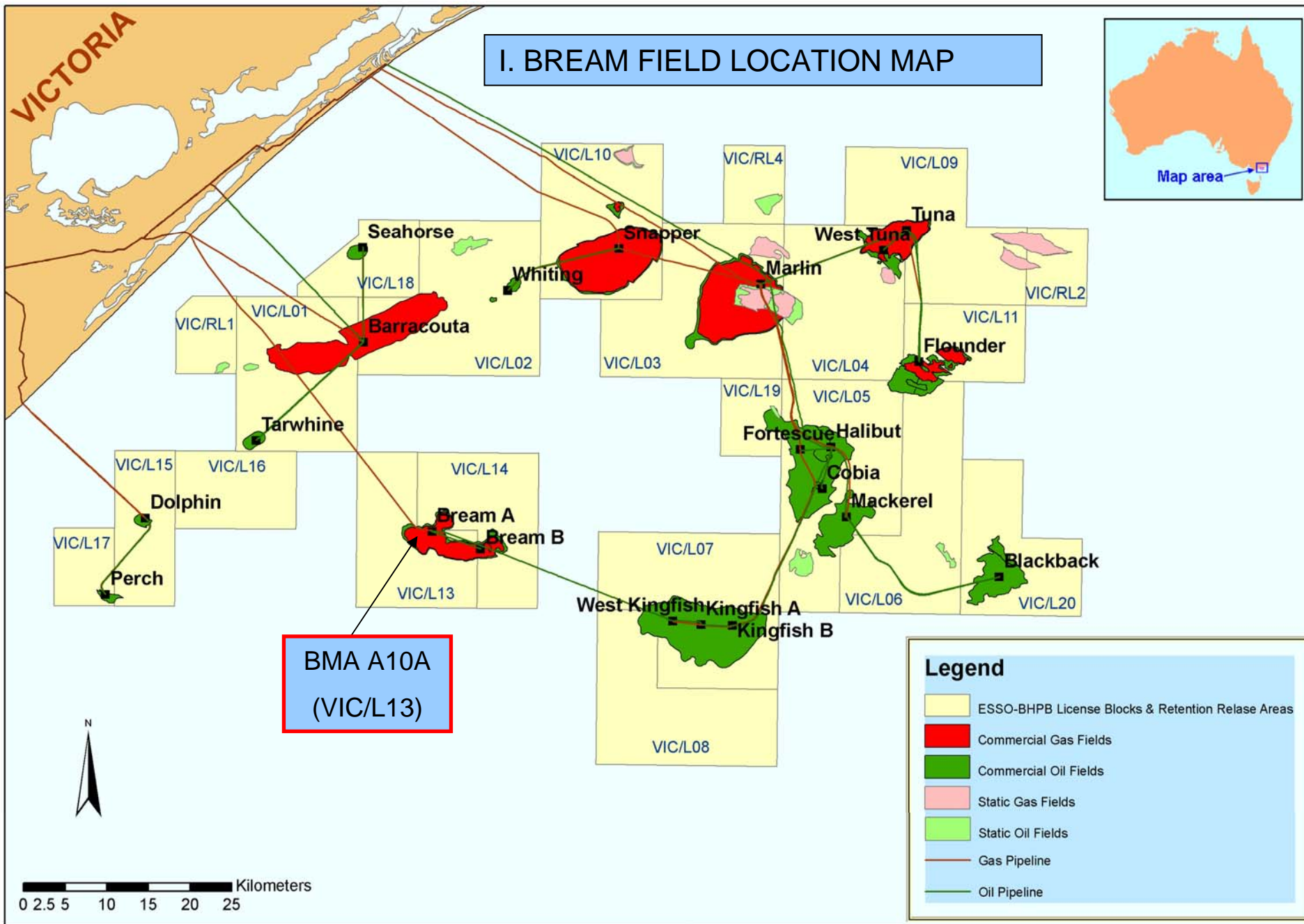


**WELL COMPLETION REPORT**  
**BREAM A10A**  
**GIPPSLAND BASIN, VICTORIA**

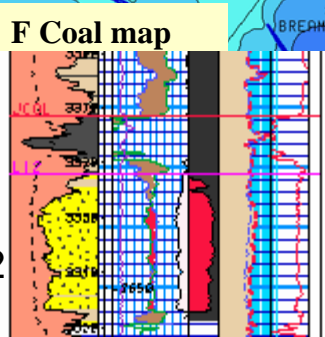
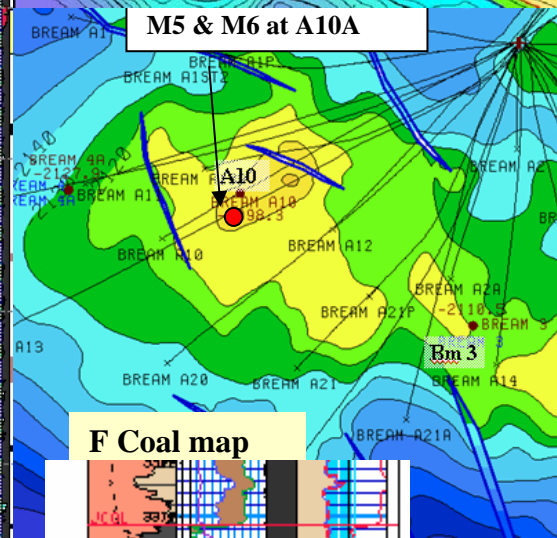
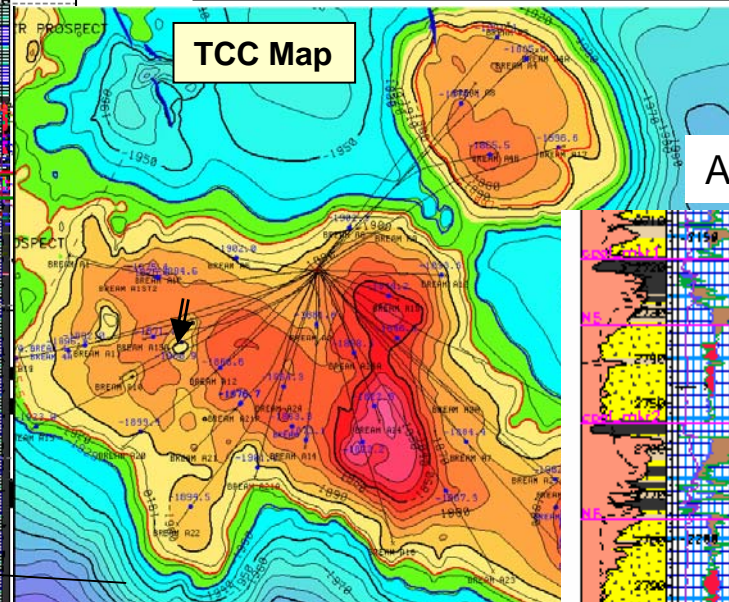
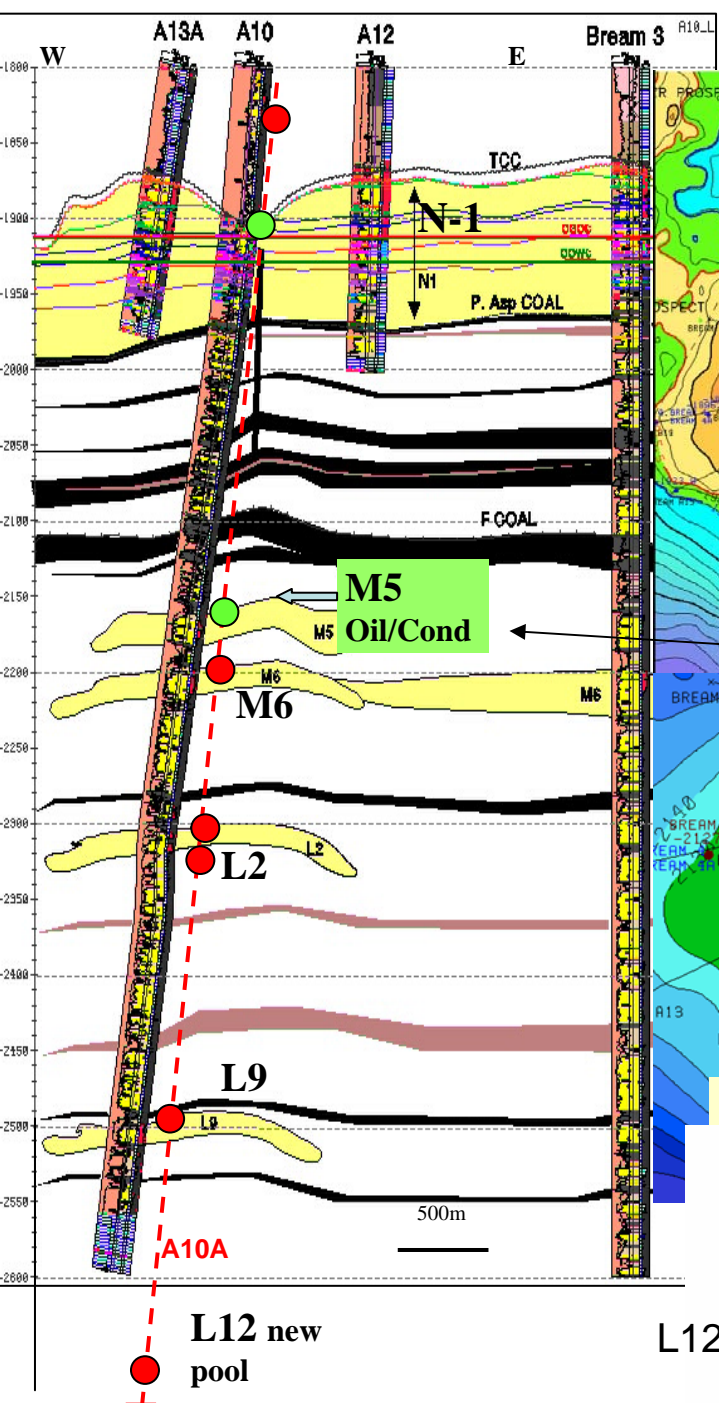
Author: Mike Hordern  
Compiler: Sheryl Sazenis  
October 2005

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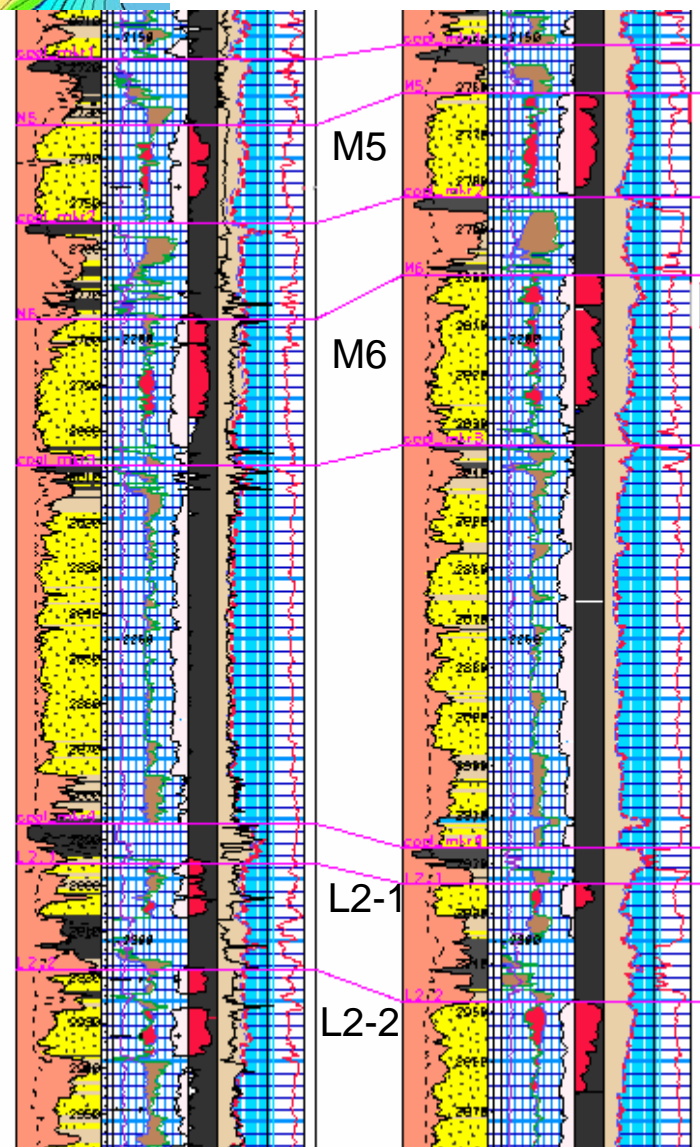


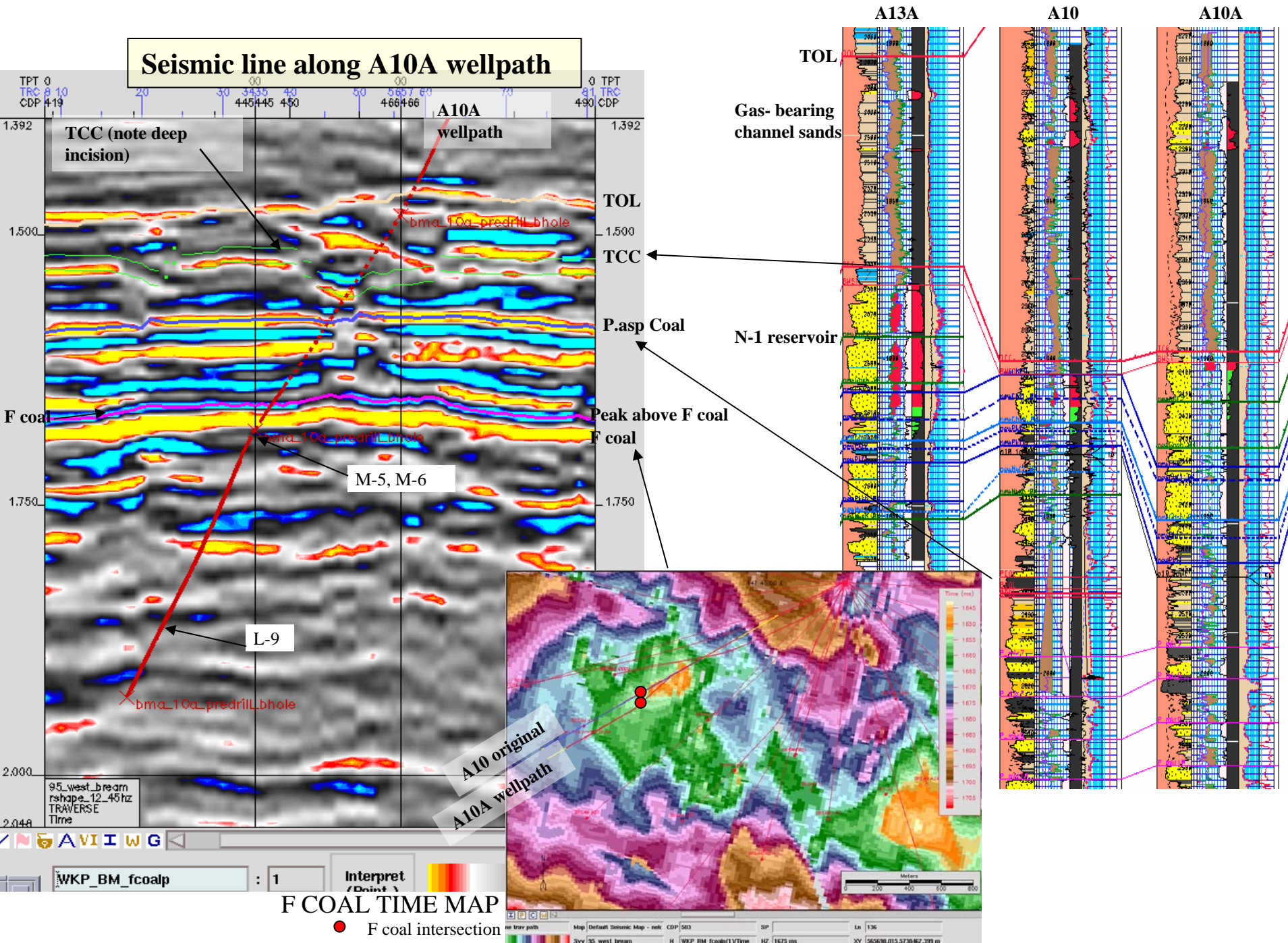
# BREAM A10A SECTIONS AND STRUCTURE MAPS



A10

A10A





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

### LOCATION

<b>Field</b>	<b>Bream</b>	<b>Conductor #10 Surface Coordinates</b>	
<b>Well Name</b>	<b>A10A (Loc A)</b>	(GDA94 ) X	567336.3mE
<b>Conductor Number</b>	Slot 10	(MGA94) Y	5738460.3mN
<b>State</b>	Victoria	Latitude	38° 29' 58.824"S
<b>Permit/Licence</b>	Vic/L13	Longitude	147° 46' 19.976"E
<b>Geological Basin</b>	Gippsland	<b>Perforations (driller)</b>	2761.0 – 2767.5m MDRT
<b>Top of Latrobe</b>	2236.5 m MDRT		2192.0 – 2197.0m TVDRT
	1820.2 m TVDRT		2801.0 – 2810.0m MDRT
	-1787.4m TVDSS		2223.5 – 2230.8m TVDRT
MGA94 X	566289.24m E		
MGA94 Y	5737911.63m N		
Latitude	38° 30' 16.907" S	<b>Datum</b>	GDA94 (GRS80)
Longitude	147° 45' 36.938" E	<b>Projection</b>	MGA94/UTM Zone 55 (S)

### ELEVATIONS & DEPTHS

<b>Water Depth</b>	59.43 m
<b>Top Wellhead to MSL</b>	27.59 m
<b>Main Deck Rel to MSL</b>	25.12 m
<b>RT Relative to MSL</b>	32.82 m
<b>Average Well Angle</b>	45° dropping to 23°
<b>Total Depth</b>	3392.0 m MDRT
	2727.9 m TVDRT
	-2695.1m TVDSS
<b>Plug Back Depth</b>	3350.5m MDRT

### DATES

<b>Skid Rig</b>	30/04/2005
<b>Kicked Off</b>	05/05/2005
<b>Development Rig Days</b>	24.6
<b>NPT Days</b>	0.39
<b>Rig Released</b>	25/05/2005
<b>I.P. Established</b>	04/06/2005

### MISCELLANEOUS

<b>Operator</b>	Esso Australia Pty Ltd	<b>Contractor</b>	International Sea Drilling Ltd
<b>Esso Interest</b>	50%	<b>Rig Name</b>	Nabors Rig 453
<b>Permittee/Licensee</b>	Esso/BHPP	<b>Equipment Type</b>	Platform
<b>Other Interest</b>	50% J.V. Interest	<b>Completion Type</b>	Selective Single with 2 sliding sleeves (3 packers)
<b>Overriding Royalty</b>	2.5%	<b>Completion Size</b>	3-1/2"
<b>Drilling AFE No.</b>	L0501F454		

### WELL CLASSIFICATION

<b>Before Drilling</b>	Oil and gas Development	<b>After Drilling</b>	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 A10 Conductor	26	133	K-55	BTC	170.0
Original A10 Surface	13 <sup>3</sup> / <sub>8</sub>	54.5	K-55	BTC	921.1
Original A10 Intermediate (top of milled window)	9 <sup>5</sup> / <sub>8</sub>	43.5	K-55	BTC	2258.0
Production Liner	7	29	Vam Top	LTC	3391.0 (top at 2056.8 m)

(3 ½" completion tubing (9.2lb/ft, 13Cr80), depth 2856.9m)

### 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" Liner  29 lb/ft	ABC	681	HALAD 413L 30 gal / 10 bbl  NF-6 0.13 gal / 10 bbl  CFR-3L 3 gal / 10 bbl  SCR-100L 2 gal / 10 bbl	100	137	15.8	3392 to 2057	2500 psi

## II. WELL DATA RECORD (cont.)

### DRILLING PERFORMANCE

#### BREAM A10A - Final Well Report

##### GENERAL

Platform:	Bream	Rig:	453	Reservoir:	M5/M6/L Sands
Well:	A10A	Well Slot:	#10	RT-MSL (Rig453)	32.82m
Drilling Complexity Index	3.1	Completion Complexity Index	2.9		

DEPTH		PERFORMANCE		MUD	
m MDRT	3,392.00	20" Cond. Hole	N/A	Max Wt (ppg)	10.15
m TVDRT	2,727.81	12-1/4" Surf. Hole	N/A	Type (Surf. Hole)	N/A
Vert. Section (m)	1868.16	8-1/2" Prod. Hole	141m/day	Type (Inter. Hole)	N/A
INCLINATION		6" Liner Hole	N/A	Type (Prod. Hole)	KCl/PHPA/Poly/Glycol
Max (deg) / Ave (deg)	45 drop to 23°	* time to drill interval, incl's Connections & NPT.		Type (Liner Hole)	N/A

Comments: New hole drilled: 2,258m to 3,381m MDRT (1,123m MDRT drilled). The well was deepened 11m to 3,392m after logging for additional rathole.

##### TIME ANALYSIS

Start Date:	30/04/2005, 1400hrs	Finish Date:	25/5/2005, 0500hrs		
Target Days (P10):	16.7	Total Days:	24.6	% Under Target:	47% (under)
AFE Days (P50):	19.4	NPT Days:	0.39	% of Total Days:	1.6%
Supplementary AFE Days (P50):	N/A				

##### COSTS (based on projected)

AFE No.:	L0501F454	Revisions:	--	\$ per m	A \$5.02 k / metre (new hole)
\$ per day:	A\$ 230 k/day	\$ per day (excl. T + L) * Equipment, LWD & Reeves	A\$ 180 k/day		A\$ 1.67 k / metre* * based on TD <b>not</b> new hole

	Equipment	Materials	Contracts	Allocations	Contingency	Total
AFE (Original)	810,000	697,000	2,451,756	715,700	166,000	A\$4,840,456
AFE (Supplement)	990,000	774,730	3,135,787	968,070	221,600	A\$6,090,187
Projected	906,000	487,000	3,473,100	542,000	240,000	A\$5,648,100

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

	Size / Weight / Grade / Thread	m MDRT	m TVDRT	PIT (ppg)
Conductor Casing *	26"	170	165	N/A
Surface Casing *	13-3/8", 54.5 ppf, K55, BTC	921.1	850	N/A
Intermediate Casing *(milled window)	9-5/8", 43.5 ppf K55, BTC	2,258	1,845	13.5 PIT
Prod Liner	7", 29.0ppf, L-80 Vam Top, LTC	3,391 (top of liner at 2,056.8m MD)	2,727	N/A

Comments: \* Pre-existing casing strings.

##### COMPLETION

	Size / Weight / Grade / Thread	MMDRT	MTVDRT	Type
Completion	3-1/2", 9.2ppf, 13Cr80, Vam Ace	2856.9	2268.7	Selective single with 2 sliding sleeves ("Triple")

	Upper Interval [m MDRT]	Upper Interval [m TVDRT]	Lower Interval [mMDRT]	Lower Interval [mTVDRT]	Gun Type
Perforation Interval:	2761-2767.5 (M-5)	2192.0-2197	2801-2810 (M-6)	2223.5-2230.8	wireline

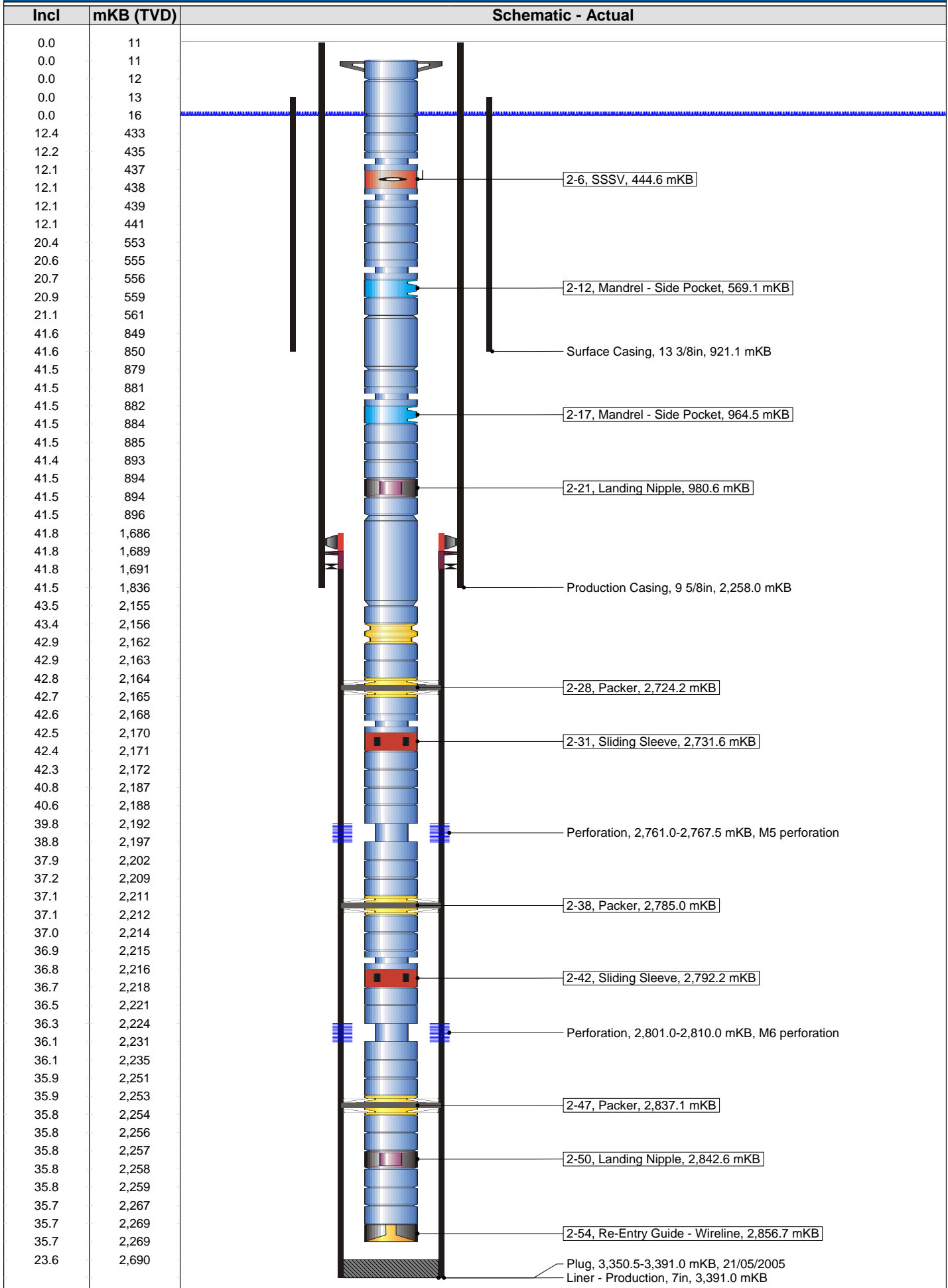
Comments: Triple completion was 3-1/2" 13Cr80 with TR-SSSV and 2 SPM's for gas lift, three packers set at 2724m MDRT, 2785m MDRT, and 2837m MDRT.

