WCR VOL 1

ORANGE ROUGHY -1

(W1121)

Esso Australia Ltd.

WELL COMPLETION REPORT

ORANGE ROUGHY-1

VOLUME 1

BASIC DATA

GIPPSLAND BASIN, VICTORIA

ESSO AUSTRALIA LTD

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WELL COMPLETION REPORT

VOLUME 1: BASIC DATA

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1. WELL DATA RECORD

LOCATION	:	Latitude : 38° 34' 57.12" South Longitude : 148° 02' 30.99" East X = 590752.7 ME Y = 5729019.0 MN Map Projection : AMG Zone 55 Geographical Location : Bass Strait, Victoria Prospect : Orange Roughy
PERMIT	:	VIC/L7
ELEVATION	:	25m
WATER DEPTH	:	75m
TOTAL DEPTH	: :	2603.0m (Driller) 2607.0m (Logger)
PLUG BACK TYPE	:	Cement Plug
REASONS FOR PLUGGING BACK	:	Plug and Abandon
MOVE IN	:	Released from previous job on 14/06/95 0645 Hrs Last anchor dropped on 15/06/95 0738 Hrs
SPUDDED	:	16/06/95 0400 Hrs
REACHED TD	:	26/06/95 0030 Hrs
RIG RELEASED	:	30/06/95 2230 Hrs
OPERATOR	:	Esso Australia Resources Ltd.
PERMITTEE OR LICENCEE	:	BHP Petroleum (Australia) Pty Ltd and Esso Australia Resources Ltd
ESSO INTEREST	:	50%
OTHER INTEREST	:	50% BHP Petroleum (Australia) Ltd
CONTRACTOR	:	Diamond Offshore General Company
RIG NAME	:	Ocean Bounty
EQUIPMENT TYPE	:	Semi-submersible
TOTAL RIG DAYS	:	16.6
DRILLING AFE NO	:	L61015104
TYPE COMPLETION	:	Plugged and abandoned.
WELL CLASSIFICATION	:	Wildcat

2. OPERATIONS SUMMARY

1. MOVING/MOORING

BHP Petroleum released the Ocean Bounty from the Longtom 1 well at 0645 hours on the 14th June, 1995 after the last anchor was bolstered. The rig was towed to the Orange Roughy-1 well location by the Maersk Bona Vista and the Lady Dawn.

The Ocean Bounty was on location at Orange Roughy-1 with the #6 anchor dropped at 0738 hours on the 15th June, 1995. The Flinders Tide was used to assist the safe placement of the anchors by the Maersk Bona Vista and Lady Dawn due to the proximity of the Bream to West Kingfish pipeline. After running anchors and tensioning (except #3 anchor) the rig ballasted down to drilling draft. The final location was 10.8m on a bearing of 248.2°T from the called location. The water depth was 75m.

2. DRILLING OPERATIONS

36" Hole/30" Casing

A Hughes ATX-1 14¾" bit plus 26" and 36" hole openers were made up and used to spud Orange Roughy-1 at 0400 hours on the 16th June, 1995. The 36" hole section was drilled from was drilled from 100m to 138.6m. The well was circulated clean and a wiper trip was made back to the mudline prior to displacing the well with hi-vis mud. The hole deviation was ½° at 134m.

Three joints of 30" 309lb/ft casing were run with the PGB and cemented in place with 800 sacks of class 'G' cement with 2% $CaCl_2$. The shoe was set at 133.6m.

17½" Hole/13⅜" Casing

A Hughes 17½" Max G-1 was made up and drilled cement, the float shoe and cleaned out the rat hole to 138.6m. Drilling proceeded from 138.6m to 750m. Hi-vis sweeps were pumped at 10m intervals during the drilling of the interval. Single shot surveys were run at the following intervals, 468m ¼° S24E, 743m ¾° N77E.

A wiper trip was made to the 30" casing shoe and the well was displaced with hi-vis mud prior to tripping out and rigging up the wireline loggers. Suite #1 Run #1 was LDL-AS-GR-CAL-AMS. The logs were run riserless and without the motion compensator engaged. The logging string was directed to the wellhead by running the tools to the seafloor supported by the rig's utility guideframe.

The 13⅜" casing was run into the well to 601m when the rig moved off location whilst the #3 and #4 anchors were being re-run. The casing was tripped to check for any damage. After the casing inspection and the anchors were re-tensioned 53 joints of 68lb/ft K55 13⅜" casing plus 1 joint of 20" 129lb/ft X-56 casing and the 18¾"wellhead joint were run with the shoe landing at 740.6m. The casing was cemented with a lead of 1225 sacks of class 'G' cement plus 0.45 GPS Econolite (12.5ppg) and a tail of 750 sacks class 'G' cement (15.4ppg).

The BOP stack was run and latched (25K overpull), pressure and function tested along with the surface lines.

12¼" Hole

A 12¼" Diamond Boart QP19L was made up with an F2000M Dynadrill tandem mud motor and RIH. The float collar and shoe track were drilled out and the rathole cleaned to 750m. New formation was drilled from 750m to 753m where the hole was circulated clean and displaced with a KCl/PHPA mud system. A Phase II PIT was performed (EMW=12.4ppg) and then drilling proceeded from 753m to 1515m. A wiper trip was made back to the casing shoe, there was no drag nor tight spots during the wiper trip. Drilling continued from 1515m to 2313.5m where the bit was tripped as the penetration rate dropped to less than 1m/hr. The decision was taken to cut Core #1 due to the proximity of the proposed target reservoir.

A 12¼" Diamond Boart CD-93 was made up to the core barrel and RIH to cut Core #1 from 2313.5m to 2331.95m. The core barrel was tripped out of the hole and 18.45m were (100%) recovered at surface.

A 12¼" Smith F2DL was made up to a new BHA and RIH to drill ahead from 2331.95 and reached 2603.5m (TD) at 0030 hours on the 26th June, 1995. The hole was circulated clean prior to making a wiper trip to the casing shoe. The hole was conditioned and the drill string was tripped out of the hole.

The wireline loggers were rigged up to run Suite #2 of the electric logging programme as follows: DLL-MSFL-AS-LDL-CNL-NGR-AMS-SP, VSP, SHDT-GR-AMS AND CST-GR.

After the loggers were rigged down open ended drill pipe was tripped into the hole. Cement plugs were spotted from 2370-2220m and 770-625m and the tops tagged at 2234m and 609m respectively. An EZSV was set at 191m and a final cement plug was spotted from 191-120m. The wellhead was cut and retrieved prior to pulling anchors and leaving Orange Roughy-1.

3. CASING DATA

Size	#/FT	Grade	Conn	Interval	Shoe Depth
30"	310	X-52 & B	ST-2	99-133m	133m
20"	129.3	X-56	DQ HD-90	98-116m	x/o to 13 3/8" @ 116m
13-3/8"	68	K-55	BTC	116-741m	741m

4. CEMENTING DATA

Setting Depth	M-RKB	30" 133	20" x 13-3/8 133	P&A Plug 1 2234-2384	P&A Plug 2 609-759	P&A Plug 3 120-191
Lead Slurry						
Volume Pumped	SX		1225			
Weight	PPG		12.5			
Additives						
Econolite	GAL/SK		0.45			
Mixwater (FW)	GAL/SK		12.76			
Yield	CUFT/SK		2.18			
Tail Slurry						
Volume Pumped	SX	800	750	445	400	175
Weight	PPG	15.8	15.8	15.8	15.8	15.8
Additives						
Halad 322L (Fluid Loss)	GAL/10bbl			19		
CaCl2	%	2				2
Mixwater	GAL/SK	5	5	5	5	5
Yield	CUFT/SK	1.15	1.15	1.15	1.15	1.15
Bump Plug?		N/A	No			
Calculated TOC (m)		ML	ML	Tagged @ 2234m	Tagged @ 609m	BR. Plug @ 191m

5. SAMPLES, CONVENTIONAL CORES, SIDEWALL CORES

Interval (m)	Type
750 - 2603.5	Cuttings samples - 3 sets of washed and oven dried and 1 set of lightly washed and air dried cuttings. Samples from 750 - 1500m at 30m intervals. Samples from 1500 - 1960m at 10m intervals. Samples from 1960 - 2603.5m at 5m intervals.
2313.5 - 2331.95	Core #1 - cut 18.45m, recovered 18.45m (100%).

6. WIRELINE LOGS AND SURVEYS

Type	Scale	From	To
Suite 1			
LDL-AS-CAL-GR	1:200	748.7	134.2
Suite 2			
DLL-SMFL-AS-LDL-CNL-NGR-SP-AMS	1:200	2602.5	741
VSP (CSAT)	(38 Levels)		
SHDT-GR-AMS	1:200	2606	737.2
CST-GR (Sidewall Cores)	30 Shots / 30 Recovered		

SUMMARY OF TOTAL DEPTH LOGGING OPERATIONS

Well : Orange Roughy-1
Total Depth : 2603.5m (Driller)
RT-MSL : 25m
Water Depth : 75m

