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DEPT. NAT. RES & ENV



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WCR (VOL 1)

WHITING-2

W903

ESSO EXPLORATION AND PRODUCTION
AUSTRALIA INC.

W903

**WELL COMPLETION REPORT
WHITING-2
VOLUME I OIL + GAS DIV.
(BASIC DATA) 14 MAR 1986**

**GIPPSLAND BASIN
VICTORIA**

ESSO AUSTRALIA LIMITED

24

WHITING-2

WELL COMPLETION REPORT

VOLUME 1

CONTENTS

1. Well Data Record
2. Operations Summary
3. Casing Data
4. Cement Data
5. Samples, Conventional Cores, Sidewall Cores
6. Wireline Logs and Surveys
7. RFT Pressure Data
8. Temperature Record

FIGURES

1. Locality Map
2. Well Progress Curve
3. Well Bore Schematic
4. Abandonment Schematic
5. Horner Temperature Plot

APPENDICES

1. Lithological Descriptions
2. Core Descriptions
3. Sidewall Core Descriptions
4. Sidewall Core Gas Analysis
5. RFT Results
6. Production Test Results
7. Velocity Survey Report

ENCLOSURES

1. Seismic calibrated Log
2. Raw & stacked shots (Run #1)
3. Raw & stacked shots (Run #2)
4. Geogram.

1096L/12

ESSO AUSTRALIA LTD

COMPLETION REPORT

WELL : WHITING-2

LOCATION : Latitude : 38° 15' 04.676" S
Longitude : 147° 51' 14.541" E
X = 574,726.68m
Y = 5,765,942.79m
Map Projection: AMG Zone 55
Geographical Location: Bass Strait, Victoria
Field: Whiting

PERMIT : VIC/L2

ELEVATION : 21m KB

WATER DEPTH : 53m

TOTAL DEPTH : 3550m MDKB

PLUG BACK TYPE : Cement Plug

REASONS FOR PLUGGING BACK : Plug and Abandonment

MOVE IN : 1715 hours 22nd April, 1985

SPUDED : 0800 hours 23rd April, 1985

REACHED T.D. : 2200 hours 7th June, 1985

RIG RELEASED : 0745 hours 1st July, 1985

OPERATOR : Esso Exploration & Production Australia Inc.

PERMITTEE OR LICENCEE : BHP Petroleum Pty. Ltd.

ESSO INTEREST : 50%

OTHER INTEREST : 50%

CONTRACTOR : South Seas Drilling Company

RIG NAME : Southern Cross

EQUIPMENT TYPE : Semi-submersible

TOTAL RIG DAYS : 71 days

DRILLING AFE NO. : 05 235 006/PT 05 235 008

TYPE COMPLETION : Plug and Abandonment

WELL CLASSIFICATION : Before Drilling Outpost/Extension Test
After Drilling Successful Extension and New
Pool Discovery

1697L/70

4/

OPERATIONS SUMMARY

WHITING-2

MOVING/MOORING

The Southern Cross departed the Turrum-3 location at 1300 hours April 22, 1985 and arrived at the Whiting-2 location at 1715 hours on the same day. The 19 nautical mile tow was completed in 4.25 hours at an average speed of 4.5 knots using the Lady Sally as the tow boat.

The anchors were run by the Swan Tide, Flinders Tide, Torrens Tide and Lady Sally. The anchor running operation was completed in 5.25 hours. All anchors were pretensioned to 200 kips.

Final rig location was:

Latitude : 38° 15' 04.676" S
Longitude: 147° 51' 14.541" E
X: 574,727mE
Y: 5,765,943mN

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

The rig was located 2.22m at 324° from the called location and approximately 42 km southeast of Lakes Entrance, Victoria.

DRILL 26" HOLE FOR 20" CASING

The drilling template was run and landed at a seafloor depth of 74m RKB. The 26" hole was drilled to 224m using seawater and high viscosity gel slugs to clean the hole. At TD the hole was displaced with high viscosity mud and a wiper trip made to the seafloor.

The 18-3/4" wellhead/pile joint and 20" casing were run and cemented with the casing shoe at 208m. The BOP stack and riser were run and the casing and collet connector tested to 500 psi.

DRILL 17-1/2" HOLE FOR 13-3/8" CASING

The cement and casing shoe were drilled out and 17-1/2" hole drilled to 815m using a seawater/gel mud system. A wiper trip was made to the 20" casing shoe before a sonic log was run.

The 13-3/8" casing was run and cemented with the shoe at 800m. The plug was bumped with 1500 psi. A Cameron 13-3/8" Lo Torque seal assembly was set and pressure tested to 200/5000 psi. The BOP stack was then pressure tested.

DRILL 12-1/4" HOLE FOR 9-5/8" CASING

The float collar, cement and float shoe were drilled out and the rathole reamed to 815m. After drilling six metres of new hole, a Phase II PIT was run to a leak-off of 1275 psi. (EMW - 17.9 ppg at casing shoe).

The 12-1/4" hole was drilled to 1175m with a 9.0 ppg seawater/gel mud. At 1175m the first open hole PIT was conducted with a maximum pressure of 1100 psi without leak-off. (EMW - 17.1 ppg at the 13-3/8" casing shoe). The mud weight was increased to 9.5 ppg in order to penetrate the Latrobe Formation with a 300 psi overbalance.

Drilling continued to 1489m where the second open hole PIT was conducted with a maximum pressure of 540 psi (EMW - 13.5 ppg at shoe). Two plastic liner cores were then cut from 1489m to 1511.7m.

The 12-1/4" hole was drilled to 3350m with interruptions for the running of four suites of intermediate logs and RFT's and the cutting of Core No. 3 from 3317.1m to 3326m. Other than reaming 6 hours through a coal seam from 1646 to 1877m, no hole problems occurred. However, hole washout increased below 3100m in the Intra Latrobe formation. At 3171.5m the mud weight was increased from 9.5 ppg to 10.0 ppg on anticipation of abnormal pressure.

Due to increases in gas units which would necessitate increasing the mud weight, 9-5/8" protective casing was run to 3339m and cemented in two stages. Three trips with two different Cameron Lo Torque seal assemblies were made before a seal assembly would set and pressure test. After drilling out the stage collar and cement inside the casing to 3332m, the casing was pressure tested to 4500 psi.

DRILL 8-1/2" HOLE AND PLUG BACK

The remaining cement and 3m of new hole were drilled out and a Phase II PIT conducted to 4500 psi with no leak-off. The hole was then drilled with 10.0 ppg mud to 3470m where core No. 4 was cut to 3472m.

The operation was interrupted for 6-1/2 hours while AWU members attended a meeting in town. Before drilling new hole, the mud weight was raised to 10.5 ppg due to high trip gas.

From 3482m to 3518m connection gas was recorded on each connection. The mud weight was raised to 11.0 ppg. The total depth of 3550m was reached without further mud weight increases. Logs were run before the well was plugged back with two cement plugs from 3550m to 3331m. A bridge plug was then set at 3327.5m and pressure tested to 4000 psi. Three intervals were then production tested before plug and abandonment.

PLUG AND ABANDONMENT

After abandoning Production Test No. 3A by setting a bridge plug at 2550m and testing the casing to 4500 psi, the 9-5/8" casing was cut with a Pengo cutter at 325m and retrieved. The 13-3/8" casing x 9-5/8" casing annulus was sealed off with balanced cement Plug No.6 from 380m to 280m. The plug was tagged with a junk basket and tested to 1500 psi. As an additional precaution, a 13-3/8" bridge plug was set at 250m. After cutting the 13-3/8" casing with a Pengo cutter at 185m, the casing was retrieved and the 13-3/8" casing x 20" casing annulus sealed off with balanced cement Plug No. 7 from 220m to 115m. The plug was tested to 500 psi and the BOP was pulled.

The 20" casing was mechanically cut at 85m. The 18-3/4" pile joint assembly, four post guide base, and drilling template were retrieved with the wellhead running tool.

PULLING ANCHORS

All anchors were retrieved in 12 hours using the Swan Tide, Torrens Tide and Atlas Dampier workboats. The Southern Cross was taken under tow by the Atlas Dampier to the Snapper-5 location at 0745 hours on July 1, 1985.

CASING DATA

WELL WHITING-2

CSG O.D. IN.	WT. LBS/FT	GRADE	CONN.	CSG LENGTH METRES	SHOE DEPTH R.K.B.	CENTRALIZER POSITION	REMARKS
20	94	X-52	JV	13.35	208m		Float Shoe Joint
20	94	X-52	JV	96.16		Across collars on first five joints.	8 Joints
20	129	X-52	JV/CC	12.39			Crossover Joint.
24	670		CC	10.88			Wellhead pile joint.
13-3/8	54.5	K-55	Buttress	12.67	800m	Midway up Joint	Float shoe joint.
13-3/8	54.5	K-55	Buttress	12.52			Float collar joint.
13-3/8	54.5	K-55	Buttress	701.97		Across collars on first six joints	60 joints.
13-3/8			Buttress	0.72			Hanger Joint.
9-5/8	47.0	N-80	Buttress	12.16	3339m	Midway up joint	Float shoe joint.
9-5/8	47.0	N-80	Buttress	11.96		Midway up joint	Float collar joint.
9-5/8	47.0	N-80	Buttress	1.00		One jt above and below F/3 joints	Stage collar joint

CEMENT DATA

WELL WHITING-2

8

DATE	DEPTH METRES	TYPE JOB	TYPE CEMENT	AMOUNT	ADDITIVES	REMARKS
Apr 24	208m	Primary 20" casing	Class "G"	750 sx	2.2% gel w/seawater	Lead slurry. Ave. density - 13.3 ppg
Apr 24	208m	Primary 20" casing	Class "G"	350 sx	Seawater	Tail Slurry. Ave density - 15.8 ppg
Apr 26	800m	Primary 13-3/8 casing	Class "G"	1050 sx	Seawater	Ave slurry Density - 15.8 ppg
Jun 1	3339m	Primary 9-5/8" casing	Class "G"	1550 sx	2% HR-12 w/ freshwater	Ave slurry Density - 15.8 ppg
Jun 9	3550-3450m	P&A Plug #1	Class "G"	209 sx	1.2% HR6L w/ Freshwater	Ave slurry Density - 15.8 ppg
Jun 9	3450-3381m	P&A Plug #2	Class "G"	380 sx	1.2% HR6L w/ Freshwater	Ave slurry Density 15.8 ppg
Jun 17	3322-3262m	P&A Plug #3	Class "G"	80 sx	0.6% HR6L w/ Freshwater	Ave slurry Density 15.6 ppg
Jun 20	3110-3046m	P&A Plug #4	Class "G"	85 sx	0.6% HR6L w/ Freshwater	Ave slurry Density 15.8 ppg
Jun 28	2639-2553m	P&A Plug #5	Class "G"	100 sx	0.6% HR6L w/ Freshwater	Ave slurry Density 15.8 ppg
Jun 29	380-280m	P&A Plug #6	Class "G"	180 sx	Seawater	Ave slurry Density 15.8 ppg
Jun 30	220-115m	P&A Plug #7	Class "G"	485 sx	Seawater	Ave slurry Density 15.8 ppg

WELL: WHITING-2

SAMPLES, CONVENTIONAL CORES, SIDEWALL CORES

<u>INTERVAL</u>	<u>TYPE</u>
220.0-3550.0m	Cuttings Samples - 5 sets of washed and oven dried; 1 set of bagged and air dried cuttings from: 220 - 810m every 10m. 810 - 1290m every 5m. 1290 - 1330m every 10m. 1330 - 1340m every 5m. 1340 - 1370m every 10m. 1370 - 3550m every 5m.
1489.0-1500.4m	Plastic Sleeve - Core No. 1, recovered 3.3%.
1500.4-1511.6m	Plastic Sleeve - Core No. 2, recovered 19.6%.
3317.1-3326.0m	Conventional - Core No. 3, recovered 36.0%.
3470.3-3472.3m	Conventional - Core No. 4, recovered 15.0%.
	Sidewall Cores: Run 1 - shot 60, recovered 51. Run 2 - shot 51, recovered 50. Run 3 - shot 30, recovered 23.
220.0-3550.0m	Unwashed canned samples every 15m for Geochemistry.
1160.0-3550.0m	Washed and air dried canned samples every 30m for fission track analysis.

1697L/71

WELL: WHITING-2

WIRELINE LOGS AND SURVEYS

<u>Type and Scale</u>		<u>From</u>	<u>To</u>
BHC-GR	1:200 1:500	805.0m	70.0m
<u>Suite 2</u>			
BHC-GR	1:200 1:500	1667.0m	801.5m
DLTE-MSFL-GR	1:200 1:500	1663.5m	801.5m
LDTC-CNTH-GR	1:200 1:500	1652.0m	1235.0m
AMS-GR		1643.0m	1235.0m
RFT-GR (PRESSURE RECORD) RUN 1 RFT-HP (PRESSURE RECORD) RUN 1			
RFT-GR (SAMPLE RECORD) RUNS 2-4 RFT-HP (SAMPLE RECORD) RUNS 2-4			
<u>Suite 3</u>			
DLL-MSFL-GR	1:200 1:500	2914.5	1600.0m
LDTC-CNTH-SGR	1:200 1:500	2920.0	1625.0m
RFT-GR (PRESSURE RECORD) RUN 5 RFT-HP (PRESSURE RECORD) RUN 5			
RFT-GR (SAMPLE RECORD) RUNS 6-11 RFT-HP (SAMPLE RECORD) RUNS 6-11			
<u>Suite 4</u>			
LDTC-CNTH-SGR	1:200 1:500	3163.0	2846.0m
DLTE-MSFL-SGR	1:200 1:500	3163.0	2846.0m
<u>Suite 5</u>			
DDBHC-GR	1:200 1:500	3350.0	1600.0m
DLTE-MSFL-GR	1:200 1:500	3348.0	3100.0m
LDTC-CNTH-SGR	1:200 1:500	3351.5	3100.0m

Suite 5 cont'd

HDT-GR	1:200	3340.0	1225.0m
CST-GR	1:200	3334.0	1260.0m
RFT-GR (SAMPLE RECORD)	RUN 12-17		
RFT-HP (SAMPLE RECORD)	RUN 12-17		
RFT-GR (SAMPLE RECORD)	RUN 18		
RFT-HP (SAMPLE RECORD)	RUN 18		

Suite 6

DLTE-MSFL-GR	1:200 1:500	3551.0	3312.0m
LDTC-CNTH-GR	1:200 1:500	3554.0	3320.0m
BHC-GR	1:200 1:500	3554.0	3340.0m
CST-GR (CORE RECORD)		3548.2	3357.0m

Suite 7

BRIDGE PLUG			3357.6m
GR-CCL-J.B.			
CET-CALIPER	1:200	3324.0	1075.0m
CET-GR	1:200	3324.0	1075.0m

Suite 8

PRODUCTION TEST NO. 1

Suite 9

PRODUCTION TEST NO. 2

PLT-PST PROD. TEST #1 RUN 1

PLT-PST PROD. TEST #1 RUN 2

Suite 10

PERFORATION #2		3123.5	3129.0m
REPERFORATION #2		3123.5	3129.0m
PLT-PST PROD. TEST #2 RUN 3			
PLT-OTIS PROD. TEST #2 RUN 4			

Suite 11

PRODUCTION TEST #3

Suite 12

PROD. TEST #3 PERFORATION #4

Suite 13

GR-CCL-JB-GAUGE RING #2

Suite 14

PRODUCTION #3 RE-TEST

Suite 15

PROD. #3 RE-TEST PERFORATION RUN 5

16971/71-73

RFT PRESSURE DATA

WELL: WHITING-2
 DATE: 1/5/1985, 2/5/1985
 ENGINEER: P.R. ETTEMA
 GEOLOGIST: S. WATTS

Gauge Type: H.P. AND RFT (3760f:1)
 Probe Type: LONG NOSE/MARTINEAU

RFT NO. Run/Seat	DEPTH		IHP psia	Time Set	Minimum Flowing Pressure psia	Formation Pressure		Temp. °C	Time Retract	FHP psia	Comments
	m MDKB	m TVDSS KB=21m				RFT/HP psig/psia					
1/1	1620.5	1599.5	2709.5	1501,1/5	2055	2271/2279.5		75	1515	2704.7	Valid
1/2	1543.0	1522.0	2570.8	1525	2563	-	-	75	1527	-	No seal
1/3	1543.5	1522.5	2573.2	1531	2092	2163/2170.6		74	1543	2575.8	Valid
1/4	1538.0	1517.0	2566.6	1547	2113	2155/2163.7		74	1555	2566.8	Valid
1/5	1493.0	1472.0	2488.7	1605	1916	2093/2101.1		73	1621	2490.6	Valid
1/6	1490.0	1469.0	2485.8	1626	2093	2088/2098.5		72	1631	2486.4	Valid
1/7	1455.0	1434.0	2425.5	1639	2030	2043/2051.9		71	1654	2427.6	Valid
1/8	1451.5	1430.5	2421.7	1700	2045	2039/2047.6		70	1706	2421.7	Valid
1/9	1411.5	1390.5	2354.3	1713	1961	1981/1986.6		69	1726	2355.0	Valid
1/10	1356.5	1335.5	2261.1	1736	143	1876/1909.7		67	1749	2262.4	Valid
1/11	1280.5	1259.5	2136.0	1758	1368	1785/1802.4		65	1801	2136.1	Valid
1/12	1278.2	1257.2	2132.3	1808	(1400)	1782/1800.3		64	1813	2132.3	Valid
1/13	1272.8	1251.8	2123.4	1817	127	1866/1889		64	1828	2123.4	Superch. Form press incrsq.
1/14	1273.3	1252.3	2124.0	1832	134	-	-	64	1833	2124.9	Tight
1/15	1276.5	1255.5	2129.5	1836	215	1790/1803		64	1840	2129.8	Superch. Form press incrsq.
2/16	1278.0	1257.0	2134.5	2126	1595	1785/1800.4		63	2200	2133.2	Valid; sample
3/17	1490.0	1469.0	2491.1	0048,2/5	2084	2086/2101.5		70	0109	2486.0	Valid; sample
4/18	1451.5	1430.5	2422.7	0425	2039	2033/2048.2		69	0440	2422.0	Valid; sample
5/19	2756.5	2735.5	4529.5	1504,17/5	3302.5	4080/3993.3		101.7	1512	4527.4	Computer not calibrating correctly, switch to other computer.
5/20	2756.5	2735.5	4529.0	1541	3272.4	3980/3989.6		103.6	1547	4525.3	Valid test
5/21	2701.5	2680.5	4433.0	1556	2991.0	3828/3850.0		102.5	1614	4437.9	Valid test
5/22	2633	2612	4318.0	1624	969.2	3731/3752.3		100.9	1640	4326.5	Valid test - tight
5/23	2629	2608	4320.5	1645	1969.2	3734/3755.1		100.3	1700	4320	Valid test - tight.
5/24	2617	2596	4301.6	1705	3565.8	3717/3732.9		100.1	1712	4301.6	Valid test - Good K
5/25	2615.5	2594.5	4297	1716	3302	3719/3733.1		99.8	1722	4297	Valid.
5/26	2612.0	2591.0	4292	1727	10RFT	3824/3839 *		100.1	1739	4294	Very tight; supercharged;*p Increasing
5/27	2606.5	2585.5	4282	1744	-	-/4213		100.2	1745	4283	No seal

13

RFT PRESSURE DATA

(3760f:2)

WELL: WHITING-2

GAUGE TYPE: H.P.

DATE: 17/5/1985

PROBE TYPE: LONG NOSE

ENGINEER: JEFF ROCHE
 PAUL ETTEMA

RFT NO. Run/Seat	DEPTH		IHP psia	Time Set	Minimum Flowing Pressure psia	Formation Pressure RFT/HP psig/psia	Temp. °C	Time Retract	FHP psia	Comments
	m MDKB	m TVDSS KB=21m								
5/28	2606.2	2585.2	4282	1748	10RFT	4000/3955 *	100.2	1756	4284	Very tight; supercharged;*p increasing
5/29	2600.5	2579.5	4271	1800	3695	3709/3722.0	100.1	1806	4271	Valid
5/30	2583.0	2562.0	4242	1815	3701	3703/3718.5	99.8	1824	4245	Valid
5/31	2537.5	2516.5	4166	1829	3580	3578/3592.9	99.6	1843	4170	Valid
5/32	2489	2468	4082	1849	3393	3551/3564	98.1	1905	4090	Valid
5/33	2432	2411	3990	1912	3384	3429/3440.0	96.1	1928	3997	Valid
5/34	2279.5	2258.5	3736	1939	3000	3227/3235.5	94.1	1959	3748	Valid
5/35	2254.0	2233.0	3705	2009	2866	3205/3213.7	93.1	2019	3707	Valid
5/36	2214.0	2193.0	3637	2025	2515	3135/3145.2	92.5	2041	3642	Valid
5/37	2067.0	2046.0	3393	2051	2803	2927/2936.7	90.6	2107	3400	Valid
5/38	1747.5	1726.5	2867	2132	2445	2439/2465.2	84.6	2149	2873	Valid
5/39	1738.0	1717.0	2857	2154	2437	2425/2452.1	83.6	2207	2858	Valid
5/40	1735.0	1714.0	2852	2211	2377	2419/2449.4	83.0	2215	2852	Valid
5/41	1723.5	1702.5	2832	2221	2412	2402/2433.0	82.7	2232	2834	Valid
5/42	1720.0	1699.0	2828	2236	2393	2399/2429.0	82.5	2244	2828	Valid
5/43	1693.0	1672.0	2782	2250	2239	2353/2384.1	82.0	2300	2784	Valid
5/44	1620.5	1599.5	2660	2308	2270	2247/2278.0	80.3	2321	2664	Valid
6/45	2633.0	2612.0	4310	0211, 18/5	1880	3740/-	103.4	0223	4315	Very tight - try 2630
6/46	2630.0	2609.0	4313	0229	2006	3744/-	104	0232	4310	As for 6/45 - try 2632.5
6/47	2632.5	2611.5	4312	0235	2250	3744/-	103	0404	4316	Still tight but sample
7/48	2615.5	2694.5	4332	0800	3333	3736/-	103	0930	4299	Valid - tightish - oil
8/49	1538.0	1517.0	2519	1234	2143	2150/-	77	1252	2522	Valid; good perm. samp.
9/50	2360	2339	3878	1555	63	3361/-	99.6	1632	3873	Valid; good perm. samp.

/41

RFT PRESSURE DATA

(3760f:3)

WELL: WHITING-2

GAUGE TYPE: RFT

DATE: 18/5/1985, 23/5/1985

PROBE TYPE: MARTINEAU

ENGINEER: PAUL ETTEMA
 JEFF ROCHE

RFT NO. Run/Seat	DEPTH		IHP psig/psia	Time Set	Minimum	Formation Pressure RFT/HP psig/psia	Temp. °C	Time Retract	FHP psig	Comments
	m MDKB	m TVDSS KB=21m			Flowing Pressure psig					
10/51	2256.5	2235.5	3700	1931	2989	3202/-	97	1947	3706	Tight - try 2256.0
10/52	2256.0	2235.0	3706	1950	550	- -	98	1953	3706	V. tight - try 2254.0
10/53	2254.0	2233.0	3701	1956	999	3202/-	98	2006	3702	V. tight - back to 2256.5
10/54	2256.5	2235.5	3705	2008	2922	3204/-	97	2013	3707	Seal fail
10/55	1723.5	1702.5	2830	2025	2367	2416/-	89	2034	2808	Sample taken. Good K.
11/56	2254.0	2233.0	3697	2250	N.A.	- -	97	2255	3695	Tight - try 2256.5
11/57	2256.5	2235.5	3702	2258	N.A.	3208/-	98	2358	3714	Valid; sample
12/58	2617	2596	4337	0328,23/5	3563.5	3716/-	95.1	0455	4322	Valid; sample
13/59	2629	2608	4339	0835	3102	3743/-	98.3	0904	4347	V. tight
13/60	2628.8	2607.8	4345	0908	2586	3736/-	98.3	0917	4344	V. tight
13/61	2629.1	2608.1	4346	0920	2667	3730/-	100.5	1101	4347	Valid but tight
14/62	3111.5	3090.5	5165	1441	4596	4655/4652.81	117	1456	5123.4	EMW=9.70hyd; 8.80 F.P.: Pretest only
14/63	3125.8	3104.8	5152	1503	-	-	118	1506	5150	- No seal
14/64	3125.6	3104.6	5149	1508	4622	4899/-	118	1513	5142	- Seal failure
14/65	3125.6	3104.6	5143	1515	-	-	-	1517	5143	- No seal
14/66	3125.5	3104.5	5144	1522	-	-	120	1523	5144	- No seal
14/67	3126.0	3105	5143	1527	4856	-	-	1529	5135	- No seal
14/68	3126.1	3105.1	5141	1534	3959	4899/-	121	1538	5139	Seal failure
14/69	3053	3032	5025	1545	-	-	120	1547	5030	- No seal

Note: Using strain gauge pressures.

15

RFT PRESSURE DATA

(3760f:4)

WELL: WHITING-2

DATE: 23/5/1985, 24/5/1985, 30/5/1985

ENGINEER: J. ROCHE
R. NEWPORT

GAUGE TYPE: RFT/HP

PROBE TYPE: MARTINEAU
30-05 LONG NOSE (LARGE
AREA PACKER)

RFT NO. Run/Seat	DEPTH		IHP	Time	Minimum Flowing Pressure	Formation Pressure	Temp.	Time	FHP	Comments
	m MDKB	m TVDSS KB=	psi	Set	psi	RFT/HP psig/psla	°C	Retract	psi	
14/70	3052.5	3031.5	5030	15:53,23/5			119	15:55	5030	No seal
14/71	3050.0	3029.0	5025	15:58			118	15:59	5027	No seal (on shale; damaged seal)
15/72	3125.5	3104.5	5173	18:32			119	18:33	5172	No seal
15/73	3125.6	3104.6	5152	18:37			121	18:39	5151	No seal
15/74	3125.7	3104.6	5149	18:42			122	18:44	5149	No seal
15/75	3125.8	3104.8	5149	18:47			123	18:49	5149	No seal
15/76	3125.9	3104.9	5147	18:52	3810		123	18:53	5024	No seal
15/77	3126.0	3105	5147	18:56	4420		123	18:58	5128	No seal
15/78	3126.1	3105.1	5146	19:01			124	19:02	5139	No seal
15/79	3053	3032	5031	19:06	4741		122	19:08	5016	No seal
15/80	3052	3031	5032	19:11	504	4980/-	131	19:17	5030	V.V. tight
15/81	3051.9	3030.9	5030	19:20			-	19:22	5028	No seal
15/82	3052.2	3031.2	5016	19:26	2759	4940/-	120	21:05	5025	Valid. V.tight sample (supercharged)
16/83	2954.0	2933.0	4866	23:50	3625	4209/-	115.4	01:31	4867	Valid. Tight - fair sample
17/84	2607.0	2586.0	4296	04:33,24/5	246		105.5	04:35	4291	V.V. tight
17/85	2606.8	2585.8	4292	04:38	262		105.6	04:40	4292	V.V. tight
17/86	2606.6	2585.6	4292	04:43	164		105.7	04:45	4294	V.V. tight
17/87	2606.4	2585.4	4293	04:49	216		105.7	04:52	4294	V.V. tight
17/88	2607.1	2586.1	4294	04:59			105.7	05:01	4296	No seal
17/89	2606.0	2585.0	4295	05:04	229	4165/-		05:50	4297	V.V. tight - supercharged. No sample
18/90	3207.5	3186.5	5530	02:01,30/5	4906	4966/-	112.6	03:40	5531	Valid, tight; good sample

16/

TEMPERATURE RECORD - WHITING-2

LOGGING RUN	THERMOMETER DEPTH (m)	MAX. RECORDED TEMPERATURE (C°)	CIRCULATION TIME (t_k) (hours)	TIME AFTER CIRCULATION STOPPED (t)	HORNER TEMPERATURE (C°)	GEO THERMAL GRADIENT (C°/km)
<u>Suite 1</u>						
BHC-GR	805.0	42.2	0.75	6.25	-	-
<u>Suite 2</u>						
DLTE-MSFL-GR) COMBINATION LDTC-CNTH-GR) TOOL	1668.0	55.0	0.25	5.35	94.0	52.7
BHC-GR	1667.0	71.0	0.25	9.65		
<u>Suite 3</u>						
DLL-MSFL-GR	2914.5	92.2	1.50	7.00	114.0	36.5
LDTC-CNTH-SGR	2920.0	102.0	1.50	13.60		
<u>Suite 4</u>						
DLTE-MSFL-SGR) COMBINATION LDTC-CNTH-SGR) TOOL	3163.0	101.0	1.75	7.60	130.2	38.8
RFT-GR (SAMPLE RECORD)	3146.0	123.5	1.75	38.35		
<u>Suite 5</u>						
DLTE-MSFL-GR	3348.0	102.0	1.50	9.00	126.4	35.5
LDTC-CNTH-SGR	3351.5	105.0	1.50	13.00		
DDBHC-GR	3350.0	115.0	1.50	17.65		
HDT-GR	3340.0	118.0	1.50	40.75		

TEMPERATURE RECORD - WHITING-2

LOGGING RUN	THERMOMETER DEPTH (m)	MAX. RECORDED TEMPERATURE (C°)	CIRCULATION TIME (t_k) (hours)	TIME AFTER CIRCULATION STOPPED (t)	HORNER TEMPERATURE (C°)	GEOHERMAL GRADIENT (C°/km)
<u>Suite 6</u>						
DLTE-MSFL-GR	3551.0	122.2	1.00	8.35	149.8	40.2
LDTC-CNL-SGR	3554.0	131.6	1.00	12.35		
BHC-GR	3554.0	133.3	1.00	15.35		
CST-GR	3548.0	135.0	1.00	19.00		

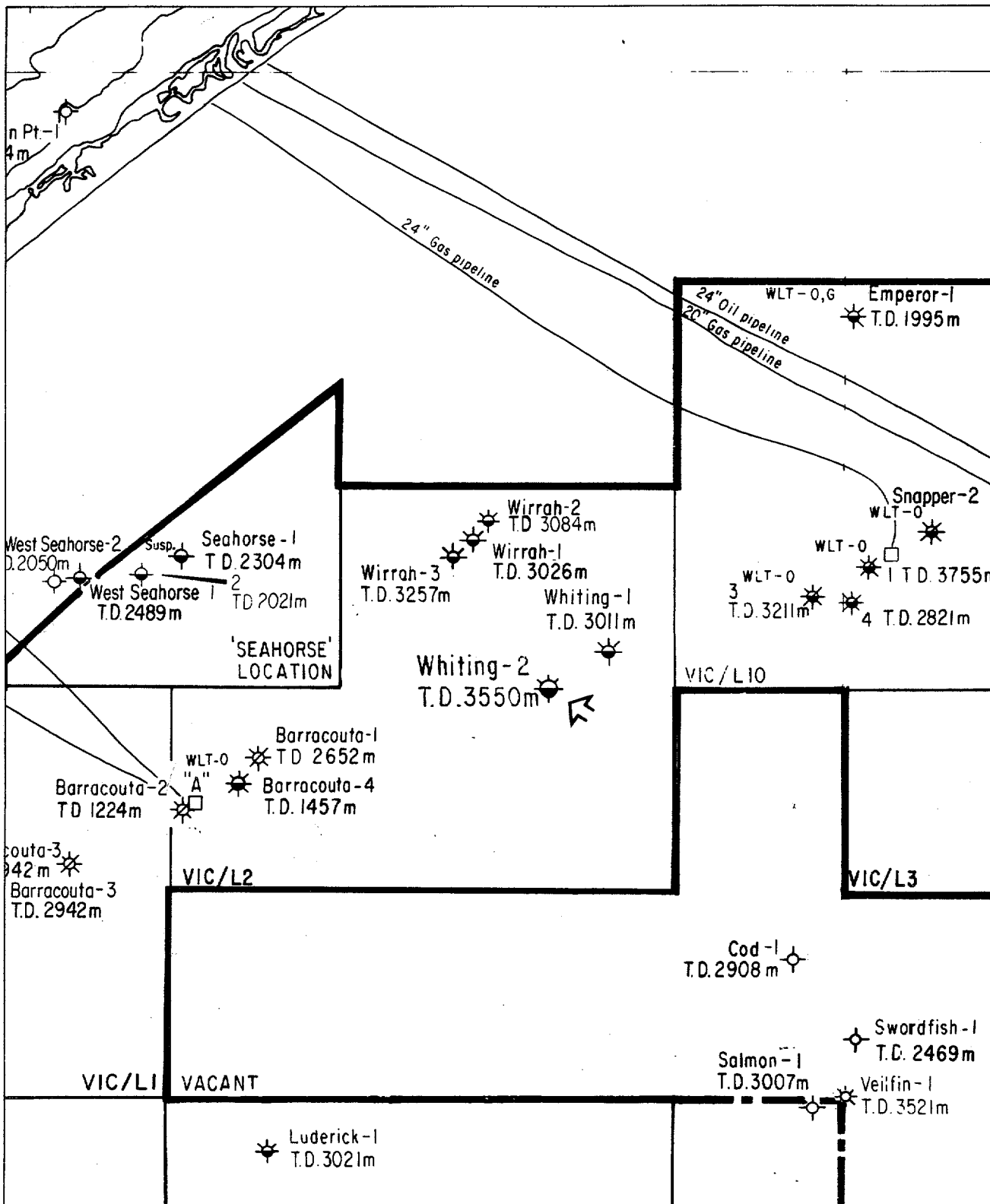
1697174/75

WCR (VOL 1)
BASIC DATA
WHITING-2
W903

FIGURES

LOCALITY MAP WHITING DISCOVERY

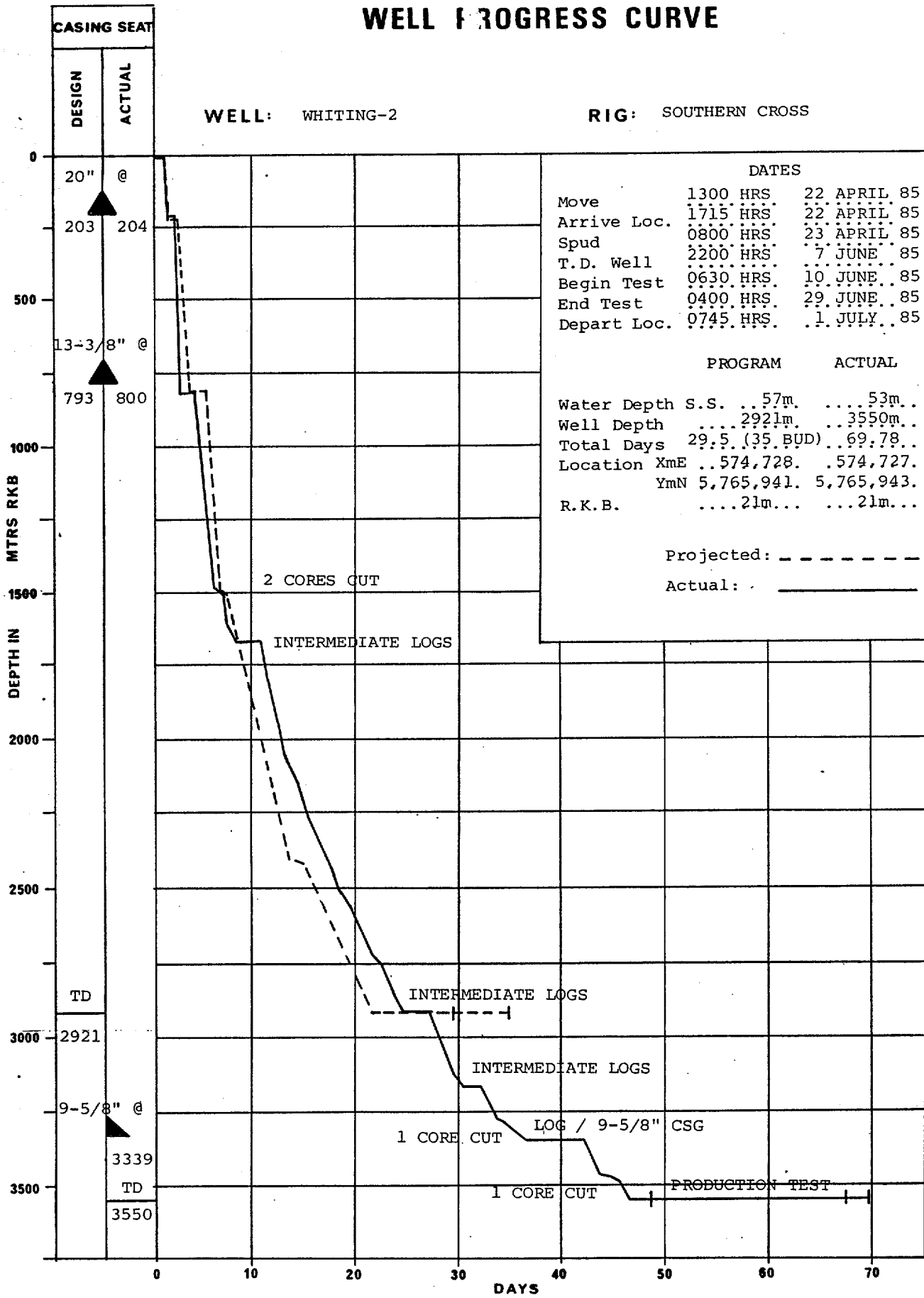
SCALE 1:250 000



WELL PROGRESS CURVE

WELL: WHITING-2

RIG: SOUTHERN CROSS



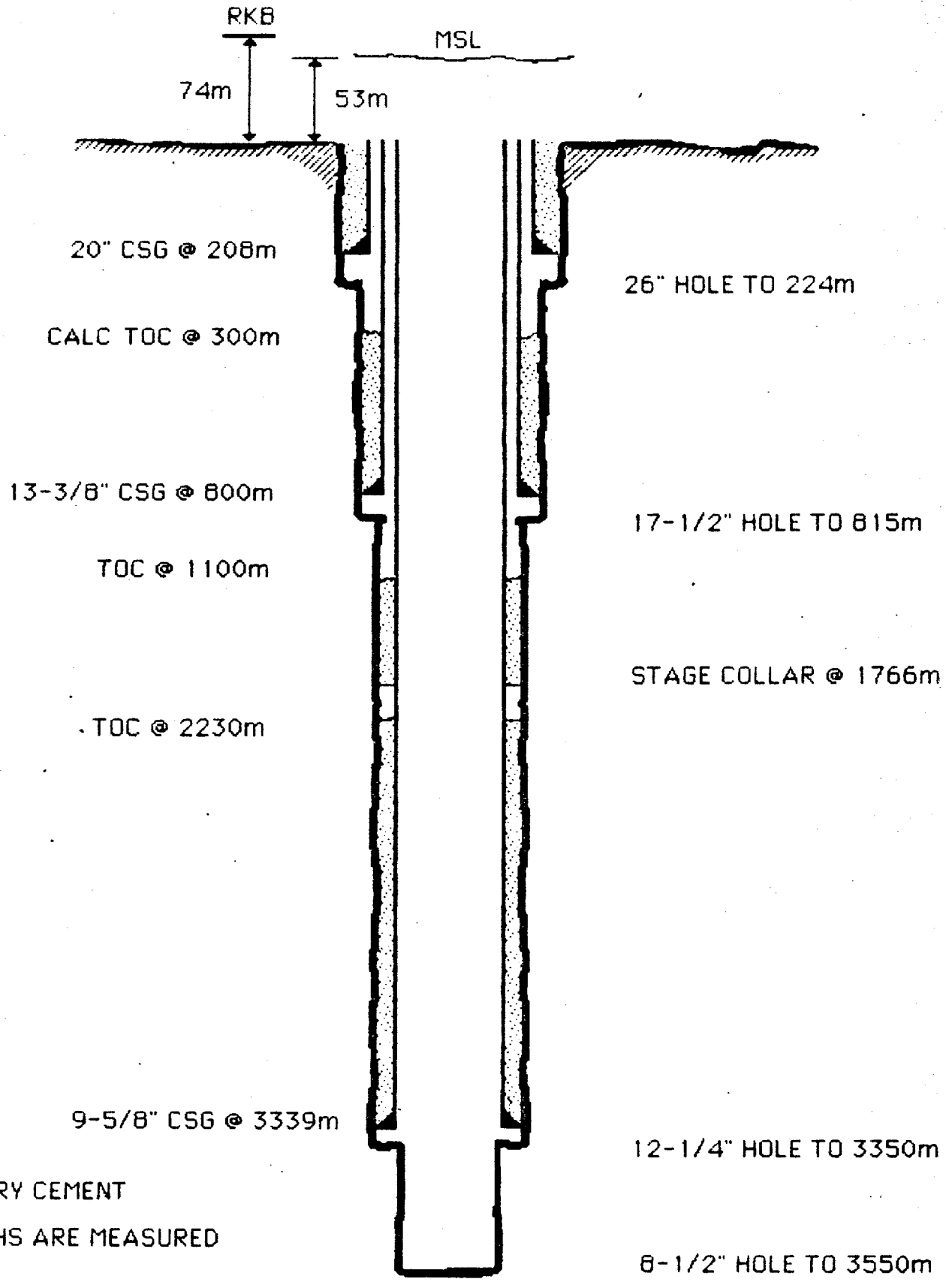
LITHOLOGY	
PROJECTED	ACTUAL
TOL @ 1260	TOL @ 1269
TOP @ 1475	TOP @ 1478

DATES		
Move	1300 HRS	22 APRIL 85
Arrive Loc.	1715 HRS	22 APRIL 85
Spud	0800 HRS	23 APRIL 85
T.D. Well	2200 HRS	7 JUNE 85
Begin Test	0630 HRS	10 JUNE 85
End Test	0400 HRS	29 JUNE 85
Depart Loc.	0745 HRS	1 JULY 85

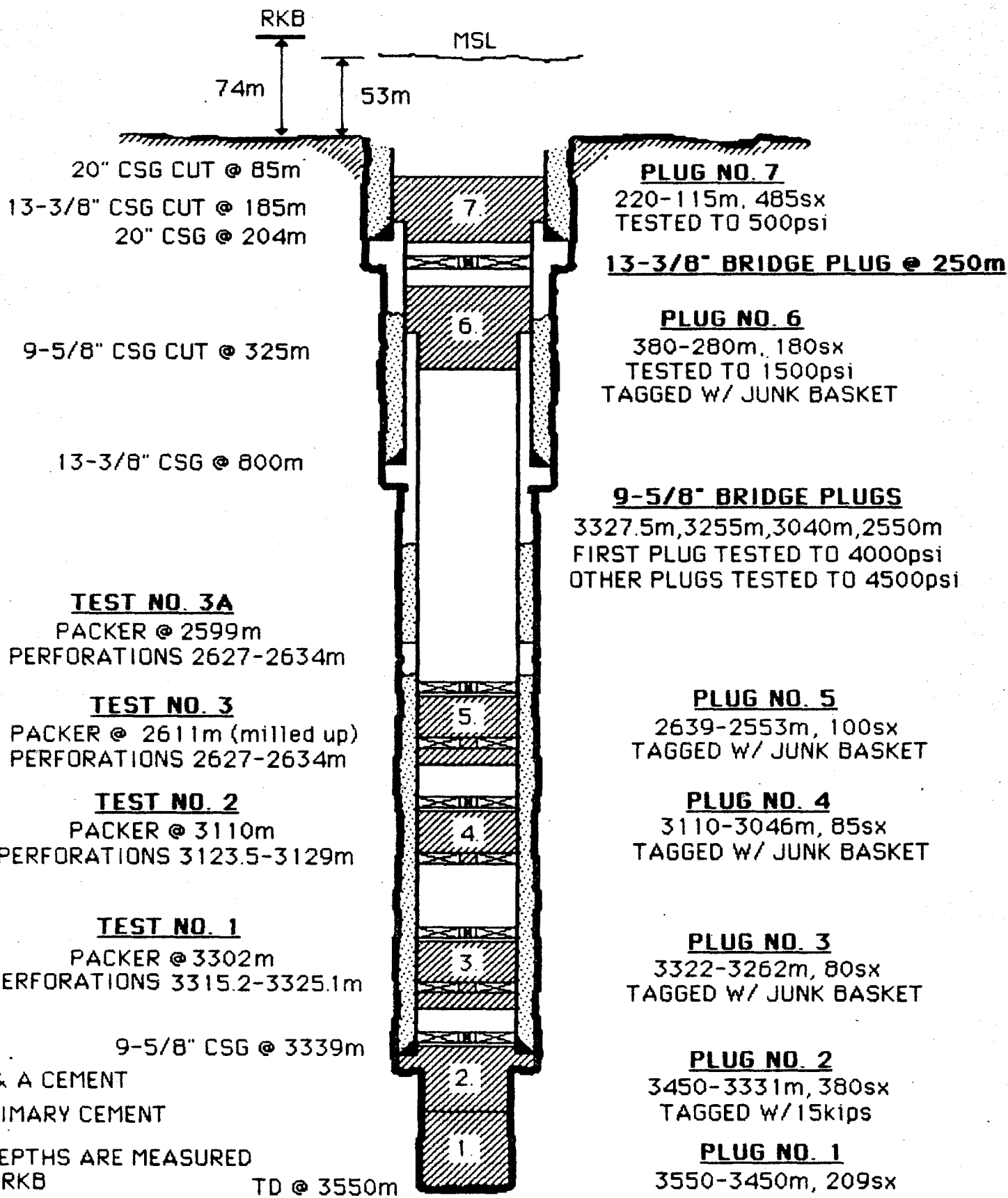
PROGRAM		ACTUAL	
Water Depth S.S.	57m	53m	
Well Depth	2921m	3550m	
Total Days	29.5 (35 BUD)	69.78	
Location XmE	574,728	574,727	
YmN	5,765,941	5,765,943	
R.K.B.	21m	21m	

Projected: - - - - -
Actual: _____

WHITING 2 WELLBORE SCHEMATIC



WHITING 2 ABANDONMENT SCHEMATIC



20" CSG CUT @ 85m
 13-3/8" CSG CUT @ 185m
 20" CSG @ 204m

9-5/8" CSG CUT @ 325m

13-3/8" CSG @ 800m

TEST NO. 3A
 PACKER @ 2599m
 PERFORATIONS 2627-2634m

TEST NO. 3
 PACKER @ 2611m (milled up)
 PERFORATIONS 2627-2634m

TEST NO. 2
 PACKER @ 3110m
 PERFORATIONS 3123.5-3129m

TEST NO. 1
 PACKER @ 3302m
 PERFORATIONS 3315.2-3325.1m

9-5/8" CSG @ 3339m

- P & A CEMENT
- PRIMARY CEMENT

ALL DEPTHS ARE MEASURED FROM RKB
 TD @ 3550m

PLUG NO. 7
 220-115m, 485sx
 TESTED TO 500psi
13-3/8" BRIDGE PLUG @ 250m

PLUG NO. 6
 380-280m, 180sx
 TESTED TO 1500psi
 TAGGED W/ JUNK BASKET

9-5/8" BRIDGE PLUGS
 3327.5m, 3255m, 3040m, 2550m
 FIRST PLUG TESTED TO 4000psi
 OTHER PLUGS TESTED TO 4500psi

PLUG NO. 5
 2639-2553m, 100sx
 TAGGED W/ JUNK BASKET

PLUG NO. 4
 3110-3046m, 85sx
 TAGGED W/ JUNK BASKET

PLUG NO. 3
 3322-3262m, 80sx
 TAGGED W/ JUNK BASKET

PLUG NO. 2
 3450-3331m, 380sx
 TAGGED W/ 15kips

PLUG NO. 1
 3550-3450m, 209sx

WHITING-2

HORNER TEMPERATURE PLOT
WIRELINE LOGGING SUITE 2

t_k = circulation time

Δt = time since circulation

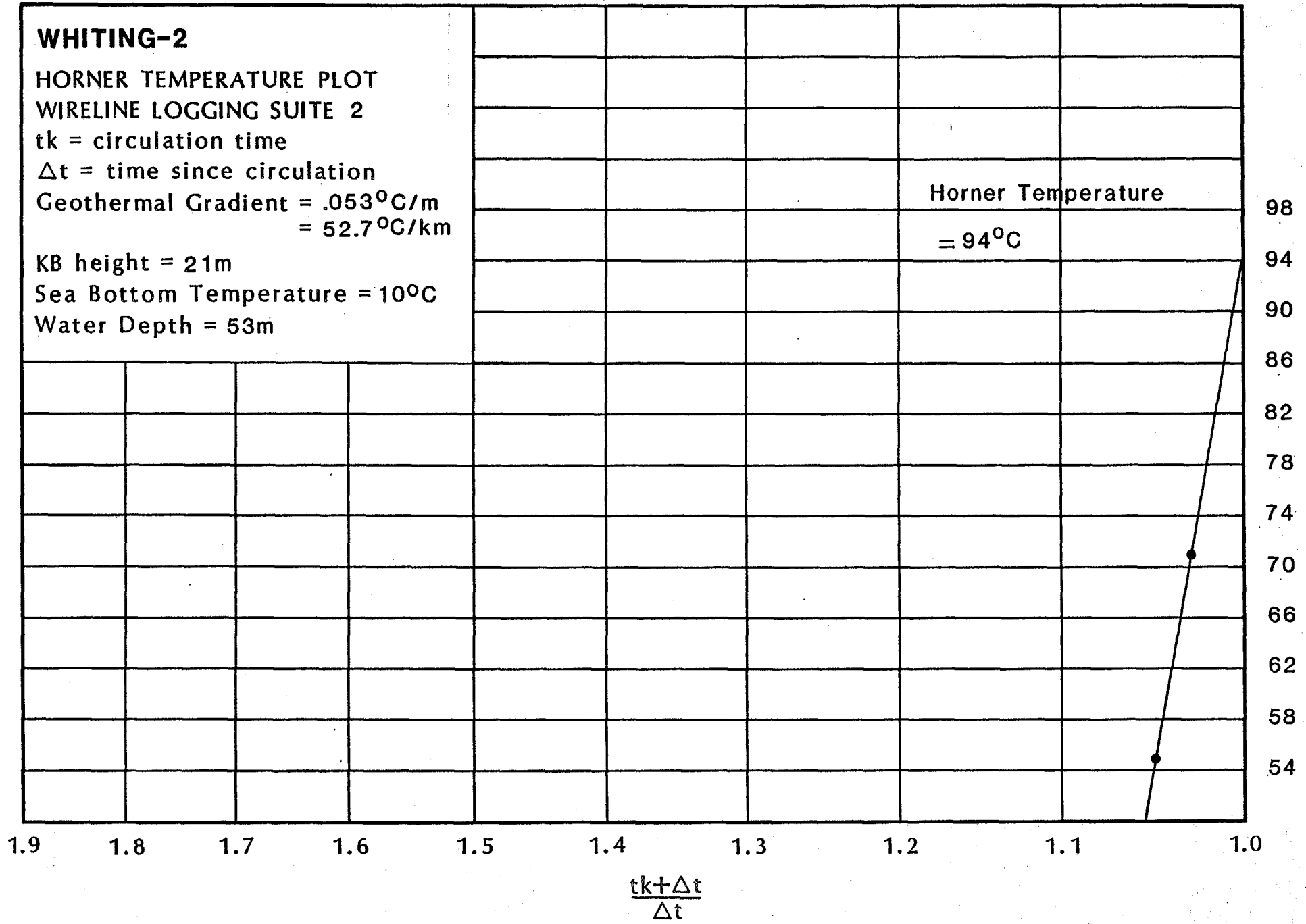
Geothermal Gradient = $.053^{\circ}\text{C}/\text{m}$
= $52.7^{\circ}\text{C}/\text{km}$

