skeletal debris of spines, tubes, forams, bryozoans and broken shell fragments. Porosity varies from poor to good.

Marl; soft, medium light grey, abundant very fine to silt sized skeletal debris, occasional calcite filled veinlets, forams common.

Mudstone: medium light grey to light green-grey, blocky, soft, with scattered skeletal debris along faint bedding planes, commonly silty.

#### **Oligocene**

Lakes Entrance Formation: The Lakes Entrance lithology consists of glauconitic <u>mudstones</u> and minor tight, <u>micritic skeletal limestones</u>. Near the base the glauconite content increases with a ten foot tight <u>argillaceous</u>, <u>glauconite sandstone</u> occurring approximately 60' above the Latrobe Delta Complex.

<u>Mudstone</u>; light grey to grey-green, soft, calcareous, glauconitic, fossiliferous, with skeletal debris of forams, spines, algal and pelecypod fragments. Faint bedding defined by flecks of bryozoan debris, but mostly churned.

Micritic skeletal limestone; tight, argillaceous, very light grey to grey-green, occasionally glauconitic, moderately hard skeletal micrite with forams, bryozoans, pelecypods, algae and spines. Fossils as broken fragments, no bedding, evidence of churning and burrowing.

Argillaceous, glauconite sandstone; composed of rounded grains of glauconite in a silty argillaceous matrix, mottled yellow-green-green, and rust brown. Well indurated, grading downward into glauconitic mudstone; porosity and permeability nil to very poor. Eocene

4. •

Latrobe Delta Complex: Lithology of the Latrobe consists of <u>sandstones</u> of braided stream and minor point bar facies, with minor <u>shales</u> and <u>coals</u> of the delta plain environment. A zone of weathered granite approximately 25 feet thick was penetrated before reaching hard Devonian Granite basement.

Sandstone; quartz, buff to light grey to light browngrey, very fine to granule size, sub angular to subrounded, generally poorly sorted, occasionally with silty argillaceous matrix, and commonly slightly calcareous, good porosity and permeability.

Shale; silty, dark brown grey, carbonaceous, blocky, to weakly fissile, with carbonaceous wavy laminations and plant debris common.

<u>Coal</u>; black, brittle, with conchoidal fracture.

Weathered granite; light grey, grey-green, feldspathic, with biotite, chlorite and muscovite, kaolinitic matrix, angular, weathered feldspar common, pyritic, tight. This lithologic unit probably represents a weathered zone and not a true granite wash.

#### Basement

Granite; medium grey to grey-green, porphyritic, pink orthoclase, quartz rich with biotite and chlorite common.

#### Foraminifera (D.J. Taylor)

Zor	ıe		Depth (below sea level)
$\frac{Zor}{A}$	-	С	<b>1</b> 90-1919'
D	-	(?)	<b>1919-2</b> 489'
H		I	<b>2</b> 489-2619'
1 <sub>1</sub>	-	I <sub>2</sub>	2619-2919'
1 <sub>2</sub>	-	J <sub>1</sub>	<b>2919-</b> 2951'
<sup>J</sup> 2	-	LDC	<b>2951-3</b> 084 '

#### Palynology (P.R. Evans)

<u>N. goniatus</u> **30**84-3289' Entire Latrobe Delta Complex is Upper Eocene.

Stratigraphic Summary:

Zonation:

The geologic column penetrated in Groper 1 included 225' of Latrobe sediments of which 153' is sandstone with excellent porosity (25-30%). Below this is a zone (14') of highly weathered granite which grades into hard, unweathered granite. The weathered zone and granite were not cored, but are probably capable of forming a bottom seal.

The Oligocene, Lakes Entrance mudstone overlying the Latrobe was cored and consists of calcareous mudstone which forms an effective top seal at Groper 1.

Geology:

Groper 1 is located near the updip pinchout of the Latrobe Delta Complex onto the Bassian Rise at the southern end of the basin. In this area the Latrobe Delta Complex overlies and pinches out against a granitic basement, and is in turn overlain by a transgressive sequence of Oligocene and Lower Miocene mudstones. These mudstones overlie both the Latrobe Delta Complex and the granitic basement in the area of the pinchout, and hence provide the top seal. The southern end of the basin is structurally very stable and the basement, Latrobe, Lakes Entrance and Miocene sediments all dip regionally to the north.

Latrobe sediments in the Groper area were found to retain their excellent reservoir characteristics. They consisted of about 75% sands, mainly in the form of braided stream deposits, with porosities varying from 25-30%. Separating the fresh granitic basement from the typical Latrobe sediments was about 25' of weathered granite and feldspathic sandstones. This unit was interpreted as a weathering or soil profile since the weathered granite graded upwards gradually into a clayey and feldspathic sandstone. The extremely clayey nature of this weathering profile provides an excellent base seal for this stratigraphic play.

In the Groper well the Lakes Entrance Formation consists of 465' of mudstones with minor amounts of glauconitic skeletal limestones which would appear to provide an excellent top seal. However, the presence of thin beds of skeletal limestones within the formation throws some doubt on the regional sealing capacity of the Lakes Entrance. Groper 1 was drilled about 6 miles downdip from the actual Latrobe pinchout, and hence it is not known what proportion of the formation is comprised of these skeletal limestones in the pinchout area. The Mullet 1 well, however, was drilled closer to the pinchout, only 4 miles downdip. In the Mullet well the skeletal limestones did make up a higher proportion of the Lakes Entrance Fm. and where they lay directly on top of the Latrobe sediments, they were considerably more porous, due to reworked sands from the Latrobe. Although this work is only preliminary, it is very possible that the Lakes Entrance Formation is not an effective top seal in the pinchout position of the Groper play.

The Top of the Latrobe at Groper 1 (-3082') ran about 207' low to prediction (-2875'). However, the cycles picked as top of Latrobe and basement are correct; the error results from higher velocity than predicted in the Lakes Entrance and Gippsland Formations.

As a result of Groper 1, we can now confidently map formation boundaries over a large area in the play trend, and along with new stratigraphic information will be in an improved position to recommend further exploration.

# LITHOLOGY

- Summary



)

-3-

4/..

#### GROPER 1 WELL.

LITHOLDGY

Loc: Lat 38° 56' 20"S: Long. 147° 24' 56"E. Elev: R.T. 31 feet a.s.l. Water Depth: 190 feet.

Lithology from daily reports - cuttings and cores.

1570' - 2500' <u>Marl:</u> light grey, soft and sticky, very fossiliferous, silty, sandy. Sand very fine grained skeletal debris, with some glauconitic and quartz; some unconsolidated skeletal limestone.

2500' - 2805' <u>Mudstone:</u> green-grey, soft, very glauconitic particularly below 2710 feet, fossiliferous, splintery appearance.

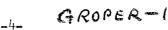
2800' - 2854' Core No.1 cut 54 feet, recovered 54 feet (100%).

<u>Mudstone:</u> grey-green, firm to hard, very glauconitic, fossiliferous, calcareous, grades in part to light grey muddy micrite, abundant burrows, massive, partly sandy and silty.

- 2854' 2856' Core No.2 cut 2 feet, recovered 0 feet (0%).
- 2856' 2861' Core No.3 cut 5 feet, recovered 4 inches.

Mudstone, as above.

- 2861' 2866' <u>Mudstone</u>, as above.
- 2866' 2875' Core No.4 cut 9 feet, recovered 4 feet. Mudstone, as above.
- 2875' 2891' <u>Core No.5 cut 16 feet, recovered 11½ feet.</u> <u>Mudstone</u>, as above.
- 2891' 2951' Core No.6 cut 60 feet, recovered 60 feet (100%) Mudstone, as above.
- 2951' 3005' Core No.7 cut 54 feet, recovered 31 feet. Mudstone, as above.



3005' - 3057' Core No.8 cut 52 feet, recovered 52 feet (100%) Mudstone, as above.

- 3057' 3105' Core No.9 cut 48 feet, recovered 45 feet. Glauconitic sandstone.
- 3105' 3142' Core Lo.10 cut 37 feet, recovered 17 feet.
- 3142' 3164' Core No.11 cut 22 feet, recovered 10 feet. Shale, sandstone, minor coal and conglomerate.
- 31641 32051 Core No.12 cut 111 recovered 12 feet. Shale and coal.
- 3205' 3263' Core Ho.13, cut 50 feet, recovered 12 feet.
- 3263' 3280' Core Po.14 cut 12 feet, recovered 8 feet. Whale, candistone.
- 3280' 3307' Core Lo.15 cut 27 feet, recovered 11 feet. Shale, conglomerate.
- 3057' 3340' Sandstone, shale and siltstone, minor coal and conglomerate bands.

3340' - 3379' (T.D.) Granite.

LIMHOLOGY

.

- SIPEWALL CORE



#### SIDEWALL CORES

### BASIC

#### GROPER 1

- 1. 3350' No recovery.
- 2. 3337' <sup>1</sup>/<sub>2</sub>" weathered <u>granite</u>; light grey to dark grey, weathered feldspars, biotite and some fine quartz present.
- 3. 3330' Lithic feldspathic <u>sandstone</u> with kaolinitic matrix sand grains of light green chert, angular, medium grained, poorly sorted, weathered feldspar common, pyritic, hard, tight. No show.
- 4. 3320' Quartzose, feldspathic <u>sandstone</u>; pyritic, clear grains of quartz in dark grey matrix, medium to granule, angular, poorly sorted, weathered feldspar common; matrix of pyrite, clay and biotite. Very calcareous. No show.
- 5. 3315' Shale; silty, micaceous, dark brown, blocky.
- 6. 3303' 1" <u>Quartz sandstone</u>; buff, very fine to granule, sub angular to sub rounded, poorly sorted, very friable, slightly calcareous. No show.
- 7. 3287' Chip shale; green-grey, waxy, bentonitic, calcareous.

8. 3263' No recovery.

