ESSO EXPLORATION AND PRODUCTION AUSTRALIA INC.

106 pages
+ 6 Enclosures.

WELL COMPLETION REPORT

ANGELFISH-1

VOLUME I

BASIC DATA

GIPPSLAND BASIN
VICTORIA

ESSO AUSTRALIA LIMITED

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JUNE.1986

ANGELFISH-1

WELL COMPLETION REPORT

VOLUME 1

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ESSO AUSTRALIA LTD

1. WELL DATA

COMPLETION REPORT

WELL	:	ANGELFISH-1
LOCATION	:	Latitude : 38° 14' 42.925" S Longitude : 148° 22' 48.815" E X = 620,779m E Y = 5,766,057m N Map Projection: UTM, AMG Zone 55 Geographical Location: BASS STRAIT Field: ANGELFISH
PERMIT	:	VIC/L4
ELEVATION	:	21m KB
WATER DEPTH	:	70m
TOTAL DEPTH	:	3421m KB, 3400m SS
PLUG BACK TYPE	:	Balanced cement plug
REASONS FOR PLUGGING BACK	:	Plug and Abandonment
MOVE IN	:	11th November, 1985
SPUDDED	:	11th November, 1985
REACHED T.D.	:	16th December, 1985
RIG RELEASED	:	23rd December, 1985
OPERATOR	:	Esso Exploration and Production Aust. Inc.
PERMITTEE OR LICENCEE	:	B.H.P. Petroleum Pty. Ltd. & E.E.P.A. Inc.
ESSO INTEREST	:	50%
OTHER INTEREST	:	50%
CONTRACTOR	:	South Seas Drilling Company
RIG NAME	:	Southern Cross
EQUIPMENT TYPE	:	Oilwell E-2000 Semi submersible
TOTAL RIG DAYS	:	42.9 days
DRILLING AFE NO.	:	235014
TYPE COMPLETION	:	Plugged and Abandoned
WELL CLASSIFICATION	:	Before Drilling New Field Wildcat After Drilling New Field Discovery

OPERATIONS SUMMARY
ANGELFISH-1

Moving/Mooring

The Southern Cross left Eden at 1800 hrs, November 9, 1985 after undergoing a biennial Lloyd's Structural Inspection. The rig arrived at the Angelfish-1 location at 0015 hrs, November 11, 1985. The workboat, Lady Caroline, towed the rig 129 nautical miles in 31.25 hours at an average speed of 4.3 knots.

Anchor No. 8 was dropped by the rig on approach to the location. The remaining seven anchors were run by the Lady Vera and Lady Caroline. All anchors were run in 6-1/2 hours and pretensioned to 200 kips.

The final rig location was:

Latitude : 38° 14' 42.925" S
Longitude : 148° 22' 48.815" E
X = 620,779m E
Y = 5,766,057m N

AMG Zone 55, Universal Transverse Mercator Projection, Australian Geodetic Datum.

The rig was located 0.49m at 323° from the called location and approximately 52.5 km @ 140° from Lakes Entrance, Victoria.

Drill 26" Hole for 20" Casing

The drilling template was run and landed at a seafloor depth of 91m. The 26" hole was drilled to 234m using seawater and high viscosity gel slugs to clean the hole. A wiper trip was made to the seafloor with no drag or fill encountered. The hole was displaced with high viscosity gel mud prior to pulling out to run casing. The 20" casing was run but would not pass an obstruction at 93m. The 20" casing was laid down and the hole reamed from 93m to 102m and a 350 bbls gel slug was pumped after RIH to TD. The casing was rerun and again hung up at 93m. A wiper trip was made with no drag or fill encountered and a 420 bbls hi-vis slug was pumped. Before pulling the bit from the temporary guide base the rig was repositioned. The 20" casing was run and cemented with the casing shoe at 219m. The BOP stack was run and the collet connector and casing tested to 500 psi.

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

The cement and casing shoe were drilled out and the 17-1/2" hole drilled to 824m using a seawater/gel mud system. While making a wiper trip the hole took 250 bbls of mud (8.5 BPM). Pumping a 150 bbl high viscosity gel slug, followed by an 80 bbl LCM pill, reduced the losses to 3 BPM. Drilling continued to 869m in order to locate a competent casing seat and allow the thief zone time to "heal". Dynamic mud losses were between 1.5 and 5 BPM.

The 13-3/8" casing was run and cemented with the shoe at 857m. Mud losses while running casing varied between 1.5 and 5.5 BPM. The plug was bumped with 1500 psi. Two attempts were made to test Cameron weight set seal assemblies before, on the third attempt, a leak was observed at the collet connector. The BOP stack was unlatched and an attempt was made by the divers to replace the AX gasket. The divers were unable to release the AX gasket and the stack was pulled. The gasket was replaced, the stack re-run and the AX sealing surface inspected by divers prior to relatching and pressure testing the BOP stack. The seal assembly then tested to 200/5000 psi. The casing was tested to 1500 psi against the shear rams. A temperature log, run while redressing a seal assembly, confirmed the TOC in the 13-3/8" x 20" annulus to be at 360m.

Drill 12-14" Hole to 3421m

The float collar, cement and float shoe were drilled out and the rathole cleaned out to 869m. Six metres of new hole were drilled and a Phase II PIT was run without leakoff to 1500 psi indicating an integrity of 18.8 ppg EMW at the 13-3/8" casing shoe.

The 12-1/4" hole was drilled to 1280m with a 8.9 ppg seawater/gel mud. While drilling to 1550m, the mud weight was raised to 9.2 ppg in order to penetrate the Latrobe Formation with a 200 psi overbalance.

A 12-1/4" Terratek BS4 PCD bit was used to drill the Top of Latrobe (TOL) from 1687m - 1794m. The BS4 was run in order to determine the applicability of drilling Lower Gippsland and TOL formations with PCD bits. The bit run was an economic failure as the bit dulled in a section of pyritic sandstone after drilling only 107m.

At 1794m the first open hole PIT was conducted to leakoff at 1350 psi indicating an integrity of 18.1 ppg EMW at the 13-3/8" casing shoe.

The 12-1/4" hole was drilled to 2369m where drilling operations were suspended for 1.8 days as a result of an industrial dispute. Following resolution of the dispute, drilling resumed to 2905m where a leak was detected from the kelly swivel. Approximately 1.50 days were required to carry out repairs to the swivel.

After washing 22m of fill to bottom, drilling continued to 3130m where a bit trip was made and the BOP stack was tested. Drilling resumed to 3137m where a drilling break occurred. Bottoms up were circulated and Core No. 1 was cut from 3137m - 3143m with a 100% recovery. The rathole was reamed out and drilling resumed to 3173m where background gas readings increased from 30 - 40 units to 70 - 80 units. A 10-10-10 test was conducted with gas readings of 50-40-40 units recorded.

The hole was deepened to 3178m where the advent of connection gas suggested the presence of abnormally pressured formations. The mud weight was raised from 9.3 to 9.8 ppg.

Intermediate logs, which included DLL/MSFL, LDT/CNL and 3 RFT's were run. RFT pressure data confirmed the presence of abnormal pressure below 3000m.

Drilling resumed to 3335m where the bit was pulled to core. An open hole PIT was run to leak-off at 1000 psi indicating an integrity of 16.6 ppg EMW at the 13-3/8" casing shoe. Core No. 2 was cut from 3335m - 3353m with a recovery of 10%.

The rat hole was opened to 12-1/4" and drilling continued to the revised TD of 3421m. A short wiper trip was made and bottoms up were circulated to check gas units. Readings were 21-49-15 and the mud weight was raised to 10.2 ppg and TD logs were run.

Following 3 RFT runs, a wiper trip was made. Bottoms up gas readings of 8-580-14 units were recorded. A dipmeter, velocity survey and 2 side wall coring runs were made.

Plug and Abandonment

A cementing diverter tool run on 5" drillpipe set Plugs No. 1 - 4 at 3421 - 3300m, 3300 - 3160m, 3160 - 3015m and 1695 - 1595m respectively. These plugs were required to cover hydrocarbon zones over each interval. Plug No. 4 was tagged at 1595m with 15 kips. Plug No. 5 was set across the 13-3/8" casing shoe from 907 - 804m. After tagging the plug with a gauge ring and junk basket, the plug was pressure tested to 1300 psi.

A 13-3/8" EZSV cement retainer was set at 757m and a Pengo cutter cut the 13-3/8" casing at 205m. The casing was recovered with a casing spear. Plug No. 6 was set across the casing stub from 245 - 125m and pressure tested to 500 psi against the shear rams.

The BOP stack was pulled and the 20" casing was mechanically cut at 102m. The wellhead/pile joint and 4 post guidebase were recovered with the wellhead running tool. The mousetrap slings again failed to engage and the drilling template was recovered using the "J" slot running tool.

Pull Anchors

The Lady Sally, Torrens Tide and Southern Tide recovered all anchors in 13.25 hrs. The rig departed Angelfish-1 at 2200 hrs December 23, 1985 enroute to the Snapper-6 location using the Lady Sally as the tow boat.

2042L/50-52

3.

ANGELFISH 1 CASING DATA

CSG O.D. in.	CSG WT. ppf	CSG GRADE	CSG CONN.	CSG LGTH mtrs.	CENTRALIZER POSITION.	SHOE DPTH mRKB	REMARKS
20	94	X-52	JV	12.83		219	Float Shoe Joint
20	94	X-52	JV	97.43	Across Collars on First Five Joints		8 Joints
20	129	X-52	JV/CC	10.47			Crossover Joint
24	670		CC	10.78			Wellhead Pile Joint No EP11-1-2
13-3/8	54.5	K-55	Butt.	12.65		857	Float Shoe Joint
13-3/8	54.5	K-55	Butt.	12.72			Float Collar Joint
13-3/8	54.5	K-55	Butt.	742.40	Across Collars on First Six Joints		63 Joints
13-3/8	54.5	K-55	Butt.	0.73			Hanger Joint. Hgr. No EHW34. Seal Ass'y. No ESW34.

4.

ANGELFISH 1 CEMENT DATA

CEMENT JOB TYPE	CEMENT TOP mRKB	CEMENT BTM mRKB	CEMENT ADDITIVES	CEMENT VOLUME sxs	CEMENT WEIGHT ppg	REMARKS
20" Csg.	91	147	2.2% gel w/ 173 bbls seawater	750	13.3	Lead slurry. Divers confirm cmt returns.
20" Csg.	147	219	42 bbls seawater	350	15.8	Tail slurry. Displace w/ 18 bbls . Float held.
13-3/8" Csg.	337	857	125 bbls seawater	1,050	15.8	Displace w/380 bbls.Bump Plug w/ 1500 psi.Static loss in Ann. 5.5 BPM.
P&A Plug No. 1	3,421	3,300	36 bbls Freshwater& 18gal HR6L	300	15.8	
P&A Plug No. 2	3,160	3,300	41 bbls Freshwater& 19gal HR6L	345	15.8	
P&A Plug No. 3	3,015	3,160	43 bbls Freshwater& 18gal HR6L	360	15.7	
P&A Plug No. 4	1,595	1,695	37 bbls Freshwater	310	15.8	Tagged w/15 kips@1595m.

CLASS 'G' CEMENT USED ON ALL JOBS. GEL ADDITIVE IS PRE-HYDRATED.

ANGELFISH 1 CEMENT DATA

CEMENT JOB TYPE	CEMENT TOP mRKB	CEMENT BTM mRKB	CEMENT ADDITIVES	CEMENT VOLUME sxs	CEMENT WEIGHT ppg	REMARKS
P&A Plug No. 5	804	907	35 bbls seawater	300	15.8	Tagged w/JB. Pressure tested to 1300 psi.
P&A Plug No. 6	125	245	68 bbls seawater	570	15.7	Pressure tested to 500 psi w/seawater.

CLASS 'G' CEMENT USED ON ALL JOBS. GEL ADDITIVE IS PRE-HYDRATED.

WELL: ANGELFISH-1

5. SAMPLES, CONVENTIONAL CORES, SIDEWALL CORES

INTERVAL	TYPE
235.0-3421.0m	CUTTINGS SAMPLES 3 sets of washed and oven dried cuttings and 1 set of bagged and air dried cuttings collected as follows:- 10m intervals - 235.0 to 1550.0m 5m intervals - 1550.0 to 3421.0m
235.0-3421.0m	GEOCHEMICAL SAMPLES 1 set of unwashed canned samples every 15m.
3137.0-3142.8m	CONVENTIONAL CORE NO. 1 Cut 5.8m, recovered 100%.
3334.7-3353.0m	CONVENTIONAL CORE NO. 2 Cut 18.3m, recovered 10.4%.
3403.0-1600.0m	SIDEWALL CORES (2 runs) Shot 90, recovered 65.

WELL: ANGELFISH-1

6. WIRELINE LOGS AND SURVEYS

Type and Scale			From	To
Suite 1				
AMS-GR (TEMPERATURE)	1:1000		823.0	200.0m
N.B: No tophole BHC-GR run on Angelfish-1 due to lost circulation problems.				
Suite 2				
DLTE-MSFL-GR-CAL-AMS-SP	1:200 1:500		3178.0	858.0m
LDTC-CNTH-GR	1:200 1:500		3178.0	1600.0m
RFT-GR/HP (RUNS 1-4) 33 SEATS, 23 PRETESTS, 3 SAMPLES			3162.5	1939.5m
Suite 3				
DLTE-MSFL-CAL-AMS-GR	1:200 1:500	) COMBINATION) TOOL	3421.0	3035.0m
LDTC-CNTH-GR	1:200 1:500	)	3415.3	3035.0m
DIT-DDBHC-GR (DIT FAILED)	1:200 1:500		3413.5	858.0m
RFT-GR/HP (RUNS 5-7) 9 SEATS, 3 SAMPLES			3285.0	3053.5m
HDT-GR			3425.7	1950.0m
WST-GR (12 LEVELS)			3421.0	600.0m
CST-GR (2 RUNS) SHOT 90, RECOVERED 65			3403.0	1600.0m

SUMMARY OF WIRELINE FORMATION TEST PROGRAMME - ANGELFISH-1

TEST & SEAT NO.	DEPTH (METRES) K.B.	RECOVERY (LITRES) CHAMBER	OIL	COND.	GAS	FORMATION WATER	MUD FILTRATE	HEWLETT-PACKARD FORMATION PRESSURE MPaa	Psia	HEWLETT-PACKARD HYDROSTATIC PRESSURE MPaa	Psia	REMARKS
		Litres	Litres	Litres	m^3	Litres	Litres					
1/1	3162.5	Pretest						33.33	4834.7	36.52	5297.2	Valid/overpressured
1/2	3148.0	Pretest						32.61	4729.6	36.35	5271.6	Valid/overpressured
1/3	3143.0	Pretest						32.66	4736.3	36.25	5257.7	Slightly supercharged
1/4	3127.3	Pretest						32.18	4667.6	36.11	5237.5	Valid/overpressured
1/5	3143.0	Pretest						32.64	4733.7	36.30	5264.2	Valid/overpressured
1/6	3144.3	Pretest						33.39	4842.5	36.33	5269.1	Tight/supercharged/overpressured
1/7	3146.0	Pretest						32.64	4734.4	36.33	5268.5	Valid/overpressured
1/8	3124.0	Pretest						32.26	4678.5	36.06	5229.3	Valid/overpressured
1/9	3053.0	Pretest						30.83	4471.3	35.25	5112.4	Valid
1/10	3048.5	Pretest						-	-	35.22	5107.9	Seal failure
1/11	3048.5	Pretest						-	-	35.22	5108.5	Seal failure
1/12	3049.0	Pretest						-	-	35.22	5108.6	Seal failure
1/13	3048.7	Pretest						30.83	4471.0	35.22	5108.8	Valid
1/14	3041.5	Pretest						-	-	35.13	5095.2	Tight
1/15	3040.5	Pretest						-	-	35.12	5093.9	Tight/seal failure
1/16	3041.0	Pretest						-	-	35.12	5094.2	Seal failure
1/17	3029.0	Pretest						-	-	34.98	5073.3	
1/18	3029.0	Pretest						30.48	4421.6	34.98	5073.5	Valid/seal failure recovered
1/19	3023.5	Pretest						30.38	4406.8	34.94	5068.1	Valid
1/20	3003.0	Pretest						30.13	4369.3	34.71	5033.8	Valid
1/21	2961.5	Pretest						29.62	4295.6	34.23	4964.5	Valid
1/22	1997.5	Pretest						19.69	2855.3	23.20	3365.4	Valid
1/23	1939.5	Pretest						19.13	2774.1	22.53	3268.4	Valid

SUMMARY OF WIRELINE FORMATION TEST PROGRAMME - ANGELFISH-1

TEST & SEAT NO.	DEPTH (METRES) K.B.	RECOVERY (LITRES) CHAMBER	OIL	COND.	GAS	FORMATION WATER	MUD FILTRATE	HEWLETT-PACKARD FORMATION PRESSURE MPag	Psig	HEWLETT-PACKARD HYDROSTATIC PRESSURE MPag	Psig	REMARKS
		Litres	Litres	Litres	m^3	Litres	Litres					
2/24	3127.3	Pretest						-	-	36.07	5231	Seal failure
2/25	3127.3	Pretest						-	-	36.07	5231	Seal failure
2/26	3127.0	45.4	2.0	-	1.5622	2.0 (MUD)	26.0	32.10	4656	36.06	5230	Valid/sample taken
		10.4 (Seal failure)										
3/27	3143.0	45.4	1.1	-	3.5743	-	17.8	32.50	4714	36.27	5261	Valid/sample taken
		10.4	0.75	-	1.1292	-	0.75					
4/28	3130.0	Pretest						32.45	4706	36.13	5240	Valid/tight/sample aborted
4/29	3129.8	Pretest						-	-	36.11	5237	Tight/sample aborted
4/30	3123.5	Pretest						32.27	4681	36.09	5225	Tight/sample aborted
4/31	3127.0	Pretest						-	-	36.05	5229	Seal failure
4/32	3127.0	Pretest						-	-	36.06	5230	Seal failure
4/33	3130.0	45.4	-	-	0.0991	-	18.6	31.39	4553	36.09	5234	Tight/took sample/probe plugged
		10.4 (Not opened)										
5/34	3285.0	45.4	Scum	-	0.0736	-	42.5	35.87	5203	40.21	5832	Valid/sample taken
		10.4	Scum	-	0.0594	-	9.3					
6/35	3194.3	45.4	Scum	-	0.0821	-	43.0	33.83	4906	39.08	5668	Valid/sample taken
		10.4	Scum	-	0.0311	-	9.0					
7/36	3053.0	Pretest						-	-	37.34	5415	Seal failure
7/37	3053.0	Pretest						-	-	37.34	5415	Seal failure
7/38	3053.2	Pretest						-	-	37.32	5413	Seal failure
7/39	3052.8	Pretest						-	-	37.32	5413	Seal failure
7/40	3052.8	Pretest						-	-	37.32	5413	Seal failure
7/41	3052.8	Pretest						-	-	37.31	5412	Seal failure
7/42	3053.5	45.4	-	-	-	-	42.5	30.70	4452	37.32	5413	Valid/sample taken
		10.4	-	-	-	-	9.0					

8.

TEMPERATURE RECORD - ANGELFISH-1

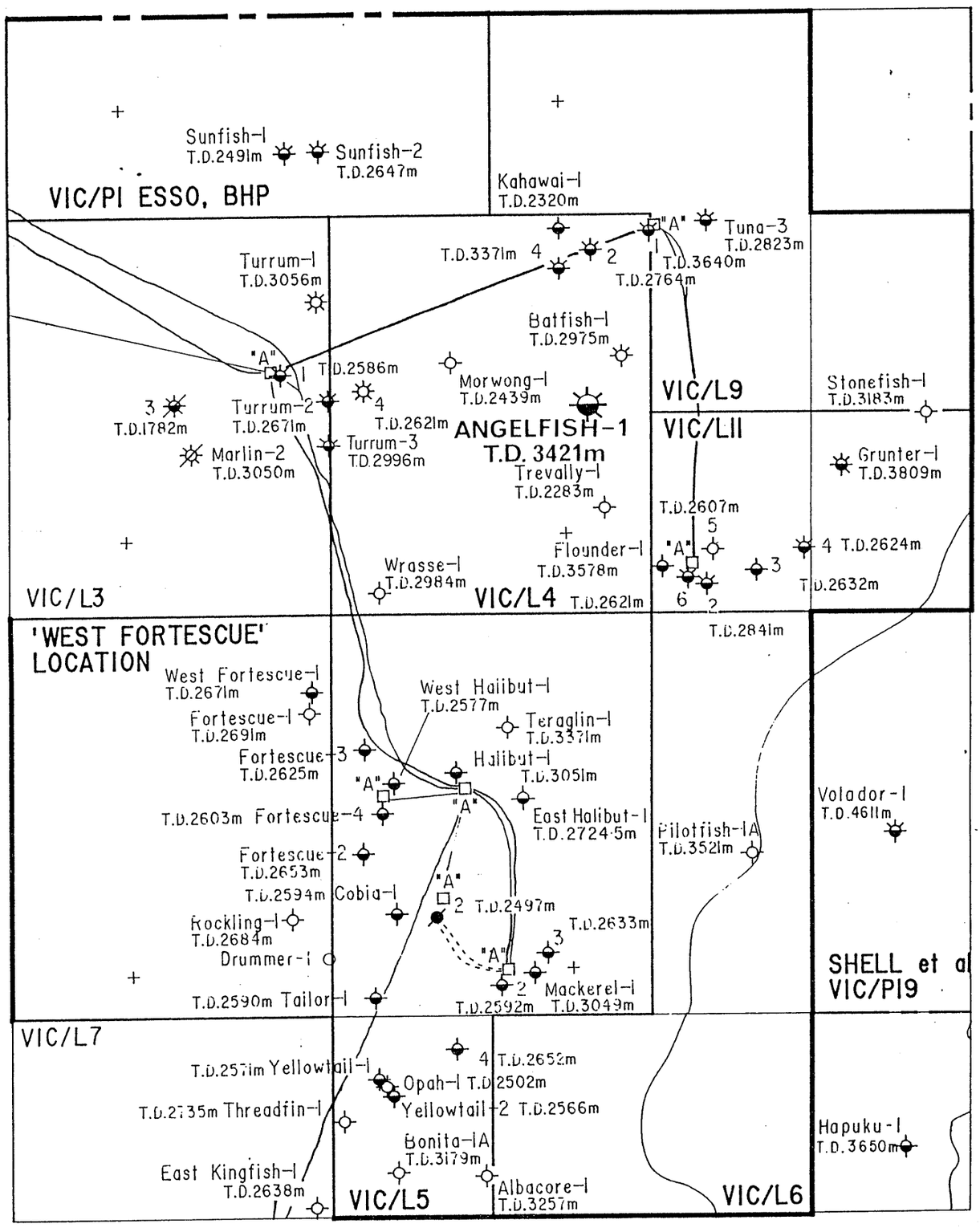
LOGGING RUN	THERMOMETER DEPTH (m)	MAX. RECORDED TEMPERATURE (C°)	CIRCULATION TIME (t_k) (hours)	TIME AFTER CIRCULATION STOPPED (t)	HORNER TEMPERATURE (C°)	GEOTHERMAL GRADIENT (C°/km)
Suite 1						
AMS-GR						
Suite 2						
DLTE-MSFL-GR	3178.0	90.0	1.75	6.3	117.8	34.90
LDTC-CNTH-GR	3178.0	105.0	1.75	14.6		
Suite 3						
DLTE-MSFL-GR)COMBINATION LDTC-CNTH-GR) TOOL	3421.0	100.0	3.0	7.25	125.7	34.74
DIT-DDBHC-GR	3413.5	107.7	3.0	11.3		
HDT-GR*	3425.7	102.0	3.5	7.0		

* AFTER WIPER TRIP

FIGURES

LOCALITY MAP

ANGELFISH - 1



SCALE 1:250 000

Figure 1

Dwg. 2323/OP/2

ANGELFISH1 PROGRESS CURVE
SOUTHERN CROSS

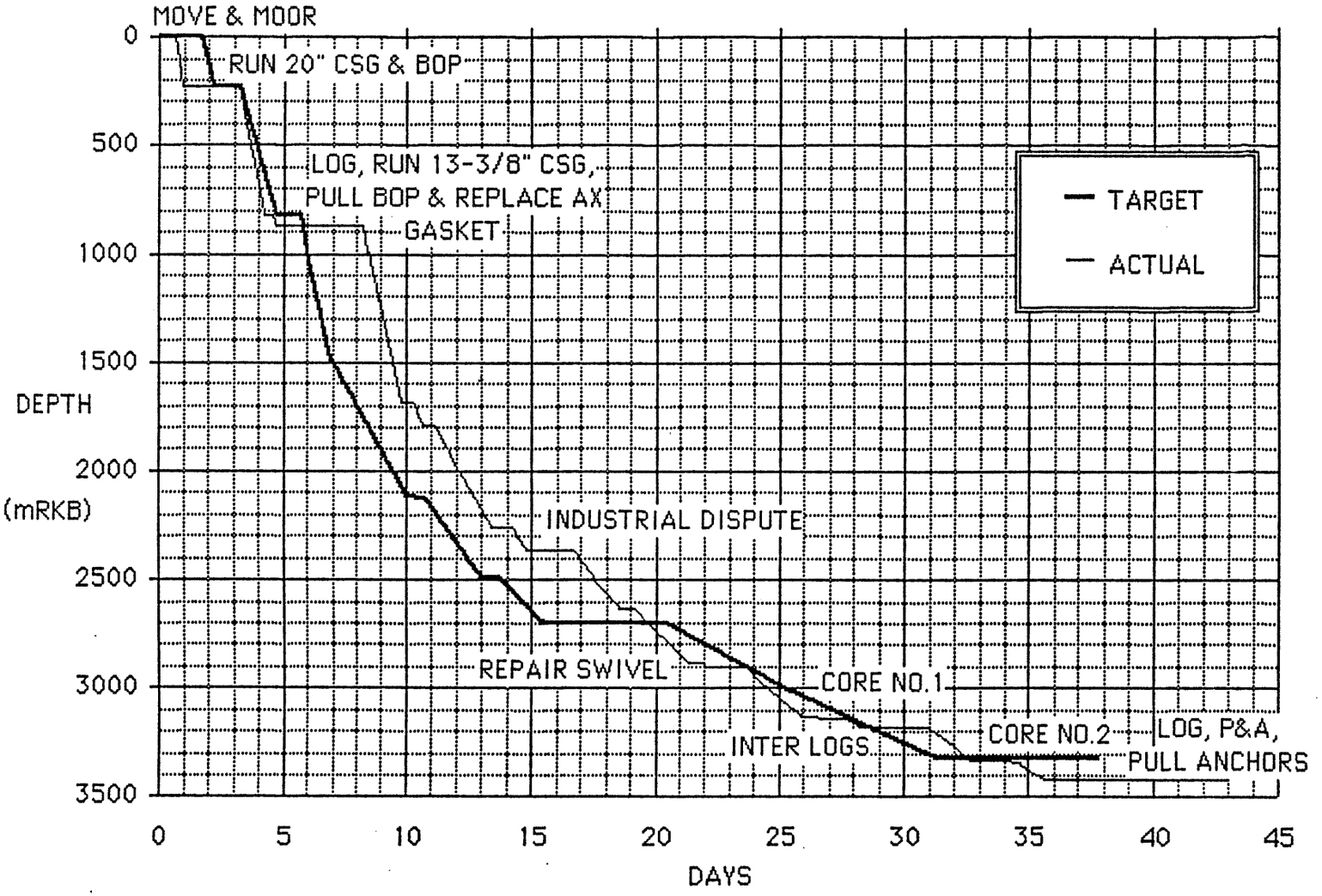
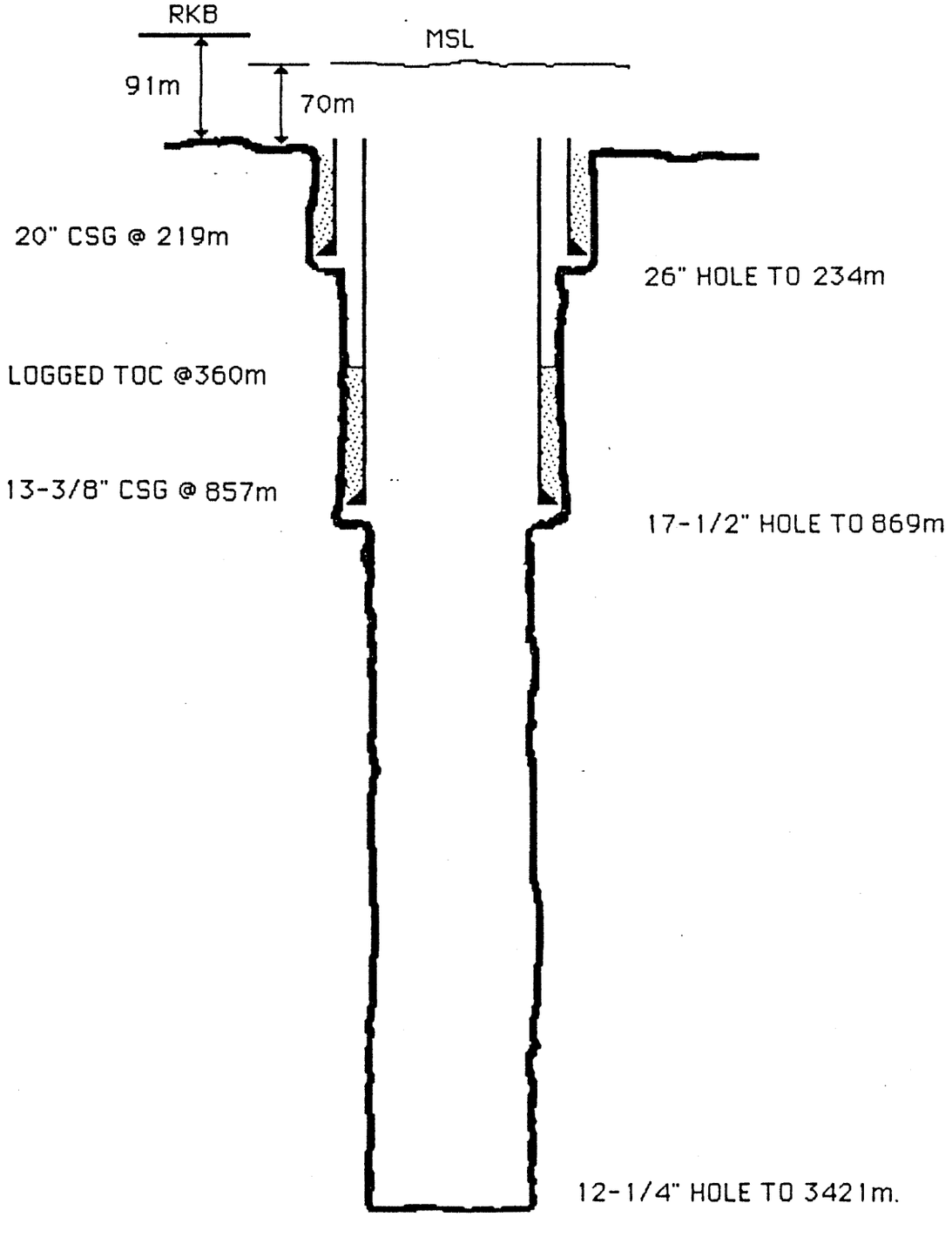


