use other slot.

W489. LAKE REEVE-1.

PETROLEUM DIVISION

APPENDIX 2 TO WCR

LAKE REEVE-1 (W489)

G.F.E. WELL INDEX SHEET

APPROVED: G.R.D. BY: E.S. REVISED: ISSUED: 12/5/65

COMPANY: WOODSIDE OIL CO.
SPUDDED: 23/3/65
COMPLETED: 26/4/65 T.D.: 2022 m
STATUS: P & A ELEV. GL/SF: 1.5
DATUM: MSL K B:BI: 5
1st FLANGE:

WELL: LAKE REEVE No. 1
BASIN: GIPPSLAND
TENEMENT:
LAT.: 38° 19' 42" S LONG.: 147° 15' 20" E
NORTHING: EASTING:

FORMATION/MARKER	KEY	TOPS (m) DRILL	TOPS (m) SUB SEA	LITHOLOGIC SUMMARY/ PALEO DATING	REMARKS/SHOWS
SALE GROUP					
Lake Wellington Formation		13.5	1.5	Mainly sand, some coquina. Shell and lithic fragments in sand.	
SEASPRAY GROUP					
Jemmy's Point Formation		122	- 117	Coquina and very porous anenaceous limestone.	
Tambo River Formation		177	- 172	Marl with fossil fragments fine quartz, glauconite grains and calcite matrix.	
Gippsland Limestone		277	- 272	Predominantly limestone with fossil fragments, marly. Siltstone with glauconite. Shale.	
Lakes Entrance Formation		750	- 745	Marl, siltstone with fossil fragments. Limestone with glauconite. Shale with glauconite. Calcareous, argillaceous sandstone at base.	
LATROBE GROUP					
Traralgon Formation		909	- 904	Predominantly porous sands and coals interbedded. Some siltstone.	
Strzelecki Group		1605	-1600	Sandstone, greywacke, minor coal, low porosity siltstone and clay.	1621 - connection and trip gas common; max. 59 UCI
T.D.		2022	-2017		

CORES

No	DEPTH (m)	REC	LITHOLOGY	No.	DEPTH (m)	REC	LITHOLOGY
1	909 - 913	.3m	Sand - grey, fine to medium, ang. to sub ang., unconsol and v. friable.				
2	1853-1858	4m					
3	2018-2022	4m					

LOGS

IL [x] BHCGR [x] FDC [ ] CNL [ ] DLL [ ] SP [x] micro Cal [x] CSU [ ] CBL [ ] VEL SURV [ ]
DIP PLOT [x] RFT [ ] SWC [ ] MUD [ ] DITCH SAMPLES STORED

CASING TUBING

SIZE (" x lb/ft)	18 5/8"	13 3/8"	9 5/8"					
LANDED AT (m)	21	93	905					
CEMENT (SACKS)								

TEST RESULTS: FLUID ANALYSES, LOST CIRCULATION (INTERVALS, CAUSES); PLUG TOPS; REMARKS

DST 1 980 - 1000 Misrun, dual packers failed to set.

DST 2 905 - 1000 (packer in casing) 555m of mud.
274m of fresh water of salinity 410ppm.

Gas kick on gas detector below 3225'

SOURCE: WELL COMPLETION REPORT.

LAKE REEVE -1

13th October 1965

AA. MS/GK/5/5

Report on Sample No. 458/65
U.W.R.S. 3727

Sample	:	Formation water from Oil Drilling
Locality	:	Lake Reeve
Sender		The Manager, Woodside (Lakes Entrance) Oil Co., 792 Elizabeth Street, MELBOURNE.

Particulars :

No.	458
U.W.R.S.	3727
Bore	Lake Reeve No.1
Drill Stem Test	No.2
Interval (feet)	2970 - 3282
Remarks	Recovered 2920 feet of mud and water. Water sample taken from above test tool.

Results :		Parts per million
Total solids in solution (by hypothetical combination)		862
Chloride	(Cl)	95
Carbonate	(CO_3)	30
Bicarbonate	(HCO_3)	354
Sulphate	(SO_4)	110
Nitrate	(NO_3)	Nil
Calcium	(Ca)	29
Magnesium	(Mg)	7
Sodium	(Na)	204
Potassium	(K)	27
Iron-Soluble	(Fe)	4.8
Total hardness (as $CaCO_3$)		100
pH		9.1

The water was brown in colour and had a somewhat "oily" odour.

John G. Kennedy
Junior Chemist, MINES DEPT.

Lake Reeve No 1

LAKE REEVES — 1. GB 109 Box 173

PALYNOLOGICAL REPORT ON CORE SAMPLES FROM WELLS SUNK IN THE GIPPSLAND BASIN by M.E. Dettmann 14/4/66 for Esso Expl. Aust.

FILE COPY

Core samples taken from seven wells sunk by Woodside and partners in the Gippsland Basin yielded microfloras (see Tables 1 and 2) that provide a basis for correlation of the well sequences, both with each other and with sequences from elsewhere in the Gippsland Basin. The wells and the intervals investigated comprise: Carrs Creek No.1 between 4522 and 5507 feet; North Seaspray No.1 between 3484 and 3771 feet; Duck Bay No.1 between 2831 and 3896 feet; Seaspray No.1 between 4872 and 5556 feet; Lake Reeve No.1 between 6080 and 6635 feet; Bellbird No.1 between 995 and 2245 feet; and Woodside South No.1 between 5279 and 5816 feet. The majority of the samples yielded identifiable spores and pollen grains, but the concentration and preservation of the plant microfossils ranged from good in some samples to poor in others. As outlined below the microfloras obtained from the sediments investigated conform with Lower Permian, Lower Cretaceous, and Lower Tertiary microfloral assemblages that have been described from Australian deposits by Balme (1964), Dettmann (1963), and Harris (1965).

Carrs Creek No.1 well

The samples from 5500-07 feet and 5360-80 feet yielded poor concentrations of poorly preserved spores and pollen. Species present in the lower samples include Cicatricosisporites australiensis (Cookson) and Aequitriradites spinulosus (Cookson & Dettmann) which indicate a Cretaceous age.

The uppermost sample examined (4522-32 feet) yielded a more diverse microflora in which Dictyotosporites speciosus Cookson & Dettmann is a component. This species indicates the presence of the Speciosus Assemblage that is Valanginian-Aptian in age (Dettmann 1963). The Speciosus Assemblage

be considered to be of a similar age.

A lower Cretaceous (Valanginian-Aptian) microflora was obtained from core no.3 (2831-51 feet). This microflora contains Dictyotosporites speciosus and thus conforms with the Speciosus Assemblage. Furthermore, Cooksonites variabilis Pocock indicates the presence of the older category of this assemblage and suggests correlation of the beds with those at 2567-72 feet in Tarwin Meadows No.1 well, at 6945 feet in Wellington Park No.1 well, and at 3977 feet in Bengworden South No.1 well (Dettmann 1965a, 1965b).

Seaspray No.1 well

Poorly preserved microfloras were obtained from the two core samples examined (4872-85 feet and 5536-56 feet). The lower sample yielded Coptospora paradoxa (Cookson & Dettmann), the index of Dettmann's (1963) Paradoxa Assemblage of Aptian-Albian age. The upper sample did not provide C. paradoxa but the combined presence of Reticulatisporites pudens Balme and Crybelosporites striatus and the absence of angiospermous grains suggests conformity of the microflora with the Paradoxa Assemblage. On this basis the sediments between 4872 and 5556 feet in Seaspray No.1 well may be correlated with beds in Woodside No.1 well at 5950-55 feet, Woodside No.2 well between 4114 and 4256 feet, and Woodside No.3 well at 5386 feet (see Dettmann 1959; 1963, p.121).

Lake Reeve No.1 well

The Aptian-Albian Paradoxa Assemblage was identified in the sample from 6080-96 feet and accordingly these horizons are correlated with those between 4872 and 5556 feet in Seaspray No.1 well.

Poorly preserved plant microfossils were obtained from core no.3 at 6620-35 feet. The only stratigraphically significant species identified is Acquitriradites spinulosus that provides evidence for a Lower Cretaceous age.

Woodside South No.1							Bellbird No.1			Lake Reeve No.1		
c.24 5800-16'	c.23 5452-69'	c.21 4990-5010'	c.18 4332-52'	c.14 3489-509'	c.13 3279-99'		c.4 2235-45'	c.3 1719-24'	c.1 995-1000'	c.3 6620-35'	c.2 6080-96'	
					+					+		Aequitriradites spinulosus
				+					+			Dictyotosporites speciosus
+	+	+	+	+	+			+	+		+	Cicatricosisporites australiensis
		+			+							Januasporites spinulosus
			+					+				Klukisporites scaberis
		+	+						+	+		Leptolepidites verrucatus
		+										Foraminisporis wonthaggiensis
+												Foraminisporis dailyi
		+			+							Foraminisporis asymmetricus
								+				Reticulatisporites pudens
					+							Rouseisporites reticulatus
					+							Rouseisporites radiatus
					+							Rouseisporites simplex
					+				+		+	Cyathidites punctatus
				+	+				+			Crybelosporites striatus
					+							Pilosisporites parvispinosus
					+						+	Coptospora paradoxa
											+	Trilobosporites trioreticulosus
									+			Trilites cf. T. tuberculiformis
											+	Cicatricosisporites hughesi
											+	Cicatricosisporites pseudotripartitus
											+	Laevigatosporites ovatus

Table 2. Distribution of selected spores in Lake Reeve No.1, Bellbird No.1, and Woodside South No.1 wells.