- 9. 3245' l" <u>Quartz sandstone</u>; unconsolidated, buff, very fine to granule, angular to sub rounded, poorly sorted, good porosity and permeability No show.
- 10. 3225' Quartz sandstone; as above, very slightly calcareous.
- 11. 3212' 2" <u>Quartz sandstone</u>; with kaolinitic matrix, very fine to fine, occasionally medium, sub angular to sub rounded, well sorted, soft, friable to unconsolidated, good porosity and permeability. No show.
- 12. 3147' 1" <u>Quartz Sandstone</u>; buff to light brown grey, (colour in part due to mud contamination), very fine to granule, sub angular to sub rounded, poorly sorted, very friable to unconsolidated, good porosity and permeability. No show.
- 13. 3177' 1" <u>Quartz Sandstone</u>; as above, with argillaceous silty matrix, and firm. Slightly calcareous.
- 14. 3170'  $l_2^{1}$ " <u>Quartz Sandstone</u>; as above, with streak of soft black asphaltic residue.
- 15. 3143' l<sup>1</sup><sub>2</sub>" <u>Quartz Sandstone</u>; pyritic, light grey, very fine to granule, sub angular, poorly sorted, very friable to unconsolidated, good porosity and permeability. No show.
- 16. 3130' 2" <u>Quartz Sandstonc</u>; medium light grey silt to medium grained, angular to sub rounded, poorly sorted, very friable to slightly unconsolidated, soft, good porosity and permeability. No show.
- 17. 3126' 1-3/4" <u>Quartz Sandstone</u>; medium dark grey, very fine to coarse, sub angular to sub rounded, poorly sorted, very friable, soft, pyritic, good porosity and permeability. No show.
- 2790' 1-3/4" <u>Mudstone</u>; silty, glauconitic, medium light grey, firm, blocky.

S.W.C

- 19. 2665' 1-3/4" <u>Limestone</u>; micritic, skeletal, very fine to silt size, glauconite grains, abundant skeletal debris, forams, firm, tight; no show.
- 20. 2600' 1-3/4" <u>Mudstone</u>; light green grey, waxy, blocky, scattered skeletal debris.

2.

- 21. 2500' 1<sup>1/2</sup>" Mudstone; as above.
- 22. 2400' l½"<u>Marl;</u> medium light grey, abundant very fine skeletal debris, with calcite filled veinlets, trace silt sized glauconite.
- 23.) 2300'  $l_2^{L''}$  Mar1; medium light grey, with silt sized skeletal debris, firm.
- 24. 2200' 2" Mar1; as above.
- 25. 2100' 2" <u>Calcarenite</u>; mottled white and yellow brown, fine to coarse skeletal debris, firm, good porosity and permeability.
  - 26. 2000' 1<sup>1</sup>/<sub>2</sub>" <u>Marl</u>; as above.
- 27. 1900' 1-3/4" <u>Calcarenite;</u> white, very fine to fine, angular, well sorted, skeletal debris, spines, tubes and forams, poor visible porosity.

0

- 28. 1800' 2" <u>Marl;</u> as above.
- 29. 1700' Marl; as above (2")
- 30. 1600' 2" Mar1; as above.

~. . J

# LITHOLOGY

- Corre



# ESSO STANDARD OIL (AUSTRALIA) LTD.

BASIC

WELL: GROPER 1

1.

15

CORE DESCRIPTION

Core No.

		-		ft., Recovered 54 ft., (100 %) Fm. Lakas Entrance in., Desc. by 13. L. Culp. Date Dec. 30, 1968
Depth & Coring Rate (min./ft.)	Graphic (1" = 5'), /0	Shows	Interval (ft.)	Descriptive Lithology
0 2800	ي س <sup>ا</sup> سار د سار سار		2800-2854	Mudstone - gray to grazish-green, firm to hard, very glausonitic, very fossili formus with pelecyped fragments bryozouns

