WCR VOL 1

TERAGLIN-1

W814

ESSO EXPLORATION AND PRODUCTION AUSTRALIA INC.

Pag 1 of 69
+ 2 enclosures

WELL COMPLETION REPORT
TERAGLIN 1 W814
VOLUME 1

BASIC DATA

GIPPSLAND BASIN
VICTORIA

ESSO AUSTRALIA LIMITED

TERAGLIN-1

WELL COMPLETION REPORT

VOLUME 1

CONTENTS

FIGURES

APPENDICES

ATTACHMENTS

1. WELL DATA RECORD

WELL	:	Teraglin - 1
LOCATION	:	Gippsland Basin Latitude : 38° 22' 50.99" S Longitude : 148° 20' 30.13" E X = 617,189 E Y = 5,751,063 N Map Projection: Transverse Mercator AMG: Zone 55 Geographical Location: Bass Strait Field: New
PERMIT	:	VIC L/5
ELEVATION	:	21m KB
WATER DEPTH	:	79.3m KB
TOTAL DEPTH	:	3373m KB
PLUG BACK TYPE	:	3 open hole balanced plugs, 1 cased hole stub plug
REASONS FOR PLUGGING BACK	:	Plug and abandonment
MOVE IN	:	29th April, 1983
RIG UP	:	30th April, 1983
SPUDDED	:	30th April, 1983
RIG DOWN COMPLETE	:	2nd June, 1983
RIG RELEASED	:	2nd June, 1983
OPERATOR	:	Esso Exploration and Production Australia Inc.
PERMITTEE OR LICENCE	:	E.E.P.A./Hematite Petroleum Pty. Ltd.
ESSO INTEREST	:	50%
OTHER INTEREST	:	50%
CONTRACTOR	:	South Seas Drilling Co.
RIG NAME	:	Southern Cross
EQUIPMENT TYPE	:	Oilwell E-200 Semi submersible
TOTAL RIG DAYS	:	34.97
DRILLING AFE NO.	:	03 308 05 233004
TYPE COMPLETION	:	Plug and abandonment
WELL CLASSIFICATION	:	Before Drilling New field wildcat After Drilling Dry new field wildcat

2. OPERATIONS SEQUENCE

TERAGLIN 1

Move and Moor

The semi-submersible Southern Cross departed the Whiting-1 location at 1930 hours on 28th April, 1983 and arrived at the Teraglin-1 location at 0830 hours on 29th April, 1983. The rig was towed 40.23 km (28.79 nautical miles) by the Atlas Dampier workboat in 13 hours at an average speed of 3.09 km/hr (2.21 knots).

Anchor No. 8 was dropped by the rig with the remaining anchors run by the Bass Tide and Atlas Dampier workboats. The swivel at the anchor was changed out before being reset. Anchor No. 4 persisted to slip while pre-tensioning. When the anchor was retrieved, the fluke angle on the anchor was found to be set at 50° instead of the required 30°. The anchor was changed out and reset. All the anchors were pretensioned to 200 kips prior to pulling the rig into position.

Actual Position

Latitude : 38° 22' 50.99" S
Longitude : 148° 20' 30.13" E
X = 617,189 mE
Y = 5,751,063 mN
AMG Zone 55 Universal Transverse Mercator Projection, Australian Geodetic Datum.

The rig was located 6 metres at 188° from the called location and 63.5 kilometres at 149° from Lakes Entrance, Victoria.

26" Hole for 20" Conductor

The drilling template was landed at the seafloor depth of 100m RKB. The 26" hole was drilled to 239m using seawater and slugs of high viscosity gel mud. The 18-3/4" wellhead and 20" casing were run and cemented with good returns at a shoe depth of 233.5m (4 post guide base angle 3/4°).

The BOP and riser were run. An attempt to test the 20" casing against the shear rams was unsuccessful. The 20" test plug was run and the stack successfully tested to 3,445 kPa (500 psi). After nippling up the diverter, the shear rams were closed and 50 bbls were pumped down the kill line to test for broaching with negative results observed by divers.

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

The soft cement was tagged at 128m and drilled to 234m. The 17-1/2" hole was drilled to 828m. The hole was logged and conditioned prior to waiting on weather for 13-3/8" casing. The No. 3 guide line (port-aft) parted while increasing riser tension to 210 kips to minimize rig movement in heavy weather conditions. The BOP stack movement was reported to be occasionally out to 4° from observation of the bullseye indicators. While waiting on abating weather conditions, a decision was made for a remedial cement job on the 20" casing to minimize stack movement. A 100 sx Type 101 cement plug was set across the 20" casing shoe and a 340 sx Type 101 cement plug set from 226-186m inside the 20" casing. The plug was tagged at 186m and an injection rate established of 5 BPM at 2756 kPa (400 psi) with no visible returns on T.V.

Following abating weather conditions the BOP stack was retrieved and secured on stumps.

The 20" running tool with 3.6m pup stinger below and bumper sub above were made up into the wellhead. An injection rate of 5 BPM at 2756 kPa (450 psi) was established, with circulation above the drilling template observed by the divers.

With the stinger at 101.4m. 588 sx Type 101 cement was displaced until returns were observed by the divers around the wellhead. No. 3 guideline was re-established by the divers while cementing.

The BOP stack was rerun and function tested on both pods. The attempt to pressure test the 20" casing was unsuccessful. The combination test tool was run and the collet connector successfully tested to 3445 kPa (500 psi).

The cement plugs were drilled out and the 17-1/2" hole washed, reamed and conditioned to 828m prior to running 13-3/8" casing.

Following the running and displacement of the 13-3/8" casing, the ball retainer ring in the cementing head was found to have broken off. This prevented the shearing of the bottom plug, which resulted in the retrieving of the 13-3/8" casing. The 13-3/8" casing was rerun and cemented successfully to 814m.

The seal assembly was run and pressure tested successfully along with the BOP stack and 13-3/8" casing to 1378/24155/34450 kPa (200/3500/500 psi).

12-1/4" Hole

A Phase 1 PIT was made in the 13-3/8" casing to 10335 kPa (1500 psi). The cement and float equipment in the 13-3/8" casing along with 6m of new hole were drilled and a Phase II PIT was conducted to 2.10 S.G. (17.5 ppg) EMW without leak-off.

The hole was drilled to 1302m where the mud weight was increased from 1.07-1.10 S.G. (8.9-9.2 ppg) before drilling into the Latrobe formation. A 2100 kPa (300 psi) overbalance was programmed should the 141 metres of objective sand, assumed to be gas filled, be present.

Drilling continued to 2321m where the mud weight was increased to 1.12 S.G. (9.3 ppg). Drilling continued to 2459.2m when the BOP was pressure tested to 1378/24155/34450 kPa (200/3500/5000 psi) prior to coring. Core No. 1 was cut from 2459.2m to 2470.7m with 100% recovery. The hole was then drilled to 3373 metres (total depth) where it was conditioned prior to running logs. Final logs were run followed by a velocity survey, 2 RFT's and 3 sidewall core runs.

Plug and Abandonment

The first balanced plug was set in open hole from 3300 to 3125m. The next open hole balanced plug was set across the top of the Latrobe formation from 2475 to 2351m and tagged with 15 kips. A balanced plug was set across the 13-3/8" casing shoe from 864 to 762m and tagged with 15 kips. A casing cutter was run to 200m and the 13-3/8" casing cut, then retrieved with the casing spear. A final balanced plug was set into and across the 13-3/8" casing annulus stub and 20" casing, then tagged at 124m. The riser was displaced with seawater, then retrieved along with the BOP stack.

The 20" cutting tool was run and 20" casing cut at 108m. The casing stub was recovered along with the wellhead, guidebase and drilling templates.

Pulling Anchors

Following waiting on weather, the workboats Bass Tide, Atlas Dampier and Lady Vera retrieved all the eight anchors. Anchors No. 2 and No. 8 (and swivels) were changed out and 351m of new chain added to anchor No. 2.

The Southern Cross completed the Teraglin -1 well and departed for the Luderick-1 well at 1845 hours, 2nd June, 1983.

3. CASING DATA

WELL TERAGLIN-1

CSG O.D. IN.	WT. LBS/FT	GRADE	CONN.	CSG LENGTH METRES	SHOE DEPTH R.K.B.	CENTRALIZER POSITION	REMARKS
24	610	-	CC	10.39			PILE JOINT
20	129	X-52	JVCC	12.68		1 ACROSS EACH COLLAR	CROSSOVER JOINT
20	94	X-52	JV	90.00		FOR 5 COLLARS ABOVE --	7 JOINTS
20	94	X-52	JV	12.35	223.74	SHOE.	FLOAT SHOE JOINT
$13^3/8$	54.5	K-55	BUTT	12.47		1 ACROSS SHOE JOINT 15' UP FROM	HGR & PUP JOINT
$13^3/8$	54.5	K-55	BUTT	666.14		SHOE JOINT 1 ACROSS SHOE JOINT	56 JOINTS
$13^3/8$	54.5	K-55	BUTT	12.50		1 ACROSS FLOAT COLLAR JOINT 15'	FLOAT COLLAR JOINT
$13^3/8$	54.5	K-55	BUTT	11.96		ABOVE FLOAT COLLAR 1 ACROSS NEXT 4	CSG JOINT
$13^3/8$	54.5	K-55	BUTT	11.85	813.99	COLLARS	FLOAT SHOE JOINT

4. CEMENT DATA

WELL TERAGLIN-1

DATE	DEPTH METRES	TYPE JOB	TYPE CEMENT	AMOUNT	ADDITIVES	REMARKS
1.5.83	223.74	20" CSG LEAD	BLUE CIRCLE TYPE 101	615SX	3.3% GEL	SEAWATER SLURRY WT. 12.6ppg
1.5.83	223.74	20" CSG TAIL	BLUE CIRCLE TYPE 101	350SX		SEAWATER SLURRY WT 15.6 ppg
9.5.83	813.99	$13^{3}/8$" CSG	BLUE CIRCLE TYPE 101	100SX		SEAWATER SLURRY WT. 15.8ppg
29.5.83	3300 3125	P & A OPEN HOLE BAL. PLUG	BLUE CIRCLE TYPE 101	430SX	1% HRGL	FRESHWATER
29.5.83	2475 2351	P & A OPEN HOLE BAL PLUG	BLUE CIRCLE TYPE 101	350SX	0.6% HRGL	FRESHWATER TAGGED WITH 15 KIPS
29.5.83	864 762	P & A OPEN HOLE/CSG SHOE BAL. PLUG	BLUE CIRCLE TYPE 101	300SX		SEAWATER TAGGED WITH 15 KIPS TESTED TO 10200 kPa (1500 ps
30.5.83	231 124	P & A CASED HOLE ACROSS 13-3/8" CSG STUB PLUG	BLUE CIRCLE TYPE 101	573SX		SEAWATER TAGGED WITH 15 KIP

WELL: Teraglin - 1

5. SAMPLES, CONVENTIONAL CORES, SIDEWALL CORES

INTERVAL	TYPE		
239 - 3371m	Cuttings Samples: 3 sets washed and dried samples, and 3 sacks washed and bagged cuttings every 5 metres.		
239 - 3371m	Unwashed canned samples every 15 metres.		
2486.5 - 3372.5m	Sidewall Cores: Run 1 -	Shot	51
		Recovered	33
		Misfire	17
		Lost	1
1929.9 - 2479.5m	Sidewall Cores: Run 2 -	Shot	51
		Recovered	46
		Misfire	3
		Lost	1
		No Recovery	1
1780.0 - 3295.0m	Sidewall Cores: Run 3 -	Shot	30
		Recovered	27
		Misfire	1
		Lost	1
		No Recovery	1
2459.2 - 2470.7m	Conventional Core:	Cut	11.5 metres
		Recovered	11.5 metres
	100% Recovery		

WELL: Teraglin - 1

6. WIRELINE LOGS AND SURVEYS

Type and Scale		From	To
	Suite 1		
BHC CAL GR	1:200 1:500	224	824m
	Suite 2		
DLL MSFL GR	1:200 1:500	813	3373m
LDL CNL GR	1:200 1:500	813	3373m
BHC GR	1:200 1:500	813	3373m
HDT	1:200	1400	3373m
RFT Recording Pretests:	Run 1 22 attempted 21 successful	2469	3329m
Samples:	Run 2 2 attempted (unsuccessful) 1 successful	at 3273.0m at 3273.2m	
CST	Shot 132 Recovered 106	1780.0	3372.5m
Seismic VSP & Checkshots	15 levels	230	3372m

7. SUMMARY OF WIRELINE FORMATION TEST PROGRAMME - TERAGLIN 1

TEST	SEAT	DEPTH (METRES) K.B.	RECOVERY (LITRES) CHAMBER Litres	OIL Litres	COND. Litres	GAS m^3	FORMATION WATER Litres	FILTRATE Litres	STRAIN GAUGE FORMATION PRESSURE MPaa	Psia	STRAIN GAUGE HYDROSTATIC PRESSURE MPaa	Psia	REMARKS
1	1	2468.7	Pretest						23.66	3432	27.12	3934	Valid
	2	2508.4	Pretest								27.54	3994	Seal failure
	3	2508.4	Pretest						24.06	3489	27.57	3999	Valid
	4	2608.8	Pretest						25.02	3629	28.68	4160	Valid
	5	2665.3	Pretest						25.58	3710	29.28	4247	Valid
	6	2701.9	Pretest						25.95	3763	29.68	4306	Valid
	7	2737.2	Pretest						26.28	3812	30.07	4361	Valid
	8	2760.7	Pretest						26.53	3847	30.34	4400	Valid
	9	2837.3	Pretest						27.32	3962	31.17	4521	Valid
	10	3032.2	Pretest						29.55	4286	33.28	4826	Valid
	11	3114.9	Pretest						30.50	4424	34.17	4956	Valid
	12	3167.0	Pretest						31.30	4540	34.75	5040	Valid
	13	3215.4	Pretest						31.63	4588	35.26	5114	Valid
	14	3228.4	Pretest						31.81	4613	35.40	5134	Very low flowing pressure
	15	3228.6	Pretest						31.80	4612	35.39	5133	Tight but valid
	16	3227.0	Pretest						31.78	4609	35.39	5132	Valid
	17	3272.9	Pretest						32.33	4689	35.88	5204	Valid
	18	3305.5	Pretest						32.21	4672	36.23	5254	Valid
	19	3328.6	Pretest						32.50	4713	36.47	5290	Valid
	20	3063.4	Pretest						30.00	4351	33.63	4878	Valid
	21	3106.5	Pretest						30.43	4413	34.11	4947	Valid
2	22	3273.0	22.7						-	-	35.86	5201	No sample, tight
	23	3273.1	22.7			0.0031	20.5		32.32	4685	35.86	5205	Sample
			10.4			0.0708	10.5						Sample

8. TERAGLIN - 1

TEMPERATURE RECORD

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						
BHC CAL GR	824	33.0	1:30	3:50	-	
Suite 2						
DLL MSFL GR	3373	103.0	1:40	8:55		
LDL CNL GR	3373	111.0	1:40	14:50		
BHC GR	3369	115.0	1:40	20:35		
HDT	3373	118.8	1:40	24:45	131.5	37.2

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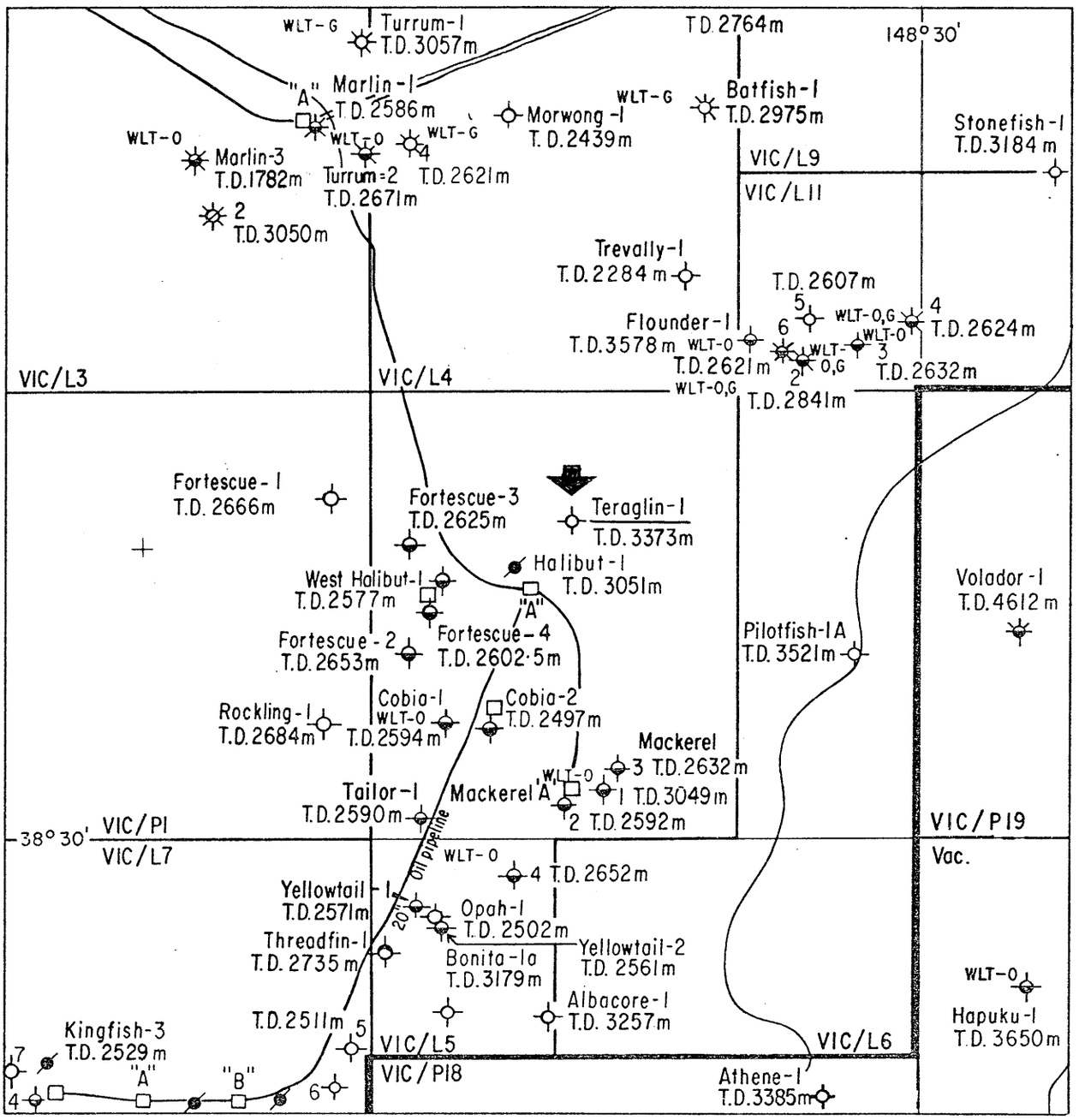
FIGURES

