WCR VOL 2

SWEETLIPS-1

W1003

ESSO EXPLORATION AND PRODUCTION
AUSTRALIA INC.

WELL COMPLETION REPORT

SWEETLIPS-1 AND SWEETLIPS-1 SIDETRACK-1
INTERPRETED DATA
VOLUME II

GIPPSLAND BASIN
VICTORIA

ESSO AUSTRALIA LTD.

COMPILED BY P. V. HINTON
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GEOLOGICAL AND GEOPHYSICAL ANALYSIS

1. SUMMARY OF WELL RESULTS

a). Formation/Horizon Tops — Depth (Sweetlips)

Formation/Horizon Tops	Predrill (mKB)	Drilled (mKB)	Drilled (mSS)
Seaspray Group	73	73	-52
Latrobe Group	1493	1505	-1484
Top "Coarse Clastics"	1499	1510	-1489
54.2 MY Sequence Boundary	1577	1565	-1544
Top Zone IV (Base Volcanics)	1662	1654	-1633
Top *P. Mawsonii* Shale	-	1813	-1792
Total Depth	1900	1870	-1849

b). Formation/Horizon Tops — Depth (Sweetlips Sidetrack)

Formation/Horizon Tops	Predrill (mKB)	Drilled (TVDmKB)	Drilled (mSS)
Latrobe Group	-	1513	-1492
Top "Coarse Clastics"	-	1517	-1496
54.2 MY Sequence Boundary	1580	1580	-1559
Total Depth		1728	-1707

2. INTRODUCTION

The Emperor-Sweetlips structure is a multi-crested highside rollover, truncated by the Marlin Channel, located on the northern margin of the Gippsland Basin, on the Strzelecki Terrace.

Sweetlips-1 is located 2.75km east of Emperor-1 and 11km north of the Snapper Platform in VIC/L10. The primary objective of the well was to test for hydrocarbons at the top of "Coarse Clastics". Stacked intra-Latrobe sandstones were the secondary target.

At the top of "Coarse Clastics" (1510mKB) a 55m gross hydrocarbon column was intersected. RFT data indicated a GOC at 1561mKB with a possible OWC at 1565mKB. Therefore a 51 gas column was interpreted with 4m of oil on rock. No other hydrocarbon zones were recognised.

As the RFT data was not conclusive as to the exact depth of the OWC, and 4m of oil was not economically producible it was decided to sidetrack the well 15m downdip to more accurately define the oil column.

The sidetrack confirmed the initial interpretation and with only a 4m oil column it was decided to plug and abandon Sweetlips-1.

GEOLOGICAL ANALYSIS

3. STRUCTURE

The Sweetlips Field is part of a larger structural feature incorporating Emperor-1. The Emperor-Sweetlips structure is a multi-crested highside rollover, north of the major Rosedale Fault system, bounding the northern margin of the Gippsland Basin, up on the Strzelecki Terrace. The structure is the product of two superimposed structural events and erosion.

The major E-W fault bounding the northern flank of the Field is probably associated with Otway Rift extensional tectonics early in the development of the basin.

Post Latrobe Oligocene to Mid Miocene compression resulted in reactivation and inversion of the east-west fault on the northern margin of the structure and also produced the roll into the fault. Fault independent closure is present at the top of "Coarse Clastics" with increased closure at this level and deeper closure, dependent on the E-W fault.

Furthermore, the Marlin Channel has downcut into P. mawsonii Latrobe Group sediments over the eastern part of the Sweetlips structure. This channel extends NW-SE across the eastern flank of the field.

4. STRATIGRAPHY

Stratigraphy at Sweetlips-1 was similar to that intersected at the nearby Emperor-1.

A thick sequence of limestones and marls made up the Seaspray Group.

The uppermost unit of the Latrobe Group is the Gurnard Formation. It comprises glauconitic siltstones 5m, 4m and 5m thick at Sweetlips-1, Sweetlips Sidetrack-1 and Emperor-1, respectively. The Gurnard in this region is identifiable by its high density, apparent on both the RHOB and BHC electric logs.

The underlying "Coarse Clastics" consists of interbedded sandstones, siltstones and coals of a coastal plain environment, with coals decreasing with depth. There are indications in core, however, that some of the uppermost sands may be marginally marine.

Emperor-1 possibly intersected the Strzelecki Group directly below the P. mawsonii shale. Sweetlips-1 terminated in the P. mawsonii shale which, similar to Emperor-1, is an extremely dense shale with minor thin sandstone interbeds, which is believed to be lacustrine in origin.

A basalt in intersected at approximately the upper L. balmei, lower L. balmei boundary in both Emperor and Sweetlips. Similarly, basalt flows are intersected at the same stratigraphic level in Wirrah and Harlequin.

Overall, the stratigraphic sections are very similar in character but there are some discrepancies. Notably, a thick sand directly above the P. mawsonii shale at Sweetlips which has no stratigraphic equivalent at Emperor due to initial down to the basin thickening. Secondly, the basalt flow in Sweetlips is much thinner than that seen at Emperor. From this it can be inferred that Sweetlips is more distal to the origin of the flow than Emperor. Finally, due to erosion, the section from the top of "Coarse Clastics" to the 50.5MY sequence boundary thins from Emperor to the crestal Sweetlips.

5. HYDROCARBONS

Upon drilling into the top of "Coarse Clastics" at Sweetlips-1, total gas increased to 30 units (200ppm = 1 unit) over a background of 1 unit. A trace of dull yellow/green fluorescence with no cut was associated with this increase in total gas. In response to this show three cores were cut from 1512 to 1554m.

Gas levels dropped off markedly whilst coring, to less than 1 unit. However, fluorescence shows improved initially with 100% very dull, patchy yellow/green fluorescence with minor solid bright fluorescence in core 1 giving an instant streaming cut. In cores 2 and 3, fluorescence decreased to a very, very dull, pervasive fluorescence with a slow streaming cut to crush cut. All three cores are within the gas saturated interval.

Upon drilling ahead only a trace fluorescence with a crush cut was recorded. No further shows were seen in the well. From log interpretation and RFT data a 55m gross hydrocarbon column is recognised. The top of the "Coarse Clastics" is at 1510mKB with a GOC interpreted at 1561mKB and an OWC at 1565mKB. Within the 51m gross gas column 43.4m of net is interpreted (AvØ 0.21, AvSw 0.30) and in the oil column 3.7m of net (AvØ 0.24, AvSw 0.29).

The top "Coarse Clastics" reservoir within Sweetlips-1 sidetrack exhibited no fluorescence at all upon intersection but a gas peak of 100 units over a 3 unit background was observed. Log interpretation indicates 39.3m of net gas within a 42.6m TVD gross interval (AvØ 0.24, AvSw 0.23) and 3.8m TVD of net oil (AvØ 0.28, AvSw 0.28).

The Sweetlips structure at the top of "Coarse Clastics" has a double crest, however at the deeper levels only one crest exists and this is to the east of Sweetlips-1. Therefore, even though no hydrocarbons were found in the intra-Latrobe at Sweetlips, updip potential still exists to the east.

6. GEOPHYSICAL DISCUSSION

6.1 Introduction

The Emperor-Sweetlips area is controlled by a 200km grid of G77A, G81A, G84A and G88A seismic data. The G88A grid, which comprises 27km of seismic, was recorded to validate the intra Latrobe traps.

The Sweetlips closure is 2.75km east of Emperor which found hydrocarbons both at the top of "Coarse Clastics" and intra Latrobe. Sweetlips was targetted to test a top of "Coarse Clastics" closure and the downdip portion of several intra Latrobe fault dependent closures, that culminated 1.5km east of the location.

6.2 Modelling

Quiklog modelling was conducted over Sweetlips as a seismic anomaly was found which tracked the southern spill of the Sweetlips structure. From modelling it was predicted that this was probably a hydrocarbon anomaly, although it was not known if these hydrocarbons were oil or gas as the oil in Emperor is very light and would give a similar seismic response on seismic to that of gas. For these reasons predrill the closure was interpreted to be full to spillpoint, with a predicted hydrocarbon column of 52m.

6.3 Depth Conversion

A hand contoured VNMO map was used to depth convert to the top of "Coarse Clastics". The velocities across the Emperor-Sweetlips area only varied by 100m/sec so confidence in the depth conversion was high, although Emperor-1 was the only conversion factor control point available within the area.

Post drill, the top of "Coarse Clastics" was 11m deep to prediction while the deeper Zone II and Zone IV markers were 12m and 8m high respectively. These errors are within the accuracy expected of the velocity data. Depth maps were changed to take these errors into account. The velocity interpretation at the top of "Coarse Clastics" was not changed as the shape of the container was interpreted to be correct. The Sweetlips closure at this level was just bulk shifted down by 11m.

FIGURES

SWEETLIPS-1

LOCATION MAP

Scale:- 1: 250,000

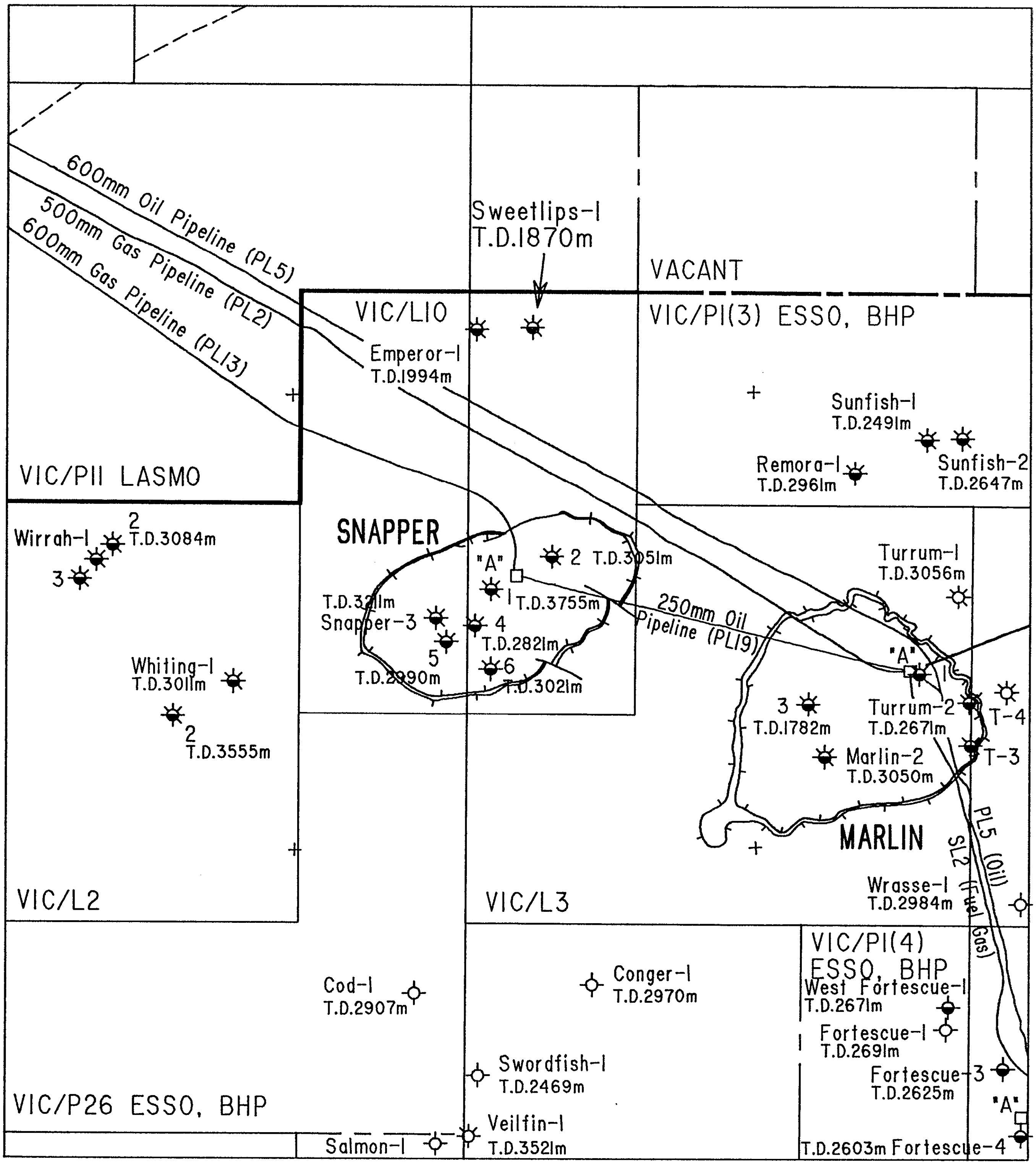

Figure 1

APPENDIX 1

APPENDIX-1

PALYNOLOGICAL ANALYSIS OF SWEETLIPS-1
GIPPSLAND BASIN.

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INTERPRETED DATA

INTRODUCTION

Thirty-three sidewall cores and four conventional core samples from Sweetlips-1 were processed and examined for spores, pollen and microplankton. As part of the analysis twenty-four samples were also counted to determine the variation in percentages and ratios of the principal spore-pollen and microplankton species. Both oxidised organic residue yields and palynomorph concentrations were mostly moderate to high and this was reflected in the moderate spore-pollen diversity recorded from the majority of samples. Average diversity from productive samples was 19.6 spore-pollen species per sample. Microplankton were abundant and the assemblages were of moderate diversity in the Lakes Entrance Formation, but were generally of low abundance and diversity in the Latrobe Group. Preservation of palynomorphs overall was fair to good.

Lithological units and palynological zones, from base of Lakes Entrance Formation to T.D. are given in the following summary. Interpreted data with zone identifications and confidence ratings are recorded in Table-1 and basic data on residue yields, preservation and diversity are recorded in Table-2. Palynomorph percentages in samples counted are recorded in Tables-3 and 4, while all species that can be identified with bimomial names are tabulated on the two accompanying range chart.

PALYNOLOGICAL SUMMARY OF SWEETLIPS-1

AGE	UNIT/FACIES		SPORE-POLLEN ZONES (Dinoflagellate Zones)	DEPTH RANGE (mKB)
Miocene-Oligocene	Lakes Entrance Fm.		*P. tuberculatus*	1433.0-1504.0
		1505.0m		
Mid-Late Eocene	LATROBE GROUP	Gurnard Fm.?	NOT SAMPLED	
UNCONFORMITY		1510.0m		
Early Eocene		Undifferentiated "coarse clastics" facies	Lower *M. diversus* (*A. hyperacanthum*)	1518.6-1559.0 (1559.0)
Paleocene			Upper *L. balmei*	1567.0-1631.5
Paleocene			Lower *L. balmei*	1643.2-1690.0
Maastrichtian			Upper *T. longus*	1713.9-1787.0
UNCONFORMITY		1813.0m		
Coniacian-Turonian		Kipper Shale	*P. mawsonii*	1815.0-1849.0
		T.D. 1870.0m		

GEOLOGICAL COMMENTS

1. Sweetlips-1 was abandoned at a total depth of 1870m while still within the Kipper Formation. This formation was first proposed as a discrete unit of the Latrobe Group in the Kipper-1 well completion report (Marshall & Partridge, 1986). In Sweetlips-1 the formation consists of 57 metres of predominately dark grey argillaceous siltstone with minor thin beds of predominately very fine grained sandstone.

2. The environment of deposition of the the Kipper Formation is envisioned to be a large, deep, fresh water lake.

   A fresh water environment is strongly suggested by the occurrence in all samples of a low diversity suite of algal cysts and microplankton. In Kipper-1, Marshall & Partridge (1986), suggested a restricted marine influence on the Kipper Formation. However, a more detailed study of these algal cysts by Marshall (1989) shows that they are unlike any contemporary marine assemblages, and that they are more likely to be fresh water forms. Their current endemic occurrence in the Gippsland Basin is consistent with deposition within a lake or lakes formed during the rifting associated with the breakup of southeastern Australia.

   The composition of the spore-pollen assemblages suggest the environment of deposition of the Kipper Formation is a large and deep lake. Relative to similar age assemblages outside of the Gippsland Basin counts of the spore-pollen assemblages in Sweetlips-1 (Table-4) show an unusual dominance of gymnosperm pollen (particularly the *Araucariacites/Dilwynites* species group). This is interpreted to be a manifestation of the "Neves effect", which is the tendency, for bisaccate pollen, certain buoyant spores, and other pollen with 'comparatively great transportability' to have greater relative abundance the further offshore you go in any depositional basin (Traverse, 1988; p.413). As the "Neves effect" is present in all samples in the *P. mawsonii* Zone in Sweetlips-1 it suggests stability of environment through a considerable period of geological time and this is a prerequisite only fulfilled by a large lake. Based on the known distribution of the algal cysts this Turonian lake may extend about 100 km east-west by 50 km north-south (i.e. from Sweetlips-1 to Kipper-1 to dredge sample in Bass Canyon examined by Marshall, 1989). Assuming, based on comparison to modern lakes, a conservative average water depth of 100 metres the lake would have a volume of 500 km^3. A lake of this size would rank 18th on list of the largest modern lakes of the world by volume, and therefore could justifiably be called a large lake (see Herdendorf, 1982, table 8).

3. The top of the Kipper Formation at 1813m is marked by the Late Cretaceous erosive unconformity described by Lowry (1987, 1988) from the adjacent Emperor-1 and other wells. In Sweetlips-1 this unconformity is overlain by well dated latest Maastrichtian sediments. On the time scale of Haq *et al.* (1987, 1988) the unconformity at Sweetlips-1 represents a time gap of more than 20 million years.

4. The latest Maastrichtian section between 1725-1813m assigned to the Upper *T. longus* Zone is predominantly sandstone and siltstone with minor claystone. It notably lacks any coal seams and therefore is considered to represent fluviatile environments rather than coastal plain environments as is typical in more basinward position within this zone. The claystone to siltstone unit between 1700-1725m in contrast contains thin coal seams and is therefore considered to represent an upper coastal plain environment. The interval is assigned to the "upper" coastal plain because it lacks any dinoflagellates. In contrast the modifying prefix "lower" is assign to the coastal plain environment with dinoflagellates. It is suggested the interval between 1700-1725m correlates with all or part of the transgressive T.1 Shale which contains the *M. druggii* and *T. evittii* dinoflagellate Zones, and is a widely distributed unit in the basin (see Partridge, 1989).

5. The Paleocene *L. balmei* Zone section between 1565-1700m shows a similar environmental pattern to the Maastrichtian section. The basal interval from 1655-1700m is predominantly sandy and lacks coals and is therefore interpreted as fluviatile. The overlying section between 1565-1655m becomes increasingly shaly upwards and also contains thin coal seams and is therefore interpreted represent upper coastal plain environments. No *in situ* dinoflagellates were found in samples over this interval.

6. In the Early Eocene Lower *M. diversus* Zone section between 1510-1565m the environment of deposition is interpreted as lower coastal plain at the base because marine dinoflagellates are present in the samples, grading upwards into upper coastal plain based on the absence of dinoflagellates.

7. The described lithology of the recovered sidewall cores compared to their interpreted lithology from the electric logs is considered anomalous for at least three sidewall cores recovered from the Lower *M. diversus* Zone interval. The sequence of anomalous sidewall cores are:

SWC No.	Depth (m)	Described Lithology	Interpreted Lithology	Comment
47	1547.0	White Sandstone	Claystone	Not processed/ probably 1537.2
46	1550.8	Not recovered	Siltstone/ claystone	
45	1555.0	Grey Sandstone/ with clay matrix	Claystone	Probably 1550.8
44	1559.0	Claystone	Sandstone	Probably 1555.0

Sidewall cores 44 and 47 are the two samples whose lithologies are most in conflict with the interpreted lithologies from the electric logs. As an explanation it is suggested that the four sidewall cores numbered 46, 48, 49 and 52 which were not recovered led to a mislabelling of the recovered samples. It is speculated that sidewall core 44 was not recovered and that the next three recovered samples (i.e. SWCs 45, 46, and 48) were all moved down one place. This interpretation is the simplest and best fit for the lithologies of the recovered samples. The interpretation does not materially affect the palynological zonation of Sweetlips-1 but may have bearing on the electric log correlation of the *A. hyperacanthum* Zone with adjacent wells.

8. In Sweetlips-1 there is less than 10 metres of undated section present at the top of the Latrobe "coarse clastics" section. Relative to the adjacent Emperor-1 well it is estimated that approximately 35 metres of Early Eocene sediments belonging to the Middle to Upper *M. diversus* and *P. asperopolus* Zones have been eroded from the Latrobe in Sweetlips-1.

9. No *N. asperus* Zone section was sampled in Sweetlips-1, but is present in a thin Gurnard Formation in Emperor-1 between 1518-1524m (4980-5000ft). It is suggested that the thin high density unit between 1505-1510m may be the equivalent unit in Sweetlips-1.

BIOSTRATIGRAPHY

Zone and age determinations have been made using criteria proposed by Stover & Partridge (1973), Helby *et al.* (1987) and unpublished observations made on Gippsland Basin wells drilled by Esso Australia Ltd.

Author citations for most spore-pollen species can be sourced from Stover & Partridge (1973, 1982), Helby *et al.* (1987) and Dettmann & Jarzen (1988) or other references cited herein. Species names followed by "ms" are unpublished manuscript names. Zone names have not been altered to conform with recent nomenclatural changes to nominate species such as *Forcipites* (al. *Tricolpites*) *longus* (Stover & Evans) Dettmann & Jarzen 1988. Author citations for dinoflagellates can be found in Lentin & Williams (1985, 1989), and for most algae and acritarchs in Marshall (1989).

Phyllocladidites mawsonii Zone: **1815.0-1849.0 metres** **Coniacian-Turonian.**

Six samples are assigned to this zone based on the similarity of their gross assemblage compositions in Table-4. Key spore-pollen zone species are often only represented by single specimens. Strong supporting evidence for this zone and the Coniacian-Turonian age assignment comes form the algae and microplankton in the samples. Several of the distinctive algae species described by Marshall (1989) were recorded.

The counts of the spore-pollen fraction in all samples are dominated by gymnosperm pollen (60% to 82%), particularly the species groups *Dilwynites* spp. (21% to 52%), *Podocarpidites* spp. (5% to 25%) and *Araucariacites australis* (3% to 15%). The parent plants of these pollen are all wind pollinated and it is well documented in the palynological literature that the concentrations of these pollen types reach their highest values in 'offshore' environments, either in marine situations or towards the centre of large lakes. This pattern of distribution has been termed the "Neves effect" and is summarized by Traverse (1988, p.394-416, figs 17.15 & 17.16). Total spores in the samples are also a significant component (16% to 33%) but without any particularly dominant spore species. Angiosperm pollen in all samples are conspicuously low (<1% to 7%) in marked contrast to their abundance in the overlying *T. longus* and younger Zones where they have an average abundance of 50%.

Spore-pollen species indicating an age no older than the *P. mawsonii* Zone following the zone definition and range chart data in Helby *et al.* (1987) are *Phyllocladidites mawsonii* (a single poorly preserved specimen recorded at 1815m) and *Proteacidites* sp. (a single small specimen at 1825m). Species indicating an age no younger than the *P. mawsonii* Zone are *Interulobites intraverrucatus*, *Appendicisporites distocarinatus* both at 1815m, *Cyatheacidites tectifera* (a single corroded specimen at 1817m) and *Hoegisporis* sp. (this is an undescribed species characterised by three subdued nodes and was found at 1817m and 1825m). Other significant species recorded over this section are *Foraminisporis asymmetricus*, *Cicatricosisporites cuneiformis*, *C. hughesii* and *Ceratosporites equalis*.

Algae and microplankton were recorded in all samples varying from 1.5% to a high 41% of the total assemblage count (Table-4). Small smooth spheres identified broadly with *Sigmopollis carbonis* (Newman) are the commonest element and because of their small size are probably under-represented in the counts. Of most stratigraphical importance are the identification of algal cysts and microplankton described by Marshall (1989). Key species identified are *Rimosicysta kipperii*, *R. aspera*, *Wuroia corrugata*, *Luxadinium?* sp. A & B, and *Micrhystridium* sp. A. Another frequent to common form regarded as an algal cyst is *Amosopollis cruciformis* (see Helby *et al.* 1987, p.55).

The above algal assemblages are of considerable age and environmental significance within the Latrobe Group and are here informally named the *Rimosicysta kipperii* Microplankton Association.

Upper *Tricolpites longus* Zone: **1713.9-1787.0 metres** **Maastrichtian.**

The seven productive samples assigned to the Upper *T. longus* Zone contain well preserved and moderately diverse assemblages which are confidently assigned to the zone on both species recorded and species abundance. The deepest two samples at 1770m and 1787m are given confidence ratings of 2, because they contain diverse assemblages with frequent to common occurrences of *Gambierina rudata*, but lack the presence of *Stereisporites (Tripunctisporis)* spp. which is first recorded in the overlying sample at 1762m. A confidence rating of 1 or better is usually reserved for the FAD (First Appearance Datum) of the latter species. The top of the zone is normally picked at the LADs (Last Appearance Datums) of a number of indicator species (Helby *et al.* 1987). The relevant species in the shallowest sample assigned to this zone are *Pseudowinterapollis wahooensis*, *Ornamentifera sentosa*, *Beaupreaidites orbiculatus* (formerly *Proteacidites gemmatus* ms), and *Tricolporites lilliei*.

The choice of the top of the Upper *T. longus* Zone in Sweetlips-1 is unusual in two respects. Firstly, the occurrences of *Proteacidites clinei* ms and *Tricolporites lilliei* at 1690m, and *Camarozonosporites horrendus* at both 1680m and 1690m are all considered to reflect reworking of *T. longus* Zone sediments. This is an rare occurrence within the Gippsland Basin. The second unusual aspect is that the two shallowest samples assigned to the zone at 1713.9m and 1716.2m lack a significant abundance of *Gambierina* spp. This significant change in assemblage composition near the top of the Upper *T. longus* Zone may have significance for either age or facies correlation and needs to be looked for in other wells in the basin.

No dinoflagellates or other microplankton were recorded from this zone.