	with pelecyped Fragments, bryozoune
	zone of longe foraminifere and algal Fragmonts
<u>~~</u>	2806-2809 abundant, very calcarsous and
у <u>т</u> у <u>т</u>	occasionally grades into a very
	light gray muddy micritic limesters
	which is also very fossiliferous and
~~~~ <i>S</i>	glaussaitie. The core estibite
	aburdent burrowing throughout and
مصف محص	is massive in appearance. The
	nudstane is often silty.
· m v	•
	· · · · · · · · · · · · · · · · · · ·
m	
2	· · · · · · · · · · · · · · · · · · ·
5	
= V F	
~	
r ana	· · · · · · · · · · · · · · · · · · ·

		Well: GROPER -1	
Type Christensen C-2			
Denih 8		Cut (	
Depth & Graphic	2, Bit Si	ze	58
$(\min./ft.)$ (1" = 5)	Shows	Interval (ft.) Descriptive Lithology	
		2354-56 No recovery	
		· · · · · · · · · · · · · · · · · · ·	
		· · · · · · · · · · · · · · · · · · ·	
			. <u></u>
	-		
		· · · · · · · · · · · · · · · · · · ·	
		· · · · · · · · · · · · · · · · · · ·	<u> </u>

<i>~</i> ·		r	SO STANDARD CIL	(ALICEDALLAN I		
		5	CORE DESC	1	قرية في المراجع مي مراجع المراجع مي مراجع المراجع مي مراجع المراجع	15
					•	
		<u>د</u>	Core No.	3	-	
					WELL: GROP	
Interval Cored	2856-6	ft.,	Cut	vered O	ft., (%) Fm	****
Bit Type Christ	tensen C-22,	Bit Siz	8 <sup>5/16</sup> in., D	esc. by	Data Dec 3	1,1968
Depth & Coring Rate (min./ft.)	Constitution	Shows	Interval (ft.)		Descriptive Lithology	
0			2856-61 N		·	
				<u> </u>		
				· · · · · · · · · · · · · · · · · · ·		
				······································		٠
					<u>.</u>	<u></u>
				·····		
			······		· · ·	
	-	~				
						· · · ·
					<u> </u>	
				· · ·		
			····			
			· · · · · · · · · · · · · · · · · · ·	·	,	
			· · · · · · · · · · · · · · · · · · ·			-
LIIIII	<u> </u>		·			
		<b>.</b>				

		Ē	ISSO STANDARD O'L (AUSTRALIA) LTD.
			CORE DESCRIPTION
			Core No
			WELL: GROPER 1
Interval Cored	2866-287	'5 ft.	Cut 9' ft., Recovered 4' ft., (%) Fm. Lakes Entence
			zo <u>8 1/2</u> in., Desc. by <u><i>RV. Hicks</i></u> Date <u>31 Dec 1968</u>
Depth & Coring Rate (min./ft.)	Graphic (1" = 5')	Shows	Interval (ft.) Descriptive Lithology
	2866 55 25 25 25 25 25 25 25 25 25 25 25 25 2		Mudstone, brown grey to green grey, glanconitic, -abundant skeletal debeis, algol material, forams, spines, occ. pelecypod, burrowed. slight alcoreans Limestone, micrific skeletal, very light grey
	2875		Limestone, micritic skeletal, very light grey with green cast glaucenitic, skole lal material consists of forams, elgal, seines and peleigead fragments, hard, tight, No Show.
		-	
REMARKS:			

			CCA CTABIDAT				5
· · ·		<u> </u>	550 51.ANDA.	rd oil (Austi	(ALIA) LID.		15
			COPE	DESCRIPT	ION		• •
			Core	• No. <u>3</u>			
						~	
						WELL: GROPER	-1
Interval Cored	2875-28	7/ ft.	Cut 16'	ft. Recovered	11/2 # 1	%) Fm. Lar	es ENTEANCE
Bit Type	- Z Z	, Bit Siz	e <i>B_/14</i>	in., Desc. by	KV. Hicks	Date / JA/	v 1969
			5. 				1 <u>.</u>
Depth & Coring Rate	Graphic	Shows	Interval (ft.)		Des	criptive Lithology	
(min./ft.)	(1" = 5')					inpute Ennology	
0	2875	j					
	102 - 100				<u>.</u>	1 11	
	M-SU		2815-761/2	Mudston	e glauroniti	i fossilfrooms	brown
	LADE	1			<u>q1110 q117,</u>	massive to	arrolly
	MA & LAT-U			leminates	1 browned	foroms she	le he l'elebric
	Den TMS	Ì					
	mum				-	d peleryped	trojments
	M V Cit			<u>calcar</u>	<b>Lo</b> 10 5		
	a dan To		2876 1/2 - 2878	Limeston	e, martic s	keletel, argill.	A ( + 9 L 5
	MM MM					areen cast, 1	
	M-S I M-S /M	ŀ	·····	/			
	M 55 #				/	hard, tigh	
				Show,	sheele tal de	bris at "	forams.
	$\backslash$	Į					
	$\times$		2575- 2881	Inter an	dia madata	ne an 3' line.	entrana an
		t			<u> </u>		
		L. L.					
	Z 39/*		2851-2394	Mudsto.	nt 6A		
	-		2884- 2884	E Limest	one og		
		ſ					
			11	s'/2 Mudst	/	·····	
		ŀ	2834/2-238	5/2 Mudst	tone og		
					····		
	1	ſ					
		<b>-</b>			· · · · · · · · · · · · · · · · · · ·		
		ŀ			· · · · · · · · · · · · · · · · · · ·		
							-
			2				
		F					
	[	H					· · · · · · · · · · · · · · · · · · ·
		ŀ					
		┣	· · · · · · · · · · · · · · · · · · ·				
		┠					
REMARKS:							
			<u></u>			· · · · · · · · · · · · · · · · · · ·	

	ESSO STANDARD DIL (AUSTRALIA) LTD.
·	Core No.
	WELL: GROPER 1
	Cored 2891- 2951 St., Cut 60 ft., Recovered 60 ft., (100 %) Fm. Lakes Enfrance
Bit Type	CZO, Bit Size 8 5/16 in., Desc. by R.V. Hicks Date 1 Jon 1969

Depth & Coring Rate (min./ft.)	Graphic (1" = 5')	Shows	Interval (ft.)		Descriptive Lithology	
	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Shows	2891 - 2875 9 2395 - 2394 2396 - 2900 2996 - 2900	Limestone Limestone Limestone Very light gri glacconitic, S Madstone 16 Mudstone Limestone Limestone Limestone	aborens, glouconities, fossilferes - greg. messive to very wee for and sheletal debra - end pelecyped forgenents - fic sheletal orgillaccours, - of green cast accours all - sheletal motional ac	///
Z951						
				······································		

REMARKS:

ESSO	STANDARD	OIL	(AUSTRALIA)	LTD.
------	----------	-----	-------------	------

7-

CORE DESCRIPTION

Core No.

Interval Cored	2951-300	5 ft	Cut 54	WELL: GROVER -/ ft., Recovered <u>3/</u> ft., (%) Fm. Lakes Entrance
Bit Type	- 20	, Bit Siz	e <u>8 5/4</u>	in., Desc. by R.V. Hicks Date 2 Jan 1968
Depth & Coring Rate (min./ft.)	Graphic (1" = 5')	Shows	Interval (ft.)	Descriptive Lithology
0	Z 951'			
1 1 1 1 1		1 1		

> .	Z 951'		
	M + MS		2951-2982 Mudstone, colconor, glanconitio
	SM T		forsilferen in part very glauconitic
	m + M		foroms and skaletal debais of algal
	V-MB,		a cale of free to
	A S		commen, massive to weakly tominate
	M + M		common, massive to weakly tominote.
	SMT		
	m m		
	MA - AM		
	5 1 2		
	M + In		
	8 M. 5		
	$  \rangle /$		
	Y .		
	+/		· · · · · · · · · · · · · · · · · · ·
	1/ \		
	3005		
	1		
			•
	1		
	-		·
	-		
	1	1	
	1		
1 1 1 1			

•			·	Q
		Ľ	SSO STANDAR	D OIL (AUSTRALIA) LTD.
-			CORE	DESCRIPTION 15
				- -
			Core	No8
				WELL: GROPER 1
l Cored	3005 - 305		Cut	t., Recovered 52 ft., (100 %) Fm. Lates Entr
реС	- 20	, Bit Siz	e <u>8                                   </u>	in., Desc. by <u>RV Hicks</u> Date <u>Z Jan 1969</u>
opth &	1			
ng Rate n./ft.)	Graphic (1" = 5')	Shows	Interval (ft.)	Descriptive Lithology
<u></u>	3005			
	MA 1 M			
	A M S		3005 - 3057	Mudstone, colcoreons glansonitic, media
	m m			brown greg. cohinsid spines & forams common, accasional pelesyrood, fecal
	SMB			pellits common, burrowed, massive
	IM I M			to weakly laminated, slightly fissil
	a m s			To writely lancaster, sugar grow
	M 1 m			
	s m			
	<u><u>M</u> <u>M</u></u>			
	111 110			
	5 <u>IM</u> ~ <u>IM L IM</u>			
	MA S			
	M 13			· · · · · · · · · · · · · · · · · · ·
	5 111			
	M + M B M			
	IM IM			
	Ma			
	MM			
	5			
	3057			
		.		
	1	I İ		

37	13.4	A.F.	KS:
· · ·	••••	2.11	

ESSO STANDARD OIL (AUSTRALIA) LTD.

9

CORE DESCRIPTION

Core No. 9

.

	•		·	WELL: (120PER -1
Interval Cored	3057-31	05 ft.,	Cut 48 ft.	Recovered 45 ft., (%) Fm. Lakes Entrance
			-	in., Desc. by R.V. Hicks Date 3 Jan 1969
Depth & Coring Rate (min./ft.)	Graphic (1" = 5')	Shows	Interval (ft.)	Descriptive Lithology
0	3057			
	Sm S S		3057-3046	Gragionitic sandstone, silly matrix, well
	ر مر کر کر می بر کر کر			rated, argillaceous, motiled grown yellow
	S S S S m r z			mand rust brown, hard fight, NS
	AN ~ M		•	ading into glanconitic mudstone with
	a #1 5		/	lancon the filled burrows at bare
				· •
	ли <u>т</u> 5 5 5		3066-3/02	Gleaconitic madstone, with occasional
	M D			this (to z") beds at muddy glauconitie
	Im S IM S			-sandstone, grey brown to durk gueen
	5 11 25			color, occ. rave skelefal debais,
	IIA IA SSSSI			bryozani, foreme, é algal material
				faint burrows. pypite nodales
				(omman.
	5 M 3			
	Mr			
	55555			
	m s m			· · · · · · · · · · · · · · · · · · ·
	$\geq \leq$			
-				
			······································	
			2	
		ľ		
				· · ·
		Ī	· · · · · · · · · · · · · · · · · · ·	
			·	
		. [		
REMARKS:				

		E	SSO STANDA			 T <b>D.</b>		10
			CORE	DESCRIP	MON	,		
			Cor	e No. <i>10</i>				
			· .				GROPER.	
Interval Cored.	3105 - 314	Z fi.,	Cut	.ft., Recovered		ft., (	%) Fm_ake	s Entrance
Bit Type	(· Z 0	, Bit Siz	<u>8 1/1 6</u>	in., Desc. b	y	Hicks	Date 3 Ja.	, 1969
Depth & Coring Rate (min./ft.)	Graphic (1" = 5')	Shows	Interval (ft.)			Descript	ive Lithology	
0	3/05			(T/am			-	
	M C M 2 C 2 C 2 C M M C 2 C 2 C 2 C 2 C 2 C 2 C 2 C 2 C 2 C			madshare				
	M &			pyrife	<u>to /z</u>	thick	abunda 1	nt I
	5 m J			pyrite	nod w/15	FALL	1055-1 7	" gmints
			<u> </u>					
	s s s s s s s s s s s s s s s s s s s							
	$\setminus$ /		·					
	$\backslash$					<u></u>		<u></u>
	X							
	<u>/ \</u>							
	3142						<u> </u>	·
				۰.	•			
				· · · · · · · · · · · · · · · · · · ·				
					·····			
						. <u> </u>		
					·			
			N. N					
							t	
				·				
						·····		
REMARKS:	3	·····	₹.					

ESSO STANDAR	D OIL (AUSTRALIA) LTD.	11
CORE	Description	[2
Core	No	
	WELL:	GROPER-1
Interval Cored 3/42-3/64 ft., Cut ZZ f	ft., Recoveredft., (	%) Fm. Latrobe
Bit Type C-22, Bit Size 8 5/1	in., Desc. by <i>R.U. 4.727</i> D	ate <u>3 Jan 11/ 1</u>

Depth & Coring Rate (min./ft.)	Graphic (1" = 5')	Shows	Interval (ft.)	Descriptive Lithology
Coring Rate	Graphic (1" = 5') 3/42	Shows	Interval (ft.) 3154-3154 2154-3156 //= 3156 //= -3159 	
REMARKS:				•

	12
ESSO STANDARD OIL (AUSTRALIA) LTD.	
CORE DESCRIPTION	
Core No. 12	

	WELL: GROPER - 1
Interval Cored <u>3/64-3205</u> ft., Cut <u>4/</u> ft., Recovered <u>/2</u> ft.	
Bit Type C-20, Bit Size 8/16 in., Desc. by P.V. Hicks	Date 4 Jan 1969

