

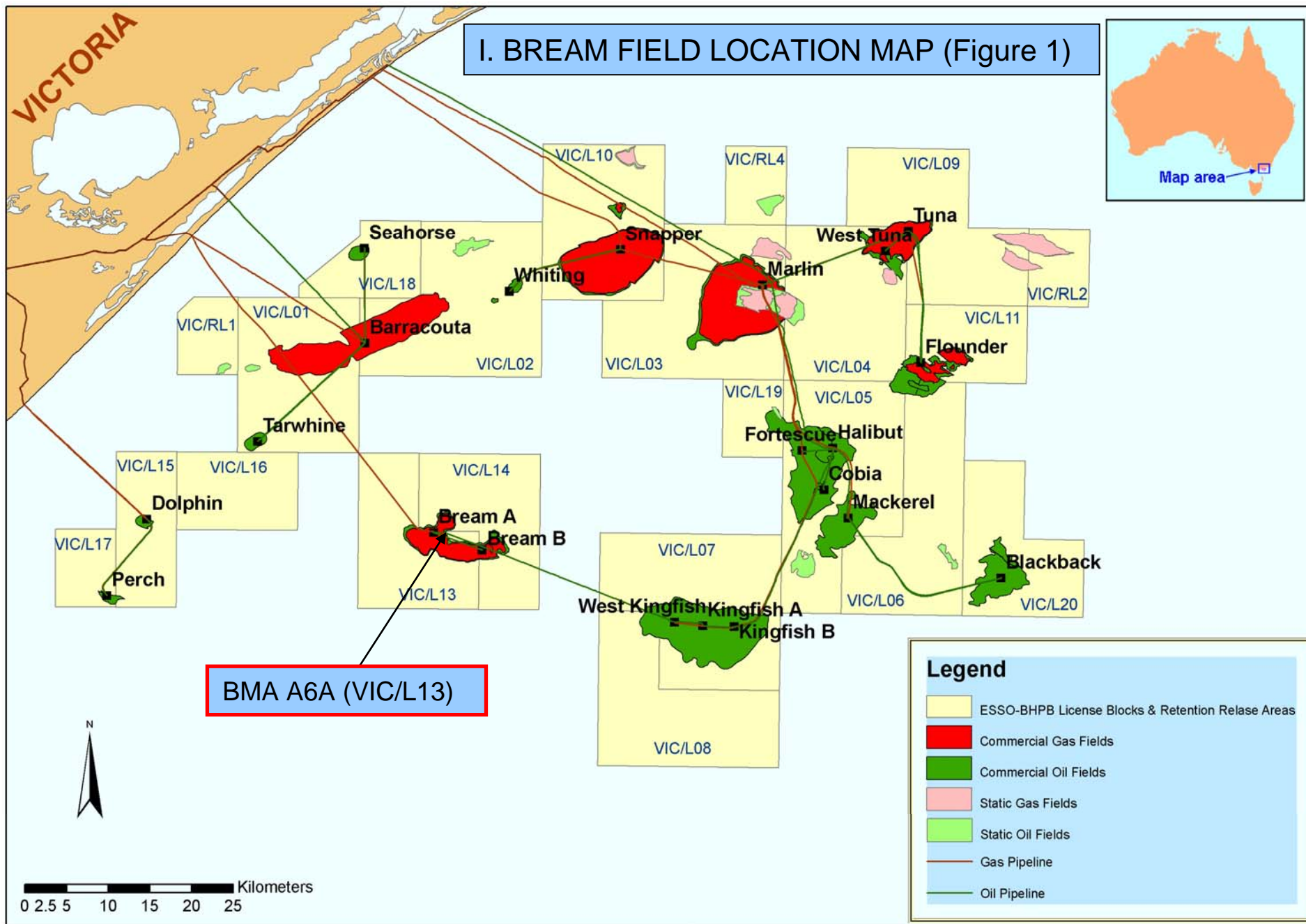
**WELL COMPLETION REPORT**  
**BREAM A6A**  
**GIPPSLAND BASIN, VICTORIA**

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July 2006

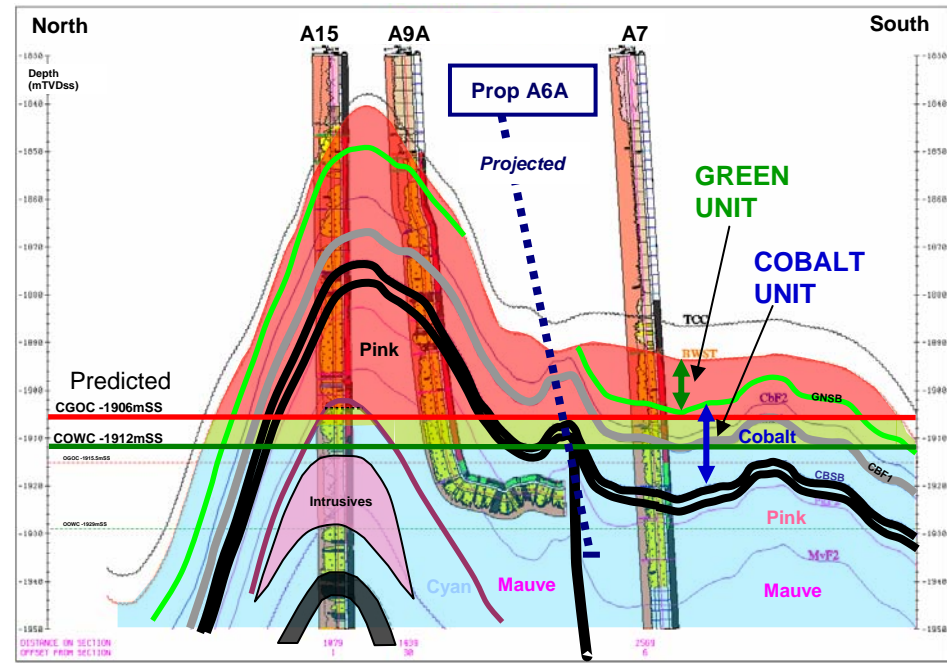
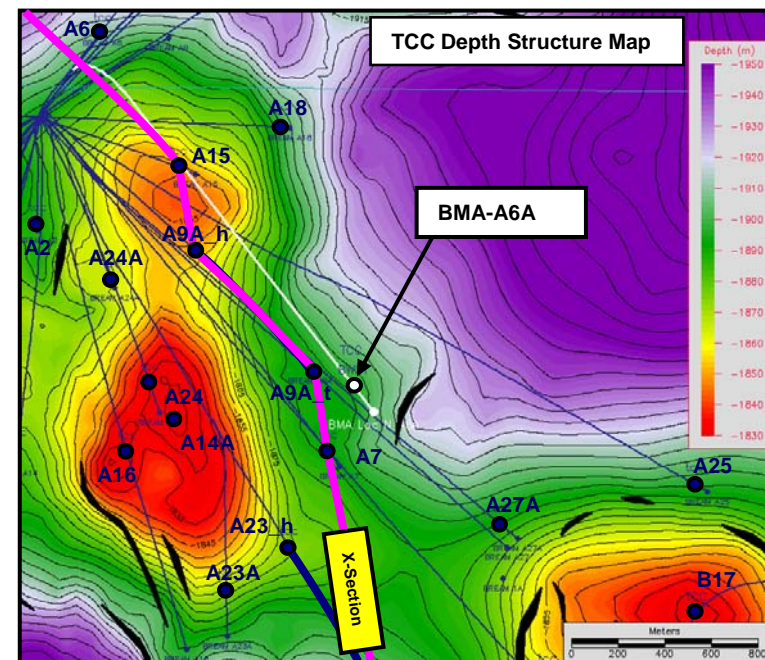
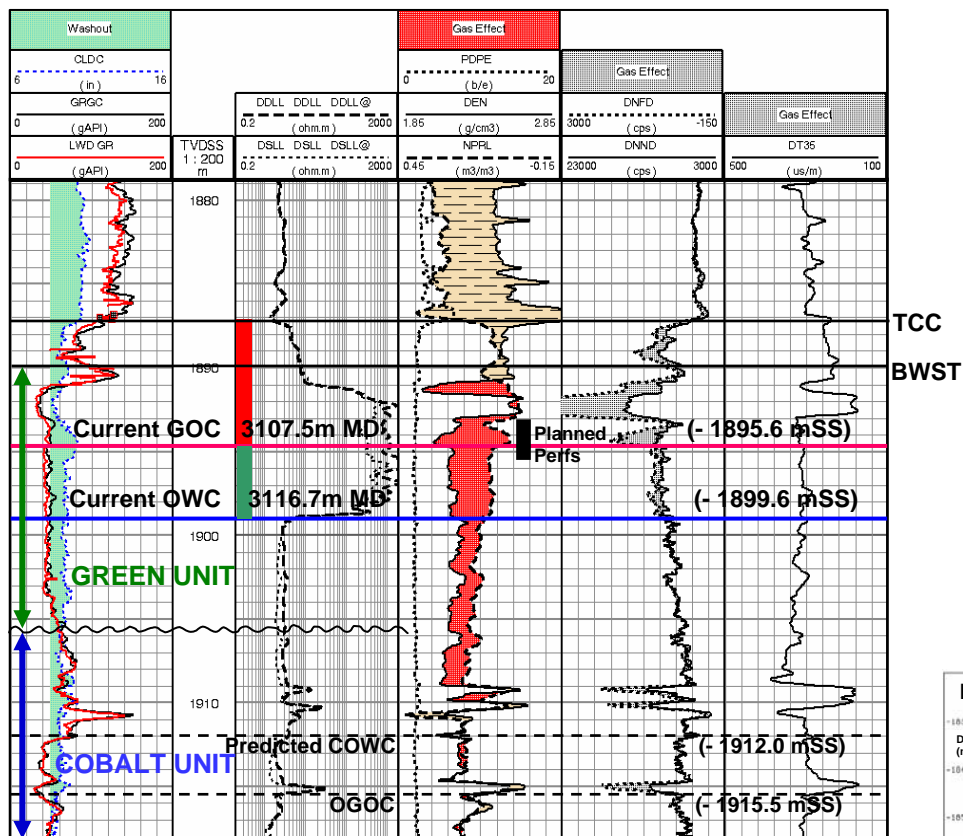
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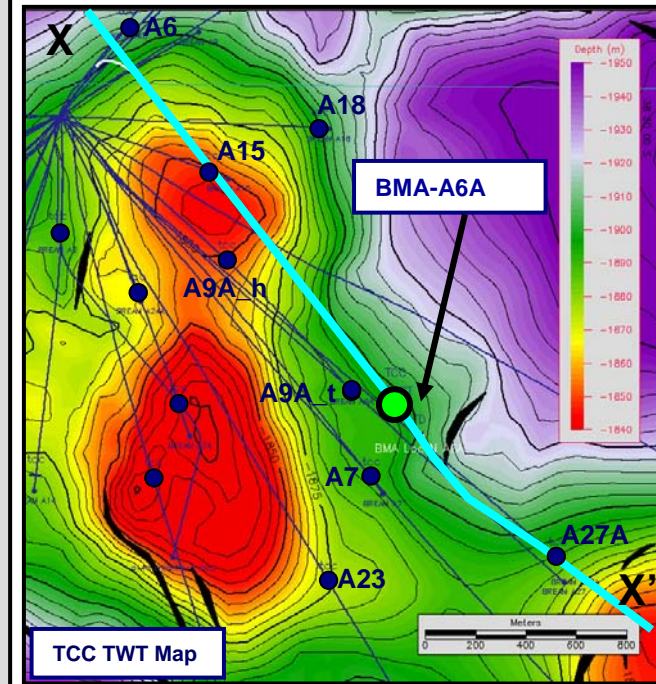
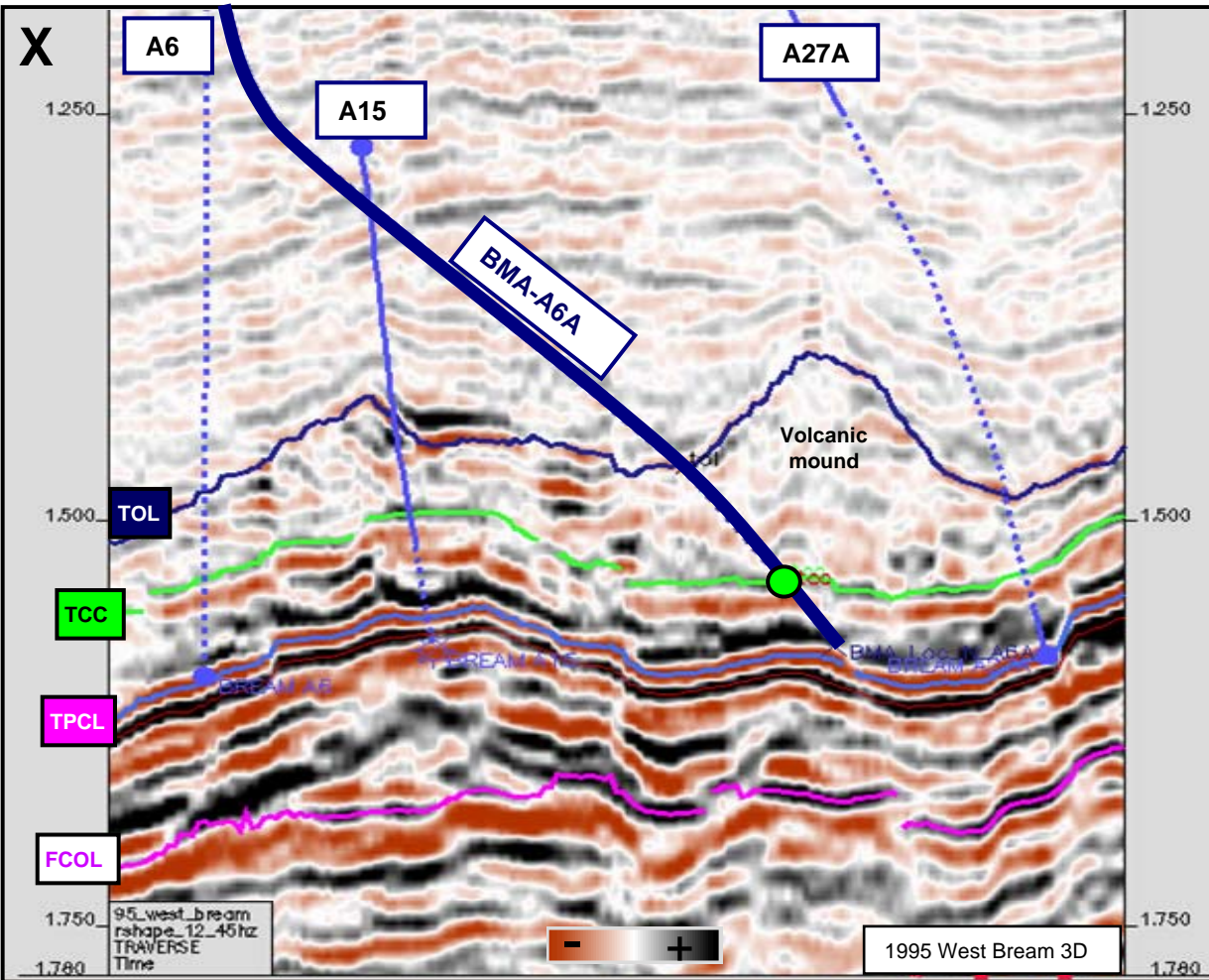


## II. WELL DATA RECORD: BREAM A6A Summary Log, Map & N-1 section (Figure 2)





### III. WELL DATA RECORD: BREAM A6A Seismic Profile through well location (Figure 3)



## II. WELL DATA RECORD (cont'd)

### LOCATION

<b>Field</b>	<b>Bream</b>	<b>Conductor #6 Surface Coordinates</b>	
<b>Well Name</b>	<b>A6A (Loc N)</b>	(GDA94 ) X	567347.1m E
<b>Conductor Number</b>	Slot 6	(MGA94) Y	5738461.5 N
<b>State</b>	Victoria	Latitude	38° 29' 58.784" S
<b>Permit/Licence</b>	Vic/L13	Longitude	147° 46' 20.421" E
<b>Geological Basin</b>	Gippsland	<b>Perforations (driller)</b>	3103.5 – 3107.5m MDRT
<b>Top of Latrobe</b>	2779.5m MDRT		1926.7 – 1928.4m TVDRT
	1792.3m TVDRT		
	-1759.5m TVDSS		
MGA94 X	568512.4m E	<b>Datum</b>	GDA94 (GRS80)
MGA94 Y	5737528.5m N	<b>Projection</b>	Transverse Mercator
Latitude	38° 30' 28.731" S		MGA94/UTM Zone 55 (S)
Longitude	147° 47' 8.854" E		

### ELEVATIONS & DEPTHS

<b>Water Depth</b>	59.40 m
<b>Top Wellhead to MSL</b>	20.81m
<b>Main Deck Rel to MSL</b>	25.12 m
<b>RT Relative to MSL</b>	32.82 m
<b>Average Well Angle</b>	66.5 deg (Tan)
<b>Total Depth</b>	3256.0m MDRT
	1994.7m TVDRT
	-1961.9m TVDSS
<b>Plug Back Depth</b>	3208.0m MDRT

### DATES

<b>Skid Rig</b>	31/01/2006
<b>Kicked Off</b>	02/02/2006
<b>Development Rig Days</b>	20.3
<b>NPT Days</b>	2.49
<b>Rig Released</b>	21/02/2006
<b>I.P. Established</b>	08/05/2006

### MISCELLANEOUS

<b>Operator</b>	Esso Australia Pty Ltd	<b>Contractor</b>	International Sea Drilling Ltd
<b>Esso Interest</b>	50%	<b>Rig Name</b>	Nabors Rig 453
<b>Permittee/Licensee</b>	Esso/BHPP	<b>Equipment Type</b>	Platform
<b>Other Interest</b>	50% J.V. Interest	<b>Completion Type</b>	Single
<b>Overriding Royalty</b>	2.5%	<b>Completion Size</b>	3-1/2"
<b>Drilling AFE No.</b>	L0501G450		

### WELL CLASSIFICATION

<b>Before Drilling</b>	Oil and gas Development	<b>After Drilling</b>	Oil well
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## II. WELL DATA RECORD (cont.)

### CASING RECORD

Type	Size (Inches)	Weight (lb/ft)	Grade	Thread	Depth (mMDRT)
Original A6A Surface	10 <sup>3</sup> / <sub>4</sub>	40.5	K-55	BTC	850.5
Production	7	26	L-80	Vam Top	3253.0

### CEMENTING RECORD

Casing details	Cement Type	Dry Cement Volume (sacks)	Cement Additives	Mix Water  (bbls)	Slurry Volume  (bbls)	Slurry Density  (ppg)	Cement to/from  (m MDRT)	Casing Pressure Test (psi)
7" 26 lb/ft	CLASS G	934	HALAD 413L 30 gal / 10 bbl NF-5 0.5 gal / 10 bbl  CFR-3L 3 gal / 10 bbl  SCR-100L 1.0 gal / 10 bbl	116	193	15.8	2280.0 to 3253.0	2500 for 15 minutes

## II. WELL DATA RECORD (cont.)

### DRILLING PERFORMANCE

### BMA A6A - Final Well Report

#### GENERAL

Platform:	Bream	Rig:	453	Reservoir:	N-1 (TCC)
Well:	A6A	Well Slot:	#6	RT-MSL (Rig453)	32.82
Drilling Complexity Index	3.2	Completion Complexity Index	2.8		

DEPTH		PERFORMANCE		MUD	
m MDRT	3,256.0	20" Cond. Hole	N/A	Max Wt (ppg)	10.1
m TVDRT	1,994.7	12-1/4" Surf. Hole	N/A	Type (Surf. Hole)	N/A
Vert. Section (m)	1,915.6	8-1/2" Prod. Hole	314m/day	Type (Inter. Hole)	N/A
INCLINATION		6" Liner Hole	N/A	Type (Prod. Hole)	KCI/PHPA/Poly/Glycol
Max (deg) / Ave (deg)	67.7/ 66.5 (Tang)	* time to drill interval, incl's Connections & NPT.		Type (Liner Hole)	N/A

Comments: New hole drilled: 851m to 3,256mMDRT (2,405m MDRT drilled).

#### TIME ANALYSIS

Start Date:	31/01/2006, 2100hrs	Finish Date:	21/02/2006, 0500hrs		
Target Days (P10):	17.2	Total Days:	20.3	% Under Target:	18 % (over)
AFE Days (P50):	19.3	NPT Days:	2.49	% of Total Days:	12.2%
Supplementary AFE Days (P50):	N/A				

#### COSTS *(based on projected)*

AFE No.:	L0501G450	Revisions:	--	\$ per m	A \$2.09 k / metre (new hole)
\$ per day:	A\$ 247 k/day	\$ per day (excl. T + L)	A\$ 198 k/day		A\$ 1.54 k / metre*
		* Equipment, LWD & Reeves			* based on TD <b>not</b> new hole

	Equipment	Materials	Contracts	Allocations	Contingency	Total
AFE (Original)	943,000	326,000	2,706,000	832,000	193,000	A\$5,000,000
AFE (Supplement)	943,000	425,000	3,034,000	905,000	193,000	A\$5,500,000
Projected	827,000	536,000	2,579,000	874,000	203,000	A\$5,019,000

#### CASING *(all depths herein are based on Rig 453 elevations: RT-MSL=32.82m)*

	Size / Weight / Grade / Thread	m MDRT	m TVDRT	PIT (ppg)
Conductor Casing *	22"	173	173	N/A
Surface Casing *	10-3/4", 40.5 ppf, K55, BTC	850.5	804	13.0 (PIT)
Prod Casing	7", 26.0 ppf, L80, Vam Top HC	3,253	1,993	N/A

Comments: \* Pre-existing casing strings.

#### COMPLETION

	Size / Weight / Grade / Thread	MMDRT	MTVDRT	Type
Completion	3-1/2", 9.2ppf, 13Cr80, Vam Ace	3,077.7	1,915.4	Single oil

	Upper Interval [m MDRT]	Upper Interval [m TVDRT]	Lower Interval [mMDRT]	Lower Interval [mTVDRT]	Gun Type
Perforation Interval:	3103.5-3107.5	1926.6-1928.4	NA	NA	MAXR

Comments: Completion was 3-1/2" 13Cr80 with TR-SSSV and 3 SPMs for gas lift, and one packer set at 3,058m MDRT.

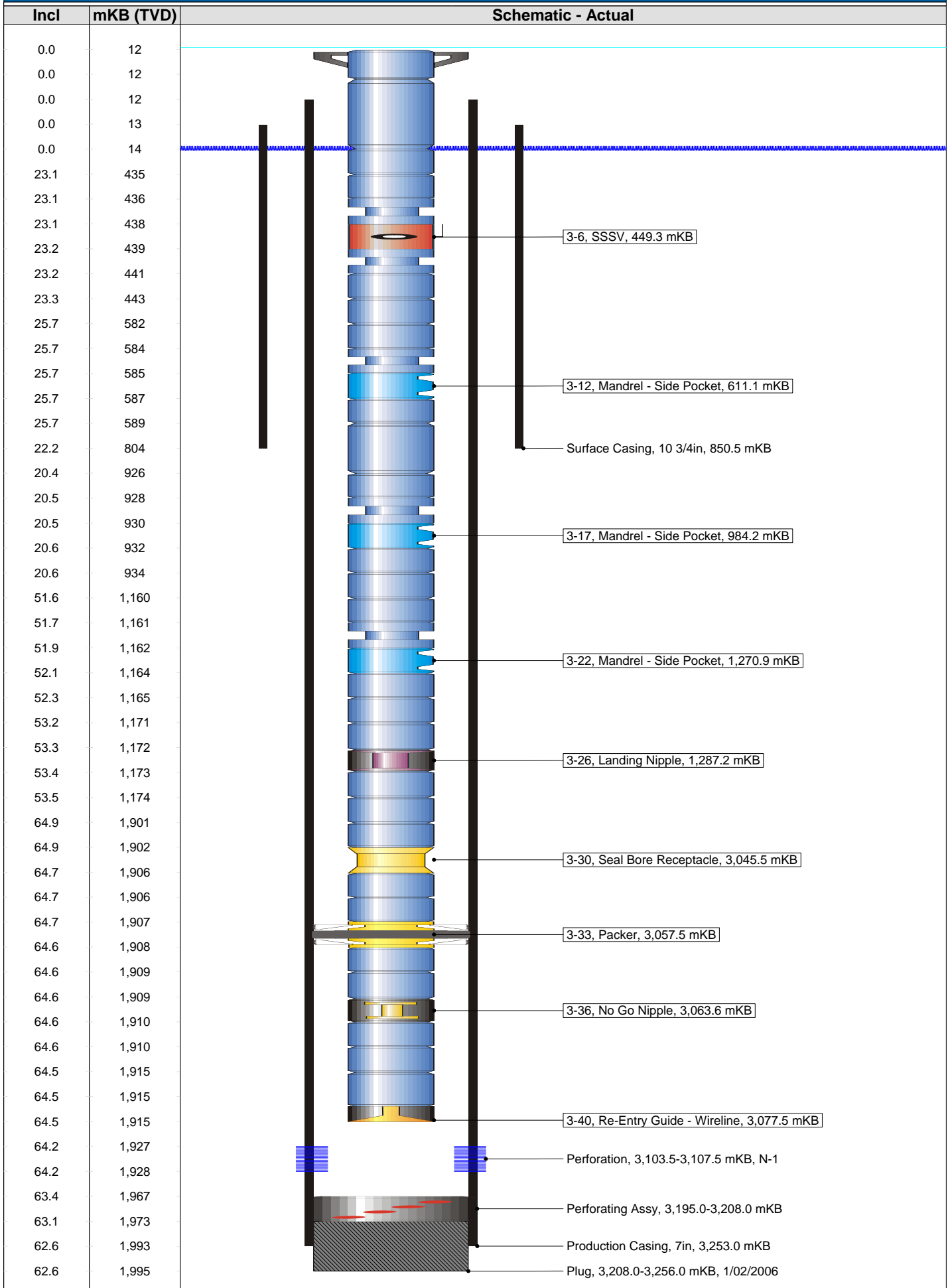
#### ADDITIONAL

		Upper Interval [m MDRT]	Lower Interval [m MDRT]
Logs Run	GR-Resistivity-Density-Neutron-Sonic-Caliper	850	3,253

Comments: The 8-1/2" hole interval was logged using the Reeves well shuttle system. All data was retrieved on first attempt.



# Bream A6A: Existing Schematic



### III. SAMPLES

The cuttings sampling programme for BREAM A6A are detailed in the following table:

Interval	Formation	Sampling Details
<b>KOP</b> to 150 m above Top of Latrobe (prognosed at 2735.9 mMDRT) to <b>Total Depth (TD)</b>  2720.0 – 3256.0 mMDRT	Lakes Entrance	Cuttings samples for description only at 30 m intervals.
150 m above Top of Latrobe to Top of Latrobe (prognosed at 2735.9 mMDRT)  2580.0 – 2720.0 mMDRT	Latrobe Group	Three sets of washed and oven dried cuttings at 10 m intervals.
Top of Latrobe (prognosed at 2593.1 mMDRT) to <b>Total Depth (TD)</b>  2720.0 – 3256.0 mMDRT	Latrobe Group / Coarse Clastics	Three sets of washed and oven dried cuttings at 5 m intervals.

Detailed cuttings descriptions for the interval 855.0 to 3256.0 mMDRT (TD) are contained in Appendix 3a.

#### CONVENTIONAL CORING

No conventional cores were cut in BREAM A6A.

#### SIDEWALL CORING

No sidewall core samples were shot in BREAM A6A.

## IV. LOGS AND SURVEYS

Survey/Log	Company	Top (m MDRT)	Bottom (m MDRT)
MWD Run 1, Powerpulse (Directional & GR)	Schlumberger/Anadrill	855.0	3234.7
Run 1: Compact Logging MCG-MDN-MPD-MSS-MDL	Reeves (Precision Logging) Compact wireline tools run on drillpipe (Shuttle System, memory mode)	850.5	3246.0

(Reeves logs = memory/compact GR-Dual Neutron-Photo Density -Sonic -Dual Laterolog

## V. FORMATION RESERVOIR TOPS

Horizon	m TVDSS			m MDRT  ACTUAL	mTVT HC Column	
	Predicted Tops	ACTUAL	Diff. (m)		Predicted	ACTUAL
Lakes Entrance Form.	874.0	875.4	1.5 L	961.5	-	-
Top of Latrobe (TOL)	1745.5	1759.5	14.0 L	2779.5	-	-
Top of Coarse Clastics (TCC)	1889.3	1888.1	1.2 H	3090.3	-	-
Base of Waste (BWST)	1896.1	1891.5	4.6 H	3098.2	9.9m gross	4.0m gross
newGnF2	1896.6	1891.5	5.1 H	3098.2	gas	(3.0m net) gas
Current GOC	1906.0	1895.6	10.4 H	3107.5	6.0m gross	4.0m gross
Current OWC	1912.0	1899.6	12.4 H	3116.7	oil	(4.0m) net oil
newGnsb	1902.2	1905.8	3.6 L	3130.9	-	-
newCbF2	1910.2	1911.6	1.4 L	3144.1	-	-
newCbF1	1914.6	1915.5	0.9 L	3153.1	-	-
newCbsb	1919.6	1932.0	12.4 L	3190.3	-	-
newPkf2	-	1934.3	-	3195.4	-	-
newPkf1	1931.9	1939.9	8.0 L	3208.1	-	-
newPksb	1940.2	1948.3	8.1 L	3226.4	-	-
newMvSB	1956.0	-	-	Not penetrated	-	-
Total Depth (TD)	1959.0	1961.9	2.9 L	3256.0	-	-

## VI. GEOLOGICAL ANALYSIS - BREAM A6A

### Objectives

BMA-A6A was designed to capture N-1 oil reserves on the east flank of the Bream A field (see Figure 1). The well was targeted to intersect a mapped structural nose, set up by an intra-Latrobe horst near the toe of the A9A horizontal well (see Figure 2). The oil column in this area was predicted to be largely undrained within the Cobalt & Green units (Fig. 2). The BMA-A6A well was expected to encounter a similar stratigraphy to that observed in the up-dip A7 producer which penetrated well developed Green, Cobalt and Pink reservoir sands.

### Results

The Bream A6A well was spudded on 2<sup>nd</sup> February, 2006 from 855.0 mMDRT, out of the 10-3/4" surface casing after the production casing was cut and pulled from 925.0mMDRT and a kick off plug set at 771.0 mMDRT. The well was drilled to a total depth of 3256.0 mMDRT (-1961.9mSS) in a 8-1/2" production hole. The well was logged with the Precision Energy Services compact shuttle system. After running 7" production casing, the well was completed with 3½" completion tubing and perforated from 3103.5 – 3107.5 mMDRT (1893.8 – 1895.6 m TVDss). Initial production established on 8<sup>th</sup> May, 2006.

The A6A well intersected the edge of a mapped volcanic mound (see Figure 3) at the Top of Latrobe Group (TOL). The TOL was intersected at 2779.5 mMDRT (-1759.5 mSS), 14.0m TVD low to prediction. A thick (128.6 mTVD) Gurnard Formation interval comprised mainly of volcanics, with some siltstone towards the base, was drilled before the well intersected the Top of Coarse Clastics (TCC) at 3090.3 m MDRT (-1888.1 mSS), 1.2m high to prognosis.

The formation tops within the N-1 reservoir section were intersected between 5m high and 12.4m low to prognosis reflecting minor depositional thickness variations on the flank of the Bream structure. The primary reservoir objectives (Green and Cobalt sandstone units) were present and well developed as predicted from nearby control.

Petrophysical analysis of the wireline logs indicates a 4.0 mTVD gross (3.0 mTVD net) gas section below the Base of Waste (BWST, Fig 2) with an average porosity of 22% and an average gas saturation of 95%. The current gas-oil contact (GOC) is interpreted at 3107.5 mMD (-1895.6 mTVDss) and lies within the upper portion of the Green Unit. The GOC was intersected 10.4m high to prognosis suggesting a greater degree of vertical oil column movement than anticipated. A 4.0 mMD gross (4.0 mTVD net) oil column was intersected within the Green Unit, with an oil-water contact interpreted from logs at 3116.7 mMD (-1899.6 mTVDss), some 12.4m high to prognosis. This compares to a most likely, pre-drill predicted oil column thickness of 6 mTVD. The average porosity and hydrocarbon saturations within the oil leg are 23% and 95% respectively. The slightly thinner oil column intersection (i.e. 4 mTVD net) at BMA-A6A suggests slightly more production within these units from the up-dip producers. The lower portion of the Green unit and the



## **VI. GEOLOGICAL ANALYSIS - BREAM A6A (cont'd)**

entire Cobalt unit are interpreted to contain residual oil and gas saturations, indicating fully 'swept' zones. The Pink unit, intersected below the original field OWC was found to be water bearing as expected.

## **APPENDIX 1a**

### **BREAM A6A**

#### **Survey Data**



## BMA A-6A Final Geodetic Survey

Report Date: February 28, 2006	Survey / DLS Computation Method: Minimum Curvature / Lubinski
Client: Esso Australia Pty Ltd	Vertical Section Azimuth: 131.690°
Field: Bream A GDA 94	Vertical Section Origin: S 0.970 m, E 10.620 m
Structure / Slot: Bream A / 6	TVD Reference Datum: RKB
Well: 6	TVD Reference Elevation: 32.8 m relative to MSL
Borehole: BMA A-6A	Sea Bed / Ground Level Elevation: -59.400 m relative to MSL
UWI/API#:	Magnetic Declination: 13.068°
Survey Name / Date: BMA A-6A Final / January 31, 2006	Total Field Strength: 60134.495 nT
Tort / AHD / DDI / ERD ratio: 161.603° / 2248.52 m / 6.289 / 1.127	Magnetic Dip: -69.035°
Grid Coordinate System: GDA94/MGA94 Zone 55	Declination Date: January 31, 2006
Location Lat/Long: S 38 29 58.784, E 147 46 20.421	Magnetic Declination Model: BGGM 2005
Location Grid N/E Y/X: N 5738461.490 m, E 567347.120 m	North Reference: Grid North
Grid Convergence Angle: -0.48080699°	Total Corr Mag North -> Grid North: +13.549°
Grid Scale Factor: 0.99965585	Local Coordinates Referenced To: Structure Reference Point

Comments	Measured Depth (m)	Inclination (deg)	Azimuth (deg)	TVD (m)	Vertical Section (m)	NS (m)	EW (m)	DLS (deg/30 m)	Northing (m)	Easting (m)	Latitude	Longitude
Tie-In	0.00	0.00	0.00	0.00	0.00	-0.97	10.62	0.00	5738461.49	567347.12	S 38 29 58.784	E 147 46 20.421
	60.00	0.00	0.00	60.00	0.00	-0.97	10.62	0.00	5738461.49	567347.12	S 38 29 58.784	E 147 46 20.421
	89.32	0.25	335.50	89.32	-0.06	-0.91	10.60	0.26	5738461.55	567347.09	S 38 29 58.782	E 147 46 20.420
	104.32	1.00	33.50	104.32	-0.10	-0.77	10.66	1.79	5738461.69	567347.15	S 38 29 58.777	E 147 46 20.423
	119.32	2.50	42.50	119.31	-0.12	-0.42	10.95	3.04	5738462.04	567347.45	S 38 29 58.766	E 147 46 20.435
	134.32	4.00	44.50	134.29	-0.09	0.19	11.54	3.01	5738462.65	567348.03	S 38 29 58.746	E 147 46 20.459
	144.32	5.25	44.00	144.25	-0.05	0.77	12.10	3.75	5738463.23	567348.59	S 38 29 58.727	E 147 46 20.482
	188.32	7.00	41.96	188.00	0.04	4.21	15.29	1.20	5738466.67	567351.79	S 38 29 58.614	E 147 46 20.612
	197.32	7.60	39.56	196.93	0.02	5.08	16.04	2.24	5738467.54	567352.53	S 38 29 58.586	E 147 46 20.643
	206.32	8.00	36.06	205.85	-0.06	6.04	16.78	2.07	5738468.50	567353.28	S 38 29 58.554	E 147 46 20.673
	215.32	8.60	31.06	214.75	-0.25	7.13	17.50	3.13	5738469.58	567353.99	S 38 29 58.519	E 147 46 20.702
	224.32	9.50	29.66	223.64	-0.53	8.35	18.21	3.09	5738470.81	567354.71	S 38 29 58.479	E 147 46 20.731
	234.32	10.40	30.06	233.49	-0.88	9.85	19.07	2.71	5738472.30	567355.57	S 38 29 58.431	E 147 46 20.766
	243.32	10.60	29.66	242.34	-1.22	11.27	19.89	0.71	5738473.72	567356.38	S 38 29 58.384	E 147 46 20.800
	252.32	11.10	30.06	251.18	-1.56	12.74	20.74	1.69	5738475.19	567357.23	S 38 29 58.336	E 147 46 20.834
	261.32	11.60	31.76	260.00	-1.89	14.26	21.65	2.01	5738476.71	567358.14	S 38 29 58.287	E 147 46 20.871
	270.32	12.30	31.06	268.81	-2.23	15.85	22.62	2.38	5738478.30	567359.11	S 38 29 58.235	E 147 46 20.910
	298.32	14.80	30.06	296.02	-3.50	21.50	25.95	2.69	5738483.95	567362.44	S 38 29 58.051	E 147 46 21.046
	316.32	16.00	31.76	313.38	-4.39	25.60	28.40	2.14	5738488.05	567364.89	S 38 29 57.917	E 147 46 21.146
	335.32	17.20	32.16	331.59	-5.31	30.20	31.28	1.90	5738492.65	567367.77	S 38 29 57.767	E 147 46 21.263
	353.32	18.30	32.46	348.73	-6.20	34.84	34.21	1.84	5738497.29	567370.70	S 38 29 57.616	E 147 46 21.382
	371.32	19.70	33.56	365.75	-7.08	39.75	37.41	2.41	5738502.20	567373.89	S 38 29 57.456	E 147 46 21.512
	390.32	21.30	33.16	383.54	-8.05	45.31	41.06	2.54	5738507.76	567377.55	S 38 29 57.274	E 147 46 21.661
	407.32	22.10	32.16	399.34	-9.04	50.60	44.45	1.56	5738513.05	567380.94	S 38 29 57.102	E 147 46 21.800
	435.32	22.80	30.76	425.22	-10.94	59.72	50.03	0.94	5738522.16	567386.52	S 38 29 56.805	E 147 46 22.027
	455.32	23.30	32.86	443.62	-12.28	66.38	54.16	1.44	5738528.81	567390.64	S 38 29 56.588	E 147 46 22.195
	474.32	23.80	34.26	461.04	-13.35	72.70	58.36	1.18	5738535.14	567394.84	S 38 29 56.381	E 147 46 22.366
	512.32	24.40	32.46	495.73	-15.60	85.66	66.89	0.75	5738548.09	567403.36	S 38 29 55.959	E 147 46 22.713
	532.32	24.80	33.56	513.91	-16.86	92.64	71.42	0.91	5738555.07	567407.90	S 38 29 55.731	E 147 46 22.898
	549.32	24.80	34.56	529.34	-17.80	98.55	75.42	0.74	5738560.98	567411.89	S 38 29 55.539	E 147 46 23.061
	569.32	24.90	34.96	547.49	-18.82	105.46	80.21	0.29	5738567.88	567416.68	S 38 29 55.313	E 147 46 23.256
	588.32	25.40	34.26	564.69	-19.81	112.10	84.79	0.92	5738574.52	567421.27	S 38 29 55.097	E 147 46 23.443
	607.32	25.70	36.06	581.83	-20.74	118.80	89.51	1.31	5738581.22	567425.98	S 38 29 54.878	E 147 46 23.635
	636.32	25.60	36.76	607.97	-21.90	128.90	96.96	0.33	5738591.32	567433.43	S 38 29 54.548	E 147 46 23.939
	664.32	25.00	36.76	633.29	-22.93	138.49	104.13	0.64	5738600.90	567440.59	S 38 29 54.236	E 147 46 24.232
	693.32	24.40	37.06	659.64	-23.94	148.18	111.40	0.63	5738610.59	567447.87	S 38 29 53.919	E 147 46 24.529
	721.32	24.20	37.76	685.15	-24.80	157.33	118.40	0.38	5738619.74	567454.86	S 38 29 53.621	E 147 46 24.814
	750.32	23.90	37.46	711.64	-25.64	166.69	125.62	0.34	5738629.10	567462.07	S 38 29 53.315	E 147 46 25.109
	778.32	23.50	36.76	737.28	-26.54	175.67	132.41	0.52	5738638.07	567468.86	S 38 29 53.022	E 147 46 25.386
	807.32	23.00	38.16	763.92	-27.38	184.75	139.37	0.77	5738647.15	567475.82	S 38 29 52.726	E 147 46 25.670
Tie-in	841.32	22.30	39.16	795.30	-28.08	194.98	147.55	0.70	5738657.37	567483.99	S 38 29 52.392	E 147 46 26.004
	855.00	22.13	38.44	807.97	-28.34	199.01	150.79	0.70	5738661.40	567487.24	S 38 29 52.260	E 147 46 26.136
	881.48	18.78	55.18	832.79	-27.63	205.36	157.39	7.60	5738667.75	567493.84	S 38 29 52.052	E 147 46 26.407
	910.21	18.78	69.84	860.01	-24.36	209.60	165.54	4.92	5738671.98	567501.98	S 38 29 51.913	E 147 46 26.741
	938.83	20.33	77.43	886.98	-19.28	212.27	174.72	3.12	5738674.65	567511.16	S 38 29 51.824	E 147 46 27.119
	967.54	20.08	85.18	913.93	-12.98	213.77	184.50	2.81	5738676.15	567520.93	S 38 29 51.772	E 147 46 27.522
	996.45	20.83	93.13	941.02	-5.54	213.90	194.58	2.98	5738676.29	567531.01	S 38 29 51.765	E 147 46 27.938
	1025.13	23.00	97.88	967.63	3.10	212.85	205.22	2.93	5738675.24	567541.65	S 38 29 51.796	E 147 46 28.378