LOCALITY MAP
TERAGLIN-1



SCALE 1:250 000

Figure 1

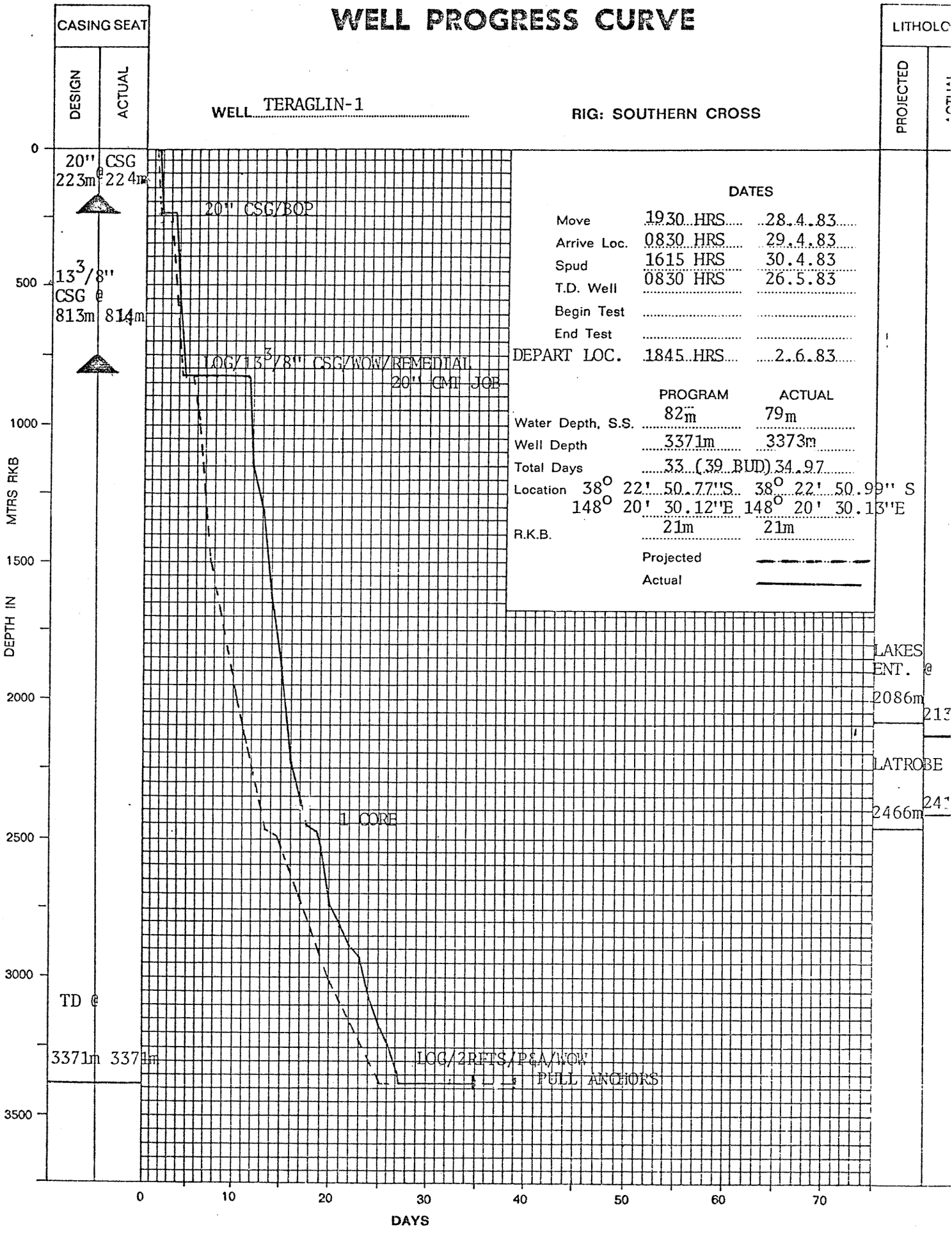
Dwg. 2167/OP/1

FIGURE 2

WELL PROGRESS CURVE

WELL TERAGLIN-1

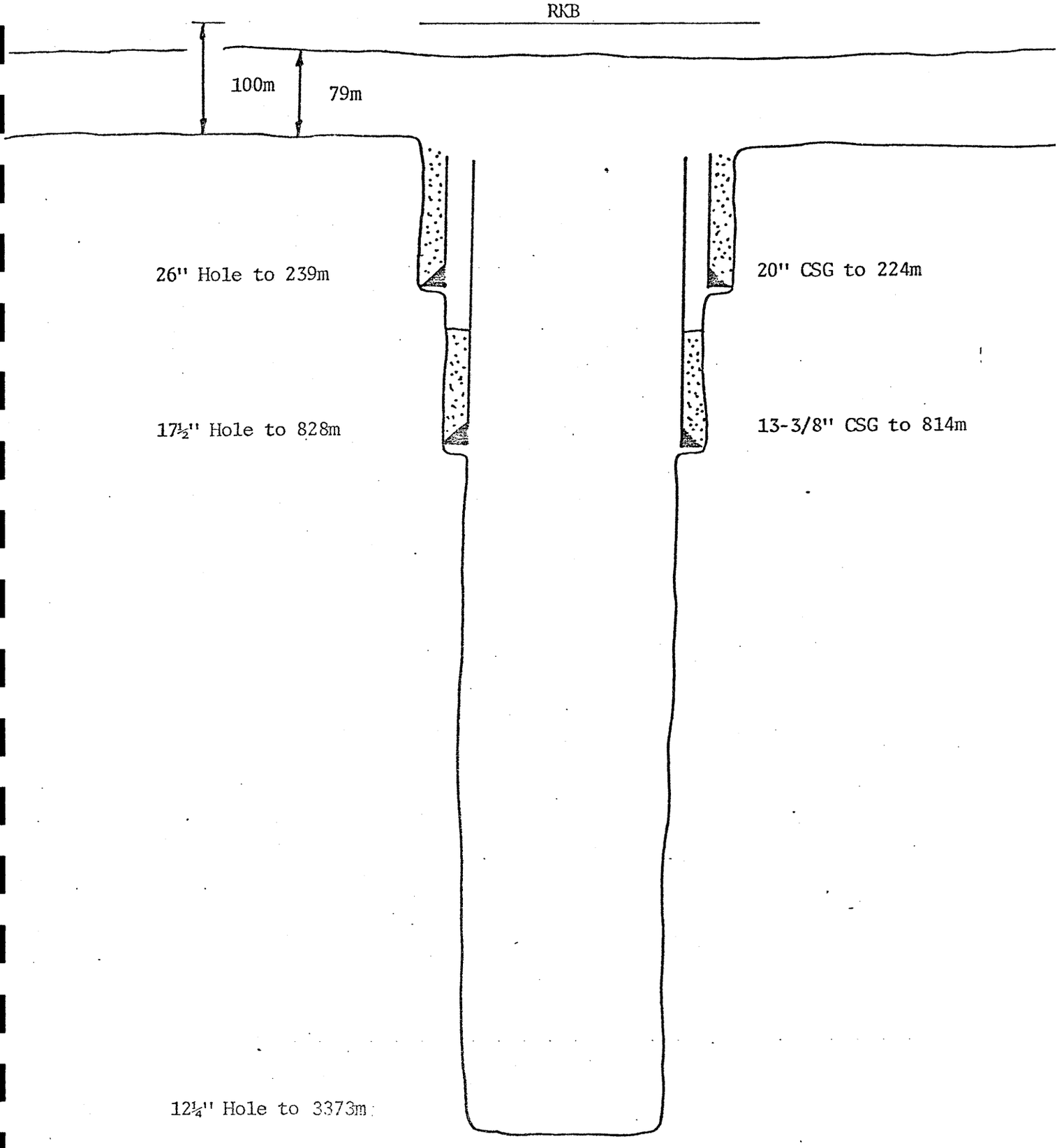
RIG: SOUTHERN CROSS



Wellbore Schematic

Well: TERAGLIN-1

FIGURE 3

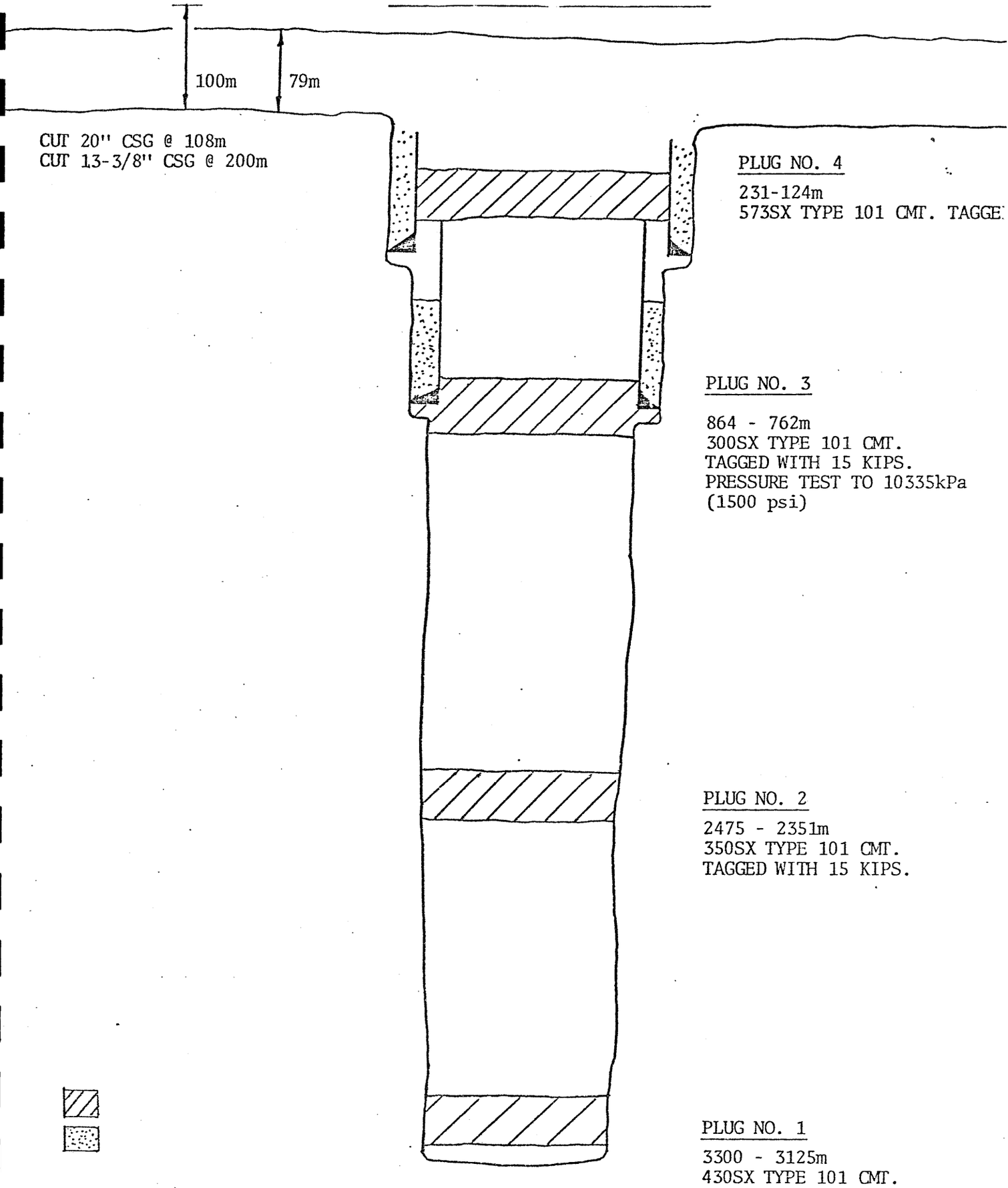


ABANDONMENT SCHEMATIC

TERAGLIN-1

RKB

FIGURE 4



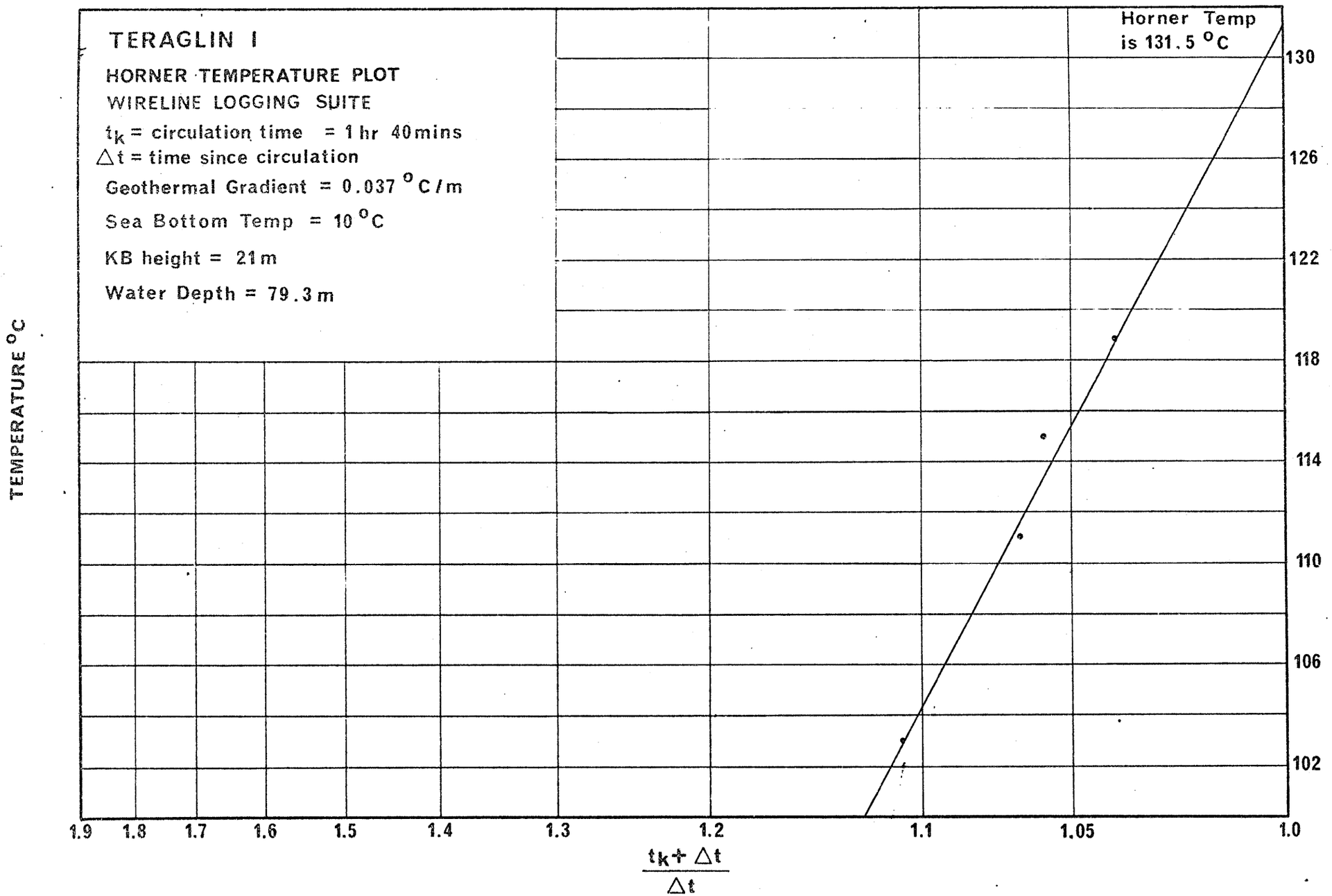

TERAGLIN I
HORNER TEMPERATURE PLOT
WIRELINE LOGGING SUITE
t_k = circulation time = 1 hr 40 mins
Δt = time since circulation
Geothermal Gradient = 0.037 °C/m
Sea Bottom Temp = 10 °C
KB height = 21 m
Water Depth = 79.3 m
Horner Temp is 131.5 °C
TEMPERATURE °C
130
126
122
118
114
110
106
102
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.05
1.0
$\frac{t_k + \Delta t}{\Delta t}$

FIGURE 5

APPENDIX 1

APPENDIX I

LITHOLOGICAL DESCRIPTIONS

TERAGLIN - 1

LITHOLOGY DESCRIPTIONS

Depth	%	Description
239 - 250m	100	SKELETAL LIMESTONE: white to light grey, loosely cemented, dominantly loose biogenic fragments, bivalves, bryozoans, forams. Minor aggregates of very angular, medium grained carbonate grains, rare glauconite grains, very calcareous.
	trace	LOOSE QUARTZ GRAINS: coarse to very coarse. Sample still very contaminated with cement.
250 - 260m	100	LIMESTONE: as above, dominantly bryozoan fragments, also gastropods.
	trace	LOOSE QUARTZ GRAINS: as above.
260 - 270m	100	LIMESTONE: calcarenite with biogenic fragments, mostly loose bivalve fragments. Also orange-stained sandy calcarenite aggregates.
	trace	LOOSE QUARTZ GRAINS: some orange, iron stained.
270 - 280m	100	LIMESTONE: calcarenite as above, mostly bryozoan fragments.
	trace	LOOSE QUARTZ GRAINS: as above.
280 - 290m	100	LIMESTONE: as above, minor echinoid spines.
	trace	LOOSE QUARTZ GRAINS: very coarse, subrounded.
290 - 300m	100	LIMESTONE: as above, loosely cemented calcarenite, slightly silty, occasionally dark grey lithic grains.
300 - 310m	100	LIMESTONE: as above.
	trace	LOOSE QUARTZ GRAINS: as above.
310 - 320m	100	LIMESTONE: light grey calcarenite as above, occasionally orange, iron stained aggregates.
	trace	LOOSE QUARTZ GRAINS: coarse to very coarse, rounded.
320 - 330m	100	LIMESTONE: fossiliferous calcarenite, light grey, friable, very calcareous, slightly silty, minor grey grains (lithic??), common biogenic fragments including bivalves, bryozoans, foraminifera, occasionally gastropods, echinoid spines. Occasional aggregates of angular, well sorted carbonate grains, cuttings are rounded, have rough texture.
	trace	LOOSE QUARTZ GRAINS: probable cavings (some grains coated with cement).
330 - 340m	100	LIMESTONE: as above.
	trace	LOOSE QUARTZ GRAINS: as above.
340m -350m	100	LIMESTONE: calcarenite as above, few loose fossil fragments, mostly bryozoans, aggregates becoming slightly argillaceous.
350 - 360m	100	LIMESTONE: as above.
	trace	LOOSE QUARTZ GRAINS: as above.

360 - 370m	100	LIMESTONE: as above. Occasionally very hard, very well cemented cuttings.
370 - 380m	100	LIMESTONE: as above but becoming very argillaceous - some cuttings very soft, sticky, calcareous claystone. Sample over shakers is slightly sticky.
380 - 390m	100	LIMESTONE: argillaceous calcarenite as above. Some soft clay matrix, very few fossil fragments.
390m - 400m	70	LIMESTONE: argillaceous as above, very few fossil fragments.
	30	CLAYSTONE: light grey, very soft, very sticky, calcareous, dispersive.
400 - 410m	90	LIMESTONE: as above.
	10	CLAYSTONE: as above. Sample is possibly overwashed - claystone washed out.
410 - 420m	90	LIMESTONE: as above.
	10	CLAYSTONE: as above.
420 - 430m	60	LIMESTONE: as above.
	40	CLAYSTONE: as above.
430 - 440m	60	LIMESTONE: argillaceous calcarenite as above, still common (but not abundant) fossil fragments as previously described.
	40	CLAYSTONE: as above, slightly sandy.
440 - 450m	50	LIMESTONE: as above, common foraminifera.
	50	CLAYSTONE: as above, some foraminifera in claystone. Lithology grades between argillaceous calcarenite and calcareous claystone.
450 - 460m	70	CLAYSTONE: light grey, very soft, very sticky, very calcareous, common foraminifera, dispersive.
	30	LIMESTONE: as above. Very common loose foraminifera.
460 - 470m	80	CLAYSTONE: as above, common foraminifera.
	20	LIMESTONE: as above.
470 - 480m	80	CLAYSTONE: as above.
	20	LIMESTONE: as above, trace of glanconite.
480 - 490m	80	CLAYSTONE: as above, common foraminifera.
	20	LIMESTONE: argillaceous calcarenite, with trace of glauconite.
490 - 500m	90	CLAYSTONE: as above.
	10	LIMESTONE: as above. Abundant foraminifera.
500 - 510m	90	CLAYSTONE: as above.
	10	LIMESTONE: as above. Common foraminifera.

510 - 520m	80	CLAYSTONE: as above.
	20	LIMESTONE: calcarenite - light to medium grey, aggregates of fine grained carbonate, very calcareous, argillaceous, common clay matrix, friable, slightly glauconitic, pyritic in part.
520 - 530m	80	CLAYSTONE: as above.
	20	LIMESTONE: calcarenite as above. Common foraminifera.
530 - 540m	70	CLAYSTONE: as above.
	30	LIMESTONE: as above.
540 - 550m	60	LIMESTONE: as above - calcarenite.
	40	CLAYSTONE: as above.
550 - 560m	70	LIMESTONE: calcarenite - light grey, aggregates of very fine to fine grained carbonate grains, well sorted, firm to moderately friable, slightly glauconitic, argillaceous.
	30	CLAYSTONE: as above. Common foraminifera.
560 - 570m	70	LIMESTONE: as above.
	30	CLAYSTONE: as above.
570 - 580m	80	LIMESTONE: calcarenite, as above, very fine grained.
	20	CLAYSTONE: as above.
580 - 590m	80	LIMESTONE: as above.
	20	CLAYSTONE: as above.
590 - 600m	90	LIMESTONE: as above.
	10	CLAYSTONE: as above.
600 - 610m	70	LIMESTONE: as above.
	30	CLAYSTONE: as above. Common foraminifera.
610 - 620m	90	LIMESTONE: as above.
	10	CLAYSTONE: as above.
620 - 630m	90	LIMESTONE: calcarenite as above, aggregates are harder, more cemented.
	10	CLAYSTONE: as above, very small, loose foraminifera in sample.
630 - 640m	90	LIMESTONE: calcarenite as above, firm to hard.
	10	CLAYSTONE: as above.
640 - 650m	90	LIMESTONE: calcarenite, as above, occasional foraminifera and shell fragments.
	10	CLAYSTONE: as above.
650 - 660m	80	LIMESTONE: calcarenite as above.
	20	CLAYSTONE: as above. Sample is slightly more sticky.
660 - 670m	90	LIMESTONE: calcarenite as above.
	10	CLAYSTONE: as above.
670 - 680m	90	LIMESTONE: calcarenite - as above but slightly coarser, dominantly fine grained.
	10	CLAYSTONE: as above.