Depth & Coring Rate (min./ft.)	Graphic (1" = 5')	Shows	Interval (ft.)	Descriptive Lithology
	3164		3164 - 3167	Shale, silty, brown, carbonaceons plant debris, H. Sodar
			3167- 3170	Carl, black brittle
			\$175 - 3176	Shale an.
	/-   . \			
	3205			·
				·
			······	
				·
REMARKS:				

ESSO STANDARD OIL (AUSTRALIA) LTD.

CORE DESCRIPTION

13/15

Core No. 13

	•			WELL: GROPER -1
nterval Cored	3205-3263	fr.,	Cut58	ft., Recovered /Z ft., (%) Fm. Lafrabe
it Type	- 20	, Bit Siz	e <u>8                               </u>	in., Desc. by R.V. Hicks Date 4 Jan 69
Depth & Coring Rate (min./ft.)	Graphic (1" = 5')	Shows	Interval (ft.)	Descriptive Lithology
<b>)</b>	3205			· · · · · · · · · · · · · · · · · · ·
	F MA M		3205 - 3208 1/2	Mudstone, light brown to bf, blocky
	MA F AM			firm grading down to argillaceous
	M F M			selfstone.
	120			
			3208/2- 320	71/2 Siltstone, sondy at Lose, with very
	]\ /			time sand grains, butt, muaccous,
	4\ /			firm, No Show Has odo-
	$\downarrow \setminus /$		3209/2 - 3211	
	. \ /			fine, subangular, well sorted, friable
	1 V			soft, fair peresity slightly micaceo
	$\downarrow$ $\land$			No Show Has oder
			924 - 3213 <sup>1</sup>	Mudstone, silty, buth blocky
			3213 1/2 - 32	
	$\frac{1}{2}$			abundant plant clebris slightly
	1/			fissile, with wavy discontinous
	3263			Carbonalcans laminator
				· .
	_			
	-			
	-			· ·
	_			· · · · · · · · · · · · · · · · · · ·
	1	<u> </u>		

REMARKS:

					1		
	ESS	O STANDARD O	l (Australia) ltd	).	14		
	CORE DESCRIPTION						
	•		• <u>•</u>				
		Core No					
•			•	WELL: GROPER			
Interval Cored <u>3263-3280</u>							
Bit Type (-22,	Bit Size	<u>8 1/c</u> in.,	Desc. by K.V. Heck	S Date	Jan 61		
Depth & Graphic Coring Rate (min./ft.) (1" = 5') S	ihows I	interval (ft.)		Descriptive Lithology			
0 3263							
		3263 - 3267 1/2	Shale, ben gy w/ wavy cache				
m m		3267/2· 3269	Shale, silty		•		
			block g				
		3269-3270 1/2	Sandstone,	uncan salislat.	ed very fine		
			buff to It	brown grey,	ub angular		
				led p. sorten			
			6A 1 1				
	د	3270 12 - 3271	Madstone,				
3280			plant del	sunal carbo	MRCCOMS		
			p2.10.01		•		
			· · · · · · · · · · · · · · · · · · ·				
				······································			
	ļ.			······	· · · · · · · · · · · · · · · · · · ·		
				· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		
			·····				
				· · · · · · · · · · · · · · · · · · ·			
				<b></b>			
			·				
AZMANIG:	I		×				

م د آ		•	
	,		·

# ESSO STANDARD OIL (AUSTRALIA) LTD.

## Core Description

Core No. 15

			WELL: GROPER -	- /
Interval Cored -3280-330	7 ft. Cut 27	ft. Recovered		trobe
Bit Type $(-20)$	Bit Size 8 5/2	in. Desc. by R.U.	Hicks Date 5 Ja.	- 69

Depth & Coring Rate (min./ft.)	Graphic (1" = 5')	Shows	Interval (ft.)	Descriptive Lithology
Coring Rate	Graphic (1'' = 5) 3280 - 5 - 5 - 7 - 7	Shows	3280-3289 1/2 3289 1/2 - 3290 1/2	Descriptive Lithology Bentonitic Shale, & light gray, waxy- blacky, with scattered very small pyrite nodales Pettle Conglomerate, light gray brown, very fine to pettle size, such angular - so sub rounded, poorly sorted, with brat streaks of dolomite coment, fair perosity N.S. Shole, dark brown grey with wavy carbonaceous laminations and cool lense to Zam. theck in perecontemper- ane ous fault contect with Bestantic Shole an
DEMARKS:				

15

BASIC 1.F. OBIIEZ

1

•••

. ``

# FIELD DATA CORE ANALYSIS REPORT



GROPER-1.

nt       % Vol.       % Por.       % Por.       Cb.       Dens.       Remarks         3       0.75       3.4       84.3       2.7       2.14       )       CORE # 11         5       0.0       0.0       86.7       1.8       2.44       )          5       0.0       0.0       93.1       1.7       2.24       )       CORE # 13         5       0.0       0.0       92.7       1.3       2.36       )				۰.							
nt       % Vol.       % Por.       7 Por.       Gb.       Dens.       Remarks         3       -0.75       -3.6       -84.3       -2.7       -2.14	88890000000000000000000000000000000000			agus shin ngasa ne an an an a sanaga s ar							
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Semple Number	Depth Feet	Permea Mitlid H	larcys	Porosity Percent					Dens.	Remarks
5       0.0       0.0       93.1       1.7       2.24       )       CORE # 13         8       0.0       92.7       1.3       2.36       )         7       0.0       89.9       1.9       2.40       CORE # 15         9       0.0       0.0       89.9       1.9       2.40       CORE # 15         9       0.0       0.0       0.0       0.0       0.0       0.0       0.0         9       0.0       0.0       0.0       0.0       0.0       0.0       0.0         9       0.0       0.0       0.0       0.0       0.0       0.0       0.0         9       0.0       0.0       0.0       <	1	3160	229	102	22,3	0.75	3.4		2.7	2.14	) CORE # 11
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	2	3163.5	4520	1035	13.5		0.0	86.7	1.8		)
8       0.0       0.0       92.7       1.3       2.36       )         7       0.0       0.0       89.9       1.9       2.40       CORE # 15         9       1.9       2.40       CORE # 15       1000000000000000000000000000000000000	3	3211	0.8	0.8	24.5		0.0	93.1	1.7	2.24	) CORE # 13
	4	3213	0.14	0.14	17.8	0.0	0.0	92.7	1	1	)
	5	3290	471	436	18.7	0.0	0.0	89.9	1.9	2.40	CORE # 15
							}	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	
			-								
			-								
			-			· · ·					· · · · · · · · · · · · · · · · · · ·
								•	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	
						· · · · · · · · · · · · · · · · · · ·					
		· · · · · · · · · · · · · · · · · · ·									1
VELL: GROPER-1 ELEVATION:											
	CO2	ESS(	) 			· · ·		Кб(Т:	GROPER-1		ELEVATION:

CALINAL BURGEN	2012		та 																
	CORE		ATOR	IES,	INC					:	Petrol	eum	Rese	rvoir	Eng	inee	ring		
со	MPANYESS	O STAN	DARD	<u>)   (</u>	AUST	RALI	A)	LTD	•				FIL			15-	1 <u>9</u> L		-
		PER 1													THM	KD.			-
	UNTY VIC	DCAT		STATE										EV					-
		SHORE/																	-
			60	M	DLL	TI	OR	] (	:01	8E(	3R/	AP.	H						
		use this but Core	nalyses opinions a report is made. T Labaratories Inc n. or profitablene	he interpretation	ons or opini ers and emp	ons expressed	d represen me no res	at the best of	ind make no	we tanty to	en ne all	errors and a	missions exce	pred					
	SAND SHALE		ESTONE		co		ERATE		50 		CHE				<b>↓</b> ₩~ 204	- c [+	++++ +++++ +++++	+ + -	
F = F	SAM Fractured L=Laminated	FLE CHAR FG; MG; CG			itylolitic	V : Vugg	y	0			PROD. G-Gas T			]	PE	RCENT	TER C		
LE			ыціту, мо. Ital Perm Plug	Y TI	SATU	DUAL	]\/[		ABILITY		PORC	DSITY X		]		•	TION X		
SAMPLE NUMBER	DEPTH FEET		}	POROSI	% POR	E SPACE			ALLIDAR		ŀ	PERCEN		1		REENT	PORE SF	-ACE 75	
<b>\</b>		*		1		WATER	<u>G</u> B	100	$\frac{1}{2}$	1	i	20 1	<u>}</u>	+	+		†	1	
				1		ļ	ļ .												
·	- + -						ł					<b> </b>						+-+ +-+	$\frac{1}{1}$
					• • •	1		••••									+ • • • •		
1	3160	229	102	22.3	3.4	84.3	2.7			0	×	•••••			×			0	Ī
2 Z	•								••••	••••						•••	••••	• • • <del> </del>	
222	3163.5	4520	1035	13.5	0.0	86.7	1.5			• • • •		×				· · · · ·		0	
30						•					<u> </u>					 			╞
2						-									1 1	• • • • •			
		••••••					ļ							1					].
20	· · · · · · · · ·	-				ł							• • • • •	1		· · · •			
2°3	3211	0.8	0.8	24.5	0.0	93.1	1.7	<del></del> 	,		. × .			<b>.</b>	•			0	f
N NO NO	7047	~ • •		472 0	~ ^		. 7		• • • •			 ¥						o	
500	3213	0.14	9.14	17.8	-)•O	92.7	1.2		 			<u>.</u>			i i				
, ¢														: : *	+				
22	**													1 2 				• • • •	
120	· ·	ļ							· · · ·		• • • · ·					· · · ·			
												 							-
5-5	3290	471	436	18.7	0.0	<u>99</u> 9	1.9					×		-	+			0	
J W			• • • •								• • • •	• • •			r				
10	-	•						• • • •											I
		· · ·											· · · · · · · · · · ·						
	· · ·							• • • •			• · • •								
								• • • • •									• • • • •		
		ļ				•		• • • •											
1											1								

•

- -

LITHOLOGY

- THIN SECTION EXAMINATION

PALAEOZOIC GRANITIC FOCK FROM ESSO'S GROPER 1 VELL (S.E. FLANK OF GIPPSLAND BASIN)

### INTRODUCTION

Esso's Groper 1 well was drilled in 1968 as a stratigraphic test on the S.W. flank of the Gippsland Basin, but it proved to be dry. The well encountered Palacozoic bedrock at 3,340 feet (3,309 feet below sea level) after drilling through Cainozoic sediments, and then continued to a total depth of 3,379 feet in the former. The well location is shown in Pig. 1, and is seen to be 50 miles east of Wilson's Promontory.

A cuttings sample at 3,360 to 3,370 feet has been examined, a total of 29 chips being selected for thin-sectioning. The results are presented below.

### HAND SPECIMEN (Rock No. 16826)

The cuttings consist of a medium-grained granitic rock that appears to be dominated by pink feldspar, though quarts, white feldspar, and greenish black mica are also evident.

#### PETROGRAPHY (S1140 No. 9711)

A thin-section of the chips reveals that the sample is indeed a medium-grained granitic rock which is probably roughly equigranular (though the chips are too small to be sure), and holocrystalline. It consists of quartz, plagloclass and potash foldspar that is frequently altered, and also chloritised biotite.

Quarts is anhedral and up to at least 1.8 m in size

Potash feldepar, where positively identified (refer below), is not very common and consists of orthoclase and perthito. It is anhedral and does not appear to be much larger than 1 mm in most cases. There is minor alteration to kaolinite which tends to have a pinkish coloration, perhaps due to included, finelydivided hematite.