Lower *Lygistepollenites balmei* Zone: **1643.2-1690.0 metres** Paleocene.

The increase in abundance of gymnosperm pollen particularly *Phyllocladidites mawsonii* and to a lesser extent *Lygistepollenites balmei* is the main criteria for placing the base of the zone at 1690.0m and treating the *T. longus* Zone indicator species in this sample and in the overlying sample at 1680m as reworked. The use of this abundance criteria to establish the base of the Lower *L. balmei* Zone was first demonstrated in Roundhead-1 were there was supporting data from the dinoflagellates (Partridge, 1989). The top of the zone is placed at 1643.2m at the last frequent occurrence of *Proteacidites angulatus*.

Upper *Lygistepollenites balmei* Zone: **1567.0-1631.5 metres** Paleocene.

Only three samples can be confidently assigned to the Upper *L. balmei* Zone. A further three samples were examined and counted within the zone interval. These latter samples could be confidently assigned to the broader *L. balmei* Zone but lacked indicator species for either the Upper or Lower subdivisions.

The deepest sample at 1613.5m is assigned to the Upper subzone on the presence of a single specimen of *Proteacidites annularis*. The next sample at 1567.5m is assigned to the Upper subzone based on the common occurrence of *Cupanieidites orthoteichus* and presence of *Malvacipollis subtilis*. The shallowest sample at 1567m contains the FAD for the indicator species *Anacolosidites acutullus* and is no younger than the Upper subzone on the frequent occurrence of *Lygistepollenites balmei*.

The rare dinoflagellate species recorded from the sidewall core at 1575.9m are all considered to be contaminants.

Lower *Malvacipollis diversus* Zone: **1518.6-1559.0 metres** **Early Eocene.**

The base of the zone is picked on the FADs of *Spinozonocolpites prominatus* (frequent) and *Polypodiaceoisporites varus* (rare) as well as the first common occurrence of *Malvacipollis diversus*.

The two shallowest samples from core-2 at 1518.6m and 1519.8m are assigned to the zone with only a fair confidence rating. They rely on the absence of the key species *Proteacidites ornatus*, *P. tuberculiformis* and *P. xestoformis* ms, characteristic of the next younger zone, for their assignment to the Lower subzone. A possible assignment to the Middle *M. diversus* Zone may be considered for the sample at 1519.8m based on the what would be considered secondary or less reliable FADs of the species *Polycolpites esobalteus* and *Proteacidites nasus* Truswell & Owen 1988 (formerly *Proteacidites plemmelus* ms). The assemblages are good enough, however, to emphatically state that no section assignable to either the Upper *M. diversus* or *P. asperopolus* Zones is present in Sweetlips-1.

The top of the Lower *M. diversus* Zone with a good confidence rating is picked at the sidewall core at 1520m on the LAD of *Cyathidites gigantis*.

The deepest sample, at 2215.0m, also contains a microplankton assemblage referable to the *Apectodinium hyperacanthum* dinoflagellate Zone. The key indicators for the zone are the frequent occurrence of the eponymous species *Apectodinium hyperacanthum* associated with *A. homomorphum* (long spined variety), *Dyphes colligerum* and *Fibrocysta bipolare*.

Proteacidites tuberculatus Zone: **1433.0-1504.0 metres** **Miocene-Oligocene.**

The four shallowest samples analysed were readily assigned the the Lakes Entrance Formation based on the lithology of the sidewall cores as well as the abundant and characteristic microplankton assemblage which were extracted. The spore-pollen recorded from the samples are mostly long ranging species associated with rare reworked indicator species of older zones. *Cyatheacidites annulatus* the key indicator species for the *P. tuberculatus* Zone was only recorded from one sample.

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TABLE-1: INTERPRETATIVE PALYNOLOGICAL DATA SWEETLIPS-1, GIPPSLAND BASIN.

Sheet 1 of 2

SAMPLE TYPE	DEPTH (METRES)	SPORE-POLLEN ZONE	DINOFLAGELLATE ZONE (OR ASSOCIATION)	CONFIDENCE RATING	COMMENT
SWC 60	1433.0	*P. tuberculatus*		2	
SWC 55	1497.0	*P. tuberculatus*		1	*Cyatheacidites annulatus* present.
SWC 54	1500.0	*P. tuberculatus*		2	
SWC 53	1504.0	*P. tuberculatus*		2	
Core-1	1516.8	Indeterminate			
Core-2	1518.6	Lower *M. diversus*		2	
Core-2	1519.8	Lower *M. diversus*		2	
SWC 50	1520.0	Lower *M. diversus*		1	LAD *Cyathidites gigantis*
Core-3	1544.0	Lower *M. diversus*		2	
SWC 45	1555.0	Lower *M. diversus*		1	
SWC 44	1559.0	Lower *M. diversus*	*A. hyperacanthum*	0	*Spinizonocolpites prominatus* conspicuous.
SWC 39	1567.0	Upper *L. balmei*		1	
SWC 38	1567.5	Upper *L. balmei*		1	Common *Cupanieidites orthoteichus* - 8.3%
SWC 37	1570.2	*L. balmei*		2	*Laevigatosporites* spp. > 75%
SWC 36	1575.9	*L. balmei*		1	Dinoflagellates considered to be contaminants.
SWC 32	1614.5	*L. balmei*		1	
SWC 30	1631.5	Upper *L. balmei*		2	
SWC 29	1643.2	Lower *L. balmei*		1	Proteacidites angulatus - 3.9%
SWC 28	1655.3	Lower *L. balmei*		1	Common *Proteacidites angulatus* - 9.1%
SWC 27	1668.0	Lower *L. balmei*		1	Abundant *Phyllocladidites mawsonii* - 31%
SWC 25	1680.0	Lower *L. balmei*		2	Rare *T. longus* Zone indicators are reworked.
SWC 24	1690.0	Lower *L.* balmei		2	Dominated by *P. mawsonii* - 56.7%
SWC 23	1703.0	Indeterminate			Palynomorph concentration low.
SWC 22	1713.9	Upper *T. longus*		1	*Gambierina* < 1%
SWC 21	1716.2	Upper *T. longus*		1	*Gambierina* << 1%
SWC 20	1720.0	Upper *T. longus*		1	*Gambierina* abundance - 8.5%

TABLE-1: INTERPRETATIVE PALYNOLOGICAL DATA SWEETLIPS-1, GIPPSLAND BASIN.

Sheet 2 of 2

SAMPLE TYPE	DEPTH (METRES)	SPORE-POLLEN ZONE	DINOFLAGELLATE ZONE (OR ASSOCIATION)	CONFIDENCE RATING	COMMENT
SWC 17	1739.0	Upper *T. longus*		1	*Gambierina* abundance 16.7%
SWC 16	1744.0	Indeterminate			
SWC 14	1762.0	Upper *T. longus*		1	FAD *Stereisporites (Tripunctisporis)* spp.
SWC 13	1770.0	Upper *T. longus*		2	*Gambierina* abundance 12%
SWC 11	1787.0	Upper *T. longus*		2	*Gambierina* abundance 9%
SWC 8	1815.0	*P. mawsonii*	(*Rimosicysta kipperii*)	1	Abundant *Sigmopollis carbonis*.
SWC 7	1817.0	*P. mawsonii*	(*Rimosicysta kipperii*)	1	
SWC 5	1825.0	*P. mawsonii*		1	
SWC 4	1832.0	*P. mawsonii*	(*Rimosicysta kipperii*)	1	
SWC 2	1840.0	*P. mawsonii*		1	
SWC 1	1849.0	*P. mawsonii*		1	

LAD = Last Appearance Datum.
FAD = First Appearance Datum.

PALYNOLOGY DATA SHEET

BASIN: *GIPPSLAND* ELEVATION: KB: *+21.0m* GL: *-52.0m*

WELL NAME: *SWEETLIPS - 1* TOTAL DEPTH: *1870m*

AGE	PALYNOLOGICAL ZONES	HIGHEST DATA Preferred Depth	Rtg	Alternate Depth	Rtg	Two Way Time	LOWEST DATA Preferred Depth	Rtg	Alternate Depth	Rtg	Two Way Time
NEOGENE	*T. pleistocenicus*										
	M. lipsis										
	C. bifurcatus										
	T. bellus										
	P. tuberculatus	1433	2				1504	2	1497	1	
PALEOGENE	Upper *N. asperus*										
	Mid *N. asperus*										
	Lower *N. asperus*										
	P. asperopolus										
	Upper *M. diversus*										
	Mid *M. diversus*										
	Lower *M. diversus*	1518.6	2	1519.6			1559	0			
	Upper *L. balmei*	1567	1				1631.5	2	1567.5	1	
	Lower *L. balmei*	1643.2	1				1690	2	1668	1	
LATE CRETACEOUS	Upper *T. longus*	1713.9	1				1787	2	1762	1	
	Lower *T. longus*										
	T. lilliei										
	N. senectus										
	T. apoxyexinus										
	P. mawsonii	1815	1				1849	1			
	A. distocarinatus										
EARLY CRET.	*P. pannosus*										
	C. paradoxa										
	C. striatus										
	C. hughesi										
	F. wonthaggiensis										
	C. australiensis										

COMMENTS: *All depths in metres.*

Apectodinium hyperacanthum Dinoflagellate Zone at 1559m

CONFIDENCE RATING:

- O: 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: *A.D. Partridge* DATE: *February 16, 1990*

DATA REVISED BY: DATE:

BASIC DATA

TABLE-2: BASIC DATA

TABLE-3: PALYNOMORPH PERCENTAGES FOR Upper *T. longus* to *L. balmei* Zones.

TABLE-4: PALYNOMORPH PERCENTAGES FOR *P. mawsonii* Zone.

RANGE CHARTS FOR SAMPLES BETWEEN
1433.0m - 1787.0m
AND
1815.0m - 1849.0m

TABLE-2: BASIC PALYNOLOGIC DATA SWEETLIPS-1, GIPPSLAND BASIN.

Sheet 1 of 2

SAMPLE TYPE	DEPTH (METRES)	LAB NO.	LITHOLOGY	RESIDUE YIELD	PALYNOMORPH CONCENTRATION	PRESERVATION	NUMBER OF S-P SPECIES	MICROPLANKTON ABUNDANCE	MICROPLANKTON NO. SPECIES
SWC 60	1433.0	78262H	Calc. claystone	Very low	Very low	Fair	18+	Low	4+
SWC 55	1497.0	78262C	Calc. claystone	Low	Low	Good	10+	High	5+
SWC 54	1500.0	78262B	Calc. claystone	Low	Low	Good	9+	Moderate	6+
SWC 53	1504.0	78262A	Calc. claystone	Moderate	Moderate	Poor-good	16+	High	8+
Core-1	1516.8	78305A	Carbonaceous claystone	Very low	Barren				
Core-2	1518.6	78305B	Carbonaceous siltstone	High	High	Poor	24+		
Core-2	1519.8	78305C	Siltstone	Moderate	Moderate	Poor-fair	23+		
SWC 50	1520.0	78261X	Sst. with clay matrix	Low	Low	Fair-good	22+		
Core-3	1544.0	78305D	Coal	High	Moderate	Poor-fair	15+		
SWC 45	1555.0	78261S	Gry-brn sandstone	Moderate	Moderate	Good	13+	Low	1
SWC 44	1559.0	78261R	Claystone	High	Moderate	Fair	21+	Moderate	5+
SWC 39	1567.0	78261M	Claystone grad'g slst	Moderate	Moderate	Poor	13+		
SWC 38	1567.5	78261L	Siltstone	High	High	Poor-good	28+		
SWC 37	1570.2	78261K	Claystone	Low	Low	Poor	8+		
SWC 36	1575.9	78261J	Claystone	Low	Moderate	Fair	12+	(Very low)	(3)
SWC 32	1614.5	78261F	Claystone	High	High	Good	18+		
SWC 30	1631.5	78261D	Claystone	High	High	Good	31+		
SWC 29	1643.2	78261C	Claystone	High	High	Good	24+		
SWC 28	1655.3	78261B	Claystone	High	High	Poor-fair	18+		
SWC 27	1668.0	78261A	Interlaminated sst/slst	High	High	Fair-good	21+		
SWC 25	1680.0	78260Y	Carbonaceous sst.	Moderate	Moderate	Fair-good	30+	(Very low)	(1)
SWC 24	1690.0	78260X	Carbonaceous claystone	High	Low	Poor	9+		
SWC 23	1703.0	78260W	Claystone	High	Low	Poor	7+		
SWC 22	1713.9	78260V	Dk. grey siltstone	High	High	Good	45+		
SWC 21	1716.2	78260U	Dk. grey siltstone	High	High	Fair-good	31+		
SWC 20	1720.0	78260T	Siltstone	Moderate	Moderate	Fair-good	25+		
SWC 17	1739.0	78260Q	Claystone w/. coal clasts	Moderate	High	Fair-good	18+		
SWC 16	1744.0	78260P	Claystone	Very low	Barren				

TABLE-2: BASIC PALYNOLOGIC DATA SWEETLIPS-1, GIPPSLAND BASIN.

Sheet 2 of 2

SAMPLE TYPE	DEPTH (METRES)	LAB NO.	LITHOLOGY	RESIDUE YIELD	PALYNOMORPH CONCENTRATION	PRESERVATION	NUMBER OF S-P SPECIES	MICROPLANKTON ABUNDANCE	MICROPLANKTON NO. SPECIES
SWC 14	1762.0	78260N	Micaceous siltstone	High	Moderate	Fair-good	16+		
SWC 13	1770.0	78270M	Micaceous siltstone	Moderate	Moderate	Fair-good	20+		
SWC 11	1787.0	78260K	Sandstone	Moderate	Moderate	Good	31+		
SWC 8	1815.0	78260H	Claystone	High	High	Good	23+	Abundant	4+
SWC 7	1817.0	78260G	Siltstone	High	Moderate	Fair	18+	Low	2
SWC 5	1825.0	78260E	Carbonaceous siltstone	High	Moderate	Fair	17+	Low	3
SWC 4	1831.0	78260D	Siltstone	Moderate	Moderate	Fair	16+	Moderate	2
SWC 2	1840.0	78260B	Silstone	Moderate	Moderate	Fair	19+	Low	3
SWC 1	1849.0	78260A	Siltstone	Moderate	Moderate	Fair	17+	Very low	2

Microplankton in (brackets) = contamination.
* Diversity: Very Low = 1- 5 species.
Low = 6-10 species.
Moderate = 11-25 species.
High = 26-74 species.
Very High = 75+ species.

(ADP235)

TABLE-3: PALYNOMORPH PERCENTAGES FOR Upper T. longus - L. balmei Zones FROM SWEETLIPS-1

	1567.0m SWC 39	1567.5m SWC 38	1570.2m SWC 37	1575.9m SWC 36	1614.5m SWC 32	1631.5m SWC 30	1643.2m SWC 29	1655.3m SWC 28	1668.0m SWC 27
TRLIETE SPORES undiff.		2.8%	2.5%	1.1%	3.2%	1.6%	0.9%		3.7%
Cyathidites spp.	5.4%	2.8%	4.2%	8.6%	9.6%	1.6%	1.9%	1.8%	2.5%
Gleicheniidites/Clavifera spp.	7.6%	11.6%	3.3%		8.5%	29.6%	0.5%	0.5%	5.0%
Stereisporites spp.		0.8%	0.8%		1.1%	1.6%		0.5%	1.0%
MONOLETE SPORES							0.5%		0.5%
Laevigatosporites spp.	14.1%	15.3%	75.0%	8.1%	5.3%	0.8%	9.7%	4.5%	2.5%
Marratisporites scabratus	3.3%	2.8%			0.5%				0.5%
TOTAL SPORES	30.4%	36.4%	85.8%	17.8%	28.2%	35.2%	13.5%	7.3%	15.7%
GYMNOSPERM POLLEN									
Araucariacites australia							0.5%		0.5%
Dilwynites spp.								0.9%	1.5%
Lygistepollenites balmei	2.2%	5.0%	2.5%	5.4%		6.6%	2.4%	1.4%	3.0%
Lygistepollenites florinii		0.4%				0.4%	1.0%	0.5%	1.5%
Microcachryidites antarcticus						0.8%		0.5%	0.5%
Phyllocladidites mawsonii (s.l.)	2.2%	1.2%		1.6%	5.3%	14.5%	5.8%	7.3%	30.3%
Phyllocladus palaeogenicus							0.5%		
Podocarpidites spp.	2.2%	5.4%			3.2%	8.9%	24.2%	17.7%	10.6%
Podosporites microsaccatus		0.8%			1.1%		1.4%		
TOTAL GYMNOSPERM POLLEN	6.5%	12.8%	2.5%	7.0%	9.6%	31.3%	35.7%	28.2%	47.5%
ANGIOSPERM POLLEN undiff.	1.0%	1.7%		0.8%		0.6%	2.8%		2.0%
Australopollis obscurus				0.5%	19.1%	0.8%	1.0%	28.2%	
Casuarina (H. harrisii)		2.0%			1.1%				
Cupanieidites orthoteichus		8.3%							
Dicotetradites clavatus	3.3%	0.4%		0.5%		0.8%	1.0%		
Gambierina spp.									
Malvacipollis spp.		1.2%							
Nothofagidites spp.	3.3%	2.5%		2.7%	1.1%		1.9%	0.4%	0.5%
Penninsulapollis gillii				0.5%		0.4%			
Periporopollenites spp.	2.2%	1.2%		2.2%		1.2%	1.0%	5.0%	1.5%
Proteacidites angulatus							3.9%	9.1%	
Proteacidites clinei									
Proteacidites reticuloconcavus									
Proteacidites spp.	25.0%	18.2%	10.8%	55.1%	10.1%	20.3%	18.8%	15.9%	6.1%
Tetracolporites verrucosus									0.5%
Tricolpites confessus									
Tricolporites lilliei									
Tricolp(or)ates undiff.	7.6%	3.7%		7.0%	9.6%	4.7%	19.8%	3.6%	14.6%
Triporopollenites sectilis									
Triporopollenites spp. (small)	20.7%	11.6%	0.8%	5.9%	21.3%	4.7%	0.5%	2.3%	11.6%
TOTAL ANGIOSPERM POLLEN	63.1%	50.8%	11.7%	75.2%	62.2%	33.5%	50.7%	64.5%	36.8%
TOTAL SPORES AND POLLEN COUNT	92	242	120	185	188	256	207	220	198
PERCENTAGES FOR MAJOR CATEGORIES									
Spores %	30.4%	35.5%	85.5%	17.8%	26.8%	35.2%	13.3%	7.3%	13.5%
Gymnosperm Pollen %	6.5%	12.5%	2.5%	7.0%	9.1%	31.3%	35.2%	28.2%	40.9%
Angiosperm Pollen %	63.1%	49.6%	11.7%	75.2%	59.0%	33.5%	50.0%	64.5%	31.7%
TOTAL SPORE-POLLEN %	100.0%	97.4%	100.0%	100.0%	94.9%	100.0%	98.6%	100.0%	86.1%
Fungal Spores and Hyphae %		2.4%			5.1%		1.4%		13.9%
TOTAL COUNT	92	248	120	185	198	256	210	220	230

TABLE-3: PALYNOMORPH PERCENTAGES FOR Upper T. longus - L. balmei Zones FROM SWEETLIPS-1

	1680.0m SWC 25	1690.0m SWC 24	1713.9m SWC 22	1716.2m SWC 21	1720.0m SWC 20	1739.0m SWC 17	1762.0m SWC 14	1770.0m SWC 13	1787.0m SWC 11
TRLIETE SPORES undiff.	3.5%	1.0%	4.2%	2.1%	2.2%	4.9%	3.4%	5.1%	3.4%
Cyathidites spp.	1.4%	1.0%	11.3%	2.0%	1.6%	8.0%	4.0%	1.8%	1.0%
Gleicheniidites/Clavifera spp.	1.9%		6.1%	4.9%	0.8%	0.6%	3.5%	0.9%	
Stereisporites spp.	1.4%		1.4%	4.1%	3.9%	1.9%	7.9%	5.3%	3.4%
MONOLETE SPORES			0.5%						
Laevigatosporites spp.	2.4%	6.0%	6.1%	5.3%	4.7%	5.6%	6.4%	13.2%	4.4%
Marratisporites scabratus	1.0%		1.4%	0.4%					
TOTAL SPORES	11.6%	8.0%	31.0%	18.8%	13.2%	21.0%	25.2%	26.3%	12.2%
GYMNOSPERM POLLEN									
Araucariacites australia	3.9%		1.9%		3.9%		0.5%	1.8%	0.5%
Dilwynites spp.	3.4%		0.5%		0.8%		0.5%		
Lygistepollenites balmei	3.7%	1.0%	0.5%	0.4%	1.6%	1.9%			1.4%
Lygistepollenites florinii	1.9%	1.0%		0.8%			5.9%		0.5%
Microcachryidites antarcticus	1.9%		0.5%	0.1%	0.8%		2.0%		2.0%
Phyllocladidites mawsonii (s.l.)	15.5%	56.7%	2.8%	2.0%	9.3%	1.9%	4.5%	3.5%	12.7%
Phyllocladus palaeogenicus		3.0%							
Podocarpidites spp.	16.4%	8.0%	7.9%	15.5%	8.4%	3.1%	8.8%	14.0%	5.8%
Podosporites microsaccatus	1.0%		18.3%	6.1%	3.9%	2.4%	4.0%	1.8%	2.0%
TOTAL GYMNOSPERM POLLEN	47.8%	69.7%	32.4%	24.9%	28.7%	9.3%	26.2%	21.1%	24.9%
ANGIOSPERM POLLEN undiff.	2.4%		1.8%	1.7%	2.3%		2.0%	1.6%	0.8%
Australopollis obscurus			0.5%	20.4%					
Casuarina (H. harrisii)									
Cupanieidites orthoteichus									
Dicotetradites clavatus				0.4%			2.0%		
Gambierina spp.	0.5%		0.9%		8.5%	16.7%	3.5%	12.3%	8.8%
Malvacipollis spp.									
Nothofagidites spp.							0.5%	1.8%	0.5%
Penninsulapollis gillii	1.9%		0.5%	0.4%	6.2%	5.6%	2.0%	0.9%	10.7%
Periporopollenites spp.					2.3%	1.2%	1.0%		
Proteacidites angulatus									
Proteacidites clinei				0.8%	1.6%		3.5%	4.4%	1.0%
Proteacidites reticuloconcavus								0.9%	2.0%
Proteacidites spp.	15.5%	4.0%	15.5%	6.5%	31.0%	35.8%	22.3%	26.3%	32.2%
Tetracolporites verrucosus				4.1%					
Tricolpites confessus						1.2%	1.0%		
Tricolporites lilliei	0.5%						0.4%	0.9%	0.5%
Tricolp(or)ates undiff.	7.2%	16.3%	14.1%	20.8%	3.1%	6.2%	5.9%	3.5%	1.5%
Triporopollenites sectilis									2.9%
Triporopollenites spp. (small)	12.6%	2.0%	3.3%	1.2%	3.1%	3.1%	4.5%		2.0%
TOTAL ANGIOSPERM POLLEN	40.6%	22.3%	36.6%	56.3%	58.1%	69.8%	48.6%	52.6%	62.9%
TOTAL SPORES AND POLLEN COUNT	207	99	213	245	129	162	202	114	205
PERCENTAGES FOR MAJOR CATEGORIES									
Spores %	10.5%	7.2%	30.6%	18.4%	22.6%	20.9%	23.2%	26.3%	11.3%
Gymnosperm Pollen %	43.2%	62.2%	31.9%	24.4%	27.8%	9.2%	24.1%	21.1%	23.0%
Angiosperm Pollen %	36.7%	19.8%	36.1%	55.2%	56.4%	69.3%	44.5%	52.6%	58.0%
TOTAL SPORE-POLLEN %	90.4%	89.2%	98.6%	98.0%	97.0%	99.4%	91.8%	100.0%	92.3%
Fungal Spores and Hyphae %	9.6%	10.8%	1.4%	2.0%	3.0%	0.6%	8.2%		7.7%
TOTAL COUNT	229	111	216	250	133	163	220	114	222

TABLE 4: PALYNOMORPH PERCENTAGES FOR P. mawsonii Zone FROM SWEETLIPS-1

	1815.0m SWC 8	1817.0m SWC 7	1825.0m SWC 5	1831.0m SWC 4	1840.0m SWC 2	1849.0m SWC 1
TRILETE SPORES undiff.	5.9%	8.1%	5.3%	2.8%	5.9%	4.2%
Baculatisporites spp.	1.8%	2.2%	2.9%	2.8%	1.4%	0.8%
Cyathidites spp.	5.8%	5.8%	16.6%	5.6%	12.9%	10.0%
Gleicheniidites spp.	2.3%	1.5%	0.5%	2.8%	1.4%	
Stereisporites spp.	0.6%	2.2%	2.0%	0.7%	5.0%	0.8%
MONOLETE SPORES	0.6%		0.5%		2.2%	1.7%
Laevigatosporites spp.	2.3%	3.6%	2.9%	1.4%	5.0%	0.8%
HILATE SPORES						
Triporoletes reticulatus		0.7%	1.0%			
TOTAL SPORES	19.3%	24.1%	31.7%	16.1%	33.8%	18.3%
GYMNOSPERM POLLEN						
Araucariacites australis	10.5%	14.6%	10.2%	13.3%	5.0%	3.3%
Dilwynites spp.	53.2%	51.7%	21.5%	43.4%	25.9%	45.0%
Corollina spp.			2.4%	0.7%	5.0%	0.8%
Cycadopites spp.	5.8%			1.3%		
Microcachryidites antarcticus	1.8%		5.4%	7.7%	6.5%	5.0%
Podocarpidites spp.	5.3%	6.7%	24.9%	11.2%	17.3%	25.0%
Podosporites microsaccatus	2.3%	2.2%	1.0%	4.2%		2.6%
TOTAL GYMNOSPERM POLLEN	78.9%	75.2%	65.4%	81.8%	59.7%	81.7%
ANGIOSPERM POLLEN undiff.						
Tricolpites spp.	1.8%	0.7%	1.4%		3.6%	
Tricolporites spp.			0.5%	2.1%	2.9%	
Triporopollenites spp.			1.0%			
TOTAL ANGIOSPERM POLLEN	1.8%	0.7%	2.9%	2.1%	6.5%	
TOTAL SPORES & POLLEN COUNT	171	137	205	143	139	120
PERCENTAGES FOR MAJOR CATEGORIES						
Spores %	10.7%	20.1%	30.1%	13.9%	29.7%	16.2%
Gymnosperm Pollen %	44.0%	62.8%	62.0%	70.5%	52.5%	72.0%
Angiosperm Pollen %	1.0%	0.6%	2.8%	1.8%	5.7%	
TOTAL Spore-Pollen %	55.7%	83.5%	94.9%	86.2%	87.9%	88.2%
Fugal Spores & Hyphae %	3.6%	4.3%	0.9%	2.4%	8.2%	10.3%
ALGAE & MICROPLANKTON undiff..		1.2%		6.0%	1.3%	
Amosopollis cruciformis	7.2%	6.1%		0.6%		
Micrhystridium spp.			1.8%		0.6%	1.5%
Rimosicysta spp.	0.7%	1.2%		4.8%		
Sigmopollis carbonis	32.6%	3.7%	2.3%		1.9%	
Wuroia spp.	0.3%					
TOTAL Algae & Microplankton	40.7%	12.2%	4.1%	11.4%	3.8%	1.5%
TOTAL COUNT	307	164	216	166	158	136

PE900496

This is an enclosure indicator page.
The enclosure PE900496 is enclosed within the container PE902128 at this location in this document.

