ESSO

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W836
WRASE-1
WCR Vol 1

ESSO EXPLORATION AND PRODUCTION AUSTRALIA INC.

Page 1 of 54

PLEASE DO NOT TAKE APART.

Vol 1

WELL COMPLETION REPORT

WRASSE 1

W836

VOLUME 1

GIPPSLAND BASIN
VICTORIA

ESSO AUSTRALIA LIMITED

M. FITTALL
Compiled by: D. MORETON

MARCH 1984

WRASSE-1

WELL COMPLETION REPORT

VOLUME 1

(BASIC DATA)

CONTENTS

FIGURES

APPENDICES

ESSO AUSTRALIA LTD

COMPLETION REPORT

WELL	:	Wrasse-1
LOCATION	:	Latitude : 38° 19' 27.74" S Longitude : 148° 16' 31.14" E X = 611 477 mE Y = 5 757 410 mN Map Projection: UTM Zone 55 Geographical Location: Gippsland Basin Field:
PERMIT		VIC/L4
ELEVATION	:	21m ASL
WATER DEPTH	:	65m
TOTAL DEPTH	:	2811m (TVD) (2984m MD); Average Angle 25°
PLUG BACK TYPE	:	Balanced Plug
REASONS FOR PLUGGING BACK	:	Plug and Abandonment
MOVE IN	:	26th October 1983
RIG UP	:	27th October 1983
SPUDDED	:	27th October 1983
RIG DOWN COMPLETE	:	25th November 1983
RIG RELEASED	:	25th November 1983
OPERATOR	:	Esso Exploration and Production Australia Inc.
LICENCEE	:	B.H.P. Petroleum Pty. Ltd. and EEPA Inc.
ESSO INTEREST	:	50%
OTHER INTEREST	:	50%
CONTRACTOR	:	South Seas Drilling Company
RIG NAME	:	Southern Cross
EQUIPMENT TYPE	:	Semi-submersible
TOTAL RIG DAYS	:	30.67
DRILLING AFE NO.	:	03 05 308 233 011
TYPE COMPLETION	:	Plug and Abandonment
WELL CLASSIFICATION	:	Before Drilling New Field Wildcat After Drilling Dry Hole

OPERATIONS SUMMARY
WRASSE-1

Moor

The semi-submersible Southern Cross arrived at the Wrasse-1 location from the rig inspection site at Twofold Bay, Eden, N.S.W., at 0530 hours on 26th October, 1983.

Anchor No. 1 was dropped by the rig with the remaining seven anchors being run by the workboats Sydney Tide and Atlas Dampier in 11 hours. Due to the proximity of the Marlin/Halibut pipelines, the Flinders Tide was used to monitor anchor setting positions. All anchors were successfully pretensioned to 200 kips.

Actual Location

Latitude: 38° 19' 27.74" S
Longitude: 148° 16' 31.14" E
X = 611,477m E
Y = 5,757,410m N
AMG zone 147, Universal Transverse Mercator Projection, Australian Geodetic Datum.

The rig was located 3m at 270° from the called location and 55 km at 150° from Lakes Entrance, Victoria.

26" Hole for 20" Conductor

The drilling template was run and landed at a seafloor depth of 86m RKB. The 26" hole was drilled to 224m using a 26" bit and 26" hole opener with seawater, and displaced at T.D. with high viscosity gel mud.

The 18-3/4" wellhead and 20" casing were run and cemented at a shoe depth of 208m RKB. The BOP stack and riser were run, and the casing and collet connector tested against the shear rams to 500 psi.

17-1/2" Hole for 13-3/8" Casing

The 20" casing shoe was drilled out and the 17-1/2" hole was drilled to 817m, using seawater with slugs of high viscosity gel mud. The Sonic-GR-CAL log was run from 813m to the mudline.

The 13-3/8" casing was run and cemented at a shoe depth of 802m RKB. The 13-3/8" seal assembly was then set and pressure tested along with the BOP stack to 200/3500/5000 psi. Cement plugs and cement were drilled to 786m where a Phase I PIT was conducted to 1500 psi.

12-1/4" Hole for 9-5/8" Intermediate Casing

The remaining cement and shoe were drilled out along with 6m of new hole down to 832m. A Phase II PIT was conducted with a leakoff at 17.7 ppg EMW. The 12-1/4" hole was then drilled to the kick-off point at 1000m. (Note: Unless otherwise stated, all depths given are measured depth - RKB).

The well was kicked-off using a 9-5/8" Dynadrill and 2° bent sub to an inclination of 19-1/2° on a heading of 261° at 1125m (bit depth - 1151m). The well was led 3° to the left of the 264° proposal to allow for the anticipated right hand walk. Hole angle was built to 29-3/4° at 1243m (bit depth -1252m) using a build-angle BHA. The inclination was built greater than the programmed average angle of 25.2° to compensate for the inherent "dropping" characteristic of the Gippsland Limestone formation.

A packed BHA was used to drill to 1450m. A survey at 1432m showed that the hole angle had dropped to 25-1/2° on a course direction of 263°. A trip was made to change the BHA due to the hole dropping angle faster than anticipated. The 15' drill collar above the near bit stabilizers was replaced with a 30' collar and another stand of collars added to the string. This BHA was used to drill through the "drop zone" down to 2079m, where a survey showed an inclination of 26° on a course direction of 277° (survey depth -2069m).

In an attempt to arrest the right hand walk, the bit was tripped to stiffen the BHA by replacing the lowest 30' drill collar with the 15' collar. This assembly was used to drill to 2302m, where the survey (at 2284m - 25-3/4° at 280-1/2°) indicated that the right hand walk continued unimpeded.

To insure intersection of the well target area, a 9-5/8" Dynadrill and 1-1/2° bent sub steering assembly were used to drill to 2396m. The hole was steered back to an azimuth of 263-1/2° at an inclination of 26-1/4° (survey depth - 2379m).

The hole was then drilled with a packed BHA to 2433m. It had been decided to set the 9-5/8" casing 100m TVD higher than originally programmed in order to avoid mudding up in the 12-1/4" hole before penetrating the Turrum formation. Tight hole and drag from 2190m to TD were experienced on the wiper trip prior to logging. After circulating up sloughing shale, the mud weight was raised from 9.6 to 10.7 ppg to hold back the formation. The heavier mud and extra circulating time required to build weight proved effective in eliminating the tight hole problems. The hole was then deepened to 2483m to allow casing off more of the troublesome Lakes Entrance formation. A 10 stand wiper trip was made without drag or fill and a multishot survey taken prior to logging.

The 12-1/4" hole logging program consisted of an CAL-BHC-GR, LDT-GR, and one sidewall coring run.

After a wiper trip, the 9-5/8" casing was run and landed at a shoe depth of 2473m. After the first attempt to shear the bottom wiper plug failed, the running tool was backed out and retrieved. The releasing ball was found to be fluid washed. The washout was believed to have been caused by debris falling onto the ball seat and preventing a pressure seal (see Equipment Failure Report No. 4). The plug set and ball were replaced and the hanger running tool rerun. The casing was then successfully cemented. The 9-5/8" seal assembly was set and, after replacing a leaking test cup, pressure tested along with the BOP stack to 200/3500/5000 psi. The 9-5/8" casing was pressure tested against the shear rams to 3500psi.

8-1/2" Hole

Before drilling out, a single level velocity survey was taken at 2407m. The cement and float equipment were drilled out along with 6m of new hole 2489m, where a Phase II PIT was conducted to leakoff at 17.2 ppg EMW.

The 8-1/2" hole was drilled with a packed BHA to core point at 2588m, with mud weight being reduced to 9.6 ppg after drilling out. Core no. 1 was cut from 2588 to 2597.4m with 99.5% recovery. Drilling continued to 2742.2m, where core no. 2 was cut from 2742.2 to 2751.4m with 99.5% recovery. The hole was then drilled with the packed BHA to 2887m. High torque necessitated pulling out of the hole to lay down three of the five stabilizers. Drilling then continued to TD at 2984m. The final bottom hole position had a closure of 794m at 268-1/2° from the wellhead at a TVD of 2811m RKB. A multishot survey was taken on a wiper trip to the 9-5/8" casing shoe prior to logging.

The 8-1/2" hole logging program consisted of the following: DLL-MSFL-GR (tool failure), LDT-CNL-GR, ISF/BHC-MSFL-GR (ISF inoperative), WST, HDT-GR, and one sidewall coring run.

Plug and Abandonment

Balanced open hole plug no. 1 was set across the top of the Turrum formation from 2775 to 2607m. Plug no. 2 was set across the 9-5/8" casing shoe from 2607 to 2438m and, after running the 9-5/8" gauge ring/junk basket to 2310m, pressure tested to 3000 psi. A 9-5/8" bridge plug was set at 2300m, where the setting tool and CCL were left in the hole after the setting tool failed to shear out of the bridge plug.

The 9-5/8" casing was then cut at 350m with a Pengo explosive cutter and retrieved. Plug no. 3 was set across the 9-5/8" stub from 400 to 300m, with 11 bbls squeezed into the 13-3/8" x 9-5/8" annulus. The plug was successfully pressure tested to 1500 psi.

The 13-3/8" casing was cut at 178m with a Pengo explosive cutter and retrieved. Before setting plug no. 4, plug no. 3 was tagged with 15 kips at 295m. Plug no. 4 was then set across the 13-3/8" casing stub from 208 to 118m, with 18 bbls squeezed into the 20" x 13-3/8" annulus. The plug was successfully pressure tested to 500 psi.

The BOP stack and riser were pulled before mechanically cutting the 20" casing at 100m. The casing stub was then retrieved along with the drilling template and four post guidebase.

Pulling Anchors

The anchors were pulled by the workboats Bass Tide and Lady Sonia. The no. 7 anchor line, which had been damaged at the beginning of the well, was replaced at this time (see Equipment Failure Report No. 2). The surveillance boat Flinders Tide was also on location during retrieval of the near-pipeline anchor. The rig pulled in anchor no. 1 and, under tow by the Atlas Dampier, departed for the Wirrah-3 location at 2230 hours on 25th November, 1983.

14231/35-37

3. CASING DATA

WELL WRASSE-1

CSG O.D. IN	WT. LBS/FT	GRADE	CONN.	CSG LENGTH METRES	SHOE DEPTH R.K.B.	CENTRALIZER POSITION	REMARKS
24	610	-	CC	11.23		1 ACROSS EACH COLLAR FOR FIVE COLLARS ABOVE SHOE	PILE JOINT
20	129	X52	JVCC	12.96			CROSSOVER JOINT
20	94	X52	JV	87.18			7 JOINTS
20	94	X52	JV	12.56	208.33		FLOAT SHOE JOINT
13-3/8	54.5	K-55	BTC	12.48		1 ACROSS EACH COLLAR FOR SIX COLLARS ABOVE SHOE	HANGER & PUP JOINT
13-3/8	54.5	K-55	BTC	661.05			57 JOINTS
13-3/8	54.5	K-55	BTC	12.43			FLOAT COLLAR JOINT
13-3/8	54.5	K-55	BTC	12.60	802.55		FLOAT SHOE JOINT
9-5/8	47	N80	BTC	224.53		1 ACROSS EACH COLLAR FOR SIX COLLARS ABOVE SHOE	HANGER & 19 JOINTS
9-5/8	47	N80	BTC	2128.54			181 JOINTS
9-5/8	47	N80	BTC	11.65			FLOAT COLLAR JOINT

CASING DATA

WELL WRASSE-1

CSG O.D. IN.	WT. LBS/FT	GRADE	CONN.	CSG LENGTH METRES	SHOE DEPTH R.K.B	CENTRALIZER POSITION	REMARKS
9-5/8	47	N80	BTC	11.68		SIX FROM 2468 - 2416m	1 JOINT
9-5/8	47	N80	BTC	11.69	2473.68		FLOAT SHOE JOINT

4. CEMENT DATA

WELL WRASSE-1

DATE	DEPTH METRES	TYPE JOB	TYPE CEMENT	AMOUNT	ADDITIVES	REMARKS
28/10/83	208.33	20" CSG LEAD	BLUE CIRCLE TYPE 101	750 SX	2.2% GEL PRE-HYDR-RATED IN FRESHWATER	SEAWATER SLURRY WT 15.8 PPG
28/10/83	208.33	20" CSG TAIL	BLUE CIRCLE TYPE 101	350 SX		SEAWATER SLURRY WT 15.8 PPG
30/10/83	802.55	13-3/8" CSG	BLUE CIRCLE TYPE 101	1050 SX		SEAWATER SLURRY WT 15.8 PPG
11/11/83	2473.68	9-5/8" CSG	BLUE CIRCLE TYPE 101	1326 SX	0.9% HR6L	FRESHWATER SLURRY WT 15.8 PPG
22/11/83	2775 - 2607	P&A OPEN HOLE BAL PLUG	BLUE CIRCLE TYPE 101	267 SX	0.6% HR6L	FRESHWATER SLURRY WT 15.8 PPG
22/11/83	2607 - 2438	P&A OPEN HOLE ACROSS 9-5/8" CSG SHOE BAL PLUG	BLUE CIRCLE TYPE 101	300 SX	0.5% HR6L	FRESHWATER SLURRY WT 15.8 PPG
23/11/83	400 - 300	P&A CASED HOLE BAL PLUG ACROSS 9-5/8" CSG STUB	BLUE CIRCLE TYPE 101	235 SX		SEAWATER SLURRY WT 15.8 PPG
23/11/83	208 - 118	P&A CASED HOLE BAL PLUG ACROSS 13-3/8 CSG STUB	BLUE CIRCLE TYPE 101	500 SX		SEAWATER SLURRY WT 15.8 - 16 PPG

WELL: Wrasse-1

5. SAMPLES, CONVENTIONAL CORES, SIDEWALL CORES

INTERVAL	TYPE
224 - 817.6m	Cuttings samples - 3 sets of washed and dried samples and 3 sacks of washed and bagged samples every 10 metres.
817.6 - 2984m	Cuttings samples - 3 sets of washed and dried samples and 3 sacks of washed and bagged samples every 5 metres.
224 - 2984m	Unwashed can samples every 15 metres.
1930 - 2465m	Sidewall Cores - shot 30, recovered 28.
2597.4 - 2588m	Conventional Core 1, cut 9.4 metres, recovered 9.36 metres.
2742.2 - 2751.4m	Conventional Core 2, cut 9.2 metres, recovered 9.16 metres.
2490 - 2965m	Sidewall Cores, shot 51, recovered 51.

WELL: Wrasse-1

6. WIRELINE LOGS AND SURVEYS

Type and Scale		From	To
	Suite 1		
BHC GR CAL	1:200 1:500	813 (BHC to casing shoe at 208m)	86m
	Suite 2		
BHC GR CAL	1:200 1:500	2480	802m
LDL GR	1:200 1:500	2480	2280m
CST	Shot 30, Recovered 28	2465	1930m
WST	1 level, 2407m (run after casing)		
	Suite 3		
DLL MSFL GR	1:200 1:500	2979	2473m
LDT CNL GR	1:200 1:500	2982	2474m
BHC GR	1:500 1:200	2982	2474m
HDT GR	1:200	2982	2474m
WST	2 levels, 2833m and 2407m		
CST	Shot 51, Recovered 51	2965	2490m

Note: MSFL when run with the DLL failed. It was rerun with the BHC tool and the logs merged by computer on board the rig to give the DLL MSFL GR log.

7. TEMPERATURE RECORD - WRASSE 1

LOGGING RUN	THERMOMETER DEPTH (m) MD	THERMOMETER DEPTH (m) TVD	MAX. RECORDED TEMPERATURE (C^o)	CIRCULATION TIME (t_k) (hours)	TIME AFTER CIRCULATION STOPPED (t)	HORNER TEMPERATURE (C^o)	GEOTHERMAL GRADIENT (C^o/km)
Suite 1							
BHC CAL GR	813	813	34.4	0.5	2.5		
Suite 2							
BHC CAL GR	2480	2349	75.5	1.5	7.25	87.4	34.2
LDT GR	2480		79.5		13.25		
Suite 3							
DLL MSFL GR	2979	2811	102.2	1.2	7.0	112.4	37.6
LDT CNT GR	2982		103.8		12.25		
BHC GR	2982		107.2		19.0		
HDT GR	2982		109.0		26.5		

8. WRASSE-1 DEVIATION SURVEY DATA

Measured Depth (mKB)	Drift Angle (Deg.)	True Vertical Depth (mKB)
1000.00	1/4	1000.00
1030.04	5-1/2	1029.99
1049.11	8	1048.93
1078.00	11-3/4	1077.38
1097.00	14	1095.91
1134.00	19-1/2	1131.32
1168.76	23-1/4	1163.68
1205.69	26-1/2	1197.18
1243.47	29-3/4	1230.50
1291.12	29-1/4	1271.97
1385.12	26-3/4	1354.96
1432.32	25-1/2	1397.34
1492.02	24-3/4	1451.39
1539.11	24-3/4	1494.16
1625.04	24	1572.43
1719.09	24	1658.35
1804.53	23-3/4	1736.48
1899.38	24-1/4	1823.13
1994.28	25-1/4	1909.31
2068.69	26	1976.40
2141.51	26	2041.85
2235.62	25-3/4	2126.53
2283.61	25-3/4	2169.75
2320.79	25-3/4	2204.15
2350.89	25-3/4	2230.36
2378.95	26-1/4	2255.58
2416.70	26-1/4	2289.44
2464.27	26	2332.15
2532.61	25	2393.61
2575.50	23-3/4	2432.98
2729.50	22	2574.87
2873.50	21-1/2	2708.62
2984.00	21-1/2	2811.43

