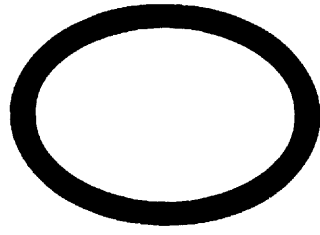


DEPT. NAT. RES & ENV



PE900965



Esso Australia Ltd.

W1090

WELL COMPLETION REPORT

PETROLEUM DIVISION

HALIBUT 2

08 SEP 1994

VOLUME 1

BASIC DATA

GIPPSLAND BASIN, VICTORIA

ESSO AUSTRALIA LTD

CONTENTS

	Page
I. WELL DATA RECORD	1
II. OPERATIONS SUMMARY	2
III. CASING DATA	4
IV. CEMENTING DATA	5
V. SAMPLES, CONVENTIONAL CORES, SIDEWALL CORES	6
VI. WIRELINE LOGS AND SURVEYS	6
VII. SUMMARY OF WIRELINE FORMATION TEST PROGRAM	7
VIII. TEMPERATURE RECORD	8

FIGURES

1. Locality Map
2. Well Progress Curve
3. Finalized Well Sketch
4. P & A Wellbore Sketch
5. Temperature Plot - Suite 2

APPENDICES

1. Lithological Descriptions
2. Core Descriptions
3. Sidewall Core Descriptions
4. RFT Results
5. Velocity Survey Report

I. WELL DATA RECORD

LOCATION : Latitude :38° 23' 45.52" South
Longitude :148° 19' 47.98" East
X= 616142.1 mE
Y= 5749396.8 mN
Map Projection: UTM Zone 55
Geographical Location: Bass Strait,
Victoria
Field :HALIBUT

PERMIT : Vic/L5

ELEVATION(K.B.) : 25m

WATER DEPTH : 79m

TOTAL DEPTH : 2590m (Driller) 2590m (Logger)

PLUG BACK TYPE : Cement Plug

REASONS FOR PLUGGING BACK : Abandonment

ON LOCATION : 15/02/94 0900 hours

SPUDED : 16/02/94 2300 hours

REACHED TD : 03/03/94 1000 hours

RIG RELEASED : 10/03/94 2400 hours

OPERATOR : Esso Australia Resources Ltd.

PERMITTEE OR LICENSEE : BHP Petroleum (Australia) Pty Ltd and Esso Australia Resources Ltd.

ESSO INTEREST : 50%

OTHER INTEREST : 50%

CONTRACTOR : Diamond Offshore

RIG NAME : Ocean Bounty

EQUIPMENT TYPE : Semi-submersible

TOTAL RIG DAYS : 24

DRILLING AFE NO : L05014000

TYPE COMPLETION : Plugged and Abandoned

WELL CLASSIFICATION : Before Drilling: Appraisal
After Drilling: Plugged and Abandoned

II. OPERATIONS SUMMARY

MOBILISATION/MOORING

The Ocean Bounty was inspected upon arrival from the United Kingdom at Rabbit Island. The rig was mobilised from Rabbit Island and under tow at 1236 hours, 13 February, 1994. The towing vessel was the MV Bona Vista. The Ocean Bounty arrived at Halibut-2 with the no.7 anchor on bottom at 0900 hours, 15 February, 1994.

The MV Runner and MV Bona Vista set the anchors for The Ocean Bounty at Halibut-2. After ballasting down the TGB was run and landed at 2130 hours, 16 February, 1994. The final rig location was 5.6m on a bearing of 304° True from the called location. Rotary table to seabed was 104m and water depth was 79m.

DRILLING OPERATIONS

a) 26" Hole/20" Casing

A Smith DSJC 26" bit and 26" hole opener BHA were made up and stabbed into the TGB. The well was spudded at 2300 hours, 16 February, 1994 and drilled from 104m to 205m. Gel sweeps were pumped every 15m and a 200bbl Hi Vis pill was pumped at casing point. A Totco survey was dropped prior to the trip out for casing (1° at 200m). The 20" casing was run with the PGB. When the PGB was landed it had a 1° angle.

Seven joints of 20" 68 lb/ft casing plus float shoe and pile joint were run with the shoe landing at 200m. The 20" casing was cemented, using a stinger, with a lead slurry of 570 sacks of class "G" cement with 3.1% gel in drill water followed by a tail of 490 sacks of class "G" cement in seawater. After the running tool was backed out the PGB had a 3° angle.

The BOP stack was run, latched and tested to 500psi.

b) 17 1/2" Hole/13 3/8" Casing

A Smith 17 1/2" SDSC and mud motor was R/H to drill the float and cement from 187m to 200m and washed to 205m. Drilling proceeded from 205m to 227m where the well packed off during a connection. The drill pipe was crimped whilst in the slips. After laying out the drill pipe a trip was made to unplug the jets. A float was added to the drillstring and the bit and mud motor were rerun. After washing 8m of fill to reach bottom drilling continued from 227m to 803m. Gel sweeps were pumped at each connection and as required. The hole was circulated clean prior to dropping a Totco survey (3/4° at 793m) and the drillstring was tripped out of the hole to run 13 3/8" casing.

58 joints of 54.5 lb/ft K55 13 3/8" casing with hanger and pup joint were run with the shoe landing at 791m. The casing was cemented with 860 sacks of class "G" neat cement and displaced with sea water. The plug was bumped at 1500psi with the float holding. The pack off was run after which the choke and kill lines, stack and surface equipment were tested to 200/1500psi.

II. OPERATIONS SUMMARY (cont.)

c) 9 7/8" Hole

A 9 7/8" Hycalog DS40H PDC bit in combination with an F2000S mud motor was made up and used to drill out the 13 3/8" casing, clean out the rat hole and drill 2m of new formation to 805m. A Phase II PIT was performed without leak-off (EMW = 17.4ppg). Drilling continued from 805m to 2335m (drill pipe protectors were installed on every second joint) where a sample was circulated to surface for geological evaluation. Drilling proceeded from 2335m to 2350m another sample was circulated to surface where upon the decision was made to cut core #1. A 10 stand wiper trip was made to 2117m once back on bottom the mud weight was raised to 9.0+ppg to reduce the background gas. A trip was made to pick up the core barrel. On the trip out 14 pipe protectors were torn from the drill pipe and left in the hole.

A used RC412 corebit (35% worn) and 18m corebarrel were made up and run into the hole to cut core #1. On the trip in junk was encountered at 952m. The coring assembly was pushed to 2340m with 5-10klb and then washed the junk to 2348.5m. The junk was drilled from 2348.5m to 2350m. Core #1 was cut from 2350m to 2356.6m where the core barrel jammed off. Core #1 was caught at surface after the trip out of the hole and the recovery was 6.6m (100%).

A Hughes ATJ22 9 7/8" bit and F2000S mud motor were made up and drilled ahead from 2350m to 2410m. High torque was experienced whilst drilling the section due to junk in the hole. A sample was circulated for geological evaluation at 2410m. The drill string was tripped to pick up the core barrel for core #2.

A new RC412 core bit and 18m core barrel were made up and run into the hole to cut core #2 from 2410m to 2428.5m. The core was brought to surface where 18.5m were retrieved (recovery 100%). The core barrel was dressed and rerun for core#3 which was cut from 2428.5m to 2446.9m. At surface 18.4m (recovery 100%) from core #3 were retrieved.

The Hughes ATJ22 9 7/8" bit coupled with a mud motor were made up and run into the hole to drill ahead from 2446.9m to 2590m(TD). A 25 stand wiper trip was made back to 2032m and the hole was circulated clean prior to pulling out to run E-Logs.

Suite 1 of the E-Logs consisted of DSI-MSFL-GR-ARI-AMS-GPIT, FMI-LDT-CNTH-NGTD-AMS, FDC-GR, MDT-GR-AMS, VSP, CST-GR.

After the electric logging program open ended drill pipe was run into the hole. Four cement plugs were spotted and tagged over the following intervals, plug #1 2460-2380m, plug #2 2380-2280m, plug #3 830-710m and plug #4 240 - 130m. An EZSV plug was set above plug #3

III. CASING DATA

ESSO AUSTRALIA LTD.
HALIBUT-2 FINAL WELL REPORT
CEMENT DATA

DATE (1992)	TYPE JOB	INTERVAL (mMD-RKB)	TYPE CEMENT	VOLUME (SX)	SLURRY WEIGHT (PPG)	ADDITIVES	MIX WATER	REMARKS
17-FEB	20" LEAD	200-104	CLASS "G"	570	13.2	3.1% PH GEL	FW	CEMENTED TO MUDLINE- LEAD HEAVY 150% EXCESS USED ON LEAD/0% TAIL
	20" TAIL	200-104	CLASS "G"	490	15.8	NEAT	SW	CEMENTED TO MUDLINE FLOATS HELD. DISPLACED- 14 BBLs SW
22-FEB	13-3/8" PRIMARY	791-391	CLASS "G"	860	15.8	NEAT	SW	BUMPED PLUG WITH 1500 PSI.
3-MAR	P & A PLUG No.1	2460-2380	CLASS "G"	160	15.8	3 GP10B HR-6L	FW	SET ACROSS PAY ZONE
3-MAR	P & A PLUG No.2	2380-2276	CLASS "G"	190	15.8	2 GP10B HR-6L	FW	SET ACROSS PAY ZONE/LATROBE TOP TAGGED WITH 15 KIPS
3-MAR	P & A PLUG No.3	830-700	CLASS "G"	340	15.8	----	SW	13-3/8" SHOE PLUG, P/T TO 1500 PSI TAG W/15K# -RETAINER SET AT 694m
3-MAR	P & A PLUG No.4	230-130	CLASS "G"	460	15.9	2% CACI2	SW	SET IN 13-3/8" STUB+ SURFACE PLUG TESTED TO 500 PSI.

IV. CEMENTING DATA

ESSO AUSTRALIA LTD.
 HALIBUT-2 FINAL WELL REPORT
 CASING DATA

OD (In.)	WEIGHT (LB/FT)	GRADE	CONNECTION	LENGTH (M)	SHOE DEPTH (mMD-RKB)	CENTRALIZER POSITION	REMARKS
20	94	X-56	BTC	12.58	199.67	NONE	FLOAT SHOE JOINT
20	94	X-56	BTC	73.36		NONE	6 INTERMEDIATE JOINTS
20	94	X-52	ALT-2 x BTC	2.55		NONE	XO PUP
20 x 24"	670	X-52	ALT-2 W/PILE	10.18		NONE	CIW TGB USED FROM 1992 TOP OF 20" WH @ 101m WH S/N SO708878-SG-5-10k
				=====			
				98.67			
13-3/8	54.5	K-55	BTC	12.06	791.81	NONE DUE TO WH ANGLE-4-1/2	FLOAT SHOE JOINT (BTM)
13-3/8	54.5	K-55	BTC	12.50			FLOAT JOINT WITH FLT COLLAR
13-3/8	54.5	K-55	BTC	522.32			44 INTERMEDIATE JOINTS
13-3/8	68	K-55	BTC	141.22			13 INTERMEDIATE JOINTS
13-3/8 HGR	68	K-55	BTC	2.71			VETCO SG-5 HANGER
				=====			
				690.81			

V. SAMPLES, CONVENTIONAL CORES, SIDEWALL CORES

Cuttings

3 sets of washed and oven dried and 1 set of bagged air dried cuttings were taken at 10m intervals from 1830m to 2330m MDRT and at 5m intervals from 2330m to 2590m MDRT. Lithological descriptions of all samples are contained in appendix 1.

Conventional Coring

3 conventional cores were cut in Halibut-2 as follows:

CORE #	DEPTH (m MDRT)		RECOVERY
	Top	Bottom	m MD (%)
1	2350.0	2356.6	6.6 (100%)
2	2410.0	2428.5	18.5 (100%)
3	2428.5	2446.9	18.4 (100%)

Sidewall Coring

2560.0 - 2318.0 CST, 30 Shot, Recovered and Brought 23 (77%).

VI. WIRELINE LOGS AND SURVEYS

<u>Type and Scale</u>	<u>Suite 1</u>	<u>From</u>	<u>To</u>
ARI-MSFL-GPIT- -DSI-GR-AMS	1:200	2580 2580	2310 100
FMI-LDT-CNTH- -NGTD-AMS	1:200	2580	2250
FDC-GR	1:200	2580	2250
MDT-GR-AMS	(27 Pretests)	2507.5	2347
Zero Offset VSP CST-GR	(29 Levels) (30 Shot/27 Recovered)	2583 2560	230 2318

VII. SUMMARY OF WIRELINE FORMATION TEST PROGRAM

Test	Depth (m) MD	Type	Recovery*				Formation Pressure (psia)	Hydrostatic Pressure (psia)	Remarks
			Oil (l)	Gas (ft ³)	Water (l)	Filt. (l)			
1/1	2507.56	Pretest	-	-	-	-	3432.37	4051.37	Good
1/2	2467.96	Pretest	-	-	-	-	3375.00	3987.46	Good
1/3	2461.18	Pretest	-	-	-	-	3365.55	3976.20	Good
1/4	2455.74	Pretest	-	-	-	-	3357.04	3967.33	Good
1/5	2450.07	Pretest	-	-	-	-	3347.45	3958.11	Good
1/6	2443.01	Pretest	-	-	-	-	3337.46	3946.72	Good
1/7	2435.18	Pretest	-	-	-	-	3326.47	3934.35	Good
1/8	2431.26	Pretest	-	-	-	-	3320.46	3927.79	Good
1/9	2428.05	Pretest	-	-	-	-	3314.87	3922.78	Low Perm
1/10	2424.04	Pretest	-	-	-	-	3307.99	3916.57	Good
1/11	2414.26	Pretest	-	-	-	-	3293.03	3900.65	Good
1/12	2405.65	Pretest	-	-	-	-	3280.38	3886.88	Good
1/13	2414.37	Pretest	-	-	-	-	3293.23	3901.19	Good
1/14	2402.83	Pretest	-	-	-	-	3275.87	3882.53	Good
1/15	2392.22	Pretest	-	-	-	-	3259.18	3865.75	Good
1/16	2389.34	Pretest	-	-	-	-	3255.20	3860.91	Good
1/17	2385.54	Pretest	-	-	-	-	3263.96	3854.99	Low Perm
1/18	2381.84	Pretest	-	-	-	-	3246.26	3848.75	Low Perm
1/19	2376.04	Pretest	-	-	-	-	3226.63	3839.59	Good
1/20	2370.26	Pretest	-	-	-	-	3218.63	3830.32	Good
1/21	2367.55	Pretest	-	-	-	-	3215.64	3825.86	Good
1/22	2362.51	Pretest	-	-	-	-	3206.10	3817.47	Good
1/23	2360.05	Pretest	-	-	-	-	3203.14	3813.96	Good
1/24	2357.25	Pretest	-	-	-	-	3200.25	3809.35	Good
1/25	2354.83	Pretest	-	-	-	-	3197.60	3805.39	Good
1/26	2350.40	Pretest	-	-	-	-	3201.10	3798.41	Low Perm
1/27	2347.09	Pretest	-	-	-	-	3190.77	3793.26	Low Perm

* No samples were attempted in this well.

