W898

WCR VOL 2

PERCH-2

W898

ESSO EXPLORATION AND PRODUCTION AUSTRALIA INC.

95 pages
+ 3 enclosures.

W898

WELL COMPLETION REPORT
PERCH-2
VOLUME II
INTERPRETIVE DATA

GIPPSLAND BASIN
VICTORIA

ESSO AUSTRALIA LIMITED

Compiled by: P.A.ARDITTO

JANUARY.1986

PERCH-2

WELL COMPLETION REPORT

VOLUME II

(Interpretative Data)

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2001L/14

PERCH-2

GEOLOGICAL AND GEOPHYSICAL ANALYSIS

AGE	FORMATION	DEPTH PREDICTED (mKB)	DEPTH DRILLED (mKB)	DEPTH DRILLED (mss)
Miocene	Gippsland Limestone	71	66.5	45.5
Early Oligocene to Early Miocene	Lakes Entrance Formation	1010	1000	979
Middle Eocene to Early Oligocene	Latrobe Group	1088	1119	1098
	"coarse clastics"	1119	1144.25	1123.25
	TOTAL DEPTH	1321	1321	1300

INTRODUCTION

The primary objective of Perch-2 was to test the extent and continuity of the N-1 oil sand discovered in Perch-1. A secondary objective was to test the updip potential of the N-2 sand which was water-wet in Perch-1.

The top of "coarse clastics" (N-1 oil sand) was intersected 25.5m low to prediction, only 3.5m updip from the Perch-1 location intersection. The well penetrated an 8.5m oil column in the N-1 sand (with a clear OWC at 1153.0 mKB), a water-wet N-2 sand and was terminated at a total depth of 1321 mKB.

The well was plugged and abandoned with an RFT recovery of 20.4 litres of 43° API oil from the N-1 sand.

PREVIOUS DRILLING HISTORY

The Perch structure was tested by Perch-1 in 1968. Perch-1 intersected a 4 metre column in the N-1 oil sand. The post Perch-1 structural picture indicated significant updip potential to the NE of the Perch-1 location. Prior to the development of the Perch Discovery it was deemed necessary to test the extent and continuity of the proved oil sand as far away as possible (laterally and updip) from the Perch-1 location. Perch-2 was proposed on that basis.

GEOLOGICAL SUMMARY

Structure

The Perch structure lies on a large NE-SW trending anticline. The top of the Latrobe Group is dissected along the crest of the anticline by down-to-basin (down to NE) normal faults with a maximum throw of 130 metres. The Perch fault block is the most southwesterly feature on the anticline. The Perch fault defines the edge of the Strzelecki Terrace, with about 1,300 metres throw at the top of the Strzelecki Group. Entrapment of oil at Perch is provided by the plunge of the anticline to the south-west, and by fault seal of the Latrobe Group against Lakes Entrance Formation on the NE. The post Perch-2 geophysical mapping has depressed the western flank of the structure although the overall concept remains unchanged (see geophysical section).

STRATIGRAPHY

Latrobe Group

The stratigraphy encountered in the Perch-2 well was generally as predicted. All depths referred to are in metres KB (+21m). The top of Latrobe Group was intersected at 1119.0 metres and consisted of an upper (1119.0-1137.0m) marl (unnamed unit) and a lower (1137.0-1144.25m) pyritic and slightly glauconitic siltstone unit (Gurnard Formation). This subdivision was based on lithological data, wireline log character and paleontological data. Although still uncertain, the un-named unit could be a deeper water facies equivalent of the Gurnard Formation.

The top of "coarse clastics", encountered at 1144.25m, comprised a good quality oil bearing sand (the N-1 sand). Conventional core material from this interval is suggestive of an estuarine or tidal channel fill overlying a tidal flat-lagoonal sequence of carbonaceous siltstones and shales.

The remaining interval down to T.D. comprises a number of relatively thick coals, shales and sand units displaying coarsening upward cycles. The environmental interpretation is an interspersed series of coastal plain swamps, fluvial-estuarine channels and possible upper shoreface to beach units.

Seaspray Group

Marls and limestones of the Lakes Entrance Formation and Gippsland Limestone were encountered as expected. The presence of a previously undetected high velocity layer within the Lakes Entrance Formation distorted the time picture and the pre-drill depth prediction to the top of the N-1 oil sand (see geophysical section).

HYDROCARBONS

The primary objective, the N-1 sand, contained an 8.75m oil column with a clear OWC at 1153.0 mKB (-1132.0m). The previously carried OWC from Perch-1 was -1131.0m. This variation is considered to be within the confidence limits of resolution of the old log suite run in Perch-1 compared to the modern higher resolution log suite run in Perch-2. The value of -1132.0m is currently taken as the field OWC.

A whole oil chromatogram of the oil recovered from RFT 2/7 at 1151 mKB indicates extensive alteration of the oil via biodegradation although it is still a good light crude. A sealed chamber RFT sample was submitted for PVT analysis as this data was not obtained from Perch-1 oil.

Although water-wet at the Perch-2 location, the N-2 sand has some updip potential remaining to the west of Perch-2.

GEOPHYSICAL ANALYSIS

Mapping of the Perch prospect was carried out using a 1 km square grid of reprocessed G74A data, a number of G80A and reprocessed G77A lines and a 1.5 km grid of Aquitaine GA81 data.

The nearby Palmer-1 and Perch-1 wells were used for control, and flank correlations were confirmed by extending the interpretation to Dolphin-1, Bullseye-1 and Luderick-1.

Depth conversion to the Top of "coarse clastics" was performed using stacking velocities smoothed in profile form. The conversion factor to convert VNMO to the true average velocity was held constant over the area. The top of "coarse clastics" came in 25.5m deep to prediction.

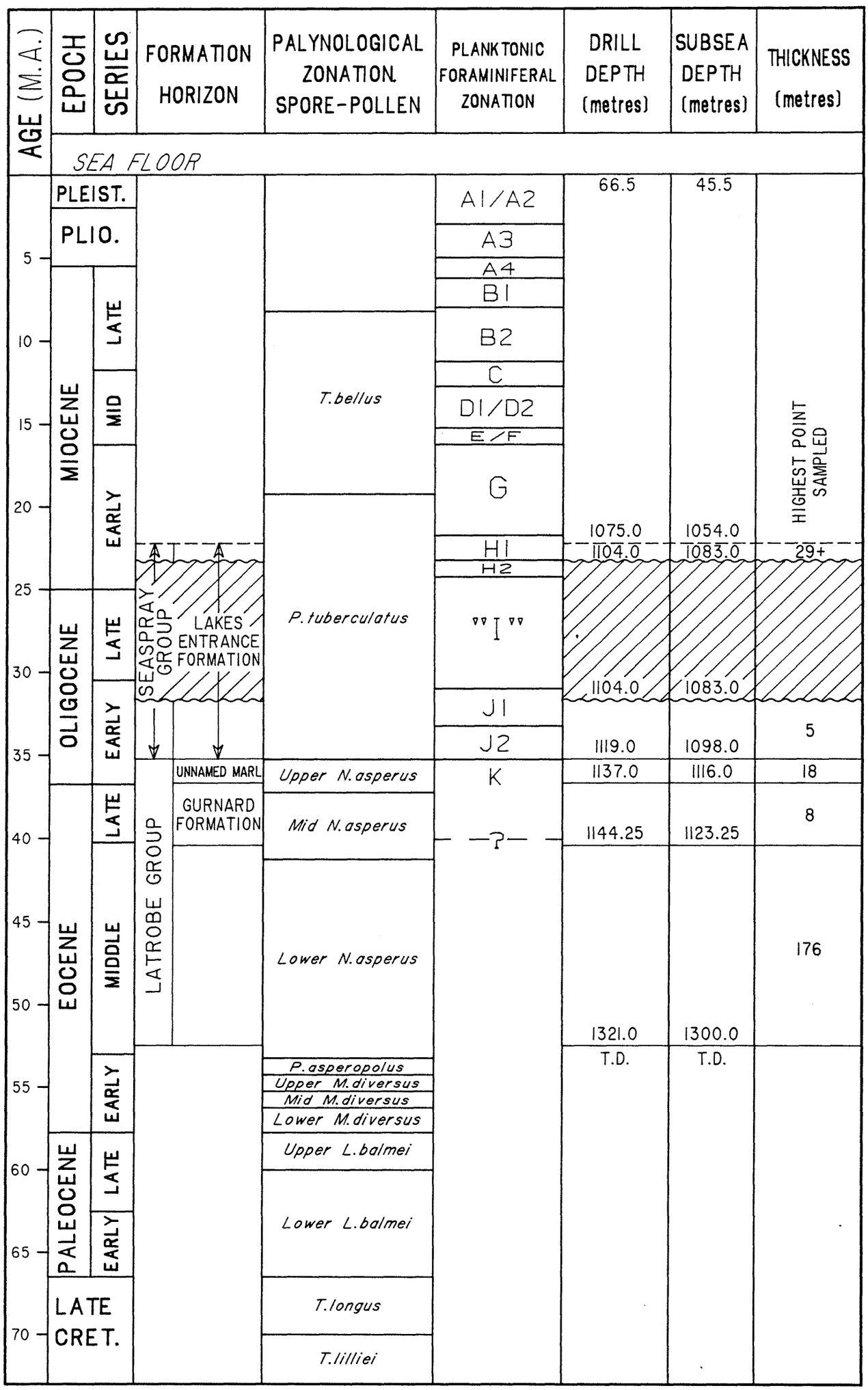
The 2% error in depth prediction is interpreted as being a result of lateral variation in velocity in the Lakes Entrance Formation and the base of Gippsland Limestone between Perch-1 and Perch-2. The resultant average velocity at Perch-2 is 40 m/sec faster than at Perch-1 even though it is 3.5m updip at the "coarse clastics" level.

Trends in the corrected average velocity map reflect the areal distribution of fast velocity channel fill, which are recognised as relatively high amplitude events, on the flanks of the Miocene channel. A degree of subjectivity was required when contouring this map as velocity variations were difficult to recognise given the inadequate velocity control and inherent noise.

1901L/11-14

FIGURES

PERCH-2
STRATIGRAPHIC TABLE



DFT.PERCH-2.STRAT.TABLE 3/86

DWG. 2290/OP/4

APPENDIX-I

APPENDIX 1.

Micropalaeontological Analysis

FORAMINIFERAL ANALYSIS OF PERCH-2, GIPPSLAND BASIN

by

M.J. HANNAH

Esso Australia Ltd. November 1985

Palaeontology Report: 1985/24

D.G. FILE = PERCH2

PALEO.CARDS MBR = PERCH2F

1958L

INTRODUCTION

GEOLOGICAL SUMMARY

BIOSTRATIGRAPHY

DATA SUMMARY

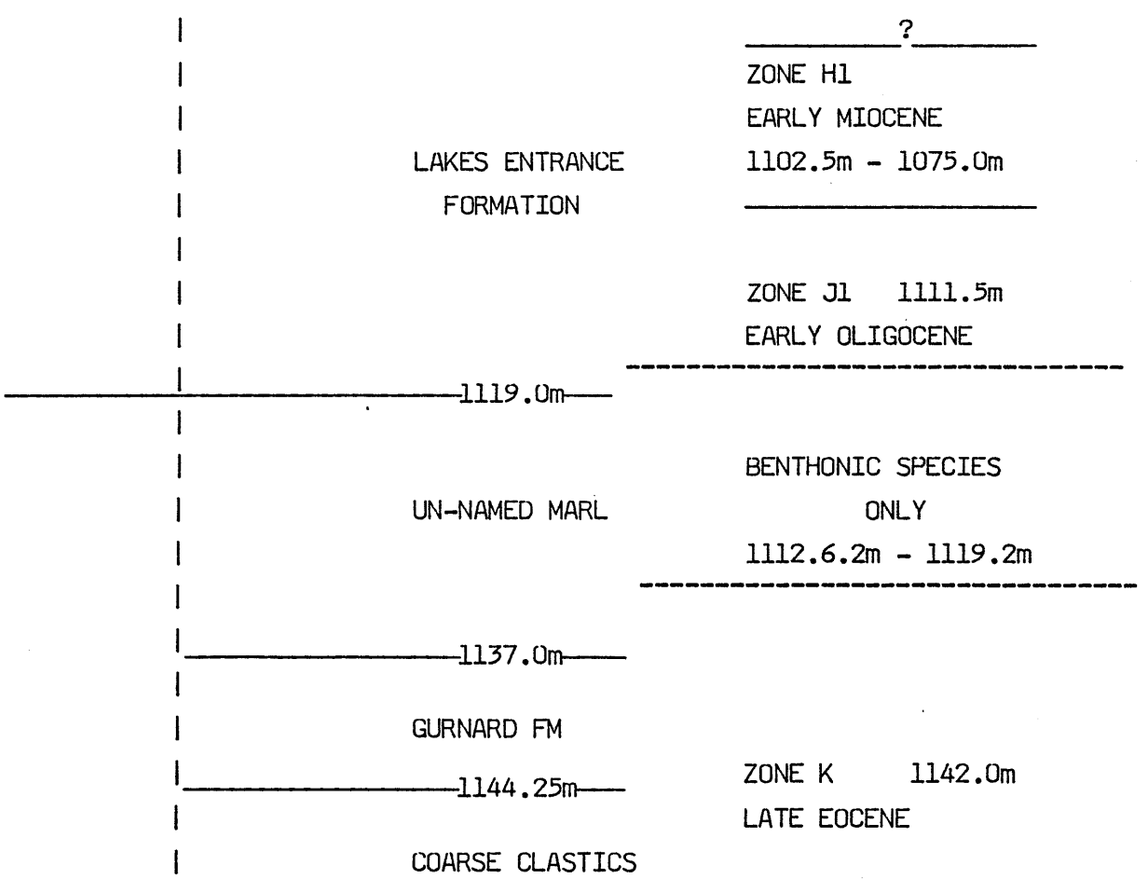
DATA SHEET

RANGE CHART

INTRODUCTION

Seven sidewall core samples were examined from across the Latrobe Group/Seaspray Group boundary. Sample gaps and a derth of planktonic feraminifera makes the exact position of the boundary uncertain.

GEOLOGICAL SUMMARY - PERCH 2



1958L/3

BIOSTRATIGRAPHY

LATE EOCENE - ZONE K - 1142 Om

The recognition of Globigerina brevis, Globigerina linaperta and Globorotalia postcretacea enables this sample to be assigned to zone K with a high degree of confidence.

EARLY OLIGOCENE - JONE J1 - 1111.5m.

The sample assigned to this zone lacks the accepted zonal indicator species. However, the recognition of Chiloguembelina cubensis and Globigerina triloculinoides is sufficient for the zonal assignment albeit with a reduced confidence rating.

EARLY MIOCENE - ZONE H1 1102.0m - 1075.0m.

The presence of Globigerina woodi connecta without Globigerinoides trilobus is indicative of zone H1.

Reworking of Early Oligocene/Late Eocene material (Globigerina labiacrassata and Globorotalia postcretacea) occurs in the basal zone H1 sample (Sidewall core 29 at 1102.0m).

TABLE 1: DATA SUMMARY, PERCH-2, GIPPSLAND BASIN

DEPTH (M)	SWC NO.	PRESERVATION	YIELD	ZONE	AGE	COMMENTS
1142.0	23	Good	Poor	K	Late Eocene	
1126.2	25	Poor	Poor	?	Indeterminate	Benthonic species only
1119.2	26	Poor	Poor	?	Indeterminate	Benthonic species only
1111.5	27	Moderate	Fair	J1	Early Oligocene	
1102.5	28	Moderate	Fair	H-1	Early Miocene	
1088.0	29	Moderate	Good	H-1	Early Miocene	
1075.0	30	Poor	Fair	H-1	Early Miocene	Top Sample

MICROPALEONTOLOGICAL DATA SHEET

BASIN: GIPPSLAND ELEVATION: KB: 21 GL: -45.5

WELL NAME: PERCH-2 TOTAL DEPTH: 1321.0

AGE		FORAM. ZONULES	HIGHEST DATA					LOWEST DATA				
			Preferred Depth	Rtg	Alternate Depth	Rtg	Two Way Time	Preferred Depth	Rtg	Alternate Depth	Rtg	Two Way Time
PLEISTOCENE		A_1										
		A_2										
PLIOCENE		A_3										
		A_4										
MIOCENE	LATE	B_1										
		B_2										
		C										
	MIDDLE	D_1										
		D_2										
		E_1										
		E_2										
	EARLY	F										
		G										
		H_1	1075.0	1				1102.5	1			
OLIGOCENE	LATE	H_2										
		I_1										
		I_2										
	EARLY	J_1	1111.5	2				1111.5	2			
		J_2										
EOCENE		K	1142.0	0				1142.0	0			
		Pre-K										

COMMENTS: Top of Zone H1 - top sample taken

CONFIDENCE RATING:

- 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).

NOTE: If an entry is given a 3 or 4 confidence rating, an alternative depth with a better confidence rating should be entered, if possible. If a sample cannot be assigned to one particular zone, then no entry should be made, unless a range of zones is given where the highest possible limit will appear in one zone and the lowest possible limit in another.

DATA RECORDED BY: MICHAEL HANNAH DATE: 5/11/85

DATA REVISED BY: _____ DATE: _____

APPENDIX 2

APPENDIX 2.

Palynological Analysis

APPENDIX

PALYNOLOGICAL ANALYSIS OF PERCH-2, GIPPSLAND BASIN

by

M.K. Macphail

Esso Australia Ltd.

Palaeontology Report 1985/21

July 1985

1755L

INTERPRETATIVE DATA

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TABLE-1: INTERPRETATIVE DATA

TABLE-2: ANOMALOUS AND UNUSUAL OCCURRENCES OF SPORE POLLEN

PALYNOLOGY DATA SHEET

TABLE-3: BASIC DATA

INTRODUCTION

Nineteen sidewall cores samples and three conventional core samples were processed and analysed for spore-pollen and dinoflagellates. Although recovery and preservation were adequate throughout, relatively few samples contained zone indicator species. Consequently many age determinations are of low confidence.

Lithological units and palynological zones from the base of the Lakes Entrance Formation to T.D. are summarized below. Anomalous and unusual occurrences of taxa are listed in Table 2. Basic data are given in Table 3.

SUMMARY

AGE	UNIT	ZONE	DEPTH (m)
Early Oligocene -Early Miocene	Lakes Entrance Formation	*P. tuberculatus*	1111.5
	log break at 1119.0m		
Late Eocene	Unnamed marl	Upper *N. asperus*	1119.2-1126.2
	log break at 1137.0m		
Late Eocene	Gurnard Formation equivalent	Middle *N. asperus*	1142.0
	log break at 1144.25m		
Late Eocene	Latrobe Group coarse clastics	Middle *N. asperus* Lower *N. asperus*	1168.3 1175.0-1299.0
			T.D. 1321m

GEOLOGICAL COMMENTS

1. The Perch-2 well contains a continuous sequence of zones from the Middle Eocene, Lower N. asperus Zone to the Early Oligocene, P. tuberculatus Zone.

2. A highly calcareous siltstone dated as Upper N. asperus Zone occurs near the base of the Lakes Entrance Formation (SWC 26, 1119.2m). Sediments at 1125.2m, above Top of Latrobe picked on logs as occurring at 1137.0m, are also calcareous and Upper N. asperus Zone in age. Glauconite is rare. Log data indicate both samples are part of the same unit, extending from 1137.0m to 1119.0m. Essentially the same sequence of Upper N. asperus Zone facies extends across the picked Top of Latrobe in Palmer-1 and may be present in the unsampled interval above 3750 ft in Perch-1 (see Stacy 1982). The Upper N. asperus Zone calcareous shale unit in Perch-2, cited here as an unnamed marl, may be the equivalent of the glauconite-free marl occuring between 6700 and 6820 ft in Bullseye-1.

3. The unnamed marl is underlain by a non-calcareous siltstone, defined by the gamma ray spike between 1137.0 and 1144.5m. This siltstone which contains rare glauconite but abundant fine pyrite, is Middle N. asperus Zone in age and is likely to be the time equivalent of the Gurnard Formation in adjacent wells. The absence of moderate to abundant pelletal glauconite in Perch-2 is in marked contrast to Palmer-1, where a 27m thick greensand of Middle N. asperus zone age is recorded (Stacy ibid). Greensands are also present in the top section of a core taken in Perch-1 (3720-3722.5 ft, 1133.9-1134.6m). The actual thickness of greensands in this well (Perch-1) is unknown but possibly up to 31m given that the Top of Latrobe picked on logs is at 1103.5m. Removal by erosion of a greensand of this thickness at Perch-2 is considered highly unlikely and a more realistic explanation is that a thin greensand, associated with a marked gamma kick between 1128.5 and 1134.5m in Perch-1, is either absent or, less likely, was not sampled in the equivalent unit between 1140 and 1144.5m in Perch-2.

BIOSTRATIGRAPHY

Zone boundaries have been established using the criteria of Stover and Partridge (1973) and subsequent proprietary revisions.

Lower Nothofagidites asperus Zone: 1175.0m - 1299.0m.

The base of the zone is provisionally picked at 1299.0m on the occurrence of the rare species Proteacidites reflexus. The sample concerned is a coal containing a Phyllocladidites mawsonii-Proteacidites-Clavifera triplex palynoflora. The coal at 1295m contains a Nothofagidites-dominated palynoflora in which Clavifera triplex and Proteacidites recavus are frequent. A more reliable lower boundary for the zone is at 1278.0m, a sample containing frequent Proteacidites asperopolus and Nothofagidites. Tricolporites leuros, which usually first appears in this zone, is present at 1256.2m. The upper boundary is picked at 1175.0m, the highest sample lacking species diagnostic or typical of the Middle N. asperus Zone. Nothofagidites falcatus shows this sample is no older than Lower N. asperus Zone in age.

Middle Nothofagidites asperus Zone: 1142.0-1168.3m.

This interval is characterised by assemblages containing only the general N. asperus Zone indicators, e.g. frequent to abundant Nothofagidites spp. The base of the zone is provisionally picked at 1168.3m, a sample containing abundant Vozzhenikovia extensa. The upper boundary is defined by the only occurrence of the zone indicator species Triorites magnificus in this well.

Upper Nothofagidites asperus Zone: 1119.2-1126.2m.

Two samples are assigned to this zone on the absence of indicator species of the Middle N. asperus Zone or the P. tuberculatus Zone. Although the majority of the dinoflagellates could not be identified, the assemblages resemble those recorded elsewhere in latest Eocene - Early Oligocene sediments. The sample at 1126.2m contains Stereisporites punctatus, a spore which is last recorded in this zone, and Proteacidites tuberculatus a species which first appears in the uppermost Middle N. asperus Zone. Other species which also first appear in the uppermost Middle N. asperus Zone are present at 1119.2m - Proteacidites rectomarginis and Verrucosisporites cristatus. An occurrence of the very rare species, Proteacidites truncatus in this sample extends the known range of the species from the Middle Miocene, T. bellus Zone to the Upper N. asperus Zone in the Gippsland Basin. P. truncatus occurs in Middle N. asperus Zone sediments in the Bass Basin.

Proteacidites tuberculatus Zone: 1111.5m.

Occurrence of Cyatheacidites annulatus and Protoellipsodinium simplex confirm a P. tuberculatus zone age for this sample J-1 Zone foraminifera demonstrate that this sample is Early Oligocene (M.J. Hannah pers. comm.).

REFERENCES

STACEY, H.E. (1982). Palynological Analysis of Palmer-1, Gippsland Basin. Esso Australia Ltd Palaeontology Report 1982/9.

STOVER, L.E. & Partridge, A.D. (1973). Tertiary and Late Cretaceous spores and pollen from the Gippsland Basin, Southeastern Australia. Proc. Roy. Soc. Vict., 85, 237-86.

