

W779

WCR (VOL. 1)
YELLOWTAIL - 2
(W779)

ESSO EXPLORATION AND PRODUCTION
AUSTRALIA INC.

WELL COMPLETION REPORT

YELLOWTAIL - 2 BASIC

VOLUME 1

19 JAN 1983

OIL and GAS DIVISION

**GIPPSLAND BASIN
VICTORIA**

ESSO AUSTRALIA LIMITED

YELLOWTAIL-2

WELL COMPLETION REPORT

VOLUME-1

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ESSO AUSTRALIA LTD.

COMPLETION REPORT

1. WELL DATA RECORD

LOCATION

WELL NAME YELLOWTAIL-2	STATE Victoria	PERMIT or LICENCE VIC/L5	GEOLOGICAL BASIN Gippsland Basin	FIELD Yellow-tail
CO-ORDINATES LATITUDE 38° 31' 59.98" S LONGITUDE 148° 16' 54.84" E X 611727 Y 5734216			MAP PROJECTION AMG Zone 55	GEOGRAPHICAL LOCATION Bass Strait Victoria
<u>ELEVATIONS & DEPTHS</u>				
ELEVATIONS KB 21m RT	WATER DEPTH 78m	TOTAL DEPTH 2566 MEASURED DEPTH 2566	Average Angle Vertical Well (1½°)	
	PLUG BACK TYPE P & A	REASONS FOR PLUGGING BACK Abandonment		
<u>DATES</u>				
MOVE IN 19th June, 1982	RIG UP 20th June, 1982	SPUDED 20th June, 1982		
RIG DOWN COMPLETE 10th July, 1982	RIG RELEASED 10th July, 1982	PRODUCTION UNIT - RIG UP -		
PRODUCTION UNIT - RIG DOWN -		INITIAL PRODUCTION ESTABLISHED -		
<u>MISCELLANEOUS</u>				
OPERATOR Esso Australia Ltd	PERMITTEE or LICENCE EEPA, Hematite Petroleum Pty Ltd	ESSO INTEREST 50%	OTHER INTEREST 50%	
CONTRACTOR South Seas Drilling Co.	RIG NAME Southern Cross	EQUIPMENT TYPE Oilwell E-2000		
TOTAL RIG DAYS 21	DRILLING AFE NO. 03 05 308232004	COMPLETION NO. -	TYPE COMPLETION -	
WELL CLASSIFICATION	Before Drilling	Outpost/Extension Test		
	After Drilling	Outpost/Extension Well		

2. OPERATIONS SUMMARY

YELLOWTAIL - 2

Move and Moor

The semi-submersible, Southern Cross, departed the Kahawai-1 location at 1200 hours on June 19, 1982 and arrived at the Yellowtail-2 location at 1830 hours on June 19, 1982. The 74 km (40 nautical miles) voyage was completed with an average speed of 11.38 km/hr (6.16 knots).

The Lady Vera and Bass Tide workboats ran all eight anchors in 14-1/2 hours.

26 Inch Hole for 20 Inch Conductor Casing

(All depths are from KB)

The drilling template was landed at the seafloor depth of 99m RKB at a tilt angle of 3/4 degrees. The 26 inch hole was drilled to 241m with seawater. High viscosity mud was displaced before two deviation surveys (misrun and 1/2^o) and two wiper trips were conducted. The 20 inch casing was run to only 105m (6m below the mudline) where a bridge was encountered. The casing was pulled, two wiper trips were conducted, and the 20 inch casing was rerun. The casing was landed at 226m and cemented successfully. The wellhead was at a tilt angle of 1-1/2 degrees. The BOP stack was run and the collet connector and casing were pressure tested.

17-1/2 Inch Hole for 13-3/8 Inch Surface Casing

The 17-1/2 inch hole was drilled to 826m with a seawater/bentonite mud system. A survey (1/2 degree) and a wiper trip were conducted before logs were run in the open hole section. The 13-3/8 inch casing was landed at a depth of 809m and cemented successfully. The seal assembly was run and tested, along with the BOP stack.

12-1/4 Inch Hole

The 13-3/8 inch casing float equipment was drilled and a Phase II PIT was conducted to 13.5 ppg EMW with no leak off. The 12-1/4 inch hole was drilled to 1301m with a mud weight of 8.7 ppg, when the slip joint began to leak at the packing. The hang off tool and open ended drill pipe were run to 800m. The pipe rams were closed on the hang off tool, the shear rams were closed above the tool, and the lower riser package was pulled. The slip joint packing was replaced and the lower riser package was rerun. The slip joint was pressure tested and the hang off tool was retrieved. After a BOP test, drilling continued to 1499m. Tight hole was noted on connections below 1400m, so viscous mud pills were pumped to improve hole cleaning. At 1499m a "Hevi Wate" drill pipe box twisted off in the hole. The string was pulled and the bottom hole assembly was retrieved on the first attempt by use of an overshot fishing assembly. The hole was then cleaned and drilling continued. While drilling through the Lakes Entrance Formation, the hole packed off on a connection at 2229m. The pipe was worked free and drilling continued to 2417m. The mud weight was increased from 8.7 ppg to 9.2 ppg at 2287m prior to drilling into the Latrobe Group. This increase was calculated to give a 2.1 MPa (300 psi) overbalance at the top of the Latrobe Group, if a 32 metre gas column was present. A core was cut in the Latrobe Group from 2417m to 2429m. Only 4.2 metres (35%) of this oil bearing core was recovered. Much of the loss was due to the washing away of unconsolidated sandstones.

The hole was drilled to the total depth of 2566m, with no abnormal pressure present. Background gas ranged from 1-35 units. Logs, a velocity survey, a dipmeter, three RFT's and sidewall cores were run before the well was abandoned.

Plug and Abandonment

Four abandonment plugs were set. 1) An open hole balanced plug was set from 2470 - 2363m to cover the oil bearing sandstone in the Latrobe Group. This plug was tagged with 10k lbs. 2) A balanced open/cased hole plug was set from 859 - 759m to seal off the 13-3/8 inch casing shoe. The plug was pressure tested to 10.34 MPa (1500 psi) for 15 mins. 3) A 13-3/8 inch bridge plug was set at 392m. 4) To seal the 13-3/8 inch x 20 inch annulus, the 13-3/8 inch casing was perforated from 178.5-179.5m with a 4 inch casing gun, and an injection rate was established. A 13-3/8 inch cement retainer was set at 169m and cement was squeezed below the retainer and dumped on top. The top of the cement was calculated to be 129m and the plug was pressure tested to 6.9 MPa (1000 psi).

The hole was displaced with seawater and the BOP stack and riser were pulled. A 15kg explosive charge was run and the wellhead and casing stubs were blown free. The wellhead, casing stubs, drilling template and guidebase were then retrieved.

Pulling Anchors

The Lady Vera, Bass Tide and Atlas Dampier pulled the seven anchors with the rig pulling No. 8. The anchor chain on No. 2 anchor, and the 150' and 250' pendant wires on No. 5 anchor were changed out.

The Southern Cross completed the Yellowtail-2 well and departed for the Seahorse-2 well at 1130 hours on 10 July 1982.

KK/bjr
01971-29&30
25/11/82

4. CEMENT DATA

WELL YELLOWTAIL-2

DATE	DEPTH METRES	TYPE JOB	TYPE CEMENT	AMOUNT	ADDITIVES	REMARKS
22 JUNE	129	20" CSG LEAD	CLASS N	715 SX	3.3% GEL 2% CaCl ₂ FRESHWATER	
22 JUNE	129	20" CSG TAIL	CLASS N	350 SX	2% CaCl ₂ FRESHWATER	
26 JUNE	809	13-3/8" CSG LEAD	CLASS N	970 SX	FRESHWATER	
26 JUNE	809	13-3/8" CSG TAIL	CLASS N	250 SX	SEAWATER	
7 JULY	2470- 2363	P&A OPEN HOLE BALANCED PLUG	CLASS N	260 SX	1.4% HR6L FRESHWATER	TAGGED WITH 10K LBS
8 JULY	859 - 759	P&A OPEN/CSG SHOE BALANCED PLUG	CLASS N	293 SX	SEAWATER	TESTED TO 1500 PSI
8 JULY	266 - 169	P&A SQUEEZED BELOW 13-3/8" RETAINER	CLASS N	319 SX	SEAWATER	
8 JULY	169 - 129	P&A BALANCED PLUG ON RETAINER	CLASS N	97 SX	SEAWATER	TESTED TO 1000 PSI

WELL : YELLOWTAIL-2

5. SAMPLES, CONVENTIONAL CORES, SIDEWALL CORES.			
INTERVAL	TYPE	INTERVAL	TYPE
226 - 2566m	5m cuttings samples washed and dried		
	5m cuttings samples unwashed		
	15m composite cuttings canned wet (Geochem)		
2417 - 2429m	Conventional Core		
848 - 2537.1m Runs 1, 2, 3 (suite 2)	Sidewall Cores (CST) Attempted 153 recovered 75		

6. WIRELINE LOGS AND SURVEYS			
Type & Scale	From	To	Type & Scale
DIL-BHC-CAL-GR Suite 1 1:200	824	90m	
1:500	824	90m	
DLT-MSFL-GR-SP Suite 2 1:200	2558	809m	
1:500	2558	809m	
FDC-CNL-GR Suite 2 1:200	2556	809m	
1:500	2556	809m	
BHC-GR-SP Suite 2 1:200	2555	809m	
1:500	2555	809m	
HDT Suite 2 1:200	2556	2340m	
Velocity Survey 17 Levels	2556	300m	
RFT RUN 1, 2, 3 Suite 2 33 Pretests 4 samples	1417	2531m	

7. SUMMARY OF FORMATION TEST PROGRAMME

YELLOWTAIL - 2
SUITE 2

RUN	SEAT	DEPTH (METRES) K. B.	CHAMBER	RECOVERY (LITRES)					HEWLETT-PACKARD FORMATION PRESSURE		HEWLETT-PACKARD HYDROSTATIC PRESSURE		HORIZONTAL PERMEABILITY	REMARKS
				OIL	COND.	GAS	FORMATION WATER	FILTRATE	MPaa	Psia	MPaa	Psia	millidarcys	
1	1	1417.5	Pretest								15.87	2301		Seal Failure
1	2	1414	"								15.79	2290		Tight - then seal failure
1	3	1401.5	"								15.64	2269		Seal Failure
1	4	1393	"								15.55	2255		Seal Failure
1	5	1381.2	"								15.42	2237		Seal Failure
1	6	1376.5	"								15.37	2229		Seal Failure
1	7	2531.5	"								28.09	4074		Seal Failure
1	8	2530	"						24.396	3538.2	28.05	4068		Valid
1	9	2522	"						24.309	3525.6	27.95	4053		Valid
1	10	2507	"						24.133	3500.1	27.78	4029		Valid
1	11	2484	"						23.908	3467.4	27.52	3992		Valid
1	12	2454	"						23.613	3424.6	27.20	3945		Valid
1	13	2433	"						23.399	3393.6	26.97	3911		Valid
1	14	2430	"						23.373	3389.8	26.93	3906		Valid
1	15	2429	"						23.366	3388.8	26.92	3905		Valid
1	16	2427.5	"						23.355	3387.3	26.91	3903		Valid
1	17	2426	"						23.339	3384.9	26.89	3900		Valid

SUMMARY OF FORMATION TEST PROGRAMME

RUN TEST	SEAT	DEPTH (METRES) K. B.	CHAMBER	RECOVERY (LITRES)					HEWLETT-PACKARD FORMATION PRESSURE		HEWLETT-PACKARD HYDROSTATIC PRESSURE		HORIZONTAL PERMEABILITY	REMARKS
				OIL cc	COND.	GAS ³ m	FORMATION WATER	FILTRATE cc	MPaa	Psia	MPaa	Psia	millidarcys	
1	18	2424.5	Pretest						23.329	3383.4	26.87	3897		Valid (seal failed after pressure stabilised)
1	19	2422	Pretest								26.84	3893		Seal failure
1	20	2421.5	Pretest								26.84	3892		Tight, invalid.
1	21	2419	Pretest						23.370	3389.4	26.80	3887		Valid.
1	22	2417.3	Pretest								26.77	3883		Tight, invalid.
1	23	2415.5	Pretest								26.76	3881		Seal failure.
1	24	2416	Pretest								26.76	3881		Tight, then seal failed.
1	25	2419	22.7 1						23.376	3390.3	26.79	3886		Valid *
1	26	2424.5	22.7 1						23.323	3382.7	26.84	3893		Valid *
1	27	2425	22.7 1								26.84	3893		Seal failure, invalid*
1	28	2425	22.7 1								26.84	3893		Seal failure *
1	29	2424.8	22.7 1						23.331	3383.8	26.84	3892		Valid *
1	30	2425.5	22.7 1						23.339	3384.9	26.85	3894		Valid *
1	31	2426	22.7 1	scum		trace		2 500	23.346	3386.0	26.85	3894		Valid *

* Attempted to sample at seats 25, 26, 29, 30 and 31. All had good pretests but no flow on opening chamber. Seat 31 had inadequate flow. Seats 27 and 28 were not sampled because of seal failure. Changed to Martineau Probe for Runs 2 and 3.

SUMMARY OF FORMATION TEST PROGRAMME

RUN	SEAT	DEPTH (METRES) K.B.	CHAMBER	RECOVERY (LITRES)					HEWLETT-PACKARD FORMATION PRESSURE		HEWLETT-PACKARD HYDROSTATIC PRESSURE		HORIZONTAL PERMEABILITY	REMARKS
				OIL cc	COND.	GAS 3 m	FORMATION WATER ml	FILTRATE	MPa ^a	Psia	MPaa	Psia	millidarcys	
2	32	2424.5	22.7 1	scum		.026	20600 (filtrate + water)		23.329	3383.4	26.82	3890		
			3.79 1	scum		.0037	3000		23.329	3383.4	26.82	3890		
3	33	2419	22.7 1	200		.036	21000 (filtrate + water)			-	26.75	3880		Fm pressure not obtained.
			3.79 1	chamber preserved for full fluid analysis.										