+ = species present

Page 1 of 5

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

GRAPHIC CORE LOG

Well LAKE REEVES No 1

Core No. 1

erval from 2984 Ft. to 2996 Ft. Cut 12 Ft. Recovered 1'0" Ft. % Rec. 8%

e id Type Core Head 3½" CONVENTIONAL S/F. Described by R. GRASSO

te 1/4/1965

th ING TE /ft	LITHOLOGY	OIL SHOW RATING T P F G	LITHOLOGIC DESCRIPTION	SHOW DESCRIPTION	CORE ANALYSIS DATA: % POROS	Permeability Millidarcies: Horiz.	Permeability Millidarcies: Vert.	RESIDUAL FLUIDS: OIL % Vol.	RESIDUAL FLUIDS: OIL % Pore	RESIDUAL FLUIDS: Water % Pore
2' g		NO OIL SHOWS								
2994										
2995										
2' b			SAND; med. gy, fn to med grained, sng to subrd, generally clean, but s/calc Unconsol-very friable. Composed of qtz grns with minor amounts of glauc, white ?feldspar grns, mica flakes and traces of reworked coal grns. No bedding recorded	NO SHOWS	VERY POROUS AND PERMEABLE					

P. /63 W/T No. 8404

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L. 2/5

GRAPHIC CORE LOG

Well LAKE REEVES NO.1

Core No. 2

Interval from 6080 Ft. to 6096 Ft. Cut 16'0" Ft. Recovered 14' 0" Ft. % Rec. 86%

Bit and Type Core Head 3½" CHRISTENSEN TOOTHED INSERT Described by B. R. BOYD

Date 16/4/1965

DRILLING	LITHOLOGY	OIL SHOW RATING (T P F G)	LITHOLOGIC DESCRIPTION	SHOW DESCRIPTION	CORE ANALYSIS DATA: % POROS	Permeability Millidarcies: Horitz.	Permeability Millidarcies: Vert.	RESIDUAL FLUIDS: OIL % Vol.	OIL % Pore	Water % Pore
				NO SHOWS	POROSITY AS INDICATED					
		NO OIL SHOWS	Top 2'3"-SUB-GREYWACKE:Green-grey, fine to coarse grained, subangu to subrounded, poor to fair sorting, cemented with kaolinitic and and chloritic cement. Consolidated, but friable on sharp edges. No bedding apparent. Composed of quartz grains, reworked shale an and other rock grains, low rank coal grains (vitrain and macerated material) feldspar grains, mica flakes and red-brown rock grains. Approximate estimates of constituents are, quartz 70%, coal 10%, matrix 10%, shale 5%, other 5%. Also contains clay pellets and bl up to 3/4" dia. Poor porosity.						
			2' 5"-SUB-GREYWACKE: as above; but slightly coarser grained, fine fine pebbles, but main distribution is medium to coarse. Clay/sha pellets and blebs up to 2" dia. near the bottom of the unit where accounts for approx 15% of the rock. Portion is green-grey clay a. for top unit, rest is dark green-grey, with traces of bedding. So fine coal laminae. Porosity poor. Bedding indistinct, may be app imately 5 degrees.						
6096'			1' 7"-SUB-GREYWACKE:as for top unit, but contains slightly more matrix. Clay/shale pellets and blebs occur mainly near the bottom the unit, where they may be up to 2½" dia. Coal fragments up to 3, and commonly 1/4" are abundant along bedding planes. Porosity poo. Indistinct bedding (probably current bedding) 10-15 degrees.						
			7" - SUB-GREYWACKE;as for top part of unit 3 (Next 1'7") above.						
			10" - SUB-GREYWACKE;as above, but slightly lighter coloured. Constituents approximately, quartz 65%, coal 10%, shale 5%, other 5%, cement 15%. Slightly harder and less friable than previous. Poros poor, dip 5 degrees.						
			CONT NEXT PAGE						

7/63 W/T No. 8404

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L. 3/5

GRAPHIC CORE LOG

Well LAKE REEVES NO.1

Core No. 2

From 6080 Ft. to 6096 Ft. Cut 16' 0" Ft. Recovered 14' 0" Ft. % Rec. 86%

Type Core Head 3½" CHRISTENSEN TOOTHED INSERT Described by B. R. BOYD

16/4/1965

LITHOLOGY	OIL SHOW RATING T P F G	LITHOLOGIC DESCRIPTION	SHOW DESCRIPTION	CORE ANALYSIS DATA						
				% POROS	Permeability Millidarcies		RESIDUAL FLUIDS			S. GR.
					Horiz.	Vert.	OIL % Vol.	OIL % Pore	Water % Pore	
		4' 6" - SUB-GREYWACKE; as for unit 3 (Next 1'7") above. Strongly developed bedding planes; marked coal-rich laminae. Dip 5 degrees. Mica flakes more abundant.								
		1' 5" - SUB-GREYWACKE; medium green-grey, fine to coarse-medium, subangular to subrounded, poor to fair sorting, medium hard to hard. Composed of approximately 65% quartz, 10% coal, 5% shale, argillaceous matrix 10%, calcareous cement 10%. The calcareous cement is predominantly calcite. Porosity very poor to tight.								
		Bottom 5" - SUB-GREYWACKE; as above, but slightly coarser, less calcite, slightly softer than unit immediately above. Throughout the entire core, no oil or gas shows were recorded. Bedding is generally of the order of 5 degrees.								

GRAPHIC CORE LOG

4/5

Well LAKE REEVES NO.1

Core No. 3

...l from 6620 Ft. to 6635 Ft. Cut 15 Ft. Recovered 13' 6" Ft. % Rec. 90%

...d Type Core Head CONVENTIONAL H/F Described by R. GRASSO

...te 26/4/1965

...pth / ...INC... / ...TE / n/ft	LITHOLOGY	OIL SHOW RATING (T P F G)	LITHOLOGIC DESCRIPTION	SHOW DESCRIPTION	CORE ANALYSIS DATA: % POROS	Permeability Millidarcies: Horitz.	Permeability Millidarcies: Vert.	RESIDUAL FLUIDS: OIL % Vol.	RESIDUAL FLUIDS: OIL % Pore	RESIDUAL FLUIDS: Water % Pore
			Top 10" - GREYWACKE; light grey, fine grain, medium hard. Contains quartz grains, white feldspar grains, med/gy rock grns, with minor amts of mica (biotite) and tr of carbonaceous grns in a tight, non-calcareous, argill matrix. Sorting is fair to good. Bedding dip approx 15 degrees in the middle of the unit, and approx 20 degrees at the base of the unit. A well developed parting was recorded cutting the short axis of the core at an angle of approx 60 degrees							
			4' 6" - GREYWACKE; light to med grey, med to med-cse grn, soft to me hard, fairly friable. Contains poorly sorted ang to subang qtz g white feldspar (partly weathered) grns. gy reworked shale grns, (mainly rounded), light brn rock grns, biotite and muscovite flakes and rare carbonaceous grns, in a silty and argill matrix. Porosity poor.							
			Slickensides common. Also minor faulting, as indicated by slightl different lithology cut off by recemented slickensided surfaces. The main partings fall into two directions, each makes an angle of approx 60 degrees to the short axis of the core, and often inter-sect each other to form an "X" pattern.							
			1' 8" - SILTSTONE; med gy, med hard, shaly. Contains qtz, and feldspar silt and fn mica flakes in an argill matrix. Lig frags u to 1" long are very abund, especially along bedding planes. Very poor to tight porosity.							
			Slickensides are common. Minor partings almost parallel to the lc axis of the core. Some partings contain wavy concentrations of white flaky gypsum. Bedding dips approx 10 degrees.							
			1' 4"- GREYWACKE; light to med gy, med grn, soft to med hard, friable. Contains poorly sorted ang to subrd qtz grns, white feldspar grns, rounded rock grns, biotite, muscovite, and rare carbonaceous grns in a silty and argill matrix. Porosity poor.							
			CONT. NEXT PAGE.							

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L. 5/5

GRAPHIC CORE LOG

Well LAKE REEVES NO.1

Core No. 3

fi m 6620 Ft. to 6635 Ft. Cut 15 Ft. Recovered 13'6" Ft. % Rec. 90%

d Type Core Head CONVENTIONAL H/F Described by R. GRASSO

26/4/1965

LITHOLOGY	OIL SHOW RATING (T, P, F, G)	LITHOLOGIC DESCRIPTION	SHOW DESCRIPTION	CORE ANALYSIS DATA: % POROS	Permeability Millidarcies: Horitz.	Permeability Millidarcies: Vert.	RESIDUAL FLUIDS: OIL % Vol.	RESIDUAL FLUIDS: OIL % Pore	RESIDUAL FLUIDS: Water % Pore	S. GR.
		1' 4" cont. Slickensides common; minor changes in lithology across partings indicates faulting. Partings are approx 70 degrees to the short axis of the core.								
		3' 6" - GREYWACKE;as for unit 2 above, but slightly more variable in grn size. Also contains tr of lig streaks, some across bedding. Poor porosity.								
		Bottom 1' 8" - GREYWACKE; light to med gy, med grn, hard, only semifriable; contains qtz, feldspar, rock grns, mica flakes and carbonaceous grns, as above. Porosity poor.								
		Slickensides common. Evidence of faulting, marked variation in the grn size of greywackes on either side of recemented faults. Slickensided surfaces are generally coated with a blk (carbonaceous) film which reflect lineations clearly. The predominant slickensided surface cuts the short axis of the core with an angle of approx 65 degrees. Lineations on the surfaces make an angle of approx 30 degrees to the long axis of the slickensided surfaces are common. Bedding is approx 15 degrees. Average bedding for the entire core is 10 degrees. No oil or gas shows were recorded.								

/63 W/T No. 8404

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

PROGRESS WELL LOG — LITHOLOGIC DESCRIPTION

WELL: LAKE REEVES No 1
SHEET No.: 1
INTERVAL FROM 0'
TO 370'

ELEV. K. B. 17 FT. DATE 25/3/1965 LOGGED BY R. GRASSO B.R. BOYD

DRILLING RATE (MIN/FT) | DATA | TESTS | CASINGS-PERFS PLUGS | SW CORES CORES | GRAPHIC LOG DEPTH SCALE 1:600 | DESCRIPTION OF SHOWS AND MUD LOSSES: OIL SHOW RATING, GAS SHOW, FLUORESCENCE, CUT, STAIN, EST. POROSITY | % LITHOLOGY: LIMESTONE, DOLOMITE, MARL, SANDSTONE, SHALE, CLAY, ANHYDRITE, LIGNITE, OTHER | LITHOLOGIC DESCRIPTION | FORMATION | AGE

Spudded 17½" bit
@ 45 hrs
27' 1/2/1

25 OSC 3

REAMED TO 310'
RR (17½")

G.L.