TABLE 1: SUMMARY OF INTERPRETATIVE PALYNOLOGICAL DATA
PERCH-2

SAMPLE NO.	DEPTH (m)	SPORE-POLLEN ZONE	DINOFLAGELLATE ZONE	AGE	CONFIDENCE RATING	COMMENTS
SWC 27	1111.5	*P. tuberculatus*	-	Early Miocene	0	*C. annulatus*
SWC 26	1119.2	Upper *N. asperus*	-	Late Eocene	1	*P. rectomarginis*, *P. tuberculatus* *V. cristatus*
SWC 25	1126.2	Upper *N. asperus*	-	Late Eocene	1	*P. tuberculatus*, *S. punctatus*
SWC 23	1142.0	Middle *N. asperus*	?*C. incompositum*	Late Eocene	0	*T. magnificus*, *C. corrugatum*
Core 2	1155.85	No older than Lower *N. asperus* Zone			-	*N. falcatus*
Core 2	1156.65	No older than Lower *N. asperus* Zone			-	*N. falcatus*
Core 2	1158.30	No older than Lower *N. asperus* Zone			-	*N. falcatus*, *V. extensa*
SWC 17	1168.3	Middle *N. asperus*	-	Late Eocene	2	Abundant *V. extensa*
SWC 16	1175.0	Lower *N. asperus*	-	Middle Eocene	2	*N. falcatus*, *M. homeopunctatus*
SWC 13	1201.8	Lower *N. asperus*	-	Middle Eocene	2	*N. falcatus*
SWC 12	1212.0	Lower *N. asperus*	-	Middle Eocene	2	Frequent-common *Nothofagidites*
SWC 11	1228.5	Lower *N. asperus*	-	Middle Eocene	2	Frequent-common *Nothofagidites*
SWC 10	1240.7	Lower *N. asperus*	-	Middle Eocene	2	Frequent-common *Nothofagidites*
SWC 9	1250.2	Lower *N. asperus*	-	Middle Eocene	1	*P. asperopolus*, abundant *Nothofagidites*
SWC 7	1254.5	Lower *N. asperus*	-	Middle Eocene	2	*Nothofagidites* common
SWC 8	1256.2	Lower *N. asperus*	-	Middle Eocene	1	*Nothofagidites* common, *T. leuros*

TABLE 1: SUMMARY OF INTERPRETATIVE PALYNOLOGICAL DATA
PERCH-2

SAMPLE NO.	DEPTH (m)	SPORE-POLLEN ZONE	DINOFLAGELLATE ZONE	AGE	CONFIDENCE RATING	COMMENTS
SWC 6	1278.0	Lower *N. asperus*	-	Middle Eocene	1	Frequent *Nothofagidites* and *P. asperopolus*
SWC 5	1288.0	Indeterminate	-	-	-	
SWC 4	1295.0	Lower *N. asperus*	-	Middle Eocene	2	*Nothofagidites* and *P. recavus* frequent (coal palynoflora)
SWC 3	1299.0	Lower *N. asperus*	-	Middle Eocene	2	*P. reflexus* (coal palynoflora)
SWC 2	1299.5	No older than *P. asperopolus* Zone			-	*P. recavus*

TABLE 2

ANOMALOUS AND UNUSUAL OCCURRENCES OF SPORE-POLLEN AND DINOFLAGELLATE TAXA

SAMPLE NO.	DEPTH(m)	ZONE	TAXON	COMMENTS
SWC 26	1119.2	Upper N. asperus (1)	Phyllocladidites palaeogenicus	Uncommon sp.
SWC 26	1119.2	Upper N. asperus (1)	Proteacidites truncatus	Very rare sp.
SWC 26	1119.2	Upper N. asperus (1)	Verrucosisporites cristatus	Very rare sp.
SWC 25	1126.2	Upper N. asperus (1)	Proteacidites tuberculatus	Uncommon sp.
SWC 25	1126.2	Upper N. asperus (1)	Stereisporites punctatus	Top of range of species
SWC 25	1126.2	Upper N. asperus (1)	Beaupreadites elegansiformis	Very rare in this zone.
SWC 25	1126.2	Upper N. asperus (1)	Tetracolpites psilatus	Ms sp. (MKM).
Core 2	1158.30	(Middle N. asperus)	Proteacidites grandis	Rarely, if ever recorded above P. asperopolus zone.
Core 2	1158.30	(Middle N. asperus)	Proteacidites rugulatus	Rare sp.
SWC 16	1175.0	Lower N. asperus (2)	Astelia	Modern taxon.
SWC 16	1175.0	Lower N. asperus	Haloragacidites verrucato-harrisii	Rare ms sp. (MKM).
SWC 16	1175.0	Lower N. asperus	Milfordia homeopunctatus	Rare sp.
SWC 16	1175.0	Lower N. asperus (2)	Schizocolpus marlinensis	Rare in this zone.
SWC 13	1201.8	Lower N. asperus (2)	Beaupreadites trigonalis	Rare sp.
SWC 12	1212.0	Lower N. asperus (2)	Schizocolpus marlinenis	As for SWC 16.
SWC 10	1240.7	(Lower N. asperus)	Basopollis mutabilis	Close to top of range.
SWC 10	1240.7	(Lower N. asperus)	Matonisporites ornamentalis	Rare in this zone.
SWC 10	1240.7	(Lower N. asperus)	Triletes tuberculiformis	Rare in this zone.

TABLE 2

ANOMALOUS AND UNUSUAL OCCURRENCES OF SPORE-POLLEN AND DINOFLAGELLATE TAXA

SAMPLE NO.	DEPTH(m)	ZONE	TAXON	COMMENTS
SWC 9	1250.2	Lower N. asperus (1)	Anacolosidites luteoides	Rare sp.
SWC 9	1250.2	Lower N. asperus	Basopollis mutabilis	As for SWC 10.
SWC 9	1250.2	Lower N. asperus (1)	Dryptopollenites semilunatus	Rare sp.
SWC 9	1250.2	Lower N. asperus (1)	cf Histeopteris	Modern taxon.
SWC 9	1250.2	Lower N. asperus (1)	Reticulosporis sp.	Rare above Late Cretaceous.
SWC 7	1254.5	(Lower N. asperus)	Cunoniaceae 3-p	Modern taxon.
SWC 8	1256.2	Lower N. asperus (1)	Beaupreadites trigonalis	As for SWC 13
SWC 8	1256.2	Lower N. asperus (1)	Proteacidites sp. nov.	Resembles Triporopollenites vargus
SWC 4	1295.0	Lower N. asperus (2)	Banksieaeidites elongatus	In coal palynoflora dominated by Nothofagidites.
SWC 4	1295.0	Lower N. asperus (2)	Clavifera triplex	Common in palynoflora.
SWC 4	1295.0	Lower N. asperus (2)	Proteacidites annularis	Common in palynoflora.
SWC 4	1295.0	Lower N. asperus (2)	Proteacidites recavus	Frequent in palynoflora.
SWC 4	1295.0	Lower N. asperus (2)	Phyllocladidites palaeogenicus	In coal palynoflora dominated by Nothofagidites
SWC 4	1295.0	Lower N. asperus (2)	Tetracolporites cf textus	In coal palynoflora dominated by Nothofagidites
SWC 3	1299.0	(Lower N. asperus)	Clavifera triplex	Common in coal palynoflora dominated by Proteacidites and Phyllocladidites mawsonii
SWC 3	1299.0	(Lower N. asperus)	Proteacidites reflexus	Rare sp.
SWC 2	1299.5	?Lower N. asperus	Clavifera triplex-Phyllocladidites mawsonii-dominated coal palynoflora	
SWC 2	1299.5	?Lower N. asperus	Gephyrapollenites cranwelliae	Uncommon sp.

TABLE 3: SUMMARY OF BASIC PALYNOLOGICAL DATA

DIVERSITY - low medium high
S & P less than 10 10-30 greater than 30
D 1-3 3-10 10

SAMPLE NO.	DEPTH (m)	YIELD SPORE-POLLEN	YIELD DINOS	DIVERSITY SPORE-POLLEN	DIVERSITY DINOS	PRESERVATION	LITHOLOGY	PYRIZATION	COMMENTS
SWC 27	1111.5	Fair	Good	Low	Medium	Fair	Sh., calc.	-	
SWC 26	1119.2	Fair	Low	Medium	Medium	Good	Slst., calc., glau.	-	
SWC 25	1126.2	Fair	Low	Medium	Medium	Poor	Clyst.	-	Spore-dominated.
SWC 23	1142.0	Fair	Low	Medium	Low	Good	Slst.	-	
Core 2	1155.85	Fair	Fair	Low	Low	Poor	Mdst./Clyst.	Moderate	
Core 2	1156.65	Fair	Fair	Low	Low	Poor	Mdst./Clyst.	-	
Core 2	1158.30	Good	Low	Medium	Medium	Poor	Mdst./Clyst.	Minor	
SWC 18	1159.0	V. low	-	V. low	-	Poor	Sh.	-	
SWC 17	1168.3	Fair	Fair	Low	Low	Poor	Sh.	Moderate	
SWC 13	1201.8	Low	Low	Low	Low	Fair	Slst., lam.	-	Spore-pollen swollen.
SWC 12	1212.0	Low	Good	Low	Low	Poor	Sh., lam.	-	
SWC 11	1228.5	V. low	-	Low	-	Good	Coal	-	
SWC 10	1240.7	V. good	-	Medium	-	Poor	Sh.	-	
SWC 9	1250.2	Good	-	High	-	Good	Sh.	-	
SWC 7	1254.5	Good	-	Low	-	Fair	Slst., carb. lam.	-	

1755L:13

TABLE 3: SUMMARY OF BASIC PALYNOLOGICAL DATA

DIVERSITY - low medium high
S & P less than 10 10-30 greater than 30
D 1-3 3-10 10

SAMPLE NO.	DEPTH (m)	YIELD		DIVERSITY		PRESERVATION	LITHOLOGY	PYRIZATION	COMMENTS
		SPORE-POLLEN	DINOS	SPORE-POLLEN	DINOS				
SWC 6	1278.0	Low	V. low	Medium	Low	Good	Sh.	-	Spore-dominated.
SWC 5	1288.0	V. low	-	Low	-	Fair	Slst.	-	
SWC 4	1295.0	Low	-	High	-	Good	Coal	-	
SWC 3	1299.0	Low	-	Medium	-	Fair	Coal	-	
SWC 2	1299.5	Good	-	Medium	-	Fair	Coal	-	

PALYNOLOGY DATA SHEET

BASIN: GIPPSLAND ELEVATION: KB: 121.0m GL: -45.0m

WELL NAME: PERCH-2 TOTAL DEPTH: 1315m

AGE	PALYNOLOGICAL ZONES	HIGHEST DATA					LOWEST DATA				
		Preferred Depth	Rtg	Alternate Depth	Rtg	Two Way Time	Preferred Depth	Rtg	Alternate Depth	Rtg	Two Way Time
NEOGENE	*T. pleistocenicus*										
	M. lipsis										
	C. bifurcatus										
	T. bellus										
	P. tuberculatus	1111.5	0				1111.5	0			
PALEOGENE	Upper *N. asperus*	1119.2	1				1126.2	1			
	Mid *N. asperus*	1142.0	0				1168.3	2			
	Lower *N. asperus*	1175.0	2				1299.0	2	1278.0	1	
	P. asperopolus										
	Upper *M. diversus*										
	Mid *M. diversus*										
	Lower *M. diversus*										
	Upper *L. balmei*										
	Lower *L. balmei*										
LATE CRETACEOUS	Upper *R. longus*										
	Lower *R. longus*										
	T. lilliei										
	N. senectus										
	T. apoxyexinus										
	P. mawsonii										
	A. distocarinatus										
EARLY CRET.	*P. pannosus*										
	C. paradoxa										
	C. striatus										
	C. hughesi										
	F. wonthaggiensis										
	C. australiensis										

COMMENTS: The dinoflagellate V. extensa from 1142.0 to 1168.3m.

CONFIDENCE RATING:

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 an entry is given a 3 or 4 confidence rating, an alternative depth with a better confidence rating should be entered, if possible. If a sample cannot be assigned to one particular zone, then no entry should be made, unless a range of zones is given where the highest possible limit will appear in one zone and the lowest possible limit in another.

DATA RECORDED BY: M.K. Macphail DATE: 22.7.85

DATA REVISED BY: _____ DATE: _____

APPENDIX 3

APPENDIX 3.

Quantitative Log Analysis

PERCH-2

QUANTITATIVE LOG ANALYSIS

Interval: 1100-1327m MVD

Analyst : J.B. Kulla

Date : March, 1985

PERCH-2 QUANTITATIVE LOG ANALYSIS

Summary

Perch-2 wireline logs have been analysed for effective water saturation (Swe) and effective porosity (PHIE) over the interval 1100m to 1327m MVD KB. The summary of results is in Table 1. Ten porous zones are identified; only the shallow sand at 1144.25m to 1156.75m MVD KB which correlates to the N1 sand in Perch-1, was found to contain oil. The OWC is at 1153m for 8.75 metres of net pay with an average porosity of 26% and an average water saturation of 18% for apparent water salinity of 18,000 ppm NaCl equivalent and of 15% for apparent water salinity of 30,000 ppm NaCl equivalent. The value of 18,000 ppm salinity was chosen as a minimum value which agrees with salinity determined from tritiated water analysis. The value 30,000 ppm salinity is considered a most likely salinity for formation water where no aquifer water invasion has occurred. It is to be noted that such a difference in apparent water salinity makes only a 3% shift in the average water saturation for this reservoir.

Log Analysis

LDTC-CNTH

Calibration of the LDT fell within the acceptable calibration windows as specified by Schlumberger. Poor hole conditions above 1137m in the Gurnard Formation and Lakes Entrance Formation result in a high delta rho and a high PEF. Apparent solids invasion into the N1 sand caused the CNT and the PEF to read high. It appears that the 10 lb/g mud weight was too high.

DLL-MSFL

The dual laterolog was run with a 1-1/2 inch standoff and the SP was run standard with the fish buried in the sea floor for a better ground. The resistivity logs appear good.

Formation water apparent salinities calculated from the SP are 10,446 ppm NaCl equivalent at 1148m, 7,858 ppm at 1155.5m and 4,667 ppm at 1194m.

BHC-GR-SP

Several runs of the SP were made in addition to that with the DLL combination. The main log file 3 is the BHC-GR-SP standard. File 4 is the BHC-GR-SP shorted at the patch box and file 5 is the SP only without power. In each case the SP appeared more unstable than that run with the DLL which was unexpected since the additional current of the DLL was considered a potential problem. Salinities calculated from the SP of file 5 are 5,895 ppm at 1148m, 3,601 ppm at 1155.5m and 4,250 ppm at 1194m. Salinities calculated from the SP of file 4 are 5,173 ppm at 1148m.

The following well log curves were used in the log analysis:

1. Laterolog Deep (LLD)
2. Laterolog Shallow (LLS)
3. Gamma Ray (GR)
4. Caliper
5. Density curve (RHOB) from the Lithology Density Log (LDL) and
6. Neutron porosity (NPHI) from the Compensated Neutron Log (CNL)
7. Micro spherically focused log (MSFL)
8. Spontaneous Potential (SP)
9. Borehole Compensated Sonic (BHC)

PHIE and Swe are calculated using reiterative techniques for (a) hydrocarbon corrections to the porosity logs, (b) shale volume determinations using density-neutron crossplot porosities, and (c) convergence on a preselected grain density window by shale volume adjustment. The Dual Water model is used to correct for clay-bound water effects in the calculation of water saturation.

Analysis Parameters

a	1.00
m	2.00
n	2.00
Rmf at 60^{o} C	.148 ohm.m
Grain Density window	2.65 to 2.67 gm/cc

Shale Parameters

PHIN	.39
RHOB (Shale)	2.50 gm/cc
RSH	20 ohm.m for interval 1100-1290m
	25 ohm.m for interval 1290-1327m

Apparent Formation Salinities

Interval (m)	Salinity (ppm NaCl equivalent)
1100 - 1128	30,000
1128 - 1153	*18,000
1153 - 1205	3,000
1205 - 1250	2,000
1250 - 1290	3,000
1290 - 1327	750

* Determined from Tritiated water analysis.

Shale Volume

An initial estimate of VSH is calculated from the density neutron separation:

$$VSH = \frac{NPHI - \frac{2.65 - RHOB}{1.65}}{NPHISH - \frac{2.65 - RHOBSH}{1.65}} \quad - 1$$

Total Porosity

Total porosity was initially calculated from the density-neutron log using the following algorithms:

$$h = 2.71 - RHOB + NPHI\ (RHOF - 2.71) \quad - 2$$

if h is greater than 0, then

$$\text{apparent matrix density, RHOMa} = 2.71 - h/2 \qquad -3$$

if h is less than 0, then

$$\text{apparent matrix density, RHOMa} = 2.71 - 0.64h \qquad -4$$

$$\text{Total porosity: PHIT} = \frac{\text{RHOMa} - \text{RHOB}}{\text{RHOMa} - \text{RHOF}} \qquad -5$$

where RHOB = environ. corrected bulk density in gms/cc
NPHI = environ. corrected neutron porosity in limestone porosity units.
RHOF = fluid density (1.0 gms.cc)

Free Water Salinity

Apparent free water salinities are calculated using the following relationships:

$$Rw = \frac{Rt * PHIT^m}{a} \qquad -6$$

$$\text{Salinity (ppm)} = \frac{300{,}000}{Rw\ (Ti + 7) - 1}^{1.05} \qquad -7$$

where Ti = formation temperature in ^oF.

Bound Water Resistivities (Rwb) and Saturation of Bound Water (Swb)

Rwb and Swb were calculated using the following relationships:

$$Rwb = \frac{RSH * PHISH^m}{a} \qquad -8$$

where PHISH = total porosity in shale from density-neutron crossplots.
RSH = Rt in shales.

$$Swb = \frac{VSH * PHISH}{PHIT} \qquad -9$$

Water Saturations

Water saturations were determined from the Dual Water model using the following relationships:

$$\frac{1}{Rt} = SwT^n * \frac{PHIT^m}{aRw} + SwT^{(n-1)} \frac{Swb * PHIT^m}{a} \left(\frac{1}{Rwb} - \frac{1}{Rw}\right) \qquad -10$$

and

$$\frac{1}{Rxo} = SxoT^n * \frac{PHIT^m}{aRw} + SxoT^{(n-1)} \frac{Swb * PHIT^m}{a} \left(\frac{1}{Rwb} - \frac{1}{Rmf}\right) \qquad -11$$

where SwT = total saturation in the virgin formation
SxoT = total saturation in the invaded zone
Rmf = resistivity of mud filtrate
n = saturation exponent

Hydrocarbon Corrections

Hydrocarbon corrections to the density and neutron logs were made using the following relationships:

$$RHOBHC = RHOB + 1.07\ PHIT\ (1-SxoT)\ [(1.11-0.15P)\ RHOF - 1.15\ RHOH] \quad -12$$

$$NPHIHC = NPHI + 1.3\ PHIT\ (1-SxoT)\ \frac{RHOF\ (1-P) - 1.5\ RHOH + 0.2}{RHOF\ (1-P)} \quad -13$$

where RHOBHC = hydrocarbon corrected RHOB
NPHIHC = hydrocarbon corrected PHIN
RHOH = hydrocarbon density (0.72 gms/cc for oil)
P = mud filtrate salinity in parts per unity

Grain Density

Grain density (RHOG) was calculated from the hydrocarbon corrected density and neutron logs using the following relationships:

$$RHOBC = \frac{RHOBHC - VSH * RHOBSH}{1 - VSH} \quad -14$$

$$NPHIC = \frac{PHINHC - VSH * NPHISH}{1 - VSH} \quad -15$$

and equations 2, 3 and 4 are then used to compute RHOG.

The calculated grain density was then compared to the upper and lower limits of the grain densities and if it fell within the limits, effective porosity (PHIE) and effective saturation (Swe) were calculated as follows:

$$PHIE = PHIT - VSH * PHISH \quad -16$$

$$Swe = 1 - \frac{PHIT}{PHIE}\ (1-SwT) \quad -17$$

If the calculated grain density fell outside the limits, VSH was adjusted in appropriate increments and PHIT, SwT, SxoT and RHOG recalculated.

All zones with VSH greater than 60%, coals and carbonaceous shales, Swe was set to 1 and PHIE set to 0.

PERCH-2

TABLE 1

SUMMARY OF RESULTS

Depth (m)	Gross Thickness (m)	* Net Thickness (m)	Average Porosity ± STD (%)	Average Water Saturation ± 30% (Sw)	Comments
1100.00 - 1143.50	(No effective porosity)				
1144.25 - 1156.75 (N1 Sand)	12.50	12.50	.27 ± .04	.39	Oil/residual at base
1144.25 - 1153.00 Oil Reservoir Only	8.75 O.W.C. at 1153.00m	8.75	.26 ± .04	.18 for 18,000 ppm .15 for 30,000 ppm	Oil
1157.00 - 1167.75	10.75	4.25	.21 ± .06	.95	Water
1177.00 - 1200.75 (N2 Sand)	23.75	20.75	.26 ± .03	.97	Water
1208.00 - 1226.25	18.25	16.25	.25 ± .03	.97	Water
1241.50 - 1246.00	4.50	4.00	.24 ± .02	.96	Water
1250.75 - 1255.75	5.00	4.25	.28 ± .02	.95	Water
1260.00 - 1277.75	17.75	17.00	.23 ± .03	.97	Water
1280.75 - 1289.50	8.75	2.50	.15 ± .04	.98	Water
1300.50 - 1312.00	11.50	10.75	.27 ± .02	.97	Water
1315.25 - 1320.00	4.75	4.50	.26 ± .03	.98	Water

* Net defined by porosity 10%.