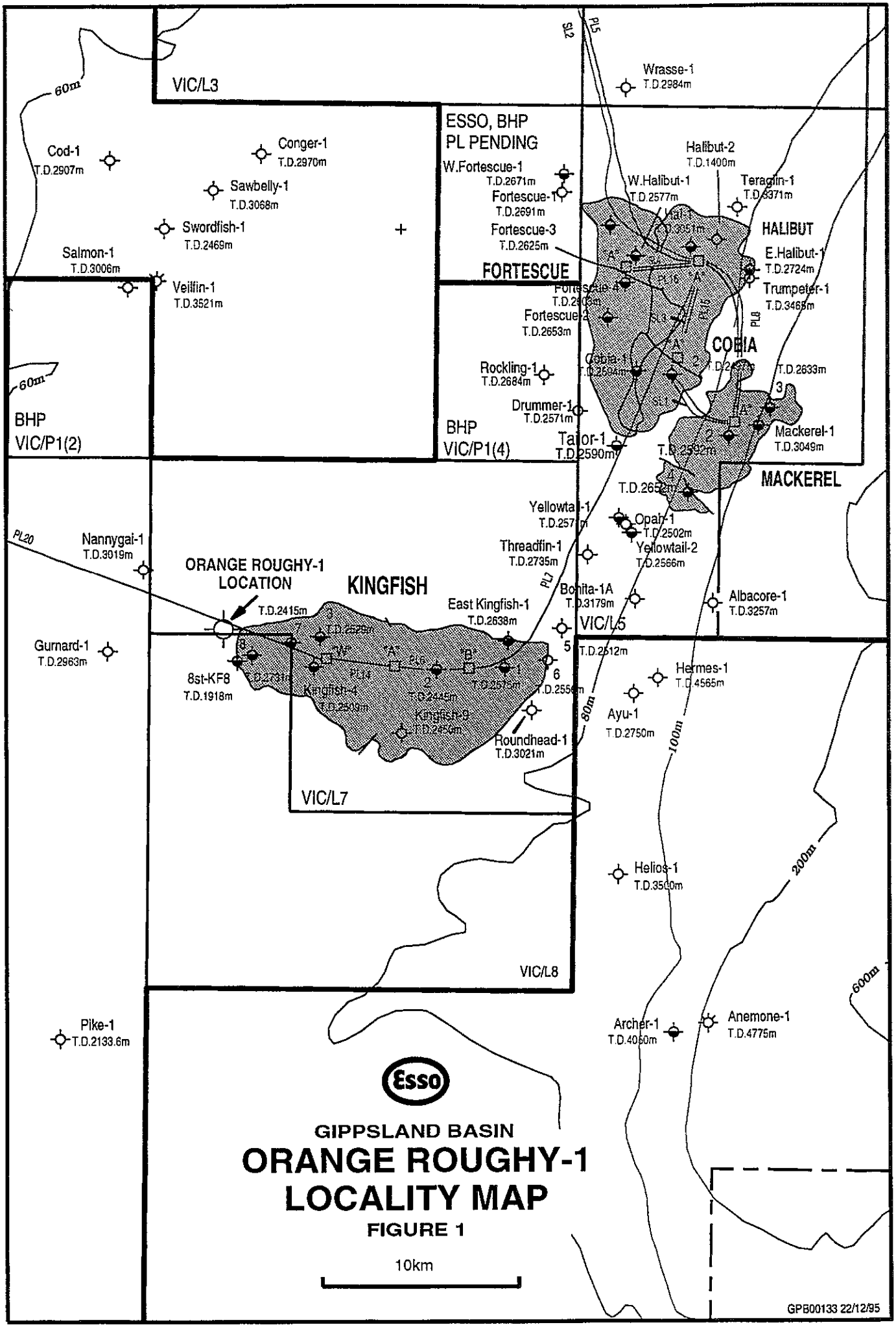
Date	Job	Run	Log	TD (Driller)	Log TD (Logger)	BOTD mDRT	TOPD mDRT	BS	MUD	RMF	Remarks
26-Jun-95	2	1	DLL-AS-MSFL-LDL-CNL-NGR-AMS-SP	2603.5	2607	2602.5	741	12.25"	KCl/PHPA	.076 ohmm @ 20°	
27-Jun-95	2	1	VSP	2603.5	2607	2600	737.2	12.25"	KCl/PHPA	.076 ohmm @ 20°	
27-Jun-95	2	1	SHDT-GR-AMS	2603.5	2607	2606	737.2	12.25"	KCl/PHPA	.076 ohmm @ 20°	
27-Jun-95	2	1	CST-GR	2603.5	2607	2591	2267	12.25"	KCl/PHPA	.076 ohmm @ 20°	Shot 30/recovered 30 (100%)

7. TEMPERATURE RECORD

Logging Run	Depth (m)	Max Recorded Temperature ^{o}C	Time After Circulation Stopped (t) (hours)
Suite 1			
LDL-AS-CAL-GR		23	7.1
Suite 2			
DLL-SMFL-AS-LDL-CNL-NGR-SP-AMS	2575	90	10.42
VSP (CSAT)	2604	96	22.58
SHDT-GR-AMS	2600	99	32.42
CST'S		N/A	

See Figure 4

FIGURES



GIPPSLAND BASIN

ORANGE ROUGHY-1 LOCALITY MAP

FIGURE 1

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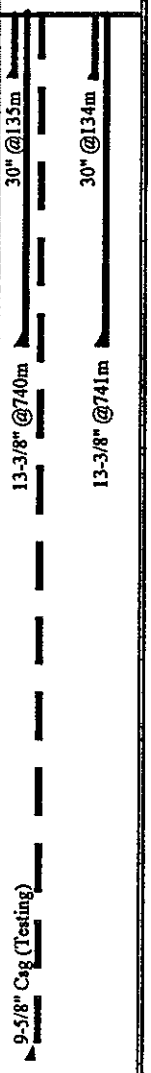
Orange Roughy 1

Lithology

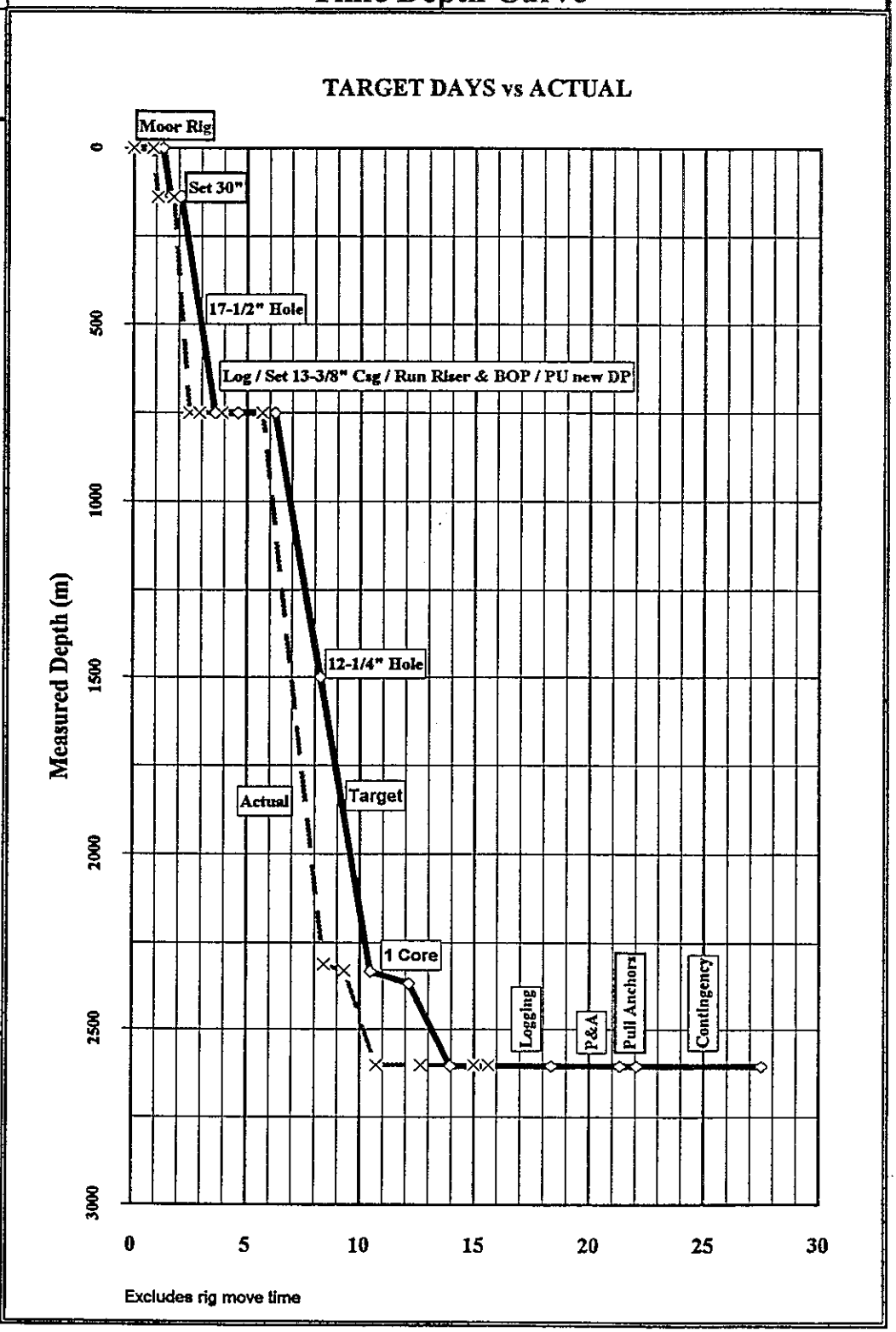
	Plan RT	Actual RT
ML	74m SS	75m SS
	99m RT	100m RT
	Gippsland Marl	
	1820	1840
	Lakes Entrance	
	2285	2270
	Latrobe	

Casing



	Planned	Actual
ell TD (m):	2605	2603
Days to TD:	14.0	10.7
Total Days (w/ move):	28.0	16.7
t. Cost (A$k):	4800	3347
PT (%):	20	2
Well Angle:	0	<1
g:	Ocean Bounty	
g Move:	14-Jun-95	
Spud:	16-Jun-95	
RR:	30-Jun-95	

Time Depth Curve



Excludes rig move time

FIGURE 2

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ORANGE ROUGHY-1 ABANDONMENT SKETCH

