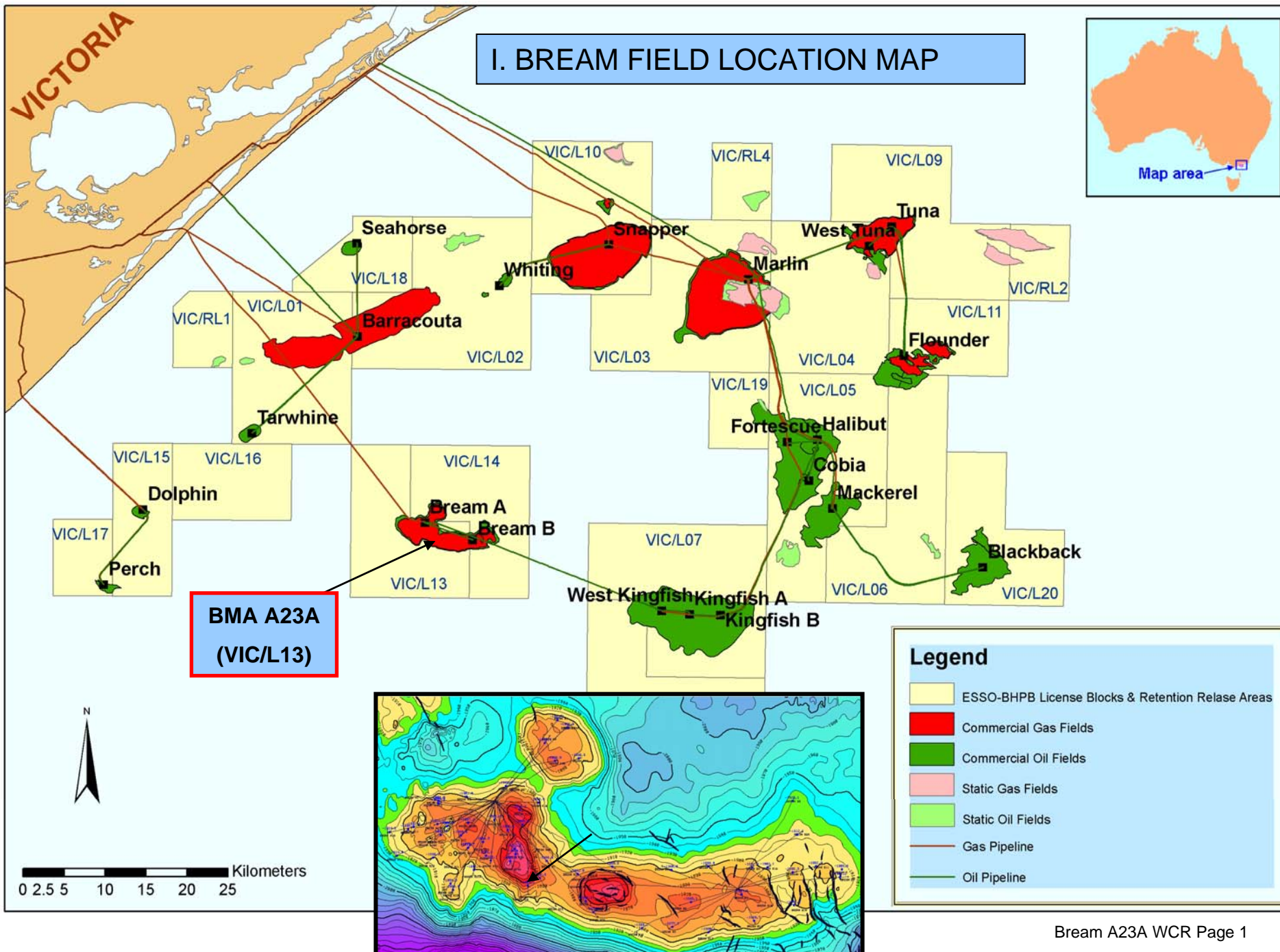


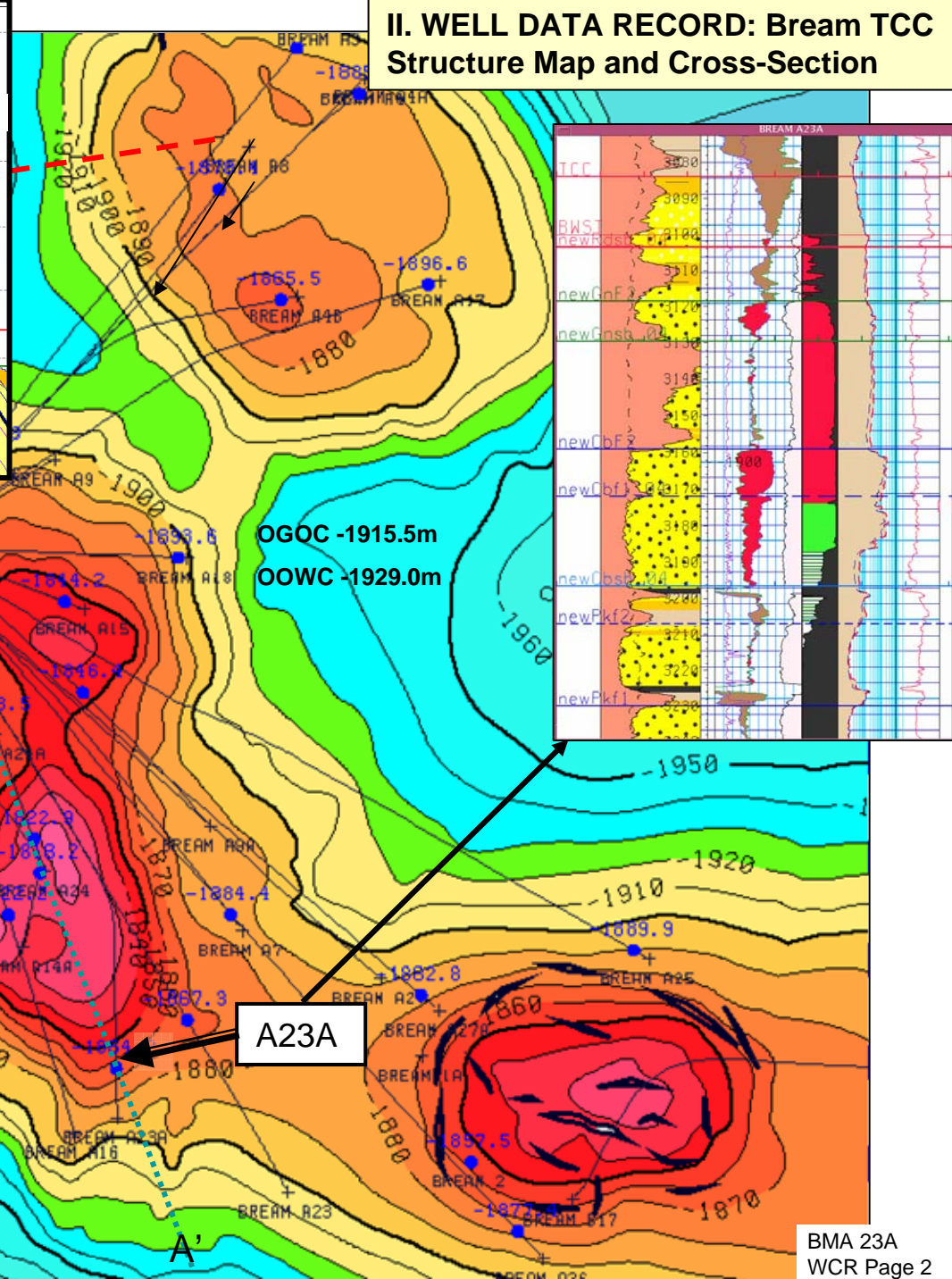
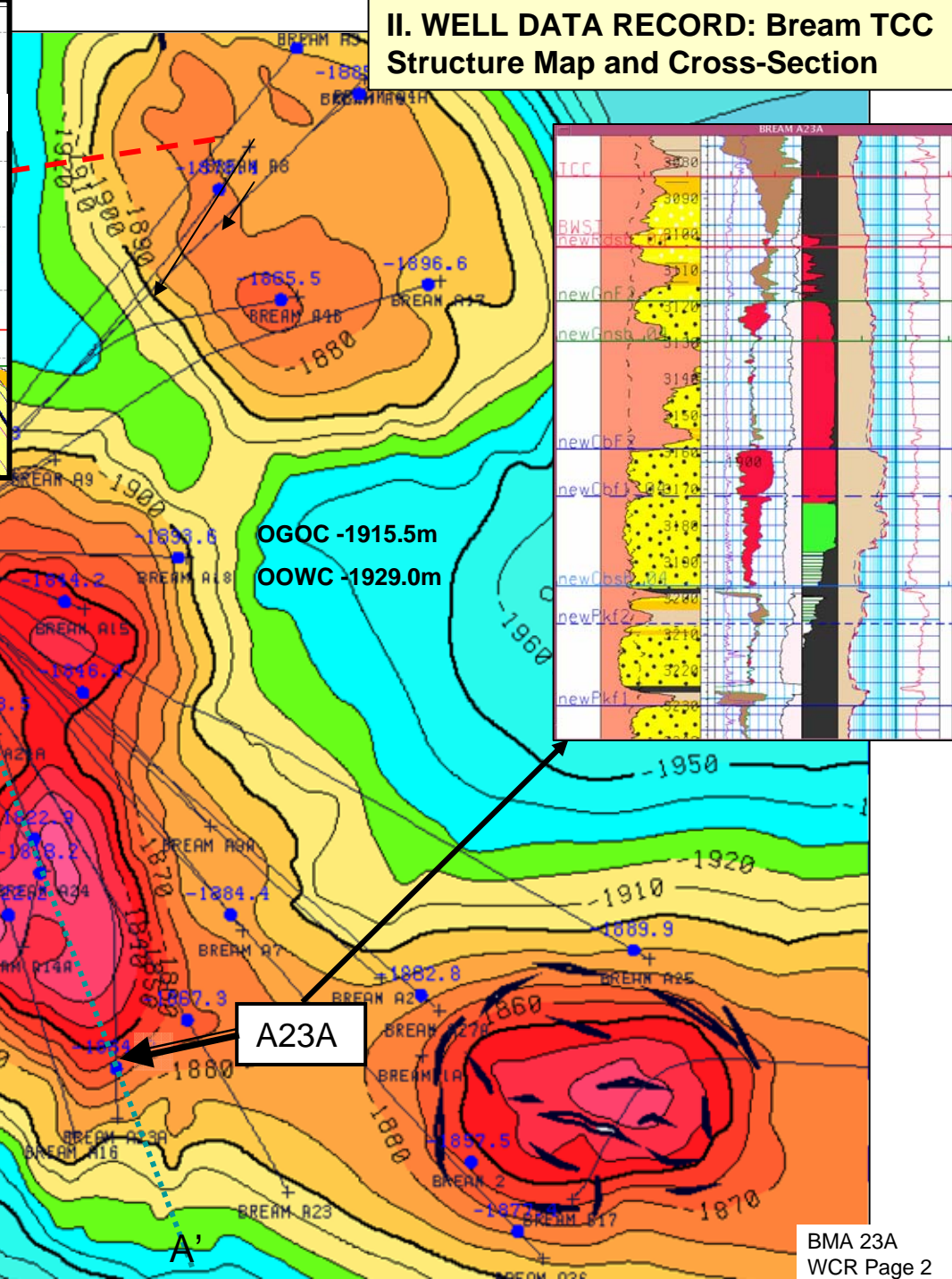
WELL COMPLETION REPORT
BREAM A23A
GIPPSLAND BASIN, VICTORIA

Author: Mike Hordern
Compiler: Sheryl Sazenis
November 2005

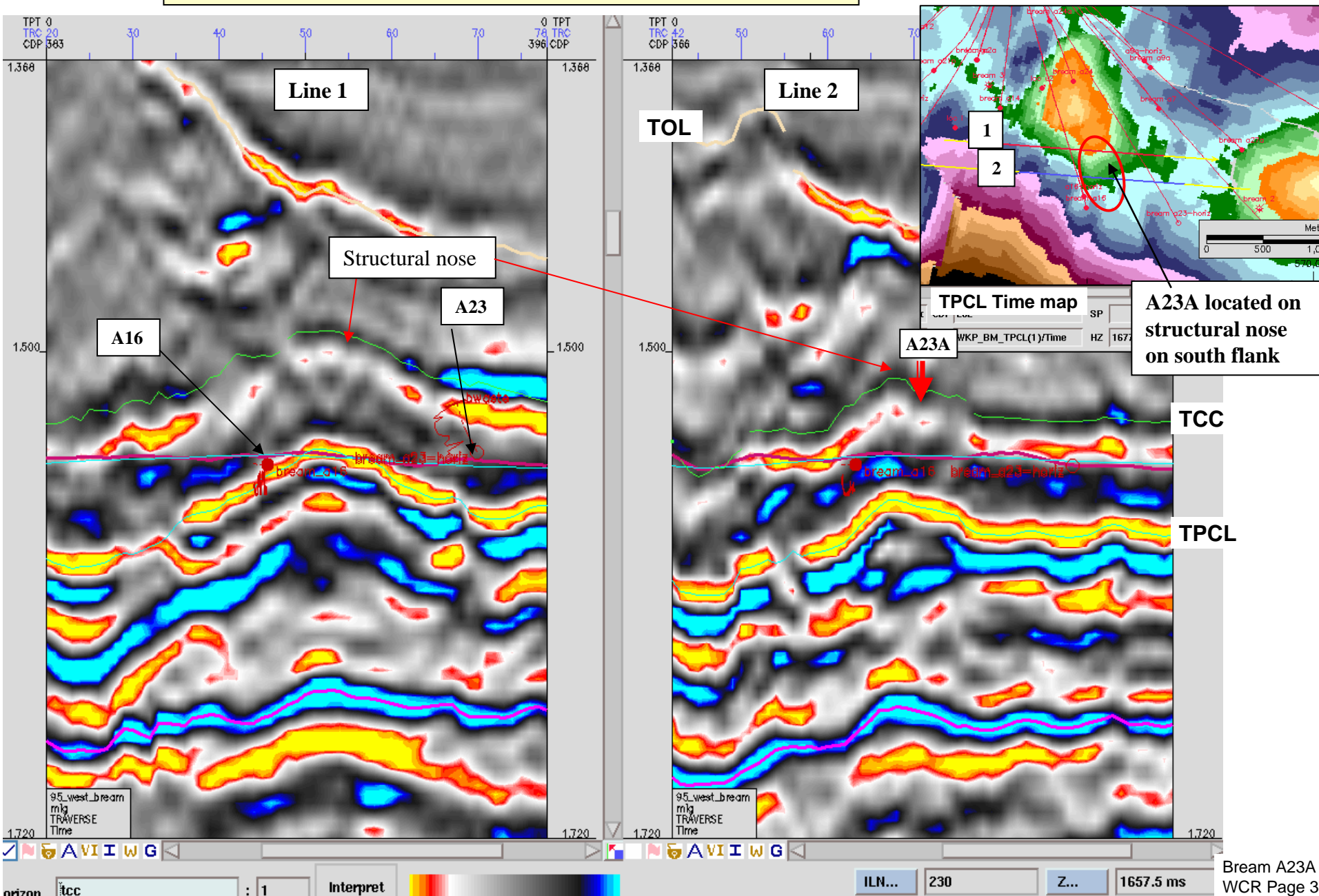
CONTENTS

I. BREAM FIELD LOCATION MAP	1
II. WELL DATA RECORD	2
BREAM A23A TCC STRUCTURE MAP & CROSS-SECTION	2
BREAM A23A SEISMIC PROFILE	3
LOCATION	4
ELEVATIONS & DEPTHS	4
MISCELLANEOUS	4
WELL CLASSIFICATION	4
CASING RECORD	5
CEMENTING RECORD	5
DRILLING PERFORMANCE	6
COMPLETION SCHEMATIC	7
III. SAMPLES	9
CUTTINGS	9
CONVENTIONAL CORING	9
SIDEWALL CORING	9
IV. LOGS AND SURVEYS	9
V. FORMATION RESERVOIR TOPS - BREAM A23A	10
VI. GEOLOGICAL ANALYSIS - BREAM A23A	11
VII. APPENDICES	
1. Survey Data & Listing	
1a. Survey Data	
1b. MD-TVD Survey Data Listing	
2. Petrophysics	
2a. Petrophysics Evaluation Summary	
3. Sample Descriptions	
3a. Lithology/Show Descriptions	
4. Logs	
4a. Mud Log	
4b. Well Completion Log	





II. WELL DATA RECORD: BREAM A23ASEISMIC PROFILE



II. WELL DATA RECORD (cont'd)

LOCATION

Field	Bream	Conductor #23 Surface Coordinates	
Well Name	A23A (Loc C)	(GDA94) X	567344.6mE
Conductor Number	Slot 23	(MGA94) Y	5738457.4mN
State	Victoria	Latitude	38° 29' 58.916"S
Permit/Licence	Vic/L13	Longitude	147° 46' 20.320"E
Geological Basin	Gippsland	Perforations (driller)	3173.0 – 3176.0m MDRT
Top of Latrobe	2786.5 m MDRT		1937.7 – 1939.1m TVDRT
	1758.6 m TVDRT		(-1904.9 – 1906.3m TVDSS)
	-1725.8m TVDSS		
MGA94 X	568134.1m E		
MGA94 Y	5736689.1m N	Datum	GDA94 (GRS80)
Latitude	38° 30' 56.05" S	Projection	Transverse Mercator
Longitude	147° 46' 53.51" E		MGA94/UTM Zone 55 (S)

ELEVATIONS & DEPTHS

Water Depth	59.43 m
Top Wellhead to MSL	27.25 m
Main Deck Rel to MSL	25.12 m
RT Relative to MSL	32.82 m
Average Well Angle	62°
Total Depth	3302.0 m MDRT
	1995.3 m TVDRT
	-1962.5m TVDSS
Plug Back Depth	3260.0m MDRT

DATES

Skid Rig	28/06/2005
Kicked Off	04/07/2005
Development Rig Days	19.4
NPT Days	1.51
Rig Released	23/07/2005
I.P. Established	31/07/2005

MISCELLANEOUS

Operator	Esso Australia Pty Ltd	Contractor	International Sea Drilling Ltd
Esso Interest	50%	Rig Name	Nabors Rig 453
Permittee/Licensee	Esso/BHPP	Equipment Type	Platform
Other Interest	50% J.V. Interest	Completion Type	Single
Overriding Royalty	2.5%	Completion Size	3-1/2"
Drilling AFE No.	L0501F459		

WELL CLASSIFICATION

Before Drilling	Oil and gas Development	After Drilling	Cased and completed oil and gas Well
------------------------	-------------------------	-----------------------	--------------------------------------

II. WELL DATA RECORD (cont.)

CASING RECORD

Type	Size (Inches)	Weight (lb/ft)	Grade	Thread	Depth (mMDRT)
Original A23 Conductor	20	133	K-55	BTC	170
Original A23 Surface	13 ³ / ₈	54.5	J-55	BTC	933.9
Original A23 Intermediate (top of milled window)	9 ⁵ / ₈	47	N-80	Butt	2235.3
Production Casing	7	29	L-80	VAM	3297.5

(3 1/2" completion tubing (9.2lb/ft, 13Cr80), depth 3078.6m)

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" 29 lb/ft	ABC HTB	631	HALAD 413L 30 gal / 10 bbl (214.1 gal) NF-6 0.13 gal / 10 bbl (0.9 gal) CFR-3L 3 gal / 10 bbl (21.4 gal) SCR-100L 0.6 gal / 10 bbl (4.3 gal)	71.4	127	15.8	2300 to 3297.5	2000 psi

II. WELL DATA RECORD (cont.)

DRILLING PERFORMANCE

BMA A23A - Final Well Report

GENERAL

Platform:	Bream	Rig:	453	Reservoir:	N-1 Sands
Well:	A23A	Well Slot:	#23	RT-MSL (Rig453)	32.82m
Drilling Complexity Index	3.1	Completion Complexity Index	2.3		

DEPTH		PERFORMANCE		MUD	
m MDRT	3,302.00	20" Cond. Hole	N/A	Max Wt (ppg)	9.95
m TVDRT	1,995.27	12-1/4" Surf. Hole	N/A	Type (Surf. Hole)	N/A
Vert. Section (m)	2,365.05	8-1/2" Prod. Hole	434m/day	Type (Inter. Hole)	N/A
INCLINATION		6" Liner Hole	N/A	Type (Prod. Hole)	KCl/PHPA/Poly/Glycol
Max (deg) / Ave (deg)	64.9/ 61.9 (Tang)	* time to drill interval, incl's Connections & NPT.		Type (Liner Hole)	N/A

Comments: New hole drilled: 2,242m to 3,302m MDRT (1,060m MDRT drilled).

TIME ANALYSIS

Start Date:	04/07/2005, 0500hrs	Finish Date:	23/7/2005, 1500hrs		
Target Days (P10):	20.0	Total Days:	19.4	% Under Target:	2.9% (under)
AFE Days (P50):	23.3	NPT Days:	1.51	% of Total Days:	7.8%
Supplementary AFE Days (P50):	N/A				

COSTS *(based on projected)*

AFE No.:	L0501F459	Revisions:	--	\$ per m	A \$4.48 k / metre (new hole)
\$ per day:	A\$ 245 k/day	\$ per day (excl. T + L) * Equipment, LWD & Reeves	A\$ 180 k/day		A\$ 1.44 k / metre* * based on TD not new hole

	Equipment	Materials	Contracts	Allocations	Contingency	Total
AFE (Original)	1,175,000	682,000	3,342,700	418,000	222,200	A\$5,840,000
AFE (Supplement)	N/A	N/A	N/A	N/A	N/A	N/A
Projected	1,089,000	394,000	2,669,300	402,000	194,000	A\$4,748,300

CASING *(all depths herein are based on Rig453 elevations: RT-MSL=32.82m)*

	<u>Size / Weight / Grade / Thread</u>	m MDRT	m TVDRT	PIT (ppg)
Conductor Casing *	20"	171.0	171.0	N/A
Surface Casing *	13-3/8", 54.5 ppf, K55, BTC	933.9	791.9	N/A
Intermediate Casing *	9-5/8", 43.5 ppf K55, BTC	2242.0	1,496.2	13.2 PIT
Prod Casing	7", 29.0ppf, Vam Top, LTC	3,297.5	1,993.4	N/A

Comments: * Pre-existing casing strings.

COMPLETION

	<u>Size / Weight / Grade / Thread</u>	MMDRT	MTVDRT	Type
Completion	3-1/2", 9.2ppf, 13Cr80, Vam Ace	3,078.6	1,894.2	Single oil

	Top of Interval [m MDRT]	Top of Interval [m TVDRT]	Bottom of Interval [mMDRT]	Bottom of Interval [mTVDRT]	Gun Type
Perforation Interval:	3173.0 (N-1)	1937.7	3176.0 (N-1)	1939.1	MAXR guns

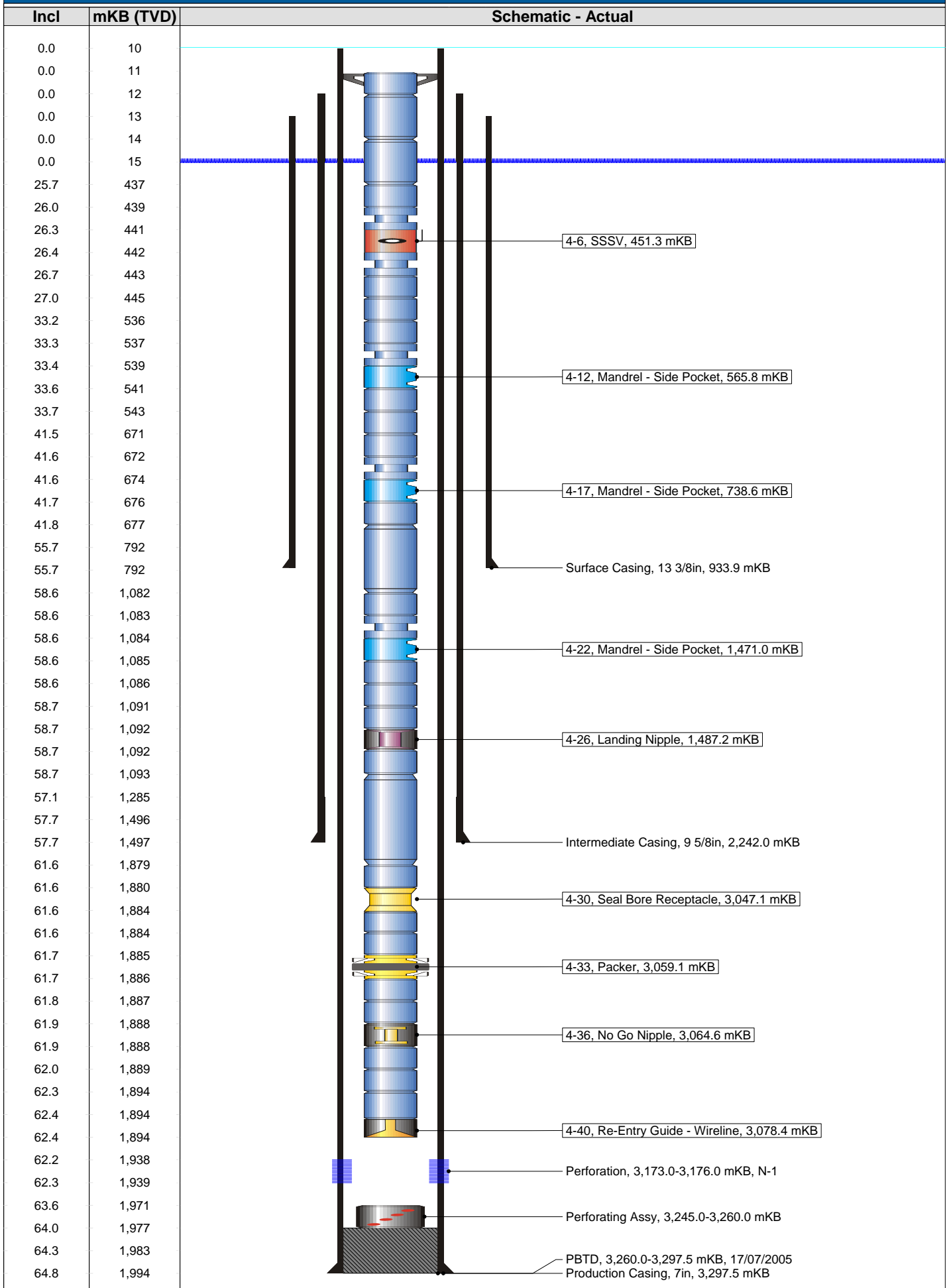
Comments: Single completion was 3-1/2" 13Cr80 with TR-SSSV, 3 SPM's for gas lift, and one packer set at 3,059m MDRT.

ADDITIONAL

		Top of Interval [m MDRT]	Bottom of Interval [m MDRT]
Logs Run	GR-Resistivity-Density-Neutron-Sonic-Caliper	2,235	3,298.9

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

Bream A23A: Existing Schematic



Bream A23A: Existing Tubing String Summary

Tubing Description	Run Date	Run Job	Comment	Measured Depth (mKB)
Tubing - Production	22/07/2005	Drilling and Completion, 4/07/2005 00:00 - 23/07/2005 00:00	For single completion, packer set above the N1s. PU = 100 kips, S/O = 78 kips, BW = 35 kips	3,078.64

Tubing Components

Item No.	Item Description	OD (in)	Wt (lbs/ft)	Grade	Top Thread	Jts	Make	Model	SN	Comments	Max OD (in)	Nom ID (in)	Len (m)	Top (mKB)
4-1	Tubing Hanger	3.500				1	Cameron	11" MC-2			6.276	2.992	0.52	11.23
4-2	Tubing Pup Joint	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	1.77	11.75
4-3	Tubing Joint(s)	3.500	9.20	13CR-80	VAM-ACE	45					4.500	2.992	433.98	13.51
4-4	Tubing Pup Joint	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	1.95	447.49
4-5	Flow Coupling	3.500			VAM-ACE	1	Halliburton				4.020	2.880	1.85	449.44
4-6	SSSV	3.500			VAM-ACE	1	Halliburton	NE	781LXE27704-F	2.75" X profile	5.380	2.750	1.30	451.29
4-7	Flow Coupling	3.500			VAM-ACE	1	Halliburton				4.020	2.880	1.85	452.59
4-8	Tubing Pup Joint	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	1.94	454.45
4-9	Tubing Joint(s)	3.500	9.20	13CR-80	VAM-ACE	10					4.500	2.992	105.59	456.38
4-10	Tubing Pup Joint	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	1.97	561.97
4-11	Flow Coupling	3.500			VAM-ACE	1	Halliburton		811FN28711		4.020	2.880	1.82	563.94
4-12	Mandrel - Side Pocket	3.500			VAM-ACE	1		SF0-2	SPM110705A	1.5" Pocket	5.968	2.920	2.60	565.76
4-13	Tubing Pup Joint	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	1.96	568.36
4-14	Tubing Joint(s)	3.500	9.20	13CR-80	VAM-ACE	17					4.500	2.992	164.45	570.32
4-15	Tubing Pup Joint	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	1.98	734.77
4-16	Flow Coupling	3.500			VAM-ACE	1	Halliburton		811FN28711		4.020	2.880	1.84	736.75
4-17	Mandrel - Side Pocket	3.500			VAM-ACE	1		SF0-2	SPM240605A	1.5" Pocket	5.968	2.920	2.59	738.59
4-18	Tubing Pup Joint	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	1.96	741.18
4-19	Tubing Joint(s)	3.500	9.20	13CR-80	VAM-ACE	75					4.500	2.992	724.45	743.14
4-20	Tubing Pup Joint	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	1.83	1,467.59
4-21	Flow Coupling	3.500			VAM-ACE	1	Halliburton				4.020	2.880	1.57	1,469.42
4-22	Mandrel - Side Pocket	3.500			VAM-ACE	1		SF0-2	SPM090605B	1.5" Pocket	5.968	2.920	2.60	1,470.99
4-23	Tubing Pup Joint	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	1.96	1,473.59
4-24	Tubing Joint(s)	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	9.69	1,475.55
4-25	Tubing Pup Joint	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	1.97	1,485.24
4-26	Landing Nipple	3.500			VAM-ACE	1	Halliburton	X	811X27525	2.75" X profile	3.920	2.750	0.45	1,487.21
4-27	Tubing Pup Joint	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	1.96	1,487.66
4-28	Tubing Joint(s)	3.500	9.20	13CR-80	VAM-ACE	161					4.500	2.992	1,556...	1,489.62
4-29	Tubing Pup Joint	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	1.28	3,045.86
4-30	Seal Bore Receptacle	3.500			VAM-ACE	1	Halliburton	PBR	812PBA70404...	PBR seal unit	5.870	2.880	9.30	3,047.14
4-31	Tubing Pup Joint	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	0.65	3,056.44
4-32	Tubing Pup Joint	3.500	9.20	13CR-80	VAM-ACE	1		piptag @ 3057.08m, 3.075 m above center of cut zon			4.500	2.992	1.97	3,057.08
4-33	Packer	3.500	26.00		VAM-ACE	1	Halliburton	7" AHC.	812AHC71291...	26 - 29#	6.151	2.954	1.56	3,059.05
4-34	Tubing Pup Joint	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	1.97	3,060.61
4-35	Tubing Pup Joint	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	1.97	3,062.59
4-36	No Go Nipple	3.500			VAM-ACE	1	Halliburton		811XN27564	2.750" XN Profile, 2.635" NoGo	3.920	2.635	0.37	3,064.56
4-37	Tubing Pup Joint	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	1.87	3,064.93
4-38	Tubing Joint(s)	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	9.67	3,066.80
4-39	Tubing Pup Joint	3.500	9.20	13CR-80	VAM-ACE	1					4.500	2.992	1.97	3,076.47
4-40	Re-Entry Guide - Wireline	3.500			VAM-ACE	1			812G40021		3.910	2.867	0.20	3,078.44

III. SAMPLES

CUTTINGS

The cuttings sampling programme for BREAM A23A are detailed in the following table:

Interval	Formation	Sampling Details
KOP to 150 m above Top of Latrobe : 2250.0 – 2610.0 mMDRT	Lakes Entrance	Cuttings samples for description only at 30 m intervals.
150 m above Top of Latrobe to Top of Latrobe (prognosed at 2757.8 mMDRT): 2610.0 – 2750.0 mMDRT	Latrobe Group	Three sets of washed and oven dried cuttings at 10 m intervals.
Top of Latrobe (prognosed at 2757.8mMDRT) to Total Depth (TD) : 2750.0 – 3302.0 mMDRT	Latrobe Group / Coarse Clastics	Three sets of washed and oven dried cuttings at 5 m intervals.

Detailed cuttings descriptions for the interval 2250.0 to 3302.0 mMDRT (TD) are contained in Appendix 3a.

CONVENTIONAL CORING

No conventional cores were cut in BREAM A23A.

SIDEWALL CORING

No sidewall core samples were shot in BREAM A23A.

IV. LOGS AND SURVEYS

MWD Run 1, Powerpulse (Directional & GR)	Schlumberger/Anadrill	2234.0	2236.3
MWD Run 2, Powerpulse (Directional & GR)	Schlumberger/Anadrill	2236.3	2248.0
MWD Run 3, Powerpulse (Directional & GR)	Schlumberger/Anadrill	2248.0	3282.05
Run 1: Drillpipe conveyed Logging MCG-MDN-MPD-MSS-MDL	Reeves (Precision Logging) Compact wireline tools run on drillpipe (Shuttle System, memory mode)	2235.0	3298.9

(M=memory/compact GR-Dual Neutron-Photo Density-Sonic-Dual Laterolog)

V. FORMATION RESERVOIR TOPS - Bream A23A

Horizon	m TVDSS			m MDRT ACTUAL	m TVT Gross HC Column	
	Predicted Tops	ACTUAL	Diff. (m)		Predicted	ACTUAL
Top of Latrobe (TOL)	-1712	-1725.8	13.8 low	2786.5		
Top of Coarse Clastics (TCC)	-1870	-1863.9	6.1 high	3084.0		
Base of Waste zone (BWST)	-1878	-1871.2	6.8 high	3100.1		1.6 gas (1.1 net)
newRdsb		-1872.8		3103.5		6.9 gas (1.0 net)
newGnF2	-1878	-1879.7	1.7 low	3118.6	18 gas in Green	5.3 gas (5.0 net)
newGnsb		-1884.7		3129.6	sand (17.4 net)	13.7 gas (13.3 net)
newCbF2	-1896	-1898.4	2.4 low	3159.1	4 gas (3.9 net)	6.0 gas (6.0 net)
newCbf1	-1900	-1904.4	0.4 low	3172.0	10 gas (9.9 net)	1.0 gas (0.9 net)
CGOC *	-1910	-1905.4	4.6 high	3174.0	7 oil (5.5 net)	6.0 oil (6.0 net)
COWC	-1917	-1911.4	5.6 high	3187.0		4.4 residual
newCbsb	-1908	-1915.8	7.8 low	3196.5		
newPkf2		-1920.6		3207.0		
newPkf1	-1920	-1931.0	11.0 low	3230.0		
newPksb		-1940.3		3250.8		
newMvf2		-1941.8		3254.2		
newMvsb	-1940	-1946.0	6.0 low	3263.8		
newCyF2		-1956.5		3288.0		
Total Depth	-1960	-1962.5	2.5 low	3302.0		

Predictions:

*a 10m oil column was predicted for the Upper Cobalt section (Cobalt sands above new Cbf1), but it was recognised that the well would penetrate the gas column updip of this Upper Cobalt oil leg. A 7m oil column was predicted to be actually intersected in the Lower Cobalt section (sands below new Cbf1) from -1910 to -1917m TVDSS.

BWST to Cbf1: 10m oil X 0.97 N/G → 9.7 m net oil – smear 34% → 6.4m net oil

Cbf1 to Pkf1: 7m oil (as above) X 0.97 N/G → 6.8m net oil – smear 19% → 5.5m net oil

Gas zone – predicted N/G 97-99%

VI. GEOLOGICAL ANALYSIS - BREAM A23A

Objectives

Bream A23A (Loc C) was designed to access oil on the southern flank in the upper N-1 sand units. These sands were thought to have produced poorly from the toes of the horizontal A16 and A23 wells due to preferential production from the heel perforations. It was also interpreted that A16 did not penetrate the upper N-1 Green and upper Cobalt oil sands in its horizontal section.

A16 and A23 were plugged back to the heel in mid 2004. Although the wellbores intersect the Green and upper Cobalt sands in the vertical parts of the wells, it was believed that the remaining oil would be mostly swept and smeared before reaching the crest where A16 was located, some 50m TVD above the original gas-oil contact. A23 intersected the TCC much further down flank than A16, but apparently had only a thin oil zone (~2m TVT) remaining in the area near its heel when logged in Oct 2004. Location C (A23A) was therefore drilled to intersect the TCC part way down the flank to the west of A23 in a more optimal position to further develop the gas/oil column within the Green, Cobalt and Pink sands in this partially undrained southern area.

A23A was positioned on a ridge between A16 and A23, part of the anticlinal nose that extends down from the A16/A24 crest, and it was interpreted that this ridge would provide a natural focus for oil migrating updip. Based on recent cased hole logging, much of the remaining oil column was moderately thick on the southern flank: 7.4m TVT at A21A, 10m TVT at A25, and this was the basis of predrill expectations. A 7m gross oil leg was predicted to be intersected in the lower Cobalt sand, with a potential 10m oil leg in the outlying upper units (gas would be seen in the well for these upper units).

Results

Bream A23A is a deep entry well, drilled out of a window milled in the original A23 casing. It commenced operations on 4 July 2005 and drilled to the TD of 3302m MDRT (1962.5m TVDSS) on 11 July 2005. Logging was conducted by Reeves (Precision Logging) drillpipe conveyed wireline tools on Shuttle. The well was completed as a successful oil producer.

Top of Latrobe was encountered at 2786.5m MDRT (1725.8m TVDSS) and the Top of Coarse Clastics (the N-1 reservoir top) was encountered at 3084m MDRT (1863.9m TVDSS), 6.1m TVD high to prediction. Below the altered waste zone (BWST), a small section of gas-bearing Red sand is interpreted to contain 1m TVD of net gas pay. The underlying Green sand section is composed of an interval of poor quality rock immediately below the Red sequence boundary containing only minor gas pay and then a 5m TVD good quality gas sand between newGnF2 and newGnsb. Below this is a 13.7mTVD Upper Cobalt section of high Gamma Ray sandstones/ siltstones (possibly shoreface sands) which are gas-bearing and interpreted to be mostly net (13.3m), however the average porosity is only 12% in this interval.

The newCbF2 at 3159.1m MDRT (1898.4m TVDSS) is the top of the good quality Cobalt reservoir section. This section contains total 6.9mTVD gas pay (6+0.9) to the current GOC at 3174m MDRT (1905.4m TVDSS) and a 6m TVD gross oil leg (all net pay) to the current OWC at 3187m MDRT (1911.4m TVDSS) in very good quality sand (20% porosity). The oil leg has already risen ~10mTVD into the original gas cap (OGOC 1915.5m TVDSS) due to production and has smeared slightly leaving a residual oil saturation as the oil rises. Below the COWC there is a residual oil zone with an interpreted remaining oil saturation of 57% (Sw 43%). The sands in this zone below the COWC are swept and will continue to be increasingly flushed over time.

The well was perforated over the current GOC level and flowed at the strong rate of 235 kl/day oil.