FIGURES

LOCALITY MAP

WRASSE - 1

SCALE - 1:250,000

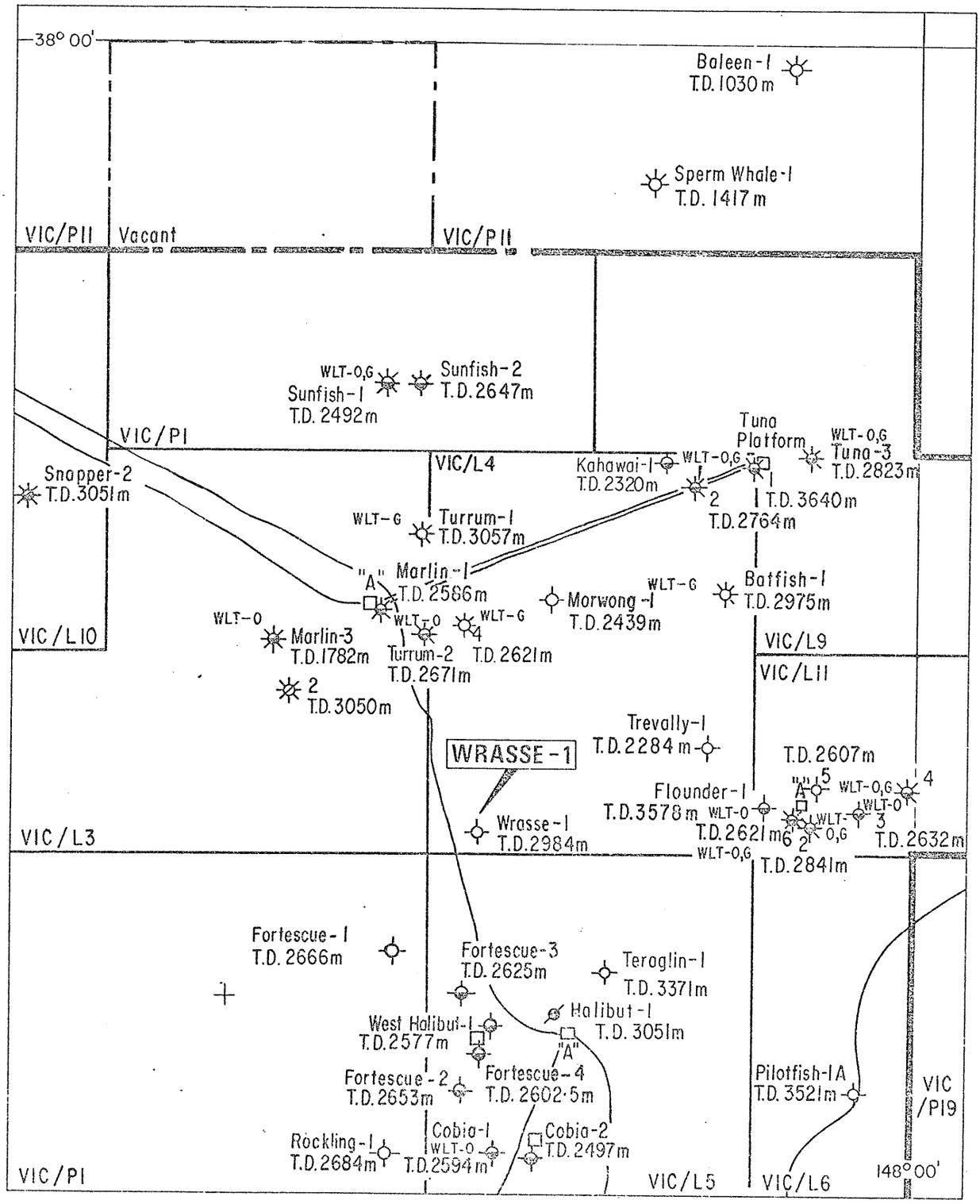


Figure 1

Dwg. 2215/OP/1

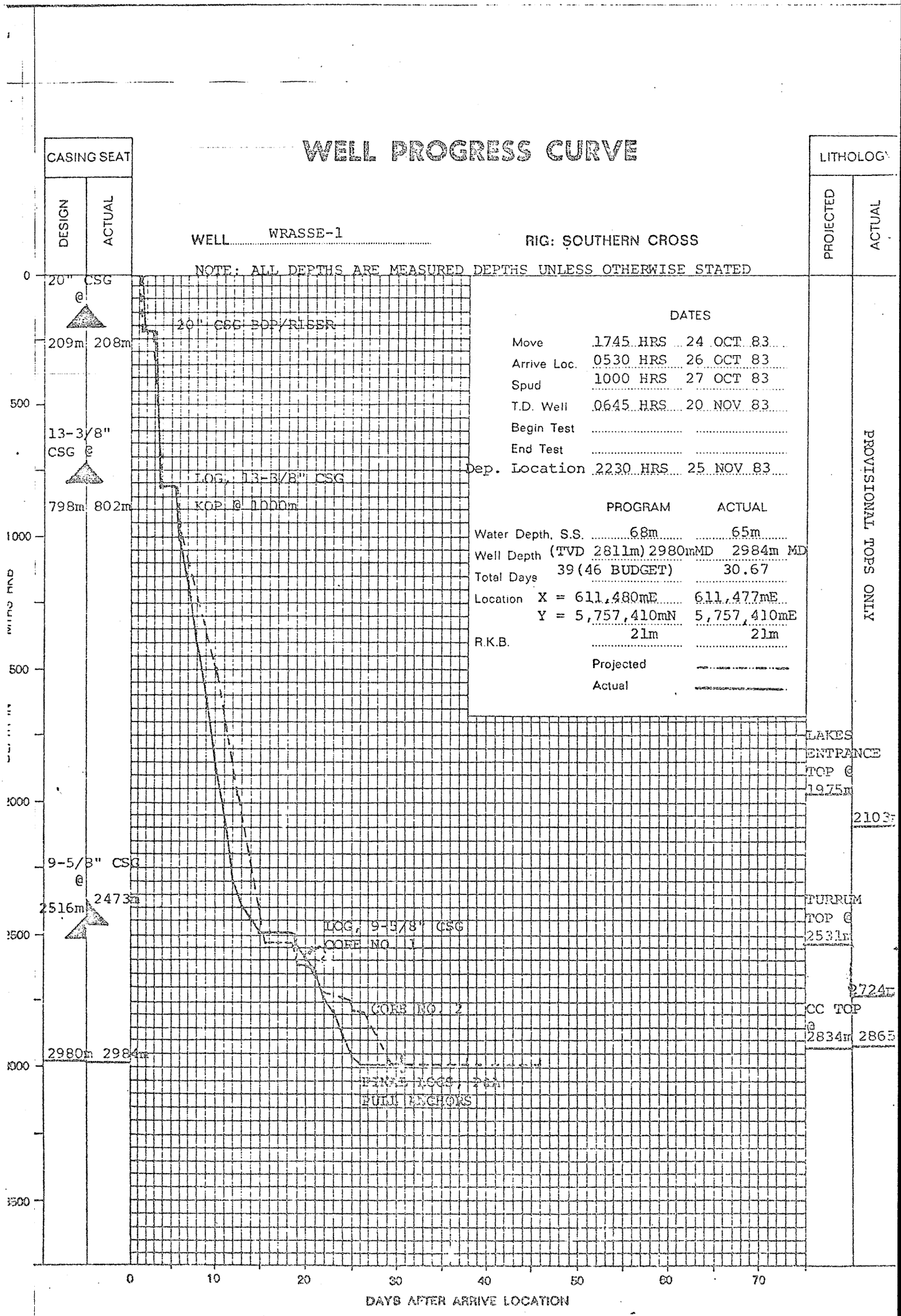
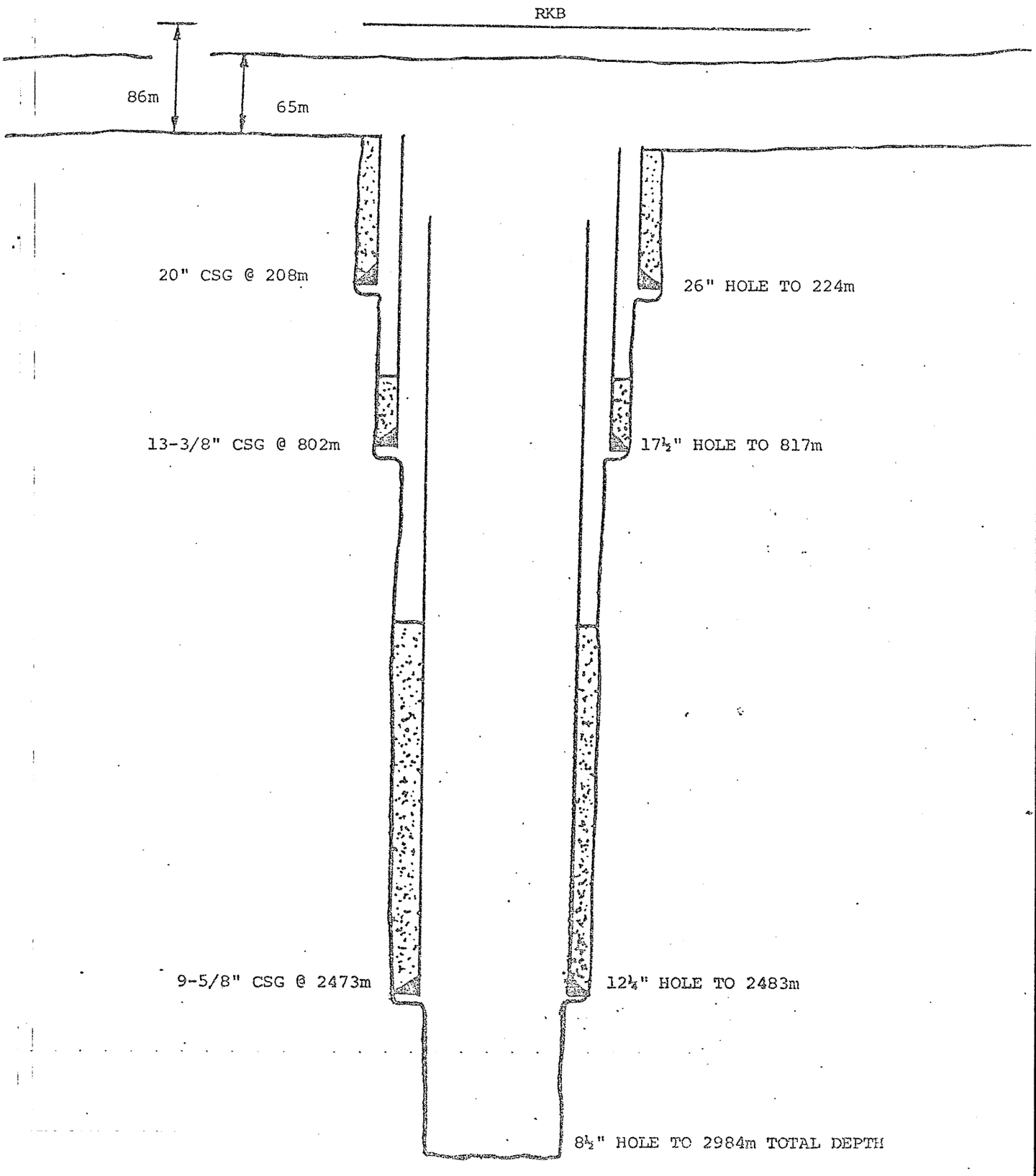

WELL PROGRESS CURVE
CASING SEAT
DESIGN
ACTUAL
LITHOLOGY
PROJECTED
ACTUAL
WELL WRASSE-1
RIG: SOUTHERN CROSS
NOTE: ALL DEPTHS ARE MEASURED DEPTHS UNLESS OTHERWISE STATED
20" CSG @
209m 208m
20" CSG BOP/RISER
13-3/8" CSG @
798m 802m
LOG, 13-3/8" CSG
KOP @ 1000m
9-5/8" CSG @
2516m 2473m
LOG, 9-5/8" CSG
CORE NO. 1
CORE NO. 2
2980m 2984m
FINAL LOGS, P&A
FULL ANCHORS
DATES
Move 1745 HRS 24 OCT 83
Arrive Loc. 0530 HRS 26 OCT 83
Spud 1000 HRS 27 OCT 83
T.D. Well 0645 HRS 20 NOV 83
Begin Test
End Test
Dep. Location 2230 HRS 25 NOV 83
PROGRAM
ACTUAL
Water Depth, S.S. 68m 65m
Well Depth (TVD 2811m) 2980mMD 2984m MD
Total Days 39 (46 BUDGET) 30.67
Location X = 611,480mE 611,477mE
Y = 5,757,410mN 5,757,410mE
R.K.B. 21m 21m
Projected
Actual
PROVISIONAL TOPS ONLY
LAKES ENTRANCE TOP @ 1975m
2103m
TURRUM TOP @ 2531m
2724m
CC TOP @ 2834m 2865
0
500
1000
1500
2000
2500
3000
3500
0
10
20
30
40
50
60
70
DAYS AFTER ARRIVE LOCATION

Figure 2.

WELLBORE SCHEMATIC

WELL: WRASSE-1



NOTE: ALL DEPTHS ARE MEASURED DEPTHS UNLESS OTHERWISE STATED

Figure 3.

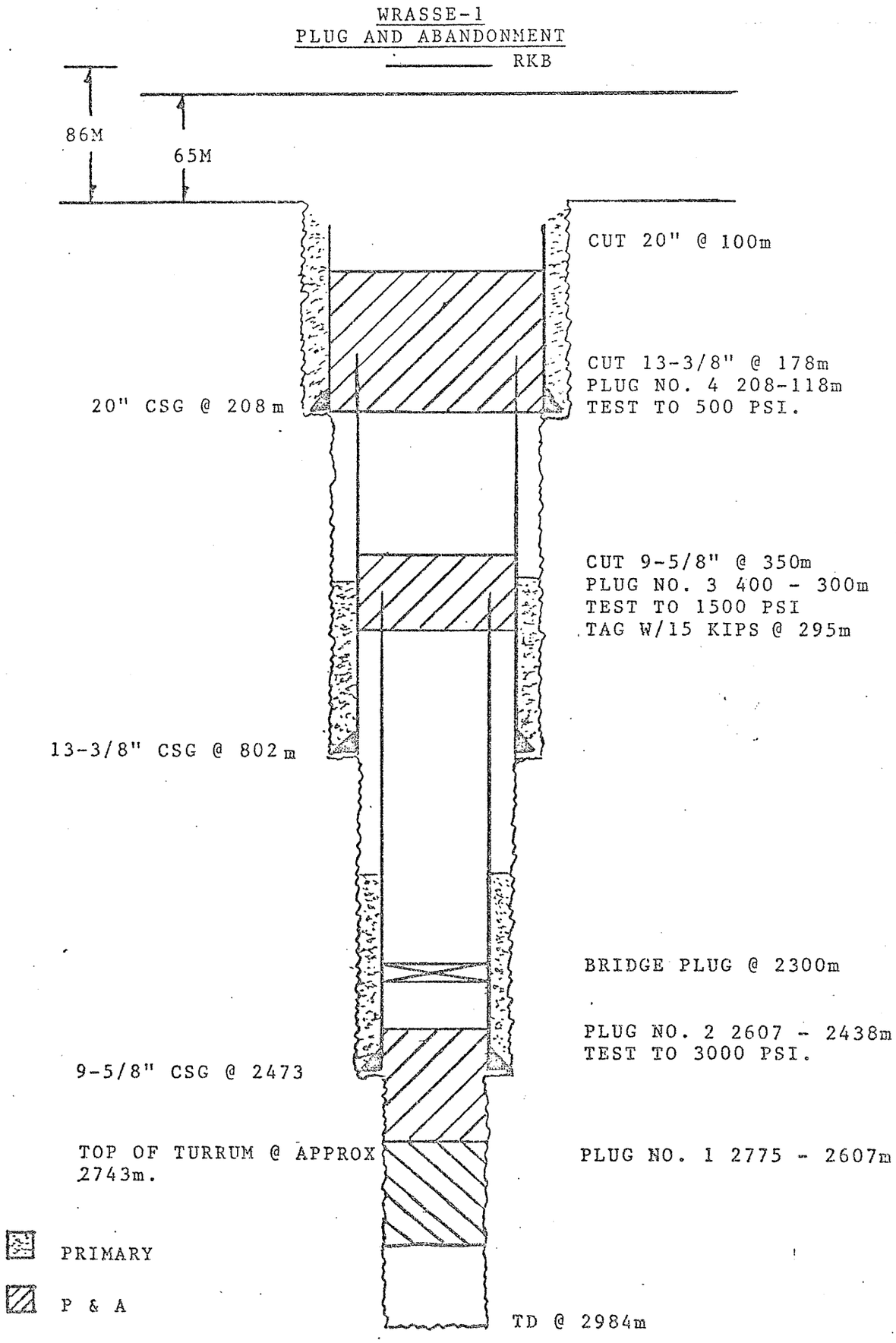

WRASSE-1
PLUG AND ABANDONMENT
RKB
86M
65M
CUT 20" @ 100m
CUT 13-3/8" @ 178m
PLUG NO. 4 208-118m
TEST TO 500 PSI.
20" CSG @ 208 m
CUT 9-5/8" @ 350m
PLUG NO. 3 400 - 300m
TEST TO 1500 PSI
TAG W/15 KIPS @ 295m
13-3/8" CSG @ 802 m
BRIDGE PLUG @ 2300m
PLUG NO. 2 2607 - 2438m
TEST TO 3000 PSI.
9-5/8" CSG @ 2473
TOP OF TURRUM @ APPROX
2743m.
PLUG NO. 1 2775 - 2607m
PRIMARY
P & A
TD @ 2984m
ALL DEPTHS - m RKB

Figure 4.

Figure 5.