Plagioclase feldspar is common as anhedral crystals up to at least 4.3 mm (the maximum chip size). It tends to be finely twinned, indicating a calcic oligoclass to codic andesine composition, but is also occasionally zoned. However, virtually all of the plagioclass crystals are partially to severely altered to sericite, as well as calcite, kaolinite, and chlorite. The same pinkish coloration found in the potash feldspars is widespread in the plagioclass variety. In addition to rare zircon inclusions the plagioclass feldspar encloses fine altered biotite.

12...

2/2

PALAEOZOIC GRANITIC ROCK etc.

In addition to the positively identifiable potash and plagiculase feldspars, there are quite a large number of questionable compositions. The latter have no obvious twinning, though in many cases the pattern of calcite alterntion suggests that fine twins may have been present. Furthermore, the size of the crystals are comparable to that of the plagiculase feldspare and so too are the well-developed sericite, calcite and other alteration products. Thus, although these feldspars have the superficial appearance of orthoclase, the writer believes that they are probably extensively altered plagiculase feldspar. An approximate count of the feldspar types is as follows: potash 19; plagiculase, 66; indefinite, 81.

Biotite is present in significant amounts as raggedlooking flakes up to 1.8 mm long. It is rarely fresh, but is altered to penninite, a variety of chlorite with blue to purple interference colors. Iron ore is associated, consisting mostly of leucoxene, which is an alteration product of ilmonite, but also minor hematite and pyrite.

In addition to its role as an alteration product of feldspar, calcite is also found in one chip filling 'hairline' veins.

### CORMANTS

It appears from the above description that the sample examined is a partially altered biotite granodiorite. (If the indefinite foldspars are in fact orthoclase, then it would lie close to the granite-adamellite subdivision).

Groper 1 is 50 miles away from the nearest known granitic rocks, though one cannot assume that the intervening area is also granitic. For example, north of the Gippsland Basin, comparably spaced gramites are separated by Lower Palaeozoic sediments. A possible further lead to support this view is that Groper 1 was drilled immediately west of a prominent N.D.-S.W. magnetic anomaly (approximately 30 miles N.E. of the Hogan Group) which, though its origin is unknown, seems to line up with a similar one at Lakes Entrance where buried gramitic rocks of comparable composition (the writer, unpublished) intrude Lower Palaeozoic sediments (Guilty, 1962, Plate 2).

#### REPERENCE

Quilty, J.H., 1962. Gippeland Basin airborne magnetic surveys, Victoria, 1951-52 and 1956. B.M.R. Record 1962/53 (open file)

> Barry Hocking, J.B. Nocking, Geologist, Sedimentary Basta Studian Sention

ample: Groper 1: 3288 ft: TS22658

Thin Section:

Point count of a little over 3000 points gives the following modal analysis:

	<u>%</u>
Quartz	71.2
Feldspar	0.5
Lithics	·
Quartzite	1.1
Mica	0.3
Detrital clay	2.9
Authigenic clay	0.4
Carbonate	23.6
Carbonaceous material	
Sulphides	
Heavies	0.1

(Details of grains included in these categories are as given in report MP1333/69 of 5/2/69)

This rock is very irregularly sorted, and the grains are angular to subangular. No lithic fragments were observed apart from quartzite, and the quartzite fragments are probably coarse chert or originally clastic material. Little if any is of metamorphic origin, though some larger grains are severely strained, and have even formed quartz mosaics. One quartz grain was observed with a large biotite inclusion, and some grains are associated with muscovite; this suggests a possible granitic origin for much of the framework.

Most of the cement is calcite, the only other cement being a small amount of clay. The carbonate has either prevented or obscured any cementation there may have been by quartz overgrowths, and many quartz grains are crossed by veins of calcite, showing that it has to some extent replaced quartz.

Green-brown tourmaline was the only heavy mineral observed.

#### Clay minerals:

The clay minerals were identified by X-ray diffraction, and are as follows:

kaolin dominant illite accessory smectite accessory

It is likely that the authigenic clay, as determined in the modal analysis, is not significantly different in composition from the total clay.

bn.3

Andel Repar MP 2809/69 Manh 1969

# PALYNOLOGY

INTERPRETATIVE

PALYNOLOGY REPORT

ON

GROPER -1

BY

LEWIS E. STOVER

Palynology Report 1970/16

June 1970.

#### INTRODUCTION

An essentially uninterrupted sequence of conventional cores from Groper -1 between 2800 and 3310 feet were sampled to determine if dinoflagellates and associated microplankton could be used to subdivide the section containing spore-pollen assemblages attributable to the <u>Nothofagidites asperus</u> Zone. This involved ascertaining the age differences, if any, between the lower part of the dominately marly section, the underlying "glauconitic silt" and the subjacent Latrobe sands. On the basis of electric log characteristics, the top of the "glauconitic silts" was picked at 3056 feet and the top of the Latrobe sands at 3114 feet.

Pelagic foraminiferal determinations by D.J. Taylor indicate that the top of I-2 is at 2950 feet, the top of J at 2982 feet and the base of the marine section is at 3060 feet. Samples from 3090 feet to 3315 feet which contain abundant spores and pollen were placed in the N. asperus Zone by P.R. Evans (Palynology Report 1969/3).

OTDOMON

	SUMMARY		
<u>Sample</u>	Drill Depth	Age	Dinoflagellate Zone
Core 6	2947 feet	<b>Oligocene</b>	Unnamed.
Core 7	<b>2</b> 962 feet	11	п
Core 7	2980 feet	11	11
Core 8	3010 feet	11	н
Core 8	3024 feet	11	н
Core 8	<b>30</b> 55 feet	11	н
Core 9	3067-70 feet	Eocene	0. diktyoplokus
Core 9	3073-77 feet	11	11
Core 9	3085-88 feet	11	н, .
Core 9	3094-97 feet	11	11
Core 9	3102 feet	· II	11
Core 10	3127 feet	"	D. extensa
Core 10	3134 feet	"	н
Core 10	3140 feet		11
Core 11	3157 feet	No dinofla	gellates

MITERPRETATIVE

#### COMMENTS

Dinoflagellates assemblages consisting primarily of several varieties of <u>Hystrichsphaera ramosa</u> were recovered from the marly section between 2947 and 3055 feet in all of the samples from this interval. Associated spores and pollen are dominated by specimens of <u>Nothofagidites</u>, and there is little diversity of species among either the microplankton or the spores and pollen in this part of the section. A greater diversity of dinoflagellates and of spores and pollen was found in the assemblages between 3064 and 3140 feet. Dinoflagellate assemblages from 3064 and 3102 feet are placed in the <u>Oligosphaeridium diktyoplokus</u> Zone, and those from 3127 to 3140 feet in the <u>Deflandrea extensa</u> Zone. Samples between 3157 and 3315 feet lack dinoflagellates but yielded excellent sporepollen assemblages.

The sample from 3102 feet contained numerous specimens of <u>Dinopterygium mitrum</u>, and the same species has been identifed in Snapper -3 at 4206 feet and in Turrum -1 at 6580 feet.

INTERPRETATIVE

EΥ	Devid	TAYLOR
101		ان کا میں دور اور اور اور اور اور اور اور اور اور ا

-----

term 8 193 3/21

MASSA QUERSLAND BASIN WELL RAVE GROPER-1 DATH 18 April 1971 ELEV. + 31'

Fora	n Zonulas	·					8 J
		Highest Data	Quality	2 Way Tîne	Lovest Data	Quality	2 Way Time
	A Alternate	19. J. CHILLE AND MALIN M. M. MORTHAN M.			andre men : Brende van de source and de source and an our source of an origination		
	B Alternate	αφα του, α τους δεγδρασιώς ΦΕΕ στουργάς, το τους στο στο το αυτό τις του δα τους φ τους το στοδοσίας του βοτείου τουξία τους τη Πρ. του βοτθαίας (Βρ				and the second s	1 - 1 - 1 - 1 - 2 - 2 - 2 - 2 - 2 - 2 -
12	C Alternate		3		20570	13	
	D <sub>1</sub> Alternate	9 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -			, and a substantian and a substantian and a substantian a substantian and a substantian a s		
	n Alvervate	an a					
	E Altersate	1999 6 - 1999 7 1992 6 1993 7 1993 1993 7 1993 7 1993 7 1993 7 1993 7 1993 7 1993 7 1993 7 1993 7 1993 7 1993 7	. (a			Contrast at the states of	n ( second render to the second second
MIOCENE	Alternale	ur d Juru Paurti delle din di Armanda i Riman Davia der recurso n. 1917 na Joha Matal Rigalit volution di Kyathari analaria i da					a constance, we as named
ΤM	G Alternate	nalas no cos e una salendera servica salente e cos os servicas da en e			антар калантарт, мини — тар аккуран ис ак чиритар кар и тар дар лар Алана 19 маниятарт – мини — тар аккуран ис ак чиритар кар и тар дар лар Алана 19 маниятарт – мини — тар аккурантара к		
	H1 Alternate	. 68778485774748-719491-27487-27494-27-424854443 4748784			androna an da naganga a na ang ang ang ang ang ang a		AS ENLIGE TRUSPEC
	H <sub>2</sub> Alternate				· · · · · · · · · · · · · · · · · · ·		
	I Alternate	2600 2665	2.		2935	1	
EN	I Alternate				2970		
OLIGOĈENE	J Alterate	2.992.	0			2	2
1TO	J 2 Alternate	9. VELTINGLA. LINITE NAME I 99. I OLIVILA SURVEYSAND AMALAN AMALAN AMALAN AMALAN AMALAN AMALAN AMALAN AMALAN A Amalan amalan			י אראב איז	lason and a solution.   	
S S	K Alternate	1111/1711/06/20194/2014/2014/2016/2017/06/2017/20192/2019	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			5 TO PORTATION AND THE POP AND	
