PEP 118
OTWAY BASIN

SQUATTER No. 1

WELL COMPLETION REPORT
TEXT & APPENDICES

BY

A. BUFFIN
JANUARY
1988

TEXT AND APPENDICES

BEACH PETROLEUM N.L.

(Incorporated in South Australia)

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SQUATTER NO. 1.

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Sonic Log (BHC/GF)	1498 - 324 m (GR to surface)
Litho-Density/Compensated Neutron Log (LDL/CNL/GR)	1492 - 700 m
Cyberlook (Pass I and II)	1490 - 700 m
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SUMMARY

Squatter No. 1 was drilled as a wildcat exploration well in PEP 118, central Otway Basin, Victoria, approximately 30 km east of Mt. Gambier.

The prospect was a seismically defined, southerly tilted, minor horst block on the relatively stable Mumbannar Platform. The principle target horizon was a basal Upper Cretaceous Waarre Sandstone. Whilst secondary targets were the Upper Paaratte "Timboon Sands" and Intra Paaratte Sandstone units.

Participants in the well were; Beach Petroleum N.L. (operator), Gas & Fuel Exploration N.L., SOCDET Production Pty. Limited and CONEX Australia Ltd.

Drilling commenced on the 29th July, 1987 and reached a total depth of 1500m (KB) on the 5th August, 1987.

The primary objective proved to have poor porosity whilst the secondary objectives appeared to have poor to good porosities, though were water saturated.

Prior to abandonment, one wire line logging suite comprising DLL/MSFL, LDL/CNL, BHC/GR and WSS was completed.

Squatter No. 1 was plugged and abandoned as a dry hole on the 7th and 8th August, 1987.

1. INTRODUCTION

The Squatter No. 1 prospect was identified by the interpretation of both the Glenelg and the North Portland Seismic Surveys.

The structure is seismically defined as a southerly tilted minor horst block on the relatively stable Mumbannar Platform. The prospect is sited on the northern, upthrown side of the Tartwaup Fault Zone. Hydrocarbons, generated within the Lower Cretaceous Eumeralla Formation, were expected to have migrated along the Tartwaup Fault and moved laterally from the fault zone to accumulate within the basal Waarre sandstone reservoirs. Down-to-north normal faults juxtapose thick sealing units against the Waarre on the northern flank of the structure.

The well tested the hydrocarbon prospectivity of the basal Upper Cretaceous Waarre Sandstone reservoir. Secondary targets included the Upper Paaratte "Timboon Sands" and intra-Paaratte Sandstone units.

2. WELL HISTORY

2.1 Location (See Figure 1)

Co-ordinates:	Latitude 37° 52' 27.5" S Longitude 141° 08' 04.3" E
Geophysical Control:	Line GL85-250 Shotpoint 285 Beach Petroleum N.L. 1985 Glenelg Seismic Survey
Real Property Description:	Parish of Mumbannar Shire of Portland County of Follet
Property Owner:	C.H. & K.E. Milstead

2.2 General Data (See Figure 2)

Well Name and Number:	Squatter No. 1
Tenement:	PEP 118
Operator:	Beach Petroleum N.L. 685 Burke Road CAMBERWELL VIC 3124
Participants:	Beach Petroleum N.L. Gas and Fuel Exploration N.L. 151 Flinders Street MELBOURNE VIC 3000 SOCDET Production Limited 44 Margaret Street SYDNEY NSW 2000

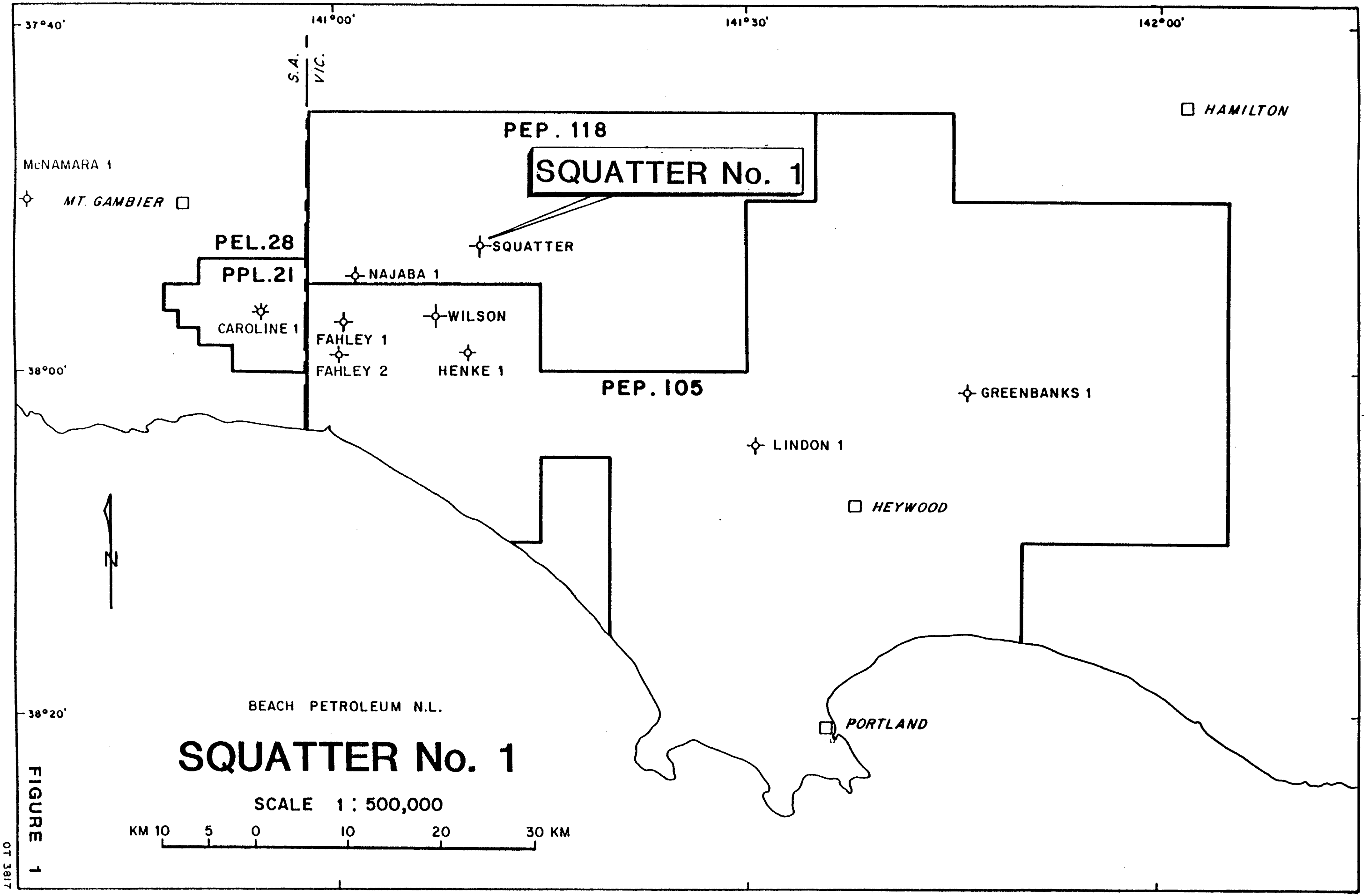
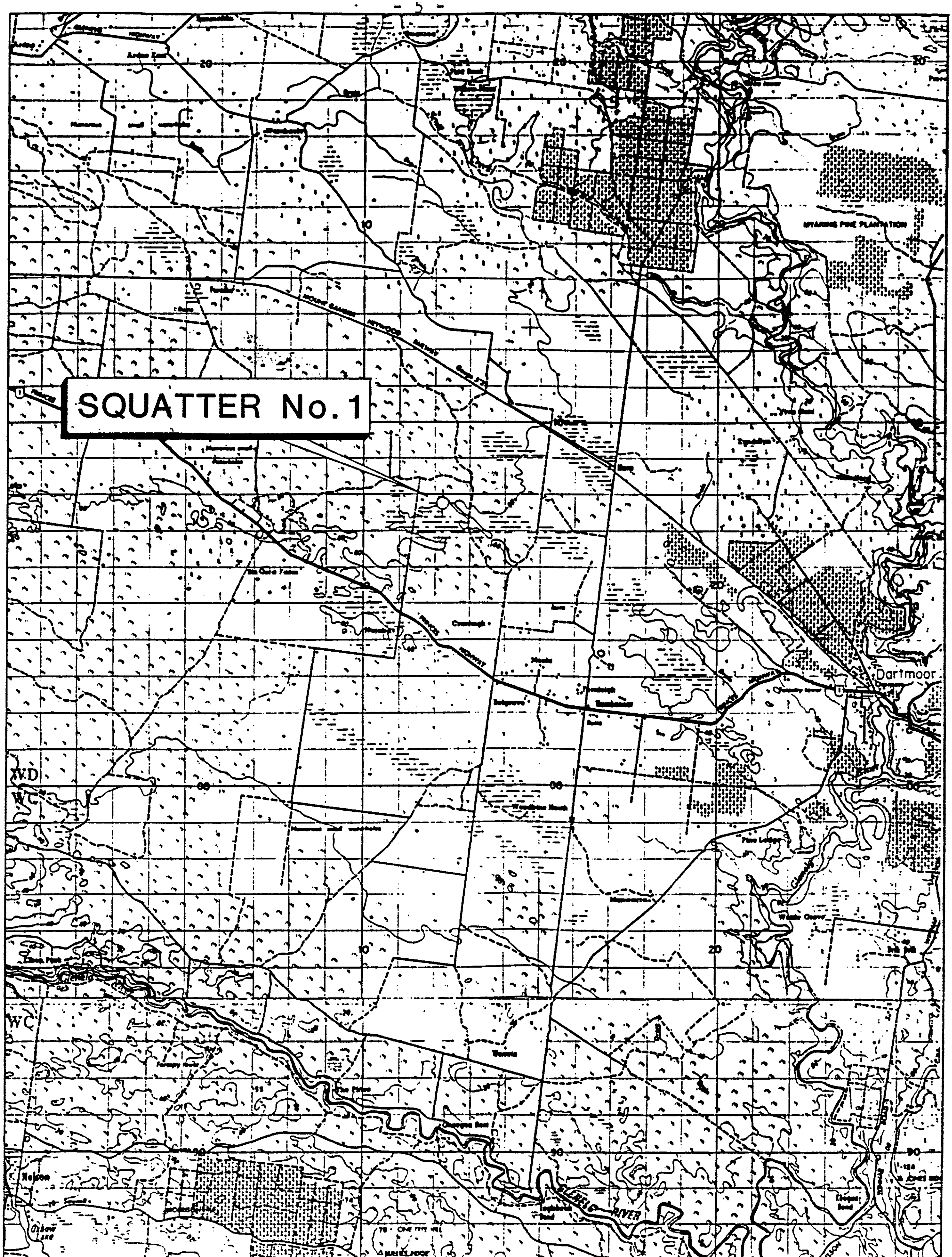

37°40'
141°00'
141°30'
142°00'
38°00'
38°20'
S.A.
VIC.
HAMILTON
PEP. 118
SQUATTER No. 1
McNAMARA 1
MT. GAMBIER
PEL.28
PPL.21
SQUATTER
NAJABA 1
CAROLINE 1
WILSON
FAHLEY 1
FAHLEY 2
HENKE 1
PEP. 105
GREENBANKS 1
LINDON 1
HEYWOOD
N
PORTLAND
BEACH PETROLEUM N.L.
SQUATTER No. 1
SCALE 1 : 500,000
KM 10 5 0 10 20 30 KM
OT 3817

FIGURE 1



BEACH PETROLEUM N.L.

SQUATTER No.1

DETAILED LOCATION MAP

0 1 2 3 4 5 6 7 Km

FIGURE 2

OT 3818

	CONEX Australia 106 Forrest Street COTTESLOE WA 6001
Elevation:	Ground Level 57.1m ASL Kelly Bushing 61.7m ASL (unless otherwise stated, all depths refer to KB.)
Total Depth:	Driller 1500 m Wireline Logger 1492 m
Drilling Commenced:	29 July, 1987 @ 0500 hours
Total Depth Reached:	5 August, 1987 @ 1930 hours
Rig Released:	8 August, 1987 @ 0800 hours
Drilling Time to T.D:	7½ days
Status:	Plugged and abandoned, dry hole.

2.3 Drilling Data (See also Appendices 1 and 2)

2.3.1 Drilling Contractor

O.D. & E. Pty Limited
Westport Road
ELIZABETH WEST SA 5112

2.3.2 Drilling Rig

O.D. & E. Rig 19, Kremco K600H.

2.3.3 Casing and Cementing Details

Conductor

A 16" conductor pipe was set at 13m KB.

Surface Casing

Size:	9-5/8"
Weight and Grade:	40 lb/ft K55 8rd
Float Collar:	311.69m
Shoe:	323.95m
Cement:	Preflush: 10 bbl water Lead: 240 sacks of Class "A" cement with 62 bbls of water and 2% Gel. Slurry volume 87 bbls, weight 12.6 ppg. Tail: 162 sacks of Class "A" cement with 20 bbls of water. Slurry volume 26 bbls, weight 15.8 ppg.
Cemented to:	Surface
Method:	Water displacement.
Equipment:	Dowell Schlumberger (Western) S.A. GM8V-71 Skid Mounted Cementing unit.

Cement Plugs

Plug No. 1

Interval:	1326m - 1274m
Cement:	65 sacks Class "A" neat
Tested:	No

Plug No. 2

Interval:	700m - 650m
Cement:	65 sacks Class "A" neat
Tested:	No

Plug No. 3

Interval:	328m - 262m
Cement:	65 sacks Class "A" neat
Tested:	Yes - 5000 lbs

2.3.4 Drilling Fluid (See Appendix 3 for details)

12¼" Hole (0m to 327m)

The well was spudded using a thick high viscosity lime flocculated Bentonite spud mud. Low hydraulic parameters were employed.

Mud properties were typically:

Weight:	9.0 ppg
Viscosity:	45 seconds

With the high yield points (PV/YP: 10/49) and gels (38/45) of the mud system, hole cleaning was no problem. Controlled penetration rates avoided overloading the hole.

8½" Hole (327m to T.D.)

The lime flocculated Bentonite mud from the 12¼" hole was retained to drill through the Dilwyn sands.

The mud system was converted to a KCl-Polymer mud system at the top Pember. Conversion was gradual enabling a filter cake to stabilize within the Dilwyn sands. Once mud properties stabilized, typical mud properties were:

Weight:	9.2 ppg
Viscosity:	40 sec/qt
Filtrate:	8.6 ml
KCl:	3.5-4.0%

Minor tight hole problems were experienced during trips through the Pember Mudstone and Paaratte Formations.

2.3.5 Water Supply

Fresh water was transported to the well site by water carrier.

2.4 Formation Sampling and Testing

2.4.1 Cuttings

Cuttings samples were collected at 10m intervals from 10m to 600m, and at 5m intervals from 600m to 1500m (T.D.).

Each sample was washed, oven dried, divided into 3 splits and stored in labelled polythene bags. The sample sets were distributed as follows:

One set to Beach Petroleum N.L.
One set to Gas and Fuel Exploration N.L.
One set to Victorian Department of Industry, Technology and Resources.

Additionally washed and air dried samples were placed in "samplex trays" at 10m intervals from 10m to 600m and at 5m intervals from 600m to 1500m (T.D.). The "samplex trays" were distributed as follows:

One set to Beach Petroleum N.L.
One set to SOCDET Production

Every 10m from surface to T.D. an unwashed cuttings sample was collected, stored in labelled calico bags and air dried. This set of samples has been retained by Beach Petroleum N.L. for possible future analysis.

2.4.2 Cores

(i) No conventional coring operations were performed.

(ii) No sidewall cores were attempted due to a failure of the Schlumberger tool.

2.4.3 Tests

No testing was performed.

2.5 Logging and Surveys (See Enclosure 1)

2.5.1 Mud Logging (See Enclosure 2)

A standard skid-mounted Exlog unit was used to provide penetration rate, continous mud gas monitoring, intermittent mud and cuttings gas analysis, pump rate and mud volume data. The Masterlog is included as Enclosure 2.

2.5.2 Wireline Logging (See Enclosure 3)

Wireline logging was performed by Schlumberger Seaco Incorporated using a Cyber Service Unit (CSU). One run was performed, the details are listed below:

Dual Laterolog Resistivity (DLL/SP/CAL/GR)	1488 - 324m
Micro-Spherically Focused Log (MSFL)	1488 - 700m
Sonic Log (BHC/GR)	1498 - 324m (GR to surface)
Litho-Density/Compensated Neutron Log (LDL/CNL/GR)	1492 - 700m

In addition the following CSU product was generated at the well site:

Cyberlook (Pass I & II)	1490 - 700m

2.5.3 Deviation Surveys

A Totco double recorder was used to measure hole deviation, the results of which are listed below:

Depth (m)	Deviation (°)
30.5	0.50
91	0.25
149	0.50
216	0.25
326	0.50
403	0.50
490	0.75
576	0.50
662	1.00
722	0.50
884	0.50
1047	1.00
1216	0.75
1490	0.50

2.5.4 Velocity Survey (See also Appendix 4)

A velocity survey was performed by Schlumberger Seaco Incorporated, the result of which is included as Appendix 4.

3. RESULTS OF DRILLING

3.1 Stratigraphy

The following stratigraphic intervals have been delineated using penetration rate, cuttings analysis and wireline log interpretation. All formations were present as predicted, although some formational Members were absent, notably the intra-Paaratte, Skull Creek and Nullawarre Greensand Members. Actual formation tops compare favourably to the prognosed tops and were generally easily identified (See Figures 3 and 4).

Group	Formation	Depth (m KB)	Depth (m Ss)	Thickness (m)
Quaternary/ Post Heystebury		surface	+62	37
Heytesbury		37	+25	138
Nirranda		175	-113	68
Wangerrip	Dilwyn	243	-181	382
	Pember	625	-563	165
	Pebble Point	790	-728	35
Sherbrook	Paaratte	825	-763	473
	Belfast	1298	-1236	97
	Waarre	1395	-1333	19
Otway	Eumeralla	1414	-1352	+86
	T.D.	1500	-1438	

3.2 Lithological Descriptions

3.2.1 QUATERNARY (Surface to 31m)

CALCARENITE, light grey to light brown, friable, fine to occasionally coarse grained, 90% fossil fragments (dominantly gastropods and shell fragments), trace calcilutite matrix, slightly argillaceous, good visual porosity.

BEACH PETROLEUM N.L.

SQUATTER No .1

PROGNOSED AND ACTUAL STRATIGRAPHY

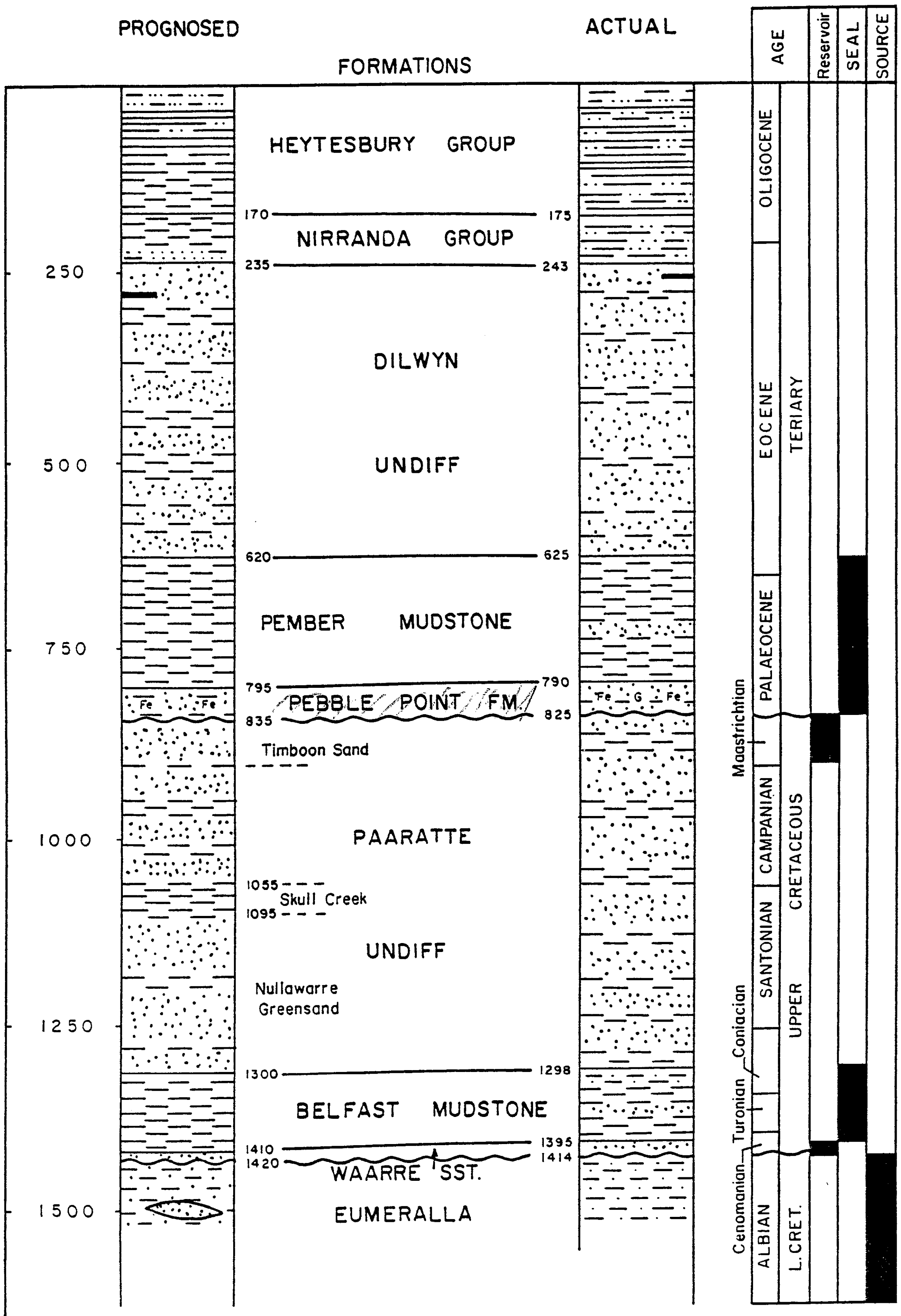


FIGURE 3

OT 3819

BEACH PETROLEUM N.L.

PEP 105/118 AND ENVIRONMENTS — OTWAY BASIN

STRATIGRAPHIC TABLE

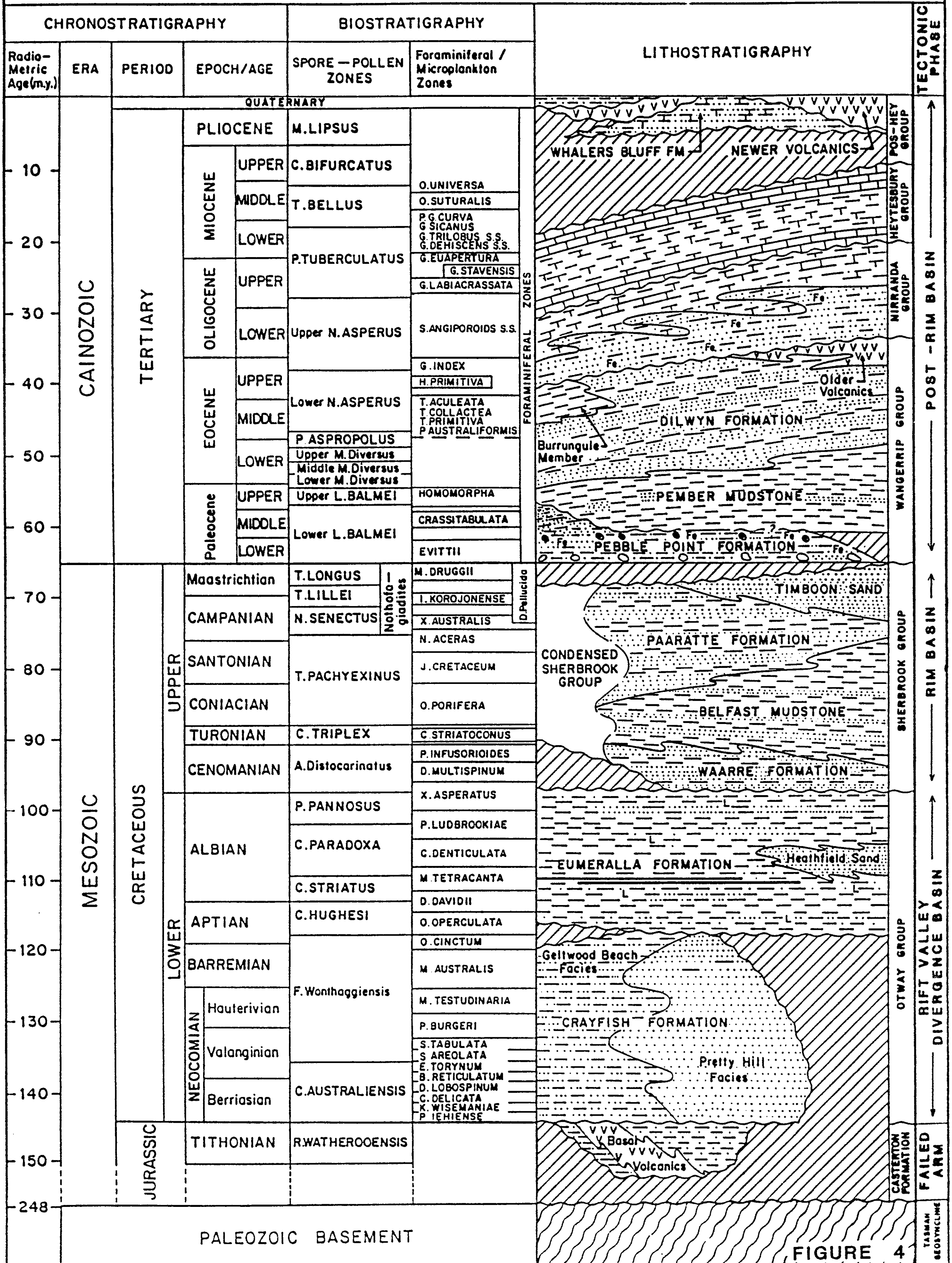


FIGURE 4

BASE MAP OT 3637

after AHMAD TABASSI. JUNE 1987
DRG No. OT. 3820 (F)

3.2.2 POST HEYSTESBURY GROUP (31m to 37m)

Whalers Bluff: 31m to 37 m

MARL, medium grey, very soft, sticky, 10% fossil fragments (dominantly gastropods and bivalves), trace black coally detritus, trace clear rounded coarse quartz sand grains.

3.2.3 HEYTESBURY GROUP (37m to 175m)

CALCARENITE, light grey to light brown, occasionally medium light brown, friable becoming hard with depth, fine to medium grained (occasionally coarse grained) dominantly fine grained, abundant fossil fragments, 70-90% bryozoa, trace shell fragments, gastropods, sponge spicules and echinoid spines, trace medium green glauconite becoming common with depth and common very fine to coarse grained, medium to dark brown iron oxide pellets, trace calcilutite and argillaceous matrix with occasionally medium brown oxide rich argillaceous matrix in part, rare carbonaceous matter, rare quartz sand grains, rare strong to very strong calcareous cement, good visual porosity becoming poor with depth.

Grading to: CALCILUTITE, light to medium grey, soft, sticky, trace to common glauconite, trace pyrite, trace medium brown, hard, cryptocrystalline CHERT, common argillaceous matrix, abundant bryozoan, common shell fragments, forams, echinoid spines, sponge spicules and gastropods.

3.2.4 NIRRANDA GROUP (175m to 1243m)

CALCILUTITE, medium green grey, occasionally light yellow green, moderately argillaceous, soft, sticky, trace coarse rounded quartz grains, trace dark brown firm blocky limonitic fragments, trace fossil fragments, becoming CALCARENITE, very light to light grey, loose, 90% bryozoa fossil fragments, slightly argillaceous becoming less fossiliferous with depth.

3.2.5 WANGERRIP GROUP (243m to 825m)

Dilwyn Formation: 243m to 625m

From 243 to 560m, SANDSTONE, clear to translucent, very occasionally light brown grey, loose, fine to very coarse, occasionally pebble, poor to moderate sorting, subangular to rounded, occasionally well rounded, trace brown to brown grey clay matrix, trace carbonaceous material, trace pyrite, very good inferred visual porosity, no fluorescence, occasionally interbedded with CLAYSTONE, medium to dark brown grey, soft, subfissile to blocky, silty to very silty in part, very dispersive, trace very fine disseminated carbonaceous specks, occasionally coarse mica flakes, and very occasional COAL, black, soft to moderate firm, blocky, dull lustre, silty in part, trace pyrite, uneven fracture.

From 560m to 625m, SANDSTONE, light brown grey, loose, very fine to granule, dominantly coarse grained, subangular to subrounded, moderate sorting, trace grey and brown lithics, black coally detritus, medium grey argillaceous matrix, minor to common coarse mica flakes, very weak silica cement and occasionally pyrite cement, good visual porosity, with occasional CLAYSTONE, as from 243m to 560m.

Pember Mudstone Member

625m to 790m

From 625m to 716m, CLAYSTONE, medium brown, occasionally medium to dark brown grey, soft, very dispersive, sticky, massive, very silty in part, slightly carbonaceous, trace pyrite, very fine quartz sand, common cryptocrystalline DOLOMITE, trace mica flakes, with minor interlaminations of SILTY SANDSTONE, off white, friable to hard, silty to fine grained (dominantly very fine), subangular to subrounded, moderately sorted, quartzose, trace black coally laminae, trace pyrite, strong calcareous cement and matrix, occasional moderate dolomite cement, no visual porosity, very minor COAL, black, firm to hard, occasionally brittle, earthy texture, blocky to occasionally platey fracture, trace disseminated pyrite, very occasional fine sand.

From 716m to 719m, SANDSTONE, light grey, loose, very fine to fine, dominantly fine, subangular to subrounded, well sorted, quartz with common yellow and orange quartz grains, common coarse muscovite flakes, no visual matrix or cement, fair inferred visual porosity.

From 719m to 790m, CLAYSTONE, light to medium grey, soft, very dispersive, sticky, moderately silty in part, trace very fine carbonaceous specks, trace very fine to fine subangular to subrounded quartz sand, trace pyrite, common medium brown cryptocrystalline dolomite, toward base of unit, trace black coally laminae and occasional fossil fragments with rare forams.

Pebble Point Formation

790m to 825m

From 790m to 801m, thin DOLOMITE band, medium brown hard, cryptocrystalline, moderately argillaceous, trace glauconite, with underlying GLAUCONITIC CLAYSTONE, dark green grey, soft, massive, abundant glauconite, very silty, trace micromicaceous, trace pyrite, very carbonaceous, trace quartz sand.

From 801m to 825m, SANDSTONE, light brown grey to medium green, loose, friable, very fine to very coarse grained, dominantly coarse, angular to subangular, poor to moderately sorted, quartz with a common brown oxide stain or green glauconite stain, trace to dominant, medium brown and/or medium green argillaceous matrix, trace iron oxide, trace dolomitic and siliceous cement, fair to poor visual porosity.

3.2.6 SHERBROOK GROUP (825m to 1414m)

Paaratte Formation: 825m to 1298m

From 825m to 1060m, SANDSTONE, light grey, friable to loose, fine to very coarse, occasionally pebble, dominantly coarse, poor to moderately sorted, subangular to subrounded, quartzose, trace medium grey lithics, trace coarse muscovite flakes, trace black coally detritus, trace medium brown to medium grey argillaceous matrix, matrix increasing with depth, weak siliceous cement and weak pyritic cement, good visual porosity becoming fair to poor with depth with occasionally interbedded CLAYSTONE, medium to dark grey, medium dark brown grey, soft, very dispersive, moderately carbonaceous moderately micromicaceous, trace pyrite, moderately silty in part.

From 1060m to 1223m, SANDSTONE, very light brown grey to light brown grey, friable to moderately hard, very fine to very coarse, dominantly coarse, subangular to subrounded, poor to moderate sorting, clear to milky quartz grains with common yellow and brown staining, trace to common red, grey and green lithics, common to abundant medium grey to medium green grey argillaceous and silty matrix, trace carbonaceous detritus, weak to moderate siliceous cement, trace to occasional dolomitic cement, trace to occasional pyritic cement, poor to very poor visual porosity, interlaminated with and grading to CLAYSTONE, medium to dark grey, becoming dark green grey with depth, soft, very dispersive, subfissile, moderately carbonaceous with common coally flecks and laminae, common green lithics, trace medium brown cryptocrystalline dolomite, trace pyrite, arenaceous in part.

From 1223m to 1298m, SANDSTONE, clear to very light grey with common yellow/grey quartz grains, loose to very occasionally hard, fine to very coarse grained moderately well sorted, subangular to subrounded, common siliceous cement, abundant medium grey to grey brown clay matrix, trace pyrite, common dark green glauconite, poor to fair visual porosity, interbedded with and grading into CLAYSTONE, medium to dark grey, soft, very dispersive, silty in part, trace very fine quartz grains, trace very fine carbonaceous specks, occasionally subfissile, occasionally grading into SILTY CLAYSTONE.

<u>Belfast Mudstone</u>	1298m to 1395m From 1298m to 1355m, <u>SILTY CLAYSTONE</u>, dark grey to medium grey, occasionally mottled very light grey, soft, very dispersive, sticky, abundant very fine, subangular to subrounded quartz grains, trace fine disseminated carbonaceous flecks, trace pyrite, becoming more dispersive with depth. From 1355m to 1370m, <u>SANDSTONE</u>, very light grey to off white, firm to hard, very fine to fine, well sorted, subangular to subrounded, trace siliceous and trace calcitic cement, abundant carbonaceous material, trace amber, poor visual porosity, becoming well cemented with depth, trace silt and clay matrix, trace dark green glauconite. From 1370m to 1395m, <u>CLAYSTONE</u>, medium grey to dark grey, very silty, very dispersive, soft, trace fine quartz sand laminations, trace glauconite, trace carbonaceous specks, trace pyrite, occasionally subfissile.
<u>Waarre Formation</u>	1395m to 1414m <u>SANDSTONE</u>, light to medium green grey, friable, silty to fine, dominantly very fine, subangular to subrounded, poor sorting, quartz grains exhibit common light green stain, common glauconite, occasional grey, yellow and red lithics, abundant silt and medium green

grey argillaceous matrix, very poor visual porosity.

3.2.7 OTWAY GROUP (1414m to 1500m)

Eumeralla Formation	1414m to 1500m CLAYSTONE, medium blue green-grey, medium grey, occasionally light to medium brown grey, soft, massive, trace very fine sand, trace black carbonaceous flecks, moderately silty in part, interbedded with SANDSTONE, light green grey, hard, very fine to fine, subrounded to subangular, moderately sorted, abundant green, red and grey lithics, common partly altered feldspar, abundant white argillaceous matrix, moderately calcareous cement in part, very poor visual porosity, traces of COAL, black, firm, platey to fibrous, common pyrite.

3.3 Hydrocarbons

3.3.1 Mud Gas Readings

Background gas readings remained very low throughout the well (trace to 10 ppm C_1). No gas peaks were associated with any of the potential reservoir sandstones.

3.3.2 Sample Fluorescence

Fluorescence was recorded in two sandstone units and appeared to be associated with mineral fluorescence.

A sandstone within the Belfast Mudstone (1355 - 1370m) exhibited 20-30% very dull orange brown mineral fluorescence with no cut.

A large part of the Waarre Sandstone (1405 - 1414m) displayed a trace dull orange mineral fluorescence.

Oil staining and hydrocarbon odour was not associated with those zones of mineral fluorescence nor any other portion of the well.

4. GEOLOGY

4.1 Squatter Structure

The Squatter Structure was delineated after the Glenelg 1985 Seismic Survey, and subsequently refined after the North Portland 1986 Seismic Survey.

Within this portion of the Tyrendarra Embayment a number of major down-to-basin normal faults trend in a WNW and ESE direction. Squatter #1 was located between the Tartwaup Fault to the south and an unnamed fault to the north on the Mumbannar Platform.

Squatter No. 1 primarily tested the hydrocarbon prospectivity of the basal Upper Cretaceous Waarre with the Upper Paaratte "Timboon Sands" representing a secondary target. The structure is a seismically defined southerly tilted minor horst block (Figure 5), situated approximately 4.2 km north of the Tartwaup Fault. The area of closure at Waarre level is 0.75 km^2 with 52m vertical thickness and an estimated net thickness of 10m (Figure 7). The area of closure at the "Timboon Sands" level is 3 km with 20m vertical closure and an estimated net thickness of 10m (Figure 6).

A comparison between the Schlumberger computer generated synthetic seismogram and the original migrated seismic profile at SP 285, line GL85-250, indicate a good tie for seismic events at near top Pebble Point and top Otway Group. Consequently, prognosed formation tops compare favourably with the actual formation tops, (Figure 3).

4.2 Porosity and Water Saturation

A Cyberlook Pass I and II was generated at the wellsite, and a wireline log evaulation performed by a log anaylst on site. The attached Cyberlook log (Enclosure 3) is based on the dual-water method, resulting in values of R_{wb} (boundwater) and R_{wf} (free water).

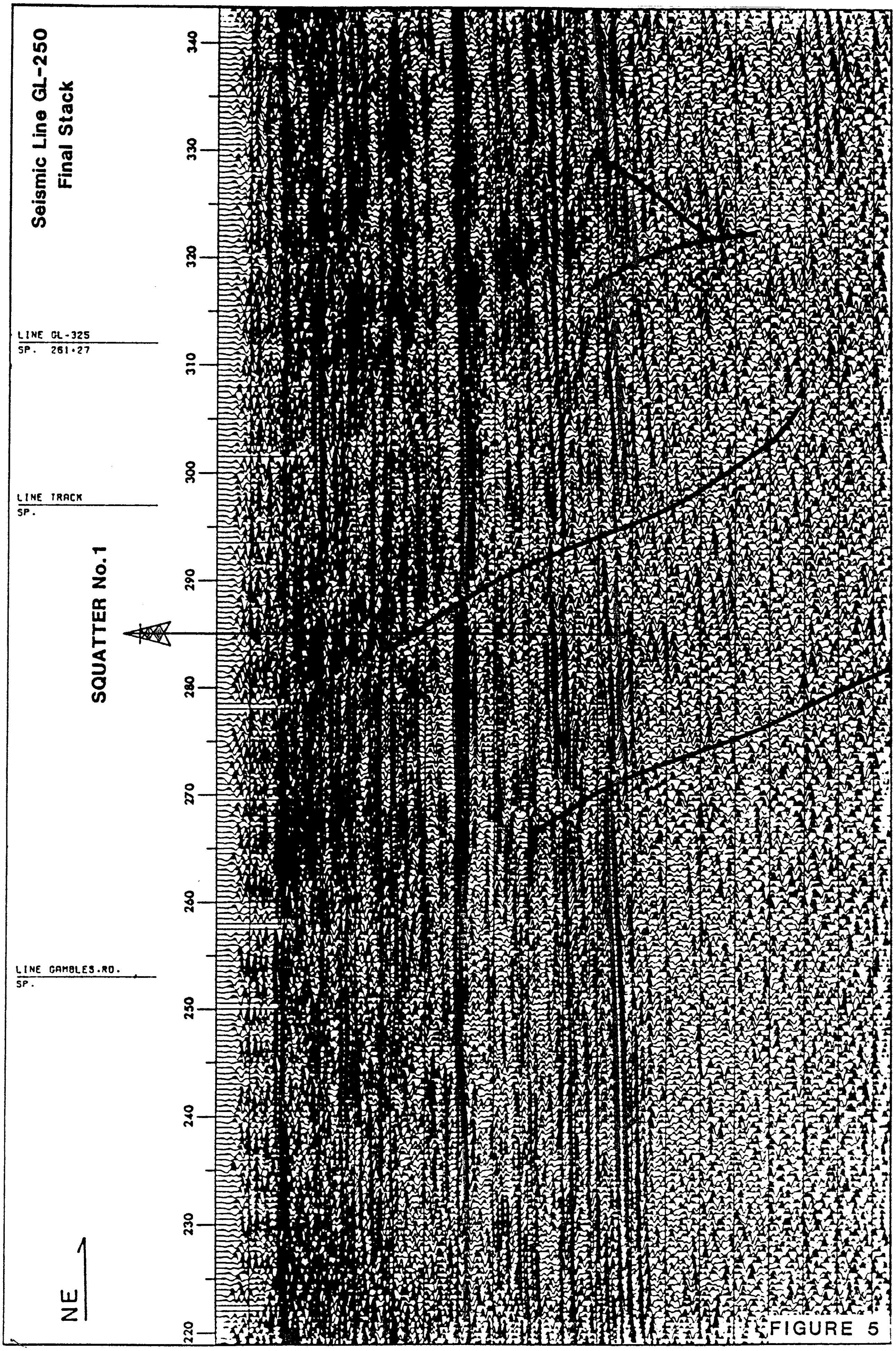
PE905883

This is an enclosure indicator page.
The enclosure PE905883 is enclosed within the container PE902197 at this location in this document.

The enclosure PE905883 has the following characteristics:

ITEM_BARCODE =	PE905883
CONTAINER_BARCODE =	PE902197
NAME =	Seismic Cross-Section
BASIN =	OTWAY BASIN
PERMIT =	PEP/118
TYPE =	SEISMIC
SUBTYPE =	SECTION
DESCRIPTION =	Seismic Cross-Section; line GL-250 final stack; (from WCR) for Squatter-1
REMARKS =	
DATE_CREATED =	
DATE_RECEIVED =	
W_NO =	W966
WELL_NAME =	SQUATTER-1
CONTRACTOR =	BEACH PETROLEUM NL.
CLIENT_OP_CO =	BEACH PETROLEUM NL.