KB height = 21m

Sea Bottom Temperature = 10°C

Water Depth = 53m

TEMPERATURE $^{\circ}\text{C}$



93

WHITING-2

HORNER TEMPERATURE PLOT

WIRELINE LOGGING SUITE 3

tk = circulation time

Δt = time since circulation

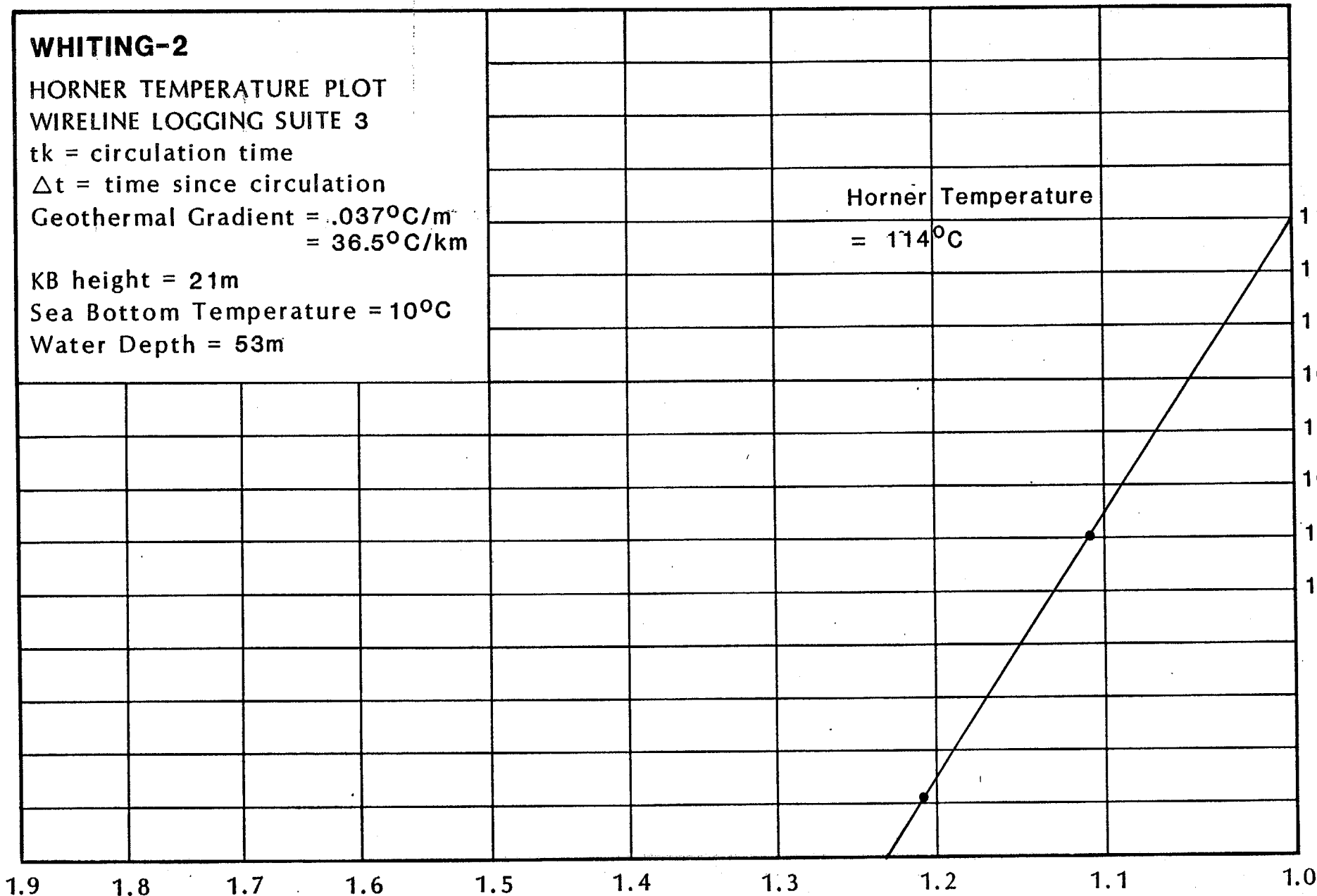
Geothermal Gradient = $.037^{\circ}\text{C}/\text{m}$
= $36.5^{\circ}\text{C}/\text{km}$

KB height = 21m

Sea Bottom Temperature = 10°C

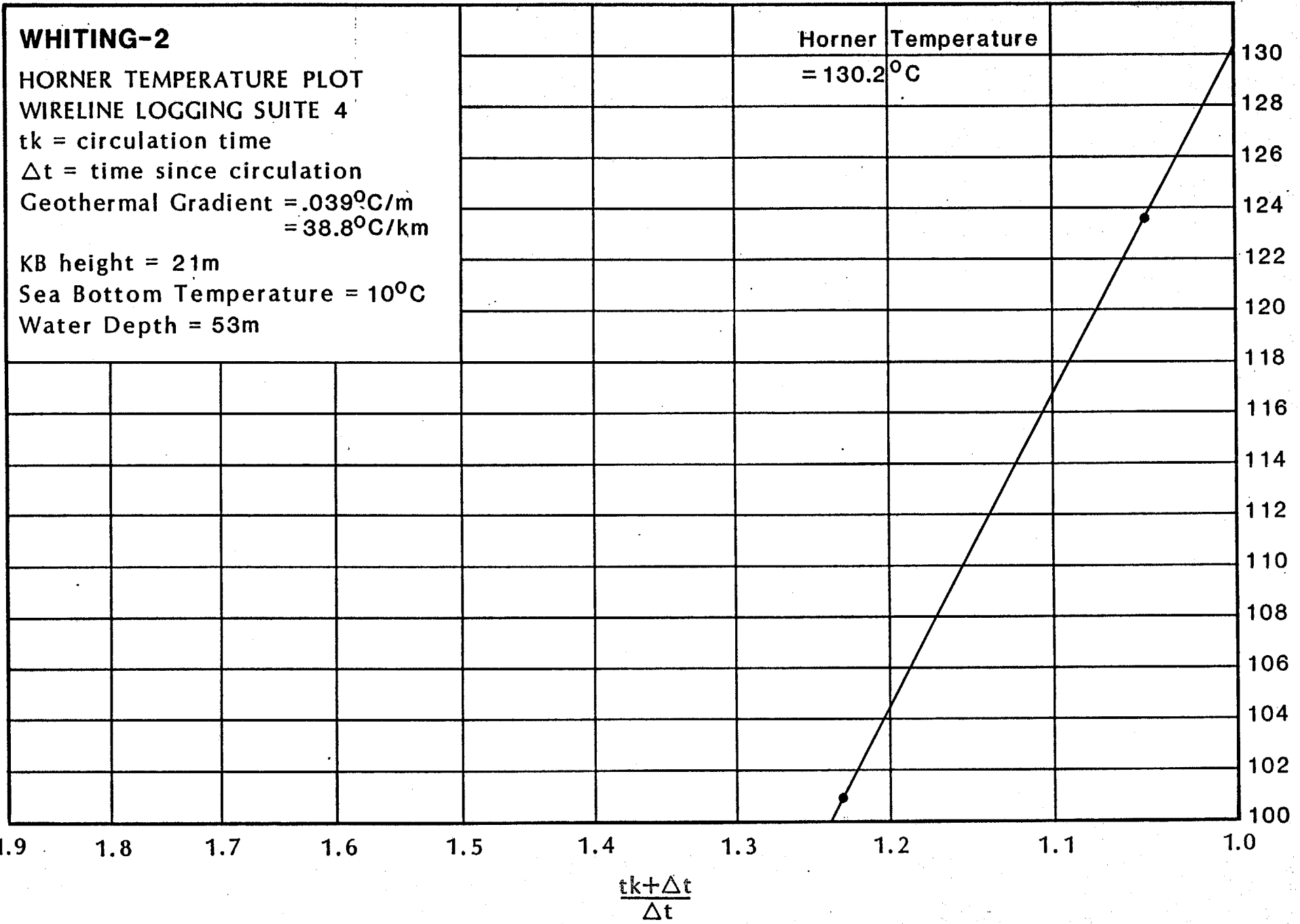
Water Depth = 53m

TEMPERATURE $^{\circ}\text{C}$

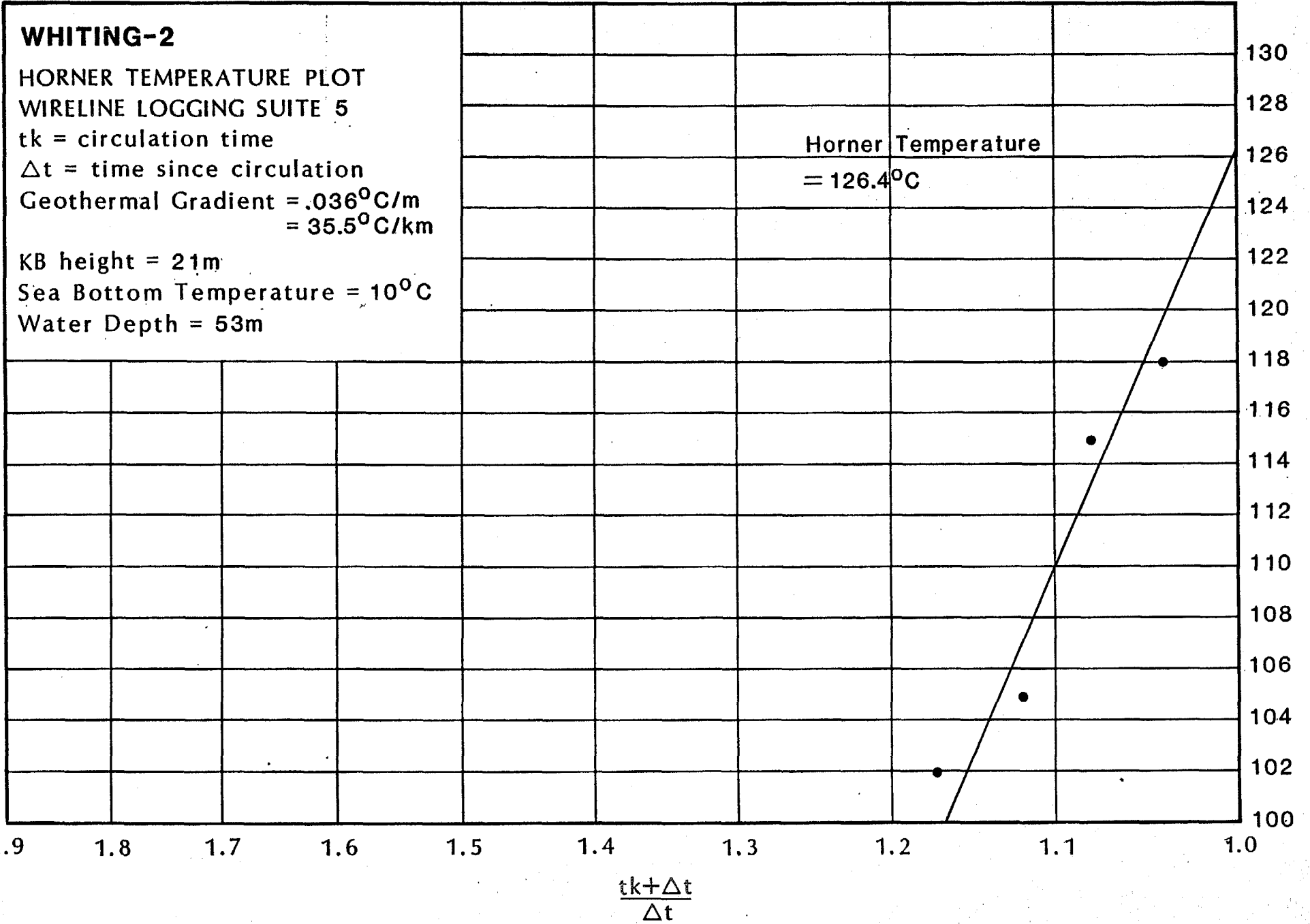


Horner Temperature
= 114°C

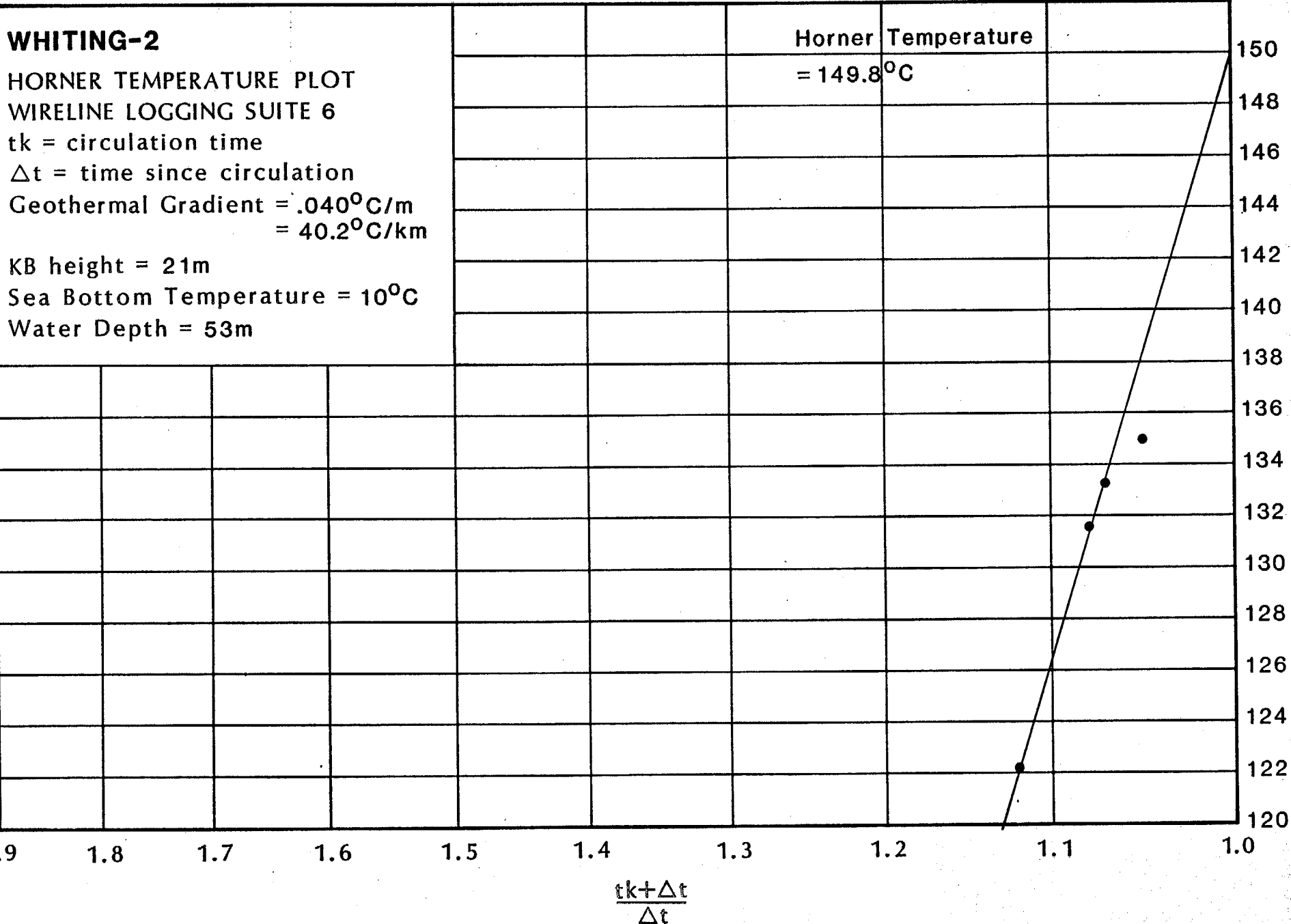
21/10



25/



26/



27

APPENDIX 1

APPENDIX 1.

Lithological Descriptions

WHITING-2

Lithology Descriptions

<u>Depth</u>	<u>%</u>	<u>Descriptions</u>
220 - 230m	80	CALCARENITE: light grey, friable to moderately hard, fine grained, well sorted, highly calcareous.
	10	SHELL FRAGMENTS: white to translucent, firm, calcareous, unidentified origin.
	10	CEMENT.
	trace	SANDSTONE: translucent and occasional red brown, coarse to very coarse grained, subrounded to rounded, loose grains.
	trace	BRYOZOANS.
230 - 240m	trace	BIVALVES: shell fragments.
	70	CALCARENITE: as above.
	20	SHELL FRAGMENTS: mostly bryozoans.
	10	CEMENT.
	trace	GLAUCONITE: dark green inclusions in calcarenite.
240 - 250m	trace	SANDSTONE: very rare loose quartz grains as above.
	70	CALCARENITE: as above.
	20	SHELL FRAGMENTS: as above.
	10	CEMENT.
	trace	FORAMS.
250 - 260m	80	CALCARENITE: as above.
	10	SHELL FRAGMENTS: as above.
	10	CEMENT.
	trace	FORAMS.
	trace	GLAUCONITE.
260 - 270m	70	CALCARENITE: as above; abundant associated bryozoans.
	30	CALCISILTITE: dark brownish-grey, firm, blocky cuttings, slightly calcareous (not strongly).
	trace	CEMENT.
	trace	FORAMS.
	270 - 280m	60
40		SILTSTONE: medium to dark grey, soft to moderately hard, blocky cuttings, occasionally arenaceous, very slight calcareous cement, occasional carbonaceous flecks.
trace		SHELL FRAGMENTS: as above.
trace		BRYOZOANS.
280 - 290m		70
	30	SILTSTONE: as above.
	trace	BIVALVE.
	trace	BRYOZOANS.
	trace	GLAUCONITE.
290 - 300m	100	CALCARENITE: as above.
	trace	SHELL FRAGMENTS: as above.
	trace	GLAUCONITE: becoming more common.
	trace	BRYOZOANS.
	trace	FORAMS.

300 - 310m	60 40 trace trace trace trace	CALCARENITE: as above; glauconite inclusions. SILTSTONE: as above. BRYOZOANS. BIVALVES: fragments. FORAMS. GLAUCONITE.
310 - 320m	100 trace trace trace trace	CALCARENITE: as above. BRYOZOANS. GLAUCONITE. SHELL FRAGMENTS. FORAMS.
320 - 330m	100 trace trace trace	CALCARENITE: white to light brown, friable to extremely hard, fine to very coarse grained, angular, poorly sorted, calcareous cement, occasional glauconite inclusions. BRYOZOANS. GLAUCONITE. FORAMS.
330 - 340m	100 trace trace trace	CALCARENITE: as above. BRYOZOANS. GLAUCONITE. FORAMS.
340 - 350m	100 trace trace	CALCARENITE: as above. BRYOZOANS. FORAMS.
350 - 360m	100 trace trace trace	CALCARENITE: as above. BRYOZOANS. FORAMS. BIVALVES.
360 - 370m	100 trace	CALCARENITE: as above. BRYOZOANS.
370 - 380m	100 trace	CALCARENITE: as above. BRYOZOANS.
380 - 390m	100 trace trace	CALCARENITE: as above. CALCILUTITE. BRYOZOANS.
390 - 400m	100 trace trace trace	CALCARENITE: as above. GLAUCONITE. CALCILUTITE. BRYOZOANS.
400 - 410m	100 trace trace trace	CALCARENITE: as above. BRYOZOANS. FORAMS. GLAUCONITE.
410 - 420m	100 trace trace	CALCARENITE: as above. BRYOZOANS. GLAUCONITE.
420 - 430m	100 trace trace	CALCARENITE: as above. BRYOZOANS. FORAMS.

430 - 440m	100 trace trace trace trace	CALCARENITE: as above. BRYOZOANS. GLAUCONITE. FORAMS. SHELL FRAGMENTS.
440 - 450m	100 trace trace trace	CALCARENITE: as above. GLAUCONITE. FORAMS. BRYOZOANS.
450 - 460m	100 trace trace trace	CALCARENITE: as above. GLAUCONITE. FORAMS. BRYOZOANS.
460 - 470m	100 trace trace trace	CALCARENITE: as above. CALCILUTITE: white to light grey, very soft, highly calcareous. GLAUCONITE. BRYOZOANS.
470 - 480m	100 trace trace trace trace	CALCARENITE: as above. SHELL FRAGMENTS: as above. GLAUCONITE. BRYOZOANS. FORAMS.
480 - 490m	100 trace trace trace	CALCARENITE: as above; dominantly light brown, occasionally white and light grey, moderately hard to extremely hard, fine grained, poorly sorted, highly calcareous. GLAUCONITE. BRYOZOANS. FORAMS.
490 - 500m	100 trace trace	CALCARENITE: as above. BRYOZOANS. FORAMS.
500 - 510m	100 trace trace trace	CALCARENITE: as above. BRYOZOANS. QUARTZ GRAINS: loose grains, translucent, very coarse. GLAUCONITE.
510 - 520m	100 trace trace	CALCARENITE: as above. BRYOZOANS. FORAMS.
520 - 530m	100 trace trace	CALCARENITE: as above. BYROZOANS. FORAMS.
530 - 540m	100 trace trace	CALCARENITE: as above; becoming fine grained, grading into CALCISILTITE. BRYOZOANS. FORAMS.
540 - 550m	60 40 trace trace trace	CALCARENITE: as above. CALCISILTITE: as above. CALCILUTITE. BRYOZOANS. FORAMS.

550 - 560m	60	CALCISILTITE: as above.
	20	CALCARENITE: as above.
	20	CALCILUTITE: light grey, very soft, extremely calcareous.
560 -570m	80	CALCILUTITE: as above.
	10	CALCISILTITE: as above.
	10	CALCARENITE: as above.
	trace	FORAMS.
570 - 580m	60	CALCARENITE: as above.
	20	CALCISILTITE: as above.
	20	SILTSTONE: as above.
	trace	CALCILUTITE.
	trace	BRYOZOANS.
580 - 590m	90	CALCARENITE: as above.
	10	CALCISILTITE: as above.
	trace	FORAMS.
	trace	SILTSTONE: as above.
590 - 600m	40	CALCARENITE: as above.
	10	CALCISILTITE: as above.
	trace	BRYOZOANS.
	trace	GLAUCONITE.
600 - 610m	60	CALCISILTITE: as above.
	20	CALCARENITE: as above.
	20	SILTSTONE: as above.
	trace	SHELL FRAGMENTS: probably bivalves.
	trace	BRYOZOANS.
610 - 620m	60	CALCARENITE: as above.
	30	CALCISILTITE: as above.
	10	SILTSTONE: as above.
	trace	GLAUCONITE.
620 - 630m	80	CALCARENITE: as above.
	20	CALCISILTITE: light grey to light brown, soft to moderately hard, blocky cuttings, extremely calcareous.
	trace	CALCILUTITE.
	trace	BRYOZOANS.
630 - 640m	80	CALCARENITE: as above; occasional glauconite inclusions.
	20	SILTSTONE: medium grey, moderately hard, non calcareous.
	trace	GLAUCONITE: mainly within CALCARENITE.
	trace	BRYOZOANS.
640 - 650m	80	CALCISILTITE: as above.
	20	CALCARENITE: as above.
	trace	FORAMS.
	trace	CALCILUTITE.
	trace	BRYOZOANS.

- 5 -

650 - 660m	60 40 trace trace	CALCISILTITE: as above. CALCARENITE: as above. BRYOZOANS. FORAMS.
660 - 670m	70 30 trace trace	CALCISILTITE: as above. CALCARENITE: as above; but extremely fine grained, grading into CALCISILTITE. GLAUCONITE. FORAMS.
670 - 680m	90 10 trace trace	CALCISILTITE: as above. CALCARENITE: as above; formation less fossiliferous. GLAUCONITE. CALCILUTITE: as above.
680 - 690m	100 trace	CALCISILTITE: medium to light grey, soft to moderately hard, blocky to angular cuttings, highly calcareous. CALCARENITE: as above.
690 - 700m	90 10 trace trace	CALCISILTITE: as above. CALCARENITE: very fine grained, grades into CALCISILTITE, otherwise as above. FORAMS. BRYOZOANS.
700 - 710m	80 20 trace	CALCISILTITE: as above. CALCILUTITE: as above. CALCARENITE: as above.
710 - 720m	100 trace trace	CALCISILTITE: as above. CALCILUTITE. FORAMS.
720 - 730m	80 20 trace trace	CALCISILTITE: as above. CALCILUTITE: as above. CALCARENITE: as above. FORAMS.
730 - 740m	90 10 trace	CALCISILTITE: as above. CALCILUTITE: as above. FORAMS.
740 - 750m	90 10 trace trace	CALCISILTITE: as above. CALCARENITE: as above. CALCILUTITE. FORAMS.
750 - 760m	60 40 trace trace	CALCISILTITE: as above. CALCILUTITE: as above. FORAMS. PYRITE.
760 - 770m	100 trace trace trace	CALCISILTITE: as above. FORAMS. CALCILUTITE: as above. CALCARENITE: as above.
770 - 780m	90 10 trace	CALCISILTITE: as above. CALCILUTITE: as above. FORAMS.

780 - 790m	80 20 trace	CALCISILTITE: as above. CALCILUTITE: as above. FORAMS.
790 - 800m	90 10 trace	CALCISILTITE: as above. CALCILUTITE: as above. FORAMS.
800 - 810m	100 trace trace	CALCISILTITE: as above. CALCARENITE: as above. FORAMS.
810 - 815m	70 30 trace trace	CALCISILTITE: as above. CALCILUTITE: as above. CALCARENITE: as above. FORAMS.
815m - POOH for tophole log and 13-3/8" casing.		
815 - 820m	100 trace	CEMENT. CALCISILTITE.
820 - 825m	80 20 trace	CEMENT. CALCISILTITE: as above. CALCARENITE: as above.
825 - 830m	80 20 trace	CEMENT. CALCISILTITE: as above. CALCITE: white to orangey, primary, probably from veins.
830 - 835m	80 20 trace trace	CEMENT. CALCISILTITE: as above. CALCITE. FORAMS.
835 - 840m	70 30	CALCISILTITE: as above. CEMENT.
840 - 845m	80 20	CALCISILTITE: as above. CEMENT.
845 - 850m	100 trace	CALCISILTITE: pale brown to medium light grey, soft to occasionally moderately hard, blocky to subangular cuttings, highly calcareous. CALCARENITE: as above; grading into CALCISILTITE.
850 - 855m	100 trace	CALCISILTITE: as above. CALCILUTITE.
855 - 860m	100 trace	CALCISILTITE: as above. CALCILUTITE.
860 - 865m	100 trace	CALCISILTITE: as above. CALCILUTITE.
865 - 870m	100 trace	CALCISILTITE: as above. CALCILUTITE.
870 - 875m	100 trace	CALCISILTITE: as above. CALCILUTITE.

875 - 880m	100 trace trace	CALCISILTITE: as above. CALCILUTITE. CALCITE.
880 - 885m	100 trace trace	CALCISILTITE: as above; becoming coarser. CALCILUTITE. CALCARENITE.
885 - 890m	100 trace trace trace	CALCISILTITE: as above. CALCILUTITE. CALCITE. FORAMS.
890 - 895m	100 trace	CALCISILTITE: as above. FORAMS.
895 - 900m	100 trace trace	CALCISILTITE: as above. FORAMS. CALCILUTITE.
900 - 905m	100 trace trace trace	CALCISILTITE: as above. CALCILUTITE. FORAMS. CALCITE.
905 - 910m	100 trace trace	CALCISILTITE: as above. FORAMS. CALCILUTITE.
910 - 915m	100 trace trace trace	CALCISILTITE: as above. FORAMS. PYRITE. CALCILUTITE.
915 - 920m	100 trace trace	CALCISILTITE: as above. FORAMS. CALCILUTITE.
920 - 925m	90 10	CALCISILTITE: as above. CALCILUTITE: as above; white to light grey, very soft, highly calcareous.
925 - 930m	90 10	CALCISILTITE: as above. CALCILUTITE.
930 - 935m	90 10 trace	CALCISILTITE: as above. DOLOMITE: medium light grey to light grey, hard to extremely hard, angular cuttings, yellow mineral fluorescence. CALCILUTITE.
935 - 940m	80 20 trace	CALCISILTITE: as above. DOLOMITE: as above. FORAMS.
940 - 945m	90 10	CALCISILTITE: as above. DOLOMITE: as above.
945 - 950m	50 40 10	CALCARENITE: as above; very fine grained. CALCISILTITE: as above. DOLOMITE: as above.
950 - 955m	50 40 10	CALCISILTITE: as above. CALCARENITE: as above. DOLOMITE: as above.

955 - 960m	70	CALCISILTITE: as above.
	20	CALCARENITE: white to light grey, hard to occasionally extremely hard, medium to fine grained, moderately to highly calcareous, poorly sorted, extremely well cemented (calcareous); possible top of Lakes Entrance Formation.
960 - 965m	10	DOLOMITE: as above.
	trace	GLAUCONITE.
965 - 970m	70	CALCARENITE: as above; becoming coarser, occasional glauconite.
	30	CALCISILTITE: as above.
970 - 975m	70	CALCARENITE: as above.
	30	CALCISILTITE: as above.
	trace	CALCILUTITE.
975 - 980m	80	CALCARENITE: as above.
	20	CALCISILTITE: as above.
	trace	DOLOMITE: as above.
980 - 985m	80	CALCARENITE: as above; occasional glauconitic inclusions.
	20	CALCISILTITE: as above.
	trace	DOLOMITE.
	trace	CALCILUTITE.
985 - 990m	60	CALCARENITE: as above.
	40	CALCISILTITE: as above.
	trace	FORAMS.
990 - 995m	60	CALCISILTITE: as above.
	40	CALCARENITE.
	trace	
995 - 1000m	70	CALCARENITE: as above.
	30	CALCISILTITE: as above.
	trace	DOLOMITE.
1000 - 1005m	80	CALCARENITE: light brown to predominantly medium light grey, soft to extremely hard when well cemented, fine to medium grained, poorly sorted, calcareous cement.
	20	CALCISILTITE: as above.
	trace	PYRITE.
	trace	GLAUCONITE.
1005 - 1010m	80	CALCARENITE: as above.
	10	CALCISILTITE: as above.
	trace	CALCILUTITE.
	trace	DOLOMITE.
1010 - 1015m	80	CALCARENITE: as above.
	20	CALCISILTITE: as above.
	trace	GLAUCONITE.
	trace	DOLOMITE.
1015 - 1020m	70	CALCARENITE: as above.
	30	CALCISILTITE: as above.
	trace	GLAUCONITE.

- 9 -

1020 - 1025m	80 20 trace trace	CALCISILTITE: as above. CALCARENITE: as above. GLAUCONITE. DOLOMITE.
1025 - 1030m	90 10 trace trace	CALCISILTITE: as above. CALCARENITE: as above. DOLOMITE. GLAUCONITE.
1030 - 1035m	80 20 trace trace trace	CALCISILTITE: as above. CALCARENITE: as above. GLAUCONITE. DOLOMITE. PYRITE.
1035 - 1040m	70 30 trace trace	CALCISILTITE: as above. CALCARENITE: as above; common small glauconitic inclusions. CALCILUTITE. GLAUCONITE.
1040 - 1045m	60 40 trace	CALCISILTITE: as above. CALCARENITE: as above. GLAUCONITE.
1045 - 1050m	50 50 trace	CALCISILTITE: as above. CALCARENITE: as above. CALCILUTITE.
1050 - 1055m	50 50 trace trace	CALCARENITE: as above. CALCISILTITE: as above. GLAUCONITE. CALCILUTITE.
1055 - 1060m	80 20 trace trace	CALCARENITE: as above; becoming more glauconitic. CALCISILTITE: as above. GLAUCONITE. PYRITE.
1060 - 1065m	50 50 trace trace trace	CALCARENITE: as above. CALCISILTITE: as above. GLAUCONITE. PYRITE. FORAMS.
1065 - 1070m	50 50 trace trace trace	CALCARENITE: as above; except becoming slightly coarser and more glauconitic. CALCISILTITE: as above. FORAMS. GLAUCONITE. CALCILUTITE.
1070 - 1075m	60 40 trace trace	CALCISILTITE: as above; becoming more sandy. CALCARENITE: as above. GLAUCONITE. FORAMS.
1075 - 1080m	50 50 trace trace	CALCISILTITE: as above. CALCARENITE: as above. DOLOMITE. FORAMS.

1080 - 1085m	80 20 trace trace	CALCARENITE: as above. CALCISILTITE: as above. FORAMS. GLAUCONITE.
1085 - 1090m	100 trace trace trace trace	CALCARENITE: as above. CALCISILTITE. PYRITE. FORAMS. GLAUCONITE.
1090 - 1095m	100 trace trace trace	CALCARENITE: as above. DOLOMITE: as above. FORAMS. CALCISILTITE.
1095 - 1100m	100 trace trace trace trace	CALCARENITE: as above. DOLOMITE. BIVALVES. GLAUCONITE. FORAMS.
1100 - 1105m	90 10 trace trace trace	CALCARENITE: as above. CALCISILTITE: as above. DOLOMITE. GLAUCONITE. FORAMS.
1105 - 1110m	90 10 trace trace trace	CALCARENITE: as above. CALCISILTITE: as above. DOLOMITE. GLAUCONITE. FORAMS.
1110 - 1115m	80 20 trace trace trace	CALCARENITE: as above. CALCISILTITE: as above. DOLOMITE. GLAUCONITE. FORAMS.
1115 - 1120m	90 10 trace trace trace	CALCARENITE: as above. SANDSTONE: translucent to clear, loose grains, coarse grained, subangular to well rounded, predominantly well rounded, moderately sorted, possible minor calcareous cement; no shows. GLAUCONITE: common. CALCISILTITE. FORAMS.
1120 - 1125m	50 50 trace trace	SANDSTONE: as above; well sorted, well rounded, loose grains; no shows. CALCARENITE: common glauconitic inclusions. GLAUCONITE. FORAMS.
1125 - 1130m	60 40 trace trace trace	SANDSTONE: as above; abundant primary quartz-white, angular cuttings, extremely hard, poorly sorted. CALCARENITE: as above. PYRITE. GLAUCONITE. FORAMS.

1130 - 1135m	60 40 trace trace trace	SANDSTONE: as above. CALCARENITE: as above. PYRITE. GLAUCONITE. FORAMS.
1135 - 1140m	70 20 10 trace trace trace	SANDSTONE: as above. CALCISILTITE: as above. CALCARENITE: as above. GLAUCONITE. FORAMS. DOLOMITE.
1140 - 1145m	70 20 10 trace	SANDSTONE: as above. CALCARENITE: as above; contains abundant glauconite. CALCISILTITE. GLAUCONITE.
1145 - 1150m	70 20 10 trace trace	SANDSTONE: as above. CALCISILTITE: as above. CALCARENITE: as above. GLAUCONITE. DOLOMITE.
1150 - 1155m	50 30 20 trace trace trace	SANDSTONE: as above; less primary quartz. CALCARENITE: as above. CALCISILTITE: as above. GLAUCONITE. FORAMS. DOLOMITE: (rare).
1155 - 1160m	70 20 10 trace trace trace	SANDSTONE: as above; only coarse grained, well rounded, well sorted, loose quartz grains; no shows. CALCARENITE: as above. CALCISILTITE: as above. FORAMS. GLAUCONITE. DOLOMITE.
1160 - 1165m	80 10 10 trace trace trace	SANDSTONE: as above. CALCARENITE: as above. CALCISILTITE: as above. FORAMS. DOLOMITE. GLAUCONITE.
1165 - 1170m	70 20 10 trace trace trace trace	SANDSTONE: as above. CALCARENITE: as above. CALCILUTITE: white, very soft, highly calcareous. DOLOMITE. CALCISILTITE. FORAMS GLAUCONITE.
1170 - 1175m	80 10 10 trace trace	SANDSTONE: greater proportion of primary quartz to loose grains. CALCARENITE: as above; except predominantly white. CALCILUTITE: as above. GLAUCONITE. FORAMS.

POOH FOR NEW BIT.

1175 - 1180m	70	CALCAREOUS SANDSTONE: white to very light grey, moderately hard to very hard, fine to coarse grained, angular to subangular, poorly sorted, extremely heavy calcareous cement; dull white-yellow mineral fluorescence.
	20	CALCISILTITE: medium dark grey, soft to moderately hard, blocky to subrounded cuttings, highly calcareous.
	10	SANDSTONE: as above; no primary quartz, all loose grains.
	trace trace	GLAUCONITE. CALCILUTITE.
1180 - 1185m	80	CALCAREOUS SANDSTONE: as above; glauconitic inclusions.
	10	CALCISILTITE: as above.
	10	SANDSTONE: as above.
	trace trace trace	CALCILUTITE. GLAUCONITE. DOLOMITE.
	1185 - 1190m	80
10		CALCARENITE: as above; glauconitic inclusions.
10		CALCISILTITE: as above.
trace trace trace		CALCAREOUS SANDSTONE: probably cavings. GLAUCONITE. PYRITE.
1190 - 1195m		60
	30	CALCISILTITE: as above.
	10	CALCARENITE: as above.
	trace trace	GLAUCONITE: becoming very common. SANDSTONE: as above.
	1195 - 1200m	80
20		CALCISILTITE: as above.
trace trace		GLAUCONITE. SANDSTONE.
1200 - 1205m		80
	20	CALCISILTITE.
	trace trace	FORAMS. GLAUCONITE.
	1205 - 1210m	70
30		CALCISILTITE: as above.
trace		GLAUCONITE: rare.
1210 - 1215m	80	CALCILUTITE: as above.
	20	CALCISILTITE: as above.
	trace trace	GLAUCONITE. SANDSTONE: loose grains as above.
	1215 - 1220m	70
30		CALCISILTITE: as above.
trace		GLAUCONITE: common.
1220 - 1225m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
	trace trace	GLAUCONITE: increasingly common. FORAMS.

1225 - 1230m	50	CALCILUTITE: as above.
	50	CALCISILTITE: as above.
	trace	GLAUCONITE: common and larger pellets.
	trace	CALCARENITE: very fine grained and silty.
1230 - 1235m	60	CALCISILTITE: as above.
	40	CALCILUTITE: as above.
	trace	GLAUCONITE: dark grey, pelletal, becoming larger pellets and increasingly common.
	trace	FORAMS.
	trace	CALCARENITE: as above.
1235 - 1240m	70	CALCISILTITE: as above.
	30	CALCILUTITE: as above.
	trace	GLAUCONITE.
	trace	FORAMS.
1240 - 1245m	90	CALCILUTITE: as above.
	10	CALCISILTITE: as above.
	trace	GLAUCONITE.
1245 - 1250m	100	CALCILUTITE: as above.
	trace	CALCISILTITE: as above.
	trace	GLAUCONITE.
1250 - 1255m	70	CALCILUTITE: as above.
	30	CALCISILTITE: as above.
	trace	CALCARENITE.
	trace	GLAUCONITE.
1255 - 1260m	100	CALCILUTITE: as above.
	trace	CALCISILTITE: as above.
	trace	GLAUCONITE.
	trace	FORAMS.
	trace	CALCARENITE.
1260 - 1265m	90	CALCILUTITE: as above; not as strongly calcareous.
	10	CALCAREOUS SILTSTONE: 2 types: Type (1) - green, soft, subrounded cuttings, occasional small glauconite pellets, glauconite rich, weak to moderately calcareous. Type (2) - dominantly pale brown, soft to occasionally moderately hard, angular cuttings, weak to moderately calcareous, occasional pyrite inclusions, dull lustre.
	trace	PYRITE.
	trace	GLAUCONITE: abundant.
1265 - 1270m	60	CALCILUTITE: predominantly pale brown, rounded cuttings, very soft, moderately calcareous.
	20	CALCISILTITE: pale brown, dull lustre (soapy), soft to moderately hard, blocky to angular cuttings, moderately calcareous.
	20	SANDSTONE: 2 types: Mainly Type (1) translucent, soft to moderately hard, predominantly quartz aggregates, fine to medium grained, moderately to well sorted, common glauconitic inclusions, weak calcareous cement; 5% dull, spotty, yellow fluorescence, no cut, extremely slow (15 minutes) and weak diffuse white crush cut from only one aggregate, no residue or stain.

1265 - 1270m cont'd	trace trace	Occasional Type (2) - translucent, loose quartz grains, medium to coarse grained, subrounded, to well rounded, well sorted; excellent inferred visible porosity; weak or no cement; no shows. PYRITE. GLAUCONITE: abundant.
		C.B.U. at 1274.5m.
1270 - 1275m (Bottoms up sample)	70 20 10	CALCILUTITE: as above. CALCISILTITE: as above. SANDSTONE: predominantly loose quartz grains, translucent to clear, coarse to very coarse grained, rounded to well rounded, well sorted, poor inferred cement, excellent inferred porosity. SHOWS: Less than 5% spotty, dull, yellow hydrocarbon fluorescence, no cut, no crush cut after 30 minutes; not mineral fluorescence; this sample is associated with a lot of gas, rich in C6 fraction despite lack of cut. PYRITE. GLAUCONITE. DOLOMITE: dull yellow mineral fluorescence.
	trace trace trace	
1275 - 1280m	50 50	CALCISILTITE: as above. SANDSTONE: loose quartz grains (Type (2) as above), translucent to clear, coarse to occasionally granule sized grains, subrounded to well rounded; well sorted, excellent inferred porosity; no cement (no aggregates), no shows. GLAUCONITE: becoming much less common.
	trace	
1280 - 1285m	90 10 trace trace trace	SANDSTONE: loose quartz grains as above; translucent to clear, coarse to granule sized, subrounded to well rounded, well sorted; no cement can be inferred; excellent inferred porosity; no shows. CALCISILTITE: as above. CALCARENITE: cavings. DOLOMITE. GLAUCONITE.
1285 - 1290m	100 trace trace	SANDSTONE: translucent to predominantly clear, loose quartz grains, very coarse to occasionally granule sized grains, rounded to well rounded, very well sorted; excellent inferred porosity; no shows; no fluorescence; no cut; no crush cut on the only aggregate. CALCISILTITE: cavings. GLAUCONITE.
1290 - 1300m	100 trace trace	SANDSTONE: as above; except subangular to subrounded, moderately sorted; no shows. GLAUCONITE: cavings. CALCISILTITE: cavings.
1300 - 1310m	100 trace	SANDSTONE: as above; no shows. CALCISILTITE: cavings.
1310 - 1320m	100 trace	SANDSTONE: as above; no shows. GLAUCONITE: cavings.

1320 - 1330m	100 trace	SANDSTONE: as above; no shows. CARBONACEOUS SILTSTONE: black to dark reddish brown, angular to subangular cuttings, highly carbonaceous, slight conchoidal fracture and brittle habit suggest possible coal in one cutting, majority display cleavage; no mineral fluorescence.
1330 - 1335m	90 10 trace	SANDSTONE: as above; no shows. CARBONACEOUS SILTSTONE: as above; grades into coal. GLAUCONITE: possible cavings.
1335 - 1340m	70 20 10 trace trace	SANDSTONE: as above; no shows. CARBONACEOUS SILTSTONE: as above; brownish grey to black, platy cuttings, highly carbonaceous, grades into coal. COAL: black, moderately hard, brittle, angular splintery cuttings, occasional 1mm thick lenses within carbonaceous siltstone, weak conchoidal fracture. GLAUCONITE: pale green to dark green, pelletal. PYRITE.
1340 - 1350m	90 10 trace	SANDSTONE: as above; no shows; excellent inferred porosity. SILTSTONE: 2 types: Type (1) - carbonaceous siltstone as above, grades into coal. Type (2) - red-brown to yellow-brown, slightly carbonaceous, subangular cuttings, occasional sandy inclusions. COAL: as above; black, vitreous lustre, brittle, conchoidal fracture; trace exinite fluorescence; no cut.
1350 - 1360m	90 10 trace trace trace	SANDSTONE: as above; no shows. SILTSTONE: mostly Type (1) as above. COAL: as above. PYRITE: relatively common. GLAUCONITE.
1360 - 1370m	70 20 10 trace	SANDSTONE: as above; frosty to clear, very well rounded, very well sorted; excellent visual porosity; no shows. SILTSTONE: all Type (1) as above. COAL: as above. PYRITE.
1370 - 1375m	80 20 trace trace	SANDSTONE: as above; no shows. SILTSTONE: Type (1) and Type (2) present also. Type (3) - calcareous siltstone, light brown to greenish grey, subfissile, subangular to blocky cuttings, highly calcareous. COAL: as above. GLAUCONITE.
1375 - 1380m	80 20 trace trace	CARBONACEOUS SILTSTONE: Type (1) as above; black, moderately hard, subfissile, angular to subangular cuttings, occasionally brittle, grades into coal. COAL: as above; grades into carbonaceous siltstone. SANDSTONE: as above; no shows. GLAUCONITE.

1380 - 1385m	80	COAL: very dark brown to black, brittle, occasional conchoidal fracture, grades into carbonaceous siltstone.
	10	CARBONACEOUS SILTSTONE: as above.
	10	SANDSTONE: as above; excellent inferred porosity; no shows.
	trace	GLAUCONITE.
1385 - 1390m	trace	PYRITE.
	50	SANDSTONE: frosty to predominantly clear loose quartz grains, no aggregates, medium to coarse grained, subangular to subrounded, moderately well sorted; good visible porosity; very little to no cement inferred; no fluorescence; no shows.
	30	CARBONACEOUS SILTSTONE: as above; subfissile.
	20	COAL: as above; exinite fluorescence on a few chips.
1390 - 1395m	trace	SILTSTONE: Type (2) and (3) as above.
	40	CARBONACEOUS SILTSTONE: as above.
	40	COAL: as above.
	20	SANDSTONE: as above; no shows; no aggregates.
1395 - 1400m	trace	SILTSTONE: Type (2) and (3) as above.
	50	COAL: as above.
	50	CARBONACEOUS SILTSTONE: as above.
	trace	SANDSTONE: as above; no shows and no aggregates, still good to excellent inferred porosity.
1400 - 1405m	trace	SILTSTONE: Type (2) and rare Type (3).
	40	COAL: as above.
	40	CARBONACEOUS SILTSTONE: as above.
	20	SANDSTONE: as above; except predominantly subangular, poorly sorted; poor to moderate inferred porosity.
1405 - 1410m	trace	PYRITE: microcrystalline.
	trace	SILTSTONE: Type (3) as above; olive grey, occasional glauconite inclusions.
	40	COAL: as above.
	40	CARBONACEOUS SILTSTONE: as above.
1410 - 1415m	20	SANDSTONE: as above; no shows.
	trace	SILTSTONE: Type (3) - glauconitic and calcareous.
	50	COAL: as above.
	30	SANDSTONE: as above; rounded, well sorted; excellent inferred porosity; no aggregates; no shows.
1415 - 1420m	20	CARBONACEOUS SILTSTONE; as above.
	trace	SILTSTONE: Type (3) - calcareous, occasionally glauconitic.
	trace	PYRITE: replacement of woody fibrous material by pyrite, original structure preserved.
	trace	SILTSTONE: Type (2) - as above; micromicaceous, carbonaceous.
1415 - 1420m	50	SANDSTONE: as above; loose quartz grains; no shows.
	40	COAL: as above.
	10	CARBONACEOUS SILTSTONE: as above.
	trace	SILTSTONE: Type (3) as above; calcareous.