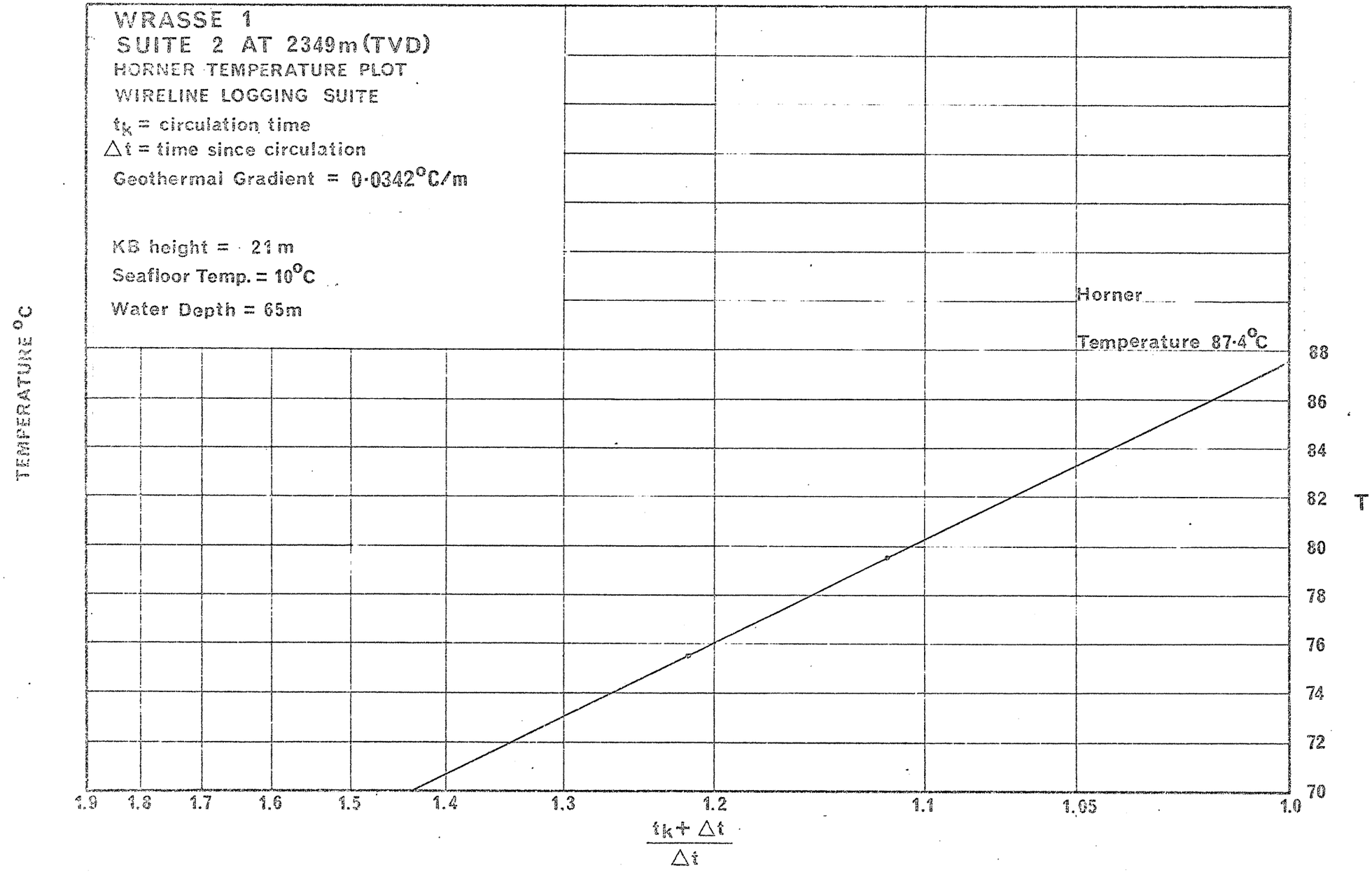
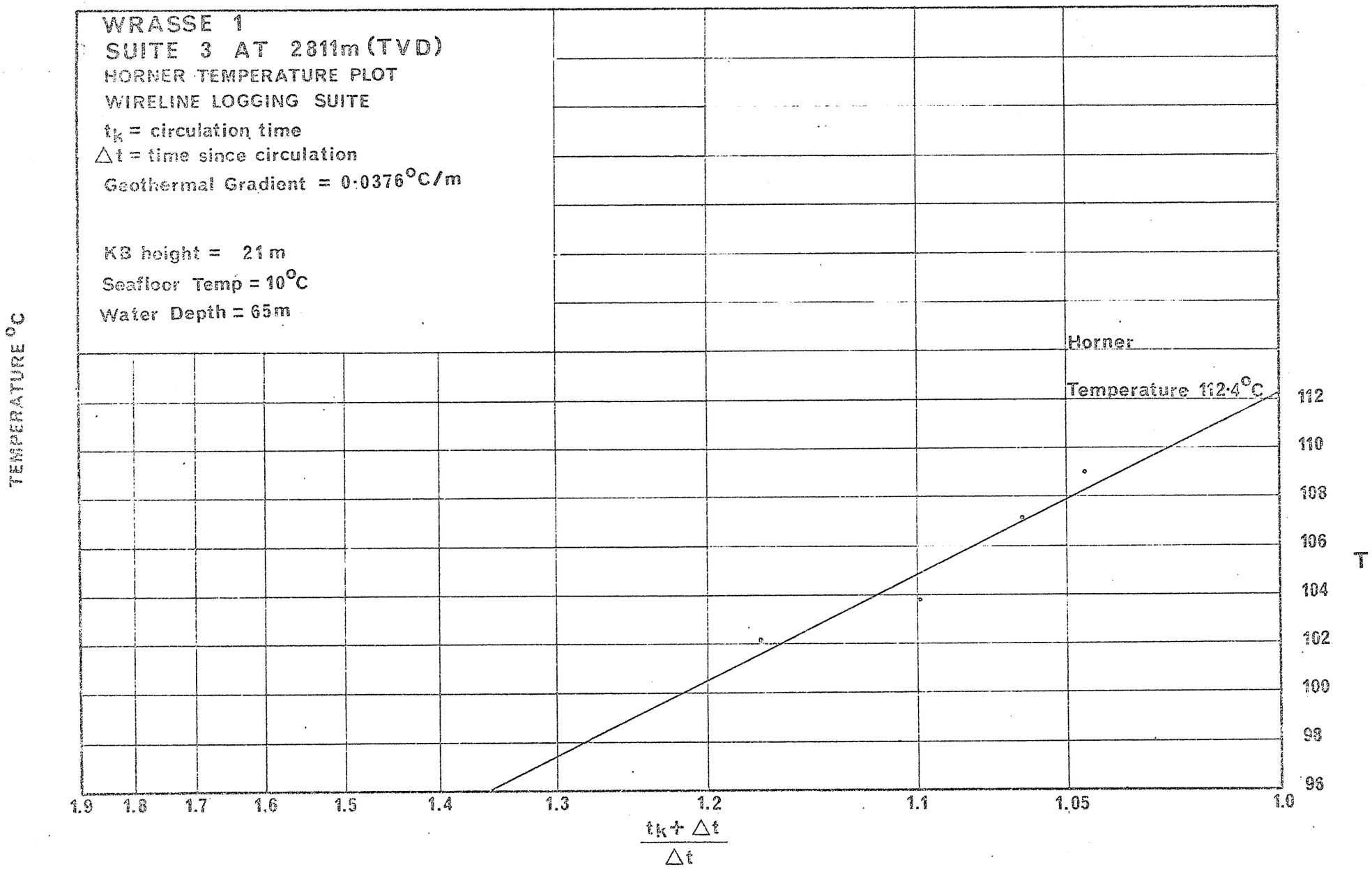

WRASSE 1
SUITE 2 AT 2349m (TVD)
HORNER TEMPERATURE PLOT
WIRELINE LOGGING SUITE
t_K = circulation time
Δt = time since circulation
Geothermal Gradient = 0·0342°C/m
KB height = 21 m
Seafloor Temp. = 10°C
Water Depth = 65m
Horner
Temperature 87·4°C
TEMPERATURE °C
T
88
86
84
82
80
78
76
74
72
70
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.05
1.0
$\frac{t_K + \Delta t}{\Delta t}$

Figure 6.


WRASSE 1
SUITE 3 AT 2811m (TVD)
HORNER TEMPERATURE PLOT
WIRELINE LOGGING SUITE
t_k = circulation time
Δt = time since circulation
Geothermal Gradient = 0·0376°C/m
KB height = 21 m
Seafloor Temp = 10°C
Water Depth = 65m
Horner
Temperature 112·4°C
TEMPERATURE °C
T
112
110
108
106
104
102
100
98
96
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.05
1.0
$\frac{t_k + \Delta t}{\Delta t}$

APPENDIX 1

APPENDIX 1

Lithological Descriptions

WRASSE - 1

Lithology Descriptions

Geologist: A. Lindsay 224--2434m
D. Moreton 2434--2984m

Depth	%	Descriptions
224 - 240m	50	CEMENT: medium dark grey, firm to soft, non calcareous, cement contamination from plug.
	30	CALCARENITE: white to off white, speckly, consists of calcite fragments, fine to medium grained, moderately well sorted, angular to subangular, seems to have detrital origin.
	20	FOSSIL FRAGMENTS: consists of broken shells, fenestral corals, bryozoa, and ostracods.
240 - 250m	60	CEMENT: as above.
	20	CALCARENITE: as above.
	15	FOSSIL FRAGMENTS: as above.
	5	LOOSE QUARTZ GRAINS: brown coloured, medium to coarse grained, very well rounded, iron stained, moderately sorted.
250 - 260m	30	CEMENT: as above.
	50	CALCARENITE: as above.
	20	FOSSIL FRAGMENTS: as above.
	trace	LOOSE QUARTZ GRAINS: as above.
260 - 270m	30	CEMENT: as above.
	40	CALCARENITE: off white, with black speckles, firm, fine to medium grained, moderately well sorted, subangular to angular, appears to have detrital texture.
	30	FOSSIL FRAGMENTS: well worn, consists mainly of broken shells, corals, bryozoa and ostracods, trace forams, colours are mainly white but some are bright orange brown.
270 - 280m	50	CEMENT: as above.
	20	CALCARENITE: as above.
	30	FOSSIL FRAGMENTS: as above, some with aragonitic shells.
280 - 290m	40	CEMENT: as above.
	30	CALCARENITE: as above.
	25	FOSSIL FRAGMENTS: as above.
	5	LOOSE QUARTZ GRAINS: medium to very coarse grained, iron stained, very well rounded.
290 - 300m	20	CEMENT: as above.
	60	CALCARENITE: medium grey overall, consisting of offwhite back ground with numerous dark grey speckles, firm, appears to have detrital texture, well sorted, medium sized grains, angular to subangular.
	20	FOSSIL FRAGMENTS: as above.
300 - 310m	20	CEMENT: as above.
	70	CALCARENITE: as above.
	10	FOSSIL FRAGMENTS: as above.
310 - 320m	20	CEMENT: as above.
	70	CALCARENITE: as above.
	10	FOSSIL FRAGMENTS: as above.

320 - 330m	10	CEMENT: as above.
	80	CALCARENITE: becoming darker with depth, background is now light grey to medium grey with dark grey to black speckles, aggregates are 100% calcareous, firm, medium sized detrital grains, angular to subangular.
	10	FOSSIL FRAGMENTS: mostly white, some are orange brown, others are completely black, they consist of ribbed shell fragments, coral fragments, ostracods and bryozoans.
	trace	LOOSE QUARTZ GRAINS: as above.
330 - 340m	5	CEMENT: as above.
	90	CALCARENITE: as above.
	5	FOSSIL FRAGMENTS: as above.
340 - 350m	10	CEMENT: as above.
	85	CALCARENITE: as above.
	5	FOSSIL FRAGMENTS: as above.
350 - 360m	100	CALCARENITE: medium grey, firm, hars black speckles in grey background, consists of 100% calcareous matter, has detrital texture, fine to medium grained, angular to subangular.
360 - 370m	100	CALCARENITE: as above.
370 - 380m	100	CALCARENITE: as above.
380 - 390m	100	CALCARENITE: as above.
390 - 400m	100	CALCARENITE: as above.
400 - 410m	100	CALCARENITE: as above.
410 - 420m	100	CALCARENITE: as above.
420 - 430m	100	CALCARENITE: as above.
430 - 440m	100	CALCARENITE: medium grey, soft to firm, rounded cuttings consisting of medium grey matrix and grey and dark grey fragments giving a speckly appearance, detrital texture, fine to medium grainsize, subrounded to subangular, slightly fossiliferous, mainly broken spines, becoming silty with depth.
440 - 450m	90	CALCARENITE: as above.
	10	CALCISILTITE: medium grey, soft.
450 - 460m	80	CALCARENITE: as above.
	20	CALCISILTITE: medium grey, soft.
460 - 470m	70	CALCARENITE: as above.
	30	CALCISILTITE: as above.
470 - 480m	50	CALCARENITE: as above.
	50	CALCISILTITE: as above.
480 - 490m	20	CALCARENITE: as above.
	80	CALCISILTITE: medium grey, soft, abundant lime mud matrix, also some sand sized grains of calcareous sand, has a speckly appearance because of grey to black grains, contains very little non calcareous fraction. Up to half of sample consists of fossils, mainly forams and a few broken spicules.

490 - 500m	100	CALCISILTITE: as above, up to a third of sample consists of fossils, mainly forams.
500 - 510m	100	CALCISILTITE: as above, common fossils, mainly forams.
510 - 520m	100	CALCISILTITE: as above, trace forams.
520 - 530m	100	CALCISILTITE: as above, trace forams and broken spines.
530 - 540m	100	CALCISILTITE: medium grey, soft, abundant lime matrix with some sandsized calcareous grains, trace argillaceous content, common forams and broken spines.
540 - 550m	100	CALCISILTITE: as above.
550 - 560m	100	CALCISILTITE: as above.
560 - 570m	100	CALCISILTITE: as above.
570 - 580m	100	CALCISILTITE: as above.
580 - 590m	100	CALCISILTITE: medium grey, firm, speckly appearance because of the presence of dark coloured grains, very little non calcareous matter, matrix consists of lime mud, occasional calcareous sand sized grains. Common broken fossil fragments, common forams, bryozoans.
590 - 600m	100	CALCISILTITE: as above.
600 - 610m	100	CALCISILTITE: as above.
610 - 620m	100	CALCISILTITE: as above
620 - 630m	100	CALCISILTITE: as above.
630 - 640m	100	CALCISILTITE: as above.
640 - 650m	100	CALCISILTITE: medium grey, firm, fine speckly appearance caused by presence of black coloured calcareous silt and sand. Consists of silt sized calcareous grains in a lime mud with minor amounts of sand sized calcareous grains, trace broken echinoid spines.
650 - 660m	100	CALCISILTITE: as above.
660 - 670m	100	CALCISILTITE: as above.
670 - 680m	100	CALCISILTITE: as above.
680 - 690m	100	CALCISILTITE: as above.
690 - 700m	100	CALCISILTITE: medium grey, firm to soft, fine speckly appearance, abundant lime mud matrix, trace forams and echinoid spines.
700 - 710m	100	CALCISILTITE: as above.
710 - 720m	100	CALCISILTITE: as above.
720 - 730m	100	CALCISILTITE: as above.
730 - 740m	100	CALCISILTITE: as above.

740 - 750m	100	CALCISILTITE: medium grey, mostly soft, rich in lime mud matrix, small amount of argillaceous matter, trace forams and echinoid spines.
750 - 760m	100	CALCISILTITE: as above.
760 - 770m	100	CALCISILTITE: as above.
770 - 780m	100	CALCISILTITE: as above.
780 - 790m	100	CALCISILTITE: medium grey, mostly uniform with a slightly speckly appearance due to dark coloured detrital grains, abundant lime mud matrix, also some sand sized calcareous grains, trace forams, well preserved.
790 - 800m	100	CALCISILTITE: as above.
800 - 810m	100	CALCISILTITE: as above.
810 - 817.6m	100	CALCISILTITE: as above.
		Set 13-3/8" casing at 802m. Drilled 12-1/4" hole from 817.6m.
817.6 - 820m	100	CALCISILTITE: contaminated with cement.
820 - 825m	100	CALCISILTITE: medium light grey, spotty appearance because of contrast between darker silt and uniform matrix, soft to firm, becoming slightly argillaceous with depth, a few fine to very fine sand grains, some lithic fragments and a few well rounded, medium to coarse quartz grains. Also occasional loose calcite grains, and rare forams.
825 - 830m	100	CALCISILTITE: as above.
830 - 835m	100	CALCISILTITE: as above.
835 - 840m	100	CALCISILTITE: as above.
840 - 845m	100	CALCISILTITE: as above.
845 - 850m	100	CALCISILTITE: as above.
850 - 855m	100	CALCISILTITE: as above.
855 - 860m	100	CALCISILTITE: medium light grey, uniform appearance with slightly darker, spotty, detrital grains, soft to firm, becoming more argillaceous with depth, having a "gumbo" appearance, occasional forams and echinoid spines.
860 - 865m	100	CALCISILTITE: as above.
865 - 870m	100	CALCISILTITE: as above.
870 - 875m	100	CALCISILTITE: as above.
875 - 880m	100	CALCISILTITE: as above.
880 - 885m	100	CALCISILTITE: as above.

885 - 890m	100	CALCISILTITE: medium light grey, slightly speckly, some arenaceous material, mainly calcareous, siltsized fraction with abundant lime mud matrix. Gradually becoming argillaceous with depth, non calcareous fraction is now approximately 20%. Trace echinoid spines, common forams, occasional loose quartz grains.
890 - 895m	100	CALCISILTITE: as above.
895 - 900m	100	CALCISILTITE: as above.
900 - 905m	100	CALCISILTITE: as above.
905 - 910m	100	CALCISILTITE: as above.
910 - 915m	100	CALCISILTITE: as above.
915 - 920m	100	CALCISILTITE: as above.
920 - 925m	100	CALCISILTITE: medium light grey, fairly uniform, slightly speckly texture, firm to soft, sticky, argillaceous, non calcareous fraction is now about 10-20%. Trace forams and echinoid spines, trace micropyrite.
925 - 930m	100	CALCISILTITE: as above.
930 - 935m	100	CALCISILTITE: as above.
935 - 940m	100	CALCISILTITE: as above.
940 - 945m	100	CALCISILTITE: as above.
945 - 950m	100	CALCISILTITE: as above.
950 - 955m	100	CALCISILTITE: medium light grey, slightly speckly, rich in lime mud matrix, ie. grading into calcisiltite, slightly argillaceous, a few forams per sample, few echinoid spines.
955 - 960m	100	CALCISILTITE: as above.
960 - 965m	100	CALCISILTITE: as above.
965 - 970m	100	CALCISILTITE: as above.
970 - 975m	100	CALCISILTITE: as above.
975 - 980m	100	CALCISILTITE: as above.
980 - 985m	100	CALCISILTITE: as aove.
985 - 990m	100	CALCISILTITE: medium light grey, slightly speckly, soft, sticky, rich in gumbo which consists of argillaceous lime mud.
990 - 995m	100	CALCISILTITE: as above.
995 - 1000m	100	CALCISILTITE: as above.
1000 - 1005m	100	CALCISILTITE: as above.
1005 - 1010m	100	CALCISILTITE: as above.
1010 - 1015m	100	CALCISILTITE: as above.

1015 - 1020m	100	CALCISILTITE: medium light grey, mostly uniform, soft, sticky, rounded cuttings, slightly argillaceous. Matrix consists mainly of lime mud, trace forams and echinoid spines.
1020 - 1025m	100	CALCISILTITE: as above.
1025 - 1030m	100	CALCISILTITE: as above.
1030 - 1035m	100	CALCISILTITE: as above.
1035 - 1040m	100	CALCISILTITE: as above.
1040 - 1045m	25	CALCISILTITE: as above.
	75	DOLOMITE: medium dark brown grey, hard, brittle, angular cuttings, uniform appearance, could contain up to 50% limestone, seems to be cryptocrystalline.
1045 - 1050m	50	CALCISILTITE: as above.
	50	DOLOMITE: as above.
1050 - 1055m	50	CALCISILTITE: as above.
	50	DOLOMITE: as above.
1055 - 1060m	70	CALCISILTITE: as above.
	30	DOLOMITE: as above.
1060 - 1065m	75	CALCISILTITE: as above.
	25	DOLOMITE: as above.
1065 - 1070m	75	CALCISILTITE: very argillaceous, has a gumbo appearance.
	25	DOLOMITE: as above.
1070 - 1075m	80	CALCISILTITE: as above.
	20	DOLOMITE: as above.
1075 - 1080m	100	CALCISILTITE: medium light grey, uniform, soft and sticky when wet, argillaceous, trace forams and echinoid spines.
1080 - 1085m	100	CALCISILTITE: as above.
	trace	DOLOMITE: as above.
1085 - 1090m	100	CALCISILTITE: as above.
1090 - 1095m	100	CALCISILTITE: as above.
1095 - 1100m	100	CALCISILTITE: as above.
1100 - 1105m	100	CALCISILTITE: medium light grey, soft and sticky when wet, uniform texture, abundant calcareous matrix, slightly argillaceous, occasional well preserved forams and echinoid spines, trace pyrite.
1105 - 1110m	100	CALCISILTITE: as above.
1110 - 1115m	100	CALCISILTITE: as above.
1115 - 1120m	100	CALCISILTITE: as above.
1120 - 1125m	100	CALCISILTITE: as above.
1125 - 1130m	100	CALCISILTITE: as above.

1130 - 1135m	100	CALCISILTITE: medium light grey, uniform, soft when wet, crumbly when dry, some calcareous, arenaceous matter, trace loose quartz grains, abundant slightly argillaceous lime mud cement, trace pyrite, trace forams.
1135 - 1140m	100	CALCISILTITE: as above.
1140 - 1145m	100	CALCISILTITE: as above, with abundant forams (up to 15%).
1145 - 1150m	100	CALCISILTITE: as above, with trace forams.
1150 - 1155m	100	CALCISILTITE: as above.
1155 - 1160m	100	CALCISILTITE: as above.
1160 - 1165m	100	CALCISILTITE: medium light grey, soft and sticky when wet, uniform appearance, rounded cuttings, calcareous detrital grains with argillaceous, lime mud matrix, common forams.
1165 - 1170m	100	CALCAREOUS SILTSTONE: medium dark grey, firm to hard, angular cuttings, becoming less calcareous, slightly carbonaceous and argillaceous matrix, no forams, trace pyrite and muscovite.
1170 - 1175m	100	CALCAREOUS SILTSTONE: as above.
1175 - 1180m	100	CALCAREOUS SILTSTONE: as above.
1180 - 1185m	100	CALCAREOUS SILTSTONE: as above.
1185 - 1190m	100	CALCAREOUS SILTSTONE: as above, trace forams.
1190 - 1195m	100	CALCAREOUS SILTSTONE: as above.
1195 - 1200m	100	CALCAREOUS SILTSTONE: as above.
1200 - 1205m	90	CALCAREOUS SILTSTONE: many coloured varieties, from light grey to dark grey, and off white, firm to brittle, moderately calcareous, slightly quartzose, trace forams.
	10	DOLOMITE: medium grey to brown, very hard and brittle, cryptocrystalline.
1205 - 1210m	90	CALCAREOUS SILTSTONE: as above.
	10	DOLOMITE: as above.
1210 - 1215m	100	CALCAREOUS SILTSTONE: as above.
	trace	DOLOMITE: as above.
1215 - 1220m	95	CALCAREOUS SILTSTONE: as above.
	5	DOLOMITE: as above.
1220 - 1225m	100	CALCAREOUS SILTSTONE: as above.
1225 - 1230m	100	CALCAREOUS SILTSTONE: as above.
1230 - 1235m	100	CALCAREOUS SILTSTONE: as above.
1235 - 1240m	100	CALCAREOUS SILTSTONE: as above.
1240 - 1245m	100	CALCAREOUS SILTSTONE: as above.
1245 - 1250m	100	CALCAREOUS SILTSTONE: as above.