LIST

DEPTH	P2.R.GR	P2.LLD	P2.RHOB	P2.NPHI	.VSH	.PHIE18	.SWE18	.SWE30
1140.000	80.728	6.081	2.414	.321	.850	.000	1.000	1.000
1140.250	76.857	6.938	2.334	.320	.666	.000	1.000	1.000
1140.500	82.973	7.742	2.336	.312	.641	.000	1.000	1.000
1140.750	94.217	7.796	2.348	.321	.702	.000	1.000	1.000
1141.000	109.126	7.597	2.363	.346	.833	.000	1.000	1.000
1141.250	117.190	7.962	2.398	.311	.774	.000	1.000	1.000
1141.500	122.162	8.710	2.432	.320	.886	.000	1.000	1.000
1141.750	117.504	8.533	2.479	.349	1.000	.000	1.000	1.000
1142.000	119.238	7.501	2.473	.326	1.000	.000	1.000	1.000
1142.250	131.757	6.717	2.428	.294	.772	.000	1.000	1.000
1142.500	126.783	7.180	2.439	.310	.861	.000	1.000	1.000
1142.750	111.181	8.115	2.477	.303	.922	.000	1.000	1.000
1143.000	98.063	8.962	2.492	.272	.833	.000	1.000	1.000
1143.250	91.682	8.275	2.417	.279	.690	.000	1.000	1.000
1143.500	86.794	7.339	2.389	.276	.615	.000	1.000	1.000
1143.750	81.683	6.996	2.433	.251	.613	.000	1.000	1.000
1144.000	81.477	7.676	2.443	.257	.659	.000	1.000	1.000
1144.250	70.482	8.778	2.360	.237	.396	.136	.763	.568
1144.500	46.356	9.293	2.288	.238	.239	.190	.609	.463
1144.750	36.623	11.280	2.262	.259	.260	.202	.493	.372
1145.000	30.024	14.886	2.245	.251	.194	.222	.413	.314
1145.250	26.694	19.110	2.223	.222	.029	.251	.383	.301
1145.500	26.563	23.287	2.202	.220	.000	.265	.343	.272
1145.750	27.038	27.734	2.199	.226	.000	.269	.310	.246
1146.000	25.414	36.911	2.195	.225	.000	.270	.268	.212
1146.250	25.344	48.531	2.182	.239	.001	.279	.225	.178
1146.500	22.945	61.671	2.164	.244	.000	.289	.194	.154
1146.750	19.463	81.643	2.186	.231	.000	.280	.174	.138
1147.000	20.213	104.323	2.203	.224	.000	.269	.160	.127
1147.250	22.143	138.126	2.159	.242	.000	.291	.129	.102
1147.500	22.926	163.616	2.151	.263	.029	.295	.103	.080
1147.750	20.906	177.900	2.162	.275	.102	.287	.081	.061
1148.000	17.694	197.964	2.156	.285	.126	.287	.066	.049
1148.250	17.700	234.357	2.160	.276	.101	.289	.067	.051
1148.500	18.616	264.813	2.154	.260	.024	.297	.080	.063
1148.750	17.693	302.495	2.182	.247	.037	.278	.073	.057
1149.000	19.542	320.201	2.196	.241	.042	.269	.071	.054
1149.250	20.776	315.204	2.195	.266	.139	.274	.091	.073
1149.500	19.213	297.007	2.212	.273	.204	.265	.084	.066
1149.750	18.189	291.641	2.195	.287	.222	.272	.074	.057
1150.000	20.881	293.796	2.172	.284	.161	.286	.085	.068
1150.250	20.372	307.268	2.183	.275	.146	.282	.089	.072
1150.500	18.573	346.878	2.185	.274	.147	.281	.084	.068
1150.750	17.859	395.273	2.181	.292	.209	.282	.065	.051
1151.000	18.669	380.379	2.167	.305	.230	.287	.056	.043
1151.250	18.282	226.256	2.165	.318	.277	.281	.060	.044
1151.500	18.599	147.136	2.153	.315	.240	.294	.096	.073
1151.750	22.361	97.189	2.128	.315	.183	.300	.120	.091
1152.000	22.722	62.659	2.134	.334	.273	.289	.135	.101
1152.250	20.222	47.193	2.231	.330	.475	.226	.153	.110
1152.500	21.698	36.305	2.296	.265	.362	.189	.259	.192
1152.750	22.547	26.065	2.276	.240	.217	.207	.351	.269
1153.000	20.789	20.238	2.248	.246	.179	.238	.392	.308
1153.250	19.711	16.973	2.219	.283	.261	.236	.788	.788
1153.500	22.212	16.237	2.208	.291	.267	.241	.788	.788
1153.750	24.055	15.674	2.182	.261	.088	.278	.828	.828

Lyr 1 - 2m
$S_W = 34.3\%$

Lyr 2 = 3.5m
$S_W = 8.9\%$

Lyr 3 = 3.5m
$S_W = 11.0\%$

Avg. $S_W = 6.8\%$

LIST

DEPTH	P2.R.GR	P2.LLD	P2.RHOB	P2.NPHI	.VSH	.PHIE18	.SWE18	.SWE30
1154.000	23.630	14.305	2.136	.270	.021	.308	.810	.810
1154.250	24.419	12.410	2.107	.302	.082	.323	.807	.807
1154.500	23.603	11.352	2.104	.295	.049	.330	.845	.845
1154.750	22.278	11.272	2.109	.279	.000	.328	.864	.864
1155.000	24.354	11.362	2.122	.277	.020	.317	.883	.883
1155.250	24.602	11.344	2.128	.284	.060	.315	.889	.889
1155.500	23.103	11.556	2.139	.283	.080	.305	.898	.898
1155.750	22.555	12.043	2.136	.270	.022	.308	.893	.893
1156.000	22.296	10.878	2.140	.266	.016	.307	.942	.942
1156.250	20.463	8.144	2.191	.246	.051	.270	.975	.975
1156.500	34.995	7.200	2.197	.264	.136	.261	.971	.971
1156.750	87.174	9.729	2.188	.358	.492	.235	.895	.895
1157.000	138.956	17.615	2.232	.430	.883	.000	1.000	1.000
1157.250	149.166	21.840	2.243	.416	.850	.000	1.000	1.000
1157.500	122.434	15.601	2.167	.352	.420	.240	.943	.943
1157.750	81.180	9.833	2.094	.332	.176	.283	.946	.946
1158.000	70.915	8.183	2.087	.326	.136	.286	.997	.997
1158.250	84.417	11.306	2.134	.368	.410	.260	.945	.945
1158.500	106.616	20.867	2.197	.411	.727	.000	1.000	1.000
1158.750	123.125	21.142	2.229	.397	.741	.000	1.000	1.000
1159.000	136.769	14.040	2.236	.342	.535	.210	.948	.948
1159.250	133.759	11.941	2.254	.301	.410	.210	.991	.991
1159.500	130.150	14.177	2.231	.330	.474	.214	.945	.945
1159.750	131.122	19.073	2.190	.389	.622	.000	1.000	1.000
1160.000	128.479	21.021	2.155	.416	.652	.000	1.000	1.000
1160.250	131.490	19.874	2.144	.434	.702	.000	1.000	1.000
1160.500	126.025	14.616	2.164	.415	.670	.000	1.000	1.000
1160.750	115.324	13.507	2.172	.388	.578	.162	.949	.949
1161.000	119.586	14.770	2.139	.398	.545	.176	.943	.943
1161.250	127.188	19.377	2.107	.438	.634	.000	1.000	1.000
1161.500	130.380	18.516	2.148	.432	.703	.000	1.000	1.000
1161.750	135.231	16.917	2.214	.402	.727	.000	1.000	1.000
1162.000	135.380	16.556	2.238	.404	.793	.000	1.000	1.000
1162.250	128.524	16.143	2.149	.429	.693	.000	1.000	1.000
1162.500	117.113	17.817	1.941	.459	.347	.287	.942	.942
1162.750	111.670	19.513	1.939	.453	.318	.282	.942	.942
1163.000	112.557	16.326	2.110	.395	.466	.209	.940	.940
1163.250	119.483	12.154	2.198	.380	.603	.000	1.000	1.000
1163.500	122.032	13.304	2.217	.395	.707	.000	1.000	1.000
1163.750	118.370	17.875	2.149	.430	.698	.000	1.000	1.000
1164.000	115.780	21.023	2.054	.446	.550	.107	.941	.941
1164.250	114.863	15.106	2.126	.389	.479	.229	.946	.946
1164.500	113.791	13.731	2.238	.349	.567	.186	.949	.949
1164.750	125.736	15.591	2.213	.373	.608	.000	1.000	1.000
1165.000	133.309	18.862	2.247	.398	.788	.000	1.000	1.000
1165.250	136.121	17.255	2.258	.426	.926	.000	1.000	1.000
1165.500	132.507	16.765	2.222	.470	1.000	.000	1.000	1.000
1165.750	120.521	16.855	2.185	.439	.816	.000	1.000	1.000
1166.000	108.858	16.914	2.145	.401	.571	.101	.948	.948
1166.250	106.694	17.418	2.161	.426	.706	.000	1.000	1.000
1166.500	108.068	16.236	2.239	.377	.681	.000	1.000	1.000
1166.750	111.325	15.407	2.261	.339	.579	.161	.948	.948
1167.000	113.018	15.955	2.226	.386	.692	.000	1.000	1.000
1167.250	108.752	15.122	2.220	.386	.677	.000	1.000	1.000
1167.500	106.562	15.650	2.224	.357	.571	.150	.941	.941
1167.750	110.226	14.659	2.241	.371	.665	.000	1.000	1.000

↑ Res Sand

LIST

DEPTH	P2.R.GR	P2.LLD	P2.RHOB	P2.NPHI	.VSH	.PHIE18	.SWE18	.SWE30
1168.000	107.742	14.789	2.270	.350	.644	.000	1.000	1.000
1168.250	112.142	14.173	2.285	.348	.667	.000	1.000	1.000
1168.500	123.836	15.269	2.283	.358	.705	.000	1.000	1.000
1168.750	127.767	14.523	2.251	.363	.652	.000	1.000	1.000
1169.000	117.744	14.958	2.257	.382	.743	.000	1.000	1.000
1169.250	116.346	14.896	2.252	.385	.746	.000	1.000	1.000
1169.500	116.322	15.983	2.174	.378	.541	.000	1.000	1.000
1169.750	106.359	14.391	2.140	.386	.499	.000	1.000	1.000
1170.000	103.320	13.748	2.197	.411	.729	.000	1.000	1.000
1170.250	111.085	15.749	2.222	.402	.748	.000	1.000	1.000
1170.500	116.968	18.471	2.085	.404	.446	.000	1.000	1.000
1170.750	111.027	21.352	1.761	.497	.101	.000	1.000	1.000
1171.000	79.803	31.481	1.434	.572	.000	.000	1.000	1.000
1171.250	37.543	53.815	1.315	.560	.000	.000	1.000	1.000
1171.500	16.572	87.735	1.321	.539	.000	.000	1.000	1.000
1171.750	11.473	89.492	1.326	.529	.000	.000	1.000	1.000
1172.000	10.672	92.467	1.327	.483	.000	.000	1.000	1.000
1172.250	10.013	105.649	1.331	.485	.000	.000	1.000	1.000
1172.500	11.049	126.530	1.337	.536	.000	.000	1.000	1.000
1172.750	11.813	135.678	1.347	.554	.000	.000	1.000	1.000
1173.000	10.265	130.593	1.359	.569	.000	.000	1.000	1.000
1173.250	9.128	146.022	1.368	.565	.000	.000	1.000	1.000
1173.500	9.920	204.242	1.483	.604	.000	.000	1.000	1.000
1173.750	10.164	334.644	1.862	.553	.566	.000	1.000	1.000
1174.000	8.840	424.699	1.970	.428	.286	.000	1.000	1.000
1174.250	9.949	325.039	1.604	.415	.000	.000	1.000	1.000
1174.500	9.537	214.384	1.350	.488	.000	.000	1.000	1.000
1174.750	8.223	155.028	1.298	.524	.000	.000	1.000	1.000
1175.000	9.480	107.301	1.324	.532	.000	.000	1.000	1.000
1175.250	15.983	91.813	1.400	.552	.000	.000	1.000	1.000
1175.500	26.495	53.218	1.616	.497	.000	.000	1.000	1.000
1175.750	40.640	29.387	1.869	.411	.000	.000	1.000	1.000
1176.000	50.790	21.092	1.947	.445	.308	.000	1.000	1.000
1176.250	51.000	14.696	1.973	.403	.192	.000	1.000	1.000
1176.500	55.778	14.825	1.644	.422	.000	.000	1.000	1.000
1176.750	59.956	16.600	1.675	.544	.108	.000	1.000	1.000
1177.000	74.091	19.689	2.111	.502	.914	.000	1.000	1.000
1177.250	93.263	15.172	2.263	.411	.878	.000	1.000	1.000
1177.500	104.686	14.841	2.293	.352	.703	.000	1.000	1.000
1177.750	107.648	15.392	2.283	.328	.585	.146	.950	.950
1178.000	107.828	16.478	2.273	.362	.699	.000	1.000	1.000
1178.250	88.454	14.122	2.233	.366	.626	.000	1.000	1.000
1178.500	48.909	10.965	2.166	.304	.226	.273	.970	.970
1178.750	28.485	9.534	2.184	.275	.151	.266	.998	.998
1179.000	23.041	11.409	2.215	.262	.171	.253	.988	.988
1179.250	21.744	13.389	2.205	.261	.144	.255	.969	.969
1179.500	21.633	12.879	2.186	.271	.141	.267	.949	.949
1179.750	22.850	11.486	2.193	.280	.192	.262	.997	.997
1180.000	22.624	10.975	2.195	.267	.146	.261	.974	.974
1180.250	28.555	11.550	2.200	.263	.141	.259	.975	.975
1180.500	39.099	14.210	2.264	.258	.264	.209	.996	.996
1180.750	41.164	16.870	2.285	.247	.267	.196	.950	.950
1181.000	40.733	14.946	2.241	.261	.226	.228	.944	.944
1181.250	40.355	13.904	2.230	.277	.264	.229	.950	.950
1181.500	37.350	15.056	2.259	.257	.250	.214	.942	.942
1181.750	39.740	17.025	2.256	.248	.208	.222	.950	.950

LIST

DEPTH	P2.R.GR	P2.LLD	P2.RHOB	P2.NPHI	.VSH	.PHIE18	.SWE18	.SWE30
1182.000	39.559	15.094	2.221	.258	.168	.242	.948	.948
1182.250	34.337	12.987	2.199	.254	.103	.265	.942	.942
1182.500	31.330	12.852	2.233	.241	.127	.241	.983	.983
1182.750	28.281	14.897	2.271	.226	.153	.214	.985	.985
1183.000	25.262	15.420	2.249	.226	.106	.235	.955	.955
1183.250	28.211	13.016	2.210	.248	.103	.259	.950	.950
1183.500	32.290	11.801	2.203	.259	.128	.259	.978	.978
1183.750	33.601	12.116	2.199	.253	.098	.266	.961	.961
1184.000	30.656	12.777	2.219	.233	.067	.259	.992	.992
1184.250	28.731	13.428	2.229	.239	.112	.246	.971	.971
1184.500	28.485	13.122	2.214	.243	.091	.258	.953	.953
1184.750	29.121	11.605	2.186	.249	.054	.280	.963	.963
1185.000	26.977	10.380	2.168	.264	.075	.288	.975	.975
1185.250	24.595	10.114	2.161	.275	.098	.288	.967	.967
1185.500	23.982	10.316	2.173	.256	.049	.289	.994	.994
1185.750	23.651	10.520	2.181	.234	.000	.283	.992	.992
1186.000	24.350	10.435	2.168	.239	.000	.290	.972	.972
1186.250	22.660	10.345	2.171	.256	.048	.281	.991	.991
1186.500	21.613	10.622	2.179	.246	.028	.281	.972	.972
1186.750	22.143	11.209	2.182	.237	.000	.284	.989	.989
1187.000	24.087	11.457	2.169	.240	.000	.290	.957	.957
1187.250	23.638	11.352	2.165	.236	.000	.290	.960	.960
1187.500	26.986	11.393	2.180	.252	.053	.285	.955	.955
1187.750	30.623	12.418	2.218	.253	.141	.248	.973	.973
1188.000	29.260	14.555	2.272	.226	.155	.214	.991	.991
1188.250	27.262	18.543	2.304	.189	.085	.205	.980	.980
1188.500	25.042	17.429	2.257	.181	.000	.000	1.000	1.000
1188.750	25.823	14.735	2.223	.205	.000	.000	1.000	1.000
1189.000	26.922	11.966	2.225	.203	.000	.000	1.000	1.000
1189.250	28.398	12.742	1.983	.230	.000	.000	1.000	1.000
1189.500	29.238	14.286	1.822	.381	.000	.000	1.000	1.000
1189.750	25.645	13.401	1.989	.381	.140	.000	1.000	1.000
1190.000	16.969	12.657	2.119	.266	.000	.289	.941	.941
1190.250	13.264	13.062	2.125	.267	.000	.287	.949	.949
1190.500	13.969	14.058	2.131	.264	.000	.284	.945	.945
1190.750	13.022	13.756	2.148	.255	.000	.284	.950	.950
1191.000	15.065	12.737	2.149	.261	.017	.281	.943	.943
1191.250	17.469	11.320	2.148	.250	.000	.282	.942	.942
1191.500	14.791	9.831	2.174	.241	.000	.288	.975	.975
1191.750	13.140	7.618	2.208	.231	.031	.263	.976	.976
1192.000	18.314	7.001	2.216	.233	.057	.262	.978	.978
1192.250	22.413	7.813	2.202	.242	.064	.269	.988	.988
1192.500	21.665	9.073	2.170	.245	.002	.281	.998	.998
1192.750	20.132	8.828	2.164	.237	.000	.280	.985	.985
1193.000	17.874	8.601	2.174	.221	.000	.281	.972	.972
1193.250	18.519	8.611	2.159	.229	.000	.290	.997	.997
1193.500	20.821	8.771	2.153	.250	.000	.290	.982	.982
1193.750	23.441	9.253	2.172	.256	.051	.289	.975	.975
1194.000	23.662	9.694	2.192	.245	.051	.277	.995	.995
1194.250	23.296	9.802	2.183	.232	.000	.281	.993	.993
1194.500	21.728	10.237	2.147	.244	.000	.280	.967	.967
1194.750	24.931	10.958	2.142	.272	.046	.288	.950	.950
1195.000	25.990	11.054	2.170	.253	.033	.286	.953	.953
1195.250	25.078	10.731	2.174	.238	.000	.287	.990	.990
1195.500	27.697	11.150	2.160	.242	.000	.284	.950	.950
1195.750	29.555	11.620	2.149	.246	.000	.290	.943	.943

LIST

DEPTH	P2.R.GR	P2.LLD	P2.RHOB	P2.NPHI	.VSH	.PHIE18	.SWE18	.SWE30
1196.000	36.096	11.187	2.158	.260	.033	.283	.946	.946
1196.250	41.901	10.610	2.168	.264	.075	.288	.959	.959
1196.500	46.497	10.701	2.162	.262	.051	.285	.950	.950
1196.750	53.486	11.133	2.148	.278	.085	.288	.947	.947
1197.000	51.626	10.936	2.141	.258	.000	.288	.950	.950
1197.250	63.558	10.922	2.158	.246	.000	.287	.955	.955
1197.500	75.934	10.954	2.149	.273	.064	.281	.943	.943
1197.750	67.760	10.856	2.127	.268	.000	.287	.947	.947
1198.000	61.235	10.644	2.118	.261	.000	.288	.945	.945
1198.250	55.548	10.976	2.134	.257	.000	.290	.947	.947
1198.500	66.551	11.378	2.165	.264	.069	.280	.948	.948
1198.750	84.680	11.776	2.175	.302	.238	.265	.950	.950
1199.000	89.868	11.583	2.176	.304	.249	.263	.949	.949
1199.250	90.657	11.647	2.176	.304	.248	.263	.944	.944
1199.500	86.034	11.486	2.182	.318	.319	.256	.947	.947
1199.750	78.704	12.187	2.232	.309	.396	.224	.949	.949
1200.000	82.552	12.869	2.285	.289	.434	.189	.978	.978
1200.250	90.017	13.175	2.296	.285	.445	.181	.997	.997
1200.500	98.434	13.190	2.317	.305	.568	.146	.998	.998
1200.750	107.168	13.120	2.344	.339	.770	.000	1.000	1.000
1201.000	101.019	13.077	2.343	.332	.737	.000	1.000	1.000
1201.250	96.068	12.868	2.329	.314	.636	.000	1.000	1.000
1201.500	102.519	13.403	2.321	.325	.659	.000	1.000	1.000
1201.750	115.609	13.789	2.321	.349	.757	.000	1.000	1.000
1202.000	117.223	13.032	2.312	.369	.817	.000	1.000	1.000
1202.250	114.795	12.584	2.317	.397	.943	.000	1.000	1.000
1202.500	112.172	12.025	2.311	.400	.942	.000	1.000	1.000
1202.750	78.271	9.594	2.128	.326	.232	.000	1.000	1.000
1203.000	49.728	9.656	1.710	.359	.000	.000	1.000	1.000
1203.250	52.181	13.671	1.625	.476	.000	.000	1.000	1.000
1203.500	92.163	20.496	1.922	.450	.273	.000	1.000	1.000
1203.750	141.308	14.875	2.121	.364	.366	.000	1.000	1.000
1204.000	129.226	14.871	1.937	.342	.000	.000	1.000	1.000
1204.250	95.149	20.577	1.684	.452	.000	.000	1.000	1.000
1204.500	74.716	22.704	1.840	.475	.196	.000	1.000	1.000
1204.750	77.945	19.351	2.098	.370	.341	.000	1.000	1.000
1205.000	98.649	16.260	2.079	.364	.272	.000	1.000	1.000
1205.250	110.387	16.225	2.015	.379	.189	.000	1.000	1.000
1205.500	105.915	15.933	1.782	.462	.008	.000	1.000	1.000
1205.750	81.733	19.864	1.667	.496	.000	.000	1.000	1.000
1206.000	73.986	21.625	1.752	.485	.035	.000	1.000	1.000
1206.250	87.674	25.093	1.924	.446	.261	.000	1.000	1.000
1206.500	98.023	21.385	1.767	.451	.000	.000	1.000	1.000
1206.750	80.726	28.086	1.451	.513	.000	.000	1.000	1.000
1207.000	58.568	38.269	1.354	.513	.000	.000	1.000	1.000
1207.250	59.259	38.648	1.594	.503	.000	.000	1.000	1.000
1207.500	62.769	19.323	1.996	.418	.305	.000	1.000	1.000
1207.750	56.802	13.286	2.167	.290	.174	.000	1.000	1.000
1208.000	43.493	12.085	2.189	.256	.090	.000	1.000	1.000
1208.250	36.185	11.627	2.185	.262	.105	.000	1.000	1.000
1208.500	38.886	11.170	2.186	.281	.182	.000	1.000	1.000
1208.750	53.765	13.125	2.210	.280	.232	.245	.990	.990
1209.000	69.913	15.061	2.204	.293	.268	.243	.994	.994
1209.250	96.020	15.885	2.228	.308	.386	.220	.976	.976
1209.500	136.337	17.182	2.280	.331	.593	.139	.942	.976
1209.750	133.151	18.389	2.293	.349	.695	.000	1.000	1.000

LIST

DEPTH	P2.R.GR	P2.LLD	P2.RHOB	P2.NPHI	.VSH	.PHIE18	.SWE18	.SWE30
1210.000	79.407	17.840	2.263	.282	.359	.204	.972	.972
1210.250	45.831	17.154	2.237	.251	.178	.238	.976	.976
1210.500	32.183	16.658	2.207	.247	.095	.262	.988	.988
1210.750	31.887	15.273	2.203	.245	.076	.267	.977	.977
1211.000	38.950	15.755	2.239	.244	.154	.233	.988	.988
1211.250	60.120	18.187	2.295	.256	.327	.190	.988	.988
1211.500	84.272	19.332	2.320	.286	.501	.160	.972	.972
1211.750	99.318	20.604	2.347	.314	.675	.000	1.000	1.000
1212.000	105.688	24.407	2.374	.329	.796	.000	1.000	1.000
1212.250	105.602	25.007	2.326	.312	.621	.000	1.000	1.000
1212.500	97.862	20.101	2.251	.290	.363	.210	.946	.946
1212.750	86.415	17.982	2.144	.325	.265	.268	.942	.942
1213.000	81.064	20.989	2.037	.399	.322	.288	.941	.941
1213.250	89.393	23.108	2.121	.371	.400	.250	.950	.950
1213.500	85.376	20.638	2.203	.297	.286	.231	.946	.946
1213.750	64.587	16.575	2.166	.302	.218	.273	.945	.945
1214.000	53.976	17.246	2.174	.319	.305	.262	.946	.946
1214.250	53.076	19.268	2.201	.275	.192	.257	.942	.942
1214.500	52.402	19.705	2.181	.261	.093	.267	.947	.947
1214.750	42.052	18.683	2.173	.265	.092	.282	.946	.946
1215.000	35.601	17.955	2.197	.243	.056	.273	.954	.954
1215.250	38.413	16.438	2.244	.227	.099	.239	.973	.973
1215.500	39.154	14.141	2.223	.238	.096	.252	.973	.973
1215.750	36.764	12.957	2.192	.244	.047	.278	.992	.992
1216.000	37.656	13.708	2.178	.253	.054	.285	.988	.988
1216.250	37.199	14.755	2.178	.265	.101	.278	.989	.989
1216.500	38.478	14.706	2.182	.276	.151	.267	.977	.977
1216.750	39.786	14.371	2.176	.268	.109	.278	.993	.993
1217.000	36.801	14.848	2.189	.255	.086	.274	.982	.982
1217.250	34.647	14.920	2.202	.252	.103	.263	.997	.997
1217.500	34.677	14.452	2.197	.247	.069	.272	.987	.987
1217.750	34.679	13.600	2.186	.235	.001	.281	.989	.989
1218.000	35.391	12.605	2.191	.213	.000	.271	.980	.980
1218.250	35.746	12.067	2.218	.207	.000	.259	.971	.971
1218.500	33.795	12.340	2.207	.206	.000	.262	.972	.972
1218.750	33.733	12.505	2.198	.219	.000	.270	.987	.987
1219.000	31.568	12.051	2.190	.233	.003	.278	.972	.972
1219.250	32.873	11.758	2.191	.260	.110	.269	.977	.977
1219.500	36.608	12.287	2.236	.292	.339	.222	.972	.972
1219.750	37.954	14.620	2.269	.243	.217	.213	.983	.983
1220.000	46.147	17.792	2.217	.213	.000	.261	.985	.985
1220.250	51.801	15.056	2.212	.239	.074	.261	.992	.992
1220.500	41.499	12.889	2.266	.254	.254	.209	.992	.992
1220.750	36.616	14.390	2.253	.258	.242	.219	.995	.995
1221.000	38.280	18.680	2.272	.261	.295	.207	.981	.981
1221.250	38.508	21.687	2.255	.264	.270	.213	.943	.943
1221.500	39.187	18.511	2.207	.276	.209	.251	.942	.942
1221.750	37.923	15.143	2.222	.291	.304	.235	.979	.979
1222.000	33.703	13.706	2.219	.279	.250	.237	.997	.997
1222.250	28.977	13.904	2.213	.275	.220	.246	.987	.987
1222.500	29.339	15.159	2.235	.290	.326	.224	.996	.996
1222.750	35.612	15.104	2.163	.298	.200	.278	.949	.949
1223.000	38.653	15.407	2.050	.318	.026	.284	.940	.940
1223.250	40.847	16.653	2.148	.266	.037	.286	.946	.946
1223.500	41.033	19.402	2.266	.189	.002	.233	.980	.980
1223.750	41.673	20.957	2.275	.183	.000	.227	.972	.972