APPENDIX 1a

BREAM A23A

Survey Data



BMA A-23A Final Geodetic Report

Report Date: July 12, 2005	Survey / DLS Computation Method: Minimum Curvature / Lubinski
Client: Esso Australia Pty Ltd	Vertical Section Azimuth: 160.270°
Field: Bream A GDA 94	Vertical Section Origin: S 5.010 m, E 8.110 m
Structure / Slot: Bream A / 23	TVD Reference Datum: RKB
Well: 23	TVD Reference Elevation: 32.8 m relative to MSL
Borehole: BMA A-23A	Sea Bed / Ground Level Elevation: -59.400 m relative to MSL
UWI/API#:	Magnetic Declination: 13.064°
Survey Name / Date: BMA A23A Surveys / July 8, 2005	Total Field Strength: 60152.230 nT
Tort / AHD / DDI / ERD ratio: 149.862° / 2433.32 m / 6.297 / 1.220	Magnetic Dip: -69.041°
Grid Coordinate System: GDA94/MGA94 Zone 55	Declination Date: July 08, 2005
Location Lat/Long: S 38 29 58.915, E 147 46 20.319	Magnetic Declination Model: BGGM 2005
Location Grid N/E Y/X: N 5738457.450 m, E 567344.610 m	North Reference: Grid North
Grid Convergence Angle: -0.48078970°	Total Corr Mag North -> Grid North: +13.545°
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
Projected-Up	0.00	0.00	0.00	0.00	0.00	-5.01	8.11	0.00	5738457.45	567344.61	S 38 29 58.915	E 147 46 20.319
	70.00	0.00	0.00	70.00	0.00	-5.01	8.11	0.00	5738457.45	567344.61	S 38 29 58.915	E 147 46 20.319
	89.32	0.25	283.50	89.32	-0.02	-5.00	8.07	0.39	5738457.46	567344.57	S 38 29 58.915	E 147 46 20.317
	104.32	0.75	265.50	104.32	-0.06	-5.00	7.94	1.04	5738457.46	567344.44	S 38 29 58.915	E 147 46 20.312
	119.32	2.00	146.50	119.32	0.16	-5.23	7.99	4.91	5738457.23	567344.49	S 38 29 58.922	E 147 46 20.314
	134.32	3.75	140.50	134.30	0.88	-5.82	8.45	3.55	5738456.64	567344.94	S 38 29 58.942	E 147 46 20.333
	149.32	5.75	137.50	149.24	2.03	-6.76	9.26	4.03	5738455.70	567345.76	S 38 29 58.972	E 147 46 20.367
	159.32	6.75	135.50	159.19	3.03	-7.55	10.02	3.07	5738454.92	567346.51	S 38 29 58.997	E 147 46 20.399
	167.62	7.50	135.50	167.42	3.96	-8.28	10.74	2.71	5738454.18	567347.23	S 38 29 59.021	E 147 46 20.429
	176.82	7.20	137.00	176.55	5.04	-9.13	11.55	1.16	5738453.33	567348.05	S 38 29 59.048	E 147 46 20.462
	186.12	6.00	138.00	185.78	6.03	-9.92	12.27	3.89	5738452.55	567348.77	S 38 29 59.073	E 147 46 20.493
	195.42	5.80	137.00	195.03	6.91	-10.62	12.92	0.73	5738451.84	567349.41	S 38 29 59.096	E 147 46 20.519
	213.82	6.70	130.00	213.33	8.69	-11.99	14.38	1.92	5738450.47	567350.87	S 38 29 59.140	E 147 46 20.580
	232.32	8.80	136.00	231.66	10.91	-13.70	16.19	3.64	5738448.76	567352.68	S 38 29 59.195	E 147 46 20.655
	241.52	10.30	138.00	240.73	12.31	-14.82	17.23	5.01	5738447.64	567353.72	S 38 29 59.231	E 147 46 20.699
	250.32	10.80	138.36	249.38	13.81	-16.02	18.30	1.72	5738446.44	567354.79	S 38 29 59.270	E 147 46 20.743
	269.22	11.40	137.26	267.93	17.17	-18.72	20.74	1.01	5738443.75	567357.24	S 38 29 59.356	E 147 46 20.845
	287.72	12.10	137.26	286.04	20.64	-21.48	23.30	1.14	5738440.98	567359.79	S 38 29 59.445	E 147 46 20.952
	316.32	15.20	137.66	313.83	26.86	-26.46	27.86	3.25	5738436.01	567364.35	S 38 29 59.605	E 147 46 21.142
	325.52	17.00	137.66	322.67	29.21	-28.34	29.58	5.87	5738434.13	567366.07	S 38 29 59.666	E 147 46 21.213
	350.32	18.00	140.06	346.32	36.16	-33.96	34.48	1.49	5738428.51	567370.97	S 38 29 59.847	E 147 46 21.417
	359.82	18.40	139.76	355.34	38.94	-36.23	36.39	1.30	5738426.24	567372.88	S 38 29 59.920	E 147 46 21.497
	369.42	18.80	140.46	364.44	41.81	-38.58	38.36	1.43	5738423.89	567374.84	S 38 29 59.996	E 147 46 21.579
	378.92	19.10	141.46	373.43	44.72	-40.98	40.30	1.40	5738421.50	567376.78	S 38 30 0.073	E 147 46 21.660
	388.22	19.70	141.16	382.20	47.64	-43.39	42.23	1.96	5738419.09	567378.72	S 38 30 0.151	E 147 46 21.740
	397.82	20.20	142.86	391.22	50.75	-45.97	44.25	2.39	5738416.51	567380.73	S 38 30 0.234	E 147 46 21.824
	407.42	20.80	142.86	400.21	53.96	-48.65	46.28	1.87	5738413.83	567382.76	S 38 30 0.320	E 147 46 21.909
	426.52	22.90	142.56	417.94	60.74	-54.31	50.58	3.30	5738408.17	567387.06	S 38 30 0.502	E 147 46 22.089
	436.12	23.90	143.26	426.75	64.38	-57.35	52.88	3.24	5738405.13	567389.36	S 38 30 0.600	E 147 46 22.185
	455.42	27.10	144.66	444.17	72.35	-64.07	57.76	5.06	5738398.41	567394.24	S 38 30 0.817	E 147 46 22.389
	465.02	28.00	144.66	452.68	76.63	-67.69	60.33	2.81	5738394.79	567396.81	S 38 30 0.934	E 147 46 22.496
	484.12	29.70	145.66	469.41	85.53	-75.25	65.60	2.78	5738387.23	567402.07	S 38 30 1.178	E 147 46 22.716
	512.52	31.50	147.46	493.85	99.57	-87.32	73.56	2.13	5738375.17	567410.03	S 38 30 1.567	E 147 46 23.048
	522.12	31.90	145.66	502.02	104.47	-91.53	76.34	3.21	5738370.96	567412.81	S 38 30 1.702	E 147 46 23.164
	551.02	32.70	149.26	526.45	119.52	-104.54	84.63	2.16	5738357.95	567421.10	S 38 30 2.122	E 147 46 23.511
	579.72	34.20	148.56	550.40	135.03	-118.09	92.80	1.62	5738344.41	567429.27	S 38 30 2.559	E 147 46 23.853
	608.32	36.30	149.96	573.75	151.24	-132.28	101.24	2.36	5738330.23	567437.70	S 38 30 3.017	E 147 46 24.206
	637.12	39.00	151.66	596.55	168.59	-147.64	109.81	3.01	5738314.87	567446.27	S 38 30 3.513	E 147 46 24.565
	650.92	39.90	152.06	607.21	177.26	-155.37	113.94	2.03	5738307.14	567450.40	S 38 30 3.763	E 147 46 24.739
	661.32	40.20	153.46	615.17	183.89	-161.32	117.01	2.74	5738301.20	567453.46	S 38 30 3.955	E 147 46 24.867
	689.92	40.80	154.86	636.92	202.36	-178.04	125.10	1.14	5738284.49	567461.56	S 38 30 4.495	E 147 46 25.207
	710.22	40.90	155.56	652.27	215.59	-190.09	130.67	0.69	5738272.44	567467.12	S 38 30 4.884	E 147 46 25.441
	718.72	41.20	155.86	658.68	221.15	-195.18	132.96	1.27	5738267.35	567469.42	S 38 30 5.048	E 147 46 25.537
	737.92	41.60	156.56	673.09	233.82	-206.80	138.08	0.96	5738255.73	567474.54	S 38 30 5.424	E 147 46 25.753
	747.52	41.80	157.26	680.25	240.19	-212.67	140.59	1.58	5738249.86	567477.04	S 38 30 5.614	E 147 46 25.858
	779.82	46.30	157.26	703.46	262.61	-233.38	149.27	4.18	5738229.16	567485.72	S 38 30 6.283	E 147 46 26.223
	808.52	51.80	157.96	722.27	284.26	-253.41	157.52	5.78	5738209.13	567493.96	S 38 30 6.930	E 147 46 26.571
	822.32	53.90	157.96	730.60	295.25	-263.61	161.64	4.57	5738198.94	567498.09	S 38 30 7.260	E 147 46 26.745

	837.32	56.10	158.36	739.20	307.53	-275.01	166.21	4.45	5738187.54	567502.66	S 38 30 7.628	E 147 46 26.937
	852.12	58.00	156.96	747.25	319.93	-286.50	170.93	4.53	5738176.06	567507.38	S 38 30 7.999	E 147 46 27.136
	869.82	58.00	157.66	756.63	334.92	-300.35	176.73	1.01	5738162.21	567513.16	S 38 30 8.447	E 147 46 27.380
	889.02	57.00	157.26	766.95	351.10	-315.30	182.93	1.65	5738147.26	567519.37	S 38 30 8.930	E 147 46 27.641
	898.62	56.80	157.66	772.19	359.13	-322.73	186.01	1.22	5738139.84	567522.45	S 38 30 9.170	E 147 46 27.771
	908.22	56.20	157.66	777.49	367.13	-330.14	189.06	1.87	5738132.44	567525.49	S 38 30 9.410	E 147 46 27.899
	917.82	56.20	158.26	782.83	375.10	-337.53	192.05	1.56	5738125.05	567528.49	S 38 30 9.649	E 147 46 28.025
	946.92	55.30	158.36	799.21	399.14	-359.88	200.94	0.93	5738102.70	567537.37	S 38 30 10.371	E 147 46 28.400
	956.52	55.40	157.96	804.67	407.03	-367.21	203.88	1.07	5738095.37	567540.31	S 38 30 10.608	E 147 46 28.524
	966.12	55.30	157.96	810.12	414.92	-374.53	206.84	0.31	5738088.06	567543.27	S 38 30 10.845	E 147 46 28.649
	975.72	55.30	157.66	815.59	422.80	-381.84	209.82	0.77	5738080.75	567546.25	S 38 30 11.081	E 147 46 28.774
	994.92	55.30	157.66	826.52	438.57	-396.44	215.82	0.00	5738066.16	567552.25	S 38 30 11.553	E 147 46 29.027
	1004.42	55.50	157.26	831.91	446.38	-403.66	218.82	1.22	5738058.94	567555.25	S 38 30 11.786	E 147 46 29.153
	1014.02	55.50	157.66	837.35	454.29	-410.97	221.85	1.03	5738051.63	567558.28	S 38 30 12.022	E 147 46 29.281
	1033.22	55.80	157.66	848.18	470.12	-425.63	227.88	0.47	5738036.97	567564.30	S 38 30 12.496	E 147 46 29.534
	1061.92	56.30	155.86	864.21	493.88	-447.51	237.27	1.65	5738015.11	567573.69	S 38 30 13.203	E 147 46 29.930
	1071.42	56.40	155.56	869.48	501.76	-454.71	240.53	0.85	5738007.90	567576.94	S 38 30 13.436	E 147 46 30.066
	1100.12	57.00	154.86	885.23	525.66	-476.49	250.58	0.88	5737986.13	567587.00	S 38 30 14.139	E 147 46 30.489
	1128.92	57.30	153.76	900.86	549.72	-498.29	261.07	1.01	5737964.34	567597.48	S 38 30 14.843	E 147 46 30.930
	1157.62	57.70	153.06	916.28	573.75	-519.94	271.91	0.75	5737942.70	567608.31	S 38 30 15.542	E 147 46 31.384
	1186.02	57.80	152.06	931.43	597.55	-541.25	282.98	0.90	5737921.39	567619.38	S 38 30 16.230	E 147 46 31.848
	1214.82	57.30	150.96	946.89	621.57	-562.61	294.57	1.10	5737900.04	567630.97	S 38 30 16.920	E 147 46 32.334
	1243.62	57.30	149.56	962.45	645.44	-583.66	306.59	1.23	5737879.00	567642.98	S 38 30 17.599	E 147 46 32.838
	1272.42	57.30	151.36	978.01	669.32	-604.74	318.54	1.58	5737857.93	567654.93	S 38 30 18.280	E 147 46 33.338
	1300.72	57.50	148.86	993.25	692.78	-625.41	330.42	2.24	5737837.27	567666.80	S 38 30 18.947	E 147 46 33.836
	1329.62	57.60	146.76	1008.76	716.59	-646.04	343.41	1.84	5737816.64	567679.79	S 38 30 19.612	E 147 46 34.379
	1358.32	57.90	146.76	1024.08	740.19	-666.34	356.71	0.31	5737796.34	567693.09	S 38 30 20.267	E 147 46 34.935
	1386.92	58.20	146.76	1039.21	763.79	-686.64	370.02	0.31	5737776.05	567706.39	S 38 30 20.921	E 147 46 35.491
	1415.72	58.40	147.06	1054.35	787.63	-707.17	383.39	0.34	5737755.53	567719.76	S 38 30 21.584	E 147 46 36.050
	1444.52	58.50	147.06	1069.41	811.52	-727.77	396.74	0.10	5737734.94	567733.10	S 38 30 22.248	E 147 46 36.608
	1472.92	58.60	147.46	1084.23	835.13	-748.15	409.84	0.38	5737714.57	567746.20	S 38 30 22.905	E 147 46 37.156
	1501.72	58.80	147.76	1099.19	859.14	-768.93	423.02	0.34	5737693.80	567759.38	S 38 30 23.575	E 147 46 37.708
	1530.52	59.10	147.76	1114.05	883.23	-789.80	436.19	0.31	5737672.94	567772.54	S 38 30 24.249	E 147 46 38.258
	1558.42	58.70	148.56	1128.46	906.59	-810.09	448.79	0.85	5737652.65	567785.14	S 38 30 24.903	E 147 46 38.785
	1587.12	57.90	148.16	1143.54	930.48	-830.88	461.60	0.91	5737631.87	567797.94	S 38 30 25.574	E 147 46 39.321
	1615.92	57.90	148.86	1158.85	954.36	-851.68	474.34	0.62	5737611.07	567810.68	S 38 30 26.245	E 147 46 39.854
	1644.32	58.30	148.56	1173.85	977.98	-872.29	486.86	0.50	5737590.47	567823.20	S 38 30 26.910	E 147 46 40.378
	1673.22	58.10	148.16	1189.08	1002.02	-893.20	499.75	0.41	5737569.57	567836.08	S 38 30 27.584	E 147 46 40.918
	1701.92	58.40	148.16	1204.18	1025.88	-913.93	512.62	0.31	5737548.84	567848.95	S 38 30 28.253	E 147 46 41.456
	1730.72	57.80	147.46	1219.40	1049.75	-934.62	525.65	0.88	5737528.16	567861.97	S 38 30 28.921	E 147 46 42.001
	1759.52	57.40	148.16	1234.84	1073.50	-955.20	538.60	0.74	5737507.59	567874.92	S 38 30 29.585	E 147 46 42.543
	1788.42	57.20	148.86	1250.45	1097.31	-975.94	551.31	0.65	5737486.86	567887.62	S 38 30 30.254	E 147 46 43.074
	1817.12	56.90	148.16	1266.06	1120.88	-996.48	563.89	0.69	5737466.33	567900.19	S 38 30 30.916	E 147 46 43.601
	1845.42	57.10	149.26	1281.47	1144.14	-1016.76	576.21	1.00	5737446.05	567912.51	S 38 30 31.570	E 147 46 44.116
	1874.22	57.10	149.96	1297.12	1167.90	-1037.62	588.45	0.61	5737425.20	567924.74	S 38 30 32.244	E 147 46 44.629
	1903.02	57.30	150.26	1312.72	1191.73	-1058.60	600.51	0.34	5737404.22	567936.80	S 38 30 32.921	E 147 46 45.134
	1931.02	57.40	149.26	1327.82	1214.91	-1078.97	612.38	0.91	5737383.86	567948.67	S 38 30 33.578	E 147 46 45.631
	1959.52	57.60	150.66	1343.14	1238.56	-1099.78	624.41	1.26	5737363.06	567960.70	S 38 30 34.250	E 147 46 46.135
	1987.92	57.30	151.36	1358.42	1262.18	-1120.72	636.02	0.70	5737342.13	567972.30	S 38 30 34.925	E 147 46 46.621
	2016.82	56.90	150.66	1374.12	1286.13	-1141.94	647.78	0.74	5737320.91	567984.05	S 38 30 35.610	E 147 46 47.114
	2045.62	56.90	149.96	1389.84	1309.89	-1162.90	659.73	0.61	5737299.96	567996.00	S 38 30 36.287	E 147 46 47.614
	2074.22	57.00	149.26	1405.44	1333.45	-1183.58	671.85	0.62	5737279.29	568008.12	S 38 30 36.954	E 147 46 48.122
	2102.82	57.20	149.96	1420.98	1357.05	-1204.29	684.00	0.65	5737258.58	568020.27	S 38 30 37.623	E 147 46 48.631
	2130.92	57.00	148.86	1436.24	1380.22	-1224.60	696.01	1.01	5737238.28	568032.27	S 38 30 38.278	E 147 46 49.133
	2159.62	57.10	149.26	1451.85	1403.84	-1245.26	708.39	0.37	5737217.63	568044.65	S 38 30 38.944	E 147 46 49.652
	2188.12	57.30	149.56	1467.29	1427.37	-1265.88	720.58	0.34	5737197.01	568056.83	S 38 30 39.610	E 147 46 50.162
	2217.02	57.60	149.56	1482.84	1451.31	-1286.88	732.92	0.31	5737176.02	568069.17	S 38 30 40.287	E 147 46 50.679
Tie-In	2234.00	57.42	149.38	1491.96	1465.38	-1299.22	740.20	0.41	5737163.69	568076.44	S 38 30 40.686	E 147 46 50.983
	2278.18	58.79	156.97	1515.32	1502.56	-1332.66	757.09	4.47	5737130.25	568093.33	S 38 30 41.765	E 147 46 51.692
	2307.01	59.27	159.71	1530.16	1527.26	-1355.64	766.21	2.50	5737107.29	568102.44	S 38 30 42.508	E 147 46 52.077
	2335.95	58.56	161.36	1545.10	1552.04	-1379.00	774.47	1.64	5737083.93	568110.70	S 38 30 43.263	E 147 46 52.426
	2364.59	59.08	165.02	1559.94	1576.51	-1402.45	781.55	3.32	5737060.49	568117.78	S 38 30 44.022	E 147 46 52.726
	2393.32	60.26	169.21	1574.45	1601.12	-1426.62	787.07	3.97	5737036.33	568123.30	S 38 30 44.804	E 147 46 52.963
	2421.74	60.13	171.43	1588.58	1625.40	-1450.93	791.22	2.04	5737012.03	568127.45	S 38 30 45.591	E 147 46 53.142
	2450.45	60.43	175.62	1602.81	1649.66	-1475.69	794.03	3.82	5736987.28	568130.26	S 38 30 46.394	E 147 46 53.267
	2478.80	61.18	178.14	1616.64	1673.37	-1500.40	795.37	2.46	5736962.58	568131.60	S 38 30 47.194	E 147 46 53.331
	2507.50	62.88	180.13	1630.11	1697.36	-1525.74	795.75	2.56	5736937.24	568131.98	S 38 30 48.016	E 147 46 53.356

2536.48	62.92	180.20	1643.31	1721.61	-1551.54	795.68	0.08	5736911.45	568131.90	S 38 30 48.853	E 147 46 53.362
2564.63	62.42	179.65	1656.23	1745.16	-1576.55	795.71	0.75	5736886.45	568131.94	S 38 30 49.664	E 147 46 53.372
2593.68	61.92	179.62	1669.79	1769.40	-1602.24	795.87	0.52	5736860.77	568132.10	S 38 30 50.497	E 147 46 53.388
2622.49	62.59	179.58	1683.21	1793.46	-1627.73	796.05	0.70	5736835.29	568132.28	S 38 30 51.324	E 147 46 53.404
2650.52	61.90	179.63	1696.26	1816.87	-1652.54	796.22	0.74	5736810.49	568132.45	S 38 30 52.128	E 147 46 53.420
2679.52	62.73	179.70	1709.73	1841.09	-1678.22	796.37	0.86	5736784.82	568132.60	S 38 30 52.961	E 147 46 53.435
2707.88	63.13	179.20	1722.64	1864.94	-1703.47	796.62	0.63	5736759.58	568132.84	S 38 30 53.780	E 147 46 53.454
2736.87	62.57	179.46	1735.87	1889.32	-1729.26	796.92	0.63	5736733.79	568133.14	S 38 30 54.616	E 147 46 53.475
2765.84	62.90	179.13	1749.14	1913.67	-1755.01	797.24	0.46	5736708.05	568133.46	S 38 30 55.451	E 147 46 53.497
2794.57	62.25	178.92	1762.37	1937.81	-1780.51	797.67	0.71	5736682.56	568133.89	S 38 30 56.278	E 147 46 53.524
2822.91	63.03	178.85	1775.40	1961.67	-1805.68	798.16	0.83	5736657.41	568134.38	S 38 30 57.094	E 147 46 53.553
2879.17	63.16	178.95	1800.85	2009.21	-1855.84	799.12	0.08	5736607.26	568135.35	S 38 30 58.720	E 147 46 53.611
2908.78	63.03	178.87	1814.25	2034.23	-1882.24	799.62	0.15	5736580.87	568135.85	S 38 30 59.576	E 147 46 53.641
2937.39	62.16	178.76	1827.42	2058.31	-1907.63	800.15	0.92	5736555.49	568136.37	S 38 31 0.399	E 147 46 53.671
2966.18	61.51	179.06	1841.01	2082.36	-1933.01	800.63	0.73	5736530.12	568136.86	S 38 31 1.222	E 147 46 53.700
2994.73	61.44	179.71	1854.64	2106.06	-1958.09	800.90	0.60	5736505.04	568137.13	S 38 31 2.036	E 147 46 53.720
3023.58	62.22	179.38	1868.26	2130.07	-1983.52	801.10	0.87	5736479.62	568137.33	S 38 31 2.860	E 147 46 53.737
3052.17	61.44	178.90	1881.76	2153.91	-2008.72	801.48	0.93	5736454.43	568137.71	S 38 31 3.677	E 147 46 53.762
3080.57	62.48	179.07	1895.11	2177.66	-2033.78	801.93	1.11	5736429.38	568138.15	S 38 31 4.490	E 147 46 53.789
3109.62	63.19	179.18	1908.37	2202.11	-2059.63	802.32	0.74	5736403.54	568138.54	S 38 31 5.328	E 147 46 53.814
3138.42	62.26	179.01	1921.57	2226.34	-2085.22	802.72	0.98	5736377.96	568138.95	S 38 31 6.158	E 147 46 53.840
3166.88	62.13	178.59	1934.85	2250.21	-2110.39	803.25	0.41	5736352.80	568139.47	S 38 31 6.974	E 147 46 53.870
3195.55	62.68	178.34	1948.13	2274.35	-2135.79	803.93	0.62	5736327.41	568140.16	S 38 31 7.797	E 147 46 53.907
3224.28	63.08	178.43	1961.22	2298.65	-2161.35	804.65	0.43	5736301.85	568140.88	S 38 31 8.626	E 147 46 53.946
3252.72	63.80	178.34	1973.94	2322.83	-2186.78	805.37	0.76	5736276.43	568141.59	S 38 31 9.451	E 147 46 53.985
3282.05	64.46	178.43	1986.74	2347.91	-2213.16	806.11	0.68	5736250.06	568142.34	S 38 31 10.306	E 147 46 54.025
3302.00	64.91	178.49	1995.27	2365.05	-2231.19	806.60	0.68	5736232.04	568142.82	S 38 31 10.890	E 147 46 54.051

Survey Type: Raw Survey

Survey Error Model: SLB ISCWSA version 21 *** 3-D 95.00% Confidence 2.7955 sigma

Surveying Prog:

MD From (m)

0.00

MD To (m)

3302.00

EOU Freq

Act-Stns

Survey Tool Type

SLB_MWD-STD

APPENDIX 1b

BREAM A23A

MD-TVD Survey Data Listing

Report Date:	8 November 2005
Well:	Bream A23A
Structure / Slot:	NABORS Rig 453
TVD Reference Datum:	Drillsite Elevation
TVD Reference Elevation:	33.50 m relative to MSL
Sea Bed / Ground Level Elevation:	60.00 m relative to MSL
Grid Coordinate System:	GDA94/MGA94 Zone 55
Location Lat/Long:	S -38 29' 58.916400", E 147 46 20.319600"
Location Grid N/E:	N 5738457.4169 m, E 567344.6207 m
Survey Azimuth Reference:	Grid North

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
0	0	360	0	32.82	0	0	5738457.45	567344.61
5	0.01	355.75	5	27.82	0	0	5738457.46	567344.61
10	0.03	351.5	10	22.82	0	0	5738457.46	567344.61
15	0.04	347.25	15	17.82	0.01	0	5738457.46	567344.61
20	0.06	343	20	12.82	0.01	0	5738457.46	567344.61
25	0.07	338.75	25	7.82	0.02	0	5738457.47	567344.61
30	0.08	334.5	30	2.82	0.02	-0.01	5738457.47	567344.6
35	0.1	330.25	35	-2.18	0.03	-0.01	5738457.48	567344.6
40	0.11	326	40	-7.18	0.04	-0.02	5738457.49	567344.6
45	0.12	321.75	45	-12.18	0.04	-0.02	5738457.5	567344.59
50	0.14	317.5	50	-17.18	0.05	-0.03	5738457.51	567344.58
55	0.16	313.25	55	-22.18	0.06	-0.04	5738457.52	567344.57
60	0.17	309	60	-27.18	0.07	-0.05	5738457.53	567344.56
65	0.18	304.75	65	-32.18	0.08	-0.06	5738457.53	567344.55
70	0.19	300.5	70	-37.18	0.09	-0.07	5738457.54	567344.54
75	0.21	296.25	75	-42.18	0.1	-0.09	5738457.55	567344.52
80	0.22	292	80	-47.18	0.1	-0.11	5738457.56	567344.51
85	0.23	287.75	85	-52.18	0.11	-0.13	5738457.56	567344.49
90	0.25	283.5	90	-57.18	0.12	-0.15	5738457.57	567344.47
95	0.41	277.5	95	-62.18	0.12	-0.18	5738457.57	567344.43
100	0.58	271.5	100	-67.18	0.12	-0.22	5738457.58	567344.39
105	0.88	248.66	105	-72.18	0.09	-0.28	5738457.54	567344.33
110	1.17	225.83	110	-77.18	0.05	-0.34	5738457.51	567344.27
115	1.58	186.16	115	-82.18	-0.06	-0.33	5738457.4	567344.28
120	2	146.5	120	-87.18	-0.16	-0.32	5738457.29	567344.29
125	2.58	144.5	124.99	-92.17	-0.35	-0.19	5738457.11	567344.43
130	3.17	142.5	129.99	-97.17	-0.53	-0.05	5738456.93	567344.56
135	3.79	141	134.97	-102.15	-0.78	0.16	5738456.67	567344.77
140	4.42	139.5	139.96	-107.14	-1.04	0.37	5738456.41	567344.98
145	5.08	138.5	144.94	-112.12	-1.37	0.66	5738456.08	567345.27
150	5.75	137.5	149.92	-117.1	-1.7	0.95	5738455.75	567345.57
155	6.25	136.5	154.89	-122.07	-2.1	1.33	5738455.36	567345.94
160	6.75	135.5	159.86	-127.04	-2.49	1.7	5738454.96	567346.32
165	7.1	135.64	164.83	-132.01	-2.93	2.14	5738454.52	567346.75
170	7.44	135.78	169.79	-136.97	-3.37	2.57	5738454.08	567347.18
175	7.16	136.52	174.75	-141.93	-3.83	3	5738453.63	567347.61
180	6.88	137.27	179.71	-146.89	-4.28	3.43	5738453.17	567348.04
185	6.4	137.46	184.68	-151.86	-4.69	3.8	5738452.76	567348.41
190	5.93	137.65	189.65	-156.83	-5.1	4.18	5738452.35	567348.79
195	5.96	136.57	194.62	-161.8	-5.48	4.54	5738451.98	567349.15
200	5.99	135.5	199.59	-166.77	-5.85	4.89	5738451.6	567349.51
205	6.24	133.6	204.56	-171.74	-6.23	5.29	5738451.23	567349.9
210	6.48	131.71	209.53	-176.71	-6.6	5.68	5738450.85	567350.29
215	6.9	131.75	214.5	-181.68	-7	6.13	5738450.45	567350.74
220	7.32	131.78	219.46	-186.64	-7.4	6.58	5738450.05	567351.19
225	7.89	133.4	224.41	-191.59	-7.87	7.07	5738449.58	567351.69

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
230	8.46	135.02	229.37	-196.55	-8.35	7.57	5738449.11	567352.18
235	9.2	136.27	234.3	-201.48	-8.92	8.12	5738448.53	567352.73
240	9.94	137.52	239.24	-206.42	-9.5	8.67	5738447.95	567353.29
245	10.34	137.92	244.16	-211.34	-10.17	9.28	5738447.28	567353.89
250	10.74	138.32	249.07	-216.25	-10.84	9.88	5738446.62	567354.49
255	10.91	138.08	253.98	-221.16	-11.54	10.51	5738445.91	567355.12
260	11.09	137.84	258.89	-226.07	-12.24	11.14	5738445.21	567355.75
265	11.25	137.55	263.8	-230.98	-12.96	11.8	5738444.49	567356.41
270	11.4	137.26	268.7	-235.88	-13.68	12.46	5738443.77	567357.07
275	11.59	137.26	273.6	-240.78	-14.42	13.14	5738443.03	567357.75
280	11.78	137.26	278.5	-245.68	-15.16	13.82	5738442.29	567358.43
285	12.02	137.27	283.39	-250.57	-15.92	14.53	5738441.53	567359.14
290	12.27	137.28	288.28	-255.46	-16.69	15.24	5738440.76	567359.85
295	12.81	137.35	293.15	-260.33	-17.5	15.99	5738439.95	567360.6
300	13.35	137.42	298.03	-265.21	-18.32	16.74	5738439.13	567361.35
305	13.89	137.49	302.88	-270.06	-19.21	17.55	5738438.25	567362.16
310	14.44	137.56	307.74	-274.92	-20.09	18.36	5738437.36	567362.97
315	15.11	137.61	312.56	-279.74	-21.05	19.24	5738436.4	567363.85
320	15.78	137.66	317.39	-284.57	-22.02	20.12	5738435.44	567364.73
325	16.46	137.84	322.19	-289.37	-23.07	21.07	5738434.39	567365.68
330	17.15	138.02	326.98	-294.16	-24.12	22.02	5738433.34	567366.63
335	17.35	138.51	331.75	-298.93	-25.23	23.01	5738432.22	567367.62
340	17.56	139	336.52	-303.7	-26.35	24	5738431.1	567368.61
345	17.76	139.49	341.29	-308.47	-27.51	24.99	5738429.94	567369.6
350	17.96	139.97	346.05	-313.23	-28.67	25.98	5738428.78	567370.59
355	18.17	139.88	350.8	-317.98	-29.86	26.98	5738427.59	567371.59
360	18.38	139.78	355.55	-322.73	-31.05	27.99	5738426.4	567372.6
365	18.59	140.12	360.29	-327.47	-32.28	29.01	5738425.18	567373.62
370	18.8	140.45	365.03	-332.21	-33.5	30.03	5738423.95	567374.64
375	18.96	140.95	369.76	-336.94	-34.76	31.05	5738422.69	567375.67
380	19.12	141.45	374.49	-341.67	-36.02	32.08	5738421.43	567376.69
385	19.44	141.4	379.2	-346.38	-37.33	33.12	5738420.13	567377.73
390	19.76	141.36	383.92	-351.1	-38.63	34.15	5738418.83	567378.77
395	20.03	142.11	388.61	-355.79	-39.98	35.21	5738417.48	567379.82
400	20.3	142.86	393.31	-360.49	-41.33	36.26	5738416.12	567380.87
405	20.66	142.84	397.99	-365.17	-42.73	37.32	5738414.72	567381.93
410	21.01	142.83	402.67	-369.85	-44.14	38.39	5738413.31	567383
415	21.56	142.75	407.32	-374.5	-45.6	39.5	5738411.85	567384.11
420	22.11	142.67	411.97	-379.15	-47.07	40.61	5738410.39	567385.22
425	22.65	142.71	416.58	-383.76	-48.6	41.78	5738408.86	567386.39
430	23.19	142.76	421.2	-388.38	-50.13	42.94	5738407.32	567387.56
435	23.8	143.12	425.77	-392.95	-51.74	44.15	5738405.71	567388.77
440	24.42	143.49	430.35	-397.53	-53.36	45.37	5738404.1	567389.98
445	25.26	143.85	434.87	-402.05	-55.08	46.62	5738402.37	567391.23
450	26.09	144.22	439.39	-406.57	-56.8	47.88	5738400.65	567392.49
455	26.78	144.44	443.85	-411.03	-58.64	49.19	5738398.82	567393.8
460	27.47	144.66	448.32	-415.5	-60.47	50.5	5738396.98	567395.11
465	27.92	144.77	452.73	-419.91	-62.38	51.85	5738395.07	567396.46
470	28.38	144.89	457.15	-424.33	-64.3	53.2	5738393.16	567397.81
475	28.82	145.15	461.53	-428.71	-66.27	54.58	5738391.18	567399.19
480	29.27	145.41	465.91	-433.09	-68.25	55.96	5738389.2	567400.57
485	29.65	145.7	470.26	-437.44	-70.3	57.35	5738387.16	567401.96
490	30.03	145.99	474.6	-441.78	-72.34	58.75	5738385.12	567403.36
495	30.34	146.3	478.92	-446.1	-74.44	60.15	5738383.01	567404.76
500	30.66	146.62	483.23	-450.41	-76.54	61.55	5738380.91	567406.16
505	30.98	146.94	487.52	-454.7	-78.7	62.95	5738378.75	567407.56
510	31.3	147.26	491.81	-458.99	-80.86	64.35	5738376.6	567408.97
515	31.54	146.72	496.07	-463.25	-83.04	65.79	5738374.41	567410.4

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
520	31.78	146.18	500.33	-467.51	-85.23	67.23	5738372.22	567411.84
525	31.94	146.37	504.57	-471.75	-87.43	68.69	5738370.02	567413.3
530	32.1	146.56	508.82	-476	-89.63	70.16	5738367.82	567414.77
535	32.24	147.18	513.04	-480.22	-91.88	71.6	5738365.58	567416.21
540	32.38	147.8	517.27	-484.45	-94.12	73.05	5738363.34	567417.66
545	32.52	148.42	521.49	-488.67	-96.41	74.45	5738361.05	567419.06
550	32.65	149.05	525.71	-492.89	-98.7	75.86	5738358.76	567420.47
555	32.89	149.05	529.91	-497.09	-101.02	77.26	5738356.43	567421.87
560	33.13	149.06	534.1	-501.28	-103.35	78.65	5738354.1	567423.26
565	33.39	148.93	538.28	-505.46	-105.71	80.07	5738351.74	567424.68
570	33.66	148.81	542.45	-509.63	-108.07	81.49	5738349.38	567426.1
575	33.92	148.69	546.6	-513.78	-110.45	82.94	5738347	567427.55
580	34.18	148.57	550.75	-517.93	-112.84	84.39	5738344.62	567429
585	34.54	148.8	554.87	-522.05	-115.26	85.86	5738342.19	567430.47
590	34.9	149.03	558.99	-526.17	-117.69	87.33	5738339.77	567431.94
595	35.27	149.27	563.07	-530.25	-120.17	88.8	5738337.29	567433.42
600	35.64	149.52	567.15	-534.33	-122.65	90.28	5738334.8	567434.89
605	36.02	149.77	571.2	-538.38	-125.19	91.76	5738332.26	567436.37
610	36.39	150.02	575.24	-542.42	-127.73	93.24	5738329.72	567437.85
615	36.86	150.31	579.24	-546.42	-130.34	94.73	5738327.12	567439.34
620	37.33	150.61	583.24	-550.42	-132.94	96.21	5738324.51	567440.82
625	37.8	150.9	587.19	-554.37	-135.62	97.7	5738321.83	567442.31
630	38.27	151.2	591.14	-558.32	-138.3	99.19	5738319.16	567443.8
635	38.71	151.46	595.05	-562.23	-141.04	100.68	5738316.41	567445.29
640	39.15	151.73	598.95	-566.13	-143.79	102.18	5738313.66	567446.79
645	39.47	151.87	602.81	-569.99	-146.59	103.68	5738310.86	567448.29
650	39.8	152.01	606.67	-573.85	-149.4	105.18	5738308.06	567449.79
655	39.97	152.6	610.5	-577.68	-152.25	106.65	5738305.2	567451.26
660	40.14	153.19	614.33	-581.51	-155.1	108.13	5738302.35	567452.74
665	40.25	153.52	618.15	-585.33	-157.99	109.57	5738299.46	567454.18
670	40.37	153.85	621.96	-589.14	-160.88	111.01	5738296.57	567455.62
675	40.47	154.09	625.77	-592.95	-163.8	112.43	5738293.65	567457.04
680	40.58	154.34	629.57	-596.75	-166.72	113.85	5738290.73	567458.46
685	40.69	154.58	633.36	-600.54	-169.67	115.25	5738287.79	567459.86
690	40.79	154.83	637.15	-604.33	-172.61	116.65	5738284.84	567461.26
695	40.82	155	640.94	-608.12	-175.57	118.03	5738281.88	567462.64
700	40.85	155.18	644.72	-611.9	-178.54	119.41	5738278.92	567464.02
705	40.88	155.35	648.5	-615.68	-181.51	120.77	5738275.94	567465.38
710	40.9	155.53	652.28	-619.46	-184.48	122.14	5738272.97	567466.75
715	41.05	155.7	656.05	-623.23	-187.48	123.49	5738269.98	567468.1
720	41.21	155.88	659.82	-627	-190.47	124.84	5738266.98	567469.45
725	41.31	156.06	663.58	-630.76	-193.49	126.18	5738263.97	567470.79
730	41.42	156.25	667.33	-634.51	-196.5	127.52	5738260.95	567472.13
735	41.53	156.45	671.08	-638.26	-199.54	128.84	5738257.91	567473.45
740	41.63	156.66	674.82	-642	-202.58	130.16	5738254.87	567474.78
745	41.84	156.96	678.54	-645.72	-205.65	131.47	5738251.8	567476.08
750	42.06	157.26	682.27	-649.45	-208.72	132.78	5738248.73	567477.39
755	42.76	157.26	685.94	-653.12	-211.85	134.09	5738245.6	567478.7
760	43.45	157.26	689.61	-656.79	-214.98	135.4	5738242.47	567480.01
765	44.15	157.26	693.2	-660.38	-218.19	136.75	5738239.26	567481.36
770	44.84	157.26	696.79	-663.97	-221.41	138.09	5738236.05	567482.7
775	45.53	157.26	700.29	-667.47	-224.7	139.47	5738232.76	567484.08
780	46.23	157.26	703.79	-670.97	-227.99	140.85	5738229.47	567485.46
785	47.17	157.38	707.19	-674.37	-231.37	142.26	5738226.08	567486.87
790	48.12	157.49	710.59	-677.77	-234.76	143.67	5738222.7	567488.28
795	49.08	157.61	713.86	-681.04	-238.25	145.11	5738219.2	567489.72
800	50.03	157.74	717.14	-684.32	-241.74	146.55	5738215.71	567491.16
805	50.98	157.85	720.29	-687.47	-245.34	148.01	5738212.11	567492.62

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
810	51.92	157.96	723.43	-690.61	-248.94	149.48	5738208.52	567494.09
815	52.68	157.96	726.47	-693.65	-252.62	150.97	5738204.83	567495.58
820	53.44	157.96	729.5	-696.68	-256.31	152.46	5738201.14	567497.07
825	54.18	158.05	732.42	-699.6	-260.07	153.98	5738197.38	567498.59
830	54.92	158.15	735.35	-702.53	-263.83	155.49	5738193.62	567500.1
835	55.64	158.16	738.17	-705.35	-267.66	157.03	5738189.79	567501.64
840	56.35	158.17	741	-708.17	-271.49	158.56	5738185.96	567503.17
845	57	157.69	743.72	-710.9	-275.37	160.15	5738182.08	567504.77
850	57.65	157.22	746.44	-713.62	-279.25	161.75	5738178.2	567506.36
855	57.83	157.24	749.1	-716.28	-283.15	163.38	5738174.3	567508
860	58	157.25	751.77	-718.95	-287.06	165.02	5738170.4	567509.63
865	58	157.44	754.42	-721.6	-290.97	166.65	5738166.48	567511.26
870	58	157.64	757.07	-724.25	-294.89	168.27	5738162.57	567512.89
875	57.75	157.55	759.73	-726.91	-298.8	169.89	5738158.66	567514.5
880	57.51	157.46	762.4	-729.58	-302.7	171.5	5738154.75	567516.12
885	57.25	157.36	765.11	-732.29	-306.59	173.12	5738150.87	567517.73
890	56.99	157.27	767.81	-734.99	-310.47	174.74	5738146.99	567519.35
895	56.88	157.46	770.54	-737.72	-314.33	176.35	5738143.12	567520.96
900	56.76	157.66	773.27	-740.45	-318.2	177.95	5738139.25	567522.56
905	56.48	157.69	776.04	-743.22	-322.06	179.53	5738135.39	567524.14
910	56.2	157.73	778.8	-745.98	-325.92	181.11	5738131.54	567525.73
915	56.17	158	781.58	-748.76	-329.77	182.67	5738127.69	567527.28
920	56.15	158.27	784.36	-751.54	-333.62	184.23	5738123.84	567528.84
925	56	158.28	787.16	-754.34	-337.47	185.76	5738119.98	567530.37
930	55.85	158.3	789.96	-757.14	-341.32	187.29	5738116.13	567531.9
935	55.7	158.31	792.77	-759.95	-345.16	188.82	5738112.3	567533.43
940	55.54	158.33	795.59	-762.77	-349	190.35	5738108.46	567534.96
945	55.43	158.29	798.43	-765.61	-352.82	191.87	5738104.63	567536.48
950	55.32	158.26	801.27	-768.45	-356.65	193.39	5738100.81	567538
955	55.34	158.11	804.11	-771.29	-360.46	194.92	5738096.99	567539.54
960	55.37	157.96	806.95	-774.13	-364.28	196.46	5738093.18	567541.07
965	55.33	157.91	809.8	-776.98	-368.09	198	5738089.36	567542.62
970	55.3	157.86	812.64	-779.82	-371.9	199.55	5738085.55	567544.16
975	55.3	157.76	815.49	-782.67	-375.7	201.11	5738081.75	567545.72
980	55.3	157.66	818.33	-785.51	-379.51	202.66	5738077.94	567547.27
985	55.3	157.66	821.18	-788.36	-383.31	204.23	5738074.14	567548.84
990	55.3	157.66	824.03	-791.21	-387.11	205.79	5738070.34	567550.4
995	55.34	157.56	826.87	-794.05	-390.92	207.36	5738066.54	567551.97
1000	55.39	157.47	829.71	-796.89	-394.72	208.93	5738062.74	567553.54
1005	55.45	157.46	832.55	-799.73	-398.52	210.51	5738058.93	567555.12
1010	55.5	157.46	835.38	-802.56	-402.32	212.08	5738055.13	567556.69
1015	55.54	157.56	838.21	-805.39	-406.14	213.66	5738051.32	567558.27
1020	55.58	157.66	841.04	-808.22	-409.95	215.23	5738047.51	567559.84
1025	55.66	157.66	843.86	-811.04	-413.76	216.8	5738043.69	567561.41
1030	55.74	157.66	846.68	-813.86	-417.58	218.37	5738039.87	567562.98
1035	55.83	157.47	849.49	-816.67	-421.4	219.95	5738036.05	567564.57
1040	55.91	157.28	852.3	-819.48	-425.22	221.54	5738032.23	567566.15
1045	55.99	156.96	855.1	-822.28	-429.04	223.16	5738028.41	567567.77
1050	56.08	156.65	857.89	-825.07	-432.85	224.78	5738024.6	567569.4
1055	56.16	156.34	860.68	-827.86	-436.66	226.45	5738020.8	567571.06
1060	56.25	156.03	863.46	-830.64	-440.46	228.12	5738016.99	567572.73
1065	56.31	155.83	866.23	-833.41	-444.26	229.82	5738013.2	567574.43
1070	56.38	155.63	869.01	-836.19	-448.05	231.52	5738009.4	567576.13
1075	56.48	155.5	871.77	-838.95	-451.85	233.25	5738005.61	567577.86
1080	56.57	155.37	874.53	-841.71	-455.64	234.98	5738001.81	567579.59
1085	56.67	155.24	877.28	-844.46	-459.43	236.73	5737998.02	567581.34
1090	56.77	155.12	880.02	-847.2	-463.23	238.48	5737994.23	567583.09
1095	56.88	155	882.76	-849.94	-467.02	240.25	5737990.43	567584.86