##### ADDITIONAL

	Top log Interval [m MDRT]	Bottom log Interval [m MDRT]
Logs Run	GR-Resistivity-Density-Neutron-Sonic-Caliper 2,193	3,376.5

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

# Bream A10A: Existing Schematic



# Bream A10A: Existing Tubing String Summary

Tubing Description	Run Date	Run Job	Comment	Measured Depth (mKB)
Tubing - Production	24/05/2005	Drilling and Completion, 30/04/2005 14:00 - 25/05/2005 05:00	3 packer completion. SO = 91kips inc blocks (no PU taken).	2,856.91

## 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)
2-1	Tubing Hanger	3.500			ACME	1	Cameron	MC-2		4 TPI Stub ACME R.H.	6.750	2.950	0.52	11.10
2-2	Tubing Pup Joint	3.500	9.30	13Cr-80	VAM-ACE	2					4.500	2.992	4.12	11.62
2-3	Tubing Joint(s)	3.500	9.30	13Cr-80	VAM-ACE	44					4.500	2.992	425.34	15.74
2-4	Tubing Pup Joint	3.500	9.30	13Cr-80	VAM-ACE	2					4.500	2.992	1.97	441.08
2-5	Flow Coupling	3.500			VAM-ACE	1					4.500	2.900	1.59	443.04
2-6	SSSV	3.500			VAM-ACE	1	Halliburton	NE. 781LXE277...		2.750" X Profile	5.380	2.750	1.28	444.64
2-7	Flow Coupling	3.500			VAM-ACE	1					3.920	2.880	1.46	445.92
2-8	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	1.97	447.38
2-9	Tubing Joint(s)	3.500	9.30	13Cr80	VAM-ACE	12					4.500	2.992	116.25	449.35
2-10	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	1.97	565.60
2-11	Flow Coupling	3.500	9.30		VAM-ACE	1					4.500	2.880	1.58	567.56
2-12	Mandrel - Side Pocket	3.500			VAM-ACE	1	Weather...	SFO 2		1.5" pocket	5.968	2.920	2.59	569.15
2-13	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	1.96	571.74
2-14	Tubing Joint(s)	3.500	9.30	13Cr80	VAM-ACE	40					4.500	2.992	387.20	573.70
2-15	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	1.96	960.90
2-16	Flow Coupling	3.500			VAM-ACE	1	Halliburton				4.500	2.880	1.59	962.86
2-17	Mandrel - Side Pocket	3.500			VAM-ACE	1	Weather...	SFO 2		1.5" pocket	5.968	2.920	2.60	964.45
2-18	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	1.88	967.05
2-19	Tubing Joint(s)	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	9.68	968.93
2-20	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	1.97	978.61
2-21	Landing Nipple	3.500			VAM-ACE	1	Halliburton	X nipple. 811X27525-C		2.750" X Profile	3.771	2.750	0.45	980.58
2-22	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	1.88	981.03
2-23	Tubing Joint(s)	3.500	9.30	13Cr80	VAM-ACE	179					4.500	2.992	1,728...	982.91
2-24	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	1.28	2,710.97
2-25	Seal Assembly	3.500			VAM-ACE	1				PBR			9.30	2,712.25
2-26	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	2					4.500	2.992	0.66	2,721.55
2-27	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	2					4.500	2.992	1.98	2,722.20
2-28	Packer	3.500			VAM-ACE	1	Halliburton	7" AHC. Pip tag at 2722.3			7.000	2.954	1.56	2,724.18
2-29	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	2					4.500	2.992	3.93	2,725.74
2-30	Flow Coupling	3.500	9.30		VAM-ACE	1					4.500	2.880	1.88	2,729.68
2-31	Sliding Sleeve	3.500			VAM-ACE	1		821XD2755...		2.750" X Profile	4.280	2.750	1.41	2,731.55
2-32	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	1.98	2,732.96
2-33	Tubing Joint(s)	3.500	9.30	13Cr80	VAM-ACE	2					4.500	2.992	19.35	2,734.94
2-34	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	1.28	2,754.29
2-35	Blast Joint(s)	3.500			VAM-ACE	2	Halliburton			2x 30ft and 1x12ft	4.020	2.880	18.20	2,755.56
2-36	Tubing Joint(s)	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	9.24	2,773.76
2-37	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	1.97	2,783.00
2-38	Packer	3.500			VAM-ACE	1	Halliburton	7" AHC. 812AHC71...			7.000	2.954	1.55	2,784.97
2-39	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	1.96	2,786.52
2-40	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	1.84	2,788.48
2-41	Flow Coupling	3.500	9.30		VAM-ACE	1					4.500	2.880	1.88	2,790.32
2-42	Sliding Sleeve	3.500			VAM-ACE	1		821XD2755...		2.750" X Profile	4.500	2.750	1.41	2,792.20
2-43	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	2					4.500	2.992	3.95	2,793.61
2-44	Blast Joint(s)	3.500			VAM-ACE	2	Halliburton			1x 30ft and 1x 12ft	4.020	2.880	18.20	2,797.55
2-45	Tubing Joint(s)	3.500	9.30	13Cr80	VAM-ACE	2					4.500	2.992	19.36	2,815.75
2-46	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	1.97	2,835.11
2-47	Packer	3.500			VAM-ACE	1	Halliburton	7" AHC. Pip tag at 2835.24			7.000	2.954	1.56	2,837.08
2-48	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	1.97	2,838.64
2-49	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	1.98	2,840.61
2-50	Landing Nipple	3.500			VAM-ACE	1	Halliburton	XN nipple. 711XN27517		2.750" XN Profile, 2.635" NoGo		2.635	0.50	2,842.59
2-51	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	1.97	2,843.08
2-52	Tubing Joint(s)	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	9.68	2,845.05
2-53	Tubing Pup Joint	3.500	9.30	13Cr80	VAM-ACE	1					4.500	2.992	1.99	2,854.73
2-54	Re-Entry Guide - Wireline	3.500			VAM-ACE	1					5.984	2.992	0.20	2,856.72
2-55		3.500												2,856.91

### III. SAMPLES

#### CUTTINGS

The cuttings sampling programme for BREAM A10A are detailed in the following table:

Interval	Formation	Sampling Details
KOP to Total Depth (TD)  2270.5 m – 3392.0 m (TD)	Latrobe Group	5 m sampling interval  Three sets of washed and oven dried cuttings.

Detailed cuttings descriptions for the interval 2258.2 mMDRT to 3392.0 mMDRT (TD) are contained in Appendix 3a.

#### CONVENTIONAL CORING

No conventional cores were cut in BREAM A10A.

#### SIDEWALL CORING

No sidewall core samples were shot in BREAM A10A.

### IV. LOGS AND SURVEYS

Survey/Log	Company	Top (m MDRT)	Bottom (m MDRT)
MWD Run 1, Powerpulse (Directional only)	Schlumberger/Anadrill	2255.0	2270.5
MWD Run 2, Powerpulse (Directional & GR)	Schlumberger/Anadrill	2270.5	2751.0
MWD Run 3, Powerpulse (Directional & GR)	Schlumberger/Anadrill	2751.0	3360.9
Run 1: Drillpipe conveyed Logging MCG-MDN-MPD-MSS-MDL	Reeves Compact run on drillpipe (Shuttle System, memory mode)	2193.1	3376.5

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

## V. FORMATION RESERVOIR TOPS - Bream A10A

Horizon	m TVDSS			m MDRT  ACTUAL	m TVT Gross HC Column	
	Predicted Tops	ACTUAL	Diff. (m)		Predicted	ACTUAL
Top of Latrobe (TOL)	-1785	-1787.4	2.4 low	2236.5		
Top of channel sands below TOL (gas)	-1818	-1812.0	6.0 high	2270.0	Gas expected	19.4 gas (19.3 net)
Top of Coarse Clastics (TCC)	-1901	-1897.8	3.2 high	2391.1		
Base of Waste zone (BWST)		-1901.1		2395.6		
N-1 current GOC	-1905	-1904.3	0.7 high	2400.1	Possible hc's	3.2 gas (3.2 net)
N-1 current OWC	-1909	-1906.8	2.2 high	2403.5		2.5 oil (2.5 net)
newGnF2		-1913.9		2413.8		
newGnsb		-1928.5		2434.5	(Field OOWC-1929m)	
newCbF2		-1934.3		2442.8		
new Cbf1		-1938.8		2449.3		
newCbsb		-1951.4		2467.3		
new PKf2		-1956.9		2475.1		
new PKf1		-1965.1		2486.9		
P.asperopolus coal	-1969	Faulted out		Faulted out		
Fault		-1969.2		2492.8		
F_coal	-2098	-2094.2	3.8 high	2672.1		
coal_mkr_1		-2151.1		2750.5		
Top M-5 Sand	-2165	-2159.2	5.8 high	2761.1	16	15.8 oil/cond (14.7 net)
M-5 OWC	-2177	-2175.0	2.0 high	2781.3		
coal_mkr_2		-2176.4		2783.2		
Top M-6 Sand	-2198	-2189.5	8.5 high	2799.5	20	23.0 gas (22.6 net)
M-6 GWC	-2213	-2212.5	0.5 high	2828.0		
coal_mkr_3		-2217.6		2834.3		
coal_mkr_4 (L2 coal)	-2280	-2284.5	4.5 low	2916.6		
Top L2-1 Sand	-2288	-2290.7	2.7 low	2924.1	7.5	4.0 gas (4.0 net)
L2-1 GWC		-2294.7		2929.0		

## V. FORMATION RESERVOIR TOPS -Bream A10A (cont'd)

Horizon	m TVDSS			m MDRT	m TVT Gross HC Column	
	Predicted Tops	Actual	Diff.		Predicted	Actual
Top L2-2 Sand		-2310.1		2947.8	11	12.4 gas (12.2 net) 3.0 oil (3.0 net)
L2-2 GOC		-2322.5		2962.8		
L2-2 OWC		-2325.5		2966.5		
L6_FS		-2403.7		3060.5		
L9_coal		-2487.5		3159.4		
Top L9 gas sand	-2500	-2501.8	1.8 low	3176.0	11	17.6 gas on rock (5.4 net)
J_coal	-2615	-2621.2	6.2 low	3311.4		
Top L12		-2630.8		3322.0		23.0 gas on rock (20.2 net)
Total Depth (TD)	-2685	-2695.1	10.1 low	3392.0		

## VI. GEOLOGICAL ANALYSIS - BREAM A10A

### Objectives

The primary objective of the Bream A10A well was to develop intra-Latrobe rich gas sands originally encountered in the Bream A10 well.

A10 was drilled in 1989 to develop the main Bream N-1 reservoir but also deepened to a TD of 2596mTVDSS to test a deep seismically mapped closure at the L.balmei (Paleocene) level. The Top of Coarse Clastics came in 34m deep to prediction at A10 due to severe erosional channelling at the TCC horizon so the N-1 reservoir was significantly eroded, however the well intersected several deep gas/ condensate zones (M-5, M-6, L-2 and L-9) located about 250-600mTVD below the N-1 reservoir section. The well was not completed in the gas sands but plugged back and completed for oil production in the N-1 oil leg, with oil production continuing until the end of 2003.

Rather than do an expensive remedial workover in A10 to re-access the deep gas zones and make it suitable for high pressure gas production, with some doubt as to the longterm mechanical success of the operation, it was decided to drill a new "twin" well in 2005 to access the deep gas. It was proposed that the new well kick off from A10 just below TOL and drill essentially parallel to the old wellbore down to the deep zones and also be deepened further below A10 TD. Bream A10A (Location A) was the first well in a program of development wells drilled in 2005 from the Bream A platform using the small ISDL Nabors Rig 453.

### Results

Bream A10A was kicked off from a window milled in the A10 original 9 5/8" surface casing just below Top of Latrobe. A10A immediately encountered gas-bearing channel sands within the TOL-TCC interval (previously called "Gurnard" Formation section because of the position above TCC). These gas sands are now interpreted to be fluvial channel sands because of the presence of interbedded coals and the channelised nature of the sands.

The Top of Coarse Clastics (TCC) was intersected at -1897.8m TVDSS, 3.2m high to prediction and to A10, but the A10A is still in a deep "hole" at TCC, with the well some 36m and 27mTVD deeper than nearby A5A (-1861.8) and A13A (-1871.1mTVDSS). This is interpreted to be due to local faulting which has dropped the A10A block compared to A5A and A13A. A fairly complete but down-faulted N-1 section is interpreted at A10A. There is a 50m-throw fault picked in A10A at 2492.8mMD which is an example of this faulting and it has faulted out the thick P.asperopolous coal (seismic marker) below the N-1 sands. The faulting is likely to have been responsible for initiation of the erosional hole that deeply truncates the N-1 sands at A10A and particularly A10. A10 is believed to be in the same upthrown fault block as A13A because the P.asp coal is not faulted out, but the well is within the erosional hole.

The N-1 reservoir below the Base of Waste at A10A contains 3.2m TVD net gas and 2.5m net oil, with an underlying residual oil zone. Below the N-1 sands is a section of coals, thin sands and some volcanics, which extends down to the thick F coal, which came in 4m high to A10.

Underlying the F coal is the Lower Eocene M-5 sand, with top at 2761.1m MDRT (-2159.2m TVDSS). The M-5 is a thick good quality sand (21% porosity) containing 14.7m TVD net oil to an OWC interpreted at -2175m TVDSS. This contact essentially matches the OWC seen at A10. The hydrocarbon is interpreted to be a light oil or a condensate based on the Reeves logs and the liquids richness of the mudlog gas. The M-5 had previously been interpreted to be a gas and far less liquids-rich than the deeper L9, but this was due to an error in the original A10 sample labelling, and this was sorted out at the time of drilling A10A. It became clear that the early sample with condensate yield of 204 bl/Mscf and total liquids 310bl/Mscf belonged to the M-5. The M-5 production at A10A has confirmed the reservoir fluid is between a light oil and an ultra rich gas/condensate.

## **VI. GEOLOGICAL ANALYSIS - BREAM A10A (continued)**

The M-6 reservoir top in A10A is at 2189.5m TVDSS, which is 7.4mTVD updip of A10. The sand contains 23m TVD net gas with a GWC at -2212.5m TVDSS, and it is good quality for gas production (17% porosity).

Gas zones were also encountered within the deeper reservoirs L2-1 (4m net), L2-2 (12m net gas with 3m net oil leg), and L9 (5m net gas on rock), and a thick L12 gas sand was discovered at 2630.8m TVDSS containing 20m net gas (with no contact observed). The L reservoirs are of Paleocene age.

The well reached a TD of 3392mMDRT (-2695.1m TVDSS) and a production liner was installed. The well was completed with a single tubing string with 3 packers and the M-5 and M-6 zones were perforated each with a sliding sleeve for selective production. The M-5 was placed on initial production and flowed light oil at 585 kl/d, water free.

## **APPENDIX 1a**

### **BREAM A10A**

#### **Survey Data**



## BMA A-10A Final Geodetic Survey

Report Date: May 30, 2005	Survey / DLS Computation Method: Minimum Curvature / Lubinski
Client: Esso Australia Pty Ltd	Vertical Section Azimuth: 238.900°
Field: Bream A GDA 94	Vertical Section Origin: S 2.120 m, W 0.190 m
Structure / Slot: Bream A / 10	TVD Reference Datum: Rotary Table
Well: 10	TVD Reference Elevation: 32.8 m relative to MSL
Borehole: BMA A-10A	Sea Bed / Ground Level Elevation: -59.400 m relative to MSL
UWI/API#:	Magnetic Declination: 13.096°
Survey Name / Date: BMA A-10A Final / May 9, 2005	Total Field Strength: 60151.465 nT
Tort / AHD / DDI / ERD ratio: 129.896° / 1882.06 m / 5.999 / 0.690	Magnetic Dip: -69.027°
Grid Coordinate System: GDA94/MGA94 Zone 55	Declination Date: May 09, 2005
Location Lat/Long: S 38 29 58.824, E 147 46 19.976	Magnetic Declination Model: BGGM 2004
Location Grid N/E Y/X: N 5738460.340 m, E 567336.310 m	North Reference: Grid North
Grid Convergence Angle: -0.48073000°	Total Corr Mag North -> Grid North: +13.577°
Grid Scale Factor: 0.99965584	Local Coordinates Referenced To: Structure Reference Point

Comments	Measured Depth (m)	Inclination (deg)	Azimuth (deg)	TVD (m)	Vertical Section (m)	NS (m)	EW (m)	DLS (deg/30 m)	Northing (m)	Easting (m)	Latitude	Longitude
Tie-In	0.00	0.00	0.00	0.00	0.00	-2.12	-0.19	0.00	5738460.34	567336.31	S 38 29 58.824	E 147 46 19.976
	49.32	0.00	0.00	49.32	0.00	-2.12	-0.19	0.00	5738460.34	567336.31	S 38 29 58.824	E 147 46 19.976
	54.32	1.23	266.00	54.32	0.05	-2.12	-0.24	7.38	5738460.34	567336.26	S 38 29 58.824	E 147 46 19.973
	59.32	1.34	266.00	59.32	0.15	-2.13	-0.36	0.66	5738460.33	567336.14	S 38 29 58.824	E 147 46 19.969
	64.32	1.45	266.00	64.32	0.26	-2.14	-0.48	0.66	5738460.32	567336.02	S 38 29 58.825	E 147 46 19.964
	69.32	1.56	266.00	69.32	0.37	-2.15	-0.61	0.66	5738460.31	567335.89	S 38 29 58.825	E 147 46 19.958
	74.32	1.67	266.00	74.31	0.50	-2.16	-0.75	0.66	5738460.30	567335.75	S 38 29 58.825	E 147 46 19.952
	79.32	1.78	266.00	79.31	0.63	-2.17	-0.90	0.66	5738460.29	567335.60	S 38 29 58.826	E 147 46 19.946
	84.32	1.90	266.00	84.31	0.78	-2.18	-1.06	0.72	5738460.28	567335.44	S 38 29 58.826	E 147 46 19.940
	89.32	2.01	266.00	89.31	0.93	-2.19	-1.23	0.66	5738460.27	567335.27	S 38 29 58.826	E 147 46 19.933
	94.32	2.12	266.00	94.30	1.09	-2.21	-1.41	0.66	5738460.25	567335.09	S 38 29 58.827	E 147 46 19.925
	99.32	2.23	266.00	99.30	1.26	-2.22	-1.60	0.66	5738460.24	567334.90	S 38 29 58.827	E 147 46 19.917
	104.32	2.34	266.00	104.29	1.43	-2.23	-1.80	0.66	5738460.23	567334.70	S 38 29 58.828	E 147 46 19.909
	109.32	2.52	264.16	109.29	1.62	-2.25	-2.01	1.18	5738460.21	567334.49	S 38 29 58.829	E 147 46 19.901
	114.32	3.08	260.61	114.28	1.85	-2.28	-2.25	3.52	5738460.18	567334.25	S 38 29 58.830	E 147 46 19.891
	119.32	3.96	255.91	119.27	2.14	-2.35	-2.55	5.55	5738460.11	567333.95	S 38 29 58.832	E 147 46 19.878
	124.32	4.66	254.27	124.26	2.50	-2.45	-2.91	4.26	5738460.02	567333.59	S 38 29 58.835	E 147 46 19.863
	129.32	5.40	252.30	129.24	2.92	-2.57	-3.33	4.56	5738459.89	567333.17	S 38 29 58.839	E 147 46 19.846
	134.32	6.09	250.74	134.22	3.41	-2.73	-3.81	4.24	5738459.73	567332.69	S 38 29 58.845	E 147 46 19.826
	139.32	6.67	249.71	139.19	3.96	-2.92	-4.33	3.55	5738459.54	567332.17	S 38 29 58.851	E 147 46 19.805
	144.32	7.29	248.92	144.15	4.56	-3.13	-4.90	3.76	5738459.33	567331.60	S 38 29 58.858	E 147 46 19.782
	149.32	7.78	248.75	149.10	5.20	-3.37	-5.51	2.94	5738459.09	567330.99	S 38 29 58.866	E 147 46 19.756
	154.32	8.34	249.01	154.06	5.89	-3.62	-6.16	3.37	5738458.84	567330.34	S 38 29 58.874	E 147 46 19.730
	159.32	8.88	249.58	159.00	6.63	-3.89	-6.86	3.28	5738458.57	567329.64	S 38 29 58.883	E 147 46 19.701
	164.32	9.29	250.44	163.94	7.40	-4.16	-7.61	2.59	5738458.30	567328.90	S 38 29 58.892	E 147 46 19.670
	169.32	9.63	251.40	168.87	8.21	-4.43	-8.38	2.25	5738458.04	567328.12	S 38 29 58.901	E 147 46 19.638
	174.32	9.86	252.32	173.80	9.03	-4.69	-9.19	1.67	5738457.77	567327.32	S 38 29 58.910	E 147 46 19.605
	179.32	9.89	253.10	178.72	9.86	-4.94	-10.01	0.82	5738457.52	567326.50	S 38 29 58.918	E 147 46 19.571
	184.32	10.19	254.45	183.65	10.71	-5.19	-10.84	2.29	5738457.27	567325.66	S 38 29 58.926	E 147 46 19.537
	189.32	10.25	255.10	188.57	11.56	-5.42	-11.70	0.78	5738457.04	567324.81	S 38 29 58.934	E 147 46 19.502
	194.32	10.42	255.84	193.49	12.42	-5.65	-12.57	1.29	5738456.82	567323.94	S 38 29 58.942	E 147 46 19.466
	199.32	10.53	256.14	198.40	13.29	-5.87	-13.45	0.74	5738456.60	567323.06	S 38 29 58.949	E 147 46 19.430
	204.32	10.65	256.26	203.32	14.17	-6.09	-14.34	0.73	5738456.38	567322.16	S 38 29 58.956	E 147 46 19.393
	209.32	10.72	256.01	208.23	15.05	-6.31	-15.24	0.50	5738456.15	567321.26	S 38 29 58.964	E 147 46 19.356
	214.32	10.86	255.53	213.14	15.95	-6.54	-16.15	1.00	5738455.92	567320.36	S 38 29 58.971	E 147 46 19.318
	219.32	11.02	255.36	218.05	16.86	-6.78	-17.07	0.98	5738455.69	567319.44	S 38 29 58.979	E 147 46 19.281
	224.32	11.11	255.30	222.96	17.78	-7.02	-18.00	0.54	5738455.44	567318.51	S 38 29 58.988	E 147 46 19.242
	229.32	11.17	255.12	227.86	18.70	-7.27	-18.93	0.42	5738455.20	567317.58	S 38 29 58.996	E 147 46 19.204
	234.32	11.32	254.87	232.77	19.64	-7.52	-19.87	0.95	5738454.94	567316.64	S 38 29 59.004	E 147 46 19.165
	239.32	11.44	254.61	237.67	20.59	-7.78	-20.82	0.78	5738454.69	567315.68	S 38 29 59.013	E 147 46 19.126
	244.32	11.55	254.32	242.57	21.55	-8.04	-21.78	0.75	5738454.42	567314.72	S 38 29 59.022	E 147 46 19.086
	249.32	11.65	254.11	247.47	22.52	-8.32	-22.75	0.65	5738454.14	567313.76	S 38 29 59.031	E 147 46 19.047
	254.32	11.73	253.61	252.36	23.50	-8.60	-23.72	0.77	5738453.86	567312.78	S 38 29 59.040	E 147 46 19.007
	259.32	11.79	252.65	257.26	24.49	-8.90	-24.70	1.23	5738453.57	567311.81	S 38 29 59.050	E 147 46 18.966
	264.32	11.92	251.61	262.15	25.49	-9.21	-25.68	1.50	5738453.25	567310.83	S 38 29 59.061	E 147 46 18.926
	269.32	12.04	250.07	267.04	26.50	-9.55	-26.66	2.05	5738452.91	567309.85	S 38 29 59.072	E 147 46 18.886
	274.32	12.20	248.09	271.93	27.53	-9.93	-27.64	2.67	5738452.54	567308.87	S 38 29 59.084	E 147 46 18.846
	279.32	12.34	246.61	276.82	28.58	-10.34	-28.62	2.07	5738452.13	567307.89	S 38 29 59.098	E 147 46 18.805