LIST

DEPTH	P2.R.GR	P2.LLD	P2.RHOB	P2.NPHI	.VSH	.PHIE18	.SWE18	.SWE30
1224.000	48.276	21.362	2.267	.207	.073	.229	.986	.986
1224.250	52.905	21.468	2.271	.191	.019	.227	.994	.994
1224.500	57.499	19.724	2.270	.173	.000	.225	.977	.977
1224.750	50.768	18.705	2.233	.191	.000	.246	.974	.974
1225.000	40.202	16.868	2.238	.188	.000	.243	.985	.985
1225.250	36.963	17.844	2.242	.192	.000	.243	.985	.985
1225.500	34.219	18.294	2.236	.185	.000	.243	.976	.976
1225.750	34.102	19.311	2.242	.197	.000	.245	.999	.999
1226.000	34.607	20.028	2.274	.214	.117	.218	.997	.997
1226.250	35.589	20.477	2.292	.216	.163	.000	1.000	1.000
1226.500	35.759	20.190	2.293	.211	.147	.000	1.000	1.000
1226.750	36.025	18.091	2.273	.210	.098	.000	1.000	1.000
1227.000	33.388	15.344	2.277	.234	.201	.000	1.000	1.000
1227.250	35.439	14.135	2.240	.263	.233	.000	1.000	1.000
1227.500	39.464	14.297	1.838	.291	.000	.000	1.000	1.000
1227.750	44.470	20.098	1.458	.370	.000	.000	1.000	1.000
1228.000	40.304	37.587	1.331	.481	.000	.000	1.000	1.000
1228.250	25.581	73.902	1.306	.577	.000	.000	1.000	1.000
1228.500	15.523	94.168	1.296	.563	.000	.000	1.000	1.000
1228.750	10.365	103.108	1.298	.528	.000	.000	1.000	1.000
1229.000	8.935	115.118	1.306	.545	.000	.000	1.000	1.000
1229.250	8.492	111.692	1.302	.531	.000	.000	1.000	1.000
1229.500	8.561	103.572	1.292	.533	.000	.000	1.000	1.000
1229.750	8.984	97.017	1.287	.570	.000	.000	1.000	1.000
1230.000	9.875	82.723	1.292	.570	.000	.000	1.000	1.000
1230.250	8.779	75.609	1.303	.539	.000	.000	1.000	1.000
1230.500	8.830	68.218	1.318	.543	.000	.000	1.000	1.000
1230.750	8.762	60.058	1.338	.523	.000	.000	1.000	1.000
1231.000	8.441	56.493	1.352	.534	.000	.000	1.000	1.000
1231.250	9.153	57.867	1.359	.483	.000	.000	1.000	1.000
1231.500	7.963	57.692	1.360	.490	.000	.000	1.000	1.000
1231.750	6.855	55.877	1.374	.542	.000	.000	1.000	1.000
1232.000	6.346	54.665	1.396	.544	.000	.000	1.000	1.000
1232.250	8.310	58.236	1.371	.518	.000	.000	1.000	1.000
1232.500	9.648	62.306	1.335	.544	.000	.000	1.000	1.000
1232.750	8.908	66.283	1.321	.558	.000	.000	1.000	1.000
1233.000	8.243	64.257	1.327	.541	.000	.000	1.000	1.000
1233.250	8.523	61.691	1.329	.517	.000	.000	1.000	1.000
1233.500	9.974	61.783	1.327	.466	.000	.000	1.000	1.000
1233.750	11.063	63.563	1.324	.484	.000	.000	1.000	1.000
1234.000	10.283	62.280	1.309	.513	.000	.000	1.000	1.000
1234.250	9.757	61.438	1.297	.508	.000	.000	1.000	1.000
1234.500	10.819	64.079	1.293	.561	.000	.000	1.000	1.000
1234.750	12.164	66.273	1.289	.586	.000	.000	1.000	1.000
1235.000	10.162	65.221	1.282	.586	.000	.000	1.000	1.000
1235.250	10.743	63.529	1.286	.575	.000	.000	1.000	1.000
1235.500	12.129	60.696	1.316	.537	.000	.000	1.000	1.000
1235.750	11.253	57.651	1.349	.553	.000	.000	1.000	1.000
1236.000	9.832	56.465	1.342	.577	.000	.000	1.000	1.000
1236.250	11.484	59.567	1.332	.543	.000	.000	1.000	1.000
1236.500	12.170	60.974	1.358	.517	.000	.000	1.000	1.000
1236.750	11.572	63.175	1.366	.569	.000	.000	1.000	1.000
1237.000	11.808	70.803	1.332	.578	.000	.000	1.000	1.000
1237.250	10.037	79.171	1.318	.550	.000	.000	1.000	1.000
1237.500	8.684	78.901	1.331	.561	.000	.000	1.000	1.000
1237.750	9.358	73.685	1.340	.559	.000	.000	1.000	1.000

LIST

DEPTH	P2.R.GR	P2.LLD	P2.RHOB	P2.NPHI	.VSH	.PHIE18	.SWE18	.SWE30
1238.000	10.344	71.868	1.346	.553	.000	.000	1.000	1.000
1238.250	10.883	69.130	1.349	.512	.000	.000	1.000	1.000
1238.500	11.582	63.556	1.370	.511	.000	.000	1.000	1.000
1238.750	11.388	59.116	1.366	.558	.000	.000	1.000	1.000
1239.000	14.045	56.552	1.333	.615	.000	.000	1.000	1.000
1239.250	28.486	65.073	1.334	.583	.000	.000	1.000	1.000
1239.500	42.794	85.864	1.326	.536	.000	.000	1.000	1.000
1239.750	36.717	92.400	1.333	.589	.000	.000	1.000	1.000
1240.000	44.667	73.595	1.492	.543	.000	.000	1.000	1.000
1240.250	81.963	33.773	1.945	.467	.397	.000	1.000	1.000
1240.500	128.744	21.815	2.392	.401	1.000	.000	1.000	1.000
1240.750	143.605	18.355	2.429	.370	1.000	.000	1.000	1.000
1241.000	140.061	20.248	2.431	.351	1.000	.000	1.000	1.000
1241.250	136.559	25.316	2.409	.320	.842	.000	1.000	1.000
1241.500	128.277	25.611	2.333	.313	.643	.000	1.000	1.000
1241.750	115.411	19.399	2.244	.306	.415	.000	1.000	1.000
1242.000	83.747	16.141	2.216	.304	.344	.233	.948	.948
1242.250	48.796	15.659	2.214	.294	.297	.240	.984	.984
1242.500	36.162	18.263	2.227	.261	.198	.241	.958	.958
1242.750	33.960	19.237	2.245	.250	.192	.231	.970	.970
1243.000	27.068	18.668	2.222	.253	.153	.243	.944	.944
1243.250	25.136	20.104	2.264	.250	.234	.213	.958	.958
1243.500	27.270	23.342	2.303	.248	.317	.186	.947	.947
1243.750	28.872	25.610	2.265	.214	.095	.227	.941	.941
1244.000	26.978	24.687	2.258	.199	.023	.234	.947	.947
1244.250	24.977	16.827	2.248	.229	.119	.233	.980	.980
1244.500	24.742	12.819	2.191	.267	.139	.264	.981	.981
1244.750	24.040	11.214	2.197	.288	.234	.253	.977	.977
1245.000	24.778	12.605	2.191	.277	.178	.265	.975	.975
1245.250	28.635	15.842	2.208	.261	.151	.252	.990	.990
1245.500	32.559	20.018	2.267	.246	.225	.213	.974	.974
1245.750	32.561	23.448	2.242	.222	.078	.243	.942	.942
1246.000	32.347	22.709	2.192	.227	.000	.276	.942	.942
1246.250	34.663	16.430	2.212	.226	.024	.000	1.000	1.000
1246.500	36.186	12.934	2.338	.214	.262	.000	1.000	1.000
1246.750	40.638	16.415	2.198	.236	.031	.000	1.000	1.000
1247.000	62.338	26.261	1.773	.369	.000	.000	1.000	1.000
1247.250	77.976	38.829	1.715	.518	.094	.000	1.000	1.000
1247.500	81.986	25.259	2.166	.468	.899	.000	1.000	1.000
1247.750	104.157	17.888	2.436	.361	1.000	.000	1.000	1.000
1248.000	119.746	15.141	2.457	.319	.944	.000	1.000	1.000
1248.250	120.175	14.099	2.454	.340	1.000	.000	1.000	1.000
1248.500	121.796	13.529	2.462	.356	1.000	.000	1.000	1.000
1248.750	122.682	13.086	2.458	.369	1.000	.000	1.000	1.000
1249.000	125.077	11.718	2.387	.380	1.000	.000	1.000	1.000
1249.250	122.029	9.455	2.324	.396	.960	.000	1.000	1.000
1249.500	122.432	10.063	2.340	.396	.996	.000	1.000	1.000
1249.750	135.177	12.892	2.406	.359	.990	.000	1.000	1.000
1250.000	137.689	15.866	2.446	.356	1.000	.000	1.000	1.000
1250.250	137.338	16.798	2.468	.350	1.000	.000	1.000	1.000
1250.500	140.053	18.815	2.451	.331	.982	.000	1.000	1.000
1250.750	130.376	16.845	2.355	.334	.777	.000	1.000	1.000
1251.000	109.738	12.409	2.240	.336	.525	.000	1.000	1.000
1251.250	89.893	10.182	2.207	.339	.464	.228	.950	.950
1251.500	76.859	9.714	2.202	.347	.483	.228	.941	.941
1251.750	78.693	9.871	2.183	.324	.349	.251	.946	.946

LIST

DEPTH	P2.R.GR	P2.LLD	P2.RHOB	P2.NPHI	.VSH	.PHIE18	.SWE18	.SWE30
1252.000	80.730	9.689	2.159	.303	.212	.278	.949	.949
1252.250	68.295	9.323	2.138	.303	.163	.288	.943	.943
1252.500	57.585	9.062	2.128	.329	.247	.281	.945	.945
1252.750	57.375	9.112	2.129	.334	.270	.283	.945	.945
1253.000	56.590	9.138	2.137	.317	.217	.290	.946	.946
1253.250	61.803	9.115	2.136	.312	.197	.284	.949	.949
1253.500	68.054	9.105	2.143	.327	.269	.286	.941	.941
1253.750	62.549	9.007	2.140	.338	.310	.281	.943	.943
1254.000	54.272	8.925	2.137	.319	.225	.289	.945	.945
1254.250	55.282	8.923	2.135	.309	.179	.288	.945	.945
1254.500	50.149	8.979	2.135	.334	.281	.288	.950	.950
1254.750	45.847	9.077	2.136	.337	.297	.285	.950	.950
1255.000	47.813	9.352	2.135	.325	.245	.287	.940	.940
1255.250	46.299	9.549	2.152	.313	.237	.278	.952	.952
1255.500	42.891	9.636	2.176	.287	.187	.272	.989	.989
1255.750	44.663	9.660	2.187	.262	.113	.000	1.000	1.000
1256.000	52.991	10.115	2.186	.244	.036	.000	1.000	1.000
1256.250	69.257	10.140	2.198	.277	.195	.000	1.000	1.000
1256.500	84.680	10.645	2.207	.266	.172	.000	1.000	1.000
1256.750	74.179	11.245	1.899	.241	.000	.000	1.000	1.000
1257.000	50.757	16.084	1.517	.347	.000	.000	1.000	1.000
1257.250	33.369	34.857	1.352	.491	.000	.000	1.000	1.000
1257.500	21.654	64.076	1.304	.502	.000	.000	1.000	1.000
1257.750	17.124	76.965	1.304	.523	.000	.000	1.000	1.000
1258.000	24.194	76.967	1.346	.547	.000	.000	1.000	1.000
1258.250	48.799	49.900	1.559	.542	.000	.000	1.000	1.000
1258.500	83.258	28.796	1.807	.513	.282	.000	1.000	1.000
1258.750	89.187	23.871	1.671	.464	.000	.000	1.000	1.000
1259.000	77.167	34.233	1.586	.474	.000	.000	1.000	1.000
1259.250	81.467	32.314	1.830	.461	.118	.000	1.000	1.000
1259.500	98.263	22.794	2.280	.389	.832	.000	1.000	1.000
1259.750	111.000	16.709	2.403	.395	1.000	.000	1.000	1.000
1260.000	116.436	17.404	2.384	.379	1.000	.000	1.000	1.000
1260.250	99.544	15.275	2.284	.311	.524	.000	1.000	1.000
1260.500	59.324	11.835	2.223	.250	.142	.244	.985	.985
1260.750	33.208	11.075	2.219	.253	.145	.246	.977	.977
1261.000	30.051	12.469	2.212	.255	.140	.251	.980	.980
1261.250	32.364	13.394	2.213	.241	.084	.260	.982	.982
1261.500	30.504	13.967	2.208	.243	.083	.262	.943	.943
1261.750	32.206	13.781	2.205	.233	.039	.263	.950	.950
1262.000	30.532	14.030	2.213	.214	.000	.263	.969	.969
1262.250	30.074	14.401	2.226	.205	.000	.254	.978	.978
1262.500	33.049	14.259	2.241	.194	.000	.245	.985	.985
1262.750	34.339	13.675	2.248	.185	.000	.238	.998	.998
1263.000	35.652	13.925	2.239	.218	.055	.248	.979	.979
1263.250	38.402	15.345	2.215	.245	.107	.255	.942	.942
1263.500	41.246	16.814	2.210	.240	.077	.262	.940	.940
1263.750	38.909	15.130	2.228	.254	.170	.245	.943	.943
1264.000	34.779	13.177	2.253	.235	.153	.225	.983	.983
1264.250	39.773	14.042	2.303	.180	.051	.203	.976	.976
1264.500	46.357	17.353	2.312	.155	.000	.202	.984	.984
1264.750	47.169	19.448	2.264	.158	.000	.221	.957	.957
1265.000	38.517	17.663	2.261	.175	.000	.229	.971	.971
1265.250	33.026	14.516	2.276	.186	.012	.225	.985	.985
1265.500	38.494	14.291	2.285	.176	.000	.221	.991	.991
1265.750	43.079	16.013	2.280	.179	.000	.224	.974	.974

LIST

DEPTH	P2.R.GR	P2.LLD	P2.RHOB	P2.NPHI	.VSH	.PHIE18	.SWE18	.SWE30
1266.000	41.044	16.973	2.281	.199	.074	.220	.984	.984
1266.250	50.301	16.735	2.284	.212	.130	.210	.983	.983
1266.500	76.033	16.272	2.270	.233	.183	.217	.948	.948
1266.750	102.760	15.898	2.260	.293	.396	.208	.942	.942
1267.000	81.282	15.253	2.228	.280	.276	.235	.947	.947
1267.250	45.827	15.216	2.224	.245	.126	.246	.942	.942
1267.500	37.191	16.095	2.246	.230	.119	.234	.943	.943
1267.750	40.227	16.671	2.248	.183	.000	.238	.974	.974
1268.000	40.480	13.929	2.296	.165	.000	.212	.972	.972
1268.250	38.337	15.868	2.399	.143	.121	.143	.996	.996
1268.500	37.041	19.064	2.409	.094	.000	.141	.973	.973
1268.750	43.712	20.333	2.333	.107	.000	.174	.981	.981
1269.000	64.569	19.067	2.315	.175	.059	.202	.972	.972
1269.250	68.188	20.367	2.283	.201	.085	.218	.947	.947
1269.500	50.508	17.992	2.212	.156	.000	.240	.945	.945
1269.750	39.385	16.854	2.255	.161	.000	.226	.992	.992
1270.000	37.041	16.603	2.285	.172	.000	.219	.972	.972
1270.250	44.792	17.029	2.279	.177	.000	.223	.977	.977
1270.500	56.279	15.361	2.208	.205	.000	.261	.946	.946
1270.750	51.064	14.791	2.195	.208	.000	.268	.949	.949
1271.000	40.721	15.799	2.219	.215	.000	.261	.943	.943
1271.250	36.690	16.816	2.190	.238	.018	.276	.943	.943
1271.500	37.349	14.858	2.182	.247	.040	.277	.946	.946
1271.750	47.572	13.721	2.214	.245	.107	.255	.943	.943
1272.000	85.480	14.049	2.265	.272	.328	.207	.953	.953
1272.250	111.981	15.488	2.281	.287	.423	.192	.945	.945
1272.500	102.478	14.433	2.250	.263	.258	.218	.944	.944
1272.750	91.865	12.955	2.221	.268	.211	.242	.945	.945
1273.000	93.411	12.552	2.221	.295	.319	.233	.945	.945
1273.250	84.676	12.240	2.208	.304	.326	.239	.945	.945
1273.500	61.682	11.918	2.191	.280	.194	.262	.947	.947
1273.750	46.531	11.911	2.191	.259	.111	.268	.950	.950
1274.000	42.562	12.239	2.197	.254	.101	.266	.946	.946
1274.250	41.350	12.467	2.206	.252	.116	.258	.949	.949
1274.500	39.930	12.203	2.221	.244	.117	.249	.987	.987
1274.750	43.124	13.085	2.226	.236	.095	.250	.965	.965
1275.000	43.438	13.558	2.219	.238	.089	.255	.949	.949
1275.250	44.476	14.591	2.242	.232	.117	.237	.943	.943
1275.500	45.123	14.246	2.262	.227	.143	.221	.989	.989
1275.750	39.093	14.715	2.262	.255	.254	.211	.945	.945
1276.000	32.243	13.830	2.276	.216	.130	.215	.992	.992
1276.250	29.621	13.706	2.254	.170	.000	.230	.997	.997
1276.500	29.129	12.468	2.248	.186	.000	.239	.979	.979
1276.750	33.322	11.764	2.273	.203	.074	.225	.983	.983
1277.000	37.962	12.639	2.293	.194	.082	.212	.971	.971
1277.250	42.494	11.915	2.213	.195	.000	.256	.998	.998
1277.500	51.497	11.328	2.272	.190	.020	.226	.981	.981
1277.750	89.637	11.663	2.452	.236	.603	.000	1.000	1.000
1278.000	137.276	13.567	2.447	.340	1.000	.000	1.000	1.000
1278.250	153.598	11.400	2.431	.370	1.000	.000	1.000	1.000
1278.500	147.689	10.729	2.460	.358	1.000	.000	1.000	1.000
1278.750	130.721	12.133	2.491	.357	1.000	.000	1.000	1.000
1279.000	133.627	13.715	2.498	.370	1.000	.000	1.000	1.000
1279.250	136.575	14.095	2.475	.364	1.000	.000	1.000	1.000
1279.500	124.008	12.539	2.387	.341	.876	.000	1.000	1.000
1279.750	104.066	11.383	2.327	.308	.613	.000	1.000	1.000

LIST

DEPTH	P2.R.GR	P2.LLD	P2.RHOB	P2.NPHI	.VSH	.PHIE18	.SWE18	.SWE30
1280.000	95.127	11.489	2.366	.298	.656	.000	1.000	1.000
1280.250	108.014	12.746	2.390	.396	1.000	.000	1.000	1.000
1280.500	121.790	13.412	2.334	.453	1.000	.000	1.000	1.000
1280.750	131.256	12.778	2.295	.379	.826	.000	1.000	1.000
1281.000	120.883	13.972	2.318	.317	.624	.000	1.000	1.000
1281.250	118.063	15.185	2.336	.323	.689	.000	1.000	1.000
1281.500	113.607	15.213	2.312	.304	.562	.153	.986	.986
1281.750	101.035	14.189	2.322	.290	.527	.163	.973	.973
1282.000	103.038	15.406	2.354	.306	.663	.000	1.000	1.000
1282.250	104.311	18.865	2.308	.329	.652	.000	1.000	1.000
1282.500	93.201	17.663	2.288	.339	.649	.000	1.000	1.000
1282.750	74.678	15.321	2.332	.296	.574	.133	.972	.972
1283.000	64.805	15.822	2.384	.252	.515	.123	.977	.977
1283.250	61.224	17.247	2.383	.263	.556	.122	.992	.992
1283.500	73.305	17.808	2.339	.328	.717	.000	1.000	1.000
1283.750	85.918	17.614	2.348	.335	.767	.000	1.000	1.000
1284.000	92.548	17.642	2.347	.341	.788	.000	1.000	1.000
1284.250	98.763	16.893	2.345	.364	.878	.000	1.000	1.000
1284.500	96.196	17.439	2.328	.360	.824	.000	1.000	1.000
1284.750	90.894	18.798	2.341	.342	.781	.000	1.000	1.000
1285.000	89.459	17.076	2.341	.355	.831	.000	1.000	1.000
1285.250	91.313	16.714	2.323	.366	.837	.000	1.000	1.000
1285.500	92.948	16.879	2.353	.343	.809	.000	1.000	1.000
1285.750	94.006	19.900	2.365	.278	.577	.114	.995	.995
1286.000	96.489	18.207	2.337	.308	.633	.000	1.000	1.000
1286.250	104.438	16.828	2.349	.350	.830	.000	1.000	1.000
1286.500	102.669	16.745	2.392	.297	.715	.000	1.000	1.000
1286.750	91.203	16.711	2.404	.224	.449	.120	.973	.973
1287.000	79.453	13.976	2.375	.221	.373	.138	.992	.992
1287.250	84.109	14.593	2.410	.279	.681	.000	1.000	1.000
1287.500	96.234	16.739	2.460	.288	.830	.000	1.000	1.000
1287.750	96.836	20.191	2.446	.251	.650	.000	1.000	1.000
1288.000	105.413	17.258	2.402	.260	.589	.088	.982	.982
1288.250	108.854	14.055	2.378	.285	.634	.000	1.000	1.000
1288.500	102.761	15.431	2.404	.299	.748	.000	1.000	1.000
1288.750	88.962	16.952	2.329	.300	.583	.126	.979	.979
1289.000	62.770	20.817	2.225	.282	.278	.237	.950	.950
1289.250	42.276	21.374	2.214	.281	.249	.230	.942	.942
1289.500	29.016	25.063	2.214	.255	.146	.000	1.000	1.000
1289.750	22.721	24.077	2.212	.226	.025	.000	1.000	1.000
1290.000	19.313	24.547	2.198	.228	.002	.000	1.000	1.000
1290.250	19.003	23.353	2.221	.260	.181	.000	1.000	1.000
1290.500	22.829	24.513	2.284	.304	.499	.000	1.000	1.000
1290.750	36.988	24.132	2.105	.349	.278	.000	1.000	1.000
1291.000	66.030	27.329	1.758	.482	.045	.000	1.000	1.000
1291.250	85.305	39.366	1.598	.530	.000	.000	1.000	1.000
1291.500	74.061	64.736	1.574	.501	.000	.000	1.000	1.000
1291.750	53.928	78.951	1.480	.508	.000	.000	1.000	1.000
1292.000	30.566	108.232	1.366	.543	.000	.000	1.000	1.000
1292.250	14.859	162.492	1.327	.588	.000	.000	1.000	1.000
1292.500	9.570	144.167	1.334	.582	.000	.000	1.000	1.000
1292.750	7.452	113.251	1.334	.533	.000	.000	1.000	1.000
1293.000	8.312	93.375	1.337	.502	.000	.000	1.000	1.000
1293.250	10.335	87.048	1.352	.470	.000	.000	1.000	1.000
1293.500	10.878	94.085	1.351	.500	.000	.000	1.000	1.000
1293.750	10.662	105.463	1.339	.515	.000	.000	1.000	1.000