VIII. TEMPERATURE RECORD

Logging Run	Thermometer Depth	Max. Recorded Temperature (°C)	Circulation Time (tk) (hours)	Time After Circulation Stopped (t)	Horner Temp. (°C)	Geothermal Gradient (°C/km)
Suite 1						
DSI-MSFL-GR-ARI-AMS-GPIT	2550	90	1.33	10.15		
FMI-LDT-CNTH-NGTD-AMS	2555	97	1.33	23.65		
FDC-GR	2570	104	1.33	31.32		
MDT-GR (Pretest)	2510	100	1.33	35.82		
VSP	2585	106	1.33	50.82		

HALIBUT-2 Locality Map

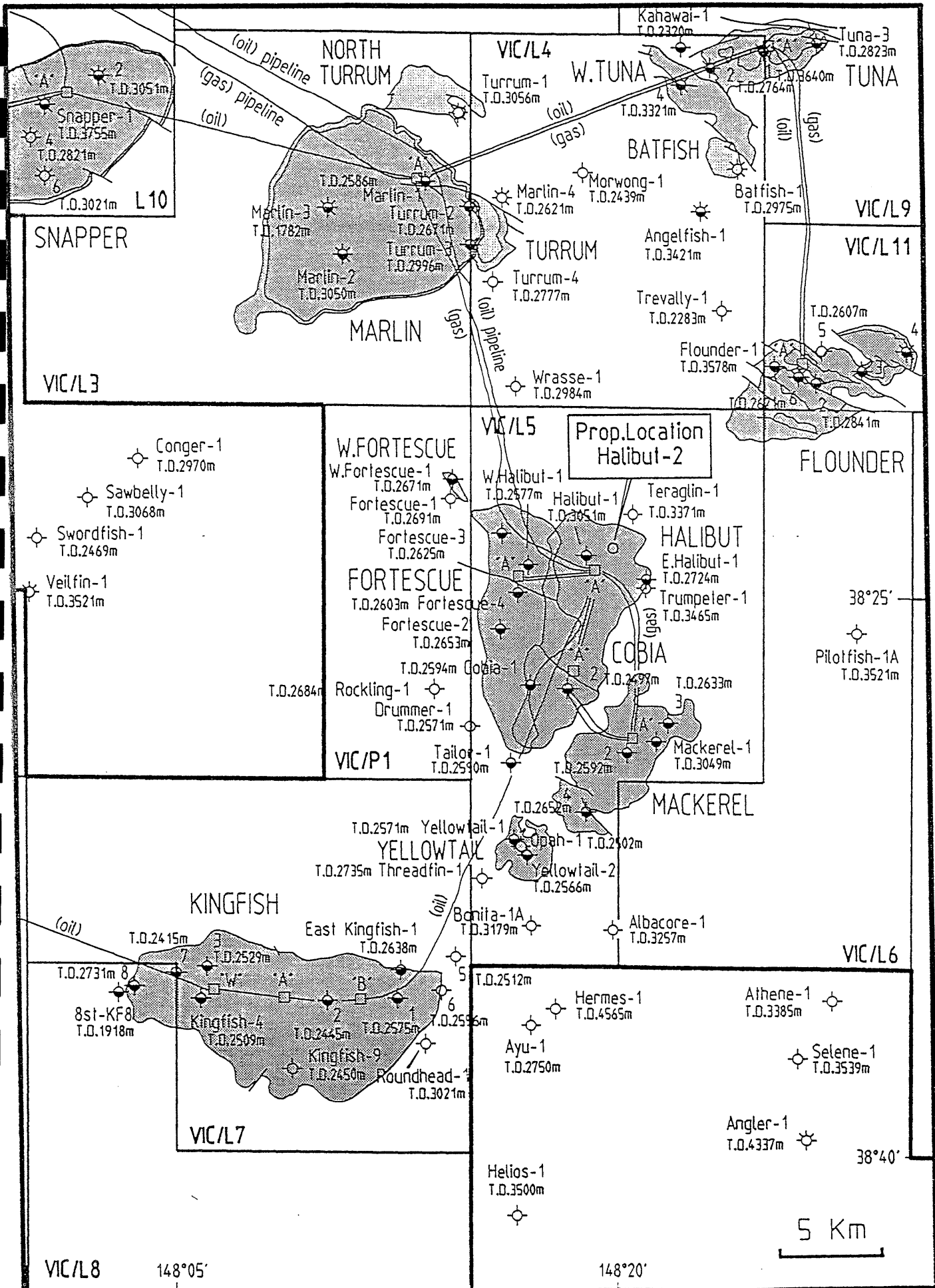


FIG 1

ESSO AUSTRALIA LTD

WELL PROGRESS CURVE

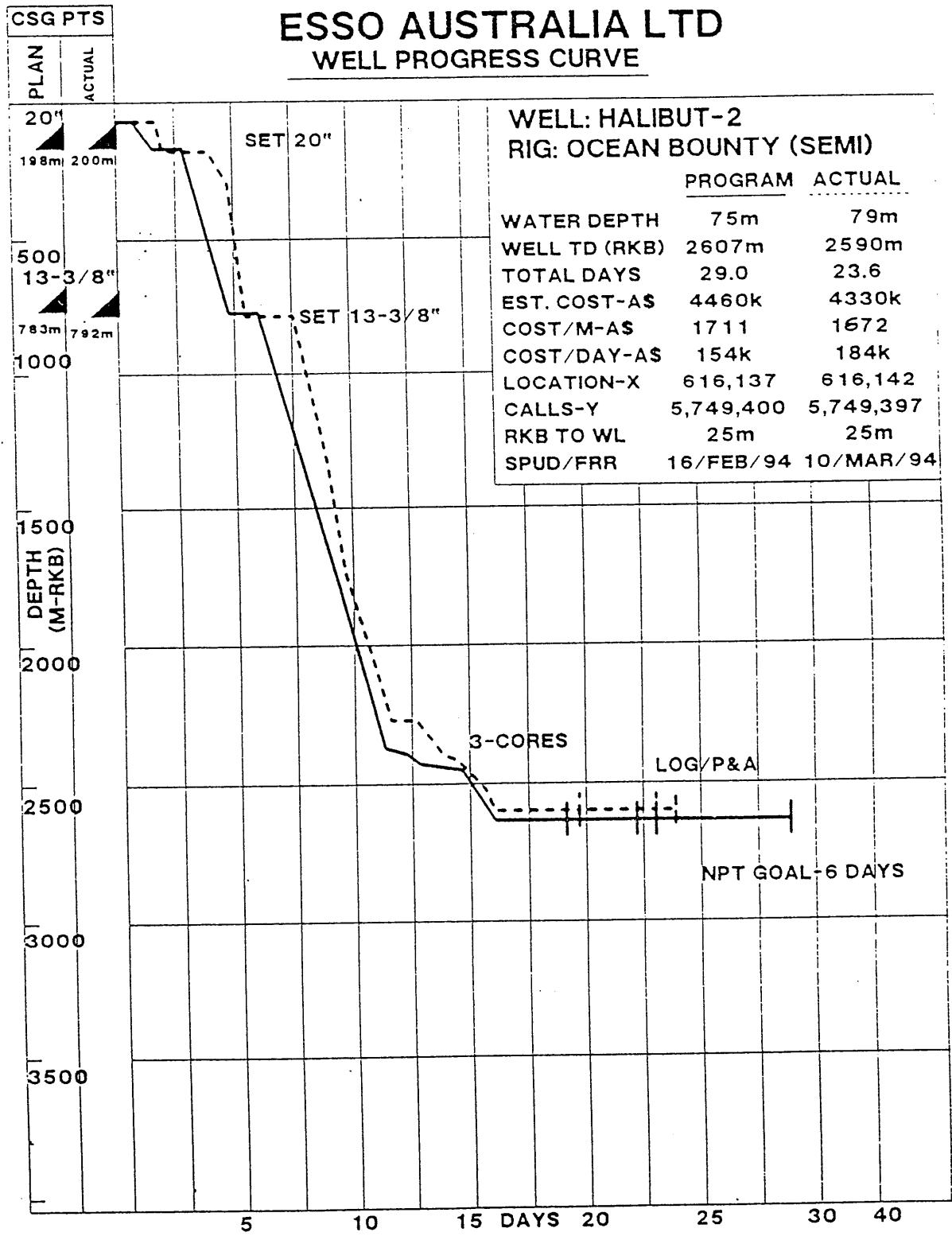


FIGURE 2

ESSO AUSTRALIA LTD. HALIBUT #2 FINALIZED WELL SKETCH

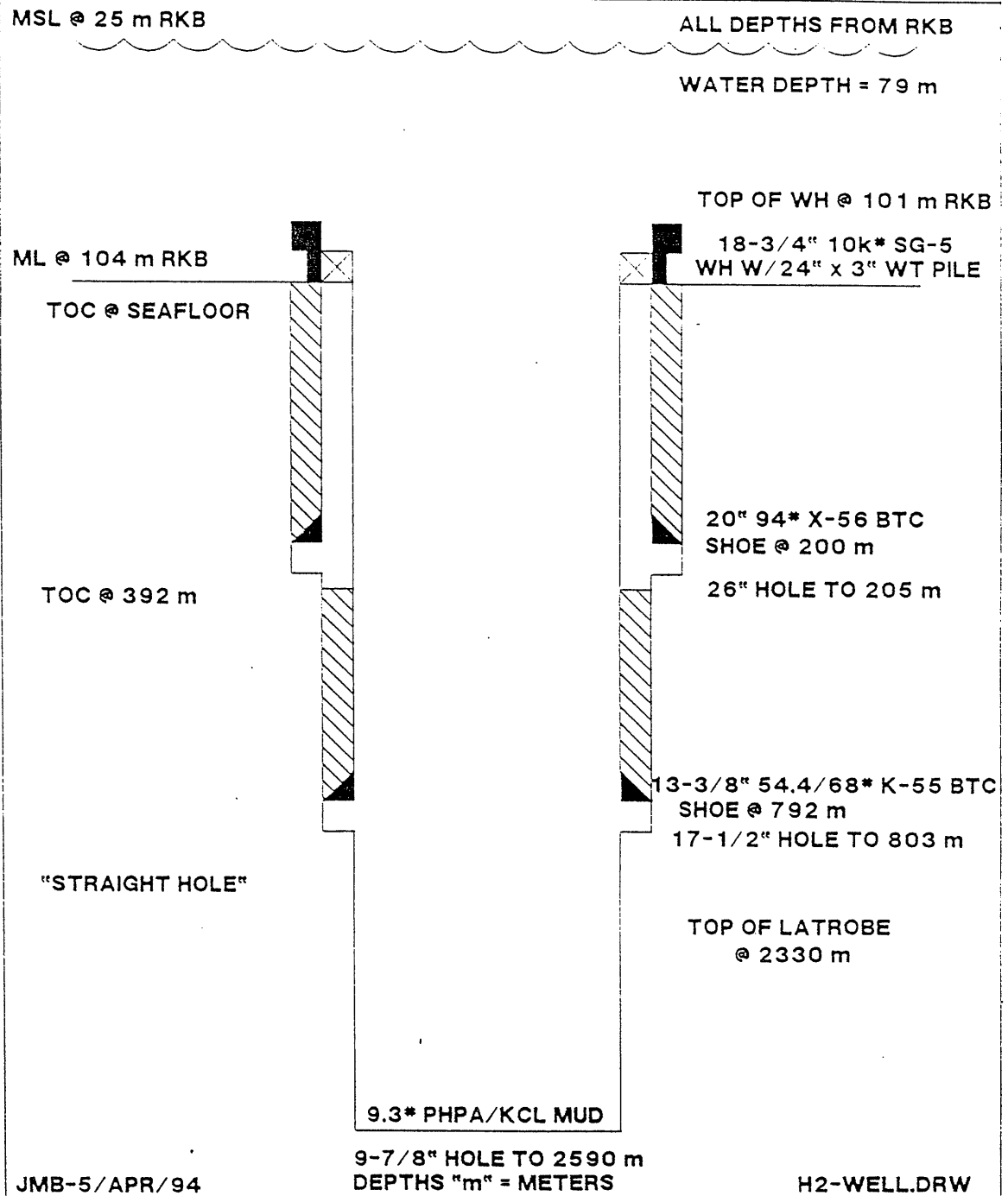


FIGURE 3

ESSO AUSTRALIA LTD. HALIBUT #2 P&A WELLBORE SKETCH

MSL @ 25 m RKB

ALL DEPTHS FROM RKB

WATER DEPTH = 79 m

ML @ 104 m RKB

TOC @ SEAFLOOR
20" CUT @ 115 m

13-3/8" CUT @ 194 m

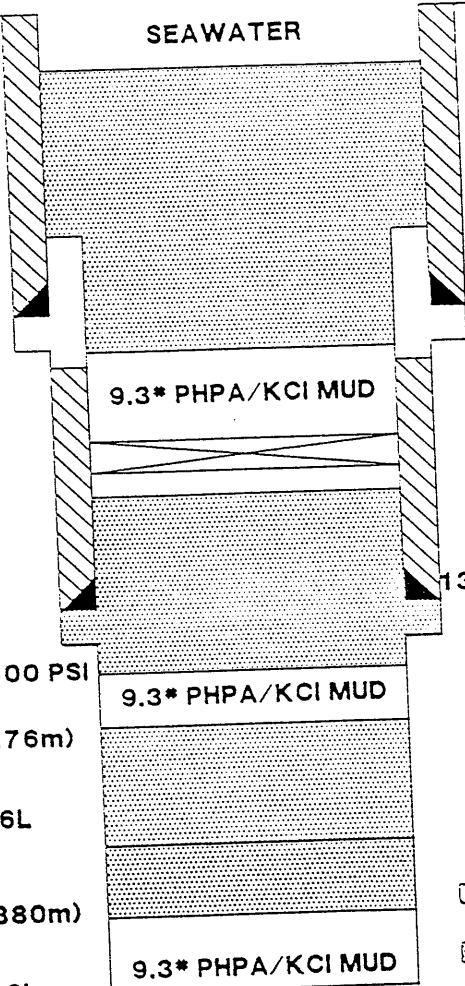
TOC @ 392 m

PLUG #3 (830-700m)
CLASS G-340 SX
MIX WITH SEAWATER
TAG W/15K*-P/T-1500 PSI

PLUG #2 (2380-2276m)
CLASS G-190 SX
FW + 2 GP10B HR-6L
TAG WITH 15K*

PLUG #1 (2460-2380m)
CLASS G-160 SX
FW + 3 GP10B HR-6L

JMB-8/APR/93



PLUG #4 (230-130m)
CLASS G-460 SX
MIX WITH SEAWATER
+ 2% CaCl2
TEST TO 500 PSI

20" 94* X-56 BTC
SHOE @ 200 m

26" HOLE TO 205 m

13-3/8" B. PLUG @ 694m

13-3/8" 54.4/68* K-55 BTC
SHOE @ 792 m
17-1/2" HOLE TO 803 m

TOP OF LATROBE
@ 2330 m

"STRAIGHT HOLE"

PRIMARY CEMENT

P&A CEMENT

9-7/8" HOLE TO 2590 m
DEPTHS "m" = METERS

H2-P&A.DRW

FIGURE 4

Halibut 2 Temperature Plot

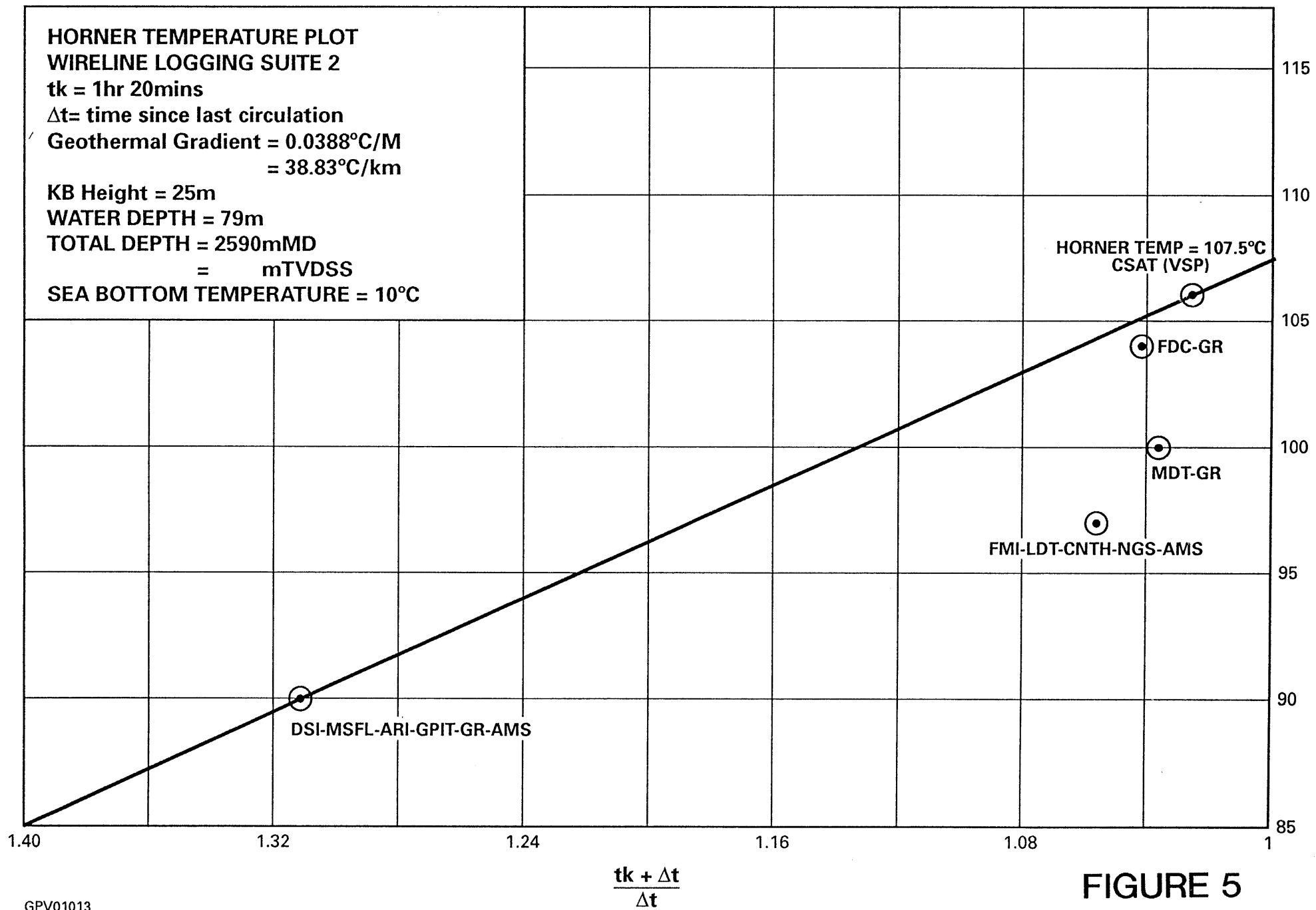


FIGURE 5

APPENDIX 1



5th Cut
A4 Dividers
Re-order code 97052



APPENDIX 1

HALIBUT-2

Lithological Descriptions

Halibut-2 Lithological Descriptions

Interval	%	Description
830	100	<u>LIMESTONE</u> : Light grey, grey brown, calcisiltite, moderately to locally very argillaceous, trace carbonaceous specks, locally trace calcite spar, occasionally grades to very fine calcarenite, trace forams, soft to firm, blocky.
860	100	<u>LIMESTONE</u> : Predominantly as above, locally trace cryptocrystalline calcareous/dolomitic fragments, flinty in part.
890	100	<u>LIMESTONE</u> : Pale grey, light grey brown, calcarenite, very fine to fine, trace white calcite spar, trace fossil fragments and ooids, trace carbonaceous fragments, firm, blocky.
920	100	<u>LIMESTONE</u> : Light grey, light grey brown, calcarenite, very fine to fine, trace argillaceous matrix, trace carbonaceous fragments, trace ooids, firm, blocky.
950	100	<u>LIMESTONE</u> : Light to medium grey, brown grey, calcisiltite locally grading to calcarenite, very fine, trace carbonaceous fragments, trace calcite spar, slightly dolomitic in part, firm, blocky.
980	100	<u>LIMESTONE</u> : light to medium grey, brown grey, calcisiltite, moderately argillaceous in part, micritic cement, trace very fine calcite sand, trace carbonaceous fragments, firm, blocky.
1010	100	<u>LIMESTONE</u> : As above, calcisiltite.
1040	100	<u>LIMESTONE</u> : Predominantly as above, calcisiltite becoming increasingly arenaceous in part, locally grading to calcarenite.
1070	100	<u>LIMESTONE</u> : Light to medium grey, grey brown, calcisiltite, slightly argillaceous, micritic, trace carbonaceous fragments, trace very fine calcareous sand, firm, blocky.
1100	100	<u>LIMESTONE</u> : As above, calcisiltite.
1130	100	<u>LIMESTONE</u> : Medium grey, brown grey, calcisiltite, slightly argillaceous, micritic, trace forams, trace very fine calcite sand, trace white calcite spar, firm, blocky.
