Natural Resources and Environment

AGRICULTURE • RESOURCES • CONSERVATION • LAND MANAGEMENT

WCR - SUMMARY
MARLIN-2
(W500)

GIPPSLAND BASIN
OFFSHORE

1 Folio No	2 Referred to	3 Date	4 Clearing Officer's Initials	1 Folio No.	2 Referred to	3 Date	4 Clearing Officer's Initials
	PEP/38						

FILE COVER INSTRUCTIONS FOR ACTION OFFICERS

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

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

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

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

REGISTRY MUST BE NOTIFIED OF ANY FILE MOVEMENTS BETWEEN OFFICERS

LOCATION

EARLIER FILES	LATER FILES	RECORDS DISPOSITION

SUSPENDED GAS WELL. SPUD – 30-5-66 COMPLETED 3-11-66. 38° 15' 59"S 148° 10' 45"E

MARLIN – 2 ESSO. GLOMAR III STEPOUT. 500

T.D. 10,007 W.D. 188'.

✓	IES	Run 1.	762 – 2307.	Separate Logs 2" and 5"
✓	"	" 2.	2250 – 5413.	" " 2" " 5"
✓	"	" 3.	5346 – 9481	" " 2"
✓	BHCS	" 1.	760 – 2298.	" " 2" " 5"
✓	"	" 2.	2250 – 5404	" " 2" " 5"
✓	"	" 3.	5347 – 9471.	" " 2" " 5"
✓	MLL	" 1.	762 – 2310	" " 2" " 5"
✓	"	" 2.	3750 – 5413	" " 2" " 5"
✓	"	" 3.	5347 – 9480	" " 2" " 5"
✓	LL	" 1.	2251 – 5412.	" " 2" " 5"
✗	C.D.M.	" 2	2241 – 5411	" " 2" " 5"
✓	"	" 3.	5342 – 9454.	" " 2" " 5"
✓	"	" 3	" "	20" to 100'. + 1C

COMPLETE SUITE LOGS LOG. 080688

✓ Temperature Log. 2000 – 5265.

✓ Core Lab. Mudlog. 2320 – 9995.

✓ " " Complete Coregraph 470 – 9475.

— Cores N° 1 – 14.

✓ Core Descriptions N° 1 – 13. In Weekly separate Report

✓ Lithological Summary of Formation. In " "

✓ Well Completion Report + 2 unrestricted copies

✗ " " Log

✓ Velocity Survey with TDC

✗ Foraminiferal Sequence by D. Taylor.

✗ Palaeontology Report " " " . Plus revision.

✗ Palynological Report by L. Stover & A. D. Partridge.

Testing Data

~~✗ FCS Test Showing Gauges.~~

✗ Weekly Reports.

S.W.C. Cut 29. Rec. 28. Descriptions ?

Cuttings received into store 15/10/74. 1000 – 9980'.

T.L. 23/10/73 No IES Rs 5" 5346-9481.

C.B. No C.D.M. R1. 760 – 2241.

T.L. 23/10/73. No C.B.L/V.D.L R1 3500 – 5370

No T.L. No record S.W.C. description.

Cores received?

Director Fisheries DF

Director Quality Assurance DQA

Director Agribusiness DA

WELL SUMMARY MARLIN-2 (W500)

CONTENTS.....

APPENDIX 1.0

PE906917

This is an enclosure indicator page.
The enclosure PE906917 is enclosed within the container PE905639 at this location in this document.

The enclosure PE906917 has the following characteristics:

ITEM_BARCODE	= PE906917
CONTAINER_BARCODE	= PE905639
NAME	= Well Card
BASIN	= GIPPSLAND
PERMIT	= PEP/38
TYPE	= WELL
SUBTYPE	= WELL_CARD
DESCRIPTION	= Well Card for Marlin-2
REMARKS	=
DATE_CREATED	= 3/11/66
DATE_RECEIVED	=
W_NO	= W500
WELL_NAME	= MARLIN-2
CONTRACTOR	=
CLIENT_OP_CO	= ESSO EXPLORATION AUSTRALIA PTY LTD

(Inserted by DNRE - Vic Govt Mines Dept)

APPENDIX 2.0

RESTRICTED COPY. NOT AVAILABLE FOR 500. GENERAL RELEASE.

WELL COMPLETION REPORT

ESSO MARLIN ~~B-1~~ (EGS - 5).
MARLIN - 2

TYPE OF WELL First field confirmation well - Marlin oil and gas field.

PURPOSE OF WELL To confirm the oil and gas columns discovered in Marlin A-1 (EGS-4) and hence, in conjunction with the seismic mapping, the size of the field and its reserves.

WELL STATISTICS

Status: Suspended gas well.

Location: Latitude 38° 15' 59" S
Longitude 148° 10' 45" E
Shot Point 1084 - Line ET.61

Water Depth: 198 feet

Spudded: May 30, 1966.

Completed: November 3, 1966.

Total Depth: 10,007 feet

Casing:

30"	@	334 feet
20"	@	760 feet
13-3/8"	@	2251 feet
9-5/8"	@	5347 feet

Plugs: Drill pipe collars and core barrel left in hole with top of fish at 5334 feet, and bottom at total depth. Perforate through drill pipe and squeeze at the following depths.

8956 to 8961 feet with 200 sks
8245 to 8250 feet with 100 sks
6815 to 6835 feet with 100 sks

Normal Plugs

5190 to 5327 feet with 51.5 sks
2115 to 2400 feet with 110 sks
300 to 500 feet with 70 sks

All production perforations squeezed (See testing).

Coring: Fourteen cores were cut for a total footage of 383 feet and a recovery of 278.5 feet, or 73%. Twenty-nine sidewall cores were cut - twenty-eight recovered.

Mudlogging: Core Lab from 2320 - 10,007 feet, total depth.

Electric Logs:

IES	762 to 9841 feet
SGRC	760 to 9471 feet
MLL	762 to 9480 feet
CDM	760 to 9457 feet
LL	2251 to 5412 feet
GR/CCL	3500 to 5370 feet

Hydrocarbons:

Interval	Gross	Net	Rating
4730-5093	363	+298	Gas (test).
5093-5153	60	14	Good oil show (core).
8053-8058	5	5	Hydrocarbon show (logs) probably gas
8686-8699	13	13	Hydrocarbon show (logs) probably gas
9033-9481	448	26	Oil show? Very tight.
9865-9876	11	?(no E log)	Good gas show (mud log).
9960-9970	10	?(no E log)	Good gas show (mud log).
9980-9995	15	?(No E log)	Good gas show (mud log).

During drilling operations below 9500 feet, the three zones shown above had good shows of gas in porous sandstone; the first two cutting the mud and necessitating increases of mud weight to control. At total depth of 10,007 feet, while

pulling out to secure for weather, two moorings broke and the ship was blown off location and the drill pipe and marine riser pulled in two. On repositioning the ship over the well, gas was noticed blowing out in the sea, initially over an area of 150 feet in diameter and to a height of four feet. There was also a noticeable oil slick present. This blow diminished in intensity until only about 30 feet in diameter when the well was killed. Although we have no knowledge of the amount, or composition of this gas, it is probably coming from this section drilled below 9500 feet.

Testing:

Zone 1 - 5096-5107 feet - 4 shots/foot

Time	Choke	F.T.P.	Sep.Press.	MMCF/D	Cond.
2 hrs.	½"	1127	600	5.76	231 bbl/day
2 hrs.	½"	1220	670	6.25	248 bbl/day

Cond. - 76° API. No oil. No water.
Interval squeezed.

Zone 2 - 5147 - 5152 feet - 2 shots/foot
Swabbed to 3000 feet. Well not flowing. Bottom hole sampler recovered water of salinity 5300 ppm NaCl. No gas. Attempted to pump in to formation without success. Interval not squeezed.

Zone 3 - 5135-5149 feet - 4 shots/foot (Incl. Zone 2).
Swabbed to 3200 feet. Well came in flowing water with slight trace of oil on water in initial stages. On test, well flowed water and some gas without oil. Water rate of 775 bbl/day. Salinity of water 4200 ppm NaCl. No oil. Gas rate 900 cubic feet/hour = 21 MCF/D. Flowing tubing pressure 60-86 psi. Zones 2 and 3 squeezed.

Zone 4 - 5102-5117 feet - 4 shots/foot
Swabbed to 2500 feet without fluid entry. Re-perforated 5102-5117 2 shots/foot. Swabbed to 4500 feet. No fluid entry. Interval not squeezed.

Zone 5 - 5096-5107 feet - 2 shots/foot
Well flowed gas. No oil. No water. No H_2S. Rate of 6.0 MMCF/D. Condensate 259 bbl/day. 74° API. F.T.P. 1302 psi. Zones 4 and 5 squeezed.

Gas analyses from Zones 1 and 5 show that the gas and condensate have a similar type composition to the analysis of the gas zones tested in A-1, apart from a very small amount (up to 14 ppm) of H_2S (probably from coal) which was not detected in the A-1 well.

GEOLOGY

STRATIGRAPHY

Formation	Top	Bottom	Thickness	Predicted Top
Water	Sea level	198	198	
Pleistocene-Miocene	-198	4260(-4229)	4031	
Lakes Entrance Fm.	4260(-4229)	4730(-4699)	470	4590(+330)
Latrobe Valley Delta Cx.	4730(-4699)	T.D. +	5277 +	4910(+180)
Eocene-Paleocene	4730(-4699)	9033(-9002)	4303	
Gas-Oil	5093(-5062)?			
Oil-Water	5153(-5122)?			
Upper Cretaceous	9033(-9002)		974+	

LITHOLOGY

No sample returns above 2320 feet.

Gippsland Formation - Miocene

2320-4260 feet Marl; light grey, soft, fossiliferous, puggy, trace of loose, quartz grains.
Calcareous Mudstone; light grey, soft, fossiliferous, trace of pyrite and glauconite, and few carbonaceous flecks, dense.

Lakes Entrance Formation - Oligocene

4260-4730 feet Calcareous Mudstone; light grey, soft, fossiliferous glauconitic, pyritic; becomes more glauconitic and pyritic near base.

Latrobe Valley Delta Complex - Eocene, Paleocene, Upper Cretaceous

4730-10,007 feet

4730-5500 ft. Interbedded sandstone, siltstone, shale, and coal. Sandstone; dominant. Sand percentage 72%. Light grey, quartzose, very fine granule, mainly medium-coarse, generally poorly sorted, sub-angular to sub-rounded, carbonaceous and micaceous flecks in parts, and generally loose. Kaolinitic matrix in part. Generally good porosity and excellent permeability.

Siltstone; brown grey, dense, carbonaceous, micaceous, non-calcareous.

Shale; brown grey - olive grey, carbonaceous, waxy lustre, fairly hard.

Coal; black with conchoidal fracture.

5500-6800 ft. As for 4730-5500 ft. with Dolomite and Dolomitic sandstone beds. Dolomite; tan-brown-dark-brown, hard.

Dolomitic sandstone; brown, dark brown, dense, tight, fine to medium, mainly fine.

Also increase of clay particles in the sandstone present in this interval, and lower percentage of sand. Sand percentage approximately 42%. Some of the sandstone is calcareous.

6800-9033 ft. Interbedded sandstone, siltstone, shale and coal with thin beds of dolomite and dolomitic sandstone.
Sandstone; light grey-medium grey. Made up dominantly of quartz, but also has some lithic fragments and white clay matrix (? weathered feldspar) present in parts, very fine to medium, mainly fine to medium, calcareous, angular-sub-rounded, carbonaceous and micaceous in part. Mostly fairly well compacted with fair to good porosity and poor to fair permeability.

Approximate sand percentages 6800-8510 = 12%; 8510-9033 = 63%.

Siltstone; brown - brown grey carbonaceous and micaceous, grades both into silty sandstone and silty shale.

Shale; brown grey, soft, carbonaceous and micaceous.

Coal; and Dolomite; as above.

9033-10007 ft. Upper Cretaceous; Thinly interbedded mudstone, siltstone, and coal. Mudstone and Siltstone; dominant. Mudstone; dark brown grey, well indurated carbonaceous, micaceous, grades to siltstone; dark brown grey, carbonaceous and micaceous.

Sandstone; two types; (1) light grey - light brown grey, very fine to coarse, mainly very fine, sub-angular to sub-rounded, fairly well sorted, moderately abundant white to light brown-grey clay matrix, sparsely micaceous and carbonaceous. Slightly dolomitic and calcareous in part, hard and slightly lithic in part. Generally fairly tight, with porosity fair and permeability poor. (2) Sandstone-Conglomerate; grey white to light grey - brown grey, fine-pebble (in some places conglomerate), mainly medium to coarse. Sub-angular-rounded, generally poorly sorted, carbonaceous, micaceous and slightly lithic in part. Variable amount of white clay and light brown silty argillaceous matrix. Moderately hard and friable.

Porosity fair to good and permeability variable from poor to excellent, depending upon sorting and clay matrix. Both sandstone types show oil stain, fluorescence and cut.