The enclosure PE900496 has the following characteristics:

ITEM_BARCODE = PE900496
CONTAINER_BARCODE = PE902128
NAME = Palynology Range Chart, 1 of 2
BASIN = GIPPSLAND
PERMIT = VIC/L10
TYPE = WELL
SUBTYPE = DIAGRAM
DESCRIPTION = Palynology Range Chart, 1 of 2, for Sweetlips-1
REMARKS =
DATE_CREATED =
DATE_RECEIVED =
W_NO = W1003
WELL_NAME = SWEETLIPS-1
CONTRACTOR =
CLIENT_OP_CO = ESSO AUSTRALIA LIMITED

(Inserted by DNRE - Vic Govt Mines Dept)

PE900497

This is an enclosure indicator page.
The enclosure PE900497 is enclosed within the container PE902128 at this location in this document.

The enclosure PE900497 has the following characteristics:

ITEM_BARCODE =	PE900497
CONTAINER_BARCODE =	PE902128
NAME =	Palynology Range Chart, 2 of 2
BASIN =	GIPPSLAND
PERMIT =	VIC/L10
TYPE =	WELL
SUBTYPE =	DIAGRAM
DESCRIPTION =	Palynology Range Chart, 2 of 2, for Sweetlips-1
REMARKS =	
DATE_CREATED =	
DATE_RECEIVED =	
W_NO =	W1003
WELL_NAME =	SWEETLIPS-1
CONTRACTOR =	
CLIENT_OP_CO =	ESSO AUSTRALIA LIMITED

(Inserted by DNRE - Vic Govt Mines Dept)

APPENDIX 2

SWEETLIPS 1

QUANTITATIVE LOG ANALYSIS

INTERVAL : 1500m - 1850m
ANALYST : A. R. GILBY
DATE : FEBRUARY, 1990.

SWEETLIPS 1

QUANTITATIVE LOG ANALYSIS

CONTENTS

SWEETLIPS 1
QUANTITATIVE LOG ANALYSIS

Wireline log data from the Sweetlips 1 exploration well has been quantitatively analysed over the interval 1500-1850m MDKB for effective porosity and effective water saturation. Results are presented in the form of accompanying depth plots and tabular listings, and are summarised and discussed below.

Sweetlips 1 intersected a 51.7 m gross gas column underlain by a 3.8 m gross oil column at the top Latrobe section.

LOGS USED

CALI	(Caliper)
GR	(gamma ray)
LLS	(shallow laterolog)
LLD	(deep laterolog)
MSFL	(micro-spherically focussed log)
RHOB	(bulk density)
NPHI	(neutron porosity)

ANALYSIS METHODOLOGY

Apparent total porosity and shale volume was calculated using density-neutron crossplot algorithms.

Water saturations were determined from the dual water relationship. Effective porosities and Sw values were derived from the apparent total porosity and Sw, calculated shale volume and apparent shale porosity.

ANALYSIS PARAMETERS

Tortuosity; 'a'............................	1.00
Cementation factor; 'm'....................	2.00
Saturation exponent; 'n'...................	2.00
Fluid density..............................	1.00
Gamma Ray value in clean formation (grmin).	30
Gamma Ray value in shale (grmax)...........	130
Apparent bulk density of shale.............	2.55
Apparent neutron porosity of shale.........	0.33
RSH..	10 ohmm
Rmf..	0.321 @ 13.9°C
Z..	0.4
BHT..	68.3°C
RHOH.......................................	0.25 (gas) 0.7 (oil)
Seabed Temperature.........................	10°C
Irreducible water saturation...............	0.025
Vsh upper limit for effective porosity.....	0.65
Logged total depth.........................	1865m
Water depth................................	52m
KB height..................................	21m
Salinity Zones	1500m-1565m: 20,000ppm
	1565m-1655m: apparent salinity (ie fresh-water zone)
	1655m-1850m: 20,000 ppm

DISCUSSION

Sweetlips 1 intersected a gross hydrocarbon column of 55.5 m comprising 51.7 m of gas underlain by 3.8 m of oil at the top Latrobe. The remainder of the well proved to be water wet.

It is noted that based on log character alone, the oil column might begin up to one metre higher than determined here-in. However, RFT pressure data suggest that the top of the oil column can be no higher than 1561m (MDKB). Generally good log/core porosity correlation exists except in some thin intervals in which tighter zones could not be readily detected by the open hole logs run. These do not have a significant effect on the final interpretation.

APPENDIX 1

ALGORITHMS & LOGIC USED IN THE QUANTITATIVE ANALYSIS

nitial Total Porosity and Shale Volume was calculated from he bulk density and neutron porosity log responses as follows:

```
   vsh = ((nphi+0.04) - ((2.65-rhob)/(2.65-rhof)))/
         ((phinsh+0.04) - ((2.65-rhobsh)/(2.65-rhof)))
   vsh = min(1,(max(0,vsh)))


   h = (2.71-rhob) + (nphi*(rhof-2.71))
     if (h>=0)
       rhoma=2.71-(0.5*h)
     else
       rhoma=2.71-(0.64*h)
   phit = max(0.001,(min(1,((rhoma-rhob)/(rhoma-rhof)))))
```

he Apparent Salinity profile was derived from aRw ack-calculated in clean sands from Archie's equation, assuming 100% Sw.

wt (total Water Saturation) was calculated using the dual water relationship

```
1/rt = (swt**n)*(phit**m)/(a*rw)+swt**(n-1)*(swb*(phit**m)/a)*((1/rwb)-(1/rw))
```

his is solved for Sw by Newtons solution:

```
    exsw=0
    sw  =0.9
    aa  =((phit**m)/(a*rw))
    bb  =((swb*(phit**m)/a)*((1/rwb)-(1/rw)))
        repeat
          fx1=(aa*(sw**n))+(bb*(sw**(n-1)))-(1/rt)
          fx2=(n*aa*(sw**(n-1)))+((n-1)*bb*(sw**(n-2)))
             if((abs(fx2)) < 0.0001)
              fx2=0.0001
          swp=sw
          sw =swp-(fx1/fx2)
          exsw=exsw+1
        until (exsw > 4 or (abs(sw-swp)) <= 0.01)
    swt=sw
```

Effective Porosity and Water Saturation were derived as follows:

```
  if (vsh > vshco){
   swt  = 1
   swe  = 1
   phie = 0
  }
  else {
    phie= max(0.0,(phit-(vsh*phish)))
    swe = max(swirr,(1 - ((phit/phie)*(1-swt))))
    if (vsh > (vshco-0.2)){
       phie= phie*((vshco-vsh)/0.2)
       swe = 1-((1-swe)*((vshco-vsh)/0.2))
    }
  }
 where vshco = 0.65
```

SWEETLIPS_1

ANALYSIS SUMMARY.

Net porosity cut-off..........: 0.100 volume per volume
Net water saturation cut-off..: 0.500 volume per volume

Net Porous Interval based on Porosity cut-off only.
Both Porosity and Sw cut-offs invoked when generating Hydrocarbon-Metres.

	GROSS INTERVAL (metres) (top) -(base)	Gross Metres	NET POROUS INTERVAL Net Metres	Net to Gross	Mean Vsh	(Std.) (Dev.)	Mean Porosity	(Std.) (Dev.)	Mean Sw	(Std.) (Dev.)	HYDROCARBON METRES
MDKB	1509.2-1560.9	51.7	43.4	84 %	0.141	(0.140)	0.212	(0.044)	0.304	(0.132)	6.381
MDKB	1561.0-1564.8	3.8	3.7	99 %	0.159	(0.089)	0.236	(0.022)	0.285	(0.173)	0.613
MDKB	1587.4-1600.2	12.8	7.1	56 %	0.343	(0.089)	0.152	(0.034)	1.000	(0.000)	0.000
MDKB	1601.9-1608.3	6.4	5.4	86 %	0.107	(0.117)	0.280	(0.064)	1.000	(0.000)	0.000
MDKB	1620.1-1621.8	1.8	0.4	23 %	0.255	(0.106)	0.168	(0.034)	1.000	(0.000)	0.000
MDKB	1624.6-1628.4	3.8	2.3	61 %	0.067	(0.092)	0.264	(0.049)	1.000	(0.000)	0.000
MDKB	1629.3-1630.9	1.6	1.1	70 %	0.208	(0.135)	0.202	(0.045)	1.000	(0.000)	0.000
MDKB	1634.1-1641.7	7.6	3.9	52 %	0.239	(0.113)	0.167	(0.034)	1.000	(0.000)	0.000
MDKB	1644.2-1645.7	1.5	0.6	40 %	0.453	(0.040)	0.142	(0.023)	1.000	(0.000)	0.000
MDKB	1654.9-1684.1	29.2	25.8	89 %	0.203	(0.125)	0.172	(0.043)	1.000	(0.000)	0.000
MDKB	1685.3-1689.7	4.4	3.9	90 %	0.215	(0.078)	0.211	(0.024)	1.000	(0.000)	0.000
MDKB	1690.8-1701.9	11.2	10.3	92 %	0.211	(0.123)	0.202	(0.046)	1.000	(0.000)	0.000
MDKB	1704.8-1707.0	2.2	1.1	51 %	0.299	(0.066)	0.176	(0.027)	1.000	(0.000)	0.000
MDKB	1722.9-1735.3	12.4	11.5	93 %	0.179	(0.138)	0.213	(0.053)	1.000	(0.000)	0.000
MDKB	1739.4-1764.4	25.0	12.5	50 %	0.156	(0.141)	0.223	(0.062)	1.000	(0.000)	0.000
MDKB	1765.3-1769.5	4.3	3.6	86 %	0.259	(0.131)	0.184	(0.046)	1.000	(0.000)	0.000
MDKB	1770.6-1813.6	43.0	39.5	92 %	0.181	(0.096)	0.173	(0.046)	1.000	(0.000)	0.000
MDKB	1817.3-1820.9	3.6	2.8	78 %	0.215	(0.126)	0.215	(0.040)	1.000	(0.000)	0.000
MDKB	1831.2-1835.8	4.7	3.5	76 %	0.313	(0.094)	0.191	(0.037)	1.000	(0.000)	0.000
MDKB	1839.1-1849.9	10.8	6.4	59 %	0.297	(0.098)	0.201	(0.035)	1.000	(0.000)	0.000

PE600978

This is an enclosure indicator page.
The enclosure PE600978 is enclosed within the container PE902128 at this location in this document.

The enclosure PE600978 has the following characteristics:

ITEM_BARCODE =	PE600978
CONTAINER_BARCODE =	PE902128
NAME =	Quantitative log
BASIN =	GIPPSLAND
PERMIT =	
TYPE =	WELL
SUBTYPE =	WELL_LOG
DESCRIPTION =	Quantitative log
REMARKS =	
DATE_CREATED =	13/02/90
DATE_RECEIVED =	2/05/90
W_NO =	W1003
WELL_NAME =	Sweetlips-1
CONTRACTOR =	SOLAR
CLIENT_OP_CO =	ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

Appendix 3

SWEETLIPS SIDETRACK 1

QUANTITATIVE LOG ANALYSIS

INTERVAL : 1617m - 1700m
ANALYST : A. R. GILBY
DATE : NOVEMBER, 1989

SWEETLIPS SIDETRACK 1

QUANTITATIVE LOG ANALYSIS

CONTENTS

SWEETLIPS SIDETRACK 1
QUANTITATIVE LOG ANALYSIS

Wireline log data from the Sweetlips Sidetrack 1 well has been quantitatively analysed over the interval 1617-1700m MDKB for effective porosity and effective water saturation. Results are presented in the form of accompanying depth plots and tabular listings, and are summarised and discussed below.

LOGS USED

CALI	(Caliper)
GR	(gamma ray)
LLS	(shallow laterolog)
LLD	(deep laterolog)
MSFL	(micro-spherically focussed log)
RHOB	(bulk density)
NPHI	(neutron porosity)
DT	(sonic log)

ANALYSIS METHODOLOGY

Apparent total porosity and shale volume was calculated using density-neutron crossplot algorithms.

Water saturations were determined from the dual water relationship. Effective porosities and Sw values were derived from the apparent total porosity and Sw, calculated shale volume and apparent shale porosity.

ANALYSIS PARAMETERS

Tortuosity; 'a'............................	1.00
Cementation factor; 'm'....................	2.00
Saturation exponent; 'n'...................	2.00
Fluid density..............................	1.00
Gamma Ray value in clean formation (grmin).	30
Gamma Ray value in shale (grmax)...........	130
Apparent bulk density of shale.............	2.55
Apparent neutron porosity of shale.........	0.33
RSH..	10 ohmm
Rmf..	0.164 @ 20°C
BHT..	63°C
RHOH.......................................	0.25 (gas) 0.7 (oil)
Seabed Temperature.........................	10°C
Irreducible water saturation...............	0.025
Vsh upper limit for effective porosity.....	0.65
Logged total depth.........................	1722m
Water depth................................	52m
KB height..................................	21m
Salinity Zones	1617m-1673m: 20,000ppm 1673m-1700m: 4,000 ppm

DISCUSSION

Sweetlips Sidetrack 1 intersected a gross measured depth hydrocarbon column of approximately 54 m comprising 49.6 m of gas underlain by 4.5 m of oil at the top Latrobe. TVD analysis suggests a little over 46m of pay comprising 42.6m of gas and 3.8m of oil (see analysis summary table).

It must be noted that in conversion to TVD, one metre was added to the raw TVD shift table so as to more accurately match log and RFT interpretation.

(11890131)

APPENDIX 1

ALGORITHMS & LOGIC USED IN THE QUANTITATIVE ANALYSIS

Initial Total Porosity and Shale Volume was calculated from the bulk density and neutron porosity log responses as follows:

```
    vsh = ((nphi+0.04) - ((2.65-rhob)/(2.65-rhof)))/
          ((phinsh+0.04) - ((2.65-rhobsh)/(2.65-rhof)))
    vsh = min(1,(max(0,vsh)))


    h = (2.71-rhob) + (nphi*(rhof-2.71))
      if (h>=0)
        rhoma=2.71-(0.5*h)
      else
        rhoma=2.71-(0.64*h)
    phit = max(0.001,(min(1,((rhoma-rhob)/(rhoma-rhof)))))
```

The Apparent Salinity profile was derived from aRw back-calculated in clean sands from Archie's equation, assuming 100% Sw.

Swt (total Water Saturation) was calculated using the dual water relationship

```
1/rt = (swt**n)*(phit**m)/(a*rw)+swt**(n-1)*(swb*(phit**m)/a)*((1/rwb)-(1/rw))
```

This is solved for Sw by Newtons solution:

```
     exsw=0
     sw   =0.9
     aa   =((phit**m)/(a*rw))
     bb   =((swb*(phit**m)/a)*((1/rwb)-(1/rw)))
         repeat
           fx1=(aa*(sw**n))+(bb*(sw**(n-1)))-(1/rt)
           fx2=(n*aa*(sw**(n-1)))+((n-1)*bb*(sw**(n-2)))
              if((abs(fx2)) < 0.0001)
               fx2=0.0001
           swp=sw
           sw =swp-(fx1/fx2)
           exsw=exsw+1
         until (exsw > 4 or (abs(sw-swp)) <= 0.01)
     swt=sw
```

Effective Porosity and Water Saturation were derived as follows:

```
  if (vsh > vshco){
   swt  = 1
   swe  = 1
   phie = 0
  }
  else {
    phie= max(0.0,(phit-(vsh*phish)))
    swe = max(swirr,( 1 - ((phit/phie)*(1-swt))))
    if (vsh > (vshco-0.2)){
       phie= phie*((vshco-vsh)/0.2)
       swe = 1-((1-swe)*((vshco-vsh)/0.2))
    }
  }
 where vshco = 0.65
```

SWEETLIPS_ST_1

MDKB AND TVDSS ANALYSIS SUMMARY

Net porosity cut-off..........: 0.100 volume per volume
Net water saturation cut-off..: 0.500 volume per volume

Net Porous Interval based on Porosity cut-off only.
Both Porosity and Sw cut-offs invoked when generating Hydrocarbon-Metres.

GROSS INTERVAL (MDKB) (top) -(base)	Gross (mtrs)	NET POROUS INTERVAL Net (mtrs)	Net to Gross	Mean Vsh	(Std.) (Dev.)	Mean Porosity	(Std.) (Dev.)	Mean Sw	(Std.) (Dev.)	HYDRO CARBO METRE
1618.7-1668.3	49.6	45.7	92 %	0.021	(0.075)	0.236	(0.039)	0.211	(0.119)	8.54
1668.4-1672.9	4.5	4.5	100 %	0.036	(0.030)	0.280	(0.018)	0.249	(0.074)	0.94
1673.0-1676.6	3.6	3.2	90 %	0.097	(0.123)	0.238	(0.055)	0.998	(0.003)	0.00
1677.3-1694.3	17.0	12.9	76 %	0.139	(0.098)	0.155	(0.038)	1.000	(0.000)	0.00
1697.0-1700.0	3.0	1.0	33 %	0.369	(0.034)	0.143	(0.018)	1.000	(0.000)	0.00

GROSS INTERVAL (TVDSS) (top) -(base)	Gross (mtrs)	NET POROUS INTERVAL Net (mtrs)	Net to Gross	Mean Vsh	(Std.) (Dev.)	Mean Porosity	(Std.) (Dev.)	Mean Sw	(Std.) (Dev.)	HYDRC CARBC METRE
1497.3-1539.9	42.6	39.3	92 %	0.021	(0.074)	0.236	(0.039)	0.227	(0.137)	7.17
1540.1-1543.9	3.8	3.8	100 %	0.034	(0.024)	0.281	(0.017)	0.284	(0.101)	0.76

SWEETLIPS_ST_1

Well Data Listing

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
1617.0	85	4.3	2.662	0.199	245	0.793	0.000	1.000
1617.2	78	5.0	2.680	0.196	237	0.820	0.000	1.000
1617.4	68	5.6	2.686	0.173	232	0.722	0.000	1.000
1617.6	61	6.2	2.681	0.151	223	0.646	0.000	1.000
1617.8	59	6.7	2.683	0.143	217	0.632	0.000	1.000
1618.0	52	7.2	2.683	0.111	206	0.496	0.001	1.000
1618.2	43	9.8	2.685	0.054	194	0.298	0.001	1.000
1618.4	42	12.5	2.683	0.014	186	0.146	0.001	1.000
1618.6	43	38.7	2.679	0.002	154	0.118	0.001	1.000
1618.8	44	88.5	2.675	-0.000	150	0.092	0.001	1.000
1619.0	40	138.4	2.640	0.004	219	0.046	0.013	1.000
1619.2	41	101.4	2.557	0.015	282	0.019	0.051	0.717
1619.4	43	64.4	2.389	0.035	355	0.000	0.129	0.402
1619.6	40	39.9	2.281	0.057	382	0.000	0.170	0.362
1619.8	39	28.0	2.274	0.069	349	0.000	0.179	0.412
1620.0	41	16.0	2.294	0.061	348	0.000	0.167	0.582
1620.2	41	15.9	2.292	0.043	301	0.000	0.160	0.611
1620.4	36	15.8	2.280	0.032	303	0.000	0.159	0.614
1620.6	36	21.8	2.245	0.031	303	0.000	0.172	0.484
1620.8	40	33.9	2.217	0.026	316	0.000	0.181	0.369
1621.0	38	46.0	2.211	0.027	326	0.000	0.186	0.312
1621.2	37	49.2	2.209	0.040	350	0.000	0.195	0.291
1621.4	38	52.4	2.205	0.049	359	0.000	0.203	0.274
1621.6	37	52.5	2.182	0.037	360	0.000	0.207	0.268
1621.8	37	49.6	2.153	0.035	361	0.000	0.215	0.262
1622.0	37	46.6	2.102	0.036	365	0.000	0.233	0.245
1622.2	34	55.8	2.052	0.031	364	0.000	0.257	0.207
1622.4	34	64.9	2.034	0.021	367	0.000	0.263	0.189
1622.6	32	74.5	2.033	0.016	371	0.000	0.262	0.177
1622.8	29	84.5	2.041	0.014	369	0.000	0.258	0.169
1623.0	27	94.4	2.063	0.015	368	0.000	0.248	0.167
1623.2	29	94.6	2.074	0.015	362	0.000	0.241	0.170
1623.4	36	94.7	2.062	0.015	359	0.000	0.244	0.166
1623.6	39	94.4	2.044	0.018	358	0.000	0.253	0.160
1623.8	36	93.5	2.043	0.022	359	0.000	0.257	0.159
1624.0	33	92.7	2.040	0.022	363	0.000	0.260	0.159
1624.2	31	90.9	2.039	0.021	365	0.000	0.259	0.161
1624.4	29	89.1	2.040	0.030	370	0.000	0.262	0.160
1624.6	30	84.3	2.030	0.039	370	0.000	0.270	0.159
1624.8	34	76.5	2.014	0.038	369	0.000	0.276	0.163
1625.0	35	68.7	2.001	0.040	370	0.000	0.281	0.168
1625.2	33	84.1	1.993	0.038	373	0.000	0.287	0.150
1625.4	28	99.6	1.989	0.025	372	0.000	0.284	0.140
1625.6	31	110.3	2.014	0.023	372	0.000	0.272	0.139
1625.8	34	116.2	2.037	0.026	371	0.000	0.262	0.140
1626.0	33	122.0	2.024	0.032	367	0.000	0.270	0.132
1626.2	35	121.5	2.009	0.037	361	0.000	0.280	0.128
1626.4	36	120.9	2.037	0.039	354	0.000	0.269	0.134
1626.6	35	120.1	2.062	0.039	356	0.000	0.258	0.141
1626.8	35	119.1	2.042	0.037	369	0.000	0.267	0.137
1627.0	36	118.1	2.030	0.035	383	0.000	0.272	0.135

SWEETLIPS_ST_1 (page 2 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
1627.2	42	127.7	2.038	0.030	385	0.000	0.264	0.133
1627.4	42	137.3	2.026	0.024	383	0.000	0.265	0.127
1627.6	39	142.2	2.016	0.024	384	0.000	0.271	0.123
1627.8	36	142.4	2.026	0.028	383	0.000	0.270	0.124
1628.0	37	142.7	2.047	0.032	384	0.000	0.265	0.123
1628.2	38	144.4	2.063	0.026	386	0.000	0.253	0.132
1628.4	41	146.2	2.069	0.023	388	0.000	0.247	0.133
1628.6	44	146.9	2.052	0.024	388	0.000	0.253	0.128
1628.8	41	146.6	2.015	0.025	388	0.000	0.270	0.120
1629.0	36	146.3	1.997	0.033	387	0.000	0.281	0.115
1629.2	37	130.7	2.022	0.041	391	0.000	0.276	0.126
1629.4	39	115.2	2.037	0.039	388	0.000	0.270	0.138
1629.6	41	104.4	2.036	0.035	389	0.000	0.269	0.145
1629.8	42	98.5	2.029	0.030	389	0.000	0.268	0.149
1630.0	41	92.5	2.016	0.026	390	0.000	0.269	0.152
1630.2	41	97.7	1.991	0.031	387	0.000	0.285	0.140
1630.4	43	103.0	2.005	0.054	390	0.000	0.289	0.135
1630.6	43	94.6	2.102	0.067	372	0.000	0.252	0.162
1630.8	43	72.4	2.184	0.066	369	0.000	0.218	0.215
1631.0	42	50.2	2.193	0.052	367	0.000	0.208	0.271
1631.2	39	55.0	2.170	0.027	372	0.000	0.203	0.261
1631.4	39	59.9	2.126	0.021	369	0.000	0.216	0.232
1631.6	40	73.4	2.064	0.019	366	0.000	0.243	0.188
1631.8	40	95.3	2.025	0.015	357	0.000	0.263	0.154
1632.0	38	117.3	2.028	0.013	355	0.000	0.262	0.140
1632.2	37	118.7	2.037	0.014	355	0.000	0.262	0.137
1632.4	41	120.1	2.057	0.014	362	0.000	0.255	0.139
1632.6	44	114.6	2.073	0.015	361	0.000	0.248	0.147
1632.8	40	102.2	2.075	0.016	356	0.000	0.245	0.157
1633.0	36	89.8	2.076	0.016	350	0.000	0.236	0.174
1633.2	37	107.0	2.096	0.019	342	0.000	0.237	0.159
1633.4	42	124.1	2.121	0.023	336	0.000	0.231	0.152
1633.6	46	116.4	2.125	0.023	334	0.000	0.230	0.157
1633.8	48	83.9	2.156	0.023	323	0.000	0.215	0.198
1634.0	44	51.5	2.225	0.023	329	0.000	0.181	0.307
1634.2	43	41.1	2.204	0.019	335	0.000	0.186	0.331
1634.4	47	30.6	2.143	0.018	343	0.000	0.211	0.338
1634.6	50	36.0	2.122	0.020	346	0.000	0.224	0.298
1634.8	48	57.2	2.106	0.015	348	0.000	0.233	0.222
1635.0	46	78.4	2.065	0.008	351	0.000	0.249	0.176
1635.2	43	89.2	2.052	0.006	352	0.000	0.253	0.163
1635.4	42	100.0	2.015	0.008	344	0.000	0.268	0.145
1635.6	43	112.3	1.991	0.014	336	0.000	0.280	0.134
1635.8	43	126.1	2.037	0.027	322	0.000	0.267	0.130
1636.0	44	139.9	2.098	0.047	310	0.000	0.250	0.132
1636.2	48	89.7	2.185	0.067	298	0.000	0.222	0.185
1636.4	57	39.6	2.339	0.081	275	0.000	0.163	0.385
1636.6	73	12.9	2.448	0.096	257	0.037	0.120	0.855
1636.8	98	9.5	2.327	0.114	254	0.000	0.179	0.705
1637.0	119	6.1	2.223	0.153	267	0.000	0.234	0.671
1637.2	118	8.3	2.246	0.202	278	0.000	0.245	0.548
1637.4	95	10.5	2.261	0.205	303	0.028	0.235	0.492
1637.6	63	13.6	2.225	0.127	314	0.000	0.224	0.472
1637.8	43	17.6	2.197	0.055	326	0.000	0.203	0.456
1638.0	39	21.5	2.197	0.025	327	0.000	0.189	0.443