FIGURE 2

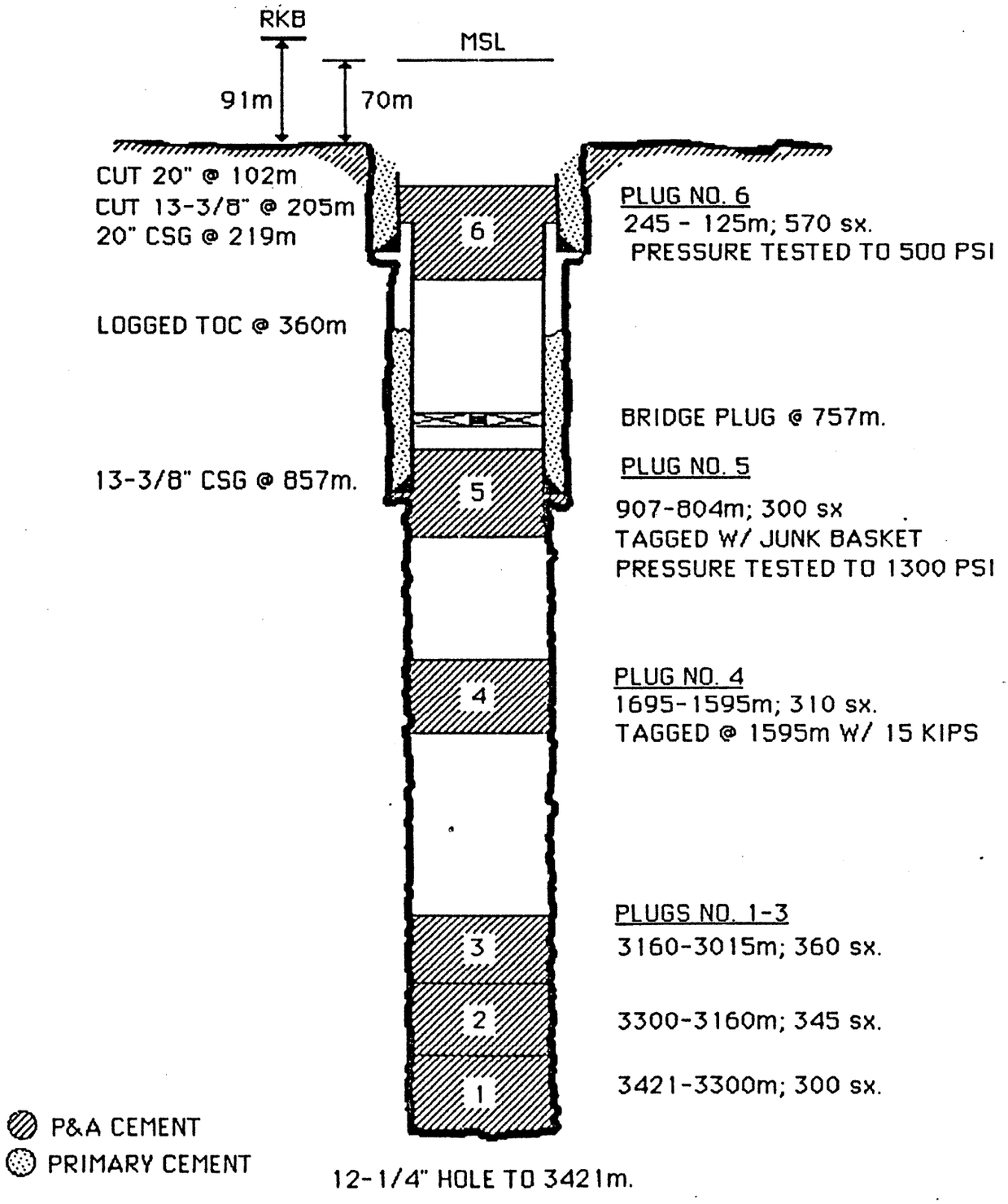
ANGELFISH-1
WELLBORE SCHEMATIC



ALL DEPTHS ARE MEASURED FROM RKB

FIGURE 3

ANGELFISH-1
ABANDONMENT SCHEMATIC



ALL DEPTHS ARE MEASURED FROM RKB

FIGURE 4

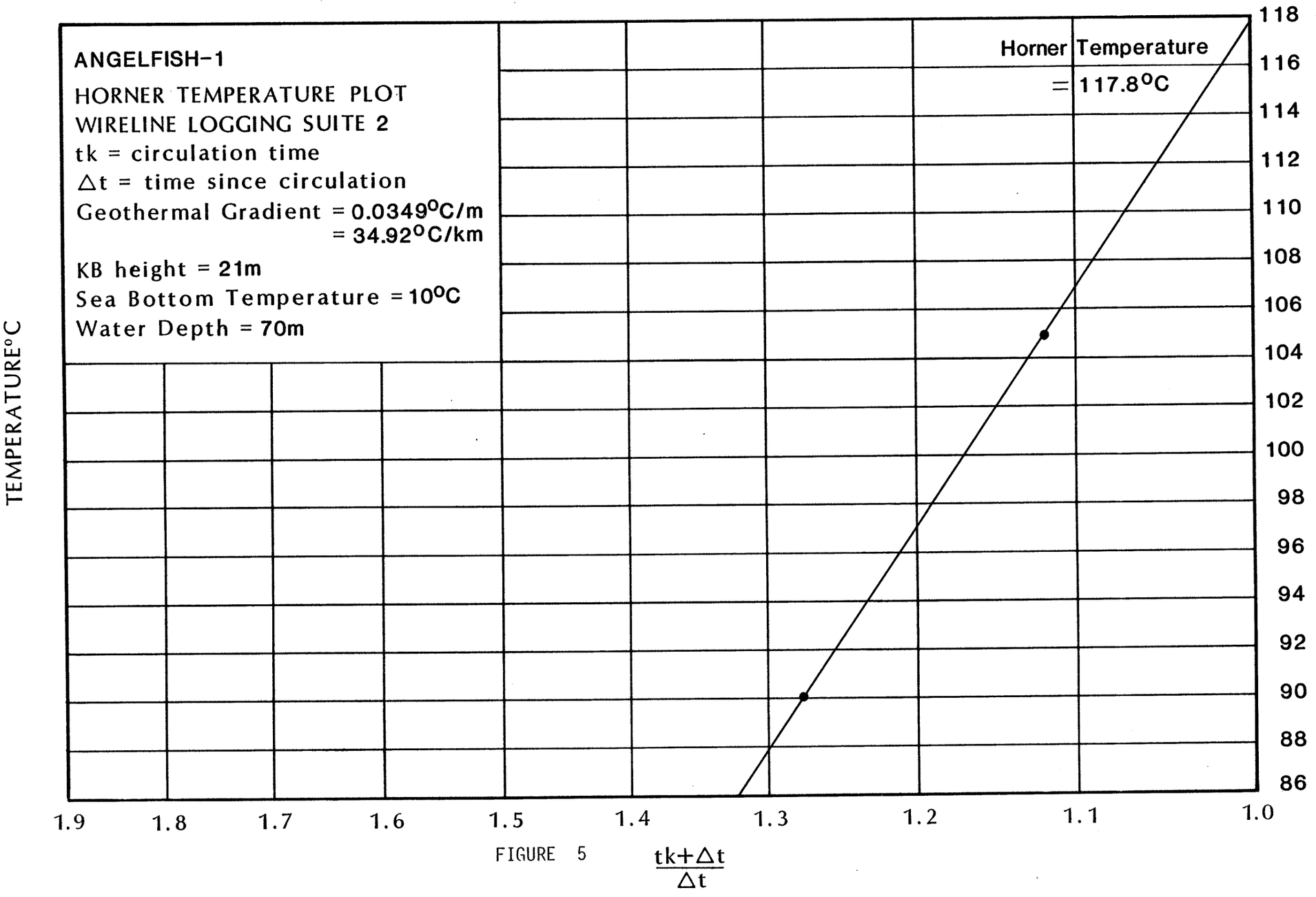

ANGELFISH-1
HORNER TEMPERATURE PLOT
WIRELINE LOGGING SUITE 2
tk = circulation time
Δt = time since circulation
Geothermal Gradient = 0.0349°C/m
= 34.92°C/km
KB height = 21m
Sea Bottom Temperature = 10°C
Water Depth = 70m
Horner Temperature
= 117.8°C
TEMPERATURE°C
118
116
114
112
110
108
106
104
102
100
98
96
94
92
90
88
86
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
tk+Δt / Δt

FIGURE 5

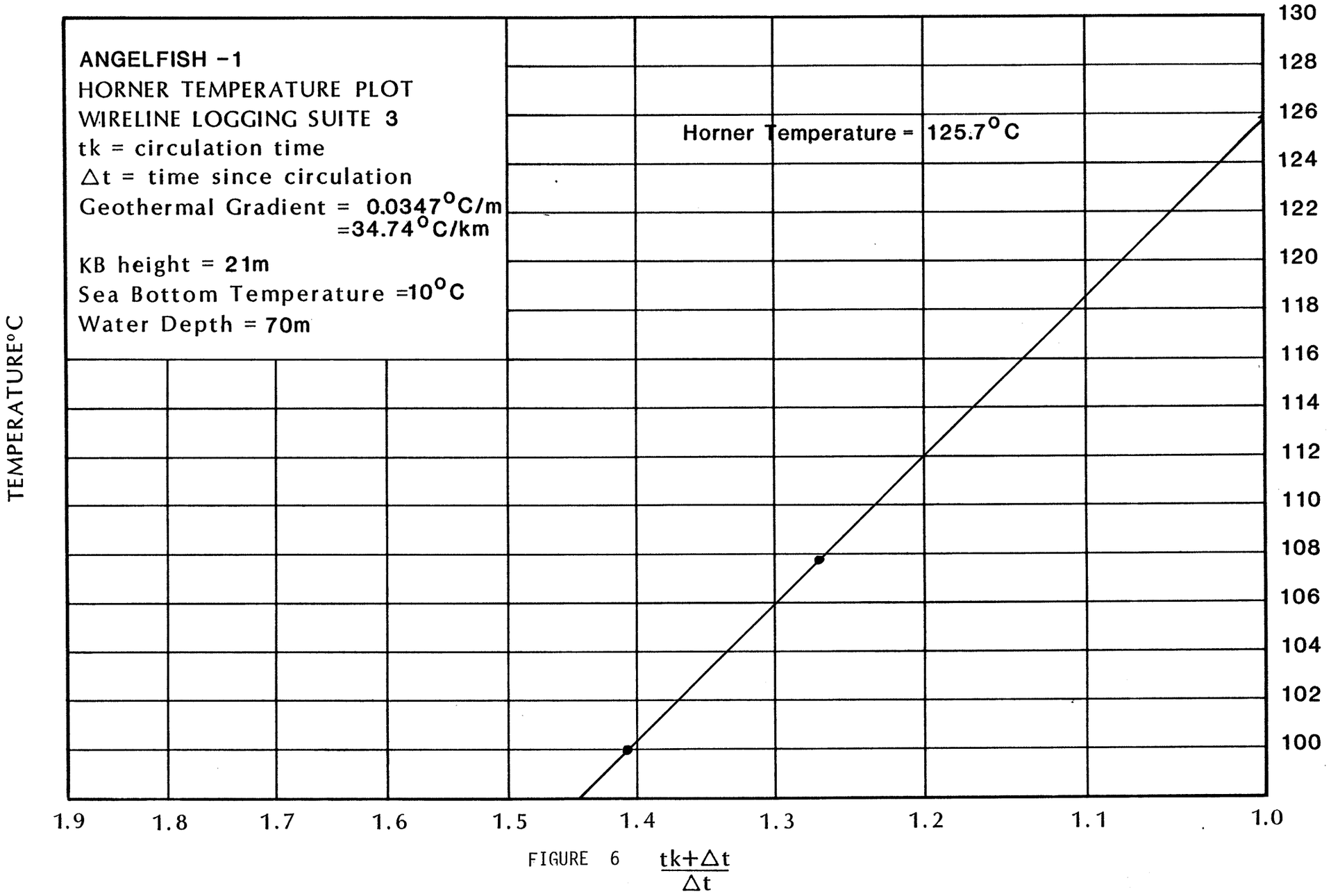

ANGELFISH -1
HORNER TEMPERATURE PLOT
WIRELINE LOGGING SUITE 3
tk = circulation time
Δt = time since circulation
Geothermal Gradient = 0.0347°C/m
=34.74°C/km
KB height = 21m
Sea Bottom Temperature =10°C
Water Depth = 70m
Horner Temperature = 125.7°C
TEMPERATURE°C
130
128
126
124
122
120
118
116
114
112
110
108
106
104
102
100
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
tk+Δt / Δt

FIGURE 6

APPENDIX 1

ANGELFISH-1

Cuttings Descriptions

Depth	%	Descriptions
230-240m	100	LIMESTONE: calcarenite-calcirudite dominantly skeletal with minor sparite; most of the fossils and fossil fragments are loose with some adhering to the sparite cement; fossils mostly fragments of gastropods; brachiopods and pelecypods; dominantly cement in cutting samples.
240-250m	100	LIMESTONE: calcarenite-calcirudite as above.
250-260m	100	LIMESTONE: calcarenite-calcirudite as above; bryozoa more common.
260-270m	100	LIMESTONE: calcarenite becoming more micritic; bryozoans more common.
270-280m	100	LIMESTONE: calcarenite; light grey to green-grey aggregates of fossil fragments; fine to coarse grained with micritic cement; intraparticle porosity; minor coarse grained fossil fragments and sparite.
280-290m	100	LIMESTONE: calcarenite as above; cement in cuttings down to less than 50%.
290-300m	100	LIMESTONE: calcarenite as above.
300-310m	100	LIMESTONE: calcarenite as above.
310-320m	100	LIMESTONE: calcarenite as above; minor fossil fragments.
320-330m	100	LIMESTONE: calcarenite as above.
330-340m	100	LIMESTONE: calcarenite as above.
340-350m	100	LIMESTONE: calcarenite as above.
350-360m	100	LIMESTONE: calcarenite as above; trace forams; bryozoa and brachiopods.
360-370m	100	LIMESTONE: calcarenite as above.
370-380m	100	LIMESTONE: calcarenite as above.
380-390m	100	LIMESTONE: calcarenite as above.
390-400m	100	LIMESTONE: calcarenite as above.
400-410m	100	LIMESTONE: calcarenite as above.
410-420m	100	LIMESTONE: calcarenite as above.
420-430m	100	LIMESTONE: calcarenite as above.
430-440m	100	LIMESTONE: calcarenite as above.
440-450m	100	LIMESTONE: calcarenite as above.

450-460m	100	LIMESTONE: calcarenite as above.
460-470m	100	LIMESTONE: calcarenite as above.
470-480m	100	LIMESTONE: calcarenite as above; forams more common.
480-490m	100	LIMESTONE: calcarenite as above.
490-500m	100	LIMESTONE: calcarenite as above.
500-510m	100	LIMESTONE: calcarenite as above.
510-520m	100	LIMESTONE: calcarenite as above.
520-530m	100	LIMESTONE: calcarenite; light grey; firm; medium grained skeletal to micritic limestone; trace forams; bryozoa and fossil fragments.
540-550m	100	LIMESTONE: calcarenite as above; trace calcisiltite and calcilutite.
550-560m	100	LIMESTONE: calcarenite as above.
560-570m	100	LIMESTONE: calcarenite; skeletal to detrital; as above.
570-580m	100	LIMESTONE: calcarenite; skeletal to detrital to micritic cement; as above.
580-590m	100	LIMESTONE: calcarenite as above; trace calcisiltite.
590-600m	100	LIMESTONE: calcarenite 80%; as above; calcisiltite 20%; olive grey to light brown; hard; blocky to subconchoidal fracture; very fine grained; detrital; micritic limestone.
600-610m	100	LIMESTONE: as above.
610-620m	100	LIMESTONE: calcarenite as above; trace calcisiltite as above.
620-630m	100	LIMESTONE: calcarenite as above; minor forams.
630-640m	100	LIMESTONE: calcarenite as above; minor forams.
640-650m	100	LIMESTONE: calcarenite as above; minor forams; trace glauconite.
650-660m	100	LIMESTONE: calcarenite as above; minor forams; trace glauconite.
660-670m	100	LIMESTONE: calcarenite; light grey; firm to soft; rounded; medium grained; detrital limestone with micritic cement.
670-680m	100	LIMESTONE: calcarenite as above; minor calcisiltite and calcilutite as above.
680-690m	100	LIMESTONE: calcarenite as above; minor calcisiltite and calcilutite.
	trace	FORAMS.

690-700m	90	CALCARENITE: as above.
	10	CALCILUTITE: as above.
	trace	FORAMS.
700-710m	90	CALCARENITE: as above.
	10	CALCILUTITE: as above.
	trace	FORAMS.
710-720m	50	CALCARENITE: as above.
	50	CALCILUTITE: soft; water sensitive; forams common.
720-730m	50	CALCARENITE: as above.
	40	CALCISILTITE: light brown; hard; blocky to subconchoidal fracture; micritic limestone.
	10	CALCILUTITE: as above.
	trace	FORAMS.
730-740m	50	CALCARENITE: as above.
	50	CALCISILTITE: as above.
740-750m	50	CALCISILTITE: as above.
	30	CALCILUTITE: light grey; glauconitic specks; soft; water sensitive.
	20	CALCARENITE: as above.
750-760m	70	CALCILUTITE: as above.
	30	CALCISILTITE: water sensitive; grading to calcilutite.
760-770m	70	CALCILUTITE: as above.
	30	CALCISILTITE: as above.
770-780m	90	CALCISILTITE: grading to calcarenite; light grey to grey; blocky; soft to firm; occasionally brown and very hard.
	10	CALCILUTITE: as above.
	trace	FOSSILS.
780-790m	80	CALCARENITE: as above.
	20	CALCISILTITE: as above.
790-800m	80	CALCARENITE: as above; minor fossils.
	20	CALCILUTITE: light grey; water sensitive; very soft.
800-810m	90	CALCARENITE: as above.
	10	CALCILUTITE: as above; minor fossils.
810-820m	100	LIMESTONE: calcarenite as above; trace calcilutite and calcisiltite; minor fossils.
820-824m	100	LIMESTONE: calcarenite as above.
		POOH prior to running $13^3/8$" casing; lost returns; pumped mica slug; drilling ahead; samples contain large amounts of muscovite.
824-830m	100	LIMESTONE: calcarenite as above; 20% of sample consists of mica.
830-835m	100	LIMESTONE: calcarenite as above; trace dark grey; tabular; soft; calcareous siltstone.

835-840m		NO RETURNS.
840-845m	100	LIMESTONE: calcarenite as above; trace to minor fossils; mostly forams; mica in sample less than 10%.
845-850m	100	LIMESTONE: calcarenite; light grey; firm to soft; rounded cuttings of medium grained detrital limestone with micritic cement; poor to no porosity; grading into calcisiltite.
	trace	CALCAREOUS SILTSTONE: dark grey; firm to soft tabular cuttings; mica in sample less than 10%.
850-855m	100	LIMESTONE: calcarenite as above; minor glauconite and fossils; mostly forams.
855-860m	100	LIMESTONE: calcarenite as above; minor glauconite and fossils; mostly forams.
860-865m	100	LIMESTONE: calcarenite as above; minor glauconite and fossils; mostly forams.
865-870m	100	LIMESTONE: calcarenite as above; minor glauconite and fossils; mostly forams.
		POOH TO RUN 13-^{3}/8" CASING.
870-875m	100	LIMESTONE: calcarenite as above; minor glauconite.
875-880m	100	LIMESTONE: calcarenite as above; minor glauconite and fossils; all forams.
880-890m	100	LIMESTONE: calcarenite as above.
890-900m	80	CALCARENITE: as above.
	20	CALCILUTITE: light grey; soft to very soft (gumbo).
900-910m	50	CALCARENITE: as above.
	50	CALCILUTITE: as above; grading into firmer calcisiltite.
910-920m	50	CALCARENITE: light grey; firm; medium to fine grained detrital limestone with micritic cement.
	50	CALCILUTITE: light grey; soft to firm; water sensitive; grading into calcisiltite; minor forams; trace sparite; trace glauconite.
		CALCIMETRY: 87-90% $CaCO_3$
920-930m	60	CALCARENITE: as above.
	40	CALCILUTITE-CALCISILTITE: as above; minor fossils; mainly forams; trace sparite.
930-940m	80	CALCARENITE: slightly skeletal; as above.
	20	CALCISILTITE: as above.
940-950m	50	CALCARENITE: as above.
	50	CALCISILTITE: grading to calcilutite as above.
950-960m	60	CALCARENITE: as above.
	40	CALCISILTITE: as above; common forams; minor white to clear crystals of sparite.

960-970m	70	CALCARENITE: as above.
	20	LOOSE FOSSILS: dominantly forams and sparite fragments.
	10	CALCISILTITE: as above.
970-980m	80	CALCARENITE: as above.
	10	LOOSE FOSSILS: as above.
	10	CALCISILTITE: as above.
980-990m	80	CALCARENITE: as above.
	10	LOOSE FOSSILS: fragments and forams.
	10	CALCISILTITE: as above.
990-1000m	60	CALCARENITE: as above.
	30	CALCISILTITE: as above
	10	LOOSE FOSSILS: as above.
1000-1010m	90	CALCARENITE: as above.
	10	LOOSE FOSSILS: as above.
1010-1020m	80	CALCARENITE: light grey; firm to soft; medium to fine grained aggregates of detrital to skeletal limestone; micritic cement.
	10	CALCISILTITE: light grey; soft; water sensitive limestone.
	10	LOOSE FOSSILS: mainly forams; trace sparite.
1020-1030m	90	CALCARENITE: as above.
	10	CALCISILTITE: as above; minor fossils.
1030-1040m	70	CALCARENITE: as above.
	30	CALCISILTITE: as above; minor fossils.
1040-1050m	50	CALCARENITE: as above.
	50	CALCISILTITE: as above; minor fossils.
1050-1060m	80	CALCARENITE: as above.
	20	CALCISILTITE: as above; minor fossils.
1060-1070m	100	LIMESTONE: calcarenite as above; minor fossils.
1070-1080m	90	CALCARENITE: as above.
	10	CALCISILTITE: as above; minor fossils.
1080-1090m	80	CALCARENITE: as above.
	20	CALCISILTITE: as above; minor fossils.
1090-1100m	90	CALCARENITE: as above.
	10	CALCISILTITE: grading to calcilutite as above; minor fossils.
1100-1110m	90	CALCARENITE: as above.
	10	CALCISILTITE: as above; minor fossils.
1110-1120m	100	LIMESTONE: as above; minor fossils.
1120-1130m	90	CALCARENITE: as above.
	10	CALCISILTITE: as above; minor fossils.
1130-1140m	90	CALCARENITE: as above.
	10	CALCISILTITE: as above.
1140-1150m	80	CALCARENITE: as above.
	20	CALCISILTITE: as above.

1150-1160m	90	CALCARENITE: as above.
	10	CALCISILTITE: as above.
1160-1170m	90	CALCARENITE: as above; light grey; firm to occasionally soft; fine to medium aggregates of detrital; skeletal limestone.
	10	CALCISILTITE: light grey; water sensitive soft; grades into calcilutite.
	trace	FOSSILS.
1170-1180m	90	CALCARENITE: as above.
	10	CALCISILTITE: as above.
1180-1190m	90	CALCARENITE: as above.
	10	CALCISILTITE: as above.
	trace	FOSSILS: forams.
1190-1200m	70	CALCARENITE: as above.
	20	CALCILUTITE: light grey; water sensitive; soft
	10	CALCISILTITE: as above.
1200-1210m	80	CALCARENITE: as above.
	20	CALCILUTITE: as above.
	trace	CALCISILTITE: as above.
	trace	FORAMS.
1210-1220m	80	CALCARENITE: as above.
	10	CALCILUTITE: as above.
	10	CALCISILTITE: as above.
	trace	CALCITE CRYSTALS: (aragonitic habit).
	trace	SPARITE.
1220-1230m	80	CALCARENITE: as above.
	10	CALCILUTITE: as above.
	10	CALCISILTITE: as above.
	trace	CALCITE CRYSTALS: (aragonitic habit)
	trace	SPARITE.
1230-1240m	70	CALCARENITE: as above.
	30	CALCISILTITE: as above.
1240-1250m	60	CALCARENITE: light grey; soft to firm.
	40	CALCISILTITE: as above.
	trace	PYRITE.
	trace	FORAMS.
1250-1260m	50	CALCISILTITE: blocky cuttings.
	40	CALCARENITE: as above.
	10	CALCILUTITE: white to light grey; carbonaceous flecks.
1260-1270m	60	CALCISILTITE: as above.
	40	CALCARENITE: as above
	trace	CALCILUTITE: as above.
1270-1280m	70	CALCISILTITE: as above.
	30	CALCARENITE: grading to Calcisiltite.
1280-1290m	80	CALCISILTITE: as above.
	20	CALCARENITE: grading to Calcisiltite.
	trace	CALCILUTITE: as above.
		CALCIMETRY: 60% $CaCO_3$

1290-1300m	70	CALCISILTITE: as above.
	30	CALCARENITE: as above.
	trace	QUARTZ.
1300-1310m	70	CALCISILTITE: as above.
	30	CALCARENITE: grading to Calcisiltite.
	trace	CALCITE CRYSTALS: (aragonitic habit).
1310-1320m	80	CALCISILTITE: as above.
	20	CALCARENITE: as above.
	trace	CALCILUTITE: as above.
1320-1330m	70	CALCISILTITE: as above.
	30	CALCARENITE: light grey to grey; soft to firm; grading to calcisiltite; as above.
	trace	CALCILUTITE: as above.
1330-1340m	70	CALCISILTITE: as above.
	30	CALCARENITE: as above.
	trace	CALCILUTITE: as above.
1340-1350m	60	CALCISILTITE: as above.
	40	CALCARENITE: grading to calcisiltite.
	trace	FOSSILS.
	trace	CALCITE CRYSTALS: (aragonitic habit).
1350-1360m	70	CALCISILTITE: as above.
	30	CALCARENITE: as above.
1360-1370m	80	CALCISILTITE: as above.
	20	CALCARENITE: as above.
	trace	FOSSILS.
1370-1380m	90	CALCISILTITE: as above.
	10	CALCARENITE: as above.
1380-1390m	90	CALCISILTITE: as above.
	10	CALCARENITE: as above.
1390-1400m	80	CALCISILTITE: as above.
	20	CALCILUTITE: light grey; soft; gumbo.
1400-1410m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1410-1420m	50	CALCISILTITE: as above.
	50	CALCILUTITE: as above.
1420-1430m	50	CALCISILTITE: as above.
	50	CALCILUTITE: as above.
1430-1440m	60	CALCILUTITE: as above.
	40	CALCISILTITE: as above.
1440-1450m	60	CALCILUTITE: as above.
	40	CALCISILTITE: as above.
1450-1460m	50	CALCILUTITE: very light grey; soft; gummy.
	40	CALCISILTITE: light to dark grey; hard to firm; tabular cuttings.
	10	CALCARENITE: light grey; soft to friable; fine grained; detrital limestone with micritic cement.
	trace	FOSSILS.