Estimated sandstone percentage of interval is approximately 10%.

STRUCTURE

Marlin B-1 well was drilled as a stepout downdip, 3.4 miles southwest of the discovery well, Marlin A-1. The Marlin structure is an asymmetrical feature, partially dependant upon the unconformity at the top of the Latrobe Valley for closure. Structure within the Latrobe Valley forms a south-west plunging nose, and does not conform to the unconformity surface and does not alone afford total closure. The dip on the beds within the Latrobe is greater than the dip on the unconformity surface, and this is responsible for the stratigraphically younger Latrobe section being present immediately below the unconformity in Marlin B-1, compared to Marlin A-1. Seismic dips within the Latrobe in the vicinity of Marlin B-1 are of the order of 2 - 3° to the south-west. This has been confirmed by the dipmeter results.

The unconformity evident on seismic and dipmeter in the Marlin A-1 at 7050 feet (and also the top of the deep Paleocene gas in A-1) is not definitive in this well. On questionable log correlation, it should be present in B-1 around 7450 feet and, although not clear cut, there is some evidence from the dipmeter, of change of dip in the interval 7000-7600 feet.

Below 9033 veet the dipmeter shows a general 3° northwest dip but little is known of the overall structure of this depth.

PALEONTOLOGY

This is summarised by D.J. Taylor, Victorian Mines Department in a separate report.

CONCLUSIONS

1. Marlin B-1 (EGS-5) confirmed the presence of the Eocene Latrobe gas reservoir discovered in Marlin A-1 (EGS-4).

2. No oil was produced on test from the section which cores showed to have stain, fluorescence and cut.

3. Little is known of the section below 9000 feet which had shows throughout.

ATTACHMENTS

Composite Log
Core Lab Mud Log
Velocity Survey.

CORE LABORATORIES AUSTRALIA (QLD) LTD.

Petroleum Reservoir Engineering

BRISBANE, AUSTRALIA

4/27

25 OCTOBER 1966

G.P.O. BOX 664K
CABLE: CORELAB
PHONE: 5 3222

ESSO EXPLORATION, AUSTRALIA LTD.,
G.P.O. BOX 4249
SYDNEY, N.S.W., AUSTRALIA.

ATTENTION: Mr. A. A. Phillips

MARLIN 2

SUBJECT: Core, Mud and Cuttings Analysis
Esso Marlin B-1 Well
Marlin Field
Victoria, Australia

Gentlemen:

A Core Laboratories combination drill cuttings and core analysis unit was present at the site of the subject well during drilling operations from 2,319 feet to the total depth of 10,007 feet. Using standard equipment plus a Programmed Hydrocarbon Detector (Rapid Sampling Gas Chromatograph) the drilling fluid was monitored continuously for hydrocarbon content and the drill cuttings were checked at regular intervals for gas and oil content and lithology. All core analysis was performed by conventional procedures. The results of these operations are shown on the accompanying Grapholog and Coregraph.

Mud gas increases logged 2,319 feet through 4,745 feet come from mudstones and marl. This gas is common in this area and is considered to be of no commercial value.

Good mud and cuttings gas increases were logged 4,745 feet through 5,160 feet with increases in Ethane, Propane and Butane. Some oil fluorescence and staining were logged in the lower part of this zone. This section looks good and merits further testing.

From 5,160 feet to total depth the mud and cuttings gas increases seem to be associated with coals except for the zones discussed below.

Zone 7,370 feet through 7,380 feet had a maximum of 250 units of mud gas and 30 units of Ethane with no increase in the cuttings gas. This appears to come from sandstone or siltstone.

Zone 7,750 feet through 7,850 feet had maximum mud gas readings to 100 units with some Ethane and Propane increases. Cuttings gas readings were low. Although there is coal present, there are also increases in sandstone in this zone.

Zone 8,120 feet through 8,130 feet had maximum gas readings to 125 units with low cuttings gas increases but appears to come from sandstone.

5/27

Zone 8,260 feet through 8,275 feet had a maximum of 115 units of mud gas with very slight increases in Ethane and Propane. Cuttings gas increased to a maximum of 45 units. 8,270 feet to 8,275 feet had some faint blue oil fluorescence with a very slight cut.

Zone 8,690 feet through 8,740 feet had mud gas increases to 110 units with some increases in Ethane, Propane and Butane. Cuttings gas readings increased to a maximum of 460 units.

Zone 9,075 feet through 9,865 feet had intermittent sections of fluorescence and gas increases. These should be carefully checked on the electric log.

Zone 9,865 feet through 9,875 feet had mud gas increases to 400 units with good increases in Ethane, Propane and Butane. Cuttings gas increased to 150 units and well tried to blow out at this point.

Zone 9,930 feet through 9,970 feet had off scale mud gas readings with good increases in Ethane, Propane and Butane. Cuttings gas increased to 260 units. Well blew out at this point but was controlled with heavier mud weight.

From about 5,200 feet to total depth there seems to be an abundance of coal in the samples which may or may not be from this section. There are good gas increases in some of these sections and we would suggest careful checking of the logs to determine if this gas is coming from coal or sandstone.

We sincerely appreciate the opportunity to have been of service and trust that the information furnished in this report and during drilling operations has assisted the evaluation of this well.

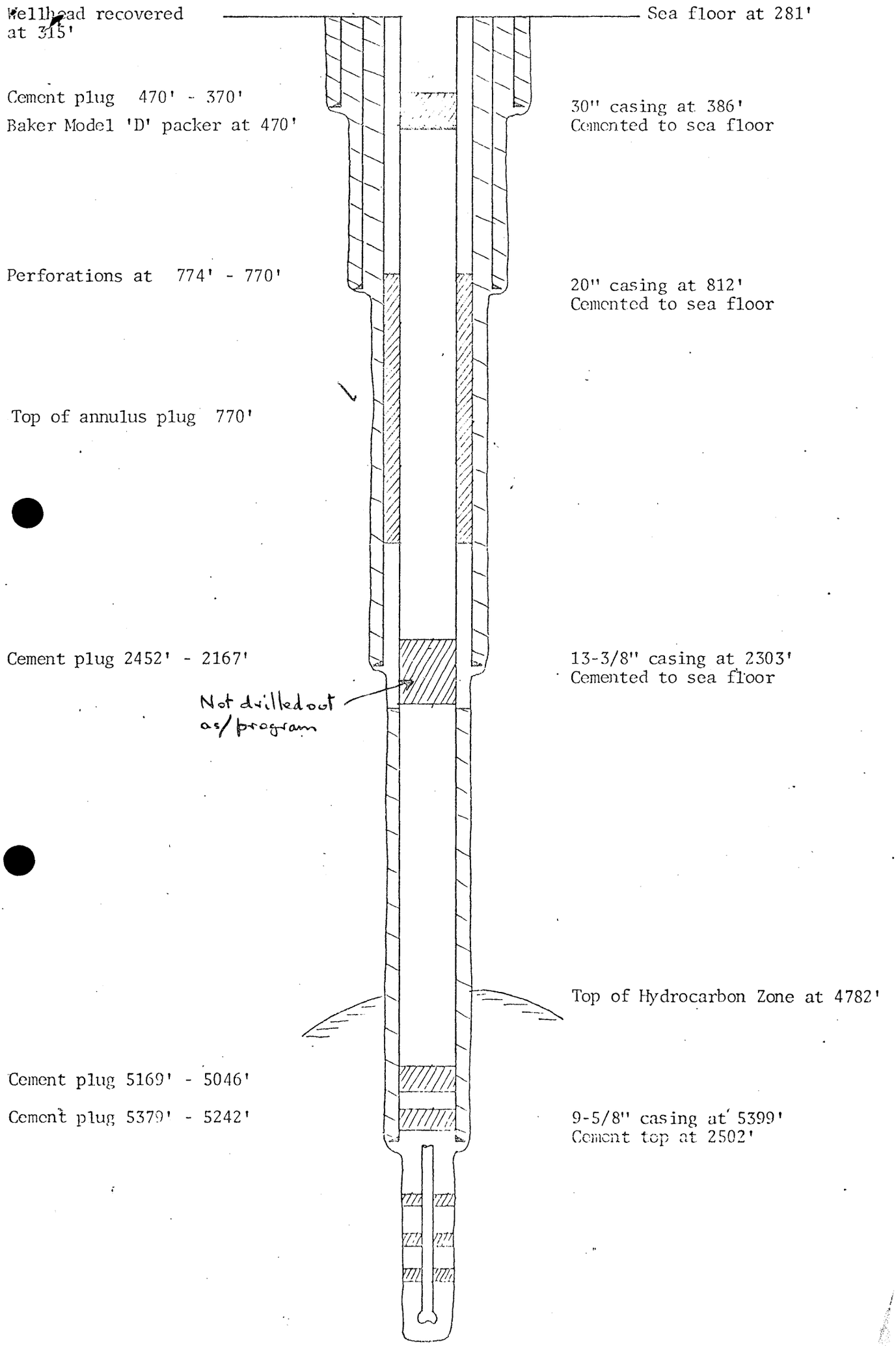
Very truly yours,
CORE LABORATORIES AUSTRALIA (QLD) LTD.

Joe Bell Adams

JOE B. MC ADAMS,
RESIDENT MANAGER.

DOWNHOLE SCHEMATIC OF MARLIN -2 WELL AS ABANDONED

All depths measured relative to Kelly Bushing on the Ocean Endeavour



MARLIN - 2

DESCRIPTION OF CORES

Core No. 1.

4790 - 4820	Cut 30 ft. Rec. 23 ft. Good odour, no fluorescence or cut.
4790 - 4796	Sandstone, quartzose, light brown, medium-coarse, fairly well sorted, rounded to sub-rounded, slightly argillaceous, pyritic in part, some coal in matrix, friable, excellent porosity-permeability.
4796 - 4799	Coal.
4799 - 4801	Shale, mottled light brown, medium light grey laminae. Thin carbonaceous laminae.
4800 - 4801	Sandstone, light grey, fine, poor sorting, sub-rounded to sub-angular. Thin carbonaceous and shale laminae, carbonaceous grains. Good porosity but permeability fair to poor.
4801 - 4806	Shale as above, thin sst. laminae.
4806 - 4813	Sandstone as above, becoming very fine - argillaceous and micaceous; numerous shale laminae.

Core No. 2. 4900 - 4930 ft. Cut 30 ft. Rec. 4 ft.

Sandstone, as above, coarse to very coarse; excellent porosity and permeability. Good odour. No fluorescence or cut.

Core No. 3. 5,013 - 5,043 ft. Cut 30 ft. Rec. 10 ft.

5013 - 5014	Sandstone, light grey, loosely consolidated, crumbly, medium-coarse, poor sorting, sub-angular to sub-rounded, altered felspar, trace glauconite, some carbonaceous material. Good but small patches light yellow fluorescence.
5014 - 5017	As above, medium to granule.
5017 - 5018	As above, very fine to granule, white kaolinite in matrix.
5018 - 5023	As for 5,013 - 5,014 ft.

Core No. 4. 5,085 - 5,106 ft. Cut 21 ft. Rec. 21 ft.

5085 - 5101	Coal
5101 - 5105	Siltstone; banded light brown=light grey, some pyrite, micaceous, argillaceous.

continued ...

Core No. 5. 5,106 - 5,136 ft. Cut 30 ft. Rec. 30 ft.

5106 - 5106.5 Coal

5106.5 - 5107 Shale, brown-grey, well compacted, carbonaceous, good odour when broken, dull yellow fluorescence, yellow cut.

5107 - 5110 Sandstone, fine-coarse, kaolinitic matrix, trace felspar grains, friable, soft, strong odour, gold-bright yellow fluorescence; yellow-white cut, lenses have porosity to 30%. Good permeability.

5110 - 5111.7 Sandstone as above, minor kaolinitic matrix, good porosity and permeability (estimate 30%). Good odour, bright yellow fluorescence and cut.

5111.7 - 5113.0
Silty shale, brown grey, fissile, carbonaceous, coaly streak.

5113.0 - 5115.0
Siltstone, argillaceous, firm, chocolate-brown grey, thin lenses oil-stained sandstone. Good odour, gold-yellow fluorescence.

5115.0 - 5117.0
Sandstone, brown-grey, fine-medium. Very poorly sorted, argillaceous, carbonaceous matrix, spotted gold fluorescence, good odour, oil-stained. Porosity 10-12% estimate. Grades into tight clay choked sandstone. No porosity.

5117.0 - 5118.0 Siltstone as 5113 - 5115 ft. No porosity.

5118.0 - 5119.0 Coal.

5119.0 - 5120.0 Siltstone.

5120.0 - 5121.5 Coal.

5121.5 - 5130.0 Siltstone as above, very argillaceous.

5130.0 - 5133.0 Coal.

5133.0 - 5136.0 Mudstone, brown-grey, dense, non-calcareous.

Coring rate - 4.0 min./ft.