680 - 690m	80	LIMESTONE: calcarenite as above, occasional sponge spicules.
	20	CLAYSTONE: as above. Sample is more sticky.
690 - 700m	90	LIMESTONE: calcarenite as above.
	10	CLAYSTONE: as above.
700 - 710m	90	LIMESTONE: as above.
	10	CLAYSTONE: as above.
710 - 720m	70	LIMESTONE: as above.
	30	CLAYSTONE: as above.
720 - 730m	60	LIMESTONE: as above.
	40	CLAYSTONE: as above - very soft, very sticky.
730 - 740m	50	LIMESTONE: calcarenite as above.
	50	CLAYSTONE: as above.
740 - 750m	50	LIMESTONE: as above.
	50	CLAYSTONE: as above.
750 - 760m	60	CLAYSTONE: as above.
	40	LIMESTONE: as above.
760 - 770m	60	LIMESTONE: calcarenite but finer grained than previously - dominantly very fine grained, grades to calcisiltite in part.
	40	CLAYSTONE: as above.
770 - 780m	40	LIMESTONE; light grey, very fine grained calcarenite as above.
	40	CLAYSTONE: as above.
	20	LIMESTONE: calcisiltite - medium grey, very hard, very well cemented, silt sized grains, angular cuttings, argillaceous, homogeneous texture.
780 - 790m	60	LIMESTONE: calcarenite as above, trace calcisiltite.
	40	CLAYSTONE: as above.
790 - 800m	70	CLAYSTONE: as above.
	30	LIMESTONE: as above.
800 - 810m	70	CLAYSTONE: as above.
	30	LIMESTONE: calcarenite, very fine grained, argillaceous as above.
810 - 820m	70	CLAYSTONE: very soft, very sticky as above.
	30	LIMESTONE: calcarenite as above, grading to calcisiltite.
820 - 828m	70	CLAYSTONE: as above.
	30	LIMESTONE: calcarenite/calcisiltite as above.
		BOTTOMS UP. Set 13 3/8 casing.
828 - 830m	100	CEMENT
830 - 835m	95	CEMENT
	5	CALCARENTITE/CALCISILTITE: light grey, very fine to silt sized grains, trace foraminifera.

835 - 840m	100	CLAYSTONE/CALCILUTITE: light to medium grey, very soft, very sticky, very calcareous, dispersive, slightly silty, no distinct cuttings visible, only rounded masses of clay.
	trace	CALCARENTIE/CALCISILTITE, foraminifera (possible cavings).
840 - 845m	100	CLAYSTONE/CALCILUTITE: as above. Still cement in sample.
845 - 850m	100	CLAYSTONE/CALCILUTITE: as above.
	trace	CALCARENITE/CALCISILTITE: firm, very argillaceous, common sponge spicules.
850 - 855m	95	CLAYSTONE/CALCILITUTE: as above.
	5	CALCARENITE: firm, very fine grained.
855 - 860m	50	CLAYSTONE/CALCILUTITE: as above.
	50	CALCISILTITE: light to medium grey, soft to firm, rounded cuttings, argillaceous, very calcareous, occasional foraminifera and sponge spicules, grades to very fine grained calcarenite.
860 - 865m	60	CALCILUTITE: as above.
	40	CLAYSTONE/CALCILUTITE: as above.
865 - 870m	60	CLAYSTONE/CALCILUTITE: as above.
	40	CALCISILTITE: as above.
870 - 875m	50	CLAYSTONE/CALCILUTITE: as above.
	50	CALCISILTITE: as above.
875 - 880m	60	CLAYSTONE/CALCILUTITE: as above.
	40	SILTSTONE/CALCISILTITE: as above.
880 - 885m	60	CLAYSTONE/CALCILUTITE: as above.
	40	CALCISILTITE: as above.
885 - 890m	50	CLAYSTONE/CALCILUTITE: as above.
	50	CALCISILTITE: as above, trace foraminifera.
890 - 895m	100	CALCILUTITE/CALCISILTITE: as above.
895 - 900m	100	CALCILUTITE/CALCISILTITE: as above. Trace foraminifera.
900 - 905m	100	CALCILUTITE/CALCISILTITE: as above. Common very small planktonic foraminifera, giving slightly sandy texture.
905 - 910m	100	CALCILUTITE/CALCISILTITE: as above.
910 - 915m	100	CALCILUTITE/CALCISILTITE: as above, some cuttings more silty and firmer.
915 - 920m	100	CALCILUTITE/CALCISILTITE: as above.
920 - 925m	100	CALCILUTITE/CALCISILTITE: as above. Trace foraminifera.
925 - 930m	100	CALCILUTITE/CALCISILTITE: as above. Trace foraminifera including abundant very small planktonic types.

930 - 935m	100	CALCILUTITE/CALCISILTITE: as above. Trace foraminifera. Large chips (4-5 mm) over shakers show lithology to be silty calcareous claystone.
935 - 940m	100	CALCILUTITE/CALCISILTITE: as above but with more calcilutite. Trace foraminifera.
940 - 935m	100	CALCISILTITE/CALCILUTITE: as above but with more calcilutite. Trace foraminifera.
950 - 955m	100	CALCISILTITE/CALCILUTITE: as above.
955 - 960m	100	CALCISILTITE/CALCILUTITE: as above.
960 - 965m	100	CALCISILTITE/CALCILUTITE: as above.
965 - 970m	100	CALCISILTITE/CALCILUTITE: as above.
970 - 975m	100	CALCISILTITE/CALCILUTITE: as above.
975 - 980m	100	CALCISILTITE/CALCILUTITE: as above. Trace foraminifera.
980 - 985m	100	CALCISILTITE/CALCILUTITE: as above, more claystone, abundant dark very small planktonic foraminifera - gives slightly speckled appearance. Trace large, pyrite infilled foraminifera.
985 - 990m	100	CALCISILTITE/CALCILUTITE: as above. Trace foraminifera.
990 - 995m	100	CALCISILTITE/CALCILUTITE: as above.
995 - 1000m	100	CALCISILTITE/CALCILUTITE: as above.
1000 - 1005m	100	CALCISILTITE/CALCILUTITE: as above. Trace foraminifera.
1005 - 1010m	100	CALCISILTITE/CALCILUTITE: as above, dominantly calcilutite.
1010 - 1015m	100	CALCISILTITE/CALCILUTITE: as above. Trace foraminifera.
	trace	CALCITE: hard, crystalline cuttings.
1015 - 1020m	100	CALCISILTITE/CALCILUTITE: as above. Trace foraminifera.
1020 - 1025m	100	CALCISILTITE/CALCILUTITE: as above, dominantly calcilutite/claystone.
1025 - 1030m	100	CALCISILTITE/CALCILUTITE: as above.
1030 - 1035m	100	CALCISILTITE/CALCILUTITE: as above.
1035 - 1040m	100	CALCISILTITE/CALCILUTITE: as above. Trace foraminifera.
1040 - 1045m	100	CALCISILTITE/CALCILUTITE: calcilutite dominant - light grey, very soft, very sticky, very calcareous, silty; calcilsiltite is very light to medium grey, soft to firm, very calcareous, argillaceous, both contain foraminifera.

1045 - 1050m	100	CALCISILTITE/CALCILUTITE: more silty than above. Some firm to hard cuttings, moderately cemented.
1050 - 1055m	100	CALCISILTITE/CALCILUTITE: as above, becoming firmer. Trace formaninfera.
1055 - 1060m	100	CALCISILTITE/CALCILUTITE: as above. Trace foraminifera.
1060 - 1065m	100	CALCISILTITE/CALCILUTITE: as above.
1065 - 1070m	100	CALCISILTITE/CALCILUTITE: as above.
1070 - 1075m	100	CALCISILTITE/CALCILUTITE: light grey to medium light grey, soft to firm, dominantly soft, sticky, very calcareous. Calcisiltite is argillaceous. Trace foraminifera.
1075 - 1080m	100	CALCISILTITE/CALCILUTITE: as above.
1080 - 1085m	100	CALCISILTITE/CALCILUTITE: as above.
1085 - 1090m	100	CALCISILTITE/CALCILUTITE: medium light grey to light grey, soft to hard, dominantly soft, sticky, very calcareous, trace foraminifera.
	trace	LIMESTONE: medium light grey, hard, angular, massive, platey cuttings.
1090 - 1095m	100	CALCISILTITE/CALCILUTITE: as above.
	trace	LIMESTONE: as above.
1095 - 1100m	100	CALCISILTITE/CALCILUTITE: as above.
	trace	LIMESTONE: as above.
1100 - 1105m	100	CALCISILTITE/CALCILUTITE: as above, calcisiltite is dominant component, becoming firmer.
1105 - 1110m	95	CALCISILTITE: medium grey to medium light grey, soft to firm, very calcareous, less foraminifera.
	5	CALCILUTITE: light grey to very light grey, very soft, sticky, silty, very calcareous, trace foraminifera.
1110 - 1115m	95	CALCISILTITE: as above.
	5	CALCILUTITE: as above.
1115 - 1120m	95	CALCISILTITE: as above.
	5	CALCILUTITE: as above.
1120 - 1125m	95	CALCISILTITE: as above.
	5	CALCILUTITE: as above.
1125 - 1130m	90	CALCISILTITE: as above.
	10	CALCILUTITE: as above.
1130 - 1135	80	CALCISILTITE: as above.
	15	LIMESTONE: as above.
	5	CALCILUTITE: as above.

1135 - 1140m	90	CALCISILTITE: medium grey to light grey, soft to firm, argillaceous, very calcareous, minor foraminifera.
	5	CALCILUTITE: light grey, very soft, silty, very calcareous, minor foraminifera.
	5	LIMESTONE: medium grey to medium light grey, hard angular cuttings exhibiting conchoidal fracture.
		Core Lab depth line broke - taking samples every 10 m (approximately) on kelly down to get accurate depth.
1140 - 1150m	100	CALCISILTITE/CALCILUTITE: as above.
1150 - 1160m	100	CALCISILTITE/CALCILUTITE: as above.
	trace	LIMESTONE: as above.
	trace	CALCITE: vein material?
1160 - 1170m	100	CALCISILTITE/CALCILUTITE: as above.
1170 - 1180m	100	CALCISILTITE/CALCILUTITE: as above, calcilutite decreasing in amount.
1180 - 1190m	100	CALCISILTITE/CALCILUTITE: as above.
1190 - 1200m	100	CALCISILTITE/CALCILUTITE: calcisiltite is slightly dominant, soft to hard, argillaceous, very calcareous, medium grey to light grey, some foraminifera; Calcilutite is light grey, very soft to soft, sticky, silty in part, very calcareous, foraminifera give speckled appearance.
1200 - 1210m	100	CALCISILTITE/CALCILUTITE: calcisiltite is main constituent. Firm to hard, blocky cuttings.
	trace	LIMESTONE: medium brown to grey, very hard, angular, very calcareous.
1210 - 1220m	100	CALCISILTITE/CALCILUTITE: as above.
1220 - 1230m	95	CALCILSILTITE: as above.
	5	CALCILUTITE: as above.
1230 - 1240m	100	CALCISILTITE: medium grey to very light grey, soft to hard, soft cuttings are sticky in part, argillaceous, very calcareous, trace foraminifera.
1240 - 1250m	100	CALCISILTITE: as above.
	trace	CALCILUTITE: as above.
1250 - 1255m	100	CALCISILTITE: as above.
	trace	CALCILUTITE: as above. Trace benthonic foraminifera.
1255 - 1265m	100	CALCISILTITE: as above.
	trace	CALCILUTITE: as above, foraminifera.
1265 - 1275m	100	CALCISILTITE: medium grey, very calcareous, common foraminifera, rare orange to brown chert and white carbonate chips.

1275 - 1280m	50	CALCILUTITE: pale to medium grey, very soft.
	50	CALCISILTITE: medium grey, moderately calcareous, minor orange to brown rounded chert granules and fragments, rare clear to milky quartz grains.
1280 - 1285m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above, rare dark minerals.
1285 - 1290m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
		Minor carbonate grains. Minor orange quartz and dark minerals.
1290 - 1295m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1295 - 1300	80	CALCISILTITE: medium grey, firm to hard, blocky cuttings argillaceous moderately calcareous, trace foraminifera.
	20	CALCILUTITE: medium grey, soft to firm.
1300 - 1305m	80	CALCISILTITE: as above.
	20	CALCILUTITE: as above.
	trace	SILTSTONE: dark grey subfissile
1305 - 1310m	80	CALCISILTITE: as above.
	20	CALCILUTITE: as above.
	trace	SILTSTONE: dark grey as above.
1310 - 1315m	50	CALCILSILTITE: as above.
	50	CALCILITITE: as above.
	trace	SILTSTONE: as above.
1315 - 1320m	80	CALCISILTITE: as above.
	20	CALCILUTITE: as above, trace foraminifera.
1320 - 1325m	80	CALCISILTITE: as above.
	20	CALCILUTITE: as above, trace foraminifera.
1325 - 1330m	80	CALCISILTITE: as above.
	20	CALCILUTITE: as above, trace foraminifera.
1330 - 1335m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1335 - 1340m	80	CALCISILTITE: as above.
	20	CALCILUTITE: as above.
1340 - 1345m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above, sparse foraminifera.
1345 - 1350m	80	CALCISILTITE: as above.
	20	CALCILUTITE: as above, sparse foraminifera.
1350 - 1355m	80	CALCISILTITE: medium grey, soft to firm, very calcareous, fine black speckling.
	20	CALCILUTITE: medium to light grey, soft to very soft, sparse foraminifera.
1355 - 1360m	80	CALCISILTITE: as above.
	20	CALCILUTITE: as above, sparse foraminifera.
1360 - 1365m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
		Minor hard, light grey, weakly calcareous siltstone, sparse foraminifera.

1365 - 1370m	90	CALCISILTITE: as above.
	10	CALCILUTITE: as above.
		Lower Geolograph line broken - Taking 10 m samples.
1375 - 1385m	90	CALCISILTITE: as above.
	10	CALCILUTITE: as above.
1385 - 1395m	95	CALCISILTITE: as above.
	5	CALCILUTITE: as above.
1395 - 1405m	90	CALCISILTITE: as above.
	10	CALCILUTITE: as above, common foraminifera.
1405 - 1415m	90	CALCISILTITE: as above. Occasional dark grey, carbonaceous calcisiltite, trace foraminifera.
	10	CALCILUTITE: as above.
1415 - 1425m	90	CALCISILTITE: as above.
	10	CALCILUTITE: as above.
1425 - 1435m	90	CALCISILTITE: as above.
	10	CALCILUTITE: as above.
1435 - 1445m	95	CALCISILTITE: as above.
	5	CALCILUTITE: as above.
1445 - 1455m	95	CALCISILTITE: medium light grey, soft to firm very calcareous, minor carbonaceous flecking, trace glauconite, trace foraminifera.
	5	CALCILUTITE: light grey, very soft to soft, very calcareous, trace foraminifera.
1455 - 1465m	80	CALCISILTITE: as above.
	10	CALCILUTITE: as above.
	10	LIMESTONE: light red brown, hard, angular cuttings with vitreous lustre, moderately calcareous, silty in part.
	trace	QUARTZ AND CALCITE: angular, white to clear.
		Geolograph line fixed.
1465 - 1770m	90	CALCISILTITE: as above.
	10	LIMESTONE: as above.
	trace	QUARTZ: granule size, angular.
1470 - 1475m	90	CALCISILTITE: as above.
	5	CALCILUTITE: as above.
	5	LIMESTONE: as above.
	trace	QUARTZ and CALCITE: as above.
1475 - 1480m	90	CALCISILTITE: as above.
	10	CALCILUTITE: as above.
1480 - 1485m	40	CALCISILTITE: as above.
	60	CALCILUTITE: as above.
	trace	QUARTZ: as above.
	trace	LIMESTONE: as above.
1485 - 1490m	70	CALCISILTITE: as above.
	30	CALCILUTITE: as above.
1490 - 1495m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above, sparse foraminifera.

1495 - 1500m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above, trace foraminifera.
1500 - 1505m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1505 - 1510m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above, trace foraminifera.
1510 - 1515m	60	CALCISILTITE: as above. Sparse foraminifera.
	40	CALCILUTITE: as above.
	trace	LIMESTONE: grey, vitreous, as above.
1515 - 1520m	60	CALCISILTITE: as above. Trace foraminifera.
	40	CALCILUTITE: as above.
	trace	LIMESTONE: as above.
1520 - 1525m	80	CALCISILTITE: as above. Occasional glauconite grains.
	20	CALCILUTITE: as above, trace foraminifera.
1525 - 1530m	80	CALCISILTITE: as above.
	20	CALCILUTITE: as above, trace foraminifera.
1530 - 1535m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above, trace foraminifera.
	trace	LIMESTONE: medium grey, vitreous.
1535 - 1540m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above, trace foraminifera.
1540 - 1545m	60	CALCISILTITE: medium grey, soft to firm, very calcareous, trace foraminifera.
	40	CALCILUTITE: light grey, very soft, calcareous.
	trace	LIMESTONE: medium grey-brown, hard, vitreous.
1545 - 1550m	60	CALCISILTITE: as above. Common foraminifera.
	40	CALCILUTITE: as above.
	trace	LIMESTONE: as above.
1550 - 1555m	80	CALCISILTITE: as above, trace glauconite.
	20	CALCILUTITE: as above.
	trace	LIMESTONE: as above.
1555 - 1560m	80	CALCISILTITE: as above.
	20	CALCILUTITE: as above.
1560 - 1565m	80	CALCISILTITE: as above.
	20	CALCILUTITE: as above, trace foraminifera.
1565 - 1570m	80	CALCISILTITE: as above.
	20	CALCILUTITE: as above, trace foraminifera.
1570 - 1575m	60	CALCISILTITE: as above, becoming softer, trace glauconite.
	40	CALCILUTITE: as above, sticky.
1575 -1580m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1580 - 1585m	80	CALCISILTITE: as above, trace glauconite.
	20	CALCILUTITE: as above.
1585 - 1590m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.

1590 - 1595m	60	CALCISILTITE: medium grey to medium light grey, soft to firm, very calcareous, carbonaceous flecks, trace glauconite, trace foraminifera.
	40	CALCILUTITE: light grey, very soft to soft, sticky, very calcareous, trace glauconite, occasional carbonaceous flecks, trace foraminifera.
1595 - 1600m	55	CALCISILTITE: as above. Occasional very carbonaceous cuttings.
	45	CALCILUTITE: as above.
1600 - 1605m	60	CALCILUTITE: as above. Trace very carbonaceous calcisiltite.
	40	CALCISILTITE: as above.
1605 - 1610m	50	CALCISILTITE: as above.
	50	CALCILUTITE: as above.
1610 - 1615m	50	CALCISILTITE: as above.
	50	CALCILUTITE: as above.
1615 - 1620m	50	CALCISILTITE: as above.
	50	CALCILUTITE: as above.
1620 - 1625m	60	CALCILUTITE: as above.
	40	CALCISILTITE: as above.
1625 - 1630m	60	CALCILUTITE: as above.
	40	CALCISILTITE: as above.
1630 - 1635m	60	CALCILUTITE: as above.
	40	CALCISILTITE: as above.
1635 - 1640m	60	CALCILUTITE: light grey, very soft to soft, sticky, silty in part, very calcareous, trace benthonic foraminifera, trace glauconite.
	40	CALCISILTITE: light to medium grey, soft to firm, very calcareous.
1640 - 1645m	80	CALCILUTITE: as above.
	20	CALCISILTITE: as above.
1645 - 1650m	80	CALCILUTITE: as above.
	20	CALCISILTITE: as above. Trace very carbonaceous calcisiltite.
1650 - 1655m	60	CALCILUTITE: as above.
	40	CALCISILTITE: as above.
1655 - 1660m	90	LIMESTONE: Yellow to grey, firm to hard, silty in party, very calcareous, trace carbonaceous flecking with vitreous lustre, trace foraminifera. Many cuttings have thin blade like habit, all are angular.
	5	CALCISILTITE: as above.
	5	CALCILUTITE: as above.
	trace	QUARTZ, CALCITE: as above.
1660 - 1665m	50	CALCILUTITE: as above.
	45	CALCISILTITE: as above.
	5	LIMESTONE: as above.
1665 - 1670m	70	CALCILUTITE: as above.
	30	CALCISILTITE: as above.

1670 - 1675m	70	CALCILUTITE: as above.
	30	CALCISILTITE: as above.
	trace	LIMESTONE: as above.
1675 - 1680m	60	CALCISILTITE: medium to dark grey, firm to hard, very argillaceous, very calcareous, trace glauconite.
	40	CALCILUTITE: medium grey, soft to firm, very fine grained, very calcareous.
	trace	LIMESTONE: as above.
1680 - 1685m	50	CALCILUTITE: as above, trace glauconite.
	50	CALCISILTITE: as above.
	trace	LIMESTONE: as above.
1685 - 1690m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1690 - 1695m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1695 - 1700m	70	CALCISILTITE: as above.
	30	CALCILUTITE: as above.
1700 - 1705m	70	CALCISILTITE: as above.
	30	CALCILUTITE: as above.
1705 - 1710m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
1710 - 1715m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
1715 - 1720m	80	CALCISILTITE: as above.
	20	CALCILUTITE: as above.
1720 - 1725m	60	CALCISILTITE: as above, trace foraminifera.
	40	CALCILUTITE: as above, trace foraminifera
	trace	LIMESTONE: white to light brown, granular, hard.
1725 - 1730m	80	CALCISILTITE: as above.
	20	CALCILUTITE: as above.
	trace	LIMESTONE: light brown to brown and dark grey, hard, saccharidal.
1730 - 1735m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
	trace	LIMESTONE: as above, sparse foraminifera.
1735 - 1740m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
	trace	LIMESTONE: as above.
1740 - 1745m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1745 - 1750m	50	CALCISILTITE: medium grey to medium light grey, soft to firm, very calcareous, argillaceous, trace foraminifera, trace glauconite.
	45	CALCILUTITE: light grey, soft, sticky, very calcareous, trace foraminifera.
	5	LIMESTONE: Yellow grey to pale brown, hard, angular, vitreous lustre, moderately calcareous.