8. YELLOWTAIL-2 TEMPERATURE RECORD

LOGGING RUN	THERMOMETER DEPTH (m)	MAX. RECORDED TEMPERATURE (C°)	CIRCULATION TIME (t _k) (hours)	TIME AFTER CIRCULATION STOPPED (t)	HORNER* TEMPERATURE (C°)	GEO THERMAL GRADIENT (C°/km)
DIL-BHC-CAL-GR	804	26.6		3		
DLT-MSFL-GR-SP BHC-GR-SP HDT FDC-CNL-GR	2551 2551 2551 2551	76.6 81.1 87.1 90.5	1.5 hr. 1.5 hr 1.5 hr 1.5 hr.	5.5 11.5 17.0 21.5	97.5	36

FIGURES

LOCALITY MAP

SCALE - 1:250,000

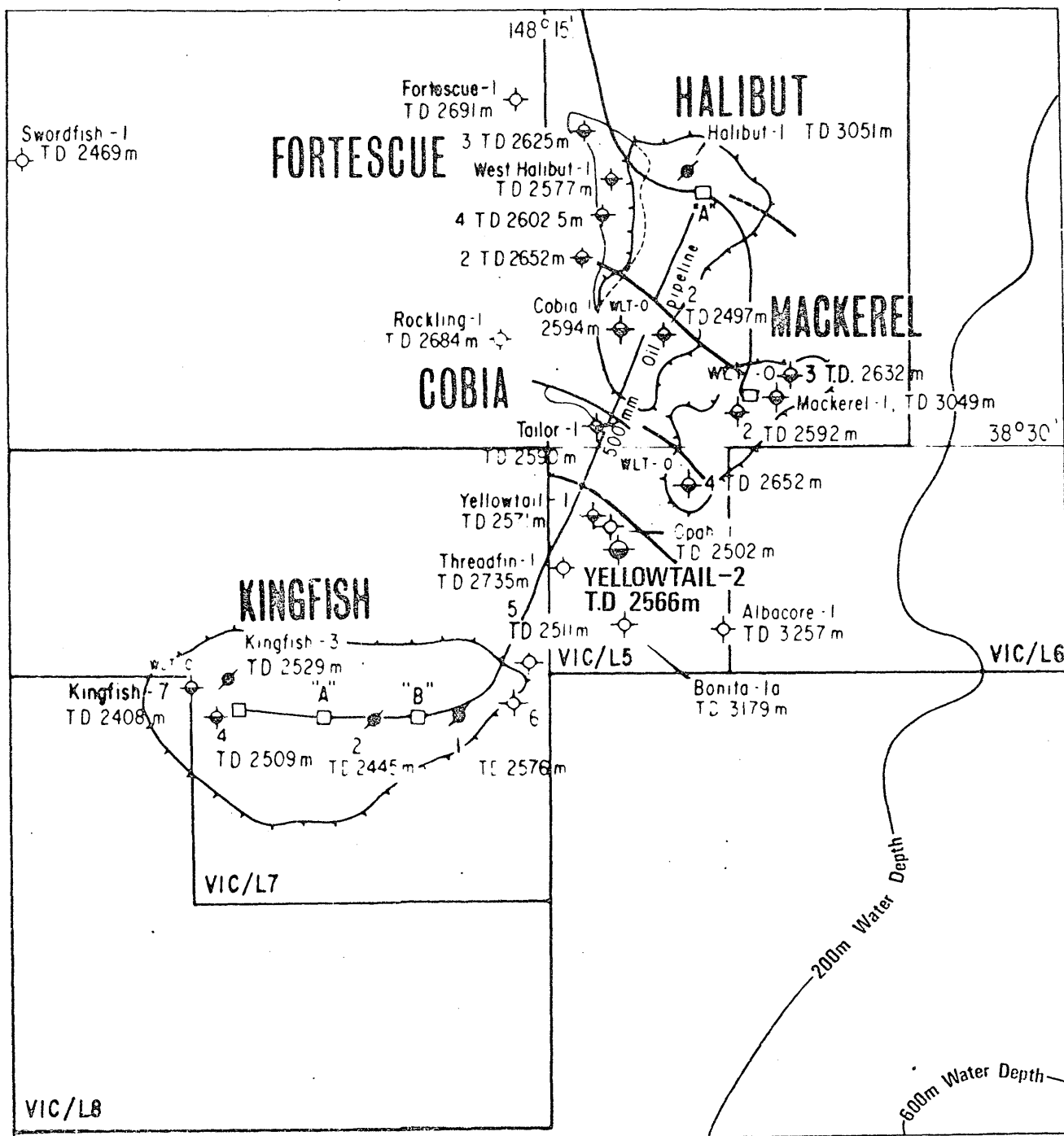


Figure 1

WELL PROGRESS CURVE

WELL YELLOWTAIL-2

RIG SOUTHERN CROSS

CASING SEAT

LITHOLOGY

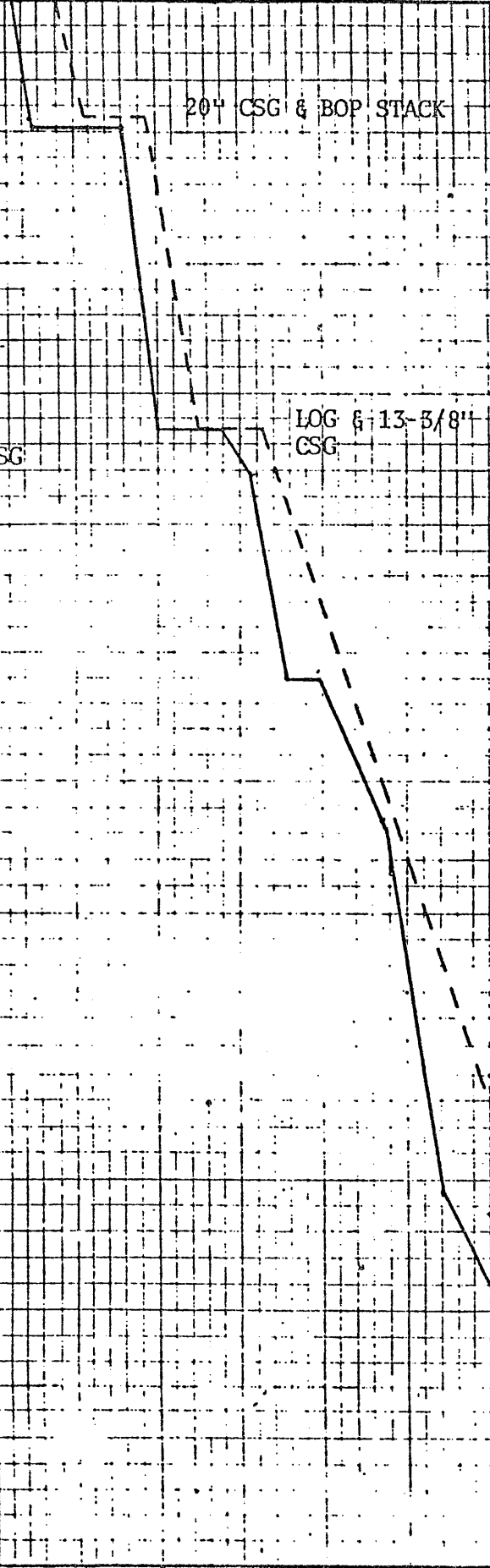
DESIGN	ACTUAL
--------	--------

PROJECTED	ACTUAL
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221 → 226
20' CSG

811 → 809
13-3/8" CSG

T.D. 2566



DATES		
Move	1200 HRS JUNE 19, 1982	
Arrive Loc.	1830 HRS JUNE 19, 1982	
Spud	1330 HRS JUNE 20, 1982	
T.D. Well	1545 HRS JULY 04, 1982	
Begin Test	- - - - -	
End Test	- - - - -	
Depart Location	1130 HRS JULY 10, 1982	
	PROGRAM	ACTUAL
Water Depth, S.S.	80 ⁺ 5m	78m
Well Depth	2541m	2566m
Total Days	25 (30)*	20.98
Location Lat:	38°32'0.3" S 38°31'59.98"S	
Long:	148°16'54.9"E 148°16'54.84"E	
R.K.B.	21m	- - - - -
	Projected	- - - - -
	Actual	- - - - -

* Budgeted Days

LAKES ENTRANCE TOP @1660

LATROBE TOP @2414

CORE No. 1.

LOG, P&A, RETRIEVE ANCHORS

DAYS

5 10 15 20 25 30

FIGURE 2

ABANDONMENT SCHEMATIC

WELL: YELLOWTAIL-2

• RKB

99

78

20" CSG. @ 226
26" HOLE TO 241

CALC. TOC @ 352

13 3/8" CSG. @ 809
17 1/2" HOLE TO 826

12 1/4" HOLE TO 2566

PLUG No. 3.

ANNULUS: 266-179

CASING : 179-129

TESTED TO 6.9 MPa (1000 psi)

PERFS @ 178.5 - 179.5

13-3/8" BRIDGE PLUG @ 392

PLUG No. 2.

859-759

TESTED TO 10.34 MPa (1500 psi)

PLUG No. 1.

2470 - 2363

TAGGED W/10K LBS

ALL DEPTHS ARE IN METERS RKB

FIGURE 3

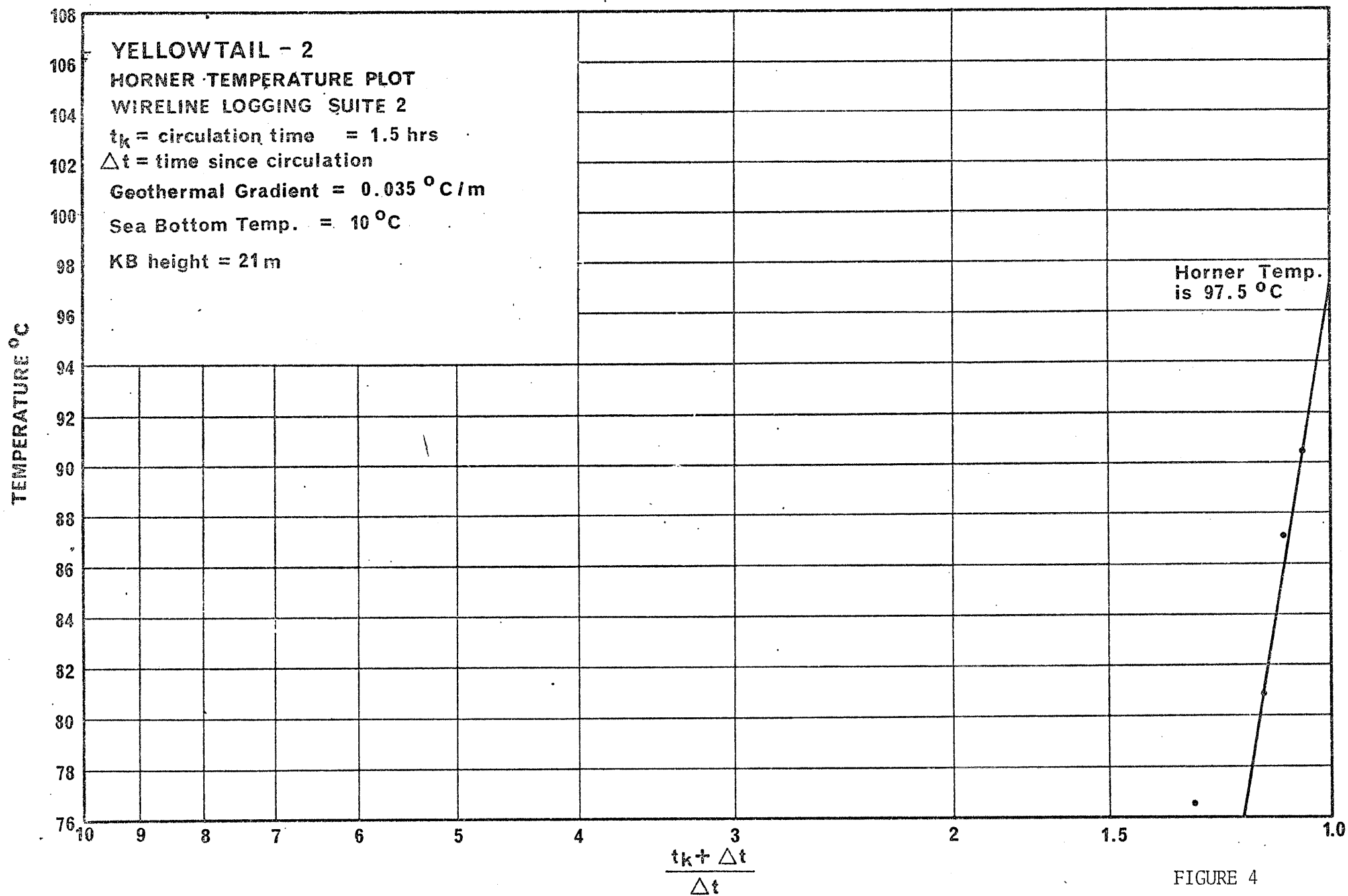


FIGURE 4

APPENDIX

1

APPENDIX 1

LITHOLOGICAL DESCRIPTIONS

YELLOWTAIL - 2

LITHOLOGY DESCRIPTIONS

<u>Depth</u>	<u>%</u>	<u>Description</u>
265 - 270m	50	LIMESTONE: mainly loose bryozoan fragments, common forams, some bivalve shell fragments and complete small shells, some coral? fragments, coarse to medium size fragments.
	50	CEMENT: i.e. heavily contaminated with cement.
270 - 275m	50	LIMESTONE: as above, common large fragments of bivalve shells.
	50	CEMENT: as above. Large Chip of <u>Claystone</u> - pale brown, soft, gummy.
275 - 280m	80	LIMESTONE: white to tan, some grey, loose fragments of common bivalves, including large shell fragments, bryozoans, some forams and gastropods. Dominantly subrounded shell fragments.
	20	SANDSTONE: loose clear quartz grains, medium to coarse grain size, subrounded, moderately sorted.
280 - 290m	80	LIMESTONE: as above.
	20	SANDSTONE: as above.
290 - 295m	30	LIMESTONE: as above.
	20	SANDSTONE: as above.
	50	CALCARENITE: light grey, loosely cemented, granular texture, calcareous cement, fine quartz grains, some black speckles, trace green glauconite.
295 - 300m	50	LIMESTONE: as above.
	30	SANDSTONE: as above.
	20	CALCARENITE: as above.
300 - 305m	30	LIMESTONE: as above.
	20	SANDSTONE: as above.
	50	CALCARENITE: as above.
305 - 310m	50	CALCARENITE: as above.
	30	LIMESTONE: as above.
	20	SANDSTONE: as above.
310 - 315m	50	CALCARENITE: as above.
	30	LIMESTONE: as above.
	20	SANDSTONE: as above.
315 - 320m	80	CALCARENITE: as above.
	20	LIMESTONE: as above.
	trace	SANDSTONE
320 - 325m	80	CALCARENITE: poorly to moderately cemented, common forams bound in calcarenite. Also calcarenite present on some bryozoan fragments, grading into poorly cemented shelly limestone.
	20	LIMESTONE: as above.
	trace	SANDSTONE: as above.
325 - 330m	50	CALCARENITE: as above.
	30	LIMESTONE: as above.
	20	SANDSTONE: as above.