1160	100	<u>LIMESTONE</u> : Off white to light brown, medium grey brown in part, calcarenite, very fine, trace argillaceous matrix, trace carbonaceous fragments, trace ooids, firm, blocky, platy in part.
1190	100	<u>LIMESTONE</u> : Predominantly as above, calcarenite, trace white calcite spar, trace fossil fragments, firm, blocky.
1220	100	<u>LIMESTONE</u> : Predominantly as above, calcarenite, slightly dolomitic in part, becoming increasingly argillaceous, locally grades to calcisiltite
1250	100	<u>LIMESTONE</u> : Light to medium grey, grey brown, calcarenite, very fine, micritic, trace carbonaceous fragments, slightly argillaceous in part, locally common cryptocrystalline slightly dolomitic fragments, predominantly firm, occasionally hard, flinty, blocky.
1280	100	<u>LIMESTONE</u> : Light grey, grey brown, calcarenite, very fine, slightly argillaceous, micritic, trace carbonaceous fragments, firm, blocky.

Depth m	%	Description
1310	100	<u>LIMESTONE</u> : Off white, light grey, grey brown, calcarenite grading to calcisiltite, moderately argillaceous, micritic, trace carbonaceous specks, occasionally medium brown slightly dolomitic cryptocrystalline fragments, firm, hard in part, blocky.
1312 (spot sample)	100	<u>LIMESTONE</u> : Off white, light brown, grey brown, calcisiltite, slightly to moderately argillaceous, micritic, locally common white medium to coarse calcite spar, trace medium brown cryptocrystalline fragments, firm, blocky, no visual porosity, no hydrocarbon fluorescence.
1320	100	<u>LIMESTONE</u> : Off white, grey brown, calcarenite, very fine to fine, slightly argillaceous, micritic, trace fossil fragments, trace carbonaceous flecks, firm, blocky.
1340	100	<u>LIMESTONE</u> : Light brown, light grey brown, calcarenite, very fine to occasionally fine, locally common fine, rounded, calcite sand, locally moderately argillaceous, micritic, rare glauconite, trace carbonaceous fragments and flecks, firm, blocky, platy in part.
1370	100	<u>LIMESTONE</u> : Light grey brown, brown grey, calcarenite grades to calcisiltite, very fine, micritic, trace carbonaceous fragments, firm, blocky to platy.
1400	100	<u>LIMESTONE</u> : As above, calcarenite grades to calcisiltite.
1430	100	<u>LIMESTONE</u> : Light grey, grey brown, calcarenite, very fine to fine, micritic, slightly argillaceous, common fine rounded calcite sand, trace carbonaceous fragments, trace lithic fragments, firm, blocky.
1460	100	<u>LIMESTONE</u> : Light grey to olive grey, brown grey, calcisiltite, micritic, slightly argillaceous, locally common very fine calcite sand, trace carbonaceous specks, firm, blocky, occasionally grades to calcarenite.
1490	100	<u>LIMESTONE</u> : Predominantly as above, rare glauconite, trace lithic fragments, firm, blocky.
1520	100	<u>LIMESTONE</u> : Light to medium grey, olive grey, calcisiltite, micritic, moderately argillaceous, trace white calcite spar, trace lithic fragments, locally common very fine calcite sand, firm, blocky.
1550	100	<u>LIMESTONE</u> : Light brown, off white to light, calcarenite, very fine to fine, micritic, slightly argillaceous, trace forams and fossil fragments, trace ooids, rare glauconite, rare pyrite, firm, blocky.
1580	100	<u>LIMESTONE</u> : Light brown, grey brown, calcisiltite, slightly argillaceous, micritic, trace to locally common very fine calcite sand, rare glauconite, trace carbonaceous and lithic fragments, firm, blocky.
1610	100	<u>LIMESTONE</u> : As above, calcisiltite.
1640	100	<u>LIMESTONE</u> : As above, calcisiltite.
1670	100	<u>LIMESTONE</u> : As above, calcisiltite.
1700	100	<u>LIMESTONE</u> : As above, calcisiltite.