(Inserted by DNRE - Vic Govt Mines Dept)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Final Stack
LINE GL-325
SP. 261·27
LINE TRACK
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SQUATTER No.1
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SP.
NE

FIGURE 5

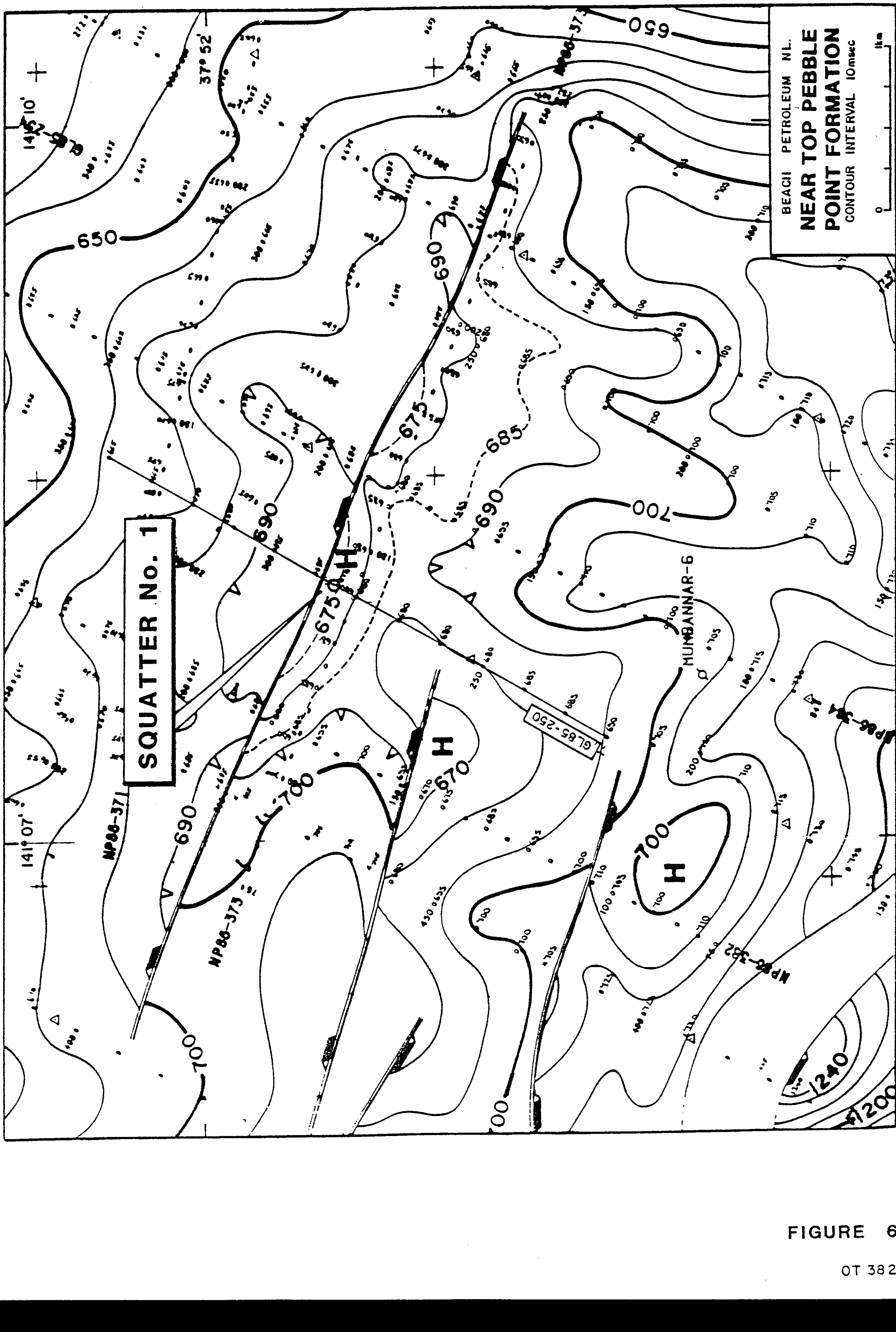


FIGURE 6

OT 3822

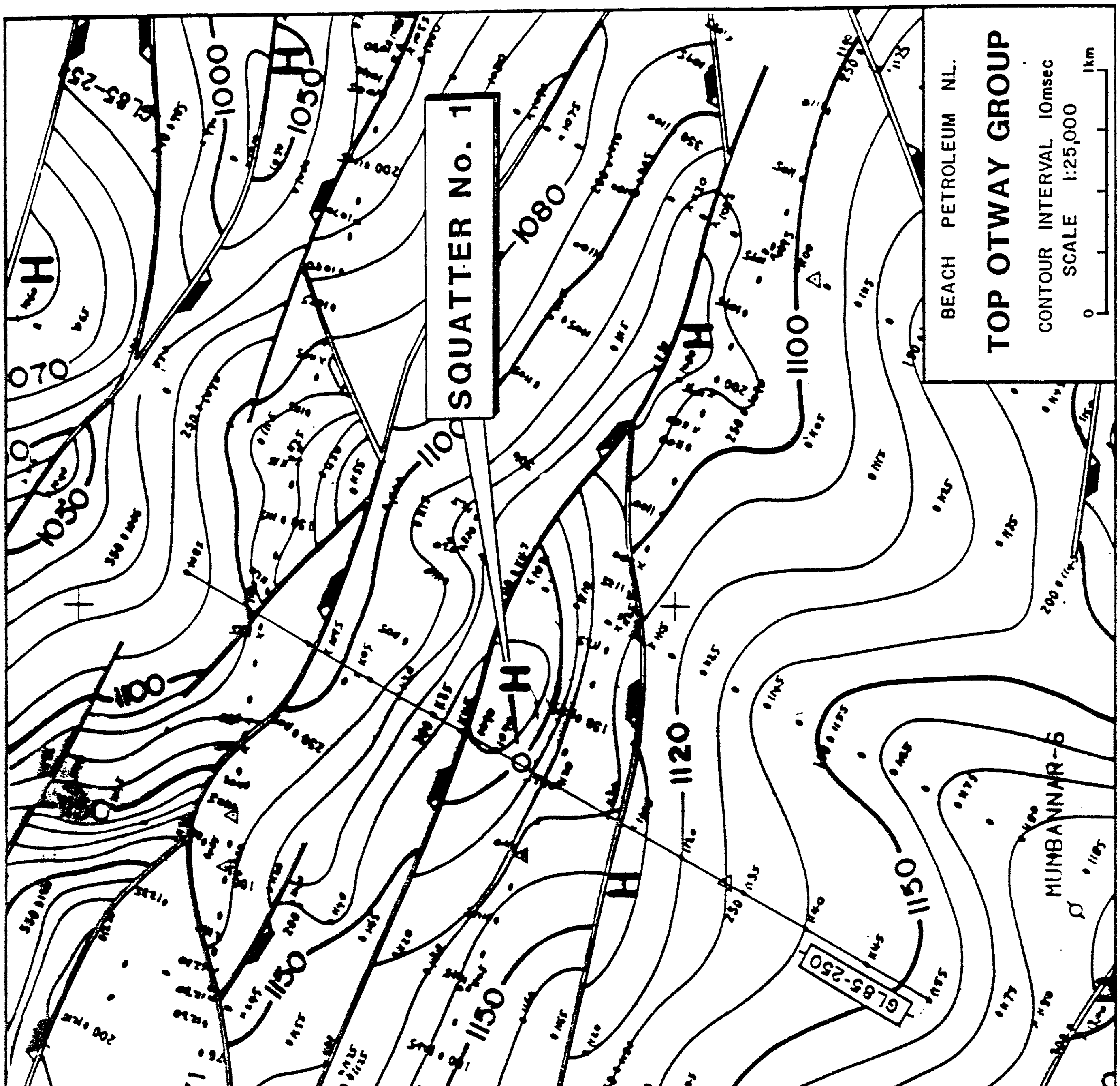


FIGURE 7

OT 3823

- Pebble Point Formation

The Pebble Point Formation is primarily an argillaceous unit with an upper glauconite claystone unit and a lower very fine to very coarse poorly sorted sandstone. The lower unit contains an abundant argillaceous matrix with common iron oxide and glauconite staining. The abundant glauconitic content within the Pebble Point Formation retarded an accurate log porosity determination, however visual porosity suggested poor porosity. The unit appears to be water saturated with salinities in the range 5000 ppm NaCl equivalent.

- Paaratte Formation

The Paaratte Formation consists of interbedded sandstones, siltstones and shales. The uppermost sandstone unit ("Timboon Sand") is composed of a clean, fine to very coarse, moderately sorted, quartzose sandstone. The clay volume is low, 10-20% and log determined porosities are generally good 25-30%. It appears to be water saturated with salinities in the range 2000 ppm, NaCl equivalent.

Sandstone units throughtout the Paaratte (undifferentiated) display log derived porosities of 15-20% and clay volumes of 20-30%. All sandstone units are water saturated with salinities between 2000 to 4000 ppm NaCl equivalent.

- Intra-Belfast Sandstone Unit

The Belfast Mudstone is a predominantly argillaceous unit with a very fine to fine, well sorted, well cemented sandstone unit between 1355m to 1370m. The sandstone's poor visual porosity is confirmed by log determined porosities of 5-10%. The formation is water saturated with salinity values of 9000 ppm NaCl equivalent.

- Waarre Formation

The Waarre is composed of a silty to very fine, poorly sorted sandstone with an abundant argillaceous matrix and has poor visual porosity. The Waarre fines upwards with a clay volume of 80%, increasing to 90% and log determined porosities between 0-5%. The sandstone is water saturated with salinity values 20,000 ppm NaCl equivalent.

- Eumeralla Formation

The Eumeralla Formation is a seqence of interbedded argillaceous sandstones and shales. The sandstones have a very high clay volume and generally low porosities (maximum readings of 10%). The formation is water saturated with salinity values of 18,000 ppm NaCl equivalent.

4.3 Maturation and Source Rock Analysis

Vitrinite reflectance estimates and total organic carbon analysis (TOC) were carried out on seven 10m composite cuttings samples from Squatter No. 1. Two samples were from Tertiary sediments, three samples from the Upper Cretaceous sediments and two samples from the Lower Cretaceous (Eumeralla Formation) sediments.

Results of the study (see Appendix 6 and Figure 8) were good and the vitrinite reflectance/TOC profile can be divided into two zones.

1. Tertiary and Upper Cretaceous sediments:
   Dispersed organic matter (DOM) was common. Within the Tertiary sediments vitrinite was common whilst throughtout the Upper Cretaceous sediments inertinite was common and vitrinite sparse. Vitrinite macerals however were present in reliable numbers to warrant good interpretive results that suggest the Tertiary and Upper Cretaceous Sediments are immature, though have potential as fair gas source rocks where TOC values exceed 1%.

2. Lower Cretaceous Sediments:
   Within the Eumeralla Sediments DOM is common. Vitrinite macerals are sparse, although present in numbers great enough to warrant good interpretive results. A rapid increase in

BEACH PETROLEUM N.L.

SQUATTER No.1

VITRINITE REFLECTANCE & TOTAL ORGANIC CARBON PROFILE

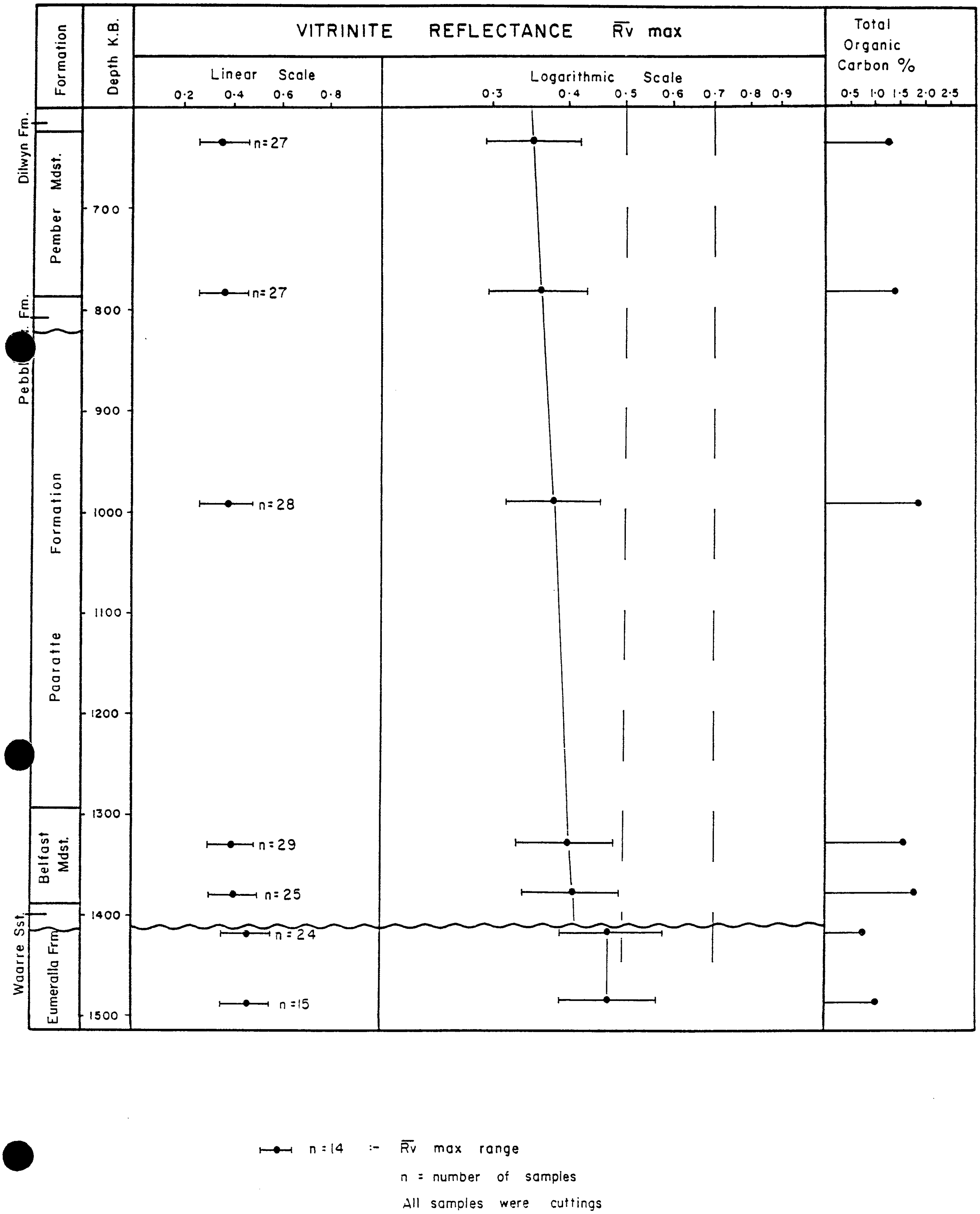


FIGURE 8

OT 3824

mean Rv values (see Figure 8), infers a possible unconformity between the Upper and Lower Cretaceous sediments. The values indicate that the organic matter is marginally mature for oil generation. TOC values within the Eumeralla sediments are generally lower than in the Tertiary and Upper Cretaceous sediments (average values within the Tertiary and Upper Cretaceous sediments are 1.4% whilst within the Eumeralla they fall to 0.8%).

In conclusion the sediments penetrated by the bit are immature to marginally mature for hydrocarbon generation. An uncomformity between the Upper and Lower Cretaceous sediments was inferred from vitrinite reflectance data. Finally, though the Eumeralla sediments are marginally mature, they appear relatively lean and display limited source rock potential.

4.4 Relevance to Occurance of Hydrocarbons

Squatter #1 was plugged and abandoned as a dry hole. The primary target, the basal Upper Cretaceous Waarre, appears to have poor porosity, whilst the secondary target, the Upper Cretaceous "Timboon Sands", though exhibiting good reservoir characteristics does not appear to have structural closure. Hydrocarbon indications were not observed at Squatter #1.

Listed below are some considerations pertinent to future hydrocarbon exploration in the area.

1. The reservoir quality of the Pebble Point Formation and the Waarre Sandstone is very poor with an abundant argillaceous matrix and poor visual porosity. Although the "Timboon Sands" exhibit improved reservoir characteristics the sandstone appears to have no structural closure.

2. The Pebble Point Formation is easily identified using both cutting descriptions and electric log interpretation. The cuttings samples are characterised by a typical glauconitic content and glauconitic or brown iron oxide staining on the quartz grains. Electric log identification of the Pebble

Point utilized the Gamma Ray, Sonic, Litho-density and PEF logs (See Enclosure 3). Employing cutting descriptions and a correlation with Mumbanner #6, located approximately 2.4 km south of Squatter #1, the Pebble Point is sub-divided into an upper glauconitic claystone and a lower, very fine to very coarse, poorly sorted sandstone.

3. At Squatter #1 on the upthrown side of the Tartwaup Fault there is no identifiable Nullawarre Greensand Member nor overlying Skull Creek Member.

4. The Waarre Formation (see Figure 9), represented by a fine grained tight sandstone, displays poor reservoir qualities with very poor porosity and an abundant argillaceous matrix. The formation is interpreted to be a very nearshore marine deposit (see Appendix 5). A sand of this nature may have potential for lateral variablity including the development of Waarre Sandstone with an improved reservoir character. The limited data throughout the region however restricts the possiblity to infer a direction in which good Waarre sandstone developed.

5. The sealing capacity of both the Pember Mudstone and the Belfast Mudstone appears to be adequate. The Belfast Mudstone at Squatter #1 includes a thin, fine grained sandstone unit which could possibly reduce sealing capacity. However this is thought to be unlikely.

6. Hydrocarbon entrapment within the Pebble Point Formation was not observed, this was either due to, no effective reservoir development, or that migration into the structure was inhibited.

   Although proven fault dependent closure at Waarre level was adequate, there was a substantial lack of hydrocarbons due again to poor reservoir development or restricted hydrocarbon migration.

7. A Schlumberger check shot survey (see Appendix 4) confirmed the seismic horizons picked at Pebble Point and Waarre levels

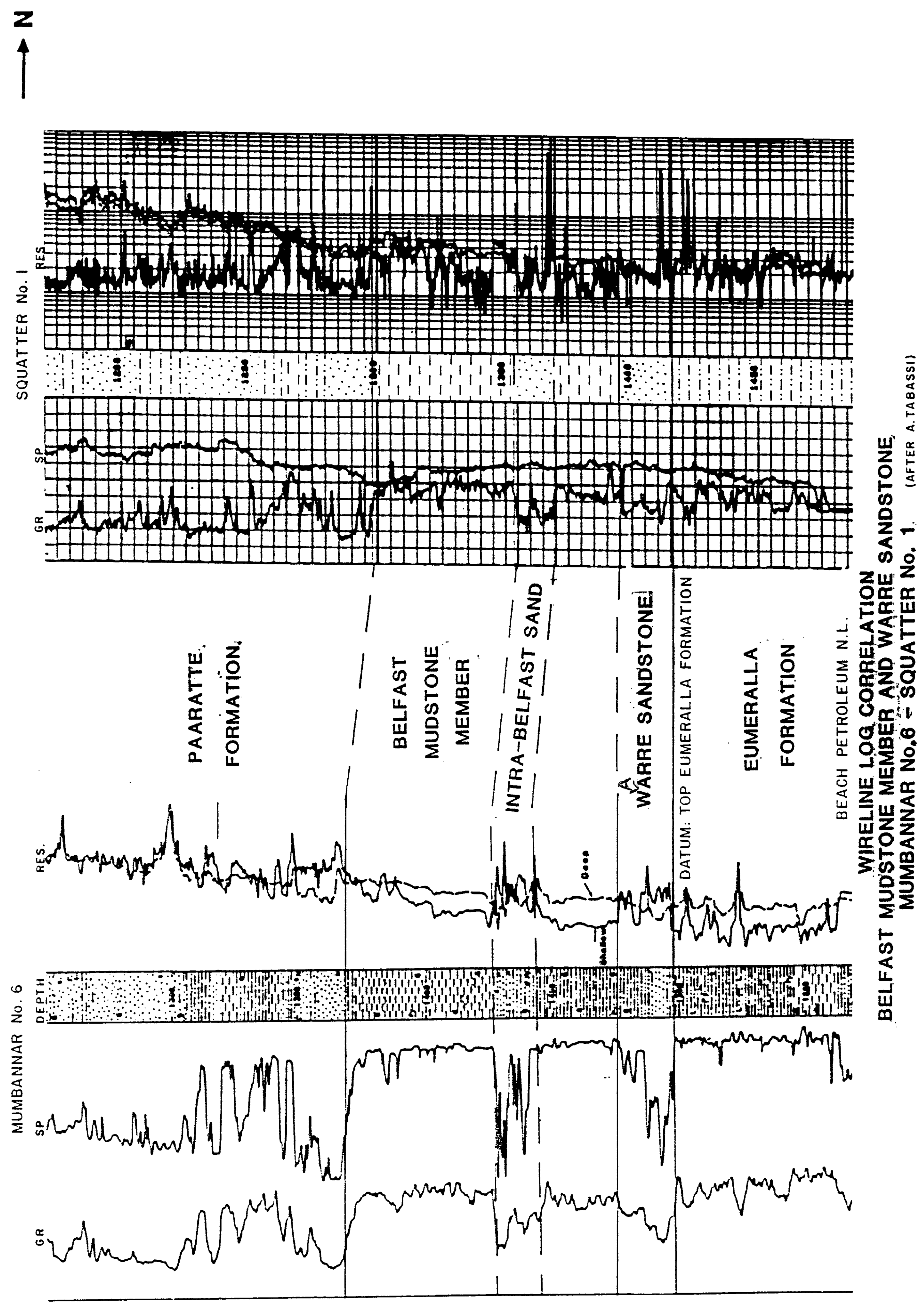


FIGURE 9

OT 3825

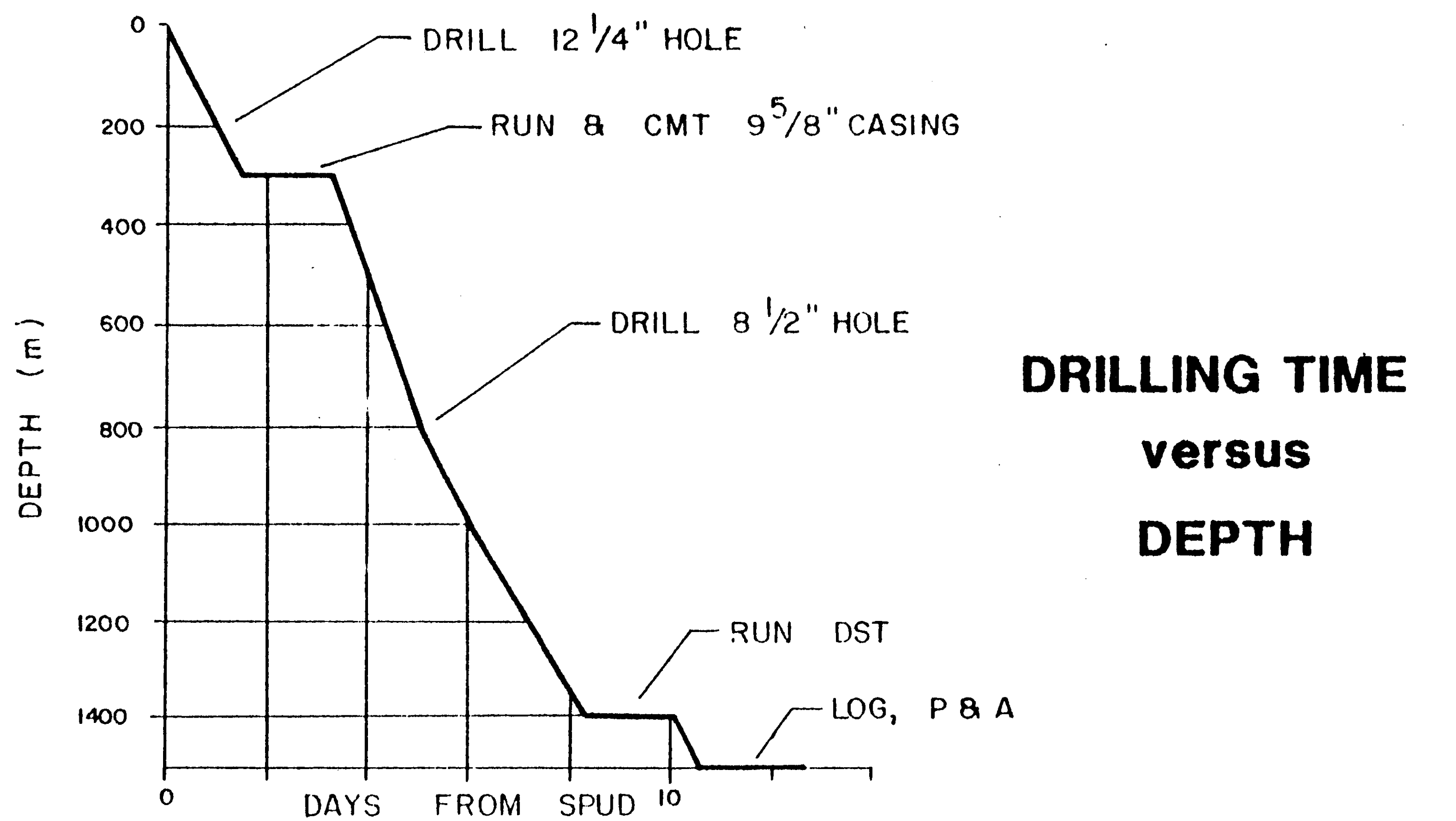

DRILLING TIME
versus
DEPTH
DEPTH (m)
0
200
400
600
800
1000
1200
1400
DRILL 12 1/4" HOLE
RUN & CMT 9 5/8" CASING
DRILL 8 1/2" HOLE
RUN DST
LOG, P & A
0
10
DAYS FROM SPUD

FIG 10

were generally correct. . At Waarre level (top Otway) the pre-drill pick was slightly high and coincident with an intra-Belfast sandstone. It appears that the seismic character of both the Waarre Sandstone and intra-Belfast sandstone are similar, and therefore difficult to differentiate in the pre-drill interpretation.

Post-drilling analysis confirmed that the horizon mapped as "Waarre" level was the stratigraphically higher intra-Belfast sandstone. Although an accurate interval velocity was utilized at Squatter #1 to determine prognosed formation tops, confusion between the Belfast and Waarre sandstones led to a higher prognosed Waarre.

8. No mature source rocks were penetrated at Squatter #1. Tertiary and Upper Cretaceous sediments were generally immature with good TOC values and an abundant vitrinite maceral content (see Appendix 6). Lower Cretaceous, (Eumeralla) sediments were immature to marginally mature displaying lower TOC values and a sparse vitrinite content. It appears therefore that the Eumeralla sediments are leaner source rocks than the overlying units, though marginally mature for hydrocarbon generation.

   A break in the vitrinite reflectance profile at the Upper/Lower Cretaceous boundary confirms the presence of the unconformity normally present at this level throughout the Otway Basin (see Figure 8).

9. Migration probably poses a major problem at Squatter #1. The Tartwaup Fault is inferred to be a hydrocarbon conduit, eg. at Wilson #1, however lateral migration throughout the region is poor possibly due to low porosities. Vertical migration from the deep seated Eumeralla sediments may not have occurred and faults near Squatter #1 (see Figure 5) may not display the conduit characteristics observed in the Tartwaup Fault.

   It should be noted however, that, oil sourced from the Eumeralla sediments, and reservoired within the Pebble Point Formation at Lindon #1 (situated in a similar position to Squatter #1) displays an example of successful lateral migration and highlights the potentially variable nature of migratory pathways within the region.

In summary, though the sealing quality of the Belfast Mudstone and the structural feature displayed at Waarre level were good, reservoir quality was poor and migration of hydrocarbons from the deeply buried Eumeralla sediments or the more distant, laterally situated, kitchen area was ineffective.

APPENDIX 1

Details of Drilling Plant

APPENDIX 1.

DETAILS OF DRILLING PLANT

O.D. & E. PTY. LIMITED.

RIG #19

CONTRACTOR'S RIG : Rig #19 - rated to 7500 ft. with 4-1/2" - 16.6 lbs/ft. Drill Pipe.

DRAWWORKS : Kremco K600H with 22" single rotor hydromatic brake, 16" x 37" main drum grooved for 1.1/8" line, 12.5/8" x 39" Sandline Drum with capacity for 14200' of 9/16 line powered by G.M. 8V92 T.A. diesel engine 435 H.P. at 2100 R.P.M. with Allison model CLT5861-5 converter and transmission. 5 speeds forward and one reverse. Mounted on 5 axle Kremco model K990 self propelled back in type carrier.

SUBSTRUCTURE : 235 ton telescoping substructure, 16' long x 10' wide x 13' high skid, plated top and bottom to eliminate the need for matting with 8' x 7' cellar area and removable beam to allow removal from wellhead. Floor area 13' high x 16' long x 16' wide. Supports on driller's side for doghouse.

NOTE: Substructure telescopes down to 10' for road transport. Rotary beam clearance 10'10".

Rotary beam loading: 270,000 lb.
Set back area loading: 200,000 lb.
(Loaded concurrently)

MAST : Kremco 109' 270,000 lbs. hydraulic raise and telescope, high strenghth square tubular legs, girts and diagonal bracing, ladder to crown, safety platform and handrails, travelling block carrying cradle, vertically hinged "Y" type base with screw type tilt adjustment, double acting raising ram and single telescoping ram, both equipped with safety chokes to protect mast from free failing. Automatic erecting racking board, mounted 67' from ground level with three additional mounting locations, safety chains on all fingers and capacity for 8000' of 4.1/2" drill pipe in doubles. Sufficient travel to allow for mousehole connections with 35 ft. Kelly. Standard crown with

1 x 30" diam. fast line, 3 x 24" diam. fleet and 1 x 24" diam. deal line sheaves, grooved for 1.1/8" line. 1 x 20" diam. sandline sheave grooved 9/16". 1 x 12" diam. catline sheave grooved 1.1/2". 1 x 8" diam. winch line sheave grooved 1/2".

CATHEADS	:	Hydraulic breakout and make up catheads mounted in mast. 1 Foster 27S spinning cathead. 1 Foster 27B breakout cathead.
TRAVELLING BLOCK	:	Ideco UTB-160-4-30 shorty travelling block with unitized hook with 4 x 30" sheaves grooved 1.1/8". API working load 160 tons.
SWIVEL	:	Ideco TL-200 Tru-line swivel. API bearing rating @ 100 RPM - 123 tons.
RIG LIGHTING	:	Electric Power Systems, lighting system with fluorescent lights for mast, floor pipe rack, cellar, engine, pump and mud tank areas. Explosion proof lights.
KELLY DRIVE	:	Varco 4KRVS kelly drive bushing to suite 4.1/4" square kelly.
MUD PUMPS	:	One (1) Gardner-Denver PZ-7-550HP triplex mud pump belt driven by Caterpillar D379 TAC engine, with Faywick air clutch, MCM model 5 x 6 charging pump (pinion driven), Hydril K10-5000 pulsation dampener, Larkin suction stabilizer, unitized on 3 runner oilfield skid. One (1) Gardner-Denver PAHBFC-275HP triplex mud pump driven by Detroit Diesel 8V92T engine with Allison model HT750DRD transmission, 5 x 4 charging pump (hydraulic driven) K-10-3000 Hydril pulsation dampener unitized on 3 runner oilfield skid.
MIXING PUMP	:	One (1) Harrisburg 8" x 6" centrifugal pump powered by 60 HP 1775 RPM electric motor.
MUD AGITATORS	:	3 Harrisburg 5 HP (2 suction tank, 1 shaker tank) model MA-5.
SHALE SHAKER	:	Harrisburg, single unit with dual deck powered by 5 HP flameproof electic motor.

DEGASSER	:	Mechanical mud gas separator, Shell Co. design (capacity via choke - 200 GPM).
MUD CLEANER	:	Harrisburg MC800 2 screen combination mud cleaner or desilter capacity of 800 GPM c/w 5 HP 1800 RPM flameproof electric motor charged with Harrisburg 5 x 6 centrifugal pump with 10" Impeller and 60 HP 1800 RPM electric motor.
DESANDER	:	Harrisburg DSN-1000 unit with 2 x 10" cones charged with Harrisburg 5 x 6 centrifugal pump with 10" Impellor and 60 HP 1800 RPM electric motor.
GENERATORS	:	2 Caterpillar 3406TA, 250 KW prime, 300 KW standby, 60 HZ, 230/460 generating sets.
B.O.P.'s AND ACCUMULATOR	:	NL Shaffer spherical 11" - 5000# flanged bottom, studded top annular B.O.P. Shaffer L.W.S.11' - 5000# studded top and bottom B.O.P. with 7", 5.1/2", 4.1/2", 3.1/2", 2.7/8", 2.3/8" CSO ram assemblies. Koomey model 120LS type 80, 3000 PSI, 120 gallon accumulator equipped with 12 x 11 gallon bottles, UP2RB5AR model "P" 5 station control manifold, UFT-15B triplex charging pump with 15 HP 60 Hz electric motor, model U7A26 dual air pump package (capacity 6.4 GPM @ 3000 PSI) and model A5GRV air operated master remote control panel with 5 valves for operation of B.O.P.s and hydraulic gate valve, 1 valve for operation of bypass valve and 100' remote control hose. C/w 1" B.O.P. test outlet and gauge for testing to 5000 P.S.I.
KELLY COCK (UPPER)	:	Packard 5000 PSI upper Kelly Cock w/- 6.5/8" reg. L.H. connections P/N T65LH85.
KELLY COCK (LOWER)	:	Packard 5000 PSI lower Kelly Cock w/- 4" IF connections P/N T401F65.
DRILL PIPE SAFETY VALVE	:	Packard 5000 PSI w/- 4" IF connections and crossover to suit 8" drill collars.
AIR COMPRESSORS AND RECEIVERS	:	Two (2) Sullair model 10B-25 air compressor 105 CFM - 125 PSI with 60 HZ electric motor and air receiver. Separator 1 24" x 72" air receiver tank.

One (1) Swan model MV-201 Cold Start air compressor with Petters diesel engine and 8 CFM compressor.

SERVICE WINCH	:	One (1) model #14 Gearomatic Hydraulic winch mounted on carrier with control at drillers console. Drum pull-back 7100 at 92 ft. per min. mean 4760 t 137 ft. per min. Full 3580 ft 182 ft. per min.
POWER TONGS	:	Foster model 54 power casing tong c/with 95/8 7" 5 1/2 jaws. Foster model 58-93-R hydraulic unit with 2.3/8", 2.7/8" and 3.1/2" jaws operated from rig hydraulic system.
SPOOLS	:	1 only 11" - 5000# FE x 11" - 5000# FE drilling spool w/- 1 x 3" - 5000# FE and 1 x 2" - 5000# FE outlet. 1 only 11" - 5000# FE x 11" - 5000# FE Spacer Spool. 1 only 11" - 5000# x 11" - 3000# Double Studded Adaptor. 1 only 11" - 5000# x 7.1/16" - 5000# Double Studded Adaptor. 1 only 11" - 5000# x 7.1/16" - 3000# Crossover Spool, double studded adaptor.
ROTARY TABLE	:	Ideco SR-175 Rotary Table. Rated capacity 325 tons dead load. Rated capacity 200 tons rotating.
MUD TANKS	:	1 only skid mounted suction tank 33' long x 9' wide x 6' high with platform for mixing hopper, mud ditch, pill tank, mud guns, walkways and agitators. Overall skid length 42'. Capacity: 317 BBLS (Suction: 260 BBLS) (Pill : 57 BBLS) 1 only skid mounted shaker tank, 28' long x 9' wide x 6' high fitted with shale shaker, desander, mud cleaner, mud ditch partitions, mud guns, walkways and agitators. Overall skid length 42'. Capacity : 271 BBLS (Sand trap: 31 BBLS (Desander : 38 BBLS) (Desilter : 38 BBLS) (Reserve : 164 BBLS)

TRIP TANK	1 Trip Tank 4' x 6'2" x 7'6" high (mounted on shaker tank). Capacity: 33 BBLS.
KILL MANIFOLD	1 - 2" 5000# Lynn check valve F/E 1 - 2" 5000# Cameron gate valve F/E 1 - 3" 5000# Cameron gate valve F/E 1 - 3" 5000# Cameron hydraulic gate valve F/E.
CHOKE MANIFOLD	1 x 5000# unit with 1 x 3" positive and 1 x 3" adjustable choke.
DRILL PIPE	7000' 16.6 LB/FT grade 'E' 4.1/2" OD drill pipe w/- 6.1/4" OD Tool Joints and 4" IF Connections, internally plastic coated.
PUP JOINTS	1 - 10' 4.1/2" OD 18° taper w/- - 4" IF conns. 1 - 5' 4.1/2" OD 18° taper w/- 4" IF conns.
HEVI-WEIGHT DRILL-PIPE	6 JTS H.W.D.P. 4.1/2 OD w/- 4" IF conns.
DRILL COLLARS	6 only 8" OD Drill Collars w/- 6.5/8" Reg. Connections. 24 only 6.1/2" OD Drill Collars w/- 4" IF Connections.
KELLIES	2 only 4.1/4" square x 35' working space (38' overall) with 6.5/8" reg. L.H. box x 4" IF pin.
FISHING TOOLS	1 only Bowen Type Z Jar 6.1/4" D. 1 only Bowen Series 150 overshot 7.5/8" OD. 1 only Bowen Series 150 overshot 9.5/8" OD. 1 only Junk Sub 12.1/4" Hole. 1 only Junk Sub 8.1/2" Hole.
SUBS	3 only 4" IF Saver Subs. 2 only 6.5/8" Reg. Pin x 4" IF Box x/Over Sub. 12 only 4" IF Lifting Nubbins. 3 only 6.5/8" reg. Lifting Nubins. 1 only 6.5/8" Reg. Box x 6.5/8" Reg. Box Bit. Sub. (5F-6R float recess) 2 only 4" IF Box x 4.1/2" Reg Box Bit Sub (4R float recess) 1 only 4.1/2" reg pin x 4.1/2" FH pin 4" long 1 only 4" IF box x 6.5/8" reg box 1 only 4" IF pin x 2" LP pin (circ sub), 12" long.

HANDLING TOOLS : 1 set Baash Ross Type "AAX" short handle tongs complete with hangers range 2.7/8" - 13.3/8".

1 set forged elevator links 2.1/4 x 96" capacity 250 tons.

2 sets of 4.1/2" - T-150 Drill Pipe Elevators.
1 set 9.5/8" - H-150 Casing Elevator.
1 set 7" - H-150 Casing Elevator.
1 set 5.1/2" - J-150 Casing Elevator.
1 set 3.1/2" - C-100 Tubing Elevator.
1 set 2.7/8" - C-100 Tubing Elevator.
1 set 2.3/8" - C-100 Tubing Elevator.
1 set 9.5/8" Single Joint Elevator. 1 set 7" Single Joint Elevator.
1 set 5.1/2" Single Joint Elevator.
1 set 3.1/2" Single Joint Elevator.
1 only 9.5/8" CMSXL Casing Slips.
1 only 7" CMSXL Casing Slips.
1 only 5.1/2" SDL-M Casing Slips.
2 only 4.1/2" SDL-M Drill Pipe Slips.
1 only Cavins Type "C" - HD air spider with 2.3/8", 2.7/8", 3.1/2" and 5.1/2" slips, 250,000 # capacity.
1 set 6.3/4 - 8.1/4 DCS-L Drill Collar Slips.
1 set 5" - 7" DCS-R Drill Collar Slips.
1 only 5.1/2" - 7" MPR Safety Clamp.
1 only 6.3/4" - 8.1/4" MPR Safety Clamp.
1 set Quick Lift Drill Collar 42" x 2" links - 100 ton and Drill Collar adaptor.
1 only 8" HD-100 Drill Collar Elevator.
1 only 6.1/2" HD-100 Drill Collar Elevator.

Varco "CU" casing bushing with No. 2 insert bowl to handle 9.5/8" - 13.3/8" casing.

Foster model 77 hydraulic kelly spinner, operated from rig hydraulic system.

Weatherford Lamb model 13000-J-29 spinnerhawk.

Varco PS-20 spring slip assy. dressed with 4.1/2" drill pipe slips.

WELDING EQUIPMENT : 1 only Lincoln 400AS Diesel Powered Welder.
1 only Oxy-Acetylene Welder and cutting set.

DOG HOUSE : 1 only Steel Dog House 14' x 7' x 7'.

UTILITY HOUSE : 1 only Steel Utility house to accommodate generators, switch gear, workshop and store room (45' long x 10' wide).

TOOL HOUSE/STORE ROOM	:	Toolhouse/Spares house with welders workshop skid mounted, 40' long x 8' wide x 8' high.
CAT WALKS	:	1 set Catwalks incorporating junk rack 48' long x 5' wide x 42" high.
PIPE RACKS	:	1 set (6) Tumble type pipe racks each 28' long x 42" high.
DAY FUEL TANK	:	1 only 9' 9" long x 7' 10" wide x 2' deep. Capacity 4300 litres. Mounted on top of water/fuel tank and recessing into water/fuel tank to minimise loads during moves.
WATER/FUEL TANK	:	1 only skid mounted water tank 23' long x 9' 6" wide x 8' high (capacity 356 BBLS) with fuel storage tank (capacity 5800 galls.) one end. Overall skid length 42'. 2 x 10 HP water pumps mounted one end, 2 x 5 HP fuel pumps mounted other end including one (1) fresh water pump.
ACCUMULATOR & OIL STORAGE SKID	:	1 only skid 8' wide x 20' long to accommodate oil storage and accumulator.
DRILLING RATE RECORDER	:	Martin Decker 5 Pen Record-O-Graph (Penetration, weight, pump pressure, rotary torque and rotary R.P.M.).
DEVIATION INSTRUMENT	:	1 only Totco Double Recorder 0-8 deg.
INSTRUMENTS AND INDICATORS	:	Martin Decker F.S. Weight Indicator 40,000lb single line pull c/w 40' hose. National F.S. deadline anchor c/w E160 load cell. Martin Decker H-6B-28 Tong Torque Indicator 25' hose and load cylinder sensator, box mt. 20,000 lb. line pull. Martin Decker Rotary Torque, model FA-9. Swaco 96-11-321 stroke rate meter c/w limit switches for No. 1 and No. 2 pump. Martin Decker RPM tacho system. Watco Flo Sho recorder. Watco Pit-O-Graf (two tank system). Watco Trip Tank Monitor. Martin Decker SA-102 satelite drilling control.
MUD TESTING	:	1 only Baroid Mud Lab mounted on mud tank.
RATHOLE DRILLER	:	Wichita engineering rat hole driller for 4.1/4" kelly.