330 - 340m	50	CALCARENITE: as above.
	30	LIMESTONE: as above.
	20	SANDSTONE: as above.
340 - 350m	50	CALCARENITE: as above, firm, sometimes hard, has some argillaceous matrix as well as calcareous cement.
	30	LIMESTONE: as above.
	20	SANDSTONE: as above.
350 - 360m	50	CALCARENITE: as above.
	30	LIMESTONE: as above.
	20	SANDSTONE: as above.
360 - 370m	50	CALCARENITE: as above.
	30	LIMESTONE: as above.
	20	SANDSTONE: as above.
370 - 380m	80	CALCARENITE: light grey, coarse grain size, firm, blocky cuttings, contains mainly very fine quartz grains, with some shell fragments, carbonate grains, and a few dark grains; some argillaceous matrix, contains moderate amounts of very calcareous cement.
	20	LIMESTONE: fossil fragments - common bivalves, common bryozoans, rare brachiopods, common forams.
	trace	SANDSTONE: loose quartz grains.
380 - 390m	60	CALCARENITE: as above.
	30	LIMESTONE: as above.
	10	SANDSTONE: as above.
390 - 400m	50	CALCARENITE: as above.
	40	LIMESTONE: mainly fossil fragments.
	10	SANDSTONE: loose quartz grains.
400 - 410m	70	CALCARENITE: as above.
	20	LIMESTONE: as above, but fewer shell fragments
	10	SANDSTONE: as above.
410 - 420m	50	CALCARENITE: as above.
	40	LIMESTONE: fossil fragments
	10	SANDSTONE: quartz grains.
420 - 425m	80	CALCARENITE: as above.
	20	LIMESTONE: fossil fragments.
	trace	SANDSTONE: quartz grains.
425 - 430m	20	CALCARENITE: as above.
	70	LIMESTONE: fossil fragments.
	10	SANDSTONE: quartz grains.
430 - 440m	20	CALCARENITE: as above.
	70	LIMESTONE: fossil fragments.
	10	SANDSTONE: quartz grains.
440 - 445m	30	CALCARENITE: as above.
	60	LIMESTONE: fossil fragments.
	10	SANDSTONE: quartz grains.
445 - 450m	50	CALCARENITE: as above.
	40	LIMESTONE: fossil fragments.
	10	SANDSTONE: quartz grains.
450 - 455m	70	CALCARENITE: as above.
	20	LIMESTONE: fossil fragments.
	10	SANDSTONE: quartz grains.

455 - 460m	70	CALCARENITE:	as above.
	20	LIMESTONE:	fossil fragments.
	10	SANDSTONE:	quartz grains.
460 - 465m	70	CALCARENITE:	as above.
	20	LIMESTONE:	fossil fragments.
	10	SANDSTONE:	quartz grains.

The samples from 465 to 826m have been collected from the desander due to the very low amount of cuttings being retained over the shakers i.e. most of the cuttings have been going through the screens and back into the mud.

465 - 470m	100	CALCARENITE:	light grey, very fine grain size, made up of quartz grains, carbonate grains, some shell fragments, abundant forams (particularly planktonic species), very calcareous, loose grains, moderately sorted; i.e. the sample appears to be sandstone which is very poorly cemented and has disaggregated. Also most likely is a lot of the fine material not caught in earlier coarser samples.
470 - 480m	100	CALCARENITE:	as above, common glauconite infilling of forams, and also trace of loose glauconite grains.
485 - 490m	100 trace	CALCARENITE:	as above.
		GLAUCONITE	
490 - 500m	100 common	CALCARENITE:	as above.
		GLAUCONITE:	green pellets.
500 - 510m	100	CALCARENITE:	as above, with glauconite.
510 - 520m	100 trace	CALCARENITE:	as above.
		PYRITE	
520 - 530m	100	CALCARENITE:	as above, some poorly cemented aggregates, trace of pyrite.
530 - 540m	100	CALCARENITE:	as above.
540 - 550m	100	CALCARENITE:	as above.
555m			Chips from shakers. LIMESTONE: white to buff, hard, well cemented, very calcareous, dominantly bryozoan fragments, some shell fragments, minor matrix i.e. grainstone. CLAYSTONE/MICRITE: light grey, homogeneous clay size matrix with minor coarse to granule sized quartz grains in matrix, only partly calcareous, quartz grains subrounded to rounded, also orange brown opaque grains, granule size, weathered appearance, rounded.
550 - 560m	100	CALCARENITE:	as above, some aggregates, forams less abundant, but still common, rare ostracod valves, traces of pyrite, some infilling foram tests.
560 - 570m	100	CALCARENITE:	as above.
570 - 580m	100	CALCARENITE:	as above.
580 - 590m	100	CALCARENITE:	as above.
590 - 600m	100	CALCARENITE:	as above.

600 - 610m	100	CALCARENITE: as above.
610 - 620m	100	CALCARENITE: as above.
620 - 630m	100	CALCARENITE: as above.
630 - 635m	100	CALCARENITE: as above.
630 - 640m		GRAB SAMPLE taken from shakers.
	80	CALCARENITE: as described previously, moderately cemented, partly glauconitic.
	20	FOSSIL FRAGMENTS: shell fragments, bryozoans, forams.
	common	SANDSTONE: loose quartz grains.

Sample being taken from desander appear to be mostly disaggregated calcarenite as above, plus some ground up fossil fragments.

635 - 700m	100	CALCARENITE: as described above, (disaggregated), some moderately cemented aggregates, some shell fragments, with common forams, glauconite and some pyrite.
700 - 725m	100	CALCARENITE: as above, very fine grained, representing disaggregated calcarenite, some medium grained aggregates, with trace of glauconite, sponge spicules and pyrite.
725m		GRAB SAMPLE from shakers.
	80	CALCARENITE: as previously described, appears to be dominantly carbonate grains (not much quartz as previously described), medium grain size aggregates, very fine to silt sized grains, well sorted, partly glauconitic.
	20	FOSSIL FRAGMENTS: mainly shell fragments, bryozoan fragments, forams.
	trace	SANDSTONE: loose quartz grains, possibly scattered through calcarenite.
725 - 780m	100	CALCARENITE: very fine, as previously described.
780m		GRAB SAMPLE from shakers. Dominantly calcarenite as previously described.
780 - 800m	100	CALCARENITE: as above.
800 - 805m	100	CALCARENITE: but more aggregates, better cemented, harder, appears to correspond with some increase in cuttings across the shakers. Grab sample from shakers had harder, better cemented calcarenite cuttings.
805 - 825m	100	CALCARENITE: as above.
826 - 830m		CEMENT
830 - 835m	50	CALCARENITE: medium light grey, firm to hard, consists of very fine to silt size carbonate grains, with some very coarse to granule quartz grains, slightly glauconitic, very calcareous, blocky subrounded to subangular cuttings, moderately to well cemented, granular texture.
	10	CALCAREOUS CLAYSTONE: light grey, very soft, sticky, rounded cuttings, contains silt sized carbonate grains, very calcareous.
	trace	FORAMS and SHELL FRAGMENTS
	40	CEMENT

Hard to distinguish between 3 lithologies - about the same colour, and similar appearance.

835 - 840m	50 30 20 trace trace	CALCARENITE: as above. CALCAREOUS CLAYSTONE: as above. CEMENT SHELL FRAGMENTS and FORAMS PYRITE
840 - 845m	70 20 10 trace	CALCARENITE: as above. CALCAREOUS CLAYSTONE: as above. CEMENT SHELL FRAGMENTS and FORAMS
845 - 850m	80 20 trace trace	CALCARENITE: as above. CALCAREOUS CLAYSTONE: as above. SHELL FRAGMENTS and FORAMS CEMENT
850 - 855m	80 20 trace trace	CALCARENITE: as above. CALCAREOUS CLAYSTONE: as above. SHELL FRAGMENTS and FORAMS CEMENT
855 - 860m	80 20 trace	CALCARENITE: as above, some hard subangular to angular cuttings. CALCAREOUS CLAYSTONE: as above. FORAMS
860 - 865m	70 30 trace trace	CALCARENITE: as above. CALCAREOUS CLAYSTONE: as above. FORAMS SANDSTONE: quartz grains, clear, coarse to very coarse, very angular, commonly encrusted by pink-brown silty material.
865 - 870m	70 30 trace trace	CALCARENITE: as above. CALCAREOUS CLAYSTONE: as above. FORAMS SANDSTONE: as above.
870 - 875m	60 40 trace	CALCARENITE/CALCISILTITE: contains very fine grain size to silt size grains, includes quartz grains and carbonate grains. CALCAREOUS CLAYSTONE: as above. FORAMS
875 - 880m	40 60 trace	CALCARENITE/CALCISILTITE: as above. CALCAREOUS CLAYSTONE: as above. SHELL FRAGMENTS and FORAMS
880 - 885m	30 70 trace trace	CALCISILTITE/CALCARENITE: as above, smaller cuttings. CALCAREOUS CLAYSTONE: as above. SHELL FRAGMENTS and FORAMS SANDSTONE: quartz grains.
885 - 890m	20 80 trace	CALCISILTITE: as above. CALCAREOUS CLAYSTONE: very soft, very sticky, cuttings over shakers very sticky. SHELL FRAGMENTS and FORAMS
890 - 895m	30 70 trace	CALCISILTITE/MICRITE: as above, but including hard to very hard chips, well cemented, angular to subangular, recrystallised appearance. CALCAREOUS CLAYSTONE: as above. SHELL FRAGMENTS and FORAMS
895 - 900m	50 50 trace	CALCISILTITE: dominantly hard angular chips, as above. CALCAREOUS CLAYSTONE: soft, sticky, as above. FORAMS

900 - 905m	20 80	CALCISILTITE: as above. CALCAREOUS CLAYSTONE: as above.
905 - 910m	20 80 trace	CALCISILTITE: as above, includes light grey, firm siltstone, as previously described. CALCAREOUS CLAYSTONE: as above, ie. silty. FORAMS: with rare ostracods.
910 - 920m	20 80 trace	CALCISILTITE: as above. CALCAREOUS CLAYSTONE: as above. FORAMS: with rare ostracods.
920 - 930m	20 80 trace	CALCISILTITE: as above. CALCAREOUS CLAYSTONE: as above. FORAMS: with rare ostracods.
930 - 940m	20 80 trace	CALCISILTITE: as above. CALCAREOUS CLAYSTONE: as above. FORAMS: with rare ostracods.
940 - 950m	80 20 trace	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above, only light grey firm siltstone. FORAMS
950 - 960m	80 20 trace	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above, only light grey firm siltstone. FORAMS
960 - 970m	70 30 trace trace	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above, including hard splintery chips as previously described. SHELL FRAGMENTS and FORAMS SANDSTONE: loose quartz grains.
970 - 980m	60 40 trace	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above. SHELL FRAGMENTS and FORAMS
980 - 990m	60 40 trace	CALCAREOUS CLAYSTONE: light grey to medium light grey, soft, sticky, blocky, rounded cuttings, clay containing some medium to silt size quartz grains, usually rounded, very calcareous. CALCISILTITE: medium light grey, firm to soft, some hard subangular cuttings, generally blocky to subfissile cuttings, silt size carbonate grains, in very calcareous clay matrix, also contains some silt sized quartz grains. SHELL FRAGMENTS and FORAMS
990 - 1000m	60 40 trace	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above. SHELL FRAGMENTS and FORAMS
1000 - 1010m	70 30 trace	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above. SHELL FRAGMENTS and FORAMS
1010 - 1020m	70 30 trace	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above. SHELL FRAGMENTS and FORAMS
1020 - 1030m	70 30 trace	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above. FORAMS and SHELL FRAGMENTS

1030 - 1040m	70 30	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above, increased amount of hard cemented angular chips.
1040 - 1050m	60 40 trace trace	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above. JASPER?? pink brown mineral, very hard, angular, splintering to blocky cuttings, associated with quartz - encloses angular quartz grains in some cases, very fine dark specks. FORAMS
1050 - 1065m	50 50 trace trace	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above. SHELL FRAGMENTS and FORAMS JASPER?
1065 - 1080m	70 30 trace	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above. SHELL FRAGMENTS and FORAMS
1080 - 1090m	80 20 trace	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above. FORAMS
1090 - 1125m	70 30 trace	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above. FORAMS
1125 - 1135m	60 40 trace	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above. FORAMS
1135 - 1145m	50 50 trace	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above. FORAMS
1145 - 1160m	50 50	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above.
1160 - 1180m	60 40 trace	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above, contains planktonic forams and sponge spicules. FORAMS
1180 - 1230m	70 30 trace	CALCAREOUS CLAYSTONE: as above. CALCISILTITE: as above. FORAMS and SHELL FRAGMENTS
1230 - 1255m	30 70 trace	CALCISILTITE: medium light grey, soft to firm, blocky rounded to subfissile subangular cuttings, consists of silt sized carbonate grains, some quartz grains, a little clay matrix; contains planktonic forams and sponge spicules, very calcareous, poorly to moderately cemented. CALCAREOUS CLAYSTONE: light grey, soft, sticky, blocky rounded cuttings, clay matrix, some silt size quartz and carbonate, very calcareous, dispersive, some faint medium grey laminae visible, trace forams. JASPER? pinkish, associated with angular quartz.
1255 - 1260m	40 60 trace	CALCISILTITE: as above. CALCAREOUS CLAYSTONE: as above. FORAMS