LIST

DEPTH	P2.R.GR	P2.LLD	P2.RHOB	P2.NPHI	.VSH	.PHIE18	.SWE18	.SWE30
1294.000	9.888	116.225	1.321	.486	.000	.000	1.000	1.000
1294.250	8.351	101.217	1.315	.529	.000	.000	1.000	1.000
1294.500	8.572	98.481	1.316	.529	.000	.000	1.000	1.000
1294.750	9.223	109.191	1.306	.493	.000	.000	1.000	1.000
1295.000	9.296	138.068	1.307	.501	.000	.000	1.000	1.000
1295.250	8.662	159.038	1.312	.546	.000	.000	1.000	1.000
1295.500	15.460	184.750	1.341	.555	.000	.000	1.000	1.000
1295.750	41.593	123.316	1.405	.529	.000	.000	1.000	1.000
1296.000	65.871	87.636	1.383	.524	.000	.000	1.000	1.000
1296.250	49.019	74.329	1.361	.529	.000	.000	1.000	1.000
1296.500	42.155	33.487	1.594	.503	.000	.000	1.000	1.000
1296.750	78.774	25.573	2.119	.411	.561	.000	1.000	1.000
1297.000	93.500	22.303	2.377	.287	.641	.000	1.000	1.000
1297.250	78.281	26.596	2.376	.235	.431	.000	1.000	1.000
1297.500	68.834	26.159	2.372	.230	.403	.000	1.000	1.000
1297.750	72.256	28.475	2.385	.234	.446	.000	1.000	1.000
1298.000	81.405	30.657	2.389	.239	.477	.000	1.000	1.000
1298.250	92.698	30.379	2.385	.263	.561	.000	1.000	1.000
1298.500	100.124	30.201	2.400	.276	.650	.000	1.000	1.000
1298.750	112.860	28.372	2.393	.272	.615	.000	1.000	1.000
1299.000	131.656	26.521	2.269	.271	.332	.000	1.000	1.000
1299.250	131.228	28.796	1.851	.349	.000	.000	1.000	1.000
1299.500	99.589	38.963	1.470	.466	.000	.000	1.000	1.000
1299.750	54.955	81.062	1.512	.476	.000	.000	1.000	1.000
1300.000	49.592	60.633	1.885	.411	.036	.000	1.000	1.000
1300.250	71.591	44.482	2.034	.416	.393	.000	1.000	1.000
1300.500	81.780	46.595	1.991	.424	.330	.000	1.000	1.000
1300.750	80.032	51.963	2.180	.333	.384	.000	1.000	1.000
1301.000	79.110	46.860	2.343	.264	.472	.150	.989	.989
1301.250	71.768	39.169	2.270	.257	.279	.210	.989	.989
1301.500	57.558	32.258	2.181	.268	.123	.272	.986	.986
1301.750	49.247	30.916	2.135	.264	.003	.281	.985	.985
1302.000	45.050	29.179	2.124	.305	.144	.290	.971	.971
1302.250	43.821	28.891	2.116	.338	.259	.283	.978	.978
1302.500	44.443	29.711	2.123	.302	.129	.285	.984	.984
1302.750	46.030	32.427	2.151	.289	.139	.285	.989	.989
1303.000	47.472	33.894	2.160	.306	.229	.275	.954	.954
1303.250	49.332	36.220	2.153	.311	.234	.278	.946	.946
1303.500	50.619	36.724	2.139	.309	.191	.283	.946	.946
1303.750	46.701	34.901	2.118	.325	.209	.282	.949	.949
1304.000	46.973	35.409	2.110	.310	.132	.290	.942	.942
1304.250	50.049	36.339	2.142	.284	.101	.288	.954	.954
1304.500	41.377	32.943	2.177	.264	.100	.278	.993	.993
1304.750	36.281	29.289	2.172	.260	.073	.285	.986	.986
1305.000	35.383	31.308	2.195	.269	.158	.266	.975	.975
1305.250	39.443	33.346	2.186	.276	.167	.270	.993	.993
1305.500	43.163	31.318	2.175	.261	.084	.282	.970	.970
1305.750	41.781	28.910	2.174	.255	.055	.287	.978	.978
1306.000	42.279	29.640	2.161	.290	.166	.284	.971	.971
1306.250	44.068	33.339	2.154	.275	.092	.283	.998	.998
1306.500	42.269	34.905	2.146	.278	.084	.289	.998	.998
1306.750	41.851	34.875	2.148	.287	.123	.282	.970	.970
1307.000	44.408	34.026	2.151	.300	.184	.287	.956	.956
1307.250	43.833	31.450	2.170	.317	.293	.266	.956	.956
1307.500	41.539	28.778	2.165	.301	.219	.273	.988	.988
1307.750	40.694	27.792	2.156	.302	.200	.282	.972	.972

LIST

DEPTH	P2.R.GR	P2.LLD	P2.RHOB	P2.NPHI	.VSH	.PHIE18	.SWE18	.SWE30
1308.000	43.043	29.196	2.154	.310	.229	.278	.975	.975
1308.250	41.711	30.555	2.145	.315	.229	.284	.959	.959
1308.500	40.844	32.855	2.148	.327	.286	.279	.941	.941
1308.750	41.377	36.112	2.139	.319	.233	.286	.941	.941
1309.000	42.531	36.963	2.142	.309	.202	.289	.941	.941
1309.250	43.422	32.667	2.178	.284	.179	.272	.989	.989
1309.500	42.417	29.087	2.188	.265	.126	.268	.992	.992
1309.750	42.040	28.725	2.200	.246	.078	.268	.979	.979
1310.000	42.130	34.800	2.216	.237	.079	.258	.972	.972

PE601187

This is an enclosure indicator page.
The enclosure PE601187 is enclosed within the container PE902437 at this location in this document.

The enclosure PE601187 has the following characteristics:

ITEM_BARCODE	PE601187
CONTAINER_BARCODE	PE902437
NAME	Log Analysis
BASIN	GIPPSLAND
PERMIT	
TYPE	WELL
SUBTYPE	WELL_LOG
DESCRIPTION	Log Analysis (enclosure from WCR) for Perch-2
REMARKS	
DATE_CREATED	1/01/86
DATE_RECEIVED	18/03/86
W_NO	W898
WELL_NAME	Perch-2
CONTRACTOR	
CLIENT_OP_CO	ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

APPENDIX 4

APPENDIX 4.

Wireline Test Report

PERCH-2 RFT SURVEY

SUMMARY

A series of RFT tests consisting of two runs were made in the Perch-2 exploration well over the period March 2-3, 1985. The RFT survey was made after reaching final well total depth of 1321m MDKB (1300m TVDSS). The main objectives of the RFT survey were to investigate oil shows indicated on mudlogs and open hole wireline log interpretation between the interval 1144.25-1153m MDKB (1123-1132m TVDSS) and to obtain bottomhole oil samples for PVT and compositional analysis. Results from the RFT program confirmed log interpretation that the N-1 reservoir between the Top of "coarse clastics" at 1144.25m MDKB and the OWC at 1153m MDKB is oil bearing.

RESULTS AND DISCUSSIONS

The RFT tool in run No. 1 failed downhole and no data was taken in this run. Run 2 consisted of six pre-test seats and one sample seat taken over the interval 1261.5m MDKB (1240.5m TVDSS) and 1145.0m MDKB (1124.0m TVDSS). All seven seats were successful in providing formation pressures. Seat no. 2/7 was a sample seat located at 1151m MDKB (1130m TVDSS) with two sample chambers consisting of a 22.3 litres (6 gallon) lower chamber and a 10.2 litres (2 3/4-gallon) segregated chamber. Full details of data collected in this program are given in the attached Table 1 and Figure 1. Pressure data obtained from the Hewlett-Packard (H.P.) gauge are considered to be accurate and were used in subsequent analysis. The Schlumberger RFT strain gauge pressures were about 11 psi lower than the H.P. pressures. The main results, which are illustrated in Figure 1, are:-

a) The presence of a 8.75m gross vertical oil column in the N-1 reservoir from 1144.25m MDKB to the OWC at 1153m MDKB was confirmed. Average pressure gradient measured over the above interval was consistent with the 1.115 psi/m (0.34 psi/ft) pressure gradient from PVT analysis. Sample seat number 2/7 located at 1151m MDKB recovered 20.4 litres of 42.2° API oil with a measured GOR of 8.6m^3/st.kl (48 SCF/STB).

b) The two water seats 2/1 and 2/2 located in water sands immediately below the N-1 reservoir measured a fresh water gradient of 1.41 psi/m (0.43 psi/ft). Based on the 1.41 psi/m water gradient and the oil gradient of 1.115 psi/m, the OWC in the N-1 reservoir was interpreted at 1153m MDKB (1132m TVDSS) and is consistent with open hole wireline log interpretation.

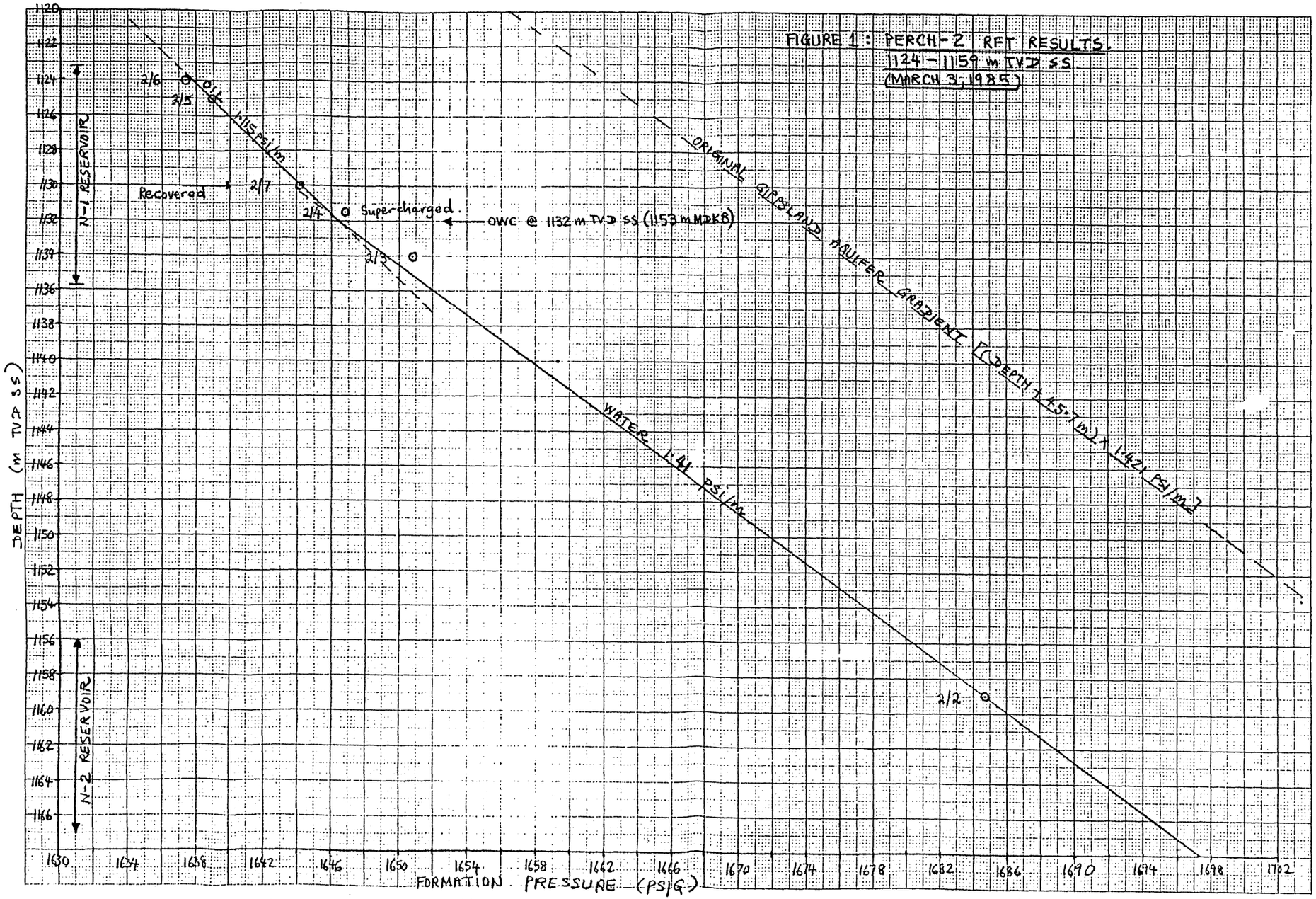
c) The pressures measured in seats located adjacent to water sands in N-1 and N-2 reservoirs were drawndown by approximately 27 psi relative to the original Bass Strait aquifer pressures at the same level indicating that both the N-1 and N-2 reservoirs are in hydraulic communication with the Gippsland Aquifer system. The observed pressure drawdown of 27 psi is due to the influence of Gippsland production since October 1968 and is consistent with the Gippsland Aquifer Model prediction.

(5263f:12)

TABLE 1: PERCH-2 RFT SURVEY RESULTS

Run/Seat No.	Depth (mMDKB)	Depth (mTVDSS)	Formation Pressure (PSIG) HPG	Formation Pressure (PSIG) RFTG	Lower Chamber Sample Recovery Oil (litres)	Lower Chamber Sample Recovery Gas (M^3)	Lower Chamber Sample Recovery Water/ Emulsion (Litres)
2/1	1261.5	1240.5	1799.9	1789	-	-	-
2/2	1180.0	1159.0	1684.7	1674	-	-	-
2/3	1155.0	1134.0	1650.8	1641	-	-	-
2/4	1152.5	1131.5	1646.8	1635	-	-	-
2/5	1146.0	1125.0	1638.9	1628	-	-	-
2/6	1145.0	1124.0	1637.4	1627	-	-	-
2/7*	1151.0	1130.0	1644.2	1634	20.4	0.176	0.5/2.0

* Seat no. 2/7 was a sample seat with the RFT tool consisting of 22.3 litres lower chamber (6 gal) and 10.2 litres segregated chamber (2 3/4-gal). The segregated chamber was preserved for PVT and compositional analysis. Oil gravity recovered from lower chamber was 42.2° API and GOR was 8.6m^3/kl.



APPENDIX 5

APPENDIX 5.

Geochemical Report

GEOCHEMICAL REPORT

PERCH-2 WELL, GIPPSLAND BASIN

VICTORIA

by

T.R. Bostwick

Sample handling and Analyses by:

- D.M. Hill)
- D.M. Ford)
- J. McCardle) ESSO AUSTRALIA LTD.
- H. Schiller)
- D.E. Bishop)
- Exxon Production Research Company
- Geochem Laboratories

Esso Australia Ltd.
Geochemical Report

August, 1985

1825L

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APPENDICES

1. Detailed C_{4-7} Data Sheets
2. Detailed Vitrinite Reflectance and Exinite Fluorescence Data - Report by A.C. Cook

INTRODUCTION

Canned cuttings and sidewall cores collected during the drilling of the Perch-2 well have been analysed to determine the hydrocarbon source rock characteristics of the drilled section. The canned cuttings were composited over 15 metre intervals and collected from 255 m (KB) to Total Depth (T.D.) at 1321 m (KB). Light hydrocarbon (C_{1-4}) headspace gases were determined for alternate 15 metre intervals. Succeeding alternate 15 metre intervals were analysed for gasoline range (C_{4-7}) hydrocarbons between 1010 and 1310 metres (KB). Selected sidewall core samples were analysed for Total Organic Carbon (TOC), Rock-Eval pyrolysis, kerogen isolation and elemental analysis, and vitrinite reflectance.

The vitrinite reflectance/coal maceral descriptions were performed by Dr. Alan Cook. Heavy hydrocarbon (C_{15+}) analyses were performed on two composite cuttings samples (at 1010-1025 m (KB) and 1235-1250 m (KB)).

An oil sample (RFT 2/7 at 1151 m (KB)) was analysed by whole oil gas chromatography and API gravity.

The results of these analyses are recorded in Tables 1 through 7, Figures 1 through 8, and Appendices 1 and 2.

DISCUSSION OF RESULTS AND INTERPRETATIONS

RICHNESS

Total cuttings gas yields (Table 1, Figure 1a) are extremely low throughout the Gippsland Limestone and Lakes Entrance Formations indicative of poor hydrocarbon source potential. Yields in the Latrobe Group below the top of coarse clastics are somewhat better indicating improved source potential. The maximum yield of 30,828 ppm at 1175 m (KB) is most likely due to the presence of coal at this level.

TOC measurements (Table 2) confirm the poor hydrocarbon source potential of the Lakes Entrance Formation. An increase in TOC, indicative of good hydrocarbon source potential, is observed in the Latrobe Group sediments to 1259.5 m (KB). Deeper in the Latrobe, at 1278 m (KB) and 1288 m (KB), low TOC measurements indicate the presence of a non-source zone. The 1168.30-1212 m (KB) interval has the highest yields (TOC = 2.4-5.81%) and hence very good source potential. Pyrolysis yields (Table 3) indicate that moderate to good potential is indeed present from 1168.3 m (KB) to 1259.5 m (KB) in the Latrobe Group sediments. Between 1126.2 m (KB) and 1142 m (KB), the calcareous shales of the shallow Latrobe have lower pyrolysis S_2 yields indicative of poor potential. This poor rating despite the apparent organic enrichment is most likely due to poor quality organic matter.

ORGANIC MATTER TYPES

Hydrogen indices (HI) obtained from the Latrobe Group sediments (Table 3, Figure 4) suggest that most of the organic material present is Type III (i.e. woody-coaly-herbaceous) kerogen capable of generating wet gas and condensate when mature. The lowest HIs (less than 50) were obtained from the calcareous shale zone at the top of the Latrobe Group. These sediments most likely contain the poorest quality organic matter and should yield gas (if any) on maturity. The organic rich Latrobe interval, 1168.3-1259.5 m (KB), has higher HIs indicative of the presence of better quality organic matter. Within this interval, at 1240.7 m (KB) a shale (TOC = 1.6%) yielded a HI of 306 due most likely to a more hydrogen-rich, oil-prone kerogen assemblage.

The elemental analyses of selected kerogen samples isolated from sidewall cores are listed in Table 5. Approximate hydrogen:carbon (H/C), oxygen:carbon (O/C) and nitrogen:carbon (N/C) atomic ratios for these analyses are given in Table 6. These ratios are "approximate" as the oxygen value is calculated by

difference and the naturally occurring sulphur %, which may be up to a few percent, was not determined. Atomic ratios (Table 6) of hydrogen:carbon (H/C) when plotted against oxygen:carbon (O/C) ratios on the modified Van Krevelen diagram (Figure 5) confirm the presence of Type III kerogen in the Latrobe sediments. It is interesting to note that samples at 1240.7 m (KB) and 1250.2 m (KB) exhibit the highest H/C ratios and therefore have the best potential among the analysed samples to yield oily hydrocarbons when mature.

A low H/C ratio of 0.81 occurs at 1299 m (KB). This hydrogen poor, gas-prone sample occurs below the Latrobe sediments rated earlier as non-source and could possibly indicate an extension of the non-source zone to the level.

MATURITY

Vitrinite reflectance measurements (Table 4, Figure 3), green to yellow exinite fluorescence (Appendix 2) and pyrolysis Tmax measurements (Table 3) all point to the conclusion that the drilled section is immature to T.D. Additional evidence for immaturity is given by the low wet gas (C_{2-4}) and light gasolines (C_{4-7}) concentrations (Table 1, Figures 1b and 2, Appendix 1).

The C_{15+} extracts of the cuttings samples at 1010-1025 m (KB) and 1235-1250 m (KB) contain a predominance of non-hydrocarbons (Table 7) indicative of the immaturity of the sediments. Characteristic of their immaturity, the C_{15+} saturate chromatograms (Figures 10 and 7) of these extracts exhibit odd-carbon number preferences and immature distribution patterns.

The high hydrocarbon (20,417 ppm) yield obtained for the cuttings extract at 1235-1250 m (KB) is rather anomalous when compared with the low TOC and C_{4-7} yields obtained from the picked claystone chips within the composite sample. Considering (a) the immature, terrestrial character of the n-paraffin chromatogram, and (b) the presence of coal within the sampled interval, we attribute the high C_{15+} yield to be a consequence of the inclusion of coal or carbonaceous particles in the gross cuttings sample extracted.

OIL ANALYSES

The whole oil chromatogram of the oil recovered from RFT 2/7 at 1151 m (KB) is shown in Figure 8. The marked depletion of n-alkanes documents the extensive alteration of the oil via biodegradation. The API gravity of this naphthenic oil is still 42° due to the predominantly low molecular weight of the components.

CONCLUSIONS

1. The drilled section is presently immature for significant hydrocarbon generation.

2. The Latrobe Group sediments between 1168.3 m (KB) and 1259.5 m (KB) have moderate to good potential to source gas and condensate when mature. Some oil source potential may be possible within the 1240.7-1250.2 m (KB) zone.

3. Below 1278 m (KB) to T.D. the drilled section appears to have little or no potential to source indigenous hydrocarbons.

4. Oil encountered within the coarse clastics of the Latrobe Group has been extensively biodegraded but the degraded oil is still a good light oil.

ESSO AUSTRALIA LTD.