284.32	12.57	245.18	281.70	29.66	-10.78	-29.60	2.31	5738451.69	567306.91	S 38 29 59.113	E 147 46 18.765
289.32	12.80	243.99	286.58	30.75	-11.25	-30.59	2.09	5738451.22	567305.92	S 38 29 59.128	E 147 46 18.724
294.32	13.09	242.88	291.45	31.86	-11.75	-31.59	2.29	5738450.72	567304.92	S 38 29 59.145	E 147 46 18.683
299.32	13.48	241.74	296.32	33.01	-12.28	-32.61	2.82	5738450.18	567303.90	S 38 29 59.162	E 147 46 18.641
304.32	13.74	241.09	301.18	34.19	-12.85	-33.65	1.81	5738449.62	567302.87	S 38 29 59.181	E 147 46 18.599
309.32	14.08	240.63	306.03	35.39	-13.43	-34.69	2.15	5738449.03	567301.82	S 38 29 59.200	E 147 46 18.556
314.32	14.42	240.49	310.88	36.62	-14.04	-35.77	2.05	5738448.43	567300.75	S 38 29 59.220	E 147 46 18.511
319.32	14.70	240.64	315.71	37.87	-14.65	-36.86	1.70	5738447.81	567299.65	S 38 29 59.240	E 147 46 18.467
324.32	15.03	241.06	320.55	39.16	-15.28	-37.98	2.08	5738447.19	567298.53	S 38 29 59.261	E 147 46 18.421
329.32	15.28	241.41	325.37	40.46	-15.91	-39.13	1.60	5738446.56	567297.39	S 38 29 59.282	E 147 46 18.373
334.32	15.53	241.98	330.19	41.79	-16.54	-40.30	1.75	5738445.93	567296.22	S 38 29 59.302	E 147 46 18.325
339.32	15.72	242.38	335.01	43.13	-17.17	-41.49	1.31	5738445.30	567295.03	S 38 29 59.323	E 147 46 18.276
344.32	15.82	242.43	339.82	44.49	-17.79	-42.69	0.61	5738444.67	567293.82	S 38 29 59.344	E 147 46 18.227
349.32	15.91	242.57	344.63	45.85	-18.43	-43.90	0.59	5738444.04	567292.61	S 38 29 59.364	E 147 46 18.177
354.32	15.95	242.76	349.44	47.22	-19.06	-45.12	0.39	5738443.41	567291.39	S 38 29 59.385	E 147 46 18.127
359.32	15.98	242.96	354.25	48.60	-19.68	-46.35	0.38	5738442.78	567290.17	S 38 29 59.406	E 147 46 18.077
364.32	16.03	243.14	359.05	49.97	-20.31	-47.58	0.42	5738442.16	567288.94	S 38 29 59.427	E 147 46 18.026
369.32	16.04	243.35	363.86	51.35	-20.93	-48.81	0.35	5738441.54	567287.71	S 38 29 59.447	E 147 46 17.976
374.32	16.07	243.47	368.66	52.73	-21.55	-50.05	0.27	5738440.92	567286.47	S 38 29 59.467	E 147 46 17.925
379.32	16.08	243.61	373.47	54.11	-22.17	-51.29	0.24	5738440.30	567285.23	S 38 29 59.488	E 147 46 17.874
384.32	16.03	243.96	378.27	55.48	-22.78	-52.53	0.65	5738439.69	567283.99	S 38 29 59.508	E 147 46 17.823
389.32	15.92	244.34	383.08	56.85	-23.38	-53.76	0.91	5738439.09	567282.75	S 38 29 59.528	E 147 46 17.772
394.32	15.64	244.99	387.89	58.21	-23.96	-54.99	1.99	5738438.51	567281.53	S 38 29 59.547	E 147 46 17.721
399.32	15.44	245.37	392.71	59.54	-24.52	-56.21	1.35	5738437.95	567280.31	S 38 29 59.565	E 147 46 17.671
404.32	15.22	246.03	397.53	60.85	-25.06	-57.41	1.68	5738437.40	567279.11	S 38 29 59.583	E 147 46 17.622
409.32	15.03	246.26	402.36	62.15	-25.59	-58.61	1.20	5738436.88	567277.91	S 38 29 59.601	E 147 46 17.573
414.32	14.74	246.59	407.19	63.42	-26.11	-59.78	1.81	5738436.36	567276.74	S 38 29 59.618	E 147 46 17.525
419.32	14.21	246.93	412.03	64.66	-26.60	-60.93	3.22	5738435.87	567275.59	S 38 29 59.634	E 147 46 17.477
424.32	13.85	247.09	416.88	65.86	-27.07	-62.05	2.17	5738435.40	567274.47	S 38 29 59.650	E 147 46 17.431
429.32	13.27	247.18	421.74	67.02	-27.53	-63.13	3.48	5738434.94	567273.39	S 38 29 59.665	E 147 46 17.387
434.32	12.86	246.99	426.61	68.14	-27.97	-64.17	2.47	5738434.50	567272.35	S 38 29 59.679	E 147 46 17.344
439.32	12.51	246.68	431.49	69.22	-28.40	-65.18	2.14	5738434.07	567271.34	S 38 29 59.694	E 147 46 17.303
444.32	12.13	245.97	436.37	70.28	-28.83	-66.16	2.45	5738433.64	567270.37	S 38 29 59.708	E 147 46 17.262
449.32	12.05	245.93	441.26	71.32	-29.26	-67.11	0.48	5738433.21	567269.41	S 38 29 59.722	E 147 46 17.223
454.32	12.04	245.72	446.15	72.36	-29.68	-68.06	0.27	5738432.79	567268.46	S 38 29 59.736	E 147 46 17.184
459.32	12.07	245.59	451.04	73.39	-30.11	-69.02	0.24	5738432.36	567267.51	S 38 29 59.750	E 147 46 17.145
464.32	12.16	245.57	455.93	74.44	-30.55	-69.97	0.54	5738431.92	567266.55	S 38 29 59.765	E 147 46 17.106
469.32	12.34	245.63	460.82	75.49	-30.99	-70.94	1.08	5738431.49	567265.59	S 38 29 59.779	E 147 46 17.066
474.32	12.64	245.64	465.70	76.56	-31.43	-71.92	1.80	5738431.04	567264.60	S 38 29 59.794	E 147 46 17.025
479.32	13.09	245.40	470.57	77.67	-31.89	-72.94	2.72	5738430.58	567263.59	S 38 29 59.809	E 147 46 16.984
484.32	13.46	245.61	475.44	78.81	-32.37	-73.98	2.24	5738430.10	567262.54	S 38 29 59.825	E 147 46 16.941
489.32	13.97	245.71	480.30	79.99	-32.86	-75.06	3.06	5738429.61	567261.46	S 38 29 59.841	E 147 46 16.896
494.32	14.41	245.48	485.15	81.20	-33.36	-76.18	2.66	5738429.11	567260.35	S 38 29 59.858	E 147 46 16.851
499.32	14.82	245.26	489.98	82.46	-33.89	-77.32	2.48	5738428.58	567259.20	S 38 29 59.875	E 147 46 16.803
504.32	15.26	245.09	494.81	83.75	-34.43	-78.50	2.65	5738428.04	567258.03	S 38 29 59.893	E 147 46 16.755
509.32	15.62	245.02	499.63	85.07	-35.00	-79.71	2.16	5738427.48	567256.82	S 38 29 59.912	E 147 46 16.705
514.32	16.07	244.49	504.44	86.43	-35.58	-80.94	2.84	5738426.89	567255.58	S 38 29 59.931	E 147 46 16.655
519.32	16.42	244.39	509.24	87.82	-36.18	-82.20	2.11	5738426.29	567254.32	S 38 29 59.951	E 147 46 16.603
524.32	16.87	244.28	514.03	89.25	-36.80	-83.50	2.71	5738425.67	567253.03	S 38 29 59.971	E 147 46 16.550
529.32	17.29	244.07	518.81	90.71	-37.44	-84.82	2.55	5738425.03	567251.71	S 38 29 59.992	E 147 46 16.495
534.32	17.70	243.86	523.58	92.21	-38.10	-86.17	2.49	5738424.37	567250.36	S 38 30 0.014	E 147 46 16.440
539.32	18.21	243.63	528.34	93.74	-38.78	-87.55	3.09	5738423.69	567248.98	S 38 30 0.037	E 147 46 16.383
544.32	18.57	243.58	533.08	95.31	-39.48	-88.96	2.16	5738422.99	567247.57	S 38 30 0.060	E 147 46 16.325
549.32	18.95	243.43	537.82	96.92	-40.20	-90.40	2.30	5738422.27	567246.13	S 38 30 0.083	E 147 46 16.266
554.32	19.40	243.47	542.54	98.55	-40.94	-91.87	2.70	5738421.54	567244.66	S 38 30 0.108	E 147 46 16.205
559.32	19.86	243.42	547.25	100.23	-41.69	-93.37	2.76	5738420.79	567243.16	S 38 30 0.132	E 147 46 16.144
564.32	20.27	243.31	551.95	101.94	-42.46	-94.91	2.47	5738420.02	567241.63	S 38 30 0.158	E 147 46 16.081
569.32	20.72	243.57	556.63	103.68	-43.24	-96.47	2.75	5738419.24	567240.06	S 38 30 0.183	E 147 46 16.016
574.32	21.10	243.78	561.30	105.46	-44.03	-98.07	2.32	5738418.45	567238.46	S 38 30 0.210	E 147 46 15.951
579.32	21.45	243.98	565.96	107.27	-44.83	-99.70	2.14	5738417.65	567236.83	S 38 30 0.236	E 147 46 15.884
584.32	21.89	244.31	570.61	109.11	-45.63	-101.36	2.74	5738416.84	567235.17	S 38 30 0.262	E 147 46 15.815
589.32	22.33	244.54	575.24	110.98	-46.45	-103.06	2.69	5738416.03	567233.47	S 38 30 0.289	E 147 46 15.746
594.32	22.68	244.52	579.86	112.89	-47.27	-104.79	2.10	5738415.21	567231.75	S 38 30 0.316	E 147 46 15.675
599.32	23.04	244.53	584.46	114.82	-48.10	-106.54	2.16	5738414.37	567229.99	S 38 30 0.344	E 147 46 15.603
604.32	23.33	244.35	589.06	116.78	-48.95	-108.32	1.79	5738413.52	567228.22	S 38 30 0.372	E 147 46 15.530
609.32	23.68	244.02	593.65	118.76	-49.82	-110.11	2.24	5738412.65	567226.42	S 38 30 0.401	E 147 46 15.456
614.32	24.04	243.69	598.22	120.78	-50.71	-111.93	2.30	5738411.76	567224.61	S 38 30 0.430	E 147 46 15.381

619.32	24.32	243.49	602.78	122.82	-51.62	-113.76	1.75	5738410.85	567222.78	S 38 30 0.460	E 147 46 15.306
624.32	24.66	243.40	607.33	124.89	-52.55	-115.62	2.05	5738409.93	567220.92	S 38 30 0.491	E 147 46 15.230
629.32	24.94	243.31	611.87	126.98	-53.49	-117.49	1.70	5738408.99	567219.05	S 38 30 0.522	E 147 46 15.153
634.32	25.28	243.26	616.40	129.09	-54.45	-119.39	2.04	5738408.03	567217.15	S 38 30 0.553	E 147 46 15.075
639.32	25.66	243.36	620.91	131.24	-55.41	-121.31	2.29	5738407.07	567215.23	S 38 30 0.585	E 147 46 14.996
644.32	26.19	243.54	625.41	133.42	-56.39	-123.26	3.21	5738406.09	567213.28	S 38 30 0.617	E 147 46 14.915
649.32	26.64	243.58	629.88	135.63	-57.38	-125.26	2.70	5738405.10	567211.29	S 38 30 0.650	E 147 46 14.834
654.32	27.09	243.61	634.34	137.88	-58.38	-127.28	2.70	5738404.10	567209.26	S 38 30 0.683	E 147 46 14.750
659.32	27.54	243.58	638.79	140.17	-59.40	-129.33	2.70	5738403.08	567207.21	S 38 30 0.717	E 147 46 14.666
664.32	27.99	243.52	643.21	142.49	-60.44	-131.42	2.71	5738402.04	567205.13	S 38 30 0.751	E 147 46 14.580
669.32	28.48	243.52	647.62	144.85	-61.50	-133.54	2.94	5738400.99	567203.01	S 38 30 0.786	E 147 46 14.493
674.32	28.95	243.35	652.00	147.24	-62.57	-135.69	2.86	5738399.91	567200.86	S 38 30 0.821	E 147 46 14.405
679.32	29.36	242.94	656.37	149.67	-63.67	-137.86	2.74	5738398.81	567198.69	S 38 30 0.857	E 147 46 14.316
684.32	29.79	242.52	660.72	152.14	-64.80	-140.05	2.86	5738397.68	567196.50	S 38 30 0.895	E 147 46 14.225
689.32	30.16	242.10	665.05	154.63	-65.96	-142.26	2.55	5738396.52	567194.29	S 38 30 0.933	E 147 46 14.135
694.32	30.50	241.57	669.36	157.15	-67.15	-144.49	2.60	5738395.33	567192.06	S 38 30 0.972	E 147 46 14.043
699.32	30.85	241.19	673.66	159.70	-68.38	-146.73	2.40	5738394.11	567189.82	S 38 30 1.012	E 147 46 13.951
704.32	31.19	240.77	677.95	162.27	-69.63	-148.98	2.42	5738392.86	567187.57	S 38 30 1.053	E 147 46 13.859
709.32	31.34	240.28	682.22	164.87	-70.90	-151.24	1.77	5738391.58	567185.31	S 38 30 1.095	E 147 46 13.766
714.32	31.77	240.30	686.48	167.48	-72.20	-153.51	2.58	5738390.29	567183.04	S 38 30 1.138	E 147 46 13.672
719.32	32.21	240.09	690.72	170.13	-73.52	-155.81	2.72	5738388.97	567180.74	S 38 30 1.181	E 147 46 13.578
724.32	32.51	239.91	694.95	172.81	-74.85	-158.13	1.89	5738387.63	567178.42	S 38 30 1.225	E 147 46 13.483
729.32	32.84	239.89	699.16	175.51	-76.21	-160.47	1.98	5738386.28	567176.09	S 38 30 1.270	E 147 46 13.387
734.32	33.19	239.88	703.35	178.23	-77.58	-162.82	2.10	5738384.91	567173.73	S 38 30 1.315	E 147 46 13.290
739.32	33.50	239.92	707.53	180.98	-78.95	-165.20	1.86	5738383.53	567171.36	S 38 30 1.360	E 147 46 13.193
744.32	33.77	239.97	711.69	183.75	-80.34	-167.60	1.63	5738382.15	567168.96	S 38 30 1.406	E 147 46 13.094
749.32	34.05	240.13	715.84	186.54	-81.73	-170.01	1.76	5738380.75	567166.54	S 38 30 1.452	E 147 46 12.995
754.32	34.35	240.31	719.97	189.35	-83.13	-172.45	1.90	5738379.36	567164.11	S 38 30 1.498	E 147 46 12.895
759.32	34.69	240.61	724.09	192.18	-84.53	-174.92	2.28	5738377.96	567161.64	S 38 30 1.544	E 147 46 12.793
764.32	35.02	241.22	728.20	195.03	-85.91	-177.42	2.88	5738376.57	567159.15	S 38 30 1.589	E 147 46 12.691
769.32	35.36	241.91	732.28	197.91	-87.29	-179.95	3.14	5738375.20	567156.61	S 38 30 1.635	E 147 46 12.587
774.32	35.66	242.42	736.35	200.81	-88.64	-182.52	2.53	5738373.85	567154.05	S 38 30 1.679	E 147 46 12.481
779.32	35.96	242.78	740.41	203.73	-89.99	-185.11	2.20	5738372.50	567151.45	S 38 30 1.724	E 147 46 12.375
784.32	36.27	243.01	744.45	206.67	-91.33	-187.74	2.03	5738371.16	567148.83	S 38 30 1.768	E 147 46 12.267
789.32	36.55	243.17	748.47	209.63	-92.68	-190.38	1.77	5738369.82	567146.18	S 38 30 1.812	E 147 46 12.158
794.32	36.86	243.22	752.48	212.61	-94.02	-193.05	1.87	5738368.47	567143.51	S 38 30 1.857	E 147 46 12.048
799.32	37.20	243.17	756.47	215.61	-95.38	-195.74	2.05	5738367.11	567140.83	S 38 30 1.901	E 147 46 11.938
804.32	37.51	243.19	760.45	218.64	-96.75	-198.45	1.86	5738365.74	567138.12	S 38 30 1.946	E 147 46 11.827
809.32	37.79	243.13	764.40	221.69	-98.13	-201.17	1.69	5738364.37	567135.40	S 38 30 1.992	E 147 46 11.715
814.32	38.09	242.95	768.35	224.75	-99.52	-203.91	1.92	5738362.97	567132.66	S 38 30 2.038	E 147 46 11.602
819.32	38.39	242.88	772.27	227.84	-100.93	-206.67	1.82	5738361.56	567129.90	S 38 30 2.084	E 147 46 11.489
824.32	38.71	242.75	776.19	230.95	-102.35	-209.44	1.98	5738360.14	567127.13	S 38 30 2.131	E 147 46 11.375
829.32	38.97	242.59	780.08	234.08	-103.79	-212.22	1.67	5738358.70	567124.35	S 38 30 2.179	E 147 46 11.261
834.32	39.29	242.46	783.96	237.23	-105.25	-215.02	1.98	5738357.25	567121.55	S 38 30 2.227	E 147 46 11.145
839.32	39.53	242.25	787.82	240.39	-106.72	-217.84	1.65	5738355.77	567118.74	S 38 30 2.275	E 147 46 11.030
844.32	39.74	242.17	791.67	243.58	-108.21	-220.66	1.30	5738354.29	567115.92	S 38 30 2.324	E 147 46 10.914
849.32	40.02	242.24	795.51	246.78	-109.71	-223.49	1.70	5738352.79	567113.08	S 38 30 2.373	E 147 46 10.798
854.32	40.26	242.14	799.33	250.00	-111.21	-226.34	1.49	5738351.29	567110.23	S 38 30 2.423	E 147 46 10.680
859.32	40.51	242.05	803.14	253.23	-112.73	-229.21	1.54	5738349.77	567107.37	S 38 30 2.473	E 147 46 10.563
864.32	40.66	241.86	806.94	256.48	-114.25	-232.08	1.17	5738348.24	567104.50	S 38 30 2.523	E 147 46 10.445
869.32	40.80	241.80	810.73	259.74	-115.79	-234.95	0.87	5738346.71	567101.63	S 38 30 2.574	E 147 46 10.327
874.32	40.91	241.90	814.51	263.00	-117.34	-237.84	0.77	5738345.16	567098.74	S 38 30 2.625	E 147 46 10.208
879.32	41.04	241.87	818.28	266.28	-118.88	-240.73	0.79	5738343.62	567095.85	S 38 30 2.676	E 147 46 10.089
884.32	41.18	241.84	822.05	269.56	-120.43	-243.63	0.85	5738342.07	567092.95	S 38 30 2.727	E 147 46 9.970
889.32	41.36	241.90	825.81	272.86	-121.99	-246.54	1.11	5738340.51	567090.05	S 38 30 2.778	E 147 46 9.851
894.32	41.49	241.95	829.56	276.16	-123.55	-249.46	0.80	5738338.96	567087.13	S 38 30 2.829	E 147 46 9.731
899.32	41.60	241.95	833.30	279.47	-125.10	-252.38	0.66	5738337.40	567084.20	S 38 30 2.881	E 147 46 9.611
904.32	41.72	242.02	837.03	282.79	-126.67	-255.32	0.77	5738335.84	567081.27	S 38 30 2.932	E 147 46 9.490
909.32	41.84	242.08	840.76	286.12	-128.23	-258.26	0.76	5738334.28	567078.33	S 38 30 2.984	E 147 46 9.369
914.32	41.82	242.12	844.49	289.44	-129.79	-261.21	0.20	5738332.72	567075.38	S 38 30 3.035	E 147 46 9.248
919.32	41.65	242.15	848.22	292.77	-131.34	-264.15	1.03	5738331.16	567072.44	S 38 30 3.086	E 147 46 9.127
924.32	41.48	242.07	851.96	296.08	-132.90	-267.08	1.07	5738329.61	567069.51	S 38 30 3.137	E 147 46 9.007
929.32	41.52	242.07	855.71	299.39	-134.45	-270.01	0.24	5738328.06	567066.58	S 38 30 3.188	E 147 46 8.886
934.32	41.58	242.12	859.45	302.70	-136.00	-272.94	0.41	5738326.51	567063.65	S 38 30 3.240	E 147 46 8.766
939.32	41.60	242.10	863.19	306.01	-137.55	-275.87	0.14	5738324.96	567060.72	S 38 30 3.291	E 147 46 8.646
944.32	41.62	242.12	866.93	309.33	-139.10	-278.81	0.14	5738323.40	567057.79	S 38 30 3.342	E 147 46 8.525
949.32	41.62	242.13	870.66	312.64	-140.66	-281.74	0.04	5738321.85	567054.85	S 38 30 3.393	E 147 46 8.404
954.32	41.58	242.22	874.40	315.96	-142.21	-284.68	0.43	5738320.30	567051.92	S 38 30 3.444	E 147 46 8.284