BOC	Pre K	171 LEO 707 I STORE STORE THE STORE SHE I FAIL 20 LE FOR STORES AND A STORE STORE STORES AND A STORE					

COMMENTS:

{

Note: If highest or lowest data is a 3 or 4, then an alternate 0, 1, 2 highest or lowest data will be filled in if control is available.

If a sample cannot be interpreted to be one zonule, as spart from the other, no entry should be made.

0	SWC or Core	-	Complete assemblage (very high confidence).
			Almost complete assemblage (high confidence).
			Close to zoonle change but able to interpret (low confidence)
			Complete assemblage (low confidence).
-			Incomplete assemblage, next to uninterprotable or SWG with
			depth suspicion (very low confidence).

Date Revised

۲	د	,	3
•			

NASI	GIPPSLAND	DETE	<ul> <li>Reception Constitution of the second strengthment of the Constitution of the Middle Material System of the second strengthment of the Second st</li></ul>	
------	-----------	------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

<

•• 1

.

GROPER -1 -+ 31 feet WELL NAME ELEVATION

ÅGE	PALYNOLOGIC	n na annaichte ann an 1- an ann ann an 1- an annaichte an 1- an annaichte an 1- an annaichte an 1- an annaichte	111	HEST DATA		a an aite a ta t		L	OFEST DAT	/ / 1	
53737	ZONES	Preferred Depth	Rtg	Alternate Depth	Rug	2 way time	Prefeired Depth	Etg.	Alternate Depth	Rtg.	2 way Line
	T. beilus										
MIOC.	P. cuberculatus			an yanan an anan ayan yang mulu dan akum			-		anna, shaan namay isa sada - dati a Mandri kushkari i		an an the second se
6°- 2)- 'Nom 29- 'NY	U. N. asperus			Radio - Alinan, Januaran Kini - An Antara Salama (ina - Antaria)	net.a pr 1-40				a a canada a subar tina panta harana da a subar di a canada di	* 1000 - ann 14 an	ana ana amin'ny tanàna mandritry dia mandritry dia mandritry dia mandritry dia mandritry dia mandritry dia mand
Dri)	L. N. asperus	3055 <i>ʻ</i>	0	a o comunicationest, concentratillo a concentration d'adores		i far e e	3315	1	1 - 12 - 12 - 12 - 12 - 12 - 12 - 12 -		
EOCENE	P. asperopolus										***, <del>100,000,0</del> 7,000,000,000,000,000,000
E(	U. M. diversus			na y zach 2 Mauri ( , , , , , , , , , , , , , , , , , ,				(			anda - 44,549.00000 var. "44894 vagas ( <u>*</u>
	L. M. diversus			a gran wandoora antoora o nam sannana. Mahama					And a second		eran, αυροτισμές Φρητοιιδ, Ρ. Αγ. Β΄, τ
EQ- NE	<u>L. balmei</u>	an an de analan an a		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~							1994 - 1994 (Antonio) - 1997 - 1996 - 197
	T. longus	a sa ang ang ang ang ang ang ang ang ang an		an de l'an anna air an tha an tha an							
TTARALAS AL	<u>T. lilliei</u>	, my , maari 4, van ja 437, marko 1421 kuul muu huk n 6, yaanalii ku h		an the Part of the Part of an all and the Particle Sources of Annual Conf.			a na mar ann an 1970 an 1996. Bhailte an 1997 a 1997 a na mar ann an 1997 a 1997 a na mar ann an 1997 a 1997 a				275 C. DIL WIT 797 D. PROVIDENT
EOUS	<u>R. senectus</u>	ana a ang kangyang ang kang ang kang kang kang kang kan		an 4 Maillead Anal La Guilt I Again (Anal Angain)					n an guai dhaan kuudoo konsoo konsoo ka shaan ka shaan	2.00 AND 10 MA	nanaron nanon annonan na chuigein 2 n
LATE CRETACEOUS	C. trip./T.pach.	9-96-989-989-998-998-998-998-998-999-999		, at our funk mandel by an and a surface was surface					annadara Cing garan (n. 1999) anna		
GR	<u>C. distocarin.</u>	u biyonanganaka, wanyo na kakatari wana kata telek terpa ya Pramitin		- LLARDER, CAL, ALE - MENDAND - MERIDAN IN			24 2680-004 - 2682 - 2693 - 2694 - 2694 - 2793 - 2694 - 2793 - 2694 - 2694 - 2694 - 2694 - 2694 - 2694 - 269		arang ng Tanang ng Tang		n ana kao amin'ny ten'ny faritr'i Gerard (
ubruth risch (1981).	<u>T. pannosus</u>	ana ang taon nang nang nang ng na ma		анул I или аланд на срока бала как и карали зава 			undarrighten agrintik kinistatus inder die Anton (der		n antical de la construcción de la	C ver 2008. udfilliger - 49-440	
	<u>C. paradoxa</u>	an ann an	·	ulingeringen offind its new and consider disording to		-1 are realized to the					
sno	<u>C. striatus</u>	94 - 14 - 14 - 14 - 14 - 14 - 14 - 14 -		ngga denmengkennen van nander kalen in 1931. dater te							
EARLY ETACEOUS	U. <u>C. hughesii</u>	and the contraction of the second second									
	L. <u>C. hughesii</u>	ana anan inina kana kana marakanana (kana kana kana kana kana kana k									
	<u>C. stylosus</u>										
Pre-	Cretaceous										
COMM	ENTS: L. N. aspen	rus "B" faoi	305	5 to 3140 f	leet;	L. N.	asperus "	A <sup>n</sup> fr	rom 3157' t	.o 331	5 feet.
	<u> 7,10, 22</u>	301 / x x	antan wenavar dara	ar y Lange (1966 - 41 o 1966 - 4 B-it) - 16 Bail (1966 - 16 Bail (1966 - 16 Bail)		e a, venç in syar havenî vî ekana	an falain sua mala an air a sin a dhuin da ha su an an an air an air an an air an an air an an air an air an a	- 10 THE HE'S THE	ernaan daag fi muu alaan ku alaa ku alaa ku alaa ku a		a an
RATI							je with zo		ecies of	spore	5 y
	pollen	and micropl CORE, COOD	ankte	on.							
	2; SWC or	or micropla CORE, POOR	CONF		emb L	age wit	h non-diag	3noot	ic spores	, pol	len .
	3; CUTTING	microplarkt S, FAIR CON	T) DEI		lage	with 2	rone specia	es of	either s	pores	and
	4; CUTTING	er micropla S, <u>NO COMP</u>			ge w.	ith nor	n-diagnest:	(c sj	ores, pol	len a	nd/ov
NOTE	micropl : If a sample ca		iene	i to one pa	rtic	ilar or	sne. theo s	59 er	try shoul	d bc	nade. •
	Also, if an en better confide	try is give	n a '	3 or 4 couf	iden	ad noti	un, an chi				
HATE	RECORDED EY: I.E.	S./ A.D.P.		nan an		D/	we bee.	1971		1996 - 1996 - 1997 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 -	a ya ka mana ka mata ka ka mana
DACA	SEVISED DY:		ss of the memory of	معرفو والمواطور الارتمان والمواصور	a				a na ang kanang kana	an an san sa	ي. معمد بن الاست
										eleta atu	a marta de La

		<b>T</b> 3 3	
RΔ		1 N	
	5	10	

GIPPSLAND

DATE

.

ELL		9-1			ELE	VATION	+31 fe	et	•		
			GHEST					EST I		••••••	
ACE	PALYNOLOGIC ZONES	Preferred Depth	Rtg.	Alternate Depth	Rtg.	2 way time	Preferred Depth	Rtg.	Alternate Depth	Rtg.	2 way time
-0J	<u>P. tuberculatus</u>										
<u> </u>	U. <u>N</u> . <u>asperus</u>										
	M. <u>N</u> . asperus	. 3055	0				3140	0			
	L. <u>N. asperus</u>	3157	1.				33/5	1			
NE	P. asperopolus	•									
EOCENE	U. <u>M</u> . <u>diversus</u>										
	M. <u>M. diversus</u>								· ~		
	L. <u>M. diversus</u>								1		
NE	. <u>L. balmei</u>		-								
PALEOCENE	L. <u>L. balmei</u>										
PAI	<u>T. longus</u>										
	<u>T. lilliei</u>										
I V CRETALEOUS	<u>N</u> . <u>senectus</u>										
L ETA.	<u>C. trip./T.pach</u>										
CR	<u>C</u> . <u>distocarin</u> .										· · ·
, <del>Marilland</del>	<u>T. pannosus</u>										
E	ARLY CRETACEOUS									-	
F	CRETACEOUS										
	T. D.	3380					<u>  </u>		·		
COM	MENTS: <u>Defla</u>	ndrea ex	tense	a Dinofla	gella	ite Zoi	ne 3055	(1)	- 3140	(1)	
•											
	• <u></u>	····									····
RAT	pollen	and micro	plankt	ion.	*		e with zone				
	pollen	or microp	lankto	on.			h zone spec				
• • •	and/or	microplan	kton.				h non-diagr				
ت.	3; CUTTIN	GS, FAIR C	ONFIDE	ENCE, assem	blage	e with z	one species	of	either spo	ore an	ıđ
	4; CUTTIN	GS, <u>NO CON</u> lankton.	FIDENC	CE, assembl	age v	vith non	-diagnostic	spo	res, polle	en and	l/or
NOT	E: If a sample c Also, if an e better confid	ntry is gi	ven a	3 or 4 cor	nfider	nce rati	ng, an alte	ent rnat	ry should e depth wi	be ma th a	ide.
DAT	A RECORDED BY:						Dec. 197	!		<u>;</u>	
	A REVISED BY: _A					DATE	January.	197	5		
	NI- 0 215 12/72										• • <b>•</b> - <b>P</b>

$\begin{array}{c c c c c c c c c c c c c c c c c c c $	ne na ser en antiser anna an anna an an anna anna anna ann		•							•				-	of 3. OPER -
nf1 2001002000200200TAMEENINGS $2 \cdot 7 \cdot 7$ $9 \cdot 9 \cdot 7$ $9 \cdot 9 \cdot 7$ $2 \cdot 9 \cdot 7$ $2 \cdot 7 \cdot 7$ I.G.Bohovskilla et, zayori $* + * + * + 1$ $1 \cdot 1 \cdot 1$ $1 \cdot 1 \cdot 1$ $1 \cdot 1 \cdot 1$ S.Gehalina universa $* + * + * + 1$ $1 \cdot 1 \cdot 1$ $1 \cdot 1 \cdot 1$ S.Gehalina universa $* + * + * + * + 1$ $* + * + * + * + 1$ $* + * + * + * + * + * + * + * + * + * +$	CAOPER - 1								1	SPE	CIES	LIST.			
2       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7       7			1300	150	0			2000		£		2500			30
FLACENTICS 1. (Hobbigenia awaii + + + + + + + + + + + + + + + + + +			m m	A.d.d.A.A				 1 /71	- *  p	יישיייייישייי וקז וקז		^ ריי ריי	 1		
9.Globurdalia ef, myeri       ++       ++       ++         1. Othipurinaliza brilabura       ++       ++       ++         1. Solution induces brilabura       ++       ++       ++         1. Solution and solution       ++       ++       ++         1. Solution and solution       ++       ++       ++         1. Solution and solution       ++       ++       ++         2. Solution and solution       ++       ++       ++         3. Solution and solution       +       ++       ++         1. Solution and solution       +       +       +       ++         1. Solution and solution       -       +       +       +         1. Solution       +       +       +       +       +         1. Solution       +       I       I       I       I       I         1. Solution       +       I       I       I       I       III       III         1. Solution       +       I       I<	PLANKTONICS		· Windows and the second							na sahan manangan san dara	*			ayan wa salata ka sala	