1460-1470m	80	CALCILUTITE: as above.
	10	CALCISILTITE: as above.
	10	CALCARENITE: as above.
1470-1480m	40	CALCARENITE: as above.
	40	CALCISILTITE: as above.
	20	CALCILUTITE: as above.
1480-1490m	50	CALCILUTITE: as above.
	30	CALCISILTITE: as above.
	20	CALCARENITE: as above.
1490-1500m	70	CALCISILTITE: as above.
	20	CALCARENITE: as above.
	10	CALCILUTITE: as above.
1500-1510m	70	CALCISILTITE: as above; grades into calcareous siltstone.
	20	CALCARENITE: as above.
	10	CALCILUTITE: as above.
1510-1520m	80	CALCAREOUS SILTSTONE: description as for calcisiltite but contains less than 50% calcium carbonate.
	20	LIMESTONE: 60% calcilutite as above; 40% calcarenite as above.
1520-1530m	50	CALCAREOUS SILTSTONE: as above.
	50	LIMESTONE: 70% calcarenite as above; 30% calcilutite as above.
	trace	GLAUCONITE.
	trace	SPARITE.
	trace	FOSSILS.
1530-1540m	60	CALCAREOUS SILTSTONE: as above.
	40	LIMESTONE: 70% calcilutite as above; 30% calcarenite as above.
	trace	GLAUCONITE.
1540-1550m	70	CALCAREOUS SILTSTONE: as above.
	30	LIMESTONE: 50% calcarenite as above; 50% calcilutite as above.
1550-1555m	70	CALCAREOUS SILTSTONE: grey to dark grey; firm to hard; tabular to platy cuttings of calcareous siltstone; contains minor amounts of fossils and fossil fragments.
	30	LIMESTONE: 90% calcarenite; grey; soft to friable; fine grained; detrital and skeletal limestone with micritic cement; 10% calcilutite; soft; light grey; gumbo with loose fossils and fossil fragments.
1555-1560m	90	CALCAREOUS SILTSTONE: as above.
	10	LIMESTONE: as above.
1560-1565m	50	CALCAREOUS SILTSTONE: as above.
	50	LIMESTONE: 70% calcarenite as above; 30% calcilutite as above.
1565-1570m	50	CALCAREOUS SILTSTONE: as above.
	50	LIMESTONE: 80% calcarenite as above; 20% calcilutite as above.
	trace	PYRITE: replacing fossils in the limestone.

1570-1575m	70	LIMESTONE: 80% calcarenite as above; 20% calcilutite as above.
	30	CALCAREOUS SILTSTONE: as above.
1575-1580m	60	LIMESTONE: 90% calcarenite as above; 10% calcilutite as above.
	40	CALCAREOUS SILTSTONE: as above.
1580-1585m	50	LIMESTONE: 90% calcarenite as above; 10% calcilutite as above.
	50	CALCAREOUS SILTSTONE: as above.
1585-1590m	70	CALCAREOUS SILTSTONE: as above.
	30	LIMESTONE: 80% calcarenite as above; 20% calcilutite as above.
1590-1595m	80	CALCAREOUS SILTSTONE: as above.
	20	LIMESTONE: 80% calcarenite as above - glauconite common; 20% calcilutite as above.
1595-1600m	70	CALCAREOUS SILTSTONE: grey; firm to soft; platey cuttings; minor fossil inclusions.
	30	LIMESTONE: 90% calcarenite; light grey; soft to friable; fine grained detrital limestone with minor fossils and glauconite; 20% calcilutite; light grey; very soft; gumbo.
	trace	FOSSILS.
1600-1605m	80	CALCAREOUS SILTSTONE: as above.
	20	LIMESTONE: as above.
	trace	GLAUCONITE.
1605-1610m	90	CALCAREOUS SILTSTONE: as above.
	10	LIMESTONE: as above.
1610-1615m	80	CALCAREOUS SILTSTONE: as above.
	20	LIMESTONE: as above.
	trace	GLAUCONITE.
1615-1620m	70	CALCAREOUS SILTSTONE: as above.
	30	LIMESTONE: as above.
1620-1625m	80	CALCAREOUS SILTSTONE: as above.
	20	LIMESTONE: as above.
1625-1630m	80	CALCAREOUS SILTSTONE: as above.
	20	LIMESTONE: as above.
	trace	GLAUCONITE.
1630-1635m	60	LIMESTONE: as above; fossils common; traces of glauconite.
	40	CALCAREOUS SILTSTONE: as above.
	trace	SANDSTONE: clear; very coarse grained; rounded to well rounded loose quartz grains; no shows.
1635-1640m	80	CALCAREOUS SILTSTONE: as above.
	20	LIMESTONE: as above.
	trace	SANDSTONE: as above.
1640-1645m	40	SANDSTONE: clear; coarse grained; well rounded to rounded; loose quartz grains; no shows.
	40	CALCAREOUS SILTSTONE: as above.
	20	LIMESTONE: as above.
	trace	GLAUCONITE.

1645-1650m	40	CALCAREOUS SILTSTONE: grey; firm; tabular to platey cuttings with minor fossil inclusions.
	30	LIMESTONE: 80% calcarenite; grey to light grey; fine grained; detrital limestone with minor fossils; 20% calcilutite; light grey; soft to gumbo forming limestone; minor fossils.
	30	SANDSTONE: clear; subrounded to well rounded; coarse to very coarse grained; loose grains; no shows.
	trace	GLAUCONITE.
1650-1655m	40	CALCAREOUS SILTSTONE: as above.
	30	CALCAREOUS AND GLAUCONITIC SANDSTONE: brown to green and white; hard to friable; rounded cuttings of medium to coarse grained; subangular to subrounded quartz and glauconite grains in a calcareous matrix; poor to no porosity; some pyrite cement; no shows; trace mineral fluorescence.
	20	LIMESTONE: as above.
	10	SANDSTONE: as above.
1655-1660m	50	CALCAREOUS SILTSTONE: as above.
	30	CALCAREOUS AND GLAUCONITIC SANDSTONE: as above.
	10	LIMESTONE: as above.
	10	SANDSTONE: as above.
1660-1665m	50	CALCAREOUS AND GLAUCONITIC SANDSTONE: as above; strong yellow mineral fluorescence; no cut.
	40	CALCAREOUS SILTSTONE: as above.
	10	SANDSTONE: as above.
1665-1670m	40	CALCAREOUS SILTSTONE: as above.
	40	SILTSTONE: brown; soft; tabular; sandy siltstone.
	15	CALCAREOUS AND GLAUCONITIC SANDSTONE: as above; moderate yellow mineral fluorescence.
	5	SANDSTONE: as above.
1670-1675m	60	CALCAREOUS SILTSTONE: as above.
	25	SILTSTONE: sandy in part; as above.
	10	CALCAREOUS AND GLAUCONITIC SANDSTONE: as above.
	5	SANDSTONE: as above.
1675-1680m	50	CALCAREOUS SILTSTONE: grey; soft to firm; tabular.
	40	SILTSTONE: brown; soft to firm; grades into sandy siltstone; minor sandy inclusions; calcareous cement common.
	5	CALCAREOUS AND GLAUCONITIC SANDSTONE: brown to green and white; firm to soft; fine to medium grained; subangular to subrounded quartz and glauconite grains in carbonate cement; minor yellow mineral fluorescence; tight; no shows.
	5	SANDSTONE: clear; coarse to very coarse grained; subangular to rounded; loose grains; no shows.
	trace	PYRITE.

1680-1685m	60	CALCAREOUS SANDSTONE: brown; firm; very fine grained; well rounded; well sorted calcareous cemented sandstone; grades into calcareous siltstone; tight; no shows; minor yellow mineral fluorescence.
	40	CALCAREOUS SILTSTONE: grey to dark grey; blocky.
	trace	SANDSTONE: as above.
	trace	PYRITE.
	trace	GLAUCONITE.
1685-1687m	60	CALCAREOUS SILTSTONE: as above.
	40	CALCAREOUS SANDSTONE: brown; as above.
	trace	PYRITE: large granular aggregates.
	trace	GLAUCONITE.
		PULLED OUT OF HOLE TO CHANGE BIT
1687-1690m	80	CALCAREOUS SILTSTONE: grey to dark grey; platey to tabular; firm; calcareous siltstone; minor fossils.
	20	CALCAREOUS SANDSTONE: brown; firm to soft; very fine grained; well rounded; sand and silt in a calcareous matrix; trace mineral fluorescence; no shows.
1690-1695m	60	CALCAREOUS SILTSTONE: as above.
	40	CALCAREOUS SANDSTONE: as above; finely divided carbonaceous material common.
	trace	PYRITE NODULES.
	trace	CALCITE: clear; rhombic crystals.
1695-1700m	60	CALCAREOUS SILTSTONE: as above.
	40	CALCAREOUS SANDSTONE: as above.
	trace	PYRITE.
1700-1705m	60	SANDSTONE: brown; firm to soft; very fine grained; well rounded quartz grains in an extensive silty matrix; carbonate cement absent; finely divided carbonaceous matter common; pyrite common; mostly replacing worm burrows and as nodules.
	40	CALCAREOUS SILTSTONE: as above.
1705-1710m	80	SANDSTONE: as above; grading into siltstone.
	20	CALCAREOUS SILTSTONE: as above.
	trace	CARBONACEOUS SILTSTONE: black; earthy lustre; tabular; grades into coal.
1710-1715m	70	SANDSTONE: as above.
	30	CALCAREOUS SILTSTONE: as above.
1715-1720m	70	SANDSTONE: as above.
	30	CALCAREOUS SILTSTONE: as above.
	trace	CARBONACEOUS SILTSTONE: grading to coal; as above.
1720-1725m	80	SANDSTONE: as above; finely divided carbonaceous matter more common; minor calcareous cement.
	20	CALCAREOUS SANDSTONE: as above.
	trace	CARBONACEOUS SILTSTONE: as above.
	trace	COAL: as above.

1725-1730m	90	SANDSTONE: brown; firm to soft; platey to tabular; very fine to fine grained; rounded; moderately sorted; quartz aggregates in silt matrix; thin stringers of clean sandstone and carbonaceous material common; grades into siltstone; no visible porosity; no shows; trace pyrite.
	10	CALCAREOUS SILTSTONE: grey; firm to soft.
1730-1735m	100	SANDSTONE: as above; pyrite more common.
1735-1740m	100	SANDSTONE: as above; still very silty; with thin streaks of clean sandstone more common.
1740-1745m	100	SANDSTONE: as above.
1745-1750m	100	SANDSTONE: as above; pyrite more common.
1750-1755m	100	SANDSTONE: as above.
1755-1760m	100	SANDSTONE: as above.
1760-1765m	100	SANDSTONE: becoming more silty; very finely divided mica in the silty matrix.
1765-1770m	100	SANDSTONE: as above; pyrite common.
1770-1775m	100	SANDSTONE: as above.
1775-1780m	90	SANDSTONE: - 2 types: Type (1) - 60% as above; no shows. Type (2) - 40% white to clear; firm to friable; fine grained rounded to subrounded; well sorted quartz aggregates; clean; poor porosity; no fluorescence; no shows.
	5	COAL: black; subvitreous; friable to firm; blocky cuttings.
	5	PYRITE: medium to coarse grained aggregates; cementing quartz in part.
1780-1785m	100	SANDSTONE: - 2 Types: Type (1) - 70% brown; firm to soft; very fine grained; well rounded; sand in a very silty matrix; finely divided carbonaceous matter common; along with pyrite aggregates. Type (2) - 30% white to off white; firm to friable; fine to medium grained; well rounded to rounded; well sorted; poor visible porosity; no shows.
	trace	COAL: black; subvitreous lustre; friable; blocky cuttings.
1785-1790m	100	SANDSTONE: Type (1) - 60%. Type (2) - 40% as above.
	trace	COAL: as above.
1790-1794m	100	SANDSTONE: Type (1) - 60% as above. Type (2) - 40% as above; plus hard to very hard streaks of dolomite/calcite cemented quartz.
	trace	COAL: as above.
		PULLED OUT OF HOLE.

1794-1800m	70	CALCAREOUS SILTSTONE: grey to dark grey; soft to firm; probably cavings.
	30	SANDSTONE: 2 Types: Type (1) - 50% as above. Type (2) - 50% as above; contains detrital feldspar; very tight; no shows.
1800-1805m	60	SANDSTONE: 2 Types: Type (1) - 20% as above. Type (2) - 80% as above; contains much detrital feldspar; arkosic sandstone; very indurated.
	40	CALCAREOUS SILTSTONE: as above.
1805-1810m	70	SANDSTONE: 2 Types: Type (1) - 10% as above. Type (2) - 90% as above; very arkosic.
	30	CALCAREOUS SILTSTONE: as above.
1810-1815m	80	SANDSTONE: as above.
	15	CALCAREOUS SILTSTONE: as above.
	5	PYRITE: large medium grained aggregates.
	trace	COAL: as above.
1815-1820m	70	SANDSTONE: 2 Types: Type (1) - 30% brown; soft to firm; tabular; very fine grained; well rounded; well sorted quartz grains in a very silty matrix with finely divided carbonaceous material; tight; no shows. Type (2) - 70% white to pink; hard to friable; fine to medium grained; subrounded to well rounded; moderately sorted; quartz and feldspar grains in an extensive silica matrix; very tight; no shows
	25	CALCAREOUS SILTSTONE: grey; soft to firm; tabular to platey cuttings (probably cavings)
	5	PYRITE: medium to coarse grained aggregates of pyrite crystals; sometimes cementing quartz grains.
	trace	COAL: black; subvitreous lustre; subconchoidal fracture; tabular cuttings.
1820-1825m	70	SANDSTONE: as above; same % as above for both types.
	25	CALCAREOUS SILTSTONE: as above.
	5	PYRITE: as above.
1825-1830m	80	SANDSTONE: as above; Type (1) - 50% as above. Type (2) - 50% as above.
	15	CALCAREOUS SILTSTONE: as above.
	5	PYRITE: as above.
1830-1835m	40	SANDSTONE: as above; Type (1) - 70% as above. Type (2) - 30% as above.
	40	DOLOMITIC SILTSTONE: brown to red brown; hard; angular clasts with subconchoidal fracture; dolomitic and silica cement.
	15	CALCAREOUS SILTSTONE: as above.
	5	PYRITE: as above.
1835-1840m	80	SANDSTONE: as above.
	15	DOLOMITIC SILTSTONE: as above.
	5	CALCAREOUS SILTSTONE: as above.
	trace	PYRITE.

1840-1845m	70	SANDSTONE: 2 Types: Type (1) - 90% brown; soft to firm; very fine grained; well rounded quartz grains in an extensive silt matrix; finely divided carbonaceous matter and pyrite common; tight; no shows. Type (2) - 10% white to off white; friable; medium grained; subrounded to rounded; quartz aggregates; poor porosity; no shows.
	25	DOLOMITIC SILTSTONE: brown to red brown; hard with subconchoidal fracture; extensive silica and dolomitic cement.
	5	PYRITE: small to large aggregates of fine to medium crystals of pyrite; some replacing fossils and worm burrows.
1845-1850m	80	SANDSTONE: as above - Type (1) - 90%. Type (2) - 10%.
	15	DOLOMITIC SILTSTONE: as above.
	5	PYRITE.
1850-1855m	80	SANDSTONE: as above - Type (1) - 100%.
	20	DOLOMITIC SILTSTONE: as above.
	trace	PYRITE.
1855-1860m	90	SANDSTONE: as above
	10	DOLOMITIC SILTSTONE: as above.
	trace	PYRITE.
		CIRCULATED BOTTOMS UP AT 1865m
1860-1865m	70	SANDSTONE: as above.
	30	SANDSTONE: clear; loose; coarse to very coarse grained; rounded to well rounded grains of quartz; no shows.
1865.5m (SPOT SAMPLE)	95	SANDSTONE: clear; loose; coarse to very coarse grained; rounded to well rounded; no shows.
	5	PYRITE: as above and occasionally cementing coarse quartz grains.
1865-1870m	100	SANDSTONE: as above; no shows.
	trace	PYRITE: cementing some of the finer grained quartz.
1870-1875m	100	SANDSTONE: 2 Types: Type (1) - 60% clear; loose; coarse to very coarse grained; subrounded to rounded; well sorted; no shows. Type (2) - 40% clear to white; friable; medium to coarse grained; well sorted aggregates of quartz with dolomitic cement; poor to fair visible porosity; moderate dull yellow mineral fluorescence.
	trace	PYRITE: grains and aggregates of pyrite crystals; some cementing quartz aggregates.
1875-1880m	100	SANDSTONE: 2 Types: Type (1) - 80% as above. Type (2) - 20% as above; moderate dull yellow mineral fluorescence; no shows.
	trace	PYRITE: as above.
1880-1885m	100	SANDSTONE: 2 Types: Type (1) - 60% as above. Type (2) - 40% as above; mineral fluorescence; no shows.
	trace	PYRITE: as above.

1885-1890m	100	SANDSTONE: 2 Types: Type (1) - 90% as above. Type (2) - 10% as above.
1890-1895m	100	SANDSTONE: 2 Types: Type (1) - 90% as above. Type (2) - 10% as above.
	trace	PYRITE: as above.
1895-1900m	100	SANDSTONE: 2 Types: Type (1) - 80% as above. Type (2) - 20% associated with moderate dull yellow mineral fluorescence.
1900-1905m	100	SANDSTONE: 2 Types: Type (1) - 70% as above. Type (2) - 30% as above.
1905-1910m	100	SANDSTONE: 2 Types: Type (1) - 40% as above. Type (2) - 60% becoming tan to brown with increased dolomitic cement and some feldspar; becoming finer grained; tight; no shows; minor dull yellow mineral fluorescence.
	trace	PYRITE: as above.
1910-1915m	100	SANDSTONE: 2 Types: Type (1) - 60% as above. Type (2) - 40% as above; feldspar and dolomite more prevalent; tight and hard; no shows.
	trace	PYRITE: as above.
1915-1920m	100	SANDSTONE: 2 Types: Type (1) - 50% clear to translucent; loose; coarse to very coarse grained; subrounded to rounded; well sorted quartz grains; no shows. Type (2) - 50% brown to grey to off white; hard to friable; fine to coarse grained; subrounded; quartz and feldspar aggregates in a dolomitic cement; poor visible porosity; extensive dull yellow mineral fluorescence; no shows; finely divided carbonaceous matter common in Type (2) sands.
1920-1925m	100	SANDSTONE: 2 Types: Type (1) - 70% as above; no shows. Type (2) - 30% as above; minor exinite with carbonaceous matter; no shows; minor dull yellow-orange mineral fluorescence.
1925-1930m	90	SANDSTONE: 2 Types: Type (1) - 80% as above. Type (2) - 20% as above.
	10	SILTSTONE: brown to tan; soft to friable; tabular cuttings of sandy siltstone with common carbonaceous inclusions.
	trace	COAL: black; firm to hard; conchoidal fracture; vitreous lustre.
1930-1935m	90	SANDSTONE: 2 Types: Type (1) - 90% as above; no shows. Type (2) - 10% as above; mostly dolomitic cemented.
	10	SILTSTONE: as above.
1935-1940m	100	SANDSTONE: Type (1) - 100% as above; no shows.
1940-1945m	100	SANDSTONE: Type (1) - 100% as above; no shows.
1945-1950m	100	SANDSTONE: Type (1) - 70% as above; no shows. Type (2) - 30% as above; no shows; dull yellow mineral fluorescence.
1950-1955m	100	SANDSTONE: 2 Types: Type (1) - 90% as above; no shows. Type (2) - 10% as above; no shows.

1955-1960m	100	SANDSTONE: 2 Types: Type (1) - 90% as above; no shows. Type (2) - 10% as above; no shows.
	trace	PYRITE: as above.
1960-1965m	80	SANDSTONE: 2 Types: Type (1) - 60% as above; no shows. Type (2) - 40% as above; no shows.
	20	SILTSTONE: as above.
	trace	PYRITE: as above.
1965-1970m	80	SANDSTONE: 2 Types: Type (1) - 70% clear to opaque; loose; coarse to very coarse grained; subangular to rounded; no shows. Type (2) - 30% white to light grey to light brown; friable; medium to coarse grained; subangular to subrounded; moderately sorted quartz aggregates; dolomite and silica cement; poor visible porosity; no shows; minor dull yellow to orange mineral fluorescence.
	15	SILTSTONE: brown; soft to firm; subrounded; tabular siltstone cuttings with common carbonaceous inclusions; sandy in part.
	5	PYRITE: coarse; angular fragments of pyrite crystal aggregates; some cementing of quartz grains.
1970-1975m	80	SANDSTONE: 2 Types: Type (1) - 90% as above; no shows. Type (2) - 10% as above; no shows.
	15	SILTSTONE: as above.
	5	PYRITE: as above.
1975-1980m	90	SANDSTONE: Type (1) - 100% as above; no shows.
	10	SILTSTONE: as above.
1980-1985m	100	SANDSTONE: Type (1) - 100% as above; no shows.
1985-1990m	100	SANDSTONE: Type (1) - 70% as above. Type (2) - 30% as above; including mineral fluorescence; no shows.
1990-1995m	100	SANDSTONE: Type (1) - 70% as above. Type (2) - 30% as above; including mineral fluorescence; no shows.
1995-2000m	100	SANDSTONE: Type (1) - 80% as above. Type (2) - 20% as above; mineral fluorescence still common; no shows.
2000-2005m	70	SANDSTONE: Type (1) - 80% as above. Type (2) - 20% as above; no shows.
	30	SILTSTONE: as above.
2005-2010m	60	SANDSTONE: Type (1) - 80% as above. Type (2) - 20% as above; no shows.
	40	SILTSTONE: grey; as above.
2010-2015m	60	SILTSTONE: as above.
	30	SANDSTONE: as above.
	10	COAL: black; firm; subvitreous lustre; subconchoidal fracture.

2015-2020m	50	SANDSTONE: 2 Types: Type (1) - 80% clear to opaque; loose; medium to very coarse grained; subrounded to well rounded quartz grains; no shows. Type (2) - 10% white to grey to light brown; firm to friable; fine to medium to coarse grained; subangular to rounded; moderately sorted quartz aggregates in silica and dolomite cement with occasional pyrite cement; tight; no shows; moderate dull yellow mineral fluorescence.
	40	SILTSTONE: brown to grey; soft to firm; laminated blocky cuttings of siltstone with carbonaceous inclusions.
	10	COAL: black; blocky; subvitreous to resinous lustre; subconchoidal to irregular fracture.
2020-2025m	45	SILTSTONE: as above
	40	SANDSTONE: Type (1) - 60%. Type (2) - 40% as above; no shows.
	15	COAL: as above.
2025-2030m	50	SANDSTONE: Type (1) - 60%. Type (2) - 40%; no shows.
	35	SILTSTONE: as above.
	15	COAL: as above.
2030-2035m	50	SANDSTONE: Type (1) - 80%. Type (2) - 20% no shows.
	40	SILTSTONE: as above.
	10	COAL: as above.
	trace	PYRITE.
2040-2045m	50	SILTSTONE: as above.
	40	SANDSTONE: Type (1) - 100% as above; no shows.
	10	COAL: as above.
	trace	PYRITE.
2045-2050m	80	SILTSTONE: as above.
	20	SANDSTONE: as above; no shows.
	trace	COAL.
	trace	PYRITE.
2050-2055m	80	SILTSTONE: as above.
	15	SANDSTONE: as above.
	5	PYRITE.
2055-2060m	100	SILTSTONE: brown to grey; firm to soft; tabular cuttings of laminated siltstone; finely divided carbonaceous matter common; non calcareous.
	trace	PYRITE: coarse angular fragments of pyrite crystal aggregates.
2060-2065m	60	SILTSTONE: as above.
	40	SANDSTONE: 2 Types: Type (1) - 80% white to clear; loose; subrounded to rounded; medium to very coarse grained well sorted quartz grains; no shows. Type (2) - 20% white to light grey friable to firm; very fine to medium grained; subangular to rounded quartz aggregates with minor dolomitic cement; poor porosity; no shows; no fluorescence.
	trace	PYRITE: as above.

2065-2070m	80	SANDSTONE: Type (1) - 80% as above. Type (2) - 20% as above; no fluorescence; no shows; brown staining; unknown origin; will not cut.
	20	SILTSTONE: as above.
	trace	PYRITE: as above.
	trace	COAL: black; subvitreous to vitreous lustre; subconchoidal fracture.
2070-2075m	50	SILTSTONE: as above.
	40	SANDSTONE: Type (1) - 70% as above. Type (2) - 30% as above; no fluorescence; no shows.
	10	PYRITE: as above; mainly cementing quartz grains.
2075-2080m	50	SANDSTONE: Type (1) - 70% as above. Type (2) - 30% as above; no fluorescence; no shows.
	40	SILTSTONE: as above.
	10	COAL: as above.
	trace	PYRITE.
2080-2085m	80	SANDSTONE: Type (1) - 90% as above. Type (2) - 10% as above; no fluorescence; no shows.
	10	SILTSTONE: as above.
	10	COAL: as above.
	trace	PYRITE: as above.
2085-2090m	55	SANDSTONE: 2 Types: Type (1); white to opaque; loose; coarse to very coarse grained; rounded; well sorted quartz; no fluorescence; no shows. Type (2) - white to light grey to light brown; firm to friable; medium to coarse grained; subangular to subrounded; moderately sorted aggregates with occasional silica and dolomitic cement; poor to moderate visible porosity; no fluorescence; no shows.
	30	SILTSTONE: brown to grey; soft to firm; tabular; sandy siltstone with finely divided carbonaceous matter common; non calcareous.
	10	PYRITE: large fragments of pyrite crystal aggregates and pyrite cemented quartz grains
	5	COAL: black; subvitreous lustre with subconchoidal fracture.
2090-2095m	40	SANDSTONE: Type (1) - 70% as above. Type (2) - 30% as above.
	30	COAL: as above.
	20	SILTSTONE: as above.
	10	PYRITE: as above.
2095-2100m	60	SANDSTONE: Type (1) - 50% as above. Type (2) - 50% as above; no fluorescence; no shows.
	20	SILTSTONE: as above.
	20	COAL: as above.
	trace	PYRITE: as above.
2100-2105m	80	SANDSTONE: Type (1) - 60% as above. Type (2) - 40% becoming very fine grained; well bedded; no shows.
	10	SILTSTONE: as above.
	5	COAL: as above.
	5	PYRITE: as above.

2105-2110m	60	SILTSTONE: as above.
	35	SANDSTONE: Type (1) - 30% as above. Type (2) - 70% as above; no shows.
	5	COAL: as above.
2110-2115m	40	SANDSTONE: Type (1) - 20% as above. Type (2) - 80% as above; no shows.
	30	SILTSTONE: as above.
	30	COAL: as above.
2115-2120m	40	SANDSTONE: Type (1) - 60% clear to white; loose; coarse to very coarse grained; rounded to well rounded; well sorted; no fluorescence; no shows. Type (2) - 40% white to light brown; firm to friable; very fine to medium grained; subangular to rounded; moderately sorted; quartz aggregates with minor dolomite cement and silty matrix; no fluorescence; no shows.
	40	COAL: black; subconchoidal fracture; subvitreous to vitreous lustre.
	20	SILTSTONE: brown; tabular; soft to firm; sandy siltstone with finely divided carbonaceous matter.
2120-2125m	60	SANDSTONE: Type (1) - 70% as above. Type (2) - 30% as above; no fluorescence; no shows.
	20	SILTSTONE: as above.
	20	COAL: as above.
	trace	PYRITE: coarse fragments of crystal aggregates and pyrite cemented quartz grains.
2125-2130m	80	SANDSTONE: Type (1) - 70% as above. Type (2) - 30% as above; no fluorescence; no shows.
	10	SILTSTONE: as above.
	5	COAL: as above.
	5	PYRITE: as above.
2130-2135m	90	SANDSTONE: Type (1) - 80% as above. Type (2) - 20% as above; no fluorescence; no shows.
	10	SILTSTONE: as above.
	trace	PYRITE: as above.
2135-2140m	100	SANDSTONE: Type (1) - 100% as above; no shows.
2140-2145m	100	SANDSTONE: Type (1) - 100% as above; no shows.
2145-2150m	100	SANDSTONE: Type (1) - 90% as above. Type (2) - 10% as above; no fluorescence; no shows.
2150-2155m	80	SANDSTONE: as above; no shows.
	20	COAL: as above; trace fluorescence and cut (exinite).
2155-2160m	70	SANDSTONE: as above; no shows.
	30	SILTSTONE: as above.
	trace	COAL: as above.
2160-2165m	70	SANDSTONE: Type (1) - 70% as above. Type (2) - 30% as above.
	30	SILTSTONE: as above.
	trace	COAL: as above.
	trace	PYRITE: as above.