959.32	41.47	242.28	878.15	319.27	-143.75	-287.61	0.70	5738318.76	567048.99	S 38 30 3.495	E 147 46 8.163
964.32	41.50	242.23	881.89	322.57	-145.29	-290.54	0.27	5738317.22	567046.06	S 38 30 3.546	E 147 46 8.043
969.32	41.47	242.29	885.64	325.88	-146.83	-293.48	0.30	5738315.68	567043.13	S 38 30 3.596	E 147 46 7.922
974.32	41.40	242.33	889.39	329.18	-148.37	-296.41	0.45	5738314.14	567040.20	S 38 30 3.647	E 147 46 7.802
979.32	41.45	242.38	893.13	332.49	-149.91	-299.34	0.36	5738312.61	567037.27	S 38 30 3.698	E 147 46 7.682
984.32	41.50	242.41	896.88	335.79	-151.44	-302.27	0.32	5738311.07	567034.33	S 38 30 3.748	E 147 46 7.561
989.32	41.40	242.47	900.63	339.09	-152.97	-305.20	0.65	5738309.54	567031.40	S 38 30 3.799	E 147 46 7.440
994.32	41.20	242.54	904.39	342.39	-154.50	-308.13	1.23	5738308.02	567028.47	S 38 30 3.849	E 147 46 7.320
999.32	41.17	242.60	908.15	345.67	-156.01	-311.05	0.30	5738306.50	567025.55	S 38 30 3.899	E 147 46 7.200
1004.32	41.24	242.64	911.91	348.96	-157.53	-313.98	0.45	5738304.99	567022.63	S 38 30 3.949	E 147 46 7.080
1009.32	41.34	242.67	915.67	352.25	-159.04	-316.91	0.61	5738303.47	567019.70	S 38 30 3.999	E 147 46 6.959
1014.32	41.40	242.71	919.42	355.55	-160.56	-319.85	0.39	5738301.96	567016.76	S 38 30 4.049	E 147 46 6.839
1019.32	41.45	242.76	923.17	358.85	-162.07	-322.79	0.36	5738300.44	567013.82	S 38 30 4.099	E 147 46 6.718
1024.32	41.56	242.74	926.91	362.16	-163.59	-325.73	0.66	5738298.92	567010.88	S 38 30 4.149	E 147 46 6.597
1029.32	41.66	242.68	930.65	365.47	-165.11	-328.68	0.65	5738297.40	567007.93	S 38 30 4.199	E 147 46 6.476
1034.32	41.73	242.75	934.38	368.79	-166.64	-331.64	0.50	5738295.88	567004.98	S 38 30 4.249	E 147 46 6.354
1039.32	41.77	242.83	938.11	372.11	-168.16	-334.60	0.40	5738294.36	567002.02	S 38 30 4.299	E 147 46 6.233
1044.32	41.89	242.74	941.84	375.44	-169.69	-337.56	0.81	5738292.83	566999.05	S 38 30 4.349	E 147 46 6.111
1049.32	42.03	242.76	945.56	378.77	-171.22	-340.54	0.84	5738291.30	566996.08	S 38 30 4.400	E 147 46 5.989
1054.32	42.07	242.74	949.27	382.11	-172.75	-343.51	0.25	5738289.77	566993.10	S 38 30 4.450	E 147 46 5.866
1059.32	42.15	242.81	952.98	385.46	-174.28	-346.50	0.56	5738288.24	566990.12	S 38 30 4.501	E 147 46 5.744
1064.32	42.26	242.81	956.68	388.81	-175.82	-349.48	0.66	5738286.70	566987.14	S 38 30 4.552	E 147 46 5.621
1069.32	42.38	242.81	960.38	392.17	-177.36	-352.48	0.72	5738285.16	566984.14	S 38 30 4.602	E 147 46 5.498
1074.32	42.38	242.72	964.07	395.53	-178.90	-355.47	0.36	5738283.62	566981.15	S 38 30 4.653	E 147 46 5.375
1079.32	42.39	242.67	967.77	398.89	-180.45	-358.47	0.21	5738282.08	566978.15	S 38 30 4.704	E 147 46 5.252
1084.32	42.54	242.67	971.46	402.26	-182.00	-361.47	0.90	5738280.53	566975.16	S 38 30 4.755	E 147 46 5.128
1089.32	42.76	242.62	975.13	405.64	-183.55	-364.48	1.34	5738278.97	566972.15	S 38 30 4.806	E 147 46 5.005
1094.32	43.00	242.59	978.80	409.04	-185.12	-367.50	1.45	5738277.41	566969.13	S 38 30 4.858	E 147 46 4.881
1099.32	43.11	242.50	982.45	412.44	-186.69	-370.53	0.76	5738275.83	566966.10	S 38 30 4.910	E 147 46 4.756
1104.32	43.18	242.55	986.10	415.86	-188.27	-373.56	0.47	5738274.26	566963.07	S 38 30 4.962	E 147 46 4.632
1109.32	43.23	242.53	989.74	419.27	-189.85	-376.60	0.31	5738272.68	566960.03	S 38 30 5.014	E 147 46 4.507
1114.32	43.34	242.47	993.38	422.69	-191.43	-379.64	0.70	5738271.10	566956.99	S 38 30 5.066	E 147 46 4.382
1119.32	43.43	242.51	997.02	426.12	-193.02	-382.68	0.56	5738269.51	566953.95	S 38 30 5.118	E 147 46 4.257
1124.32	43.44	242.57	1000.65	429.55	-194.60	-385.73	0.25	5738267.93	566950.90	S 38 30 5.171	E 147 46 4.131
1129.32	43.48	242.58	1004.28	432.98	-196.19	-388.79	0.24	5738266.34	566947.85	S 38 30 5.223	E 147 46 4.006
1134.32	43.49	242.56	1007.91	436.42	-197.77	-391.84	0.10	5738264.76	566944.79	S 38 30 5.275	E 147 46 3.880
1139.32	43.49	242.62	1011.53	439.85	-199.35	-394.90	0.25	5738263.17	566941.74	S 38 30 5.327	E 147 46 3.755
1144.32	43.55	242.64	1015.16	443.29	-200.94	-397.95	0.37	5738261.59	566938.68	S 38 30 5.379	E 147 46 3.629
1149.32	43.59	242.72	1018.78	446.73	-202.52	-401.02	0.41	5738260.01	566935.62	S 38 30 5.431	E 147 46 3.503
1154.32	43.58	242.75	1022.40	450.17	-204.10	-404.08	0.14	5738258.43	566932.56	S 38 30 5.483	E 147 46 3.378
1159.32	43.55	242.83	1026.03	453.60	-205.67	-407.14	0.38	5738256.86	566929.50	S 38 30 5.535	E 147 46 3.252
1164.32	43.45	242.80	1029.65	457.04	-207.25	-410.21	0.61	5738255.28	566926.44	S 38 30 5.587	E 147 46 3.126
1169.32	43.36	242.86	1033.29	460.47	-208.82	-413.26	0.59	5738253.72	566923.38	S 38 30 5.639	E 147 46 3.000
1174.32	43.39	242.89	1036.92	463.89	-210.38	-416.32	0.22	5738252.15	566920.32	S 38 30 5.691	E 147 46 2.875
1179.32	43.51	242.92	1040.55	467.32	-211.95	-419.38	0.73	5738250.59	566917.26	S 38 30 5.742	E 147 46 2.749
1184.32	43.58	242.95	1044.17	470.76	-213.51	-422.45	0.44	5738249.02	566914.20	S 38 30 5.794	E 147 46 2.623
1189.32	43.57	242.99	1047.80	474.20	-215.08	-425.52	0.18	5738247.45	566911.13	S 38 30 5.845	E 147 46 2.497
1194.32	43.51	243.04	1051.42	477.63	-216.64	-428.59	0.42	5738245.89	566908.06	S 38 30 5.897	E 147 46 2.371
1199.32	43.50	243.10	1055.05	481.06	-218.20	-431.66	0.26	5738244.33	566904.99	S 38 30 5.948	E 147 46 2.244
1204.32	43.46	243.15	1058.68	484.50	-219.76	-434.72	0.32	5738242.78	566901.92	S 38 30 6.000	E 147 46 2.118
1209.32	43.42	243.22	1062.31	487.92	-221.31	-437.79	0.38	5738241.23	566898.86	S 38 30 6.051	E 147 46 1.992
1214.32	43.45	243.26	1065.94	491.35	-222.86	-440.86	0.24	5738239.68	566895.79	S 38 30 6.102	E 147 46 1.866
1219.32	43.51	243.27	1069.56	494.78	-224.40	-443.94	0.36	5738238.13	566892.72	S 38 30 6.153	E 147 46 1.740
1224.32	43.54	243.35	1073.19	498.21	-225.95	-447.01	0.38	5738236.59	566889.64	S 38 30 6.204	E 147 46 1.613
1229.32	43.43	243.38	1076.82	501.65	-227.49	-450.09	0.67	5738235.04	566886.57	S 38 30 6.255	E 147 46 1.487
1234.32	43.52	243.44	1080.45	505.07	-229.03	-453.16	0.59	5738233.51	566883.49	S 38 30 6.305	E 147 46 1.361
1239.32	43.64	243.46	1084.07	508.51	-230.57	-456.25	0.72	5738231.97	566880.41	S 38 30 6.356	E 147 46 1.234
1244.32	43.63	243.37	1087.69	511.95	-232.12	-459.33	0.38	5738230.42	566877.33	S 38 30 6.407	E 147 46 1.107
1249.32	43.70	243.42	1091.30	515.39	-233.66	-462.42	0.47	5738228.88	566874.24	S 38 30 6.458	E 147 46 0.980
1254.32	43.76	243.54	1094.92	518.84	-235.21	-465.51	0.61	5738227.33	566871.15	S 38 30 6.509	E 147 46 0.853
1259.32	43.58	243.53	1098.53	522.28	-236.75	-468.60	1.08	5738225.80	566868.06	S 38 30 6.560	E 147 46 0.726
1264.32	43.37	243.46	1102.16	525.71	-238.28	-471.68	1.29	5738224.26	566864.98	S 38 30 6.610	E 147 46 0.600
1269.32	43.07	243.23	1105.81	529.12	-239.82	-474.74	2.03	5738222.73	566861.92	S 38 30 6.661	E 147 46 0.474
1274.32	43.47	243.70	1109.45	532.54	-241.35	-477.81	3.08	5738221.19	566858.86	S 38 30 6.711	E 147 46 0.348
1279.32	43.60	243.76	1113.07	535.97	-242.87	-480.90	0.82	5738219.67	566855.77	S 38 30 6.762	E 147 46 0.221
1284.32	43.68	243.85	1116.69	539.41	-244.40	-483.99	0.61	5738218.15	566852.67	S 38 30 6.812	E 147 46 0.094
1289.32	43.75	243.94	1120.30	542.85	-245.92	-487.09	0.56	5738216.63	566849.57	S 38 30 6.862	E 147 45 59.966

1294.32	43.70	243.97	1123.92	546.29	-247.43	-490.20	0.32	5738215.11	566846.47	S 38 30 6.912	E 147 45 59.838
1299.32	43.65	243.92	1127.53	549.73	-248.95	-493.30	0.36	5738213.60	566843.37	S 38 30 6.962	E 147 45 59.711
1304.32	43.66	244.00	1131.15	553.17	-250.47	-496.40	0.34	5738212.08	566840.27	S 38 30 7.012	E 147 45 59.584
1309.32	43.56	244.12	1134.77	556.60	-251.97	-499.50	0.78	5738210.57	566837.17	S 38 30 7.062	E 147 45 59.456
1314.32	43.60	244.07	1138.39	560.04	-253.48	-502.60	0.32	5738209.07	566834.07	S 38 30 7.112	E 147 45 59.329
1319.32	43.75	243.94	1142.01	563.48	-254.99	-505.71	1.05	5738207.55	566830.97	S 38 30 7.161	E 147 45 59.201
1324.32	43.87	243.94	1145.62	566.92	-256.51	-508.82	0.72	5738206.03	566827.86	S 38 30 7.212	E 147 45 59.073
1329.32	43.86	243.96	1149.22	570.38	-258.04	-511.93	0.10	5738204.51	566824.75	S 38 30 7.262	E 147 45 58.945
1334.32	43.88	243.94	1152.83	573.83	-259.56	-515.04	0.15	5738202.99	566821.63	S 38 30 7.312	E 147 45 58.817
1339.32	43.98	243.82	1156.43	577.28	-261.08	-518.16	0.78	5738201.47	566818.52	S 38 30 7.362	E 147 45 58.689
1344.32	44.07	243.75	1160.02	580.75	-262.62	-521.28	0.61	5738199.93	566815.40	S 38 30 7.413	E 147 45 58.561
1349.32	44.15	243.64	1163.61	584.21	-264.16	-524.40	0.66	5738198.39	566812.28	S 38 30 7.464	E 147 45 58.433
1354.32	44.26	243.57	1167.20	587.69	-265.71	-527.52	0.72	5738196.84	566809.16	S 38 30 7.515	E 147 45 58.305
1359.32	44.33	243.53	1170.78	591.17	-267.27	-530.64	0.45	5738195.29	566806.04	S 38 30 7.566	E 147 45 58.176
1364.32	44.45	243.47	1174.35	594.65	-268.83	-533.77	0.76	5738193.72	566802.91	S 38 30 7.618	E 147 45 58.048
1369.32	44.49	243.44	1177.92	598.15	-270.39	-536.91	0.27	5738192.16	566799.78	S 38 30 7.669	E 147 45 57.919
1374.32	44.38	243.36	1181.49	601.64	-271.96	-540.04	0.74	5738190.59	566796.65	S 38 30 7.721	E 147 45 57.790
1379.32	44.16	243.35	1185.07	605.12	-273.53	-543.16	1.32	5738189.03	566793.53	S 38 30 7.773	E 147 45 57.662
1384.32	44.20	243.29	1188.65	608.59	-275.09	-546.27	0.35	5738187.46	566790.42	S 38 30 7.824	E 147 45 57.534
1389.32	44.43	243.10	1192.23	612.07	-276.67	-549.39	1.59	5738185.89	566787.30	S 38 30 7.876	E 147 45 57.406
1394.32	44.74	242.97	1195.79	615.57	-278.26	-552.52	1.94	5738184.30	566784.17	S 38 30 7.928	E 147 45 57.277
1399.32	44.91	242.94	1199.34	619.09	-279.86	-555.66	1.03	5738182.70	566781.03	S 38 30 7.981	E 147 45 57.148
1404.32	45.10	242.78	1202.87	622.62	-281.47	-558.80	1.33	5738181.08	566777.89	S 38 30 8.034	E 147 45 57.019
1409.32	45.16	242.66	1206.40	626.15	-283.10	-561.95	0.62	5738179.46	566774.74	S 38 30 8.088	E 147 45 56.890
1414.32	45.18	242.50	1209.93	629.69	-284.73	-565.10	0.69	5738177.83	566771.59	S 38 30 8.142	E 147 45 56.760
1419.32	45.26	242.43	1213.45	633.23	-286.37	-568.25	0.57	5738176.19	566768.45	S 38 30 8.196	E 147 45 56.631
1424.32	45.41	242.23	1216.96	636.78	-288.02	-571.40	1.24	5738174.54	566765.30	S 38 30 8.250	E 147 45 56.502
1429.32	45.46	242.03	1220.47	640.34	-289.69	-574.55	0.91	5738172.87	566762.15	S 38 30 8.305	E 147 45 56.372
1434.32	45.44	241.86	1223.98	643.90	-291.36	-577.69	0.74	5738171.20	566759.01	S 38 30 8.360	E 147 45 56.243
1439.32	45.45	241.70	1227.49	647.46	-293.05	-580.83	0.69	5738169.51	566755.87	S 38 30 8.416	E 147 45 56.114
1444.32	45.40	241.53	1231.00	651.01	-294.74	-583.96	0.79	5738167.82	566752.74	S 38 30 8.472	E 147 45 55.985
1449.32	45.18	241.50	1234.51	654.56	-296.44	-587.09	1.33	5738166.13	566749.62	S 38 30 8.527	E 147 45 55.857
1454.32	44.85	241.44	1238.05	658.10	-298.12	-590.19	2.00	5738164.44	566746.51	S 38 30 8.583	E 147 45 55.729
1459.32	44.87	241.20	1241.59	661.62	-299.82	-593.29	1.02	5738162.75	566743.42	S 38 30 8.639	E 147 45 55.602
1464.32	44.76	241.10	1245.14	665.14	-301.52	-596.37	0.78	5738161.05	566740.33	S 38 30 8.695	E 147 45 55.475
1469.32	44.48	241.01	1248.70	668.65	-303.22	-599.45	1.72	5738159.35	566737.26	S 38 30 8.751	E 147 45 55.349
1474.32	44.42	240.93	1252.27	672.15	-304.92	-602.51	0.49	5738157.65	566734.20	S 38 30 8.807	E 147 45 55.223
1479.32	44.28	240.85	1255.84	675.64	-306.62	-605.56	0.90	5738155.95	566731.15	S 38 30 8.863	E 147 45 55.098
1484.32	44.10	240.75	1259.43	679.13	-308.32	-608.60	1.16	5738154.25	566728.10	S 38 30 8.918	E 147 45 54.973
1489.32	43.83	240.58	1263.03	682.60	-310.02	-611.63	1.77	5738152.55	566725.08	S 38 30 8.974	E 147 45 54.849
1494.32	43.58	240.48	1266.64	686.05	-311.72	-614.64	1.56	5738150.85	566722.07	S 38 30 9.030	E 147 45 54.725
1499.32	43.47	240.46	1270.27	689.49	-313.41	-617.63	0.67	5738149.15	566719.08	S 38 30 9.086	E 147 45 54.602
1504.32	43.38	240.37	1273.90	692.93	-315.11	-620.62	0.66	5738147.46	566716.09	S 38 30 9.142	E 147 45 54.479
1509.32	43.33	240.29	1277.53	696.36	-316.81	-623.61	0.45	5738145.76	566713.11	S 38 30 9.198	E 147 45 54.357
1514.32	43.23	240.19	1281.17	699.79	-318.51	-626.58	0.73	5738144.06	566710.13	S 38 30 9.254	E 147 45 54.235
1519.32	43.06	240.04	1284.82	703.20	-320.22	-629.55	1.19	5738142.35	566707.17	S 38 30 9.310	E 147 45 54.113
1524.32	42.88	239.97	1288.48	706.61	-321.92	-632.50	1.12	5738140.65	566704.22	S 38 30 9.366	E 147 45 53.992
1529.32	42.65	239.94	1292.15	710.01	-323.62	-635.44	1.39	5738138.95	566701.28	S 38 30 9.422	E 147 45 53.871
1534.32	42.40	239.90	1295.84	713.38	-325.31	-638.36	1.51	5738137.26	566698.36	S 38 30 9.478	E 147 45 53.751
1539.32	42.23	239.86	1299.53	716.75	-327.00	-641.27	1.03	5738135.57	566695.45	S 38 30 9.533	E 147 45 53.631
1544.32	42.08	239.71	1303.24	720.11	-328.69	-644.17	1.08	5738133.88	566692.55	S 38 30 9.589	E 147 45 53.512
1549.32	41.95	239.67	1306.95	723.45	-330.38	-647.06	0.80	5738132.19	566689.66	S 38 30 9.644	E 147 45 53.393
1554.32	41.75	239.57	1310.68	726.79	-332.07	-649.94	1.27	5738130.51	566686.78	S 38 30 9.700	E 147 45 53.275
1559.32	41.61	239.48	1314.41	730.11	-333.75	-652.81	0.91	5738128.82	566683.92	S 38 30 9.755	E 147 45 53.158
1564.32	41.52	239.48	1318.15	733.43	-335.44	-655.66	0.54	5738127.14	566681.06	S 38 30 9.811	E 147 45 53.040
1569.32	41.42	239.56	1321.90	736.74	-337.12	-658.52	0.68	5738125.46	566678.21	S 38 30 9.866	E 147 45 52.923
1574.32	41.29	239.52	1325.65	740.04	-338.79	-661.36	0.80	5738123.78	566675.36	S 38 30 9.921	E 147 45 52.806
1579.32	41.25	239.55	1329.41	743.34	-340.46	-664.21	0.27	5738122.11	566672.52	S 38 30 9.976	E 147 45 52.689
1584.32	41.24	239.56	1333.17	746.64	-342.13	-667.05	0.07	5738120.44	566669.68	S 38 30 10.031	E 147 45 52.573
1589.32	41.34	239.58	1336.93	749.94	-343.81	-669.89	0.61	5738118.77	566666.84	S 38 30 10.086	E 147 45 52.456
1594.32	41.54	239.68	1340.68	753.25	-345.48	-672.75	1.26	5738117.10	566663.98	S 38 30 10.141	E 147 45 52.339
1599.32	41.62	239.65	1344.42	756.56	-347.15	-675.61	0.49	5738115.42	566661.12	S 38 30 10.196	E 147 45 52.221
1604.32	41.49	239.55	1348.16	759.88	-348.83	-678.47	0.88	5738113.75	566658.26	S 38 30 10.251	E 147 45 52.103
1609.32	41.37	239.56	1351.91	763.19	-350.51	-681.33	0.72	5738112.07	566655.41	S 38 30 10.306	E 147 45 51.986
1614.32	41.61	239.93	1355.65	766.50	-352.18	-684.19	2.06	5738110.40	566652.55	S 38 30 10.361	E 147 45 51.869
1619.32	41.54	239.88	1359.39	769.82	-353.84	-687.06	0.46	5738108.74	566649.68	S 38 30 10.416	E 147 45 51.751
1624.32	41.51	239.92	1363.14	773.13	-355.50	-689.93	0.24	5738107.08	566646.81	S 38 30 10.471	E 147 45 51.633
1629.32	41.48	239.97	1366.88	776.44	-357.16	-692.79	0.27	5738105.42	566643.95	S 38 30 10.525	E 147 45 51.515

1634.32	41.48	240.06	1370.63	779.76	-358.82	-695.66	0.36	5738103.76	566641.08	S 38 30 10.580	E 147 45 51.398
1639.32	41.60	240.19	1374.37	783.07	-360.47	-698.54	0.89	5738102.11	566638.20	S 38 30 10.634	E 147 45 51.279
1644.32	41.60	240.28	1378.11	786.39	-362.12	-701.42	0.36	5738100.47	566635.32	S 38 30 10.688	E 147 45 51.161
1649.32	41.60	240.22	1381.85	789.71	-363.77	-704.30	0.24	5738098.82	566632.44	S 38 30 10.742	E 147 45 51.043
1654.32	41.72	240.23	1385.58	793.03	-365.42	-707.18	0.72	5738097.17	566629.56	S 38 30 10.797	E 147 45 50.924
1659.32	41.74	240.29	1389.32	796.36	-367.07	-710.07	0.27	5738095.52	566626.67	S 38 30 10.851	E 147 45 50.806
1664.32	41.70	240.35	1393.05	799.68	-368.71	-712.97	0.34	5738093.87	566623.78	S 38 30 10.905	E 147 45 50.687
1669.32	41.70	240.50	1396.78	803.01	-370.36	-715.86	0.60	5738092.23	566620.89	S 38 30 10.959	E 147 45 50.568
1674.32	41.72	240.59	1400.51	806.34	-371.99	-718.76	0.38	5738090.60	566617.99	S 38 30 11.013	E 147 45 50.449
1679.32	41.63	240.65	1404.25	809.66	-373.62	-721.65	0.59	5738088.97	566615.10	S 38 30 11.067	E 147 45 50.330
1684.32	41.62	240.74	1407.99	812.98	-375.25	-724.55	0.36	5738087.34	566612.20	S 38 30 11.120	E 147 45 50.211
1689.32	41.65	240.81	1411.72	816.30	-376.87	-727.45	0.33	5738085.72	566609.30	S 38 30 11.174	E 147 45 50.092
1694.32	41.61	240.91	1415.46	819.62	-378.49	-730.35	0.47	5738084.10	566606.40	S 38 30 11.227	E 147 45 49.973
1699.32	41.54	240.98	1419.20	822.93	-380.10	-733.25	0.50	5738082.49	566603.50	S 38 30 11.280	E 147 45 49.854
1704.32	41.48	240.97	1422.94	826.24	-381.71	-736.15	0.36	5738080.88	566600.61	S 38 30 11.333	E 147 45 49.735
1709.32	41.54	241.07	1426.69	829.56	-383.31	-739.05	0.54	5738079.28	566597.71	S 38 30 11.386	E 147 45 49.615
1714.32	41.72	241.01	1430.43	832.88	-384.92	-741.95	1.11	5738077.67	566594.80	S 38 30 11.439	E 147 45 49.496
1719.32	41.94	240.81	1434.15	836.21	-386.54	-744.87	1.54	5738076.05	566591.89	S 38 30 11.492	E 147 45 49.376
1724.32	41.88	240.69	1437.87	839.55	-388.17	-747.78	0.60	5738074.42	566588.98	S 38 30 11.546	E 147 45 49.257
1729.32	41.65	240.71	1441.60	842.88	-389.80	-750.68	1.38	5738072.79	566586.07	S 38 30 11.599	E 147 45 49.137
1734.32	41.64	240.75	1445.34	846.20	-391.43	-753.58	0.17	5738071.17	566583.18	S 38 30 11.653	E 147 45 49.018
1739.32	41.77	240.89	1449.07	849.52	-393.05	-756.49	0.96	5738069.54	566580.27	S 38 30 11.706	E 147 45 48.899
1744.32	41.81	240.91	1452.80	852.85	-394.67	-759.40	0.25	5738067.92	566577.36	S 38 30 11.760	E 147 45 48.779
1749.32	41.52	240.98	1456.53	856.17	-396.29	-762.30	1.76	5738066.31	566574.46	S 38 30 11.813	E 147 45 48.660
1754.32	41.12	240.73	1460.29	859.47	-397.89	-765.19	2.60	5738064.70	566571.58	S 38 30 11.866	E 147 45 48.542
1759.32	41.59	241.16	1464.04	862.77	-399.50	-768.07	3.30	5738063.10	566568.69	S 38 30 11.918	E 147 45 48.423
1764.32	42.13	241.17	1467.77	866.11	-401.11	-771.00	3.24	5738061.49	566565.77	S 38 30 11.971	E 147 45 48.303
1769.32	42.19	241.05	1471.47	869.46	-402.73	-773.94	0.60	5738059.87	566562.83	S 38 30 12.025	E 147 45 48.182
1774.32	42.11	241.13	1475.18	872.81	-404.35	-776.87	0.58	5738058.25	566559.89	S 38 30 12.078	E 147 45 48.062
1779.32	42.03	240.90	1478.89	876.16	-405.97	-779.80	1.04	5738056.63	566556.96	S 38 30 12.132	E 147 45 47.941
1784.32	42.08	240.80	1482.60	879.51	-407.60	-782.73	0.50	5738055.00	566554.04	S 38 30 12.185	E 147 45 47.821
1789.32	42.05	240.87	1486.32	882.86	-409.24	-785.65	0.33	5738053.36	566551.12	S 38 30 12.239	E 147 45 47.701
1794.32	41.79	241.00	1490.04	886.19	-410.86	-788.57	1.64	5738051.74	566548.20	S 38 30 12.292	E 147 45 47.581
1799.32	41.63	241.07	1493.77	889.52	-412.47	-791.48	1.00	5738050.13	566545.29	S 38 30 12.345	E 147 45 47.461
1804.32	41.72	241.02	1497.50	892.84	-414.08	-794.39	0.58	5738048.52	566542.38	S 38 30 12.398	E 147 45 47.342
1809.32	41.90	240.99	1501.23	896.17	-415.70	-797.31	1.09	5738046.91	566539.47	S 38 30 12.452	E 147 45 47.222
1814.32	41.91	241.03	1504.95	899.51	-417.31	-800.23	0.17	5738045.29	566536.55	S 38 30 12.505	E 147 45 47.102
1819.32	41.80	241.09	1508.68	902.84	-418.93	-803.15	0.70	5738043.67	566533.63	S 38 30 12.558	E 147 45 46.982
1824.32	41.85	241.14	1512.40	906.18	-420.54	-806.07	0.36	5738042.06	566530.71	S 38 30 12.611	E 147 45 46.862
1829.32	41.91	241.14	1516.12	909.51	-422.15	-808.99	0.36	5738040.45	566527.79	S 38 30 12.664	E 147 45 46.742
1834.32	42.04	241.08	1519.84	912.85	-423.77	-811.92	0.82	5738038.84	566524.86	S 38 30 12.717	E 147 45 46.622
1839.32	41.95	241.07	1523.56	916.20	-425.38	-814.85	0.54	5738037.22	566521.93	S 38 30 12.770	E 147 45 46.502
1844.32	41.83	241.17	1527.28	919.53	-427.00	-817.77	0.82	5738035.61	566519.01	S 38 30 12.824	E 147 45 46.381
1849.32	41.90	241.17	1531.00	922.87	-428.61	-820.69	0.42	5738034.00	566516.09	S 38 30 12.876	E 147 45 46.261
1854.32	42.01	241.08	1534.72	926.21	-430.22	-823.62	0.75	5738032.39	566513.16	S 38 30 12.930	E 147 45 46.141
1859.32	41.99	241.09	1538.44	929.55	-431.84	-826.55	0.13	5738030.77	566510.23	S 38 30 12.983	E 147 45 46.021
1864.32	41.95	241.12	1542.15	932.89	-433.45	-829.48	0.27	5738029.16	566507.31	S 38 30 13.036	E 147 45 45.901
1869.32	41.91	241.12	1545.87	936.23	-435.07	-832.40	0.24	5738027.54	566504.38	S 38 30 13.089	E 147 45 45.780
1874.32	42.06	241.16	1549.59	939.57	-436.68	-835.33	0.91	5738025.93	566501.45	S 38 30 13.142	E 147 45 45.660
1879.32	41.94	241.20	1553.31	942.91	-438.29	-838.26	0.74	5738024.32	566498.52	S 38 30 13.195	E 147 45 45.540
1884.32	41.80	241.26	1557.03	946.25	-439.90	-841.19	0.87	5738022.71	566495.60	S 38 30 13.248	E 147 45 45.419
1889.32	41.96	241.24	1560.75	949.58	-441.51	-844.12	0.96	5738021.11	566492.67	S 38 30 13.301	E 147 45 45.299
1894.32	42.18	241.25	1564.46	952.93	-443.12	-847.05	1.32	5738019.49	566489.74	S 38 30 13.354	E 147 45 45.179
1899.32	42.01	241.18	1568.17	956.28	-444.73	-849.99	1.06	5738017.88	566486.80	S 38 30 13.407	E 147 45 45.058
1904.32	41.75	241.35	1571.90	959.62	-446.34	-852.92	1.70	5738016.28	566483.88	S 38 30 13.460	E 147 45 44.938
1909.32	41.82	241.37	1575.63	962.94	-447.93	-855.84	0.43	5738014.68	566480.95	S 38 30 13.513	E 147 45 44.817
1914.32	41.94	241.34	1579.35	966.28	-449.53	-858.77	0.73	5738013.08	566478.02	S 38 30 13.565	E 147 45 44.697
1919.32	41.90	241.27	1583.07	969.62	-451.14	-861.70	0.37	5738011.48	566475.10	S 38 30 13.618	E 147 45 44.577
1924.32	41.75	241.09	1586.79	972.95	-452.74	-864.62	1.15	5738009.87	566472.18	S 38 30 13.671	E 147 45 44.457
1929.32	41.71	241.09	1590.53	976.27	-454.35	-867.54	0.24	5738008.26	566469.26	S 38 30 13.724	E 147 45 44.337
1934.32	41.70	241.22	1594.26	979.60	-455.96	-870.45	0.52	5738006.66	566466.35	S 38 30 13.777	E 147 45 44.217
1939.32	41.54	241.19	1598.00	982.92	-457.56	-873.36	0.97	5738005.06	566463.44	S 38 30 13.830	E 147 45 44.098
1944.32	41.50	241.14	1601.74	986.23	-459.16	-876.26	0.31	5738003.46	566460.54	S 38 30 13.882	E 147 45 43.979
1949.32	41.55	241.07	1605.48	989.54	-460.76	-879.17	0.41	5738001.86	566457.64	S 38 30 13.935	E 147 45 43.859
1954.32	41.55	241.17	1609.23	992.85	-462.36	-882.07	0.40	5738000.26	566454.73	S 38 30 13.988	E 147 45 43.740
1959.32	41.55	241.13	1612.97	996.17	-463.96	-884.97	0.16	5737998.66	566451.83	S 38 30 14.040	E 147 45 43.621
1964.32	41.69	241.17	1616.71	999.49	-465.56	-887.88	0.85	5737997.06	566448.92	S 38 30 14.093	E 147 45 43.501