No Samples

No samples
Mud from cellar contains abund. gy and l/brown cly and slty fn to med sand.

Sand; quartzose, l/gy l/brn, fn to med grn, generally subang to subrd with fair to poor sorting. Unconsol, contains abund macro and micro foss shell frags. Abund lig frags which are pyritic in places.

	SANDSTONE
100	100
	"
	"
	"
	"
150	"
	"
	"
	"
	"
200	"
	"
	"
	"
	"
250	"
	"
	"
300	60
	90
	80
	70
	60
350	20
	15
	50

	LIMESTONE	SANDSTONE	ANHYDRITE
	5	35	
	10	60	
	30	70	
	40	60	
		90	10
		80	20
		70	30
	30	60	10
	75	20	5
	85	15	
	50	50	

Sand; very foss, gy. V/fn to v/cse, subang to subrd, poor sorting. Contains high proportion of foss frags and lig and tr glauc.

Coquinite: l/gy, sly lig and glauc. Very arenaceous.

FORMATION: ?QUATERNARY | ? LAKE WELLINGTON | TAMBO BJEMMYS PT. | TERTIARY

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

PROGRESS WELL LOG — LITHOLOGIC DESCRIPTION

WELL: LAKE REEVES NO1
SHEET No.: 2
INTERVAL FROM 370'
TO 740'

ELEV. K. B. 17 FT. DATE 27/3/65 LOGGED BY R. GRASSO B.R. BEYD.

DRILLING RATE (MIN/FT) 1 2 3 4 5 6 7 8

DAT.. | TESTS | CASINGS-PERFS PLUGS | SW CORES CORES | GRAPHIC LOG DEPTH SCALE 1:600

DESCRIPTION OF SHOWS AND MUD LOSSES: OIL SHOW RATING | GAS SHOW | FLUORESCENCE | CUT | STAIN | EST. POROSITY

% LITHOLOGY: LIMESTONE | DOLOMITE, MARL | SANDSTONE | SHALE | CLAY | ANHYDRITE, LIGNITE | OTHER

LITHOLOGIC DESCRIPTION

FORMATION

400
450
500
550
600

2½ drilling throughout

No samples 600-730

% LIMESTONE	% SANDSTONE	% OTHER
40	60	
50	50	
70	30	
70	15	15
60	30	10
50	30	20
40	40	20
70	20	10
70	20	10
60	20	20
50	20	20
100		
100		
100		
100		
100		
100		
100		
100		
100		
100		
100		

% MARL
100
100

Coquinite; l/gy, v/arenaceous, lignitic v/glauconitic (green-brn to green-blk) near base. Tr mica

? TAMBO

Limestone; l/gy, marly, v/foss. Composed of foss frags, qtz grn, and glauc grn in a marly matrix.

LIMESTONE

TERTIARY

Marl; l/gy, med soft v/foss, slightly glauc.

? GIPPSLAND

Samples collected for this depth range are not representative. Cuttings were circulated out of the mud stream during a trip change.

[redacted]

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

PROGRESS WELL LOG — LITHOLOGIC DESCRIPTION

WELL: LAKE REEVES No 3
SHEET No.: 3
INTERVAL FROM 740'
TO 1110'

ELEV. K. B. 17 FT. DATE 27/3/65 LOGGED BY R. GRASSO. B.R. BOYD.

DIP DATA | TESTS | CASINGS-PERFS PLUGS | SW CORES CORES | GRAPHIC LOG DEPTH SCALE 1:600 | DESCRIPTION OF SHOWS AND MUD LOSSES: OIL SHOW RATING, GAS SHOW, FLUORESCENCE, CUT, STAIN, EST. POROSITY | % LITHOLOGY: LIMESTONE, DOLOMITE, MARL, SANDSTONE, SHALE, CLAY, ANHYDRITE, LIGNITE, OTHER | LITHOLOGIC DESCRIPTION | FORMATION

DRILLING RATE (MIN/FT) 2 3 4 5 6 7 8

740 — 100 Marl

800 — 100

850 — 100

900 — 100

950 — 100

1000 — 100

1050 — 100

1100 — 100

Marl; l/gy, v/foss. Med soft, semifriable, v/porous. Composed of fossil frags with minor fn qtz grns and glauc. grns in a calcareous matrix.

LIME STONE.

GIPPSLAND

400 — 100 Limestone

450 — 100

1000 — 95 5

Limestone: l/gy, l/cr foss, med hard, semifriable, porous. Composed of foss frags with minor qtz grns and glauc grns in a marly matrix. Section may contain fine sandy horizons.

1050 — 95 5

1100 — 95 5

Marl: l/gy, med soft semifriable, porous.

7/63 W/T No. 8404

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

PROGRESS WELL LOG – LITHOLOGIC DESCRIPTION

WELL: LAKE REEVES No 1

SHEET No.: 4

INTERVAL FROM 1110

TO 1480

ELEV. K. B. 17 FT. DATE 27/3/15 LOGGED BY R. GRASSO / BR BOYD

DRILLING RATE (MIN/FT) 2 3 4 5 6 7 8

DATA | TESTS | CASINGS-PERFS PLUGS | SW CORES CORES | GRAPHIC LOG DEPTH SCALE 1:600

DESCRIPTION OF SHOWS AND MUD LOSSES: OIL SHOW RATING | GAS SHOW | FLUORESCENCE | CUT | STAIN | EST. POROSITY

% LITHOLOGY: LIMESTONE | DOLOMITE, MARL | SANDSTONE | SHALE | CLAY | ANHYDRITE, LIGNITE | OTHER

1150 1200 1250 1300 1350 1400 1450

LITHOLOGIC DESCRIPTION

Limestone: l/gy to l/cream-gy. Very foss, friable porous. Composed of med to coarse foss frags with minor amounts of glauconite and traces of med grn qtz grns in a marly matrix.
Occ. l/brn to l/gy, thin hard recrystallized limestone lenses.

Marl: l/gy to med gy, puggy when wet, friable to semifriable when dry. Composed of fine to med foss grns, ~~of foss~~ fine glauc grains and rare mica flakes in an argillaceous matrix.

FORMATION: GIPPSLAND LIMESTONE — TERTIARY

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

PROGRESS WELL LOG — LITHOLOGIC DESCRIPTION

WELL: LAKE REEVES No. 1
SHEET No.: 5
INTERVAL FROM 1480
TO 1850

LEV. K. B. 17 FT. DATE 28/3/65 LOGGED BY R. GRASSO / B.R. BOYD

DRILLING RATE (MIN/FT) 3 4 5 6 7 8	DIP DATA	TESTS	CASINGS-PERFS PLUGS	SW CORES CORES	GRAPHIC LOG DEPTH SCALE 1:600	DESCRIPTION OF SHOWS AND MUD LOSSES: OIL SHOW RATING	GAS SHOW	FLUORESCENCE	CUT	STAIN	EST. POROSITY	% LITHOLOGY: LIMESTONE	DOLOMITE, MARL	SANDSTONE	SHALE	CLAY	ANHYDRITE LIGNITE	OTHER	LITHOLOGIC DESCRIPTION	FORMATION
					1500								100						Marl; as above.	
													100							
													100							
													100							
													100							
					1550								100							
													100							
												40	20							
												10	90							
													100							
					1600							20	80							
													100							
													100							
												50	50							
												100								
					1650							10	90							
												10	90							
												60	40							
												20	80							
												40	60							
					1700							50	50							
												60	40							
												20	80							
												40	60							
												20	80							
					1750							40	60							
												50	50							
												50	50							
												40	60							
												50	50							
					1800							60	40							
												30	70							
												40	60							
												40	60							
												20	80							
					1850							50	50							

Predominantly interbeds, and intercalations of fossiliferous marl and marly limestone; light grey, puggy when wet, friable to semi friable when dry. Composed of medium to coarse fossil fragments with traces of fine quartz glauconite and mica in a marly matrix. Limestone frequently grades to marl.

GIPPSLAND LIMESTONE

3 W/T No. 8404

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

PROGRESS WELL LOG — LITHOLOGIC DESCRIPTION

WELL: LAKE REEVES No 1
SHEET No.: 6
INTERVAL FROM 1850
TO 2220

ELEV. K. B. 17 FT. DATE 28/3/65 LOGGED BY R. GRASSO / B.R. BOYD

DRILLING RATE (MIN/FT) 2 3 4 5 6 7 8

DIP DATA | TESTS | CASINGS-PERFS PLUGS | SW CORES CORES | GRAPHIC LOG DEPTH SCALE 1:600

DESCRIPTION OF SHOWS AND MUD LOSSES: OIL SHOW RATING | GAS SHOW | FLUORESCENCE | CUT | STAIN | EST. POROSITY

% LITHOLOGY: LIMESTONE | DOLOMITE, MARL | SANDSTONE | SHALE | CLAY | ANHYDRITE | LIGNITE | OTHER (SILTSTONE)

	LIMESTONE	DOLOMITE, MARL	SANDSTONE	SHALE	CLAY	ANHYDRITE	LIGNITE	OTHER (SILTSTONE)
	20	80						
	20	80						
	30	70						
	30	70						
1900	30	70						
	10	90						
	30	70						
	20	80						
	20	80						
1950	20	80						
	20	80						
	30	70						
	30	70						
	20	80						
2000	20	80						
	40	60						
	40	60						
		100						
	40	60						
2050	50	50						
	100							
	60	40						
	30			70				
	70	30						
2100	40	40		20				
	50	40		10				
	30	60		10				
	20	70		10				
		80						20
2150	10	70						20
	10	80						10
	10	70						20
	10	80						10
	10	80						10
2200		90						10
	10	80						10

LITHOLOGIC DESCRIPTION

Predominantly interbeds and intercalations of fossiliferous marl and marly limestone, as above.