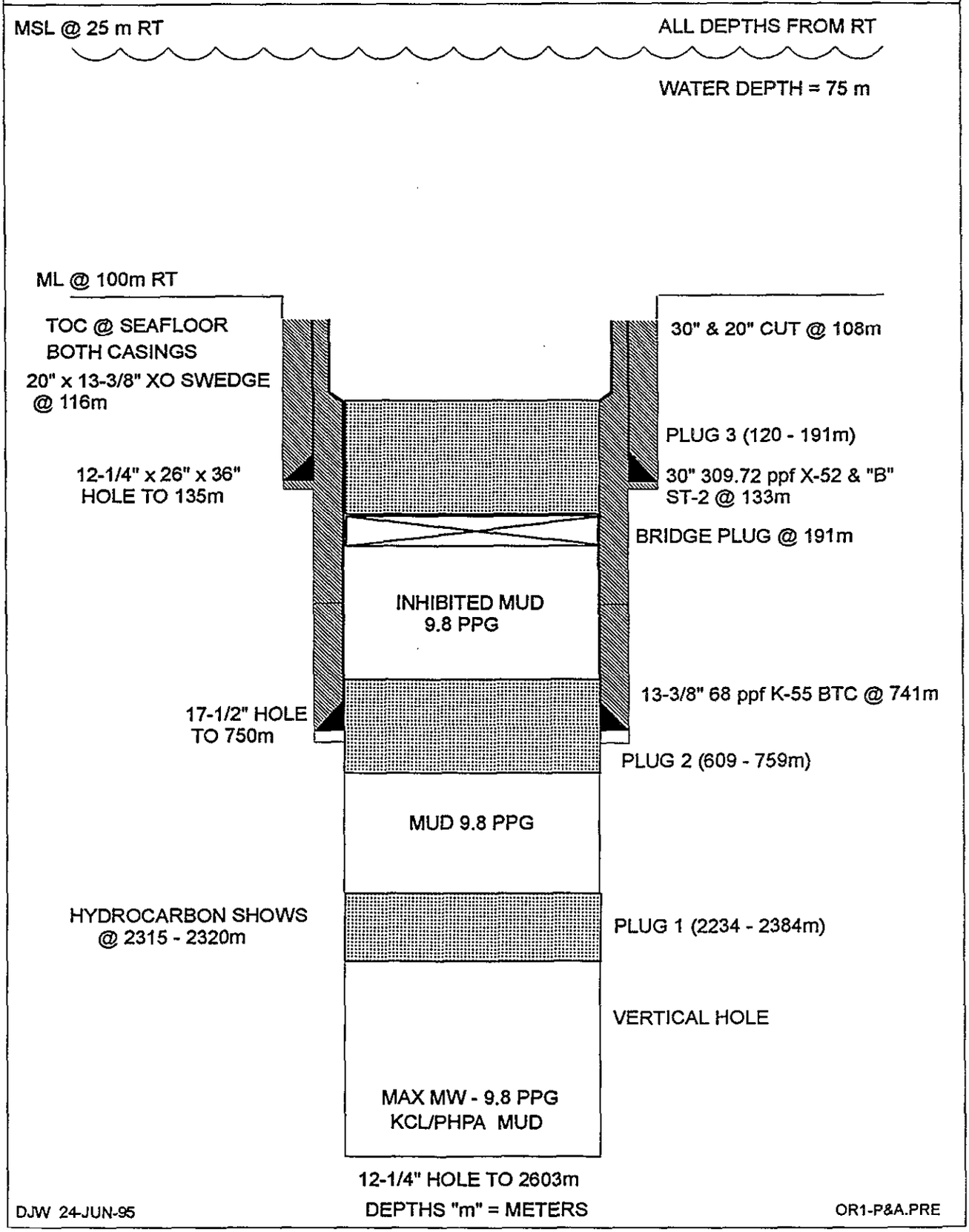

FIGURE 3

ORANGE ROUGHY 1 EXTRAPOLATED BOTTOM HOLE TEMPERATURE

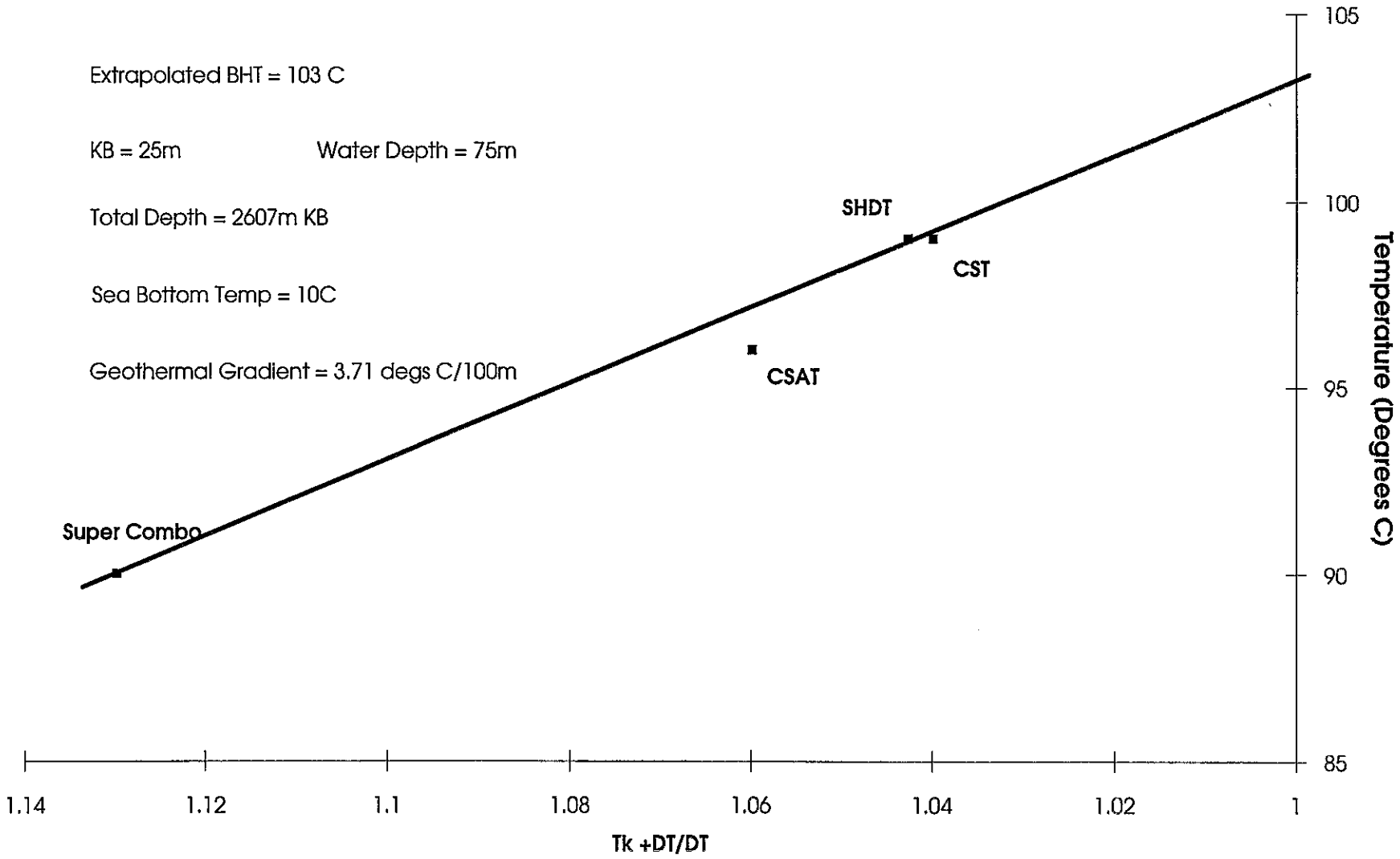

FIGURE 4

APPENDIX 1

APPENDIX I

LITHOLOGY DESCRIPTIONS

LITHOLOGY DESCRIPTIONS

Depth	%	Description
	(Returns to seafloor from spud to 750m)	
780	100	LIMESTONE: Pale brown, light grey brown, calcilutite, slightly silty, micritic, trace carbonaceous fragments, marly texture, soft to dispersive, amorphous to massive.
810	100	LIMESTONE: Pale brown, light grey, calcilutite, slightly silty, micritic, trace glauconite, trace carbonaceous specks, soft to dispersive, massive to amorphous.
840	100	LIMESTONE: Predominantly as above, becoes buff to light grey brown, locally very silty, trace fine calcareous sand, very dispersive, amorphous.
870	100	LIMESTONE: Light brown,pale grey, calcilutite becomes locally very silty grades to calcisiltite, micritic, trace glauconite, trace fine calcareous sand, trace carbonaceous specks, soft to firm, moderately dispersive in part, massive to amorphous.
900	100	LIMESTONE: Predominantly as above, trace forams, trace light grey brown fine grained calcarenite inclusions.
930	100	LIMESTONE: Predominantly as above, becomes very argillaceous grades to calcilutite, very dispersive, amorphous.
960	100	LIMESTONE: Predominantly as above, calcilutite grades to calcisiltite, trace dark brown cryptocrystalline dolomitic inclusions, hard, flinty.
990	100	LIMESTONE: Pale grey, light brown gray, calcisiltite, moderately argillaceous, common very fine to fine calcareous sand, common forams, trace ooids, trace carbonaceous fragments, trace light brown calcarenite inclusions, soft to firm, dispersive in part, massive to amorphous.
1020	100	LIMESTONE: Pale brown, light brown grey, calcisiltite, moderately argillaceous, micritic, common fine calcareous sand, common forams & fossil fragments, trace glauconite, trace carbonaceous specks, trace fine grained calcarenite inclusions, soft, dispersive in part, massive to amorphous.
1050	100	LIMESTONE: Off white, light brown, calcilutite, slightly silty, micritic, trace fine calcareous sand, rare glauconite, trace carbonaceous fragments, firm, massive to blocky.

1080	100	LIMESTONE: Predominantly as above, calcilutite becomes very silty grades to calcisiltite in part, trace medium brown cryptocrystalline dolomitic inclusions.
1110	100	LIMESTONE: Predominantly as above, calcilutite grades to calcisiltite, trace glauconite, becomes soft to firm, massive.
1140	100	LIMESTONE: Light brown, light grey brown, calcisiltite, moderately argillaceous, micritic, trace glauconite, trace crbonaceous specks, firm to moderately hard, massive to blocky.
1170	100	LIMESTONE: Predominantly as above, trace nodular pyrite in part.
1200	100	LIMESTONE: Off white, light brown, pale grey bown, calcilutite, slightly silty, micritic, trace glauconite, trace carbonaceous fragments, soft to firm, massive to blocky in part.
1230	100	LIMESTONE: Predominantly as above, trace fossil fragments in part.
1260	100	LIMESTONE: Predominantly as above, locally silty grades to calcisiltite in part.
1290	100	LIMESTONE: Grey brown, light grey, calcilutite, slightly silty, micritic, rare glauconite, trace carbonaceous fragments, rare forams, firm, massive to blocky.
1320	100	LIMESTONE: Predominantly as above, occasionally grey brown, trace carbonaceous fragments.
1350	100	LIMESTONE: Predominantly as above, rare fine calcareous sand.
1380	100	LIMESTONE: Predominantly as above, becomes silty grades to clcisiltite in part, trace forams, firm, blocky to massive.
1410	100	LIMESTONE: Grey brown, pale brown, light grey in part, calcilutite, slightly silty, trace to occasionally common glauconite, trace fine light grey calcarenite inclusions, rare fossil/forams, trace carbonaceous specks, firm, massive to blocky.

1440	100	LIMESTONE: Pale brown, light grey, calcisiltite, moderately argillaceous, micritic, trace glauconite, trace nodular pyrite, trace forams and fossil fragments, trace fine calcarenite inclusions, firm to occasionally moderately hard, blocky to massive.
1470	100	LIMESTONE: Predminantly as above, trace glauconite, common light grey fine grained calcarenite inclusions.
1500	100	LIMESTONE: Pale brown, light grey, off white in part, cacilutite, slightly silty, micritic, rare glauconite, trace nodular pyrite, trace arenaceous inclusions, rare ooids, soft to slightly dispersive, massive to amorphous.
1510	100	LIMESTONE: Predominantly as above, trace free white veined calcite.
1520	100	LIMESTONE: Light brown, light grey, occasionally off white, calcisiltite, moerately argillaceous, micritic, trace microglauconite and glauconite, trace forams, trace ooids, trace nodular pyrite, firm, massive to blocky.
1530	100	LIMESTONE: As above.
1540	100	LIMESTONE: Predominantly as above, becomes light brown, trace coralline fragments, trace nodular pyrite, trace orange brown very fine calcarenite inclusions.
1550	100	LIMESTONE: Pale grey, light grey brown in part, calcilutite, slightly silty in part, rare glauconite, trace fossil fragments, trace nodular pyrite, trace fossil fragments, trace ooids, firm to plastic, massive to blocky.
1560	100	LIMESTONE: Predominantly as above, becomes moderately dispersive, marly texture in part.
1570	100	LIMESTONE: Predominantly as above, calcilutite, common forams, trace pelletal glauconite, firm, blocky to massive.
1580	100	LIMESTONE: Predominantly as above, calcilutite, marly texture, soft to firm, massive to amorphous.
1590	100	LIMESTONE: Predominantly as above, calcilutite, becomes light to occasionally medium brown, slightly to moderately silty, firm, massive to blocky.
1600	100	LIMESTONE: Predominantly as above, calcilutite becomes increasingly argillaceous grades to calcisiltite.