MUD SAVER	:	Harrisburg Unit with 4.1/2", 3.1/2", 2.7/8" and 2.3/8" end sealing rubbers.
CELLAR PUMP	:	Pacific Diaphragm Pump, 3" w/- 3 HP explosion proof electric motor.
WATER PUMP	:	1 only Robin Self-Priming Pump with Diesel Engine.
FIRE EXTINGUISHERS	:	1 set extinguishers as required by State Mining Regulations.
HIGH PRESSURE WATER BLASTER	:	1 only Gerni G-115 unit with Lister Diesel Engine.
PIPE BINS	:	2 only Pipe Bins 36' x 10' x 3' 6" High.
CUP TESTER	:	Cameron Type "F" cup tester mandrel with 4" IF connections.
TRANSPORT EQUIPMENT & MOTOR VEHICLES	:	1 - International 520 Payloader with Pipe Forks. 1 - 4 x 4 Toyota Pick-up. 1 - 4 x 4 Toyota Crew car.
CAMP EQUIPMENT	:	1 - Toolpusher/Engineer office unit 40' x 10 x 10'. 1 - Crew Lunch Room/Toilet Block.

NOTE: At Contractor's discretion any of the foregoing items may be replaced by equipment of equivalent or greater capacity.

APPENDIX 2

Summary of Wellsite Operation

SUMMARY OF DRILLING OPERATIONS

The Squatter No. 1 drilling site was prepared by the earth moving contractor, Gambier Earthmovers of Mount Gambier.

Prior to the rig arriving a 16" conductor pipe was set at 13m (KB).

O.D. & E. Rig No. 19 was rigged up and Squatter No. 1 spudded at 0500 hours on the 29th July, 1987.

A 12¼" hole was drilled to 327m. The hole was condtioned before 9-5/8" casing was run in and cemented.

The BOP's were installed and sucessfully function tested to 1500 psi.

Drilling resumed with an 8½" hole to 332m, a leak-off test was performed and established a formation integrity of 12 ppg. The 8½" hole was continued to a total depth of 1500m with two bit changes at 723m and 1305m. Total Depth was reached at 1930 hours 5th August, 1987.

The following wireline logs were run prior to abandonment, DLL-MSFL-GR, LDL-CNL-GR, BHC-GR and WSS.

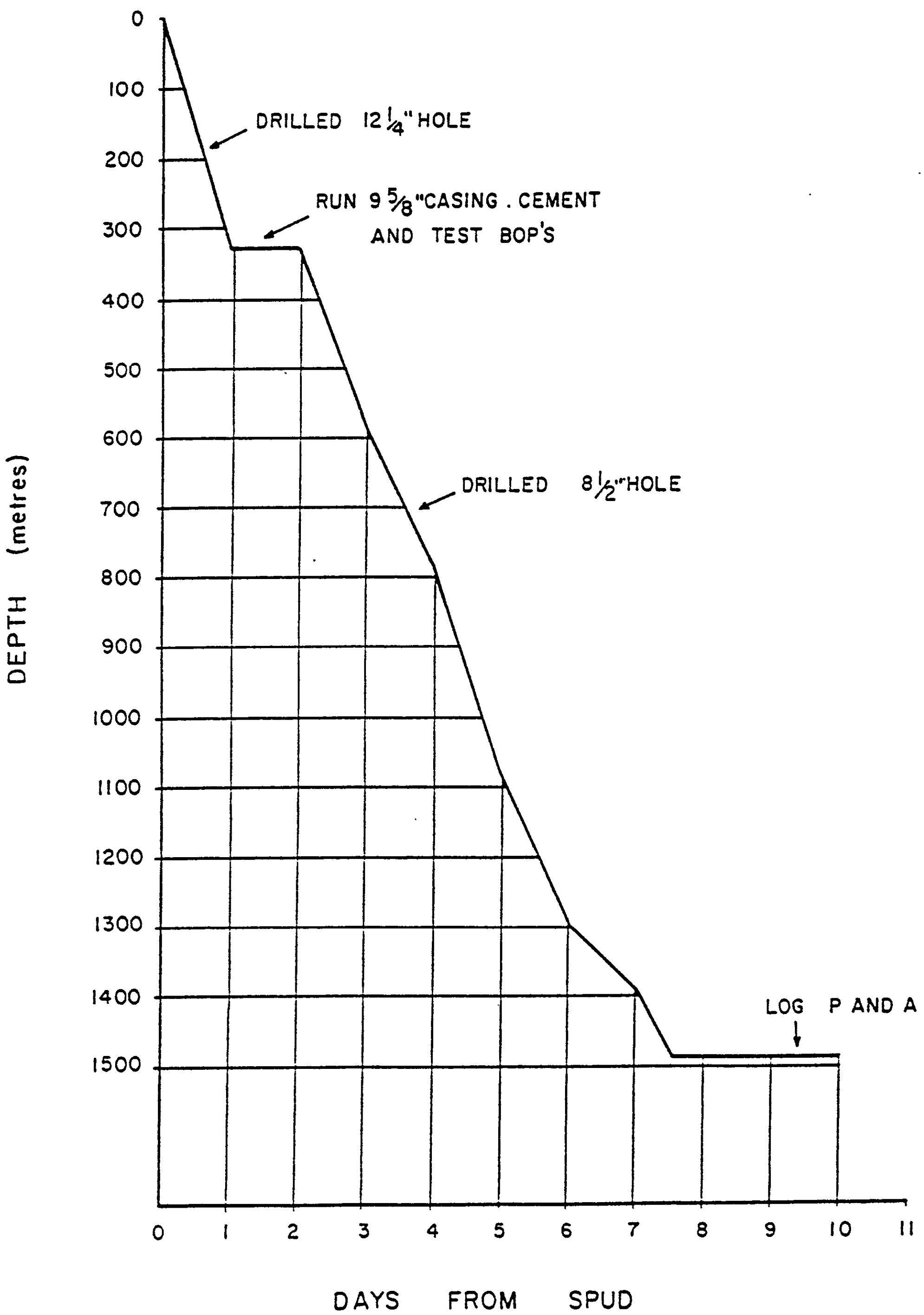
Cement plugs were set over the intervals 1326m to 1274m, 700m to 650m and 328m to 262m.

The rig was released at 0800 hours on 8th August, 1987.

BEACH PETROLEUM N.L.

SQUATTER No .1

SPUDDED : 0500HRS 29-7-87
T.D. REACHED : 1930 HRS 5-8-87
RIG RELEASED: 0800 HRS 8-8-87



PENETRATION PROFILE

Figure 10

APPENDIX 3

Drilling Fluid Recap

BEACH PETROLEUM NL

DRILLING FLUID RECAP

SQUATTER NO. 1

Prepared By : M. Olejniczak

Dated : August 1987

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APPENDICES

WELL SUMMARY

Operator	:	Beach Petroleum NL
Well Number	:	Squatter No. 1
Location	:	PEP 118, Otway Basin, Victoria
Contractor	:	O. D. & E.
Rig	:	No. 19
Rig on Location	:	28th July, 1987
Spud Date	:	29th July, 1987
Water Depth/RKB-Sea Bed	:	4.6 m
Total Depth	:	15 m
Date Reached T.D.	:	7th August, 1987
Total Days Drilling	:	10
Rig off Location	:	10th August, 1987
Total Days on Well	:	13

Drilling Fluid Type	Interval	Hole Size	Cost
F.W. Lime Floc. Bentonite	0 - 327 m	$12^1/4$"	$1,381.84
F.W. Lime Floc. Bentonite	327 - 550 m	$8^1/2$"	
Converted to KCl Polymer	550 - T.D.	$8^1/2$"	

MUD MATERIALS CHARGED TO DRILLING			$10,907.41

Engineer on Location from : 28-07-87 to 07-08-87

Mud Engineering : 11 days @ $375 — 4,125.00

TOTAL DRILLING COST MATERIALS & ENGINEERING SERVICE — $15,032.41

Mud Materials not charged to Drilling — -

Engineering not charged to Drilling — -

Casing Program	:	16" Conductor to 13 m $9^5/8$" Casing @ 324 m
Drilling Supervisors	:	H. Walker
Baroid Mud Engineers	:	M. Olejniczak

INTRODUCTION

Squatter No. 1 was originally programmed to be drilled from the top of the Pember Mudstone with a 4% KCl-Polymer mud.

Following the Packer Seat failures on Wilson No. 1 with a $1^1/2$ to 2% KCl mud, the original programme was carried out.

There were no significant mud problems or drilling problems other than slight tight hole on trips which was never serious and which did indicate that a gauge hole was being drilled.

With a final mud cost of just under $11,000.00, it came in close but still under the original estimated mud cost of about $13,000.00.

DISCUSSION BY INTERVAL

$12^1/4$" Hole Surface to 327 m

Following the success of drilling the $12^1/4$" hole with a thick Lime flocculated Bentonite spud mud in conjunction with very low circulating rate on Wilson No. 1, it was decided to do exactly the same on subsequent wells in the area.

Squatter No. 1 was spudded in at 0500 hours on the 29th July, 1987 pumping at 188 gpm with 31 ft/min around the drill pipe and 44 ft/min around the collars with the high yield point and gels of the flocculated mud system, hole cleaning was no problem at all. Typical mud properties were:

Mud Weight	:	9.0 ppg
Viscosity	:	45
PV/YP	:	10/49
Gels	:	38/45
Filtrate	:	No Control
pH	:	12.0

The entire mud system was run from spud as it was planned to continue with this mud right through the Dilwyn sands to about 600 m.

After drilling through loose sand at surface, drilled through Calcarenite with some sticky marls of the Heytesbury and Nirnana Groups from 31 m, with the loose Dilwyn sands coming in from 242 m. Penetration rate was deliberately controlled to 3 singles per hour to avoid overloading the hole. After drilling into a significant clay suitable for a casing seat, drilling was stopped at 327 m.

Circulated out and ran a wiper trip with no problems at all, after which the $9^5/8$" casing was run and cemented to 324 m. Again, without problems.

Cement returned to surface a half a minute after displacement began indicating a near gauge hole.

DISCUSSION BY INTERVAL

$8^1/2$" Hole 327 to 1500 m T.D.

During nippling up of the BOP stack, the old Lime flocculated Bentonite Native Clay mud was deliberately retained to be used for drilling through the Dilwyn Sands.

The cement and casing shoe were drilled out using this mud, deliberately retaining the flocculating effects of the cement contamination. After running a leak off test at 331 m, drilling continued through loose clean Dilwyn Sands at a controlled drill rate of approximately three singles per hour. The mud was maintained purely with additions of Lime, Caustic and prehydrated Bentonite with water run to maintain volume. Typical mud properties were:

Mud Weight	:	8.9 ppg
Viscosity	:	39
PV/YP	:	6/31
Gels	:	20/24
Filtrate	:	No Control
pH	:	12.0

As usual, sand output from the desander, in particular, was high at 10 to 20 bbl/hr indicating some degree of hole washout, although not excessive. Hole stability was good with no fill or problems with blocked nozzles from flowing sand on connections.

Towards the top of the Pember Mudstone at 627 m, the surface pit volume was deliberately allowed to drop back to only about 170 bbls. Premixed CMC/KCl mud and then premixed Pac-R/KCl mud was then gradually added to convert to a KCl-Polymer mud system. This was done gradually to attempt to first stabilise the filter cake formed in the Dilwyn Sands before raising the salinity to the 4% KCl concentration programmed. No problems with sand instability or down hole filtration losses occurred during running of the KCl-Polymer mud, indicating successful preservation of the filter cake in the Dilwyn Sands.

DISCUSSION BY INTERVAL

$8^{1}/2$" Hole (Cont.)

Mud properties were gradually stabilised while drilling though the Pember Mudstone with the filtrate being reduced to less than 10 cc's. With no indication of any gas or shows at all in either the inter Pember Sand (circulated out at 719 m), or the top of the Pebble Point Formation (circulated out at 796 m). No attempt was made to reduce the filtrate further.

Typical mud properties were:

Mud Weight	:	9.2 ppg
Viscosity	:	40
PV/YP	:	14/12
Gels	:	4/9
Filtrate	:	8.6 cc's
pH	:	9.5
Cl-	:	19,000
KCl	:	$3^{1}/2$ - 4%

At 722 m, a trip was made for a bit change and to pick up a stabiliser with no problems running back in. A 16 stand wiper trip at 884 m was tight up to near the top of the Pember Mudstone but not as bad as it had been on the previous well, Wilson No. 1. Drilling continued through the Paraate Formation with wiper trips at 1059 m and 1213 m, both of which were also slightly tight. This suggested that the hole being drilled was close to gauge. A carbide lag ran at 1050 m in conjunction with an earlier one run at 601 m, indicated the lower part of the hole was at 8.85" average size.

At 1305 m, the drilling rate slowed markedly in the top of the Belfast Mudstone so the J11 insert bit which had done very well drilling from 722 m, was changed out for a toothed XDG. The trip was tight through the Paraate and Pember Mudstone Formations with the 24th stand requiring some working but ran back in with no problems.

DISCUSSION BY INTERVAL

8 1/2" Hole (Cont.)

Drilling then continued with drilling breaks being circulated out at 1360 m and 1404 m, the latter being the major Warre Sandstone target. With no gas or shows encountered, drilling then continued into the Eumarella Formation with T.D. being decided upon at 1500 m.

The wiper trip ran prior to logging was tight from the 5th to 18th stands through the Belfast and Lower Paraate Formations but ran back in freely and was free pulling out prior to logging.

Schlumberger logs were then run without problems although they were not able to go down the last 6 m due to apparent fill despite a high viscosity pill having been spotted on bottom.

The Caliper log showed the Pember Mudstone and Paraate Formations to be in near perfect gauge, however, the Belfast Formation was surprisingly up to 11" in parts and also the lower Dilwyn Sands were also badly washed out.

The well was then plugged and abandoned.

CONCLUSIONS AND RECOMMENDATIONS

Squatter No. 1 was drilled quite successfully with no problems during drilling other than slightly tight hole on trips through the Pember Mudstone and Paraate Formations.

With a very good in gauge hole caliper achieved through the same sections, it must be concluded that drilling hydraulics with nozzle velocity down to 300 ft/sec and impact down to 315 force lbs, were sufficiently gentle. Also, a lesser degree of tight hole severity than on Wilson No. 1 through the Pember Mudstone indicates that increasing the KCl concentration does help in reducing swelling.

However, with no test run with packer seats in the Pember Mudstone, there is no evidence that increasing the KCl percentage helps in obtaining a stronger packer seat.

The washed out hole of up to 11" in the Belfast Mudstone was a surprise and would have been a problem had it been required to run a test of the Wakke Sandstone. There was no suspicion of any problem while drilling the Belfast Mudstone and there is no evidence to suggest a remedy, although drilling hydraulics can be discounted. This leaves only increasing mud weight and KCl percentage as possible means of reducing instability in this formation.

A large washout in the lower Dilwyn Sands at around 575 m was also a surprise being up to $19^1/2$". This could be the result of this section having had less time to stabilise as conversion to a KCl-Polymer mud was begun here.

With the $12^1/4$" hole drilled successfully and the $9^5/8$" casing run and cemented without problems, using high viscosity Lime flocculated Bentonite and low hydraulics, this approach is recommended for all wells in the area.

BEACH PETROLEUM NL
SQUATTER NO. 1

APPENDIX A

Formation Tops

Formation	Depth
Quaternary	Surface
Whalers Bluff Formation	31 m
Heytesbury Group	175 m
Dilwyn Formation	242 m
Pember Mudstone	627 m
Pebble Point Formation	790 m
Paraate Formation	824 m
Belfast Mudstone	1298 m
Warre Sandstone	1392 m
Eurmarella Formation	1414 m
T.D.	1500 m

BEACH PETROLEUM NL
SQUATTER NO. 1

APPENDIX B

$8^1/2$" Hole Caliper (Averaged each 25 m)

Depth	Hole Size (Inches)		Depth	Hole Size (Inches)	
350	$10^3/4$		925	$8^1/2$	
375	$10^3/4$		950	$8^1/2$	
400	$10^3/4$		975	$8^1/2$	
425	$10^1/2$		1000	$8^1/2$	
450	$10^3/4$		1025	$8^1/2$	
475	10		1050	$8^1/2$	
500	10		1075	$8^1/2$	
525	$9^3/4$		1100	$8^1/2$	
550	11	(max 16)	1125	$8^1/2$	
575	$12^1/2$	(max $19^1/2$)	1150	$8^3/8$	
600	$9^1/2$		1175	$8^3/8$	
625	$8^3/4$		1200	$8^1/4$	
650	$8^3/4$		1225	$8^1/4$	
675	$8^1/2$		1250	$8^1/4$	
700	$8^1/2$		1275	$8^3/8$	
725	$8^1/2$		1300	$8^3/8$	
750	$8^1/2$		1325	$9^1/2$	(max 11)
775	$8^1/2$		1350	$9^3/4$	(max $10^1/2$)
800	$8^3/4$		1375	$9^1/4$	(max 11)
825	$8^3/4$		1400	$9^1/2$	(max 10)
850	$8^3/4$		1425	$8^1/2$	
875	$8^3/4$		1450	$8^3/4$	
900	$8^3/4$		1475	$8^1/2$	

Baroid Australia PTY. LTD./NL INDUSTRIES INC.

MATERIAL RECAP

COMPANY	BEACH PETROLEUM	MUD TYPES	HI-VIS LIME FLOCCULATED GEL SPUD MUD	HOLE SIZE	12¼"
WELL	SQUATTER NO.1			INTERVAL TO	327 m
LOCATION	PEP 118, VICTORIA			FROM	13 m
COST/DAY	$690.92			MTRS DRILLED	314 m
COST/M	$ 4.40	CONTRACTOR	O. D. & E. RIG 19		
COST/BBL	$ 2.25	DRILLING DAYS/PHASE	2		
RECAPPED BY	M. OLEJNICZAK	ROTATING HRS/PHASE	21½		
DATE	29-07-87			MUD CONSUMPTION FACTOR	1.96 bbl/m

MATERIAL	UNIT	UNIT COST	ESTIMATED USED	ESTIMATED KG/M³	ACTUAL USED	ACTUAL KG/M³	TOTAL COST ESTIMATED	TOTAL COST ACTUAL
AQUAGEL	100 lb	15.25			76			1159.00
CAUSTIC SODA	25 kg	21.90			7			153.30
LIME	25 kg	4.29			12			51.48
BARITE	50 kg	9.03			2			18.06

CHEMICAL VOLUME	BBL	15	
FRESH WATER	BBL	600	
SEA WATER			
TOTAL MUD MADE	BBL	615	
COST LESS BARYTES			
COST WITH BARYTES			A$1381.84

COMMENTS 6 SACKS AQUAGEL USED FOR LEAD SLURRY CEMENT WATER FOR CEMENTING 9-5/8" CASING. BARITE USED FOR CASING THREADS.

Baroid Australia PTY. LTD./NL INDUSTRIES INC.

MATERIAL RECAP

COMPANY	BEACH PETROLEUM	MUD TYPES	LIME FLOCCULATED AQUAGEL	HOLE SIZE	$8\frac{1}{2}$"		
WELL	SQUATTER NO.1		CONVERTING TO KCl-POLYMER	INTERVAL TO	1500 m		
LOCATION	PEP 118, VICTORIA		FROM ABOUT 550 m.	FROM	327 m		
COST/DAY	$1190.70			MTRS DRILLED	1173 m		
COST/M	$ 8.12	CONTRACTOR	O. D. & E. RIG 19				
COST/BBL	$ 7.87	DRILLING DAYS/PHASE	8				
RECAPPED BY	M. OLEJNICZAK	ROTATING HRS/PHASE	$86\frac{1}{2}$				
DATE	07-08-87			MUD CONSUMPTION FACTOR	1.03 bbl/m		

MATERIAL	UNIT	UNIT COST	ESTIMATED USED	ESTIMATED KG/M³	ACTUAL USED	ACTUAL KG/M³	TOTAL COST ESTIMATED	TOTAL COST ACTUAL
AQUAGEL	100 lb	15.25			19			289.75
CAUSTIC SODA	25 kg	21.90			10			219.00
SODA ASH	40 kg	17.66			7			123.62
BICARBONATE	40 kg	21.63			4			86.52
CMC (EHV)	25 kg	59.03			6			354.18
CMC (LV) BEACH STOCK	25 kg	51.40			8			411.20
Q-BROXIN	25 kg	32.20			8			257.60
LIME	25 kg	4.29			7			30.03
PAC-R	25 kg	76.92			33			2793.12
BARAVIS (HEC)		160.65			6			963.90
DEXTRID	50 lb	39.99			17			679.83
POTASSIUM CHLORIDE	50 kg	19.48			169			3292.12
ACTICIDE BX		12.35			2			24.70

PREMIX KCl POLYMER	BBLS	650	
CHEMICAL VOLUME	BBLS	30	
FRESH WATER	BBLS	530	
SEA WATER			
TOTAL MUD MADE	BBLS	1210	
COST LESS BARYTES			
COST WITH BARYTES			A$9525.57
COMMENTS			

Baroid Australia PTY. LTD./NL INDUSTRIES INC.

MATERIAL SUMMARY

COMPANY	BEACH PETROLEUM	MUD TYPE	F.W. LIME FLOCCULATED	HOLE SIZE	METRES DRILLED	DRILLING DAYS
WELL	SQUATTER NO.1		CONVERTING TO KCl			
LOCATION	PEP 118, VICTORIA		POLYMER FROM ABOUT 550m	12¼"	314	2
COST/DAY	$1090.74			8½"	1173	8
COST/M	$ 7.34	TOTAL ROTATING HRS	108			
COST/BBL	$ 5.98	TOTAL DAYS ON HOLE	10			
RECAPPED BY	M. OLEJNICZAK	TOTAL DEPTH	1500 m	TOTAL	1487	
DATE	07-08-87	MUD CONSUMPTION : WELL AVERAGE		1.23 bbl/m		

MATERIAL	UNIT	UNIT COST	ESTIMATED USED	ESTIMATED KG/M³	ACTUAL USED	ACTUAL KG/M³	TOTAL COST ESTIMATED	TOTAL COST ACTUAL
AQUAGEL	100 lb	15.25			95			1448.75
CAUSTIC SODA	25 kg	21.90			17			372.30
SODA ASH	40 kg	17.66			7			123.62
BICARBONATE	40 kg	21.63			4			86.52
CMC (EHV)	25 kg	59.03			6			354.18
CMC (LV) BEACH STOCK	25 kg	51.40			8			411.20
Q-BROXIN	25 kg	32.20			8			257.60
LIME	25 kg	4.29			19			81.51
PAC-R	25 kg	76.92			33			2792.12
BARAVIS (HEC)		160.65			6			963.90
DEXTRID	50 lb	39.99			17			679.83
POTASSIUM CHLORIDE	50 kg	19.48			169			3292.12
ACTICIDE BX		12.35			2			24.70
BARITE	50 kg	9.03			2			18.06

PREMIX KCl POLYMER	BBLS	650	
CHEMICAL VOLUME	BBLS	45	
FRESH WATER	BBLS	1130	
SEA WATER			
TOTAL MUD MADE	BBLS	1825	
COST LESS BARYTES			A$10889.35
COST WITH BARYTES			A$10907.41

COMMENTS: CMC (LV) WAS OLD BEACH PETROLEUM STOCK ON REPORTS AS SAME COST AS EQUIVALENT BAROID STOCK FOR COMPARATIVE PURPOSES. BARITE USED FOR CASING THREADS.

Baroid Australia PTY. LTD./NL INDUSTRIES INC.

DRILLING FLUID PROPERTY RECAP

COMPANY BEACH PETROLEUM WELL SQUATTER NO.1

DATE	DEPTH m	HOLE SIZE	TEMP °F	WEIGHT ppg	VIS SEC	PV	YP	GELS 10 sec	GELS 10 min	WATER LOSS API	CAKE 32nd	pH	Pf	Mf	Cl mg/l	Ca mg/l	SAND %	SOLIDS %	WATER %	OIL %	MBC	REMARKS TREATMENT FORMATION
28/7	-																					Mixing Spud Mud.
29/7	227	12¼	-	9.0	45	10	49	38	45	NC	-	12	1.2	-	200	20	TR	5	95	-	-	Drill with Hi-Vis Mud. Lst/Marl/Sand.
30/7	327	12¼	-	9.0	45	10	49	38	45	NC	-	12	1.2	-	200	20	TR	5	95	-	-	Set 9-5/8" Casing at 324 m.
31/7	415	8½	-	8.9	39	6	31	20	24	NC	-	12	1.4	-	200	180	TR	4	96	-	-	Drill Dilwyn Sands with Flocculated Gel.
1/8	722	8½	-	9.0	37	10	9	1	4	9.5	2	9.5	0.2	-	10000	20	TR	5	95	-	12	Drill into Pember, convert to KCl-Polymer.
2/8	979	8½	-	9.2+	40	14	12	4	9	8.6	2	9.5	0.2	-	19000	30	TR	6	94	-	10	Drilling Paratte Sandstone.
3/8	1251	8½	-	9.3	39	12	12	4	10	7.5	2	9.0	0.05	-	23000	20	TR	6	94	-	10	Drilling Nullaware.
4/8	1360	8½	-	9.3	40	16	14	2	8	7.5	2	10	0.4	-	23000	20	TR	6	94	-	9	Drilling Belfast.
5/8	1500	8½	97	9.4	41	16	14	2	6	7.8	2	9.5	0.25	-	23000	25	TR	7	93	-	7	T.D. Wiper Trip.
6/8	1500	8½	-	9.4	41	16	14	2	6	7.8	2	9.5	0.25	-	23000	25	TR	7	93	-	7	Logging.

Baroid Australia PTY. LTD./NL INDUSTRIES INC.

BIT RECORD

COMPANY BEACH PETROLEUM WELL SQUATTER NO.1 CONTRACTOR/RIG O. D. & E. RIG 19

LOCATION PEP 118, OTWAY BASIN, VICTORIA SPUD DATE 19-07-87 DATE REACHED T.D.

COMPANY SUPERVISORS TOOLPUSHERS G. RILEY

PUMPS: MAKE, TYPE G.D. P27 LINERS USED 5½ x 7 DRILL COLLARS 8" / 6¼" DRILL PIPE 4½

MUD SYSTEMS, DEPTHS

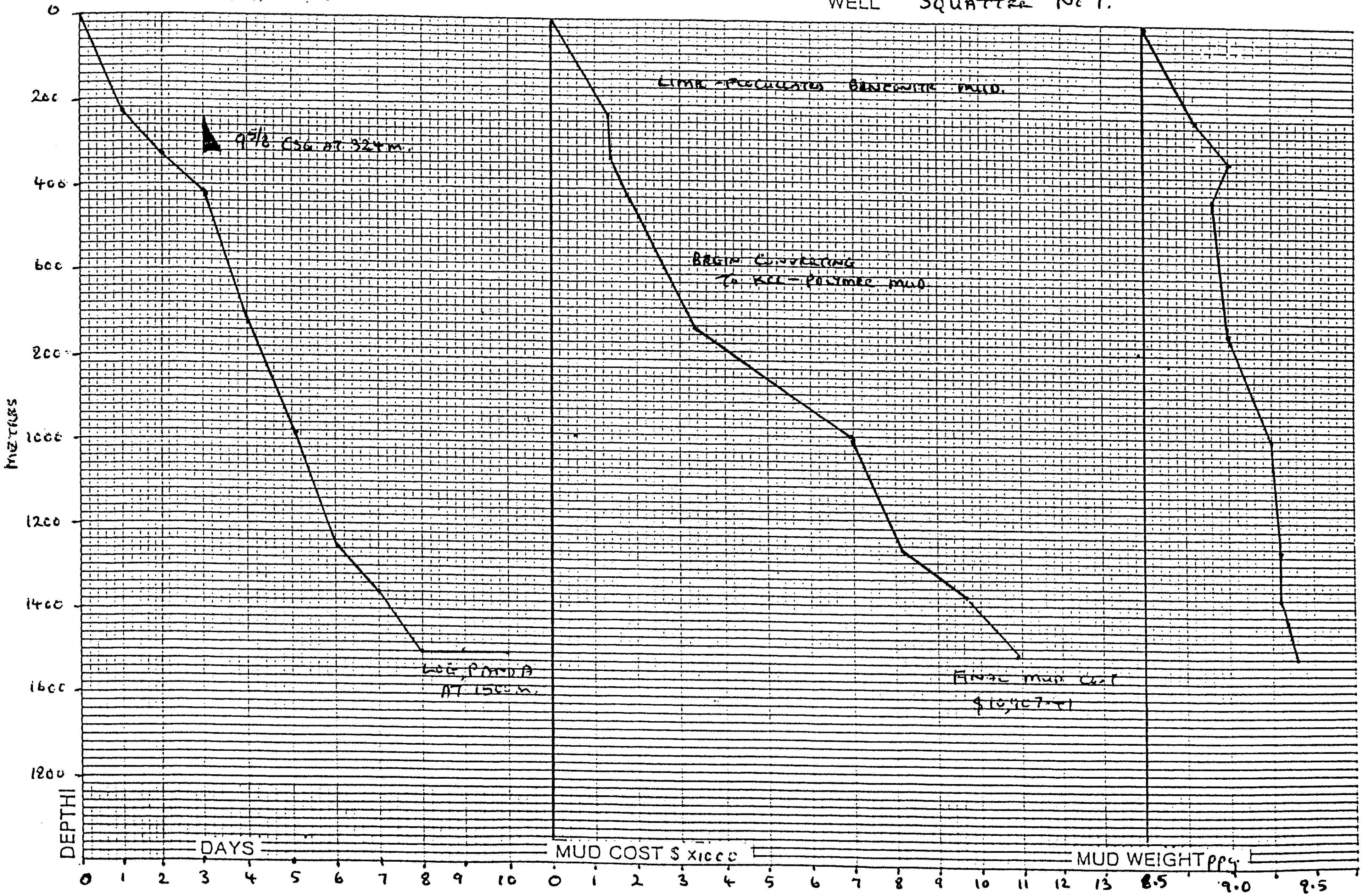
DATE	No.	SIZE	MAKE	TYPE	JETS 32nd"	DEPTH OUT m	METRES DRILLED	HOURS	MTRS/HR	ACCUM DRLG HOURS	BIT WEIGHT	RPM	VERT DEV'N	PUMP PRESSURE p.s.i.	PUMP RATE spm	WT	MUD VIS sec	CONDITION T	B	G	FORMATION	REMARKS
30/7	1	12¼	SEC	S35J	15-15-16	327	327	21.5	15.2	21.5	0-15	100/120	½	350	90	9.0	45	3	2	1/16		
1/8	2	8½	HTC	XDG	3 x 10	723	396	19.5	20.3	41	0-15	100/120	½	720	110	9.0	37	6	4	IN		
4/8	3	8½	HTC	J11	3 x 10	1305	582	45.5	12.8	86.5	0-15	100/110	3/4	600	104	9.3	40	6	4	1/16		
6/8	4	8½	HTC	XDG	2 x 10	1500	195	21.5	9	108	15-30	90/100	½	750	110	9.4	40	8	6	1/16		

Baroid Australia PTY. LTD./NL INDUSTRIES INC.

GRAPH SUMMARY

OPERATOR BEACH PETROLEUM

WELL SQUATTER No 1.



APPENDIX 4

Velocity Survey

Schlumberger

BEACH PETROLEUM N.L.

GEOGRAM PROCESSING REPORT

SQUATTER - 1

FIELD	:	WILDCAT
STATE	:	VICTORIA
COUNTRY	:	AUSTRALIA
COORDINATES	:	037 deg 52' 26.00" S 141 deg 08' 09.00" E
DATE OF SURVEY	:	7-AUGUST-1987
REFERENCE NO.	:	570810

CONTENTS

1. Introduction

A checkshot survey was shot in the Squatter - 1 well on 7 August 1987. Data was acquired using a dynamite source. Twenty levels were shot from 1492 to 62 metres below KB.

2. Data Acquisition

Table 1 Field Equipment and Survey Parameters

Elevation Datum	MSL
Elevation KB	61.7 metres AMSL
Elevation DF	61.4 metres AMSL
Elevation GL	57.1 metres AMSL
Total Depth	1492metres below KB
No. of Levels	20
Energy Source	Dynamite
Source Offset	31.0 metres
Source Azimuth	180 deg
Source Elevation	1.5 metres below GL
Reference Sensor	Hydrophone & Geophone
Downhole Geophone	Geospace HS-1
	High Temp. (350 deg F)
	Coil Resist. 225Ω ±10 %
	Natural Freq. 8-12 hertz
	Sensitivity 0.45 V/in/sec
	Maximum tilt angle 60 deg

Recording was made on the Schlumberger Cyber Service Unit (CSU) using LIS format on 9 track magnetic tape and at a recording density of 1600 BPI.

3. Checkshot Data

Twenty levels were used in the sonic calibration processing. The data quality is good with clearly defined first breaks.

Table 2 Check Shot Levels

Measured Depth	Shots Stacked	Shots Rejected	Quality	Comments
62	3	0	Good	
150	2	0	Good	
245	3	0	Good	
322	2	0	Good	
493	1	0	Good	
565	1	1	Good	
627	1	3	Good	
673	1	1	Good	
720	1	1	Good	
795	2	0	Good	
825	1	1	Good	
898	1	1	Good	
1025	1	1	Good	
1161	1	0	Good	
1225	1	0	Good	
1298	1	1	Good	
1367	1	0	Good	
1395	1	1	Good	
1413	2	0	Good	
1492	2	0	Good	

4. Sonic Calibration Processing

4.1 Sonic Calibration

A 'drift' curve is obtained using the sonic log and the vertical check level times. The term 'drift' is defined as the seismic time (from check shots) minus the sonic time (from integration of edited sonic). Commonly the word 'drift' is used to identify the above difference, or to identify the gradient of drift verses increasing depth, or to identify a difference of drift between two levels.

The gradient of drift, that is the slope of the drift curve, can be negative or positive.

For a negative drift $\frac{\Delta drift}{\Delta depth} < 0$, the sonic time is greater than the seismic time over a certain section of the log.

For a positive drift $\frac{\Delta drift}{\Delta depth} > 0$, the sonic time is less than the seismic time over a certain section of the log.

The drift curve, between two levels, is then an indication of the error on the integrated sonic or an indication of the amount of correction required on the sonic to have the TTI of the corrected sonic match the check shot times.

Two methods of correction to the sonic log are used.

1. **Uniform or block shift** This method applies a uniform correction to all the sonic values over the interval. This uniform correction is applied in the case of positive drift and is the average correction represented by the drift curve gradient expressed in μsec/ft.

2. **ΔT Minimum** In the case of negative drift a second method is used, called Δt minimum. This applies a differential correction to the sonic log, where it is assumed that the greatest amount of transit time error is caused by the lower velocity sections of the log. Over a given interval the method will correct only Δt values which are higher than a threshold, the Δt_{min}. Values of Δt which are lower than the threshold are not corrected. The correction is a reduction of the excess of Δt over Δt_{min}, $\Delta t - \Delta t_{min}$.

   $\Delta t - \Delta t_{min}$ is reduced through multiplication by a reduction coefficient which remains constant over the interval. This reduction coefficient, named G, can be be defined as:

   $$G = 1 + \frac{drift}{\int (\Delta t - \Delta t_{min}) dZ}$$

   Where drift is the drift over the interval to be corrected and the value $\int (\Delta t - \Delta t_{min}) dZ$ is the time difference between the integrals of the two curves Δt and Δt_{min}, only over the intervals where $\Delta t > \Delta t_{min}$.

   Hence the corrected sonic: $\Delta t = G(\Delta t - \Delta t_{min}) + \Delta t_{min}$.

4.2 Open Hole Logs

The sonic log was recorded from 1492 metres to the casing shoe at 322 metres below KB. The overall log quality is good. The density log was recorded upto 700 metres and a constant density of 2.24 gm/cc from this depth to the top of the sonic log. The caliper and gamma ray logs are included as correlation curves.

4.3 Correction to Datum and Velocity Modelling

The sonic calibration processing has been referenced to the seismic datum at mean sea level. A checkshot was taken at MSL and a static correction is computed from this shot.

4.4 Sonic Calibration Results

The top of the sonic log (322 metres below KB) is chosen as the origin for the calibration drift curve. The drift curve indicates a number of corrections to be made to the sonic log. A list of shifts used on the sonic data is given below.

Table 3 Sonic Drift

Depth Interval (m below KB)	Block Shift μsec/ft	Δt_{min} μsec/ft	Equiv Block Shift μsec/ft
322-572	-	134.96	-2.44
572-795	-	121.60	-0.27
795-1492	0.96	-	+0.96

The adjusted sonic curve is considered to be the best result using the available data.

5. Synthetic Seismogram Processing

GEOGRAM plots were generated using 12-60 hertz zero phase butterworth wavelets.

The presentations include both normal and reverse polarity on a time scale of 3.75 in/sec.

GEOGRAM processing produces synthetic seismic traces based on reflection coefficients generated from sonic and density measurements in the well-bore. The steps in the processing chain are the following:

Depth to time conversion
Reflection coefficients
Attenuation coefficients
Convolution
Output.

5.1 Depth to Time Conversion

Open hole logs are recorded from the bottom to top with a depth index. This data is converted to a two-way time index and flipped to read from the top to bottom in order to match the seismic section.

5.2 Primary Reflection Coefficients

Sonic and density data are averaged over chosen time intervals (normally 2 or 4 millisecs). Reflection coefficients are then computed using:

$$R = \frac{\rho_2.\nu_2 - \rho_1.\nu_1}{\rho_2.\nu_2 + \rho_1.\nu_1}$$

where:

ρ_1 = density of the layer above the reflection interface
ρ_2 = density of the layer below the reflection interface
ν_1 = compressional wave velocity of the layer above the reflection interface
ν_2 = compressional wave velocity of the layer below the reflection interface

This computation is done for each time interval to generate a set of primary reflection coefficients without transmission losses.

5.3 Primaries with Transmission Loss

Transmission loss on two-way attenuation coefficients are computed using:

$$A_n = (1 - R_1^2).(1 - R_2^2).(1 - R_3^2)...(1 - R_n^2)$$

A set of primary reflection coefficients with transmission loss is generated using:

$$Primary_n = R_n.A_{n-1}$$

5.4 Primaries plus Multiples

Multiples are computed from these input reflection coefficients using the transform technique from the top of the well to obtain the impulse response of the earth. The transform outputs primaries plus multiples.

5.5 Multiples Only

By subtracting previously calculated primaries from the above result we obtain multiples only.

5.6 Wavelet

A theoretical wavelet is chosen to use for convolution with the reflection coefficients previously generated. Choices available include:

Klauder wavelet
Ricker zero phase wavelet
Ricker minimum phase wavelet
Butterworth wavelet
User defined wavelet.

Time variant butterworth filtering can be applied after convolution.

5.7 Polarity Convention

An increase in acoustic impedance gives a positive reflection coefficent and is displayed as a white trough under normal polarity. Polarity conventions are displayed in Figure-1.

5.8 Convolution

Standard procedure of convolution of wavelet with reflection coefficients. The output is the synthetic seismogram.

A Summary of Geophysical Listings

Six geophysical data listings are appended to this report. Following is a brief description of the format of each listing.

A1 Geophysical Airgun Report

1. Level number : the level number starting from the top level (includes any imposed shots).
2. Vertical depth from KB : *dkb*, the depth in feet from kelly bushing .
3. Vertical depth from SRD : *dsrd*, the depth in feet from seismic reference datum.
4. Vertical depth from GL : *dgl*, the depth in feet from ground level.
5. Observed travel time HYD to GEO : *tim*0, the transit time picked from the stacked data by subtracting the surface sensor first break time from the downhole sensor first break time.
6. Vertical travel time SRC to GEO : *timv*, is corrected for source to hydrophone distance and for source offset.
7. Vertical travel time SRD to GEO : *shtm*, is *timv* corrected for the vertical distance between source and datum.
8. Average velocity SRD to GEO : the average seismic velocity from datum to the corresponding checkshot level, $\frac{dsrd}{shtm}$.
9. Delta depth between shots : $\Delta depth$, the vertical distance between each level.
10. Delta time between shots : $\Delta time$, the difference in vertical travel time (*shtm*) between each level.
11. Interval velocity between shots : the average seismic velocity between each level, $\frac{\Delta depth}{\Delta time}$.

A2 Drift Computation Report

1. Level number : the level number starting from the top level (includes any imposed shots).
2. Vertical depth from KB : the depth in feet from kelly bushing .
3. Vertical depth from SRD : the depth in feet from seismic reference datum.
4. Vertical depth from GL : the depth in feet from ground level.
5. Vertical travel time SRD to GEO : the calculated vertical travel time from datum to downhole geophone (see column 7, Geophysical Airgun Report).

A3 Sonic Adjustment Parameter Report

1. Knee number : the knee number starting from the highest knee. (The first knees listed will generally be at SRD and the top of sonic. The drift imposed at these knees will normally be zero.)

2. Vertical depth from KB : the depth in feet from kelly bushing .

3. Vertical depth from SRD : the depth in feet from seismic reference datum.

4. Vertical depth from GL : the depth in feet from ground level.

5. Drift at knee : the value of drift imposed at each knee.

6. Blockshift used : the change in drift divided by the change in depth between any two levels.

7. Delta-T minimum used : see section 4 of report for an explanation of Δt_{min}.

8. Reduction factor : see section 4 of report.

9. Equivalent blockshift : the gradient of the imposed drift curve.

A4 Velocity Report

1. Level number : the level number starting from the top level (includes any imposed shots).

2. Vertical depth from KB : the depth in feet from kelly bushing .

3. Vertical depth from SRD : the depth in feet from seismic reference datum

4. Vertical depth from GL : the depth in feet from ground level

5. Vertical travel time SRD to GEOPH : the vertical travel time from SRD to downhole geophone (see column 7, Geophysical Airgun Report)

6. Integrated adjusted sonic time : the adjusted sonic log is integrated from top to bottom. An initial value at the the top of the sonic is set equal the checkshot time at that level. (The adjusted sonic log is the drift corrected sonic log.)