1750 - 1755m	60	CALCILUTITE: as above.
	30	CALCISILTITE: as above - increase in glauconite.
	10	LIMESTONE: as above.
1755 - 1760m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
	trace	LIMESTONE: as above.
1760 - 1765m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
	trace	LIMESTONE: as above.
1765 - 1770m	60	CALCILUTITE: as above.
	40	CALCISILTITE: as above.
1770 - 1775m	60	CALCILUTITE: as above.
	40	CALCISILTITE: as above.
1775 - 1780m	60	CALCILUTITE: as above.
	40	CALCISILTITE: as above.
1780 - 1785m	70	CALCILUTITE: as above.
	30	CALCISILTITE: as above.
1785 - 1790m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
1790 - 1795m	70	CALCILUTITE: as above.
	30	CALCISILTITE: as above.
1795 - 1800m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
1800 - 1805m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
1805 - 1810m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
1810 - 1815m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1815 - 1820m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1820 - 1825m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1825 - 1830m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
1830 - 1835m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1835 - 1840m	60	CALCILUTITE: light grey, very soft to soft, sticky, very calcareous, trace carbonaceous flecks, trace foraminifera.
	40	CALCISILTITE: light to medium grey, soft to firm, very calcareous, trace foraminifera.
1840 - 1845m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
1845 - 1850m	60	CALCILUTITE: as above.
	40	CALCISILTITE: as above.

1850 - 1855m	60	CALCILUTITE: as above.
	40	CALCISILTITE: as above.
1855 - 1860m	60	CALCILUTITE: as above.
	40	CALCISILTITE: as above.
1860 - 1865m	80	CALCILUTITE: as above.
	20	CALCISILTITE: as above.
1865 - 1870m	70	CALCILUTITE: as above.
	30	CALCISILTITE: as above.
	trace	LIMESTONE: as above.
1870 - 1875m	70	CALCILUTITE: as above.
	30	CALCISILTITE: as above.
1875 - 1880m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1880 - 1885m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
1885 - 1890m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1890 - 1895m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
1895 - 1900m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1900 - 1905m	70	CALCISILTITE: medium dark grey to light grey, soft to hard, very calcareous, trace foraminifera.
	30	CALCILUTITE: medium light grey to light grey, soft to very soft, sticky, very calcareous, trace foraminifera, trace very carbonaceous calcisiltite.
1905 - 1910m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1910 - 1915m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
1915 - 1920m	50	CALCISILTITE: as above.
	45	CALCILUTITE: as above.
	5	LIMESTONE: medium dark grey to medium grey, hard, angular, vitreous lustre, moderately calcareous.
1920 - 1925m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1925 - 1930m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
1930 - 1935m	60	CALCILUTITE: as above.
	40	CALCISILTITE: as above.
1935 - 1940m	80	CALCISILTITE: as above.
	20	CALCILUTITE: as above.
	trace	LIMESTONE: as above.
1940 - 1945m	60	CALCISILTITE: as above
	40	CALCILUTITE: as above.

1945 - 1950m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1950 - 1955m	60	CALCILUTITE: as above.
	40	CALCISILTITE: as above.
1955 - 1960m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
1960 - 1965m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
1965 - 1970m	60	CALCISILTITE: as above,
	40	CALCILUTITE: as above.
1970 - 1975m	70	CALCISILTITE: as above.
	30	CALCILUTITE: as above.
1975 - 1980m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above, foraminifera.
1980 - 1985m	60	CALCILUTITE: as above.
	40	CALCISILTITE: as above.
1985 - 1990m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
	trace	LIMESTONE: as above.
	trace	SANDSTONE: very fine, light brown, calcareous, no shows.
1990 - 1995m	60	CALCISILTITE: dark to light grey, firm to soft cuttings, blocky to well rounded.
	40	CALCILUTITE: light grey, occasionally carbonaceous.
1995 - 2000m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above, trace foraminifera.
2000 - 2005m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
2005 - 2010m	70	CALCISILTITE: as above.
	30	CALCILUTITE: as above.
2010 - 2015m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
2015 - 2020m	70	CALCISILTITE: as above, trace glauconite.
	30	CALCILUTITE: as above, trace foraminifera.
2020 - 2025m	70	CALCISILTITE: as above.
	30	CALCILUTITE: as above.
2025 - 2030m	60	CALCISILTITE: as above, trace glauconite.
	30	CALCILUTITE: as above, trace foraminifera and echinoid spines, with rare, well rounded quartz grains.
	10	CALCARENITE: light grey, fine to very fine grained, very calcareous, with rare quartz grains.
2030 - 2035m	70	CALCISILTITE: as above.
	20	CALCARENITE: as above, with rare glauconite and quartz grains.
	10	CALCILUTITE: as above.

2035 - 2040m	60	CALCISILTITE: as above.
	30	CALCILUTITE: as above.
	10	CALCARENITE: fine to medium grained, angular, carbonate grains, glauconite and lesser quartz grains. Conspicuous green flecks of glauconite. Trace foraminifera and echinoid spines.
2040 - 2045m	50	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
	10	CALCARENITE: as above, tightly interlocked grains.
2045 - 2050m	50	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
	10	CALCARENITE: as above.
2050 - 2055m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
	trace	CALCARENITE: as above.
2055 - 2060m	70	CALCISILTITE: as above.
	30	CALCILUTITE: as above.
	trace	CALCARENITE: as above.
2060 - 2065m	70	CALCISILTITE: as above.
	30	CALCILUTITE: as above.
	trace	CALCARENITE: as above, sparse foraminifera and echinoid spines.
2065 - 2070m	80	CALCISILTITE: as above, trace foraminifera.
	20	CALCILUTITE: as above.
2070 - 2075m	80	CALCISILTITE: medium to dark grey, firm to hard, blocky cuttings, argillaceous, calcareous, some carbonaceous material.
	20	CALCILUTITE: medium grey, soft, occasionally dispersive, carbonaceous.
	trace	QUARTZ: clear, angular.
2075 - 2080m	80	CALCISILTITE: as above.
	20	CALCILUTITE: as above.
	trace	QUARTZ: as above.
2080 - 2085m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
	trace	QUARTZ: as above.
	trace	LIMESTONE: gives mineral fluorescence.
2085 - 2090m	60	CALCISILTITE: as above,
	40	CALCILUTITE: as above.
	trace	QUARTZ: as above.
	trace	LIMESTONE: as above.
2090 - 2095m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
	trace	QUARTZ: as above.
	trace	LIMESTONE: as above.
2095 - 2100m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above, trace foraminifera.
	trace	QUARTZ: as above.
	trace	LIMESTONE: as above.
2100 - 2105m	60	CALCILUTITE: as above.
	40	CALCISILTITE: as above.
	trace	QUARTZ: as above.
	trace	LIMESTONE: as above.

2105 - 2110m	70	CALCILUTITE: as above.
	30	CALCISILTITE: as above.
2110 - 2115m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
	trace	LIMESTONE: with minor yellow mineral fluorescence.
2115 - 2120m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
	trace	LIMESTONE: as above.
2120 - 2125m	70	CALCISILTITE: as above.
	30	CALCILUTITE: as above.
2125 - 2130m	60	CALCISILTITE: as above.,
	40	CALCILUTITE: as above.
2130 - 2135m	60	CALCILUTITE: as above.
	40	CALCISILTITE: as above, trace foraminifera.
2135 - 2140m	80	CALCILUTITE: as above.
	20	CALCISILTITE: as above, trace foraminifera.
2140 - 2145m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above, trace foraminifera and echinoid spines.
2145 - 2150m	60	CALCILUTITE: light grey, very soft, very calcareous.
	40	CALCISILTITE: medium to light grey, firm to soft, very calcareous, siltstone component is finer grained than previously. Trace foraminifera.
2150 - 2155m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above, trace foraminifera.
2155 - 2160m	60	CALCILUTITE: as above.
	40	CALCISILTITE: as above.
2160 - 2165m	70	CALCISILTITE: as above.
	30	CALCILUTITE: as above, trace foraminifera.
2165 - 2170m	80	CALCISILTITE: as above.
	20	CALCILUTITE: as above.
2170 - 2175m	80	CALCISILTITE: as above.
	20	CALCILUTITE: as above.
2175 - 2180m	80	CALCISILTITE: dark grey, firm, becoming very fine grained, grading to calcilutite, angular, flakey, platy cuttings becoming finely laminated.
	20	CALCILUTITE: light grey to off white, very soft, trace echinoid spines.
2180 - 2185m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
2185 - 2190m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
2190 - 2195m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
	trace	CALCARENITE: medium to fine grained, angular grains, dominantly carbonate with conspicious glauconite.

2195 - 2200m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
2200 - 2205m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
	trace	LIMESTONE: light brown, hard, angular, vitreous lustre, moderately calcareous.
2205 - 2210m	70	CALCILUTITE: medium dark grey to light grey as above.
	30	CALCISILTITE: as above.
2210 - 2215m	80	CALCILUTITE: medium dark grey with minor light grey, soft to firm, platey, flakey, angular cuttings, very calcareous, clay size glauconite giving some cuttings a green colour, trace foraminifera.
	10	CALCISILTITE: medium grey, soft to firm, very calcareous.
	10	CALCITE: white to very light grey, soft, very calcareous, has minor fine grained to medium grained, rounded glauconite grains, some carbonaceous flecks.
	trace	QUARTZ: rounded, very coarse grains - few encrusted with very fine grained pyrite.
	trace	LIMESTONE: light brown, hard, angular.
2215 - 2220m	90	CALCILUTITE: as above.
	5	CALCISILTITE: as above.
	5	CALCITE: as above.
	trace	QUARTZ: as above.
2220 - 2225m	90	CALCILUTITE: as above.
	10	CALCISILTITE: as above.
2225 - 2230m	90	CALCILUTITE: as above.
	10	CALCISILTITE: as above.
2230 - 2235m	90	CALCILUTITE: as above, trace echinoid spines.
	5	CALCISILTITE: as above.
	5	LIMESTONE: light grey, granular with conspicuous glauconite, grades to glassy massive light brown.
2235 - 2240m	90	CALCILUTITE: as above, trace foraminifera.
	5	CALCISILTITE: as above.
	5	LIMESTONE: as above.
2240 - 2245m	90	CALCILUTITE: as above, but grading to moderately hard.
	5	CALCISILTITE: as above.
	5	LIMESTONE: as above.
2245 - 2250m	95	CALCAREOUS MUDSTONE: medium dark grey to light grey, firm to soft, slight to moderately calcareous, some splintery cuttings.
	5	CALCAREOUS SILTSTONE: medium dark grey, firm to soft, slight to moderately calcareous.
	trace	LIMESTONE: as above.
	trace	QUARTZ: clear, rounded, very coarse grained.
2250 - 2255m	95	CALCAREOUS MUDSTONE: as above with trace glauconitic mudstone.
	5	CALCAREOUS SILTSTONE: as above.
	trace	LIMESTONE: as above.

2255 - 2260m	95	CALCAREOUS MUDSTONE: as above.
	5	CALCAREOUS SILTSTONE: as above.
	trace	LIMESTONE: as above.
2260 - 2265m	95	CALCAREOUS MUDSTONE: as above.
	5	CALCAREOUS SILTSTONE: as above, trace pyritic cement.
	trace	LIMESTONE: as above.
2265 - 2270m	80	CALCAREOUS MUDSTONE: as above.
	20	CALCAREOUS SILTSTONE: as above.
2270 - 2275m	80	CALCAREOUS MUDSTONE: as above,
	20	CALCAREOUS SILTSTONE: as above, trace pyrite.
	trace	LIMESTONE: as above.
2275 - 2280m	90	CALCAREOUS MUDSTONE: as above.
	10	CALCAREOUS SILTSTONE: as above, trace pyrite.
	trace	LIMESTONE: as above.
2280 - 2285m	60	CALCAREOUS MUDSTONE: as above.
	40	CALCISILTITE: as above, trace pyrite.
	trace	LIMESTONE: as above.
2285 - 2290m	70	CALCAREOUS MUDSTONE: as above.
	30	CALCISILTITE: as above.
	trace	LIMESTONE: as above.
2290 - 2295m	80	CALCAREOUS MUDSTONE: as above.
	20	CALCISILTITE: as above, trace pyrite, trace foraminifera.
	trace	LIMESTONE: as above.
2295 - 2300m	50	CALCAREOUS MUDSTONE: as above.
	50	CALCISILTITE: as above, trace foraminifera.
2300 - 2305m	100	CALCAREOUS MUDSTONE: medium dark grey to light grey. Medium to dark grey component is soft to firm, subfissile, slightly calcareous. Light grey component is very soft, sticky, very calcareous, trace foraminifera.
	trace	LIMESTONE: medium grey to light brown, hard, angular, moderately calcareous.
2305 - 2310m	100	CALCAREOUS MUDSTONE: as above, light grey component 80%.
2310 - 2315m	100	CALCAREOUS MUDSTONE: as above, light grey component 70%. Trace pyrite, trace glauconite.
2315 - 2320m	100	CALCAREOUS MUDSTONE: as above, light grey component 80%, conspicuous pyrite and glauconite.
2320 - 2325m	100	CALCAREOUS MUDSTONE: as above, medium dark grey component 70%.
2325 - 2330m	100	CALCAREOUS MUDSTONE: dark to medium grey, soft gummy to firm, very argillaceous. very calcareous. Trace foraminifera.
2330 - 2335m	100	CALCAREOUS MUDSTONE: as above, trace pyrite.
2335 - 2340m	100	CALCAREOUS MUDSTONE: as above. Rare fragments of echinoderm spines.

2340 - 2345m	100	CALCAREOUS MUDSTONE: 20% medium dark grey, firm to soft, subfissile, blocky to splinter habit, slightly to moderately calcareous. 80% light grey, very soft, sticky, very calcareous, occasional foraminifera.
2345 - 2350m	100	CALCAREOUS MUDSTONE: as above, trace pyrite.
2350 - 2355m	100	CALCAREOUS MUDSTONE: as above.
2355 - 2360m	100	CALCAREOUS MUDSTONE: as above, medium dark grey component 60%.
2360 - 2365m	100	CALCAREOUS MUDSTONE: as above, (50/50 light/dark components), trace pyrite.
	trace	QUARTZ: very coarse grained, angular.
2365 - 2370m	100	CALCAREOUS MUDSTONE: as above, trace pyrite.
2370 - 2375m	100	CALCAREOUS MUDSTONE: as above, trace pyrite.
2375 - 2380m	100	CALCAREOUS MUDSTONE: as above.
	trace	PYRITE
2380 - 2385m	100	CALCAREOUS MUDSTONE: medium to medium light grey, firm, very calcareous, subfissile, trace foraminifera, trace pyrite.
2385 - 2390m	100	CALCAREOUS MUDSTONE: as above grades to claystone. Trace pyrite.
	trace	LIMESTONE: pale brown, fine grained.
2390 - 2395m	100	CALCAREOUS MUDSTONE: as above. Trace pyrite.
2395 - 2400m	60	CALCAREOUS MUDSTONE: as above.
	40	CALCAREOUS CLAYSTONE: light grey, very soft, trace foraminifera.
2400 - 2405m	50	CALCAREOUS CLAYSTONE: light grey to very light grey, very soft.
	50	CALCAREOUS MUDSTONE: as above, trace foraminifera, trace pyrite, trace glauconite.
2405 - 2410m	60	CALCAREOUS MUDSTONE: as above.
	40	CALCAREOUS CLAYSTONE: as above.
2410 - 2415m	50	CALCAREOUS MUDSTONE: as above, trace dark grey carbonaceous mudstone.
	50	CALCAREOUS CLAYSTONE: as above.
2415 - 2420m	40	CALCAREOUS MUDSTONE: as above, trace glauconite and pyrite.
	30	SILTSTONE: red brown with quartz grains, very soft.
	20	CALCAREOUS CLAYSTONE: as above, trace glauconite and pyrite.
	10	SANDSTONE: well rounded, loose, iron stained quartz grains. Trace pyritic cement.
2420 - 2425m	40	CALCAREOUS MUDSTONE: as above, trace glauconite, trace pyrite.
	30	SILTSTONE: as above.
	20	CALCAREOUS CLAYSTONE: as above.
	10	SANDSTONE: as above.

2425 - 2430m	70	SILTSTONE: medium to dark grey, firm to hard angular, blocky cuttings.
	20	SANDSTONE: loose grains and fine aggregates, poorly sorted, minor clay matrix, aggregates friable, moderate to well rounded grains with moderate visual porosity, no shows.
	10	CALCAREOUS MUDSTONE: dark grey.
2430 - 2435m	70	SILTSTONE: as above.
	20	SANDSTONE: as above.
	10	CALCAREOUS MUDSTONE: as above.
2435 - 2440m	80	SANDSTONE: loose, clear to milky, poorly sorted, fine grained to granule quartz and fine grained aggregates. Aggregates have minor clay matrix, subangular to well rounded, (mainly rounded) grains, moderate visible porosity, no shows. Trace pyrite.
	15	SILTSTONE: as above.
	5	CALCAREOUS MUDSTONE: as above.
	trace	COAL: black, hard, vitreous lustre.
2440 - 2445m	70	SANDSTONE: as above, trace pyrite, trace glauconite.
	20	SILTSTONE: as above.
	10	CALCAREOUS MUDSTONE: as above.
	trace	COAL: as above.
2445 - 2450m	40	SILTSTONE: medium light grey to medium grey, very soft.
	30	COAL: bright vitreous, conchoidal fracture.
	25	SANDSTONE: 2 types - 1) 20% clear to milky, loose, granule sized, subangular to subrounded, moderate to well sorted quartz grains. No shows. 2) 5% light grey aggregates of very fine grained quartz with moderate visual porosity. No shows.
	5	CARBONACEOUS SILTSTONE: dark grey to brown.
2450 - 2455m	65	SANDSTONE: 2 types - 1) 60% loose grains as above. No shows. 2) 5% light grey aggregates, well sorted, moderately well rounded with weak pale yellow fluorescence, slow straw cut, slow, pale yellow crush cut.
	25	SILTSTONE: as above, several grains give slow yellow cut.
	10	COAL: bright vitreous with conchoidal fracture grading into blocky and platy chips.
2455 - 2459.4m	90	SANDSTONE: 2 types - 1) 80% loose grains as above; 2) 10% light grey aggregates with silty matrix, moderate to poor visual porosity, no fluorescence, very weak, pale yellow cut fluorescence, slow crush cut.
	5	SILTSTONE: as above.
	5	COAL: as above.
2459.4 - 2470.7m		Core No. 1 - See attached description.

2470.7 - 2475m	80	SILTSTONE: medium light grey to medium grey, soft to firm, slightly argillaceous, some calcareous grains (possibly cavings).
	20	SANDSTONE: 1) loose, clear to milky, very coarse grained to granule, angular to rounded, (dominant sandsone type). 2) Quartzose, fine to medium grained aggregates, angular to rounded, minor argillaceous matrix, trace of fine grained glauconite. Low visual porosity, no shows.
	trace	COAL: as above.
2475 - 2480m	80	SILTSTONE: as above.
	20	SANDSTONE: as above, trace pyrite.
	trace	MICA: platy, clear to white.
2480 - 2485m	80	SANDSTONE: as above.
	20	SILTSTONE: as above.
	trace	MICA: as above.
2485 - 2490m	80	SANDSTONE: 2 types - 1) 75% loose, clear to milky, very coarse grained to granular, angular to subrounded, fine grained to medium grained quartz grains; 2) 5% aggregates - friable, angular to subrounded, minor argillaceous matrix, moderate visual porosity. No shows.
	10	COAL: black, conchoidal fracture.
	10	SILTSTONE: light grey to medium grey, soft to firm, slightly calcareous.
2490 - 2495m	80	SANDSTONE: as above.
	15	COAL: as above.
	5	SILTSTONE: as above, slightly micaceous, trace pyrite.
2495 - 2500m	90	SANDSTONE: as above.
	5	COAL: as above.
	5	SILTSTONE: as above, trace mica.
2500 - 2505m	95	SANDSTONE: 90% loose, clear to milky, very coarse grained to granular quartz; 5% fine grained to medium grained aggregates. Angular to rounded (mainly subangular), moderately sorted grains with white clay matrix. Moderate visual porosity. No shows.
	5	SILTSTONE: medium grey, soft to firm, micaceous in part, slightly calcareous.
	trace	COAL: black, conchoidal fracture.
2505 - 2510m	95	SANDSTONE: as above.
	5	SILTSTONE: as above.
	trace	COAL: as above.
2510 - 2515m	100	SANDSTONE: as above.
	trace	COAL: as above.
	trace	SILTSTONE: as above.
2515 - 2520m	100	SANDSTONE: as above.
	trace	COAL: as above.
	trace	MICACEOUS SILTSTONE: minor pyrite and glauconite.