~~3 of 8~~ 8/27

LITHOLOGICAL SUMMARY OF FORMATION

MARLIN-2

CORE DESCRIPTION

CORE NO.6:	5136-5160 ft. Cut 24 ft. Rec. 24 ft.
5136-5137	Shale, olive-grey, hard fissile, calcareous waxy lustre. Good odour, good bright cut.
5137-5143	Silty shale as above, some grey-brown. Good odour and cut. Few pieces slickensided.
5143-5145.5	Shale, olive grey.
5145.5-5155	Mudstone, olive grey, well compacted.
5155-5159	Siltstone, light grey - brown; argillaceous, very hard, sand lenses in latter 2 ft. are oil stained.
5159-5160	Sandstone, light grey, very fine, silty, argillaceous, irregular oil stains. Good odour, bottom 6" grades to medium/coarse sandstone, crumbly, friable, minor kaolinitic matrix. Good odour and stain. Porosity estimate 30%, excellent permeability. All sand/shale interfaces have oil staining and fluorescence.
CORE NO.7:	5160-5190 ft. Cut 30 ft. Rec. 3 ft. Sandstone, light grey, medium to granule, fairly well sorted, sub-angular to well-rounded, white kaolinitic matrix - grey felspar grains. Sparse carbonaceous grains, little mica. Porosity and permeability good. No odour, no fluorescence, no cut. No apparent dip.

~~4-18~~ 9/11

MARLIN-2

9326-9356 ft.	Core No.8 - (see detail)	Cut 30 ft. Recovered 30 ft.
9356-9385 ft.	Core No.9 - (see detail)	Cut 29 ft. Recovered 23.5 ft.
9385-9415 ft.	Core No.10 (" ")	Cut 30 ft. Recovered 30 ft.
9415-9445 ft.	Core No.11 (" ")	Cut 30 ft. Recovered 30 ft.
9445-9475 ft.	Core No.12 (" ")	Cut 30 ft. Recovered 30 ft.

CORE DESCRIPTIONS:

Core No.8 - Cut 30' - Recovered 30' - 9326-9356'

9326-9327.5 ft.	Shale, d.gr.-d.br.gr. carb. sparsely mic. abundant plant remains. Hard, massive.
9327.5-9329 ft.	Shale, irregular slump mass, fragments of sandstone and siltstone. Shale as above. Siltstone gr.white to l.br. argillaceous, v.f. sandy, mic. carb. Sandstone is gr.-white, quartzose, silty v.f.-f., subang.-subround, f.w.s. sparsely micaceous. Slightly dolomitic. Mod. abundant white-l.br. clay matrix. Por. fair, Perm. poor. Massive. When broken, faint hydrocarbon odour and taste.
9328-9334 ft.	Sandstone, minor laminae and lenses. Shale (as above). Sst. is gr.white-l.br. quartzose, v.f. to f., subang.-subround., f.w.s., sparsely mic., carb. Slightly dolomitic. Mod. abundant white-l.br. clay matrix. Very weak. Gold fluorescence. Throughout - faint hydrocarbon odour and taste.
9334-9347 ft.	Shale, irregular slump mass of siltstone and sandstone. Streaks and fine laminae to thin beds of black brittle coal. Massive slumped, irregular fracture, gas has filled by coal. Coal bleeds gas.
9347-9353 ft.	Slumped mass siltstone, sandstone and shale As above.
9353-9356 ft.	Sandstone as 9329-9334 ft. Thin bedded micro cross-bedded with banding fine carb. material. Sandstone has faint hydrocarbon odour and taste. Banded bright gold fluorescence, instant cut.

Core No.9 - Cut 29 ft. - Recovered 23.5' - 9356-9385'

9356-9359.5 ft.	Shale, fine irregular masses sandstone, siltstone as above.

9359.5-9361.5'	Thin interbedded sandstone, shale as above. On breaks. Hydrocarbon odour taste; speckled fluorescence.
9361.5-9367.5'	Sandstone, laminae shale siltstone and coal. Two types of sandstone, main part dominant fine gr. l.gr.-l.gr. white, very fine to medium, as described. Cross bedding, slumping, rare worm burrows. 9362 - patches bright gold fluorescence inst. cut. 9365-9366 - weak dull gold fluorescence. Carbonaceous shale break at 9362 ft. has similar hydrocarbon odour and taste.
9367.5-9370.5'	As for 5359.5-5361.5'.
9370.5-9373.5'	As for 5361.5-5367.5. Scattered fluorescence noted but not strong nor instant cut.
9373.5-9376.5'	As for 9356-9359.5'.
9376.5-9379.5'	Shale d. gr. - d. br. as described.

First 15 ft. cut quickly and may have lost sandy facies at top.

Core No.10 - Cut 30 ft. - Recovered 30' - 9385-9415'

9385-9390 ft.	Shale, fine irregular masses siltstone, sandstone. Sst. gr. white as above. v.f.-f. generally slumped. Siltstone and shale as described. Weak speckled dull gold fluorescence, small bright patches assoc. with calcareous matter.
9390-9394 ft.	Thinly interbedded sandstone, shale - slumped type sst. Fluorescence as above, small bright patches fair hydrocarbon odour and taste.
9394-9399 ft.	Sandstone, minor laminae and lenses of sil stone, streaks of carb. material and coal. Grey-white - l.gr., quartzose f.-m. angular subround, f.w.s. trace mic. carb. Slightly lithic in part; moderately abundant white-l.gr. clay matrix. Por. fair, perm. poor. Speckled fluorescence minor bright gold fluor. and cut. Gradually coarser at depth : predominantly medium at base, few coarse quartz granules
9399-9415 ft.	Shale, minor irregular lenses and masses of sandstone and siltstone as above. Sst. is minor but has patches bright gold - blue white fluorescence, and cut.

Core No.11 - Cut 30' - Recorded 30' - 9415-9445'

9415-9425.5'	Shale, minor irregular masses siltstone, sandstone. Streaks/laminae of coal as above. Sandstone is v.f.-f. Weak dull gold fluorescence. At 9425 ft., coal shows even, very bright fluorescence - coal lens bleeding gas.
9425.5-9430'	Sandstone, minor interbedded shale and siltstone, dom. v.f.-f., minor f.-m. grained. Slumped cross-bedded. Same type of show and associated with carbonaceous streaks.
9430-9434'	Shale, carb. streaks., minor thin interbeds and laminae coal bleeding gas.
9434-9436'	Sandstone as 9425.5-9430.
9436-9444'8"	Shale as 9415-9425.5.
9444'8"-9445'	Conglomerate. Coarsely sandy and granular, fine pebble quartz conglomerate. Variable white clay - l.br. silty argillaceous matrix. Moderately hard, friable. Por. v.good, Perm. variable poor-v.good, depending on sorting and clay matrix. Good hydrocarbon odour and taste. No fluorescence.

K.A. Rowell

K.A. Rowell

MELBOURNE
BMH:LAF
23rd August, 1966.

9876-9903 ft. Core No.13 (see detail) Cut 27 ft. Recovered 20 ft.

CORE DESCRIPTIONS:

Core No.12 - Cut 30' - Recovered 30' - 9445-9475'

9445-9455 ft. Dark grey shale, minor irregular nodules, as previously described. Very weak spotted dull yellow fluorescence.

9455-9458 ft. Interbedded and laminated sandstone/shale. Minor amount weak spotted fluorescence.

9458-9460 ft. Sandstone, minor laminae shale as above. Spotted dull gold and blue white fluorescence.

9460-9461 ft. Interbedded sandstone and shale as for 9455-9458.

9461-9469 ft. Sandstone, two variations. Light grey quartzose, slightly calcareous, medium to coarse, angular to sub-rounded granule quartz sand and fine quartz pebble conglomerate. Matrix micaceous and carbonaceous, slightly lithic. Hard. Por. Fair to good, perm. poor. Remainder as previously described. Bright blue white fluorescence 6" bands at 9463', 9465', 9466'. Spotted blue white to gold fluorescence throughout. Good odour and taste.

9469-9471 ft. Interbedded shale and sandstone as for 9455-9458'.

9471-9472 ft. Sandstone as in 9461-9469 with scattered speckled blue white fluorescence.

9472-9474 ft. Interbedded shale and sandstone.

9474-9475 ft. Sahel as for 9445-9455.

Core 13 - Cut 27 ft. - Recovered 20 ft. - 9876-9903'

9876-9879 ft. Mudstone, dark brown -grey, indurated, strongly carbonaceous, micaceous, strong H_2S smell.

9879-9881 ft. Mudstone, as above and plentiful irregular bands and inclusions of sandstone light brown to grey, very fine, moderately well sorted, very hard, slightly dolomitic and possibly silaceous cement in parts, argillaceous matrix, irregular carbonaceous streaks. Porosity and permeability low. Spotty yellow fluorescence in carbonaceous streaks giving yellow cut.

9881-9885 ft. Mudstone and irregular discontinous coal streaks up to 3/4", plant impressions and occasional sand.

9885-9887 ft. Mudstone to siltstone, to sandstone. Sandstone light brown to grey, very fine to coarse, angular to subrounded, very hard and tight, with carbonaceous flecks and streaks. Layers up to 4" thick. Por. and perm. very low. Spotty shows as above.

9887-9896 ft. Mudstone as above and coal streaks, plant remains and occasional siltstone.

CA-2

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

RE-NAMED (AUG. 1968) MARLIN 2

CORE ANALYSIS RESULTS

Company ESSO EXPLORATION, AUSTRALIA Formation _____ File FL115-7L
Well GIPPSLAND SHELF NO. 5 Core Type CONVENTIONAL Date Report 23 JUNE 66
Field EGS-4 Drilling Fluid XP 20-SPERSENE Analysts TH, BY, RB
~~XXXXX~~ VICTORIA State AUST. Elev. 31'KB Location _____

Lithological Abbreviations

SAND-SD	DOLOMITE-DOL	ANHYDRITE-ANHY	SANDY-SDY	FINE-FN	CRYSTALLINE-XLN	BROWN-BRN	FRACTURED-FRAC	SLIGHTLY-SL/
SHALE-SH	CHERT-CH	CONGLOMERATE-CONG	SHALY-SHY	MEDIUM-MED	GRAIN-GRN	GRAY-GY	LAMINATION-LAM	VERY-V/
LIME-LM	GYPSUM-GYP	FOSSILIFEROUS-FOSS	LIMY-LMY	COARSE-CSE	GRANULAR-GRNL	VUGGY-VGY	STYLOLITIC-STY	WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	DENS.	SAMPLE DESCRIPTION AND REMARKS
1	4792	8850	29.1	0	55.6	2.22	Ss:VY FRIABLE
2	4793	10350	34.0	0	51.1	2.18	" "
3	4794	*	*	*	*	*	NOT SUITABLE FOR ANALYSIS
4	4795	9550	33.6	0	50.6	2.13	Ss:As Above
5	4796	10350	28.0	0	60.7	2.18	" "
6	4800	*	*	*	*	*	80% Shale
7	4801	8.4	22.0	0	60.3	2.22	Hd brn silty vfgrn Ss
8	4802	*	*	*	*	*	80% Shale
9	4805	*	*	*	*	*	80% Shale
10	4806	*	*	*	*	*	" "
11	4807	7.1	14.6	0	83.0	2.56	50% Shale
12	4808	17.0	14.9	0	78.0	2.28	60% Shale
13	4809	5.9	23.4	0	65.0	2.40	50% Shale
14	4810	.5	16.2	0	85.0	2.28	" "
15	4811	*	*	*	*	*	90% Shale
16	4812	11.0	27.0	0	70.5	3.10	25% Shale
17	4901	*	*	*	*	*	Coal
18	4902	2090	25.9	0	61.8	2.22	Ss:VY FRIABLE, BRN
19	4903	3580	36.0	0	63.3	2.23	" "
20	4904	5100	26.9	0	55.6	2.11	" "

CORE ANALYSIS RESULTS

Company ESSO EXPLORATION, AUSTRALIA Formation File FL115-7L
Well GIPPSLAND SHELF NO. 5 Core Type CONVENTIONAL Date Report 14 AUG 66
Field E. G. S. NO. 4 Drilling Fluid XP20-SPERSENE Analysts TH, RS
~~County~~ VICTORIA State AUST. Elev. 31' KB Location

Lithological Abbreviations

SAND-SD	DOLOMITE-DOL	ANHYDRITE-ANHY	SANDY-SDY	FINE-FN	CRYSTALLINE-XLN	BROWN-BRN	FRACTURED-FRAC	SLIGHTLY-SL/
SHALE-SH	CHERT-CH	CONGLOMERATE CONG	SHALY-SHY	MEDIUM-MED	GRAIN-GRN	GRAY-GY	LAMINATION-LAM	VERY-V/
LIME-LM	GYPSUM-GYP	FOSSILIFEROUS-FOSS	LIMY-LMY	COARSE-CSE	GRANULAR-GRNL	VUGGY-VGY	STYLOLITIC-STY	WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	DENS.	SAMPLE DESCRIPTION AND REMARKS
30	9331	.46	15.7	0	64.4	2.18	HARD CARB. SS
31	9333	1.1	13.1	0	71.0	2.35	"
32	9338	.32	23.6	0	71.0	2.35	"
33	9354	1.3	18.4	0	42.6	2.26	SS W/SH & COAL LAMIN.
34	9355	.46	21.1	0	37.2	2.29	"
35	9361	.32	13.8	0	71.0	2.19	"
36	9364	.60	15.0	0	62.0	2.32	"
37	9365	3.30	15.0	0	68.0	2.28	"
38	9370	.46	13.1	0	74.6	2.21	"