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1100	56.98	154.88	885.49	-852.67	-470.82	242.02	5737986.64	567586.63
1105	57.04	154.69	888.21	-855.39	-474.61	243.81	5737982.84	567588.42
1110	57.1	154.51	890.93	-858.11	-478.4	245.61	5737979.05	567590.22
1115	57.15	154.32	893.64	-860.82	-482.19	247.43	5737975.27	567592.04
1120	57.2	154.13	896.36	-863.53	-485.97	249.25	5737971.48	567593.86
1125	57.26	153.94	899.06	-866.24	-489.75	251.09	5737967.7	567595.7
1130	57.31	153.75	901.76	-868.94	-493.53	252.94	5737963.92	567597.55
1135	57.38	153.63	904.46	-871.64	-497.3	254.81	5737960.15	567599.42
1140	57.45	153.51	907.15	-874.33	-501.07	256.68	5737956.38	567601.29
1145	57.52	153.38	909.84	-877.02	-504.85	258.57	5737952.61	567603.18
1150	57.58	153.26	912.52	-879.7	-508.62	260.46	5737948.84	567605.07
1155	57.64	153.13	915.2	-882.38	-512.38	262.37	5737945.07	567606.98
1160	57.71	153	917.88	-885.06	-516.15	264.28	5737941.3	567608.89
1165	57.73	152.82	920.55	-887.73	-519.91	266.21	5737937.54	567610.82
1170	57.74	152.65	923.22	-890.4	-523.67	268.14	5737933.78	567612.75
1175	57.76	152.47	925.88	-893.06	-527.42	270.09	5737930.03	567614.71
1180	57.78	152.3	928.55	-895.73	-531.17	272.05	5737926.28	567616.66
1185	57.76	152.11	931.22	-898.4	-534.91	274.03	5737922.54	567618.64
1190	57.74	151.93	933.89	-901.07	-538.65	276	5737918.8	567620.62
1195	57.66	151.74	936.56	-903.74	-542.37	278.01	5737915.08	567622.62
1200	57.57	151.55	939.24	-906.42	-546.09	280.01	5737911.36	567624.62
1205	57.48	151.36	941.92	-909.1	-549.79	282.03	5737907.66	567626.64
1210	57.4	151.17	944.61	-911.79	-553.49	284.05	5737903.96	567628.66
1215	57.35	150.95	947.31	-914.49	-557.17	286.09	5737900.28	567630.7
1220	57.3	150.74	950.01	-917.19	-560.85	288.13	5737896.6	567632.75
1225	57.3	150.5	952.71	-919.89	-564.52	290.21	5737892.94	567634.82
1230	57.3	150.25	955.41	-922.59	-568.18	292.28	5737889.28	567636.89
1235	57.3	150.01	958.11	-925.29	-571.82	294.38	5737885.63	567638.99
1240	57.3	149.77	960.81	-927.99	-575.47	296.49	5737881.99	567641.1
1245	57.3	149.84	963.51	-930.69	-579.1	298.6	5737878.35	567643.21
1250	57.3	149.92	966.21	-933.39	-582.74	300.71	5737874.71	567645.32
1255	57.3	150.23	968.91	-936.09	-586.39	302.8	5737871.06	567647.41
1260	57.3	150.54	971.62	-938.8	-590.05	304.89	5737867.41	567649.5
1265	57.3	150.85	974.32	-941.5	-593.72	306.94	5737863.73	567651.55
1270	57.3	151.17	977.02	-944.2	-597.4	308.99	5737860.06	567653.6
1275	57.33	150.96	979.72	-946.9	-601.08	311.03	5737856.38	567655.64
1280	57.35	150.75	982.42	-949.6	-604.75	313.08	5737852.7	567657.69
1285	57.39	150.31	985.11	-952.29	-608.41	315.16	5737849.04	567659.77
1290	57.42	149.87	987.81	-954.99	-612.07	317.25	5737845.38	567661.86
1295	57.45	149.42	990.5	-957.68	-615.7	319.39	5737841.75	567664
1300	57.49	148.98	993.19	-960.37	-619.33	321.54	5737838.12	567666.15
1305	57.51	148.61	995.87	-963.05	-622.93	323.73	5737834.52	567668.34
1310	57.53	148.24	998.56	-965.74	-626.53	325.93	5737830.92	567670.54
1315	57.55	147.88	1001.24	-968.42	-630.1	328.17	5737827.35	567672.78
1320	57.56	147.51	1003.92	-971.1	-633.68	330.42	5737823.78	567675.03
1325	57.58	147.14	1006.61	-973.79	-637.22	332.71	5737820.23	567677.32
1330	57.6	146.78	1009.29	-976.47	-640.77	334.99	5737816.69	567679.61
1335	57.65	146.77	1011.96	-979.14	-644.3	337.31	5737813.15	567681.92
1340	57.7	146.76	1014.64	-981.82	-647.83	339.62	5737809.62	567684.24
1345	57.76	146.76	1017.3	-984.48	-651.37	341.94	5737806.08	567686.55
1350	57.81	146.76	1019.97	-987.15	-654.91	344.26	5737802.55	567688.87
1355	57.86	146.76	1022.63	-989.81	-658.45	346.58	5737799.01	567691.19
1360	57.91	146.76	1025.29	-992.47	-661.99	348.9	5737795.46	567693.51
1365	57.97	146.76	1027.94	-995.12	-665.53	351.23	5737791.92	567695.84
1370	58.02	146.76	1030.6	-997.78	-669.08	353.55	5737788.37	567698.16
1375	58.07	146.76	1033.24	-1000.42	-672.63	355.87	5737784.83	567700.49
1380	58.12	146.76	1035.89	-1003.07	-676.18	358.2	5737781.28	567702.81
1385	58.17	146.77	1038.52	-1005.7	-679.73	360.53	5737777.72	567705.14

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1390	58.22	146.78	1041.16	-1008.34	-683.28	362.86	5737774.17	567707.47
1395	58.25	146.83	1043.79	-1010.97	-686.84	365.18	5737770.61	567709.79
1400	58.29	146.89	1046.42	-1013.6	-690.4	367.51	5737767.05	567712.12
1405	58.33	146.94	1049.05	-1016.23	-693.97	369.83	5737763.48	567714.44
1410	58.36	146.99	1051.67	-1018.85	-697.54	372.15	5737759.92	567716.76
1415	58.38	147.02	1054.29	-1021.47	-701.11	374.47	5737756.35	567719.08
1420	58.41	147.06	1056.91	-1024.09	-704.68	376.79	5737752.77	567721.4
1425	58.43	147.06	1059.53	-1026.71	-708.26	379.1	5737749.2	567723.71
1430	58.45	147.06	1062.15	-1029.33	-711.83	381.42	5737745.62	567726.03
1435	58.47	147.06	1064.77	-1031.95	-715.41	383.74	5737742.05	567728.35
1440	58.48	147.06	1067.38	-1034.56	-718.98	386.05	5737738.47	567730.66
1445	58.5	147.09	1069.99	-1037.17	-722.56	388.37	5737734.89	567732.98
1450	58.52	147.13	1072.61	-1039.79	-726.14	390.69	5737731.31	567735.3
1455	58.53	147.2	1075.22	-1042.4	-729.73	393	5737727.73	567737.61
1460	58.55	147.27	1077.83	-1045.01	-733.31	395.31	5737724.14	567739.92
1465	58.57	147.34	1080.43	-1047.61	-736.9	397.61	5737720.55	567742.22
1470	58.59	147.41	1083.04	-1050.22	-740.5	399.91	5737716.96	567744.52
1475	58.62	147.47	1085.64	-1052.82	-744.09	402.21	5737713.36	567746.82
1480	58.64	147.53	1088.25	-1055.43	-747.69	404.5	5737709.76	567749.11
1485	58.67	147.58	1090.85	-1058.03	-751.3	406.79	5737706.16	567751.4
1490	58.71	147.63	1093.45	-1060.63	-754.9	409.08	5737702.55	567753.69
1495	58.75	147.68	1096.04	-1063.22	-758.52	411.37	5737698.94	567755.98
1500	58.78	147.73	1098.63	-1065.82	-762.13	413.65	5737695.33	567758.26
1505	58.83	147.75	1101.22	-1068.4	-765.75	415.94	5737691.71	567760.55
1510	58.88	147.76	1103.81	-1070.99	-769.36	418.22	5737688.09	567762.83
1515	58.93	147.76	1106.39	-1073.57	-772.99	420.5	5737684.47	567765.11
1520	58.98	147.76	1108.97	-1076.15	-776.61	422.79	5737680.84	567767.4
1525	59.03	147.76	1111.54	-1078.72	-780.24	425.08	5737677.22	567769.69
1530	59.09	147.76	1114.12	-1081.3	-783.86	427.36	5737673.59	567771.97
1535	59.03	147.88	1116.69	-1083.87	-787.49	429.64	5737669.96	567774.25
1540	58.97	148.01	1119.26	-1086.44	-791.12	431.92	5737666.33	567776.53
1545	58.9	148.15	1121.85	-1089.03	-794.76	434.18	5737662.69	567778.79
1550	58.83	148.3	1124.43	-1091.61	-798.4	436.44	5737659.06	567781.05
1555	58.75	148.42	1127.02	-1094.2	-802.04	438.68	5737655.41	567783.29
1560	58.68	148.55	1129.62	-1096.8	-805.68	440.91	5737651.77	567785.53
1565	58.54	148.48	1132.22	-1099.4	-809.32	443.14	5737648.14	567787.76
1570	58.4	148.41	1134.83	-1102.01	-812.95	445.37	5737644.5	567789.99
1575	58.26	148.34	1137.46	-1104.64	-816.57	447.61	5737640.88	567792.22
1580	58.12	148.27	1140.09	-1107.27	-820.19	449.84	5737637.26	567794.45
1585	58.01	148.24	1142.74	-1109.92	-823.8	452.07	5737633.66	567796.68
1590	57.9	148.21	1145.39	-1112.57	-827.4	454.3	5737630.05	567798.91
1595	57.9	148.33	1148.05	-1115.23	-831.01	456.53	5737626.45	567801.14
1600	57.9	148.46	1150.71	-1117.89	-834.61	458.75	5737622.84	567803.36
1605	57.9	148.58	1153.36	-1120.54	-838.23	460.96	5737619.23	567805.57
1610	57.9	148.7	1156.02	-1123.2	-841.84	463.17	5737615.61	567807.78
1615	57.92	148.76	1158.67	-1125.86	-845.46	465.36	5737611.99	567809.97
1620	57.95	148.82	1161.33	-1128.51	-849.09	467.56	5737608.37	567812.17
1625	58.02	148.77	1163.98	-1131.16	-852.71	469.76	5737604.74	567814.37
1630	58.09	148.72	1166.63	-1133.81	-856.34	471.96	5737601.11	567816.57
1635	58.16	148.66	1169.26	-1136.44	-859.97	474.17	5737597.48	567818.78
1640	58.23	148.61	1171.9	-1139.08	-863.6	476.38	5737593.86	567820.99
1645	58.25	148.55	1174.53	-1141.71	-867.22	478.59	5737590.23	567823.21
1650	58.27	148.49	1177.16	-1144.34	-870.85	480.81	5737586.6	567825.42
1655	58.23	148.42	1179.8	-1146.98	-874.47	483.04	5737582.98	567827.65
1660	58.2	148.35	1182.43	-1149.61	-878.09	485.26	5737579.36	567829.88
1665	58.17	148.28	1185.07	-1152.25	-881.71	487.5	5737575.75	567832.11
1670	58.13	148.21	1187.7	-1154.88	-885.32	489.73	5737572.13	567834.34
1675	58.14	148.19	1190.34	-1157.52	-888.93	491.97	5737568.52	567836.58

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1680	58.16	148.16	1192.98	-1160.16	-892.54	494.21	5737564.92	567838.82
1685	58.22	148.16	1195.61	-1162.79	-896.15	496.45	5737561.3	567841.06
1690	58.27	148.16	1198.25	-1165.43	-899.76	498.69	5737557.69	567843.31
1695	58.32	148.16	1200.87	-1168.05	-903.37	500.94	5737554.08	567845.55
1700	58.37	148.16	1203.5	-1170.68	-906.99	503.18	5737550.46	567847.79
1705	58.31	148.07	1206.13	-1173.31	-910.6	505.43	5737546.85	567850.04
1710	58.25	147.98	1208.75	-1175.93	-914.21	507.68	5737543.24	567852.29
1715	58.14	147.86	1211.39	-1178.57	-917.81	509.94	5737539.65	567854.55
1720	58.04	147.74	1214.03	-1181.21	-921.4	512.2	5737536.05	567856.81
1725	57.94	147.61	1216.69	-1183.87	-924.98	514.47	5737532.47	567859.08
1730	57.83	147.49	1219.34	-1186.52	-928.56	516.74	5737528.89	567861.35
1735	57.75	147.58	1222.01	-1189.19	-932.13	519.01	5737525.32	567863.62
1740	57.68	147.67	1224.67	-1191.86	-935.7	521.28	5737521.75	567865.89
1745	57.61	147.79	1227.35	-1194.53	-939.27	523.53	5737518.18	567868.14
1750	57.54	147.91	1230.03	-1197.21	-942.84	525.78	5737514.61	567870.39
1755	57.47	148.03	1232.72	-1199.9	-946.42	528.01	5737511.03	567872.62
1760	57.4	148.15	1235.41	-1202.59	-950	530.24	5737507.46	567874.85
1765	57.36	148.27	1238.11	-1205.29	-953.58	532.46	5737503.88	567877.07
1770	57.33	148.4	1240.8	-1207.98	-957.16	534.67	5737500.3	567879.28
1775	57.3	148.52	1243.5	-1210.68	-960.75	536.87	5737496.71	567881.48
1780	57.26	148.64	1246.2	-1213.38	-964.33	539.06	5737493.12	567883.67
1785	57.22	148.74	1248.91	-1216.09	-967.93	541.24	5737489.53	567885.86
1790	57.19	148.84	1251.62	-1218.8	-971.52	543.43	5737485.93	567888.04
1795	57.14	148.71	1254.33	-1221.51	-975.11	545.61	5737482.34	567890.22
1800	57.09	148.59	1257.05	-1224.23	-978.7	547.79	5737478.75	567892.4
1805	57.03	148.47	1259.77	-1226.95	-982.28	549.98	5737475.18	567894.59
1810	56.98	148.35	1262.49	-1229.67	-985.85	552.18	5737471.6	567896.79
1815	56.95	148.29	1265.21	-1232.39	-989.42	554.38	5737468.04	567898.99
1820	56.92	148.24	1267.94	-1235.12	-992.98	556.58	5737464.47	567901.19
1825	56.95	148.44	1270.67	-1237.85	-996.55	558.77	5737460.9	567903.39
1830	56.99	148.63	1273.39	-1240.57	-1000.13	560.97	5737457.33	567905.58
1835	57.03	148.82	1276.11	-1243.29	-1003.71	563.14	5737453.74	567907.75
1840	57.06	149.02	1278.84	-1246.02	-1007.3	565.31	5737450.15	567909.92
1845	57.08	149.19	1281.55	-1248.73	-1010.91	567.46	5737446.55	567912.07
1850	57.1	149.35	1284.27	-1251.45	-1014.51	569.61	5737442.94	567914.22
1855	57.1	149.47	1286.99	-1254.17	-1018.13	571.74	5737439.33	567916.35
1860	57.1	149.6	1289.7	-1256.88	-1021.74	573.88	5737435.71	567918.49
1865	57.1	149.72	1292.42	-1259.6	-1025.37	575.99	5737432.08	567920.6
1870	57.1	149.84	1295.13	-1262.31	-1029	578.11	5737428.46	567922.72
1875	57.12	149.92	1297.85	-1265.03	-1032.63	580.21	5737424.82	567924.83
1880	57.14	150.01	1300.56	-1267.74	-1036.26	582.32	5737421.19	567926.93
1885	57.17	150.06	1303.27	-1270.45	-1039.9	584.41	5737417.55	567929.03
1890	57.2	150.12	1305.98	-1273.16	-1043.54	586.51	5737413.91	567931.12
1895	57.23	150.17	1308.69	-1275.87	-1047.19	588.6	5737410.26	567933.21
1900	57.27	150.22	1311.4	-1278.58	-1050.84	590.69	5737406.61	567935.31
1905	57.3	150.13	1314.1	-1281.28	-1054.49	592.79	5737402.97	567937.4
1910	57.32	150.04	1316.8	-1283.98	-1058.14	594.88	5737399.32	567939.5
1915	57.34	149.86	1319.5	-1286.68	-1061.78	597	5737395.68	567941.61
1920	57.36	149.68	1322.19	-1289.38	-1065.42	599.11	5737392.04	567943.72
1925	57.38	149.5	1324.89	-1292.07	-1069.05	601.25	5737388.41	567945.86
1930	57.39	149.32	1327.59	-1294.77	-1072.67	603.39	5737384.78	567948
1935	57.42	149.5	1330.28	-1297.46	-1076.3	605.53	5737381.15	567950.14
1940	57.46	149.67	1332.97	-1300.15	-1079.93	607.66	5737377.52	567952.28
1945	57.5	149.91	1335.66	-1302.84	-1083.58	609.78	5737373.87	567954.39
1950	57.53	150.16	1338.35	-1305.53	-1087.23	611.89	5737370.22	567956.5
1955	57.56	150.4	1341.03	-1308.21	-1090.9	613.98	5737366.55	567958.59
1960	57.6	150.65	1343.71	-1310.89	-1094.57	616.06	5737362.88	567960.67
1965	57.55	150.77	1346.39	-1313.57	-1098.25	618.12	5737359.2	567962.73

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1970	57.5	150.9	1349.07	-1316.25	-1101.93	620.18	5737355.52	567964.79
1975	57.45	151.02	1351.76	-1318.94	-1105.62	622.22	5737351.83	567966.83
1980	57.39	151.15	1354.45	-1321.63	-1109.31	624.26	5737348.15	567968.87
1985	57.34	151.24	1357.15	-1324.33	-1113	626.29	5737344.46	567970.9
1990	57.28	151.33	1359.85	-1327.03	-1116.69	628.31	5737340.76	567972.93
1995	57.21	151.2	1362.56	-1329.74	-1120.37	630.34	5737337.08	567974.95
2000	57.14	151.08	1365.27	-1332.45	-1124.06	632.36	5737333.4	567976.97
2005	57.07	150.96	1367.99	-1335.17	-1127.72	634.4	5737329.73	567979.01
2010	57	150.84	1370.7	-1337.88	-1131.39	636.44	5737326.06	567981.05
2015	56.95	150.72	1373.43	-1340.61	-1135.05	638.49	5737322.4	567983.1
2020	56.9	150.6	1376.16	-1343.34	-1138.71	640.54	5737318.75	567985.15
2025	56.9	150.48	1378.89	-1346.07	-1142.35	642.6	5737315.1	567987.21
2030	56.9	150.36	1381.62	-1348.8	-1145.99	644.66	5737311.46	567989.28
2035	56.9	150.23	1384.35	-1351.53	-1149.63	646.74	5737307.82	567991.36
2040	56.9	150.11	1387.08	-1354.26	-1153.27	648.82	5737304.19	567993.43
2045	56.91	149.99	1389.81	-1356.99	-1156.89	650.92	5737300.56	567995.53
2050	56.91	149.87	1392.54	-1359.72	-1160.52	653.01	5737296.93	567997.62
2055	56.93	149.75	1395.27	-1362.45	-1164.14	655.12	5737293.31	567999.74
2060	56.95	149.63	1398	-1365.18	-1167.76	657.24	5737289.69	568001.85
2065	56.97	149.5	1400.72	-1367.9	-1171.37	659.36	5737286.08	568003.97
2070	56.98	149.38	1403.45	-1370.63	-1174.98	661.49	5737282.47	568006.1
2075	57.01	149.38	1406.17	-1373.35	-1178.59	663.62	5737278.86	568008.24
2080	57.04	149.38	1408.89	-1376.07	-1182.2	665.76	5737275.25	568010.37
2085	57.08	149.5	1411.61	-1378.79	-1185.82	667.89	5737271.64	568012.5
2090	57.11	149.63	1414.33	-1381.51	-1189.43	670.02	5737268.02	568014.63
2095	57.14	149.75	1417.04	-1384.22	-1193.06	672.14	5737264.39	568016.75
2100	57.18	149.88	1419.75	-1386.93	-1196.69	674.25	5737260.76	568018.86
2105	57.16	149.79	1422.46	-1389.64	-1200.32	676.37	5737257.13	568020.98
2110	57.15	149.7	1425.18	-1392.36	-1203.95	678.48	5737253.5	568023.09
2115	57.11	149.5	1427.89	-1395.07	-1207.57	680.61	5737249.88	568025.22
2120	57.08	149.31	1430.61	-1397.79	-1211.19	682.74	5737246.26	568027.35
2125	57.05	149.11	1433.33	-1400.51	-1214.79	684.89	5737242.66	568029.51
2130	57.01	148.92	1436.05	-1403.23	-1218.39	687.05	5737239.06	568031.66
2135	57.02	148.95	1438.77	-1405.95	-1221.98	689.21	5737235.47	568033.82
2140	57.03	148.98	1441.49	-1408.67	-1225.58	691.38	5737231.88	568035.99
2145	57.05	149.05	1444.21	-1411.39	-1229.17	693.53	5737228.28	568038.14
2150	57.06	149.12	1446.93	-1414.11	-1232.77	695.69	5737224.68	568040.3
2155	57.08	149.19	1449.65	-1416.83	-1236.38	697.84	5737221.08	568042.45
2160	57.1	149.26	1452.36	-1419.54	-1239.98	699.99	5737217.47	568044.6
2165	57.14	149.31	1455.08	-1422.26	-1243.59	702.13	5737213.86	568046.75
2170	57.17	149.36	1457.79	-1424.97	-1247.21	704.28	5737210.25	568048.89
2175	57.2	149.41	1460.5	-1427.68	-1250.82	706.42	5737206.63	568051.03
2180	57.24	149.47	1463.21	-1430.39	-1254.44	708.55	5737203.01	568053.17
2185	57.28	149.51	1465.91	-1433.09	-1258.07	710.69	5737199.39	568055.3
2190	57.31	149.56	1468.61	-1435.79	-1261.69	712.82	5737195.76	568057.43
2195	57.37	149.56	1471.31	-1438.49	-1265.32	714.96	5737192.13	568059.57
2200	57.42	149.56	1474.01	-1441.19	-1268.95	717.09	5737188.5	568061.7
2205	57.47	149.56	1476.69	-1443.87	-1272.59	719.22	5737184.87	568063.84
2210	57.52	149.56	1479.38	-1446.56	-1276.22	721.36	5737181.23	568065.97
2215	57.55	149.55	1482.07	-1449.25	-1279.86	723.5	5737177.59	568068.11
2220	57.58	149.54	1484.75	-1451.93	-1283.5	725.64	5737173.96	568070.25
2225	57.52	149.48	1487.43	-1454.61	-1287.13	727.78	5737170.32	568072.39
2230	57.47	149.43	1490.12	-1457.3	-1290.76	729.92	5737166.69	568074.53
2235	57.45	149.55	1492.8	-1459.98	-1294.42	732.02	5737163.03	568076.63
2240	57.61	150.41	1495.44	-1462.62	-1298.21	733.93	5737159.25	568078.54
2245	57.76	151.27	1498.09	-1465.27	-1301.99	735.84	5737155.46	568080.45
2250	57.92	152.13	1500.73	-1467.91	-1305.78	737.75	5737151.68	568082.36
2255	58.07	152.99	1503.38	-1470.56	-1309.56	739.67	5737147.89	568084.28

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2260	58.23	153.85	1506.02	-1473.2	-1313.35	741.58	5737144.11	568086.19
2265	58.38	154.71	1508.67	-1475.85	-1317.13	743.49	5737140.32	568088.1
2270	58.54	155.56	1511.31	-1478.49	-1320.92	745.4	5737136.54	568090.01
2275	58.69	156.42	1513.96	-1481.14	-1324.7	747.31	5737132.75	568091.92
2280	58.82	157.14	1516.57	-1483.75	-1328.56	749.1	5737128.9	568093.71
2285	58.9	157.62	1519.15	-1486.33	-1332.54	750.69	5737124.91	568095.3
2290	58.99	158.09	1521.72	-1488.9	-1336.53	752.27	5737120.93	568096.88
2295	59.07	158.57	1524.29	-1491.47	-1340.51	753.85	5737116.94	568098.46
2300	59.15	159.04	1526.87	-1494.05	-1344.49	755.43	5737112.96	568100.04
2305	59.24	159.52	1529.44	-1496.62	-1348.48	757.01	5737108.98	568101.62
2310	59.2	159.88	1532.02	-1499.2	-1352.49	758.5	5737104.96	568103.11
2315	59.07	160.17	1534.6	-1501.78	-1356.53	759.93	5737100.92	568104.54
2320	58.95	160.45	1537.18	-1504.36	-1360.57	761.36	5737096.89	568105.97
2325	58.83	160.74	1539.76	-1506.94	-1364.6	762.78	5737092.85	568107.39
2330	58.71	161.02	1542.34	-1509.52	-1368.64	764.21	5737088.81	568108.82
2335	58.58	161.31	1544.93	-1512.11	-1372.68	765.64	5737084.78	568110.25
2340	58.63	161.88	1547.51	-1514.69	-1376.76	766.91	5737080.69	568111.52
2345	58.72	162.52	1550.1	-1517.28	-1380.86	768.15	5737076.6	568112.76
2350	58.82	163.16	1552.69	-1519.87	-1384.95	769.38	5737072.5	568113.99
2355	58.91	163.79	1555.28	-1522.46	-1389.04	770.62	5737068.41	568115.23
2360	59	164.43	1557.87	-1525.05	-1393.14	771.86	5737064.32	568116.47
2365	59.1	165.08	1560.46	-1527.64	-1397.24	773.07	5737060.21	568117.68
2370	59.3	165.81	1562.98	-1530.16	-1401.45	774.03	5737056.01	568118.64
2375	59.51	166.54	1565.51	-1532.69	-1405.65	774.99	5737051.8	568119.6
2380	59.71	167.27	1568.03	-1535.21	-1409.86	775.95	5737047.6	568120.56
2385	59.92	168	1570.56	-1537.74	-1414.06	776.91	5737043.39	568121.53
2390	60.12	168.73	1573.08	-1540.26	-1418.27	777.87	5737039.18	568122.49
2395	60.25	169.34	1575.6	-1542.78	-1422.5	778.76	5737034.95	568123.37
2400	60.23	169.73	1578.08	-1545.26	-1426.78	779.49	5737030.68	568124.1
2405	60.21	170.12	1580.57	-1547.75	-1431.05	780.22	5737026.4	568124.83
2410	60.18	170.51	1583.05	-1550.23	-1435.33	780.95	5737022.13	568125.56
2415	60.16	170.9	1585.54	-1552.72	-1439.6	781.68	5737017.85	568126.29
2420	60.14	171.29	1588.02	-1555.2	-1443.88	782.41	5737013.57	568127.02
2425	60.16	171.91	1590.51	-1557.69	-1448.18	782.98	5737009.27	568127.59
2430	60.22	172.64	1592.99	-1560.17	-1452.49	783.47	5737004.96	568128.08
2435	60.27	173.37	1595.46	-1562.64	-1456.81	783.96	5737000.65	568128.57
2440	60.32	174.09	1597.94	-1565.12	-1461.12	784.45	5736996.33	568129.06
2445	60.37	174.82	1600.42	-1567.6	-1465.43	784.94	5736992.02	568129.55
2450	60.43	175.55	1602.9	-1570.08	-1469.75	785.42	5736987.71	568130.04
2455	60.55	176.02	1605.35	-1572.53	-1474.1	785.68	5736983.35	568130.3
2460	60.68	176.47	1607.79	-1574.97	-1478.46	785.92	5736978.99	568130.53
2465	60.81	176.91	1610.22	-1577.4	-1482.82	786.16	5736974.64	568130.77
2470	60.95	177.36	1612.66	-1579.84	-1487.17	786.4	5736970.28	568131.01
2475	61.08	177.8	1615.1	-1582.28	-1491.53	786.63	5736965.92	568131.25
2480	61.25	178.22	1617.52	-1584.7	-1495.9	786.83	5736961.55	568131.44
2485	61.55	178.57	1619.86	-1587.04	-1500.32	786.9	5736957.14	568131.51
2490	61.84	178.92	1622.21	-1589.39	-1504.73	786.96	5736952.72	568131.57
2495	62.14	179.26	1624.56	-1591.74	-1509.15	787.03	5736948.31	568131.64
2500	62.44	179.61	1626.9	-1594.08	-1513.56	787.09	5736943.89	568131.7
2505	62.73	179.96	1629.25	-1596.43	-1517.98	787.16	5736939.48	568131.77
2510	62.88	180.14	1631.56	-1598.74	-1522.41	787.19	5736935.04	568131.8
2515	62.89	180.15	1633.83	-1601.01	-1526.86	787.17	5736930.59	568131.78
2520	62.9	180.16	1636.11	-1603.29	-1531.31	787.16	5736926.14	568131.77
2525	62.9	180.17	1638.39	-1605.57	-1535.76	787.15	5736921.69	568131.76
2530	62.91	180.18	1640.67	-1607.85	-1540.22	787.14	5736917.24	568131.75
2535	62.92	180.2	1642.95	-1610.13	-1544.67	787.12	5736912.79	568131.73
2540	62.86	180.13	1645.24	-1612.42	-1549.11	787.12	5736908.34	568131.73
2545	62.77	180.03	1647.53	-1614.71	-1553.55	787.13	5736903.9	568131.74

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2550	62.68	179.94	1649.83	-1617.01	-1558	787.13	5736899.46	568131.75
2555	62.59	179.84	1652.12	-1619.3	-1562.44	787.14	5736895.02	568131.75
2560	62.5	179.74	1654.42	-1621.6	-1566.88	787.15	5736890.57	568131.76
2565	62.41	179.65	1656.72	-1623.9	-1571.32	787.15	5736886.13	568131.76
2570	62.33	179.64	1659.05	-1626.23	-1575.74	787.18	5736881.71	568131.79
2575	62.24	179.64	1661.39	-1628.57	-1580.16	787.21	5736877.29	568131.82
2580	62.16	179.63	1663.72	-1630.9	-1584.58	787.24	5736872.87	568131.85
2585	62.07	179.63	1666.05	-1633.23	-1589.01	787.27	5736868.45	568131.88
2590	61.98	179.62	1668.39	-1635.57	-1593.43	787.29	5736864.03	568131.91
2595	61.95	179.62	1670.72	-1637.9	-1597.85	787.32	5736859.6	568131.93
2600	62.07	179.61	1673.05	-1640.23	-1602.27	787.35	5736855.18	568131.96
2605	62.18	179.6	1675.38	-1642.56	-1606.7	787.38	5736850.75	568132
2610	62.3	179.6	1677.7	-1644.88	-1611.12	787.42	5736846.33	568132.03
2615	62.42	179.59	1680.03	-1647.21	-1615.55	787.45	5736841.9	568132.06
2620	62.53	179.58	1682.36	-1649.54	-1619.97	787.48	5736837.48	568132.09
2625	62.53	179.58	1684.69	-1651.87	-1624.4	787.51	5736833.05	568132.12
2630	62.41	179.59	1687.02	-1654.2	-1628.82	787.54	5736828.63	568132.15
2635	62.28	179.6	1689.34	-1656.52	-1633.25	787.57	5736824.21	568132.18
2640	62.16	179.61	1691.67	-1658.85	-1637.67	787.6	5736819.78	568132.21
2645	62.04	179.62	1694	-1661.18	-1642.1	787.63	5736815.36	568132.24
2650	61.91	179.63	1696.33	-1663.51	-1646.52	787.66	5736810.93	568132.27
2655	62.03	179.64	1698.65	-1665.83	-1650.95	787.69	5736806.5	568132.3
2660	62.17	179.65	1700.98	-1668.16	-1655.38	787.71	5736802.08	568132.32
2665	62.31	179.66	1703.3	-1670.48	-1659.8	787.74	5736797.65	568132.35
2670	62.46	179.68	1705.62	-1672.8	-1664.23	787.76	5736793.22	568132.38
2675	62.6	179.69	1707.94	-1675.12	-1668.66	787.79	5736788.79	568132.4
2680	62.74	179.69	1710.26	-1677.44	-1673.09	787.82	5736784.36	568132.43
2685	62.81	179.6	1712.54	-1679.72	-1677.54	787.86	5736779.91	568132.47
2690	62.88	179.52	1714.81	-1681.99	-1681.99	787.9	5736775.46	568132.51
2695	62.95	179.43	1717.09	-1684.27	-1686.45	787.95	5736771.01	568132.56
2700	63.02	179.34	1719.36	-1686.54	-1690.9	787.99	5736766.56	568132.6
2705	63.09	179.25	1721.64	-1688.82	-1695.35	788.03	5736762.1	568132.64
2710	63.09	179.22	1723.92	-1691.1	-1699.8	788.08	5736757.65	568132.69
2715	62.99	179.26	1726.2	-1693.38	-1704.25	788.13	5736753.2	568132.74
2720	62.9	179.31	1728.48	-1695.66	-1708.7	788.18	5736748.76	568132.79
2725	62.8	179.35	1730.76	-1697.94	-1713.15	788.23	5736744.31	568132.85
2730	62.7	179.4	1733.05	-1700.23	-1717.6	788.29	5736739.86	568132.9
2735	62.61	179.44	1735.33	-1702.51	-1722.04	788.34	5736735.41	568132.95
2740	62.61	179.42	1737.61	-1704.79	-1726.49	788.39	5736730.96	568133
2745	62.66	179.37	1739.9	-1707.08	-1730.93	788.45	5736726.52	568133.06
2750	62.72	179.31	1742.19	-1709.37	-1735.38	788.5	5736722.08	568133.11
2755	62.78	179.25	1744.49	-1711.67	-1739.82	788.56	5736717.63	568133.17
2760	62.83	179.2	1746.78	-1713.96	-1744.27	788.61	5736713.19	568133.22
2761	62.84	179.19	1747.23	-1714.41	-1745.16	788.62	5736712.3	568133.23
2762	62.86	179.17	1747.69	-1714.87	-1746.04	788.63	5736711.41	568133.24
2763	62.87	179.16	1748.15	-1715.33	-1746.93	788.64	5736710.52	568133.26
2764	62.88	179.15	1748.61	-1715.79	-1747.82	788.66	5736709.63	568133.27
2765	62.89	179.14	1749.07	-1716.25	-1748.71	788.67	5736708.74	568133.28
2766	62.9	179.13	1749.52	-1716.7	-1749.6	788.68	5736707.85	568133.29
2767	62.87	179.12	1749.99	-1717.17	-1750.49	788.69	5736706.97	568133.3
2768	62.85	179.11	1750.45	-1717.63	-1751.37	788.71	5736706.08	568133.32
2769	62.83	179.11	1750.91	-1718.09	-1752.26	788.72	5736705.19	568133.33
2770	62.81	179.1	1751.37	-1718.55	-1753.15	788.74	5736704.3	568133.35
2771	62.78	179.09	1751.83	-1719.01	-1754.04	788.75	5736703.42	568133.36
2772	62.76	179.08	1752.29	-1719.47	-1754.92	788.77	5736702.53	568133.38
2773	62.74	179.08	1752.75	-1719.93	-1755.81	788.78	5736701.64	568133.39
2774	62.72	179.07	1753.21	-1720.39	-1756.7	788.8	5736700.75	568133.41
2775	62.69	179.06	1753.67	-1720.85	-1757.59	788.81	5736699.87	568133.43

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2776	62.67	179.06	1754.13	-1721.31	-1758.47	788.83	5736698.98	568133.44
2777	62.65	179.05	1754.59	-1721.77	-1759.36	788.84	5736698.09	568133.46
2778	62.62	179.04	1755.05	-1722.23	-1760.25	788.86	5736697.2	568133.47
2779	62.6	179.03	1755.51	-1722.69	-1761.14	788.87	5736696.32	568133.49
2780	62.58	179.03	1755.97	-1723.15	-1762.02	788.89	5736695.43	568133.5
2781	62.56	179.02	1756.43	-1723.61	-1762.91	788.9	5736694.54	568133.52
2782	62.53	179.01	1756.89	-1724.07	-1763.8	788.92	5736693.65	568133.53
2783	62.51	179	1757.35	-1724.53	-1764.69	788.93	5736692.77	568133.55
2784	62.49	179	1757.82	-1725	-1765.57	788.95	5736691.88	568133.56
2785	62.47	178.99	1758.28	-1725.46	-1766.46	788.96	5736690.99	568133.58
2786	62.44	178.98	1758.74	-1725.92	-1767.35	788.98	5736690.1	568133.59
2787	62.42	178.98	1759.2	-1726.38	-1768.24	788.99	5736689.22	568133.61
2788	62.4	178.97	1759.66	-1726.84	-1769.12	789.01	5736688.33	568133.62
2789	62.38	178.96	1760.12	-1727.3	-1770.01	789.02	5736687.44	568133.64
2790	62.35	178.95	1760.58	-1727.76	-1770.9	789.04	5736686.56	568133.65
2791	62.33	178.95	1761.04	-1728.22	-1771.79	789.05	5736685.67	568133.67
2792	62.31	178.94	1761.5	-1728.68	-1772.67	789.07	5736684.78	568133.68
2793	62.29	178.93	1761.96	-1729.14	-1773.56	789.09	5736683.89	568133.7
2794	62.26	178.92	1762.42	-1729.6	-1774.45	789.1	5736683.01	568133.71
2795	62.26	178.92	1762.88	-1730.06	-1775.34	789.12	5736682.12	568133.73
2796	62.29	178.92	1763.34	-1730.52	-1776.22	789.13	5736681.23	568133.74
2797	62.32	178.91	1763.8	-1730.98	-1777.11	789.15	5736680.34	568133.76
2798	62.34	178.91	1764.26	-1731.44	-1778	789.17	5736679.45	568133.78
2799	62.37	178.91	1764.72	-1731.9	-1778.89	789.19	5736678.57	568133.8
2800	62.4	178.91	1765.18	-1732.36	-1779.78	789.2	5736677.68	568133.81
2801	62.43	178.9	1765.64	-1732.82	-1780.66	789.22	5736676.79	568133.83
2802	62.45	178.9	1766.1	-1733.28	-1781.55	789.24	5736675.9	568133.85
2803	62.48	178.9	1766.56	-1733.74	-1782.44	789.25	5736675.01	568133.87
2804	62.51	178.9	1767.02	-1734.2	-1783.33	789.27	5736674.13	568133.88
2805	62.54	178.89	1767.48	-1734.66	-1784.22	789.29	5736673.24	568133.9
2806	62.56	178.89	1767.94	-1735.12	-1785.1	789.31	5736672.35	568133.92
2807	62.59	178.89	1768.4	-1735.58	-1785.99	789.32	5736671.46	568133.93
2808	62.62	178.89	1768.86	-1736.04	-1786.88	789.34	5736670.57	568133.95
2809	62.65	178.88	1769.32	-1736.5	-1787.77	789.36	5736669.69	568133.97
2810	62.67	178.88	1769.78	-1736.96	-1788.66	789.38	5736668.8	568133.99
2811	62.7	178.88	1770.23	-1737.41	-1789.54	789.39	5736667.91	568134
2812	62.73	178.88	1770.69	-1737.87	-1790.43	789.41	5736667.02	568134.02
2813	62.76	178.87	1771.15	-1738.33	-1791.32	789.43	5736666.13	568134.04
2814	62.78	178.87	1771.61	-1738.79	-1792.21	789.44	5736665.25	568134.06
2815	62.81	178.87	1772.07	-1739.25	-1793.1	789.46	5736664.36	568134.07
2816	62.84	178.87	1772.53	-1739.71	-1793.98	789.48	5736663.47	568134.09
2817	62.87	178.86	1772.99	-1740.17	-1794.87	789.5	5736662.58	568134.11
2818	62.89	178.86	1773.45	-1740.63	-1795.76	789.51	5736661.69	568134.13
2819	62.92	178.86	1773.91	-1741.09	-1796.65	789.53	5736660.81	568134.14
2820	62.95	178.86	1774.37	-1741.55	-1797.54	789.55	5736659.92	568134.16
2821	62.98	178.85	1774.83	-1742.01	-1798.42	789.57	5736659.03	568134.18
2822	63	178.85	1775.29	-1742.47	-1799.31	789.58	5736658.14	568134.19
2823	63.03	178.85	1775.75	-1742.93	-1800.2	789.6	5736657.25	568134.21
2824	63.03	178.85	1776.2	-1743.38	-1801.09	789.62	5736656.36	568134.23
2825	63.03	178.85	1776.65	-1743.83	-1801.98	789.63	5736655.47	568134.25
2826	63.04	178.86	1777.11	-1744.29	-1802.87	789.65	5736654.58	568134.26
2827	63.04	178.86	1777.56	-1744.74	-1803.77	789.67	5736653.69	568134.28
2828	63.04	178.86	1778.01	-1745.19	-1804.66	789.69	5736652.8	568134.3
2829	63.04	178.86	1778.46	-1745.64	-1805.55	789.7	5736651.9	568134.31
2830	63.05	178.86	1778.92	-1746.1	-1806.44	789.72	5736651.01	568134.33
2831	63.05	178.86	1779.37	-1746.55	-1807.33	789.74	5736650.12	568134.35
2832	63.05	178.87	1779.82	-1747	-1808.22	789.75	5736649.23	568134.37
2833	63.05	178.87	1780.27	-1747.45	-1809.12	789.77	5736648.34	568134.38