- 17 -

1420 - 1425m	70	COAL: as above.
	30	CARBONACEOUS SILTSTONE: as above; micromicaceous; grades into coal.
	trace	SANDSTONE: as above; no shows.
1425 - 1430m	60	COAL: as above.
	30	CARBONACEOUS SILTSTONE.
	10	SANDSTONE: as above; no shows.
	trace	SILTSTONE: light reddy brown, fissile, micromicaceous, carbonaceous flecks, also traces Type (3) as above.
	trace	MICA: large flakes approximately 1mm diameter (muscovite).
1430 - 1435m	50	SANDSTONE: as above; coarse to very coarse grained, predominantly rounded, well sorted; excellent inferred porosity.
	40	CARBONACEOUS SILTSTONE: as above; black, grades into coal.
	10	COAL: as above.
1435 - 1440	100	COAL: as above; bright, blue-white exinite fluorescence.
	trace	CARBONACEOUS SILTSTONE: as above.
	trace	SANDSTONE: milky to predominantly translucent, occasionally red brown staining; no shows.
	trace	DOLOMITE: dull, yellow mineral fluorescence.
1440 - 1445m	60	COAL: as above; trace bright, blue-white fluorescence (exinite), strong but slow bright white cut.
	20	CARBONACEOUS SILTSTONE: as above.
	20	SANDSTONE: as above; no shows.
	trace	DOLOMITE: dull yellow mineral fluorescence (rare).
	trace	SILTSTONE: calcareous (rare).
1445 - 1450m	60	COAL: higher vitrinite content, more vitreous lustre, brittle, conchoidal fracture.
	20	SANDSTONE: as above; no shows; good inferred porosity.
	20	CARBONACEOUS SILTSTONE: as above; micromicaceous.
1450 - 1455m	70	COAL: as above.
	20	CARBONACEOUS SILTSTONE: as above; grades into coal; occasional arenaceous inclusions.
	10	SANDSTONE: as above; no shows.
1455 - 1460m	70	SANDSTONE: frosty to transparent, loose grains, no aggregates, medium to very coarse grained, subrounded to well rounded, moderately sorted, little or no matrix and cement; very good inferred porosity.
	20	COAL: as above.
	10	CARBONACEOUS SILTSTONE: as above.
	trace	DOLOMITE: one cutting - dull medium grey, extremely hard, angular cuttings, dull yellow mineral fluorescence.

1460 - 1465m	90	SANDSTONE: as above; except possible argillaceous matrix/cement indicated by occasional coating on quartz grains, no aggregates; trace bright, blue white fluorescence on loose quartz grains, very slow (45 minutes), very weak diffuse white cut (small haloe).
	10	COAL.
	trace	CARBONACEOUS SILTSTONE.
	trace	SILTSTONE: Type (3) as above.
1465 -1470m	100	SANDSTONE: frosty to transparent, very coarse grained, subangular to rounded, well sorted, loose grains, no effective cement inferred; no shows.
	trace	COAL: as above.
	trace	CARBONACEOUS SILTSTONE: as above.
1470 - 1475m Bottoms up sample	90	SANDSTONE: as above; no shows.
	10	COAL.
	trace	CARBONACEOUS SILTSTONE.
	trace	GLAUCONITE: in calcareous Siltstone (Type (3) as above).
1475 - 1480m	50	CARBONACEOUS SILTSTONE: as above; highly micaceous and fissile.
	30	SANDSTONE: as above; no shows.
	20	COAL: as above; vitreous to subvitreous lustre, brittle.
	trace	PYRITE: microcrystalline.
1480 - 1485m	60	COAL: as above.
	20	SANDSTONE: as above; no shows.
	20	CARBONACEOUS SILTSTONE.
	trace	CLAYSTONE: white to buff, very soft, sticky, non calcareous.
	trace	PYRITE.
1485 - 1489m Bottoms up sample	80	SANDSTONE: milky to predominantly translucent, coarse to very coarse grained, subangular to subrounded, moderately to well sorted, loose quartz grains (no aggregates), very poor or no inferred cement, possible clay matrix indicated by occasional claystone globules; moderate to good inferred porosity; no shows.
	10	COAL: as above.
	10	CARBONACEOUS SILTSTONE: as above; becoming slightly arenaceous.
	trace	SILTSTONE: Type (3) - calcareous, olive grey, as above.
		POOH for Core No. 1 - no shows but good heavy fraction in gas.
		Cut Core No. 1 F/1489.0 - 1500.4m.
		Cut Core No. 2 F/1500.4 - 1511.6m.
1511.6 - 1515m	90	SANDSTONE: translucent grey to clear, loose grains, medium to very coarse grained, subangular, moderately to well sorted, no cement; no shows.
	10	SILTSTONE: 3 types: Type (1) - carbonaceous siltstone as above.

1510 - 1515m cont'd		Type (2) - calcareous siltstone, greeny grey, soft, highly calcareous, glauconitic inclusions. Type (3) - red brown to pale brown, non calcareous, angular splintery cuttings.
	trace	COAL.
	trace	GLAUCONITE.
1515 - 1520m	90	SANDSTONE: as above; no shows; coarse to granule sized grains.
	10	SILTSTONE: all 3 types as above; Type (2) predominates.
	trace	COAL.
	trace	GLAUCONITE.
1520 - 1525m	80	SANDSTONE: as above; also fine grained dolomitic cemented aggregates, giving 40% spotty, dull, yellow mineral fluorescence; no shows.
	20	SILTSTONE: as above.
1525 - 1530m	70	SANDSTONE: as above; common dolomitic aggregates, extremely hard; no shows.
	20	SILTSTONE: as above.
	10	DOLOMITE: variable colours, very hard to extremely hard, tabular to splintery cuttings.
	trace	COAL.
	trace	PYRITE.
	trace	GLAUCONITE.
1530 - 1535m	60	SANDSTONE: as above; no shows; 10% dolomitic mineral fluorescence.
	30	SILTSTONE: as above.
	10	COAL: as above.
	trace	PYRITE.
	trace	GLAUCONITE: becoming common.
1535 - 1540m	80	SILTSTONE: all 3 types as above; becoming more carbonaceous.
	20	SANDSTONE: as above; mostly loose grains.
	trace	DOLOMITE.
	trace	COAL.
	trace	GLAUCONITE.
	trace	PYRITE.
1540 - 1545m	80	SILTSTONE: multicoloured - grey-green, red brown and dark brown, carbonaceous.
	20	SANDSTONE: as above; 5% dolomitic mineral fluorescence.
	trace	COAL.
	trace	DOLOMITE.
1545 - 1550m	80	SANDSTONE: mostly loose grains as above.
	20	SILTSTONE: as above.
	trace	COAL.
	trace	CLAYSTONE.
1550 - 1555m	90	SANDSTONE: as above.
	10	SILTSTONE: mostly carbonaceous, some calcareous.
	trace	COAL.
	trace	DOLOMITE.
1555 - 1560m	100	SANDSTONE: as above; loose grains; no shows.
	trace	SILTSTONE: as above.
	trace	PYRITE.
	trace	COAL.

1560 - 1565m	100 trace trace trace	SANDSTONE: as above; no shows. COAL. SILTSTONE. DOLOMITE.
1565 - 1570m	100 trace trace trace	SANDSTONE: as above; no shows. SILTSTONE. PYRITE. GLAUCONITE.
1570 - 1575m	90 10 trace trace	SANDSTONE: as above; no shows. CLAYSTONE: white to light brown, very soft, sticky. SILTSTONE: carbonaceous. PYRITE.
1575 - 1580m	100 trace trace	SANDSTONE: as above; no shows. SILTSTONE: carbonaceous and calcareous siltstone (less common). PYRITE.
1580 - 1585m	100 trace trace	SANDSTONE: approximately 60% loose grains and 40% fine to medium grained dolomitic aggregates; 30% dull to moderately bright yellow mineral fluorescence, no cut, no crush cut. SILTSTONE: predominantly carbonaceous rather than calcareous. PYRITE: often as cement in sandstone aggregates.
1585 - 1590m	100 trace trace trace	SANDSTONE: as above; approximately 50% dolomitic mineral fluorescence, approximately 50% loose grains; few dolomitic aggregates have weak but moderately fast blue-white streaming cut and very weak instantaneous blue-white crush cut; gas bubbling out of aggregates, tight. SILTSTONE. DOLOMITE: very common, pale brown, medium grey and buff coloured when cementing quartz grains, extremely hard, angular cuttings, yellow mineral fluorescence. PYRITE.
1590 - 1595m	100 trace trace	SANDSTONE: as above; about 80:20 dolomitic aggregates to loose grains, gives yellow mineral fluorescence; no shows. SILTSTONE: carbonaceous. COAL.
1595 - 1600m	60 30 10 trace	SANDSTONE: as above; no shows; dolomitic. CARBONACEOUS SILTSTONE: dark reddish black to brownish black, platy cuttings, occasionally carbonaceous, laminae visible. COAL: black, moderately hard, brittle, slight conchoidal fracture. PYRITE.
1600 - 1605m	60 20 20 trace	SANDSTONE: as above; no shows; dolomitic. COAL: as above. CARBONACEOUS SILTSTONE: as above. PYRITE.

1605 - 1610m	80 10 10 trace trace	SANDSTONE: as above; no shows; dolomitic. COAL: as above. CARBONACEOUS SILTSTONE: as above. CALCAREOUS SILTSTONE: olive grey, soft to moderately hard, highly calcareous. DOLOMITE.
1610 - 1615m	80 10 10 trace trace	SANDSTONE: as above; no shows. COAL: as above. CARBONACEOUS SILTSTONE. PYRITE. CALCAREOUS SILTSTONE.
1615 - 1620m	90 10 trace trace	SANDSTONE: as above; no shows; mostly loose quartz grains. CARBONACEOUS SILTSTONE. COAL. PYRITE.
1620 - 1625m	100 trace trace trace trace	SANDSTONE: as above; no shows; dolomitic cement. COAL. CARBONACEOUS SILTSTONE. PYRITE. DOLOMITE: becoming common.
1625 - 1630m	100 trace trace trace trace	SANDSTONE: as above; no shows. COAL: as above. CARBONACEOUS SILTSTONE: as above. DOLOMITE. PYRITE.
1630 - 1635m	100 trace trace	SANDSTONE: as above; no shows. CARBONACEOUS SILTSTONE. DOLOMITE.
1635 - 1640m	100 trace trace	SANDSTONE: as above; no shows. CARBONACEOUS SILTSTONE. DOLOMITE.
1640 - 1645m	100 trace trace	SANDSTONE: as above; no shows. CARBONACEOUS SILTSTONE. DOLOMITE.
1645 - 1650m	70 30 trace trace trace	SANDSTONE: as above; no shows. COAL: black, brittle, vitreous lustre, conchoidal fracture. CARBONACEOUS SILTSTONE. PYRITE. DOLOMITE.
1650 - 1655m	50 50	COAL: as above. SANDSTONE: as above; mostly loose grains, medium coarse grained, subangular to subrounded, trace dolomitic cement and dull yellow mineral fluorescence.
1655 - 1660m	70 20 10 trace	COAL: as above. SANDSTONE: as above; no shows. CARBONACEOUS SILTSTONE: as above. DOLOMITE.
1660 - 1665m	70 20 10	COAL: as above. CARBONACEOUS SILTSTONE: as above. SANDSTONE: as above; no shows.

1665 - 1670m	80	CALCAREOUS SILTSTONE: medium to dark grey, soft, angular to subangular cuttings, occasionally sandy grades into shale i.e. poorly sorted, highly calcareous.
	10	COAL: as above.
	10	SANDSTONE: as above; no shows; traces of dolomitic mineral fluorescence from aggregates.
	trace	GLAUCONITE: relatively common.
1670 - 1675m	trace	CLAYSTONE: white, very soft, non calcareous.
	50	CALCAREOUS SILTSTONE: as above.
	30	CARBONACEOUS SILTSTONE: as above.
	10	COAL: as above.
1675 - 1680m	10	SANDSTONE: as above; no shows.
	10	PYRITE: abundant.
	60	SANDSTONE: as above; predominantly loose grains; no shows.
	10	CALCAREOUS SILTSTONE: as above; occasional glauconitic inclusions.
	10	CARBONACEOUS SILTSTONE.
	10	COAL: as above.
1680 - 1685m	10	CLAYSTONE: as above.
	trace	PYRITE.
	trace	GLAUCONITE.
	70	SANDSTONE: translucent to clear, fine to predominantly medium grained, very well sorted, subangular to subrounded, moderate inferred porosity, 100% loose quartz grains, heavy inferred clay matrix due to dirty and clayey content compared to prior sandstone: no shows.
	10	COAL: as above.
	10	CLAYSTONE: as above.
1685 - 1690m	10	CALCAREOUS SILTSTONE: as above.
	trace	PYRITE.
	trace	DOLOMITE.
	100	SANDSTONE: as above; medium grained, angular to subrounded, very well sorted; no shows.
1690 - 1695m	trace	SILTSTONE: as above; both carbonaceous and calcareous siltstone in equal proportions.
	trace	COAL.
	trace	PYRITE.
	70	COAL: as above.
1695 - 1700m	30	SANDSTONE: as above; no shows.
	trace	CLAYSTONE: possibly indicating clay matrix in sandstone.
	trace	CARBONACEOUS SILTSTONE.
	100	COAL: as above.
1700 - 1705m	trace	SANDSTONE: coarse grained, well sorted, subangular to subrounded; no shows.
	70	SANDSTONE: as above; no shows.
	20	COAL: as above.
	10	SILTSTONE: both calcareous and carbonaceous siltstones.
1700 - 1705m	trace	PYRITE.
	trace	CLAYSTONE: as above.

1705 - 1710m	100 trace trace trace trace	COAL: as above. SANDSTONE: as above; no shows. CARBONACEOUS SILTSTONE. PYRITE. CLAYSTONE.
1710 - 1715m	70 20 10 trace trace trace	COAL: as above; black, brittle, angular cuttings, vitreous lustre, conchoidal fracture, vitrinite rich. SANDSTONE: as above; no shows; dolomitic cemented aggregates recurring. CARBONACEOUS SILTSTONE: as above; not as carbonaceous i.e. reddish brown to pale brown. CLAYSTONE. DOLOMITE. PYRITE.
1715 - 1720m	100 trace trace	COAL: as above. SANDSTONE: as above; mostly loose grains; no shows. CARBONACEOUS SILTSTONE: as above.
1720 - 1725m		No sample - cleaning shakers.
1725 - 1730m	80 10 10 trace trace	SANDSTONE: milky to clear, coarse to very coarse grained, no aggregates, little inferred cement, subangular to angular, well sorted, probable clay matrix; trace dull, yellow dolomitic mineral fluorescence; one aggregate gave a slow, weak, bright blue-white streaming cut, no stain and no residue. COAL: as above. CARBONACEOUS SILTSTONE: as above. PYRITE. CLAYSTONE.
1730 - 1735m	80 10 10 trace trace	SANDSTONE: as above; no shows. COAL: as above. CARBONACEOUS SILTSTONE: as above. CALCAREOUS SILTSTONE. PYRITE.
1735 - 1740m	100 trace trace trace trace	SANDSTONE: as above; no aggregates, little inferred cement, clay matrix inferred, well sorted; moderate inferred porosity; no shows. COAL. CLAYSTONE. SILTSTONE: both types as above. PYRITE.
1740 - 1745m	90 10 trace trace trace	SANDSTONE: as above; no shows; mostly loose grains - one aggregate displays dolomite mineral fluorescence. COAL: as above. CARBONACEOUS SILTSTONE: as above. PYRITE: associated with sandstone. CLAYSTONE: as above.
1745 - 1750m	50 50 trace trace	SANDSTONE: as above; clay matrix inferred - only a few aggregates; no shows; no dolomite cement. COAL: as above. CARBONACEOUS SILTSTONE. PYRITE.

1750 - 1755m	40	COAL: as above.
	30	SANDSTONE: as above; no shows; 100% loose grains.
	30	SILTSTONE: as above; highly carbonaceous.
	trace	PYRITE.
1755 - 1760m	trace	DOLOMITE.
	60	SANDSTONE: as above; no shows.
	30	COAL: as above.
	10	CARBONACEOUS SILTSTONE: as above.
1760 - 1765m	trace	PYRITE.
	trace	CALCAREOUS SILTSTONE.
	50	SANDSTONE: as above; no shows.
	30	COAL: as above.
1765 - 1770m	20	SILTSTONE: as above; carbonaceous, also noncarbonaceous, micaceous, pale brown, noncalcareous siltstone.
	trace	PYRITE.
	30	COAL: black, moderately hard, vitreous lustre, well developed conchoidal fracture, occasional pyrite banding.
	30	CLAYSTONE: white to dominantly buff brown, very soft, occasionally silty, sticky and noncalcareous.
1770 - 1775m	30	SILTSTONE: 3 types: Type (1) - carbonaceous, dark brownish grey, carbonaceous, micaceous, subfissile, soft to firm, subangular to blocky cuttings, occasionally sandy.
	30	Type (2) - olive grey, blocky cuttings, soft, often sandy, highly calcareous.
	30	Type (3) - light brown to red brown, moderately hard, dull lustre, subangular cuttings, noncalcareous, noncarbonaceous.
	10	SANDSTONE: coarse grained, 90% loose grains, 10% dolomitic cemented aggregates giving a dull to bright, yellow mineral fluorescence, no cut, no crush cut.
1775 - 1780m	trace	PYRITE.
	trace	GLAUCONITE.
	40	CLAYSTONE: as above.
	20	SANDSTONE: as above; no shows; no aggregates and no dolomitic mineral fluorescence.
1780 - 1785m	20	COAL: as above.
	20	SILTSTONE: as above; all 3 types present.
	trace	PYRITE.
	50	CLAYSTONE: as above; except now red-brown to white.
1775 - 1780m	30	SILTSTONE: as above; all 3 types present.
	10	COAL: as above.
	10	SANDSTONE: as above; no dolomite, 100% loose grains; no shows.
	trace	PYRITE.
1780 - 1785m	50	CLAYSTONE: as above.
	20	SANDSTONE: as above; no shows.
	20	SILTSTONE: as above; all 3 types present Type (1) uncommon.
	10	COAL: as above.
1780 - 1785m	trace	PYRITE: very common.

1785 - 1790m	80	SANDSTONE: 100% loose quartz grains, milky white to clear, subangular to subrounded, fine to coarse grained, poor to moderately sorted; moderate visible porosity; little or no cement inferred, possible argillaceous matrix inferred; no shows.
	10	CLAYSTONE: as above.
	10	SILTSTONE: as above; all 3 types present.
	trace	GLAUCONITE.
	trace	PYRITE.
1790 - 1795m	70	SANDSTONE: as above; no shows.
	20	SILTSTONE: as above.
	10	COAL: as above.
	trace	CLAYSTONE.
	trace	PYRITE.
1795 - 1800m	40	CLAYSTONE: as above.
	30	SANDSTONE: as above; no shows.
	20	SILTSTONE: as above.
	10	COAL: as above.
	trace	PYRITE.
1800 - 1805m	50	COAL: as above.
	20	SANDSTONE: as above; no shows.
	20	SILTSTONE: mostly carbonaceous siltstone.
	10	CLAYSTONE: as above.
	trace	PYRITE.
1805 - 1810m	70	CLAYSTONE: white to buff brown, very soft, sticky, water sensitive, noncalcareous.
	20	SILTSTONE: as above.
	10	COAL: as above.
	trace	SANDSTONE: as above; no shows.
	trace	PYRITE.
1810 - 1815m	70	CLAYSTONE: as above.
	20	COAL: as above.
	10	SILTSTONE: as above.
	trace	SANDSTONE: as above; loose grains; no shows.
1815 - 1820m	80	CLAYSTONE: as above.
	10	COAL: as above.
	10	SILTSTONE: as above.
	trace	SANDSTONE: as above; loose grains; no shows.
1820 - 1825m	70	CLAYSTONE: as above.
	20	COAL: as above.
	10	SILTSTONE: as above; Type (2) calcareous siltstone absent, still Type (1) (carbonaceous) and Type (3) red brown to light brown siltstone.
	trace	SANDSTONE: as above; no shows.
	trace	PYRITE.
1825 - 1830m	40	CLAYSTONE: as above.
	30	SANDSTONE: as above; dominantly loose quartz grains, coarse to very coarse grained, subangular to angular, well sorted; no shows; 5% dull, yellow dolomitic fluorescence.
	20	SILTSTONE: as above; no calcareous siltstone.
	10	COAL: as above.
	trace	PYRITE.

1830 - 1835m	40	CLAYSTONE: as above.
	20	SANDSTONE: as above; no shows.
	20	COAL: as above.
	20	SILTSTONE: as above; common carbonaceous siltstone - often sandy with carbonaceous lamellae.
	trace	PYRITE.
1835 - 1840m	trace	GLAUCONITE.
	40	SANDSTONE: common dolomitic aggregates giving dull to moderately bright, yellow mineral fluorescence; no cut, no crush cut; no shows.
	30	CLAYSTONE: as above.
	20	SILTSTONE: as above.
	10	COAL: as above.
1840 - 1845m	trace	PYRITE: nodular - commonly cements sand grains in aggregates.
	50	SANDSTONE: increasing proportion of dolomitic aggregates, fine to predominantly medium to coarse grained, translucent, extremely hard, subangular to angular, moderately sorted, very heavy dolomite cement; no inferred porosity; 20% dull yellow to bright yellow mineral fluorescence; no shows; loose grains (approximately 20% of total sandstone content) are similar but predominantly coarse to very coarse grained; no shows.
	30	CLAYSTONE: white to buff brown, very soft, noncalcareous.
	20	SILTSTONE: predominantly dark brown to dark reddy brown, carbonaceous and micaceous siltstone, soft to occasionally moderately hard, blocky to subangular cuttings, occasional carbonaceous lamellae; also red-brown to light brown, noncarbonaceous, noncalcareous siltstone, soft to moderately hard, angular to subangular cuttings, occasionally sandy; Type (1) and Type (3) as above respectively.
	trace	COAL: as above.
1845 - 1850m	trace	PYRITE.
	40	CLAYSTONE: as above.
	40	SILTSTONE: as above; also trace of Type (3) calcareous siltstone.
	10	COAL: as above.
	10	SANDSTONE: as above; 10% dolomitic mineral fluorescence; no shows.
1850 - 1855m	50	SILTSTONE: Type (1) and Type (3) as above, common; traces of Type (2) calcareous siltstone.
	30	CLAYSTONE: as above.
	10	SANDSTONE: as above; no shows; highly dolomitic.
	10	COAL: as above.
	trace	PYRITE: common.
1855 - 1860m	70	COAL: as above.
	20	SILTSTONE: as above.
	10	CLAYSTONE: as above.
	trace	SANDSTONE: as above; no shows.
	trace	PYRITE: common cement in sandstone aggregates.

1860 - 1865m	40	SILTSTONE: as above.
	30	CLAYSTONE: as above.
	20	COAL: as above.
	10	SANDSTONE: as above; no shows; predominantly loose quartz grains.
	trace	PYRITE: common as microcrystalline banding in coal cuttings.
1865 - 1870m	40	SILTSTONE: as above.
	20	SANDSTONE: as above; no shows.
	20	COAL: as above.
	20	CLAYSTONE: as above.
	trace	PYRITE.
1870 - 1875m	50	SILTSTONE: predominantly Type (1) carbonaceous siltstone, traces of Type (2) calcareous siltstone.
	30	SANDSTONE: predominantly loose quartz grains, coarse grained, subangular, well sorted; moderate inferred porosity; 5% dolomite mineral fluorescence indicates presence of dolomitic cemented quartz aggregates, fine to coarse grained, subangular to angular, poorly sorted, extremely hard; no inferred porosity; no shows.
	10	COAL: as above.
	10	CLAYSTONE: as above; white to occasionally greyish red, very soft, sticky, noncalcareous.
	trace	PYRITE.
1875 - 1880m	80	SILTSTONE: dark brown, soft, clayey, blocky cuttings, highly carbonaceous.
	10	COAL.
	10	CLAYSTONE: pale brown to dark brown, very soft, very sticky, noncalcareous.
	trace	SANDSTONE: loose grains; no shows.
1880 - 1885m	50	CLAYSTONE: as above.
	30	SILTSTONE: as above.
	20	COAL: as above.
	trace	SANDSTONE: as above; individual quartz grains; no shows.
1885 - 1890m	80	CLAYSTONE: as above; very sticky.
	20	SILTSTONE: as above.
	trace	COAL.
1890 - 1895m	90	CLAYSTONE: white to buff, very soft, very sticky, occasionally silty and sandy, noncalcareous.
	10	SANDSTONE: very fine grained dolomitic aggregates; no shows.
1895 - 1900m	80	CLAYSTONE: as above; becoming siltier.
	20	SILTSTONE: as above.
	trace	SANDSTONE: as above; no shows.
	trace	DOLOMITE.
	trace	COAL.
1900 - 1905m	80	CLAYSTONE: as above.
	20	SILTSTONE: as above.
	trace	SANDSTONE: as above; no shows.
	trace	COAL.
	trace	PYRITE.

1905 - 1910m	60 40 trace trace	CLAYSTONE: as above. SILTSTONE: as above. COAL. PYRITE.
1910 - 1915m	80 10 10 trace	CLAYSTONE: as above. SILTSTONE: as above. COAL: as above. PYRITE.
1915 - 1920m	50 50 trace trace trace	CLAYSTONE: as above. SILTSTONE: as above. COAL. SANDSTONE: as above; no shows. PYRITE.
1920 - 1925m	60 40 trace trace trace	CLAYSTONE: as above; occasionally silty. SILTSTONE: as above; occasionally sandy. COAL. PYRITE. SANDSTONE: as above; no shows.
1925 - 1930m	60 20 20 trace	SILTSTONE: as above; commonly sandy. CLAYSTONE: as above. COAL: as above. PYRITE.
1930 - 1935m	80 20 trace trace	SILTSTONE: as above; very soft, sticky, sandy. CLAYSTONE: as above. COAL. SANDSTONE: as above; no shows.
1935 - 1940m	60 30 10 trace	SILTSTONE: as above; very sandy - extremely fine. CLAYSTONE: as above. COAL: as above. PYRITE.
1940 - 1945m	50 50 trace trace	CLAYSTONE: as above. SILTSTONE: as above. COAL. SANDSTONE: very fine loose grains; no shows.
1945 - 1950m	80 20 trace trace	CLAYSTONE: becoming very silty; still light brown to buff, very soft, very sticky. SILTSTONE: very soft, buff to dark brown, occasionally carbonaceous. COAL. PYRITE.
1950 - 1955m	60 20 20 trace	CLAYSTONE: as above. SILTSTONE: as above. COAL: as above. PYRITE.
1955 - 1960m	40 40 20 trace	CLAYSTONE: as above. SILTSTONE: as above. COAL: as above. PYRITE.
1960 - 1965m	50 40	SILTSTONE: as above. SANDSTONE: mostly aggregates, translucent, hard to extremely hard, fine to predominantly medium grained, moderately to well sorted; heavy dolomitic cement destroying all porosity; no shows.

1960 - 1965m cont'd	10 trace	COAL: as above. PYRITE.
1965 - 1970m	40 30 20 10 trace	CLAYSTONE: as above. SILTSTONE: as above. SANDSTONE: as above; no shows. COAL: as above. PYRITE.
1970 - 1975m	50 50 trace trace trace	SILTSTONE: as above. CLAYSTONE: as above. COAL: as above. SANDSTONE: as above; no shows. PYRITE.
1975 - 1980m	60 40 trace trace trace	CLAYSTONE: as above. SILTSTONE: as above. SANDSTONE: as above; no shows. COAL. PYRITE.
1980 - 1985m	40 40 20 trace	CLAYSTONE: as above. COAL: black, very hard, vitreous lustre, conchoidal fracture. SILTSTONE: as above. PYRITE.
1985 - 1990m	60 30 10	SILTSTONE: as above. COAL: as above. SANDSTONE: as above; no shows.
1990 - 1995m	70 20 10 trace trace	SILTSTONE: as above. COAL: as above. SANDSTONE: as above; no shows. PYRITE. CLAYSTONE.
1995 - 2000m	70 20 10 trace trace	SILTSTONE: as above. CLAYSTONE: as above. SANDSTONE: as above; no shows. COAL. PYRITE.
2000 - 2005m	60 20 10 10 trace	SILTSTONE: as above. CLAYSTONE: as above. SANDSTONE: as above; no shows. COAL: as above. PYRITE.
2005 - 2010m	50 50 trace	CLAYSTONE: as above. SILTSTONE: as above. COAL.
2010 - 2015m	50 50 trace	CLAYSTONE: as above; very consistent shaley lithology. SILTSTONE: as above. COAL.
2015 - 2020m	70 30 trace trace	CLAYSTONE: as above. SILTSTONE: as above. SANDSTONE: as above; no shows. COAL.

2020 - 2025m	70 30 trace trace trace	CLAYSTONE: as above. SILTSTONE: as above. SANDSTONE: as above; no shows. COAL. PYRITE.
2025 - 2030m	50 50 trace trace	CLAYSTONE: as above. SILTSTONE: as above. SANDSTONE: loose grains - translucent, medium to coarse grained, subangular to subrounded, moderately sorted, little or no cement as dolomite has all but vanished now; poor inferred porosity; silty or clayey inferred matrix; no shows. COAL.
2030 - 2035m	60 40 trace	COAL: as above. SILTSTONE: as above; but more carbonaceous. SANDSTONE: as above; no shows.
2035 - 2040m	80 10 10	SILTSTONE: as above. CLAYSTONE: as above. COAL: as above.
2040 - 2045m	60 30 10	SILTSTONE: as above. CLAYSTONE: as above. COAL: as above.
2045 - 2050m	60 30 10	CLAYSTONE: as above. SILTSTONE: as above. COAL: as above.
2050 - 2055m	40 40 20	CLAYSTONE: as above. SILTSTONE: as above. COAL: as above.
2055 - 2060m	50 50 trace	CLAYSTONE: as above. SILTSTONE: as above. COAL.
2060 - 2065m	50 50 trace	CLAYSTONE: as above. SILTSTONE: as above. COAL.
2065 - 2070m	70 20 10 trace	SILTSTONE: as above. CLAYSTONE: as above. SANDSTONE: translucent, fine grained aggregates, soft to occasionally moderately hard, subrounded, well sorted; poor porosity; no shows; occasional loose grains are coarse to very coarse and moderately sorted. COAL.
2070 - 2075m	80 20 trace trace	SILTSTONE: as above. CLAYSTONE: as above. SANDSTONE: as above; no shows; dolomitic cemented aggregates. COAL.
2075 - 2080m	90 10 trace trace	SILTSTONE: as above. CLAYSTONE: as above. SANDSTONE: as above; dolomitic aggregates and occasional loose grains; no shows. COAL.

2080 - 2085m	60	SILTSTONE: as above.
	30	CLAYSTONE: as above.
	10	SANDSTONE: as above; no shows; dolomitic.
	trace	PYRITE.
	trace	COAL.
2085 - 2090m	50	SILTSTONE.
	50	CLAYSTONE.
	trace	SANDSTONE: as above; no shows.
2090 - 2095m	80	CLAYSTONE: as above.
	20	SILTSTONE: as above.
	trace	DOLOMITE: red brown, angular cuttings, extremely hard.
	trace	SANDSTONE: as above; no shows.
2095 - 2100m	40	SILTSTONE: as above.
	40	SANDSTONE: as above; no shows; dolomitic.
	20	COAL: as above.
	trace	CLAYSTONE.
	trace	DOLOMITE: as above; becoming common.
2100 - 2105m	60	SILTSTONE: as above.
	20	CLAYSTONE: as above.
	20	SANDSTONE: mostly loose grains; translucent to clear, fine to medium grained, subangular, well sorted, aggregates are medium to coarse grained, moderately sorted, hard to extremely hard, and have a strong dolomitic cement; very poor visible porosity; no shows.
2105 - 2110m	60	SILTSTONE: still all 3 types as above; i.e. carbonaceous, occasional calcareous and redbrown siltstone.
	20	CLAYSTONE: as above.
	10	SANDSTONE: as above; no shows.
	10	COAL: as above.
	trace	PYRITE.
	trace	DOLOMITE: light brown to pale brown, angular cuttings, extremely hard.
2110 - 2115m	40	SANDSTONE: as above; no shows; weak dolomitic mineral fluorescence on aggregates.
	30	SILTSTONE: as above.
	20	CLAYSTONE: as above.
	10	COAL: as above.
	trace	PYRITE.
	trace	DOLOMITE.
2115 - 2120m	70	SILTSTONE: highly carbonaceous Type (1), rare calcareous Type (2), rare Type (3).
	10	CLAYSTONE: as above.
	10	SANDSTONE: as above.
	10	COAL: as above.
	trace	PYRITE.
2120 - 2125m	30	CLAYSTONE: as above.
	30	SILTSTONE: as above.
	30	COAL: as above.
	10	SANDSTONE: as above; no shows.
	trace	PYRITE.

2125 - 2130m	90 10 trace trace trace	CLAYSTONE: as above. COAL: as above. SANDSTONE: as above; no shows. SILTSTONE: as above. PYRITE.
2130 - 2135m	40 40 10 10 trace	CLAYSTONE: as above. SILTSTONE: as above. SANDSTONE: as above; no shows. COAL: as above. DOLOMITE.
2135 - 2140m	40 20 20 20 trace	CLAYSTONE: as above. SILTSTONE: as above; less carbonaceous. SANDSTONE: as above; no shows. COAL: as above. DOLOMITE: becoming more common.
2140 - 2145m	50 40 10 trace trace	SILTSTONE: as above. CLAYSTONE: as above. SANDSTONE: as above; no shows. COAL. DOLOMITE.
2145 - 2150m	100 trace trace trace	SILTSTONE: 3 types: Type (1) - carbonaceous siltstone: reddish brown to dark brownish grey, soft to occasionally firm; platy cuttings, carbonaceous flecks and occasional laminae, occasionally micromicaceous. Type (2) - calcareous siltstone: olive grey to greeny grey, soft, occasionally sandy, calcareous. Type (3) - buff to redbrown, moderately hard, noncarbonaceous, noncalcareous, platy to angular cuttings Type (1) and Type (3) common, Type (2) is approximately 10% of total. CLAYSTONE: as above. SANDSTONE: as above; no shows. COAL: as above; grades into carbonaceous siltstone.
2150 - 2155m	50 30 20 trace trace	SILTSTONE: as above. COAL: as above. CLAYSTONE: as above. SANDSTONE: as above; no shows. PYRITE.
2155 - 2160m	90 10 trace trace trace	SILTSTONE: as above; mostly Type (1) as above; no Type (2); rare Type (3). COAL: as above. CLAYSTONE: as above. SANDSTONE: as above; no shows. PYRITE.
2160 - 2165m	90 10 trace trace trace	SILTSTONE: as above; highly carbonaceous. COAL. DOLOMITE. CLAYSTONE. SANDSTONE: as above; no shows; no shows from desander in any of this section.

61

2165 - 2170m	60 20 20 trace trace trace	SILTSTONE: as above; all 3 types as above. COAL: as above. CLAYSTONE: as above. SANDSTONE: as above; mostly loose grains, very coarse grained, angular, moderately sorted; no shows. PYRITE. GLAUCONITE: dark green, pelletal.
2170 - 2175m	50 40 10 trace trace	SILTSTONE: as above. CLAYSTONE: as above. COAL: as above. SANDSTONE: extremely fine grained loosely cemented aggregates, friable to occasionally moderately hard; no shows. PYRITE.
2175 - 2180m	60 30 10 trace	CLAYSTONE: as above. SILTSTONE: as above; all 3 types present. COAL: as above; woody fragment gave a fast strong streaming white cut. SANDSTONE: as above; no shows.
2180 - 2185m	40 30 20 10 trace	CLAYSTONE: as above. SILTSTONE: as above; becoming sandy. COAL: as above. SANDSTONE: as above; no shows. PYRITE.
2185 - 2190m	40 40 20 trace	CLAYSTONE: as above. SILTSTONE: as above. SANDSTONE: as above; extremely fine to fine grained; no shows. COAL.
2190 - 2195m	40 30 20 10 trace	CLAYSTONE: as above. SANDSTONE: as above; no shows. SILTSTONE: as above. COAL: as above. PYRITE.
2195 - 2200m	40 40 20 trace trace	SILTSTONE: as above. SANDSTONE: as above; very fine grained, loosely cemented, occasionally dolomitic cemented aggregates; no shows. CLAYSTONE: as above. COAL. PYRITE.
2200 - 2205m	30 30 30 10 trace	SILTSTONE: as above. CLAYSTONE: as above. SANDSTONE: as above; trace of aggregates gave a weak, slow white streaming cut and moderate to weak diffuse white crush cut. COAL: as above. PYRITE.
2205 - 2210m	60 30 10 trace trace	CLAYSTONE: as above. SILTSTONE: as above. SANDSTONE: as above; trace dull white fluorescent aggregates gave a moderately weak, moderately fast, white crush cut, no residue. COAL. PYRITE.

62

2210 - 2215m	50	SILTSTONE: as above.
	30	SANDSTONE: translucent to clear, soft to extremely hard, mostly quartz aggregates, medium to very fine grained, subangular, well sorted, occasional strong dolomitic cement giving dull yellow mineral fluorescence, no cut, no crush cut; no shows.
	20	CLAYSTONE: as above.
	trace	COAL: as above.
2215 - 2220m	50	SILTSTONE: as above.
	30	SANDSTONE: as above, no shows.
	20	CLAYSTONE: as above.
	trace	COAL.
	trace	PYRITE.
2220 - 2225m	80	SILTSTONE: as above.
	10	SANDSTONE: as above; 5% dolomite mineral fluorescence; one dolomite cemented aggregate gave a weak, slow white streaming cut and instantaneous weak to moderately strong diffuse, bluish-white crush cut, weak to moderately strong light brown to red brown residue fluoresces bright white.
	10	CLAYSTONE: as above.
	trace	COAL.
2225 - 2230m	80	SILTSTONE: as above.
	10	SANDSTONE: as above; no shows.
	10	CLAYSTONE: buff to pale brown, very soft, water sensitive, noncalcareous.
	trace	COAL.
2230 - 2235m	40	SILTSTONE: mostly Type (1) as above; greyish red to pale brown, occasionally dark brownish black, soft to occasionally moderately hard, blocky to platy cuttings, carbonaceous flecks and occasional laminae, occasionally micromicaceous and occasionally highly carbonaceous; Type (2) and Type (3) as above; are now rare.
	40	CLAYSTONE: as above.
	20	COAL: as above.
	trace	SANDSTONE: as above; no shows.
	trace	PYRITE.
2235 - 2240m	50	SILTSTONE: as above; common Type (1) and (3), rare Type (2).
	30	SANDSTONE: no shows; no crush cut after 10 minutes.
	10	CLAYSTONE: as above.
	10	COAL: as above.
	trace	PYRITE.
2240 - 2245m	70	SILTSTONE: as above.
	20	SANDSTONE: as above; no shows; aggregates have an extremely hard dolomitic cement.
	10	CLAYSTONE: as above.
	trace	COAL.

2245 - 2250m	70	SILTSTONE: as above.	
	20	SANDSTONE: white to translucent, fine to medium grained aggregates, occasionally very fine grained, soft to extremely hard when cemented with dolomite; 5% dolomite cement; two dolomite cemented aggregates gave a slow, weak diffuse white cut.	
	10 trace trace	COAL: as above. CLAYSTONE. PYRITE.	
2250 - 2255m	40	SILTSTONE: as above.	
	30	SANDSTONE: as above; no shows.	
	20	CLAYSTONE: as above.	
	10	COAL: black, hard, occasionally brittle, vitreous lustre, conchoidal fracture.	
	trace	PYRITE.	
2255 - 2260m	70	SILTSTONE: as above.	
	30	SANDSTONE: as above; trace of dull orangy yellow dolomite mineral fluorescence, no cut or crush cut, trace of dull, bluish white fluorescence, mainly on individual grains, no cut or crush cut; high gas taken (250 units), however no real shows to be seen, probably a gas sand between 2250m and 2260m.	
	trace	CLAYSTONE: as above.	
	trace	COAL: as above.	
2260 - 2265m	60	SILTSTONE: as above.	
	20	SANDSTONE: fine to medium grained, friable (when poorly cemented) to extremely hard, subangular to subrounded; moderately sorted; trace spotty, dull to occasionally moderately bright, white fluorescence and occasionally dull, yellow dolomite mineral fluorescence, one aggregate fluorescing moderately bright white gave no cut but a very weak diffuse white crush cut after 5 minutes (poor inferred porosity when dolomite cemented), no residue.	
	10	CLAYSTONE: as above.	
	10	COAL: as above.	
	2265 - 2270m	80	SILTSTONE: as above; no calcareous Type (2).
		10	SANDSTONE: no apparent dolomite cement, no fluorescence from sandstone in this interval; no shows.
10		COAL: as above; grades into carbonaceous siltstone.	
trace	DOLOMITE.		
2270 - 2275m	80	SILTSTONE: as above; mostly highly carbonaceous Type (1) grades into coal; occasionally light brown to medium grey Type (3).	
	10	SANDSTONE: as above; very fine to fine grained, friable to occasionally moderately hard aggregates; no shows.	
	10	CLAYSTONE: as above.	
	trace	COAL.	
	trace	PYRITE.	

2275 - 2280m	90	SILTSTONE: Type (1) carbonaceous siltstone predominates over Type (3); carbonaceous siltstone now moderately hard, blocky to subangular cuttings.
	10	CLAYSTONE: as above.
	trace	SANDSTONE: as above; no shows.
	trace	COAL: as above.
	trace	DOLOMITE.
2280 - 2285m	70	SILTSTONE: as above.
	10	SANDSTONE: as above; no shows.
	10	CLAYSTONE: as above.
	10	COAL: as above.
	trace	DOLOMITE.
	trace	PYRITE.
2285 - 2290m	40	SILTSTONE: as above.
	40	CLAYSTONE: as above.
	20	SANDSTONE: as above; no shows.
	trace	COAL (almost in % amounts).
	trace	PYRITE.
2290 - 2295m	70	SILTSTONE: as above.
	30	SANDSTONE: as above.
	trace	CLAYSTONE: as above.
2295 - 2300m	50	SILTSTONE: as above.
	30	SANDSTONE: as above.
	20	CLAYSTONE: as above.
2300 - 2305m	50	SILTSTONE: as above.
	30	CLAYSTONE: water sensitive as above.
	20	SANDSTONE: 5% mineral fluorescence otherwise as above.
2305 - 2310m	60	SANDSTONE: clear, translucent, buff, predominantly siliceous matrix, subangular to subrounded quartz aggregates in a siliceous matrix; occasionally medium to coarse grained, subangular quartz aggregates in a hard dolomitic cement, tight with 5% yellow mineral fluorescence; no shows; poorly sorted.
	20	SILTSTONE: buff, light grey brown, carbonaceous in part, water sensitive, very soft, grades in parts to claystone; no shows.
	20	COAL.
2310 - 2315m	50	SANDSTONE: occasionally very coarse to coarse grained, angular dolomite rhomb, intercrystalline aggregates; 5% dull yellow mineral fluorescence, otherwise as above.
	30	COAL.
	20	SILTSTONE: predominantly dark brown to occasionally light grey brown with scattered black carbonaceous flecks in a predominantly clay matrix, occasional carbonaceous laminae; subfissile in parts, grading in part to very soft claystone.
2315 - 2320m	60	SANDSTONE: as above.
	30	SILTSTONE: as above.
	10	COAL.

2320 - 2325m	40	SANDSTONE: as above.
	20	SILTSTONE: as above.
	20	CLAYSTONE: as above.
	20	COAL: as above.
2325 - 2330m	30	SANDSTONE: as above.
	30	SILTSTONE: as above.
	30	CLAYSTONE: as above.
	10	COAL: as above.
2330 - 2335m	60	SILTSTONE: as above.
	20	SANDSTONE: as above.
	10	CLAYSTONE: as above.
	10	COAL: as above.
2335 - 2340m	40	CLAYSTONE: as above.
	30	SILTSTONE: as above.
	20	SANDSTONE: as above.
	10	COAL: as above.
2340 - 2345m	30	CLAYSTONE: dark/pale brown to white; very water sensitive, very soft, grades in part to siltstone;
	30	SILTSTONE: buff to light grey brown, minor scattered carbonaceous flecks, occasionally subfissile, soft to friable; no shows.
	30	COAL.
	10	SANDSTONE: clear, milky white, very fine to fine grained, subangular to subrounded quartz in a clay matrix, trace dolomitic cement, very poorly sorted; no shows.
2345 - 2350m	40	SANDSTONE: as above.
	40	SILTSTONE: as above.
	20	CLAYSTONE: as above.
	trace	COAL.
2350 - 2355m	40	CLAYSTONE: as above.
	30	SANDSTONE: as above.
	30	SILTSTONE: as above.
	trace	COAL.
2355 - 2360m	60	SANDSTONE: buff, milky white, very fine to fine grained, subrounded quartz in a predominantly silty to clay matrix, soft, (water sensitive), poorly sorted; no shows; occasionally medium to coarse grained; subangular dolomitic cemented quartz aggregates with dull yellow mineral fluorescence; grades in part to siltstone.
	20	SILTSTONE: buff, light grey/brown to occasionally dark brown, firm to soft, micromicaceous, occasional scattered black carbonaceous flecks, occasional carbonaceous laminae.
	20	CLAYSTONE: light grey, white, brown, very water sensitive, grades in part to siltstone.
	trace	COAL.
2360 - 2365m	40	SANDSTONE: as above.
	30	SILTSTONE: as above.
	30	CLAYSTONE: as above.

2365 - 2370m	40	COAL: as above.
	30	SANDSTONE: as above.
	30	SILTSTONE: as above.
2370 - 2375m	40	COAL: as above.
	30	SANDSTONE: as above.
	30	SILTSTONE: as above.
2375 - 2380m	50	COAL: as above.
	30	SILTSTONE: as above.
	20	SANDSTONE: as above.
2380 - 2385m	40	COAL: as above.
	30	SANDSTONE: as above.
	30	SILTSTONE: as above.
2385 - 2390m	40	COAL: as above.
	30	SANDSTONE: as above.
	30	SILTSTONE: as above.
2390 - 2395m	60	SANDSTONE: white, buff, light brown, very fine to fine grained, subangular to subrounded in a predominantly siliceous matrix, clay content decreasing markedly, moderately firm; common dolomitic cement with dull yellow mineral fluorescence, occasional carbonaceous flecks, occasionally very coarse grained, argillaceous, dolomite rhombs encrusted with pyrite; no shows.
	30	SILTSTONE: varied colours - predominantly grey to brown, commonly carbonaceous, silica matrix, micromicaceous, grading to sandstone above.
	10	COAL.
2395 - 2400m	60	SANDSTONE: as above.
	30	SILTSTONE: as above.
	10	COAL.
2400 - 2405m	70	SANDSTONE: common calcareous to dolomitic cement, with increasing medium grained, subrounded, quartz aggregates becoming common; otherwise as above.
	30	SILTSTONE: as above.
2405 - 2410m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
2410 - 2415m Bottoms up @ 2413m	70	SILTSTONE: as above.
	30	SANDSTONE: as above.
2415 - 2420m	80	SILTSTONE: as above.
	10	SANDSTONE: as above.
	10	COAL: as above.
2420 - 2425m	40	SANDSTONE: as above; becoming water sensitive.
	30	CLAYSTONE: as above.
	20	SILTSTONE: as above.
	10	COAL: as above.
2425 - 2428.6m Bottoms up sample	60	SANDSTONE: white, very fine to fine grained, subangular to subrounded in a predominantly water sensitive silty matrix, soft, fairly sorted, carbonaceous, occasional dolomitic cement; no shows; occasional pyrite.
	40	SILTSTONE: light to dark grey, grey brown, micromicaceous, scattered carbonaceous flecks throughout.