1053.95	26.13	102.74	993.84	13.34	210.68	216.99	3.88	5738673.07	567553.42	S 38 29 51.864	E 147 46 28.864
1082.41	28.28	109.02	1019.15	25.05	207.10	229.48	3.78	5738669.49	567565.90	S 38 29 51.976	E 147 46 29.381
1111.11	30.81	115.02	1044.13	38.37	201.78	242.57	4.07	5738664.17	567578.99	S 38 29 52.145	E 147 46 29.923
1139.28	34.11	120.35	1067.90	53.03	194.73	255.93	4.65	5738657.12	567592.35	S 38 29 52.370	E 147 46 30.477
1168.44	38.85	125.48	1091.34	70.15	185.28	270.45	5.80	5738647.68	567606.86	S 38 29 52.673	E 147 46 31.079
1197.36	43.23	127.94	1113.15	89.06	173.92	285.66	4.84	5738636.32	567622.06	S 38 29 53.037	E 147 46 31.710
1226.15	47.11	129.25	1133.44	109.45	161.18	301.60	4.16	5738623.59	567638.00	S 38 29 53.446	E 147 46 32.373
1254.76	50.44	130.82	1152.30	130.95	147.34	318.07	3.70	5738609.75	567654.46	S 38 29 53.890	E 147 46 33.057
1283.33	53.02	132.06	1169.99	153.38	132.49	334.88	2.90	5738594.91	567671.27	S 38 29 54.367	E 147 46 33.756
1311.72	55.20	133.75	1186.63	176.37	116.83	351.72	2.72	5738579.25	567688.10	S 38 29 54.870	E 147 46 34.457
1340.66	57.84	135.42	1202.60	200.47	99.89	368.91	3.09	5738562.31	567705.28	S 38 29 55.415	E 147 46 35.172
1368.90	60.92	137.54	1216.98	224.69	82.26	385.64	3.80	5738544.69	567722.00	S 38 29 55.982	E 147 46 35.868
1397.94	64.27	139.51	1230.35	250.28	62.95	402.70	3.90	5738525.38	567739.06	S 38 29 56.604	E 147 46 36.579
1426.45	64.06	140.07	1242.77	275.68	43.35	419.27	0.57	5738505.79	567755.62	S 38 29 57.235	E 147 46 37.270
1455.43	64.16	140.75	1255.43	301.45	23.26	435.88	0.64	5738485.71	567772.23	S 38 29 57.882	E 147 46 37.962
1484.13	65.48	142.60	1267.64	327.03	2.88	451.99	2.23	5738465.34	567788.33	S 38 29 58.538	E 147 46 38.634
1511.98	67.02	143.27	1278.85	352.03	-17.46	467.35	1.79	5738445.01	567803.69	S 38 29 59.194	E 147 46 39.275
1541.35	66.02	143.55	1290.55	378.41	-39.09	483.41	1.05	5738423.39	567819.74	S 38 29 59.891	E 147 46 39.945
1570.07	66.51	143.32	1302.11	404.15	-60.20	499.07	0.56	5738402.28	567835.40	S 38 30 0.571	E 147 46 40.599
1598.78	65.51	143.66	1313.79	429.82	-81.28	514.67	1.09	5738381.20	567851.00	S 38 30 1.250	E 147 46 41.250
1627.50	66.46	143.22	1325.48	455.51	-102.36	530.30	1.08	5738360.14	567866.62	S 38 30 1.930	E 147 46 41.902
1656.24	68.20	142.15	1336.55	481.54	-123.45	546.38	2.09	5738339.06	567882.69	S 38 30 2.609	E 147 46 42.573
1685.21	67.65	141.97	1347.44	507.95	-144.62	562.88	0.60	5738317.89	567899.19	S 38 30 3.291	E 147 46 43.262
1713.71	66.62	142.15	1358.51	533.78	-165.33	579.03	1.10	5738297.19	567915.33	S 38 30 3.958	E 147 46 43.935
1742.37	65.58	141.77	1370.13	559.56	-185.96	595.17	1.15	5738276.56	567931.47	S 38 30 4.623	E 147 46 44.609
1771.02	66.71	141.83	1381.71	585.35	-206.56	611.38	1.18	5738255.98	567947.67	S 38 30 5.286	E 147 46 45.285
1799.85	66.10	141.87	1393.25	611.36	-227.33	627.70	0.64	5738235.21	567963.98	S 38 30 5.956	E 147 46 45.965
1828.44	66.44	140.68	1404.76	637.17	-247.75	644.07	1.20	5738214.80	567980.35	S 38 30 6.613	E 147 46 46.648
1857.37	65.55	140.51	1416.53	663.27	-268.17	660.85	0.94	5738194.38	567997.12	S 38 30 7.271	E 147 46 47.348
1885.96	64.70	140.40	1428.55	688.91	-288.17	677.36	0.90	5738174.39	568013.63	S 38 30 7.915	E 147 46 48.036
1914.62	64.16	140.81	1440.92	714.45	-308.15	693.77	0.69	5738154.42	568030.03	S 38 30 8.558	E 147 46 48.720
1943.46	63.94	141.25	1453.54	740.04	-328.31	710.08	0.47	5738134.26	568046.33	S 38 30 9.208	E 147 46 49.400
1972.06	64.86	141.60	1465.90	765.46	-348.48	726.16	1.02	5738114.10	568062.41	S 38 30 9.857	E 147 46 50.071
2000.68	65.73	142.18	1477.86	791.05	-368.93	742.21	0.07	5738093.65	568078.45	S 38 30 10.516	E 147 46 50.741
2029.25	66.36	142.54	1489.46	816.71	-389.61	758.15	1.75	5738072.99	568094.39	S 38 30 11.182	E 147 46 51.406
2058.02	67.04	142.41	1500.84	842.66	-410.56	774.25	0.72	5738052.04	568110.48	S 38 30 11.858	E 147 46 52.077
2086.64	66.46	142.89	1512.14	868.48	-431.47	790.20	0.76	5738031.14	568126.43	S 38 30 12.531	E 147 46 52.743
2115.53	65.55	142.90	1523.89	894.37	-452.52	806.12	0.95	5738010.10	568142.34	S 38 30 13.209	E 147 46 53.408
2144.17	66.81	142.63	1535.45	920.08	-473.38	821.97	1.34	5737989.25	568158.19	S 38 30 13.881	E 147 46 54.069
2172.93	66.02	142.94	1546.96	945.94	-494.37	837.92	0.88	5737968.26	568174.13	S 38 30 14.558	E 147 46 54.734
2201.71	67.06	142.31	1558.42	971.87	-515.35	853.94	1.24	5737947.29	568190.15	S 38 30 15.234	E 147 46 55.403
2230.49	66.02	142.54	1569.88	997.80	-536.27	870.04	1.11	5737926.37	568206.24	S 38 30 15.908	E 147 46 56.075
2259.36	67.28	142.77	1581.32	1023.83	-557.34	886.12	1.33	5737905.31	568222.32	S 38 30 16.587	E 147 46 56.746
2287.95	66.49	142.90	1592.54	1049.62	-578.30	902.00	0.84	5737884.36	568238.19	S 38 30 17.262	E 147 46 57.409
2317.02	67.71	142.78	1603.85	1075.90	-599.64	918.18	1.26	5737863.03	568254.36	S 38 30 17.949	E 147 46 58.084
2345.67	66.69	142.94	1614.96	1101.81	-620.69	934.13	1.08	5737841.98	568270.30	S 38 30 18.628	E 147 46 58.749
2374.43	65.89	142.90	1626.52	1127.64	-641.70	950.00	0.84	5737820.98	568286.18	S 38 30 19.305	E 147 46 59.412
2403.15	65.42	143.10	1638.36	1153.29	-662.59	965.75	0.53	5737800.09	568301.92	S 38 30 19.978	E 147 47 0.069
2432.09	64.65	142.95	1650.57	1179.02	-683.55	981.53	0.81	5737779.14	568317.69	S 38 30 20.653	E 147 47 0.728
2461.14	65.00	142.89	1662.93	1204.81	-704.53	997.38	0.37	5737758.17	568333.54	S 38 30 21.329	E 147 47 1.389
2489.80	66.75	142.15	1674.64	1230.50	-725.28	1013.30	1.96	5737737.42	568349.45	S 38 30 21.998	E 147 47 2.053
2518.74	65.94	142.01	1686.26	1256.57	-746.20	1029.59	0.85	5737716.52	568365.73	S 38 30 22.671	E 147 47 2.733
2547.55	65.46	142.02	1698.11	1282.40	-766.89	1045.75	0.50	5737695.83	568381.89	S 38 30 23.338	E 147 47 3.407
2576.63	64.89	141.84	1710.32	1308.37	-787.67	1062.02	0.61	5737675.06	568398.16	S 38 30 24.007	E 147 47 4.086
2605.56	65.50	141.77	1722.46	1334.23	-808.31	1078.26	0.64	5737654.43	568414.39	S 38 30 24.672	E 147 47 4.764
2634.29	66.82	141.67	1734.07	1360.10	-828.94	1094.54	1.38	5737633.81	568430.66	S 38 30 25.337	E 147 47 5.443
2660.88	66.24	141.89	1744.66	1384.12	-848.10	1109.63	0.69	5737614.65	568445.75	S 38 30 25.954	E 147 47 6.072
2689.20	65.60	141.78	1756.21	1409.57	-868.43	1125.61	0.69	5737594.33	568461.72	S 38 30 26.609	E 147 47 6.739
2718.44	67.23	142.44	1767.91	1435.92	-889.57	1142.06	1.78	5737573.19	568478.17	S 38 30 27.290	E 147 47 7.426
2746.94	66.54	142.64	1779.10	1461.66	-910.38	1158.01	0.75	5737552.39	568494.11	S 38 30 27.960	E 147 47 8.091
2775.66	65.76	142.26	1790.71	1487.47	-931.21	1174.01	0.89	5737531.57	568510.11	S 38 30 28.631	E 147 47 8.759
2804.34	64.95	142.33	1802.67	1513.09	-951.83	1189.96	0.85	5737510.96	568526.05	S 38 30 29.296	E 147 47 9.424
2832.94	66.35	142.38	1814.47	1538.70	-972.46	1205.87	1.47	5737490.33	568541.96	S 38 30 29.960	E 147 47 10.088
2861.63	65.67	142.19	1826.13	1564.46	-993.20	1221.90	0.73	5737469.61	568557.98	S 38 30 30.628	E 147 47 10.757
2890.41	65.13	142.02	1838.11	1590.20	-1013.85	1237.98	0.59	5737448.96	568574.05	S 38 30 31.293	E 147 47 11.428
2918.90	66.35	141.65	1849.82	1615.77	-1034.27	1254.03	1.33	5737428.55	568590.10	S 38 30 31.951	E 147 47 12.098
2947.54	66.26	141.88	1861.33	1641.59	-1054.87	1270.26	0.24	5737407.96	568606.32	S 38 30 32.615	E 147 47 12.775

2975.95	66.04	141.64	1872.81	1667.17	-1075.27	1286.34	0.33	5737387.56	568622.40	S 38 30 33.272	E 147 47 13.446
3004.70	65.63	141.74	1884.58	1693.00	-1095.86	1302.60	0.44	5737366.98	568638.65	S 38 30 33.935	E 147 47 14.124
3033.57	65.06	141.16	1896.63	1718.86	-1116.38	1318.95	0.81	5737346.47	568655.00	S 38 30 34.596	E 147 47 14.806
3062.00	64.59	141.98	1908.72	1744.21	-1136.53	1334.95	0.93	5737326.32	568670.99	S 38 30 35.245	E 147 47 15.473
3090.72	64.37	141.76	1921.09	1769.72	-1156.92	1350.95	0.31	5737305.94	568686.98	S 38 30 35.902	E 147 47 16.141
3119.45	64.04	141.80	1933.60	1795.18	-1177.24	1366.95	0.35	5737285.62	568702.98	S 38 30 36.557	E 147 47 16.809
3148.18	64.00	141.66	1946.18	1820.62	-1197.52	1382.95	0.14	5737265.35	568718.97	S 38 30 37.210	E 147 47 17.476
3176.79	63.78	141.55	1958.77	1845.92	-1217.65	1398.90	0.25	5737245.23	568734.92	S 38 30 37.858	E 147 47 18.142
3205.75	63.12	141.38	1971.72	1871.45	-1237.92	1415.04	0.70	5737224.97	568751.06	S 38 30 38.511	E 147 47 18.815
3234.70	62.78	140.68	1984.88	1896.89	-1257.96	1431.26	0.74	5737204.93	568767.27	S 38 30 39.156	E 147 47 19.491

**Survey Type:** Definitive Survey

**Survey Error Model:** SLB ISCWSA version 24 \*\*\* 3-D 95.00% Confidence 2.7955 sigma

**Surveying Prog:**

**MD From ( m )**

0.00

92.22

**MD To ( m )**

92.22

3256.00

**EOU Freq Survey Tool Type**

Act-Stns SLB\_MWD-STD-Depth Only

Act-Stns SLB\_MWD-STD

**Borehole -> Survey**

BMA A-6A -> BMA A-6A Final

BMA A-6A -> BMA A-6A Final

*\*Italicized stations are NOT used in position calculations.*



**APPENDIX 1b**

**BREAM A6A**

**Survey Data Listing**

Report Date:	3 July 2006
Well:	Bream A6A
Structure / Slot:	NABORS Rig 453
TVD Reference Datum:	DrillSite Elevation
TVD Reference Elevation:	32.82 m relative to MSL
Sea Bed / Ground Level Elevation:	60 m relative to MSL
Grid Coordinate System:	GDA94/MGA94 Zone 55
Location Lat/Long:	S -38 29' 58.784", E 147 46' 20.421"
Location Grid N/E:	N 5738461.49 m, E 567347.12 m
Survey Azimuth Reference:	Grid North

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
0	0	0	0	32.82	0	0	5738461.49	567347.12
5	0	0	5	27.82	0	0	5738461.49	567347.12
10	0	0	10	22.82	0	0	5738461.49	567347.12
15	0	0	15	17.82	0	0	5738461.49	567347.12
20	0	0	20	12.82	0	0	5738461.49	567347.12
25	0	0	25	7.82	0	0	5738461.49	567347.12
30	0	0	30	2.82	0	0	5738461.49	567347.12
35	0	0	35	-2.18	0	0	5738461.49	567347.12
40	0	0	40	-7.18	0	0	5738461.49	567347.12
45	0	0	45	-12.18	0	0	5738461.49	567347.12
50	0	0	50	-17.18	0	0	5738461.49	567347.12
55	0	0	55	-22.18	0	0	5738461.49	567347.12
60	0	360	60	-27.18	0	0	5738461.49	567347.12
65	0.04	355.82	65	-32.18	0	0	5738461.5	567347.12
70	0.09	351.64	70	-37.18	0.01	0	5738461.5	567347.12
75	0.13	347.47	75	-42.18	0.02	-0.01	5738461.51	567347.12
80	0.17	343.29	80	-47.18	0.03	-0.01	5738461.52	567347.11
85	0.21	339.11	85	-52.18	0.04	-0.02	5738461.54	567347.1
90	0.28	338.13	90	-57.18	0.06	-0.03	5738461.55	567347.09
95	0.53	357.46	95	-62.18	0.09	-0.02	5738461.59	567347.1
100	0.78	16.8	100	-67.18	0.14	0	5738461.63	567347.12
105	1.07	33.91	105	-72.18	0.21	0.04	5738461.7	567347.16
110	1.57	36.91	110	-77.18	0.3	0.11	5738461.79	567347.23
115	2.07	39.91	115	-82.17	0.42	0.21	5738461.91	567347.33
120	2.57	42.59	119.99	-87.17	0.57	0.35	5738462.06	567347.47
125	3.07	43.26	124.99	-92.17	0.75	0.51	5738462.24	567347.63
130	3.57	43.92	129.98	-97.16	0.96	0.71	5738462.45	567347.84
135	4.09	44.47	134.97	-102.15	1.2	0.95	5738462.69	567348.07
140	4.71	44.22	139.95	-107.13	1.47	1.21	5738462.96	567348.34
145	5.28	43.97	144.93	-112.11	1.78	1.52	5738463.28	567348.64
150	5.48	43.74	149.91	-117.09	2.12	1.84	5738463.61	567348.96
155	5.67	43.5	154.89	-122.07	2.47	2.18	5738463.97	567349.3
160	5.87	43.27	159.86	-127.04	2.84	2.52	5738464.33	567349.64
165	6.07	43.04	164.83	-132.01	3.22	2.88	5738464.71	567350
170	6.27	42.81	169.8	-136.98	3.61	3.24	5738465.11	567350.36
175	6.47	42.58	174.77	-141.95	4.02	3.62	5738465.52	567350.74
180	6.67	42.35	179.74	-146.92	4.45	4	5738465.94	567351.12
185	6.87	42.11	184.71	-151.89	4.88	4.4	5738466.38	567351.52
190	7.11	41.51	189.67	-156.85	5.33	4.8	5738466.83	567351.92
195	7.45	40.18	194.63	-161.81	5.81	5.22	5738467.31	567352.34
200	7.72	38.52	199.59	-166.76	6.32	5.64	5738467.82	567352.76
205	7.94	36.57	204.54	-171.72	6.86	6.05	5738468.36	567353.17
210	8.25	34.02	209.49	-176.67	7.44	6.46	5738468.93	567353.58
215	8.58	31.24	214.44	-181.62	8.05	6.85	5738469.55	567353.97
220	9.07	30.33	219.38	-186.56	8.71	7.24	5738470.2	567354.36
225	9.56	29.69	224.31	-191.49	9.41	7.64	5738470.91	567354.77
230	10.01	29.89	229.24	-196.42	10.15	8.07	5738471.64	567355.19
235	10.42	30.03	234.16	-201.34	10.92	8.51	5738472.41	567355.63
240	10.53	29.81	239.07	-206.25	11.71	8.96	5738473.2	567356.08
245	10.69	29.73	243.99	-211.17	12.5	9.42	5738474	567356.54
250	10.97	29.96	248.9	-216.08	13.32	9.89	5738474.81	567357.01
255	11.25	30.57	253.81	-220.99	14.15	10.37	5738475.64	567357.49
260	11.53	31.51	258.71	-225.89	15	10.88	5738476.49	567358
265	11.89	31.47	263.6	-230.78	15.86	11.41	5738477.35	567358.53
270	12.28	31.08	268.49	-235.67	16.75	11.95	5738478.25	567359.08
275	12.72	30.89	273.38	-240.56	17.68	12.51	5738479.17	567359.63
280	13.16	30.71	278.25	-245.43	18.64	13.08	5738480.14	567360.2
285	13.61	30.54	283.11	-250.29	19.64	13.67	5738481.13	567360.79
290	14.06	30.36	287.97	-255.15	20.67	14.28	5738482.16	567361.4
295	14.5	30.18	292.81	-259.99	21.74	14.9	5738483.23	567362.02
300	14.91	30.22	297.65	-264.83	22.83	15.53	5738484.33	567362.66
305	15.25	30.69	302.48	-269.66	23.95	16.19	5738485.45	567363.32
310	15.58	31.16	307.3	-274.48	25.09	16.88	5738486.59	567364

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
315	15.91	31.64	312.11	-279.29	26.25	17.58	5738487.74	567364.71
320	16.23	31.84	316.91	-284.09	27.43	18.31	5738488.92	567365.44
325	16.55	31.94	321.71	-288.89	28.63	19.06	5738490.12	567366.18
330	16.86	32.05	326.5	-293.68	29.84	19.82	5738491.34	567366.94
335	17.18	32.15	331.28	-298.46	31.08	20.6	5738492.58	567367.72
340	17.49	32.24	336.05	-303.23	32.34	21.39	5738493.84	567368.51
345	17.79	32.32	340.82	-308	33.62	22.2	5738495.12	567369.32
350	18.1	32.4	345.57	-312.75	34.92	23.03	5738496.42	567370.15
355	18.43	32.56	350.32	-317.5	36.25	23.86	5738497.74	567370.99
360	18.82	32.87	355.06	-322.24	37.59	24.73	5738499.08	567371.85
365	19.21	33.17	359.79	-326.97	38.95	25.62	5738500.45	567372.74
370	19.6	33.48	364.5	-331.68	40.34	26.53	5738501.83	567373.65
375	20.01	33.48	369.21	-336.39	41.75	27.46	5738503.25	567374.58
380	20.43	33.38	373.9	-341.08	43.19	28.42	5738504.69	567375.54
385	20.85	33.27	378.58	-345.76	44.67	29.38	5738506.16	567376.51
390	21.27	33.17	383.25	-350.43	46.17	30.37	5738507.66	567377.49
395	21.52	32.88	387.9	-355.08	47.7	31.36	5738509.19	567378.48
400	21.76	32.59	392.55	-359.73	49.25	32.36	5738510.74	567379.48
405	21.99	32.3	397.19	-364.37	50.82	33.36	5738512.31	567380.48
410	22.17	32.03	401.82	-369	52.41	34.36	5738513.91	567381.48
415	22.29	31.78	406.45	-373.63	54.02	35.36	5738515.51	567382.48
420	22.42	31.53	411.07	-378.25	55.64	36.35	5738517.13	567383.48
425	22.54	31.28	415.69	-382.87	57.27	37.35	5738518.76	567384.47
430	22.67	31.03	420.31	-387.49	58.91	38.34	5738520.41	567385.46
435	22.79	30.78	424.92	-392.1	60.57	39.33	5738522.06	567386.46
440	22.92	31.25	429.53	-396.71	62.23	40.33	5738523.73	567387.46
445	23.04	31.78	434.13	-401.31	63.9	41.35	5738525.39	567388.48
450	23.17	32.3	438.73	-405.91	65.56	42.4	5738527.05	567389.52
455	23.29	32.83	443.33	-410.51	67.22	43.46	5738528.71	567390.58
460	23.42	33.2	447.92	-415.1	68.88	44.54	5738530.38	567391.66
465	23.55	33.57	452.5	-419.68	70.55	45.63	5738532.04	567392.75
470	23.69	33.94	457.08	-424.26	72.21	46.75	5738533.7	567393.87
475	23.81	34.23	461.66	-428.84	73.88	47.87	5738535.37	567395
480	23.89	33.99	466.23	-433.41	75.55	49.01	5738537.04	567396.13
485	23.97	33.75	470.8	-437.98	77.23	50.14	5738538.73	567397.26
490	24.05	33.52	475.37	-442.55	78.93	51.26	5738540.42	567398.39
495	24.13	33.28	479.94	-447.12	80.63	52.39	5738542.12	567399.51
500	24.21	33.04	484.5	-451.68	82.34	53.51	5738543.84	567400.63
505	24.28	32.81	489.06	-456.24	84.07	54.62	5738545.56	567401.74
510	24.36	32.57	493.61	-460.79	85.8	55.73	5738547.29	567402.85
515	24.45	32.61	498.17	-465.35	87.54	56.84	5738549.03	567403.97
520	24.55	32.88	502.72	-469.9	89.28	57.97	5738550.78	567405.09
525	24.65	33.16	507.26	-474.44	91.03	59.1	5738552.52	567406.22
530	24.75	33.43	511.8	-478.98	92.78	60.25	5738554.27	567407.37
535	24.8	33.72	516.34	-483.52	94.52	61.4	5738556.01	567408.53
540	24.8	34.01	520.88	-488.06	96.26	62.57	5738557.75	567409.7
545	24.8	34.31	525.42	-492.6	98	63.75	5738559.49	567410.87
550	24.8	34.57	529.96	-497.14	99.73	64.94	5738561.22	567412.06
555	24.83	34.67	534.5	-501.68	101.45	66.13	5738562.95	567413.25
560	24.85	34.77	539.04	-506.22	103.18	67.33	5738564.67	567414.45
565	24.88	34.87	543.57	-510.75	104.9	68.53	5738566.4	567415.65
570	24.92	34.93	548.11	-515.29	106.63	69.73	5738568.12	567416.85
575	25.05	34.75	552.64	-519.82	108.36	70.94	5738569.85	567418.06
580	25.18	34.57	557.17	-524.35	110.11	72.14	5738571.6	567419.26
585	25.31	34.38	561.69	-528.87	111.87	73.35	5738573.36	567420.47
590	25.43	34.42	566.21	-533.39	113.63	74.56	5738575.13	567421.68
595	25.51	34.89	570.72	-537.9	115.4	75.78	5738576.89	567422.9
600	25.58	35.37	575.23	-542.41	117.16	77.02	5738578.66	567424.14
605	25.66	35.84	579.74	-546.92	118.92	78.28	5738580.42	567425.4
610	25.69	36.12	584.25	-551.43	120.67	79.55	5738582.17	567426.67
615	25.67	36.25	588.75	-555.93	122.42	80.83	5738583.92	567427.95
620	25.66	36.37	593.26	-560.44	124.17	82.11	5738585.66	567429.24
625	25.64	36.49	597.77	-564.95	125.91	83.4	5738587.4	567430.52
630	25.62	36.61	602.27	-569.46	127.65	84.69	5738589.14	567431.81
635	25.6	36.73	606.78	-573.96	129.38	85.98	5738590.87	567433.1
640	25.52	36.76	611.29	-578.47	131.11	87.27	5738592.6	567434.39
645	25.41	36.76	615.81	-582.99	132.83	88.55	5738594.32	567435.68
650	25.31	36.76	620.33	-587.51	134.54	89.84	5738596.04	567436.96
655	25.2	36.76	624.85	-592.03	136.25	91.11	5738597.75	567438.23
660	25.09	36.76	629.38	-596.55	137.95	92.38	5738599.45	567439.51
665	24.99	36.77	633.9	-601.09	139.65	93.65	5738601.14	567440.77
670	24.88	36.82	638.44	-605.62	141.34	94.91	5738602.83	567442.03
675	24.78	36.87	642.98	-610.16	143.02	96.17	5738604.51	567443.29
680	24.68	36.92	647.52	-614.7	144.69	97.43	5738606.18	567444.55
685	24.57	36.97	652.06	-619.24	146.35	98.68	5738607.85	567445.8
690	24.47	37.03	656.61	-623.79	148.01	99.93	5738609.5	567447.05

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
695	24.39	37.1	661.16	-628.35	149.66	101.17	5738611.15	567448.29
700	24.35	37.23	665.72	-632.9	151.3	102.42	5738612.8	567449.54
705	24.32	37.35	670.28	-637.46	152.94	103.66	5738614.44	567450.79
710	24.28	37.48	674.83	-642.01	154.58	104.91	5738616.07	567452.04
715	24.25	37.6	679.39	-646.57	156.2	106.17	5738617.7	567453.29
720	24.21	37.73	683.95	-651.13	157.83	107.42	5738619.32	567454.54
725	24.16	37.72	688.51	-655.69	159.45	108.67	5738620.94	567455.8
730	24.11	37.67	693.08	-660.26	161.07	109.92	5738622.56	567457.04
735	24.06	37.62	697.64	-664.82	162.68	111.17	5738624.17	567458.29
740	24.01	37.57	702.21	-669.39	164.29	112.41	5738625.79	567459.53
745	23.96	37.52	706.77	-673.95	165.9	113.65	5738627.4	567460.77
750	23.9	37.46	711.34	-678.52	167.51	114.88	5738629.01	567462.01
755	23.83	37.34	715.92	-683.1	169.12	116.11	5738630.61	567463.23
760	23.76	37.22	720.49	-687.67	170.73	117.33	5738632.22	567464.46
765	23.69	37.09	725.07	-692.25	172.33	118.55	5738633.82	567465.67
770	23.62	36.97	729.65	-696.83	173.93	119.76	5738635.42	567466.88
775	23.55	36.84	734.23	-701.41	175.53	120.96	5738637.02	567468.08
780	23.47	36.84	738.82	-706	177.12	122.15	5738638.62	567469.27
785	23.38	37.08	743.4	-710.58	178.71	123.35	5738640.21	567470.47
790	23.3	37.32	748	-715.17	180.29	124.54	5738641.78	567471.67
795	23.21	37.57	752.59	-719.77	181.86	125.74	5738643.35	567472.87
800	23.13	37.81	757.19	-724.37	183.41	126.95	5738644.91	567474.07
805	23.04	38.05	761.78	-728.97	184.96	128.15	5738646.45	567475.27
810	22.94	38.24	766.39	-733.57	186.5	129.36	5738647.99	567476.48
815	22.84	38.39	770.99	-738.17	188.02	130.56	5738649.52	567477.69
820	22.74	38.53	775.6	-742.78	189.54	131.77	5738651.03	567478.89
825	22.64	38.68	780.22	-747.4	191.04	132.97	5738652.54	567480.09
830	22.53	38.83	784.83	-752.01	192.54	134.17	5738654.03	567481.29
835	22.43	38.97	789.45	-756.63	194.03	135.37	5738655.52	567482.49
840	22.33	39.12	794.08	-761.26	195.51	136.57	5738657	567483.69
845	22.25	38.97	798.7	-765.88	196.98	137.77	5738658.47	567484.89
850	22.19	38.7	803.33	-770.51	198.45	138.95	5738659.94	567486.07
855	22.13	38.44	807.96	-775.14	199.93	140.13	5738661.42	567487.25
860	21.5	41.6	812.61	-779.79	201.35	141.31	5738662.84	567488.43
865	20.87	44.76	817.27	-784.45	202.67	142.53	5738664.16	567489.65
870	20.23	47.92	821.96	-789.14	203.88	143.77	5738665.38	567490.89
875	19.6	51.08	826.67	-793.85	204.99	145.04	5738666.49	567492.17
880	18.97	54.24	831.39	-798.57	206	146.34	5738667.49	567493.47
885	18.78	56.98	836.12	-803.3	206.9	147.67	5738668.4	567494.79
890	18.78	59.53	840.86	-808.04	207.75	149.03	5738669.24	567496.16
895	18.78	62.08	845.6	-812.78	208.53	150.43	5738670.02	567497.55
900	18.78	64.63	850.34	-817.52	209.24	151.86	5738670.74	567498.98
905	18.78	67.18	855.07	-822.25	209.9	153.32	5738671.39	567500.44
910	18.78	69.73	859.81	-826.99	210.49	154.81	5738671.98	567501.93
915	19.04	71.11	864.54	-831.72	211.03	156.34	5738672.52	567503.46
920	19.31	72.44	869.26	-836.44	211.53	157.89	5738673.03	567505.02
925	19.58	73.76	873.98	-841.16	212.01	159.49	5738673.51	567506.61
930	19.85	75.09	878.69	-845.87	212.46	161.11	5738673.96	567508.23
935	20.12	76.41	883.39	-850.57	212.88	162.76	5738674.37	567509.88
940	20.32	77.75	888.08	-855.26	213.27	164.45	5738674.76	567511.57
945	20.28	79.1	892.77	-859.95	213.61	166.14	5738675.11	567513.27
950	20.23	80.45	897.46	-864.64	213.92	167.85	5738675.41	567514.97
955	20.19	81.79	902.15	-869.33	214.19	169.55	5738675.68	567516.67
960	20.15	83.14	906.85	-874.03	214.41	171.25	5738675.91	567518.38
965	20.1	84.49	911.54	-878.72	214.6	172.96	5738676.09	567520.08
970	20.14	85.86	916.24	-883.42	214.74	174.67	5738676.24	567521.8
975	20.27	87.23	920.93	-888.11	214.85	176.39	5738676.34	567523.52
980	20.4	88.61	925.62	-892.8	214.91	178.13	5738676.4	567525.25
985	20.53	89.98	930.31	-897.49	214.93	179.87	5738676.42	567526.99
990	20.66	91.36	934.99	-902.17	214.9	181.63	5738676.4	567528.75
995	20.79	92.73	939.66	-906.85	214.84	183.39	5738676.33	567530.52
1000	21.1	93.72	944.34	-911.51	214.74	185.18	5738676.23	567532.3
1005	21.48	94.55	948.99	-916.17	214.6	186.98	5738676.1	567534.11
1010	21.86	95.37	953.64	-920.82	214.44	188.82	5738675.93	567535.94
1015	22.23	96.2	958.28	-925.46	214.25	190.69	5738675.74	567537.81
1020	22.61	97.03	962.9	-930.08	214.03	192.58	5738675.52	567539.7
1025	22.99	97.86	967.51	-934.69	213.77	194.5	5738675.27	567541.62
1030	23.53	98.7	972.1	-939.28	213.49	196.45	5738674.98	567543.57
1035	24.07	99.54	976.68	-943.86	213.16	198.44	5738674.66	567545.56
1040	24.61	100.39	981.23	-948.41	212.8	200.47	5738674.3	567547.59
1045	25.16	101.23	985.77	-952.95	212.4	202.53	5738673.9	567549.66
1050	25.7	102.07	990.29	-957.47	211.97	204.63	5738673.46	567551.76
1055	26.21	102.97	994.78	-961.96	211.49	206.77	5738672.99	567553.89
1060	26.59	104.07	999.26	-966.44	210.97	208.93	5738672.46	567556.05
1065	26.96	105.18	1003.73	-970.91	210.4	211.11	5738671.89	567558.23
1070	27.34	106.28	1008.18	-975.36	209.78	213.3	5738671.27	567560.42

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1075	27.72	107.38	1012.61	-979.79	209.1	215.51	5738670.6	567562.63
1080	28.1	108.49	1017.03	-984.21	208.38	217.73	5738669.87	567564.85
1085	28.51	109.56	1021.43	-988.61	207.61	219.97	5738669.1	567567.09
1090	28.95	110.61	1025.82	-993	206.78	222.22	5738668.27	567569.35
1095	29.39	111.65	1030.19	-997.37	205.9	224.49	5738667.39	567571.61
1100	29.83	112.7	1034.53	-1001.71	204.96	226.77	5738666.46	567573.9
1105	30.27	113.74	1038.86	-1006.04	203.97	229.07	5738665.47	567576.19
1110	30.71	114.79	1043.17	-1010.35	202.93	231.38	5738664.42	567578.5
1115	31.27	115.76	1047.46	-1014.64	201.83	233.71	5738663.32	567580.83
1120	31.85	116.7	1051.72	-1018.9	200.67	236.05	5738662.16	567583.17
1125	32.44	117.65	1055.96	-1023.14	199.45	238.41	5738660.94	567585.54
1130	33.02	118.59	1060.16	-1027.34	198.17	240.79	5738659.67	567587.92
1135	33.61	119.54	1064.34	-1031.52	196.84	243.19	5738658.33	567590.31
1140	34.23	120.48	1068.49	-1035.67	195.44	245.6	5738656.93	567592.73
1145	35.04	121.36	1072.61	-1039.79	193.98	248.04	5738655.47	567595.16
1150	35.85	122.24	1076.68	-1043.86	192.45	250.5	5738653.94	567597.62
1155	36.67	123.12	1080.71	-1047.89	190.85	252.98	5738652.34	567600.1
1160	37.48	124	1084.7	-1051.89	189.17	255.49	5738650.67	567602.61
1165	38.29	124.87	1088.65	-1055.83	187.43	258.01	5738648.93	567605.14
1170	39.09	125.61	1092.56	-1059.73	185.63	260.56	5738647.12	567607.69
1175	39.84	126.04	1096.42	-1063.6	183.77	263.14	5738645.26	567610.26
1180	40.6	126.46	1100.23	-1067.41	181.86	265.74	5738643.35	567612.86
1185	41.36	126.89	1104.01	-1071.19	179.9	268.37	5738641.39	567615.49
1190	42.12	127.31	1107.74	-1074.92	177.89	271.02	5738639.38	567618.14
1195	42.87	127.74	1111.43	-1078.61	175.83	273.7	5738637.32	567620.82
1200	43.59	128.06	1115.07	-1082.25	173.72	276.4	5738635.22	567623.52
1205	44.26	128.29	1118.67	-1085.85	171.58	279.12	5738633.07	567626.25
1210	44.93	128.52	1122.23	-1089.41	169.4	281.87	5738630.89	567629
1215	45.61	128.74	1125.75	-1092.93	167.18	284.65	5738628.67	567631.77
1220	46.28	128.97	1129.23	-1096.41	164.92	287.44	5738626.42	567634.57
1225	46.96	129.2	1132.66	-1099.84	162.63	290.26	5738624.13	567637.39
1230	47.56	129.46	1136.05	-1103.23	160.31	293.1	5738621.8	567640.23
1235	48.14	129.74	1139.41	-1106.59	157.94	295.96	5738619.44	567643.08
1240	48.72	130.01	1142.73	-1109.91	155.54	298.83	5738617.04	567645.95
1245	49.3	130.28	1146.01	-1113.19	153.11	301.71	5738614.6	567648.83
1250	49.89	130.56	1149.25	-1116.43	150.64	304.61	5738612.13	567651.73
1255	50.46	130.83	1152.45	-1119.63	148.14	307.52	5738609.63	567654.64
1260	50.91	131.05	1155.62	-1122.8	145.6	310.44	5738607.1	567657.56
1265	51.36	131.26	1158.76	-1125.93	143.04	313.37	5738604.53	567660.49
1270	51.82	131.48	1161.86	-1129.04	140.45	316.31	5738601.94	567663.43
1275	52.27	131.7	1164.94	-1132.12	137.83	319.26	5738599.33	567666.38
1280	52.72	131.92	1167.98	-1135.16	135.19	322.21	5738596.68	567669.34
1285	53.15	132.16	1170.99	-1138.18	132.52	325.18	5738594.01	567672.3
1290	53.53	132.46	1173.98	-1141.16	129.82	328.14	5738591.31	567675.26
1295	53.92	132.75	1176.94	-1144.12	127.09	331.11	5738588.58	567678.23
1300	54.3	133.05	1179.87	-1147.05	124.33	334.07	5738585.82	567681.2
1305	54.68	133.35	1182.77	-1149.95	121.54	337.04	5738583.04	567684.16
1310	55.07	133.65	1185.65	-1152.83	118.73	340	5738580.22	567687.13
1315	55.5	133.94	1188.5	-1155.68	115.89	342.97	5738577.38	567690.09
1320	55.96	134.23	1191.32	-1158.49	113.01	345.94	5738574.5	567693.06
1325	56.41	134.52	1194.1	-1161.28	110.11	348.91	5738571.6	567696.03
1330	56.87	134.8	1196.85	-1164.03	107.17	351.87	5738568.66	567699
1335	57.32	135.09	1199.56	-1166.74	104.21	354.84	5738565.7	567701.97
1340	57.78	135.38	1202.25	-1169.43	101.21	357.81	5738562.7	567704.94
1345	58.31	135.75	1204.89	-1172.07	98.18	360.78	5738559.67	567707.91
1350	58.86	136.12	1207.5	-1174.68	95.11	363.75	5738556.61	567710.87
1355	59.4	136.5	1210.07	-1177.24	92.01	366.71	5738553.5	567713.84
1360	59.95	136.87	1212.59	-1179.77	88.87	369.67	5738550.36	567716.79
1365	60.49	137.25	1215.07	-1182.25	85.69	372.63	5738547.19	567719.75
1370	61.05	137.61	1217.52	-1184.69	82.48	375.58	5738543.97	567722.7
1375	61.62	137.95	1219.91	-1187.09	79.23	378.53	5738540.72	567725.65
1380	62.2	138.29	1222.27	-1189.45	75.95	381.47	5738537.44	567728.59
1385	62.78	138.63	1224.58	-1191.76	72.63	384.41	5738534.12	567731.53
1390	63.35	138.97	1226.84	-1194.02	69.27	387.34	5738530.77	567734.46
1395	63.93	139.31	1229.06	-1196.24	65.88	390.27	5738527.38	567737.39
1400	64.25	139.55	1231.24	-1198.42	62.46	393.2	5738523.96	567740.32
1405	64.22	139.65	1233.42	-1200.6	59.04	396.11	5738520.53	567743.24
1410	64.18	139.75	1235.59	-1202.77	55.6	399.02	5738517.09	567746.15
1415	64.14	139.85	1237.77	-1204.95	52.17	401.93	5738513.66	567749.05
1420	64.11	139.94	1239.95	-1207.13	48.72	404.83	5738510.22	567751.95
1425	64.07	140.04	1242.14	-1209.32	45.28	407.72	5738506.77	567754.84
1430	64.07	140.15	1244.32	-1211.5	41.83	410.6	5738503.33	567757.72
1435	64.09	140.27	1246.51	-1213.69	38.38	413.48	5738499.87	567760.6
1440	64.11	140.39	1248.69	-1215.87	34.91	416.35	5738496.41	567763.47
1445	64.12	140.51	1250.88	-1218.06	31.45	419.21	5738492.94	567766.34
1450	64.14	140.62	1253.06	-1220.24	27.97	422.07	5738489.47	567769.19



MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1455	64.16	140.74	1255.24	-1222.42	24.49	424.92	5738485.99	567772.04
1460	64.37	141.04	1257.41	-1224.59	21	427.76	5738482.49	567774.88
1465	64.6	141.37	1259.56	-1226.74	17.48	430.59	5738478.97	567777.71
1470	64.83	141.69	1261.7	-1228.88	13.94	433.4	5738475.43	567780.52
1475	65.06	142.01	1263.82	-1231	10.38	436.2	5738471.87	567783.32
1480	65.29	142.33	1265.92	-1233.1	6.8	438.98	5738468.29	567786.1
1485	65.53	142.62	1268	-1235.18	3.19	441.75	5738464.68	567788.87
1490	65.8	142.74	1270.06	-1237.24	-0.43	444.51	5738461.06	567791.63
1495	66.08	142.86	1272.1	-1239.28	-4.07	447.27	5738457.42	567794.39
1500	66.36	142.98	1274.11	-1241.29	-7.72	450.02	5738453.77	567797.15
1505	66.63	143.1	1276.11	-1243.29	-11.38	452.78	5738450.11	567799.9
1510	66.91	143.22	1278.08	-1245.26	-15.06	455.54	5738446.43	567802.66
1515	66.92	143.3	1280.04	-1247.21	-18.75	458.29	5738442.74	567805.41
1520	66.75	143.35	1282	-1249.18	-22.43	461.03	5738439.06	567808.15
1525	66.58	143.39	1283.98	-1251.16	-26.12	463.77	5738435.38	567810.89
1530	66.41	143.44	1285.98	-1253.16	-29.8	466.5	5738431.69	567813.62
1535	66.24	143.49	1287.98	-1255.17	-33.48	469.23	5738428.02	567816.35
1540	66.07	143.54	1290.01	-1257.19	-37.15	471.95	5738424.34	567819.07
1545	66.08	143.52	1292.04	-1259.22	-40.83	474.66	5738420.66	567821.78
1550	66.17	143.48	1294.06	-1261.24	-44.5	477.38	5738416.99	567824.5
1555	66.25	143.44	1296.08	-1263.26	-48.18	480.1	5738413.31	567827.22
1560	66.34	143.4	1298.09	-1265.27	-51.86	482.83	5738409.64	567829.95
1565	66.42	143.36	1300.09	-1267.27	-55.53	485.56	5738405.96	567832.68
1570	66.51	143.32	1302.09	-1269.27	-59.21	488.3	5738402.28	567835.42
1575	66.34	143.38	1304.09	-1271.27	-62.89	491.03	5738398.61	567838.16
1580	66.16	143.44	1306.1	-1273.28	-66.56	493.76	5738394.93	567840.88
1585	65.99	143.5	1308.13	-1275.31	-70.23	496.48	5738391.26	567843.6
1590	65.82	143.56	1310.17	-1277.35	-73.9	499.19	5738387.59	567846.32
1595	65.64	143.62	1312.22	-1279.41	-77.57	501.9	5738383.92	567849.02
1600	65.55	143.64	1314.29	-1281.47	-81.23	504.6	5738380.26	567851.72
1605	65.72	143.56	1316.36	-1283.54	-84.9	507.3	5738376.59	567854.42
1610	65.88	143.49	1318.41	-1285.59	-88.57	510.01	5738372.93	567857.13
1615	66.05	143.41	1320.44	-1287.62	-92.24	512.73	5738369.26	567859.85
1620	66.21	143.33	1322.47	-1289.65	-95.9	515.46	5738365.59	567862.58
1625	66.38	143.26	1324.48	-1291.66	-99.57	518.19	5738361.92	567865.31
1630	66.61	143.13	1326.47	-1293.65	-103.25	520.94	5738358.25	567868.06
1635	66.91	142.94	1328.44	-1295.62	-106.92	523.7	5738354.58	567870.82
1640	67.22	142.75	1330.39	-1297.57	-110.59	526.48	5738350.91	567873.6
1645	67.52	142.57	1332.32	-1299.5	-114.25	529.28	5738347.24	567876.4
1650	67.82	142.38	1334.22	-1301.4	-117.92	532.09	5738343.57	567879.22
1655	68.12	142.2	1336.09	-1303.27	-121.59	534.93	5738339.91	567882.05
1660	68.13	142.13	1337.95	-1305.13	-125.25	537.78	5738336.24	567884.9
1665	68.03	142.1	1339.82	-1307	-128.91	540.63	5738332.58	567887.75
1670	67.94	142.06	1341.69	-1308.87	-132.57	543.47	5738328.92	567890.6
1675	67.84	142.03	1343.57	-1310.75	-136.22	546.32	5738325.27	567893.44
1680	67.75	142	1345.46	-1312.64	-139.87	549.17	5738321.62	567896.29
1685	67.65	141.97	1347.36	-1314.54	-143.51	552.02	5738317.98	567899.14
1690	67.48	142	1349.27	-1316.45	-147.15	554.86	5738314.34	567901.99
1695	67.3	142.03	1351.19	-1318.37	-150.79	557.7	5738310.7	567904.83
1700	67.12	142.06	1353.13	-1320.31	-154.43	560.54	5738307.07	567907.66
1705	66.93	142.09	1355.08	-1322.26	-158.06	563.37	5738303.43	567910.49
1710	66.75	142.13	1357.05	-1324.23	-161.69	566.19	5738299.81	567913.31
1715	66.57	142.13	1359.03	-1326.21	-165.31	569.01	5738296.18	567916.13
1720	66.39	142.07	1361.02	-1328.2	-168.93	571.82	5738292.56	567918.94
1725	66.21	142	1363.03	-1330.21	-172.54	574.64	5738288.96	567921.76
1730	66.03	141.93	1365.06	-1332.23	-176.14	577.45	5738285.35	567924.58
1735	65.85	141.87	1367.09	-1334.27	-179.73	580.27	5738281.76	567927.39
1740	65.67	141.8	1369.15	-1336.33	-183.31	583.09	5738278.18	567930.21
1745	65.68	141.78	1371.21	-1338.39	-186.89	585.9	5738274.6	567933.03
1750	65.88	141.79	1373.26	-1340.44	-190.48	588.72	5738271.02	567935.85
1755	66.08	141.8	1375.3	-1342.48	-194.06	591.55	5738267.43	567938.67
1760	66.28	141.81	1377.32	-1344.5	-197.66	594.38	5738263.84	567941.5
1765	66.47	141.82	1379.32	-1346.5	-201.26	597.21	5738260.24	567944.33
1770	66.67	141.83	1381.31	-1348.49	-204.86	600.04	5738256.63	567947.16
1775	66.63	141.84	1383.29	-1350.47	-208.47	602.88	5738253.02	567950
1780	66.52	141.84	1385.28	-1352.46	-212.08	605.71	5738249.41	567952.84
1785	66.41	141.85	1387.27	-1354.45	-215.68	608.54	5738245.81	567955.67
1790	66.31	141.86	1389.28	-1356.46	-219.29	611.37	5738242.21	567958.5
1795	66.2	141.86	1391.29	-1358.47	-222.89	614.2	5738238.61	567961.32
1800	66.1	141.86	1393.31	-1360.49	-226.48	617.02	5738235.01	567964.14
1805	66.16	141.66	1395.34	-1362.52	-230.07	619.85	5738231.42	567966.97
1810	66.22	141.45	1397.35	-1364.53	-233.66	622.7	5738227.84	567969.82
1815	66.28	141.24	1399.37	-1366.55	-237.23	625.55	5738224.26	567972.68
1820	66.34	141.03	1401.38	-1368.56	-240.79	628.43	5738220.7	567975.55
1825	66.4	140.82	1403.38	-1370.56	-244.35	631.31	5738217.14	567978.44
1830	66.39	140.67	1405.38	-1372.56	-247.9	634.21	5738213.59	567981.33

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1835	66.24	140.64	1407.39	-1374.57	-251.44	637.11	5738210.05	567984.24
1840	66.08	140.61	1409.41	-1376.59	-254.97	640.02	5738206.52	567987.14
1845	65.93	140.58	1411.44	-1378.62	-258.5	642.92	5738202.99	567990.04
1850	65.78	140.55	1413.49	-1380.67	-262.03	645.81	5738199.47	567992.93
1855	65.62	140.52	1415.55	-1382.73	-265.55	648.71	5738195.95	567995.83
1860	65.47	140.5	1417.62	-1384.8	-269.06	651.6	5738192.44	567998.72
1865	65.32	140.48	1419.7	-1386.88	-272.57	654.49	5738188.93	568001.61
1870	65.17	140.46	1421.79	-1388.97	-276.07	657.38	5738185.43	568004.5
1875	65.03	140.44	1423.9	-1391.08	-279.56	660.27	5738181.93	568007.39
1880	64.88	140.42	1426.01	-1393.19	-283.06	663.15	5738178.44	568010.28
1885	64.73	140.4	1428.14	-1395.32	-286.54	666.04	5738174.95	568013.16
1890	64.62	140.46	1430.28	-1397.46	-290.03	668.92	5738171.47	568016.04
1895	64.53	140.53	1432.43	-1399.61	-293.51	671.79	5738167.98	568018.91
1900	64.44	140.6	1434.58	-1401.76	-296.99	674.65	5738164.5	568021.77
1905	64.34	140.67	1436.74	-1403.92	-300.48	677.51	5738161.01	568024.63
1910	64.25	140.74	1438.91	-1406.09	-303.97	680.36	5738157.53	568027.49
1915	64.16	140.82	1441.09	-1408.27	-307.45	683.21	5738154.04	568030.33
1920	64.12	140.89	1443.27	-1410.45	-310.94	686.05	5738150.55	568033.17
1925	64.08	140.97	1445.45	-1412.63	-314.43	688.88	5738147.06	568036.01
1930	64.04	141.04	1447.64	-1414.82	-317.93	691.71	5738143.56	568038.83
1935	64	141.12	1449.83	-1417.01	-321.43	694.53	5738140.07	568041.66
1940	63.97	141.2	1452.02	-1419.2	-324.93	697.35	5738136.57	568044.47
1945	63.99	141.27	1454.22	-1421.4	-328.43	700.17	5738133.06	568047.29
1950	64.15	141.33	1456.41	-1423.59	-331.94	702.98	5738129.56	568050.1
1955	64.31	141.39	1458.58	-1425.76	-335.46	705.79	5738126.04	568052.91
1960	64.47	141.45	1460.74	-1427.92	-338.98	708.6	5738122.51	568055.72
1965	64.63	141.51	1462.89	-1430.07	-342.51	711.41	5738118.98	568058.53
1970	64.79	141.57	1465.02	-1432.2	-346.05	714.22	5738115.44	568061.34
1975	64.95	141.66	1467.15	-1434.33	-349.6	717.03	5738111.89	568064.15
1980	65.1	141.76	1469.26	-1436.44	-353.16	719.84	5738108.34	568066.96
1985	65.25	141.86	1471.36	-1438.54	-356.72	722.64	5738104.77	568069.76
1990	65.41	141.96	1473.44	-1440.62	-360.3	725.44	5738101.19	568072.57
1995	65.56	142.06	1475.52	-1442.7	-363.89	728.24	5738097.61	568075.37
2000	65.71	142.17	1477.58	-1444.76	-367.48	731.04	5738094.01	568078.16
2005	65.83	142.23	1479.63	-1446.81	-371.08	733.83	5738090.41	568080.96
2010	65.94	142.3	1481.68	-1448.86	-374.69	736.63	5738086.8	568083.75
2015	66.05	142.36	1483.71	-1450.89	-378.31	739.42	5738083.19	568086.54
2020	66.16	142.42	1485.74	-1452.92	-381.93	742.21	5738079.56	568089.33
2025	66.27	142.49	1487.75	-1454.93	-385.56	744.99	5738075.94	568092.11
2030	66.38	142.54	1489.76	-1456.94	-389.19	747.78	5738072.3	568094.9
2035	66.5	142.51	1491.76	-1458.94	-392.83	750.57	5738068.67	568097.69
2040	66.61	142.49	1493.75	-1460.93	-396.46	753.36	5738065.03	568100.48
2045	66.73	142.47	1495.73	-1462.91	-400.11	756.15	5738061.39	568103.28
2050	66.85	142.45	1497.7	-1464.88	-403.75	758.95	5738057.74	568106.07
2055	66.97	142.42	1499.66	-1466.84	-407.4	761.76	5738054.1	568108.88
2060	67	142.44	1501.61	-1468.79	-411.04	764.56	5738050.45	568111.68
2065	66.9	142.53	1503.57	-1470.75	-414.69	767.36	5738046.8	568114.49
2070	66.8	142.61	1505.54	-1472.72	-418.34	770.16	5738043.15	568117.28
2075	66.7	142.69	1507.51	-1474.69	-421.99	772.94	5738039.5	568120.07
2080	66.59	142.78	1509.49	-1476.67	-425.65	775.72	5738035.84	568122.84
2085	66.49	142.86	1511.48	-1478.66	-429.3	778.49	5738032.19	568125.62
2090	66.35	142.89	1513.48	-1480.66	-432.96	781.26	5738028.54	568128.38
2095	66.2	142.89	1515.49	-1482.68	-436.61	784.02	5738024.89	568131.14
2100	66.04	142.89	1517.52	-1484.7	-440.25	786.78	5738021.24	568133.9
2105	65.88	142.9	1519.56	-1486.74	-443.89	789.53	5738017.6	568136.65
2110	65.72	142.9	1521.61	-1488.79	-447.53	792.28	5738013.96	568139.4
2115	65.57	142.9	1523.67	-1490.85	-451.16	795.03	5738010.33	568142.15
2120	65.75	142.86	1525.73	-1492.91	-454.8	797.78	5738006.7	568144.9
2125	65.97	142.81	1527.78	-1494.95	-458.43	800.53	5738003.06	568147.66
2130	66.19	142.76	1529.8	-1496.98	-462.07	803.3	5737999.42	568150.42
2135	66.41	142.72	1531.81	-1498.99	-465.72	806.07	5737995.78	568153.19
2140	66.63	142.67	1533.81	-1500.98	-469.36	808.85	5737992.13	568155.97
2145	66.79	142.64	1535.78	-1502.96	-473.01	811.63	5737988.48	568158.75
2150	66.65	142.69	1537.76	-1504.94	-476.67	814.42	5737984.83	568161.54
2155	66.51	142.75	1539.74	-1506.92	-480.32	817.2	5737981.18	568164.32
2160	66.38	142.8	1541.74	-1508.92	-483.97	819.97	5737977.53	568167.09
2165	66.24	142.85	1543.75	-1510.93	-487.61	822.73	5737973.88	568169.86
2170	66.1	142.91	1545.77	-1512.95	-491.26	825.49	5737970.23	568172.61
2175	66.09	142.89	1547.8	-1514.98	-494.91	828.25	5737966.59	568175.37
2180	66.28	142.79	1549.82	-1517	-498.55	831.01	5737962.94	568178.13
2185	66.46	142.68	1551.82	-1519	-502.2	833.78	5737959.29	568180.9
2190	66.64	142.57	1553.81	-1520.99	-505.84	836.57	5737955.65	568183.69
2195	66.82	142.46	1555.79	-1522.97	-509.49	839.36	5737952.01	568186.48
2200	67	142.35	1557.75	-1524.93	-513.13	842.17	5737948.36	568189.29
2205	66.94	142.34	1559.7	-1526.88	-516.77	844.98	5737944.72	568192.1
2210	66.76	142.38	1561.67	-1528.85	-520.41	847.79	5737941.08	568194.91

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2215	66.58	142.42	1563.65	-1530.83	-524.05	850.59	5737937.44	568197.71
2220	66.4	142.46	1565.64	-1532.82	-527.69	853.38	5737933.81	568200.5
2225	66.22	142.5	1567.65	-1534.83	-531.32	856.17	5737930.18	568203.29
2230	66.04	142.54	1569.68	-1536.86	-534.95	858.95	5737926.55	568206.07
2235	66.22	142.58	1571.7	-1538.88	-538.58	861.73	5737922.92	568208.85
2240	66.44	142.62	1573.71	-1540.89	-542.21	864.51	5737919.28	568211.63
2245	66.65	142.66	1575.7	-1542.88	-545.86	867.3	5737915.64	568214.42
2250	66.87	142.7	1577.67	-1544.85	-549.51	870.08	5737911.98	568217.2
2255	67.09	142.74	1579.63	-1546.81	-553.17	872.87	5737908.32	568219.99
2260	67.26	142.77	1581.57	-1548.74	-556.84	875.66	5737904.65	568222.78
2265	67.12	142.8	1583.5	-1550.68	-560.51	878.44	5737900.98	568225.56
2270	66.99	142.82	1585.45	-1552.63	-564.18	881.23	5737897.31	568228.35
2275	66.85	142.84	1587.41	-1554.59	-567.85	884	5737893.65	568231.13
2280	66.71	142.86	1589.38	-1556.56	-571.51	886.78	5737889.99	568233.9
2285	66.57	142.89	1591.37	-1558.55	-575.17	889.55	5737886.32	568236.67
2290	66.58	142.89	1593.36	-1560.54	-578.83	892.31	5737882.67	568239.44
2295	66.79	142.87	1595.34	-1562.52	-582.49	895.08	5737879.01	568242.21
2300	67	142.85	1597.3	-1564.48	-586.15	897.86	5737875.34	568244.98
2305	67.21	142.83	1599.24	-1566.43	-589.82	900.64	5737871.67	568247.76
2310	67.42	142.81	1601.17	-1568.35	-593.5	903.43	5737868	568250.55
2315	67.63	142.79	1603.09	-1570.27	-597.18	906.22	5737864.31	568253.34
2320	67.6	142.8	1604.99	-1572.17	-600.86	909.02	5737860.63	568256.14
2325	67.43	142.82	1606.9	-1574.08	-604.54	911.81	5737856.95	568258.93
2330	67.25	142.85	1608.83	-1576.01	-608.22	914.6	5737853.27	568261.72
2335	67.07	142.88	1610.77	-1577.95	-611.89	917.38	5737849.6	568264.5
2340	66.89	142.91	1612.72	-1579.9	-615.56	920.15	5737845.93	568267.27
2345	66.71	142.94	1614.69	-1581.87	-619.23	922.92	5737842.26	568270.05
2350	66.57	142.93	1616.67	-1583.85	-622.89	925.69	5737838.6	568272.81
2355	66.43	142.93	1618.67	-1585.85	-626.55	928.45	5737834.94	568275.57
2360	66.29	142.92	1620.67	-1587.85	-630.2	931.21	5737831.29	568278.33
2365	66.15	142.91	1622.69	-1589.87	-633.86	933.97	5737827.64	568281.09
2370	66.01	142.91	1624.71	-1591.9	-637.5	936.73	5737823.99	568283.85
2375	65.88	142.9	1626.75	-1593.93	-641.14	939.48	5737820.35	568286.6
2380	65.8	142.94	1628.8	-1595.98	-644.78	942.23	5737816.71	568289.35
2385	65.72	142.97	1630.85	-1598.03	-648.42	944.98	5737813.07	568292.1
2390	65.64	143.01	1632.91	-1600.09	-652.06	947.72	5737809.43	568294.84
2395	65.55	143.04	1634.98	-1602.16	-655.7	950.45	5737805.8	568297.58
2400	65.47	143.08	1637.05	-1604.23	-659.33	953.19	5737802.16	568300.31
2405	65.37	143.09	1639.13	-1606.31	-662.97	955.92	5737798.52	568303.04
2410	65.24	143.06	1641.22	-1608.4	-666.6	958.65	5737794.89	568305.77
2415	65.1	143.04	1643.32	-1610.5	-670.23	961.37	5737791.27	568308.5
2420	64.97	143.01	1645.43	-1612.61	-673.85	964.1	5737787.64	568311.22
2425	64.84	142.99	1647.55	-1614.73	-677.47	966.82	5737784.03	568313.95
2430	64.71	142.96	1649.68	-1616.86	-681.08	969.55	5737780.42	568316.67
2435	64.69	142.94	1651.82	-1619	-684.68	972.27	5737776.81	568319.39
2440	64.75	142.93	1653.95	-1621.13	-688.29	974.99	5737773.2	568322.12
2445	64.81	142.92	1656.09	-1623.27	-691.9	977.72	5737769.59	568324.84
2450	64.87	142.91	1658.21	-1625.39	-695.51	980.45	5737765.98	568327.57
2455	64.93	142.9	1660.33	-1627.51	-699.12	983.18	5737762.37	568330.3
2460	64.99	142.89	1662.45	-1629.63	-702.73	985.91	5737758.76	568333.03
2465	65.24	142.79	1664.56	-1631.73	-706.35	988.65	5737755.14	568335.77
2470	65.54	142.66	1666.64	-1633.82	-709.97	991.4	5737751.53	568338.52
2475	65.85	142.53	1668.7	-1635.88	-713.59	994.17	5737747.91	568341.29
2480	66.15	142.4	1670.73	-1637.91	-717.21	996.95	5737744.28	568344.07
2485	66.46	142.27	1672.74	-1639.92	-720.83	999.75	5737740.66	568346.87
2490	66.74	142.15	1674.72	-1641.9	-724.46	1002.56	5737737.03	568349.68
2495	66.6	142.12	1676.7	-1643.88	-728.08	1005.37	5737733.41	568352.5
2500	66.46	142.1	1678.69	-1645.88	-731.7	1008.19	5737729.79	568355.31
2505	66.32	142.08	1680.7	-1647.88	-735.32	1011	5737726.17	568358.13
2510	66.18	142.05	1682.71	-1649.89	-738.93	1013.82	5737722.56	568360.94
2515	66.04	142.03	1684.73	-1651.92	-742.53	1016.63	5737718.96	568363.75
2520	65.92	142.01	1686.77	-1653.95	-746.13	1019.44	5737715.36	568366.56
2525	65.84	142.01	1688.81	-1655.99	-749.73	1022.25	5737711.76	568369.37
2530	65.75	142.01	1690.86	-1658.04	-753.32	1025.05	5737708.17	568372.18
2535	65.67	142.02	1692.92	-1660.1	-756.92	1027.86	5737704.58	568374.98
2540	65.59	142.02	1694.98	-1662.16	-760.51	1030.66	5737700.99	568377.78
2545	65.5	142.02	1697.05	-1664.23	-764.09	1033.46	5737697.4	568380.58
2550	65.41	142	1699.13	-1666.31	-767.68	1036.26	5737693.81	568383.38
2555	65.31	141.97	1701.21	-1668.4	-771.26	1039.06	5737690.23	568386.18
2560	65.22	141.94	1703.31	-1670.49	-774.84	1041.85	5737686.66	568388.98
2565	65.12	141.91	1705.41	-1672.59	-778.41	1044.65	5737683.08	568391.77
2570	65.02	141.88	1707.51	-1674.69	-781.98	1047.45	5737679.52	568394.57
2575	64.92	141.85	1709.63	-1676.81	-785.54	1050.25	5737675.95	568397.37
2580	64.96	141.83	1711.75	-1678.93	-789.1	1053.04	5737672.39	568400.16
2585	65.07	141.82	1713.86	-1681.04	-792.66	1055.84	5737668.83	568402.97
2590	65.17	141.81	1715.96	-1683.15	-796.23	1058.65	5737665.26	568405.77

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2595	65.28	141.8	1718.06	-1685.24	-799.8	1061.45	5737661.7	568408.58
2600	65.38	141.78	1720.15	-1687.33	-803.37	1064.26	5737658.13	568411.39
2605	65.49	141.77	1722.23	-1689.41	-806.94	1067.08	5737654.55	568414.2
2610	65.7	141.75	1724.29	-1691.47	-810.52	1069.89	5737650.98	568417.02
2615	65.93	141.74	1726.34	-1693.52	-814.1	1072.72	5737647.39	568419.84
2620	66.16	141.72	1728.37	-1695.55	-817.69	1075.55	5737643.81	568422.67
2625	66.39	141.7	1730.38	-1697.56	-821.28	1078.38	5737640.21	568425.5
2630	66.62	141.68	1732.38	-1699.56	-824.88	1081.22	5737636.62	568428.35
2635	66.8	141.68	1734.35	-1701.53	-828.48	1084.07	5737633.01	568431.19
2640	66.7	141.72	1736.32	-1703.5	-832.09	1086.92	5737629.41	568434.04
2645	66.59	141.76	1738.31	-1705.49	-835.69	1089.76	5737625.8	568436.88
2650	66.48	141.8	1740.3	-1707.48	-839.29	1092.6	5737622.2	568439.72
2655	66.37	141.84	1742.3	-1709.48	-842.9	1095.43	5737618.6	568442.55
2660	66.26	141.88	1744.31	-1711.49	-846.5	1098.26	5737614.99	568445.38
2665	66.15	141.87	1746.32	-1713.5	-850.1	1101.08	5737611.4	568448.2
2670	66.03	141.85	1748.35	-1715.53	-853.69	1103.9	5737607.8	568451.02
2675	65.92	141.84	1750.39	-1717.57	-857.28	1106.72	5737604.21	568453.84
2680	65.81	141.82	1752.43	-1719.61	-860.87	1109.54	5737600.62	568456.66
2685	65.69	141.8	1754.48	-1721.66	-864.46	1112.36	5737597.04	568459.48
2690	65.64	141.8	1756.55	-1723.72	-868.03	1115.18	5737593.46	568462.3
2695	65.92	141.91	1758.6	-1725.78	-871.62	1117.99	5737589.87	568465.11
2700	66.2	142.02	1760.63	-1727.81	-875.22	1120.81	5737586.27	568467.93
2705	66.48	142.14	1762.63	-1729.81	-878.83	1123.62	5737582.66	568470.74
2710	66.76	142.25	1764.62	-1731.8	-882.46	1126.43	5737579.03	568473.56
2715	67.04	142.36	1766.58	-1733.76	-886.1	1129.24	5737575.4	568476.37
2720	67.19	142.45	1768.52	-1735.7	-889.75	1132.05	5737571.74	568479.18
2725	67.07	142.49	1770.46	-1737.64	-893.4	1134.86	5737568.09	568481.98
2730	66.95	142.52	1772.41	-1739.59	-897.06	1137.66	5737564.44	568484.78
2735	66.83	142.56	1774.38	-1741.56	-900.71	1140.46	5737560.79	568487.58
2740	66.71	142.59	1776.35	-1743.53	-904.35	1143.25	5737557.14	568490.37
2745	66.59	142.63	1778.33	-1745.51	-908	1146.04	5737553.49	568493.16
2750	66.46	142.6	1780.32	-1747.5	-911.65	1148.82	5737549.85	568495.94
2755	66.32	142.53	1782.33	-1749.51	-915.28	1151.6	5737546.21	568498.73
2760	66.19	142.47	1784.34	-1751.52	-918.92	1154.39	5737542.58	568501.51
2765	66.05	142.4	1786.36	-1753.54	-922.54	1157.18	5737538.95	568504.3
2770	65.91	142.33	1788.4	-1755.58	-926.16	1159.96	5737535.34	568507.08
2775	65.78	142.27	1790.44	-1757.62	-929.77	1162.75	5737531.73	568509.87
2779	65.67	142.27	1792.09	-1759.27	-932.65	1164.98	5737528.84	568512.11
2780	65.64	142.27	1792.5	-1759.68	-933.37	1165.54	5737528.12	568512.66
2781	65.61	142.27	1792.91	-1760.09	-934.09	1166.1	5737527.4	568513.22
2782	65.58	142.28	1793.33	-1760.51	-934.81	1166.65	5737526.68	568513.78
2783	65.55	142.28	1793.74	-1760.92	-935.53	1167.21	5737525.96	568514.33
2784	65.52	142.28	1794.16	-1761.34	-936.25	1167.77	5737525.24	568514.89
2785	65.5	142.28	1794.57	-1761.75	-936.97	1168.33	5737524.52	568515.45
2786	65.47	142.29	1794.98	-1762.16	-937.69	1168.88	5737523.8	568516
2787	65.44	142.29	1795.4	-1762.58	-938.41	1169.44	5737523.08	568516.56
2788	65.41	142.29	1795.82	-1762.99	-939.13	1169.99	5737522.36	568517.12
2789	65.38	142.29	1796.23	-1763.41	-939.85	1170.55	5737521.64	568517.67
2790	65.36	142.29	1796.65	-1763.83	-940.57	1171.11	5737520.92	568518.23
2791	65.33	142.3	1797.07	-1764.25	-941.29	1171.66	5737520.2	568518.78
2792	65.3	142.3	1797.48	-1764.66	-942.01	1172.22	5737519.48	568519.34
2793	65.27	142.3	1797.9	-1765.08	-942.73	1172.77	5737518.77	568519.89
2794	65.24	142.3	1798.32	-1765.5	-943.45	1173.33	5737518.05	568520.45
2795	65.21	142.31	1798.74	-1765.92	-944.16	1173.88	5737517.33	568521.01
2796	65.19	142.31	1799.16	-1766.34	-944.88	1174.44	5737516.61	568521.56
2797	65.16	142.31	1799.58	-1766.76	-945.6	1174.99	5737515.89	568522.11
2798	65.13	142.31	1800	-1767.18	-946.32	1175.55	5737515.17	568522.67
2799	65.1	142.32	1800.42	-1767.6	-947.04	1176.1	5737514.46	568523.22
2800	65.07	142.32	1800.84	-1768.02	-947.75	1176.65	5737513.74	568523.78
2801	65.04	142.32	1801.26	-1768.44	-948.47	1177.21	5737513.02	568524.33
2802	65.02	142.32	1801.68	-1768.87	-949.19	1177.76	5737512.3	568524.89
2803	64.99	142.33	1802.11	-1769.29	-949.91	1178.32	5737511.59	568525.44
2804	64.96	142.33	1802.53	-1769.71	-950.62	1178.87	5737510.87	568525.99
2805	64.98	142.33	1802.95	-1770.13	-951.34	1179.42	5737510.15	568526.55
2806	65.03	142.33	1803.38	-1770.56	-952.06	1179.98	5737509.43	568527.1
2807	65.08	142.33	1803.8	-1770.98	-952.78	1180.53	5737508.72	568527.65
2808	65.13	142.34	1804.22	-1771.4	-953.49	1181.09	5737508	568528.21
2809	65.18	142.34	1804.64	-1771.82	-954.21	1181.64	5737507.28	568528.76
2810	65.23	142.34	1805.06	-1772.24	-954.93	1182.19	5737506.56	568529.32
2811	65.28	142.34	1805.48	-1772.66	-955.65	1182.75	5737505.84	568529.87
2812	65.32	142.34	1805.9	-1773.08	-956.37	1183.3	5737505.12	568530.43
2813	65.37	142.35	1806.31	-1773.49	-957.09	1183.86	5737504.4	568530.98
2814	65.42	142.35	1806.73	-1773.91	-957.81	1184.41	5737503.68	568531.54
2815	65.47	142.35	1807.14	-1774.32	-958.53	1184.97	5737502.96	568532.09
2816	65.52	142.35	1807.56	-1774.74	-959.25	1185.53	5737502.24	568532.65
2817	65.57	142.35	1807.97	-1775.15	-959.97	1186.08	5737501.52	568533.2

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2818	65.62	142.35	1808.39	-1775.57	-960.69	1186.64	5737500.8	568533.76
2819	65.67	142.36	1808.8	-1775.98	-961.41	1187.19	5737500.08	568534.32
2820	65.72	142.36	1809.21	-1776.39	-962.13	1187.75	5737499.36	568534.87
2821	65.77	142.36	1809.62	-1776.8	-962.86	1188.31	5737498.64	568535.43
2822	65.81	142.36	1810.03	-1777.21	-963.58	1188.86	5737497.91	568535.99
2823	65.86	142.36	1810.44	-1777.62	-964.3	1189.42	5737497.19	568536.54
2824	65.91	142.36	1810.85	-1778.03	-965.02	1189.98	5737496.47	568537.1
2825	65.96	142.37	1811.26	-1778.44	-965.75	1190.54	5737495.75	568537.66
2826	66.01	142.37	1811.66	-1778.84	-966.47	1191.09	5737495.02	568538.22
2827	66.06	142.37	1812.07	-1779.25	-967.2	1191.65	5737494.3	568538.77
2828	66.11	142.37	1812.47	-1779.66	-967.92	1192.21	5737493.57	568539.33
2829	66.16	142.37	1812.88	-1780.06	-968.64	1192.77	5737492.85	568539.89
2830	66.21	142.37	1813.28	-1780.46	-969.37	1193.33	5737492.13	568540.45
2831	66.26	142.38	1813.69	-1780.87	-970.09	1193.88	5737491.4	568541.01
2832	66.3	142.38	1814.09	-1781.27	-970.82	1194.44	5737490.67	568541.56
2833	66.35	142.38	1814.49	-1781.67	-971.54	1195	5737489.95	568542.12
2834	66.32	142.37	1814.89	-1782.07	-972.27	1195.56	5737489.22	568542.68
2835	66.3	142.37	1815.29	-1782.47	-972.99	1196.12	5737488.5	568543.24
2836	66.28	142.36	1815.69	-1782.88	-973.72	1196.68	5737487.77	568543.8
2837	66.25	142.35	1816.1	-1783.28	-974.44	1197.24	5737487.05	568544.36
2838	66.23	142.35	1816.5	-1783.68	-975.17	1197.8	5737486.32	568544.92
2839	66.21	142.34	1816.9	-1784.08	-975.89	1198.36	5737485.6	568545.48
2840	66.18	142.33	1817.31	-1784.49	-976.62	1198.91	5737484.88	568546.04
2841	66.16	142.33	1817.71	-1784.89	-977.34	1199.47	5737484.15	568546.6
2842	66.14	142.32	1818.12	-1785.3	-978.07	1200.03	5737483.43	568547.15
2843	66.11	142.31	1818.52	-1785.7	-978.79	1200.59	5737482.7	568547.71
2844	66.09	142.31	1818.93	-1786.11	-979.51	1201.15	5737481.98	568548.27
2845	66.06	142.3	1819.33	-1786.51	-980.24	1201.71	5737481.26	568548.83
2846	66.04	142.29	1819.74	-1786.92	-980.96	1202.27	5737480.53	568549.39
2847	66.02	142.29	1820.14	-1787.32	-981.68	1202.83	5737479.81	568549.95
2848	65.99	142.28	1820.55	-1787.73	-982.41	1203.39	5737479.09	568550.51
2849	65.97	142.27	1820.96	-1788.14	-983.13	1203.94	5737478.36	568551.07
2850	65.95	142.27	1821.37	-1788.55	-983.85	1204.5	5737477.64	568551.62
2851	65.92	142.26	1821.77	-1788.95	-984.57	1205.06	5737476.92	568552.18
2852	65.9	142.25	1822.18	-1789.36	-985.29	1205.62	5737476.2	568552.74
2853	65.87	142.25	1822.59	-1789.77	-986.02	1206.18	5737475.48	568553.3
2854	65.85	142.24	1823	-1790.18	-986.74	1206.74	5737474.76	568553.86
2855	65.83	142.23	1823.41	-1790.59	-987.46	1207.3	5737474.03	568554.42
2856	65.8	142.23	1823.82	-1791	-988.18	1207.85	5737473.31	568554.98
2857	65.78	142.22	1824.23	-1791.41	-988.9	1208.41	5737472.59	568555.53
2858	65.76	142.21	1824.64	-1791.82	-989.62	1208.97	5737471.87	568556.09
2859	65.73	142.21	1825.05	-1792.23	-990.34	1209.53	5737471.15	568556.65
2860	65.71	142.2	1825.46	-1792.64	-991.06	1210.09	5737470.43	568557.21
2861	65.68	142.19	1825.87	-1793.05	-991.78	1210.65	5737469.71	568557.77
2862	65.66	142.19	1826.28	-1793.46	-992.5	1211.21	5737468.99	568558.33
2863	65.64	142.18	1826.69	-1793.88	-993.22	1211.76	5737468.27	568558.89
2864	65.63	142.18	1827.11	-1794.29	-993.94	1212.32	5737467.55	568559.44
2865	65.61	142.17	1827.52	-1794.7	-994.66	1212.88	5737466.83	568560
2866	65.59	142.16	1827.93	-1795.11	-995.38	1213.44	5737466.11	568560.56
2867	65.57	142.16	1828.35	-1795.53	-996.1	1214	5737465.39	568561.12
2868	65.55	142.15	1828.76	-1795.94	-996.82	1214.56	5737464.67	568561.68
2869	65.53	142.15	1829.18	-1796.36	-997.54	1215.11	5737463.96	568562.24
2870	65.51	142.14	1829.59	-1796.77	-998.26	1215.67	5737463.24	568562.79
2871	65.49	142.13	1830	-1797.18	-998.97	1216.23	5737462.52	568563.35
2872	65.48	142.13	1830.42	-1797.6	-999.69	1216.79	5737461.8	568563.91
2873	65.46	142.12	1830.83	-1798.01	-1000.41	1217.35	5737461.08	568564.47
2874	65.44	142.12	1831.25	-1798.43	-1001.13	1217.91	5737460.36	568565.03
2875	65.42	142.11	1831.67	-1798.85	-1001.85	1218.46	5737459.65	568565.59
2876	65.4	142.11	1832.08	-1799.26	-1002.56	1219.02	5737458.93	568566.14
2877	65.38	142.1	1832.5	-1799.68	-1003.28	1219.58	5737458.21	568566.7
2878	65.36	142.09	1832.92	-1800.1	-1004	1220.14	5737457.49	568567.26
2879	65.34	142.09	1833.33	-1800.51	-1004.72	1220.7	5737456.78	568567.82
2880	65.33	142.08	1833.75	-1800.93	-1005.43	1221.26	5737456.06	568568.38
2881	65.31	142.08	1834.17	-1801.35	-1006.15	1221.81	5737455.34	568568.94
2882	65.29	142.07	1834.59	-1801.77	-1006.87	1222.37	5737454.63	568569.49
2883	65.27	142.06	1835	-1802.18	-1007.58	1222.93	5737453.91	568570.05
2884	65.25	142.06	1835.42	-1802.6	-1008.3	1223.49	5737453.19	568570.61
2885	65.23	142.05	1835.84	-1803.02	-1009.02	1224.05	5737452.48	568571.17
2886	65.21	142.05	1836.26	-1803.44	-1009.73	1224.61	5737451.76	568571.73
2887	65.19	142.04	1836.68	-1803.86	-1010.45	1225.16	5737451.05	568572.28
2888	65.18	142.03	1837.1	-1804.28	-1011.16	1225.72	5737450.33	568572.84
2889	65.16	142.03	1837.52	-1804.7	-1011.88	1226.28	5737449.61	568573.4
2890	65.14	142.02	1837.94	-1805.12	-1012.59	1226.84	5737448.9	568573.96
2891	65.16	142.01	1838.36	-1805.54	-1013.31	1227.4	5737448.18	568574.52
2892	65.2	142	1838.78	-1805.96	-1014.03	1227.95	5737447.47	568575.08
2893	65.24	141.99	1839.2	-1806.38	-1014.74	1228.51	5737446.75	568575.64

