WOODSIDE (Lakes Entrance) OIL CO. N.L.

GOLDEN BEACH WEST NO.1.

COMPLETION REPORT

FEBRUARY 1966

NON - SUBSIDIZED WELL.

WCR
GOLDEN BEACH WEST-1
(W493)

OIL and GAS DIVISION

WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

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COMPLETION REPORT

by

T. R. WATTS

of

CUNDILL MEYERS AND ASSOCIATES

FEBRUARY, 1966

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GOLDEN BEACH WEST-1

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GOLDEN BEACH WEST

I ABSTRACT

Woodside Golden Beach West No.1. was drilled in P.E.P. 44 (Victoria) by a Brewster N4 rig to a total depth of 7512'.

The well was drilled primarily as a stratigraphic test on the onshore limit of the Golden Beach anticline.

The well penetrated 5928' of Tertiary sediments and bottomed at 7512' in questionable Upper Cretaceous sediments.

The Tertiary penetrated is broadly divisible into three principal lithologic units.

(i) Post Miocene shells and sands of the Lake Wellington and Jemmy's Point formation.

(ii) Marine Tertiary marls and limestones of the Tambo River, Gippsland limestone and Lakes Entrance formations.

(iii) Non-marine coal measures and sandstones of the Latrobe Valley Coal Measures.

The Mesozoic (Upper Cretaceous?) consists of 1584' of sandstones, mudstones, siltstones and shales. At total depth the base of this section had not been reached.

Porosity and permeability were noted throughout the Tertiary, especially in the unconsolidated sediments in the interval 0-508' and in the Latrobe Valley Coal Measure sandstones between 2279-5928'. With the exception of the interval 2279-2665' no oil and gas shows were observed in the Tertiary. Indications of hydrocarbons were, however, obtained both from the drill stem test No.1. and the gas detector over the interval 2279-2665' encompassing the basal Lakes Entrance sandstone and the topmost Latrobe Valley Coal Measures sandstones.

In the Mesozoic good porosity and permeability was present in most of the sandstones present. Samples, Drill stem tests 6-8 and the electric logs established the fact of highly permeable, strongly gas cut salt water bearing sandstones.

The well confirms the promising hydrocarbon potential of the Latrobe Valley Coal Measures in the offshore Golden Beach anticline. Good indications of possible hydrocarbons entrapment in the Mesozoic sandstones were also obtained.

No commercial quantities of hydrocarbons were encountered, and the hole was therefore plugged and abandoned.

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Golden Beach West

II INTRODUCTION

Regionally the Gippsland basin has been the object of intense petroleum exploration since the discovery of oil at Lakes Entrance in 1924. Numerous surveys, both geological and geophysical have been conducted in the area by various government agencies and oil companies.

Woodside Golden Beach West No.1. was drilled in the eastern part of the Gippsland basin. The actual location was on the shoreward end of the western plunging nose of a large anticlinal structure. This, the Golden Beach anticline, is en echelon with the Esso Shelf wells gas producing structure, and was delineated by both onshore and offshore seismic surveys. Golden Beach West No.1. was drilled off structure to investigate the onshore stratigraphical conditions within the area of this structure.

A fairly extensive programme of coring and testing was undertaken especially in the lower Tertiary and Mesozoic sections. The results indicated small accumulations of gas in the Latrobe Valley Coal Measures, basal Lakes Entrance sandstones, and in the Upper Cretaceous. Stratigraphically a conventional Tertiary sequence was present. The Strezlecki, however, was not penetrated, leading to certain revisions in the onshore Mesozoic stratigraphy.

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III WELL HISTORY

(i) GENERAL DATA

(a)	Well Name & Number		Golden Beach West No.1.
(b)	Location	Lat.	38°14'55" South
		Long.	147°21'23" East
			In P.E.P. 44 Victoria, situated 26 miles SE of the town of Sale in the Shire of Rosedale, County of Buln Buln, Parish of Balloong.
(c)	Name and Address of Tenement Holder		Woodside (Lakes Entrance) Oil Co.N.L. 792 Elizabeth Street Melbourne. C.1. Victoria.
(d)	Details of Petroleum Tenement		Petroleum Exploration Permit No.44 issued by the State of Victoria.
(e)	District		Gippsland, Victoria.
(f)	Total Depth		7,512 feet. Driller 7,515 feet. Schlumberger.
(g)	Date Drilling Commenced		11th September, 1965
(h)	Date Drilling Completed		28th October, 1965
(i)	Date Well Completed		7th November, 1965
(j)	Date Rig Released		9th November, 1965
(k)	Drilling Time to T.D.		48 days.
(l)	Elevation		Ground 28 feet A.S.L. R.K.B. 39 feet A.S.L.
(m)	Status		Dry, Plugged and Abandoned.
(n)	Cost		January 31st, 1966 £87,374: 6:9

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(ii) DRILLING DATA

(a) Contractor — Richter Bawden Drilling Co.Pty.Ltd.

(b) Drilling Plant
Make: Brewster
Type: N.4.
Capacity: $4\frac{1}{2}$" Drill Pipe 5,500 feet
$3\frac{1}{2}$" Drill Pipe 8,000 feet.
Motors: Diesel G.M. Twin 6
Series 71 (Rated 396 B.H.P.)

(c) Mast
Make: Lee C.Moore
Type: Cantilever 127 feet.
Capacity: 368,000 lbs.

(d) Pumps
Two
Make: Oilwell
Type: 214 P.
Size: $7\frac{1}{4}$" x 14"
Motors: Diesel GM.6 Series 71.

(e) Blowout Preventor
1. Make: Cameron.
Size: 12"
Series: 900
2. Make: Shaffer
Size: 10" Double Gate Type B.
Series: 900
3. Make: Hydrill
Size: 10" Type GK
Series: 900

(f) Hole Sizes and Depths
23" hole: 0' - 90' RKB
$17\frac{1}{2}$" hole: 90'-306' RKB
$12\frac{1}{4}$" hole: 306'-3,250' RKB
$8\frac{3}{4}$" hole: 3,250'-7,512' RKB.T.D.

(g) Casing Details
1. Conductor Pipe.
Size: 20"
Setting Depth: 89 feet RKB.
2. Surface String
Size: $13\frac{3}{8}$
Weight: 48 lbs/ft.
Grade: H.40
Range: 2
Setting Depth: 3,156 feet.

(h) Casing & Liner Cementing Details:

1.	Size:	20" Conductor Pipe
	Setting Depth:	89 feet.
	Quantity cement used:	170 bags cement plus 2% calcium chloride
	Method used:	BJ Cementing Service
2.	Size:	$13\frac{3}{8}$" Surface String.
	Setting Depth:	269 feet.
	Quantity cement used	252 bags cement plus 2% calcium chloride
	Cement to	Surface
	Method Used:	B.J. Cementing Service Guide shoe, top plug only.
3.	Size:	$9\frac{5}{8}$" Intermediate String.
	Setting Depth:	3156 feet.
	Quantity Cement used:	520 bags plus 6% bentonite
	Cement to	2,000 feet.
	Method Used:	B.J. Cementing Service Guide shoe, Float Collar Top & Bottom cement plugs.

(i) Drilling Fluid.

(a)	Type	Bentonite/Water from zero to 306 feet.
	Treatment	Water & caustic soda only.
(b)	Type	Fresh water/ bentonite/lignosulphonate 306 feet to 7512 feet.
	Treatment	Milcon, Unical, CMC, Caustic Soda & Synergic to control Viscosity, Water loss & flow properties.

At 6,200 feet 10% diesel fuel was added to the mudstream to assist in bringing down the water-loss to a maximum of 5 cc's.

(c) Average Weekly Mud Analysis

Week	Depth feet	Weight lbs/gal	Viscosity Secs.	W.L. C.c.s.	F.C. ins.	pH.	Sand %
1.	90	-	-	-	-	-	-
2.	2,690	10.0	55	6.3	2/32	9.3	-
3.	3,250	10.2	54	6.3	2/32	9.4	-
4.	4,773	9.4	45	5.3	2/32	11	-
5.	5,345	9.5	43	5.8	2/32	9.8	$\frac{1}{4}$
6.	6,093	9.6	46	6.1	2/32	10	$\frac{3}{4}$
7.	6,930	9.9	54	4.4	2/32	9.0	$\frac{3}{4}$
8.	7,512	10.2	63	4.3	2/32	8.0	1

(d) Chemical Consumption

Supercol (bentonite)	82,850 lbs
Volclay (bentonite)	26,300 lbs.
Unical	22,770 lbs.
Milcon	9,800 lbs.
Cellucol	1,006 lbs.
Caustic Soda	1,360 lbs.
Synergic	12½ gals.
Sod. Bicarbonate	850 lbs.
Soda Ash	200 lbs.
Barytes	400 lbs.
Diesel fuel	2,695 gals.
Calcium Chloride	1,210 lbs.
Cement	59 tons.

(j) Water Supply:

Fresh water supplies were obtained by placing a Mindrill 4½" x 5" duplex pump on a suitable water-hole in the adjacent Lake Reeve and pumping the water through a 2" water line 1½ miles to the Rig storage tanks. Adequate supplies of fresh water were maintained in this way.

(k) Perforations:

Five intervals were shot-perforated in the 9⅝" casing using Schlumberger 5 foot gun-perforator. These were for cementing and drill-stem testing as follows:-

Interval	No.of Shots	Configuration	Purpose
2868-2865	12	4.4.4.	Squeeze cementation
2856-2851	12	4.2.2.2.2.	Drill Stem Test
2301-2297	10	4.2.2.2.	Drill Stem Test
2302-2306	12	4.2.2.2.2.	Drill Stem Test
2316-2313	12	4.4.4.	Squeeze cementation

(l) Plugging Back and Squeeze Cementation Jobs:

No.	Interval	Length	Cement	Weight lbs/gal	Purpose
1.	3250-2950	300 feet	150 sacks plus 2% Calcium Chloride	15	Squeezed 60 c ft. to consolidate cement bond around 9⅝" casing shoe.
2.	3240-3010	230 ft.	80 sacks plus 2% Cal.Chlor.	15	As above
3	3161-3016	145 ft.	50 sacks plus 2% Cal.Chlor.	15	As above. Squeezed 50 cubic feet.

No.	Interval	Length	Cement	Weight lbs/gal	Purpose
4.	5923-5723	200 ft.	81 sacks	15	Completion Plug No.1. on formation
5.	5300-5100	200 ft.	69 sacks	15	Completion Plug No.2.
6.	3205-3005	200 ft.	59 sacks	15	Completion Plug No.3. at $9\frac{5}{8}$" Casing Shoe
7.	2868-2865	-	44 sacks	14.5	Squeezed 60 c.ft to perforations to isolate bottom zones behind $9\frac{5}{8}$" casing.
8.	2313-2316	-	46 sacks	14.5	Squeezed 60 c.ft to perforations to isolate zones behind $9\frac{5}{8}$" Casing.
9.	2860-2660	200 ft.	68 sacks	15	Cement across perforations. 2851'-2856'.
10.	2336-2100	236 ft	68 sacks	15	Cement across perforations 2297'-2306'
11.	Surface -30'	30 ft.	10 sacks		Surface Completion Plug No.4.

(m) Fishing Operations:

No actual fishing operations were necessary. However, at T.D. a 10 lb Hammer was inadvertently lost down the hole and is now resting on the bottom.

(n) Side-tracked Hole:

Nil.

(iii) Logging and Testing

(a) Ditch cuttings.

Representative logged samples were collected at 10' intervals whilst drilling and at 5 feet intervals whilst coring. These samples were collected from the sample catcher attached to the shaleshaker, sieved to remove cavings, washed, dried, and examined with microscope and fluoroscope. Two sets of samples were bagged and forwarded to (i) Woodside (L.E.) Oil Company N.L. (ii) The Victoria Department of Mines. No serious difficulties were experienced with sample collection save for bad caving conditions in the unconsolidated sands and coals of the Latrobe Valley Coal Measures.

(b) Coring.

The original coring programme called for two stratigraphic cores: (i) Basal Lakes Entrance formation sandstone (ii) Top of the Strezlecki Group. As the Strezlecki Group was not encountered the second

stratigraphic core was not taken. In addition cores were required to be taken in zones of economic interest (porosity, oil staining, gas shows, etc.) and to delineate any stratigraphic problems.

In general recoveries were poor down to 5500' improving after this due to the more consolidated nature of the formations.

The following cores were cut:

Date	Core No.	Interval	Cut	Recovery	% Recovery	Type of Core Barrels
17.9.65	1	2170-2190	20'	16	80%	Conventional S.F. $7\frac{7}{8}$
1.10.65	2	4603-4623	20'	2	10%	Conventional H.F. $7\frac{7}{8}$
5.10.65	3	4980-4983	3	8"	22%	"
6.10.65	4	5076-5091	15	5'	33%	"
11.10.65	5	5415-5425	10	3'	30%	"
20.10.65	6	6380-6395	15	14'6"	97.3%	"
24.10.65	7	6840-6860	20'	18'	90%	"
26.10.65	8	7100-7112	12	9'11"	82.5%	"
	8		115	49.1'	42%	

(c) Side wall cores.

A total of 60 sidewall cores were taken between 3200 - T.D., to help evaluate the stratigraphy which varied from the surrounding wells. In particular the Lower Tertiary-Mesozoic stratigraphy was in doubt and special efforts were made to core those horizons where palynological investigations would be of value. In addition to this Stratigraphic coring, cores were taken to fully evaluate a number of possible oil and gas shows.

The following cores were cut with a Schlumberger 30 barrel side wall core, examined and sent to the Victoria Department of Mines for palynological investigations (See appendices 1, 3 and 8):-

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Date	Number	Depth	Recovery		Run
12.10.65	1	5500	1½"	1676.3	Run 1
	2	5408	1¼"	1648.3	
	3	5402	1"	1646.4	
	4	5300	1¾"	1615.4	
	5	5200	1½"	1584.9	
	6	5050	1"	1539.2	
	7	5045	1"	1537.6	
	8	5000	Nil	1523.9	
	9	4900	1½"	1493.4	
	10	4800	No recovery	1463.0	
	11	4700	1"	1432.5	
	12	4500	1¼"	1371.5	
	13	4400	1"	1341.1	
	14	4300	1"	1310.6	
	15	4200	1"	1280.1	
	16	4100	1⅜"	1249.6	
	17	4000	1"	1219.1	
	18	3900	No recovery	1188.7	
	19	3800	No recovery	1158.2	
	20	3700	1"	1127.7	
	21	3600	Nil	1097.2	
	22	3500	1⅜"	1066.7	
	23	3400	⅞"	1036.2	
	24	3300	1⅝"	1005.8	
	25	3250	Nil	990.6	
	26	3220	2½"	981.4	
	27	3215	1⅝"	979.9	
	28	3210	1¾"	978.4	
	29	3205	1¾"	976.8	
	30	3200	1¾"	975.3	
30.10.65	B1	7510	Nil	2288.9	Run 2
	B2	7508	1½"	2288.3	
	B3	7503	Nil	2286.8	
	B4	7425	Nil	2263.0	
	B5	7390	1"	2252.4	
	B6	7320	1¼"	2231.0	
	B7	7160	2"	2182.3	

Date	Number	Depth	Recovery		Run
30.10.65	B8	7070	Nil	2154 8	Run 2
	B9	6930	1½"	2112
	B10	6880	Nil	2096·9
	B11	6780	Nil	2066·4
	B12	6692	1"	2039·6
	B13	6610	1"	2014·6
	B14	6540	Nil	1993·3
	B15	6475	Nil	1973 5
	B16	6300	1"	1920·1
	B17	6280	1½"	1914 1
	B18	6175	Nil	1882·0
	B19	6070	2"	1850·0
	B20	6000	1¾"	1828·7
	B21	5985	1½"	1824·1
	B22	5915	1¼"	1802 8
	B23	5840	1"	1779 9
	B24	5830	1¾"	1776·9
	B25	5820	Nil	1773 8
	B26	5810	2"	1770·8
	B27	5750	2"	1752 5
	B28	5700	1"	1737 3
	B29	5650	Nil	1722·0
	B30	5600	1"	1706·8

(e) Drilling time and gas log.

A Geolograph was situated on the rig floor and functioned throughout the drilling from 300' to Total Depth.

A Johnson-Williams gas detector unit combined with a Honeywell recorder was in operation throughout drilling. Mechanical and electrical difficulties resulted in no readings over the intervals 100 - 2130 and 2290-2590, and readings of limited reliability from 2130 - 2290. The gas log is included in the composite log and discussed fully in section IV (6). Briefly trip gas, connection gas and a number of spurious gas kicks between 30 to 100 units were recorded in the Latrobe Valley Coal Measures down to 3155 (casing point). These gas shows may be interpreted as coming from the top section of the Latrobe Valley Coal Measures and basal Lakes Entrance sandstones,

where Drill Stem Test No.1 (2207-2378) recovered 1575' of gas-cut fresh water. Subsequent testing lower in the Coal Measures, (Drill Stem tests No.1. 2 3155-3250 and No.10 2851-2856) showed no gas cutting. Although the detector was functioning normally no indications of gas were obtained from those Mesozoic sections below 5928 where well gas-cut salt water was obtained in drill stem tests.

(d) Electric and other logging.

A detailed logging programme was carried out. In addition to Electric, Micro, Sonic and Gamma Ray Logs a double Neutron log was run before and after casing over the topmist 500' of the Latrobe Valley Coal Measures. This was carried out in order to test the applicability of the double neutron and sonic-neutron methods outlined by D.D. Fitzgerald (1965) and others in the Gulf Coast region of the U.S.A., to the Gippsland Basin sediments.

The following logs were run by Schlumberger (SEAC):

(i) Run 1

(a)	Electric log	257 - 3252
(b)	Sonic log	257 - 3253
(c)	Microlog - Caliper	257 - 3239
(d)	Neutron - Gamma	70 - 3252
(e)	Cement Bond Log	1000 - 3152

(ii) Run 2

(a)	Electric Log	3154 - 5528
(b)	Sonic Log	3154 - 7495
(c)	Microlog - Caliper	3154 - 7513
(d)	Neutron Gamma Ray	2200 - 7512
(e)	Cement Bond Log	1000 - 3152
(f)	Dipmeter	3154 - 7506

(iii) Run 3

(a)	Electric Log	3152 - 7513

Descriptions of the results of the above log are included in Section IV (4).

(f) Formation Testing.

Drill Stem Testing of the well was conducted in open-hole during drilling of the well with the exception of the last four tests which were performed through perforations in the 9⅝" casing in the upper section of the hole.

DST No.	INTERVAL	METHOD	RECOVERY
1	2207'-2378'	Dual Conventional Open Hole	1075 lin.ft. Muddy water 500 lin.ft clean fresh water (800 p.p.m.)
2.	3136'-3252'	Single Conventional Open Hole.	630 lin.ft.mud 650 lin.ft. muddy water. 1870 lin.ft.clean fresh water (500 p.p.m.)
3.	4457'-4623'	Dual Conventional Open Hole	300 lin.ft.mud 680 lin.ft.fresh water
4.	5041'-5091'	Dual Conventional Open Hole	Full pipe flowed fresh water at 1200 gals per hour (300 p.p.m.)
5.	5671'-5752'	Dual Conventional Open Hole	500 lin.ft.muddy water 5200 lin.ft.clean fresh water (300 p.p.m.)
6.	6650'-6840'	Dual Conventional Open Hole	540 lin.ft.mud 450 lin.ft.muddy gas-cut water. 2770 lin.ft.clean gas-cut salt water. (18,500 p.p.m.)
7.	7130'-7165'	Dual Conventional Open Hole	260 lin.ft mud and water. 1000 lin.ft. gas-cut salt water (18,000 p.p.m.)
8.	7380'-7512'	Dual Conventional Open Hole	500 lin.ft.muddy water. 6720 lin ft. gas-cut salt water.
9.	5900'-5960'	Dual Straddle Test	220 lin.ft. mud. Packer failure.
10.	2851'-2856'	Tested through perforations 9⅝" casing. Olympic Hook-wall Packer.	500 lin.ft mud and muddy water. 2210 lin.ft. clean fresh water.
11.	2297'-2301'	do	2 lin.ft. mud
12	2297'-2306'	do	5 lin.ft. mud
13	2297'-2306'	do	15 lin.ft.mud

For detailed information regarding tests see Appendix No.2.

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(g) Deviation Surveys:

Surveys of the deviation of the hole from vertical were taken at various intervals of the well by using a double recorder Totco inclinometer.

Depth	Deviation
300 ft.	2^{o}
405 ft.	1^{o}
609 ft.	$\frac{1}{2}^{o}$
1115 ft.	$\frac{1}{2}^{o}$
1520 ft.	$\frac{3}{4}^{o}$
2096 ft.	$\frac{1}{4}^{o}$
2610 ft.	$\frac{3}{4}^{o}$
3115 ft.	$\frac{1}{2}^{o}$
3250 ft.	$\frac{1}{2}^{o}$
3750 ft.	$1\frac{1}{2}^{o}$
3850 ft.	$1\frac{3}{4}^{o}$
4100 ft.	$1\frac{3}{4}^{o}$
4190 ft.	1^{o}
4570 ft.	$1\frac{1}{4}^{o}$
4700 ft.	1^{o}
4750 ft.	1^{o}
4900 ft.	1^{o}
5225 ft.	$1\frac{1}{4}^{o}$
5524 ft.	1^{o}
6000 ft.	$\frac{1}{4}^{o}$
6650 ft.	1^{o}
6975 ft.	1^{o}
7360 ft.	1^{o}

(h) Temperature Survey:

Nil

(i) Other Well Surveys:

(a) Cement-Bond log.

A cement-bond log was run by Schlumberger-Seaco over the interval 3156 ft., $9\frac{5}{8}$" casing shoe, to 1000 feet from surface.

(b) Continuous Dipmeter:

Vide Section (d) Logging and Testing, and Appendix 6.