1250 - 1255m	100	CALCAREOUS SILTSTONE: medium grey, with minor amounts of light grey, mostly firm, the lighter cuttings being soft, uniform appearance and texture, argillaceous and calcareous matrix, trace forams, common micropyrite.
1255 - 1260m	100	CALCAREOUS SILTSTONE: as above.
1260 - 1265m	100	CALCAREOUS SILTSTONE: as above.
1265 - 1270m	100	CALCAREOUS SILTSTONE: as above.
1270 - 1275m	100	CALCAREOUS SILTSTONE: as above.
1275 - 1280m	100	CALCAREOUS SILTSTONE: off white, medium light grey to medium grey, the lighter cuttings are soft and rounded, the darker cuttings are firm to friable, and are slightly angular, both are argillaceous and slightly pyritic, fossils are uncommon.
1280 - 1285m	100	CALCAREOUS SILTSTONE: as above.
1285 - 1290m	100	CALCAREOUS SILTSTONE: as above.
1290 - 1295m	100	CALCAREOUS SILTSTONE: as above.
1295 - 1300m	100	CALCAREOUS SILTSTONE: as above.
1300 - 1305m	100	CALCAREOUS SILTSTONE: as above.
1305 - 1310m	100	CALCAREOUS SILTSTONE: light grey to medium grey, the lighter cuttings are very soft and sticky, and are rounded. The darker cuttings are firm to friable and have subangular cuttings. The darker cuttings also have some carbonaceous matter in them otherwise they are both rich in argillaceous matter. Trace pyrite and occasional forams, occasional calcite fragments.
1310 - 1315m	100	CALCAREOUS SILTSTONE: as above.
1315 - 1320m	100	CALCAREOUS SILTSTONE: as above.
1320 - 1325m	100	CALCAREOUS SILTSTONE: as above.
1325 - 1330m	100	CALCAREOUS SILTSTONE: as above.
1330 - 1335m	100	CALCAREOUS SILTSTONE: as above.
1335 - 1340m	100	CALCAREOUS SILTSTONE: as above.
1340 - 1345m	100	CALCAREOUS SILTSTONE: as above.
1345 - 1350m	100	CALCAREOUS SILTSTONE: light grey to medium light grey, soft, mostly rounded cuttings although some are slightly angular, detrital grains are calcareous and the abundant matrix in argillaceous lime mud.
	trace	DOLOMITE: dark brown, very hard, brittle and quite angular.
1350 - 1355m	100	CALCAREOUS SILTSTONE: as above.
1355 - 1360m	100	CALCAREOUS SILTSTONE: as above.
1360 - 1365m	100	CALCAREOUS SILTSTONE: as above.

1365 - 1370m	100 trace	CALCAREOUS SILTSTONE: as above. DOLOMITE
1370 - 1375m	100	CALCAREOUS SILTSTONE: light grey to medium light grey, cuttings are soft and rounded to subanuglar. Calcareous detrital grains and an argillaceous matrix and lime mud.
1375 - 1380m	100	CALCAREOUS SILTSTONE: as above.
1380 - 1385m	100	CALCAREOUS SILTSTONE: as above.
1385 - 1390m	100	CALCAREOUS SILTSTONE: as above.
1390 - 1395m	100	CALCAREOUS SILTSTONE: as above.
1395 - 1400m	100	CALCAREOUS SILTSTONE: as above.
1400 - 1405m	100	CALCAREOUS SILTSTONE: as above.
1405 - 1410m	100	CALCAREOUS SILTSTONE: as above.
1410 - 1415m	100	CALCAREOUS SILTSTONE: light to medium light grey, soft and sticky. The darker grains are slightly firmer, mostly uniform in appearance, although some cuttings are speckly, cuttings are mainly rounded, detrital grains are mainly calcareous and the matrix is very argillaceous lime mud, occasional forams are present.
1415 - 1420m	100	CALCAREOUS SILTSTONE: as above.
1420 - 1425m	100	CALCAREOUS SILTSTONE: as above.
1425 - 1430m	100	CALCAREOUS SILTSTONE: as above.
1430 - 1435m	100	CALCAREOUS SILTSTONE: as above.
1435 - 1440m	100	CALCAREOUS SILTSTONE: medium light grey, occasional cuttings are medium grey, cuttings are sticky and slightly angular. The silt is slightly quartzose, otherwise consists of calcareous detrital grains. The matrix is argillaceous lime mud, trace pyrite, trace fossils, mainly forams.
1440 - 1445m	100	CALCAREOUS SILTSTONE: as above.
1445 - 1450m	100	CALCAREOUS SILTSTONE: as above.
1450 - 1455m	100	CALCAREOUS SILTSTONE: as above.
1455 - 1460m	100	CALCAREOUS SILTSTONE: as above.
1460 - 1465m	100	CALCAREOUS SILTSTONE: as above.
1465 - 1470m	100	CALCAREOUS SILTSTONE: as above.
1470 - 1475m	100	CALCAREOUS SILTSTONE: as above.
1475 - 1480m	100	CALCAREOUS SILTSTONE: medium light grey cuttings and medium grey cuttings, soft, occasionally very soft and sticky, cuttings are slightly angular, slightly quartzose, matrix is very argillaceous lime mud, very rare forams (cavings?), finely disseminated pyrite.

1480 - 1485m	100	CALCAREOUS SILTSTONE: as above.
1485 - 1490m	100	CALCAREOUS SILTSTONE: as above, with rare forams.
1490 - 1495m	100	CALCAREOUS SILTSTONE: as above.
1495 - 1500m	100	CALCAREOUS SILTSTONE: as above.
1500 - 1505m	100	CALCAREOUS SILTSTONE: medium light grey and medium grey, soft when wet, brittle and friable when dry, slightly angular cuttings, slightly quartzose, grains matrix is argillaceous lime mud.
1505 - 1510m	100	CALCAREOUS SILTSTONE: as above.
1510 - 1515m	100	CALCAREOUS SILTSTONE: as above.
1515 - 1520m	100	CALCAREOUS SILTSTONE: as above.
1520 - 1525m	100	CALCAREOUS SILTSTONE: as above.
1525 - 1530m	100	CALCAREOUS SILTSTONE: as above.
1530 - 1535m	100	CALCAREOUS SILTSTONE: as above.
1535 - 1540m	100	CALCAREOUS SILTSTONE: as above.
1540 - 1545m	60	CALCAREOUS SILTSTONE: medium light grey, friable, cuttings are subangular, calcareous and quartzose, matrix consists of argillaceous lime mud, trace pyrite.
	40	DOLOMITE: dark olive brown, hard, brittle, very angular cuttings, cryptocrystalline.
1545 - 1550m	95	CALCAREOUS SILTSTONE: as above.
	5	DOLOMITE: as above.
1550 - 1555m	100	CALCAREOUS SILTSTONE: as above.
1555 - 1560m	100	CALCAREOUS SILTSTONE: as above.
1560 - 1565m	100	CALCAREOUS SILTSTONE: as above.
1565 - 1570m	100	CALCAREOUS SILTSTONE: as above.
	trace	DOLOMITE: as above.
1570 - 1575m	100	CALCAREOUS SILTSTONE: as above.
	trace	DOLOMITE: as above.
1575 - 1580m	100	CALCAREOUS SILTSTONE: medium light grey, very friable, argillaceous cement, trace pyrite.
1580 - 1585m	100	CALCAREOUS SILTSTONE: medium light grey, very friable, argillaceous cement, trace pyrite, occasional foram.
1585 - 1590m	100	CALCAREOUS SILTSTONE: as above.
1590 - 1595m	100	CALCAREOUS SILTSTONE: as above
1595 - 1600m	100	CALCAREOUS SILTSTONE: as above.
1600 - 1605m	100	CALCAREOUS SILTSTONE: as above.
1605 - 1610m	100	CALCAREOUS SILTSTONE: as above.

1610 - 1615m	100	CALCAREOUS SILTSTONE: medium light grey, soft to firm, slightly angular cuttings, very calcareous, slightly argillaceous matrix, trace pyrite, occasional foram test.
	trace	DOLOMITE: dark olive brown, very hard, brittle, highly angular cuttings.
1615 - 1620m	100	CALCAREOUS SILTSTONE: as above.
1620 - 1625m	100	CALCAREOUS SILTSTONE: as above.
1625 - 1630m	100	CALCAREOUS SILTSTONE: as above.
1630 - 1635m	100	CALCAREOUS SILTSTONE: as above, with common coarse broken quartz grains, mainly milky white colour.
1635 - 1640m	100	CALCAREOUS SILTSTONE: as above, with common quartz grains as above.
1640 - 1645m	100	CALCAREOUS SILTSTONE: as above.
1645 - 1650m	100	CALCAREOUS SILTSTONE: as above.
1650 - 1655m	100	CALCAREOUS SILTSTONE: as above.
1655 - 1660m	100	CALCAREOUS SILTSTONE: as above.
1660 - 1665m	100	CALCAREOUS SILTSTONE: off white to medium grey, very friable, irregular cuttings, argillaceous matrix, calcareous silt grains, trace pyrite, trace carbonaceous matter in finely speckled pattern in the off white cuttings.
1665 - 1670m	100	CALCAREOUS SILTSTONE: as above.
1670 - 1675m	100	CALCAREOUS SILTSTONE: as above.
1675 - 1680m	100	CALCAREOUS SILTSTONE: as above.
1680 - 1685m	100	CALCAREOUS SILTSTONE: as above.
1685 - 1690m	100	CALCAREOUS SILTSTONE: light grey to light grey brown, very argillaceous in part, grading into claystone, very soft to gummy.
1690 - 1695m	100	CALCAREOUS SILTSTONE: as above.
	trace	DOLOMITE: off white to light grey brown, irregular angular fragments, argillaceous with silty inclusions, hard.
1695 - 1700m	100	CALCAREOUS SILTSTONE: as above.
1700 - 1705m	100	CALCAREOUS SILTSTONE: as above.
1705 - 1710m	60	CALCAREOUS SILTSTONE: as above.
	40	CALCAREOUS CLAYSTONE: medium light grey, firm to soft, mainly rounded cuttings.
1710 - 1715m	80	CALCAREOUS SILTSTONE: as above.
	20	CALCAREOUS CLAYSTONE: as above.
1715 - 1720m	95	CALCAREOUS SILTSTONE: as above, trace forams.
	5	CALCAREOUS CLAYSTONE: as above.
1720 - 1725m	100	CALCAREOUS SILTSTONE: as above.

1725 - 1730m	60	CALCAREOUS SILTSTONE: as above.
	40	CALCARENITE: light grey to tan, calcareous fine to medium detrital grains in a silty matrix, no quartz grains, slightly argillaceous.
1730 - 1735m	10	CALCAREOUS SILTSTONE: as above.
	20	CALCARENITE: as above.
	20	CALCAREOUS CLAYSTONE: as above.
	50	CALCISILTITE: light grey to medium light grey, often has a speckly appearance, abundant argillaceous lime mud matrix, friable, common forams.
1735 - 1740m	70	CALCISILTITE: as above.
	30	CALCAREOUS CLAYSTONE: as above, grading into calcilutite.
1740 - 1745m	75	CALCISILTITE: as above, with trace forams.
	25	CALCAREOUS CLAYSTONE: as above.
1745 - 1750m	85	CALCISILTITE: as above.
	15	CALCAREOUS CLAYSTONE: as above.
1750 - 1755m	75	CALCISILTITE: as above.
	25	CALCAREOUS CLAYSTONE: as above.
1755 - 1760m	100	CALCISILTITE: as above.
1760 - 1765m	100	CALCISILTITE: off white to medium grey, mostly irregular shaped, cuttings calcareous, detrital grains in an argillaceous lime mud matrix. The off white grains ofen have wispy streaks of black carbonaceous matter, trace finely disseminated pyrite in the darker grains, trace forams.
1765 - 1770m	100	CALCISILTITE: as above.
	trace	DOLOMITE: dark olive brown, hard, angular cuttings, cryptocrystalline.
1770 - 1775m	50	CALCARENITE: light grey brown, friable, fine to medium grained, rounded to subrounded (some grains are probably forams), poorly sorted, calcareous to argillaceous cement, trace pyrite, very poor porosity.
	50	CALCISILTITE: as above.
1775 - 1780m	40	CALCARENITE: as above, but consists of very poorly sorted, fine to very fine grains.
	60	CALCISILTITE: as above.
1780 - 1785m	50	CALCARENITE: as above.
	50	CALCISILTITE: as above.
1785 - 1790m	40	CALCARENITE: as above.
	40	CALCISILTITE: as above.
	20	CALCAREOUS CLAYSTONE: medium light grey, soft, sticky, dispersive, very calcareous.
1790 - 1795m	20	CALCARENITE: as above.
	70	CALCISILTITE: as above.
	10	CALCAREOUS CLAYSTONE: as above.
1795 - 1800m	30	CALCARENITE: as above.
	50	CALCISILTITE: as above.
	20	CALCAREOUS CLAYSTONE: as above.

1800 - 1805m	30	CALCARENITE: as above.
	50	CALCISILTITE: as above.
	20	CALCAREOUS CLAYSTONE: as above.
1805 - 1810m	10	CALCARENITE: as above.
	80	CALCISILTITE: as above.
	10	CALCAREOUS CLAYSTONE: as above.
1810 - 1815m	10	CALCARENITE: as above.
	80	CALCISILTITE: as above.
	10	CALCAREOUS CLAYSTONE: as above.
1815 - 1820m	20	CALCARENITE: medium light grey, friable, fine to medium grained, poorly sorted, rounded to subrounded, some grains consist of forams, abundant calcareous/argillaceous matrix and cement, trace pyrite in finely disseminated state.
	80	CALCISILTITE: as above.
1820 - 1825m	5	CALCARENITE: as above.
	95	CALCISILTITE: medium light grey to medium dark grey, also off white, soft to friable, abundant argillaceous lime mud cement, trace pyrite, trace rounded dark coloured pebbles.
1825 - 1830m	100	CALCISILTITE: as above.
1830 - 1835m	100	CALCISILTITE: as above.
1835 - 1840m	100	CALCISILTITE: as above.
1840 - 1845m	100	CALCISILTITE: as above.
1845 - 1850m	100	CALCARENITE: as above.
1850 - 1855m	100	CALCISILTITE: medium light grey to medium dark grey, a few off white cuttings, soft, abundant argillaceous lime mud cement, trace pyrite.
1855 - 1860m	100	CALCISILTITE: as above.
1860 - 1865m	100	CALCISILTITE: as above.
1865 - 1870m	100	CALCISILTITE: as above.
1870 - 1875m	100	CALCISILTITE: a few cuttings are off white, the rest are medium light grey to medium dark grey, mostly even texture, soft, argillaceous and calcareous matrix, trace forams, trace pyrite.
1875 - 1880m	100	CALCISILTITE: as above.
1880 - 1885m	100	CALCISILTITE: as above.
1885 - 1890m	100	CALCISILTITE: as above.
1890 - 1895m	100	CALCISILTITE: medium light grey to medium dark grey, soft, uniform texture, calcareous and argillaceous matrix, trace pyrite, common forams.
1895 -1900m	100	CALCISILTITE: as above.
1900 - 1905m	100	CALCISILTITE: as above.
1905 - 1910m	100	CALCISILTITE: as above.

1910 - 1915m	100	CALCISILTITE: as above.
1915 - 1920m	100	CALCISILTITE: as above.
1920 - 1925m	100	CALCISILTITE: as above.
1925 - 1930m	100	CALCISILTITE: medium light grey to medium dark grey, very soft and fragile, argillaceous and calcareous matrix, trace pyrite, trace forams.
1930 - 1935m	100	CALCISILTITE: as above.
1935 - 1940m	100	CALCISILTITE: as above.
1940 - 1945m	100	CALCISILTITE: as above.
1945 - 1950m	100	CALCISILTITE: as above.
1950 - 1955m	100	CALCISILTITE: as above.
1955 - 1960m	100	CALCISILTITE: as above.
1960 - 1965m	100	CALCISILTITE: as above.
1965 - 1970m	100	CALCISILTITE: as above.
1970 - 1975m	100	CALCISILTITE: as above.
1975 - 1980m	90	CALCISILTITE: medium grey to medium dark grey, soft, uniform texture, calcareous/argillaceous matrix, trace pyrite, common fossils, mainly forams.
	10	CALCARENITE: medium light grey to off white, fine to medium grain size, subrounded, calcareous/argillaceous matrix, trace forams.
	trace	DOLOMITE: dark olive brown, very hard, angular, uniform texture, cryptocrystalline.
1980 - 1985m	95	CALCISILTITE: as above.
	5	CALCARENITE: as above.
	trace	DOLOMITE: as above.
1985 - 1990m	90	CALCISILTITE: as above.
	10	CALCARENITE: as above.
1990 - 1995m	90	CALCISILTITE: as above.
	10	CALCARENITE: as above.
1995 - 2000m	70	CALCISILTITE: as above.
	30	CALCARENITE: as above.
2000 - 2005m	80	CALCISILTITE: as above.
	20	CALCARENITE: as above.
2005 - 2010m	80	CALCISILTITE: as above.
	20	CALCARENITE: as above.
2010 - 2015m	80	CLAYSTONE: medium grey, soft, sticky, dispersive, very calcareous, common forams and echinoid spines.
	10	CALCARENITE: as above.
	10	CALCISILTITE: as above.
2015 - 2020m	80	CLAYSTONE: as above.
	10	CALCARENITE: as above.
	10	CALCISILTITE: as above.
2020 - 2025m	100	CLAYSTONE: as above.