2165-2170m	90	SANDSTONE: 2 Types: Type (1) - 90% clear to opaque; loose; coarse to very coarse grained; rounded to well rounded; well sorted quartz; no fluorescence; no shows. Type (2) - 10% white to light grey to light brown; friable to firm; fine to medium grained; subangular to rounded; well sorted quartz aggregates with minor silica and dolomite cement; fair porosity; no shows.
	10	SILTSTONE: brown to grey; soft to firm; tabular cuttings of siltstone with finely divided carbonaceous matter; non calcareous.
	trace	PYRITE.
	trace	COAL.
2170-2175m	100	SANDSTONE: Type (1) - 90% as above; no fluorescence; no shows. Type (2) - 10% as above; no shows.
	trace	PYRITE.
	trace	COAL.
2175-2180m	90	SANDSTONE: Type (1) - 90% as above; no fluorescence. Type (2) - 10% as above
	10	COAL: black; vitreous; subconchoidal fracture; blocky; firm.
2180-2185m	80	SANDSTONE: Type (1) - 70% as above. Type (2) - 30% as above; trace pyrite.
	20	SILTSTONE: as above; coal inclusions.
2185-2190m	70	SANDSTONE: Type (1) - 80% as above; no shows. Type (2) - 20% as above; no shows.
	30	SILTSTONE: as above.
2190-2195m	80	SANDSTONE: 2 Types: Type (1) - 80% as above. Type (2) - 20% as above.
	20	SILTSTONE: as above.
2195-2200m	80	SANDSTONE: as above.
	20	SILTSTONE: as above.
	trace	COAL: as above.
2200-2205m	70	SANDSTONE: 2 Types: Type (1) - 60% clear to opaque; loose; coarse to very coarse grained; subrounded to rounded; well sorted quartz. Type (2) - 40% white to light brown; firm to friable; fine to medium grained; subrounded to rounded; moderately sorted aggregates dolomitic cemented in part; fair porosity; common yellow mineral fluorescence; no shows.
	30	SILTSTONE: brown to grey; firm to soft; tabular siltstone cuttings with finely divided carbonaceous matter and minor larger fragments.
	trace	PYRITE: large crystal aggregates and cementing quartz grains.
2205-2210m	90	SANDSTONE: 2 Types: Type (1) - 70% as above with trace bright yellow fluorescence; instant yellow white steaming cut from a dark brown mineral containing hydrocarbons; some brown staining of quartz; no cut from this. Type (2) - 30% as above.
	10	SILTSTONE: as above.

2210-2215m	90	SANDSTONE: Type (1) - 80% as above; with a black to dark brown mineral having no fluorescence; but cuts and fluoresces with the application of chlorethene, leaving very fine grained pyrite crystals with pyritohedron crystal habit (this mineral less than 1% of sample). Type (2) - 20% as above.
	10	SILTSTONE: as above.
2215-2220m	100	SANDSTONE: Type (1) - 60% as above; no hydrocarbons; no shows. Type (2) - 40% as above; dull yellow mineral fluorescence common.
2220-2225m	100	SANDSTONE: Type (1) - 30% as above. Type (2) - 70% as above; no shows.
	trace	PYRITE: fine grained aggregates, with dark brown to black hydrocarbon intermixed with fine grained pyrite.
2225-2230m	60	COAL: black; hard; vitreous lustre; conchoidal to subconchoidal fracture; grades into siltstone.
	30	SANDSTONE: 2 Types: Type (1) - 70% clear to opaque; loose to cemented; coarse to very coarse grained; subrounded to well rounded; well sorted quartz; no shows. Type (2) - 30% white to light brown; firm to friable; fine to medium grained; rounded to subrounded; moderately sorted aggregates with minor dolomite cement; no fluorescence; no shows.
	10	SILTSTONE: brown; soft to firm; tabular cuttings of siltstone with common carbonaceous inclusions.
2230-2235m	80	SANDSTONE: 2 Types: Type (1) - 50% as above; no shows. Type (2) - 50% as above; no shows; dolomitic cement common.
	15	SILTSTONE: as above.
	5	DOLOMITE: yellow brown; hard; angular fragments; cryptocrystalline and finely banded in part; strong yellow mineral fluorescence.
2235-2240m	80	SANDSTONE: as above; no shows.
	15	SILTSTONE: as above.
	5-Tr	DOLOMITE: as above; some fragments appear to be parts of nodules.
2240-2245m	70	SILTSTONE: as above.
	30	SANDSTONE: Type (1) - 60% as above. Type (2) - 40% as above; no shows.
	trace	DOLOMITE: as above.
	trace	PYRITE: as above.
2245-2250m	90	SILTSTONE: as above.
	5	SANDSTONE: as above; no shows.
	5	COAL: as above.
	trace	DOLOMITE: as above.
	trace	PYRITE: as above.
2250-2255m	90	SILTSTONE: as above; carbonaceous matter common.
	5	SANDSTONE: as above; no shows.
	5	COAL: as above.
	trace	PYRITE: as above.

2255-2260m	90	SILTSTONE: brown to grey; soft to firm; tabular cuttings containing finely divided and larger fragments of carbonaceous matter.
	5	COAL: black; hard to firm; vitreous lustre; subconchoidal to conchoidal fracture.
	5	SANDSTONE: 2 Types: Type (1) - 50% clear to opaque; loose; coarse to very coarse grained; rounded to well rounded; well sorted quartz; no shows. Type (2) - 50% white to light brown; firm to friable; fine to coarse grained; subangular to rounded; moderately sorted quartz aggregates with dolomitic cement; minor yellow mineral fluorescence; fair porosity; no shows.
2260-2265m	90	SILTSTONE: as above.
	10	SANDSTONE: Type (1) - 20% as above. Type (2) - 80% as above; no shows.
	trace	COAL: as above.
	trace	PYRITE: as above.
		PULLED OUT OF HOLE
2265-2270m	100	CALCAREOUS SILTSTONE: grey to dark grey; soft to firm; tabular to platey; moderately calcareous siltstone (CAVINGS).
2270-2275m	50	CALCAREOUS SILTSTONE: as above (CAVINGS).
	30	SILTSTONE: as above.
	20	SANDSTONE: as above.
	trace	COAL: as above.
2275-2280m	50	SILTSTONE: as above.
	30	CALCAREOUS SILTSTONE: as above (CAVINGS).
	20	SANDSTONE: Type (1) - 20% as above. Type (2) - 80% as above; no shows.
2280-2285m	50	SANDSTONE: Type (1) - 20% as above. Type (2) - 80% as above; no shows.
	30	SILTSTONE: as above.
	20	COAL: as above.
2285-2290m	70	SANDSTONE: Type (1) - 60% as above. Type (2) - 40% as above; no shows.
	20	SILTSTONE: as above.
	10	COAL: as above.
		CIRCULATED BOTTOMS UP AT 2291m
2290-2291m	90	SANDSTONE: Type (1) - 80% clear to white; loose; coarse to very coarse grained; rounded to well rounded; well sorted; no shows. Type (2) - 20% white to off white to light brown; firm to friable; fine to medium grained; rounded to well rounded; moderately sorted quartz aggregates; in silica and dolomitic cement and silty matrix; poor to fair visible porosity; common dull yellow mineral fluorescence; no shows.
	10	SILTSTONE: brown; soft to firm; tabular; sandy siltstone with finely divided carbonaceous matter.
2291-2295m	100	SANDSTONE: Type (1) - 90% as above. Type (2) - 10% as above; minor yellow mineral fluorescence; no shows.
	trace	COAL: as above.

2295-2300m	80	SANDSTONE: Type (1) - 70% as above. Type (2) - 30% as above; minor yellow mineral fluorescence; no shows.
	10	SILTSTONE: as above.
	10	COAL: as above.
	trace	PYRITE: as above.
2300-2305m	80	SANDSTONE: as above; no shows.
	20	SILTSTONE: as above.
2305-2310m	70	SILTSTONE: as above.
	15	SANDSTONE: as above; no shows.
	15	COAL: as above.
	trace	PYRITE: as above.
2310-2315m	60	SILTSTONE: as above.
	40	COAL: as above.
	trace	SANDSTONE: as above.
	trace	PYRITE: as above.
2315-2320m	80	SILTSTONE: as above.
	20	COAL: as above.
2320-2325m	70	SILTSTONE: as above.
	20	SANDSTONE: as above.
	10	COAL: as above; exinite producing streaming cut.
2325-2330m	80	SANDSTONE: as above.
	15	SILTSTONE: as above.
	5	COAL: as above.
2330-2335m	70	SANDSTONE: as above; no shows.
	25	SILTSTONE: as above.
	5	COAL: as above.
2335-2340m	60	SILTSTONE: brown; soft to fine tabular sandy siltstone with carbonaceous matter common.
	40	SANDSTONE: 70% clear; loose; coarse to very coarse grained; rounded to well rounded; well sorted quartz grains; no shows. 30% white to light brown; firm to friable; fine to medium grained; subrounded to rounded; moderately sorted quartz aggregates in silica and dolomite cement and silty matrix. Poor to fair visible porosity; moderate yellow mineral fluorescence; no shows.
	trace	COAL: black; vitreous; conchoidal fracture.
	trace	PYRITE: large fragments of fine crystal aggregates.
2340-2345m	80	SILTSTONE: as above.
	10	SANDSTONE: as above.
	10	COAL: as above.
2345-2350m	50	SILTSTONE: as above.
	40	COAL: as above.
	10	SANDSTONE: as above; no shows.
2350-2355m	60	SILTSTONE: as above.
	20	SANDSTONE: as above.
	10	COAL: as above.
	10	DOLOMITE: yellow-pink; cryptocrystalline angular fragments - interbedded with the siltstone; strong yellow mineral fluorescence.

2355-2360m	85	SILTSTONE: as above.
	5	SANDSTONE: as above; no shows.
	5	COAL: as above.
	5	DOLOMITE: as above.
	trace	PYRITE and HYDROCARBON: black soft hydrocarbon and very fine grained pyrite crystals. No fluorescence; instant streaming yellow white cut and dark brown hydrocarbon stain. Constitutes less than 1% of sample - mostly associated with type 1 sandstone.
2360-2365m	80	SILTSTONE: soft to firm; tabular; sandy siltstone with common carbonaceous matter.
	10	SANDSTONE: 2 Types: Type (1) - 10% clear to white; loose; coarse to very coarse grained; rounded to well rounded; well sorted no shows. Type (2) - 90% white to light brown; firm to friable; fine to medium grained; subrounded to rounded; moderately sorted quartz aggregates; minor silica and dolomite cement; minor silty matrix; minor yellow mineral fluorescence; no shows; poor to fair porosity.
	5	COAL: black; firm to hard; vitreous lustre; conchoidal fracture.
	5	DOLOMITE: yellow to pink; cryptocrystalline fragments of bedded dolomite; dull to bright yellow mineral fluorescence.
	trace	PYRITE: fine crystalline aggregates in a black hydrocarbon matrix; no fluorescence; strong yellow white streaming cut and brown oil stain; 2% of sample.
2365-2369m	70	COAL: as above.
	30	SILTSTONE: as above.
	trace	SANDSTONE: as above; no shows.
	trace	PYRITE: Hydrocarbon as above; less than 1% of sample.
		PULLED OUT OF HOLE TO 13-3/8" SHOE
2369-2375m	70	SILTSTONE: dark brown to blue grey; predominantly firm to occasionally soft; scattered thin carbonaceous laminae; partly siliceous; grading in part to very fine sandstone.
	20	COAL: black; vitreous; very hard; conchoidal fracture.
	10	SANDSTONE: clear to white to light grey; fine to medium grained; subrounded; quartz aggregates; with minor silica and trace dolomite cement; minor silty matrix; poorly sorted; no shows; trace clear to white; loose; rounded to very well rounded; well sorted quartz; no shows.
	trace	DOLOMITE: white to pink; cryptocrystalline; angular fragments; shiny lustre; hard; moderate yellow mineral fluorescence.
	trace	PYRITE: yellow; fine to medium crystalline aggregates.

2375-2380m	70	SILTSTONE: as above.
	20	SANDSTONE: as above.
	10	COAL: as above.
2380-2385m	50	SILTSTONE: as above.
	40	SANDSTONE: clear; translucent; white; fine to medium grained; subangular; quartz aggregates in a dominantly clean siliceous cement; fairly sorted; hard; occasional clear; loose; coarse to very coarse grained; rounded to well rounded quartz; fairly sorted; no shows.
	10	COAL: as above.
	trace	PYRITE: as above.
	trace	DOLOMITE: as above.
2385-2390m	40	SILTSTONE: as above.
	30	SANDSTONE: as above.
	30	COAL: as above.
2390-2395m	40	SILTSTONE: as above.
	30	SANDSTONE: as above.
	30	COAL: as above.
2395-2400m	60	SANDSTONE: white; clear; fine to medium grained; subangular; quartz aggregates in a dominant dolomitic cement; slightly silty matrix; fairly sorted; common clear; subrounded to rounded; coarse to very coarse quartz grains; hard; 40% dull to bright; gold and yellow mineral fluorescence; no shows; common pyrite.
	40	SILTSTONE: brown to blue grey; firm; blocky; relatively clean; commonly carbonaceous.
	trace	COAL: as above.
2400-2405m	70	COAL: as above.
	20	SANDSTONE: as above.
	10	SILTSTONE: as above.
2405-2410m	90	COAL: as above.
	5	SANDSTONE: as above.
	5	SILTSTONE: as above.
2410-2415m	60	SILTSTONE: as above.
	30	COAL: as above.
	10	SANDSTONE: as above.
2415-2420m	50	SILTSTONE: as above.
	40	COAL: as above.
	10	SANDSTONE: as above.
2420-2425m	40	SILTSTONE: brown to grey-brown; soft to firm; blocky to subfissile cuttings; with carbonaceous material; common fine carbonaceous laminations; occasionally dark brown; grading to coal.
	40	COAL: black; vitreous lustre; subconchoidal fracture; blocky; firm to brittle.
	20	SANDSTONE: white to clear and opaque; occasional yellow grains; subangular to subrounded; fine to coarse, loose grained, aggregates; predominantly medium grained; with siliceous cement; moderately to poorly sorted; clean; 10% dull; yellow; mineral fluorescence; no shows; trace pyrite.

2425-2430m	40	SILTSTONE: as above; less carbonaceous inclusions.
	30	SANDSTONE: as above; also very fine grained aggregates in silty matrix; 20% yellow, mineral fluorescence.
	30	COAL: as above.
2430-2435m	50	SILTSTONE: as above.
	30	SANDSTONE: as above; trace pyrite; 15-20% yellow mineral fluorescence.
	20	COAL: as above.
2435-2440m	60	SILTSTONE: light grey to grey-brown and grey-blue; soft to firm; (occasionally hard with siliceous appearance); predominantly argillaceous; fine carbonaceous laminations in part; blocky.
	30	SANDSTONE: brown; grey to white to clear; predominantly fine to very fine grained; occasional loose, coarse grains; subangular to subrounded; moderately to well sorted; in a silty matrix; siliceous with dolomitic cement in part; tight; 30% dull to bright yellow mineral fluorescence; no cut; no shows.
	10	COAL: as above.
2440-2445m	60	SILTSTONE: as above; also dark brown; carbonaceous siltstone grading to coal in part.
	40	SANDSTONE: as above; increase in clear; white; loose medium grained quartz; 20% yellow mineral fluorescence.
	trace	COAL: as above.
2445-2450m	70	SILTSTONE: light grey to grey brown; firm; blocky; carbonaceous to argillaceous; siliceous in part.
	20	SANDSTONE: white to clear; fine to medium grained; subrounded; quartz aggregates in a dominantly dolomitic cement; argillaceous; firm; poorly sorted; tight; 10% dull, gold-yellow, mineral fluorescence; scattered; but common; clear; well rounded to rounded; loose quartz grains; hard; no shows.
	10	COAL: as above.
2450-2455m	80	COAL: as above.
	10	SANDSTONE: as above.
	10	SILTSTONE: as above.
2455-2457m	80	SILTSTONE: as above.
	10	SANDSTONE: as above.
	10	COAL: as above.
		CIRCULATED BOTTOMS UP
2457-2460m	60	SILTSTONE: as above.
	30	SANDSTONE: as above.
	10	COAL: as above.

2460-2465m	100	SANDSTONE: white to clear and opaque; medium to coarse grained; subangular to subrounded; moderately to poorly sorted; loose quartz aggregates ; in a predominantly siliceous cement; relatively clear; minor scattered carbonaceous laminae; poor visible porosity; common pyrite; trace gold to yellow mineral fluorescence with no observable hydrocarbon shows; sandstone is relatively immature.
2465-2470m	100	SANDSTONE: clear to opaque; medium to coarse grained; occasionally very coarse grained; angular to very angular; immature; loose quartz grains; occasional fine to medium; subrounded quartz aggregates in a siliceous cement; relatively clean; moderately sorted; fair to good inferred porosity; no shows; trace dolomite; trace pyrite; trace muscovite.
2470-2475m	100	SANDSTONE: as above.
2475-2480m	100	SANDSTONE: as above.
2480-2485m	100	SANDSTONE: as above.
2485-2490m	100	SANDSTONE: clear to opaque; predominantly medium grained; subangular to subrounded; loose quartz grains; well sorted; good inferred porosity; slightly pyritic; relatively clean; no shows.
2490-2495m	70 30	SANDSTONE: as above; trace pyrite. SILTSTONE: light to dark brown; relatively firm; water sensitive in part; argillaceous; trace carbonaceous.
2495-2500m	60 40	SILTSTONE: as above. SANDSTONE: as above.
2500-2505m	100	SILTSTONE: grey to brown; soft; sticky; water sensitive clayey matrix; rarely firm; argillaceous; commonly sandy grading in part to very fine sandstone.
2505-2510m	80 20	SILTSTONE: as above. SANDSTONE: as above.
		BOTH PUMPS SHUT DOWN.
2510-2515m	80 20	SILTSTONE: as above. SANDSTONE: as above.
2515-2520m	60	SILTSTONE: dark grey to brown; blocky; partly siliceous; commonly argillaceous; scattered black carbonaceous laminae; firm to soft; sticky.
	40	SANDSTONE: clear to opaque; medium to coarse; loose grains; subangular to subrounded; poorly sorted; hard; trace pyrite; scattered white kaolinite; occasionaly dull green chlorite inclusions; no shows.
2520-2525m	50 50	SANDSTONE: as above. SILTSTONE: as above.

2525-2530m	70	SANDSTONE: greater percentage of very coarse grained, subrounded, quartz grains; otherwise as above.
	30	SILTSTONE: as above.
2530-2535m	80	SANDSTONE: clear to white and opaque; predominantly medium to coarse grained; loose; subangular to subrounded; quartz grains with occasional reddish-brown; muscovite flake inclusions; scattered pyrite; fairly sorted; fair to good inferred porosity; occasional very fine to fine; subrounded quartz aggregates in a dominantly clean to silty matrix; no shows.
	20	SILTSTONE: as above.
2535-2540m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
2540-2545m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
2545-2550m	70	SILTSTONE: dark grey; brown; firm to soft; siliceous to water sensitive clay matrix; common fine, scattered, black carbonaceous specks throughout; argillaceous.
	30	SANDSTONE: clear to opaque; coarse to very coarse grained; subangular to angular; loose quartz grains; occasional granular size; angular; loose quartz grains; scattered fine pyrite concretions; poorly sorted; good inferred porosity; no shows.
2550-2555m	80	SANDSTONE: as above.
	20	SILTSTONE: as above.
2555-2560m	70	SANDSTONE: 2 types: 60% Type (1) - clear to opaque; coarse to very coarse grained; subangular to angular; loose quartz grains; occasional granular; angular; loose quartz grains; scattered fine pyrite concretions; poorly sorted; good inferred porosity; no shows. 40% Type (2) - clear to white to grey-brown; very fine to fine grained; subangular to subrounded; well sorted quartz aggregates; siliceous cement; silty matrix in part; no fluorescence; no shows; pyrite common.
	30	SILTSTONE: as above.
2560-2565m	60	SILTSTONE: as above.
	40	SANDSTONE: as above; 90% Type (1); 10% Type (2).
2565-2570m	90	SANDSTONE: predominantly loose quartz; as above Type (1); 5-10% pyrite; no fluorescence; no shows.
	10	SILTSTONE: as above.

2570-2575m	70	SILTSTONE: light grey to dark grey to grey-brown; soft to firm; occasionally hard; water sensitive in part; argillaceous; sandy in part; occasional carbonaceous inclusions.
	30	SANDSTONE: predominantly white to clear; loose quartz grains; coarse to medium grained; moderately to poorly sorted; subangular to subrounded; pyrite common; no fluorescence; no shows.
		Trace - very fine to fine grained; brown to white; well sorted quartz aggregates with siliceous, kaolinitic cement; silty in part; subangular to subrounded; no shows.
2575-2580m	60	SILTSTONE: as above; predominantly soft to firm with water sensitive clay matrix.
	40	SANDSTONE: as above; no shows.
2580-2585m	80	SILTSTONE: as above.
	20	SANDSTONE: as above.
2585-2590m	90	SILTSTONE: light grey to grey; occasionally dark grey to grey-brown; very soft to firm; water sensitive clay matrix; argillaceous; carbonaceous flecks in part; occasionally sandy.
	10	SANDSTONE: as above; trace pyrite.
2590-2595m	100	SILTSTONE: as above; no shows.
	trace	SANDSTONE: as above.
2595-2600m	100	SILTSTONE: as above.
2600-2605m	90	SILTSTONE: as above.
	10	SANDSTONE: as above; no shows.
2605-2610m	80	SILTSTONE: as above.
	10	SANDSTONE: as above.
	10	COAL: black; vitreous; subconchoidal fracture; blocky; firm.
2610-2615m	100	SILTSTONE: grey; brown; white; varies between predominantly siliceous; hard to occasionally soft; water sensitive clay matrix; micaceous; pyritic; grading in part to very fine sandstone.
2615-2620m	100	SILTSTONE: as above.
2620-2625m	100	SILTSTONE: as above.
2625-2630m	70	SILTSTONE: dark brown; grey; soft to firm; micromicaceous in part; blocky; argillaceous to carbonaceous.
	30	SANDSTONE: grey; white; very fine to fine grained; subrounded; quartz aggregates in a dominantly siltstone matrix; argillaceous; occasionally carbonaceous; occasionally clean, siliceous cement; poorly sorted; no shows.
2630-2635m	90	SILTSTONE: as above.
	10	SANDSTONE: as above.

2635-2640m	70	SILTSTONE: dark brown-grey; predominantly firm, hard and brittle, occasionally soft; slightly calcareous; arenaceous with carbonaceous inclusions; blocky to fissile in part; containing less soft, water sensitive clay.
	30	SANDSTONE: clear to white to smokey, quartz grains; predominantly loose; subangular; medium to coarse grained; moderately sorted; occasional rose coloured grains; blocky pyrite common.
2640-2645m	90	SILTSTONE: as above; increase in light grey water sensitive clay matrix; 5-10% pyrite.
	10	SANDSTONE: as above.
2645-2650m	80	SILTSTONE: as above.
	20	SANDSTONE: as above.
2650-2655m	70	SANDSTONE: white to opaque and clear; medium to coarse grained; subangular to subrounded; loose quartz grains; occasionally fine grained; siliceous cemented quartz aggregates; relatively clean; fairly sorted; fair to good porosity; no shows; common pyrite concretions.
	30	SILTSTONE: light grey to brown; argillaceous with carbonaceous inclusions; firm to occasionally soft; blocky.
2655-2660m	70	SANDSTONE: as above.
	30	SILTSTONE: as above.
2660-2665m	70	SILTSTONE: as above.
	30	SANDSTONE: as above.
2665-2670m	70	SILTSTONE: as above.
	30	SANDSTONE: as above.
2670-2675m	50	SANDSTONE: white and opaque to clear; predominantly medium grained; subrounded; loose quartz grains; well sorted; clean and firm; good inferred porosity; trace dolomite rhombs; occasionally very fine to fine grained; subrounded; quartz aggregates in a siltstone matrix; no shows.
	50	SILTSTONE: dark brown to grey; argillaceous water sensitive in part; carbonaceous; soft to firm; blocky.
2675-2680m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
2680-2685m	70	SANDSTONE: 2 types: Type (1) - 70% white to clear; very fine to fine grained sandstone aggregates in a dominantly soft, water sensitive clay to siltstone matrix; scattered fine black carbonaceous inclusions; poorly sorted; poor porosity; no shows. Type (2) - 30% clear to opaque; medium to coarse grained; occasionally very coarse to granular; subrounded to subangular; loose quartz grains; poorly sorted; fair inferred porosity; no shows.
	30	SILTSTONE: white, grey and beige; blocky with a soft, water sensitive clay matrix; grading to very fine sandstone as above.

2685-2690m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
2690-2695m	80	SANDSTONE: as above.
	10	SILTSTONE: as above.
	10	COAL.
2695-2700m	70	SANDSTONE: as above.
	20	SILTSTONE: as above.
	10	COAL.
2700-2705m	60	SANDSTONE: 50% Type (1) as above; 50% Type (2) as above.
	30	SILTSTONE: as above.
	10	COAL.
2705-2710m	50	SANDSTONE: predominantly clear; opaque; medium to coarse grained; subangular; loose quartz grains; hard; poorly sorted; no shows.
	50	SILTSTONE: grey; brown; blocky; firm; carbonaceous and argillaceous.
	trace	COAL: as above.
2710-2715m	50	SANDSTONE: white to grey; fine grained; subrounded; quartz aggregates in a siltstone to soft clay matrix; poorly sorted; fair porosity; very argillaceous and commonly carbonaceous; common medium to coarse grained; subangular; loose quartz grains; no shows.
	50	SILTSTONE: light grey, brown and beige; argillaceous with carbonaceous inclusions; blocky.
	trace	COAL: as above.
2715-2720m	70	SANDSTONE: as above.
	30	SILTSTONE: as above.
2720-2725m	70	SANDSTONE: as above.
	30	SILTSTONE: as above.
2725-2730m	90	SANDSTONE: white to clear; predominantly medium to coarse, occasionally fine grained; subangular to subrounded; loose quartz; moderately to well sorted; trace pyrite; no fluorescence; no shows.
	10	SILTSTONE: as above.
2730-2735m	80	SANDSTONE: as above; becoming finer grained.
	20	SILTSTONE: as above.
2735-2740m	70	SANDSTONE: as above.
	20	SILTSTONE: as above.
	10	COAL: black; subvitreous; subconchoidal fracture; blocky; firm and brittle.
2740-2745m	70	SANDSTONE: as above; no shows.
	30	SILTSTONE: as above; trace coal.
2745-2750m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.

2750-2755m	90	SANDSTONE: white to clear; medium to coarse grained; subangular to subrounded; loose quartz; moderately sorted; occasional fine grained aggregates; trace pyrite; no shows.
	10	SILTSTONE: light grey, grey and dark grey; soft to hard; blocky; argillaceous and carbonaceous inclusions in part.
2755-2760m	80	SANDSTONE: as above.
	10	SILTSTONE: as above.
	10	COAL: as above; black; subvitreous; subconchoidal fracture; brittle and blocky cuttings.
2760-2765m	90	SANDSTONE: as above; slightly more coarse grained.
	10	SILTSTONE: as above.
	trace	COAL: as above.
2765-2770m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
2770-2775m	80	SANDSTONE: as above.
	20	SILTSTONE: light grey to grey, very occasionally dark grey; predominantly soft, with water sensitive clay matrix; argillaceous and carbonaceous; flecks in part.
2775-2780m	70	SANDSTONE: as above.
	30	SILTSTONE: as above.
2780-2785m	70	SANDSTONE: white to clear and opaque; predominantly medium to coarse grained; subrounded to subangular; loose quartz grains; common very fine to fine grained; subrounded quartz aggregates in a dominantly silica matrix; trace dolomite rhombs; dull; yellow to gold mineral fluorescence; no shows.
	30	SILTSTONE: as above.
2785-2790m	60	SANDSTONE: 2 types: Type (1) - 80% white to clear; very fine to fine grained; subrounded to subangular, quartz aggregates in a hard siliceous cement and a white, soft, water sensitive clay matrix; poorly sorted; poor porosity; common carbonaceous flecks; no shows. Type (2) - 20% clear to opaque; coarse grained; angular; loose quartz grains; poorly sorted; trace pyrite; no shows.
	40	SILTSTONE: grey to light brown; argillaceous; commonly carbonaceous; coaly in part.
2790-2795m	70	SANDSTONE: 50% Type (1) as above; 50% Type (2) as above.
	30	SILTSTONE: as above.
2795-2800m	80	SANDSTONE: 80% Type (1) as above; 20% Type (2) as above.
	20	SILTSTONE: as above.