Interbeds and intercalations of fossiliferous marl and marly limestone as above, but with a higher proportion of limestone.

Marl; light grey, puggy, contains fine fossiliferous grains, fine quartz grains and glauconite grains in a calcareous matrix.
Limestone; l/gy to l/cream grey, med hard, semi-friable. Contains med foss frags, qtz silt and glauc grns in a marly matrix
Shale; l/brn-gy to l/gn-gy, puggy, fossiliferous, glauc. Grades to siltstone.
Siltstone: l/brn-gy, puggy, foss, marly. Contains qtz silt, foss and glauc.

FORMATION: GIPPSLAND LIMESTONE

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

PROGRESS WELL LOG — LITHOLOGIC DESCRIPTION

WELL: LAKE REEVES No 1
SHEET No.: 7
INTERVAL FROM 2220
TO 2590

EV. K. B. 17 FT. DATE 29/3/65 LOGGED BY R. GRASSO. B. R. BOYD.

DRILLING RATE (MIN/FT) 2 3 4 5 6 7 8	DI... DATA	TESTS	CASINGS-PERFS PLUGS	SW CORES CORES	GRAPHIC LOG DEPTH SCALE 1:600	DESCRIPTION OF SHOWS AND MUD LOSSES: OIL SHOW RATING	GAS SHOW	FLUORESCENCE	CUT	STAIN	EST. POROSITY	% LITHOLOGY: LIMESTONE	DOLOMITE / MARL	SANDSTONE	SHALE	CLAY	ANHYDRITE-LIGNITE	OTHER (SILTSTONE)	LITHOLOGIC DESCRIPTION	FORMATION
												10	80					10	Marl, limestone, and siltstone, as above	? GIPPSLAND LIMESTONE FORMATION — TERTIARY
												10	60					30		
					2250							5	85					15		
												20	60					20		
												30	50					20		
												60	20					20		
												15	60					25		
					2300							20	30		50				Interbeds of Marl, Limestone and shale. Marl; light grey-green, soft, puggy, silty. Contains fine fossil frags, quartz silt and glauconite grains in a calcareous matrix. Limestone; white to light cream, fossiliferous; silty, fairly glauconitic. Also minor thin lenses of hard partly crystallized, glauc. mid grey limestone. Shale; light grey-green, soft to med hard. Fossiliferous glauconitic, slightly pyritic, calcareous.	
												10	70		20					
												5	85		10					
												10	80		10					
												5	90		5					
					2350							10	70		20					
													90		10					
													95		5					
													90		10					
												5	80		15					
					2400								80		20					
												5	90		5					
												30	70							
												10	90							
												5	95							
					2450							15	85							
												15	95							
													95		5					
													70		30					
													95		5					
					2500								90		10					
													95		5					
													90		10					
													100							
													100							
					2550								80		20					
													95		5					
													100							
												5	75		20					

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

PROGRESS WELL LOG — LITHOLOGIC DESCRIPTION

WELL: LAKE REEVES No I.
SHEET No.: 8
INTERVAL FROM 2590
TO 2960

ELEV. K. B. 17 FT. DATE 30/3/65 LOGGED BY R. GRASSO. B. R. BOYD

DRILLING RATE (MIN/FT) 2 3 4 5 6 7 8

DIP DATA | TESTS | CASINGS-PERFS PLUGS | SW CORES CORES | GRAPHIC LOG DEPTH SCALE 1:600

DESCRIPTION OF SHOWS AND MUD LOSSES: OIL SHOW RATING | GAS SHOW | FLUORESCENCE | CUT | STAIN | EST. POROSITY

% LITHOLOGY: LIMESTONE | DOLOMITE, MARL | SANDSTONE | SHALE | CLAY | ANHYDRITE GLAUCONITE | OTHER (SILTSTONE)

LITHOLOGIC DESCRIPTION

Depth	LIMESTONE	DOLOMITE, MARL	SANDSTONE	SHALE	CLAY	ANHYDRITE GLAUCONITE	OTHER (SILTSTONE)
2600		100					
		90		10			
		100					
	20	80					
		100					
2650		100					
		100					
		90		10			
		100					
	5	95					
2700		100					
		100					
		100					
		80		20			
		100					
2750		90		10			
		100					
		95		5			
		90		10			
		95		5			
2800		95		5			
	20	60					20
	20	30					50
	30	30					40
	50	20					30
2850	50	20					30
	20	80					
	10						40
	10	20					70
	20	60					20
		70					30
2900		80					20
		C.					10

depth adjustment; bit balled

packer set in casing

Interbeds and intercalations of Marl, limestone and shale, as above. 2700'-2720' non-puggy marl.

Marl; green-grey to light grey, soft, puggy fossiliferous. Silty, sandy, very glauconitic near base. Limestone; light brown-grey, argillaceous; soft to med. hard, glauc. partly finely crystallized. Siltstone; calcareous light to med grey; partly [illegible] glauconitic slightly

WOODSIDE (L.E.) OIL CO. N.L.

MID-EASTERN OIL N.L.

PROGRESS WELL LOG — LITHOLOGIC DESCRIPTION

WELL: LAKE REEVES No.

SHEET No.: 9

INTERVAL FROM 2960 TO 3330

ELEV. K. B. 17 FT. DATE 4/4/65 LOGGED BY R. GRASSO. B.R. BOYD.

DRILLING RATE (MIN/FT) 1 2 3 4 5 6 7 8

DIP DATA | TESTS | CASINGS-PERFS PLUGS | SW CORES CORES | GRAPHIC LOG DEPTH SCALE 1:600

DESCRIPTION OF SHOWS AND MUD LOSSES: OIL SHOW RATING | GAS SHOW | FLUORESCENCE | CUT | STAIN | EST. POROSITY

% LITHOLOGY: LIMESTONE | DOLOMITE, MARL | SANDSTONE | SHALE | CLAY | ANHYDRITE (LIGNITE) | OTHER (SILTSTONE, GLAUCONITE)

2960								5	45	10			5	35
31										25			5	70
										45			5	50
3000										100				
										100				
										100				
										100				
3050										30			70	
										20			80	
										60			40	
										10			90	
										40			60	
3100										30			70	
										30			70	
										40		10	50	
										35		5	60	
										35		5	60	
3150										90			10	
										90			10	
										60		10	30	
										10			90	
										90			10	
3200								5		85			10	
								5		25			70	
										90			10	
										60			40	
										50		20	30	
										5			95	
3250										60			40	
										85			15	
										85		5	10	
										25			75	
3300										90			10	
										50			50	
										95			5	
										95			5	

Gas kicks (Max 32 units) below 3228'

All sands very porous

D.S.T. No 2
2970-3282
rec. 2720 ft.
mud and water

D.S.T. No 1
3214-3282
Packer failed
rec. 560 ft
mud

LITHOLOGIC DESCRIPTION

As above; but also contains a thin calc. and argillaceous sandstone at base. V/glauc.

Interbeds and intercalations of sand, coal, clay and limestone.

Sand is quartzose, l/grey, fine to very coarse and also pebbly in minor places. Subrd to angular, rarely rounded. Coal is brn to black, sub-bituminous to earthy, silty and very finely micaceous. Clay is white to light grey, silty, puggy, and marly. Limestone is light grey to white, med hard, partly recrystallized,

WOODSIDE (L.E.) OIL CO. N.L

~~MID-EASTERN OIL N.L.~~

PROGRESS WELL LOG — LITHOLOGIC DESCRIPTION

WELL: LAKE REEVES No 1
SHEET No.: 10
INTERVAL FROM 3330
TO 3700

ELEV. K. B. 17 FT. DATE 5/4/1965 LOGGED BY R. GRASSO, B.R. BOYD

DRILLING RATE (MIN/FT) 2 3 4 5 6 7 8

DIP DATA	DEVIATION	TESTS	CASINGS-PERFS PLUGS	SW CORES CORES	GRAPHIC LOG DEPTH SCALE 1:600	DESCRIPTION OF SHOWS AND MUD LOSSES: OIL SHOW RATING	GAS SHOW	FLUORESCENCE	CUT	STAIN	EST. POROSITY	% LITHOLOGY: LIMESTONE	DOLOMITE, MARL	SANDSTONE, SAND	SHALE	CLAY	ANHYDRITE COAL LIG.	OTHER (SILTSTONE)
					3350									85			15	
														85			15	
														90			10	
												20		40	15		5	20
												20		50	25		5	
												10		50	40			
					3400							10		50	40			
														60	40			
														70	30			
														80	20			
														90	10			
					3450									95			5	
														95			5	
														95			5	
														95			5	
														95			5	
														95			5	
					3500									90			10	
														90			10	
														75			75	
														80			20	
														70			30	
					3550									50			50	
														40			55	5
														60		30	10	
														60		10	30	
					3600									70		10	20	
														60			40	
																	100	
																	100	
																	100	
					3650												100	
																	100	
																	100	
														10			90	
														10			90	
					3700									10			90	

(16 units max) between 3585 and 3590

ALL SANDS VERY POROUS

LITHOLOGIC DESCRIPTION

Mainly SAND; with minor intercalations of coal as above.

SAND; quartzose, l/grey, fine to med. grn, subrd to subang with fair sorting
SHALE; l/grn-gy, sli silty, v/ca
LIMESTONE; light-med gy, sc foss, non-xln.
SILTSTONE; quartzose, whit argill, sli pyr,

Predominantly SAND; quartzose, l/grey, fine to med grn, ang to subrd, fair sorting.
COAL; probably as thin lenses and interbeds.

SAND; as above, with minor COAL, CLAY and SILTSTONE inter-beds and intercalations.

COAL; brown and black, earthy to sub-bituminous. Very finely micaceous in places.

Large coal fragments suggest heavy contamination of samples by coal cavings. Section is probably sandy.