Depth m	%	Description
1730	100	<u>LIMESTONE</u> : Off white, light grey brown, calcisiltite grades to calcarenite in part, slightly argillaceous, micritic, locally trace glauconite, locally common very fine calcite sand, firm, blocky.
1760	100	<u>LIMESTONE</u> : Off white to light brown, grey brown, calcarenite, very fine to fine, slightly argillaceous, micritic, trace glauconite, trace carbonaceous specks, firm, moderately hard, blocky.
1790	100	<u>LIMESTONE</u> : As above, calcarenite.
1820	100	<u>LIMESTONE</u> : Off white, light brown, grey brown, calcarenite, very fine to fine, moderately argillaceous, micritic, trace carbonaceous specks, rare glauconite, trace ooids, firm to moderately hard, blocky.
1830	100	<u>LIMESTONE</u> : Predominantly as above, calcarenite, occasionally medium, common fossil fragments, trace forams, trace skeletal fragments, firm to moderately hard, blocky.
1840	100	<u>LIMESTONE</u> : Off white, light brown, calcarenite, fine, occasionally medium, micritic, sparry in part, trace fossil and skeletal fragments, trace glauconite, moderately hard, blocky, no visual porosity, no fluorescence.
1850	100	<u>LIMESTONE</u> : Off white, light brown, light grey brown, calcarenite, very fine to fine, medium in part, common white sparry calcite, trace glauconite, trace carbonaceous specks, trace ooids, trace fossil fragments, firm, moderately hard, blocky, no visual porosity, no fluorescence.
1860	100	<u>LIMESTONE</u> : As above, calcarenite grading to calcisiltite.
1870	100	<u>LIMESTONE</u> : Off white to light grey, calcarenite, fine to medium, sparry, slightly micritic, trace fossil fragments, trace carbonaceous fragments, slightly dolomitic in part, moderately hard, blocky, locally calcarenite becomes increasingly argillaceous grades to calcisiltite.
1880	100	By pass shakers whilst changing mud to KCl PHPA.
1890	100	<u>LIMESTONE</u> : Off white, grey brown, calcarenite locally grading to calcisiltite, very fine, common argillaceous matrix, micritic, trace lithic fragments, firm, blocky.
1900	100	<u>LIMESTONE</u> : Medium grey, olive grey, brown grey in part, calcisiltite, trace very fine calcareous sand, moderately to very argillaceous in part, trace lithic and carbonaceous fragments, soft to firm, blocky.
1910	100	<u>LIMESTONE</u> : As above, calcisiltite.
1920	100	<u>LIMESTONE</u> : Predominantly as above, calcisiltite, locally very argillaceous, occasionally grades to calcareous claystone.
1930	100	<u>LIMESTONE</u> : Light grey, grey brown, off white in part, calcarenite, very fine to fine, micritic, trace argillaceous matrix, trace glauconite, trace fossil and skeletal fragments, locally grades to calcisiltite.
1940	100	<u>LIMESTONE</u> : Light grey, grey brown, calcisiltite, moderately argillaceous in part, common calcarenite inclusions, trace glauconite, trace fossil fragments, trace forams, trace lithic and carbonaceous fragments, firm, blocky.

Depth m	%	Description
1950	100	<u>LIMESTONE</u> : As above.
1960	100	<u>LIMESTONE</u> : Light to medium grey, olive grey, calcisiltite grades in part to calcilutite, moderately to locally very argillaceous, trace carbonaceous specks, firm to moderately hard, blocky.
1970	100	<u>LIMESTONE</u> : As above.
1980	100	<u>LIMESTONE</u> : As above.
1990	100	<u>LIMESTONE</u> : Predominantly as above, calcisiltite, becoming very argillaceous in part, grades to calcilutite, trace carbonaceous microlaminations in part.
2000	100	<u>LIMESTONE</u> : Light to medium grey, grey brown, olive grey, calcisiltite, locally very argillaceous, micritic, trace nodular pyrite, trace carbonaceous fragments, trace very fine calcite sand, firm to moderately hard in part, blocky.
2010	100	<u>LIMESTONE</u> : As above.
2020	100	<u>LIMESTONE</u> : As above.
2030	80	<u>LIMESTONE</u> : Light to medium grey, calcisiltite, locally very argillaceous, micritic, trace fine calcite sand, trace carbonaceous fragments, firm to moderately hard, blocky, grades to calcareous claystone.
	20	<u>CLAYSTONE</u> : Olive grey, brown grey in part, moderately silty in part, moderately to very calcareous, moderately hard, blocky.
2040	70	<u>LIMESTONE</u> : As above.
	30	<u>CLAYSTONE</u> : As above.
2050	90	<u>LIMESTONE</u> : Light to medium grey, calcisiltite grades to calcilutite, moderately argillaceous in part, micritic, trace fossil/shell fragments, marly in part, firm, moderately hard, blocky.
	10	<u>CLAYSTONE</u> : Predominantly as above, trace nodular pyrite.
2060	90	<u>LIMESTONE</u> : Predominantly as above.
	10	<u>CLAYSTONE</u> : As above.
2070	80	<u>LIMESTONE</u> : Light to medium grey, brown grey, calcisiltite, moderately argillaceous, trace fine calcite sand, trace carbonaceous fragments, trace fossil fragments, trace forams, slightly marly in part, firm to moderately hard, blocky, locally grades to calcilutite.
	20	<u>CLAYSTONE</u> : Olive grey, dark grey, moderately calcareous, slightly silty, trace nodular/disseminated pyrite, trace carbonaceous fragments and microlaminations, firm to moderately hard, blocky.
2080	80	<u>LIMESTONE</u> : As above.
	20	<u>CLAYSTONE</u> : As above.

Depth m	%	Description
2090	70	<u>LIMESTONE</u> : Light to medium grey, calcisiltite grades to calcilutite, moderately to very argillaceous, micritic, trace carbonaceous fragments, trace very fine calcite sand, firm to moderately hard, blocky.
	30	<u>CLAYSTONE</u> : Olive grey, grey brown in part, slightly to moderately calcareous, micromicaceous in part, trace carbonaceous and lithic fragments, firm to moderately hard, waxy, blocky.
2100	70	<u>LIMESTONE</u> : As above.
	30	<u>CLAYSTONE</u> : Predominantly as above, trace disseminated pyrite.
2110	80	<u>LIMESTONE</u> : Light to medium grey, calcilutite, trace calcite silt in part, trace forams, trace carbonaceous fragments, firm to moderately hard, blocky to platy in part.
	20	<u>CLAYSTONE</u> : Medium grey, olive grey, slightly to moderately calcareous, trace carbonaceous fragments/specks, trace nodular pyrite, slightly micromicaceous, firm to moderately hard, blocky.
2120	70	<u>LIMESTONE</u> : As above.
	30	<u>CLAYSTONE</u> : As above.
2130	60	<u>LIMESTONE</u> : As above.
	40	<u>CLAYSTONE</u> : Predominantly as above, trace nodular pyrite.
2140	60	<u>LIMESTONE</u> : As above.
	40	<u>CLAYSTONE</u> : As above.
2150	30	<u>LIMESTONE</u> : Light to medium grey, calcilutite, trace calcareous silt, trace carbonaceous fragments, firm to moderately hard, blocky, grades to calcareous claystone.
	70	<u>CLAYSTONE</u> : As above.
2160	20	<u>LIMESTONE</u> : Light to medium grey, occasionally brown grey, calcilutite, trace calcite silt in part, trace carbonaceous specks and fragments, trace forams, trace lithic fragments, firm to moderately hard, blocky.
	80	<u>CLAYSTONE</u> : Light to medium grey, olive grey, moderately to locally very calcareous, micromicaceous, trace carbonaceous specks, trace nodular and disseminated pyrite, firm, occasionally moderately hard, blocky, waxy, subfissile in part.
2170	10	<u>LIMESTONE</u> : As above.
	90	<u>CLAYSTONE</u> : As above.
2180	100	<u>CLAYSTONE</u> : Light to medium grey, olive grey, moderately calcareous, trace disseminated pyrite, micromicaceous, trace carbonaceous specks, moderately hard, slightly dispersive in part, blocky to subfissile.
2190	100	<u>CLAYSTONE</u> : As above.
2200	100	<u>CLAYSTONE</u> : As above.
2210	100	<u>CLAYSTONE</u> : Predominantly as above, trace nodular pyrite.
2220	100	<u>CLAYSTONE</u> : Light to medium grey, olive grey, slightly to occasionally calcareous, trace lithic fragments, slightly glauconitic, micromicaceous, trace nodular and disseminated pyrite, firm to moderately hard, hard in part, blocky.

Depth m	%	Description
2230	100	<u>CLAYSTONE</u> : Predominantly as above, trace medium brown cryptocrystalline dolomitic inclusions, trace fine to medium calcareous sand.
2235	100	<u>CLAYSTONE</u> : As above, trace fine to medium calcite sand.
2240	100	<u>CLAYSTONE</u> : As above.
2245	100	<u>CLAYSTONE</u> : Light to medium grey, olive grey, slightly to moderately calcareous in part, slightly silty, micromicaceous, trace nodular pyrite, trace carbonaceous specks and microlaminations, moderately hard, hard in part, blocky.
2250	100	<u>CLAYSTONE</u> : As above.
2255	100	<u>CLAYSTONE</u> : Light to medium grey, olive grey, slightly to moderately silty, micromicaceous, trace nodular pyrite, trace carbonaceous and lithic fragments, firm to moderately hard, blocky.
2260	100	<u>CLAYSTONE</u> : As above.
2265	100	<u>CLAYSTONE</u> : Olive grey, medium grey, slightly to moderately calcareous, slightly silty in part, trace carbonaceous fragments, slightly micromicaceous, moderately hard, blocky.
2270	100	<u>CLAYSTONE</u> : Predominantly as above, trace fine calcite sand.
2275	100	<u>CLAYSTONE</u> : Predominantly as above, trace carbonaceous microlaminations.
2280	100	<u>CLAYSTONE</u> : As above.
2285	100	<u>CLAYSTONE</u> : Medium grey, olive grey, occasionally brown grey, moderately argillaceous, silty in part, trace nodular pyrite, trace lithic fragments, firm, occasionally moderately hard, blocky.
2290	100	<u>CLAYSTONE</u> : As above.
2295	100	<u>CLAYSTONE</u> : Light to medium grey, olive grey, brown grey in part, moderately calcareous, very silty in part, trace carbonaceous fragments, trace disseminated and nodular pyrite, firm, soft in part, blocky.
2300	100	<u>CLAYSTONE</u> : As above.
2305	100	<u>CLAYSTONE</u> : Light to medium grey, grey brown, moderately to very calcareous, trace fossil fragments and forams, trace carbonaceous specks, silty in part, firm to moderately hard in part, locally grades to calcilutite.
2310	100	<u>CLAYSTONE</u> : Predominantly as above, locally grades to calcilutite.
2315	80	<u>CLAYSTONE</u> : Predominantly as above, becomes very silty in part.
	20	<u>LIMESTONE</u> : Light brown, brown grey, calcisiltite, very argillaceous, micritic, trace fossil fragments, trace carbonaceous specks, firm to moderately hard, blocky.
2320	60	<u>CLAYSTONE</u> : As above.
	40	<u>LIMESTONE</u> : As above.

Depth m	%	Description
2325	60	<u>CLAYSTONE</u> : As above.
	40	<u>LIMESTONE</u> : As above.
2330	10	<u>SILTSTONE</u> : Light orange to yellow, medium brown, limonitic (weathered), rare glauconite, very argillaceous, trace coarse milky quartz grains, soft to dispersive, massive.
	60	<u>LIMESTONE</u> : As above.
	30	<u>CLAYSTONE</u> : As above.
2335	40	<u>SILTSTONE</u> : As above (weathered).
	50	<u>LIMESTONE</u> : As above.
	10	<u>CLAYSTONE</u> : As above.
2340	20	<u>SANDSTONE</u> : Clear to translucent, frosted, coarse to very coarse, poorly sorted, trace siliceous cement, trace nodular pyrite and pyritic cement, common coarse milky quartz, loose, inferred fair visual porosity. FLUORESCENCE: Trace dull yellow patchy fluorescence, faint instant cut, trace spotty ring residue.
	50	<u>SILTSTONE</u> : Light orange to orange brown, rare glauconite, trace pyrite, moderately to very argillaceous, slightly calcareous in part, soft to dispersive, occasionally moderately hard, blocky, massive.
	30	<u>LIMESTONE</u> : As above.
2345	40	<u>SANDSTONE</u> : Clear to translucent, frosted, coarse to very coarse, angular, poorly sorted, trace siliceous cement, trace pyritic cement, common coarse milky quartz, loose, inferred fair porosity. FLUORESCENCE: Trace dull yellow patchy fluorescence, nil to faint instant cut, trace spotty residue.
	60	<u>SILTSTONE</u> : Light to medium grey, slightly calcareous, moderately to very argillaceous, slightly micromicaceous, firm to moderately hard, blocky to subfissile.
2350	80	<u>SANDSTONE</u> : Clear to translucent, light grey, medium to predominantly coarse to very coarse, angular to subangular, poor sorting, trace siliceous cement, trace nodular pyrite and pyritic cement, weak calcite/dolomitic cement, common milky quartz, loose, inferred fair to good visual porosity. FLUORESCENCE: 30% moderately bright patchy yellow white fluorescence, weak instant cut, thin patchy ring residue.
	20	<u>SILTSTONE</u> : As above.
(Beginning of core chip descriptions from core #1.)		
2350		<u>SANDSTONE</u> : Medium to dark brown, fine to medium, occasionally coarse, angular to subrounded, poor sorting, abundant argillaceous matrix, common pyritic cement in part and nodular pyrite, common coarse milky quartz grains, trace glauconite, hard to very hard, very poor to nil visual porosity. FLUORESCENCE: trace to 10% moderately bright yellow white spotty fluorescence, slow weak streaming cut, thin patchy ring residue.
2351		<u>SANDSTONE</u> : Medium grey, medium brown, medium to coarse, subangular to subrounded, moderately to poorly sorted, common kaolinitic/ argillaceous matrix, siliceous cement, trace pyritic cement, abundant glauconite, trace coarse milky quartz, moderately hard to hard, tight, no fluorescence.
2352		<u>SANDSTONE</u> : Clear to translucent, light grey, medium to predominantly coarse to very coarse, angular to subrounded, moderate sorting, weak siliceous cement, moderately silty matrix, common milky quartz, trace to common detrital glauconite, friable, good visual porosity. FLUORESCENCE: 100% Bright yellow white solid fluorescence, instant cut, thick ring residue.