2520 - 2525m	95	SANDSTONE: 95% loose, clear to milky, very coarse grained to granule, subangular to rounded, moderately well sorted quartz grains. Trace medium grained aggregates, friable, subangular to subrounded, moderately well sorted, argillaceous matrix. Trace coarse grained aggregates with hard, quartz overgrowths. Moderate visual porosity. No shows.
	5	SILTSTONE: medium grey, subfissile, becoming finer, micaceous in part, slightly calcareous, minor pyrite.
	trace	COAL: as above.
2525 - 2530m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
	trace	COAL: as above.
2530 - 2535m	90	SANDSTONE: as above - some medium grained aggregates with quartz overgrowths.
	10	SILTSTONE: as above, minor pyrite.
	trace	COAL: as above.
		Desanders have large quantity of fine grained sand.
2535 - 2540m	90	SANDSTONE: as above, trace very fine grained micaceous sandstone, argillaceous.
	10	SILTSTONE: as above.
	trace	COAL: as above.
	trace	GLAUCONITE: dark grey, granule size aggregates.
2540 - 2545m	80	SANDSTONE: as above with trace of pyritic cement.
	20	SILTSTONE: as above - bordering on claystone.
	trace	GLAUCONITE: medium grained in argillaceous sandstone.
2545 - 2550m	90	SANDSTONE: with trace pyrite, as above.
	10	SILTSTONE: grading to claystone, as above.
	trace	GLAUCONITE: as above.
2550 - 2555m	90	SANDSTONE: 90% loose, clear to milky, fine grained to granule, angular to rounded (dominantly subrounded), well sorted. Minor fine to coarse grained aggregates, friable, angular to subrounded, moderately sorted, argillaceous matrix, minor pyritic cement. Poor to moderate visual porosity. No shows.
	10	SILTSTONE: medium grey to brownish grey, grading to claystone in part, slightly calcareous in part. Minor micaceous siltstone, soft to firm, minor pyrite.
	trace	GLAUCONITE: as above.
2555 - 2560	80	SANDSTONE: as above with trace quartz overgrowths in aggregates.
	20	SILTSTONE: as above.
2560 - 2565m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
2565 - 2570m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
	trace	GLAUCONITE: as above.

2570 - 2575m	95	SANDSTONE: as above.
	5	SILTSTONE: as above.
2575 - 2580m	100	SANDSTONE: coarse, well sorted loose quartz, clear to milky, angular to subrounded, no matrix.
	trace	SILTSTONE: dark grey, angular fragments, tending to subfissile.
2580 - 2585m	100	SANDSTONE: as above, one or two grains give very pale yellow fluorescence, no cut.
	trace	SILTSTONE: as above.
2585 - 2590m	95	SANDSTONE: as above.
	5	SILTSTONE: as above.
2590 - 2595m	95	SANDSTONE: as above.
	5	SILTSTONE: as aobve.
2595 - 2600m	100	SANDSTONE: as above.
	trace	SILTSTONE: as above.
2600 - 2605m	100	SANDSTONE: as above.
	trace	SILTSTONE: as above.
2605 - 2610m	100	SANDSTONE: as above.
	trace	SILTSTONE: as above.
2610 - 2615m	90	SANDSTONE: as above, more cemented
	10	SILTSTONE: as above.
2615 - 2620m	95	SANDSTONE: as above.
	5	SILTSTONE: as above.
2620 - 2625m	90	SANDSTONE: clear quartz, coarse grained, subangular to subrounded, well sorted, well cemented, no matrix.
	10	SILTSTONE: dark grey, firm angular cuttings, argillaceous, trace pyrite.
2625 - 2630m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
2630 - 2635m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
2635 - 2640m	65	SANDSTONE: as above.
	30	SILTSTONE: as above.
	5	COAL
2640 - 2645m	50	SANDSTONE: quartzose, clear, loose, very fine grained to dominantly coarse grained, angular to subrounded, moderately sorted, few friable medium grained aggregates, trace of argillaceous matrix.
	50	SILTSTONE: as above.
2645 - 2650m	80	SANDSTONE: as above.
	20	SILTSTONE: as above.
	trace	COAL: as above.
	trace	GLAUCONITE: as above.
2650 - 2655m	70	SANDSTONE: as above - increase in percentage of fine to medium grain sizes.
	30	SILTSTONE: as above.
	trace	COAL: as above.

2655 - 2660m	75	SANDSTONE: as above.
	25	SILTSTONE: as above.
	5	COAL: as above.
2660 - 2665m	75	SANDSTONE: as above.
	20	SILTSTONE: as above.
	5	COAL: as above.
2665 - 2670m	50	SILTSTONE: micaceous, brownish grey, soft to firm, carbonaceous in part, argillaceous.
	50	SANDSTONE: clear, loose, very coarse grained to granule, angular to subrounded, well sorted, also aggregates of fine to medium grained, subangular to subrounded, moderate to well sorted quartz, argillaceous matrix, friable, poor visual porosity. No shows.
	trace	COAL: black, hard, angular cuttings, vitreous lustre.
2670 - 2675m	60	SANDSTONE: as above.
	40	SILTSTONE: as abve.
	trace	COAL: as above.
2675 - 2680m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
	trace	COAL: as above.
2680 - 2685m	60	SANDSTONE: quartzose, clear, loose, very coarse grained to granule, angular to rounded, moderately well sorted. Also aggregates of very fine grained to medium grained, friable to firm, subangular to subrounded, well sorted quartz. Three types of matrix/cement: - brown grey argillaceous, white argillaceous, pyritic; also some with no matrix and trace of pressure solution. Aggregates about 10% of sandstone.
	40	SILTSTONE: as above.
	trace	COAL: black, hard, angular, vitreous lustre.
2685 - 2690m	90	COAL: brittle, black, vitreous.
	10	SANDSTONE: as above.
	trace	SILTSTONE: as above.
2690 - 2695m	100	COAL: as above.
	trace	SANDSTONE: as above.
2695 - 2700m	50	SANDSTONE: as above.
	50	SILTSTONE: very argillaceous as above.
	trace	COAL: as above.
2700 - 2705m	50	SANDSTONE: as above.
	30	SILTSTONE: as above.
	20	COAL: as above.
2705 - 2710m	50	COAL: as above.
	30	SANDSTONE: as above.
	20	SILTSTONE: as above.
2710 - 2715m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
	trace	COAL: as above.
2715 - 2720m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.

2720 - 2725m	60	SILTSTONE: as above.
	40	SANDSTONE: as above.
	trace	COAL: as above.
2725 - 2730m	60	SILTSTONE: as above.
	40	SANDSTONE: as above.
	trace	COAL: as above.
2730 - 2735m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
	trace	COAL: as above.
2735 - 2740m	70	SANDSTONE: clear to white, coarse to fine, poorly sorted, angular to subrounded, no matrix, siliceous and minor dolomitic cements, moderate visible porosity, no shows.
	30	SILTSTONE: medium to dark grey, argillaceous, quartzose, micaceous firm to hard, angular cuttings, trace pyrite.
2740 - 2745m	50	SANDSTONE: as above.
	35	SILTSTONE: as above.
	15	COAL: as above.
2745 - 2750m	50	COAL: as above.
	40	SILTSTONE: as above.
	10	SANDSTONE: as above.
2750 - 2755m	60	SILTSTONE: as above.
	40	SANDSTONE: as above.
	trace	COAL: as above.
2755 - 2760m	70	SANDSTONE: as above.
	20	SILTSTONE: as above.
	10	COAL: as above.
2760 - 2765m	85	SANDSTONE: as above.
	10	SILTSTONE: as above.
	5	COAL: as above.
2765 - 2770m	60	COAL: black, angular, conchoidal fracture, vitreous lustre.
	40	SILTSTONE: medium light grey to medium dark grey, soft to firm, slightly calcareous, trace micaceous siltstone.
	trace	SANDSTONE: loose, clear, fine grained to granule, angular to subrounded, poorly sorted quartz grains. Also fine grained to medium grained aggregates with some argillaceous matrix, minor dolomitic cement.
2770 - 2775m	90	SILTSTONE: 2 types: 1) medium light grey to medium dark grey as above 90%. 2) Brownish grey, soft to firm, argillaceous, carbonaceous and micaceous in part 10%
	10	SANDSTONE: as above.
	trace	COAL: as above.
2775 - 2780m	90	SILTSTONE: as above, grey 90%, brown 30%
	10	SANDSTONE: as above.
	trace	COAL: as above.

2780 - 2785m	90	SILTSTONE: 80% brownish grey, soft to firm, very micaceous, slightly carbonaceous. 20% medium light grey to medium grey, soft to firm, very argillaceous, slightly calcareous.
	10	SANDSTONE: as above.
2785 - 2790m	90	SILTSTONE: brownish grey as above - trace grey siltstone.
	10	SANDSTONE: as above.
	trace	COAL: as above.
2790 - 2793m		Grab Sample
	50	SILTSTONE: as above.
	40	COAL: as above.
	10	SANDSTONE: as above, increase in fine grained to medium grained aggregates.
2793 - 2795m	50	SILTSTONE: as above.
	40	COAL: as above.
	10	SANDSTONE: as above.
2795 - 2800m	50	COAL: black, brittle, angular, vitreous lustre.
	30	SANDSTONE: as above.
	20	SILTSTONE: as above.
2800 - 2805m	70	SILTSTONE: as above, grading to claystone.
	30	SANDSTONE: as above.
	trace	COAL: as above.
2805 - 2810m	80	SILTSTONE: brownish grey, soft to firm argillaceous, micaceous and cabonaceous in part, grades to claystone.
	20	SANDSTONE: quartzose, clear minor milky, loose, fined grained to granule, angular to subrounded, poorly sorted. Fine grained to medium grained forms aggregates, subangular to subrounded, very well sorted, minor siliceous cement, minor agrillaceous matrix, trace mica and glauconite, moderate visual porosity. No shows.
	trace	COAL: as above.
2810 - 2815m	70	SILTSTONE: as above.
	20	SANDSTONE: as above.
	10	COAL: as above.
2815 - 2820m	70	SANDSTONE: as above.
	20	SILTSTONE: as above,
	10	COAL: as above.
2820 - 2825m	70	SANDSTONE: as above.
	30	SILTSTONE: as above,
	trace	COAL: as above.
2825 - 2830m	70	SANDSTONE: clear to white, quartzose, coarse grained, poorly sorted, angular to subangular, minor clay matrix, siliceous and dolomite cement, poor visible porosity, trace mineral fluorescence.
	30	SILTSTONE: medium light grey, firm, micaceous, carbonaceous, argillaceous.
	trace	COAL: as above.
2830 - 2835m	80	SANDSTONE: as above.
	20	SILTSTONE: as above.
	trace	COAL: as above.

2835 - 2840m	80	SANDSTONE: as above.
	20	SILTSTONE: as above.
	trace	COAL: as above.
2840 - 2845m	80	SANDSTONE: as above, 5% pale yellow fluorescence, (dolomite cement fluorescence?).
	20	SILTSTONE: as above.
	trace	COAL: as above.
2845 - 2850m	80	SANDSTONE: as above, increasing amounts of fluorescence, (dolomitic cement).
	20	SILTSTONE: as above.
	trace	COAL: as above.
2850 - 2855m	80	SANDSTONE: as above.
	20	SILTSTONE: as above.
2855 - 2860m	70	SANDSTONE: as above.
	30	SILTSTONE: as above.
2860 - 2865m	70	SANDSTONE: as above.
	30	SILTSTONE: as above.
	trace	COAL: as above.
2865 - 2870m	60	SILTSTONE: brownish grey, soft to firm, micaceous, carbonaceous argillaceous.
	40	SANDSTONE: quartzose, loose, very fine grained to granular, poorly sorted, angular to subrounded, aggregates of very fine grained to medium grained quartz, with minor argillaceous cement, 5% dolomite cement, trace pyrite.
2870 - 2875m	50	SILTSTONE: as above,
	50	SANDSTONE: as above, dominantly fine grained to medium grained, few coarse to granule grains.
	trace	COAL: as above.
2875 - 2880m	50	SILTSTONE: light grey to minor brownish grey with mottled appearance, very soft to firm, micaceous, carbonaceous (giving mottled appearance), argillaceous.
	50	SANDSTONE: light grey to mottled, friable to firm, fine grained to medium grained, minor coarse to granule, moderately sorted, argillaceous matrix, slightly carbonaceous and micaceous, trace pyritic cement, 5% dolomitic cement (bright yellow fluorescence), poor visible porosity, no shows.
	trace	COAL: as above.
2880 - 2885m	50	SILTSTONE: as above.
	50	SANDSTONE: as above, trace pyritic cement.
	trace	COAL: as above.
2885 - 2890m	50	SILTSTONE: as above, soft and sticky in part, grading to mudstone.
	50	SANDSTONE: as above.
2890 - 2895m	70	SILTSTONE: as above.
	30	SANDSTONE: as above slightly less argillaceous
	trace	COAL: as above.
2895 - 2900m	80	SILTSTONE: as above.
	20	SANDSTONE: as above.

2900 - 2905m	90	SILTSTONE: as above.
	10	SANDSTONE: as above.
2905 - 2910m	90	SILTSTONE: as above.
	10	SANDSTONE: as above.
2910 - 2915m	100	SILTSTONE: dark grey to brown, often laminated, argillaceous, carbonaceous, micaceous, quartzose.
	trace	SANDSTONE: as above.
2915 - 2920m	80	SILTSTONE: medium light grey, firm, argillaceous, slightly to moderately calcareous, many elongate cuttings, cavings?
	10	SILTSTONE: brownish grey, very soft to firm, slightly micaceous, very argillaceous.
	10	SANDSTONE: quatzose, loose to friable, very fine grained to granule, angular to subrounded, moderately sorted. Also very fine grained to medium grained aggregates, argillaceous, slightly micaceous, minor dolomitic cement, poor visual porosity, no shows, trace pyrite.
2920 - 2925m	95	SILTSTONE: dominantly medium light grey, soft to firm, argillaceous, slightly to moderately calcareous, minor brownish grey, very soft to firm, very argillaceous.
	5	SANDSTONE: clear, loose, very coarse grains with dolomitic cement, angular to subrounded. Aggregates of fine grained, subangular to subrounded quartz, very argillaceous, poor visible porosity. No shows.
	trace	COAL: as above.
	trace	GLAUCONITE: as above.
2925 - 2930m	100	SILTSTONE: as above dominantly brownish grey.
	trace	SANDSTONE: as above.
	trace	GLAUCONITE: as above.
2930 - 2935m	100	SILTSTONE: as above.
	trace	SANDSTONE: as above.
	trace	GLAUCONITE: as above.
2935 - 2940m	100	SILTSTONE: medium grey, quartzose, soft and dispersive to firm, carbonaceous, micaceous.
2940 - 2945m	100	SILTSTONE: as above, slightly coarser grained.
	trace	SANDSTONE: as above.
2945 - 2950m	90	SILTSTONE: as above.
	10	SANDSTONE: as above.
2950 - 2955m	80	SILTSTONE: as above.
	20	SANDSTONE: as above.
2955 - 2960m	70	SILTSTONE: as above.
	30	SANDSTONE; fine grained aggregates, light grey, friable, quartzose, poor visible porosity, no shows. Trace individual coarse grains as above.
2960 - 2965m	90	SILTSTONE: as above.
	10	SANDSTONE: as above.

2965 - 2970m	90	SANDSTONE: fine to medium grained, clear, angular to subangular, friable, poorly sorted, minor clay matrix, domomitic and siliceous cement, poor visual porosity, no shows.
	10	SILTSTONES: grades to sandstone, minor argillaceous material, trace pyrite.
2970 - 2975m	95	SANDSTONE: as above.
	5	SILTSTONE: as above.
2975 - 2980m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
2980 - 2985m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
2985 - 2990m	95	SANDSTONE: clear to white, well cemented, angular to subangular, medium to coarse, poorly sorted grains, no matrix, poor visual porosity, no shows.
	5	SILTSTONE: as above.
2990 - 2995m	100	SANDSTONE: as above.
	trace	SILTSTONE: as above.
2995 - 3000m	100	SANDSTONE: as above with trace of dolomitic cement
	trace	SILTSTONE: as above.
3000 - 3005m	100	SANDSTONE: as above - minor argillaceous matrix.
	trace	SILTSTONE: as above.
3005 - 3010m	100	SANDSTONE: as above.
	trace	SILTSTONE: as above.
3010 - 3015m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
3015 - 3020m	80	SANDSTONE: quartzose, clear with minor milky, loose with minor aggregates, medium grained to granule, angular to subrounded, moderate sorting, minor argillaceous matrix in some aggregates, generally no cement although minor pyrite, very poor visual porosity, no shows.
	20	SILTSTONE: brown grey, soft to firm, very argillaceous, minor micaceous and carbonaceous component.
3020 - 3025m	100	SANDSTONE: as above with trace of dolomitic cement, trace pyritic cement.
	trace	SILTSTONE: as above.
3025 - 3030m	95	SANDSTONE: as above.
	5	SILTSTONE: as above.
3030 - 3035m	90	SANDSTONE: as above, but with approximately 10% dolomitic cement - very pale orange to white to yellow fluorescence.
	10	SILTSTONE: as above.
3035 - 3040m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
3040 - 3045m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.

3045m - 3050m	90	SILTSTONE: as above.
	10	SANDSTONE: as above.
3050 - 3055m	90	SILTSTONE: as above.
	10	SANDSTONE: as above.
3055 - 3060m	70	SILTSTONE: brownish grey, soft to hard, argillaceous, minor carbonaceous laminae.
	30	SANDSTONE: quartzose, clear, friable with minor loose, medium grained to granule (granules generally are loose), angular to subrounded, poorly sorted, trace of argillaceous matrix, dolomitic cement, very poor visual porosity, no shows.
3060 - 3065m	60	SANDSTONE: as above with trace of micaceous laminae.
	40	SILTSTONE: as above.
3065 - 3070m	50	SANDSTONE: as above, trace dolomitic cement, minor carbonaceous laminae.
	50	SILTSTONE: medium dark grey to dark grey.
	trace	COAL: as above.
3070 - 3075m	70	SANDSTONE: quartzose, clear, friable, fine grained to very coarse grained, angular to rounded, medium to well sorted, dominantly fine to medium grained aggregates, argillaeous matrix to none, trace of dolomitic cement, minor carbonaceous and micaceous laminae, very poor visual porosity. No shows.
	30	SILTSTONE: brown-grey to medium grey, soft to dominantly firm, argillaceous, minor carbonaceous and micaceous laminae.
	trace	COAL: as above.
3075 - 3080m	80	SANDSTONE: as above, but with increased dolomitic cement (10%).
	20	SILTSTONE: as above.
	trace	COAL: as above.
3080 - 3085m	40	SANDSTONE: as above.
	60	SILTSTONE: as above.
	trace	COAL: as above.
3085 - 3090m	70	SILTSTONE: as above.
	30	SANDSTONE: fine grained, light grey, well cemented, angular, well sorted, poor visual porosity, no show.
	trace	COAL: as above.
3090 - 3095m	60	SILTSTONE: as above.
	30	SANDSTONE: as above.
	10	COAL: black, vitreous lustre.
3095 - 3100m	40	SANDSTONE: as above.
	40	SILTSTONE: as above.
	20	COAL: as above.
3100 - 3105m	50	SANDSTONE: coarser grained, poorly sorted, as above.
	50	SILTSTONE: as above.
	trace	COAL: as above.
3105 - 3110m	60	SANDSTONE: as above,
	40	SILTSTONE: as above.
	trace	COAL: as above.

3110 - 3115m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
	trace	COAL: as above.
3115 - 3120m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
	trace	COAL: as above.
3120 - 3125m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
3125 - 3130m	90	SILTSTONE: 1) medium light grey, soft, argillaceous; 2) brownish grey to brown, soft to hard, argillaceous.
	10	COAL: as above.
	trace	SANDSTONE: as above.
3130 - 3135m	60	SILTSTONE: as above.
	40	COAL: as above.
	trace	SANDSTONE: as above.
3135 - 3140m	70	SILTSTONE: as above, grading to subfissle claystone in part.
	20	COAL: as above.
	10	SANDSTONE: as above.
3140 - 3145m	80	SILTSTONE: as above.
	20	COAL: as above.
	trace	SANDSTONE: as above.
3145 - 3150m	50	SILTSTONE: as above.
	30	SANDSTONE: as above.
	20	COAL: as above.
3150 - 3155m	80	SILTSTONE: light grey to brownish grey, soft to firm, very argillaceous.
	20	SANDSTONE: quartzose, light grey, very fine grained to medium grained, subangular to subrounded, well sorted, trace argillaceous matrix, trace dolomitic cement, very poor visual porosity, no shows.
	trace	COAL: as above.
3155 - 3160m	50	SILTSTONE: as above.
	30	SANDSTONE: as above.
	20	COAL: as above.
3160 - 3165m	40	COAL: as above.
	30	SANDSTONE: as above.
	30	SILTSTONE: as above.
3165 - 3170m	40	COAL: black, hard, vitreous lustre, conchoidal fracture,
	30	SANDSTONE: quartzose, light grey to very light grey, friable, very fine grained to very coarse grained, dominantly fine to medium grained, angular to subrounded, moderate to well sorted, minor argillaceous matrix, trace dolomitic cement, minor carbonaceous and micaceous laminae, very poor visual porosity, no shows.
	30	SILTSTONE: brownish grey to light grey, soft to firm, grades to subfissile claystone.
	trace	PYRITE
3170 - 3175m	50	SILTSTONE: as above.
	30	SANDSTONE: as above.
	20	COAL: as above.