2025 - 2030m	100	CLAYSTONE: as above.
2030 - 2035m	100	CLAYSTONE: as above.
2035 - 2040m	100	CLAYSTONE: as above.
2040 - 2045m	100	CLAYSTONE: as above.
2045 - 2050m	100	CLAYSTONE: as above.
2050 - 2055m	100	CLAYSTONE: as above.
2055 - 2060m	100	CLAYSTONE: as above.
2060 - 2065m	100	CLAYSTONE: as above.
2065 - 2070m	100	CLAYSTONE: as above.
2070 - 2075m	10	CALCARENITE: off white to buff, fine to medium grained, rounded grains, poorly sorted, contains forams.
	90	CLAYSTONE: medium grey to medium dark grey, soft, slightly angular cuttings, very calcareous, pyrite clusters are common, echinoid spines are common, abundant forams.
2075 - 2080m	90	CLAYSTONE: as above, with ostracods.
	10	CALCISILTITE: off white to buff, friable.
2080 - 2085m	90	CLAYSTONE: as above.
	10	CALCISILTITE: as above.
2085 - 2090m	75	CLAYSTONE: as above.
	25	CALCISILTITE: as above.
2090 - 2095m	40	CLAYSTONE: as above.
	60	CALCISILTITE: as above.
2095 - 2100m	40	CLAYSTONE: as above.
	60	CALCISILTITE: as above.
2100 - 2105m	40	CLAYSTONE: as above.
	60	CALCISILTITE: as above.
2105 - 2110m	40	CLAYSTONE: as above.
	60	CALCISILTITE: off white to medium light grey, calcareous silt in a calcareous clay matrix, common echinoid spines, common forams, few ostracods.
2110 - 2115m	50	CLAYSTONE: as above.
	50	CALCISILTITE: as above.
2115 - 2120m	60	CLAYSTONE: as above.
	40	CALCISILTITE: as above.
2120 - 2125m	60	CLAYSTONE: as above.
	40	CALCISILTITE: as above.
2125 - 2130m	100	CLAYSTONE: medium dark grey, soft, uniform appearance, angular, slightly splintery elongated cuttings, slightly calcareous, trace pyrite, few forams and ostracods.
2130 - 2135m	100	CLAYSTONE: as above.
2135 - 2140m	100	CLAYSTONE: as above.

2140 - 2145m	100	CLAYSTONE: as above.
2145 - 2150m	100	CLAYSTONE: as above.
2150 - 2155m	100	CLAYSTONE: as above.
2155 - 2160m	100	CLAYSTONE: medium dark grey, firm, uniform texture and appearance, angular, splintery elongated cuttings, slightly calcareous, few pyrite clusters, mostly non fossiliferous.
2160 - 2165m	100	CLAYSTONE: as above.
2165 - 2170m	100	CLAYSTONE: as above.
2170 - 2175m	100	CLAYSTONE: as above.
2175 - 2180m	100	CLAYSTONE: as above.
2180 - 2185m	100	CLAYSTONE: as above.
2185 - 2190m	100	CLAYSTONE: as above.
2190 - 2195m	100	CLAYSTONE: medium dark grey, soft to firm, uniform appearance and texture, cuttings are angular and elongated, moderately calcareous, becoming slightly silty with depth, trace pyrite clusters, mostly unfossiliferous (a few forams asnd ostracods).
2195 - 2200m	100	CLAYSTONE: as above.
2200 - 2205m	100	CLAYSTONE: as above.
2205 - 2210m	100	CLAYSTONE: as above.
2210 - 2215m	100	CLAYSTONE: as above.
2215 - 2220m	100	CLAYSTONE: as above.
2220 - 2225m	100	CLAYSTONE: medium dark grey, soft to firm, uniform appearance and texture, cuttings are angular and elongated, moderately calcareous, slightly silty, trace pyrite, few microfossils, especially ostracods.
2225 - 2230m	100	CLAYSTONE: as above.
2230 - 2235m	100	CLAYSTONE: as above.
2235 - 2240m	100	CLAYSTONE: as above.
2240 - 2245m	100	CLAYSTONE: as above.
2245 - 2250m	100	CLAYSTONE: as above.
2250 - 2255m	100	CLAYSTONE: medium light grey to medium dark grey, some cuttings are greeny grey, slightly platy shaped cuttings, the darker cuttings are more angular, slightly calcareous, moderate amounts of pyrite, moderate amounts of forams and ostracods, slightly silty.
2255 - 2260m	100	CLAYSTONE: as above.
2260 - 2265m	100	CLAYSTONE: as above.
2265 - 2270m	100	CLAYSTONE: as above.

2270 - 2275m	100	CLAYSTONE: as above.
2275 - 2280m	100	CLAYSTONE: as above.
2280 - 2285m	100	CLAYSTONE: medium light grey, firm to soft, mainly uniform composition, slightly calcareous, mainly angular cuttings, slightly elongated and tabular, trace pyrite, trace forams.
2285 - 2290m	100	CLAYSTONE: as above.
2290 - 2295m	100	CLAYSTONE: as above.
2295 - 2300m	100	CLAYSTONE: as above, pyrite clusters becoming common.
2300 - 2305m	100	CLAYSTONE: medium grey, firm to hard, angular elongated cuttings, slightly to moderately calcareous, barren of fossils.
2305 - 2310m	100	CLAYSTONE: as above.
2310 - 2315m	70	CLAYSTONE: as above.
	30	SHALE: medium dark grey, firm, fissile to subfissile, angular, tabular cuttings, slightly calcareous, slightly silty, trace pyrite, mostly unfossiliferous.
2315 - 2320m	70	CLAYSTONE: as above.
	30	SHALE: as above.
2320 - 2325m	60	CLAYSTONE: as above.
	40	SHALE: as above.
2325 - 2330m	50	CLAYSTONE: as above.
	50	SHALE: as above.
2330 - 2335m	60	SHALE: as above.
	40	CLAYSTONE: as above.
2335 - 2340m	80	SHALE: medium dark grey, some cuttings are slightly brownish, subfissle, angular, elongated and platy cuttings, slightly calcareous, slightly silty, common pyrite clusters, mostly unfossiliferous, trace lignite.
	20	CLAYSTONE: as above.
2340 - 2345m	70	SHALE: as above.
	30	CLAYSTONE: as above.
2345 - 2350m	70	SHALE: as above.
	30	CLAYSTONE: as above.
2350 - 2355m	70	SHALE: as above.
	30	CLAYSTONE: as above.
2355 - 2360m	100	SHALE: as above.
2360 - 2365m	100	SHALE: as above.
2365 - 2370m	100	SHALE: as above.

2370 - 2375m	100	SHALE: medium light grey to medium dark grey, firm to brittle when dry, soft when wet, mostly angular elongated cuttings, tabular, slightly fissile, slightly silty, slightly calcareous, moderate amounts of pyrite clusters, trace muscovite, trace microfossils (forams and ostracods).
2375 - 2380m	100	SHALE: as above.
2380 - 2385m	100	SHALE: with common foram tests.
2385 - 2390m	100	SHALE: as above.
2390 - 2395m	100	SHALE: as above.
2395 - 2400m	100	SHALE: as above.
2400 - 2405m	100	SHALE: as above, with common pyrite clusters and foram tests.
2405 - 2410m	100	SHALE: as above.
2410 - 2415m	100	SHALE: as above.
2415 - 2420m	100	SHALE: medium grey to medium dark grey, firm, cuttings are slightly angular, others are rounded, subfissile, slightly calcareous, micromicaceous, pyrite clusters are common, microfossils are common, mainly forams.
2420 - 2425m	60 40	SHALE: as above. CLAYSTONE: medium grey to medium dark grey, rounded cuttings, non fissile, slightly calcareous, common pyrite clusters, moderate amounts of microfossils, mainly forams, micromicaceous, slightly silty.
2425 - 2430m	40 60	SHALE: as above. CLAYSTONE: as above.
2430 - 2434m	10 90	SHALE: as above. CLAYSTONE: as above.
2434 - 2440m	100	CLAYSTONE: mostly off white to light grey, some cuttings are medium grey, the light cuttings are softer and more rounded, a small portion of the cuttings are angular and a few are slightly flattened; slightly to moderately calcareous, trace pyrite clusters, trace forams.
2440 - 2445m	100	CLAYSTONE: as above.
2445 - 2450m	100	CLAYSTONE: as above.
2450 - 2455m	100	CLAYSTONE: as above.
2455 - 2460m	100	CLAYSTONE: as above.
2460 - 2465m	100	CLAYSTONE: as above.
2465 - 2470m	100	CLAYSTONE: as above.
2470 - 2475m	100	CLAYSTONE: as above.
2475 - 2480m	100	CLAYSTONE: as above.
2480 - 2483m	100	CLAYSTONE: as above.

2483 - 2490m	80	CALCISILTITE: medium dark grey, firm to hard, moderately calcareous, speckled, angular to subrounded cuttings, argillaceous.
	20	CLAYSTONE: light grey, very soft, moderately calcareous, trace carbonaceous streaking.
	trace	PYRITE: very minor pyrite as microcrystalline layers on some parting surfaces.
	trace	LOOSE QUARTZ GRAINS: iron stained, angular, medium to coarse in size.
	trace	BENTHONIC FORAMINIFERA
2490 - 2495m	80	CALCISILTITE: as above.
	20	CLAYSTONE: as above.
	trace	PYRITE
	trace	LOOSE QUARTZ GRAINS
	trace	BENTHONIC FORAMINIFERA
2495 - 2500m	60	CALCISILTITE: as above.
	40	CLAYSTONE: as above.
	trace	PYRITE
2500 - 2505m	60	CALCISILTITE: as above.
	40	CLAYSTONE: as above.
	trace	PYRITE
2505 - 2510m	50	CALCISILTITE: as above.
	50	CLAYSTONE: as above.
	trace	QUARTZ GRAINS
2510 - 2515m	70	CALCISILTITE: as above.
	30	CLAYSTONE: as above.
2515 - 2520m	50	CALCISILTITE: as above.
	50	CLAYSTONE: as above.
	trace	PYRITE
	trace	QUARTZ GRAINS
2520 - 2525m	40	CALCISILTITE: as above.
	60	CLAYSTONE: as above.
2525 - 2530m	40	CALCISILTITE: as above.
	60	CLAYSTONE: as above.
2530 - 2535m	40	CALCISILTITE: medium dark grey, firm to hard, angular cuttings, quartzose, calcareous matrix, slightly argillaceous.
	60	CLAYSTONE: light grey, very soft, moderately calcareous.
	trace	PYRITE: microcrystalline, developed on parting surfaces.
2535 - 2540m	40	CALCISILTITE: as above.
	60	CLAYSTONE: as above.
2540 - 2545m	60	CALCISILTITE: as above.
	40	CLAYSTONE: as above.
	trace	PYRITE
2545 - 2550m	90	CALCISILTITE: cuttings, angular, platy, as above.
	10	CLAYSTONE: as above.
2550 - 2555m	70	CALCISILTITE: as above.
	30	CLAYSTONE: as above.
2555 - 2560m	50	CALCISILTITE: as above, cuttings equidimensional, angular.
	50	CLAYSTONE: as above.

2560 - 2565m	50	CALCISILTITE: as above.
	50	CLAYSTONE: as above.
2565 - 2570m	60	CALCISILTITE: as above.
	40	CLAYSTONE: as above.
2570 - 2575m	70	CALCISILTITE: cuttings becoming platy, splintery.
	30	CLAYSTONE: as above.
2575 - 2580m	60	CALCISILTITE: as above.
	40	CLAYSTONE: as above.
2580 - 2585m	40	CALCISILTITE: as above.
	60	CLAYSTONE: as above.
2585 - 2588m	40	CALCISILTITE: as above.
	60	CLAYSTONE: as above.
2588 - 2597.4m		See Core Description No. 1
2597.4 - 2600m	80	CALCAREOUS SILTSTONE: medium grey, firm to hard, angular cuttings, fine grained, moderately to slightly calcareous, argillaceous, trace micromicaceous.
	20	CALCAREOUS CLAYSTONE: white to medium grey, soft, rounded cuttings, moderately to very calcareous.
	trace	SILTSTONE: dark grey, laminated with white, very calcareous, very hard.
2600 - 2605m	60	CALCAREOUS SILTSTONE: as above.
	40	CALCAREOUS CLAYSTONE: as above, occasional minor carbonaceous flecking.
	trace	SILTSTONE: as above.
2605 - 2610m	30	CALCAREOUS SILTSTONE: as above.
	70	CALCAREOUS CLAYSTONE: as above.
2610 - 2615m	30	CALCAREOUS SILTSTONE: as above.
	70	CALCAREOUS CLAYSTONE: as above.
2615 - 2620m	40	CALCAREOUS SILTSTONE: as above.
	60	CALCAREOUS CLAYSTONE: as above.
2620 - 2625m	20	CALCAREOUS SILTSTONE: as above.
	80	CALCAREOUS CLAYSTONE: as above.
2625 - 2630m	20	CALCAREOUS SILTSTONE: as above.
	80	CALCAREOUS CLAYSTONE: as above.
	trace	CARBONACEOUS SILTSTONE: black, brittle, angular fragments.
	trace	PYRITE: as rounded microcrystalline aggregates.
	trace	?GLAUCONITE: very fine grained, very rare.
2630 - 2635m	20	CALCAREOUS SILTSTONE: as above.
	80	CALCAREOUS CLAYSTONE: as above.
	trace	PYRITE
	trace	GLAUCONITE
2635 - 2640m	5	CALCAREOUS SILTSTONE: medium grey, angular to rounded, firm cuttings.
	95	CALCAREOUS CLAYSTONE: medium to light grey, soft to firm, rounded cuttings.
	trace	PYRITE

2640 - 2645m	5	CALCAREOUS SILTSTONE: as above, very occasional yellow mineral fluorescence.
	95	CALCAREOUS CLAYSTONE: as above.
	trace	CARBONACEOUS SILTSTONE: black, angular, hard fragments, fine grained.
	trace	PYRITE
	trace	GLAUCONITE
2645 - 2650m	10	CALCAREOUS SILTSTONE: as above.
	90	CALCAREOUS CLAYSTONE: as above.
	trace	GLAUCONITE
	trace	PYRITE
2650 - 2655m	10	CALCAREOUS SILTSTONE: as above.
	90	CALCAREOUS CLAYSTONE: as above.
	trace	CARBONACEOUS SILTSTONE
	trace	PYRITE
2655 - 2660m	5	CALCAREOUS SILTSTONE: as above.
	95	CALCAREOUS CLAYSTONE: as above.
	trace	CARBONACEOUS SILTSTONE
	trace	PYRITE
2660 - 2665m	5	CALCAREOUS SILTSTONE: as above.
	95	CALCAREOUS CLAYSTONE: sometimes mottled greys.
2665 - 2670m	5	CALCAREOUS SILTSTONE: as above.
	95	CALCAREOUS CLAYSTONE: as above.
2670 - 2675m	100	CALCAREOUS CLAYSTONE: medium to light grey, sometimes mottled, soft to firm, minor carbonaceous matter, often glauconitic.
	trace	CARBONACEOUS SILTSTONE: dark grey to black, hard, angular cuttings.
2675 - 2680m	40	CALCAREOUS CLAYSTONE: as above.
	60	CALCAREOUS SILTSTONE: medium grey, firm to hard, angular cuttings.
	trace	CARBONACEOUS SILTSTONE.
2680 - 2685m	90	CALCAREOUS CLAYSTONE: as above.
	10	CALCAREOUS SILTSTONE: as above.
2685 - 2690m	90	CALCAREOUS CLAYSTONE: as above.
	10	CALCAREOUS SILTSTONE: as above.
2690 - 2695m	90	CALCAREOUS CLAYSTONE: as above.
	10	CALCAREOUS SILTSTONE: as above.
	trace	GLAUCONITE
2695 - 2700m	95	CALCAREOUS CLAYSTONE: as above.
	5	CALCAREOUS SILTSTONE: as above.
2700 - 2705m	95	CALCAREOUS CLAYSTONE: as above.
	5	CALCAREOUS SILTSTONE: as above.
2705 - 2710m	60	CALCAREOUS CLAYSTONE: as above.
	40	CALCAREOUS SILTSTONE: as above.
2710 - 2715m	80	CALCAREOUS CLAYSTONE: as above.
	20	CALCAREOUS SILTSTONE: as above.
2715 - 2720m	50	CALCAREOUS CLAYSTONE: as above.
	50	CALCAREOUS SILTSTONE: as above.

2720 - 2725m	80	CALCAREOUS SILTSTONE: medium grey to dark grey, firm to hard, angular cuttings, micromicaceous, quartzose, moderately calcareous, carbonaceous in places.
	20	CALCAREOUS CLAYSTONE: light grey, soft, modertely to very calcareous, trace glauconite.
	trace	PYRITE
	trace	QUARTZ GRAINS: angular, opaque, varied grain sizes, very occasional.
2725 - 2730m	70	CALCAREOUS SILTSTONE: as above.
	30	CALCAREOUS CLAYSTONE: as above.
	trace	PYRITE
	trace	QUARTZ GRAINS: more common.
	trace	GLAUCONITE: as individual grains.
2730 - 2735m	60	CALCAREOUS SILTSTONE: as above.
	35	CALCAREOUS CLAYSTONE: becoming firmer.
	5	QUARTZ GRAINS: as above.
	trace	PYRITE
	trace	GLAUCONITE
2735 - 2740m	60	CALCAREOUS SILTSTONE: as above.
	35	CALCAREOUS CLAYSTONE: as above.
	5	QUARTZ GRAINS: as above.
	trace	PYRITE
	trace	GLAUCONITE
2740 - 2742.2m	60	CALCAREOUS SILTSTONE: as above.
	35	CALCAREOUS CLAYSTONE: as above.
	5	QUARTZ GRAINS: as above.
	trace	PYRITE
	trace	GLAUCONITE
2742.2-2751.4m		See Core Description No. 2
2751.4 - 2755m	30	CARBONACEOUS SILTSTONE: dark brown to black, rounded cuttings, firm, occasionally hard.
	40	CALCAREOUS SILTSTONE: medium grey, hard, angular cuttings, moderately calcareous, occasionally micromicaceous, glauconitic, quartzose.
	30	CALCAREOUS CLAYSTONE: light grey, often silty, soft to firm.
	trace	QUARTZ GRAINS
	trace	GLAUCONITE
2755 - 2760m	50	SILTSTONE: black to dark grey brown, firm to hard, rounded to angular cuttings, quartzose, argillaceous, carbonaceous, glauconitic, micromicaceous.
	45	SILTSTONE: dark medium grey to light grey, firm to hard, generally angular cuttings, quartzose, slightly to moderately calcareous, glauconitic.
	5	QUARTZ GRAINS: poorly sorted, angular, coarse to fine grained.
	trace	GLAUCONITE
2760 - 2765m	40	SILTSTONE: black to dark grey brown, as above.
	60	SILTSTONE: dark medium grey to light grey, as above.
	trace	QUARTZ GRAINS
	trace	GLAUCONITE

2765 - 2770m	30	SILTSTONE: black to dark grey brown, as above.
	65	SILTSTONE: dark medium grey to light grey, as above.
	5	QUARTZ GRAINS: as above.
	trace	GLAUCONITE
2770 - 2775m	30	SILTSTONE: black to dark grey brown, as above.
	65	SILTSTONE: dark medium grey to light grey, as above.
	5	QUARTZ GRAINS: as above.
	trace	GLAUCONITE
2775 - 2780m	10	SILTSTONE: black to dark grey brown, as above.
	60	SILTSTONE: dark medium grey to light grey, as above.
	30	QUARTZ GRAINS: no shows.
	trace	GLAUCONITE
2780 - 2785m	10	SILTSTONE: black to dark grey brown.
	60	SILTSTONE: dark medium grey to light grey.
	30	QUARTZ GRAINS: as above.
	trace	GLAUCONITE
2785 - 2790m	10	SILTSTONE: black to dark grey, brittle, fine grained.
	50	SILTSTONE: medium to light grey, quartzose, slightly calcareous, tending to be red brown when argillaceous, often in angular aggregates associated with glauconite.
	40	QUARTZ GRAINS: loose, clear or frosted, angular, fine to coarse grains, no shows, poorly sorted.
	trace	GLAUCONITE PELLETS
2790 - 2795m	5	SILTSTONE: black to dark grey.
	50	SILTSTONE: medium to light grey.
	45	QUARTZ GRAINS
	trace	GLAUCONITE PELLETS
2795 - 2800m	40	SILTSTONE: medium to light grey,
	60	QUARTZ GRAINS: as above, some tightly cemented in aggregates, with carbonate cement and minor glauconite, probably has moderate porosity, no shows.
	trace	SILTSTONE: black to medium grey.
	trace	GLAUCONITE
2800 - 2805m	60	SILTSTONE: medium to light grey.
	40	QUARTZ GRAINS: as above.
	trace	SILTSTONE: black to medium grey.
	trace	GLAUCONITE
2805 - 2810m	60	SILTSTONE: medium to light grey.
	40	QUARTZ GRAINS: as above.
	trace	SILTSTONE: black to medium grey.
	trace	GLAUCONITE
2810 - 2815m	40	SILTSTONE: medium to light grey, occasionally reddish brown.
	50	QUARTZ GRAINS: as above.
	10	SILTSTONE: dark grey to black.
	trace	GLAUCONITE