2428.6 - 2430m	60	SANDSTONE: as above.
	40	SILTSTONE: as above; grading in part to claystone.
2430 - 2435m	50	SANDSTONE: becoming less water sensitive; otherwise as above.
	50	SILTSTONE: as above.
2435 - 2440m	70	SANDSTONE: as above.
	30	SILTSTONE: as above.
2440 - 2445m	50	SANDSTONE: as above; becoming increasingly silt matrix filled.
	30	SILTSTONE: as above.
	20	CLAYSTONE: as above.
2445 - 2450m	60	SANDSTONE: buff, light grey, very fine to fine grained, subangular to subrounded quartz in a predominantly water sensitive silt-clay matrix, carbonaceous, soft; no shows.
	20	SILTSTONE: dark brown, grey brown, micromicaceous in part, essentially carbonaceous, grades from firm to soft; no shows.
	10	CLAYSTONE: buff, grey brown, very water sensitive, soft, grades to siltstone.
	10	COAL.
2450 - 2455m	60	SANDSTONE: as above.
	20	SILTSTONE: as above.
	20	CLAYSTONE: as above.
2455 - 2460m	60	SANDSTONE: as above.
	20	SILTSTONE: as above.
	20	CLAYSTONE: as above.
2460 - 2465m	60	SILTSTONE: as above.
	30	SANDSTONE: as above.
	10	COAL: as above.
2465 - 2470m	50	SANDSTONE: grading to medium grained, subangular to subrounded quartz aggregates; otherwise as above.
	50	SILTSTONE: as above.
Bottoms up @ 2471m	80	SANDSTONE: as above.
	20	SILTSTONE: as above.
2471 - 2475m	70	SANDSTONE: as above.
	30	SILTSTONE: as above.
2475 - 2480m	70	SANDSTONE: as above.
	30	SILTSTONE: as above.
2480 - 2485m	70	SANDSTONE: buff, light grey, very fine to fine grained, subangular to subrounded quartz aggregates in a predominantly silica, slightly silty matrix, rare dolomitic cement; becoming increasing firmer; no shows.
	30	SILTSTONE: as above.

2485 - 2488m Bottoms up	70	SANDSTONE: increasing fraction of silt matrix - water sensitive.
	30	SILTSTONE: grading in part to very fine sandstone.
2488 - 2490m	70	SANDSTONE: silt matrix disappears, becoming firmer; otherwise as above.
	30	SILTSTONE: as above.
2490 - 2495m	80	SANDSTONE: as above.
	20	SILTSTONE: as above.
2495 - 2500m	70	SANDSTONE: as above.
	30	SILTSTONE: as above.
2500 - 2505m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
2505 - 2510m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
2510 - 2515m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
2515 - 2520m	50	SILTSTONE: grey to dark brown, micromicaceous, carbonaceous flecks to laminae throughout, grades to very fine sandstone in part, firm to hard; no shows.
	40	SANDSTONE: buff, white, light grey, very fine to fine grained, subrounded to subangular quartz aggregates in a matrix varying between hard silica to soft silt clay, trace dolomitic cement, scattered pyrite throughout, becoming increasingly carbonaceous; no shows.
	10	COAL.
2520 - 2525m	60	SILTSTONE: as above.
	40	SANDSTONE: as above.
2525 - 2530m	70	SILTSTONE: as above.
	20	SANDSTONE: as above.
	10	CLAYSTONE: as above.
2530 - 2535m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
2535 - 2540m	70	SILTSTONE: as above.
	30	SANDSTONE: as above.
2540 - 2545m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
2545 - 2550m	90	SILTSTONE: becoming increasingly carbonaceous.
	10	SANDSTONE: as above.
2550 - 2555m	80	SILTSTONE: dark brown to light grey, micromicaceous, carbonaceous, subfissile with occasional embedded coal filaments and clasts, predominantly silica, firm to soft, carbonaceous material defines bedding.

2550 - 2555m cont'd	20	SANDSTONE: white to clear, translucent, fine to medium grained, subangular to subrounded quartz aggregates in a dominantly siliceous, occasionally dolomitic cement, with occasional coarse to very coarse grained, angular dolomite rhombs, occasional smokey quartz rounded granules, hard to firm; dull yellow mineral fluorescence; no shows.
2555 - 2560m	80	SILTSTONE: as above.
	20	SANDSTONE: as above.
2560 - 2565m	70	SILTSTONE: as above.
	30	SANDSTONE: as above.
2565 - 2570m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
2570 - 2575m	70	SANDSTONE: becoming increasingly siltier and soft; otherwise as above.
	30	SILTSTONE: as above.
2575 - 2580m	70	SANDSTONE: buff, white, very fine to fine grained, predominantly siltstone matrix, very soft, water sensitive, carbonaceous in part; no shows.
	30	SILTSTONE: dark brown, firm, subfissile, micromicaceous, scattered carbonaceous flecks, grading in part to claystone.
2580 - 2585m	70	SANDSTONE: occasional silica, firm, fine grained, subangular to subrounded quartz aggregates.
	30	SILTSTONE: as above.
2585 - 2590m	70	SANDSTONE: buff, light grey, very fine to fine grained, with matrix varying between soft silt-clay and firm silica in occasionally medium grained aggregates, trace dolomitic cement, dull yellow mineral fluorescence; no shows.
	30	SILTSTONE: as above; no shows.
2590 - 2595m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
2595 - 2600m	50	SANDSTONE: predominantly buff, very fine to fine grained, mainly silica matrix with minor silt-clay fraction, essentially firm to moderately hard; no shows.
	50	SILTSTONE: dark brown, light grey, firm, minor clay, carbonaceous, argillaceous; no shows.
2600 - 2605m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
2605 - 2610m	50	SANDSTONE: minor dull yellow mineral fluorescence, trace dull, blue white hydrocarbon fluorescence, with slow white crush cut; otherwise as above.
	50	SILTSTONE: as above.

2610 - 2615m	70	SANDSTONE: clear to frosted, subangular, very coarse grained to granule sized quartz, with possible quartz overgrowths; common buff white to light grey, fine grained, subrounded to subangular quartz aggregates in a silica matrix; 30% very dull, blue white fluorescence with trace bright white fluorescence, trace associated slow diffuse milky white cut.
	30	SILTSTONE: as above.
2615 - 2620m	50	SILTSTONE: as above.
	50	SANDSTONE: as above.
2620 - 2625m	50	SANDSTONE: smokey quartz, very coarse granular, subangular quartz grains; buff to white, very fine to fine grained, subangular to subrounded quartz aggregates in a dolomite silica-silty matrix, firm to soft, slightly carbonaceous, slightly argillaceous; dull, yellow mineral fluorescence; no shows.
	50	SILTSTONE: dark grey brown, subfissile, micromicaceous, carbonaceous.
2625 - 2630m	50	SILTSTONE: as above.
	50	SANDSTONE: 10% bright, blue-white-yellow fluorescence with slow diffuse white cut; otherwise as above.
		NOTE: desander sample exhibited even 100% fluorescence in coarse quartz fraction.
2630 - 2632m	60	SILTSTONE: as above.
Bottoms up	40	SANDSTONE: as above.
2632 - 2635m	60	SILTSTONE: dark brown, grey, subfissile, micromicaceous, carbonaceous, argillaceous, firm to hard.
	40	SANDSTONE: bimodal ranging from very fine to fine grained quartz in a dolomite silt-clay matrix with no associated shows; to medium to very coarse grained, subangular quartz to subrounded quartz aggregates in a slightly dolomitic cement and silica matrix with fair visible porosity; occasional white silty matrix; 30% bright, blue white fluorescence with very slow diffuse milky white crush cut.
2635 - 2640m	50	SANDSTONE: predominantly clear to frosted to translucent, very coarse to granule sized quartz grains in a silica matrix; poor visible porosity; trace pyrite; 30% bright, blue white fluorescence with no associated visible crush cut.
	45	SILTSTONE: as above.
	5	COAL.
2640 - 2645m	50	SANDSTONE: 20% buff, very fine to fine grained quartz aggregates in a silt-clay matrix associated with no shows; 30% sandstone as description above.
		NOTE: residual ring after 30 minutes.
	50	SILTSTONE: as above.
	trace	CHERT: green white, very hard, crystalline to cryptocrystalline, possible chlorite and biotite inclusions, angular, blocky (possible volcanic origin).

2645 - 2650m	50	SILTSTONE: dark grey/brown, subfissile, carbonaceous to slightly argillaceous, firm to hard; no shows.
	40	SANDSTONE: predominantly buff, very fine to fine grained in a dominantly soft silt-clay matrix, with no associated shows; 15% medium to coarse grained, subangular, loose grains, hard silica aggregates; bright, blue-white fluorescence with no associated visible cut; tight.
	10	COAL.
2650 - 2655m	60	SILTSTONE: as above.
	30	SANDSTONE: 10% shows; otherwise as above.
	10	COAL: as above.
	trace	VOLCANICS: as above.
2655 - 2660m	60	SILTSTONE: as above.
	30	SANDSTONE: as above.
	10	COAL.
	trace	VOLCANICS: as above.
2660 - 2665m	70	SILTSTONE: as above; grading in part to claystone.
	20	SANDSTONE: predominantly buff to light grey, very fine to fine grained quartz aggregates in a soft water sensitive clay matrix; occasional clear, medium to very coarse grained quartz; bright, blue-white fluorescence with no associated visible cut.
	10	COAL.
2665 - 2670m	60	SILTSTONE: as above.
	30	SANDSTONE: as above.
	10	COAL.
2670 - 2675m	80	SILTSTONE: as above.
	20	SANDSTONE: no shows; otherwise as above.
2675 - 2680m	70	SILTSTONE: as above.
	30	SANDSTONE: as above.
2680 - 2685m	80	SILTSTONE: as above.
	20	SANDSTONE: as above.
2685 - 2690m	70	SILTSTONE: as above.
	30	SANDSTONE: as above.
2690 - 2696m Bottoms up sample Drill break	80	SANDSTONE: predominantly white, very fine to fine grained quartz in a silt matrix, firm, argillaceous; no shows; 10% medium to coarse grained; subrounded to subangular quartz aggregates in a silica matrix, hard; even 50% dull, yellow to trace white fluorescence with no associated visible cut; possible residual oil.
	20	SILTSTONE.
2696 - 2700m	80	SANDSTONE: buff to beige, light grey, mainly medium grained, subrounded to subangular quartz aggregates in a dominantly silica matrix; trace chlorite; medium grained, subangular accumulations; occasional pyrite scattered throughout; common discrete frosted quartz grains; no visible porosity; trace of white and 50% even, dull, yellow fluorescence with no cut; possible residual oil; possible oil stain.
	20	SILTSTONE: as above.

2700 - 2705m	70	SANDSTONE: 2 types: Type (1) - clear to beige, light grey, medium grained, subrounded to subangular quartz aggregates in a dominantly silica matrix; spotty or light staining; 50% even, dull, yellow-gold fluorescence with no associated cut; no visible porosity. Type (2) - coarse grained to granule sized, subangular to angular quartz clasts; partly dolomitic?; no shows.
	30	SILTSTONE: dark grey, dark brown, subfissile, carbonaceous, silica, hard; no shows.
2705 - 2710m	70	SANDSTONE: as above; 10% dull, gold-yellow fluorescence.
	30	SILTSTONE: as above.
2710 - 2715m	70	SANDSTONE: greater fraction of very fine to fine grained, clay-silt matrix; otherwise as above.
	20	SILTSTONE: as above.
	10	COAL.
2715 - 2720m	60	SILTSTONE: light grey, subfissile, blocky, micromicaceous, firm, grading in part to claystone.
	30	CLAYSTONE: light grey, beige, water sensitive, argillaceous.
	10	SANDSTONE: as above; no shows.
2720 - 2725m	50	SILTSTONE: as above.
	40	CLAYSTONE: as above.
	10	SANDSTONE: as above.
2725 - 2730m	50	CLAYSTONE: as above.
	40	SILTSTONE: as above.
	10	COAL.
2730 - 2735m	60	SILTSTONE: as above.
	20	CLAYSTONE: as above.
	10	SANDSTONE: as above.
	10	COAL.
2735 - 2740m	50	SILTSTONE: as above.
	20	CLAYSTONE: as above.
	20	COAL.
	10	SANDSTONE: as above.
2740 - 2745m	60	SILTSTONE: as above.
	30	SANDSTONE: as above.
	10	COAL: as above.
2745 - 2750m	100	SANDSTONE: as above; very carbonaceous.
2750 - 2755m	90	SILTSTONE: as above.
	10	SANDSTONE: as above.
2755 - 2760m	60	SILTSTONE: dark grey, subfissile, blocky, micromicaceous, firm, siliceous; no shows.
	20	SANDSTONE: buff, white, fine to medium grained, subangular to subrounded quartz aggregates in a dominantly silica matrix; occasional discrete, coarse, green, subangular glauconite pellets; common very fine to fine grained in a dominantly silt-clay matrix; no shows.

2755 - 2760m cont'd	10	CLAYSTONE: light grey, beige, water sensitive, argillaceous.
	10	COAL.
2760 - 2765m	60	SILTSTONE: grading in part to a fissile shale becoming increasingly platy.
	40	SANDSTONE: as above.
2765 - 2770m	60	SILTSTONE: as above.
	20	SANDSTONE: one clear coarse grain had blue-white fluorescence; slow diffuse milky white cut - possible caving; otherwise as above.
	20	COAL.
2770 - 2775m	60	SILTSTONE: as above.
	20	SANDSTONE: as above.
	20	COAL.
2775 - 2780m	60	SILTSTONE: grading in part to shale.
	20	SANDSTONE: as above.
	20	SHALE: dark brown/grey, subfissile to fissile with cleavage planes easily visible and separated.
2780 - 2785m	50	SILTSTONE: as above.
	40	COAL.
	10	SANDSTONE: as above.
2785 - 2790m	60	SANDSTONE: predominantly clear, subangular to subrounded, coarse quartz aggregates in a dominantly siliceous, partly dolomitic cement; occasionally granule sized quartz grains, hard, tight; no shows.
	20	SILTSTONE: light grey to brown, blocky, siliceous, firm, grading to claystone in part; no shows.
	20	COAL.
2790 - 2795m	70	SANDSTONE: common very fine to fine grained quartz in a water sensitive silt-clay matrix, soft; white dolomite mineral fluorescence; otherwise as above.
	20	SILTSTONE: as above.
	10	COAL.
2795 - 2800m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
2800 - 2805m	50	SILTSTONE: as above.
	50	SANDSTONE: as above.
2805 - 2810m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
2810 - 2815m	80	SANDSTONE: as above; as for interval 2785 - 2790m.
	20	SILTSTONE: as above.
2815 - 2820m	80	SANDSTONE: as above.
	20	SILTSTONE: as above.

2820 - 2825m	100	VOLCANICS: clear, emerald green, multicoloured quartz aggregates in a dominantly siliceous, partly dolomitic cement; scattered green chloritic, glauconitic type pellets; trace pyrite; no shows; tight - possibly volcanics.
	trace	SILTSTONE: dark brown, subfissile, blocky, micromicaceous; no shows.
2825 - 2830m	100	VOLCANICS: emerald green, grey, clear, black/grey, cherty, micaceous, quartzose, crystalline to coarse crystalline; schist appearance, hard, micaceous, pyrite, angular, well faceated, calcitic.
2830 - 2835m	100	VOLCANICS: predominantly pale emerald green, multicoloured, very coarse to coarse, subangular to subrounded quartz, possibly volcanics.
2835 - 2840m	100	VOLCANICS: as above.
2840 - 2845m	100	VOLCANICS: as above.
2845 - 2850m	100	VOLCANICS: as above.
2850 - 2855m	100	VOLCANICS: as above.
2855 - 2860m	100	VOLCANICS: as above.
2860 - 2865m	100	VOLCANICS: as above.
2865 - 2870m	100	VOLCANICS: as above.
2870 - 2875m	100	VOLCANICS: as above.
2875 - 2880m	100	VOLCANICS: as above.
2880 - 2885m	100	VOLCANICS: as above.
2885 - 2890m	100	VOLCANICS: as above.
2890 - 2895m	90	VOLCANICS: as above.
	10	COAL.
2895 - 2900m	70	VOLCANICS: becoming increasing less altered with depth.
	30	SILTSTONE: dark grey/brown, siliceous, firm to hard.
2900 - 2905m	80	SILTSTONE: dark grey, carbonaceous, hard.
	10	SANDSTONE: clear, green, medium to coarse grained, subangular to subrounded quartz grains; partly chloritic, hard; no shows.
	10	COAL.
2905 - 2910m	70	SILTSTONE: as above.
	30	SANDSTONE: as above.
2910 - 2915m	70	SILTSTONE: as above.
	30	SANDSTONE: as above.
2915 - 2920m	70	SILTSTONE: as above.
	30	COAL.

2920 - 2925m	50	VOLCANICS: clear green, medium to coarse grained, subangular to angular quartz; fused, green, micaceous, partly dolomitic/calclitic, hard, siliceous, tight; no shows.
	50	SILTSTONE: dark grey/brown, siliceous, firm to hard.
2925 - 2930m	50	VOLCANICS: as above.
	50	SILTSTONE: as above.
2930 - 2935m	80	SILTSTONE: as above.
	20	VOLCANICS: as above; Note: trace bright, yellow-white fluorescence with very slow diffuse milky white cut - maybe cavings?
2935 - 2940m	40	VOLCANICS: as above.
	30	SILTSTONE: as above.
	30	COAL.
2940 - 2945m	50	SILTSTONE: as above.
	40	VOLCANICS: predominantly clear, pale to dark green, grey/black, medium to coarse grained to granules, subangular to angular, well faceated quartz grains, micaceous, hard, tight; no shows.
	10	SANDSTONE: white, clear, translucent, grey, fine to medium grained, subrounded to subangular quartz grains in a silica matrix, partly dolomitic cement, firm to hard; relatively bright yellow-white mineral fluorescence.
2948m	40	VOLCANICS: as above.
Bottoms up	40	SILTSTONE: as above.
	10	SANDSTONE: as above.
	10	COAL.
2948 - 2950m	50	SILTSTONE: as above.
	40	VOLCANICS: as above.
	10	SANDSTONE: as above.
2950 - 2955m	70	QUARTZITIC SANDSTONE: becoming less altered, clear, well angled quartz fragments; tight, common volcanics as above; no shows.
	30	SILTSTONE: as above.
2955 - 2960m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
2960 - 2965m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
2965 - 2970m	50	SANDSTONE: as above.
	50	SILTSTONE: as above.
2970 - 2975m	70	SILTSTONE: grey, light brown, micromicaceous, carbonaceous, argillaceous, water sensitive in part, soft to firm.
	20	SANDSTONE: white, grey, clear, medium to coarse grained, subrounded to subangular quartz grains in a dominantly silica, slightly koalinitic matrix, occasional green, chlorite inclusions, scattered angular quartz fragments as above.
	10	COAL.

2975 - 2980m	80 20	SILTSTONE: as above. SANDSTONE: as above.
2980 - 2985m	80 20	SILTSTONE: as above. SANDSTONE: as above.
2985 - 2990m	60 40	SILTSTONE: as above. SANDSTONE: as above.
2990 - 2995m	50 50	SANDSTONE: as above. SILTSTONE: as above.
2995 - 3000m	70 30	SILTSTONE: as above. SANDSTONE: as above.
3000 - 3005m	80 20	SILTSTONE: as above. SANDSTONE: as above.
3005 - 3010m	80 20	SILTSTONE: as above. SANDSTONE: as above.
3010 - 3015m	80 20	SILTSTONE: as above. SANDSTONE: as above.
3015 - 3020m	80 20	SILTSTONE: as above. SANDSTONE: as above.
3020 - 3025m	70 30	SILTSTONE: as above. SANDSTONE: as above.
3025 - 3030m	70 30	SILTSTONE: as above. SANDSTONE: as above.
3030 - 3035m	80 20	SILTSTONE: as above. SANDSTONE: as above.
3035 - 3040m	50 50	SANDSTONE: as above. SILTSTONE: as above.
3040 - 3045m	70 30	SANDSTONE: as above. SILTSTONE: as above.
3045 - 3050m	80 20	SANDSTONE: as above; no shows. SILTSTONE: as above.
3050 - 3055m	90 10	SANDSTONE: white, clear, brown/grey, predominantly medium grained, subangular to subrounded quartz aggregates in a predominantly silica, slightly kaolinitic matrix; occasional scattered chlorite fragments, occasionally very fine to fine grained with an argillaceous/ carbonaceous matrix; trace white fluorescence with slow, diffuse milky white cut; tight; firm to hard. SILTSTONE: dark brown, very carbonaceous micromicaceous, subfissile to fissile, firm to hard.
3055 - 3060m	80 20	SANDSTONE: as above. SILTSTONE: as above.
3060 - 3065m	70 30	SANDSTONE: as above. SILTSTONE: as above.
3065 - 3070m	70 30	SILTSTONE: as above. SANDSTONE: as above.

- 49 -

3070 - 3075m	80 20	SILTSTONE: as above. SANDSTONE: as above.
3075 - 3080m	50 30 20	SANDSTONE: as above. SILTSTONE: as above. COAL.
3080 - 3085m	50 50	SANDSTONE: as above. SILTSTONE: as above.
3085 - 3090m	60 40	SILTSTONE: as above. SANDSTONE: as above.
3090 - 3095m	50 50	SANDSTONE: as above. SILTSTONE: as above.
3095 - 3100m	70 30	SILTSTONE: as above. SANDSTONE: as above.
3100 - 3105m	80 20	SILTSTONE: as above. SANDSTONE: as above.
3105 - 3110m	60 40	SILTSTONE: as above. SANDSTONE: as above.
3110 - 3115m	50 50	SANDSTONE: as above. SILTSTONE: as above.
3115 - 3120m	70 30	SANDSTONE: white, clear, predominantly coarse grained, subrounded to subangular with common fine to medium grained quartz aggregates; all in a silica, firm to hard matrix; minor very fine grained, soft, water sensitive clay matrix; occasional carbonaceous streaks; minor very coarse grained to granule sized, angular quartz in a very fine siltstone matrix, trace pyrite, poorly sorted, tight; no shows. SILTSTONE: dark brown, grey, micromicaceous, firm to hard, grades to very fine grained, hard sandstone.
3120 - 3124m Bottoms up Sample	70 30	SANDSTONE: white, clear, predominantly medium grained, subrounded to subangular quartz aggregates in a mainly silty, very fine grained matrix, soft to firm; no shows; medium to coarse grained, subrounded to subangular quartz aggregates in predominantly silica, firm matrix; 50% bright, yellow-white fluorescence with instantaneous, diffuse milky white cut. SILTSTONE: as above.
3124 - 3125m	80 20	SANDSTONE: as above; 50% even, bright, yellow-white fluorescence with instantaneous, diffuse milky white cut. SILTSTONE: as above.
3125 - 3130m	60 40	SANDSTONE: as above. SILTSTONE: as above.
3130 - 3135m	70 30	SANDSTONE: as above. SILTSTONE: as above.
3135 - 3140m	70 30	SANDSTONE: as above. SILTSTONE: as above.

3140 - 3145m	60	SANDSTONE: white, buff, light grey, medium to coarse grained, subangular to subrounded quartz aggregates in a dominantly silica matrix; occasionally fine grained, carbonaceous in part; common granule, angular to subangular fragments; 50% even, yellow-white fluorescence with slow, diffuse milky white crush cut; bright residual ring after 5 minutes.
	30	SILTSTONE: as above.
	10	COAL: as above.
3145 - 3150m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
3150 - 3155m	60	SANDSTONE: as above.
	40	SILTSTONE: as above.
3155 - 3160m	60	SILTSTONE: as above.
	40	SANDSTONE: as above; 10% fluorescence as above.
3160 - 3165m	60	SILTSTONE: as above.
	40	SANDSTONE: as above; 10% fluorescence as above.
3165 - 3168.8m	70	SILTSTONE: as above.
	30	SANDSTONE: as above; trace shows.
		POOH FOR LOGS
3168.8 - 3170m	70	SILTSTONE: light brown to dark brown and black, firm to hard, micaceous, carbonaceous, grades into very fine sandstone.
	20	SANDSTONE: clear to buff, friable to firm, very fine to coarse grained, subangular to rounded, moderately well sorted, dominantly silica matrix, some examples of clay and pyritic matrix material; minor carbonaceous inclusion; tight; trace bright, yellow fluorescence, slow streaming white cut - slow, diffuse crush cut; moderately bright white fluorescent residual ring.
	10	CAVINGS: assorted lithologies from further up the hole.
		At 3171m circulating raising mud weight to 10 ppg.
3174m	60	SILTSTONE: as above.
Grab sample	30	SANDSTONE: as above; 5% yellow-white fluorescence, streaming (moderately fast) white-yellow cut; poor visible porosity.
	5	COAL: black, hard, brittle, grades into carbonaceous siltstone.
	5	CAVINGS: as above.
3170 - 3175m	70	SILTSTONE: as above.
	30	SANDSTONE: as above; with less than 5% fluorescence; also contains up to 5% cavings from further up the hole.
3175 - 3180m	60	SILTSTONE: dark brown to light brown, firm to friable, blocky to angular cuttings, micromicaceous and carbonaceous in parts; grades into very fine grained sandstone.

3175 - 3180m cont'd	40	SANDSTONE: clear to light brown, friable to hard, very fine to coarse grained crystals and quartz aggregates; predominantly very fine to fine grained, subrounded to subangular to crystalline, moderately well sorted; dominantly siliceous cement with minor clay and pyrite matrix; generally poor visible porosity; minor yellow-white fluorescence; fast streaming yellow-white cut; confined to one coarse grained, subangular quartz sample; all the other samples exhibited diffuse white crush cut with a yellow-white residue; (some of the above samples may still be cavings).
	trace	COAL: black, hard, brittle, with a conchoidal fracture.
3180 - 3185m	50	SILTSTONE: as above; becoming more carbonaceous.
	50	SANDSTONE: as above; dominantly fine to very fine grained aggregates; coarse to very coarse grained, subrounded grains becoming more common; up to 10% yellow-white fluorescence - no instantaneous cut, very slow, dull white crush cut; weak white residue observed.
	trace	COAL: black, hard, brittle, with a conchoidal fracture.
3185 - 3190m	55	SANDSTONE: as above; less than 5% yellow-white, dull to bright fluorescence; minor slow streaming white cut; slow diffuse crush cut with yellow-white fluorescent residue.
	45	SILTSTONE: as above.
	trace	COAL: as above.
3190 - 3195m	65	SILTSTONE: as above.
	35	SANDSTONE: as above; still with about 5% fluorescence.
3195 - 3200m	70	SILTSTONE: brown to dark brown to grey, firm to fissile, blocky to angular cuttings grading from siltstone into shale; minor carbonaceous inclusions, micromicaceous.
	30	SANDSTONE: clear to tan, hard to friable, very fine to coarse grained quartz aggregates; predominantly fine to medium grained, subangular to rounded, moderately sorted, siliceous cemented; poor to no visible porosity; dull yellow fluorescence, minor slow streaming cut, slow diffuse milky white crush cut, yellow-white residue; fluorescence constitutes about 10% of the sample.
3200 - 3205m	60	SILTSTONE: as above.
	40	SANDSTONE: as above; 10-15% fluorescence as above; very difficult to get any crush cut; poor to no visible porosity.
3205 - 3210m	50	SANDSTONE: clear to tan, fine to very coarse grained, hard to friable quartz aggregates; predominantly medium to coarse grained, subangular to subrounded, moderately sorted, siliceous cemented; very coarse grained, angular to subangular quartz grains are common; poor to no visible porosity; less than 5% dull

3205 - 3210m cont'd	50	to bright yellow-white fluorescence; no streaming cut; very slow to no diffuse milky crush cut; minor residual white fluorescence. SILTSTONE: as above; carbonaceous in part.
3210 - 3215m	50 45 5	SILTSTONE: as above; more carbonaceous. SANDSTONE: as above. COAL: black, hard to brittle conchoidal fracture.
3215 - 3220m	70 25 5	SILTSTONE: as above. SANDSTONE: as above. COAL: as above.
3220 - 3225m	80 10 10	SILTSTONE: brown grey to grey black, friable to hard, blocky cuttings; micromicaceous with carbonaceous material common; grades into very fine silty sandstone. SANDSTONE: white to tan, friable to hard, very fine to medium grained quartz aggregates; occasional coarse quartz grains observed; subrounded to subangular, moderately well sorted, with silica matrix; minor clay matrix observed; trace dull yellow fluorescence - no associated cut; very poor to no porosity. COAL: black, hard to brittle, conchoidal fracture, vitreous lustre.
3225 - 3230m	60 30 10	SILTSTONE: as above. COAL: as above. SANDSTONE: as above.
3230 - 3235m	50 45 5	SILTSTONE: as above. COAL: as above. SANDSTONE: as above.
3235 - 3240m	60 20 20	SANDSTONE: light grey to tan, friable, very fine to medium grained quartz aggregates, rounded to subangular, well sorted, with both siliceous and probably dolomitic cement; poor to no visible porosity; trace yellow-white fluorescence with very weak diffuse crush cut; dull yellow mineral fluorescence common. SILTSTONE: as above. COAL: as above.
3240 - 3245m	80 10 10	SANDSTONE: as above; increase of yellow fluorescence; trace of streaming cut; weak diffuse crush cut. SILTSTONE: as above. COAL: as above.
3245 - 3248.8m Bottoms up Sample	85 10 5	Circulated bottoms up at 3248.8m SANDSTONE: predominantly light grey to tan, friable, very fine to medium grained quartz aggregates, rounded to subangular, well sorted with both siliceous and dolomitic cement; dull orange-yellow mineral fluorescence common; less than 5% yellow-white fluorescence; no streaming cut; very weak diffuse crush cut; poor visible porosity; less commonly present are clear to translucent, hard, angular, very coarse grained aggregates and fragments of quartz; no fluorescence; no porosity. COAL: as above. SILTSTONE: as above.

3248.8 - 3250m	75	SANDSTONE: dominantly clear to translucent, hard, angular, very coarse grained to granular aggregates and fragments; minor yellow fluorescence; no streaming cut; very poor to no visible porosity; less commonly present are - light grey to tan, friable, fine to coarse grained quartz aggregates, subrounded to subangular with both siliceous and dolomitic cement; dull, orange mineral fluorescence common; less than 5% yellow-white fluorescence for whole of sample; poor to no visible porosity.
	25	SILTSTONE: as above.
	5	COAL: as above.
3250 - 3255m	65	SANDSTONE: as above; with the two types of sand equally abundant; less than 5% yellow white fluorescence with very slow crush cut.
	30	SILTSTONE: as above.
	5	COAL: as above.
3255 - 3260m	70	SANDSTONE: as above; the finer grained sand becoming more predominant; still less than 5% yellow-white fluorescence.
	25	SILTSTONE: as above; grading to very fine grained silty sandstone.
	5	COAL: as above.
3260 - 3265m	90	SANDSTONE: clear to white to tan to light grey, friable to hard, very fine grained to very coarse grained quartz aggregates and fragments; the aggregates are predominantly fine to medium grained, rounded to subrounded, well sorted, siliceous cemented; poor visible porosity; fragments are dominantly coarse to very coarse grained, subrounded to subangular; 15% dull to bright yellow-white fluorescence; no streaming cut; very slow crush cut; most of the fluorescence is associated with the fine to medium grained aggregates.
	10	SILTSTONE: brown, firm, blocky cuttings; micromicaceous with minor carbonaceous inclusions.
	trace	COAL: black, hard, brittle with vitreous lustre, conchoidal fracture (cavings).
3265 - 3270m	90	SANDSTONE: as above; 20% dull to bright yellow to yellow-white fluorescence, possibly most of it mineral fluorescence; no streaming cut; occasional weak crush cut.
	10	SILTSTONE: as above.
3270 - 3275m	90	SANDSTONE: as above; 10% dull to bright, yellow fluorescence; trace streaming cut; weak crush cut.
	10	SILTSTONE: as above.
3275 - 3280m	90	SANDSTONE: as above; 10% bright yellow fluorescence; some streaming white cut; diffuse milky white crush cut; yellow-white residue; very poor porosity.
	10	SILTSTONE: as above.

3280 - 3285m	100	<p>SANDSTONE: as above; 2 types: Type (1) - clear-white to light-tan, friable to hard, fine to medium grained, rounded to subrounded, well sorted quartz aggregates with dominantly siliceous cement; very poor porosity. Type (2) - clear to translucent, hard, very coarse to conglomeratic grain sized, subrounded to angular quartz aggregates and fragments; very poor visible porosity. Brown oil staining common in both sand types, both types contribute to 30% bright yellow-white fluorescence with slow streaming white cut and slow to moderate milky crush cut with a yellow-white residue; Type (1) sand contains significantly more fluorescence than Type (2).</p> <p>At 3288.6m POOH to change bit. Bottoms up sample as for interval 3280 - 3285m.</p>
3288 - 3290m	70	<p>SANDSTONE: as above with 20% fluorescence common to both sand types dominantly bright yellow-white with some fast streaming white cut and common instantaneous milky crush cut with yellow-white residue; trace bright orange mineral fluorescence.</p>
	30	<p>SILTSTONE: brown, firm, blocky cuttings; micromicaceous with some carbonaceous inclusions (maybe some cavings?)</p>
	Trace	<p>COAL: black, hard, brittle, with vitreous lustre and conchoidal fracture (cavings).</p>
3290 - 3295m	90	<p>SANDSTONE: as above; 15-20% fluorescence - streaming cut not as common.</p>
	10	<p>SILTSTONE: as above.</p>
3295 - 3300m	80	<p>SANDSTONE: as above; 10% fluorescence, some mineral fluorescence; occasionally streaming white cut.</p>
	20	<p>SILTSTONE: as above.</p>
3300 - 3305m	75	<p>SANDSTONE: as above; 15-20% fluorescence.</p>
	25	<p>SILTSTONE: as above.</p>
3305 - 3310m	80	<p>SANDSTONE: as above; 25% fluorescence; streaming cut more common; much of fluorescence associated with matrix attached to very coarse conglomeratic quartz aggregates and fragments.</p>
	20	<p>SILTSTONE: as above.</p>
3310 - 3315m	100	<p>SANDSTONE: 2 types: Type (1) - clear to white to light tan, friable to hard, very fine to medium grained, rounded to subrounded, well sorted quartz aggregates with dominantly siliceous cement - though appears to contain some carbonate; very poor porosity. Type (2) - clear to translucent, hard, very coarse grained to conglomerate grain size, subrounded to angular quartz aggregates and fragments; very poor visible porosity; 20% bright, yellow-white fluorescence; trace streaming cut; weak crush cut with white residue.</p> <p>C.B.U. @ 3317.1m Gas: 280 units</p>

3315 - 3317.1m	100	SANDSTONE: as above; 25% fluorescence; weak crush cut.
		POOH to run core barrel. For lithologies see description for Core #3
3326 - 3330m	65	SANDSTONE: as above; 15% fluorescence, trace streaming cut; minor crush cut.
	35	SILTSTONE: dark brown to black, well bedded, hard, subconchoidal fracture; grades into carbonaceous siltstone and coal; micromicaceous with pyrite nodules common.
3330 - 3335m	65	SANDSTONE: as above; 10% fluorescence; minor slow streaming cut; minor crush cut.
	35	SILTSTONE: as above.
3335 - 3340m	80	SANDSTONE: as above; 10% fluorescence as above.
	20	SILTSTONE: as above.
3340 - 3345m	85	SANDSTONE: as above; 15% fluorescence as above.
	15	SILTSTONE: as above.
3345 - 3350m	65	SANDSTONE: as above; only trace fluorescence as above.
	35	SILTSTONE: as above.
		POOH to log and run 9-5/8" casing.
3350 - 3353m	45	SILTSTONE: dark brown to grey, hard, angular cuttings; micromicaceous and quartzitic; minor carbonaceous matter.
	45	CEMENT.
	10	SANDSTONE: 2 types: Type (1) - clear to white to light tan, friable to hard, very fine to medium grained, rounded to subrounded, well sorted quartz aggregates with silica and dolomitic cement; very poor porosity; trace bright, yellow-white fluorescence with streaming white cut. Type (2) - clear to translucent, hard, very coarse grained to conglomerate grain size, subrounded to very angular quartz aggregates and fragments; very poor visible porosity; minor bright, yellow-orange fluorescence - no cut; no reaction with HCl, but appears to be associated with yellow-brown staining - probably dead oil.
		POOH to change bit.
3353 - 3355m	45	SILTSTONE: as above.
	45	CEMENT: as above.
	10	SANDSTONE: as above.
3355 - 3360m	40	SANDSTONE: as above; trace fluorescence, dull yellow mineral fluorescence common.
	30	SILTSTONE: as above.
	30	CEMENT.
3360 - 3365m	80	SANDSTONE: as above; dominantly Type (2) - minor dull, yellow mineral fluorescence (some bright fluorescence as result of pipe dope).
	20	SILTSTONE: as above.
	trace	CEMENT.

3365 - 3370m	95	SANDSTONE: 2 types: 10% Type (1) - clear to white, light grey to brown, hard to friable, fine to medium grained, rounded to subrounded, well sorted quartz aggregates; siliceous cemented; poor to no visible porosity; dull, yellow mineral fluorescence - no cut; no reaction to HCl; no shows. 90% Type (2) - clear to translucent, hard, coarse to granule sized, subrounded to angular quartz grains and fragments; 10% yellow fluorescence; very slow streaming cut related to dull brown staining in quartz aggregates - not all fluorescence cuts.
	5	SILTSTONE: brown to dark brown, hard to friable blocky cuttings in siltstone; carbonaceous flecks common; micromicaceous.
3370 - 3375m	90	SANDSTONE: as above; including shows.
	10	SILTSTONE: as above.
3375 - 3380m	95	SANDSTONE: as above.
	5	SILTSTONE: as above.
3380 - 3385m	80	SANDSTONE: as above; fluorescence less than 5%.
	20	SILTSTONE: as above.
	trace	COAL.
3385 - 3390m	100	SANDSTONE: as above; fluorescence less than 5%.
	trace	SILTSTONE: as above.
3390 - 3395m	90	SANDSTONE: as above; yellow-white fluorescence approximately 10%; slow streaming cut associated with brown stained quartz grains and aggregates with fluorescence ranging from dull, yellow-orange to bright, yellow-white.
	10	SILTSTONE: as above.
3395 - 3400m	100	SANDSTONE: as above; fluorescence up to 15%; streaming cut; crush cut and brown oil staining common.
3400 - 3405m Bottoms up Sample	100	SANDSTONE: white to translucent to clear, hard, medium to granule size but predominantly very coarse grained to granular, subrounded to angular, moderately sorted, siliceous cemented quartz aggregates and fragments; poor to no visible porosity; 10-15% yellow to yellow-white fluorescence with occasionally slow streaming cut and diffuse crush cut; occasional brown oil staining in aggregates matrix and on grain surfaces; (minor Type (1) is probably matrix and finer grained interbeds associated with the coarse grained sand).
3405 - 3410m	100	SANDSTONE: as above; 15% fluorescence.
3410 - 3415m	75	SANDSTONE: as above; 15% fluorescence.
	15	COAL: black vitreous, blocky cuttings with subconchoidal fracture - banded.
	10	SILTSTONE: as above.
3415 - 3420m	90	SANDSTONE: as above; 10% fluorescence - slow streaming cut not as common.
	10	SILTSTONE: as above.

3420 - 3425m	75	SANDSTONE: as above; 10% yellow-white fluorescence and 15% dull, yellow-orange mineral fluorescence; minor streaming cut.
	20	COAL: as above.
	5	SILTSTONE: as above.
3425 - 3430m	75	SANDSTONE: as above.
	25	SILTSTONE: as above.
3430 - 3435m	70	SANDSTONE: as above; large primary quartz grains present, conglomeratic, 10% dull, yellow to bright white fluorescence with slow, streaming to diffuse white cut; occasional dark brown oil staining, no residue, poor to no visible porosity.
	25	SILTSTONE: as above.
	5	COAL: as above.
3435 - 3440m	80	SANDSTONE: as above; conglomeratic, poor to no visible porosity; 20% dull, yellow to bright blueish-white fluorescence; slow streaming to diffuse, moderately bright, white cut, diffuse crush cut; good oil staining present in matrix of fine grained aggregates.
	20	SILTSTONE: as above.
	trace	COAL: as above.
	trace	CLAYSTONE.
3440 - 3445m	90	SANDSTONE: clear to milky, medium to very coarse grained, angular to subangular, poorly sorted, siliceous cement, occasional pyritic cement, large angular quartz fragments possibly from pebbles; 20% dull to bright yellow fluorescence, very slow, weak diffuse to occasionally streaming, moderately bright, white cut, weak diffuse crush cut; tight and conglomeratic.
	10	SILTSTONE: as above.
	trace	PYRITE.
	trace	COAL: angular to occasionally splintery cuttings, black, vitreous, grades into carbonaceous siltstone.
3445 - 3450m	80	SANDSTONE: as above; same shows as above; trace of dark red-brown oil stain in matrix of aggregates.
	15	SILTSTONE: as above; grades into coal.
	5	COAL: as above.
3450 - 3455m	70	SANDSTONE: as above; mostly large, loose, angular quartz fragments, probable conglomeratic origin; 20% dull yellow to dull blueish-white fluorescence; moderately fast but weak streaming to diffuse blueish-white cut, weak crush cut, no residue, occasional dark brown oil stain.
	30	SILTSTONE: as above; blocky to subangular cuttings.
	trace	PYRITE.
	trace	COAL.

3455 - 3460m	60	SANDSTONE: conglomeratic, clear to milky white, occasionally light grey, predominantly loose, coarse to very coarse quartz fragments, angular, moderately sorted, extremely hard, no cement, no matrix, occasionally crystalline structure; 10% dull, yellow to moderately bright blueish white fluorescence; moderately fast but very weak streaming white cut, no visible residue, occasional dark brown oil staining on surface of quartz fragments gives the cut as above; tight.
	40	SILTSTONE: red brown to dark brownish grey, carbonaceous, blocky to occasionally elongate cuttings, soft.
	trace trace	COAL. PYRITE.
3464m (Spot sample)	90	SANDSTONE: as above; with 40% dull to moderately bright yellow fluorescence; weak, very slow diffuse white cut, weak white crush cut; tight.
	10	SILTSTONE.
3460 - 3465m	80	SANDSTONE: as above; conglomeratic, with 30% moderately bright yellow-blueish white fluorescence; very slow, weak diffuse white cut; trace of oil staining on surface of grains; no inferred porosity.
	20 trace trace	SILTSTONE: as above. COAL. PYRITE.
3465 - 3470.3m Bottoms up sample	80	SANDSTONE: (probably conglomeratic), predominantly medium to very coarse grained quartz fragments, clear to milky white, angular to occasionally subangular, moderately sorted, no matrix or cement, occasional crystalline structure, possible pebbly fragments; no visible porosity; occasional subrounded, medium grained, well sorted, loose sand grains; 20% dull to moderately bright yellow to occasionally blueish-white fluorescence gives moderately fast but weak white streaming cut from a few grains, predominantly weak diffuse white cut, moderately fast blueish white crush cut; occasional dark brown oil staining on surface of quartz fragments; no visible residue; overall poor inferred porosity and permeability.
	20	SILTSTONE: brownish grey to red brown, soft, tabular to blocky cuttings, highly carbonaceous.
	trace	COAL: black, subvitreous, angular to occasional splintery cuttings, moderately hard, grades into siltstone as above.
	trace	PYRITE.
		POOH to cut Core No. 4 - 3470.3 - 3472.3m
3472.3 - 3475m	90	CONGLOMERATE: translucent, milky white and grey, loose quartz fragments, medium to very coarse grained, clasts inferred to be mostly light grey quartzite and milky white primary quartz, very angular fragments, moderately sorted, no cement/matrix; 5% moderately bright yellow fluorescence gives no cut but an extremely weak, extremely slow white crush cut; very poor inferred porosity.

3470 - 3475m cont'd	10	SILTSTONE: brownish grey, moderately hard, blocky to subangular cuttings, carbonaceous flecks.
	trace	PYRITE: loose nodules and as solution veining in primary quartz clasts.
	trace	COAL: black, brittle, vitreous, angular to subangular cuttings, approaching 5%.
3475 - 3480m	95	CONGLOMERATE: as above; 5% mineral fluorescence; trace dull yellow fluorescence with very slow, very weak diffuse white crush cut; very tight.
	5	SILTSTONE: as above.
	trace trace	COAL. PYRITE.
3480 - 3485m	90	CONGLOMERATE: more sandy but still as above; 5% mineral fluorescence, trace dull yellow to blueish white fluorescence with a slow but strong blueish-white streaming cut.
	10	SILTSTONE.
	trace trace	COAL. PYRITE.
3485 - 3490m	60	CONGLOMERATE: as above; more recognisable sand grains appearing; trace mineral fluorescence; no shows.
	40	SILTSTONE: 2 types: Type (1) - highly carbonaceous, black to dark brown, angular to blocky cuttings, very hard. Type (2) - brownish grey, moderately hard, blocky to subangular cuttings, carbonaceous flecks.
	trace trace trace	CLAYSTONE. COAL. PYRITE.
3490 - 3495m	80	CONGLOMERATE: as above; no shows.
	20	SILTSTONE: as above; grades into coal.
	trace trace	COAL: angular to splintery cuttings. PYRITE.
3495 - 3500m	90	CONGLOMERATE: as above; 5% dull yellow fluorescence, one aggregate gave a weak white diffuse cut and weak crush cut.
	10	SILTSTONE: as above.
	trace trace	PYRITE. COAL.
3500 - 3505m	90	SANDSTONE: pebbly but resembles sandstone rather than conglomerate. 2 types: Type (1) - coarse to very coarse, subangular, loose sand grains; poor inferred porosity; no shows. Type (2) - medium to very coarse grained, translucent to milky white aggregates, subangular to angular, friable to moderately hard, siliceous cement; poor visible porosity; 5% dull yellow fluorescence with a very slow, very weak white diffuse cut and weak crush cut; no staining; weak creamy brown residue; also quartz fragments and quartzite as above, indicating presence of conglomeratic pebbles.
	10	SILTSTONE: Type (1) and Type (2) as above.
	trace trace	COAL. PYRITE.

3505 - 3510m	50	SANDSTONE: as above; 5% dull yellow mineral fluorescence, trace bright blueish white fluorescence; no cut, weak white crush cut; tight.
	40	SILTSTONE: as above.
	5	COAL: black, hard to very hard, brittle, subangular to angular cuttings.
	5	CLAYSTONE: buff to pale brown, very soft, noncalcareous.
3510 - 3515m	trace	PYRITE.
	80	SANDSTONE: as above; shows as above.
	20	SILTSTONE: as above.
	trace	COAL.
3515 - 3520m	trace	PYRITE.
	90	SANDSTONE: as above; but more conglomeratic fragments, e.g. quartzites returning; 5% dull yellow mineral fluorescence, also 10% dull to moderately bright blueish fluorescence with a slow to moderately fast but weak blueish white diffuse cut; poor inferred porosity.
	10	SILTSTONE: as above.
	trace	COAL.
3520 - 3525m	trace	PYRITE.
	90	SANDSTONE: as above; conglomeratic; 5% yellow mineral fluorescence and 5% blueish fluorescence as above.
	10	SILTSTONE: as above.
	trace	COAL.
3525 - 3530m	trace	PYRITE.
	60	SANDSTONE: as above; no shows; 5% mineral fluorescence.
	40	SILTSTONE: as above.
	trace	COAL.
3530 - 3535m	trace	PYRITE.
	80	SANDSTONE: conglomeratic, otherwise as above; mostly loose, angular to subangular quartz grains; trace dull to moderately bright blueish fluorescence with very faint, slow blueish white cut, weak crush cut; tight.
	20	SILTSTONE: as above; highly carbonaceous, grades into coal; micromicaceous.
	trace	COAL: grades into siltstone as above.
3535 - 3540m	trace	PYRITE.
	90	SANDSTONE: predominance of loose, angular quartz fragments and quartzite suggests that it is highly conglomeratic; 5-10% moderately bright, blue fluorescence gives a slow to occasionally moderately fast streaming blueish white cut; also 5% dull yellow mineral fluorescence.
	10	SILTSTONE: as above; angular to blocky cuttings.
	trace	COAL.
3540 - 3545m	90	SANDSTONE: as above; conglomeratic with 20% dull to moderately bright, blueish and white fluorescence with a moderately fast but weak streaming to diffuse blueish white cut; also 10% dull yellow mineral fluorescence.
	5	SILTSTONE: as above.