MARLIN-2

16/27

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company ESSO EXPLORATION, AUSTRALIA Formation — File FL115-7L
Well GIPPSLAND SHELF NO. 5 Core Type CONVENTIONAL Date Report 15 AUG 66
Field E. G. S. -4 Drilling Fluid XP20-SPERSENE Analysts TH, RS
XXXX VICTORIA State AUST. Elev. 31' KB Location —

Lithological Abbreviations

SAND-SD	DOLOMITE-DOL	ANHYDRITE-ANHY	SANDY-SDY	FINE-FN	CRYSTALLINE-XLN	BROWN-BRN	FRACTURED-FRAC	SLIGHTLY-SL/
SHALE-SH	CHERT-CH	CONGLOMERATE-CONG	SHALY-SHY	MEDIUM-MED	GRAIN-GRN	GRAY-GY	LAMINATION-LAM	VERY-V/
LIME-LM	GYPSUM-GYP	FOSSILIFEROUS-FOSS	LIMY-LMY	COARSE-CSE	GRANULAR-GRNL	VUGGY-VGY	STYLOLITIC-STY	WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	DENS.	SAMPLE DESCRIPTION AND REMARKS
39	9392	.46	12.7	0	56.6	2.19	SS:HARD W/CARB STRKS
40	9396	.29	14.0	0	57.2	2.22	"
[redacted]	9397	1.30	16.9	0	44.4	2.20	"
42	9398	.90	17.0	0	50.0	2.23	"
43	9399	.46	15.8	0	50.0	2.31	"
44	9427	.46	13.1	0	69.5	2.42	"
45	9461	5.20	14.6	0	63.7	2.32	"
46	9462	7.40	26.6	1.3	65.7	2.20	SS:GY-WHITE CRS GRN
47	9465	11.0	18.0	1.9	53.9	2.20	"
48	9466	10.0	17.0	.9	47.1	2.21	"
49	9471	<0.01	13.4	1.1	62.8	2.45	SHLY

APPENDIX 4.0

11/21

MARLIN -2.

VELOCITY SURVEY

E S S O M A R L I N -2 ~~B-1~~

by

P.E. Towey

A. INTRODUCTION

Esso Australia contracted Western Geophysical Co. to perform the velocity survey. Under the contract, Western agreed to furnish the following :

(1) Instruments

a. SSC Model GCE101 Pressure Sensitive Well Geophones

b. Twelve SIE GA-11 Amplifiers, Input Switching and Power Supply

c. Western 30 Channel Camera

d. Three 12 volt Batteries and Charger

e. Portable Developing System

f. Two 300 volt Blasters

g. Three Kaar TR 327 CB Radios

h. Two RC-5 Remote Control Units for Shooters Radio

i. Two TA-12 Break amplifier units

j. Adequate spare parts

(2) One Marine Shooter

(3) One Licensed Shooting Boat

All equipment and personnel assembled on June 26, 1966 and the survey was made on the 29th of June.

B. SURVEY PROCEDURES

Weather was good during the survey, but some noise was experienced one time break trace due to antenae faults.

(1) Shot Positioning

The orientation of the Glomar was E-W during the survey. Buoys were positioned 1000 feet on the north side and 500 feet and 1000 feet on the south, in a line running N-S, passing through the well site.

(2) Well Geophone Positioning

All depth measurements were made using the Schlumberger depth indicator. To minimize rig noise due to heavy swells the marine riser was disconnected from the derrick floor and lowered to the casing top. The Schlumberger cable was clamped with a T-Bar device which rested on the casing top at each geophone depth in an attempt to de-couple from the rig movement.

C. RESULTS

Nine shots were made at four different levels. Three were made at 2969 feet, the shallowest position, two at an offset off 1000 feet and one at 500 feet offset.

The quality of the records were considered to be good in seven cases and fair in two. Copies of the records are included below.

The final check shot times and integrated sonic curve are considered to be in good agreement as is shown by the error chart of figure I.

D. CONCLUSIONS

The velocity survey was successful in tying the integrated Sonic Log into absolute time values.

FIGURE I

Average Vertical time from Velocity Survey	T Check Shots	T Sonic	Diff	Interval Depth	Microseconds per foot Error
.386					
	.206	.198	+.008	1730	+4.6
.592					
	.039	.039	0	360	0
.631					
	.026	.027	-.001	260	-3.8
.657					

Shothole information:- Elevation, Distance & Direction from Well

N ← X — 1000' — X — 500' — X (2) X (3)

(1)

Company: ESSO EXPLORATION AUSTRALIA INC.

Well: Esso Marlin B-1

Elevation (Derrick Floor): 31'

Total Depth:

LOCATION

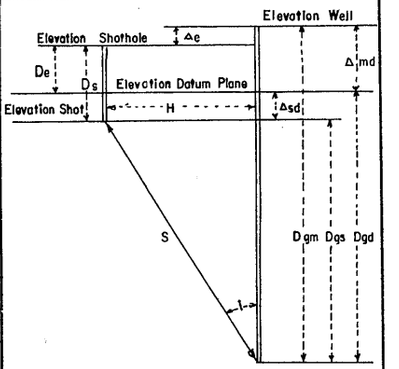
Coordinates: 38° 15' 59" S, 148° 10' 45" E

Section, Township, Range:

County / Area or Field: Gippsland Shelf Offshore, Victoria

DATUM : Sea Level

Record Number	Shothole Number	Time of Shot	Dgm	Ds	tus	tr	T Reading	T Polarity	T Grade	Dgs	H	TAN i	Cos i	Tgs	Δsd	Δsd/V	Tgd	Tgd Average	Dgd	ΔDgd	ΔTgd	Vi Interval Velocity	Va Average Velocity
95	2	13.45	3000	6	.001	.110	.395	D	G	2963	550	.186	.983	.388	6	.001	.389						
85	3	13.35	3000	6	.001	.214	.411	D	F	2963	1070	.361	.941	.386	6	.001	.387	.386	2969				
7N	1	13.25	3000	6	.001	.207	.406	D	F	2963	1035	.349	.944	.382	6	.001	.382						7691
																				1730	.206	8398	
6N	1	12.55	4730	6	.001	.207	.602	D	G	4693	1035	.221	.976	.588	6	.001	.589	.592	4699				7938
55	3	12.45	4730	6	.001	.221	.609	D	G	4693	1105	.235	.974	.593	6	.001	.594						
																				360	.039	9231	
45	3	12.25	5090	6	.001	.219	.646	D	G	5053	1095	.217	.977	.631	6	.001	.632	.631	5059				8017
3N	1	12.15	5090	6	.001	.195	.640	D	G	5053	975	.193	.982	.628	6	.001	.629						
																				260	.026	10000	
2N	1	11.50	5350	6	.001	.205	.666	D	G	5313	1025	.193	.982	.654	6	.001	.655	.657	5319				8096
1S	3	11.40	5350	6	.001	.214	.670	D	G	5313	1070	.201	.980	.657	6	.001	.658						



Dgm = Geophone depth measured from well elevation

Dgs = " " " " shot "

Dgd = " " " " datum "

Ds = Depth of shot

De = Shothole elevation to datum plane

H = Horizontal distance from well to shotpoint

S = Straight line travel path from shot to well geophone

tus = Uphole time at shotpoint

T = Observed time from shotpoint to well geophone.

tr = " " to reference geophone.

Δe = Difference in elevation between well & shotpoint.

Δsd = " " " " shot & datum plane

Δsd = Ds - De

Dgs = Dgm - Ds ± Δe ; $\tan i = \frac{H}{Dgs}$

Tgs = cos i T = Vert. travel time from shot elev. to geophone

Tgd = $Tgs \pm \frac{\Delta sd}{V}$ = " " " " datum plane " "

Dgd = Dgm - Δmd

Vi = Interval velocity = $\frac{\Delta Dgd}{\Delta Tgd}$

Va = Average = $\frac{D\,gd}{T\,gd}$

Surveyed by: R. R. Tharp

Date: June 29, 1966

Weathering Data -

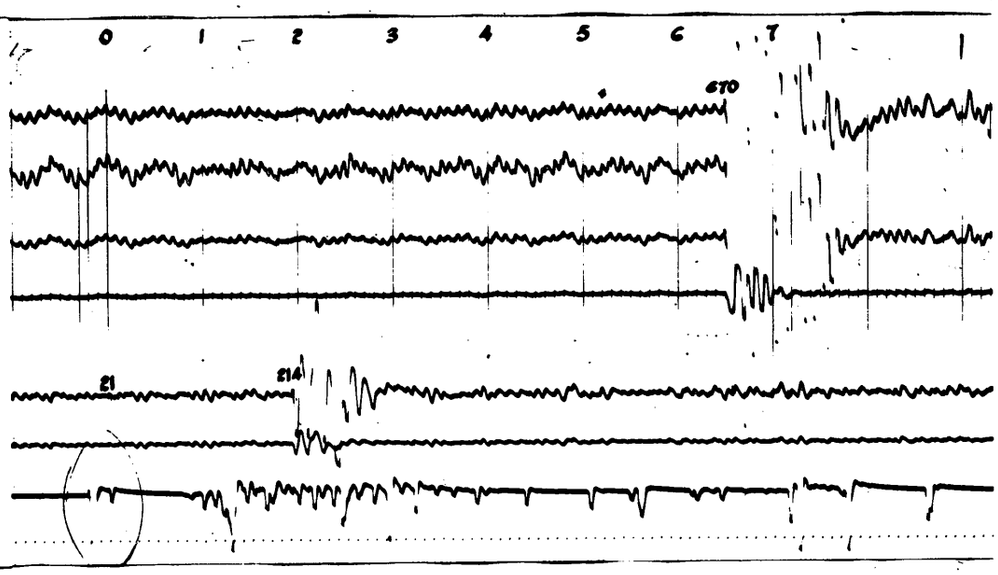
Casing Record

29/27

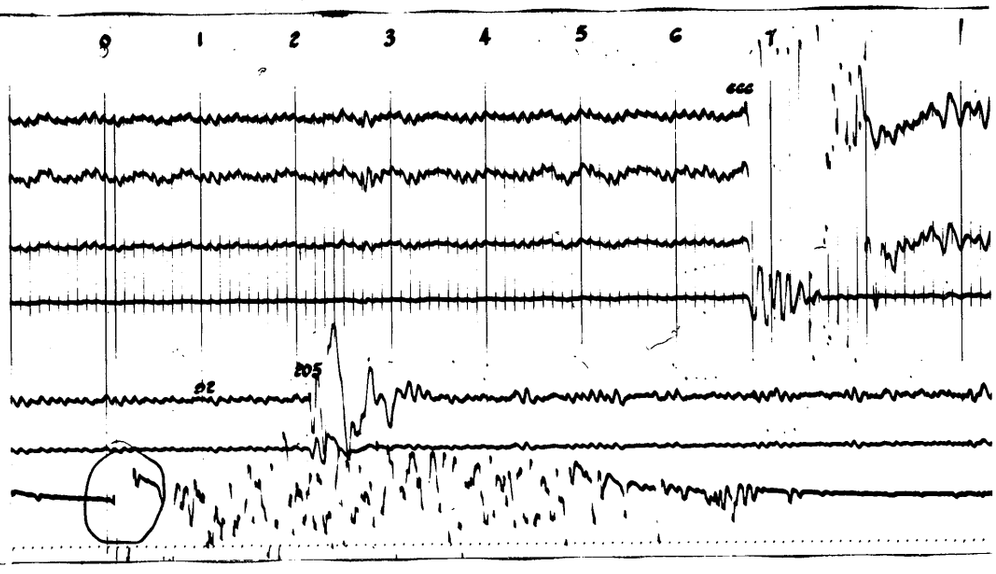
ESSO MARLIN B-1

WELL VELOCITY RECORDS

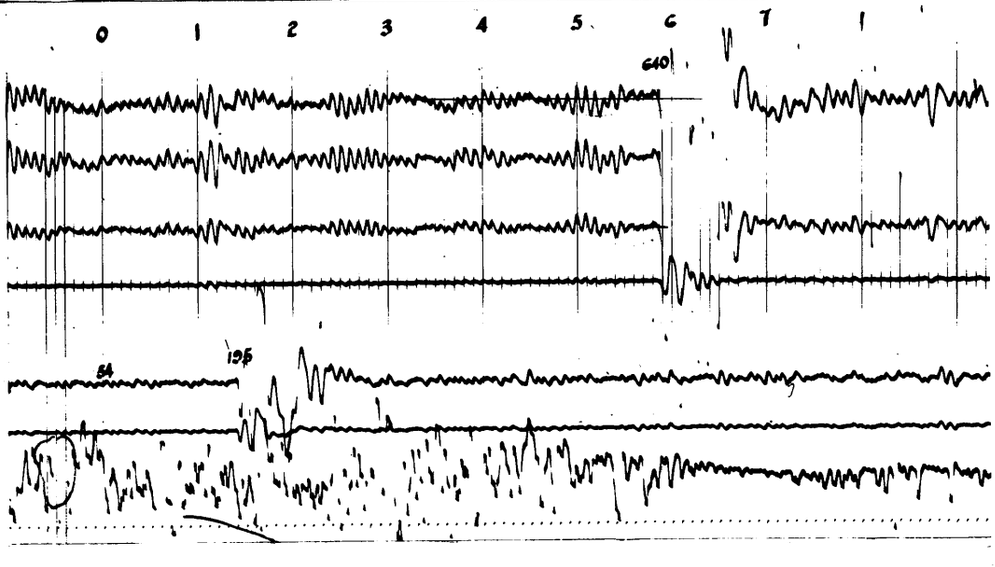
Shot N° 1
Depth: 5350'
25 lbs. @ 5'
Offset: 1000' S.E.
Time: 11:40 29th June 1966
MARLIN B-1