2815 - 2820m	60	SANDSTONE: loose, clear, angular, quartz grains, poorly sorted, coarse to fine grained, moderate visual porosity, no matrix, no cement, no shows.
	40	SILTSTONE: light grey, medium grey to red brown, hard, angular cuttings, argillaceous, non calcareous, very minor carbonaceous material.
	trace	GLAUCONITE: very minor.
2820 - 2825m	70	SANDSTONE: as above.
	30	SILTSTONE: as above.
	trace	GLAUCONITE
2825 - 2830m	80	SANDSTONE: as above.
	20	SILTSTONE: as above.
	trace	GLAUCONITE
2830 - 2835m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
	trace	GLAUCONITE
2835 - 2840m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
	trace	GLAUCONITE
2840 - 2845m	70	SANDSTONE: as above.
	30	SILTSTONE: as above.
2845 - 2850m	80	SANDSTONE: as above, but with finer aggregates with dolomitic cement, has yellow mineral fluorescence, no cut, no shows, very poor visual porosity.
	20	SILTSTONE: as above.
	trace	GLAUCONITE
2850 - 2855m	70	SANDSTONE: white to clear, loose quartz grains, with finer aggregates; loose grains are medium to coarse grained, angular to rounded, aggregates (30%) are fine grained, with no matrix and a dolomitic cement, good visual porosity, no shows, dolomite has minor yellow mineral fluorescence.
	30	SILTSTONE: red brown to light to medium grey, firm to hard, angular to rounded cuttings, argillaceous, quartzose.
	trace	GLAUCONITE
2855 - 2860m	60	SANDSTONE: loose grains 30%, aggregates 70%.
	40	SILTSTONE: as above.
	trace	GLAUCONITE
2860 - 2865m	70	SANDSTONE: loose grains 80%, aggregates 20%.
	30	SILTSTONE: as above.
	trace	GLAUCONITE
2865 - 2870m	40	SANDSTONE: loose grains 30%, aggregates 70%.
	60	SILTSTONE: as above.
	trace	GLAUCONITE
2870 - 2875m	90	SANDSTONE: loose grains 80%, aggregates 20%.
	10	SILTSTONE: as above.
	trace	GLAUCONITE
2875 - 2880m	90	SANDSTONE: loose grains 80%, aggregates 20%.
	10	SILTSTONE: as above.

2880 - 2885m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
2885 - 2890m	80	SANDSTONE: as above.
	20	SILTSTONE: as above.
2890 - 2895m	40	SANDSTONE: as above.
	60	SILTSTONE: as above.
2895 - 2900m	80	SANDSTONE: 90% loose angular grains.
	20	SILTSTONE: as above.
2900 - 2905m	60	SANDSTONE: as above.
	40	SILTSTONE: dark green grey to light tan, quartzose, hard angular cuttings, argillaceous, occasionally glauconitic, minor carbonate, sometimes mottled and laminated.
2905 - 2910m	50	SANDSTONE: as above, dominantly fine aggregates, very well cemented.
	50	SILTSTONE: as above.
2910 - 2915m	30	SANDSTONE: as above.
	70	SILTSTONE: as above.
2915 - 2920m	30	SANDSTONE: as above.
	65	SILTSTONE: as above.
	5	COAL: black, conchoidal fracture.
2920 - 2925m	70	SANDSTONE: 50% fine aggregates.
	30	SILTSTONE: as above.
	trace	COAL
2925 - 2930m	80	SANDSTONE: 20% fine aggregates, 80% coarse angular grains.
	20	SILTSTONE: as above.
2930 - 2935m	80	SANDSTONE: as above.
	20	SILTSTONE: as above.
2935 - 2940m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
2940 - 2945m	40	SANDSTONE: clear to white, 60% loose quartz, angular to subrounded, moderately sorted, 40% fine aggregates, siliceous and dolomitic cement, occasional yellow mineral fluorescence.
	55	SILTSTONE: medium grey to light grey green, hard, angular fragments, slightly carbonaceous, quartzose, slightly argillaceous.
	5	COAL
2945 - 2950m	45	SANDSTONE: as above.
	50	SILTSTONE: as above.
	5	COAL
2950 - 2955m	35	SANDSTONE: as above.
	65	SILTSTONE: as above.
	trace	COAL
2955 - 2960m	40	SANDSTONE: as above.
	60	SILTSTONE: as above.
	trace	COAL
2960 - 2965m	70	SANDSTONE: as above.
	30	SILTSTONE: as above.
	trace	COAL

2965 - 2970m	80	SANDSTONE: as above.
	20	SILTSTONE: as above.
	trace	COAL
2970 - 2975m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
2975 - 2980m	40	SANDSTONE: as above.
	60	SILTSTONE: as above.
2980 - 2984m	40	SANDSTONE: as above.
	60	SILTSTONE: as above.

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APPENDIX 2

APPENDIX 2

APPENDIX 2

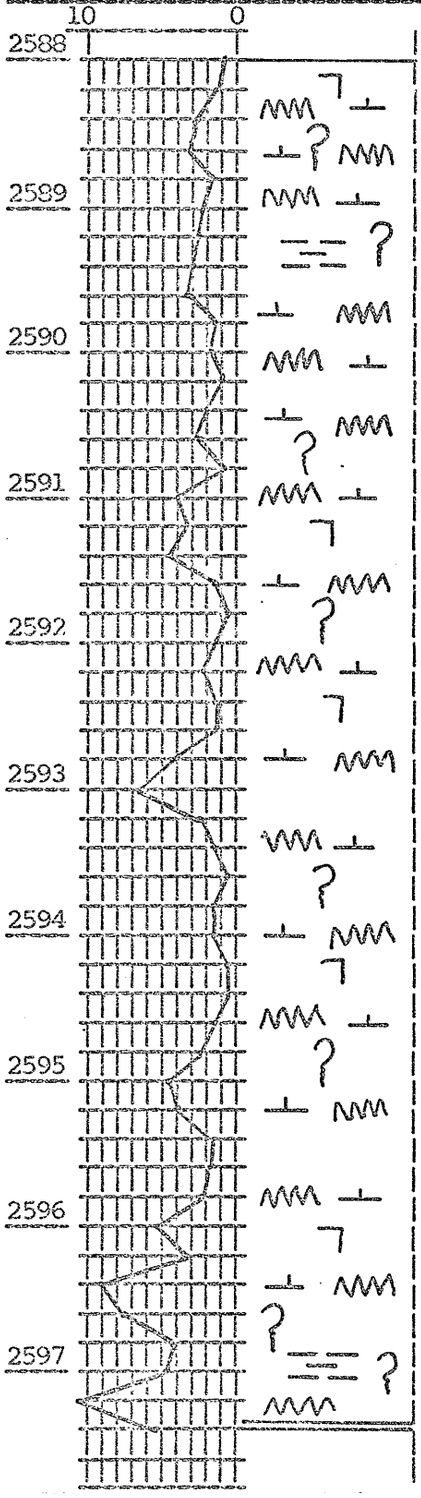
Core Descriptions

Core No. 1

Well : Wrasse-1

Interval Cored : 2588-2597.4m
Cut : 9.4m
Bit Type : RC-4
Described by : D. Moreton

Recovered : 9.36m (99.5%)
Bit Size : 8-1/2 ins.
Date : 15/11/83

Int. (m)	Depth & ROP (m/hr)	Graphic	Shows	Descriptive Lithology
2588	10 0			2588.0 - 2589.2m CALCAREOUS SILTSTONE: medium grey, hard, massive, very fine grained, quartzose, well sorted, argillaceous matrix, moderately calcareous, micromicaceous with greenish reduction spots on fracture surfaces, subparallel to bedding.
2589				2589.2 - 2589.6m CALCAREOUS SILTSTONE: medium dark grey, more argillaceous, becoming subfissile, distinct bedding surfaces, moderately calcareous.
2590				2589.6 - 2590.8m CALCAREOUS SILTSTONE: as in 2588.0-2589.20m.
2591				2590.8 - 2591.45m CALCAREOUS SILTSTONE: as in 2589.2-2589.6m.
2592				2591.45 - 2593.25m CALCAREOUS SILTSTONE: medium grey, dominantly massive but with occasional subfissile intervals that are more argillaceous, 2 to 10 cm thick, hard, very fine grained, well sorted, moderately calcareous, greenish reduced areas also evident on fracture surfaces.
2593				2593.25 - 2596.45m CALCAREOUS SILTSTONE: massive, medium grey, very fine grained, quartzose, moderately calcareous, micromicaceous, as in 2588.0 -2589.20m.
2594				2596.45 - 2597.36m CALCAREOUS SILTSTONE: medium dark grey, tending to be subfissile, firm to hard, very argillaceous, moderately calcareous - micromicaceous.
2595				2597.36-2597.4m NO RECOVERY.
2596				
2597				

Core No.	2	Well	: Wrasse-1
Interval Cored	: 2742.2-2751.4m		
Cut	: 9.2m	Recovered	: 9.16m (99.5%)
Bit Type	: RC-4	Bit Size	: 8-1/2 ins.
Described by	: D. Moreton	Date	: 17/11/83

Int. (m)	Depth & ROP (m/hr)	Graphic	Shows	Descriptive Lithology
2742	10 0			2742.2 - 2751.36m SILTSTONE: massive, dark grey to dark grey green, structureless, changes within the core are subtle and gradational. No sedimentary structures are evident within the core.
2743				A friable to hard siltstone, quartzose, well cemented in an argillaceous matrix. Contains up to 5% glauconite. It is slightly calcareous and micromicaceous. It has abundant individual quartz grains, very angular, very poorly sorted, fine to very coarse grained. Grains often have frosted faces.
2744				There are rare claystone clasts, irregularly shaped and locally derived.
2745				The lithology observed could be consistent with a "mass flow" or major slump type deposit. No grading is evident within the core and the very poor sorting of constituents suggests a local source.
2746				2751.36 - 2751.40m NO RECOVERY.
2747				
2748				
2749				
2750				
2751				

14291

14301

APPENDIX 3

APPENDIX 3

APPENDIX 3

Sidewall Core Descriptions

WRASSE-1

SIDEWALL CORE DESCRIPTIONS

Suite 2 Run 1 Shot 30 Recovered 28 Described by: D. Moreton

No.	Depth	Rec. (mm)	Rock Type	Description
1	2465.0	40	Calcareous Claystone	Medium grey, soft, very calcareous, massive, uniform, very minor microcrystalline pyrite.
2	2455.0	40	Calcareous Claystone	Medium light grey, firm, very calcareous, massive, minor rounded clasts of firm to hard darker grey calcareous mudstone, trace pyrite.
3	2440.0	45	Calcareous Claystone	As above.
4	2425.0	35	Calcareous Claystone	Medium to medium dark grey, massive, slightly speckled with white calcareous grains, firm, very slightly slicken sided on broken surfaces.
5	2407.0	0		No Recovery.
6	2367.9	50	Calcareous Claystone	Medium dark grey, firm, uniform, occasional microcrystalline pyrite aggregates.
7	2351.0	50	Calcareous Claystone	Medium grey, soft, with firmer dark grey clasts also of calcareous claystone, very minor pyrite.
8	2344.0	50	Calcareous Claystone	As above.
9	2332.0	30	Calcareous Claystone	Light to medium grey, soft, slightly speckled texture, very calcareous.
10	2272.0	40	Calcareous Claystone	As above.
11	2258.0	25	Calcareous Claystone	As above.
12	2242.0	0		No Recovery.
13	2236.0	30	Calcareous Claystone	Medium dark grey, firm, becoming subfissile, slightly slicken sided on parting surfaces, moderately calcareous.
14	2203.0	45	Calcareous Claystone	As above.
15	2180.0	50	Calcareous Claystone	Medium dark grey, soft, uniform.
16	2170.0	40	Calcareous Claystone	Medium grey, firm, tending to be subfissile, very fine grained pyrite developed on parting surfaces, moderately calcareous.
17	2157.0	45	Calcareous Claystone	As above.
18	2139.0	25	Calcareous Claystone	Medium light grey, as above.

19	2120.5	30	Calcareous Claystone	As above.
20	2100.0	25	Calcisiltite	Medium grey, firm to hard, fine grained, very calcareous, argillaceous matrix, minor fossil fragments.
21	2085.0	30	Calcisiltite	As above.
22	2065.0	20	Calcisiltite	As above.
23	2045.0	25	Calcisiltite	As above.
24	2020.0	25	Calcisiltite	As above, very argillaceous.
25	2010.0	30	Calcareous Claystone	Medium grey, firm, uniform, minor fossil fragments, minor pyrite, very calcareous.
26	2000.0	20	Calcareous Claystone	As above.
27	1990.0	25	Calcareous Claystone	As above, becoming more silty.
28	1980.0	30	Calcareous Claystone	As above.
29	1950.0	30	Calcareous Claystone	As above.
30	1930.0	25	Calcareous Claystone	As above.

Suite 3 Run 2 Shot 51 Recovered 51 Described by: D. Moreton

31	2977.0	10	Siltstone	Dark green grey, firm to hard, quartzose, some coarser grains, very slightly calcareous, trace carbonaceous, argillaceous.
32	2967.5	20	Siltstone	Dark green grey, white, mottled, as above.
33	2952.0	15	Siltstone	Medium light grey, soft to firm, non calcareous, laminated, argillaceous.
34	2936.5	5	Siltstone	Medium grey, as above.
35	2918.0	10	Siltstone	As above.
36	2901.0	15	Siltstone	As above, dark grey, very argillaceous.
37	2865.0	30	Claystone	Dark brownish grey, firm, massive, very fine grained.
38	2860.0	30	Claystone	As above.
39	2848.0	30	Siltstone	Laminated off white and dark grey, soft to firm, argillaceous, carbonaceous.
40	2838.0	30	Sandstone	Medium grey, very fine grained, well sorted, friable, subangular, argillaceous matrix, poor visual porosity, no shows.
41	2837.0	15	Sandstone	Medium to dark grey, as above.
42	2833.0	5	Sandstone	Medium greenish grey, coarser grained, very argillaceous.

43	2826.0	30	Siltstone	Dark green grey, very argillaceous, minor coarser grains of angular quartz, micromicaceous, carbonaceous and much glauconite, trace calcareous.
44	2822.0	30	Sandstone	Mottled green, grey and white, quartzose, angular, medium to coarse grained, very argillaceous, very glauconitic, very poor porosity, no shows.
45	2817.0	25	Sandstone	As above.
46	2812.0	50	Sandstone	As above.
47	2808.0	40	Siltstone	Dark grey green, minor quartz, very argillaceous, very glauconitic, trace calcareous.
48	2802.0	30	Sandstone	As above.
49	2798.0	60	Siltstone	As above.
50	2794.0	50	Siltstone	As above, becoming reddish brown.
51	2790.0	50	Siltstone	As above.
52	2784.0	30	Siltstone	As above.
53	2778.0	30	Siltstone	As above, dark green to black.
54	2773.0	40	Siltstone	As above.
55	2769.0	40	Siltstone	As above.
56	2764.0	45	Siltstone	As above, becoming reddish brown.
57	2759.0	25	Siltstone	As above, dark green to black.
58	2754.0	30	Siltstone	As above.
59	2737.0	40	Siltstone	As above, becoming slightly more calcareous.
60	2733.0	30	Claystone	Dark grey to black, firm, very argillaceous, slightly calcareous, carbonaceous, glauconitic.
61	2729.0	30	Claystone	Medium dark grey, as above, moderately calcareous.
62	2723.0	30	Claystone	As above.
63	2719.0	20	Claystone	Medium grey, becoming very calcareous.
64	2715.0	20	Claystone	As above.
65	2711.0	20	Claystone	As above.
66	2707.0	15	Claystone	As above.
67	2703.0	15	Claystone	As above.
68	2699.0	35	Claystone	As above.
69	2690.0	35	Claystone	As above.
70	2680.0	20	Claystone	As above.

71	2662.0	25	Claystone	As above.
72	2644.0	10	Claystone	As above.
73	2626.0	20	Claystone	Medium grey, firm, uniform, very argillaceous, very calcareous, trace carbonaceous, trace glauconitic.
74	2608.0	25	Claystone	As above.
75	2584.0	20	Claystone	As above.
76	2566.0	20	Claystone	As above.
77	2548.0	30	Claystone	As above.
78	2537.0	35	Claystone	As above.
79	2522.0	40	Claystone	As above.
80	2508.0	20	Claystone	As above.
81	2492.0	30	Claystone	As above.

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14231/27-30

Well Completion Report
WRASSE-1
Basic Data
Volume 1.

APPENDIX 4

APPENDIX 4

APPENDIX 4

Velocity Survey Report

Page 1 of 15
+ 1 enclosure
(1PP

WRASSE - 1

VELOCITY SURVEY REPORT

1. Marine Velocity Survey Report.

2. Location map.

3. Summary.

4. Data acquisition.

5. WST shot edit summary.

6. Shot data.

7. Field Report 12th November, 1983.

8. Field Report 21st November, 1983.

9. Deviated well survey results.

FIGURES

1. Surface signal.

2. Downhole signal.

3. Gun geometry sketch.

ENCLOSURES

1. Schlumberger CSU field log - velocity survey, Run 1, 2407m.

2. Schlumberger CSU field log - velocity survey, 2833m and 2407m.

0745L

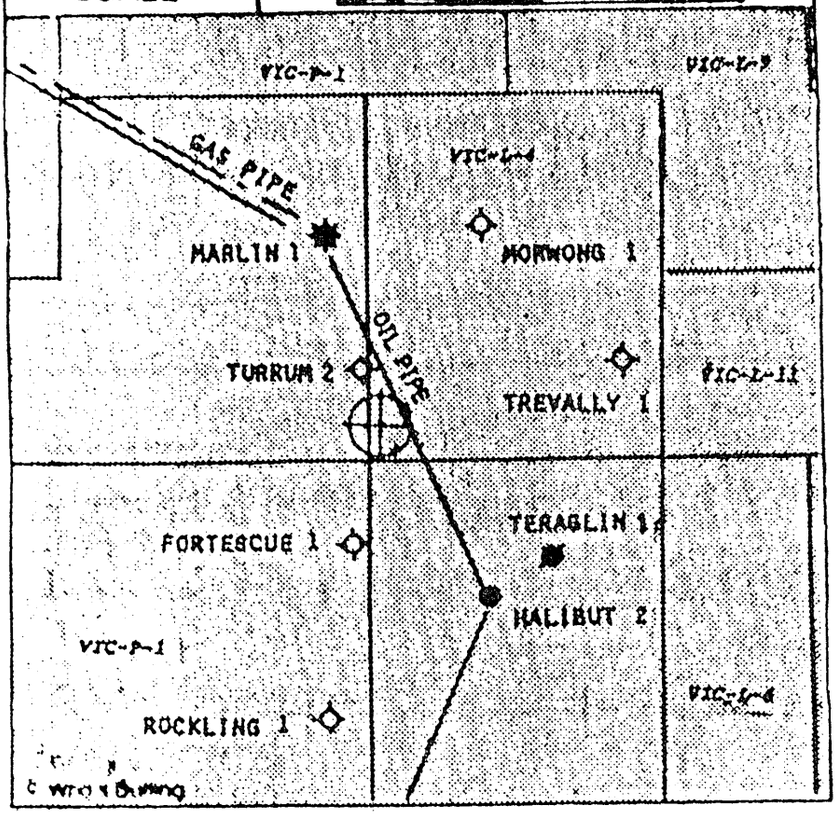
MARINE VELOCITY SURVEY REPORT

WELL	:	Wrasse - 1
BASIN	:	Gippsland
DATE OF SURVEY	:	12th November, 1983, 21st November, 1983.
CONTRACTOR	:	Schlumberger
RECORDED BY	:	E. Ciroux
WITNESSED BY	:	A. Brammall, R. Romanik
WATER DEPTH	:	65m
K.B. ELEVATION	:	21m
T.D. WHEN SHOT	:	2483m KBMD (2349m KBTVD) 2984m KBMD (2811m KBTVD)
CASING DEPTH	:	20" @ 208m MD, 13 3/8" @ 802m MD 9 5/8" @ 2473m KBMD
NO. OF SHOOTING LEVELS	:	2

0745L

WRASSE 1

LOCATION	CO-ORDINATES 38°19'27.74"S 148°16'31.14"E
	PERMIT Vic-L-4
	TD 2811m (vertical)
	WD 2980m (total)
	RT
SCALE	10 0 10 km



SUMMARY

Wrasse-2 is a deviated well and during the course of drilling, two velocity check shot surveys were carried out.