3540 - 3545m cont'd	5	COAL: black to very dark, brownly black, angular cuttings, subvitreous to vitreous, lustre, brittle, conchoidal fracture when vitreous.
	trace	PYRITE.
3545 - 3550m	60	SANDSTONE: as above; conglomeratic; 10% dull to moderately bright yellow mineral fluorescence; trace of moderately bright, blue fluorescence with moderately fast but very weak blueish white streaming cut; weak crush cut; very poor inferred porosity.
	35	SILTSTONE: as above.
	5	COAL: as above.
	trace	PYRITE.

1697L/1-61

APPENDIX 2

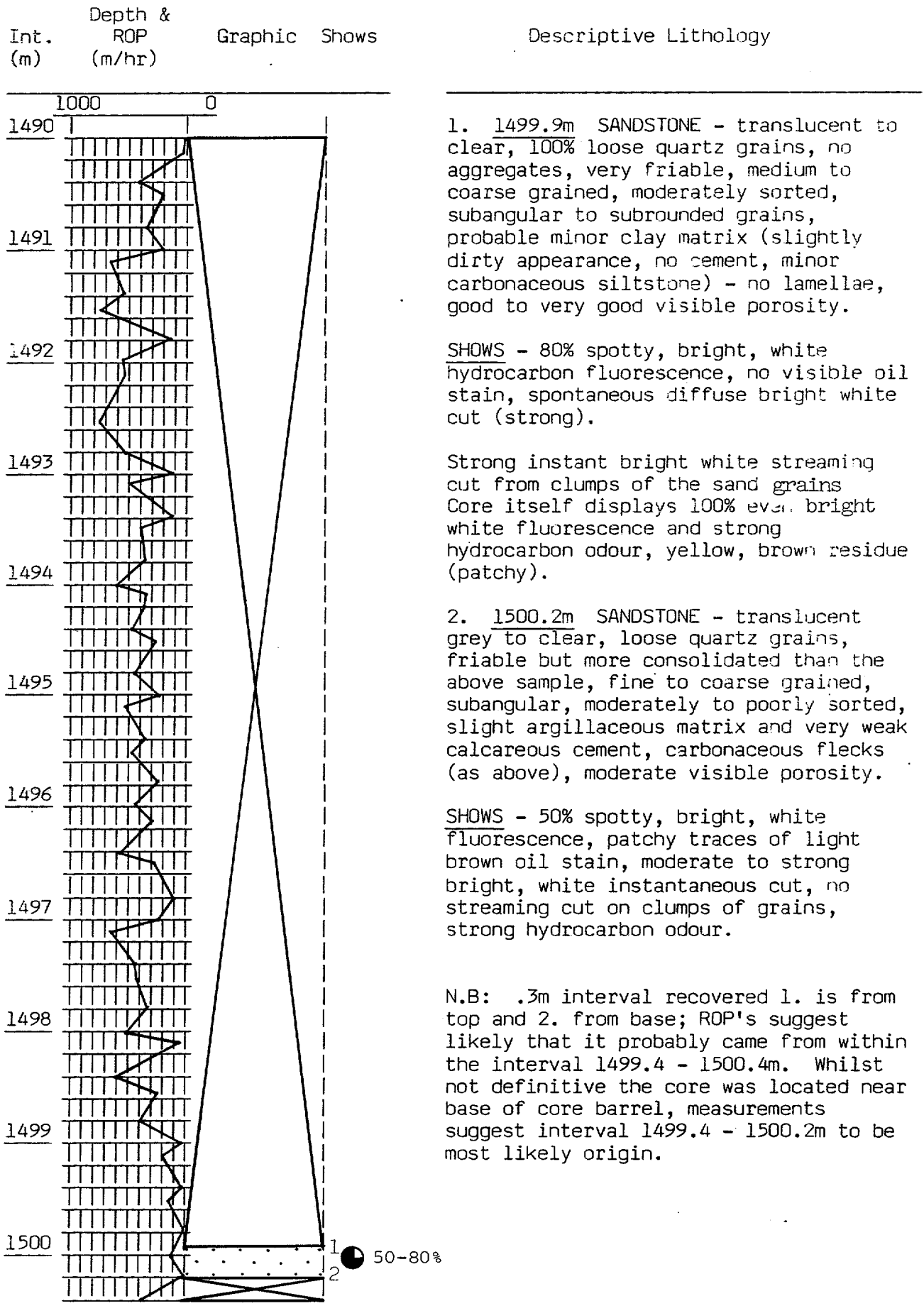
APPENDIX 2.

Core Descriptions

Core No. 1 PVC SLEEVE CORE Well : WHITING-2

Interval Cored : 1489.0 - 1500.4m
Cut : *10.4m (9.2m possible) Recovered : 0.3m (3.3%)
Bit Type : Christ KC-4 Bit Size : 9-7/8"
Described by : S. Watts Date : 29/4/85

* 1m blown away by circulation before cutting core.



1. 1499.9m SANDSTONE - translucent to clear, 100% loose quartz grains, no aggregates, very friable, medium to coarse grained, moderately sorted, subangular to subrounded grains, probable minor clay matrix (slightly dirty appearance, no cement, minor carbonaceous siltstone) - no lamellae, good to very good visible porosity.

SHOWS - 80% spotty, bright, white hydrocarbon fluorescence, no visible oil stain, spontaneous diffuse bright white cut (strong).

Strong instant bright white streaming cut from clumps of the sand grains Core itself displays 100% even bright white fluorescence and strong hydrocarbon odour, yellow, brown residue (patchy).

2. 1500.2m SANDSTONE - translucent grey to clear, loose quartz grains, friable but more consolidated than the above sample, fine to coarse grained, subangular, moderately to poorly sorted, slight argillaceous matrix and very weak calcareous cement, carbonaceous flecks (as above), moderate visible porosity.

SHOWS - 50% spotty, bright, white fluorescence, patchy traces of light brown oil stain, moderate to strong bright, white instantaneous cut, no streaming cut on clumps of grains, strong hydrocarbon odour.

N.B: .3m interval recovered 1. is from top and 2. from base; ROP's suggest likely that it probably came from within the interval 1499.4 - 1500.4m. Whilst not definitive the core was located near base of core barrel, measurements suggest interval 1499.4 - 1500.2m to be most likely origin.

50-80%

Core No. 2 PVC SLEEVE CORE

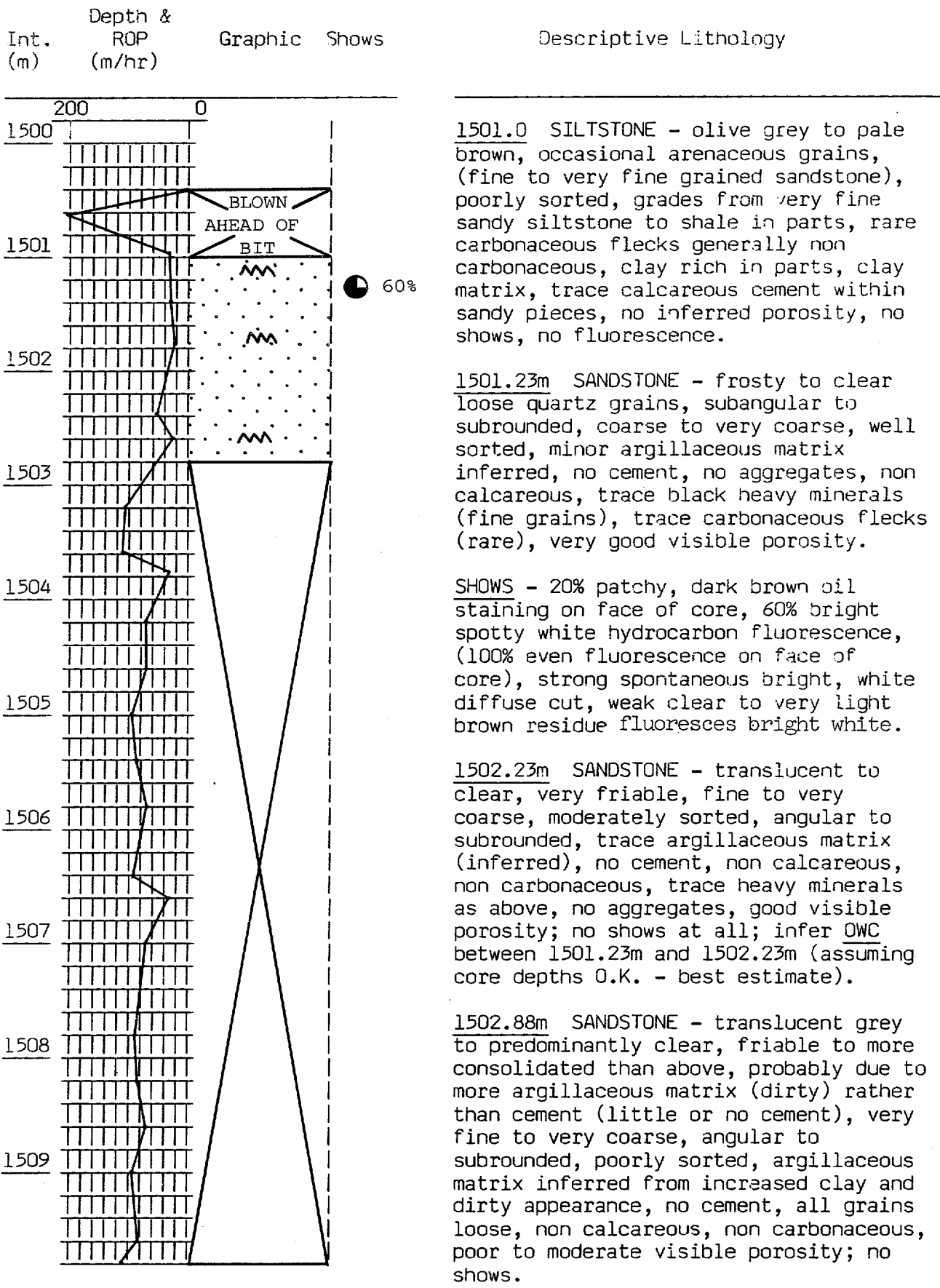
Well : WHITING-2

Interval Cored : 1500.4 - 1511.6m

Cut : 11.2m (9.2m possible) Recovered : 1.8m (19.6%)

Bit Type : Christ RC-4 Bit Size : 9-7/8"

Described by : S. Watts Date : 29/4/85



Core No. 2 cont'd

Well : WHITING -2

Interval Cored : 1500.4 - 1511.6m

Cut : 11.2m (9.2m possible) Recovered : 1.8m (19.6%)

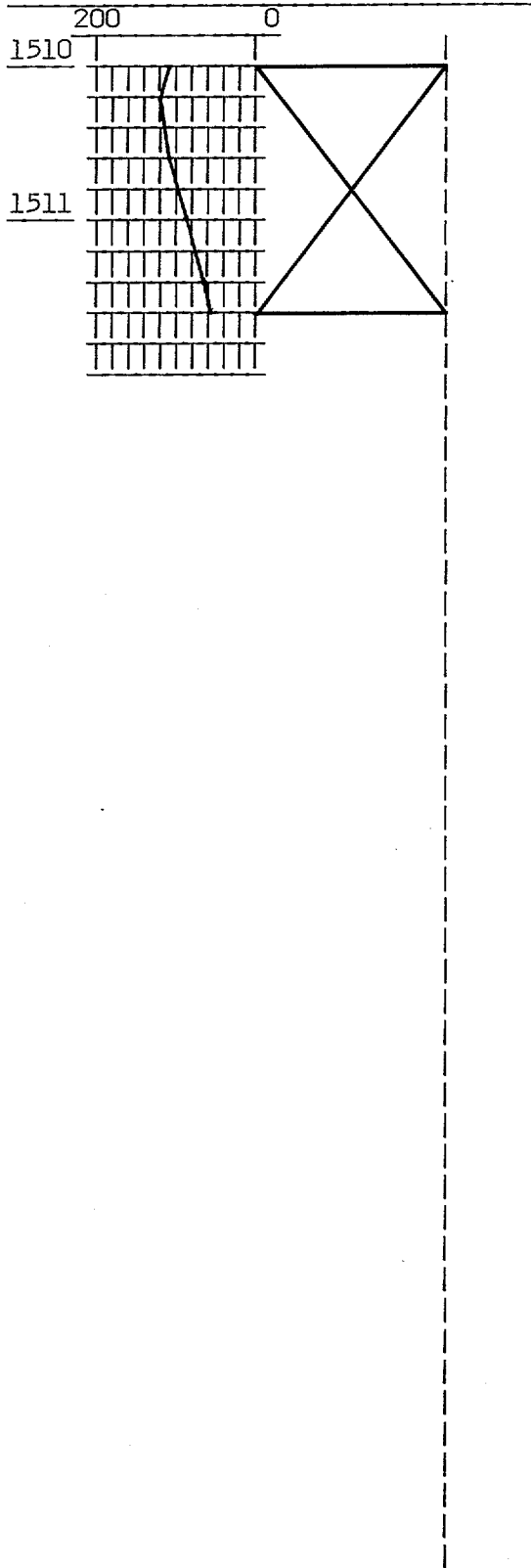
Bit Type : Christ RC-4

Bit Size : 9-7/8"

Described by : S. Watts

Date : 29/4/85

Int.	Depth & ROP (m)	Graphic Shows	Descriptive Lithology
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Core No. 3

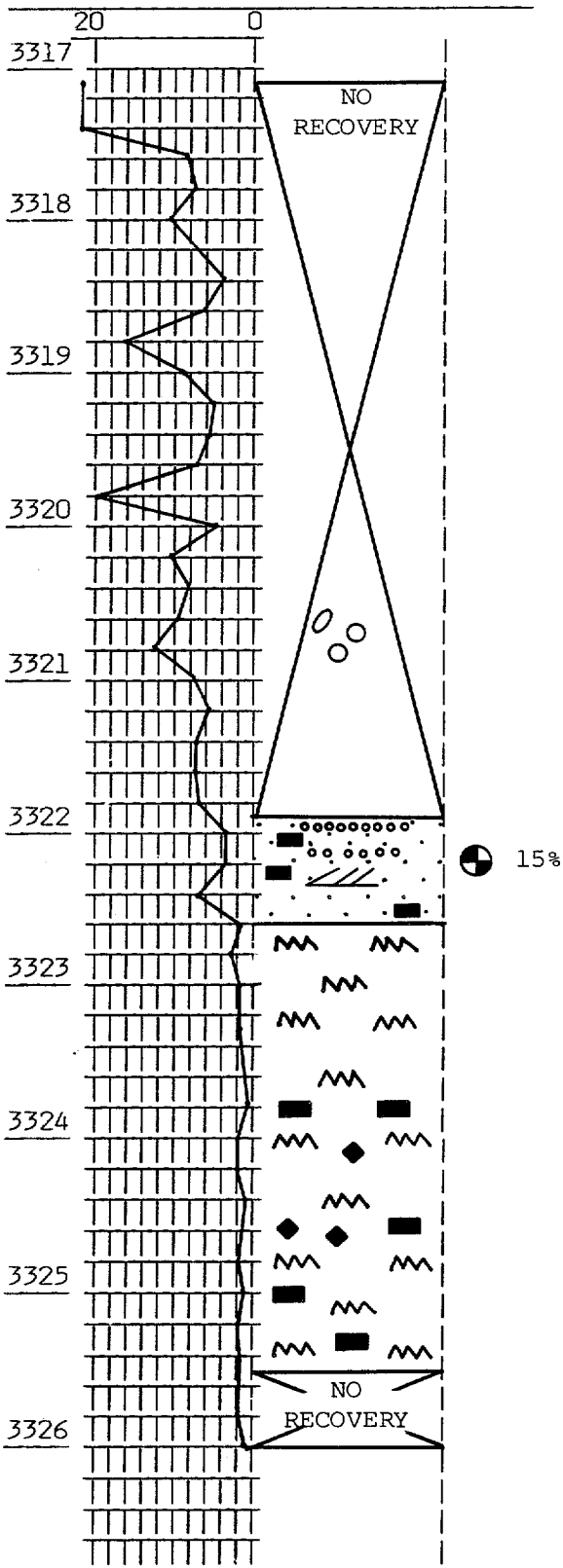
Well : WHITING-2

Interval Cored : 3317.1 - 3326.0m
Cut : 8.9m
Bit Type : Christ C-23
Described by : R. Newport

Recovered : 3.2m (36%)
Bit Size : 9.844" (9-27/32)
Date : 27/5/85

Depth & ROP
Int. (m) (m/hr) Graphic Shows

Descriptive Lithology



Loose conglomerate pebbles of quartzitic basement - position in cored interval unknown.

3321.9 - 3322.6m SANDSTONE - clear to light grey-tan, friable to hard, medium to coarse grained to very coarse grained with layers of grit and fine conglomerate; sands generally subrounded to rounded moderately well sorted; silica and dolomite cemented; poor visible porosity - although coarser grained layers have marginally better porosity. 15-20% dull, bright, yellow fluorescence with minor - trace crush cut; evenly distributed; carbonaceous matter common.

3322.6 - 3325.1m SILTSTONE/SHALE - Dark brown to black, well bedded, hard, carbonaceous siltstone with subconchoidal fracture; pyrite nodules common; micromicaceous.

Core No. 4

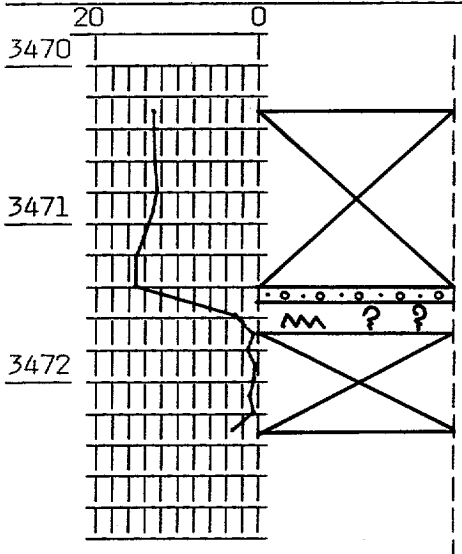
Well : WHITING-1

Interval Cored : 3470.3 - 3472.3m
 Cut : 2.0m
 Bit Type : Christ C201
 Described by : S. Watts

Recovered : 0.3m (15%)
 Bit Size : 8-1/2" (4" Core)
 Date : 6/6/85

Int. (m) Depth & ROP (m/hr) Graphic Shows

Descriptive Lithology



3471.4 - 3471.5m CONGLOMERATE - polymictic, grains size varies from very coarse, angular quartz grains to large cobble sized clasts of quartzite, acid volcanics and other lithics. Clasts range from less than 1 cm to greater than 10 cm diameter (inferred from broken clasts). Clay/sericite matrix in sandy lenses makes it friable to moderately hard in places, no visible porosity, no inferred permeability. Overall moderately hard to very hard. Clasts include milky white, grey and rose pink coloured primary quartz, grey quartzite, acid volcanics. All clasts are well rounded.

SHOWS - very slight oil stain (dark brown) on clayey matrix, less than 5% spotty, dull, yellow to white fluorescence, no visible cut, very slow, weak, white diffuse crush cut; very poor shows (5% optimistic).

N.B: Clayey matrix gives dull, yellow mineral fluorescence (not CO₂, white and very soft).

3471.5 - 3471.7m CLAYSTONE WITH MINOR SILTSTONE - medium grey to pale brown, soft to occasionally moderately hard, laminations of siltstone and darker claystone rock, non calcareous, occasionally very fine quartz fragments, micromicaceous when silty, occasionally carbonaceous; no shows.

*N.B: Two "chunks" of gravel dropped out at top of core.

Gravelly Sandstone - light to medium grey overall, clear to grey quartz grains, soft to moderately hard, very angular quartz grains set in a white clayey matrix, carbonaceous and coal clasts as well as occasional lithics, very coarse to gravelly (approximately 2 - 3mm maximum) dominantly very coarse grained, poorly sorted, slightly graded bedding gives laminar texture.

Core No. 4 cont'd

Well : WHITING-2

Interval Cored : 3470.3 - 3472.3m

Cut : 2.0m

Bit Type : Christ C201

Described by : S. Watts

Recovered : 0.3m (15%)

Bit Size : 8-1/2" (4" Core)

Date : 6/6/85

Int. (m)	Depth & ROP (m/hr)	Graphic Shows	Descriptive Lithology
			<p>SHOWS - less than 5% spotty, dull, yellow fluorescence (follows laminar texture), no visible cut, very slow, weak crush cut (white); slight stain as above; very poor visible porosity; high clay content (approximately 20% matrix) gives very poor inferred permeability.</p> <p>This Sandstone is probably representative of "no recovery" interval at top of cored interval.</p> <p>* No hydrocarbon odour on any specimens however weak stain preserved on matrix.</p> <p><u>GENERAL</u></p> <ul style="list-style-type: none"> - Possible fining up sequence with gravelly channel lag above it (3471.4 - 3471.5m). Clasts in conglomerate are all well rounded and mature, however they are set in an extremely immature "matrix" of very coarse sandstone. This channel lag possibly fines up into the no recovery section above it. - Clay has a couple of possible origins: <ol style="list-style-type: none"> 1. Primary alteration of feldspars (very immature rock and occasional oblong shaped outline to matrix). 2. Authigenic i.e. cement infilling pores. - Very immature in general: Poorly sorted; very angular quartz grains (look like quartz fragments rather than grains); possible feldspathic origin to clays.

APPENDIX 3

APPENDIX 3

APPENDIX 3.

Sidewall Core Descriptions

WHITING-2

SIDEWALL CORE DESCRIPTIONS

<u>No.</u>	<u>Depth</u>	<u>Rec.</u> <u>(mm)</u>	<u>Rock</u> <u>Type</u>	<u>Description</u>
1	3334.0	10	SANDSTONE	White to light grey, medium to coarse grained, well sorted, subangular to subrounded, friable; slightly carbonaceous; 10% even, dull to bright, yellow to white fluorescence; trace of white cut; trace white residue.
2	3329.8	14	SILTSTONE	Brown; slightly calcareous; slightly carbonaceous.
3	3322.0			PULL OFF
4	3318.0	25	SILTSTONE/ SANDSTONE	Light grey, fine to very fine grained, poorly sorted, subangular to subrounded, friable; slightly calcareous; carbonaceous.
5	3307.5	10	SANDSTONE	Light grey, very coarse grained, poorly sorted, subangular to subrounded, hard; moderately calcareous, carbonate matrix; 30% bright to dull, yellow to white fluorescence; no cut, no residue; fluorescence dominantly mineral.
6	3300.5	22	CARBONACEOUS SHALE	Dark brown, soft; very carbonaceous.
7	3285.5	21	SANDSTONE	White, very coarse grained, poorly sorted, angular to subrounded, hard to friable; moderately calcareous, carbonate matrix; 10% bright to even, yellow-white fluorescence; no cut, no residue; fluorescence dominantly mineral.
8	3282.0	8	SANDSTONE	White to grey, fine to very fine grained, poorly sorted, subrounded to rounded, soft; slightly calcareous, slightly carbonaceous.
9	3271.0			PULL OFF
10	3262.9			PULL OFF
11	3259.5	8	SANDSTONE	Light grey, fine to very fine, well sorted, rounded, friable; trace patchy, bright, yellow-white fluorescence; trace white residue.
12	3255.0			EMPTY
13	3249.0	21	SANDSTONE	Light grey, medium to coarse grained, poorly sorted, subangular to subrounded, friable; slightly calcareous; trace patchy, dull, yellow-white fluorescence; trace white residue.
14	3235.0	10	SILTSTONE	Brown, hard to friable; slightly calcareous, slightly carbonaceous.
15	3229.4			PULL OFF
16	3213.5			EMPTY

- 2 -

17	3207.4	16	SANDSTONE	Light grey, fine to very fine grained, well sorted, rounded, friable to soft; slightly calcareous, some clay matrix; 10% even, dull, yellow-white fluorescence; slow white crush cut; white residue; poor visible porosity.
18	3190.7			EMPTY
19	3165.0	24	SILTSTONE	Dark brown, hard to friable; slightly calcareous, carbonaceous.
20	3133.5	20	SILTSTONE	Dark brown to black, hard to friable; carbonaceous.
21	3128.5	38	SILTSTONE	Dark brown, soft to friable; very calcareous, carbonaceous and sandy.
22	3124.5	19	SANDSTONE	White to light grey, fine to medium grained, well sorted, subrounded to rounded, friable; slightly calcareous; 50% even, bright, white fluorescence; instantaneous streaming cut; white residue; very strong fluorescence; poor visible porosity.
23	3120.0	12	SANDSTONE	Grey, very fine to fine grained, poorly sorted, rounded to subrounded, friable; silty sandstone.
24	3094.9			PULLED OFF
25	3075.0	28	CARBONACEOUS SILTSTONE	Black, silty, friable to hard; very carbonaceous siltstone - almost a coal.
26	3049.9	20	SANDSTONE	Grey, very fine to fine grained, well sorted, subrounded to rounded, friable to soft; moderately calcareous; carbonaceous, clayey; layers of carbonaceous material in sand.
27	3025.0	15	SANDY SILTSTONE	Dark grey, very fine grained sandstone and siltstone, hard to friable; carbonaceous, clayey; sandy siltstone.
28	3010.0			EMPTY
29	2980.9	20	SANDSTONE	Dark grey, very fine grained, well sorted, rounded, hard; strongly indurated.
30	2960.0	20	SILTSTONE	Black, siltstone/clay, hard; carbonaceous.
31	2934.9	5	SILTSTONE	Black, siltstone/clay, hard; carbonaceous.
32	2914.9	5	SILTSTONE	Black, siltstone/clay, hard; carbonaceous.
33	2892.9	28	SILTSTONE	Light grey, soft; very argillaceous; water sensitive.
34	2801.0	40	COAL	Black, soft; silty; coal grading into very carbonaceous siltstone.

35	2774.0	38	CARBONACEOUS SILTSTONE	Dark brown to black, soft; slightly calcareous, almost coal.
36	2739.9	18	CARBONACEOUS SILTSTONE	Dark brown, soft; slightly calcareous, carbonaceous.
37	2715.0	20	SILTSTONE	Brown, hard; pyrite, carbonaceous.
38	2694.0	20	SANDY SILTSTONE	Light brown, soft; moderately calcareous, carbonaceous.
39	2675.0	15	SILTSTONE	Light brown, soft; moderately calcareous, carbonaceous.
40	2655.0	25	SILTSTONE	Light brown, soft; strongly calcareous, carbonaceous.
41	2634.9	32	SANDY SILTSTONE	Light brown; slightly calcareous, carbonaceous.
42	2608.0	25	SILTSTONE	Light brown, soft; moderately calcareous, carbonate.
43	2590.0	25	SILTSTONE	Light grey, soft; moderately calcareous, carbonate.
44	2570.0	20	SILTSTONE	Light brown, soft; slightly calcareous.
45	2548.0	35	SILTSTONE	Light brown, firm; slightly calcareous, carbonaceous.
46	2526.0	25	SILTSTONE	Grey, firm to soft; slightly calcareous.
47	2505.0	14	SANDY SILTSTONE	Grey, firm to soft; slightly calcareous.
48	2485.0	20	SILTSTONE	Grey, firm to soft; slightly calcareous.
49	2465.0	8	SILTSTONE	Grey, firm.
50	2438.0	20	SILTSTONE	Grey, firm; slightly calcareous.
51	2409.9	10	SILTSTONE	Grey, firm.
52	2390.0	10	SILTSTONE	Grey, firm.
53	2370.0	18	SANDY SANDSTONE	Light grey, very fine grained sandstone and siltstone, well sorted, rounded, firm.
54	2350.0	25	SANDY SILTSTONE	Light grey, very fine grained sandstone and siltstone, well sorted, rounded, firm to soft.
55	2330.0	30	SILTSTONE	Dark brown, firm to soft; carbonaceous.
56	2308.0	28	SILTSTONE	Brown, firm.
57	2285.0	20	SILTSTONE	Light grey, very fine grained sandstone and siltstone, firm; carbonaceous.

58	2250.0	15	SILTSTONE	Light grey, siltstone, sandy in parts, well sorted, rounded, firm; slightly calcareous, micaceous.
59	2224.9	22	SILTSTONE	Light grey, soft; slightly calcareous.
60	2205.0	26	SILTSTONE	Light brown, firm to soft; carbonaceous.
61	2185.0	30	SANDSTONE	Light grey, fine to medium grained, well sorted, subrounded to rounded, friable; slightly calcareous, carbonaceous, clayey; moderate visible porosity.
62	2165.0	28	SANDSTONE	Light grey, very fine grained, silty in parts, well sorted, rounded, friable; carbonaceous, clayey; moderate to poor visible porosity.
63	2144.9	20	SILTSTONE	Dark brown, soft; slightly calcareous, carbonaceous.
64	2125.0	18	SILTSTONE	Brown, firm; carbonaceous.
65	2105.9	28	SILTSTONE	Light grey, very fine grained sandstone and siltstone, well sorted, rounded, firm to friable; moderately calcareous, carbonaceous; poor to no visible porosity.
66	2073.0	20	SILTSTONE	Light grey, firm to friable; carbonaceous.
67	2045.0	24	SILTSTONE	Light grey, firm; trace calcareous, micaceous.
68	2020.0	20	SANDSTONE	Light grey, very fine grained, well sorted, rounded, firm to friable; trace calcareous, clay matrix; 40% even, bright, white/yellow fluorescence; instantaneous white cut; very light yellow residue; poor visible porosity.
69	2000.0	24	SILTSTONE	Light brown, firm; carbonaceous.
70	1985.0	30	COAL	Black, friable.
71	1970.0	25	SILTSTONE	Light grey, firm; trace calcareous, carbonaceous.
72	1945.0	20	SANDY SILTSTONE	Light grey, very fine grained sandstone and siltstone, well sorted, rounded, firm to soft; poor visible porosity.
73	1924.0	18	SILTSTONE	Brown, firm to soft; carbonaceous; water sensitive clays.
74	1899.9	30	SILTSTONE	Light grey, soft; water sensitive clays.
75	1874.9	32	SILTSTONE	Dark brown, firm to soft; strongly calcareous, carbonaceous carbonate.
76	1860.0	32	SILTSTONE	light grey, firm to soft, water sensitive clays.

- 5 -

77	1840.0	40	SILTSTONE	Light grey, firm to soft; carbonaceous, water sensitive clays.
78	1800.0	28	CLAYSTONE	Light to dark grey, firm to soft; water sensitive clays.
79	1775.0	25	CLAYSTONE	Light grey, soft; trace calcareous; water sensitive clays.
80	1766.0	28	SILTSTONE	Dark brown, soft; moderately calcareous, carbonaceous.
81	1754.0	52	SILTSTONE	Dark brown, firm; carbonaceous; water sensitive clays.
82	1730.0	12	SILTSTONE	Light grey, firm; trace calcareous; water sensitive clays.
83	1703.0	15	SANDY SILTSTONE	Dark grey, very fine grained sandstone and siltstone, well sorted, rounded, firm; carbonaceous, dolomitic; minor orange/yellow mineral fluorescence.
84	1670.9	13	SANDY SILTSTONE	Light grey, very fine grained sandstone and siltstone, well sorted, rounded, firm; carbonaceous; water sensitive clays; no visible porosity.
85	1656.9			PULL OFF
86	1615.0	40	SANDSTONE	Light grey, very fine grained, well sorted, rounded, firm; clay matrix; water sensitive clays; no visible porosity.
87	1603.0	30	SANDY SILTSTONE	Light grey, very fine grained sandstone and siltstone; well sorted, rounded, firm; no visible porosity.
88	1601.9	40	CLAYSTONE	Light grey, firm to soft.
89	1568.0	20	SANDY SILTSTONE	Light grey, very fine grained sandstone and siltstone, well sorted, rounded, firm; clayey; smell of H ₂ S when HCl added.
90	1547.4	36	SILTSTONE	Brown, firm; carbonaceous, micaceous; water sensitive clays.
91	1540.5	35	SANDSTONE	White, medium to coarse grained, moderately sorted, subangular to subrounded, friable; clayey; water sensitive clays.
92	1530.0	33	SILTSTONE	Dark brown to grey, firm; carbonaceous; water sensitive clays.
93	1517.5	38	CLAYSTONE	Light grey, firm.
94	1484.9	30	SILTY SANDSTONE	Light grey, very fine grained sandstone and siltstone, well sorted, rounded, firm; water sensitive clays.
95	1466.0	25	SILTSTONE	Dark brown, firm; carbonaceous.

- 6 -

96	1440.9	35	SILTSTONE	Dark brown to grey, firm; carbonaceous; water sensitive clays.
97	1421.0	32	SILTSTONE	Dark brown to grey, firm; carbonaceous; water sensitive clays.
98	1397.0	30	SILTSTONE/ LIGNITE	Dark brown, friable; silty lignite.
99	1374.0	30	SILTSTONE	Brown, friable to firm; slightly calcareous.
100	1353.9	32	SILTSTONE	Dark grey, friable to firm; water sensitive clays.
101	1337.5	43	CLAYEY SILTSTONE	Brown to grey, firm; slightly calcareous; water sensitive clays.
102	1302.0	20	SANDY SILTSTONE	Dark grey, very fine grained sandstone and siltstone, well sorted, subangular to subrounded, friable to firm; carbonaceous, trace carbonate.
103	1294.9	28	SANDSTONE	Very dark grey, fine to medium grained, moderate sorting, subangular to subrounded, friable.
104	1289.0	23	SANDSTONE	Very dark grey, medium to very coarse grained, poorly sorted, subangular to rounded, friable; slightly calcareous, carbonaceous.
105	1285.0	27	SANDSTONE	Dark grey, very fine to fine grained, well sorted, subrounded to rounded, friable; carbonaceous.
106	1280.0	21	SANDSTONE	Grey, fine grained, moderately sorted, subrounded to rounded, friable; carbonaceous, clayey; minor coarse grained quartz, subangular; water sensitive clays.
107	1275.0	25	SILTY SANDSTONE	Grey, fine grained, well sorted, subrounded to rounded, friable; carbonaceous, clayey.
108	1272.0	36	SANDSTONE	Very dark grey, very fine to fine grained, well sorted, subrounded to rounded, friable; carbonaceous, clayey.
109	1268.0	34	SANDSTONE	Very dark green, fine to very coarse grained, poorly sorted, subangular to subrounded, firm; pyritic, glauconitic.
110	1265.0	26	SANDSTONE	Very dark green, fine to very coarse grained, poorly sorted, subangular to subrounded, firm; pyritic, glauconitic.
111	1260.0	36	SILTSTONE	Brown, siltstone/clay, firm; strongly calcareous, pyritic, glauconitic.

- 7 -

112	3548.2	40	COAL	Black, firm; approximately 50% vitrinite, vitrinite lenses, vitreous - dull lustre.
113	3540.0	25	SANDSTONE	Translucent to grey, fine to coarse grained, poorly sorted, angular; silty and pebbly; trace mineral fluorescence; poor visible porosity; no shows.
114	3534.3	10	SILTSTONE	Black to dark brown, firm; slightly calcareous, highly carbonaceous; occasional very fine sandstone inclusions.
115	3528.0	28	SANDSTONE	Translucent to white, fine grained, moderately sorted, subrounded, friable to moderately hard; carbonaceous flecks, clayey matrix; no shows.
116	3523.5			EMPTY
117	3518.0	25	SANDSTONE	Translucent to milky, fine to medium grained, poorly sorted, subangular, friable to moderately hard; occasional carbonaceous flecks; trace mineral fluorescence; poor visible porosity; no shows.
118	3515.0	20	SILTSTONE	Dark brown, firm; slightly carbonaceous, grades into coal, micaceous.
119	3504.2	30	SANDSTONE	Translucent to light grey, very fine to coarse grained, poorly sorted, subangular to angular, friable to moderately hard; slightly calcareous, carbonaceous, clay matrix; 5% mineral fluorescence; no shows.
120	3492.3	35	SILTSTONE/ COAL	Dark brown, firm to hard; extremely carbonaceous; coal laminae, fissile, micaceous.
121	3489.0	20	SILTSTONE	Dark brown, firm; carbonaceous, micaceous, subfissile.
122	3485.0	20	SANDSTONE	Translucent to milky, fine to granule sized, very poorly sorted, angular, friable; pebbly, quartz fragments; 30% spotty, moderately bright, blue/white fluorescence; slow diffuse cut; poor visible porosity; gaseous odour.
123	3479.5	15	CONGLOMERATE	Clear to grey, fine to granule sized, very poorly sorted, angular, friable; quartzite clasts, carbonaceous; trace spotty, moderately bright, yellow fluorescence; very slow diffuse cut; occasional slight dark brown oil stain.
124	3468.0	15	SANDSTONE	Dirty grey, fine to granule sized, very poorly sorted, angular, moderately hard; pebbly, slight siliceous cement; mineral fluorescence, gaseous odour; no shows.
125	3463.7	5	SILTSTONE	Dark brown, moderately hard; carbonaceous, sandy, coaly laminae.

126	3460.8	45	SANDSTONE	Translucent, fine to very coarse grained, poorly sorted, angular, friable; quartz fragments, silty matrix; 20% spotty, bright, blue fluorescence; very weak diffuse and very slow, bluish/white cut; poor visible porosity.
127	3454.2	5	SILTSTONE	Brownish grey, firm; clayey, carbonaceous, subfissile, occasional coal flecks.
128	3448.0	20	SANDSTONE	Translucent to milky, fine to medium grained, subangular, friable; carbonaceous lamellae, clay matrix, silty and clayey; moderate visible porosity.
129	3434.0	5	SILTSTONE	Dark brown, firm; highly carbonaceous, micromicaceous, subfissile.
130	3426.9	35	SANDSTONE	Dirty grey, very fine to very coarse grained, poorly sorted, subangular to subrounded, friable; slightly calcareous, chlorite, silty matrix; 20% patchy, bright, bluish white fluorescence; no cut; no residue; poor visible porosity; gaseous odour.
131	3421.0			EMPTY
132	3417.3	45	COAL	Black, friable to brittle; silty, micromicaceous, vitrinite laminae.
133	3410.0	15	SANDSTONE	Dirty grey, fine to very coarse grained, poorly sorted, subangular, hard to very hard; pebbly, siliceous cement, carbonaceous flecks, tight; no shows.
134	3401.3			EMPTY
135	3398.5			MISFIRE
136	3390.5	15	SANDSTONE	Translucent to grey, fine to granule sized, poorly sorted, angular, firm to hard; pebbly, occasional carbonaceous flecks, silty matrix; 30% patchy, bright, bluish white fluorescence; slow, weak, white diffuse cut; gaseous odour.
137	3386.0	5	SILTSTONE	Brown grey, firm; carbonaceous, micaceous.
138	3379.5			MISFIRE
139	3376.5			EMPTY
140	3369.5	15	SANDSTONE	Translucent grey, fine to very coarse grained, poorly sorted, angular, friable; clay matrix, silty; very poor visible porosity; no shows.
141	3357.0			MISFIRE

1697L/62-69

APPENDIX 4

APPENDIX 4.

Sidewall Core Gas Analysis

WHITING-2
SIDEWALL CORE GAS ANALYSIS

NO.	DEPTH	C1	C2	C3	C4	C5	C6
5	3307.5	16	-	-	-	-	-
9	3271.0	MISSING					
12	3255.0	MISSING					
14	3235.0	294	48	30	10	Tr.	-
17	3207.5	405	66	42	16	6	Tr.
42	2608.0	441	96	61	36	10	Tr.
48	2485.0	1012	210	78	31	10	Tr.
66	2073.0	Tr.	-	-	-	-	-
82	1730.0	148	60	31	9	Tr.	-

1697L/79

APPENDIX

5

APPENDIX 5.

RFT Results

RFT SAMPLE TEST REPORT

WELL: Whiting-2			(37c 0f/5)	
OBSERVER: P.R. Ettema	DATE: 1/5/1985		RUN: 2	
	CHAMBER 1 (22.7 lit.)		CHAMBER 2 (10.4 lit.)	
SEAT NO.	2/16		2/16	
DEPTH (m KB)	1278.0		1278.0	
A. RECORDING TIMES				
Tool Set	2126		-	
Pretest Open	2126		-	
Time Open				
Chamber Open	2130		2146	
Chamber Full	2141		2152	
Fill Time (min)	11		6	
Start Build-up	2141		2152	
Finish Build-up	2145		2158	
Build-Up Time (min)	4		6	
Seal Chamber	2145		2158	
Tool Retract	-		-	
Total Time (min)			34	
B. SAMPLE PRESSURES				
IHP	2134.5	psia	-	psia
ISIP	1800.4		1798.6	
Initial Flowing Press.	806.4		700.7	
Final Flowing Press.	616.2		604.5	
Sampling Press. Range				
FSIP	1798.6		1798.9	
FHP	-		2133.2	
Form. Press. (Horner)	-		-	
C. TEMPERATURE				
Depth Tool Reached	1310	m	1310	m
Max. Rec. Temp.				
Time Circ. Stopped	30/4	1845	hrs	30/4 1845 hrs
Time since Circ.		26 1/2	hrs	26 1/2 hrs
Form. Temp. (Horner)				
D. SAMPLE RECOVERY				
Surface Pressure	250	psig	45	psig
Amt Gas	1.25	cu.ft.	0.1	cu.ft.
Amt Oil	Scum	litre	Scum	litre
Amt Water	21750	c.c.	9250	c.c.
Amt Others	-	lit.	-	lit.
E. SAMPLE PROPERTIES				
<u>Gas Composition</u>				
C1	93736	ppm		
C2	9504	ppm		
C3	1873	ppm		
iC4/nC4	1158	ppm		
C5	420	ppm		
C6+	232	ppm		
CO ₂ /H ₂ S	TR/8	ppm		
<u>Oil Properties</u> (R.I.)	39.5 °API @ 15	°C	38 °API @ 15	°C
Colour	Rust brown		Dark brown & tan	
Fluorescence	Grey/white		Grey/white	
GOR	-		-	
<u>Water Properties</u>				
Resistivity	0.307 @ 21	°C	0.323 @ 20	°C
NaCl Equivalent	21500	ppm	21000	ppm
Cl-titrated	13300	ppm	14000	ppm
Tritium (3362 initial)	2350	dpm	2360	dpm
Est. Water Type	Filtrate		Filtrate	
<u>Mud Properties</u>				
Resistivity	0.275 @ 23	°C	0.275 @ °C 23	
NaCl Equivalent	24000	ppm	24000	ppm
Cl - titrated	16000	ppm	16000	ppm
<u>Calibration</u>				
Calibration Press.	-	psig	-	psig
Calibration Temp.	-	°C	-	°C
Hewlett Packard No.	980		980	
Mud Weight	9.5		9.5	
Calc. Hydrostatic				
RFT Chokesize	1 x 0.07		1 x 0.03	
Remarks:				

RFT SAMPLE TEST REPORT

WELL: Whiting-2 (3760f/6)

OBSERVER: P.R. Ettema

DATE: 2/5/1985

RUN: 3

	CHAMBER 1 (22.7 lit.)		CHAMBER 2 (10.4 lit.)	
SEAT NO.	3/17		3/17	
DEPTH (mKB)	1490.0		1490.0	
A. RECORDING TIMES				
Tool Set	0048		-	
Pretest Open	0048		-	
Time Open				
Chamber Open	0052		0102	
Chamber Full	0059		0105	
Fill Time (min)	7		3	
Start Build-up	0059		0105	
Finish Build-up	0101		0106	
Build-Up Time (min)	2		1	
Seal Chamber	0101		0108	
Tool Retract	-		0109	
Total Time (min)	-		21	
B. SAMPLE PRESSURES				
IHP	2491.1	psia	-	psia
ISIP	2101.5		2098.8	
Initial Flowing Press.	684.7		1386.3	
Final Flowing Press.	2050.8		2062.2	
Sampling Press. Range				
FSIP	2098.9		2098.4	
FHP	-		2486.0	
Form. Press. (Horner)	-		-	
C. TEMPERATURE				
Depth Tool Reached	1510	m	1510	m
Max. Rec. Temp.				
Time Circ. Stopped	30/4	1845	hrs	30/4 1845 hrs
Time since Circ.		29 1/2	hrs	29 1/2 hrs
Form. Temp. (Horner)				
D. SAMPLE RECOVERY				
Surface Pressure	55	psig	Preserved	
Amt Gas	3.6	cu.ft.		
Amt Oil	21750	c.c.		
Amt Water	-	c.c.		
Amt Others	-	lit.		
E. SAMPLE PROPERTIES				
<u>Gas Composition</u>				
C1	175247	ppm		
C2	13824	ppm		
C3	7729	ppm		
iC4/nC4	2780	ppm		
C5	911	ppm		
C6+	175	ppm		
CO ₂ /H ₂ S	0.3/160	ppm		
Oil Properties	API/RI	56.4/53	°API @ 15	°C
Colour		Plum		
Fluorescence		White		
GOR	26	SCF/STB	-	
<u>Water Properties</u>				
Resistivity				
NaCl Equivalent				
Cl-titrated				
Tritium (3209 initial)				
Est. Water Type				
<u>Mud Properties</u>				
Resistivity	0.275 @ 23	°C	0.275 @ °C 23	
NaCl Equivalent	24000	ppm	24000	ppm
Cl - titrated	16000	ppm	16000	ppm
<u>Calibration</u>				
Calibration Press.	-	psig	-	psig
Calibration Temp.	-	°C	-	°C
Hewlett Packard No.	980		980	
Mud Weight	9.5		9.5	
Calc. Hydrostatic				
RFT Chokesize	1 x 0.03		1 x 0.03	
Remarks:	V.high H ₂ S		RFS AE 1219	

RFT SAMPLE TEST REPORT

WELL: Whiting-2
OBSERVER: P.R. Ettema

DATE: 2/5/1985

(3760 f/7)
RUN: 4

	CHAMBER 1 (22.7 lit.)		CHAMBER 2 (3.8 lit.)	
SEAT NO.	4/18		4/18	
DEPTH (mKB)	1451.5		1451.5	
A. RECORDING TIMES				
Tool Set	425		-	
Pretest Open	425		-	
Time Open				
Chamber Open	428		436	
Chamber Full	434		438	
Fill Time (min)	6		2	
Start Build-up	434		438	
Finish Build-up	435		439	
Build-Up Time (min)	1		1	
Seal Chamber	435		440	
Tool Retract	-		440	
Total Time (min)	-		15	
B. SAMPLE PRESSURES				
IHP	2422.7	psia	-	psia
ISIP	2048.2		2047.9	
Initial Flowing Press.	666.7		2019.3	
Final Flowing Press.	2018.2		2018.2	
Sampling Press. Range				
FSIP	2048.0		2047.9	
FHP	-		2422.0	
Form. Press. (Horner)	-		-	
C. TEMPERATURE				
Depth Tool Reached	1470	m	1470	m
Max. Rec. Temp.				
Time Circ. Stopped	30/4	1845	hrs	30/4 1845 hrs
Time since Circ.		33 1/2	hrs	33 1/2 hrs
Form. Temp. (Horner)				
D. SAMPLE RECOVERY				
Surface Pressure	35	psig	Preserved	
Amt Gas	2	cu.ft.		
Amt Oil	21000	c.c.		
Amt Water	1600	c.c.		
Amt Others	Mud scum	lit.		
E. SAMPLE PROPERTIES				
<u>Gas Composition</u>				
C1	52981	ppm		
C2	42624	ppm		
C3	38883	ppm		
iC4/nC4	24558	ppm		
C5	16819	ppm		
C6+	19197	ppm	(abundant C7+)	
CO ₂ /H ₂ S	TR/ 200	ppm		
<u>Oil Properties</u>	55.2 °API @ 15	°C	(from RI, 53°API @ 15°C)	
Colour	Dark brown-tan			
Fluorescence	White			
GOR	15 SCF/STB			
<u>Water Properties</u>				
Resistivity	0.542 @ 21	°C		
NaCl Equivalent	12000	ppm		
Cl-titrated		ppm		
Tritium (ave)	110	dpm		
Est. Water Type	Formation water			
<u>Mud Properties</u>				
Resistivity	0.275 @ °C 23		0.275 @ °C 23	
NaCl Equivalent	24000	ppm	24000	ppm
Cl - titrated	16000	ppm	16000	ppm
<u>Calibration</u>				
Calibration Press.	-	psig	-	psig
Calibration Temp.	-	°C	-	°C
Hewlett Packard No.	980		980	
Mud Weight	9.5		9.5	
Calc. Hydrostatic				
RFT Chokesize	1 x 0.03		1 x 0.03	
Remarks: R _w (separated) = .304 @ 21°C = 22500 NaCl RFS AD 1114				
R _w (filtered) = .292 @ 21°C = 23000 NaCl				

RFT SAMPLE TEST REPORT

WELL: Whiting-2 (3760 f/8)
 OBSERVER: J.R. Ettema/J. Roche DATE: 18/5/1985 RUN: 6