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

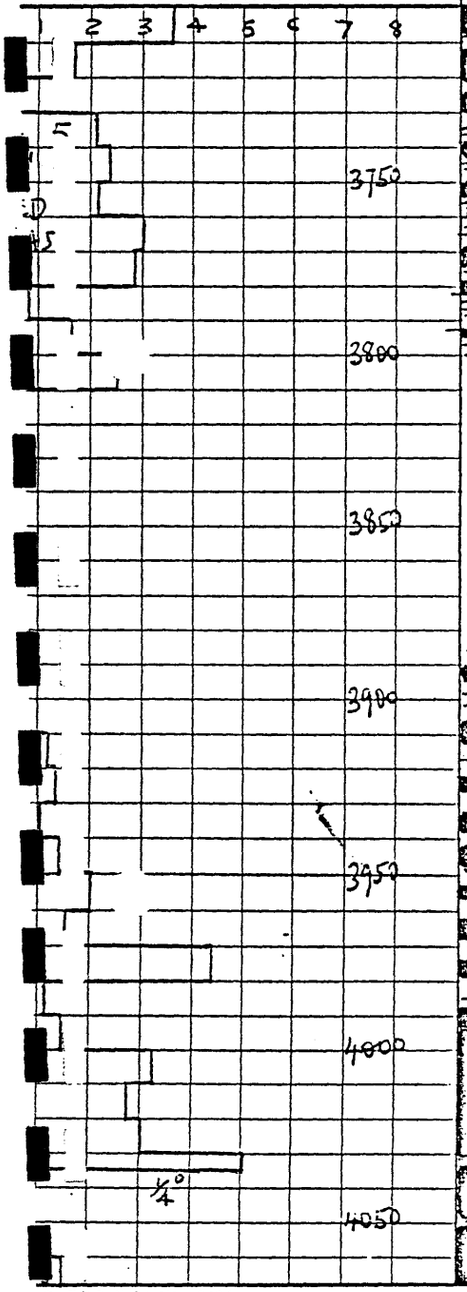
PROGRESS WELL LOG — LITHOLOGIC DESCRIPTION

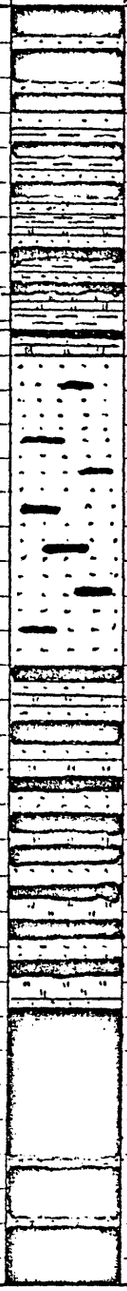
WELL: LAKE REEVES No 1

SHEET No.: 11

INTERVAL FROM 3700 TO 4070

ELEV. K. B. 17 FT. DATE 5/4/1965 LOGGED BY R. GRASSO / B. R. BOYD





DESCRIPTION OF SHOWS AND MUD LOSSES						% LITHOLOGY							LITHOLOGIC DESCRIPTION
OIL SHOW RATING	GAS SHOW	FLUORESCENCE	CUT	STAIN	EST. POROSITY	LIMESTONE	DOLOMITE, MARL	SANDSTONE	SHALE	CLAY	ANTHRACITE COAL, LIG.	OTHER (SILTSTONE)	
								10			90		Samples masked by coal cavings, but Section appears to be composed of interbeds of COAL, SAND, CLAY and SILTSTONE. Siltstone is med brown, to grey brown, v/ligneous (grades to lignite.
								10			90		
								30			70		
								30		10	60		
								10		10	80		
								10		20	60	10	
								20		20	40	20	
					GOOD POROSITY			10		15	70	5	
								10		40	30	20	
								10		25	60	5	
								40			10		SAND; l/grey, coarse to v/coarse and pebbly, angular to subrounded, with fair sorting. Section probably contains coal lenses and interbeds.
								40			10		
								40			10		
								90			10		
								90			10		
								90			10		
								90			10		
								90			10		
								90			10		
	GAS SHOWS				MOST SILTSTONES AND SANDS			30			60	10	COAL; brown (lignite) silty and earthy. SAND; as above. SILTSTONE; dark grey-brown, v/ligneous, grades to lignite. SILTSTONE. light grey-brown, soft, friable, ligneous, feldspathic.
								30			60	10	
						—		40			50	10	
								40			50	10	
	NO							30			60	10	
								30			60	10	
								30			55	15	
					ALL			30			55	15	
								30			40	30	
								30			60	10	
											100		COAL; Brn to Blk, silty, earthy. Much is cavings. Probably contains sand and siltstone interbeds.
											100		
											100		
											100		
								5			95		
								5			95		
								5			95		
								5			95		

P. 7/63 W/T No. 8404

LATROBE VALLEY

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

PROGRESS WELL LOG — LITHOLOGIC DESCRIPTION

WELL: LAKE REEVES No 1
SHEET No.: 12
INTERVAL FROM 4070
TO 4440

ELEV. K. B. 17 FT. DATE 9/4/1965 LOGGED BY R. GRASSO, B. R. BOYD, F. COX.

DRILLING RATE (MIN/FT) 2 3 4 5 6 7 9

DIP DATA | DEVIATION | TESTS | CASINGS-PERFS PLUGS | DEPTH | SW CORES CORES | GRAPHIC LOG DEPTH SCALE 1 : 600

DESCRIPTION OF SHOWS AND MUD LOSSES

OIL SHOW RATING	GAS SHOW	FLUORESCENCE	CUT	STAIN	EST. POROSITY
gas kicks not accounted for — may be due to fluctuations in rig volts	10				
	11				
	12 units max				GOOD POROSITY
				SANDS	
				ALL	

% LITHOLOGY

LIMESTONE	DOLOMITE	SANDSTONE	SHALE	CLAY	ANTHRACITE COAL, LIG	OTHER (SILTSTONE)
		5			95	
					100	
					100	
					100	
		5			95	
					100	
		5			95	
		5			95	
		80			20	
		95			5	
		5			95	
		5			95	
		5			95	
		5			95	
		5			95	
		5			95	
		5			95	
		25			75	
		25			75	
		10			90	
		60			40	
		90			10	
		95			5	
		35			60	5
		35			60	5
		10			80	10
		10			80	10
		10			80	10
		10			80	10
		5			95	
					100	
					100	
					100	
					100	

LITHOLOGIC DESCRIPTION

COAL; brown to black silty, earthy. Most of samples heavily contaminated by coal cavings. Section probably contains sand and lignitic siltstone interbeds.

SAND; quartzose, l/grey, cse to pebbly, subang.

COAL; brown to black soft, brittle in places, earthy in places. Most may be due to coal cavings. Section may contain sand and siltstone interbeds.

SAND; quartzose, l/grey cse to v/cse and pebbly. Subang to subrd, fair sorting. Slight argill. matrix.

ALL SAMPLES HEAVILY CONTAMINATED WITH COAL CAVINGS. Section may be very silty. (Mud contains considerable quartz silt and fine quartz grains.)

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

PROGRESS WELL LOG — LITHOLOGIC DESCRIPTION

WELL: LAKE REEVES No I
SHEET No.: 13
INTERVAL FROM 4440
TO 4810

ELEV. K. B. 17 FT. DATE 10/4/65 LOGGED BY R. GRASSO, B.R. BOYD, F. COX.

DRILLING RATE (MIN/FT)	DEVIATION	TESTS	CASINGS-PERFS PLUGS	DEPTH	SW CORES CORES	GRAPHIC LOG DEPTH SCALE 1:600	DESCRIPTION OF SHOWS AND MUD LOSSES: OIL SHOW RATING	GAS SHOW	FLUORESCENCE	CUT	STAIN	EST. POROSITY	% LITHOLOGY: LIMESTONE	DOLOMITE	SANDSTONE	SHALE	CLAY	ANHYDRITE COAL, LIG	OTHER (SILTSTONE)	LITHOLOGIC DESCRIPTION	FORMATION
3 4 5 6 7				4450														100		ALL SAMPLES HEAVILY CONTAMINATED BY COAL CAVINGS.	
																		100			
																		100			
																		100			
				4500														95	5		
																		100			
																		100			
																		100			
																		100			
				4550														100			
	1¼°														20			80			
Geolograph inoperative																		100			
																		95	5	Minor SAND; l/grey, very coarse to pebbly, subangular, fair sorting.	
																		95	5		
				4600														100			
															10			90		SAND; quartzose, l/grey med to coarse grn. Ang to subrd, pyritic.	
															40			60			
															20			80			
Geolograph inoperative															15			85			
				4650											80			15	5	COAL; much is cavings	
															80			15	5	SILTSTONE: Predominantly dark to v/light brown, medium hard, lignitic finely micaceous.	
															80			15	5		
															80			15	5		
																		100			
				4700														100		COAL; much is cavings. Section may be silty.	
Geolograph inoperative																		100			
																		100			
																		100			
																		100			
				4750											40			60		Interbeds of coarse grained sand, coal, and siltstone. White siltstone frags are common.	
Geolograph inoperative															40			60			
															40			60			
															50			50			
															10			95	5		
															15			80	5		
				4800											5			95			
															5			95			

NO GAS SHOWS

ALL SANDS GOOD POROSITY

LATROBE COAL MEASURES

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

PROGRESS WELL LOG — LITHOLOGIC DESCRIPTION

WELL: LAKE REEVES No 1
SHEET No.: 14
INTERVAL FROM 4810
TO 5180

ELEV. K. B. 17 FT. DATE 11/4/65 LOGGED BY R. GRASSO, B.R. BOYD, F. COX

DRILLING RATE (MIN/FT) 2 3 4 5 6 7 8

DIP DATA | DEVIATION | TESTS | CASINGS-PERFS PLUGS | DEPTH | SW CORES CORES | GRAPHIC LOG DEPTH SCALE 1:600

DESCRIPTION OF SHOWS AND MUD LOSSES: OIL SHOW RATING | GAS SHOW | FLUORESCENCE | CUT | STAIN | EST. POROSITY

% LITHOLOGY: LIMESTONE | DOLOMITE | SANDSTONE | SHALE | CLAY | ANHYDRITE COAL, LIG | OTHER (SILTSTONE)