The two levels shot lie above and below the Top of Latrobe. The first level at 2407 mKB was shot in order to determine if the objective Turrum formation had been intersected by accurately tying the TD of the well to the seismic section.

The second level at 2833.0 mKB was shot within the Latrobe after completion of the well with the first level being repeated for control.

There is a difference of 5 ms in the shortest raw transit times for the levels shot at 2,407m MDKB on the two survey dates.

Accurate break times have been carefully picked for both sets of shots.

Variations in gun positions and offsets for the two days were negligible when related to variations in transit time. The gun was positioned at similar depths during both surveys.

Tidal information was studied and a difference of up to 1m in tide level was noted between the surveys. The tide level on November 12, 1983 being greater than that on November 21, 1983. This could account for variations in transit times of up to .7 ms.

The survey tools can be positioned in the well to within ± 1 metre and the single shot and multishot data show excellent correlation. Transit times can be determined to ± 1 ms.

After careful consideration of all the available data it was not possible to accurately account for the discrepancy in the transit times.

0745L

DATA ACQUISITION

FIELD EQUIPMENT

Energy Source	:	Bolt airgun (model 1900B) 200 cu. in. with debubbler
Source Location	:	Boat
Source Offset	:	Not available
Source Depth	:	9m below MSL
Source Azimuth	:	Not available
Reference Sensor	:	Accelerometer
Sensor Location	:	Boat
Sensor Offset	:	Not available
Sensor Depth	:	9m below MSL
Downhole Geophone	:	Geospace HS-1 High temperature (350 Deg. F), Coil Resistance 225 Ohms + 10%, Natural Frequency 8-12 Hz, Sensitivity 0.45 V/in/sec. Maximum tilt angle 60 Deg. Min.

Recording Instrument

Recording was made on the Schlumberger Computerised Service Unit (CSU) using LIS format recorded at 1 ms sample interval.

WST SHOT EDIT SUMMARY

The WST shots made on Wrasse No. 1 have been edited with new transit times picked. The list of shots and transit times along with a presentation of all shots are included.

Shots 1 - 76 were processed. Shots 1 - 41 correspond to shots labelled 16 - 56 on the field report of November 12, 1983 which was a traverse survey while shots 42 - 76 correspond to shots labelled 1 - 35 on the report for November 21, 1983 which was a stationary survey.

SURFACE SIGNALS

Figure 1 is a presentation of the surface sensor data along with initial break times listed.

One point of interest is that the hydrophone break for the two days were different by about 10 ms.

DOWNHOLE SIGNALS

Figure 2 is a presentation of the downhole geophone signals along with a list of break times. All signals were clean and noise free (except for shot No. 42) enabling accurate picks of transit times.

TRANSIT TIME

2,407.0 mKB

The shortest raw transit time for the first run on November 12 was 819.0 ms at co-ordinates of 610885E - 5757399N.

2,407.1 mKB

The shortest raw transit time for the first run on November 21 was shot number 43 with a transit time of 814 ms (co-ordinates 610910.3E - 5757411N).

2,833.0 mKB

The shortest raw transit time for the second run on November 21 was shot number 64 with a transit time of 934 ms, although several shots had the same transit time (co-ordinates 610733E - 5757400N).

SHOT DATA

Level Depth (m below KB)	Shot #	Date	Transit Time-ms (Raw)
2407.0	1	12 Nov.	845
2407.0	2	12 Nov.	835
2407.0	3	12 Nov.	833
2407.0	4	12 Nov.	831
2407.0	5	12 Nov.	830
2407.0	6	12 Nov.	828
2407.0	7	12 Nov.	826
2407.0	8	12 Nov.	824
2407.0	9	12 Nov.	823
2407.0	10	12 Nov.	822
2407.0	11	12 Nov.	821
2407.0	12	12 Nov.	821
2407.0	13	12 Nov.	820
2407.0	14	12 Nov.	820
2407.0	15	12 Nov.	819
2407.0	16	12 Nov.	819
2407.0	17	12 Nov.	819
2407.0	18	12 Nov.	819
2407.0	19	12 Nov.	820
2407.0	20	12 Nov.	821
2407.0	21	12 Nov.	822
2407.0	22	12 Nov.	823
2407.0	23	12 Nov.	824
2407.0	24	12 Nov.	824
2407.0	25	12 Nov.	825
2407.0	26	12 Nov.	826
2407.0	27	12 Nov.	828
2407.0	28	12 Nov.	821
2407.0	29	12 Nov.	820
2407.0	30	12 Nov.	820
2407.0	31	12 Nov.	820
*2407.0	32	12 Nov.	819*
2407.0	33	12 Nov.	820
2407.0	34	12 Nov.	820
2407.0	35	12 Nov.	820
2407.0	36	12 Nov.	820
2407.0	37	12 Nov.	820
2407.0	38	12 Nov.	822
2407.0	39	12 Nov.	823
2407.0	40	12 Nov.	824
2407.0	41	12 Nov.	825

SHOT DATA

Level Depth (m below KB)	Shot #	Date	Transit Time-ms (Raw)
2407.1	42	21 Nov.	bad shot
*2407.1	43	21 Nov.	814 *
2407.1	44	21 Nov.	815
2407.1	45	21 Nov.	815
2407.0	46	21 Nov.	816
2407.0	47	21 Nov.	816
2407.0	48	21 Nov.	815
2407.0	49	21 Nov.	816
2407.0	50	21 Nov.	816
2407.0	51	21 Nov.	815
2407.0	52	21 Nov.	816
2407.0	53	21 Nov.	816
2407.0	54	21 Nov.	816
2407.0	55	21 Nov.	816
2407.0	56	21 Nov.	816
2407.0	57	21 Nov.	816
2407.0	58	21 Nov.	816
2833.0	59	21 Nov.	934
2833.0	60	21 Nov.	935
2833.0	61	21 Nov.	934
2833.0	62	21 Nov.	935
2833.0	63	21 Nov.	934
*2833.0	64	21 Nov.	934 *
2833.0	65	21 Nov.	935
2833.0	66	21 Nov.	934
2833.0	67	21 Nov.	934
2833.0	68	21 Nov.	935
2833.0	69	21 Nov.	935
2833.0	70	21 Nov.	935
2833.0	71	21 Nov.	936
2833.0	72	21 Nov.	936
2833.0	73	21 Nov.	936
2833.0	74	21 Nov.	937
2833.0	75	21 Nov.	936
2833.0	76	21 Nov.	936

Schlumberger

WELL SEISMIC SERVICE FIELD REPORT

COMPANY	WELL	DATE	LOCATION	ENGINEER	WITNESSED BY
Esso	Wrasse No.1	Nov 12'83	SEA	Ciroux	A Bramble

FEET ☐ METRES ☒ | JACK UP ☐ PLATFORM ☐ | SHIP ☐ SEMI-SUB ☒ | WEATHER:

SCHLUMBERGER ZERO KB AT ELEVATION 21 M RELATIVE TO MEAN SEA LEVEL (M.S
LOG MEASURED FROM KB AT ELEVATION 21 M RELATIVE TO SCHLUMBERGER ZER
DRILLING MEASURED FROM KB AT ELEVATION 21 M RELATIVE TO SCHLUMBERGER ZER

SOURCE

GUN TYPE WATER ☐ AIR ☒
VOLUME ____ x 200 CU INCHES
PRESSURE 140 BARS ____
VIBRATOR TYPE ____
SWEEP LENGTH ____ SECONDS
FROM ____ HZ TO ____ HZ

TIDEL INFORMATION DISTANCE HOUR DATE
TIDE LEVEL TO M.S.L.
(RECORD IF LEVEL VARIES
MORE THAN 2 METRES
DURING SURVEY)

CSU SOFTWARE VERSION: 24.2 | MAX. HOLE DEV: AZIM:

NOTE SHOTS HIGHLY RECOMMENDED AT TD, TOP EACH SONIC, ABOVE AND BELOW BAD HOLE INTERVALS

UNCORRECTED RESULTS Quality: G = Good, P = Poor, U = Unsatisfa

SHOT NO	DEPTH			TRANSIT TIME	DAY SHOT	FILE	STACK	X (E)	Y (N)
16	2,407			845.6	Nov 12			N/A	N/A
17	2,407			834.8	Nov 12			N/A	N/A
18	2,407			834.2	Nov 12			N/A	N/A
19	2,407			831.4	Nov 12			N/A	N/A
20	2,407			829.7	Nov 12			N/A	N/A
21	2,407			827.8	Nov 12			N/A	N/A
22	2,407			826.6	Nov 12			N/A	N/A
23	2,407			824.7	Nov 12			N/A	N/A
24	2,407			823.4	Nov 12			N/A	N/A
25	2,407			822.7	Nov 12			N/A	N/A
26	2,407			821.2	Nov 12			N/A	N/A
27	2,407			820.8	Nov 12			N/A	N/A
28	2,407			820.0	Nov 12			N/A	N/A
29	2,407			820.2	Nov 12			N/A	N/A
30	2,407			820.0	Nov 12			N/A	N/A
31	2,407			819.6	Nov 12			N/A	N/A
32	2,407			819.6	Nov 12			N/A	N/A
33	2,407			819.8	Nov 12			N/A	N/A
34	2,407			820.5	Nov 12			N/A	N/A
35	2,407			821.8	Nov 12			N/A	N/A
36	2,407			822.3	Nov 12			N/A	N/A
37	2,407			822.7	Nov 12			611189	5757464
38	2,407			823.5	Nov 12			611213	5757464
39	2,407			824.4	Nov 12			611243	5757468
40	2,407			825.7	Nov 12			611275	5757471
41	2,407			826.9	Nov 12			611330	5757480
42	2,407			828.8	Nov 12			N/A	N/A
43	2,407			821.4	Nov 12			611002	5757394
44	2,407			820.9	Nov 12			610966	5757395
45	2,407			820.5	Nov 12			610946	5757393
46	2,407			819.4	Nov 12			610901	5757405
47	2,407			820.2	Nov 12			610872	5757406

...2/

Schlumberger

WELL SEISMIC SERVICE FIELD REPORT

COMPANY	WELL	DATE	LOCATION	ENGINEER	WITNESSED BY
Esso	Wrasse No.1	Nov 12'83	SEA	Ciroux	A Bramble

FEET ☐ METRES ☒ | JACK UP ☐ SHIP ☐ PLATFORM ☐ SEMI-SUB ☒ | WEATHER:

SCHLUMBERGER ZERO	KB	AT ELEVATION	21 M	RELATIVE TO MEAN SEA LEVEL (M.S.L
LOG MEASURED FROM	KB	AT ELEVATION	21 M	RELATIVE TO SCHLUMBERGER ZERO
DRILLING MEASURED FROM	KB	AT ELEVATION	21 M	RELATIVE TO SCHLUMBERGER ZERO

SOURCE

GUN TYPE WATER ☐ AIR ☒
VOLUME ____ x 200 CU INCHES
PRESSURE 140 BARS ____
VIBRATOR TYPE ____
SWEEP LENGTH ____ SECONDS
FROM ____ HZ TO ____ HZ

TIDEL INFORMATION DISTANCE HOUR DATE

TIDE LEVEL TO M.S.L.
(RECORD IF LEVEL VARIES
MORE THAN 2 METRES
DURING SURVEY)

CSU SOFTWARE VERSION: 24.2 | MAX. HOLE DEV: AZIM:

NOTE: SHOTS HIGHLY RECOMMENDED AT TD, TOP EACH SONIC, ABOVE AND BELOW BAD HOLE INTERVALS

UNCORRECTED RESULTS Quality: G = Good, P = Poor, U = Unsatisfacto

SHOT NO	DEPTH			TRANSIT TIME	DAY SHOT			Y (E)	Y (N)
48	2,407			819.7	Nov 12			610837	5757413
49	2,407			819.7	Nov 12			610806	5757417
50	2,407			819.9	Nov 12			610768	5757421
51	2,407			821.2	Nov 12			610734	5757429
52	2,407			821.2	Nov 12			610698	5757430
53	2,407			822.2	Nov 12			610673	5757436
54	2,407			823.5	Nov 12			610643	5757444
55	2,407			824.7	Nov 12			610609	5757440
56	2,407			825.4	Nov 12			610575	5757444

Schlumberger

WELL SEISMIC SERVICE FIELD REPORT

COMPANY	WELL	DATE	LOCATION	ENGINEER	WITNESSED BY
Esso	Wrasse No.1	Nov 21'83	SEA	Ciroux	R Romanik

FEET ☐ METRES ☒ | JACK UP ☐ PLATFORM ☐ | SHIP ☐ SEMI-SUB ☒ | WEATHER: 1 M Swell

SCHLUMBERGER ZERO	MSFL KB	AT ELEVATION	21.0 M	RELATIVE TO MEAN SEA LEVEL (M.S.
LOG MEASURED FROM	KB	AT ELEVATION	0 M	RELATIVE TO SCHLUMBERGER ZERO
DRILLING MEASURED FROM	KB	AT ELEVATION	0 M	RELATIVE TO SCHLUMBERGER ZERO

SOURCE

GUN TYPE WATER ☐ AIR ☒
VOLUME 120 x 1 CU INCHES
PRESSURE 140 BARS
VIBRATOR TYPE -
SWEEP LENGTH - SECONDS
FROM - HZ TO - HZ

TIDEL INFORMATION DISTANCE HOUR DATE

TIDE LEVEL TO M.S.L.
(RECORD IF LEVEL VARIES MORE THAN 2 METRES DURING SURVEY)

1 M Maximum Swell

CSU SOFTWARE VERSION: 24.2 | MAX. HOLE DEV: N/A | AZIM:

NOTE: SHOTS HIGHLY RECOMMENDED AT TD, TOP EACH SONIC, ABOVE AND BELOW BAD HOLE INTERVALS

UNCORRECTED RESULTS Quality: G = Good, P = Poor, U = Unsatisfac

SHOT NO	DEPTH (m)	GUN PRESSURE	FILTERS	TRANSIT TIME (MS)	HOUR SHOT	FILE	STACK	STACKED SHOTS	QUALITY / REMAR
5	2,407.0	140 Bar	None	815.6	11.55	3	No	None	G/unusual hydrocarbon
6	2,407.0	140 Bar	None	816.0	11.57	3	No	None	G
7	2,407.0	140 Bar	None	815.7	11.56(?)	3	No	None	G
8	2,407.0	140 Bar	None	816.0	11.57	3	No	None	G
9	2,407.0	140 Bar	None	815.6	11.59	3	No	None	G
10	2,407.0	140 Bar	None	815.5	11.59	3	No	None	G
11	2,407.0	140 Bar	None	816.0	11.58(?)	3	No	None	G
12	2,407.0	140 Bar	None	816.3	12.07	3	No	none	G
13	2,407.0	140 Bar	None	816.4	12.07	3	No	None	G
14	2,407.0	140 Bar	None	816.2	12.08	3	No	None	G
15	2,407.0	140 Bar	None	816.0	12.08	3	No	None	G
16	2,407.0	140 Bar	None	815.9	12.08	3	No	None	G
17	2,407.0	140 Bar	None	816.0	12.08	3	No	None	G
18	2,833.0	140 Bar	None	934.9	12.27	3	No	None	G
19	2,833.0	140 Bar	None	935.0	12.28	3	No	None	G
20	2,833.0	140 Bar	None	934.6	12.28	3	No	None	G
21	2,833.0	140 Bar	none	935.0	12.30	3	No	None	G
22	2,833.0	140 Bar	None	935.1	12.29	3	No	None	G
23	2,833.0	140 bar	None	934.7	12.29	3	No	None	G
24	2,833.0	140 Bar	None	934.8	12.30	3	No	None	G
25	2,833.0	140 Bar	None	935.0	12.30	3	No	None	G
26	2,833.0	140 Bar	None	934.9	12.38	3	No	None	G
27	2,833.0	140 Bar	None	935.3	12.38	3	No	None	G
28	2,833.0	140 Bar	None	934.7	12.38	3	No	None	G
29	2,833.0	140 Bar	None	935.6	12.40	3	No	None	G
30	2,833.0	140 Bar	None	935.9	12.39	3	No	None	G
31	2,833.0	140 Bar	None	935.5	12.40	3	No	None	G
32	2,833.0	140 bar	None	935.9	12.42	3	No	None	G
33	2,833.0	140 Bar	None	936.2	12.42	3	No	None	G
34	2,833.0	140 Bar	None	936.1	12.41	3	No	None	G
35	2,833.0	140 Bar	None	936.7	12.42	3	No	None	G

Comments: Accelerometer was used as hydrophone source.