1969.32	41.70	241.19	1620.44	1002.81	-467.17	-890.80	0.10	5737995.45	566446.01	S 38 30 14.146	E 147 45 43.381
1974.32	41.71	241.18	1624.17	1006.13	-468.77	-893.71	0.07	5737993.85	566443.10	S 38 30 14.199	E 147 45 43.262
1979.32	41.80	241.20	1627.90	1009.46	-470.37	-896.63	0.55	5737992.25	566440.18	S 38 30 14.251	E 147 45 43.142
1984.32	41.86	241.25	1631.63	1012.79	-471.98	-899.55	0.41	5737990.64	566437.26	S 38 30 14.304	E 147 45 43.022
1989.32	41.86	241.28	1635.35	1016.13	-473.58	-902.48	0.12	5737989.04	566434.33	S 38 30 14.357	E 147 45 42.902
1994.32	41.80	241.37	1639.08	1019.46	-475.18	-905.40	0.51	5737987.44	566431.41	S 38 30 14.410	E 147 45 42.781
1999.32	41.68	241.33	1642.81	1022.78	-476.78	-908.32	0.74	5737985.84	566428.49	S 38 30 14.462	E 147 45 42.661
2004.32	41.67	241.31	1646.54	1026.10	-478.37	-911.24	0.10	5737984.25	566425.57	S 38 30 14.515	E 147 45 42.542
2009.32	41.63	241.32	1650.28	1029.42	-479.97	-914.16	0.24	5737982.66	566422.66	S 38 30 14.567	E 147 45 42.422
2014.32	41.67	241.34	1654.01	1032.74	-481.56	-917.07	0.25	5737981.06	566419.74	S 38 30 14.620	E 147 45 42.302
2019.32	41.68	241.38	1657.75	1036.07	-483.16	-919.99	0.17	5737979.47	566416.83	S 38 30 14.672	E 147 45 42.182
2024.32	41.73	241.39	1661.48	1039.39	-484.75	-922.91	0.30	5737977.88	566413.91	S 38 30 14.725	E 147 45 42.062
2029.32	41.72	241.42	1665.21	1042.71	-486.34	-925.83	0.13	5737976.28	566410.99	S 38 30 14.777	E 147 45 41.942
2034.32	41.63	241.43	1668.95	1046.03	-487.93	-928.75	0.54	5737974.69	566408.07	S 38 30 14.829	E 147 45 41.822
2039.32	41.62	241.48	1672.69	1049.35	-489.52	-931.67	0.21	5737973.11	566405.15	S 38 30 14.882	E 147 45 41.702
2044.32	41.63	241.50	1676.42	1052.67	-491.11	-934.59	0.10	5737971.52	566402.23	S 38 30 14.934	E 147 45 41.582
2049.32	41.66	241.49	1680.16	1055.99	-492.69	-937.51	0.18	5737969.94	566399.32	S 38 30 14.986	E 147 45 41.462
2054.32	41.78	241.67	1683.89	1059.31	-494.28	-940.43	1.02	5737968.36	566396.39	S 38 30 15.038	E 147 45 41.342
2059.32	41.78	241.57	1687.62	1062.64	-495.86	-943.36	0.40	5737966.77	566393.46	S 38 30 15.090	E 147 45 41.222
2064.32	41.75	241.61	1691.35	1065.97	-497.44	-946.29	0.24	5737965.19	566390.53	S 38 30 15.143	E 147 45 41.101
2069.32	41.73	241.56	1695.08	1069.29	-499.03	-949.22	0.23	5737963.60	566387.61	S 38 30 15.195	E 147 45 40.981
2074.32	41.71	241.60	1698.81	1072.62	-500.61	-952.15	0.20	5737962.02	566384.68	S 38 30 15.247	E 147 45 40.861
2079.32	41.71	241.59	1702.55	1075.94	-502.19	-955.07	0.04	5737960.44	566381.75	S 38 30 15.299	E 147 45 40.741
2084.32	41.73	241.61	1706.28	1079.26	-503.78	-958.00	0.14	5737958.86	566378.83	S 38 30 15.351	E 147 45 40.620
2089.32	41.71	241.67	1710.01	1082.59	-505.36	-960.93	0.27	5737957.28	566375.90	S 38 30 15.403	E 147 45 40.500
2094.32	41.69	241.68	1713.74	1085.91	-506.93	-963.86	0.13	5737955.70	566372.98	S 38 30 15.455	E 147 45 40.380
2099.32	41.66	241.77	1717.48	1089.23	-508.51	-966.78	0.40	5737954.13	566370.05	S 38 30 15.507	E 147 45 40.260
2104.32	41.67	241.81	1721.21	1092.55	-510.08	-969.71	0.17	5737952.55	566367.12	S 38 30 15.559	E 147 45 40.139
2109.32	41.58	241.84	1724.95	1095.87	-511.65	-972.64	0.55	5737950.99	566364.19	S 38 30 15.610	E 147 45 40.019
2114.32	41.47	241.81	1728.69	1099.18	-513.21	-975.56	0.67	5737949.42	566361.27	S 38 30 15.662	E 147 45 39.899
2119.32	41.42	241.94	1732.44	1102.48	-514.77	-978.48	0.60	5737947.86	566358.35	S 38 30 15.713	E 147 45 39.779
2124.32	41.36	242.05	1736.19	1105.78	-516.33	-981.40	0.57	5737946.31	566355.44	S 38 30 15.764	E 147 45 39.659
2129.32	41.39	241.95	1739.94	1109.08	-517.88	-984.32	0.44	5737944.76	566352.52	S 38 30 15.815	E 147 45 39.539
2134.32	41.41	242.02	1743.70	1112.39	-519.43	-987.24	0.30	5737943.21	566349.60	S 38 30 15.867	E 147 45 39.419
2139.32	41.45	242.04	1747.44	1115.69	-520.98	-990.16	0.25	5737941.66	566346.68	S 38 30 15.918	E 147 45 39.299
2144.32	41.48	242.03	1751.19	1118.99	-522.54	-993.08	0.18	5737940.10	566343.76	S 38 30 15.969	E 147 45 39.179
2149.32	41.51	242.06	1754.94	1122.30	-524.09	-996.01	0.22	5737938.55	566340.83	S 38 30 16.020	E 147 45 39.059
2154.32	41.49	242.09	1758.68	1125.61	-525.64	-998.94	0.17	5737937.00	566337.91	S 38 30 16.071	E 147 45 38.938
2159.32	41.55	242.14	1762.42	1128.92	-527.19	-1001.87	0.41	5737935.45	566334.98	S 38 30 16.122	E 147 45 38.818
2164.32	41.50	242.15	1766.17	1132.23	-528.74	-1004.80	0.30	5737933.90	566332.05	S 38 30 16.173	E 147 45 38.698
2169.32	41.51	242.25	1769.91	1135.54	-530.28	-1007.73	0.40	5737932.36	566329.12	S 38 30 16.224	E 147 45 38.577
2174.32	41.46	242.38	1773.66	1138.84	-531.82	-1010.66	0.60	5737930.82	566326.19	S 38 30 16.275	E 147 45 38.457
2179.32	41.42	242.42	1777.41	1142.15	-533.36	-1013.59	0.29	5737929.29	566323.25	S 38 30 16.325	E 147 45 38.336
2184.32	41.47	242.38	1781.15	1145.45	-534.89	-1016.53	0.34	5737927.75	566320.32	S 38 30 16.376	E 147 45 38.216
2189.32	41.58	242.43	1784.90	1148.76	-536.42	-1019.47	0.69	5737926.22	566317.39	S 38 30 16.426	E 147 45 38.095
2194.32	41.72	242.49	1788.63	1152.07	-537.96	-1022.41	0.87	5737924.68	566314.44	S 38 30 16.477	E 147 45 37.974
2199.32	41.71	242.43	1792.37	1155.40	-539.50	-1025.36	0.25	5737923.15	566311.49	S 38 30 16.528	E 147 45 37.853
2204.32	41.78	242.46	1796.10	1158.72	-541.04	-1028.31	0.44	5737921.61	566308.54	S 38 30 16.578	E 147 45 37.731
2209.32	41.69	242.51	1799.83	1162.04	-542.58	-1031.27	0.58	5737920.07	566305.59	S 38 30 16.629	E 147 45 37.610
2214.32	41.57	242.63	1803.56	1165.35	-544.11	-1034.21	0.86	5737918.54	566302.64	S 38 30 16.679	E 147 45 37.489
2219.32	41.48	242.70	1807.31	1168.66	-545.63	-1037.16	0.61	5737917.02	566299.70	S 38 30 16.730	E 147 45 37.368
2224.32	41.39	242.74	1811.06	1171.96	-547.15	-1040.10	0.56	5737915.50	566296.76	S 38 30 16.780	E 147 45 37.247
2229.32	41.46	242.79	1814.81	1175.26	-548.66	-1043.04	0.46	5737913.99	566293.82	S 38 30 16.829	E 147 45 37.126
2234.32	41.45	242.79	1818.55	1178.57	-550.17	-1045.98	0.06	5737912.48	566290.88	S 38 30 16.879	E 147 45 37.005
2239.32	41.40	242.74	1822.30	1181.87	-551.69	-1048.93	0.36	5737910.96	566287.94	S 38 30 16.929	E 147 45 36.884
2244.32	41.30	242.70	1826.06	1185.16	-553.20	-1051.86	0.62	5737909.45	566285.00	S 38 30 16.979	E 147 45 36.764
2255.00	41.19	242.58	1834.09	1192.19	-556.44	-1058.11	0.38	5737906.21	566278.75	S 38 30 17.086	E 147 45 36.507
2315.54	47.28	232.69	1877.49	1234.28	-579.15	-1093.57	4.55	5737883.51	566243.30	S 38 30 17.832	E 147 45 35.051
2344.17	45.11	227.69	1897.32	1254.69	-592.35	-1109.45	4.41	5737870.31	566227.44	S 38 30 18.264	E 147 45 34.401
2373.96	44.29	225.55	1918.49	1275.17	-606.74	-1124.68	1.73	5737855.93	566212.21	S 38 30 18.735	E 147 45 33.777
2402.84	44.74	224.96	1939.09	1294.84	-620.99	-1139.06	0.63	5737841.68	566197.84	S 38 30 19.201	E 147 45 33.188
2431.51	45.68	223.46	1959.28	1314.52	-635.58	-1153.24	1.49	5737827.10	566183.66	S 38 30 19.678	E 147 45 32.608
2460.31	45.65	223.26	1979.41	1334.37	-650.56	-1167.38	0.15	5737812.13	566169.52	S 38 30 20.167	E 147 45 32.029
2489.08	45.94	223.42	1999.47	1354.24	-665.56	-1181.54	0.33	5737797.13	566155.37	S 38 30 20.657	E 147 45 31.450
2517.86	45.95	223.72	2019.48	1374.18	-680.54	-1195.79	0.22	5737782.15	566141.12	S 38 30 21.147	E 147 45 30.867
2546.51	45.96	223.53	2039.40	1394.05	-695.45	-1210.00	0.14	5737767.25	566126.91	S 38 30 21.634	E 147 45 30.286
2575.02	45.67	223.20	2059.27	1413.75	-710.31	-1224.04	0.39	5737752.39	566112.88	S 38 30 22.120	E 147 45 29.711
2603.47	45.59	222.65	2079.17	1433.30	-725.20	-1237.89	0.42	5737737.51	566099.03	S 38 30 22.607	E 147 45 29.145

2631.63	45.76	223.11	2098.84	1452.66	-739.97	-1251.60	0.39	5737722.75	566085.33	S 38 30 23.089	E 147 45 28.584
2660.31	46.03	222.98	2118.80	1472.47	-755.02	-1265.66	0.30	5737707.70	566071.28	S 38 30 23.581	E 147 45 28.009
2688.70	44.89	225.62	2138.72	1492.05	-769.50	-1279.78	2.32	5737693.23	566057.16	S 38 30 24.054	E 147 45 27.431
2717.26	43.06	227.01	2159.27	1511.40	-783.20	-1294.12	2.17	5737679.53	566042.83	S 38 30 24.503	E 147 45 26.844
2746.89	41.86	228.13	2181.13	1531.01	-796.69	-1308.88	1.44	5737666.04	566028.07	S 38 30 24.944	E 147 45 26.239
2775.31	37.64	230.27	2202.98	1548.92	-808.57	-1322.62	4.68	5737654.16	566014.33	S 38 30 25.333	E 147 45 25.676
2804.11	36.17	231.41	2226.01	1566.04	-819.50	-1336.03	1.69	5737643.24	566000.93	S 38 30 25.691	E 147 45 25.126
2832.83	35.90	232.07	2249.23	1582.80	-829.96	-1349.30	0.49	5737632.79	565987.67	S 38 30 26.034	E 147 45 24.582
2861.57	35.65	232.20	2272.55	1599.49	-840.27	-1362.56	0.27	5737622.48	565974.41	S 38 30 26.372	E 147 45 24.038
2890.25	35.62	232.73	2295.86	1616.09	-850.45	-1375.81	0.32	5737612.30	565961.16	S 38 30 26.705	E 147 45 23.495
2918.77	35.26	233.67	2319.09	1632.55	-860.36	-1389.05	0.69	5737602.40	565947.93	S 38 30 27.030	E 147 45 22.952
2947.63	34.56	234.27	2342.76	1649.00	-870.07	-1402.41	0.81	5737592.68	565934.58	S 38 30 27.349	E 147 45 22.404
2976.02	34.36	234.66	2366.17	1665.02	-879.41	-1415.48	0.31	5737583.35	565921.51	S 38 30 27.655	E 147 45 21.868
3004.83	33.91	235.26	2390.01	1681.14	-888.69	-1428.72	0.59	5737574.07	565908.28	S 38 30 27.960	E 147 45 21.325
3033.62	33.44	235.77	2413.97	1697.08	-897.73	-1441.87	0.57	5737565.04	565895.12	S 38 30 28.256	E 147 45 20.785
3062.05	32.73	236.30	2437.79	1712.58	-906.40	-1454.74	0.81	5737556.37	565882.26	S 38 30 28.541	E 147 45 20.256
3091.19	32.34	236.58	2462.36	1728.24	-915.07	-1467.80	0.43	5737547.71	565869.20	S 38 30 28.825	E 147 45 19.720
3119.52	31.89	237.18	2486.36	1743.29	-923.30	-1480.42	0.58	5737539.48	565856.59	S 38 30 29.096	E 147 45 19.202
3148.77	31.44	237.63	2511.25	1758.64	-931.57	-1493.35	0.52	5737531.21	565843.66	S 38 30 29.367	E 147 45 18.671
3176.53	30.52	237.95	2535.05	1772.92	-939.18	-1505.44	1.01	5737523.60	565831.58	S 38 30 29.618	E 147 45 18.175
3205.10	29.46	238.40	2559.80	1787.20	-946.72	-1517.58	1.14	5737516.07	565819.45	S 38 30 29.865	E 147 45 17.677
3233.55	28.71	239.31	2584.66	1801.03	-953.87	-1529.41	0.92	5737508.92	565807.62	S 38 30 30.100	E 147 45 17.191
3262.80	27.93	239.80	2610.41	1814.91	-960.90	-1541.37	0.83	5737501.89	565795.66	S 38 30 30.331	E 147 45 16.699
3291.27	25.92	239.94	2635.79	1827.80	-967.37	-1552.52	2.12	5737495.42	565784.51	S 38 30 30.544	E 147 45 16.241
3319.70	24.20	240.25	2661.54	1839.84	-973.38	-1562.96	1.82	5737489.42	565774.08	S 38 30 30.742	E 147 45 15.813
3348.52	23.60	240.25	2687.89	1851.51	-979.17	-1573.10	0.62	5737483.63	565763.94	S 38 30 30.932	E 147 45 15.396
3360.89	23.30	239.72	2699.24	1856.43	-981.63	-1577.36	0.89	5737481.16	565759.68	S 38 30 31.013	E 147 45 15.221
3391.00	22.57	238.43	2726.97	1868.16	-987.66	-1587.43	0.88	5737475.14	565749.62	S 38 30 31.211	E 147 45 14.808

**Survey Type:** Definitive Survey

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

**Surveying Prog:**

**MD From ( m )**

0.00

2244.32

**MD To ( m )**

2244.32

3391.00

**EOU Freq**

Act-Stns

Act-Stns

**Survey Tool Type**

SLB\_CNSG+CASING

SLB\_MWD-STD

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

**APPENDIX 1b**

**BREAM A10A**

**MD-TVD Survey Data Listing**

Report Date:	16 September 2005
Well:	Bream A10A
Structure / Slot:	NABORS Rig 453
TVD Reference Datum:	DrillSite Elevation
TVD Reference Elevation:	32.82 m relative to MSL
Sea Bed / Ground Level Elevation:	59.43 m relative to MSL
Grid Coordinate System:	GDA94/MGA94 Zone 55
Location Lat/Long:	S -38 29' 58.822800", E 147 46 19.974000"
Location Grid N/E:	N 5738460.3722 m, E 567336.2737 m
Survey Azimuth Reference:	Grid North

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
0	0	360	0	32.82	0	0	5738460.34	567336.31
5	0	0	5	27.82	0	0	5738460.34	567336.31
10	0	0	10	22.82	0	0	5738460.34	567336.31
15	0	0	15	17.82	0	0	5738460.34	567336.31
20	0	0	20	12.82	0	0	5738460.34	567336.31
25	0	0	25	7.82	0	0	5738460.34	567336.31
30	0	0	30	2.82	0	0	5738460.34	567336.31
35	0	0	35	-2.18	0	0	5738460.34	567336.31
40	0	0	40	-7.18	0	0	5738460.34	567336.31
45	0	0	45	-12.18	0	0	5738460.34	567336.31
50	0.17	347.22	50	-17.18	0	-0.01	5738460.34	567336.3
55	1.24	266	55	-22.18	0	-0.07	5738460.34	567336.24
60	1.35	266	60	-27.18	-0.01	-0.18	5738460.33	567336.13
65	1.46	266	65	-32.18	-0.02	-0.31	5738460.32	567336.01
70	1.57	266	69.99	-37.17	-0.03	-0.44	5738460.31	567335.87
75	1.68	266	74.99	-42.17	-0.04	-0.58	5738460.3	567335.73
80	1.8	266	79.99	-47.17	-0.05	-0.73	5738460.29	567335.58
85	1.91	266	84.99	-52.17	-0.06	-0.89	5738460.28	567335.42
90	2.02	266	89.98	-57.16	-0.07	-1.06	5738460.27	567335.25
95	2.13	266	94.98	-62.16	-0.09	-1.24	5738460.26	567335.07
100	2.24	266	99.98	-67.16	-0.1	-1.43	5738460.24	567334.88
105	2.36	265.75	104.97	-72.15	-0.12	-1.64	5738460.23	567334.68
110	2.6	263.68	109.97	-77.15	-0.14	-1.85	5738460.21	567334.46
115	3.2	259.97	114.96	-82.14	-0.17	-2.1	5738460.17	567334.21
120	4.06	255.69	119.95	-87.13	-0.24	-2.41	5738460.1	567333.9
125	4.76	254	124.94	-92.12	-0.34	-2.78	5738460	567333.53
130	5.49	252.09	129.92	-97.1	-0.47	-3.21	5738459.87	567333.11
135	6.17	250.6	134.89	-102.07	-0.64	-3.69	5738459.71	567332.62
140	6.75	249.6	139.86	-107.04	-0.83	-4.22	5738459.52	567332.09
145	7.36	248.9	144.82	-112	-1.05	-4.79	5738459.3	567331.52
150	7.86	248.79	149.78	-116.96	-1.28	-5.41	5738459.06	567330.9
155	8.41	249.09	154.73	-121.91	-1.54	-6.07	5738458.8	567330.24
160	8.94	249.7	159.67	-126.85	-1.8	-6.77	5738458.54	567329.54
165	9.34	250.57	164.61	-131.79	-2.07	-7.52	5738458.27	567328.79
170	9.66	251.53	169.54	-136.72	-2.34	-8.3	5738458	567328.01
175	9.86	252.43	174.47	-141.65	-2.6	-9.11	5738457.74	567327.2
180	9.93	253.28	179.39	-146.57	-2.86	-9.93	5738457.49	567326.38
185	10.2	254.54	184.31	-151.49	-3.1	-10.77	5738457.24	567325.54
190	10.27	255.2	189.23	-156.41	-3.33	-11.63	5738457.01	567324.69
195	10.43	255.88	194.15	-161.33	-3.56	-12.5	5738456.79	567323.82
200	10.55	256.16	199.07	-166.25	-3.77	-13.38	5738456.57	567322.93
205	10.66	256.23	203.99	-171.17	-3.99	-14.27	5738456.35	567322.04
210	10.74	255.94	208.9	-176.08	-4.22	-15.17	5738456.12	567321.14
215	10.88	255.51	213.81	-180.99	-4.45	-16.08	5738455.89	567320.23
220	11.03	255.35	218.72	-185.9	-4.69	-17	5738455.65	567319.31
225	11.12	255.28	223.63	-190.81	-4.93	-17.93	5738455.41	567318.38