1610	100	LIMESTONE: Light grey, grey brown, occasionally medium grey, calcilutite, slightly silty in part, micritic, trace nodular pyrite, trace forams and ooids, soft to firm, slightly dispersive in part, massive to blocky, amorphous in part.
1620	100	LIMESTONE: As above.
1630	100	LIMESTONE: Predominantly as above, calcilutite becomes silty in part grades to calcisiltite.
1640	100	LIMESTONE: As above, calcilutite grades to calcisiltite.
1650	100	LIMESTONE: Predominantly as above, calcilutite, trace light orange brown fine grained calcarenite inclusions, sparry, moderately hard, blocky.
1660	100	LIMESTONE: As above, calcilutite becomes silty in part grades to calcisiltite, trace calcarenite inclusions.
1670	100	LIMESTONE: Predominantly as above, calcilutite with orange brown calcarenite inclusions.
1680	100	LIMESTONE: Predominantly as above, calcilutite, trace medium brown cryptocrystalline dolomitic inclusions, trace forams.
1690	100	LIMESTONE: Light brown, medium brown grey, calcisiltite, moderately to very argillaceous in part grades to calcilutite, micritic, trace carbonaceous fragments, trace nodular pyrite, soft to firm, massive to blocky.
1700	100	LIMESTONE: Predominantly as above, calcisiltite grades to calcilutite, marly texture in part, slightly dispersive in part, soft to firm, massive to blocky.
1710	100	LIMESTONE: Light to medium grey, grey brown, calcisiltite, moderately argillaceous, micritic, trace fossil fragments with pyritic replacement, trace carbonaceous specks, firm to moderately hard, blocky.
1720	100	LIMESTONE: Predominantly as above, calcisiltite grading to calcarenite in part, very fine to fine.
1730	100	LIMESTONE: Predominantly as above, becomes light grey, calcisiltite, locally very argillaceous, trace glauconite, trace forams.
1740	100	LIMESTONE: Predominantly as above, calcisiltite becomes very argillaceous grades to calcilutite.

1750	100	LIMESTONE: Light brown grey, light grey, calcisiltite, moderately argillaceous, micritic, trace glauconite, common very fine calcareous sand, trace light grey calcarenite inclusions, firm, blocky to massive.
1760	100	LIMESTONE: As above.
1770	100	LIMESTONE: Light brown, brown grey, calcisiltite grades to calcarenite in part, slightly argillaceous, micritic, trace nodular pyrite, trace medium brown slightly sparry dolomitic inclusions, firm, blocky to massive.
1780	100	LIMESTONE: Predominantly as above, trace fossil fragments.
1790	100	LIMESTONE: Light brown, brown grey, calcisiltite, moderately argillaceous, micritic, trace disseminated pyrite, trace fossil fragments, trace light brown fine grained calcarenite inclusions, firm, massive to blocky.
1800	100	LIMESTONE: Predominantly as above, calcisiltite becomes increasingly argillaceous grades to calcilutite.
1810	100	LIMESTONE: Light grey brown, calcarenite, fine, slightly argillaceous, micritic, rare glauconite, trace free white calcite spar, firm, massive to blocky.
1820	100	LIMESTONE: Light grey brown, calcisiltite, moderately argillaceous, micritic, trace fine grained calcareous sand, trace carbonaceous specks, trace glauconite, trace nodular pyrite, trace ooids, trace free white calcite spar, firm, massive to blocky.
1830	100	LIMESTONE: As above.
1840	80	LIMESTONE: As above.
	20	CLAYSTONE: Light grey, occasionally medium grey, very calcareous grades to calcilutite, slightly silty in part, firm to plastic, blocky.
1850	60	LIMESTONE: Predominantly as above, calcisiltite becomes very argillaceous grades to calcilutite, marly texture.
	40	CLAYSTONE: As above.
1860	60	LIMESTONE: As above, calcisiltite grades to calcilutite.
	40	CLAYSTONE: Predominantly as above, becomes medium grey, trace free medium to coarse grained quartz.

1870	80	CLAYSTONE: Brown grey, olive grey in part, moderately calcareous grades to calcilutite in part, slightly silty, trace carbonaceous fragments, trace forams, firm, blocky to massive.
	20	LIMESTONE: As above calcisiltite grades to calcilutite.
1880	80	CLAYSTONE: As above.
	20	LIMESTONE: As above.
1890	90	CLAYSTONE: Predominantly as above, becomes very calcareous grades to calcilutite.
	10	LIMESTONE: As above.
1900	90	CLAYSTONE: As above.
	10	LIMESTONE: Predominantly as above, calcisiltite becomes very argillaceous grades to calcilutite.
1910	100	CLAYSTONE: Brown grey, off white in part, very calcareous grades to calcilutite, slightly silty, trace fossil fragments, rare glauconite, trace carbonaceous fragments, firm, massive to blocky.
1920	100	CLAYSTONE: As above.
1930	100	CLAYSTONE: Predominantly as above, becomes pale brown, off white, very calcareous grades to calcilutite, marly texture.
1940	100	CLAYSTONE: As above.
1950	100	CLAYSTONE: Predominantly as above trace nodular pyrite.
1960	100	CLAYSTONE: As above.
1965	100	CLAYSTONE: As above.
1970	100	CLAYSTONE: Predominantly as above, becomes off white to light brown, locally very calcareous grades to calcilutite.
1975	100	CLAYSTONE: As above.
1980	100	CLAYSTONE: Predominantly as above, becomes olive grey in part.
1985	100	CLAYSTONE: Olive grey, grey brown in part, locally very calcareous grades to calcilutite, slightly silty in part, trace fossil fragments, trace discoidal forams, rare carbonaceous specks, marly texture in part, firm to plastic, massive to blocky.
1990	100	CLAYSTONE: As above.

1995	100	CLAYSTONE: Light brown grey, light grey, moderately calcareous, very silty occasionally grades to siltstone, trace nodular pyrite, trace fine calcareous sand, soft to firm, massive to blocky.
2000	100	CLAYSTONE: As above.
2005	100	CLAYSTONE: Predominantly as above, soft, slightly dispersive, massive to amorphous.
2010	100	CLAYSTONE: Predominantly as above, trace disseminated pyrite, trace fine calcareous sand.
2015	100	CLAYSTONE: Predminantly as above, trace disseminated pyrite, trace fine calcareous sand, soft to slightly dispersive, massive to amorphous.
2020	100	CLAYSTONE: As above.
2025	100	CLAYSTONE: Predominantly as above, common forams and coralline fragments.
2030	100	CLAYSTONE: As above.
2035	100	CLAYSTONE: Predominantly as above, common forams and coralline fragments.
2040	100	CLAYSTONE: Olive grey, light grey, grey brown in part, moderately calcareous, slightly silty, rare glauconite, trace carbonaceous flecks, trace fine calcareous sand in part, locally common forams, trace nodular pyrite, soft to slightly dispersive, massive to amorphous.
2045	100	CLAYSTONE: As above
2050	100	CLAYSTONE: As above.
2055	100	CLAYSTONE: Predominantly as above, locally common forams.
2060	100	CLAYSTONE: As above.
2065	100	CLAYSTONE: Predominantly as above, common forams, trace free white calcite spar.
2070	100	CLAYSTONE: Predominantly as above, becomes very calcareous in part, grades to calcilutite in part.
2075	100	CLAYSTONE: Predominantly as above, trace fossil fragments, trace forams.

2080	100	CLAYSTONE: Predominantly as above, becomes very calcareous grades to calcilutite in part, trace fossil fragments, trace forams, trace nodular and disseminated pyrite, slightly dispersive, massive to blocky.
2085	100	CLAYSTONE: Predominantly as above, becomes olive grey, trace fine calcareous sand.
2090	100	CLAYSTONE: Olive grey, moderately calcareous, slightly silty, rare glauconite, trace carbnaceous flecks, trace fine calcareous sand, locally common forams, trace nodular and disseminated pyrite, soft to slightly dispersive, massive to amorphous.
2095	100	CLAYSTONE: As above.
2100	100	CLAYSTONE: Olive grey, grey brown in part, moderately calcareous, slightly silty in part, trace nodular pyrite, rare discoidal forams, firm, crumbly, blocky.
2105	100	CLAYSTONE: As above.
2110	100	CLAYSTONE: Predominantly as above, becomes slightly dispesive .
2115	100	CLAYSTONE: Predominantly as above, becomes slightly plastic, massive to blocky.
2120	100	CLAYSTONE: As above.
2125	100	CLAYSTONE: As above.
2130	100	CLAYSTONE: Light grey, olive grey in part, moderately to very calcareous, grades to calcilutite in part, slightly silty, trace disseminated pyrite, firm, blocky.
2135	100	CLAYSTONE: Predominantly as above, becomes moderately dispersive, massive to amorphous.
2140	100	CLAYSTONE: As above.
2145	100	CLAYSTONE: Predominantly as above, becomes very calcareous grades to calcilutite, slightly dispersive.
2150	100	CLAYSTONE: Predominantly as above, becomes medium brown in part.
2155	100	CLAYSTONE: Predominantly as above, trace carbonaceous fragments, rare glauconite.

2160	100	CLAYSTONE: Predominantly as above, becomes medium brown in part, trace carbonaceous fragments, trace glauconite, soft to firm, massive to blocky.
2165	100	CLAYSTONE: Predominantly as above, locally very calcareous grade to calcilutite.
2170	100	CLAYSTONE: Olive grey, light grey, moderately to very calcareous, waxy texture homogeneous, plastic, blocky.
2175	100	CLAYSTONE: As above.
2180	80	CLAYSTONE: Light grey, grey brown, moderately calcareous, slightly silty in part, trace nodular pyrite, trace carbonaceous fragments, rare glauconite, soft to firm, massive to blocky.
	20	LIMESTONE: Light grey, off white, calcarenite, fine, slightly sparry, trace cryptocrystalline dolomitic inclusions, trace disseminated pyrite, firm to moderately hard, blocky.
2185	60	CLAYSTONE: As above.
	40	LIMESTONE: As above.
2190	80	CLAYSTONE: As above.
	20	LIMESTONE: As above.
2195	90	CLAYSTONE: Predominantly as above, becomes light grey brown.
	10	LIMESTONE: Predominantly as above, becomes off white to white, sparry.
2200	90	CLAYSTONE: Predominantly as above, light brown grey, very silty in part, trace fine clcareous sand.
	10	LIMESTONE: As above.
2205	90	CLAYSTONE: Predominantly as above, common fine calcareous sand.
	10	LIMESTONE: Predominantly as above, rare forams, trace carbonaceous fragments, firm to blocky.
2210	100	CLAYSTONE: Light brown, pale grey, moderately calcareous, slightly silty, trace nodular pyrite, trace coralline fragments, trace very fine light grey calcarenite inclusions, firm, massive to blocky.
2215	100	CLAYSTONE: As above.
2220	100	CLAYSTONE: As above.