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2834	63.06	178.87	1780.73	-1747.91	-1810.01	789.79	5736647.45	568134.4
2835	63.06	178.87	1781.18	-1748.36	-1810.9	789.81	5736646.56	568134.42
2836	63.06	178.87	1781.63	-1748.81	-1811.79	789.82	5736645.66	568134.43
2837	63.06	178.88	1782.08	-1749.26	-1812.68	789.84	5736644.77	568134.45
2838	63.06	178.88	1782.54	-1749.72	-1813.57	789.86	5736643.88	568134.47
2839	63.07	178.88	1782.99	-1750.17	-1814.46	789.87	5736642.99	568134.49
2840	63.07	178.88	1783.44	-1750.62	-1815.36	789.89	5736642.1	568134.5
2841	63.07	178.88	1783.89	-1751.07	-1816.25	789.91	5736641.21	568134.52
2842	63.07	178.88	1784.35	-1751.53	-1817.14	789.93	5736640.31	568134.54
2843	63.08	178.89	1784.8	-1751.98	-1818.03	789.94	5736639.42	568134.55
2844	63.08	178.89	1785.25	-1752.43	-1818.92	789.96	5736638.53	568134.57
2845	63.08	178.89	1785.7	-1752.88	-1819.81	789.98	5736637.64	568134.59
2846	63.08	178.89	1786.16	-1753.34	-1820.71	789.99	5736636.75	568134.61
2847	63.09	178.89	1786.61	-1753.79	-1821.6	790.01	5736635.86	568134.62
2848	63.09	178.89	1787.06	-1754.24	-1822.49	790.03	5736634.96	568134.64
2849	63.09	178.9	1787.51	-1754.69	-1823.38	790.05	5736634.07	568134.66
2850	63.09	178.9	1787.97	-1755.15	-1824.27	790.06	5736633.18	568134.67
2851	63.09	178.9	1788.42	-1755.6	-1825.16	790.08	5736632.29	568134.69
2852	63.1	178.9	1788.87	-1756.05	-1826.06	790.1	5736631.4	568134.71
2853	63.1	178.9	1789.32	-1756.5	-1826.95	790.11	5736630.51	568134.73
2854	63.1	178.91	1789.78	-1756.96	-1827.84	790.13	5736629.61	568134.74
2855	63.1	178.91	1790.23	-1757.41	-1828.73	790.15	5736628.72	568134.76
2856	63.11	178.91	1790.68	-1757.86	-1829.62	790.16	5736627.83	568134.78
2857	63.11	178.91	1791.13	-1758.31	-1830.51	790.18	5736626.94	568134.79
2858	63.11	178.91	1791.59	-1758.77	-1831.4	790.2	5736626.05	568134.81
2859	63.11	178.91	1792.04	-1759.22	-1832.3	790.22	5736625.16	568134.83
2860	63.12	178.92	1792.49	-1759.67	-1833.19	790.23	5736624.27	568134.84
2861	63.12	178.92	1792.94	-1760.12	-1834.08	790.25	5736623.37	568134.86
2862	63.12	178.92	1793.4	-1760.58	-1834.97	790.27	5736622.48	568134.88
2863	63.12	178.92	1793.85	-1761.03	-1835.86	790.28	5736621.59	568134.9
2864	63.12	178.92	1794.3	-1761.48	-1836.75	790.3	5736620.7	568134.91
2865	63.13	178.92	1794.75	-1761.93	-1837.65	790.32	5736619.81	568134.93
2866	63.13	178.93	1795.21	-1762.39	-1838.54	790.34	5736618.92	568134.95
2867	63.13	178.93	1795.66	-1762.84	-1839.43	790.35	5736618.02	568134.96
2868	63.13	178.93	1796.11	-1763.29	-1840.32	790.37	5736617.13	568134.98
2869	63.14	178.93	1796.56	-1763.74	-1841.21	790.39	5736616.24	568135
2870	63.14	178.93	1797.02	-1764.2	-1842.1	790.4	5736615.35	568135.02
2871	63.14	178.94	1797.47	-1764.65	-1843	790.42	5736614.46	568135.03
2872	63.14	178.94	1797.92	-1765.1	-1843.89	790.44	5736613.57	568135.05
2873	63.15	178.94	1798.37	-1765.55	-1844.78	790.46	5736612.67	568135.07
2874	63.15	178.94	1798.83	-1766.01	-1845.67	790.47	5736611.78	568135.08
2875	63.15	178.94	1799.28	-1766.46	-1846.56	790.49	5736610.89	568135.1
2876	63.15	178.94	1799.73	-1766.91	-1847.45	790.51	5736610	568135.12
2877	63.15	178.95	1800.18	-1767.36	-1848.35	790.52	5736609.11	568135.14
2878	63.16	178.95	1800.64	-1767.82	-1849.24	790.54	5736608.22	568135.15
2879	63.16	178.95	1801.09	-1768.27	-1850.13	790.56	5736607.33	568135.17
2880	63.16	178.95	1801.54	-1768.72	-1851.02	790.58	5736606.43	568135.19
2881	63.15	178.95	1801.99	-1769.17	-1851.91	790.59	5736605.54	568135.2
2882	63.15	178.94	1802.45	-1769.63	-1852.8	790.61	5736604.65	568135.22
2883	63.14	178.94	1802.9	-1770.08	-1853.69	790.63	5736603.76	568135.24
2884	63.14	178.94	1803.35	-1770.53	-1854.59	790.64	5736602.87	568135.26
2885	63.13	178.93	1803.8	-1770.98	-1855.48	790.66	5736601.98	568135.27
2886	63.13	178.93	1804.26	-1771.44	-1856.37	790.68	5736601.08	568135.29
2887	63.13	178.93	1804.71	-1771.89	-1857.26	790.69	5736600.19	568135.31
2888	63.12	178.93	1805.16	-1772.34	-1858.15	790.71	5736599.3	568135.32
2889	63.12	178.92	1805.61	-1772.79	-1859.04	790.73	5736598.41	568135.34
2890	63.11	178.92	1806.07	-1773.25	-1859.94	790.75	5736597.52	568135.36
2891	63.11	178.92	1806.52	-1773.7	-1860.83	790.76	5736596.63	568135.37

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2892	63.1	178.92	1806.97	-1774.15	-1861.72	790.78	5736595.73	568135.39
2893	63.1	178.91	1807.42	-1774.6	-1862.61	790.8	5736594.84	568135.41
2894	63.09	178.91	1807.88	-1775.06	-1863.5	790.81	5736593.95	568135.42
2895	63.09	178.91	1808.33	-1775.51	-1864.39	790.83	5736593.06	568135.44
2896	63.09	178.9	1808.78	-1775.96	-1865.29	790.85	5736592.17	568135.46
2897	63.08	178.9	1809.23	-1776.41	-1866.18	790.86	5736591.28	568135.48
2898	63.08	178.9	1809.69	-1776.87	-1867.07	790.88	5736590.38	568135.49
2899	63.07	178.9	1810.14	-1777.32	-1867.96	790.9	5736589.49	568135.51
2900	63.07	178.89	1810.59	-1777.77	-1868.85	790.92	5736588.6	568135.53
2901	63.06	178.89	1811.04	-1778.22	-1869.74	790.93	5736587.71	568135.54
2902	63.06	178.89	1811.5	-1778.68	-1870.64	790.95	5736586.82	568135.56
2903	63.06	178.89	1811.95	-1779.13	-1871.53	790.97	5736585.93	568135.58
2904	63.05	178.88	1812.4	-1779.58	-1872.42	790.98	5736585.04	568135.59
2905	63.05	178.88	1812.85	-1780.03	-1873.31	791	5736584.14	568135.61
2906	63.04	178.88	1813.31	-1780.49	-1874.2	791.02	5736583.25	568135.63
2907	63.04	178.87	1813.76	-1780.94	-1875.09	791.03	5736582.36	568135.65
2908	63.03	178.87	1814.21	-1781.39	-1875.98	791.05	5736581.47	568135.66
2909	63.02	178.87	1814.67	-1781.85	-1876.88	791.07	5736580.58	568135.68
2910	62.99	178.87	1815.13	-1782.31	-1877.76	791.09	5736579.69	568135.7
2911	62.96	178.86	1815.59	-1782.77	-1878.65	791.1	5736578.8	568135.72
2912	62.93	178.86	1816.05	-1783.23	-1879.54	791.12	5736577.92	568135.73
2913	62.9	178.85	1816.51	-1783.69	-1880.43	791.14	5736577.03	568135.75
2914	62.87	178.85	1816.97	-1784.15	-1881.31	791.16	5736576.14	568135.77
2915	62.84	178.85	1817.43	-1784.61	-1882.2	791.18	5736575.25	568135.79
2916	62.81	178.84	1817.89	-1785.07	-1883.09	791.2	5736574.37	568135.81
2917	62.78	178.84	1818.35	-1785.53	-1883.98	791.21	5736573.48	568135.83
2918	62.75	178.83	1818.81	-1785.99	-1884.86	791.23	5736572.59	568135.84
2919	62.72	178.83	1819.27	-1786.45	-1885.75	791.25	5736571.7	568135.86
2920	62.69	178.83	1819.73	-1786.91	-1886.64	791.27	5736570.81	568135.88
2921	62.66	178.82	1820.19	-1787.37	-1887.53	791.29	5736569.93	568135.9
2922	62.63	178.82	1820.65	-1787.83	-1888.41	791.31	5736569.04	568135.92
2923	62.6	178.82	1821.11	-1788.29	-1889.3	791.33	5736568.15	568135.94
2924	62.57	178.81	1821.57	-1788.75	-1890.19	791.34	5736567.26	568135.95
2925	62.54	178.81	1822.03	-1789.21	-1891.08	791.36	5736566.38	568135.97
2926	62.51	178.8	1822.49	-1789.67	-1891.96	791.38	5736565.49	568135.99
2927	62.48	178.8	1822.95	-1790.13	-1892.85	791.4	5736564.6	568136.01
2928	62.45	178.8	1823.41	-1790.59	-1893.74	791.42	5736563.71	568136.03
2929	62.42	178.79	1823.87	-1791.05	-1894.63	791.44	5736562.83	568136.05
2930	62.38	178.79	1824.33	-1791.51	-1895.52	791.45	5736561.94	568136.06
2931	62.35	178.78	1824.79	-1791.97	-1896.4	791.47	5736561.05	568136.08
2932	62.32	178.78	1825.25	-1792.43	-1897.29	791.49	5736560.16	568136.1
2933	62.29	178.78	1825.71	-1792.89	-1898.18	791.51	5736559.28	568136.12
2934	62.26	178.77	1826.17	-1793.35	-1899.07	791.53	5736558.39	568136.14
2935	62.23	178.77	1826.63	-1793.81	-1899.95	791.55	5736557.5	568136.16
2936	62.2	178.77	1827.09	-1794.27	-1900.84	791.56	5736556.61	568136.17
2937	62.17	178.76	1827.55	-1794.73	-1901.73	791.58	5736555.73	568136.19
2938	62.15	178.77	1828.02	-1795.2	-1902.61	791.6	5736554.84	568136.21
2939	62.12	178.78	1828.49	-1795.67	-1903.49	791.62	5736553.96	568136.23
2940	62.1	178.79	1828.97	-1796.15	-1904.37	791.63	5736553.08	568136.24
2941	62.08	178.8	1829.44	-1796.62	-1905.26	791.65	5736552.2	568136.26
2942	62.06	178.81	1829.91	-1797.09	-1906.14	791.67	5736551.32	568136.28
2943	62.03	178.82	1830.38	-1797.56	-1907.02	791.68	5736550.43	568136.29
2944	62.01	178.83	1830.85	-1798.03	-1907.9	791.7	5736549.55	568136.31
2945	61.99	178.84	1831.33	-1798.51	-1908.78	791.72	5736548.67	568136.33
2946	61.97	178.85	1831.8	-1798.98	-1909.66	791.73	5736547.79	568136.34
2947	61.94	178.86	1832.27	-1799.45	-1910.54	791.75	5736546.91	568136.36
2948	61.92	178.87	1832.74	-1799.92	-1911.43	791.77	5736546.03	568136.38
2949	61.9	178.88	1833.21	-1800.39	-1912.31	791.78	5736545.15	568136.4

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2950	61.88	178.89	1833.69	-1800.87	-1913.19	791.8	5736544.26	568136.41
2951	61.85	178.9	1834.16	-1801.34	-1914.07	791.82	5736543.38	568136.43
2952	61.83	178.91	1834.63	-1801.81	-1914.95	791.83	5736542.5	568136.45
2953	61.81	178.92	1835.1	-1802.28	-1915.83	791.85	5736541.62	568136.46
2954	61.78	178.93	1835.57	-1802.75	-1916.71	791.87	5736540.74	568136.48
2955	61.76	178.94	1836.05	-1803.23	-1917.6	791.88	5736539.86	568136.5
2956	61.74	178.95	1836.52	-1803.7	-1918.48	791.9	5736538.98	568136.51
2957	61.72	178.96	1836.99	-1804.17	-1919.36	791.92	5736538.09	568136.53
2958	61.69	178.97	1837.46	-1804.64	-1920.24	791.93	5736537.21	568136.55
2959	61.67	178.99	1837.93	-1805.11	-1921.12	791.95	5736536.33	568136.56
2960	61.65	179	1838.41	-1805.59	-1922	791.97	5736535.45	568136.58
2961	61.63	179.01	1838.88	-1806.06	-1922.88	791.99	5736534.57	568136.6
2962	61.6	179.02	1839.35	-1806.53	-1923.77	792	5736533.69	568136.61
2963	61.58	179.03	1839.82	-1807	-1924.65	792.02	5736532.81	568136.63
2964	61.56	179.04	1840.29	-1807.47	-1925.53	792.04	5736531.92	568136.65
2965	61.54	179.05	1840.77	-1807.95	-1926.41	792.05	5736531.04	568136.66
2966	61.51	179.06	1841.24	-1808.42	-1927.29	792.07	5736530.16	568136.68
2967	61.51	179.08	1841.71	-1808.89	-1928.17	792.08	5736529.28	568136.69
2968	61.51	179.1	1842.19	-1809.37	-1929.05	792.09	5736528.4	568136.7
2969	61.5	179.12	1842.67	-1809.85	-1929.93	792.1	5736527.53	568136.71
2970	61.5	179.15	1843.15	-1810.33	-1930.81	792.11	5736526.65	568136.72
2971	61.5	179.17	1843.62	-1810.8	-1931.68	792.12	5736525.77	568136.73
2972	61.5	179.19	1844.1	-1811.28	-1932.56	792.13	5736524.89	568136.74
2973	61.49	179.22	1844.58	-1811.76	-1933.44	792.14	5736524.01	568136.75
2974	61.49	179.24	1845.06	-1812.24	-1934.32	792.15	5736523.13	568136.76
2975	61.49	179.26	1845.53	-1812.71	-1935.2	792.16	5736522.25	568136.77
2976	61.49	179.28	1846.01	-1813.19	-1936.08	792.16	5736521.38	568136.78
2977	61.48	179.31	1846.49	-1813.67	-1936.96	792.17	5736520.5	568136.79
2978	61.48	179.33	1846.97	-1814.15	-1937.83	792.18	5736519.62	568136.8
2979	61.48	179.35	1847.45	-1814.63	-1938.71	792.19	5736518.74	568136.8
2980	61.48	179.37	1847.92	-1815.1	-1939.59	792.2	5736517.86	568136.81
2981	61.47	179.4	1848.4	-1815.58	-1940.47	792.21	5736516.98	568136.82
2982	61.47	179.42	1848.88	-1816.06	-1941.35	792.22	5736516.1	568136.83
2983	61.47	179.44	1849.36	-1816.54	-1942.23	792.23	5736515.23	568136.84
2984	61.47	179.47	1849.83	-1817.01	-1943.11	792.24	5736514.35	568136.85
2985	61.46	179.49	1850.31	-1817.49	-1943.98	792.25	5736513.47	568136.86
2986	61.46	179.51	1850.79	-1817.97	-1944.86	792.26	5736512.59	568136.87
2987	61.46	179.53	1851.27	-1818.45	-1945.74	792.27	5736511.71	568136.88
2988	61.46	179.56	1851.74	-1818.92	-1946.62	792.28	5736510.83	568136.89
2989	61.45	179.58	1852.22	-1819.4	-1947.5	792.29	5736509.96	568136.9
2990	61.45	179.6	1852.7	-1819.88	-1948.38	792.3	5736509.08	568136.91
2991	61.45	179.63	1853.18	-1820.36	-1949.26	792.31	5736508.2	568136.92
2992	61.45	179.65	1853.65	-1820.83	-1950.13	792.32	5736507.32	568136.93
2993	61.44	179.67	1854.13	-1821.31	-1951.01	792.33	5736506.44	568136.94
2994	61.44	179.69	1854.61	-1821.79	-1951.89	792.33	5736505.56	568136.95
2995	61.45	179.71	1855.08	-1822.26	-1952.77	792.34	5736504.68	568136.95
2996	61.47	179.7	1855.56	-1822.74	-1953.65	792.35	5736503.8	568136.96
2997	61.5	179.68	1856.03	-1823.21	-1954.53	792.36	5736502.92	568136.97
2998	61.53	179.67	1856.5	-1823.68	-1955.42	792.36	5736502.04	568136.98
2999	61.56	179.66	1856.97	-1824.15	-1956.3	792.37	5736501.16	568136.98
3000	61.58	179.65	1857.44	-1824.62	-1957.18	792.38	5736500.28	568136.99
3001	61.61	179.64	1857.92	-1825.1	-1958.06	792.39	5736499.39	568137
3002	61.64	179.63	1858.39	-1825.57	-1958.94	792.39	5736498.51	568137
3003	61.66	179.62	1858.86	-1826.04	-1959.82	792.4	5736497.63	568137.01
3004	61.69	179.6	1859.33	-1826.51	-1960.7	792.41	5736496.75	568137.02
3005	61.72	179.59	1859.81	-1826.99	-1961.59	792.41	5736495.87	568137.03
3006	61.74	179.58	1860.28	-1827.46	-1962.47	792.42	5736494.99	568137.03
3007	61.77	179.57	1860.75	-1827.93	-1963.35	792.43	5736494.1	568137.04

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3008	61.8	179.56	1861.22	-1828.4	-1964.23	792.43	5736493.22	568137.05
3009	61.83	179.55	1861.69	-1828.87	-1965.11	792.44	5736492.34	568137.05
3010	61.85	179.54	1862.17	-1829.35	-1965.99	792.45	5736491.46	568137.06
3011	61.88	179.52	1862.64	-1829.82	-1966.88	792.46	5736490.58	568137.07
3012	61.91	179.51	1863.11	-1830.29	-1967.76	792.46	5736489.7	568137.07
3013	61.93	179.5	1863.58	-1830.76	-1968.64	792.47	5736488.82	568137.08
3014	61.96	179.49	1864.05	-1831.23	-1969.52	792.48	5736487.93	568137.09
3015	61.99	179.48	1864.53	-1831.71	-1970.4	792.48	5736487.05	568137.1
3016	62.02	179.47	1865	-1832.18	-1971.28	792.49	5736486.17	568137.1
3017	62.04	179.46	1865.47	-1832.65	-1972.16	792.5	5736485.29	568137.11
3018	62.07	179.44	1865.94	-1833.12	-1973.05	792.51	5736484.41	568137.12
3019	62.1	179.43	1866.41	-1833.59	-1973.93	792.51	5736483.53	568137.12
3020	62.12	179.42	1866.89	-1834.07	-1974.81	792.52	5736482.64	568137.13
3021	62.15	179.41	1867.36	-1834.54	-1975.69	792.53	5736481.76	568137.14
3022	62.18	179.4	1867.83	-1835.01	-1976.57	792.53	5736480.88	568137.14
3023	62.2	179.39	1868.3	-1835.48	-1977.45	792.54	5736480	568137.15
3024	62.21	179.37	1868.78	-1835.96	-1978.34	792.55	5736479.12	568137.16
3025	62.18	179.36	1869.25	-1836.43	-1979.22	792.56	5736478.24	568137.17
3026	62.15	179.34	1869.72	-1836.9	-1980.1	792.58	5736477.36	568137.19
3027	62.13	179.32	1870.19	-1837.37	-1980.98	792.59	5736476.47	568137.2
3028	62.1	179.31	1870.66	-1837.84	-1981.86	792.6	5736475.59	568137.21
3029	62.07	179.29	1871.14	-1838.32	-1982.74	792.62	5736474.71	568137.23
3030	62.04	179.27	1871.61	-1838.79	-1983.62	792.63	5736473.83	568137.24
3031	62.02	179.26	1872.08	-1839.26	-1984.51	792.64	5736472.95	568137.25
3032	61.99	179.24	1872.55	-1839.73	-1985.39	792.66	5736472.07	568137.27
3033	61.96	179.22	1873.02	-1840.2	-1986.27	792.67	5736471.19	568137.28
3034	61.94	179.21	1873.5	-1840.68	-1987.15	792.68	5736470.3	568137.29
3035	61.91	179.19	1873.97	-1841.15	-1988.03	792.7	5736469.42	568137.31
3036	61.88	179.17	1874.44	-1841.62	-1988.91	792.71	5736468.54	568137.32
3037	61.85	179.15	1874.91	-1842.09	-1989.79	792.72	5736467.66	568137.33
3038	61.83	179.14	1875.38	-1842.56	-1990.68	792.73	5736466.78	568137.35
3039	61.8	179.12	1875.86	-1843.04	-1991.56	792.75	5736465.9	568137.36
3040	61.77	179.1	1876.33	-1843.51	-1992.44	792.76	5736465.02	568137.37
3041	61.74	179.09	1876.8	-1843.98	-1993.32	792.77	5736464.13	568137.39
3042	61.72	179.07	1877.27	-1844.45	-1994.2	792.79	5736463.25	568137.4
3043	61.69	179.05	1877.74	-1844.92	-1995.08	792.8	5736462.37	568137.41
3044	61.66	179.04	1878.22	-1845.4	-1995.96	792.81	5736461.49	568137.43
3045	61.64	179.02	1878.69	-1845.87	-1996.85	792.83	5736460.61	568137.44
3046	61.61	179	1879.16	-1846.34	-1997.73	792.84	5736459.73	568137.45
3047	61.58	178.99	1879.63	-1846.81	-1998.61	792.85	5736458.85	568137.46
3048	61.55	178.97	1880.11	-1847.29	-1999.49	792.87	5736457.96	568137.48
3049	61.53	178.95	1880.58	-1847.76	-2000.37	792.88	5736457.08	568137.49
3050	61.5	178.94	1881.05	-1848.23	-2001.25	792.89	5736456.2	568137.5
3051	61.47	178.92	1881.52	-1848.7	-2002.13	792.91	5736455.32	568137.52
3052	61.44	178.9	1881.99	-1849.17	-2003.02	792.92	5736454.44	568137.53
3053	61.47	178.9	1882.46	-1849.64	-2003.9	792.93	5736453.56	568137.55
3054	61.51	178.91	1882.93	-1850.11	-2004.78	792.95	5736452.67	568137.56
3055	61.54	178.92	1883.4	-1850.58	-2005.66	792.97	5736451.79	568137.58
3056	61.58	178.92	1883.87	-1851.05	-2006.54	792.98	5736450.91	568137.59
3057	61.62	178.93	1884.34	-1851.52	-2007.43	793	5736450.03	568137.61
3058	61.65	178.93	1884.81	-1851.99	-2008.31	793.01	5736449.14	568137.62
3059	61.69	178.94	1885.28	-1852.46	-2009.19	793.03	5736448.26	568137.64
3060	61.73	178.95	1885.75	-1852.93	-2010.07	793.04	5736447.38	568137.66
3061	61.76	178.95	1886.22	-1853.4	-2010.96	793.06	5736446.5	568137.67
3062	61.8	178.96	1886.69	-1853.87	-2011.84	793.08	5736445.61	568137.69
3063	61.84	178.96	1887.16	-1854.34	-2012.72	793.09	5736444.73	568137.7
3064	61.87	178.97	1887.63	-1854.81	-2013.6	793.11	5736443.85	568137.72
3065	61.91	178.98	1888.11	-1855.29	-2014.49	793.12	5736442.97	568137.73

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3066	61.95	178.98	1888.58	-1855.76	-2015.37	793.14	5736442.08	568137.75
3067	61.98	178.99	1889.05	-1856.23	-2016.25	793.15	5736441.2	568137.76
3068	62.02	178.99	1889.52	-1856.7	-2017.13	793.17	5736440.32	568137.78
3069	62.06	179	1889.99	-1857.17	-2018.02	793.18	5736439.44	568137.8
3070	62.09	179.01	1890.46	-1857.64	-2018.9	793.2	5736438.55	568137.81
3071	62.13	179.01	1890.93	-1858.11	-2019.78	793.22	5736437.67	568137.83
3072	62.17	179.02	1891.4	-1858.58	-2020.66	793.23	5736436.79	568137.84
3073	62.2	179.02	1891.87	-1859.05	-2021.55	793.25	5736435.91	568137.86
3074	62.24	179.03	1892.34	-1859.52	-2022.43	793.26	5736435.02	568137.87
3075	62.28	179.04	1892.81	-1859.99	-2023.31	793.28	5736434.14	568137.89
3076	62.31	179.04	1893.28	-1860.46	-2024.19	793.29	5736433.26	568137.91
3077	62.35	179.05	1893.75	-1860.93	-2025.08	793.31	5736432.38	568137.92
3078	62.39	179.05	1894.22	-1861.4	-2025.96	793.33	5736431.49	568137.94
3079	62.42	179.06	1894.69	-1861.87	-2026.84	793.34	5736430.61	568137.95
3080	62.46	179.07	1895.16	-1862.34	-2027.72	793.36	5736429.73	568137.97
3081	62.49	179.07	1895.62	-1862.8	-2028.61	793.37	5736428.84	568137.98
3082	62.51	179.08	1896.08	-1863.26	-2029.5	793.38	5736427.95	568138
3083	62.54	179.08	1896.53	-1863.71	-2030.39	793.4	5736427.07	568138.01
3084	62.56	179.08	1896.99	-1864.17	-2031.28	793.41	5736426.18	568138.02
3085	62.59	179.09	1897.45	-1864.63	-2032.17	793.43	5736425.29	568138.04
3086	62.61	179.09	1897.9	-1865.08	-2033.06	793.44	5736424.4	568138.05
3087	62.64	179.09	1898.36	-1865.54	-2033.95	793.45	5736423.51	568138.06
3088	62.66	179.1	1898.82	-1866	-2034.84	793.47	5736422.62	568138.08
3089	62.69	179.1	1899.27	-1866.45	-2035.73	793.48	5736421.73	568138.09
3090	62.71	179.11	1899.73	-1866.91	-2036.62	793.49	5736420.84	568138.11
3091	62.73	179.11	1900.19	-1867.37	-2037.51	793.51	5736419.95	568138.12
3092	62.76	179.11	1900.64	-1867.82	-2038.4	793.52	5736419.06	568138.13
3093	62.78	179.12	1901.1	-1868.28	-2039.28	793.53	5736418.17	568138.15
3094	62.81	179.12	1901.56	-1868.74	-2040.17	793.55	5736417.28	568138.16
3095	62.83	179.12	1902.01	-1869.19	-2041.06	793.56	5736416.39	568138.17
3096	62.86	179.13	1902.47	-1869.65	-2041.95	793.58	5736415.5	568138.19
3097	62.88	179.13	1902.93	-1870.11	-2042.84	793.59	5736414.61	568138.2
3098	62.91	179.14	1903.38	-1870.56	-2043.73	793.6	5736413.72	568138.21
3099	62.93	179.14	1903.84	-1871.02	-2044.62	793.62	5736412.83	568138.23
3100	62.95	179.14	1904.29	-1871.47	-2045.51	793.63	5736411.94	568138.24
3101	62.98	179.15	1904.75	-1871.93	-2046.4	793.64	5736411.05	568138.25
3102	63	179.15	1905.21	-1872.39	-2047.29	793.66	5736410.16	568138.27
3103	63.03	179.15	1905.66	-1872.84	-2048.18	793.67	5736409.27	568138.28
3104	63.05	179.16	1906.12	-1873.3	-2049.07	793.68	5736408.38	568138.3
3105	63.08	179.16	1906.58	-1873.76	-2049.96	793.7	5736407.49	568138.31
3106	63.1	179.17	1907.03	-1874.21	-2050.85	793.71	5736406.6	568138.32
3107	63.13	179.17	1907.49	-1874.67	-2051.74	793.73	5736405.71	568138.34
3108	63.15	179.17	1907.95	-1875.13	-2052.63	793.74	5736404.82	568138.35
3109	63.17	179.18	1908.4	-1875.58	-2053.52	793.75	5736403.94	568138.36
3110	63.18	179.18	1908.86	-1876.04	-2054.41	793.77	5736403.05	568138.38
3111	63.15	179.17	1909.32	-1876.5	-2055.3	793.78	5736402.16	568138.39
3112	63.11	179.17	1909.78	-1876.96	-2056.19	793.79	5736401.27	568138.41
3113	63.08	179.16	1910.24	-1877.42	-2057.07	793.81	5736400.38	568138.42
3114	63.05	179.15	1910.69	-1877.87	-2057.96	793.82	5736399.49	568138.43
3115	63.02	179.15	1911.15	-1878.33	-2058.85	793.84	5736398.6	568138.45
3116	62.98	179.14	1911.61	-1878.79	-2059.74	793.85	5736397.71	568138.46
3117	62.95	179.14	1912.07	-1879.25	-2060.63	793.86	5736396.83	568138.48
3118	62.92	179.13	1912.53	-1879.71	-2061.52	793.88	5736395.94	568138.49
3119	62.89	179.12	1912.99	-1880.17	-2062.41	793.89	5736395.05	568138.5
3120	62.85	179.12	1913.44	-1880.62	-2063.29	793.91	5736394.16	568138.52
3121	62.82	179.11	1913.9	-1881.08	-2064.18	793.92	5736393.27	568138.53
3122	62.79	179.11	1914.36	-1881.54	-2065.07	793.93	5736392.38	568138.55
3123	62.76	179.1	1914.82	-1882	-2065.96	793.95	5736391.49	568138.56

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3124	62.73	179.1	1915.28	-1882.46	-2066.85	793.96	5736390.6	568138.57
3125	62.69	179.09	1915.73	-1882.91	-2067.74	793.98	5736389.72	568138.59
3126	62.66	179.08	1916.19	-1883.37	-2068.63	793.99	5736388.83	568138.6
3127	62.63	179.08	1916.65	-1883.83	-2069.52	794	5736387.94	568138.62
3128	62.6	179.07	1917.11	-1884.29	-2070.4	794.02	5736387.05	568138.63
3129	62.56	179.07	1917.57	-1884.75	-2071.29	794.03	5736386.16	568138.64
3130	62.53	179.06	1918.03	-1885.21	-2072.18	794.05	5736385.27	568138.66
3131	62.5	179.05	1918.48	-1885.66	-2073.07	794.06	5736384.38	568138.67
3132	62.47	179.05	1918.94	-1886.12	-2073.96	794.07	5736383.49	568138.69
3133	62.44	179.04	1919.4	-1886.58	-2074.85	794.09	5736382.61	568138.7
3134	62.4	179.04	1919.86	-1887.04	-2075.74	794.1	5736381.72	568138.71
3135	62.37	179.03	1920.32	-1887.5	-2076.62	794.12	5736380.83	568138.73
3136	62.34	179.02	1920.78	-1887.96	-2077.51	794.13	5736379.94	568138.74
3137	62.31	179.02	1921.23	-1888.41	-2078.4	794.15	5736379.05	568138.76
3138	62.27	179.01	1921.69	-1888.87	-2079.29	794.16	5736378.16	568138.77
3139	62.26	179	1922.15	-1889.33	-2080.18	794.18	5736377.28	568138.79
3140	62.25	178.99	1922.62	-1889.8	-2081.06	794.19	5736376.39	568138.81
3141	62.25	178.97	1923.09	-1890.27	-2081.95	794.21	5736375.51	568138.82
3142	62.24	178.96	1923.55	-1890.73	-2082.83	794.23	5736374.62	568138.84
3143	62.24	178.94	1924.02	-1891.2	-2083.71	794.25	5736373.74	568138.86
3144	62.23	178.93	1924.49	-1891.67	-2084.6	794.27	5736372.85	568138.88
3145	62.23	178.91	1924.95	-1892.13	-2085.48	794.29	5736371.97	568138.9
3146	62.23	178.9	1925.42	-1892.6	-2086.37	794.31	5736371.09	568138.92
3147	62.22	178.88	1925.89	-1893.07	-2087.25	794.32	5736370.2	568138.94
3148	62.22	178.87	1926.35	-1893.53	-2088.14	794.34	5736369.32	568138.95
3149	62.21	178.85	1926.82	-1894	-2089.02	794.36	5736368.43	568138.97
3150	62.21	178.84	1927.29	-1894.47	-2089.9	794.38	5736367.55	568138.99
3151	62.2	178.82	1927.75	-1894.93	-2090.79	794.4	5736366.66	568139.01
3152	62.2	178.81	1928.22	-1895.4	-2091.67	794.42	5736365.78	568139.03
3153	62.19	178.79	1928.69	-1895.87	-2092.56	794.43	5736364.9	568139.05
3154	62.19	178.78	1929.15	-1896.33	-2093.44	794.45	5736364.01	568139.06
3155	62.18	178.77	1929.62	-1896.8	-2094.33	794.47	5736363.13	568139.08
3156	62.18	178.75	1930.08	-1897.26	-2095.21	794.49	5736362.24	568139.1
3157	62.18	178.74	1930.55	-1897.73	-2096.1	794.51	5736361.36	568139.12
3158	62.17	178.72	1931.02	-1898.2	-2096.98	794.53	5736360.47	568139.14
3159	62.17	178.71	1931.48	-1898.66	-2097.86	794.55	5736359.59	568139.16
3160	62.16	178.69	1931.95	-1899.13	-2098.75	794.56	5736358.71	568139.18
3161	62.16	178.68	1932.42	-1899.6	-2099.63	794.58	5736357.82	568139.19
3162	62.15	178.66	1932.88	-1900.06	-2100.52	794.6	5736356.94	568139.21
3163	62.15	178.65	1933.35	-1900.53	-2101.4	794.62	5736356.05	568139.23
3164	62.14	178.63	1933.82	-1901	-2102.29	794.64	5736355.17	568139.25
3165	62.14	178.62	1934.28	-1901.46	-2103.17	794.66	5736354.28	568139.27
3166	62.13	178.6	1934.75	-1901.93	-2104.05	794.68	5736353.4	568139.29
3167	62.13	178.59	1935.22	-1902.4	-2104.94	794.69	5736352.51	568139.31
3168	62.15	178.58	1935.68	-1902.86	-2105.82	794.72	5736351.63	568139.33
3169	62.17	178.57	1936.14	-1903.32	-2106.71	794.74	5736350.74	568139.35
3170	62.19	178.56	1936.61	-1903.79	-2107.6	794.77	5736349.86	568139.38
3171	62.21	178.55	1937.07	-1904.25	-2108.48	794.79	5736348.97	568139.4
3172	62.23	178.55	1937.53	-1904.71	-2109.37	794.81	5736348.09	568139.42
3173	62.25	178.54	1938	-1905.18	-2110.25	794.84	5736347.2	568139.45
3174	62.27	178.53	1938.46	-1905.64	-2111.14	794.86	5736346.31	568139.47
3175	62.29	178.52	1938.92	-1906.1	-2112.03	794.88	5736345.43	568139.5
3176	62.3	178.51	1939.38	-1906.56	-2112.91	794.91	5736344.54	568139.52
3177	62.32	178.5	1939.85	-1907.03	-2113.8	794.93	5736343.66	568139.54
3178	62.34	178.49	1940.31	-1907.49	-2114.68	794.96	5736342.77	568139.57
3179	62.36	178.48	1940.77	-1907.95	-2115.57	794.98	5736341.88	568139.59
3180	62.38	178.48	1941.24	-1908.42	-2116.46	795	5736341	568139.61
3181	62.4	178.47	1941.7	-1908.88	-2117.34	795.03	5736340.11	568139.64

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3182	62.42	178.46	1942.16	-1909.34	-2118.23	795.05	5736339.23	568139.66
3183	62.44	178.45	1942.63	-1909.81	-2119.11	795.07	5736338.34	568139.69
3184	62.46	178.44	1943.09	-1910.27	-2120	795.1	5736337.45	568139.71
3185	62.48	178.43	1943.55	-1910.73	-2120.89	795.12	5736336.57	568139.73
3186	62.5	178.42	1944.02	-1911.2	-2121.77	795.15	5736335.68	568139.76
3187	62.52	178.41	1944.48	-1911.66	-2122.66	795.17	5736334.8	568139.78
3188	62.54	178.41	1944.94	-1912.12	-2123.54	795.19	5736333.91	568139.8
3189	62.55	178.4	1945.41	-1912.59	-2124.43	795.22	5736333.02	568139.83
3190	62.57	178.39	1945.87	-1913.05	-2125.32	795.24	5736332.14	568139.85
3191	62.59	178.38	1946.33	-1913.51	-2126.2	795.26	5736331.25	568139.88
3192	62.61	178.37	1946.8	-1913.98	-2127.09	795.29	5736330.37	568139.9
3193	62.63	178.36	1947.26	-1914.44	-2127.97	795.31	5736329.48	568139.92
3194	62.65	178.35	1947.72	-1914.9	-2128.86	795.34	5736328.59	568139.95
3195	62.67	178.34	1948.19	-1915.37	-2129.74	795.36	5736327.71	568139.97
3196	62.69	178.34	1948.65	-1915.83	-2130.63	795.38	5736326.82	568140
3197	62.7	178.34	1949.1	-1916.28	-2131.52	795.41	5736325.93	568140.02
3198	62.71	178.35	1949.56	-1916.74	-2132.41	795.43	5736325.04	568140.05
3199	62.73	178.35	1950.01	-1917.19	-2133.3	795.46	5736324.15	568140.07
3200	62.74	178.35	1950.47	-1917.65	-2134.19	795.48	5736323.26	568140.1
3201	62.76	178.36	1950.93	-1918.11	-2135.08	795.51	5736322.37	568140.12
3202	62.77	178.36	1951.38	-1918.56	-2135.97	795.53	5736321.48	568140.15
3203	62.78	178.36	1951.84	-1919.02	-2136.86	795.56	5736320.59	568140.17
3204	62.8	178.37	1952.29	-1919.47	-2137.75	795.58	5736319.7	568140.2
3205	62.81	178.37	1952.75	-1919.93	-2138.64	795.61	5736318.81	568140.22
3206	62.83	178.37	1953.2	-1920.38	-2139.53	795.63	5736317.92	568140.25
3207	62.84	178.38	1953.66	-1920.84	-2140.42	795.66	5736317.03	568140.27
3208	62.85	178.38	1954.12	-1921.3	-2141.31	795.68	5736316.14	568140.3
3209	62.87	178.38	1954.57	-1921.75	-2142.2	795.71	5736315.26	568140.32
3210	62.88	178.39	1955.03	-1922.21	-2143.09	795.74	5736314.37	568140.35
3211	62.9	178.39	1955.48	-1922.66	-2143.98	795.76	5736313.48	568140.37
3212	62.91	178.39	1955.94	-1923.12	-2144.87	795.79	5736312.59	568140.4
3213	62.92	178.39	1956.4	-1923.58	-2145.76	795.81	5736311.7	568140.42
3214	62.94	178.4	1956.85	-1924.03	-2146.65	795.84	5736310.81	568140.45
3215	62.95	178.4	1957.31	-1924.49	-2147.54	795.86	5736309.92	568140.47
3216	62.96	178.4	1957.76	-1924.94	-2148.43	795.89	5736309.03	568140.5
3217	62.98	178.41	1958.22	-1925.4	-2149.32	795.91	5736308.14	568140.52
3218	62.99	178.41	1958.67	-1925.85	-2150.21	795.94	5736307.25	568140.55
3219	63.01	178.41	1959.13	-1926.31	-2151.1	795.96	5736306.36	568140.57
3220	63.02	178.42	1959.59	-1926.77	-2151.99	795.99	5736305.47	568140.6
3221	63.03	178.42	1960.04	-1927.22	-2152.87	796.01	5736304.58	568140.62
3222	63.05	178.42	1960.5	-1927.68	-2153.76	796.04	5736303.69	568140.65
3223	63.06	178.43	1960.95	-1928.13	-2154.65	796.06	5736302.8	568140.67
3224	63.08	178.43	1961.41	-1928.59	-2155.54	796.09	5736301.91	568140.7
3225	63.1	178.43	1961.86	-1929.04	-2156.44	796.11	5736301.02	568140.72
3226	63.12	178.42	1962.31	-1929.49	-2157.33	796.14	5736300.12	568140.75
3227	63.15	178.42	1962.75	-1929.93	-2158.23	796.16	5736299.23	568140.77
3228	63.17	178.42	1963.2	-1930.38	-2159.12	796.19	5736298.33	568140.8
3229	63.2	178.42	1963.65	-1930.83	-2160.01	796.21	5736297.44	568140.82
3230	63.22	178.41	1964.09	-1931.27	-2160.91	796.24	5736296.55	568140.85
3231	63.25	178.41	1964.54	-1931.72	-2161.8	796.26	5736295.65	568140.87
3232	63.28	178.41	1964.99	-1932.17	-2162.7	796.29	5736294.76	568140.9
3233	63.3	178.4	1965.44	-1932.62	-2163.59	796.31	5736293.86	568140.92
3234	63.33	178.4	1965.88	-1933.06	-2164.48	796.34	5736292.97	568140.95
3235	63.35	178.4	1966.33	-1933.51	-2165.38	796.36	5736292.08	568140.97
3236	63.38	178.39	1966.78	-1933.96	-2166.27	796.39	5736291.18	568141
3237	63.4	178.39	1967.22	-1934.4	-2167.17	796.41	5736290.29	568141.03
3238	63.43	178.39	1967.67	-1934.85	-2168.06	796.44	5736289.39	568141.05
3239	63.45	178.38	1968.12	-1935.3	-2168.95	796.46	5736288.5	568141.08