7. Drift=shot time-raw son : the check shot time minus the raw integrated sonic time.

8. Residual=shot time-adj son : the check shot time minus the adjusted integrated sonic time. This is the difference between calculated drift and the imposed drift.

9. Adjusted interval velocity : the interval velocity calculated from the integrated adjusted sonic time at each level.

A5 Time Converted Velocity Report

The data in this listing has been resampled in time.

1. Two way travel time from SRD : This is the index for the data in this listing. The first value is at SRD (0 millisecs) and the sampling rate is 2 millisecs.

2. Measured depth from KB : the depth from KB at each corresponding value of two way time.

3. Vertical depth from SRD : the vertical depth from SRD at each corresponding value of two way time.

4. Average velocity SRD to GEO : the vertical depth from SRD divided by half the two way time.

5. RMS velocity : the root mean square velocity from datum to the corresponding value of two way time.

   $$v_{rms} = \sqrt{\Sigma_1^n v_i^2 t_i / \Sigma_1^n t_i}$$

   where v_i is the velocity between each 2 millisecs interval.

6. First normal moveout : the correction time in millisecs to be applied to the two way travel time for a specified moveout distance (default = 3000 feet).

   $$\Delta t = \sqrt{t^2 + (\frac{X}{v_{rms}})^2} - t$$

   where:

   Δt = normal moveout (secs)
   X = moveout distance (feet)
   t = two way time (secs)
   v_{rms} = rms velocity (feet /sec)

7. Second normal moveout : the correction time in millisecs to be applied to the two way travel time for a specified moveout distance (default = 4500 feet).

8. Third normal moveout : the correction time in millisecs to be applied to the two way travel time for a specified moveout distance (default = 6000 feet).

9. Interval velocity : the velocity between each sampled depth. Typically, the sampling rate is 2 millisecs two way time, (1 millisec one way time) therefore the interval velocity will be equal to the depth increment divided by 0.001. It is equivalent to column 9 from the the Velocity Report.

A6 Synthetic Seismogram Table

1. Two way travel time from SRD : This is the index for the data in this listing. The first value is at the top of the sonic. The default sampling rate is 2 millisecs.

2. Vertical depth from SRD : the vertical depth from SRD at each corresponding value of two way time.

3. Interval velocity : the velocity between each sampled depth. Typically, the sampling rate is 2 millisecs two way time, (1 millisec one way time) therefore the interval velocity will be equal to the depth increment divided by 0.001. It is equivalent to column 9 from the the Velocity Report.

4. Interval density : the average density between two successive values of two way time.

5. Reflect. coeff. : the difference in acoustic impedance divided by the sum of the acoustic impedance between any two levels. The acoustic impedance is the product of the interval density and the interval velocity.

6. Two way atten. coeff. : is computed from the series

$$A_n = (1 - R_1^2).(1 - R_2^2).(1 - R_3^2)...(1 - R_n^2)$$

7. Sythetic seismo. primary : the product of the reflection coefficient at each depth and the two way attenuation coefficient up to that depth.

$$Primary_n = R_n.A_{n-1}$$

8. Primary + multiple : a transform technique is used to calculate multiples from the input reflection coefficients.

9. Multiples only : (Primary + multiple) - (Synthetic seismo. primary)

SCHLUMBERGER (SEG-1976) WAVELET POLARITY CONVENTION

Figure 1

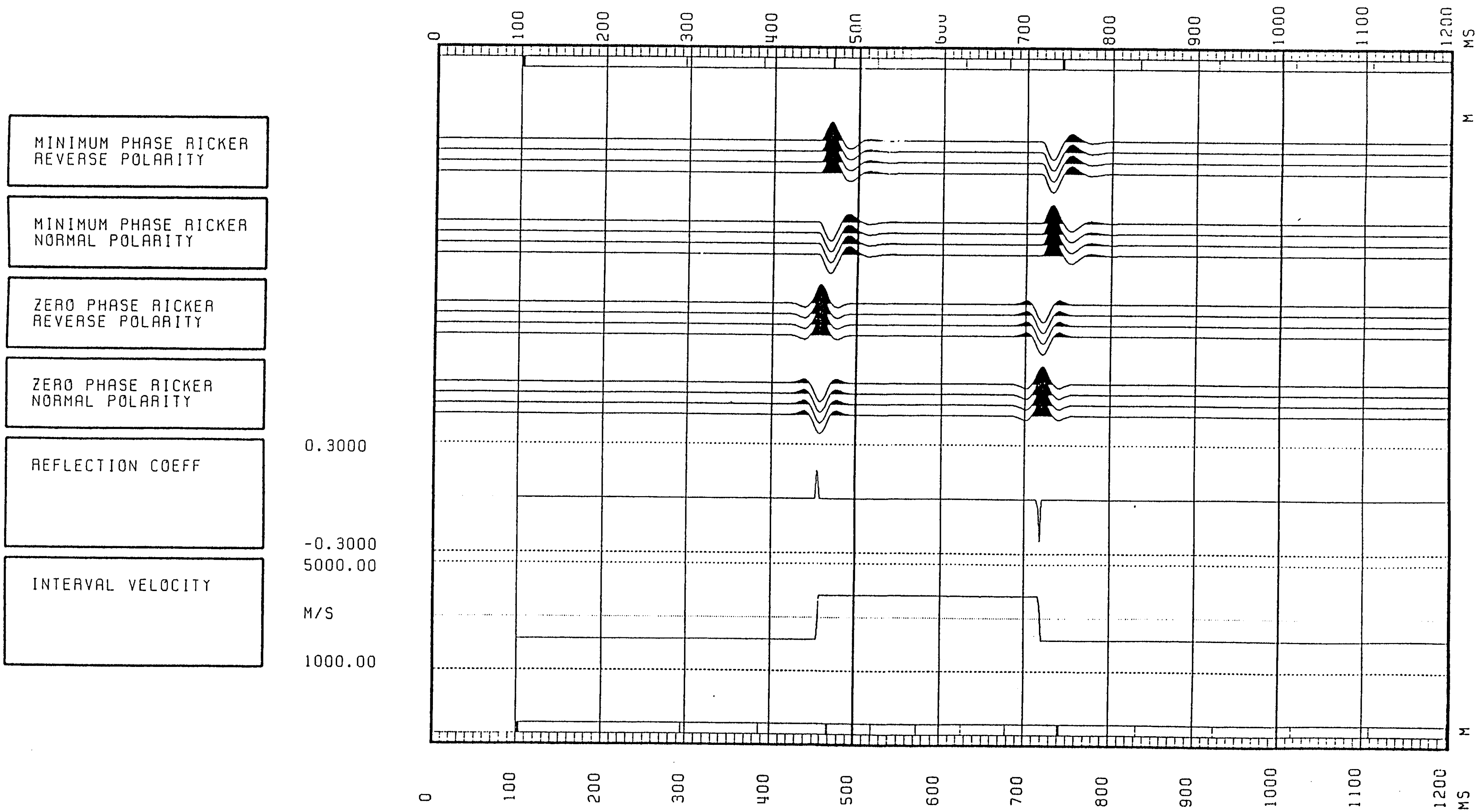
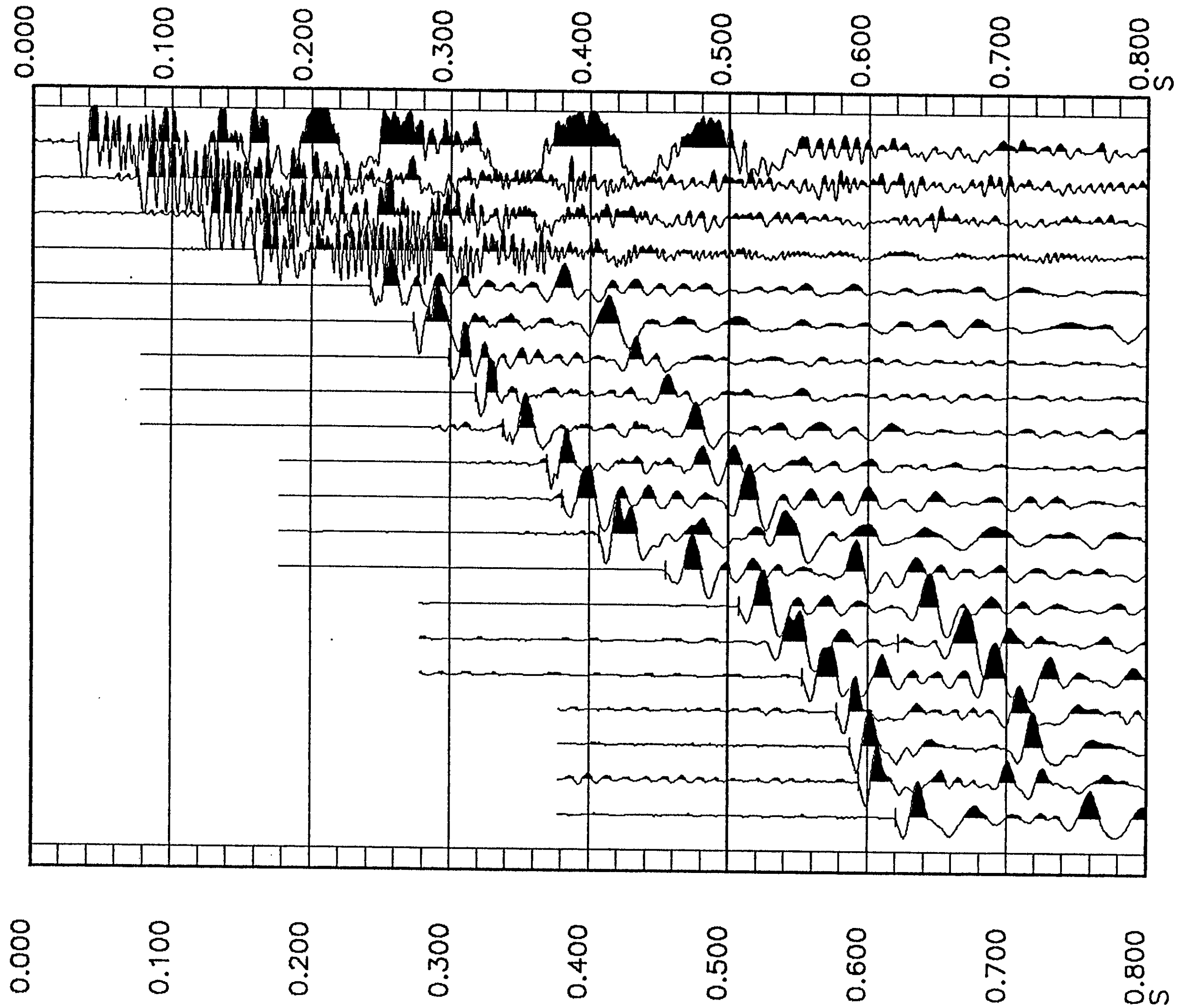


Figure 2

SQUATTER - 1
STACKED CHECKSHOT DATA

RAW DEPTH M	TRANSIT TIME S	LEVEL NO
62.0	0.033	20
150.0	0.076	19
245.0	0.122	18
322.0	0.159	17
493.0	0.242	16
565.0	0.273	15
627.0	0.298	14
673.0	0.318	13
720.0	0.338	12
795.0	0.370	11
825.0	0.381	10
898.0	0.407	9
1025.0	0.455	8
1161.0	0.507	7
1225.0	0.622	6
1298.0	0.553	5
1367.0	0.578	4
1395.0	0.587	3
1413.1	0.594	2
1492.0	0.620	1



SHOT

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*   SCHLUMBERGER  *
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GEOPHYSICAL AIRGUN REPORT

COMPANY : EEACH PETROLEUM N.L.

WELL : SQUATTER - 1

FIELD : WILDCAT

CCLNTRY : AUSTRALIA

REFERENCE: 570810

LOGGED : 06/08/87

LONG DEFINITIONS

GLOBAL

KB	- ELEVATION OF THE KELLY-BUSHING ABOVE MSL OR MWL
SRD	- ELEVATION OF THE SEISMIC REFERENCE DATUM ABOVE MSL OR MWL
EKB	- ELEVATION OF KELLY BUSHING
GL	- ELEVATION OF USER'S REFERENCE (GENERALLY GROUND LEVEL) ABOVE SRD
VELHYD	- VELOCITY OF THE MEDIUM BETWEEN THE SOURCE AND THE HYDROPHONE
VELSUR	- VELOCITY OF THE MEDIUM BETWEEN THE SOURCE AND THE SRD

MATRIX

GUNELZ	- SOURCE ELEVATION ABOVE SRD (ONE FOR THE WHOLE JOB; OR ONE PER SHOT)
GUNEWZ	- SOURCE DISTANCE FROM THE BOREHOLE AXIS IN EW DIRECTION (CF. GUNELZ)
GUNNSZ	- SOURCE DISTANCE FROM THE BOREHOLE AXIS IN NS DIRECTION (CF. GUNELZ)
HYDELZ	- HYDROPHONE ELEVATION ABOVE SRD (CF. GUNELZ)
HYDEWZ	- HYDROPHONE DISTANCE FROM THE BOREH AXIS IN EW DIRECTION (CF GUNELZ)
HYDNSZ	- HYDROPHONE DISTANCE FROM THE BOREH AXIS IN NS DIRECTION (CF GUNELZ)
TRTHYD	- TRAVEL TIME FROM THE HYDROPHONE TO THE SOURCE
TRTSRD	- TRAVEL TIME FROM THE SOURCE TO THE SRD
DEVWEL	- DEVIATED WELL DATA PER SHOT : MEAS. DEPTH, VERT. DEPTH, EW, NS

SAMPLED

SHOT.GSH	- SHOT NUMBER
DKB.GSH	- MEASURED DEPTH FROM KELLY-BUSHING
DSRD.GSH	- DEPTH FROM SRD
DGL.GSH	- VERTICAL DEPTH RELATIVE TO GROUND LEVEL (USER'S REFERENCE)
TIMO.GSH	- MEASURED TRAVEL TIME FROM HYDROPHONE TO GEOPHONE
TIMV.GSH	- VERTICAL TRAVEL TIME FROM THE SOURCE TO THE GEOPHONE
SHTM.GSH	- SHOT TIME (WST)
AVGV.GSH	- AVERAGE SEISMIC VELOCITY
DELZ.GSH	- DEPTH INTERVAL BETWEEN SUCCESSIVE SHOTS
DELT.GSH	- TRAVEL TIME INTERVAL BETWEEN SUCCESSIVE SHOTS
INTV.GSH	- INTERNAL VELOCITY, AVERAGE

(GLOBAL PARAMETERS)			(VALUE)	
ELEV OF KB AB. MSL (WST)	KB	:	61.7000	M
ELEV OF SRD AB. MSL(WST)	SRD	:	0	M
ELEVATION OF KELLY BUSHI	EKB	:	61.7000	M
ELEV OF GL AB. SRD(WST)	GL	:	57.1000	M
VEL SOURCE-HYDRO(WST)	VELHYD	:	1929.03	M/S
VEL SOURCE-SRD (WST)	VELSUR	:	1868.52	M/S

(MATRIX PARAMETERS)

	SOURCE ELV M	SOURCE EW M	SOURCE NS M	HYDRO ELEV M	HYDRO EW M	HYDRO NS M
1	55.60	0	-31.00	56.10	0	-33.00

	TRT HYD-SC MS	TRT SC-SRD MS
1	1.07	-29.76

	MD @ KB M	VD @ KB M	VD @ SRD M	E-W COORD M	N-S COORD M
1	61.70	61.70	0	0	0
2	150.00	150.00	88.30	0	0
3	245.00	245.00	183.30	0	0
4	322.00	322.00	260.30	0	0
5	493.00	493.00	431.30	0	0
6	565.00	565.00	503.30	0	0
7	627.00	627.00	565.30	0	0
8	673.00	673.00	611.30	0	0
9	720.00	720.00	658.30	0	0
10	795.00	795.00	733.30	0	0
11	825.00	825.00	763.30	0	0
12	898.00	898.00	836.30	0	0
13	1025.00	1025.00	963.30	0	0
14	1161.00	1161.00	1099.30	0	0
15	1225.00	1225.00	1163.30	0	0
16	1298.00	1298.00	1236.30	0	0
17	1367.00	1367.00	1305.30	0	0
18	1395.00	1395.00	1333.30	0	0
19	1413.00	1413.00	1351.30	0	0
20	1492.00	1492.00	1430.30	0	0

LEVEL NUMBER	MEASUR DEPTH FROM KB M	VERTIC DEPTH FROM SRD M	VERTIC DEPTH FROM GL M	OBSERV TRAVEL TIME HYD/GEO MS	VERTIC TRAVEL TIME SRC/GEO MS	VERTIC TRAVEL TIME SRD/GEO MS	AVERAGE VELOC SRD/GEO M/S	DELTA DEPTH BETWEEN SHOTS M	DELTA TIME BETWEEN SHOTS MS	INTERV VELOC BETWEEN SHOTS M/S
1	61.70	0	57.10	33.00	29.76	0				
2	150.00	88.30	145.40	76.00	75.34	45.58	1937	88.30	45.58	1937
3	245.00	183.30	240.40	122.00	122.05	92.29	1986	95.00	46.71	2034
4	322.00	260.30	317.40	159.00	159.30	129.55	2009	77.00	37.26	2067
5	493.00	431.30	488.40	242.00	242.58	212.82	2027	171.00	83.27	2053
6	565.00	503.30	560.40	273.00	273.65	243.89	2064	72.00	31.07	2317
7	627.00	565.30	622.40	298.00	298.70	268.94	2102	62.00	25.05	2475
8	673.00	611.30	668.40	318.00	318.72	288.97	2115	46.00	20.03	2297
9	720.00	658.30	715.40	338.00	338.75	308.99	2130	47.00	20.02	2347
10	795.00	733.30	790.40	370.00	370.78	341.03	2150	75.00	32.03	2341
11	825.00	763.30	820.40	381.00	381.80	352.04	2168	30.00	11.01	2724
12	898.00	836.30	893.40	407.00	407.82	378.07	2212	73.00	26.03	2805
13	1025.00	963.30	1020.40	455.00	455.86	426.10	2261	127.00	48.04	2644
14	1161.00	1099.30	1156.40	507.00	507.89	478.13	2299	136.00	52.03	2614
15	1225.00	1163.30	1220.40	528.00	528.90	499.14	2331	64.00	21.01	3046
16	1298.00	1236.30	1293.40	553.00	553.91	524.15	2359	73.00	25.01	2919
17	1367.00	1305.30	1362.40	578.00	578.92	549.16	2377	69.00	25.01	2759
18	1395.00	1333.30	1390.40	587.00	587.92	558.17	2389	28.00	9.00	3110
19	1413.00	1351.30	1408.40	594.00	594.92	565.17	2391	18.00	7.00	2571
20	1492.00	1430.30	1487.40	620.00	620.93	591.18	2419	79.00	26.01	3037

DRIFT

ANALYST: M. SANDERS   14-AUG-87 17:44:46   PROGRAM: GDRIFT 007.E09

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DRIFT COMPUTATION REPORT

COMPANY : BEACH PETROLEUM N.L.
WELL : SQLATTER - 1
FIELD : WILDCAT
COUNTRY : AUSTRALIA
REFERENCE: 570810
LOGGED : C6/08/87

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DRIFT COMPUTATION REPORT

COMPANY ; BEACH PETROLEUM N.L.
WELL : SQUATTER - 1
FIELD : WILDCAT
CCUNTRY : AUSTRALIA
REFERENCE: 570810
LOGGED : 06/08/87

LONG DEFINITIONS

GLOBAL

KB - ELEVATION OF THE KELLY-BUSHING ABOVE MSL OR MWL
SRD - ELEVATION OF THE SEISMIC REFERENCE DATUM ABOVE MSL OR MWL
EKB - ELEVATION OF KELLY BUSHING
GL - ELEVATION OF USER'S REFERENCE (GENERALLY GROUND LEVEL) ABOVE SRD
XSTART - TOP OF ZONE PROCESSED BY WST
XSTOP - BOTTOM OF ZONE PROCESSED BY WST
GAD001 - RAW SONIC CHANNEL NAME USED FOR WST SONIC ADJUSTMENT
UNFDEN - UNIFORM DENSITY VALUE

ZONE

LOFDEN - LAYER OPTION FLAG FOR DENSITY : -1=NONE; 0=UNIFORM; 1=UNIFORM+LAYER
LAYDEN - USER SUPPLIED DENSITY DATA

SAMPLED

SHOT - SHOT NUMBER
DKB - MEASURED DEPTH FROM KELLY-BUSHING
DSRD - DEPTH FROM SRD
DGL - VERTICAL DEPTH RELATIVE TO GROUND LEVEL (USER'S REFERENCE)
SHTM - SHOT TIME (WST)
RAWS - RAW SONIC (WST)
SHDR - DRIFT AT SHOT OR KNEE
BLSH - BLOCK SHIFT BETWEEN SHOTS OR KNEE

(GLOBAL PARAMETERS)			(VALUE)	
ELEV OF KB AB. MSL (WST)	KB	:	61.7000	M
ELEV OF SRD AB. MSL(WST)	SRD	:	0	M
ELEVATION OF KELLY BUSHI	EKB	:	61.7000	M
ELEV OF GL AB. SRD(WST)	GL	:	57.1000	M
TOP OF ZONE PROCD (WST)	XSTART	:	0	M
BOT OF ZONE PROCD (WST)	XSTOP	:	0	M
RAW SONIC CH NAME (WST)	GAD001	:	DT.ATT.002.FLP.*	
UNIFORM DENSITY VALUE	UNFDEN	:	2.30000	G/C3

(ZONED PARAMETERS)		(VALUE)		(LIMITS)		
LAYER OPTION FLAG DENS	LOFDEN	: 1.000000		30479.7	-	0
USER SUPPLIED DENSITY DA	LAYDEN	:-999.2500	G/C3	30479.7	-	0

COMPANY : BEACH PETROLEUM N.L. WELL : SQUATTER - 1

LEVEL NUMBER	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	VERTICAL DEPTH FROM GL M	VERTICAL TRAVEL TIME SRD/GEO MS	INTEGRATED RAW SONIC TIME MS	COMPUTED DRIFT AT LEVEL MS	COMPUTED BLK-SHFT CORRECTION US/F
1	61.70	0	57.10	0	0	0	0
2	150.00	88.30	145.40	45.58	45.58	0	0
3	245.00	183.30	240.40	92.29	92.29	0	0
4	322.00	260.30	317.40	129.55	129.55	0	0
5	493.00	431.30	488.40	212.82	213.65	-.83	-1.48
6	565.00	503.30	560.40	243.89	245.79	-1.90	-4.52
7	627.00	565.30	622.40	268.94	272.37	-3.43	-7.50
8	673.00	611.30	668.40	288.97	291.55	-2.58	5.58
9	720.00	658.30	715.40	308.99	311.39	-2.40	1.21
10	795.00	733.30	790.40	341.03	343.04	-2.01	1.56
11	825.00	763.30	820.40	352.04	353.12	-1.08	9.54
12	898.00	836.30	893.40	378.07	380.25	-2.19	-4.64
13	1025.00	963.30	1020.40	426.10	428.91	-2.80	-1.48
14	1161.00	1099.30	1156.40	478.13	478.43	-.30	5.62
15	1225.00	1163.30	1220.40	499.14	501.18	-2.04	-8.30
16	1298.00	1236.30	1293.40	524.15	525.79	-1.64	1.69
17	1367.00	1305.30	1362.40	549.16	549.06	.10	7.67
18	1395.00	1333.30	1390.40	558.17	558.48	-.31	-4.47
19	1413.00	1351.30	1408.40	565.17	564.65	.52	14.05
20	1492.00	1430.30	1487.40	591.18	590.71	.47	-.21

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*  SCHLUMBERGER   *
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SONIC ADJUSTMENT PARAMETER REPORT

COMPANY : BEACH PETROLEUM N.L.

WELL : SQUATTER - 1

FIELD : WILDCAT

COUNTRY : AUSTRALIA

REFERENCE: 570810

LOGGED : 06/08/87

LONG DEFINITIONS

GLOBAL

SRCDRF - ORIGIN OF ADJUSTMENT DATA
CONADJ - CONSTANT ADJUSTMENT TO AUTOMATIC DELTA-T MINIMUM = 7.5 US/F
UNERTH - UNIFORM EARTH VELOCITY (GTRFRM)

ZONE

ZDRIFT - USER DRIFT AT BOTTOM OF THE ZONE
ADJOPZ - TYPE OF ADJUSTMNENT IN THE DRIFT ZONE : 0=DELTA-T MIN, 1=BLOCKSHIFT
ADJUSZ - DELTA-T MINIMUM USED FOR ADJUSTMENT IN THE DRIFT ZONE
LOFVEL - LAYER OPTION FLAG FOR VELOCITY: -1=NONE; 0=UNIFORM; 1=UNIFORM+LAYER
LAYVEL - USER SUPPLIED VELOCITY DATA

SAMPLED

SHOT - SHOT NUMBER
VDKB - VERTICAL DEPTH RELATIVE TO KB
DSRD - DEPTH FROM SRD
DGL - VERTICAL DEPTH RELATIVE TO GROUND LEVEL (USER'S REFERENCE)
KNEE - KNEE
BLSH - BLOCK SHIFT BETWEEN SHOTS OR KNEE
DTMI - VALUE OF DELTA-T MINIMUM USED
COEF - DELTA-T MIN COEFFICIENT USED IN THE DRIFT ZONE
DRGR - GRADIENT OF DRIFT CURVE

(GLOBAL PARAMETERS)		(VALUE)	
ORIG OF ADJ DATA (WST)	SRCDRF	: 2.00000	
CONS SONIC ADJST (WST)	CONADJ	: 7.50000	US/F
UNIFORM EARTH VELOCITY	UNERTH	: 2133.60	M/S

(ZONED PARAMETERS)		(VALUE)		(LIMITS)		
USER DRIFT ZONE (WST)	ZDRIFT	: 0	MS	1492.00	-	795.000
		-2.200000		795.000		572.000
		-2.000000		572.000		322.000
		0		322.000		0
ADJUSMNT MODE (WST)	ADJOPZ	:-999.2500		30479.7	-	0
USER DELTA-T MIN (WST)	ADJUSZ	:-999.2500	US/F	30479.7	-	0
LAYER OPTION FLAG VELOC	LOFVEL	: 1.000000		30479.7	-	0
USER VELOC (WST)	LAYVEL	: 1937.000	M/S	150.000	-	61.7000

COMPANY : BEACH PETROLEUM N.L. WELL : SQUATTER - 1

KNEE NUMBER	VERTICAL DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	VERTICAL DEPTH FROM GL M	DRIFT AT KNEE MS	BLOCKSHIFT USED US/F	DELTA-T MINIMUM USED US/F	REDUCTION FACTOR G	EQUIVALENT BLOCKSHIFT US/F
					0			0
2	322.00	260.30	317.40	0				
3	572.00	510.30	567.40	-2.00		134.96	.78	-2.44
4	795.00	733.30	790.40	-2.20		121.60	.97	-.27
					.96			.96
5	1492.00	1430.30	1487.40	0				

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*  SCHLUMBERGER   *
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VELOCITY REPORT

COMPANY : BEACH PETROLEUM N.L.

WELL : SQLATTER - 1

FIELD : WILDCAT

COUNTRY : AUSTRALIA

REFERENCE: 570810

LOGGED : 06/08/87

ANALYST: M. SANDERS 17-AUG-87 09:35:45 PROGRAM: GADJST 008.E08

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VELOCITY REPORT

COMPANY : BEACH PETROLEUM N.L.

WELL : SQUATTER - 1

FIELD : WILDCAT

COUNTRY : AUSTRALIA

REFERENCE: 570810

LOGGED : 06/08/87

LONG DEFINITIONS

GLOBAL

KB - ELEVATION OF THE KELLY-BUSHING ABOVE MSL OR MWL
SRD - ELEVATION OF THE SEISMIC REFERENCE DATUM ABOVE MSL OR MWL
EKB - ELEVATION OF KELLY BUSHING
GL - ELEVATION OF USER'S REFERENCE (GENERALLY GROUND LEVEL) ABOVE SRD
UNERTH - UNIFORM EARTH VELOCITY (GTRFRM)

ZONE

LOFVEL - LAYER OPTION FLAG FOR VELOCITY: -1=NONE; 0=UNIFORM; 1=UNIFORM+LAYER
LAYVEL - USER SUPPLIED VELOCITY DATA

SAMPLED

SHOT - SHOT NUMBER
DKE - MEASURED DEPTH FROM KELLY-BUSHING
DSRD - DEPTH FROM SRD
DGL - VERTICAL DEPTH RELATIVE TO GRCUND LEVEL (USER'S REFERENCE)
SHTM - SHOT TIME (WST)
ADJS - ADJUSTED SONIC TRAVEL TIME
SHDR - DRIFT AT SHOT OR KNEE
REST - RESIDUAL TRAVEL TIME AT KNEE
INTV - INTERNAL VELOCITY, AVERAGE

(GLOBAL PARAMETERS)			(VALUE)	
ELEV OF KB AB. MSL (WST)	KB	:	61.7000	M
ELEV OF SRD AB. MSL(WST)	SRD	:	0	M
ELEVATION OF KELLY BUSHI	EKB	:	61.7000	M
ELEV OF GL AB. SRD(WST)	GL	:	57.1000	M
UNIFORM EARTH VELOCITY	UNERTH	:	2133.60	M/S

(ZONED PARAMETERS)			(VALUE)		(LIMITS)
LAYER OPTION FLAG VELOC	LOFVEL	:	1.000000		30479.7 - 0
USER VELOC (WST)	LAYVEL	:	1937.000	M/S	150.000 - 61.7000

LEVEL NUMBER	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	VERTICAL DEPTH FROM GL M	VERTICAL TRAVEL TIME SRD/GEOPH MS	INTEGRATED ADJUSTED SONIC TIME MS	DRIFT = SHOT TIME - RAW SON MS	RESIDUAL = SHOT TIME - ADJ SON MS	ADJUSTED INTERVAL VELOCITY M/S
1	61.70	0	57.10	0	0	0	0	
2	150.00	88.30	145.40	45.58	45.58	0	0	1937
3	245.00	183.30	240.40	92.29	92.29	0	0	2034
4	322.00	260.30	317.40	129.55	129.55	0	0	2067
5	493.00	431.30	488.40	212.82	211.81	-.83	1.02	2079
6	565.00	503.30	560.40	243.89	243.79	-1.90	.10	2251
7	627.00	565.30	622.40	268.94	270.29	-3.43	-1.35	2339
8	673.00	611.30	668.40	288.97	289.45	-2.58	-.48	2402
9	720.00	658.30	715.40	308.99	309.25	-2.40	-.25	2374
10	795.00	733.30	790.40	341.03	340.83	-2.01	.19	2374
11	825.00	763.30	820.40	352.04	351.00	-1.08	1.04	2950
12	898.00	836.30	893.40	378.07	378.37	-2.19	-.31	2667
13	1025.00	963.30	1020.40	426.10	427.43	-2.80	-1.32	2589
14	1161.00	1099.30	1156.40	478.13	477.38	-.30	.75	2723
15	1225.00	1163.30	1220.40	499.14	500.33	-2.04	-1.19	2788
16	1298.00	1236.30	1293.40	524.15	525.17	-1.64	-1.02	2939
17	1367.00	1305.30	1362.40	549.16	548.66	.10	.50	2937
18	1395.00	1333.30	1390.40	558.17	558.16	-.31	0	2946
19	1413.00	1351.30	1408.40	565.17	564.39	.52	.78	2890
20	1492.00	1430.30	1487.40	591.18	590.70	.47	.48	3003

TIME/DEPTH

ANALYST: M. SANDERS   17-AUG-87 C9:43:29   PROGRAM: GTRFRM 001.E12

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*  SCHLUMBERGER   *
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TIME CCNVERTED VELOCITY REPORT

COMPANY : EEACH PETROLEUM N.L.

WELL : SQUATTER - 1

FIELD : WILDCAT

COUNTRY : AUSTRALIA

REFERENCE: 57C810

LOGGED : C6/08/87

LONG DEFINITIONS

GLOBAL

KB - ELEVATION OF THE KELLY-BUSHING ABOVE MSL OR MWL
SRD - ELEVATION OF THE SEISMIC REFERENCE DATUM ABOVE MSL OR MWL
GL - ELEVATION OF USER'S REFERENCE (GENERALLY GROUND LEVEL) ABOVE SRD
UNERTH - UNIFORM EARTH VELOCITY (GTRFRM)
UNFDEN - UNIFORM DENSITY VALUE

MATRIX

MVODIS - MOVE-OUT DISTANCE FROM BOREHOLE

ZONE

LOFVEL - LAYER OPTION FLAG FOR VELOCITY: -1=NONE; 0=UNIFORM; 1=UNIFORM+LAYER
LAYVEL - USER SUPPLIED VELOCITY DATA
LOFDEN - LAYER OPTION FLAG FOR DENSITY : -1=NONE; 0=UNIFORM; 1=UNIFORM+LAYER
LAYDEN - USER SUPPLIED DENSITY DATA

SAMPLED

TWOT - TWO WAY TRAVEL TIME (RELATIVE TO THE SEISMIC REFERENCE
DKE - MEASURED DEPTH FROM KELLY-BUSHING
DSRD - DEPTH FROM SRD
AVGV - AVERAGE SEISMIC VELOCITY
RMSV - ROOT MEAN SQUARE VELOCITY (SEISMIC)
MVOT - NORMAL MOVE-OUT
MVOT - NORMAL MOVE-OUT
MVOT - NORMAL MOVE-OUT
INTV - INTERNAL VELOCITY, AVERAGE

(GLOBAL PARAMETERS)			(VALUE)	
ELEV OF KB AB. MSL (WST)	KB	:	61.7000	M
ELEV OF SRD AB. MSL(WST)	SRD	:	0	M
ELEV OF GL AB. SRD(WST)	GL	:	57.1000	M
UNIFORM EARTH VELOCITY	UNERTH	:	2133.60	M/S
UNIFORM DENSITY VALUE	UNFDEN	:	2.30000	G/C3

(MATRIX PARAMETERS)

	MVOUT DIST M
1	1000.0
2	1500.0
3	2000.0

(ZONED PARAMETERS)		(VALUE)		(LIMITS)		
LAYER OPTION FLAG VELOC	LOFVEL	: 1.000000		30479.7	-	0
USER VELOC (WST)	LAYVEL	: 1937.000	M/S	150.000	-	61.7000
LAYER OPTION FLAG DENS	LOFDEN	:-1.000000		30479.7	-	0
USER SUPPLIED DENSITY DA	LAYDEN	:-999.2500	G/C3	30479.7	-	0

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
0	61.72	.02						2134
2.00	63.64	1.94	1937	1922	518.40	778.60	1038.80	1922
4.00	65.57	3.87	1937	1929	514.32	773.47	1032.62	1937
6.00	67.51	5.81	1937	1932	511.65	770.45	1029.25	1937
8.00	69.45	7.75	1937	1933	509.33	767.95	1026.57	1937
10.00	71.39	9.69	1937	1934	507.16	765.66	1024.18	1937
12.00	73.32	11.62	1937	1935	505.07	763.48	1021.92	1937
14.00	75.26	13.56	1937	1935	503.02	761.37	1019.75	1937
16.00	77.20	15.50	1937	1935	501.00	759.30	1017.64	1937
18.00	79.13	17.43	1937	1935	499.01	757.26	1015.55	1937
20.00	81.07	19.37	1937	1936	497.04	755.24	1013.50	1937
22.00	83.01	21.31	1937	1936	495.08	753.24	1011.47	1937
24.00	84.94	23.24	1937	1936	493.14	751.25	1009.45	1937
26.00	86.88	25.18	1937	1936	491.21	749.27	1007.44	1937
28.00	88.82	27.12	1937	1936	489.29	747.31	1005.45	1937
30.00	90.76	29.06	1937	1936	487.39	745.35	1003.47	1937
32.00	92.69	30.99	1937	1936	485.49	743.41	1001.49	1937
34.00	94.63	32.93	1937	1936	483.60	741.47	999.53	1937
36.00	96.57	34.87	1937	1936	481.72	739.54	997.57	1937
38.00	98.50	36.80	1937	1936	479.85	737.62	995.62	1937
40.00	100.44	38.74	1937	1936	477.99	735.70	993.67	1937
42.00	102.38	40.68	1937	1936	476.14	733.79	991.73	1937
44.00	104.32	42.62	1937	1936	474.30	731.89	989.79	1937
46.00	106.25	44.55	1937	1936	472.47	730.00	987.86	1937

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
48.00	108.19	46.49	1937	1936	470.64	728.11	985.94	1937
50.00	110.13	48.43	1937	1936	468.82	726.22	984.02	1937
52.00	112.06	50.36	1937	1936	467.01	724.34	982.11	1937
54.00	114.00	52.30	1937	1937	465.21	722.47	980.20	1937
56.00	115.94	54.24	1937	1937	463.42	720.60	978.29	1937
58.00	117.88	56.18	1937	1937	461.63	718.74	976.39	1937
60.00	119.81	58.11	1937	1937	459.85	716.89	974.50	1937
62.00	121.75	60.05	1937	1937	458.08	715.04	972.61	1937
64.00	123.69	61.99	1937	1937	456.32	713.19	970.72	1937
66.00	125.62	63.92	1937	1937	454.57	711.36	968.84	1937
68.00	127.56	65.86	1937	1937	452.82	709.52	966.96	1937
70.00	129.50	67.80	1937	1937	451.08	707.70	965.09	1937
72.00	131.43	69.73	1937	1937	449.35	705.87	963.22	1937
74.00	133.37	71.67	1937	1937	447.63	704.06	961.35	1937
76.00	135.31	73.61	1937	1937	445.91	702.24	959.49	1937
78.00	137.25	75.55	1937	1937	444.21	700.44	957.64	1937
80.00	139.18	77.48	1937	1937	442.51	698.64	955.78	1937
82.00	141.12	79.42	1937	1937	440.81	696.84	953.93	1937
84.00	143.06	81.36	1937	1937	439.13	695.05	952.09	1937
86.00	144.99	83.29	1937	1937	437.45	693.27	950.25	1937
88.00	146.93	85.23	1937	1937	435.78	691.49	948.41	1937
90.00	148.87	87.17	1937	1937	434.12	689.71	946.58	1937
92.00	150.85	89.15	1938	1938	432.21	687.56	944.25	1980
94.00	152.88	91.18	1940	1940	430.02	684.97	941.31	2034

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
96.00	154.92	93.22	1942	1942	427.86	682.42	938.43	2034
98.00	156.95	95.25	1944	1944	425.73	679.91	935.61	2034
100.00	158.99	97.28	1946	1946	423.62	677.44	932.83	2034
102.00	161.02	99.32	1947	1947	421.55	675.00	930.09	2034
104.00	163.05	101.35	1949	1949	419.50	672.60	927.40	2034
106.00	165.09	103.39	1951	1951	417.48	670.23	924.74	2034
108.00	167.12	105.42	1952	1952	415.49	667.89	922.13	2034
110.00	169.16	107.46	1954	1954	413.51	665.58	919.55	2034
112.00	171.19	109.49	1955	1955	411.56	663.30	917.00	2034
114.00	173.22	111.52	1957	1957	409.64	661.04	914.49	2034
116.00	175.26	113.56	1958	1958	407.73	658.81	912.01	2034
118.00	177.29	115.59	1959	1959	405.84	656.61	909.56	2034
120.00	179.33	117.63	1960	1961	403.97	654.43	907.13	2034
122.00	181.36	119.66	1962	1962	402.13	652.27	904.73	2034
124.00	183.39	121.69	1963	1963	400.30	650.13	902.36	2034
126.00	185.43	123.73	1964	1964	398.48	648.01	900.01	2034
128.00	187.46	125.76	1965	1965	396.69	645.91	897.69	2034
130.00	189.50	127.80	1966	1966	394.91	643.84	895.39	2034
132.00	191.53	129.83	1967	1967	393.15	641.78	893.11	2034
134.00	193.56	131.86	1968	1968	391.40	639.73	890.85	2034
136.00	195.60	133.90	1969	1969	389.67	637.71	888.61	2034
138.00	197.63	135.93	1970	1970	387.96	635.70	886.40	2034
140.00	199.67	137.97	1971	1971	386.25	633.71	884.20	2034
142.00	201.70	140.00	1972	1972	384.57	631.73	882.01	2034

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
								2034
144.00	203.73	142.03	1973	1973	382.89	629.77	879.85	
								2034
146.00	205.77	144.07	1974	1974	381.24	627.82	877.70	
								2034
148.00	207.80	146.10	1974	1975	379.59	625.89	875.57	
								2034
150.00	209.84	148.14	1975	1976	377.96	623.97	873.45	
								2034
152.00	211.87	150.17	1976	1976	376.34	622.07	871.35	
								2034
154.00	213.90	152.20	1977	1977	374.73	620.18	869.27	
								2034
156.00	215.94	154.24	1977	1978	373.13	618.30	867.19	
								2034
158.00	217.97	156.27	1978	1979	371.55	616.44	865.14	
								2034
160.00	220.01	158.31	1979	1979	369.98	614.58	863.09	
								2034
162.00	222.04	160.34	1980	1980	368.42	612.74	861.06	
								2034
164.00	224.07	162.37	1980	1981	366.87	610.91	859.04	
								2034
166.00	226.11	164.41	1981	1981	365.34	609.09	857.04	
								2034
168.00	228.14	166.44	1981	1982	363.81	607.29	855.04	
								2034
170.00	230.18	168.48	1982	1982	362.30	605.49	853.06	
								2034
172.00	232.21	170.51	1983	1983	360.79	603.71	851.09	
								2034
174.00	234.24	172.54	1983	1984	359.30	601.93	849.13	
								2034
176.00	236.28	174.58	1984	1984	357.81	600.17	847.18	
								2034
178.00	238.31	176.61	1984	1985	356.34	598.41	845.25	
								2034
180.00	240.35	178.65	1985	1985	354.88	596.67	843.32	
								2034
182.00	242.38	180.68	1985	1986	353.43	594.94	841.40	
								2034
184.00	244.41	182.71	1986	1986	351.98	593.21	839.50	
								2059
186.00	246.47	184.77	1987	1987	350.48	591.39	837.46	
								2067
188.00	248.54	186.84	1988	1988	348.98	589.56	835.40	
								2067
190.00	250.61	188.91	1988	1989	347.48	587.73	833.35	