C1-C4 HYDROCARBON ANALYSES

REPORT A - HEADSPACE GAS

BASIN - GIPPSLAND
WELL - PERCH 2

SAMPLE NO.	DEPTH	METHANE C1	ETHANE C2	PROPANE C3	IBUTANE IC4	NBUTANE C4	WET C2-C4	TOTAL C1-C4	WET/TOTAL PERCENT	TOTAL GAS M	TOTAL GAS E	TOTAL GAS P	TOTAL GAS IB	TOTAL GAS NB	WET GAS E	WET GAS P	WET GAS IB	WET GAS NB
	GAS CONCENTRATION (VOLUME GAS PER MILLION VOLUMES CUTTINGS)									GAS COMPOSITION (PERCENT)								
77737 B	270.00	17	3	2	0	0	5	22	22.73	77.	14.	9.	0.	0.	60.	40.	0.	0.
77737 D	330.00	7	2	0	1	2	5	12	41.67	58.	17.	0.	8.	17.	40.	0.	20.	40.
77737 F	390.00	0	0	0	0	0	0	0	.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
77737 H	450.00	0	0	0	0	0	0	0	.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
77737 J	510.00	25	9	7	3	3	22	47	46.81	53.	19.	15.	6.	6.	41.	32.	14.	14.
77737 N	630.00	11	5	2	1	0	8	19	42.11	58.	26.	11.	5.	0.	63.	25.	13.	0.
77737 P	690.00	14	0	0	0	0	0	14	.00	100.	0.	0.	0.	0.	0.	0.	0.	0.
77737 R	750.00	0	0	0	0	0	0	0	.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
77737 T	830.00	36	22	0	0	0	22	58	37.93	62.	38.	0.	0.	0.	100.	0.	0.	0.
77737 V	860.00	32	4	4	2	1	11	43	25.58	74.	9.	9.	5.	2.	36.	36.	18.	9.
77737 X	890.00	27	9	5	2	6	22	49	44.90	55.	18.	10.	4.	12.	41.	23.	9.	27.
77737 Z	920.00	27	7	2	1	0	10	37	27.03	73.	19.	5.	3.	0.	70.	20.	10.	0.
77738 B	950.00	34	8	4	2	2	16	50	32.00	68.	16.	8.	4.	4.	50.	25.	13.	13.
77738 D	980.00	31	9	7	6	6	28	59	47.46	53.	15.	12.	10.	10.	32.	25.	21.	21.
77738 F	1010.00	30	6	6	4	3	19	49	38.78	61.	12.	12.	8.	6.	32.	32.	21.	16.
77738 H	1040.00	36	7	7	4	4	22	58	37.93	62.	12.	12.	7.	7.	32.	32.	18.	18.
77738 J	1070.00	71	10	11	4	4	29	100	29.00	71.	10.	11.	4.	4.	34.	38.	14.	14.
77738 L	1100.00	593	60	41	20	15	136	729	18.66	81.	8.	6.	3.	2.	44.	30.	15.	11.
77738 N	1130.00	1202	51	35	41	34	161	1363	11.81	88.	4.	3.	3.	2.	32.	22.	25.	21.
77738 P	1175.00	28261	1703	603	161	100	2567	30828	8.33	92.	6.	2.	1.	0.	66.	23.	6.	4.
77738 R	1205.00	3354	382	185	31	23	621	3975	15.62	84.	10.	5.	1.	1.	62.	30.	5.	4.
77738 T	1235.00	5272	646	244	44	30	964	6236	15.46	85.	10.	4.	1.	0.	67.	25.	5.	3.
77738 V	1265.00	4767	510	190	32	22	754	5521	13.66	86.	9.	3.	1.	0.	68.	25.	4.	3.
77738 X	1295.00	1082	150	99	23	21	293	1375	21.31	79.	11.	7.	2.	2.	51.	34.	8.	7.
77738 Z	1321.00	689	123	106	24	26	279	968	28.82	71.	13.	11.	2.	3.	44.	38.	9.	9.

ESSO AUSTRALIA LTD.

TOTAL ORGANIC CARBON REPORT

BASIN - GIPPSLAND
WELL - PERCH 2

SAMPLE NO.	DEPTH	FORMATION	AN	TOC%	AN	TOC%	AN	TOC%	DESCRIPTION
77738 G	1025.00	LAKES ENTRANCE	2	.36					GRN GY CLYST,CALC
77738 I	1055.00	LAKES ENTRANCE	2	.35					GRN GY CLYST,CALC
77740 D	1075.00	LAKES ENTRANCE	1	.19					M GY CLYST,CALC
77738 K	1085.00	LAKES ENTRANCE	2	.21					LT GRN GY CLYST,CALC
77740 C	1088.00	LAKES ENTRANCE	1	.28					M GY SLTST,CALC,GLAUC
77740 A	1111.50	LAKES ENTRANCE	1	.22					M GY SH,CALC
77738 M	1115.00		2	.21					LT GRN GY CLYST,CALC
77739 Y	1126.20	LATROBE GROUP	1	1.03					M-DK GY CLYST,CALC
77739 W	1142.00	LATROBE GROUP	1	1.66					BL GY SLTST,CALC,MICA
77738 O	1145.00	LATROBE GROUP	2	.58					GRN GY CLYST,CALC
77739 Q	1168.30	LATROBE GROUP	1	5.81					DK GY SH,CALC
77738 Q	1190.00	LATROBE GROUP	2	53.60					COAL
77739 M	1201.80	LATROBE GROUP	1	2.48					M GY SLTST,CALC,GY LAM
77739 L	1212.00	LATROBE GROUP	1	3.80					M DK GY SH,CALC,SDY LAM
77738 S	1220.00	LATROBE GROUP	2	9.14					OL BLK CLYST
77739 J	1240.70	LATROBE GROUP	1	1.69					GY RED SH,CALC
77738 U	1250.00	LATROBE GROUP	2	.40					GRN GY CLYST,CALC
77739 G	1259.50	LATROBE GROUP	1	1.33					OL GY SLTST,CALC,CARB
77739 F	1278.00	LATROBE GROUP	1	.21					GRN GY SH,CALC
77739 E	1288.00	LATROBE GROUP	1	.13					GRN GY SLTST,CALC