2800-2805m	90	SANDSTONE: white to clear; predominantly fine grained; subrounded; to subangular; quartz aggregates in a hard siliceous cement with a siltstone matrix; minor black; fine; carbonaceous inclusions; trace dolomite; trace clear; coarse grained; subangular; loose quartz grains; relatively well sorted; poor porosity; no shows.
	10	SILTSTONE: grey to brown; argillaceous and carbonaceous; firm; blocky.
2805-2810m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
	trace	COAL: as above.
2810-2815m	80	SANDSTONE: white to clear and opaque; predominantly coarse to very coarse grained; subangular; loose quartz grains; well sorted; clean; good inferred porosity; occasional opaque to clear, fine grained; subrounded; quartz aggregates in a siliceous and slightly dolomitic cement; no shows; common dolomite rhombs.
	10	SILTSTONE: grey; subfissile to blocky; firm to soft; relatively clean; siliceous cement.
	10	COAL: black; vitreous lustre; conchoidal fracture.
2815-2820m	60	SANDSTONE: 10% dull; gold to yellow mineral fluorescence; otherwise as above.
	40	SILTSTONE: grey to light and dark brown; large, angular; carbonaceous clasts in argillaceous matrix; firm to occasionally soft.
2820-2825m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
2825-2830m	60	SILTSTONE: as above.
	40	SANDSTONE: as above.
2830-2835m	70	SILTSTONE: as above.
	30	SANDSTONE: as above.
2835-2840m	80	SILTSTONE: increasingly dark brown; with a carbonaceous and argillaceous matrix; firm to occasionally soft through to brittle.
	20	SANDSTONE: as above.
2840-2845m	100	SILTSTONE: as above.
2845-2850m	100	SILTSTONE: medium to dark grey to grey-brown; occasionally light grey; predominantly firm and blocky with carbonaceous flecks in part; soft through to hard and brittle in part; grading to very fine sandstone in part; siliceous in part.
2850-2855m	90	SILTSTONE: as above; no shows.
	10	SANDSTONE: as above.
2855-2860m	100	SILTSTONE: as above.
2860-2865m	100	SILTSTONE: as above.

2865-2870m	85	SILTSTONE: as above.
	10	SANDSTONE: clear; white/brown/grey; very fine grained to fine grained; subangular; well sorted; quartz aggregates in a silty matrix; clay cement; trace pyrite; trace dull, yellow, mineral fluorescence; no cut; no shows.
	5	COAL: black; vitreous; blocky; hard.
2870-2875m	90	SILTSTONE: as above.
	10	SANDSTONE: as above.
2875-2880m	100	SILTSTONE: dark grey; firm to hard; blocky and siliceous; relatively clean with minor carbonaceous inclusions grading in part to very fine sandstone.
	trace	COAL: as above.
		BIT CHANGE AT 2888M.
2880-2885m	80	SILTSTONE: as above.
	20	SANDSTONE: as above.
2885-2890m	70	SILTSTONE: as above; subfissile in part.
	30	SANDSTONE: as above.
2890-2895m	80	SILTSTONE: as above.
	20	SANDSTONE: as above.
2895-2900m	50	SANDSTONE: white; very fine to fine grained; subangular to subrounded; quartz aggregates in a predominantly siliceous cement; hard; poorly sorted; common fine; dark carbonaceous inclusions throughout; occasional coarse grained; subangular; loose quartz grains; poorly sorted; poor porosity; scattered pyrite; no shows.
	40	SILTSTONE: dark brown to brown; subfissile and blocky; very carbonaceous; firm; grading in part to very fine sandstone.
	10	COAL: black; hard; dull lustre.
		PULLED OUT OF HOLE TO THE SHOE AFTER SWIVEL DEVELOPED PINHOLE FRACTURE; HUNG OFF AT SHOE
2900-2905m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
2905-2910m	70	SILTSTONE: light blue-grey and brown to chocolate brown; subfissile; blocky; very carbonaceous with occasional coal lenses; no cut; faint residual halo.
	30	SANDSTONE: white to clear; fine grained; subangular to subrounded quartz aggregates in a hard, siliceous cement; firm; clean; fairly sorted; occasional coarse grained to granular pyrite concretions; trace dull; yellow-gold mineral fluorescence; no shows.
	trace	COAL: black; vitreous lustre; hard.
2910-2915m	70	SILTSTONE: as above.
	30	SANDSTONE: as above.

2915-2920m	50	COAL: black; vitreous; lustre; hard; conchoidal fracture.
	40	SILTSTONE: predominantly chocolate brown; blocky; carbonaceous and hard.
	10	SANDSTONE: as above.
2920-2925m	50	SANDSTONE: white to clear; fine grained; subangular to subrounded, quartz aggregates in a predominantly siliceous cement; very clean; well sorted; occasional fine mica and biotite inclusions; occasionally medium grained, hard, aggregates; tight; occasional pyrite; no shows.
	50	SILTSTONE: dark brown; subfissile; firm to hard; blocky and carbonaceous in part; slightly argillaceous; with occasional thin, scattered laminae.
2925-2930m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
2930-2935m	60	SANDSTONE: as above.
	30	SILTSTONE: as above.
	10	COAL: as above.
2935-2940m	60	SILTSTONE: dark brown to medium brown; subfissile; blocky and carbonaceous in part; argillaceous in part; occasional coal laminations; firm to hard; occasionally soft to firm.
	40	SANDSTONE: white to clear and tan; fine grained; to occasionally very fine grained subrounded aggregates with siliceous cement; occasionally silty; well sorted; moderately hard; poor porosity; occasional pyrite and carbonaceous inclusions.
2940-2945m	70	SILTSTONE: as above.
	30	SANDSTONE: as above; occasional loose, coarse, quartz grains.
2945-2950m	70	SILTSTONE: as above; grading to very fine siltstone in part.
	30	SANDSTONE: as above.
	trace	COAL: as above.
2950-2955	50	SANDSTONE: white to tan to clear; predominantly fine grained, subrounded to subangular aggregates in a siliceous cement; moderately sorted; occasionally coarse to very coarse to pebble sized quartz grains; subangular to subrounded; occasionally cemented, but predominantly loose; trace to occasional yellow-gold mineral fluorescence.
	50	SILTSTONE: Dark brown to grey; firm to moderately hard; blocky to subfissile; siliceous and carbonaceous; coaly in parts.
2955 - 2960m	60	SANDSTONE: as above.
	30	SILTSTONE: as above.
	10	COAL: as above.
2965 - 2970m	70	SILTSTONE: as above.
	30	SANDSTONE: as above.
	Trace	COAL: as above.

2970 - 2975m	30	SANDSTONE: white to grey and tan; medium grained, subangular quartz aggregates in a siliceous to kaolinite cement, with a silty matrix; argillaceous in parts; poor sorting; no shows.
	70	SILTSTONE: as above.
2975 - 2980m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
2980 - 2985m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
2985 - 2990m	70	SANDSTONE: clear to opaque and tan; predominantly fine grained, subangular quartz aggregates in a dominantly siliceous to dolomitic cement; occasionally with an argillaceous matrix and pyrite concretions; scattered dull, yellow-gold mineral fluorescence; trace of black residual oil staining with white fluorescence and instantaneous white crush cut; occasionally opaque to clear; coarse to very coarse grained, subangular to subrounded, loose quartz.
	30	SILTSTONE: dark to light grey and brown to dark brown; blocky; soft to firm and occasionally hard; carbonaceous to argillaceous and siliceous in part; trace of black, hydrocarbon stain with white residual ring after 15 minutes.
2990 - 2995m	70	SANDSTONE: greater percentage of coarse to very coarse grained loose, quartz grains; quartz aggregates as above; with no shows; common mineral fluorescence (approx 15%).
	30	SILTSTONE: as above.
2995 - 3000m	70	SANDSTONE: as above.
	30	SILTSTONE: as above.
3000 - 3005m	60	SANDSTONE: clear, white and tan; fine grained, subangular quartz aggregates in a silica to dolomite cement; argillaceous and occasionally carbonaceous inclusions; no cut, although a faint, white, residual halo occurs.
	30	SILTSTONE: as above.
	10	COAL: as above.
3005 - 3010m	60	SANDSTONE: white and opaque to clear; predominantly fine to occasionally medium grained, subangular, quartz aggregates in a siliceous to dolomite cement; occasional dark matic minerals and pyrite; common opaque, very coarse to granule sized, angular, loose, quartz grains; poor sorting; fair porosity; 10% dull, yellow-gold mineral fluorescence.
	40	SILTSTONE: dark grey-brown; blocky; subfissile and firm; carbonaceous with occasional dark, coaly laminations.
3010 - 3015m	70	SANDSTONE: as above.
	30	SILTSTONE: as above.
3015 - 3020m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.

3020 - 3025m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
3025 - 3030m	70	SANDSTONE: as above.
	30	SILTSTONE: as above.
3030 - 3035m	70	SANDSTONE: white and tan; fine to medium grained; subangular to subrounded quartz aggregates in a dominantly siliceous to occasionally dolomitic cement; common opaque; very coarse to granular, subangular, loose quartz grains; poor sorting; fair porosity as above.
	30	SILTSTONE: dark grey-brown; blocky and subfissile; carbonaceous and argillaceous.
3035 - 3040m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
3040 - 3045m	70	SANDSTONE: white, opaque to clear and tan; fine grained, subangular to subrounded quartz aggregates; in a silica cement; with coal laminations and an argillaceous to silty marix; soft and water sensitive in part; occasionally with micaceous flakes; poor to fair porosity; poor sorting; no shows; common clear, coarse to granular grained, subangular, loose quartz grains. Good inferred porosity; no shows.
	30	SILTSTONE: dark brown, beige to tan; blocky and firm to hard; carbonaceous and micromicaceous in part.
	Trace	COAL: as above.
3045 - 3050m	90	SANDSTONE: clear to opaque; predominantly coarse to granular grain size subangular, loose, quartz grains; common, fine grained, subangular, quartz aggregates in a dominantly siliceous and dolomitic cement; fair to good sorting; poor to fair porosity; firm to hard; trace to 5% white fluorescence with pale white, diffuse instantaneous, crush cut; common dull, yellow mineral fluorescence.
	10	SILTSTONE: as above.
3050 - 3055m	90	SANDSTONE: as above; subangular to subrounded, with trace pale white, diffuse, fluorescence; with pale, faint, slow, diffuse, crush cut.
	10	SILTSTONE: as above.
3055 - 3040m	70	SANDSTONE: white and opaque to clear; coarse to granule sized, subrounded to subangular loose quartz grains; occasionally cemented with silica and dolomitic cement; very hard. Occasional very fine grained aggregates; occasional pyrite aggregates. No visible fluorescence; 5% very slow diffuse cut with moderately bright blue-white residual ring.
	30	SILTSTONE: brown to dark brown; blocky; firm to moderately hard; micromicaceous in parts; occasionally siliceous and hard; very carbonaceous in parts.

3060 - 3065m	60	SANDSTONE: Type 1: white to opaque; coarse to very coarse to granule sized, subrounded to subangular; loose quartz grains; as above; poorly sorted. Type 2: 30% fine grained, subrounded, aggregates; silica and dolomitic cement; silty in parts; subrounded; moderately well sorted; 5% to trace moderately bright, white-yellow fluorescence; with instant, diffuse, crush cut; moderately bright, white, residual ring.
	40	SILTSTONE: as above.
3065 - 3070m	60	SANDSTONE: 50% Type 1: 50% Type 2: as above. 15% moderately bright yellow fluorescence with instant, diffuse, blue-white cut. Moderately bright, yellow-white residual ring.
	40	SILTSTONE: as above
3070 - 3075m	50	SANDSTONE: as above; 15% Fluorescence as above; cut as above.
	50	SILTSTONE: as above.
3075 - 3080m	50	SANDSTONE: cream, tan and white; fine to medium grained, subangular, quartz aggregates in a dominantly silty to water sensitive clay matrix; argillaceous and carbonaceous, commonly with biotite; occasionally with dolomite cement; poor sorting; poor porosity to tight. 30% yellow-white fluorescence with instant white cut; occasional clear to opaque, coarse grained, subrounded, loose quartz aggregates with no shows.
	50	SILTSTONE: as above with very faint, white, fluorescence.
3080 - 3085m	40	SANDSTONE: 20% yellow-white fluorescence with instant white cut; otherwise as above.
	60	SILTSTONE: as above.
3085 - 3090m	10	SANDSTONE: as above; trace to 5% shows.
	90	SILTSTONE: chocolate brown to brownish tan; blocky; firm; carbonaceous and argillaceous; occasionally soft and water sensitive.
3090 - 3095m	10	SANDSTONE: as above.
	90	SILTSTONE: as above.
3095 - 3100m	20	SANDSTONE: as above.
	80	SILTSTONE: as above.
3100 - 3105m	30	SANDSTONE: white; fine grained; subrounded quartz aggregates; in a siliceous cement with a silty, clay matrix; occasionally with carbonaceous flecks; poor sorting; poor porosity to tight; firm; trace shows; as above.
	70	SILTSTONE: dark brown, tan; blocky; very carbonaceous and argillaceous with occasional coaly streaks throughout; firm.
3105 - 3110m	40	SANDSTONE: Trace to 5% dull yellow-white fluorescence with instant crush cut; otherwise as above.
	60	SILTSTONE: as above. Large coal pieces over shakers; carbonaceous material in cuttings.

3110 - 3115m	30	SANDSTONE: clear liquid film coating sandstone giving 5% yellow-white fluorescence with instant cut; otherwise as above.
	70	SILTSTONE: as above.
3115 - 3118m (SPOT SAMPLE)	50	SANDSTONE: white, light grey, tan and varicoloured; predominantly fine grained, subrounded and occasionally medium grained quartz aggregates in a dominantly siliceous cement with an associated argillaceous matrix; occasional carbonaceous flecks; trace mica; poor sorting; relatively tight. 10-15% blue-white fluorescence with instantaneous diffuse white cut.
	50	SILTSTONE: tan, grey and dark-brown; blocky; carbonaceous to argillaceous; firm to hard; occasionally soft, and water sensitive clay grading in parts to very fine sandstone; as above; trace scattered pyrite.
3118 - 3120m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
3120 - 3122m spot sample	50	SANDSTONE: as above; with 20% blue-white fluorescence with diffuse white cut.
	50	SILTSTONE: as above.
3122 - 3125m	50	SILTSTONE: as above.
	50	SANDSTONE: 10-15% blue-white flourescence with slow, diffuse, white cut; otherwise as above.
3125 - 3130m	50	SANDSTONE: as above; 5-10% blue-white fluorescence with very slow, diffuse, white cut.
	40	SILTSTONE: as above; becoming more fissile and harder.
	10	COAL: black; hard; with conchoidal fracture; vitreous.
3130 - 3135m	80	SILTSTONE: as above.
	20	SANDSTONE: as above; with trace to 5% blue-white fluorescence with no appreciable cut.
		CIRCULATED BOTTOMS UP
3135 - 3137m	20	SANDSTONE: white to clear and tan; fine to occasionally medium grained quartz aggregates, in a siliceous and dolomitic cement, with a siltstone matrix and carbonaceous flecks; argillaceous; poor sorting; poor porosity; 10% blue-white fluorescence with very slow, diffuse, weak cut; trace yellow-gold mineral fluorescence; occasionally clear, coarse grained; subanglar, loose, quartz grains. NOTE: De-sander sample exhibited 90% very fine grained, subrounded, unconsolidated quartz grains with trace to 5% blue-white fluorescence and cut; as above.
	80	SILTSTONE: grey, tan and dark brown; blocky to subfissile; carbonaceous to argillaceous; firm to hard; occasionally grading to very fine grained sandstone as above.
3137 - 3143m		PULLED OUT OF HOLE FOR CORE NO. 1 AT 3137m

3143 - 3145m	100	SILTSTONE: pale blue-grey; relatively firm; subfissile to fissile cuttings; commonly blocky; micromicaceous.
3145 - 3150m	40	SILTSTONE: as above.
	60	COAL: black; vitreous lustre; conchoidal fracture.
3150 - 3155m	10	SANDSTONE: white, tan and opaque; medium grained quartz aggregates in a silica to dolomitic cement; poor sorting; tight; trace dull, yellow-gold, mineral fluorescence. NOTE: De-sander sample exhibited 100% very fine grained, subrounded, loose quartz grains with no shows.
	60	SILTSTONE: grey, tan, dark brown and dark grey; argillaceous and carbonaceous; hard; subfissile to blocky with occasional splinters characteristic of spalling shale.
	30	COAL.
3155 - 3160m	10	SANDSTONE: as above.
	80	SILTSTONE: as above.
	10	COAL: as above.
3160 - 3165m	10	COAL: as above.
	30	SANDSTONE: white to tan and opaque; fine to medium grained, subrounded, aggregates; siliceous and dolomitic cement; firm to moderately hard; subrounded; moderately to poorly sorted; Common medium to very coarse grained, subrounded to subangular, loose quartz grains; trace pyrite; tight; 5% moderately bright yellow fluorescence with moderately fast, streaming blue-white cut.
	60	SILTSTONE: as above
3165 - 3170m	60	SILTSTONE: dark brown, grey and grey brown; moderately hard to firm, blocky; occasionally dolomitic, siliceous and hard; grading to very fine sandstone in parts; carbonaceous and argillaceous.
	40	SANDSTONE: as above; predominantly fine grained aggregates with common silty clay matrix; occasionally medium to coarse grained, subangular to subrounded, aggregates; poorly sorted; 5% yellow-blue fluorescence with slow, streaming, crush cut.
3170 - 3175m	30	SANDSTONE: as above.
	70	SILTSTONE: as above.
3175 - 3178m	30	SANDSTONE: as above.
	70	SILTSTONE: as above.
		PULLED OUT OF HOLE FOR INTERMEDIATE LOGS AT 3178m

3178 - 3180m	50	CALCISILTITE: cavings from Lakes Entrance formation.
	40	SILTSTONE: brownish grey to dark brown-black; hard; subfissile; highly carbonaceous; thin coal laminations in places; blocky cuttings.
	10	SANDSTONE: translucent to pale brown; moderately hard, siliceous cement; angular to subrounded; moderate sorting; very poor visual porosity; no shows.
	Trace	LOOSE SAND GRAINS: granule sized; subrounded; well sorted.
	Trace	PYRITE.
	Trace	COAL.
3180 -3185m	80	SILTSTONE: tan to dominantly brownish black; hard; subfissile; highly carbonaceous; blocky cuttings; occasionally angular; grades into coal.
	20	COAL: black; brittle; vitreous lustre, with a high vitrinite content.
	Trace	SANDSTONE: extremely fine to very fine grained; moderate sorting; siliceous and dolomitic cement; no shows.
	Trace	CALCARENITE: cavings.
	Trace	CALCAREOUS SHALE: green-grey; fissile; moderately hard; angular to occasionally splintery cuttings; probably spalling shale - large, flat and curved cuttings.
3185 - 3190m	60	SILTSTONE: as above; less carbonaceous; occasionally calcareous.
	40	SANDSTONE: as above; extremely fine grained; very poor visual porosity; trace dull to moderately bright white fluorescence; weak crush cut. Also mineral fluorescence from dolomitic cement.
	Trace	COAL.
	Trace	CLAYSTONE: white; very soft.
3190 - 3195m	70	PEBBLY SANDSTONE: translucent to milky white; very fine to very coarse grained, angular to subrounded, quartz aggregates with medium to very coarse, loose grains common; also granule sized, milky quartz fragments; friable to hard; argillaceous matrix; siliceous to occasionally dolomitic cement; moderately sorted; poor visual porosity in aggregates. Shows: 50% dull to moderately bright yellowish white fluorescence; occasional slow white streaming to diffuse cut; strong yellowish white crush cut most common; patchy; weak, light brown oil staining; transparent residual ring.
	20	SILTSTONE: as above; micromicaceous and calcareous in parts; dominantly carbonaceous.
	10	COAL: as above; grades into carbonaceous siltstone.
	Trace	CHERT FRAGMENTS: grey; very hard.
3195 - 3200m	70	SANDSTONE: as above. Shows: 30% pale yellowish white fluorescence; occasional streaming white cut; dominantly pale yellow to white crush cut; poor to moderate visible porosity;
	30	SILTSTONE: as above; highly carbonaceous.
	Trace	COAL.
	Trace	CHERT FRAGMENTS: (rare).

3200 - 3205m	50	SANDSTONE: translucent, loose, medium to coarse grained angular to subrounded, quartz; no aggregates; moderately well sorted; argillaceous matrix preserved on grain surfaces; fair inferred porosity; possible pebbly sandstone; trace of dull to moderately bright yellow fluorescence; slow streaming cut, from one grain with light brown oil staining.
	30	SILTSTONE: as above.
	20	COAL: as above.
3205 - 3210m	80	SILTSTONE: as above.
	20	SANDSTONE: as above, except with more fine grained aggregates; tight; no shows.
	Trace	COAL: as above.
		CIRCULATED BOTTOMS UP AT 3211.2m
3210.2	40	SILTSTONE: as above; highly carbonaceous.
	40	SANDSTONE: medium to predominantly coarse and very coarse grained; mostly loose coarse, subangular to subrounded grains with occasional tight medium grained aggregates; moderately well sorted; clay matrix; occasional weak siliceous cement; 10% moderately bright, blue fluorescence; no cut; weak, white, crush cut; possibly a gas sand; no stain; no residue;
	20	CLAYSTONE: white to creamy brown; very soft.
	Trace	COAL: as above.
3210 - 3215m	60	SILTSTONE: as above.
	30	SANDSTONE: as above; poor visible porosity; no shows.
	10	COAL: as above.
3215 - 3220m	70	SILTSTONE: as above.
	20	SILTSTONE: as above; loose coarse grains and fine grained aggregates. 5% bright, blue fluorescence; no cut or crush cut. Trace dull to moderately bright yellow fluorescence; no cut or crush cut.
	10	COAL: as above.
3224m	70	SILTSTONE: as above.
SPOT	20	COAL: as above.
SAMPLE	10	SANDSTONE: loose medium to very coarse, quartz grains and siliceous cemented aggregates; angular quartz fragments (probablly fractured pebbles); poorly sorted; poor visible porosity; 5% bright blue fluorescence; no cut or crush cut.
3220 - 3225m	80	SILTSTONE: as above.
	20	SANDSTONE: as above; no shows.
	Trace	COAL: as above.
	Trace	PYRITE.

3225 - 3230m	50	SILTSTONE: dark grey to black; highly carbonaceous; dominantly blocky to tabular cuttings; some cuttings platy; friable to moderately hard.
	50	SANDSTONE: light grey to white; friable; angular to rounded, poorly cemented quartz grains; moderately well sorted; silty and carbonaceous matrix; siliceous cement; larger quartz fragments show conchoidal fracture (pebbles).
3230 - 3235m	50	SILTSTONE: medium grey to dark grey; carbonaceous; flaky with minor blocky fragments; soft to moderately hard; contains some coal fragments.
	40	SANDSTONE: creamy white; friable to very friable; dominantly fine to medium grained; angular to subrounded quartz and larger coal fragments; some angular quartz fragments (pebbles); silica cement; poor porosity.
	10	COAL: black; moderately soft; medium vitrinite content; vitreous lustre.
3235 - 3240m	30	SANDSTONE: dull grey to creamy white; subrounded to angular quartz grains; minor coal fragments; some larger quartz grains subrounded to subangular; siliceous cement; poor porosity.
	65	SILTSTONE: dark grey, highly carbonaceous; soft; laminated; subfissile.
	5	COAL: black to very dark grey, dull to vitreous; blocky fragments; good cleavage.
3240 - 3245m	40	SANDSTONE: dull greyish white. 2 types: Type (1) - moderately hard, coarse grained, subangular, quartz fragments; siliceous cement. Type (2) - light grey; friable; well sorted; very fine grained rounded quartz aggregates; shaly in part; no shows.
	50	SILTSTONE: medium grey; soft; rounded to subrounded fragments; minor mica flecks and coal.
	10	COAL: small conchoidal fragments, vitreous lustre, moderate vitrinite content; soft to moderately hard.
3245 - 3250m	80	SILTSTONE: dark grey-brown to black; highly carbonaceous; hard; grades into coal. Also medium grey siltstone as above.
	20	SANDSTONE: as above; no shows.
	Trace	CLAYSTONE.
	Trace	COAL: grades into carbonaceous siltstone.
3250 - 3255m	70	SILTSTONE: dark grey to black; highly carbonaceous, grading into coal. Medium grey siltstone: small subangular fragments; soft.
	25	SANDSTONE: light grey; friable to very friable; very fine to fine grained, subrounded quartz grains and angular coal fragments; moderate sorting; siliceous cement; angular to subrounded quartz fragments; no shows.
	5	COAL: strong vitreous lustre; soft to slightly brittle; high vitrinite content; blocky angular fragments.
	Trace	CLAYSTONE.

3255 - 3260m	60	SILTSTONE: as above.
	40	SANDSTONE: very fine to coarse grained; as above; no shows.
	Trace	COAL: as above.
	Trace	PYRITE.
3260 - 3265m	60	SANDSTONE: translucent to milky white; friable to moderately hard; predominantly medium grained, loose subangular to subrounded quartz grains and aggregates; weak siliceous cement and clay matrix; moderately well sorted, no shows.
	40	SILTSTONE: as above.
3265 - 3270m	70	SANDSTONE: as above. No shows.
	30	SILTSTONE: as above.
	Trace	COAL.
3270 - 3275m	80	SANDSTONE: translucent, light grey and milky white; fine to coarse to occasionally very coarse grained; angular to subangular, loose quartz grains and aggregates; friable to moderately hard; argillaceous matrix; weak silica cement; moderately sorted; poor visible porosity; no shows.
	15	SILTSTONE: dark brown-black, moderately hard; highly carbonaceous.
	5	COAL: as above.
	Trace	CLAYSTONE.
3275 - 3280m	80	SANDSTONE: as above becoming more subangular to subrounded and mostly loose grains; 5% dull to moderately bright yellow fluorescence; no cut; very weak crush cut.
	10	SILTSTONE: as above.
	10	COAL: as above.
3280 - 3285m	80	SANDSTONE: predominantly milky white to translucent; loose grains; fine to medium grained, moderately sorted, subangular to subrounded; poor visible porosity; some quartz grain aggregates; siliceous cement; moderately well sorted; minor larger tabular coal fragments.
	20	SILTSTONE: dark grey to black; highly carbonaceous; grades into coal; soft.
	Trace	COAL: as above.
3285-3290m	90	SANDSTONE: as above plus larger amounts of angular quartz fragments and less aggregates; these are very fine to coarse grained and poorly sorted with weak siliceous cement and up to 10% dull to moderately bright, yellow fluorescence; no cut and weak crush cut.
3285 - 3290m	10	SILTSTONE: dark to light grey; moderately carbonaceous; contains some coal fragments; moderately hard to soft; rounded cuttings.
	Trace	COAL: black; strong; vitreous lustre; conchoidal fracture; high vitrinite content.

3290 - 3295m	95	SANDSTONE: as above but with less aggregates; dominantly medium grained; angular; quartz with some coal; poor visible porosity; dolomitic cement (minor); 30% mineral fluorescence.
	5	SILTSTONE: as above; some quartz flecks visible.
	Trace	COAL: as above.
3295 - 3300m	90	SANDSTONE: translucent to milky, cream and tan; moderately hard to very hard; medium to coarse grained; angular to occasionally subrounded; loose quartz grains and aggregates; dolomite cement giving 50% mineral fluorescence; no visible porosity; no shows.
	10	SILTSTONE: as above; carbonaceous.
	Trace	COAL: as above.
3300 - 3305m	90	SANDSTONE: as above; dolomitic; poor to no visible porosity; 40% mineral fluorescence.
	10	SILTSTONE: as above.
	Trace	COAL: as above.
3305 - 3310m	70	SILTSTONE: dark brown to brownish grey; soft to moderately hard; blocky to platey cuttings; subfissile, carbonaceous.
	30	SANDSTONE: translucent to cream; friable to very hard; very fine to coarse, predominantly medium grained; subangular to subrounded aggregates; moderately sorted, very poor to no visible porosity; dolomite cement giving 30% mineral fluorescence.
	Trace	CLAYSTONE.
3310 - 3315m	60	SILTSTONE: as above; becoming less carbonaceous.
	40	SANDSTONE: as above; dolomitic with an increased proportion of large angular quartz fragments (pebbles). No shows.
	Trace	CLAYSTONE.
3315 - 3320m	50	SILTSTONE: light to medium grey; soft to moderately hard; moderately carbonaceous; some coal fragments; tabular to blocky cuttings.
	50	SANDSTONE: light grey to white; very fine to coarse grained; subangular to subrounded; loose quartz grains and aggregates with minor coal fragments; siliceous matrix; dolomite cement; 30% mineral fluorescence; no visible porosity.
	Trace	CLAYSTONE.
3320 - 3325m	70	SILTSTONE: medium to dark grey; soft to moderately hard; highly carbonaceous, contains coal fragments; rounded cuttings.
	30	SANDSTONE: light grey; dominantly aggregates; few individual grains; moderately soft to hard; cuttings subangular to some subrounded; poorly to moderately well sorted; grains angular quartz some coal flecks; mature siliceous 40% of fragments; dolomitic siliceous cement; 10% mineral fluorescence; no visible porosity; minor amount loose coarse quartz sand; moderate sorting; subangular to subrounded.
	Trace	CLAYSTONE.
	Trace	COAL: (rare) vitreous lustre; conchoidal fracture; moderately soft.