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3240	63.48	178.38	1968.57	-1935.75	-2169.85	796.49	5736287.61	568141.1
3241	63.5	178.38	1969.01	-1936.19	-2170.74	796.51	5736286.71	568141.13
3242	63.53	178.37	1969.46	-1936.64	-2171.64	796.54	5736285.82	568141.15
3243	63.55	178.37	1969.91	-1937.09	-2172.53	796.56	5736284.92	568141.18
3244	63.58	178.37	1970.35	-1937.53	-2173.42	796.59	5736284.03	568141.2
3245	63.6	178.36	1970.8	-1937.98	-2174.32	796.62	5736283.13	568141.23
3246	63.63	178.36	1971.25	-1938.43	-2175.21	796.64	5736282.24	568141.25
3247	63.66	178.36	1971.7	-1938.88	-2176.11	796.67	5736281.35	568141.28
3248	63.68	178.35	1972.14	-1939.32	-2177	796.69	5736280.45	568141.3
3249	63.71	178.35	1972.59	-1939.77	-2177.9	796.72	5736279.56	568141.33
3250	63.73	178.35	1973.04	-1940.22	-2178.79	796.74	5736278.66	568141.35
3251	63.76	178.35	1973.48	-1940.66	-2179.68	796.77	5736277.77	568141.38
3252	63.78	178.34	1973.93	-1941.11	-2180.58	796.79	5736276.88	568141.4
3253	63.81	178.34	1974.38	-1941.56	-2181.47	796.82	5736275.98	568141.43
3254	63.83	178.34	1974.81	-1941.99	-2182.37	796.84	5736275.08	568141.45
3255	63.85	178.35	1975.25	-1942.43	-2183.27	796.87	5736274.18	568141.48
3256	63.87	178.35	1975.69	-1942.87	-2184.17	796.89	5736273.28	568141.5
3257	63.9	178.35	1976.12	-1943.3	-2185.07	796.92	5736272.38	568141.53
3258	63.92	178.36	1976.56	-1943.74	-2185.97	796.94	5736271.48	568141.56
3259	63.94	178.36	1976.99	-1944.17	-2186.87	796.97	5736270.58	568141.58
3260	63.96	178.36	1977.43	-1944.61	-2187.77	796.99	5736269.68	568141.61
3261	63.99	178.37	1977.87	-1945.05	-2188.67	797.02	5736268.79	568141.63
3262	64.01	178.37	1978.3	-1945.48	-2189.57	797.05	5736267.89	568141.66
3263	64.03	178.37	1978.74	-1945.92	-2190.47	797.07	5736266.99	568141.68
3264	64.05	178.37	1979.18	-1946.36	-2191.37	797.1	5736266.09	568141.71
3265	64.08	178.38	1979.61	-1946.79	-2192.27	797.12	5736265.19	568141.73
3266	64.1	178.38	1980.05	-1947.23	-2193.17	797.15	5736264.29	568141.76
3267	64.12	178.38	1980.48	-1947.66	-2194.06	797.17	5736263.39	568141.78
3268	64.14	178.39	1980.92	-1948.1	-2194.96	797.2	5736262.49	568141.81
3269	64.17	178.39	1981.36	-1948.54	-2195.86	797.22	5736261.59	568141.83
3270	64.19	178.39	1981.79	-1948.97	-2196.76	797.25	5736260.69	568141.86
3271	64.21	178.4	1982.23	-1949.41	-2197.66	797.27	5736259.79	568141.88
3272	64.23	178.4	1982.67	-1949.85	-2198.56	797.3	5736258.89	568141.91
3273	64.26	178.4	1983.1	-1950.28	-2199.46	797.32	5736257.99	568141.94
3274	64.28	178.41	1983.54	-1950.72	-2200.36	797.35	5736257.09	568141.96
3275	64.3	178.41	1983.98	-1951.16	-2201.26	797.37	5736256.19	568141.99
3276	64.32	178.41	1984.41	-1951.59	-2202.16	797.4	5736255.29	568142.01
3277	64.35	178.41	1984.85	-1952.03	-2203.06	797.43	5736254.39	568142.04
3278	64.37	178.42	1985.28	-1952.46	-2203.96	797.45	5736253.5	568142.06
3279	64.39	178.42	1985.72	-1952.9	-2204.86	797.48	5736252.6	568142.09
3280	64.41	178.42	1986.16	-1953.34	-2205.76	797.5	5736251.7	568142.11
3281	64.44	178.43	1986.59	-1953.77	-2206.66	797.53	5736250.8	568142.14
3282	64.46	178.43	1987.03	-1954.21	-2207.56	797.55	5736249.9	568142.16
3283	64.48	178.43	1987.46	-1954.64	-2208.46	797.58	5736248.99	568142.19
3284	64.5	178.44	1987.88	-1955.06	-2209.36	797.6	5736248.09	568142.21
3285	64.53	178.44	1988.31	-1955.49	-2210.27	797.63	5736247.19	568142.24
3286	64.55	178.44	1988.74	-1955.92	-2211.17	797.65	5736246.28	568142.26
3287	64.57	178.44	1989.17	-1956.35	-2212.07	797.67	5736245.38	568142.29
3288	64.59	178.45	1989.6	-1956.78	-2212.98	797.7	5736244.48	568142.31
3289	64.62	178.45	1990.02	-1957.2	-2213.88	797.72	5736243.57	568142.33
3290	64.64	178.45	1990.45	-1957.63	-2214.79	797.75	5736242.67	568142.36
3291	64.66	178.46	1990.88	-1958.06	-2215.69	797.77	5736241.76	568142.38
3292	64.68	178.46	1991.31	-1958.49	-2216.59	797.8	5736240.86	568142.41
3293	64.71	178.46	1991.73	-1958.91	-2217.5	797.82	5736239.96	568142.43
3294	64.73	178.47	1992.16	-1959.34	-2218.4	797.84	5736239.05	568142.46
3295	64.75	178.47	1992.59	-1959.77	-2219.3	797.87	5736238.15	568142.48
3296	64.77	178.47	1993.02	-1960.2	-2220.21	797.89	5736237.25	568142.5
3297	64.8	178.47	1993.44	-1960.62	-2221.11	797.92	5736236.34	568142.53

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3298	64.82	178.48	1993.87	-1961.05	-2222.01	797.94	5736235.44	568142.55
3299	64.84	178.48	1994.3	-1961.48	-2222.92	797.97	5736234.54	568142.58
3300	64.86	178.48	1994.73	-1961.91	-2223.82	797.99	5736233.63	568142.6
3301	64.89	178.49	1995.15	-1962.33	-2224.73	798.01	5736232.73	568142.63
3302	64.91	178.49	1995.58	-1962.76	-2225.63	798.04	5736231.82	568142.65

APPENDIX 2a

BREAM A23A

Petrophysics Evaluation Summary

Esso Australia Pty Ltd.
Exploration Department

Bream A23A
Petrophysics Report

Petrophysicist: K.Kuttan
November 2005

Bream A23A Log Interpretation

The Bream A23A well was designed to access the poorly draining upper sand units of the N-1 reservoir on the southern flank of the field. The well was drilled from the abandoned Bream A23 horizontal wellbore which had been plugged back to the heel. The well was kicked off at 2249m MD through a milled window in the 9.625inch casing of the old Bream A23 well. An 8.5 inch hole was then drilled from 2249 mMD to a final TD of 3302 mMD. The well was logged with the Reeves Shuttle Logging system. After logging operations were completed, a 7 inch production string was run and well was completed as an N-1 oil producer. .

The Reeves Shuttle logs have been analysed for porosity, water saturation and net pay over the interval 3060-3273 mMD.

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)
Compact Gamma Ray - Compact Dual Neutron - Compact Photodensity - Compact Sonic - Compact Dual Laterolog	1	Reeves	2234	3284

Deviation

The well angle over the N-1 reservoirs was 62 degrees.

Mud Data

Mud Type : KCl/Glycol/PHPA
Mud Weight: 9.95 ppg
Rm: 0.106 @ 25 °C
Rmf: 0.084 @ 25 °C
Rmc: 0.202 @ 25 °C
BHT: 93.7 °C

Hole Size

2249-3302 mMDRT 8.5 inches

Data Acquisition & Log Quality

No problems were encountered in the acquisition of the logs. The data quality was met all of Esso's requirements.

Data Processing

The bulk density log (DEN) had to be edited over the interval 3081.5-3184 mMD due to spurious values. These spurious values were caused by the physical bulk density measurement exceeding an internal maximum set in the Reeves system. The system's upper limit for bulk density measurement is normally set at 3.0 gm/cc. There was no Reeves GR below 3270 mMD (first Reeves measurement started at 3284 mMD) and as a result the LWD GR was merged into the Reeves GR at 3270 mMD. Reeves had depth matched their logs to the LWD GR and since all the Reeves appear to reasonably depth matched to one another, no additional depth matching was carried out. No additional environmental corrections other than those applied in the field were applied to the final logs.

INTERPRETATION

Logs Used

The primary logs used in the interpretation were DGLL (deep resistivity), GRGC (compact gamma ray), DEN (bulk density) and NPRL (thermal neutron porosity in LPU). 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	Temperature (deg. C)
92.2	10
3284	103.7

The temperature at depth 92.2 mMD represents the temperature of the sea-bed and the temperature at 3284 MDRT (first reading of the Reeves logs) is the estimated formation temperature –BHT +10 deg.

Formation Water Salinity

R_{wa} analysis using $a = 1$, $m = 2$ and $n = 2$ indicates clean water sands have an apparent formation water salinity of 35,000 ppm NaCl equivalent. This salinity was used as the formation water salinity for all the sands.

Hydrocarbon Type Identification

The Near-Far neutron counts and PHIX-DT overlays indicate that the current GOC in the N-1 reservoir is at 3174 mMD (1905.4 mTVDSS) as shown in Fig. 1.

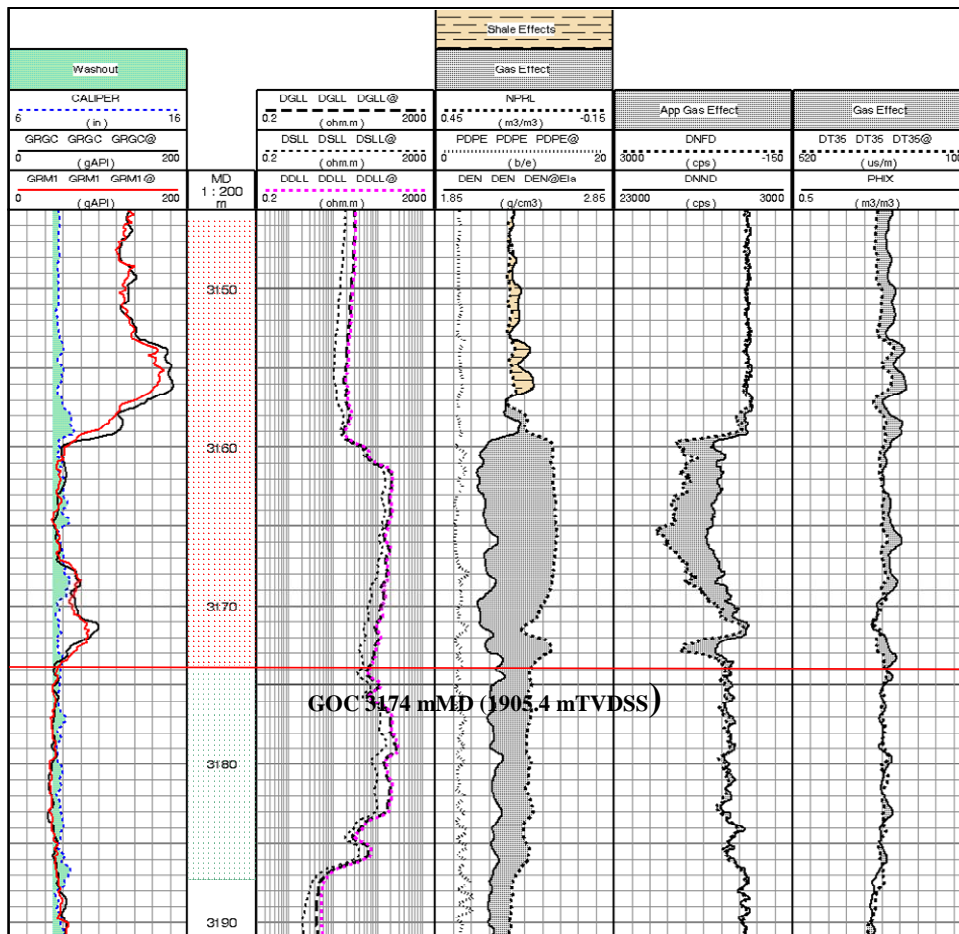


Fig. 1 Hydrocarbon Type and GOC in the N-1 Reservoir

Shale 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

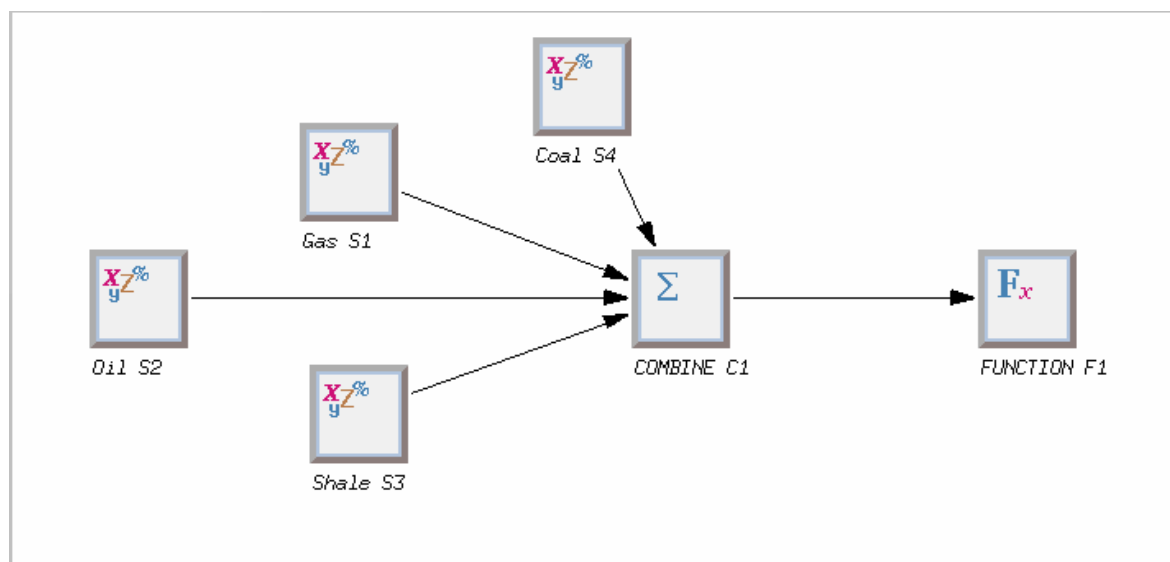


Figure 2: Elan + Model and Module Configuration

ELAN Input Channels

Log Curve Selector		Selector Options
Compound Name Spec		BREAM A23A
TEMP_CH	TEMP;*	TEMP TEMP TEMP@ElanInput;3 [A1266077]
RHOB_IFAC_CH	IFRH;*	
NPHI_IFAC_CH	INPH;*	
RHOB_CH	DEN:BPB;*	DEN DEN DEN@ElanInput;8 [A1266065]
NPHI_CH	NPRL:BPB;*	NPRL NPRL NPRL@ElanInput;7 [A1266059]
CUDC_CH/RT_CH	DGLL*	DGLL DGLL DGLL@ElanInput;4 [A1266067]
GR_CH	GRGC:BPB;*	GRGC GRGC GRGC@ElanInput;8 [A1266072]
PRB1_CH	FLAG_RHOH;*	FLAG_RHOH FLAG_RHOH FLAG_RHOH@ElanInput;8 [A1266072]
PRB2_CH	PRB2;*	
PRB3_CH	PRB3;*	
PRB4_CH	FLAG_COAL;*	FLAG_COAL FLAG_COAL FLAG_COAL@ElanInput;8 [A1266072]
M_CH	MXP;*	

ELAN Global Parameters

Reference Index	MD
Processing Interval	3060.0(m) To 3272.0(m)
Sampling Rate	0.1(m)
Uncertainty Channel	FALSE
Clay Input	DRY
Special Fluids	IMMOVABLE_HYDROCARBON

ELAN Zone Definition

Name	Bottom To Top
N-1Lower Oil	3292.2000(m) To 3174.0000(m)
N-1Lower Gas	3174.0000(m) To 3159.0000(m)
N-1 Middle	3159.0000(m) To 3120.0000(m)
N-1 Upper	3120.0000(m) To 3060.0000(m)

ELAN Process Definition

Process SOLVE1 "Gas"

Equations	RHOB	NPHI	CUDC_DWA	GR	CT1	CT3
Volumes	QUAR	ORTH	ILLI	XWAT	UWAT	XGAS
						UGAS

Constraints Applied

UNDEFINED - WaterBaseMud_SXO_gt_SW
UNDEFINED - IrreducibleXWater
UNDEFINED - IrreducibleUWater

Process SOLVE2 "Oil"

Equations	RHOB	NPHI	CUDC_DWA	GR	CT2	CT3
Volumes	QUAR	ORTH	ILLI	XWAT	UWAT	XOIL
						UOIL

Constraints Applied

UNDEFINED - IrreducibleXWater
UNDEFINED - IrreducibleUWater
UNDEFINED - WaterBaseMud_SXO_gt_SW

Process SOLVE3 "Shale"

Equations	RHOB	NPHI	CUDC_DWA	GR
Volumes	QUAR	ILLI	XWAT	UWAT

Constraint Zones	Bottom	Top
UNDEFINED	3292.2000(m)	3060.0000(m)

Process SOLVE4 "Coal"

Equations RHOB
Volumes COAL

Constraint Zones Bottom Top
UNDEFINED 3292.2000(m) 3060.0000(m)

Process COMBINE 1 "COMBINE"

Order SOL.2 SOL.1 SOL.3 SOL.4

Combine Method

"Tuna " 10801.1807 (m) Internal Average

Probability Functions

```
probability(SOL.4, PRB4_CH)
prob3 = linear(ILLI_VOL.SOL.3, 0.3, 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