3175 - 3180m	80	SILTSTONE: often mottled and laminated as above.
	10	SANDSTONE: grading to siltstone, as above.
	10	COAL: as above.
3180 - 3185m	90	SILTSTONE: medium light grey to medium dark grey, firm, blocky to subfissile cutting, dolomitic matrix in part, carbonaceous inclusions. Trace very dull pale gold mineral fluorescence.
	10	CLAYSTONE: light to medium light grey, soft to very soft, subrounded blocky cuttings calcareous in parts, carbonaceous inclusions.
	trace	SANDSTONE: two types: type 1) loose quartz, clear, coarse to very coarse, angular to subangular. No shows. Type 2) quartzose aggregates: very fine to fine grained, friable, well sorted, slightly argillaceous matrix, also trace of dolomitic cement. No shows.
	trace	COAL: black, moderately hard, conchoidal fracture.
3185 - 3190m	70	SILTSTONE: as above, with muscovite inclusions, and occasional very fine grained quartz grains.
	10	CLAYSTONE: white, light grey and brown-grey, tending to sticky, otherwise as above.
	10	SHALE: medium dark grey to dark grey, firm subfissile to fissile, carbonaceous.
	10	COAL: as above.
	trace	SANDSTONE: types 1) and 2) as above. Type 2) becoming more argillaceous.
	trace	PYRITE: micro-crystalline aggregates.
3190 - 3195m	100	SILTSTONE: as above, with pryite inclusions.
	trace	CLAYSTONE: as above.
	trace	SHALE: as above.
	trace	COAL: as above.
	trace	SANDSTONE: type 1) as above. Type 2) with some fine to medium grained, moderately sorted aggregates, otherwise as above. No shows.
3195 - 3200m	80	SILTSTONE: as above.
	10	SHALE: medium grey to dark grey, otherwise as above.
	10	SANDSTONE: type 1) very coarse to granule size otherwise as above. Type 2) predominantly very fine grained aggregates, slightly argillaceous with very fine grained carbonaceous flecks.
3200 - 3205m	60	SILTSTONE: as above.
	20	SHALE: as above.
	20	SANDSTONE: type 1) as above. Type 2) both very fine and fine to medium grained aggregates. Predominantly type 2).
3205 - 3210m	40	SILTSTONE: as above.
	20	SANDSTONE: as above.
	20	SHALE: tending to coaly otherwise as above.
	10	CLAYSTONE: as above.
	10	COAL: as above.

3210 - 3215m	50	SILTSTONE: as above.
	30	SANDSTONE: type 1) as above. Type 2) both very fine grained, aggregates and fine to medium grained aggregates as above. Predominantly type 2).
	20	SHALE: as above.
3215 - 3220m	60	SILTSTONE: medium light to medium grey, firm, subangular to rounded cuttings, dolomitic cement in parts, with common carbonaceous inclusions, and occasionally very fine grained quartz grains. Very dull, very pale gold mineral fluorescence.
	20	SANDSTONE: type 1) as above; type 2) as above, (dominant type).
	10	CLAYSTONE: very light grey to light grey, and brownish grey, very soft, well rounded blocky cuttings, with carbonaceous inclusions.
	10	SHALE: medium dark grey to dark grey, firm, subfissile to fissile cuttings with carbonaceous inclusions.
3220 - 3225m	40	SILTSTONE: as above, grades to very fine grained, very argillaceous sandstone.
	30	SANDSTONE: two types: type 1) clear to translucent, very coarse to predominantly granule sized, subangular, loose quartz. No shows. Type 2) quartz aggregates: (a) very fine grained, friable, argillaceous, well sorted, carbonaceous, (b) fine to medium, occasionally coarse grains, moderate sorting with white clay matrix, friable, with occasionally carbonaceous inclusions. No shows.
	30	COAL: black, moderately hard, shiny, conchoidal fracture.
	trace	CLAYSTONE: as above.
	trace	SHALE: as above.
	trace	PYRITE: as above.
3325 - 3230m	50	SILTSTONE: as above.
	30	SANDSTONE: type 1) as above and predominantly 2) as above.
	20	SHALE: as above.
	trace	PYRITE: as above.
3230 - 3235m	80	SILTSTONE: as above.
	20	SANDSTONE: types 1) and 2) as above. Type 2) dominantly.
	trace	PYRITE: as above.
	trace	SHALE: as above.
3235 - 3240m	80	SILTSTONE: as above.
	10	COAL: as above.
	10	SANDSTONE: Type one as above. Preodminantly type two: as above.
	trace	PYRITE: as above.
	trace	SHALE: as above.
	trace	CLAYSTONE: as above.
3240 - 3245m	70	SILTSTONE: as above.
	20	SHALE: becoming very carbonaceous in parts, otherwise as above.
	10	SANDSTONE: types 1) and 2) as above.
	trace	PYRITE: pyritic cement surrounding quartz grains also micro-crystalline as above.
	trace	COAL: as above.

3245m - 3250m	80	SILTSTONE: medium dark grey, subfissile, quartzose, firm to hard, occasionally micromicaceous.
	10	SANDSTONE: fine grained, white, well cemented, dolomite cement, very poor visual porosity, occasional larger grains of quartz.
	10	CLAYSTONE: light grey, soft to firm, carbonaceous.
	trace	COAL: as above.
	trace	PYRITE: as above.
3250 - 3255m	50	SILTSTONE: as above.
	40	COAL: as above.
	10	SANDSTONE: as above.
	trace	PYRITE: as above.
3255 - 3260m	60	COAL: as above.
	30	SILTSTONE: as above.
	10	SANDSTONE: as above.
	trace	PYRITE: as above.
3260 - 3265m	75	SILTSTONE: as above.
	20	COAL: as above.
	5	SANDSTONE: as above.
	trace	PYRITE: as above.
3265 - 3270m	75	SILTSTONE: as above.
	20	COAL: as above.
	5	SANDSTONE: fine grained, grades to siltstone.
3270 - 3275m	40	SANDSTONE: mainly fine to medium grained.
	30	SILTSTONE: as above.
	30	COAL: as above.
3275 - 3280m	50	COAL: as above.
	40	SILTSTONE: as above.
	10	SANDSTONE: as above.
3280 - 3285m	70	SILTSTONE: dark to medium grey, firm to hard tending to subfissile, argillaceous, occasionally coarser grained, carbonaceous, dolomitic cement.
	25	COAL: as above.
	5	SANDSTONE: medium grained, well sorted, angular to subangular grains, dolomitic cement.
3285 - 3290m	60	COAL: as above.
	20	SILTSTONE: as above.
	20	SANDSTONE as above 2% fluorescence very weak crush cut.
3290 - 3295m	60	SILTSTONE: as above.
	20	SANDSTONE: as above.
	20	COAL: as above.
3295 - 3300m	80	SILTSTONE: medium light to medium dark grey, firm to moderately hard, blocky to subfissile cuttings, dolomitic in parts, carbonaceous inclusions. Dull, pale gold mineral fluorescence.

	10	SANDSTONE: two types: type 1) loose quartz fragments, clear to translucent, coarse to granule sized, angular to subangular. No shows; type 2) quartz aggregates, clear to transluscent, friable to moderately hard, very fine to medium grained, subangular to subrounded, well sorted, argillaceous matrix, calcareous and dolomitic cement in parts. 5% dull, pale yellow-white fluorescence, no cut, no crush cut (mineral fluorescence). Poor visual porosity.
	10	COAL: black, moderately hard, very angular cuttings, shiny, conchoidal fracutres.
	trace	PYRITE: micro-crystalline pyrite surrounding quartz grains in occasional quartz aggregates.
3300 - 3305m	70	SILTSTONE: as above.
	20	SANDSTONE: types 1) and 2) as above. Also with occasional carbonaceous inclusions.
	10	COAL: as above.
3305 - 3310m	60	SILTSTONE: as above.
	40	SANDSTONE: two types, type 1) as above. Type 2) as above with 5-10% pale yellow to whitish mineral fluorescence. No cut, no crush cut.
	trace	COAL: as above.
	trace	PYRITE: micro-crystalline aggregates.
3310 - 3315m	70	SILTSTONE: as above.
	30	SANDSTONE: type 1) as above. Type 2) as above with 10% white to yellow (mineral) fluroescence. No cut. No crush cut as above.
	trace	COAL: as above.
	trace	PYRITE: as above.
3315 - 3320m	70	SILTSTONE: as above.
	30	SANDSTONE: type 1) as above. Type 2) as above with 5% mineral fluorescence as above.
	trace	COAL: as above.
3320 - 3325m	70	SILTSTONE: as above.
	30	SANDSTONE: type 1) as above. Type 2) as above - 5 to 10% mineral fluorescence as above.
	trace	COAL: as above.
	trace	PYRITE: as above.
3325 - 3330m	60	SILTSTONE: as above and grading to claystone.
	40	SANDSTONE: predominantely type 1) coarse to granule sized, otherwise as above. Type 2) as above.
	trace	COAL: as above.
	trace	CLAYSTONE: white to brown, very soft, blocky rounded cuttings.
3330 - 3335m	70	SILTSTONE: as above.
	30	SANDSTONE: type 1) as above, type 2) as above, (predominantly type 1).
	trace	COAL: as above.
3335 - 3340m	70	SANDSTONE: predominantly type 1) as above. Type 2) as above with 10% mineral fluorescence as above.
	30	SILTSTONE: as above.
	trace	CLAYSTONE: white, soft to firm, calcareous, carbonaceous inclusions.

3340 - 3345m	80	SANDSTONE: 2 types: type 1) loose quartz fragments, clear to translucent, medium to granule, (predominantly coarse to very coarse,) angular to subangular. (Appear to be fragments of sandstone aggregates?) No shows. Type 2) quartz aggregates: clear to translucent, friable, very fine to medium grained, subrounded, well sorted, calcareous dolomtic cement in parts, argillaceous matrix in parts. Fine grained carbonaceous inclusions. Poor visual porosity. 10% dull pale yellow to white fluorescence. No cut, no crush cut.
	20	SILTSTONE: medium grey to medium dark grey, firm, blocky cuttings, dolomitic in parts, occasionally with pyritic and carbonaceous inclusions.
	trace	CLAYSTONE: very light grey to light grey, soft, calcareous, with carbonaceous inclusions.
	trace	PYRITE: pyrite surrounding quartz grains in occasional quartz aggregates.
3345 - 3350m	70	SANDSTONE: Predominantly type 1) angular to subrounded, otherwise as above. Type 2) as above.
	30	SILTSTONE: as above.
	trace	CLAYSTONE: as above.
3350 - 3355m	70	SANDSTONE: predominantly type 1) as above, type 2) as above, 10-15% mineral fluorescence as above.
	30	SILTSTONE: as above.
	trace	PYRITE: as above.
3355 - 3360m	80	SANDSTONE: as above.
	20	SILTSTONE: as above.
	trace	PYRITE: as above.
3360 - 3365m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
	trace	PYRITE: as above.
3365 - 3371m	90	SANDSTONE: as above.
	10	SILTSTONE: as above.
	trace	PYRITE: as above.

****

APPENDIX 2

APPENDIX II

CORE DESCRIPTIONS

ESSO AUSTRALIA LTD.

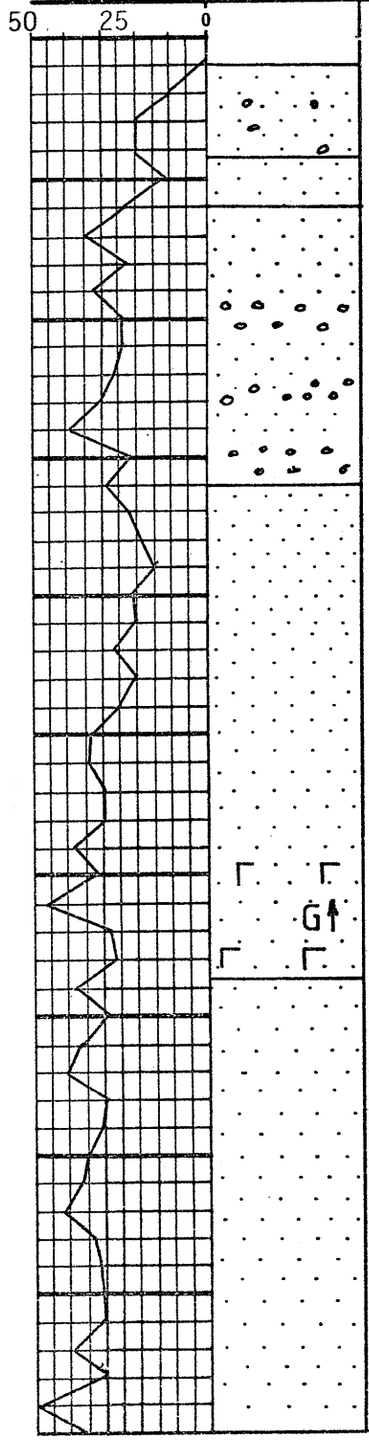
CORE DESCRIPTION

Core No. One (Page 1)

Well TERAGLIN - 1

Interval Cored 2459.2 - 2470.7 m, **Cut** 11.5 m, **Recovered** 11.5 m, (100 %) **Fm.** Latrobe

Bit Type RC-4 **Bit Size** 9-7/8 in., **Desc by** KEY/MORETON **Date** 17/5/83



Depth & Coring Rate (m/hr)	Graphic	Shows	Interval (m)	Descriptive Lithology
		⊕	2459	2459.2 - 2459.87m SANDSTONE: quartzose, friable, poorly sorted, fine grained, granular, subangular to rounded, minor white clay matrix, good visual porosity - very minor pale yellow patchy fluorescenc
		⊕	2460	less than 5%, occasional very weak, very slow pale straw cut, very minor trace orange mineral fluores-
			2461	cence. 2459.87 - 2460.20m SANDSTONE: hard, light grey, well sorted, subangular to rounded, shows as previously.
			2462	2460.20 - 2462.20m SANDSTONE: quartzose, hard well sorted, subangular to subrounded, poor to moderate visual porosity, interbedded with poorly
		⊕	2463	sorted coarse to very coarse sands, bases of coarse sands (10-15 cm thick), wavy and erosional; good visual porosity - sparse pinpoint yellow
			2464	fluorescence - no cut. 2462.20 - 2465.75m SANDSTONE: 100% quartz, fine to medium grained, well sorted, friable to
	GI		2465	hard, moderate porosity, trace of micas, mainly in laminations approximately 1 mm thick, grades to next unit, overall upward fining into -
		⊕	2466	2465.75 - 2469.35m SANDSTONE; dominantly medium grained, well sorted, subangular to subrounded
			2467	minor glauconite, slightly micaceous, moderate to poor visual porosity, trace sparse pinpoint fluorescence, yellow, no cut. No crush cut, very minor mineral fluorescence.
			2468	2469.35 - 2470.7m SANDSTONE: medium grained at the top, grades to fine at the base, isolated glauconite, trace of micas in thin laminations, moderate to good visual porosity, well sorted except for granular layers, where is is poorly sorted, very minor pinpoint fluorescence, no cut.

ESSO AUSTRALIA LTD.

CORE DESCRIPTION

Core No. One (Page 2)

Well TERAGLIN - 1

Interval Cored 2459.2 - 2470.7 m, **Cut** 11.5 m, **Recovered** 11.5 m, (100 %) **Fm.** Latrobe

Bit Type RC-4 **Bit Size** 9-7/8 in., **Desc by** KEY/MORETON **Date** 17/5/83

Depth & Coring Rate (m/hr)	Graphic	Shows	Interval (m)	Descriptive Lithology
50 25 0	C. G. f.		2469 2470 2471	

APPENDIX 3

APPENDIX III

SIDEWALL CORE DESCRIPTIONS

TERAGLIN - 1

SIDEWALL CORE DESCRIPTIONS

No.	Depth	Rec. (mm)	Rock Type	Description
1	3372.5	40	Sandstone	Light grey, fine to medium grained, poorly sorted, moderately hard, subangular, slightly calcareous, silty.
2	3349.4	30	Siltstone	Light to dark grey, firm, light and dark laminations, slightly microcarbonaceous.
3	3306.0	25	Sandstone	White to light grey, medium grained, poorly sorted, subangular, moderately hard, slightly calcareous, abundant white kaolinite or cement, silt laminae.
4	3295.0			Pulled Off
5	3282.0	35	Sandstone	White to light grey, very fine to medium grained, poorly sorted, subangular, moderately hard, moderately calcareous, silty, common white silic cement.
6	3278.5m	35	Sandstone	White to light grey, fine to medium grained, moderately sorted, subangular, moderately hard, slightly calcareous, well cemented, 5% patchy very faint pale yellow fluorescence, slow diffuse, pale yellow cut fluorescence; C1 - 0.2%, C2 - 0.07%, C3 - 0.01%, C4 - 0.001%, C5 - 0.001%, C6 - 0.002%.
7	3277.0	25	Sandstone	White to light grey, fine to medium grained, moderate sorting, subangular, moderately hard, slightly carbonaceous, well cemented, with siliceous and calcareous cements, poor visible porosity, trace patchy very faint, pale yellow fluorescence, no cut, diffuse pale yellow crush cut, very poor show. C1 - 0.05%, C2 - 0.02%, C3 - 0.01%, C4 - 0.005%, C5 - 0.001%, C6 - 0.001%.
8	3273.1			Misfire
9	3235.0	30	Shale	Dark grey, hard, homogeneous.
10	3219.8	20	Sandstone	White to light grey, fine to medium grained, poorly sorted, subangular, moderately hard, slighty calcareous, well cemented, (mostly siliceous), low visual porosity, trace patchy, very faint, pale yellow fluorescence, no cut, diffuse pale yellow crush cut, very poor show. C1 - 0.01%, C2 - 0.01%, C3 - 0.008%, C4 - 0.003%, C5 - 0.001%, C6 - 0.001%.

11	3216.5	30	Sandstone	White to light grey, fine to medium grained, poorly sorted, subangular, moderately hard, well cemented. C1 - 0.004%, C2 - 0.002%, C3 - 0.001%, C4 - 0.001%, C5 - 0.001%, C6 - 0.001%. No fluorescence, no cut, very faint general crush cut.
12	3201.9	20	Shale	Dark grey, hard, slightly silty.
13	3185.0	25	Shale	Dark grey, hard, silty.
14	3169.0	20	Siltstone	Dark grey, hard, slightly calcareous, argillaceous.
15	3167.0			Misfire
16	3166.0			Misfire
17	3135.4			Misfire
18	3120.0			Misfire
19	3118.0			Misfire
20	3103.0			Misfire
21	3073.4			Misfire
22	3050.9			Misfire
23	3021.5			Misfire
24	3000.5			Misfire
25	2971.9			Misfire
26	2957.0			Misfire
27	2947.1			Misfire
28	2937.0			Misfire
29	2919.9			Misfire
30	2903.0			Misfire
31	2875.9	20	Siltstone	Dark grey, hard, very argillaceous.
32	2826.5	20	Siltstone	Dark grey, hard, very argillaceous.
33	2817.9	20	Sandstone	Light grey, medium to coarse grained, moderately hard, subangular, moderately sorted, slightly calcareous, well cemented.
34	2806.0	20	Shale	Dark grey, moderately hard, silty, partly carbonaceous.
35	2793.6	30	Sandstone	Medium grey, very fine to fine grained, moderately sorted, subangular, moderately friable, partly carbonaceous, micaceous, silty.
36	2788.5	30	Shale	Dark grey, firm, silty.
37	2774.9	20	Siltstone	Medium grey, hard, slightly carbonaceous, argillaceous.

38	2756.0	25	Shale	Dark grey, firm, silty, slightly micaceous.
39	2741.5	30	Shale	Dark grey, hard.
40	2723.0	20	Shale	Medium grey, slightly micaceous, soft, slightly calcareous, silty.
41	2711.5	15	Shale	Dark grey, soft, moderately calcareous, argillaceous.
42	2672.0	20	Siltstone	Medium grey, firm, slightly carbonaceous, argillaceous.
43	2645.9	20	Shale	Dark grey, firm, slightly micaceous, slightly carbonaceous, silty.
44	2622.0	20	Shale	Dark grey, hard, slightly micaceous, slightly calcareous, silty.
45	2572.9	20	Sandstone	Light grey, very fine to fine grained, moderately sorted, subangular, firm, silty.
46	2553.5	15	Shale	Medium grey, slightly laminated, hard, silty.
47	2552.0	35	Sandstone	Medium grey, very fine to fine grained, moderately sorted, subangular, moderately hard, very slightly calcareous, slightly argillaceous, silty.
48	2495.8	20	Shale	Dark grey, hard, slightly calcareous.
49	2494.5	15	Siltstone	Medium grey, soft, very argillaceous, slightly carbonaceous.
50	2493.0	15	Siltstone	Dark grey, hard, very carbonaceous, partly laminated, argillaceous.
51	2486.6	15	Sandstone	Light grey, fine grained, well sorted, subrounded, moderately friable.
52	2479.5	20	Sandstone	Medium grey, very fine to fine grained, well sorted, subrounded, hard, slightly argillaceous, slightly silty.
53	2458.0	20	Sandstone	Light grey, fine to medium grained, moderately sorted, subangular, moderately friable, moderately calcareous.
54	2456.0	25	Sandstone	Medium grey, fine to medium grained, moderately sorted, subangular, moderately hard.
55	2453.0	25	Sandstone	Medium grey, fine to medium grained, moderately sorted, subangular, moderately hard, slightly argillaceous, slightly silty.
56	2451.5	30	Shale	Dark grey to black, hard, fissile, very carbonaceous.
57	2450.0	25	Shale	Dark grey, hard.