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
230	11.19	255.09	228.53	-195.71	-5.18	-18.87	5738455.16	567317.44
235	11.34	254.83	233.43	-200.61	-5.43	-19.81	5738454.91	567316.5
240	11.45	254.57	238.34	-205.52	-5.69	-20.76	5738454.65	567315.55
245	11.56	254.29	243.24	-210.42	-5.96	-21.72	5738454.38	567314.59
250	11.66	254.04	248.13	-215.31	-6.24	-22.69	5738454.11	567313.62
255	11.74	253.48	253.03	-220.21	-6.52	-23.67	5738453.82	567312.65
260	11.81	252.51	257.92	-225.1	-6.82	-24.64	5738453.53	567311.67
265	11.94	251.4	262.82	-230	-7.14	-25.62	5738453.21	567310.69
270	12.06	249.8	267.71	-234.89	-7.48	-26.6	5738452.86	567309.71
275	12.22	247.89	272.6	-239.78	-7.86	-27.58	5738452.48	567308.73
280	12.37	246.42	277.48	-244.66	-8.27	-28.56	5738452.07	567307.75
285	12.6	245.02	282.36	-249.54	-8.72	-29.55	5738451.62	567306.77
290	12.84	243.84	287.24	-254.42	-9.19	-30.54	5738451.15	567305.77
295	13.14	242.72	292.11	-259.29	-9.7	-31.54	5738450.64	567304.77
300	13.52	241.65	296.98	-264.16	-10.24	-32.56	5738450.11	567303.75
305	13.79	241.03	301.84	-269.02	-10.8	-33.6	5738449.54	567302.71
310	14.13	240.61	306.69	-273.87	-11.39	-34.65	5738448.95	567301.66
315	14.46	240.51	311.53	-278.71	-12	-35.73	5738448.34	567300.59
320	14.74	240.7	316.37	-283.55	-12.62	-36.82	5738447.73	567299.49
325	15.06	241.11	321.2	-288.38	-13.24	-37.95	5738447.1	567298.36
330	15.31	241.49	326.03	-293.21	-13.87	-39.1	5738446.47	567297.22
335	15.56	242.03	330.85	-298.03	-14.5	-40.27	5738445.84	567296.04
340	15.73	242.39	335.66	-302.84	-15.13	-41.46	5738445.21	567294.85
345	15.83	242.45	340.48	-307.66	-15.76	-42.67	5738444.58	567293.64
350	15.92	242.6	345.28	-312.46	-16.39	-43.88	5738443.95	567292.43
355	15.95	242.79	350.09	-317.27	-17.02	-45.1	5738443.32	567291.21
360	15.99	242.98	354.9	-322.08	-17.65	-46.33	5738442.7	567289.99
365	16.03	243.17	359.71	-326.89	-18.27	-47.55	5738442.07	567288.76
370	16.04	243.37	364.51	-331.69	-18.89	-48.79	5738441.45	567287.52
375	16.07	243.49	369.32	-336.5	-19.51	-50.03	5738440.83	567286.29
380	16.07	243.66	374.12	-341.3	-20.13	-51.26	5738440.21	567285.05
385	16.02	244.01	378.93	-346.11	-20.74	-52.5	5738439.61	567283.81
390	15.88	244.43	383.73	-350.91	-21.33	-53.74	5738439.01	567282.57
395	15.61	245.04	388.55	-355.73	-21.91	-54.97	5738438.43	567281.34
400	15.41	245.46	393.36	-360.54	-22.47	-56.18	5738437.87	567280.13
405	15.19	246.06	398.19	-365.37	-23.02	-57.39	5738437.33	567278.93
410	14.99	246.3	403.01	-370.19	-23.54	-58.58	5738436.8	567277.73
415	14.67	246.64	407.85	-375.03	-24.05	-59.75	5738436.29	567276.56
420	14.16	246.95	412.69	-379.87	-24.54	-60.89	5738435.8	567275.42
425	13.77	247.1	417.54	-384.72	-25.01	-62.01	5738435.33	567274.31
430	13.21	247.15	422.4	-389.58	-25.47	-63.08	5738434.88	567273.23
435	12.81	246.95	427.28	-394.46	-25.91	-64.12	5738434.44	567272.19
440	12.46	246.58	432.15	-399.33	-26.34	-65.12	5738434.01	567271.19
445	12.12	245.96	437.04	-404.22	-26.77	-66.1	5738433.58	567270.22
450	12.05	245.9	441.93	-409.11	-27.19	-67.05	5738433.15	567269.26
455	12.04	245.7	446.82	-414	-27.62	-68	5738432.72	567268.31
460	12.08	245.59	451.71	-418.89	-28.05	-68.96	5738432.29	567267.36
465	12.18	245.58	456.6	-423.78	-28.49	-69.91	5738431.86	567266.4
470	12.38	245.63	461.48	-428.66	-28.93	-70.88	5738431.42	567265.43
475	12.7	245.61	466.36	-433.54	-29.37	-71.87	5738430.97	567264.44
480	13.14	245.43	471.24	-438.42	-29.84	-72.89	5738430.51	567263.42
485	13.53	245.62	476.1	-443.28	-30.31	-73.94	5738430.03	567262.37
490	14.03	245.68	480.96	-448.14	-30.8	-75.02	5738429.54	567261.29
495	14.47	245.45	485.8	-452.98	-31.31	-76.14	5738429.03	567260.17
500	14.88	245.24	490.64	-457.82	-31.84	-77.29	5738428.5	567259.02
505	15.31	245.08	495.47	-462.65	-32.39	-78.48	5738427.95	567257.84
510	15.68	244.95	500.29	-467.47	-32.95	-79.69	5738427.39	567256.63
515	16.12	244.48	505.09	-472.27	-33.54	-80.92	5738426.8	567255.39

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
520	16.48	244.38	509.89	-477.07	-34.15	-82.19	5738426.2	567254.12
525	16.93	244.25	514.68	-481.86	-34.77	-83.49	5738425.57	567252.83
530	17.35	244.04	519.46	-486.64	-35.41	-84.81	5738424.93	567251.5
535	17.77	243.83	524.23	-491.41	-36.07	-86.17	5738424.27	567250.15
540	18.26	243.62	528.98	-496.16	-36.76	-87.55	5738423.59	567248.76
545	18.62	243.56	533.73	-500.91	-37.46	-88.97	5738422.88	567247.34
550	19.01	243.44	538.46	-505.64	-38.18	-90.41	5738422.16	567245.9
555	19.46	243.46	543.18	-510.36	-38.92	-91.89	5738421.43	567244.43
560	19.92	243.41	547.89	-515.07	-39.67	-93.39	5738420.67	567242.92
565	20.33	243.35	552.58	-519.76	-40.44	-94.93	5738419.9	567241.38
570	20.77	243.6	557.26	-524.44	-41.23	-96.5	5738419.12	567239.81
575	21.15	243.81	561.93	-529.11	-42.02	-98.1	5738418.33	567238.21
580	21.51	244.02	566.59	-533.77	-42.82	-99.74	5738417.53	567236.57
585	21.95	244.34	571.23	-538.41	-43.62	-101.4	5738416.72	567234.91
590	22.38	244.54	575.87	-543.05	-44.44	-103.11	5738415.91	567233.21
595	22.73	244.52	580.48	-547.66	-45.26	-104.84	5738415.08	567231.47
600	23.08	244.51	585.09	-552.27	-46.1	-106.59	5738414.24	567229.72
605	23.38	244.31	589.68	-556.86	-46.95	-108.37	5738413.39	567227.94
610	23.73	243.98	594.27	-561.45	-47.82	-110.17	5738412.52	567226.14
615	24.08	243.66	598.84	-566.02	-48.72	-111.99	5738411.63	567224.32
620	24.37	243.48	603.4	-570.58	-49.63	-113.83	5738410.71	567222.49
625	24.7	243.39	607.95	-575.13	-50.56	-115.68	5738409.78	567220.63
630	24.99	243.3	612.48	-579.66	-51.5	-117.56	5738408.84	567218.75
635	25.33	243.27	617.01	-584.19	-52.46	-119.46	5738407.89	567216.85
640	25.73	243.38	621.52	-588.7	-53.42	-121.38	5738406.92	567214.93
645	26.25	243.55	626.02	-593.2	-54.4	-123.34	5738405.94	567212.97
650	26.7	243.58	630.49	-597.67	-55.39	-125.34	5738404.95	567210.97
655	27.15	243.61	634.95	-602.13	-56.4	-127.37	5738403.94	567208.94
660	27.6	243.57	639.39	-606.57	-57.42	-129.43	5738402.92	567206.88
665	28.06	243.52	643.81	-610.99	-58.46	-131.52	5738401.88	567204.79
670	28.54	243.5	648.21	-615.39	-59.52	-133.64	5738400.82	567202.67
675	29.01	243.29	652.6	-619.78	-60.6	-135.79	5738399.74	567200.52
680	29.42	242.88	656.96	-624.14	-61.7	-137.97	5738398.64	567198.35
685	29.84	242.46	661.31	-628.49	-62.84	-140.16	5738397.5	567196.15
690	30.21	242.03	665.63	-632.81	-64	-142.38	5738396.34	567193.94
695	30.55	241.52	669.95	-637.13	-65.2	-144.6	5738395.14	567191.71
700	30.9	241.13	674.25	-641.43	-66.43	-146.85	5738393.92	567189.47
705	31.21	240.7	678.53	-645.71	-67.68	-149.1	5738392.66	567187.21
710	31.4	240.28	682.8	-649.98	-68.96	-151.36	5738391.38	567184.95
715	31.83	240.27	687.06	-654.24	-70.26	-153.64	5738390.08	567182.68
720	32.25	240.07	691.3	-658.48	-71.58	-155.94	5738388.77	567180.37
725	32.55	239.91	695.52	-662.7	-72.92	-158.26	5738387.43	567178.05
730	32.89	239.89	699.73	-666.91	-74.27	-160.6	5738386.07	567175.72
735	33.23	239.89	703.92	-671.1	-75.64	-162.96	5738384.7	567173.36
740	33.54	239.93	708.09	-675.27	-77.02	-165.34	5738383.32	567170.98
745	33.81	239.99	712.25	-679.43	-78.41	-167.73	5738381.93	567168.58
750	34.09	240.15	716.4	-683.58	-79.8	-170.16	5738380.54	567166.16
755	34.4	240.35	720.53	-687.71	-81.2	-172.6	5738379.14	567163.71
760	34.73	240.69	724.65	-691.83	-82.59	-175.07	5738377.75	567161.24
765	35.07	241.31	728.75	-695.93	-83.98	-177.57	5738376.36	567158.74
770	35.4	241.98	732.84	-700.02	-85.35	-180.11	5738374.99	567156.2
775	35.7	242.47	736.9	-704.08	-86.71	-182.68	5738373.64	567153.63
780	36	242.81	740.96	-708.14	-88.05	-185.28	5738372.29	567151.03
785	36.31	243.03	744.99	-712.17	-89.39	-187.91	5738370.95	567148.4
790	36.59	243.18	749.02	-716.2	-90.74	-190.56	5738369.61	567145.75
795	36.91	243.21	753.02	-720.2	-92.09	-193.23	5738368.26	567143.08
800	37.24	243.17	757.01	-724.19	-93.45	-195.92	5738366.9	567140.39
805	37.55	243.18	760.98	-728.16	-94.82	-198.63	5738365.53	567137.68

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
810	37.83	243.11	764.94	-732.12	-96.2	-201.35	5738364.15	567134.96
815	38.13	242.94	768.88	-736.06	-97.59	-204.1	5738362.75	567132.22
820	38.43	242.86	772.81	-739.99	-99	-206.85	5738361.34	567129.46
825	38.75	242.73	776.71	-743.89	-100.43	-209.63	5738359.91	567126.68
830	39.01	242.57	780.61	-747.79	-101.87	-212.42	5738358.47	567123.9
835	39.32	242.43	784.48	-751.66	-103.33	-215.22	5738357.01	567121.1
840	39.56	242.24	788.34	-755.52	-104.8	-218.03	5738355.54	567118.28
845	39.78	242.18	792.19	-759.37	-106.29	-220.85	5738354.05	567115.46
850	40.05	242.23	796.03	-763.21	-107.79	-223.69	5738352.55	567112.62
855	40.29	242.13	799.85	-767.03	-109.29	-226.54	5738351.05	567109.77
860	40.53	242.02	803.66	-770.84	-110.81	-229.41	5738349.53	567106.9
865	40.68	241.85	807.45	-774.63	-112.34	-232.28	5738348	567104.03
870	40.81	241.81	811.24	-778.42	-113.88	-235.16	5738346.46	567101.15
875	40.93	241.9	815.02	-782.2	-115.43	-238.04	5738344.92	567098.27
880	41.06	241.87	818.8	-785.98	-116.97	-240.93	5738343.37	567095.38
885	41.2	241.85	822.56	-789.74	-118.52	-243.83	5738341.82	567092.48
890	41.38	241.91	826.32	-793.5	-120.08	-246.74	5738340.26	567089.57
895	41.5	241.95	830.07	-797.25	-121.64	-249.66	5738338.71	567086.65
900	41.62	241.96	833.81	-800.99	-123.2	-252.59	5738337.15	567083.72
905	41.74	242.03	837.54	-804.72	-124.76	-255.53	5738335.59	567080.78
910	41.84	242.09	841.27	-808.45	-126.32	-258.47	5738334.02	567077.84
915	41.8	242.12	845	-812.18	-127.88	-261.42	5738332.46	567074.89
920	41.63	242.14	848.73	-815.91	-129.43	-264.36	5738330.91	567071.95
925	41.49	242.07	852.47	-819.65	-130.99	-267.29	5738329.36	567069.02
930	41.53	242.08	856.21	-823.39	-132.54	-270.22	5738327.81	567066.09
935	41.58	242.12	859.96	-827.14	-134.09	-273.15	5738326.25	567063.16
940	41.6	242.1	863.7	-830.88	-135.64	-276.08	5738324.7	567060.23
945	41.62	242.12	867.43	-834.61	-137.2	-279.02	5738323.15	567057.3
950	41.61	242.14	871.17	-838.35	-138.75	-281.95	5738321.6	567054.36
955	41.57	242.23	874.91	-842.09	-140.3	-284.89	5738320.05	567051.42
960	41.47	242.27	878.66	-845.84	-141.84	-287.82	5738318.5	567048.49
965	41.5	242.24	882.4	-849.58	-143.38	-290.75	5738316.96	567045.56
970	41.46	242.3	886.15	-853.33	-144.92	-293.68	5738315.42	567042.63
975	41.41	242.34	889.9	-857.08	-146.46	-296.61	5738313.88	567039.7
980	41.46	242.38	893.64	-860.82	-147.99	-299.54	5738312.35	567036.77
985	41.49	242.42	897.39	-864.57	-149.53	-302.48	5738310.81	567033.83
990	41.37	242.48	901.14	-868.32	-151.06	-305.41	5738309.28	567030.9
995	41.2	242.55	904.9	-872.08	-152.58	-308.34	5738307.76	567027.97
1000	41.18	242.61	908.66	-875.84	-154.1	-311.26	5738306.25	567025.05
1005	41.25	242.64	912.42	-879.6	-155.61	-314.19	5738304.73	567022.12
1010	41.35	242.68	916.18	-883.36	-157.13	-317.12	5738303.21	567019.19
1015	41.41	242.72	919.93	-887.11	-158.64	-320.06	5738301.7	567016.26
1020	41.46	242.76	923.68	-890.86	-160.16	-323	5738300.18	567013.31
1025	41.57	242.73	927.42	-894.6	-161.68	-325.94	5738298.67	567010.37
1030	41.67	242.69	931.16	-898.34	-163.2	-328.89	5738297.14	567007.42
1035	41.74	242.76	934.89	-902.07	-164.73	-331.85	5738295.62	567004.46
1040	41.79	242.82	938.62	-905.8	-166.25	-334.81	5738294.1	567001.5
1045	41.91	242.74	942.35	-909.53	-167.77	-337.78	5738292.57	566998.53
1050	42.04	242.76	946.06	-913.24	-169.3	-340.75	5738291.04	566995.56
1055	42.08	242.75	949.78	-916.96	-170.84	-343.73	5738289.5	566992.58
1060	42.16	242.81	953.48	-920.66	-172.37	-346.71	5738287.97	566989.6
1065	42.28	242.81	957.19	-924.37	-173.91	-349.7	5738286.44	566986.61
1070	42.38	242.8	960.88	-928.06	-175.45	-352.7	5738284.9	566983.62
1075	42.38	242.71	964.58	-931.76	-176.99	-355.69	5738283.35	566980.62
1080	42.41	242.67	968.27	-935.45	-178.54	-358.69	5738281.81	566977.63
1085	42.57	242.66	971.96	-939.14	-180.09	-361.69	5738280.26	566974.62
1090	42.79	242.62	975.63	-942.81	-181.64	-364.7	5738278.7	566971.61
1095	43.01	242.58	979.29	-946.47	-183.21	-367.72	5738277.13	566968.59

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1100	43.12	242.51	982.95	-950.13	-184.79	-370.75	5738275.56	566965.56
1105	43.19	242.55	986.59	-953.77	-186.36	-373.78	5738273.98	566962.53
1110	43.24	242.52	990.24	-957.42	-187.94	-376.82	5738272.4	566959.49
1115	43.35	242.48	993.88	-961.06	-189.53	-379.86	5738270.82	566956.45
1120	43.43	242.52	997.51	-964.69	-191.11	-382.91	5738269.23	566953.4
1125	43.45	242.57	1001.14	-968.32	-192.7	-385.96	5738267.65	566950.35
1130	43.48	242.58	1004.77	-971.95	-194.28	-389.01	5738266.06	566947.3
1135	43.49	242.57	1008.4	-975.58	-195.87	-392.07	5738264.48	566944.25
1140	43.5	242.62	1012.03	-979.21	-197.45	-395.12	5738262.89	566941.19
1145	43.56	242.65	1015.65	-982.83	-199.03	-398.18	5738261.31	566938.13
1150	43.59	242.72	1019.27	-986.45	-200.61	-401.24	5738259.73	566935.07
1155	43.58	242.76	1022.9	-990.08	-202.19	-404.31	5738258.15	566932.01
1160	43.54	242.83	1026.52	-993.7	-203.77	-407.37	5738256.58	566928.94
1165	43.44	242.81	1030.15	-997.33	-205.34	-410.43	5738255	566925.88
1170	43.36	242.86	1033.78	-1000.96	-206.91	-413.49	5738253.44	566922.82
1175	43.41	242.89	1037.41	-1004.59	-208.47	-416.55	5738251.87	566919.77
1180	43.52	242.92	1041.04	-1008.22	-210.04	-419.61	5738250.3	566916.7
1185	43.58	242.96	1044.67	-1011.85	-211.61	-422.67	5738248.74	566913.64
1190	43.56	243	1048.29	-1015.47	-213.17	-425.75	5738247.17	566910.57
1195	43.51	243.05	1051.91	-1019.09	-214.74	-428.81	5738245.61	566907.5
1200	43.49	243.11	1055.54	-1022.72	-216.29	-431.88	5738244.05	566904.43
1205	43.45	243.16	1059.17	-1026.35	-217.85	-434.95	5738242.49	566901.36
1210	43.42	243.23	1062.8	-1029.98	-219.4	-438.02	5738240.94	566898.29
1215	43.46	243.26	1066.43	-1033.61	-220.95	-441.09	5738239.4	566895.22
1220	43.51	243.28	1070.06	-1037.24	-222.49	-444.16	5738237.85	566892.15
1225	43.53	243.35	1073.68	-1040.86	-224.04	-447.24	5738236.3	566889.07
1230	43.44	243.39	1077.31	-1044.49	-225.58	-450.32	5738234.76	566886
1235	43.54	243.44	1080.94	-1048.12	-227.12	-453.39	5738233.22	566882.92
1240	43.64	243.45	1084.56	-1051.74	-228.66	-456.48	5738231.68	566879.84
1245	43.64	243.38	1088.18	-1055.36	-230.21	-459.56	5738230.13	566876.75
1250	43.71	243.44	1091.8	-1058.98	-231.75	-462.65	5738228.59	566873.66
1255	43.74	243.54	1095.41	-1062.59	-233.3	-465.74	5738227.05	566870.57
1260	43.55	243.52	1099.03	-1066.21	-234.83	-468.83	5738225.51	566867.48
1265	43.33	243.43	1102.66	-1069.84	-236.37	-471.91	5738223.97	566864.4
1270	43.12	243.29	1106.3	-1073.48	-237.91	-474.97	5738222.44	566861.34
1275	43.49	243.71	1109.94	-1077.12	-239.43	-478.04	5738220.91	566858.27
1280	43.61	243.77	1113.56	-1080.74	-240.96	-481.13	5738219.38	566855.19
1285	43.69	243.86	1117.18	-1084.36	-242.48	-484.22	5738217.86	566852.09
1290	43.74	243.94	1120.79	-1087.97	-244	-487.33	5738216.34	566848.99
1295	43.69	243.96	1124.41	-1091.59	-245.52	-490.43	5738214.82	566845.88
1300	43.65	243.93	1128.02	-1095.2	-247.04	-493.53	5738213.31	566842.78
1305	43.65	244.02	1131.64	-1098.82	-248.55	-496.63	5738211.79	566839.68
1310	43.57	244.11	1135.26	-1102.44	-250.06	-499.74	5738210.28	566836.58
1315	43.62	244.05	1138.88	-1106.06	-251.57	-502.84	5738208.78	566833.48
1320	43.77	243.94	1142.5	-1109.68	-253.08	-505.94	5738207.26	566830.37
1325	43.87	243.94	1146.11	-1113.29	-254.6	-509.05	5738205.74	566827.26
1330	43.86	243.96	1149.71	-1116.89	-256.12	-512.16	5738204.22	566824.15
1335	43.89	243.92	1153.32	-1120.5	-257.64	-515.28	5738202.7	566821.03
1340	43.99	243.81	1156.92	-1124.1	-259.17	-518.39	5738201.17	566817.92
1345	44.08	243.74	1160.51	-1127.69	-260.71	-521.51	5738199.63	566814.8
1350	44.16	243.63	1164.1	-1131.28	-262.25	-524.63	5738198.09	566811.68
1355	44.27	243.56	1167.68	-1134.86	-263.8	-527.75	5738196.54	566808.56
1360	44.35	243.52	1171.26	-1138.44	-265.36	-530.88	5738194.98	566805.43
1365	44.46	243.47	1174.83	-1142.01	-266.92	-534.01	5738193.42	566802.3
1370	44.48	243.43	1178.4	-1145.58	-268.49	-537.14	5738191.86	566799.17
1375	44.35	243.36	1181.97	-1149.15	-270.05	-540.27	5738190.29	566796.04
1380	44.17	243.34	1185.55	-1152.73	-271.62	-543.39	5738188.72	566792.92
1385	44.23	243.26	1189.14	-1156.32	-273.18	-546.51	5738187.16	566789.81