DEVIATED WELL SURVEY

WELL: WRASSE #1

BASIN: GIPPSLAND
DATE : 12/21 NOV 1983

LATITUDE : 38° 19' 27.74"S
LONGITUDE: 148° 16' 31.14"E

EASTING :
NORTHING:

K.B. to Sea Level : 21m
Depth of Shot : 9m
Velocity of Water : 1500m/s
Water Depth : 65m

Esso Representative: R. ROMANIK
Contractor : SCHLUMBERGER
Contractor Engineer: E. CIROUX

Survey Vessel :
Navigation Operator:
Navigation System :

Shot No.	File No.	MDKB M	TVD KB M	TVD MSL M	Time Shot	Raw Travel Time m sec	Shot Location X: Y:	Wellphone Location X: Y:	Offset	Vertical Travel Time (m sec)	True Vertical Travel Time * (M SEC)	Av.Vel. m/sec	Av. Vel. for level m/sec	Remarks
1A		2407	2281	2260		819	610 885 5 757 399	610 900 5 757 394	15.8	819	825	2760	2739	SHOT ON 12 NOV 1983
1B		2407	2281	2260		814	610 910.3 5 757 411	610 900 5 757 394	19.9	814	820	2776	2756	SHOT ON 21 NOV 1983
2		2833	2671	2650		934	610 788 5 757 400	610 752 5 757 386	38.6	934	940	2837	2819	SHOT ON 21 NOV 1983

* True Vertical Travel Time = Vertical Travel + Airgun Depth Correction +/- Tidal Correction

1 RAW DATA SHOT

LEVEL	SHOTS	DEPTH M	TIME S	PEAK/PEAK
3	58	2407.0	0.022	1466.00
3	57	2407.0	0.022	1440.00
3	56	2407.0	0.022	1386.00
3	55	2407.0	0.022	1377.00
3	54	2407.0	0.022	1448.00
3	53	2407.0	0.022	1463.00
3	52	2407.0	0.022	1483.00
3	51	2407.0	0.023	1492.00
3	50	2407.0	0.022	1447.00
3	49	2407.0	0.022	1401.00
3	48	2407.0	0.023	1425.00
3	47	2407.0	0.022	1483.00
3	46	2407.0	0.022	1440.00
3	41	2407.0	0.012	1254.00
3	40	2407.0	0.012	1177.00
3	39	2407.0	0.012	1001.00
3	38	2407.0	0.012	1066.00
3	37	2407.0	0.013	1220.00
3	36	2407.0	0.012	1064.00
3	35	2407.0	0.012	1179.00
3	34	2407.0	0.012	1111.00
3	33	2407.0	0.012	1137.00
3	32	2407.0	0.012	947.00
3	31	2407.0	0.012	1187.00
3	30	2407.0	0.012	1058.00
3	28	2407.0	0.012	876.00
3	28	2407.0	0.012	1233.00
3	27	2407.0	0.012	1187.00
3	26	2407.0	0.013	1167.00
3	25	2407.0	0.012	1164.00
3	24	2407.0	0.012	1177.00
3	23	2407.0	0.012	1163.00
3	22	2407.0	0.012	1226.00
3	21	2407.0	0.012	1037.00
3	20	2407.0	0.012	1102.00
3	19	2407.0	0.012	1176.00
3	18	2407.0	0.012	1186.00
3	17	2407.0	0.013	1275.00
3	16	2407.0	0.013	1194.00
3	15	2407.0	0.013	1163.00
3	14	2407.0	0.012	1230.00
3	13	2407.0	0.012	1206.00
3	12	2407.0	0.012	1227.00
3	11	2407.0	0.012	1219.00
3	10	2407.0	0.012	1123.00
3	9	2407.0	0.013	1243.00
3	8	2407.0	0.013	1213.00
3	7	2407.0	0.012	1202.00
3	6	2407.0	0.012	1249.00
3	5	2407.0	0.012	1189.00
3	4	2407.0	0.013	2850.00
3	3	2407.0	0.012	1031.00
3	2	2407.0	0.012	1213.00
3	1	2407.0	0.013	1277.00
2	45	2407.1	0.023	1508.00
2	44	2407.1	0.023	1410.00
2	43	2407.1	0.023	1490.00
2	42	2407.1	0.002	8130.00
1	76	2833.0	0.023	1472.00
1	75	2833.0	0.022	1447.00
1	74	2833.0	0.022	1467.00
1	73	2833.0	0.022	1443.00
1	72	2833.0	0.022	1441.00
1	71	2833.0	0.022	1476.00
1	70	2833.0	0.023	1512.00
1	69	2833.0	0.023	1408.00
1	68	2833.0	0.022	1452.00
1	67	2833.0	0.023	1487.00
1	66	2833.0	0.023	1509.00
1	65	2833.0	0.022	1470.00
1	64	2833.0	0.023	1402.00
1	63	2833.0	0.023	1506.00
1	62	2833.0	0.022	1482.00
1	61	2833.0	0.023	1460.00
1	60	2833.0	0.022	1482.00
1	59	2833.0	0.023	1542.00

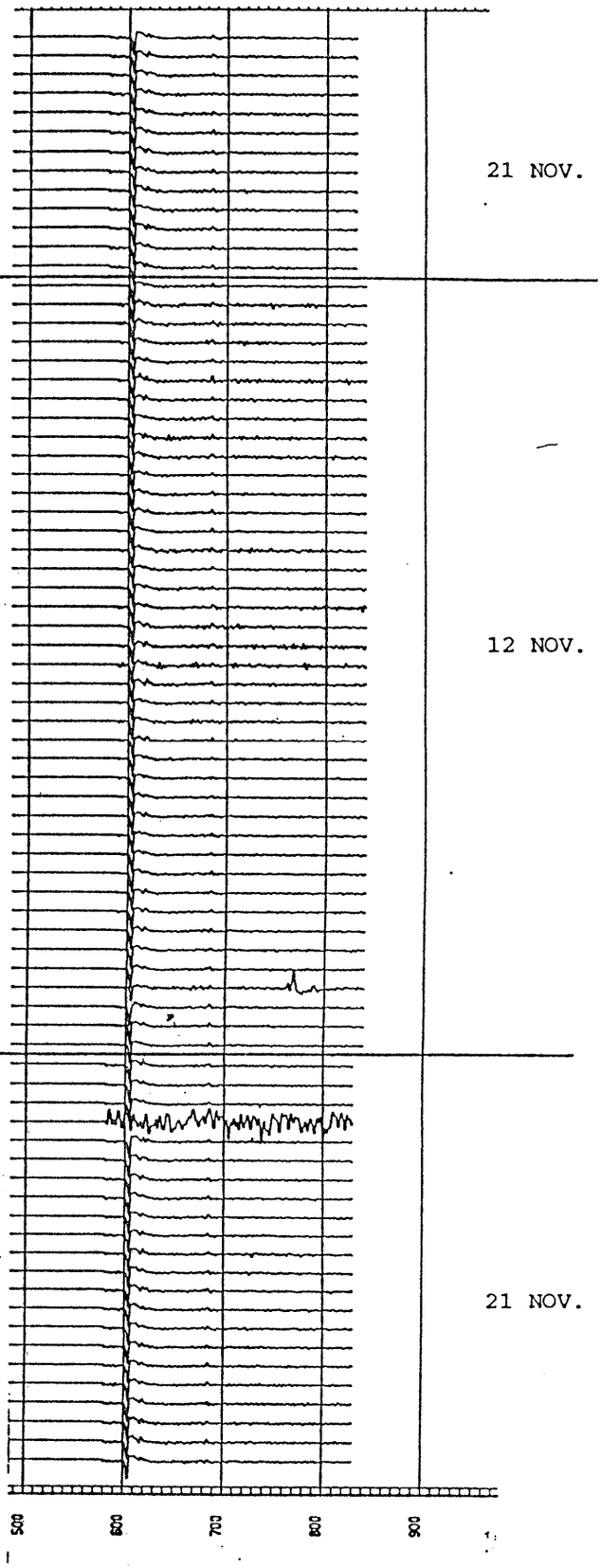


FIGURE 1 SURFACE SIGNAL

1 RAW DATA 54012SLR

LEVEL	SHOTS	DEPTH M	TIME S	PEAK/PEAK
3	68	2407.0	0.838	2503.00
3	67	2407.0	0.838	2584.00
3	66	2407.0	0.838	2484.00
3	65	2407.0	0.838	2420.00
3	64	2407.0	0.838	2369.00
3	63	2407.0	0.838	2655.00
3	62	2407.0	0.838	2422.00
3	61	2407.0	0.838	2448.00
3	60	2407.0	0.838	2521.00
3	49	2407.0	0.838	2484.00
3	48	2407.0	0.838	2469.00
3	47	2407.0	0.838	2504.00
3	46	2407.0	0.838	2506.00
3	41	2407.0	0.837	1733.00
3	40	2407.0	0.838	1737.00
3	39	2407.0	0.835	1431.00
3	38	2407.0	0.834	1528.00
3	37	2407.0	0.833	1668.00
3	36	2407.0	0.832	1576.00
3	35	2407.0	0.832	1531.00
3	34	2407.0	0.832	1681.00
3	33	2407.0	0.832	1668.00
3	32	2407.0	0.831	1524.00
3	31	2407.0	0.832	1628.00
3	30	2407.0	0.832	1624.00
3	29	2407.0	0.832	1483.00
3	28	2407.0	0.833	1173.00
3	27	2407.0	0.840	1265.00
3	26	2407.0	0.839	1416.00
3	25	2407.0	0.837	1444.00
3	24	2407.0	0.836	1606.00
3	23	2407.0	0.836	1487.00
3	22	2407.0	0.835	1622.00
3	21	2407.0	0.834	1578.00
3	20	2407.0	0.833	1582.00
3	19	2407.0	0.832	1563.00
3	16	2407.0	0.831	1463.00
3	17	2407.0	0.832	1535.00
3	18	2407.0	0.832	1707.00
3	15	2407.0	0.832	1526.00
3	14	2407.0	0.832	1557.00
3	13	2407.0	0.832	1566.00
3	12	2407.0	0.833	1422.00
3	11	2407.0	0.833	1588.00
3	10	2407.0	0.834	1480.00
3	9	2407.0	0.836	1709.00
3	8	2407.0	0.837	1785.00
3	7	2407.0	0.838	1701.00
3	6	2407.0	0.840	1598.00
3	5	2407.0	0.842	1248.00
3	4	2407.0	0.844	1445.00
3	3	2407.0	0.845	1373.00
3	2	2407.0	0.847	1548.00
3	1	2407.0	0.858	877.00
2	45	2407.1	0.838	2808.00
2	44	2407.1	0.838	2500.00
2	43	2407.1	0.837	2424.00
2	42	2407.1	0.837	72.00
1	76	2833.0	0.958	1707.00
1	75	2833.0	0.958	1703.00
1	74	2833.0	0.959	1833.00
1	73	2833.0	0.958	1680.00
1	72	2833.0	0.958	1727.00
1	71	2833.0	0.958	1611.00
1	70	2833.0	0.958	1668.00
1	69	2833.0	0.958	1669.00
1	68	2833.0	0.957	1583.00
1	67	2833.0	0.957	1509.00
1	66	2833.0	0.957	1859.00
1	65	2833.0	0.957	1794.00
1	64	2833.0	0.957	1725.00
1	63	2833.0	0.957	1697.00
1	62	2833.0	0.957	1669.00
1	61	2833.0	0.957	1635.00
1	60	2833.0	0.957	1798.00
1	59	2833.0	0.957	1917.00

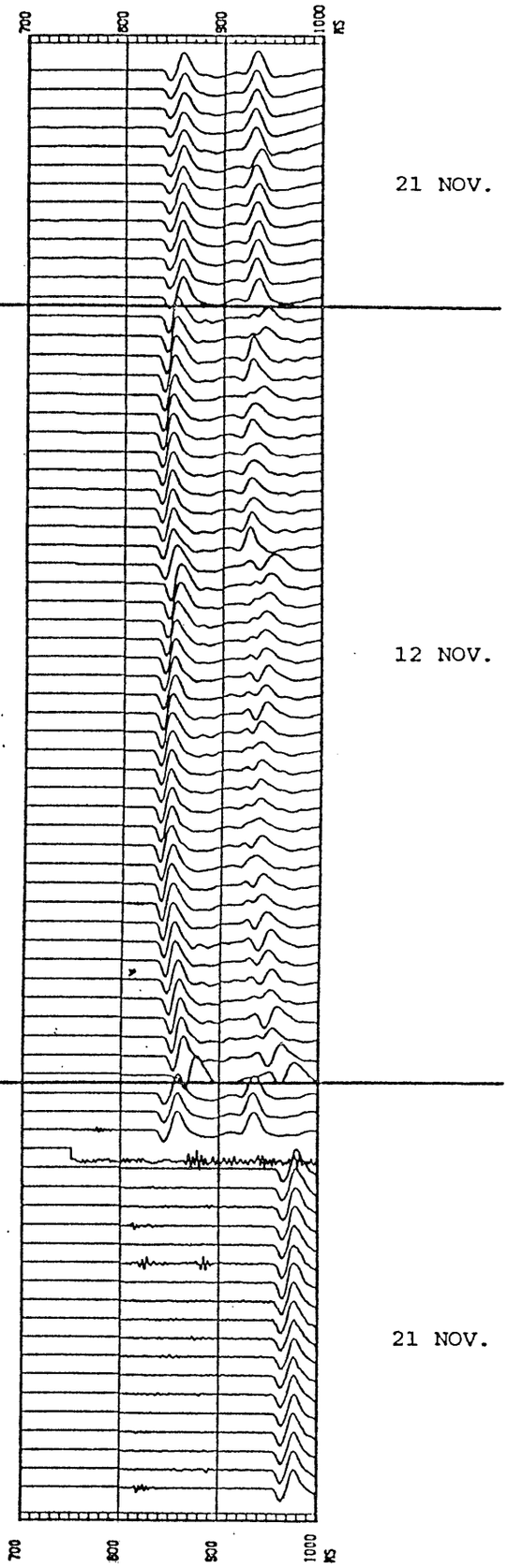


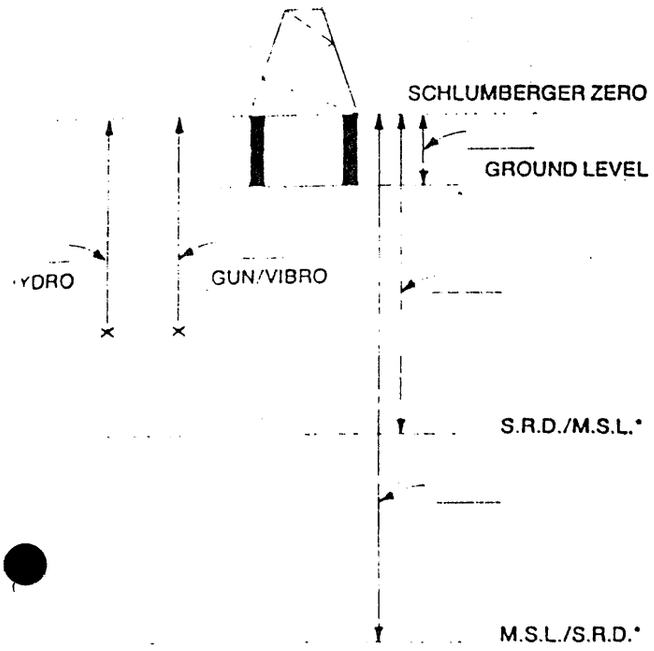
FIGURE 2 DOWNHOLE SIGNAL

GUN GEOMETRY SKETCH

Schlumberger

CLIENT: Esso Australia Ltd WELL: Wrasse No. 1 DATE: Nov 21, 1983

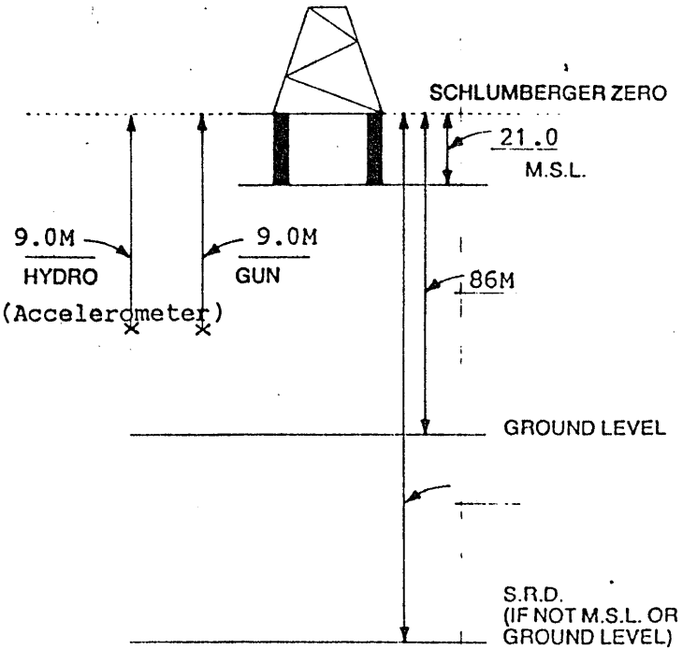
LAND ☐



INDICATE ALL DISTANCES RELATIVE TO SCHLUMBERGER ZERO

* DELETE AS APPLICABLE

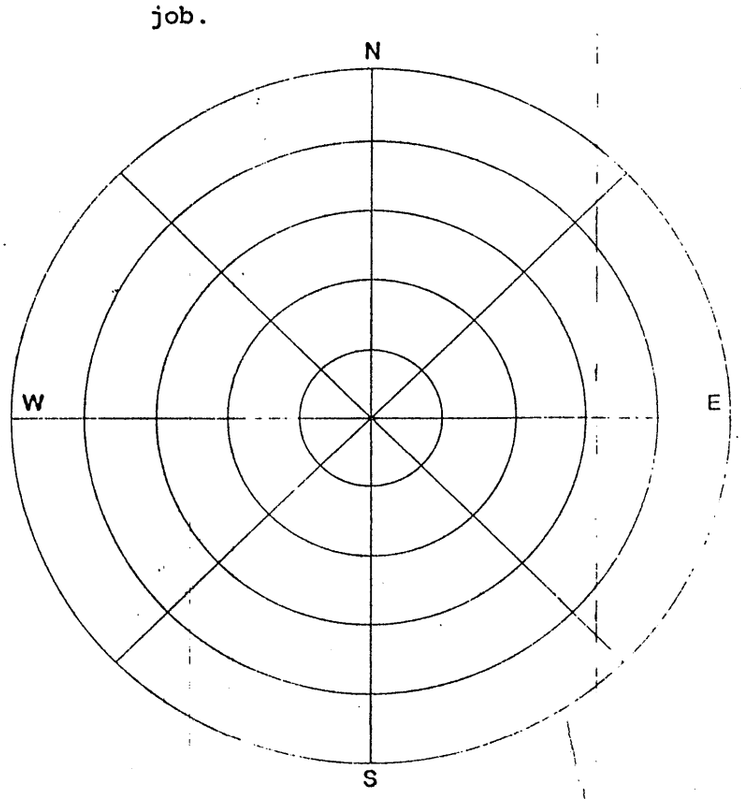
OFFSHORE ☒



INDICATE ALL DISTANCES RELATIVE TO SCHLUMBERGER ZERO

Figures are not reported on Field Print but are verbal references from Engineer on the job.

GUN OFFSET	HYDRO OFFSET	GUN DEPTH	HYDRO DEPTH



INDICATE GUN/VIBRO AND HYDROPHONE OFFSET AND AZIMUTH RELATIVE TO NORTH

Distribution White = Client, White = computing centre, Green = District; Pink = location

FIGURE 3.

PE905580

This is an enclosure indicator page.
The enclosure PE905580 is enclosed within the container PE902513 at this location in this document.

The enclosure PE905580 has the following characteristics:

ITEM_BARCODE	= PE905580
CONTAINER_BARCODE	= PE902513
NAME	= Offset shooting - Velocity Survey
BASIN	= GIPPSLAND
PERMIT	= VIC/L4
TYPE	= WELL
SUBTYPE	= VELOCITY_CHART
DESCRIPTION	= Wrasse-1 Offset Shooting Run 1, Appendix 4 from Velocity Survey from WCR vol 1
REMARKS	=
DATE_CREATED	= 12/11/83
DATE_RECEIVED	= 29/11/84
W_NO	= W836
WELL_NAME	= WRASSE-1
CONTRACTOR	= SCHLUMBERGER
CLIENT_OP_CO	= ESSO AUSTRALIA LIMITED

(Inserted by DNRE - Vic Govt Mines Dept)