	CHAMBER 1 (22.7 lit.)			CHAMBER 2 (10.4 lit.)		
SEAT NO.	6/46	6/47	6/45	6/47		
DEPTH (mKB)	2630.0	2632.5	2633.0	2632.5		
A. RECORDING TIMES						
Tool Set	0229	0235	0211	-		
Pretest Open	0229	0235	0211	-		
Time Open						
Chamber Open	Tight	0238	0215	0334		
Chamber Full	-	0238	Tight	0402		
Fill Time (min)	Aband	Not Full	-	Not full		
Start Build-up		0332	Aband	0402		
Finish Build-up			0334	0404		
Build-Up Time (min)		N/A		N/A		
Seal Chamber		0332	0223	0402		
Tool Retract	0232		0225	0404		
Total Time (min)	-	-	-	113		
B. SAMPLE PRESSURES						
IHP	4313	4312	4310	-	psig	
ISIP	3744	3744	3740	3628		
Initial Flowing Press.		28	27	169		
Final Flowing Press.		180	51	365		
Sampling Press. Range						
FSIP		3628	3694	3506		
FHP		-	4315	4316		
Form. Press. (Horner)		-	-	-		
C. TEMPERATURE						
Depth Tool Reached						
Max. Rec. Temp.						
Time Circ. Stopped	16/5	2100	hrs	16/5	2100	hrs
Time since Circ.		26	hrs		26	hrs
Form. Temp. (Horner)						
D. SAMPLE RECOVERY						
Surface Pressure		100	psig	250	psig	
Amt Gas		2.6	cu.ft.	4.5	cu.ft.	
Amt Oil		Scum		500	c.c.	
Amt Water		11750	c.c.	2800	c.c.	
Amt Others		-	lit.	-	lit.	
E. SAMPLE PROPERTIES						
<u>Gas Composition</u>						
C1			ppm	293785	ppm	
C2			ppm	91852	ppm	
C3			ppm	61286	ppm	
iC4/nC4			ppm	41932	ppm	
C5			ppm	19430	ppm	
C6+			ppm	843	ppm	
CO ₂ /H ₂ S			ppm	4%/0	ppm	
Oil Properties (R.I./HYD)	39/-	°API @ 15	°C	-/38	°API @ 15	°C
Colour		Pale brown		Pale brown		
Fluorescence		Bright blue yellow		Bright blue yellow		
GOR		0		1430		
<u>Water Properties</u>						
Resistivity	0.211	@ 17.5	°C	0.2275	@ 18.5	°C
NaCl Equivalent	36000		ppm	34000		ppm
Cl-titrated	23000		ppm	23000		ppm
Tritium (3170)	3063		dpm	3033		dpm
Est. Water Type In	Filtrate			Filtrate		
<u>Mud Properties</u>						
Resistivity						
NaCl Equivalent						
Cl - titrated	25000		ppm	25000		ppm
<u>Calibration</u>						
Calibration Press.	-		psig	-		psig
Calibration Temp.	-		°C	-		°C
Hewlett Packard No.	980			980		
Mud Weight	9.6			9.6		
Calc. Hydrostatic						
RFT Chokesize	1 x 0.03			1 x 0.03		
Remarks:	Pressures from strain gauge.			Very waxy		
	Very waxy			Very waxy		
	K est = 5md (based on pretest)					

RFT SAMPLE TEST REPORT

WELL: Whiting-2 (3760 f/9)
 OBSERVER: P.R. Ettrema/J. Roche DATE: 18/5/1985 RUN: 7

	CHAMBER 1 (22.7 lit.)		CHAMBER 2 (10.4 lit.)	
SEAT NO.	7/48			
DEPTH (mKB)	2615.5			
A. RECORDING TIMES				
Tool Set	0800		-	
Pretest Open	0800		-	
Time Open				
Chamber Open	0802		0849	
Chamber Full	-		-	
Fill Time (min)	Not full		Not full	
Start Build-up	-		-	
Finish Build-up	-		-	
Build-Up Time (min)	0847		-	
Seal Chamber	0847		0930	
Tool Retract	-		0930	
Total Time (min)	45		43	
B. SAMPLE PRESSURES				
IHP	4337	psig	-	psig
ISIP	3736		3733	
Initial Flowing Press.	104		1071 (min. 860)	
Final Flowing Press.	3609		3682	
Sampling Press. Range				
FSIP	3733		3733	
FHP	-		4299	
Form. Press. (Horner)	-		-	
C. TEMPERATURE				
Depth Tool Reached				
Max. Rec. Temp.				
Time Circ. Stopped	16/5	2100	hrs	16/5 2100 hrs
Time since Circ.		35	hrs	35 hrs
Form. Temp. (Horner)		-	°C	- °C
D. SAMPLE RECOVERY				
Surface Pressure	1650	psig	1800	psig
Amt Gas	36.8	cu.ft.	40.6	cu.ft.
Amt Oil	0	lit.	0	lit.
Amt Water	15750	c.c.	1000	c.c.
Amt Others (Cond)	100	c.c.	200	c.c.
E. SAMPLE PROPERTIES				
<u>Gas Composition</u>				
C1	350208	ppm	357990	ppm
C2	103629	ppm	80077	ppm
C3	21888	ppm	21401	ppm
iC4/nC4	6336	ppm	10137	ppm
C5	1549	ppm	985	ppm
C6+	545	ppm	496	ppm
.CO ₂ /H ₂ S	12%/0	ppm	14%/0	ppm
Properties (Cond/Emulsion)	44.5 °API @ 15	°C	44.3 °API @ 15	°C
Colour	Straw yell/white		Straw yell/white	
Fluorescence	Bright white		Bright white	
GOR	-		-	
<u>Water Properties</u>				
Resistivity	0.208 @ 22	°C	0.210 @ 22	°C
NaCl Equivalent	33000	ppm	33000	ppm
Cl-titrated	23000	ppm	23000	ppm
Tritium (3185)	3010	dpm	3034	dpm
Est. Water Type	Filtrate		Filtrate	
<u>Mud Properties</u>				
Resistivity				
NaCl Equivalent				
Cl - titrated	25000	ppm	25000	ppm
<u>Calibration</u>				
Calibration Press.	-	psig	-	psig
Calibration Temp.	-	°C	-	°C
Hewlett Packard No.	980		980	
Mud Weight	9.6		9.6	
Calc. Hydrostatic				
RFT Chokesize	1/30		1/30	
Remarks:				

RFT SAMPLE TEST REPORT

WELL: Writing-2 (3760f/10)
OBSERVER: P. Ettema/J. Roche DATE: 18/5/1985 RUN: 8

	CHAMBER 1 (22.7 lit.)		CHAMBER 2 (10.4 lit.)	
SEAT NO.	8/49			
DEPTH (mKB)	1538.0			
A. RECORDING TIMES				
Tool Set	1234		-	
Pretest Open	1234		-	
Time Open				
Chamber Open	1236		1249	
Chamber Full	1243		1250	
Fill Time (min)	7		4	
Start Build-up	1243		1250	
Finish Build-up	1245		1251	
Build-Up Time (min)	2		1	
Seal Chamber	1246		1251	
Tool Retract	-		1252	
Total Time (min)	12		6	
B. SAMPLE PRESSURES				
IHP	2519	psig	-	psig
ISIP	2150		2149	
Initial Flowing Press.	1960		1970	
Final Flowing Press.	2099		2106	
Sampling Press. Range				
FSIP	2149		2150	
FHP	-		2522	
Form. Press. (Horner)	-		-	
C. TEMPERATURE				
Depth Tool Reached				
Max. Rec. Temp.				
Time Circ. Stopped	16/5	2100	hrs	16/5 2100 hrs
Time since Circ.		39	hrs	39 hrs
Form. Temp. (Horner)	-		°C	- °C
D. SAMPLE RECOVERY				
Surface Pressure	100	psig	100	psig
Amt Gas	2.7	cu.ft.	1.2	cu.ft.
Amt Oil	21000	c.c.	9200	c.c.
Amt Water	0	c.c.	0	c.c.
Amt Others (Cond)	0	c.c.	0	c.c.
E. SAMPLE PROPERTIES				
<u>Gas Composition</u>				
C1	51750	ppm		ppm
C2	11776	ppm		ppm
C3	9728	ppm		ppm
iC4/nC4	691	ppm		ppm
C5	282	ppm		ppm
C6+	87	ppm		ppm
CO ₂ /H ₂ S	-/0	ppm	-/20	ppm
<u>Oil Properties RI/HYD</u>				
	56.5/59.3 °API @ 15 °C		56.5/59 °API @ 15 °C	
Colour	Light Brown		Light Brown	
Fluorescence	Blue/White		Blue/White	
GOR	20		21	
<u>Water Properties</u>				
Resistivity		°C		°C
NaCl Equivalent		ppm		ppm
Cl-titrated		ppm		ppm
NO ₃				
Est. Water Type				
<u>Mud Properties</u>				
Resistivity				
NaCl Equivalent				
Cl - titrated	25000	ppm	25000	ppm
<u>Calibration</u>				
Calibration Press.	-	psig	-	psig
Calibration Temp.	-	°C	-	°C
Hewlett Packard No.	980		980	
Mud Weight	9.6		9.6	
Calc. Hydrostatic				
RFT Chokesize	1/30		1/40	
Remarks:				

RFT SAMPLE TEST REPORT

WELL:	Whiting-2		(3760f/11)	
OBSERVER:	P.R. Ettema/J. Roche		DATE: 18/5/1985	
	CHAMBER 1 (22.7 lit.)		CHAMBER 2 (10.4 lit.)	
SEAT NO.	9/50		9/50	
DEPTH mKB	2360		2360	
A. RECORDING TIMES				
Tool Set	1555		-	
Pretest Open	1556		-	
Time Open	1557			
Chamber Open	1557		1616	
Chamber Full	1604		1621	
Fill Time	7		3	
Start Build-up	1604		1621	
Finish Build-up	1614		1630	
Build-Up Time	10		9	
Seal Chamber	1614		1631	
Tool Retract	-		1632	
Total Time	19	mins	15	mins
B. SAMPLE PRESSURES				
IHP	3878	psig	-	psig
ISIP	3361		3361	
Initial Flowing Press.	63		1944	
Final Flowing Press.	3312		1816	
Sampling Press. Range				
FSIP	3361		3353	
FHP	-		3873	
Form. Press. (Horner)	-		-	
C. TEMPERATURE				
Depth Tool Reached				
Max. Rec. Temp.				
Time Circ. Stopped	16/5	2100	hrs	16/5 2100 hrs
Time since Circ.		43	hrs	43 hrs
Form. Temp. (Horner)		-	°C	- °C
D. SAMPLE RECOVERY				
Surface Pressure	1860	psig	1820	psig
Amt Gas	77.3	cu.ft.	49.3	cu.ft.
Amt Oil	0	lit.	0	lit.
Amt Water	8000	c.c.	1200	c.c.
Amt Others (Cond)	250	c.c.	250	c.c.
E. SAMPLE PROPERTIES				
<u>Gas Composition</u>				
C1	194560	ppm	381338	ppm
C2	80077	ppm	32973	ppm
C3	18483	ppm	12160	ppm
IC4/nC4	14285	ppm	3802	ppm
C5	7373	ppm	1197	ppm
C6+	3373	ppm	446	ppm
CO ₂ /H ₂ S	14%/0	ppm	16%/0	ppm
Properties COND (RI HYD)	47/49 °API @ 15 °C		47/49 °API @ 15 °C	
Colour	Clear Yellow		Clear Yellow	
Fluorescence	White/Blue		White/Blue	
GOR	-		-	
<u>Water Properties</u>				
Resistivity	0.210 @ 20 °C		0.223 @ 20 °C	
NaCl Equivalent	34000	ppm	32000	ppm
Cl-titrated	23000	ppm	23000	ppm
Tritium (3103)	2956	dpm	2697	dpm
Est. Water Type	Filtrate		Filtrate	
<u>Mud Properties</u>				
Resistivity				
NaCl Equivalent				
Cl - titrated	25000	ppm	25000	ppm
<u>Calibration</u>				
Calibration Press.	-	psig	-	psig
Calibration Temp.	-	°C	-	°C
Hewlett Packard No.	980		980	
Mud Weight	9.6		9.6	
Calc. Hydrostatic				
RFT Chokesize	1/30		1/30	
Remarks:	Slow build-up, sea early		Seal early	

RFT SAMPLE TEST REPORT

WELL: Whiting-2

(3760 f/12)

OBSERVER: P.R. Ittema/J. Roche

DATE: 18/5/1985

RUN: 10

	CHAMBER 1 (22.7 lit.)					CHAMBER 2 (10.4 lit.)
SEAT NO.	10/52	10/51	10/53	10/54	10/55	10/55
DEPTH mKB	2254.0	2256.0	2256.0	2256.5	1723.5	1723.5
A. RECORDING TIMES						
	1	2	3	4	5	
Tool Set	1931	1950	1956	2008	2025	-
Pretest Open	1931	1950	1956	2008	2025	-
Time Open						
Chamber Open	1934	V TIGHT	1959	PACKER	2027	2030
Chamber Full	TIGHT		V TIGHT	FAIL?	2028	2032
Fill Time (min)		ABAND			1	2
Start Build-up	ABAND		ABAND	ABAND	CHAMB	2037
Finish Build-up				-	ALREAD	2033
Build-Up Time (min)				-	FULL?	1
Seal Chamber	1946		2006	2012	2029	2033
Tool Retract	1947	1953	2006	2013	-	2034
Total Time (min)	16	3	10	5	4	4
B. SAMPLE PRESSURES psig						
IHP	3700	3706	3702	3705	2830	psig
ISIP	3202		3202	3204	2416	2404
Initial Flowing Press.	61		81	3204	2416	2404
Final Flowing Press.	138				2407	2276
Sampling Press. Range						
FSIP	3105					2400
FHP	3706		3702	3707	2830	2808
Form. Press. (Horner)		-				-
C. TEMPERATURE						
Depth Tool Reached						
Max. Rec. Temp.						
Time Circ. Stopped		16/5/85;	2100	hrs	16/5/85;	2100 hrs
Time since Circ.			46	hrs		46 hrs
Form. Temp. (Horner)		-		°C		- °C
D. SAMPLE RECOVERY						
Surface Pressure			1000	psig		300 psig
Amt Gas			5.6	cu.ft.		0.7 cu.ft.
Amt Oil			0	lit.		0 lit.
Amt Water			0	c.c.		9500 c.c.
Amt Others (mud)			22.4	lit.		0 lit.
E. SAMPLE PROPERTIES						
<u>Gas Composition</u>		Gas From 2256.5			Gas From 1723.5	
C1		225690	ppm		338534	ppm
C2		68301	ppm		82432	ppm
C3		33075	ppm		25293	ppm
iC4/nC4		11981	ppm		21427	ppm
C5		5210	ppm		9856	ppm
C6+		2778	ppm		2207	ppm
CO ₂ /H ₂ S		4%/0	ppm		1%/0	ppm
<u>Oil Properties</u>						
Colour	HYD					
Fluorescence						
GOR						
<u>Water Properties</u>						
Resistivity			°C			°C
NaCl Equivalent			ppm		13000	ppm
Cl-titrated			ppm			ppm
Tritium (3200)			ppm		1357	Dpm
Est. Water Type		Mud			Formation Water	
<u>Mud Properties</u>						
Resistivity						
NaCl Equivalent						
Cl - titrated		23000	ppm		23000	ppm
<u>Calibration</u>						
Calibration Press.		-	psig		-	psig
Calibration Temp.		-	°C		-	°C
Hewlett Packard No.		980			980	
Mud Weight		9.6			9.6	
Calc. Hydrostatic						
RFT Chokesize		1/30			1/30	
Remarks:						

RFT SAMPLE TEST REPORT

WELL: Whiting-2 (3760 f/13)
OBSERVER: P.R. Ettrema/J. Roche DATE: 18/5/1985 RUN: 11

	CHAMBER 1 (22.7 lit.)		CHAMBER 2 (10.4 lit.)
SEAT NO.	11/56	11/57	
DEPTH mKB	2254	2256.5	2256.5

A. RECORDING TIMES

Tool Set	2250	2258	-
Pretest Open	2251	2258	-
Time Open			
Chamber Open	2252	2300	2330
Chamber Full	TIGHT	NOT FULL	2336
Fill Time (min)			6
Start Build-up	ABAND		2336
Finish Build-up			2357
Build-Up Time (min)			21
Seal Chamber	2254	2328	2357
Tool Retract	2255	-	2358
Total Time (min)	5	30	27

B. SAMPLE PRESSURES

IHP	3697	3702	psig	-	psig
ISIP	3203	3209		3208	
Initial Flowing Press.	27	194		533	
Final Flowing Press.	57	2483		998	
Sampling Press. Range					
FSIP		3208		3213	
FHP	3695	-		3714	
Form. Press. (Horner)	-	-		-	

C. TEMPERATURE

Depth Tool Reached					
Max. Rec. Temp.					
Time Circ. Stopped	16/5/85; 2100	hrs	16/5/85; 2100	hrs	
Time since Circ.	50	hrs	50	hrs	
Form. Temp. (Horner)	-	°C	-	°C	

D. SAMPLE RECOVERY

Surface Pressure	1500	psig	1750	psig
Amt Gas	68.5	cu.ft.	45.3	cu.ft.
Amt Oil	0	lit.	0	lit.
Amt Water	6700	c.c.	1500	c.c.
Amt Others (Cond)	Film	lit.	Film	lit.

E. SAMPLE PROPERTIES

<u>Gas Composition</u>					
Cl	354099	ppm	365773	ppm	
C2	75366	ppm	75366	ppm	
C3	27238	ppm	24320	ppm	
iC4/nC4	9446	ppm	9216	ppm	
C5	3379	ppm	3590	ppm	
C6+	1091	ppm	1388	ppm	
CO ₂ /H ₂ S	12%/0	ppm	15%/TR	ppm	
<u>Properties COND</u>					
Colour				Clear	
Fluorescence				Bright Blue/White	
GOR				-	
<u>Water Properties</u>					
Resistivity	0.218 @ 17 °C		0.244 @ 13 °C		
NaCl Equivalent	36000	ppm	36000	ppm	
Cl-titrated	23000	ppm	23000	ppm	
Tritium (3142)	2907	Dpm	2851	Dpm	
Est. Water Type	Filtrate		Filtrate		
<u>Mud Properties</u>					
Resistivity					
NaCl Equivalent					
Cl - titrated	23000	ppm	23000	ppm	
<u>Calibration</u>					
Calibration Press.	-	psig	-	psig	
Calibration Temp.	-	°C	-	°C	
Hewlett Packard No.	980		980		
Mud Weight	9.6		9.6		
Calc. Hydrostatic					
RFT Chokesize	1/30		1/30		
Remarks:	Tight				

RFT SAMPLE TEST REPORT

WELL: Whiting-?

(3760f/14)

OBSERVER: J. Roche

DATE: 23/5/1985

RUN: 12

	CHAMBER 1 (12 gal.)		CHAMBER 2 (2 3/4 gal.)	
SEAT NO.	58		58	
DEPTH mKB	2617		2617	
A. RECORDING TIMES				
Tool Set	0328			
Pretest Open	0328			
Time Open	0330			
Chamber Open	0330		0426	
Chamber Full	0349		0430	
Fill Time (min)	19		4	
Start Build-up	0349		0431	
Finish Build-up				
Build-Up Time (min)	0425			
Seal Chamber	0425		0454	
Tool Retract			0455	
Total Time (min)	57		29	
B. SAMPLE PRESSURES				
IHP	4334	psig	-	psig
ISIP	3716		3713	
Initial Flowing Press.	75		1738	
Final Flowing Press.	1462		1735	
Sampling Press. Range				
FSIP	3713		3718	
FHP	-		4322	
Form. Press. (Horner)	-		-	
C. TEMPERATURE				
Depth Tool Reached				
Max. Rec. Temp.	95°C			
Time Circ. Stopped	14:45 - 22/5		14:45 - 22/5	
Time since Circ.	12:55	hrs	13:51	hrs
Form. Temp. (Horner)	-	°C	-	°C
D. SAMPLE RECOVERY				
Surface Pressure	1900	psig	1900	psig
Amt Gas	228	cu.ft.	58.2	cu.ft.
Amt Oil	0	lit.	0	lit.
Amt Water - Filtrate	7000	cc	580	cc
Amt Others (Cond)	1100	cc	270	cc
E. SAMPLE PROPERTIES				
<u>Gas Composition</u>				
Cl	561971	ppm	632217	ppm
C2	80936	ppm	72417	ppm
C3	35225	ppm	24657	ppm
iC4/nC4	9062	ppm	4648	ppm
C5	5811	ppm	2620	ppm
C6+	1104	ppm	607	ppm
CO ₂ /H ₂ S	2%/0	ppm	12%/-	ppm
Properties RI/HYD	45/49 °API @ 15 °C		45/52 °API @ 15 °C	
Colour	Clear		Clear	
Fluorescence	Bright White		Bright White	
GOR	-			
<u>Water Properties</u>				
Resistivity	0.217 @ 19.5 °C		0.251 @ 18.5°C	
NaCl Equivalent	33000	ppm	27800	ppm
Cl-titrated	21000	ppm	18000	ppm
Tritium (3255)	2954	Dpm	2458	Dpm
Est. Water Type	Filtrate		Filtrate	
<u>Mud Properties</u>				
Resistivity				
NaCl Equivalent				
Cl - titrated	22000	ppm	22000	ppm
<u>Calibration</u>				
Calibration Press.	-	psig	-	psig
Calibration Temp.	-	°C	-	°C
Hewlett Packard No.				
Mud Weight	9.5		9.5	
Calc. Hydrostatic				
RFT Chokesize				
Remarks:	Clear Amber		Clear Amber	

RFT SAMPLE TEST REPORT

WELL: Whiting-2
OBSERVER: J. Roche

DATE: 23/5/1985

(3760 f/15)

RUN: 13

	CHAMBER 1 (12 gal.)			CHAMBER 2 (2 3/4 gal.)
SEAT NO.	59	60	61	61
DEPTH mKB	2629	2628.8	2629.1	2629.1
A. RECORDING TIMES				
Tool Set	0835	0908	0920	
Pretest Open	0835	0908	0920	
Time Open				
Chamber Open	0337	0910	0921	1012
Chamber Full	ABAND	ABAND	NOT FULL	1045
Fill Time (min)			V TIGHT	33
Start Build-up				1045
Finish Build-up				1057
Build-Up Time (min)				N/A
Seal Chamber	0903	0916	1007	1057
Tool Retract	0904	0917		1101
Total Time (min)	29	8	47	45 (129) 92 TOTAL
B. SAMPLE PRESSURES				
IHP	4339	4345	4344	- psig
ISIP	3743	3737	3730	3689
Initial Flowing Press.	26	46	48	112
Final Flowing Press.	79	55	184	998
Sampling Press. Range				1529
FSIP	3550	3480	3689	3692
FHP	4347	4344		4347
Form. Press. (Horner)	-	-		-
C. TEMPERATURE				
Depth Tool Reached				
Max. Rec. Temp.	100.5			
Time Circ. Stopped	14:45 - 22/5		14:45 - 22/5	
Time since Circ.	18:46		hrs 19:37	hrs
Form. Temp. (Horner)	-		°C -	°C
D. SAMPLE RECOVERY				
Surface Pressure		100	psig	800 psig
Amt Gas			cu.ft.	10.6 cu.ft.
Amt Oil		500	c.c.	2000 c.c.
Amt Water - Filtrate		1500	c.c.	4250 c.c.
Amt Others				
E. SAMPLE PROPERTIES				
<u>Gas Composition</u>				
C1			ppm	52826 ppm
C2			ppm	76212 ppm
C3			ppm	9279 ppm
iC4/nC4			ppm	7588 ppm
C5			ppm	1766 ppm
C6+			ppm	17.66ppm
CO ₂ /H ₂ S			ppm	5% ppm
Properties RI/HYD	40 °API @ 15		°C	42 °API @ 15 °C
Colour	Dark Brown			Dark Yellow Brown
Fluorescence	Bright Blue Yellow			Bright Blue Yellow
GOR				-
<u>Water Properties</u>				
Resistivity	0.222 @ 22°C			0.271 @ 30°C
NaCl Equivalent	32000	ppm		25416 ppm
Cl-titrated	20000	ppm		19000 ppm
Tritium (3255 Dpm)	2960	Dpm		2729 Dpm
Est. Water Type				
<u>Mud Properties</u>				
Resistivity				
NaCl Equivalent				
Cl - titrated	22000	ppm		22000 ppm
<u>Calibration</u>				
Calibration Press.		-	psig	- psig
Calibration Temp.		-	°C	- °C
Hewlett Packard No.				
Mud Weight		9.5		9.5
Calc. Hydrostatic				
RFT Chokesize				
Remarks:				

RFT SAMPLE TEST REPORT

WELL: Whiting-2

(3760f/16)

OBSERVER: J. Roche

DATE: 23/5/1985

RUN: 14

	CHAMBER 1 (12 gal.)			CHAMBER 2 (2 3/4 gal.)	
SEAT NO.	63	65	68		
DEPTH mKB	3125.8	3125.6	3126.1		
A. RECORDING TIMES					
Tool Set	1503	1508	1534		
Pretest Open	1503	1508	1534		
Time Open	1503	1512	1536		
Chamber Open					
Chamber Full					
Fill Time					
Start Build-up					
Finish Build-up					
Build-Up Time					
Seal Chamber					
Tool Retract					
Total Time					
B. SAMPLE PRESSURES					
IHP	5152		5141	-	psig
ISIP		4899	4899		
Initial Flowing Press.		56	40		
Final Flowing Press.					
Sampling Press. Range					
FSIP			51		
FHP		5142	5139		
Form. Press. (Horner)	-	-	-	-	
C. TEMPERATURE					
Depth Tool Reached					
Max. Rec. Temp.					
Time Circ. Stopped					hrs
Time since Circ.					hrs
Form. Temp. (Horner)	-		°C	-	°C
D. SAMPLE RECOVERY					
Surface Pressure			psig		psig
Amt Gas			cu.ft.		cu.ft.
Amt Oil			lit.		lit.
Amt Water - Filtrate			c.c.		c.c.
Amt Others (Cond)					
E. SAMPLE PROPERTIES					
<u>Gas Composition</u>					
C1			ppm		ppm
C2			ppm		ppm
C3			ppm		ppm
iC4/nC4			ppm		ppm
C5			ppm		ppm
C6+			ppm		ppm
CO ₂ /H ₂ S			ppm		ppm
Properties RI/HYD		°API @	°C	°API @	°C
Colour					
Fluorescence					
GOR				-	
<u>Water Properties</u>					
Resistivity		@	°C	@	°C
NaCl Equivalent			ppm		ppm
Cl-titrated			ppm		ppm
Tritium			Dpm		Dpm
Est. Water Type					
<u>Mud Properties</u>					
Resistivity					
NaCl Equivalent					
Cl - titrated			ppm		ppm
<u>Calibration</u>					
Calibration Press.		-	psig	-	psig
Calibration Temp.		-	°C	-	°C
Hewlett Packard No.					
Mud Weight					
Calc. Hydrostatic					
RFT Chokesize					
Remarks:	All attempts at sampling unsuccessful in Run 14 2 valid pretests obtained				

RFT SAMPLE TEST REPORT

WELL:	Whiting-2	(3760 f/17)
OBSERVER:	J. Roche/R. Newport	DATE: 23/5/1985
	CHAMBER 1 (12 lit.)	CHAMBER 2 (2 3/4 lit.)
SEAT NO.	82	82
DEPTH mKB	3052.2	3052.2
A. RECORDING TIMES		
Tool Set	1926	
Pretest Open	1926	
Time Open		
Chamber Open	1929	20:20
Chamber Full	20:16	21:05
Fill Time (min)		
Start Build-up		
Finish Build-up		
Build-Up Time (min)		
Seal Chamber	20:16	21:05
Tool Retract		21:11
Total Time (min)	00:50	00:51
B. SAMPLE PRESSURES		
IHP	5016	- psig
ISIP	4940 (Supercharged)	4350
Initial Flowing Press.	37	41
Final Flowing Press.	152	95
Sampling Press. Range	15	54
FSIP	4350	4387
FHP		5025
Form. Press. (Horner)	-	-
C. TEMPERATURE		
Depth Tool Reached	3052.2 m	m
Max. Rec. Temp.	120.2 °C	°C
Time Circ. Stopped	14:45 - 22/5	14:45 - 22/5
Time since Circ.	29:41 hrs	30:30 hrs
Form. Temp. (Horner)	- °C	- °C
D. SAMPLE RECOVERY		
Surface Pressure		psig
Amt Gas		cu.ft.
Amt Oil		lit.
Amt Water	7.5 lit.	5.25 lit
Amt Others (Cond)		
E. SAMPLE PROPERTIES		
<u>Gas Composition</u>		
C1		ppm
C2		ppm
C3		ppm
IC4/nC4		ppm
C5		ppm
C6+		ppm
CO ₂ /H ₂ S		ppm
Properties RI/HYD	°API @ °C	°API @ °C
Colour		
Fluorescence		
GOR		-
<u>Water Properties</u>		
Resistivity	0.238 @ 25°C	0.213 @ 23°C
NaCl Equivalent	29333 ppm	33250 ppm
Cl-titrated	18000 ppm	22000 ppm
Tritium (3035 Dpm)	2847 Dpm	3245 Dpm
Est. Water Type		
<u>Mud Properties</u>		
Resistivity		
NaCl Equivalent		
Cl - titrated	22000 ppm	22000 ppm
<u>Calibration</u>		
Calibration Press.	- psig	- psig
Calibration Temp.	- °C	- °C
Hewlett Packard No.		
Mud Weight	9.5	9.5
Calc. Hydrostatic		
RFT Chokesize		
Remarks:	Very tight - (Chamber closed prematurely)	Very tight (Chamber closed prematurely)

RFT SAMPLE TEST REPORT

WELL: Whiting-2
OBSERVER: R. Newport

(3760 f/18)

DATE: 23/5/1985 - 24/5/1985

RUN: 16

	CHAMBER 1 (12 gal.)		CHAMBER 2 (2 3/4 lit.)	
SEAT NO.	83		83	
DEPTH mKB	2954		2954	
A. RECORDING TIMES				
Tool Set	23:50			
Pretest Open	23:50			
Time Open	00:03			
Chamber Open	23:54		00:43	
Chamber Full	00:22 24/5		00:46	
Fill Time			00:03	
Start Build-up	00:22		00:46	
Finish Build-up			01:27	
Build-Up Time				
Seal Chamber	00:42		01:27	
Tool Retract			01:31	
Total Time	00:52		00:48	
B. SAMPLE PRESSURES				
IHP	4866		- psig	
ISIP	4209		4141	
Initial Flowing Press.	56		555	
Final Flowing Press.	1448		681	
Sampling Press. Range	1392		126	
FSIP	4141		4107	
FHP			4867	
Form. Press. (Horner)	- -		-	
C. TEMPERATURE				
Depth Tool Reached	2454 m		m	
Max. Rec. Temp.	115.4 °C		°C	
Time Circ. Stopped	14:45 - 22/5 hrs		14:45 - 22/5 hrs	
Time since Circ.	33:15 hrs		34:08 hrs	
Form. Temp. (Horner)	- °C		- °C	
D. SAMPLE RECOVERY				
Surface Pressure	810 psig		1800 psig	
Amt Gas	56.55 cu.ft.		375 cu.ft.	
Amt Oil			lit.	
Amt Water	18.5 lit.		4.0 lit	
Amt Others (Cond)	0.30		0.20	
E. SAMPLE PROPERTIES				
<u>Gas Composition</u>				
C1	632217 ppm		642755 ppm	
C2	68157 ppm		72417 ppm	
C3	22896 ppm		24657 ppm	
iC4/nC4	3058 ppm		3625 ppm	
C5	299 ppm		454 ppm	
C6+	69 ppm		76 ppm	
CO ₂ /H ₂ S	2% ppm		7% ppm	
Properties RI/HYD	50 °API @ 15 °C		51 °API @ 15 °C	
Colour	Light Pink		Clear	
Fluorescence	Bright White		Bright White	
GOR			-	
<u>Water Properties</u>				
Resistivity	0.184 @ 14°C		0.218 @ 16°C	
NaCl Equivalent	39250 ppm		32750 ppm	
Cl-titrated			ppm	
Tritium (3218 Dpm)	3030 Dpm		2780 Dpm	
Est. Water Type				
<u>Mud Properties</u>				
Resistivity				
NaCl Equivalent				
Cl - titrated	22000 ppm		22000 ppm	
<u>Calibration</u>				
Calibration Press.	- psig		- psig	
Calibration Temp.	- °C		- °C	
Hewlett Packard No.				
Mud Weight	9.5		9.5	
Calc. Hydrostatic				
RFT Chokesize				
Remarks:	Sealed Chamber Prematurely			

RFT SAMPLE TEST REPORT

WELL: Whiting-2
OBSERVER: R. Newport

DATE: 24/5/1985

(3760 f/19)
RUN: 17

		CHAMBER 1 (12 gal.)	CHAMBER 2 (2 3/4 lit)
SEAT NO.		89	
DEPTH	mKB	2606.0	
A. RECORDING TIMES			
Tool Set			
Pretest Open		05:04	
Time Open			
Chamber Open		05:21	
Chamber Full			
Fill Time			
Start Build-up			
Finish Build-up			
Build-Up Time			
Seal Chamber		05:41	
Tool Retract		05:49	
Total Time			
B. SAMPLE PRESSURES			
IHP		4295	- psig
ISIP		4165	
Initial Flowing Press.		32	
Final Flowing Press.		38	
Sampling Press. Range		6	
FSIP			
FHP		4297	
Form. Press. (Horner)		-	-
C. TEMPERATURE			
Depth Tool Reached	m		m
Max. Rec. Temp.	°C		°C
Time Circ. Stopped	hrs		hrs
Time since Circ.	hrs		hrs
Form. Temp. (Horner)	°C	-	°C
D. SAMPLE RECOVERY			
Surface Pressure	psig		psig
Amt Gas	cu.ft.		cu.ft.
Amt Oil	lit.		lit.
Amt Water	1.5 lit.		cc lit.
Amt Others (Cond)			
E. SAMPLE PROPERTIES			
<u>Gas Composition</u>			
C1	ppm		ppm
C2	ppm		ppm
C3	ppm		ppm
IC4/nC4	ppm		ppm
C5	ppm		ppm
C6+	ppm		ppm
CO ₂ /H ₂ S	ppm		ppm
Properties RI/HYD	°API @	°C	°API @ °C
Colour			
Fluorescence			
GOR			
<u>Water Properties</u>			
Resistivity	0.418 @	20°C	@ °C
NaCl Equivalent	16250	ppm	ppm
Cl-titrated		ppm	ppm
Tritium (3213 Dpm)	1300	Dpm	Dpm
Est. Water Type			
<u>Mud Properties</u>			
Resistivity			
NaCl Equivalent			
Cl - titrated			
Calibration			
Calibration Press.	-	psig	- psig
Calibration Temp.	-	°C	- °C
Hewlett Packard No.			
Mud Weight			
Calc. Hydrostatic			
RFT Chokesize			
Remarks:	Very tight		

RFT SAMPLE TEST REPORT

WELL: Whiting-2			(3760 f/20)	
OBSERVER: R. Newport	DATE: 30/5/1985		RUN: 18	
	CHAMBER 1 (45.3 lit.)		CHAMBER 2 (10.4 lit.)	
SEAT NO. 90	90		90	
DEPTH mKB	3207.5		3207.5	
A. RECORDING TIMES				
Tool Set	02:01			
Pretest Open	02:01			
Time Open				
Chamber Open	02:05/02:08/02:09		03:04	
Chamber Full			03:22	
Fill Time			00:18	
Start Build-up			03:22	
Finish Build-up			03:37	
Build-Up Time			00:15	
Seal Chamber	03:03		03:39	
Tool Retract			03:40	
Total Time hr.			01:39	
B. SAMPLE PRESSURES				
IHP	5530		- psig	
ISIP	58		4959	
Initial Flowing Press.	16		55	
Final Flowing Press.	220 (Prem. Shut In)		4960	
Sampling Press. Range			4905	
FSIP	4959		4962	
FHP			5531	
Form. Press. (Horner)	- -		-	
C. TEMPERATURE				
Depth Tool Reached	3207.5 m		3207.5 m	
Max. Rec. Temp.	112.6 °C		120.4 °C	
Time Circ. Stopped	01:57 29/05 hrs		01:57 24/5 hrs	
Time since Circ.	24:00 hrs		25:30 hrs	
Form. Temp. (Horner)	- °C		- °C	
D. SAMPLE RECOVERY				
Surface Pressure	less than 100 psig		300 psig	
Amt Gas	1.0 cu.ft.		0.20 cu.ft.	
Amt Oil				
Amt Water	34.0 lit.		9.0 lit.	
Amt Others (Cond)				
E. SAMPLE PROPERTIES				
<u>Gas Composition</u>				
C1	ppm		ppm	
C2	ppm		ppm	
C3	ppm		ppm	
IC4/nC4	ppm		ppm	
C5	ppm		ppm	
C6+	ppm		ppm	
CO ₂ /H ₂ S	ppm		ppm	
Properties RI/HYD	°API @ °C		°API @ °C	
Colour				
Fluorescence				
GOR			-	
<u>Water Properties</u>				
Resistivity	0.209 @ 27°C		0.187 @ 23°C	
NaCl Equivalent	34250 ppm		38000 ppm	
Cl-titrated	3000 ppm		2930 ppm	
Tritium	FILTRATE		FILTRATE	
Est. Water Type				
<u>Mud Properties</u>				
Resistivity				
NaCl Equivalent				
Cl - titrated	22000 ppm		22000 ppm	
<u>Calibration</u>				
Calibration Press.	- psig		- psig	
Calibration Temp.	- °C		- °C	
Hewlett Packard No.				
Mud Weight				
Calc. Hydrostatic				
RFT Chokesize				
Remarks:	Shut Chamber to determine if probe blocked - was OK		Chamber full (filled as fluid)	
	Shut-In Prem. Slow Build Up			

APPENDIX 6

APPENDIX 6.

Production Test Results

COMPLETION DATAD-1

FIRST PERFORATION

Well WHITING-2 Test 1 Date 13/6/85Company Supervisor TOM REESTest Engineer P. BOUDREAU/D. WRIGHT1. Interval 3315.2 - 3325.1m LDTC-CNTH-SGR 22/5/85 (RUN 1 & RUN 2)2. Well loading fluid NITROGEN(26bb1) DIESEL(53bb1) AND WATER(2bb1) WHEN
STABBING INTO PACKER (OVERBALANCE) WHEN PERFORATING3. Approximate Differential (p_{f-Pw}) -500 (psi)4. Type of perforating gun SCHLUMBERGER 4 INCH END LOADED HYPERJET 25. Perforation density 4 (spf) REPERFORATED OVER SOME6. Mud weight 10.0 (ppg) INTERVAL DUE TO LOW PRODUCTIVITY7. Cl^- of filtrate 21,000 (ppm) 3105 tritium dpm (at time of perforation)8. Cl^- of mud filtrate at time of drilling 22,000 (ppm) 3051 tritium dpm

9. Casing:

10. Liner: NO

11. Tubing:

Size 9-5/8 (in.)Size - (in.)Size 3-1/2 (in.)Weight 47 (lb/ft)Weight - (lb/ft)Inside Diameter 2.687 (in.)Grade N-80Grade -Weight 12.95 (lb/ft)Capacity 0.0732 (bb1/ft)Capacity - (bb1/ft)Grade L80Shoe 3339 (m) drillerTop - (m)Capacity .0073 (bb1/ft)3340 (Schlum)Shoe - (m)Connections PH6Burst pressure 15000 psig12. Plugged back total depth 3325.3 (m)13. Depth of packer 3302 (m)14. Tubing volume 79.15 (bb1)15. Volume between packer and lowest perforation 6.82 (bb1)16. Rathole volume 0.002 (bb1)17. Depth of tailpipe 3304.6m (m)18. Location of pressure gauges: depth 3320 (m) gauge number Schlum. PLT strain gaugedepth - (m) gauge number -19. Initial WHP before well open 1000 psig (bled down from 2720 psig)

PERFORATION

D-1A

1ST PERFORATION

Well WHITING-2 Test 1 Perforation 3315.2 - 3325.1 Date 13/6/85

- 1. Geologists(s): S. WATTS
- 2. Test Engineer(s): P. BOUDREAU/D. WRIGHT
- 3. Service Company/Engineer: D. DAWSON/SCHLUMBERGER
- 4. Distance between CCL and top of gun: 0.65m
- 5. Number of Runs: 1
- 6. Wellhead pressure bled down to zero before perforating?
 (Yes) (No) (perforated with overbalance)
- 7. Wellhead pressure before perforating: 0 psi
BY DEADWEIGHT TESTER
- 8. Time of perforation: 0942 - 0946 (local time) (3 firings)
- 9. After perforating, record pressure versus time every minute for the first 10 minutes and every 5 minutes thereafter until pressure stabilizes.

Time (Local)	WHP (PSIG)
	0 no pressure expected

Time (Local)	WHP (PSIG)

10. Other perforating runs: See

Time Run Interval WHP

11. Remarks: Unable to reach bottom perforating interval - bridge plug tagged 2m higher than expected. The intervals for each of the 3 casing guns were:

3315.2 - 3318.2m

3318.7 - 3321.7m

3322.1 - 3325.1m

INITIAL 'LOW PERIOD DATA*

D-2

1ST PERFORATION

Well WHITING-2 Test PT-1 Perforation 3315.2 - 3325.1 Date 15/6/85

1. Wellhead pressure prior to opening well 2720 (psig) (bled to 1000 psig before running in with PLT)
2. Time well opened N₂ bled down at 1002
3. Initial choke size 44 (64ths)
4. Well response: (Well flowed, filtrate influx)
 - Time diesel surfaced: _____
 - Time gas surfaced no formation gas to surface
 - Time mud surfaced no mud to surface
 - Time formation fluid surfaced no formation fluid to surface during flow period
5. Well data just prior to shut in
 - Flowing wellhead pressure 0 (psi)
 - Choke size 44 (64ths)
 - Pressure downstream of the choke - (psi)
 - Rate n.a. (B/D, MCFD) (measured, estimated)
6. Time of shut in (second perforation at 23.28 on 15/6/85)
7. Total length of initial flow 13 hrs 26 min. (before second perforation)
8. Cumulative production 5.33 (bbl) from N₂l diesel interface height
9. Description of produced fluids: Filtrate (assumed - no sample recovery from PLT) some formation gas (from results of reverse circulation after 2nd perforation)

Oil - % - °API
 Water n.a. % Cl⁻ n.a. (ppm)
 Gas: Sp Gr n.a. see sheet D-2 for 2nd perforation

*If extended initial flow (clean up) is run, enter production data at 30 min. intervals on Production Test Data Sheet (D-5).

If well is swabbed, fill out swab report (D-3).

RIG-FLOOR AND BOTTOMHOLE DATA

D-5A

FIRST PERFORATION

Page 1 of 5Well: WHITING-2Date: June 15, 1985Test: PT-1 Perforations: 3315.2 - 3325.1m

TIME LOCAL	REMARKS	P G/CC	WEIGHT °F	CAS. PRESS.	CHOKE 64TH	BHP PSIG	BHT °F
0800	bled off P @ WELL-HEAD TO 1000 PSIG		55	350		3320m	
1002	START BLEED OFF					3735	
1003	TO OPSIG					3203	
1005				340		3101	
1006		849				3010	
1007						2949	
1008						2928	146.5
1009						2911	
1010	N ₂ pressure bled to 0 psig.	.861				2899	146
1011		.861				2896	
1012 1013 1014 1015	Slight blow in bubble bucket throughout flow period	.873				2899 2902 2906 2908	146
1016						2911	
1017		.1017				2914	
1018						2914	
1019						2919	
1020						2920	
1021						2923	
1022						2926	
1025						2931	
1026		.895				2934	146.5
1027			55	350	44	2937	
1028			5	340	44	293	

27801/15

RIG-FLOOR AND BOTTOMHOLE DATA

D-5A

FIRST PERFORATION

Well: WHITING-2

Date: June 15, 1985

Test: PT-1

Perforations: 3315.2 - 3325.1m

TIME LOCAL	REMARKS	P G/CC	WEIGHT °F	CAS. PRESS.	CHOKE 64TH	BHP PSIG	BHT °F
1029						2938	
1030						2941	
1031		.899				2944	
1032						2946	
1033						2946	
1034						2949	
1035						2952	
1036						2952	
1037						2955	
1038						2958	
1039						2958	
1040		.904				2961	
1041		.904				2963	
1042						2963	
1043						2966	
1044						2967	
1041						2969	
1042						2970	
1047						2972	
1048						2975	
1049						2975	
1050						2978	
1051						2978	
1052			56	340	44	2981	
1053			56	340	44	2984	
1054		.896				2984	147

RIG-FLOOR AND BOTTOMHOLE DATA

D-5A

FIRST PERFORATION

Page 3 of 5Well: WHITING-2Date: June 15, 1985Test: PT-1 Perforations: 3315.2 - 3325.1m

TIME LOCAL	REMARKS	P G/CC	WEIGHT °F	CAS. PRESS.	CHOKE 64TH	BHP PSIG	BHT °F
1055						2987	
1056						2987	
1057						2990	
1058						2992	
1059						2993	
1100						2994	
1101						2996	
1102						2997	
1103						2998	
1104						2999	
1105						3001	
1106		.904				3003	147
1107						3004	
1108						3004	
1109						3007	
1110						3007	
1111	Machine recording error						
1129			57			3025	
1130						3025	
1131		.920				3027	
1132						3028	
1133						3028	
1134			57	340	44	3028	
1135		.922	57	340	44	3028	
1136						3029	

27801/17

RIG-FLOOR AND BOTTOMHOLE DATA

D-5A

FIRST PERFORATION

Well: WHITING-2

Date: June 15, 1985

Test: PT-1 Perforations: 3315.2 - 3325.1m

TIME LOCAL	REMARKS	P G/CC	WEIGHT °F	CAS. PRESS.	CHOKE 64TH	BHP PSIG	BHT °F
1138						3031	
1139						3031	
1140						3031	
1141						3031	
1142						3031	
1143						3033	
1144						3033	
1146			60			3033	
1150						3036	
1156						3038	
1200						3040	
1205		.918				3039	147
1220						3042	
1215						3042	
1220						3045	147
1225						3045	
1230						3048	
1235						3048	
1240						3048	
1245				350		3050	
1250						3051	
1255		.864	60		44	3051	147
1305			60	350	44	3054	
1313						3054	
1315				350		3054	

27801/18

WELLBORE GRADIENT DATA

D-11

FIRST PERFORATION

WELL WHITING-2

TEST PT-1

DATE: 15/06/85

BOTTOM-HOLE TEMPERATURE: 147°C

TIME	DEPTH (m)	PRESSURE (psig)	Δ p (psi)	GRADIENT (psi/m)	REMARKS
			//////////	//////////	
1400	2995.1	2529.2	46.7	.476	
	3025	2575.9	24.0	.293	
	3050	2599.9	28.5	.348	diesel
	3075	2628.4	29.2	.356	
1509	3100	2657.6	75.9	.423	
	3150	2733.5	37.8	.461	filtrate
1516	3175	2771.3	82.4	.502	
	3225	2853.7	37.3	.760	
1600	3240	2891.0	52.7	.459	later reading
	3275	2943.7	58.1	.708	mud
1527	3300	3001.8	70.1	1.068	
1535	3320	3071.9			
1602	3160	2759.7			sample taken
					by PLT (no
					recovery)
					POOH
1615					
			//////////	//////////	

PERFORATION

D-1A

2ND PERFORATION

Well WHITING-2 Test 1R Perforation 3312.2 - 3321.2m MDKB Date 16/6/85

- 1. Geologists(s): S. WATTS
- 2. Test Engineer(s): P. BOUDREAU/D. WRIGHT
- 3. Service Company/Engineer: SCHLUMBERGER
- 4. Distance between CCL and top of gun: 1.4m
- 5. Number of Runs: 1
- 6. Wellhead pressure bled down to zero before perforating?
XX (Yes) (No) (Wellhead closed but not under pressure when perforating)
- 7. Wellhead pressure before perforating: 0 psi
- 8. Time of perforation: 23:28 (local time)
- 9. After perforating, record pressure versus time every minute for the first 10 minutes and every 5 minutes thereafter until pressure stabilizes.