1260 - 1280m	50 50 trace	CALCISILTITE: as above. CALCAREOUS CLAYSTONE: as above. FORAMS
1280 - 1300m	70 30	CALCISILTITE: as above, cuttings firmer, more angular. CALCAREOUS CLAYSTONE: as above.
1300 - 1305m	80 20	CALCISILTITE: medium light grey, firm, a little clay matrix, dominantly silt sized carbonate grains, blocky to subangular cuttings, very calcareous, contains planktonic forams, sponge spicules. CALCAREOUS CLAYSTONE: light grey, soft, sticky, clay with some silt sized carbonate grains, rounded cuttings, very calcareous, trace forams.
1305 - 1310m	90 10 trace	CALCISILTITE: as above, with bryozoan and shell fragments. Also some loose, medium sized angular quartz grains. CLAYSTONE: as above. FORAMS
1310 - 1320m	90 10	CALCISILTITE: as above, harder, better cemented. CLAYSTONE: as above, some medium grey laminae visible giving some fissility to cuttings.
1320 - 1325m	90 10 trace	CALCISILTITE: as above, smaller cuttings. CLAYSTONE: as above. Forams, shell fragments and recrystallised calcite showing bright mineral fluorescence.
1325 - 1375m	100 trace trace	CALCISILTITE: as above. CLAYSTONE: as above. Forams, shell fragments and recrystallised calcite.
1375 - 1380m	100 trace trace trace	CALCISILTITE: as above, 10% dull blue - white or greyish fluorescence, no cut or crush cut. CLAYSTONE FORAMS SHELL FRAGMENTS (CALCITE)
1380 - 1385m	100 trace trace trace	CALCISILTITE: as above, trace fluorescence as above. CLAYSTONE FORAMS CALCITE
1385 - 1405m	100 trace trace	CALCISILTITE: as above, trace grey to dull blue - white fluorescence. FORAMS SHELL FRAGMENTS
1405 - 1415m	90 10 trace	CALCISILTITE: as above, no fluorescence. CLAYSTONE: as above. FORAMS
1415 - 1420m	100 trace trace	CALCISILTITE: as above. CLAYSTONE FORAMS
1420 - 1435m	100 trace trace	CALCISILTITE: as above. CLAYSTONE FORAMS

1435 - 1440m	90	CALCISILTITE: as above.
	10	CLAYSTONE: as above, probably resulting from high viscosity pill pumped through system.
	trace	FORAMS
1440 - 1465m	100	CALCISILTITE: as above.
	trace	CLAYSTONE
	trace	FORAMS
1465 - 1470m	100	CALCISILTITE: light grey to medium grey, soft to firm, blocky to subfissile, subangular cuttings of coarse grain size, contains dominantly silt sized carbonate grains, some cuttings with a little very calcareous clay matrix, some cuttings very slightly glauconitic, some silt sized quartz grains, some cuttings contain planktonic forams and sponge spicules.
	trace	CLAYSTONE
1470 - 1490m	100	CALCISILTITE: as above.
	trace	CLAYSTONE
	trace	FORAMS
1490 - 1495m	100	CALCISILTITE: as above.
	trace	CLAYSTONE: as above.
	trace	FORAMS
1495 - 1500m	100	CALCISILTITE: as above.
	trace	CLAYSTONE: as above.
	trace	FORAMS
1500 - 1505m	90	CALCISILTITE: as above.
	10	CLAYSTONE: as above.
	trace	FORAMS
1505 - 1515m	100	CALCISILTITE: as above.
	trace	CLAYSTONE: as above.
	trace	FORAMS
1515 - 1520	90	CALCISILTITE: as above.
	10	CLAYSTONE: as above.
	trace	FORAMS
1520 - 1525m	60	CALCISILTITE: as above.
	40	CLAYSTONE: as above.
	trace	FORAMS
1525 - 1540m	70	CALCISILTITE: as above.
	30	CLAYSTONE: as above.
	trace	FORAMS
1540 - 1545m	30	CALCISILTITE: as above.
	70	CLAYSTONE: as above.
	trace	FORAMS
1545 - 1550m	50	CALCISILTITE: as above.
	50	CLAYSTONE: as above.
1550 - 1565m	50	CALCISILTITE: as above.
	50	CLAYSTONE: as above.
1565 - 1570m	20	CALCISILTITE: as above.
	80	CLAYSTONE: as above.
1570 - 1575m	30	CALCISILTITE: as above.
	70	CLAYSTONE: as above.
1575 - 1590m	50	CALCISILTITE: as above.
	50	CLAYSTONE: as above.

1590 - 1595m	50	CALCISILTITE: medium grey to medium light grey. generally subfissile, subangular, coarse to granule sized, cuttings generally firm, some hard, dominantly silt sized clear to white carbonate grains, possibly some quartz grains, very calcareous clay matrix, some planktonic forams and sponge spicules.
	50	CLAYSTONE: light grey, soft, sticky, blocky rounded, coarse to granule size, dispersive, contains some silt sized, carbonate grains with very calcareous clay cement and planktonic forams.
1595 - 1610m	60	CALCISILTITE: as above.
	40	CLAYSTONE: as above.
1610 - 1625m	50	CALCISILTITE: as above.
	50	CLAYSTONE: as above.
	trace	FORAMS
1625 - 1630m	60	CALCISILTITE: as above.
	40	CLAYSTONE: as above.
1630 - 1640m	50	CALCISILTITE: as above.
	50	CLAYSTONE: as above.
1640 - 1645m	40	CALCISILTITE: as above.
	60	CLAYSTONE: as above.
1645 - 1665m	50	CALCISILTITE: as above.
	50	CLAYSTONE: as above.
	trace	FORAMS
1665 - 1670m	60	CALCISILTITE: as above.
	40	CLAYSTONE: as above.
	trace	FORAMS
1670 - 1685m	40	CALCISILTITE: as above.
	60	CLAYSTONE: as above.
	trace	FORAMS
1685 - 1690m	50	CALCISILTITE: as above.
	50	CLAYSTONE: as above.
	trace	FORAMS
1690 - 1700m	60	CALCISILTITE: as above.
	40	CLAYSTONE: as above.
	trace	FORAMS
1700 - 1715m	40	CALCISILTITE: as above.
	60	CLAYSTONE: as above.
	trace	FORAMS
1715 - 1720m	50	CALCISILTITE: as above.
	50	CLAYSTONE: as above.
	trace	FORAMS
1720 - 1735m	60	CALCISILTITE: as above.
	40	CLAYSTONE: as above.
	trace	FORAMS
1735 - 1755m	60	CLAYSTONE: as above.
	40	CALCISILTITE: as above.
	trace	FORAMS
1755 - 1765m	70	CLAYSTONE: as above.
	30	CALCISILTITE: as above.
	trace	FORAMS

1765 - 1770	60 40 trace	CLAYSTONE: as above. CALCISILTITE: as above. FORAMS
1770 - 1780	50 50 trace	CLAYSTONE: as above. CALCISILTITE: as above. FORAMS
1780 - 1815m	60 40 trace	CLAYSTONE: as above. CALCISILTITE: as above. FORAMS
1815 - 1825m	50 50 trace	CLAYSTONE: as above. CALCISILTITE: as above. FORAMS
1825 - 1835m	40 60	CLAYSTONE: as above. CALCISILTITE: as above.
1835 - 1845m	60 40 trace	CLAYSTONE: as above. CALCISILTITE: as above. FORAMS
1845 - 1850m	50 50	CLAYSTONE: as above. CALCISILTITE: as above.
1850 - 1860m	60 40 trace	CLAYSTONE: as above. CALCISILTITE: as above. FORAMS
1860 - 1865m	70 30 trace	CLAYSTONE: as above. CALCISILTITE: as above, but pyritic in part with common loose pyrite. FORAMS
1865 - 1870m	80 20 trace trace	CLAYSTONE: as above. CALCISILTITE: as above. FORAMS PYRITE
1870 - 1880m	70 30 trace trace	CLAYSTONE: as above. CALCISILTITE: as above. FORAMS PYRITE
1880 - 1900m	60 40 trace trace	CLAYSTONE: as above. CALCISILTITE: as above. FORAMS PYRITE
1900 - 1905m	70 30	CLAYSTONE: as above. CALCISILTITE: as above.
1905 - 1910m	60 40	CLAYSTONE: as above. CALCISILTITE: as above.
1910 - 1915m	70 30	CLAYSTONE: as above. CALCISILTITE: as above.
1915 - 1950m	60 40 trace trace	CLAYSTONE: as above. CALCISILTITE: as above. FORAMS PYRITE

1950 - 1955m	70	CLAYSTONE: light grey, very soft, sticky, dispersive, very calcareous, rounded cuttings. Amount of claystone in formation is probably greater than seen in samples due to claystone being washed away during collection of samples.
	30	CALCISILTITE: light grey to medium grey, soft to firm, blocky to subfissile subangular cuttings, dominantly silt sized carbonate grains, a little clay matrix, very calcareous, poorly cemented.
	trace	FORAMS
	trace	PYRITE
1955 - 1970m	60	CLAYSTONE: as above.
	40	CALCISILTITE: as above.
	trace	FORAMS
	trace	PYRITE
1970 - 1990m	70	CLAYSTONE: as above.
	30	CALCISILTITE: as above.
	trace	FORAMS
	trace	PYRITE
1990 - 2005m	60	CLAYSTONE: as above.
	40	CALCISILTITE: as above.
	trace	FORAMS
	trace	PYRITE
2005 - 2015m	70	CLAYSTONE: as above.
	30	CALCISILTITE: as above.
	trace	FORAMS
	trace	PYRITE
2015 - 2040m	60	CLAYSTONE: as above.
	40	CALCISILTITE: as above.
	trace	FORAMS
	trace	PYRITE
2040 - 2045m	70	CLAYSTONE: as above.
	30	CALCISILTITE: as above.
	trace	FORAMS
	trace	PYRITE
	trace	SHELL FRAGMENTS: oval, hollow, thick, calcite shell, elongate.
2045 - 2060m	60	CLAYSTONE: as above.
	40	CALCISILTITE: as above.
2060 - 2065m	50	CLAYSTONE: as above.
	50	CALCISILTITE: as above.
2065 - 2075m	60	CLAYSTONE: as above.
	40	CALCISILTITE: as above.
2075 - 2080m	50	CLAYSTONE: as above.
	50	CALCISILTITE: as above.
2080 - 2105m	60	CLAYSTONE: as above.
	40	CALCISILTITE: as above.
2105 - 2110m	60	CLAYSTONE: very light grey to light grey, very soft, sticky, very calcareous, some medium grey laminae visible.
	40	CALCISILTITE: medium light grey to medium grey, soft to firm, blocky to subfissile subangular cuttings, granular texture, but a lot of very calcareous clay matrix - almost a shale, pyritic in part.
	trace	FORAMS and oval shaped SHELL FRAGMENTS
	trace	PYRITE

2110 - 2115m	60	CLAYSTONE: as above.
	40	CALCISILTITE: as above, also containing very fine to fine grained quartz, subangular to subrounded.
	trace	LIMESTONE: white to light grey, very hard, well cemented, very calcareous, glauconitic indeterminate fossil fragments, some quartz.
	trace	SANDSTONE: loose quartz grains, very fine grained to fine grained, subrounded to rounded.
	trace	PYRITE
	trace	FORAMS
2115 - 2120m	50	CALCISILTITE: as above.
	40	CLAYSTONE: as above.
	10	LIMESTONE: as above.
	trace	PYRITE
	trace	SANDSTONE
	trace	FORAMS
2120 - 2125m	50	CALCISILTITE: as above.
	50	CLAYSTONE: as above.
	trace	LIMESTONE
	trace	SANDSTONE
	trace	FORAMS
	trace	PYRITE
2125 - 2140m	50	CALCISILTITE: as above.
	50	CLAYSTONE: as above.
	trace	LIMESTONE
	trace	FORAMS and oval SHELL FRAGMENTS
	trace	SANDSTONE
2140 - 2145m	50	CALCISILTITE: as above, more silty ie. less shaly than previous description.
	50	CLAYSTONE: as above.
	trace	LIMESTONE
	trace	SANDSTONE
	trace	FORAMS and SHELL FRAGMENTS
	trace	PYRITE
2145 - 2155m	50	CALCISILTITE: as above.
	50	CLAYSTONE: as above.
	trace	LIMESTONE
	trace	SANDSTONE
	trace	PYRITE
	trace	FORAMS
2155 - 2160m	60	CALCISILTITE: as above.
	40	CLAYSTONE: as above.
	trace	LIMESTONE
	trace	SANDSTONE
	trace	PYRITE
	trace	FORAMS
2160 - 2165m	50	CALCISILTITE: as above.
	50	CLAYSTONE: as above.
	trace	LIMESTONE
	trace	SANDSTONE
	trace	PYRITE
	trace	FORAMS
2165 - 2170m	60	CLAYSTONE: as above.
	40	CALCISILTITE: as above, but more shaly, cuttings are less blocky, commonly splintery shaped.
	trace	PYRITE
	trace	FORAMS

2170 - 2175m	60	CLAYSTONE: as above.
	40	CALCISILTITE: as above.
	trace	PYRITE
	trace	FORAMS
2175 - 2185m	50	CLAYSTONE: as above.
	50	CALCISILTITE: as above.
	trace	PYRITE
	trace	FORAMS
2185 - 2190m	60	CLAYSTONE: as above.
	40	CALCISILTITE: as above.
	trace	PYRITE
	trace	FORAMS
2190 - 2195m	50	CLAYSTONE: as above.
	50	CALCISILTITE: as above.
2195 - 2200m	50	CLAYSTONE: as above.
	50	CALCISILTITE: as above.
2200 - 2205m	50	CLAYSTONE: as above.
	50	CALCISILTITE: as above.
2205 - 2225m		Ran wiper trip at 2230m (sticky hole). Cuttings from 2205 - 2225 mixed up in the hole during the wiper trip.
2225 - 2230m	80	SILTSTONE: medium grey, firm, argillaceous matrix, calcareous, subfissile, trace carbonaceous flecks, trace fine crystalline aggregates of pyrite (both within the siltstone cuttings and loose), occasionally trace glauconite.
	20	CLAYSTONE: light grey, very soft, water sensitive, calcareous.
2230 - 2235m	70	SILTSTONE: as above.
	30	CLAYSTONE: as above.
	trace	FORAMS: very well rounded, worn.
	trace	FOSSIL FRAGMENTS: light grey, calcite cylinders, worn (possibly bryozoan fragments?).
2235 - 2240m	70	SILTSTONE: as above.
	30	CLAYSTONE: as above.
2240 - 2245m	70	SILTSTONE: as above.
	30	CLAYSTONE: as above.
2245 - 2250m	60	SILTSTONE: as above, rare tan dolomitic siltstone also.
	40	CLAYSTONE: as above.
	trace	FORAMS: rounded, very worn.
2250 - 2255m	50	SILTSTONE: as above.
	50	CLAYSTONE: as above.
2255 - 2260m	50	SILTSTONE: as above.
	50	CLAYSTONE: as above.
2260 - 2265m	50	SILTSTONE: as above.
	50	CLAYSTONE: as above.
2265 - 2270m	40	SILTSTONE: as above.
	60	CLAYSTONE: as above.
2270 - 2275m	40	SILTSTONE: as above.
	60	CLAYSTONE: as above.