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
1638.2	42	29.3	2.169	0.023	330	0.000	0.200	0.360
1638.4	42	37.1	2.142	0.034	327	0.000	0.218	0.295
1638.6	40	40.3	2.156	0.053	323	0.000	0.222	0.280
1638.8	40	38.7	2.191	0.057	321	0.000	0.210	0.303
1639.0	41	37.2	2.195	0.049	323	0.000	0.206	0.317
1639.2	45	40.1	2.186	0.054	321	0.000	0.210	0.296
1639.4	51	43.1	2.184	0.067	321	0.000	0.215	0.277
1639.6	51	42.1	2.176	0.071	321	0.000	0.219	0.274
1639.8	47	37.0	2.168	0.069	322	0.000	0.225	0.289
1640.0	46	31.9	2.190	0.079	320	0.000	0.222	0.317
1640.2	50	35.2	2.218	0.088	319	0.000	0.213	0.313
1640.4	50	38.4	2.211	0.078	318	0.000	0.210	0.302
1640.6	50	41.0	2.194	0.058	315	0.000	0.205	0.295
1640.8	53	42.9	2.207	0.051	319	0.000	0.196	0.301
1641.0	51	44.8	2.165	0.041	333	0.000	0.209	0.277
1641.2	46	49.1	2.106	0.026	341	0.000	0.231	0.244
1641.4	42	53.5	2.131	0.036	337	0.000	0.226	0.240
1641.6	42	52.6	2.185	0.055	327	0.000	0.212	0.258
1641.8	44	46.5	2.214	0.064	324	0.000	0.202	0.285
1642.0	44	40.4	2.217	0.048	326	0.000	0.191	0.319
1642.2	40	39.9	2.192	0.027	333	0.000	0.191	0.320
1642.4	38	39.5	2.126	0.018	336	0.000	0.217	0.287
1642.6	37	48.7	2.065	0.029	341	0.000	0.251	0.226
1642.8	34	67.6	2.057	0.048	345	0.000	0.264	0.182
1643.0	33	86.5	2.057	0.038	352	0.000	0.260	0.164
1643.2	36	91.4	2.038	0.016	352	0.000	0.259	0.161
1643.4	37	96.4	2.036	0.011	354	0.000	0.257	0.157
1643.6	38	101.7	2.049	0.013	350	0.000	0.253	0.156
1643.8	35	107.4	2.050	0.017	347	0.000	0.253	0.151
1644.0	38	113.0	2.052	0.016	340	0.000	0.252	0.148
1644.2	39	149.2	2.089	0.017	338	0.000	0.239	0.133
1644.4	36	185.3	2.134	0.016	336	0.000	0.221	0.129
1644.6	36	196.9	2.152	0.012	335	0.000	0.211	0.131
1644.8	36	184.2	2.115	0.013	326	0.000	0.225	0.131
1645.0	35	171.4	2.062	0.028	330	0.000	0.252	0.120
1645.2	37	147.1	2.022	0.045	341	0.000	0.278	0.117
1645.4	41	122.8	2.015	0.047	350	0.000	0.281	0.126
1645.6	42	111.2	2.034	0.038	354	0.000	0.268	0.139
1645.8	37	112.4	2.063	0.023	350	0.000	0.250	0.149
1646.0	36	113.5	2.061	0.013	344	0.000	0.247	0.151
1646.2	39	128.4	2.040	0.008	340	0.000	0.253	0.138
1646.4	38	143.2	2.014	0.008	343	0.000	0.265	0.125
1646.6	33	167.5	2.006	0.015	350	0.000	0.272	0.112
1646.8	33	201.4	2.026	0.027	355	0.000	0.269	0.104
1647.0	34	235.2	2.043	0.030	353	0.000	0.263	0.099
1647.2	33	240.3	2.058	0.019	355	0.000	0.250	0.102
1647.4	34	245.3	2.068	0.014	353	0.000	0.242	0.104
1647.6	35	245.1	2.071	0.016	355	0.000	0.241	0.104
1647.8	38	239.5	2.063	0.022	352	0.000	0.247	0.103
1648.0	38	233.9	2.079	0.032	349	0.000	0.244	0.105
1648.2	37	222.0	2.103	0.041	347	0.000	0.239	0.110
1648.4	36	210.2	2.095	0.035	348	0.000	0.240	0.113
1648.6	38	204.7	2.071	0.023	348	0.000	0.246	0.112
1648.8	39	205.7	2.055	0.014	351	0.000	0.248	0.111
1649.0	39	206.7	2.021	0.018	353	0.000	0.264	0.103

SWEETLIPS_ST_1 (page 4 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
1649.2	41	201.9	2.006	0.030	354	0.000	0.278	0.100
1649.4	37	197.0	2.042	0.040	351	0.000	0.266	0.106
1649.6	36	173.4	2.078	0.047	345	0.000	0.254	0.118
1649.8	40	131.1	2.133	0.058	339	0.000	0.235	0.147
1650.0	48	88.8	2.204	0.062	331	0.000	0.207	0.202
1650.2	52	62.7	2.239	0.064	334	0.000	0.190	0.257
1650.4	64	36.7	2.234	0.081	333	0.000	0.199	0.320
1650.6	87	21.4	2.251	0.099	328	Coal		
1650.8	105	17.0	2.123	0.159	309	Coal		
1651.0	113	12.6	1.803	0.321	353	Coal		
1651.2	113	14.1	1.659	0.453	404	Coal		
1651.4	110	15.6	1.726	0.488	424	Coal		
1651.6	102	18.0	1.712	0.508	434	Coal		
1651.8	92	21.2	1.672	0.505	415	Coal		
1652.0	84	24.4	1.795	0.376	409	Coal		
1652.2	80	32.1	2.057	0.234	385	Coal		
1652.4	81	39.9	2.246	0.172	359	Coal		
1652.6	87	38.9	2.292	0.182	355	Coal		
1652.8	96	29.2	2.302	0.204	339	0.343	0.162	0.172
1653.0	97	19.4	2.311	0.223	327	0.182	0.191	0.330
1653.2	96	20.0	2.324	0.246	314	0.312	0.172	0.270
1653.4	101	20.6	2.381	0.265	299	0.457	0.127	0.232
1653.6	107	22.7	2.455	0.280	294	0.621	0.012	1.000
1653.8	104	26.4	2.399	0.249	295	0.530	0.065	0.466
1654.0	91	30.1	2.347	0.218	313	0.439	0.134	0.121
1654.2	78	27.0	2.321	0.195	325	0.287	0.159	0.244
1654.4	71	23.9	2.310	0.183	330	0.147	0.184	0.323
1654.6	77	22.3	2.319	0.167	312	0.041	0.195	0.389
1654.8	86	22.1	2.358	0.193	300	0.181	0.162	0.355
1655.0	95	22.0	2.418	0.206	295	0.336	0.117	0.326
1655.2	101	23.2	2.455	0.214	287	0.436	0.090	0.269
1655.4	104	24.5	2.446	0.224	282	0.450	0.097	0.228
1655.6	102	24.9	2.422	0.226	287	0.471	0.091	0.284
1655.8	94	24.3	2.405	0.218	293	0.413	0.114	0.235
1656.0	94	23.8	2.393	0.213	297	0.321	0.132	0.283
1656.2	95	23.8	2.355	0.212	309	0.263	0.159	0.292
1656.4	91	23.8	2.313	0.198	328	0.231	0.173	0.287
1656.6	80	25.7	2.242	0.174	353	0.127	0.212	0.284
1656.8	70	29.5	2.183	0.152	358	0.000	0.253	0.285
1657.0	65	33.3	2.179	0.150	352	0.000	0.251	0.267
1657.2	66	34.1	2.213	0.160	342	0.000	0.241	0.274
1657.4	74	34.9	2.191	0.164	343	0.000	0.252	0.260
1657.6	74	38.1	2.137	0.154	352	0.000	0.271	0.233
1657.8	66	43.7	2.132	0.143	363	0.000	0.270	0.219
1658.0	62	49.3	2.185	0.136	362	0.000	0.247	0.227
1658.2	58	52.3	2.244	0.132	353	0.000	0.219	0.246
1658.4	55	55.3	2.230	0.119	350	0.000	0.217	0.239
1658.6	49	70.8	2.124	0.083	351	0.000	0.245	0.187
1658.8	42	98.8	2.049	0.057	354	0.000	0.267	0.146
1659.0	38	126.8	2.048	0.059	349	0.000	0.268	0.129
1659.2	40	250.4	2.082	0.063	345	0.000	0.255	0.096
1659.4	39	373.9	2.079	0.056	351	0.000	0.254	0.080
1659.6	37	427.5	2.064	0.043	360	0.000	0.254	0.075
1659.8	35	411.1	2.049	0.028	362	0.000	0.254	0.076
1660.0	37	394.7	2.017	0.025	364	0.000	0.268	0.074

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
1660.2	38	352.8	1.970	0.033	359	0.000	0.294	0.071
1660.4	36	310.8	1.968	0.048	356	0.000	0.301	0.074
1660.6	32	315.8	2.007	0.053	359	0.000	0.284	0.078
1660.8	31	367.8	2.025	0.043	365	0.000	0.272	0.075
1661.0	33	419.8	2.031	0.032	366	0.000	0.265	0.073
1661.2	33	355.2	2.002	0.031	366	0.000	0.278	0.075
1661.4	31	290.6	1.972	0.046	361	0.000	0.299	0.077
1661.6	30	252.7	1.990	0.075	356	0.000	0.303	0.081
1661.8	32	241.4	2.026	0.101	357	0.000	0.298	0.085
1662.0	34	230.2	2.072	0.089	353	0.000	0.272	0.095
1662.2	35	165.7	2.119	0.063	343	0.000	0.239	0.126
1662.4	37	101.3	2.136	0.050	334	0.000	0.225	0.171
1662.6	39	61.4	2.128	0.054	331	0.000	0.231	0.214
1662.8	40	46.2	2.099	0.074	334	0.000	0.253	0.226
1663.0	42	31.0	2.084	0.094	343	0.000	0.269	0.260
1663.2	44	68.9	2.114	0.094	345	0.000	0.256	0.184
1663.4	46	106.8	2.134	0.076	344	0.000	0.239	0.158
1663.6	42	136.8	2.139	0.050	346	0.000	0.225	0.148
1663.8	38	159.0	2.083	0.030	342	0.000	0.242	0.128
1664.0	38	181.2	2.013	0.056	345	0.000	0.286	0.102
1664.2	39	187.0	1.990	0.100	345	0.000	0.314	0.091
1664.4	41	192.9	2.064	0.121	351	0.000	0.289	0.097
1664.6	43	175.0	2.120	0.129	350	0.000	0.267	0.110
1664.8	43	133.4	2.126	0.123	345	0.000	0.261	0.128
1665.0	43	91.8	2.143	0.102	340	0.000	0.245	0.165
1665.2	48	68.4	2.173	0.112	336	0.000	0.237	0.197
1665.4	56	44.9	2.255	0.152	329	0.000	0.222	0.260
1665.6	63	32.1	2.378	0.198	293	0.178	0.158	0.279
1665.8	70	30.1	2.374	0.234	291	0.287	0.154	0.212
1666.0	73	28.1	2.312	0.226	305	0.220	0.183	0.237
1666.2	66	31.6	2.279	0.178	336	0.000	0.223	0.307
1666.4	57	35.2	2.271	0.144	344	0.000	0.212	0.306
1666.6	52	37.5	2.244	0.150	345	0.000	0.225	0.280
1666.8	56	38.6	2.227	0.163	340	0.000	0.237	0.262
1667.0	58	39.7	2.217	0.157	342	0.000	0.238	0.257
1667.2	54	52.6	2.158	0.138	347	0.000	0.254	0.210
1667.4	49	65.5	2.096	0.107	361	0.000	0.268	0.179
1667.6	48	69.8	2.091	0.094	366	0.000	0.265	0.175
1667.8	44	65.6	2.105	0.111	361	0.000	0.266	0.180
1668.0	40	61.4	2.111	0.171	352	0.000	0.289	0.172
1668.2	40	57.1	2.138	0.240	346	0.133	0.275	0.122
1668.4	45	52.8	2.187	0.279	345	0.129	0.266	0.132
1668.6	46	49.1	2.185	0.268	346	0.075	0.274	0.161
1668.8	41	46.1	2.161	0.224	347	0.000	0.284	0.198
1669.0	38	43.2	2.146	0.196	344	0.000	0.279	0.209
1669.2	39	41.7	2.126	0.197	340	0.000	0.288	0.206
1669.4	39	40.3	2.116	0.221	339	0.000	0.301	0.201
1669.6	38	38.3	2.140	0.265	347	0.034	0.300	0.190
1669.8	37	35.8	2.150	0.298	347	0.088	0.297	0.175
1670.0	36	33.2	2.151	0.296	346	0.088	0.296	0.184
1670.2	35	31.3	2.148	0.257	344	0.023	0.298	0.220
1670.4	32	29.5	2.142	0.239	347	0.000	0.299	0.237
1670.6	32	26.7	2.156	0.260	344	0.009	0.298	0.245
1670.8	40	23.1	2.183	0.259	342	0.047	0.281	0.262
1671.0	41	19.5	2.201	0.257	336	0.050	0.272	0.295

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
1671.2	40	20.3	2.235	0.253	326	0.073	0.253	0.298
1671.4	42	21.2	2.267	0.229	318	0.056	0.236	0.323
1671.6	42	23.2	2.246	0.214	321	0.054	0.238	0.305
1671.8	38	26.4	2.207	0.233	328	0.035	0.265	0.266
1672.0	35	29.6	2.189	0.247	335	0.022	0.279	0.243
1672.2	37	25.5	2.186	0.252	334	0.032	0.281	0.256
1672.4	36	21.4	2.184	0.262	329	0.027	0.286	0.279
1672.6	32	17.7	2.183	0.258	327	0.009	0.289	0.3[illegible]3
1672.8	33	14.3	2.187	0.256	327	0.012	0.286	0.352
1673.0	36	10.8	2.189	0.253	327	0.026	0.280	0.990
1673.2	36	11.0	2.193	0.246	331	0.027	0.276	0.990
1673.4	32	11.2	2.171	0.244	335	0.010	0.287	0.996
1673.6	32	11.9	2.144	0.258	338	0.009	0.304	0.995
1673.8	32	12.9	2.141	0.262	337	0.008	0.307	1.000
1674.0	31	14.0	2.188	0.251	330	0.003	0.285	1.000
1674.2	33	13.9	2.233	0.238	324	0.014	0.261	1.000
1674.4	37	13.8	2.287	0.210	320	0.031	0.226	1.000
1674.6	57	14.9	2.348	0.206	306	0.137	0.180	1.000
1674.8	84	17.2	2.411	0.236	299	0.371	0.127	1.000
1675.0	105	19.5	2.427	0.275	295	0.574	0.037	1.000
1675.2	105	22.6	2.362	0.284	305	0.480	0.119	1.000
1675.4	84	25.6	2.296	0.257	314	0.287	0.188	1.000
1675.6	64	25.9	2.264	0.234	322	0.152	0.219	1.000
1675.8	54	23.2	2.236	0.230	319	0.088	0.241	1.000
1676.0	45	20.6	2.198	0.235	336	0.011	0.274	1.000
1676.2	46	25.6	2.208	0.238	180	0.046	0.263	0.941
1676.4	50	30.7	2.309	0.220	73	0.098	0.208	0.879
1676.6	48	30.7	2.351	0.285	266	Coal		
1676.8	54	25.9	2.139	0.458	383	Coal		
1677.0	67	21.1	2.071	0.576	409	Coal		
1677.2	70	23.5	2.274	0.412	375	Coal		
1677.4	71	25.9	2.397	0.231	322	Coal		
1677.6	77	25.0	2.361	0.200	316	0.189	0.158	0.852
1677.8	78	20.9	2.352	0.217	308	0.204	0.165	0.866
1678.0	74	16.9	2.357	0.204	308	0.231	0.156	0.913
1678.2	73	16.9	2.369	0.191	300	0.193	0.155	0.944
1678.4	80	16.9	2.395	0.197	291	0.276	0.132	0.922
1678.6	89	17.0	2.411	0.214	285	0.355	0.119	0.871
1678.8	91	17.1	2.407	0.223	287	0.379	0.120	0.833
1679.0	86	17.2	2.400	0.213	287	0.330	0.127	0.872
1679.2	85	17.0	2.400	0.209	286	0.319	0.128	0.887
1679.4	81	16.9	2.373	0.199	290	0.225	0.150	0.929
1679.6	75	16.1	2.345	0.214	295	0.234	0.164	0.908
1679.8	64	14.7	2.317	0.228	314	0.183	0.190	0.930
1680.0	54	13.3	2.273	0.236	318	0.117	0.223	0.955
1680.2	48	14.4	2.227	0.234	324	0.087	0.246	0.955
1680.4	45	15.5	2.264	0.221	315	0.071	0.231	0.966
1680.6	50	16.6	2.370	0.192	291	0.127	0.169	0.967
1680.8	58	17.8	2.461	0.152	256	0.202	0.106	1.000
1681.0	55	19.0	2.457	0.127	241	0.127	0.112	1.000
1681.2	48	22.6	2.437	0.118	236	0.087	0.124	0.999
1681.4	44	26.2	2.444	0.108	234	0.064	0.121	0.997
1681.6	42	28.9	2.462	0.104	234	0.053	0.116	0.998
1681.8	45	30.7	2.476	0.108	230	0.072	0.109	0.997
1682.0	46	32.5	2.491	0.106	225	0.074	0.102	1.000

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
1682.2	44	32.3	2.503	0.099	227	0.095	0.091	1.000
1682.4	43	32.1	2.505	0.102	224	0.091	0.093	1.000
1682.6	40	30.2	2.479	0.106	227	0.044	0.113	1.000
1682.8	41	26.5	2.436	0.115	230	0.048	0.131	0.994
1683.0	42	22.9	2.380	0.128	236	0.027	0.160	0.993
1683.2	38	21.3	2.344	0.147	246	0.007	0.186	0.998
1683.4	37	19.6	2.339	0.159	259	0.030	0.187	0.990
1683.6	36	18.5	2.377	0.132	250	0.027	0.163	0.997
1683.8	32	18.1	2.448	0.100	234	0.010	0.128	1.000
1684.0	33	17.7	2.460	0.103	219	0.013	0.125	1.000
1684.2	38	22.1	2.446	0.118	213	0.037	0.131	1.000
1684.4	41	26.5	2.472	0.115	217	0.080	0.112	1.000
1684.6	40	27.7	2.482	0.115	225	0.106	0.103	1.000
1684.8	38	25.5	2.440	0.129	234	0.067	0.131	0.989
1685.0	40	23.3	2.409	0.148	248	0.076	0.148	0.979
1685.2	39	20.9	2.401	0.145	253	0.041	0.157	0.993
1685.4	36	18.5	2.410	0.126	249	0.024	0.149	1.000
1685.6	39	17.5	2.406	0.126	247	0.039	0.148	1.000
1685.8	44	17.8	2.408	0.141	248	0.063	0.148	0.999
1686.0	43	18.1	2.409	0.161	252	0.121	0.144	0.986
1686.2	43	17.7	2.406	0.152	255	0.059	0.155	0.996
1686.4	45	17.2	2.418	0.137	254	0.070	0.142	1.000
1686.6	52	18.7	2.468	0.132	235	0.141	0.107	1.000
1686.8	74	22.1	2.486	0.161	238	0.285	0.086	1.000
1687.0	88	25.6	2.478	0.184	247	0.384	0.079	1.000
1687.2	90	24.0	2.484	0.186	267	0.396	0.077	1.000
1687.4	77	22.5	2.494	0.178	264	0.345	0.081	1.000
1687.6	66	21.5	2.485	0.168	258	0.286	0.091	1.000
1687.8	64	21.1	2.460	0.171	254	0.241	0.108	0.956
1688.0	67	20.6	2.418	0.198	260	0.261	0.129	0.885
1688.2	66	19.0	2.377	0.217	278	0.256	0.151	0.866
1688.4	59	17.4	2.357	0.219	292	0.213	0.167	0.904
1688.6	53	16.2	2.342	0.198	293	0.116	0.184	0.963
1688.8	56	15.5	2.351	0.187	288	0.130	0.173	0.970
1689.0	55	14.8	2.349	0.200	289	0.127	0.180	0.970
1689.2	55	14.8	2.343	0.214	292	0.158	0.181	0.954
1689.4	65	14.9	2.349	0.213	292	0.193	0.171	0.944
1689.6	73	14.8	2.357	0.213	287	0.253	0.156	0.925
1689.8	79	14.6	2.361	0.214	281	0.268	0.152	0.925
1690.0	79	14.4	2.350	0.225	289	0.267	0.161	0.913
1690.2	69	14.9	2.347	0.230	292	0.222	0.174	0.920
1690.4	54	15.3	2.389	0.206	288	0.240	0.146	0.947
1690.6	44	15.0	2.428	0.164	272	0.155	0.131	1.000
1690.8	42	14.1	2.389	0.158	278	0.057	0.164	1.000
1691.0	39	13.2	2.299	0.202	291	0.038	0.217	0.991
1691.2	38	12.4	2.222	0.245	315	0.034	0.263	0.986
1691.4	40	11.7	2.213	0.252	318	0.045	0.267	0.982
1691.6	44	10.4	2.239	0.251	320	0.064	0.253	0.983
1691.8	57	8.5	2.343	0.244	307	0.261	0.174	1.000
1692.0	91	6.6	2.465	0.232	286	0.471	0.080	1.000
1692.2	126	9.5	2.528	0.221	265	0.603	0.009	1.000
1692.4	137	12.5	2.560	0.235	262	0.710	0.000	1.000
1692.6	132	15.3	2.549	0.244	265	0.718	0.000	1.000
1692.8	123	17.7	2.526	0.243	267	0.640	0.002	1.000
1693.0	116	20.2	2.520	0.239	266	0.585	0.016	1.000

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
1693.2	114	20.8	2.526	0.249	267	0.630	0.004	1.000
1693.4	107	21.3	2.523	0.255	269	0.629	0.005	1.000
1693.6	90	19.9	2.504	0.240	263	0.550	0.030	1.000
1693.8	85	16.5	2.459	0.218	279	0.413	0.094	0.896
1694.0	96	13.0	2.453	0.211	293	0.422	0.092	1.000
1694.2	116	12.2	2.475	0.240	293	0.561	0.032	1.000
1694.4	128	11.3	2.452	0.297	302	Coal		
1694.6	132	10.8	2.395	0.341	313	Coal		
1694.8	134	10.5	2.340	0.347	329	Coal		
1695.0	126	10.3	2.326	0.353	364	Coal		
1695.2	123	9.7	2.368	0.357	343	Coal		
1695.4	119	9.0	2.451	0.321	314	Coal		
1695.6	122	9.9	2.498	0.268	272	Coal		
1695.8	123	12.3	2.517	0.245	266	0.659	0.000	1.000
1696.0	123	14.8	2.511	0.265	267	0.681	0.000	1.000
1696.2	127	16.0	2.498	0.286	275	0.940	0.000	1.000
1696.4	136	17.2	2.518	0.269	271	0.708	0.000	1.000
1696.6	133	18.3	2.524	0.265	268	0.645	0.001	1.000
1696.8	128	19.2	2.477	0.276	268	0.661	0.000	1.000
1697.0	118	20.1	2.331	0.280	284	0.653	0.000	1.000
1697.2	118	19.4	2.260	0.263	295	0.575	0.027	1.000
1697.4	117	18.7	2.325	0.253	294	0.523	0.053	1.000
1697.6	115	17.7	2.418	0.245	287	0.505	0.064	1.000
1697.8	114	16.3	2.443	0.245	284	0.483	0.080	1.000
1698.0	110	14.9	2.433	0.240	283	0.477	0.085	1.000
1698.2	111	15.3	2.424	0.240	281	0.460	0.101	1.000
1698.4	113	15.7	2.437	0.246	279	0.502	0.072	1.000
1698.6	116	16.2	2.456	0.238	280	0.514	0.058	1.000
1698.8	121	16.9	2.467	0.244	280	0.555	0.036	1.000
1699.0	120	17.6	2.445	0.247	281	0.492	0.075	1.000
1699.2	123	16.6	2.400	0.254	281	0.397	0.127	1.000
1699.4	119	15.7	2.353	0.259	289	0.350	0.153	1.000
1699.6	105	15.0	2.349	0.260	295	0.348	0.155	1.000
1699.8	102	14.6	2.361	0.245	296	0.350	0.149	1.000
1700.0	102	14.2	2.348	0.253	293	0.351	0.158	1.000

PE600979

This is an enclosure indicator page.
The enclosure PE600979 is enclosed within the container PE902128 at this location in this document.