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
192.00	252.67	190.97	1989	1990	346.00	585.92	831.31	2067
194.00	254.74	193.04	1990	1991	344.52	584.12	829.29	2067
196.00	256.81	195.11	1991	1991	343.06	582.33	827.28	2067
198.00	258.87	197.17	1992	1992	341.61	580.55	825.28	2067
200.00	260.94	199.24	1992	1993	340.17	578.79	823.29	2067
202.00	263.01	201.31	1993	1994	338.74	577.03	821.32	2067
204.00	265.07	203.37	1994	1994	337.32	575.29	819.36	2067
206.00	267.14	205.44	1995	1995	335.91	573.55	817.41	2067
208.00	269.21	207.51	1995	1996	334.51	571.83	815.47	2067
210.00	271.27	209.57	1996	1996	333.12	570.12	813.54	2067
212.00	273.34	211.64	1997	1997	331.74	568.42	811.62	2067
214.00	275.41	213.71	1997	1998	330.37	566.72	809.71	2067
216.00	277.47	215.77	1998	1998	329.01	565.04	807.81	2067
218.00	279.54	217.84	1999	1999	327.66	563.36	805.93	2067
220.00	281.61	219.91	1999	2000	326.32	561.70	804.05	2067
222.00	283.67	221.97	2000	2000	324.99	560.04	802.18	2067
224.00	285.74	224.04	2000	2001	323.67	558.40	800.32	2067
226.00	287.81	226.11	2001	2002	322.36	556.76	798.47	2067
228.00	289.87	228.17	2002	2002	321.05	555.13	796.63	2067
230.00	291.94	230.24	2002	2003	319.76	553.51	794.80	2067
232.00	294.01	232.31	2003	2003	318.47	551.90	792.98	2067
234.00	296.07	234.37	2003	2004	317.19	550.30	791.17	2067
236.00	298.14	236.44	2004	2004	315.92	548.71	789.37	2067
238.00	300.21	238.51	2004	2005	314.66	547.12	787.57	2067

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
240.00	302.27	240.57	2005	2005	313.41	545.54	785.78	2067
242.00	304.34	242.64	2005	2006	312.16	543.98	784.01	2067
244.00	306.41	244.71	2006	2006	310.92	542.41	782.23	2067
246.00	308.47	246.77	2006	2007	309.70	540.86	780.47	2067
248.00	310.54	248.84	2007	2007	308.48	539.32	778.72	2067
250.00	312.61	250.91	2007	2008	307.26	537.78	776.97	2067
252.00	314.67	252.97	2008	2008	306.06	536.25	775.23	2067
254.00	316.74	255.04	2008	2009	304.86	534.73	773.50	2067
256.00	318.81	257.11	2009	2009	303.67	533.21	771.78	2067
258.00	320.87	259.17	2009	2010	302.49	531.70	770.06	2067
260.00	322.89	261.19	2009	2010	301.41	530.35	768.55	2015
262.00	324.84	263.14	2009	2009	300.43	529.16	767.26	1953
264.00	326.80	265.10	2008	2009	299.45	527.97	765.97	1953
266.00	328.74	267.04	2008	2008	298.49	526.80	764.70	1947
268.00	330.62	268.92	2007	2008	297.65	525.80	763.67	1877
270.00	332.54	270.84	2006	2007	296.74	524.71	762.51	1917
272.00	334.48	272.78	2006	2006	295.79	523.54	761.24	1947
274.00	336.46	274.76	2006	2006	294.80	522.30	759.87	1977
276.00	338.45	276.75	2005	2006	293.79	521.03	758.45	1991
278.00	340.34	278.64	2005	2005	292.94	520.02	757.39	1885
280.00	342.38	280.68	2005	2006	291.86	518.63	755.81	2041
282.00	344.42	282.72	2005	2006	290.79	517.24	754.23	2040
284.00	346.49	284.79	2006	2006	289.68	515.80	752.57	2068
286.00	348.58	286.88	2006	2007	288.54	514.30	750.83	2091

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
288.00	350.67	288.97	2007	2007	287.40	512.79	749.07	2098
290.00	352.79	291.09	2008	2008	286.25	511.26	747.28	2113
292.00	354.85	293.15	2008	2009	285.17	509.84	745.64	2067
294.00	356.88	295.18	2008	2009	284.16	508.53	744.15	2028
296.00	358.90	297.20	2008	2009	283.17	507.25	742.70	2013
298.00	360.94	299.24	2008	2009	282.15	505.91	741.17	2042
300.00	362.90	301.20	2008	2009	281.25	504.77	739.90	1959
302.00	364.94	303.24	2008	2009	280.24	503.45	738.38	2040
304.00	366.96	305.26	2008	2009	279.25	502.16	736.90	2026
306.00	369.08	307.38	2009	2010	278.15	500.68	735.16	2112
308.00	371.19	309.49	2010	2010	277.06	499.20	733.43	2112
310.00	373.24	311.54	2010	2011	276.06	497.88	731.90	2051
312.00	375.29	313.59	2010	2011	275.06	496.55	730.36	2054
314.00	377.35	315.65	2011	2011	274.05	495.21	728.81	2062
316.00	379.42	317.72	2011	2012	273.05	493.86	727.24	2069
318.00	381.47	319.77	2011	2012	272.07	492.56	725.73	2051
320.00	383.52	321.82	2011	2012	271.10	491.27	724.22	2049
322.00	385.57	323.87	2012	2012	270.14	489.98	722.73	2050
324.00	387.67	325.97	2012	2013	269.11	488.58	721.08	2102
326.00	389.78	328.08	2013	2013	268.09	487.18	719.43	2105
328.00	391.90	330.20	2013	2014	267.05	485.76	717.75	2120
330.00	393.97	332.27	2014	2015	266.08	484.45	716.21	2073
332.00	396.04	334.34	2014	2015	265.13	483.16	714.70	2064
334.00	398.14	336.44	2015	2015	264.13	481.79	713.08	2103

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
336.00	400.26	338.56	2015	2016	263.12	480.40	711.42	2121
338.00	402.32	340.62	2016	2016	262.19	479.13	709.94	2061
340.00	404.40	342.70	2016	2017	261.24	477.84	708.41	2078
342.00	406.50	344.80	2016	2017	260.28	476.51	706.84	2098
344.00	408.56	346.86	2017	2017	259.37	475.27	705.38	2058
346.00	410.65	348.95	2017	2018	258.42	473.95	703.83	2095
348.00	412.73	351.03	2017	2018	257.49	472.67	702.31	2083
350.00	414.81	353.11	2018	2019	256.57	471.41	700.82	2076
352.00	416.91	355.21	2018	2019	255.63	470.11	699.27	2101
354.00	419.01	357.31	2019	2019	254.71	468.82	697.74	2095
356.00	421.11	359.41	2019	2020	253.78	467.52	696.19	2104
358.00	423.20	361.50	2020	2020	252.87	466.26	694.68	2090
360.00	425.31	363.61	2020	2021	251.94	464.95	693.12	2114
362.00	427.46	365.76	2021	2022	250.97	463.59	691.48	2146
364.00	429.55	367.85	2021	2022	250.08	462.34	689.99	2091
366.00	431.68	369.98	2022	2023	249.15	461.03	688.41	2127
368.00	433.74	372.04	2022	2023	248.30	459.84	686.99	2067
370.00	435.83	374.13	2022	2023	247.43	458.62	685.55	2082
372.00	437.99	376.29	2023	2024	246.48	457.27	683.90	2159
374.00	440.09	378.39	2023	2024	245.60	456.02	682.40	2106
376.00	442.10	380.40	2023	2024	244.83	454.96	681.16	2006
378.00	444.23	382.53	2024	2025	243.93	453.67	679.60	2135
380.00	446.37	384.67	2025	2025	243.03	452.38	678.04	2138
382.00	448.49	386.79	2025	2026	242.15	451.14	676.54	2116

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
384.00	450.58	388.88	2025	2026	241.31	449.94	675.09	2095
386.00	452.75	391.05	2026	2027	240.39	448.61	673.47	2170
388.00	454.91	393.21	2027	2028	239.49	447.31	671.88	2160
390.00	457.02	395.32	2027	2028	238.64	446.10	670.41	2114
392.00	459.10	397.40	2028	2028	237.84	444.95	669.03	2079
394.00	461.19	399.49	2028	2029	237.02	443.78	667.62	2091
396.00	463.28	401.58	2028	2029	236.22	442.63	666.24	2086
398.00	465.48	403.78	2029	2030	235.30	441.28	664.57	2205
400.00	467.66	405.96	2030	2031	234.41	439.99	662.98	2178
402.00	469.86	408.16	2031	2032	233.51	438.67	661.35	2196
404.00	472.01	410.31	2031	2032	232.67	437.43	659.83	2154
406.00	474.16	412.46	2032	2033	231.82	436.20	658.32	2151
408.00	476.32	414.62	2032	2033	230.98	434.96	656.80	2158
410.00	478.47	416.77	2033	2034	230.16	433.76	655.32	2144
412.00	480.64	418.94	2034	2035	229.31	432.51	653.77	2177
414.00	482.84	421.14	2034	2036	228.45	431.23	652.19	2195
416.00	485.01	423.31	2035	2036	227.61	429.99	650.65	2178
418.00	487.17	425.47	2036	2037	226.79	428.79	649.17	2155
420.00	489.35	427.65	2036	2038	225.97	427.56	647.66	2176
422.00	491.40	429.70	2037	2038	225.25	426.53	646.40	2057
424.00	493.36	431.66	2036	2037	224.63	425.64	645.37	1954
426.00	495.35	433.65	2036	2037	223.98	424.71	644.26	1989
428.00	497.52	435.82	2037	2038	223.17	423.51	642.77	2173
430.00	499.71	438.01	2037	2038	222.35	422.29	641.24	2192

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
432.00	501.96	440.26	2038	2039	221.49	420.98	639.59	2251
434.00	504.19	442.49	2039	2040	220.65	419.71	638.01	2225
436.00	506.37	444.67	2040	2041	219.85	418.52	636.52	2184
438.00	508.54	446.84	2040	2042	219.08	417.36	635.08	2165
440.00	510.76	449.06	2041	2042	218.26	416.12	633.51	2226
442.00	512.94	451.24	2042	2043	217.49	414.95	632.05	2179
444.00	515.15	453.45	2043	2044	216.69	413.75	630.55	2206
446.00	517.39	455.69	2043	2045	215.87	412.49	628.96	2247
448.00	519.62	457.92	2044	2046	215.07	411.28	627.43	2224
450.00	521.87	460.17	2045	2047	214.26	410.04	625.85	2249
452.00	524.15	462.45	2046	2048	213.42	408.74	624.20	2289
454.00	526.39	464.69	2047	2049	212.63	407.53	622.67	2234
456.00	528.69	466.99	2048	2050	211.79	406.24	621.01	2296
458.00	531.00	469.30	2049	2051	210.94	404.92	619.33	2314
460.00	533.32	471.62	2051	2052	210.10	403.62	617.66	2316
462.00	535.61	473.91	2052	2053	209.29	402.35	616.04	2293
464.00	537.89	476.19	2053	2054	208.48	401.10	614.45	2285
466.00	540.16	478.46	2053	2055	207.70	399.89	612.90	2268
468.00	542.36	480.66	2054	2056	206.98	398.78	611.49	2198
470.00	544.52	482.82	2055	2056	206.29	397.72	610.17	2162
472.00	546.75	485.05	2055	2057	205.55	396.58	608.72	2228
474.00	549.05	487.35	2056	2058	204.76	395.35	607.14	2297
476.00	551.32	489.62	2057	2059	204.01	394.17	605.62	2269
478.00	553.60	491.90	2058	2060	203.24	392.97	604.08	2286

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
								2357
480.00	555.96	494.26	2059	2062	202.42	391.68	602.40	
								2426
482.00	558.38	496.68	2061	2063	201.56	390.30	600.60	
								2338
484.00	560.72	499.02	2062	2064	200.77	389.05	598.98	
								2312
486.00	563.04	501.34	2063	2065	200.00	387.84	597.42	
								2527
488.00	565.56	503.86	2065	2068	199.07	386.34	595.44	
								2683
490.00	568.25	506.55	2068	2070	198.02	384.62	593.14	
								2713
492.00	570.96	509.26	2070	2073	196.96	382.88	590.80	
								2573
494.00	573.53	511.83	2072	2076	196.02	381.35	588.77	
								2392
496.00	575.92	514.22	2073	2077	195.23	380.09	587.12	
								2360
498.00	578.28	516.58	2075	2078	194.47	378.87	585.54	
								2368
500.00	580.65	518.95	2076	2080	193.71	377.66	583.95	
								2328
502.00	582.98	521.28	2077	2081	192.99	376.50	582.44	
								2321
504.00	585.30	523.60	2078	2082	192.27	375.36	580.96	
								2362
506.00	587.66	525.96	2079	2083	191.53	374.17	579.41	
								2277
508.00	589.94	528.24	2080	2084	190.86	373.10	578.01	
								2286
510.00	592.23	530.53	2080	2084	190.18	372.02	576.61	
								2271
512.00	594.50	532.80	2081	2085	189.52	370.96	575.24	
								2254
514.00	596.75	535.05	2082	2086	188.88	369.93	573.91	
								2250
516.00	599.00	537.30	2083	2087	188.24	368.91	572.59	
								2259
518.00	601.26	539.56	2083	2087	187.60	367.88	571.26	
								2248
520.00	603.51	541.81	2084	2088	186.97	366.88	569.95	
								2397
522.00	605.90	544.20	2085	2089	186.24	365.70	568.40	
								2330
524.00	608.23	546.53	2086	2090	185.57	364.61	566.97	
								2187
526.00	610.42	548.72	2086	2090	184.99	363.68	565.78	

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
								2231
528.00	612.65	550.95	2087	2091	184.38	362.71	564.52	
								2210
530.00	614.86	553.16	2087	2091	183.80	361.77	563.31	
								2271
532.00	617.13	555.43	2088	2092	183.17	360.77	562.00	
								2466
534.00	619.60	557.90	2090	2094	182.43	359.54	560.36	
								2207
536.00	621.81	560.11	2090	2094	181.86	358.62	559.17	
								2251
538.00	624.06	562.36	2091	2095	181.26	357.66	557.91	
								2271
540.00	626.33	564.63	2091	2095	180.66	356.67	556.62	
								2288
542.00	628.61	566.91	2092	2096	180.04	355.68	555.31	
								2303
544.00	630.92	569.22	2093	2097	179.43	354.67	553.99	
								2319
546.00	633.24	571.54	2094	2098	178.80	353.65	552.64	
								2335
548.00	635.57	573.87	2094	2099	178.18	352.62	551.28	
								2351
550.00	637.92	576.22	2095	2100	177.54	351.58	549.89	
								2446
552.00	640.37	578.67	2097	2101	176.85	350.43	548.36	
								2359
554.00	642.73	581.03	2098	2102	176.22	349.39	546.98	
								2416
556.00	645.14	583.44	2099	2103	175.56	348.29	545.51	
								2468
558.00	647.61	585.91	2100	2105	174.88	347.15	543.97	
								2438
560.00	650.05	588.35	2101	2106	174.21	346.04	542.49	
								2484
562.00	652.53	590.83	2103	2107	173.53	344.89	540.94	
								2285
564.00	654.82	593.12	2103	2108	172.96	343.95	539.70	
								2196
566.00	657.02	595.32	2104	2108	172.45	343.11	538.60	
								2377
568.00	659.39	597.69	2105	2109	171.84	342.10	537.24	
								2491
570.00	661.88	600.18	2106	2111	171.16	340.96	535.71	
								2524
572.00	664.41	602.71	2107	2112	170.48	339.80	534.13	
								2479
574.00	666.89	605.19	2109	2114	169.82	338.69	532.64	

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
576.00	669.42	607.72	2110	2115	169.14	337.53	531.06	2534
578.00	671.89	610.19	2111	2117	168.50	336.45	529.60	2468
580.00	674.60	612.90	2113	2119	167.72	335.12	527.76	2708
582.00	676.94	615.24	2114	2120	167.16	334.18	526.50	2347
584.00	679.32	617.62	2115	2121	166.58	333.21	525.20	2373
586.00	681.85	620.15	2117	2122	165.92	332.08	523.67	2538
588.00	684.21	622.51	2117	2123	165.37	331.15	522.41	2353
590.00	686.54	624.84	2118	2124	164.83	330.24	521.20	2329
592.00	688.82	627.12	2119	2125	164.31	329.38	520.05	2286
594.00	691.15	629.45	2119	2125	163.78	328.49	518.85	2325
596.00	693.47	631.77	2120	2126	163.26	327.61	517.67	2319
598.00	695.79	634.09	2121	2127	162.74	326.73	516.48	2321
600.00	698.11	636.41	2121	2127	162.21	325.84	515.30	2329
602.00	700.34	638.64	2122	2128	161.74	325.06	514.25	2225
604.00	702.57	640.87	2122	2128	161.28	324.27	513.21	2225
606.00	704.73	643.03	2122	2128	160.84	323.55	512.25	2160
608.00	707.27	645.57	2124	2130	160.22	322.48	510.78	2542
610.00	709.74	648.04	2125	2131	159.64	321.48	509.42	2474
612.00	712.19	650.49	2126	2132	159.08	320.51	508.09	2451
614.00	714.62	652.92	2127	2133	158.53	319.57	506.81	2429
616.00	717.03	655.33	2128	2134	157.99	318.65	505.56	2408
618.00	719.42	657.72	2129	2135	157.47	317.76	504.34	2387
620.00	721.79	660.09	2129	2136	156.96	316.88	503.15	2369
622.00	724.16	662.46	2130	2136	156.45	316.01	501.96	2371

COMPANY : BEACH PETROLEUM N.L. WELL : SQUATTER - 1

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
624.00	726.52	664.82	2131	2137	155.95	315.15	500.79	2361
626.00	728.89	667.19	2132	2138	155.45	314.29	499.61	2374
628.00	731.32	669.62	2133	2139	154.92	313.38	498.37	2426
630.00	733.76	672.06	2134	2140	154.39	312.47	497.12	2440
632.00	736.23	674.53	2135	2141	153.86	311.53	495.83	2469
634.00	738.64	676.94	2135	2142	153.35	310.65	494.63	2411
636.00	741.06	679.36	2136	2143	152.84	309.77	493.41	2424
638.00	743.48	681.78	2137	2144	152.33	308.89	492.21	2418
640.00	745.88	684.18	2138	2145	151.84	308.04	491.04	2398
642.00	748.30	686.60	2139	2146	151.34	307.17	489.84	2422
644.00	750.71	689.01	2140	2146	150.85	306.31	488.66	2410
646.00	753.13	691.43	2141	2147	150.36	305.46	487.49	2415
648.00	755.53	693.83	2141	2148	149.87	304.61	486.32	2409
650.00	757.93	696.23	2142	2149	149.39	303.78	485.18	2400
652.00	760.34	698.64	2143	2150	148.92	302.95	484.03	2404
654.00	762.76	701.06	2144	2151	148.44	302.11	482.87	2421
656.00	765.12	703.42	2145	2151	147.98	301.31	481.78	2363
658.00	767.52	705.82	2145	2152	147.51	300.50	480.65	2403
660.00	769.95	708.25	2146	2153	147.04	299.66	479.50	2423
662.00	772.38	710.68	2147	2154	146.57	298.83	478.34	2431
664.00	774.78	713.08	2148	2155	146.11	298.02	477.22	2406
666.00	777.18	715.48	2149	2156	145.65	297.23	476.12	2396
668.00	779.53	717.83	2149	2156	145.22	296.47	475.08	2345
670.00	781.85	720.15	2150	2157	144.80	295.74	474.07	2324

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
672.00	784.14	722.44	2150	2157	144.39	295.03	473.10	2293
674.00	786.45	724.75	2151	2158	143.98	294.31	472.11	2312
676.00	788.74	727.04	2151	2158	143.59	293.62	471.15	2281
678.00	790.99	729.29	2151	2158	143.20	292.94	470.23	2258
680.00	793.12	731.42	2151	2158	142.86	292.36	469.44	2129
682.00	795.53	733.83	2152	2159	142.42	291.58	468.36	2404
684.00	798.53	736.83	2154	2162	141.73	290.31	466.54	3000
686.00	801.50	739.80	2157	2165	141.05	289.08	464.77	2969
688.00	804.58	742.88	2160	2168	140.33	287.76	462.86	3080
690.00	807.88	746.18	2163	2172	139.50	286.24	460.65	3301
692.00	810.94	749.24	2165	2175	138.80	284.95	458.80	3067
694.00	813.77	752.07	2167	2177	138.22	283.89	457.28	2824
696.00	816.51	754.81	2169	2179	137.67	282.91	455.87	2742
698.00	819.26	757.56	2171	2181	137.13	281.92	454.46	2746
700.00	822.21	760.51	2173	2184	136.51	280.77	452.81	2954
702.00	824.99	763.29	2175	2185	135.96	279.78	451.38	2779
704.00	827.75	766.05	2176	2187	135.43	278.81	449.99	2757
706.00	830.47	768.77	2178	2189	134.91	277.87	448.65	2719
708.00	833.14	771.44	2179	2191	134.42	276.98	447.37	2677
710.00	835.70	774.00	2180	2192	133.97	276.17	446.23	2560
712.00	838.37	776.67	2182	2193	133.49	275.29	444.97	2671
714.00	841.06	779.36	2183	2195	133.00	274.40	443.69	2690
716.00	843.60	781.90	2184	2196	132.57	273.62	442.59	2536
718.00	846.21	784.51	2185	2197	132.12	272.80	441.42	2607

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
								2767
720.00	848.97	787.27	2187	2199	131.61	271.87	440.08	
								2603
722.00	851.58	789.88	2188	2200	131.17	271.06	438.93	
								2676
724.00	854.25	792.55	2189	2201	130.70	270.21	437.70	
								2707
726.00	856.96	795.26	2191	2203	130.23	269.34	436.45	
								2615
728.00	859.58	797.88	2192	2204	129.79	268.53	435.30	
								2693
730.00	862.27	800.57	2193	2206	129.33	267.68	434.08	
								2559
732.00	864.83	803.13	2194	2207	128.91	266.93	433.00	
								2544
734.00	867.37	805.67	2195	2208	128.51	266.19	431.94	
								2639
736.00	870.01	808.31	2196	2209	128.07	265.39	430.79	
								2670
738.00	872.68	810.98	2198	2210	127.63	264.57	429.62	
								2638
740.00	875.32	813.62	2199	2212	127.20	263.78	428.48	
								2645
742.00	877.96	816.26	2200	2213	126.77	262.99	427.34	
								2607
744.00	880.57	818.87	2201	2214	126.36	262.23	426.25	
								2624
746.00	883.19	821.49	2202	2215	125.94	261.47	425.15	
								2657
748.00	885.85	824.15	2204	2217	125.52	260.68	424.01	
								2671
750.00	888.52	826.82	2205	2218	125.09	259.89	422.87	
								2844
752.00	891.37	829.67	2207	2220	124.61	258.99	421.56	
								2772
754.00	894.14	832.44	2208	2221	124.15	258.15	420.33	
								2842
756.00	896.98	835.28	2210	2223	123.68	257.26	419.04	
								2654
758.00	899.63	837.93	2211	2225	123.27	256.50	417.94	
								2594
760.00	902.23	840.53	2212	2226	122.88	255.79	416.91	
								2540
762.00	904.77	843.07	2213	2227	122.51	255.11	415.93	
								2556
764.00	907.32	845.62	2214	2227	122.14	254.42	414.94	
								2487
766.00	909.81	848.11	2214	2228	121.79	253.78	414.01	

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
768.00	912.34	850.64	2215	2229	121.43	253.11	413.05	2533
770.00	914.86	853.16	2216	2230	121.08	252.46	412.11	2519
772.00	917.38	855.68	2217	2231	120.73	251.81	411.17	2517
774.00	919.87	858.17	2217	2231	120.39	251.18	410.26	2489
776.00	922.33	860.63	2218	2232	120.06	250.57	409.38	2461
778.00	924.88	863.18	2219	2233	119.70	249.91	408.43	2546
780.00	927.40	865.70	2220	2234	119.36	249.27	407.50	2526
782.00	929.90	868.20	2220	2234	119.02	248.64	406.60	2502
784.00	932.38	870.68	2221	2235	118.69	248.03	405.72	2472
786.00	934.86	873.16	2222	2236	118.36	247.42	404.84	2482
788.00	937.41	875.71	2223	2237	118.02	246.78	403.90	2553
790.00	940.04	878.34	2224	2238	117.65	246.09	402.90	2630
792.00	942.54	880.84	2224	2238	117.32	245.48	402.02	2496
794.00	945.04	883.34	2225	2239	117.00	244.87	401.13	2507
796.00	947.57	885.87	2226	2240	116.67	244.26	400.24	2521
798.00	950.12	888.42	2227	2241	116.33	243.63	399.32	2551
800.00	952.73	891.03	2228	2242	115.98	242.97	398.36	2611
802.00	955.30	893.60	2228	2242	115.64	242.34	397.43	2571
804.00	957.88	896.18	2229	2243	115.30	241.70	396.50	2587
806.00	960.48	898.78	2230	2244	114.96	241.05	395.56	2600
808.00	963.00	901.31	2231	2245	114.64	240.46	394.69	2521
810.00	965.56	903.86	2232	2246	114.31	239.84	393.79	2557
812.00	968.11	906.41	2233	2247	113.99	239.24	392.91	2545
814.00	970.85	909.15	2234	2248	113.62	238.53	391.86	2744

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
816.00	973.40	911.70	2235	2249	113.30	237.93	390.99	2544
818.00	976.17	914.47	2236	2250	112.92	237.21	389.92	2780
820.00	978.89	917.19	2237	2252	112.56	236.52	388.91	2720
822.00	981.54	919.84	2238	2253	112.22	235.88	387.96	2647
824.00	984.18	922.48	2239	2254	111.88	235.25	387.03	2639
826.00	986.80	925.10	2240	2255	111.56	234.63	386.11	2618
828.00	989.51	927.81	2241	2256	111.20	233.96	385.12	2715
830.00	992.15	930.45	2242	2257	110.88	233.34	384.21	2634
832.00	994.81	933.11	2243	2258	110.54	232.70	383.27	2666
834.00	997.42	935.72	2244	2259	110.23	232.10	382.38	2609
836.00	1000.04	938.34	2245	2260	109.91	231.50	381.49	2619
838.00	1002.61	940.91	2246	2260	109.60	230.92	380.64	2571
840.00	1005.18	943.48	2246	2261	109.30	230.34	379.79	2567
842.00	1007.72	946.02	2247	2262	109.01	229.79	378.97	2543
844.00	1010.31	948.61	2248	2263	108.70	229.21	378.11	2590
846.00	1012.88	951.18	2249	2264	108.41	228.64	377.28	2564
848.00	1015.50	953.80	2250	2264	108.10	228.05	376.40	2625
850.00	1018.18	956.48	2251	2266	107.77	227.44	375.49	2678
852.00	1020.95	959.25	2252	2267	107.43	226.78	374.51	2770
854.00	1023.76	962.06	2253	2268	107.08	226.11	373.50	2812
856.00	1026.57	964.87	2254	2270	106.73	225.44	372.50	2808
858.00	1029.13	967.43	2255	2270	106.45	224.89	371.70	2560
860.00	1031.83	970.13	2256	2271	106.13	224.29	370.79	2698
862.00	1034.46	972.76	2257	2272	105.83	223.71	369.93	2639

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
864.00	1037.41	975.71	2259	2274	105.46	222.98	368.84	2948
866.00	1040.19	978.49	2260	2275	105.13	222.35	367.88	2779
868.00	1042.85	981.15	2261	2276	104.83	221.77	367.03	2655
870.00	1045.49	983.79	2262	2277	104.53	221.21	366.19	2639
872.00	1048.10	986.40	2262	2278	104.25	220.66	365.37	2612
874.00	1050.67	988.97	2263	2279	103.97	220.13	364.58	2577
876.00	1053.27	991.57	2264	2280	103.69	219.60	363.79	2591
878.00	1055.89	994.19	2265	2281	103.41	219.05	362.97	2625
880.00	1058.45	996.75	2265	2281	103.14	218.54	362.21	2558
882.00	1061.04	999.34	2266	2282	102.87	218.01	361.42	2588
884.00	1063.60	1001.90	2267	2283	102.60	217.50	360.66	2558
886.00	1066.30	1004.60	2268	2284	102.31	216.93	359.80	2705
888.00	1068.88	1007.18	2268	2284	102.04	216.41	359.04	2577
890.00	1071.49	1009.79	2269	2285	101.77	215.89	358.25	2613
892.00	1074.11	1012.41	2270	2286	101.50	215.36	357.46	2615
894.00	1076.73	1015.03	2271	2287	101.23	214.84	356.68	2620
896.00	1079.38	1017.68	2272	2288	100.95	214.30	355.87	2655
898.00	1081.95	1020.25	2272	2288	100.69	213.80	355.12	2572
900.00	1084.75	1023.05	2273	2290	100.38	213.21	354.22	2796
902.00	1087.51	1025.81	2275	2291	100.09	212.63	353.35	2762
904.00	1090.20	1028.50	2275	2292	99.81	212.09	352.54	2689
906.00	1092.81	1031.11	2276	2292	99.55	211.59	351.78	2607
908.00	1095.39	1033.69	2277	2293	99.30	211.09	351.04	2584
910.00	1097.98	1036.28	2278	2294	99.04	210.60	350.30	2592

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
912.00	1100.81	1039.11	2279	2295	98.74	210.01	349.41	2825
914.00	1103.41	1041.71	2279	2296	98.49	209.52	348.66	2602
916.00	1106.16	1044.46	2280	2297	98.20	208.96	347.83	2755
918.00	1108.93	1047.23	2282	2298	97.92	208.41	346.98	2769
920.00	1111.64	1049.94	2282	2299	97.65	207.88	346.18	2709
922.00	1114.20	1052.50	2283	2300	97.41	207.41	345.48	2555
924.00	1117.03	1055.33	2284	2301	97.11	206.83	344.60	2835
926.00	1119.95	1058.25	2286	2302	96.80	206.22	343.67	2916
928.00	1122.60	1060.90	2286	2303	96.55	205.73	342.92	2648
930.00	1125.13	1063.43	2287	2304	96.32	205.28	342.25	2534
932.00	1127.74	1066.04	2288	2304	96.07	204.81	341.53	2613
934.00	1130.77	1069.07	2289	2306	95.75	204.16	340.54	3027
936.00	1133.38	1071.68	2290	2307	95.51	203.69	339.83	2609
938.00	1136.12	1074.42	2291	2308	95.24	203.17	339.04	2740
940.00	1138.84	1077.14	2292	2309	94.98	202.66	338.27	2716
942.00	1141.55	1079.85	2293	2310	94.73	202.16	337.50	2716
944.00	1144.35	1082.65	2294	2311	94.46	201.62	336.68	2797
946.00	1147.37	1085.67	2295	2313	94.14	201.00	335.72	3017
948.00	1150.24	1088.54	2297	2314	93.86	200.44	334.87	2875
950.00	1153.26	1091.56	2298	2316	93.54	199.82	333.92	3016
952.00	1156.57	1094.87	2300	2318	93.17	199.08	332.76	3310
954.00	1159.86	1098.16	2302	2321	92.80	198.35	331.63	3290
956.00	1162.63	1100.93	2303	2322	92.55	197.84	330.86	2774
958.00	1165.42	1103.72	2304	2323	92.29	197.33	330.08	2792

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
960.00	1168.16	1106.46	2305	2324	92.04	196.84	329.33	2738
962.00	1170.97	1109.27	2306	2325	91.78	196.33	328.55	2806
964.00	1173.66	1111.96	2307	2326	91.55	195.87	327.84	2695
966.00	1176.42	1114.72	2308	2327	91.30	195.38	327.09	2762
968.00	1179.09	1117.39	2309	2327	91.07	194.93	326.40	2665
970.00	1181.93	1120.23	2310	2329	90.81	194.41	325.61	2839
972.00	1184.71	1123.01	2311	2330	90.57	193.92	324.85	2783
974.00	1187.50	1125.80	2312	2331	90.32	193.43	324.10	2790
976.00	1190.42	1128.72	2313	2332	90.05	192.89	323.27	2916
978.00	1193.25	1131.55	2314	2333	89.80	192.39	322.50	2834
980.00	1196.04	1134.34	2315	2334	89.55	191.91	321.76	2785
982.00	1198.90	1137.20	2316	2335	89.30	191.40	320.98	2866
984.00	1201.93	1140.23	2318	2337	89.01	190.84	320.10	3027
986.00	1204.74	1143.04	2319	2338	88.77	190.35	319.35	2809
988.00	1207.60	1145.90	2320	2339	88.52	189.85	318.58	2864
990.00	1210.35	1148.65	2320	2340	88.29	189.40	317.88	2743
992.00	1213.11	1151.41	2321	2341	88.06	188.94	317.18	2763
994.00	1215.88	1154.18	2322	2342	87.83	188.48	316.47	2768
996.00	1218.59	1156.89	2323	2343	87.61	188.04	315.79	2717
998.00	1221.32	1159.62	2324	2344	87.39	187.60	315.12	2726
1000.00	1224.11	1162.41	2325	2345	87.16	187.14	314.41	2792
1002.00	1227.02	1165.32	2326	2346	86.91	186.64	313.63	2908
1004.00	1230.11	1168.41	2328	2348	86.63	186.08	312.75	3085
1006.00	1233.14	1171.44	2329	2349	86.36	185.54	311.91	3035

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
1008.00	1236.09	1174.39	2330	2350	86.11	185.03	311.13	2948
1010.00	1239.08	1177.38	2331	2352	85.85	184.52	310.32	2994
1012.00	1241.84	1180.14	2332	2353	85.63	184.08	309.65	2755
1014.00	1244.81	1183.11	2334	2354	85.38	183.58	308.86	2971
1016.00	1247.80	1186.10	2335	2356	85.13	183.07	308.07	2987
1018.00	1250.66	1188.96	2336	2357	84.90	182.60	307.35	2862
1020.00	1253.58	1191.88	2337	2358	84.66	182.12	306.60	2922
1022.00	1256.60	1194.90	2338	2359	84.40	181.61	305.80	3018
1024.00	1259.60	1197.90	2340	2361	84.15	181.11	305.01	3004
1026.00	1262.67	1200.97	2341	2362	83.89	180.58	304.19	3071
1028.00	1265.56	1203.86	2342	2364	83.66	180.12	303.47	2890
1030.00	1268.42	1206.72	2343	2365	83.44	179.67	302.78	2860
1032.00	1271.39	1209.69	2344	2366	83.20	179.19	302.02	2974
1034.00	1274.30	1212.60	2345	2367	82.97	178.73	301.31	2901
1036.00	1277.26	1215.56	2347	2368	82.74	178.26	300.56	2967
1038.00	1280.26	1218.56	2348	2370	82.50	177.77	299.81	3001
1040.00	1283.04	1221.34	2349	2371	82.29	177.36	299.17	2775
1042.00	1285.86	1224.16	2350	2372	82.08	176.94	298.51	2825
1044.00	1288.85	1227.15	2351	2373	81.85	176.47	297.77	2985
1046.00	1291.72	1230.02	2352	2374	81.63	176.03	297.09	2870
1048.00	1294.53	1232.83	2353	2375	81.43	175.62	296.44	2815
1050.00	1297.45	1235.75	2354	2376	81.21	175.18	295.75	2912
1052.00	1300.49	1238.79	2355	2377	80.97	174.69	294.99	3047
1054.00	1303.50	1241.80	2356	2379	80.74	174.22	294.26	3003

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
1056.00	1306.52	1244.82	2358	2380	80.51	173.75	293.52	3020
1058.00	1309.50	1247.80	2359	2381	80.28	173.30	292.80	2981
1060.00	1312.45	1250.75	2360	2383	80.06	172.85	292.10	2952
1062.00	1315.55	1253.85	2361	2384	79.82	172.37	291.34	3098
1064.00	1318.64	1256.94	2363	2386	79.59	171.88	290.57	3097
1066.00	1321.67	1259.97	2364	2387	79.36	171.42	289.85	3024
1068.00	1324.52	1262.82	2365	2388	79.16	171.02	289.21	2852
1070.00	1327.40	1265.70	2366	2389	78.96	170.61	288.57	2882
1072.00	1330.38	1268.68	2367	2390	78.74	170.17	287.88	2978
1074.00	1333.26	1271.56	2368	2391	78.54	169.76	287.24	2878
1076.00	1336.20	1274.50	2369	2392	78.33	169.34	286.57	2947
1078.00	1339.11	1277.41	2370	2394	78.13	168.93	285.92	2908
1080.00	1341.96	1280.26	2371	2394	77.94	168.53	285.31	2846
1082.00	1344.90	1283.20	2372	2396	77.73	168.12	284.65	2941
1084.00	1347.82	1286.12	2373	2397	77.53	167.71	284.01	2918
1086.00	1350.66	1288.96	2374	2398	77.34	167.32	283.40	2844
1088.00	1353.49	1291.79	2375	2398	77.16	166.95	282.81	2825
1090.00	1356.46	1294.76	2376	2400	76.95	166.53	282.15	2970
1092.00	1359.35	1297.65	2377	2401	76.76	166.14	281.53	2890
1094.00	1362.23	1300.53	2378	2402	76.57	165.75	280.92	2883
1096.00	1365.02	1303.32	2378	2402	76.39	165.39	280.35	2793
1098.00	1368.22	1306.52	2380	2404	76.16	164.91	279.59	3194
1100.00	1371.31	1309.61	2381	2405	75.94	164.46	278.89	3092
1102.00	1374.33	1312.63	2382	2407	75.73	164.04	278.22	3023

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
1104.00	1377.11	1315.41	2383	2407	75.56	163.69	277.67	2778
1106.00	1379.93	1318.23	2384	2408	75.38	163.33	277.10	2819
1108.00	1382.79	1321.09	2385	2409	75.20	162.96	276.51	2860
1110.00	1385.65	1323.95	2386	2410	75.02	162.59	275.93	2864
1112.00	1388.58	1326.88	2386	2411	74.83	162.21	275.32	2930
1114.00	1391.59	1329.89	2388	2412	74.63	161.80	274.67	3012
1116.00	1394.53	1332.83	2389	2413	74.45	161.42	274.07	2931
1118.00	1397.31	1335.61	2389	2414	74.28	161.08	273.53	2784
1120.00	1400.17	1338.47	2390	2415	74.10	160.72	272.96	2861
1122.00	1402.99	1341.29	2391	2416	73.93	160.37	272.40	2821
1124.00	1405.80	1344.10	2392	2416	73.76	160.02	271.86	2807
1126.00	1408.60	1346.90	2392	2417	73.60	159.68	271.32	2805
1128.00	1411.64	1349.94	2394	2418	73.40	159.28	270.68	3034
1130.00	1414.77	1353.07	2395	2420	73.19	158.86	270.00	3134
1132.00	1417.64	1355.94	2396	2421	73.02	158.50	269.44	2874
1134.00	1420.88	1359.18	2397	2422	72.80	158.05	268.72	3232
1136.00	1424.51	1362.81	2399	2425	72.53	157.48	267.81	3629
1138.00	1427.54	1365.84	2400	2426	72.34	157.09	267.19	3033
1140.00	1430.53	1368.83	2401	2427	72.16	156.72	266.59	2992
1142.00	1433.41	1371.71	2402	2428	71.99	156.37	266.04	2878
1144.00	1436.40	1374.70	2403	2429	71.81	156.00	265.45	2989
1146.00	1439.39	1377.69	2404	2430	71.63	155.63	264.85	2993
1148.00	1442.40	1380.70	2405	2432	71.44	155.25	264.25	3014
1150.00	1445.28	1383.58	2406	2432	71.28	154.91	263.71	2876

TWO-WAY TRAVEL TIME FROM SRD MS	MEASURED DEPTH FROM KB M	VERTICAL DEPTH FROM SRD M	AVERAGE VELOCITY SRD/GEO M/S	RMS VELOCITY M/S	FIRST NORMAL MOVEOUT MS	SECOND NORMAL MOVEOUT MS	THIRD NORMAL MOVEOUT MS	INTERVAL VELOCITY M/S
1152.00	1448.20	1386.50	2407	2433	71.11	154.57	263.16	2915
1154.00	1451.05	1389.35	2408	2434	70.95	154.23	262.63	2856
1156.00	1453.92	1392.22	2409	2435	70.79	153.90	262.10	2864
1158.00	1457.00	1395.30	2410	2436	70.60	153.52	261.49	3081
1160.00	1460.10	1398.40	2411	2437	70.41	153.13	260.87	3101
1162.00	1463.23	1401.53	2412	2439	70.22	152.74	260.24	3130
1164.00	1466.21	1404.51	2413	2440	70.05	152.38	259.67	2983
1166.00	1469.18	1407.48	2414	2441	69.88	152.03	259.11	2971
1168.00	1472.17	1410.47	2415	2442	69.71	151.68	258.55	2987
1170.00	1475.12	1413.42	2416	2443	69.54	151.34	258.00	2949
1172.00	1478.08	1416.38	2417	2444	69.38	151.00	257.45	2963
1174.00	1480.99	1419.29	2418	2445	69.22	150.67	256.93	2909
1176.00	1483.94	1422.24	2419	2446	69.06	150.33	256.38	2956
1178.00	1486.92	1425.22	2420	2447	68.89	149.99	255.84	2972
1180.00	1489.92	1428.22	2421	2448	68.72	149.64	255.28	3006