IV GEOLOGY

(1) Summary of Previous Work:

Fairly extensive geological and geophysical investigations have been carried out in the Gippsland Basin. The discovery of oil in the Lakes Entrance area in 1924 stimulated exploration activities in the general area. Geological and geophysical surveys have been carried out under the auspices of the Victorian Department of Mines, Bureau of Mineral Resources and various oil companies notably Woodside (Lakes Entrance) Oil Company N.L.

More specifically a number of investigations and drilling programmes have been undertaken in the eastern part of the Gippsland Basin area. A total of 12 wells have been drilled within a 12 miles radius of Golden Beach West No.1. These include Lake Wellington No.1, North Seaspray No.1, Seaspray No.1, Offshore and 20 miles to the south east the Esso Shelf Wells. Information available from these shelves is somewhat scanty.

From these wells the basic Tertiary-Mesozoic sequence has been determined. Because of the results of palynological investigations carried out at Golden Beach West No.1. certain revisions of Mesozoic - Lower Tertiary stratigraphy must be made. In particular it would appear that some of the Strezlecki hitherto supposedly encountered in certain of the onshore wells has been incorrectly identified. This, however, is discussed at greater length in (4) of this section.

The principal exploration tool in the east Gippsland Basin has been geophysical. The area has been surveyed by Magnetometer, Gravity and Seismic surveys.

Results of the Magnetometer survey have been published by the Bureau of Mineral Resources (B.M.R. Map J 56/B1 - 2 (R). Quilty (B.M.R. Record 1962/53) has interpreted these results as indicating the presence of a major sedimentary basin lying off-shore east of Lake Wellington. The results of the gravity surveys have been published by the B.M.R. (Bouguer Anomaly Maps 693 - 38) tend to check with the Magnetometer surveys.

Two offshore and one onshore seismic surveys have been carried out in the area. The onshore

survey was made by this company (Namco Geophysical - Contractor) using the six fold stacking technique. Of the two offshore surveys, one extending eight miles off the coast was a reconnaissance survey by Woodside Lakes Entrance with Western Geophysical as the contractor. The second offshore survey was conducted by Esso and resulted in the drilling of the discovery gas well Esso Shelf No.1.

S. J. Watson's (1965) interpretation of this seismic work led to the outlining of the Golden Beach anticline offshore. This anticline is roughly en-echelon and converging on the Esso Shelf discovery structure. Both the Esso Shelf Structure and the Golden Beach Structure have comparable closures. The seismic work is shown in Enclosure No.6.

The Golden Beach West No.1. well was drilled on the onshore nose of the Golden Beach structure to investigate the stratigraphical conditions under this structure. The location was sited in a very low position on the structure and was consequently a stratigraphic test.

(2) Summary of Regional Geology:

The Gippsland Tertiary Basin, occupying an area of some 3,000 square miles onshore and extending offshore is bounded in the north by Palaeozoic rocks and in the west by Cretaceous and Jurassic sediments.

The surface cover near the present well site consists of Quaternary and Tertiary sediments. The basement in the area is thought to consist of Palaeozoic metasediments intruded by granites, and, as indicated by geophysical methods, lies at depths greater than 10,000' in the central portions of the basin. Lake Wellington No.1. penetrated 8226' of Mesozoic sediments without reaching basement. Northwards, S.W. Bairnsdale No.1. penetrated Carboniferous sediments at 3806'. Above basement an angular unconformity is present between marine Lower and Middle Devonian sediments. These are overlain, again unconformably, by Upper Devonian sediments with some lavas. Mesozoic sediments form the highlands west of the Tertiary basin and are overlaid unconformably by Tertiary sediments. Permain sediments are almost completely absent but did occur in the Duck Bay No.1. well.

The generalised stratigraphic succession of the Tertiary and Mesozoic in the area may be represented thus:-

Age	Formation	Rock Type
U.Pliocene	Lake Wellington Formation	Sands and Clays
T.Pliocene	Jemmy's Point Formation	Fossiliferous limestone and sands
E R.Upper Miocene	Tambo River Formation	Fossiliferous marls
T I Miocene	Gippsland Limestone	Limestone, marls, slates and siltstones
A R Oligocene	Lakes Entrance Formation	Marls, limestone and shales
Y Lower Oligocene / Upper Eocene	Latrobe Valley Coal Measures	Sandstones, gravels and coals
M Upper Cretaceous?		Sandstones, and shales
E S Lower Cretaceous / O / Z / O / I Upper Jurassic / C	Strezelecki Group	Sandstones and shales

The sediments of the Mesozoic form a fairly monotonous sequence of sandstones and mudstones. Thickness varies between 10,000 and 20,000 feet, the Strezlecki group having never been fully penetrated except at the northern edges of the basin. The upper part of the Mesozoic is sometimes lithologically distinct as in the present well where the Strezlecki Group was not penetrated. This, presumably Upper Cretaceous sequence, comprises a sequence of sandstones and shales deposited in a rapidly sinking basin in a littoral (deltaic or estuarine) environment.

Tertiary sedimentation commenced in the Eocene with the Latrobe Valley Coal Measures. The upper part of the Latrobe Valley Coal Measures is penecontemporaneous with the lower part of the overlying Lakes Entrance formation. The Eocene sediments become more marine eastwards with basalt flows in the basal sections apparently being restricted to the central portions of

the trough. The Latrobe Valley Coal Measures onlap uplifted Mesozoic sediments in the west portion of the basin.

Marine Tertiary sedimentation began with the argillaceous sediments of the Oligocene Lakes Entrance formation which transgresses the Lakes Entrance high. This is overlain by the Gippsland Limestone, Tambo River, Jemmy's Point and Lake Wellington formations of Miocene and Pliocene age.

(3) Stratigraphic Table:

Age	Formation	Rock Unit	Top	Above Sea Level	Thickness
Upper Pliocene	Lake Wellington	sands and clays	-		270' +
Lower Pliocene	Jemmy's Point	Fossiliferous sands and minor limestones	270'	-231'	236'
Miocene	Tambo River	Marls & Marly limestones	508'	-469'	122'
	Gippsland Limestone	Fossiliferous Limestones and Marls	630'	-591'	1290'
Oligocene	Lakes Entrance	Marls, Glauconitic marls & clays	1920'	-1881'	395'
Oligocene-Eocene	Latrobe Valley Coal Measures		2310' (p.27) ~~2315'~~	-2271' ~~-2376'~~ INCORRECT	3613'
Mesozoic	Upper Cretaceous	Sandstones Siltstones and Mudstones	5928'	-5889'	1584'+

(4) Stratigraphy:

(i) Tertiary:

The Tertiary is broadly divisible into four principal lithologic units.

Post Miocene shell beds and sands of the Jemmy's Point and younger formations.

Marine marls and limestones of the Tambo River, Gippsland Limestone and Lakes Entrance formations.

Non marine coal measures, sandstones and gravels.

(a) Lake Wellington (Haunted Hill) Formation 0'-270'. 270' of sands and minor clays.

This, the uppermost unit in the Golden Beach Tertiary, comprises 270' of coarse to very coarse unconsolidated sands. In general these are light grey in colour with abundant superficial yellow (limonite) and orange staining.

Shell fragments are typically present, consolidated in massive light brown interbeds of clay. This clay is invariably sandy with minor admixtures of shale and rock fragments.

Electrical Characteristics:

In the interval 70'-258' (surface casing) only the Gamma Ray-Neutron log results are available. The gamma ray logs show two principal readings: (i) 12-24 API units for the sand beds which predominate and (ii) 28-36 API units for the more clayey interbeds.

The neutron log shows a somewhat erratic increase from 210 API units at 70' to 340 API units at 258', with lows of 210 API units corresponding to the clay beds, the higher readings for the sandstones.

(b) Jemmy's Point Formation 270'-508'.236' of fossiliferous sands and marls.

Two units may be recognised in this formation. An upper unit 140' thick is present, consisting of light and dark grey shelly marl. The marl contains coarse subangular quartz grains and shell fragments (comprising 70% of the rock) set in an argillaceous-calcareous matrix. The fauna present includes bryozoa, echinoderm spines, arenaceous formaninifera, gastropods and Flintina intermedia a characteristic Jemmy's Point fossil (Appendix No.6.).

The lower 98' unit consists of unconsolidated grey shelly sands. These are comprised of very coarse fairly well sorted quartz grains with numerous shell fragments (polyzoa, brachiopods, lamellibranchs, foraminifera, sponges and crinoids) partly consolidated in a clay matrix.

Electrical Characteristics:

The SP curve shows a negative deflection increasing from -5 milli-volts at 270' to -20 milli-volts at the base of the formation. The 16" normal resistivity curve shows consistent readings of 3 ohms m^2m down to 310'. These readings increase fairly rapidly to a peak of 30 ohms m^2m at 500'. The 64" normal curve follows this curve closely reading 20 ohms m^2m greater.

The caliper log indicates a badly out of guage hole

throughout of 16" plus. Presumably this is a function of the $12\frac{1}{8}$" hole drilled for the first 100' to correct deviation in the casing. The microlog, because of this caving, is meaningless, showing pronounced negative separation. The sonic log shows an erratic increase of sonic velocities from 185 microseconds per foot at 270' to 135 microseconds per foot at the base of the formation. The gamma ray log shows fairly consistent readings ranging from 30 API units at the top to 42 API units at the base. A maximum of 50 API units is reached at 380'.

(c) Tambo River Formation 580'-630'. 122' of Marls and Marly Limestone.

A generally consistent marl to marly limestone lithology characterizes this unit. The sand content, very fine to fine grained in size, varies from 5% to 20%, and abundant fossils are present (principally foraminifera with only minor molluscs).

The matrix is generally highly calcareous with only a small percentage of argillaceous material. The argillaceous content further decreases in the basal 35', the lithology becoming predominantly a marly limestone.

Electrical Characteristics:

The SP curve shows very little differentiation from the overlying Jemmy's Point and underlying Gippsland Limestone, a negative deflection of 15-20 millivolts being apparent throughout. The 16" normal curve shows an increase from 25 ohms m^2m at the top of the formation to 30 ohms m^2m at the base with a peak of 35 ohms m^2m at 603'. The 64" normal curve follows the 16" curve closely with values of 15 ohms m^2m more.

The caliper log indicates an in-guage hole with traces of filter cake build up and minor caving of not more than 1". The microlog resistivities indicate small negative separation in the interval 508'-595' with fair positive separation in the basal 35'. Values in the lower interval for the micro-inverse 1" x 1" are 3-4 ohms m^2m, 2 ohms m^2m less than for the top part of the unit.

The gamma ray log is fairly characterless showing a gradual decrease downwards from 36 to 14 API units. The neutron log shows an increase from 140 to 390 API units downwards over this interval. Sonic log velocities show a decrease from 130 at 508' to 140 microseconds per foot at 595'. In the remainder of the interval readings

of 145-150 microseconds per foot prevail.

(d) Gippsland Limestone. 630'-1920' 1290' of Limestone and Marls.

The sequence comprises basically a limestone lithology down to 1590' with minor interbedded marls. Below 1590' a marl-clay sequence prevails.

The limestone represented in the top unit varies in colour from light brown to cream. In general it is a fragmental limestone with abundant fossil fragments set in a sparse argillaceous or calcite cement matrix. The sand and silt content varies in these limestones but is generally less than 5%.

The fossils present comprise mostly bryozoa but also include echinoderms, foraminifera and crinoids. In particular the foraminifera, Amphistigina lessoni and Operculina victoriensis are well preserved and readily recognisable. In many parts of the sequence the limestone becomes very skeletal in character consisting of bryozoa with only a very sparse calcite cement.

D.J.Taylor has discussed (Enclosure No.6 and 7) fauna present in the interval 508'-1920'.Briefly he recognises a miocene fauna including Globerotalia conica and Lepidocyclina howchini not mentioned above.

Occasional marl streaks and interbeds occur in the upper sequence. This marl is light grey in colour, highly fossiliferous with echinoderms and gastropods set in kaolin to calcareous matrix.

Below 1590' a sequence of marls predominate. These marls are light grey and yellow in colour, with sand and fossils in an argillaceous-to-kaolin-to-calcareous matrix. Downwards the clay content increases. Typically in this section, especially between 1590' and 1870' thin recrystallized streaks of limestone occur giving characteristic microlog peaks.

Electrical Characteristics:

The spontaneous potential shows a fairly consistent negative deflection of 15 to 20 millivolts over the interval 630' to 1280'. The interval 1280' to 1580' shows slightly higher readings of the order of -20 to -30 millivolts with marked minor variations. Below 1580' the deflections decrease to -10 millivolts with small scale variations down to the top of the Laked Entrance formation.

The 16" normal curve shows readings of 27 ohms m^2m at the top increasing to 47 ohms m^2m at 740' and decreasing to 12 ohms m^2m at 940'. The 64" curve follows this but with maximum to minimum readings of 75 and 50 ohms m^2m.

Below 950' there are fairly consistent readings of 12 ohms m^2m with occasional peaks up to 15 ohms m^2m falling fairly regularly to 5 ohms m^2m at 1195'. For the remainder of the sequence values decrease from 5 to 2 ohms m^2m at the base. The 16" normal curve gives almost identical readings to the 64" normal, -1 to 2 ohms m^2m higher, down to 1195' and 1 to 2 ohms m^2m lower, for the remainder of the sequence.

Sonic velocities remain fairly consistent throughout with values generally increasing down sequence, from 135 microseconds per foot to 115 microseconds per foot at the base. After 1060' velocities remain fairly consistent at 115 microseconds per foot.

The caliper log indicates in guage hole with fairly consistent filter cake build up down to 1540'. Below this, $\frac{1}{2}$" out of guage hole, with occasional filter cake build up, persists to the base of the formation.

The microlog shows fairly consistent positive separation down to 925' with reasonably consistent microinverse 1" x 1" readings, but with occasional 7 to 10 ohms m^2m peaks reflecting minor recrystallised limestone beds. In the interval 925' to 1590' only occasional positive separation is encountered with high resistivity peaks at a minimum. Below 1590' negative separation is encountered with high resistivity peaks at a minimum. Below 1590' negative separation prevails with an abundance of highly resistive (up to 20 ohms m^2m) recrystallized limestone streaks. These intervals appear to be characteristic of the lower Gippsland limestone marls and along with SP and resistivity curves forms an invaluable aid in the detection of the Gippsland Limestone-Lakes Entrance Formation top. This characteristic appears to remain fairly constant throughout the Gippsland basin.

The gamma ray log shows consistent readings of 12 API units down to 850', thereafter increasing to 36 API units and gradually increasing to 48 API units at the base. Below 1590' a high degree of amplitude variation (up to 36 API units is apparent. The neutron log commences at 390 API units, peaks at 450 API units at 732', and decreases to 300 API units at 880', thereafter remaining fairly constant for the remainder of the sequence. As with the gamma ray log below 1590' a marked increase in the amplitude of peaks may be noticed. This is presumably a function of the marl to recrystallised limestone lithology noted above.

(d) Lakes Entrance formation 1920'-2310'. 390' of marls and minor sandstone.

The downward gradation from the basal Gippsland limestone marls to the Lakes Entrance is lithologically indistinct. This is due to the lithologic similarities and to downhole contamination of the samples. In the absence of diagnostic lithologies micro and electric log characteristics have been used to define this formation. A combination of SP 16" normal and microlog resistivities defines the top which remains fairly constant throughout the West Gippsland basin. Briefly these criteria are:

(1) A uniform SP curve as opposed to the small scale serrations of the overlying Gippsland limestone formation.

(2) Minimum 16" normal resistivity readings.

(3) Microlog recrystallisation peaks in the basal Gippsland limestone. This follows close on the definition proposed by Hocking (1965). D.J. Taylor (Enclosure No.7.) recognises a Lower Oligocene fauna commencing at 1850' with the first appearance of Globorotalia test arugusa and the presence of Bolivina poritis. For the reasons mentioned above, the top of the Lakes Entrance is here defined at 1920'.

Two distinct lithological units are recognisable:

(i) Upper Marl unit 1920'-2278'

(ii) Basal Sandstone unit 2278'-2310'

(i) The Marl unit is comprised of a sequence of grey marls. These marls contain variable amounts of fossil material and sand, usually not exceeding 10%, set in an argillaceous-calcareous-kaolinitic matrix. Gradations to massive calcareous clays and mudstones occur. The fauna present comprise foraminifera with subsidiary lamellibranchs, plankton, and echinoderm spines. Glauconitic sandy clay with disseminated pyrite occurs throughout the unit. In the interval 2075'-2175' streaks of marly limestone with accompanying calcite recrystallisation occur with a slight increase in glauconite content taking the form of disseminated grains.

From 2175' calcite recrystallisation gradually disappears and the marl-clay lithogy resumes with the sand content increasing downwards.

Core No.1 2170-2190' demonstrates the lithology of the basal marls. Here there is a gradation to clays with part of the sequence becoming shaly. Diffuse glauconite

patches are common along with the occasional glauconite pellets. Also occuring in the core are white very coarse calcite inclusions.

(ii) Sandstone Unit. 2278'-2310'

This unit is comprised of light grey very coarse to coarse poorly consolidated sandstone, rounded quartz grains, mica flakes and medium to coarse glauconite pellets very loosely consolidated in a sparse kaolinitic matrix. Occasionally calcite cement is present. Variable amounts of pyrite are present with the occasional intergrowth of pyrite and glauconite.

Due to the unconsolidated nature of this unit the lower contact with the Latrobe Valley Coal Measures is difficult to pick from the samples. In this case the base of the unit is defined by the resistivity curve.

Electrical Characteristics:

The top of this formation is herein defined principally on Micrlog-Electric log criteria. The S.P. Curve shows constant readings with a negative deflection of the order of 10 millivolts. As compared to the overlying Gippsland limestone this curve loses its serrations and becomes fairly straight. The 16" normal resistivity curve falls to a lower value as compared to the overlying formation. Readings of the order 1-2 ohms m^2m prevail down to 2075' where the readings increase to 3-4 ohms. The 64" normal curve follows the 16" very closely. The 18'8" curve shows a virtual straight line at 2-3 ohms m^2m with no minor variations as compared to the overlying Gippsland limestone.

In the top of the basal sand unit the S.P. curve shows a small negative deflection then falls off to a constant reading of - 5 mvo. The resistivities on the other hand show a well marked break increasing on the 16" nornal to a maximum of 22 ohms m^2m at 2305', then falling off as the Latrobe Valley Coal Measures are penetrated. The 64" normal curve shows a similar high of 25 ohms m^2m.

The caliper log indicates fair hole conditions with only minor caving up to 10" between 2100-2200'. Filter cake build up between 1880-2070' is fairly common. Bad caving and positive separation in the microlog between 2285-2380' are the result of DST No.1. over this interval.

The microlog resistivities provide a good indication for the tops of the formation. Compared to the overlying Gippsland limestone the highly resistive

peaks caused by recrystallisation are absent and fairly constant readings of 2-3 ohms m^2m prevail down to 2070'. In the interval 2070'-2170' a number of highly resistive streaks up to 4 ohms m^2m indicate thin interbeds of limestone. Below this, fairly constant readings again prevail, and negative separation indicates the presence of a generally tight formation. The basal portion (2270-2310'), being badly caved, shows no diagnostic readings.

The Gamma ray curve is relatively undiagnostic with values of 38-56 API units down to 2120' followed by a slight decrease to 36 API units then increasing gradually to 84 API units at 2235'. Below this the curve is somewhat erratic, probably due to caving conditions. However, below 2310', values increase to 100-112 API units. The Neutron log shows a similar curve. Values of 120-180 API units with a relatively consistant curve occur down to 2235' where the readings become somewhat erratic with peaks up to 400 API units.

A slight increase in values is to be noted in both Gamma ray and Neutron log as compared to the overlying Gippsland Limestone formation. The curves likewise become a little less serrated.

The sonic log shows values ranging from 140-165 microseconds per foot down to 2075' where an increase to 120-140 microseconds occurs. Below 2180' streaks of readings up to 90 microseconds per foot are evident. Again the reliability of these is open to doubt.

(e) Latrobe Valley Coal Measures 2310-5828'. 3518' of sandstones, coals, clays and shales.

The greatly expanded thickness and doubtful stratigraphy of this and the underlying formation led to an extensive coring and side wall coring programme.

The top of the Latrobe Valley Coal Measures is here defined on electrical characteristics as the unconsolidated nature of the overlying Lakes Entrance sandstone made precise lithologic distinction difficult.

Similarly the lower contact at 5828' is defined on well marked electric log characteristics which are correlatable with surrounding wells. A somewhat atypical coal measure lithology is present in the interval from 5402'-5828'. Core No.5. (5414-5425'), sidewall cores Nos. 2 (5408') and 8 (5022') have been studied by J.Douglas (Appendix 3). Douglas detected numerous species of microspores derived from angiosperms, gymnosperms and

cryptograms. The angiosperm pollen assemblage Tricorites-Proteacidites-Nothofagus was present and led to the designation of a Lower Miocene-Eocene age.

In the surrounding wells, notably Carrs Creek No.1. and Merriman No.1. the log break at 5828' is ascribed to the top of the Strezlecki group. Palynological studies by J.Douglas on Core No.7 (6840-6860') (Appendix 3) indicated angiosperm and gymnosperm leaf impressions and in particular the absence of the Tricorites-Proteacides-Nothofagus assemblage. For these reasons a Paleocene-Upper Cretaceous age was given. From these criteria and the fact that the lithology was not typical of the Strezlecki the sequence from 5928-7512' is here provisionally assigned to the Upper Cretaceous.

For convenience of description the Latrobe Valley Coal Measures are here split into a number of somewhat arbitrarily defined lithologic units.

Unit 1. 2310-2665' Sandstone unit.

This unit shows a very consistent lithology consisting of a light grey, coarse to very coarse pebbly sandstone very loosely consolidated in a sparse kaolinitic matrix. The sandstone is almost exclusively quartzose consisting of subangular to rounded quartz with no visible accessory constituents.