2275 - 2280m	60	SILTSTONE: medium grey to medium dark grey, very argillaceous, calcareous, subfissile to fissile, trace black carbonaceous flecks, trace pyritic aggregates, rare glauconitic cuttings, some very fine mica.
	40	CLAYSTONE: light grey, very soft, water sensitive, calcareous.
2280 - 2285m	40	SILTSTONE: as above.
	60	CLAYSTONE: as above.
2285 - 2290m	50	SILTSTONE: as above.
	50	CLAYSTONE: as above.
	trace	FORAMS: very worn.
2290 - 2295m	50	SILTSTONE: as above.
	50	CLAYSTONE: as above.
	trace	FORAMS: very worn.
2295 - 2300m	60	SILTSTONE: as above.
	40	CLAYSTONE: as above.
	trace	FORAMS: very worn.
2300 - 2305m	60	SILTSTONE: as above.
	40	CLAYSTONE: as above.
	trace	FORAMS: very worn.
2305 - 2310m	50	SILTSTONE: as above.
	50	CLAYSTONE: as above.
	trace	FORAMS: very worn.
2310 - 2315m	50	SILTSTONE: as above.
	50	CLAYSTONE: as above.
	trace	FORAMS: very worn.
2315 - 2320m	40	SILTSTONE: as above.
	60	CLAYSTONE: as above.
	trace	FORAMS: very worn.
2320 - 2325m	50	SILTSTONE: medium grey, very argillaceous, some shaly, moderately firm, calcareous, subfissile, trace black carbonaceous flecks, trace very fine mica, some fine pyrite aggregates.
	50	CLAYSTONE: light grey, very soft, water sensitive, calcareous.
	trace	FORAMS: varying degrees of abrasion.
2325 - 2330m	40	SILTSTONE: as above.
	60	CLAYSTONE: as above.
2330 - 2335m	40	SILTSTONE: as above.
	60	CLAYSTONE: as above.
2335 - 2340m	40	SILTSTONE: as above.
	60	CLAYSTONE: as above.
2340 - 2345m	50	SILTSTONE: as above.
	50	CLAYSTONE: as above.
	trace	FORAMS: varying degrees of abrasion.
2345 - 2350m	60	SILTSTONE: as above.
	40	CLAYSTONE: as above.
2350 - 2355m	50	SILTSTONE: as above.
	50	CLAYSTONE: as above.
2355 - 2360m	50	SILTSTONE: as above.
	50	CLAYSTONE: as above.

2360 - 2365m	60	SILTSTONE: as above.
	40	CLAYSTONE: as above.
2365 - 2370m	60	SILTSTONE: medium grey, argillaceous, some quite shaly, calcareous, subfissile to fissile, occasional fine pyritic aggregates, some fine disseminated pyrite, occasional black carbonaceous flecks, occasional scattered very fine grained quartz grains.
	40	CLAYSTONE: light grey, very soft, water sensitive, calcareous.
2370 - 2375m	60	SILTSTONE: as above, ranges medium light grey to medium grey.
	40	CLAYSTONE: as above.
	trace	FORAMS: abraded.
2375 - 2380m	50	SILTSTONE: as above.
	50	CLAYSTONE: as above.
2380 - 2385m	50	SILTSTONE: as above.
	50	CLAYSTONE: as above.
2385 - 2390m		SILTSTONE: as above, very rarely with fine glauconite pellets.
		CLAYSTONE: as above.
2390 - 2395m	50	SILTSTONE: as above.
	50	CLAYSTONE: as above.
2395 - 2400	40	SILTSTONE: as above.
	60	CLAYSTONE: as above.
2400 - 2405m	50	SILTSTONE: medium grey, subfissile, argillaceous, some shaly, calcareous, trace black carbonaceous flecks, trace very fine mica, trace pyrite.
	50	CLAYSTONE: light grey, very soft, water sensitive, calcareous.
	trace	FORAMS: abraded.
2405 - 2410	60	SILTSTONE: essentially as above, but with glauconitic pellets in some cuttings (rare).
	40	CLAYSTONE: as above.
2410 - 2415m	70	SILTSTONE: medium grey, argillaceous, calcareous, subfissile, some with pale green tinge (glauconitic), occasional glauconite pellets, some grades to very fine sandstone: argillaceous, quartzose, light grey.
	30	CLAYSTONE: as above.
	trace	FORAMS
	trace	SANDSTONE: loose quartz grains, fine to medium, subangular to rounded, very minor yellowish fluorescence in this sample, but no cut was observed.
2415 - 2417m	70	SILTSTONE: as above.
	10	SANDSTONE: loose quartz grains, very fine to very coarse, mainly medium to coarse grains, poorly sorted, subrounded to rounded, clear to frosted grains, rare argillaceous fine grained aggregates.
	20	CLAYSTONE: as above.
		Very rare yellow fluorescence in fine sandstone aggregates - with very very poor cut. No fluorescence in loose grains (could have been flushed while drilling). Mud gas reached maximum of 29 (C1 - C5 present) from background of 1-2 units.
2417.1 - 2429m		See Core Description

2429 - 2430m	80	SANDSTONE: loose quartz grains, dominantly medium to coarse grain size, some very coarse grains, frosted subangular to subrounded grains, coarse to very coarse grains are rounded to well rounded, poorly sorted, loose pyrite, some quartz grains are encrusted with pyrite, no fluorescence.
	20	SILTSTONE: as above.
	trace	GLAUCONITE PELLETS
	trace	LOOSE PYRITE
2430 - 2435m	80	SANDSTONE: as above.
	20	SILTSTONE: as above.
	trace	GLAUCONITE
	trace	PYRITE
2435 - 2440m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
	trace	PYRITE
2440 - 2445m	80	SANDSTONE: as above.
	20	SILTSTONE: as above.
2445 - 2450m	90	SANDSTONE: loose quartz grains, clear, mainly medium to coarse grained, some very coarse, poorly sorted, grains are often frosted, subangular to subrounded larger grains generally better rounded, occasional grains are encrusted with chunks of pyrite, no shows.
	trace	SANDSTONE: dark grey, rounded, very hard, lithic sand grains, containing very fine disseminated pyrite, very fine quartz crystals, trace possibly very fine mica and dark microcrystalline mineral, possibly lithic grain or mineral inclusion from quartzite - very well rounded so considerable transport and/or reworking is indicated.
	10	SILTSTONE: medium light grey, argillaceous matrix, moderately calcareous, subfissile - blocky, some cuttings grade to very fine argillaceous sandstone, trace carbonaceous material, may consists of cavings but generally is less fissile and lighter colour than Lakes Entrance Formation siltstones.
2450 - 2455m	90	SANDSTONE: as above.
	trace	PYRITE
	10	SILTSTONE: as above.
2455 - 2460m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
2460 - 2465m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
2465 - 2470m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
2470 - 2475m	80	SANDSTONE: as above.
	20	SILTSTONE: as above.
2475 - 2485m		Samples could not be collected due to shaker screens being changed.
2485 - 2490m	90	SANDSTONE: as above.
	10	SILTSTONE: as above, grading to fine grained sandstone.
2490 - 2500	90	SANDSTONE: as above.
	10	SILTSTONE: as above.

2500 - 2505m	90	SANDSTONE: as above, fine grained argillaceous sandstone previously described with siltstone, is seen adhering to coarse quartz grains. Fine sandstone is fine component of poorly sorted sandstone as described in Core 1.
	10	SILTSTONE: as above.
	trace	PYRITE
2505 - 2510m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
	trace	PYRITE
2510 - 2515m	80	SANDSTONE: as above, quartz grains often appear to be composite grains, commonly with very fine mineral inclusions within grains or along grain boundaries.
	20	SILTSTONE: as above.
2515 - 2520m	90	SANDSTONE: loose quartz grains, as above, also an increasing amount (10-20%) of fine grained slightly argillaceous quartzose siltstone with slightly calcareous cement and occasional pale to dark green glauconitic pellets.
	10	SILTSTONE: as above.
2520 - 2525m	80	SANDSTONE: as above, about 10% of grains are attached to fine grained argillaceous sandstone .
	20	SILTSTONE: as above.
	trace	PYRITE
2525 - 2530m	30	SANDSTONE: as above.
	70	SHALE: medium grey to medium dark grey, firm, angular, fissile to splintery cuttings - very sharp edged, flat, moderately calcareous, dominantly argillaceous with uniform texture, contains forams, pyritic streaks in part, has lithified slightly recrystallised appearance.
	trace	SILTSTONE: as above.
2530 - 2535m	60	SANDSTONE: as above.
	40	SHALE: as above.
	trace	PYRITE
	trace	SILTSTONE
2535 - 2540m	50	SANDSTONE: as above.
	50	SHALE: as above.
	trace	PYRITE
	trace	SILTSTONE
2540 - 2545m	40	SANDSTONE: as above.
	60	SHALE: as above.
	trace	PYRITE
	trace	SILTSTONE
2545 - 2550m	50	SANDSTONE: as above.
	50	SHALE: as above.
2550 - 2555m	40	SANDSTONE: as above.
	60	SHALE: as above.

2555 - 2560m 70 SANDSTONE: mainly loose quartz grains, clear, fine to very coarse, mainly medium to coarse, poorly sorted, frosted surfaces, subangular to subrounded, many with fine mineral inclusions, common composite grains, also about 10% very fine sandstone aggregates - slightly argillaceous, slightly calcareous, trace pyrite chunks.

30 SHALE: medium grey, fissile to subfissile, moderately calcareous, trace carbonaceous flecks, trace pyritic clusters.

2560 - 2566 50 SHALE: as above, occasionally with calcareous shell fragments.

40 SILTSTONE: medium light grey, argillaceous, moderately calcareous, subfissile to blocky, trace carbonaceous matter, very fine grained pyritic clusters.

10 SANDSTONE: mainly loose quartz grains, as above.

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APPENDIX 2

APPENDIX 2

CORE DESCRIPTIONS

ESSO AUSTRALIA LTD.
CORE DESCRIPTION

Core No. One.....

Well Yellowtail-2.

Interval Cored 2417 - 2429 m, Cut 12 m, Recovered 4.3 m, (.36%) Fm. LATROBE.....

Bit Type C-22 Bit Size 8-15/32" in. Desc by FITTAL/GLENTON Date 3-4/7/82

Depth & Coring Rate (m/hr)	Graphic	Shows	Interval (m)	Descriptive Lithology
20 WOB 8 RPM 65			2417	2417-2419.3 Sandstone: quartzose, medium grey at base, medium to coarse grained, occasional coarse granule bands, moderate visual porosity, moderately hard with some more friable bands, poorly sorted, trace glauconite at base (topmost part of bed however is brn, argillaceous, very dirty, medium quartzose sandstone with very poor visual porosity and some black glossy fluorescent residual oil coating grains - appears non-net). Bleeding oil present to 2418.8 (minor pinpoint bleeding to 2429.4). Yellow gold fluorescence becomes orange yellow around 2419m. Instant creamy cut.
			2418	2419.3-2419.4 Sandstone: fine to medium grained, quartzose, light grey, moderately hard, some coarser bands, moderate to poorly sorted, poor visual porosity.
			2419	2419.4-2419.7 Sandstone: medium to coarse grained to granule, medium light grey, quartzose, poorly sorted, moderately hard, rounded grains, only moderate visual porosity, pyritic, minor bleeding oil.
			2420	2419.7-2420.0 Sandstone: fine to medium grained, medium grey, quartzose, some coarse to granule grains in thin bands, pyritic and glauconitic in places, fairly hard, relatively tight, only spotty fluorescence with pin point bleeding and very slow cut.
			2421	2420-2421.3 Sandstone: medium light grey, quartzose fine grained to coarse, very poorly sorted, good porosity, some bedding apparent due to grain size variation ranges from moderately hard to very friable, little clay matrix.
			2422	NOTE: 2419.3-2421.3 Creamy yellow fluorescence, fairly uniform, fast streaming cream cut.
			2423	NOTE: Below 2420m core becomes broken up to unconsolidated.
			2424	
			2425	
			2426	

NOTE: Bottom 0.2-0.3m of core is very badly broken up. However no fluorescence or cut is present in the larger pieces. Oil/water contact is at about 2421 (assuming missing material is from bottom-almost certainly not entirely true. No reasonable estimate of where missing section is can be made from drill rate alone).

NOTE: Core marked red line on right, blue on left when right way up.