3.0.0mline nuivera       *****       I       ****       I       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       ****       *****       *****       *****       *****       *****       *****       *****       *****       *****       *****       *****       ******       ******       ******       *********       *************       **************<	1. Clobigerina woodi		~~ ~ <u>~</u> ~	-1	+ I I	II	I	in			~ ÷	+ + ++I	1		
b.Clobigorinaliza brizannaiza         c.Clobigorinaliza removedara         c.Clobigorinaliza comportara         c.Clobigorinaliza controliza         c.Llobigorinaliza controliza         c.Llobigorinaliza controliza         c.Llobigorinaliza controliza         c.Llobigorinaliza         c.Llobigorinaliza         c.Llobigorinaliza         c.Llobigorinaliza         c.Llobigorinaliza         c.Llobigorinaliza         c.Llobidicidar monoglabra         t.Llobidicidar monoglabra	2.Globorotalia ef. mayeri	•		•	* *			1							
<pre>5.00 Starevisiia barisaensis 6.0. opina opina 7.00 Starevisia comportura 8.00 Starevisia comportura 9.0 Assignment on the stare 9.0 Assignment of the stare 9.0 Assig</pre>					40 et.	·}• ·}•	Ŧ	* *			•				
1       6.0. optim optim         7. Globagorina camportarna       7. diobagorina camportarna         8. Obberotalia chipolenzia       1         10. Globarina camportarna       1         11. Globarina camportarna       1         12. Globarina camportara       1         13. Globarina camportaria       1         14. Globarina camportaria       1         15. Globarina camportaria       1         16. Globarina camportaria       1         17. Globarina camportaria       1         18. Globarina camportaria       1         19. Globarina camportaria       1         19. Globarina camportaria       1		•				4		1/2 - 3	<b>h</b>		*	+ + +	*	•	
2. 7.010 bigrinn cuopertura       7.010 bigrinn cuopertura       7.010 bigrinn cuopertura         3. 6.010 bigrinn cuopertura       9.000 bigrinn cuopertura       7.010 bigrinn cuopertura         10.0110 guendolina cuopertura       11.01110 guendolina cuopertura       7.010 bigrinn cuopertura         10.0110 guendolina cuopertura       11.01110 guendolina cuopertura       7.010 bigrinn cuopertura         11.0110 guendolina cuopertura       11.01111111111111111111111111111111111		н ст. н			· •		. •	÷ + •	+			il.			
1.       8. Colloboratalia extans         9. Colloboratalia extansi       10. Chiloguratia ethypicatia         10. Chiloguratia and ooverlage       11.         11. Chiloguratia and ooverlage       11.         CLO. Maximum and ooverlage       11.         13. A. prosolligera       11.         14. C. profilemide       11.         15. C. perforatus       11.         23. G. Maximum creasetua       11.         23. C. provi       11.         23. C. provi       11.         23. C. provi       11		•		· .			•					?			
3. dassignifiella chipolensis         10. Chiogenebelina cardesensis         11. Cloburolalia         12. Cloburolalia         13. Cloburolalia         14. Cloburolalia         15. A. vibelinda         16. Cloburolalia         11. II. II. II. II. II. II. II. II. II.		•		• •	•				I			1 ?	II I	IIIIIIII	
11.412.02000 x111 testarugosa       11.41       11.41         12.61.0200 x0110 x1028 - A       11.41       11.41         CLIO, EDENMINUMES - A       11.41       11.41         CLIO, EDENMINUMES - A       11.41       11.41         CLIO, EDENMINUMES - A       11.41       11.41         15.A. vibrinola       11.41       11.41       11.41         15.0. vibrinola       11.41       11.41       11.41         21.6. paratus       11.41       11.41       11.41         22.7. dinaa       11.41       11.41       11.41         23.6. baxenois       11.41       11.41       11.41         23.7. avacaa       11.41       1	15 S.Globorotalia extans			•		•	_			••			1		H-1 [++
11.11.11.11.11.11.11.11.11.11.11.11.11.	18 9. Cassigerinella chipolensis		•		· .		-				• • •		i		*
12.611.00/metha and concoldes       11         CU10. Exception and concoldes       11         CU10. Exception       11         13.61.00/metha and concoldes       11         CU10. Exception       11         13.61.00/metha and concoldes       11         14.61.00       11         15.6. within and the	10 6 11 Cloberstelle testerman	;	· . ·			÷		1		¥ .	1	·			
Chlo, BENMUGNIOS - A 13.4 normal includes metroglabra 15.4, vitrinoda 16.6 bioiden medioeris 1 II IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII											1				
13.Anow.lineidos macroglabra+ I + +14.A. procolligora15.A. wibrinoda15.A. wibrinoda15.A. wibrinoda15.A. wibrinoda15.A. procolligora15.A. wibrinoda15.A. procolligora15.A. procolligora15.A. wibrinoda15.A. procolligora15.A.															- [ ] de
14.A. probabligera 15.A. victorioda 15.A. victorioda 15.A. victorioda 15.A. victoriodaIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII <t< td=""><td></td><td>•</td><td><b>.</b></td><td></td><td>ι. Τ</td><td></td><td></td><td></td><td></td><td>•</td><td></td><td></td><td></td><td></td><td></td></t<>		•	<b>.</b>		ι. Τ					•					
15.A. vibinola       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I					P 1 .	£	· 7					T	L	TIT I	
16.Cibicidos medioerisIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>ſ Ĺ</td><td>יאדיראבידי</td><td>1 1 1 1 1 1 1</td></t<>													ſ Ĺ	יאדיראבידי	1 1 1 1 1 1 1
17.6. opacus       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I <t< td=""><td></td><td>t de la companya de l</td><td>II</td><td>τ</td><td>III</td><td>ττ</td><td>TT.</td><td>T ·</td><td>•</td><td>χ.</td><td></td><td>1</td><td></td><td>•</td><td></td></t<>		t de la companya de l	II	τ	III	ττ	TT.	T ·	•	χ.		1		•	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		•			ĪĪĪ	r ī	TI		TAT .	I I	III	minn			No.
19.6. subhaidingeriIIIIIIIIIIIIIIII20.6. vidgoriensis21.6. perforatus22.0. thiara23.0. brevoralis24.3. Carreria "pseudoconvexa"25.3. brevoralis26.3. pointdes repandusCM.0. ENTHONICS - B27.81shidum erassatun23.6. arenea24.3. arenea25.3. chapani25.4. arenea26.3. pointdes repandusCM.0. ENTHONICS - B27.81shidum erassatun28.8. chapani29.2. parri31.8. creepinae32.8. chapani23.8. chapani24.4. mini till till till till25.9. parri31.4. seespinae32.8. chapani23.8. micecnica32.8. orespinae32.8. orespinae32.8. orespinae32.8. orespinae32.8. orespinae32.8. orespinae32.8. brocontalia elathrata123.8. brocontalia25.8. orespinae32.8. orespinae33.8. micecnica34.8. hovehinå35.8. oreasiaurraC35.9. orassiaurraC36.9. D - E - ? ? S H $\{S_{1-1}, S_{12}, V_{12}, V_$		•			I					'i i					i so
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		•			II	1 1	II	I I	I			•			
22.0. thiara         25.0. brownalis         25.0. brownalis         24. Karreria "pseudoconvexa"         Gyroidimoides zealandica         26. Korise ropandus         CMLO. ENNTHONICS - B         27. Elybidium crassatum         28. E. arenea         29. E. chapmani         29. E. chapmani         29. E. chapmani         21. I I I I         23. Notorotalia elathrata         1 I I I I I I I I I I I I I I I I I I I	20.0. victoriensis	•				~			[]						
23.6. brevoralis 24. Karreria "pseudoconvexa" (1 ) II II II III (2 ) Karreria "pseudoconvexa" (2 ) Starreria "pseudoconvexa" (2 )		4		•							;	ft III	JUI	IIIIIIII	JUJUIT-2.
24. Xarroria "pseudoconvexa"         Gynoidinoides zealandica         26. Bronides repandus         CM.C. EENTHONICS - B         27. Sliphidium crassetum         23. E. arenca         23. E. arenca         24. Xarroria "pseudoconvexa"         1 III III         25. Chapmani         26. parri         27. Sliphidium crassetum         28. arenca         29. E. chapmani         29. E. chapmani         21. IIII         22. Notorotalia elathrata         23. Notorotalia elathrata         23. Notorotalia elathrata         25. N. miccenica         34. N. hovehinå         35. N. crassiaurra         C         C         D         C         D         C         D         D         D         C         D         C         D         D         D         D         D         D         D         C         D         D         D         C    <				. •							•		I	•	
Gyroidinoides zealandica         26.Bronides repandus         CALC. EEXTIONICS - B         27.Elphidium crassotum         28.e. arenea         29.E. chapmani         29.E. chapmani         31.E. crespinae         32.Notorotalia clathrata         1111         1111         1111         1111         1111         1111         1111         1111         1111         1111         1111         1111         1111         1111         1111         1111         1111         1111         1111         1111         1111         1111         1111         1111         1111         1111         1111          11111         1111         1111         1111         1111         1111         1111         1111         1111         11111         11111         11111		•													IIIII
26.Pronides repandus CALC. DENTHONICS - B       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I <td< td=""><td></td><td></td><td>•</td><td></td><td></td><td>•</td><td></td><td>•</td><td></td><td>•</td><td></td><td>• .</td><td>ł</td><td></td><td></td></td<>			•			•		•		•		• .	ł		
CALC. EENTHONICS - B         27.Elphidium crassatum         28.E. aronoa         29.E. chapmani         29.E. chapmani         31.E. crespinae         32.Notorotalia elathrata         32.Notorotalia elathrata         33.N. mioconica         34.N. hovchinå         35.N. erassiaurra         C         C         D         D         D         D         D         D         D         D         D         C         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D         D <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>,</td><td>•</td><td></td><td></td><td></td><td></td><td>4</td><td>I+</td><td>4 11 3</td></t<>							,	•					4	I+	4 11 3