The enclosure PE600979 has the following characteristics:

ITEM_BARCODE = PE600979
CONTAINER_BARCODE = PE902128
NAME = Quantitative log
BASIN = GIPPSLAND
PERMIT =
TYPE = WELL
SUBTYPE = WELL_LOG
DESCRIPTION = Quantitative log
REMARKS =
DATE_CREATED = 7/11/89
DATE_RECEIVED = 2/05/90
W_NO = W1003
WELL_NAME = Sweetlips-1
CONTRACTOR = SOLAR
CLIENT_OP_CO = ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE600980

This is an enclosure indicator page.
The enclosure PE600980 is enclosed within the container PE902128 at this location in this document.

The enclosure PE600980 has the following characteristics:

ITEM_BARCODE =	PE600980
CONTAINER_BARCODE =	PE902128
NAME =	Quantitative log
BASIN =	GIPPSLAND
PERMIT =	
TYPE =	WELL
SUBTYPE =	WELL_LOG
DESCRIPTION =	Quantitative log
REMARKS =	
DATE_CREATED =	7/11/89
DATE_RECEIVED =	2/05/90
W_NO =	W1003
WELL_NAME =	Sweetlips-1
CONTRACTOR =	SOLAR
CLIENT_OP_CO =	ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

APPENDIX 4

SWEETLIPS-1 RFT REPORT

A.B.Thomson, December 1989

SWEETLIPS-1 AND SWEETLIPS-1 ST1 RFT REPORT

SUMMARY

The results of RFT pretests and samples taken in the Sweetlips-1 well and the Sweetlips-1 sidetrack ST1 are summarised on Table 1. The RFT program in the original hole indicated a 4 metre oil column at the Top of Latrobe and the sidetrack RFT's indicated a 3.5 metre oil column. Because of the greater confidence associated with the TVD depths in the original hole, a 4 metre oil column is considered the most representative for the Sweetlips discovery. One oil, one gas and one water sample were successfully recovered from the Top of Latrobe interval in the original hole. One water sample was recovered from the sidetrack.

SWEETLIPS-1 (suite 2 logging)

A total of 19 RFT pretest seats were attempted in the Top of Latrobe interval in Sweetlips-1 on the 9th of August, 1989. Of the 19 pretests attempted, 14 pretests were successful. Of the 5 unsuccessful pretests, 3 were seal failures, 1 was supercharged and 1 was tight. The results of the pretest program are summarised on Table 2.

The RFT data indicates a GOC at -1540 m TVDSS and an OWC at -1544 m TVDSS, giving a 4 metre oil column. The RFT interpreted OWC is located right at the base of the sand. To determine the OWC depth the water line defined by pretests 1/9 and 1/10 was used. However these water points were some 15 metres below the last oil points. Given that a 7 psi delta was observed between the Zone 1 and Zone 2 water points over a 15 metre interval, it was possible that there was a base seal to the oil column and thus the column could have been thicker. To test this possibility the well was sidetracked downdip. Figures 1 and 2 show the RFT interpretation. A drawdown of 83 psi from the original Gippsland Basin aquifer gradient was seen in the water directly below the oil. This shows that the Sweetlips Top of Latrobe hydrocarbon accumulation is in very good communication with the basin wide aquifer system.

SWEETLIPS-1 ST1 (suite 3 logging)

The Sweetlips original hole was sidetracked in order to confirm the oil column thickness by intersecting the OWC within the middle of a clean sand. The Top of Latrobe section was relogged in the 18th of August, 1989. A total of 15 pretests were attempted, which were all successful. The results of the pretest program is summarised on Table 3. One water sample was taken at -1545.7 m TVDSS.

The RFT data indicates an GOC at -1539.5 m TVDSS and an OWC at -1543.0 m TVDSS, giving an oil column of 3.5 metres. This result is considered to be consistent with the interpretation of the original hole RFT's which showed a 4 metre oil leg. Figures 1 and 2 show the RFT interpretation. A drawdown of 81 psi from the original Gippsland Basin aquifer gradient was seen, which is very close to the 83 psi drawdown observed in the original hole.

FIGURE 1

SWEETLIPS-1 OPEN-HOLE RFT PRESSURE DATA

AUGUST 9TH 1989

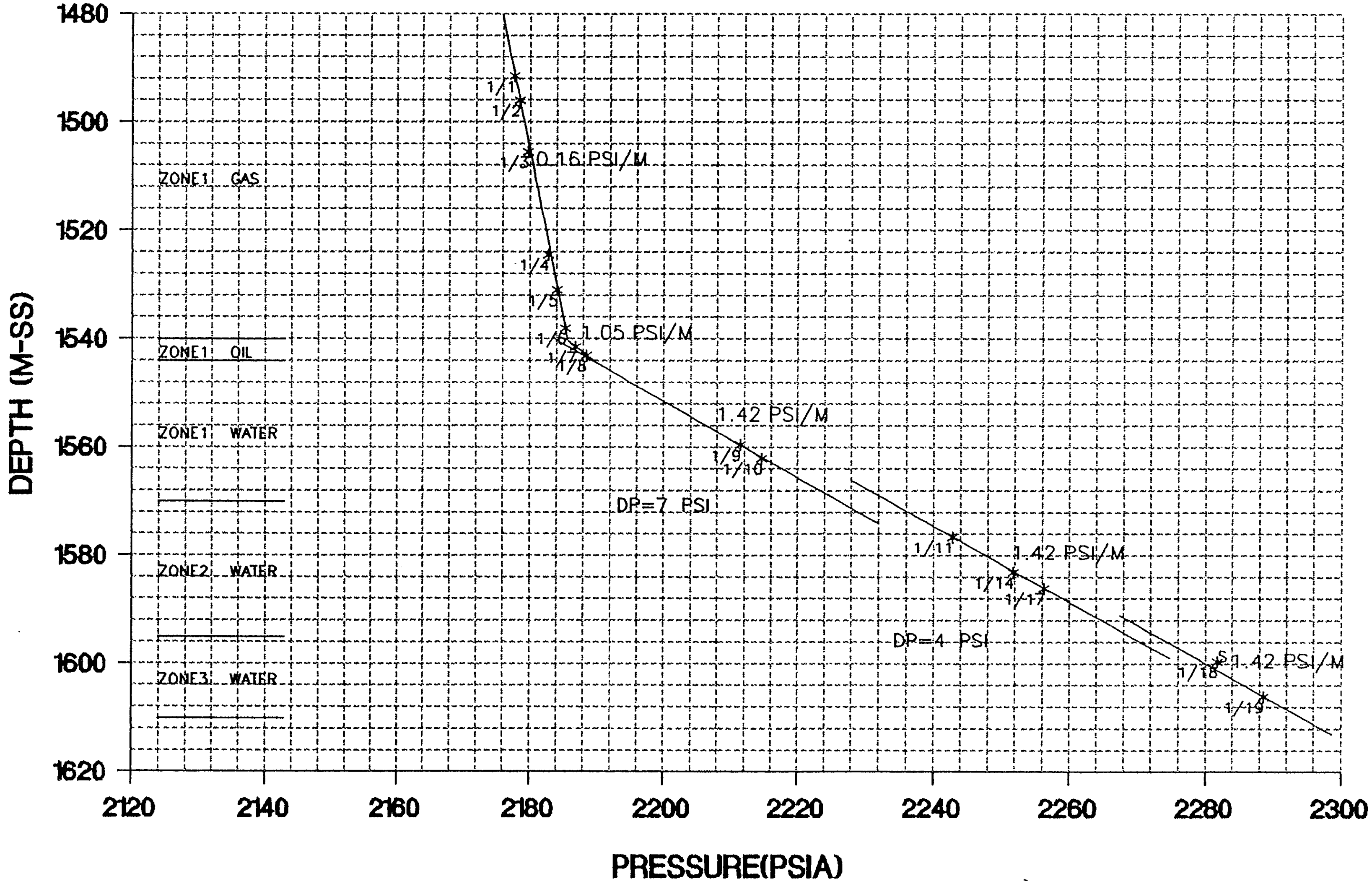


FIGURE 2
SWEETLIPS-1 OPEN-HOLE RFT PRESSURE DATA
AUGUST 9TH 1989

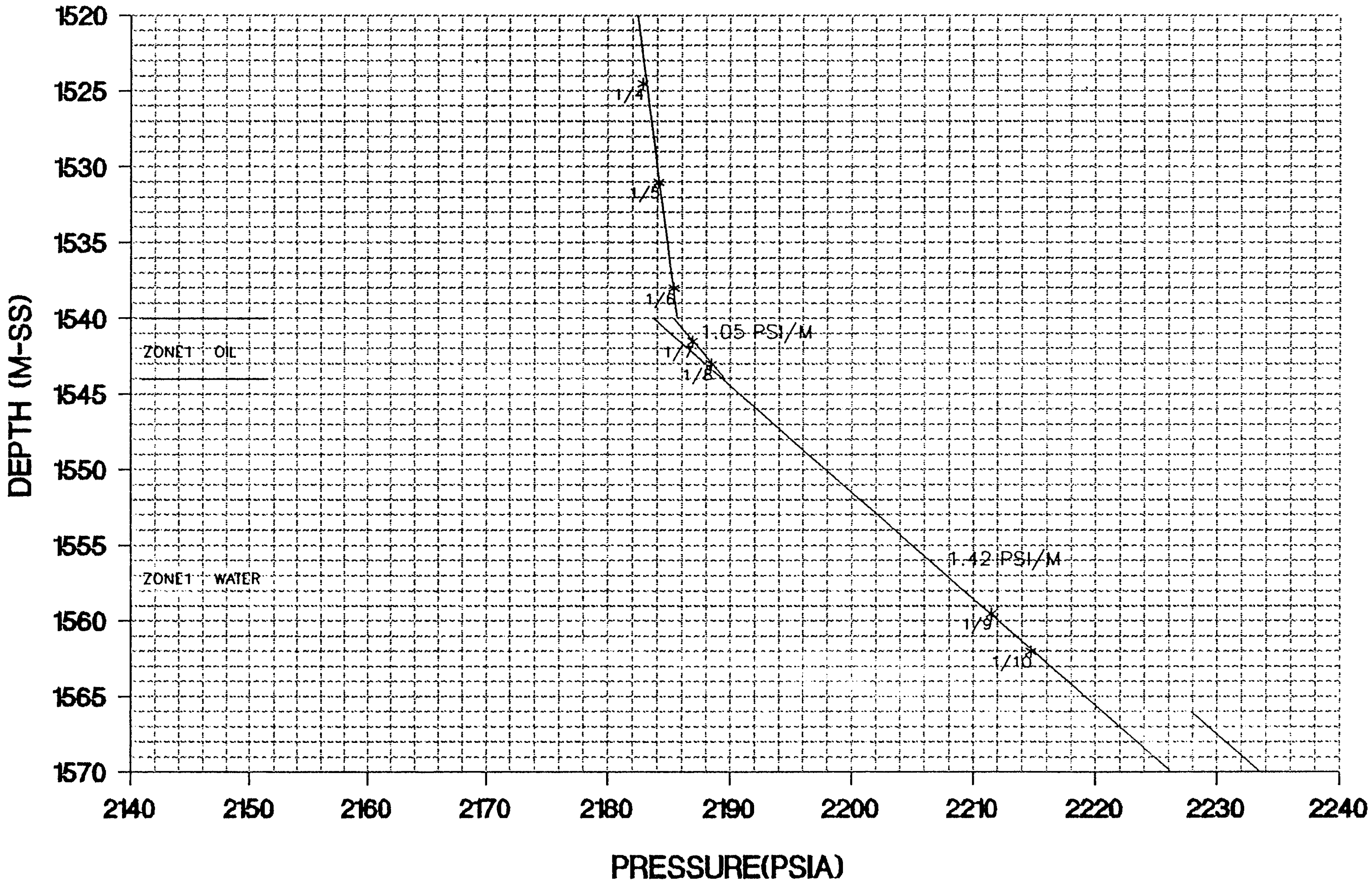


FIGURE 3

SWEETLIPS-1 ST1 OPEN-HOLE RFT PRESSURE DATA

AUGUST 18TH 1989

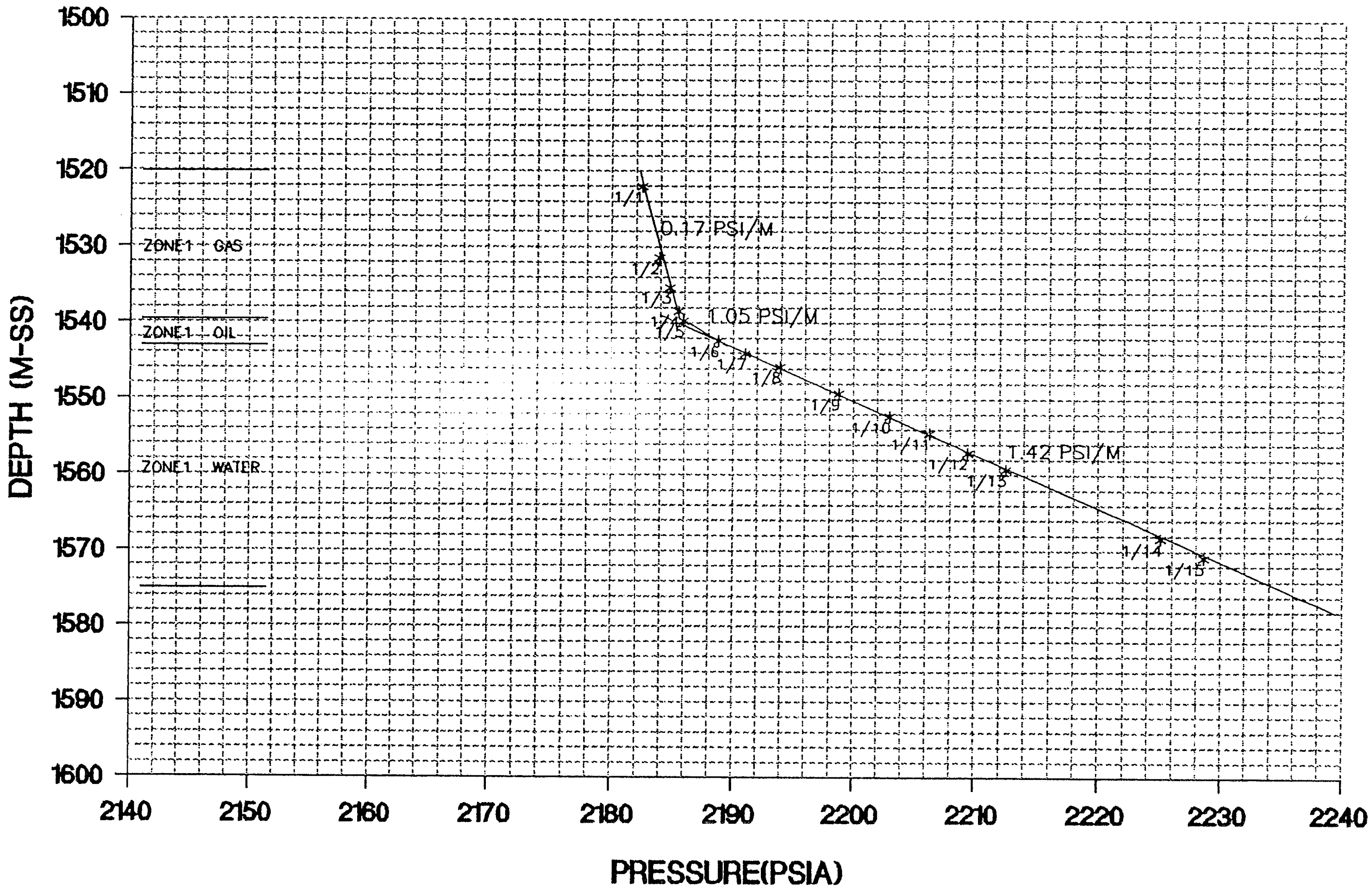


FIGURE 4

SWEETLIPS-1 ST1 OPEN-HOLE RFT PRESSURE DATA

AUGUST 18TH 1989

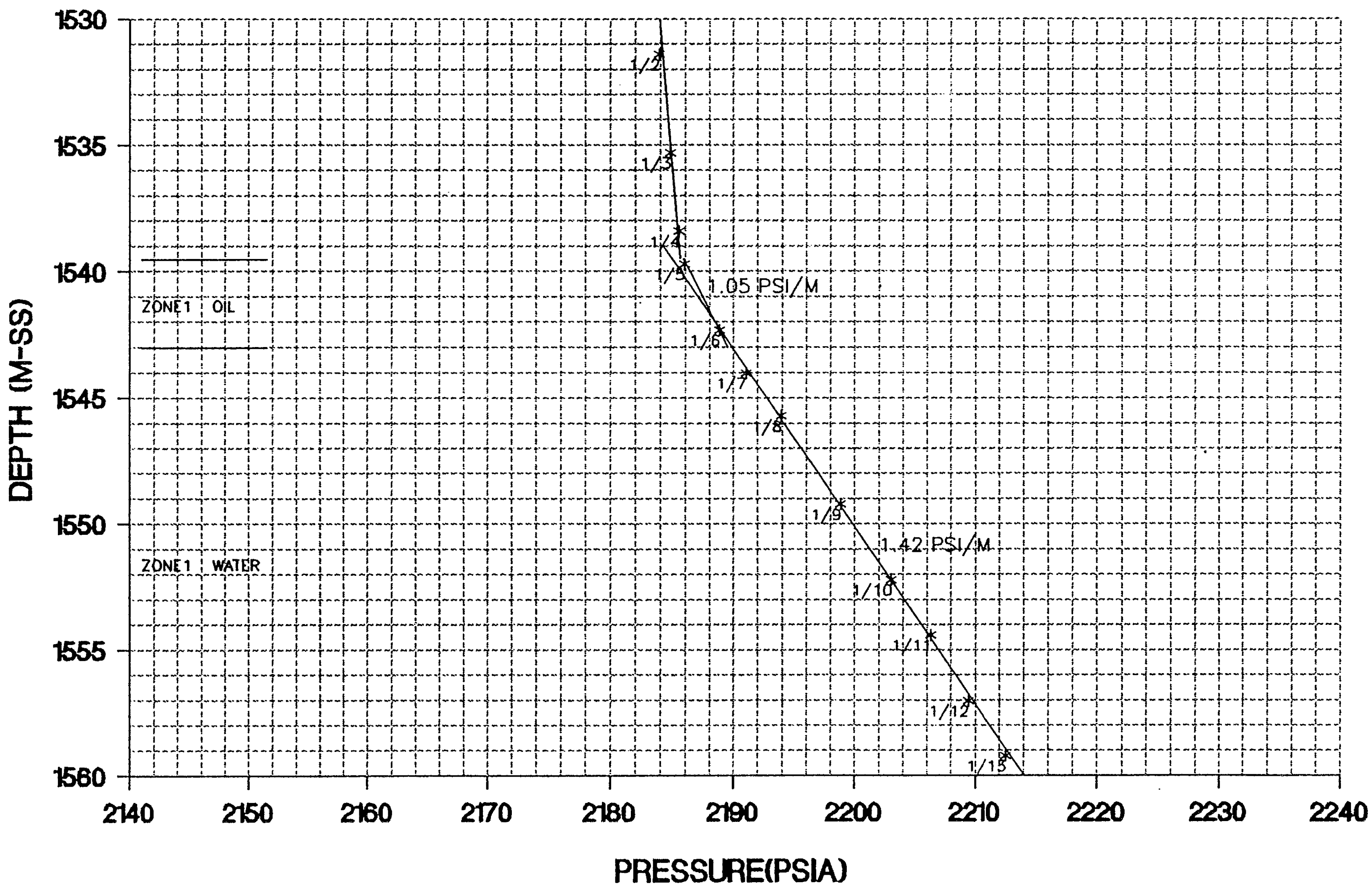


TABLE 1

SWEETLIPS-1 RFT INTERPRETATION SUMMARY

UNIT	DEPTH INTERVAL (m MDKB)	DEPTH INTERVAL (m TVDSS)	FLUID TYPE	RFT CONTACT (m TVDSS)	SAMPLE	GAS (cu.ft)	OIL (litres)	WATER (litres)	GOR (SCF/STB)	GLR (STB/kSCF)
Top Latrobe	1511.0-1561.0	1490.0-1540.0	Gas	-1540.0		Yes				
	1561.0-1564.5	1540.0-1543.5	Oil	-1544.0		Yes				
Sample 1	1561.0	1540.0	Gas			100.8	0.001	0.6 *		0.00006
Sample 2	1563.0	1542.0	Oil			39.1	16.75	2.5 *	371	
Sample 3	1580.5	1559.5	Water			0.9	0.0	21.25		

SWEETLIPS-1 ST1 RFT INTERPRETATION SUMMARY

UNIT	DEPTH INTERVAL (m MDKB)	DEPTH INTERVAL (m TVDSS)	FLUID TYPE	RFT CONTACT (m TVDSS)	SAMPLE	GAS (cu.ft)	OIL (litres)	WATER (litres)	GOR (SCF/STB)	GLR (STB/kSCF)
Top Latrobe	1649.0-1668.5	1520.0-1539.5	Gas	-1539.5	No					
	1668.5-1672.5	1539.5-1543.0	Oil	-1543.0		No				
Sample 1	1676.0	1545.7	Water			0.02	0.0	22.2		

NOTES:

1. RFT recoveries shown are all from the 6 gallon chamber.

2. Samples marked with star (*) had 1 gallon chamber preserved for PVT analysis.

TABLE 2
SWEETLIPS-1 OPEN-HOLE RFT PRESSURE DATA
AUGUST 9TH 1989

------------------------------------ ZONE OR SAND=ZONE1 ------------------------------------

RUN \SEAT	DEPTH MEASURED (M MDRT)	ZONE OR SAND	ASSUMED FORMATION FLUID	DEPTH TVD (M SS)	FORMATION PRESSURE (PSIA)	SEAT VALIDITY	CALC. PT. TO PT. GRADIENT	LEAST SQRS FIT GRAD. FOR ZONE	ASSUMED HYDRAULIC GRADIENT
1/1	1512.5	ZONE1	GAS	1491.5	2177.8	GOOD	.	0.162	0.162
1/2	1517.0	ZONE1	GAS	1496.0	2178.6	GOOD	0.171	0.162	0.162
1/3	1526.5	ZONE1	GAS	1505.5	2179.8	GOOD	0.126	0.162	0.162
1/4	1545.5	ZONE1	GAS	1524.5	2182.9	GOOD	0.164	0.162	0.162
1/5	1552.0	ZONE1	GAS	1531.0	2184.2	GOOD	0.195	0.162	0.162
1/6	1559.0	ZONE1	GAS	1538.0	2185.5	GOOD	0.181	0.162	0.162
1/7	1562.5	ZONE1	OIL	1541.5	2187.0	GOOD	0.426	1.053	1.053
1/8	1564.0	ZONE1	OIL	1543.0	2188.5	GOOD	1.053	1.053	1.053
1/9	1580.5	ZONE1	WATER	1559.5	2211.6	GOOD	1.395	1.288	1.420
1/10	1583.0	ZONE1	WATER	1562.0	2214.8	GOOD	1.288	1.288	1.420

------------------------------------ ZONE OR SAND=ZONE2 ------------------------------------

RUN \SEAT	DEPTH MEASURED (M MDRT)	ZONE OR SAND	ASSUMED FORMATION FLUID	DEPTH TVD (M SS)	FORMATION PRESSURE (PSIA)	SEAT VALIDITY	CALC. PT. TO PT. GRADIENT	LEAST SQRS FIT GRAD. FOR ZONE	ASSUMED HYDRAULIC GRADIENT
1/11	1597.5	ZONE2	WATER	1576.5	2243.0	GOOD	1.944	1.409	1.420
1/14	1604.0	ZONE2	WATER	1583.0	2251.9	GOOD	1.377	1.409	1.420
1/17	1607.0	ZONE2	WATER	1586.0	2256.4	GOOD	1.497	1.409	1.420

------------------------------------ ZONE OR SAND=ZONE3 ------------------------------------

RUN \SEAT	DEPTH MEASURED (M MDRT)	ZONE OR SAND	ASSUMED FORMATION FLUID	DEPTH TVD (M SS)	FORMATION PRESSURE (PSIA)	SEAT VALIDITY	CALC. PT. TO PT. GRADIENT	LEAST SQRS FIT GRAD. FOR ZONE	ASSUMED HYDRAULIC GRADIENT
1/18	1620.5	ZONE3	WATER	1599.5	2281.9	SUPERCHARGED	1.887	.	1.420
1/19	1627.0	ZONE3	WATER	1606.0	2288.7	GOOD	1.051	.	1.420