Electrical Characteristics:

The Latrobe Valley Coal Measures are fresh water bearing (300 ppm chloride) with a determined resistivity of 10.2 ohms.

The S.P. curve remains constant throughout this unit, showing a small negative deflection (5 mvo), this being consistantly lower than the overlying Lakes Entrance formation. The 16" normal curve also shows constant readings of 15-20 ohms m^2m at the base of the unit. The 64" curve follows this closely with values 2-5 ohms m^2m greater.

The caliper log indicates a badly caved hole down to 2385' due to drill stem test No.1. Below this the caliper log indicates an in guage hole with good filter cake buildup throughout. The microlog below the caved section 2310-2385' shows constant values of 4 ohms m^2m for the micro inverse increasing gradually to 5 ohms m^2m at the base of the unit. Good positive separation is apparent throughout the sect on, becoming especially marked below 2520'.

Sonic velocities of 155 microseconds per foot at 2310' increase to 140-150 at 2390'. At 2390' a sharp decrease

to 155 microseconds per foot occurs, thereafter decreasing gradually to 170 microseconds per foot at the base of the unit. The variable and inconsistent nature of the velocities in the top of the unit is probably a function of the badly caved hole in this section.

The Gamma Ray curve indicates a high level of 100-120 API units between 2310-2375' followed by a marked decrease to 48 API units persisting to 2460'. Values of 100-120 API units with occasional low values of 48 API units and less are then maintained down to 2635'. At the base of the unit at 2635' low values of 36 API units occur. The Neutron log shows a fairly consistent build up over the interval from 270 API units at the top to 310 API units at the bottom.

Unit 2, 2665-3115'

The basic lithology of the sandstone in this unit remains similar to Unit 1. Increasing amounts of argillaceous and calcareous cementing media are however apparant. In the interval 2665'- 2910' sandy lignitic clays and clays occur with occasional coal interbeds. Below 2960' increasing amounts of coal occur along with minor dark grey pyritic siltstones.

Electrical Characteristics:

The SP curve reflects the 'dirty' nature of this unit with marked +5 millivolt inversions opposite the sandstone beds and negative deflections of - 10 millivolts opposite the clay sections. The degree of negative deflection depending on the proportion of argillaceous and clay material present. The 16" normal curve shows an irregular nature with readings of 45 ohms m^2m for the clean sand units and 20 ohms m^2m for the lignitic clays. All gradations between these readings occur depending on the clay and sand content. The 64" normal follows this closely in the clay section but shows readings up to 20 ohms m^2m higher in the clean sandstone sections.

The caliper log shows in guage hole throughout with marked filter cake build up decreasing in the basal 200'. Positive separation prevails throughout in the sandstone sections. The microlog defines the clay intervals with marked resistivity kicks of up to 20 ohms m^2m on the 1" x 1" normal curve.

Sonic velocities show a reasonable consistency in the sandstone sections of 115 microseconds per foot

decreasing markedly to 160 microseconds per foot in the clay sections. The Gamma ray log also shows differences between the clay and sandstone sections with readings of 36-48 API units for the sandstone sections and 100-120 API units for the clay intervals. The Neutron log readings are more constant, but still show differences varying between 210 API units for the clay and 420 API units for the sandstone sections.

Unit 3 3115-3960' Coal and sandstone unit.

The cuttings and sidewall cores 18-30 illustrate the lithology of this unit. The sandstone remains unchanged with only minor additions of fine to medium dolomite cemented sandstone and a slightly "dirtier" aspect with increased quantities of clay and argillaceous matrix. This sandstone is here thickly interbedded with brown and black woody coals and minor lignitic clays.

Electrical Characteristics:

The S.P. curve shows an erratic curve with -15 mvo deflections opposite the coal sections and positive deflections of 10 to 20 millivolt opposite the sandstone sections. These are more irregular than in the overlying unit reflecting the dirtier nature of the sandstones.

The 16" normal curve is less well defined than in the above unit with indistinct highs of 25-30 ohms m^2m for the sandstones and 17 ohms m^2m for the clays.

The caliper log indicates badly caved hole with caving up to 11" opposite the coal sections. Good filter cake build up is apparent in the sandstone sections. The microlog shows good positive separation opposite the sandstones with high resistive streaks corresponding to the coals and clays. Consistant sonic velocities of 105 to 110 microseconds per foot prevail for the sandstone interbeds. The coal sections show a marked decrease to 140-155 microseconds per foot. The Gamma ray Neutron log also shows good distinction between the sandstones and coal with gamma ray readings of 24-36 API units for the sandstones and 100 API units and less for the coals. Lower readings of 80 API units occur reflecting the thin interbeds of coals and clays. The Neutron log shows similar features with 780-800 API units for the sandstones and indistinct readings of 480-520 API units for the coals and clays.

Unit 4 3960' - 4575' Sandstone unit.

Sandstone predominates in this unit. The cuttings indicate a lithology similar to the previous sandstones with occasional interbeds of light grey fine to medium grained dolomite cemented sandstone, coals and clays. Side wall cores Nos.12 to 17 illustrate this lithology. These cores show a medium to coarse grained sandstone with occasional included coal flakes, very loosely consolidated in a kaolinitic matrix. Clay and coal interbeds are at a minimum and persist as thin interbeds down to 4110'. Below this they are very sporadic in occurrence.

Electrical Characteristics:

In this interval the S.P. curve shows less features. Positive deflections prevail with minor variations between +10 and +20 mvo. The 16" normal curve also shows less variation than in the overlying unit with values of 20 to 26 ohms m^2m for the sandstone units and gradations to 10 to 15 ohms m^2m in the dirtier sections. The 64" curve follows this closely with increasing values of 20 ohms m^2m.

Sonic velocities show a fair degree of consistency with readings of 100 microseconds per foot at the top. Only very minor increased readings, representing minor coals, occur with values of 145 microseconds per foot down to 4110'. The Gamma Ray Neutron log shows a similar consistency with Gamma Ray values of less than 120 API units for the coal interbeds above 4110' and consistent sandstone readings of 24 to 36 API units. The Neutron log remains similarly consistent with readings of 780 to 800 API units for the sandstones and 120 to 132 API units for the coals and clays.

The caliper log shows in gauge hole with filter cake build up for the sandstone and bad caving of the coal units. The microlog shows good positive separation for the sandstones and high resistivity readings for the coals.

Unit 5 4575'-5402' Conglomeratic sandstone unit.

This unit consists basically of sandstone. It is light grey to brown in colour, fine to medium grained, consisting of subangular quartz and occasional coal fragments consolidated in a kaolin to argillaceous matrix. Conglomeratic bands occur throughout with pebbles and granules of quartz, grey to brown sandstone and shale

fragments consolidated in a kaolin partly silicified matrix. Minor interbeds of coal and clay also occur throughout.

Sidewall cores Nos. 2 to 11 and cores No.2. (4603'-4623'), No.3 (4980'-4983') and No.4 (5076')-5091') illustrate this lithology. Recoveries in all these cores were poor, the recovery being restricted mostly to well consolidated sandstones and conglomerates. Core No.4. illustrates the conglomeratic nature of this unit with quartz, sandstone and coal fragments set in a dolomitic to argillaceous matrix.

Electrical Characteristics:

The S.P. curve shows only minor serrations varying between +10 and +20 mvo. The 16" normal curve shows lower readings of 20 to 50 ohm m^2m. The 64" normal readings follow the 16" curve, reading higher by 10 to 15 ohm m^2m.

The caliper log indicates an in gauge hole with good filter cake build up in the intervals of loosely consolidated sandstone. The interval 4950' to 4980' is badly caved however. Positive separation generally prevails, but with numerous highly resistive streaks representing the well consolidated conglomerates and coal seams.

Sonic velocities in this section show fairly wide variations reflecting the interbedded nature of this unit. Values vary between 60 and 90 microseconds per foot.

The gamma ray log shows consistent readings of 24 to 36 API units for the sandstones down to 5000' where the values increase slightly to 48 API units. The small shale and clay interbeds show deflections of up to 120 API units. The neutron log shows wide variations between 520 and 1680 API units, the sandstones in this case averaging around 1080 API units but fluctuating widely.

Unit 6. 5402'-5828' Sandstone and mudstone unit.

The cuttings indicate that a very fine to fine grained light grey sandstone is present. This consists of ill-sorted rounded to sub-angular quartz, occasional coal fragments and rock fragments variably consolidated in a soft kaolin or hard argillaceous matrix. Conglomeratic interbeds are common, as in the previous unit.

This sandstone is interbedded with mudstones and shales. Core No.5 (5415'- 5425') illustrates the lithology.

The mudstones are dark brown to black in colour, massive silty and in part very carbonaceous and kaolinitic. The shale on the other hand is light blue grey in colour, fairly massive and silty and grades to a siltstone. Both the sandstones and conglomerates show a high admixture of carbonaceous plant remains. Side wall cores 1,2 and B 25 to 30, further show the sandstone-mudstone-shale nature of this unit. These cores show the mudstone as being partly vary kaolinitic grading to massive structureless green clay with abundant carbonaceous material.

Core No.5. (5415' to 5425') and sidewall cores Nos. 2 and 3 have been examined palynologically by J.Douglas (1965) (Appendix 3). These cores yielded numerous microspores from angiosperms, gymnosperms and cryptograms. These have been discussed at the beginning of the section.

Electrical Characteristics:

This, the basal unit of the Latrobe Valley Coal Measures shows a very indistinct (-20 mvo) S.P. reading. The clean sandstone beds show further deflections of up to -30 mvo. This is in direct contrast to the underlying unit where good positive deflections occur in the sandstones. The 16" normal curves down to 5520' gives readings as high as of 50 ohms m^2m. Thereafter peaks of 20-30 ohm m^2m occur with 20 to 27 ohm m^2m for the sparse mudstone interbeds. The 64" normal follows the 16" curve with minimum and maximum readings of 18 and 50 ohm m^2m respectively.

The caliper log indicates an in gauge hole with filter cake build up for the sandstones with fairly badly caved hole in the mudstone intervals. Again good positive separation occurs in the sandstones with highly resistive streaks in the mudstones. Sonic velocities remain consistent throughout with values ranging around 90 microseconds per foot.

The gamma ray log again shows the difference between sandstone (48 API units) and mudstone (100-120 API units). The Neutron log gives readings averaging around 720 API units for the mudstone and 810 API units for the sandstones.

The shaliness of some of the sandstone is reflected by the somewhat irregular readings on both curves.

(f) Upper Cretaceous 5828'-7512' 1684' of sandstones, mudstones and shales.

This sequence is assigned to the Upper Cretaceous as discussed in the previous section. Briefly J. Douglas (1965) (Appendix 3) has noted the presence of conifer pollens and megascopic leaf impressions in core No.7. (6840' to 6860') and sidewall cores at 7508'. Although few diagnostic pollens were present, he concludes that the samples were derived from rocks certainly post lower Cretaceous, probably Palaeocene or Upper Cretaceous and just possible Eocene.

For this reason, and also for reasons of lithologic and electrical character, the sequence is assigned provisionally to the Upper Cretaceous. However the lithologic differences between this and the overlying unit are not very marked so a Palaeocene date is possible. The formation, however, is well defined electrically and can be correlated with the surrounding wells.

The unit commences with a 77' thick mudstone bed, light grey in colour, silty and very kaolinitic grading to a massive silty and sandy clay. Carbonaceous streaks and partings are fairly common. Below this a fairly regular thickly interbedded sandstone and mudstone sequence occurs. The sandstone is light grey, fine to medium grained and fairly well sorted. The framework consists of sub-angular quartz, occasional coal and kaolinised feldspars set in a sparse kaolin matrix. The sandstone is in part very carbonaceous. Minor variations on this basic lithology occur. Below 6465' the content of shale and other rock fragments increases with the grain size, which varies from very fine to coarse. The interbedded mudstones are here intimately admixed with a grey siltstone.

Core No.7. (6840'-6860') Core No.8. (7100'-7112') and the second run of sidewall cores illustrates this mudstone-sandstone-siltstone lithology. Argillaceous streaks and laminations along with abundant carbonaceous streaks and patches are evident from the cores. The general aspect of these cores given the idea of a rhythmic character of deposition with minor slumping features, graded and cross bedding. The environment suggested by these cores is littoral (deltaic or estuarine) in a fairly rapidly sinking basin.

Below 7140' the sandstone beds become thicker reaching a maximum of 90' between 7380' to 7470'.

Electrical Characteristics:

The sandstones in this sequence are salt water bearing with a salinity of 18,000 ppm cl, and a resistivity of o.2 ohms. The mudstone-shale intervals show a positive deflection of 15 to 20 mvo. The S.P. of the sandstone units reflect the changed hydraulic system with salty formation water (18,000 ppm cl) as compared to the formation water above 5828' (300 ppm cl.) Strong negative deflections of up to 30 mvo occur. The deflections generally increase downwards, the sandstones between 5900' and 6700' showing deflections of the order -10 to -20 mvo, whilst between 6700' and 7512' deflections of up to -30 mvo occur.

The 16" normal curve shows a marked break at 5828'. In the interval 5828' to 6100' values of 8 to 10 ohm m^2m occur for the mudstones and shales with values of 14 to 15 ohm m^2m for the sandstones. The 64" normal curve shows similar readings of some 2 to 4 ohms m^2m higher. Below 6100' the 16" normal settles down to values ranging from 5 to 8 ohm m^2m with only minor peaking of up to 10 ohm m^2m for the sandstone interbeds. In this part of the sequence the 64" normal curve reads some 1 to 2 ohms m^2m less. The caliper log shows fairly badly caved hole especially in the mudstone-shale parts of the sequence.

The sandstones, on the other hand, show fair to good filter cake build up. The microlog shows fair to good positive separation with highly resistive streaks corresponding to the tight mudstones and shales.

Sonic velocities throughout remain consistent averaging around 90 microseconds per foot. The Gamma ray - Neutron log reflects the interbedded sandstone-siltstone-mudstone nature of the unit. On the Gamma ray curve, values of 36 to 48 API units are common for the sandstone, whilst the mudstone give values ranging from 70 to 85 API units. The argillaceous laminations occuring within the sandstone beds are reflected in the irregular nature of readings in the sandstone beds. The Neutron log shows similar phenomena with readings averaging of 900 API units for the sandstones and aslow as 500 API units for the shale-mudstone sections. Occasional peaks of over 1100 API units do occur in some of the sandstone beds.

(5) Structure

Summarily the Golden Beach West No.1 well was drilled as a stratigraphic test on the extreme nose of the Golden Beach anticline. Structural data obtained from the well included (i) core dips, (ii) Dipmeter survey and (iii) stratigraphic tops.

Dip information obtained from the cores may be summarised:

Core No.	1	?
	2	1 - 2°
	3	?
	4	?
	5	5°, 5-10°
	6	4 - 5°
	7	15 - 20°) with cross bedding,
	8	15 - 20°) graded bedding and slumping phenomena

These dips give the impression of horizontal Tertiary with a rapid steepening of dips down hole in the Mesozoic? Sedimentary structures in cores No. 7 and 8 give evidence of depositions in a littoral environment (deltaic or estuarine) with fairly rapid deposition in a relatively unstable basin.

In the upper Tertiary sequence no significant variations in formation thicknesses occur. The Lakes Entrance formation appears to have thickened approximately 90' as compared to the adjacent wells to the east. In addition to this, the absence of some of the upper coals in the Latrobe Valley Coal Measures would lead to the conclusion that penecontemporaneous deposition of the Lakes Entrance occurred at the expense of part of the coal measure sequence.

A greatly expanded Latrobe Valley Coal Measure sequence is apparent as compared to adjacent wells. 3628' of Latrobe Valley Coal Measures are present although the basal 528' are of doubtful age. This and the underlying thickness of Upper Cretaceous or Paleocene gives rise to the conception of a rapid and extensive deepening of the post Strezlecki basin seawards with rapid wedgeout on shore, as indicated in Wellington Park No.1. well, where only Lower Cretaceous is present below the Latrobe Valley Coal Measures. This interpretation would be in accord with the limited information available from the Esso Shelf wells where thick Tertiary sequences have been reported.

The cross section included in enclosure 3

gives a very schematic idea of on shore correlation. Additional re-evaluation of onshore stratigraphy is necessary using the results of the Golden Beach West No.1 well, but such a re-evaluation study was not available at the time of writing.
The results of the dipmeter survey runs on this well are discussed in Appendix No.6.

(6) Occurrence of Hydrocarbons:

Two zones showed evidence of being hydrocarbon bearing:-

(i) Basal Lakes Entrance sandstone - Upper Latrobe Valley Coal Measures.

In this section significant amounts of hydrocarbons were recorded on the gas detector. Connection gas, trip gas as well as spurious gas kicks were obtained throughout this section down to 3150'. Below 3150' and after the intermediate string of casing had been set no gas was detected for the remainder of the Latrobe Valley Coal Measures sequence. Some minor dead oil staining was noted below 3150' but coring and testing proved it to be non-significant.

Drill Stem test No.1. (2207-2378') recovered 2075' of gas cut fresh water and mud, indicating that the gas present was derived from the top of this sandstone sequence. Subsequent tests through perforations: (Drill Stem test 11 (2277-2301'), 12 (2297-2306') and 13 (2297-2306') were inconclusive and failed to further diagnose the occurrence. The gas producing horizon in the Esso Shelf well corresponds to this sequence. As the Golden Beach well was drilled off structure, entrapment of gas might well be expected in adjacent structures.

Drill Stem tests No.2. (3136-3252'), No. 3 (4457-4623'). No.4 (5041-5091'), No.5 (5671-5752') and No.10 (2851-2856') conducted lower in the Latrobe Valley Coal Measures produced only fresh water.

(ii) Upper Cretaceous or Palaeocene:

Drill Stem tests No.6. (6650-6840'), No. 7 (7130-7165') and No.8. (7380'-7512') all recovered well gas cut salt water (18,000 ppm chloride). No gas was recorded on the gas detector however.

No oil staining was observed in the samples.

The gas was inflammable and was burnt whilst collecting samples. Analysis of gas samples (Appendix 4) shows a recalculated air free analysis of 96.7% methane for Drill Stem tests Nos. 7 and 8 and 95.7% Methane for

Drill Stem test No.6. Ethane was not detected in any of the samples and only small quantities of higher hydrocarbons and carbon dioxide were detected. It would appear that considerable quantities of gas are present in solution in the permeable sands present in this section.

(7) Porosity and Permeability:

(i) Tertiary:

(a) Lake Wellington Formation:

The unconsolidated nature of this formation imparts good porosity and permeability with the exception of the clay consolidated sands.

(b) Jemmy's Point Formation:

The high marl content of the upper lithologic unit of this formation restricts the porosity. From the cuttings the lower unit of shelly sand shows good porosity. Badly caved hole conditions down to 500' give unreliable microlog readings. Computed sonic porosities are in excess of 30% assuming Vm 19,500. This computation, however, is very imprecise, due to caving conditions and the high degree of unconsolidation.

(c) Tambo River Formation:

The top 77' is predominantly a marl sequence, and is in general tight with little sample or log indicated porosity. The basal 45' where the sequence becomes more limey shows fair porosity in the cuttings, microlog and sonic log. Approximate sonic porosities of 25% and greater are obtained. The marly nature of this sequence, however, restricts the effectiveness of this porosity.

(d) Gippsland Limestone:

Good porosity is indicated down to 920'. The samples over this interval show very well developed vugular and leached porosity in the skeletal limestones. Porosities of over 30% are indicated. Tight marly streaks occur sporadically throughout, and as with the above unit the clay and marl content reduce the effectiveness of this porosity. In the interval 920 to 1520' the sequence shows an increased marl content which lowers the porosity and restricts it to a streaky nature. Thus on the microlog-caliper only poor filter cake build up and positive separation is noticeable. For the remainder of the sequence the hard recrystallized limestones and marls predominate with only very streaky and limited porosity.

(e) Lakes Entrance Formation (Marls and clays)

This sequence, being basically marls and clays, is generally tight with only streaks of non-effective porosity.

This porosity is restricted to the interval down to 2075'. Core No.1 (2170-2190') shows the effective tightness of this section.

(f) Lakes Entrance basal sandstone - Latrobe Valley Coal Measures sandstone unit 2278-2665'.

These two lithologic units are considered together in as much as they constitute (i) a single hydraulic system and (ii) form the major, actual and potential, producting sandstone in the Gippsland basin.

The lithologies and electrical characteristics of these sandstones have been discussed previously. Both sandstones show excellent porosities as determined both from samples and electric logs. In the interval 2278-2310' (Lakes Entrance) calculated sonic porosities average 25-30%, increasing to 40% plus in the interval 2310'-2390' and thereafter a value of 30% decreasing to 20% at 2665'. The microlog also indicates good porosities except in the interval 2275-2380' where bad caving conditions obscure the readings. The effectiveness of this porosity is demonstrated by Drill Stem Test No.1. (2207-2378') which recovered 2075' of gas cut fresh water and mud. This Drill Stem test, as with many others in the Latrobe Valley Coal Measures , does not reflect the true permeability of these sandstones. This is because of the extensive tool plugging caused by the loosely consolidated sandstones, which in the case of Drill Stem Test No.1. shut off flow after 10 minutes. Attempts were made to overcome this by employing perforating and squeezing techniques after the total depth had been reached. However no recoveries were obtained in Drill Stem Tests No. 11 (2297-2301'), No.12 (2297-2306') or 13 (2297-2306').
These tests were inconclusive as it seemed that no contact between perforations and formation was made. The gas potential of this section is evident from the gas cutting which was obtained from the formation in an off structure position. Production offshore from this zone has been reported from the Esso Gippsland shelf wells.

E.Couvre de Murville has discussed the logs from this interval (Appendix 6). Briefly his computations, assuming a formation factor of 2.4, FRw of 10 $\triangle$t shale = 110 and porosities of up to 55%, indicate high water saturations from all the zones in this interval.

He comments on the difficulties of (i) the lack of a good Δt shale reading and (ii) the unconsolidated nature of the formation. A plot of Δt sonic versus Neutron Cps is also presented in Appendix 6. This also failed to indicate any significant hydrocarbon accumulation.