27. Elphidium crassatumIIIIII23. E. aronea $+ +$ $+ +$ $+ +$ IIIII29. E. chapmani $+ +$ I $+ +$ IIIII29. E. parriIIIII31. E. crespinaeIIIII32. Notiorotalia elathrataIIIII33. N. miocenicaIIIIIII34. N. hovehindIIIIIIIII35. N. erassingurraCDDE-CDDE-?H10. JIIIII11. +IIIII12. NotorotaliaIIII13. N. miocenicaIIII14. HIIII15. N. erassingurraCDDE14. HIIII15. N. erassingurraIII15. N. erassingurraIII15. N. erassingurraIII16. IIII16. IIII17. IIII18. IIII19. IIII19. IIII19. III19. III19. III<	20. Spondes repandus		•									+ +			
23.E. aronea 23.E. chapmani 29.E. chapmani 29.E. garri 31.E. crespinae 31.E. crespinae 31.E. crespinae 31.S. orespinae 31.N. miocenica I I I I I I I I I I I I I I I I I I I			r r	~	<b>~~~</b>		. •				·				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			یک یک	a <sup>l</sup> a											
30.E. $31.E.$ $crespinaeIIII31.E.31.E.crespinaeIIII31.E.32.Notorotalia clathrataIII32.Notorotalia clathrataIIII32.Notorotalia clathrataIIII33.N.34.N.34.N.55.N.crassineurraIIICCDDECCDDECCDDECCDDECCDDECCDDECCDDECCCDC$		•			aja uja		٣	् 	r - ·		. т.	TTLLL			
31.E. crospinaeIII I32.Notorotalia elathrataIII I32.Notorotalia elathrataIII I33.N. miocenicaIII IIIIII34.N. hovehind35.N. crassimurraC $C$ C $C$ </td <td></td> <td>•</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1 .</td> <td>יר די ד</td> <td></td> <td>1</td> <td></td> <td>•</td> <td></td>		•							1 .	יר די ד		1		•	
32.Nożorotalia elathrata       I I I I I I I I I I I I I I I I I I I		•	• •					•   · · · ·		ىلە	. 1	11 1 TTT 1		بالمراجل المراجل	
33.N. mioconica       I II I III I III       III + + IIIIII++ +         34.N. hovehind       II I I III + + + IIIIIII         35.N. crassicurra       C       C         C       C       D         D       D       E         C       C       C			TT	ĩ	ĩ								<b>"  "</b>	ግግ ግግ <b>"</b>	-1
34. N. hovchind 35. N. crassimurra C $D = E = ??$ $H = 10 I 0 J$			ΪĨ	ï	III	II		III	τ	4· 4	II	IIII++	+		
$\frac{1}{35} N, \text{ crassimurra}$									a 1			1			
$C \qquad		•								.`	T	ITTT		4 4 ĬĬ	altar 1
							ulezan timi minishini timugan jugi	o n		<u>р</u>	0 0		10	()	
				. *		,		6	Ê	ز مسرل	L 240 7	5	19	1-1 S	186 1 10
	۰ <b>۰</b>							-1 ·	_ ►	•	•	្តា	101	Ċ,A	

GROPER - 1			· (	GROP	'ER —	1.	SPECIE	s L	15 T				205.	3.
Sheet - 11 of 2 sheets.	•	*	1500	- Aurona and a star			2000	• •	•		. 00		30	00
		T <u>T</u>	<u> </u>	<u>r · r</u>	T	<u> </u>		<u>n</u>	T_	<u> </u>	i n	<u>17 - 17.1</u>	A. YMANA	LLLL.
CALC. EENTHONICS - C	• •									•		1	<u>,</u>	
36.0perculina victoriensis 37.Amphistegina lessonii 38.Calcarinarackayi 39.Carpentaria rotaliformis						X I X X	111 1 111 + +		I			•	I	
CALC. MENTHONICS - D 40.Cassidulina subglébosa 41.Cassidulinoides sp. * 42.Spheavoidina bulloides.	•	• •			•	- - -				and the second	**** * IIII	+ +1) ++ LIII:	⊷	i++ vII
43.Efflicuia sp. CALC. BENTHONICS - E 44.Bolivina nobilis 45.B. cf. zedirecta		•		II				• • • • •	•				JII	
46.B. anastomosa-pontis 47.Bulimina truncanella 48.Euuvigerina (Hofkeruva) n 49.7Siphouvigerina conarien		· · ·		•		-		<b>}-</b>				l II		LIIJ JII LI++
50.Anglogenerina ototara 51.A. sp.? 52.Trifarina bradyi CALC. BENTHONICS - F	•	• • •				•			· · ·	•		•		LIII T+II NIII
53.NODOSARIDS 54.Vaginulinopsis gippsland 55.POINMORVHINIDS	icus	* + *		nge nge nge	* *		- 4 4-4-4-4 -	çç.	÷	+ ·	*{****		*+ +I][+ ++ ++	
CALC. BENTHONICS ~H . 56.MILLOLIDS	•			•				¥-	•					
OTTER FAUNA BRYOZOA		* * *	•	III	II	II	ļ III	I I	I	I	inn	4-	II	
SPONCE SPICULES MOLLUSCA	e e	Spelanum a druge og er an en ger	: 		•						}		I	
· · · · · · · · · · · · · · · · · · ·					С		1950 9	2090 E	- E -	???	2520 H	0C02	2950 ·	5 <u>75</u> 2
		<b>Constanting of the Board of the One</b>	and a subscription of the	,,				ł	۰		<u> ;</u>	1		<u> </u>
									• .	• •		•	• •	

$\frac{\text{GROPER} - 1}{\text{Elect} - 3}$		1500	GROPER-1. 2000	Species List, 2500	<b>3 of 3,</b> 3000
		τρ. τ <u>ρ</u> . τ <mark>η</mark> . τ	<b>1,1 1</b> , <b>1,1 1,1</b>		TILL LEUTIDE
ARENACEOUS DENTHE 57.Textularia semicari 58.T. sp.? 59.Pseudoclavalina rud 60.Gaudyrina couvexa 61.G. heywoodensis	nata	• • • • I I • • • • • I I • •	1	+ I   +   + I   -   + + + + ↓ ]       +         +	
62.Siphotextularia fin 63.Bolivinopsis cubens 64.Clavulinoides vivto 65.Abitosphaeroidina sp 66.Haplophragmoides sp 67.Bathysiphon sp. 68.Ammodiscus parri.	is riensis haeroidiniformis			LIII ID  +LJI    +++++ +	+ + 1111 + + 1111 + + + 111 + + 111 1 1
			C 19:0	20.00 20.00 20.00 20.00 20.00 20.00 20.00 20.00 20.00 20 20 20 20 20 20 20 20 20 20 20 20 2	. I-1 68 J 1
			I		
· · · · ·					
2800 2875 2900	samples at:- ; 2806; 2853 fro from core-4. ; 2920; 2935; 29 ; 2970; 2982 fro	51 from core-6.	Υ 📼	side wall cores at:- 1306; 1388; 1412; 1550;1600; 1700; 1800; 1900; 2000; 2100; 2200; 2300; 2400; 2500; 2600; 2665 & 2790.	
3009	); 3015; 3024; 30 ); 3075; 3100 fro	56 from core-8			
					•

Sheet - J

This is an enclosure indicator page. The enclosure PE603422 is enclosed within the container PE906095 at this location in this document.

The enclosure PE603422 has the following characteristics: ITEM\_BARCODE = PE603422 CONTAINER\_BARCODE = PE906095 NAME = Mud Log BASIN = GIPPSLAND PERMIT = VIC/P2TYPE = WELL SUBTYPE = MUD\_LOG DESCRIPTION = Mud Log (Grapholog), enclosure from Well Summary, for Groper-1 REMARKS = DATE\_CREATED = DATE\_RECEIVED =  $W_NO = W538$ WELL\_NAME = GROPER-1 CONTRACTOR = CORE LABORATORIES AUSTRALIA LTD CLIENT\_OP\_CO = ESSO AUSTRALIA LIMITED (Inserted by DNRE - Vic Govt Mines Dept)

This is an enclosure indicator page. The enclosure PE603421 is enclosed within the container PE906095 at this location in this document.

The enclosure PE603421 has the following characteristics: ITEM\_BARCODE = PE603421 CONTAINER\_BARCODE = PE906095 NAME = Induction Electrical Log (Competion Log) BASIN = GIPPSLAND PERMIT = VIC/P2TYPE = WELLSUBTYPE = COMPLETION\_LOG DESCRIPTION = Completion Log including Induction-Electrical Logs (enclosure from Well Summary) for Groper-1 REMARKS =  $DATE_CREATED = 06/01/1969$ DATE\_RECEIVED =  $W_NO = W538$ WELL\_NAME = GROPER-1 CONTRACTOR = SCHLUMBERGER CLIENT\_OP\_CO = ESSO AUSTRALIA LIMITED (Inserted by DNRE - Vic Govt Mines Dept)

This is an enclosure indicator page. The enclosure PE603420 is enclosed within the container PE906095 at this location in this document.

The enclosure PE6 ITEM BARCODE :	03420 has the following characteristics: = PE603420
CONTAINER BARCODE :	
—	= Formation Density Log
	= GIPPSLAND
	= VIC/P2
	= WELL
	= WELL_LOG
	= Compensated Formation Density Log
	(enclosure from Well Summary) for
	Groper-1
REMARKS =	±
DATE CREATED =	
DATE RECEIVED =	
—	- = W538
WELL NAME =	
—	- GROPER-I = SCHLUMBERGER
CLIENT_OP_CO =	= ESSO AUSTRALIA LIMITED
(Inserted by DNRE -	- Vic Govt Mines Dept)

This is an enclosure indicator page. The enclosure PE603418 is enclosed within the container PE906095 at this location in this document.

The enclosure PE603418 has the following characteristics: ITEM\_BARCODE = PE603418 CONTAINER\_BARCODE = PE906095 NAME = Compensated Sonic Log BASIN = GIPPSLAND PERMIT = VIC/P2TYPE = WELLSUBTYPE = WELL\_LOG DESCRIPTION = Borehold Compensated Sonic Log for Groper-1 REMARKS =  $DATE_CREATED = 06/01/1969$ DATE\_RECEIVED =  $W_NO = W538$ WELL\_NAME = GROPER-1 CONTRACTOR = SCHLUMBERGER CLIENT\_OP\_CO = ESSO AUSTRALIA LIMITED (Inserted by DNRE - Vic Govt Mines Dept)

This is an enclosure indicator page. The enclosure PE906097 is enclosed within the container PE906095 at this location in this document.

The enclosure PE90	6097 has the following characteristics:
ITEM_BARCODE =	PE906097
CONTAINER_BARCODE =	PE906095
NAME =	Time-Depth Curve
BASIN =	GIPPSLAND
PERMIT =	VIC/P2
TYPE =	WELL
SUBTYPE =	VELOCITY_CHART
DESCRIPTION =	Time-Depth Curve (enclosure from Well
	Summary) for Groper-1
REMARKS =	
DATE_CREATED =	01/09/1971
DATE_RECEIVED =	
W_NO =	W538
WELL_NAME =	GROPER-1
CONTRACTOR =	
CLIENT_OP_CO =	ESSO AUSTRALIA LIMITED
(Inserted by DNRE -	Vic Govt Mines Dept)

This is an enclosure indicator page. The enclosure PE601500 is enclosed within the container PE906095 at this location in this document.

The enclosure PE60 ITEM_BARCODE :	1500 has the following characteristics:
CONTAINER BARCODE =	
_	Continuous Dipmeter
	GIPPSLAND
PERMIT =	VIC/P2
TYPE =	
SUBTYPE =	WELL_LOG
DESCRIPTION =	Continuous Dipmeter, scale 1:200,
	(enclosure from Well Summary Folder)
	for Groper-1
REMARKS =	:
DATE_CREATED =	: 06/01/1969
DATE_RECEIVED =	:
W_NO =	• W538
WELL_NAME =	Groper-1
CONTRACTOR =	Schlumberger
CLIENT_OP_CO =	ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

This is an enclosure indicator page. The enclosure PE906096 is enclosed within the container PE906095 at this location in this document.

The enclosure PE906096 has the following characteristics: ITEM\_BARCODE = PE906096 CONTAINER\_BARCODE = PE906095 NAME = Geological Cross-Section BASIN = GIPPSLAND PERMIT = VIC/P2TYPE = WELLSUBTYPE = CROSS\_SECTION DESCRIPTION = Geological Cross-Section (enclosure from WCR) through Groper-1 REMARKS =  $DATE_CREATED = 21/01/1969$ DATE\_RECEIVED =  $W_NO = W538$ WELL\_NAME = GROPER-1 CONTRACTOR = CLIENT\_OP\_CO = ESSO AUSTRALIA LIMITED (Inserted by DNRE - Vic Govt Mines Dept)