T[illegible] 3

SWEETLIPS-1 ST1 OPEN-HOLE RFT PRESSURE DATA
AUGUST 18TH 1989

------ ZONE OR SAND=ZONE1 ------

RUN \SEAT	DEPTH MEASURED (M MDRT)	ZONE OR SAND	ASSUMED FORMATION FLUID	DEPTH TVD (M SS)	FORMATION PRESSURE (PSIA)	SEAT VALIDITY	CALC. PT. TO PT. GRADIENT	LEAST SQRS FIT GRAD. FOR ZONE	ASSUMED HYDRAULIC GRADIENT
1/1	1649.0	ZONE1	GAS	1522.0	2182.6	GOOD	.	0.181	0.170
1/2	1659.5	ZONE1	GAS	1531.4	2184.0	GOOD	0.149	0.181	0.170
1/3	1664.0	ZONE1	GAS	1535.3	2184.9	GOOD	0.231	0.181	0.170
1/4	1667.5	ZONE1	GAS	1538.4	2185.6	GOOD	0.226	0.181	0.170
1/5	1669.0	ZONE1	OIL	1539.7	2186.0	GOOD	0.308	1.115	1.050
1/6	1672.0	ZONE1	OIL	1542.3	2188.9	GOOD	1.115	1.115	1.050
1/7	1674.0	ZONE1	WATER	1544.0	2191.1	GOOD	1.294	1.389	1.420
1/8	1676.0	ZONE1	WATER	1545.7	2194.0	GOOD	1.706	1.389	1.420
1/9	1680.0	ZONE1	WATER	1549.2	2198.9	GOOD	1.400	1.389	1.420
1/10	1683.5	ZONE1	WATER	1552.2	2203.1	GOOD	1.400	1.389	1.420
1/11	1686.0	ZONE1	WATER	1554.4	2206.4	GOOD	1.500	1.389	1.420
1/12	1689.0	ZONE1	WATER	1557.0	2209.5	GOOD	1.192	1.389	1.420
1/13	1691.0	ZONE1	WATER	1559.2	2212.6	GOOD	1.409	1.389	1.420
1/14	1702.0	ZONE1	WATER	1568.3	2225.2	GOOD	1.385	1.389	1.420
1/15	1705.0	ZONE1	WATER	1570.8	2228.7	GOOD	1.400	1.389	1.420

RFT SAMPLE TEST REPORT

INTERPRETATIVE 10 AUG 1990

WELL : SWEETLIPS-1

OBSERVER : G.SMITH/A.CLARE P.REICHARDT   DATE : 9/8/89   RUN NO. : 2

	CHAMBER 1 (22.7 lit.)	CHAMBER 2 (3.8 lit.)
SEAT NO.	2-20	2-20
DEPTH	1561.0 m	1561.0 m
A. RECORDING TIMES		
Tool Set	15:24 hrs	- hrs
Pretest Duration	4 mins	-
Chamber Open	15:28 hrs	15:57 hrs
Chamber Full	15:48 hrs	16:01 hrs
Fill Time	20 mins	4 mins
Finish Build Up	15:57 hrs	16:06 hrs
Build Up Time	9 mins	5 mins
Tool Retract	- hrs	16:08 hrs
Total Time	- mins	47 mins
B. SAMPLE PRESSURE		
Init. Hydrostatic	2604.6 psia	- psia
Init. Form'n Press.(Pretest)	2186.6 psia	- psia
Init. Flowing PRess.	492 psia	1863 psia
Final Flowing Press.	1894 psia	1870 psia
Final Form'n Press.	2185.9 psia	2185.5 psia
Final Hydrostatic	- psia	2606.5 psia
C. TEMPERATURE		
Max. Rec. Temp.	65.9 deg C	65.9 deg C
D. SAMPLE RECOVERY		
Surface Pressure	1640 psia	- psia
Amt Gas	100.8 cu ft	- cu ft
Amt Oil	0.001 lit	- lit
Amt Water (Total)	0.600 lit	- lit
Amt Others	- lit	- lit
E. SAMPLE PROPERTIES		
Gas Composition		
C1	>1,387,500 (59.8%) ppm	ppm
C2	> 915,000 (39.5%) ppm	ppm
C3	12,200 (0.5%) ppm	ppm
C4	3,630 (0.2%) ppm	ppm
C5	Tr (0.1%) ppm	ppm
C6+	- ppm	ppm
CO2/H2S	% /ppm	% /ppm
Oil Properties	deg API @ deg C	deg API@ deg C
Colour	Light Straw Yellow	
Fluorescence	Bright Blue-White	
GOR	>10,000	
Pour Point	-	
Water Properties		
Resistivity	0.45 ohm-m @ 21 deg C	ohm-m @ deg C
NaCl Equivalent	44,500 ppm	ppm
Cl-titrated	27,000 ppm	ppm
Tritium	DPM	DPM
pH	7.0	
Est. Water Type		
F. MUD FILTRATE PROPERTIES		
Resistivity	.321 ohm-m @ 13.9 deg C	ohm-m @ deg C
NaCl Equivalent	27.225k ppm	ppm
Cl-titrated	16.5k ppm	ppm
pH	10.1	
Tritium (in Mud)	3578 DPM	DPM
G. GENERAL CALIBRATION		
Mud Weight	9.5 ppg	ppg
Serial No. (Preserved)		1131 RFS AD
Choke Size/Probe Type	1 x0.2/Martineau	
REMARKS	Refractive Index API Calc: 46-47.5°API @60°F (est. from small sample)	Sample Preserved for PVT Analysis

08900124/2

RFT SAMPLE TEST REPORT

WELL : SWEETLIPS-1

OBSERVER : G.SMITH/A.CLARE P.REICHARDT DATE : 9/8/89 RUN NO. : 3

	CHAMBER 1 (22.7 lit.)	CHAMBER 2 (3.8 lit.)
SEAT NO.	3-21	3-21
DEPTH	1563.0 m KB	1563.0 m KB
A. RECORDING TIMES		
Tool Set	18:52 hrs	- hrs
Pretest Duration	3 mins	-
Chamber Open	18:55 hrs	19:20 hrs
Chamber Full	19:17 hrs	19:23 hrs
Fill Time	22 mins	3 mins
Finish Build Up	19:19 hrs	19:26 hrs
Build Up Time	2 mins	3 mins
Tool Retract	- hrs	19:28 hrs
Total Time	- mins	36 mins
B. SAMPLE PRESSURE		
Init. Hydrostatic	2608.6 psia	- psia
Init. Form'n Press.(Pretest)	2187.9 psia	- psia
Init. Flowing Press.	2155 psia	2159 psia
Final Flowing Press.	2148 psia	2158 psia
Final Form'n Press.	2187.7 psia	2187.7 psia
Final Hydrostatic	- psia	2610.8 psia
C. TEMPERATURE		
Max. Rec. Temp.	66.6 deg C	66.6 deg C
D. SAMPLE RECOVERY		
Surface Pressure	1400 psia	1350 psia
Amt Gas	39.1 cu ft	cu ft
Amt Oil	16.75 lit	lit
Amt Water (Total)	2.5 lit	lit
Amt Others	(oil-emul)0.75 lit	lit
E. SAMPLE PROPERTIES		
Gas Composition		
C1	721,500 (93.2%) ppm	ppm
C2	32,940 (4.3%) ppm	ppm
C3	13,653 (1.8%) ppm	ppm
C4	4,659 (0.6%) ppm	ppm
C5	1,476 (0.2%) ppm	ppm
C6+	Tr (Tr%) ppm	ppm
CO2/H2S	5/Nil % /ppm	% /ppm
Oil Properties	41 deg API @ 15.6deg C	deg API@ deg C
Colour	Dark Chocolate Brown	
Fluorescence	Bright Cream Yellow	
GOR	371 scf/stb	
Pour Point	-	
Water Properties		
Resistivity	0.3 ohm-m @ 18 deg C	ohm-m @ deg C
NaCl Equivalent	29,700 ppm	ppm
Cl-titrated	18,000 ppm	ppm
Tritium	2600 DPM	DPM
pH	7.5	
Est. Water Type	Filtrate	
F. MUD FILTRATE PROPERTIES		
Resistivity	0.321 ohm-m @ 13.9 deg C	ohm-m @ deg C
NaCl Equivalent	29,700 ppm	ppm
Cl-titrated	16,500 ppm	ppm
pH	10.1	
Tritium (in Mud)	3578 DPM	DPM
G. GENERAL CALIBRATION		
Mud Weight	9.5 ppg	2533 ppg
Serial No. (Preserved)		1114 RFS AD
Choke Size/Probe Type	1 x 0.2/Martineau	
REMARKS		Sample Preserved for PVT Analysis

08900124/3

RFT SAMPLE TEST REPORT

WELL : SWEETLIPS-1

OBSERVER : G.SMITH/A.CLARE P.REICHARDT   DATE : 10/8/89   RUN NO. : 5

	CHAMBER 1 (22.4 lit.)		CHAMBER 2 (10.4 lit.)	
SEAT NO.	5-34		5-34	
DEPTH	1580.5	m KB	1580.5	m KB
A. RECORDING TIMES				
Tool Set	01:34	hrs	-	hrs
Pretest Duration	3	mins	-	
Chamber Open	01:37	hrs	02:17	hrs
Chamber Full	02:12	hrs	02:28	hrs
Fill Time	35	mins	11	mins
Finish Build Up	02:17	hrs	02:33	hrs
Build Up Time	5	mins	5	mins
Tool Retract	-	hrs	02:35	hrs
Total Time	-	mins	61	mins
B. SAMPLE PRESSURE				
Init. Hydrostatic	2638.5	psia	-	psia
Init. Form'n Press.(Pretest)	2211.6	psia	-	psia
Init. Flowing Press.	48	psia	734	psia
Final Flowing Press.	1000	psia	1825	psia
Final Form'n Press.	2808.5	psia	2208.9	psia
Final Hydrostatic	-	psia	2635.5	psia
C. TEMPERATURE				
Max. Rec. Temp.	71.6	deg C	71.6	deg C
D. SAMPLE RECOVERY				
Surface Pressure	380	psia	350	psia
Amt Gas	0.9	cu ft	0.6	cu ft
Amt Oil	0	lit	0	lit
Amt Water (Total)	21.25	lit	9.0	lit
Amt Others	-	lit	-	lit
E. SAMPLE PROPERTIES				
Gas Composition				
C1	200,200	ppm	No Sample	ppm
C2	51,240	ppm		ppm
C3	25,872	ppm		ppm
C4	8,151	ppm		ppm
C5	740	ppm		ppm
C6+		ppm		ppm
CO2/H2S	3/Nil	% /ppm	3/Nil	% /ppm
Oil Properties	deg API @	deg C	deg API@	deg C
Colour				
Fluorescence				
GOR				
Pour Point				
Water Properties				
Resistivity	0.38 ohm-m @ 21.5	deg C	0.70 ohm-m @ 21.5	deg C
NaCl Equivalent	12,355	ppm	8,250	ppm
Cl-titrated	7500	ppm	5000	ppm
Tritium	1421	DPM	753	DPM
pH	7.5		7.5	
Est. Water Type	Filtrate & Form Water		Form Water	
F. MUD FILTRATE PROPERTIES				
Resistivity	0.321 ohm-m @ 13.9	deg C	0.321ohm-m @ 13.9	deg C
NaCl Equivalent	20,625	ppm	20,625	ppm
Cl-titrated	12,500	ppm	12,500	ppm
pH	10.1		10.1	
Tritium (in Mud)	3578	DPM	3578	DPM
G. GENERAL CALIBRATION				
Mud Weight	9.5	ppg	9.5	ppg
Serial No. (Preserved)				
Choke Size/Probe Type	1 x 0.02"/Martineau		1 x 0.02"/Martineau	
REMARKS	Large Area Packer Martineau Probe		Large Area Packer Martineau Probe	

08900124/4

RFT SAMPLE TEST REPORT

WELL : SWEETLIPS-1 (ST1)

OBSERVER : E.GREWAR/J.YOUNG   DATE : 18/8/~~90~~ 89   RUN NO. : 2

	CHAMBER 1 (22.7 lit.)	CHAMBER 2 (10.4 lit.)
SEAT NO.	2-17	2-17
DEPTH	1676mMD (1545.3 m TVDSS)	1676mMD (1545.3m TVDSS)
A. RECORDING TIMES		
Tool Set	16:09 hrs	- hrs
Pretest Duration	4 mins	-
Chamber Open	16:13 hrs	16:26 hrs
Chamber Full	16:25 hrs	16:33 hrs
Fill Time	12 mins	7 mins
Finish Build Up	16:26 hrs	16:34 hrs
Build Up Time	1 mins	1 mins
Tool Retract	- hrs	16:36 hrs
Total Time	- mins	27 mins
B. SAMPLE PRESSURE		
Init. Hydrostatic	2582.67 psia	2582.67 psia
Init. Form'n Press.(Pretest)	2194.00 psia	2194.00 psia
Init. Flowing Press.	1733.00 psia	1733.60 psia
Final Flowing Press.	1187.70 psia	1740.00 psia
Final Form'n Press.	2194.40 psia	2194.40 psia
Final Hydrostatic	2583.00 psia	2583.00 psia
C. TEMPERATURE		
Max. Rec. Temp.	68.6 deg C	68.6 deg C
D. SAMPLE RECOVERY		
Surface Pressure	389.7 psia	384.7 psia
Amt Gas	0.8 cu ft	0.7 cu ft
Amt Oil	Slight Trace	Slight Trace
Amt Water (Total)	22.2 lit	9.2 lit
Amt Others	- lit	- lit
E. SAMPLE PROPERTIES		
Gas Composition		
C1	129,500 ppm	155,400 ppm
C2	7,320 ppm	7,320 ppm
C3	2,797 ppm	2,797 ppm
C4	864 ppm	574 ppm
C5	197 ppm	62 ppm
C6+	- ppm	- ppm
CO2/H2S	5/Nil % /ppm	5/Nil % /ppm
Oil Properties	deg API @ deg C	deg API@ deg C
Colour		
Fluorescence		
GOR		
Pour Point		
Water Properties		
Resistivity	ohm-m @ deg C	ohm-m @ deg C
NaCl Equivalent	ppm	ppm
Cl-titrated	15,000 ppm	15,000 ppm
Tritium	1697 DPM	1615 DPM
pH	7.5	7.5
Est. Water Type	Form'n Water & Filtrate	Form'n Water & Filtrate
F. MUD FILTRATE PROPERTIES		
Resistivity	ohm-m @ deg C	ohm-m@ deg C
NaCl Equivalent	44,000 ppm	44,000 ppm
Cl-titrated	29,000 ppm	29,000 ppm
pH	10.3	10.3
Tritium (in Mud)	2903 DPM	2903 DPM
G. GENERAL CALIBRATION		
Mud Weight	9.4 ppg	9.4 ppg
Serial No. (Preserved)	-	
Choke Size/Probe Type	0.03/Martineau	0.03/Martineau
REMARKS		

08900124/1

APPENDIX 5

GEOCHEMICAL REPORT

ON

SWEETLIPS 1 WELL

GIPPSLAND BASIN

BY

B.J.BURNS

FEBRUARY 1990

LIST OF TABLES AND FIGURES

INTRODUCTION

Sweetlips 1 was drilled near the basin margin and penetrated a relatively shallow section of Eocene, Paleocene and Upper Cretaceous Latrobe Group sediments. Although these were considered to be too immature to act as significant source rocks for oil in the basin, twelve SWCs from the section below a depth of 1600m were examined for routine TOC and Rockeval measurements. This part of the section consists of lower Paleocene and Upper Cretaceous sands, shales, siltstones and minor thin coals and includes the *P. mawsonii* Zone which is one of the oldest post-Strzelecki units encountered in the basin and is believed to represent deposition in a true lacustrine environment (Partridge 1990).

Fifteen sidewall core samples were selected over the interval from 1520 - 1840m for palynological separation and a fraction of the organic concentrate was then analysed to determine the Carbon/Hydrogen atomic ratio. Kerogen and fluorescence determinations were carried out by M.J. Hannah.

Oil was recovered from RFT 3/21 at 1563m and analysed using liquid and gas chromatography as well as determining its API gravity.

RESULTS

The TOC and Rockeval results are presented in Tables 1 and 2 and Figure 1. Most of the *L. balmei* and *T. longus* samples were light-medium grey claystone and siltstone and with variable TOC's ranging from a "very poor" 0.3% to a "good" 2.1% The deeper *P. mawsonii* samples from 1815m to TD are darker grey claystone and siltstones with typically more uniform TOC values (av. 1.42%) a feature that has been observed in other wells in the basin (eg Kipper 1, Admiral 1).

The corresponding Rockeval results (Table 2) are generally dissapointing with only two of the *L. balmei* and one *T. longus* sample having a "fair to good" source richness rating based on S2 yields of between 2 and 8mg/g (S_2 levels above 6 mg/kg are rated as "good" source rocks). The richest sample is from the Upper Cretaceous *T. longus* Zone at 1716.2m. Oil would be the interpreted hydrocarbon product (at peak maturity) from the two samples with Hydrogen Indices greater than 300 (Table 2, Fig 2), while the remaining samples would be expected to yield mainly gas. In particular, the *P. mawsonii* shales appear to have very poor source potential.

The low Tmax values for all samples (<430) indicate that the majority of the section penetrated in the well is immature and this is supported by the Thermal Alteration Indices and Fluorescence data (see below) which indicate immature kerogens almost down to TD with only the deepest sample at 1849m approaching the early mature stage.

Kerogen organic matter descriptions and fluorescence characteristics are set out in Tables 3 & 4 and Figures 3 & 4. The kerogen types vary considerably and several of the *L. balmei* and *T. longus* kerogens contain over 60% "oil-prone" material (mainly the Amorphous and Biodegraded Terrestrial categories). These same samples contain over 60% fluorescing material in their kerogen fractions but there is no correlation between these oil-prone characteristics and the age of the section (cf Table 3). There is, however, a strong correlation between the depositional environments and the various geochemical parameters (see below). The 1817m *P. mawsonii* sample is somewhat unusual in that it contains 60% bright yellow fluorescant material (ie. oil-prone) and yet its other geochemical parameters consistantly indicate poor source potential.

The H/C atomic ratios of the kerogens, as shown in the Van Krevelen Plot (Fig. 5, Table 5), indicate a predominance of Type III terrestrial organic matter for most of the samples although several show enriched hydrogen compositions with H/C ratios greater than 1.0. This is equivalent to intermediate Type II-III kerogen, and hence greater oil source potential, but it is clear from Figure 2 that these samples are still very immature.

DEPOSITIONAL ENVIRONMENT

For the samples studied in this report there is a good correlation between the various geochemical results and the environments of deposition as determined by A.D.Partridge 1990 (see Tables 2 & 5; Figs 6, 7 & 8). The samples with the best oil-prone characteristics, namely HI greater than 300, atomic H/C ratio greater than 1.0, more than 60% "oil-prone" kerogen and strong fluorescence, all occur in the Upper Coastal Plain environment. This is at slight variance with the data from some of the previous wells such as Conger 1 and Roundhead 1 in which the Lower Coastal Plain facies have contained the better source rocks.

The lacustrine *P. mawsonii* sediments again show up as very poor source rocks. They are remarkably uniform in their chemical properties, a feature which is believed to be related to the development of a more stable environment in a large fresh-brackish lake. The low Rockeval HI values and H/C Atomic Ratios indicate that these lacustrine sediments have been well oxygenated, at least around the northern margins of the lake. The quantity and quality of equivalent sediments in the central areas of the ancient lake remain untested.

OIL SAMPLE

The oil from RFT 3/21 at 1563m has an API Gravity of 40.0 degrees and its "Whole Oil" chromatogram (Fig. 9) shows a waxy oil with a bi-modal distribution of n-alkanes maximising at C_{14} and C_{23}. The distribution of the light gasoline range hydrocarbons is a little unusual in that the series of n-paraffins from C_6 to C_{12} are less abundant than the corresponding branched and cyclic alkanes. While it is possible that this is a function of changes in the source facies it is more likely due to the onset of bacterial degradation, given that the measured RFT temperature of 68.9o C is within the accepted range (up to a maximum of approx. 80o C) and also given the reservoir's location within the zone of fresh water flushing in the basin.

The Sweetlips 1 oil appears to be waxier than the adjacent oils in Emperor 1 (1542.9m) or Sunfish 2 (1616.8m). In gross composition it has the closest match with the shallow oil from Wirrah 1 at 1575m.

SUMMARY

1. The Upper Coastal Plain facies of the L. balmei and *T. longus* Zones contain the most oil-prone source rocks. All are immature at the well location.

2. The lacustrine *P. mawsonii* sediments are uniform in their organic content but at this location are rated as poor source rocks.

3. The oil at 1653m is a 40.0 API waxy crude similar to the oil from Wirrah 1 (1575m). It has probably undergone a minor level of biodegradation.

REFERENCES

PARTRIDGE, A.D., Palynological analysis of Roundhead 1, Gippsland Basin. Esso Australia Ltd. Palaeo. Rept. 1989/17, 1-26.

PARTRIDGE, A.D., Palynological analysis of Conger 1, Gippsland Basin. Esso Australia Ltd. Palaeo. Rept. 1989/19, 1-19.

PARTRIDGE, A.D., Palynological analysis of Sweetlips 1, Gippsland Basin. Esso Australia Ltd. Palaeo. Rept. 1990/3, 1-22.

(BJB127)

TABLE 1 TOTAL ORGANIC CARBON

WELL: SWEETLIPS 1

SAMPLE NO.	DEPTH (m)	TYPE	AGE	ZONE	TOC %	CO3 %	DESCRIPTION
78260 F	1614.5	CRSW	Paleocene	U L. balmei	1.17	3.87	CLYST LT-M GY TR.CARB
78261 C	1643.2	CRSW	"	L L. balmei	0.97	2.45	CLYST M BRN SOFT TR.CARB
78261 B	1655.3	CRSW	"	"	0.30	8.20	CLYST LT GY
78260 X	1690.0	CRSW	"	"	2.08	2.80	CLYST LT GY ABUND COALY FRAGS
78260 U	1716.2	CRSW	Maastrichtian	U T. longus	2.10	5.59	CLYST V DK GY TR CARB
78260 Q	1739.0	CRSW	"	"	0.65	4.52	CLYST M GY SOFT TR CARB
78260 N	1762.0	CRSW	"	"	0.81	22.53	SLTSTN M GY BRN TR CARB
78260 K	1787.0	CRSW	"	"	0.54	2.40	SST LT GY
78260 H	1815.0	CRSW	?Turonian	P. mawsonii	1.29	5.06	CLYST DK GY
78260 G	1817.0	CRSW	"	"	1.63	7.61	SLTSTN DK GY TR CARB
78260 D	1831.0	CRSW	"	"	0.87	4.97	SLTSTN DK GY TR CARB
78260 A	1849.0	CRSW	"	"	1.87	22.04	SLTSTN DK GY BRN

TABLE 2 ROCKEVAL REPORT

WELL: SWEETLIPS 1

SAMPLE NO.	DEPTH (m)	TOC %	Tmax	S1 mg/g	S2 mg/g	S3 mg/g	HI	OI	HI/OI	ENVIRONMENT
78260 F	1614.5	1.17	415	0.24	2.69	0.05	230	4	58	U Coastal Plain
78261 C	1643.2	0.97	418	0.35	3.39	0.06	350	6	58	"
78261 B	1655.3	0.30	409	0.10	0.25	0.01	83	3	28	Fluvial
78260 X	1690.0	2.08	407	0.37	3.19	0.09	153	4	38	"
78260 U	1716.2	2.10	420	0.40	7.40	0.26	352	13	27	U Coastal Plain
78260 Q	1739.0	0.65	410	0.10	0.26	0.01	40	1	40	Fluvial
78260 N	1762.0	0.81	418	0.08	0.45	0.03	55	4	14	"
78260 K	1787.0	0.54	418	0.16	0.35	0.01	65	2	33	"
78260 H	1815.0	1.29	422	0.08	1.15	0.10	89	8	11	Lacustrine
78260 G	1817.0	1.63	427	0.11	1.36	0.14	83	9	9	"
78260 D	1831.0	0.87	422	0.07	0.23	0.01	26	1	26	"
78260 A	1849.0	1.87	429	0.20	1.23	0.17	66	9	7	"

TABLE 3 **KEROGEN P.O.M.T REPORT**

WELL SWEETLIPS 1

SAMPLE NO.	DEPTH (M)	Particulate Organic Matter Types (%) 1.1	1.2	2.1	2.2	3.0	4.0	5.1	5.2	5.3	6.1	6.2	7.0	TAI	% OIL PRONE	% FLUOR
78261 F	1614.5	20				30	15		20	15				2.1	65	80
78261 C	1643.2	35				20	15		20	10				2.1	70	100
78261 B	1655.3	15					20		60	5					35	90
78260 X	1690.0	30							40	30					30	5
78260 V	1713.9	40				15	5		15	25					60	60
78260 U	1716.2	50				20	5		10	15					75	100
78260 Q	1739.0	5				5	10		50	30					20	25
78260 N	1762.0	15					5		55	25					20	25
78260 K	1787.0	20				10	10		30	30					40	25
78260 H	1815.0	20				15	10		30	25					45	60
78260 G	1817.0	20					5		20	55				2.3	25	60
78260 D	1831.0	5				10	5		25	55					20	15
78260 A	1849.0	10				10	15		35	30				2.3	35	5

LEGEND

1 = AMORPHOUS 1.1 – UNDIFFERENTIATED 1.2 – GREY
2 = STRUCTURED AQUEOUS 2.1 – ALGAE 2.2 – DINOFLAGELLATES/ACRITARCHS
3 = BIODEGRADED TERRESTRIAL
4 = SPORES/POLLEN
5 = STRUCTURED TERRESTRIAL 5.1 – LAMINAR 5.2 – CELLULAR 5.3 – SEMI–OPAQUE
6 = INERT 6.1 – OPAQUE 6.2 – META–OPAQUE
7 = INDETERMINATE FINES

TAI = THERMAL ALTERATION INDEX
OIL PRONE = SUM OF 1.1 THRU 4.0
FLUOR = PERCENT FLUORECSCENT MATERIAL

TABLE 4 KEROGEN FLUORESCENCE REPORT

WELL: SWEETLIPS 1

SAMP NO.	DEPTH (M)	TYPE	AN	COLOUR	%	DESCRIPTOR	COMMENTS
78261 F	1614.50	CRSW	28	BRIGHT YELLOW TOTAL	80 80	ALL TYPES EXCEPT SEMI-OPAQUE.	IMMATURE.
78261 C	1643.20	CRSW	28	BRIGHT YELLOW TOTAL	100 100	ALL TYPES.	IMMATURE.
78261 B	1655.30	CRSW	28	BRIGHT YELLOW TOTAL	90 90	CELLULAR,SPORE-POLLEN.	IMMATURE.
78260 X	1690.00	CRSW	28	BRIGHT YELLOW TOTAL	5 5	CELLULAR.	IMMATURE. SAMPLE CONTAINS ABUNDANT MINERAL MATTER,PROBABLY AN ARTIFACT OF PROCESSING.THIS MATERIAL FLUORESCES BRIGHTLY MAKING THE ASSESMENT OF THE TRUE FLUORESCENCE OF THE SAMPLE DIFFICULT.
78260 V	1713.90	CRSW	28	BRIGHT YELLOW TOTAL	60 60	CELLULAR,PIN-PRICK(SEE NOTE BELOW).	IMMATURE. AMORPHOUS MATERIAL CONTAINS PIN-PRICK FLUORESCENCE.
78260 U	1716.20	CRSW	28	BRIGHT YELLOW TOTAL	100 100	ALL TYPES.	IMMATURE.
78260 Q	1739.00	CRSW	28	BRIGHT YELLOW GOLD TOTAL	5 20 25	BIODEG. TERRESTRIAL. CELLULAR,SEMI OPAQUE.	IMMATURE-MARGINALY MATURE. ALL ORGANIC MATTER SURROUNDED BY RAPIDLY FADEING BRIGHT FLUORESCENCE
78260 N	1762.00	CRSW	28	BRIGHT YELLOW GOLD TOTAL	10 15 25	SPORE/POLLEN,CELLULAR. CELLULAR.	IMMATURE-MARGINALY MATURE.
78260 K	1787.00	CRSW	28	BRIGHT YELLOW GOLD TOTAL	10 15 25	SPORE/POLLEN,CELLULAR. CELLULAR,BIODEG.TERREST.,SEMI-OPAQUE	IMMATURE-MARGINALY MATURE.
78260 H	1815.00	CRSW	28	GOLD TOTAL	60 60	CELLULAR,SPORE/POLLEN,BIODEG. TERREST.	EARLY MATURE
78260 G	1817.00	CRSW	28	BRIGHT YELLOW TOTAL	60 60	CELLULAR (SOME FRAGS),SPORE/POLLEN.	IMMATURE.SOME SEMI-OPAQUE MATERIAL CONTAINS INCLUSIONS OF FLUORESCING MATERIAL.A RAPIDLY FADEING FLUORESCENT HALO SURROUNDS ALL ORGANIC FRAGMENTS
78260 D	1831.00	CRSW	28	BRIGHT YELLOW BRIGHT ORANGE TOTAL	10 5 15	CELLULAR,SPORE POLLEN. CELLULAR.	?IMMATURE-MARGINLY MATURE
78260 A	1849.00	CRSW	28	GOLD TOTAL	5 5	CELLULAR,SPORE/POLLEN.	EARLY MATURE.FLUORESCENT HALOS SURROUND ALL ORGANIC MATERIAL,THESE FADE RAPIDLY.