DEPTH	DOLOMITE	SANDSTONE	CLAY	ANHYDRITE COAL, LIG	LITHOLOGIC DESCRIPTION
4850		5	95		Mainly coal, (? cavings) with interbeds of sand
		15	85		
		5	95		
		40	60		Sand; qtz, very cse to pebbly; ang to subang poor sorting, pyr.
		40	60		
		80	20		
		15	85		COAL; (? cavings)
4900		15	85		
		60	40		Sand; as above.
		10	90		
			100		Mainly coal, (proportion of cavings may be high) with sand interbeds.
			100		
			100		
4950		5	95		COAL; dk/brn to blk resinous, mostly brittle minor silty and earthy, very finely micaceous in places.
		10	90		
		10	90		
		5	95		
			100		SAND; as above.
5000			100		
			100		
			100		
	40		60		SAND; qtz, l/gy, cse grn. subang to subrd, fair sorting. Pyr, sli kaolin, poorly consol.
	40		60		
5050	50		50		
	40		60		
	40		60		COAL; mostly ? cavings.
	40		60		
	30		70		COAL; as above.
5100	80		20		
	85		15		Mainly SAND; as above, with minor interbeds of coal and SILTSTONE; white cream, and light to dark brown. slightly sandy in places; poor porosity.
	90		10		
	90		10		
	95		5		
5150	90		5	5	
	85		10	5	
	90		10		
	85		10	5	

NO GAS SHOWS
GOOD POROSITY
ALL SANDS

P... /63 W/T NO. 8404

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

PROGRESS WELL LOG — LITHOLOGIC DESCRIPTION

WELL: LAKE REEVES No 1
SHEET No.: 15
INTERVAL FROM 5180
TO 5550

ELEV. K. B. 17 FT. DATE 13/4/1965 LOGGED BY F. COX, R. GRASSO, B.R. BOYD

DRILLING RATE (MIN/FT) 1 2 3 4 5 6 7 8

DIP DATA | DEVIATION | TESTS | CASINGS-PERFS PLUGS | DEPTH | SW CORES CORES | GRAPHIC LOG DEPTH SCALE 1:600

DESCRIPTION OF SHOWS AND MUD LOSSES: OIL SHOW, RATING | GAS SHOW | FLUORESCENCE | CUT | STAIN | EST. POROSITY

% LITHOLOGY: LIMESTONE | DOLOMITE | SANDSTONE | SHALE | CLAY | ANHYDRITE COAL, LIG | OTHER (SILTSTONE)

DEPTH	OIL SHOW, RATING	GAS SHOW	FLUORESCENCE	CUT	STAIN	EST. POROSITY	LIMESTONE	DOLOMITE	SANDSTONE	SHALE	CLAY	ANHYDRITE COAL, LIG	OTHER (SILTSTONE)
5200									85			10	5
									80			10	10
						GOOD POROSITY			50			50	
									100				
									90			5	5
									40			50	10
5250									40			50	10
												100	
												100	
						TN						100	
						P			5			95	
						P			10			90	
5300						P			10			90	
		SHOWS				TN			10			90	
						P			15			85	
						P			15			85	
						P			10			90	
5350						P			10			90	
						P			15			85	
	OIL SHOWS	GAS				P			15			85	
						P			15			80	5
						P			15			80	5
5400						P			15			80	5
	NO	NO				P			5			90	5
						P			5			90	5
						P			5			90	5
						P						100	
5450						P						100	
						P						100	
						P			10			90	
						P			10			90	
						P			15			85	
5500						P						100	
						P						100	
						P						100	
						P						100	
						P						100	
5550						P						100	

LITHOLOGIC DESCRIPTION

* COAL CAVINGS ACCOUNTED FOR IN % LITHOLOGY, BUT NOT IN GRAPHIC LOG

SAND; light grey, vcse to very coarse grained subangular to subrounded. silty, poor to fair sorting, poorly consolidated with a kaolinitic matrix.

Predominantly shaly sandstone with silt and clay lenses and intercalations.

SANDSTONE: is light to medium grey, fn to med grained, subrounded, fair to very poor sorting. Composed of subrounded quartz grains, gn-grey, grey and white reworked shale grns, carbonaceous grns, and mica flakes, in a kaolinitic and dolomitic cement.

SILTSTONE; l/gy and l/brn, soft to med hard, argill, v/fn micaceous.

CLAY; light grey, silty, slightly puggy slightly calc. Mostly as sandstone matrix, easily washed away.

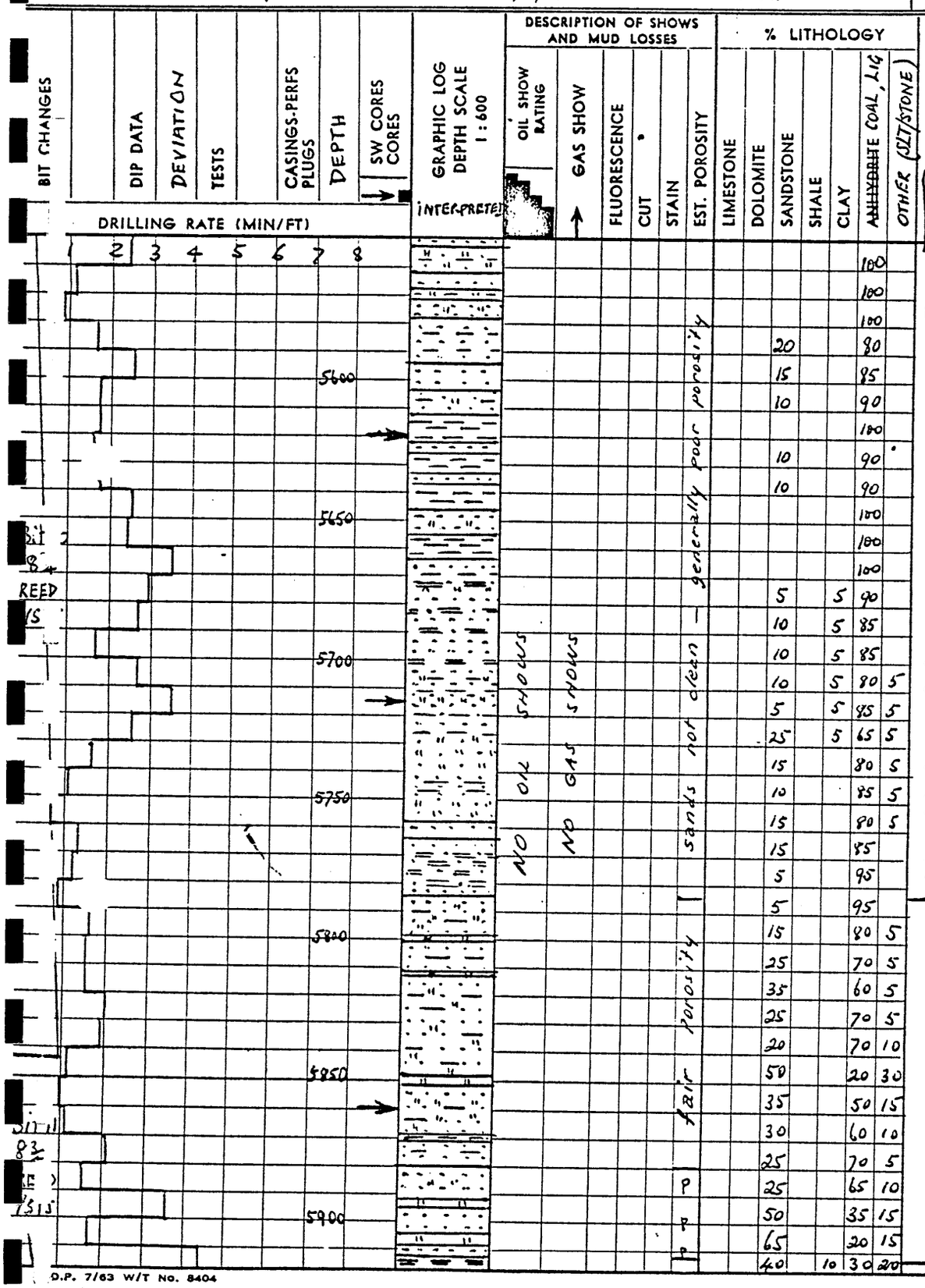
7/63 W/T No. 8404

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

PROGRESS WELL LOG — LITHOLOGIC DESCRIPTION

WELL: LAKE REEVES No
SHEET No.: 16
INTERVAL FROM 5550
TO 5920

ELEV. K. B. 17 FT. DATE 14/4/1966 LOGGED BY R.GRASSO, B.R. BOYD, F. COX.



SANDSTONE	SHALE	CLAY	ANHYDRITE COAL, LIG	OTHER (SILTSTONE)
			100	
			100	
			100	
20			80	
15			85	
10			90	
			100	
10			90	
10			90	
			100	
			100	
			100	
5		5	90	
10		5	85	
10		5	85	
10		5	80	5
5		5	85	5
25		5	65	5
15			80	5
10			85	5
15			80	5
15			85	
5			95	
5			95	
15			80	5
25			70	5
35			60	5
25			70	5
20			70	10
50			20	30
35			50	15
30			60	10
25			70	5
25			65	10
50			35	15
65			20	15
40		10	30	20

LITHOLOGIC DESCRIPTION

* COAL CAVINGS ACCOUNTED FOR IN % LITHOLOGY, BUT NOT IN LOG.

Section poorly represented by samples which are contaminated by coal caving but is probably predominantly sandy and silty.

Sandstone, light to medium grey, med grained, soft to med hard, semi friable. Composed of poorly sorted angular to subrounded quartz grains, reworked shale grains, weathered felspar, and carbonaceous grains in a silty and argillaceous matrix. Also minor lenses of siltstone, clay and shale, and occ. coal. qtz. grains.

As above; but sandstone is more porous.

Clay; l/gy, puggy, s

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

PROGRESS WELL LOG — LITHOLOGIC DESCRIPTION

WELL: LAKE REEVES No
SHEET No.: 17
INTERVAL FROM 5920
TO 6290

ELEV. K. B. 17 FT. DATE 17/4/65 LOGGED BY R. GRASSO, B.R. BOYD, F. COX.