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2894	65.28	141.97	1839.62	-1806.8	-1015.46	1229.07	5737446.04	568576.2
2895	65.33	141.96	1840.03	-1807.21	-1016.17	1229.63	5737445.32	568576.75
2896	65.37	141.95	1840.45	-1807.63	-1016.89	1230.19	5737444.61	568577.31
2897	65.41	141.93	1840.87	-1808.05	-1017.6	1230.75	5737443.89	568577.87
2898	65.46	141.92	1841.28	-1808.46	-1018.32	1231.31	5737443.17	568578.44
2899	65.5	141.91	1841.7	-1808.88	-1019.03	1231.87	5737442.46	568579
2900	65.54	141.9	1842.11	-1809.29	-1019.75	1232.44	5737441.74	568579.56
2901	65.58	141.88	1842.53	-1809.71	-1020.47	1233	5737441.03	568580.12
2902	65.63	141.87	1842.94	-1810.12	-1021.18	1233.56	5737440.31	568580.68
2903	65.67	141.86	1843.35	-1810.53	-1021.9	1234.12	5737439.59	568581.24
2904	65.71	141.84	1843.76	-1810.94	-1022.62	1234.69	5737438.88	568581.81
2905	65.75	141.83	1844.18	-1811.36	-1023.33	1235.25	5737438.16	568582.37
2906	65.8	141.82	1844.59	-1811.77	-1024.05	1235.81	5737437.44	568582.93
2907	65.84	141.8	1844.99	-1812.18	-1024.77	1236.38	5737436.72	568583.5
2908	65.88	141.79	1845.4	-1812.58	-1025.49	1236.94	5737436.01	568584.06
2909	65.93	141.78	1845.81	-1812.99	-1026.2	1237.5	5737435.29	568584.63
2910	65.97	141.77	1846.22	-1813.4	-1026.92	1238.07	5737434.57	568585.19
2911	66.01	141.75	1846.63	-1813.81	-1027.64	1238.63	5737433.86	568585.76
2912	66.05	141.74	1847.03	-1814.21	-1028.36	1239.2	5737433.14	568586.32
2913	66.1	141.73	1847.44	-1814.62	-1029.07	1239.77	5737432.42	568586.89
2914	66.14	141.71	1847.84	-1815.02	-1029.79	1240.33	5737431.7	568587.46
2915	66.18	141.7	1848.25	-1815.43	-1030.51	1240.9	5737430.98	568588.02
2916	66.23	141.69	1848.65	-1815.83	-1031.23	1241.47	5737430.27	568588.59
2917	66.27	141.67	1849.05	-1816.23	-1031.94	1242.03	5737429.55	568589.16
2918	66.31	141.66	1849.46	-1816.64	-1032.66	1242.6	5737428.83	568589.72
2919	66.35	141.65	1849.86	-1817.04	-1033.38	1243.17	5737428.11	568590.29
2920	66.35	141.66	1850.26	-1817.44	-1034.1	1243.74	5737427.39	568590.86
2921	66.34	141.67	1850.66	-1817.84	-1034.82	1244.31	5737426.67	568591.43
2922	66.34	141.67	1851.06	-1818.24	-1035.54	1244.87	5737425.96	568592
2923	66.34	141.68	1851.46	-1818.64	-1036.26	1245.44	5737425.24	568592.56
2924	66.33	141.69	1851.86	-1819.04	-1036.97	1246.01	5737424.52	568593.13
2925	66.33	141.7	1852.27	-1819.44	-1037.69	1246.58	5737423.8	568593.7
2926	66.33	141.71	1852.67	-1819.85	-1038.41	1247.14	5737423.08	568594.27
2927	66.32	141.72	1853.07	-1820.25	-1039.13	1247.71	5737422.36	568594.83
2928	66.32	141.72	1853.47	-1820.65	-1039.85	1248.28	5737421.64	568595.4
2929	66.32	141.73	1853.87	-1821.05	-1040.57	1248.85	5737420.92	568595.97
2930	66.32	141.74	1854.27	-1821.45	-1041.29	1249.41	5737420.2	568596.54
2931	66.31	141.75	1854.67	-1821.85	-1042.01	1249.98	5737419.49	568597.1
2932	66.31	141.76	1855.08	-1822.26	-1042.73	1250.55	5737418.77	568597.67
2933	66.31	141.76	1855.48	-1822.66	-1043.45	1251.11	5737418.05	568598.24
2934	66.3	141.77	1855.88	-1823.06	-1044.16	1251.68	5737417.33	568598.8
2935	66.3	141.78	1856.28	-1823.46	-1044.88	1252.25	5737416.61	568599.37
2936	66.3	141.79	1856.68	-1823.86	-1045.6	1252.81	5737415.89	568599.93
2937	66.29	141.8	1857.09	-1824.27	-1046.32	1253.38	5737415.17	568600.5
2938	66.29	141.8	1857.49	-1824.67	-1047.04	1253.94	5737414.45	568601.07
2939	66.29	141.81	1857.89	-1825.07	-1047.76	1254.51	5737413.73	568601.63
2940	66.28	141.82	1858.29	-1825.47	-1048.48	1255.08	5737413.01	568602.2
2941	66.28	141.83	1858.69	-1825.87	-1049.2	1255.64	5737412.29	568602.76
2942	66.28	141.84	1859.1	-1826.28	-1049.92	1256.21	5737411.57	568603.33
2943	66.27	141.84	1859.5	-1826.68	-1050.64	1256.77	5737410.85	568603.9
2944	66.27	141.85	1859.9	-1827.08	-1051.36	1257.34	5737410.13	568604.46
2945	66.27	141.86	1860.3	-1827.48	-1052.08	1257.9	5737409.41	568605.03
2946	66.26	141.87	1860.71	-1827.89	-1052.8	1258.47	5737408.69	568605.59
2947	66.26	141.88	1861.11	-1828.29	-1053.52	1259.03	5737407.97	568606.16
2948	66.26	141.88	1861.51	-1828.69	-1054.24	1259.6	5737407.25	568606.72
2949	66.25	141.87	1861.91	-1829.09	-1054.96	1260.16	5737406.53	568607.29
2950	66.24	141.86	1862.32	-1829.5	-1055.68	1260.73	5737405.81	568607.85
2951	66.23	141.85	1862.72	-1829.9	-1056.4	1261.29	5737405.09	568608.42
2952	66.23	141.84	1863.12	-1830.3	-1057.12	1261.86	5737404.37	568608.98
2953	66.22	141.83	1863.53	-1830.71	-1057.84	1262.42	5737403.65	568609.55
2954	66.21	141.83	1863.93	-1831.11	-1058.56	1262.99	5737402.93	568610.11
2955	66.2	141.82	1864.33	-1831.51	-1059.28	1263.56	5737402.21	568610.68
2956	66.19	141.81	1864.74	-1831.92	-1060	1264.12	5737401.49	568611.24
2957	66.19	141.8	1865.14	-1832.32	-1060.72	1264.69	5737400.77	568611.81
2958	66.18	141.79	1865.54	-1832.72	-1061.44	1265.25	5737400.06	568612.37
2959	66.17	141.78	1865.95	-1833.13	-1062.16	1265.82	5737399.34	568612.94
2960	66.16	141.77	1866.35	-1833.53	-1062.87	1266.38	5737398.62	568613.51
2961	66.16	141.77	1866.76	-1833.94	-1063.59	1266.95	5737397.9	568614.07
2962	66.15	141.76	1867.16	-1834.34	-1064.31	1267.52	5737397.18	568614.64
2963	66.14	141.75	1867.57	-1834.74	-1065.03	1268.08	5737396.46	568615.2
2964	66.13	141.74	1867.97	-1835.15	-1065.75	1268.65	5737395.74	568615.77
2965	66.12	141.73	1868.37	-1835.55	-1066.47	1269.21	5737395.03	568616.34
2966	66.12	141.72	1868.78	-1835.96	-1067.18	1269.78	5737394.31	568616.9
2967	66.11	141.72	1869.18	-1836.36	-1067.9	1270.35	5737393.59	568617.47
2968	66.1	141.71	1869.59	-1836.77	-1068.62	1270.91	5737392.87	568618.03
2969	66.09	141.7	1869.99	-1837.17	-1069.34	1271.48	5737392.16	568618.6

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2970	66.09	141.69	1870.4	-1837.58	-1070.05	1272.05	5737391.44	568619.17
2971	66.08	141.68	1870.81	-1837.98	-1070.77	1272.61	5737390.72	568619.73
2972	66.07	141.67	1871.21	-1838.39	-1071.49	1273.18	5737390	568620.3
2973	66.06	141.66	1871.62	-1838.8	-1072.21	1273.75	5737389.29	568620.87
2974	66.06	141.66	1872.02	-1839.2	-1072.92	1274.31	5737388.57	568621.44
2975	66.05	141.65	1872.43	-1839.61	-1073.64	1274.88	5737387.85	568622
2976	66.04	141.64	1872.83	-1840.01	-1074.36	1275.45	5737387.14	568622.57
2977	66.03	141.64	1873.24	-1840.42	-1075.07	1276.01	5737386.42	568623.14
2978	66.01	141.65	1873.65	-1840.83	-1075.79	1276.58	5737385.7	568623.7
2979	66	141.65	1874.05	-1841.23	-1076.51	1277.15	5737384.99	568624.27
2980	65.98	141.65	1874.46	-1841.64	-1077.22	1277.71	5737384.27	568624.84
2981	65.97	141.66	1874.87	-1842.05	-1077.94	1278.28	5737383.55	568625.4
2982	65.95	141.66	1875.28	-1842.45	-1078.66	1278.85	5737382.84	568625.97
2983	65.94	141.66	1875.68	-1842.86	-1079.37	1279.41	5737382.12	568626.53
2984	65.93	141.67	1876.09	-1843.27	-1080.09	1279.98	5737381.41	568627.1
2985	65.91	141.67	1876.5	-1843.68	-1080.8	1280.55	5737380.69	568627.67
2986	65.9	141.67	1876.91	-1844.09	-1081.52	1281.11	5737379.97	568628.23
2987	65.88	141.68	1877.32	-1844.49	-1082.24	1281.68	5737379.26	568628.8
2988	65.87	141.68	1877.72	-1844.9	-1082.95	1282.24	5737378.54	568629.37
2989	65.85	141.69	1878.13	-1845.31	-1083.67	1282.81	5737377.82	568629.93
2990	65.84	141.69	1878.54	-1845.72	-1084.38	1283.37	5737377.11	568630.5
2991	65.83	141.69	1878.95	-1846.13	-1085.1	1283.94	5737376.39	568631.06
2992	65.81	141.7	1879.36	-1846.54	-1085.82	1284.5	5737375.68	568631.63
2993	65.8	141.7	1879.77	-1846.95	-1086.53	1285.07	5737374.96	568632.19
2994	65.78	141.7	1880.18	-1847.36	-1087.25	1285.63	5737374.24	568632.76
2995	65.77	141.71	1880.59	-1847.77	-1087.96	1286.2	5737373.53	568633.32
2996	65.75	141.71	1881	-1848.18	-1088.68	1286.76	5737372.81	568633.89
2997	65.74	141.71	1881.41	-1848.59	-1089.39	1287.33	5737372.1	568634.45
2998	65.73	141.72	1881.82	-1849	-1090.11	1287.89	5737371.38	568635.02
2999	65.71	141.72	1882.23	-1849.42	-1090.83	1288.46	5737370.67	568635.58
3000	65.7	141.72	1882.65	-1849.83	-1091.54	1289.02	5737369.95	568636.15
3001	65.68	141.73	1883.06	-1850.24	-1092.26	1289.59	5737369.24	568636.71
3002	65.67	141.73	1883.47	-1850.65	-1092.97	1290.15	5737368.52	568637.27
3003	65.65	141.73	1883.88	-1851.06	-1093.69	1290.72	5737367.8	568637.84
3004	65.64	141.74	1884.29	-1851.47	-1094.4	1291.28	5737367.09	568638.4
3005	65.62	141.73	1884.71	-1851.89	-1095.12	1291.84	5737366.37	568638.97
3006	65.6	141.71	1885.12	-1852.3	-1095.83	1292.41	5737365.66	568639.53
3007	65.58	141.69	1885.53	-1852.71	-1096.55	1292.97	5737364.94	568640.09
3008	65.56	141.67	1885.95	-1853.13	-1097.26	1293.54	5737364.23	568640.66
3009	65.55	141.65	1886.36	-1853.54	-1097.98	1294.1	5737363.52	568641.22
3010	65.53	141.63	1886.77	-1853.95	-1098.69	1294.67	5737362.8	568641.79
3011	65.51	141.61	1887.19	-1854.37	-1099.4	1295.23	5737362.09	568642.35
3012	65.49	141.59	1887.6	-1854.78	-1100.12	1295.8	5737361.37	568642.92
3013	65.47	141.57	1888.02	-1855.2	-1100.83	1296.36	5737360.66	568643.48
3014	65.45	141.55	1888.43	-1855.61	-1101.54	1296.93	5737359.95	568644.05
3015	65.43	141.53	1888.85	-1856.03	-1102.26	1297.49	5737359.24	568644.61
3016	65.41	141.51	1889.27	-1856.45	-1102.97	1298.06	5737358.53	568645.18
3017	65.39	141.49	1889.68	-1856.86	-1103.68	1298.62	5737357.81	568645.75
3018	65.37	141.47	1890.1	-1857.28	-1104.39	1299.19	5737357.1	568646.31
3019	65.35	141.45	1890.52	-1857.7	-1105.1	1299.76	5737356.39	568646.88
3020	65.33	141.43	1890.93	-1858.11	-1105.81	1300.32	5737355.68	568647.44
3021	65.31	141.41	1891.35	-1858.53	-1106.52	1300.89	5737354.97	568648.01
3022	65.29	141.39	1891.77	-1858.95	-1107.23	1301.45	5737354.26	568648.58
3023	65.27	141.37	1892.19	-1859.37	-1107.94	1302.02	5737353.55	568649.14
3024	65.25	141.35	1892.61	-1859.79	-1108.65	1302.59	5737352.84	568649.71
3025	65.23	141.33	1893.02	-1860.2	-1109.36	1303.16	5737352.13	568650.28
3026	65.21	141.31	1893.44	-1860.62	-1110.07	1303.72	5737351.42	568650.84
3027	65.19	141.29	1893.86	-1861.04	-1110.78	1304.29	5737350.71	568651.41
3028	65.17	141.27	1894.28	-1861.46	-1111.49	1304.86	5737350.01	568651.98
3029	65.15	141.25	1894.7	-1861.88	-1112.2	1305.42	5737349.3	568652.55
3030	65.13	141.23	1895.12	-1862.3	-1112.9	1305.99	5737348.59	568653.12
3031	65.11	141.21	1895.54	-1862.72	-1113.61	1306.56	5737347.88	568653.68
3032	65.09	141.19	1895.96	-1863.15	-1114.32	1307.13	5737347.18	568654.25
3033	65.07	141.17	1896.39	-1863.57	-1115.02	1307.7	5737346.47	568654.82
3034	65.05	141.17	1896.81	-1863.99	-1115.73	1308.27	5737345.76	568655.39
3035	65.04	141.2	1897.23	-1864.41	-1116.44	1308.83	5737345.06	568655.96
3036	65.02	141.23	1897.65	-1864.83	-1117.14	1309.4	5737344.35	568656.52
3037	65	141.26	1898.07	-1865.25	-1117.85	1309.97	5737343.64	568657.09
3038	64.99	141.29	1898.5	-1865.68	-1118.56	1310.54	5737342.94	568657.66
3039	64.97	141.32	1898.92	-1866.1	-1119.26	1311.1	5737342.23	568658.22
3040	64.95	141.35	1899.34	-1866.52	-1119.97	1311.67	5737341.52	568658.79
3041	64.94	141.37	1899.77	-1866.95	-1120.68	1312.23	5737340.81	568659.36
3042	64.92	141.4	1900.19	-1867.37	-1121.39	1312.8	5737340.11	568659.92
3043	64.9	141.43	1900.61	-1867.79	-1122.1	1313.36	5737339.4	568660.49
3044	64.89	141.46	1901.04	-1868.22	-1122.8	1313.93	5737338.69	568661.05
3045	64.87	141.49	1901.46	-1868.64	-1123.51	1314.49	5737337.98	568661.61

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3046	64.85	141.52	1901.89	-1869.07	-1124.22	1315.06	5737337.27	568662.18
3047	64.84	141.55	1902.31	-1869.49	-1124.93	1315.62	5737336.56	568662.74
3048	64.82	141.58	1902.74	-1869.92	-1125.64	1316.18	5737335.85	568663.3
3049	64.8	141.61	1903.16	-1870.34	-1126.35	1316.74	5737335.15	568663.86
3050	64.79	141.63	1903.59	-1870.77	-1127.06	1317.3	5737334.44	568664.43
3051	64.77	141.66	1904.02	-1871.2	-1127.77	1317.86	5737333.73	568664.99
3052	64.76	141.69	1904.44	-1871.62	-1128.48	1318.43	5737333.02	568665.55
3053	64.74	141.72	1904.87	-1872.05	-1129.18	1318.99	5737332.31	568666.11
3054	64.72	141.75	1905.3	-1872.48	-1129.9	1319.55	5737331.6	568666.67
3055	64.71	141.78	1905.72	-1872.9	-1130.61	1320.11	5737330.89	568667.23
3056	64.69	141.81	1906.15	-1873.33	-1131.32	1320.66	5737330.18	568667.79
3057	64.67	141.84	1906.58	-1873.76	-1132.03	1321.22	5737329.47	568668.34
3058	64.66	141.86	1907.01	-1874.19	-1132.74	1321.78	5737328.75	568668.9
3059	64.64	141.89	1907.43	-1874.61	-1133.45	1322.34	5737328.04	568669.46
3060	64.62	141.92	1907.86	-1875.04	-1134.16	1322.9	5737327.33	568670.02
3061	64.61	141.95	1908.29	-1875.47	-1134.87	1323.45	5737326.62	568670.57
3062	64.59	141.98	1908.72	-1875.9	-1135.58	1324.01	5737325.91	568671.13
3063	64.58	141.97	1909.15	-1876.33	-1136.3	1324.57	5737325.2	568671.69
3064	64.57	141.96	1909.58	-1876.76	-1137.01	1325.12	5737324.49	568672.24
3065	64.57	141.96	1910.01	-1877.19	-1137.72	1325.68	5737323.78	568672.8
3066	64.56	141.95	1910.44	-1877.62	-1138.43	1326.23	5737323.06	568673.36
3067	64.55	141.94	1910.87	-1878.05	-1139.14	1326.79	5737322.35	568673.91
3068	64.54	141.93	1911.3	-1878.48	-1139.85	1327.35	5737321.64	568674.47
3069	64.54	141.93	1911.73	-1878.91	-1140.56	1327.9	5737320.93	568675.03
3070	64.53	141.92	1912.16	-1879.34	-1141.27	1328.46	5737320.22	568675.58
3071	64.52	141.91	1912.59	-1879.77	-1141.98	1329.02	5737319.51	568676.14
3072	64.51	141.9	1913.02	-1880.2	-1142.69	1329.57	5737318.8	568676.7
3073	64.51	141.9	1913.45	-1880.63	-1143.4	1330.13	5737318.09	568677.25
3074	64.5	141.89	1913.88	-1881.06	-1144.11	1330.69	5737317.38	568677.81
3075	64.49	141.88	1914.31	-1881.49	-1144.82	1331.25	5737316.67	568678.37
3076	64.48	141.87	1914.74	-1881.92	-1145.53	1331.8	5737315.96	568678.92
3077	64.48	141.87	1915.17	-1882.35	-1146.25	1332.36	5737315.25	568679.48
3078	64.47	141.86	1915.6	-1882.78	-1146.95	1332.92	5737314.54	568680.04
3079	64.46	141.85	1916.03	-1883.21	-1147.66	1333.47	5737313.83	568680.6
3080	64.45	141.84	1916.46	-1883.64	-1148.37	1334.03	5737313.12	568681.15
3081	64.44	141.83	1916.9	-1884.08	-1149.08	1334.59	5737312.41	568681.71
3082	64.44	141.83	1917.33	-1884.51	-1149.79	1335.15	5737311.7	568682.27
3083	64.43	141.82	1917.76	-1884.94	-1150.5	1335.7	5737310.99	568682.82
3084	64.42	141.81	1918.19	-1885.37	-1151.21	1336.26	5737310.28	568683.38
3085	64.41	141.8	1918.62	-1885.8	-1151.92	1336.82	5737309.57	568683.94
3086	64.41	141.8	1919.05	-1886.23	-1152.63	1337.38	5737308.86	568684.5
3087	64.4	141.79	1919.48	-1886.67	-1153.34	1337.93	5737308.16	568685.06
3088	64.39	141.78	1919.92	-1887.1	-1154.05	1338.49	5737307.45	568685.61
3089	64.38	141.77	1920.35	-1887.53	-1154.75	1339.05	5737306.74	568686.17
3090	64.38	141.77	1920.78	-1887.96	-1155.46	1339.61	5737306.03	568686.73
3091	64.37	141.76	1921.21	-1888.4	-1156.17	1340.16	5737305.32	568687.29
3092	64.36	141.76	1921.65	-1888.83	-1156.88	1340.72	5737304.61	568687.84
3093	64.34	141.76	1922.08	-1889.26	-1157.59	1341.28	5737303.91	568688.4
3094	64.33	141.76	1922.51	-1889.69	-1158.29	1341.84	5737303.2	568688.96
3095	64.32	141.77	1922.95	-1890.13	-1159	1342.4	5737302.49	568689.52
3096	64.31	141.77	1923.38	-1890.56	-1159.71	1342.95	5737301.78	568690.07
3097	64.3	141.77	1923.81	-1890.99	-1160.42	1343.51	5737301.07	568690.63
3098	64.29	141.77	1924.25	-1891.43	-1161.13	1344.07	5737300.37	568691.19
3099	64.27	141.77	1924.68	-1891.86	-1161.83	1344.63	5737299.66	568691.75
3100	64.26	141.77	1925.12	-1892.3	-1162.54	1345.18	5737298.95	568692.3
3101	64.25	141.77	1925.55	-1892.73	-1163.25	1345.74	5737298.24	568692.86
3102	64.24	141.78	1925.98	-1893.16	-1163.96	1346.3	5737297.54	568693.42
3103	64.23	141.78	1926.42	-1893.6	-1164.67	1346.85	5737296.83	568693.98
3104	64.22	141.78	1926.85	-1894.03	-1165.37	1347.41	5737296.12	568694.53
3105	64.21	141.78	1927.29	-1894.47	-1166.08	1347.97	5737295.41	568695.09
3106	64.19	141.78	1927.72	-1894.9	-1166.79	1348.52	5737294.71	568695.65
3107	64.18	141.78	1928.16	-1895.34	-1167.5	1349.08	5737294	568696.2
3108	64.17	141.78	1928.6	-1895.78	-1168.2	1349.64	5737293.29	568696.76
3109	64.16	141.79	1929.03	-1896.21	-1168.91	1350.19	5737292.58	568697.32
3110	64.15	141.79	1929.47	-1896.65	-1169.62	1350.75	5737291.88	568697.87
3111	64.14	141.79	1929.9	-1897.08	-1170.32	1351.31	5737291.17	568698.43
3112	64.13	141.79	1930.34	-1897.52	-1171.03	1351.86	5737290.46	568698.99
3113	64.11	141.79	1930.78	-1897.96	-1171.74	1352.42	5737289.76	568699.54
3114	64.1	141.79	1931.21	-1898.39	-1172.44	1352.98	5737289.05	568700.1
3115	64.09	141.79	1931.65	-1898.83	-1173.15	1353.53	5737288.34	568700.66
3116	64.08	141.8	1932.09	-1899.27	-1173.86	1354.09	5737287.63	568701.21
3117	64.07	141.8	1932.52	-1899.7	-1174.56	1354.65	5737286.93	568701.77
3118	64.06	141.8	1932.96	-1900.14	-1175.27	1355.2	5737286.22	568702.32
3119	64.05	141.8	1933.4	-1900.58	-1175.98	1355.76	5737285.51	568702.88
3120	64.04	141.8	1933.84	-1901.02	-1176.68	1356.31	5737284.81	568703.44
3121	64.04	141.79	1934.27	-1901.45	-1177.39	1356.87	5737284.1	568703.99



MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3122	64.04	141.79	1934.71	-1901.89	-1178.1	1357.43	5737283.4	568704.55
3123	64.04	141.78	1935.15	-1902.33	-1178.8	1357.98	5737282.69	568705.1
3124	64.03	141.78	1935.59	-1902.77	-1179.51	1358.54	5737281.98	568705.66
3125	64.03	141.77	1936.03	-1903.2	-1180.22	1359.09	5737281.28	568706.21
3126	64.03	141.77	1936.46	-1903.64	-1180.92	1359.65	5737280.57	568706.77
3127	64.03	141.76	1936.9	-1904.08	-1181.63	1360.21	5737279.86	568707.33
3128	64.03	141.76	1937.34	-1904.52	-1182.34	1360.76	5737279.16	568707.88
3129	64.03	141.75	1937.78	-1904.96	-1183.04	1361.32	5737278.45	568708.44
3130	64.03	141.75	1938.21	-1905.4	-1183.75	1361.87	5737277.74	568709
3131	64.02	141.74	1938.65	-1905.83	-1184.45	1362.43	5737277.01	568709.55
3132	64.02	141.74	1939.09	-1906.27	-1185.16	1362.99	5737276.33	568710.11
3133	64.02	141.73	1939.53	-1906.71	-1185.87	1363.54	5737275.63	568710.67
3134	64.02	141.73	1939.97	-1907.15	-1186.57	1364.1	5737274.92	568711.22
3135	64.02	141.72	1940.41	-1907.59	-1187.28	1364.66	5737274.21	568711.78
3136	64.02	141.72	1940.84	-1908.02	-1187.98	1365.21	5737273.51	568712.34
3137	64.02	141.71	1941.28	-1908.46	-1188.69	1365.77	5737272.8	568712.89
3138	64.01	141.71	1941.72	-1908.9	-1189.4	1366.33	5737272.1	568713.45
3139	64.01	141.7	1942.16	-1909.34	-1190.1	1366.89	5737271.39	568714.01
3140	64.01	141.7	1942.6	-1909.78	-1190.81	1367.44	5737270.69	568714.56
3141	64.01	141.69	1943.03	-1910.21	-1191.51	1368	5737269.98	568715.12
3142	64.01	141.69	1943.47	-1910.65	-1192.22	1368.56	5737269.28	568715.68
3143	64.01	141.69	1943.91	-1911.09	-1192.92	1369.11	5737268.57	568716.24
3144	64.01	141.68	1944.35	-1911.53	-1193.63	1369.67	5737267.87	568716.79
3145	64	141.68	1944.79	-1911.97	-1194.33	1370.23	5737267.16	568717.35
3146	64	141.67	1945.22	-1912.41	-1195.04	1370.79	5737266.46	568717.91
3147	64	141.67	1945.66	-1912.84	-1195.74	1371.34	5737265.75	568718.46
3148	64	141.66	1946.1	-1913.28	-1196.45	1371.9	5737265.05	568719.02
3149	63.99	141.66	1946.54	-1913.72	-1197.15	1372.46	5737264.34	568719.58
3150	63.99	141.65	1946.98	-1914.16	-1197.86	1373.01	5737263.64	568720.14
3151	63.98	141.65	1947.42	-1914.6	-1198.56	1373.57	5737262.93	568720.69
3152	63.97	141.65	1947.86	-1915.04	-1199.27	1374.13	5737262.23	568721.25
3153	63.96	141.64	1948.3	-1915.47	-1199.97	1374.69	5737261.52	568721.81
3154	63.96	141.64	1948.73	-1915.91	-1200.68	1375.24	5737260.82	568722.37
3155	63.95	141.63	1949.17	-1916.35	-1201.38	1375.8	5737260.11	568722.92
3156	63.94	141.63	1949.61	-1916.79	-1202.09	1376.36	5737259.41	568723.48
3157	63.93	141.63	1950.05	-1917.23	-1202.79	1376.92	5737258.7	568724.04
3158	63.92	141.62	1950.49	-1917.67	-1203.49	1377.47	5737258	568724.6
3159	63.92	141.62	1950.93	-1918.11	-1204.2	1378.03	5737257.29	568725.15
3160	63.91	141.61	1951.37	-1918.55	-1204.9	1378.59	5737256.59	568725.71
3161	63.9	141.61	1951.81	-1918.99	-1205.61	1379.15	5737255.89	568726.27
3162	63.89	141.61	1952.25	-1919.43	-1206.31	1379.7	5737255.18	568726.83
3163	63.89	141.6	1952.69	-1919.87	-1207.02	1380.26	5737254.48	568727.38
3164	63.88	141.6	1953.13	-1920.31	-1207.72	1380.82	5737253.78	568727.94
3165	63.87	141.6	1953.57	-1920.75	-1208.42	1381.38	5737253.07	568728.5
3166	63.86	141.59	1954.01	-1921.19	-1209.12	1381.93	5737252.37	568729.06
3167	63.86	141.59	1954.45	-1921.63	-1209.83	1382.49	5737251.66	568729.61
3168	63.85	141.58	1954.89	-1922.07	-1210.53	1383.05	5737250.96	568730.17
3169	63.84	141.58	1955.33	-1922.51	-1211.24	1383.61	5737250.26	568730.73
3170	63.83	141.58	1955.78	-1922.95	-1211.94	1384.16	5737249.55	568731.29
3171	63.82	141.57	1956.22	-1923.4	-1212.64	1384.72	5737248.85	568731.84
3172	63.82	141.57	1956.66	-1923.84	-1213.35	1385.28	5737248.15	568732.4
3173	63.81	141.56	1957.1	-1924.28	-1214.05	1385.84	5737247.44	568732.96
3174	63.8	141.56	1957.54	-1924.72	-1214.75	1386.4	5737246.74	568733.52
3175	63.79	141.56	1957.98	-1925.16	-1215.45	1386.95	5737246.04	568734.07
3176	63.79	141.55	1958.42	-1925.6	-1216.16	1387.51	5737245.34	568734.63
3177	63.78	141.55	1958.87	-1926.05	-1216.86	1388.07	5737244.63	568735.19
3178	63.75	141.54	1959.31	-1926.49	-1217.56	1388.63	5737243.93	568735.75
3179	63.73	141.54	1959.75	-1926.93	-1218.26	1389.18	5737243.23	568736.31
3180	63.71	141.53	1960.19	-1927.37	-1218.97	1389.74	5737242.53	568736.86
3181	63.68	141.53	1960.64	-1927.82	-1219.67	1390.3	5737241.82	568737.42
3182	63.66	141.52	1961.08	-1928.26	-1220.37	1390.86	5737241.12	568737.98
3183	63.64	141.51	1961.52	-1928.7	-1221.07	1391.41	5737240.42	568738.54
3184	63.62	141.51	1961.97	-1929.15	-1221.77	1391.97	5737239.72	568739.09
3185	63.59	141.5	1962.41	-1929.59	-1222.47	1392.53	5737239.02	568739.65
3186	63.57	141.5	1962.86	-1930.04	-1223.17	1393.09	5737238.32	568740.21
3187	63.55	141.49	1963.3	-1930.48	-1223.88	1393.64	5737237.62	568740.77
3188	63.52	141.48	1963.75	-1930.93	-1224.58	1394.2	5737236.92	568741.32
3189	63.5	141.48	1964.19	-1931.37	-1225.28	1394.76	5737236.22	568741.88
3190	63.48	141.47	1964.64	-1931.82	-1225.98	1395.32	5737235.52	568742.44
3191	63.46	141.47	1965.09	-1932.27	-1226.68	1395.87	5737234.82	568742.99
3192	63.43	141.46	1965.53	-1932.71	-1227.38	1396.43	5737234.12	568743.55
3193	63.41	141.45	1965.98	-1933.16	-1228.08	1396.99	5737233.42	568744.11
3194	63.39	141.45	1966.43	-1933.61	-1228.78	1397.54	5737232.72	568744.67
3195	63.36	141.44	1966.88	-1934.06	-1229.47	1398.1	5737232.02	568745.22
3196	63.34	141.44	1967.33	-1934.51	-1230.17	1398.66	5737231.32	568745.78
3197	63.32	141.43	1967.77	-1934.95	-1230.87	1399.22	5737230.62	568746.34

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3198	63.3	141.43	1968.22	-1935.4	-1231.57	1399.77	5737229.92	568746.89
3199	63.27	141.42	1968.67	-1935.85	-1232.27	1400.33	5737229.22	568747.45
3200	63.25	141.41	1969.12	-1936.3	-1232.97	1400.89	5737228.53	568748.01
3201	63.23	141.41	1969.57	-1936.75	-1233.66	1401.44	5737227.83	568748.56
3202	63.21	141.4	1970.02	-1937.2	-1234.36	1402	5737227.13	568749.12
3203	63.18	141.4	1970.47	-1937.65	-1235.06	1402.56	5737226.43	568749.68
3204	63.16	141.39	1970.93	-1938.11	-1235.76	1403.11	5737225.73	568750.23
3205	63.14	141.38	1971.38	-1938.56	-1236.45	1403.67	5737225.04	568750.79
3206	63.12	141.37	1971.83	-1939.01	-1237.15	1404.23	5737224.34	568751.35
3207	63.11	141.35	1972.28	-1939.46	-1237.85	1404.78	5737223.64	568751.9
3208	63.09	141.33	1972.73	-1939.91	-1238.55	1405.34	5737222.95	568752.46
3209	63.08	141.3	1973.19	-1940.37	-1239.24	1405.9	5737222.25	568753.02
3210	63.07	141.28	1973.64	-1940.82	-1239.94	1406.45	5737221.56	568753.58
3211	63.06	141.25	1974.09	-1941.27	-1240.63	1407.01	5737220.86	568754.13
3212	63.05	141.23	1974.55	-1941.73	-1241.33	1407.57	5737220.16	568754.69
3213	63.03	141.2	1975	-1942.18	-1242.02	1408.13	5737219.47	568755.25
3214	63.02	141.18	1975.45	-1942.63	-1242.72	1408.69	5737218.78	568755.81
3215	63.01	141.16	1975.91	-1943.09	-1243.41	1409.24	5737218.08	568756.37
3216	63	141.13	1976.36	-1943.54	-1244.11	1409.8	5737217.39	568756.93
3217	62.99	141.11	1976.81	-1943.99	-1244.8	1410.36	5737216.69	568757.48
3218	62.98	141.08	1977.27	-1944.45	-1245.49	1410.92	5737216	568758.04
3219	62.96	141.06	1977.72	-1944.9	-1246.19	1411.48	5737215.31	568758.6
3220	62.95	141.04	1978.18	-1945.36	-1246.88	1412.04	5737214.61	568759.16
3221	62.94	141.01	1978.63	-1945.81	-1247.57	1412.6	5737213.92	568759.72
3222	62.93	140.99	1979.09	-1946.27	-1248.26	1413.16	5737213.23	568760.28
3223	62.92	140.96	1979.54	-1946.72	-1248.96	1413.72	5737212.54	568760.84
3224	62.91	140.94	1980	-1947.18	-1249.65	1414.28	5737211.85	568761.41
3225	62.89	140.91	1980.45	-1947.63	-1250.34	1414.84	5737211.16	568761.97
3226	62.88	140.89	1980.91	-1948.09	-1251.03	1415.41	5737210.46	568762.53
3227	62.87	140.87	1981.37	-1948.55	-1251.72	1415.97	5737209.77	568763.09
3228	62.86	140.84	1981.82	-1949	-1252.41	1416.53	5737209.08	568763.65
3229	62.85	140.82	1982.28	-1949.46	-1253.1	1417.09	5737208.39	568764.21
3230	62.84	140.79	1982.73	-1949.91	-1253.79	1417.65	5737207.7	568764.77
3231	62.82	140.77	1983.19	-1950.37	-1254.48	1418.21	5737207.01	568765.34
3232	62.81	140.75	1983.65	-1950.83	-1255.17	1418.78	5737206.33	568765.9
3233	62.8	140.72	1984.11	-1951.29	-1255.86	1419.34	5737205.64	568766.46
3234	62.79	140.7	1984.56	-1951.74	-1256.54	1419.9	5737204.95	568767.03
3235	62.78	140.67	1985.02	-1952.2	-1257.23	1420.47	5737204.26	568767.59
3236	62.77	140.65	1985.48	-1952.66	-1257.92	1421.03	5737203.57	568768.15
3237	62.76	140.63	1985.93	-1953.11	-1258.61	1421.59	5737202.89	568768.72
3238	62.74	140.61	1986.39	-1953.57	-1259.29	1422.16	5737202.2	568769.28
3239	62.73	140.59	1986.85	-1954.03	-1259.98	1422.72	5737201.51	568769.84
3240	62.72	140.56	1987.31	-1954.49	-1260.67	1423.29	5737200.82	568770.41
3241	62.71	140.54	1987.77	-1954.95	-1261.36	1423.85	5737200.14	568770.97
3242	62.7	140.52	1988.22	-1955.41	-1262.04	1424.41	5737199.45	568771.54
3243	62.69	140.5	1988.68	-1955.86	-1262.73	1424.98	5737198.77	568772.1
3244	62.68	140.47	1989.14	-1956.32	-1263.41	1425.55	5737198.08	568772.67
3245	62.67	140.45	1989.6	-1956.78	-1264.1	1426.11	5737197.4	568773.23
3246	62.66	140.43	1990.06	-1957.24	-1264.78	1426.68	5737196.71	568773.8
3247	62.65	140.41	1990.52	-1957.7	-1265.47	1427.24	5737196.03	568774.36
3248	62.64	140.39	1990.98	-1958.16	-1266.15	1427.81	5737195.34	568774.93
3249	62.63	140.36	1991.44	-1958.62	-1266.84	1428.37	5737194.66	568775.5
3250	62.61	140.34	1991.9	-1959.08	-1267.52	1428.94	5737193.97	568776.06
3251	62.6	140.32	1992.36	-1959.54	-1268.2	1429.51	5737193.29	568776.63
3252	62.59	140.3	1992.82	-1960	-1268.89	1430.07	5737192.61	568777.2
3253	62.58	140.28	1993.28	-1960.46	-1269.57	1430.64	5737191.92	568777.76
3254	62.57	140.25	1993.74	-1960.92	-1270.25	1431.21	5737191.24	568778.33
3255	62.56	140.23	1994.2	-1961.38	-1270.93	1431.78	5737190.56	568778.9
3256	62.55	140.21	1994.66	-1961.84	-1271.62	1432.34	5737189.88	568779.47

**APPENDIX 2a**

**BREAM A6A**

**Petrophysics Evaluation Summary**

**Esso Australia Pty Ltd.**  
**Exploration Department**

**Bream A6A**  
**Petrophysics Report**

**Petrophysicist: A.A. Mills**  
**May 2006**

# Bream A6A Petrophysics Report

## INTRODUCTION

Bream A6A is a directional well which was designed to capture- N-1 oil reserves from a local structural nose, set up by a buried horst along a major NW-SE trending extensional fault on the eastern flank of the Bream A Field.

Bream A6A was spudded from the 10¾" casing shoe at 855.0 mMDRT and drilled to a Total Depth of 3256.0 mMDRT (1995.34 mTVDRT) in an 8½" production hole.

LWD GR and D&I data were acquired using Schlumberger Drilling & Measurements PowerPulse while drilling from 851 mMDRT to 3256 mMDRT.

After reaching TD, the well was logged up in memory mode with Precision Energy Service's shuttle on drill pipe from 2565.0 mMDRT to 3253.0 mMDRT.

The Precision logs were depth matched to the Schlumberger LWD GR log and analysed for porosity, water saturation and net pay over the interval 3075 - 3226 mMDRT.

Note that all depth quoted in this report are logged mMDRT unless otherwise specified.

## DATA

Data from the following logging surveys were used in the interpretation:

Survey/Log	Suite	Company	Top (m MDRT)	Bottom (m MDRT)
LWD-GR (base log for depth matching)	2	Schlumberger	3075	3239
Dual Laterolog (DDL, DSL), Gamma Ray (GRGC), Photo Density (PDPE, DEN), Caliper (CLDC), Compensated Neutron (NPRL) and Compensated Sonic (DT)	1	Precision	3075	3226

### Deviation

The average well deviation over the reservoir interval was 64° towards an average azimuth of 142°.

### Mud Data

Mud Type: KCl/Glycol/PHPA  
Mud Weight: 10.05 ppg  
Rm: 0.108 @ 25 °C  
Rmf: 0.086 @ 25 °C  
Rmc: 0.153 @ 25 °C  
KCL 8.6%  
BHT: 91.2 °C (as measured by the Precision tools)

### Hole Size

855 - 3256 mMDRT 8 ½ inches

### Data Acquisition & Log Quality

Good quality Schlumberger D&M LWD data and Precision shuttle data were acquired without incident.

### Data Processing

The LWD-GR is the primary depth reference for this well and all the shuttle logs have been depth matched to the LWD-GR.

As the shuttle GR 1<sup>st</sup> reading (3226.5 mMDRT) was shallow to the LWD GR 1<sup>st</sup> reading (3239.5 mMDRT) a complete GR for the well was generated by depth aligning the Reeves GRGC curve to the LWD GR and then splicing on the bottom 13m of the LWD GR curve.