Shot N° 2
Depth: 5350'
25 lbs. @ 5'
Offset: 1000' N.W.
Time: 11:50 29th June 1966
MARLIN B-1



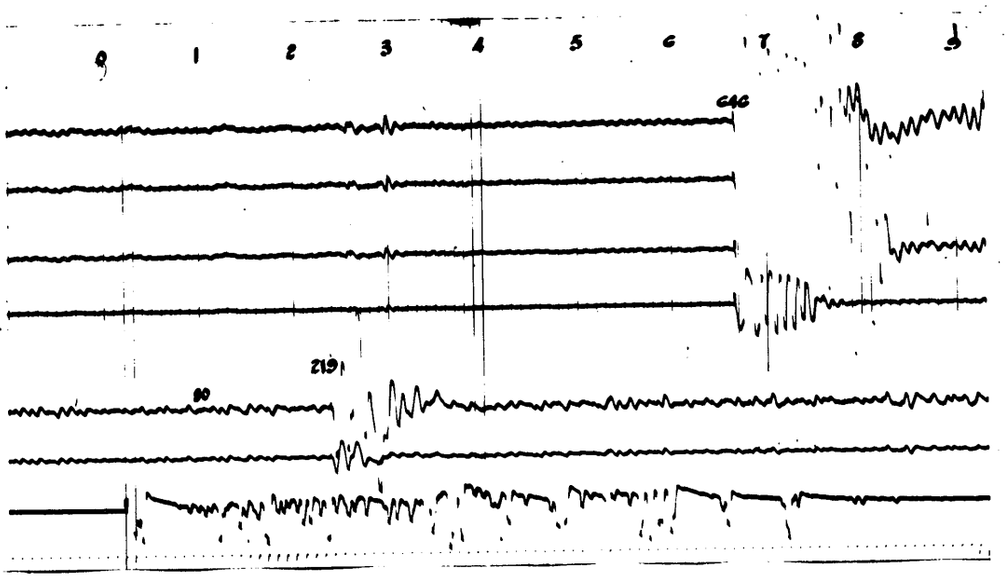
Shot N° 3
Depth: 5090'
25 lbs. @ 5'
Offset: 1000' N.W.
Time: 12:15 29th June 1966
MARLIN B-1



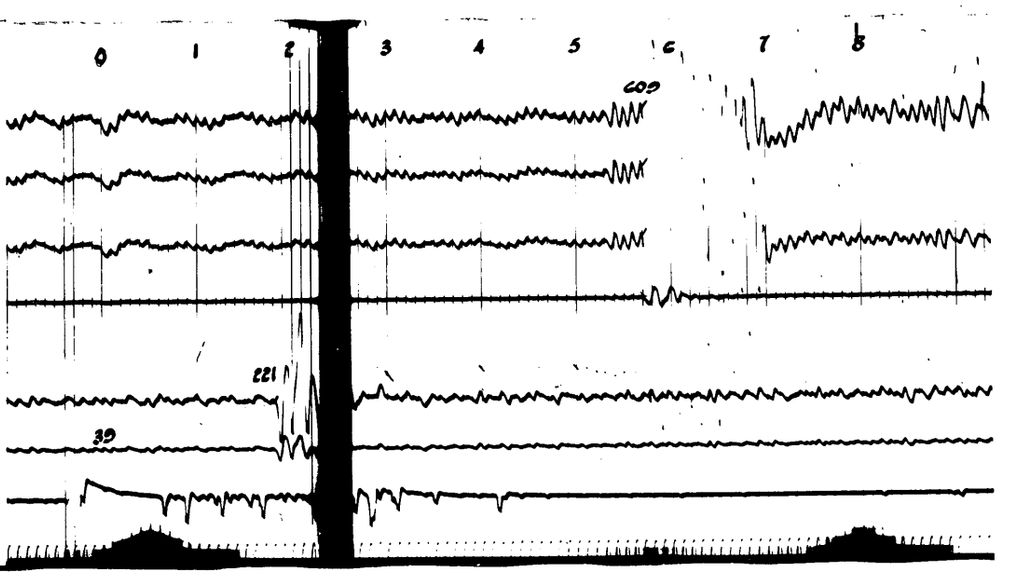
ESSO MARLIN B-1

WELL VELOCITY RECORDS

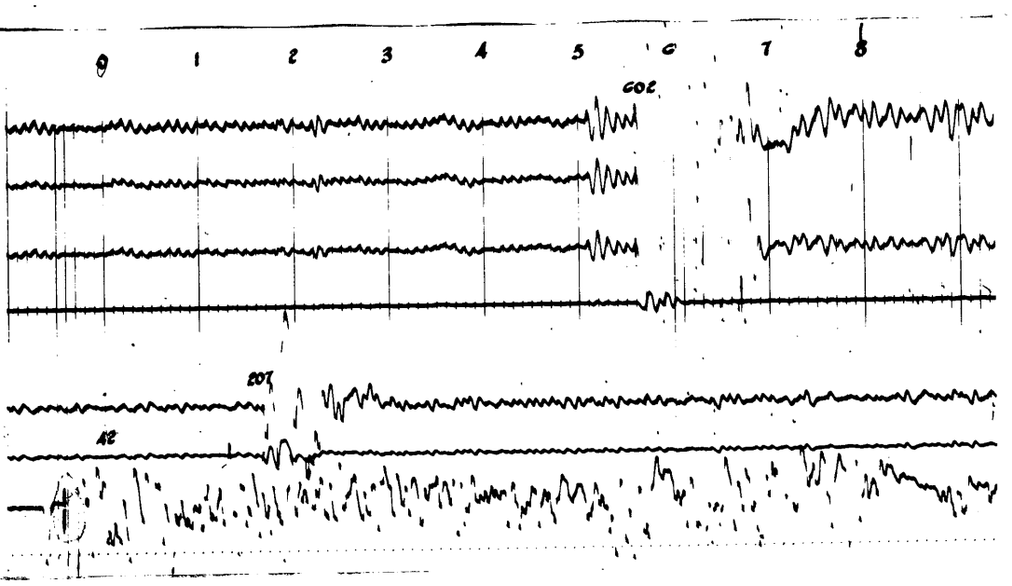
Shot N° 4
Depth: 5090'
25 lbs. @ 5'
Offset: 1000' S.E.
Time: 12:25 29th June 1966
MARLIN B-1



Shot N° 5
Depth: 4730'
25 lbs. @ 5'
Offset: 1000' S.E.
Time: 12:45 29th June 1966
MARLIN B-1



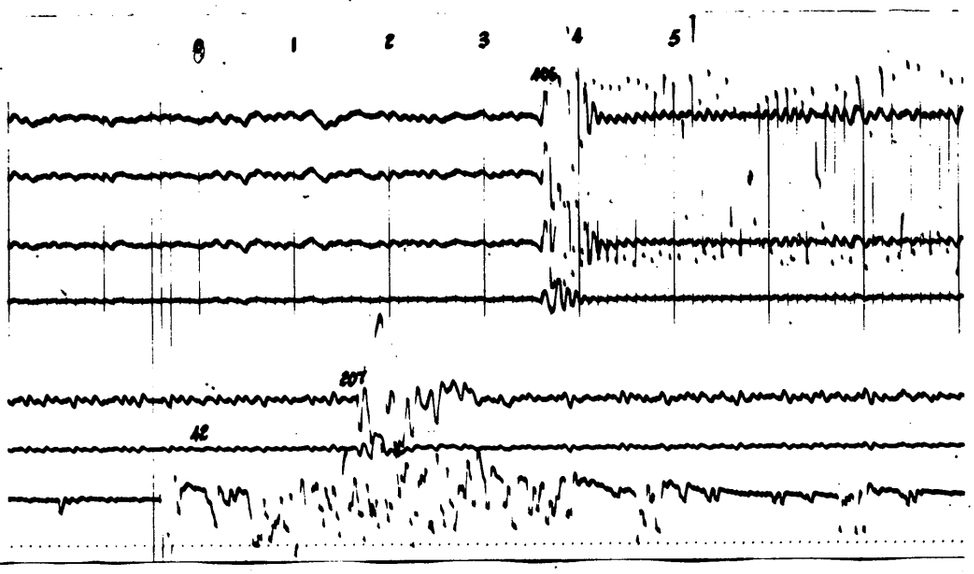
Shot N° 6
Depth: 4730'
25 lbs. @ 5'
Offset: 1000' N.W.
Time: 12:55 29th June 1966
MARLIN B-1



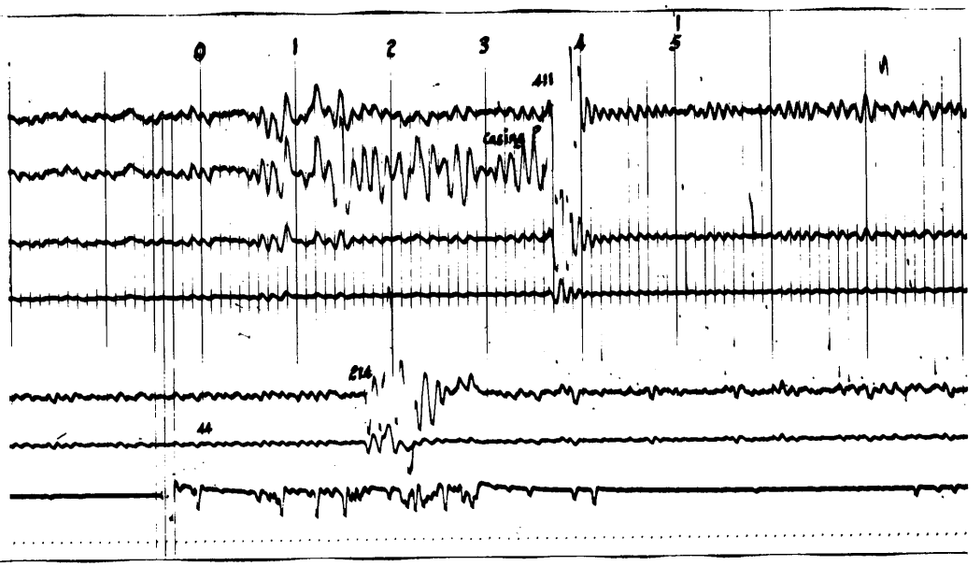
ESSO MARLIN B-1

WELL VELOCITY RECORDS

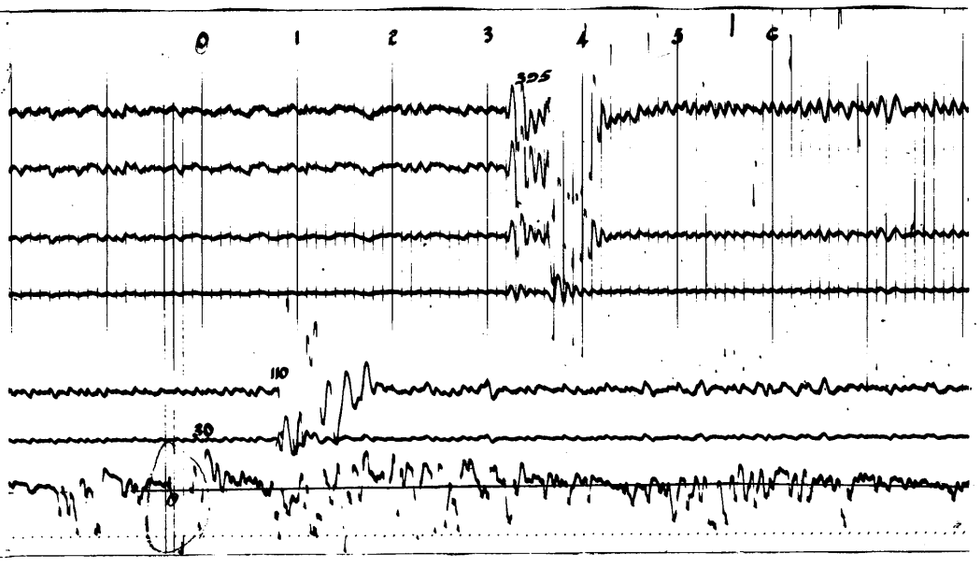
Shot N° 7
Depth: 3000'
25 lbs. @ 5'
Offset: 1000' N.W.
Time: 13:25 29th June 1966
MARLIN B-1



Shot N° 8
Depth: 3000'
25 lbs. @ 5'
Offset: 1000' S.E.
Time: 13:40 29th June 1966
MARLIN B-1



Shot N° 9
Depth: 3000'
25 lbs. @ 5'
Offset: 500' S.E.
Time: 13:50 29th June 1966
MARLIN B-1



APPENDIX 5.0

ESSO AUSTRALIA LTD.