(g) Latrobe Valley Coal Measures 2665-5928

Basically, as mentioned in the previous section this unit is comprised of a sequence of coals, clays and mudstones. The sandstones invariably show good porosities of the order 20-25% decreasing below 3200' to 15-20% due to increasing consolidation and clay content. The permeability of these sandstones is demonstrated by Drill Stem Tests Nos. 2 (3136-3251'), No 3 (4457-4623'), No.4 (5041-5091'), No. 5 (5671-5752'), No.10 (2851-2856') all recovering fresh water. The maximum recovery was obtained from Drill Stem Test No.4. (8041-5091') where water flowed to surface. Again extensive blocking of the test tool gave underestimates of the permeability in the remainder of the tests.

These results are in accord with salt water saturations computed from the logs where values of Sw = 90-100" were obtained.

(h) Upper Cretaceous 5828 - TD:

Excellent porosity is exhibited by the sandstones throughout this section. Sonic computed velocities range from 14% at 7110' to 27% at 6280'. Assuming an Rw of 0.21, saturation calculation: calculations give 90-100% values in all the sandstone beds. Drill Stem tests conducted in this unit tend to confirm the high permeability high water content of these sands. The extensive gas cutting has been discussed in a previous section. Drill Stem tests No.6 (6650-6840'), No. 7 (7130-7165') and No.8. (7380-7512) recovered 3760', 1260' and 7220' respectively of gas cut salt water. The last sandstone tested, in particular, showing excellent porosity. The hydrocarbon potential of this section could be significant if found in a favourable entrapment situation.

(8) Contributions to Geological Knowledge:

Golden Beach West No.1. provided a great deal of definitive information regarding presence of hydrocarbons, reservoir characteristics and stratigraphy.

The well has indicated the presence of a sequence between the Strzelecki Group and the Tertiary, and a re-examination of the stratigraphy of other wells in the basin would appear warranted in the light of

this new concept. Such a detailed study is, of course, beyond the scope of this report.

The contributions to geological knowledge provided by the well are as follows:

(i) A detailed stratigraphic analysis of the Tertiary and Upper Mesozoic sequence was obtained. This sequence has many similarities with the Esso Shelf wells, hence giving invaluable information for offshore drilling in the future.

(ii) The well has demonstrated the favourable reservoir characteristics and gas producing potential of the Upper Latrobe Valley Coal Measures. This information is important with regard to future on-structure drilling on the Golden Beach Anticline.

(iii) The well has demonstrated that the definition of the Strzelecki group hitherto employed in a number of wells in the east Gippsland basin needs revision.

(iv) The well has indicated the presence of a good Upper Cretaceous or Palaeocene permeable section containing gas cut salt water. This fact is of importance in regard to the Mesozoic potential in the area.

(v) The programme of testing has provided detailed information regarding reservoir characteristics, such as permeabilities and formation pressure, in two possible future gas producing zones (Latrobe Valley Coal Measures and Upper Cretaceous-Palaeocene).

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APPENDIX (1) Core Descriptions:

Core No.1. 2170' to 2190' Cut 20' Recovered 16'

16' Marl: Light grey, waxy appearance on fresh surfaces, fossiliferous with foraminifera and shell fragments locally developed (lamellibranchs). Silty and slightly sandy with occasional small patches and granules of glauconite. White calcite fragments fluorescing yellow common throughout. Gross aspect, gummy and soft with high clay content, part shaly. Tight.

Core No.2. 4603' to 4623' Cut 20' Recovered 2'

6" Sandstone: Light grey, very coarse to granular conglomeratic, part medium grained, occasional coal fragments in a sparse kaolin occasionally dolomitic matrix. Occasional disseminated pyrite and pyrite blebs. Friable, fair to good intergranular porosity.

1" Sandstone: as above, medium to very coarse granular, conglomeratic, well consolidated in clay? siliceous matrix, occasionally patches of pyrite matrix. Occasional argillaceous streaks indicating bedding at 1-2°.

6" Sandstone: as in first 6".

Core No.3. 4980' to 4983' Cut 3' Recovered 8"

4" coal: Dark brown to black medium hard, blocky with subconchoidal fractures.

4" conglomerate: Light grey, fine to pebbly, ill sorted, sub-angular quartz in a siliceous, slightly argillaceous matrix with traces of included coal and pyrite. Tight.

Core No.4. 5076' to 5091' Cut 15' Recovered 5'

3' Sandstone: Grey, medium to very coarse grained, poorly sorted, sub angular to sub rounded quartz consolidated in a sparse argillaceous slightly kaolinitic matrix. Occasional included coal and pyrite. In part conglomeratic with very coarse to pebbly quartz grains in medium grained sandstone matrix.

1'6" Conglomerate: Grey to light brown, medium to pebbly subrounded quartz set in a predominantly argillaceous kaolinitic matrix. In part dolomitic and pyritic.
Numerous included coal fragments in basal 6"

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3" Coal: Dark brown to black, fissile and blocky.

3" sandstone: Grey, medium to very coarse, conglomeratic as above.

Core No.5. 5415' to 5425' Cut 10' Recovered 3'

9" Shale: Light blue-grey, occasionally silty, slightly carbonaceous with minor streaks and plant remains, massive, hard. Becoming very fine arenaceous with subrounded quartz grains in basal 3". Dip 5°, questionable.

6" Sandstone: Light grey, fine grained, fairly well sorted sub angular to subrounded quartz, occasional mica flakes and trace kaolinized feldspar and rock fragments in a sparse argillaceous slightly kaolinitic matrix. Compact. Tight.

9" Conglomerate: Light to dark grey, sandstone and occasional shale pebbles in sandstone matrix. Matrix: sandstone, grey, fine and medium grained, carbonaceous, pyritic, part highly kaolinitic. Pebbles: sandstone as above and shale, medium to dark grey, massive silty. Becomes carbonaceous in basal 2" with clay-coal-pyritic matrix and carbonaceous streaks and plant remains.

1' Mudstone: Dark brown to black, very carbonaceous, silty, fissile and splintery, bedding and bedding plane cleavage with abundant slickensides at 5 to 10°. Occasional included wood and plant fragments. Tight.

Core No.6. 6380'-6390' Cut 16' Recovered 14'6"

4' Siltstone: Grey, argillaceous, kaolinitic, numerous plant remains, carbonaceous streaks and specks, occasional included mica flakes, fine to very fine arenaceous with diffuse laminations of grey silty mudstones cross bedded with bedding at 4 to 5°

3'4" Silty mudstone: Grey, homogeneous even texture, massive with occasional carbonaceous specks.

1'10" Mudstone: Grey-brown, carbonaceous, silty with numerous plant remains, coal fragments and streaks with occasional thin interbeds of coal.

2'8" Mudstone: Brown-grey, silty, slickensided, occasional patches of claystone, included coal fragments and mica flakes.

2'8" Mudstone: as in 1'10" interval. Massive and dense.

Core No.7. 6840' to 6860' Cut 20' Recovered 18'

1' Sandstone: Light grey, fine to medium grained, sub-angular to angular quartz in sparse kaolin matrix. Contains occasional coal fragments, carbonaceous streaks, plant remains and argillaceous laminations and streaks interbedded with minor sandstone, light grey medium to coarse grained as above. Very poor porosity. Bedding at 15° to 20° with cross bedding and graded bedding.

2'5" Sandstone: as above, medium to coarse grained, with occasional carbonaceous patches and streaks, massive.

2'7" Siltstone: grey, massive, occasionally very fine arenaceous, argillaceous, slightly dolomitic, occasionally carbonaceous, with coal streaks and micro partings. Abundant carbonaceous and plant fragments present in places. Patches and laminations of grey, massive, silty mudstone are abundant, and become predominant in basal 1'.

1' Siltstone: Light grey, very fine arenaceous, massive, argillaceous with a dense homogeneous texture. The siltstone is gradational from above unit, and also grades downwards to:

2'2" Sandstone: as above, fine to medium grained, with included very coarse coal fragments. Becomes coarser downwards, with argillaceous streaks laminae and patches..Very poor porosity.

5" Sandstone: As above, medium to coarse grained, poor to fair porosity with carbonaceous patches and streaks.

2'9" Sandstone: Light grey, brown, fine to medium grained, showing minor indistinct graded bedding. The sandstone grades to and is interbedded with siltstone. The siltstone is grey, argillaceous, arenaceous, massive with abundant carbonaceous, coal streaks and partings ($\frac{1}{8}$ to 2") and carbonaceous infilled hair line fractures. Abundant plant remains with coal and carbonaceous material are present in the top 9", below which they are rare. Grain size decreases downwards to essentially silt size in basal 1'. Numerous argillaceous streaks and patches are present.

2'9" Mudstone: Grey to dark grey, occasionally silty, massive, Homogeneous texture with occasional included mica flakes and sandstone intercalations.

2'11" Siltstone as above:

Gross aspect of core: Interbedded sandstones, siltstones and mudstones. Dip is 10° to 15° with evidence of cross bedding, graded bedding and small scale slumping phenomena.

Core No.8. 7100' to 7112' Cut 12' Recovered 9'11"

9" Sandstone: Grey, medium, part coarse grained, consists of poorly sorted sub-angular quartz, occasional coal fragments, kaolinised feldspar, trace pyrite, mica flakes, in sparse kaolin matrix. Occasional argillaceous and coaly streaks at 15° to 20°.
Poor to fair intergranular porosity.

1" Sandstone: as above, fine to medium with gradational decrease in grain size across first 4". Carbonaceous and coaly streaks and laminae. Dipping at 15° to 20°, but bedding generally indistinctly developed.

2" Siltstone: grey, argillaceous, massive, very fine arenaceous, part carbonaceous.

4" Sandstone: grey, medium to coarse grained, feldspathic (feldspars 15%, quartz 70%, clay matrix 10%) as above. Poor porosity.

3'4" Sandstone: as 1'9" fine to medium grained, numerous included coal fragments, carbonaceous streaks and plant remains. Very poor porosity.

11" Sandstone: as above, occasionally feldspathic, part coarse grained and conglomerate with pebble quartz and included shale fragments ($\frac{1}{2}$" to 2") Poor porosity.

10" Sandstone: as above, fine to coarse grained, conglomeratic, with abundant streaks and patches of shale fragments in sandstone matrix, very carbonaceous and coaly, poor to fair intergranular porosity.

1'4" Sandstone: as above, fine to medium grained with even homogeneous texture. Occasional carbonaceous and argillaceous streaks and laminae. Poor porosity.

2" Sandstone: medium to coarse, conglomeratic, with shale fragments, pebbles and quartz. Poor to fair porosity.

8" Sandstone: fine to medium grained as above with indistinct graded bedding. Poor porosity.

4" Conglomerate: mudstone (grey, massive, silty) and siltstone fragments ($\frac{1}{2}$" to 4") in sparse fine to medium sandstone matrix. Shows intraformational brecciation characteristics.

SIDEWALL CORES RUN 1 Golden Beach West 47/67

No.1. 5500'

Sandstone: white, light brown, very fine to fine rounded quartz loosely and densely packed in kaolin matrix, conglomeratic with included medium to very coarse sub-angular quartz grains of sandstone fragments: grey-brown, very fine grained, quartzose, tight interbedded with clay grey-green, structureless, occasional included carbonaceous flecks and patches.

No.2. 5408'

Clay: green-grey, structureless as above

No.3. 5402'

Sandstone: white-light brown, very fine to very coarse, ill sorted angular to subangular quartz, set in a loose kaolin - argillaceous matrix.

No.4 5300'

Sandstone: as above

No.5. 5200'

Sandstone: as above

No.6. 5050'

Sandstone: dark brown, fine to very coarse conglomeratic, quartzose, densely packed in kaolin matrix.

No.7. 5045' as above

No.8. 5060' as above

No.9. 4900'

Sandstone: fine to medium grained sub-angular to sub-rounded clear quartz grains, fairly well sorted, in pyritic clay cement. Occasional mica flakes and - minor occasional very coarse-pebbly quartz grains loosely consolidated in soft kaolin matrix.

No.10. No recovery

No.11.4700'

Sandstone: as above with about 1% fine grained coal fragments.

No.12.4500'

Sandstone: as above

No.13.4400'

Sandstone: as above

No.14.4300'

Sandstone: light grey, medium-coarse grained, sub-angular to subrounded quartz in an argillaceous cement.

No.15.4200'

Sandstone: light grey-light greyish white, fine-medium grained. Sub-angular subrounded quartz loosely cemented in an argillaceous matrix.

No.16.4100'

Sandstone: as above part coarse grained.

No.17.4000' Sandstone: as above

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No.18 No recovery

No.19 No recovery

No.20.3200' 3700

Sandstone: light greyish-white, fine to pebbly, very poorly sorted, sub-angular to subrounded quartz, conglomeratic loosely consolidated in an argillaceous matrix.

No.21 No recovery

No.22.3500' As No.16

No.23.3400'

Carbonaceous Siltstone: dark brown-black, carbonaceous very fine arenaceous and coal fragments in silty-argillaceous matrix.

No.24.3300'

Coal: light-dark brown, friable to earthy, soft.

No.25. No recovery

No.26.3220'

Clay: light grey, massive, with carbonaceous streaks.

No.27.3215' Clay as above

No.28.3210' Clay as above slightly silty

No.29.3205' Coal: black, soft, earthy.

No.30.3200'

Clay: As No.26 with included shale fragments.

SIDEWALL CORES RUN 2 Golden Beach West 49/67

B2 7508'
Mudstone: light brown, very kaolinitic, soft with included coal flakes and minor siltstones.

B3 No recovery

B4 No recovery

B5 7390'
Sandstone: light grey, white, fine to medium grained, angular to sub-angular quartz occasional coal fragments, trace orange feldspar loosely consolidated in an abundant kaolin matrix.

B6 7320'
Mudstone: very kaolinitic, light grey, silty grading to clay.

B7 7160'
Sandstone: light grey, fine to medium grained, sub-angular to angular quartz, very occasional coal and shale fragments in a kaolin matrix.

B8 No recovery

B9 6930' Sandstone: as above part coarse grained with occasional included pebbly quartz.

B10 No recovery

B11 No recovery

B12 6692'
Sandstone: as above fine to medium grained part very fine to silty.

B13 6610' Sandstone: as above part coarse grained

B14 No recovery

B15 No recovery

B16 6300'
Mudstone: brown, very kaolonitic, slightly silty, interbedded with sandstone: light grey, very fine to fine grained, part silty and very kaolonitic.

B17 6280'
Sandstone: as above with carbonaceous and coaly streaks.

B18 No recovery

B19 6070'
Mudstone: light grey, very kaolonitic, grading to clay, silty, occasionally very fine arenaceous.

B20 6000'
Mudstone: as above part very fine sandy with argillaceous and carbonaceous streaks.

B21 5985'
Sandstone: light white, light brown, medium to coarse grained as above.

B22 5915'

Sandstone: light-grey, very fine to fine grained, sparce sub-angular quartz with occasional coal fragments in an abundant kaolin matrix.

B23 5840'

Mudstone: light grey-brown, very kaolonitic, grading to clay, silty, massive, tight.

B24 5830' As above silty

B25 No recovery

B26 5810'

Mudstone: grey, kaolonitic, silty, very carbonaceous grading to coal, argillaceous, part dark grey, tight.

B27 5750'

Sandstone: grey-brown, very fine to fine grained, angular to sub-angular quartz, poorly sorted in a sparce argillaceous- kaolin matrix. Occasional included coal and shale fragments

B28 5700'

Sandstone: light grey, very fine to fine grained, occasionally medium grained, subangular - angular quartz fairly well consolidated in a kaolin, slightly argillaceous matrix.

B29 No recovery

B30 5600

Mudstone: grey-green, silty, kaolonitic, massive. Tight.

GOLDEN BEACH WEST-1.
PHOTOS AVAILABLE IF REQUESTED.

DRILL STEM TEST REPORT

Company: Woodside (L.E.) Oil Co. N.L. Date: 18.9.1965.

Area: Golden Beach West Well: No. 1. R.T. Elevation: 60 Ft.

Test No.: 1 Interval: 2207'-2378' Formation:

Tester, Size and Type: 4¾" B-J Packer, Size and Type: 8" B-T

Rubber, O.D.: 8" B.H. Choke Size: ½" Drill Pipe, Size: 4½" F.H.

Full Hole, I.D.: 8¾ Pilot Hole, I.D.: - Casing, I.D.: -

Anchor, O.D. and I.D.: 6"x3" & 4¾"x2½" Sump Volume: 41 ft 3 Water Cushion: Nil

5/1 Disk Valve, Depth: 2187' Tester Valve, Depth: 2194' Air Chamber Volume:

Pressure Gauges:) Kuster AK-1 Range: 12 Hour 24 Hour 8,300 psi. No.: 2237, 2238

(Anchor (Perforations: 35 ft

Mud Weight: 10.1 Filtrate Salinity: Annulus Drop: Nil

DIARY OF TEST — Started In: 8.15 a.m. On Bottom: 10.05 a.m.

Valve Opened: 10.07 a.m. Valve Closed: Trouble with Rotations Disk Broken:

Valve Opened: Gas to Surface: Oil to Surface:

Valve Shut: 11.08 a.m. Pulled Packer: 11.15 a.m Out of Hole:

Initial Shut In Time: None Flowing Time: 61 Mins. Final Shut In Time: None

Twisted Tool off when attempting to Shut in

SURFACE PRODUCTION —

Air ~~or Gas~~, cu. ft./day (Time: 10.07 a.m.
(Rate: Fairly Strong Blow

Oil, bbls./day (Time: -
(Rate:

PIPE RECOVERY — Total 1575 Feet (about 500' Fairly Clean Water)

Oil: Water: Mud:

TOTAL PRODUCTION — Gas: Oil Water:

PRESSURE RECORD (Corrected Pressures) —

	Depth	M.P.	I.S.I.P.	F.F.P.	F.S.I.P.	Temp.
Top Gauge: 2237	2244	1170	None	1010	None	
Bottom Gauge: 2238	2250	1170	"	1010	"	

SAMPLES — Sampling Point Type of Fluid Sp.G. Salinity

I.F.P. 800 ppm.
980
990

REMARKS : Unable to Close Tool - Restricted by Sand. Tool open from 10.07 a.m. to 11.08 a.m.

DRILL STEM TEST REPORT

WOODSIDE (L.E.) OIL CO.

Date: 25:9:1965.

Area: Golden Beach West | Well: 1 | R.T. Elevation: 50 ft

Test No.: 2 | Interval: 3136' - 3251' | Formation: Sandstone

Tester, Size and Type: 4¾" B-J | Packer, Size and Type: 4¾" x 8" BT

Rubber, O.D.: 8" | B.H. Choke Size: ½" | Drill Pipe, Size: 4½" F.H.

Full Hole, I.D.: 8¾" | Pilot Hole, I.D.: None | Casing, I.D.: 8.921

Anchor, O.D. and I.D.: 4¾" x 2½" | Sump Volume: 26 cu. ft. | Water Cushion: -

S/1 ~~Bxxx~~ Valve, Depth: 3116 | Tester Valve, Depth: 3123 | Air Chamber Volume:

Pressure) Gauges:) AK - 1 Kuster | Range: 12 Hour 24 Hour | No.: 2237, 2238

(Anchor (Perforations: 19'

Mud Weight: 9.8 | Filtrate Salinity: | Annulus Drop: Nil

DIARY OF TEST — | Started In: 2 pm | On Bottom: 3.53 pm

Valve Opened: 3.56 PM | Valve Closed: 4.01 pm | Disk Broken: -

Valve Opened: 4.46 PM | Gas to Surface: None | Oil to Surface: None

Valve Shut: 5.31 PM | Pulled Packer: 6.16 pm | Out of Hole: 8.30 pm

Initial Shut In Time: 45 Mins. | Flowing Time: 50 mins. (Total) | Final Shut In Time: 45 Mins

SURFACE PRODUCTION —

Air ~~xxGxxx~~ cu. ft./day (Time: ((Rate: Fair Blow

Oil, bbls./day None (Time: (Rate:

PIPE RECOVERY —

Oil: Water: 2520' Mud: 630'

TOTAL PRODUCTION — Gas: Oil Water:

PRESSURE RECORD (Corrected Pressures) —

		Depth	M.P.	IFP	I.S.I.P.	F.F.P.	F.S.I.P.	FHH	Temp.
Top Gauge:	2237	3125	1670	1370	1430	1430	1430	1640	
* Bottom Gauge:	2238	3157	1650	1400				1630	

SAMPLES —

Sampling Point	Type of Fluid	Sp.G.	Salinity
Above Tool	Water (Slightly muddy)	-	500 PPM Chloride

*Bottom Gauge: After I.F.P., the line goes horisontally at 1420 P.S.I.

Pipe Recovery: Slight odour of hydrogen sulphide fluid not gas cut.

DRILL STEM TEST REPORT

Company: WOODSIDE (L.E.) OIL CO. Date: 1.10.1965

Area: GOLDEN BEACH WEST Well: No. 1. R.T. Elevation:

Test No.: 3. Interval: 4457' - 4623' Formation: Latrobe Valley Coal Measures.

Tester, Size and Type: 4¾ B.J. Packer, Size and Type: 4¾" B.T.

Rubber, O.D.: 7¾" B.H. Choke Size: ½" Drill Pipe, Size: 4½" F.H.