TABLE 5 KEROGEN ELEMENTAL ANALYSIS

WELL: SWEETLIPS 1

SAMPLE NO.	DEPTH (m)	TYPE	AGE	ZONE	H/C	O/C	N/C	ENVIRONMENT
78261 X	1520.0	CRSW	Early Eocene	L M. diversus	1.02	0.25	0.01	U. Coastal Plain
78261 S	1555.0	CRSW	"	"	1.01	0.20	0.00	"
78261 R	1559.0	CRSW	"	"	0.86	0.54	0.00	Condensed Marine
78261 D	1631.5	CRSW	Paleocene	U L. balmei	0.79	0.23	0.01	U. Coastal Plain
78261 C	1643.2	CRSW	"	L L. balmei	1.12	0.16	0.00	"
78261 A	1668.0	CRSW	"	"	0.79	0.20	0.01	Fluvial
78260 Y	1680.0	CRSW	"	"	0.78	0.18	0.01	"
78260 V	1713.9	CRSW	Maastrichtian	U T. longus	0.75	0.21	0.01	U. Coastal Plain
78260 U	1716.2	CRSW	"	"	1.08	0.21	0.01	"
78260 T	1720.0	CRSW	"	"	0.64	0.17	0.01	"
78260 M	1770.0	CRSW	"	"	0.69	0.19	0.01	Fluvial
78260 K	1787.0	CRSW	"	"	0.73	0.18	0.01	
78260 H	1815.0	CRSW	?Turonian	P. mawsonii	0.78	0.16	0.02	Lacustrine
78260 E	1825.0	CRSW	"	"	0.69	0.20	0.02	"
78260 B	1840.0	CRSW	"	"	0.68	0.19	0.02	"

TABLE 6 C12+ LIQUID CHROMATOGRAPHY

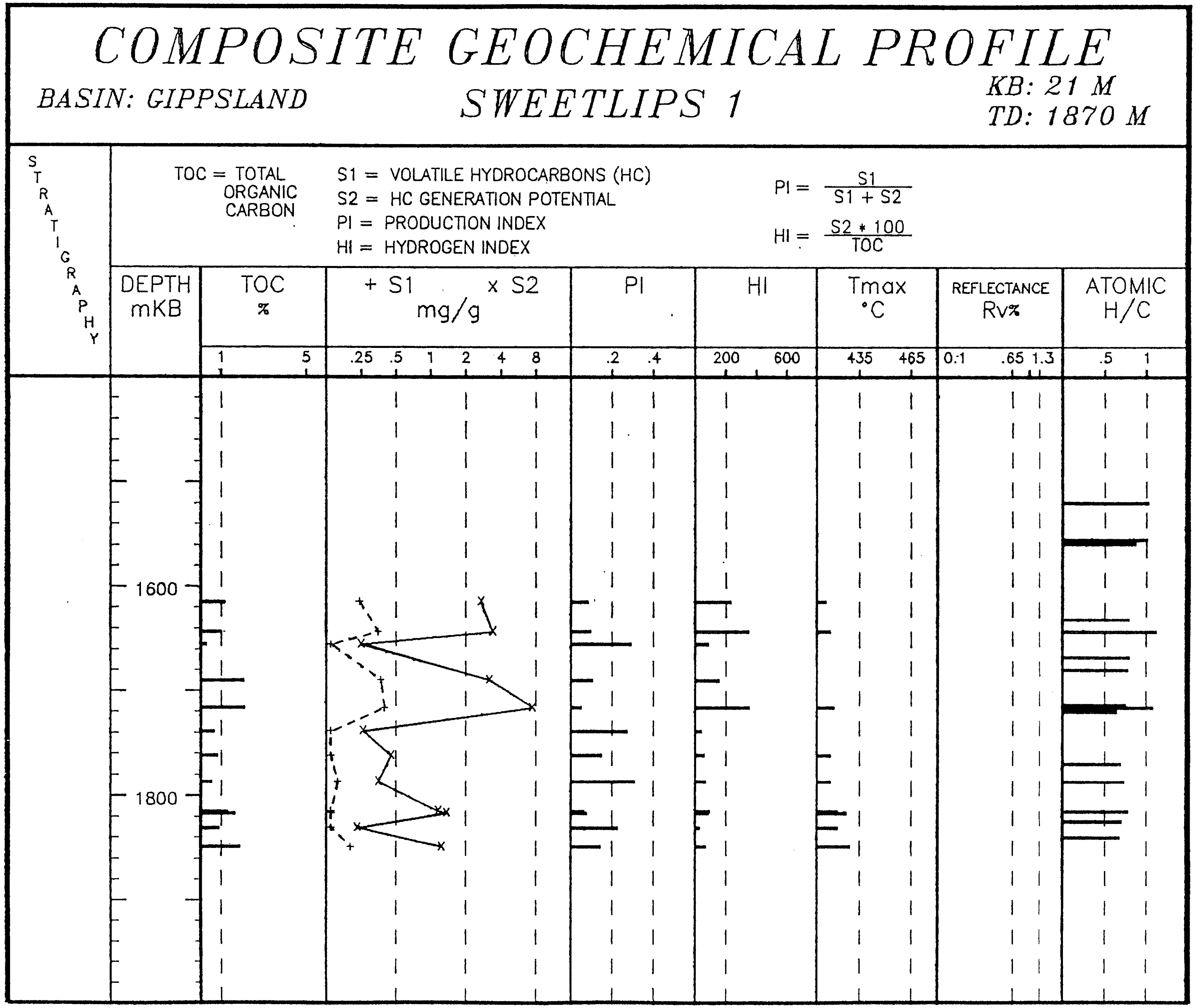
WELL: SWEETLIPS 1

SAMPLE	DEPTH (m)	API Gravity	C12+ % Total Oil	Hydrocarbons Sats %	Hydrocarbons Arom %	Hydrocarbons Total %	Non-HCs Eluted NSO %	Non-HCs Non-El NSO %	Non-HCs Asph %	Non-HCs Total %	Ratios Sat/Arom	Ratios HC/Non-HC
RFT 3/21	1563	40.0	77.1	84.5	10.2	94.7	2.9	1.8	0.6	5.3	8.28	27.1

TABLE 7 HYDROCARBON RATIOS

WELL: SWEETLIPS 1

SAMPLE	DEPTH (m)	Ratios Pr/Ph	Ratios Pr/nC17	Ratios Ph/nC18	Ratios TMTD/Pr
RFT 3/21	1563	5.64	0.51	0.09	0.44



COMPOSITE GEOCHEMICAL PROFILE
BASIN: GIPPSLAND
SWEETLIPS 1
KB: 21 M
TD: 1870 M
STRATIGRAPHY
TOC = TOTAL ORGANIC CARBON
S1 = VOLATILE HYDROCARBONS (HC)
S2 = HC GENERATION POTENTIAL
PI = PRODUCTION INDEX
HI = HYDROGEN INDEX
PI = S1 / S1 + S2
HI = S2 * 100 / TOC
DEPTH mKB
TOC %
+ S1 x S2 mg/g
PI
HI
Tmax °C
REFLECTANCE Rv%
ATOMIC H/C
1 5
.25 .5 1 2 4 8
.2 .4
200 600
435 465
0.1 .65 1.3
.5 1
1600
1800

Figure 1

Figure 2

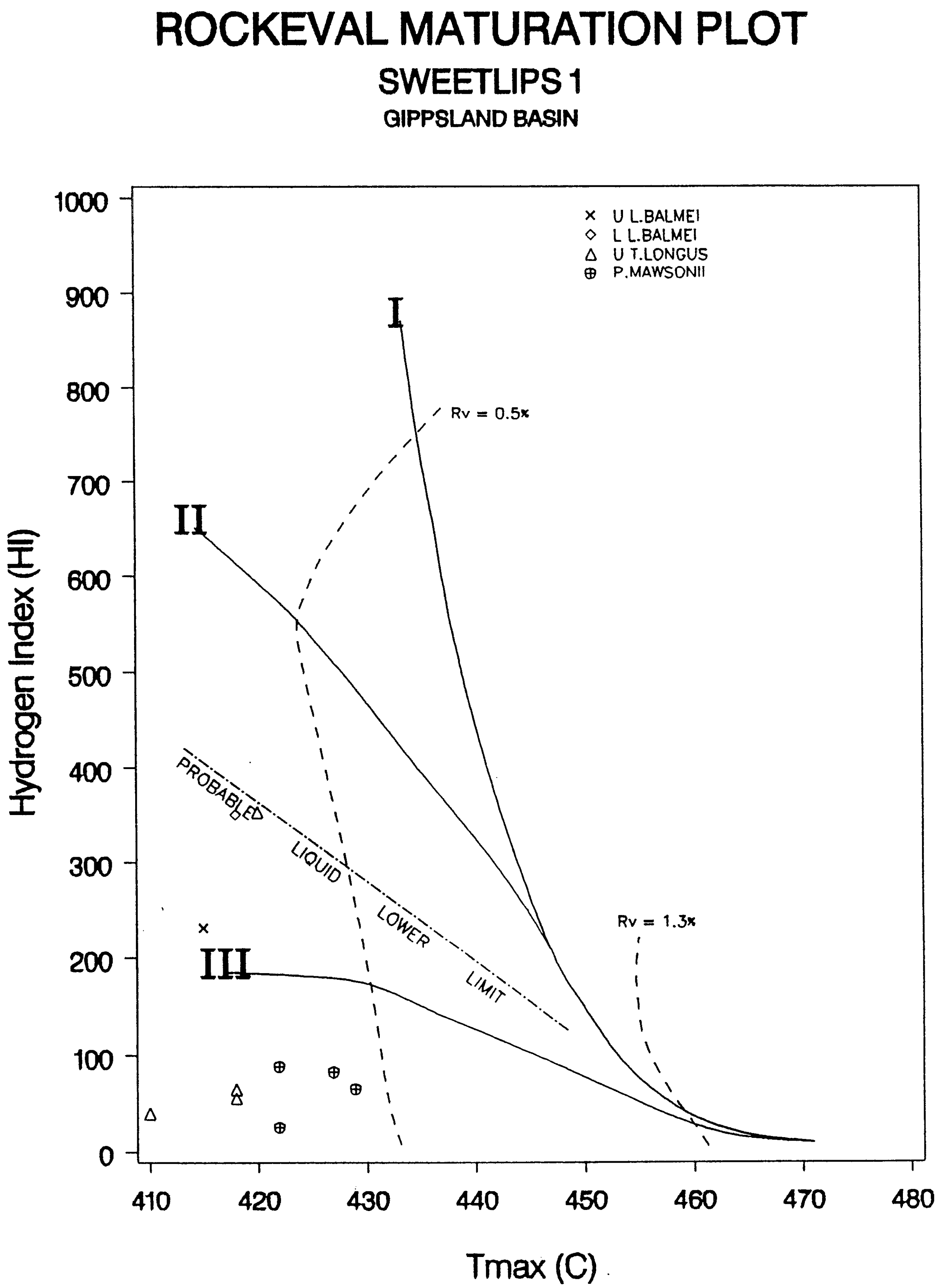
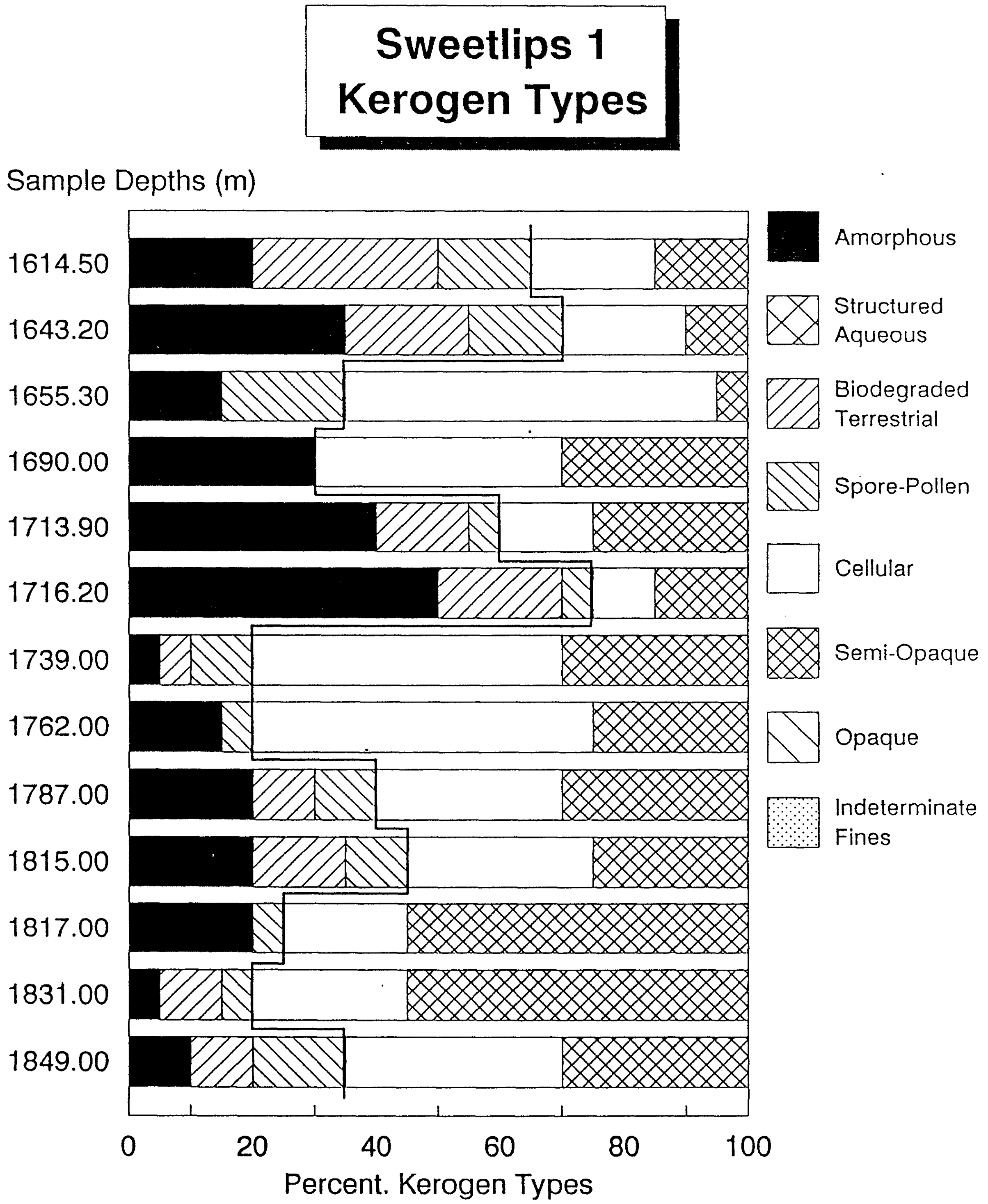
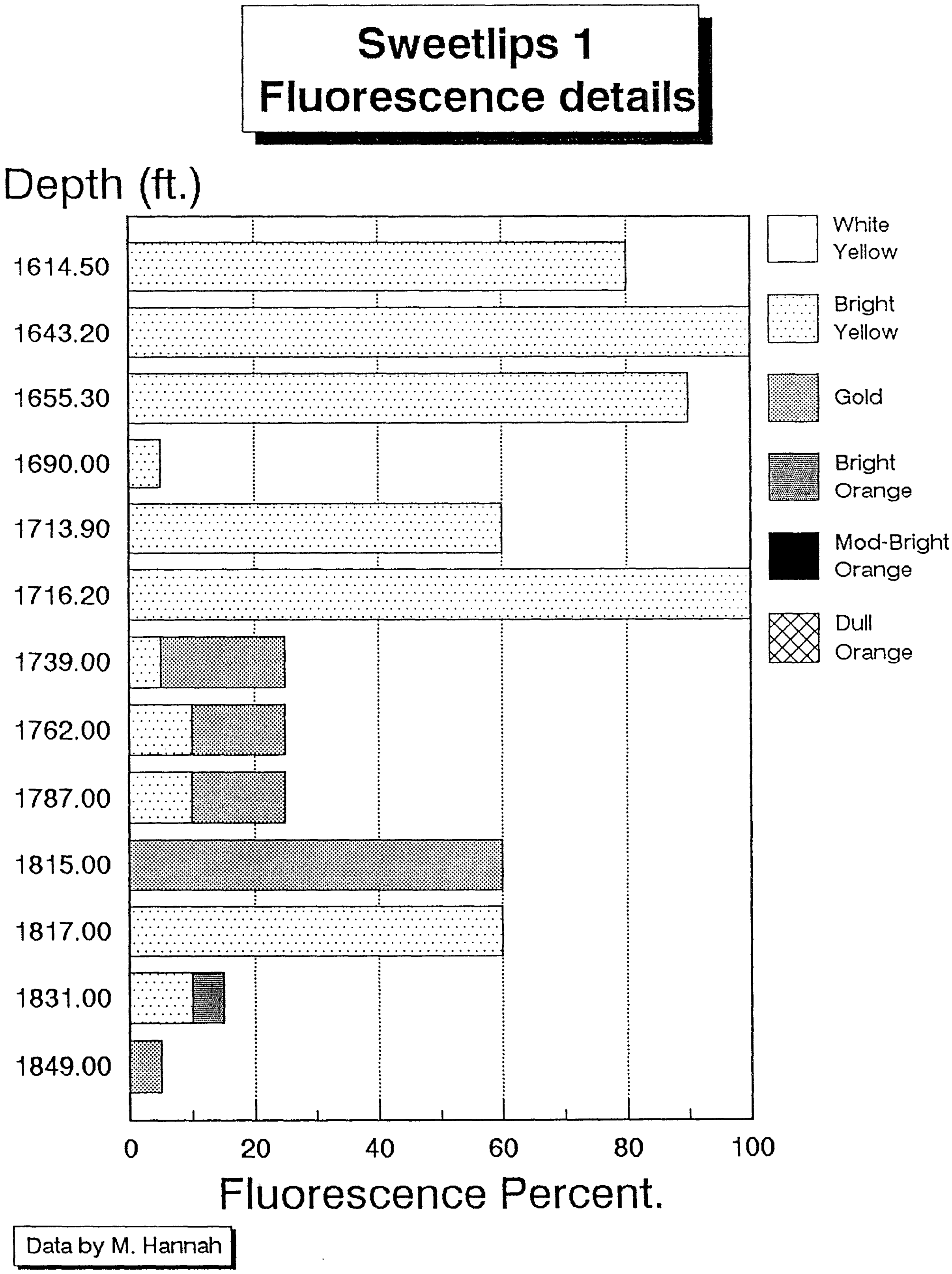

ROCKEVAL MATURATION PLOT
SWEETLIPS 1
GIPPSLAND BASIN
Hydrogen Index (HI)
Tmax (C)
U L.BALMEI
L L.BALMEI
U T.LONGUS
P.MAWSONII
I
II
III
Rv = 0.5%
Rv = 1.3%
PROBABLE LIQUID LOWER LIMIT
0
100
200
300
400
500
600
700
800
900
1000
410
420
430
440
450
460
470
480

Figure 3



Oil prone types shown to the left of the heavy line.
Data by M. Hannah

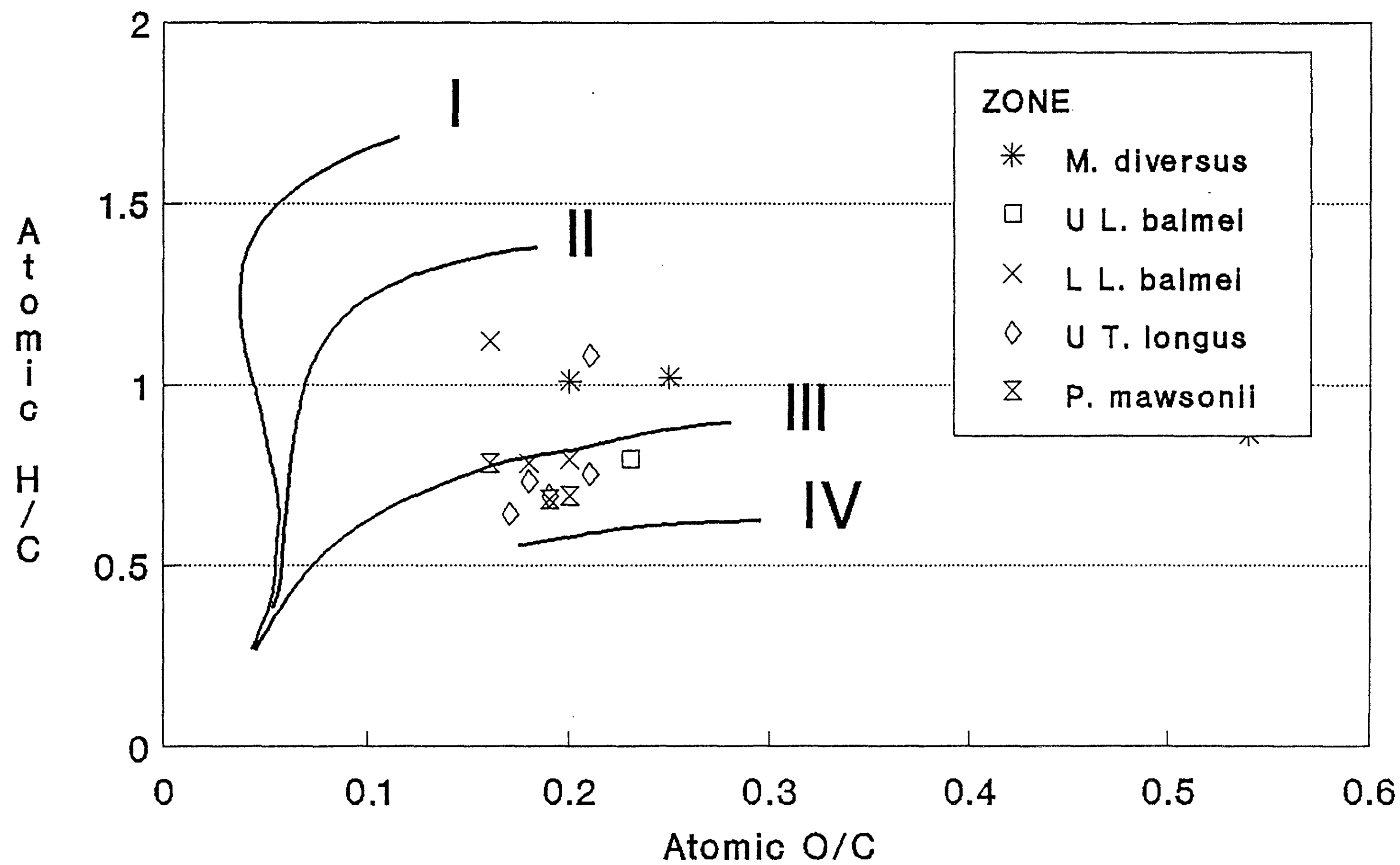
Figure 4



Sweetlips 1
Fluorescence details
Depth (ft.)
1614.50
1643.20
1655.30
1690.00
1713.90
1716.20
1739.00
1762.00
1787.00
1815.00
1817.00
1831.00
1849.00
0
20
40
60
80
100
Fluorescence Percent.
White Yellow
Bright Yellow
Gold
Bright Orange
Mod-Bright Orange
Dull Orange
Data by M. Hannah