Table 3

ROCK EVAL REPORTS
REPORT A - SULPHUR & PYROLYZABLE CARBON

```
*****************************************************
* PI = PRODUCTIVITY INDEX    PC = PYROLYZABLE CARBON *
* HI = HYDROGEN INDEX    OI = OXYGEN INDEX           *
* HI/OI = HYDROGEN/OXYGEN INDEX RATIO                *
*****************************************************
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WELL=PERCH 2

SAMP_NO	DEPTH	SAMPLE TYPE	AGE	TMAX	S1	S2	S3	PI	S2/S3	PC	COMMENTS
77739 Y	1126.20	SWC		418	0.04	0.26	0.36	0.13	0.72	0.02	
77739 W	1142.00	SWC		414	0.10	0.72	0.52	0.12	1.38	0.06	
77739 Q	1168.30	SWC		409	0.77	10.80	0.93	0.07	11.61	0.96	
77739 M	1201.80	SWC		416	0.16	2.37	0.77	0.06	3.07	0.21	
77739 L	1212.00	SWC		413	0.38	6.56	0.79	0.05	8.30	0.57	
77739 J	1240.70	SWC		424	0.66	5.18	0.70	0.11	7.40	0.48	
77739 G	1259.50	SWC		426	0.20	1.77	0.50	0.10	3.54	0.16	

ROCK EVAL ANALYSES

BASIN - GIPPSLAND REPORT B - TOTAL CARBON,H/O INDICES
WELL - PERCH 2

SAMPLE NO.	DEPTH	SAMPLE TYPE	FORMATION	TC	HI	OI	HI/OI	COMMENTS
77739 Y	1126.2	SWC	LATROBE GROUP	1.03	25.	34.	.74	
77739 W	1142.0	SWC	LATROBE GROUP	1.66	43.	31.	1.39	
77739 Q	1168.3	SWC	LATROBE GROUP	5.81	185.	16.	11.56	
77739 M	1201.8	SWC	LATROBE GROUP	2.48	95.	31.	3.06	
77739 L	1212.0	SWC	LATROBE GROUP	3.80	172.	20.	8.60	
77739 J	1240.7	SWC	LATROBE GROUP	1.69	306.	41.	7.46	
77739 G	1259.5	SWC	LATROBE GROUP	1.33	133.	37.	3.59	

PI=PRODUCTIVITY INDEX PC=PYROLYZABLE CARBON TC=TOTAL CARBON HI=HYDROGEN INDEX OI=OXYGEN INDEX

VITRINITE REFLECTANCE REPORT

BASIN - GIPPSLAND
WELL - PERCH 2

SAMPLE NO.	DEPTH	AGE	FORMATION	AN	MAX. RO	FLUOR. COLOUR	NO. CNTS.	MACERAL TYPE
77740 D	1075.00		LAKES ENTRANCE	5	.00	GRN YEL-YEL	0	I>?E, NO V, DOM RARE
77739 P	1175.00		LATROBE GROUP	5	.37	YEL-BRN	28	V>E>I, COAL
77739 B	1299.50		LATROBE GROUP	5	.48	GRN-YEL-DULL	27	I>E>V, DOM ABSENT

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KEROGEN ELEMENTAL ANALYSIS REPORT

BASIN - GIPPSLAND
WELL - PERCH 2

SAMPLE NO.	DEPTH	SAMPLE TYPE	--- ELEMENTAL % (ASH FREE) ---						COMMENTS
			N%	C%	H%	S%	O%	ASH%	
77739 W	1142.00	SWC	1.05	63.60	5.05	.00	30.30	6.26	
77788 A	1155.85	COR	.23	65.73	4.91	.00	29.13	7.40	
77788 B	1156.65	COR	.38	61.94	4.79	.00	32.89	2.94	
77788 C	1158.30	COR	.39	63.16	4.62	.00	31.83	3.64	
77739 R	1159.00	SWC	.76	67.39	4.91	.00	26.94	8.80	
77739 Q	1168.30	SWC	.80	64.45	4.73	.00	30.01	8.71	
77739 M	1201.80	SWC	1.10	67.16	4.98	.00	26.76	8.30	
77739 L	1212.00	SWC	.76	52.36	4.03	.00	42.84	8.18	
77739 J	1240.70	SWC	.79	73.48	7.13	.00	18.61	8.38	
77739 I	1250.20	SWC	.65	69.68	6.21	.00	23.46	9.49	
77739 H	1256.20	SWC	.60	73.50	5.79	.00	20.17	2.76	
77739 G	1259.50	SWC	.56	73.15	5.78	.00	20.51	4.91	
77739 C	1299.00	SWC	.70	73.24	4.96	.00	21.10	2.68	

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KEROGEN ELEMENTAL ANALYSIS REPORT

BASIN - GIPPSLAND
WELL - PERCH 2

SAMPLE NO.	DEPTH	SAMPLE TYPE	AGE	FORMATION	ATOMIC RATIOS H/C	O/C	N/C	COMMENTS
77739 W	1142.00	SWC		LATROBE GROUP	.95	.36	.01	
77788 A	1155.85	COR		LATROBE GROUP	.90	.33	.00	
77788 B	1156.65	COR		LATROBE GROUP	.93	.40	.01	
77788 C	1158.30	COR		LATROBE GROUP	.88	.38	.01	
77739 R	1159.00	SWC		LATROBE GROUP	.87	.30	.01	
77739 Q	1168.30	SWC		LATROBE GROUP	.88	.35	.01	
77739 M	1201.80	SWC	MID EOCENE	LATROBE GROUP	.89	.30	.01	
77739 L	1212.00	SWC	MID EOCENE	LATROBE GROUP	.92	.61	.01	
77739 J	1240.70	SWC	MID EOCENE	LATROBE GROUP	1.16	.19	.01	
77739 I	1250.20	SWC	MID EOCENE	LATROBE GROUP	1.07	.25	.01	
77739 H	1256.20	SWC	MID EOCENE	LATROBE GROUP	.95	.21	.01	
77739 G	1259.50	SWC	MID EOCENE	LATROBE GROUP	.95	.21	.01	
77739 C	1299.00	SWC		LATROBE GROUP	.81	.22	.01	

ESSO AUSTRALIA LTD.

C15+ EXTRACT ANALYSES (OILS FLAGGED BY %)

BASIN - GIPPSLAND
WELL - PERCH 2

REPORT A - EXTRACT DATA - PPM (OIL=%)

SAMPLE NO.	DEPTH	TYPE	AN	AGE	*--- HYDROCARBONS ---* TOTAL EXTRACT	SATS.	AROMS.	TOTAL H/CARBS	*--- NON-HYDROCARBONS ---* ASPH.	ELUTED NSO	NON-ELT NSO	TOTAL NSO	SULPHUR	TOTAL NON/HC
77738 G	1025.00	CTS	2		197.	0.	0.	0.	155.	0.	0.	0.	0.	155.
77738 U	1250.00	CTS	2	MID EOCENE	104387.	1828.	18588.	20416.	65260.	11152.	7559.	18711.	0	33971.

BASIN - GIPPSLAND
WELL - PERCH 2

REPORT B - EXTRACTS % OF TOTAL

SAMPLE NO.	DEPTH	FORMATION	*HYDROCARBONS* SAT. %	AROM.%	*- NON-HYDROCARBONS -* NSO. %	ASPH.%	SULPH%	* SAT/AR *	* HC/NHC *	COMMENTS
77738 G	1025.00		.0	.0	.0	78.7	.0 *	.0 *	.0 *	
77738 U	1250.00	LATROBE GROUP	1.8	17.8	17.9	62.5	.0 *	.0 *	.0 *	

C_{1-4} CUTTINGS GAS LOG

Figure 1a

PERCH 2

GIPPSLAND BASIN

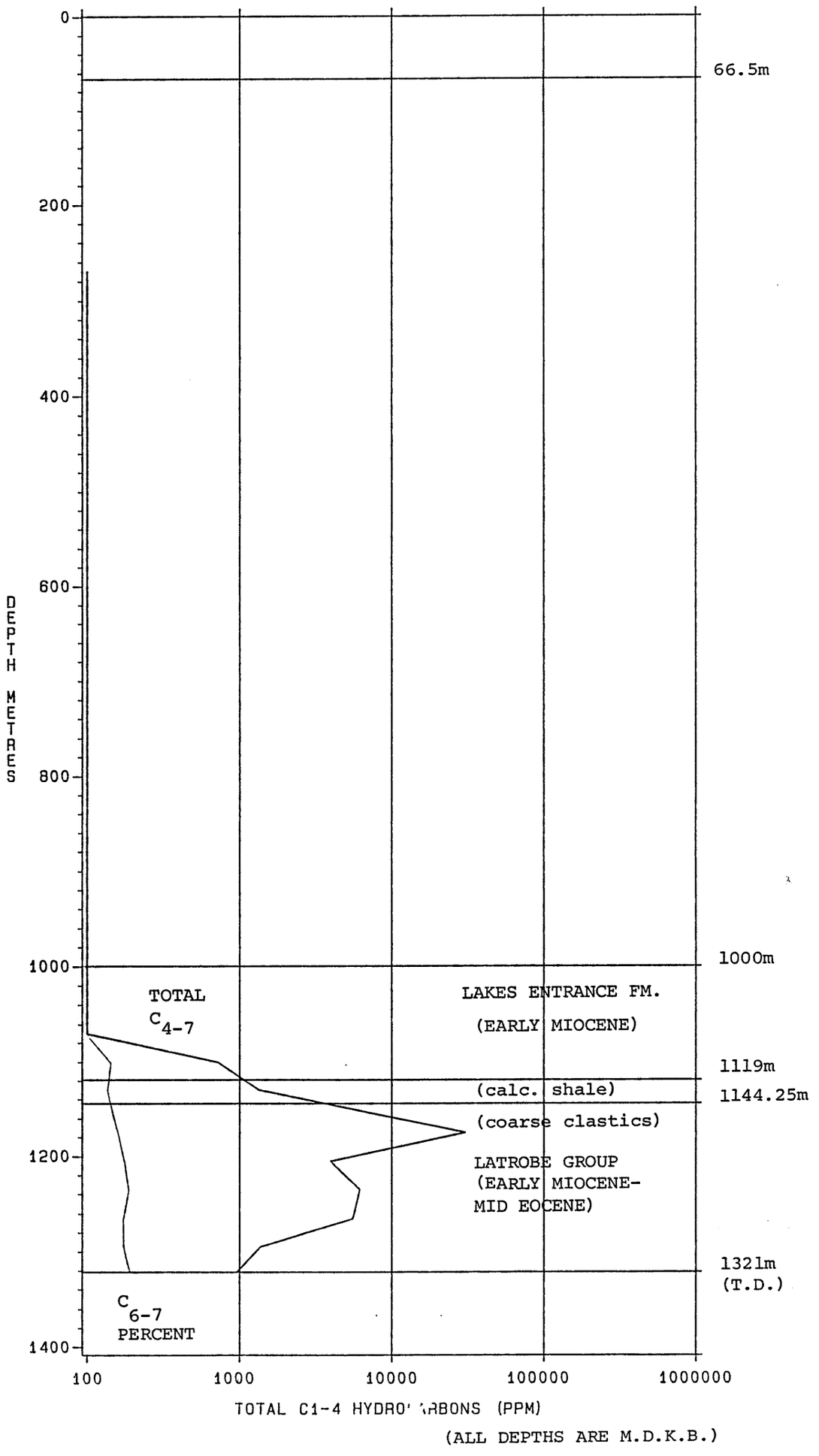
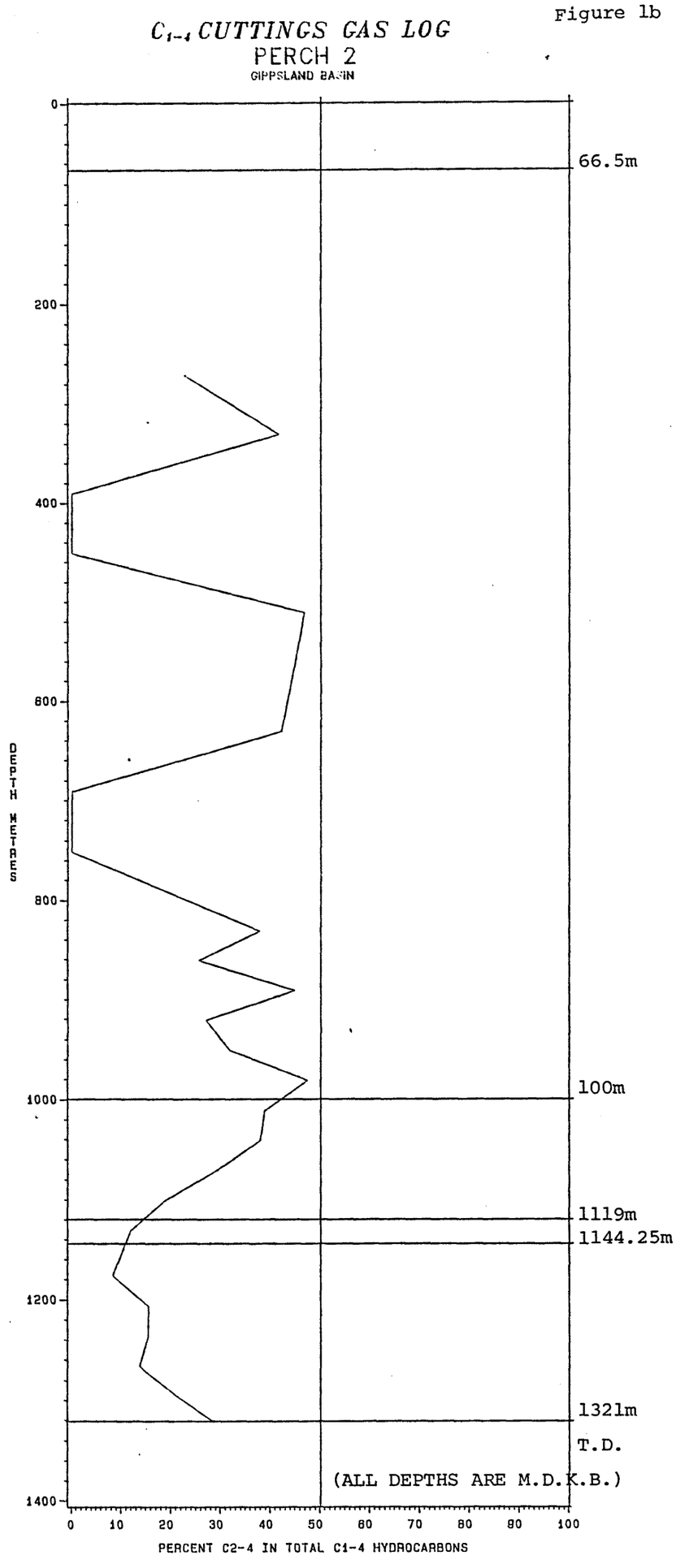


Figure 1b

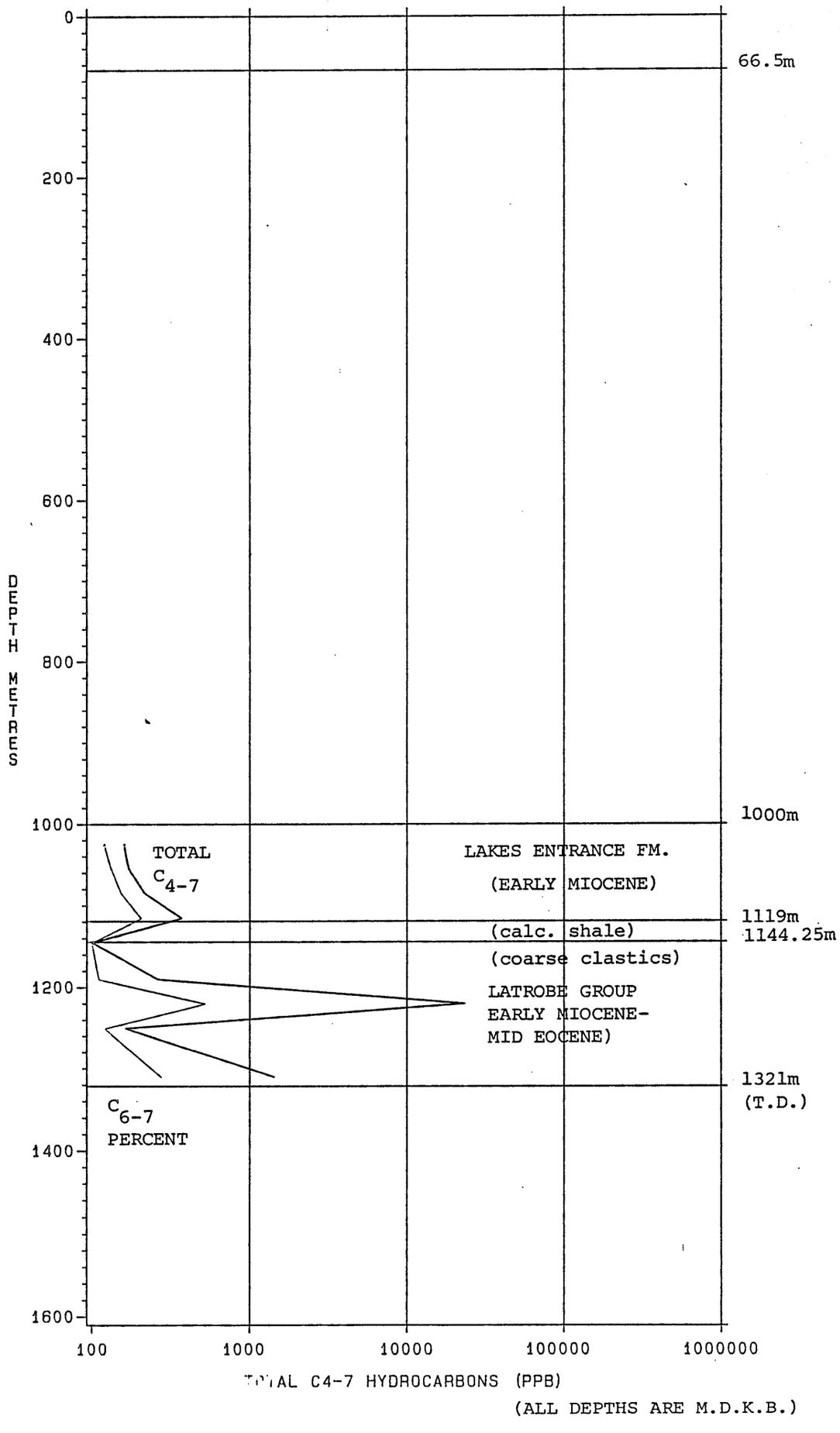

C_{1-4} CUTTINGS GAS LOG
PERCH 2
GIPPSLAND BASIN
0
200
400
600
800
1000
1200
1400
DEPTH METRES
66.5m
100m
1119m
1144.25m
1321m
T.D.
(ALL DEPTHS ARE M.D.K.B.)
0
10
20
30
40
50
60
70
80
90
100
PERCENT C2-4 IN TOTAL C1-4 HYDROCARBONS

C_{4-7} HYDROCARBON LOG

Figure 2

PERCH 2

GIPPSLAND BASIN



(ALL DEPTHS ARE M.D.K.B.)

Figure 2 (cont'd)

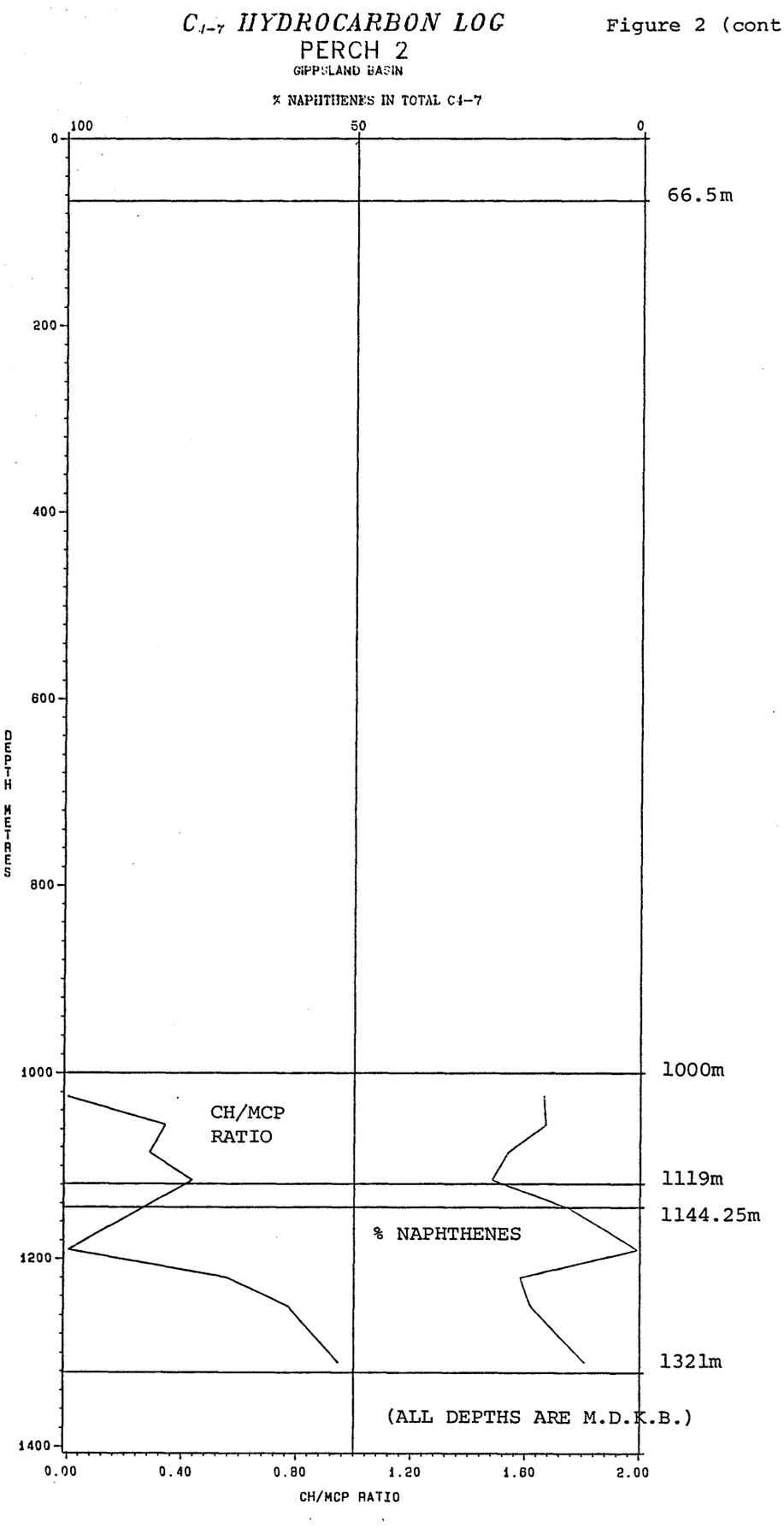
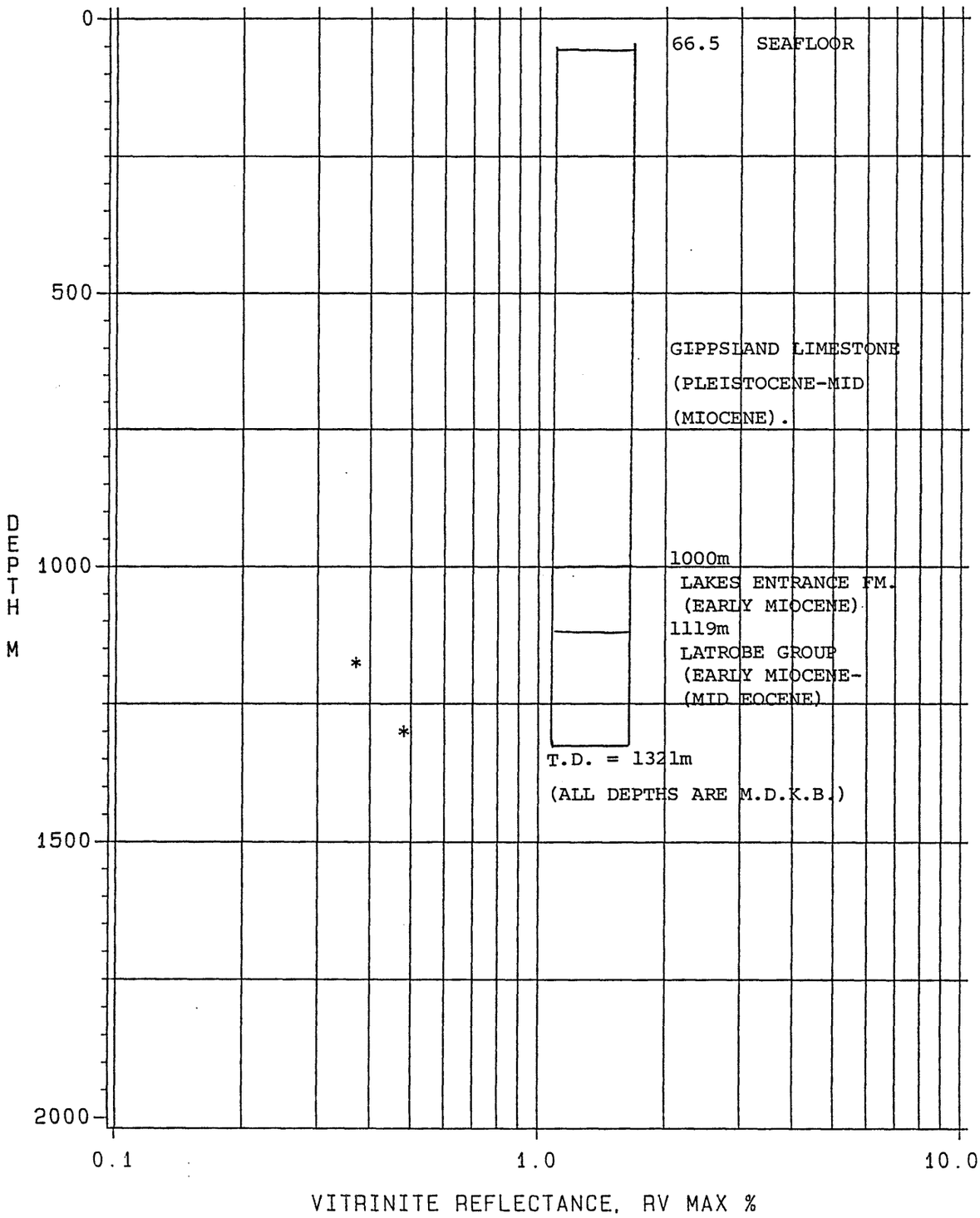


Figure 3

VITRINITE REFLECTANCE vs. DEPTH

PERCH 2

GIPPSLAND BASIN

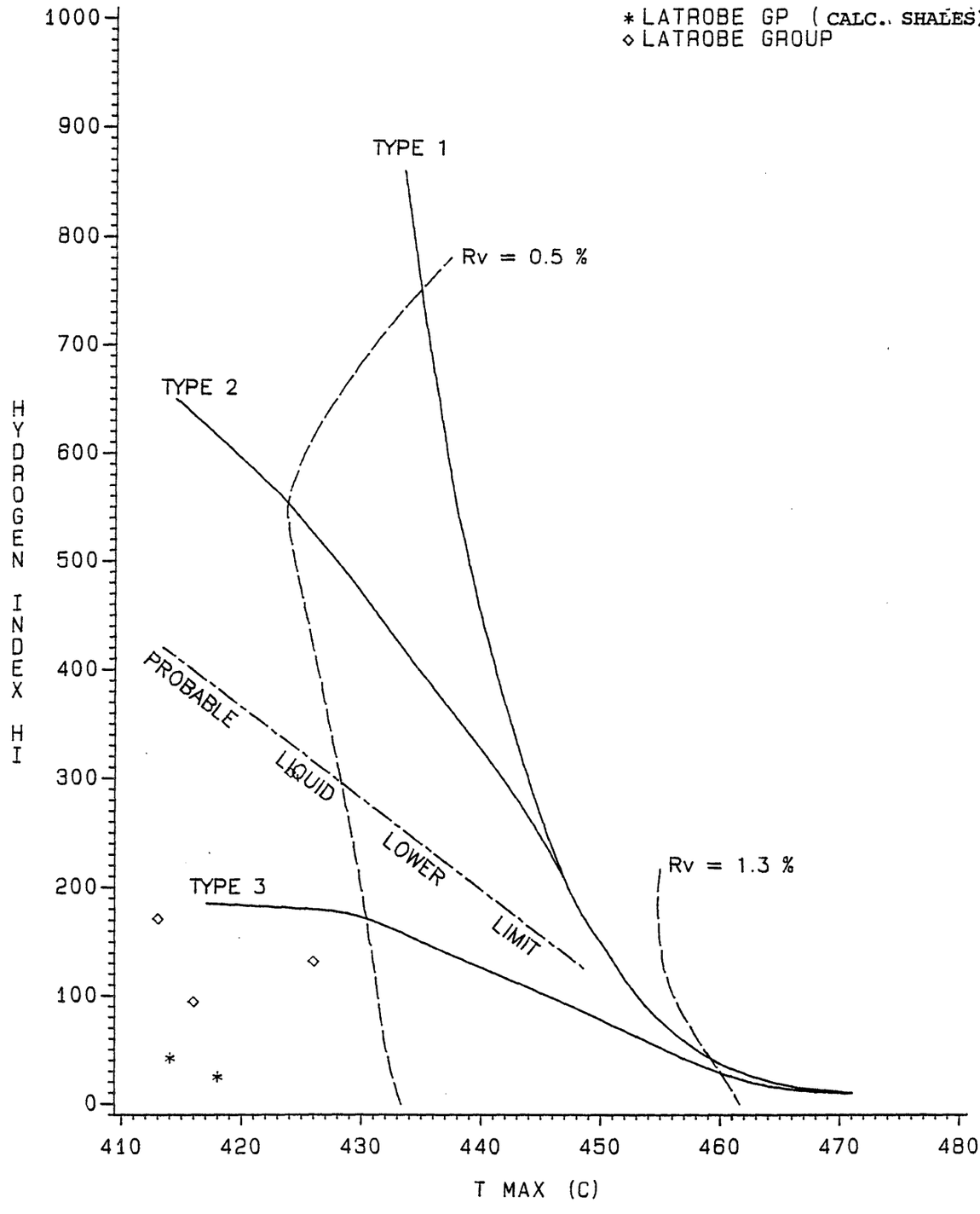


ROCKEVAL MATURATION PLOT

Tmax vs HYDROGEN INDEX

PERCH 2

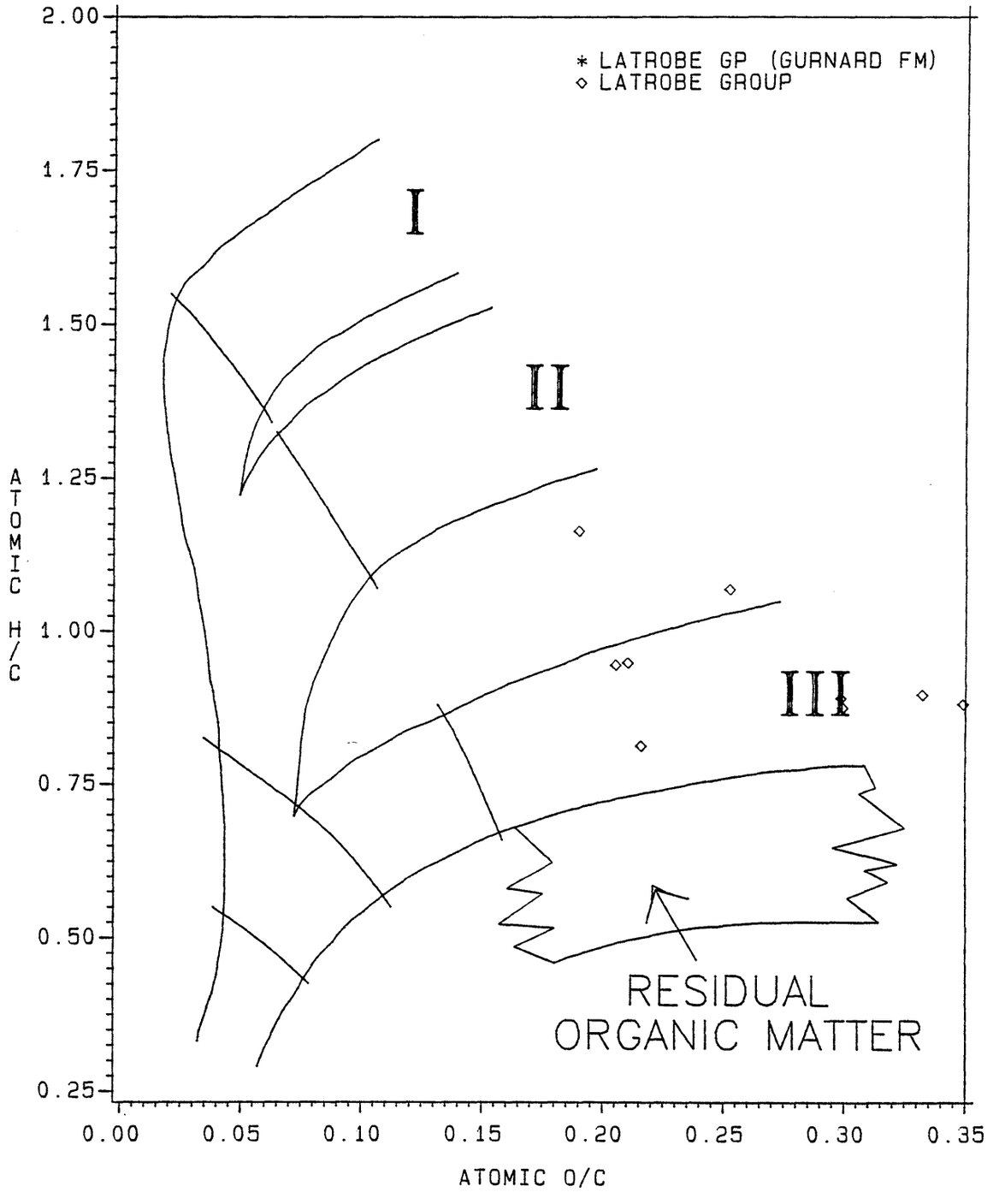
GIPPSLAND BASIN



KEROGEN TYPE

PERCH 2

GIPPSLAND BASIN



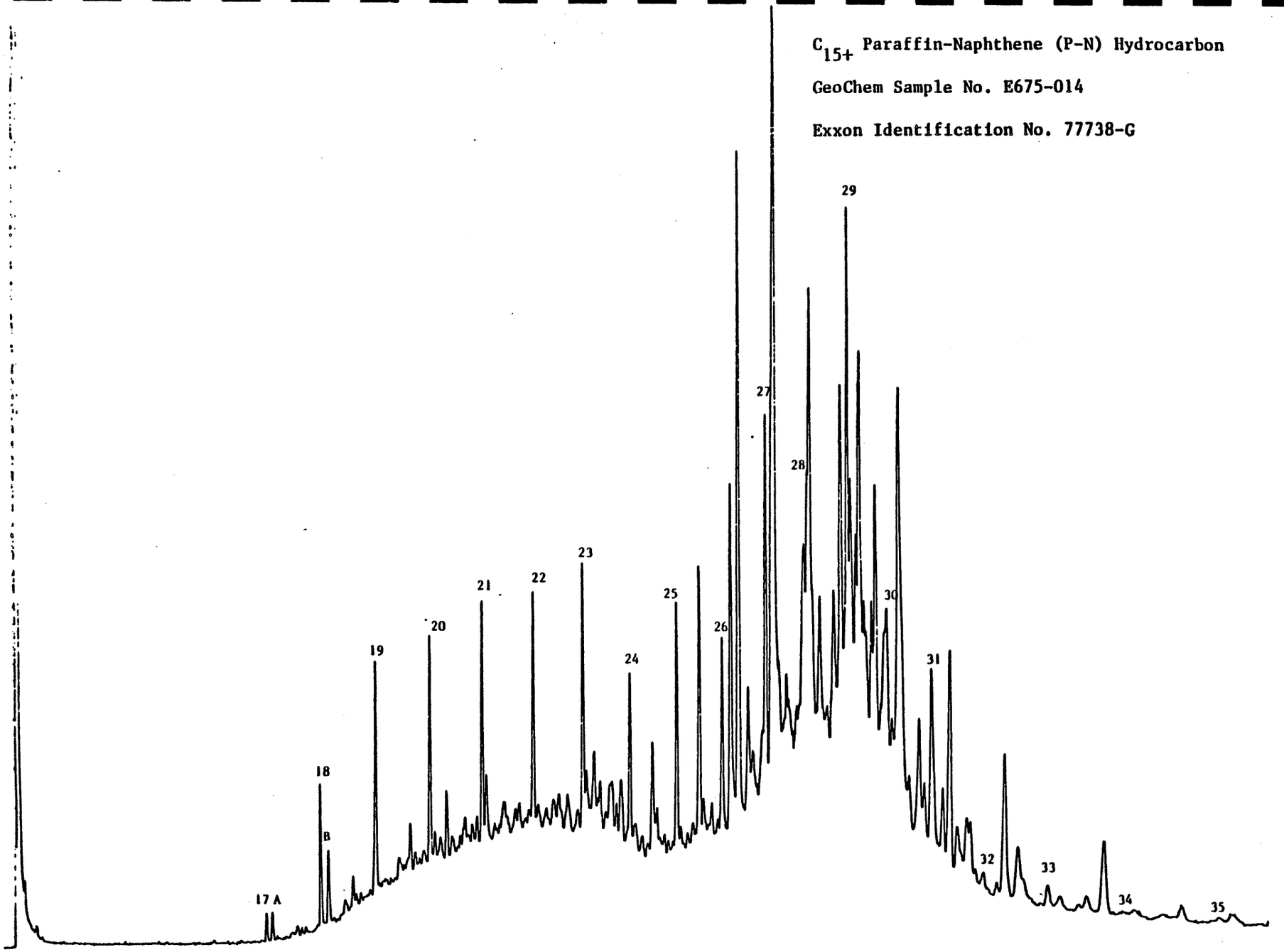


Figure 6: CUTTINGS EXTRACT, 1025 M.

C_{15+} Paraffin-Naphthene (P-N) Hydrocarbon

GeoChem Sample No. E675-015

Exxon Identification No. 77738-U

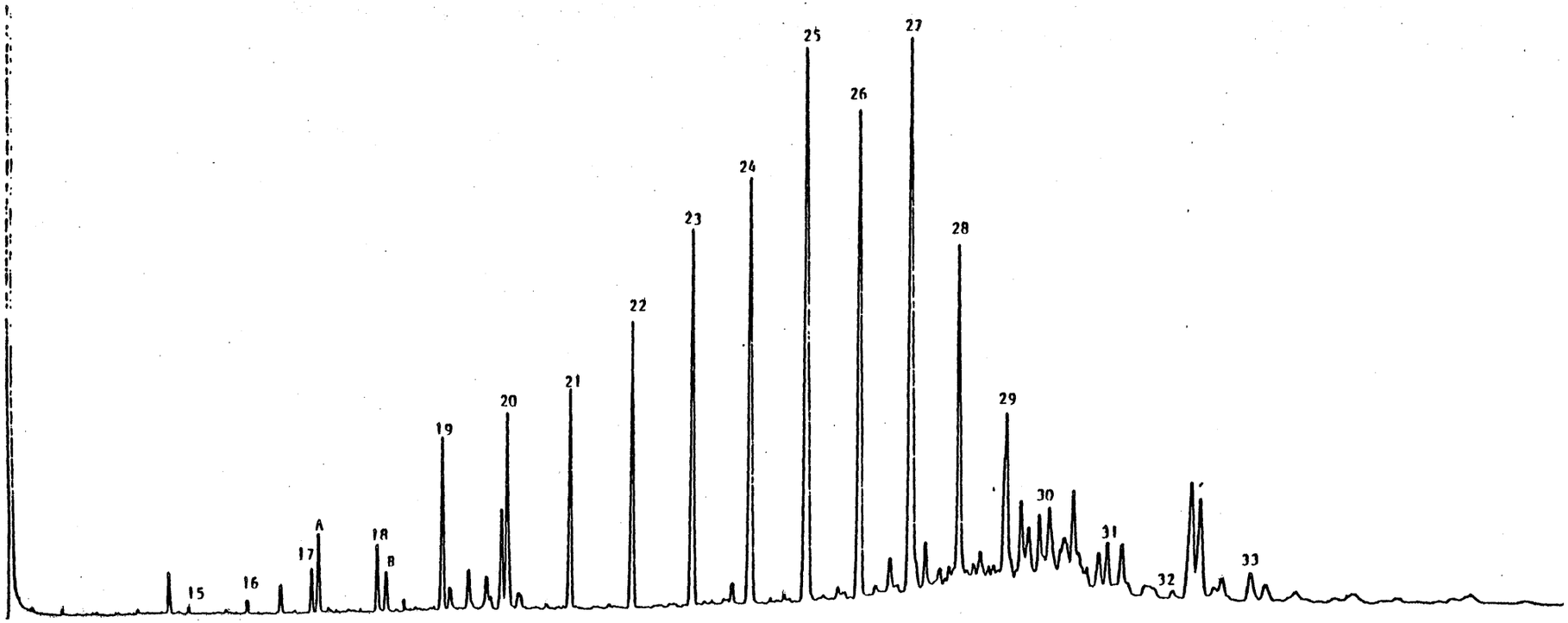


Figure 7: CUTTINGS EXTRACT, 1250 M.

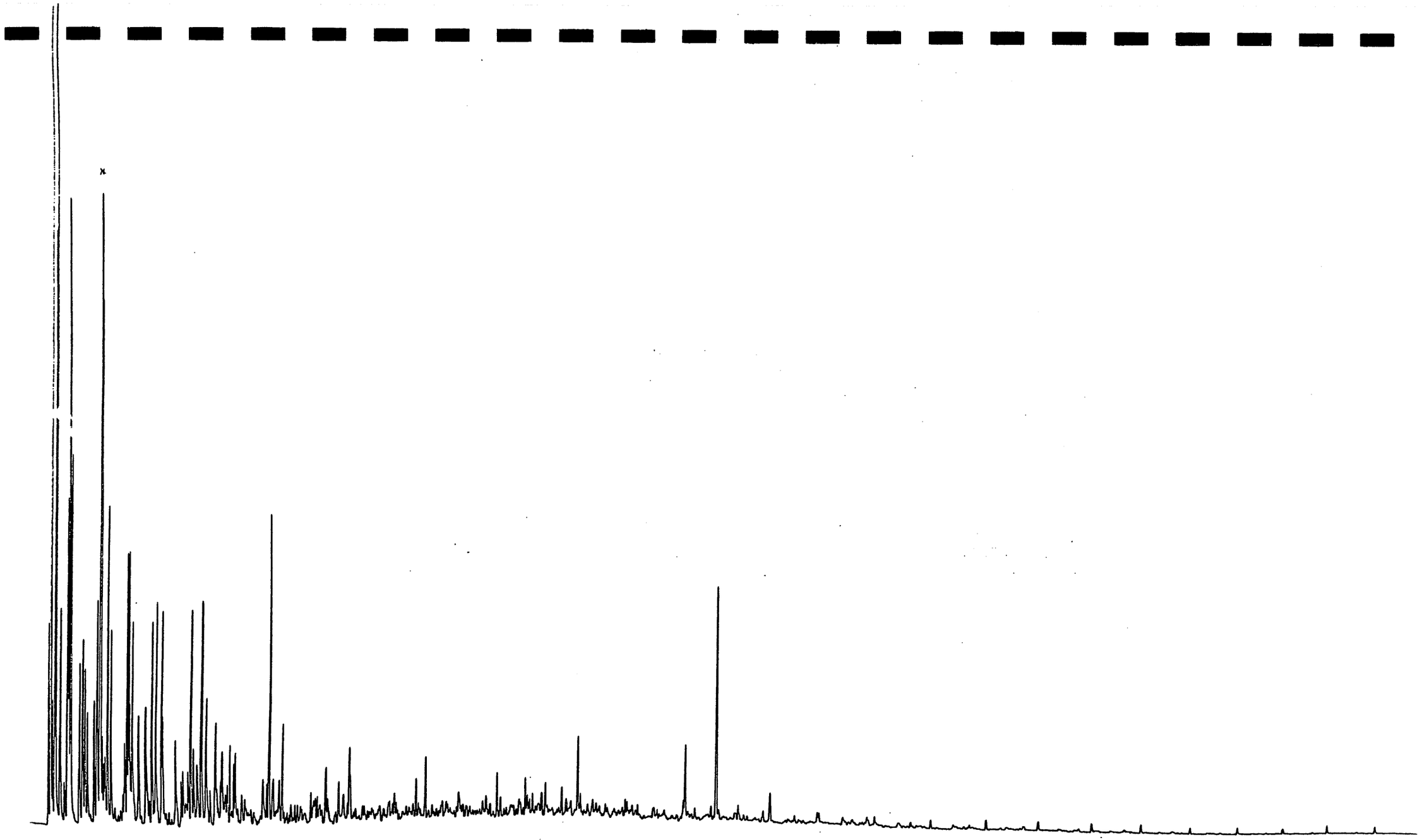


Figure 8. Whole oil chromatogram, Perch-2 oil sample, RFT 2/7, 1151 m (KB), API 42°

APPENDIX 1

Detailed C_{4-7} Data Sheets

ESSO AUSTRALIA LTD.

C4-C7 HYDROCARBON ANALYSES

BASIN - GIPPSLAND
WELL - PERCH 2

REPORT = UNSPEC. ANALYSIS
SAMPLE NO. = 77738 G DEPTH(M) = 1025.00

	TOTAL PPB	NORM PERCENT		TOTAL PPB	NORM PERCENT
METHANE	.0		1T3-DMCP	.0	.00
ETHANE	.0		1T2-DMCP	.0	.00
PROPANE	32.9	17.13	3-EPENT	.0	.00
IBUTANE	11.3	5.88	224-TMP	.0	.00
NBUTANE	31.5	16.40	NHEPTANE	19.8	10.31
IPENTANE	9.3	4.84	1C2-DMCP	.0	.00
NPENTANE	14.7	7.65	MCH	20.8	10.83
22-DMB	10.5	5.47			
CPENTANE	.0	.00			
23-DMB	.0	.00			
2-MP	12.0	6.25			
3-MP	5.9	3.07			
NHEXANE	17.3	9.01			
MCP	6.1	3.18			
22-DMP	.0	.00			
24-DMP	.0	.00			
223-TMB	.0	.00			
CHEXANE	.0	.00			
33-DMP	.0	.00			
11-DMCP	.0	.00			
2-MHEX	.0	.00			
23-DMP	.0	.00			
3-MHEX	.0	.00			
1C3-DMCP	.0	.00			

	TOTALS PPB	NORM PERCENT
ALL COMP	192.	
GASOLINE	159.	
NAPTHENES	27.	16.90
C6-7	64.	40.20

SIG COMP RATIOS

C1/C2	3.41
A /D2	37.10
C1/D2	20.80
CH/MCP	.00
PENT/IPENT	1.58

	PPB	NORM PERCENT
MCP	6.1	22.7
CH	.0	.0
MCH	20.8	77.3
TOTAL	26.9	100.0

C4-C7 HYDROCARBON ANALYSES

REPORT = UNSPEC. ANALYSIS

BASIN - GIPPSLAND
WELL - PERCH 2 SAMPLE NO. = 77738 I DEPTH(M) = 1055.00

	TOTAL PPB	NORM PERCENT		TOTAL PPB	NORM PERCENT
METHANE	.0		1T3-DMCP	4.0	1.98
ETHANE	.0		1T2-DMCP	2.1	1.04
PROPANE	36.6	18.12	3-EPENT	.0	.00
IBUTANE	6.4	3.17	224-TMP	.0	.00
NBUTANE	33.1	16.39	NHEPTANE	19.0	9.41
IPENTANE	13.5	6.68	1C2-DMCP	.0	.00
NPENTANE	10.9	5.40	MCH	12.0	5.94
22-DMB	1.7	.84			
CPENTANE	.0	.00			
23-DMB	.0	.00			
2-MP	10.6	5.25			
3-MP	5.9	2.92			
NHEXANE	16.6	8.22			
MCP	5.9	2.92			
22-DMP	.0	.00			
24-DMP	.0	.00			
223-TMB	.0	.00			
CHEXANE	2.0	.99			
33-DMP	.0	.00			
11-DMCP	.0	.00			
2-MHEX	8.4	4.16			
23-DMP	4.6	2.26			
3-MHEX	6.0	2.97			
1C3-DMCP	2.7	1.34			

	TOTALS PPB	NORM PERCENT	SIG COMP RATIOS	
ALL COMP	202.		C1/C2	1.52
GASOLINE	165.		A /D2	5.93
NAPTHENES	29.	17.35	C1/D2	3.73
C6-7	83.	50.36	CH/MCP	.34
			PENT/IPENT	.81

	PPB	NORM PERCENT
MCP	5.9	29.6
CH	2.0	10.1
MCH	12.0	60.3
TOTAL	19.9	100.0

C4-C7 HYDROCARBON ANALYSES

BASIN - GIPPSLAND
WELL - PERCH 2
REPORT = UNSPEC. ANALYSIS
SAMPLE NO. = 77738 K DEPTH(M) = 1085.00

	TOTAL PPB	NORM PERCENT		TOTAL PPB	NORM PERCENT
METHANE	.0		1T3-DMCP	4.1	1.71
ETHANE	.0		1T2-DMCP	5.1	2.13
PROPANE	30.8	12.88	3-EPENT	.0	.00
IBUTANE	5.2	2.17	224-TMP	.0	.00
NBUTANE	24.4	10.20	NHEPTANE	22.6	9.45
IPENTANE	23.7	9.91	1C2-DMCP	1.1	.46
NPENTANE	12.6	5.27	MCH	20.1	8.41
22-DMB	2.0	.84			
CPENTANE	.0	.00			
23-DMB	.0	.00			
2-MP	18.9	7.90			
3-MP	6.6	2.76			
NHEXANE	19.8	8.28			
MCP	11.6	4.85			
22-DMP	.0	.00			
24-DMP	1.7	.71			
223-TMB	.0	.00			
CHEXANE	3.3	1.38			
33-DMP	.0	.00			
11-DMCP	.0	.00			
2-MHEX	9.3	3.89			
23-DMP	4.3	1.80			
3-MHEX	6.8	2.84			
1C3-DMCP	5.1	2.13			

	TOTALS PPB	NORM PERCENT
ALL COMP	239.	
GASOLINE	208.	
NAPTHENES	50.	24.20
C6-7	115.	55.16

SIG COMP RATIOS

C1/C2	1.21
A /D2	6.24
C1/D2	4.81
CH/MCP	.28
PENT/IPENT	.53

	PPB	NORM PERCENT
MCP	11.6	33.1
CH	3.3	9.4
MCH	20.1	57.4
TOTAL	35.0	100.0

ESSO AUSTRALIA LTD.

C4-C7 HYDROCARBON ANALYSES

REPORT = UNSPEC. ANALYSIS

BASIN - GIPPSLAND