ANALYST: M. SANDERS   19-AUG-87 20:48:32   PROGRAM: GMULTP 006.E06

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*                 *
*   SCHLUMBERGER  *
*                 *
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SYNTHETIC SEISMOGRAM TABLE

COMPANY : BEACH PETROLEUM N.L.
WELL   : SQUATTER - 1
FIELD   : WILDCAT
COUNTRY : AUSTRALIA
REFERENCE: 570810
LOGGED   : 06/08/87

THE HEADINGS AND FLAGS SHOWN IN THE DATA LIST ARE DEFINED AS FOLLOWS:

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IGEOFL- FLAG INDICATING  MODE OF PROCESSING
        IGEOFL = 0    WST DATA AVAILABLE AND PROCESSED
        IGEOFL = 1    WST DATA NOT AVAILABLE

LOG INPUT DATA :
GRF001- CHANNEL NAME FOR INPUT DENSITY LOG DATA
GTR001- CHANNEL NAME FOR INPUT SONIC LOG DATA
GCURVE- CORRELATION LOG NAMES

USER DEFINED MODELING

LOFVEL- LAYER OPTION FLAG FOR VELOCITY
LOFDEN- LAYER OPTION FLAG FOR DENSITY
LAYVEL- LAYERED VELOCITY VALUES FOR USER SUPPLIED ZONE LIMIT
        WITH RESPECT TO SONIC LOG DATA
LAYDEN- LAYERED DENSITY VALUES FOR USER SUPPLIED ZONE LIMITS
        WITH RESPECT TO SONIC LOG DATA
UNERTH- UNIFORM EARTH VELOCITY
UNFDEN- UNIFORM EARTH DENSITY
SRATE   SAMPLING RATE IN MS
INIDEP  START DEPTH FOR COMPUTING SYNTHETIC SEISMOGRAM
        WITH RESPECT TO SONIC LOG DATA
IGESTP  STOP DEPTH FOR COMPUTING SYNTHETIC SEISMOGRAM
        WITH RESPECT TO SONIC LOG DATA
INITAU  TWO WAY TRAVEL TIME FROM TOP SONIC TO SRD
EKB     ELEVATION OF KELLY BUSHING WITH RESPECT TO
        MEAN SEA LEVEL
SRDGEO  SEISMIC REFERENCE DEPTH WITH RESPECT TO
        MEAN SEA LEVEL
ICDP    FLAG FOR COMPUTING RESIDUAL MULTIPLES
CDPTIM  TWO WAY TIME INTERVAL FOR COMPUTATION OF
        RESIDUAL MULTIPLES
SCRTIM  SURFACE REFLECTOR TWO WAY TIME ABOVE INITAU
SCREFL  SURFACE REFLECTION COEFFICIENT
RCMAX   REFLECTION COEFFICIENTS THAT ARE EQUAL TO OR
        GREATER  THAN THIS VALUE SHALL BE FLAGGED

*NOTE*  IN CASE OF MODELING A SYNTHETIC SEISMOGRAM WITHOUT
        SONIC LOG DATA ,THE DEPTH REFERENCES SHALL BE USER
        DEFINED

OUTPUT DATA

RMSVWE  ROOT MEAN SQUARE VELOCITY FOUND FOR THE WELL
SRDTIM  TWO WAY TRANSIT TIME BETWEEN INIDEP AND SRDGEO

CHANNNEL NAMES
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TWOT- TWO WAY TRAVEL TIME
DSRD- DEPTH OF COMPUTED DATA WITH RESPECT TO SRD
INTV- INTERVAL VELOCITY ON A TIME SCALE
RHOT- INTERVAL DENSITY ON A TIME SCALE
REFL- REFLECTION COEFFICIENT AT GIVEN TWO WAY TRAVEL TIMES
ATTE- ATTENUATION COEFFICIENT AT GIVEN TWO WAY TRAVEL TIMES
PRIM- SYNTHETIC SEISMOGRAM - PRIMARIES
MULT- SYNTHETIC SEISMOGRAM - PRIMARIES + MULTIPLES
MUON- MULTIPLES ONLY

CHANNEL NAMES

CHAN 1 - TWOT.GMU.002.*
CHAN 2 - DSRD.GRF.006.*
CHAN 3 - INTV.GRF.007.*
CHAN 4 - RHOT.GRF.001.*
CHAN 5 - REFL.GRF.001.*
CHAN 6 - ATTE.GRF.001.*
CHAN 7 - PRIM.GRF.001.*
CHAN 8 - MULT.GMU.001.*
CHAN 9 - MUON.GMU.001.*

(GLOBAL PARAMETERS)			(VALUE)	
MODE OF PROC (GEOGRAM)	IGEOFL	:	0	
INITIALIZE CDP LOGIC	ICDP	:	0	
CDP TIME	CDPTIM	:	.200000	S
TIME SAMPLING (WST)	SRATE	:	2.00000	MS
TOP DEPTH OF PROCESSING	INIDEP	:	260.300	M
BOTTOM DEPTH OF PROCESSI	IGESTP	:	1430.00	M
INITIAL TWO WAY TRAVEL T	INITAU	:	.259100	S
SRD FOR GEOGRAM	SRDGEO	:	-30479.7	M
ELEVATION OF KELLY BUSHI	EKB	:	0	M
SRD TIME	SRDTIM	:	0	MS
SURFACE COEFFICIENT OF R	SCRTIM	:	0	MS
SURFACE COEFFICIENT OF R	SCREFL	:	-1.00000	
REFLECTION COEFF MAXIMUM	RCMAX	:	.300000	
RMS VELOCITY IN WELL	RMSVWE	:	2559.88	M/S
UNIFORM EARTH VELOCITY	UNERTH	:	2133.60	M/S
UNIFORM DENSITY VALUE	UNFDEN	:	2.30000	G/C3

(MATRIX PARAMETERS)

1 GR*
2 CALI*

(ZONED PARAMETERS)		(VALUE)		(LIMITS)		
LAYER OPTION FLAG DENS	LOFDEN	:-1.000000		30479.7	-	0
LAYER OPTION FLAG VELOC	LOFVEL	: 1.000000		30479.7	-	0
USER SUPPLIED DENSITY DA	LAYDEN	:-999.2500	G/C3	30479.7	-	0
USER VELOC (WST)	LAYVEL	: 1937.000	M/S	150.000	-	61.7000

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
		1957	2.240					
261.1	262.26			-.001	1.00000	-.00105	-.00105	0
		1953	2.240					
263.1	264.21			0	1.00000	-.00003	-.00003	0
		1953	2.240					
265.1	266.16			-.010	.99990	-.01017	-.01017	0
		1914	2.240					
267.1	268.08			-.007	.99984	-.00744	-.00746	-.00002
		1885	2.240					
269.1	269.96			.014	.99966	.01360	.01358	-.00002
		1937	2.240					
271.1	271.90			.007	.99961	.00678	.00670	-.00008
		1964	2.240					
273.1	273.86			.009	.99953	.00875	.00861	-.00014
		1999	2.240					
275.1	275.86			-.018	.99920	-.01817	-.01793	.00024
		1927	2.240					
277.1	277.79			.002	.99920	.00227	.00257	.00031
		1936	2.240					
279.1	279.73			.031	.99823	.03108	.03117	.00009
		2060	2.240					
281.1	281.79			-.003	.99822	-.00289	-.00325	-.00036
		2048	2.240					
283.1	283.83			.010	.99813	.00958	.00910	-.00048
		2088	2.240					
285.1	285.92			.004	.99811	.00390	.00498	.00108
		2104	2.240					
287.1	288.03			-.003	.99811	-.00279	-.00228	.00051
		2093	2.240					
289.1	290.12			.005	.99808	.00473	.00429	-.00044
		2113	2.240					
291.1	292.23			-.022	.99758	-.02243	-.02289	-.00046
		2020	2.240					
293.1	294.25			.001	.99758	.00131	.00060	-.00071
		2025	2.240					
295.1	296.28			.003	.99757	.00301	.00396	.00096
		2037	2.240					
297.1	298.31			-.018	.99726	-.01747	-.01825	-.00078
		1967	2.240					
299.1	300.28			.015	.99704	.01491	.01376	-.00116
		2027	2.240					
301.1	302.31			0	.99704	-.00019	.00086	.00105
		2026	2.240					
303.1	304.33			.009	.99696	.00903	.00822	-.00081
		2063	2.240					
305.1	306.40			.015	.99674	.01479	.01505	.00026
		2125	2.240					
307.1	308.52			-.009	.99666	-.00886	-.00884	.00001
		2088	2.240					

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
309.1	310.61	2049	2.240	-.009	.99657	-.00936	-.00972	-.00036
311.1	312.66	2053	2.240	.001	.99657	.00085	.00295	.00210
313.1	314.71	2067	2.240	.004	.99656	.00352	.00220	-.00133
315.1	316.78	2062	2.240	-.001	.99656	-.00134	-.00147	-.00013
317.1	318.84	2054	2.240	-.002	.99655	-.00185	-.00072	.00113
319.1	320.90	2041	2.240	-.003	.99654	-.00318	-.00388	-.00071
321.1	322.94	2072	2.240	.008	.99649	.00749	.00876	.00128
323.1	325.01	2110	2.240	.009	.99640	.00914	.00766	-.00147
325.1	327.12	2120	2.240	.002	.99640	.00237	.00088	-.00149
327.1	329.24	2103	2.240	-.004	.99638	-.00398	-.00287	.00110
329.1	331.34	2042	2.240	-.015	.99616	-.01482	-.01505	-.00023
331.1	333.38	2099	2.240	.014	.99597	.01371	.01416	.00045
333.1	335.48	2113	2.240	.003	.99596	.00341	.00329	-.00012
335.1	337.59	2083	2.240	-.007	.99591	-.00721	-.00798	-.00077
337.1	339.68	2074	2.240	-.002	.99591	-.00218	-.00074	.00144
339.1	341.75	2086	2.240	.003	.99590	.00304	.00367	.00063
341.1	343.84	2087	2.240	0	.99590	.00020	-.00076	-.00096
343.1	345.92	2074	2.240	-.003	.99589	-.00317	-.00345	-.00028
345.1	348.00	2064	2.240	-.002	.99588	-.00228	-.00351	-.00123
347.1	350.06	2091	2.240	.006	.99584	.00640	.00677	.00037
349.1	352.15	2101	2.240	.002	.99583	.00235	.00330	.00095
351.1	354.25	2091	2.240	-.002	.99583	-.00243	-.00391	-.00147
353.1	356.35	2116	2.240	.006	.99579	.00589	.00678	.00089
355.1	358.46	2087	2.240	-.007	.99575	-.00675	-.00542	.00134
357.1	360.55			0	.99575	-.00003	-.00077	-.00074

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
		2087	2.240					
359.1	362.64	2145	2.240	.014	.99556	.01373	.01371	-.00001
361.1	364.78	2125	2.240	-.005	.99553	-.00479	-.00528	-.00049
363.1	366.91	2115	2.240	-.002	.99553	-.00218	-.00153	.00065
365.1	369.02	2084	2.240	-.008	.99547	-.00750	-.00690	.00060
367.1	371.10	2057	2.240	-.006	.99543	-.00637	-.00812	-.00175
369.1	373.16	2136	2.240	.019	.99508	.01876	.01911	.00035
371.1	375.30	2140	2.240	.001	.99508	.00075	.00080	.00006
373.1	377.44	2015	2.240	-.030	.99419	-.02975	-.03043	-.00069
375.1	379.45	2094	2.240	.019	.99383	.01900	.02049	.00149
377.1	381.55	2146	2.240	.012	.99368	.01214	.01165	-.00049
379.1	383.69	2139	2.240	-.002	.99368	-.00160	-.00309	-.00149
381.1	385.83	2097	2.240	-.010	.99358	-.00990	-.00905	.00085
383.1	387.93	2123	2.240	.006	.99354	.00612	.00650	.00039
385.1	390.05	2182	2.240	.014	.99335	.01379	.01479	.00100
387.1	392.23	2121	2.240	-.014	.99315	-.01405	-.01412	-.00007
389.1	394.35	2098	2.240	-.006	.99312	-.00551	-.00815	-.00264
391.1	396.45	2095	2.240	-.001	.99312	-.00078	.00193	.00272
393.1	398.55	2086	2.240	-.002	.99311	-.00217	-.00132	.00085
395.1	400.63	2128	2.240	.010	.99301	.01005	.00733	-.00272
397.1	402.76	2204	2.240	.018	.99271	.01738	.01755	.00017
399.1	404.97	2189	2.240	-.003	.99270	-.00339	-.00377	-.00038
401.1	407.15	2168	2.240	-.005	.99267	-.00484	-.00236	.00248
403.1	409.32	2156	2.240	-.003	.99267	-.00263	-.00336	-.00073
405.1	411.48	2162	2.240	.001	.99266	.00120	-.00208	-.00328

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
407.1	413.64			-.004	.99265	-.00356	-.00086	.00270
		2146	2.240					
409.1	415.79			.002	.99265	.00208	.00257	.00049
		2155	2.240					
411.1	417.94			.009	.99256	.00933	.00800	-.00133
		2196	2.240					
413.1	420.14			-.003	.99255	-.00347	-.00188	.00159
		2181	2.240					
415.1	422.32			-.001	.99254	-.00143	-.00267	-.00124
		2174	2.240					
417.1	424.49			-.002	.99254	-.00230	-.00167	.00063
		2164	2.240					
419.1	426.66			-.011	.99241	-.01133	-.01109	.00024
		2116	2.240					
421.1	428.77			-.021	.99198	-.02059	-.02296	-.00237
		2030	2.240					
423.1	430.80			-.031	.99101	-.03104	-.03144	-.00040
		1906	2.240					
425.1	432.71			.057	.98783	.05617	.05586	-.00031
		2135	2.240					
427.1	434.84			.006	.98779	.00572	.00701	.00129
		2160	2.240					
429.1	437.00			.016	.98754	.01599	.01638	.00039
		2231	2.240					
431.1	439.24			0	.98754	-.00040	-.00080	-.00040
		2230	2.240					
433.1	441.47			-.003	.98753	-.00268	.00046	.00314
		2218	2.240					
435.1	443.68			-.011	.98740	-.01118	-.01100	.00019
		2168	2.240					
437.1	445.85			.004	.98739	.00387	.00248	-.00138
		2185	2.240					
439.1	448.04			.006	.98735	.00586	.00399	-.00188
		2211	2.240					
441.1	450.25			-.006	.98732	-.00589	-.00450	.00139
		2185	2.240					
443.1	452.43			.010	.98722	.00999	.01125	.00127
		2229	2.240					
445.1	454.66			.001	.98722	.00087	.00107	.00020
		2233	2.240					
447.1	456.90			-.004	.98720	-.00376	-.00335	.00040
		2216	2.240					
449.1	459.11			.017	.98691	.01701	.01428	-.00273
		2294	2.240					
451.1	461.41			-.008	.98684	-.00790	-.00916	-.00126
		2258	2.240					
453.1	463.66			0	.98684	-.00023	.00017	.00040
		2257	2.240					
455.1	465.92			.014	.98666	.01359	.01315	-.00043

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
		2320	2.240					
457.1	468.24			-.002	.98665	-.00169	-.00151	.00018
		2312	2.240					
459.1	470.55			-.002	.98665	-.00158	-.00230	-.00072
		2304	2.240					
461.1	472.86			-.003	.98664	-.00310	-.00121	.00189
		2290	2.240					
463.1	475.15			-.005	.98662	-.00450	-.00296	.00154
		2269	2.240					
465.1	477.42			-.003	.98662	-.00250	-.00283	-.00033
		2258	2.240					
467.1	479.67			-.023	.98609	-.02274	-.02130	.00143
		2156	2.240					
469.1	481.83			.008	.98603	.00805	.00407	-.00398
		2192	2.240					
471.1	484.02			.016	.98578	.01542	.01426	-.00116
		2261	2.240					
473.1	486.28			.003	.98578	.00248	.00188	-.00060
		2273	2.240					
475.1	488.55			.005	.98575	.00484	.00511	.00026
		2295	2.240					
477.1	490.85			.005	.98573	.00468	.00661	.00193
		2317	2.240					
479.1	493.17			.017	.98544	.01689	.01595	-.00094
		2398	2.240					
481.1	495.56			-.001	.98544	-.00115	.00135	.00251
		2392	2.240					
483.1	497.96			-.018	.98511	-.01800	-.01828	-.00027
		2306	2.240					
485.1	500.26			.018	.98479	.01771	.01759	-.00012
		2391	2.240					
487.1	502.65			.049	.98238	.04872	.05108	.00236
		2640	2.240					
489.1	505.29			.013	.98223	.01245	.01031	-.00214
		2707	2.240					
491.1	508.00			-.002	.98222	-.00176	-.00237	-.00061
		2698	2.240					
493.1	510.70			-.053	.97946	-.05210	-.05042	.00168
		2426	2.240					
495.1	513.12			-.008	.97939	-.00812	-.00772	.00040
		2386	2.240					
497.1	515.51			-.006	.97936	-.00552	-.00753	-.00201
		2359	2.240					
499.1	517.87			.002	.97936	.00158	-.00270	-.00428
		2367	2.240					
501.1	520.24			-.016	.97911	-.01565	-.01875	-.00310
		2292	2.240					
503.1	522.53			.014	.97891	.01392	.01880	.00489
		2358	2.240					

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
505.1	524.89			-.011	.97880	-.01051	-.01172	-.00121
		2308	2.240					
507.1	527.19			-.010	.97871	-.00943	-.01088	-.00144
		2264	2.240					
509.1	529.46			.007	.97866	.00708	.00628	-.00080
		2297	2.240					
511.1	531.76			-.011	.97854	-.01046	-.00922	.00123
		2249	2.240					
513.1	534.00			.004	.97852	.00440	.00659	.00219
		2269	2.240					
515.1	536.27			-.001	.97852	-.00118	-.00328	-.00210
		2264	2.240					
517.1	538.54			-.010	.97842	-.01020	-.00939	.00080
		2217	2.240					
519.1	540.75			.029	.97760	.02835	.03138	.00303
		2349	2.240					
521.1	543.10			.001	.97760	.00059	.00096	.00037
		2352	2.240					
523.1	545.46			-.019	.97725	-.01837	-.01861	-.00024
		2265	2.240					
525.1	547.72			-.018	.97695	-.01724	-.01633	.00091
		2187	2.240					
527.1	549.91			.009	.97687	.00876	.00818	-.00058
		2226	2.240					
529.1	552.13			.004	.97685	.00402	.00217	-.00184
		2245	2.240					
531.1	554.38			.028	.97608	.02746	.02561	-.00186
		2375	2.240					
533.1	556.75			-.006	.97604	-.00591	-.00713	-.00121
		2346	2.240					
535.1	559.10			-.027	.97534	-.02617	-.02519	.00099
		2223	2.240					
537.1	561.32			.008	.97527	.00808	.00952	.00144
		2261	2.240					
539.1	563.58			.004	.97526	.00428	.00812	.00383
		2281	2.240					
541.1	565.86			.003	.97524	.00322	.00131	-.00191
		2296	2.240					
543.1	568.16			.003	.97523	.00326	-.00080	-.00407
		2311	2.240					
545.1	570.47			.003	.97522	.00330	.00594	.00264
		2327	2.240					
547.1	572.80			.003	.97521	.00335	.00736	.00401
		2343	2.240					
549.1	575.14			.031	.97428	.03020	.02549	-.00471
		2493	2.240					
551.1	577.63			-.039	.97282	-.03765	-.04085	-.00321
		2307	2.240					
553.1	579.94			.013	.97267	.01218	.01362	.00144

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
		2366	2.240					
555.1	582.31			.016	.97241	.01586	.01894	.00308
		2444	2.240					
557.1	584.75			.011	.97228	.01102	.01474	.00372
		2500	2.240					
559.1	587.25			-.007	.97224	-.00655	-.00840	-.00185
		2467	2.240					
561.1	589.72			-.017	.97195	-.01680	-.01668	.00012
		2383	2.240					
563.1	592.10			-.048	.96970	-.04674	-.04825	-.00151
		2164	2.240					
565.1	594.26			.035	.96850	.03413	.03294	-.00118
		2322	2.240					
567.1	596.58			.027	.96781	.02585	.02192	-.00392
		2449	2.240					
569.1	599.03			.011	.96769	.01101	.01200	.00098
		2506	2.240					
571.1	601.54			.003	.96768	.00310	.00662	.00352
		2522	2.240					
573.1	604.06			-.007	.96763	-.00656	-.00458	.00197
		2488	2.240					
575.1	606.55			.010	.96753	.00976	.00786	-.00190
		2539	2.240					
577.1	609.09			-.012	.96739	-.01159	-.01339	-.00179
		2479	2.240					
579.1	611.57			.023	.96687	.02257	.02110	-.00147
		2597	2.240					
581.1	614.16			-.048	.96465	-.04630	-.04637	-.00006
		2360	2.240					
583.1	616.52			.031	.96374	.02970	.03177	.00207
		2509	2.240					
585.1	619.03			-.024	.96319	-.02285	-.02417	-.00132
		2393	2.240					
587.1	621.43			-.010	.96309	-.00995	-.00743	.00252
		2344	2.240					
589.1	623.77			-.009	.96301	-.00870	-.00784	.00086
		2302	2.240					
591.1	626.07			0	.96301	.00040	-.00117	-.00157
		2304	2.240					
593.1	628.38			.005	.96299	.00495	.00498	.00003
		2328	2.240					
595.1	630.71			-.004	.96298	-.00340	-.00840	-.00500
		2312	2.240					
597.1	633.02			.004	.96296	.00411	.00278	-.00133
		2331	2.240					
599.1	635.35			-.013	.96281	-.01205	-.01091	.00114
		2274	2.240					
601.1	637.62			-.012	.96266	-.01182	-.00843	.00339
		2221	2.237					

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
603.1	639.84			-.015	.96246	-.01398	-.01473	-.00076
		2190	2.204					
605.1	642.03			.046	.96046	.04383	.04562	.00179
		2375	2.227					
607.1	644.41			.038	.95906	.03672	.03741	.00069
		2496	2.287					
609.1	646.90			-.008	.95900	-.00771	-.00676	.00095
		2462	2.282					
611.1	649.37			-.009	.95892	-.00872	-.00848	.00024
		2440	2.261					
613.1	651.81			.005	.95889	.00485	.00341	-.00145
		2418	2.304					
615.1	654.22			-.057	.95581	-.05440	-.05442	-.00002
		2397	2.075					
617.1	656.62			.039	.95439	.03686	.03955	.00269
		2377	2.261					
619.1	659.00			.004	.95437	.00381	-.00004	-.00385
		2377	2.279					
621.1	661.37			-.007	.95432	-.00672	-.00794	-.00122
		2356	2.267					
623.1	663.73			0	.95432	-.00001	.00073	.00074
		2371	2.252					
625.1	666.10			.007	.95427	.00707	.00745	.00038
		2395	2.263					
627.1	668.50			.006	.95423	.00619	.00425	-.00194
		2427	2.263					
629.1	670.92			.006	.95419	.00597	.00274	-.00323
		2451	2.268					
631.1	673.38			-.002	.95419	-.00176	-.00357	-.00181
		2441	2.269					
633.1	675.82			-.001	.95419	-.00074	.00699	.00773
		2437	2.269					
635.1	678.25			-.006	.95416	-.00543	-.00043	.00499
		2414	2.266					
637.1	680.67			-.001	.95416	-.00094	-.00684	-.00590
		2418	2.257					
639.1	683.09			-.001	.95416	-.00125	-.00072	.00053
		2399	2.269					
641.1	685.48			0	.95416	.00033	.00092	.00060
		2408	2.262					
643.1	687.89			.004	.95414	.00383	.00575	.00191
		2422	2.267					
645.1	690.31			.001	.95414	.00079	.00176	.00097
		2424	2.269					
647.1	692.74			-.011	.95403	-.01045	-.01653	-.00608
		2383	2.258					
649.1	695.12			.004	.95401	.00397	.00980	.00583
		2410	2.251					
651.1	697.53			.003	.95400	.00318	.00632	.00313

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
		2411	2.266					
653.1	699.94			-.004	.95399	-.00337	-.01054	-.00717
		2396	2.264					
655.1	702.34			-.010	.95389	-.00980	-.01312	-.00332
		2374	2.238					
657.1	704.71			.019	.95353	.01846	.01146	-.00700
		2425	2.277					
659.1	707.14			-.003	.95352	-.00298	.00012	.00310
		2421	2.267					
661.1	709.56			0	.95352	-.00046	.00717	.00763
		2417	2.268					
663.1	711.97			-.003	.95351	-.00267	.00096	.00364
		2404	2.268					
665.1	714.38			-.007	.95346	-.00685	-.01255	-.00571
		2386	2.252					
667.1	716.76			-.020	.95308	-.01897	-.01574	.00322
		2319	2.228					
669.1	719.08			-.005	.95306	-.00503	-.01260	-.00757
		2294	2.228					
671.1	721.38			.003	.95305	.00286	.00085	-.00201
		2304	2.232					
673.1	723.68			-.002	.95305	-.00200	.00148	.00348
		2303	2.224					
675.1	725.98			-.010	.95295	-.00941	-.01002	-.00061
		2285	2.197					
677.1	728.27			-.023	.95247	-.02155	-.02085	.00070
		2225	2.156					
679.1	730.49			-.067	.94824	-.06346	-.06070	.00277
		2053	2.046					
681.1	732.55			.231	.89772	.21888	.21944	.00056
		2943	2.283					
683.1	735.49			-.009	.89764	-.00826	-.00425	.00401
		2915	2.262					
685.1	738.40			.012	.89751	.01093	.00486	-.00607
		2974	2.272					
687.1	741.38			.071	.89300	.06361	.07326	.00965
		3284	2.372					
689.1	744.66			-.015	.89280	-.01343	.00190	.01533
		3169	2.385					
691.1	747.83			-.049	.89069	-.04337	-.04786	-.00449
		2933	2.339					
693.1	750.76			-.003	.89068	-.00286	-.00705	-.00419
		2767	2.462					
695.1	753.53			-.049	.88858	-.04322	-.04322	.00001
		2670	2.316					
697.1	756.20			.088	.88166	.07840	.07989	.00149
		3005	2.456					
699.1	759.21			-.072	.87707	-.06367	-.06774	-.00407
		2741	2.330					

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
701.1	761.95			-.011	.87695	-.00996	-.02076	-.01081
		2815	2.218					
703.1	764.76			-.028	.87626	-.02462	-.02090	.00372
		2777	2.125					
705.1	767.54			-.013	.87612	-.01113	-.01637	-.00524
		2658	2.165					
707.1	770.20			.013	.87596	.01172	-.00037	-.01209
		2651	2.229					
709.1	772.85			-.009	.87590	-.00773	-.00794	-.00021
		2594	2.238					
711.1	775.44			-.001	.87590	-.00058	-.00247	-.00189
		2679	2.165					
713.1	778.12			-.018	.87561	-.01576	.00048	.01624
		2627	2.130					
715.1	780.75			-.017	.87536	-.01501	-.02409	-.00909
		2536	2.132					
717.1	783.29			.053	.87286	.04678	.03676	-.01002
		2723	2.209					
719.1	786.01			-.021	.87245	-.01870	.00959	.02829
		2645	2.179					
721.1	788.65			-.004	.87244	-.00310	-.00942	-.00632
		2649	2.160					
723.1	791.30			.017	.87221	.01443	.00950	-.00493
		2694	2.196					
725.1	794.00			-.011	.87210	-.00956	-.00187	.00769
		2684	2.156					
727.1	796.68			.004	.87209	.00338	-.01329	-.01667
		2661	2.192					
729.1	799.34			-.008	.87203	-.00677	.00781	.01458
		2617	2.194					
731.1	801.96			-.038	.87077	-.03322	-.03019	.00303
		2516	2.115					
733.1	804.47			.024	.87027	.02075	.00929	-.01146
		2602	2.144					
735.1	807.08			.019	.86996	.01646	.02270	.00623
		2660	2.179					
737.1	809.74			-.015	.86978	-.01271	-.01667	-.00397
		2657	2.118					
739.1	812.39			-.018	.86949	-.01595	-.01581	.00014
		2615	2.075					
741.1	815.01			.032	.86862	.02749	.02999	.00251
		2675	2.161					
743.1	817.68			.006	.86859	.00500	-.00071	-.00571
		2560	2.285					
745.1	820.24			.003	.86858	.00221	-.00964	-.01185
		2670	2.201					
747.1	822.91			-.001	.86858	-.00115	.00855	.00970
		2682	2.186					
749.1	825.59			.003	.86857	.00243	-.00487	-.00730

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
		2716	2.170					
751.1	828.31			.062	.86527	.05357	.06332	.00976
		2898	2.302					
753.1	831.21			-.050	.86310	-.04335	-.03494	.00841
		2753	2.191					
755.1	833.96			.010	.86302	.00839	.01062	.00223
		2764	2.225					
757.1	836.73			-.018	.86275	-.01516	-.01513	.00004
		2619	2.268					
759.1	839.34			-.046	.86092	-.03978	-.04619	-.00642
		2528	2.142					
761.1	841.87			.034	.85994	.02900	.01289	-.01610
		2585	2.241					
763.1	844.46			-.026	.85935	-.02248	-.01642	.00606
		2498	2.201					
765.1	846.96			0	.85935	-.00030	.00542	.00572
		2519	2.181					
767.1	849.47			-.014	.85918	-.01223	-.00707	.00515
		2504	2.132					
769.1	851.98			.003	.85917	.00298	.00078	-.00220
		2534	2.122					
771.1	854.51			-.005	.85914	-.00457	-.01309	-.00852
		2500	2.128					
773.1	857.01			-.004	.85913	-.00366	.00097	.00462
		2467	2.138					
775.1	859.48			-.003	.85912	-.00224	-.01801	-.01576
		2507	2.094					
777.1	861.99			.016	.85890	.01371	.01356	-.00016
		2555	2.120					
779.1	864.54			-.013	.85876	-.01122	.00037	.01159
		2507	2.106					
781.1	867.05			-.006	.85873	-.00508	-.01025	-.00517
		2483	2.101					
783.1	869.53			.001	.85873	.00048	.01450	.01402
		2487	2.099					
785.1	872.02			.011	.85862	.00945	-.00070	-.01015
		2505	2.131					
787.1	874.52			.056	.85592	.04815	.04486	-.00330
		2630	2.271					
789.1	877.15			-.034	.85493	-.02910	-.00764	.02145
		2531	2.204					
791.1	879.69			-.015	.85473	-.01310	-.02508	-.01198
		2501	2.164					
793.1	882.19			-.009	.85466	-.00770	-.00459	.00311
		2517	2.111					
795.1	884.70			.008	.85461	.00650	.02001	.01351
		2526	2.136					
797.1	887.23			.023	.85416	.01967	-.01103	-.03070
		2586	2.185					

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
799.1	889.81			-.018	.85388	-.01536	-.01295	.00242
		2583	2.110					
801.1	892.40			-.002	.85388	-.00210	.00677	.00888
		2597	2.089					
803.1	895.00			.007	.85384	.00585	.00493	-.00092
		2615	2.102					
805.1	897.61			-.022	.85342	-.01880	-.01386	.00495
		2525	2.084					
807.1	900.14			.004	.85341	.00306	-.01065	-.01371
		2548	2.080					
809.1	902.68			-.004	.85340	-.00309	.00043	.00352
		2535	2.076					
811.1	905.22			.052	.85110	.04430	.05743	.01313
		2658	2.196					
813.1	907.88			-.002	.85110	-.00197	-.00535	-.00338
		2640	2.200					
815.1	910.52			-.030	.85034	-.02536	-.02444	.00093
		2556	2.141					
817.1	913.07			.094	.84290	.07953	.08589	.00636
		2907	2.272					
819.1	915.98			-.053	.84052	-.04483	-.04224	.00258
		2657	2.234					
821.1	918.64			-.018	.84024	-.01538	-.01697	-.00159
		2624	2.181					
823.1	921.26			.011	.84014	.00920	-.00214	-.01134
		2644	2.213					
825.1	923.90			-.006	.84010	-.00541	.00166	.00707
		2635	2.192					
827.1	926.54			.018	.83985	.01470	.00252	-.01218
		2689	2.224					
829.1	929.23			-.006	.83982	-.00463	-.00097	.00366
		2663	2.222					
831.1	931.89			-.003	.83981	-.00263	.00636	.00899
		2620	2.244					
833.1	934.51			-.008	.83976	-.00669	-.01426	-.00757
		2628	2.201					
835.1	937.14			-.011	.83966	-.00911	-.00986	-.00075
		2578	2.196					
837.1	939.72			-.002	.83966	-.00146	-.01304	-.01158
		2572	2.194					
839.1	942.29			0	.83966	.00024	-.00359	-.00383
		2566	2.200					
841.1	944.85			-.004	.83964	-.00332	.00905	.01237
		2558	2.189					
843.1	947.41			-.005	.83962	-.00434	.00889	.01322
		2583	2.146					
845.1	950.00			0	.83962	.00034	.02049	.02015
		2606	2.129					
847.1	952.60			.002	.83962	.00208	-.01840	-.02048

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
		2600	2.144					
849.1	955.20	2801	2.180	.046	.83787	.03827	.04390	.00563
851.1	958.00	2736	2.195	-.008	.83781	-.00697	-.01470	-.00773
853.1	960.74	2865	2.257	.037	.83667	.03095	.02296	-.00798
855.1	963.61	2638	2.176	-.060	.83370	-.04984	-.05655	-.00671
857.1	966.24	2583	2.142	-.018	.83342	-.01529	-.01185	.00343
859.1	968.83	2660	2.192	.026	.83286	.02172	.02834	.00661
861.1	971.49	2993	2.286	.080	.82755	.06648	.06818	.00170
863.1	974.48	2791	2.234	-.046	.82578	-.03825	-.04219	-.00394
865.1	977.27	2628	2.185	-.041	.82438	-.03407	-.03576	-.00169
867.1	979.90	2670	2.218	.015	.82418	.01266	.00135	-.01131
869.1	982.57	2626	2.136	-.027	.82358	-.02231	-.00294	.01937
871.1	985.20	2599	2.126	-.008	.82353	-.00626	-.01411	-.00785
873.1	987.79	2583	2.174	.008	.82348	.00662	.00325	-.00337
875.1	990.38	2631	2.252	.027	.82288	.02208	.03579	.01371
877.1	993.01	2558	2.124	-.043	.82135	-.03552	-.05611	-.02059
879.1	995.57	2568	2.122	.001	.82135	.00101	.00361	.00260
881.1	998.13	2582	2.118	.002	.82135	.00160	.00302	.00142
883.1	1000.71	2555	2.119	-.005	.82133	-.00411	.00297	.00707
885.1	1003.27	2719	2.216	.053	.81898	.04390	.04070	-.00320
887.1	1005.99	2601	2.220	-.021	.81861	-.01742	-.01790	-.00048
889.1	1008.59	2604	2.214	-.001	.81861	-.00066	.00527	.00592
891.1	1011.19	2629	2.183	-.002	.81860	-.00192	-.00561	-.00368
893.1	1013.82	2584	2.129	-.021	.81824	-.01728	-.01485	.00243
895.1	1016.41	2660	2.250	.042	.81678	.03456	.03613	.00157

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
897.1	1019.07			.007	.81674	.00566	.01266	.00701
		2668	2.275					
899.1	1021.73			.046	.81504	.03730	.04557	.00827
		2900	2.293					
901.1	1024.63			-.089	.80857	-.07261	-.08175	-.00914
		2571	2.164					
903.1	1027.21			.043	.80711	.03441	.01819	-.01621
		2715	2.231					
905.1	1029.92			-.050	.80512	-.04002	-.02169	.01833
		2531	2.167					
907.1	1032.45			.028	.80451	.02226	.00518	-.01708
		2647	2.190					
909.1	1035.10			-.022	.80410	-.01806	-.02322	-.00516
		2601	2.130					
911.1	1037.70			.054	.80178	.04320	.04665	.00346
		2808	2.198					
913.1	1040.51			-.042	.80036	-.03373	-.05267	-.01894
		2644	2.146					
915.1	1043.15			.071	.79629	.05704	.06390	.00686
		2809	2.329					
917.1	1045.96			-.035	.79529	-.02822	-.02173	.00649
		2690	2.266					
919.1	1048.65			-.018	.79505	-.01406	-.01557	-.00151
		2674	2.200					
921.1	1051.33			.008	.79499	.00655	.02242	.01586
		2701	2.215					
923.1	1054.03			.024	.79453	.01918	.02480	.00562
		2815	2.230					
925.1	1056.84			.027	.79393	.02180	.01379	-.00801
		2916	2.275					
927.1	1059.76			-.108	.78470	-.08560	-.07373	.01187
		2479	2.155					
929.1	1062.24			.026	.78416	.02066	.01313	-.00753
		2591	2.173					
931.1	1064.83			.061	.78125	.04774	.06414	.01640
		2876	2.211					
933.1	1067.70			-.019	.78096	-.01516	-.00957	.00559
		2766	2.212					
935.1	1070.47			-.023	.78056	-.01772	-.02832	-.01059
		2679	2.182					
937.1	1073.15			.008	.78050	.00640	-.00116	-.00756
		2717	2.187					
939.1	1075.87			0	.78050	-.00003	.01522	.01526
		2745	2.165					
941.1	1078.61			-.003	.78049	-.00271	-.02873	-.02602
		2730	2.162					
943.1	1081.34			.050	.77855	.03898	.03937	.00039
		2932	2.225					
945.1	1084.27			.003	.77854	.00265	.01720	.01456

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
		2970	2.211					
947.1	1087.24			-.015	.77836	-.01166	-.00162	.01003
		2901	2.197					
949.1	1090.14			.098	.77095	.07595	.07236	-.00359
		3299	2.349					
951.1	1093.44			-.036	.76993	-.02802	-.01714	.01088
		3151	2.287					
953.1	1096.59			.001	.76993	.00064	-.01436	-.01500
		3130	2.306					
955.1	1099.72			-.094	.76308	-.07265	-.07626	-.00360
		2718	2.198					
957.1	1102.44			.028	.76246	.02164	.02854	.00689
		2779	2.275					
959.1	1105.22			-.031	.76173	-.02360	-.02885	-.00526
		2709	2.194					
961.1	1107.93			.001	.76173	.00062	-.01120	-.01181
		2765	2.152					
963.1	1110.70			-.003	.76172	-.00259	.01520	.01779
		2764	2.139					
965.1	1113.46			-.011	.76164	-.00807	-.01591	-.00784
		2689	2.153					
967.1	1116.15			.023	.76125	.01729	.01055	-.00674
		2753	2.200					
969.1	1118.90			.020	.76093	.01542	.00389	-.01152
		2840	2.221					
971.1	1121.74			-.019	.76066	-.01456	-.01887	-.00431
		2766	2.195					
973.1	1124.51			.008	.76060	.00643	.02589	.01946
		2798	2.207					
975.1	1127.30			.043	.75917	.03305	.04563	.01259
		2988	2.254					
977.1	1130.29			-.057	.75672	-.04312	-.06940	-.02628
		2745	2.190					
979.1	1133.04			.029	.75608	.02187	-.00022	-.02209
		2870	2.219					
981.1	1135.91			-.021	.75576	-.01553	.02900	.04453
		2811	2.175					
983.1	1138.72			.057	.75331	.04307	.01754	-.02553
		3017	2.271					
985.1	1141.74			-.056	.75096	-.04207	-.00715	.03492
		2822	2.171					
987.1	1144.56			.023	.75057	.01721	-.00217	-.01938
		2857	2.245					
989.1	1147.41			-.021	.75022	-.01607	-.00286	.01320
		2759	2.228					
991.1	1150.17			-.020	.74993	-.01476	-.01181	.00295
		2706	2.183					
993.1	1152.88			.016	.74975	.01167	-.00380	-.01548
		2731	2.232					

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
995.1	1155.61	2756	2.259	.011	.74966	.00805	-.01187	-.01992
997.1	1158.37	2724	2.227	-.013	.74953	-.00987	-.00838	.00150
999.1	1161.09	2770	2.204	.003	.74953	.00235	.01321	.01085
1001.1	1163.86	3096	2.286	.074	.74544	.05535	.05991	.00456
1003.1	1166.96	3076	2.265	-.008	.74539	-.00582	.01083	.01665
1005.1	1170.03	2969	2.234	-.025	.74494	-.01843	-.04110	-.02267
1007.1	1173.00	2982	2.233	.002	.74494	.00154	.01012	.00858
1009.1	1175.98	2867	2.221	-.022	.74456	-.01666	-.00515	.01151
1011.1	1178.85	2832	2.249	0	.74456	.00011	-.00458	-.00469
1013.1	1181.68	2987	2.239	.025	.74411	.01829	.00744	-.01086
1015.1	1184.67	2973	2.194	-.013	.74399	-.00941	-.00539	.00403
1017.1	1187.64	2838	2.265	-.007	.74396	-.00538	.00732	.01270
1019.1	1190.48	3013	2.176	.010	.74388	.00736	.01279	.00543
1021.1	1193.49	3036	2.215	.013	.74376	.00947	.00927	-.00019
1023.1	1196.53	2989	2.260	.002	.74376	.00160	.00599	.00439
1025.1	1199.52	3011	2.338	.021	.74344	.01534	.03210	.01676
1027.1	1202.53	2882	2.262	-.038	.74234	-.02857	-.04755	-.01898
1029.1	1205.41	2855	2.318	.008	.74230	.00559	-.02407	-.02967
1031.1	1208.27	2995	2.251	.009	.74224	.00691	.00728	.00037
1033.1	1211.26	2898	2.213	-.025	.74178	-.01843	-.02099	-.00256
1035.1	1214.16	2936	2.234	.011	.74169	.00833	.00490	-.00343
1037.1	1217.10	2956	2.235	.003	.74168	.00250	.02589	.02338
1039.1	1220.05	2781	2.188	-.041	.74044	-.03034	-.04346	-.01312
1041.1	1222.83	2917	2.251	.038	.73937	.02806	.00829	-.01978
1043.1	1225.75			.011	.73928	.00842	.03176	.02334