## Bream A6A Petrophysics Report

The resistivity logs (DDL & DSL) and the bulk density logs (DEN & related curves) were depth matched to the composite GR curve. The neutron logs (NPRL & related curves) and the sonic logs (DT-35 & related curves) were depth matched to the GR depth matched DEN curve.

The PDPE showed a sinusoidal habit that parallels the CLDC curve. The sinuosity is observed to reflect the rugosity rather than lithology, but generally was not serious enough to warrant filtering. The PDPE was shifted -0.2 b/e in order to remove barite effect before U was generated for lithology determination.

### INTERPRETATION

#### Logs Used

The primary logs used in the interpretation were the depth matched DDL (deep resistivity), GRGC (composite gamma from GRGC and the basal LWD-GR), DEN (bulk density), PDPE (photo-electric effect) and NPRL (thermal neutron porosity). In addition coal intervals were identified using a coal flag (Flag\_coal). Hydrocarbon types were denoted using a hydrocarbon flag (Flag\_rhoH). A temperature log was created using the following data:

Depth (mMDRT)	Temperature (deg. C)
93	10
3253	101

The temperature at depth 93 mMDRT represents the temperature of the sea-bed and the temperature at 3253 mMDRT (first reading of the Precision logs) is the estimated formation temperature –BHT +10 deg.

Radioactive reservoir sands which are commonly present in Bream wells, are absent in this well. Calculated potassium feldspar content is generally 10-15% throughout the well, typical of Bass Strait reservoirs. The marine interval 3098.2 – 3143 mMDRT exhibits increasing feldspar content towards the base, characteristic of progradational marine facies. The GR is generally a poor clay indicator across this interval. The approach taken here to adequately characterise the clay content was to use the U, DEN, NPRL and GR measurements, with heavy weighting towards DEN, NPRL, moderate towards U. and low weighting towards GR.

#### Formation Water Salinity

R<sub>wa</sub> analysis using a = 1, m = 2 and n = 2 indicates clean water sands have an apparent formation water salinity of 30,000 ppm NaCl equivalent throughout the zone of interest.

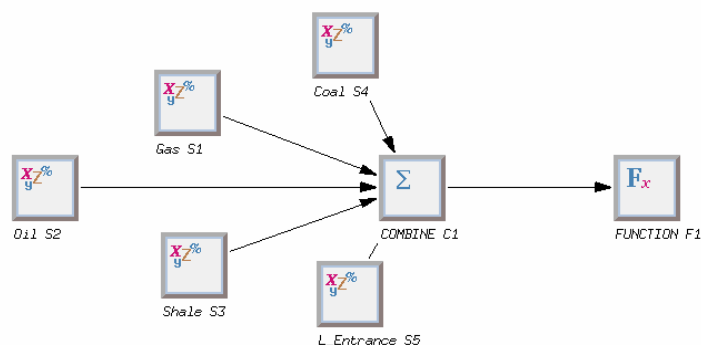
#### Hydrocarbon Type Identification

A combination of resistivity, density-neutron logs, total Near-Far neutron counts, mud log shows and production from nearby Bream A wells were used to determine hydrocarbon types present in the reservoirs. The following table lists the determination made using this process:

Zone	Top Depth mMD	Bottom Depth mMD	Fluid Type
N1_WST_gas	3090.3	3098.2	Gas
N1_Gas	3098.2	3107.5	Gas
N1_Oil	3107.5	3116.7	Oil
N1_Res	3116.7	3153.1	Residual oil & gas
N1_F1	3153.1	3185.2	Residual oil
N1_Cob_Sb	3185.2	3225.9	Water

#### Clay Volume, Porosity and Water Saturation

Schlumberger's Geoframe ELAN+ module was used to determine mineral volumes, total porosity, effective porosity and effective saturation. The details of the models are illustrated in the figures and tables below.

**ELAN+ MODEL****Elan+ Model and Module Configuration****ELAN Input Channels**

	Compound Name Spec	BREAM A6A	
TEMP_CH	TEMP;*	TEMP@ASCII_Load;3 .TEMP [A1530855]	▼
RHOB_IFAC_CH	IFRH;*		▼
NPHI_IFAC_CH	INPH;*		▼
RHOB_CH	DEN:BPB;*	DEN@ASCII_Load;5 .MOPED_LOAD .RAW_FIN .WI	▼
NPHI_CH	NPRL:BPB;*	NPRL@ASCII_Load;5 .MOPED_LOAD .RAW_FIN .V	▼
U_CH	U;*	U@DataFunction;2 .DF [A1531234]	▼
CUDC_CH/RT_CH	DDLL:BPB;*	DDLL@ASCII_Load;5 .MOPED_LOAD .RAW_FIN .V	▼
GR_CH	GR;*	GR@ASCII_Load;7 .MOPED_LOAD .RAW .WELLEC	▼
PRB1_CH	FLAG_RHOH;*	FLAG_RHOH@ASCII_Load;0 .RHOH [A1530853]	▼
PRB2_CH	DEPT:BPB;*	DEPT@ASCII_Load;2 [A1530868]	▼
PRB3_CH	PRB3;*		▼
PRB4_CH	FLAG_COAL;*	FLAG_COAL@ASCII_Load;1 .COAL .COAL .WELLE	▼
PRB5_CH	PRB5;*		▼
M_CH	MXP;*		▼
N_CH	SXP;*		▼

**ELAN Global Parameters**

Reference Index	MD
Processing Interval	3075.0786(m) To 3225.8787(m)

## Bream A6A Petrophysics Report

Sampling Rate	0.3281(m)
Uncertainty Channel	FALSE
Clay Input	DRY
Special Fluids	IMMOVABLE_HYDROCARBON

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### ELAN Zone Definition

Name	Bottom To Top
N1_useGR	3226.0000(m) To 3099.0002(m)
Pyrite	3099.0002(m) To 3075.0786(m)

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### ELAN Process Definition

Process	SOLVE1 "Gas"						
Equations	RHOB	NPHI	U	CUDC_DWA	GR	CT1	
Volumes	QUAR	ORTH	ILLI	XWAT	UWAT	XGAS	UGAS
Constraint Zones	Bottom			Top			
UNDEFINED	3226.0000(m )			3075.0786(m )			
Constraints Applied							
	UNDEFINED	- WaterBaseMud_SXO_gt_SW					
	UNDEFINED	- IrreducibleXWater					
	UNDEFINED	- IrreducibleUWater					

---

Process	SOLVE2 "Oil"						
Equations	RHOB	NPHI	U	CUDC_DWA	GR	CT2	
Volumes	QUAR	ORTH	ILLI	XWAT	UWAT	XOIL	UOIL
User Constraints	constraint(maxDolomite, DOLO<0)						
Constraint Zones	Bottom			Top			
UNDEFINED	3226.0000(m )			3075.0786(m )			
Constraints Applied							
	UNDEFINED	- IrreducibleXWater					
	UNDEFINED	- IrreducibleUWater					
	UNDEFINED	- WaterBaseMud_SXO_gt_SW					

---

Process	SOLVE3 "Shale"					
Equations	RHOB	NPHI	U	CUDC_DWA	GR	
Volumes	QUAR	ILLI	XWAT	UWAT		
Constraint Zones	Bottom			Top		
UNDEFINED	3226.0000(m )			3075.0786(m )		

---

Process	SOLVE4 "Coal"					
Equations	RHOB					
Volumes	COAL					
Constraint Zones	Bottom			Top		
UNDEFINED	3226.0000(m )			3075.0786(m )		

---

Process	SOLVE5 "L_Entrance"					
Equations	RHOB	NPHI	U			
Volumes	QUAR	ILLI				
Constraint Zones	Bottom			Top		
UNDEFINED	3226.0000(m )			3075.0786(m )		

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## Bream A6A Petrophysics Report

Process            COMBINE 1 "COMBINE"  
Order             SOL.2 SOL.1 SOL.3 SOL.4 SOL.5  
Combine Method  
"Coarse Clast" 10583.9893 (m ) Internal Average  
"Gurnard " 10137.7949 (m ) Sol.5  
Probability Functions  
probability(SOL.4, PRB4\_CH)

prob3 = linear(ILLI\_VOL.SOL.3, 0.2, 0, 0.5, 1)  
probability(SOL.3, prob3)

prob1 = if (PRB1\_CH <=0.25, 1, 0)  
probability(SOL.1, prob1)

Process            FUNCTION 1 "FUNCTION"  
Outputs            VCL    SXWI    SWT    SUWI    PIGN    PHIT  
User-defined Function/n    swt\_cmp=if((PRB4\_CH > 0),1,(UWAT\_VOL + XBWA\_VOL)/(UWAT\_VOL + XBWA\_VOL + UOIL\_VOL + UGAS\_VOL))  
output(SWT, swt\_cmp)

### ELAN Different Parameters

Parameters	N1_useGR	N1_usePE		
n*****	*****	*****	*****	*****
CXDC_XWAT (mS/m )	18.736	18.097		
CXDC_XBWA (mS/m )	10.707	10.346		
CUDC_UBWA (mS/m )	4.940	50.000		
CT1_UGAS ( )	-0.300	-0.400		
RW (ohm.m )	0.341	0.331		
RHOB_UNC_WM ( )	1.000	0.500		
U_UNC_WM ( )	0.600	0.100		
CUDC_UNC_WM ( )	0.670	1.000		
GR_UNC_WM ( )	0.300	1.000		
RHOB_IFAC_ZP( )	0.900	0.100		
NPHI_IFAC_ZP( )	0.800	0.000		

### ELAN Same Parameters

Parameter	Value	Parameter	Value
RHOB_QUAR	2.650(g/cm3)	RHOB_CALC	2.710(g/cm3)
RHOB_DOLO	2.847(g/cm3)	RHOB_ORTH	2.570(g/cm3)
RHOB_PYRI	4.990(g/cm3)	RHOB_GLAU	2.650(g/cm3)
RHOB_ILLI	2.780(g/cm3)	RHOB_KAOL	2.620(g/cm3)
RHOB_COAL	1.200(g/cm3)	RHOB_IGNE	3.000(g/cm3)
RHOB_XWAT	1.000(g/cm3)	RHOB_UWAT	0.977(g/cm3)
RHOB_XOIL	0.500(g/cm3)	RHOB_UOIL	0.500(g/cm3)
RHOB_XGAS	-0.031(g/cm3)	RHOB_UGAS	-0.031(g/cm3)
RHOB_XBWA	0.963(g/cm3)	NPHI_QUAR	-0.059(m3/m3)
NPHI_CALC	0.000(m3/m3)	NPHI_DOLO	0.032(m3/m3)
NPHI_ORTH	-0.010(m3/m3)	NPHI_PYRI	0.008(m3/m3)
NPHI_GLAU	0.410(m3/m3)	NPHI_ILLI	0.247(m3/m3)
NPHI_KAOL	0.450(m3/m3)	NPHI_COAL	0.450(m3/m3)

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NPHI_XWAT	1.000(m3/m3)	NPHI_UWAT	1.000(m3/m3)
NPHI_XOIL	0.600(m3/m3)	NPHI_UOIL	0.600(m3/m3)
NPHI_XGAS	0.087(m3/m3)	NPHI_UGAS	0.087(m3/m3)
NPHI_XBWA	1.000(m3/m3)	DT_QUAR	55.500(us/m)
DT_CALC	47.800(us/m)	DT_DOLO	43.500(us/m)
DT_ORTH	60.000(us/m)	DT_ILLI	60.000(us/m)
DT_KAOL	91.318(us/m)	DT_COAL	121.920(us/m)
DT_IGNE	16.916(us/m)	DT_XWAT	0.000(us/m)
DT_UWAT	220.000(us/m)	DT_XOIL	0.000(us/m)
DT_UOIL	240.000(us/m)	DT_XGAS	0.000(us/m)
DT_UGAS	289.865(us/m)	DT_XBWA	189.000(us/m)
U_QUAR	5.000( )	U_CALC	14.100( )
U_DOLO	9.100( )	U_ORTH	8.700( )
U_PYRI	82.060( )	U_ILLI	9.900( )
U_KAOL	5.100( )	U_COAL	1.000( )
U_XWAT	0.692( )	U_UWAT	0.000( )
U_XOIL	0.136( )	U_UOIL	0.000( )
U_XGAS	0.012( )	U_UGAS	0.000( )
U_XBWA	0.398( )	CXDC_ILLI	-999.250(mS/m)
CXDC_KAOL	-999.250(mS/m)	CUDC_GLAU	-999.250(mS/m)
CUDC_ILLI	-999.250(mS/m)	CUDC_KAOL	-999.250(mS/m)
CUDC_UWAT	15.000(mS/m)	GR_QUAR	40.000(gAPI)
GR_CALC	11.000(gAPI)	GR_DOLO	3.000(gAPI)
GR_ORTH	200.000(gAPI)	GR_PYRI	0.000(gAPI)
GR_GLAU	150.000(gAPI)	GR_ILLI	220.000(gAPI)
GR_KAOL	98.000(gAPI)	GR_COAL	40.000(gAPI)
GR_IGNE	40.000(gAPI)	GR_XWAT	0.000(gAPI)
GR_UWAT	0.000(gAPI)	GR_XOIL	0.000(gAPI)
GR_UOIL	0.000(gAPI)	GR_XGAS	0.000(gAPI)
GR_UGAS	0.000(gAPI)	GR_XBWA	0.000(gAPI)
EX1_QUAR	0.000( )	EX1_CALC	0.000( )
EX1_ORTH	0.000( )	EX1_PYRI	0.000( )
EX1_ILLI	0.000( )	EX1_COAL	0.000( )
EX1_XWAT	0.000( )	EX1_UWAT	0.000( )
EX1_XOIL	0.000( )	EX1_UOIL	0.000( )
EX1_XGAS	0.000( )	EX1_UGAS	0.000( )
EX1_XBWA	0.000( )	CT1_QUAR	0.000( )
CT1_CALC	0.000( )	CT1_DOLO	0.000( )
CT1_ORTH	0.000( )	CT1_PYRI	0.000( )
CT1_GLAU	0.000( )	CT1_ILLI	0.000( )
CT1_KAOL	0.000( )	CT1_COAL	0.000( )
CT1_IGNE	0.000( )	CT1_XWAT	0.000( )
CT1_UWAT	0.000( )	CT1_XOIL	0.000( )
CT1_UOIL	0.000( )	CT1_XGAS	1.000( )
CT1_XBWA	0.000( )	CT2_QUAR	0.000( )
CT2_CALC	0.000( )	CT2_DOLO	0.000( )
CT2_ORTH	0.000( )	CT2_PYRI	0.000( )
CT2_GLAU	0.000( )	CT2_ILLI	0.000( )
CT2_KAOL	0.000( )	CT2_COAL	0.000( )
CT2_IGNE	0.000( )	CT2_XWAT	0.000( )
CT2_UWAT	0.000( )	CT2_XOIL	1.000( )
CT2_UOIL	-0.500( )	CT2_XGAS	0.000( )
CT2_UGAS	0.000( )	CT2_XBWA	0.000( )

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CT3_QUAR	-0.100( )	CT3_CALC	0.000( )
CT3_ORTH	1.000( )	CT3_PYRI	0.000( )
CT3_GLAU	0.000( )	CT3_ILLI	0.000( )
CT3_KAOL	0.000( )	CT3_COAL	0.000( )
CT3_XWAT	0.000( )	CT3_UWAT	0.000( )
CT3_XOIL	0.000( )	CT3_UOIL	0.000( )
CT3_XGAS	0.000( )	CT3_UGAS	0.000( )
CT3_XBWA	0.000( )	CT4_QUAR	0.010( )
CT4_CALC	0.000( )	CT4_ORTH	0.000( )
CT4_PYRI	-1.000( )	CT4_GLAU	0.000( )
CT4_ILLI	0.000( )	CT4_COAL	0.000( )
CT4_XWAT	0.000( )	CT4_UWAT	0.000( )
CT4_XOIL	0.000( )	CT4_UOIL	0.000( )
CT4_XGAS	0.000( )	CT4_UGAS	0.000( )
CT4_XBWA	0.000( )	ARHOB_GLAU	2.960(g/cm3)
ARHOB_ILLI	2.780(g/cm3)	ARHOB_KAOL	2.620(g/cm3)
WCLP_GLAU	0.156(m3/m3)	WCLP_ILLI	0.154(m3/m3)
WCLP_KAOL	0.058(m3/m3)	CBWA_GLAU	-999.250(mS/m)
CBWA_ILLI	-999.250(mS/m)	CBWA_KAOL	-999.250(mS/m)
CECA_GLAU	0.233(meq/g)	CECA_ILLI	0.200(meq/g)
CECA_KAOL	0.090(meq/g)	RMF	0.160(ohm.m)
MST	61.880(degC)	RWT	-999.250(degC)
SALIN_ISOL	-999.250(ppk)	SALIN_PARA	-999.250(ppk)
SALIN_XWAT	12.924(ppk)	SALIN_UWAT	30.000(ppk)
SALIN_XIWA	-999.250(ppk)	SALIN_UIWA	-999.250(ppk)
SALIN_XOIL	0.000(ppk)	SALIN_UOIL	0.000(ppk)
SALIN_XGAS	0.000(ppk)	SALIN_UGAS	0.000(ppk)
SALIN_XSFL	-999.250(ppk)	SALIN_USFL	-999.250(ppk)
CT1_ZP	0.000( )	CT2_ZP	0.000( )
CT3_ZP	0.000( )	CT4_ZP	0.000( )
RHOB_UNC_ZP	0.027(g/cm3)	NPHI_UNC_ZP	0.015(m3/m3)
DT_UNC_ZP	2.250(us/m)	U_UNC_ZP	0.225( )
CXDC_UNC_ZP	0.072(mS/m)	CUDC_UNC_ZP	0.058(mS/m)
GR_UNC_ZP	2.250(gAPI)	EX1_UNC_ZP	0.015( )
CT1_UNC_ZP	0.015( )	CT2_UNC_ZP	0.015( )
CT3_UNC_ZP	0.015( )	CT4_UNC_ZP	0.015( )
VOLS_UNC_ZP	0.015(m3/m3)	NPHI_UNC_WM	1.000( )
DT_UNC_WM	0.300( )	CXDC_UNC_WM	0.500( )
EX1_UNC_WM	1.000( )	CT1_UNC_WM	0.800( )
CT2_UNC_WM	0.800( )	CT3_UNC_WM	0.900( )
CT4_UNC_WM	1.000( )	VOLS_UNC_WM	1.000( )
A_ZP	1.000( )	N_ZP	2.000( )
C_DWA	0.000( )	M_DWA	2.000( )
BVIRR	0.010(m3/m3)		

### RESULTS AND DISCUSSION

Results of this analysis are consistent with field expectations.

The interval 3153.1-3185.2 mMDRT, between the OOWC and OGOC, calculates a low residual oil saturation of 7%, consistent with the excellent sweep expected from these high quality reservoirs. Residual hydrocarbon saturation in the overlying interval 3116.7-3152.4 mMDRT, between the current OWC and OGOC, calculates a much higher average of 31%. This is again consistent with the interval containing trapped gas (typically about 25%), and residual oil of about 7%, as the oil leg and water leg have swept through the original gas cap.

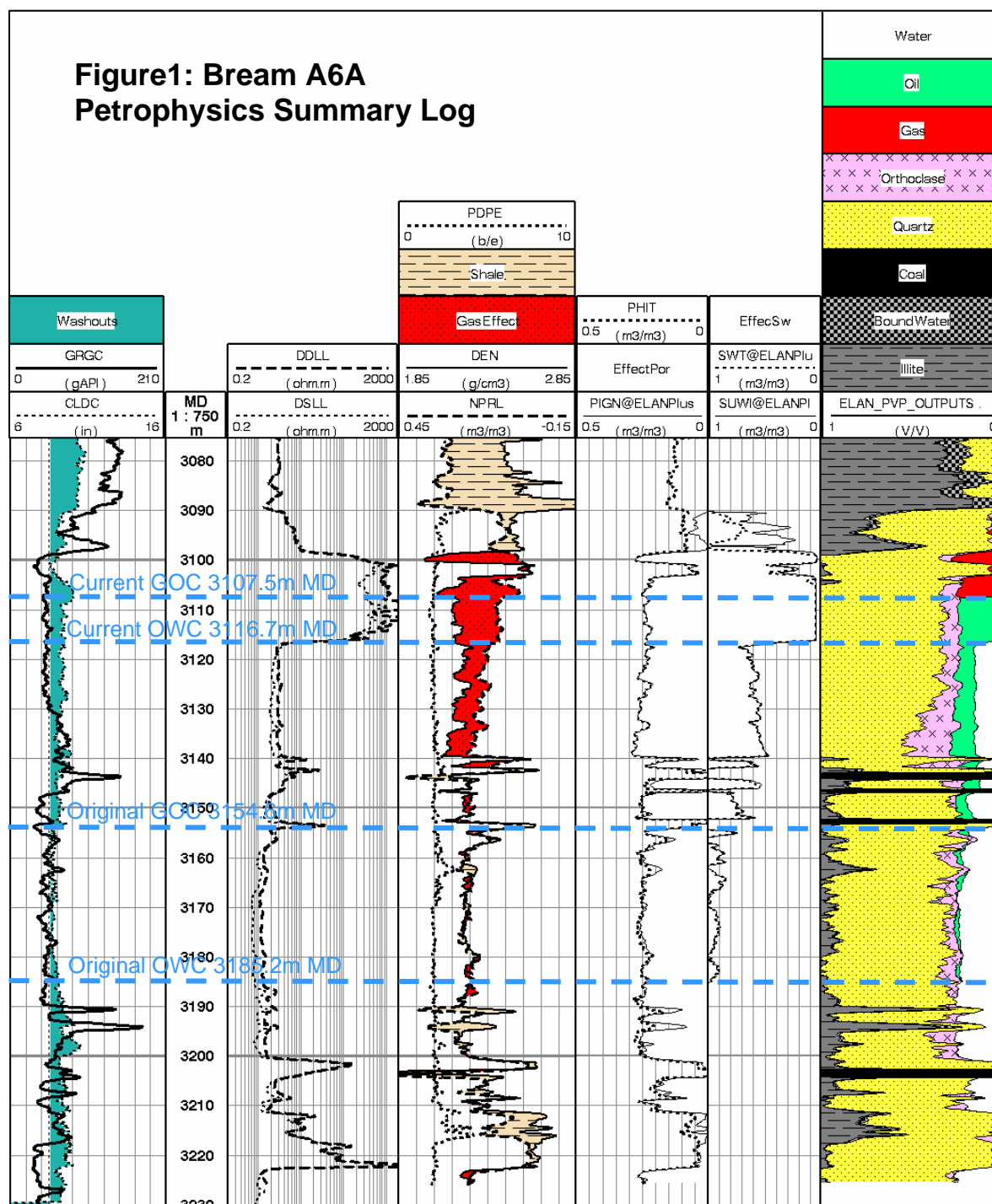


Figure 1

## Bream A6A

Petrophysical Summary 3075 - 3226m MD

Depth Reference:

Average VCI, Phie, Swe based on Phie cutoff:

Primary: MDKB

0.08 for gas, 0.12 for oil and water

	DEPTH				THICKNESS							AVERAGE PARAMETERS			
	Top		Bottom		Gross		Net Reservoir		Net Pay		N/G	Net Pay			
Zone	MD (m)	TVDSS (m)	MD (m)	TVDSS (m)	MD (m)	TVD (m)	MD (m)	TVD (m)	MD (m)	TVD (m)	Ratio	Clay Volume (m3/m3)	E ffective Porosity (m3/m3)	E ffective Water Saturation (m3/m3)	Comments
N-1 waste gas	3090.3	1888.1	3098.2	1891.5	7.9	3.4	0.0	0.0	0.0	0.0	0.0	-	-	-	gas bearing waste rock
N-1 gas	3098.2	1891.5	3107.5	1895.6	9.3	4.0	6.8	3.0	6.8	3.0	0.7	0.03	0.22	0.05	gas
N-1 oil	3107.5	1895.6	3116.7	1899.6	9.2	4.0	9.2	4.0	9.2	4.0	1.0	0.00	0.23	0.05	oil
N-1 res o&g1	3116.7	1899.6	3142.1	1910.7	25.4	11.1	24.8	10.8	0.0	0.0	1.0	0.00	0.24	0.57	residual oil & gas
N-1 res o&g2	3144.1	1911.6	3152.4	1915.2	8.3	3.6	7.4	3.3	0.0	0.0	0.9	0.10	0.23	0.69	residual oil & gas
N-1 res oil	3153.1	1915.5	3185.2	1929.7	32.1	14.2	30.9	13.7	0.0	0.0	1.0	0.07	0.23	0.93	residual oil
N-1 water	3185.2	1929.7	3202.7	1937.5	17.5	7.8	14.4	6.4	0.0	0.0	0.8	0.13	0.23	1.00	water

Table 1

**APPENDIX 3a**

**BREAM A6A**

**Lithology/Show Descriptions**

## Bream A6A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
<p>Previous Well History:  10.75" surface casing at 850.5 mMDRT (804.0 mTVDRT).  7.0" Production casing cut and pulled from 925.0 mMDRT.  Bream A6 Plugged and Abandoned in January 2006.</p> <p>Set cement plug with the top of cement at 771.0 mMDRT.</p> <p><b>Geologist on rig at 1335 hrs, 30 January 2006 at 851.0 mMDRT (804.0 mTVDRT).</b></p> <p>Kick-off Bream A6A with a Smith S73PX PDC bit on steerable motor assembly at 855.0 mMDRT at 0500 hrs 02 February 2006.</p> <p>Drill ahead from 855.0 mMDRT to 873.0 mMDRT with a KCl/Glycol/PHPA mud system.</p> <p>Samples from 855.0 showed an increasing percentage of new formation (Calcilutite). At 873.0 mMDRT when 60% new formation was seen in the samples, stopped drilling for a PIT.</p> <p>Perform PIT at 873.0 mMDRT (824.9 mTVDRT)/ 550 psi/ 13.0 ppg EMW using 9.1 ppg mud, at 1045 hrs, 02 February 2005.</p> <p>Bit Details:  BHA # 1, Bit # 1.  Size: 8.5", Manufacturer / Type: Smith S73PX, Serial #: JT0016R1.  Jets: 20 x 6, TFA: 1.841 sq.in, Grading: <b>3-5-WT-A-X-1-PN-BT-TD</b>.  Krevs: 1240.0, Top Drive RPM: 100 ( + 174 DHM RPM).  Depth In: 855.0 mMDRT. Depth Out: 3256.0 mMDRT.  Metres drilled: 2401.0 m, HOB: 72.39. Average ROP: 33.2 m/hr.  Rotating: 2042.0 metres / Rotating HOB = 45.92, Average Rotating ROP = 44.5 m/hr.  Steering: 359.0 metres / Steering HOB = 26.47 , Average Steering ROP = 13.4 m/hr.</p>			
855 one metre	873 Spot sample	0 % to 60% + (100% to 40% Cement)	<p>Samples 855 to 873 mMDRT showed an increasing percentage of new formation (CALCILUTITE: very light grey to light grey, silty in part grading to CALCISILTITE, trace fossil fragments, soft to firm, sub blocky).  At 873.0 mMDRT (824.9 mTVDRT), stopped drilling when the percentage of new formation was 60%, and a PIT was conducted.</p>
873	900	100	CALCILUTITE: medium light grey to light grey, occasionally very light grey, silty in part grading to CALCISILTITE, common fossil fragments, common forams, soft to firm, sub blocky.
900	930	100	CALCILUTITE: as above.
930	960	95	CALCILUTITE: as above.
		5	CALCAREOUS CLAYSTONE: medium grey to medium dark grey, silty in part grading to ARGILLACEOUS SILTSTONE, moderately calcareous, rare disseminated pyrite, common fossil fragments, rare gastropods, firm to moderately hard, sub blocky to blocky.
			<b>Top of Lakes Entrance at 961.5 mMDRT, 908.3 mTVDRT (-875.5 mTVDSS).</b>
960	990	15	CALCILUTITE: as above.

## Bream A6A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
		85	CALCAREOUS CLAYSTONE: medium grey to medium dark grey, silty in part grading to ARGILLACEOUS SILTSTONE, moderately calcareous, rare disseminated pyrite, common fossil fragments, rare gastropods, firm to moderately hard, sub blocky to blocky, sticky.
990	1020	100	CALCAREOUS CLAYSTONE: as above, sticky, soft, frm.
1020	1050	100	CALCAREOUS CLAYSTONE: medium grey to medium dark grey, silty in part, moderately calcareous, rare disseminated pyrite, rare pyrite nodules, trace fossil fragments, rare forams, soft to firm, sticky, sub blocky. <b>Midnight Depth 02 February 2006 = 1022.0 mMDRT (964.8 mTVDRT).</b>
1050	1080	100	CALCAREOUS CLAYSTONE: as above.
1080	1110	100	CALCAREOUS CLAYSTONE: as above, trace disseminated pyrite, (NO pyrite nodules).
1110	1140	100	CALCAREOUS CLAYSTONE: as above.
1140	1170	100	CALCAREOUS CLAYSTONE: medium grey to medium dark grey, silty in part, moderately calcareous, rare disseminated pyrite, rare pyrite nodules, trace fossil fragments, rare forams, rare gastropods, firm, sticky, sub blocky.
1170	1200	100	CALCAREOUS CLAYSTONE: medium grey to medium dark grey, occasionally light brownish grey, silty in part, moderately calcareous, trace disseminated pyrite, rare micromicaceous, trace fossil fragments, rare forams, rare gastropods, firm, sticky, sub blocky.
1200	1230	100	CALCAREOUS CLAYSTONE: as above, no nodular pyrite..
1230	1260	100	CALCAREOUS CLAYSTONE: as above, no nodular pyrite.
1260	1290	100	CALCAREOUS CLAYSTONE: medium grey to medium dark grey, silty, moderately calcareous, trace disseminated pyrite, rare pyrite nodules, rare fossil fragments, firm, sticky, sub blocky.
1290	1320	100	CALCAREOUS CLAYSTONE: medium light grey to light brownish grey, silty, moderately calcareous, trace disseminated pyrite, rare fossil fragments, soft to firm, sticky, sub blocky.
1320	1350	100	CALCAREOUS CLAYSTONE: as above, no disseminated pyrite.
1350	1380	100	CALCAREOUS CLAYSTONE: medium grey to medium light grey, silty, moderately calcareous, rare fossil fragments, soft to firm occasionally moderately hard, sticky, sub blocky. <b>Midnight Depth 03 February 2006 = 1384.0 mMDRT (1224.4 mTVDRT).</b>
1380	1410	100	CALCAREOUS CLAYSTONE: as above.
1410	1440	100	CALCAREOUS CLAYSTONE: as above, rare disseminated pyrite.
1440	1470	100	CALCAREOUS CLAYSTONE: as above.
1470	1500	100	CALCAREOUS CLAYSTONE: medium grey to medium light grey, silty, moderately calcareous, trace disseminated pyrite, rare pyrite nodules, rare fossil fragments, soft to firm occasionally moderately hard, sticky, sub blocky.
		Trace	SANDSTONE: clear to translucent, coarse to very coarse, moderately well sorted, sub angular to sub rounded, trace pyrite cement, generally clean, loose, fair to good inferred porosity. No fluorescence.
1500	1530	100	CALCAREOUS CLAYSTONE: medium grey to medium light grey, occasionally greenish grey, silty, moderately calcareous, rare disseminated pyrite, common fossil fragments, firm to occasionally moderately hard, sub blocky.
1530	1560	100	CALCAREOUS CLAYSTONE: as above.
1560	1590	100	CALCAREOUS CLAYSTONE: medium grey to medium light grey, silty, moderately calcareous, trace disseminated pyrite, rare pyrite nodules, rare fossil fragments, soft to firm, dispersive in part, sticky, sub blocky.



## Bream A6A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
1590	1620	100	CALCAREOUS CLAYSTONE: as above, + occasionally greenish grey, rare glauconite.
1620	1650	100	CALCAREOUS CLAYSTONE: as above, (no nodular pyrite).
1650	1680	100	CALCAREOUS CLAYSTONE: medium light grey to medium grey, occasionally light brownish grey, silty, moderately calcareous, trace disseminated pyrite, rare fossil fragments, soft to firm occasionally moderately hard, dispersive, sub blocky.
1680	1710	100	CALCAREOUS CLAYSTONE: as above.
1710	1740	100	CALCAREOUS CLAYSTONE: medium light grey to medium grey, occasionally light brownish grey, silty, moderately calcareous, rare disseminated pyrite, rare fossil fragments, soft to firm, dispersive, sub blocky.
1740	1770	100	CALCAREOUS CLAYSTONE: medium light grey to medium grey, occasionally light brownish grey, silty, moderately calcareous, trace disseminated pyrite, rare fossil fragments, soft to firm occasionally moderately hard, dispersive, sub blocky.
1770	1800	100	CALCAREOUS CLAYSTONE: as above.
1800	1830	100	CALCAREOUS CLAYSTONE: as above.
1830	1860	100	CALCAREOUS CLAYSTONE: medium light grey to medium grey, occasionally light brownish grey, silty, moderately calcareous, trace disseminated pyrite, rare fossil fragments, soft to firm, dispersive, sub blocky.
1860	1890	100	CALCAREOUS CLAYSTONE: as above.
			<b>Midnight Depth 04 February 2006 = 1906.0 mMDRT (1438.0 mTVDRT).</b>
1890	1920	100	CALCAREOUS CLAYSTONE: as above.
1920	1950	100	CALCAREOUS CLAYSTONE: medium grey to medium light grey, occasionally light brownish grey, silty, moderately calcareous, rare disseminated pyrite, rare fossil fragments, soft to firm occasionally moderately hard, dispersive, sub blocky.
1950	1980	100	CALCAREOUS CLAYSTONE: as above.
1980	2010	100	CALCAREOUS CLAYSTONE: as above.
2010	2040	100	CALCAREOUS CLAYSTONE: as above.
2040	2070	100	CALCAREOUS CLAYSTONE: medium light grey to medium grey, silty, moderately calcareous, trace disseminated pyrite, rare nodular pyrite, rare fossil fragments, soft to firm occasionally moderately hard, dispersive, sub blocky.
2070	2100	100	CALCAREOUS CLAYSTONE: as above, no nodular pyrite.
2100	2130	100	CALCAREOUS CLAYSTONE: medium light grey to medium grey, silty, moderately calcareous, rare disseminated pyrite, rare glauconite, rare fossil fragments, soft to firm occasionally moderately hard, dispersive, sub blocky.
2130	2160	100	CALCAREOUS CLAYSTONE: medium grey to medium light grey, occasionally light brownish grey, silty, moderately calcareous, trace disseminated pyrite, rare pyrite nodules, rare fossil fragments, soft to firm occasionally moderately hard, dispersive, sub blocky.
2160	2190	100	CALCAREOUS CLAYSTONE: light brownish grey to medium grey, silty, moderately calcareous, trace disseminated pyrite, rare pyrite nodules, rare fossil fragments, firm to moderately hard, sub blocky.
2190	2220	100	CALCAREOUS CLAYSTONE: as above, no nodular pyrite.
2220	2250	100	CALCAREOUS CLAYSTONE: as above, no nodular pyrite.
2250	2280	100	CALCAREOUS CLAYSTONE: light brownish grey to medium grey, silty, moderately calcareous, trace disseminated pyrite, rare fossil fragments, firm to moderately hard, sub blocky.
2280	2310	100	CALCAREOUS CLAYSTONE: as above + rare pyrite nodules.
2310	2340	100	CALCAREOUS CLAYSTONE: light medium grey to medium grey, occasionally light brownish grey, silty, moderately calcareous, trace disseminated pyrite, rare pyrite nodules, rare fossil fragments, soft to firm, occasionally moderately hard, sub blocky.
			<b>Midnight Depth 05 February 2006 = 2336.0 mMDRT (1612.0 mTVDRT).</b>

## Bream A6A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2340	2370	100	CALCAREOUS CLAYSTONE: as above.
2370	2400	100	CALCAREOUS CLAYSTONE: as above.
2400	2430	100	CALCAREOUS CLAYSTONE: light brownish grey to medium grey, silty, moderately calcareous, rare fossil fragments, firm to moderately hard, sub blocky.
2430	2460	100	CALCAREOUS CLAYSTONE: as above.
2460	2490	100	CALCAREOUS CLAYSTONE: light brownish grey to medium grey, silty, moderately calcareous, rare disseminated pyrite, rare pyrite nodules, rare fossil fragments, firm to moderately hard, sub blocky.
2490	2520	100	CALCAREOUS CLAYSTONE: light brownish grey to medium grey, silty, moderately calcareous, rare fossil fragments, firm to moderately hard, sub blocky.
2520	2550	100	CALCAREOUS CLAYSTONE: very light grey to medium grey, silty, moderately calcareous, rare disseminated pyrite, rare fossil fragments, soft to firm, dispersive, sub blocky.
2550	2580	100	CALCAREOUS CLAYSTONE: light brownish grey to medium grey, silty, moderately calcareous, rare disseminated pyrite, rare pyrite nodules, rare fossil fragments, firm to moderately hard, sub blocky.
			<b>Bagged 10 metre samples from 2580.0 to 2720.0 mMDRT.</b>
<b>2580</b>	<b>2590</b>	100	CALCAREOUS CLAYSTONE: as above.
2590	2600	100	CALCAREOUS CLAYSTONE: light brownish grey to medium grey, silty, moderately calcareous, rare disseminated pyrite, rare fossil fragments, firm to moderately hard, sub blocky.
2600	2610	100	CALCAREOUS CLAYSTONE: as above.
2610	2620	100	CALCAREOUS CLAYSTONE: as above.
2620	2630	100	CALCAREOUS CLAYSTONE: light brownish grey to medium grey, occasionally medium light grey, silty, moderately calcareous, rare disseminated pyrite, rare pyrite nodules, rare fossil fragments, firm to moderately hard, occasionally soft dispersive, sub blocky.
2630	2640	100	CALCAREOUS CLAYSTONE: light brownish grey to medium grey, occasionally medium light grey, silty, moderately calcareous, rare disseminated pyrite, rare fossil fragments, firm to moderately hard, occasionally soft dispersive, sub blocky.
2640	2650	100	CALCAREOUS CLAYSTONE: as above.
2650	2660	100	CALCAREOUS CLAYSTONE: as above.
2660	2670	100	CALCAREOUS CLAYSTONE: light brownish grey to occasionally medium grey, silty, moderately calcareous, rare disseminated pyrite, rare pyrite nodules, rare fossil fragments, firm to moderately hard, sub blocky.
2670	2680	100	CALCAREOUS CLAYSTONE: as above.
2680	2683	100	CALCAREOUS CLAYSTONE: as above.
	<b>B/U</b>		<b>POOH at 2100 hrs 06 February 2006 at 2683.0 mMDRT (1740.8 mTVDRT) to change out the saver sub and change from 4"DP to 5"DP. Tight hole problems experienced while POOH to shoe and RIH to 2683.0 mMDRT. Wiper trip from 2683.0 to 1791.0 mMDRT experienced no problems. RIH from 1791.0 mMDRT to 2683.0 mMDRT experienced no problems. Back on bottom drilling at 0625 hrs 10 February 2006.</b>
2683	2690	100	CALCAREOUS CLAYSTONE: medium grey to light brownish grey, occasionally light grey, silty, moderately calcareous, rare fossil fragments, moderately hard to occasionally hard, sub blocky.
2690	2700	100	CALCAREOUS CLAYSTONE: medium grey to light brownish grey, occasionally light grey, silty, moderately calcareous, moderately hard to occasionally hard, sub blocky.