```
swt_cmp=if((PRB4_CH > 0),1,(UWAT_VOL + XBWA_VOL)/(UWAT_VOL + XBWA_VOL + UOIL_VOL + GAS_VOL))
output(SWT, swt_cmp)
```

ELAN Different Parameters

Parameters	N-1Lower	N-1Lower	N-1 Middl	N-1 Upper
n*****	*****	*****	*****	*****
RHOB_XGAS (g/cm3)	-0.032	-0.032	-0.327	-0.032
RHOB_UGAS (g/cm3)	-0.032	-0.032	-0.327	-0.032
NPHI_XGAS (m3/m3)	0.133	0.133	0.105	0.103
NPHI_UGAS (m3/m3)	0.133	0.133	0.105	0.103
CXDC_XWAT (mS/m)	20.038	19.415	19.345	19.130
CXDC_XBWA (mS/m)	11.445	11.092	11.049	10.930
CUDC_UWAT (mS/m)	15.600	15.181	15.128	14.989
CUDC_UBWA (mS/m)	5.094	4.937	4.918	4.865
CT1_UGAS ()	-0.700	-0.700	-0.300	-0.300
CT3_QUAR ()	-0.050	-0.050	-0.100	-0.050
CUDC_UNC_ZP (mS/m)	0.059	0.058	0.058	0.058
GR_UNC_WM ()	0.800	0.300	0.000	0.000
RHOB_IFAC_ZP()	0.300	0.500	0.500	0.500

LAN 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	1.061(g/cm3)	RHOB_UWAT	0.978(g/cm3)
RHOB_XOIL	0.600(g/cm3)	RHOB_UOIL	0.600(g/cm3)
RHOB_XBWA	0.961(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)
NPHI_XWAT	1.000(m3/m3)	NPHI_UWAT	1.000(m3/m3)
NPHI_XOIL	1.000(m3/m3)	NPHI_UOIL	1.000(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_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)
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	235.000(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	-0.600()
CT2_XGAS	0.000()	CT2_UGAS	0.000()

CT2_XBWA	0.000()	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)	RW	0.338(ohm.m)
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)
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)	RHOB_UNC_WM	1.000()
NPHI_UNC_WM	1.000()	DT_UNC_WM	0.300()
U_UNC_WM	0.400()	CXDC_UNC_WM	0.500()
CUDC_UNC_WM	0.600()	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()	NPHI_IFAC_ZP	0.500()
A_ZP	1.000()	N_ZP	2.000()
C_DWA	0.000()	M_DWA	2.000()
BVIRR	0.010(m3/m3)		

RESULTS AND DISCUSSION

The sands in the interval 3100.1 – 3159.1 mMD (Fig. 3) are gas bearing; these sands have complex mineralogy as indicated by the high GR, the reduced resistivity and reduced gas effect on the density-neutron logs. Given the lack of core analysis and mineralogical data, the porosities and water saturations in these sands are only our best estimates.

In the main N-1 reservoir, a current GOC is interpreted at 3174 mMD (1905.4 mMD) and a current OWC is interpreted at 3187 mMD (1911.4 mMD) (Fig. 4) indicating an oil column of 6.0 m TVD. The thickness of the oil column is in keeping with the expected thickness of the oil column in this part of the field. Below this contact is a zone that is currently interpreted to be a residual oil zone. This zone has an average effective water saturation of 43% (average effective oil saturation of 57%) suggesting that this zone could be considered to be potentially oil bearing. However, given the significant change in water saturation from the

oil zone above (above 3174 mMD) it is likely that this is a residual oil zone. No credible explanation can be offered for the high residual oil saturation observed in this zone at this stage.

The interval 3199.4 – 3207.0 mMD is probably a residual oil zone although the average water saturation in this interval is 54% (average effective oil saturation of 46%) and again as with the zone above, it lower than what one would expect it to be. The higher than expected residual oil saturation in this zone could be due to the poorer reservoir quality as indicated by the logs.

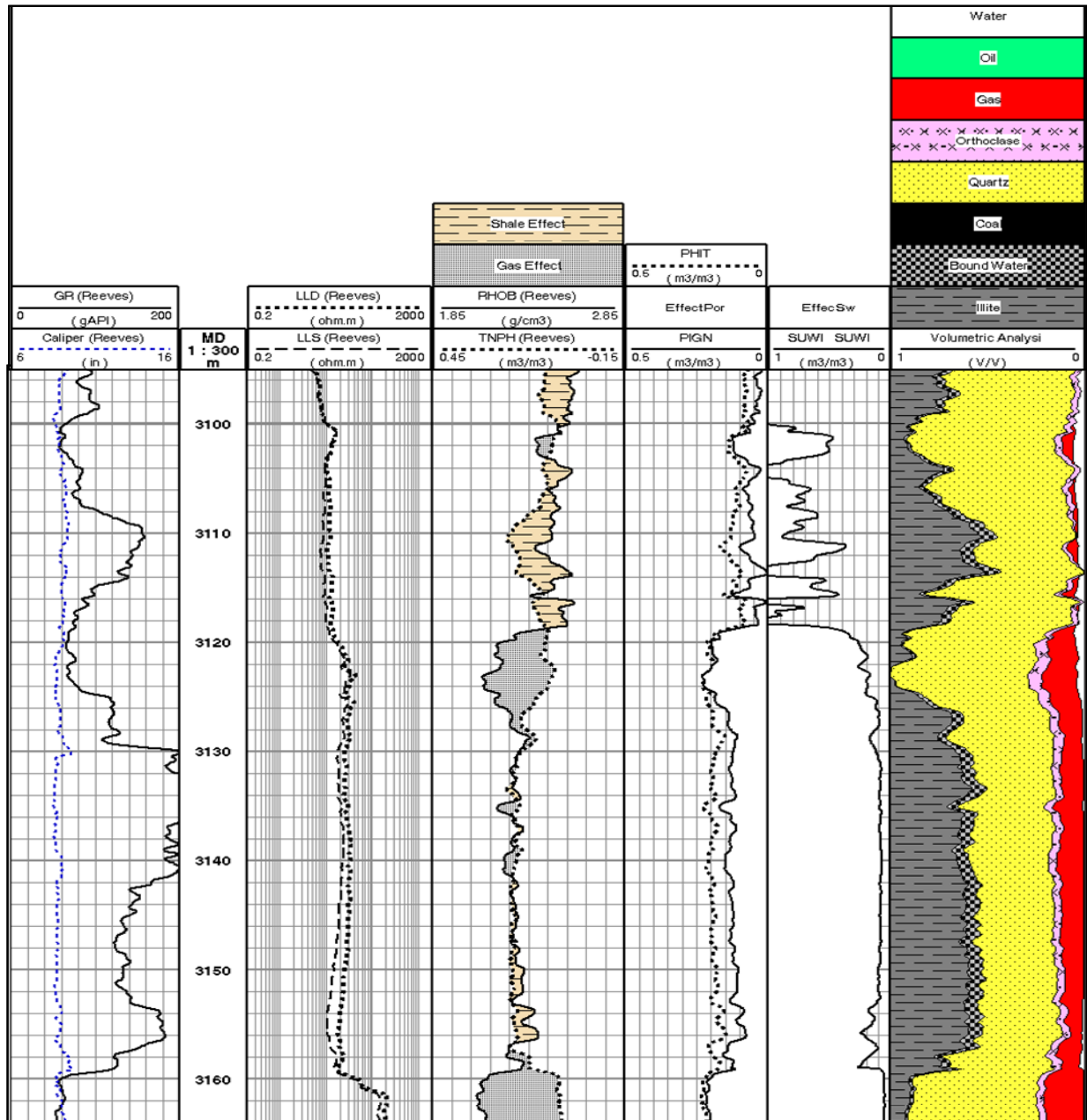


Fig. 3 Bream A23A Interval 3100.1- 3159.1 MMD

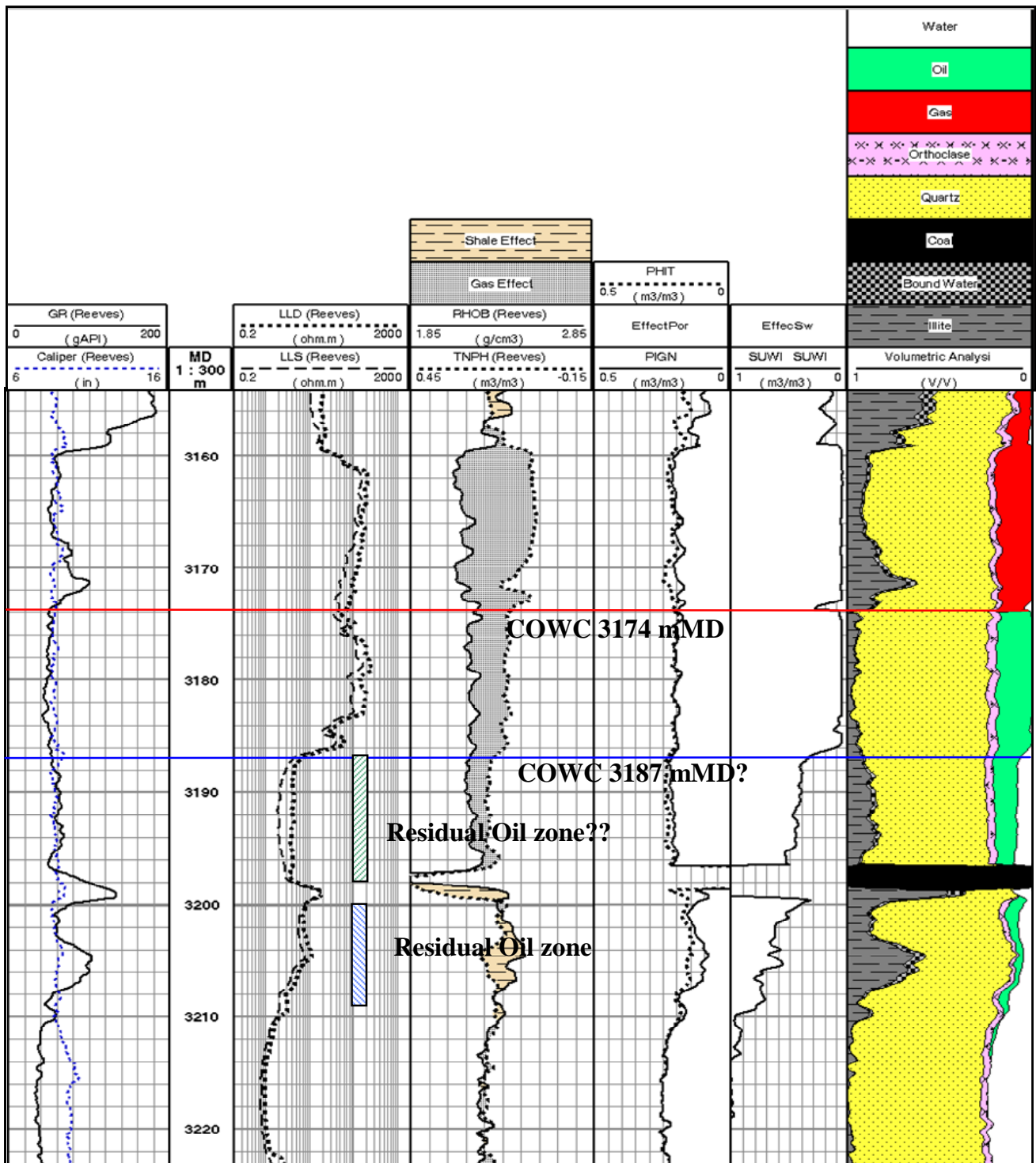


Fig. 4 Bream A23A Interval 3159.1 -3220 mMD

Bream A23A

Petrophysical Summary 3084 - 3272m MD

Depth Reference:

Mean VCL, Mean PHIE (or PIGN), Mean SWE (or SUWI) is based on a PHIE or PIGN cutoff:

Primary: MDKB

0.08 for Gas, 0.12 for oil and water

Zone	Top Depth mMD	Top Depth mTVDSS	Bottom Depth mMD	Bottom Depth mTVDSS	Gross Thickness mMD	Gross Thickness mTVD	Net/Gross	Mean VCL	Mean PHIE	Mean SWE	Comments	Net Pay Thickness mMD	Net Pay Thickness mTVD
TCC	3084.0	1863.9	3100.1	1871.2	16.0	7.3	0.00						
BWST-Gas	3100.1	1871.2	3103.5	1872.8	3.5	1.6	0.66	0.11	0.112	0.52	Gas Bearing	2.3	1.1
Rdsb-Gas	3103.5	1872.8	3118.6	1879.7	14.5	6.6	0.14	0.30	0.096	0.48	Gas Bearing	2.1	1.0
GnF2-Gas	3118.6	1879.7	3129.6	1884.7	11.6	5.3	0.94	0.17	0.169	0.19	Gas Bearing	11.0	5.0
Gnsb-Gas	3129.6	1884.7	3159.1	1898.4	29.5	13.7	0.97	0.43	0.123	0.10	Gas Bearing	28.7	13.3
CbF2-Gas	3159.1	1898.4	3172.0	1904.4	12.9	6.0	1.00	0.15	0.195	0.05	Gas Bearing	12.9	6.0
CbF1-Gas	3172.0	1904.4	3174.0	1905.4	2.0	0.9	1.00	0.15	0.186	0.12	Gas Bearing, GOC@3174mMD(1905.4 mTVDSS)	2.0	0.9
CbF1-1-Oil	3174.0	1905.4	3187.0	1911.4	13.0	6.0	1.00	0.05	0.197	0.07	Oil Bearing, probable COWC @3187.0 mMD(1911.4 mTVDSS)	13.0	6.0
CbF1-2-Resid Oil?	3187.0	1911.4	3196.5	1915.8	9.5	4.4	1.00	0.13	0.211	0.43	Maybe residual oil zone	9.5?	4.4?
Cbsb-Resid Oil	3199.4	1917.1	3207.0	1920.6	7.6	3.5	0.43	0.15	0.140	0.54	Most likely residual oil zone		
Pkf2-1-Resid Oil	3207.0	1920.6	3209.6	1921.7	2.6	1.2	0.98	0.12	0.169	0.74	Residual		
Pkf2-2-Water	3209.6	1921.7	3223.8	1928.5	14.2	6.5	1.00	0.02	0.232	0.98	Water Bearing		
Pkf1-Water	3230.0	1931.0	3250.8	1940.3	20.8	9.3	1.00	0.11	0.219	1.00	Water Bearing		
Pksb-Water	3250.8	1940.3	3254.2	1941.8	3.4	1.5	1.00	0.29	0.192	0.99	Water Bearing		
MvF2-Water	3254.2	1941.8	3263.8	1946.0	9.6	4.2	1.00	0.09	0.227	1.00	Water Bearing		
Mvsb-Water	3263.8	1946.0	3271.9	1949.5	8.1	3.5	1.00	0.19	0.195	1.00	Water Bearing		

Table 1



ExxonMobil

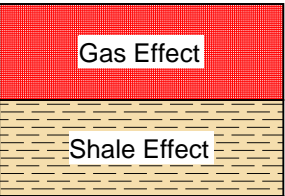
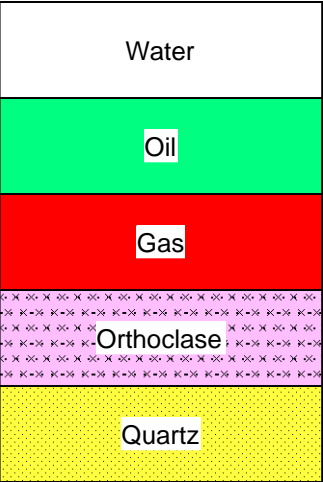
BREAM A23A

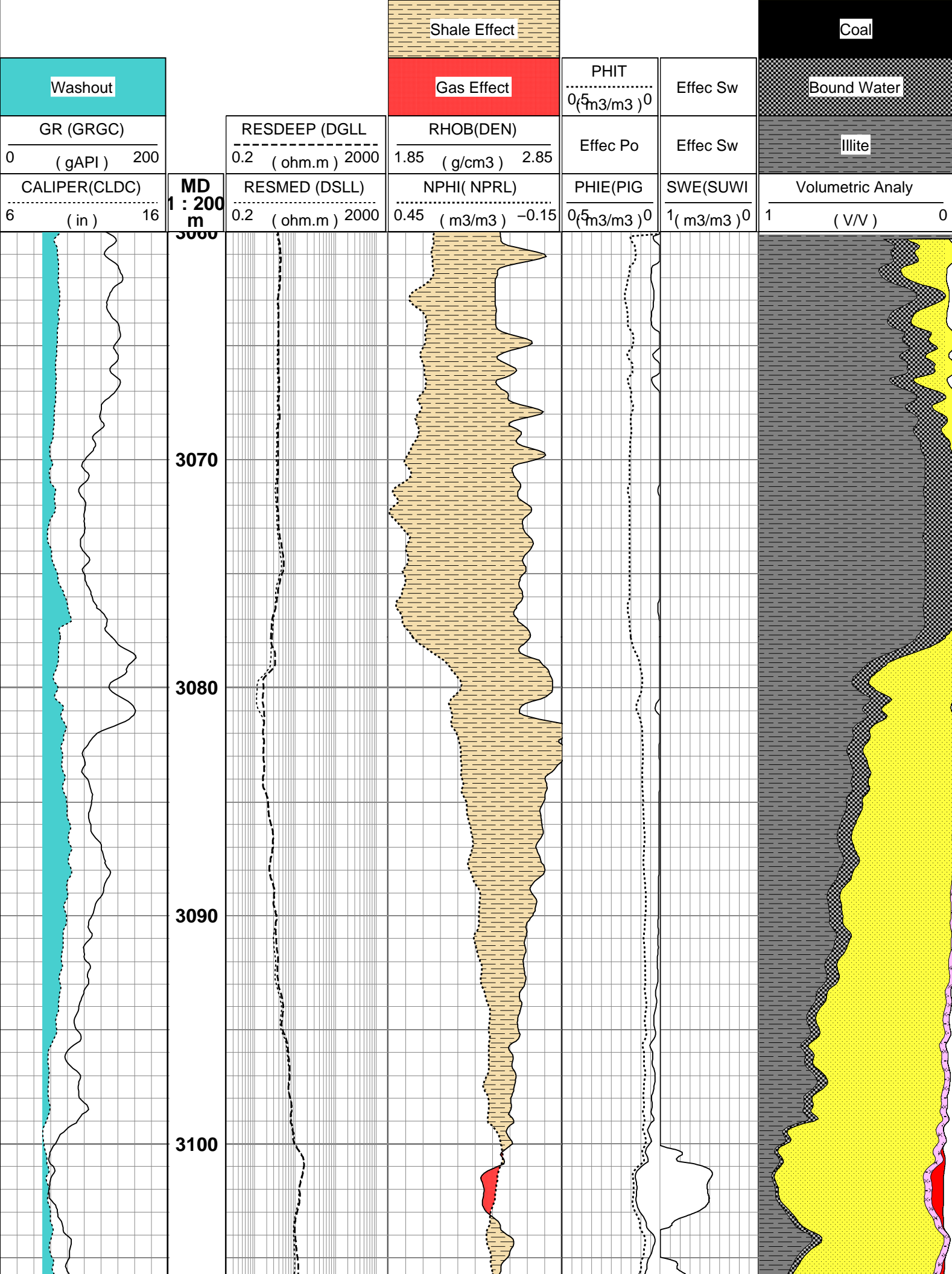
Petrophysical Analysis

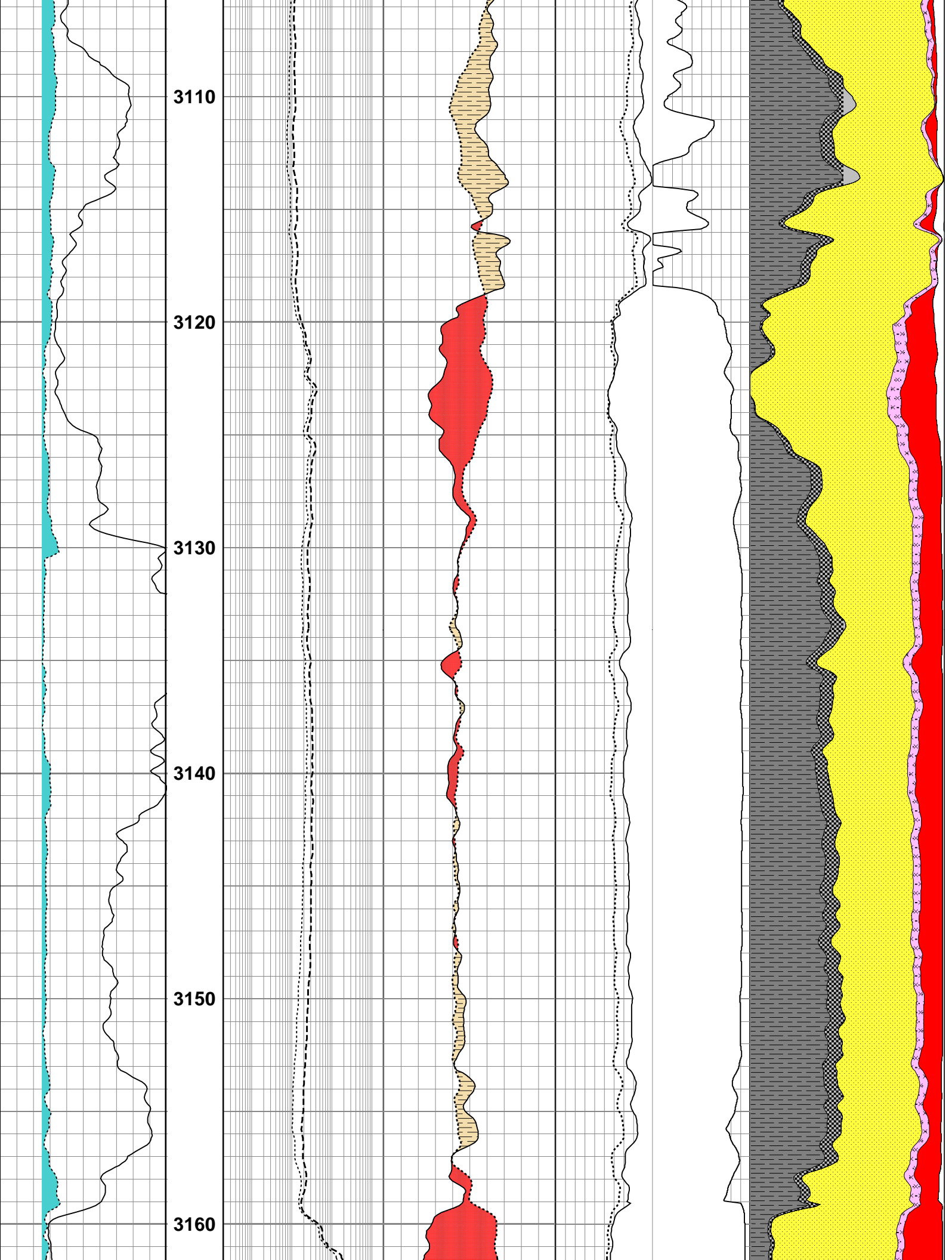
COMPANY: Esso Australia Pty. Ltd.
WELL: BREAM A23A
BOREHOLE:
FIELD: BREAM
STATE: VICTORIA
COUNTRY: AUSTRALIA

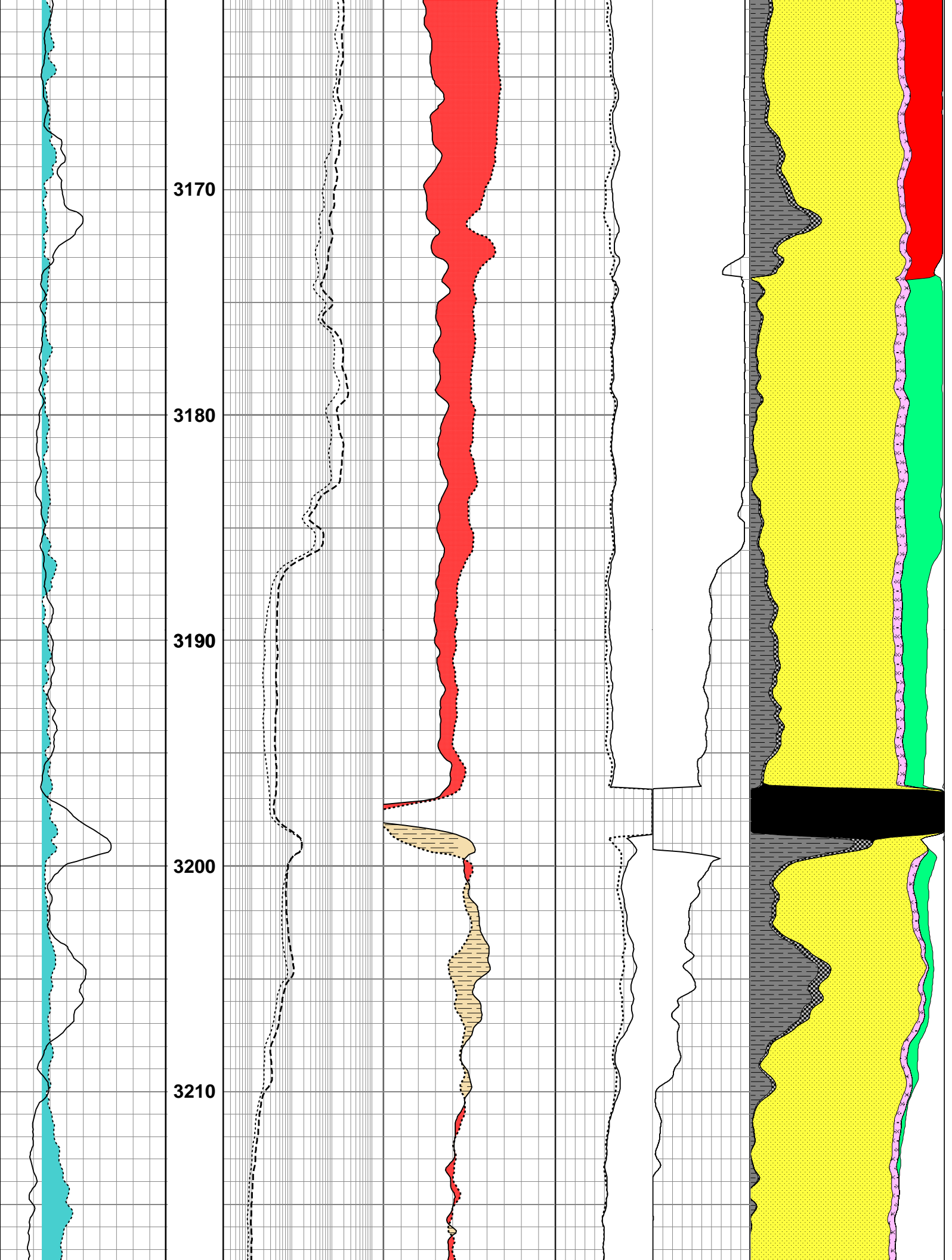
PETROPHYSICIST: KUMAR KUTTAN

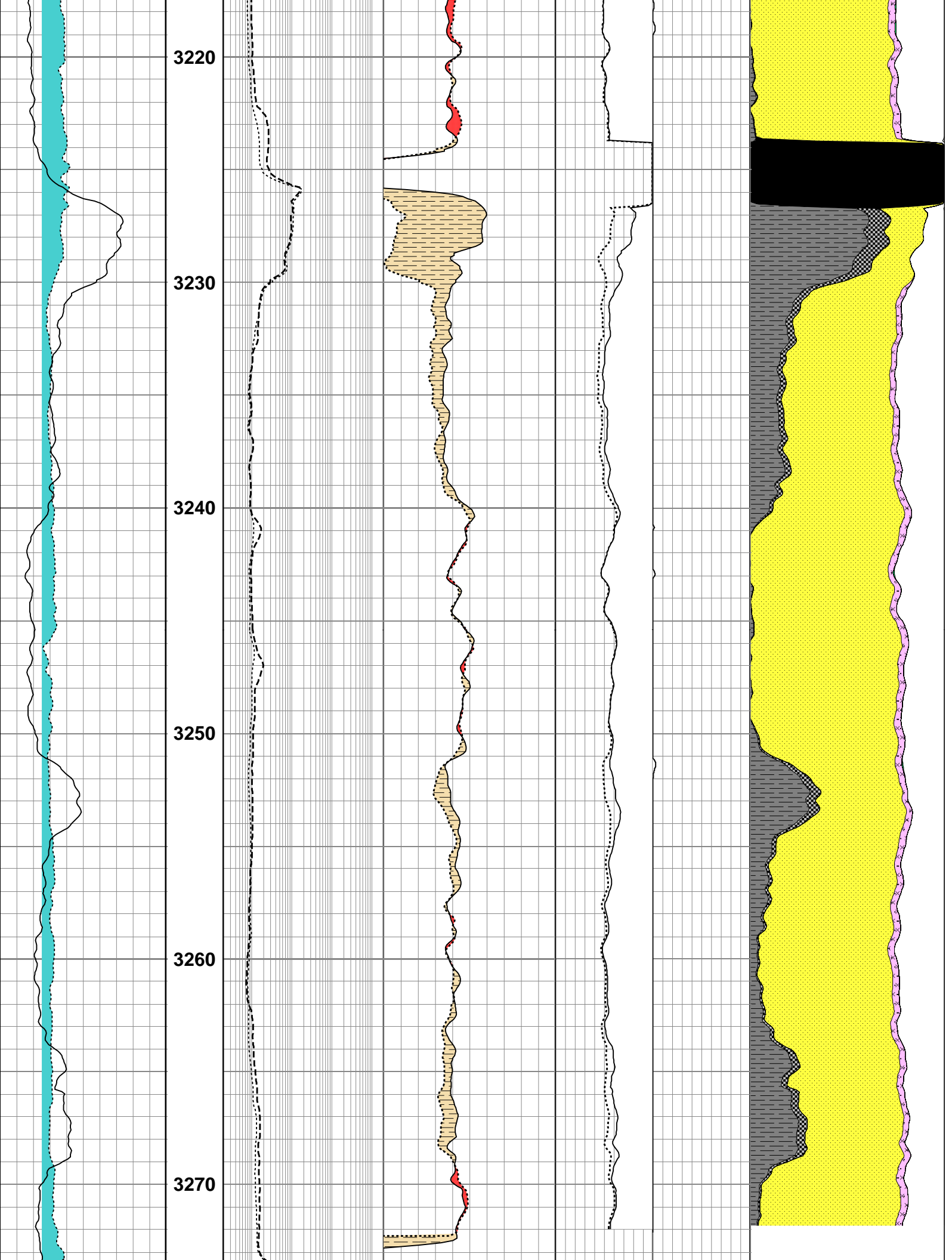
Date Logged: 13-Jul-05 Date of Analysis: November 2005
Well Location: <FL>
Elevations: K.B. 32.82 m D.F. 59.4 m
Latitude: <LATI> G.L. 59.4 m
Longitude: <LONG>

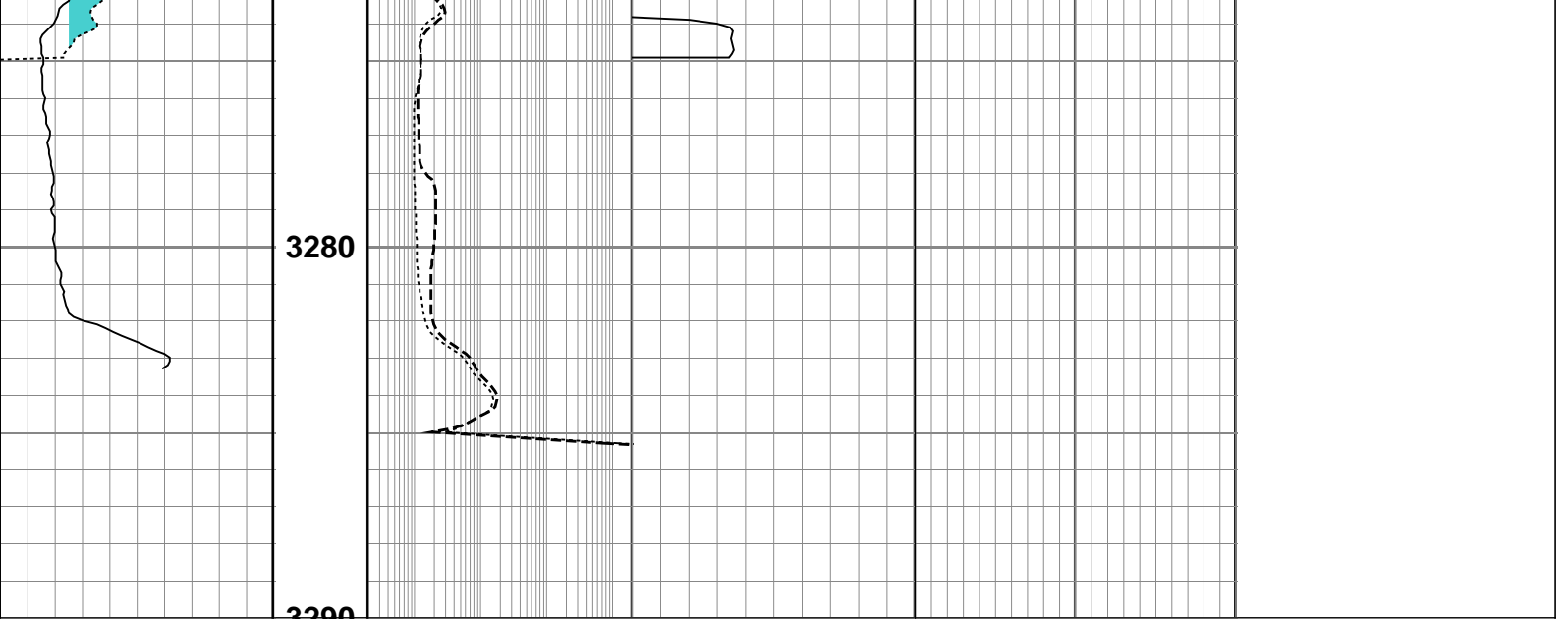












APPENDIX 3a

BREAM A23A

Lithology/Show Descriptions

Bream A23A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
Previous Well History:			
Bream A23 Plugged and Abandoned on 04 July 2005.			
Milled the 9.625" Casing : Top of window at 2235.3 mMDRT (1492.6 mTVDRT). : Bottom of window at 2248.0 mMDRT (1499.5 mTVDRT).			
BMA A23A Kick-off point with Milling assembly at 2235.3 mMDRT at 1215 hrs on 07 July 2005.			
PIT at 0930 hrs 09 July 2005:			
PIT at 2248.0 mMDRT (1499.5 mTVDRT), 926 psi using 9.6 ppg mud, EMW of 13.2 ppg.			
Drilled from 2248.0 mMDRT (1499.5 mTVDRT) at 1000 hrs 09 July 2005, to the TD of 3302.0 mMDRT (1995.3 mTVDRT), with a Smith PDC bit on steerable motor assembly.			
Bit Details:			
BHA # 4, Bit # 1, Size: 8.5", Manufacturer / Type: Smith S73 PX. Serial #: JT6967 r2 Jets: 18 x 3, 20 x 3, TFA: 1.666 sq.in, HOB: 33.70, Grading: 2-1-CT-S-X-I-BT-TD . Krevs: 532.0, RPM: 100-120 (+ 170 RPM DHM). Average ROP: 31.3 / 1054.0 = 33.70 m/hr. Rotating: 915.0 metres / Rotating HOB = 27.03, Average Rotating ROP = 33.9 m/hr. Steering: 139.0 metres / Steering HOB = 6.67 , Average Steering ROP = 20.8 m/hr.			
Spot 1 metre samples from 2236.0-2248.0 mMDRT.			
Cuttings samples for description only at 30 m intervals from 2250.0 to 2610.0 mMDRT. (To 150 mMD above the Top of Latrobe prognosed at 2757.8 mMDRT).			
Cuttings samples bagged at 10 m intervals from 2610.0 to 2750.0 mMDRT			
Cuttings samples bagged at 5 m intervals from 2750.0 to TD of 3302.0 mMDRT.			
Geologist on Rig from 2235.3 mMDRT (1492.6 mTVDRT), at 1330 hrs 06 July 2005.			
Spot	2236	100	Metal
	2237	90	Metal
		10	Cement
	2238	60	Metal
		40	Cement
		Trace	CALCAREOUS CLAYSTONE: medium grey to medium dark grey, silty in part, moderately calcareous, trace micromicaceous, soft to moderately hard, amorphous to sub blocky.
	2239	35	Metal
		60	Cement

Bream A23A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description		
2240		5	CALCAREOUS CLAYSTONE: as above.		
		10	Metal		
		70	Cement		
		20	CALCAREOUS CLAYSTONE: as above.		
2241		10	Metal		
		55	Cement		
		35	CALCAREOUS CLAYSTONE: as above.		
2242	Trace		Metal		
		50	Cement		
		50	CALCAREOUS CLAYSTONE: as above.		
2243	Trace		Metal		
		40	Cement		
2244	Trace	60	CALCAREOUS CLAYSTONE: as above.		
			Metal		
		30	Cement		
2245		70	CALCAREOUS CLAYSTONE: as above.		
		15	Metal		
		5	Cement		
2246		80	CALCAREOUS CLAYSTONE: as above.		
		10	Metal		
		5	Cement		
2247		85	CALCAREOUS CLAYSTONE: as above.		
		5	Metal		
		5	Cement		
2248		90	CALCAREOUS CLAYSTONE: as above.		
		5	Metal		
		Trace	Cement		
2248	2250	95	CALCAREOUS CLAYSTONE: as above.		
		End Milling at 2248.0 mMDRT (1499.5 mTVDRT) at 1400 hrs on 08 July 2005.			
		CBU, Pump sweep, POOH at 1545 hrs on 08 July 2005 to change to Drilling BHA.			
		RIH at 0100 hrs on 09 July 2005.			
		Perform PIT at 0930 hrs on 09 July 2005.			
		On bottom drilling at 1000 hrs on 09 July 2005.			
		100	CALCAREOUS CLAYSTONE: medium light grey to medium grey, silty in part, moderately calcareous (15%), trace micromicaceous, soft to moderately hard, sub blocky to blocky.		
		(5% metal and 5% cement contamination)			
		2250	2280	100	CALCAREOUS CLAYSTONE: medium light grey to medium grey, rare greenish grey, silty in part, moderately calcareous, trace micromicaceous, rare glauconite, soft to moderately hard, sub blocky to blocky.
		2280	2310	100	CALCAREOUS CLAYSTONE: as above.
2310	2340	100	CALCAREOUS CLAYSTONE: medium light grey to medium grey, silty in part, moderately calcareous, trace micromicaceous, rare forams, rare glauconite, soft to moderately hard, sub blocky to blocky.		
2340	2370	100	CALCAREOUS CLAYSTONE: as above, rare ooids.		
2370	2400	100	CALCAREOUS CLAYSTONE: medium grey to medium dark grey, silty in part, moderately calcareous, trace micromicaceous, trace ooids, soft to moderately hard, sub blocky to blocky.		
2400	2430	100	CALCAREOUS CLAYSTONE: as above.		

Bream A23A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2430	2460	100	CALCAREOUS CLAYSTONE: medium grey to medium dark grey, silty in part, moderately calcareous, trace micromicaceous, trace ooids, trace pyrite nodules, firm to moderately hard, sub blocky.
2460	2490	100	CALCAREOUS CLAYSTONE: as above. Midnight Depth 09 July 2005 = 2497.0 mMDRT (1626.3 mTVDRT).
2490	2520	100	CALCAREOUS CLAYSTONE: medium grey to medium dark grey, silty in part, moderately calcareous, trace micromicaceous, trace ooids, trace disseminated pyrite, firm to moderately hard, sub blocky.
2520	2550	100	CALCAREOUS CLAYSTONE: light medium grey to medium grey, silty in part, moderately calcareous, trace micromicaceous, trace ooids, trace pyrite nodules, firm to moderately hard, sub blocky.
2550	2580	100	CALCAREOUS CLAYSTONE: as above.
2580	2600	100	CALCAREOUS CLAYSTONE: as above. Spot 30 m samples from 2250 to 2610 mMDRT. Bagged 10 m samples from 2610 to 2750 mMDRT.
2600	2610	100	CALCAREOUS CLAYSTONE: light medium grey to medium grey, occasionally light brownish grey, silty in part, moderately calcareous, trace micromicaceous, trace ooids, common pyrite nodules, firm to moderately hard, sub blocky to blocky.
2610	2620	100	CALCAREOUS CLAYSTONE: as above, trace pyrite nodules.
2620	2630	100	CALCAREOUS CLAYSTONE: as above, common ooids.
2630	2640	100	CALCAREOUS CLAYSTONE: as above, trace ooids, rare pyrite nodules.
2640	2650	100	CALCAREOUS CLAYSTONE: as above, common pyrite nodules, common ooids.
2650	2660	100	CALCAREOUS CLAYSTONE: as above.
2660	2670	100	CALCAREOUS CLAYSTONE: light medium grey to medium grey, occasionally light brownish grey, silty in part, moderately calcareous, trace micromicaceous, trace ooids, common pyrite nodules, firm to moderately hard, sub blocky to blocky.
2670	2680	100	CALCAREOUS CLAYSTONE: as above, trace pyrite nodules.
2680	2690	100	CALCAREOUS CLAYSTONE: light medium grey to medium grey, silty in part, moderately calcareous (10%), trace micromicaceous, trace ooids, trace pyrite nodules, firm to moderately hard, sub blocky to blocky.
2690	2700	100	CALCAREOUS CLAYSTONE: as above, occasionally light olive grey, rare forams.
2700	2710	100	CALCAREOUS CLAYSTONE: as above.
2710	2720	100	CALCAREOUS CLAYSTONE: light medium grey to medium grey, occasionally light olive grey, silty in part, moderately calcareous (10%), trace micromicaceous, trace ooids, rare forams, firm to moderately hard, sub blocky to blocky.
2720	2730	100	CALCAREOUS CLAYSTONE: as above.
2730	2740	100	CALCAREOUS CLAYSTONE: light medium grey to light olive grey, silty in part, moderately calcareous (10%), trace micromicaceous, trace ooids, rare forams, firm to moderately hard, sub blocky to blocky.
2740	2750	100	CALCAREOUS CLAYSTONE: as above.
		100	Bagged 10 m samples from 2610 to 2750 mMDRT. Bagged 5 m samples from 2750 to TD of 3302 mMDRT.
2750	2755	100	CALCAREOUS CLAYSTONE: as above. Start adding Barablock to the Mud system at 2557.0 mMDRT, at 1220 hrs, 10 July 2005. Barablock seen in samples from 2760 m onwards.
2755	2760	100	CALCAREOUS CLAYSTONE: as above.
2760	2765	100	CALCAREOUS CLAYSTONE: as above.
2765	2770	100	CALCAREOUS CLAYSTONE: as above.
2770	2775	100	CALCAREOUS CLAYSTONE: as above.

Bream A23A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2775	2780	100	CALCAREOUS CLAYSTONE: light olive grey to light medium grey, silty in part, moderately calcareous (10%), trace micromicaceous, trace pyrite nodules, rare ooids, firm to moderately hard, sub blocky to blocky.
2780	2785	100	CALCAREOUS CLAYSTONE: as above. TOP OF LATROBE at 2786.0 mMDRT (1758.4 mTVDRT).
2785	2790	90	CALCAREOUS CLAYSTONE: as above.
		10	SANDSTONE: clear to translucent, common light green, very fine to fine, moderately well sorted, sub angular to sub rounded, abundant glauconite matrix and abundant dark green pelletoid glauconite, hard aggregates, tight to very poor visual and inferred porosity. No fluorescence.
2790	2795	5	CALCAREOUS CLAYSTONE: as above.
		15	SILTSTONE: pale brown to pale yellowish brown, occasionally dark yellowish brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, trace glauconite, moderately hard to hard, blocky.
		80	SANDSTONE: as above. No fluorescence.
2795	2800	Trace	CALCAREOUS CLAYSTONE: as above.
		15	SILTSTONE: as above.
		85	SANDSTONE: as above. No fluorescence.
2800	2805	15	SILTSTONE: as above.
		85	SANDSTONE: as above. Trace bright yellow mineral fluorescence (no direct cut, no crush cut).
2805	2810	20	SILTSTONE: as above.
		80	SANDSTONE: as above. Trace bright yellow mineral fluorescence (no direct cut, no crush cut).
2810	2815	10	SILTSTONE: as above.
		90	SANDSTONE: as above. Trace bright yellow mineral fluorescence (no direct cut, no crush cut).
2815	2820	5	CLAYSTONE: light grey to very light grey, slightly calcareous, dispersive, soft, amorphous.
		15	SILTSTONE: pale brown to pale yellowish brown, occasionally dark yellowish brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, trace glauconite, moderately hard to hard, blocky.
		80	SANDSTONE: clear to translucent, occasionally white, rare light green, dominantly very fine, occasionally coarse, moderately well sorted, sub angular to sub rounded, abundant glauconite matrix and abundant dark green pelletoid glauconite, hard aggregates, tight to very poor visual and inferred porosity. No fluorescence.
2820	2825	10	SILTSTONE: as above.
		90	SANDSTONE: as above, dominantly very fine to fine, occasionally coarse. No fluorescence.
2825	2830	20	SILTSTONE: as above.
		80	SANDSTONE: as above. No fluorescence.
2830	2835	30	SILTSTONE: as above.
		70	SANDSTONE: as above, dominantly very fine, occasionally coarse. No fluorescence.

Bream A23A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2835	2840	25	SILTSTONE: as above.
		75	SANDSTONE: as above, dominantly very fine, occasionally coarse. No fluorescence.
2840	2845	20	SILTSTONE: as above.
		80	SANDSTONE: as above. No fluorescence.
2845	2850	20	SILTSTONE: as above.
		80	SANDSTONE: as above. No fluorescence.
2850	2855	35	SILTSTONE: pale yellowish brown, occasionally light brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, trace pyrite nodules, moderately hard to hard, sub blocky to blocky.
		25	SANDSTONE: clear to translucent, common light green, occasionally white, occasionally coarse light green to pale greenish yellow quartzite grains, dominantly very fine to fine, moderately well sorted, sub angular to sub rounded, abundant glauconite matrix and abundant dark green pelletoid glauconite, hard aggregates, tight visual and inferred porosity. No fluorescence.
		40	VOLCANICS: dark grey to greyish black, fine grained, crystalline basic volcanic rocks, 50% very fine quartz grains.
		30	SILTSTONE: as above.
2855	2860	20	SANDSTONE: as above, dominantly very fine to occasionally coarse, common pyrite nodules. No fluorescence.
		50	VOLCANICS: as above.
		20	SILTSTONE: as above.
2860	2865	20	SANDSTONE: clear to translucent, common white, occasionally light green, very fine to fine, moderately well sorted, sub angular to sub rounded, abundant pyrite cement and disseminated pyrite, common glauconite matrix and common dark green pelletoid glauconite, hard aggregates, tight visual and inferred porosity. Trace bright yellow mineral fluorescence (no direct cut, no crush cut).
		60	VOLCANICS: as above.
		50	SILTSTONE: pale yellowish brown to light brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, trace pyrite nodules, firm to moderately hard, sub blocky to blocky.
2865	2870	10	SANDSTONE: as above. Trace bright yellow mineral fluorescence (no direct cut, no crush cut).
		40	VOLCANICS: as above.
		40	SILTSTONE: as above.
		10	SANDSTONE: as above. Trace bright yellow mineral fluorescence (no direct cut, no crush cut).
2870	2875	50	VOLCANICS: as above.
		20	SILTSTONE: as above.
		40	SANDSTONE: as above. Trace bright yellow mineral fluorescence (no direct cut, no crush cut).