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
		2971	2.261					
1045.1	1228.72			-.046	.73771	-.03405	-.02946	.00460
		2783	2.202					
1047.1	1231.50			.021	.73738	.01551	-.00804	-.02355
		2854	2.239					
1049.1	1234.36			.055	.73513	.04072	.05983	.01910
		3048	2.341					
1051.1	1237.41			-.017	.73491	-.01271	-.00808	.00463
		2993	2.303					
1053.1	1240.40			-.011	.73483	-.00793	.01943	.02737
		3004	2.246					
1055.1	1243.40			.020	.73454	.01461	-.01749	-.03210
		3014	2.329					
1057.1	1246.42			-.020	.73425	-.01461	-.00334	.01127
		2944	2.291					
1059.1	1249.36			.026	.73375	.01905	.01928	.00023
		3044	2.334					
1061.1	1252.41			.010	.73368	.00749	.00980	.00231
		3093	2.345					
1063.1	1255.50			-.006	.73365	-.00409	-.00671	-.00262
		3074	2.333					
1065.1	1258.57			-.048	.73196	-.03524	-.04116	-.00593
		2968	2.195					
1067.1	1261.54			.007	.73193	.00517	-.00577	-.01094
		2823	2.340					
1069.1	1264.36			-.008	.73188	-.00586	.00702	.01288
		2936	2.215					
1071.1	1267.30			.009	.73182	.00673	.00328	-.00346
		2909	2.276					
1073.1	1270.21			-.001	.73182	-.00079	-.00025	.00053
		2910	2.271					
1075.1	1273.12			.011	.73173	.00812	.01041	.00229
		2962	2.281					
1077.1	1276.08			-.047	.73011	-.03434	-.03117	.00317
		2849	2.159					
1079.1	1278.93			.012	.73001	.00861	.00669	-.00193
		2895	2.176					
1081.1	1281.83			.018	.72977	.01336	.00206	-.01130
		2940	2.222					
1083.1	1284.77			-.028	.72919	-.02061	-.01480	.00581
		2914	2.119					
1085.1	1287.68			-.019	.72891	-.01420	-.02338	-.00918
		2752	2.158					
1087.1	1290.43			.081	.72413	.05903	.06381	.00478
		2986	2.339					
1089.1	1293.42			-.047	.72250	-.03437	-.04472	-.01035
		2862	2.219					
1091.1	1296.28			.024	.72207	.01764	.03906	.02143
		2863	2.329					

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
1093.1	1299.14	2925	2.313	.007	.72203	.00524	.00945	.00422
1095.1	1302.07	2752	2.219	-.051	.72013	-.03702	-.03389	.00313
1097.1	1304.82	3408	2.406	.146	.70473	.10532	.10838	.00306
1099.1	1308.23	2975	2.132	-.128	.69324	-.08998	-.07803	.01195
1101.1	1311.20	2938	2.270	.025	.69280	.01739	.01210	-.00529
1103.1	1314.14	2747	2.236	-.041	.69164	-.02840	-.05570	-.02730
1105.1	1316.89	2883	2.181	.012	.69154	.00803	.00547	-.00256
1107.1	1319.77	2848	2.184	-.005	.69152	-.00370	.01469	.01839
1109.1	1322.62	2881	2.220	.014	.69139	.00953	-.02923	-.03876
1111.1	1325.50	2987	2.285	.033	.69066	.02254	.00284	-.01971
1113.1	1328.49	2981	2.217	-.016	.69048	-.01119	.00648	.01767
1115.1	1331.47	2899	2.226	-.012	.69038	-.00810	-.00985	-.00175
1117.1	1334.37	2768	2.268	-.014	.69025	-.00959	-.00966	-.00006
1119.1	1337.13	2852	2.262	.014	.69012	.00947	-.01356	-.02303
1121.1	1339.99	2805	2.256	-.010	.69005	-.00667	.02573	.03240
1123.1	1342.79	2815	2.232	-.004	.69004	-.00254	-.01600	-.01347
1125.1	1345.61	2798	2.234	-.003	.69004	-.00177	.00858	.01035
1127.1	1348.41	3298	2.333	.104	.68263	.07149	.08197	.01048
1129.1	1351.70	2910	2.286	-.073	.67902	-.04965	-.00365	.04600
1131.1	1354.61	2904	2.291	0	.67902	.00009	-.01915	-.01924
1133.1	1357.52	3731	2.418	.151	.66353	.10257	.11005	.00748
1135.1	1361.25	3200	2.339	-.093	.65775	-.06189	-.05002	.01187
1137.1	1364.45	3031	2.298	-.036	.65691	-.02353	-.01471	.00882
1139.1	1367.48	2892	2.269	-.030	.65633	-.01964	-.04130	-.02166
1141.1	1370.37			.014	.65620	.00892	-.01324	-.02217

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
		2972	2.268					
1143.1	1373.34			.016	.65604	.01031	.01228	.00197
		3015	2.308					
1145.1	1376.36			-.009	.65599	-.00591	.00529	.01119
		2977	2.295					
1147.1	1379.34			-.016	.65583	-.01036	-.04278	-.03242
		2904	2.280					
1149.1	1382.24			-.014	.65570	-.00915	.01645	.02560
		2868	2.245					
1151.1	1385.11			.031	.65508	.02012	-.01144	-.03156
		2990	2.290					
1153.1	1388.10			-.065	.65230	-.04269	-.00082	.04187
		2705	2.221					
1155.1	1390.80			.085	.64760	.05535	.02698	-.02837
		3052	2.334					
1157.1	1393.86			.005	.64759	.00302	.02851	.02550
		3093	2.324					
1159.1	1396.95			.001	.64759	.00043	-.01778	-.01821
		3120	2.307					
1161.1	1400.07			-.024	.64722	-.01539	.00203	.01742
		3006	2.284					
1163.1	1403.07			.013	.64711	.00836	-.00262	-.01098
		3013	2.338					
1165.1	1406.09			-.023	.64678	-.01465	.00244	.01710
		2983	2.257					
1167.1	1409.07			.001	.64678	.00042	-.00247	-.00289
		2999	2.248					
1169.1	1412.07			-.019	.64655	-.01211	-.04852	-.03641
		2886	2.250					
1171.1	1414.96			.030	.64597	.01948	.02882	.00934
		3009	2.292					
1173.1	1417.96			-.029	.64541	-.01897	-.03716	-.01819
		2900	2.243					
1175.1	1420.86			.021	.64513	.01342	.02966	.01624
		2980	2.275					
1177.1	1423.84			.006	.64511	.00403	-.01046	-.01449
		2986	2.299					
1179.1	1426.83			-.004	.64510	-.00232	-.00325	-.00093
		2964	2.300					
1181.1	1429.79			-.003	.64509	-.00190	.00457	.00647
		2946	2.300					
1183.1	1432.74			0	0	0	.04661	.04661
1185.1							-.02060	-.02060
1187.1							.00708	.00708
1189.1							.01631	.01631

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
1191.1							-.01045	-.01045
1193.1							-.00936	-.00936
1195.1							.00059	.00059
1197.1							.00112	.00112
1199.1							.00477	.00477
1201.1							-.01480	-.01480
1203.1							.01256	.01256
1205.1							-.00473	-.00473
1207.1							.00754	.00754
1209.1							-.04126	-.04126
1211.1							.00688	.00688
1213.1							.01021	.01021
1215.1							.00921	.00921
1217.1							.00592	.00592
1219.1							-.01415	-.01415
1221.1							.00847	.00847
1223.1							-.00248	-.00248
1225.1							.00842	.00842
1227.1							.00016	.00016
1229.1							.00120	.00120
1231.1							-.01770	-.01770
1233.1							-.00620	-.00620
1235.1							-.00076	-.00076
1237.1							.03564	.03564
1239.1							-.06463	-.06463

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
1241.1							.03672	.03672
1243.1							-.00610	-.00610
1245.1							-.01854	-.01854
1247.1							.01634	.01634
1249.1							.00896	.00896
1251.1							.01576	.01576
1253.1							-.00828	-.00828
1255.1							-.00233	-.00233
1257.1							.00783	.00783
1259.1							.00610	.00610
1261.1							-.00323	-.00323
1263.1							-.02289	-.02289
1265.1							.00717	.00717
1267.1							.03714	.03714
1269.1							-.03817	-.03817
1271.1							-.00214	-.00214
1273.1							.00449	.00449
1275.1							-.00509	-.00509
1277.1							-.00592	-.00592
1279.1							.02255	.02255
1281.1							-.02279	-.02279
1283.1							-.01384	-.01384
1285.1							.02833	.02833
1287.1							-.00356	-.00356

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
1289.1							-.00367	-.00367
1291.1							-.00373	-.00373
1293.1							.02798	.02798
1295.1							-.00007	-.00007
1297.1							-.01698	-.01698
1299.1							-.02446	-.02446
1301.1							.03663	.03663
1303.1							-.00091	-.00091
1305.1							.03360	.03360
1307.1							-.04097	-.04097
1309.1							-.01581	-.01581
1311.1							.00730	.00730
1313.1							-.00913	-.00913
1315.1							.00496	.00496
1317.1							.01783	.01783
1319.1							-.01354	-.01354
1321.1							-.02478	-.02478
1323.1							.00448	.00448
1325.1							.00820	.00820
1327.1							.01370	.01370
1329.1							.00819	.00819
1331.1							.01984	.01984
1333.1							-.03411	-.03411
1335.1							.03247	.03247
1337.1							-.03975	-.03975

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
1339.1							.03917	.03917
1341.1							-.02482	-.02482
1343.1							.00665	.00665
1345.1							-.02750	-.02750
1347.1							.00586	.00586
1349.1							.01119	.01119
1351.1							.02273	.02273
1353.1							-.04929	-.04929
1355.1							.01663	.01663
1357.1							.02546	.02546
1359.1							-.02680	-.02680
1361.1							-.00326	-.00326
1363.1							.03623	.03623
1365.1							-.00227	-.00227
1367.1							-.00843	-.00843
1369.1							-.02156	-.02156
1371.1							-.01979	-.01979
1373.1							-.00225	-.00225
1375.1							.01446	.01446
1377.1							-.00582	-.00582
1379.1							.02432	.02432
1381.1							-.00469	-.00469
1383.1							.01534	.01534
1385.1							.00770	.00770

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
1387.1							-.02636	-.02636
1389.1							.01400	.01400
1391.1							.00462	.00462
1393.1							.02934	.02934
1395.1							-.03259	-.03259
1397.1							-.00490	-.00490
1399.1							.01886	.01886
1401.1							-.00450	-.00450
1403.1							-.02348	-.02348
1405.1							-.00060	-.00060
1407.1							-.02025	-.02025
1409.1							.03320	.03320
1411.1							-.01063	-.01063
1413.1							-.01409	-.01409
1415.1							.04026	.04026
1417.1							-.03384	-.03384
1419.1							.03321	.03321
1421.1							-.01337	-.01337
1423.1							-.01124	-.01124
1425.1							-.00200	-.00200
1427.1							-.01078	-.01078
1429.1							.01576	.01576
1431.1							.01336	.01336
1433.1							-.01539	-.01539
1435.1							-.00347	-.00347

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
1437.1							.03040	.03040
1439.1							-.04332	-.04332
1441.1							.00699	.00699
1443.1							-.01088	-.01088
1445.1							.00315	.00315
1447.1							.00420	.00420
1449.1							.02713	.02713
1451.1							-.02116	-.02116
1453.1							.00689	.00689
1455.1							.01922	.01922
1457.1							.00483	.00483
1459.1							-.01063	-.01063
1461.1							.01299	.01299
1463.1							-.00034	-.00034
1465.1							-.02131	-.02131
1467.1							.02293	.02293
1469.1							.00151	.00151
1471.1							-.01914	-.01914
1473.1							-.02547	-.02547
1475.1							-.00250	-.00250
1477.1							-.00354	-.00354
1479.1							.01313	.01313
1481.1							-.00465	-.00465
1483.1							-.00495	-.00495

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
1485.1							.01336	.01336
1487.1							.00422	.00422
1489.1							-.00287	-.00287
1491.1							.00627	.00627
1493.1							.02087	.02087
1495.1							-.01008	-.01008
1497.1							-.02482	-.02482
1499.1							.02566	.02566
1501.1							-.03416	-.03416
1503.1							.02254	.02254
1505.1							.00849	.00849
1507.1							.01292	.01292
1509.1							-.04032	-.04032
1511.1							.02760	.02760
1513.1							-.00163	-.00163
1515.1							-.01266	-.01266
1517.1							.03161	.03161
1519.1							-.06205	-.06205
1521.1							.04764	.04764
1523.1							-.00846	-.00846
1525.1							-.03082	-.03082
1527.1							.03693	.03693
1529.1							.02040	.02040
1531.1							-.01826	-.01826
1533.1							-.01627	-.01627

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
1535.1							-.01570	-.01570
1537.1							.03221	.03221
1539.1							-.01016	-.01016
1541.1							.01455	.01455
1543.1							.00439	.00439
1545.1							-.00284	-.00284
1547.1							.00614	.00614
1549.1							-.02804	-.02804
1551.1							-.01484	-.01484
1553.1							.04236	.04236
1555.1							-.08008	-.08008
1557.1							.03121	.03121
1559.1							.00363	.00363
1561.1							-.00656	-.00656
1563.1							.03065	.03065
1565.1							-.01346	-.01346
1567.1							.01742	.01742
1569.1							.01739	.01739
1571.1							-.02368	-.02368
1573.1							.00214	.00214
1575.1							.01322	.01322
1577.1							-.00775	-.00775
1579.1							-.01831	-.01831
1581.1							.01939	.01939

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
1583.1							-.02722	-.02722
1585.1							.00648	.00648
1587.1							-.00632	-.00632
1589.1							-.01979	-.01979
1591.1							.05706	.05706
1593.1							-.01953	-.01953
1595.1							.00585	.00585
1597.1							.01194	.01194
1599.1							.01644	.01644
1601.1							-.03034	-.03034
1603.1							-.01001	-.01001
1605.1							-.00003	-.00003
1607.1							.01653	.01653
1609.1							-.02071	-.02071
1611.1							-.00443	-.00443
1613.1							.01133	.01133
1615.1							-.02613	-.02613
1617.1							.02819	.02819
1619.1							-.01510	-.01510
1621.1							.00099	.00099
1623.1							.01388	.01388
1625.1							-.02930	-.02930
1627.1							.02440	.02440
1629.1							.00702	.00702
1631.1							.02817	.02817

TWO WAY TRAVEL TIME MS	DEPTH FROM SRD (OR TOP) M	INTERVAL VELOCITY M/S	INTERVAL DENSITY G/C3	REFLECT. COEFF.	TWO WAY ATTEN. COEFF.	SYNTHETIC SEISMO. PRIMARY	PRIMARY + MULTIPLES	MULTIPLES ONLY
1633.1							-.01898	-.01898
1635.1							.01038	.01038
1637.1							-.01886	-.01886
1639.1							-.01092	-.01092
1641.1							.00049	.00049
1643.1							.03189	.03189
1645.1							-.01817	-.01817

PE601049

This is an enclosure indicator page.
The enclosure PE601049 is enclosed within the container PE902197 at this location in this document.

The enclosure PE601049 has the following characteristics:

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CONTAINER_BARCODE = PE902197
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           PERMIT =
             TYPE = WELL
          SUBTYPE = VELOCITY_CHART
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          REMARKS =
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    DATE_RECEIVED = 16/02/1988
             W_NO = W966
        WELL_NAME = Squatter-1
       CONTRACTOR = Schlumberger
     CLIENT_OP_CO = Beach Petroleum NL
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(Inserted by DNRE - Vic Govt Mines Dept)

PE902199

This is an enclosure indicator page.
The enclosure PE902199 is enclosed within the container PE902197 at this location in this document.

The enclosure PE902199 has the following characteristics:

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PERMIT =	
TYPE =	WELL
SUBTYPE =	SYNTH_SEISMOGRAM
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REMARKS =	
DATE_CREATED =	06/08/1987
DATE_RECEIVED =	16/02/1988
W_NO =	W966
WELL_NAME =	Squatter-1
CONTRACTOR =	Schlumberger
CLIENT_OP_CO =	Beach Petroleum NL

(Inserted by DNRE - Vic Govt Mines Dept)

APPENDIX 5

Palynology

PALYNOLOGY OF BEACH SQUATTER-1,

OTWAY BASIN, AUSTRALIA

BY

ROGER MORGAN

FOR BEACH PETROLEUM NOVEMBER, 1987.

PALYNOLOGY OF BEACH SQUATTER-1,

OTWAY BASIN, AUSTRALIA

BY

ROGER MORGAN

CONTENTS

I SUMMARY

790m (cutts) : M. diversus Zone (possibly upper) : Early Eocene : very nearshore marine : immature

810m (cutts) : L. balmei Zone : Paleocene : nearshore marine : immature

820m (cutts) : mixed assemblage presumed L. balmei with minor reworked T. longus/M. druggii elements, but could be Late Cretaceous with extensive caving : presumed Paleocene with Maastrichtian reworking : marginally marine : immature

840m (cutts) : T. longus/M.druggii Zones : Maastrichtian : marginal marine : immature

1000m (cutts) : T. pachyexinus/N. aceras Zones : Santonian - Campanian : nearshore to marginal marine : immature

1310m (cutts) : C. triplex Zone : Turonian : nearshore marine : marginally mature for oil

1390m (cutts) - 1420m (cutts) : A. distocarinatus/P. infusorioides Zones : Cenomanian : very nearshore marine : marginally mature for oil

1500m (cutts) : P. pannosus Zone : late Albian : presumed non-marine : marginally mature for oil

II INTRODUCTION

Ten cuttings samples were examined from Beach Squatter-1 for biostratigraphy and spore colour. No sidewall cores were available due to poor hole conditions. Yields were generally good. The samples are assigned to seven palynological zones on the basis of the supporting data presented here as Appendix I. The Cretaceous zonation used is basically that of Helby, Morgan and Partridge (1987), which draws on all previous work. The Tertiary zonation is that of Stover and Partridge (1973) and Stover and Evans (1973) as modified by Partridge (1976). Figure 1 shows the zonation framework.

Maturity data was generated on the Thermal Alteration Index (TAI) Scale of Staplin and plotted on Figure 2 as a Maturity Profile. The oil and gas windows on Figure 2 follow the general consensus of geochemical literature. The oil window corresponds to spore colours of light-mid brown (2.7) to dark brown (3.6) and would correspond to Vitrinite Reflectances of 0.6% to 1.3%. Geochemists, however, have not reached universal agreement on these values and argue variations based on kerogen type, basin type and basin history. The maturity interpretation is thus open to reinterpretation using the basic colour observations as raw data. However, the range of interpretation philosophies is not great, and would probably not move the oil window by more than 200 metres. Instrumental geochemistry offers quantitative and repeatable raw data.

	AGE		SPORE - POLLEN ZONES	DINOFLAGELLATE ZONES
Early Tertiary	Early Oligocene		P. tuberculatus	
	Late Eocene		upper N. asperus	P. comatum
			middle N. asperus	V. extensa
	Middle Eocene		lower N. asperus	D. heterophlycta; W. echinosuturata
	Early Eocene		P. asperopolus	W. edwardsii; W. thompsonae
			upper M. diversus	W. ornata; W. waipawaensis
			middle M. diversus	
			lower M. diversus	W. hyperacantha
	Paleocene		upper L. balmei	A. homomorpha
			lower L. balmei	E. crassitabulata; T. evittii
Late Cretaceous	Maastrichtian		T. longus	M. druggii
	Campanian		T. lillei	I.korojonense
			N. senectus	X. australis
	Santonian		T. pachyexinus	N. aceras; I. cretaceum; O. porifera
	Coniacian		C. triplex	
	Turonian			C. striatoconus; P. infusorioides
	Cenomanian		A. distocarinatus	
Early Cretaceous	Albian	Late	P. pannosus	
		Middle	upper C. paradoxa	
		Early	lower C. paradoxa	
			C. striatus	
	Aptian		upper C. hughesi	
			lower C. hughesi	
	Barremian		F. wonthaggiensis	
	Hauterivian			
	Valanginian		upper C. australiensis	
	Berriasian		lower C. australiensis	
Juras.	Tithonian		R. watherooensis	

FIGURE 1 ZONATION FRAMEWORK

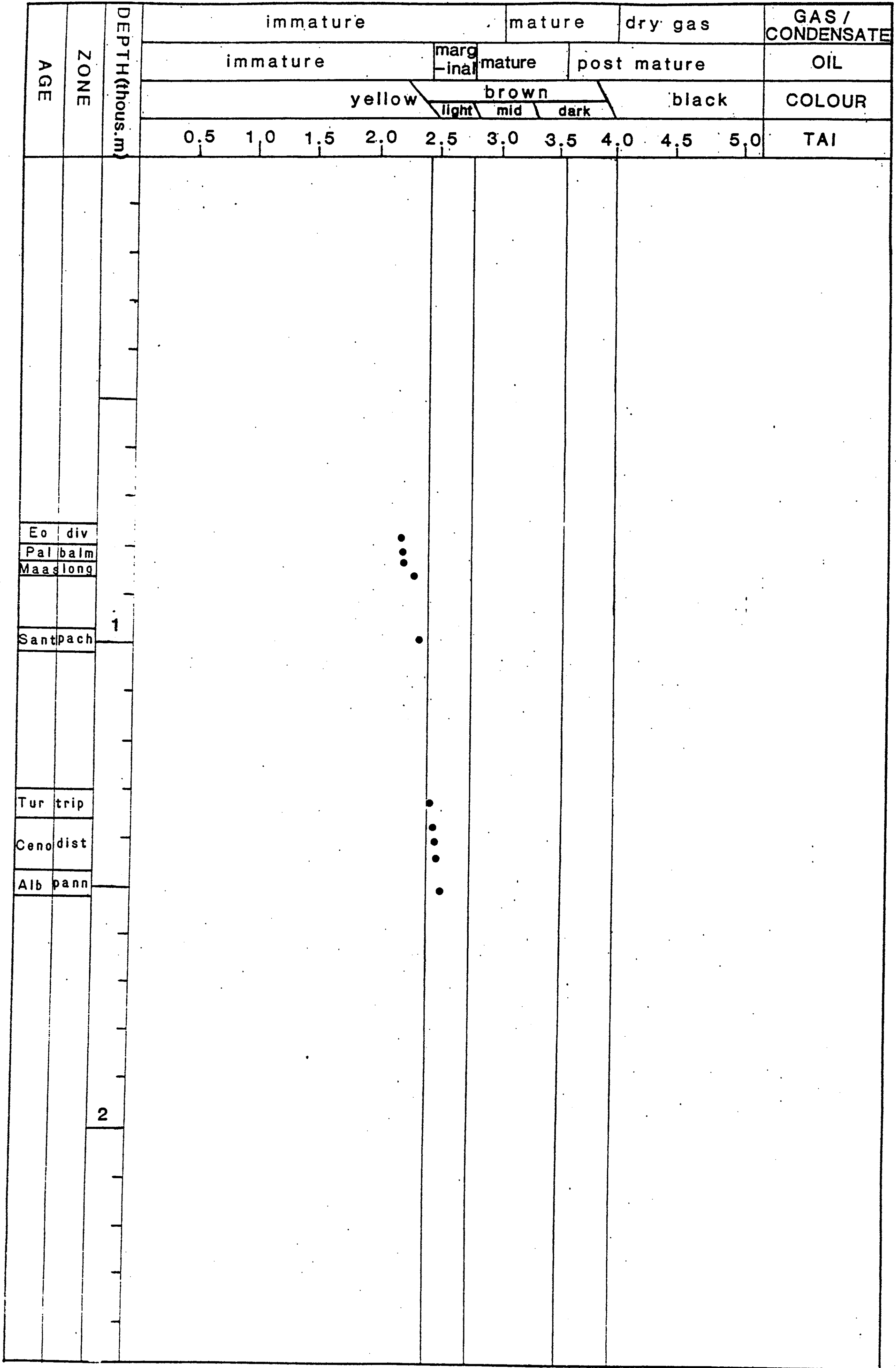

FIGURE 2 MATURITY PROFILE, SQUATTER-1

III PALYNOSTRATIGRAPHY

A. 790m (cutts) : M. diversus Zone (possibly upper)

Assignment to the Malvacipollis diversus Zone is clearly indicated at the top by the absence of younger indicators such as Proteacidites asperopolus, Nothofagidites falcatus etc, and at the base by oldest Cupaneidites orthoteichus, Intratriporopollenites notabilis, Spinozinocolpites prominatus and Malvacipollis diversus without older indicators. Subzonal assignment is problematic, as the subzones are defined on oldest occurrences which are easily caved in cuttings samples. Oldest Proteacidites clarus and P. kopiensis suggest middle M. diversus Zone or younger, and oldest Proteacidites pachypolus suggests upper M. diversus Zone or younger, but these taxa could all be caved from above. If all the taxa seen are in place, an upper M. diversus age would be indicated. Dilwynites and Proteacidites are dominant. Minor Cretaceous and Permian reworking were seen.

Dinoflagellates include frequent Muratodinium fimbriatum and rare Hafniasphera septata, consistent with the M. diversus assignment, but not sufficient to indicate a subzone.

Very nearshore marine environments are suggested by the low dinoflagellate content (10% of palynomorphs) and their low diversity (5 species). Pollen and spores are dominant and diverse.

These features are normally seen in the Pember Member of the Dilwyn Formation.

Light yellow spore colours indicate immaturity for hydrocarbon generation.

B. 810m (cutts) : L. balmei Zone

Assignment to the Lygistepollenites balmei Zone is indicated at the top by youngest Gambierina edwardsii, G. rudata and L. balmei, and at the base by oldest L. balmei without older indicators. Proteacidites grandis and P. incurvatus are present and suggest the upper subzone, but they could be caved. Tetracolporites verrucosus is also present and suggests the lower subzone. However, only a single specimen was seen and so confidence is low (it could be reworked). Minor Cretaceous and Permian reworking were seen. Dilwynites, Falcisporites and Cyathidites are frequent.

Dinoflagellates are dominated by Deflandrea speciosa, suggesting a general Paleocene age. Other taxa include Isabelidinium bakeri (suggesting the lower L. balmei Zone), and several obviously or probably caved taxa (Apectodinium hyperacantha, Deflandrea obliquipes, Wetzeliella articulata, Hafniasphaera septata and Muratodinium fimbriatum) and some obviously reworked taxa (Isabelidinium pellucidum). An unusual new reticulate Senoniasphaera was seen.

Nearshore marine environments are indicated by the moderate dinoflagellate content (20%) and moderate diversity (although some of the diversity is caved).

These features are normally seen in the Pebble Point Formation.

Light yellow spore colours indicate immaturity for hydrocarbons.

C. 820m (cutts) : mixed assemblage presumed L. balmei with latest Cretaceous T. longus reworking.

Assignment of this sample is problematic. The majority of the assemblage is consistent with an L. balmei assignment (including dominant Haloragacidites harrisii with scarce Gambierina rudata and Jaxtacolpus peirensis. However, single specimens of Tricolpites sabulosus and Triporopollenites sectilis and six specimens of dinoflagellates suggest the latest Cretaceous T. longus Zone. Since late Cretaceous specimens are rare, and many markers are missing, a Paleocene L. balmei Zone assignment is considered likely, with minor Late Cretaceous reworking. However, it is not impossible that the Cretaceous has been penetrated near the base of the cuttings interval. Obvious Eocene caving comprises about 5% of the assemblage.

Dinoflagellates are very scarce and either long ranging or obviously caved Eocene or presumably reworked Cretaceous (Isabelidinium coronatum). Only D. speciosus, H. tubiferum and G. retiintexta may be in place, suggesting a general Paleocene age.

Marginally marine environments are indicated by the very scarce low diversity "in place" dinoflagellate assemblage, and the diverse and common pollen and spores.

The L. balmei Zone assignment is normally seen in the Pebble Point Formation, while a T. longus assignment is normally seen in the Timboon/Paaratte Formations.

Yellow spore colours indicate immaturity for hydrocarbons.

D. 840m (cutts) : T. longus Zone (M. druggii dinoflagellate Zone)

This sample is assigned to the Tricolpites longus Zone at the top on youngest T. longus, T. confessus, T. waiparaensis and Triporopollenites sectilis. T. longus in particular is relatively frequent and the numerous late Cretaceous indicators leave no doubt, in contrast to the sample above. At the base, oldest T. longus and Tetracolporites verrucosus indicate the assignment. Proteacidites and Phyllocladidites mawsonii are common.

Dinoflagellates include Manumiella coronata, clearly indicating assignment to the M. druggii Dinoflagellate Zone. Other significant taxa include Isabelidinium pellucidum and some specimens of I. pellucidum showing affinites towards I.

korojonense.

Marginal marine environments are indicated by the very rare (1%) of very low diversity (3 species) of dinoflagellates.

These features are normally seen in the Timboon/Paaratte interval.

Spore colours of yellow indicate immaturity for hydrocarbon generation.

E. 1000m (cutts) : T. pachyexinus Zone (N. aceras Dinoflagellate Zone)

Assignment is indicated at the top by the absence of younger indicators such as Nothofagidites senectus, and at the base by oldest Tricolporites pachyexinus. The absence of Amosopollis cruciformis suggests the upper part of the zone, and is consistent with the dinoflagellate evidence. Proteacidites sp. dominate the samples, with frequent P. mawsonii and persistent Australopollis obscurus. Obvious Eocene caving comprises about 5% of palynomorphs.

Dinoflagellates include Nelsoniella aceras without Xenikoon australis and so indicate the N. aceras Dinoflagellate Zone, confirming the spore-pollen assignment. Heterosphaeridium heteracanthum and Trithyrodinium spp. dominate.

Nearshore to marginal marine environments are indicated by the dinoflagellate content (10% of palynomorphs) and their very low diversity (3 species).

These features are normally seen in the Paaratte Formation.

Yellow to yellow/light brown spore colours indicate immaturity for hydrocarbon generation.

F. 1310m (cutts) : C. triplex Zone

Assignment to the Clavifera triplex Zone is indicated at the top on youngest Appendicisporites distocarinatus and at the base on oldest Clavifera triplex and P. mawsonii considered to be in place. Younger indicators include Nothofagidites senectus (suggesting the N. senectus or younger zones) and Ornamentifera sentosa (suggesting the T. pachyexinus or younger zones), but their light spore colours and the other evidence show that they are caved. Eocene caving comprises about 5% of the assemblage, but inertinite dominates the sample. Gleicheniidites is common.

Dinoflagellates are not age diagnostic and are partly caved from younger horizons.

Nearshore marine environments are indicated by the low dinoflagellate content (10%) and diversity (5 species).

These features are normally seen in the Belfast Mudstone and Flaxmans Formation.

Yellow/light brown spore colours indicate early marginal maturity for oil, and immaturity for gas/condensate.

G. 1390m (cutts)-1420m (cutts) : A. distocarinatus Zone (P. infusorioides Dinoflagellate Zone)

Assignment to the Appendicisporites distocarinatus Zone is indicated at the top by the absence of younger indicators considered to be in place, a downhole influx of A. distocarinatus and A. tricornitatus, and the dinoflagellate evidence. C. triplex, A. obscurus and P. mawsonii in this interval show light spore colours, indicating their caved provenance. Gleicheniidites and Falcisporites are the most common forms. Eocene caving is generally rare, comprising 2-3% of palynomorphs. At the base of the interval, a downhole increase of spore diversity (including the typically Early Cretaceous forms Cicatricosisporites australiensis, Trilobosporites trioreticulosus and Triporoletes reticulatus) suggests proximity to shoreline.

Dinoflagellates include a distinct downhole influx of Cribroperidinium edwardsii at the interval top, indicating penetration of the Palaeohystrichophora infusorioides Dinoflagellate Zone. The C. edwardsii/Chlamydophorella nyei association is a useful local assemblage. Other taxa are either caved or long ranging.

Very nearshore marine environments are indicated by the very low dinoflagellate content (5% or less) and very low diversity (2-3 species considered in place).

These features are normally seen in the Flaxmans/Waare interval.

Light brown spore colours indicate marginal maturity for oil, and immaturity for gas/condensate.

H. 1500m (cutts) : P. pannosus Zone

Assignment to the Phimopollenites pannosus Zone is indicated at the top by youngest Coptospora paradoxa, which is coincident with a major palynofacies change from inertinite domination above, to liptinite/vitrinite below, and a downhole increase in diversity and content especially of taxa like Balmeisporites holodictyus and Cicatricosisporites spp. Appendicisporites are notably absent. The Zone base is defined by oldest P. pannosus, although this could conceivably be caved from the Late Cretaceous, and this sample belong to the upper C. paradoxa Zone. In the absence of sidewall cores, these possibilities cannot be resolved. Cyathidites is dominant, with frequent Cicatricosisporites australiensis, Gleicheniidites and Microcachryidites antarcticus. Eocene caving comprises 3% and Late Cretaceous caving comprises 10% of palynomorphs.

Dinoflagellates are extremely rare and spore colours suggest that they are probably caved. Environments are therefore probably non-marine.

These features are normally seen in the topmost Eumeralla Formation.

Light brown spore colours indicate marginal maturity for oil, and immaturity for gas/condensate.

IV CONCLUSIONS

A. Geological

Given the log picks supplied, there appears to be no major problem. Top Eumeralla at 1425m is consistent, but major erosion of the Eumeralla cannot be demonstrated by palynology from the cuttings samples available. There is no obvious clean sand at the base of the Late Cretaceous, so no Waare Sandstone is identified, and the base Flaxmans Formation is therefore more subtle than usual. Top Flaxmans at 1352m, top Belfast at 1297m and top Paaratte/Timboon at 825m are generally compatible with the palynology.

The sample at 820m showing mixed latest Cretaceous and Tertiary suggests several possibilities. First, as discussed above, significant reworking of the Cretaceous into the basal Tertiary may have occurred. Second, the cuttings depths may not be exact against log depth, and the cuttings from 820m may include rock material below 825m. This seems unlikely, as the lithology below 825m appears to be clean sandstone from logs, and would probably be barren of palynomorphs. Third, the top Late Cretaceous may be picked low, and could lie as high as 812m (the palynology sample at 810m lacks Late Cretaceous), with a terminal Cretaceous shale being present between 812-825m, characterised by the spikey sonic response. Overall, the first possibility may be the most likely.

Top Pebble Point at 792 or 795m is consistent with the palynology, but as discussed above, the Pebble Point may comprise only the interval 795-812m (showing its typical high but relatively flat sonic response). The overlying Pember is also consistent, but in the absence of sidewall cores, the conformability or unconformability of the boundary cannot be determined. The existing data suggests that a sizable unconformity is possible.

B. Palynological

These data do not radically alter palynological concepts regarding the known sequence.

The Paleocene samples do however, contain some significant information which hints at possible detailed subdivision of the Pebble Point interval. The section studied herein is probably from the lower L. balmei Zone and appears to be dominated by Deflandrea speciosa types. The presence of Isabelidinium bakeri may also be a valid indicator of the lower part of the Pebble Point Formation. There appears to be scope for a project to erect a palynological subdivision of this interval, if drilling priorities warrant a more detailed understanding of the Pebble Point.

Eocene samples from recent wells also suggest that there is potential for a dinoflagellate zonation of the Pember/topmost Pebble Point based on acme horizons. For example, 790m contains frequent M. fimbriatum while 810m contains frequent Apectodinium spp. Such an acme based zonation could be worked easily in cuttings, and therefore overcome the problems of identifying the subdivisions of the M. diversus Zone (which are based on oldest occurrences).

C. Maturity

Spore Colours suggest marginal maturity at the well base, apparently in contrast to other data. Spore colour is a qualitative assessment made by eye. If other maturity data are instrumental and quantitative and therefore more repeatable, they would be favoured. However, those methods cannot distinguish between what is in place and what is caved in cuttings samples. A palynologist can determine what is in place and therefore assess the exent of caving, and account for it in his maturity evaluation.

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APPENDIX I

PALYNOMORPH OCCURRENCE DATA

SQUATTER #1

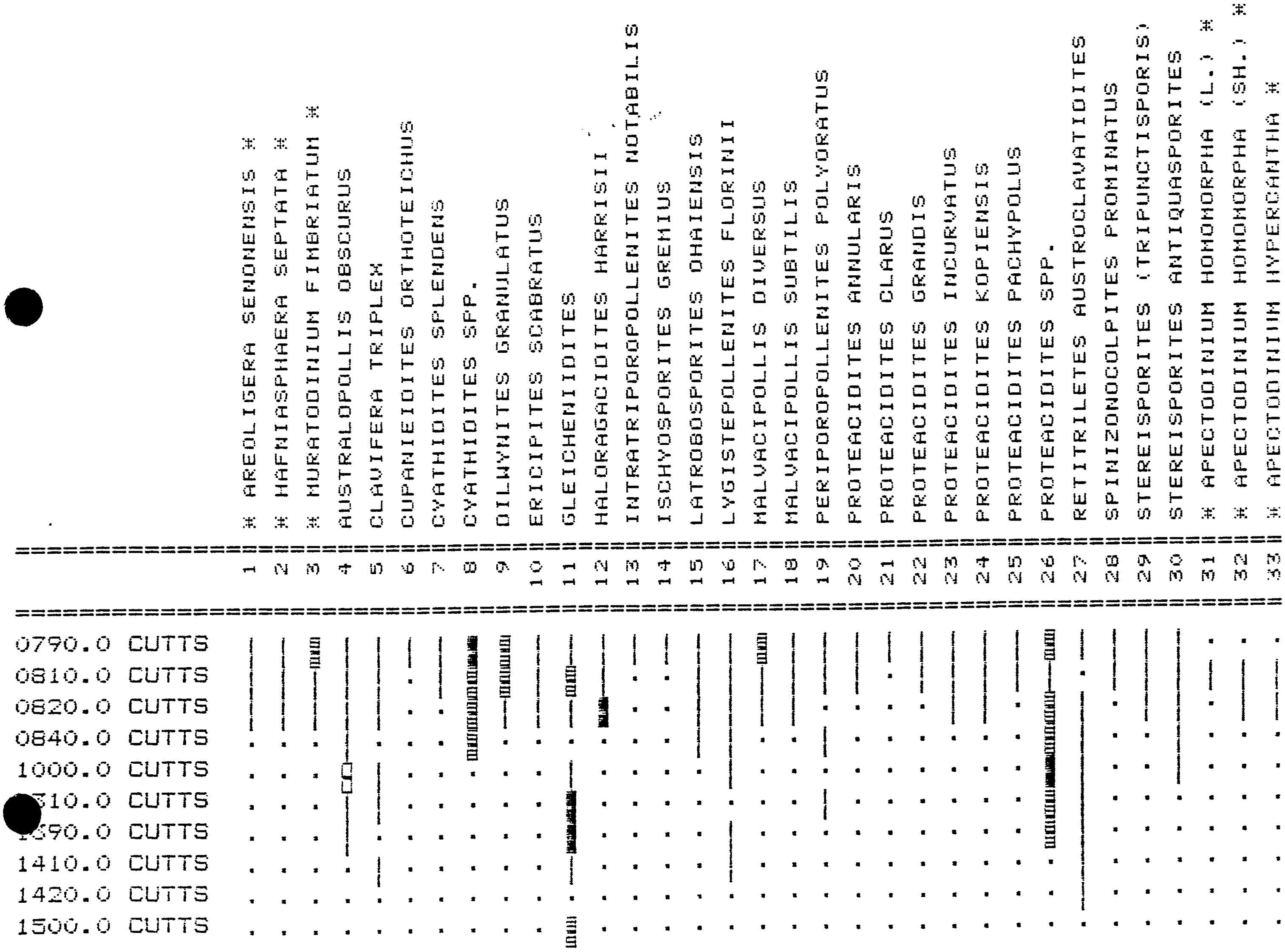
DESCRIPTION:

PALYNOLOGICAL INTERPRETATION OF DATA FOR BEACH PETROLEUM BY ROGER MORGAN.
ALL SAMPLES ARE CUTTINGS AND DEPTHS ARE IN METRES.
* INDICATED DINOFLAGELLATE * WORK COMPLETED NOVEMBER 1987.