Depth m	%	Description
2353		<u>SANDSTONE</u> : Clear to translucent, off white, medium to very coarse. granular in part, angular to subrounded, poor to moderate sorting, very weak siliceous cement, trace argillaceous/kaolinitic matrix, trace detrital glauconite, occasional medium brown argillaceous laminae 1mm thick, very friable, good visual porosity. FLUORESCENCE: 100% As above.
2354		<u>SANDSTONE</u> : Clear to translucent, light grey, medium to coarse, occasionally very coarse, subangular to subrounded, moderate sorting, very weak siliceous cement, slightly argillaceous/silty matrix, common granular milky quartz, trace nodular pyrite, trace detrital glauconite, occasional medium brown argillaceous laminae 1mm thick, friable, good visual porosity. FLUORESCENCE: 100% As above.
2355		<u>SANDSTONE</u> : Medium grey, brown grey, medium to coarse, angular to subrounded, moderately sorted, moderate siliceous cement, abundant argillaceous matrix, trace detrital glauconite, common milky/smoky quartz, hard, very poor visual porosity. FLUORESCENCE: 10% Moderately bright pale yellow white patchy fluorescence, weak slow streaming cut, thin spotty ring residue.
2356		<u>SANDSTONE</u> : Clear to translucent, light grey, medium to coarse, occasionally very coarse, angular to subrounded, poor to moderate sorting, very weak siliceous cement, trace pyritic cement, very weak calcareous cement in part, trace diagenic glauconite, trace milky/smoky quartz, very friable, good visual porosity. FLUORESCENCE: 100% Bright yellow white solid fluorescence, strong instant cut, thick ring residue.
2356.6		<u>SANDSTONE</u> : As above. FLUORESCENCE: 100% As above.
(End of core chip descriptions from core #1)		
2360	70	<u>SANDSTONE</u> : Clear to translucent, frosted, medium to very coarse, angular to subrounded, poor to moderate sorting, very weak siliceous cement, trace pyritic cement and pyrite nodules, rare glauconite, common very coarse milky/smoky quartz, loose, inferred good visual porosity. FLUORESCENCE: 30% Moderately bright to patchy bright yellow white fluorescence, instant to fast streaming cut, thin spotty ring residue.
	30	<u>SILTSTONE</u> : Light to medium grey, very argillaceous, slightly calcareous in part, micromicaceous, trace disseminated pyrite, moderately hard to hard, blocky to subfissile.
2365	70	<u>SANDSTONE</u> : Clear to translucent, frosted, coarse to very coarse, occasionally medium, subangular to subrounded, poor to moderate sorting, weak siliceous cement, trace pyritic cement, common coarse milky/smoky quartz, trace to locally common glauconite, loose, inferred good visual porosity. FLUORESCENCE: 40% Moderately bright to patchy bright yellow white fluorescence, weak instant cut, thin patchy ring residue.
	30	<u>SILTSTONE</u> : Light grey to occasionally medium grey, very argillaceous, slightly calcareous in part, trace carbonaceous fragments, trace disseminated pyrite, micromicaceous, trace medium brown cryptocrystalline dolomitic/calclitic inclusions, moderately hard, subfissile.
	Trace	<u>CLAYSTONE</u> : Light yellow brown, orange brown, slightly silty, limonitic, soft to dispersive, massive to amorphous. (weathered horizon?)
2370	90	<u>SANDSTONE</u> : Predominantly as above, becomes granular in part. FLUORESCENCE: 70% Fluorescence as above.
	10	<u>SILTSTONE</u> : As above.

Depth m	%	Description
2375	100	<u>SANDSTONE</u> : Clear to translucent, frosted, predominantly medium to coarse, subangular to subrounded, poor to moderate sorting, trace argillaceous/kaolinitic matrix, trace pyritic cement and nodular pyrite, rare glauconite, common coarse milky quartz, loose, inferred good visual porosity. FLUORESCENCE: 40% Moderately bright to patchy bright yellow white fluorescence, faint instant cut, thin ring residue.
	Trace	<u>SILTSTONE</u> : As above.
2380	100	<u>SANDSTONE</u> : Predominantly as above, medium to coarse grained. FLUORESCENCE: 50% Fluorescence, as above.
	Trace	<u>SILTSTONE</u> : As above.
2385	80	<u>SANDSTONE</u> : Clear to translucent, frosted, fine to medium, coarse in part, subangular to subrounded, poor to moderate sorting, very weak siliceous cement in part, trace argillaceous matrix, trace nodular pyrite, trace glauconite, common coarse milky/smoky quartz, loose, inferred fair visual porosity. FLUORESCENCE: 50% Fluorescence as above.
	20	<u>SILTSTONE</u> : As above.
2390	90	<u>SANDSTONE</u> : Clear to translucent, light grey, fine to medium, coarse in part, subangular to subrounded, poor to moderate sorting, common argillaceous matrix, trace pyritic cement and nodular pyrite, trace carbonaceous/coaly fragments, rare glauconite, common milky/smoky quartz, friable to loose, inferred fair to good visual porosity. FLUORESCENCE: 30% Moderately bright to bright patchy yellow white fluorescence, weak instant cut, thin patchy ring residue.
	10	<u>SILTSTONE</u> : Light grey, very argillaceous, slightly calcareous, micromicaceous, trace disseminated pyrite, firm to moderately hard, subfissile.
2395	100	<u>SANDSTONE</u> : Predominantly as above, medium to coarse grained, trace kaolinitic matrix, inferred good visual porosity. FLUORESCENCE: 40% Fluorescence, as above.
	Trace	<u>SILTSTONE</u> : As above.
2400	60	<u>SANDSTONE</u> : As above. FLUORESCENCE: 40% As above.
	40	<u>SILTSTONE</u> : Light grey, pale brown grey, light brown, very argillaceous, common very fine quartz sand in part, micromicaceous, common carbonaceous and lithic fragments, soft to firm, slightly dispersive, massive to amorphous, blocky in part.
2405	60	<u>SANDSTONE</u> : Clear to translucent, light grey, fine to medium, occasionally coarse, subangular to subrounded, moderately sorted, trace to common argillaceous/kaolinitic matrix, trace pyritic cement, rare glauconite, common coarse milky quartz, loose, inferred fair visual porosity. FLUORESCENCE: 40% Moderately bright to patchy bright yellow white fluorescence, very faint instant cut, trace ring residue.
	40	<u>SILTSTONE</u> : Light grey, occasionally medium grey, very argillaceous, trace carbonaceous fragments, slightly micromicaceous, moderately hard, subfissile.
2410	60	<u>SANDSTONE</u> : As above. FLUORESCENCE: 30% Fluorescence, as above.
	40	<u>SILTSTONE</u> : Light to medium grey, medium brown, very argillaceous, trace lithic and carbonaceous fragments, locally common carbonaceous microlaminae, micromicaceous, firm to moderately hard, blocky to subfissile.

Depth m % Description
 (Beginning of core chip descriptions cores #2 & #3)

- 2410 SANDSTONE: Clear to translucent, medium grey, coarse to very coarse, subangular to subrounded, moderately sorted, weak siliceous cement, trace argillaceous/silty matrix, rare pyritic cement, common milky/smoky quartz, friable, fair visual porosity. FLUORESCENCE: 30% Moderately bright pale yellow patchy fluorescence, instant to fast streaming cut, thick ring residue.
- 2411 SANDSTONE: Clear to translucent, medium grey, fine to medium, angular to subrounded, good sorting, weak siliceous cement, trace lithic fragments, common smoky quartz, friable, fair visual porosity. FLUORESCENCE: 50% Moderately bright pale yellow white patchy fluorescence, fast streaming cut, moderate ring residue.
- 2412 SANDSTONE: Clear to translucent, light grey, medium to very coarse, subangular to subrounded, poor to moderate sorting, very weak siliceous cement, trace kaolinitic matrix, common milky/smoky quartz, trace nodular pyrite, very friable, very good visual porosity. FLUORESCENCE: 20% Bright yellow white spotty fluorescence, instant cut, thin to moderate ring residue.
- 2413 SANDSTONE: As above. FLUORESCENCE: 20% As above.
- 2414 SANDSTONE: Clear to translucent, light grey, medium to coarse, occasionally very coarse, subangular to subrounded, poor to moderate sorting, very weak siliceous cement, trace pyritic cement, common milky/smoky quartz, friable to very friable, good visual porosity. FLUORESCENCE: 10% Bright pale yellow white spotty fluorescence, fast streaming cut, thin to moderate patchy ring residue.
- 2415 SANDSTONE: Clear to translucent, light grey, medium to very coarse, subangular to subrounded, poor sorting, very weak siliceous cement, trace pyritic cement, trace carbonaceous specks, common very coarse to granular milky/smoky quartz, friable, good visual porosity. FLUORESCENCE: 10% Fluorescence, as above.
- 2416 SILTSTONE: Dark grey, olive grey, grey black, very argillaceous, micromicaceous, slightly carbonaceous, very hard, subfissile.
- 2417 SANDSTONE: Light to medium grey, medium to predominantly coarse, angular to subrounded, weak siliceous cement, common pyritic cement, abundant argillaceous/silty matrix, common milky/smoky quartz, friable, poor visual porosity. FLUORESCENCE: 20% Dull pale yellow patchy fluorescence, fast streaming cut, thin to moderate ring residue.
- 2418 SANDSTONE: Medium to dark grey, grey brown, fine to medium, subangular to subrounded, moderate sorting, abundant brown argillaceous matrix, slightly silty, trace kaolinite, trace to common disseminated pyrite, firm, very poor to nil visual porosity, no fluorescence.
- 2419 SANDSTONE: Medium grey, grey brown, medium to coarse, subangular to subrounded, moderate sorting, weak siliceous cement, trace silty/argillaceous matrix, trace lithic fragments, common milky/smoky quartz, friable, fair visual porosity. FLUORESCENCE: 30% Moderately bright pale yellow patchy fluorescence, instant cut, thin spotty ring residue.

Depth m	%	Description
2420		<u>SANDSTONE</u> : Light to medium grey, medium to coarse, occasionally very coarse, subangular to subrounded, poor sorting, very weak siliceous cement, trace silty/argillaceous matrix, abundant argillaceous matrix in part, common milky/smoky quartz, moderately hard to friable, poor visual porosity. FLUORESCENCE: 30% Moderately bright pale yellow patchy fluorescence, instant cut, thin patchy ring residue.
2421		<u>SANDSTONE</u> : Medium to dark grey, medium, subangular to subrounded, good sorting, moderate siliceous cement, common pyritic cement, common argillaceous matrix, trace kaolinite, very poor to nil visual porosity, no fluorescence.
2422		<u>SANDSTONE</u> : Light to medium grey, medium to very coarse, subrounded, moderate sorting, trace argillaceous matrix, abundant smoky quartz, friable, good visual porosity. FLUORESCENCE: Trace pale yellow patchy fluorescence, instant cut, thin patchy ring residue.
2423		<u>SANDSTONE</u> : Medium to dark grey, medium to very coarse, subangular to subrounded, poor sorting, very weak siliceous cement, abundant brown argillaceous matrix, silty in part, trace mica (muscovite?), trace lithic fragments, common smoky quartz, poor visual porosity. FLUORESCENCE: 10% Dull pale yellow patchy fluorescence, weak cut, thin to nil ring residue.
2424		<u>SANDSTONE</u> : Medium to dark grey, fine to coarse, occasionally very coarse, angular to subrounded, poor sorting, abundant argillaceous/silty matrix, trace lithic fragments, common milky quartz, friable to moderately hard, poor to fair visual porosity. FLUORESCENCE: 20% Moderately bright to patchy bright pale yellow fluorescence, fast streaming cut, thin patchy ring residue.
2425		<u>SILTSTONE</u> with interlaminated <u>SANDSTONE</u> : Sandstone: light grey, very fine, subangular to subrounded, good sorting, strong siliceous cement, trace pyritic cement, hard, tight, no fluorescence. Siltstone: Dark brown, very argillaceous, micromicaceous, hard, massive.
2426		<u>SANDSTONE</u> : Medium to dark grey, medium to occasionally coarse, subangular to subrounded, abundant argillaceous matrix (matrix supported), moderately carbonaceous, siliceous, hard, massive to blocky, no fluorescence.
2427		<u>SANDSTONE</u> : Medium brown to light brown, clear to translucent, medium to coarse, subangular to subrounded, moderate sorting, weak siliceous cement, common argillaceous/silty matrix, trace mica (muscovite?), trace milky quartz, friable to moderately hard, fair to poor visual porosity, no fluorescence.
2428		<u>SILTSTONE</u> : Dark grey, grey black, micromicaceous, very carbonaceous, hard, subfissile. Occasional thin very fine sandstone laminae.
2428.5		<u>SILTSTONE</u> : As above.
2429.5		<u>SANDSTONE</u> : Light grey, light brown grey, medium, subangular to subrounded, good sorting, abundant brown argillaceous matrix, common kaolinite, common milky quartz, very poor visual porosity, no fluorescence.
2430.5		<u>SILTSTONE</u> : Dark brown, brown black, very argillaceous, very carbonaceous, trace medium quartz sand, micromicaceous, hard, subfissile.