58	2448.5	15	Siltstone	Medium grey, firm, very slightly calcareous, argillaceous, slightly carbonaceous.
59	2447.0	30	Shale	Dark grey, hard, slightly silty.
60	2445.0	15	Sandstone	Medium grey, fine to coarse grained, poorly sorted, subangular, hard, argillaceous, silty.
61	2444.0	10	Siltstone	Medium grey, hard, slightly micaceous, argillaceous.
62	2443.0	30	Shale	Dark grey, hard, slightly silty.
63	2440.0	20	Sandstone	Medium grey, very fine to fine grained, well sorted, subangular, hard, argillaceous, silty.
64	2438.5	20	Shale	Dark grey, hard, slightly silty.
65	2435.5	30	Shale	Dark grey, firm, very silty, laminated with light grey siltstone.
66	2433.0	20	Shale	Dark grey, firm, silty, slightly sandy.
67	2430.5	30	Shale/ Siltstone	Dark to light grey, firm, laminated.
68	2429.5	25	Siltstone	Light grey, moderately friable, very slightly calcareous, slightly argillaceous.
69	2428.0	25	Shale	Dark grey, firm, silty.
70	2427.0	15	Sandstone	Medium grey, very fine to fine grained, well sorted, subangular, firm, silty, argillaceous.
71	2425.5	25	Shale	Dark grey, firm, silty.
72	2422.9			No Recovery
73	2420.5	25	Siltstone	Very calcareous, dark grey, hard, glauconite pellets, argillaceous.
74	2419.0	40	Siltstone	Very calcareous, medium grey, hard, glauconitic, argillaceous.
75	2418.0	30	Siltstone	Very calcareous, medium grey, firm, glauconitic, argillaceous.
76	2417.0			Pulled Off
77	2415.0	35	Siltstone	Very calcareous, medium grey, firm, slightly glauconitic, argillaceous.
78	2411.9	50	Shale	Very calcareous, medium grey, very hard, micaceous, silty.
79	2409.0			Misfire
80	2406.0			Misfire
81	2404.0			Misfire
82	2400.5	20	Shale	Very calcareous, medium grey, hard, silty.

83	2397.5	15	Shale	Very calcareous, medium grey, hard, silty, micromicaceous.
84	2394.4	30	Shale	Very calcareous, medium grey, hard, silty, micromicaceous.
85	2390.0	35	Shale	Very calcareous, medium grey, hard, silty, micromicaceous.
86	2385.0	30	Shale	Very calcareous, medium grey, hard, slightly silty, slighty micromicaceous.
87	2379.9	20	Shale	Very calcareous, medium grey, hard, slightly silty, slightly micromicaceous.
88	2349.0	35	Shale	Very calcareous, medium grey, hard, slightly micromicaceous, slightly silty.
89	2321.0	35	Shale	Very calcareous, medium grey, hard, slightly micromicaceous, slightly silty.
90	2290.0	45	Shale	Very calcareous, medium grey, hard, slightly silty.
91	2260.5	40	Shale	Very calcareous, medium grey, hard, slightly silty.
92	2233.9	20	Siltstone	Very calcareous, light grey, hard, well cemented, slightly glauconitic, slightly argillaceous.
93	2199.0	30	Shale	Very calcareous, medium grey, hard, slightly silty, slightly micromicaceous.
94	2170.0	40	Shale	Very calcareous, medium grey, hard, slightly silty, slightly micromicaceous.
95	2139.5	35	Shale	Very calcareous, medium grey, hard, slightly silty, slightly micromicaceous.
96	2110.0	20	Shale	Very calcareous, medium grey, hard, slightly silty, slightly micromicaceous.
97	2079.9	25	Shale	Very calcareous, medium grey, hard, slightly silty, slightly micromicaceous.
98	2049.9	20	Shale	Very calcareous, medium grey, hard, slightly silty, slightly micromicaceous.
99	2021.9	20	Shale	Very calcareous, medium grey, hard, slightly silty, slightly micromicaceous.
100	1988.0	15	Shale	Very calcareous, medium grey, hard, very silty, slightly micromicaceous.
101	1961.0	15	Shale	Very calcareous, medium grey, hard, slightly silty.

102	1929.9	15	Shale	Very calcareous, medium grey, hard, slightly silty.
103	3295.0	25	Coal/Shale	Black, hard, brittle, very carbonaceous.
104	3273.0	20	Sandstone	Medium grey, fine to medium grained, poorly sorted, firm, slightly carbonaceous, common white cement/matrix; trace slow bright, pale yellow cut fluorescence, faint pale yellow residue.
105	3167.0	25	Sandstone	Light grey, fine to medium grained, moderately sorted, subangular, moderately friable, common white matrix/cement.
106	3166.0	20	Sandstone	Light grey, fine to medium grained, well sorted, subangular, friable.
107	3135.5	30	Coal	Black, hard, brittle.
108	3120.0	15	Shale	Medium dark grey, firm, carbonaceous.
109	3118.0	12	Sandstone	Medium light grey, very fine to fine grained, well sorted, subangular, friable, argillaceous.
110	3103.0	20	Sandstone	Medium grey, fine grained, well sorted, subrounded, moderately hard, argillaceous.
111	3073.5	15	Siltstone	Medium dark grey, firm.
112	3051.0	20	Siltstone	Medium grey, hard.
113	3021.5			No Recovery
114	3000.5	15	Siltstone	Medium dark grey, firm, slightly calcareous, micaceous.
115	2971.9	15	Sandstone	Medium grey, fine to medium grained, moderately sorted, subrounded, friable, argillaceous.
116	2957.0	20	Siltstone	Medium dark grey, firm, slightly calcareous, micaceous.
117	2947.0	15	Siltstone	Medium dark grey, soft to firm, moderately calcareous.
118	2937.0	15	Siltstone	Medium dark grey, firm, very fine quartz grains.
119	2920.0	20	Siltstone	Medium dark grey, firm, very fine quartz grains.
120	2903.0	15	Siltstone	Medium grey, soft to firm, micaceous, slightly dolomitic.
121	2423.0	30	Siltstone	Brown grey, firm to hard, moderately calcareous, very fine quartz grains.
122	2417.0			Pulled Off

123	2409.0	30	Mudstone	Very calcareous, light grey, hard.
124	2406.0	30	Mudstone	Very calcareous, light grey, hard.
125	2404.1	35	Mudstone	Very calcareous, medium grey, hard.
126	1910.0	50	Calcisiltite	Very calcareous, medium grey, firm.
127	1890.0	40	Calcisiltite	Very calcareous, medium grey, hard.
128	1870.1	35	Calcisiltite	Very calcareous, medium grey, hard.
129	1850.0			Misfire
130	1830.0	25	Calcisiltite	Very calcareous, medium grey, firm to hard.
131	1810.0	30	Calcisiltite	Very calcareous, medium grey, firm to hard.
132	1780.0	30	Calcisiltite	Very calcareous, medium light grey, firm to hard.

APPENDIX 4

APPENDIX IV

TIME DEPTH CURVE

Time Depth Curve

The well velocity survey was conducted and processed by Schlumberger Inc. who employ an automated first-breaks picking routine. The check shot times supplied by Schlumberger are consistently greater than those manually picked from the field monitor records. The latter set of times have therefore been used in the compilation of the time-depth curve, and have been tabulated on the accompanying data sheet.

Shothole Information - Elevation, Distance & Direction from Well

Gun depth = 9.14m
Offset = 45m
Gun phone situated at gun.

Company: ESSO EXPLORATION AUSTRALIA INC.

Well: TERAGLIN-1

Elevation (Derrick Floor): 21m

Total Depth: 3373m KB

LOCATION

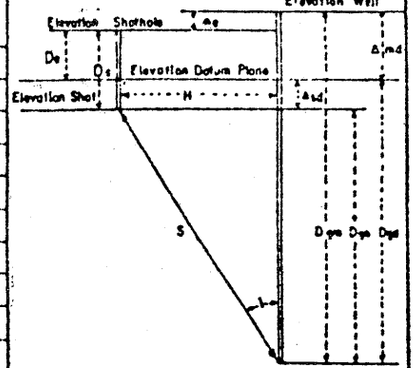
Coordinates: 38° 22' 50.9"S, 148° 20' 30.13"E DATUM : M.S.L.

Section, Township, Range:

County:

Area or Field: GIPPSLAND

Record Number	Shothole Number	Time of Shot	Dgm	De	tus	tr	T Reading	T Polarity	T Grade	Dgs	H	TAN I	Cos I	Tgs	Δsd	Δsd/V	Tgd	Tgd Average	Dgd	ΔDgd	ΔTgd	Vi Interval Velocity	Va Average Velocity
			230				113										116.2		209				1799
			465				218										222.8		444			2017	1903
			815				349.5										354.9		794			2801	2237
			1020				417										422.6		999			3028	2364
			1470				551										556.7		1449			3356	2603
			2085				732.5										738.3		2064			3386	2796
			2270				796										801.8		2249			2913	2805
			2420				843.5										849.4		2399			3151	2824
			2780				935										941		2759			3930	2932
			2863				956.5										962.5		2842			3860	2953
			2920				970										976		2899			4222	2970
			2975				984										989		2954			4231	2987
			3048				999.5										1005.5		3027			4424	3010
			3335				1074.5										1080.5		3314			3827	3067
			3372				1083										1089		3351			4352	3077



Dgm = Geophone depth measured from well elevation

Dgs = " " " " shot "

Dgd = " " " " datum "

Ds = Depth of shot

De = Shothole elevation to datum plane

H = Horizontal distance from well to shotpoint

S = Straight line travel path from shot to well geophone

tus = Uphole time at shotpoint

T = Observed time from shotpoint to well geophone

tr = " " " to reference geophone

Δe = Difference in elevation between well & shotpoint.

Δsd = " " " " shot & datum plane

Δsd = Ds - De

Dgs = Dgm - Ds ± Δe ; tan I = $\frac{H}{Dgs}$

Tgs = cos I x Tv Vert. travel time from shot elev to geophone

Tgd = Tgs ± $\frac{\Delta sd}{V}$ " " " " datum plane " "

Dgd = Dgm - Δmd

Vi = Interval velocity = $\frac{\Delta Dgd}{\Delta Tgd}$

Va = Average " = $\frac{Dgd}{Tgd}$

Surveyed by: SCHLUMBERGER

Date: MAY, 1983.

Weathering Data:

Casing Record

Page 68 & 69

DWG 1107/OP/3

PE902551

This is an enclosure indicator page.
The enclosure PE902551 is enclosed within the container PE902550 at this location in this document.

The enclosure PE902551 has the following characteristics:

ITEM_BARCODE	= PE902551
CONTAINER_BARCODE	= PE902550
NAME	= Time Depth Curve
BASIN	= GIPPSLAND
PERMIT	= VIC/L5
TYPE	= WELL
SUBTYPE	= VELOCITY_CHART
DESCRIPTION	= Time Depth Curve (enclosure from WCR vol.1) for Teraglin-1
REMARKS	=
DATE_CREATED	= 31/08/83
DATE_RECEIVED	= 4/11/83
W_NO	= W814
WELL_NAME	= Teraglin-1
CONTRACTOR	= ESSO
CLIENT_OP_CO	= ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE902552

This is an enclosure indicator page.
The enclosure PE902552 is enclosed within the container PE902550 at this location in this document.

The enclosure PE902552 has the following characteristics:

ITEM_BARCODE	= PE902552
CONTAINER_BARCODE	= PE902550
NAME	= Sonic Calibration Curve
BASIN	= GIPPSLAND
PERMIT	= VIC/L5
TYPE	= WELL
SUBTYPE	= VELOCITY_CHART
DESCRIPTION	= Sonic Calibration Curve (enclosure from WCR vol.1) for Teraglin-1
REMARKS	=
DATE_CREATED	= 31/08/83
DATE_RECEIVED	= 4/11/83
W_NO	= W814
WELL_NAME	= Teraglin-1
CONTRACTOR	= ESSO
CLIENT_OP_CO	= ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

ATTACHMENT (BOUND INTO WCR VOL 1)

VELOCITY SURVEY REPORT

SCHLUMBERGER

TERAGLIN #1
PROCESSING REPORT

1) OPEN HOLE LOGS:

Sonic data used over the interval 3369.2 - 230.0m K.B. from 3372.0 - 3369.2 interpolate last value.

Density data used over the interval 3372.0 - 814.0m K.B. from 814 - 230 interpolate last density value (2.24).

Logs were patched at the following intervals.

DENSITY	SONIC
816.0 - 818.0 Bad hole	1460.6 - 1461.0 Due spike
827.5 - 829.0 Bad hole	
829.3 - 830.5 Bad hole	
2053.6 - 2055. Bad hole	
2847.8 - 2849.5 Bad hole	

2) SHOT DATA:

Moonpool stacked 12 shots didn't use 4 shots due to noise.

Level 230.0m stacked all 7 shots.
Level 465.0m stacked 4 shots didn't use 4 shots due to noise.
Level 815.0m stacked 4 shots.
Level 1020.0m stacked all 4 shots.
Level 1470.0m stacked all 4 shots.
Level 2085.0m stacked 3 shots didn't use 1 shot due to noise.
Level 2270.0m stacked all 4 shots.
Level 2420.0m stacked 8 shots didn't use 6 shots due to noise.
Level 2780.0m stacked all 4 shots.
Level 2863.0m stacked all 4 shots.
Level 2920.0m stacked all 4 shots.
Level 2975.0m stacked all 4 shots.
Level 3048.0m stacked all 3 shots.
Level 3335.0m stacked 5 shots didn't use 1 shot due to noise.
Level 3372.0m stacked 6 shots didn't use 4 shots due to noise.

../2

3) DATA PROCESSING INFORMATION:

Well is assumed as vertical.

SRD is sea level computed at 0.0m.

Rotary table = 20.7m above SRD (reference for log data).

Ground level = -79.3m from SRD.

Gun and shot sensor distance from wellbore = 47.36m.

Azimuth for gun and shot sensor = o°.

Gun and shot sensor elevation from SRD = -9.14

Created a dummy shot as sea bed (G.L.) using velocity in sea water at 1480 m/sec (as requested see calculation attached).

Average velocity used between SRD and sea bed = 1400 m/sec as requested.

Average velocity used between sea bed and top of sonic (230.0m) or top shot = 2065.13m/sec derived from shots.

Notice that Moonpool transit time generated in computing centre is 0.032sec, 2m/sec longer than the field. The computing centre uses different algorythm and is capable of displaying shots in screen to verify correctness of break time pick.

If you require any further information, please feel free to contact me.

Yours faithfully,
AUSTRALIAN LOG INTEPRETATION CENTRE

F. SEMINARIO,
LOG ANALYST

Schlumberger

WELL SEISMIC SERVICE FIELD REPORT

C. C-070513

Company ESSO	Well TERAGUN	Date 27-5-83	Location SEA	Recorded by BENEGAS	Witness PAUL

JACK UP ☐	PLATFORM ☐	SHIP ☐	SEMI-SUB ☒	MARSH ☐	LAND ☐	FEET ☐	METERS ☒

TIDE HIGH : 1 m ☒ ABOVE MSL AT (HOUR/DATE) : 00:50 (28) ☐ BELOW MSL	TIDE LOW : ☐ ABOVE MSL AT (HOUR/DATE) : ☐ BELOW MSL	TIME OF FIRST LEVEL :	
GUN DEPTH 30'	GUN OFFSET FROM WELL 45M	GUN AZIMUTH	DEG/NORTH
HYDRO DEPTH 30'	HYDRO OFFSET FROM WELL 45M	HYDRO AZIMUTH	DEG/NORTH
RT ELEVATION 20.7M ☒ ABOVE MSL ☐ ABOVE SEA AT (HOUR/DATE)			☐ ABOVE GL
BIT SIZE 12¼ CASINGS	20" @ 224	13⅜ @ 813	@ @
MAX HOLE DEV 2° @ TD	OTHER SERVICES :		
GUN VOLUME : 200 cu IN	FIRING PRESSURE : 120BAR	WAVEFORM KIT ☐ YES ☒ NO	
STAND OFF SLEEVES (WSA) ☒ YES ☐ NO	LONG ARM ☐ YES ☒ NO	BRIDLE ☒ YES ☐ NO	
PANEL	M. TAPE	RECORDER	
NBR OF SHOOTING LEVELS 16	REQUESTED BY CUSTOMER X	SELECTED BY FIELD ENGINEER	

NOTE : COMPULSORY SHOTS : TD/ upper reading first sonic / above and below too high ΔT zones (bad hole)

UNCORRECTED RESULTS

DEPTH	SHOTS FROM N°/TO N°	TRANSIT TIME (ms)	QUALITY	REEL N°	HOUR/MINUTES (OFFSHORE WITH TIDES ONLY)	REMARKS
3372M	30 - 38	~~1097.8~~ 1084.6	G	1	00:10	
3335M	39 - 44	1075.5	S	1	00:19	
3048M	45 - 47	~~1044.9~~ 1001.7	E	1	00:29	
2975M	44 - 51	~~998.6~~ 985.3	S	1	00:37	
2920M	52 - 55	~~986.7~~ 971.5	S	1	00:44	
2863M	56 - 59	~~971.8~~ 958.5	G	1	00:49	
~~2780~~ 2780	60 - 63	937.2	G	1	00:55	
2420	66 - 69	845.6	G	1	01:06	
2270	70 - 73	797.5	G	1	01:13	
2085	74 - 77	734.7	G	1	01:22	
1470	78 - 81	553.6	G	1	01:30	
1020	83 - 85	419.3	G	1	01:39	
815	86 - 89	350.5	G	1	01:47	
465	90 - 93	217.7	G	1	01:54	
230	95 - 100	112.2	S	1	02:01	
NOTE:	Tide max hi-lo = 1m.		Swell = 2.5m.			
	At client's request, ignore		tide effects.			