## Bream A6A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2700	2710	100	CALCAREOUS CLAYSTONE: medium grey to light brownish grey, silty, moderately calcareous, moderately hard to occasionally hard, sub blocky. <b>Start adding Baracarb25 at 10 ppb at 2720 mMDRT at 0830 hrs, 10 February 2006.</b>
2710	2720	100	CALCAREOUS CLAYSTONE: medium grey to light brownish grey, occasionally light grey, silty, moderately calcareous, moderately hard to occasionally hard, sub blocky. <b>Bagged 5 metre samples from 2720.0 mMDRT to TD.</b>
2720	2725	100	CALCAREOUS CLAYSTONE: medium grey to light brownish grey, occasionally light grey, silty, moderately calcareous, rare ooids, moderately hard to occasionally hard, sub blocky.
2725	2730	100	CALCAREOUS CLAYSTONE: as above.
2730	2735	100	CALCAREOUS CLAYSTONE: as above.
2735	2740	100	CALCAREOUS CLAYSTONE: medium grey to light brownish grey, occasionally light grey, silty, moderately calcareous, moderately hard to occasionally hard, sub blocky.
2740	2745	100	CALCAREOUS CLAYSTONE: as above.
2745	2750	100	CALCAREOUS CLAYSTONE: medium grey to light brownish grey, occasionally light grey, silty, moderately calcareous, rare ooids, moderately hard to occasionally hard, sub blocky.
2750	2755	100	CALCAREOUS CLAYSTONE: as above.
2755	2760	100	CALCAREOUS CLAYSTONE: as above.
2760	2765	100	CALCAREOUS CLAYSTONE: medium grey to light brownish grey, silty, moderately calcareous, moderately hard to hard, sub blocky.
2765	2770	100	CALCAREOUS CLAYSTONE: as above.
2770	2775	100	CALCAREOUS CLAYSTONE: as above.
2775	2780	100	<b>Top of Latrobe at 2779.5 mMDRT ( 1792.3 mTVDRT = -1759.5 mTVDSS)</b> CALCAREOUS CLAYSTONE: 95%; medium grey to light brownish grey, silty, moderately calcareous, moderately hard to hard, sub blocky. CLAYSTONE: 5%; light greenish grey to greyish orange, slightly calcareous, soft, amorphous.
		Trace	SANDSTONE: Trace, white to pale green, very fine to fine, common quartzite, moderately well sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity.
2780	2785	70	CALCAREOUS CLAYSTONE: 60%; as above.
		15	CLAYSTONE: 10%; as above.
		15	SILTSTONE: light brown to pale yellowish brown, very arenaceous grading to very fine SANDSTONE, moderately hard to hard, sub blocky.
		15	SANDSTONE: white to pale green, very fine to fine, common quartzite, moderately well sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
		Trace	VOLCANICS: pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.
2785	2790	35	CALCAREOUS CLAYSTONE: 30%; as above.
			CLAYSTONE: 5%; as above.
		50	SILTSTONE: pale yellowish brown to light brown, very arenaceous grading to very fine SANDSTONE, moderately hard, sub blocky.
		5	SANDSTONE: as above. No fluorescence.
		10	VOLCANICS: pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.

## Bream A6A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2790	2795	10	CALCAREOUS CLAYSTONE: medium grey to light brownish grey, silty, moderately calcareous, moderately hard to hard, sub blocky.
		70	SILTSTONE: as above.
		5	SANDSTONE: as above.
			No fluorescence.
2795	2800	15	VOLCANICS: as above.
		Trace	CALCAREOUS CLAYSTONE: Trace, as above.
		60	SILTSTONE: as above.
		10	SANDSTONE: white to pale green, very fine to fine, common quartzite, moderately well sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity.
2800	2805		No fluorescence.
		30	VOLCANICS: as above.
		75	SILTSTONE: as above.
		5	SANDSTONE: as above.
2805	2810		No fluorescence.
		20	VOLCANICS: as above.
		50	SILTSTONE: pale yellowish brown to pale brown, very arenaceous grading to very fine SANDSTONE, moderately hard, sub blocky.
		10	SANDSTONE: as above.
2810	2815		No fluorescence.
		40	VOLCANICS: pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.
		40	SILTSTONE: as above.
		20	SANDSTONE: white to pale green, very fine to fine, common quartzite, moderately well sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity.
2815	2820		No fluorescence.
		40	VOLCANICS: as above.
		40	SILTSTONE: as above.
		10	SANDSTONE: as above.
2820	2825		No fluorescence.
		50	VOLCANICS: as above.
		30	SILTSTONE: as above.
		15	SANDSTONE: clear to translucent, white to pale green, very fine to medium, dominantly fine, common quartzite, moderately well sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity.
2825	2830		No fluorescence.
		55	VOLCANICS: as above.
		35	SILTSTONE: pale yellowish brown to pale brown, very arenaceous grading to very fine SANDSTONE, moderately hard, sub blocky.
		10	SANDSTONE: as above.
2830	2835		No fluorescence.
		55	VOLCANICS: pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.
		30	SILTSTONE: as above.
		10	SANDSTONE: as above.
			No fluorescence.

## **Bream A6A Lithology / Show Descriptions**

Interval (m) From To		%	Lithology / Show Description
2835	2840	60	VOLCANICS: as above.
		15	SILTSTONE: as above.
		10	SANDSTONE: clear to translucent, white to pale green, very fine to medium, dominantly fine, common quartzite, moderately well sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
2840	2845	75	VOLCANICS: as above.
		20	SILTSTONE: as above.
		5	SANDSTONE: as above. No fluorescence.
2845	2850	75	VOLCANICS: as above.
		15	SILTSTONE: as above.
		5	SANDSTONE: as above. No fluorescence.
2850	2855	80	VOLCANICS: pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.
		10	SILTSTONE: pale yellowish brown to light brown, very arenaceous grading to very fine SANDSTONE, moderately hard, sub blocky.
		10	SANDSTONE: clear to translucent, white to pale green, very fine to medium, dominantly very fine, common quartzite, moderately well sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
2855	2860	80	VOLCANICS: as above.
		15	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
2860	2865	75	VOLCANICS: as above.
		15	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
2865	2870	75	VOLCANICS: as above.
		15	SILTSTONE: pale yellowish brown to light brown, very arenaceous grading to very fine SANDSTONE, moderately hard, sub blocky.
		15	SANDSTONE: clear to translucent, white to pale green, very fine to medium, dominantly very fine, common quartzite, moderately well sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
2870	2875	70	VOLCANICS: pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.
		10	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
2875	2880	80	VOLCANICS: as above.
		10	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.

## **Bream A6A Lithology / Show Descriptions**

<b>Interval (m)</b>		<b>%</b>	<b>Lithology / Show Description</b>
<b>From</b>	<b>To</b>		
2880	2885	80	VOLCANICS: as above.
		25	SILTSTONE: as above.
		5	SANDSTONE: clear to translucent, white to pale green, very fine to medium, dominantly very fine, common quartzite, moderately well sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
2885	2890	70	VOLCANICS: as above.
		20	SILTSTONE: pale yellowish brown to light brown, very arenaceous grading to very fine SANDSTONE, moderately hard, sub blocky.
		10	SANDSTONE: as above. No fluorescence.
2890	2895	70	VOLCANICS: pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.
		15	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
2895	2900	75	VOLCANICS: as above.
		20	SILTSTONE: pale yellowish brown to light brown, very arenaceous grading to very fine SANDSTONE, moderately hard, sub blocky, common rock flour.
		10	SANDSTONE: clear to translucent, white to pale green, very fine to occasionally medium, dominantly very fine, common quartzite, moderately well sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
2900	2905	70	VOLCANICS: as above.
		20	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
2905	2910	70	VOLCANICS: as above.
		25	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
2910	2915	65	VOLCANICS: pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.
		15	SILTSTONE: as above.
		10	SANDSTONE: clear to translucent, white to pale green, very fine to occasionally medium, dominantly very fine, common quartzite, moderately well sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
2915	2920	75	VOLCANICS: as above.
		20	SILTSTONE: pale yellowish brown to light brown, very arenaceous grading to very fine SANDSTONE, moderately hard, sub blocky, common rock flour.
		15	SANDSTONE: as above. No fluorescence.
2920	2925	65	VOLCANICS: as above.
		30	SILTSTONE: as above.

## **Bream A6A Lithology / Show Descriptions**

<b>Interval (m) From To</b>		<b>%</b>	<b>Lithology / Show Description</b>
2925	2930	10	SANDSTONE: clear to translucent, white to pale green, occasionally moderate orange, very fine to occasionally very coarse, common quartzite, poorly sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
		60	VOLCANICS: dusky green, pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.
		20	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
2930	2935	70	VOLCANICS: as above.
		20	SILTSTONE: as above.
		10	SANDSTONE: clear to translucent, white to pale green, occasionally moderate orange, very fine to occasionally very coarse, common quartzite, poorly sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
2935	2940	70	VOLCANICS: as above.
		15	SILTSTONE: pale yellowish brown to light brown, very arenaceous grading to very fine SANDSTONE, moderately hard, sub blocky, common rock flour.
		10	SANDSTONE: as above. No fluorescence.
2940	2945	75	VOLCANICS: as above.
		15	SILTSTONE: moderate brown to pale yellowish brown, very arenaceous grading to very fine SANDSTONE, moderately hard, sub blocky.
		15	SANDSTONE: clear to translucent, white to pale green, occasionally moderate orange, very fine to occasionally coarse, common quartzite, poorly sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
2945	2950	70	VOLCANICS: dusky green, pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.
		10	SILTSTONE: as above.
		15	SANDSTONE: as above. No fluorescence.
2950	2955	75	VOLCANICS: as above.
		15	SILTSTONE: as above.
		15	SANDSTONE: as above. No fluorescence.
2955	2960	70	VOLCANICS: as above.
		10	SILTSTONE: as above.
		15	SANDSTONE: clear to translucent, white to pale green, occasionally moderate orange, very fine to occasionally coarse, common quartzite, poorly sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
2960	2965	75	VOLCANICS: as above.
		30	SILTSTONE: moderate brown to pale yellowish brown, very arenaceous grading to very fine SANDSTONE, moderately hard, sub blocky.

## Bream A6A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2965	2970	10	SANDSTONE: as above. No fluorescence.
		60	VOLCANICS: dusky green, pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.
		10	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
2970	2975	80	VOLCANICS: as above.
		15	SILTSTONE: as above.
		10	SANDSTONE: clear to translucent, white to pale green, occasionally moderate orange, very fine to occasionally coarse, common quartzite, poorly sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
2975	2980	75	VOLCANICS: as above.
		15	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
2980	2985	75	VOLCANICS: as above.
		10	SILTSTONE: moderate brown to pale yellowish brown, very arenaceous grading to very fine SANDSTONE, moderately hard, sub blocky.
		10	SANDSTONE: as above. No fluorescence.
2985	2990	80	VOLCANICS: dusky green, pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.
		20	SILTSTONE: pale yellowish brown to moderate brown, very arenaceous grading to very fine SANDSTONE, moderately hard, sub blocky.
		15	SANDSTONE: clear to translucent, white to pale green, occasionally moderate orange, very fine to occasionally very coarse, common quartzite, poorly sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
		75	VOLCANICS: as above.
2990	2995	25	SILTSTONE: as above.
		15	SANDSTONE: as above. No fluorescence.
		60	VOLCANICS: as above.
2995	3000	35	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
		55	VOLCANICS: as above.
3000	3005	25	SILTSTONE: moderate brown to occasionally dark yellowish brown, very arenaceous grading to very fine SANDSTONE, trace glauconite pellets, moderately hard, sub blocky.
		20	SANDSTONE: clear to translucent, white to pale green, occasionally moderate orange, very fine to occasionally very coarse, common quartzite, poorly sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.



## **Bream A6A Lithology / Show Descriptions**

<b>Interval (m)</b>		<b>%</b>	<b>Lithology / Show Description</b>
<b>From</b>	<b>To</b>		
3005	3010	55	VOLCANICS: dusky green, pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.
		20	SILTSTONE: as above.
		15	SANDSTONE: as above. No fluorescence.
3010	3015	65	VOLCANICS: as above.
		50	SILTSTONE: as above.
		5	SANDSTONE: as above. No fluorescence.
3015	3020	45	VOLCANICS: as above.
		60	SILTSTONE: as above.
		10	SANDSTONE: clear to translucent, white to pale green, occasionally moderate orange, very fine to occasionally very coarse, common quartzite, poorly sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
3020	3025	30	VOLCANICS: as above.
		50	SILTSTONE: moderate brown to occasionally dark yellowish brown, very arenaceous grading to very fine SANDSTONE, trace glauconite pellets, moderately hard, sub blocky.
		10	SANDSTONE: as above. No fluorescence.
3025	3030	40	VOLCANICS: dusky green, pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.
		65	SILTSTONE: as above.
		5	SANDSTONE: as above. No fluorescence.
3030	3035	30	VOLCANICS: as above.
		65	SILTSTONE: moderate brown to greyish brown, very arenaceous grading to very fine SANDSTONE, trace glauconite pellets, moderately hard, sub blocky.
		10	SANDSTONE: clear to translucent, white to pale green, occasionally moderate orange, very fine to occasionally very coarse, common quartzite, poorly sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
3035	3040	25	VOLCANICS: as above.
		65	SILTSTONE: as above.
		5	SANDSTONE: as above. No fluorescence.
3040	3045	30	VOLCANICS: dusky green, pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.
		80	SILTSTONE: as above.
		5	SANDSTONE: as above. No fluorescence.
3045	3050	15	VOLCANICS: as above.
		90	SILTSTONE: as above.

## Bream A6A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3050	3055	5	SANDSTONE: clear to translucent, white to pale green, occasionally moderate orange, very fine to occasionally very coarse, common quartzite, poorly sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
			<b>Midnight Depth 10 February 2006 = 3053.0 mMDRT (1904.9 mTVDRT). Add Radiagreen EME to reduce Torque and Drag at 3053.0 mMDRT (1904.9 mTVDRT).</b>
		5	VOLCANICS: as above.
3055	3060	85	SILTSTONE: moderate brown to greyish brown, very arenaceous grading to very fine SANDSTONE, trace glauconite pellets, moderately hard, sub blocky.
		5	SANDSTONE: as above. No fluorescence.
		10	VOLCANICS: dusky green, pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.
3060	3065	75	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
		15	VOLCANICS: dusky green, pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.
3065	3070	70	SILTSTONE: as above.
		10	SANDSTONE: clear to translucent, white to pale green, occasionally moderate orange, very fine to occasionally very coarse, common quartzite, poorly sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
		20	VOLCANICS: as above.
3070	3075	75	SILTSTONE: moderate brown to greyish brown, very arenaceous grading to very fine SANDSTONE, trace glauconite pellets, moderately hard, sub blocky.
		10	SANDSTONE: as above. No fluorescence..
		15	VOLCANICS: as above.
3075	3080	70	SILTSTONE: as above.
		15	SANDSTONE: as above. No fluorescence..
		15	VOLCANICS: dusky green, pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.
3080	3085	85	SILTSTONE: moderate brown to occasionally pale yellowish brown, very arenaceous grading to very fine SANDSTONE, trace glauconite pellets, moderately hard, common rock flour, sub blocky.
		5	SANDSTONE: clear to translucent, white to pale green, very fine to occasionally very coarse, common quartzite, poorly sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
		10	VOLCANICS: as above.
		85	SILTSTONE: as above.
		5	SANDSTONE: as above. No fluorescence.
		10	VOLCANICS: as above.

## Bream A6A Lithology / Show Descriptions

Interval (m) From      To		%	Lithology / Show Description
<b>Top of Coarse Clastics (N1 Reservoir) at 3090.0 mMDRT ( 1920.8 mTVDRT = -1888.0 mTVDSS)</b>			
3085	3090	90	SILTSTONE: as above.
		5	SANDSTONE: clear to translucent, white to pale green, very fine to occasionally very coarse, common quartzite, poorly sorted, sub angular to sub rounded, common glauconitic matrix, hard aggregates, common rock flour, poor inferred and visible porosity. No fluorescence.
		5	VOLCANICS: as above.
3090	3095	70	SILTSTONE: moderate brown to occasionally pale yellowish brown, very arenaceous grading to very fine SANDSTONE, trace glauconite pellets, moderately hard, common rock flour, sub blocky.
		25	SANDSTONE 1: 15%, clear to translucent, fine to occasionally very coarse, dominantly medium to coarse, poorly sorted, sub angular to sub rounded, weak pyrite cement, trace pyrite nodules, dominantly loose, clean, fair inferred and visible porosity. SANDSTONE 2: 10%, translucent to medium light grey, very fine to fine, moderately well sorted, sub angular to sub rounded, moderate siliceous cement, abundant micropyrrite matrix, hard aggregates, tight visual and inferred porosity. No fluorescence.
		5	VOLCANICS: dusky green, pale green to greyish green, dominantly chlorite, hard, common bit crushed to rock flour.
		<b>Base of Waste (BWST) at 3098.5 mMDRT ( 1924.5 mTVDRT = -1891.7 mTVDSS)</b>	
3095	3100	70	SILTSTONE: as above.
		30	SANDSTONE 1: 20%, clear to translucent, dominantly medium to coarse, occasionally very coarse, moderately well sorted, sub angular to sub rounded, weak pyrite cement, trace pyrite nodules, dominantly loose, clean, fair inferred and visible porosity. SANDSTONE 2: 10%, translucent to light grey, very fine to fine, moderately well sorted, sub angular to sub rounded, moderate siliceous cement, common micropyrrite matrix, hard aggregates, tight visual and inferred porosity. No fluorescence.
		Cavings	VOLCANICS: dusky green, pale green to greyish green, dominantly chlorite, hard, seen as cavings due to washout and breakage (trace to 10%) from 3100 to 3140 mMDRT.
3100	3105	35	SILTSTONE: moderate brown to greyish brown, very arenaceous grading to very fine SANDSTONE, trace glauconite pellets, moderately hard, sub blocky.
		65	SANDSTONE 1: 60%, clear to translucent, medium to very coarse, dominantly coarse, moderately well sorted, sub angular to sub rounded, weak pyrite cement, trace pyrite nodules, dominantly loose, generally clean, fair inferred and visible porosity. SANDSTONE 2: 5%, translucent to light grey, very fine to fine, moderately well sorted, sub angular to sub rounded, moderate siliceous cement, common micropyrrite matrix, hard aggregates, tight visual and inferred porosity. No fluorescence.
3105	3110	10	SILTSTONE: as above.
		90	SANDSTONE: clear to translucent, coarse to dominantly very coarse, moderately well sorted, sub angular to sub rounded, common fractured quartz grains, moderate pyrite cement, trace pyrite nodules, dominantly loose, generally clean, fair inferred and visible porosity. No fluorescence.
<b>Add Barablock to the mud system at 3111.0 mMDRT.</b>			
3110	3115	5	CLAYSTONE: medium light grey to light blueish grey, non-calcareous, moderately hard to hard, sub blocky to blocky.

## Bream A6A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3115	3120	5	SILTSTONE: moderate brown to greyish brown, very arenaceous grading to very fine SANDSTONE, trace glauconite pellets, moderately hard, sub blocky.
		90	SANDSTONE: clear to translucent, coarse to dominantly very coarse, moderately well sorted, sub angular to sub rounded, common fractured quartz grains, moderate pyrite cement, common pyrite nodules, loose, clean, fair inferred and visible porosity. No fluorescence.
		5	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		90	SANDSTONE: clear to translucent, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, weak pyrite cement, rare pyrite nodules, loose, clean, fair inferred and visible porosity. No fluorescence. <b>FLUORESCENCE(3120 to 3135 mMDRT): Trace to 5% spotted, smudgy greenish yellow fluorescence due to the addition of Radiagreen EBL (an asphaltic resin). No direct cut, no crush cut.</b>
3120	3125	5	CLAYSTONE: as above.
		Trace	SILTSTONE: Trace, as above seen as cavings from 3125 to 3140 samples.
		95	SANDSTONE: as above. No fluorescence.
3125	3130	5	CLAYSTONE: as above.
		95	SANDSTONE: clear to translucent, medium to very coarse, dominantly coarse, moderately well sorted, sub rounded to sub angular, weak pyrite cement, rare pyrite nodules, loose, clean, fair to good inferred and visible porosity. No fluorescence.
3130	3135	5	CLAYSTONE: as above.
		95	SANDSTONE: clear to translucent, coarse to dominantly very coarse, moderately well sorted, sub rounded to sub angular, weak pyrite cement, rare pyrite nodules, loose, clean, fair to good inferred and visible porosity. No fluorescence.
3135	3140		<b>CBF2 Horizon (Cobalt Sand) at 3138.0 mMDRT ( 1941.7 mTVDRT = -1908.9 mTVDSS)</b>
		15	CLAYSTONE: medium light grey to light blueish grey, non-calcareous, moderately hard to hard, sub blocky to blocky.
		85	SANDSTONE: clear to translucent, rare greyish pink orange, coarse to dominantly very coarse, moderately well sorted, sub angular to sub rounded, weak pyrite cement, rare pyrite nodules, loose, clean, fair to good inferred and visible porosity. No fluorescence.
Spot	3142	Slow ROP	20% CLAYSTONE: as above. 80% SANDSTONE: as above, with strong pyrite cement and common pyrite nodules. <b>CBF1 at 3144.0 mMDRT ( 1944.4 mTVDRT = -1911.6 mTVDSS)</b>
3140	3145	5	CLAYSTONE 1: 5%, medium light grey to light blueish grey, non-calcareous, moderately hard to hard, sub blocky to blocky. CLAYSTONE 2: Trace, off white, soft, dispersive, amorphous.
		20	SILTSTONE: moderate brown to dusky brown, very arenaceous grading to very fine SANDSTONE, moderately hard to hard, sub blocky.
		75	SANDSTONE: clear to translucent, very fine to occasionally very coarse , poorly sorted, sub angular to sub rounded, weak pyrite cement, rare pyrite nodules, weak siliceous cement, dominantly loose, generally clean, poor to fair inferred and visible porosity. No fluorescence.

## Bream A6A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3145	3150	15	CLAYSTONE 1: 10%, medium light grey to light blueish grey, non-calcareous, moderately hard to hard, sub blocky to blocky. CLAYSTONE 2: 5%, off white, soft, dispersive, amorphous.
		10	SILTSTONE: as above.
		75	SANDSTONE: as above. No fluorescence.
		Cavings To TD	VOLCANICS: dusky green, pale green to greyish green, dominantly chlorite, hard, seen as cavings due to washout and breakage (5% to 20%) from 3150 to TD. <b>CBSB (Base of Cobalt Sand) at 3152.5 mMDRT (1948.1 mTVDRT = -1915.3 mTVDSS)</b>
3150	3155	5	COAL: dusky brown, silty in part grading to CARBONACEOUS SILTSTONE, earthy, firm, sub blocky, uneven, woody texture.
		15	CLAYSTONE 1: 10%, medium light grey to light blueish grey, non-calcareous, moderately hard to hard, sub blocky to blocky. CLAYSTONE 2: 5%, off white, soft, dispersive, amorphous.
		5	SILTSTONE: moderate brown to dusky brown, very arenaceous grading to very fine SANDSTONE, moderately hard to hard, sub blocky.
		75	SANDSTONE: clear to translucent, fine to dominantly very coarse, moderately well sorted, sub angular to sub rounded, occasionally fractured quartz grains, weak pyrite cement, rare pyrite nodules, dominantly loose, generally clean, poor to fair inferred and visible porosity. No fluorescence.
3155	3160	15	CLAYSTONE 1: 10%, medium light grey to light blueish grey, non-calcareous, moderately hard to hard, sub blocky to blocky. CLAYSTONE 2: 5%, off white, soft, dispersive, amorphous.
		Trace	SILTSTONE: Trace, as above seen as cavings from 3160 to 3190 samples.
		85	SANDSTONE: clear to translucent, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, occasionally fractured quartz grains, weak pyrite cement, rare pyrite nodules, loose, clean, fair to good inferred and visible porosity. No fluorescence.
3160	3165	10	CLAYSTONE: as above.
		90	SANDSTONE: clear to translucent, fine to coarse, dominantly medium to coarse, moderately well sorted, sub angular to sub rounded, occasionally rounded, weak pyrite cement, rare pyrite nodules, loose, clean, fair to good inferred and visible porosity. No fluorescence.
3165	3170	10	CLAYSTONE 1: 5%, medium light grey to light blueish grey, non-calcareous, moderately hard to hard, sub blocky to blocky. CLAYSTONE 2: 5%, off white, soft, dispersive, amorphous.
		90	SANDSTONE: clear to translucent, rare greyish pink, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, occasionally rounded, weak pyrite cement, loose, clean, fair to good inferred and visible porosity. No fluorescence.
3170	3175	5	CLAYSTONE: medium light grey to light blueish grey, non-calcareous, moderately hard to hard, sub blocky to blocky.
		95	SANDSTONE: clear to translucent, rare greyish pink, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, weak pyrite cement, rare pyrite nodules, loose, clean, fair to good inferred and visible porosity. No fluorescence.
3175	3180	5	CLAYSTONE: as above.

## Bream A6A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
		95	SANDSTONE: clear to translucent, rare greyish pink, fine to very coarse, dominantly medium to coarse, moderately well sorted, sub angular to sub rounded, occasionally rounded, loose, clean, fair inferred and visible porosity. No fluorescence.
3180	3185	Trace	<b>OOWC at 3183.6 mMDRT ( 1961.8 mTVDRT = -1929.0 mTVDSS)</b> COAL: Trace, cavings as above (3155)
		5	CLAYSTONE: as above.
		95	SANDSTONE: clear to translucent, fine to very coarse, dominantly medium to coarse, moderately well sorted, sub angular to sub rounded, occasionally rounded, weak pyrite cement, rare pyrite nodules, loose, clean, fair inferred and visible porosity. No fluorescence.
3185	3190	10	CLAYSTONE: as above.
		90	SANDSTONE: as above. No fluorescence.
			At 3197.0 mMDRT, SPP loss due to washout. Performed a carbide check for approximate depth of washout. Not successful. POOH to investigate and check each connection for the washout. Found the washout at the crossover between 4" and 5" DP at 2308.0 mMDRT.. Change out crossover sub and RIH to continue drilling to from 3197.0 mMDRT to TD. Sample 3195 mMDRT is not representative of the formation due to it being logged after this trip to 2308.0 mMDRT. The formation percentages are based on the response of the Gamma Ray values of the Anadrill MWD tool. Trip Gas at 3197.0 mMDRT = 117 units.
3190	3195	30	CLAYSTONE: as above.
LAT		10	SILTSTONE: moderate brown to dusky brown, very arenaceous grading to very fine SANDSTONE, moderately hard to hard, sub blocky.
		60	SANDSTONE: as above. No fluorescence.
3195	3200	50	CLAYSTONE: medium light grey, non-calcareous, moderately hard to hard, blocky.
		5	SILTSTONE: as above.
		45	SANDSTONE: clear to translucent, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, weak pyrite cement, loose, clean, fair inferred and visible porosity. No fluorescence.
3200	3205	60	CLAYSTONE: medium light grey to medium grey, non-calcareous, moderately hard to hard, blocky.
		10	SILTSTONE: as above.
		30	SANDSTONE: clear to translucent, occasionally medium to dominantly very coarse, common fractured quartz grains, moderately well sorted, sub angular to sub rounded, moderate pyrite cement, rare pyrite nodules, dominantly loose, generally clean, poor inferred and visible porosity. No fluorescence.
3205	3210	45	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		50	SANDSTONE: clear to translucent, medium to dominantly very coarse, common fractured quartz grains, moderately well sorted, sub angular to sub rounded, strong pyrite cement, rare pyrite nodules, dominantly loose, hard aggregates in part, generally clean, poor inferred and visible porosity. No fluorescence.

## Bream A6A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3210	3215	55	CLAYSTONE: as above.
		5	SILTSTONE: moderate brown to dusky brown, very arenaceous grading to very fine SANDSTONE, moderately hard to hard, sub blocky.
		40	SANDSTONE: clear to translucent, coarse to dominantly very coarse, common fractured quartz grains, moderately well sorted, sub angular to sub rounded, weak pyrite cement, rare pyrite nodules, dominantly loose, generally clean, poor inferred and visible porosity. No fluorescence. <b>Midnight Depth 11 February 2006 = 3215.0 mMDRT (1975.8 mTVDRT). PKSB (Base of Pink Sand) at 3216.0 mMDRT (1976.3 mTVDRT = -1943.5 mTVDSS)</b>
3215	3220	60	CLAYSTONE: medium light grey to medium grey, non-calcareous, moderately hard to hard, blocky.
		5	SILTSTONE: as above.
		35	SANDSTONE: clear to translucent, coarse to dominantly very coarse, common fractured quartz grains, moderately well sorted, sub angular to sub rounded, strong pyrite cement, rare pyrite nodules, dominantly loose, clean, poor to fair inferred and visible porosity. No fluorescence.
3220	3225	25	CLAYSTONE: as above.
		Trace	SILTSTONE: as above.
		75	SANDSTONE: clear to translucent, rare light greyish pink, coarse to dominantly very coarse, common fractured quartz grains, moderately well sorted, sub angular to sub rounded, strong pyrite cement, rare pyrite nodules, dominantly loose, clean, poor to fair inferred and visible porosity. No fluorescence.
3225	3230	25	CLAYSTONE: as above.
		5	SILTSTONE: moderate brown to dusky brown, very arenaceous grading to very fine SANDSTONE, moderately hard to hard, sub blocky.
		70	SANDSTONE: clear to translucent, medium to very coarse, dominantly coarse, occasionally fractured quartz grains, moderately well sorted, sub angular to sub rounded, moderate pyrite cement, rare pyrite nodules, dominantly loose, generally clean, fair inferred and visible porosity. No fluorescence.
3230	3235	10	CLAYSTONE: medium light grey to medium grey, non-calcareous, moderately hard to hard, blocky.
		Trace	SILTSTONE: as above.
		90	SANDSTONE: clear to translucent, fine to occasionally coarse, dominantly fine to medium, poorly sorted, sub angular to sub rounded, loose, clean, poor to fair inferred and visible porosity. No fluorescence. <b>MVSB (Base of Mauve Sand) at 3237.5 mMDRT (1986.2 mTVDRT = -1953.4 mTVDSS)</b>
3235	3240	10	CLAYSTONE: medium light grey to medium grey, slightly calcareous, moderately hard to hard, blocky.
		Trace	SILTSTONE: as above.
		90	SANDSTONE: clear to translucent, fine to occasionally very coarse, dominantly medium, moderately well sorted, sub angular to sub rounded, weak pyrite cement, rare pyrite nodules, dominantly loose, generally clean, poor to fair inferred and visible porosity. No fluorescence.



## Bream A6A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3240	3245	15	COAL: dusky red to dusky brown, earthy, brittle, sub fissile, angular, woody texture, pyrite laminations.
		15	CLAYSTONE: as above.
		25	SILTSTONE: moderate brown to dusky brown, very arenaceous grading to very fine SANDSTONE, moderately hard to hard, sub blocky.
		45	SANDSTONE: clear to translucent, occasionally medium to dominantly very coarse, occasionally fractured quartz grains, moderately well sorted, sub angular to sub rounded, weak pyrite cement, rare pyrite nodules, dominantly loose, generally clean, fair inferred and visible porosity. No fluorescence.
3245	3250	10	COAL: dusky red to dusky brown, earthy, brittle, sub fissile, angular, woody texture, pyrite laminations.
		20	CLAYSTONE: medium light grey to medium grey, slightly calcareous, moderately hard to hard, blocky.
		20	SILTSTONE: as above.
		50	SANDSTONE: clear to translucent, coarse to dominantly very coarse, common fractured quartz grains, moderately well sorted, sub angular to sub rounded, weak pyrite cement, rare pyrite nodules, dominantly loose, generally clean, fair inferred and visible porosity. No fluorescence.
3250	3255	5	COAL: dusky red to dusky brown, earthy, brittle, sub fissile, angular, woody texture, pyrite laminations.
		20	CLAYSTONE 1: 15%, medium light grey, slightly calcareous, moderately hard to hard, blocky. CLAYSTONE 2: 5%, off white to very pale orange, soft, dispersive, amorphous.
		20	SILTSTONE: moderate brown to dusky brown, very arenaceous grading to very fine SANDSTONE, moderately hard to hard, sub blocky.
		55	SANDSTONE: clear to translucent, coarse to dominantly very coarse, common fractured quartz grains, moderately well sorted, sub angular to sub rounded, weak pyrite cement, rare pyrite nodules, loose, clean, fair inferred and visible porosity. No fluorescence.
3255	<b>3256</b> <b>TD</b>	5	COAL: dusky red to dusky brown, earthy, brittle, sub fissile, angular, woody texture, pyrite laminations.
		25	CLAYSTONE 1: 15%, medium light grey, slightly calcareous, moderately hard to hard, blocky. CLAYSTONE 2: 10%, off white to very pale orange, soft, dispersive, amorphous.
		20	SILTSTONE: moderate brown to dusky brown, very arenaceous grading to very fine SANDSTONE, moderately hard to hard, sub blocky.
		50	SANDSTONE: clear to translucent, coarse to dominantly very coarse, common fractured quartz grains, moderately well sorted, sub angular to sub rounded, weak pyrite cement, rare pyrite nodules, loose, clean, fair inferred and visible porosity. No fluorescence.



## **Bream A6A Lithology / Show Descriptions**

<b>Interval (m) From To</b>		<b>%</b>	<b>Lithology / Show Description</b>
			<b>BMA A6A reached a TD of 3256.0 mMDRT = 1994.7 mTVDRT (-1961.9 mTVDSS) at 0930 hrs on 12 February 2006.</b>
			CBU. No Wiper Trip.
			Start circulating at bottom from 0930 to 1210 hrs on 12 February 2006.
			Last circulation on bottom at 1210 hrs, 12 February 2006. Total circulating time for last circulation on bottom = 2 hrs 40 minutes.
			Start POOH at 1210 hrs, 12 February 2006, for Reeves Wireline Logging Run #1.
			After POOH to shoe at 850.5 mMDRT, performed a Wiper trip from the shoe at 850.5 mMDRT to 1750.0 mMDRT to overcome the tight spots experienced while POOH at 1526.0 mMDRT and 1600.0 mMDRT.
			Bit on Surface at 17:00 hrs, 13 February 2006.
			At 10:30 hrs, 14 February 2006, start Reeves Logging at Logging speed. (0.1 metre/second) from 3253.0 mMDRT to 2537.1 mMDRT.
			At 14:55 hrs, 14 February 2006, at Tripping speed (0.2 metre/second) from 2537.1 mMDRT to 851.0 mMDRT.
			At 18:50 hrs, 14 February 2006, at normal Tripping speed (0.3 metre/second) from 850.5 mMDRT to surface. At surface at 21:30 hrs, 14 February 2006.
			Bottom of casing window at 850.5 mMDRT.

**APPENDIX 4a**

**BREAM A6A**

**Mud Log**



# MASTERLOG

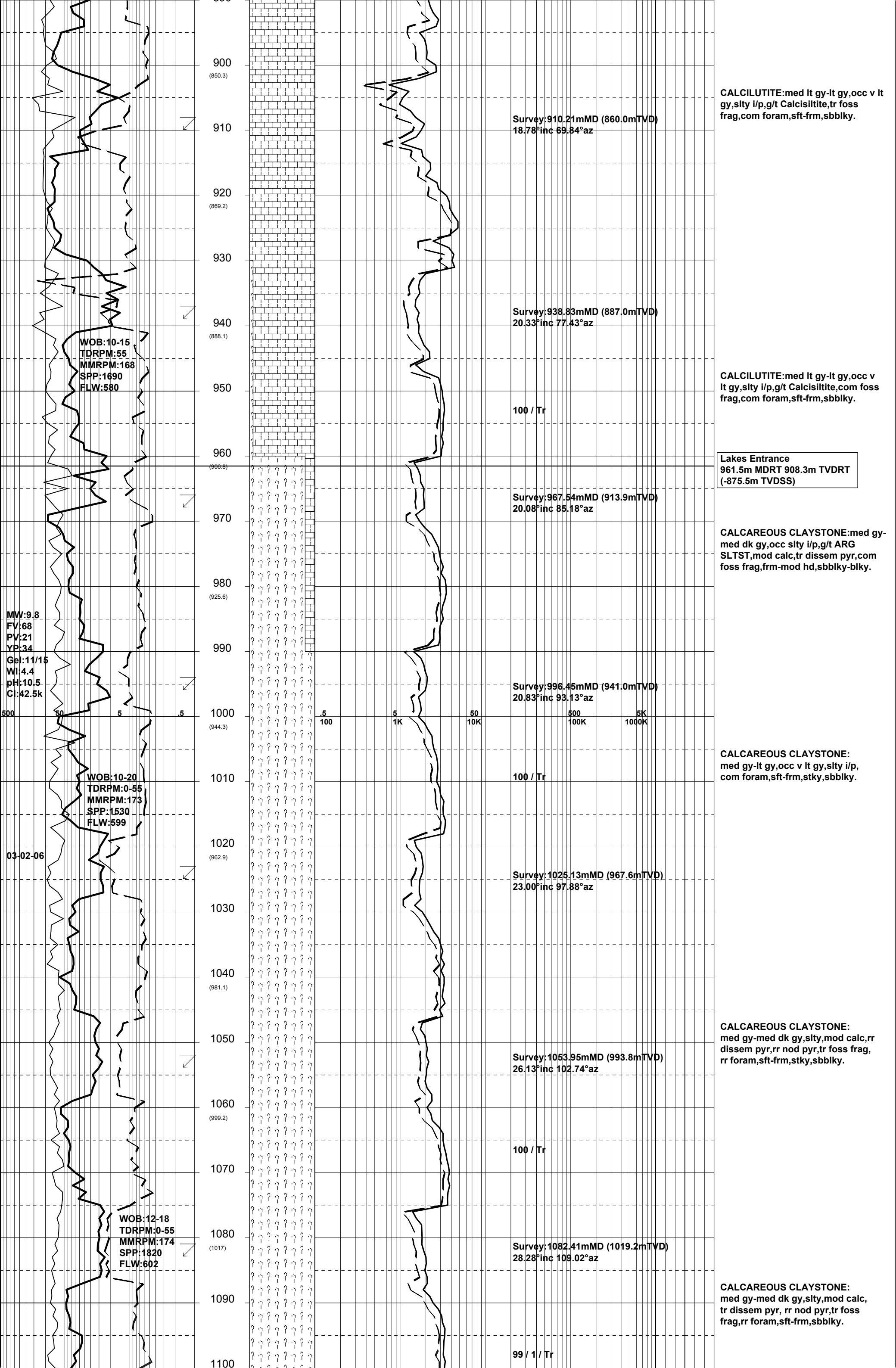
## BMA A6A

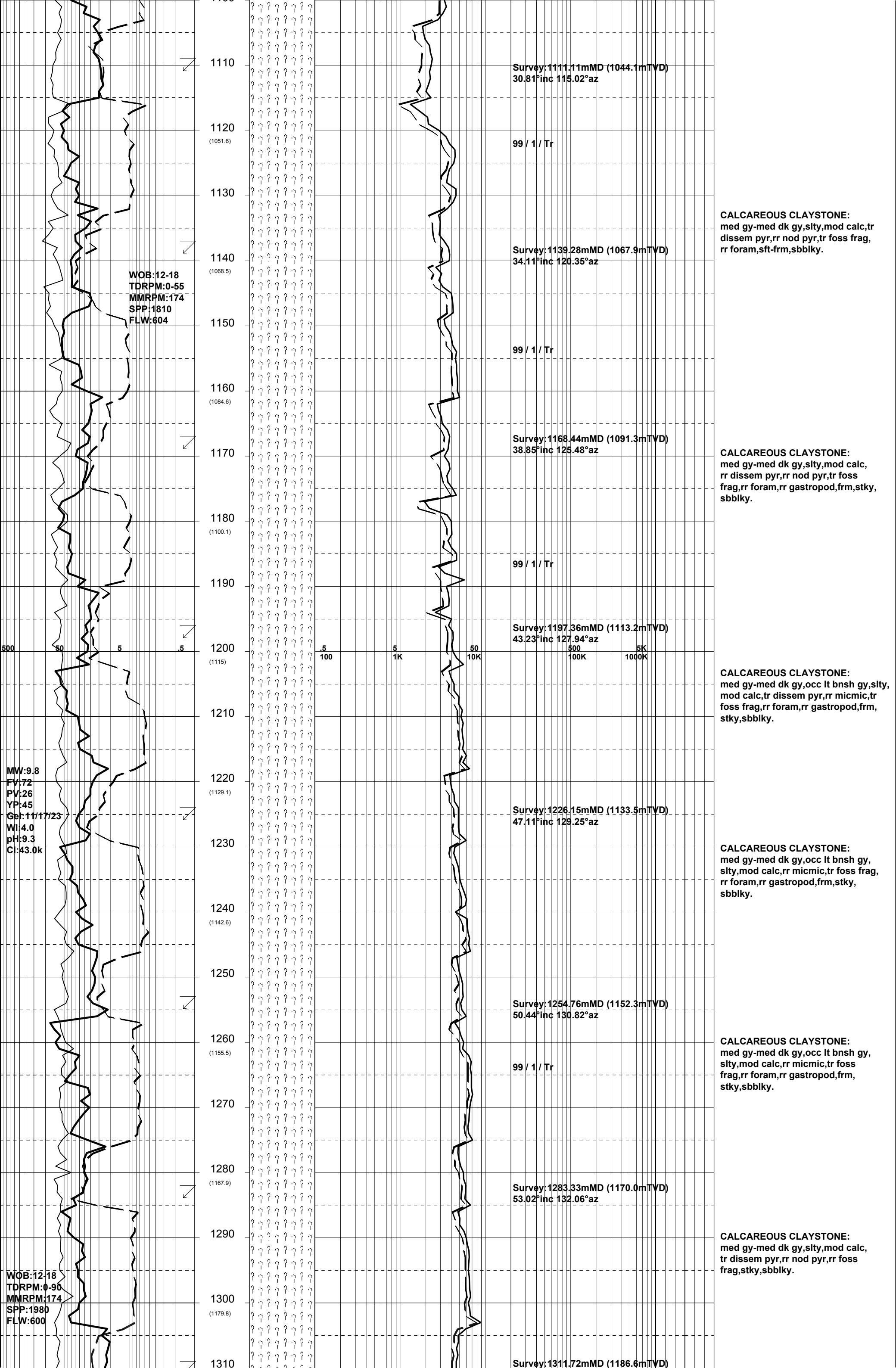


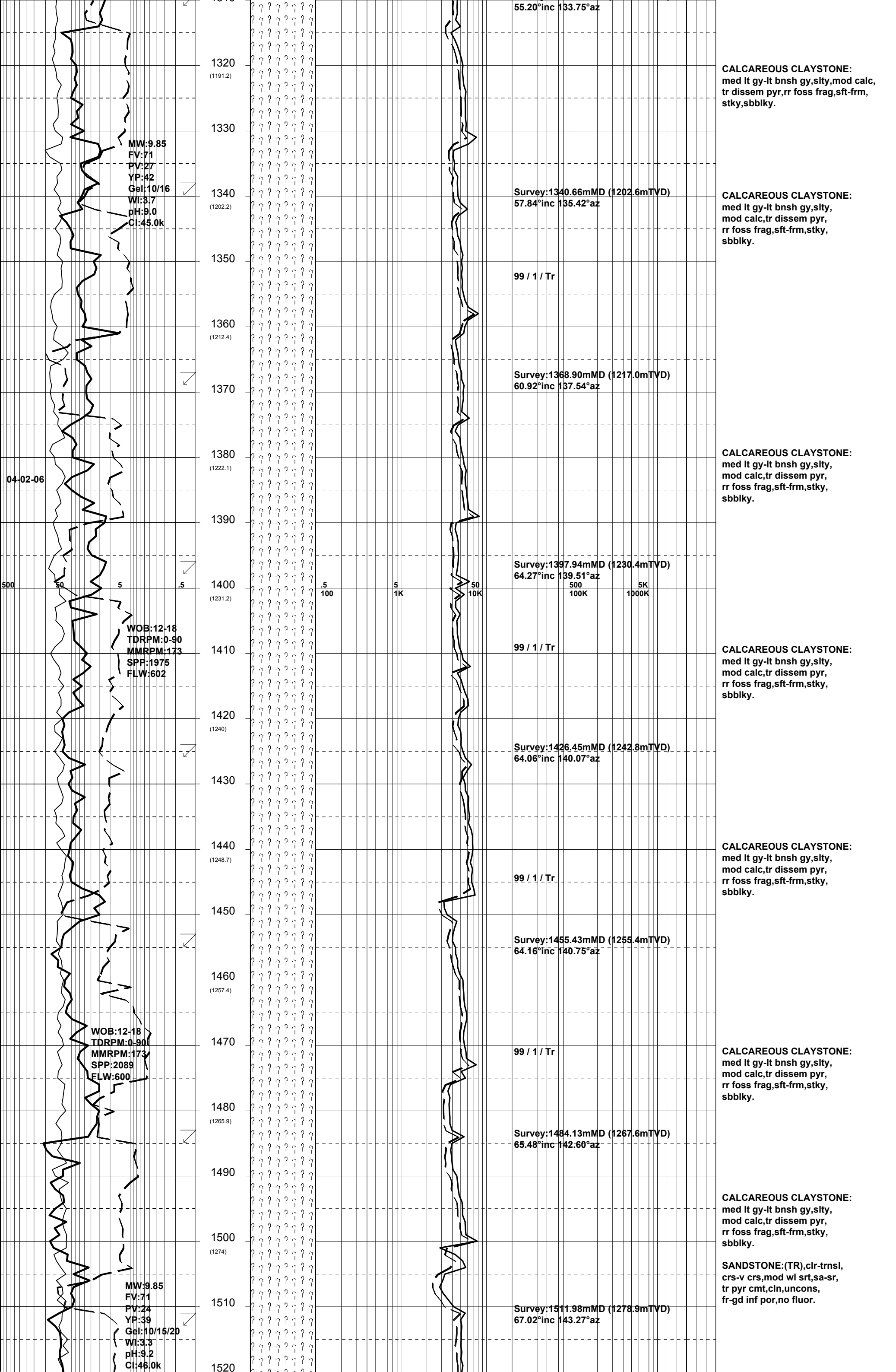
GENERAL	SURFACE POSITON	HOLE / CASING INFO	DATE / DEPTH	ENGINEERS
Country : AUSTRALIA Permit : VIC L13 Field : Bream Basin : GIPPSLAND Well Type : DEVELOPMENT Rig Name : NABORS 453	GDA Co-ord X : 147 46 20.421E GDA Co-ord Y : 38 29 58.784S MGA Co-ord X : 567347.12mE MGA Co-ord Y : 5738461.49mN RT to MSL : 32.82m RT to Sea Bed : 92.22m	8-1/2" Hole to 3256.0m MDRT  10-3/4" Csg Shoe at 851.0m MDRT 7" Production Csg at 3253.0m MDRT	Spud Date : 02-02-2006 Total Depth Date : 12-02-2006 Total Depth : 3256.0m MDRT True Vertical Depth : 1994.7m TVDRT Log Scale : 1/ 500	Steve Oades Noel Elliott Mark Smith