2225	100	CLAYSTONE: Predominantly as above, becomes locally very calcareous grades to calcilutite, trace to common nodular pyrite.
2230	100	CLAYSTONE: Predominantly as above, grades to calcilutite, trace to common nodular pyrite, rare glauconite, trace fossil fragments.
2235	100	CLAYSTONE: As above.
2240	100	CLAYSTONE: Predominantly as above, grades to calcilutite, trace nodular pyrite, rare glauconite, trace light brown very fine calcarenite inclusions, trace forams.
2245	100	CLAYSTONE: As above.
2250	100	CLAYSTONE: Pale brown, olive grey in part, slightly to moderately silty, moderately to locally very calcareous grades to calcilutite in part, trace fossil fragments, trace nodular pyrite, trace forams, rare glauconite, soft to firm, blocky.
2255	100	CLAYSTONE: Predominantly as above, trace light brown calcarenite inclusions.
2260	80	CLAYSTONE: As above.
	20	LIMESTONE: Light brown, light grey, calcarenite, very fine, micritic, trace fossil fragments, rare glauconite, trace carbonaceous specks, trace coralline fragments, firm, crumbly, blocky.
2265	90	CLAYSTONE: As above.
	10	LIMESTONE: As above.
2270	100	CLAYSTONE: Grey brown, olive grey in part, moderately calcareous, trace fine calcareous sand, rare microglauconite, trace disseminated and nodular pyrite, becomes firm to occasionally moderately hard, blocky.
2275	60	SILTSTONE: Medium grey, occasionally medium brown, moderately agillaceous, slightly calcareous in part, abundant glauconite, trace free white calcite spar, slightly arenaceous in part, slightly micromicaceous, trace lithic fragments in part, trace white calcarenite inclusions, firm to moderately hard in part, blocky.
	40	CLAYSTONE: Light grey, pale brown, off white, moderately to very calcareous grades to calcilutite, slightly silty, trace carbonaceous fragments, rare microglauconite, soft to slightly dispersive, massive to amorphous.
2280	90	SILTSTONE: As above.
	10	CLAYSTONE: As above.

2285	100	SILTSTONE: Medium grey, brown grey, slightly arenaceous, common glauconite, trace nodular pyrite, trace lithic fragments, slightly micromicaceous, rare fossil fragments, trace dolomitic inclusions, trace limonitic staining, moderately hard, blocky.
2290	100	SILTSTONE: Predominantly as above, becomes slightly arenaceous in part.
2295	100	SILTSTONE: Medium brown, brown grey, moderately to very argillaceous common glauconite trace nodular pyrite, slightly arenaceous in part, fine to occasionally medium grained free quartz, trace limonitic staining, firm, slightly dispersive, massive to amorphous.
2300	10	SANDSTONE: Clear to translucent, frosted, medium to coarse, angular to subrounded, poor sorting, trace pyritic cement, slightly argillaceous matrix, trace nodular pyrite, trace glauconite, common milky quartz, loose, good porosity, no fluorescence.
	90	SILTSTONE: Predominantly as above, becomes medium grey.
2305	40	SANDSTONE: Predominantly as above, becomes coarse, trace pyritic cement, common milky quartz,loose, fair to good porosity, no fluorescence.
	60	SILTSTONE: As above.
2310	20	SANDSTONE: Predominantly as above, becomes medium to coarse, trace pyritic cement, no fluorescence.
	80	SILTSTONE: Light to medium grey, occasionally olive grey, very argillaceous grades to claystone, trace lithic fragments, trace carbonaeous specks, rare glauconite, slightly arenaceous in part, soft to slightly dispersive, massive to amorphous.
2313.5	10	SANDSTONE: Clear to translucent, frosted, medium to coarse, angular to subrounded, moderately sorted, trace pyritic cement, common milky quartz, loose, good porosity, no fluorescence.
	90	SILTSTONE: Medium grey to occasionally dark grey, dark brown grey, moderately arenaceous, very argillaceous grades to claystone in part, trace glauconite, slightly micromicaceous, soft to very dispersive, massive to amorphous.

(Begin core chip descriptions from Core #1 2313.5-2331.95m)

2313.5	SANDSTONE: Medium to dark grey, coarse to very coarse, subrounded, moderate sorting, abundant argillaceous matrix, trace disseminated pyrite, common milky quartz, trace biotite, hard, massive, tight, no fluorescence.

2314.35	SILTSTONE: Medium to dark grey, very argillaceous, arenaceous, common biotite, common carbonaceous fragments grades to arenaceous siltstone, hard, massive.
2315.35	SANDSTONE: Light to medium grey, coarse to very coarse, angular to subrounded, moderate sorting, abundant pyritic cement, trace siliceous cement, slightly argillaceous/silty matrix, trace glauconite, trace lithic fragments, common milky/smoky quartz, friable to moderately hard, poor porosity. FLUORESCENCE: 30% Patchy moderately bright pale yellow/gold fluorescence, fast moderate streaming cut, thin spotty ring residue.
2316.35	SANDSTONE: Light to medium grey, medium to very coarse, subangular to subrounded, poor to moderate sorting, very argillaceous, trace biotite, common milky quartz, trace feldspar, trace rock fragments, trace nodular pyrite and pyritic cement, trace carbonaceous specks, moderately hard, poor porosity. FLUORESCENCE: 30% Moderately bright to patchy bright pale yellow/gold fluorescence, fast moderate streaming cut, thin spotty ring residue.
2317.35	SANDSTONE: Light to medium grey, medium to coarse, occasionally very coarse, subangular to subrounded, poor to moderate sorting, trace pyritic cement, very argillaceous matrix, slightly silty, common smoky quartz, poor porosity. FLUORESCENCE: 20% Patchy dull pale yellow/gold fluorescence, moderate fast streaming cut, thin patchy ring residue.
2318.35	SANDSTONE: Light grey, medium to very coarse, subangular to rounded in part, moderate to poor sorting, moderately argillaceous matrix, trace to common patchy pyritic cement, common granular milky/smoky quartz, rare glauconite, trace coally fragments, moderately hard, poor to fair porosity. FLUORESCENCE: 30% Moderately bright to patchy bright pale yellow fluorescence, moderate fast streaming cut, thin patchy ring residue.
2319.35	SANDSTONE: Light grey, clear to translucent, coarse to very coarse, granular in part, trace patchy argillaceous matrix, trace pyritic cement, common milky quartz, friable to moderately hard, poor to in part good porosity. FLUORESCENCE: 50% Moderately bright pale yellow/gold fluorescence, instant blooming cut, moderate ring residue. (Faint petroliferous odour)

2320.35	SANDSTONE: Clear to translucent, light grey, very coarse to granular, subanguar to subrounded, moderate to poor sorting, trace silty/argillaceous matrix, trace pyritic cement, common granular milky quartz, friable, good porosity. no fluorescence.
2321.35	SANDSTONE: Light grey, fine to medium, common coarse quartz float, subangular to subrounded, moderate sorting, slightly silty/argillaceous matrix, rare glauconite, common rock fragments, friable to moderately hard, fair to good porosity, no fluorescence.
2322.35	SANDSTONE: Clear to translucent, light grey, coarse to ganular, subangular to subrounded, moderate sorting, trace calcareous cement, trace argillaceous matrix, common milky quartz, friable, good porosity, no fluorescence.
2323.35	SANDSTONE: Light grey, medium to very coarse, subangular to rounded, moderate sorting, trace weak calcareous cement, moderately argillaceous matrix, common milky/smoky quartz, friable to moderately hard, poor porosity, no fluorescence.
2324.35	SANDSTONE: Light to medium grey, very coarse to granular, subrounded to rounded, moderate sorting, common silty/argillaceous matrix, common granular smoky quartz, friable to moderately hard, fair porosity, no fluorescence.
2325.35	SANDSTONE: Clear to translucent, light grey, fine to predominantly medium, angular to subangular, moderate to good sorting, trace siliceous cement, trace biotite, friable to moderately hard, fair porosity, no fluorescence.
2326.35	SANDSTONE: Medium to dark grey, medium to predominantly coarse, subangular to rounded, good to moderate sorting, abundant argillaceous matix, matrix supported, trace to common pyritic cement, trace biotite, trace rock fragments, hard, tight, no fluorescence.
2327.35	SANDSTONE: As above.
2328.35	SANDSTONE: Medium grey, brown grey, medium to coarse, occasionally very coarse, subangular to rounded, moderate sorting, moderate siliceous cement, trace rock fragments, common smoky quartz, trace biotite, hard, poor porosity, no fluorescence.
2329.35	SANDSTONE: Clear to translucent, light grey, fine to medium occasionally coarse, subangular to subrounded, moderate to poor sorting, moderate siliceous cement, silty/argillaceous matrix, trace lithic fragments, trace biotite, poor to fair porosity, friable to moderately hard, no fluorescence.

2330.35		SANDSTONE: As above.
2331.95		SANDSTONE: Light grey, clear to translucent, fine to medium, subangular to subrounded, good sorting, moderate siliceous cement, silty/argillaceous matrix in part, common milky quartz float, trace glauconite, moderately hard, poor porosity, no fluorescence.

(End of core chip descriptions)

2335	30	SANDSTONE: Clear to translucent, frosted, fine to coarse, angular to subangular, poor sorting, abundant medium grey argillaceous matrix, common milky quartz, trace carbonaceous fragments, loose, fair porosity, no fluorescence.
	70	SILTSTONE: Light to medium grey, occasionally off white, very argillaceous grades to claystone, slightly arenaceous, trace carbonaceous fragments, slightly micromicaceous, soft to plastic, massive to amorphous.
2340	90	SANDSTONE: Predominantly as above, becomes coarse to very coarse, fair to good porosity, no fluorescence.
	10	SILTSTONE: As above.
2345	100	SANDSTONE: Clear to translucent, frosted, medium to very coarse, angular to subangular, moderate sorting, common pyritic cement, trace carbonaceous fragments, common smoky quartz, trace lithic fragments, loose, fair to good porosity, no fluorescence.
2350	90	SANDSTONE: Predominantly as above, trace weak calcareous cement in part, trace nodular pyrite, common milky quartz, fair to good porosity, no fluorescence.
	10	SILTSTONE: Light to medium grey, common argillaceous matrix, trace carbonaceous fragments, homogeneous, soft to firm, blocky to massive.
2355	90	SANDSTONE: As above.
	10	SILTSTONE: As above.
2360	100	SANDSTONE: Predominantly as above, becomes granular in part, common very coarse to granular milky quartz.
2365	100	SANDSTONE: As above.
2370	100	SANDSTONE: Clear to translucent, frosted, coarse to very coarse, angular to subangular, good sorting, trace argillaceous matrix, trace biotite in part, trace lithic/carbonaceous fragments, common milky quartz, loose, good porosity, no fluorescence.