Depth m	%	Description
2431.5		<u>SANDSTONE</u> : Dark brown, brown grey, light brown in part, fine to medium, subangular to subrounded, good sorting, strong siliceous cement, abundant brown argillaceous matrix, hard, very poor to nil visual porosity, no fluorescence.
2432.5		<u>SANDSTONE</u> : Dark brown, brown black, medium to very coarse, angular to subrounded, moderate siliceous cement, common brown argillaceous matrix, common kaolinite, abundant bituminous staining on quartz grains, moderately hard, poor visual porosity, no fluorescence.
2433.5		<u>SANDSTONE</u> : Light orange, grey brown, medium to coarse, subangular to subrounded, moderate to good sorting, weak siliceous cement, common brown argillaceous matrix in part, common kaolinite, friable to moderately hard, poor to fair visual porosity, no fluorescence.
2434.5		<u>SANDSTONE</u> : As above.
2435.5		<u>SANDSTONE</u> : Light grey, clear to translucent, fine to medium, occasionally coarse, subangular to subrounded, poor sorting, weak siliceous cement, trace mica (biotite?), common smoky/milky quartz, friable to moderately hard, fair visual porosity, no fluorescence.
2436.5		<u>SANDSTONE</u> : Clear to translucent, light orange, medium to coarse, occasionally very coarse, subangular to subrounded, poor sorting, weak siliceous cement, trace lithic fragments, common milky/smoky quartz, trace kaolinite, fair to good visual porosity, no fluorescence.
2437.3		<u>SANDSTONE</u> : Clear to translucent, light grey, medium to predominantly coarse to very coarse, subangular to subrounded, moderate to poor sorting, weak siliceous cement, trace pyritic cement, trace kaolinite, common milky/smoky quartz, friable, fair to good visual porosity, no fluorescence.
2438.5		<u>SANDSTONE</u> : Clear to translucent, light grey, medium to coarse, very coarse in part, angular to subrounded, good to moderate sorting, weak siliceous cement, trace lithic fragments, trace kaolinite, trace smoky quartz, friable to moderately hard, fair to good visual porosity, no fluorescence.
2439.5		<u>SANDSTONE</u> : As above, no fluorescence.
2440.5		<u>SANDSTONE</u> : Clear to translucent, light grey, fine to very coarse, subangular to subrounded, poor sorting, moderate siliceous cement, trace quartz overgrowths, trace lithic fragments, common milky/smoky quartz, trace kaolinite, poor to fair visual porosity, no fluorescence.
2441.5		<u>SANDSTONE</u> : Light grey, clear to translucent, very coarse to granular, medium in part, angular to subrounded, moderate sorting, weak siliceous cement, trace kaolinitic matrix, common milky/smoky quartz, friable, very good visual porosity, no fluorescence.
2442.5		<u>SANDSTONE</u> : As above, no fluorescence.
2443.5		<u>SANDSTONE</u> : Light to medium grey, clear to translucent, medium predominantly very coarse to coarse, angular to subrounded, moderate sorting, very weak siliceous cement, common smoky quartz, very friable, very good visual porosity, no fluorescence.

Depth m	%	Description
2444.5		<u>SANDSTONE</u> : Light grey, clear to translucent, medium to coarse, occasionally very coarse to granular, angular to subrounded, poor sorting, weak siliceous cement, trace argillaceous matrix, trace lithic fragments, common granular milky/smoky quartz, good visual porosity, no fluorescence.
2445.5		<u>SILTSTONE</u> : Medium dark brown, brown black, very argillaceous, common very fine quartz sand, moderately carbonaceous, firm to moderately hard, massive.
2446.9		<u>SILTSTONE</u> : Very dark grey, grey black, very carbonaceous, very argillaceous, micromicaceous, slightly stylolytic in part, very hard, massive to subfissile.
(End of core chip descriptions for cores #2 & #3)		
2450	90	<u>SANDSTONE</u> : Clear to translucent, frosted, medium to predominantly coarse, subangular to subrounded, moderately sorted, trace kaolinitic matrix, trace coal/carbonaceous fragments, trace nodular pyrite, common milky/smoky quartz, loose, inferred good porosity, no fluorescence.
	10	<u>SILTSTONE</u> : Light to medium grey, medium brown, very argillaceous, slightly carbonaceous, micromicaceous, firm to moderately hard, blocky to subfissile.
2455	50	<u>SANDSTONE</u> : Clear to translucent, light grey, fine to medium, coarse in part, subangular to subrounded, poor sorting, weak siliceous cement, common kaolinitic matrix, common milky quartz, loose, inferred poor to fair visual porosity, no fluorescence.
	30	<u>SILTSTONE</u> : Predominantly as above, becoming arenaceous in part.
	20	<u>COAL</u> : Black, bituminous, vitreous to subvitreous lustre, conchoidal fracture, brittle, blocky.
2460	30	<u>SANDSTONE</u> : As above.
	60	<u>SILTSTONE</u> : As above.
	10	<u>COAL</u> : As above.
2465	70	<u>SANDSTONE</u> : As above.
	30	<u>SILTSTONE</u> : As above.
2470	100	<u>SANDSTONE</u> : Clear to translucent, frosted, medium to coarse, occasionally very coarse, subangular to subrounded, moderate to good sorting, common kaolinitic matrix, loose, inferred good porosity, no fluorescence.
	Trace	<u>SILTSTONE</u> : As above.
2475	100	<u>SANDSTONE</u> : As above, no fluorescence.
	Trace	<u>SILTSTONE</u> : As above.
2480	100	<u>SANDSTONE</u> : Predominantly as above, common kaolinite, no fluorescence.
2485	100	<u>SANDSTONE</u> : As above.
2490	40	<u>SANDSTONE</u> : Clear to translucent, light grey, fine to predominantly coarse, occasionally very coarse, angular to subrounded, poor sorting, weak siliceous cement, trace kaolinitic/argillaceous matrix, common milky quartz, friable to loose, fair to inferred good visual porosity, no fluorescence.
	60	<u>SILTSTONE</u> : Light to medium grey, brown grey, medium brown, very argillaceous, arenaceous in part, trace carbonaceous and lithic fragments in part, micromicaceous, firm to hard, massive to subfissile.

Depth m	%	Description
2495	70	<u>SANDSTONE</u> : Predominantly as above, fine to medium, coarse in part, no fluorescence.
	30	<u>SILTSTONE</u> : As above.
2500	90	<u>SANDSTONE</u> : Predominantly as above, becoming medium to coarse, no fluorescence.
	10	<u>SILTSTONE</u> : As above.
2505	100	<u>SANDSTONE</u> : As above, no fluorescence.
2510	100	<u>SANDSTONE</u> : As above, no fluorescence.
2515	100	<u>SANDSTONE</u> : As above, no fluorescence.
2520	70	<u>SANDSTONE</u> : Clear to translucent, frosted, fine to predominantly medium to coarse, angular to subrounded, poor to moderate sorting, weak siliceous cement, trace kaolinite, trace coal fragments, common milky/smoky quartz, friable to predominantly loose, inferred fair to predominantly good visual porosity, no fluorescence.
	30	<u>SILTSTONE</u> : Light grey, grey brown, very argillaceous, slightly arenaceous in part, micromicaceous, trace carbonaceous fragments, very slightly calcareous in part, soft to slightly dispersive, massive to blocky.
2525	90	<u>SANDSTONE</u> : Predominantly as above, medium to coarse to very coarse, slightly silty matrix, inferred good visual porosity, no fluorescence.
	10	<u>SILTSTONE</u> : As above.
2530	70	<u>SANDSTONE</u> : As above.
	30	<u>SILTSTONE</u> : As above.
2535	30	<u>SANDSTONE</u> : Clear to translucent, frosted, medium to predominantly coarse, angular to subrounded, poor to moderate sorting, no visible cement, locally common kaolinitic matrix, common milky quartz, trace carbonaceous/coal fragments, loose, inferred good visual porosity, no fluorescence.
	70	<u>SILTSTONE</u> : Grey brown, light grey, very argillaceous, arenaceous in part, common carbonaceous specks, micromicaceous, firm, slightly dispersive, massive to blocky.
2540	70	<u>SANDSTONE</u> : As above, no fluorescence.
	30	<u>SILTSTONE</u> : Predominantly as above, trace disseminated pyrite in part, becomes firm to moderately hard.
2545	90	<u>SANDSTONE</u> : Predominantly as above, predominantly coarse to very coarse, no fluorescence.
	10	<u>SILTSTONE</u> : As above.
2550	60	<u>SANDSTONE</u> : Predominantly as above, trace biotite, common kaolinitic matrix in part, loose, no fluorescence.
	30	<u>SILTSTONE</u> : Predominantly as above, slightly dispersive in part.
	10	<u>COAL</u> : Black, bituminous, subvitreous lustre, subconchoidal fracture, brittle, blocky.
2555	10	<u>SANDSTONE</u> : As above.
	90	<u>SILTSTONE</u> : Light to medium grey, predominantly medium brown, very argillaceous, micromicaceous, trace carbonaceous fragments, trace nodular pyrite, firm to predominantly moderately hard, blocky to subfissile.

Depth m	%	Description
2560	10	<u>SANDSTONE</u> : As above.
	90	<u>SILTSTONE</u> : Predominantly as above, arenaceous in part.
2565	20	<u>SANDSTONE</u> : Clear to translucent, frosted, medium to coarse, angular to subrounded, poor to moderate sorting, trace limonitic staining on quartz grains, trace nodular pyrite, common milky quartz, loose, inferred good visual porosity, no fluorescence.
	80	<u>SILTSTONE</u> : Medium grey, olive grey, brown grey, very argillaceous, micromicaceous, common carbonaceous fragments, dispersive to moderately hard, hard in part, massive to amorphous, subfissile in part.
2570	10	<u>SANDSTONE</u> : Clear to translucent, frosted, fine to medium, occasionally coarse, angular to subrounded, poor to moderate sorting, trace nodular pyrite, trace rose quartz, common milky/smoky quartz, loose, inferred fair porosity, no fluorescence.
	90	<u>SILTSTONE</u> : Light to medium grey, olive grey, medium brown, very argillaceous, arenaceous in part, common carbonaceous fragments, micromicaceous, trace lithic fragments, slightly dispersive, firm to moderately hard, blocky to subfissile, occasionally amorphous to massive.
	Trace	<u>COAL</u> : Black, bituminous, subconchoidal fracture, dull to subvitreous lustre, hard, brittle, blocky.
2575	10	<u>SANDSTONE</u> : As above, no fluorescence.
	80	<u>SILTSTONE</u> : As above.
	10	<u>COAL</u> : As above.
2580	90	<u>SANDSTONE</u> : Clear to translucent, frosted, medium to coarse, occasionally very coarse, angular to subrounded, moderate sorting, trace nodular pyrite, common milky quartz, trace lithic fragments, loose, inferred good visual porosity, no fluorescence.
	10	<u>SILTSTONE</u> : As above.
	Trace	<u>COAL</u> : As above.
2585	80	<u>SANDSTONE</u> : As above, no fluorescence.
	20	<u>SILTSTONE</u> : As above.
2590	80	<u>SANDSTONE</u> : As above, no fluorescence.
	20	<u>SILTSTONE</u> : As above.
	Trace	<u>COAL</u> : As above (sample 2570).

APPENDIX 2



5th Cut
A4 Dividers
Re-order code 97052

APPENDIX 2

HALIBUT-2

Core Descriptions



ESSO AUSTRALIA LTD CORE DESCRIPTION

CORE No.: 1
Interval cored: 2350 - 2356.6m
Cut: 6.6m
Bit type: RC412
Described by: Greg Clota

WELL: Halibut-2
Recovered: 6.6m (100%)
Bit size: 9 7/8"
Date: 28/02/94

Interval (m)	Depth (m/hr)	Graphic Shows	Descriptive Lithology
2350	20 10 0	..S..	2350 SANDSTONE: Medium to dark brown, fine to medium, occasionally coarse, angular to subrounded, poor sorting, abundant argillaceous matrix, common pyritic cement in part and nodular pyrite, common coarse milky quartz grains, trace glauconite, hard to very hard, very poor to nil visual porosity. FLUORESCENCE: trace to 10% moderately bright yellow white spotty fluorescence, slow weak streaming cut, thin patchy ring residue.
2351		◆-S-S-	2351 SANDSTONE: Medium grey, medium brown, medium to coarse, subangular to subrounded, moderately to poorly sorted, common kaolinitic/ argillaceous matrix, siliceous cement, trace pyritic cement, abundant glauconite, trace coarse milky quartz, moderately hard to hard, tight, no fluorescence.
2352		..S..	2352 SANDSTONE: Clear to translucent, light grey, medium to predominantly coarse to very coarse, angular to subrounded, moderate sorting, weak siliceous cement, moderately silty matrix, common milky quartz, trace to common detrital glauconite, friable, good visual porosity. FLUORESCENCE: 100% Bright yellow white solid fluorescence, instant cut, thick ring residue.
2353		..S..	2353 SANDSTONE: Clear to translucent, off white, medium to very coarse, granular in part, angular to subrounded, poor to moderate sorting, very weak siliceous cement, trace argillaceous/kaolinitic matrix, trace detrital glauconite, occasional medium brown argillaceous laminae 1mm thick, very friable, good visual porosity. FLUORESCENCE: 100% As above.
2354		◆-S-	2354 SANDSTONE: Clear to translucent, light grey, medium to coarse, occasionally very coarse, subangular to subrounded, moderate sorting, very weak siliceous cement, slightly argillaceous/silty matrix, common granular milky quartz, trace nodular pyrite, trace detrital glauconite, occasional medium brown argillaceous laminae 1mm thick, friable, good visual porosity. FLUORESCENCE: 100% As above.
2355		..S..	2355 SANDSTONE: Medium grey, brown grey, medium to coarse, angular to subrounded, moderately sorted, moderate siliceous cement, abundant argillaceous matrix, trace detrital glauconite, common milky/smoky quartz, hard, very poor visual porosity. FLUORESCENCE: 10% Moderately bright pale yellow white patchy fluorescence, weak slow streaming cut, thin spotty ring residue.
2356		..S..	2356 SANDSTONE: Clear to translucent, light grey, medium to coarse, occasionally very coarse, angular to subrounded, poor to moderate sorting, very weak siliceous cement, trace pyritic cement, very weak calcareous cement in part, trace diagenic glauconite, trace milky/smoky quartz, very friable, good visual porosity. FLUORESCENCE: 100% Bright yellow white solid fluorescence, strong instant cut, thick ring residue.
2357		..S..	2356.6 SANDSTONE: As above. FLUORESCENCE: 100% As above.
2358			
2359			
2360			