Full Hole, I.D.: 8¾" Pilot Hole, I.D.: 7⅞" Casing, I.D.: 8.921

Anchor, O.D. and I.D.: 6" x 3" 4¾" x 2½" Sump Volume: Main 39 cu. ft. Water Cushion: -

S/I ~~Disk~~ Valve, Depth: 4432 Tester Valve, Depth: 4439 Air Chamber Volume:

Pressure Gauges:) AKI Kuster Range: 12; 24 Hr. No.: 2237; 2238

(Anchor (Perforations: 13'

Mud Weight: 9.5 Filtrate Salinity: Annulus Drop: Nil

DIARY OF TEST — Started In: 3.00 am. On Bottom: 5.07

Valve Opened: 5.10 am. Valve Closed: 5.15 am Disk Broken:

Valve Opened: Gas to Surface: Oil to Surface:

Valve Shut: Pulled Packer: 6.05 am Out of Hole: 9.00 am

Initial Shut In Time: 50 mins. Flowing Time: 5 mins. Final Shut In Time: Nil

SURFACE PRODUCTION —

Air ~~Gas~~ Good Strong (Time:
~~Gas~~ Blow (
(Rate:

Oil, (Time:
bbls./day (Rate:

PIPE RECOVERY — Oil: Water: 680' Mud: 300'

TOTAL PRODUCTION — Gas: Oil Water:

PRESSURE RECORD (Corrected Pressures) —

		Depth	M.P.	I.F.P.	I.S.I.P.	F.F.P.	F.H.H	F.S.I.P.	Temp.
Top Gauge:	2237	4440	2240	730	2020	1490		2240	152
Bottom Gauge:	2238	4617	2290	2050	2050	2050		2280	

SAMPLES — Sampling Point: Above Tool Type of Fluid: Sp.G. Salinity: 600 PPM Chloride

Unable to open shut in valve after I.S.I.P. owing to sand in tool.

DRILL STEM TEST REPORT

Company: WOODSIDE (L.E.) OIL CO. Date: 6th October, 1965.

Area: Golden Beach West Well: * 1. R.T. Elevation:

Test No.: 4. Interval: 5041' - 5091' Formation: Latrobe Valley Coal Measures

Tester, Size and Type: 4¾" B.J. Packer, Size and Type: 4¾" B.T.

Rubber, O.D.: 7¾" B.H. Choke Size: ½" Drill Pipe, Size: 4½" FH

Full Hole, I.D.: 8¾" Pilot Hole, I.D.: - Casing, I.D.: 8.921

Anchor, O.D. and I.D.: 6" x 3" and 4¾" x 2½" S.I. Sump Volume: 12.5 cu. ft. Water Cushion:

Disk Valve, Depth: 5018 Tester Valve, Depth: 5023 Air Chamber Volume:

Pressure Gauges:) Kuster AK.1. Range: 12,24 Hr. 8,300 P.S.I. No.: 2237, 2238

(Anchor (Perforations: 10'

Mud Weight: 9.4 Filtrate Salinity: 850 PPM Chloride Annulus Drop: 10'

DIARY OF TEST — Started In: 1.45 am. On Bottom: 5.51 am

Valve Opened: 5.55 am. Valve Closed: 6.10 am Disk Broken: -

Valve Opened: 6.55 am Gas to Surface: - Oil to Surface: -

Valve Shut: 7.40 am Pulled Packer: 8.25 am Out of Hole: 12.15 pm

Initial Shut In Time: 45 mins Flowing Time: 60 mins Final Shut In Time: 45 mins

SURFACE PRODUCTION —

Air or Gas, cu. ft./day - (Time: - ((Rate: -

Water .....In excess 1200 G.P.H.

Oil, bbls./day - (Time: - (Rate: -

PIPE RECOVERY —

Oil: - Water: - Mud:

TOTAL PRODUCTION — Gas: - Oil - Water:

PRESSURE RECORD (Corrected Pressures) —

	Depth	I.H.P.	I.F.P.	I.S.I.P.	F.F.P.	F.S.I.P.	F.H.H.	Temp.
Top Gauge:	2238	5024	Nil	2140/2180	2240	2180/2240	2240	2480	170
Bottom Gauge:	2237	5053	2520	1960/2190	2260	2150/2240	2260	2510	

SAMPLES —

Sampling Point	Type of Fluid	Sp.G.	Salinity
Top of Tester			300 PPM Chloride

DRILL STEM TEST REPORT

Company: WOODSIDE (LAKES ENTRANCE) OIL CO Date: 14th October, 1965.

Area: Golden Beach West Well: *1 R.T. Elevation:

Test No.: 5 Interval: 5671' - 5752' Formation: Latrobe Valley Coal Measures

Tester, Size and Type: 4¾" B.J. Packer, Size and Type: 4¾" B.T

Rubber, O.D.: 7¾" B.H. Choke Size: ½" Drill Pipe, Size: 3½" IF

Full Hole, I.D.: 8¾" Pilot Hole, I.D.: - Casing, I.D.: 8.921

Anchor, O.D. and I.D. 6½"x2¼"
4¾"x2½" Sump Volume: 20 cu.ft. Water Cushion:

S/I Valve, Depth: 5646 Tester Valve, Depth: 5653 Air Chamber Volume:

Pressure Gauges:) Kuster AK I Range: 12,24 Hr. No.: 2237, 2238

(Anchor
(Perforations: 10'

Mud Weight: 9.6 Filtrate Salinity: 850 PPM Chloride. Annulus Drop: 10'

DIARY OF TEST — Started In: 3.00 am. On Bottom: 6.30 am.

Valve Opened: 6.44 am. Valve Closed: 6.54 am. Disk Broken: -

Valve Opened: 7.39 am. Gas to Surface: - Oil to Surface: -

Valve Shut: 8.19 am. Pulled Packer: 8.34 am. Out of Hole: 12.00 M.D.

Initial Shut In Time: 45 mins. Flowing Time: 50 mins. Final Shut In Time: 15 mins.

SURFACE PRODUCTION —

Air or Gas, cu. ft./day (Time:
(Rate:

Oil, bbls./day (Time:
(Rate:

PIPE RECOVERY —

Oil: Water: 500' Muddy 5240' fairly Mud: clean

TOTAL PRODUCTION — Gas: Oil Water:

PRESSURE RECORD (Corrected Pressures) —

	Depth	IHH	M.F.IFP	I.S.I.P.	F.F.P.	F.S.I.P.	FHH	Temp.
Top Gauge:	2237	5654	2880	170/2380	2520	2090/2520	2520	2880	162
Bottom Gauge:	2238	5683	2880	2390/2400	2490	2390/2490	2490	2880	

SAMPLES — Sampling Point: Above Tool Type of Fluid Sp.G. Salinity: 300 PPM Chloride

REMARKS :

All tools operated correctly.

DRILL STEM TEST REPORT

Company: WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

Date: 22nd October, 1965

Area: Golden Beach West

Well: No.*1.

R.T. Elevation:

Test No.: 6

Interval: 6650 - 6840

Formation: Mesozoic

Tester, Size and Type: $4\frac{3}{4}$" B-J

Packer, Size and Type: $4\frac{3}{4}$" B.T.

Rubber, O.D.: $7\frac{3}{4}$"

B.H. Choke Size: $\frac{1}{2}$

Drill Pipe, Size: $3\frac{1}{2}$" I.F.

Full Hole, I.D.: $8\frac{3}{4}$"

Pilot Hole, I.D.: -

Casing, I.D.: 8.921

Anchor, O.D. and I.D. $6\frac{1}{2}$ x $2\frac{1}{4}$
$4\frac{3}{4}$ x $2\frac{1}{2}$

Sump Volume: 27 cu.ft.

Water Cushion: None.

S/I Valve, Depth: 6630

Tester Valve, Depth: 6637

Air Chamber Volume:

Pressure Gauges:) Kuster AKI

Range: 8300 P.S.I. 12 x 24 Hr.

No.: 2237, 2238.

(Anchor

(Perforations: 23'

Mud Weight: 10.2

Filtrate Salinity: 1300 PPM Chloride

Annulus Drop: Nil.

DIARY OF TEST —

Started In: 7.15 pm

On Bottom: 10.30 pm.

Valve Opened: 10.37 pm.

Valve Closed: 10.47 pm

Disk Broken: -

Valve Opened: 11.32 pm

Gas to Surface: -

Oil to Surface: -

Valve Shut:

Pulled Packer: 11.39 pm

Out of Hole: 4.15 am.

Initial Shut In Time: 45 mins.

Flowing Time: 10 mins.

Final Shut In Time: -

SURFACE PRODUCTION —

Air or Gas, cu. ft./day: Good blow air. (Time: ((Rate:

Oil, bbls./day (Time: (Rate:

PIPE RECOVERY —

Oil: Water: 450' muddy 2770' fairly clean. Mud: 540'

TOTAL PRODUCTION — Gas: Oil Water:

PRESSURE RECORD (Corrected Pressures) —

		Depth	M.P.	I.S.I.P.	F.F.P.	F.S.I.P.	Temp.
Top Gauge:	2238	6675	3530	2880	1770	-	172
Bottom Gauge:	2237	6681	3560	2960	2840	-	

SAMPLES —

Sampling Point	Type of Fluid	Sp.G.	Salinity
Above Tool 1800' above tool.	Water.		18,500 PPM Chloride.
	Gas Sample		

TOOL OPENED WITH GOOD STRONG BLOW FIRST TIME, BUT GAVE NO SURFACE INDICATION WHEN OPENED FOR SECOND TIME.

TOOL FOUND TO BE BLOCKED WITH SAND AND CLAY.

DRILL STEM TEST REPORT

Company: WOODSIDE (L.E.) OIL CO. N.L. Date: 26th October, 1965.

Area: Golden Beach West Well: No. *1. R.T. Elevation:

Test No.: 7 Interval: 7130'-7165' Formation: Strzelecki

Tester, Size and Type: 4¾" B-J Packer, Size and Type: 4¾" B.T.

Rubber, O.D.: 7¾" B.H. Choke Size: ½" Drill Pipe, Size: 3½" IF

Full Hole, I.D.: 8¾" Pilot Hole, I.D.: - Casing, I.D.: 8.921

Anchor, O.D. and I.D.: 4¾"x2½" Sump Volume: 10 cu.ft. Water Cushion: -

S/In Valve, Depth: 7110 Tester Valve, Depth: 7117 Air Chamber Volume:

Pressure Gauges:) Kuster AK.I Range: 8300 P.S.I. 12 & 24 Hr. No.: 2237, 2238

(Anchor (Perforations: 20'

Mud Weight: 10.2 P.P.G. Filtrate Salinity: 1300 PPM Chloride Annulus Drop: -

DIARY OF TEST — Started In: 5.45 am On Bottom: 8.03 am

Valve Opened: 8.05 am Valve Closed: 8.15 am Disk Broken: -

Valve Opened: 9.00 am Gas to Surface: - Oil to Surface: -

Valve Shut: 9.45 am Pulled Packer: 10.30 am Out of Hole: 2.00 pm

Initial Shut In Time: 45 mins Flowing Time: 55 mins. Final Shut In Time: 45 mins

SURFACE PRODUCTION —

Air Gas Fair Blow (Time:

(Rate:

Oil, bbls./day (Time:

(Rate:

PIPE RECOVERY — Total 1260'

Oil: Water: 1,000' Mud: & Water: 260'

TOTAL PRODUCTION — Gas: Oil Water:

PRESSURE RECORD (Corrected Pressures) —

	Depth	IHH	MX. IFP	I.S.I.P.	F.F.P.	F.S.I.P.	FHH	Temp.
Top Gauge:	2237	7152	3830	120/300	3060	240/720	2920	3830	170
Bottom Gauge:	2238	7158	3850	160/320	3040	280/720	2850	3820	

SAMPLES —

Sampling Point	Type of Fluid	Sp.G.	Salinity
Above Tool 500' above tool	Water fairly clean. Two gas samples	-	18,000 PPM Chloride.

DRILL STEM TEST REPORT

Company: WOODSIDE (L.E.) OIL CO. N.L. Date: 29th October, 1965.

Area: Golden Beach West Well: No.1. R.T. Elevation:

Test No.: 8 Interval: 7380' - 7512' Formation:

Tester, Size and Type: 4¾"B.J Packer, Size and Type: 4¾" B.T.

Rubber, O.D.: 7¾" B.H. Choke Size: ½" Drill Pipe, Size: 3½" I.F.

Full Hole, I.D.: 8¾" Pilot Hole, I.D.: - Casing, I.D.: 8.921

Anchor, O.D. and I.D.: 6½"x2¼" 4¾"x2½" Sump Volume: - 27 cu.ft. Water Cushion: Nil

S/I ~~D.S.K~~ Valve, Depth: 7360 Tester Valve, Depth: 7367 Air Chamber Volume:

Pressure) Gauges:) Kuster AKI Range: 8300 P.S.I. 12 & 24 Hr. No.: 2237, 2238

(Anchor (Perforations: 25'

Mud Weight: 10.4 Filtrate Salinity: 910 P.P.M Chloride Annulus Drop: Nil.

DIARY OF TEST — Started In: 8.15 pm. On Bottom: 11.15 pm.

Valve Opened: 11.22 pm. Valve Closed: 11.37 pm. Disk Broken: -

Valve Opened: 12.22 am. Gas to Surface: - Oil to Surface: -

Valve Shut: 1.07 am. Pulled Packer: 1.52 am. Out of Hole: 6.00 am.

Initial Shut In Time: 45 mins. Flowing Time: 60 mins. Final Shut In Time: 45 mins.

SURFACE PRODUCTION —

~~Mcf of Gas~~, Strong Blow (Time:
~~cu.ft./day~~ (
(Rate:

Oil, bbls./day (Time:
(Rate:

PIPE RECOVERY — Gascut

Oil: Water: 6720' Mud: 500'

TOTAL PRODUCTION — Gas: Oil Water:

PRESSURE RECORD (Corrected Pressures) —

	Depth	IHH ~~MP~~	IFP	I.S.I.P.	F.F.P.	F.S.I.P.	FHH	Temp.
Top Gauge:	2237	7407	4080	2880/3150	3290	3020/3310	3310	4040	180
Bottom Gauge:	2238	7413	4050	2860/3140	3310	3040/3270	3270	4000	

SAMPLES —

	Sampling Point	Type of Fluid	Sp.G.	Salinity
	Above Tool	Gas cut Salt Water		18,000 P.P.M. Chloride.
6,000'	above tool	Gas sample		

Tool opened with strong blow on both occasions but died out at 40 mins. total flowing time.

DRILL STEM TEST REPORT

Company: WOODSIDE(L.E.) OIL CO. N.L. Date: 2nd November, 1965.

Area: GOLDEN BEACH WEST Well: No. 1. R.T. Elevation:

Test No.: 9. Interval: 5900' - 5960' Formation:

Tester, Size and Type: $4\frac{3}{4}$" B-J Packer, Size and Type: $4\frac{3}{4}$" B.T.

Rubber, O.D.: $7\frac{3}{4}$" B.H. Choke Size: $\frac{1}{2}$" Drill Pipe, Size: $3\frac{1}{2}$" I.F.

Full Hole, I.D.: $8\frac{3}{4}$" Pilot Hole, I.D.: - Casing, I.D.: 8.921

Anchor, O.D. and I.D.: $6\frac{1}{2}$" x $2\frac{1}{4}$" Sump Volume: - Water Cushion: None.
$4\frac{3}{4}$" x $2\frac{1}{2}$"
17 cu.ft.

S/~~Bxx~~ Valve, Depth: 5874' Tester Valve, Depth: 5881 Air Chamber Volume:

Pressure) Gauges:) Kuster AK.I Range: 8300 No.: 2237, 2238
12 & 24 hr.
(Anchor (Perforations: 19'

Mud Weight: Filtrate Salinity: Annulus Drop: 30' plus

DIARY OF TEST — Started In: 11.30 pm On Bottom: 2.10 am

Valve Opened: 2.15 am Valve Closed: 2.15½ am Disk Broken: -

Valve Opened: - Gas to Surface: - Oil to Surface: -

Valve Shut: - Pulled Packer: 2.15½ am Out of Hole: 6.30 am

Initial Shut In Time: None Flowing Time: - Final Shut In Time: -

SURFACE PRODUCTION —

Air or Gas, cu. ft./day (Time: ((Rate:

Oil, bbls./day (Time: (Rate:

PIPE RECOVERY — Oil: Water: Mud: 220'

TOTAL PRODUCTION — Gas: Oil Water:

PRESSURE RECORD (Corrected Pressures) —

		Depth	I.H.H. ~~M.R.~~	I.S.I.P.	F.F.P.	F.S.I.P.	Temp.
Top Gauge:	2237	5882	3200	-	-	-	158
Bottom Gauge:	2238	5921	3200	-	-	-	-

SAMPLES — Sampling Point Type of Fluid Sp.G. Salinity

Packer Seat Failure.

DRILL STEM TEST REPORT

Company: WOODSIDE (L.E.) OIL CO. N.L. Date: 4th November, 1965.

Area: GOLDEN BEACH WEST Well: No. 1. R.T. Elevation:

Test No.: 10 Interval: 2851' - 2856' Formation:

Tester, Size and Type: 4¾" B - J Packer, Size and Type: 9⅝" Olympic Hook Wall

Rubber, O.D.: B.H. Choke Size: ½" Drill Pipe, Size: 3½" IF

Full Hole, I.D.: 8¾" Pilot Hole, I.D.: - Casing, I.D.: 8.921

Anchor, O.D. and I.D.: 6½" x 2¼" Sump Volume: - Water Cushion: None.
4¾" x 2½" 8.6 cu.ft.

Disk Valve, Depth: 2825 Tester Valve, Depth: 2832 Air Chamber Volume: -

Pressure) Gauges:) Kuster AK.I Range: 8300 P.S.I. No.: 2237, 2238
12 & 24 hr. (Anchor (Perforations: 10 ft.

Mud Weight: 10.0 Filtrate Salinity: Annulus Drop: Nil.

DIARY OF TEST — Started In: 10.30 am On Bottom: 12.00 M.D

Valve Opened: 12.08 pm. Valve Closed: 12.18.0115 Disk Broken: -

Valve Opened: 1.03 pm. Gas to Surface: - pm. Oil to Surface: -

Valve Shut: 1.40 pm. Pulled Packer: 0200 pm Out of Hole: 3.45 pm.

Initial Shut In Time: 45 Flowing Time: 44 Final Shut In Time: 20

SURFACE PRODUCTION —

Air or Gas, cu. ft./day (Time:
(
(Rate:

Oil, bbls./day (Time:
(Rate:

PIPE RECOVERY —

Oil: Water: 2210' Fairly Clean Mud: - 500'

TOTAL PRODUCTION — Gas: Oil Water:

PRESSURE RECORD (Corrected Pressures) —

	Depth	IHH	MP. IFP	I.S.I.P.	F.F.P.	F.S.I.P.	FHH	Temp.
Top Gauge:	2237	2833	1470 650/1150	1260	1040/1260	1260	1470	120
Bottom Gauge:	2238		1450 680/1120	1250	1070/1250	1250	1450	

SAMPLES — Sampling Point: Above Tool. Type of Fluid: Sp.G. Salinity: 350 PPM Chloride.

DRILL STEM TEST REPORT

Company: WOODSIDE (L.E.) OIL CO. N.L. Date: 4th November, 1965.

Area: GOLDEN BEACH WEST Well: No. 1. R.T. Elevation:

Test No.: 11 Interval: 2297' - 2301' Formation:

Tester, Size and Type: $4\frac{3}{4}$" B - J Packer, Size and Type: $4\frac{3}{4}$" B.T. x $9\frac{5}{8}$" Olympic Hook Wall

Rubber, O.D.: $7\frac{3}{4}$" B.H. Choke Size: $\frac{1}{2}$" Drill Pipe, Size: $3\frac{1}{2}$" IF.

Full Hole, I.D.: $8\frac{3}{4}$" Pilot Hole, I.D.: - Casing, I.D.: 8.921

Anchor, O.D. and I.D.: $4\frac{3}{4}$" x $2\frac{1}{2}$" Sump Volume: - 5.2 cu.ft. Water Cushion: None

S/I ~~DST~~ Valve, Depth: 2278 Tester Valve, Depth: 2285 Air Chamber Volume: -

Pressure) Gauges:) Kuster AKI Range: 8300 P.S.I. 12 & 24 hr. No.: 2237, 2238

(Anchor (Perforations: 7'

Mud Weight: 10.0 Filtrate Salinity: Annulus Drop: Nil

DIARY OF TEST — Started In: On Bottom:

Valve Opened: 9.46 Valve Closed: 10.20 Disk Broken: -

Valve Opened: - Gas to Surface: - Oil to Surface: -

Valve Shut: - Pulled Packer: 10.20 Out of Hole:

Initial Shut In Time: - Flowing Time: 34 mins. Final Shut In Time: -

SURFACE PRODUCTION —

Air or Gas, cu. ft./day (Time: ((Rate:

Oil, bbls./day (Time: (Rate:

PIPE RECOVERY — Oil: Water: Mud: 2 ft.

TOTAL PRODUCTION — Gas: Oil Water:

PRESSURE RECORD (Corrected Pressures) —

	Depth	IHH ~~MXP~~	IFP	I.S.I.P.	F.F.P.	F.S.I.P.	FHH	Temp.
Top Gauge:	2237	1190	10		10	1190	112°	
Bottom Gauge:								

SAMPLES — Sampling Point Type of Fluid Sp.G. Salinity

DRILL STEM TEST REPORT

Company: WOODSIDE (L.E.) OIL CO. N.L. Date: 5th November, 1965.

Area: GOLDEN BEACH WEST Well: No. 1. R.T. Elevation:

Test No.: 12. Interval: 2297' - 2306' Formation:

Tester, Size and Type: Packer, Size and Type: $4\frac{3}{4}$"B.T x $9\frac{5}{8}$" Olympic Hook Wall

Rubber, O.D.: $7\frac{3}{4}$" B.H. Choke Size: $\frac{1}{2}$" Drill Pipe, Size: $3\frac{1}{2}$" I.F.

Full Hole, I.D.: $8\frac{3}{4}$" Pilot Hole, I.D.: Casing, I.D.: 8.921"

Anchor, O.D. and I.D.: $4\frac{3}{4}$" x $2\frac{1}{2}$" Sump Volume: - Water Cushion: None.

7.4 cu.ft.