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1390	44.47	243.08	1192.72	-1159.9	-274.76	-549.62	5738185.58	566786.69
1395	44.76	242.97	1196.27	-1163.45	-276.35	-552.75	5738183.99	566783.56
1400	44.94	242.92	1199.82	-1167	-277.96	-555.89	5738182.38	566780.42
1405	45.11	242.76	1203.35	-1170.53	-279.57	-559.04	5738180.77	566777.27
1410	45.16	242.64	1206.88	-1174.06	-281.2	-562.19	5738179.14	566774.12
1415	45.19	242.49	1210.4	-1177.58	-282.83	-565.34	5738177.51	566770.97
1420	45.28	242.4	1213.93	-1181.11	-284.47	-568.49	5738175.87	566767.83
1425	45.42	242.2	1217.44	-1184.62	-286.13	-571.63	5738174.22	566764.68
1430	45.46	242.01	1220.95	-1188.13	-287.79	-574.78	5738172.55	566761.53
1435	45.44	241.84	1224.46	-1191.64	-289.47	-577.93	5738170.87	566758.38
1440	45.44	241.68	1227.96	-1195.14	-291.16	-581.07	5738169.19	566755.25
1445	45.37	241.53	1231.47	-1198.65	-292.85	-584.2	5738167.49	566752.11
1450	45.14	241.49	1234.99	-1202.17	-294.54	-587.32	5738165.8	566748.99
1455	44.85	241.41	1238.53	-1205.71	-296.23	-590.42	5738164.11	566745.89
1460	44.86	241.19	1242.07	-1209.25	-297.93	-593.52	5738162.42	566742.79
1465	44.72	241.09	1245.62	-1212.8	-299.63	-596.6	5738160.71	566739.71
1470	44.47	241	1249.18	-1216.36	-301.33	-599.67	5738159.01	566736.64
1475	44.4	240.92	1252.75	-1219.93	-303.03	-602.73	5738157.32	566733.58
1480	44.26	240.84	1256.33	-1223.51	-304.73	-605.79	5738155.62	566730.53
1485	44.06	240.73	1259.92	-1227.1	-306.43	-608.83	5738153.92	566727.49
1490	43.8	240.57	1263.52	-1230.7	-308.13	-611.85	5738152.21	566724.46
1495	43.57	240.48	1267.13	-1234.32	-309.83	-614.86	5738150.52	566721.46
1500	43.46	240.45	1270.76	-1237.94	-311.52	-617.85	5738148.82	566718.46
1505	43.37	240.36	1274.39	-1241.57	-313.22	-620.84	5738147.12	566715.47
1510	43.32	240.28	1278.03	-1245.21	-314.92	-623.82	5738145.42	566712.49
1515	43.21	240.17	1281.67	-1248.85	-316.62	-626.79	5738143.72	566709.52
1520	43.04	240.03	1285.32	-1252.5	-318.33	-629.76	5738142.02	566706.55
1525	42.85	239.97	1288.98	-1256.16	-320.03	-632.71	5738140.31	566703.6
1530	42.62	239.93	1292.65	-1259.83	-321.73	-635.64	5738138.61	566700.67
1535	42.38	239.89	1296.34	-1263.52	-323.42	-638.57	5738136.92	566697.74
1540	42.21	239.84	1300.04	-1267.22	-325.11	-641.48	5738135.23	566694.83
1545	42.06	239.7	1303.75	-1270.93	-326.8	-644.38	5738133.54	566691.94
1550	41.92	239.66	1307.46	-1274.64	-328.49	-647.26	5738131.85	566689.05
1555	41.73	239.56	1311.19	-1278.37	-330.18	-650.14	5738130.17	566686.17
1560	41.6	239.48	1314.92	-1282.1	-331.86	-653	5738128.48	566683.31
1565	41.51	239.49	1318.66	-1285.84	-333.55	-655.86	5738126.8	566680.45
1570	41.4	239.55	1322.41	-1289.59	-335.22	-658.71	5738125.12	566677.6
1575	41.28	239.52	1326.17	-1293.35	-336.9	-661.56	5738123.44	566674.75
1580	41.25	239.55	1329.92	-1297.1	-338.57	-664.4	5738121.77	566671.91
1585	41.25	239.56	1333.68	-1300.86	-340.24	-667.25	5738120.1	566669.07
1590	41.37	239.59	1337.44	-1304.62	-341.91	-670.09	5738118.43	566666.22
1595	41.55	239.68	1341.19	-1308.37	-343.59	-672.95	5738116.76	566663.36
1600	41.6	239.64	1344.93	-1312.11	-345.26	-675.81	5738115.08	566660.5
1605	41.47	239.55	1348.67	-1315.85	-346.94	-678.67	5738113.4	566657.64
1610	41.4	239.61	1352.42	-1319.6	-348.62	-681.52	5738111.73	566654.79
1615	41.6	239.92	1356.16	-1323.34	-350.28	-684.39	5738110.06	566651.92
1620	41.54	239.89	1359.9	-1327.08	-351.95	-687.26	5738108.4	566649.05
1625	41.51	239.93	1363.65	-1330.83	-353.61	-690.13	5738106.73	566646.19
1630	41.48	239.98	1367.39	-1334.57	-355.27	-692.99	5738105.08	566643.32
1635	41.5	240.08	1371.14	-1338.32	-356.92	-695.86	5738103.42	566640.45
1640	41.6	240.2	1374.88	-1342.06	-358.57	-698.74	5738101.77	566637.57
1645	41.6	240.27	1378.62	-1345.8	-360.22	-701.62	5738100.12	566634.69
1650	41.62	240.22	1382.36	-1349.54	-361.87	-704.5	5738098.47	566631.81
1655	41.72	240.24	1386.09	-1353.27	-363.52	-707.39	5738096.82	566628.92
1660	41.73	240.3	1389.82	-1357	-365.17	-710.28	5738095.17	566626.03
1665	41.7	240.37	1393.55	-1360.73	-366.82	-713.17	5738093.53	566623.14
1670	41.7	240.51	1397.29	-1364.47	-368.46	-716.06	5738091.88	566620.25
1675	41.71	240.6	1401.02	-1368.2	-370.09	-718.96	5738090.25	566617.35

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1680	41.63	240.66	1404.76	-1371.94	-371.72	-721.86	5738088.62	566614.46
1685	41.62	240.75	1408.49	-1375.67	-373.35	-724.75	5738086.99	566611.56
1690	41.64	240.82	1412.23	-1379.41	-374.97	-727.65	5738085.37	566608.66
1695	41.6	240.92	1415.97	-1383.15	-376.59	-730.55	5738083.76	566605.76
1700	41.53	240.98	1419.71	-1386.89	-378.2	-733.45	5738082.15	566602.86
1705	41.49	240.98	1423.45	-1390.63	-379.81	-736.35	5738080.54	566599.96
1710	41.56	241.06	1427.2	-1394.38	-381.41	-739.25	5738078.93	566597.06
1715	41.75	240.98	1430.93	-1398.11	-383.02	-742.16	5738077.32	566594.15
1720	41.93	240.79	1434.66	-1401.84	-384.64	-745.07	5738075.7	566591.24
1725	41.85	240.69	1438.38	-1405.56	-386.28	-747.98	5738074.07	566588.33
1730	41.65	240.72	1442.11	-1409.29	-387.9	-750.89	5738072.44	566585.42
1735	41.66	240.77	1445.85	-1413.03	-389.53	-753.79	5738070.81	566582.52
1740	41.78	240.89	1449.58	-1416.76	-391.15	-756.69	5738069.19	566579.62
1745	41.77	240.92	1453.31	-1420.49	-392.77	-759.6	5738067.57	566576.71
1750	41.47	240.95	1457.04	-1424.22	-394.38	-762.51	5738065.96	566573.81
1755	41.18	240.79	1460.8	-1427.98	-395.99	-765.39	5738064.35	566570.92
1760	41.66	241.16	1464.55	-1431.73	-397.6	-768.28	5738062.75	566568.03
1765	42.14	241.15	1468.27	-1435.45	-399.21	-771.21	5738061.14	566565.1
1770	42.18	241.06	1471.98	-1439.16	-400.83	-774.15	5738059.51	566562.17
1775	42.1	241.1	1475.68	-1442.86	-402.45	-777.08	5738057.89	566559.23
1780	42.04	240.89	1479.4	-1446.58	-404.07	-780.01	5738056.27	566556.3
1785	42.08	240.81	1483.11	-1450.29	-405.71	-782.94	5738054.64	566553.38
1790	42.01	240.89	1486.82	-1454	-407.34	-785.86	5738053.01	566550.45
1795	41.77	241.01	1490.54	-1457.72	-408.96	-788.78	5738051.38	566547.53
1800	41.64	241.06	1494.28	-1461.46	-410.57	-791.69	5738049.77	566544.62
1805	41.74	241.02	1498.01	-1465.19	-412.18	-794.6	5738048.16	566541.71
1810	41.9	241	1501.74	-1468.92	-413.8	-797.52	5738046.55	566538.8
1815	41.9	241.04	1505.46	-1472.64	-415.41	-800.44	5738044.93	566535.88
1820	41.81	241.1	1509.18	-1476.36	-417.03	-803.36	5738043.32	566532.96
1825	41.86	241.14	1512.91	-1480.09	-418.64	-806.28	5738041.7	566530.04
1830	41.93	241.13	1516.63	-1483.81	-420.25	-809.2	5738040.09	566527.11
1835	42.03	241.08	1520.35	-1487.53	-421.87	-812.13	5738038.48	566524.18
1840	41.93	241.08	1524.06	-1491.24	-423.48	-815.06	5738036.86	566521.26
1845	41.84	241.17	1527.79	-1494.97	-425.1	-817.98	5738035.25	566518.33
1850	41.91	241.16	1531.51	-1498.69	-426.7	-820.9	5738033.64	566515.41
1855	42.01	241.08	1535.23	-1502.41	-428.32	-823.83	5738032.02	566512.48
1860	41.98	241.09	1538.94	-1506.12	-429.94	-826.76	5738030.41	566509.55
1865	41.94	241.12	1542.66	-1509.84	-431.55	-829.69	5738028.79	566506.63
1870	41.93	241.13	1546.38	-1513.56	-433.17	-832.61	5738027.18	566503.7
1875	42.04	241.17	1550.1	-1517.28	-434.78	-835.54	5738025.56	566500.77
1880	41.92	241.21	1553.81	-1520.99	-436.39	-838.47	5738023.95	566497.84
1885	41.82	241.26	1557.54	-1524.72	-438	-841.4	5738022.34	566494.91
1890	41.99	241.24	1561.26	-1528.44	-439.6	-844.33	5738020.74	566491.99
1895	42.16	241.24	1564.97	-1532.15	-441.22	-847.26	5738019.13	566489.05
1900	41.97	241.2	1568.68	-1535.86	-442.83	-850.2	5738017.51	566486.11
1905	41.76	241.35	1572.4	-1539.58	-444.43	-853.12	5738015.91	566483.19
1910	41.84	241.37	1576.13	-1543.31	-446.03	-856.05	5738014.31	566480.26
1915	41.93	241.33	1579.85	-1547.03	-447.63	-858.98	5738012.71	566477.33
1920	41.88	241.25	1583.58	-1550.76	-449.24	-861.91	5738011.11	566474.4
1925	41.74	241.09	1587.3	-1554.48	-450.84	-864.83	5738009.5	566471.48
1930	41.71	241.11	1591.03	-1558.21	-452.45	-867.74	5738007.89	566468.57
1935	41.68	241.22	1594.77	-1561.95	-454.06	-870.65	5738006.29	566465.66
1940	41.53	241.18	1598.51	-1565.69	-455.65	-873.56	5738004.69	566462.75
1945	41.51	241.13	1602.25	-1569.43	-457.25	-876.47	5738003.09	566459.84
1950	41.55	241.08	1605.99	-1573.17	-458.86	-879.37	5738001.49	566456.94
1955	41.55	241.16	1609.73	-1576.91	-460.46	-882.27	5737999.89	566454.04
1960	41.57	241.14	1613.48	-1580.66	-462.06	-885.18	5737998.29	566451.13
1965	41.69	241.17	1617.21	-1584.39	-463.66	-888.09	5737996.68	566448.22

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1970	41.7	241.19	1620.95	-1588.13	-465.26	-891	5737995.08	566445.31
1975	41.72	241.18	1624.68	-1591.86	-466.87	-893.92	5737993.48	566442.39
1980	41.81	241.21	1628.41	-1595.59	-468.47	-896.84	5737991.87	566439.48
1985	41.86	241.25	1632.13	-1599.31	-470.08	-899.76	5737990.27	566436.55
1990	41.85	241.29	1635.86	-1603.04	-471.68	-902.68	5737988.66	566433.63
1995	41.78	241.36	1639.58	-1606.76	-473.28	-905.61	5737987.06	566430.7
2000	41.68	241.33	1643.32	-1610.5	-474.88	-908.53	5737985.47	566427.78
2005	41.66	241.31	1647.05	-1614.23	-476.47	-911.45	5737983.87	566424.86
2010	41.64	241.32	1650.79	-1617.97	-478.07	-914.36	5737982.28	566421.95
2015	41.67	241.35	1654.52	-1621.7	-479.66	-917.28	5737980.68	566419.03
2020	41.69	241.38	1658.26	-1625.44	-481.25	-920.2	5737979.09	566416.12
2025	41.73	241.39	1661.99	-1629.17	-482.85	-923.12	5737977.5	566413.19
2030	41.71	241.42	1665.72	-1632.9	-484.44	-926.04	5737975.9	566410.27
2035	41.63	241.44	1669.46	-1636.64	-486.03	-928.96	5737974.31	566407.35
2040	41.62	241.48	1673.19	-1640.37	-487.62	-931.87	5737972.73	566404.44
2045	41.63	241.5	1676.93	-1644.11	-489.2	-934.79	5737971.14	566401.52
2050	41.68	241.51	1680.67	-1647.85	-490.79	-937.71	5737969.56	566398.6
2055	41.78	241.66	1684.4	-1651.58	-492.37	-940.64	5737967.97	566395.67
2060	41.78	241.58	1688.13	-1655.31	-493.95	-943.57	5737966.39	566392.74
2065	41.75	241.6	1691.86	-1659.04	-495.54	-946.5	5737964.81	566389.81
2070	41.73	241.57	1695.59	-1662.77	-497.12	-949.43	5737963.22	566386.88
2075	41.71	241.6	1699.32	-1666.5	-498.71	-952.36	5737961.64	566383.96
2080	41.71	241.59	1703.05	-1670.23	-500.29	-955.28	5737960.06	566381.03
2085	41.73	241.62	1706.79	-1673.97	-501.87	-958.21	5737958.47	566378.1
2090	41.71	241.67	1710.52	-1677.7	-503.45	-961.14	5737956.89	566375.17
2095	41.69	241.69	1714.25	-1681.43	-505.03	-964.06	5737955.31	566372.25
2100	41.66	241.78	1717.99	-1685.17	-506.6	-966.99	5737953.74	566369.32
2105	41.66	241.81	1721.72	-1688.9	-508.17	-969.92	5737952.17	566366.39
2110	41.57	241.84	1725.46	-1692.64	-509.74	-972.85	5737950.6	566363.46
2115	41.46	241.83	1729.2	-1696.38	-511.31	-975.77	5737949.04	566360.54
2120	41.41	241.95	1732.95	-1700.13	-512.86	-978.69	5737947.48	566357.62
2125	41.36	242.04	1736.7	-1703.88	-514.42	-981.61	5737945.93	566354.7
2130	41.39	241.96	1740.45	-1707.63	-515.97	-984.53	5737944.37	566351.79
2135	41.42	242.02	1744.2	-1711.38	-517.52	-987.45	5737942.82	566348.87
2140	41.45	242.04	1747.95	-1715.13	-519.07	-990.37	5737941.27	566345.94
2145	41.48	242.03	1751.7	-1718.88	-520.63	-993.29	5737939.72	566343.02
2150	41.51	242.06	1755.45	-1722.63	-522.18	-996.22	5737938.16	566340.09
2155	41.5	242.1	1759.19	-1726.37	-523.73	-999.15	5737936.61	566337.17
2160	41.54	242.14	1762.93	-1730.11	-525.28	-1002.08	5737935.06	566334.24
2165	41.5	242.16	1766.68	-1733.86	-526.83	-1005.01	5737933.51	566331.31
2170	41.5	242.27	1770.42	-1737.6	-528.37	-1007.94	5737931.97	566328.37
2175	41.45	242.39	1774.17	-1741.35	-529.91	-1010.87	5737930.43	566325.44
2180	41.43	242.41	1777.92	-1745.1	-531.44	-1013.8	5737928.9	566322.51
2185	41.48	242.39	1781.66	-1748.84	-532.98	-1016.74	5737927.37	566319.57
2190	41.6	242.44	1785.41	-1752.59	-534.51	-1019.68	5737925.83	566316.64
2195	41.72	242.48	1789.14	-1756.32	-536.05	-1022.62	5737924.29	566313.69
2200	41.72	242.43	1792.87	-1760.05	-537.59	-1025.57	5737922.75	566310.74
2205	41.77	242.47	1796.6	-1763.78	-539.13	-1028.52	5737921.22	566307.79
2210	41.67	242.53	1800.34	-1767.52	-540.66	-1031.48	5737919.68	566304.84
2215	41.56	242.64	1804.07	-1771.25	-542.19	-1034.42	5737918.15	566301.89
2220	41.47	242.71	1807.82	-1775	-543.71	-1037.37	5737916.63	566298.94
2225	41.4	242.75	1811.57	-1778.75	-545.23	-1040.31	5737915.11	566296
2230	41.46	242.79	1815.32	-1782.5	-546.75	-1043.25	5737913.6	566293.06
2235	41.44	242.78	1819.06	-1786.24	-548.26	-1046.19	5737912.08	566290.12
2236	41.43	242.77	1819.81	-1786.99	-548.56	-1046.78	5737911.78	566289.53
2237	41.42	242.76	1820.56	-1787.74	-548.86	-1047.37	5737911.48	566288.94
2238	41.41	242.75	1821.31	-1788.49	-549.17	-1047.96	5737911.18	566288.35
2239	41.4	242.74	1822.06	-1789.24	-549.47	-1048.55	5737910.87	566287.76

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2240	41.39	242.73	1822.81	-1789.99	-549.77	-1049.13	5737910.57	566287.18
2241	41.37	242.73	1823.56	-1790.74	-550.08	-1049.72	5737910.27	566286.59
2242	41.35	242.72	1824.31	-1791.49	-550.38	-1050.31	5737909.96	566286
2243	41.33	242.71	1825.06	-1792.24	-550.68	-1050.9	5737909.66	566285.42
2244	41.31	242.7	1825.82	-1793	-550.98	-1051.48	5737909.36	566284.83
2245	41.29	242.69	1826.57	-1793.75	-551.29	-1052.07	5737909.06	566284.24
2246	41.28	242.68	1827.32	-1794.5	-551.59	-1052.65	5737908.75	566283.66
2247	41.27	242.67	1828.07	-1795.25	-551.89	-1053.24	5737908.45	566283.07
2248	41.26	242.66	1828.82	-1796	-552.2	-1053.83	5737908.15	566282.49
2249	41.25	242.65	1829.57	-1796.75	-552.5	-1054.41	5737907.84	566281.9
2250	41.24	242.64	1830.33	-1797.51	-552.8	-1055	5737907.54	566281.31
2251	41.23	242.62	1831.08	-1798.26	-553.11	-1055.58	5737907.24	566280.73
2252	41.22	242.61	1831.83	-1799.01	-553.41	-1056.17	5737906.93	566280.14
2253	41.21	242.6	1832.58	-1799.76	-553.71	-1056.75	5737906.63	566279.56
2254	41.2	242.59	1833.33	-1800.51	-554.01	-1057.34	5737906.33	566278.97
2255	41.19	242.58	1834.09	-1801.27	-554.32	-1057.92	5737906.03	566278.39
2256	41.29	242.42	1834.8	-1801.98	-554.69	-1058.51	5737905.65	566277.8
2257	41.39	242.25	1835.52	-1802.7	-555.07	-1059.1	5737905.28	566277.22
2258	41.49	242.09	1836.24	-1803.42	-555.44	-1059.68	5737904.9	566276.63
2259	41.59	241.93	1836.95	-1804.13	-555.82	-1060.27	5737904.53	566276.04
2260	41.69	241.76	1837.67	-1804.85	-556.19	-1060.85	5737904.15	566275.46
2261	41.79	241.6	1838.39	-1805.57	-556.57	-1061.44	5737903.78	566274.87
2262	41.89	241.44	1839.11	-1806.29	-556.94	-1062.02	5737903.4	566274.29
2263	41.99	241.27	1839.82	-1807	-557.32	-1062.61	5737903.03	566273.7
2264	42.1	241.11	1840.54	-1807.72	-557.69	-1063.2	5737902.65	566273.12
2265	42.2	240.95	1841.26	-1808.44	-558.07	-1063.78	5737902.28	566272.53
2266	42.3	240.78	1841.97	-1809.15	-558.44	-1064.37	5737901.9	566271.94
2267	42.4	240.62	1842.69	-1809.87	-558.82	-1064.95	5737901.52	566271.36
2268	42.5	240.46	1843.41	-1810.59	-559.19	-1065.54	5737901.15	566270.77
2269	42.6	240.29	1844.12	-1811.3	-559.57	-1066.12	5737900.77	566270.19
2270	42.7	240.13	1844.84	-1812.02	-559.94	-1066.71	5737900.4	566269.6
2271	42.8	239.97	1845.56	-1812.74	-560.32	-1067.3	5737900.02	566269.02
2272	42.9	239.8	1846.28	-1813.46	-560.69	-1067.88	5737899.65	566268.43
2273	43	239.64	1846.99	-1814.17	-561.07	-1068.47	5737899.27	566267.84
2274	43.1	239.48	1847.71	-1814.89	-561.44	-1069.05	5737898.9	566267.26
2275	43.2	239.31	1848.43	-1815.61	-561.82	-1069.64	5737898.52	566266.67
2276	43.3	239.15	1849.14	-1816.32	-562.19	-1070.22	5737898.15	566266.09
2277	43.4	238.99	1849.86	-1817.04	-562.57	-1070.81	5737897.77	566265.5
2278	43.5	238.82	1850.58	-1817.76	-562.94	-1071.4	5737897.4	566264.92
2279	43.6	238.66	1851.29	-1818.47	-563.32	-1071.98	5737897.02	566264.33
2280	43.7	238.5	1852.01	-1819.19	-563.69	-1072.57	5737896.65	566263.74
2281	43.81	238.33	1852.73	-1819.91	-564.07	-1073.15	5737896.27	566263.16
2282	43.91	238.17	1853.45	-1820.63	-564.44	-1073.74	5737895.9	566262.57
2283	44.01	238.01	1854.16	-1821.34	-564.82	-1074.32	5737895.52	566261.99
2284	44.11	237.84	1854.88	-1822.06	-565.19	-1074.91	5737895.15	566261.4
2285	44.21	237.68	1855.6	-1822.78	-565.57	-1075.5	5737894.77	566260.82
2286	44.31	237.52	1856.31	-1823.49	-565.95	-1076.08	5737894.4	566260.23
2287	44.41	237.35	1857.03	-1824.21	-566.32	-1076.67	5737894.02	566259.64
2288	44.51	237.19	1857.75	-1824.93	-566.7	-1077.25	5737893.65	566259.06
2289	44.61	237.03	1858.46	-1825.64	-567.07	-1077.84	5737893.27	566258.47
2290	44.71	236.86	1859.18	-1826.36	-567.45	-1078.42	5737892.9	566257.89
2291	44.81	236.7	1859.9	-1827.08	-567.82	-1079.01	5737892.52	566257.3
2292	44.91	236.54	1860.62	-1827.8	-568.2	-1079.6	5737892.15	566256.72
2293	45.01	236.37	1861.33	-1828.51	-568.57	-1080.18	5737891.77	566256.13
2294	45.11	236.21	1862.05	-1829.23	-568.95	-1080.77	5737891.4	566255.54
2295	45.21	236.05	1862.77	-1829.95	-569.32	-1081.35	5737891.02	566254.96
2296	45.31	235.88	1863.48	-1830.66	-569.7	-1081.94	5737890.65	566254.37
2297	45.41	235.72	1864.2	-1831.38	-570.07	-1082.52	5737890.27	566253.79