3325 - 3330m	50	SILTSTONE: dark grey; carbonaceous, soft to hard; minor coal flecks; grades into coal; subrounded fragments;
	50	SANDSTONE: as above; fine to coarse grained: well to poorly sorted aggregates; quartzose; angular; minor coal grains; siliceous and dolomitic cement; aggregates have very poor visual porosity; no shows; minor rounded to subangular quartz grains; conchoidal fracture; these poorly sorted; 10% mineral fluorescence; no shows;
	Trace	COAL: dull black.
		CIRCULATED BOTTOMS UP AT 3334.7M
3330 - 3334.7m	70	SANDSTONE: translucent; fine to medium grained; occasionally coarse; friable to moderately hard; angular to subangular; occasionally subrounded; moderate to poorly sorted; weak dolomitic and siliceous cement; poor visible porosity; no shows.
	30	SILTSTONE: medium grey, brownish grey and pale brown; firm; blocky cuttings; carbonaceous in parts; micaceous in parts.
	Trace	CLAYSTONE: as above.
		PULLED OUT OF HOLE TO CUT CORE NO. 2 3334.7 - 3353.0m
3334.7 - 3340m (RETURNS WHILST CORING)	50	SANDSTONE: translucent to milky white; moderately hard to very hard; loose grains and aggregates; aggregates are fine to coarse grained; angular to subangular; moderately to poorly sorted; argillaceous matrix (minor); dolomitic and siliceous cement; very poor visual porosity; 10% mineral fluorescence; loose grains are coarse to very coarse; angular to subrounded; moderately sorted; no shows.
	50	SILTSTONE: 2 types: Type (1) - carbonaceous siltstone as above. Type (2) - calcareous siltstone; medium green-grey; soft to moderately hard; angular; tabular and splintery cuttings; moderately to highly calcareous. Type (1) most common; Type (2) possibly cavings from Lakes Entrance Formation.
	Trace	COAL.
3340 - 3345m (RETURNS WHILST CORING)	60	SANDSTONE: as above loose grains and aggregates; 10%-20% mineral fluorescence; no shows.
	40	SILTSTONE: Type (1) and Type (2) - as above in roughly equal proportions.
	Trace	COAL.
3345 - 3350m (LAGGED AFTER TRIP)	50	SANDSTONE: light grey to milky white; friable to moderately hard; aggregates are medium to coarse grained; subrounded; poorly sorted; 80% grains; 15% siliceous/clay matrix; 5% cement; siliceous and dolomitic; very poor visual porosity; loose grains rounded to subangular; poorly sorted; translucent quartz; 5% mineral fluorescence.
	50	SILTSTONE: as above.
	Trace	COAL: dull to vitreous; brittle; moderate vitrinite content.

3350 - 3355m	60	SILTSTONE: as above; Type (2) - possibly cavings.
	40	SANDSTONE: 10% dolomite mineral fluorescence; no shows.
	Trace	COAL.
3355 - 3360m	60	SILTSTONE: as above; Type (1) - Type (2) - rare; likely to have been cavings; Type (1) - decreasing in carbonaceous content; occasionally silicified and extremely hard;
	40	SANDSTONE: as above; 5-10% yellow dolomite mineral fluorescence; no shows.
3360 - 3365m	90	SILTSTONE: Type (1) - 70% of siltstone; medium to dark grey; carbonaceous, subrounded to subangular cuttings; soft to moderately hard; some flaky cuttings. Type (2) - 30% of siltstone; light grey; greenish grey; occasional yellowish grey cuttings; subrounded to flaky cuttings; laminae occasionally visible; light grey cuttings very soft; others soft to moderately hard.
	10	SANDSTONE: aggregates as above; loose grains poorly sorted; translucent quartz; angular to subrounded; some grains show contacts with coal; 5% mineral fluorescence; silica cement and some dolomite.
	Trace	COAL: very rare; present as flecks in siltstone and sandstone; vitreous lustre; brittle; uneven fracture.
	Trace	CLAYSTONE: whitish colour; very soft; angular cuttings.
3365 - 3370m	90	SILTSTONE: as above; occasionally silicified and extremely hard.
	10	SANDSTONE: as above; 5% dolomitic mineral fluorescence; no shows.
	Trace	COAL.
	Trace	CLAYSTONE.
3370 - 3375m	90	SILTSTONE: as above; very hard; siliceous;
	10	SANDSTONE: as above; no shows.
3375 - 3380m	80	SILTSTONE: Type (1) - medium to dark grey; soft to moderately hard; cuttings blocky - subangular to subrounded; minor amount cuttings rounded. Type (2) - dark grey; carbonaceous; very hard; siliceous; cuttings platy to subangular; Siltstone 60% Type (1) - 40% Type (2).
	20	SANDSTONE: aggregates are whitish; friable; 60% grains; 30% matrix; 10% clayey cement; grains angular to subrounded; moderate to poor sorting; grains dominantly quartz with some siltstone fragments; loose grains; translucent quartz; medium to fine sand size; moderate sorting; subrounded to subangular; 2-3% dolomite mineral fluorescence.
3380 - 3385m	80	SILTSTONE: as above; except less carbonaceous siltstone and less Type (2) siltstone. Type (2) - cuttings subangular; some flaky.
	20	SANDSTONE: as above; aggregates contain minor carbonaceous flecks; 70% loose grains; and 30% poorly sorted aggregates; minor diffuse shows less than 5%.
	Trace	COAL.

3385 - 3390m	70	SILTSTONE: as above; with 3rd type siltstone present; Type (3) - light grey; siliceous; rounded cuttings; very soft; about 10% of all siltstone;
	30	SANDSTONE: as above; grain size aggregates range from fine to medium sand; minor clayey matrix with less than 5% dull yellow fluorescence; weak diffuse cut.
	trace	COAL.
3390 - 3395m	60	SILTSTONE: as above.
	30	SANDSTONE: as above; except fine to coarse grained; no shows;
	5	DOLOMITE: yellow brown; tan; light brown; extremely hard; angular to platey cuttings.
	5	CLAYSTONE: white; very soft; sticky.
	Trace	COAL.
3395 - 3400m	60	SILTSTONE: pale brown, brownish grey; firm to hard; occasionally soft; blocky to tabular cuttings; carbonaceous in parts; occasionally micromicaceous; occasionally silicified; firm to moderately hard.
	35	SANDSTONE: translucuent; loose grains plus aggregates; firm to moderately hard, fine to coarse grained; coarse grains are subangular to subrounded; poorly sorted; argillaceous matrix; siliceous cement; poor visible porosity; trace dull to moderately bright yellow fluorescence; no cut; weak crush cut.
	5	DOLOMITE: as above.
	Trace	COAL.
3400 - 3405m	70	SILTSTONE: as above; occasional calcareous siltstone cuttings; probably cavings from Lakes Entrance formation.
	25	SANDSTONE: as above; no shows.
	5	DOLOMITE: as above.
	Trace	CARBONACEOUS SHALE: black, highly carbonaceous; blocky to tabular cuttings; fissile.
3405 - 3410m	80	SILTSTONE: as above; light grey siltstone contains abundant coal flecks; grades into coal.
	15	SANDSTONE: as above; 60% aggregates; 40% loose grains; some minor white; very friable; fine; siliceous; rounded grains; 30% quartz grains; 60% matrix; 10% cement; no shows.
	5	COAL: black; vitreous lustre; conchoidal fracture; angular fragments; moderately hard.
3410 - 3415m	80	SILTSTONE: two types as above.
	10	SANDSTONE: as above; aggregates and loose grains; translucent quartz; subangular to subrounded; some well rounded grains (rare); moderately well sorted; grades into siltstone;
	10	COAL: dull black to shiny black; subvitreous to vitreous lustre; conchoidal to uneven fracture; high vitrinite content; soft to moderately hard.

3415 - 3419m (SPOT SAMPLE)	85	SILTSTONE: as above; dark to medium grey; dominant shale type; cuttings soft to hard; blocky to rounded cuttings; light grey siltstone also present; soft to moderately hard; rounded cuttings; contains some carbonaceous matter; medium grey siltstone; very hard; silicified.
	5	SANDSTONE: as above dominantly loose quartz grains; fine to medium sand size; poorly sorted quartz grains; minor quartz aggregates; these contain fine angular grains of sand in a clayey matrix; rare fluorescence gives a weak crush cut.
	10	COAL: as above; dominantly bright; vitreous vitrinite rich coal.
	Trace	CLAYSTONE.
3415 - 3421m	80	SANDSTONE: as above; except highly carbonaceous.
	10	SANDSTONE: as above; no shows.
	10	COAL: as above; dull to vitreous lustre.

APPENDIX 2

Core No. 1 Well : ANGELFISH-1

Interval Cored : 3137.0-3142.8m Recovered : 5.8m (100%)
Cut : 5.8m Bit Size : 9-7/8' x 5-1/4"
Bit Type : C-23 Date : 8th December, 1985
Described by : JEFF ROCHE

Int. (m)	Depth & ROP (m/hr)	Graphic	Shows	Descriptive Lithology
3137	20 0			3137.0 - 3140.2m SANDSTONE - white opaque, tan, very fine to predominantly fine grained (fine to medium grained with trace granular grainsize towards base of sand), subrounded to subangular quartz grains, set in a tight, clear, crystalline, silica cement with minor dolomite cement; very feldspathic, common black biotite and mica flakes scattered throughout, occasional green chlorite, excellent sorting, poor visible porosity, tight, very hard.
3138			Tr-5%	SHOWS: 0-5% pinpoint to patchy yellow white fluorescence with very slow diffuse weak cut, relatively bright residual ring after 10 minutes, no obvious oil staining, and a slight petroliferous odour, dull yellow mineral fluorescence associated with dolomitic cement.
3139				Bedding is subtle and difficult to define, overall massive, but appears to be faintly parallel laminated, grading up to low angle cross bedding near the middle and top, minor carbonaceous laminations and half moon clay lenses towards the top.
3140				
3141				
3142				3140.2 - 3143.0m SILTSTONE - medium to dark grey, massive, very carbonaceous, grading towards Coal, slightly argillaceous, but overall relatively clean and very hard, discrete coal lenses approximately 2 cm thick at 3142.5m, subparallel fractures at 5 degrees occur over the entire section. Erosional base at 3140.5m suggests truncation by channelling of the overbank facies.
3143				

Core No. 2 Well : ANGELFISH-1

Interval Cored : 3334.7 - 3353.0m
Cut : 18.3m Recovered : 1.9m (10.4%)
Bit Type : Christ C201B Bit Size : 8-1/2" x 4"
Described by : S. WATTS/J. READ Date : 14th December, 1985

Int. (m)	Depth & ROP (m/hr)	Graphic	Shows	Descriptive Lithology
3334	20 0			3334.7 - 3335.05m SANDSTONE - translucent to light grey quartz, hard to very hard, fine to medium grained, angular to subrounded, moderately sorted, white clay matrix, siliceous cement, possible quartz overgrowths, abundant carbonaceous matter and thin inclined coaly laminae, occasional mica, very poor visible porosity, tight, no shows.
3335			N.S. 80-90% 5%	
3336			NO SHOWS	3335.05 - 3335.53m SANDSTONE - translucent to smokey grey quartz, moderately hard, fine to medium grained, well sorted, subangular, approximately 95% quartz, approximately 5% carbonaceous and siltstone flecks, approximately 20% authigenic silica cement (weak), possible minor overgrowths, generally poor visible porosity (perhaps 10% at best), homogeneous, no visible sedimentary structures, porosity decreases to base of interval where it is very poor, tight throughout.
3337				
3338				
3339				SHOWS: 3335.05 - 3335.13m - 80-90% bright yellow, even to patchy fluorescence on face of core, instantaneous but slow streaming to occasional diffuse white cut, weak patchy light brown to clear oil staining, weak transparent residue.
3340				N.B: Shows decrease below 3335.15 to less than 5% patchy at 3335.2m as porosity decreases to very poor and dolomite cement begins (orange fluorescence) 3335.2 - 3335.53m - no shows.
3341				3335.53 - 3336.23m SANDSTONE - translucent to dominantly light grey quartz, moderately hard to very hard, medium to occasionally coarse grains, moderately to poorly sorted, subrounded, to subangular, approximately 90% quartz, 10% siltstone clasts, minor clay matrix, approximately 10-20% siliceous and dolomitic (orange mineral fluorescence)
3342				
3343				
3344				

Core No. 2 cont'd Well : ANGELFISH-1

Interval Cored : 3334.7 - 3353.0m
Cut : 18.3m Recovered : 1.9m (10.4%)
Bit Type : Christ C201B Bit Size : 8-1/2" x 4"
Described by : S. WATTS/J. READ Date : 14th December, 1985

Int. (m)	Depth & ROP (m/hr)	Graphic	Shows	Descriptive Lithology
	20 0			
3344				3335.53 - 3336.23m cont'd
				cement, biotite flecks, very poor visible porosity (perhaps 5%), slightly inclined carbonaceous/coaly laminae (similar to top interval), no shows.
3345				3336.23 - 3336.6m SILTSTONE - medium grey, extremely hard, silicified, quartz and carbonaceous flecks, massive.
3346				3336.6 - 3353.0m NO RECOVERY
				N.B: All recovery placed at top of interval because many no recovery sections are apparent, (80-90% shows come from best sand in core and probably a within the interval 3335.2 - 3336.4m on the R.O.P.).
3347				Core barrel jammed although it was not evident whilst coring.
3348				Shows decrease with porosity rather than a discrete OWC
3349				
3350				
3351				
3352				
3353				

APPENDIX 3

ANGELFISH-1

SIDEWALL CORE DESCRIPTIONS

No.	Depth	Rec. (mm)	Rock Type	Description
1	3403.0			EMPTY
2	3382.2			EMPTY
3	3324.5	8	SILTSTONE	Dark grey to brown, moderately hard; carbonaceous; very fine grained sandstone inclusions.
4	3322.5	20	SANDSTONE	Translucent, very fine to medium grained, moderately well sorted, angular to subrounded, friable to moderately hard; no shows.
5	3293.7			EMPTY
6	3285.0	10	SANDSTONE	Translucent, fine to medium grained, moderately to poorly sorted, angular, friable; weak siliceous cement; occasional carbonaceous inclusions; no shows.
7	3276.0	15	SILTY SANDSTONE	Translucent to grey/brown, fine grained, poorly sorted, angular, moderately hard; carbonaceous laminae; no gas recorded; no shows.
8	3258.0	10	SANDSTONE	Translucent, fine to medium grained, moderately sorted, angular, friable; carbonaceous laminae; mica in part; no shows.
9	3246.7		SILTSTONE	Dark brown to grey, firm; carbonaceous; sandy in part.
10	3237.0			PULLED OFF
11	3217.0			PULLED OFF
12	3213.0			EMPTY
13	3200.4	25	SILTSTONE	Dark brown, firm; carbonaceous inclusions; micromicaceous; subfissile.
14	3194.3			PULLED OFF
15	3172.0	17	SILTSTONE	Dark grey to brown, very hard; carbonaceous inclusions; very fine sandstone inclusions.
16	3124.0			PULLED OFF
17	3104.4	16	SILTSTONE	Dark grey to brown, hard; carbonaceous.
18	3073.0	25	SILTY SANDSTONE	White, very fine to fine grained, poorly sorted, angular, friable; carbonaceous laminae; extensive white clay matrix; no shows.

19	3053.0	22	SANDSTONE	Grey to white, fine to very coarse grained, poorly sorted, angular to subrounded, hard; pebbly in parts; siliceous cement - possible overgrowths; no shows.
20	3038.4	7	SILTSTONE	Dark brown to grey, hard; carbonaceous inclusions; very fine sandstone inclusions.
21	2964.9			EMPTY
22	2904.5	18	SILTY	Dark brown to black, moderately hard; highly carbonaceous; coal laminae (conchoidal fracture).
23	2880.4	12	SILTSTONE	Dark brown, firm; micaceous; slightly carbonaceous.
24	2827.2			PULLED OFF
25	2782.4	13	SILTSTONE	Dark brown, firm; carbonaceous inclusions; biotite flecks.
26	2738.0	22	SHALE	Medium to dark brown, hard; micaceous, fissile; carbonaceous and coaly laminae.
27	2680.3	18	SILTSTONE	Medium grey, soft; clayey.
28	2651.0	15	SILTSTONE	Brown, firm; clayey carbonaceous inclusions; subfissile to occasionally fissile.
29	2611.5	20	SILTSTONE	Brownish grey, firm; carbonaceous; very fine sandstone in parts.
30	2586.0	23	CARBONACEOUS SILTSTONE	Dark grey, firm; micaceous in parts, sandstone in parts.
31	2561.6			PULLED OFF
32	2548.0	20	SANDSTONE	Light grey, fine to very fine grained, moderately sorted, subangular, friable; thin carbonaceous laminae; no shows.
33	2541.6	18	SANDY SILTSTONE	Dark grey, very fine grained, poorly sorted, angular, soft; carbonaceous; micromicaceous; no shows.
34	2536.0	22	SILTY SANDSTONE	Medium grey, very fine to medium grained, poorly sorted, subangular friable; carbonaceous; silty/argillaceous matrix; no shows.
35	2509.8			MISFIRE
36	2505.0			EMPTY (BROKEN)
37	2496.5	17	SILTSTONE	Dark grey, very fine grained, poorly sorted, angular, firm; slightly carbonaceous; very fine sandstone inclusions; no shows.

38	2453.0			MISFIRE
39	2415.7	16	SHALE	Dark brown, hard; subfissile to fissile; carbonaceous.
40	2379.2	15	SILTSTONE	Dark brown, hard; carbonaceous, micaceous; occasional very fine sandstone inclusions.
41	2321.2			MISFIRE
42	2280.0	18	SILTSTONE	Medium brown, hard; carbonaceous, sandy, micaceous.
43	2232.4	30	COAL	Dark brown to black, firm; micaceous, dull, earthy; brittle.
44	2188.0			MISFIRE
45	2132.0	30	SANDSTONE	Light grey, fine grained, poorly sorted, subangular, friable; very clayey; no shows.
46	2095.0	32	COAL	Black, brittle; fissile in parts; grades into carbonaceous shale, vitreous to earthy lustre.
47	2075.5	26	SANDSTONE	Pale brown, fine to medium grained, moderately sorted, angular to subrounded, friable; argillaceous matrix; no shows.
48	2050.5	25	CARBONACEOUS SHALE	Black, firm; subfissile to fissile; extremely carbonaceous.
49	2014.0	28	CARBONACEOUS SILTSTONE	Black, firm; subfissile, micromicaceous; highly carbonaceous.
50	1988.7	23	SILTY SANDSTONE	Pale brown, fine to medium grained, moderately sorted, angular, firm; dirty appearance; extensive argillaceous matrix; no shows.
51	1965.0	18	SILTSTONE	Dark brown, firm; carbonaceous; grades to fissile shale.
52	1933.0	22	SANDSTONE	Light grey, medium grained moderately to well sorted, subrounded, friable; argillaceous matrix; small carbonaceous laminae; poor to moderate visible porosity; no shows.
53	1906.3	15	SHALE	Pale brown, firm; fissile; thin clay laminae.
54	1859.0	17	SANDY SILTSTONE	Light grey, very fine grained, poorly sorted, angular, moderately hard; occasionally carbonaceous; thin siltstone laminae; no shows.
55	1785.0	32	SHALE	Medium brown, firm; slightly calcareous; micaceous.
56	1717.4	28	SILTSTONE	Medium brown, firm; slightly calcareous; carbonaceous; very fine sand inclusions.

57	1665.5	26	SILTSTONE	Dark grey, medium hard; slightly to moderately calcareous; carbonaceous siltstone laminae.
58	1649.0	24	CLAYSTONE	Medium brown, firm; very fine sand in parts; fissile in parts.
59	1644.0	34	CLAYSTONE	Pale brown, firm; extremely calcareous; occasional very fine grained sandstone inclusions.
60	1638.5	53	CLAYSTONE	Medium grey, firm; extremely calcareous; pyrite inclusions.
61	3403.0	15	SHALE	Dark brown, very hard; slightly carbonaceous; silty and micaceous in part.
62	3382.2	13	SANDY SILTSTONE	Light brown, very fine grained, poorly sorted, angular, hard; argillaceous; sandy, carbonaceous inclusions; no shows.
63	3357.5	25	SILTSTONE	Dark brown, hard; very clayey; subfissile, micaceous and carbonaceous inclusions.
64	3293.7	11	SANDSTONE	Light grey, very fine to fine grained, poorly sorted, angular to subrounded, moderately hard; very silty, siliceous; no shows.
65	3237.0			PULLED OFF
66	3217.0			PULLED OFF
67	3200.4			PULLED OFF
68	3194.3			PULLED OFF
69	3124.0	15	SANDSTONE	Light grey, fine grained, poorly sorted, angular, friable to moderately hard; white clay matrix; 20% spotty, moderately bright, blue-white fluorescence; no cut; gaseous odour.
70	3011.2			PULLED OFF
71	2964.9			PULLED OFF
72	2827.2	28	SILTSTONE	Light grey to brown, hard; micaceous flecks; clayey.
73	2767.1	26	SILTSTONE	Medium grey, hard; clayey and sandy in parts; carbonaceous inclusions.
74	2706.5	24	SANDSTONE	Light grey, fine grained, moderately sorted, angular, very hard; argillaceous matrix, siliceous cement; carbonaceous flecks: no shows.
75	2662.6	30	SHALE	Medium grey, very hard; clayey, fissile; micaceous in part, subfissile in part.
76	2631.0	27	SANDSTONE	Light grey, very fine grained, well sorted, angular, very hard; thin silty laminae; no shows.

77	2575.2	22	SILTY SANDSTONE	Dark grey, fine to coarse grained, poorly sorted, angular to subrounded, hard; carbonaceous; occasional granule sized sand grains; no shows.
78	2561.6			PULLED OFF
79	2509.8	30	SILTSTONE	Dark grey, very fine grained, poorly sorted, angular, hard; sandy in part; grades into very fine sandstone carbonaceous inclusions.
80	2505.0	26	SILTSTONE	Dark brown, very fine grained, poorly sorted, angular, very hard; occasional very fine sand; micaceous.
81	2453.0	18	SILTSTONE	Black, hard; highly carbonaceous; subfissile.
82	2321.2	27	SILTSTONE	Medium brown, hard; carbonaceous inclusions; micromicaceous and sandy in part.
83	2259.0	20	SHALE	Black, hard; highly carbonaceous; fissile.
84	2188.0	28	SANDY SILTSTONE	White to light brown, very fine grained, poorly sorted, angular, moderately hard; laminar texture; laminated fine sand and siltstone.
85	2153.8	16	SILTY SANDSTONE	Medium brown, fine to very fine grained, poorly sorted, angular, moderately hard; carbonaceous in part; clayey; no shows.
86	2033.3	37	SHALE	Black, firm; highly carbonaceous, fissile.
87	1820.0	36	SILTSTONE	Medium brown, moderately hard, clay laminae; subfissile.
88	1752.2	35	CLAYSTONE	Medium dark brown, moderately hard; silty, moderately carbonaceous; subfissile.
89	1693.3			PULLED OFF
90	1654.5			PULLED OFF

ANGELFISH-1

SIDEWALL CORE GAS ANALYSIS

NO.	DEPTH	C1	C2	C3	C4	C5	C6
6	3285.0	129	45	17	4	trace	-
19	3053.0	trace	trace	-	-	-	-
69	3124.0	20	6	2	trace	trace	-

APPENDIX 4

RFT PRESSURE DATA

WELL: ANGELFISH-1
DATE: 10TH DECEMBER, 1985

GEOLOGIST/ENGINEER: J. ROCHE/E. C. IE

RFT No. Run/Seat	RFT TYPE	Depth m MDKB	Depth m TVDSS KB=21	Initial Hydrostatic HP / RFT gauge psia / psig MPa/g	ppg	Time Set	Minimum Flowing Pressure psia (Pretest)	Formation Pressure HP / RFT gauge psia / psig MPa/g	ppg	Temp °C	Time Retract	Final Hydrostatic HP / RFT gauge psia / psig MPa/g	ppg	Comments (include Probe type) L = Long nose probe M = Martineau probe
1/1	Pretest	3162.5	3141.5	5297.2/5284	9.8	12:07	4349	4834.66/4818	8.99	107	12:23	5296.33/5278		Good permeability; Good test; Overpressured. L
1/2	Pretest	3148.0	3127.0	5271.58/ -		12:40		4729.55/ -	8.84		12:45	5270.0/ -		Good permeability; Good test; Overpressured. L
1/3	Pretest	3143.0	3122.0	5257.72/5245		12:58	2461	4736.25/ -	8.89	106	13:06	5261.0/5250		Good permeability; Temporary blocked nose; Supercharged? L
1/4	Pretest	3127.3	3106.3	5237.45/ -		13:31	4413	4667.58/ -	8.81	110	13:36	5235.0/ -		Good permeability; Good test; Over-pressured. L
1/5	Pretest	3143.0	3122.0	5264.23/5252		13:53	2454	4733.70/4716	8.89	111	14:03	5268.56/ -		Good test; Overpressured. L
1/6	Pretest	3144.3	3123.3	5269.13/ -	9.8	14:12	1215	4842.51/ -	9.09	111	14:34	5266.0/ -		Tight; Supercharged; Good test; Over-pressured. L

RFT PRESSURE DATA

WELL: ANGELFISH-1
DATE: 10TH DECEMBER, 1985

GEOLOGIST/ENGINEER: J. ROCHE/S. WATTS/E. C. IE

RFT No. Run/Seat / RFT TYPE	Depth m MDKB	Depth m TVDSS KB=21	Initial Hydrostatic HP / RFT gauge psia / psig MPa/g	ppg	Time Set	Minimum Flowing Pressure psia (Pretest)	Formation Pressure HP / RFT gauge psia / psig MPa/g	ppg	Temp °C	Time Retract	Final Hydrostatic HP / RFT gauge psia / psig MPa/g	ppg	Comments (include Probe type) L = Long nose probe M = Martineau probe
1/7 Pretest	3146.0	3125.0	5268.46/ -		14:44	2417	4734.35/ -	8.85	110	14:48	5267.0/ -		Moderate permeability; Good test; Supercharged/ Overpressured. L
1/8 Pretest	3124.0	3103.0	5229.30/5216		15:11	620	4678.45/ -	8.84	110	15:21	5228.45/ -		Tight; Good test; Overpressured. L
1/9 Pretest	3053.0	3032.0	5112.43/ -		15:43	3122	4471.30/ -	8.64	109	15:56	5114.63/ -		Good test; Moderate Permeability; Over-pressured. L
1/10 Pretest	3048.5	3027.5	5107.95/5094		16:05		Aborted						No seal. L
1/11 Pretest	3048.5	3027.5	5108.5/ -						108.0				Seal failure. L
1/12 Pretest	3049.0	3028.0	5108.6/ - 35.22	9.8	16:12				107.8				Seal Failure. L

RFT PRESSURE DATA

WELL: ANGELFISH-1
DATE: 10TH DECEMBER, 1985

GEOLOGIST/ENGINEER: J. ROCHE/S. WATTS/C. IE

RFT No. Run/Seat	RFT TYPE	Depth m MDKB	Depth m TVDSS KB=21	Initial Hydrostatic HP / RFT gauge psia / psig MPa/g	Initial Hydrostatic HP / RFT gauge psia / psig ppg	Time Set	Minimum Flowing Pressure psia (Pretest)	Formation Pressure HP / RFT gauge psia / psig MPa/g	Formation Pressure HP / RFT gauge psia / psig ppg	Temp °C	Time Retract	Final Hydrostatic HP / RFT gauge psia / psig MPa/g	Final Hydrostatic HP / RFT gauge psia / psig ppg	Comments (include Probe type) L = Long nose probe M = Martineau probe	
1/13	Pretest	3048.7	3027.7	5108.8/ - 35.22	9.8	16:16	2981	4471.0/4455 30.83	8.6	107.8	16:23	5110.8/ -		Valid. DD PERM = 2.2 md	L
1/14	Pretest	3041.5	3020.5	5095.2/ - 35.13	9.8	16:33	9	Tight		107.8	16:36	UNSTAB/5082		Tight.	L
1/15	Pretest	3040.5	3019.5	5093.9/5080 35.12	9.8	16:41				107.7	16:43	UNSTAB/5081		Seal failure.	L
1/16	Pretest	3041.0	3020.0	5094.2/5082 35.12	9.8	16:46	21			107.7	16:47	5095.0/5080		Seal failure/Tight.	L
1/17	Pretest	3029.0	3008.0	5073.3/5064 34.98	9.8	16:55				107.8	16:56	- / -		Seal failure.	L
1/18	Pretest	3029.0	3008.0	5073.5/ - 34.98	9.8	16:57	2386	4421.6/ - 30.48	8.6	108.0	17:07	- /5075		Valid/(Seal failure recovered)	L
1/19	Pretest	3023.5	3002.5	5068.1/5056 34.94	9.8	17:13	3832.5	4406.8/4392 30.38	8.6	107.8	17:22	5072.0/5055		Valid. DD PERM = 6.4 md	L