DRILLING RATE (MIN/FT) 10 11 12 13 14 15 16 17 2 3 4 5 6 7 8

DIP DATA | DEVIATION | TESTS | CASINGS-PERFS PLUGS | DEPTH | SW CORES CORES | GRAPHIC LOG DEPTH SCALE 1:600

DESCRIPTION OF SHOWS AND MUD LOSSES: OIL SHOW RATING | GAS SHOW | FLUORESCENCE | CUT | STAIN | EST. POROSITY

% LITHOLOGY: LIMESTONE | DOLOMITE | SANDSTONE | SHALE | CLAY | ARGILLACEOUS CARB. SIL | OTHER (SILTSTONE)

5950
6000
6050
6100
6150
6200
6250

Dip in core No 2
5° 10°
20 6¾ CHRISTENSEN TOOTH – INSERT 2
Reamed rat-hole with Bit 12, 8¾ REED YS-J

OIL SHOWS
GAS SHOWS
NO OIL
NO GAS

Tr					30		10	45	15
F					20		10	60	10
F					30		30	30	10
					30		20	30	20
P					30		15	50	5
P					40		10	30	20
P					40		10	30	20
F					40		10	30	20
F					45		5	30	20
F					65			30	5
F					40			50	10
F					70			20	10
P					40			50	10
P					25			70	5
P					50	5		40	5
P					50	5		40	5
P					100				
P					100				
-					10			80	10
-					15			70	15
P					25			70	5
P					15			80	5
P					35			50	15
P					40			30	30
-					20			75	5
P					10			90	
-					40	5		45	10
P					40	10		40	10
P					70	5		10	15
P					40	5		50	5
P					35	5		50	10
P					50	10		30	10
P					60			30	10
P					35	5		50	10
P					40	10		40	10
P					30	10		50	10
					45	5		40	5

LITHOLOGIC DESCRIPTION

* COAL CAVINGS ACCOUNT FOR IN % LITHOLOGY; BUT NOT IN GRAPHIC LOG.

SANDSTONE; l/gy, med to fine grn, soft to med hard, friable to semifriab Qtz, feldspar, shale and rock grns, mica, argill, interbeded with CLAY; l/gn-gy, puggy, sli calc, and SILTSTONE; light to med gy, l/gn, med ha carbonaceous, argillaceous

SANDSTONE – SUBGREYWACK Light to med grey, me grained with occ. cse grains, medium hard to hard (where calc.). Composed of poorly sorted, ang. to subrd qtz grns, rounded gy. and gn-gy shale grns white feldspar grns, rta brown rock grns, black carbonaceous grns and mica flakes in an argill and calc (in places) cement; with inter beds of SILTSTONE med grey, med hard carbonaceous and v/sli micaceous. Cse to pebble size qtz grains abundant between 6150 – 6180.

SHALE; light grey, silty, very finely micaceous.

PREDOMINANTLY GREYWACKE; SILTSTONE, SHALE with q/z pebbles between 6220 – 6230

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

PROGRESS WELL LOG — LITHOLOGIC DESCRIPTION

WELL: LAKE REEVES N.
SHEET No.: 18
INTERVAL FROM 6290
TO 6615

ELEV. K. B. 17 FT. DATE 19/4/64 LOGGED BY R. GRASSO, B. R. BOYD, F. COX.

DRILLING RATE (MIN/FT) 10 11 12 13 14 15 16 17

DIP DATA | DEVIATION | TESTS | CASINGS-PERFS PLUGS | DEPTH | SW CORES CORES | GRAPHIC LOG DEPTH SCALE 1:600

DESCRIPTION OF SHOWS AND MUD LOSSES

OIL SHOW RATING	GAS SHOW	FLUORESCENCE	CUT	STAIN	EST. POROSITY
					P
					P
					Tr
					-
					P
					P
					pF
					P
					P
					P
					P
					P
					P
					P
					P
					P
					P
					P
					P
					P
					Tr
					Tr
					Tr
					Tr
					P
					P
					P
					Tr
					P
					P
					P

% LITHOLOGY

LIMESTONE	DOLOMITE	SANDSTONE	SHALE	CLAY	ANHYDRITE COAL, ETC	OTHER (SILTSTONE)
		35	10		40	15
		35	10		40	15
		35	10		40	15
		45			45	10
		40			30	30
		55			30	15
		60			30	10
		55			35	10
		60			30	10
		60			30	10
		50			40	10
		25			70	5
		30			60	10
		35			50	15
		55			30	15
		50			35	15
		40			50	10
		20			70	10
		40	10		40	10
		50	15		30	5
		40	25		30	5
		20	5		60	15
		45	5		40	10
		50			30	20
		35	5		50	10
		35	5		50	10
		20			70	10
		40	5		45	10
		60	5		30	5
		60	5		30	5
		55	5		30	10
		20	5		70	5

SHOWS OIL SHOWS GAS NO NO

LITHOLOGIC DESCRIPTION

* COAL CAVINGS ACCOUNTED FOR IN % LITHOLOGY; BUT NOT IN GRAPHIC LOGS

6300 REED, YS-J

GREYWACKE, SILTSTONE and SHALE.

AS above, but greywake is calcareous, hard.

Predominantly greywacke; l/gy, fn to med grn, med hard, very poorly sorted; composed of subang to subrd qtz grns, white feld, med gy to dk gy rock grns carbon grns and mica flakes in a silty and argillaceous matrix. Use qtz grns and pebbles between 6350-6360. Also minor interbeds and intercalations of SILTSTONE light to med gy and gn-gy med hard, argill and SHALE dk gn-gy to light gy, med hard, slightly calc.

6350

6400

6450

6500

GREYWACKE, SILTSTONE and SHALE, as above, but greywacke is hard, and more calcareous

6550

GREYWACKE, SILTSTONE and SHALE, as above. Hard calc horizon between 6670-6680

6600

TWISTED OFF; TOP OF FISH AT 5952 feet.

6650

D.I 7/63 W/T No. 8404

NOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

OFRESS WELL LOG — LITHOLOGIC DESCRIPTION

WELL: LAKE REEVES No I
SHEET No.: 19
INTERVAL FROM 6615
TO 6635

ELEV. K. B. 17 FT. DATE 26/4/1965 LOGGED BY R. GRASSO F. COX.

DRILLING RATE (MIN/FT) 6615

DAT	DEVIATION	TESTS	CASINGS-PERFS PLUGS	DEPTH	SW CORES CORES	GRAPHIC LOG DEPTH SCALE 1:600	DESCRIPTION OF SHOWS AND MUD LOSSES: OIL SHOW RATING	GAS SHOW	FLUORESCENCE	CUT	STAIN	EST. POROSITY	% LITHOLOGY: LIMESTONE	DOLOMITE	SANDSTONE	SHALE	CLAY	ANHYDRITE COAL, LIG	SILTSTONE	LITHOLOGIC DESCRIPTION * COAL NOT ACCOUNTED FOR IN GRAPHIC LOG.	FORMATION	AGE
					③		NO	OIL	OR			P			30/80	10		60		GREYWACKE; AS PREVIOUS WITH MINOR INTERCALATION OF LIGNITIC SILTSTONE.	STRZELECKI GR.	MESOZOIC
				6635	T.D		GAS	SHOWS				P			80				20			

W/T No. 8404

JCK:SH

13th October, 65

An. MS/GK/5/5

Report on Sample No. 458/65

U.M.R.S. 3727

Sample : Formation water from Oil Drilling

Locality : Lake Reeve

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

Particulars :

No.	458
U.M.R.S.	3727
Bore	Lake Reeve No.1
Drill Stem Test	No.2
Interval (feet)	2970 - 3082
Remarks	Recovered 290 feet of mud and water. Water sample taken from above test tool.

Results :		Parts per million
Total solids in solution (by hypothetical combination)		862
Chloride	(Cl)	95
Carbonate	(CO_3)	30
Bicarbonate	(HCO_3)	354
Sulphate	(SO_4)	110
Nitrate	(NO_3)	Nil
Calcium	(Ca)	29
Magnesium	(Mg)	7
Sodium	(Na)	204
Potassium	(K)	27
Iron-Soluble	(Fe)	4.8
Total hardness (as $CaCO_3$)		100
pH		9.1

The water was brown in colour and had a somewhat "oily" odour.

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

LAKE REEVE NO. 1 WELL

Plugging Programme

Following phone discussion with Mr. B. Perry of Woodside and discussion with Mr. D.J. Taylor and Mr. P.W. Bollen, the following plugging programme is recommended for approval:

Plug 1 5220-5340 ft. (120 ft.)

Set cement plug across the Latrobe Valley Coal Measures - Strzelecki Group contact at 5270-5280 ft.

Plug 2 2930-3050 ft. (120 ft.)

Set aeross the top of the Latrobe Valley Coal Measures at 2,997 ft. and the shoe of the 9⅝" casing at 2,970 ft.

Plug 3 From top of casing to a depth of 10 ft.

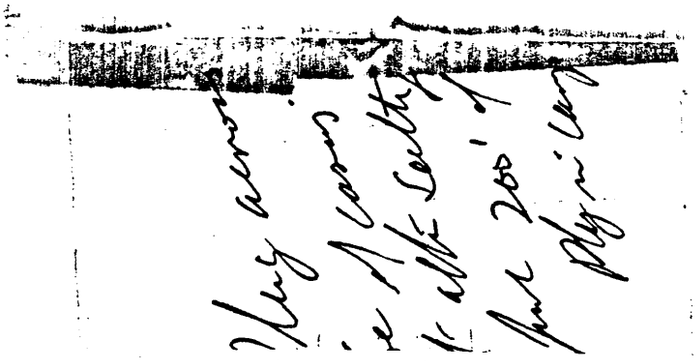
A steel plate and well identification is to be welded at the top of the casing.

O. R. Kenley

P. R. KENLEY

1

20.4.65



TRT:MS
3/3/67

WELL : CARR'S CREEK — LVCM 2265' - 4462' (-4600'?)