WELL - PERCH 2 SAMPLE NO. = 77738 M DEPTH(M) = 1115.00

	TOTAL PPB	NORM PERCENT		TOTAL PPB	NORM PERCENT
METHANE	.0		1T3-DMCP	6.6	1.65
ETHANE	.0		1T2-DMCP	9.4	2.35
PROPANE	39.8	9.94	3-EPENT	.0	.00
IBUTANE	10.9	2.72	224-TMP	.0	.00
NBUTANE	32.6	8.14	NHEPTANE	31.2	7.79
IPENTANE	38.5	9.61	1C2-DMCP	1.8	.45
NPENTANE	28.3	7.07	MCH	44.0	10.99
22-DMB	11.9	2.97			
CPENTANE	.0	.00			
23-DMB	.0	.00			
2-MP	31.5	7.87			
3-MP	11.0	2.75			
NHEXANE	34.9	8.71			
MCP	18.6	4.64			
22-DMP	.0	.00			
24-DMP	2.4	.60			
223-TMB	.0	.00			
CHEXANE	8.1	2.02			
33-DMP	.0	.00			
11-DMCP	.0	.00			
2-MHEX	13.1	3.27			
23-DMP	7.4	1.85			
3-MHEX	10.1	2.52			
1C3-DMCP	8.4	2.10			

	TOTALS PPB	NORM PERCENT
ALL COMP	400.	
GASOLINE	361.	
NAPTHENES	97.	26.86
C6-7	196.	54.34

SIG COMP RATIOS

C1/C2	1.46
A /D2	6.54
C1/D2	6.46
CH/MCP	.44
PENT/IPENT	.74

	PPB	NORM PERCENT
MCP	18.6	26.3
CH	8.1	11.5
MCH	44.0	62.2
TOTAL	70.7	100.0

ESSO AUSTRALIA LTD.

C4-C7 HYDROCARBON ANALYSES

REPORT = UNSPEC. ANALYSIS

BASIN - GIPPSLAND
WELL - PERCH 2 SAMPLE NO. = 77738 0 DEPTH(M) = 1145.00

	TOTAL PPB	NORM PERCENT		TOTAL PPB	NORM PERCENT
METHANE	.0		1T3-DMCP	.0	.00
ETHANE	.0		1T2-DMCP	.0	.00
PROPANE	24.3	23.89	3-EPENT	.0	.00
IBUTANE	.9	.88	224-TMP	.0	.00
NBUTANE	31.1	30.58	NHEPTANE	2.4	2.36
IPENTANE	26.2	25.76	1C2-DMCP	.0	.00
NPENTANE	2.2	2.16	MCH	.0	.00
22-DMB	3.2	3.15			
CPENTANE	9.7	9.54			
23-DMB	.0	.00			
2-MP	.0	.00			
3-MP	.0	.00			
NHEXANE	1.7	1.67			
MCP	.0	.00			
22-DMP	.0	.00			
24-DMP	.0	.00			
223-TMB	.0	.00			
CHEXANE	.0	.00			
33-DMP	.0	.00			
11-DMCP	.0	.00			
2-MHEX	.0	.00			
23-DMP	.0	.00			
3-MHEX	.0	.00			
1C3-DMCP	.0	.00			

	TOTALS PPB	NORM PERCENT
ALL COMP	102.	
GASOLINE	77.	
NAPTHENES	10.	12.53
C6-7	4.	5.30

SIG COMP RATIOS

C1/C2	.00
A /D2	4.10
C1/D2	.00
CH/MCP	.00
PENT/IPENT	.08

	PPB	NORM PERCENT
MCP	.0	.0
CH	.0	.0
MCH	.0	.0
TOTAL	.0	.0

ESSO AUSTRALIA LTD.

C4-C7 HYDROCARBON ANALYSES

BASIN - GIPPSLAND
WELL - PERCH 2

REPORT = UNSPEC. ANALYSIS
SAMPLE NO. = 77738 Q DEPTH(M) = 1190.00

	TOTAL PPB	NORM PERCENT		TOTAL PPB	NORM PERCENT
METHANE	.0		1T3-DMCP	.0	.00
ETHANE	.0		1T2-DMCP	.0	.00
PROPANE	10.7	3.93	3-EPENT	.0	.00
IBUTANE	110.0	40.40	224-TMP	.0	.00
NBUTANE	55.2	20.27	NHEPTANE	8.9	3.27
IPENTANE	13.0	4.77	1C2-DMCP	.0	.00
NPENTANE	38.3	14.07	MCH	.0	.00
22-DMB	3.3	1.21			
CPENTANE	.0	.00			
23-DMB	.0	.00			
2-MP	2.4	.88			
3-MP	9.6	3.53			
NHEXANE	16.6	6.10			
MCP	1.2	.44			
22-DMP	.0	.00			
24-DMP	.0	.00			
223-TMB	.0	.00			
CHEXANE	.0	.00			
33-DMP	.0	.00			
11-DMCP	.0	.00			
2-MHEX	2.0	.73			
23-DMP	.0	.00			
3-MHEX	1.1	.40			
1C3-DMCP	.0	.00			

	TOTALS PPB	NORM PERCENT
ALL COMP	272.	
GASOLINE	262.	
NAPTHENES	1.	.46
C6-7	31.	11.39

SIG COMP RATIOS

C1/C2	1.67
A /D2	23.18
C1/D2	1.82
CH/MCP	.00
PENT/IPENT	2.95

	PPB	NORM PERCENT
MCP	1.2	100.0
CH	.0	.0
MCH	.0	.0
TOTAL	1.2	100.0

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C4-C7 HYDROCARBON ANALYSES

BASIN - GIPPSLAND
WELL - PERCH 2

REPORT = UNSPEC. ANALYSIS
SAMPLE NO. = 77738 S DEPTH(M) = 1220.00

	TOTAL PPB	NORM PERCENT		TOTAL PPB	NORM PERCENT
METHANE	.0		1T3-DMCP	351.9	1.40
ETHANE	.0		1T2-DMCP	458.1	1.82
PROPANE	1741.2	6.91	3-EPENT	.0	.00
IBUTANE	2794.9	11.09	224-TMP	.0	.00
NBUTANE	3872.7	15.37	NHEPTANE	374.3	1.49
IPENTANE	4280.2	16.98	1C2-DMCP	.0	.00
NPENTANE	2062.3	8.18	MCH	1092.5	4.33
22-DMB	147.2	.58			
CPENTANE	370.7	1.47			
23-DMB	454.3	1.80			
2-MP	1335.7	5.30			
3-MP	1130.3	4.48			
NHEXANE	1044.5	4.14			
MCP	1482.8	5.88			
22-DMP	.0	.00			
24-DMP	171.5	.68			
223-TMB	.0	.00			
CHEXANE	824.8	3.27			
33-DMP	.0	.00			
11-DMCP	.0	.00			
2-MHEX	186.8	.74			
23-DMP	358.3	1.42			
3-MHEX	272.1	1.08			
1C3-DMCP	395.2	1.57			

	TOTALS PPB	NORM PERCENT
ALL COMP	25203.	
GASOLINE	23462.	
NAPTHENES	4976.	21.21
C6-7	7013.	29.89

SIG COMP RATIOS

C1/C2	.78
A /D2	5.21
C1/D2	7.73
CH/MCP	.56
PENT/IPENT	.48

	PPB	NORM PERCENT
MCP	1482.8	43.6
CH	824.8	24.3
MCH	1092.5	32.1
TOTAL	3400.1	100.0

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C4-C7 HYDROCARBON ANALYSES

BASIN - GIPPSLAND
WELL - PERCH 2

REPORT = UNSPEC. ANALYSIS
SAMPLE NO. = 77738 U DEPTH(M) = 1250.00

	TOTAL PPB	NORM PERCENT		TOTAL PPB	NORM PERCENT
METHANE	.0		1T3-DMCP	3.1	1.54
ETHANE	.0		1T2-DMCP	3.3	1.64
PROPANE	43.9	21.75	3-EPENT	.0	.00
IBUTANE	8.5	4.21	224-TMP	.0	.00
NBUTANE	44.5	22.05	NHEPTANE	9.8	4.86
IPENTANE	12.2	6.05	1C2-DMCP	.8	.40
NPENTANE	12.6	6.24	MCH	9.9	4.91
22-DMB	1.3	.64			
CPENTANE	3.4	1.68			
23-DMB	2.4	1.19			
2-MP	6.6	3.27			
3-MP	4.6	2.28			
NHEXANE	12.1	6.00			
MCP	5.2	2.58			
22-DMP	.0	.00			
24-DMP	1.7	.84			
223-TMB	.9	.45			
CHEXANE	4.0	1.98			
33-DMP	.0	.00			
11-DMCP	.0	.00			
2-MHEX	4.6	2.28			
23-DMP	1.7	.84			
3-MHEX	3.3	1.64			
1C3-DMCP	1.4	.69			

	TOTALS PPB	NORM PERCENT
ALL COMP	202.	
GASOLINE	158.	
NAPTHENES	31.	19.70
C6-7	62.	39.14

SIG COMP RATIOS

C1/C2	1.34
A /D2	6.64
C1/D2	5.61
CH/MCP	.77
PENT/IPENT	1.03

	PPB	NORM PERCENT
MCP	5.2	27.2
CH	4.0	20.9
MCH	9.9	51.8
TOTAL	19.1	100.0

C4-C7 HYDROCARBON ANALYSES

BASIN - GIPPSLAND
WELL - PERCH 2
REPORT = UNSPEC. ANALYSIS
SAMPLE NO. = 77738 Y DEPTH(M) = 1310.00

	TOTAL PPB	NORM PERCENT		TOTAL PPB	NORM PERCENT
METHANE	.0		1T3-DMCP	10.4	.38
ETHANE	.0		1T2-DMCP	5.1	.19
PROPANE	1323.1	48.08	3-EPENT	.0	.00
IBUTANE	26.4	.96	224-TMP	.0	.00
NBUTANE	83.2	3.02	NHEPTANE	107.8	3.92
IPENTANE	112.5	4.09	1C2-DMCP	.0	.00
NPENTANE	327.4	11.90	MCH	12.5	.45
22-DMB	10.3	.37			
CPENTANE	58.4	2.12			
23-DMB	90.9	3.30			
2-MP	80.1	2.91			
3-MP	102.0	3.71			
NHEXANE	300.1	10.90			
MCP	26.0	.94			
22-DMP	.0	.00			
24-DMP	.0	.00			
223-TMB	.0	.00			
CHEXANE	24.6	.89			
33-DMP	.0	.00			
11-DMCP	.0	.00			
2-MHEX	20.5	.74			
23-DMP	11.1	.40			
3-MHEX	16.6	.60			
1C3-DMCP	3.1	.11			

	TOTALS PPB	NORM PERCENT
ALL COMP	2752.	
GASOLINE	1429.	
NAPTHENES	140.	9.80
C6-7	538.	37.63

SIG COMP RATIOS	
C1/C2	1.29
A /D2	24.57
C1/D2	3.47
CH/MCP	.95
PENT/IPENT	2.91

	PPB	NORM PERCENT
MCP	26.0	41.2
CH	24.6	39.0
MCH	12.5	19.8
TOTAL	63.1	100.0

APPENDIX 2

Detailed Vitrinite Reflectance and Exinite Fluorescence Data - Report by A.C. Cook

PERCH NO. 2

KK No.	Esso No.	Depth m	$\bar{R}_v$ max %	Range R_v max %	N	Exinite fluorescence (Remarks)
x1903	77740 -D	1075 SWC 30	-	-	-	Rare ?liptodetrinite, yellow, rare phytoplankton, greenish yellow to yellow. (Claystone. Dom
		$\bar{R}_I$	0.70	-	1	rare, I>?E. Inertinite and ?exinite rare, vitrinite absent. Diffuse humic matter rare. Forams present. Carbonate sparse and pyrite rare, typically framboidal.)
x1904	77739 -P	1175 SWC 16	0.37	0.29-0.44	28	Abundant sporinite and liptodetrinite, green to yellow, abundant resinite, yellow to brown, rare exsudatinite, brown. (Coal, V>E>I. Clarite, densinite dominant, ulminite also present, rare inertinite. Pyrite rare.)
x1905	77739 -B	1299.5 SWC 2	0.48	0.37-0.60	27	Abundant bituminite, brown, abundant sporinite and liptodetrinite, green to yellow, common
		$\bar{R}_I$	1.47	1.01-1.74	5	resinite, green to dull orange, rare cutinite, yellow. (Coal>>sandstone. Coal dominant, I>E>V. Durite>inertite>vitrinertite>vitrite. Dom absent. Oil haze present and active green oil cut from some inertinite. Pyrite rare.)

ENCLOSURES

PE902436

This is an enclosure indicator page.
The enclosure PE902436 is enclosed within the container PE902437 at this location in this document.

The enclosure PE902436 has the following characteristics:

ITEM_BARCODE	PE902436
CONTAINER_BARCODE	PE902437
NAME	Structure Map Top of Coarse Clastics
BASIN	GIPPSLAND
PERMIT	
TYPE	SEISMIC
SUBTYPE	HRZN_CONTR_MAP
DESCRIPTION	Structure Map Top of Coarse Clastics
REMARKS	
DATE_CREATED	1/11/85
DATE_RECEIVED	18/03/86
W_NO	W898
WELL_NAME	Perch-2
CONTRACTOR	
CLIENT_OP_CO	ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE902435

This is an enclosure indicator page.
The enclosure PE902435 is enclosed within the container PE902437 at this location in this document.

The enclosure PE902435 has the following characteristics:

ITEM_BARCODE	= PE902435
CONTAINER_BARCODE	= PE902437
NAME	= Perch Discovery Geological Cross Section A-A'
BASIN	= GIPPSLAND
PERMIT	=
TYPE	= WELL
SUBTYPE	= CROSS_SECTION
DESCRIPTION	= Perch Discovery Geological Cross Section A-A'
REMARKS	=
DATE_CREATED	= 1/11/85
DATE_RECEIVED	= 18/03/86
W_NO	= W898
WELL_NAME	= Perch-2
CONTRACTOR	=
CLIENT_OP_CO	= ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE601188

This is an enclosure indicator page.
The enclosure PE601188 is enclosed within the container PE902437 at this location in this document.

The enclosure PE601188 has the following characteristics:

ITEM_BARCODE	= PE601188
CONTAINER_BARCODE	= PE902437
NAME	= Well Completion Log
BASIN	= GIPPSLAND
PERMIT	=
TYPE	= WELL
SUBTYPE	= COMPLETION_LOG
DESCRIPTION	= Well Completion Log
REMARKS	=
DATE_CREATED	= 6/03/85
DATE_RECEIVED	= 18/03/86
W_NO	= W898
WELL_NAME	= Perch-2
CONTRACTOR	=
CLIENT_OP_CO	= ESSO

(Inserted by DNRE - Vic Govt Mines Dept)