ESSO AUSTRALIA LTD CORE DESCRIPTION

CORE No.: 2
Interval cored: 2410 -2428.5
Cut: 18.5m
Bit type: RC412
Described by: Greg Clota

WELL: Halibut-2
Recovered: 18.5m (100%)
Bit size: 9 7/8"
Date: 01/03/94

Interval	Depth & ROP	Graphic Shows	Descriptive Lithology
	(m) (m/hr)		
2410	40 20 0	100 0	2410 SANDSTONE: Clear to translucent, medium grey, coarse to very coarse, subangular to subrounded, moderately sorted, weak siliceous cement, trace argillaceous/silty matrix, rare pyritic cement, common milky/smoky quartz, friable, fair visual porosity. FLUORESCENCE: 30% Moderately bright pale yellow patchy fluorescence, instant to fast streaming cut, thick ring residue.
2411			2411 SANDSTONE: Clear to translucent, medium grey, fine to medium, angular to subrounded, good sorting, weak siliceous cement, trace lithic fragments, common smoky quartz, friable, fair visual porosity. FLUORESCENCE: 50% Moderately bright pale yellow white patchy fluorescence, fast streaming cut, moderate ring residue.
2412			2412 SANDSTONE: Clear to translucent, light grey, medium to very coarse, subangular to subrounded, poor to moderate sorting, very weak siliceous cement, trace kaolinitic matrix, common milky/smoky quartz, trace nodular pyrite, very friable, very good visual porosity. FLUORESCENCE: 20% Bright yellow white spotty fluorescence, instant cut, thin to moderate ring residue.
2413			2413 SANDSTONE: As above. FLUORESCENCE: 20% As above.
2414			2414 SANDSTONE: Clear to translucent, light grey, medium to coarse, occasionally very coarse, subangular to subrounded, poor to moderate sorting, very weak siliceous cement, trace pyritic cement, common milky/smoky quartz, friable to very friable, good visual porosity. FLUORESCENCE: 10% Bright pale yellow white spotty fluorescence, fast streaming cut, thin to moderate patchy ring residue.
2415			2415 SANDSTONE: Clear to translucent, light grey, medium to very coarse, subangular to subrounded, poor sorting, very weak siliceous cement, trace pyritic cement, trace carbonaceous specks, common very coarse to granular milky/smoky quartz, friable, good visual porosity. FLUORESCENCE: 10% Fluorescence, as above.
2416			2416 SILTSTONE: Dark grey, olive grey, grey black, very argillaceous, micromicaceous, slightly carbonaceous, very hard, subfissile.
2417			2417 SANDSTONE: Light to medium grey, medium to predominantly coarse, angular to subrounded, weak siliceous cement, common pyritic cement, abundant argillaceous/silty matrix, common milky/smoky quartz, friable, poor visual porosity. FLUORESCENCE: 20% Dull pale yellow patchy fluorescence, fast streaming cut, thin to moderate ring residue.
2418			2418 SANDSTONE: Medium to dark grey, grey brown, fine to medium, subangular to subrounded, moderate sorting, abundant brown argillaceous matrix, slightly silty, trace kaolinite, trace to common disseminated pyrite, firm, very poor to nil visual porosity, no fluorescence.
2419			2419 SANDSTONE: Medium grey, grey brown, medium to coarse, subangular to subrounded, moderate sorting, weak siliceous cement, trace silty/argillaceous matrix, trace lithic fragments, common milky/smoky quartz, friable, fair visual porosity. FLUORESCENCE: 30% Moderately bright pale yellow patchy fluorescence, instant cut, thin spotty ring residue.
2420			



ESSO AUSTRALIA LTD CORE DESCRIPTION

CORE No.:	2	WELL:	Halibut-2
Interval cored:	2410 - 2428.5m	Recovered:	18.5m (100%)
Cut:	18.5m	Bit size:	9 7/8"
Bit type:	RC412	Date:	01/03/94
Described by:	Greg Clota		

Interval	Depth & ROP	Graphic	Shows	Descriptive Lithology
	(m) (m/hr)		% Fluor	
2420	40 20 0	• • • • •	100 0	2420 SANDSTONE: Light to medium grey, medium to coarse, occasionally very coarse, subangular to subrounded, poor sorting, very weak siliceous cement, trace silty/argillaceous matrix, abundant argillaceous matrix in part, common milky/smoky quartz, moderately hard to friable, poor visual porosity. FLUORESCENCE: 30% Moderately bright pale yellow patchy fluorescence, instant cut, thin patchy ring residue.
2421		• • • • •		2421 SANDSTONE: Medium to dark grey, medium, subangular to subrounded, good sorting, moderate siliceous cement, common pyritic cement, common argillaceous matrix, trace kaolinite, very poor to nil visual porosity, no fluorescence.
2422		• • • • •		2422 SANDSTONE: Light to medium grey, medium to very coarse, subrounded, moderate sorting, trace argillaceous matrix, abundant smoky quartz, friable, good visual porosity. FLUORESCENCE: Trace pale yellow patchy fluorescence, instant cut, thin patchy ring residue.
2423		• • • • •		2423 SANDSTONE: Medium to dark grey, medium to very coarse, subangular to subrounded, poor sorting, very weak siliceous cement, abundant brown argillaceous matrix, silty in part, trace mica (muscovite?), trace lithic fragments, common smoky quartz, poor visual porosity. FLUORESCENCE: 10% Dull pale yellow patchy fluorescence, weak cut, thin to nil ring residue.
2424		• • • • •		2424 SANDSTONE: Medium to dark grey, fine to coarse, occasionally very coarse, angular to subrounded, poor sorting, abundant argillaceous/silty matrix, trace lithic fragments, common milky quartz, friable to moderately hard, poor to fair visual porosity. FLUORESCENCE: 20% Moderately bright to patchy bright pale yellow fluorescence, fast streaming cut, thin patchy ring residue.
2425		• • • • •		2425 SILTSTONE with interlaminated SANDSTONE: Sandstone: light grey, very fine, subangular to subrounded, good sorting, strong siliceous cement, trace pyritic cement, hard, tight, no fluorescence. Siltstone: Dark brown, very argillaceous, micromicaceous, hard, massive.
2426		• • • • •		2426 SANDSTONE: Medium to dark grey, medium to occasionally coarse, subangular to subrounded, abundant argillaceous matrix (matrix supported), moderately carbonaceous, siliceous, hard, massive to blocky, no fluorescence.
2427		• • • • •		2427 SANDSTONE: Medium brown to light brown, clear to translucent, medium to coarse, subangular to subrounded, moderate sorting, weak siliceous cement, common argillaceous/silty matrix, trace mica (muscovite?), trace milky quartz, friable to moderately hard, fair to poor visual porosity, no fluorescence.
2428		• • • • •		2428 SILTSTONE: Dark grey, grey black, micromicaceous, very carbonaceous, hard, subfissile. Occasional thin very fine sandstone laminae.
2428.5		• • • • •		2428.5 SILTSTONE: As above.



ESSO AUSTRALIA LTD CORE DESCRIPTION

CORE No.:	3	WELL:	Halibut-2
Interval cored:	2428.5 - 2446.9m	Recovered:	18.4m (100%)
Cut:	18.4m	Bit size:	9 7/8"
Bit type:	RC412	Date:	02/03/94
Described by:	Greg Clota		

Interval	Depth & ROP	Graphic Shows	Shows	% Fluor	Descriptive Lithology
	(m) 2428	(m/hr) 40 20 0		100 0	2428.5 SILTSTONE: Dark grey, grey black, micromicaceous, very carbonaceous, hard, subfissile. Occasional thin very fine sandstone laminae.
			---		2429.5 SANDSTONE: Light grey, light brown grey, medium, subangular to subrounded, good sorting, abundant brown argillaceous matrix, common kaolinite, common milky quartz, very poor visual porosity, no fluorescence.
2429			.....		2430.5 SILTSTONE: Dark brown, brown black, very argillaceous, very carbonaceous, trace medium quartz sand, micromicaceous, hard, subfissile.
			.....		2431.5 SANDSTONE: Dark brown, brown grey, light brown in part, fine to medium, subangular to subrounded, good sorting, strong siliceous cement, abundant brown argillaceous matrix, hard, very poor to nil visual porosity, no fluorescence.
2430			.....		2432.5 SANDSTONE: Dark brown, brown black, medium to very coarse, angular to subrounded, moderate siliceous cement, common brown argillaceous matrix, common kaolinite, abundant bituminous staining on quartz grains, moderately hard, poor visual porosity, no fluorescence.
			.....		2433.5 SANDSTONE: Light orange, grey brown, medium to coarse, subangular to subrounded, moderate to good sorting, weak siliceous cement, common brown argillaceous matrix in part, common kaolinite, friable to moderately hard, poor to fair visual porosity, no fluorescence.
2431			.....		2434.5 SANDSTONE: As above.
			.....		2435.5 SANDSTONE: Light grey, clear to translucent, fine to medium, occasionally coarse, subangular to subrounded, poor sorting, weak siliceous cement, trace mica (biotite?), common smoky/milky quartz, friable to moderately hard, fair visual porosity, no fluorescence.
2432			.....		2436.5 SANDSTONE: Clear to translucent, light orange, medium to coarse, occasionally very coarse, subangular to subrounded, poor sorting, weak siliceous cement, trace lithic fragments, common milky/smoky quartz, trace kaolinite, fair to good visual porosity, no fluorescence.
			.....		2437.3 SANDSTONE: Clear to translucent, light grey, medium to predominantly coarse to very coarse, subangular to subrounded, moderate to poor sorting, weak siliceous cement, trace pyritic cement, trace kaolinite, common milky/smoky quartz, friable, fair to good visual porosity, no fluorescence.
2433			.....	
				
2434			.....	
				
2435			.....	
				
2436			.....	
				
2437			.....	
				
2438			.....	



ESSO AUSTRALIA LTD CORE DESCRIPTION

CORE No.: 3
Interval cored: 2428.5 - 2446.9m
Cut: 18.4m
Bit type: RC412
Described by: Greg Clota

WELL: Halibut-2
Recovered: 18.4m (100%)
Bit size: 9 7/8"
Date: 02/03/94

Interval	Depth & ROP	Graphic	Shows	Descriptive Lithology
	(m) (m/hr)		% Fluor	
2438.5	40 20 0		100 0	SANDSTONE: Clear to translucent, light grey, medium to coarse, very coarse in part, angular to subrounded, good to moderate sorting, weak siliceous cement, trace lithic fragments, trace kaolinite, trace smoky quartz, friable to moderately hard, fair to good visual porosity, no fluorescence.
2439.5				SANDSTONE: As above, no fluorescence.
2440.5				SANDSTONE: Clear to translucent, light grey, fine to very coarse, subangular to subrounded, poor sorting, moderate siliceous cement, trace quartz overgrowths, trace lithic fragments, common milky/smoky quartz, trace kaolinite, poor to fair visual porosity, no fluorescence.
2441.5				SANDSTONE: Light grey, clear to translucent, very coarse to granular, medium in part, angular to subrounded, moderate sorting, weak siliceous cement, trace kaolinitic matrix, common milky/smoky quartz, friable, very good visual porosity, no fluorescence.
2442.5				SANDSTONE: As above, no fluorescence.
2443.5				SANDSTONE: Light to medium grey, clear to translucent, medium predominantly very coarse to coarse, angular to subrounded, moderate sorting, very weak siliceous cement, common smoky quartz, very friable, very good visual porosity, no fluorescence.
2444.5				SANDSTONE: Light grey, clear to translucent, medium to coarse, occasionally very coarse to granular, angular to subrounded, poor sorting, weak siliceous cement, trace argillaceous matrix, trace lithic fragments, common granular milky/smoky quartz, good visual porosity, no fluorescence.
2445.5				SILTSTONE: Medium dark brown, brown black, very argillaceous, common very fine quartz sand, moderately carbonaceous, firm to moderately hard, massive.
2446.9				SILTSTONE: Very dark grey, grey black, very carbonaceous, very argillaceous, micromicaceous, slightly stylolytic in part, very hard, massive to subfissile.