Figure 5

SWEETLIPS 1



Van Krevelen Plot

E

Figure 6

Hydrogen Index vs Kerogen H/C
Sweetlips 1

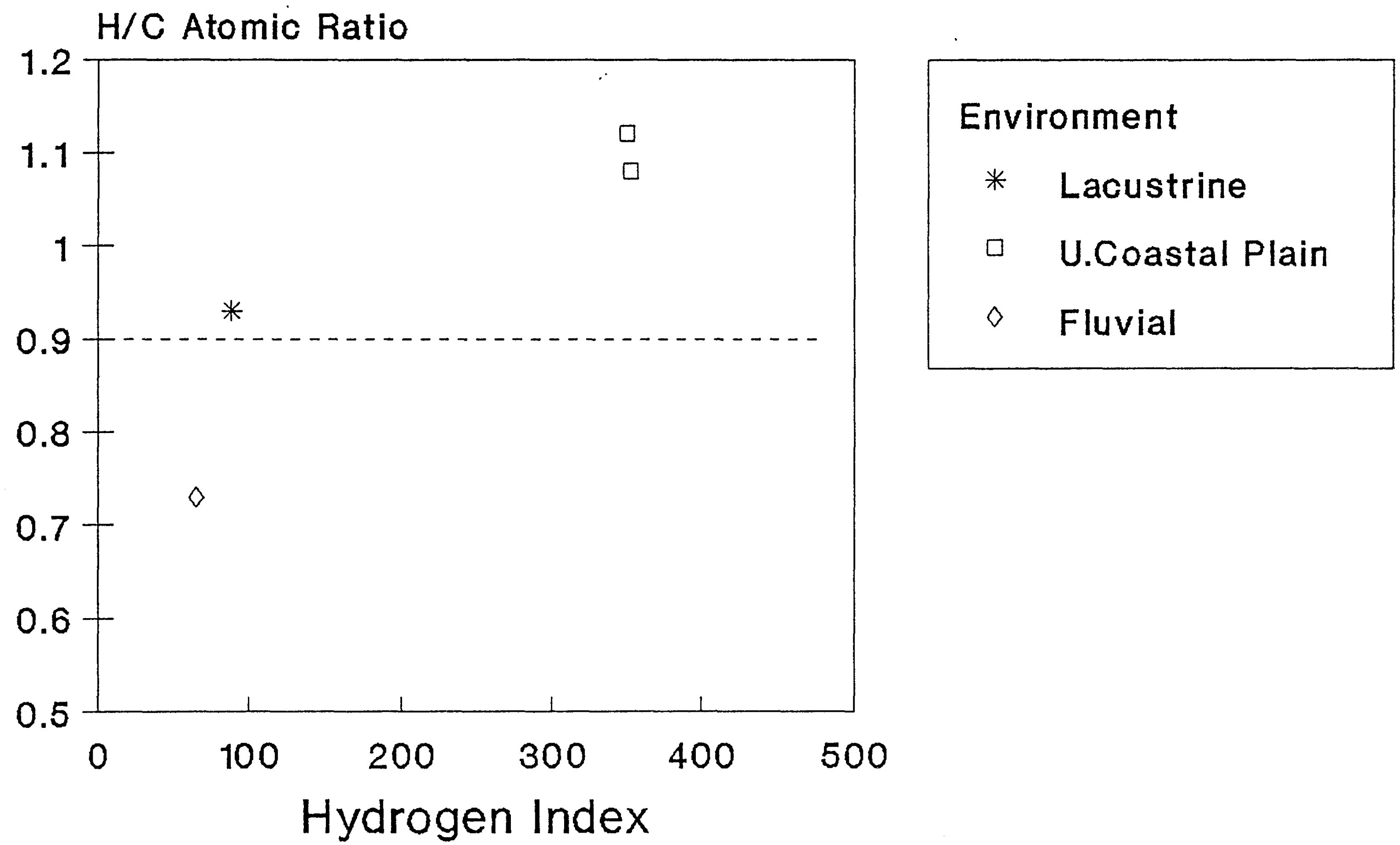


Figure 7

SWEETLIPS 1

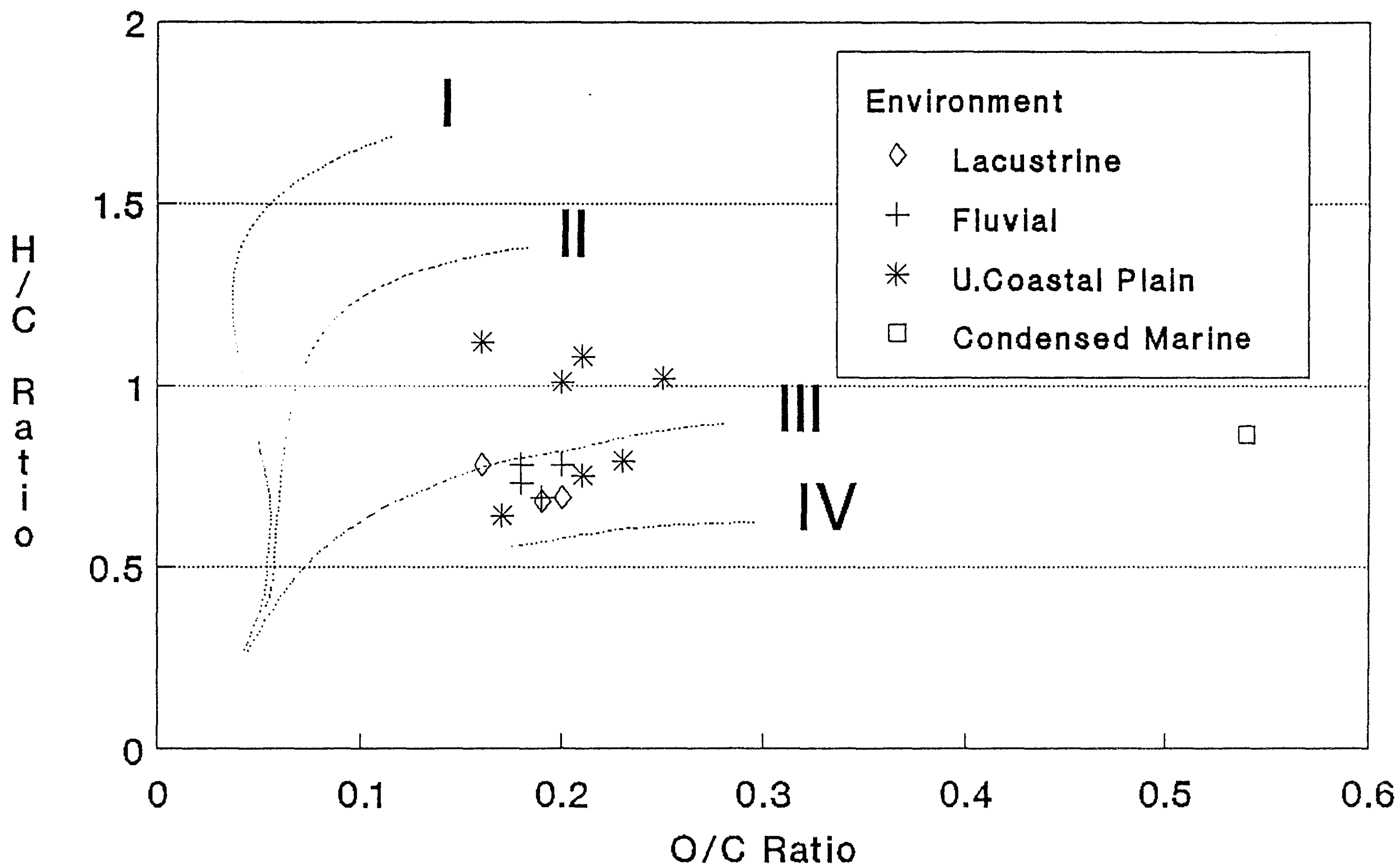
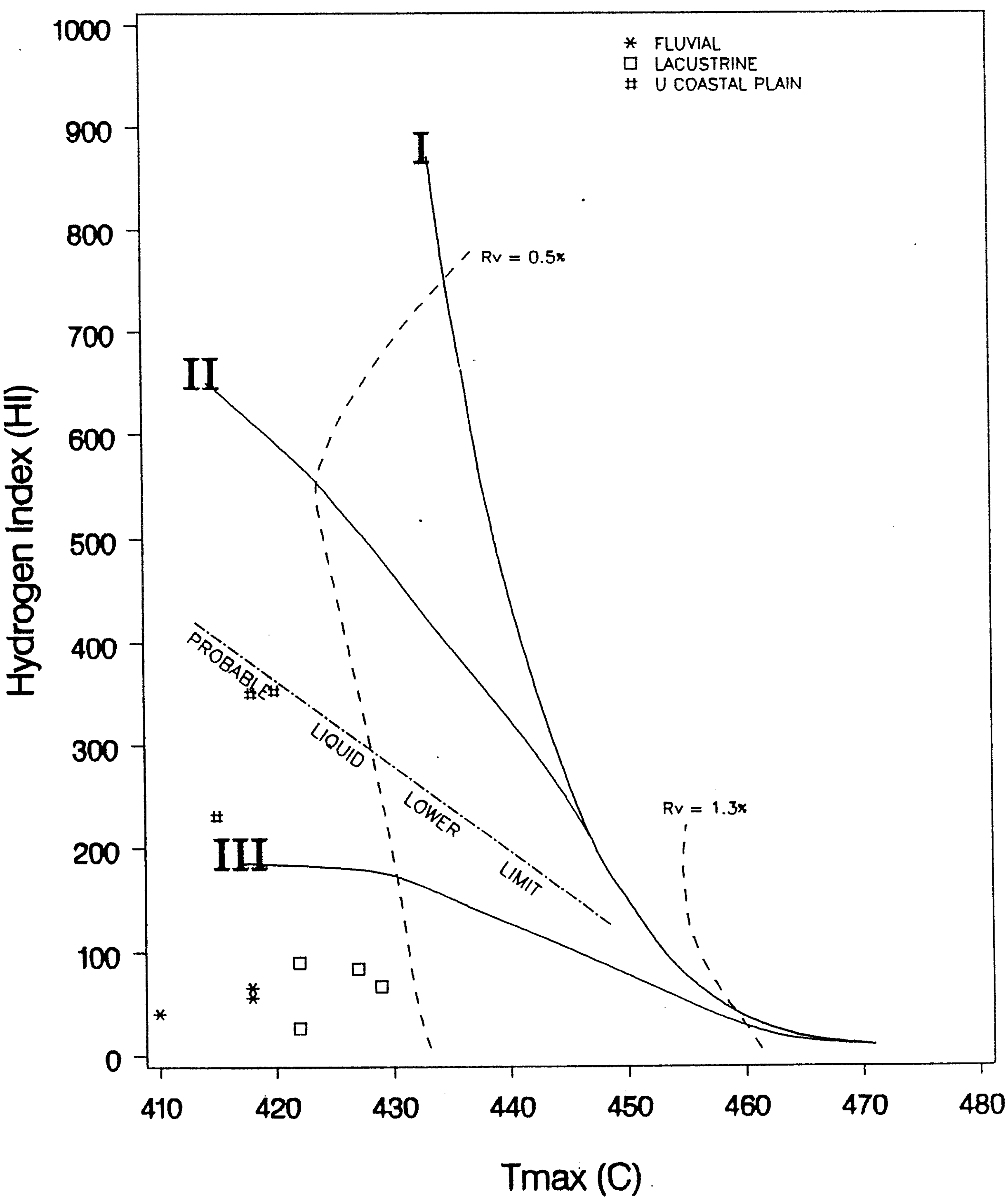


Figure 8

ROCKEVAL MATURATION PLOT

SWEETLIPS 1

GIPPSLAND BASIN



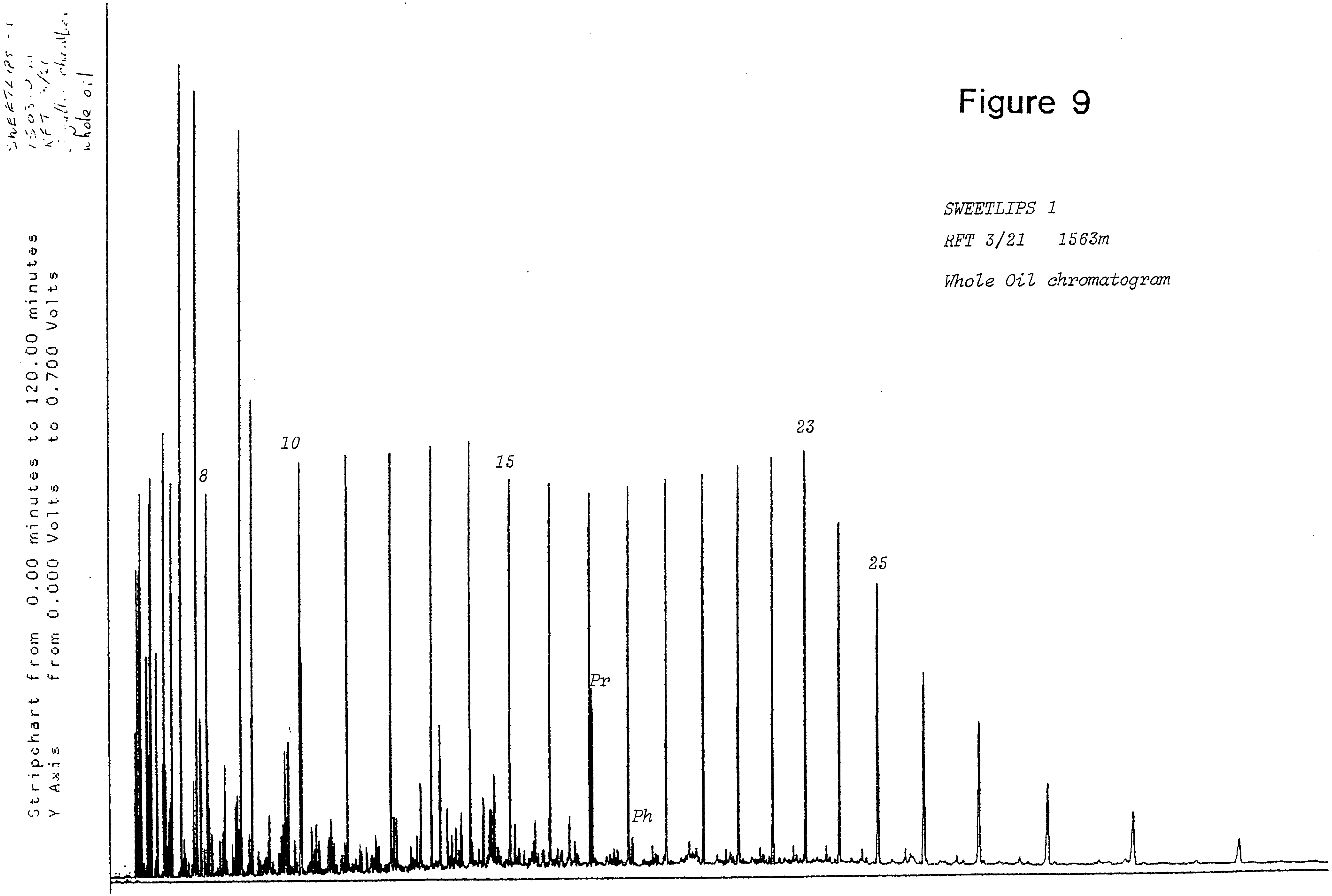
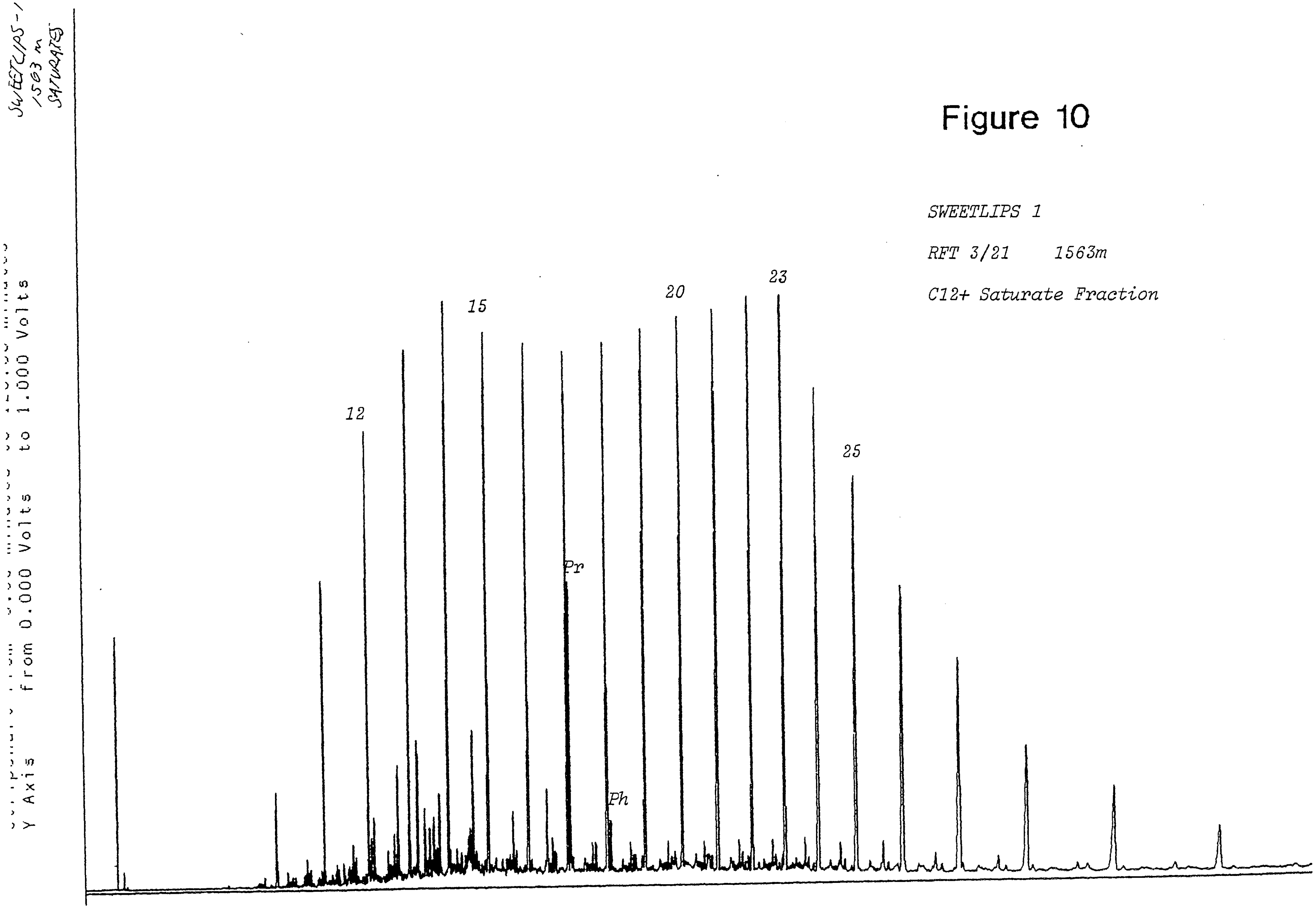

Stripchart from 0.00 minutes to 120.00 minutes
Y Axis from 0.000 Volts to 0.700 Volts
SWEETLIPS 1
RFT 3/21 1563m
Whole Oil chromatogram
8
10
15
Pr
Ph
23
25

Figure 9

Figure 10


SWEETLIPS 1
RFT 3/21 1563m
C12+ Saturate Fraction
12
15
20
23
25
Pr
Ph
Y Axis from 0.000 Volts to 1.000 Volts
Stripchart from 0.00 minutes to 120.00 minutes
SWEETLIPS-1
1563 m
SATURATES

APPENDIX 6

CORE ANALYSIS

TO BE DISTRIBUTED SEPARATELY

ENCLOSURES

PE902130

This is an enclosure indicator page.
The enclosure PE902130 is enclosed within the container PE902128 at this location in this document.

The enclosure PE902130 has the following characteristics:

```
     ITEM_BARCODE = PE902130
CONTAINER_BARCODE = PE902128
             NAME = Structural Cross Section
            BASIN = GIPPSLAND
           PERMIT =
             TYPE = WELL
          SUBTYPE = CROSS_SECTION
      DESCRIPTION = Structural Cross Section
          REMARKS =
     DATE_CREATED = 1/02/90
    DATE_RECEIVED = 2/05/90
             W_NO = W1003
        WELL_NAME = Sweetlips-1
       CONTRACTOR = ESSO
     CLIENT_OP_CO = ESSO
```

(Inserted by DNRE - Vic Govt Mines Dept)

PE902129

This is an enclosure indicator page.
The enclosure PE902129 is enclosed within the container PE902128 at this location in this document.

The enclosure PE902129 has the following characteristics:

```
     ITEM_BARCODE = PE902129
CONTAINER_BARCODE = PE902128
             NAME = Structure Map - Top Coarse Clastics
            BASIN = GIPPSLAND
           PERMIT =
             TYPE = SEISMIC
          SUBTYPE = HRZN_CONTR_MAP
      DESCRIPTION = Structure Map - Top Coarse Clastics
          REMARKS =
     DATE_CREATED = 1/09/89
    DATE_RECEIVED = 2/05/90
             W_NO = W1003
        WELL_NAME = Sweetlips-1
       CONTRACTOR = ESSO
     CLIENT_OP_CO = ESSO
```

(Inserted by DNRE - Vic Govt Mines Dept)

PE902131

This is an enclosure indicator page.
The enclosure PE902131 is enclosed within the container PE902128 at this location in this document.

The enclosure PE902131 has the following characteristics:

ITEM_BARCODE =	PE902131
CONTAINER_BARCODE =	PE902128
NAME =	Structure map - 54.2 MY Sequence Boundary
BASIN =	GIPPSLAND
PERMIT =	
TYPE =	SEISMIC
SUBTYPE =	HRZN_CONTR_MAP
DESCRIPTION =	Structure map - 54.2 MY Sequence Boundary
REMARKS =	
DATE_CREATED =	1/02/90
DATE_RECEIVED =	2/05/90
W_NO =	W1003
WELL_NAME =	Sweetlips-1
CONTRACTOR =	ESSO
CLIENT_OP_CO =	ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE604641

This is an enclosure indicator page.
The enclosure PE604641 is enclosed within the container PE902128 at this location in this document.

The enclosure PE604641 has the following characteristics:

ITEM_BARCODE = PE604641
CONTAINER_BARCODE = PE902128
NAME = Mud Log
BASIN = GIPPSLAND
PERMIT = VIC/L10
TYPE = WELL
SUBTYPE = MUD_LOG
DESCRIPTION = Mud Log for Sweetlips-1
REMARKS =
DATE_CREATED = 8/07/89
DATE_RECEIVED = 2/02/90
W_NO = W1003
WELL_NAME = SWEETLIPS-1
CONTRACTOR = EXPLORATION LOGGING
CLIENT_OP_CO = ESSO AUSTRALIA LIMITED

(Inserted by DNRE - Vic Govt Mines Dept)

PE604642

This is an enclosure indicator page.
The enclosure PE604642 is enclosed within the container PE902128 at this location in this document.

The enclosure PE604642 has the following characteristics:

ITEM_BARCODE = PE604642
CONTAINER_BARCODE = PE902128
NAME = Mud Log
BASIN = GIPPSLAND
PERMIT = VIC/L10
TYPE = WELL
SUBTYPE = MUD_LOG
DESCRIPTION = Mud Log for Sweetlips ST-1
REMARKS =
DATE_CREATED = 17/08/89
DATE_RECEIVED = 2/02/90
W_NO = W1003
WELL_NAME = SWEETLIPS ST-1
CONTRACTOR = EXPLORATION LOGGING
CLIENT_OP_CO = ESSO AUSTRALIA LIMITED

(Inserted by DNRE - Vic Govt Mines Dept)

PE600981

This is an enclosure indicator page.
The enclosure PE600981 is enclosed within the container PE902128 at this location in this document.

The enclosure PE600981 has the following characteristics:

ITEM_BARCODE = PE600981
CONTAINER_BARCODE = PE902128
NAME = Well Completion Log
BASIN = GIPPSLAND
PERMIT =
TYPE = WELL
SUBTYPE = COMPLETION_LOG
DESCRIPTION = Well Completion Log
REMARKS =
DATE_CREATED = 8/08/89
DATE_RECEIVED = 2/05/90
W_NO = W1003
WELL_NAME = Sweetlips-1
CONTRACTOR = ESSO
CLIENT_OP_CO = ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE604652

This is an enclosure indicator page.
The enclosure PE604652 is enclosed within the container PE902128 at this location in this document.

The enclosure PE604652 has the following characteristics:

ITEM_BARCODE = PE604652
CONTAINER_BARCODE = PE902128
NAME = Well Completion Log
BASIN = GIPPSLAND
PERMIT = VIC/L10
TYPE = WELL
SUBTYPE = COMPLETION_LOG
DESCRIPTION = Well Completion Log for Sweetlips-1
REMARKS =
DATE_CREATED = 22/08/89
DATE_RECEIVED =
W_NO = W1003
WELL_NAME = SWEETLIPS-1
CONTRACTOR =
CLIENT_OP_CO = ESSO AUSTRALIA LIMITED

(Inserted by DNRE - Vic Govt Mines Dept)