S/I ~~Disk~~ Valve, Depth: 2276 Tester Valve, Depth: 2283 Air Chamber Volume: -

Pressure) Gauges:) Kuster AK.I Range: 8300 P.S.I. 12 & 24 Hr. No.: 2237, 2238.

(Anchor 12'

(Perforations:

Mud Weight: 10.0 Filtrate Salinity: Annulus Drop: Nil.

DIARY OF TEST — Started In: 4.00 am On Bottom: 6.10 am

Valve Opened: 6.15 am Valve Closed: 6.52 am Disk Broken: -

Valve Opened: - Gas to Surface: - Oil to Surface: -

Valve Shut: - Pulled Packer: 6.52 am Out of Hole: 8.00 am

Initial Shut In Time: Nil. Flowing Time: 37 mins Final Shut In Time: Nil.

SURFACE PRODUCTION —

Air or Gas, cu. ft./day (Time: ((Rate:

Oil, bbls./day (Time: (Rate:

PIPE RECOVERY — Oil: Water: Mud: 5'

TOTAL PRODUCTION — Gas: Oil Water:

PRESSURE RECORD (Corrected Pressures) —

	Depth	IHH	MX. IFP	I.S.I.P.	F.F.P.	F.S.I.P	FHH	Temp.
Top Gauge:	2237	1180	15		20		1180	112°
Bottom Gauge:	2238	1190	20		20		1190	

SAMPLES — Sampling Point Type of Fluid Sp.G. Salinity

DRILL STEM TEST REPORT

Company: WOODSIDE (LAKES ENTRANCE) OIL CO. N.L. Date: 5th November, 1965.

Area: GOLDEN BEACH WEST | Well: No. 1. | R.T. Elevation:

Test No.: 13. | Interval: 2297' - 2306' | Formation:

Tester, Size and Type: $4\frac{3}{4}$" B-J | Packer, Size and Type: $4\frac{3}{4}$" B.T. x $9\frac{5}{8}$" Olympic Hook Wall

Rubber, O.D.: $7\frac{3}{4}$" | B.H. Choke Size: $\frac{1}{2}$" | Drill Pipe, Size: $3\frac{1}{2}$" I.F.

Full Hole, I.D.: $8\frac{3}{4}$" | Pilot Hole, I.D.: | Casing, I.D.: 8.921

Anchor, O.D. and I.D.: $4\frac{3}{4}$" x $2\frac{1}{2}$" | Sump Volume: - 8.7 cu.ft. | Water Cushion: None

S/I ~~Disk~~ Valve, Depth: 2272 | Tester Valve, Depth: 2279 | Air Chamber Volume: -

Pressure) Gauges:) Kuster AK.I. | Range: 8300 P.S.I. 12 & 24 hr. | No.: 2237, 2238 (Anchor (Perforations:

Mud Weight: 10.0 | Filtrate Salinity: | Annulus Drop: Nil

DIARY OF TEST — | Started In: | On Bottom:

Valve Opened: 9.25 pm | Valve Closed: 9.42 pm | Disk Broken: -

Valve Opened: 9.44 pm | Gas to Surface: - | Oil to Surface: -

Valve Shut: 9.56 pm | Pulled Packer: 9.56 pm | Out of Hole: -

Initial Shut In Time: - | Flowing Time: 29 mins. | Final Shut In Time: -

SURFACE PRODUCTION —

Air or Gas, cu. ft./day (Time: ((Rate:

Oil, bbls./day (Time: (Rate:

PIPE RECOVERY —

Oil: | Water: | Mud: 15'

TOTAL PRODUCTION — Gas: | Oil | Water:

PRESSURE RECORD (Corrected Pressures) —

	Depth	IHH~~M~~P.	IFP	I.S.I.P.	F.F.P.	F.S.I.P.	FHH	Temp.
Top Gauge:	2237	2280	1180	10	15	1180		112°
Bottom Gauge:	2238	DID NOT OPERATE!						

SAMPLES — | Sampling Point | Type of Fluid | Sp.G. | Salinity

PE906608

This is an enclosure indicator page.
The enclosure PE906608 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906608 has the following characteristics:

ITEM_BARCODE	= PE906608
CONTAINER_BARCODE	= PE906083
NAME	= DST-1 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= DST
DESCRIPTION	= DST -1 Photograph, recorder 2238 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 18/09/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906609

This is an enclosure indicator page.
The enclosure PE906609 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906609 has the following characteristics:

ITEM_BARCODE	= PE906609
CONTAINER_BARCODE	= PE906083
NAME	= DST-1 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= DST
DESCRIPTION	= DST -1 Photograph, recorder 2237 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 18/09/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906610

This is an enclosure indicator page.
The enclosure PE906610 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906610 has the following characteristics:

ITEM_BARCODE	PE906610
CONTAINER_BARCODE	PE906083
NAME	DST-2 Photograph
BASIN	GIPPSLAND BASIN
PERMIT	PEP/44
TYPE	WELL
SUBTYPE	DST
DESCRIPTION	DST -2 Photograph, recorder 2238 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	
DATE_CREATED	25/09/65
DATE_RECEIVED	
W_NO	W493
WELL_NAME	GOLDN BEACH WEST-1
CONTRACTOR	B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906611

This is an enclosure indicator page.
The enclosure PE906611 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906611 has the following characteristics:

ITEM_BARCODE	= PE906611
CONTAINER_BARCODE	= PE906083
NAME	= DST-2 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= DST
DESCRIPTION	= DST -2 Photograph, recorder 2237 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 25/09/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906612

This is an enclosure indicator page.
The enclosure PE906612 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906612 has the following characteristics:

ITEM_BARCODE	= PE906612
CONTAINER_BARCODE	= PE906083
NAME	= DST-3 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= DST
DESCRIPTION	= DST -3 Photograph, recorder 2237 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 1/10/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906613

This is an enclosure indicator page.
The enclosure PE906613 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906613 has the following characteristics:

ITEM_BARCODE	= PE906613
CONTAINER_BARCODE	= PE906083
NAME	= DST-3 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= DST
DESCRIPTION	= DST -3 Photograph, recorder 2238 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 1/10/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906614

This is an enclosure indicator page.
The enclosure PE906614 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906614 has the following characteristics:

ITEM_BARCODE	= PE906614
CONTAINER_BARCODE	= PE906083
NAME	= DST-4 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= DST
DESCRIPTION	= DST -4 Photograph, recorder 2237 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 6/10/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906615

This is an enclosure indicator page.
The enclosure PE906615 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906615 has the following characteristics:

ITEM_BARCODE	= PE906615
CONTAINER_BARCODE	= PE906083
NAME	= DST-4 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= DST
DESCRIPTION	= DST -4 Photograph, recorder 2238 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 6/10/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906616

This is an enclosure indicator page.
The enclosure PE906616 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906616 has the following characteristics:

ITEM_BARCODE	= PE906616
CONTAINER_BARCODE	= PE906083
NAME	= DST-5 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= DST
DESCRIPTION	= DST -5 Photograph, recorder 2237 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 14/10/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906617

This is an enclosure indicator page.
The enclosure PE906617 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906617 has the following characteristics:

ITEM_BARCODE	= PE906617
CONTAINER_BARCODE	= PE906083
NAME	= DST-5 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= DST
DESCRIPTION	= DST -5 Photograph, recorder 2238 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 14/10/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906618

This is an enclosure indicator page.
The enclosure PE906618 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906618 has the following characteristics:

ITEM_BARCODE	= PE906618
CONTAINER_BARCODE	= PE906083
NAME	= DST-6 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= DST
DESCRIPTION	= DST -6 Photograph, recorder 2238 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 22/10/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906619

This is an enclosure indicator page.
The enclosure PE906619 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906619 has the following characteristics:

ITEM_BARCODE	= PE906619
CONTAINER_BARCODE	= PE906083
NAME	= DST-6 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= DST
DESCRIPTION	= DST -6 Photograph, recorder 2237 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 22/10/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906620

This is an enclosure indicator page.
The enclosure PE906620 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906620 has the following characteristics:

ITEM_BARCODE	= PE906620
CONTAINER_BARCODE	= PE906083
NAME	= DST-7 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= DST
DESCRIPTION	= DST -7 Photograph, recorder 2237 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 26/10/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906621

This is an enclosure indicator page.
The enclosure PE906621 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906621 has the following characteristics:

ITEM_BARCODE	= PE906621
CONTAINER_BARCODE	= PE906083
NAME	= DST-7 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= DST
DESCRIPTION	= DST -7 Photograph, recorder 2238 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 26/10/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906622

This is an enclosure indicator page.
The enclosure PE906622 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906622 has the following characteristics:

ITEM_BARCODE	= PE906622
CONTAINER_BARCODE	= PE906083
NAME	= DST-8 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= DST
DESCRIPTION	= DST -8 Photograph, recorder 2237 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 30/10/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906623

This is an enclosure indicator page.
The enclosure PE906623 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906623 has the following characteristics:

ITEM_BARCODE	= PE906623
CONTAINER_BARCODE	= PE906083
NAME	= DST-8 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	=
DESCRIPTION	= DST -8 Photograph, recorder 2238 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 30/10/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906624

This is an enclosure indicator page.
The enclosure PE906624 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906624 has the following characteristics:

ITEM_BARCODE	= PE906624
CONTAINER_BARCODE	= PE906083
NAME	= DST-9 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	=
DESCRIPTION	= DST -9 Photograph, recorder 2237 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 2/11/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906625

This is an enclosure indicator page.
The enclosure PE906625 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906625 has the following characteristics:

ITEM_BARCODE	= PE906625
CONTAINER_BARCODE	= PE906083
NAME	= DST-9 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	=
DESCRIPTION	= DST -9 Photograph, recorder 2238 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 2/11/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906626

This is an enclosure indicator page.
The enclosure PE906626 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906626 has the following characteristics:

ITEM_BARCODE	= PE906626
CONTAINER_BARCODE	= PE906083
NAME	= DST-10 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	=
DESCRIPTION	= DST -10 Photograph, recorder 2237 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 4/11/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906627

This is an enclosure indicator page.
The enclosure PE906627 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906627 has the following characteristics:

ITEM_BARCODE	= PE906627
CONTAINER_BARCODE	= PE906083
NAME	= DST-10 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	=
DESCRIPTION	= DST -10 Photograph, recorder 2238 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 4/11/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906628

This is an enclosure indicator page.
The enclosure PE906628 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906628 has the following characteristics:

ITEM_BARCODE	= PE906628
CONTAINER_BARCODE	= PE906083
NAME	= DST-11 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	=
DESCRIPTION	= DST -11 Photograph, recorder 2237 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 4/11/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE906629

This is an enclosure indicator page.
The enclosure PE906629 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906629 has the following characteristics:

ITEM_BARCODE	= PE906629
CONTAINER_BARCODE	= PE906083
NAME	= DST-11 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	=
DESCRIPTION	= DST -11 Photograph, recorder 2238 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 4/11/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE905916

This is an enclosure indicator page.
The enclosure PE905916 is enclosed within the container PE906083 at this location in this document.

The enclosure PE905916 has the following characteristics:

ITEM_BARCODE	= PE905916
CONTAINER_BARCODE	= PE906083
NAME	= DST-12 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	=
DESCRIPTION	= DST -12 Photograph, recorder 2237 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 5/11/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE905917

This is an enclosure indicator page.
The enclosure PE905917 is enclosed within the container PE906083 at this location in this document.

The enclosure PE905917 has the following characteristics:

ITEM_BARCODE	= PE905917
CONTAINER_BARCODE	= PE906083
NAME	= DST-12 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	=
DESCRIPTION	= DST -12 Photograph, recorder 2238 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 5/11/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE905918

This is an enclosure indicator page.
The enclosure PE905918 is enclosed within the container PE906083 at this location in this document.

The enclosure PE905918 has the following characteristics:

ITEM_BARCODE	= PE905918
CONTAINER_BARCODE	= PE906083
NAME	= DST-13 Photograph
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	=
DESCRIPTION	= DST -13 Photograph, recorder 2237 (from appendix 2 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	= 5/11/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= B.J. SERVICE (AUSTRALIA) PTY LTD
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

Golden Beach West 51/67

All communications should be addressed
SECRETARY FOR MINES

Telephone: 63 0321

JLK:LM

DEPARTMENT OF MINES
TREASURY BUILDINGS
MELBOURNE, C.2

11th November, 1965.

The Manager,
Woodside Lakes Entrance Oil Co. N.L.,
792 Elizabeth Street,
MELBOURNE.

Dear Sir,

I am enclosing a report by Mr. J.Douglas on the preliminary examination of bore cores taken from your Golden Beach No.1 Well.

Yours faithfully,

J. L. KNIGHT,
Acting Director of Geological Survey.

FOR ACTION ⇒

For Information to	
Managing Director	✓
Geological Dept.	✓
Drilling Dept.	
Accounts Dept.	
Date 12/11/65	Initials

Golden Beach West 52/67

Preliminary palaeobotanical examination of ~~Arco~~-Woodside Golden Beach No.1 bore core samples.

Cores from the ~~Arco~~-Woodside Golden Beach No.1 bore were examined for plant remains, and samples then treated to isolate any acid insoluble microfossils present.

Core 5(5415-5425 feet), Sidewall core 2 (5408 feet) and Sidewall core 8 (5022 feet), yielded numerous species of microspores derived from angiosperms, gymnosperms and cryptogams, Most numerous and diagnostic were angiosperm pollens of the Triorites - Proteacidites - Nothofagus flora common in the Victorian Lower Tertiary, and well represented in the Latrobe Valley Coal Measures. The samples then are probably Lower Miocene - Eocene in age.

Core 7 (6840-6860 feet). Many megascopic leaf compressions are present in this core, representing principally angiosperm (dicotyledon) and gymnospermous types. Cuticular remains isolated also belong almost entirely to these two groups. Conifer pollens are the principal microspores present, and the Tricorites-Proteacidites-Nothofagus assemblage is conspicuous for its absence. Few diagnostic pollens are present, but I regard the sample as derived from rocks certainly post-Lower Cretaceous in age, probably Palaeocene or Upper Cretaceous, and just possibly Eocene.

John Douglas,
Geologist.

Note on original
"SWC 7008' Def
2B

PALYNOLOGICAL EXAMINATION OF CORE SAMPLES FROM GOLDEN BEACH WEST No.1 AND MERRIMAN No.1 WELLS

BY M. E. DETTMANN

Core samples from Golden Beach West No.1 and Merriman No.1 wells provided palynological evidence for the existence of Tertiary and Cretaceous sediments within the two wells. In Golden Beach West No.1 well, Tertiary microfloras were extracted from samples at 5076-91 feet and 5415-25 feet, whereas microfloras in samples from 6380-96 feet and 6840-60 feet demonstrate that horizons at these levels are Cretaceous in age. The lowest core (7100-12 feet) examined from the Golden Beach West No.1 well was found to be devoid of plant microfossils.

A well preserved Lower Tertiary microflora was extracted from Merriman No.1 well at 4705-22 feet. Samples lower in the sequence (between 5070 and 6005 feet) yielded meagre microfloras that indicate a Cretaceous age.

Details of the microfloras obtained from each of the samples investigated are presented below (see also Table 1).

Golden Beach West No.1 Well

The lowest sample examined (7100-112 feet) was found to be devoid of plant microfossils. The succeeding cores from 6340-60 feet and 6380-96 feet contain poorly preserved microfloras in which Cicatricosisporites australiensis (Cookson) is present. This species indicates a Cretaceous age. The sample from 6380-96 feet also yielded Crybelosporites striatus (Cookson & Dettmann) and triporate angiosperm grains; the former species confirms a Cretaceous age, and the angiosperm grains suggest an horizon within the Upper Cretaceous.

Fairly well preserved microfloras containing a high proportion of angiosperm grains were extracted from sediments at 5415-25 feet and at 5076-91 feet. The lower sample yielded Triorites edwardsii Cookson & Pike, the index of Harris's (1965) Triorites edwardsii and Triorites edwardsii - Duplo-

2/4

pollis orthoteichus Assemblages. However, reference of the microflora at 5415-25 feet to one or other of the above-named assemblages is precluded by the absence of other diagnostic species. Nevertheless, the presence of T. edwardsii indicates a Tertiary (Paleocene) or, at the oldest, an uppermost Cretaceous age (see Harris 1965, Evans 1962) and suggest correlation with beds between 8336 and 9514 feet in Gippsland Shelf No.3 well and at 8695 feet in Gippsland Shelf No.1 well (Dettmann 1965).

The sample from 5076-91 feet yielded a distinctly younger microflora containing Beaupreadities verrucosus Cookson, Nothofagidites falcata Cookson, and N. vansteenisi Cookson. B. verrucosus occurs in microfloras which Harris (1965, p.99) considers to be younger than his Duplopollis orthoteichus Assemblage of Upper Paleocene age. Cookson (1950, 1954) suggests an Eocene or younger age for B. verrucosus and indicates (1959) an Eocene - Lower Miocene age range for the two representatives of Nothofagidites. On this basis, the microflora can be regarded as Eocene to Lower Miocene in age.

Merriman No.1 well

Core 6 from 5990-6005 feet provided a sparse and poorly preserved microflora in which Alisporites grandis (Cookson) is the only stratigraphically significant species. This form is known only from the Cretaceous, being more common in Lower Cretaceous sediments. The succeeding sample from 5475-88 feet yielded a meagre microflora in which no stratigraphically significant species were observed.

Core 4 from 5070-81 feet also yielded a meagre microflora, but the presence of Balmeisporites glenelgensis Cookson & Dettmann indicates an Upper Cretaceous (Cenomanian to Turonian) age. Several examples of remanié fossils referable to the Permian spore genus Nuskoisporites were also observed.

3/4

Fair concentrations of well preserved spores and pollen grains were recovered from the Core No 3 sample at 4705-22 feet. Species present include Cyathidites splendens Harris, Triorites edwardsii, Tricolpites gillii Cookson, and Phyllocladidites mawso nii Cookson. These species indicate conformity of the microflora with either the T. edwardsii or T. edwardsii - D. orthoteichus assemblages. T. edwardsii suggests a Lower Tertiary (Paleocene) or uppermost Cretaceous age and demonstrates that the beds at 4705-22 feet in Merriman No.1 well are probable equivalents of those at 5415-25 feet in Golden Beach West No.1 well.

References

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18th February, 1966.

Mary E. Dettmann,
Department of Geology,
University of Queensland,
St. Lucia, Queensland.

MERRIMAN No.1					GOLDEN BEACH WEST No.1												
c.3 4705-22'	c.4 5070-81'	c.5 5475-88'	c.6 5990-6005'		c.4 5076-91'	c.5 5415-25'	c.6 6380-96'	c.7 6840-60'	c.8 7100-12'								
							+	+		Cicatricosisporites australiensis	Spores
							+			Crybelosporites striatus	
+						+				Cyathidites splendens	
+						+				Laevigatosporites ovatus	
	+									Balmeisporites glenelgensis	
			+				+			Alisporites grandis	Pollen
+					+					Phyllocladidites mawsonii	
					+					Dacrydiumites florinii	
+						+				Triorites edwardsii	
					+					Triorites harrisii	
+										Tricolpites gillii	
					+					Nothofagidites emarcida	
					+					Nothofagidites falcata	
					+					Nothofagidites vansteenisi	
					+					Proteacidites annularis	
					+					Proteacidites cf. rectomarginis	
+					+					Proteacidites subscabratus	
						+				Proteacidites parvus	
+										Tricolporites prolata	
					+					Myrteacidites mesonensis	
					+					Beaupreadites verrucosus	

Table 1. Distribution of selected spores and pollen grains in Golden Beach West No.1 and Merriman No.1 wells.

+ - species present

BASIN GIPPSLAND DATE

WELL NAME GOLDEN BEACH WEST-1 ELEVATION

AGE	PALYNOLOGIC ZONES	HIGHEST DATA					LOWEST DATA				
		Preferred Depth	Rtg.	Alternate Depth	Rtg.	2 way time	Preferred Depth	Rtg.	Alternate Depth	Rtg.	2 way time
EOCENE	E. tuberculatus										
	U. N. asperus										
	M. N. asperus	5076	2								
	L. N. asperus						5091	2			
	P. asperopolus										
	U. M. diversus										
	M. M. diversus										
	L. M. diversus										
PALEOCENE	U. L. balmei										
	L. L. balmei										
	T. longus										
CRETACEOUS	T. lilliei	5415	2				5425	2			
	N. senectus	6380	1				6390	2			
	C. trip./T.pach.	6840	2				7112	1			
	C. distocarin.										
	T. pannosus										
EARLY CRETACEOUS											
PRE-CRETACEOUS											

COMMENTS:

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

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

DATA RECORDED BY: A.D.P. DATE Feb. 1973

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

FORM No R 315 12/72

GEOLOGICAL SURVEY OF VICTORIA.

Unpublished Report 48/1965

By:- David J. Taylor.

BIOSTRATIGRAPHIC LOG - GOLDEN BEACH WEST NO.1

Drilled by: Woodside (Lakes Entrance) Oil Co., in the Gippsland Basin.

Casing program: $13\frac{3}{8}$" set at 257': $9\frac{5}{8}$" set at 3,154'.

Datum (K.B.) = + 39' A.S.L.

Cores: Only Core 1 (2,170' to 2,190') contained any fauna. No fauna in side wall cores.

Cuttings: examined at 50' or less intervals. Mud contamination heavy and constant throughout.