BB/1573

INCORPORATED IN NEW SOUTH WALES
G.P.O. BOX 4047 SYDNEY 2001 ★ TELEPHONE 236 2911 (AREA CODE 02)
ESSO HOUSE, 127 KENT STREET, SYDNEY, NEW SOUTH WALES
TELEGRAMS "ESSO" ★ CABLES "ESSOEAST"
TELEX: AA 120549 FAX: GP111 02 236 5085

SYDNEY 10th March, 1988

YOUR REF:

OUR REF: 6650/10 RMR/js

SUBJECT Marlin Preliminary Depth Intervals

Department of Industry,
Technology and Resources,
P.O. Box 173,
EAST MELBOURNE VIC. 3002.

15 MAR 1988

PETROLEUM DIVISION

Attention: Brij Agrawal

Dear Sir, MARLIN - Z.

Please find enclosed preliminary depth intervals of hydrocarbon and water sands for all, but six (6), of the Marlin exploration and production wells. The results are being reviewed and any corrections passed on to you.

The intervals for wells A5 and A16 should be used with caution as they are being re-surveyed to check for depth discrepancies that have arisen.

The results were compiled for porosity, water saturation and fluid content using the log suites. Wells; F18, A11, A12, A13, A15 and A22 are not included because of their limited log suites. The depth intervals for these wells are being prepared and will follow.

Yours faithfully,

S.A. REECKMANN
PRODUCTION GEOLOGY MANAGER

Encl:

3480F/55

TABLE 5.0

MARLIN-2

SUMMARY OF RESULTS

Interval Evaluated: 1400-2891 (m MDKB)

Depth Interval (m MDKB) KB=9.5m (31')	(m MDSS)	Sand[1] Unit	Gross Thickness (m)	Net** Thickness (m)	Porosity** Average	Swe** Average	Fluid Content
1440.50-1467.50	1431.00-1458.00	N-1.1.1	27.00	20.00	0.23±0.07	0.20±0.05	Gas
1467.50-1494.50	1458.00-1485.00	N-1.1.2	27.00	23.25	0.28±0.04	0.10±0.03	Gas
1495.00-1507.25	1485.50-1497.75	N-1.1.3	12.25	10.75	0.25±0.03	0.14±0.04	Gas
1507.50-1545.00	1498.00-1535.50	N-1.2	37.50	35.75	0.22±0.06	0.21±0.05	Gas
1568.00-1589.00	1558.50-1579.50	N-1.3	21.00	21.00	0.28±0.04	0.16+0.04/ 1.00	Oil/ Water
OWC @ 1571m MDKB based on IES log response and core 6 and CST shows.							
1595.25-1612.75	1585.75-1603.25	N-1.4	17.50	17.00	0.25±0.05	1.00	Water
1613.75-1615.00	1604.25-1605.50		1.25	1.00	0.27±0.03	1.00	Water
1631.50-1649.25	1622.00-1639.75	N-1.5.2	17.75	17.75	0.28±0.03	1.00	Water
1653.50-1677.00	1644.00-1667.50		23.50	22.75	0.24±0.05	1.00	Water
1705.00-1708.50	1695.50-1699.00		3.50	0.25	0.11±0.00	1.00	Water
1711.25-1713.25	1701.75-1703.75		2.00	0.75	0.14±0.02	1.00	Water
1717.50-1719.50	1708.00-1710.00		2.00	2.00	0.17±0.02	1.00	Water
1721.25-1721.75	1711.75-1712.25		0.50	0.50	0.14±0.01	1.00	Water
1737.75-1741.75	1728.25-1732.25		4.00	3.75	0.22±0.05	1.00	Water
1743.25-1749.00	1733.75-1739.50	M-1.3	5.75	4.50	0.23±0.05	1.00	Water

Depth Interval (m MDKB) KB=9.5m (31')	(m MDSS)	Sand[1] Unit	Gross Thickness (m)	Net** Thickness (m)	Porosity** Average	Swe** Average	Fluid Content
1751.50-1754.50	1742.00-1745.00		3.00	2.75	0.19±0.03	1.00	Water
1756.25-1761.75	1746.75-1752.25		5.50	5.25	0.21±0.05	1.00	Water
1766.75-1768.00	1757.25-1758.50		1.25	0.25	0.12±0.00	1.00	Water
1777.50-1777.75	1768.00-1768.25		0.25	0.25	0.21±0.00	1.00	Water
1792.50-1794.00	1783.00-1784.50		1.50	1.50	0.15±0.02	1.00	Water
1799.00-1800.25	1789.50-1790.75		1.25	1.00	0.14±0.02	1.00	Water
1810.00-1810.75	1800.50-1801.25		0.75	0.75	0.13±0.01	1.00	Water
1819.00-1822.25	1809.50-1812.75		3.25	2.00	0.15±0.01	1.00	Water
1835.25-1836.75	1825.75-1827.25		1.50	0.50	0.15±0.02	1.00	Water
1845.00-1853.00	1835.50-1843.50		8.00	6.50	0.21±0.04	1.00	Water
1861.75-1865.25	1852.25-1855.75		3.50	1.00	0.11±0.00	1.00	Water
1883.75-1884.75	1874.25-1875.25		1.00	0.75	0.15±0.02	1.00	Water
1889.25-1898.00	1879.75-1888.50		8.75	2.75	0.12±0.02	1.00	Water
1903.25-1906.00	1893.75-1896.50		2.75	1.25	0.12±0.02	1.00	Water
1924.25-1925.50	1914.75-1916.00		0.75	0.75	0.12±0.01	1.00	Water
1941.00-1943.25	1931.50-1933.75		2.25	2.00	0.18±0.05	1.00	Water
1947.75-1953.75	1938.25-1953.75		6.00	2.00	0.15±0.03	1.00	Water
1975.75-1977.00	1966.25-1967.50		1.25	1.00	0.14±0.02	1.00	Water
1997.25-2000.00	1987.75-1990.50		2.75	1.50	0.13±0.02	1.00	Water
2010.25-2011.75	2000.75-2002.25		1.50	0.25	0.11±0.00	0.27±0.07	Hyd? Indet.*

Depth Interval (m MDKB) KB=9.5m (31')	(m MDSS)	Sand[1] Unit	Gross Thickness (m)	Net** Thickness (m)	Porosity** Average	Swe** Average	Fluid Content
2036.50-2037.75	2027.00-2028.25		1.25	0.50	0.12±0.01	1.00	Water
2071.75-2072.75	2062.25-2063.25		1.00	0.25	0.10±0.00	1.00	Water?
2076.50-2078.25	2067.00-2068.75		1.75	0.50	0.11±0.00	1.00	Water
2124.50-2126.25	2115.00-2116.75		1.75	0.50	0.15±0.02	1.00	Water
2169.75-2177.25	2160.25-2167.75		7.50	1.00	0.11±0.01	1.00	Water
2213.25-2214.25	2203.75-2204.75		1.00	0.25	0.11±0.00	1.00	Water
2218.25-2220.25	2208.75-2210.75		2.00	1.00	0.14±0.01	0.21±0.05	Hyd? Indet.*
2224.25-2227.75	2214.75-2218.25		3.50	1.00	0.11±0.00	1.00	Water
2239.00-2240.75	2229.50-2231.25		1.75	0.25	0.11±0.00	1.00	Water
2243.75-2245.25	2234.25-2235.75		1.50	0.25	0.11±0.01	0.27±0.07	Hyd? Indet.*
2248.25-2250.25	2238.75-2240.75		2.00	0.25	0.12±0.01	0.24-0.06	Hyd? Indet.*
2254.50-2257.75	2245.00-2248.25		3.25	2.75	0.14±0.03	1.00	Water
2264.25-2270.75	2254.75-2261.25		6.50	5.00	0.11±0.01	1.00	Water
2282.75-2284.25	2273.25-2274.75		1.50	0.75	0.12±0.01	1.00	Water?
2289.25-2292.75	2279.75-2283.25		3.50	0.50	0.10±0.00	0.28±0.07	Hyd. Indet.
2301.75-2303.50	2292.25-2294.00		1.75	1.50	0.15±0.02	1.00	Water
2310.50-2313.25	2301.00-2303.75		2.75	1.00	0.13±0.02	1.00	Water
2330.25-2336.00	2320.75-2326.50		5.75	0.75	0.11±0.01	1.00	Water
2360.75-2365.25	2351.25-2355.75		4.50	2.50	0.12±0.01	1.00	Water
2389.50-2395.75	2380.00-2386.25		6.25	1.75	0.12±0.01	0.25±0.06	Hyd. Indet.

Depth Interval (m MDKB) KB=9.5m (31')	(m MDSS)	Sand[1] Unit	Gross Thickness (m)	Net** Thickness (m)	Porosity** Average	Swe** Average	Fluid Content
2399.50-2401.25	2390.00-2391.75		1.75	0.75	0.13±0.02	0.22±0.06	Hyd. Indet.
2402.00-2403.25	2392.50-2393.75		1.25	0.75	0.13±0.01	1.00	Water
2405.00-2409.00	2395.50-2399.50		4.00	1.25	0.12±0.01	1.00	Water
2419.50-2426.75	2410.00-2417.25		7.25	2.25	0.13±0.01	1.00	Water
2428.00-2433.75	2418.50-2424.25		5.75	4.00	0.14±0.02	1.00	Water
2453.25-2460.75	2443.75-2451.25		7.50	2.00	0.15±0.04	0.20±0.05	Hyd. Indet.
2470.25-2476.25	2460.75-2466.75		6.00	2.00	0.12±0.01	0.23±0.06	Hyd? Indet.
2483.75-2486.25	2474.25-2476.75		2.50	0.25	0.11±0.00	0.27±0.07	Hyd. Indet.
2510.75-2513.50	2501.25-2504.00		2.75	2.00	0.14±0.02	1.00	Water
2519.75-2523.25	2510.25-2513.75		3.50	0.00***	0.07±0.02	0.43±0.09	Hyd? Indet.*
2573.25-2576.00	2563.75-2566.50		2.75	1.00	0.12±0.01	0.24-0.06	Hyd? Indet.
2579.25-2580.50	2569.75-2571.00		1.25	0.25	0.10±0.00	0.29±0.07	Hyd? Indet.*
2595.75-2619.00	2586.25-2609.50		23.25	0.00***	0.06±0.02	1.00	Water
2647.25-2663.50	2637.75-2654.00		16.25	6.75	0.12±0.01	0.23±0.06	Hyd. Indet.
2669.25-2703.75	2659.75-2694.25		34.50	3.75	0.11±0.00	1.00	Water
2705.00-2719.75	2695.50-2710.25		14.75	0.00***	0.06±0.02	1.00	Water
2720.25-2728.50	2710.75-2719.00		8.25	0.00***	0.05±0.02	1.00	Water
2729.00-2736.75	2719.50-2727.25		7.75	2.00	0.11±0.01	1.00	Water
2738.00-2741.75	2728.50-2732.25		3.75	0.75	0.10±0.00	1.00	Water
2743.25-2745.50	2733.75-2736.00		2.25	1.50	0.10±0.00	1.00	Water
2746.25-2755.50	2736.75-2746.00		9.25	3.50	0.12±0.02	1.00	Water

Depth Interval (m MDKB) KB=9.5m (31')	(m MDSS)	Sand[1] Unit	Gross Thickness (m)	Net** Thickness (m)	Porosity** Average	Swe** Average	Fluid Content
2788.25-2789.75	2778.75-2780.25		1.50	0.50	0.11±0.01	1.00	Water
2802.75-2807.75	2793.25-2798.25		5.00	2.25	0.11±0.01	0.27±0.07	Hyd? Indet.*
2809.50-2813.00	2800.00-2803.50		3.50	0.25	0.11±0.01	0.27±0.07	Hyd? Indet.*
2815.75-2817.25	2806.25-2807.75		1.50	0.00***	0.07±0.03	0.44±0.09	Hyd? Indet.*
2818.75-2826.75	2809.25-2817.25		8.00	1.00	0.14±0.02	1.00	Water?
2835.75-2838.25	2826.25-2828.75		2.50	0.25	0.10±0.00	1.00	Water
2860.00-2862.50	2850.50-2853.00		2.50	0.75	0.12±0.01	0.24±0.06	Hyd? Indet.*
2880.75-2883.75	2871.25-2874.25		3.00	1.50	0.13±0.01	0.22±0.06	Hyd? Indet.*

Note: Mudlog gas indicates significant amounts of hydrocarbon bearing sands are present from 2891.50m to 3050m MDKB(TD). Section unlogged due to blow out.