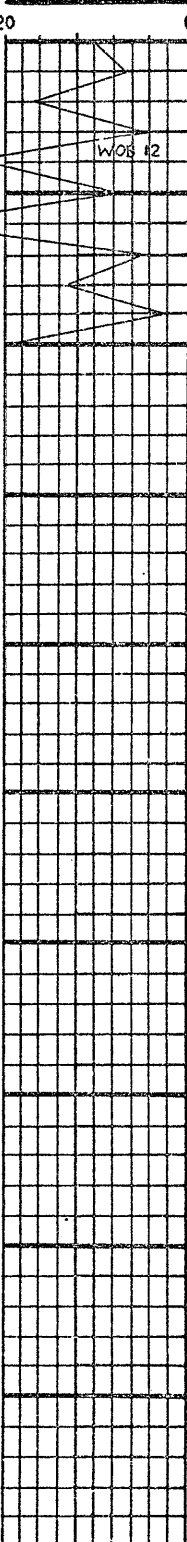
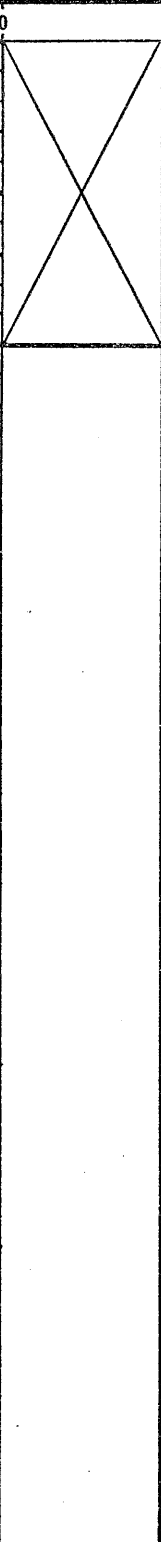
ESSO AUSTRALIA LTD.
CORE DESCRIPTION

Core No. One (Page 2)

Well YELLOWTAIL-2

Interval Cored 2417 - 2429 m, Cut 12 m, Recovered 4.3 m, (.36%) Fm. LATROBE

Bit Type C-22 Bit Size 8-15/32" in. Desc by FITTAL/GLENTON Date 3-4/7/82

Depth & Coring Rate (m/hr)	Graphic	Shows	Interval (m)	Descriptive Lithology
<div style="display: flex; justify-content: space-between;"> 20 0 </div> 			2427 2428 2429	

APPENDIX 3

YELLOWTAIL 2

Sidewall Core Descriptions

<u>No.</u>	<u>Depth</u>	<u>Rec.</u> (mm)	<u>Type</u> <u>Rock</u>	
1	2537.1	10	Sandstone	Medium grey, very fine to very coarse grained, poorly sorted, angular to rounded, friable, quartzose.
2	2534.0	10	Sandstone	Medium light grey, very fine to very coarse grained, poorly sorted, angular to rounded, , slightly calcareous, quartzose, slightly glauconitic, trace brown mica flakes, trace pyrite.
3	2528.9	10	Sandstone	Medium light grey, very fine to medium grained, moderately sorted, subangular to subrounded, friable, slightly calcareous, quartzose, glauconitic.
4	2526.0	10	Sandstone	Medium light grey, very fine to fine grained, moderately sorted, subangular, friable, quartzose, glauconitic, trace carbonaceous, trace brown mica, slightly calcareous.
5	2518.0	10	Sandstone	Medium light grey, very fine to fine grained, moderately sorted, subangular, friable, quartzose, slightly glauconitic, clay matrix.
6	2510			Lost Bullet
7	2502.0	10	Sandstone	Medium light grey, very fine to medium grained, poorly sorted, subangular, friable, quartzose, trace pyrite, clay matrix.
8				Misfire
9				Misfire
10				Misfire
11				Misfire
12				Misfire
13				Misfire
14				Misfire
15				Misfire
16				Misfire
17				Misfire
18				Misfire
19				Misfire
20				Misfire
21				Misfire
22				Misfire
23				Misfire
24				Misfire

25				Misfire
26				Misfire
27				Misfire
28				Misfire
29				Misfire
30				Misfire
31	2414.9	10	Sandstone	Brown, very fine to medium grained, poorly sorted, angular to subrounded, firm, quartzose, abundant clay matrix, moderately calcareous.
32	2413.9	10	Sandstone	Light green, very fine to very coarse grained, poorly sorted, subangular to rounded, firm, moderately calcareous, quartzose, abundant clay matrix, very glauconitic, pyritic.
33	2413.0	10	Claystone	Green to grey, firm, silty, quartzose, uniform texture.
34	2412.0	10	Claystone	Medium grey, soft, silty, quartzose, sticky.
35	2411.0	10	Claystone	Medium grey, soft, very calcareous, silty, quartzose, sticky.
36	2410.0	5	Claystone	Very light grey, soft, very calcareous, very glauconitic, silty, quartzose, sticky.
37	2409.0	10	Claystone	Medium light grey, firm, very calcareous, very glauconitic, very sandy to very fine quartz.
38	2408.0	8	Siltstone	Light grey, firm, very calcareous, silt sized carbonate grains, slightly glauconitic, trace pyrite.
39	2407.0	10	Siltstone	Light grey, firm to soft, very calcareous, silt sized carbonate grains, slightly glauconitic.
40	2406.0	10	Claystone	Medium light grey, soft, very calcareous, silt sized carbonate grains, glauconitic.
41	2405.0	10	Claystone	Light grey, firm, very calcareous, silt sized carbonate grains, glauconitic.
42	2400.0			Lost Bullet
43	2395.0	10	Claystone	Light grey, firm, very calcareous, slightly subfissile, very slightly silty.
44	2385.0	10	Claystone	Light grey, firm, slightly subfissile, uniform texture, very calcareous.
45	2375.0	10	Claystone	Light grey, firm, slightly subfissile, uniform texture, slightly pyritic, very calcareous.

46	2365.0	8	Claystone	Light grey, firm to hard, very calcareous, uniform texture, slightly pyritic.
47	2355.0	8	Claystone	Medium grey, firm to hard, very calcareous, subfissile, uniform texture.
48				Misfire
49				Misfire
50				Misfire
51				Misfire
52	2502.0	5	Sandstone	Very light grey, very fine to coarse grained, subangular, poorly sorted, friable, quartzose, clean.
53	2488.0	5	Sandstone	Medium grey, very fine to medium grained, poorly sorted, subangular, friable, quartzose, some clay matrix.
54	2475.9			Misfire
55	2462.1	5	Sandstone	Light grey, very fine to medium grained, moderately sorted, subangular, friable, quartzose, clean.
56				Misfire
57				Misfire
58				Misfire
59				Misfire
60				Misfire
61				Misfire
62				Misfire
63				Misfire
64				Misfire
65				Misfire
66				Misfire
67				Misfire
68				Misfire
69				Misfire
70				Misfire
71				Misfire
72				Misfire
73				Misfire
74				Misfire
75				Misfire

76				Misfire
77				Misfire
78				Misfire
79				Misfire
80				Misfire
81				Misfire
82				Misfire
83				Misfire
84	2014.9	5	Claystone	Medium grey, soft to firm, very calcareous, some medium quartz grains, trace pyrite.
85				Misfire
86				Misfire
87				Misfire
88				Misfire
89				Misfire
90				Misfire
91				Misfire
92				Misfire
93				Misfire
94				Misfire
95				Misfire
96				Misfire
97				Misfire
98				Misfire
99				Misfire
100				Misfire
101				Misfire
102				Misfire
103	2476	20	Claystone	Dark grey, clayey to fine grained, sandy, firm, slightly calcareous, the claystone is dissected by light grey quartzose sand lenses, trace micromica, trace very fine grained disseminated pyrite, trace black carbonaceous material.
104	2445	30	Sandstone	Medium light grey, fine to medium grained, poorly sorted, subangular to subrounded, friable, non calcareous, quartzose, trace fine muscovite, trace dark carbonaceous flecks.

105	2435	25	Sandstone	Medium light grey, fine to medium grained, poorly sorted, subangular to subrounded, friable, non calcareous, quartzose, trace fine muscovite, trace carbonaceous flecks, trace very fine grained pyritic patches.
106	2430.0	30	Sandstone	Medium grey, very fine to coarse grained, poorly sorted, subangular to rounded, friable, slightly calcareous, slightly argillaceous, quartzose.
107	2429.0	30	Sandstone	Light grey, very fine to coarse grained, poorly sorted, subangular, friable, slightly calcareous, trace argillaceous material, quartzose.
108	2427.9	35	Sandstone	Light grey, very fine to coarse grained, poorly sorted, subangular to subrounded, friable, slightly calcareous, 30% spotty bright cream white fluorescence, dull cream white cut, clear residue.
109	2427.0			Lost Bullet
110	2426.0	30	Sandstone	Medium grey, very fine to coarse grained, poorly sorted, subangular, friable, slightly calcareous, slightly argillaceous, quartzose, 30% spotty bright cream fluorescence, bright cream white cut, clear residue.
111	2424.9	35	Sandstone	Medium grey, very fine to coarse grained, poorly sorted, subangular, friable, slightly calcareous, slightly argillaceous, quartzose, 60% even bright cream fluorescence, bright cream cut, clear residue.
112	2423.9	30	Sandstone	Light grey, very fine to medium grained, moderately sorted, subangular, friable, quartzose, 60% even bright cream white fluorescence, bright white cut, clear residue.
113	2423.0	35	Sandstone	Green to grey, very fine to coarse grained, poorly sorted, angular to subrounded, firm, very glauconitic, very pyritic, quartzose, 50% spotty bright cream to white fluorescence, dull cream white cut, clear residue, very tight.
114	2421.9	35	Sandstone	Brown, very fine to coarse grained, poorly sorted, angular to subrounded, firm, quartzose, very argillaceous, 10% spotty faint gold fluorescence, bright cream yellow cut, light brown residue, tight.
115	2421.0	30	Sandstone	Brown to grey, very fine to coarse grained, poorly sorted, slightly calcareous, quartzose, argillaceous, pale blue yellow cut, trace coarse angular feldspar grains, tight.

116	2419.9	40	Sandstone	Brown, very fine to medium grained, moderately sorted, subangular, friable, quartzose, argillaceous, 10% spotty faint gold fluorescence, bright cream yellow cut, light brown residue, tight.
117	2419.0	30	Sandstone	Brown to grey, very fine to coarse grained, poorly sorted, subangular to subrounded, firm, slightly calcareous, quartzose, argillaceous, silty, dull to bright, cream to yellow cut, light brown residue, tight.
118	2418	30	Sandstone	Brown, very fine to medium grained, moderately sorted, subangular, firm, quartzose, argillaceous, dull cream yellow cut, tight.
119	2417.0	30	Sandstone	Brown, very fine to coarse grained, poorly sorted, subangular, firm, slightly calcareous, quartzose, argillaceous, slightly glauconitic.
120	2415.9	30	Sandstone	Brown to grey, very fine to coarse grained, poorly sorted, subangular to subrounded, friable, slightly calcareous, quartzose, argillaceous, slightly glauconitic.
121	2400	50	Claystone	Medium grey, soft, clayey, trace glauconitic pellets, very calcareous.
122	2390	50	Claystone	Medium grey, clayey, moderately firm.
123	2380	45	Claystone	Medium grey, clayey, moderately firm, very calcareous, trace very fine grained pyrite.
124	2370	30	Claystone	Medium grey, clayey, firm to hard, very calcareous, trace carbonaceous flecks, trace silt sized quartz.
125	2345	30	Claystone	Medium grey, clayey, firm, very calcareous, trace fine floating quartz grains.
126	2335	45	Claystone	Medium grey, clayey, firm, very calcareous, trace very fine grained carbonaceous flecks.
127	2324.9	50	Claystone	Medium grey, clayey, firm, very calcareous.
128	2315	40	Claystone	Medium grey, clayey to silty, firm, very calcareous, slightly silty, trace floating fine to medium grained quartz grains, trace very fine grained carbonaceous material.
129	2305	45	Claystone	Medium grey, clayey, firm, very calcareous, trace very fine grained pyritic patches, trace micromica.
130	2293.9			Lost Bullet
131	2283	40	Claystone	Medium grey, firm, clayey, very calcareous, trace micromica, trace very fine grained carbonaceous flecks.

APPENDIX 3

SIDEWALL CORE DESCRIPTIONS

132	2271	30	Claystone	Medium grey, clayey, firm, very calcareous, trace very fine grained disseminated pyrite and very fine pyrite veins.
133	2258	35	Claystone	Medium grey, clayey, firm, very calcareous, trace light grey calcareous grains.
134	2169	35	Claystone	Medium dark grey, clayey, firm, very calcareous, trace micromica.
135	2090	30	Claystone	Medium grey, clayey, hard, very calcareous, trace very fine grained pyrite, trace very fine grained carbonaceous flecks.
136	1940	20	Claystone	Medium light grey, clayey, firm, very calcareous, trace micromica.
137	1865	25	Claystone	Medium grey, clayey, firm, very calcareous.
138	1790	30	Claystone	Medium grey, clayey, firm, very calcareous, trace very fine pyrite.
139	1710	35	Claystone	Medium grey, clayey, firm, very calcareous.
140	1635	25	Claystone	Medium grey, clayey, firm, very calcareous.
141	1560	15	Claystone	Medium grey, clayey, firm, very calcareous, trace very fine grained carbonaceous flecks.
142	1485	25	Claystone	Medium grey, clayey, firm, very calcareous, occasional light grey calcareous lenses.
143	1409.9	20	Claystone	Medium grey, clayey, moderately firm, very calcareous, trace very fine grained carbonaceous flecks, very vague light grey to medium grey 'mottling'.
144	1381	10	Claystone	Medium grey, clayey to silty, moderately firm, very calcareous, slightly silty, trace carbonaceous flecks.
145	1376	15	Calcisiltite	Medium light grey, clayey to silty, very soft, very calcareous, argillaceous, slightly quartzose, trace carbonaceous flecks, argillaceous .
146	1367.9	20	Calcisiltite	Medium light grey, clayey to silty, very friable, very calcareous, argillaceous, trace carbonaceous flecks.
147	1295	20	Calcisiltite	Medium grey, clayey to silty, very friable, very calcareous, argillaceous, trace carbonaceous flecks.