RFT PRESSURE DATA

WELL: ANGELFISH-1
DATE: 10TH & 11TH DECEMBER, 1985

GEOLOGIST/ENGINEER: S. WATTS/J. ROCHE/C. IE

RFT No. Run/Seat	RFT TYPE	Depth m MDKB	Depth m TVDSS KB=21	Initial Hydrostatic HP / RFT gauge psia / psig MPa/g	ppg	Time Set	Minimum Flowing Pressure psia (Pretest)	Formation Pressure HP / RFT gauge psia / psig MPa/g	ppg	Temp °C	Time Retract	Final Hydrostatic HP / RFT gauge psia / psig MPa/g	ppg	Comments (include Probe type) L = Long nose probe M = Martineau probe
1/20	Pretest	3003.0	2982.0	5033.8/5022 34.71	9.8	17:31	3856.2	4369.3/4357 30.13	8.5	107.5	17:38	5035.3/5022		Valid. DD PERM = 7.2 md L
1/21	Pretest	2961.5	2940.5	*4964.5/5054 34.23	9.8	17:53	4155.4	4295.6/4285 29.62	8.5	107.4	18:02	4966.0/4954		*UNSTABILISED Valid DD PERM = 29.4 md L
1/22	Pretest	1997.5	1976.5	3365.4/3362 23.20	9.8	18:56	2822.6	2855.3/2854 19.69	8.4	94.9	18:59	3365.8/3363		Valid. DD PERM = 101 md L
1/23	Pretest	1939.5	1918.5	3268.4/3266 22.53	9.8	19:13	2734.8	2774.1/2772 19.13	8.4	94.7	19:23	3269.0/3266		Valid. DD PERM = 42 md L
2/24	Sample	3127.3	3106.3	- /5231 36.07	9.8	22:47				109.6	22:49			Seal failure. M
2/25	Sample	3127.3	3106.3	- /5231 36.07	9.8	22:51				108.9	22:52			Seal failure. M

RFT PRESSURE DATA

WELL: ANGELFISH-1
DATE: 11TH DECEMBER, 1985

GEOLOGIST/ENGINEER: S. WATTS/J. ROCHE/C. IE

RFT No. Run/Seat / RFT TYPE	Depth m MDKB	Depth m TVDSS KB=21	Initial Hydrostatic HP / RFT gauge psia / psig MPa/g	Initial Hydrostatic HP / RFT gauge psia / psig ppg	Time Set	Minimum Flowing Pressure psia (Pretest)	Formation Pressure HP / RFT gauge psia / psig MPa/g	Formation Pressure HP / RFT gauge psia / psig ppg	Temp °C	Time Retract	Final Hydrostatic HP / RFT gauge psia / psig MPa/g	Final Hydrostatic HP / RFT gauge psia / psig ppg	Comments (include Probe type) L = Long nose probe M = Martineau probe
2/26 Sample	3127.0	3106.0	- /5230 36.06	9.8	22:55	4387.0	- /4656 32.10	8.8	108.1	23:59	- /5222		Valid Pretest/Sample taken. DD PERM = 11.2 md M
3/27 Sample	3143.0	3122.0	- /5261 36.27	9.8	04:55	4098.0	- /4714 32.50	8.8	111.5	06:18	- /5251		Valid Pretest/Sample Taken. DD PERM = 5.4 md M
4/28 Sample	3130.0	3109.0	- /5240 36.13	9.8	11:02	3460.0	- /4706 32.45	8.9	113.7				Valid Pretest/Sample Aborted - Tight. DD PERM = 2.4 md M
4/29 Sample	3129.8	3108.8	- /5237 36.11	9.8	11:18	485.0	- / -		113.7	11.21	- / -		Tight/ No Sample. M
4/30 Sample	3123.5	3102.5	- /5225 36.09	9.8	11:24	2174.0	- /4681 32.27	8.8	113.7	11.30	- /5223		Tight/ No Sample. DD PERM = 1.3 md M
4/31 Sample	3127.0	3106.0	- /5229 36.05	9.8	11:37		- / -		108.9	11.37	- / -		Seal Failure. M

RFT PRESSURE DATA

WELL: ANGELFISH-1
DATE: 17TH & 18TH DECEMBER, 1985

GEOLOGIST/ENGINEER: S. WATTS/C. IE

RFT No. Run/Seat	RFT TYPE	Depth m MDKB	Depth m TVDSS KB=21	Initial Hydrostatic HP / RFT gauge psia / psig	MPa/g	ppg	Time Set	Minimum Flowing Pressure psia (Pretest)	Formation Pressure HP / RFT gauge psia / psig	MPa/g	ppg	Temp °C	Time Retract	Final Hydrostatic HP / RFT gauge psia / psig	MPa/g	ppg	Comments (include Probe type) L = Long nose probe M = Martineau probe
4/32	Sample	3127.0	3106.0	- /5230	36.06	9.8	11:38		- / -			108.9	11.40	- /5237			Seal Failure. M
4/33	Sample	3130.0	3109.0	- /5234	36.09	9.8	11:44	3465.0	- /4553*	31.39	8.6	108.9	12.20	- / -			*Tight; Opened Chamber; Probe Plugged. DD PERM = 3.0 md M
5/34	Sample	3285.0	3264.0	- /5832	40.21	10.4	11:27	4922.0	- /5203	35.87	9.3	108.0	12:59	- /5834			Valid/Sample Taken; 12/2-3/4 DD PERM = 13 md M
6/35	Sample	3194.3	3173.3	- /5668	39.08	10.4	04:40	4561.0	- /4906	33.83	9.0	108.7	05:23	- /5670			Valid/Sample Taken; 12/2-3/4 DD PERM = 9.6 md M
7/36	Sample	3053.0	3032.0	- /5415	37.34	10.4	08:37		- / -			105.1	08:38	- / -			Seal Failure. M
7/37	Sample	3053.0	3032.0	- /5415	37.34	10.4	08:38		- / -			105.1	08:40	- / -			Seal Failure. M

RFT PRESSURE DATA

WELL: ANGELFISH-1
DATE: 17TH & 18TH DECEMBER, 1985

GEOLOGIST/ENGINEER: S. WATTS/C. IE

RFT No. Run/Seat / RFT TYPE	Depth m MDKB	Depth m TVDSS KB=21	Initial Hydrostatic HP / RFT gauge psia / psig MPa/g	Initial Hydrostatic HP / RFT gauge psia / psig ppg	Time Set	Minimum Flowing Pressure psia (Pretest)	Formation Pressure HP / RFT gauge psia / psig MPa/g	Formation Pressure HP / RFT gauge psia / psig ppg	Temp °C	Time Retract	Final Hydrostatic HP / RFT gauge psia / psig MPa/g	Final Hydrostatic HP / RFT gauge psia / psig ppg	Comments (include Probe type) L = Long nose probe M = Martineau probe
7/38 Sample	3053.2	3032.2	- /5413 37.32	10.4	08:43		- / -		105.1	08:44	- /5412		Seal Failure. M
7/39 Sample	3052.8	3031.8	- /5413 37.32	10.4	08:46		- / -		105.1	08:47	- /5412		Seal Failure. M
7/40 Sample	3052.8	3031.8	- /5413 37.32	10.4	08:46		- / -		105.1	08:47	- /5412		Seal Failure. M
7/41 Sample	3052.8	3031.8	- /5412	10.4	08:49		- / -		105.1	08:50	- /5412		Seal Failure. M
7/42 Sample	3053.5	3032.5	- /5413 37.32	10.4	08:55	3576	- /4452 30.70	8.6	105.1	09:59	- /5416		Valid/Sample Taken. DD PERM = 4 md M

RFT SAMPLE TEST REPORT

Well : ANGELFISH-1

OBSERVER : C. IE/J. ROCHE/S. WATTS DATE : 10/12/85 RUN NO. : TWO

	CHAMBER 1 (45.4 lit.)			CHAMBER 2 (10.4 lit.)	
SEAT NO.	2/24	2/25	2/26	2/26	
DEPTH	3127.3	3127.3	3127.0m	3127.0	m
A. RECORDING TIMES					
Tool Set	10:43	10:51	10:55 hrs	-	hrs
Chamber Open			11:00 hrs	11:51	hrs
Chamber Full			11:22 hrs	-	hrs
Fill Time			22 mins	-	mins
Finish Build Up			11:48 hrs	-	hrs
Build Up Time			26 mins	-	mins
Tool Retract	10:49	10:52	- hrs	11:59	hrs
Total Time			mins	76	mins
B. SAMPLE PRESSURE					
Initial Hydrostatic	5231	5231	5230 psig		psig
Initial Form'n Press.			4656 psig	5222	psig
Initial Flowing Press.			20 psig	3447	psig
Final Flowing Press.			3389 psig	-	psig
Final Formation Press.			- psig	-	psig
Final Hydrostatic			- psig	5222	psig
C. TEMPERATURE					
Max. Tool Depth			m		m
Max. Rec. Temp	109.6	108.9	108.1 deg C		deg C
Length of Circ.			hrs		hrs
Time/Date Circ. Stopped	02:10 hrs		09/12/85	hrs	/ /
Time since Circ.	30 hrs		mins		hrs
D. SAMPLE RECOVERY					
Surface Pressure	1350		psig		psig
Amt Gas	55.2		cu ft		cu ft
Amt Oil	2.0		lit		lit
Amt Water (Total)	26.0		lit		lit
Amt Others (MUD EMULSION)	2.0		lit		lit
E. SAMPLE PROPERTIES					
Gas Composition					
C1	242196		ppm		ppm
C2	42301		ppm		ppm
C3	27033		ppm		ppm
C4	7347		ppm		ppm
C5	1664		ppm		ppm
C6+	196		ppm		ppm
CO2/H2S	10/trace		%/ppm		%/ppm
Oil Properties	47.4 deg API@		16 deg C	deg API@	deg C
Colour	Reddish Brown				
Fluorescence	Bright White				
GOR	43.884 SCF/BBL				
Pour Point	22°C				
Water Properties					
Resistivity	0.209 ohm-m @		19 deg C	ohm-m @	deg C
NaCl Equivalent	48000		ppm		ppm
Cl-titrated	22500		ppm		ppm
Tritium	2912		DPM		DPM
pH	-				
Est. Water Type	Filtrate				
F. MUD FILTRATE PROPERTIES					
Resistivity	0.211 ohm-m @		21 deg C	ohm-m @	deg C
NaCl Equivalent	45000		ppm		ppm
Cl-titrated	21500		ppm		ppm
pH	-				
Tritium (in Mud)	3250		DPM		DPM
G. GENERAL CALIBRATION					
Mud Weight	9.8		ppg		ppg
Calc. Hydrostatic	5228		psi		psi
Serial No. (Preserved)	-				
Choke Size/Probe Type	.040"/Martineau				
REMARKS	TIGHT			SEAL FAILURE	

RFT SAMPLE TEST REPORT

Well : ANGELFISH-1

OBSERVER : C. IE/S. WATTS/J. ROCHE DATE : 11/12/85 RUN NO. : THREE

	CHAMBER 1 (45.4 lit.)		CHAMBER 2 (10.4 lit.)	
SEAT NO.	3/27		3/27	
DEPTH	3143.0	m	3143.0	m
A. RECORDING TIMES				
Tool Set	04:44	hrs		hrs
Chamber Open	04:58	hrs	06:00	hrs
Chamber Full	05:23	hrs	06:05	hrs
Fill Time	25	mins	5	mins
Finish Build Up	-	hrs	-	hrs
Build Up Time	-	mins	-	mins
Tool Retract	-	hrs	06:18	hrs
Total Time		mins	94	mins
B. SAMPLE PRESSURE				
Initial Hydrostatic	5261	psig		psig
Initial Form'n Press.	4714	psig		psig
Initial Flowing Press.	55	psig	890	psig
Final Flowing Press.	2477	psig	2593	psig
Final Formation Press.	2477	psig	2593	psig
Final Hydrostatic	-	psig	5251	psig
C. TEMPERATURE				
Max. Tool Depth	3143	m	3143	m
Max. Rec. Temp	113	deg C	113	deg C
Length of Circ.		hrs		hrs
Time/Date Circ. Stopped	02:10 hrs	09/12/85	02:10 hrs	09/12/85
Time since Circ.	hrs	mins		hrs
D. SAMPLE RECOVERY				
Surface Pressure	1250	psig	1300	psig
Amt Gas	126.3	cu ft	39.9	cu ft
Amt Oil/CONDENSATE	1.1	lit	0.75	lit
Amt Water (Total)	17.8	lit	0.75	lit
Amt Others	-	lit		lit
E. SAMPLE PROPERTIES				
Gas Composition				
C1	313958	ppm	336384	ppm
C2	59535	ppm	62668	ppm
C3	33792	ppm	45504	ppm
C4	10035	ppm	16128	ppm
C5	2698	ppm	5248	ppm
C6+	470	ppm	1046	ppm
CO2/H2S	16/6	%/ppm	16/6	%/ppm
Oil Properties	51.5 deg API@	16 deg C	52.5 deg API@	16 deg C
Colour	Light Brown (Semi-opaque)		Light Brown	
Fluorescence	Bright Light Blue		Bright Light Blue	
GOR				
Pour Point				
Water Properties				
Resistivity	0.201 ohm-m @	18 deg C	0.199 ohm-m @	13 deg C
NaCl Equivalent	38000	ppm	41000	ppm
Cl-titrated	21000	ppm	19000	ppm
Tritium	3023	DPM	2644	DPM
pH	-		-	
Est. Water Type	Filtrate		Filtrate	
F. MUD FILTRATE PROPERTIES				
Resistivity	0.211 ohm-m @	21 deg C	0.211 ohm-m @	21 deg C
NaCl Equivalent	45000	ppm	45000	ppm
Cl-titrated	21000	ppm	21000	ppm
pH	-		-	
Tritium (in Mud)	3457	DPM	3457	DPM
G. GENERAL CALIBRATION				
Mud Weight	9.8	ppg	9.8	ppg
Calc. Hydrostatic	5254	psi	5254	psi
Serial No. (Preserved)	-		-	
Choke Size/Probe Type	040"/Martineau		040"/Martineau	
REMARKS	TIGHT, POSSIBLY AN EXTREMELY LIGHT OIL		TIGHT	

RFT SAMPLE TEST REPORT

Well : ANGELFISH-1

OBSERVER : S. WATTS/J. ROCHE DATE : 11/12/85 RUN NO. : FOUR

	CHAMBER 1 (45.4 lit.)				CHAMBER 2 (10.4 lit.)	
SEAT NO.	4/28	4/29	4/30			
DEPTH	3130.0	3129.8	3123.5	m		m
A. RECORDING TIMES						
Tool Set	10:58	11:17	11:23	hrs		hrs
Chamber Open	11:03	-	11:28	hrs		hrs
Chamber Full	-	-	-	hrs		hrs
Fill Time	-	-	-	mins		mins
Finish Build Up	-	-	-	hrs		hrs
Build Up Time	-	-	-	mins		mins
Tool Retract	-	-	11:30	hrs		hrs
Total Time				mins		mins
B. SAMPLE PRESSURE						
Initial Hydrostatic	5240	5237	5225	psig		psig
Initial Form'n Press.	4707	-	4681	psig		psig
Initial Flowing Press.	47	-	-	psig		psig
Final Flowing Press.	136	-	-	psig		psig
Final Formation Press.	-	-	-	psig		psig
Final Hydrostatic	-	-	5223	psig		psig
C. TEMPERATURE						
Max. Tool Depth				m		m
Max. Rec. Temp				deg C		deg C
Length of Circ.				hrs		hrs
Time/Date Circ. Stopped		hrs	/ /		hrs	/ /
Time since Circ.		hrs		mins		hrs
D. SAMPLE RECOVERY						
Surface Pressure				psig		psig
Amt Gas				cu ft		cu ft
Amt Oil				lit		lit
Amt Water (Total)				lit		lit
Amt Others				lit		lit
E. SAMPLE PROPERTIES						
Gas Composition						
C1				ppm		ppm
C2				ppm		ppm
C3				ppm		ppm
C4				ppm		ppm
C5				ppm		ppm
C6+				ppm		ppm
CO2/H2S				%/ppm		%/ppm
Oil Properties		deg API@		deg C	deg API@	deg C
Colour						
Fluorescence						
GOR						
Pour Point						
Water Properties						
Resistivity		ohm-m @		deg C	ohm-m @	deg C
NaCl Equivalent				ppm		ppm
Cl-titrated				ppm		ppm
Tritium				DPM		DPM
pH						
Est. Water Type						
F. MUD FILTRATE PROPERTIES						
Resistivity		ohm-m @		deg C	ohm-m @	deg C
NaCl Equivalent				ppm		ppm
Cl-titrated				ppm		ppm
pH						
Tritium (in Mud)				DPM		DPM
G. GENERAL CALIBRATION						
Mud Weight		9.8		ppg		ppg
Calc. Hydrostatic		-		psi		psi
Serial No. (Preserved)		-				
Choke Size/Probe Type		0.040"/Martineau				
REMARKS		TIGHT			NOT OPENED	

RFT SAMPLE TEST REPORT

Well : ANGELFISH-1

OBSERVER : S. WATTS/C. IE DATE : 17/12/85 RUN NO. : FIVE

	CHAMBER 1 (45.4 lit.)		CHAMBER 2 (10.4 lit.)	
SEAT NO.	5/34		5/34	
DEPTH	3285.0	m	3285.0	m
A. RECORDING TIMES				
Tool Set	23:35	hrs	-	hrs
Chamber Open	23:40	hrs	00:37	hrs
Chamber Full	00:14	hrs	00:45	hrs
Fill Time	34	mins	8	mins
Finish Build Up	00:36	hrs	00:51	hrs
Build Up Time	22	mins	6	mins
Tool Retract	-	hrs	00:52	hrs
Total Time	61	mins	15	mins
B. SAMPLE PRESSURE				
Initial Hydrostatic	5832	psig	-	psig
Initial Form'n Press.	5203	psig	5178	psig
Initial Flowing Press.	11	psig	320	psig
Final Flowing Press.	430	psig	339	psig
Final Formation Press.	5178	psig	5160	psig
Final Hydrostatic	-	psig	5834	psig
C. TEMPERATURE				
Max. Tool Depth	3285	m	3285	m
Max. Rec. Temp	108	deg C	108	deg C
Length of Circ.		hrs		hrs
Time/Date Circ. Stopped	02:00 hrs	17/12/85	02:00 hrs	17/12/85
Time since Circ.	4 hrs	35 mins	04:35	hrs
D. SAMPLE RECOVERY				
Surface Pressure	400	psig	600	psig
Amt Gas	2.6	cu ft	2.1	cu ft
Amt Oil	-	lit	-	lit
Amt Water (Total)	42.5	lit	9.3	lit
Amt Others (OIL SCUM)	trace	lit	trace	lit
E. SAMPLE PROPERTIES				
Gas Composition				
C1	507904	ppm	355532	ppm
C2	50790	ppm	34406	ppm
C3	30105	ppm	10036	ppm
C4	6955	ppm	5857	ppm
C5	900	ppm	1396	ppm
C6+	210	ppm	132	ppm
CO2/H2S	35/16	%/ppm	21/5	%/ppm
Oil Properties	- deg API@	- deg C	- deg API@	- deg C
Colour	Dark Brown		Dark Brown	
Fluorescence	Tan to Yellow		Tan to Yellow	
GOR	-		-	
Pour Point	34°C (Waxy)		34°C (Waxy)	
Water Properties				
Resistivity	0.219 ohm-m @	20 deg C	0.218 ohm-m @	20 deg C
NaCl Equivalent	32000	ppm	32000	ppm
Cl-titrated	23000	ppm	22000	ppm
Tritium	3046	DPM	2714	DPM
pH	-		-	
Est. Water Type	Filtrate		Filtrate	
F. MUD FILTRATE PROPERTIES				
Resistivity	0.230 ohm-m @ 19.5 deg C		0.230 ohm-m @ 19.5 deg C	
NaCl Equivalent	35000	ppm	35000	ppm
Cl-titrated	22000	ppm	22000	ppm
pH	-		-	
Tritium (in Mud)	3140	DPM	3140	DPM
G. GENERAL CALIBRATION				
Mud Weight	10.3	ppg	10.3	ppg
Calc. Hydrostatic	-	psi	-	psi
Serial No. (Preserved)	-		-	
Choke Size/Probe Type	0.040"/Martineau		0.040"/Martineau	
REMARKS	POOR TO MODERATE PERMEABILITY			

RFT SAMPLE TEST REPORT

Well : ANGELFISH-1

OBSERVER : S. WATTS/C. IE DATE : 18/12/85 RUN NO. : SIX

	CHAMBER 1 (45.4 lit.)		CHAMBER 2 (10.4 lit.)	
SEAT NO.	6/35		6/35	
DEPTH	3194.3	m	3194.3	m
A. RECORDING TIMES				
Tool Set	04:35	hrs	-	hrs
Chamber Open	04:43	hrs	05:14	hrs
Chamber Full	05:02	hrs	05:18	hrs
Fill Time	19	mins	4	mins
Finish Build Up	05:12	hrs	05:20	hrs
Build Up Time	10	mins	2	mins
Tool Retract	-	hrs	05:23	hrs
Total Time	37	mins	9	mins
B. SAMPLE PRESSURE				
Initial Hydrostatic	5668	psig	-	psig
Initial Form'n Press.	4906	psig	4897	psig
Initial Flowing Press.	23	psig	110	psig
Final Flowing Press.	-	psig	4888	psig
Final Formation Press.	4891	psig	4895	psig
Final Hydrostatic	-	psig	5670	psig
C. TEMPERATURE				
Max. Tool Depth	3200	m		m
Max. Rec. Temp	108.7	deg C		deg C
Length of Circ.		hrs		hrs
Time/Date Circ. Stopped	02:00 hrs	17/12/85	hrs	/ /
Time since Circ.	hrs	mins		hrs
D. SAMPLE RECOVERY				
Surface Pressure	200	psig	280	psig
Amt Gas	2.9	cu ft	1.1	cu ft
Amt Oil	-	lit	-	lit
Amt Water (Total)	43.0	lit	9.0	lit
Amt Others (OIL SCUM)	trace	lit	trace	lit
E. SAMPLE PROPERTIES				
Gas Composition				
C1	236175	ppm	228557	ppm
C2	22937	ppm	18842	ppm
C3	5734	ppm	2150	ppm
C4	3203	ppm	1761	ppm
C5	869	ppm	442	ppm
C6+	154	ppm	94	ppm
CO2/H2S	28/18	%/ppm	30/70	%/ppm
Oil Properties	- deg API@	- deg C	- deg API@	- deg C
Colour	Dark Brown		Dark Brown	
Fluorescence	Tan to Yellow		Tan to Yellow	
GOR	-		-	
Pour Point	Waxy		Waxy	
Water Properties				
Resistivity	0.215 ohm-m @	20 deg C	0.208 ohm-m @	20 deg C
NaCl Equivalent	34000	ppm	35000	ppm
Cl-titrated	22500	ppm	23000	ppm
Tritium	2804	DPM	2880	DPM
pH	-		-	
Est. Water Type	Filtrate		Filtrate	
F. MUD FILTRATE PROPERTIES				
Resistivity	0.230 ohm-m @ 19.5 deg C		0.230 ohm-m @ 19.5 deg C	
NaCl Equivalent	35000	ppm	35000	ppm
Cl-titrated	22000	ppm	22000	ppm
pH	-		-	
Tritium (in Mud)	3400	DPM	3400	DPM
G. GENERAL CALIBRATION				
Mud Weight	10.3	ppg	10.3	ppg
Calc. Hydrostatic	5626	psi	5626	psi
Serial No. (Preserved)	-		-	
Choke Size/Probe Type	0.040" Martineau		0.040"/Martineau	
REMARKS	GOOD PERMEABILITY			

RFT SAMPLE TEST REPORT

Well : ANGELFISH-1

OBSERVER : S. WATTS/C. IE/J. READ DATE : 18/12/85 RUN NO. : SEVEN

	CHAMBER 1 (45.4 lit.)		CHAMBER 2 (10.4 lit.)	
SEAT NO.	7/36	7/37		
DEPTH	3053.0	3053.0 m		m
A. RECORDING TIMES				
Tool Set	08:34	08:38 hrs		hrs
Chamber Open	-	- hrs		hrs
Chamber Full	-	- hrs		hrs
Fill Time	-	- mins		mins
Finish Build Up	-	- hrs		hrs
Build Up Time	-	- mins		mins
Tool Retract	-	- hrs		hrs
Total Time	3	3 mins		mins
B. SAMPLE PRESSURE				
Initial Hydrostatic	5415	psig		psig
Initial Form'n Press.		psig		psig
Initial Flowing Press.		psig		psig
Final Flowing Press.		psig		psig
Final Formation Press.		psig		psig
Final Hydrostatic		psig		psig
C. TEMPERATURE				
Max. Tool Depth		m		m
Max. Rec. Temp		deg C		deg C
Length of Circ.		hrs		hrs
Time/Date Circ. Stopped	hrs	/ /	hrs	/ /
Time since Circ.	hrs	mins		hrs
D. SAMPLE RECOVERY				
Surface Pressure		psig		psig
Amt Gas		cu ft		cu ft
Amt Oil		lit		lit
Amt Water (Total)		lit		lit
Amt Others		lit		lit
E. SAMPLE PROPERTIES				
Gas Composition				
C1		ppm		ppm
C2		ppm		ppm
C3		ppm		ppm
C4		ppm		ppm
C5		ppm		ppm
C6+		ppm		ppm
CO2/H2S		%/ppm		%/ppm
Oil Properties	deg API@	deg C	deg API@	deg C
Colour				
Fluorescence				
GOR				
Pour Point				
Water Properties				
Resistivity	ohm-m @	deg C	ohm-m @	deg C
NaCl Equivalent		ppm		ppm
Cl-titrated		ppm		ppm
Tritium		DPM		DPM
pH				
Est. Water Type				
F. MUD FILTRATE PROPERTIES				
Resistivity	ohm-m @	deg C	ohm-m @	deg C
NaCl Equivalent		ppm		ppm
Cl-titrated		ppm		ppm
pH				
Tritium (in Mud)		DPM		DPM
G. GENERAL CALIBRATION				
Mud Weight		ppg		ppg
Calc. Hydrostatic		psi		psi
Serial No. (Preserved)				
Choke Size/Probe Type				
REMARKS	SEAL FAILURE		NOT OPENED	

APPENDIX 5

Schlumberger

ESSO AUSTRALIA LTD.

GEOGRAM PROCESSING REPORT

ANGELFISH - 1

FIELD	:	WILDCAT
COUNTRY	:	AUSTRALIA
STATE	:	VICTORIA
COORDINATES	:	038° 14' 42.92" S
	:	148° 22' 48.81" E
DATE OF SURVEY	:	19-DECEMBER-1985
REFERENCE NO.	:	540462

CONTENTS

1.0 INTRODUCTION

A velocity check shot survey was conducted in the Angelfish - 1 well on 19-December-1985. Twelve levels from 600 metres to 3424 metres below DF were shot using an airgun source. All levels have been used in the calibration of the sonic log.

The shot times and calibrated sonic times have been corrected to a nominal Mean Sea Level Datum.

2.0 DATA ACQUISITION

Table 1 : Field Equipment and Survey Parameters

Elevation SRD	Mean Sea Level
Elevation KB	21.0 metres AMSL
Elevation DF	20.7 metres AMSL
Elevation GL	-70.1 metres AMSL
No. of Levels	12
Well Deviation	Nil
Total Depth	3425 metres below DF
Energy Source	Bolt airgun, 140 cu.in.
Source Offset	30 metres
Source Depth	9.1 metres below MSL
Source Azimuth	90°
Reference Sensor	Accelerometer
Sensor Offset	30 metres
Sensor Depth	9.1 metres below MSL
Sensor Azimuth	90°
Downhole Geophone	Geospace HS-1
	High Temp. (350°F)
	Coil Resist. 225Ω ±10 %
	Natural Freq. 8-12 hertz
	Sensitivity 0.45 V/in/sec
	Maximum tilt angle 60°

Recording was made on the Schlumberger Computerized Service Unit (CSU) using LIS format.

2.1 Survey Details

The survey was shot as a standard offshore velocity survey. A moonpool hydrophone was positioned close to the wellhead and has been used to calculate the gun offset position. No major problems were noted during the survey.

3.0 CHECK SHOT DATA

A total of 12 check levels were shot during the survey.

The level at 900 metres below DF was shot both going into and coming out of the well. Transit times from both sets of data were similar but only the data from the shots shot coming out of the well has been used in the final stack.

A plot of the stacked check shot data is displayed as Plot 5 of the Raw and Stacked Shots.

Table 2

Level Depth (m below DF)	Stacked Shots	Rejected Shots	Quality	Comments
90.8	-	-	-	Imposed shot (sea floor)
600	6	0	Good	
858	-	-	-	Imposed shot (top of sonic)
900	4	6	Good	4 shots going in rejected
1150	4	2	Good	
1350	4	1	Good	
1643	5	0	Good	
1906	5	0	Good	
2005	5	0	Good	
2150	5	2	Good	
2461	6	0	Good	
2750	5	0	Good	
3050	5	0	Good	
3424	9	2	Good	

4.0 SONIC CALIBRATION

A 'drift' curve is obtained using the sonic log and the vertical check level times. The term 'drift' is defined as the seismic time (from check shots) minus the sonic time (from integration of edited sonic). Commonly the word 'drift' is used to identify the above difference, or to identify the gradient of drift verses increasing depth, or to identify a difference of drift between two levels.

The gradient of drift, that is the slope of the drift curve, can be negative or positive.

For a negative drift $\frac{\Delta drift}{\Delta depth} < 0$, the sonic time is greater than the seismic time over a certain section of the log.

For a positive drift $\frac{\Delta drift}{\Delta depth} > 0$, the sonic time is less than the seismic time over a certain section of the log.