APPENDIX 3



5th Cut
A4 Dividers
Re-order code 97052

APPENDIX 3

HALIBUT-2

Sidewall Core Descriptions

Halibut-2 Sidewall Core Descriptions

No	Depth (m)	Rec. (mm)	B/R	Description
30	2318			Missing
29	2326.5	30	B	<u>CLAYSTONE</u> : Light to medium grey slightly silty, trace glauconite, moderately calcareous, slightly micromicaceous, moderately hard, blocky to subfissile.
28	2328.5			Missing
27	2332.5	35	B	<u>SILTSTONE</u> : Dark grey to black, arenaceous, very argillaceous, very carbonaceous, hard, massive. Grades to argillaceous sandstone.
26	2338			Missing
25	2338.5	30	B	<u>SANDSTONE</u> : Red brown, fine to medium, occasionally coarse, subangular to subrounded, moderate sorting, weak siliceous and calcareous cement, abundant argillaceous/silty matrix, common haematite/limonitic staining (weathered), trace kaolinite, moderately hard to hard, tight. <u>FLUORESCENCE</u> : Trace pale yellow patchy fluorescence, instant streaming cut, moderately thick ring residue (fluorescence increases to 40% with application of solvent).
24	2340			Missing
23	2342.5			Missing
22	2349	20	B	<u>SANDSTONE</u> : Medium grey, brown grey, fine to coarse, angular to subrounded, poor sorting, abundant argillaceous/silty matrix, weak calcareous cement, trace kaolinite, moderately hard, tight, trace gold mineral fluorescence.
21	2358	30	B	<u>SANDSTONE</u> : Light to medium grey, light brown, medium to coarse, angular to subrounded, moderate sorting, abundant brown argillaceous matrix, trace nodular pyrite, trace glauconite, friable to moderately hard, tight, no fluorescence.
20	2360	20	B	<u>SANDSTONE</u> : Clear to translucent, light grey, fine to medium, occasionally coarse, subangular to subrounded, moderate kaolinitic/silty matrix, trace nodular pyrite, trace glauconite, trace lithic fragments, very friable, fair to good visual porosity. <u>FLUORESCENCE</u> : 100% Bright pale yellow fluorescence, instant cut, moderately thick ring residue (H2S odour).
19	2362.5	30	B	<u>SANDSTONE</u> : Light grey, clear to translucent, fine to predominantly medium to coarse, angular to subrounded, poor to moderate sorting, trace pyritic cement, trace glauconite, very friable, fair to good visual porosity. <u>FLUORESCENCE</u> : 100% Moderately bright yellow/white fluorescence, instant cut, thick ring residue (H2S odour).
18	2365			Missing
17	2366.5	25	B	<u>SANDSTONE</u> : Dark grey, dark brown grey, fine to very coarse, subangular to subrounded, poor sorting, abundant argillaceous matrix, trace pyritic cement, trace glauconite, common milky quartz,

No	Depth (m)	Rec. (mm)	B/R	Description
				friabl to moderately hard, very poor to tight porosity. FLUORESCENCE: Trace dull yellow green patchy fluorescence, weak to nil fast streaming cut, thin to nil ring residue.
16	2368	35	B	<u>SANDSTONE</u> : Light grey to off white, medium to very coarse, subangular to subrounded, poor sorting, common kaolinite/silty matrix, trace nodular pyrite, common glauconite and milky/smoky quartz, very friable, fair visual porosity. FLUORESCENCE: 60% Patchy bright to moderately bright pale yellow white fluorescence, instant cut, moderately thick ring residue (H2S odour).
15	2372	35	B	<u>SANDSTONE</u> : Off white, clear to translucent, medium to predominantly coarse to very coarse, angular to subrounded, poor to moderate sorting, very weak siliceous cement, trace glauconite, trace lithic fragments, common smoky quartz, very friable, good visual porosity. FLUORESCENCE: 100% Dull to patchy moderately bright pale tellow fluorescence, instant cut, thin ring residue (H2S odour).
14	2373.5	25	B	<u>SANDSTONE</u> : Medium to dark grey, fine to predominantly medium to coarse, angular to subrounded, moderate sorting, abundant pyritic cement, trace argillaceous matrix, trace glauconite, friable, very poor visual porosity. FLUORESCENCE: 60% Dull to patchy moderately bright yellow white fluorescence, fast streaming cut, thin ring residue (H2S odour).
13	2377	25	B	<u>SANDSTONE</u> : Off white, pale grey, fine to medium, subangular to subrounded, good sorting, very weak siliceous cement, trace glauconite, trace lithic fragments, trace nodular pyrite, friable, fair visual porosity. FLUORESCENCE: 80% Dull yellow green fluorescence, fast streaming cut, moderate to thin patchy ring residue (H2S odour).
12	2381	30	B	<u>SANDSTONE</u> : Medium to dark grey, medium to very coarse, subangular to subrounded, poor sorting, weak siliceous cement, trace pyritic cement, common silty matrix, common glauconite and milky/smoky quartz, friable, poor to fair visual porosity. FLUORESCENCE: 30% Dull to patchy moderately bright pale yellow fluorescence, instant to fast streaming cut, thin ring residue (H2S odour).
11	2385			Empty
10	2391.2	25	B	<u>SANDSTONE</u> : Light grey to off white, clear to translucent, fine to predominantly medium to coarse, subangular to subrounded, poor sorting, weak siliceous cement, silty matrix, slightly chloritic (?), trace lithic fragments, common milky/smoky quartz, very friable, fair to good visual porosity. FLUORESCENCE: 70% Dull yellow green fluorescence, fast streaming cut, thin patchy ring residue (H2S odour).
9	2397	15	B	<u>SANDSTONE</u> : Light to medium grey, fine, angular to subrounded, good sorting, moderate siliceous cement, argillaceous matrix, trace biotite, friable, very poor to nil visual porosity, no fluorescence.

No	Depth (m)	Rec. (mm)	B/R	Description
8	2400	20	B	<u>SANDSTONE</u> : Light grey, off white, fine to predominantly medium to coarse, angular to subrounded, poor sorting, abundant silty/argillaceous matrix, common milky/smoky quartz, friable, very poor visual porosity. <u>FLUORESCENCE</u> : 30% Patchy moderately bright pale yellow fluorescence, weak instant to fast streaming cut, thin ring residue.
7	2408.5	20	B	<u>SILTSTONE</u> : Dark grey, grey black, very argillaceous, micromicaceous, very carbonaceous, trace coaly fragments, slightly arenaceous in part, moderately hard, subfissile.
6	2453.5	20	B	<u>SILTSTONE with SANDSTONE laminae</u> : <u>SANDSTONE</u> : Off white, pale grey, very fine to fine, subangular to subrounded, good sorting, weak to strong siliceous cement, hard, tight, no fluorescence. <u>SILTSTONE</u> : Dark grey brown, very argillaceous, micromicaceous, moderately hard to hard, massive.
5	2459	30	B	<u>SHALE</u> : Dark brown black, trace fine quartz sand, trace carbonaceous microlaminations, moderately hard, subfissile to fissile.
4	2483	25	B	<u>SANDSTONE</u> : Off white to pale grey, fine to medium, angular to subrounded, good sorting, weak siliceous cement, common kaolinitic matrix, trace biotite, friable, very poor visual porosity, no fluorescence.
3	2495	20	B	<u>SANDSTONE</u> : Medium to dark grey, fine to very coarse, angular to subrounded, poor sorting, abundant argillaceous/silty matrix, common argillaceous inclusions, trace nodular pyrite, trace milky/smoky quartz, moderately hard, very poor visual porosity, no fluorescence.
2	2508.5	30	B	<u>SANDSTONE</u> : Off white, pale grey, fine to medium, occasionally coarse, angular to subrounded, moderate to good sorting, weak siliceous cement, trace kaolinitic/silty matrix, trace lithic fragments, friable, fair visual porosity, no fluorescence.
1	2360	20	B	<u>SILTSTONE</u> : Grey black, very dark brown, very argillaceous, carbonaceous, trace coarse milky quartz, micromicaceous, hard, massive.

APPENDIX 4



5th Cut
A4 Dividers
Re-order code 97052

APPENDIX 4

HALIBUT-2

RFT Results

RFT PRESSURE DATA

WELL: Halibut-2
DATE: 05/03/94

GEOLOGIST-ENGINEER: Greg Clota

RFT No. RUN-SEAT	DEPTH		INITIAL HYDROSTATIC HP/RFT GAUGE		TIME SET	MINIMUM FLOWING PRESSURE psi (PRETEST)	FORMATION PRESSURE HP/RFT GAUGE		TEMP deg C	TIME RETRACT	FINAL HYDROSTATIC HP/RFT GAUGE		COMMENTS (INCLUDE PROBE TYPES)
	m MDRT	m TVDSS RT = 25	psia	psig			ppg	psia			psig	ppg		psia	psig	ppg
1 PT	2507.56	2482.56	4051.82		0318	3412.9	3432.37		99.0	0323	4051.37		Good
				9.47				8.08				9.47	
2 PT	2467.96	2442.96	3987.40		0340	3372.5	3375.00		99.2	0345	3987.46		Good
				9.47				8.10				9.47	
3 PT	2461.18	2436.18	3976.81		0350	3364.9	3365.55		98.4	0355	3976.20		Good
				9.47				8.10				9.47	
4 PT	2455.74	2430.74	3967.61		0400	3314.4	3357.04		98.1	0403	3967.33		Good
				9.47				8.10				9.47	
5 PT	2450.07	2425.07	3958.41		0408	3342.5	3347.45		98.0	0412	3958.11		Good
				9.47				8.09				9.47	
6 PT	2443.01	2418.01	3947.04		0419	3280.4	3337.46		97.8	0421	3946.72		Good
				9.47				8.09				9.47	
7 PT	2435.18	2410.18	3934.64		0428	3290.9	3326.47		97.5	0430	3934.35		Good
				9.47				8.09				9.47	
8 PT	2431.26	2406.26	3927.96		0435	3248.3	3320.46		97.3	0439	3927.79		Good
				9.47				8.09				9.47	
9 PT	2428.05	2403.05	3922.96		0443	2687.6	3314.87		97.1	0445	3922.78		Good - Lower Perm.
				9.47				8.09				9.47	
10 PT	2424.04	2399.04	3916.65		0450	3295.9	3307.99		97.0	0453	3916.57		Good
				9.47				8.09				9.47	
11 PT	2414.26	2389.26	3900.89		0455	3292.1	3293.03		96.5	0500	3900.65		Good
				9.47				8.08				9.47	
12 PT	2405.65	2380.65	3887.01		0503	3279.3	3280.38		96.1	0505	3886.88		Good
				9.47				8.08				9.47	
13 PT	2414.37	2389.37	3901.13		0510	3291.6	3293.23		96.2	0512	3901.19		Good (Check for 11)
				9.47				8.08				9.47	
14 PT	2402.83	2377.83	3882.54		0516	3260.76	3275.87		95.8	0519	3882.53		Good
				9.47				8.08				9.47	
15 PT	2392.22	2367.22	3865.87		0524	3258.1	3259.18		95.6	0527	3865.75		Good
				9.47				8.07				9.47	

PT=PRETEST
SPT=SAMPLE

L=LONG NOSE PROBE
M=MARTINEAU PROBE

RFT PRESSURE DATA

WELL: Halibut-2
DATE: 05/03/94

GEOLOGIST-ENGINEER: Greg Clota

RFT No. RUN-SEAT	DEPTH		INITIAL HYDROSTATIC HP/RFT GAUGE		TIME SET	MINIMUM FLOWING PRESSURE psi (PRETEST)	FORMATION PRESSURE HP/RFT GAUGE		TEMP deg C	TIME RETRACT	FINAL HYDROSTATIC HP/RFT GAUGE		COMMENTS (INCLUDE PROBE TYPES)
	m MDRT	m TVDSS RT = 25	psia	psig			psia	psig			psia	psig	
16 PT	2389.34	2364.34	3861.18	9.47	0531	3254.1	3255.20	8.07	95.2	0534	3860.91	9.47	Good
17 PT	2385.54	2360.54	3854.87	9.47	0538	28.12	3263.96	8.11	94.9	0550	3854.99	9.47	Low Perm-Off Gradient (Virgin Press?)
18 PT	2381.84	2356.84	3849.20	9.47	0554	109.45	3246.26	8.07	94.6	0558	3848.75	9.47	Lower Perm OK
19 PT	2376.04	2351.04	3839.68	9.47	0600	3226.7	3226.63	8.05	94.1	0603	3839.59	9.47	Good - Oil Gradient
20 PT	2370.26	2345.26	3830.29	9.47	0605	3216.39	3218.63	8.05	93.6	0607	3830.32	9.47	Good - Oil
21 PT	2367.55	2342.55	3825.97	9.47	0612	3212.8	3215.64	8.05	93.5	0615	3825.86	9.47	Good
22 PT	2362.51	2337.51	3818.18	9.47	0619	3203.5	3206.10	8.04	93.2	0622	3817.47	9.47	Good - New Gradient
23 PT	2360.05	2335.05	3813.87	9.47	0625	3192.85	3203.14	8.04	93.1	0627	3813.96	9.47	Good - New Gradient
24 PT	2357.25	2332.25	3809.52	9.47	0630	3195.4	3200.25	8.04	92.8	0635	3809.35	9.47	Good
25 PT	2354.83	2329.83	3805.72	9.47	0638	3140.5	3197.60	8.05	92.7	0640	3805.39	9.47	Good
26 PT	2350.40	2325.40	3798.56	9.47	0643	3090.2	3201.10	8.07	92.3	0655	3798.41	9.47	Lower Perm Good - Off Gradient
27 PT	2347.09	2322.09	3793.33	9.47	0659	158.6	3190.77	8.05	92.0	0702	3793.26	9.47	Lower Perm OK

PT=PRETEST
SPT=SAMPLE

L=LONG NOSE PROBE
M=MARTINEAU PROBE

APPENDIX 5



5th Cut
A4 Dividers
Re-order code 97052

APPENDIX 5

HALIBUT-2

Velocity Survey Report

Note: See Halibut 2 Schlumberger Well Seismic Processing Report.