148	1219.9	20	Calcisiltite	Medium grey, clayey to silty, very friable, very calcareous, argillaceous, trace carbonaceous flecks.
149	1145	15	Calcisiltite	Medium grey, clayey to silty, very friable, very calcareous, argillaceous, trace very fine grained carbonaceous flecks.
150	1070	30	Calcisiltite	Medium light grey, clayey to silty, firm, very calcareous, slightly argillaceous.
151	995.1	30	Siltstone	Medium light grey, clayey to silty, firm, very calcareous, argillaceous.
152	920	35	Siltstone	Medium light grey, clayey to silty, firm, very calcareous, argillaceous, almost calcisiltite.
153	845	35	Calcisiltite	Medium light grey, clayey to silty, firm, very calcareous, argillaceous.

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APPENDIX

4

APPENDIX 4

VELOCITY SURVEY REPORT

MARINE VELOCITY SURVEY

Well YELLOWTAIL-2
Basin GIPPSLAND

INTRODUCTION

Esso Personnel JOHN VOLARIC
Contractor VELOCITY DATA LTD

Supplied (1) Instruments.
(2) Personnel

Seismic Observer..... TED POOLEY
Marine Shooter ... MALCOLM O'DRISCOLL
Navigation..... N/A

(3) Licenced Shooting Boat

Name..... N/A
Date Loaded.....
Date Released.....
Agent.....

(4) Seismic Source

Gas Gun

Gas Pressures..... 20 sec fill
Oxygen..... 90psi
Propane..... 45psi

Personnel and Instruments

assembled at SALE Date 5.7.82
Boarded (rig) .. SOUTHERN CROSS Date 5.7.82
Date of survey 6.7.82
Casing Depth .20" @ 226m
..... 13"3/8 @ 809m
T.D. when shot ... 2566m RKB
water depth 78metres

SURVEY PROCEDURE

Weather: Wind STIFF BREEZE
Swell 1-2M
Sea MODERATE
Rig Movement MODERATE-SLIGHT
Rig Noise LOW

Hydrophones: Number.....TWO.....
 Depth below sea level .12.2.....metres
 Position ..One at top of gun and one in moon
 pool
 Gas Gun: number of shots per level Variable
 gun depth12.2.....metres
 Well phone positioning:
 No of depths17.....
 Time: first shot01406.7.82.....
 last shot05466.7.82.....
 Total rig time4 hrs.....

RESULTS

Quality of results (good33.....
 (fair14.....
 (poor8.....
 (not used5.....

Comparison of Interval Times with Sonic Log

/ / average11.34.....microsec/metre
 / / max23.8.....microsec/metre

CONCLUSION

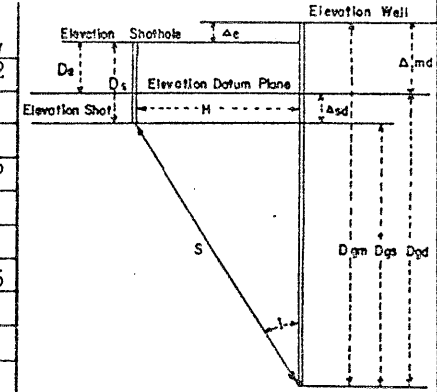
Reliability of T-D curveGOOD.....

COMMENTS

The quality of data below the cased hold is quite good. The hole however was up to 15" in diameter and the long locking arm was used. This led to difficulties in locking of the well geophone in the cased hole. Note also that the data in the cased hole are quite noisy. The time break for shots 58-60 is unrealistically early and may be due to sound travelling down casing - it has been ignored.

0586Q:3-4

Shothole Information:- Elevation, Distance & Direction from Well			Company		Well		Elevation		Total Depth		LOCATION												
			ESSO EXPLORATION		YELLOWTAIL-2		21m RKB		2566m RKB		Coordinates Section, Township, Range County Area or Field												
											Lat. 38° 31' 59.98" S Long. 148° 16' 54.84" E DATUM: mean sea level GIPPSLAND												
Record Number	Shothole Number	Time of Shot	Dgm	Ds	tus	tr	T			Dgs	H	TAN i	Cos i	Tgs	Δsd	Δsd/V	Tgd	Tgd Average	Dgd	ΔDgd	ΔTgd	Vi Interval Velocity	Va Average Velocity
							Roading	Priority	Grade														
58	17	0544	300	12.2		030	94		F	266.8	45.8	0.172	0.9856	.0926	12.2	.008	.1009	(.101)	.279				2762
59		0545					94		F					.0926						150	(.113)	1327)	
60		0546					95		F					.0936									2005
55	16	0533	450	"		"	207		F	416.8		0.110	0.9940	.2058	"	"	.2141	.214	429				
56		0534					208		F					.2068						150	.061	2459	
57		0535					207		F					.2058									
48	15	0511	600	"		"	269		P	566.8		0.081	0.9968	.2681	"	"	.2747	.275	579				2105
49		0513					268		F					.2671									
50		0514					269		P					.2681						150	.052	2885	
52		0518					268		P					.2671									
53		0519					266		P					.2651									
54		0521					266		P					.2651									
42	14	0448	750	"		"	318		P	716.8		0.064	0.9980	.3174	"	"	.3266	.327	729				2229
43		0451					320		P					.3194						155	.048	3229	
44		0454					320		P					.3194									
45		0457					319		F					.3184									
38	13	0428	905	"		"	367		G	871.8		0.052	0.9986	.3665	"	"	.3748	.375	884				2357
39		0429					368		G					.3675						195	.064	3047	
40		0430					367		G					.3665									
35	12	0416	1100	"		"	430		G	1066.8		Offset does not affect time		"	"	.4387	.439	1079					2458
36		0417					431		G											125	.039	3205	
37		0418					431		G														
32	11	0404	1225	"		"	470		G	1191.8		"	"	"	"	"	.4783	.478	1204				2519
33		0405					470		G											151	.046	3283	
34		0406					471		G														
29	10	0353	1376	"		"	516		G	1342.8		"	"	"	"	"	.5237	.524	1355				2586
30		0354					516		G											159	.044	3614	
31		0355					515		G														
26	9	0343	1535	"		"	561		G	1501.8		"	"	"	"	"	.5680	.568	1514				2665
27		0344					559		G														
28		0345					560		G											125	.038	3289	
1	1	0140	1660	"		"	598		G	1626.8		"	"	"	"	"	.6057	.606	1639				2705
2		0141					598		G														
25		0335					598		G											178	.059	3017	



Dgm = Geophone depth measured from well elevation
Dgs = " " " " shot "
Dgd = " " " " datum "
Ds = Depth of shot
De = Shothole elevation to datum plane
H = Horizontal distance from well to shotpoint
S = Straight line travel path from shot to well geophone
tus = Uphole time at shotpoint
T = Observed time from shotpoint to well geophone.
tr = " " to reference geophone.
Δe = Difference in elevation between well & shotpoint.
Δsd = " " " " shot & datum plane
Δsd = Ds - De
Dgs = Dgm - Dst Δe; tan i = $\frac{H}{Dgs}$
Tgs = cos i T = Vert. travel time from shot elev. to geophone
Tgd = Tgs ± $\frac{\Delta sd}{V}$ " " " datum plane " "
Dgd = Dgm - Δmd
Vi = Interval velocity = $\frac{\Delta Dgd}{\Delta Tgd}$
Va = Average = $\frac{Dgd}{Tgd}$

Surveyed by: Velocity Data Pty Ltd
Date: 6/7/82
XXXXXXXXXX
20" @ 226m
13 3/8" @ 809m
Casing Record

VELOCITY SURVEY ERROR CHECK

YELLOWTAIL-2

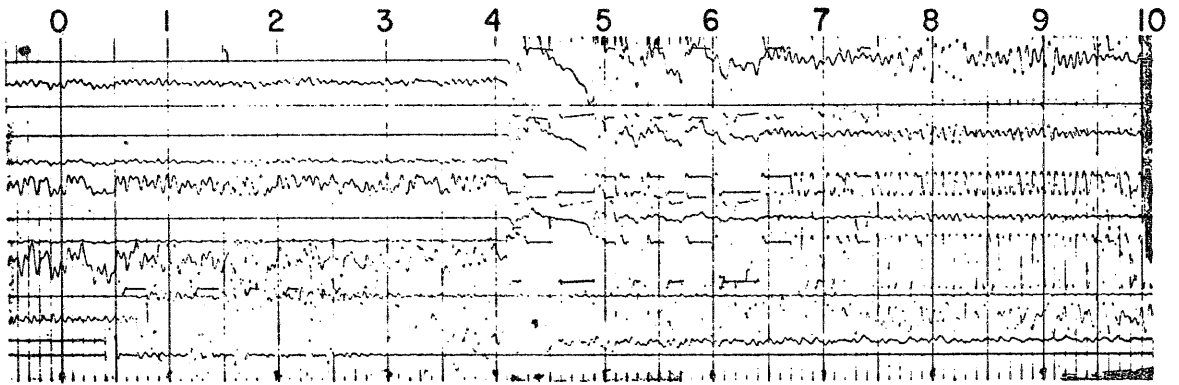
Depth Rel.S.L. (m)	Av. Vertical Travel Time (check shots)	Ti Check Shots (sec.)	Ti Sonic Log (sec.)	Δ (Millisecs.) Ti - Ti Check Sonic	Depth Interval (m.)	Error (Microsec. per m.)
279	.101	.113			150	
429	.214					
429	.214	.061			150	
579	.275					
579	.275	.052			150	
729	.327					
729	.327					
884	.375	.048			155	
884	.375					
884	.375	.064	.0633	0.7	195	3.6
1079	.439					
1079	.439	.039	.0393	-0.3	125	-2.4
1204	.478					
1204	.478	.046	.0424	3.6	151	23.8
1355	.524					
1355	.524	.044	.0431	0.9	159	5.7
1514	.568					
1514	.568	0.38	0.363	1.7	125	13.6
1639	.606					
1639	.606	.059	.0564	2.6	178	14.6
1817	.665					
1817	.665	.052	.0499	2.1	162	13.0
1979	.717					
1979	.717	.054	.0524	1.6	165	9.7
2144	.771					
2144	.771	.047	.0451	1.9	135	14.1
2279	.818					
2279	.818	.038	.0360	2.0	114	17.5
2393	.856					
2393	.856	.017	.0165	0.5	61	8.2
2454	.873					
2454	.873	.022	.0212	0.8	81	9.9
2535	.895					