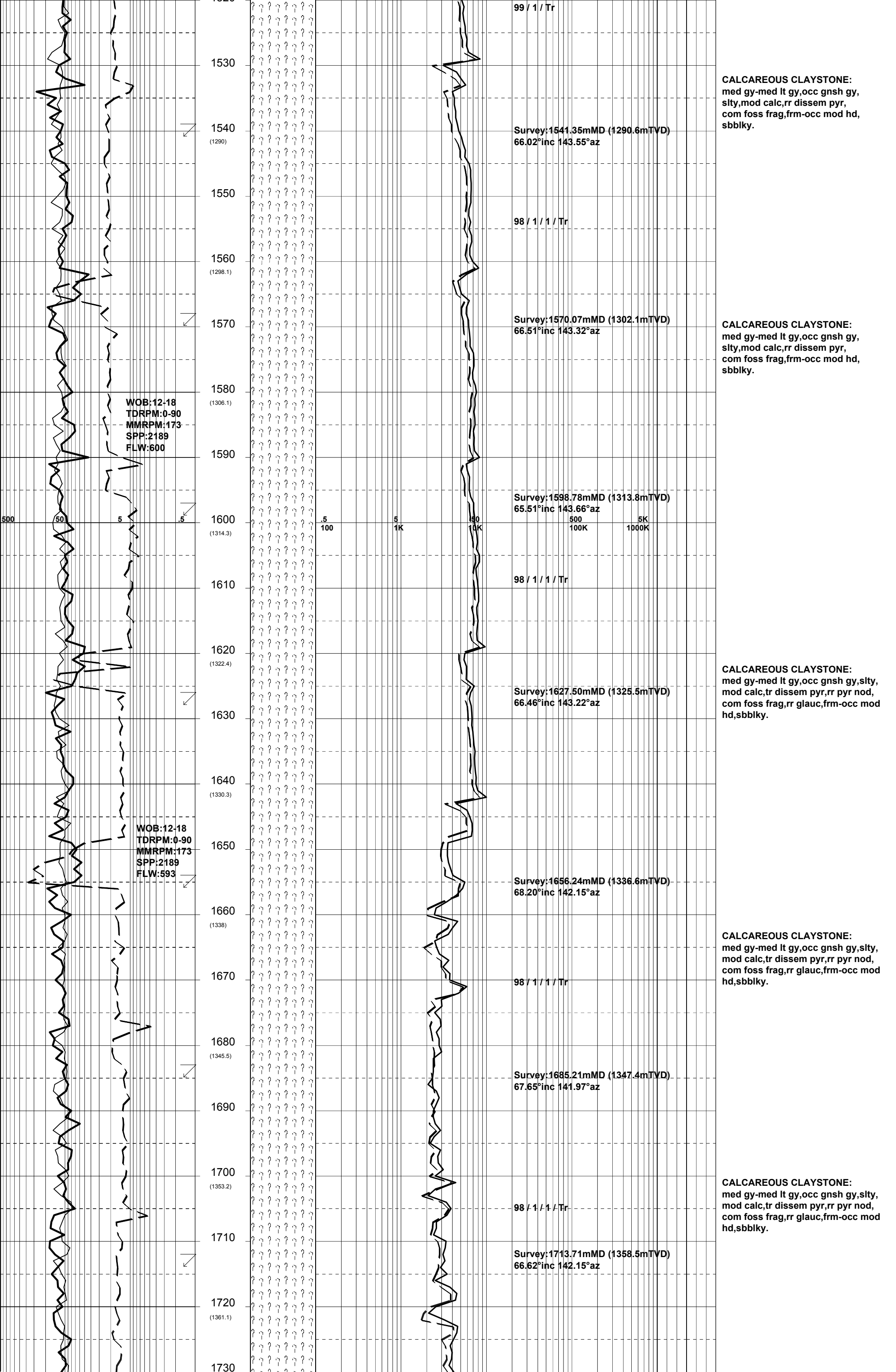
ABBREVIATIONS		LITHOLOGY LEGEND				ENGINEERING LEGEND	
MW Mud Weight FV Funnel Viscosity PV Plastic Viscosity YP Yield Point Gel Gel Strength WL Water Loss KCl Potassium Chloride Cl Chlorides Incl Inclination Az Azimuth	WOB Weight on Bit (klbs) RPM Rotations Per Min FLW Flow Rate (gpm) SPP Pump Pressure (psi) RR Re-Run Bit TG Trip Gas CG Connection Gas BG Background Gas DGP Drilled Gas Peak MM Mud Motor	CLAYSTONE SILTSTONE SST: F - V FINE SST: MEDIUM SST: COARSE SHALE	MARL LIMESTONE DOLOMITE CHERT CONGLOMERATE COAL	BRYOZOA RADIOLARITES ECHINOIDS CORALS FORAMINIFERA LITHIC FRAGMENT	CARB FRAGMENT QUARTZITE INTRUSIVES GLAUCONITE PYRITE CEMENT	CASING SHOE LINER HANGER BIT CHANGE DEVIA. SURVEY SWC UNRECOV SIDEWALL CORE CORE	WIRELINE LOGS MDT POINTS: PRESSURE ONLY SAMPLE SEAL FAILURE TIGHT

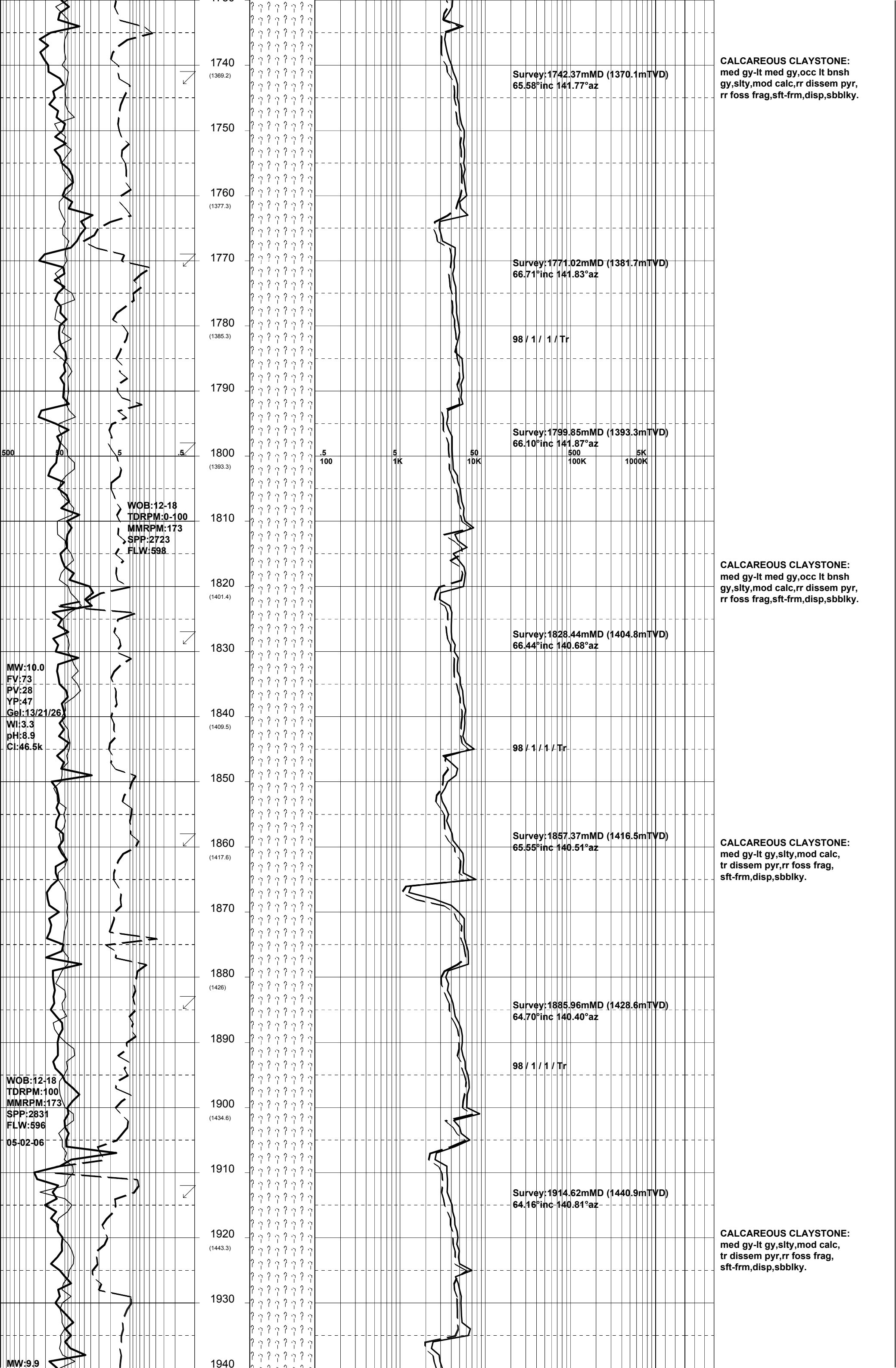
ROP (m/hr)		DEPTH (m) (TVD)	CUTTINGS LITHOLOGY	RESERVAL GAS DATA					CUT FLUOR	DIRECT FLR	LITHOLOGY DESCRIPTIONS and REMARKS		
500	50			5	.5								
WOB (tons)				C1	C2	C3							
50	25	0	%	iC4	nC4	iC5	TG	good	poor	good	poor		
MWD Gamma Ray (api)			0	100	.5	5	50	500	5K				
			0	100	100	1K	10K	100K	1000K				
 WOB:10-15 TDRPM:0 MMRPM:142 SPP:1120 FLW:495  MW:9.1 FV:52 PV:12 YP:22 Gel:6/8 WI:5.5 pH:11.0 Cl:44k		 840 850 860 (812.6) 870 880 (831.4) 890		 BIT #1 8 1/2" Smith S73PX Jets: 6x20 In : 851.0m MDRT Out : 3256.0m MDRT Run : 2405.0 Hrs : 82.6 Cond: 3-5-WT-A-X-1/16 -PN/BT-TD  Tie in Survey:855.00mMD (807.97mTVD) 22.13°inc 38.44°az  100 / Tr  Survey:881.48mMD (832.8mTVD) 18.78°inc 55.18°az									<div>PREVIOUS WELL HISTORY Plugged &amp; Abandoned in January, 2006. 10-3/4" Surface Csg 851.0m MDRT 7" Production Csg cut and pulled from 925.0m MDRT Kick-off plug from 771.0m MDRT to 928.0m MDRT  Bream A6A kick-off at 05:00 hours on 02-02-2006 from 855.0m MDRT 807.96m TVDRT  Drill with KCl/Glycol/PHPA mud system  PIT at 873.0m MDRT 825.0m TVDRT 550 psi 9.1 ppg EMW:13.0 ppg  No H2S or CO2 Detected  CALCILUTITE:v lt gy-lt gy,sity i/p, g/t Calcisiltite,tr foss frag, sft frm,sbbiky.</div>



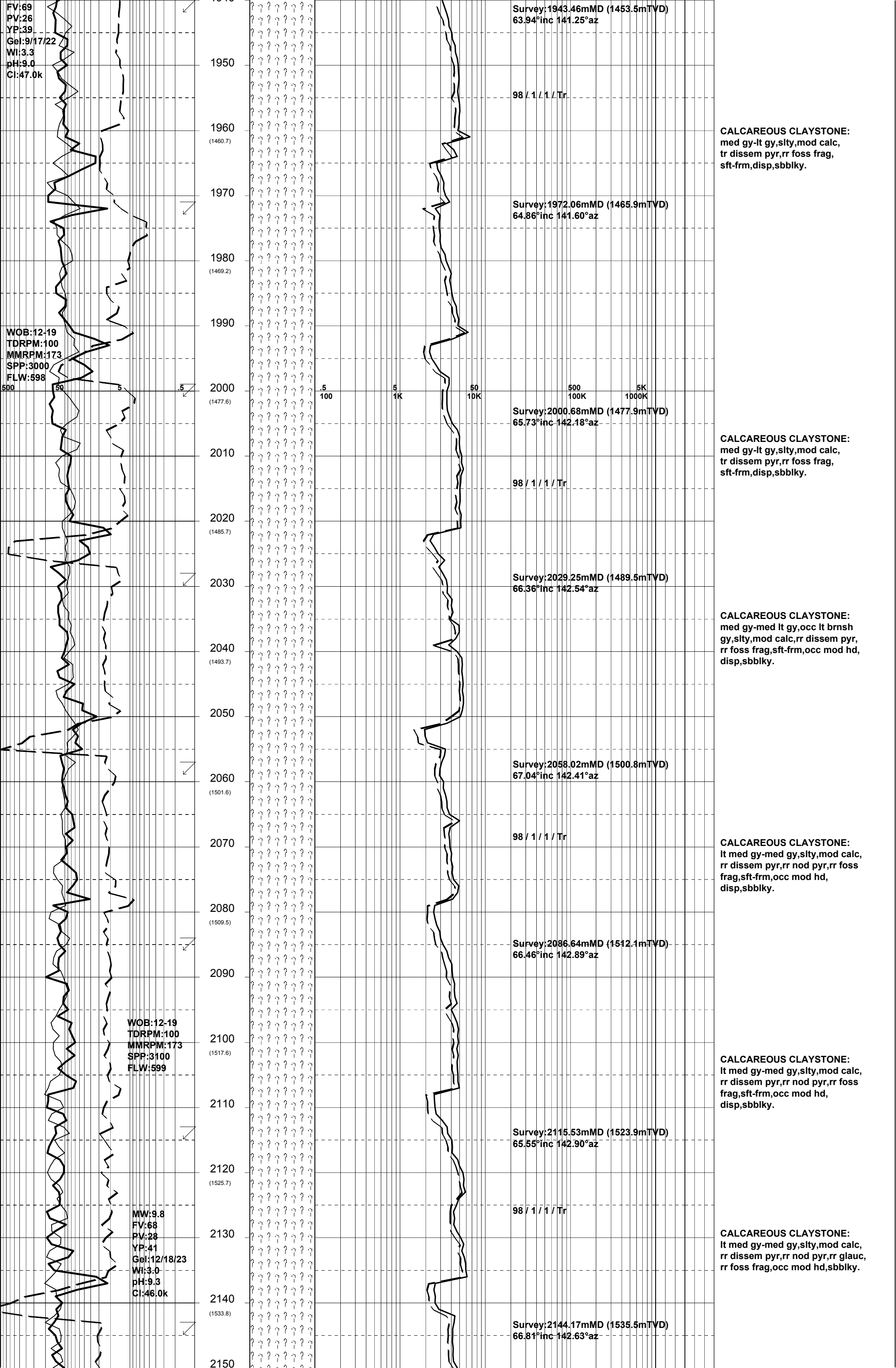


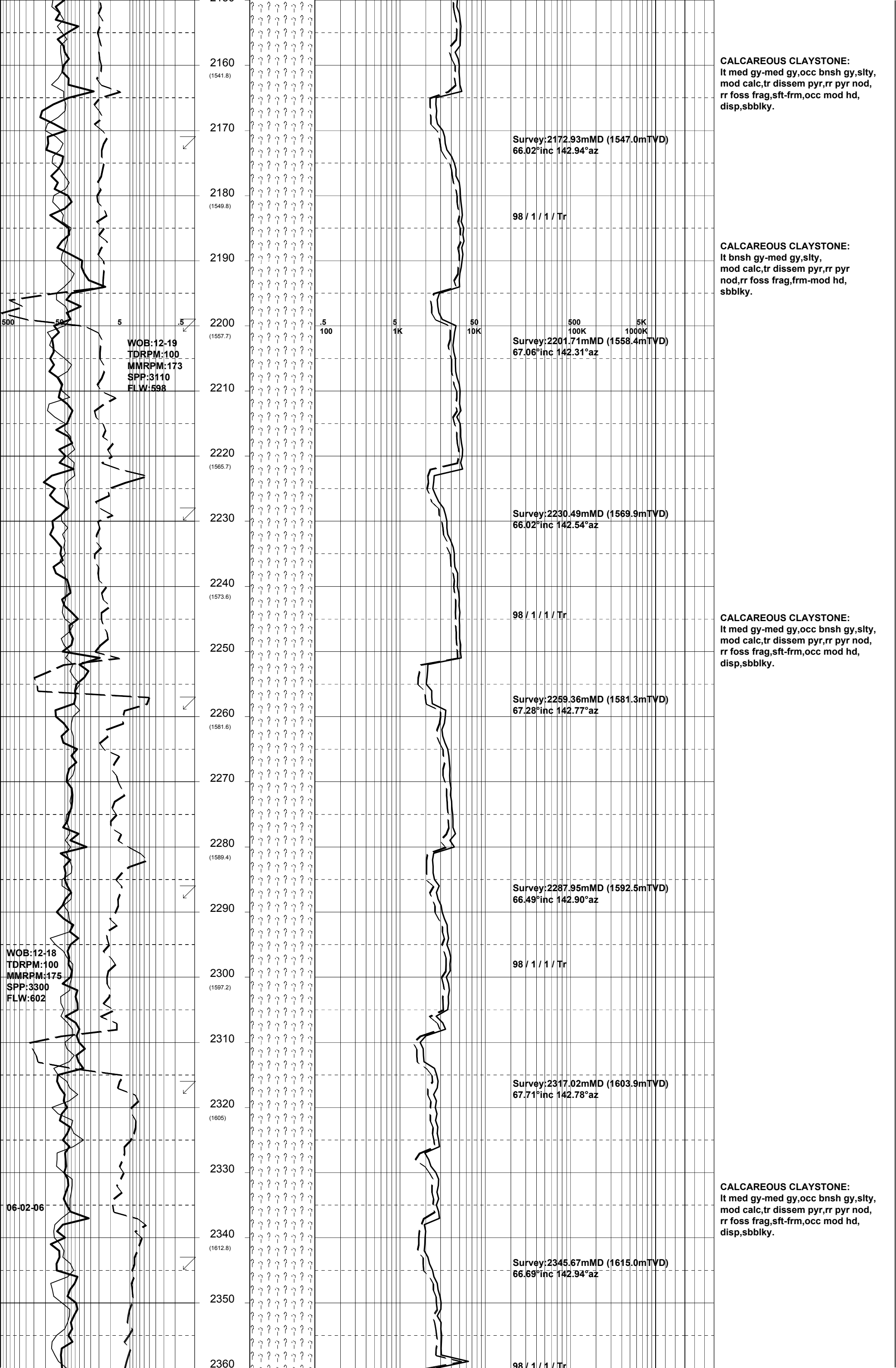


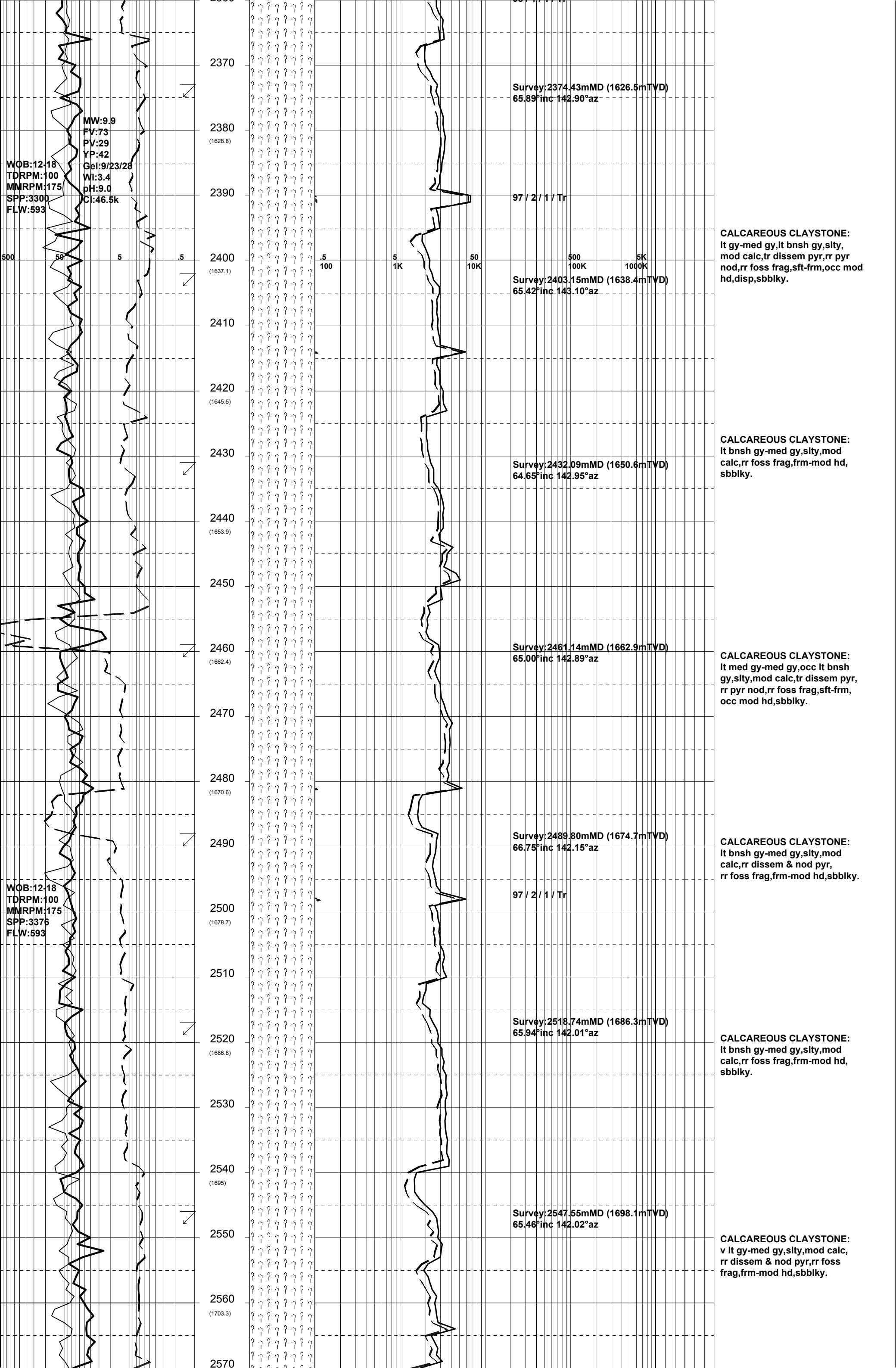


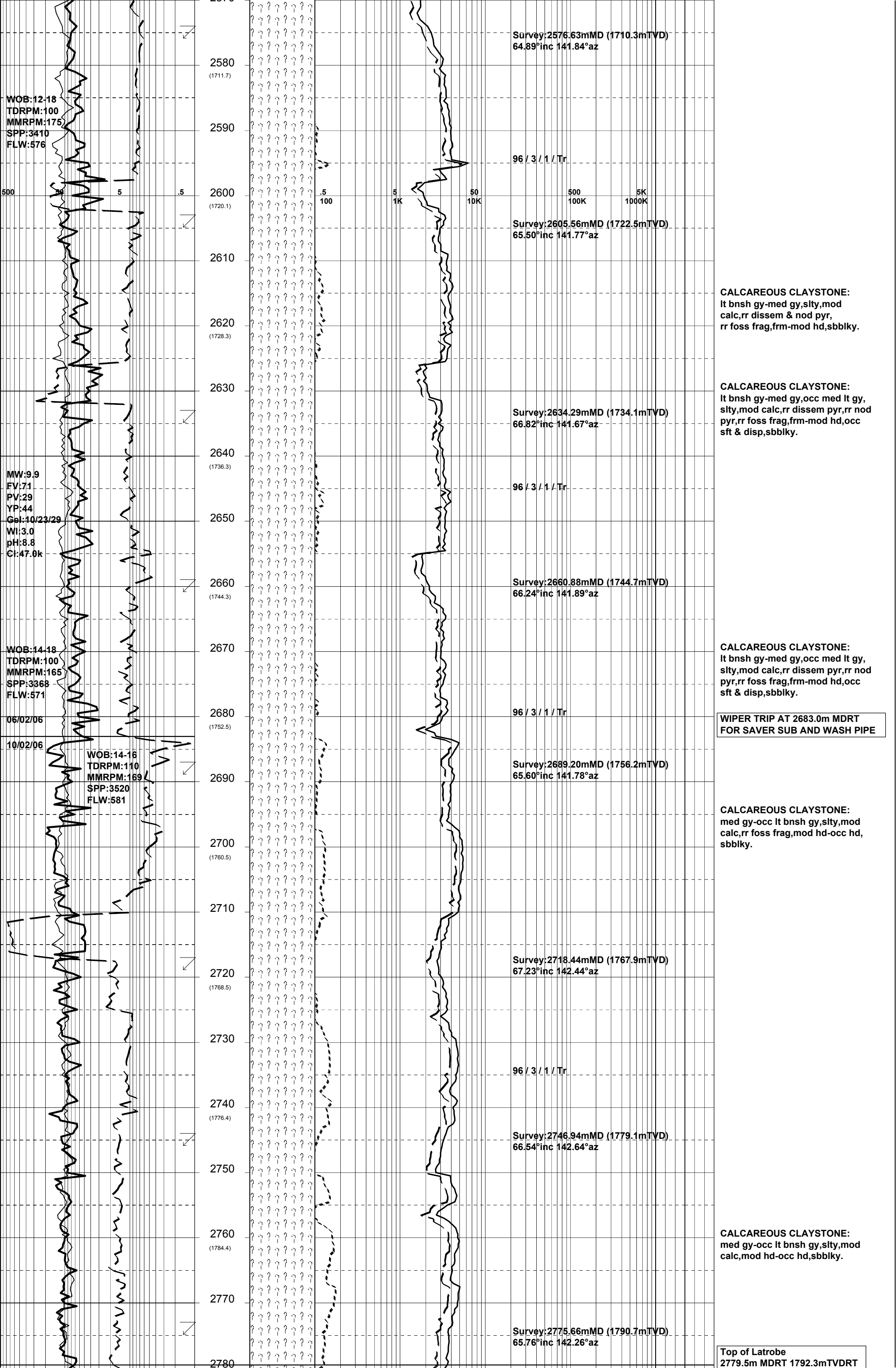




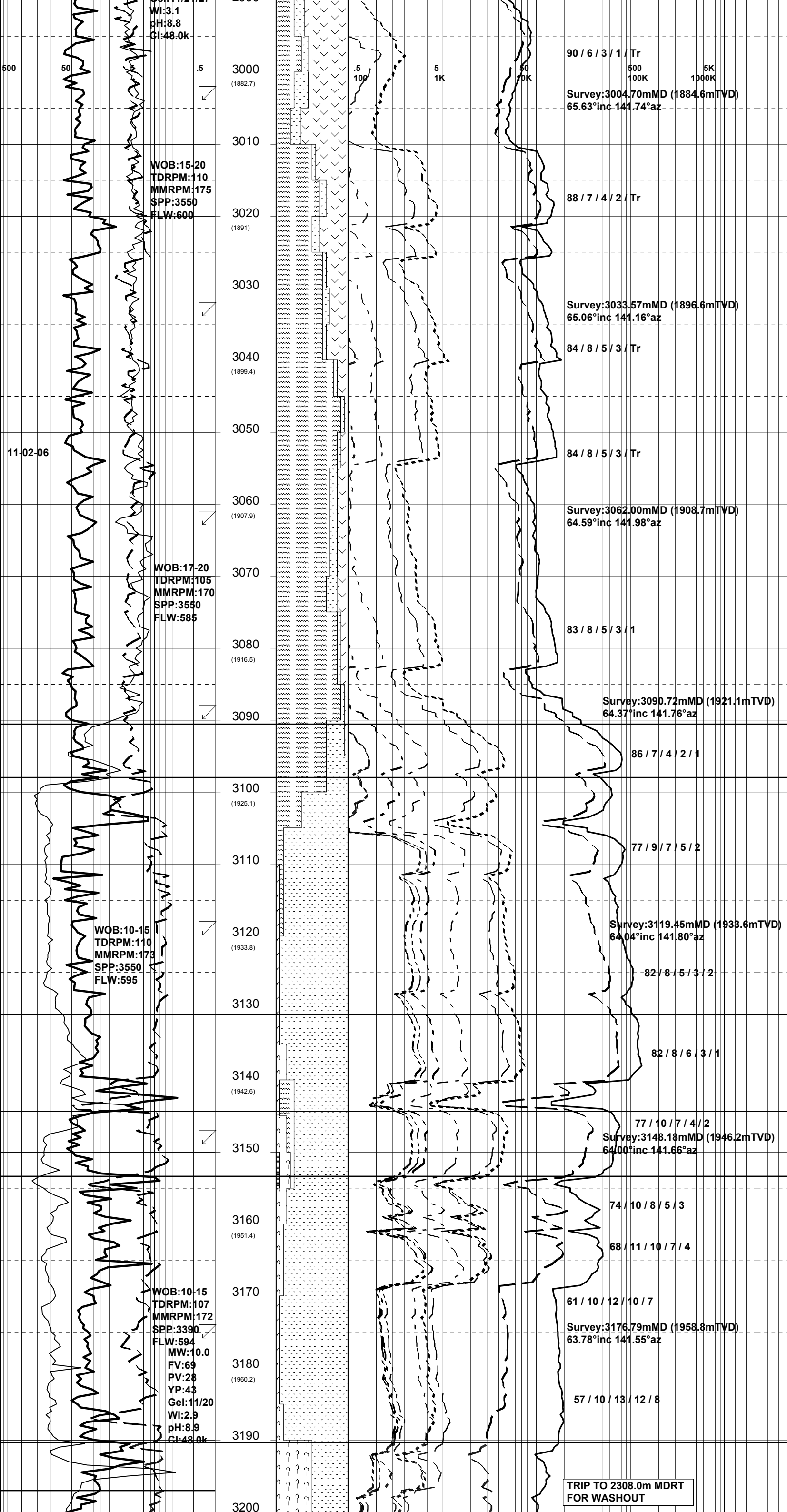












mod org,vf-occ v crs,pr srt,sa-sr, com qtzite,com glauc mtx,hd agg, com rock flour,pr inf & vis por, no fluor.

SILTSTONE:mod bn-pl yelsh bn, v aren,g/t vf SST,mod hd,sbblky.

SANDSTONE:clr-trnsl,wh-pl gn,occ mod org,vf-occ crs,pr srt,sa-sr, com qtzite,com glauc mtx,hd agg, com rock flour,pr inf & vis por, no fluor.

VOLCANICS:dsky gn,pl gn-gnsh gy, dom chlor,hd,com bit crushed rock flour.

SILTSTONE:mod bn-pl yelsh bn, v aren,g/t vf SST,mod hd,sbblky.

SANDSTONE:clr-trnsl,wh-pl gn,occ mod org,vf-occ crs,pr srt,sa-sr, com qtzite,com glauc mtx,hd agg, com rock flour,pr inf & vis por, no fluor.

SILTSTONE:mod bn-gysh bn,v aren g/t vf SST,tr glauc,mod hd,sbblky.

SANDSTONE:clr-trnsl,wh-pl gn,vf-occ v crs,pr srt,sa-sr,com qtzite, com glauc mtx,hd agg,com rock flour,pr inf & vis por,no fluor.

VOLCANICS:dsky gn,pl gn-gnsh gy, dom chlor,hd,com bit crushed rock flour.

SILTSTONE:mod bn-gysh bn,v aren g/t vf SST,tr glauc,mod hd,sbblky.

SANDSTONE:clr-trnsl,wh-pl gn,vf-occ v crs,pr srt,sa-sr,com qtzite, com glauc mtx,hd agg,com rock flour,pr inf & vis por,no fluor.

VOLCANICS:dsky gn,pl gn-gnsh gy, dom chlor,hd,com bit crushed rock flour.

SILTSTONE:mod bn-occ pa yelsh bn, aren,g/t vf SST,tr glauc,mod hd, com rock flour,sbblky.

SANDSTONE:clr-trnsl,wh-pl gn,vf-occ v crs,pr srt,sa-sr,com qtzite, com pell glauc,hd agg,com rock flour,pr inf & vis por,no fluor.

VOLCANICS:dsky gn,gysh gn, dom chlor,hd,com bit crushed rock flour.

TCC (N-1 Reservoir)  
3090.5m MDRT 1921.0mTVDRT (-1888.2mTVDSS)

SANDSTONE:1)clr-trnsl,f-occ v crs, dom med-crs,pr srt,sa-sr,wk pyr cmt, tr pyr nod,lse,cln,fr inf & vis por.

SANDSTONE:2)trnsl-med lt gy,vf-f, mod wl srt,sa-sr,mod sil cmt,abdt mic pyr mtx,hd agg,ti vis & inf por,no fluor.

Base of Waste  
3097.9m MDRT 1924.2mTVDRT (-1891.4mTVDSS)

SILTSTONE:mod bn-gysh bn,v aren g/t vf SST,rr pell glauc,mod hd, sbblky.

CLAYSTONE:med lt gy-lt blsh gy, sl calc,mod hd-hd,sbblky-blky.

SANDSTONE:clr-trnsl,crs-dom v crs,mod wl srt,sa-sr,com frac qtz grn,mod pyr cmt,com pyr nod, lse,cln,fr-gd inf/vis por,no fluor.

SANDSTONE:clr-trnsl,crs-dom v crs,mod wl srt,sa-sr,com frac qtz grn,mod pyr cmt,com pyr nod, lse,cln,fr-gd inf/vis por,tr-5% RADIAGREEN fluor.

GNSB (base of Green sand)  
3130.8m MDRT 1938.6mTVDRT (-1905.8mTVDSS)

SANDSTONE:clr-trnsl,med-v crs, dom crs,mod wl srt,sr-sa,wk pyr cmt, rr pyr nod,lse,cln,fr-gd inf/vis por, no fluor.

CBF2 horizon (Cobalt sand)  
3144.3m MDRT 1944.5m TVDRT (-1911.7m TVDSS)

CBF1 horizon  
3153.3m MDRT 1948.4m TVDRT (-1915.6m TVDSS)

CLAYSTONE:1)med-lt gy-lt blsh gy, sli calc,mod hd-hd,sbblky-blky.

CLAYSTONE:2)off wh,sft,disp,amor.

COAL:dsky bn,slty g/t CARB SLST, ea,frm,sbblky.unevn,wdy tex.

SANDSTONE:clr-trnsl,rr gysh pnk, org,crs-dom v crs,mod wl srt,sa-sr, wk pyr cmt,rr pyr nod,lse,cln,fr-gd inf/vis por,no fluor.