SKETCHING EXAMPLES

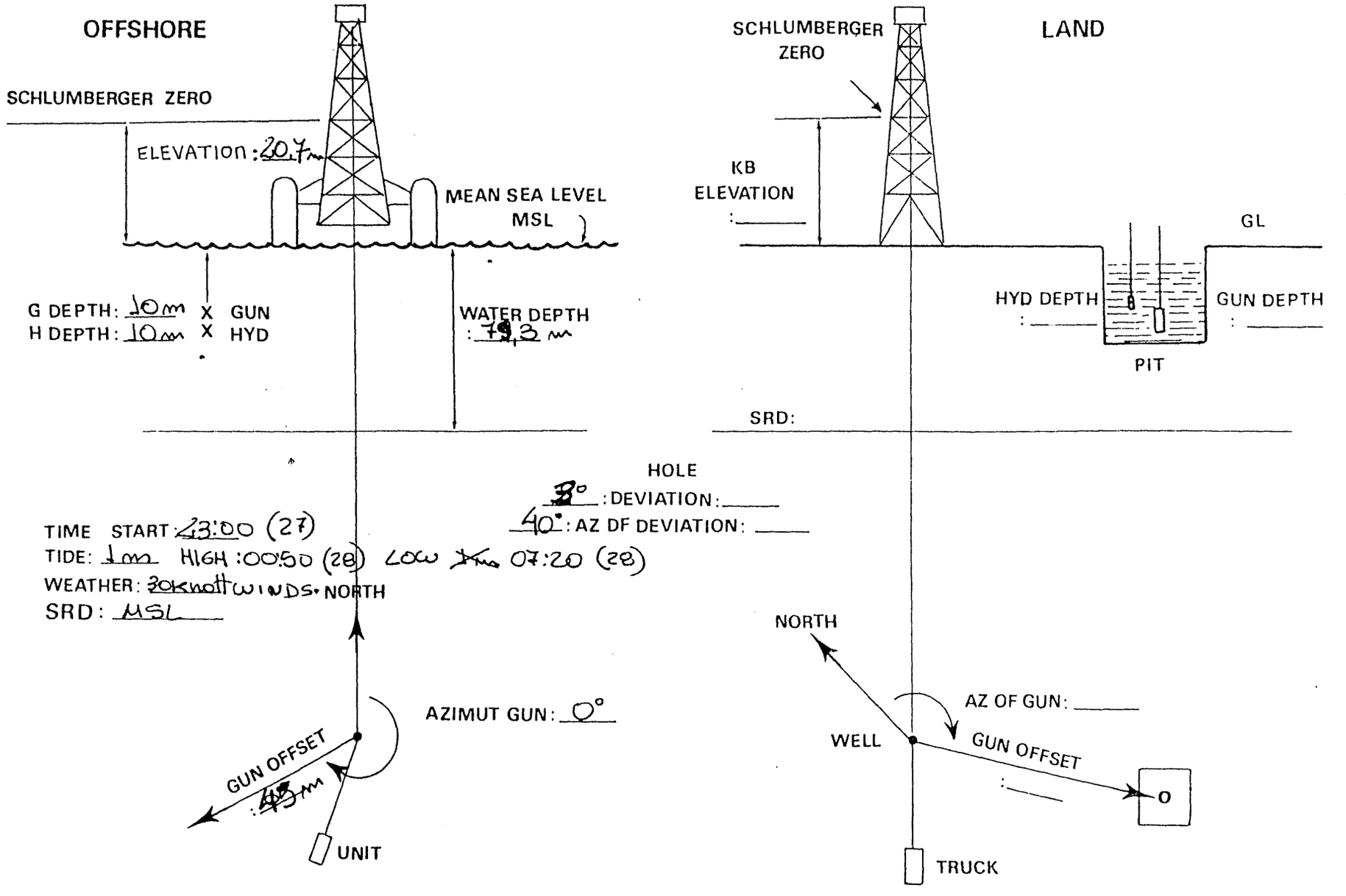
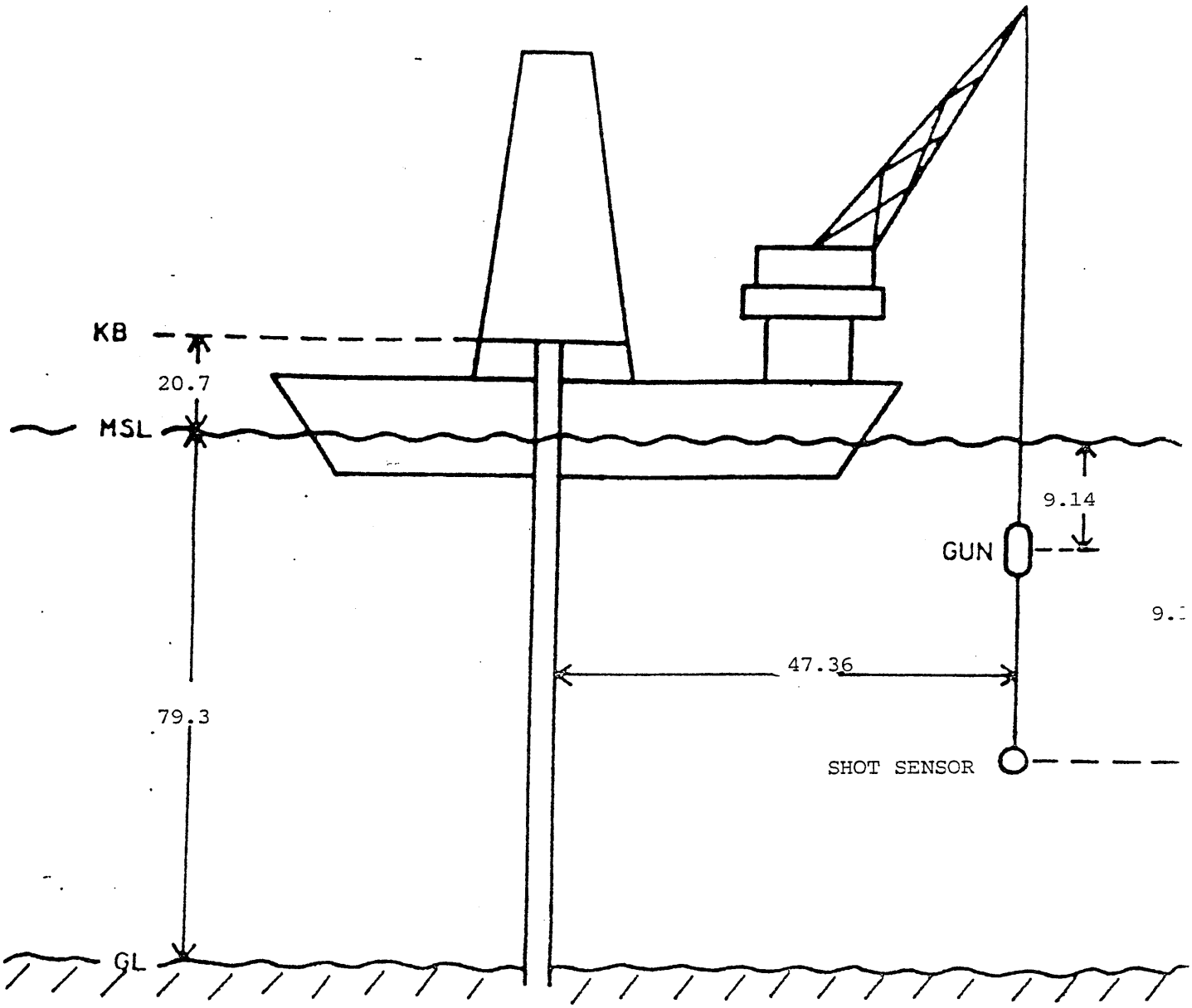
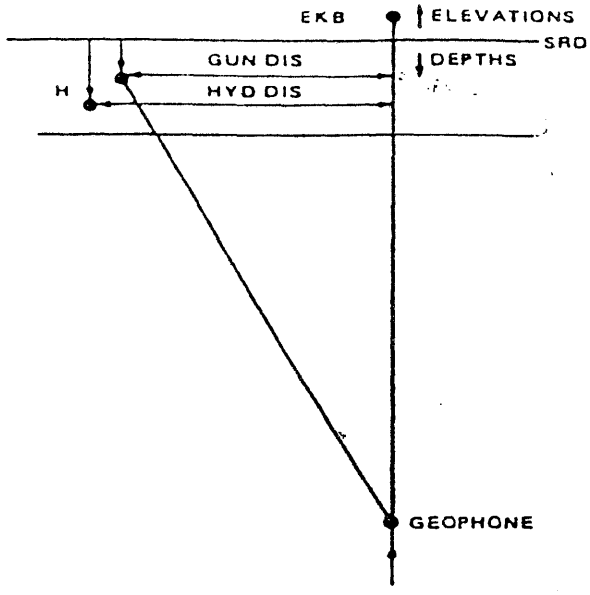


Fig 11

SHOOTING GEOMETRY

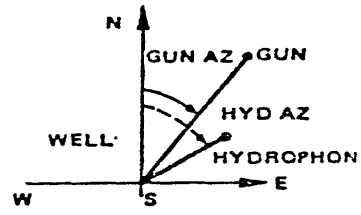
WELL : TERAGLIN #1





- ELEVATIONS ARE POSITIVE UP FROM THE S
- DEPTHS ARE POSITIVE DOWN FROM THE SR
- OBSERVED TRAVEL TIME IS FROM GUN SENSOR TO WELL GEOPHONE
- THIS TIME IS CORRECTED INTO TIME FROM GUN TO WELL GEOPHONE, ITSELF CORREC TO VERTICAL TIME
- VERTICAL TIME IS CORRECTED TO SRD, BY ADDING THE VERTICAL TIME FROM GUN T SRD, INTO CORRECT TRAVEL TIME.

GUN DIS : HORIZONTAL DISTANCE FROM GUN TO WELL
HYD DIS : HORIZONTAL DISTANCE FROM HYDROPHONE TO WELL
GUN ELE: ELEVATION OF THE GUN ABOVE THE SRD
HYD ELE: ELEVATION OF THE HYDROPHONE ABOVE THE SRD
GUN AZ : AZIMUTH OF GUN FROM WELL NORTH
HYD AZ : AZIMUTH OF HYDROPHONE FROM WELL NORTH.



ELEVATION OF KELLING BUSHING ABOVE SRD : EKB = 20.7m

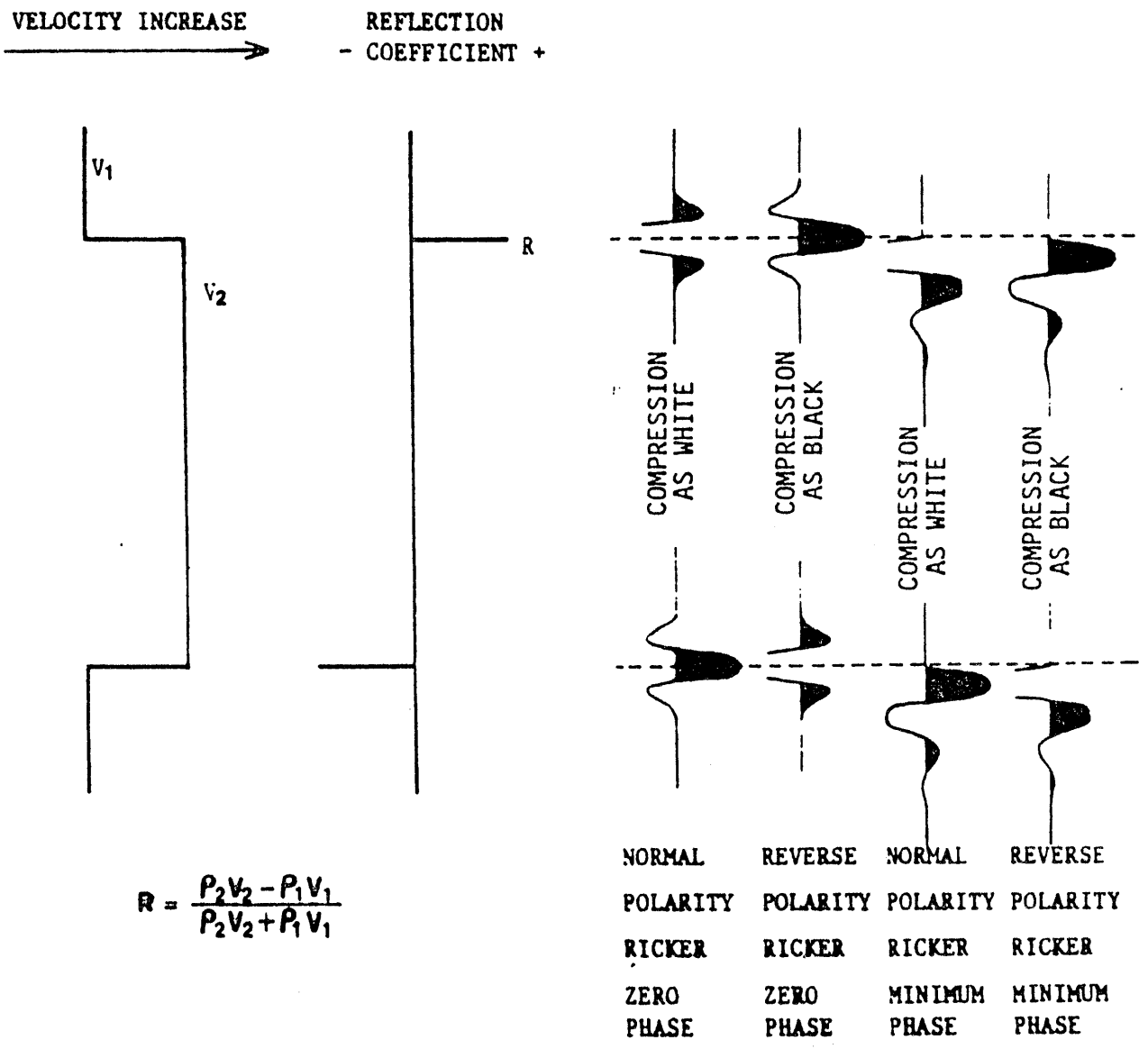
WATER VELOCITY : VELSUR = 1480m/s

Run Number	GUN			HYDROPHONE		
	ELEVATION (GUN ELE)	DISTANCE (GUN DIS)	AZIMUTH (GUN AZ)	ELEVATION (GUN ELE)	DISTANCE (GUN DIS)	AZIMUTH (GUN AZ)
1	9.14m	47.36m	0	9.14m	47.36m	0

REMARKS:

SHOT SENSOR USED.

SCHLUMBERGER WAVELET POLARITY CONVENTION

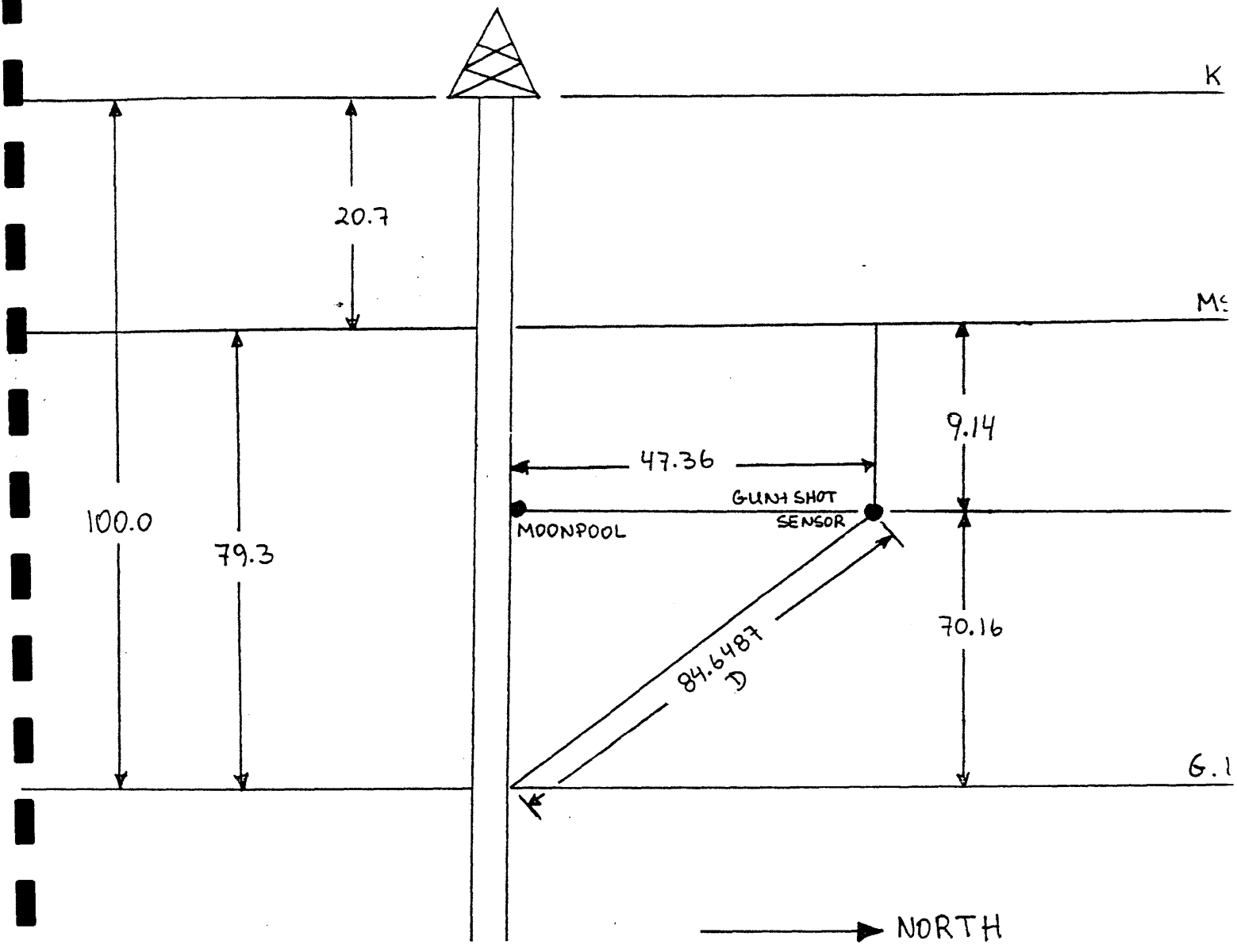


$$R = \frac{\rho_2 V_2 - \rho_1 V_1}{\rho_2 V_2 + \rho_1 V_1}$$

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

TERAGLIN #1

GEOMETRY AND G.L. SHOT CALCULATION



$$TT_{GL.} = \frac{D}{VELSUR}$$

$D = 84.6487\ m$

$VELSUR = 1480\ m/SEC$ (as requested)

$TT_{GL} = 0.057195\ SEC$

$MOONPOOL_{TT} = 0.032\ SEC$

GUN OFFSET = 47.36 m. USING VELOCITY IN WATER = VELSUR = 1480 m/SEC.

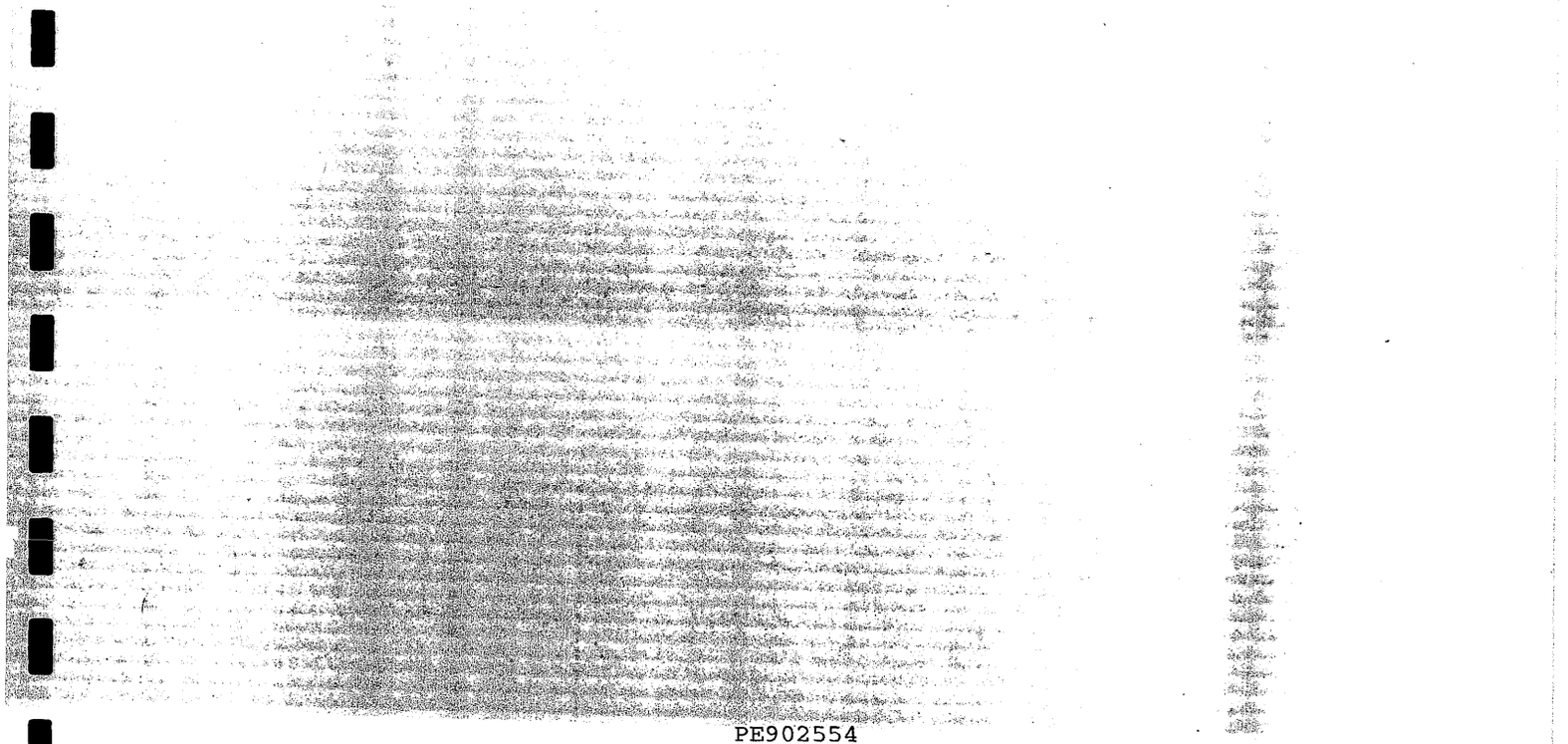
PE902553

This is an enclosure indicator page.
The enclosure PE902553 is enclosed within the container PE902550 at this location in this document.

The enclosure PE902553 has the following characteristics:

ITEM_BARCODE	= PE902553
CONTAINER_BARCODE	= PE902550
NAME	= Geogram from WST
BASIN	= GIPPSLAND
PERMIT	= VIC/L5
TYPE	= WELL
SUBTYPE	= SYNTH_SEISMOGRAM
DESCRIPTION	= Geogram from WST (enclosure from WCR vol.1) for Teraglin-1
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	= 23/03/88
W_NO	= W814
WELL_NAME	= Teraglin-1
CONTRACTOR	= ESSO
CLIENT_OP_CO	= ESSO

(Inserted by DNRE - Vic Govt Mines Dept)



PE902554

This is an enclosure indicator page.
The enclosure PE902554 is enclosed within the container PE902550 at this location in this document.

The enclosure PE902554 has the following characteristics:

ITEM_BARCODE	= PE902554
CONTAINER_BARCODE	= PE902550
NAME	= Check Shots- WST
BASIN	= GIPPSLAND
PERMIT	= VIC/L5
TYPE	= WELL
SUBTYPE	= VELOCITY_CHART
DESCRIPTION	= Check Shots- WST (enclosure from WCR vol.1) for Teraglin-1
REMARKS	=
DATE_CREATED	= 24/05/83
DATE_RECEIVED	= 23/03/88
W_NO	= W814
WELL_NAME	= Teraglin-1
CONTRACTOR	= ESSO
CLIENT_OP_CO	= ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE603804

This is an enclosure indicator page.
The enclosure PE603804 is enclosed within the container PE902550 at this location in this document.

The enclosure PE603804 has the following characteristics:

ITEM_BARCODE	= PE603804
CONTAINER_BARCODE	= PE902550
NAME	= Seismic Calibration Log
BASIN	= GIPPSLAND
PERMIT	= VIC/L5
TYPE	= WELL
SUBTYPE	= VELOCITY _CHART
DESCRIPTION	= Seismic Calibration Log (enclosure from WCR vol.1) for Teraglin-1
REMARKS	=
DATE_CREATED	= 27/05/83
DATE_RECEIVED	= 23/03/88
W_NO	= W814
WELL_NAME	= TERAGLIN-1
CONTRACTOR	= SCHLUMBERGER
CLIENT_OP_CO	= ESSO AUSTRALIA LIMITED

(Inserted by DNRE - Vic Govt Mines Dept)