Time (Local)	WHP (PSIG)
	0 (no pressure observed - slight blow in bubble bucket)

Time (Local)	WHP (PSIG)

10. Other perforating runs:

<u>Time</u>	<u>Run</u>	<u>Interval</u>	<u>WHP</u>
-------------	------------	-----------------	------------

11. Remarks: Re-perforated with 2-1/8" Enerjets

INITIAL FLOW PERIOD DATA*

D-2

2ND PERFORATION

Well WHITING-2 Test PTIR Perforation 3312.2 - 3321.2 Date 15/6/85 - 16/6/85

1. Wellhead pressure prior to opening well 0 (psi)

2. Time well opened perforated 23:28

3. Initial choke size 44 (64ths)

4. Well response: Well (flowed, influx of filtrate)

Time diesel surfaced -)

Time gas surfaced -) did not surface

Time mud surfaced -)

Time formation fluid surfaced -)

5. Well data just prior to shut in

Flowing wellhead pressure 0 (psi)

Choke size 44 (64ths)

Pressure downstream of the choke - (psi)

Rate n.a. (B/D, MCFD) (measured, estimated)

6. Time of shut in (reverse circulation) 1205, 16/6/85

7. Total length of initial flow 12 hours, 37 mins.

8. Cumulative estimated influx 3.9 (bbl) (estimated from diesel/NZ interface position
Total: 9.2 bbl (both perforations))

9. Description of produced fluids:

Diesel - % 36.5 °API

Oil - % - °API (see Sheet D-10 also)

Water trace 100 % Cl⁻ - (ppm)

Gas: Sp Gr n.a.

C₁ 158413 (ppm) C₅₊ 518 (ppm)

C₂ 84480 (ppm) CO₂ 7% (ppm, %)

C₃ 50483 (ppm) H₂S - (ppm, %)

C₄ 10014 (ppm)

*If extended initial flow (clean up) is run, enter production data at 30 min. intervals on Production Test Data Sheet (D-5).

If well is swabbed, fill out swab report (D-3).

27801/22

RIG-FLOOR .ND BOTTOMHOLE DATA

D-5A

FIRST PERFORATION

Page 1 of 2Well: WHITING-2Date: June 15, 1985Test: IRPerforations: 3312.2 - 3321.2m

TIME LOCAL	REMARKS	WHP G/CC	WEIGHT °F	CAS. PRESS.	CHOKE 64TH	BHP PSIG	BHT °F
2328	PERFORATED WITH 2-1/8 INCH ENERJETS						
0400	RU						
0435	RIH						
0600	CORRELATE AT 3275m						
0635	PRESSURE AT 3275m					2977.1	144
0636						2978	
0638						2980.2	
0639						2982.9	
0640						2982.0	
0645						2983.0	144
0650						2983.0	
0655						2983.0	144
0700						2985.5	
0705						2985.9	
0710	PULL UP FOR STOPS (SEE SHEET D-11)					2985.9	
0846	FINAL READING AT 3275m					2989.0	
1200	HALLIBURTON PUMP 18.5 BBL INTO TUBING	4500					
1205		1200					
1238					24		
1240					28		
1248	(190 STROKES) DIESEL TO SURFACE						
1300	(530 STROKES) GAS TO SURFACE						
1303	DIVERT TO SURGE TANK						
1310	MID TO SURFACE						

27801/22

LIQUID SAMPLE FIELD ANALYSIS RECORD

D-9

Well WHITING-2 Test PWT #1 (Reverse circ'n) Date 16/6/85

PUMP STROKES	SAMPLE POINT	S H A K E O U T			API° @ 60°F	Cl (ppm)	WATER RES (m)	pH	T (°F)
		WATER COLOUR	WATER	BS&W					
200	CHOKE	-	-	-	35.6	-----	DIESEL	-----	
250	CHOKE	-	-	-	36.6	-----	DIESEL	-----	
300	CHOKE	-	-	-	36.5	-----	DIESEL	-----	
350	CHOKE	-	-	-	36.6	-----	DIESEL	-----	
400	CHOKE	-	-	-	36.4	-----	DIESEL	-----	
425	CHOKE	-	-	-	36.5	-----	DIESEL	-----	
450	CHOKE	-	-	-	36.3	-----	DIESEL	-----	
475	CHOKE	-	-	-	36.5	-----	DIESEL	-----	
500	CHOKE	-	-	-	36.3	-----	DIESEL	-----	
525	CHOKE	-	-	-	36.6	-----	DIESEL	-----	
550	CHOKE	greyey brown	trace	trace of solids	37.7	-----	DIESEL	-----	
575	CHOKE	dark greyey brown	trace	-	38.2	-----	DIESEL	-----	
600	CHOKE	very dark greyey brown	trace	-	39.0	-----	DIESEL	-----	
600	CHOKE	muddy	water trace =		1972	dpm	.791 @ 20°C		
725	CHOKE	drilling mud	trace =		2336	dpm			
750	CHOKE	drilling mud	trace =		2093	dpm			
OTIS	displacing	water	*	trace =	0dpm		8.28 @ 20°C		
OTIS	displacing	water	*	trace =	0dpm		8.68 @ 20°C		

* used to pressure up on tubing before pulling out of packer.
27801/24

WELLBORE GRADIENT DATA

D-11

FIRST PERFORATION

WELL WHITING-2

TEST PT-1

DATE: 16/06/85

BOTTOM-HOLE TEMPERATURE: 144°C

TIME	DEPTH (m)	PRESSURE (psig)	Δp (psi)	GRADIENT (psi/m)	REMARKS
			//////////	//////////	
0846	3275.0	2989.0	63.3	1.81	
0717	3240.0	2925.7	25.8	1.72	mud
0721	3225.0	2899.9	85.9	1.72	
0730	3175.0	2814.0	43.0	1.72	
0739	3150.0	2771.0	34.5	1.38	water
0743	3125.0	2736.5	40.1	1.60	filtrate
0748	3100.0	2696.4	34.4	1.38	
0754	3075.0	2662.0	34.4	1.38	
0758	3050.0	2627.6	37.2	1.49	
0802	3025.0	2590.4	112.6	1.50	
0807	2950.0	2505.1 *			
0827	2950.0	2477.8	112.6	1.50	
0814	2900.0	2435.6	111.8	1.12	diesel
0820	2800.0	2323.8	111.8	1.12	
0823	2700.0	2222.2	101.6	1.02	
repeat					
0840	3075.0	2664.7			no sample
(sample attempted with PLT)					recovery (PLT)
			//////////	//////////	

* May be invalid - see repeat

27801/26

COMPLETION DATA

D-1

Well WHITING-2 Test 2 (3123.5 - 3129.0) Date 18/6/85

Company Supervisor TOM REES

Test Engineer BOUDREAU/GOODACRE

1. Interval 3123.5 - 3129 m LDTC-CNTH-SGR 22/5/85 (RUN 1 & RUN 2)

2. Well loading fluid DIESEL/NITROGEN

3. Approximate Differential ($p_f - p_w$) 500 (psi)

4. Type of perforating gun 2-1/8" ENERGET (ALL SHOTS FIRED)

5. Perforation density 4 (spf) REPERFORATED OVER SOME

6. Mud weight 10.0 (ppg) INTERVAL DUE TO LOW PRODUCTIVITY

7. Cl⁻ of filtrate 20,000 (ppm)

8. Cl⁻ of mud filtrate at time of drilling 22,000 (ppm)

9. Casing:

10. Liner: NO

11. Tubing:

Size 9-5/8 (in.)

Size - (in.)

Size 3-1/2 (in.)

Weight 47 (lb/ft)

Weight - (lb/ft)

Inside Diameter 2.75 (in.)

Grade N-80

Grade -

Weight 12.95 (lb/ft)

Capacity 0.0732 (bbl/ft)

Capacity - (bbl/ft)

Grade L80

Shoe 3339 (m) driller

Top - (m)

Capacity .0073 (bbl/ft)

3340 (Schlum)

Shoe - (m)

Connections PH6

Burst pressure 15000 psig

12. Plugged back total depth 3256 (m)

13. Depth of packer 3110 (m)

14. Tubing volume 75.0 (bbl)

15. Volume between packer and lowest perforation 4.6 (bbl)

16. Rathole volume 30.5 (bbl)

17. Depth of tailpipe 3112.9 (m)

18. Location of pressure gauges: depth - (ft) gauge number -

depth - (ft) gauge number -

19. Initial WHP before well open 1330 (RUN1)

0 (RUN2)

PERFORATION

D-1A

Well WHITING 2 Test 2 Perforation 3123.5 - 3129.0 Date 18/6/85

- 1. Geologists(s): _____
- 2. Test Engineer(s): BOUDREAU/GOODACRE/KOH
- 3. Service Company/Engineer: D. DAWSON
- 4. Distance between CCL and top of gun: 1.4m
- 5. Number of Runs: 2 (RUN 1)
- 6. Wellhead pressure bled down to zero before perforating?
 _____ (Yes) XX (No)
- 7. Wellhead pressure before perforating: (1330) psi
 BY DEADWEIGHT TESTER
- 8. Time of perforation: 13:38 (local time)
- 9. After perforating, record pressure versus time every minute for the first 10 minutes and every 5 minutes thereafter until pressure stabilizes.

Time (Local)	WHP (PSIG)
Before Perf	1330
After Perf	1320
13:45	1320
13:47	1320
13:49	1322
13:50	1324

Time (Local)	WHP (PSIG)
13:52	1322
13:56	1322
13:58	1323
14:00	1323
14:05	1328
14:15	1328
14:20	1320
14:25	1320
14:30	1318
14:45	1317
15:00	1300
15:10	1300

- CHECK SCHLUM LUBRICATOR PRESSURE DECREASES AS TOOL PULLED OUT.

- GUN @ SURFACE BLEED OFF PRESSURE.

PERFORATION cont'd

D-1A

Well WHITING 2 Test 2 Perforation 3123.5 - 3129.0 Date 18/6/85

10. Other perforating runs:

<u>Time</u>	<u>Run</u>	<u>Interval</u>	<u>WHP</u>
02:18 19th June, 85	Two	SAME	

11. Remarks: . DISPLACE MUD WITH 50 BBL'S DIESEL
25 BBL'S NITROGEN
. CASING PRESSURE 280 PSI
. ALL SHOTS FIRED
. 700 LB OVERPULL WHILE COMING THROUGH
. DHSIT RECEPTACLE

REPERFORATION

Well WHITING 2 Test 2 Perforation 3123.5 - 3129.0 Date 19/6/85

- 1. Geologists(s): PENNY PRIEST
- 2. Test Engineer(s): P. BOUDREAU/GOODACRE/KOH
- 3. Service Company/Engineer: D. DAWSON
- 4. Distance between CCL and top of gun: 1.4m
- 5. Number of Runs: 2 (RUN 2)
- 6. Wellhead pressure bled down to zero before perforating?
 (Yes) (No)
- 7. Wellhead pressure before perforating: ZERO psi
- 8. Time of perforation: 02:18 (local time)
- 9. After perforating, record pressure versus time every minute for the first 10 minutes and every 5 minutes thereafter until pressure stabilizes.

Time (Local)	WHP (PSIG)

Time (Local)	WHP (PSIG)

10. Other perforating runs:

Time	Run	Interval	WHP
13:38	One	3123.5 - 3129.0	1320

- 11. Remarks:
 - . REPERFORATION OF SAME INTERVAL
 - . ALL SHOTS FIRED
 - . WELL SENT IN PRIOR TO PERFORATION - NO CHANGE
 - . PRESSURE AFTER PERFORATION
 - . NO OVERPULL WHILE POH

INITIAL FLOW PERIOD DATA*

D-2

Well WHITING 2 Test 2 Perforation 3123.5 - 3129.0 Date 18/6/85

- 1. Wellhead pressure prior to opening well 1270 (psi)
- 2. Time well opened 15.25 - TO BLEED OFF N₂ PRESSURE
- 3. Initial choke size 32 (64ths)
- 4. Well response: (Well (flowed, died))
 - Time diesel surfaced -) Surface third by
 - Time gas surfaced -) reverse circulation
 - Time mud surfaced -) at end of flow period
 - Time formation fluid surfaced -)

- 5. Well data just prior to shut in
 - Flowing wellhead pressure 0 (psi)
 - Choke size 32 (64ths)
 - Pressure downstream of the choke 0 (psi)
 - Est. Influx rate 5 BPD (measured, estimated)

6. Time of shut in 1030 hrs 19th June 85

7. Total length of initial flow 19.05 hrs (min, hr)

8. Cumulative estimated influx 8.2 (bbl)

- 9. Description of produced fluids:
 - Oil - % - °API
 - Water - % Cl⁻ - (ppm)
 - Gas: Sp Gr -

*If extended initial flow (clean up) is run, enter production data at 30 min. intervals on Production Test Data Sheet (D-5).
If well is swabbed, fill out swab report (D-3).

PRODUCTION TEST DATA SHEET

D-5

Well WHITING 2 Test 2 Perforations 3123.5 - 3129.0m Date 18-06-85 Page 1 of 1

DATE TIME	REMARKS	W P L S H E A R D E	T E M P E R A T U R E	P R E S S U R E	C H O K E	CUMULATIVE PRODUCTION			RATES			C O N D I T I O N S	GRAVITY	
						OIL STB	WATER BBLs	GAS MSCF	OIL STB/D	WATER B/D	GAS MSCF/D		OIL °API @ 60°	GAS AIR=1
15:27	BLEED OF N ₂	1270												
15:28	PRESSURE	1075												
15:30		700												
15:32		470												
15:34		310												
15:36		230												
15:38		122												
15:42		66												
15:44		18												
15:50		5							115					
15:52	NO FLOW ON BUBBLE HOSE	0							288					

SEE D-5A FOR FURTHER DATA.
27801/6

RIG-FLOOR AND BOTTOMHOLE DATA

D-5A

FIRST PERFORATION

Well: WHITING-2

Date: June 18, 1985

Test: 2 Perforations: 3125.5 - 3129.0m

TIME LOCAL	REMARKS	WHP PSIG	GRADIO GM/CC	q STB/D	CUM INFLUX STB	BHP PSIA @3115M	BHT °C
1338 1527	PERFORATE WELL START BLEED N ₂						
1552	ALL N ₂ BLED OFF	0					
1615 1710	RIH W/PLT TOOL N ₂ /DIESEL CONTACT OBS AT 945M MDKB AS MEASURED BY GRADIOMANOMETER	0 0		31	2.2	-	
1826	PLT @ BTM HP @3115						
1831	RFT = 2645 PSIG @ 3117.9M		0.69			2845.0	140.0
1840 1850	RFT=2652 (MAX. TEMP) CALIB WAS 125°C)		0.70 0.70	24 12	3.7 3.8	2844.7 2849.7	140.0
1915 1930	RFT = 2677		0.70 0.71	14 12	4.0	2863.7 2871.2	140.3 140.3
1945 2000			0.71 0.72	17 9	4.3 4.4	2881.4 2886.8	140.0 140.0
2015 2030			0.72 0.73	12 11	4.5 4.6	2894.4 2901.3	140.5 140.5
2045 2056			0.73 0.73	13 13	4.7 4.8	2909.1 2914.7	140.5 140.6
2106 2118	START POH PLT STOP @ 3000m MDKB TO TO TAKE BHS W/PLT						
2206	N ₂ /DIESEL @ 840m MDKB (ORIGINAL CONTACT = 1036m MDKB				4.8		

2780/7

RIG-FLOOR AND BOTTOMHOLE DATA

D-5A

FIRST PERFORATION

Well: WHITING-2

Date: June 18, 1985

Test: 2 Perforations: 3125.5 - 3129.0m

TIME LOCAL	REMARKS	WHP PSIG	GRADIO GM/CC	q STB/D	CUM INFLUX STB	BHP PSIA @3115M	BHT °C
0218	REPERFORATE WELL (NO PRESSURE RESPONSE WITH WELL SHUT-IN)	0					
0500	P.T. LUBRICATOR TO 4500 PSI						
0511	START RIH W/PLT	0					
0534	OBSERVED N ₂ / DIESEL CONTACT @ 745m MDKB	-	-	7	7.1		
0645	CORRELATE HP GAUGE @ 3115m		0.72			3136.8	149.9
0650 0700			0.73	3.4	7.4	3122.8 3123.4	142.0
0715 0720			0.73 0.74	4.5 5.3	7.46	3126.2 3129.5	142.0 142.0
0800 0810	START POH PLT FOR SAMPLE		0.75	4.5	7.6	3135.0	142.0
0820	ARRIVE AT 2900m MDKB FOR OTIS SAMPLER TO OPEN AT 0845 HRS					2756.8	
0900	START POH PLT					2762.4	
0931	OBSERVE N ₂ /DIESEL CONTACT @ 2701M WHILE ON POH PLT		-	-	8.2	-	
0954	PLT @ SURFACE OTIS BHS SAMPLE KEPT						
1052	START REVERSE CIRC.						

27801/8

LIQUID SAMPLE FIELD ANALYSIS RECORD

D-9

Well WHITING-2Test NO. 2Date 19-06-85

TIME SAMPLED	SAMPLE POINT	S H A K E O U T		API° @ 60°F	Cl (ppm)	WATER RES (m)	pH	T (°F) 3
		TRITIUM DPM						
BOTTOM HOLE SAMPLE 0845	2900M	1776			10000	.389@ 21°C (16,500ppm)*	*6.6	21°C
STROKES CUM BBL PUMP	CHOKE MANIFOLD							
43/5	DIESEL			36.60				
86/10	DIESEL			36.54				
129/15	DIESEL			36.59				
172/20	DIESEL			36.64				
215/25	DIESEL			36.69				
258/30	DIESEL			36.70				
301/35	DIESEL			36.62				
344/40	DIESEL/GAS MUDDY DIESEL			37.35				
387/45	MUDDY DIESEL	238			1750	1.9°C @ 24°C (2800)	6.4	
430/50	MUDDY WATER	2651			1500	0.274 @ 27.5°C (2100)	6.8	
450/52	MUDDY WATER	2722			18000	0.239 @ 25.5°C (25000)	6.7	
473/55	MUDDY WATER	2527			14000	0.349 @ 29.5°C (15000)	7.5	
490/57	MUD	2491			12400	0.339 @ 27.0°C (18000)	7.9	
516/60	MUD	2596			12400	0.349 @ 26.0°C (17000)	7.9	

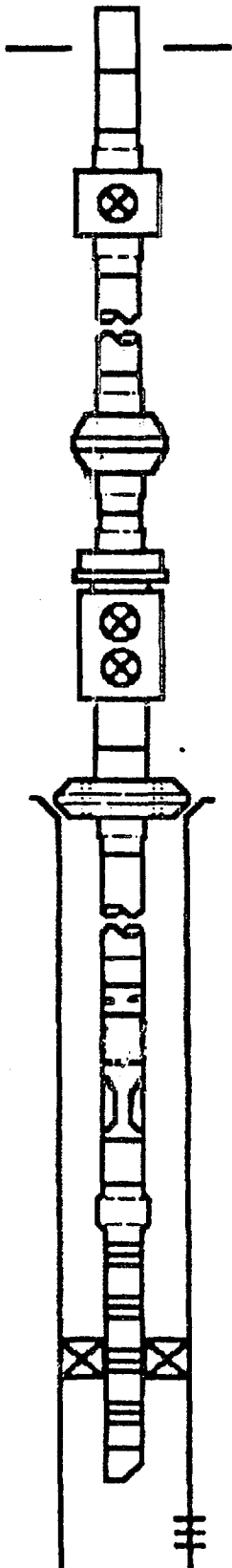
27801/9

PRODUCTION TEST SUMMARYD-13Well WHITING-2 Test 2 Date 19-06-85

Test Data:

1. Interval 3123.5 - 3129.9m MDKB (KB = 21m)
2. Produced fluid WATER/ FILTRATE/ GAS
3. Cumulative influx 8.2 (STB)
4. Estimated influx 10 (STB/D)
5. Length of flow period 19.05 (hr)
6. Choke 32 (64ths)
7. Gravity of oil or condensate NONE OBSERVED IN SAMPLE FROM REVERSE
CIRCULATION ($^{\circ}$ API @ 60 $^{\circ}$ F)
8. GOR or Condensate - Gas Ratio - (SCF/STB)
9. Water cut - (%)
10. Chlorides 14000 - 18000 (ppm)
11. H₂S NONE MEASURED (% , ppm)
12. CO₂ NO SAMPLES (%)
13. Stabilized flowing wellhead pressure - (psig)
14. Stabilized flowing wellhead temperature - ($^{\circ}$ F)
15. Wellhead pressure at end of buildup - (psig)
16. Initial reservoir pressure 5170 (psia) @ 3394 (m)
17. Final flowing pressure - (psia) @ - (m)
18. Estimated Productivity index 0.005 (STB/D)
psi
19. Maximum bottom-hole temperature 142 ($^{\circ}$ C) @ 3118 (m) MDKB
20. Samples taken: 7 DIESEL, 1 DIESEL/GAS/MUDDY DIESEL,
1 MUDDY DIESEL, 3 MUDDY WATER, 4 MUD
21. Remarks: ON SAMPLES FROM REVERSE CIRCULATION

PRODUCTION TEST NO. 2
 PRODUCTION TEST MANUAL
 SOUTHERN CROSS
 TEST STRING SCHEMATIC
 9-5/8" CASING

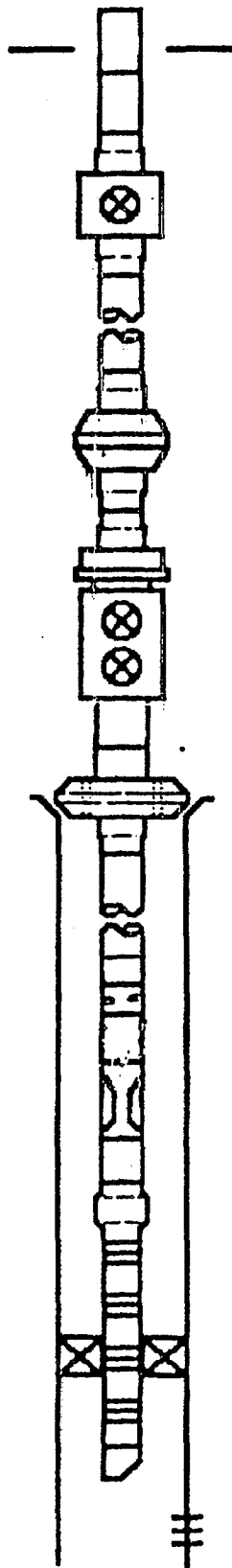


DESCRIPTION	CONNECTION UP	CONNECTION DOWN	MAX OD in.	MIN ID in.	LENGTH m	DEPTH m-RKB
2 JOINTS TUBING	3.5" PH6 BOX		4.313	2.687	19.20	(1.60)
		3.5" PH6 PIN				17.60
CROSSOVER	3.5" PH6 BOX	4.5" ACME PIN	5.50	2.687	1.60	19.20
SUBSEA LUBRICATOR VALVE	4.5" ACME BOX	4.5" ACME PIN	10.75	2.88	1.61	20.81
CROSSOVER	4.5" ACME BOX	3.5" PH6 PIN	5.50	2.687	0.82	21.63
4 JOINTS TUBING	3.5" PH6 BOX		4.313	2.687	38.37	60.00
		3.5" PH6 PIN				61.60
CROSSOVER	3.5" PH6 BOX	4.5" ACME PIN	5.50	2.687	1.60	61.60
INJECTION SUE	4.5" ACME BOX	4.5" ACME PIN	10.75	2.88	0.56	62.16
CROSSOVER	4.5" ACME BOX	3.5" PH6 PIN	5.50	2.687	0.88	63.04
CROSSOVER	3.5" PH6 BOX	4.5" ACME PIN	4.50	2.687	1.59	64.63
SUBSEA TEST TREE	4.5" ACME BOX		13.32	2.88	3.89	
		4.5" LTC BOX				68.52
SLICK JOINT	4.5" LTC PIN	4.5" LTC PIN	5.00	3.00	2.52	71.04
CROSSOVER	4.5" LTC BOX	4.5" EUE PIN	5.00	3.96	0.22	71.26
FLUTED HANGER	4.5" EUE BOX	4.5" EUE BOX	14.00	3.96	0.25	71.51
CROSSOVER	4.5" EUE PIN	3.5" PH6 PIN	5.00	2.687	0.55	72.06
31 JOINTS + 5.49m PUPS TUBING	3.5" PH6 BOX		4.313	2.687	3030.44	3102.5
PUP JOINT	3.5" PH6 BOX	3.5" PH6 PIN	4.313	2.687	1.73	3104.2
RN NIPPLE	3.5" PH6 BOX	3.5" PH6 PIN	4.313	2.40	0.33	3104.6
PUP JOINT	3.5" PH6 BOX	3.5" PH6 PIN	4.313	2.687	0.82	3105.4
DHSIT RECEPTACLE	3.5" PH6 BOX		5.00	2.250	1.50	3106.9
		3.5" PH6 PIN				
CROSSOVER	3.5" PH6 BOX	3.5" EUE PIN	4.313	2.687	0.83	3107.7
LOCATOR SUB	3.5" EUE BOX		4.875	3.000	0.34	3108.1
G-22 SEAL ASSEMBLY			4.734	3.000	4.73	
MODEL 'D' PACKER @ 3110m						3112.8
MULESHOE						0.10

PERFORATIONS
 3123.5 - 3129m

1036m H₂
 83m H₂O
 2173m Ditch

PRODUCTION TEST NO. 2
 PRODUCTION TEST MANUAL
 SOUTHERN CROSS
 TEST STRING SCHEMATIC
 9-5/8" CASING



DESCRIPTION	CONNECTION UP	CONNECTION DOWN	MAX OD in.	MIN ID in.	LENGTH m	DEPTH m-RKB
2 JOINTS TUBING	3.5" PH6 BOX		4.313	2.687	19.20	(1.60)
		3.5" PH6 PIN				17.60
CROSSOVER	3.5" PH6 BOX	4.5" ACME PIN	5.50	2.687	1.60	19.20
SUBSEA LUBRICATOR VALVE	4.5" ACME BOX	4.5" ACME PIN	10.75	2.88	1.61	20.81
CROSSOVER	4.5" ACME BOX	3.5" PH6 PIN	5.50	2.687	0.82	21.63
4 JOINTS TUBING	3.5" PH6 BOX		4.313	2.687	38.37	
		3.5" PH6 PIN				60.00
CROSSOVER	3.5" PH6 BOX	4.5" ACME PIN	5.50	2.687	1.60	61.60
INJECTION SUB	4.5" ACME BOX	4.5" ACME PIN	10.75	2.88	0.56	62.16
CROSSOVER	4.5" ACME BOX	3.5" PH6 PIN	5.50	2.687	0.88	63.04
CROSSOVER	3.5" PH6 BOX	4.5" ACME PIN	4.50	2.687	1.59	64.63
SUBSEA TEST TREE	4.5" ACME BOX		13.32	2.88	3.89	
		4.5" LTC BOX				68.52
SLICK JOINT	4.5" LTC PIN	4.5" LTC PIN	5.00	3.00	2.52	71.04
CROSSOVER	4.5" LTC BOX	4.5" EUE PIN	5.00	3.96	0.22	71.26
FLUTED HANGER	4.5" EUE BOX	4.5" EUE BOX	14.00	3.96	0.25	71.51
CROSSOVER	4.5" EUE PIN	3.5" PH6 PIN	5.00	2.687	0.55	72.06
31 JOINTS + 5.49m TUBING PUPS	3.5" PH6 BOX		4.313	2.687	3030.44	
						3102.5
PUP JOINT	3.5" PH6 BOX	3.5" PH6 PIN	4.313	2.687	1.73	3104.2
RN NIPPLE	3.5" PH6 BOX	3.5" PH6 PIN	4.313	2.40	0.33	3104.6
PUP JOINT	3.5" PH6 BOX	3.5" PH6 PIN	4.313	2.687	0.82	3105.4
DHSIT RECEPTACLE	3.5" PH6 BOX		5.00	2.250	1.50	
		3.5" PH6 PIN				3106.9
CROSSOVER	3.5" PH6 BOX	3.5" EUE PIN	4.313	2.687	0.83	3107.7
LOCATOR SUB	3.5" EUE BOX		4.875	3.000	0.34	
						3108.1
G-22 SEAL ASSEMBLY			4.734	3.000	4.73	
MODEL 'D' PACKER @ 3110m						3112.8
MULESHOE					0.10	3112.9

PERFORATIONS
 3123.5 - 3129m

1036m H₂
 83m H₂O
 2073m Diesel

INITIAL FLOW PERIOD DATA*

D-2

Well WHITING 2 Test 3 Perforation 2627.0 - 2634.0 Date 21/6/85

1. Wellhead pressure prior to opening well 1059 (psi)
 2. Time well opened 12.56
 3. Initial choke size 32
 4. Well response: (Well (flowed))
 - Time diesel surfaced -
 - Time gas surfaced 17:52
 - Time mud surfaced 18:00
 - Time formation fluid surfaced 18:12
 5. Well data just prior to shut in) TEST ABANDONED DUE
 - Flowing wellhead pressure 0 (psi)) TO LEAK BETWEEN
 - Choke size 48 (64ths)) PACKER AND
 - Pressure downstream of the choke 0 (psi)) ANNULUS. WELL
 - Est. Influx rate (measured, estimated)) CALCS AFFECTED
 -) BY LEAK (SEE D-5)
 6. Time of shut in 22.00
 7. Total length of initial flow 9.07 hrs (hr)
 8. Cumulative estimated influx 82 (bbl)
 9. Description of produced fluids:

Oil	<u>90</u>	%		<u>39-42</u>	°API
Mud	<u>10</u>	%	C1		
- | | | |
|------------------------------------|--------------------------------------|----------------------------------|
| C ₁ <u>180000</u> (ppm) | C ₅₊ <u>3700</u> (ppm) | C ₆₊ <u>860</u> (ppm) |
| C ₂ <u>47000</u> (ppm) | CO ₂ <u>8-10</u> (ppm, %) | |
| C ₃ <u>36000</u> (ppm) | H ₂ S <u>C1</u> (ppm) | |
| C ₄ <u>15000</u> (ppm) | Pour Point <u>24°C</u> | |

*If extended initial flow (clean up) is run, enter production data at 30 min. intervals on Production Test Data Sheet (D-5).

If well is swabbed, fill out swab report (D-3).

27801/30

PRODUCTION TEST DATA SHEET

D-5

Well WHITING 2 Test 3 Perforations 2627.0 - 2634.0m Date 21-06-85 Page 1 of 3

DATE TIME	REMARKS	W P E R L E L S P H S S E U I A R D E	T E W M L R H A E T A U D R E	P C R A E S S I S S N U I G R E	C H 6 O 4 K T E H	CUMULATIVE PRODUCTION			RATES			C G O G O N A R D S E O N R R S A T I E O	GRAVITY	
						OIL STB	WATER BBLs	GAS MSCF	OIL STB/D	WATER B/D	GAS MSCF/D		OIL °API @ 60°	GAS AIR=1
12:56	START BLEED OFF	1059			32									
13:13	WHP ZERO	0			32									
13:15	NO BLOW	0			32									
15:00	WEAK BLOW, KILLED	0												
15:45	BY 6" H2O	0			32									
16:30	DIESEL TO SURFACE	10			32	21.0			141					
17:00	DIESEL TO TANK	10			48	23.6			125					
17:13	INCREASE CHOKE	15			64									
17:14		20			64									
17:15		25			64	26.22			249					
17:23		130												

27801/31

157

PRODUCTION TEST DATA SHEET

D-5

Well WHITING 2 Test 3 Perforations 2627.0 - 2634.0m Date 21-06-85 Page 2 of 3

DATE TIME	REMARKS	W P E R L E L S P H S S E U I A R D E	T E W M L R H A E T A U D R E	P C R A E S S P I S S N U I G R E	C H 6 O 4 K T E H	CUMULATIVE PRODUCTION			RATES			C G O G O N A R D S E O N R R S A T I E O	GRAVITY	
						OIL STB	WATER BBLs	GAS MSCF	OIL STB/D	WATER B/D	GAS MSCF/D		OIL °API @ 60°	GAS AIR=1
17:30	DIVERT TO PRESSURE TANK TANK. GAS TO FLARE (GAS BEING PRODUCED)	280			64	46.2			1920	(GAS	LIFT	RATE)		
17:52	GAS AND OIL @ SURFACE	305												
18:00	GAS AND MUD @ SURF	305			64	58			576					
18:12	OIL & GAS @ SURF	325			64									
18:15		325	64		64									
18:30	OPEN CHOKE TO 108/64TH	270	65		64	66			384					
18.45		220	64	340	108									
19:00		160	62	340	108	70			192					
19:15		130	60	370	108	70			0					
19:30	PRODN = 0-1 BBL/HALF HR	70	58	370	108	70			0	GAS CONTINUES TO FLOW				
19:45		10	57											

27801/32

158

PRODUCTION TEST DATA SHEET

D-5

Well WHITING 2 Test 3 Perforations 2627.0 - 2634.0m Date 21-06-85 Page 3 of 3

DATE TIME	REMARKS	W P E R L E S P H S S E U I A R D E	T E W M L E L R H A E T A U D R E	P C R A E S S P I S S N U I G R E	C H 6 O 4 K T E H	CUMULATIVE PRODUCTION			RATES			C G O G O N A R D S E O N R S A T I E O	GRAVITY	
						OIL STB	WATER BBLs	GAS MSCF	OIL STB/D	WATER B/D	GAS MSCF/D		OIL °API @ 60°	GAS AIR=1
20:00	WELL SLUGGING	56	55											
20:15		260	56			76			192					
20:30		390	60			82*			576					
20:40	LOST ANNULUS PRESSURE	*			64									
20:45	OIL DIVERTED OVERBOARD	740	65	0	108	*	LEAK SUSPECTED							
21:09	CHANGE CHOKE TO 3/4"			0	48									
21.15		0												
21:20	HP TOOL FAIL ON SURF													
21:30		0	59	0										
22:00	DECIDE TO POOH BECAUSE OF TUBING LEAK													
23:00	REVERSE CIRC. TUBING VOLUME - ALL MUD. PULLED TUBING. PACKER TO TUBING SEALS FOUND TO BE DAMAGED RERUN STRING. RETEST WELL.													

27801/33

159

RIG-FLOOR AND BOTTOMHOLE DATA

D-5A

FIRST PERFORATION

Page 1 of 1

Well: WHITING-2

Date: June 21, 1985

Test: 3 Perforations: 2627.0 - 2634.0m

TIME LOCAL	REMARKS	WHP PSIG	WHT °F	CAS. PRESS.	CHOKE 64TH	BHP PSIG	BHT °F
1145 1146	PERFORATE WELL	1020 1025					
1150 1155 1200 1205 1215 1230	PRESSURES BY DEAD WEIGHT TESTER	1029 1033 1038 1042 1049 1051					
1240		1054					
1250	INFLUX = 0.77 BBL	1059					
1253	SCHLUM OUT OF HOLE ALL SHOTS FIRED						
1256 1313	START BLEED OFF WHP ZERO	1059 0			32		
1315	NO BLOW						
1345	WEAK BUBBLES IN BUCKET	0					
1500	WEAK BLOW KILLED BY 6" H ₂ O	0					
1545	WEAK BLOW KILLED BY 4" H ₂ O	0					

LIQUID SAMPLE FIELD ANALYSIS RECORD

Well WHITING-2

Test NO. 3

Date 21-06-85

TIME SAMPLED	SAMPLE POINT	SHAKE OUT			API° @ 60°F	Cl (ppm)	WATER RES (Ωm)	pH	T (DPM)
		OIL %	WATER %	BS %					
17:52	CHOKE MANIFOLD			5-10%	42	-	NIL	-	
18:12	CHOKE MANIFOLD			VISUAL	42	-	NIL	-	
18.45	CHOKE MANIFOLD			VISUAL	39.8	-	NIL	-	
19.00	CHOKE MANIFOLD			VISUAL	39.1	-	NIL	-	
19.15	CHOKE MANIFOLD			VISUAL	38.9	-	NIL	-	
19.30	CHOKE MANIFOLD			VISUAL	37.6				
19.45	NO SAMPLE AVAILABLE. GAS FLOW ONLY								
20.00	CHOKE MANIFOLD				35.4				
20.15	CHOKE MANIFOLD	60	0	40	76.62 40.05				
20.30	CHOKE MANIFOLD	60	10*	30	38.95	15000		7.8	

LIQUID SAMPLE FIELD ANALYSIS RECORD

D-9

Well WHITING-2Test NO. 3Date 21-06-85

TIME SAMPLED	SAMPLE POINT	SHAKE OUT			API° @ 60°F	Cl (ppm)	WATER RES (Ωm)	pH	T (DPM)
		OIL %	WATER %	BS %					
20:45	CHOKE MANIFOLD	99.5		0.5	40.8				
21:00	CHOKE MANIFOLD	99.5		0.5	41.2		27.5°C (2100)	6.8	
21:15	NO SAMPLE NO FLOW *TRITIUM COUNT: 2718 DPM					13500	.431	7.3	2986
23100 10 BBLs									
15 BBLs						13500	.412	7.7	3064
20 BBLs						13500	.406	8.4	3090
25 BBLs						15000	.399	7.6	2934
30 BBLs						14000	.398	7.6	3245
35 BBLs		20	70 MD	10 SOLIDS	39.4	13500	.381	7.4	3030
40 BBLs		10	82 MD	8 SOLIDS	37.5	14000	.380	7.0	3398
45 BBLs		20	75 MD	5 SOLIDS	39.8	13500	.373	7.3	3322
50 BBLs				SOLIDS		14000	.373	7.5	3331

GAS SAMPLE FIELD ANALYSIS RECORD

Well WHITING-2 Test 3 Date 21-6-85

TIME SAMPLED	SAMPLE POINT	C O M P O N E N T S						
		C ₁	C ₂	C ₃	C ₄	C ₅ /C ₆	H ₂ S	CO ₂
1650	CHOKE MANIFOLD	10	8	16	80	134	TR*	TR*
1752	CHOKE MANIFOLD	238000	42240	25242	6468	1284/16	TR	TR
1830	CHOKE MANIFOLD	146000	50688	50483	23367	7421/1725	TR	TR
1900	CHOKE MANIFOLD						NIL	10%
1915	CHOKE MANIFOLD							
1930	CHOKE MANIFOLD	182784	47309	35635	15022	3710/862	NIL	8%

* TR = LESS THAN 1 PPM

COMPLETION DATA

D-1

Well WHITING-2 Test 3 (RERUN) Date 25/6/85

Company Supervisor TOM REES/EDLEN

Test Engineer BOUDREAU/GOODACRE

1. Interval 2627.0 - 2634.0 (KB = 21m)

2. Well loading fluid 38 BBL NITROGEN/2 WATER /21 BBL DIESEL/WATER TRITIATED TO 3200 DPM.

3. Approximate Differential ($p_f - P_w$) _____ (psi)

4. Type of perforating gun 2-1/8" ENERGET, ZERO DEGREE PHASING

5. Perforation density 4 (spf) REPERFORATED OVER SOME

6. Mud weight 9.6 (ppg) INTERVAL DUE TO LOW PRODUCTIVITY

7. Cl⁻ of filtrate 18,000 (ppm)

8. Cl⁻ of mud filtrate at time of drilling 22,000 (ppm)

9. Casing:

10. Liner: NO

11. Tubing:

Size 9-5/8 (in.)

Size - (in.)

Size 3-1/2 (in.)

Weight 47 (lb/ft)

Weight - (lb/ft)

Inside Diameter 2.75 (in.)

Grade N-80

Grade -

Weight 12.95 (lb/ft)

Capacity 0.0732 (bbl/ft)

Capacity - (bbl/ft)

Grade L80

Shoe 3339 (m) driller

Top - (m)

Capacity .00735 (bbl/ft)

Shoe - (m)

Connections PH6

Burst pressure 15000 psig

Collapse 15000 psi

12. Plugged back total depth 3040 (m)

13. Depth of packer 2599 (m)

14. Tubing volume 62.7 (bbl)

15. Volume between packer and lowest perforation 8.4 (bbl)

16. Rathole volume 97.5 (bbl)

17. Depth of tailpipe 2602.7 (m)

18. Location of pressure gauges: depth - (ft) gauge number -

depth - (ft) gauge number -

19. Initial WHP before well open 1812 psig)

INITIAL FLOW PERIOD DATA*D-2Well WHITING 2 Test 3 RERUN Perforation 2627.0 - 2634.0 Date 25/6/85

1. Wellhead pressure prior to opening well 1812 (psi)
 2. Time well opened 15.02
 3. Initial choke size 32
 4. Well response: (Well (flowed))
 - Time diesel surfaced -) Surface third by
 - Time gas surfaced 17:54) reverse circulation
 - Time mud surfaced) at end of flow period
 - Time formation fluid surfaced 18:57)
 5. Well data just prior to shut in
 - Flowing wellhead pressure (psi)
 - Choke size 32 (64ths)
 - Pressure downstream of the choke 10 (psi)
 - Rate 230 B/D (measured)
 6. Time of shut in 23.07
 7. Total length of initial flow 8.1 hrs (hr)
 8. Cumulative estimated influx 100 (bbl)
 9. Description of produced fluids:
 - Oil 99.5 % 41 °API
 - Water 0.5 % Cl
 - Gas: Sp Gr 0.918
- | | |
|-----------------------------------|---|
| C ₁ <u>18278</u> (ppm) | C ₅₊ <u>1483</u> (ppm C ₆ +860 ppm) |
| C ₂ <u>1376</u> (ppm) | CO ₂ <u>11</u> (%) |
| C ₃ <u>986</u> (ppm) | H ₂ S <u>NIL</u> (ppm) |
| C ₄ <u>892</u> (ppm) | Pour Point <u>24°C</u> |

*If extended initial flow (clean up) is run, enter production data at 30 min. intervals on Production Test Data Sheet (D-5).

If well is swabbed, fill out swab report (D-3).

PRODUCTION TEST DATA SHEET

D-5

Well WHITING 2 Test 3 (RERUN) Perforations 2627.0 - 2634.0m Date 25-06-85 Page 1 of 7

DATE TIME	REMARKS	W P E R L S P H S S E U I A R D E	T E W M E P L R F H A E T A U D R E	P C R A E S S P I S S N U I G R E	C H 6 O 4 K T E H	CUMULATIVE PRODUCTION			RATES			C G O G O N A R D S E O N R S A T I E O	GRAVITY	
						OIL STB	WATER BBLS	GAS MSCF	OIL STB/D	WATER B/D	GAS MSCF/D		OIL °API @ 60°	GAS AIR=1
15:02	OPEN WELL AT 32/64 DECREASE 20/64	1812		350	20									
15:05	WHP ZERO	1550		350	20									
15:15		920		330	20									
15:20		545		340	20									
15:40	SCHLUM OUT, OK	340		320	20									
15:47	INCR. CHOKE TO 32/64													
15:50		160		330	32									
16:08	INCREASE CHOKE	0		360	32									
16:10	DIRECT FLOWLINE TO TANK	0		360	32									
16:15	MED-STRONG BLOW	0			32									
16:50	WEAK BLOW (3" H ₂ O)	0		340	32									

PRODUCTION TEST DATA SHEET

D-5

Well WHITING 2 Test 3 (RERUN) Perforations 2627.0 - 2634.0m Date 25-06-85 Page 2 of 7

DATE TIME	REMARKS	W P E R L E L S P H S S E U I A R D E	T E E P L E . L R F H A E T A U D R E	P C R A E S S P I S S N U I G R E	C H 6 O 4 K T E H	CUMULATIVE PRODUCTION			RATES			C G O G O N A R D S E O N R R S A A T T I E O	GRAVITY	
						OIL STB	WATER BBLs	GAS MSCF	OIL STB/D	WATER B/D	GAS MSCF/D		OIL °API @ 60°	GAS AIR=1
17:15	BLEEP AP DOWN TO 220	0		220	32									
17:40	WEAK BLOW (3" H ₂ O)	0		240	32									
17:45	DIESEL TO SURFACE	0		240	32	38			318					
18:00	GASLIFTED RATE	150		260	32	42.5			1080					
18:15		295		270	32	52			912					
18:30		100		280	32	56			384					
18.45		35	58	260	32	56.5								
18:57	OIL TO SURFACE	135												
19:00	DIRECT FLOWLINE TO TANK	175		270	32	61			432					
19:06	CHOKE TO 64/64	345			64									
19:15		300		340	32									

31681/2

PRODUCTION TEST DATA SHEET

D-5

Well WHITING 2 Test 3 (RERUN) Perforations 2627.0 - 2634.0m Date 25-06-85 Page 3 of 7

DATE TIME	REMARKS	W P L S H E U I A R D E	T E M P E R E T U R E	P R E S S U R E	C H O K E	CUMULATIVE PRODUCTION			RATES			C O N D I T I O N S	GRAVITY	
						OIL STB	WATER BBLs	GAS MSCF	OIL STB/D	WATER B/D	GAS MSCF/D		OIL °API @ 60°	GAS AIR=1
19:30		210	60	280	64	70			192					
19:45		120		60	270	64	70.5		48					
20:00		50	60	290	64	70.5			0					
20.15	GAS FLOW REDUCED (VISUAL INDICATION)	10	57	280	64	70.5			0					
20.30		10	56	300	64	70.5			0					
20:45		9	56	300	64	70.5			0					
21.00	FLOW INCREASED	30	55	240	64	70.5			0					
21:15		230	55	240	64	74.0			336					
21:30		270	55	240	64	75			96					
21:45	CHOKE TO 64/64	260	55	240	64	76			96					

31681/3

169

PRODUCTION TEST DATA SHEET

D-5

Well WHITING 2 Test 3 (RERUN) Perforations 2627.0 - 2634.0m Date 25-06-85 Page 4 of 7

DATE TIME	REMARKS	W P E R L E L S P H S S E U I A R D E	T E W M E P L R F H A E T A U D R E	P C R A E S S P I S S N U I G R E	C H 6 O 4 K T E H	CUMULATIVE PRODUCTION			RATES			C G O G O N A R D S E O N R S A T I E O	GRAVITY	
						OIL STB	WATER BBLs	GAS MSCF	OIL STB/D	WATER B/D	GAS MSCF/D		OIL °API @ 60°	GAS AIR=1
22:00		270 300	59	260	64	76			0				39.8	
22:15		230	59	260	64	76			0					
22:30		180 300	58	270	64	99			2208				40.0	
22:50	TANK TO FLARE					99.5			48					
23:07	SHUT IN WELL TO RIG UP DHSIT					100			42	ESTIMATED			38.3	
<u>26/6/85</u>														
23:07 TO 01:30	O RING FAILURES IN LUBRICATOR	780		310		100			0	SHUT IN WELL HEAD PRESSURE				
02:40	TEST LUBRICATOR: OK													
02:49	OPEN WELL	1030		300	32									
03:00	TANK SIGHTGLASS	402		310	32									
03:00	WAXED UP	320	60		32									

31681/4

170

PRODUCTION TEST DATA SHEET

D-5

Well WHITING 2 Test 3 (RERUN) Perforations 2627.0 - 2634.0m Date 25-06-85 Page 5 of 7

DATE TIME	REMARKS	W P L S H E A R D E	T E P L R H A U D R E	P C R A E S S P I S S N U I G R E	C H 6 O 4 K T E H	CUMULATIVE PRODUCTION			RATES			C O G O N A R D S E O N R S A T I O	GRAVITY	
						OIL STB	WATER BBLs	GAS MSCF	OIL STB/D	WATER B/D	GAS MSCF/D		OIL °API @ 60°	GAS AIR=1
03:30	4	250	60	350	32								41.9	
03:45		175	64		32				0					
04:00		100	61	250	32									
04:09	SHUT IN AT CHOKE TO STAB IN AND TEST DHSIT	10												
04:15		150												
04:25	STAB INTO DHSIT AND TEST OK. OPEN CHOKE	75	55	320	32									
05:00		20	55	320	32									
05:15		30	53	380	32									
05:30		200	53	300	32									
05:45		130	55	300	32									

31681/5

171

PRODUCTION TEST DATA SHEET

D-5

Well WHITING 2 Test 3 (RERUN) Perforations 2627.0 - 2634.0m Date 25-06-85 Page 6 of 7

DATE TIME	REMARKS	W P E R L E S P H S S E U I A R D E	T E W M E P L R H A E T A U D R E	P C R A E S S P I S S N U I G R E	C H 6 O 4 K T E H	CUMULATIVE PRODUCTION			RATES			C O G O N A R D S E O N R S A T I O E	GRAVITY	
						OIL STB	WATER BBLS	GAS MSCF	OIL STB/D	WATER B/D	GAS MSCF/D		OIL °API @ 60°	GAS AIR=1
06:00		125	56	200	32								41.9	
06:15		100	57	300	32									
06:30		82	57	300	32								42.4	
06:45		85	57	250	32									
07:00		80	57	250	32						0.33		41.9	
07:15		45	56	250	32									.914
07:21	LEVEL IN TANK CHANGED TO FIX CHOKE					143			230	ESTIMATED VOLUME				
07:30		78	55	300	32	145			320					
07:45		65	55	250	32	147			192		0.25		41.7	
08:00		85	55	250	32	152			480					
08:15		88	55	320	32								38.6	
08:30		110	55	320	32	153			48					
09:00		105	55	300	32	154			48		0.32		38.3	
09:30		123	56	320	32	156			96		0.36		38.0	
10:00		115	56	330	32	159			144		0.32		37.8	
10:30		97	57	280	32	163			192		0.29		30.0	

31681/6

172

PRODUCTION TEST DATA SHEET

D-5

Well WHITING 2 Test 3 (RERUN) Perforations 2627.0 - 2634.0m Date 25-06-85 Page 7 of 7

DATE TIME	REMARKS	W P E R L E L S P H S S E U I A R D E	T E M P E R L R H A E T A U D R E	P C R A E S S P I S S N U I G R E	C H 6 O 4 K T E H	CUMULATIVE PRODUCTION			RATES			C O G O N A R D S E O N R S A T I E O	GRAVITY	
						OIL STB	WATER BBLs	GAS MSCF	OIL STB/D	WATER B/D	GAS MSCF/D		OIL °API @ 60°	GAS AIR=1
11:00		115	57	280	32	177			672		0.36		38.2	
11:30		100	57	280	32	179			96		0.35		39.2	
12:00		75	57	75	32	183			192		0.31		40.1	
12:30		130	57	75	32	189			288		0.39		40.7	
13:00		100	57	100	32	193			192		0.37		40.8	
13:30		98	57	100	32	195 - ESTIMATE							37.6	
13:36	SHUT IN AT DHSIT													
<u>27/6/85</u>														
13:54	OPEN DHSIT TOOL OPEN BUT WOULD NOT RELEASE FROM RECEPTACLE													
15:58	SHEAR OUT OF TOOL WITH HP GAUGE, AMERADA AND SAMPLER LEFT IN HOLE.													
17:35	RECOVER SAME WHEN TUBING PULLED. WIRELINE AT SURFACE WITH HP GAUGE.													