YELLOWTAIL-2

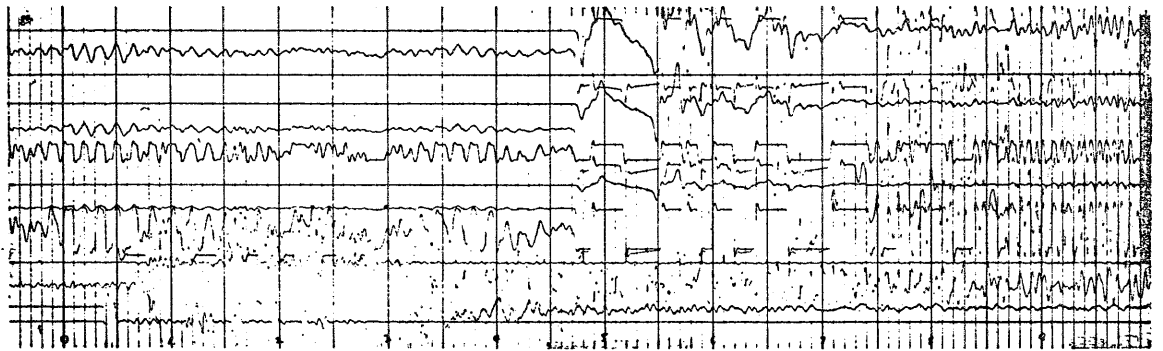
WELL VELOCITY RECORD

6/7/82

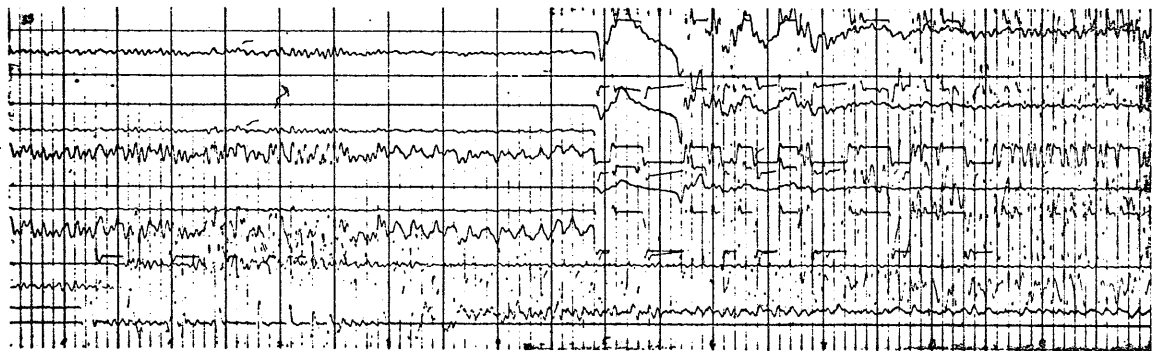
Rec. No. 40
905 m RKB



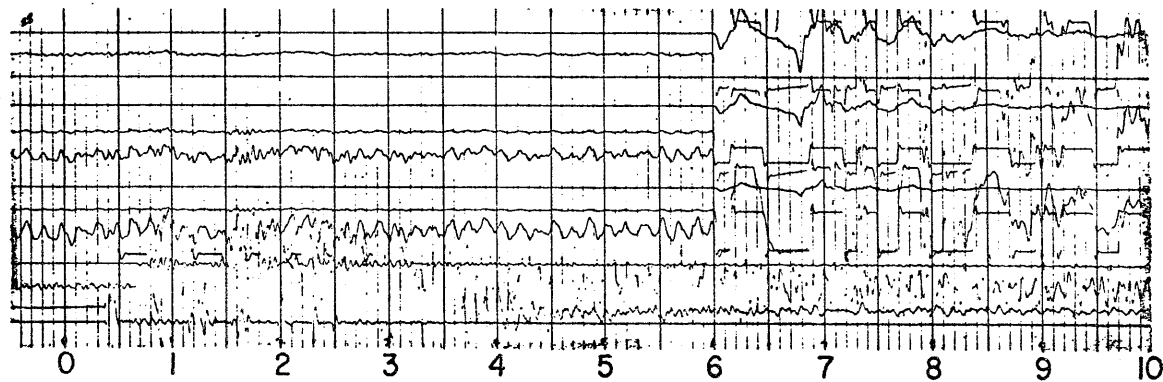
Rec. No. 36
1100 m RKB



Rec. No. 33
1225 m RKB



Rec. No. 28
1535 m RKB

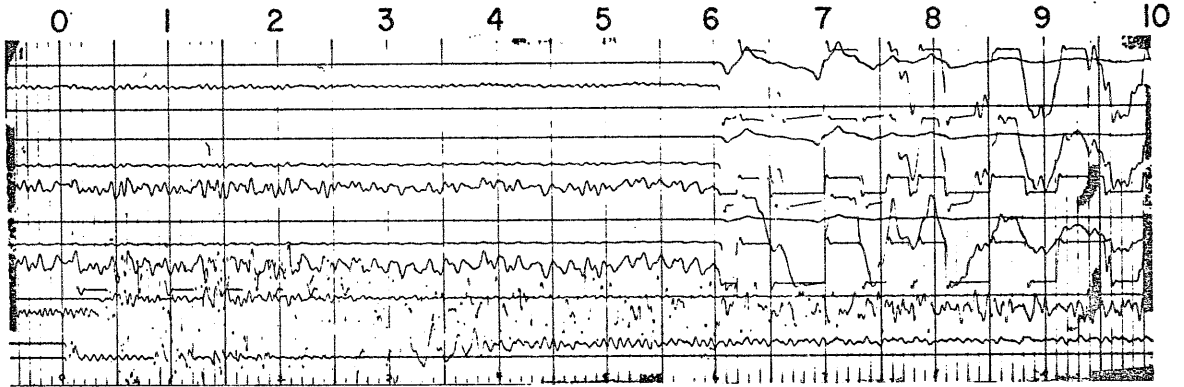


YELLOWTAIL-2

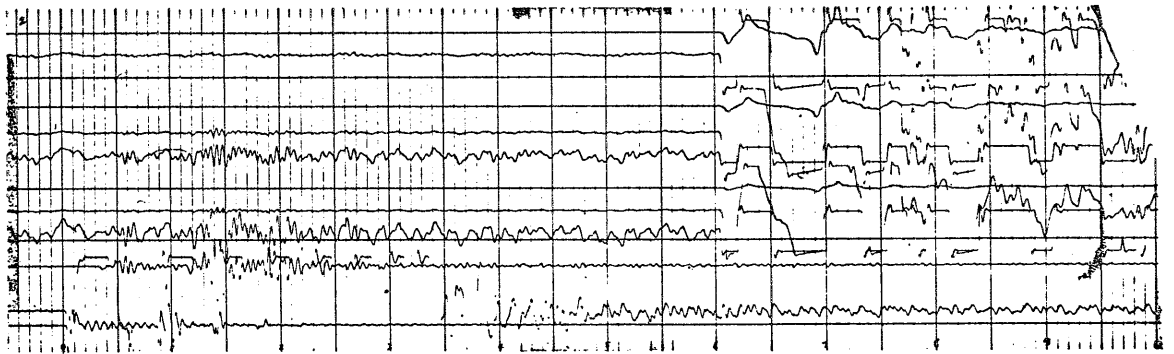
WELL VELOCITY RECORD

6/7/82

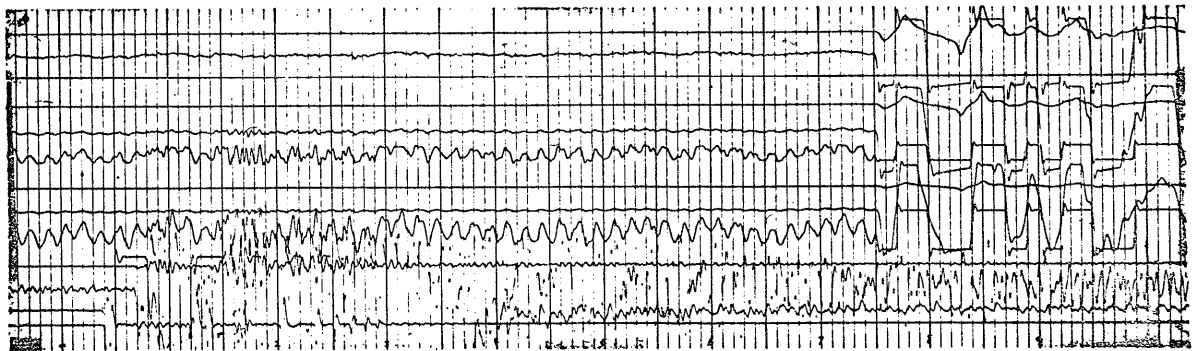
Rec. No. 1
1660 m RKB



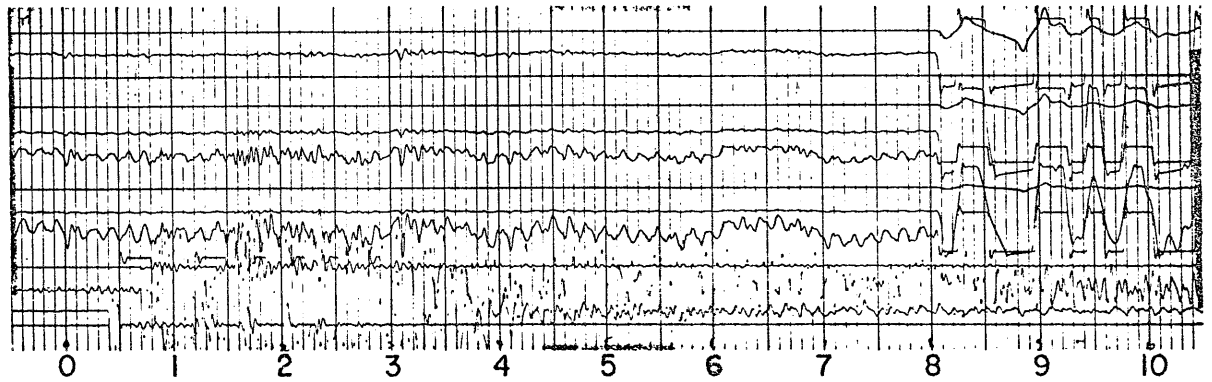
Rec. No. 2
1660 m RKB



Rec. No. 20
2000 m RKB



Rec. No. 17
2165 m RKB



APPENDIX 5

SPECIES LIST.

TABLE - 2
 FORAMINIFERAL DATA
 YELLOWTAIL - 2, GIPPSLAND BASIN
 BASIC DATA

SAMPLE No.	DEPTH (Metres)	MICRO FOSSIL YIELD	PRESERVATION	DIVERSITY
SWC 153	845	High	Good	Moderate
SWC 152	920	Moderate	Poor	Low
SWC 151	995.1	Moderate	Moderate	Low
SWC 150	1070	Low	Poor	Very Low
SWC 149	1145	Low	Poor	Very Low
SWC 148	1219.9	Low	Poor	Very Low
SWC 147	1295	Moderately Low	Poor	Low
SWC 146	1367.9	Low	Poor	Very Low
SWC 145	1376	Moderately Low	Poor	Very Low
SWC 144	1381	Low	Poor	Low
SWC 143	1409.9	Low	Poor	Low
SWC 142	1485	Moderate	Poor	Low
SWC 141	1560	Moderate	Moderately Poor	Moderate
SWC 140	1635	High	Good	Moderate
SWC 139	1710	High	Good	Moderate
SWC 138	1790	High	Good	High
SWC 137	1865	High	Moderately Good	Moderate
SWC 136	1940	High	Moderately Good	High
SWC 84	2014.9	Moderately High	Moderate	Low
SWC 135	2090	Low	Moderate-Poor	Low
SWC 134	2169	Moderately High	Moderate	Moderate
SWC 133	2258	High	Good	Moderate
SWC 132	2271	Moderate	Moderate-Poor	Moderate
SWC 131	2283	High	Good	High
SWC 129	2305	High	Good	High
SWC 128	2315	High	Moderate	Moderate
SWC 127	2324.9	Moderate	Moderate-Poor	Moderate
SWC 126	2335	High	Moderate	Moderate
SWC 125	2345	High	Moderate	Moderate
SWC 47	2355	High	Good	High
SWC 46	2365	Low	Poor	Low
SWC 124	2370	High	Good	High

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TABLE - 2 (2)
FORAMINIFERAL DATA
YELLOWTAIL - 2, GIPPSLAND BASIN
BASIC DATA

SAMPLE No.	DEPTH (Metres)	MICRO FOSSIL YIELD	PRESERVATION	DIVERSITY
SWC 45	2375	High	Good	High
SWC 123	2380	High	Moderate	Moderate
SWC 44	2385	High	Moderate	Moderate
SWC 122	2390	Moderate	Moderate	Moderate
SWC 43	2395	Moderate	Moderate	Low
SWC 121	2400	High	Moderate-Poor	Moderate
SWC 41	2405	Moderate	Poor	Low
SWC 40	2406	High	Moderate	Moderate
SWC 39	2407	High	Moderate	Moderate
SWC 38	2408	High	Poor	Low
SWC 37	2409	High	Moderate-Poor	Moderate
SWC 36	2410	High	Poor	Low
SWC 35	2411	Low	Very Poor	Very Low
SWC 34	2412	Low	Very Poor	Very Low
SWC 33	2413	N.F.F.	-	-
SWC 32	2413.9	N.F.F.	-	-
SWC 120	2415.9	N.F.F.	-	-
SWC 119	2417	N.F.F.	-	-
SWC 118	2418	N.F.F.	-	-
SWC 117	2419	N.F.F.	-	-
SWC 116	2419.9	N.F.F.	-	-
SWC 115	2421	N.F.F.	-	-
SWC 114	2421.9	N.F.F.	-	-
SWC 113	2423	N.F.F.	-	-

N.F.F. = No foraminifera found (planktonics)

TABLE 2

BASIC DATA

YELLOWTAIL-2, GIPPSLAND BASIN

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SAMPLE SAMPLE	DEPTH (METRES)	DEPTH (FEET)	YIELD	SPORE-POLLEN DIVERSITY	DINOS DIVERSITY
SWC 35	2411.0	7910.0	Fair	Low	Moderate
SEC 34	2412.0	7913.5	Poor	Low	Low
SWC 33	2413.0	7916.5	Fair	Moderate	Moderate
SWC 32	2413.9	7919.5	Barren	-	-
SWC 31	2414.9	7923.0	Poor	Poor	Moderate
SWC 120	2415.9	7926.0	Fair	Moderate	Moderate
SWC 119	2417.0	7930.0	Fair	Moderate	Moderate
SWC 118	2418.0	7933.0	Fair	Moderate	Moderate
SWC 117	2419.0	7936.0	Fair	Moderate	High
SWC 116	2419.9	7939.0	Fair	Poor	Moderate
SWC 115	2421.0	7943.0	Fair	Moderate	High
SWC 114	2421.9	7946.0	Poor	Low	Low
SWC 113	2423.0	7949.5	Barren	-	-
SWC 112	2423.9	7952.5	Fair	Moderate	Moderate
SWC 111	2424.9	7956.0	Fair	Moderate	Moderate
SWC 106	2430.0	7972.5	Poor	Low	None
SWC 104	2445.0	8021.5	Fair	Moderate	Moderate
SWC 53	2488.0	8163.0	Fair	Moderate	Low
SWC 7	2502.0	8208.5	Fair	Moderate	Moderate
SWC 4	2526.0	8287.5	Fair	Moderate	Moderate
SWC 3	2528.9	8297.0	Fair	Moderate	Moderate
SWC 2	2534.0	8313.5	Poor	Low	None
SWC 1	2537.1	8324.0	Fair	Moderate	Low

ENCLOSURES

PE902648

This is an enclosure indicator page.
The enclosure PE902648 is enclosed within the
container PE902646 at this location in this
document.

The enclosure PE902648 has the following characteristics:

ITEM_BARCODE = PE902648
CONTAINER_BARCODE = PE902646
NAME = Time Depth Curve
BASIN = GIPPSLAND
PERMIT = VIC/L5
TYPE = WELL
SUBTYPE = VELOCITY_CHART
DESCRIPTION = Time Depth Curve (enclosure from WCR
vol.1) for Yellowtail-2
REMARKS =
DATE_CREATED = 30/11/82
DATE_RECEIVED = 19/01/83
W_NO = W779
WELL_NAME = Yellowtail-2
CONTRACTOR = ESSO
CLIENT_OP_CO = ESSO EXPLORATION AND PRODUCTION
AUSTRALIA LTD

(Inserted by DNRE - Vic Govt Mines Dept)

PE902647

This is an enclosure indicator page.
The enclosure PE902647 is enclosed within the
container PE902646 at this location in this
document.

The enclosure PE902647 has the following characteristics:

ITEM_BARCODE = PE902647
CONTAINER_BARCODE = PE902646
 NAME = Sonic Calibration Curve
 BASIN = GIPPSLAND
 PERMIT = VIC/L5
 TYPE = WELL
 SUBTYPE = VELOCITY_CHART
DESCRIPTION = Sonic Calibration Curve (enclosure from
 WCR vol.1) for Yellowtail-2
REMARKS =
DATE_CREATED = 31/08/82
DATE_RECEIVED = 19/01/83
 W_NO = W779
 WELL_NAME = Yellowtail-2
CONTRACTOR = ESSO
CLIENT_OP_CO = ESSO EXPLORATION AND PRODUCTION
 AUSTRALIA LTD

(Inserted by DNRE - Vic Govt Mines Dept)