43' from top LVCM — Core No.2. 2308' - 2328'. Cut 20' Rec 16'

1'6" Sand, fine to medium grained; sub-rounded to sub-angular; unconsolidated; good porosity.

14'6" Brown coal.

1215' from top LVCM — Core No.3. 3480' - 3500'. Cut 20' Rec 6"

6" Sand, white to light-brown; fine to coarse grained; angular to sub-angular. Unconsolidated; fair to good porosity.

2257' from top LVCM? — Core No.4. 4522' - 4532'. Cut 10' Rec 10'.

6' Siltstone and Sandstone, grey to grey-green; very fine grained; felspathic; tight.

WELL : LAKE REEVE NO.1. — LVCM 2982' - 5265'

2' from top LVCM — Core No.1. 2984' - 2996'. Cut 12' Rec 1'.

1' Sand, Grey; fine to medium grained; angular to sub-rounded; unconsolidated; very friable.

BIOSTRATIGRAPHIC LOG - LAKE REEVE No.1

Drilled by:- Woodside (Lakes Entrance) Oil Company

Drilled in:- Gippsland Basin

Casing program:- 18⅝" set at 69'
13⅜" set at 306'
9⅝" set at 2970'

Mud program:- no information

Mud contamination:- high below 9⅝" casing

Core No.1 - interval 2984' to 2996', recovery 1'

S.L. = +17' K.B.

QUATERNARY molluscan and foraminiferal close shore fauna similar to that described by Carter (1963) from Portland (W. Victoria)

270'

KALIMNAN (lower Pliocene) "Jemmy's Point Fauna" characterised by Flintina intermedia. Shallow embayment conditions.

450'

MITCHELLIAN (upper Miocene) Shallow water fauna, characterised by Nonion victoriensis and consisting mainly of Elphidium spp., Notorotalia spp. and milliolids. Impossible to designate top of BAIRNSDALIAN (middle Miocene) because of shallow water nature of fauna and lack of planktonic species. This is characteristic of faunas living in less than 30 fathoms off Gippsland coast.

1200'

Operculina victoriensis first appeared at 1200' and Amphistegina lessoni at 1280'. Shoal conditions are evident from 1200' to 1750'.

BATESFORDIAN

1700'

Lepidocyclina howchini and Gypsina howchini at 1700' indicating BATESFORDIAN (lower Miocene)

1750' to 2000' - shallow water fauna characterised by Elphidium aranea and Notorotalia miocenica

2130'

Highest appearance of Astrononion centroplax and Cibicides perforatus - definite LONGFORDIAN (lower Miocene)

2450'

"Lakes Entrance Formation" fauna of robust arenaceous species - the 'Janjukian' fauna of Crespin (1943), but is within the present concept of LONGFORDIAN representing Carter's (1964) Faunal Unit 6

2700'

JANJUKIAN - containing Faunal Unit 5 planktonic fauna including Globorotalia opima and Globerigerina euapertura

2980' Core 1

Lowermost OLIGOCENE (Faunal Unit 4) fauna in Core 1 and present as probable contaminants in cuttings below 3100'. The planktonic index species Globorotalia testarugosa is present. It would appear that there is a very thin development of the sandy basal member of the Lakes Entrance Formation representing the initiation of the marine transgression in the Gippsland Basin

T.D. 6665 feet.

References:- CARTER, A.N., 1963. Appendix 5, Geol. Surv. Vict., Memoir 22
CARTER, A.N., 1964 Geol. Surv. Vict., Memoir 23

CRESPIN, Irene, 1943. Pal. Bull. 4 (Dept. of Supply and Shipping, Comm. Aust.)

David J. Taylor, 30th. June 1965
Geol. Surv. Vict. unpubl. Rep. 19/1965

DRILL STEM TEST REPORT

Company: WOODSIDE (L.E.) OIL COY N.L. Date: 3/4/65

Area: GIPPSLAND Well: LAKE REEVE #1. R.T. Elevation: 17 ft.

Test No.: #1 Interval: 3214' - 3282 Formation: COARSE SAND. LATROBE VALLEY COAL MEASURES.

Tester, Size and Type: 4 3/4" BT. Packer, Size and Type: 7 3/4" x 4 3/4" BT EXPANDING SHOE

Rubber, O.D.: 7 3/4" B.H. Choke Size: 1/2" Drill Pipe, Size: 4 1/2 IF

Full Hole, I.D.: 8 3/4" Pilot Hole, I.D.: — Casing, I.D.: 8.921"

Anchor, O.D. and I.D.: 4 3/4" x 2 1/2" Sump Volume: 28.4 ft³ Water Cushion: NIL

Disk Valve, Depth: 3189' Tester Valve, Depth: 3197' Air Chamber Volume:

Pressure Gauges:) #2238 24 hr. 2237 12 " Range: 8,350 psi. No.: TWO. (Anchor (Perforations:

Mud Weight: 9.1 lbs/gal. Filtrate Salinity: 1200 ppm. Annulus Drop: 20 ft.

DIARY OF TEST — Started In: On Bottom: 6.10 pm.

Valve Opened: 6.17 pm 6.22 pm. Valve Closed: Disk Broken:

Valve Opened: Gas to Surface: Oil to Surface:

Valve Shut: Pulled Packer: 6.25 pm. Out of Hole: 8.30 pm.

Initial Shut In Time: 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: 560 ft.

TOTAL PRODUCTION — Gas: Oil Water:

PRESSURE RECORD (Corrected Pressures) —

	Depth	I.M.P.	F.H.P.	I.S.I.P.	F.F.P.	F.S.I.P.	Temp.
Top Gauge:	3199'	1540 psi		1590 psi			
Bottom Gauge:	3276'	1520'		1575			

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

Remarks. Dual Packers run.
Packers set momentarily but failed to hold on two attempts to obtain a seat.
Good initial puff.
Rapid drop in annulus mud.

R. Muckey.

DRILL STEM TEST REPORT

Company: WOODSIDE (L.E.) OIL COY N.L. Date: 4/4/65

Area: LAKE REEVE #1. Well: GIPPSLAND R.T. Elevation: 17 ft.

Test No.: 2. Interval: 2970 - 3282 Formation: LATROBE VALLEY COAL MEASURES.

Tester, Size and Type: 4¾ BJ. Packer, Size and Type: 4¾" BJ EXPANDING SHOE

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

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

Anchor, O.D. and I.D.: 4¾" x 2¼" Sump Volume: 142 cub ft Water Cushion: NIL.

Disk Valve, Depth: Tester Valve, Depth: Air Chamber Volume: 215 cub. ft.

Pressure) #2238 24 hrs Range: 8,350 psi. No.: TWO.
Gauges:) #2237 12 "

(Anchor
(Perforations:

Mud Weight: 9.1 lbs/gal. Filtrate Salinity: 1200ppm Annulus Drop: NIL.

DIARY OF TEST — Started In: On Bottom: 10.34 AM.

Valve Opened: 10.42 am. Valve Closed: 10.48 am Disk Broken:

Valve Opened: 11.35 a.m. Gas to Surface: — Oil to Surface: —

Valve Shut: 12.05 pm. Pulled Packer: 12.35 pm. Out of Hole:

Initial Shut In Time: 47 mins. Flowing Time: 30 mins Final Shut In Time: 30 mins.

SURFACE PRODUCTION —

Air or ~~Gas~~, cu. ft./day (Time: 10.42 a.m.
(
(Rate:

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

PIPE RECOVERY —

Oil: — Water: 900 lin ft. Mud: 1820 lin ft.

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	2915	CLOCK NOT SET.				
Bottom Gauge: #2238	3276	1590	1510	1480		

SAMPLES —

Sampling Point	Type of Fluid	Sp.G.	Salinity
Surface (Bubble Tube)	Air		
Drill pipe	Mud		1200 ppm
" "	Water.		410 ppm.

Remarks: Packer set in casing with 20,000 lbs. Strong initial puff. No Annulus drop. Initial flow 6 mins. Closed in for 47 mins. Final flow 30 mins - air bubble line showed weak flow after 30 mins. Final close in for Reservoir pressure 30 mins. Pulled packer free with no drag.

C. W. Wilson.

W489

WELL LAKE REEVE No 1	TYPE	BASIN
Tenement Holder Woodside (Lakes Entrance) Oil & N.L.	Map Used	Ph. Wulla Wullock.
Operator ditto.	Latitude	38°19'42"S
Tenement PPL. 160.	Longitude	147°15'20"E.
Elevation KB (datum) 17'. Gl. 5'	Total Depth Drlr. 6635 feet. Elog 6610'	Status
Spud 23rd March 1965.	Completed 26-4-65	Abandoned

Casing 18⅝" (Conductor) at 69' Cmt. to Surface : 13⅜" x 48lbs H40 at 306' Cmt to Surface : 9⅝" x 36lbs x J55 at 2970' Cmt to Surface.

STRATIGRAPHY

Target. 7500'

FORMATION TESTS

D.S.T. No 1 : 3216'-3282' - Misrun - Dual packers failed to set.
D.S.T. No 2 : 2970'-3282' (Packer in Casing). Rec 1820 ft of mud, 900 ft of fresh water - Salinity 410 p.p.m.

Woodside LAKE REEVE No 1.

LOG SUMMARY AND INTERPRETATION

Type	Runs	Interval	Scales (to 100')
E-Log.	1+2	2971'-6593'	2" = 5"
Micro/Latero	1+2	2971'-6593'	2" = 5"
Sonic-Gamma	1+2	SL 297'-5980' : 6082'-6602' GR 40'-5980' : 6082'-6602'	2" = 5"
Continuous Dipmeter	1+2	2971'-6619'	

CORES

	Interval	Rec.	No.	Interval	Rec.	No.	Interval	Rec.	No.	Interval	Rec.
1	2984'-2996'	1'									
2	6080'-6096'	14'									
3	6620'-6635'	13'6"									

CHEMICAL ANALYSES (Oil, water, gas.)

6 x 'kick' on Gas detector below 3225ft.

GENERAL (Conclusion, structure, plugging, etc.)