---

110 - 200'	Quaternary mollusca and foraminifera.
200 - 450'	"Jemmy's Point fauna" including Flintina intermedia. KALIMNAN STAGE = LOWER PLIOCENE.
450 - 800'	UPPER MIOCENE fauna - probably MITCHELLIAN Stage This is equivalent of Taylor's (1965) Zonule A & B of the Gippsland Shelf No.1 sequence.
800 - 1200'	MIDDLE MIOCENE fauna including both BAIRNSDALIAN and BALCOMBIAN stages. Globorotalia conica, Bolivina sp.9 and Elphidium pseudoinflatum first appear at 980' indicating Zonule D.
1200 - 1450'	LOWER MIOCENE - BATESFORDIAN stage with Lepidocyclina howchini, Amphistegina lessoni and Operculina victoriensis. This is Taylor's predicted Zonule F which did not occur in Gippsland Shelf No.1. It is noted that O.victoriensis first appeared at 1040' in this section and is of stratigraphic significance (refer Hocking, 1965), but was not present 'in situ' in Gippsland Shelf

1450-1850'	LOWER MIOCENE - LONGFORDIAN Stage - Zonules G and H.
1850-2250'	UPPER OLIGOCENE - Zonule I with the appearance of Globigerina euapertura, Globorotalia opima opima and an increasing abundance of arenaceous forms down the section. This is within the Lakes Entrance Formation of Crespin (1943).
2250-2350'	LOWER OLIGOCENE - Zonule J with the first appearance of Globorotalia testarugosa amd the presence of the Bolivina pontis - anastomosa complex. Brown coal fragments appear in the marl cuttings below 2360'. Hocking and Taylor (1964) believe these are of structural significance, being reworked from the structurally higher areas at the time of initiation of the marine transgression. The sands between 2315' and 2350' contain fauna, as the foraminifera from below 2300' differ in preservation from above but represent the same Zonule J.
2350'- T.D.	No new faunas are found below 2350' although "down-hole" contamination is heavy. The top of the sand unit (at 2315') certainly represents the "Basal Sandy Unit" of the Lakes Entrance Formation of Hocking (1965). However the base of this unit cannot be designated on available material and the "sand on sand" contact makes other methods of designation difficult. This section was in a structurally deep area at the time of initial marine transgression in the on-shore Gippsland Basin.

REFERENCES:

CRESPIN, I., 1943. Stratigraphy of the Tertiary marine rocks in Gippsland, Victoria. Comm. Paleont. Bull., 4.

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TAYLOR, D.J., 1965. The mid-Tertiary foraminiferal sequence - ESSO Gippsland Shelf NO.1 Well. Geol. Surv. Vict., Unpubl. rep. 16/1965 and as appendix to ESSO's completion report.

Golden Beach West 53/67

Appendix No.4.

CHEMICAL LABORATORIES
Departments of Agriculture, Health, and Mines, Victoria
JCK:SH
Phone: 63 0321

RECEIVED
19 NOV 1965
ANS'D.

STATE LABORATORIES
MACARTHUR STREET
MELBOURNE, C.1

17th November, 1965

An. GG/8/11

For Information to	
Managing Director	✓
Geological Dept.	✓
Drilling Dept.	
Accounts Dept.	
Date 19/11/65	Initials

Report on Samples Nos. 1234-1236/65

Sample : Gas Samples

Locality : Golden Beach

Sender : The Manager,
Woodside (Lakes Entrance) Oil N.L.,
792 Elizabeth Street,
MELBOURNE.

Description of Samples :

Three samples of gas, obtained from the oil bore being drilled at Golden Beach, by Woodside (Lakes Entrance) Oil N.L., were received for analysis.

The sample details are as follows:

Lab. No.	1234	1235	1236
D.S.T.	6	7	8
	6650-6840' Rec.540' mud 450' muddy water. 2770' gas cut muddy water Sample gas 1800' above tool	7130-7165' Rec.145' gas cut Salt water Sample gas 500' above tool	7380-7512' Rec.6720' gas cut water 500' mud Sample gas 6000' above tool

Sample No. 1234/65

Drill Stem Test No.6
Depth (feet) 6650 - 6840
Gas sample 1800 feet above tool

Analysis	As Received	*Air-Free Basis
	% V/V	% V/V
Methane	93.9	95.7
Ethane	n.d.	n.d.
Propane	0.21	0.21
Isobutane	0.09	0.09
n-Butane	0.01	0.01
Iso-pentane	0.002	0.002
n-Pentane	0.003	0.003
Oxygen	0.4	-
Nitrogen	5.0	3.6
Carbon Dioxide	0.2	0.2

n.d. = not detected.

Note Acetylene was detected as a trace in this sample. It has been assumed that its presence was due to the use of carbide in testing gas-detection equipment.

..2.

Sample No. 1235/65

Drill Stem Test	No.7
Depth (feet)	7130 - 7165
Gas Sample	500 feet above tool

Analysis	As Received	*Air-Free Basis
	%V/V	% V/V
Methane	88.9	96.7
Ethane	n.d.	n.d.
Propane	0.26	0.28
Isobutane	0.26	0.28
Oxygen	1.7	-
Nitrogen	7.7	1.4
Carbon Dioxide	0.6	0.65

Sample No. 1236/65

Drill Stem Test	No.8
Depth (feet)	7380-7512
Gas sample	6000 feet above tool

Analysis	As Received	*Air-Free Basis
	%V/V	%V/V
Methane	90.7	96.7
Ethane	n.d.	n.d.
Propane	0.16	0.17
Isobutane	0.23	0.25
n-Butane	0.01	0.01
Isopentane	0.01	0.01
n-Pentane	0.005	0.005
Oxygen	1.30	-
Nitrogen	7.0	2.2
Carbon Dioxide	0.2	0.2

* The oxygen present was assumed to be due to the presence of air, and after removing this oxygen and its air-proportional nitrogen, the components were re-calculated on an air-free basis.

John C. Kennedy

Senior Chemist,
Mines Department.

JCK:SP

21st March, Page 1 of 5 65

An. FF/27/10 GOLDEN BEACH WEST-1. WATER SAMPLES REPORT

Report on Sample No. 1161/65

U.W.R.S. 3967

Sample : Water from Oil Bore

Locality : Parish : Dulungalong

Sender : The Manager,
Woodside (Lakes Entrance) Oil Co.,
792 Elizabeth Street,
MELBOURNE

Particulars:

No.	1161
U.W.R.S.	3967
Bore	Golden Beach West No.1
Drill Stem Test	No.1
Depth (feet)	2207 - 2378
Date	18.9.65
Remarks	Rec. 1575' sl.gas-cut mud and fresh water including 500' of fairly clear water.

Results:		Part per million
Total solids in solution (by conductivity)		3600
Chloride	(Cl)	462
Carbonate	(CO_3)	n.d.
Bicarbonate	(HCO_3)	n.d.
Sulphate	(SO_4)	1527
Calcium	(Ca)	n.d.
Magnesium	(Mg)	n.d.
pH		8.1

Comment

A general comment on the analysis of such muddy waters will be made on the last sample of this batch. (No.1165/65).

John G Kennedy

Senior Chemist,
Mines Department.

JCK:SP

21st March, 2/5 66

An. FF/27/10

Report on Sample No. 1162/55

U.W.R.S. 3968

Sample : Water from Oil Bore

Locality : Parish : Dulungalong

Sender : The Manager,
Woodside (Lakes Entrance) Oil Co.,
792 Elizabeth Street,
MELBOURNE.

Particulars :

No.	1162
U.W.R.S.	3968
Bore	Golden Beach West No.1
Drill Stem Test	No.2
Depth(feet)	3136 - 3253
Date	25.9.65
Remarks	Rec. 3150'. 630' mud, 650' muddy water, 1870' water. Sample from bottom of recovery.

Results:		Parts per million
Total solids in solution (by conductivity)		600
Chloride	(Cl)	101
Carbonate	(CO_3)	n.d.
Bicarbonate	(HCO_3)	n.d.
Sulphate	(SO_4)	115
Calcium	(Ca)	34
Magnesium	(Mg)	12
Total hardness (as $CaCO_3$)		137
pH		8.3

A general comment on the analysis of such muddy waters will be made on the last sample of this batch (No.1165/65).

John C. Kennedy

Senior Chemist,
Mines Department.

JCK:3P

21st March, 3/5 66

An. F2,27/10

Report on Sample No. 1163/65

U.W.K.S. 3969

Sample : Water from Oil Bore

Locality : Parish : Dalungalong

Sender : The Manager,
Woodside (Lakes Entrance) Oil Co.,
792 Elizabeth Street,
MELBOURNE.

Particulars :

No.	1163
U.W.K.S.	3969
Bore	Golden Beach West No.1
Drill Stem Test	No.2
Depth(feet)	3136 - 3253
Date	25.9.65
Remarks:	Rec.3150: 630' mud, 650' muddy water, 1870' water . Sample from 1450' above tool

Results:		Parts per million
Total solids in solution (by conductivity)		600
Chloride	(Cl)	99
Carbonate	(CO_3)	n.d.
Bicarbonate	(HCO_3)	n.d.
Sulphate	(SO_4)	158
Calcium	(Ca)	30
Magnesium	(Mg)	12
Total hardness (as $CaCO_3$)		124
pH		8.4

A general comment on the analysis of such muddy waters will be made on the last sample of this batch (No.1165/65).

John G. Kennedy

Senior Chemist,
Mines Department

JCK:S.

21st March, 66

An. 77/27/10

Report on Sample No. 1164/65

U.W.R.S. 3970

Sample : Water from Oil Bore

Locality : Parish : Dalungalong

Sender : The Manager,
Woodside (Lakes Entrance)Oil Co.,
792 Elizabeth Street,
MELBOURNE.

Particulars:

No.	1164
U.W.R.S.	3970
Bore	Golden Beach West No.1
Drill Stem Test	No.3
Depth (Feet)	4457-4623
Date	Not stated
Remarks	Rec.680' water, 300' mud. Sample from above tool.

Results:		Parts per million
Total solids in solution (by conductivity)		1070
Chloride	(Cl)	154
Carbonate	(CO_3)	n.d.
Bicarbonate	(HCO_3)	n.d.
Sulphate	(SO_4)	474
Calcium	(Ca)	45
Magnesium	(Mg)	15
Total hardness (as $CaCO_3$)		173
pH		8.5

A general comment on the analysis of such muddy waters will be made on the last sample of this batch (No.1165/65).

John C. Kennedy

Senior Chemist,
Mines Department.

JCK:SP

21st March, 66

An. FF/27/10

Report on Sample No. 1165/65

U.F.B.S. 3971

Sample : Water from Oil Bore

Locality : Parish : Dulungalong

Sender : The Manager,
Woodside (Lakes Entrance) Oil Co.,
792 Elizabeth Street,
MELBOURNE.

Particulars :

No.	1165
U.F.B.S.	3971
Bore	Golden Beach West No.1
Drill Stem Test	No.4
Depth (feet)	5041-5091
Date	Not stated
Remarks	Water to surface, 27" @ 1200 g.p.h. Sample taken after 20" flow.

Results		Parts per million
Total solids in solution (by conductivity)		640
Chloride	(Cl)	80
Carbonate	(CO_3)	n.d.
Bicarbonate	(HCO_3)	n.d.
Sulphate	(SO_4)	144
Calcium	(Ca)	48
Magnesium	(Mg)	17
Total hardness (as $CaCO_3$)		188
pH		8.5

Comment

The analysis of these drilling waters consisting mostly of drilling mud is most time-consuming and productive of relatively little information, after much effort. Initially the separation of water from the mud is extremely difficult (and sometimes impossible) while preserving the composition of this water in the "as received" condition, and the analysis itself is subject to many interferences caused by the various conditioners used in the drilling mud.

John C. Kennedy

Senior Chemist,
Mines Department.

Golden Beach West 55/67

C.M.A. LABORATORIES

30 Cronulla Street,

CRONULLA

N.S.W.

****

PETROGRAPHIC REPORT ON THIN SECTIONS FROM WOODSIDE GOLDEN BEACH WEST NO. 1 WELL

SAMPLE 65-54 FROM CORE NO. 4

This specimen is medium grained and relatively even grained. It is composed primarily of sub-rounded to sub-angular quartz (70%). The only other mineral of prominence is K-feldspar which is locally altered to clay and comprises a low percentage of the grains. A fine-grained quartz mosaic suggesting a quartzite occurs very rarely. Apart from this, no lithic fragments are present.

The grains are cemented by calcite which inter-penetrates interstitially between the grains and locally appears to be replacive. The calcite is crystalline but with single crystals existing only for about 1 milimetre being then replaced by another crystal of different orientation (not fontainbleu).

There is little turbidity in the rock and opaque materials are essentially absent. Occasional grains of altered mica do, however, occur.

The name applied to this rock is calcareous sandstone.

SPECIMEN 65-50 FROM CORE NO. 5 at 5419'

This specimen is fine grained and relatively even grained. It is composed primarily of sub-angular quartz (40% - 45%) set in a clayey-micaceous material. This material does not appear to be a matrix but rather formed at the expense of the original feldspar grains. This is suggested by relic shapes. Rare

mica flakes (biotite and muscovite) occur and are little altered. Rare multiple twinned plagioclases also occur. No lithic fragments are present. Opaque oxides (magnetite) are present and parts of the rock have a pale brown stain probably caused by iron - bearing solutions.

The name suggested for this rock is an argillaceous or altered feldspathic sandstone.

SPECIMEN 65-49 FROM CORE NO. 6

This specimen is similar to 65 - 50 (Core No. 5). It is fine grained and relatively even grained. It is composed primarily of sub-angular quartz (30% - 40%) and occasional fine grained plagioclase with distinct multiple twinning. The remainder of the rock is composed of mica-clay aggregates but this material does not appear to be a matrix, but rather altered feldspar grains. This is suggested by relic shapes.

Lithic fragments are not recognised in the specimen. Discontinuous layers of elongate opaque material with preferred orientation occur giving a bedded appearance. This opaque mineral is probably an iron oxide (magnetite) but a graphite composition cannot be eliminated.

Other minor minerals present include : green-brown chlorites, iron oxide stains and sphenes.

The name suggested for this rock is argillaceous or feldspathic (altered) sandstone.

SPECIMEN 65-53 FROM CORE NO. 7 from 6843'

This specimen is again fine and even grained with sub-rounded to sub-angular quartz forming 40% of the rock. A slight increase in coarseness to the fine to medium range is apparent as compared to Cores Nos. 5 and 6.

As in previous specimens it appears that the once numerous feldspar grains have been altered to clay-mica aggregates. However, in this specimen some clay patches appear to be a true clay matrix. The actual ratio of clay matrix to altered feldspar, however, is difficult to determine.

The occasional grain of perthitic K-feldspar is present along with colourless mica flakes. Occasional fragments of siltstone and rare grains of a very fine grained feldspathic aggregates occur. The latter suggests a volcanic source but may simply be larger altered grains. In addition to this, a granitic source is suggested by the K-feldspar.

The name suggested for this specimen is argillaceous feldspathic sandstone.

SPECIMEN NO. 65-52 CORE NO. 7 from 6851'

This specimen is similar to specimens No. 65-49 (Core No. 6 and 65-50 (Core No. 5). Compared to these samples, it is a little finer and less even grained. The clay-feldspar aggregates dominate the quartz which makes up about 30% of the rock. The quartz grains have a sub-angular to sub-rounded shape.

As in the previous specimens, the feldspar grains have been replaced by clay and mica. In this case, the original feldspar grain shapes are outlined by a dark brown iron staining which occurs as part of the cement. This occurrence indicates that the kaolonisation of the feldspars has not proceeded as far as in the previous specimens. Microline with cross-hatched twinning is indicated by a few of the less altered grains. Minor amounts of opaque material (magnetite) occur.

No lithic fragments are present.

The name suggested for this rock is argillaceous feldspathic (altered) sandstone.

SPECIMEN 65-51 CORE NO. 8

This specimen is again even grained and lacks pore space. Sub-rounded quartz (30%) fine to medium in grain size is set in a clay-mica - relic feldspar base such that little of the quartz grain boundaries are in contact. In this specimen the grey-white turbidity patches with a granular form are good indications that much of the matrix was originally feldspar grains.

Some of the clay between the quartz grains is clear and well formed and may be regarded as a minor kaolin matrix. Minor plagioclase and perthitic K-feldspar are readily recognised. A few grains composed of chalcedonic silica or quartzite also occur. Lithic fragments have not been recognised.

The accessory minerals include sphene and a few fragments of opaque material.

The name suggested is argillaceous-feldspathic sandstone.

CONTINUOUS DIPMETER SURVEY Golden Beach West 59/67

Depth surveyed: 3154' - 7506'.

Latrobe Valley Coal Measures

3154' - 3900':

The dips recorded are of a low order, 1° to 8°, with the majority below 5°. The direction of the dip varies considerably from N.E. to North and N.W.. The following high dips occur in the interval:-

25° at 3400'
26° at 3548'
48° at 3738'

3900' - 5027':

The dips increase below 3900', and vary mainly between 1° and 12°. Many higher dips however, are recorded, particularly between 4230' to 5250'. The direction of dip is mainly North to North-East, but there is much confusion and dips to the South East and East-South-East are shown at 4230' - 4300'.

The higher dips shown are:-

22° at 4609'
30° at 4692'
26° at 4800'
43° at 4904'
40° at 5027'

5027' - 5928'

The dips decrease to 10° and lower, the majority being of the order of 1° - 4°. The general direction of the dips appears to be North-North-West to North-West., but there is much confusion, especially below 5700'.

UPPER CRETACEOUS (5928' - 7506')

5928' - 6730'

The dips are mainly under 10° and in general North to North - East.

6730' - 7506'

The dips increase and range from 1° to 15°.

The direction varies from North-West to East-North-East. Some of the higher dips recorded are:-

47° at 6995'
30° at 7080'
20°-30° at 7160' to 7275'

Logs recorded: Electrical Log
Microlog
Sonic Log
GammaRay-Neutron

Rw determination

From SP : SP is reversed in front of sands,but negative in front of all zones giving a ΔT higher that 140 msec.This complicates Rw determination,in addition to the fact that no real shales are present in the zones of interest.However,the values found for Rw are from 6 to 10 ohms at bottom temperature.

From Rxo/Rt method: computed in zones 2730-2810' and 2850-2880' Rxo is equal to about 13 ohms.Assuming the two zones water saturated, Rw = 4 ohms

From test: an 800 ppm water gives at 100 F Rw = 5 ohms.

Top zone 2230 - 2700'

Saturation computations were made in front of the rather "clean" zones (as indicated om GR curve -except for plot 6). Rw was taken as 5 ohms and porosities from Sonic were computed by taking a cΔTsh = 160. (porosities ranging from 40% to 30%).

It can be seen from Table I that Sw computed for plots 2 to 5 reach 150%.In order to obtain 100%,we must assume a porosity around 50%- or a c Tsh of 110.

Using this last value in plot 1, Ø = 55%, F=2.4 ,FRw = 10 and Sw=75%.This is true,provided that lithology and compaction remain constant over all interval.

A cross plot ΔT Sonic versus Neutron Cps,is shown on Fig. 1. Here again plot 1 is apart from all others.This amy be indication of different lithology or compaction,or of hydrocarbon content.

It must be noted that,from the GR,the sands concidered are not as 'clean' as the deeper ones.

Bottom zone - 2700 - 3200'

All beds with Sonic readings superior to 140 msec. have been concidered as coal.-no permeability is indicated on the Microlog.

...

Golden Beach West 61/67

From Fig. 2 (Sonic ΔT versus Neutron Cps), it can be seen immediatly that "coal"zones are all grouped, and that other plots follow general trends (curved lines). Here again, this may be indication of different lithology or compaction- or dispersed coal amount.

Four plots are of some interest. Plot no 10 is certainly a very thin coal bed and can be eliminated. Plot 23 is not as "clean" as plots 3 and 9 and the high sonic reading may be due to this "dirtiness".

By making same assumptions as for the top zone (Rw = 5 ohms, c Tsh = 160), plot no 3 saturation is found to be around 78%, and plot no 9 saturation around 86%. Plots no 5,6,7 and 8 saturation is found to be very close to 100%.

By ploting Sonic porosity on linear scale versus Neutron Cps on compressed scale (Fig. 3), it can be seen that plots 2, 3,9 and 23 are apart from general trend. In addition, plots 13 and 15 are of interest.

Plot 13 water saturation is found to be 100%
15 90%
Other plots in same sand give water saturation very close to 100%.

Conclusion

If the so-called "coal zones" are not coal, computed water saturation is 40%. Therefore, the problem, here is a lithological one. From the logs, all permeable zones show a high water saturation, with a few exceptions, which may contain hydrocarbons.

As no conventionnal coring was attempted, it would have been advisable to take side wall cores (lithology and fluorescence). The results would have helped for detailed inerpretation.

It is strongly suggested that, in the future, you use side wall cores in every permeable zones and suspected coal beds-unless, of course, conventionnal coring gives good recovery.

The actual logging programm is very good and should be continued.