* A zone not previously recognized as being hydrocarbon bearing.

** Net porosity Thickness, Porosity Average and Swe Average refer to zones with calculated porosities in excess of 10%.

*** Porosity Average and Swe Average refer to all porous zones since fracturing may man 10% porosity cut off does not apply.

(1) Sand Unit nomenclature as per Marlin Field - Post Development Report - 1986 B. Crowther. Internal Report, Esso Australia Ltd.

APPENDIX 6.0

BASIN GIPPSLAND DATE

WELL NAME MARLIN -2 ELEVATION + 31 fe

AGE	PALYNOLOGIC ZONES	HIGHEST DATA					LOWEST DATA				
		Preferred Depth	Rtg	Alternate Depth	Rtg	2 way time	Preferred Depth	Rtg	Alternate Depth	Rtg	2 way time
MIOC.	T. bellus										
	P. tuberculatus										
EOCENE	U. N. asperus										
	L. N. asperus	4802	1				4812	1			
	P. asperopolus	5121	1				5158	1			
	U. M. diversus										
	L. M. diversus										
PALEO-CENE	L. balmei	7402	1	7000	3		8650	1	8700	2	
	T. longus	9387	1				9884	1			
LATE. CRETACEOUS	T. lilliei										
	N. senectus										
	C. trip./T.pach.										
	C. distocarin.										
	T. pannosus										
EARLY CRETACEOUS	C. paradoxa										
	C. striatus										
	U. C. hughesii										
	L. C. hughesii										
	C. stylosus										
Pre-Cretaceous											

COMMENTS: Probable M. diversus interval not sampled

T.D. 10007

RATINGS:
0; SWC or CORE, EXCELLENT CONFIDENCE, assemblage with zone species of spores, pollen and microplankton.
1; SWC or CORE, GOOD CONFIDENCE, assemblage with zone species of spores and pollen or microplankton.
2; SWC or CORE, POOR CONFIDENCE, assemblage with non-diagnostic spores, pollen and/or microplankton.
3; CUTTINGS, FAIR CONFIDENCE, assemblage with zone species of either spores and pollen or microplankton, or both.
4; CUTTINGS, NO CONFIDENCE, assemblage with non-diagnostic spores, pollen and/or microplankton.

NOTE: If a sample cannot be assigned to one particular zone, then no entry should be made.

Form 2378 3/71

26/27

500

BASIN GIPPSLAND BASIN BY David TAYLOR

WELL NAME MARLIN-2 DATE 29 April 1971 ELEV. +31'

Foram Zonules

		Highest Data	Quality	2 Way Time	Lowest Data	Quality	2 Way Time
MIOCENE	A						
	Alternate						
	B						
	Alternate						
	C						
	Alternate						
	D_1				2600	3	
	Alternate						
	D_2	2900	3		3500	3	
	Alternate						
	E	2600	3		4000	3	
	Alternate						
	F						
	Alternate						
	G						
	Alternate						
	H_1	4100	3		4300	3	
	Alternate						
	H_2	4400	3		4500	3	
	Alternate						
OLIGOCENE	I_1	4600	3		4730	3	
	Alternate						
	I_2						
	Alternate						
	J_1						
	Alternate						
	J_2						
	Alternate						
EOC.	K						
	Alternate						
	Pre K	5105	2		5160	2	

COMMENTS: No conventional or sidewall cores in sequence down to 4730 — thus low reliability.

Note: If highest or lowest date 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 apart from the other, no entry should be made.

0 SWC or Core - Complete assemblage (very high confidence).
1 SWC or Core - Almost complete assemblage (high confidence).
2 SWC or Core - Close to zonule change but able to interpret (low confidence).
3 Cuttings - Complete assemblage (low confidence).
4 Cuttings - Incomplete assemblage, next to uninterpretable or SWC with depth suspicion (very low confidence).

Date Revised _____

By _____

BASIN GIPPSLAND DATE 77/127

WELL NAME MARLIN-2 ELEVATION +31 feet

AGE	PALYNOLOGIC ZONES	HIGHEST DATA Preferred Depth	Rtg.	Alternate Depth	Rtg.	2 way time	LOWEST DATA Preferred Depth	Rtg.	Alternate Depth	Rtg.	2 way time
MIO-EOCENE	P. tuberculatus										
	U. N. asperus										
	M. N. asperus										
	L. N. asperus										
	P. asperopolus	4802	1				5158	1			
	U. M. diversus										
	M. M. diversus										
	L. M. diversus										
PALEOCENE	U. L. balmei	7402	1				7790	1			
	L. L. balmei	8055	1				8670	1			
	T. longus	9387	1				9884	1			
LATE CRETACEOUS	T. lilliei										
	N. senectus										
	C. trip./T.pach.										
	C. distocarin.										
	T. pannosus										
EARLY CRETACEOUS											
PRE-CRETACEOUS T.D.		10,007									

COMMENTS: Dinoflagellate Zones
Wetzeliella homomorpha Zone 7402(1) – 7790(1)
Eisenackia crassitabulata Zone 8276(2) [doubtful]

RATINGS:
0; SWC or CORE, EXCELLENT CONFIDENCE, assemblage with zone species of spores, pollen and microplankton.
1; SWC or CORE, GOOD CONFIDENCE, assemblage with zone species of spores and pollen or microplankton.
2; SWC or CORE, POOR CONFIDENCE, assemblage with non-diagnostic spores, pollen and/or microplankton.
3; CUTTINGS, FAIR CONFIDENCE, assemblage with zone species of either spore and pollen or microplankton, or both.
4; CUTTINGS, NO CONFIDENCE, assemblage with non-diagnostic spores, pollen and/or microplankton.

NOTE: If a sample cannot be assigned to one particular zone, then no entry should be made. Also, if an entry is given a 3 or 4 confidence rating, an alternate depth with a better confidence rating should be entered, if possible.

DATA RECORDED BY: L.E.S. DATE Dec. 1971.

DATA REVISED BY: A.D.P. DATE Jan. 1975.

FORM No. P 315 12/72

APPENDIX 7.0

EXPENDITURE STATEMENT - SEPTEMBER 30, 1966

PETROLEUM EXPLORATION PERMIT NO.38

Lease Rent			$5,290
Geophysical			
Airborne Magnetometer	-		
Marine Seismic -			
	Haemex	$185,664	
	Esso	654,498	$840,162
Drilling			
Barracouta	A-1	$2,366,388	
	B-1	595,229	
Cod	A-1	1,217,718	
Marlin	A-1	1,889,202	
	B-1	1,687,709	$7,756,246
Geological etc.			
Geological Studies -			
	Haemex	$36,056	
	Esso	47,941	
Geophysical Interpretation		19,569	
Laboratory Expenses		26,447	$130,013
			$8,731,711

MELBOURNE
BMH:LAF
15.12.66.

ATTACHMENT 2

TESTING DATA - MARLIN B-1

Zone	Interval	Perforation Density	Packer Setting	Flow Duration Hrs.	Choke 64"	Wellhead Pressure p.s.i.g.	Gas Rate MMCF/D	Fluid Rate BBls/ MMCF	Fluid Gravity at 60°F
1.	5096-5107	4 shots/ft.	4960 & 4980 ft.	4	32	1127-1220	5.76-6.25	40	76
2.	5147	2 shots/ft.	4950 ft.	No fluid entry					
3.	5135-5149 5147-5152	4 shots/ft. 2 shots/ft.	4950 ft.			60-86	.021	775 BWPD*	
4.	5102-5117 5102-5117	4 shots/ft. 2 shots/ft.	4950 ft.	No fluid entry					
5.	5096-5107	2 shots/ft.	4950 ft.	2.25	n.a.	1302	6.0	40	74

* Water Salinity 4200 p.p.m. NaCl.

All tests Latrobe Valley Reservior

ATTACHMENT 1

TESTING DATA - MARLIN A-1

Zone	Interval	Perforation Density	Packer Setting	Flow Duration Hrs.	Choke 1/64ths	Wellhead Pressure p.s.i.g.	Gas Rate MMCF/D	Fluid Rate Bbls/ MMCF	Fluid Gravity at 60°F
1	7406-7466 & 7514-7574 Upper Cretaceous	4 shots/ft.	7150	2.2	44.5	1650	10.9	38.7	62
2	5122-5137 Latrobe V. Coal Measures (oil zone)	2 shots/ft.	5089	3.0	58	900	1.07	1182 BOPD	51-53
3	5069-5077 Latrobe V. Coal Measures (tight gas zone)	2 shots/ft.	4930	6.08	29	684	1.9	25.7	76.8
4.	4532-4552 Latrobe V. Coal Measures (gas zone)	2 shots/ft.	4472	2.0	42	713	4.6	26.2	72.2
4.	4532-4552 (as above)	4 shots/ft.	4472	1.0	61	1275	8.3	57.6	74
5.	4532-4552 & 4562-4582 Latrobe V. Coal Measures (gas zone)	4 shots/ft. 2 shots/ft.	4472	2.17	64	1448	10.2	44.6	72.7

The Eastern Bass Strait seismic survey commenced on February 14 and the original programme in the Gippsland Basin (Permits 38 and 39) was completed in early April. Following the drilling of the Marlin A-1 well an additional programme of approximately 230 miles was shot during the period May 29 to June 24. These lines provided necessary data on several prospects in addition to adding control on all sides of the Marlin Field.

The total programme completed in the Permit Area was 807 miles during the survey. The total mileage of seismic shot in the study of the Gippsland Basin, i.e. Permits 38 and 39, is approximately 2,770 miles being equally divided between single-fold reconnaissance and six-fold C.D.P. detailed shooting.

Future Programme

The failure of Marlin B-1 well to prove or disprove the oil zone in the Latrobe Valley reservoir has required the drilling of an additional step-out well, Marlin C-1, and this is expected to commence before the expiry date. This well is scheduled to 5800 feet and authorisation to drill has been received from the Department. Prior to our knowledge of the need to drill Marlin C-1, application had been made and authorisation granted for the drilling of Halibut A-1 well, a wildcat location approximately 10 miles southeast from the Marlin Field. This will probably be the next exploratory well drilled by Esso under our agreement in the Gippsland Basin. Several prospects at the Eocene unconformity (Latrobe Valley) level, have been outlined by the recent seismic shooting and several leads will need to be followed by drilling or by additional shooting in the near future.

MELBOURNE
BMH:LAF
14th December, 1966.

MINES PETROLEUM ACT - SECTION 70(b)

REPORT OF OPERATIONS
PETROLEUM EXPLORATION PERMIT NO.38

The Marlin A-1 well was completed on April 10 and following drilling of the wild-cat location in the Bass Basin the Marlin B-1 step-out well was drilled to 10,007 ft. At this depth the well was lost due to a combination of blowout and weather conditions. Drill pipe, collars and core barrel were cemented in the hole with the top of the fish at 5334 feet. This allowed normal production testing of the Latrobe Valley reservoir.

Results of the two wells in the Marlin Field may be summarized:

LOGISTICS

	Marlin A-1	Marlin B-1
Water Depth	197 feet	198 feet
Spud Date	December 5, 1965	May 30, 1966
Completed	April 10, 1966	November 3, 1966
Total Depth	8485 feet	10,007 feet
Status	Suspended gas and oil well.	Suspended gas well.

STRATIGRAPHY

Formation Top	Marlin A-1	Marlin B-1
Miocene	Sea Floor	Sea Floor
Lakes Entrance Formation	-4229 ft.	-4229 ft.
Latrobe Valley Complex	-4491 ft.	-4699 ft.
Upper Cretaceous	-8439 ft.	-9002 ft.

(Depth sub-sea)

TESTING DATA

(See Attachments 1 and 2).

...2/

HAEMATITE EXPLORATIONS PTY. LTD.

REVIEW OF OPERATIONS - DECEMBER 1966

Martin & I.

PERSONNEL

Management

K.A. Rowell	General Manager.

Technical

B.M. Hopkins	Supt. Geological (Petroleum)
R.J. Foster	Petroleum Engineer
G.H. Hosking	Draughsman

Gas Study Group - from May, 1965:

W. M. Lonie	Assist. General Manager, Raw Materials and Exploration.
G. D. Stephenson	Planning & Development Officer, B.H.P. Co.
M. Hunt	Chief Combustion Engineer, A.I.S. Pty. Ltd.

Consultants

Lewis G. Weeks	Consultant Geologist, U.S.A.
Lyman C. Reed	Consultant Geologist, U.S.A.
James A. Clark	Petroleum Engineer, U.S.A.
James A. Flanagan	Legal Consultant, U.S.A.
Malcolm C. Baker	Consultant Geophysicist, U.S.A.
D.R. McCord & Associates	Petroleum Management Consultants U.S.A. (Commenced 1.1.1966).
Data Analysis Inc.	Well Log Interpretation, Brisbane.