2375	100	SANDSTONE: Predominantly as above, becomes granular in part, common granular milky quartz float.
2380	100	SANDSTONE: Clear to translucent, frosted, coarse to very coarse, angular to subangular, good sorting, weak calcareous cement in part, trace rock fragments, trace smoky quartz, loose, good porosity, no fluorescence.
2385	100	SANDSTONE: As above.
2390	100	SANDSTONE: Clear to translucent, frosted, medium to coarse, angular to subrounded, moderate to good sorting, clean, trace nodular pyrite, common smoky quartz, loose, good porosity, no fluorescence.
2395	70	SANDSTONE: Predominantly as above, becomes medium to very coarse, trace glauconite.
	20	SILTSTONE: Medium brown, olive grey in part, very argillaceous grades to claystone in part, trace carbonaceous fragments, slightly micromicaceous, firm to moderately hard, massive to blocky.
	10	COAL: Black, bituminous, slightly argillaceous, dull to subvitreous lustre, hard to brittle, blocky to occasionally fissile in part.
2400	60	SANDSTONE: As above.
	40	CLAYSTONE: As above.
2405	90	SANDSTONE: As above.
	10	COAL: As above.
2410	70	SANDSTONE: As above.
	20	SILTSTONE: As above.
	10	COAL: As above.
2415	80	SANDSTONE: Clear to translucent, frosted, medium to coarse, trace argillaceous/kaolinitic matrix, angular to subrounded, moderate to good sorting, trace argillaceous/kaolinitic matrix, trace glauconite, trace nodular pyrite, loose good porosity, no fluorescence.
	20	SILTSTONE: Predominantly as above, becomes medium brown.
2420	90	SANDSTONE: Predominantly as above, becomes medium, trace kaolinitic matrix, fair porosity, no fluorescence.
	10	SILTSTONE: As above.

2425	70	SANDSTONE: As above.
	20	SILTSTONE: Medium to dark brown, very argillaceous, micromicaceous, trace carbonaceous fragments, mottled texture, moderately hard to hard, blocky.
	10	COAL: Black, bituminous, slightly argillaceous, trace disseminated pyrite, vitreous lustre, hard, brittle, blocky to subfissile.
2430	90	SANDSTONE: Predominantly as above, becomes fine to medium, trace glauconite, loose, fair to good porosity, no fluorescence.
	10	COAL: As above.
2435	10	SANDSTONE: Clear to translucent, frosted, coarse, angular to subangular, moderate sorting, trace argillaceous matrix, weak calcareous cement, common coarse milky quartz, loose, fractured grains, good porosity, no fluorescence.
	90	SILTSTONE: Olive grey, grey brown, moderately to very argillaceous, grades to claystone in part, common carbonaceous specks, common biotite, soft to firm, moderately hard in part, massive to blocky.
	Trace	COAL: Black, bituminous, slightly argillaceous, dull to subvitreous lustre, subconchoidal fracture, hard, blocky to fissile in part.
2440	10	SANDSTONE: As above.
	90	SILTSTONE: As above.
	Trace	COAL: As above.
2445	60	SANDSTONE: Predominantly as above, becomes fine to predominantly medium to coarse, subangular to subrounded, poor to moderately sorted, common kaolinitic matrix, common nodular pyrite, fair porosity, no fluorescence.
	40	SILTSTONE: As above.
	Trace	COAL: As above.
2450	10	SANDSTONE: As above.
	80	SILTSTONE: Becomes predominantly medium brown to grey brown, mottled texture, common coally fragments, moderately hard, blocky to subfissile.
	10	COAL: As above.
2455	Trace	SANDSTONE: As above.
	90	SILTSTONE: Light grey brown, medium brown, occasionally olive grey, moderately argillaceous, micromicaceous, common carbonaceous fragments and microlaminations, trace lithics, moderately hard, blocky to subfissile.
	10	COAL: Predominantly as above, dull lustre, moderately argillaceous, trace disseminated pyrite.

2460	30	SANDSTONE: Off white, light grey, very fine to fine, occasionally medium, subangular to subrounded, good sorting, common kaolinitic matrix, trace nodular pyrite, trace carbonaceous fragments, slightly micaceous, friable, poor to fair porosity, no fluorescence.
	70	SILTSTONE: Medium brown, light grey brown, moderately to locally very argillaceous, micromicaceous, trace carbonaceous fragments, trace lithic fragments, trace coal microlaminations, firm, moderately hard, blocky.
2465	40	SANDSTONE: Clear to translucent, light grey, fine to medium, subangular to subrounded, moderate sorting, common kaolinitic matrix, trace nodular pyrite, trace lithic fragments, trace biotite, friable to loose, fair to poor porosity, no fluorescence.
	50	SILTSTONE: Light to medium grey, grey brown, very argillaceous, micromicaceous, trace lithic/carbonaceous fragments, firm to moderately hard, blocky.
	10	COAL: Black, brown black, argillaceous grades to carbonaceous claystone, bituminous, dull lustre, hard to brittle, blocky to subfissile.
2470	30	SANDSTONE: As above.
	70	SILTSTONE: As above.
	Trace	COAL: As above.
2475	70	SANDSTONE: Predominantly as above, common kaolinitic matrix, common pyrite.
	30	SILTSTONE: Predominantly as above, becomes light grey.
	Trace	COAL: As above.
2480	80	SANDSTONE: As above.
	20	SILTSTONE: As above.
2485	80	SANDSTONE: Clear to translucent, frosted, medium to predominantly coarse to very coarse, angular to sbrounded, poor sorting, moderate kaolinitic matrix, weak calcareous cement, common milky quartz, loose, fair to good porosity, no fluorescence.
	20	SILTSTONE: As above.
2490	90	SANDSTONE: As above.
	10	SILTSTONE: As above.

2495	80	SANDSTONE: Predominantly as above, becomes very coarse to granular, common kaolinitic matrix, trace milky/smoky quartz, loose, good porosity, no fluorescence.
	20	SILTSTONE: Light brown grey, moderately to very argillaceous grades to claystone in part, common carbonaceous fragments, slightly micromicaceous, firm, moderately hard, massive to blocky.
2500	80	SANDSTONE: As above.
	20	SILTSTONE: Predominantly as above, common coally microlaminations, trace biotite.
2505	30	SANDSTONE: Clear to translucent, medium to occasionally coarse, angular to subrounded, good sorting, clean, trace nodular pyrite, trace biotite, trace rock fragments, loose fair to good porosity, no fluorescence.
	70	SILTSTONE: Light to medium brown, light grey, very argillaceous grades to claystone in part, trace disseminated pyrite, slightly micromicaceous, trace coaly microlaminantions,trace lithic fragments, very dispersive, massive to amorphous.
2510	30	SANDSTONE: As above.
	70	SILTSTONE: As above.
2515	30	SANDSTONE: Predominantly as above, coarse, argillaceous matrix in part, common biotite, loose, good porosity.
	60	SILTSTONE: As above.
	10	COAL: Black, brown black, moderately argillaceous, trace disseminated pyrite, dull to subvitreous lustre, subconchoidal fracture in part, hard to brittle, blocky to subfissile in part.
2520	30	SANDSTONE: As above.
	60	SILTSTONE: Predominantly as above, hygroturgid, very dispersive, amorphous.
	10	COAL: As above.
2525	100	SANDSTONE: Clear to translucent, frosted, medium, subangular to subrounded, good sorting, clean, trace biotite, trace rock fragments, trace carbonaceous/coaly fragments, trace nodular pyrite, trace smoky quartz, loose, good porosity, no fluorescence.

2530	80	SANDSTONE: Clear to translucent, frosted, fine to predominantly medium, subangular to subrounded, moderate sorting, weak calcareous cement, abundant kaolinitic matrix, trace rock fragments, trace coal fragments, loose, poor to fair porosity, no fluorescence.
	20	SILTSTONE: Light brown, pale grey, occasionally medium brown, moderately to locally very argillaceous, trace biotite, trace carbonaceous fragments, trace lithic fragments, firm, moderately hard, massive to blocky.
2535	60	SANDSTONE: As above.
	40	SILTSTONE: Predominantly as above, becomes slightly dispersive.
2540	30	SANDSTONE: Predominantly as above, becomes medium to coarse, poor to moderately sorted.
	70	SILTSTONE: Predominantly as above, becomes very argillaceous grades to claystone in part.
2545	70	SANDSTONE: Clear to translucent, frosted, medium to occasionally coarse, subangular to subrounded, moderate to good sorting, trace kaolinitic matrix, trace rock fragments, trace nodular pyrite, loose, fair to good porosity, no fluorescence.
	30	SILTSTONE: Pale brown, light to medium brown, very argillaceous grades to claystone in part, trace lithic fragments, trace carbonaceous fragments, soft to firm, plastc in part, blocky to massive.
2550	30	SANDSTONE: Predominantly as above, common kaolinitic matrix.
	70	SILTSTONE: As above.
2555	90	SANDSTONE: Predominantly as above, becomes medium to coarse, trace kaolinitic matrix, trace biotite.
	10	SILTSTONE: As above.
2560	30	SANDSTONE: As above.
	60	SILTSTONE: As above.
	10	COAL: Black, bituminous, vitreous to subvitreous lustre, slightly argillaceous in part, brittle, blocky to subfissile. in part.
2565	20	SANDSTONE: Predominantly as above, occasionally very coarse milky quartz float.
	80	SILTSTONE: Predominantly as above, becomes moderately dispersive in part, amorphous to massive.
	Trace	COAL: As above.