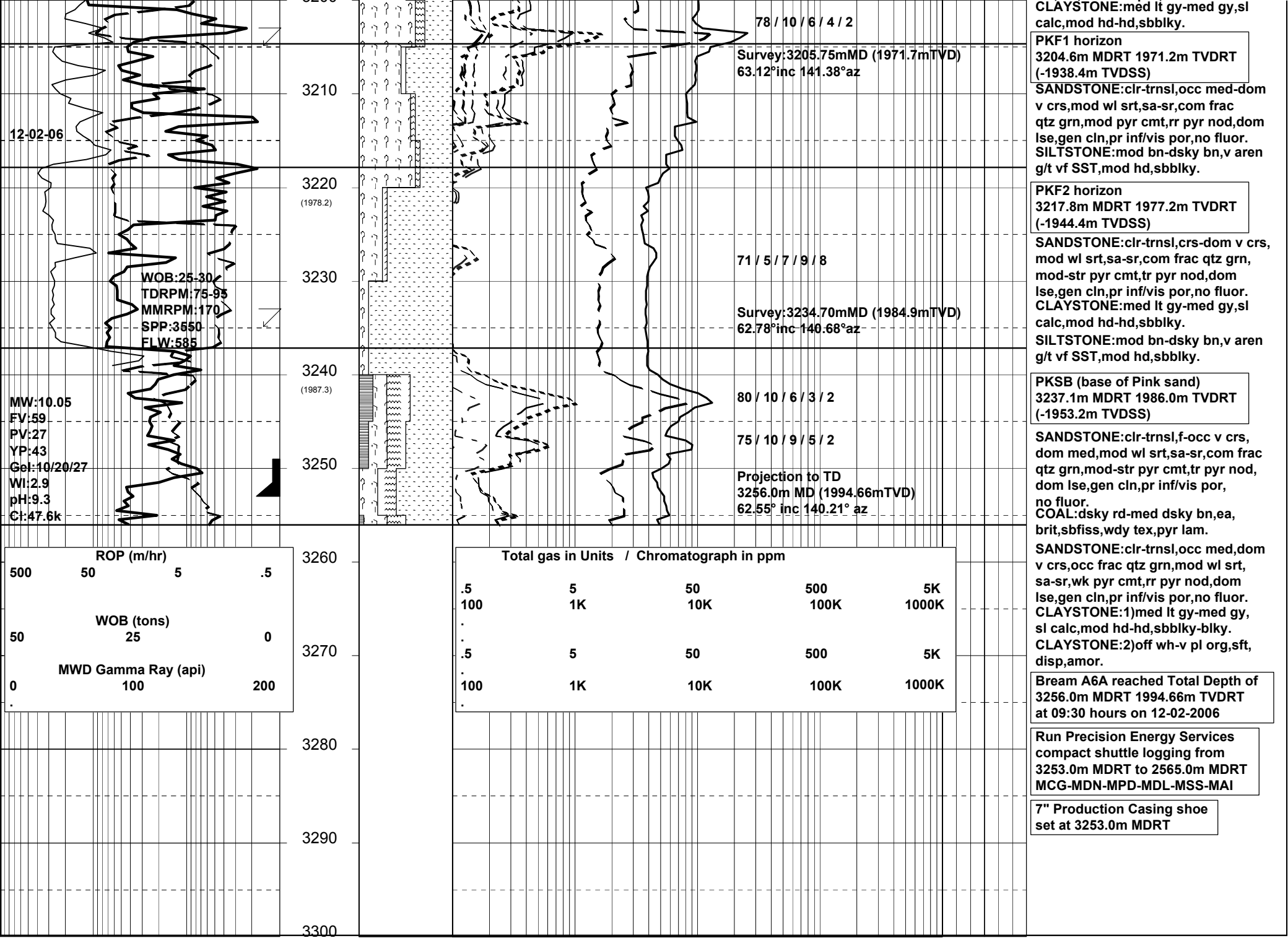
SILTSTONE:mod bn-gysh bn,v aren g/t vf SST,tr glauc,mod hd,sbblky.

SANDSTONE:clr-trnsl,vf-occ crs, pr srt,sa-sr,wk pyr cmt,dom lse,gen cln,pr-fr inf/vis por,no fluor.

SANDSTONE:clr-trnsl,rr gysh pnk,f-v crs,dom med-crs,mod wl srt, sa-sr,occ rnd,wk pyr cmt,rr pyr nod,lse,cln,fr-gd inf/vis por,no fluor.

CBSB (base of Cobalt sand)  
3190.3m MDRT 1964.8m TVDRT (-1932.0m TVDSS)

SANDSTONE:clr-trnsl,f-v crs, dom med-crs,mod wl srt,sa-sr, occ rnd,wk pyr cmt,rr pyr nod, lse,cln,fr inf/vis por,no fluor.



**APPENDIX 4b**

**BREAM A6A**

**Well Completion Log**









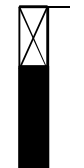












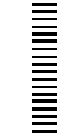
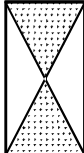














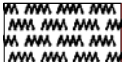
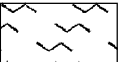


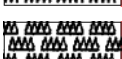

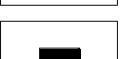
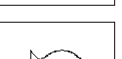
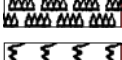



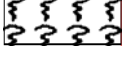

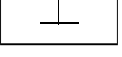

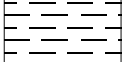





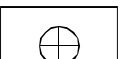

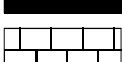
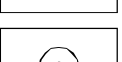
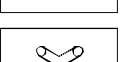
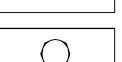
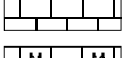

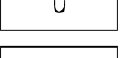
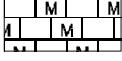

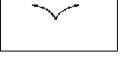
WELL COMPLETION LOG  
Scale – 1:200  
BREAM A-6A

Gippsland Basin, Victoria  
Concession: VIC/L13

POST-DRILL LOCATION: <i>Top of Latrobe</i>	Latitude:	38° 30' 28.731" S	COMPILED BY:	Sheryl Sazenis
	Longitude:	147° 47' 8.854" E	DRAFTED BY:	Arnaldo Ribeiro
	MGA X:	568512.76 mE	DRILLED BY:	Nabors Rig 453
	MGA Y:	5737527.99 mN	Datum:	GDA94 (GRS80)
	Depth	2779.5m MDRT 1792.3 m TVDRT (-1759.5mTVDSS)	Projection:	MGA/ UTM Zone 55 (S)
ELEVATION:	G.L.:	-59.40 m	TOTAL DEPTH:	3256.0 mMDRT / 1994.7 mTVDRT
	R.T.:	32.82 m	PLUGGED BACK T.D.:	3208.0m MDRT
	Water Depth:	59.40 m	CLASSIFICATION:	Development
DATES:	Spudded:	02/02/2006	STATUS:	Cased and Completed
	Rig Released:	21/02/2006		
	I.P. Established:	08/05/2006 (Initial production)		
SERVICE COMPANIES:				
DRILLING CONTRACTOR:	International Sea Drilling Limited (Nabors Rig 453)		PRODUCTION TESTING:	n/a
MWD/DIRECT. DRLG:	Schlumberger Anadrill		DIVERS:	n/a
GYRO SURVEYING:	SDI		MUD LOGGING:	Geoservices Overseas S.A.
CORING:	n/a		PRESSURE RECORDING:	n/a
PIPE CONVEYED LOGGING:	Precision (Compact Shuttle Logging System)		WELL VELOCITY SURVEY:	n/a
CEMENTING:	Halliburton		MUD ENGINEERING:	Halliburton- Baroid
CASING:	Weatherford		LINER:	n/a

LEGEND

2.7m NOS 		LOG ANALYSIS DATA		 SHOW OR STAIN	
Ø = 17%		NS - Net Sand		 HYDROCARBON CUT	
Sw = 32%		NOS - Net Oil Sand		 FLUORESCENCE	
		NGS - Net Gas Sand		 GAS SHOW	
		Sw - Water Saturation		 OIL PRODUCTIVE	
<div> No Rec. CORE</div>		MUD DATA		 GAS PRODUCTIVE	
		Ø - Porosity		 INTERPRETED OIL PRODUCTION	
		Snd - Sand		 INTERPRETED GAS PRODUCTION	
		MW - Mud Weight		 INTERPRETED WATER PRODUCTION	
		FV - Funnel Velocity		 WATER PRODUCTIVE	
		PV - Plastic Velocity		 CONDENSATE PRODUCTION	
		YP - Yield Point		 INTEPRETED CONDENSATE BEARING	
		Gel - Gel Strength		 DSTG	
		pH - Acidity/Alkalinity		DST WITH GAS RECOVERED	
		WL - Water Loss		 DSTO	
		CI - Chloride		DST WITH OIL RECOVERED	
		Ca - Calcium		 SURVEY POINT	
		Sol - Solids		 13-3/8" CASING SHOE	
		H2O - Water		 MUD	
		Oil -Oil			
<div> PERFORATED INTERVAL</div>					
<div> PLUG</div>					
<div> ← SST</div>		RECOVERED SIDE WALL CORE LITHOLOGY			
		SST - Sandstone CLST - Claystone			
		SLST - Siltstone LMST - Limestone			
		MST - Mudstone ML - Marl			
		SH - Shale COAL - Coal			
<div> ←</div>		SIDE WALL CORE - NO RECOVERY			
<div> ←</div>		FIT			
<div> ← P2/11</div>		MDT/RFT PRETEST RUN/SEAT NUMBER			
<div> ← S11/2</div>		MDT/RFT SAMPLE RUN/SAMPLE NUMBER			
<div> ← P2/40</div>		MDT VERTICAL/HORIZONTAL PERMEABILITY TEST			
<div></div>		PACKER			
<div></div>		BRIDGE PLUG			

	Sandstone		Dolomite		Mica		Pelecypods
	Siltstone		Marl		Chert		Echinoids
	Mudstone		Anhydrite		Carbonaceous Matter		Fish Remains
	Claystone		Volcanics		Calcareous		Plant Remains
	Shale		Basement		Glauconite		Spores
	Coal		Granule		Corals		Leaves
	Limestone		Oolites		Bryozoans		Foram
	Micritic Limestone		Dolomite		Brachiopods		Fossils
	Grain Limestone		Pyrite		Gastropods		
	Skeletal Limestone		Pyrite		Cephalopods		

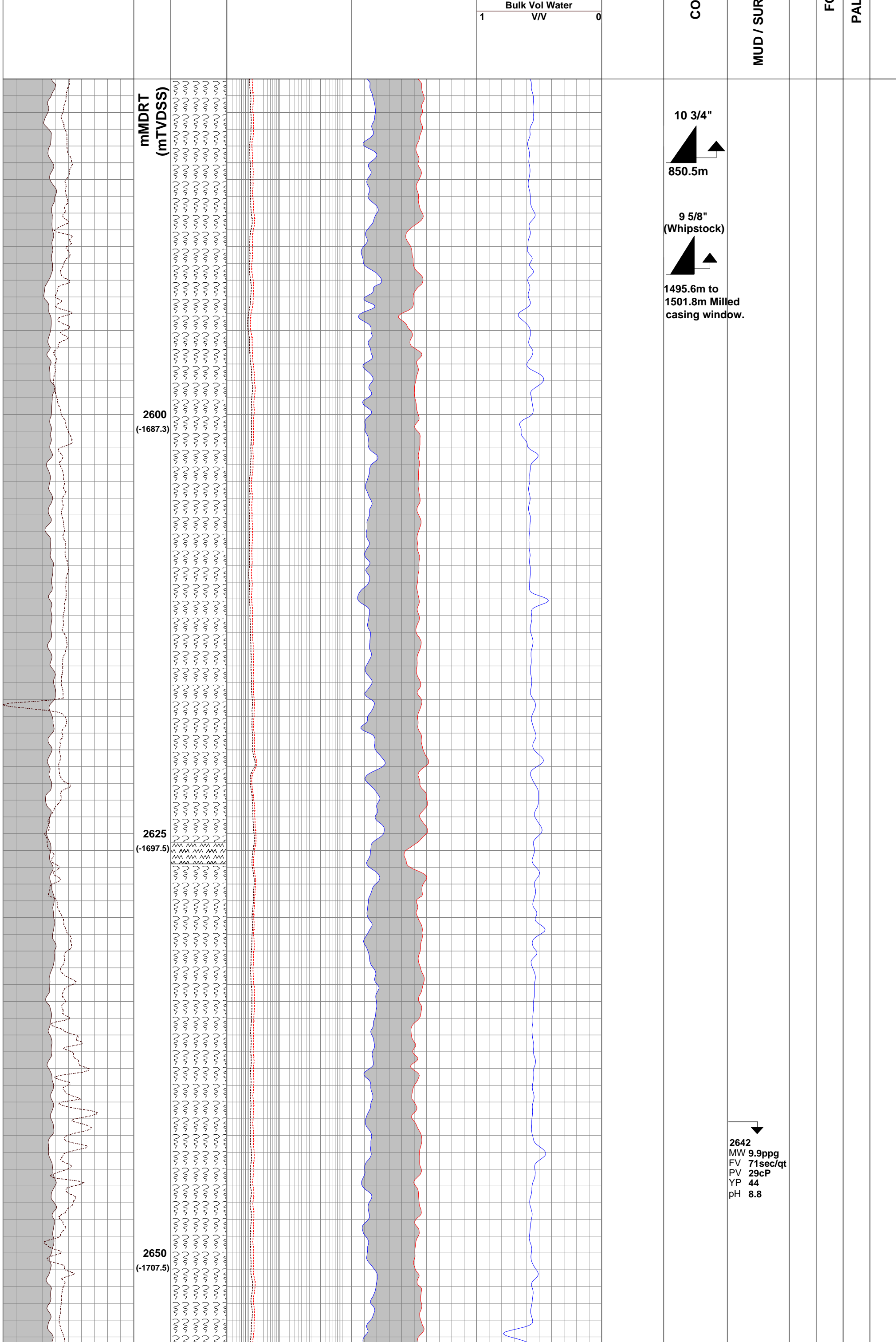
LOGGING AND SURVEYING			
Anadrill Schlumberger	Interval (mMDRT)	Reeves	Interval (mMDRT)
MWD (Directional & GR) – 1 Run	855.0 - 3234.7	MCG-MDN-MPD-MSS-MDL - 1 Run	850.5- 3246.0

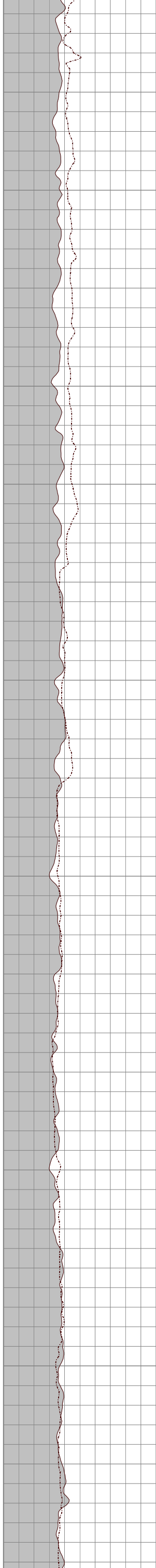
WELL DATA				
Date	01 February 2006- 12 February 2006	13 February 2006- 14 February 2006		
Run	MWD # 1	Wireline Run # 1 on shuttle		
Log	Powerpulse Directional & GR	MCG-MDN-MPD-MSS-MDL		
Depth Driller	3256.0 mMDRT	3256.0 mMDRT		
Depth Logger	3256.0 mMDRT	3256.0 mMDRT		
Bottom Log Interval	3234.7 mMDRT	3246.0 mMDRT		
Top Log Interval	855.0 mMDRT	850.5 mMDRT		
Casing Driller	850.5 mMDRT	850.5 mMDRT		
Casing Logger	850.5 mMDRT	850.5 mMDRT		
Casing Size	10.75"	10.75"		
Casing Weight	40.5 ppf	40.5 ppf		
Bit Size	8.5"	8.5"		
Type of Fluid in Hole	KCI/PHPA/GLYCOL	KCI/PHPA/GLYCOL		
Density	10.00 ppg	10.05 ppg		
Rm @ Measured Temp.	N/A	0.108		
Rmf @ Measured Temp.	N/A	0.086		
Rmc @ Measured Temp.	N/A	0.153		
Max. Recorded Temp.	86.0 °C	91.2 °C		
Equipment / Location	Sale	Sale		
Recorded By	L.Johnston / B. Pattarakorn	R.Tench / B.Moss		
Witnessed By	Trevor Lobo	Trevor Lobo		

CORES			PERFORATIONS		
From (mMDRT)	To (mMDRT)	Rec %	From (mMDRT)	To (mMDRT)	Gun Type
			3103.5	3107.5	MaxR

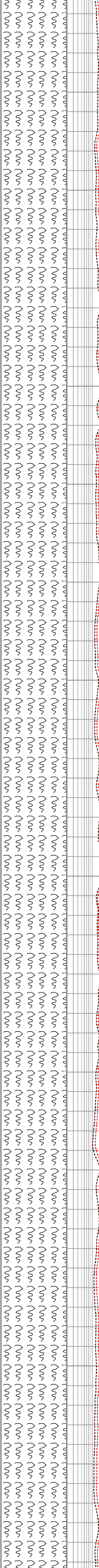
CASING				PLUGS		
Size	Set @ (mMDRT)	SX Cmt	Formation	From (mMDRT)	To (mMDRT)	SXCmt
10.75"	850.5	---	Gippsland Limestone			
9.625" (Whipstock)	1495.6 to 1501.8 Milled casing window	---				
7"	3253.0	---	Latrobe Group	3208.0	3256.0	--

Caliper			DEPTH	LITHOLOGY	Deep Laterolog			Compensated Den			Compensated Sonic			TEST	COMPLETION	SURVEY DATA	PLUGS	FORMATION	LITHOLOGY	AGE
6	IN	16			0.2	OHMM	2000	1.85	G/C3	2.85	500	US/M	100							
Gamma Ray					Shallow Laterolog			Neutron Porosity			Effective Porosity									
0	GAPI	200	0.2	OHMM	2000	0.45	V/V	-0.15	1	V/V	0									

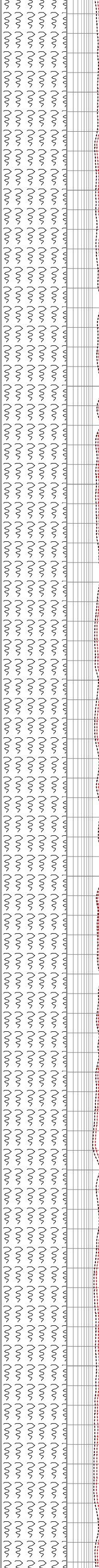




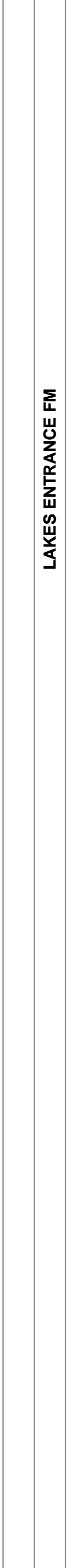
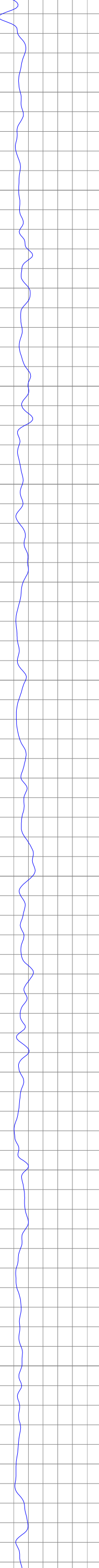
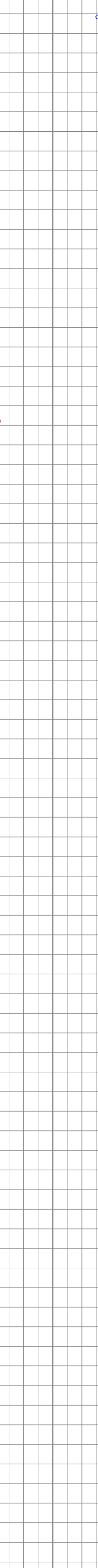
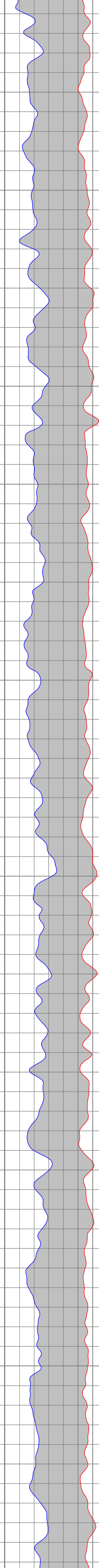
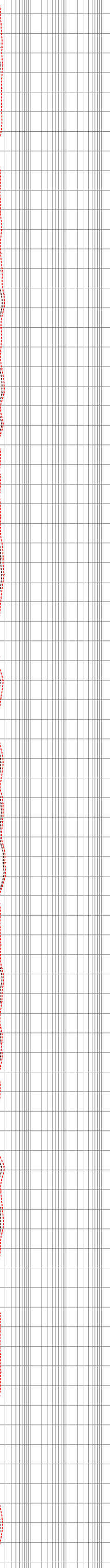
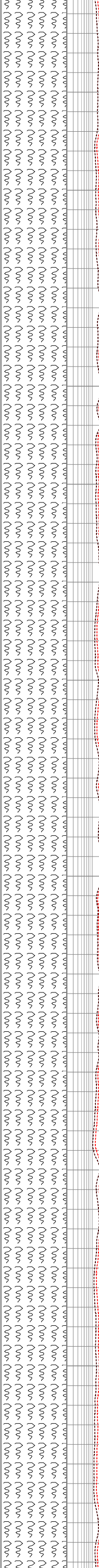
2675  
(-1717.6)



2700  
(-1727.7)

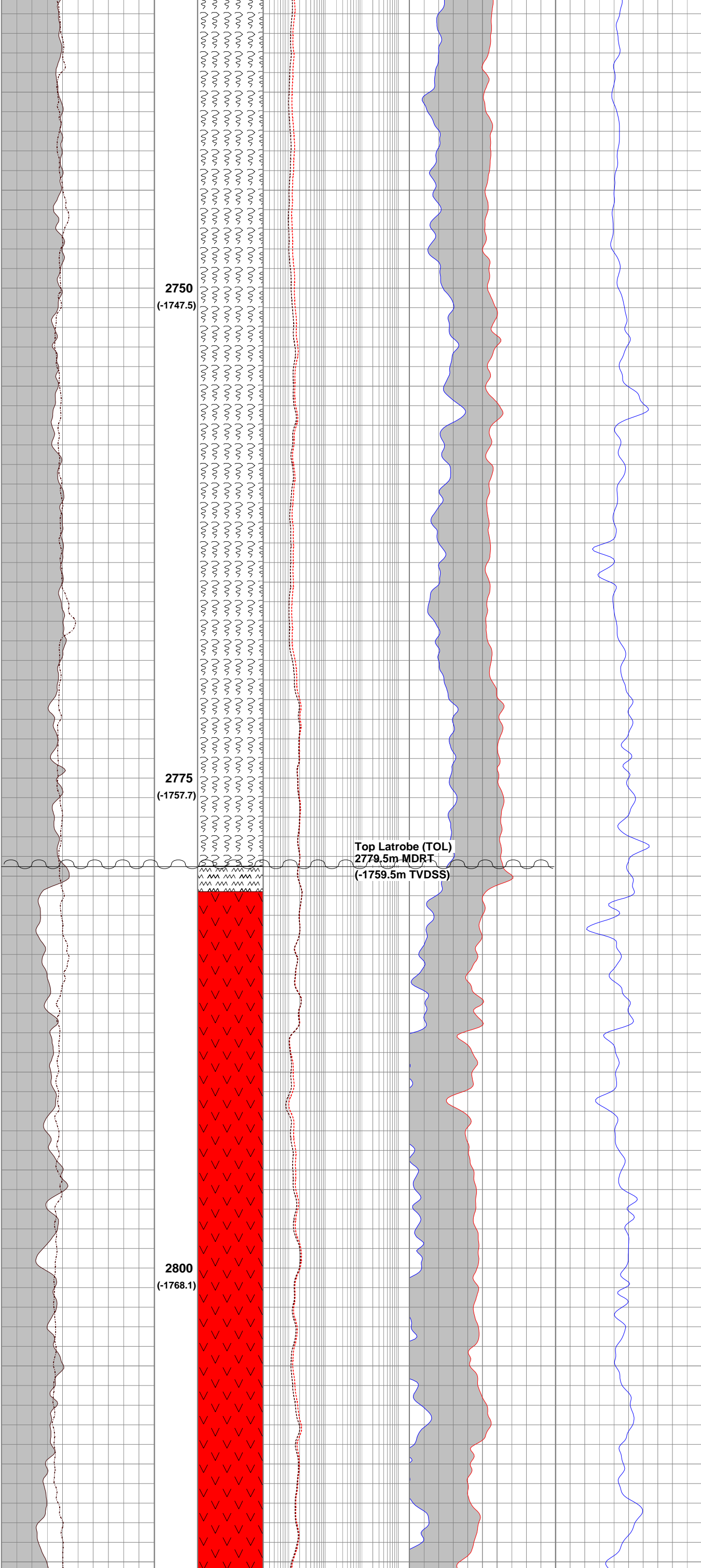


2725  
(-1737.7)



LAKES ENTRANCE FM

OLIGOCENE - MIOCENE



2775.66  
ANG 65.76  
DIR 142.26  
(-1757.92)

2804.34  
ANG 64.95  
DIR 142.33  
(-1769.87)

2825  
(-1778.4)

2850  
(-1788.6)

2875  
(-1798.9)

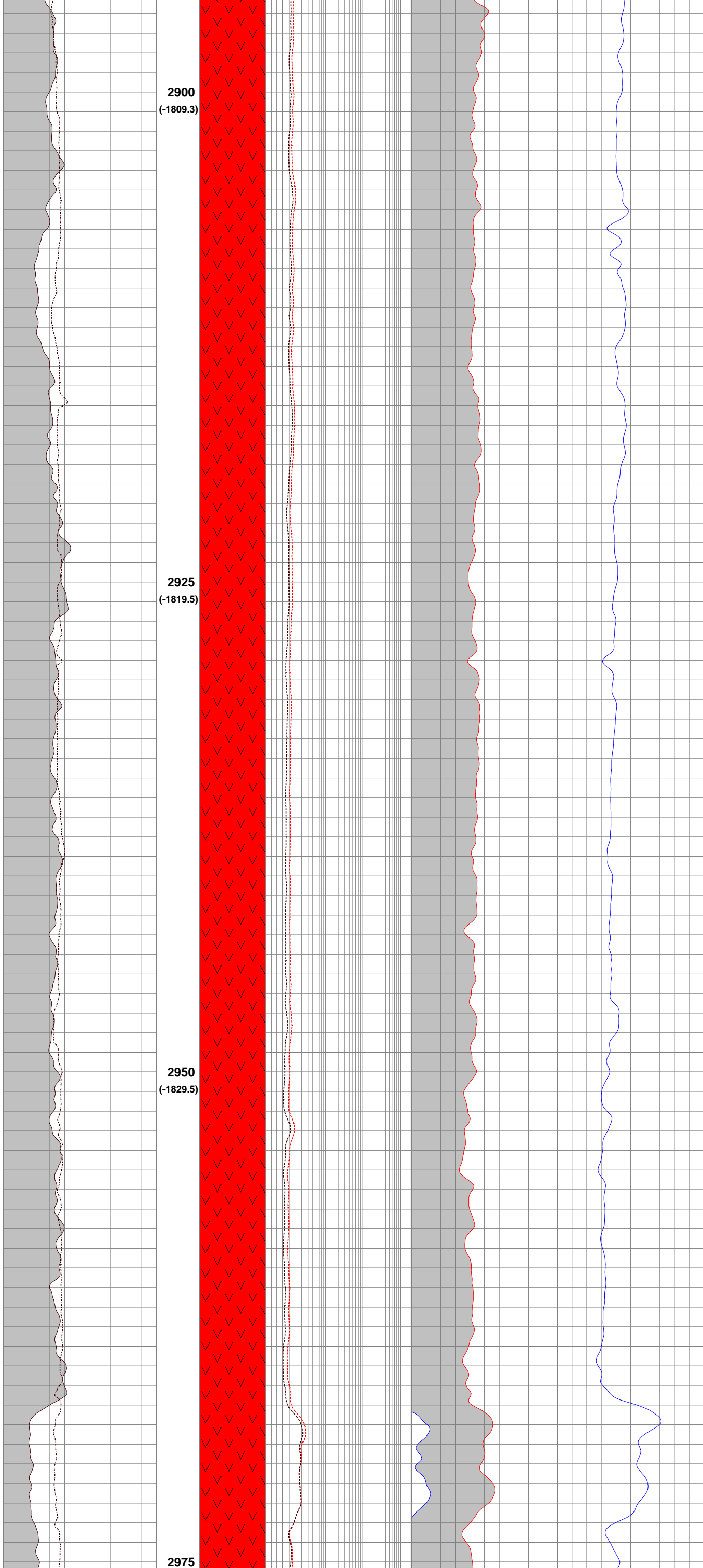
2832.94  
ANG 66.35  
DIR 142.38  
(-1781.67)

2836.0  
MW 10.05ppg  
FV 69sec/qt  
PV 28cP  
YP 45  
pH 8.95

2861.63  
ANG 65.67  
DIR 142.19  
(-1793.33)

2890.41  
ANG 65.13  
DIR 142.02  
(-1805.31)





2900  
(-1809.3)

2925  
(-1819.5)

2950  
(-1829.5)

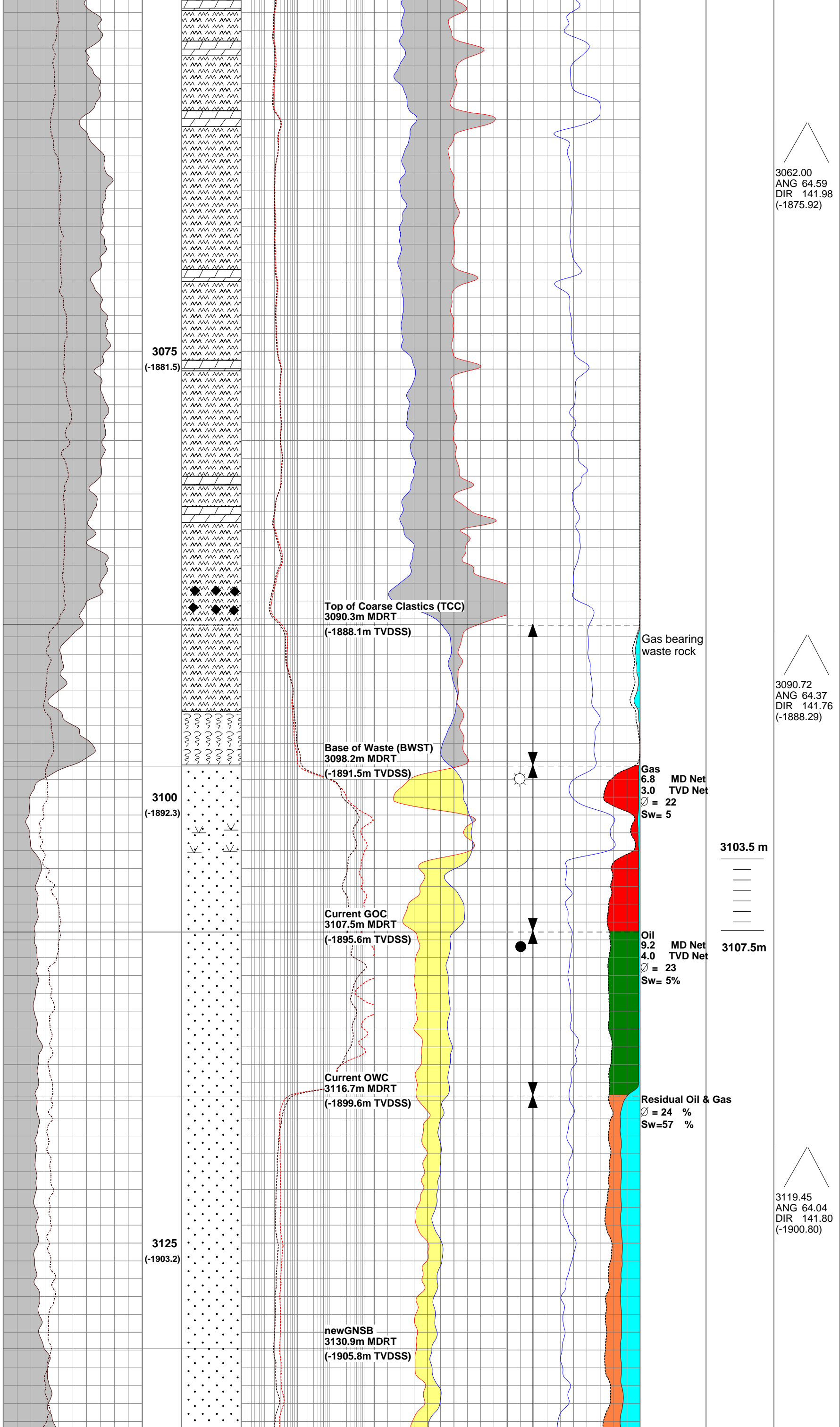
2975

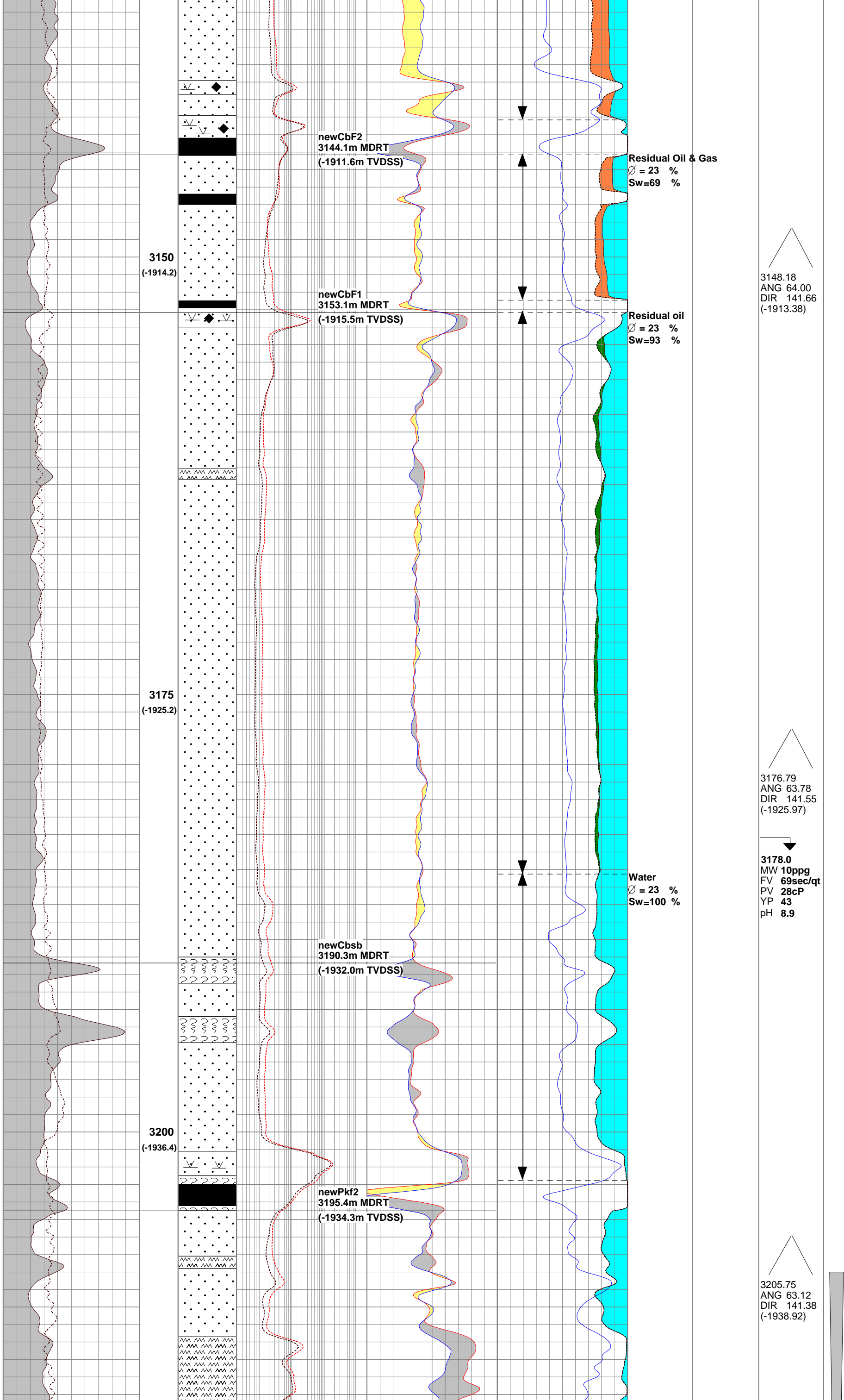
2918.90  
ANG 66.35  
DIR 141.65  
(-1817.02)

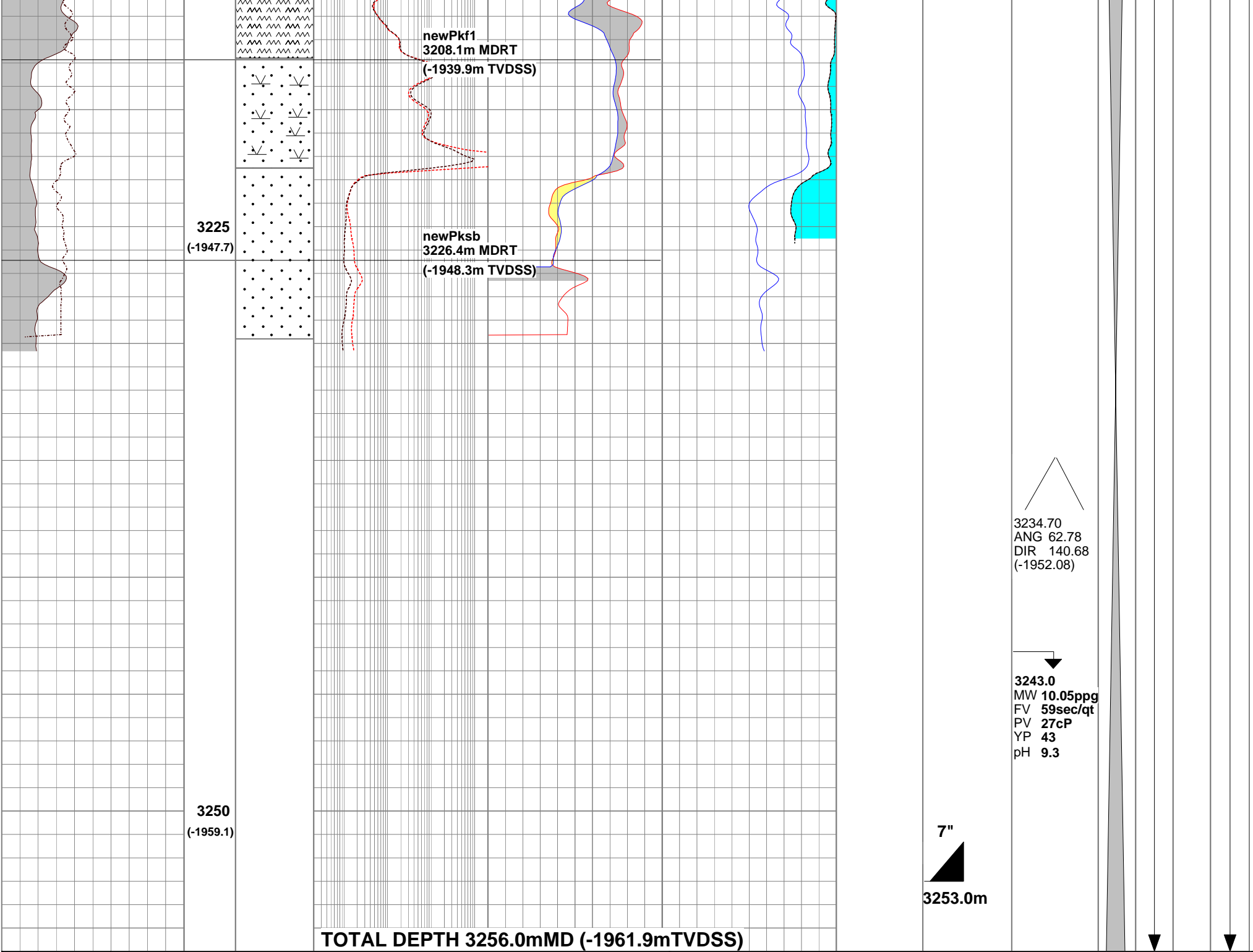
2947.54  
ANG 66.26  
DIR 141.88  
(-1828.53)











GRGC Gamma Ray  
CLDC Density Caliper  
DSLL Shallow Laterolog  
DGLL Groningen Deep Laterlog  
DEN Compensated Density  
NPRL Limestone Neutron Porosity  
DT35 Compensated Sonic  
PIGN Effective Porosity  
VUWA Bulk Volume Water

Bream A6A  
Initial Production Date: 08/05/2006  
Production Zone: Bream N-1  
Initial Total Liquid Rate 246 kL/day, 0%watercut  
Initial Oil rate: 246 kL/day