Contractors

Aero Service Ltd., Ramsgate, N.S.W.

Western Geophysical Co. of America, Los Angeles, U.S.A.

United Geophysical Corporation, Brisbane, Q'ld.

R.

APPENDIX 8.0

HAEMATITE EXPLORATIONS PTY. LTD.

REVIEW OF OPERATIONS - DECEMBER 1966

Marlin B.H.P. 2

PERSONNEL

Management

K.A. Rowell	General Manager.

Technical

B.M. Hopkins	Supt. Geological (Petroleum)
R.J. Foster	Petroleum Engineer
G.H. Hosking	Draughsman

Gas Study Group - from May, 1965:

W. M. Lonie	Assist. General Manager, Raw Materials and Exploration.
G. D. Stephenson	Planning & Development Officer, B.H.P. Co.
M. Hunt	Chief Combustion Engineer, A.I.S. Pty. Ltd.

Consultants

Lewis G. Weeks	Consultant Geologist, U.S.A.
Lyman C. Reed	Consultant Geologist, U.S.A.
James A. Clark	Petroleum Engineer, U.S.A.
James A. Flanagan	Legal Consultant, U.S.A.
Malcolm C. Baker	Consultant Geophysicist, U.S.A.
D.R. McCord & Associates	Petroleum Management Consultants U.S.A. (Commenced 1.1.1966).
Data Analysis Inc.	Well Log Interpretation, Brisbane.

Contractors

Aero Service Ltd., Ramsgate, N.S.W.

Western Geophysical Co. of America, Los Angeles, U.S.A.

United Geophysical Corporation, Brisbane, Q'ld.

MINES PETROLEUM ACT - SECTION 70(b)

REPORT OF OPERATIONS
PETROLEUM EXPLORATION PERMIT NO.38

The Marlin A-1 well was completed on April 10 and following drilling of the wild-cat location in the Bass Basin the Marlin ~~B-1~~ 2 step-out well was drilled to 10,007 ft. At this depth the well was lost due to a combination of blowout and weather conditions. Drill pipe, collars and core barrel were cemented in the hole with the top of the fish at 5334 feet. This allowed normal production testing of the Latrobe Valley reservoir.

Results of the two wells in the Marlin Field may be summarized:

LOGISTICS

	Marlin A-1	Marlin ~~B-1~~ 2
Water Depth	197 feet	198 feet
Spud Date	December 5, 1965	May 30, 1966
Completed	April 10, 1966	November 3, 1966
Total Depth	8485 feet	10,007 feet
Status	Suspended gas and oil well.	Suspended gas well.

STRATIGRAPHY

Formation Top	Marlin A-1	Marlin ~~B-1~~ 2
Miocene	Sea Floor	Sea Floor
Lakes Entrance Formation	-4229 ft.	-4229 ft.
Latrobe Valley Complex	-4491 ft.	-4699 ft.
Upper Cretaceous	-8439 ft.	-9002 ft.

(Depth sub-sea)

TESTING DATA

(See Attachments 1 and 2).

...2/

The Eastern Bass Strait seismic survey commenced on February 14 and the original programme in the Gippsland Basin (Permits 38 and 39) was completed in early April. Following the drilling of the Marlin A-1 well an additional programme of approximately 230 miles was shot during the period May 29 to June 24. These lines provided necessary data on several prospects in addition to adding control on all sides of the Marlin Field.

The total programme completed in the Permit Area was 807 miles during the survey. The total mileage of seismic shot in the study of the Gippsland Basin, i.e. Permits 38 and 39, is approximately 2,770 miles being equally divided between single-fold reconnaissance and six-fold C.D.P. detailed shooting.

Future Programme

The failure of Marlin ~~B-1~~ 2 well to prove or disprove the oil zone in the Latrobe Valley reservoir has required the drilling of an additional step-out well, Marlin C-1, and this is expected to commence before the expiry date. This well is scheduled to 5800 feet and authorisation to drill has been received from the Department. Prior to our knowledge of the need to drill Marlin C-1, application had been made and authorisation granted for the drilling of Halibut A-1 well, a wildcat location approximately 10 miles southeast from the Marlin Field. This will probably be the next exploratory well drilled by Esso under our agreement in the Gippsland Basin. Several prospects at the Eocene unconformity (Latrobe Valley) level, have been outlined by the recent seismic shooting and several leads will need to be followed by drilling or by additional shooting in the near future.

MELBOURNE
BMH:LAF
14th December, 1966.

ATTACHMENT 1

TESTING DATA - MARLIN A-1

Zone	Interval	Perforation Density	Packer Setting	Flow Duration Hrs.	Choke 1/64ths	Wellhead Pressure p.s.i.g.	Gas Rate MMCF/D	Fluid Rate Bbls/ MMCF	Fluid Gravity at 60°F
1	7406-7466 & 7514-7574 Upper Cretaceous	4 shots/ft.	7150	2.2	44.5	1650	10.9	38.7	62
2	5122-5137 Latrobe V. Coal Measures (oil zone)	2 shots/ft.	5089	3.0	58	900	1.07	1182 BOPD	51-53
3	5069-5077 Latrobe V. Coal Measures (tight gas zone)	2 shots/ft.	4930	6.08	29	684	1.9	25.7	76.8
4.	4532-4552 Latrobe V. Coal Measures (gas zone)	2 shots/ft.	4472	2.0	42	713	4.6	26.2	72.2
4.	4532-4552 (as above)	4 shots/ft.	4472	1.0	61	1275	8.3	57.6	74
5.	4532-4552 & 4562-4582 Latrobe V. Coal Measures (gas zone)	4 shots/ft. 2 shots/ft.	4472	2.17	64	1448	10.2	44.6	72.7

ATTACHMENT 2

TESTING DATA - MARLIN B-1

Zone	Interval	Perforation Density	Packer Setting	Flow Duration Hrs.	Choke 64"	Wellhead Pressure p.s.i.g.	Gas Rate MMCF/D	Fluid Rate BBls/ MMCF	Fluid Gravity at 60°F
1.	5096-5107	4 shots/ft.	4960 & 4980 ft.	4	32	1127-1220	5.76-6.25	40	76
2.	5147	2 shots/ft.	4950 ft.	No fluid entry					
3.	5135-5149 5147-5152	4 shots/ft. 2 shots/ft.	4950 ft.			60-86	.021	775 BWPD*	
4.	5102-5117 5102-5117	4 shots/ft. 2 shots/ft.	4950 ft.	No fluid entry					
5.	5096-5107	2 shots/ft.	4950 ft.	2.25	n.a.	1302	6.0	40	74

* Water Salinity 4200 p.p.m. NaCl.

All tests Latrobe Valley Reservior

EXPENDITURE STATEMENT - SEPTEMBER 30, 1966

PETROLEUM EXPLORATION PERMIT NO.38

Lease Rent			$5,290
Geophysical			
Airborne Magnetometer		-	
Marine Seismic -			
	Haemex	$185,664	
	Esso	654,498	$840,162
Drilling			
Barracouta	A-1	$2,366,388	
	B-1	595,229	
Cod	A-1	1,217,718	
Marlin	A-1	1,889,202	
	~~B-1~~ 2	1,687,709	$7,756,246
Geological etc.			
Geological Studies -			
	Haemex	$36,056	
	Esso	47,941	
Geophysical Interpretation		19,569	
Laboratory Expenses		26,447	$130,013
			$8,731,711

MELBOURNE
BMH:LAF
15.12.66.

ENCLOSURES

PE601516

This is an enclosure indicator page.
The enclosure PE601516 is enclosed within the container PE905639 at this location in this document.

The enclosure PE601516 has the following characteristics:

ITEM_BARCODE	= PE601516
CONTAINER_BARCODE	= PE905639
NAME	= Well Completion Log
BASIN	= GIPPSLAND
PERMIT	= PEP/38
TYPE	= WELL
SUBTYPE	= COMPLETION_LOG
DESCRIPTION	= Well Completion Log (enclosure from Well Summary) for Marlin-2
REMARKS	=
DATE_CREATED	= 03/11/1966
DATE_RECEIVED	=
W_NO	= W500
WELL_NAME	= Marlin-2
CONTRACTOR	= ESSO
CLIENT_OP_CO	= ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE601517

This is an enclosure indicator page.
The enclosure PE601517 is enclosed within the container PE905639 at this location in this document.

The enclosure PE601517 has the following characteristics:

ITEM_BARCODE	= PE601517
CONTAINER_BARCODE	= PE905639
NAME	= Corelab Grapholog Core Laboratories
BASIN	= GIPPSLAND
PERMIT	= PEP/38
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Corelab Grapholog (enclosure from Well Summary) for Marlin-2
REMARKS	=
DATE_CREATED	= 25/09/1966
DATE_RECEIVED	=
W_NO	= W500
WELL_NAME	= Marlin-2
CONTRACTOR	= CORE LABORATORIES INC
CLIENT_OP_CO	= ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE604013

This is an enclosure indicator page.
The enclosure PE604013 is enclosed within the container PE905639 at this location in this document.

The enclosure PE604013 has the following characteristics:

ITEM_BARCODE	= PE604013
CONTAINER_BARCODE	= PE905639
NAME	= Completeion Coregraph
BASIN	= GIPPSLAND
PERMIT	= PEP/38
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Completion Coregraph (from Well Summary) for Marlin-2
REMARKS	=
DATE_CREATED	= 15/08/66
DATE_RECEIVED	=
W_NO	= W500
WELL_NAME	= MARLIN-2
CONTRACTOR	= CORE LABORATORIES INC.
CLIENT_OP_CO	= ESSO EXPLORATION AUSTRALIA INC..

(Inserted by DNRE - Vic Govt Mines Dept)

PE905640

This is an enclosure indicator page.
The enclosure PE905640 is enclosed within the container PE905639 at this location in this document.

The enclosure PE905640 has the following characteristics:

ITEM_BARCODE	= PE905640
CONTAINER_BARCODE	= PE905639
NAME	= Time Depth Curve
BASIN	= GIPPSLAND
PERMIT	= PEP/38
TYPE	= WELL
SUBTYPE	= VELOCITY_CHART
DESCRIPTION	= Time Depth Curve (enclosure from Well Summary) for Marlin-2
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	=
W_NO	= W500
WELL_NAME	= MARLIN-2
CONTRACTOR	=
CLIENT_OP_CO	= ESSO EXPLORATION AUSTRALIA INC..

(Inserted by DNRE - Vic Govt Mines Dept)

PE604014

This is an enclosure indicator page.
The enclosure PE604014 is enclosed within the container PE905639 at this location in this document.

The enclosure PE604014 has the following characteristics:

ITEM_BARCODE	= PE604014
CONTAINER_BARCODE	= PE905639
NAME	= Computer Generated Logs and Log Analysis
BASIN	= GIPPSLAND
PERMIT	= PEP/38
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Computer Generated Logs and Log Analysis (enclosure from Well Summary) for Marlin-2
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	= 8/06/88
W_NO	= W500
WELL_NAME	= MARLIN-2
CONTRACTOR	=
CLIENT_OP_CO	= ESSO EXPLORATION AUSTRALIA INC..

(Inserted by DNRE - Vic Govt Mines Dept)

PE905641

This is an enclosure indicator page.
The enclosure PE905641 is enclosed within the container PE905639 at this location in this document.

The enclosure PE905641 has the following characteristics:

ITEM_BARCODE	= PE905641
CONTAINER_BARCODE	= PE905639
NAME	= Oil Zone Tests Diagram
BASIN	= GIPPSLAND
PERMIT	= PEP/38
TYPE	= WELL
SUBTYPE	= DIAGRAM
DESCRIPTION	= Oil Zone Tests Diagram (enclosure from Well Summary) for Marlin-2
REMARKS	=
DATE_CREATED	= 17/10/66
DATE_RECEIVED	=
W_NO	= W500
WELL_NAME	= MARLIN-2
CONTRACTOR	=
CLIENT_OP_CO	= ESSO EXPLORATION AUSTRALIA INC..

(Inserted by DNRE - Vic Govt Mines Dept)

PE905642

This is an enclosure indicator page.
The enclosure PE905642 is enclosed within the container PE905639 at this location in this document.

The enclosure PE905642 has the following characteristics:

ITEM_BARCODE	= PE905642
CONTAINER_BARCODE	= PE905639
NAME	= Well Diagram
BASIN	= GIPPSLAND
PERMIT	= PEP/38
TYPE	= WELL
SUBTYPE	= DIAGRAM
DESCRIPTION	= Well Diagram (enclosure from Well Summary) for Marlin-2
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	=
W_NO	= W500
WELL_NAME	= MARLIN-2
CONTRACTOR	=
CLIENT_OP_CO	= ESSO EXPLORATION AUSTRALIA INC..

(Inserted by DNRE - Vic Govt Mines Dept)