2570	70	SANDSTONE: Predominantly as above, becomes coarse, occasionally very coarse, trace kaolinitic matrix, common milky quartz, loose, good porosity.
	30	SILTSTONE: As above.
2575	90	SANDSTONE: Clear to translucent, frosted, coarse to very coarse, occasionally granular, angular to subangular, poor sorting, trace kaolinitic matrix, trace nodular pyrite, trace glauconite, trace coal fragments, common milky/smoky quartz, loose, good porosity, no fluorescence.
	10	SILTSTONE: As above.
2580	60	SANDSTONE: Predominantly as above, very coarse to granular, common milky quartz, common fractured grains, good porosity, no fluorescence.
	40	SILTSTONE: As above.
2585	90	SANDSTONE: Predominantly as above, medium to predominantly coarse, trace siliceous cement in part.
	10	SILTSTONE: As above.
	Trace	COAL: Black, dark brown black, slightly argillaceous, rare disseminated pyrite, dull to subvitreous lustre, subconchoidal fracture, hard, brittle, blocky.
2590	50	SANDSTONE: As above.
	20	SILTSTONE: As above.
	30	COAL: As above.
2595	20	SANDSTONE: Predominantly as above, becomes very coarse.
	70	SILTSTONE: As above.
	10	COAL: As above.
2600	70	SANDSTONE: Clear to translucent, off white, frosted, medium to very caorse, angular to subrounded, poor sorting, abundant kaolinitic matrix, trace nodular pyrite, common very coarse milky quartz, loose, fractured grains, poor porosity, no fluorescence.
	30	SILTSTONE: Olive grey, brown grey, moderately argillaceous, arenaceous in part, trace lithic fragments, micromicaceous, trace carbonaceous fragments, soft to firm, massive to blocky in part.
2603.5	30	SANDSTONE: Predominantly as above, common very coarse to granular milky quartz.
	70	SILTSTONE: As above.

Reached total depth at 0030 hours 26th June, 1995.

APPENDIX 2

APPENDIX II

CORE DESCRIPTIONS

ESSO AUSTRALIA LTD

CORE DESCRIPTION

CORE No.:	1	WELL:	ORANGE ROUGHY-1
Interval cored:	2313.5-2331.95m	Recovered:	100%
Cut:	18.4m	Bit size:	12 1/4"
Bit type:	DBS CD-93	Date:	24-Jun-95
Described by:	Greg Clota	Note: see following pages for full descriptions	

Interval (m)	Depth & ROP (m/hr) 20 15 10 5 0	Graphic	Shows	Descriptive Lithology
2313				2313.5 SST: M-DK GY, C-VC, SR, MOD SRT, ABNT ARG MTX, TR DIS PYR, COM MILKY QTZ, TR BIO, HD, MAS, TITE, NO FLUOR
2314				2314.35: SLTN: M-DK GY, V ARG, AREN, COM BIO, COM CARB FRAGS, GRDS TO AREN SLTN, HD, MAS
2315				2315.35 SST: LT-M GY, C-VC ANG-SR, MOD SRT, ABNT PYR CMT, TR SIL CMT, SL SLTY/ARG MTX, TR GLAUC, TR LITH FRAG, COM MILKY/SMOKEY QTZ, FRI-MOD HD, PR POR, 30% PTCHY MOD BRI PA YELL /GOLD FLUOR, FST MOD STRMG CUT, THIN SPOTTY R/R
2316				2316.35 SST: LT-M GY, M-VC, SA-SR, PR-MOD SRT, V ARG, TR BIO, COM MILKY QTZ, TR FELD, TR RK FRAG, TR NOD PYR & PYR CMT, TR CARB SPKS, MOD HD, PR POR, 30% MOD BRI-PTCHY BRI PA YELL/GOLD FLUOR, FAST MOD STRMG CUT, THIN SPOTTY R/R
2317				2317.35 SST: LT-M GY, M-C, OCC VC, SA-SR, PR-MOD SRT, V ARG MTX, SL SLTY, TR PYR CMT, COM SMOKEY QTZ, PR POR, 20% PTCHY DULL PA YELL/GOLD FLUOR MOD FAST STRMG CUT, THIN PTCHY R/R
2318				2318.35 SST: LT GY, M-VC, SA-RND IP, MOD-PR SRT, MOD ARG MTX, TR-COM PTCHY PYR CMT, COM GRAN MILKY/SMOKEY QTZ, RR GLAUC, TR COALLY FRAG, MOD HD, PR-FR POR, 30% MOD BRI-PTCHY BRI PA YELL/GOLD FLUOR, MOD FST STRMG CUT, THIN PTCHY R/R
2319				2319.35 SST: LT GY, CLR-TRNSL, C-VC, GRAN IP, TR PTCHY ARG MTX , TR PYR CMT, COM MILKY QTZ, FRI-MOD HD, PR-GD POR IP, 50% MOD BRI PA YELL/ GOLD PTCHY FLUOR, INST CUT, MOD R/R, FNT PETROL ODOUR
2320				2320.35 SST: CLR-TRNSL, LT GY, VC-GRN, SA-SR, MOD-PR SRT, TR SLTY/ARG MTX, TR PYR CMT, COM GRAN MILKY QTZ, FRI, GD POR, NO FLUOR
2321				2321.35 SST: LT GY, F-M, COM C QTZ FLOAT, SA-SR, MOD SRT, SL SLTY/ARG MTX, RR GLAUC, COMM RK FRAG, FRI-MOD HD, FR-GD POR, NO FLUOR
2322				2322.35 SST: CLR-TRANSL, LT GY, C-GRAN, SA-RND, MOD SRT, TR CALC CMT, TR ARG MTX, COM MILKY QTZ, GD POR, FRI, NO FLUOR
2323				

ESSO AUSTRALIA LTD

CORE DESCRIPTION

CORE No.:	1	**WELL:**	Orange Roughy-1
Interval cored:	2313.5-2331.95M	Recovered:	100%
Cut:	18.45M	Bit size:	12 1/4"
Bit type:	DBS CD-93	Date:	24-Jun-95
Described by:	Greg Clota		

Interval (m)	Depth & ROP (m/hr) 20 15 10 5 0	Graphic	Shows	Descriptive Lithology
2323				
				2323.35 SST: LT GY, M-VC, SA-RND, MOD SRT, TR WK CALC CMT, MOD ARG MTX, COM MILKY/SMOKEY QTZ FRI-MOD HD, POOR POR, NO FLUOR
2324				
				2324.35 SST: LT-M GY, VC-GRAN, SR-RND, MOD SRT, COM SLTY/ARG MTX, COM GRAN SMOKY GR, FRI-MOD HD, FR POR, NO FLUOR
2325				
				2325.35 SST: CLR-TRNSL, LT GY, F-PRED M, A-SA, MOD-GD SRTG, TR SIL CMT, TR BIO, FRI-MOD HD, FR POR, NO FLUOR
2326				
				2326.35 SST: M-DK GY, M-PRED C, SA-RND, GD-MOD SRT ABNT ARG MTX, MTX SUPPORTED, TR-COM PYR CMT, TR BIO, TR RK FRAG, HD, TITE, TITE, NO FLUOR
2327				
				2327.35 SST: A/A, MTX SUPPORTED, TITE, NO FLUOR
2328				
				2328.35 SST: M GY, BRN GY, M-C, OCC VC, SA-RND, MOD SRT, MOD SIL CMT, TR RK FRAG, COM SMOKEY QTZ, TR BIO, HD, PR POR, NO FLUOR
2329				
				2329.35 SST: CLR-TRNSL, LT GY, F-M, OCC C, SA-SR, MOD PR SRT, MOD SIL CMT, SLTY ARG MTX, TR LITH FRAGS, TR BIO, PR-FR POR, FRI-MOD HD, NO FLUOR
2330				
				2330.35 SST: A/A, NO FLUOR
2331				
				2331.95 SST: LT GY, CLR-TRNSL, F-M, SA-SR, GD SRTG, MOD SIL CMT, SLTY/ARG MTX IP, COM MILKY QTZ FLOAT, TR GLAUC, MOD HD, PR POR, NO FLUOR
2332				

CORE DESCRIPTIONS

Core No. 1 — Well Orange Roughy-1

Interval Cored	2313.5-2331.95m		
Cut	18.45m	Recovered	100%
Bit Type	CD-93	Bit Size	12¼"
Described by	Greg Clota	Date	24/6/95

Int. (m)	Depth & ROP (m/hr)	Graphic	Show	Descriptive Lithology
2313.5	10			SANDSTONE: Medium to dark gray, coarse to very coarse, subrounded, moderate sorting, abundant argillaceous matrix, trace disseminated pyrite, common milky quartz, trace biotite, hard, massive, tight, no fluorescence.
2314.35	7.5			SILTSTONE: Medium to dark grey, very argillaceous, arenaceous, common biotite, common carbonaceous fragments grades to arenaceous siltstone, hard, massive.
2315.35	8.6			SANDSTONE: Light to medium grey, coarse to very coarse, angular to subrounded, moderate sorting, abundant pyritic cement, trace siliceous cement, slightly argillaceous/silty matrix, trace glauconite, trace lithic fragments, common milky/smoky quartz, friable to moderately hard, poor porosity. FLUORESCENCE: 30% Patchy moderately bright pale yellow/gold fluorescence, fast moderate streaming cut, thin spotty ring residue.
2316.35	22.5			SANDSTONE: Light to medium grey, medium to very coarse, subangular to subrounded, poor to moderate sorting, very argillaceous, trace biotite, common milky quartz, trace feldspar, trace rock fragments, trace nodular pyrite and pyritic cement, trace carbonaceous specks, moderately hard, poor porosity. FLUORESCENCE: 30% Moderately bright to patchy bright pale yellow/gold fluorescence, fast moderate streaming cut, thin spotty ring residue.

2317.35	26.1	SANDSTONE: Light to medium grey, medium to coarse, occasionally very coarse, subangular to subrounded, poor to moderate sorting, trace pyritic cement, very argillaceous matrix, slightly silty, common smoky quartz, poor porosity. FLUORESCENCE: 20% Patchy dull pale yellow/gold fluorescence, moderate fast streaming cut, thin patchy ring residue.
2318.35	16.7	SANDSTONE: Light grey, medium to very coarse, subangular to rounded in part, moderate to poor sorting, moderately argillaceous matrix, trace to common patchy pyritic cement, common granular milky/smoky quartz, rare glauconite, trace coaly fragments, moderately hard, poor to fair porosity. FLUORESCENCE: 30% Moderately bright to patchy bright pale yellow fluorescence, moderate fast streaming cut, thin patchy ring residue.
2319.35	22.0	SANDSTONE: Light grey, clear to translucent, coarse to very coarse, granular in part, trace patchy argillaceous matrix, trace pyritic cement, common milky quartz, friable to moderately hard, poor to in part good porosity. FLUORESCENCE: 50% Moderately bright pale yellow/gold fluorescence, instant blooming cut, moderate ring residue. (Faint petroliferous odour)
2320.35	17.5	SANDSTONE: Clear to translucent, light grey, very coarse to granular, subanguar to subrounded, moderate to poor sorting, trace silty/argillaceous matrix, trace pyritic cement, common granular milky quartz, friable, good porosity. no fluorescence.