2875	2880	40	VOLCANICS: as above.
		20	SILTSTONE: as above.
		50	SANDSTONE: as above. No fluorescence.
2880	2885	20	SILTSTONE: as above.
		50	SANDSTONE: as above. No fluorescence.

Bream A23A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2885	2890	30	VOLCANICS: as above.
		30	SILTSTONE: as above.
		50	SANDSTONE: clear to translucent, occasionally white and light green, occasionally light green to pale greenish yellow quartzite grains, dominantly very fine to fine, moderately well sorted, sub angular to sub rounded, abundant glauconite matrix and abundant dark green pelletoid glauconite, trace pyrite nodules, hard aggregates, tight visual and inferred porosity. No fluorescence.
2890	2895	20	VOLCANICS: dark grey to greyish black, fine grained, crystalline basic volcanic rocks, 50% very fine quartz grains.
		10	SILTSTONE: as above.
		85	SANDSTONE: as above. No fluorescence.
2895	2900	5	VOLCANICS: as above.
		10	SILTSTONE: as above.
		90	SANDSTONE: as above. No fluorescence.
2900	2905	Trace	VOLCANICS: as above.
		40	SILTSTONE: light brown to dark yellowish brown, occasionally pale yellowish brown very arenaceous grading to very fine Sandstone, trace micromicaceous, trace glauconite, firm to moderately hard, sub blocky to blocky.
		55	SANDSTONE: as above. No fluorescence.
2905	2910	5	VOLCANICS: dark grey to greyish black, fine grained, crystalline basic volcanic rocks, 50% very fine quartz grains.
		70	SILTSTONE: as above.
		25	SANDSTONE: translucent, white to occasionally light green, rare light green to pale greenish yellow and greyish pink coarse quartzite grains, dominantly very fine to fine, moderately well sorted, sub angular to sub rounded, abundant glauconite matrix and abundant dark green pelletoid glauconite, trace pyrite nodules, hard aggregates, tight visual and inferred porosity. No fluorescence.
2910	2915	5	VOLCANICS: as above.
		85	SILTSTONE: as above.
		15	SANDSTONE: as above. No fluorescence.
2915	2920	85	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
		5	VOLCANICS: as above.
2920	2925	80	SILTSTONE: as above.
		15	SANDSTONE: as above. No fluorescence.
		5	VOLCANICS: dark grey to greyish black, fine grained, crystalline basic volcanic rocks, 50% very fine quartz grains.
2925	2930	85	SILTSTONE: as above.
		15	SANDSTONE: as above. No fluorescence.
		Trace	VOLCANICS: cavings, as above.

Bream A23A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2930	2935	90	SILTSTONE: light brown to pale yellowish brown, occasionally moderate brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, trace glauconite, firm to moderately hard, sub blocky to blocky.
		10	SANDSTONE: clear to translucent, white to light green, occasionally pale greenish yellow coarse quartzite grains, dominantly very fine to fine, moderately well sorted, sub angular to sub rounded, abundant glauconite matrix and abundant dark green pelletoid glauconite, trace pyrite nodules, hard aggregates, tight visual and inferred porosity. No fluorescence.
		Trace	VOLCANICS: cavings, as above.
2935	2940	90	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
		Trace	VOLCANICS: cavings, as above.
2940	2945	90	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
		Trace	VOLCANICS: cavings, as above.
2945	2950	90	SILTSTONE: light brown to pale yellowish brown, occasionally moderate brown, very arenaceous grading to very fine Sandstone, abundant pelletoid glauconite, trace micromicaceous, rare pyrite nodules, firm to hard, sub blocky to blocky.
		10	SANDSTONE: translucent, white to light green, occasionally pale greenish yellow coarse quartzite grains, dominantly very fine to fine, moderately well sorted, sub angular to sub rounded, common glauconite matrix and common dark green pelletoid glauconite, trace pyrite nodules, hard aggregates, tight visual and inferred porosity. No fluorescence.
2950	2955	90	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
2955	2960	85	SILTSTONE: as above.
		15	SANDSTONE: as above. No fluorescence.
2960	2965	90	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
2965	2970	95	SILTSTONE: as above.
		5	SANDSTONE: as above. No fluorescence.
2970	2975	90	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
2975	2980	90	SILTSTONE: light brown to pale yellowish brown, occasionally moderate brown, very arenaceous grading to very fine Sandstone, abundant pelletoid glauconite, trace micromicaceous, rare pyrite nodules, firm to hard, sub blocky to blocky.
		10	SANDSTONE: translucent, white to light green, occasionally pale greenish yellow coarse quartzite grains, dominantly very fine to fine, moderately well sorted, sub angular to sub rounded, common glauconite matrix and common dark green pelletoid glauconite, trace pyrite nodules, hard aggregates, tight visual and inferred porosity. No fluorescence.
2980	2985	85	SILTSTONE: as above.

Bream A23A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2985	2990	15	SANDSTONE: as above. No fluorescence.
		90	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
2990	2995	85	SILTSTONE: as above.
		15	SANDSTONE: as above. No fluorescence.
			Midnight Depth 10 July 2005 = 2999.0 mMDRT (1857.3 mTVDRT).
2995	3000	80	SILTSTONE: as above.
		20	SANDSTONE: as above. No fluorescence.
			Increase in Gas from 3003.5 mMDRT to 138 /BG 32 units, with a peak of 274 units at 3013.5 mMDRT.
3000	3005	60	SILTSTONE: as above.
		40	SANDSTONE: translucent, off white, pale green to green, occasionally milky white coarse quartzite grains, dominantly very fine to fine, moderately well sorted, sub angular to sub rounded, abundant glauconite matrix and abundant dark green pelletoid glauconite, trace pyrite nodules, hard aggregates, tight visual and inferred porosity. No fluorescence.
3005	3010	40	CLAYSTONE: pale brown to green, silty in part, abundant glauconite, sticky, dispersive, soft, amorphous to sub blocky.
		30	SILTSTONE: very pale brown to pale grey brown, occasionally moderate brown, very arenaceous grading to very fine Sandstone, common pelletoid glauconite, trace micromicaceous, rare pyrite nodules, firm to hard, sub blocky to blocky.
		30	SANDSTONE: as above. No fluorescence.
3010	3015	30	CLAYSTONE: as above.
		40	SILTSTONE: as above.
		30	SANDSTONE: pale brown, very silty grading to arenaceous Siltstone, dominantly very fine to fine, moderately well sorted, sub angular to sub rounded, abundant dark green pelletoid glauconite, trace glauconite matrix, weak siliceous cement, trace pyrite nodules, hard aggregates, tight visual and inferred porosity. No fluorescence.
3015	3020	50	CLAYSTONE: as above.
		40	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
3020	3025	30	CLAYSTONE: as above.
		50	SILTSTONE: as above.
		20	SANDSTONE: as above. No fluorescence.
3025	3030	20	CLAYSTONE: as above.
		50	SILTSTONE: as above.
		30	SANDSTONE: pale brown, translucent, green, dominantly very fine to fine, occasionally medium, trace coarse, moderately well sorted, sub angular to sub rounded, abundant dark green pelletoid glauconite, trace glauconite matrix, weak siliceous cement, trace pyrite nodules, hard aggregates, tight visual and inferred porosity. No fluorescence.

Bream A23A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3030	3035	50	CLAYSTONE: pale brown to green, silty in part, abundant glauconite, sticky, dispersive, soft, amorphous to sub blocky,.
		30	SILTSTONE: very pale brown to pale grey brown, occasionally moderate brown, very arenaceous grading to very fine Sandstone, common pelletoid glauconite, trace micromicaceous, rare pyrite nodules, firm to hard, sub blocky to blocky.
		20	SANDSTONE: as above. No fluorescence.
3035	3040	60	CLAYSTONE: as above.
		30	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
3040	3045	50	CLAYSTONE: as above.
		40	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
3045	3050	40	CLAYSTONE: as above.
		40	SILTSTONE: as above.
		20	SANDSTONE: pale grey, white, light brown, translucent, occasional white green coarse quartzite grains, dominantly very fine to fine, silty in part grading to arenaceous Siltstone, moderately well sorted, sub angular to sub rounded, common dark green pelletoid glauconite, trace glauconite matrix, trace pyrite nodules, hard aggregates, tight visual and inferred porosity. No fluorescence.
3050	3055	40	CLAYSTONE: as above.
		30	SILTSTONE: as above.
		30	SANDSTONE: as above. No fluorescence.
3055	3060	40	CLAYSTONE: as above.
		40	SILTSTONE: as above.
		20	SANDSTONE: as above. No fluorescence.
3060	3065	20	CLAYSTONE: light grey to light greyish brown, pale green, silty in part, trace micromicaceous, trace glauconite, sticky, dispersive, soft to firm, amorphous to sub blocky.
		60	SILTSTONE: light brown to dark yellowish brown, occasionally brownish grey, very arenaceous grading to very fine Sandstone, common pelletoid glauconite, common micromicaceous, trace pyrite nodules, firm to moderately hard, amorphous to sub blocky.
		20	SANDSTONE: translucent to white, fine to very coarse, poorly sorted, sub angular to sub rounded, common dark green pelletoid glauconite, trace glauconite matrix, trace pyrite nodules, hard aggregates, tight visual and inferred porosity. No fluorescence.
3065	3070	10	CLAYSTONE: as above.
		80	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
3070	3075	10	CLAYSTONE: as above.
		65	SILTSTONE: as above.
		25	SANDSTONE: as above. No fluorescence.

Bream A23A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3075	3080	5	CLAYSTONE: as above.
		65	SILTSTONE: as above.
		30	SANDSTONE: as above. No fluorescence.
3080	3085	Trace	CLAYSTONE: as above.
		60	SILTSTONE: as above.
		40	SANDSTONE: as above. No fluorescence.
3085	3090	Trace	CLAYSTONE: as above.
		70	SILTSTONE: as above.
		30	SANDSTONE: as above. No fluorescence.
3090	3095	70	SILTSTONE: as above.
		30	SANDSTONE: as above. No fluorescence.
		TOP OF COARSE CLASTICS at 3099.5 mMDRT (1903.8 mTVDRT).	
Barablock at 4 ppb, added to the Mud system at 0500 hrs, 11 July 2005, at 3100.0 mMDRT.			
Barablock seen in samples from 3110.0 mMDRT onwards to TD.			
3095	3100	60	SILTSTONE: light brown to pale brownish grey, very arenaceous grading to very fine Sandstone, common disseminated pyrite, common pyrite nodules, trace glauconite, trace micromicaceous, soft to firm, amorphous to sub blocky.
		40	SANDSTONE: clear to translucent, fine to dominantly very coarse, moderately sorted, sub angular to sub rounded, abundant pyrite nodules and disseminated pyrite, moderate pyrite cement, common dark green pelletoid glauconite, hard aggregates, poor to fair visual and inferred porosity. No fluorescence.
3100	3105	10	SILTSTONE: as above.
		90	SANDSTONE: clear to translucent, coarse to dominantly very coarse, occasionally medium, moderately well sorted, sub angular to sub rounded, common pyrite nodules and disseminated pyrite, moderate pyrite cement and laminations, trace dark green pelletoid glauconite, dominantly loose, occasionally hard aggregates, fair visual and inferred porosity. No fluorescence.
3105	3110	10	SILTSTONE: as above.
		90	SANDSTONE: as above, abundant pyrite nodules and disseminated pyrite, moderate pyrite cement, fair inferred porosity. No fluorescence.
3110	3115	50	SILTSTONE: light brown to pale brownish grey, very arenaceous grading to very fine Sandstone, abundant disseminated pyrite, abundant pyrite nodules, trace glauconite, trace micromicaceous, soft to firm, amorphous to sub blocky.
		50	SANDSTONE: as above, dominantly coarse to occasionally very coarse, fair inferred porosity. No fluorescence.
BWST at 3117.0 mMDRT (1912.0 mTVDRT).			
3115	3120	20	SILTSTONE: as above.

Bream A23A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3120	3125	80	SANDSTONE: clear to translucent, medium very coarse, dominantly coarse, moderately sorted, sub angular to sub rounded, common pyrite nodules and disseminated pyrite, weak pyrite cement, trace dark green pelletoid glauconite, generally loose, occasionally hard aggregates, poor to fair visual and inferred porosity. No fluorescence.
		40	SILTSTONE: light brown to pale brown, occasionally pale greyish brown, very arenaceous grading to very fine Sandstone, common disseminated pyrite, common pyrite nodules, trace glauconite, trace micromicaceous, firm to moderately hard, sub blocky.
		60	SANDSTONE: as above. No fluorescence.
3125	3130	20	SILTSTONE: as above.
		80	SANDSTONE: clear to translucent, occasionally smoky grey, fine to very coarse, poorly sorted, sub angular to sub rounded, common pyrite nodules and disseminated pyrite, moderate pyrite cement, trace dark green pelletoid glauconite, trace light greyish brown argillaceous matrix, generally loose, occasionally hard aggregates, poor visual and inferred porosity. No fluorescence.
3130	3135	20	CLAYSTONE: light grey to very light grey, slightly calcareous, trace pyrite laminations, hard, blocky.
		30	SILTSTONE: as above.
		50	SANDSTONE: clear to translucent, medium to very coarse, dominantly coarse, moderately well sorted, sub angular to sub rounded, common pyrite nodules, moderate pyrite cement, trace glauconite, generally loose, occasionally hard aggregates, poor to fair visual and inferred porosity. No fluorescence.
3135	3140	40	CLAYSTONE: as above.
		20	SILTSTONE: as above.
		40	SANDSTONE: as above, trace white to light grey argillaceous matrix, poor inferred porosity. No fluorescence.
3140	3145	40	CLAYSTONE: as above.
		20	SILTSTONE: as above.
		40	SANDSTONE: clear to translucent, coarse to very coarse, dominantly coarse, moderately well sorted, sub angular to sub rounded, trace pyrite nodules, weak pyrite cement, trace glauconite, trace white to light grey argillaceous matrix , generally loose, occasionally hard aggregates, poor to fair visual and inferred porosity. No fluorescence.
3145	3150	30	CLAYSTONE: as above.
		15	SILTSTONE: as above.
		55	SANDSTONE: as above. No fluorescence.
3150	3155	10	CLAYSTONE: as above.
		15	SILTSTONE: as above.
		75	SANDSTONE: clear to translucent, coarse to very coarse, dominantly coarse, moderately well sorted, sub angular to sub rounded, common pyrite nodules, moderate pyrite cement, trace glauconite, trace white to light grey argillaceous matrix , common (bit crushed to) rock flour, generally loose, occasionally hard aggregates, poor visual and inferred porosity. No fluorescence.

Bream A23A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3155	3160		CbF2 horizon at 3159.5 mMDRT (1931.4 mTVDRT).
		10	CLAYSTONE: light grey to very light grey, slightly calcareous, trace pyrite laminations, hard, blocky.
		30	SILTSTONE: light brown to dark yellowish brown, occasionally greyish brown, very arenaceous grading to very fine Sandstone, trace disseminated pyrite, trace pyrite nodules, trace glauconite, trace micromicaceous, firm to moderately hard, sub blocky to blocky.
3160	3165	60	SANDSTONE: as above. No fluorescence.
		5	CLAYSTONE: as above.
		10	SILTSTONE: as above.
3165	3170	85	SANDSTONE: clear to translucent, fine to occasionally very coarse, dominantly fine to medium, moderately sorted, sub angular to sub rounded, trace pyrite nodules, weak pyrite cement, trace white to light grey argillaceous matrix , generally loose, occasionally hard aggregates, poor to fair visual and inferred porosity. No fluorescence.
		5	SILTSTONE: as above.
		95	SANDSTONE: clear to translucent, fine to occasionally very coarse, dominantly medium, moderately well sorted, sub angular to dominantly sub rounded, rare pyrite nodules, rare glauconite, nil matrix, clean, dominantly loose, fair visual and inferred porosity. No fluorescence.
3170	3175		CbF1 at 3173.0 mMDRT (1938.0 mTVDRT).
		5	CLAYSTONE: light grey to very light grey, slightly calcareous, silty in part, moderately hard to hard, blocky.
		15	SILTSTONE: as above.
3175	3180	80	SANDSTONE: clear to translucent, fine to occasionally very coarse, dominantly medium, moderately well sorted, sub angular to dominantly sub rounded, rare pyrite nodules, rare glauconite, nil matrix, clean, dominantly loose, fair visual and inferred porosity. No fluorescence.
		5	CLAYSTONE: as above.
		10	SILTSTONE: as above.
3180	3185	85	SANDSTONE: as above. No fluorescence.
		5	SILTSTONE: as above.
		95	SANDSTONE: clear to translucent, fine to rare coarse, dominantly medium, moderately well sorted, sub angular to dominantly sub rounded, rare pyrite nodules, weak pyrite cement, rare glauconite, nil matrix, clean, dominantly loose, fair visual and inferred porosity. No fluorescence.
3185	3190	5	CLAYSTONE: light grey to very light grey, slightly calcareous, silty in part, moderately hard to hard, blocky.
		10	SILTSTONE: light brown to moderate brown, rare pale brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, trace disseminated pyrite, rare glauconite, firm to moderately hard, amorphous to sub blocky.
		85	SANDSTONE: clear to translucent, medium to occasionally very coarse, dominantly coarse, moderately well sorted, sub angular to dominantly sub rounded, rare pyrite nodules, weak pyrite cement, rare glauconite, nil matrix, clean, dominantly loose, fair visual and inferred porosity. No fluorescence.
3190	3195	5	SILTSTONE: as above.

Bream A23A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3195	3200	95	SANDSTONE: clear to translucent, very fine to occasionally medium, dominantly fine, moderately well sorted, sub angular to sub rounded, rare pyrite nodules, rare glauconite, nil matrix, clean, dominantly loose, poor visual and inferred porosity. No fluorescence.
			CbSb at 3196.5 mMDRT (1949.5 mTVDRT).
		10	CLAYSTONE: light grey to very light grey, slightly calcareous, silty in part, moderately hard to hard, blocky.
3200	3205	5	SILTSTONE: as above.
		85	SANDSTONE: as above. No fluorescence.
		5	CLAYSTONE: as above.
3205	3210	25	SILTSTONE: light brown to moderate brown, rare pale brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, trace disseminated pyrite, rare glauconite, firm to moderately hard, amorphous to sub blocky.