E. Couve de Murville

TABLE No I

Golden Beach West 62/67

Plot	Depth	Δ T	Cps	Ø Sl	Rinv
0	2305	115	380	27%	25
1	2388	138	360	39	20
2	2391	125	285	32.5	17
3	2399	130	290	35	16
4	2426	122	325	31	16
5	2448	119	340	29.5	15
6	2535	122	280	31	18
7	2640	107.5	400	29	25
8	2671	104	410	27.5	33
9	2681	121	300	30.5	37
10	2696	145	210	42	25

Plot No 1
Rw = 5 ohms
F = 4 (Ø = 39%)
FRw = 20
Rt = 20
Sw = 100%

Plots 2 to 5
F = 8 (Ø = 30%)
FRw = 40
Rt = 18
Sw = 150%

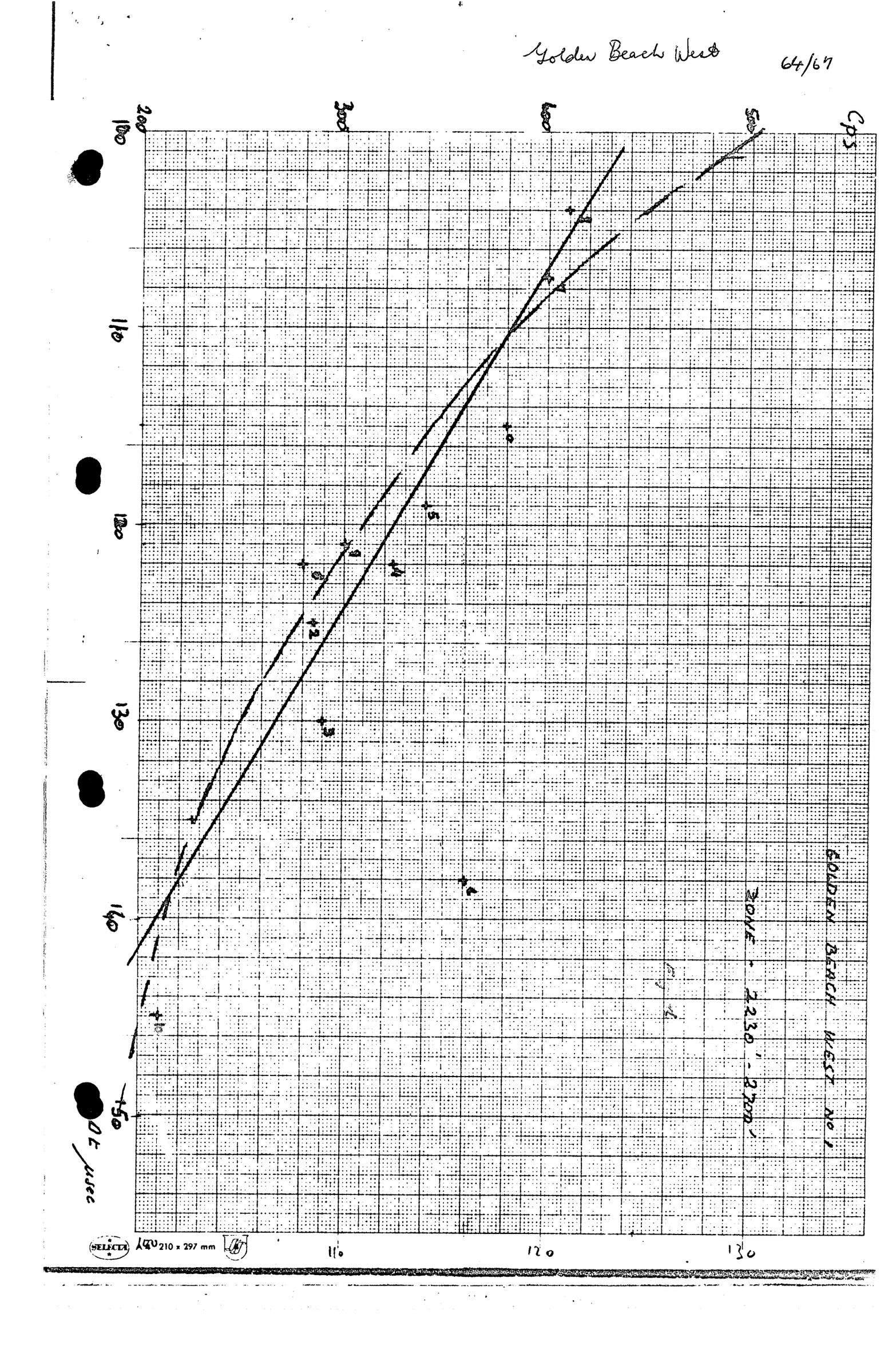
Plots 7 to 9
F = 9 (Ø = 28%)
FRw = 45
Rt = 30
Sw = 125%

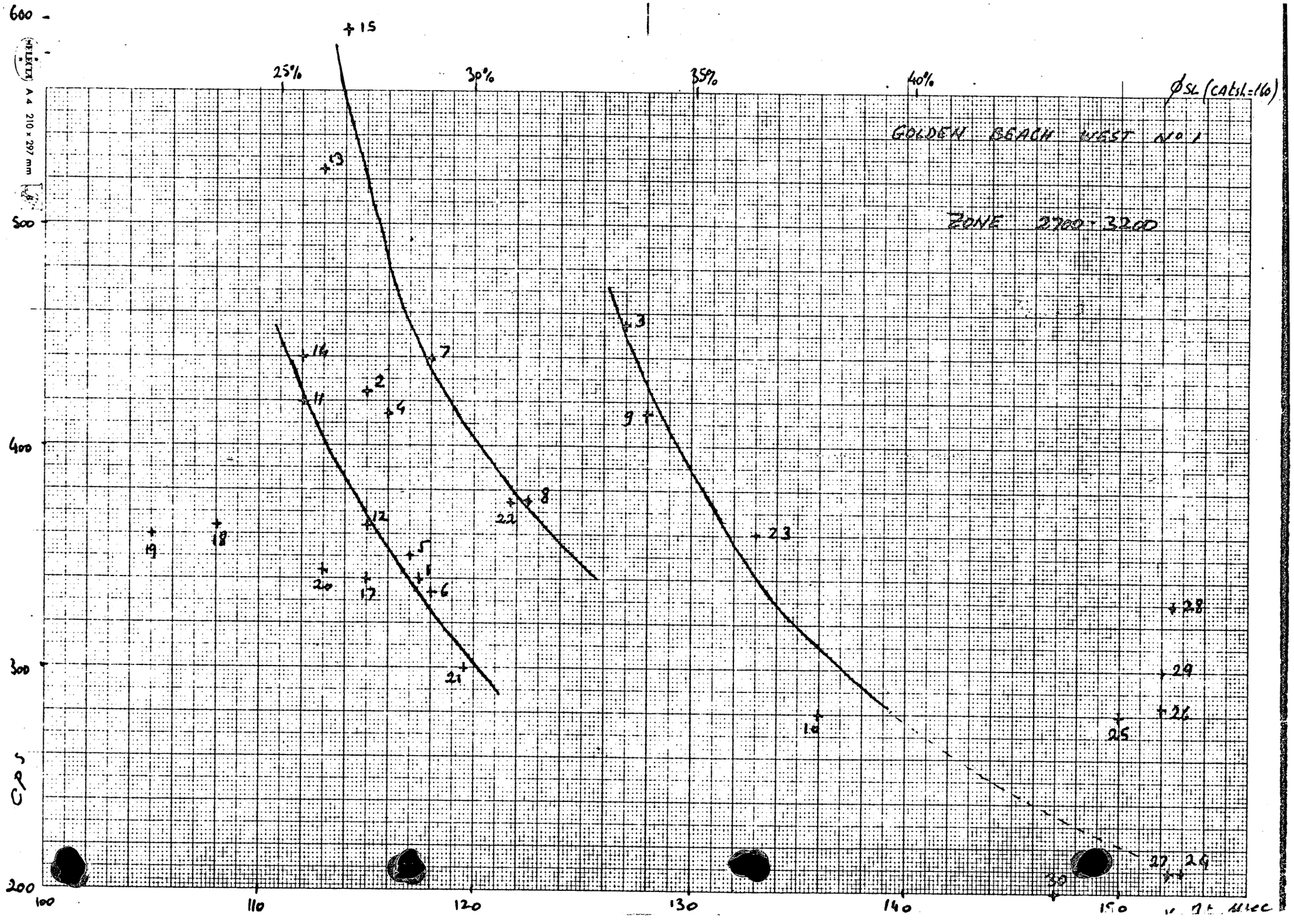
TABLE No II

Golden Beach West

63/67

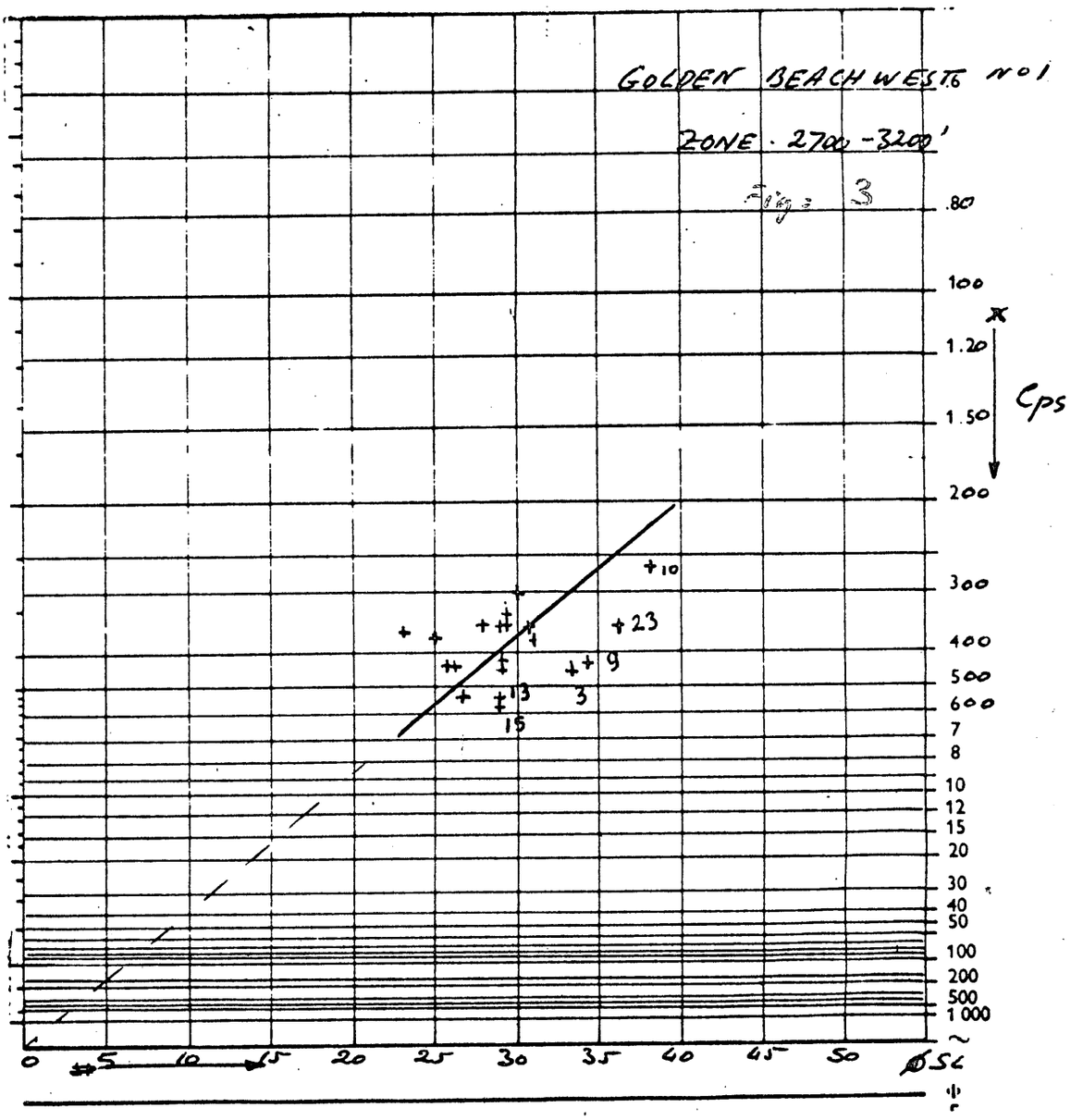
Plot	Depth	Δ T	Cps	ØSl	Rinv.
1	2728	117.5	340	29%	50
2	2738	115	425	28	53
3	2743	127	455	33.5	60
4	2749	116	415	28	65
5	2778	117	350	29	45
6	2780	118	335	29	40
7	2783	118	440	29	45
8	2787	122.5	375	31.5	47
9	2790	128	415	34	50
10	2795	136	280	38	55
11	2846	112	420	26.5	40
12	2850	115	365	28	40
13	2867	113	525	27	40
14	2870	112	440	26.5	50
15	2878	114	585	27.5	60
16	2895	153	190	53	40
17	2913	115	340	28	18
18	2981	108	365	25	15
19	3014	105	360	23	28
20	3028	113	346	27	38
21	3060	119.5	300	30	28
22	3067	121.5	375	31	40
23	3106	133	360	36	30
24	3119	153	210	53	70
25	3127	150	280	50	75
26	3145	152	285	52	80
27	3168	152.5	210	52	65
28	3180	152.5	330	52	60
29	3190	152	300	52	75
30	3203	147	200	47	60


Golden Beach West
64/67
200
300
400
500
cps
100
110
120
130
140
150
Δt μsec
110
120
130
+0
+1
+2
+3
+4
+5
GOLDEN BEACH WEST No 1
ZONE : 2230' - 2700'


Golden Beach West 65/67
600
500
400
300
200
CPS
100
110
120
130
140
150
25%
30%
35%
40%
ØSL (CAtsl=16)
GOLDEN BEACH WEST No 1
ZONE 2700-3200
+15
+3
+14
+11
+2
+4
+7
+8
22
+12
+5
+1
+6
+17
+20
+18
19
21
+3
9
+23
16
25
+28
+29
+26
30
27
24

Golden Beach West

66/67



Golden Beach West
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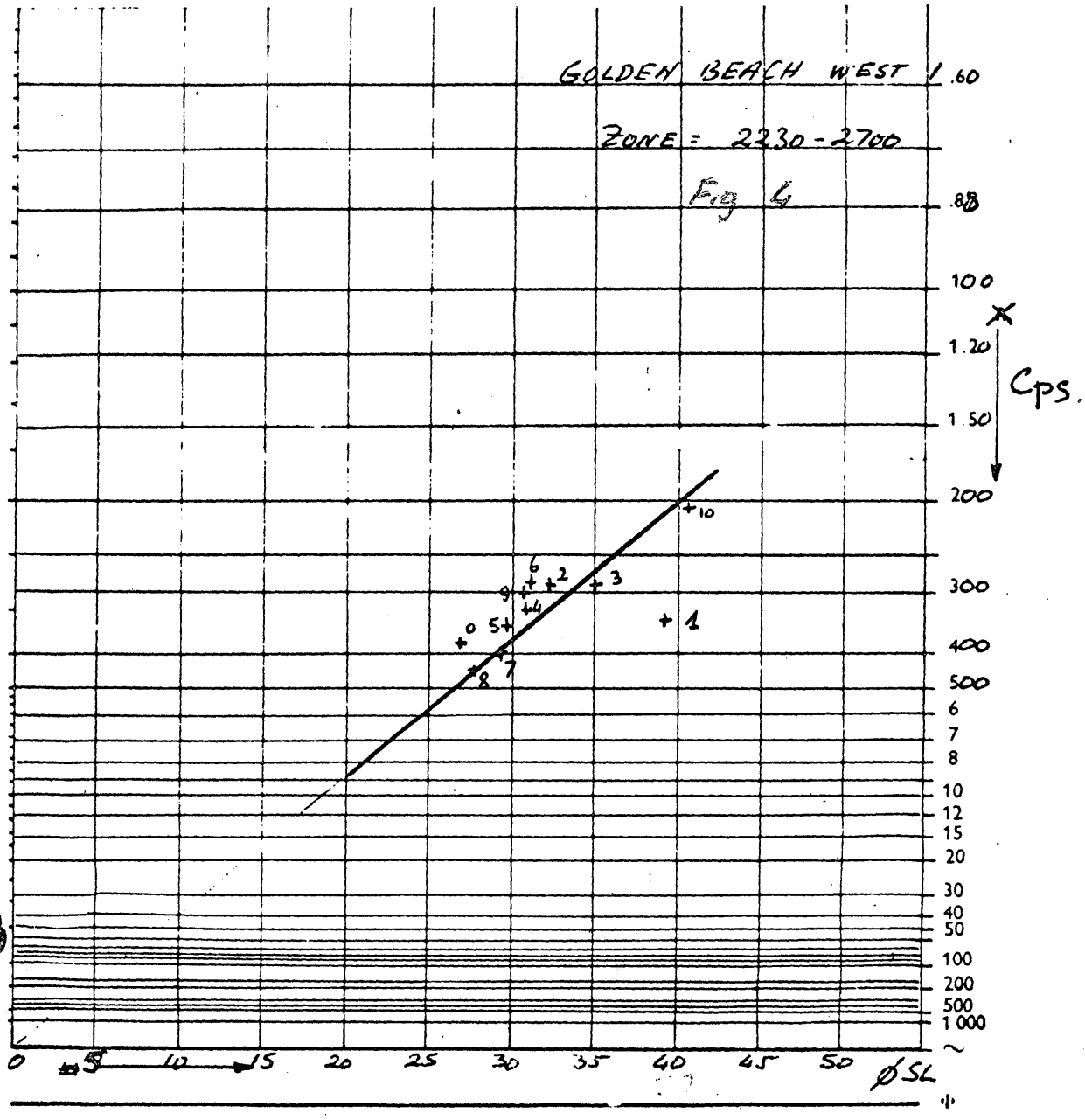

PE906088

This is an enclosure indicator page.
The enclosure PE906088 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906088 has the following characteristics:

ITEM_BARCODE	= PE906088
CONTAINER_BARCODE	= PE906083
NAME	= Seismic Structure Basal Tertiary
BASIN	= GIPPSLAND
PERMIT	= PEP 44
TYPE	= SEISMIC
SUBTYPE	= HRZN-CONTR_MAP
DESCRIPTION	= Seismic Structure of Basal Tertiary around Golden Beach West-1(enclosure 6 of WCR). Copy of PE902937.
REMARKS	= In second copy of WCR
DATE_CREATED	= 28/02/1966
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDEN BEACH WEST-1
CONTRACTOR	= GEODRAFTING SERVICES
CLIENT_OP_CO	= WOODSIDE OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE906092

This is an enclosure indicator page.
The enclosure PE906092 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906092 has the following characteristics:

ITEM_BARCODE	= PE906092
CONTAINER_BARCODE	= PE906083
NAME	= Geological Cross-Section
BASIN	= GIPPSLAND
PERMIT	= PEP 44
TYPE	= WELL
SUBTYPE	= CROSS_SECTION
DESCRIPTION	= Pre and Post-Drilling Cross-section through Golden Beach West-1 (enclosure 3 of WCR). Copy of PE902936.
REMARKS	=
DATE_CREATED	= 31/12/1965
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDEN BEACH WEST-1
CONTRACTOR	= GEODRAFTING SERVICES
CLIENT_OP_CO	= WOODSIDE OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE906084

This is an enclosure indicator page.
The enclosure PE906084 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906084 has the following characteristics:

ITEM_BARCODE	= PE906084
CONTAINER_BARCODE	= PE906083
NAME	= Locality Map
BASIN	= GIPPSLAND
PERMIT	= PEP 44
TYPE	= GENERAL
SUBTYPE	= PROSPECT_MAP
DESCRIPTION	= Locality Map and Regional Geology(enclosue 1 of WCR) for Golden Beach West-1; copy of PE906087
REMARKS	= In second copy of WCR
DATE_CREATED	= 28/02/1966
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDEN BEACH WEST-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE906085

This is an enclosure indicator page.
The enclosure PE906085 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906085 has the following characteristics:

ITEM_BARCODE	= PE906085
CONTAINER_BARCODE	= PE906083
NAME	= Stratigraphic Column
BASIN	= GIPPSLAND
PERMIT	= PEP 44
TYPE	= WELL
SUBTYPE	= STRAT_COLUMN
DESCRIPTION	= Pre-Drilling Generalised Stratigraphic Column (enclosure 2 of WCR) for Golden Beach West-1
REMARKS	= In second copy of WCR
DATE_CREATED	= 28/02/1966
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDEN BEACH WEST-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE906607

This is an enclosure indicator page.
The enclosure PE906607 is enclosed within the container PE906083 at this location in this document.

The enclosure PE906607 has the following characteristics:

ITEM_BARCODE	= PE906607
CONTAINER_BARCODE	= PE906083
NAME	= Time Depth Curve
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= VELOCITY_CHART
DESCRIPTION	= Time Depth Curve (enclosure 8 of WCR) for Golden Beach West-1
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDN BEACH WEST-1
CONTRACTOR	= SCHLUMBERGER
CLIENT_OP_CO	= WOODSIDE OIL NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE603414

This is an enclosure indicator page.
The enclosure PE603414 is enclosed within the container PE906083 at this location in this document.

The enclosure PE603414 has the following characteristics:

ITEM_BARCODE	= PE603414
CONTAINER_BARCODE	= PE906083
NAME	= Composite Well Log 1 OF 3
BASIN	= GIPPSLAND
PERMIT	= PEP 44
TYPE	= WELL
SUBTYPE	= COMPOSITE_LOG
DESCRIPTION	= Composite Well Log (1 of 3), enclosure 4 of WCR, for Golden Beach West-1 copy of PE601526 from second copy of WCR
REMARKS	= In second copy of WCR
DATE_CREATED	= 07/11/1965
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDEN BEACH WEST-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE603415

This is an enclosure indicator page.
The enclosure PE603415 is enclosed within the container PE906083 at this location in this document.

The enclosure PE603415 has the following characteristics:

ITEM_BARCODE	= PE603415
CONTAINER_BARCODE	= PE906083
NAME	= Composite Well Log 3 OF 3
BASIN	= GIPPSLAND
PERMIT	= PEP 44
TYPE	= WELL
SUBTYPE	= COMPOSITE_LOG
DESCRIPTION	= Composite Well Log (3 of 3), enclosure 4 of WCR, for Golden Beach West-1. Copy of PE601524 from second copy of WCR.
REMARKS	= In second copy of WCR
DATE_CREATED	= 07/11/1965
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= GOLDEN BEACH WEST-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE601527

This is an enclosure indicator page.
The enclosure PE601527 is enclosed within the container PE906083 at this location in this document.

The enclosure PE601527 has the following characteristics:

ITEM_BARCODE	= PE601527
CONTAINER_BARCODE	= PE906083
NAME	= Composite Well Log (sheet 2 of 3)
BASIN	= GIPPSLAND
PERMIT	=
TYPE	= WELL
SUBTYPE	= COMPOSITE_LOG
DESCRIPTION	= Composite Well Log (enclosure 4 of WCR) Golden Beach West No 1
REMARKS	=
DATE_CREATED	= 7/11/65
DATE_RECEIVED	=
W_NO	= W493
WELL_NAME	= Golden beach West-1
CONTRACTOR	= Woodside Oil Co NL
CLIENT_OP_CO	= Woodside Oil Co NL

(Inserted by DNRE - Vic Govt Mines Dept)