2321.35	19.1	SANDSTONE: Light grey, fine to medium, common coarse quartz float, subangular to subrounded, moderate sorting, slightly silty/argillaceous matrix, rare glauconite, common rock fragments, friable to moderately hard, fair to good porosity, no fluorescence.
2322.35	20.2	SANDSTONE: Clear to translucent, light grey, coarse to ganular, subangular to subrounded, moderate sorting, trace calcareous cement, trace argillaceous matrix, common milky quartz, friable, good porosity, no fluorescence.
2323.35	20.0	SANDSTONE: Light grey, medium to very coarse, subangular to rounded, moderate sorting, trace weak calcareous cement, moderately argillaceous matrix, common milky/smoky quartz, friable to moderately hard, poor porosity, no fluorescence.
2324.35	17.6	SANDSTONE: Light to medium grey, very coarse to granular, subrounded to rounded, moderate sorting, common silty/argillaceous matrix, common granular smoky quartz, friable to moderately hard, fair porosity, no fluorescence.
2325.35	19.4	SANDSTONE: Clear to translucent, light grey, fine to predominantly medium, angular to subangular, moderate to good sorting, trace siliceous cement, trace biotite, friable to moderately hard, fair porosity, no fluorescence.
2326.35	15.7	SANDSTONE: Medium to dark grey, medium to predominantly coarse, subangular to rounded, good to moderate sorting, abundant argillaceous matix, matrix supported, trace to common pyritic cement, trace biotite, trace rock fragments, hard, tight, no fluorescence.
2327.35	15.9	SANDSTONE: As above.

2328.35	16.4	SANDSTONE: Medium grey, brown grey, medium to coarse, occasionally very coarse, subangular to rounded, moderate sorting, moderate siliceous cement, trace rock fragments, common smoky quartz, trace biotite, hard, poor porosity, no fluorescence.
2329.35	15.3	SANDSTONE: Clear to translucent, light grey, fine to medium occasionally coarse, subangular to subrounded, moderate to poor sorting, moderate siliceous cement, silty/argillaceous matrix, trace lithic fragments, trace biotite, poor to fair porosity, friable to moderately hard, no fluorescence.
2330.35	22.5	SANDSTONE: As above.
2331.95	18.9	SANDSTONE: Light grey, clear to translucent, fine to medium, subangular to subrounded, good sorting, moderate siliceous cement, silty/argillaceous matrix in part, common milky quartz float, trace glauconite, moderately hard, poor porosity, no fluorescence.

APPENDIX 3

APPENDIX III

SIDEWALL CORE DESCRIPTIONS

SIDEWALL CORE DESCRIPTIONS

WELL NAME: Orange Roughy-1 **GEOLOGIST:** Greg Clota

SWC No:	DEPTH (mm)	REC (mm)	BOUGHT REJECT	LITHOLOGICAL DESCRIPTION, FLUORESCENCE ETC ...
1	2591	40	B	**Coal**: Black, argillaceous/silty, dull to subvitreous lustre, subbituminous, brittle to crumbly, blocky.
2	2563	20	B	**Sandstone:** Off white to light grey, fine, subangular to subrounded, good sorting, abundant kaolinitic/silty matrix, trace argillaceous microlaminantions, trace carbonaceous specks, friable, massive, very poor porosity, no fluorescence.
3	2561.5	15	B	**Siltstone:** Grey brown, olive grey, moderately argillaceous, slightly arenaceous, trace coally inclusions/microlaminations, slightly micromicaceous, firm, massive.
4	2545.5	25	B	**Siltstone:** Predominantly as above, becomes dark grey brown, very argillaceous, grades to shale.
5	2538	20	B	**Siltstone:** Brown grey, olive grey, moderately argillaceous, common fine grained off white sandstone laminations, trace carbonaceous and lithic fragments, hard, massive.
6	2515	15	B	Laminanted **Claystone** and **Sandstone**: Off white, fine, subangular, good sorting, abundant kaolinitic matrix, trace nodular pyrite, common smoky quartz, trace carbonaceous/argillaceous microlaminations, tight, no shows. **Claystone:** Medium brown, slightly micromicaceous, slightly silty, homogeneous, moderately hard, subfissile.
7	2510	25	B	**Sandstone:** Light brown, off white, fine to medium, subangular, good sorting, abundant silty/argillaceous matrix, common lithic fragments, trace feldspar, trace smoky quartz, tight, moderately hard, no fluorescence.
8	2485	5	B	**Siltstone:** Light to medium grey, moderately argillaceous, common off white fine arenaceous inclusions, trace muscovite, trace carbonaceous/argillaceous microlaminations, firm, massive.
9	2481	15	B	**Sandstone:** Light grey, brown grey, very fine to fine, angular to subangular, good sorting, abundant silty/kaolinitic matrix, grades to arenaceous siltstone, trace lithic fragments, trace glauconite, hard, tight, no shows.
10	2467.8	20	B	**Sandstone:** Off white, light orange brown, fine to medium, subagular, good sorting, trace siliceous cement, trace kaolinitic matrix, trace biotite, trace smoky quartz, trace coal fragments, friable, fair porosity, no shows.
11	2462	30	B	**Siltstone:** Medium to dark brown, very argillaceous, common off white arenaceous inclusions, trace disseminated pyrite, trace rock fragments, moderately hard, massive to subfissile.
12	2457.5	25	B	**Siltstone:** Predominantly as above, common arenaceous inclusions, grades to arenaceous siltstone.
13	2451.5	20	B	**Sandstone:** Off white, light grey, very fine to fine, subangular, good sorting, abundant kaolinitic/silty matrix, common rock fragments, trace medium smoky quartz, friable to moderately hard, tight, no shows.
14	2441.5	25	B	**Shale:** Dark grey, dark brown grey, micromicaceous, carbonaceous, homogeneous, waxy texture, moderately hard, subfisile.

SWC No:	DEPTH (mm)	REC (mm)	BOUGHT REJECT	LITHOLOGICAL DESCRIPTION, FLUORESCENCE ETC ...
15	2431.8	20	B	**Shale:** Predominantly as above, medium brown grey, slightly silty.
16	2421.8	25	B	**Shale:** Medium grey brown, trace very fine off white arenaceous inclusions, trace disseminated pyrite, waxy texture, moderately hard, subfissile.
17	2407.5	20	B	**Sandstone:** Light grey, off white, fine to medium, subangular to subrounded, moderate to good sorting, abundant kaolinitic matrix, trace brown argillaceous inclusions, common rock fragments, trace carbonaceous specks, trace smoky quartz, moderately hard, tight, no shows.
18	2400	15	B	**Sandstone:** Light grey, off white, very fine, subangular, good sorting, very silty/argillaceous matrix, trace rock fragments, trace disseminated pyrite, hard, tight, no shows, grades to silty sandstone.
19	2357.1	15	B	Laminated **siltstone:** Medium brown, silty, abundant off white fine arenaceous laminations, trace to common disseminated pyrite laminations, moderately hard, massive.
20	2349	15	B	**Sandstone:** Brown grey, fine to predominantly medium to coarse, angular to subangular, poor sorting, abundant argillaceous/silty matrix, trace kaolinitic inclusions, trace feldspar, trace smoky quartz, friable to moderately hard, poor porosity. FLUORESCENCE: Patchy moderately bright pale yellow fluorescence, weak instant cut, thin patchy ring residue.
21	2347.5	15	B	**Sandstone:** Light grey, fine, subangular, good sorting, abundant kaolinitic/silty matrix, abundant disseminated pyrite and pyritic cement, trace glauconite, trace rock fragments, moderately hard, tight, no shows, grades to siltstone.
22	2345	15	B	**Siltstone:** Light grey, moderately argillaceous in part, very arenaceous, grades to very fine silty sanstone, trace kaolinitic inclusions, moderately hard, massive.
23	2320	10	B	**Sandstone:** Medium grey, medium, subangulaar to subrounded, moderate to good sorting, trace siliceous and pyritic cement, abundant medium grey argillaceous matrix, trace biotite, common smoky/milky quartz, moderately hard, very poor to nil porosity. FLUORESCENCE: 10% Dull pale yellow fluorescence, faint slow cut, trace patchy ring residue.
24	2305	40	B	**Sandstone:** Dark grey, medium to coarse, subrounded, poor sorting, abundant dark grey argillaceous matrix, matrix suppported, trace glauconite, trace disseminated pyrite, hard, tight, no shows.
25	2297	40	B	**Sandstone:** Dark brown grey, fine to medium, subangular to subrounded, good sorting, abundant dark brown argillaceous matrix, trace glauconite, trace garnet, common rock fragments, trace limonitic staining, hard, poor to nil porosity, no shows.
26	2290	30	B	**Lithic Greywacke:** Dark grey, medium to coarse, subrounded, moderate sorting, abundant argillaceous matrix, abundant limonitic staining, common altered feldspar, trace glauconite, hard, tight, no shows.
27	2285	35	B	**Subarkose:** Dark green grey, medium to coarse, angular to subrounded, moderate sorting, silty/argillaceous matrix, abundant glauconite, trace haematite stained rock fragments, hard, tight, no shows.

SWC No:	DEPTH (mm)	REC (mm)	BOUGHT REJECT	LITHOLOGICAL DESCRIPTION, FLUORESCENCE ETC ...
28	2281	25	B	**Siltstone:** Dark green grey, very argillaceous, abundant glauconite, common fine arenaceous inclusions, moderately hard, massive.
29	2270	15	B	**Limestone:** Light grey, calcilutite, very argillaceous grades to calcareous claystone, micritic, slightly micromicaceous, firm to moderately hard, massive.
30	2267	15	B	**Limestone:** Light grey, calcilutite, slightly to moderate argillaceous, micritic, slightly silty, trace glauconite, hard, blocky to subfissile.

APPENDIX 4

APPENDIX IV

VELOCITY SURVEY REPORT

See separate report; Schlumberger "Well Seismic Processing Report, Zero Offset VSP and Geogram, ORANGE ROUGHY-1".

APPENDIX 5

APPENDIX V

MUDLOG

PE600707

This is an enclosure indicator page.
The enclosure PE600707 is enclosed within the container PE900893 at this location in this document.

The enclosure PE600707 has the following characteristics:

ITEM_BARCODE	= PE600707
CONTAINER_BARCODE	= PE900893
NAME	= Formation Evaluation Log
BASIN	= GIPPSLAND
PERMIT	=
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Formation Evaluation Log (enclosure from WCR) for Orange Roughy-1
REMARKS	=
DATE_CREATED	= 25/06/95
DATE_RECEIVED	= 2/01/96
W_NO	= W1121
WELL_NAME	= Orange Roughy -1
CONTRACTOR	= HALLIBURTON
CLIENT_OP_CO	= ESSO

(Inserted by DNRE - Vic Govt Mines Dept)