The drift curve, between two levels, is then an indication of the error on the integrated sonic or an indication of the amount of correction required on the sonic to have the TTI of the corrected sonic match the check shot times.

Two methods of correction to the sonic log are used.

1. **Uniform or block shift** This method applies a uniform correction to all the sonic values over the interval. This uniform correction is applied in the case of positive drift and is the average correction represented by the drift curve gradient

   expressed in $\mu sec/m$.

2. **ΔT Minimum** In the case of negative drift a second method is used, called Δt minimum. This applies a differential correction to the sonic log, where it is assumed that the greatest amount of transit time error is caused by the lower velocity sections of the log. Over a given interval the method will correct only Δt values which are higher than a threshold, the Δt_{min}. Values of Δt which are lower than the threshold are not corrected. The correction is a reduction of the excess of Δt over Δt_{min}, $\Delta t - \Delta t_{min}$.

   $\Delta t - \Delta t_{min}$ is reduced through multiplication by a reduction coefficient which remains constant over the interval. This reduction coefficient, named G, can be be defined as:

   $$G = 1 + \frac{drift}{\int (\Delta t - \Delta t_{min}) dZ}$$

   Where drift is the drift over the interval to be corrected and the value $\int (\Delta t - \Delta t_{min}) dZ$ is the time difference between the integrals of the two curves Δt and Δt_{min}, only over the intervals where $\Delta t > \Delta t_{min}$.

   Hence the corrected sonic: $\Delta t = G(\Delta t - \Delta t_{min}) + \Delta t_{min}$.

5.0 SONIC CALIBRATION PROCESSING

5.1 Open Hole Logs

Both the sonic and density logs used have been edited prior to input into the WSC chain.

Minor intervals of cycle skipping throughout the sonic log have been patched. Density data was available below 1600 metres below DF, however due to poor hole conditions the interval from 1600 to 1643 metres has not been used. A constant density of 2.45 gm/cc has been used above 1643 metres. The density log has been patched over intervals of borehole washout, notably, 1686-1694, 1727-1730, 1734-1736, 1740-1743, and 1749-1764 metres below DF. Both the density and sonic logs have been linearly extrapolated from 3420 metres to the bottom checkshot at 3424 metres below DF.

Density log interval	:	1643 to 3424 metres below DF
Sonic log interval	:	858 to 3424 metres below DF

5.2 Source Offset

A hydrophone was positioned in the moonpool near the wellhead. This average transit time to this hydrophone has been used to calculate the source offset. A source to hydrophone time of 20 msec was measured. Using this time and a water velocity of 1480 metres/sec an offset of 29.6 metres was calculated between gun and moonpool hydrophone. Assuming the moonpool hydrophone is at the wellhead then the gun offset is 29.6 metres.

5.3 Correction to Datum

Seismic Reference Datum (SRD) is at Mean Sea Level. The airgun was positioned 9.1 metres below MSL. Using a water velocity of 1480 metres/sec a correction of 6.15 msecs has been applied vertically between gun and datum.

5.4 Imposed Shots and Velocity Modelling

Two imposed shots were used in addition to the checkshot data to calibrate the sonic log.

1. Sea floor : depth 90.8 metres below DF, water velocity 1480metres/sec
2. Top sonic : depth 858 metres below DF. The velocities above and below this level were chosen to maintain a linear sonic drift curve from this level down to lower check levels.

The velocity model used is displayed below. Depths stated are referenced to metres below Derrick Floor and metres below Mean Sea Level respectively.

SRD ——— 20.7 / 0.0 metres

1480 metres/sec

Seabed ——— 90.8 / 70.1 metres

2269 metres/sec

Top checkshot ——— 600 / 579.3 metres

2911 metres/sec

Top of sonic ——— 858 /837.3 metres

5.5 Sonic Calibration Results

The top of the sonic log (858 metres below DF)is chosen as the origin for the calibration drift curve. The drift curve indicates a number of corrections to be made to the sonic log. A list of shifts used on the sonic data is given below.

Depth Interval (m below DF)	Block Shift μ sec/m	Δt_{min} μ sec/m	Equiv Block Shift μ sec/m
858-1350	4.88	-	4.88
1350-2005	10.23	-	10.23
2005-2179	1.15	-	1.15
2179-2770	6.94	-	6.94
2770-3424	-	220.49	-2.75

The adjusted sonic curve is considered to be the best result using the available data.

6.0 GEOGRAM PROCESSING

GEOGRAMS were generated using 20, 25, 30 and 35 hertz ricker wavelets.The presentations include both normal and reverse polarity at 3.75 in/sec.

GEOGRAM processing produces synthetic seismic traces based on reflection coefficients generated from sonic and density measurements in the well-bore. The steps in the processing chain are the following:

Time to depth conversion
Generate reflection coefficients
Generate attenuation coefficients
Choose a suitable wavelet
Convolution
Output.

6.1 Time to Depth Conversion

Open hole logs are recorded from the bottom to top with a depth index. This data is converted to a two-way time index and flipped to read from the top to bottom in order to match the seismic section.

6.2 Primary Reflection Coefficients

Sonic and density data are averaged over chosen time intervals (normally 2 or 4 millisecs). Reflection coefficients are then computed using:

$$R = \frac{\rho_2.\nu_2 - \rho_1.\nu_1}{\rho_2.\nu_2 + \rho_1.\nu_1}$$

where

ρ_1 = density of the layer above the reflection interface
ρ_2 = density of the layer below the reflection interface
ν_1 = compressional wave velocity of the layer above the reflection interface
ν_2 = compressional wave velocity of the layer below the reflection interface

This computation is done for each time interval to generate a set of primary reflection coefficients without transmission losses.

6.3 Primaries with Transmission Loss

Transmission loss on two-way attenuation coefficients are computed using:

$$A_n = (1 - R_1^2).(1 - R_2^2).(1 - R_3^2)...(1 - R_n^2)$$

A set of primary reflection coefficients with transmission loss is generated using:

$$Primary_n = R_n.A_{n-1}$$

6.4 Primaries plus Multiples

Multiples are computed from these input reflection coefficients using the transform technique from the top of the well to obtain the impulse response of the earth. The transform outputs primaries plus multiples.

6.5 Multiples Only

By subtracting previously calculated primaries from the above result we obtain multiples only.

6.6 Wavelet

A theoretical wavelet is chosen to use for convolution with the reflection coefficients previously generated. Choices available include:

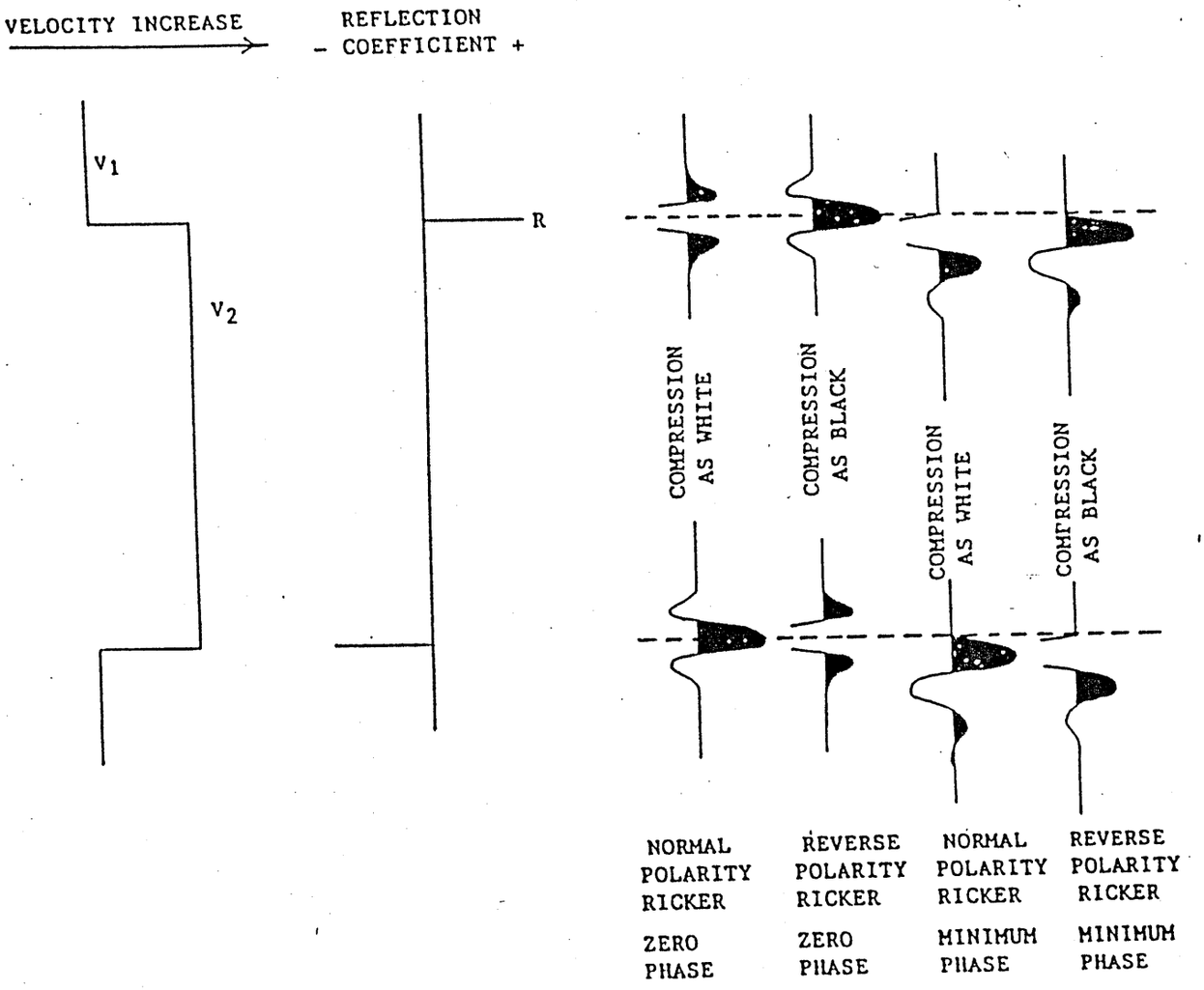
Klauder wavelet
Ricker zero phase wavelet
Ricker minimum phase wavelet
User defined wavelet.

All wavelets can be chosen with or without butterworth filtering and with user defined centre frequencies. Polarity conventions are shown in Figure 1. These GEOGRAMS were generated using zero and minimum phase ricker wavelets.

6.7 Convolution

Standard procedure of convolution of wavelet with reflection coefficients. The output is the synthetic seismogram.

SCHLUMBERGER WAVELET POLARITY CONVENTION



NOTE: WAVELET DISPLAYED UNDER GEOGRAMS ARE FOR A REFLECTION COEFFICIENT OF -0.5

FIGURE 1

Schlumberger

WELL SEISMIC SERVICE COMPUTATION REQUEST

COMPANY: ESSO AUST. CONTACT:

WELL: ANGELFISH #1

FIELD/COUNTRY: WILDCAT

LOCATION/DIVISION: VEA/ANZ

DATE WST JOB: 19-12-85

DATE SENT: 23-12-85

BY: S.P.RAMIAH

NUMBER OF COPIES OF RESULTS (CLIENT)

PRODUCT	REPORTS	PLOT TRANSP.	PLOT PRINT	TAPE
WSE	6	1	6	#1 x 1
WSC	6	1	6	#2 x 1
GEO	6	1	6	
VSP				

DATA SUPPLIED FOR INTERVALS TO BE PROCESSED

	FROM	TO
A. LOGS : DENSITY	3425	1600m
SONIC	3425	858m
B. SHOTS	3425	600m

UNITS: FEET ☐ METRES ☒

CLIENT TAPE: FORMAT: TAPE #1 SEGY ☒ TAPE #2 LIS ☒

DENSITY: 1600 BPI ☒ 1600 BPI ☒

SONIC CALIBRATION BY WST (WSC)

URGENT? YES ☐ NO ☐

IS A WELL SEISMIC EDIT (WSE) REQUESTED? YES ☒ NO ☐

(WSE IS RECOMMENDED WHERE FIELD STACK QUALITY IS AFFECTED BY BAD HOLE CONDITIONS)

REQUESTED TIME ORIGIN (SRD) 0.0 METRES ABOVE/BELOW MEAN SEA LEVEL (MSL)

STATIC CORRECTION TO BE APPLIED : –

_____ MILLISECONDS FROM GROUND LEVEL **OR**

LAYER	VELOCITY	FROM	TO
1			
2			
3			

TRUE VERTICAL DEPTH (TVD) CORRECTION? YES ☐ NO ☒ (TVD IS RECOMMENDED IF DEVIATION EXCEEDS 5°)

DEVIATION DATA SUPPLIED? YES ☐ NO ☒

11 INCH WSC DISPLAY DEPTH SCALES TO BE USED (UP TO TWO) 1/5000 ☐ 1/1000 ☐ OTHER ☐

22INCH WIDE TIME/DEPTH DISPLAY SPECIAL TIME FUNCTION? (T – DEPTH/VELOCITY) YES ☐ NO ☐ VELOCITY ☐

22 INCH WIDE GEOLOGICAL INTERVAL VELOCITY DISPLAY? YES ☐ NO ☐ GEOLOGICAL MARKERS SUPPLIED ☐

SPECIAL SCALES TO BE USED? SPECIFY

GEOGRAM

URGENT? YES ☐ NO ☐

FREQUENCY TEST TO BE SUPPLIED BEFORE FINALIZATION (8 BAND WIDTHS) YES ☐ NO ☒

FINAL GEOGRAM PARAMETERS : –

(ONE GEOGRAM INCLUDES DISPLAYS IN BOTH POLARITIES FOR EACH OF, PRIMARIES, PRIMARIES + MULTIPLES, PRIMARIES WITH TRANSMISSION LOSS, MULTIPLES ONLY FOR THE CHOSEN WAVELET AND T.V.F.)

WAVELET	FREQ.
KLAUDER ☐	
MIN PHASE ☐	20,25
ZERO PHASE ☐	30,35
OTHER: ~~RICKER~~ ☐	20,35

	T. LOW	T. HIGH	F. LOW	F. HIGH
T.				
V.				
F.				

SCALE IS 10 CM/SEC + ONE OTHER – SPECIFY 3.75 in/sec

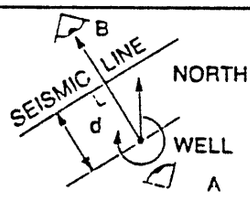
DIP OPTION YES ☐ NO ☐

SEISMIC LINE NUMBER _____

(ENCLOSE WELL LOCATION MAP VERSUS SEISMIC LINE)

DISTANCE BETWEEN TRACES _____

SECTION PERSPECTIVE: SEEN FROM A ☐ FROM B ☐



d _____

∝ _____

∝ (CLOCKWISE)

SPECIAL REQUESTS: _____

VERTICAL SEISMIC PROFILE

URGENT? YES ☐ NO ☐

UP TO 3 VELOCITY FILTER TESTS WILL BE SENT PROVISIONALLY

SPECIFY NUMBER OF TRACES IN WINDOW REQUIRED 3 ☐ 5 ☐ 7 ☐ 9 ☐ 11 ☐

TIME VARIANT FILTER (TVF) TO BE APPLIED ON FINAL DISPLAY : –

SCALE IS 10 CM/SEC + ONE OTHER. SPECIFY ☐

SPECIAL REQUESTS?

TIME 1	TIME 2	FLOW	F. HIGH

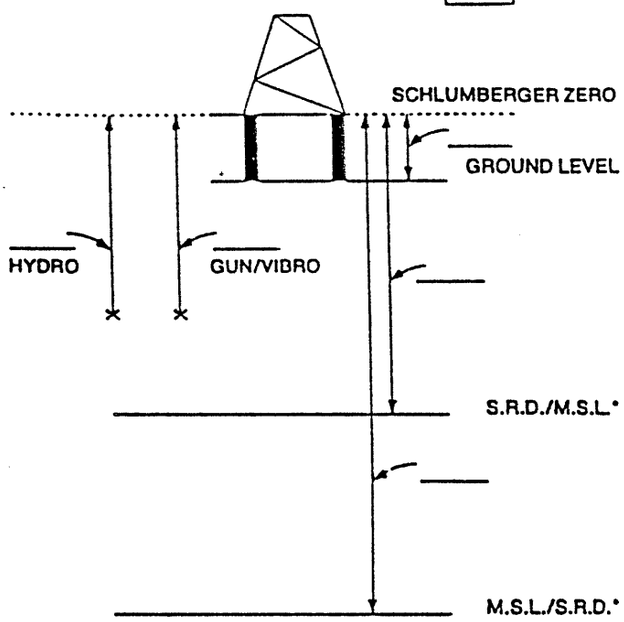
ENCLOSE SEISMIC SECTION. INDICATE RELATION TO WELL ON A DIAGRAM

Schlumberger

GUN GEOMETRY SKETCH

CLIENT: ESSO AUSTRALIA LTD. WELL: ANGELFISH #1 DATE: 19-12-85

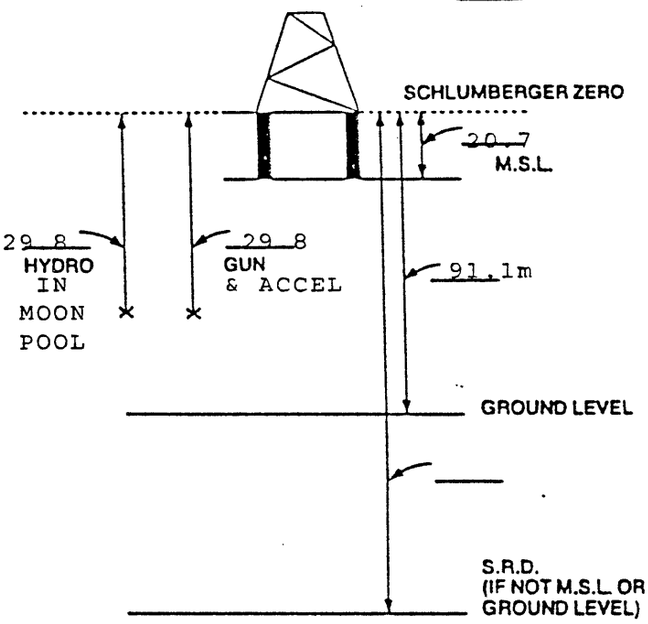
LAND ☐



INDICATE ALL DISTANCES RELATIVE TO SCHLUMBERGER ZERO

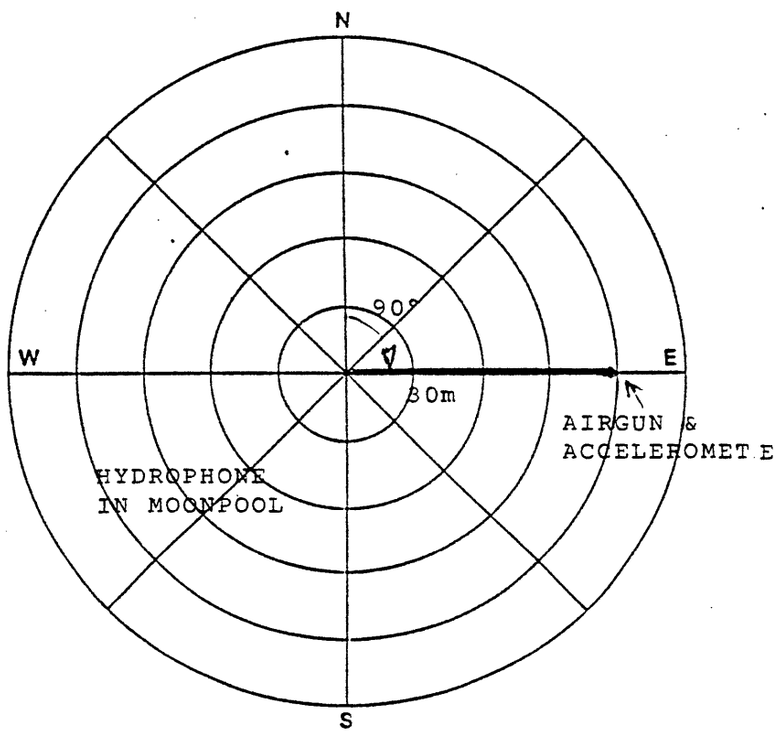
* DELETE AS APPLICABLE

OFFSHORE X



INDICATE ALL DISTANCES RELATIVE TO SCHLUMBERGER ZERO

SHOT POS'N	GUN OFFSET	ACCEL OFFSET	GUN DEPTH	HYDRO DEPTH
1	30m	30m	9.1m	9.1m
2				
3				
4				
5				
6				
7				



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

COMPANY : ESSO AUSTRALIA LTD. WELL : ANGELFISH - 1 PAGE 1

LONG DEFINITIONS

GLOBAL

- ELEVATION OF THE DERRICK FLOOR ABOVE MSL OR MWL
D - ELEVATION OF THE SEISMIC REFERENCE DATUM ABOVE MSL OR MWL
EDF - Elevation of Derrick Floor
GL - ELEVATION OF USER'S REFERENCE (GENERALLY GROUND LEVEL) ABOVE SRD
LHYD - VELOCITY OF THE MEDIUM BETWEEN THE SOURCE AND THE HYDROPHONE
LSUR - VELOCITY OF THE MEDIUM BETWEEN THE SOURCE AND THE SRD

MATRIX

UNELZ - SOURCE ELEVATION ABOVE SRD (ONE FOR THE WHOLE JOB; OR ONE PER SHOT)
UNEWZ - SOURCE DISTANCE FROM THE BOREHOLE AXIS IN EW DIRECTION (CF. GUNELZ)
GUNNSZ - SOURCE DISTANCE FROM THE BOREHOLE AXIS IN NS DIRECTION (CF. GUNELZ)
HYDELZ - HYDROPHONE ELEVATION ABOVE SRD (CF. GUNELZ)
YDEWZ - HYDROPHONE DISTANCE FROM THE BOREH AXIS IN EW DIRECTION (CF GUNELZ)
YDNSZ - HYDROPHONE DISTANCE FROM THE BOREH AXIS IN NS DIRECTION (CF GUNELZ)
TRTHYD - TRAVEL TIME FROM THE HYDROPHONE TO THE SOURCE
TRTSRD - TRAVEL TIME FROM THE SOURCE TO THE SRD
EVWEL - DEVIATED WELL DATA PER SHOT : MEAS. DEPTH, VERT. DEPTH, EW, NS

SAMPLED

SHOT.GSH - Shot number
DF.GSH - MEASURED DEPTH FROM DERRICK FLOOR
SRD.GSH - Depth from SRD
L.GSH - VERTICAL DEPTH RELATIVE TO GROUND LEVEL (USER'S REFERENCE)
TIMO.GSH - MEASURED TRAVEL TIME FROM HYDROPHONE TO GEOPHONE
TIMV.GSH - VERTICAL TRAVEL TIME FROM THE SOURCE TO THE GEOPHONE
HTM.GSH - Shot time (WST)
AVGV.GSH - Average seismic velocity
DELZ.GSH - DEPTH INTERVAL BETWEEN SUCCESSIVE SHOTS
ELT.GSH - TRAVEL TIME INTERVAL BETWEEN SUCCESSIVE SHOTS
NTV.GSH - Internal velocity, average

(GLOBAL PARAMETERS)		(VALUE)	
ELEV OF DF AB. MSL (WST)	DF	: 20.7000	M
ELEV OF SRD AB. MSL(WST)	SRD	: 0	M
levation of Derrick Flo	EDF	: 20.7000	M
LEV OF GL AB. SRD(WST)	GL	: -70.1000	M
VEL SOURCE-HYDRO(WST)	VELHYD	: 1480.00	M/S
VEL SOURCE-SRD (WST)	VELSUR	: 1480.00	M/S

(MATRIX PARAMETERS)

COMPANY : ESSO AUSTRALIA LTD. WELL : ANGELFISH - 1

	SOURCE ELV M	SOURCE EW M	SOURCE NS M	HYDRO ELEV M	HYDRO EW M	HYDRO NS M
1	-9.10	30.00	0	-9.10	30.00	0

	TRT HYD-SC MS	TRT SC-SRD MS
1	0	6.15

	MD @ DF M	VD @ DF M	VD @ SRD M	E-W COORD M	N-S COORD M
1	90.80	90.80	70.10	0	0
2	600.00	600.00	579.30	0	0
3	858.00	858.00	837.30	0	0
4	900.00	900.00	879.30	0	0
5	1150.00	1150.00	1129.30	0	0
6	1350.00	1350.00	1329.30	0	0
7	1643.00	1643.00	1622.30	0	0
8	1906.00	1906.00	1885.30	0	0
9	2005.00	2005.00	1984.30	0	0
10	2150.00	2150.00	2129.30	0	0
11	2461.00	2461.00	2440.30	0	0
12	2750.00	2750.00	2729.30	0	0
13	3050.00	3050.00	3029.30	0	0
14	3424.00	3424.00	3403.30	0	0

COMPANY : ESSO AUSTRALIA LTD. WELL : ANGELFISH - 1 PAGE 3

LEVEL NUMBER	MEASUR DEPTH FROM DF M	VERTIC DEPTH FROM SRD M	VERTIC DEPTH FROM GL M	OBSERV TRAVEL TIME HYD/GEO MS	VERTIC TRAVEL TIME SRC/GEO MS	VERTIC TRAVEL TIME SRD/GEO MS	AVERAGE VELOC SRD/GEO M/S	DELTA DEPTH BETWEEN SHOTS M	DELTA TIME BETWEEN SHOTS MS	INTERV VELOC BETWEEN SHOTS M/S
1	90.80	70.10	0	45.90	41.19	47.34	1481			
								509.20	224.44	2269
2	600.00	579.30	509.20	266.00	265.63	271.78	2131			
								258.00	88.64	2911
3	858.00	837.30	767.20	354.50	354.27	360.42	2323			
								42.00	13.51	3108
4	900.00	879.30	809.20	368.00	367.78	373.93	2352			
								250.00	82.06	3047
5	1150.00	1129.30	1059.20	450.00	449.84	455.99	2477			
								200.00	74.03	2702
6	1350.00	1329.30	1259.20	524.00	523.86	530.01	2508			
								293.00	107.03	2738
7	1643.00	1622.30	1552.20	631.00	630.89	637.04	2547			
								263.00	81.02	3246
8	1906.00	1885.30	1815.20	712.00	711.91	718.06	2626			
								99.00	28.01	3535
9	2005.00	1984.30	1914.20	740.00	739.91	746.06	2660			
								145.00	42.01	3452
10	2150.00	2129.30	2059.20	782.00	781.92	788.07	2702			
								311.00	91.01	3417
11	2461.00	2440.30	2370.20	873.00	872.93	879.08	2776			
								289.00	78.01	3705
12	2750.00	2729.30	2659.20	951.00	950.94	957.09	2852			
								300.00	76.01	3947
13	3050.00	3029.30	2959.20	1027.00	1026.95	1033.10	2932			
								374.00	90.01	4155
14	3424.00	3403.30	3333.20	1117.00	1116.96	1123.11	3030			

PE902358

This is an enclosure indicator page.
The enclosure PE902358 is enclosed within the container PE902357 at this location in this document.

The enclosure PE902358 has the following characteristics:

ITEM_BARCODE	= PE902358
CONTAINER_BARCODE	= PE902357
NAME	= Time Depth Curve
BASIN	= GIPPSLAND
PERMIT	=
TYPE	= WELL
SUBTYPE	= VELOCITY_CHART
DESCRIPTION	= Time Depth Curve
REMARKS	=
DATE_CREATED	= 19/12/1985
DATE_RECEIVED	= 17/07/1986
W_NO	= W923
WELL_NAME	= Angelfish-1
CONTRACTOR	= ESSO
CLIENT_OP_CO	= ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE601125

This is an enclosure indicator page.
The enclosure PE601125 is enclosed within the container PE902357 at this location in this document.

The enclosure PE601125 has the following characteristics:

ITEM_BARCODE	= PE601125
CONTAINER_BARCODE	= PE902357
NAME	= Seismic Calibration Log
BASIN	= GIPPSLAND
PERMIT	=
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Seismic Calibration Log
REMARKS	=
DATE_CREATED	= 27/12/1985
DATE_RECEIVED	= 17/07/1986
W_NO	= W923
WELL_NAME	= Angelfish-1
CONTRACTOR	= ESSO
CLIENT_OP_CO	= ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE902360

This is an enclosure indicator page.
The enclosure PE902360 is enclosed within the container PE902357 at this location in this document.

The enclosure PE902360 has the following characteristics:

ITEM_BARCODE	= PE902360
CONTAINER_BARCODE	= PE902357
NAME	= Raw & Stacked Checkshot Data
BASIN	= GIPPSLAND
PERMIT	=
TYPE	= WELL
SUBTYPE	= VELOCITY_CHART
DESCRIPTION	= Raw & Stacked Checkshot Data
REMARKS	=
DATE_CREATED	= 27/12/1985
DATE_RECEIVED	= 17/07/1986
W_NO	= W923
WELL_NAME	= Angelfish-1
CONTRACTOR	= ESSO
CLIENT_OP_CO	= ESSO

(Inserted by DNRE - Vic Govt Mines Dept)