CHECKLIST OF GRAPHIC ABUNDANCE BY HIGHEST APPEARANCE

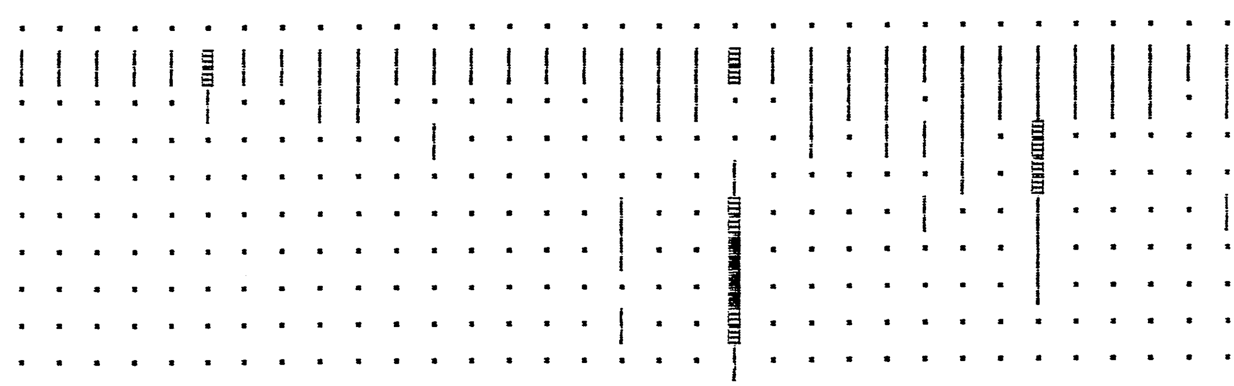
= Abundant
= Common
= Few
= Rare
= Very Rare

? = Questionably Present
. = Not Present



34	* APTEODINIUM AUSTRALIENSE *
35	* CORDOSPHAERIDIUM MULTISPINOSUM *
36	* DEFLANDREA DILWYNENSIS *
37	* DEFLANDREA MEDCALFII *
38	* DEFLANDREA OBLIQUIPES *
39	* DEFLANDREA SPECIOSUS *
40	* DEFLANDREA STRIATA *
41	* FIBROCYSTA BIPOLARE *
42	* GLAPHYROCYSTA RETIINTEXTA *
43	* HYSTRICHOSPHAERIDIUM TUBIFERUM *
44	* ISABELIDINIUM BAKERI *
45	* ISABELIDINIUM PELLUCIDUM *
46	* OPERCULODINIUM CENTROCARPUM *
47	* OPERCULODINIUM SP. *
48	* SENONIASPHAERA SP. *
49	* WETZELIELLA ARTICULATA *
50	AMOSOPOLLIS CRUCIFORMIS
51	DACRYCARPITES AUSTRALIENSIS
52	DILWYNITES TUBERCULATUS
53	FALCISPORITES SIMILIS
54	GAMBIERINA EDWARDSII
55	GAMBIERINA RUDATA
56	HERKOSPORITES ELLIOTTII
57	LATROBOSPORITES CRASSUS
58	LYGISTEPOLLENITES BALMEI
59	NOTHOFAGIDITES BRACHYSPINULOSUS
60	PEROMONOLITES VELLOSUS
61	PHYLLOCLADIDITES MAWSONII
62	PHYLLOCLADIDITES RETICULOSACCATUS
63	PHYLLOCLADIDITES VERRUCOSUS
64	PODOSPORITES MICROSACCATUS
65	PROTEACIDITES PALISADUS
66	PROTEACIDITES TENUIEXINUS

0790.0 CUTTS
0810.0 CUTTS
0820.0 CUTTS
0840.0 CUTTS
1000.0 CUTTS
1310.0 CUTTS
1390.0 CUTTS
[illegible]10.0 CUTTS
1420.0 CUTTS
1500.0 CUTTS

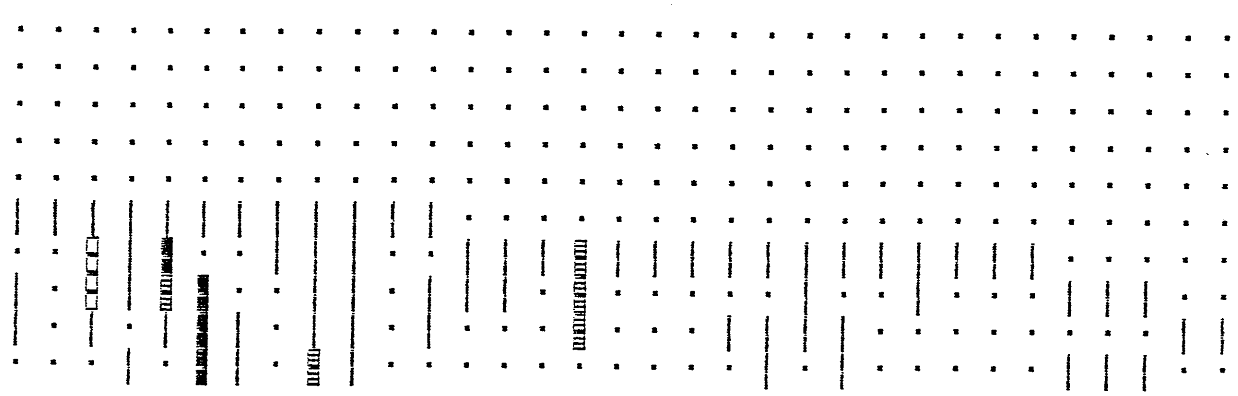


Depth	67 TETRACOLPORITES VERRUCOSUS	68 VERRUCOSISPORITES KOPUKUENSIS	69 * AREOLIGERA CORONATA *	70 * CORDOSPAERIDIUM INODES *	71 * MANUMIELLA CORONATA *	72 CERATOSPORITES EQUALIS	73 JAXTACOLPUS PEIRATUS	74 PROTEACIDITES TUBERCULIFORMIS	75 STEREISPORITES REGIUM	76 TRICOLPITES SABULOSUS	77 TRIPOROPOLLENITES SECTILIS	78 * NUMMUS MONOCULATUS *	79 NOTHOFAGIDITES ENDURUS	80 NOTHOFAGIDITES SENECTUS	81 TRICOLPITES CONFESSUS	82 TRICOLPITES LONGUS	83 TRICOLPITES WAIPARAENSIS
0790.0 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0810.0 CUTTS	|	|	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0820.0 CUTTS	.	.	|	|	|	|	|	|	|	|	|	.	.	.	.	.	.
0840.0 CUTTS	|	.	.	.	|	.	.	.	.	.	|	|	|	|	|	□	|
1000.0 CUTTS	.	.	.	.	.	|	.	.	.	.	.	.	.	.	.	.	.
1310.0 CUTTS	.	.	.	.	|	.	.	.	.	.	.	.	.	|	.	.	.
1390.0 CUTTS	.	.	.	.	.	|	.	.	.	.	.	|	.	.	.	.	.
1410.0 CUTTS	.	.	.	.	|	|	.	.	.	.	.	.	.	.	.	.	.
1420.0 CUTTS	.	.	.	.	.	|	.	.	.	.	.	.	.	.	.	.	.
1500.0 CUTTS	.	.	.	.	.	|	.	.	.	.	.	.	.	.	.	.	.

Depth	84 * HETEROSPHAERIDIUM *	85 * NELSONIELLA ACERAS *	86 * TRITHYRODINIUM "RETICULATA" *	87 BALMEISPORITES HOLODICTYUS	88 CAMEROZONOSPORITES OHAIENSIS	89 CICATRICOSISPORITES AUSTRALIENSIS	90 CICATRICOSISPORITES CUNEIFORMIS	91 CICATRICOSISPORITES HUGHESI	92 CICATRICOSISPORITES LUDBROOKIAE	93 COROLLINA TOROSUS	94 CRYBELOSPORITES STRIATUS	95 OSMUNDACIDITES WELLMANII	96 PHIMOPOLLENITES PANNOSUS	97 RETITRILETES CIRCOLUMENUS	98 TRICOLPORITES PACHYEXINUS	99 TRIPOROLETES RETICULATUS
0790.0 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0810.0 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0820.0 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0840.0 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1000.0 CUTTS	▥	|	▥	|	|	|	|	|	|	|	|	|	|	|	|	|
1310.0 CUTTS	▥	.	.	.	|	.	.	.	|	.	.	|	.	.	.	.
1390.0 CUTTS	|	.	.	.	.	|	.	|	|	|	.	|	|	.	.	.
1410.0 CUTTS	.	|	.	.	.	|	.	|	.	.	.	|	.	|	.	.
1420.0 CUTTS	|	.	.	.	|	|	.	|	.	|	.	|	.	.	.	|
1500.0 CUTTS	.	.	.	|	.	▥	|	.	.	|	|	|	|	.	.	|

100	* ODONTOCHITINA OPERCULATA *
101	* OLIGOSPHAERIDIUM COMPLEX *
102	APPENDICISPORITES DISTOCARINATUS
103	CINGUTRILETES CLAVUS
104	CYATHIDITES AUSTRALIS
105	CYATHIDITES MINOR
106	CYCADOPITES FOLLICULARIS
107	FORAMINISPORIS DAILYI
108	MICROCACHRYIDITES ANTARCTICUS
109	NEORAISTRICKIA TRUNCATA
110	ORNAMENTIFERA SENTOSA
111	PERINOPOLLENITES ELATOIDES
112	* APTEA POLYMORPHA *
113	* CHLAMYDOPHORELLA NYEI *
114	* CLEISTOSPHAERIDIUM SP. *
115	* CRIBROPERIDINIUM EDWARDSI *
116	* CYCLONEPHELIUM COMPACTUM *
117	* ISABELIDINIUM BALMEI *
118	* ISABELIDINIUM COOKSONIAE *
119	* SPINIFERITES RAMOSUS *
120	ANNULISPORITES FOLLICULOSA
121	APPENDICISPORITES TRICORNITATUS
122	DICTYOTOSPORITES COMPLEX
123	FORAMINISPORIS WONTHAGGIENSIS
124	LYCOPODIACIDITES ASPERATUS
125	PEROTRILETES JUBATUS
126	PEROTRILETES SP.
127	TRILETES TUBERCULIFORMIS
128	ARAUCARIACITES AUSTRALIS
129	CALLIALASPORITES DAMPIERI
130	LEPTOLEPIDITES VERRUCATUS
131	CONTIGNISPORITES COOKSONIAE
132	CORONATISPORA PERFORATA

[illegible]90.0 CUTTS
0810.0 CUTTS
0820.0 CUTTS
0840.0 CUTTS
1000.0 CUTTS
1310.0 CUTTS
1390.0 CUTTS
1410.0 CUTTS
1420.0 CUTTS
1500.0 CUTTS



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<tr><th></th><th>133 ISCHYOSPORITES PUNCTATUS</th><th>134 KLUKISPORITES SCABERIS</th><th>135 TRILOBOSPORITES TRIORETICULOSUS</th><th>136 TRIPOROLETES RADIATUS</th><th>137 ANTULSPORITES VARIGRANULATUS</th><th>138 CAMEROZONOSPORITES BULLATUS</th><th>139 COPTOSPORA PARADOXA</th><th>140 FALCISPORITES GRANDIS</th><th>141 FORAMINISPORIS ASYMMETRICUS</th><th>142 LEPTOLEPIDITES MAJOR</th><th>143 RETITRILETES FACETUS</th><th>144 TRILOBOSPORITES PURVERULENTUS</th><th>145 TRIPOROLETES SIMPLEX</th></tr>
<tr><td>0790.0 CUTTS</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td></tr>
<tr><td>0810.0 CUTTS</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td></tr>
<tr><td>0820.0 CUTTS</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td></tr>
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<tr><td>1000.0 CUTTS</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td></tr>
<tr><td>1310.0 CUTTS</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td></tr>
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<tr><td>1410.0 CUTTS</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td><td>.</td></tr>
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<tr><td>1500.0 CUTTS</td><td>|</td><td>.</td><td>.</td><td>|</td><td>|</td><td>|</td><td>|</td><td>|</td><td>|</td><td>|</td><td>|</td><td>|</td><td>|</td></tr>
</table>

SPECIES LOCATION INDEX

Index numbers are the columns in which species appear.

INDEX NUMBER	SPECIES
31	* APECTODINIUM HOMOMORPHA (L.) *
32	* APECTODINIUM HOMOMORPHA (SH.) *
33	* APECTODINIUM HYPERCANTHA *
112	* APTEA POLYMORPHA *
34	* APTEODINIUM AUSTRALIENSE *
69	* AREOLIGERA CORONATA *
1	* AREOLIGERA SENONENSIS *
113	* CHLAMYDOPHORELLA NYEI *
114	* CLEISTOSPHAERIDIUM SP. *
70	* CORDOSPAERIDIUM INODES *
35	* CORDOSPHAERIDIUM MULTISPINOSUM *
115	* CRIBROPERIDINIUM EDWARDSI *
116	* CYCLONEPHELIUM COMPACTUM *
36	* DEFLANDREA DILWYNENSIS *
37	* DEFLANDREA MEDCALFII *
38	* DEFLANDREA OBLIQUIPES *
39	* DEFLANDREA SPECIOSUS *
40	* DEFLANDREA STRIATA *
41	* FIBROCYSTA BIPOLARE *
42	* GLAPHYROCYSTA RETIINTEXTA *
2	* HAFNIASPHAERA SEPTATA *
84	* HETEROSPHAERIDIUM *
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44	* ISABELIDINIUM BAKERI *
117	* ISABELIDINIUM BALMEI *
118	* ISABELIDINIUM COOKSONIAE *
45	* ISABELIDINIUM PELLUCIDUM *
71	* MANUMIELLA CORONATA *
3	* MURATODINIUM FIMBRIATUM *
85	* NELSONIELLA ACERAS *
78	* NUMMUS MONOCULATUS *
100	* ODONTOCHITINA OPERCULATA *
101	* OLIGOSPHAERIDIUM COMPLEX *
46	* OPERCULODINIUM CENTROCARPUM *
47	* OPERCULODINIUM SP. *
48	* SENONIASPHAERA SP. *
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102	APPENDICISPORITES DISTOCARINATUS

121 APPENDICISPORITES TRICORNITATUS
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4 AUSTRALOPOLLIS OBSCURUS
87 BALMEISPORITES HOLODICTYUS
129 CALLIALASPORITES DAMPIERI
138 CAMEROZONOSPORITES BULLATUS
88 CAMEROZONOSPORITES OHAIENSIS
72 CERATOSPORITES EQUALIS
89 CICATRICOSISPORITES AUSTRALIENSIS
90 CICATRICOSISPORITES CUNEIFORMIS
91 CICATRICOSISPORITES HUGHESI
92 CICATRICOSISPORITES LUDBROOKIAE
103 CINGUTRILETES CLAVUS
5 CLAVIFERA TRIPLEX
131 CONTIGNISPORITES COOKSONIAE
139 COPTOSPORA PARADOXA
93 COROLLINA TOROSUS
132 CORONATISPORA PERFORATA
94 CRYBELOSPORITES STRIATUS
6 CUPANIEIDITES ORTHOTEICHUS
104 CYATHIDITES AUSTRALIS
105 CYATHIDITES MINOR
7 CYATHIDITES SPLENDENS
8 CYATHIDITES SPP.
106 CYCADOPITES FOLLICULARIS
51 DACRYCARPITES AUSTRALIENSIS
122 DICTYOTOSPORITES COMPLEX
9 DILWYNITES GRANULATUS
52 DILWYNITES TUBERCULATUS
10 ERICIPITES SCABRATUS
140 FALCISPORITES GRANDIS
53 FALCISPORITES SIMILIS
141 FORAMINISPORIS ASYMMETRICUS
107 FORAMINISPORIS DAILYI
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55 GAMBIERINA RUDATA
11 GLEICHENIIDITES
12 HALORAGACIDITES HARRISII
56 HERKOSPORITES ELLIOTTII
13 INTRATRIPOROPOLLENITES NOTABILIS
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133 ISCHYOSPORITES PUNCTATUS
73 JAXTACOLPUS PEIRATUS
134 KLUKISPORITES SCABERIS
57 LATROBOSPORITES CRASSUS
15 LATROBOSPORITES OHAIENSIS
142 LEPTOLEPIDITES MAJOR
130 LEPTOLEPIDITES VERRUCATUS
124 LYCOPODIACIDITES ASPERATUS

58	LYGISTEPOLLENITES BALMEI
16	LYGISTEPOLLENITES FLORINII
17	MALVACIPOLLIS DIVERSUS
18	MALVACIPOLLIS SUBTILIS
108	MICROCACHRYIDITES ANTARCTICUS
109	NEORAISTRICKIA TRUNCATA
59	NOTHOFAGIDITES BRACHYSPINULOSUS
79	NOTHOFAGIDITES ENDURUS
80	NOTHOFAGIDITES SENECTUS
110	ORNAMENTIFERA SENTOSA
95	OSMUNDACIDITES WELLMANII
111	PERINOPOLLENITES ELATOIDES
19	PERIPOROPOLLENITES POLYORATUS
60	PEROMONOLITES VELLOSUS
125	PEROTRILETES JUBATUS
126	PEROTRILETES SP.
96	PHIMOPOLLENITES PANNOSUS
61	PHYLLOCLADIDITES MAWSONII
62	PHYLLOCLADIDITES RETICULOSACCATUS
63	PHYLLOCLADIDITES VERRUCOSUS
64	PODOSPORITES MICROSACCATUS
20	PROTEACIDITES ANNULARIS
21	PROTEACIDITES CLARUS
22	PROTEACIDITES GRANDIS
23	PROTEACIDITES INCURVATUS
24	PROTEACIDITES KOPIENSIS
25	PROTEACIDITES PACHYPOLUS
65	PROTEACIDITES PALISADUS
26	PROTEACIDITES SPP.
66	PROTEACIDITES TENUIEXINUS
74	PROTEACIDITES TUBERCULIFORMIS
27	RETITRILETES AUSTROCLAVATIDITES
97	RETITRILETES CIRCOLUMENUS
143	RETITRILETES FACETUS
28	SPINIZONOCOLPITES PROMINATUS
29	STEREISPORITES (TRIPUNCTISPORIS) SPP.
30	STEREISPORITES ANTIQUASPORITES
75	STEREISPORITES REGIUM
67	TETRACOLPORITES VERRUCOSUS
81	TRICOLPITES CONFESSUS
82	TRICOLPITES LONGUS
76	TRICOLPITES SABULOSUS
83	TRICOLPITES WAIPARAENSIS
98	TRICOLPORITES PACHYEXINUS
127	TRILETES TUBERCULIFORMIS
144	TRILOBOSPORITES PURVERULENTUS
135	TRILOBOSPORITES TRIORETICULOSUS
136	TRIPOROLETES RADIATUS
99	TRIPOROLETES RETICULATUS
145	TRIPOROLETES SIMPLEX
77	TRIPOROPOLLENITES SECTILIS
68	VERRUCOSISPORITES KOPUKUENSIS

APPENDIX 6

Maturation and Source Rock Analysis

SQUATTER NO. 1

K.K. No.	Depth (m)	$\bar{R}_v max$	Range	N	Description Including Exinite Fluorescence
x7373	630-640 Ctgs	0.35	0.28-0.44	27	Rare to sparse liptodetrinite, greenish yellow to dull yellow, rare sporinite, greenish yellow to yellow, rare cutinite, yellow rare suberinite, weak brown. Siltstone >sandstone. Dom abundant, V>I>E. Vitrinite and inertinite common, exinite sparse. Most siltstones are iron stained Spare free oil droplets, yellow in mounting medium and siltstone. Iron oxide sparse to common. Pyrite abundant.)
x7374	780-790 Ctgs	0.36	0.2709,46	27	Rare ?phytoplankton/liptodetrinite greenish yellow to dull yellow, rare sporinite, yellow, rare cutinite, yellow. (Siltstone>sandstone>carbonate. Dom common, V>I>E. Vitrinite common, inertinite sparse, exinite rare. Most siltstones are iron stained. Iron oxide sparse. Pyrite common to abundant, mostly framboidal.)
x7375	990-1000 Ctgs	0.38	0.31-0.52	28	Rare to sparse ?phytoplankton/liptodetrinite, greenish yellow to dull yellow, rare sporinite, yellow. (Siltstone>sandstone>carbonate>coal. Coal rare, V. Vitrite. Dom abundant, I>V>E. Inertinite abundant, vitrinite sparse to common, exinite sparse. Diffuse humic organic matter present. Dom mainly consists of fine inertodetrinite. Iron oxide sparse. Pyrite common.)
x7376	1330-1340 Ctgs	0.40	0.31-0.55	29	Rare ?phytoplankton/liptodetrinite, greenish yellow and orange to dull orange, rare sporinite, dull orange. (Siltstone>claystone>coal. Coal rare, V. Vitrinite. Dom common, I>V>E>. Inertinite common, vitrinite sparse, exinite rare to sparse. Diffuse humic organic matter present. Dom mainly consists of fine inertodetrinite. Pyrite common.)
x7377	1380-1390 Ctgs	0.41	0.34-0.47	25	Rare phytoplankton/liptodetrinite, yellow to dull orange, rare sporinite, orange. (Siltstone>sandstone> claystone>coal. Coal rare, V=I. Vitrite=inertite. Dom abundant, I>V>E. Inertinite abundant, vitrinite sparse, exinite rare to sparse. Rare bright orange fluorescing bitumen in siltstone. Dom mainly consists of fine inertodetrinite. Pyrite common to abundant.)
x7378	1420-1430 Ctgs	0.47	0.36-0.56	24	Rare ?phytoplankton/liptodetrinite, yellow, rare sporinite, yellow to orange. (Sandstone>siltstone> claystone>coal. Coal sparse, V. Vitrite. Dom common, I>V>E. Inertinite common, vitrinite sparse, exinite rare. Micrinite abundant in come coals. Common fine specks of ?dead oil orange, in fine clastics. Sandstone lithologies mostly barren. Iron oxide rare. Pyrite sparse to common.)
x7379	1490-1500 Ctgs	0.47	0.35-0.58	15	Rare liptodetrinite, yellow to dull orange. (Siltstone>sandstone>coal. Coal sparse, V. Vitrite. Dom common, I>V>E. Inertinite sparse to common, vitrinite sparse, exinite rare. Pyrite sparse.)

VITRINITE REFLECTANCE WORKSHEET

WELL NAME. Squatter #1 SAMPLE NO. X7373 DEPTH. 630-640m TYPE. e/91

FGV = First Generation Vitrinite I = Inertinite

Ro %	No. Read	Pop Rnge	Pop Type	Ro %	NO. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	NO. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type
.10				.46				.82				1.18				1.54				1.90			
.11				.47				.83				1.19				1.55				1.91			
.12				.48				.84				1.20				1.56				1.92			
.13				.49				.85				1.21				1.57				1.93			
.14				.50				.86				1.22				1.58				1.94			
.15				.51				.87				1.23				1.59				1.95			
.16				.52				.88				1.24				1.60				1.96			
.17				.53				.89				1.25				1.61				1.97			
.18				.54				.90				1.26				1.62				1.98			
.19				.55				.91				1.27				1.63				1.99			
.20				.56				.92				1.28				1.64				2.00			
.21				.57				.93				1.29				1.65							
.22				.58				.94				1.30				1.66							
.23				.59				.95				1.31				1.67							
.24				.60				.96				1.32				1.68							
.25				.61				.97				1.33				1.69							
.26				.62				.98				1.34				1.70							
.27				.63				.99				1.35				1.71							
.28	2	↑		.64				1.00				1.36				1.72							
.29	1			.65				1.01				1.37				1.73							
.30	1			.66				1.02				1.38				1.74							
.31	2			.67				1.03				1.39				1.75							
.32				.68				1.04				1.40				1.76							
.33	3			.69				1.05				1.41				1.77							
.34	1			.70				1.06				1.42				1.78							
.35	2			.71				1.07				1.43				1.79							
.36	6			.72				1.08				1.44				1.80							
.37	3			.73				1.09				1.45				1.81							
.38	1	FGV		.74				1.10				1.46				1.82							
.39				.75				1.11				1.47				1.83							
.40	1			.76				1.12				1.48				1.84							
.41	1			.77				1.13				1.49				1.85							
.42	2			.78				1.14				1.50				1.86							
.43				.79				1.15				1.51				1.87							
.44	1	↓		.80				1.16				1.52				1.88							
.45				.81				1.17				1.53				1.89							

Organic matter Comp.(%)

Exinite	Alginite
0.2	0
Vitrinite	**Inertinite**
1.2	0.7

Keiraville Konsultants Pty Ltd.

VITRINITE REFLECTANCE WORKSHEET

WELL NAME: Squatter No. 1 SAMPLE NO. X7374 DEPTH 780-790 m TYPE ctgs

FGV = First Generation Vitrinite I = Inertinite

Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type
.10				.46	1	↓		.82				1.18				1.54				1.90			
.11				.47				.83				1.19				1.55				1.91			
.12				.48				.84				1.20				1.56				1.92			
.13				.49				.85				1.21				1.57				1.93			
.14				.50				.86				1.22				1.58				1.94			
.15				.51				.87				1.23				1.59				1.95			
.16				.52				.88				1.24				1.60				1.96			
.17				.53				.89				1.25				1.61				1.97			
.18				.54				.90				1.26				1.62				1.98			
.19				.55				.91				1.27				1.63				1.99			
.20				.56				.92				1.28				1.64				2.00			
.21				.57				.93				1.29				1.65							
.22				.58				.94				1.30				1.66							
.23				.59				.95				1.31				1.67							
.24				.60				.96				1.32				1.68							
.25				.61				.97				1.33				1.69							
.26				.62				.98				1.34				1.70							
.27	2	↑		.63				.99				1.35				1.71							
.28	1			.64				1.00				1.36				1.72							
.29				.65				1.01				1.37				1.73							
.30	1			.66				1.02				1.38				1.74							
.31	1			.67				1.03				1.39				1.75							
.32	2			.68				1.04				1.40				1.76							
.33				.69				1.05				1.41				1.77							
.34	3			.70				1.06				1.42				1.78							
.35	4			.71				1.07				1.43				1.79							
.36	5			.72				1.08				1.44				1.80							
.37	1			.73				1.09				1.45				1.81							
.38		FGV		.74				1.10				1.46				1.82							
.39				.75				1.11				1.47				1.83							
.40	2			.76				1.12				1.48				1.84							
.41	3			.77				1.13				1.49				1.85							
.42	1			.78				1.14				1.50				1.86							
.43				.79				1.15				1.51				1.87							
.44				.80				1.16				1.52				1.88							
.45				.81				1.17				1.53				1.89							

Organic matter Comp.(%)

Exinite	Alginite
0.1	0
Vitrinite	**Inertinite**
0.7	0.4

Keiraville Konsultants Pty Ltd.

VITRINITE REFLECTANCE WORKSHEET

WELL NAME: Squatter No. 1 SAMPLE NO. X7375 DEPTH: 990-1000m TYPE: ctgs

FGV = First Generation Vitrinite I = Inertinite

Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type
.10				.46	1			.82				1.18				1.54				1.90			
.11				.47				.83				1.19				1.55				1.91			
.12				.48				.84				1.20				1.56				1.92			
.13				.49				.85				1.21				1.57				1.93			
.14				.50				.86				1.22				1.58				1.94			
.15				.51				.87				1.23				1.59				1.95			
.16				.52	1	↓		.88				1.24				1.60				1.96			
.17				.53				.89				1.25				1.61				1.97			
.18				.54				.90				1.26				1.62				1.98			
.19				.55				.91				1.27				1.63				1.99			
.20				.56				.92				1.28				1.64				2.00			
.21				.57				.93				1.29				1.65							
.22				.58				.94				1.30				1.66							
.23				.59				.95				1.31				1.67							
.24				.60				.96				1.32				1.68							
.25				.61				.97				1.33				1.69							
.26				.62				.98				1.34				1.70							
.27				.63				.99				1.35				1.71							
.28				.64				1.00				1.36				1.72							
.29				.65				1.01				1.37				1.73							
.30				.66				1.02				1.38				1.74							
.31	3	↑		.67				1.03				1.39				1.75							
.32	1			.68				1.04				1.40				1.76							
.33	2			.69				1.05				1.41				1.77							
.34				.70				1.06				1.42				1.78							
.35	2			.71				1.07				1.43				1.79							
.36	2			.72				1.08				1.44				1.80							
.37	2			.73				1.09				1.45				1.81							
.38	4			.74				1.10				1.46				1.82							
.39	3			.75				1.11				1.47				1.83							
.40	3	FGV		.76				1.12				1.48				1.84							
.41	1			.77				1.13				1.49				1.85							
.42				.78				1.14				1.50				1.86							
.43	1			.79				1.15				1.51				1.87							
.44	2			.80				1.16				1.52				1.88							
.45				.81				1.17				1.53				1.89							

Organic matter Comp.(%)

Exinite	Alginite
0.2	0
Vitrinite	**Inertinite**
0.5	2.0

Keiraville Konsultants Pty Ltd.

VITRINITE REFLECTANCE WORKSHEET

WELL NAME: Squatter-1 SAMPLE NO. X7376 DEPTH 1330-1340m TYPE ctgs.

FGV = First Generation Vitrinite I = Inertinite

Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type
.10				.46				.82				1.18				1.54				1.90			
.11				.47				.83				1.19				1.55				1.91			
.12				.48				.84				1.20				1.56				1.92			
.13				.49	1			.85				1.21				1.57				1.93			
.14				.50				.86				1.22				1.58				1.94			
.15				.51				.87				1.23				1.59				1.95			
.16				.52				.88				1.24				1.60				1.96			
.17				.53				.89				1.25				1.61				1.97			
.18				.54	1			.90				1.26				1.62				1.98			
.19				.55	2	↓		.91				1.27				1.63				1.99			
.20				.56				.92				1.28				1.64				2.00			
.21				.57				.93				1.29				1.65							
.22				.58				.94				1.30				1.66							
.23				.59				.95				1.31				1.67							
.24				.60				.96				1.32				1.68							
.25				.61				.97				1.33				1.69							
.26				.62				.98				1.34				1.70							
.27				.63				.99				1.35				1.71							
.28				.64				1.00				1.36				1.72							
.29				.65				1.01				1.37				1.73							
.30				.66				1.02				1.38				1.74							
.31	1	↑		.67				1.03				1.39				1.75							
.32				.68				1.04				1.40				1.76							
.33	2			.69				1.05				1.41				1.77							
.34	2			.70				1.06				1.42				1.78							
.35	3			.71				1.07				1.43				1.79							
.36	1			.72				1.08				1.44				1.80							
.37	4			.73				1.09				1.45				1.81							
.38	4			.74				1.10				1.46				1.82							
.39				.75				1.11				1.47				1.83							
.40	3	FGV		.76				1.12				1.48				1.84							
.41	3			.77				1.13				1.49				1.85							
.42				.78				1.14				1.50				1.86							
.43	1			.79				1.15				1.51				1.87							
.44	1			.80				1.16				1.52				1.88							
.45				.81				1.17				1.53				1.89							

Organic matter Comp. (%)

Exinite	Alginite
0.1	0
Vitrinite	**Inertinite**
0.4	1.2

Keiraville Konsultants Pty Ltd.

VITRINITE REFLECTANCE WORKSHEET

WELL NAME: Squatter SAMPLE NO. X7377 DEPTH 1380-1390m. TYPE ctgs

FGV = First Generation Vitrinite I = Inertinite

Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type
.10				.46	3	↓		.82				1.18				1.54				1.90			
.11				.47	2			.83				1.19				1.55				1.91			
.12				.48				.84				1.20				1.56				1.92			
.13				.49				.85				1.21				1.57				1.93			
.14				.50				.86				1.22				1.58				1.94			
.15				.51				.87				1.23				1.59				1.95			
.16				.52				.88				1.24				1.60				1.96			
.17				.53				.89				1.25				1.61				1.97			
.18				.54				.90				1.26				1.62				1.98			
.19				.55				.91				1.27				1.63				1.99			
.20				.56				.92				1.28				1.64				2.00			
.21				.57				.93				1.29				1.65							
.22				.58				.94				1.30				1.66							
.23				.59				.95				1.31				1.67							
.24				.60				.96				1.32				1.68							
.25				.61				.97				1.33				1.69							
.26				.62				.98				1.34				1.70							
.27				.63				.99				1.35				1.71							
.28				.64				1.00				1.36				1.72							
.29				.65				1.01				1.37				1.73							
.30				.66				1.02				1.38				1.74							
.31				.67				1.03				1.39				1.75							
.32				.68				1.04				1.40				1.76							
.33				.69				1.05				1.41				1.77							
.34	2	↑		.70				1.06				1.42				1.78							
.35				.71				1.07				1.43				1.79							
.36	3			.72				1.08				1.44				1.80							
.37	3			.73				1.09				1.45				1.81							
.38	1			.74				1.10				1.46				1.82							
.39	3			.75				1.11				1.47				1.83							
.40	2			.76				1.12				1.48				1.84							
.41	1			.77				1.13				1.49				1.85							
.42		FGV		.78				1.14				1.50				1.86							
.43	1			.79				1.15				1.51				1.87							
.44	1			.80				1.16				1.52				1.88							
.45	2			.81				1.17				1.53				1.89							

Organic matter Comp. (%)

Exinite	Alginite
0.1	0
Vitrinite	**Inertinite**
0.3	2.0

Keiraville Konsultants Pty Ltd.

VITRINITE REFLECTANCE WORKSHEET

WELL NAME Squatter - 1 SAMPLE NO. X7378 DEPTH 1420 - 1430 m TYPE ctgs

FGV = First Generation Vitrinite I = Inertinite

Ro %	No. Read	Pop Rnge	Pop Type
.10			
.11			
.12			
.13			
.14			
.15			
.16			
.17			
.18			
.19			
.20			
.21			
.22			
.23			
.24			
.25			
.26			
.27			
.28			
.29			
.30			
.31			
.32			
.33			
.34			
.35			
.36	1	↑	
.37			
.38			
.39	1		
.40	2		
.41	1	FGV	
.42			
.43	2		
.44	1		
.45	2		

Ro %	No. Read	Pop Rnge	Pop Type
.46			
.47	1		
.48	2		
.49	1		
.50	1		
.51	2		
.52			
.53	4		
.54	1		
.55	1		
.56	1	↓	
.57			
.58			
.59			
.60			
.61			
.62			
.63			
.64			
.65			
.66			
.67			
.68			
.69			
.70			
.71			
.72			
.73			
.74			
.75			
.76			
.77			
.78			
.79			
.80			
.81			

Ro %	No. Read	Pop Rnge	Pop Type
.82			
.83			
.84			
.85			
.86			
.87			
.88			
.89			
.90			
.91			
.92			
.93			
.94			
.95			
.96			
.97			
.98			
.99			
1.00			
1.01			
1.02			
1.03			
1.04			
1.05			
1.06			
1.07			
1.08			
1.09			
1.10			
1.11			
1.12			
1.13			
1.14			
1.15			
1.16			
1.17			

Ro %	No. Read	Pop Rnge	Pop Type
1.18			
1.19			
1.20			
1.21			
1.22			
1.23			
1.24			
1.25			
1.26			
1.27			
1.28			
1.29			
1.30			
1.31			
1.32			
1.33			
1.34			
1.35			
1.36			
1.37			
1.38			
1.39			
1.40			
1.41			
1.42			
1.43			
1.44			
1.45			
1.46			
1.47			
1.48			
1.49			
1.50			
1.51			
1.52			
1.53			

Ro %	No. Read	Pop Rnge	Pop Type
1.54			
1.55			
1.56			
1.57			
1.58			
1.59			
1.60			
1.61			
1.62			
1.63			
1.64			
1.65			
1.66			
1.67			
1.68			
1.69			
1.70			
1.71			
1.72			
1.73			
1.74			
1.75			
1.76			
1.77			
1.78			
1.79			
1.80			
1.81			
1.82			
1.83			
1.84			
1.85			
1.86			
1.87			
1.88			
1.89			

Ro %	No. Read	Pop Rnge	Pop Type
1.90			
1.91			
1.92			
1.93			
1.94			
1.95			
1.96			
1.97			
1.98			
1.99			
2.00			

Organic matter Comp.(%)

Exinite	Alginite
<0.1	0
Vitrinite	**Inertinite**
0.4	0.6

Keiraville Konsultants Pty Ltd.

VITRINITE REFLECTANCE WORKSHEET

WELL NAME: Squatter-1   SAMPLE NO.: X7379   DEPTH: 1490-1500m   TYPE: ctgs.

FGV = First Generation Vitrinite   I = Inertinite

Ro %	No. Read	Pop Rnge	Pop Type	Ro %	NO. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	NO. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type	Ro %	No. Read	Pop Rnge	Pop Type
.10				.46				.82				1.18				1.54				1.90			
.11				.47				.83				1.19				1.55				1.91			
.12				.48	1			.84				1.20				1.56				1.92			
.13				.49				.85				1.21				1.57				1.93			
.14				.50				.86				1.22				1.58				1.94			
.15				.51	1			.87				1.23				1.59				1.95			
.16				.52				.88				1.24				1.60				1.96			
.17				.53	2			.89				1.25				1.61				1.97			
.18				.54				.90				1.26				1.62				1.98			
.19				.55				.91				1.27				1.63				1.99			
.20				.56	1			.92				1.28				1.64				2.00			
.21				.57				.93				1.29				1.65							
.22				.58	2	↓		.94				1.30				1.66							
.23				.59				.95				1.31				1.67							
.24				.60				.96				1.32				1.68							
.25				.61				.97				1.33				1.69							
.26				.62				.98				1.34				1.70							
.27				.63				.99				1.35				1.71							
.28				.64				1.00				1.36				1.72							
.29				.65				1.01				1.37				1.73							
.30				.66				1.02				1.38				1.74							
.31				.67				1.03				1.39				1.75							
.32				.68				1.04				1.40				1.76							
.33				.69				1.05				1.41				1.77							
.34				.70				1.06				1.42				1.78							
.35	1	↑		.71				1.07				1.43				1.79							
.36				.72				1.08				1.44				1.80							
.37				.73				1.09				1.45				1.81							
.38	1			.74				1.10				1.46				1.82							
.39	1			.75				1.11				1.47				1.83							
.40				.76				1.12				1.48				1.84							
.41	2			.77				1.13				1.49				1.85							
.42	1	FGV		.78				1.14				1.50				1.86							
.43	1			.79				1.15				1.51				1.87							
.44	1			.80				1.16				1.52				1.88							
.45				.81				1.17				1.53				1.89							

Organic matter Comp. (%)

Exinite	Alginite
<0.1	0
Vitrinite	**Inertinite**
0.3	0.5

Keiraville Konsultants Pty Ltd.

SQUATTER NO.1

KK No.	Depth (m)	TOC
x7373	630-640	1.10%
x7374	780-790	1.26%
x7375	990-1000	1.73%
x7376	1330-1340	1.39%
x7377	1380-1390	1.57%
x7378	1420-1430	0.64%
x7379	1490-1500	0.91%

APPENDIX 7

Surveyors Location Map

SAWLEY, LOCK
AND ASSOCIATES PTY. LTD.

LICENSED AND CONSULTING SURVEYORS
Cadastral, Engineering, Mining, Topographic.

3 SHORT STREET,
MOUNT GAMBIER,
SOUTH AUSTRALIA, 5290
Telephone (087) 25 8422
A.H. (087) 25 8422

Bryant C. Lock
Craig J. Lock
Peter G. Pain

194 MORPHETT STREET,
ADELAIDE,
SOUTH AUSTRALIA, 5000
Telephone (08) 212 4010

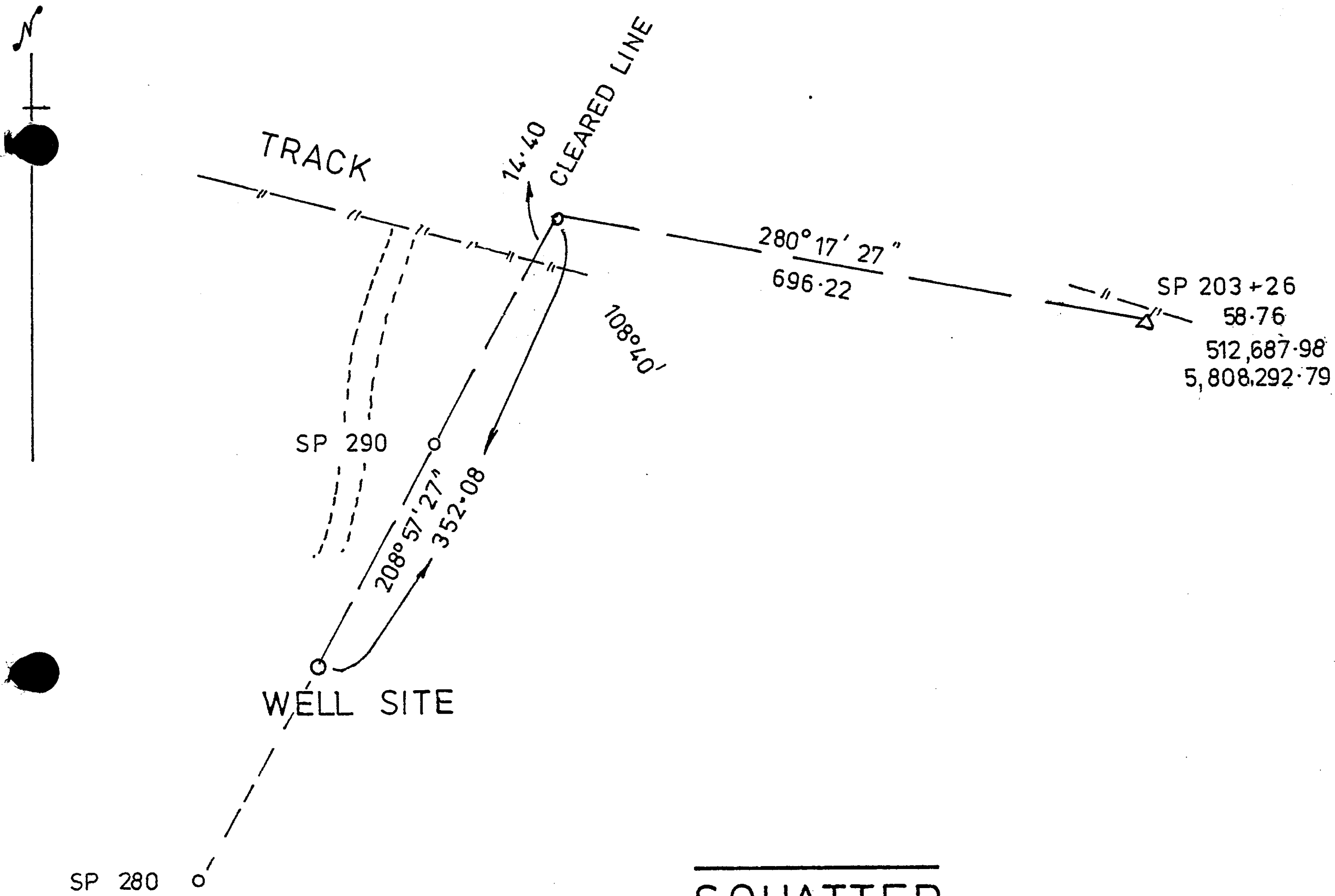
Mrs. P. Ames
Tuesday, Wednesday, Thursday.

When replying please quote

Our Ref: F4007 P268

Your Ref:

Date: 24-6-87



SQUATTER

GROUND LEVEL 57·07

E 511,832·50

N 5,808,109·10

CRAIG LOCK L.S.