31681/7

173

RIG-FLOOR AND BOTTOMHOLE DATA

D-5A

FIRST PERFORATION

Well: WHITING-2

Date: June 26, 1985

Test: 3 (RERUN) Perforations: 2627.0 - 2634.0m

TIME LOCAL	REMARKS	WHP PSIG	WHT °F	CAS. PRESS.	CHOKE 64TH	BHP PSIG	BHT °F
04:34	DHSIT OPEN	75	55	320	32	1001	
05:00		20	55	340	32	1018	
05:15		30	53	380	32	1084/ 05:10 1158/ 05:20	
05:30		200	53	300	32	1105	
05:45		130	55	300	32	894	
06:00		125	56	300	32	814	
06:15		100	57	300	32	765	
06:30		82	57	300	32	765	
06:45		85	57	250	32	780	
07:00		80	57	250	32	792	
07:15		45	56	250	32	803	
07:30	CHANGE TO FIXED CHOKE	78	55	300	32	851	
07:45		65	55	250	32	862	
08:00		85	55	250	32	921	
08:15		88	55	320	32	935	
08:30		110	55	320	32	950	
08:45		104	55	320	32	935	
09:00		105	55	300	32	937	
09:15		135	56	310	32	935	
09:30		123	56	320	32	924	
09:45		114	56	320	32	937	
10:00		115	56	330	32	914	
10:15		100	57	340	32	916	

RIG-FLOOR AND BOTTOMHOLE DATA

D-5A

FIRST PERFORATION

Page 2 of 3Well: WHITING-2Date: June 26, 1985Test: 3 (RERUN) Perforations: 2627.0 - 2634.0m

TIME LOCAL	REMARKS	WHP PSIG	WHT °F	CAS. PRESS.	CHOKE 64TH	BHP PSIG	BHT °F
10:30		97	57	280	32	915	
10:45		133	57	280	32	920	
11:00		115	57	280	32	880	
11:15		100	57	280	32	878	
11:30		100	57	280	32	901	
11:45		96	57			894	
12:00		75	57	75		901	
12:15		112	57			913	
12:30		130	57			891	
12:45		105	57			889	
13:00		100	57	100		880	
13:15		110	57			878	
13:30		98	57			894	
13:36							
13:36	SHUT IN AT DHSIT	150	57			2060	
14:00		208	59	255		2775	
14:15		255				2959	
14:30		310					
15:00		320	59	250		3198	
16:00		348	56	240			
17:00		348	56	240		3432	
18:00		360	55	280			
20:00		350	55	270		3542	
22:00		350	54	250			

31681/9

GAS RATE CALCULATIONS

D-8

Well: WHITING-2

Test: 3 (RERUN)

Date: 26/6/85

Gas Meter Diameter = 1.937"

Type: FLANGE TAP

DATE TIME	GAS METER GAS GRAVITY = 0.914				BASIC ORIFICE FACTOR F_b	FLOWING TEMP FACTOR F_{tf}	SPECIFIC GRAVITY FACTOR F_g	SUPER COMPRESSIBILITY F_{pv}	ORIGINAL CONSTANT $C' = F_b \cdot F_{tf} \cdot F_g \cdot F_{pv} \cdot F_e$	RATE $Q = .024 C' x h_w^{.5} p_f$ (Kcf/D)	REMARKS (EXPANSION FACTOR = 72)
	STATIC (p_f) PSIA	DIFF. (h_w) IN H_2O	TEMP °F	PLATE IN.							
07:00	26.73	20	98	1.5	589.685	0.9653	1.04598	1.0033		331	1.0024
08:00	25.73	12	110	1.5	589.685	0.9551	1.04598	1.0033		246	1.0015
09:00	25.73	20	114	1.5	589.685	0.9518	1.04598	1.0031		321.4	1.0025
09:30	25.73	25	118	1.5	589.685	0.9485	1.04598	1.0031		358	1.0031
10:00	25.73	20	114	1.5	589.685	0.9518	1.04598	1.0031		321	1.0025
10:30	25.73	16	110	1.5	589.685	0.9551	1.04598	1.0030		288	1.0020
11:00	25.73	25	114	1.5	589.685	0.9518	1.04598	1.0031		359.6	1.0031
11:30	25.73	24	110	1.5	589.685	0.9551	1.04598	1.0030		353	1.0030
12:00	25.73	18	106	1.5	589.685	0.9585	1.04598	1.0030		307	1.0022
12:30	25.73	30	116	1.5	589.685	0.9501	1.04598	1.0031		394	1.0038
13:00	24.73	28	112	1.5	589.685	0.9534	1.04598	1.0030		374	1.0037

USE 50 PSI TKNK AS SEPARATOR. DID NOT FLOW THROUGH MAIN SEPARATOR.

31681/11

177

LIQUID SAMPLE FIELD ANALYSIS RECORD

Well WHITING-2

Test NO. 3 (RE RUN)

Date 25-06-85

Pages 1 of 2

TIME SAMPLED	SAMPLE POINT	SHAKE OUT			API° @ 60°F	Cl (ppm)	WATER RES (m)	pH	T °F	POUR PT °C
		OIL %	WATER %	BS %						
19:00	DOWNSTREAM OF CHOKE	50.0	-	50	30.4					23.8
19:15	MANIFOLD	99.5	0.4	0.1	41.3					24.0
19:30	MANIFOLD	99.5	0.4	0.1	40.9					23.0
19:45	MANIFOLD	99.5	0.4	0.1	41.0					22.5
20:00	MANIFOLD	98.0	1.5	0.5	40.0					24.0
20:30	NO SAMPLE DUE TO NO FLOW									
21:00	MANIFOLD	98.0	1.5	0.5	40.0					22.5
21:20	MANIFOLD	95.0	3.5	1.5	38.1					24.0
22:00	MANIFOLD	99.0	0.7	0.3	39.8					23.5
22:30	MANIFOLD	99.7	0.0	0.7	40.0					23.0
23:00	MANIFOLD	99.6	0.3	0.1	38.2					24.0
26/6/86										
03:30	MANIFOLD	99.6	0.3	0.1	41.9					24.5
04:00	NO SAMPLE GAS ONLY AT OUTLET									
04:45	MANIFOLD	99.5	0.4	0.1	42.1					24.0
05:30	MANIFOLD	99.1	0.2	0.7	41.9					23.5
06:00	MANIFOLD	99.4	0.3	0.3	41.9					24.0
06:30	MANIFOLD	99.4	0.4	0.2	42.4					24.0
07:00	MANIFOLD	99.4	0.4	0.2	41.9					24.0
07:30	MANIFOLD	99.7	0.3	0.1	42.0					23.5
08:00	MANIFOLD	99.5	0.4	0.1	41.7					24.0
08:30	MANIFOLD	99.5	0.4	0.1	38.6					23.0
09:00	MANIFOLD	99.1	0.5	0.4	38.3					25.0
09:30	MANIFOLD	99.2	0.4	0.4	38.0					23.0
10:00	CHOKE MANIFOLD	99.5	0.3	0.2	37.8					23.0
10:30	CHOKE MANIFOLD	99.6	0.2	0.2	39.0					22.5

GAS SAMPLE FIELD ANALYSIS RECORD

D-10

Well WHITING-2Test 3 (RE-RUN)Date 25/6/85Pages 1 of 2

TIME SAMPLED	SAMPLE POINT	C O M P O N E N T S						
		C ₁	C ₂	C ₃	C ₄	C ₅ /C ₆	H ₂ S	CO ₂
18:03	CHOKE MANIFOLD	24371	1320	905	250	160/39	-	TR
18:15	CHOKE MANIFOLD	24016	1278	869	312	180/40	-	TR
18:13	CHOKE MANIFOLD	23261	1186	891	416	280/46	-	TR
18:45	CHOKE MANIFOLD	20715	739	603	625	749/647	-	12
19:15	CHOKE MANIFOLD	20106	1320	1090	913	892/323	-	12
19:45	CHOKE MANIFOLD	- - - D R A G E R T E S T O N L Y - - -					-	11
20:15	CHOKE MANIFOLD	- - - D R A G E R T E S T O N L Y - - -					-	11
20:45	CHOKE MANIFOLD	-	-	-	-	-	-	11
21:45	CHOKE MANIFOLD	-	-	-	-	-	-	11
22:45	CHOKE MANIFOLD	-	-	-	-	-	-	11
<u>26/6/86</u>								
03:23	CHOKE MANIFOLD	17669	1267	1021	834	999/215	-	-
04:00	CHOKE MANIFOLD	18583	1320	1067	886	999/431	-	11
04:45	CHOKE MANIFOLD	18288	1162	1021	886	999/647	-	-
05:30	CHOKE MANIFOLD	19163	1320	1068	834	1070/647	-	-
06:30	CHOKE MANIFOLD	17059	1109	881	782	784/647	-	11.5
07:30	CHOKE MANIFOLD	17060	1109	881	782	784/647	-	-
08:30	CHOKE MANIFOLD	18496	1286	1056	789	831/607	-	-

31681/14

WELLBORE GRADIENT DATA

D-11

FIRST PERFORATION

WELL WHITING-2

TEST 3 (RE-RUN)

DATE: 27/06/85

BOTTOM-HOLE TEMPERATURE: °C

TIME	DEPTH (m)	PRESSURE (psig)	Δ p (psi)	GRADIENT (psi/m)	REMARKS
16:03	2565.5	2908.0*	/ / / / / / / / / / / / / / / /		SHEAR OUT OF DHSIT RECEPTACLE AS DHSIT WOULD NOT RELEASE TEMPERATURE SENSOR FAILED
16:10	2565.5	2971.0*			
16:13	2565.5	2998.0*			
			2998.0 - 2953.0 = 45	0.45	
			3044.0 - 3023.0 = 21	0.21	
16:13	2535.0	2953.0*			* PRESSURE RISING DUE TO INFLUX. WELL WAS SHUT IN AT SURFACE.
16:27	2535.0	3038.0*			
16:28	2535.0	3044.0**			
			3044.0 - 3023.0 = 21	0.21	
16:28	2504.5	3023.0*			** ESTIMATED BY RATE OF RISE OF PRESSURE/ MINUTE.
16:40	2504.5	3023.0*			
16:42	2504.5	3077.0**			
			3077.0 - 3047.0 = 30	0.30	
16:42	2474.0	3047.0			
			AVERAGE =	0.32	
			/ / / / / / / / / / / / / / / /		

BOTTOM-HOLE PRESSURESD-12AWELL: WHITING-2 TEST: 3 (RE-RUN) DATE: 26/06/85HORNER TIME: 23 HRS (1380 MINS) FLOWING BHP: 900 INITIAL BHP: 3715

NOTE: HP SENSOR AT 2595m MDKB (0.2m BELOW TOP OF DHSIT RECEPTACLE)

TIME LOCAL	ΔT	$\frac{\Delta T}{\Delta T + T_4}$	BHP PSIA	REMARKS
13:36	0	-	900	Pwf TEMPERATURE = 242°F
13:40	4	.0029	1426	
13:44	8	.0058	1944	
13:48	12	.0086	2331	
13:52	16	.0115	2557	
13:56	20	.0143	2688	
14:00	24	.0171	2776	
14:04	28	.0199	2839	
14:08	32	.0227	2890	
14:16	40	.0282	2968	
14:26	50	.0350	3041	
14:36	60	.0417	3098	
14:46	70	.0483	3145	
14:56	80	.0548	3184	
15:06	90	.0612	3217	
15:16	100	.0676	3245	
15:26	110	.0738	3270	
15:36	120	.0800	3293	
15:46	130	.0861	3314	
15:56	140	.0921	3344	TEMPERATURE = 243°F (SLIGHT JUMP ON PRESSURE)
16:06	150	.0980	3363	
16:16	160	.104	3379	
16:26	170	.110	3392	

31681/18

BOTTOM-HOLE PRESSURES

D-12A

WELL: WHITING-2 TEST: 3 (RE-RUN) DATE: 26/06/85HORNER TIME: 23 HRS (1380 MINS) FLOWING BHP: 900 INITIAL BHP: 3715

NOTE: HP SENSOR AT 2595m MDKB (0.2m BELOW TOP OF DHSIT RECEPTACLE)

TIME LOCAL	ΔT	$\frac{\Delta T}{\Delta T + T_4}$	BHP PSIA	REMARKS
16:36	180	.115	3406	
16:56	200	.127	3428	
17:16	220	.138	3447	
17:36	240	.148	3463	
17:56	260	.159	3478	
18:16	280	.169	3491	
18:36	300	.179	3503	
19:06	330	.193	3519	
19:36	360	.207	3532	
20:06	390	.220	3544	
20:36	420	.233	3555	
21:06	450	.246	3564	TEMPERATURE = 244°F
21:36	480	.258	3573	
22:36	540	.281	3587	
23:36	600	.303	3599	
24:36	660	.324	3609	
<u>27/6/85</u>				
01:36	720	.343	3619	
02:36	780	.361	3626	
03:36	840	.378	3633	
04:36	900	.395	3639	
05:36	960	.410	3649	
06:36	1020	.425	3651	

31681/19

PRODUCTION TEST SUMMARY

D-13

Well WHITING-2 Test 3 (RE-RUN) Date 26-06-85

Test Data:

1. Interval 2627.0 - 2634.0m
2. Produced fluid OIL
3. Cumulative influx 195 (STB)
4. Estimated influx 210 (STB/D)
5. Length of flow period 23 (hr)
6. Choke 32 (64ths)
7. Gravity of oil or condensate 40 (°API @ 60°F)
8. GOR or Condensate - Gas Ratio 1500 (SCF/STB)
9. Water cut 0.5 (%)
10. Chlorides SAMPLES TOO SMALL TO MEASURE (ppm)
11. H₂S NIL (ppm)
12. CO₂ 12 (%)
13. Stabilized flowing wellhead pressure APPROX 100 (psig)
14. Stabilized flowing wellhead temperature 57 (°F)
15. Wellhead pressure at end of buildup 350 (psig)
16. Initial reservoir pressure 3750 (psia) @ 2630 (m)
17. Final flowing pressure 900 (psia) @ 2597 (m)
18. Estimated Productivity index 0.07 (STB/D)
psi
19. Maximum bottom-hole temperature 245 (°C) @ 2597 (m) MDKB
20. Samples taken: HALF HOURLY WELLHEAD CRUDE SAMPLES. (x1 LITRES)
2 x 20 LITRE PRESSURE TANK GAS SAMPLES. 1 x 5 GALLON OIL.
21. Remarks: WELL SLUGGED OIL AND GAS THROUGHOUT FLOW PERIOD

BUILD ANALYSIS

D-14

1. Rate $q = \underline{\hspace{2cm} 200 \hspace{2cm}}$ (STD/D)
2. Horner Time: $\frac{\text{Cumulative production}}{\text{Last Rate}} = 24 \times \frac{\text{(STB)}}{\text{(STB/D)}} = \frac{\underline{\hspace{1cm} 23 \hspace{1cm}}}{\text{TOTAL HOURS ON LINE}}$ (hr)
3. Fluid and reservoir properties:

Viscosity: $\mu = \underline{\hspace{1cm} 0.18 \hspace{1cm}}$ (cp)

Compressibility factor (for gas wells): $z = \underline{\hspace{1cm} - \hspace{1cm}}$

Compressibility: $c = \underline{\hspace{1cm} 10^{-5} \hspace{1cm}}$ (1/psi)

Volume factor: $B = \underline{\hspace{1cm} 1.8 \hspace{1cm}}$ (RB/STB) at pressure of $\underline{\hspace{1cm} 3750 \hspace{1cm}}$ (psi) (by Standing. Seems high - use 1.4)

Thickness: $h = \underline{\hspace{1cm} 23 \hspace{1cm}}$ (ft)

Perforated thickness: $h_p = \underline{\hspace{1cm} 23 \hspace{1cm}}$ (ft)

Porosity: $\phi = \underline{\hspace{1cm} 15 \hspace{1cm}}$ (%)

Wellbore radius: $r_w = \underline{\hspace{1cm} 0.40 \hspace{1cm}}$ (ft)

Bottom-hole temperature: $T = \underline{\hspace{1cm} 242 \hspace{1cm}}$ (°F)
4. Initial pressure: $p_i = \underline{\hspace{1cm} 3715 \hspace{1cm}}$ (psi)
5. Flowing bottom-hole pressure: $p_{wf} = \underline{\hspace{1cm} 900 \hspace{1cm}}$ (psi)
6. Wellbore storage: $\alpha = \underline{\hspace{1cm} 3.8 \times 10^{-4} \hspace{1cm}}$ (RB/psi)

Rathole and tubing to perforations: $\underline{\hspace{1cm} 97.5 \times 3 \times 10^{-6} + 8.4 \times 10^{-5} \hspace{1cm}}$

7. End of afterflow: $\Delta t_{af} = \underline{\hspace{1cm} 75 \hspace{1cm}}$ (min)
8. Middle time region slope: $m = \underline{\hspace{1cm} 520 \hspace{1cm}}$ (psi)
9. Extrapolated pressure: $p^* = \underline{\hspace{1cm} 3900 \hspace{1cm}}$ (psi)
10. Ideal buildup pressure at $t = 1$ hr: $p_{w1} = \underline{\hspace{1cm} 3170 \hspace{1cm}}$ (psi)
11. Permeability-thickness product: $kh = \frac{162.6 \text{ quB}}{m}$

$kh = \frac{162.6 (200) (0.18) (1.4)}{(520)} = \underline{\hspace{1cm} 16 \hspace{1cm}}$ (md-ft)

12. Permeability: $k = \frac{kh}{h} = \frac{(\underline{\hspace{1cm} 16 \hspace{1cm}})}{(\underline{\hspace{1cm} 23 \hspace{1cm}})} = \underline{\hspace{1cm} 0.7 \hspace{1cm}}$ (md)

BUILD ANALYSIS cont'd

D-14

13. Diffusivity: $\eta = \frac{2.637 \times 10^{-4} k}{\phi \mu c}$
 $= \frac{2.637 \times 10^{-4} (0.7)}{(0.15)(0.18)(10^{-5})} = \underline{683} \text{ (ft}^2\text{/hr)}$
14. Average permeability: $\bar{k} = \frac{141.2 q \mu B \ln(r_e/r_w)}{h(p^* - p_{wf})} = (\ln r_e/r_w \approx 6.0-8.0)$
 $\bar{k} = \frac{141.2 (200) (.18) (1.4) \ln(7)}{(23) ((3900) - (900))} = \underline{0.72} \text{ (md)}$
15. Radius of investigation beginning of MTR:
 $R_{ib} = \sqrt{4\eta\Delta} = \sqrt{4(683)(1.25)} = \underline{58} \text{ (ft)}$
16. Skin factor: $s = 1.151 \frac{p_{wl} - p_{wf}}{m} - \log \frac{k}{\phi \mu c r_w^2} + 3.23$
 $s = 1.151 \frac{((3170) - (900))}{(520)} - \log \frac{(0.7)}{(0.15)(0.18)(10^{-4})(0.4)^2} + 3.23$
 $s = 1.151 [(4.37) - (7.2) + 3.23]$
 $s = \underline{0.44}$
17. Pressure drop due to skin:
 $\Delta p_s = 0.87 m s = 0.87 (520) (0.44) = \underline{199} \text{ (psi)}$
18. Flow efficiency: $E = \frac{p^* - p_{wf} - \Delta p_s}{p^* - p_{wf}}$
 $E = \frac{(3900) - (900) - (200)}{(3900) - (900)} = \underline{0.93}$
19. Damage ratio: $DR = \frac{1}{E} = \frac{1}{(0.93)} = \underline{1.07}$
20. Productivity index: $J = \frac{q}{p^* - p_{wf}} = \frac{(200)}{((3900) - (900))} = \underline{0.07} \text{ ((B/D)/psi)}$
21. Closest possible boundary: $L_{cb} \text{ _____ (ft)}$

SEPARATOR SAMPLE DATA

Well WHITING-1 Test 3 (RE-RUN) Date 26/6/85
 Production Interval 2627.0 - 2634.0m
 Initial Reservoir Pressure 3750 psia @ 2630 m
 Reservoir Temperature 242 °C @ 2597 m

	<u>Liquid - Choke Manifold</u>		<u>Gas</u>	
	<u>Sample No. 1</u>	<u>Sample No. 2</u>	<u>Sample No. 1</u>	<u>Sample No. 2</u>
Date	<u>26/06/85</u>		<u>26/06/85</u>	<u>26/06/85</u>
Time Sampled	<u>13:00</u>		<u>13:01</u>	<u>13:10</u>
Length of Time Well was Produced	<u>22.5 hrs</u>		<u>22.5 hrs</u>	<u>22.75 hrs</u>
Container No.	<u>JERRY CAN</u>		<u>A11638</u>	<u>A8623</u>
Container Volume	<u>5 GALLON</u>		<u>20 LITRES</u>	<u>20 LITRES</u>
Separator Pressure	<u>11</u>		<u>11</u>	<u>11</u>
Separator Temperature (°F)	<u>57 (WELLHEAD SAMPLE)</u>		<u>112</u>	<u>112</u>
Wellhead Pressure	<u>100</u>		<u>100</u>	<u>100</u>
Wellhead Temperature (°F)	<u>57</u>		<u>57</u>	<u>57</u>
Flowing Bottom-hole Pressure (psia)	<u>900</u>		<u>900</u>	<u>900</u>
Flowing Bottom-hole Temperature (°C)	<u>242</u>		<u>242</u>	<u>242</u>
Separator Rate (Sep. bbl/D)*	<u>-</u>		<u>-</u>	<u>-</u>
Separator Gas Rate (MSCF/D)	<u>0.35 (AVERAGE)</u>		<u>0.35</u>	<u>0.35</u>
Separator GOR (SCF/Sep. bbl)	<u>-</u>		<u>-</u>	<u>-</u>
Well Rate (STB/D) ⁺	<u>210 (AVERAGE OVER 6 HRS)</u>		<u>210</u>	<u>210</u>
Well GOR (SCF/STB) ⁺	<u>1650</u>		<u>1650</u>	<u>1650</u>
Full Wellstream Water Cut			<u>0.3%</u>	<u>0.3%</u>
How Outage was taken on Liquid Samples			<u>-</u>	

Gas Sampling Method EVACUATED CHAMBER
 Liquid Sampling Method ATMOSPHERIC SAMPLE AT CHOKE MANIFOLD
 Special Instruction for Lab _____

Sampled by BUCKLAND (OTIS) + PRIEST (ESSO)

* Rates based on Meter Readings corrected for Meter Factor Only.
 + Rates corrected to Stock-Tank Conditions as per Form D-7.

APPENDIX 7

APPENDIX 7.

Velocity Survey Report

VELOCITY SURVEY REPORTWHITING-2

Two velocity checkshot surveys were conducted in the Whiting-2 well on May 1, 1985 and May 30, 1985. Twenty one levels from 210 to 3554 mKB were shot using an airgun source. Nineteen levels have been used in the calibration of the sonic log.

1. PROCESSING PARAMETERS

Seismic Reference Datum	:	Mean Sea Level
Elevation SRD	:	0m
Elevation Kelly Bushing	:	20.7m
Elevation Ground Level	:	-53.0m
Well Deviation	:	0 deg
Total Depth	:	3554 mKB
Sonic Log Interval	:	3554-230 mKB
Density Log Interval	:	3554-1235 mKB

2. DATA PROCESSING INFORMATIONOpen Hole Logs

Sonic (3554-230 mKB) and density (3554-1235 mKB) logs were used in the construction of the seismogram. The density curve is subject to poor hole conditions from 3108 to 3313 mKB and has been patched at a constant density of 2.55 gm/cc. The high velocity layer from 2770 to 2850 mKB is interpreted as an evaporite and density variations over this interval were considered to result from poor hole conditions and subsequently a constant density of 2.7 gm/cc has been used.

Source Offset

The checkshot survey was shot in two parts. The shot recorded at 9 metres below SRD by the moonpool hydrophone was used to calculate the gun offset and has not been used in any further calculations. For the first checkshot survey the moonpool hydrophone was 5.5m NE of well giving a source offset of 42.5m. The second survey had the moonpool hydrophone 4.5m NE of well with the source offset 32.5m.

Correction to Datum

The seismic reference datum is at Mean Sea Level. The airgun was positioned 9 m below MSL. Using a water velocity of 1480 m/sec a correction of 6.08 millisecs has been applied to all transit times.

Imposed Shots

An imposed shot was placed at the sea bed using a water velocity of 1480 m/sec between SRD and this depth. An additional shot has been placed at the top of the usable sonic (230 mKB). The interval velocities between the sea floor, top of the sonic and the top checkshot have been selected to maintain a linear drift curve.

Velocity Modelling

An interval velocity of 1480 m/sec has been used between SRD and GL (sea floor). From GL to the top of sonic log 2141 m/sec was used and from top of sonic to the top checkshot 2172 m/sec.

Sonic Calibration Results

The top of the sonic log (230 mKB) was chosen as the origin for the calibration drift curve. All drift measurements are relative to this point.

3. CHECK SHOT DATA

A total of 19 check levels were used to calibrate the sonic log. The two checkshot surveys were shot using different gun offsets. To allow for this, each checkshot survey was processed independently. The calculated vertical travel times from gun to SRD from each survey were then incorporated to form a simulated checkshot survey shot at SRD at the well head. The general data quality was good.

- 3 -

<u>Level Depth</u> (mKB)	<u>Stacked</u> <u>Shots</u>	<u>Rejected</u> <u>Shots</u>	<u>Quality</u>	<u>Comments</u>
Survey #1				
210	0	2	Poor	Level rejected
336	3	0	Good	
500	3	0	Good	
700	4	1	Good	
982	12	0	Good	
1148	3	0	Good	
1273	3	6	Good	
1354	3	0	Good	
1488	3	0	Good	
1665	4	1	Good	
1668	0	3	Poor	Level rejected
Survey #2				
982	2	1	Good	Not used
1665	6	0	Good	Not used
1811	3	0	Good	
2067	3	0	Good	
2253	4	2	Good	
2353	5	1	Good	
2487	8	0	Good	
2628	5	0	Good	
2813	4	1	Good	
2949	8	3	Good	
3122	7	1	Good	
3330	7	1	Good	

1986L/31-3

CHECK SHOT DATA - WHITING 2

<u>LEVEL NUMBER</u>	<u>MEASURED DEPTH FROM KB (m)</u>	<u>VERTICAL DEPTH FROM MSL (m)</u>	<u>OBSERVED TRAVEL TIME (ms)</u>	<u>VERTICAL TRAVEL TIME MSL/ GEOPHONE (ms)</u>	<u>AVERAGE VELOCITY MSL/GEOPHONE (ms)</u>	<u>DELTA DEPTH BETWEEN SHOTS (m)</u>	<u>DELTA TIME BETWEEN SHOTS (ms)</u>	<u>INTERVAL VELOCITY BETWEEN SHOTS (m/s)</u>
1	73.7	53.0	41.3	35.79	1481	262.4	121.84	2154
2	336.1	315.4	153.0	157.63	2001	164.0	65.57	2501
3	500.1	479.4	218.0	223.2	2148	199.9	76.30	2620
4	700.0	679.3	294.0	299.49	2268	282.1	104.19	2707
5	982.1	961.4	398.0	403.69	2382	166.0	55.07	3014
6	1148.1	1127.4	453.0	458.75	2458	124.9	42.04	2971
7	1273.0	1252.3	495.0	500.79	2501	81.1	27.02	3001
8	1354.1	1333.4	522.0	527.81	2526	134.0	52.02	2576
9	1488.1	1467.4	574.0	579.84	2531	176.9	54.03	3274
10	1655.0	1644.3	628.0	633.87	2594	146.0	51.01	2862
11	1811.0	1790.3	679.0	685.04	2613	256.0	77.02	3324
12	2067.0	2046.3	756.0	762.05	2685	186.0	51.01	3646
13	2253.0	2232.3	807.0	813.06	2746	100.0	27.00	3703
14	2353.0	2332.3	834.0	840.07	2776	134.0	39.01	3435
15	2487.0	2466.3	873.0	879.07	2806	141.0	36.01	3916
16	2628.0	2607.3	909.0	915.08	2849	185.0	46.01	4021

1986L/34

195

CHECK SHOT DATA - WHITING 2

<u>LEVEL NUMBER</u>	<u>MEASURED DEPTH FROM KB (m)</u>	<u>VERTICAL DEPTH FROM MSL (m)</u>	<u>OBSERVED TRAVEL TIME (ms)</u>	<u>VERTICAL TRAVEL TIME MSL/ GEOPHONE (ms)</u>	<u>AVERAGE VELOCITY MSL/GEOPHONE (ms)</u>	<u>DELTA DEPTH BETWEEN SHOTS (m)</u>	<u>DELTA TIME BETWEEN SHOTS (ms)</u>	<u>INTERVAL VELOCITY BETWEEN SHOTS (m/s)</u>
17	2813.0	2792.3	955.0	961.08	2905			
18	2949.0	2928.3	985.0	991.09	2955	136.0	30.00	4533
19	3122.0	3101.3	1028.0	1034.09	2999	173.0	43.00	4023
20	3330.0	3309.3	1079.0	1085.10	3050	208.0	51.00	4078

1986L/35

DRIFT COMPUTATION - WHITING-2

<u>LEVEL NUMBER</u>	<u>MEASURED DEPTH FROM KB (m)</u>	<u>VERTICAL DEPTH FROM MSL (m)</u>	<u>VERTICAL TRAVEL TIME MSL/GEOPHONE (ms)</u>	<u>INTEGRATED RAW SONIC TIME (ms)</u>	<u>COMPUTED DRIFT AT LEVEL (ms)</u>	<u>COMPUTED BLK-SHFT CORRECTION (us/m)</u>
1	73.7	53.0	35.80	35.80	0	0
2	336.0	315.3	157.60	155.20	2.40	22.60
3	500.0	479.3	223.20	217.38	5.82	20.90
4	700.0	679.3	299.50	288.31	11.20	26.87
5	982.0	961.3	403.70	388.31	15.39	14.86
6	1148.0	1127.3	458.70	439.72	18.98	21.62
7	1273.0	1252.3	500.80	480.23	20.57	12.72
8	1354.0	1333.3	527.80	506.93	20.87	3.64
9	1488.0	1467.3	579.80	555.96	23.84	22.21
10	1655.0	1644.3	633.00	609.40	24.60	4.30
11	1811.0	1790.3	685.00	656.49	28.51	26.77
12	2067.0	2046.3	762.10	729.82	32.28	14.73
13	2253.0	2232.3	813.10	780.50	32.60	1.71
14	2353.0	2332.3	840.10	808.67	31.43	-11.61
						17.65

1986L/36

DRIFT COMPUTATION - WHITING-2

<u>LEVEL NUMBER</u>	<u>MEASURED DEPTH FROM KB (m)</u>	<u>VERTICAL DEPTH FROM MSL (m)</u>	<u>VERTICAL TRAVEL TIME MSL/GEOPHONE (ms)</u>	<u>INTEGRATED RAW SONIC TIME (ms)</u>	<u>COMPUTED DRIFT AT LEVEL (ms)</u>	<u>COMPUTED BLK-SHFT CORRECTION (us/m)</u>
15	2487.0	2466.3	879.10	845.30	33.80	17.65
16	2628.0	2607.3	915.10	881.85	33.25	-3.90
17	2813.0	2792.3	961.10	929.55	31.55	-9.15
18	2949.0	2928.3	991.10	959.57	31.53	-0.16
19	3122.0	3101.3	1034.10	1003.80	30.30	-7.12
20	3330.0	3309.3	1085.10	1055.01	30.09	-1.05

1986L/37

COMPANY	WELL	DATE	LOCATION	ENGINEER	WITNESSED BY
ESSO	WHITING #2	1.5.85	SEA	D. DAWSON	A. BARRETT
FEET <input type="checkbox"/> METRES <input type="checkbox"/>	JACK UP <input type="checkbox"/> PLATFORM <input type="checkbox"/>	SHIP <input type="checkbox"/> SEMI-SUB <input checked="" type="checkbox"/>	WEATHER:		

SCHLUMBERGER ZERO	AT ELEVATION	20.7m	RELATIVE TO MEAN SEA LEVEL (M.S.L.)
LOG MEASURED FROM	AT ELEVATION	0.0m	RELATIVE TO SCHLUMBERGER ZERO
DRILLING MEASURED FROM	AT ELEVATION	0.0m	RELATIVE TO SCHLUMBERGER ZERO

SOURCE		TIDEL INFORMATION		DISTANCE	HOUR	DATE
GUN TYPE	WATER <input type="checkbox"/> AIR <input checked="" type="checkbox"/>	TIDE LEVEL TO M.S.L. (RECORD IF LEVEL VARIES MORE THAN 2 METRES DURING SURVEY)				
VOLUME	1 x 120 CU INCHES					
PRESSURE	_____ BARS					
VIBRATOR TYPE	_____					
SWEEP LENGTH	_____ SECONDS					
FROM	_____ HZ TO _____ HZ					
			CSU SOFTWARE VERSION:	MAX. HOLE DEV:	AZIM:	

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

UNCORRECTED RESULTS

Quality: G = Good, P = Poor, U = Unsatisfactory

SHOT NO.	DEPTH	GUN PRESSURE	FILTERS	TRANSIT TIME	HOUR SHOT	FILE	STACK	STACKED SHOTS	QUALITY / REMARKS
CHECKSHOT SURVEY #1									
	30					1	1	1,2,3,4,5	
	30					2	3	8,9,10,11,12,13	
	982					4	4	18,19,20	
	1665					7	5	24,25,26,27,28	
	1488					7	6	29,30,31	
	1354					7	7	32,33,34	
	1354					7	8	33,34,35,36,37,38,39	
	1273					7	9	40,41,42	
	1148					7	10	43,44,45	
	982					7	11	46,47,48,49,50	
	700					7	12	52,53,55	
	500					7	13	56,57,58	
	336					7	14	59,60,61	
CHECKSHOT SURVEY #2									
	29.8					1	1	1,2,3,4,5,	
	29.8					1	2	6,7,8	
	1665					3	3	9,10,11	
	3330					5	4	12,13,14	
	3330					5	5	15,16,17,18,19	
	3112					5	6	25,26,27	
	2949					5	7	33,34,35	
	2949					5	8	36,37,38	
	2813					5	9	39,40,41,42,43	
	2628					5	11	44,45,46,47,48	
	2487					5	12	54,55,56	
	2353					5	16	57,58,59	
	2353					5	17	60,61,62	
	2253					5	18	66,67,68	
	2067					5	19	69,70,71	
	1811					5	20	72,73,74	
	1665					5	21	75,76,77	
	982					5	22	78,79,80	

Distribution: White = computing centre; Green = District; Pink = Location



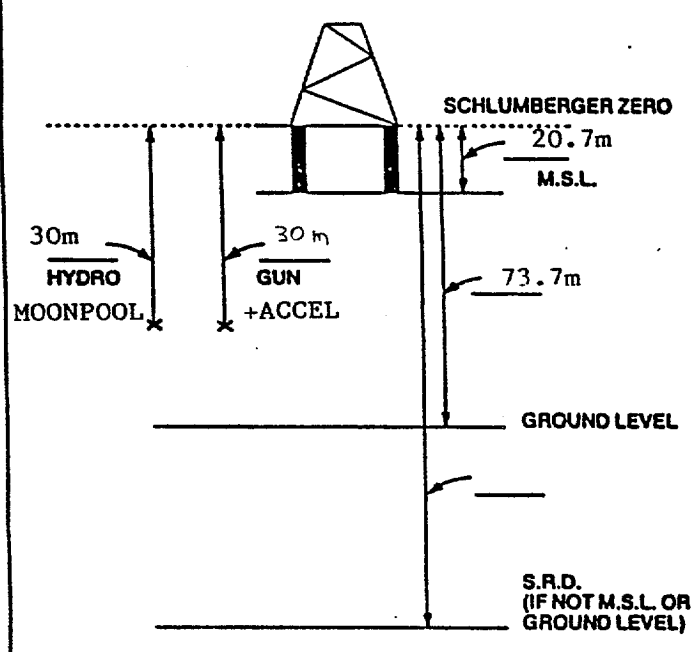
IN GEOMETRY SKETCH

CLIENT: ESSO AUSTRALIA LTD.

WELL: WHITING #2

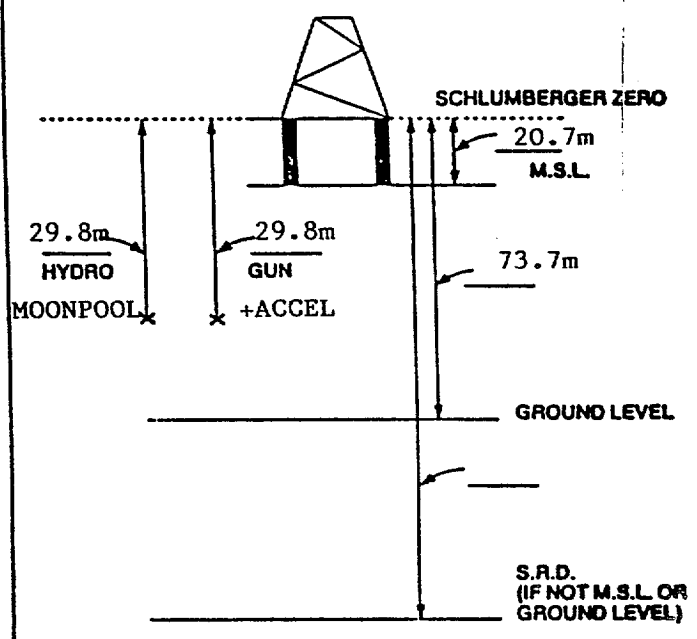
1.5.85
DATE: 30.5.85

Checkshot survey #1



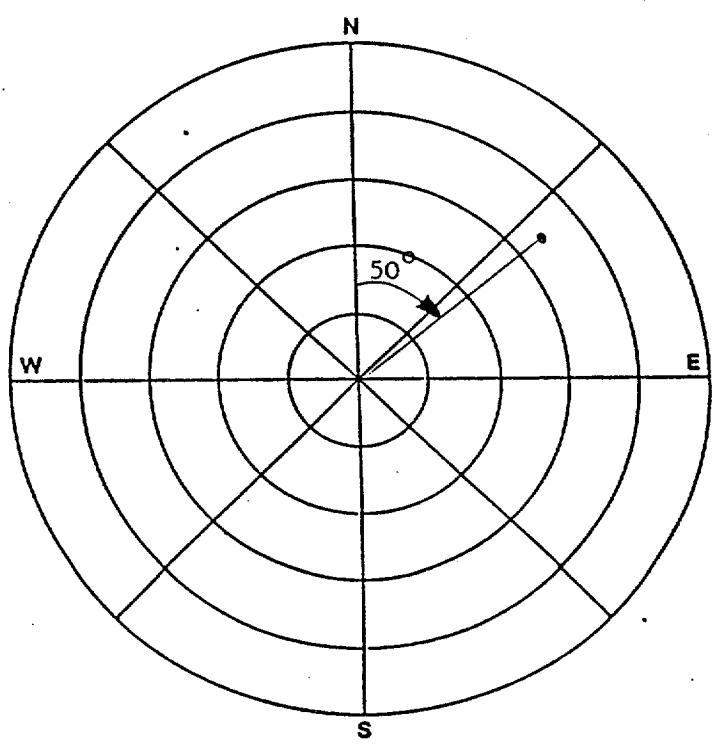
INDICATE ALL DISTANCES RELATIVE TO SCHLUMBERGER ZERO

Checkshot survey #2



INDICATE ALL DISTANCES RELATIVE TO SCHLUMBERGER ZERO

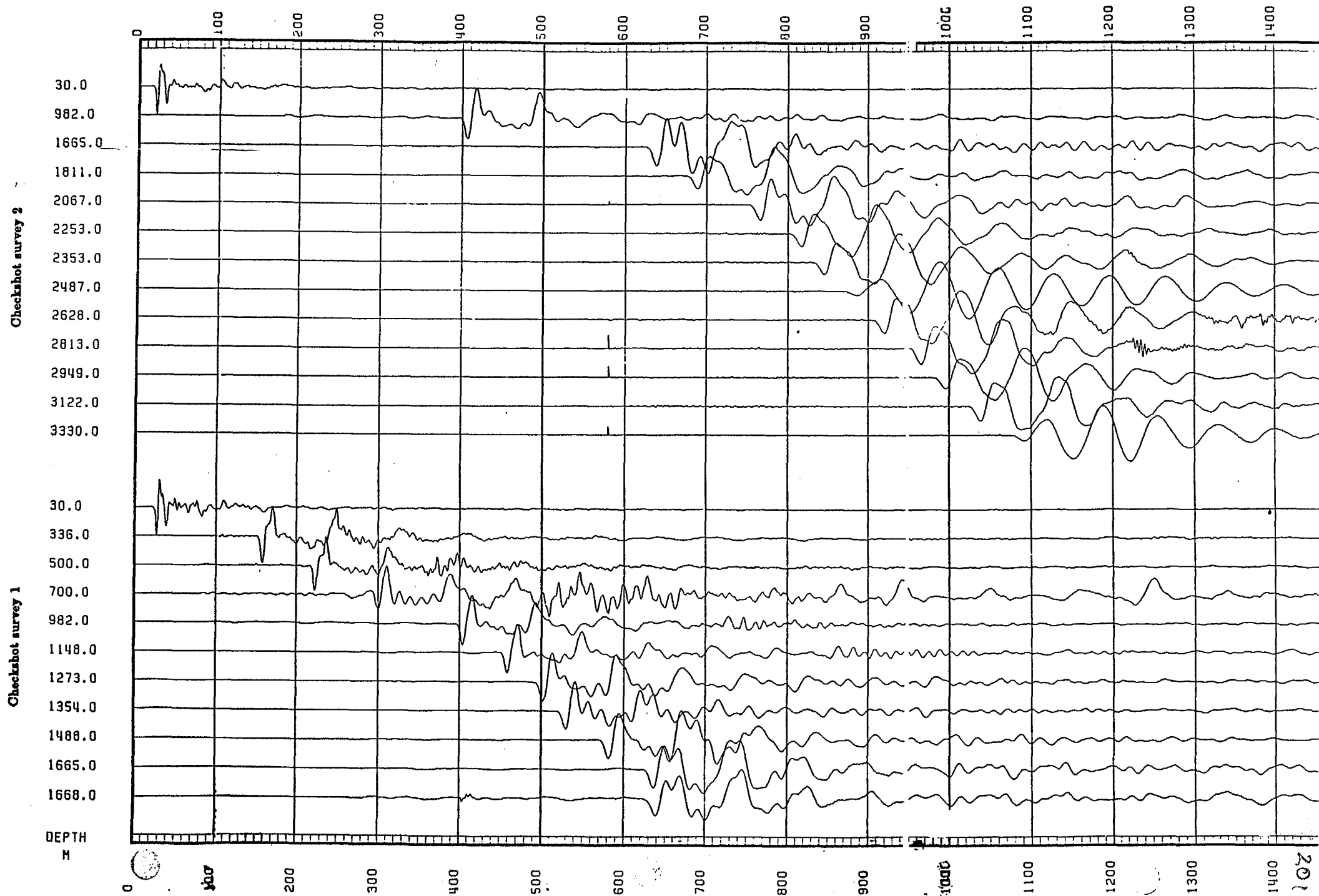
SHOT POS'N	GUN OFFSET	Accel	
		HYDRO OFFSET	HYDRO DEPTH
1	42.5	42.5	9
2	32.5	32.5	9
3			
4			
5			
6			
7			



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

STACKED CHECK SHOT DATA

Fig. 1



PE601167

This is an enclosure indicator page.
The enclosure PE601167 is enclosed within the
container PE902404 at this location in this
document.

The enclosure PE601167 has the following characteristics:

ITEM_BARCODE = PE601167
CONTAINER_BARCODE = PE902404
NAME = Seismic Calibration Log
BASIN = GIPPSLAND
PERMIT = VIC/L2
TYPE = WELL
SUBTYPE = VELOCITY_CHART
DESCRIPTION = Seismic Calibration Log Adjusted
Continuous Data, CPI, (enclosure from
WCR vol.1) fro Whiting-2
REMARKS =
DATE_CREATED = 16/06/85
DATE_RECEIVED = 14/03/86
W_NO = W903
WELL_NAME = Whiting-2
CONTRACTOR = SCHLUMBERGER
CLIENT_OP_CO = ESSO AUSTRALIA LTD

(Inserted by DNRE - Vic Govt Mines Dept)

PE902405

This is an enclosure indicator page.
The enclosure PE902405 is enclosed within the
container PE902404 at this location in this
document.

The enclosure PE902405 has the following characteristics:

ITEM_BARCODE = PE902405
CONTAINER_BARCODE = PE902404
NAME = Raw&Stacked Shots - Velocity Check Shot
Survey
BASIN = GIPPSLAND
PERMIT = VIC/L2
TYPE = WELL
SUBTYPE = VELOCITY_CHART
DESCRIPTION = Raw&Stacked Shots - Velocity Check Shot
Survey, Run #1, (enclosure from WCR
vol.1) for Whiting-2
REMARKS =
DATE_CREATED = 16/06/85
DATE_RECEIVED = 14/03/86
W_NO = W903
WELL_NAME = Whiting-2
CONTRACTOR = SCHLUMBERGER
CLIENT_OP_CO = ESSO AUSTRALIA LTD

(Inserted by DNRE - Vic Govt Mines Dept)

PE902406

This is an enclosure indicator page.
The enclosure PE902406 is enclosed within the
container PE902404 at this location in this
document.

The enclosure PE902406 has the following characteristics:

- ITEM_BARCODE = PE902406
- CONTAINER_BARCODE = PE902404
- NAME = Raw&Stacked Shots - Velocity Check Shot
Survey
- BASIN = GIPPSLAND
- PERMIT = VIC/L2
- TYPE = WELL
- SUBTYPE = VELOCITY_CHART
- DESCRIPTION = Raw&Stacked Shots - Velocity Check Shot
Survey, Run #2, (enclosure from WCR
vol.1) for Whiting-2
- REMARKS =
- DATE_CREATED = 16/06/85
- DATE_RECEIVED = 14/03/86
- W_NO = W903
- WELL_NAME = Whiting-2
- CONTRACTOR = SCHLUMBERGER
- CLIENT_OP_CO = ESSO AUSTRALIA LTD

(Inserted by DNRE - Vic Govt Mines Dept)

PE902407

This is an enclosure indicator page.
The enclosure PE902407 is enclosed within the
container PE902404 at this location in this
document.

The enclosure PE902407 has the following characteristics:

ITEM_BARCODE = PE902407
CONTAINER_BARCODE = PE902404
NAME = Synthetic Seismogram- Geogram
BASIN = GIPPSLAND
PERMIT = VIC/L2
TYPE = WELL
SUBTYPE = SYNTH_SEISMOGRAM
DESCRIPTION = Synthetic Seismogram- Geogram
(enclosure from WCR vol.1) for
Whiting-2
REMARKS =
DATE_CREATED = 16/06/85
DATE_RECEIVED = 14/03/86
W_NO = W903
WELL_NAME = Whiting-2
CONTRACTOR = SCHLUMBERGER
CLIENT_OP_CO = ESSO AUSTRALIA LTD

(Inserted by DNRE - Vic Govt Mines Dept)