		70	SANDSTONE: clear to translucent, dominantly medium to occasionally coarse, moderately well sorted, sub angular to sub rounded, rare pyrite nodules, rare glauconite, nil matrix, clean, dominantly loose, fair visual and inferred porosity. No fluorescence.
		5	CLAYSTONE: as above.
3210	3215	35	SILTSTONE: as above.
		60	SANDSTONE: clear to translucent, medium to occasionally very coarse, dominantly coarse, moderately well sorted, sub angular to dominantly sub rounded, trace pyrite nodules, weak pyrite cement, rare glauconite, nil matrix, clean, dominantly loose, fair visual and inferred porosity. No fluorescence.
		5	CLAYSTONE: as above.
3215	3220	15	SILTSTONE: as above.
		80	SANDSTONE: as above. No fluorescence.
		5	CLAYSTONE: light grey to very light grey, slightly calcareous, silty in part, moderately hard to hard, blocky.
3220	3225	10	SILTSTONE: light brown to moderate brown, rare pale brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, trace disseminated pyrite, rare glauconite, firm to moderately hard, amorphous to sub blocky.
		85	SANDSTONE: as above. No fluorescence.
		5	CLAYSTONE: as above.
3225	3230	5	SILTSTONE: as above.
		90	SANDSTONE: clear to translucent, fine to very coarse, poorly sorted, sub angular to sub rounded, rare pyrite nodules, weak pyrite cement, rare glauconite, nil matrix, clean, dominantly loose, poor visual and inferred porosity. No fluorescence.
			OOWC at 3225.5 mMDRT (1961.8 mTVDRT).
3230	3235	15	SILTSTONE: as above.
		85	SANDSTONE: as above. No fluorescence.
			PkF1 at 3230.5 mMDRT (1964.0 mTVDRT).
		Trace	COAL: trace, black to greyish black, sub vitreous, brittle, angular, blocky

Bream A23A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3235	3240	30	SILTSTONE: light brown to moderate brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, rare glauconite, soft to moderately hard, amorphous to sub blocky.
		70	SANDSTONE: clear to translucent, coarse to dominantly very coarse, moderately well sorted, sub angular to dominantly sub rounded, rare pyrite nodules, rare glauconite, nil matrix, clean, loose, fair to good visual and inferred porosity. No fluorescence.
		30	SILTSTONE: as above.
		70	SANDSTONE: as above. No fluorescence.
		20	SILTSTONE: as above.
		80	SANDSTONE: clear to translucent, very fine to very coarse, poorly sorted, sub angular to sub rounded, rare pyrite nodules, rare glauconite, nil matrix, clean, loose, poor visual and inferred porosity. No fluorescence.
3245	3250	5	CLAYSTONE: light grey to very light grey, slightly calcareous, silty in part, moderately hard to hard, blocky.
		15	SILTSTONE: light brown to moderate brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, rare glauconite, soft to moderately hard, amorphous to sub blocky.
		80	SANDSTONE: clear to translucent, rare greyish pink, fine to dominantly very coarse, moderately well sorted, sub angular to dominantly sub rounded, rare pyrite nodules, weak pyrite cement, rare glauconite, nil matrix, clean, loose, poor visual and inferred porosity. No fluorescence.
3250	3255	5	CLAYSTONE: as above.
		25	SILTSTONE: as above.
		70	SANDSTONE: clear to translucent, very fine to very coarse, poorly sorted, sub angular to sub rounded, rare glauconite, nil matrix, clean, loose, poor to fair visual and inferred porosity. No fluorescence.
3255	3260	Trace	CLAYSTONE: as above.
		10	SILTSTONE: as above.
		90	SANDSTONE: as above. No fluorescence.
3260	3265	10	SILTSTONE: dark yellowish brown to greyish brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, firm to moderately hard, sub blocky.
		90	SANDSTONE: clear to translucent, rare very pale yellow, fine to dominantly very coarse, moderately well sorted, sub angular to dominantly sub rounded, weak pyrite cement, rare glauconite, nil matrix, clean, loose, poor to fair visual and inferred porosity. No fluorescence.
3265	3270	5	CLAYSTONE: light grey to very light grey, slightly calcareous, silty in part, moderately hard to hard, blocky.
		10	SILTSTONE: as above.
		85	SANDSTONE: as above. No fluorescence.
3270	3275	15	COAL: brownish black to black, sub vitreous, brittle, blocky, angular, occasionally dusky brown, silty in part, grading to Carbonaceous Siltstone, common pyrite laminations, earthy, hard, blocky, uneven, woody texture.
		5	CLAYSTONE: as above.

Bream A23A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3275	3280	10	SILTSTONE: as above.
		70	SANDSTONE: clear to translucent, rare very pale yellow, coarse to dominantly very coarse, moderately well sorted, sub angular to dominantly sub rounded, rare pyrite nodules, rare glauconite, nil matrix, clean, loose, fair to good visual and inferred porosity. No fluorescence.
		5	CLAYSTONE: as above.
		10	SILTSTONE: as above.
		85	SANDSTONE: clear to translucent, rare very pale yellow, very fine to very coarse, dominantly coarse, moderately sorted, sub angular to dominantly sub rounded, rare pyrite nodules, rare glauconite, nil matrix, clean, loose, poor to fair visual and inferred porosity. No fluorescence.
3280	3285	20	COAL: greyish brown to dusky brown, silty in part, grading to Carbonaceous Siltstone, trace pyrite laminations, earthy, moderately hard, blocky, uneven, woody texture.
		5	CLAYSTONE: light grey to very light grey, slightly calcareous, silty in part, moderately hard to hard, blocky.
		10	SILTSTONE: dark yellowish brown to greyish brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, firm to moderately hard, sub blocky.
		65	SANDSTONE: as above. No fluorescence.
3285	3290	5	CLAYSTONE: as above.
		35	SILTSTONE: as above.
		60	SANDSTONE: clear to translucent, rare very pale yellow, rare greyish pink, very fine to occasionally very coarse, dominantly medium to coarse, moderately well sorted, sub angular to sub rounded, nil matrix, clean, loose, fair visual and inferred porosity. No fluorescence.
3290	3295	Trace	CLAYSTONE: as above.
		10	SILTSTONE: as above.
		90	SANDSTONE: clear to translucent, rare very pale yellow, medium to dominantly very coarse, moderately well sorted, sub angular to dominantly sub rounded, rare pyrite nodules, weak pyrite cement, rare glauconite, nil matrix, clean, loose, fair visual and inferred porosity. No fluorescence.
3295	3300	5	CLAYSTONE: as above.
		35	SILTSTONE: as above.
		60	SANDSTONE: clear to translucent, rare very pale yellow, occasionally fine to dominantly very coarse, moderately well sorted, sub angular to dominantly sub rounded, common pyrite nodules, weak pyrite cement, rare glauconite, occasionally hard aggregates, clean, dominantly loose, poor to fair visual and inferred porosity. No fluorescence.
3300	3302	5	CLAYSTONE: light grey to very light grey, slightly calcareous, silty in part, moderately hard to hard, blocky.
		15	SILTSTONE: pale brown to moderate brown, occasionally dark yellowish brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, rare glauconite, firm to moderately hard, amorphous to sub blocky.
		80	SANDSTONE: clear to translucent, rare very pale yellow and greyish pink, occasionally fine to dominantly very coarse, moderately well sorted, sub angular to dominantly sub rounded, common pyrite nodules, weak pyrite cement, rare glauconite, occasionally hard aggregates, clean, dominantly loose, poor to fair visual and inferred porosity. No fluorescence.
	TD		

Bream A23A Lithology / Show Descriptions

	Interval (m)		%	Lithology / Show Description
	From To			

BMA A23A TD criterion:

From the Bream A23A DWP, drill to the Measured Depth equivalent to 1992.8 mTVDRT.

Based on the well path, the Directional Driller projection of the MD (for the equivalent TVDRT of 1992.8 m) was 3296.0 mMDRT.

The Drilling Supervisor decided to drill to 3302.0 mMDRT based on the casing tally.

The final Schlumberger Direction Driller's projected TVDRT was 1995.3 m for the drilled TD of 3302.0 mMDRT.

BMA A23A reached a TD of 3302.0 mMDRT = 1995.3 mTVDRT (-1962.5 mTVDS) at 18:40 hrs on 11 July 2005.

CBU. POOH to shoe.

Wiper Trip from shoe.

Start circulating at bottom at 0615 hrs 12 July 2005.

Trip gas 78 units at 07:05 hrs, 12 July 2005.

Last circulation on bottom at 10:25 hrs, 12 July 2005.
Total circulating time on bottom = 4.15 hrs.

Start POOH at 10:30 hrs, 12 July 2005 for Reeves Wireline Logging Run #1.

At 16:30 hrs, 13 July 2005, start Reeves Logging at Logging speed (0.1 metre/second) from 3299.0 to 2565.7 mMDRT (minimum 80.0 mTVDRT above the Top of Latrobe at 2786.0 mMDRT (1758.4 mTVDRT)).

At 19:25 hrs, 13 July 2005, at Tripping speed from 2567.7 mMDRT to the Casing shoe at 2248.0 mMDRT.

IN ALL OF THE ABOVE FLUORESCENCE DESCRIPTIONS, "TRACE TO 5%" IN QUANTITY WOULD MOST LIKELY BE CAVINGS AND SHOULD BE DISREGARDED. THE "TRACE TO 5%" IN QUANTITY HAS BEEN RECORDED AS SEEN IN THE SAMPLES.

APPENDIX 4a

BREAM A23A

Mud Log



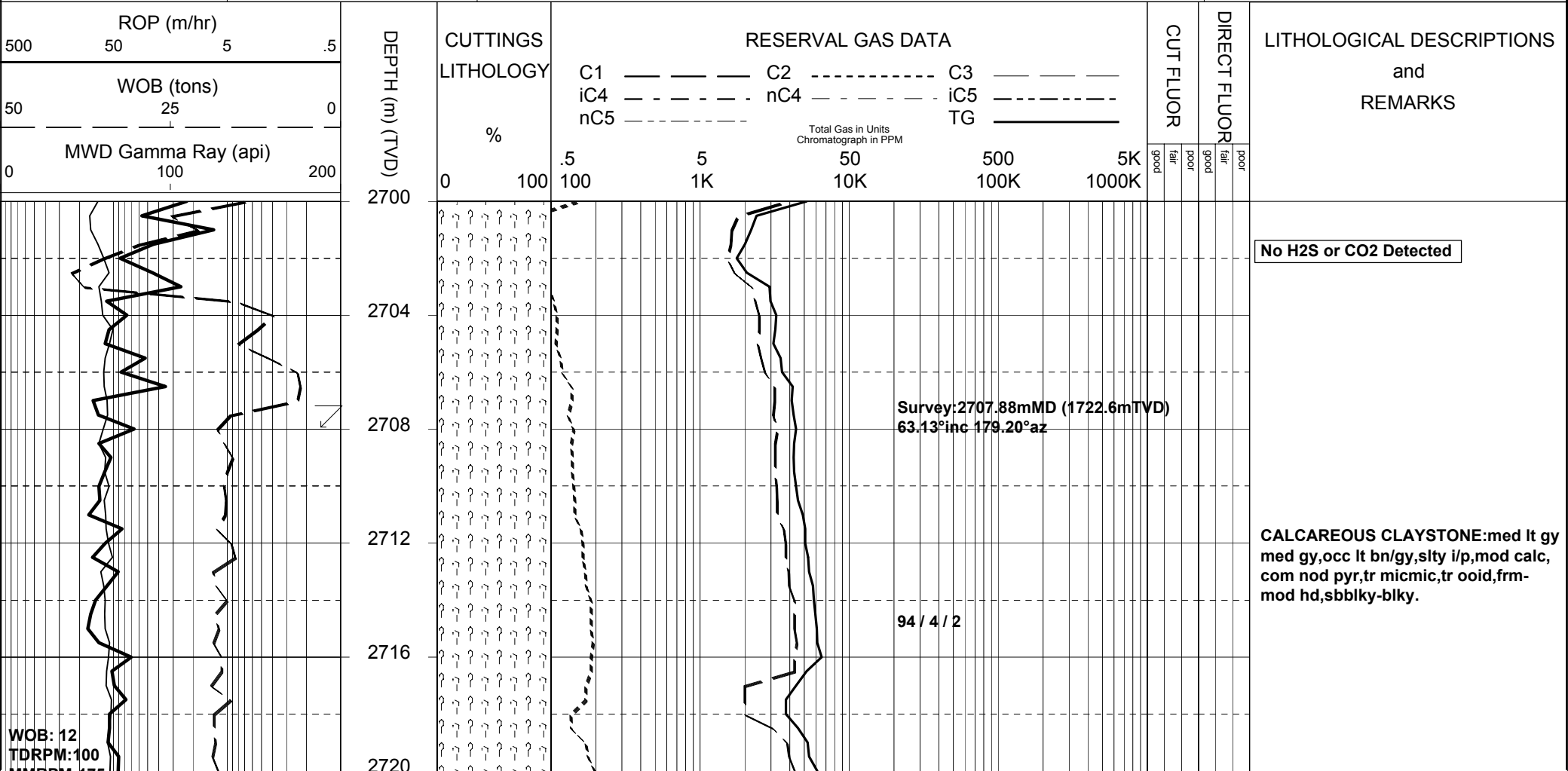
MASTERLOG

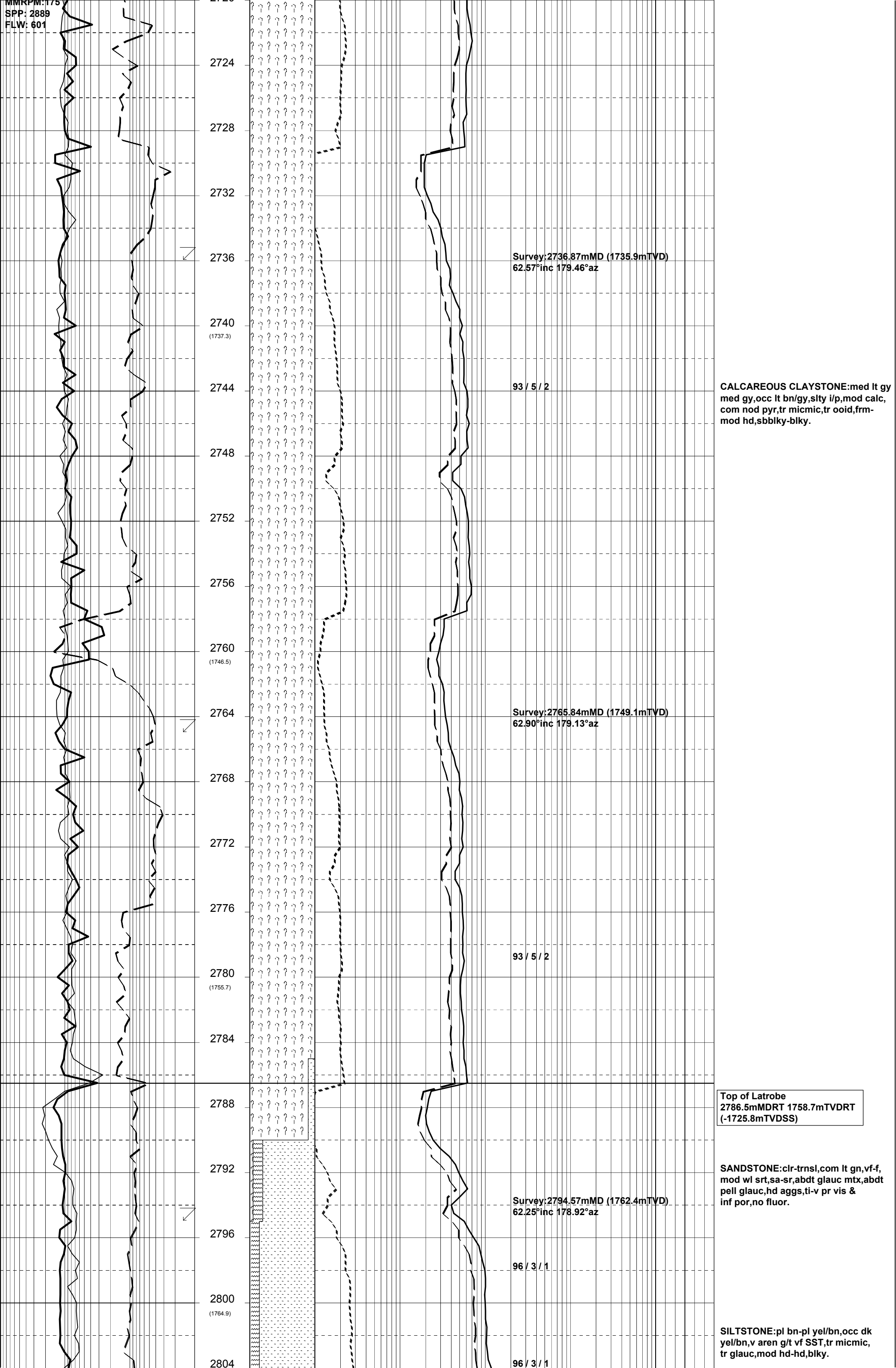
BMA A23A

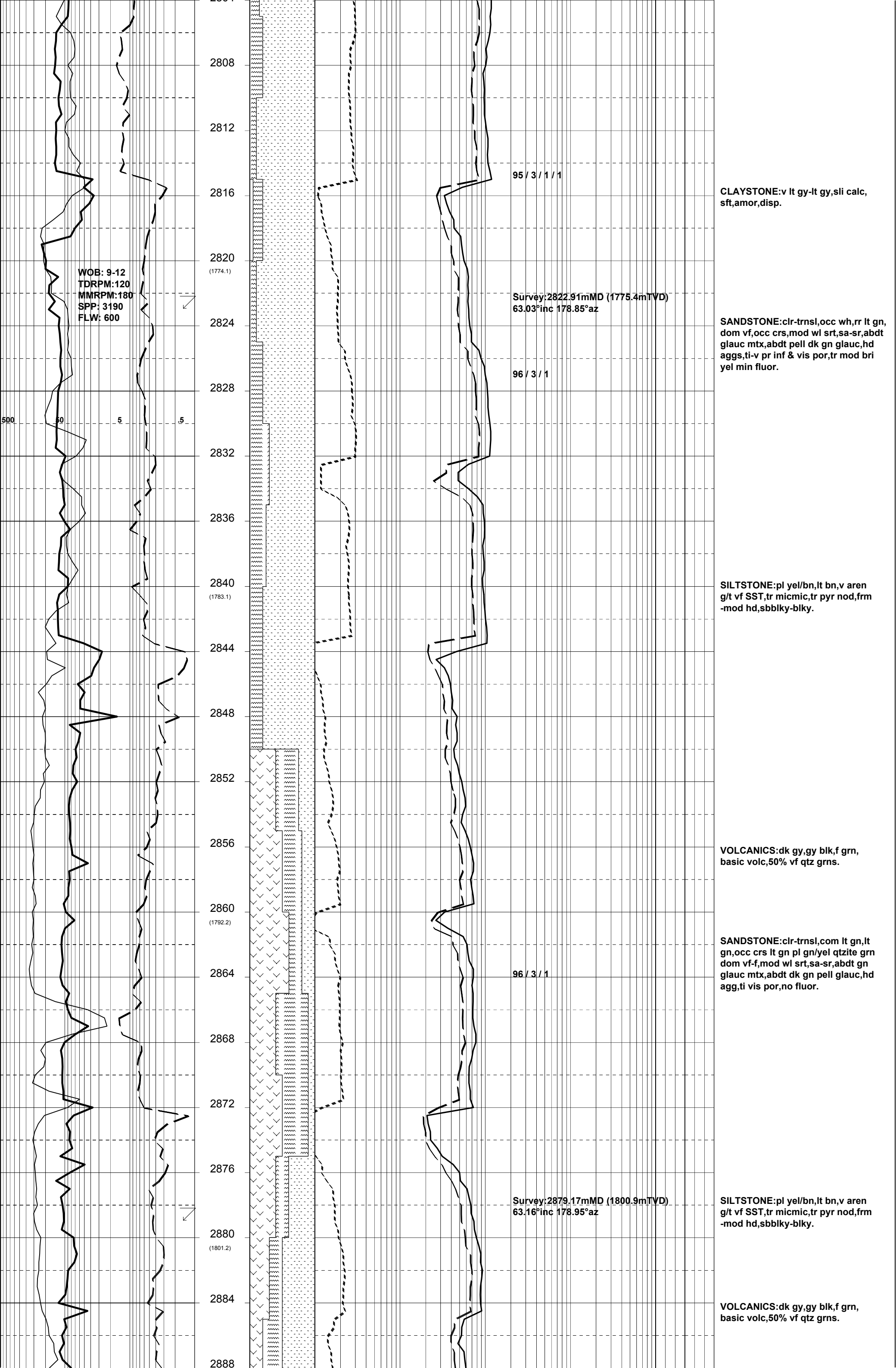


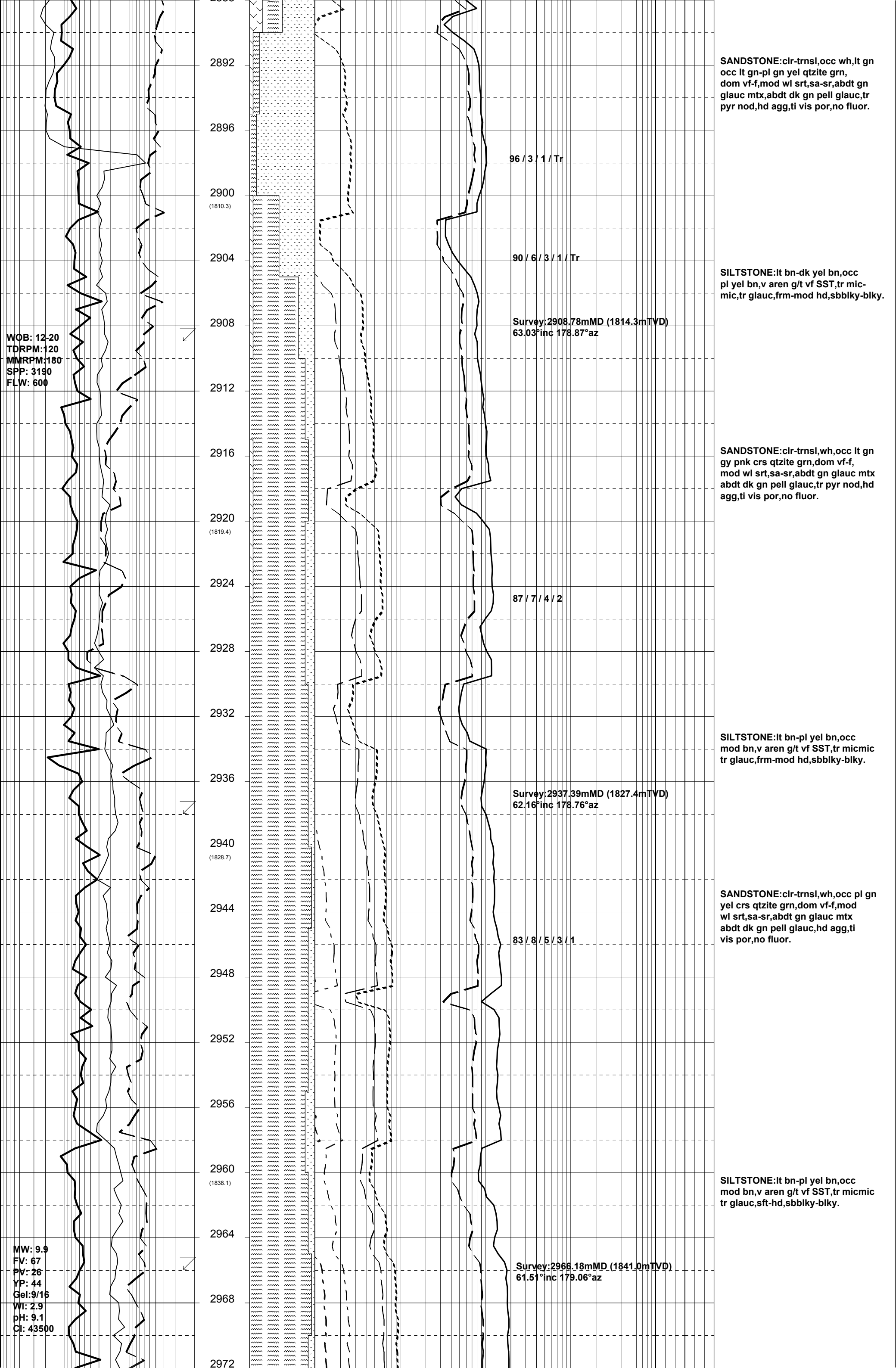
GENERAL	POSITION	HOLE / CASING INFO	DATE / DEPTH	ENGINEERS
Country : AUSTRALIA Permit : VIC L13 Field : Bream Basin : GIPPSLAND Well Type : DEVELOPMENT Rig Name : NABORS 453	Local Co-ord X : 147 46 20.319 E Local Co-ord Y : 38 29 58.915 S MGA Co-ord X : 567344.61 mE MGA Co-ord Y : 5738457.45 mN RT to MSL : 32.82 m RT to Sea Bed : 92.22 m	8-1/2" Hole to 3302 m 13-3/8" Surface Csg at 934 m 9-5/8" Whipstock at 2249 m 7" Production Csg at 3297.5 m	Kick Off Date : 09-07-2005 Total Depth Date : 11-07-2005 Total Depth : 3302 m True Vertical Depth : 1995.3 m Log Scale : 1/ 200	V.B. Jagarlamudi Paul McGilveray Steve Oades 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	<div> CLAYSTONE</div> <div> SILTSTONE</div> <div> SST: F - V FINE</div> <div> SST: MEDIUM</div> <div> SST: COARSE</div> <div> SHALE</div>	<div> MARL</div> <div> LIMESTONE</div> <div> DOLOMITE</div> <div> CHERT</div> <div> CONGLOMERATE</div> <div> COAL</div>	<div> BRYOZOA</div> <div> RADIOLARITES</div> <div> ECHINOIDS</div> <div> CORALS</div> <div> FORAMINIFERA</div> <div> LITHIC FRAGMENT</div>	<div> CARB FRAGMENT</div> <div> QUARTZITE</div> <div> INTRUSIVES</div> <div> GLAUCONITE</div> <div> PYRITE</div> <div> CEMENT</div>	<div> CASING SHOE</div> <div> LINER HANGER</div> <div> BIT CHANGE</div> <div> DEVIA. SURVEY</div> <div> SWC UNRECOV</div> <div> SIDEWALL CORE</div> <div> CORE</div>	<div> WIRELINE LOGS</div> <div>MDT POINTS:</div> <div> PRESSURE ONLY</div> <div> SAMPLE</div> <div> SEAL FAILURE</div> <div> TIGHT</div>









SANDSTONE:clr-trnsl,occ wh,lt gn
occ lt gn-pl gn yel qtzite grn,
dom vf-f,mod wl srt,sa-sr,abdt gn
glauc mtx,abdt dk gn pell glauc,tr
pyr nod,hd agg,ti vis por,no fluor.

SILTSTONE:lt bn-dk yel bn,occ
pl yel bn,v aren g/t vf SST,tr mic-
mic,tr glauc,frm-mod hd,sbblky-blky.

SANDSTONE:clr-trnsl,wh,occ lt gn
gy pnk crs qtzite grn,dom vf-f,
mod wl srt,sa-sr,abdt gn glauc mtx
abdt dk gn pell glauc,tr pyr nod,hd
agg,ti vis por,no fluor.

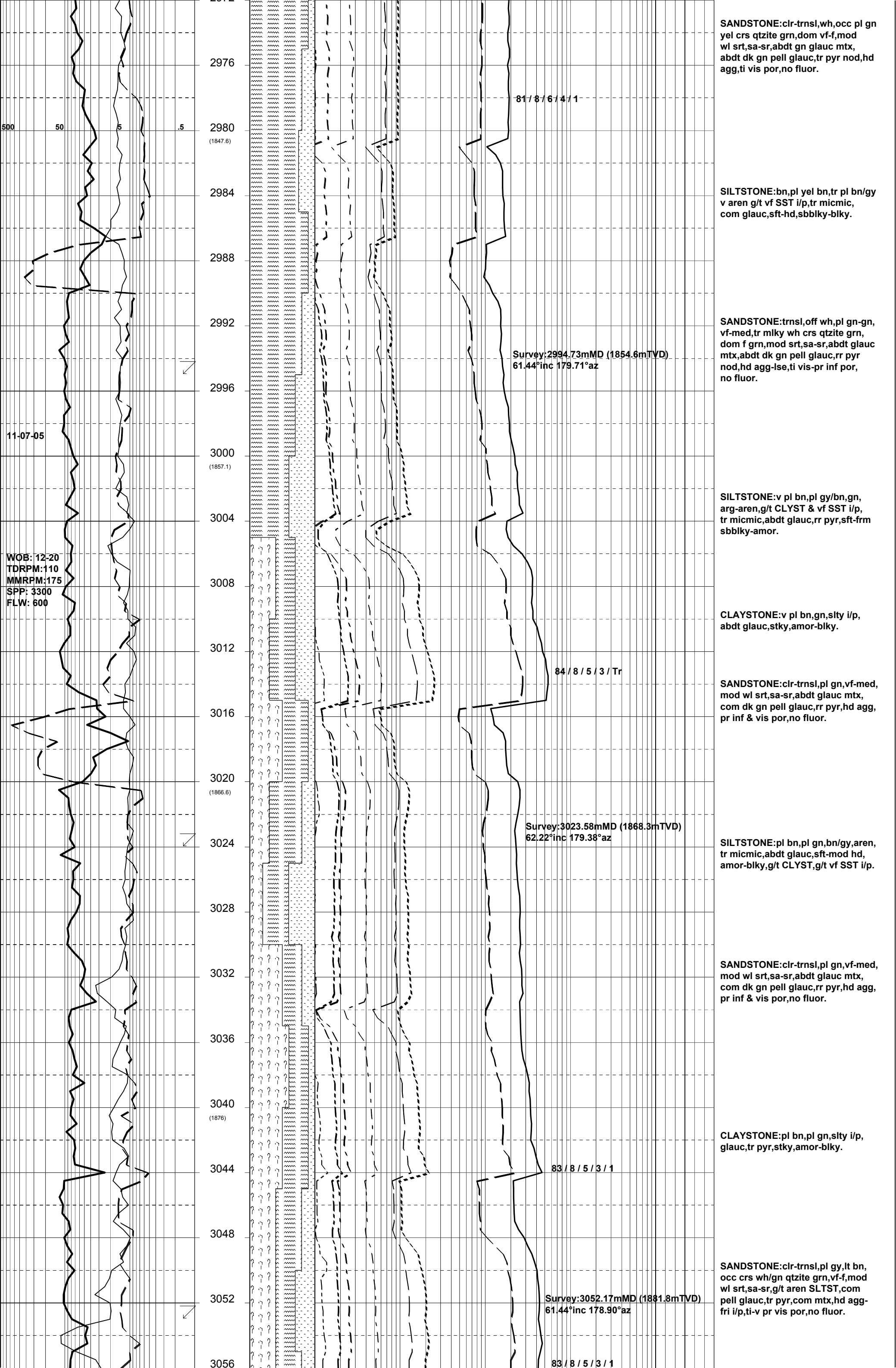
SILTSTONE:lt bn-pl yel bn,occ
mod bn,v aren g/t vf SST,tr micmic
tr glauc,frm-mod hd,sbblky-blky.

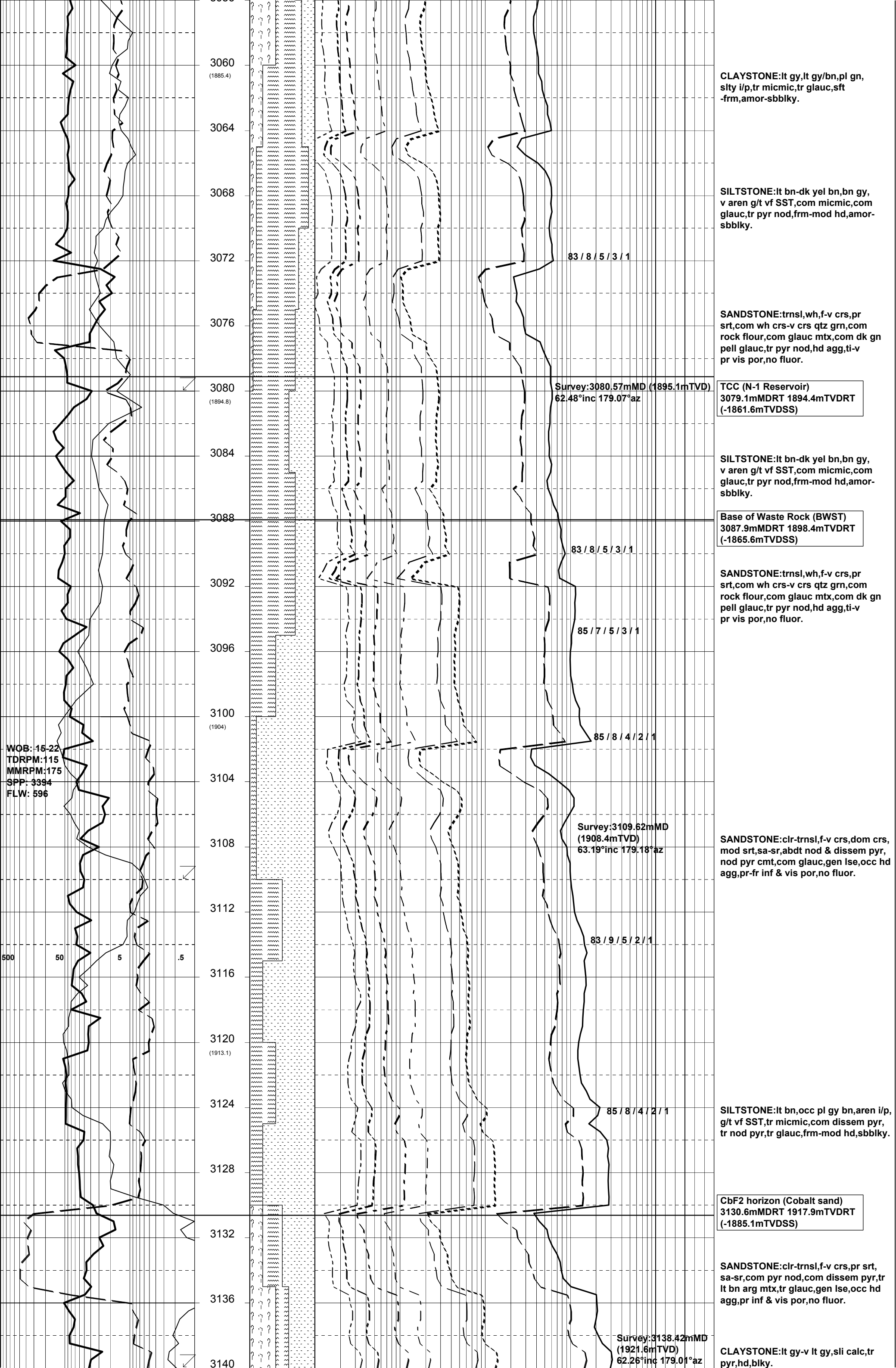
SANDSTONE:clr-trnsl,wh,occ pl gn
yel crs qtzite grn,dom vf-f,mod
wl srt,sa-sr,abdt gn glauc mtx
abdt dk gn pell glauc,hd agg,ti
vis por,no fluor.

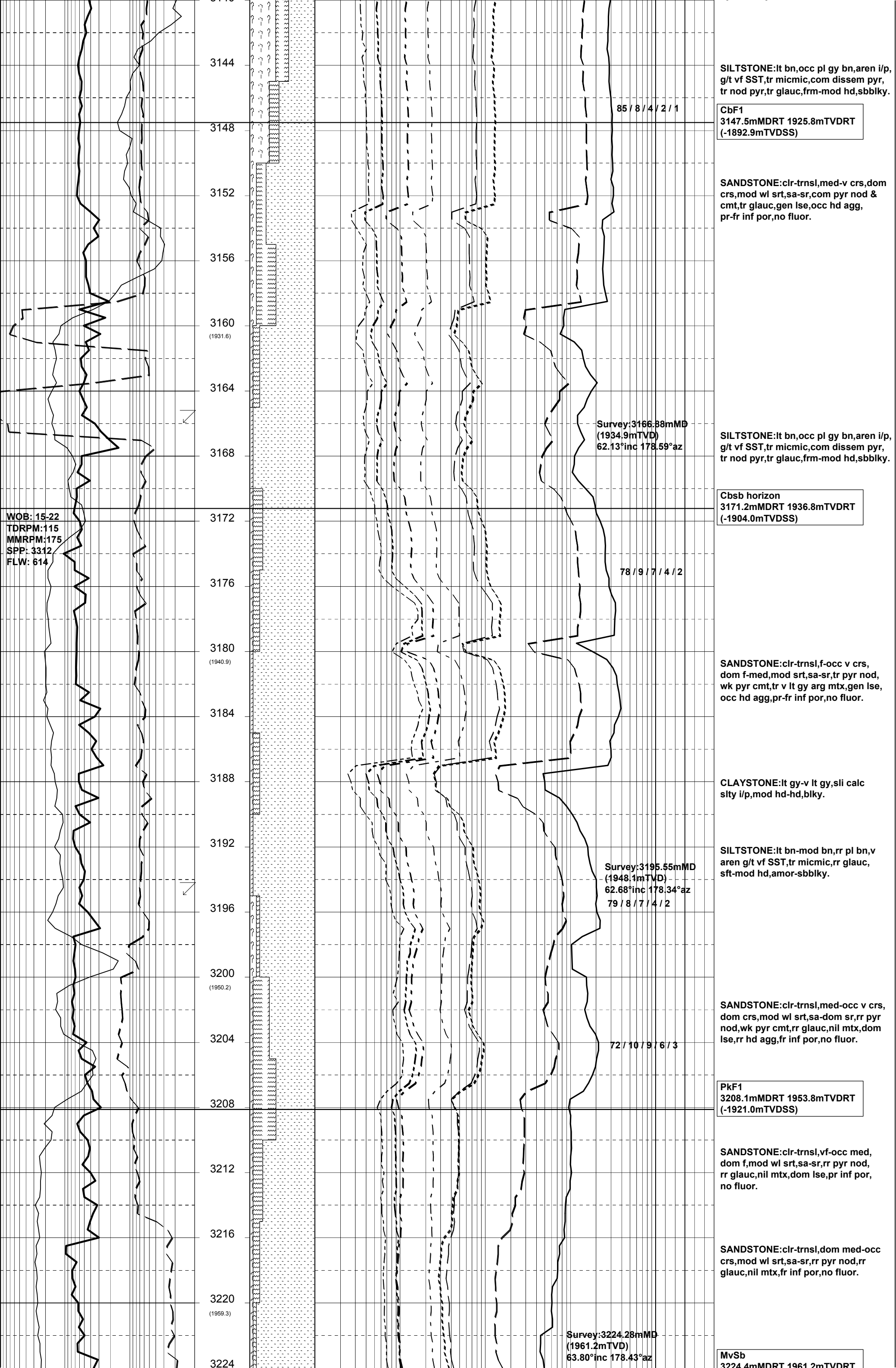
SILTSTONE:lt bn-pl yel bn,occ
mod bn,v aren g/t vf SST,tr micmic
tr glauc,sft-hd,sbblky-blky.

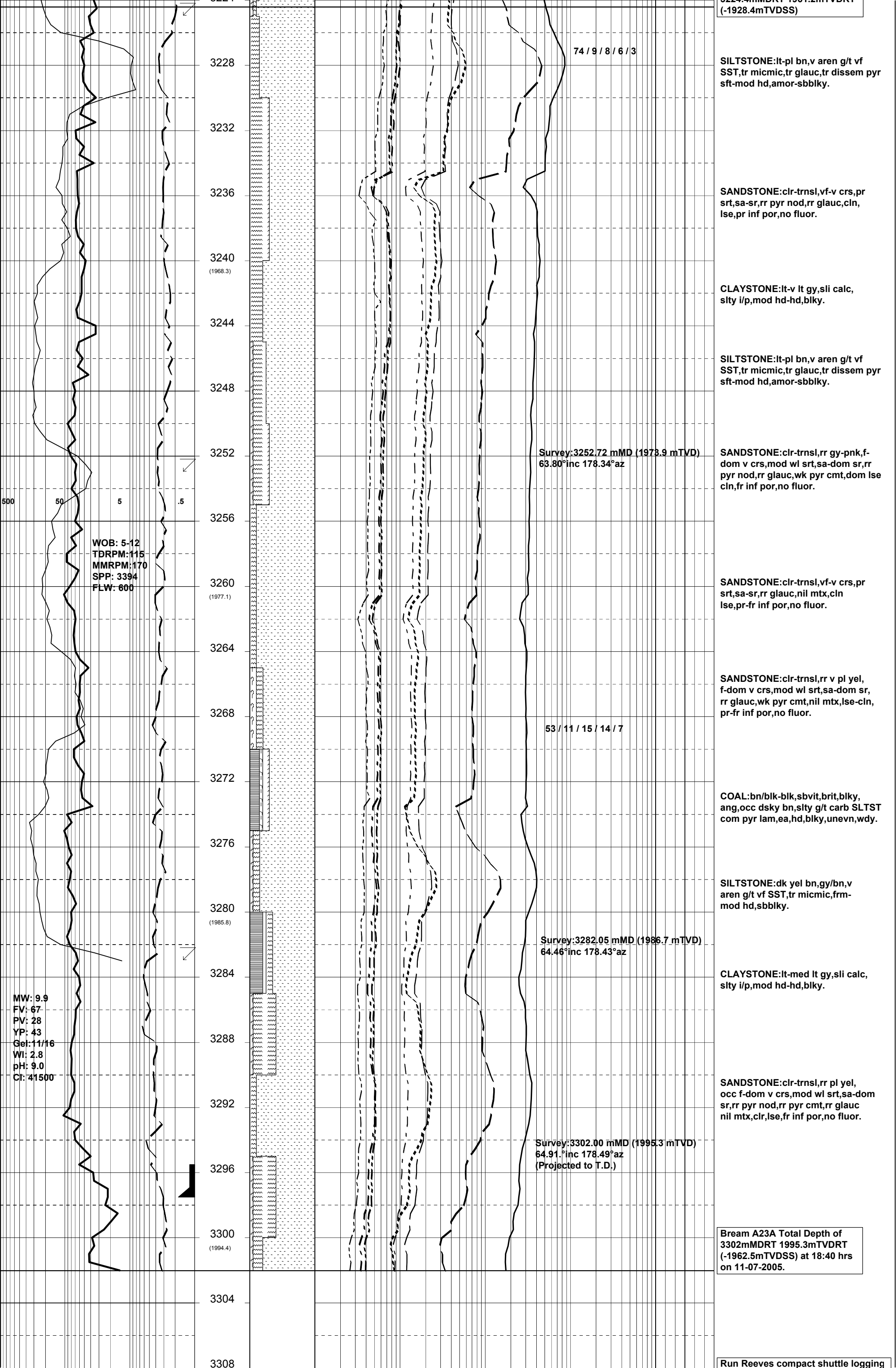
WOB: 12-20
TDRPM:120
MMRPM:180
SPP: 3190
FLW: 600

MW: 9.9
FV: 67
PV: 26
YP: 44
Gel:9/16
WI: 2.9
pH: 9.1
Cl: 43500









WOB: 5-12
TDRPM:115
MMRPM:170
SPP: 3394
FLW: 600

MW: 9.9
FV: 67
PV: 28
YP: 43
Gel:11/16
WI: 2.8
pH: 9.0
Cl: 41500

APPENDIX 4b

BREAM A23A

Well Completion Log



WELL COMPLETION LOG
Scale – 1:200
BREAM A-23A

Gippsland Basin, Victoria
Concession: VIC/L13

POST-DRILL
LOCATION:
Top of Latrobe

Latitude: 38° 30' 56.05" S
Longitude: 147° 46' 53.51" E
MGA X: 568134.1 mE
MGA Y: 5736689.1 mN
Depth: 2786.5m MDRT
1758.6m TVDRT
(-1725.8mTVDSS)

Datum: GDA94 (GRS80)
Projection: MGA/ UTM Zone 55 (S)

DATES: Spudded: 04/07/2005
Rig Released: 23/07/2005
I.P. Established: 31/07/2005
(Initial production)

COMPILED BY: Sheryl Sazenis
DRAFTED BY: Arnaldo Ribeiro
DRILLED BY: Nabors Rig 453

ELEVATION: G.L.: -59.40 m
R.T.: 32.82 m
Water Depth: 59.40 m

TOTAL DEPTH: 3302.0 mMDRT / 1995.3 mTVDRT

PLUGGED BACK T.D.: 3260.0m MDRT

STATUS: Cased and Completed

CLASSIFICATION: Oil Development





















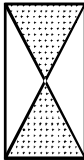


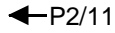
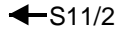



SERVICE COMPANIES:

DRILLING CONTRACTOR: International Sea Drilling Limited (Nabors Rig 453)
MWD/DIRECT. DRLG: Schlumberger Anadrill
GYRO SURVEYING: SDI
CORING: n/a
DRILLPIPE CONVEYED LOGGING: Precision (Reeves Compact Shuttle Logging System)
CEMENTING: Halliburton
CASING: Weatherford

PRODUCTION TESTING: n/a
DIVERS: n/a
MUD LOGGING: Geoservices Overseas S.A.
PRESSURE RECORDING: n/a
WELL VELOCITY SURVEY: n/a

MUD ENGINEERING: Halliburton- Baroid
LINER: n/a

LEGEND

<div>2.7m NOS </div> <div>Ø = 17%</div> <div>Sw = 32%</div>		LOG ANALYSIS DATA		 SHOW OR STAIN	
		NS - Net Sand		 HYDROCARBON CUT	
		NOS - Net Oil Sand		 FLUORESCENCE	
		NGS - Net Gas Sand		 GAS SHOW	
		Sw - Water Saturation		 OIL PRODUCTIVE	
<div> No Rec.</div> <div>CORE</div> <div> Rec.</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	
		Cl - Chloride		DST WITH OIL RECOVERED	
		Ca - Calcium		 SURVEY POINT	
		Sol - Solids		 13-3/8" CASING SHOE	
		H2O - Water		 MUD	
		Oil -Oil			
<div></div> <div>PLUG</div>		RECOVERED SIDE WALL CORE LITHOLOGY			
		SST - Sandstone CLST - Claystone			
		SLST - Siltstone LMST - Limestone			
		MST - Mudstone ML - Marl			
		SH - Shale COAL - Coal			
<div></div> <div>SIDE WALL CORE - NO RECOVERY</div>					
<div></div> <div>FIT</div>					
<div></div> <div>P2/11 MDT/RFT PRETEST RUN/SEAT NUMBER</div>					
<div></div> <div>S11/2 MDT/RFT SAMPLE RUN/SAMPLE NUMBER</div>					
<div></div> <div>P2/40 MDT VERTICAL/HORIZONTAL PERMEABILITY TEST</div>					
<div></div> <div>PACKER</div>					
<div></div> <div>BRIDGE PLUG</div>					

LITHOLOGICAL SYMBOLS

	Sandstone		Dolomite		Mica		Pelecypods
---	-----------	---	----------	---	------	---	------------

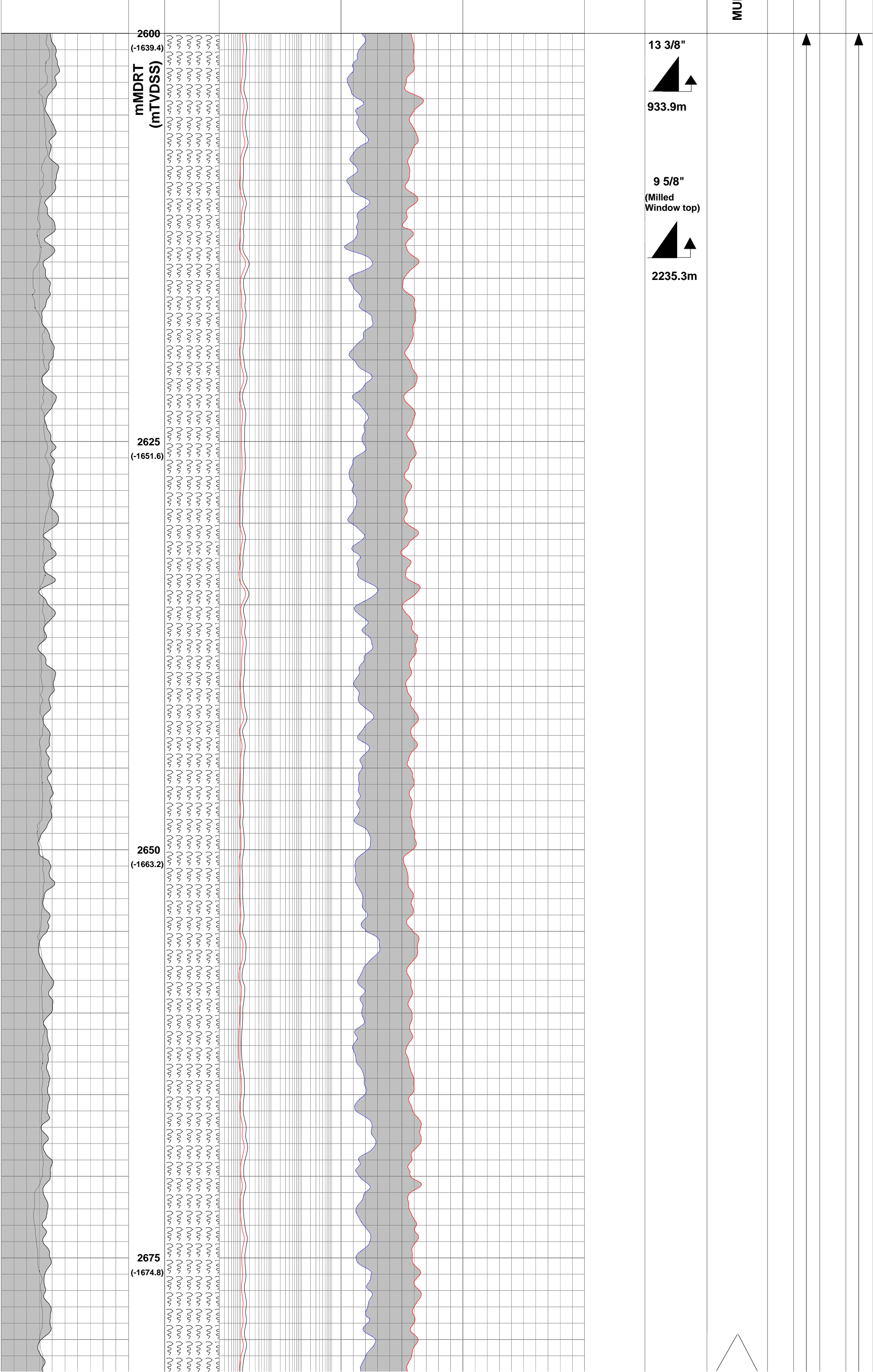
LOGGING AND SURVEYING			
Anadrill Schlumberger	Interval (mMDRT)	Precision (Reeves wireline tools drill pipe conveyed, memory)	Interval (mMDRT)
MWD (Directional & GR) – 3 Runs	2234.0 mMDRT - 3282.05 mMDRT	MCG-MDN-MPD-MSS-MDL -1 Run (GR-Dual Neutron-Photo density-Sonic-Dual Laterolog)	3298.9 mMDRT - 2235.0 mMDRT

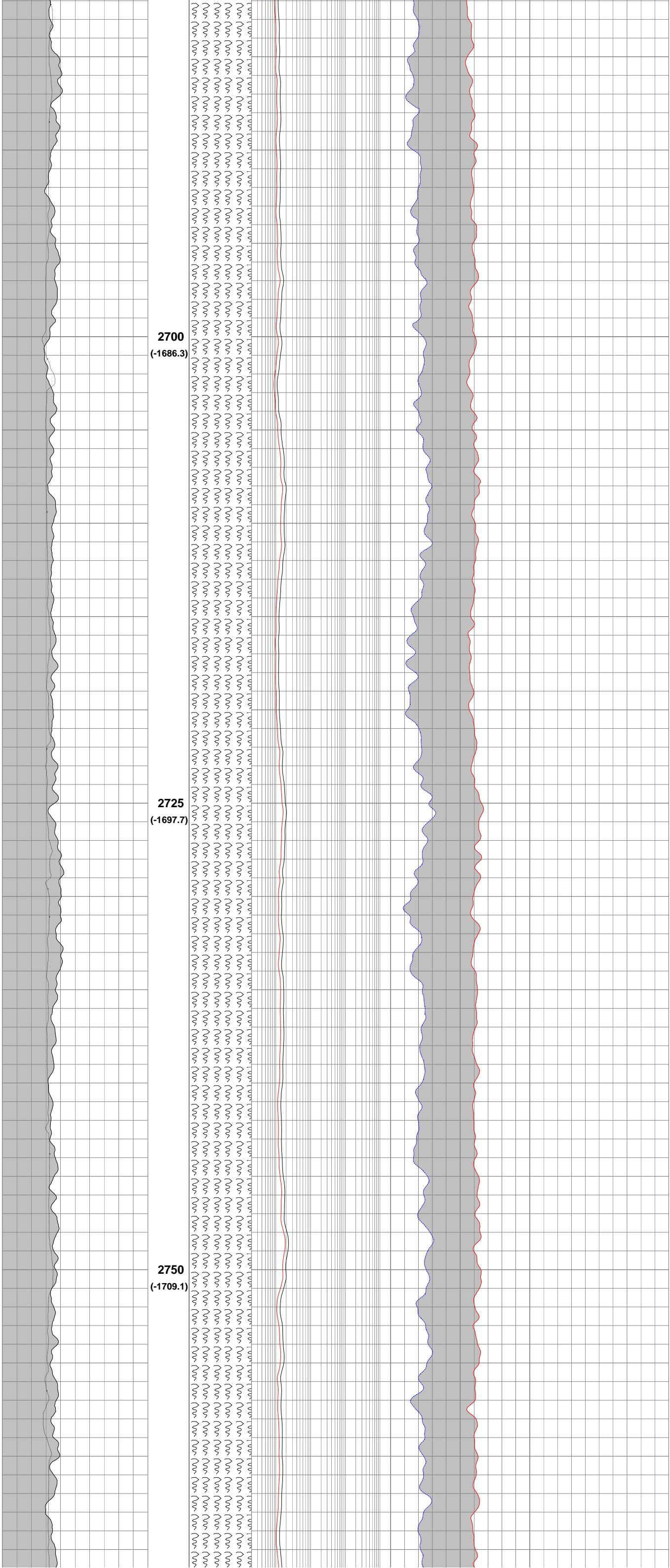
WELL DATA				
Date	05 July 2005 - 06 July 2005	06 July 2005 - 07 July 2005	09 July 2005 - 12 July 2005	13 July 2005 - 14 July 2005
Run	MWD # 1	MWD # 2	MWD # 3	Precision Logs Run #1 on shuttle
Log	Powerpulse Directional & GR	Powerpulse Directional & GR	Powerpulse Directional & GR	MCG-MDN-MPD-MSS-MDL
Depth Driller	2236.3 mMDRT	2248.0 mMDRT	3302.0 mMDRT	3302.0 mMDRT
Depth Logger	2236.3 mMDRT	2248.0 mMDRT	3302.0 mMDRT	3302.0 mMDRT
Bottom Log Interval	2236.3 mMDRT	2248.0 mMDRT	3282.05 mMDRT	3298.9 mMDRT
Top Log Interval	2234.0 mMDRT	2236.3 mMDRT	2248.0 mMDRT	2235.0 mMDRT
Casing Driller	2235.3 mMDRT	2235.3 mMDRT	2235.3 mMDRT	2235.3 mMDRT
Casing Logger	2235.3 mMDRT	2235.3 mMDRT	2235.3 mMDRT	2235.3 mMDRT
Casing Size	9 5/8"	9 5/8"	9 5/8"	9 5/8"
Casing Weight	43.5 ppf	43.5 ppf	43.5 ppf	43.5 ppf
Bit Size	8.5"	8.5"	8.5"	8.5"
Type of Fluid in Hole	KCI/PHPA/GLYCOL	KCI/PHPA/GLYCOL	KCI/PHPA/GLYCOL	KCI/PHPA/GLYCOL
Density	8.80 ppg	8.80 ppg	9.95 ppg	9.95 ppg
Rm @ Measured Temp.	N/A	N/A	N/A	0.106
Rmf @ Measured Temp.	N/A	N/A	N/A	0.084
Rmc @ Measured Temp.	N/A	N/A	N/A	0.202
Max. Recorded Temp.	59.0°C	59.0°C	84.0°C	93.7°C
Equipment / Location	Sale	Sale	Sale	Sale
Recorded By	R.Borjas / L.Johnston	R.Borjas / L.Johnston	R.Borjas / L.Johnston	G.McManus / B. Goodwin
Witnessed By	Trevor Lobo	Trevor Lobo	Trevor Lobo	Trevor Lobo

CORES			PERFORATIONS		
From (mMDRT)	To (mMDRT)	Rec %	From (mMDRT)	To (mMDRT)	Gun Type
			3173.0	3176.0	MaxR

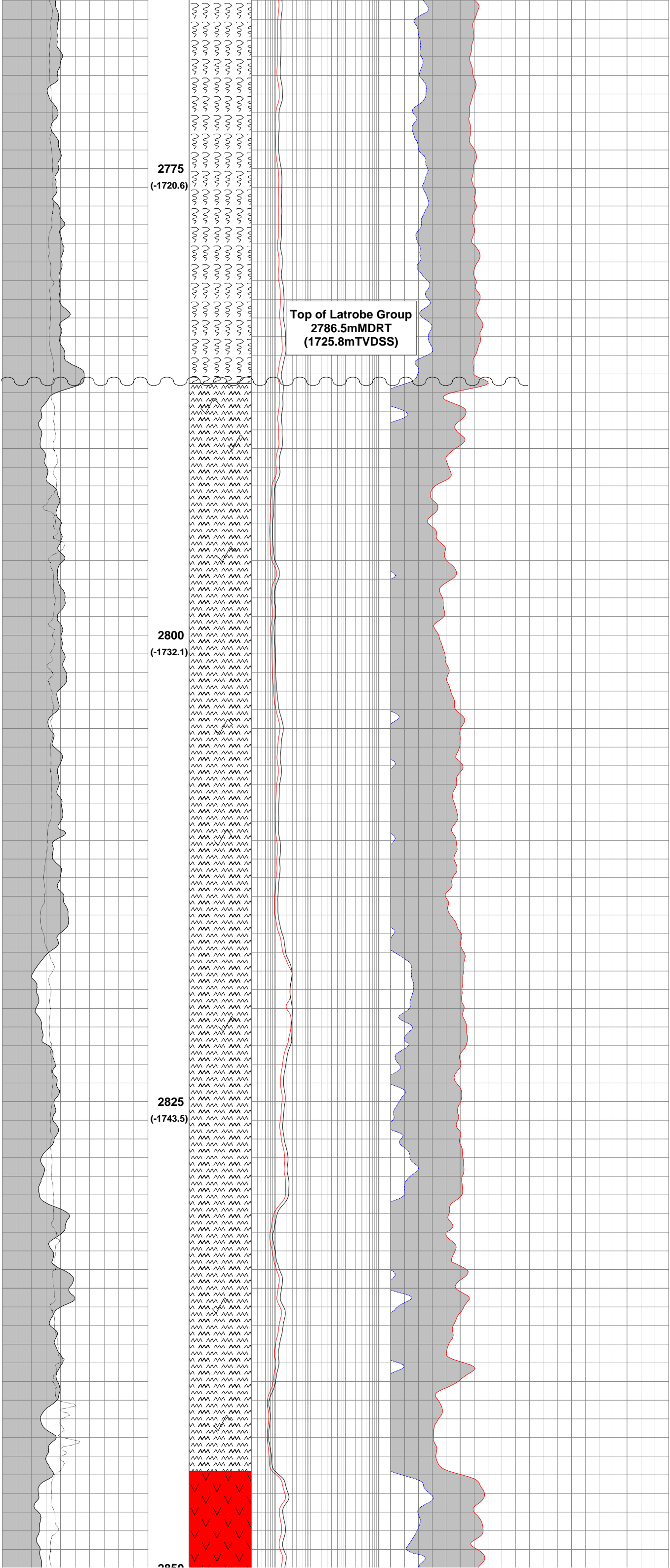
CASING				PLUGS		
Size	Set @ (mMDRT)	SX Cmt	Formation	From (mMDRT)	To (mMDRT)	SXCmt
13.375" (Existing casing)	933.9	---	Gippsland Limestone			
9.625"(milled window top)	2235.3	---				
7"	3297.5	631	Latrobe Group	PBTD 3260.0	3302.0	--

Caliper			DEPTH	LITHOLOGY	Deep Resistivity		DENSITY		Effective Porosity		TEST	COMPLETION	D / SURVEY DATA	PLUGS	FORMATION	PALYNOLOGY	AGE			
6	IN	16			0.2	OHMM	2000	1.85	G/C3	2.85								0.5	V/V	0
Gamma Ray					Shallow Resistivity		NEUTRON POROSITY		Volume of Water											
0	GAPI	200	0.2	OHMM	2000	0.45	V/V	-0.15	0.5	V/V	0									



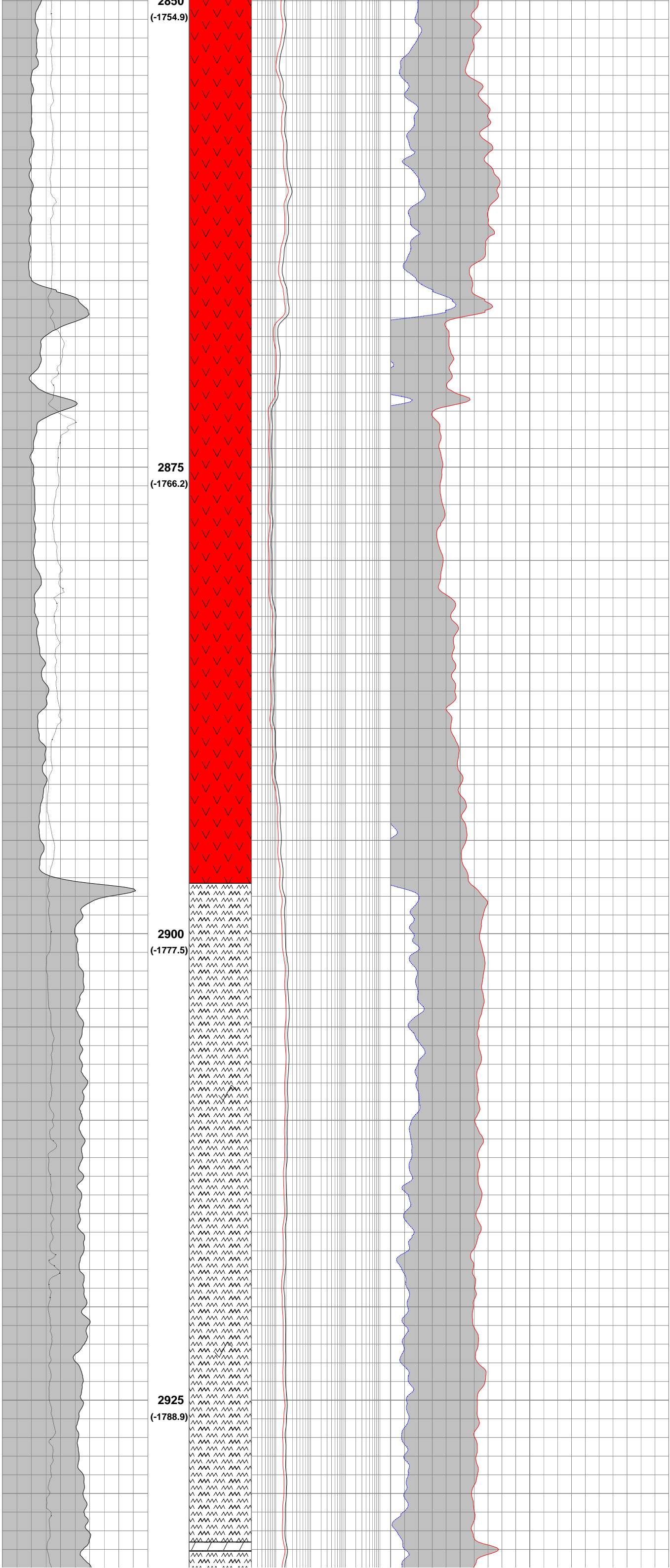


2679.5
ANG 62.7
DIR 179.7
-1676.9

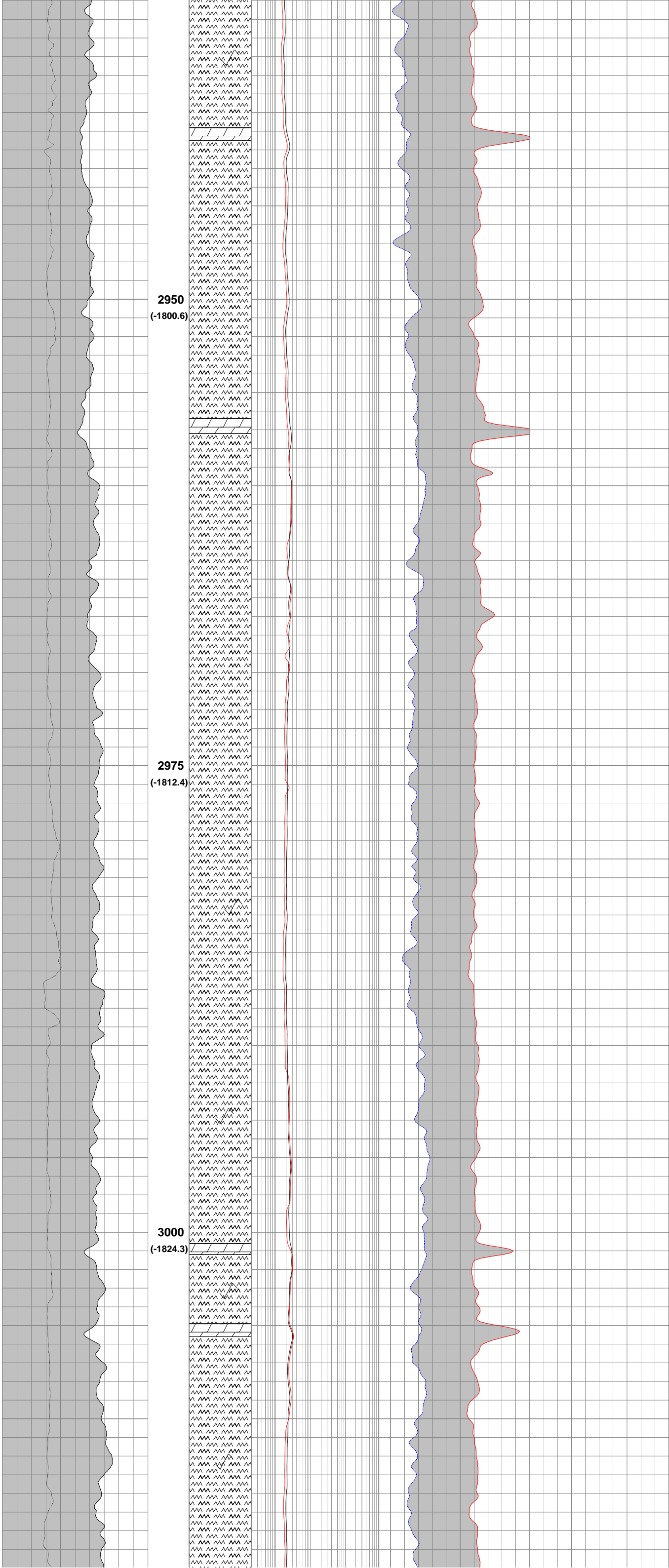


2765.8
ANG 62.9
DIR 179.1
-1716.3





2879.2
ANG 63.2
DIR 178.9
-1768.1



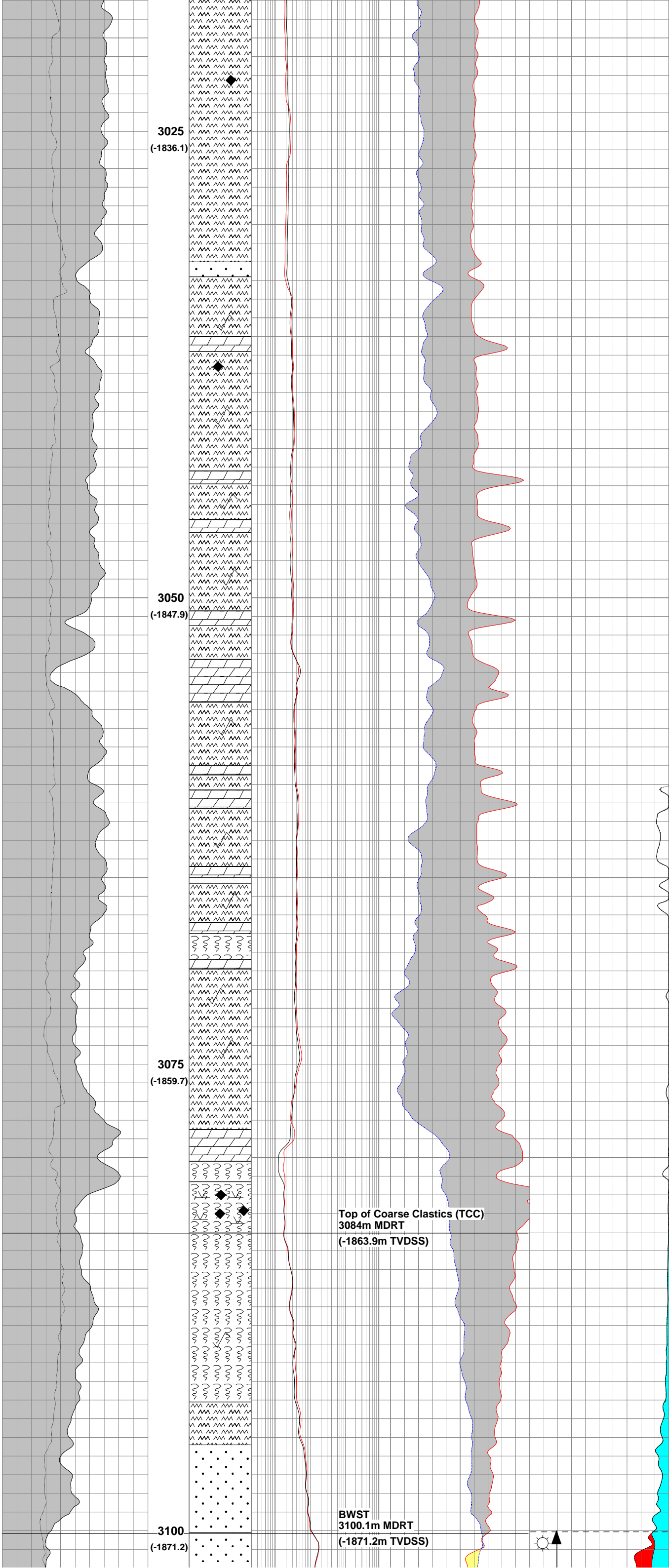
2950
(-1800.6)

2975
(-1812.4)

3000
(-1824.3)

2964.0
MW 9.9ppg
FV 67sec/qt
PV 26cP
YP 44
pH 9.1

2966.2
ANG 61.5
DIR 179.1
-1808.2



3025
(-1836.1)

3050
(-1847.9)

3075
(-1859.7)

3100
(-1871.2)

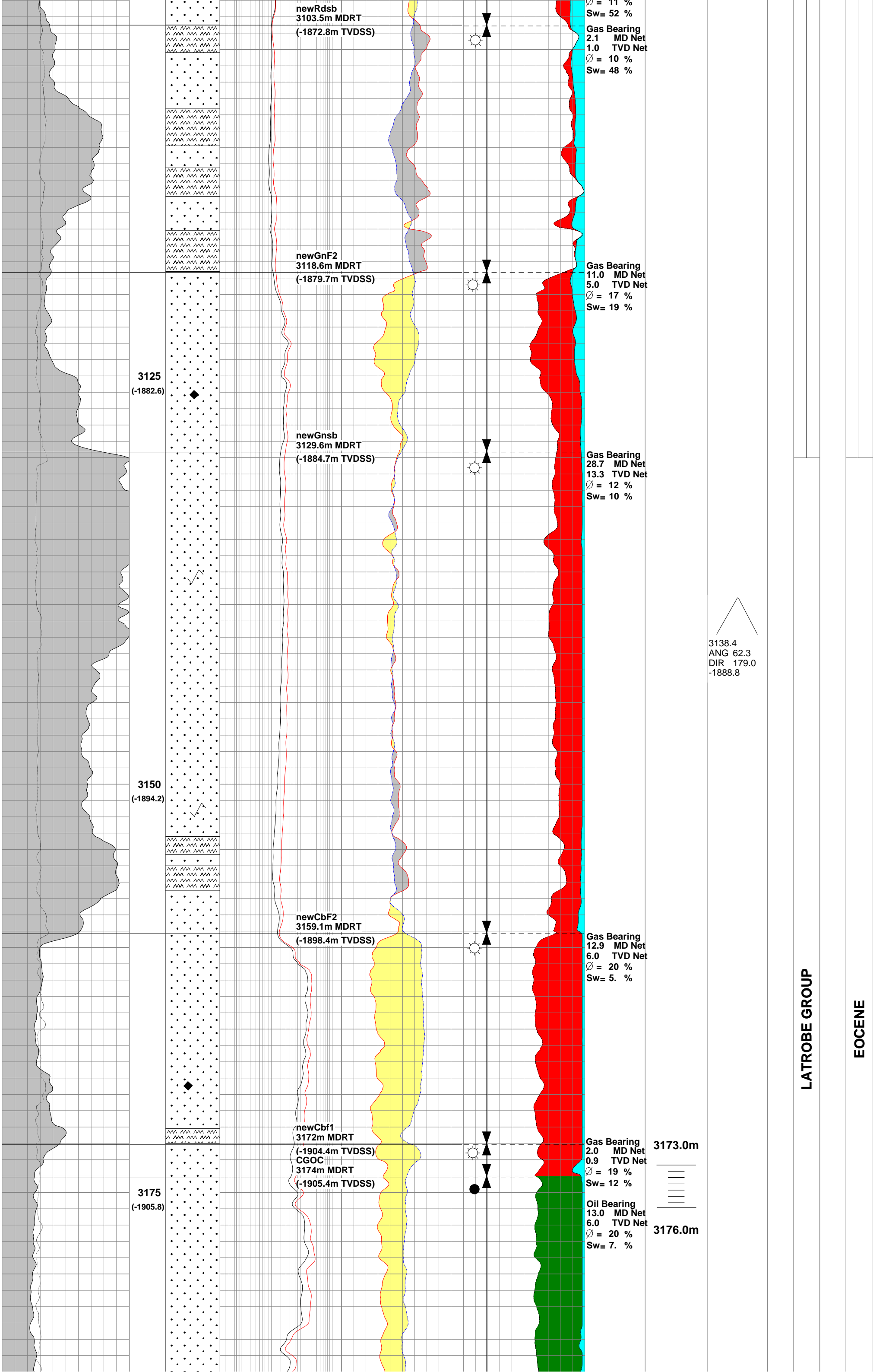
Top of Coarse Clastics (TCC)
3084m MDRT
(-1863.9m TVDSS)

BWST
3100.1m MDRT
(-1871.2m TVDSS)

3052.2
ANG 61.4
DIR 178.9
1849.0

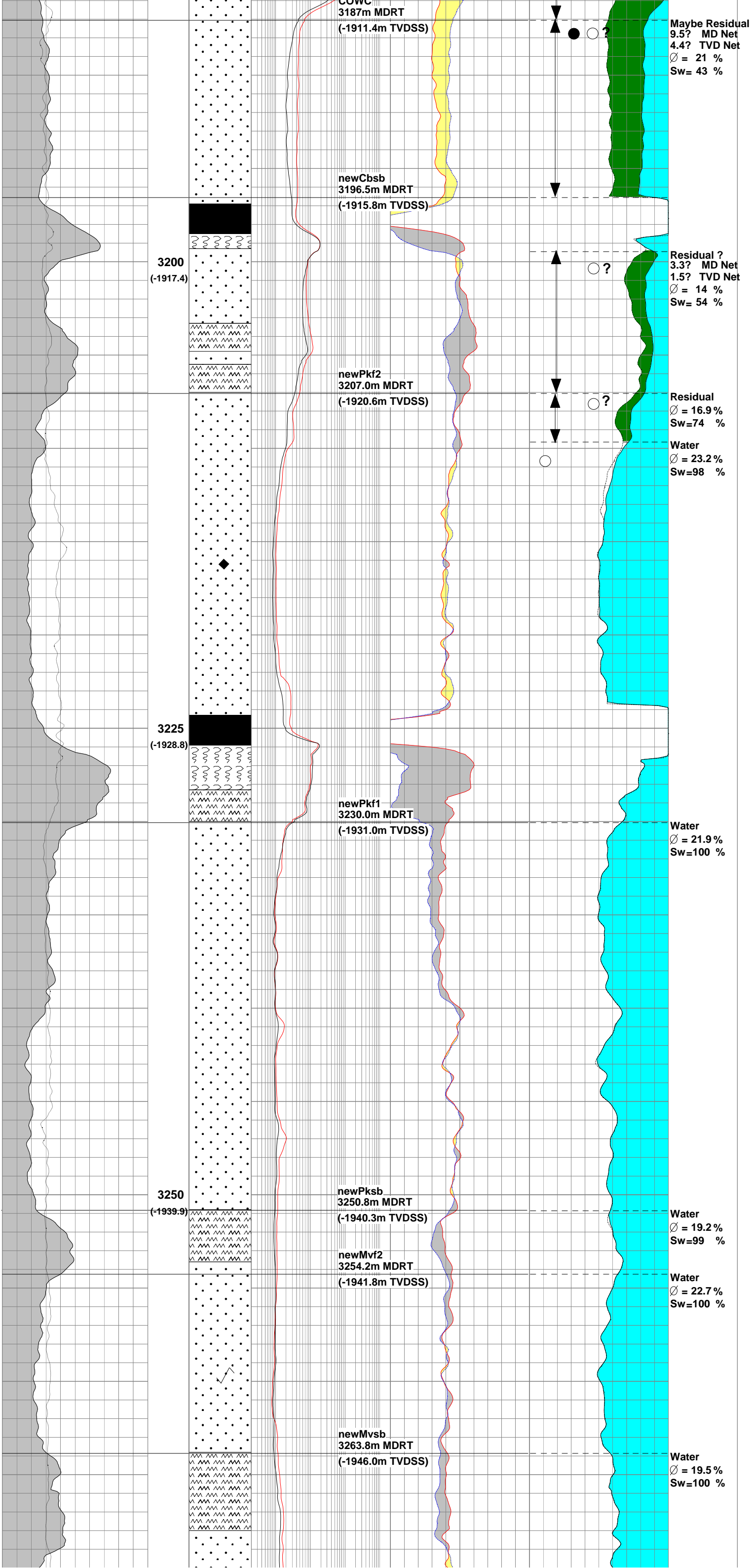


Gas Bearing
2.3 MD Net
1.1 TVD Net

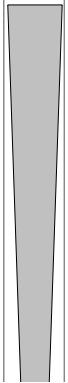


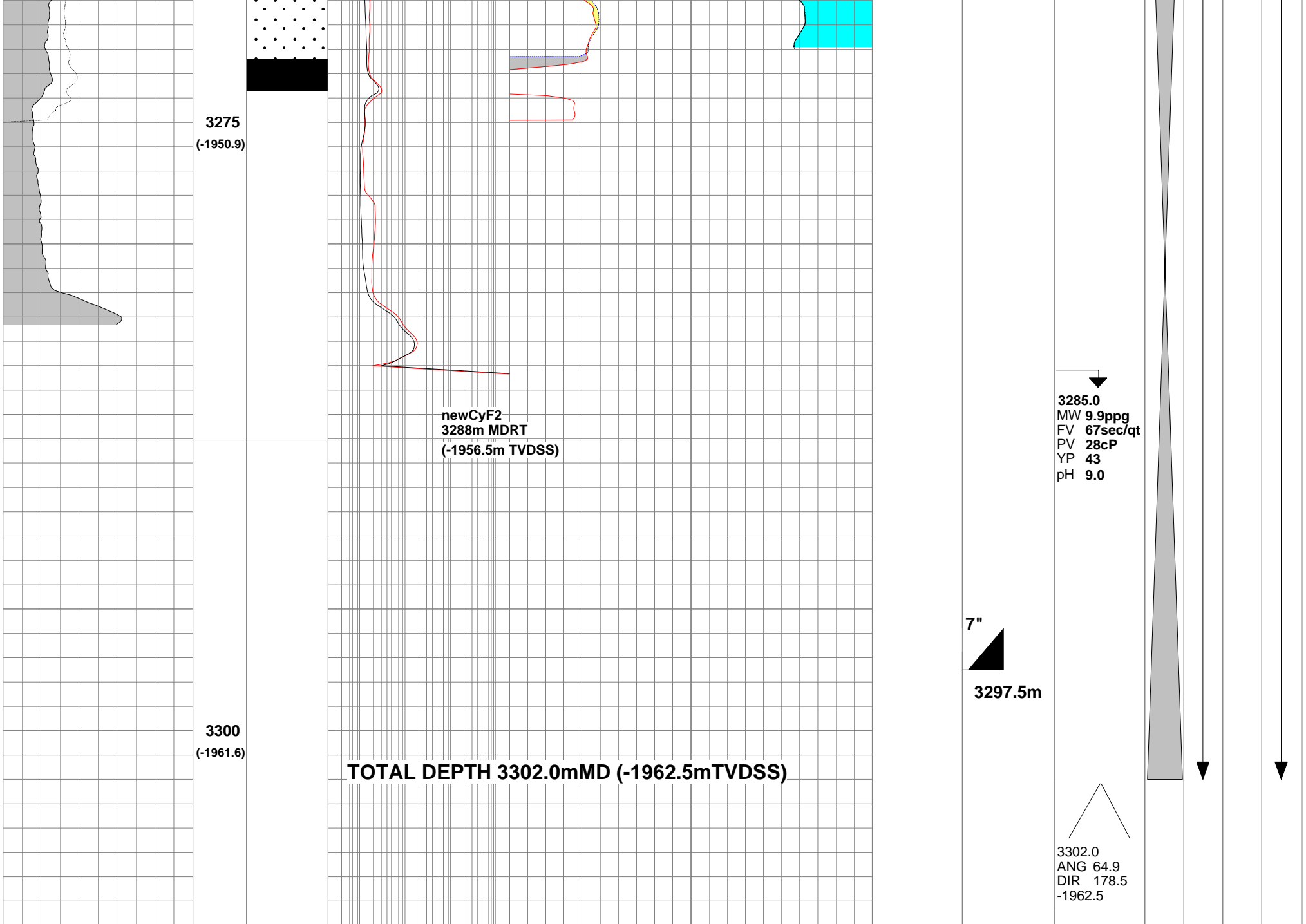
LATROBE GROUP

EOCENE



3252.7
ANG 63.8
DIR 178.3
-1941.1





GRGC Borehole corrected Gamma Ray
CLDC Density Caliper
NPRL Thermal Neutron Porosity
DEN Compensated Density
DGLL Deep Laterolog
DSLL Shallow Laterolog
PIGN Effective Porosity
VUWA Bulk Volume Water

Bream A23A
Initial Production Date: 31/07/2005
Production Zone N-1
Initial Total Liquid Rate 235 kL/day, 0%watercut