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2298	45.52	235.56	1864.92	-1832.1	-570.45	-1083.11	5737889.9	566253.2
2299	45.62	235.39	1865.63	-1832.81	-570.82	-1083.7	5737889.52	566252.62
2300	45.72	235.23	1866.35	-1833.53	-571.2	-1084.28	5737889.15	566252.03
2301	45.82	235.07	1867.07	-1834.25	-571.57	-1084.87	5737888.77	566251.44
2302	45.92	234.9	1867.79	-1834.97	-571.95	-1085.45	5737888.4	566250.86
2303	46.02	234.74	1868.5	-1835.68	-572.32	-1086.04	5737888.02	566250.27
2304	46.12	234.58	1869.22	-1836.4	-572.7	-1086.62	5737887.65	566249.69
2305	46.22	234.41	1869.94	-1837.12	-573.07	-1087.21	5737887.27	566249.1
2306	46.32	234.25	1870.65	-1837.83	-573.45	-1087.8	5737886.9	566248.52
2307	46.42	234.09	1871.37	-1838.55	-573.82	-1088.38	5737886.52	566247.93
2308	46.52	233.92	1872.09	-1839.27	-574.2	-1088.97	5737886.15	566247.34
2309	46.62	233.76	1872.8	-1839.98	-574.57	-1089.55	5737885.77	566246.76
2310	46.72	233.6	1873.52	-1840.7	-574.95	-1090.14	5737885.4	566246.17
2311	46.82	233.43	1874.24	-1841.42	-575.32	-1090.72	5737885.02	566245.59
2312	46.92	233.27	1874.96	-1842.14	-575.7	-1091.31	5737884.65	566245
2313	47.02	233.1	1875.67	-1842.85	-576.07	-1091.9	5737884.27	566244.42
2314	47.13	232.94	1876.39	-1843.57	-576.45	-1092.48	5737883.9	566243.83
2315	47.23	232.78	1877.11	-1844.29	-576.82	-1093.07	5737883.52	566243.24
2316	47.25	232.61	1877.81	-1844.99	-577.24	-1093.64	5737883.11	566242.67
2317	47.17	232.44	1878.5	-1845.68	-577.7	-1094.19	5737882.64	566242.12
2318	47.09	232.26	1879.2	-1846.38	-578.16	-1094.75	5737882.18	566241.56
2319	47.02	232.09	1879.89	-1847.07	-578.62	-1095.3	5737881.72	566241.01
2320	46.94	231.91	1880.58	-1847.76	-579.08	-1095.86	5737881.26	566240.46
2321	46.87	231.74	1881.27	-1848.45	-579.54	-1096.41	5737880.8	566239.9
2322	46.79	231.56	1881.97	-1849.15	-580.01	-1096.96	5737880.34	566239.35
2323	46.71	231.39	1882.66	-1849.84	-580.47	-1097.52	5737879.88	566238.79
2324	46.64	231.21	1883.35	-1850.53	-580.93	-1098.07	5737879.41	566238.24
2325	46.56	231.04	1884.04	-1851.22	-581.39	-1098.63	5737878.95	566237.68
2326	46.49	230.86	1884.74	-1851.92	-581.85	-1099.18	5737878.49	566237.13
2327	46.41	230.69	1885.43	-1852.61	-582.31	-1099.74	5737878.03	566236.57
2328	46.34	230.51	1886.12	-1853.3	-582.77	-1100.29	5737877.57	566236.02
2329	46.26	230.34	1886.81	-1853.99	-583.23	-1100.85	5737877.11	566235.47
2330	46.18	230.16	1887.51	-1854.69	-583.7	-1101.4	5737876.65	566234.91
2331	46.11	229.99	1888.2	-1855.38	-584.16	-1101.95	5737876.19	566234.36
2332	46.03	229.82	1888.89	-1856.07	-584.62	-1102.51	5737875.72	566233.8
2333	45.96	229.64	1889.58	-1856.76	-585.08	-1103.06	5737875.26	566233.25
2334	45.88	229.47	1890.28	-1857.46	-585.54	-1103.62	5737874.8	566232.69
2335	45.81	229.29	1890.97	-1858.15	-586	-1104.17	5737874.34	566232.14
2336	45.73	229.12	1891.66	-1858.84	-586.46	-1104.73	5737873.88	566231.59
2337	45.65	228.94	1892.35	-1859.53	-586.93	-1105.28	5737873.42	566231.03
2338	45.58	228.77	1893.04	-1860.22	-587.39	-1105.84	5737872.96	566230.48
2339	45.5	228.59	1893.74	-1860.92	-587.85	-1106.39	5737872.5	566229.92
2340	45.43	228.42	1894.43	-1861.61	-588.31	-1106.94	5737872.03	566229.37
2341	45.35	228.24	1895.12	-1862.3	-588.77	-1107.5	5737871.57	566228.81
2342	45.27	228.07	1895.81	-1862.99	-589.23	-1108.05	5737871.11	566228.26
2343	45.2	227.89	1896.51	-1863.69	-589.69	-1108.61	5737870.65	566227.7
2344	45.12	227.72	1897.2	-1864.38	-590.15	-1109.16	5737870.19	566227.15
2345	45.09	227.63	1897.91	-1865.09	-590.63	-1109.68	5737869.71	566226.63
2346	45.06	227.56	1898.62	-1865.8	-591.12	-1110.19	5737869.23	566226.12
2347	45.03	227.49	1899.33	-1866.51	-591.6	-1110.7	5737868.74	566225.61
2348	45	227.41	1900.04	-1867.22	-592.08	-1111.21	5737868.26	566225.1
2349	44.98	227.34	1900.75	-1867.93	-592.57	-1111.73	5737867.78	566224.59
2350	44.95	227.27	1901.46	-1868.64	-593.05	-1112.24	5737867.29	566224.08
2351	44.92	227.2	1902.17	-1869.35	-593.53	-1112.75	5737866.81	566223.56
2352	44.89	227.13	1902.88	-1870.06	-594.01	-1113.26	5737866.33	566223.05
2353	44.87	227.06	1903.59	-1870.77	-594.5	-1113.77	5737865.85	566222.54
2354	44.84	226.98	1904.3	-1871.48	-594.98	-1114.28	5737865.36	566222.03
2355	44.81	226.91	1905.02	-1872.2	-595.46	-1114.79	5737864.88	566221.52

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2356	44.78	226.84	1905.73	-1872.91	-595.95	-1115.3	5737864.4	566221.01
2357	44.76	226.77	1906.44	-1873.62	-596.43	-1115.81	5737863.91	566220.5
2358	44.73	226.7	1907.15	-1874.33	-596.91	-1116.33	5737863.43	566219.99
2359	44.7	226.62	1907.86	-1875.04	-597.4	-1116.84	5737862.95	566219.47
2360	44.67	226.55	1908.57	-1875.75	-597.88	-1117.35	5737862.46	566218.96
2361	44.65	226.48	1909.28	-1876.46	-598.36	-1117.86	5737861.98	566218.45
2362	44.62	226.41	1909.99	-1877.17	-598.84	-1118.37	5737861.5	566217.94
2363	44.59	226.34	1910.7	-1877.88	-599.33	-1118.88	5737861.02	566217.43
2364	44.56	226.27	1911.41	-1878.59	-599.81	-1119.39	5737860.53	566216.92
2365	44.54	226.19	1912.12	-1879.3	-600.29	-1119.9	5737860.05	566216.41
2366	44.51	226.12	1912.83	-1880.01	-600.78	-1120.42	5737859.57	566215.9
2367	44.48	226.05	1913.55	-1880.73	-601.26	-1120.93	5737859.08	566215.38
2368	44.45	225.98	1914.26	-1881.44	-601.74	-1121.44	5737858.6	566214.87
2369	44.43	225.91	1914.97	-1882.15	-602.22	-1121.95	5737858.12	566214.36
2370	44.4	225.83	1915.68	-1882.86	-602.71	-1122.46	5737857.64	566213.85
2371	44.37	225.76	1916.39	-1883.57	-603.19	-1122.97	5737857.15	566213.34
2372	44.34	225.69	1917.1	-1884.28	-603.67	-1123.48	5737856.67	566212.83
2373	44.32	225.62	1917.81	-1884.99	-604.16	-1123.99	5737856.19	566212.32
2374	44.29	225.55	1918.52	-1885.7	-604.64	-1124.5	5737855.7	566211.81
2375	44.31	225.53	1919.23	-1886.41	-605.13	-1125	5737855.21	566211.31
2376	44.32	225.51	1919.95	-1887.13	-605.63	-1125.5	5737854.72	566210.81
2377	44.34	225.49	1920.66	-1887.84	-606.12	-1126	5737854.22	566210.31
2378	44.35	225.47	1921.37	-1888.55	-606.61	-1126.5	5737853.73	566209.82
2379	44.37	225.45	1922.09	-1889.27	-607.11	-1126.99	5737853.24	566209.32
2380	44.38	225.43	1922.8	-1889.98	-607.6	-1127.49	5737852.74	566208.82
2381	44.4	225.41	1923.51	-1890.69	-608.1	-1127.99	5737852.25	566208.32
2382	44.42	225.39	1924.23	-1891.41	-608.59	-1128.49	5737851.75	566207.82
2383	44.43	225.37	1924.94	-1892.12	-609.08	-1128.99	5737851.26	566207.33
2384	44.45	225.34	1925.65	-1892.83	-609.58	-1129.48	5737850.77	566206.83
2385	44.46	225.32	1926.37	-1893.55	-610.07	-1129.98	5737850.27	566206.33
2386	44.48	225.3	1927.08	-1894.26	-610.56	-1130.48	5737849.78	566205.83
2387	44.49	225.28	1927.79	-1894.97	-611.06	-1130.98	5737849.29	566205.33
2388	44.51	225.26	1928.5	-1895.68	-611.55	-1131.48	5737848.79	566204.84
2389	44.52	225.24	1929.22	-1896.4	-612.04	-1131.97	5737848.3	566204.34
2390	44.54	225.22	1929.93	-1897.11	-612.54	-1132.47	5737847.81	566203.84
2391	44.56	225.2	1930.64	-1897.82	-613.03	-1132.97	5737847.31	566203.34
2392	44.57	225.18	1931.36	-1898.54	-613.52	-1133.47	5737846.82	566202.84
2393	44.59	225.16	1932.07	-1899.25	-614.02	-1133.97	5737846.33	566202.35
2394	44.6	225.14	1932.78	-1899.96	-614.51	-1134.46	5737845.83	566201.85
2395	44.62	225.12	1933.5	-1900.68	-615	-1134.96	5737845.34	566201.35
2396	44.63	225.1	1934.21	-1901.39	-615.5	-1135.46	5737844.84	566200.85
2397	44.65	225.08	1934.92	-1902.1	-615.99	-1135.96	5737844.35	566200.35
2398	44.66	225.06	1935.63	-1902.81	-616.49	-1136.46	5737843.86	566199.86
2399	44.68	225.04	1936.35	-1903.53	-616.98	-1136.95	5737843.36	566199.36
2400	44.7	225.02	1937.06	-1904.24	-617.47	-1137.45	5737842.87	566198.86
2401	44.71	225	1937.77	-1904.95	-617.97	-1137.95	5737842.38	566198.36
2402	44.73	224.98	1938.49	-1905.67	-618.46	-1138.45	5737841.88	566197.86
2403	44.75	224.95	1939.2	-1906.38	-618.96	-1138.94	5737841.39	566197.37
2404	44.78	224.9	1939.9	-1907.08	-619.46	-1139.44	5737840.88	566196.87
2405	44.81	224.85	1940.61	-1907.79	-619.97	-1139.93	5737840.37	566196.38
2406	44.84	224.79	1941.31	-1908.49	-620.48	-1140.43	5737839.86	566195.88
2407	44.88	224.74	1942.02	-1909.2	-620.99	-1140.92	5737839.35	566195.39
2408	44.91	224.69	1942.72	-1909.9	-621.5	-1141.42	5737838.84	566194.89
2409	44.94	224.64	1943.43	-1910.61	-622.01	-1141.91	5737838.34	566194.4
2410	44.97	224.59	1944.13	-1911.31	-622.52	-1142.41	5737837.83	566193.9
2411	45.01	224.53	1944.84	-1912.02	-623.03	-1142.9	5737837.32	566193.41
2412	45.04	224.48	1945.54	-1912.72	-623.53	-1143.4	5737836.81	566192.91
2413	45.07	224.43	1946.24	-1913.42	-624.04	-1143.89	5737836.3	566192.42

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2414	45.11	224.38	1946.95	-1914.13	-624.55	-1144.39	5737835.79	566191.92
2415	45.14	224.32	1947.65	-1914.83	-625.06	-1144.88	5737835.28	566191.43
2416	45.17	224.27	1948.36	-1915.54	-625.57	-1145.38	5737834.77	566190.94
2417	45.2	224.22	1949.06	-1916.24	-626.08	-1145.87	5737834.27	566190.44
2418	45.24	224.17	1949.77	-1916.95	-626.59	-1146.37	5737833.76	566189.95
2419	45.27	224.11	1950.47	-1917.65	-627.09	-1146.86	5737833.25	566189.45
2420	45.3	224.06	1951.18	-1918.36	-627.6	-1147.36	5737832.74	566188.96
2421	45.34	224.01	1951.88	-1919.06	-628.11	-1147.85	5737832.23	566188.46
2422	45.37	223.96	1952.58	-1919.76	-628.62	-1148.35	5737831.72	566187.97
2423	45.4	223.91	1953.29	-1920.47	-629.13	-1148.84	5737831.21	566187.47
2424	45.43	223.85	1953.99	-1921.17	-629.64	-1149.34	5737830.7	566186.98
2425	45.47	223.8	1954.7	-1921.88	-630.15	-1149.83	5737830.2	566186.48
2426	45.5	223.75	1955.4	-1922.58	-630.66	-1150.32	5737829.69	566185.99
2427	45.53	223.7	1956.11	-1923.29	-631.16	-1150.82	5737829.18	566185.49
2428	45.56	223.64	1956.81	-1923.99	-631.67	-1151.31	5737828.67	566185
2429	45.6	223.59	1957.52	-1924.7	-632.18	-1151.81	5737828.16	566184.5
2430	45.63	223.54	1958.22	-1925.4	-632.69	-1152.3	5737827.65	566184.01
2431	45.66	223.49	1958.93	-1926.11	-633.2	-1152.8	5737827.14	566183.51
2432	45.68	223.46	1959.63	-1926.81	-633.71	-1153.29	5737826.63	566183.02
2433	45.68	223.45	1960.33	-1927.51	-634.23	-1153.78	5737826.11	566182.53
2434	45.68	223.44	1961.03	-1928.21	-634.75	-1154.27	5737825.59	566182.04
2435	45.68	223.44	1961.72	-1928.9	-635.27	-1154.76	5737825.07	566181.55
2436	45.68	223.43	1962.42	-1929.6	-635.79	-1155.26	5737824.55	566181.06
2437	45.67	223.42	1963.12	-1930.3	-636.31	-1155.75	5737824.03	566180.56
2438	45.67	223.41	1963.82	-1931	-636.83	-1156.24	5737823.51	566180.07
2439	45.67	223.41	1964.52	-1931.7	-637.35	-1156.73	5737822.99	566179.58
2440	45.67	223.4	1965.22	-1932.4	-637.87	-1157.22	5737822.47	566179.09
2441	45.67	223.39	1965.92	-1933.1	-638.39	-1157.71	5737821.95	566178.6
2442	45.67	223.39	1966.62	-1933.8	-638.91	-1158.2	5737821.43	566178.11
2443	45.67	223.38	1967.31	-1934.49	-639.43	-1158.69	5737820.91	566177.62
2444	45.67	223.37	1968.01	-1935.19	-639.95	-1159.18	5737820.39	566177.13
2445	45.67	223.37	1968.71	-1935.89	-640.47	-1159.68	5737819.87	566176.64
2446	45.66	223.36	1969.41	-1936.59	-640.99	-1160.17	5737819.35	566176.15
2447	45.66	223.35	1970.11	-1937.29	-641.51	-1160.66	5737818.83	566175.65
2448	45.66	223.35	1970.81	-1937.99	-642.03	-1161.15	5737818.31	566175.16
2449	45.66	223.34	1971.51	-1938.69	-642.55	-1161.64	5737817.79	566174.67
2450	45.66	223.33	1972.21	-1939.39	-643.07	-1162.13	5737817.27	566174.18
2451	45.66	223.32	1972.91	-1940.09	-643.59	-1162.62	5737816.75	566173.69
2452	45.66	223.32	1973.6	-1940.78	-644.11	-1163.11	5737816.23	566173.2
2453	45.66	223.31	1974.3	-1941.48	-644.63	-1163.6	5737815.71	566172.71
2454	45.66	223.3	1975	-1942.18	-645.16	-1164.1	5737815.19	566172.22
2455	45.66	223.3	1975.7	-1942.88	-645.68	-1164.59	5737814.67	566171.73
2456	45.65	223.29	1976.4	-1943.58	-646.2	-1165.08	5737814.15	566171.23
2457	45.65	223.28	1977.1	-1944.28	-646.72	-1165.57	5737813.63	566170.74
2458	45.65	223.28	1977.8	-1944.98	-647.24	-1166.06	5737813.11	566170.25
2459	45.65	223.27	1978.5	-1945.68	-647.76	-1166.55	5737812.59	566169.76
2460	45.65	223.26	1979.2	-1946.38	-648.28	-1167.04	5737812.07	566169.27
2461	45.66	223.26	1979.89	-1947.07	-648.8	-1167.53	5737811.55	566168.78
2462	45.67	223.27	1980.59	-1947.77	-649.32	-1168.03	5737811.03	566168.29
2463	45.68	223.27	1981.29	-1948.47	-649.84	-1168.52	5737810.5	566167.79
2464	45.69	223.28	1981.98	-1949.16	-650.36	-1169.01	5737809.98	566167.3
2465	45.7	223.29	1982.68	-1949.86	-650.88	-1169.5	5737809.46	566166.81
2466	45.71	223.29	1983.38	-1950.56	-651.4	-1169.99	5737808.94	566166.32
2467	45.72	223.3	1984.08	-1951.26	-651.92	-1170.49	5737808.42	566165.83
2468	45.73	223.3	1984.77	-1951.95	-652.45	-1170.98	5737807.9	566165.33
2469	45.74	223.31	1985.47	-1952.65	-652.97	-1171.47	5737807.38	566164.84
2470	45.75	223.31	1986.17	-1953.35	-653.49	-1171.96	5737806.85	566164.35
2471	45.76	223.32	1986.87	-1954.05	-654.01	-1172.45	5737806.33	566163.86

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2472	45.77	223.33	1987.56	-1954.74	-654.53	-1172.95	5737805.81	566163.37
2473	45.78	223.33	1988.26	-1955.44	-655.05	-1173.44	5737805.29	566162.87
2474	45.79	223.34	1988.96	-1956.14	-655.57	-1173.93	5737804.77	566162.38
2475	45.8	223.34	1989.65	-1956.83	-656.1	-1174.42	5737804.25	566161.89
2476	45.81	223.35	1990.35	-1957.53	-656.62	-1174.91	5737803.73	566161.4
2477	45.82	223.35	1991.05	-1958.23	-657.14	-1175.41	5737803.21	566160.91
2478	45.83	223.36	1991.75	-1958.93	-657.66	-1175.9	5737802.68	566160.41
2479	45.84	223.36	1992.44	-1959.62	-658.18	-1176.39	5737802.16	566159.92
2480	45.85	223.37	1993.14	-1960.32	-658.7	-1176.88	5737801.64	566159.43
2481	45.86	223.38	1993.84	-1961.02	-659.22	-1177.37	5737801.12	566158.94
2482	45.87	223.38	1994.53	-1961.71	-659.74	-1177.87	5737800.6	566158.45
2483	45.88	223.39	1995.23	-1962.41	-660.27	-1178.36	5737800.08	566157.95
2484	45.89	223.39	1995.93	-1963.11	-660.79	-1178.85	5737799.56	566157.46
2485	45.9	223.4	1996.63	-1963.81	-661.31	-1179.34	5737799.03	566156.97
2486	45.91	223.4	1997.32	-1964.5	-661.83	-1179.83	5737798.51	566156.48
2487	45.92	223.41	1998.02	-1965.2	-662.35	-1180.33	5737797.99	566155.99
2488	45.93	223.41	1998.72	-1965.9	-662.87	-1180.82	5737797.47	566155.49
2489	45.94	223.42	1999.42	-1966.6	-663.39	-1181.31	5737796.95	566155
2490	45.94	223.43	2000.11	-1967.29	-663.91	-1181.8	5737796.43	566154.51
2491	45.94	223.44	2000.81	-1967.99	-664.44	-1182.3	5737795.91	566154.01
2492	45.94	223.45	2001.5	-1968.68	-664.96	-1182.79	5737795.39	566153.52
2493	45.94	223.46	2002.2	-1969.38	-665.48	-1183.29	5737794.87	566153.02
2494	45.94	223.47	2002.89	-1970.07	-666	-1183.79	5737794.35	566152.53
2495	45.94	223.48	2003.59	-1970.77	-666.52	-1184.28	5737793.83	566152.03
2496	45.94	223.49	2004.28	-1971.46	-667.04	-1184.78	5737793.3	566151.54
2497	45.94	223.5	2004.98	-1972.16	-667.56	-1185.27	5737792.78	566151.04
2498	45.94	223.51	2005.67	-1972.85	-668.08	-1185.77	5737792.26	566150.54
2499	45.94	223.52	2006.37	-1973.55	-668.6	-1186.26	5737791.74	566150.05
2500	45.94	223.53	2007.06	-1974.24	-669.12	-1186.76	5737791.22	566149.55
2501	45.94	223.54	2007.76	-1974.94	-669.64	-1187.25	5737790.7	566149.06
2502	45.94	223.55	2008.45	-1975.63	-670.16	-1187.75	5737790.18	566148.56
2503	45.94	223.57	2009.15	-1976.33	-670.68	-1188.24	5737789.66	566148.07
2504	45.95	223.58	2009.85	-1977.03	-671.2	-1188.74	5737789.14	566147.57
2505	45.95	223.59	2010.54	-1977.72	-671.73	-1189.23	5737788.62	566147.08
2506	45.95	223.6	2011.24	-1978.42	-672.25	-1189.73	5737788.1	566146.58
2507	45.95	223.61	2011.93	-1979.11	-672.77	-1190.23	5737787.58	566146.09
2508	45.95	223.62	2012.63	-1979.81	-673.29	-1190.72	5737787.06	566145.59
2509	45.95	223.63	2013.32	-1980.5	-673.81	-1191.22	5737786.54	566145.1
2510	45.95	223.64	2014.02	-1981.2	-674.33	-1191.71	5737786.01	566144.6
2511	45.95	223.65	2014.71	-1981.89	-674.85	-1192.21	5737785.49	566144.11
2512	45.95	223.66	2015.41	-1982.59	-675.37	-1192.7	5737784.97	566143.61
2513	45.95	223.67	2016.1	-1983.28	-675.89	-1193.2	5737784.45	566143.11
2514	45.95	223.68	2016.8	-1983.98	-676.41	-1193.69	5737783.93	566142.62
2515	45.95	223.69	2017.49	-1984.67	-676.93	-1194.19	5737783.41	566142.12
2516	45.95	223.7	2018.19	-1985.37	-677.45	-1194.68	5737782.89	566141.63
2517	45.95	223.71	2018.89	-1986.07	-677.97	-1195.18	5737782.37	566141.13
2518	45.95	223.72	2019.58	-1986.76	-678.49	-1195.67	5737781.85	566140.64
2519	45.95	223.71	2020.28	-1987.46	-679.01	-1196.17	5737781.33	566140.14
2520	45.95	223.71	2020.97	-1988.15	-679.53	-1196.67	5737780.81	566139.65
2521	45.95	223.7	2021.67	-1988.85	-680.06	-1197.16	5737780.29	566139.15
2522	45.95	223.69	2022.36	-1989.54	-680.58	-1197.66	5737779.77	566138.65
2523	45.95	223.69	2023.06	-1990.24	-681.1	-1198.15	5737779.25	566138.16
2524	45.95	223.68	2023.75	-1990.93	-681.62	-1198.65	5737778.73	566137.66
2525	45.95	223.67	2024.45	-1991.63	-682.14	-1199.15	5737778.21	566137.17
2526	45.95	223.67	2025.14	-1992.32	-682.66	-1199.64	5737777.69	566136.67
2527	45.95	223.66	2025.84	-1993.02	-683.18	-1200.14	5737777.17	566136.17
2528	45.95	223.65	2026.53	-1993.71	-683.7	-1200.63	5737776.65	566135.68
2529	45.95	223.65	2027.23	-1994.41	-684.22	-1201.13	5737776.13	566135.18

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2530	45.95	223.64	2027.92	-1995.1	-684.74	-1201.62	5737775.6	566134.69
2531	45.95	223.63	2028.62	-1995.8	-685.26	-1202.12	5737775.08	566134.19
2532	45.95	223.63	2029.31	-1996.49	-685.78	-1202.62	5737774.56	566133.7
2533	45.96	223.62	2030.01	-1997.19	-686.3	-1203.11	5737774.04	566133.2
2534	45.96	223.61	2030.7	-1997.88	-686.82	-1203.61	5737773.52	566132.7
2535	45.96	223.61	2031.4	-1998.58	-687.34	-1204.1	5737773	566132.21
2536	45.96	223.6	2032.09	-1999.27	-687.86	-1204.6	5737772.48	566131.71
2537	45.96	223.59	2032.79	-1999.97	-688.38	-1205.1	5737771.96	566131.22
2538	45.96	223.59	2033.48	-2000.66	-688.9	-1205.59	5737771.44	566130.72
2539	45.96	223.58	2034.18	-2001.36	-689.42	-1206.09	5737770.92	566130.22
2540	45.96	223.57	2034.88	-2002.06	-689.94	-1206.58	5737770.4	566129.73
2541	45.96	223.57	2035.57	-2002.75	-690.46	-1207.08	5737769.88	566129.23
2542	45.96	223.56	2036.27	-2003.45	-690.98	-1207.58	5737769.36	566128.74
2543	45.96	223.55	2036.96	-2004.14	-691.5	-1208.07	5737768.84	566128.24
2544	45.96	223.55	2037.66	-2004.84	-692.02	-1208.57	5737768.32	566127.74
2545	45.96	223.54	2038.35	-2005.53	-692.54	-1209.06	5737767.8	566127.25
2546	45.96	223.53	2039.05	-2006.23	-693.06	-1209.56	5737767.28	566126.75
2547	45.96	223.52	2039.74	-2006.92	-693.58	-1210.05	5737766.76	566126.26
2548	45.94	223.51	2040.44	-2007.62	-694.11	-1210.55	5737766.24	566125.77
2549	45.93	223.5	2041.14	-2008.32	-694.63	-1211.04	5737765.72	566125.27
2550	45.92	223.49	2041.83	-2009.01	-695.15	-1211.53	5737765.19	566124.78
2551	45.91	223.48	2042.53	-2009.71	-695.67	-1212.02	5737764.67	566124.29
2552	45.9	223.47	2043.23	-2010.41	-696.19	-1212.52	5737764.15	566123.8
2553	45.89	223.45	2043.92	-2011.1	-696.71	-1213.01	5737763.63	566123.3
2554	45.88	223.44	2044.62	-2011.8	-697.23	-1213.5	5737763.11	566122.81
2555	45.87	223.43	2045.32	-2012.5	-697.75	-1213.99	5737762.59	566122.32
2556	45.86	223.42	2046.02	-2013.2	-698.28	-1214.49	5737762.07	566121.83
2557	45.85	223.41	2046.71	-2013.89	-698.8	-1214.98	5737761.55	566121.33
2558	45.84	223.4	2047.41	-2014.59	-699.32	-1215.47	5737761.02	566120.84
2559	45.83	223.39	2048.11	-2015.29	-699.84	-1215.96	5737760.5	566120.35
2560	45.82	223.37	2048.8	-2015.98	-700.36	-1216.45	5737759.98	566119.86
2561	45.81	223.36	2049.5	-2016.68	-700.88	-1216.95	5737759.46	566119.36
2562	45.8	223.35	2050.2	-2017.38	-701.4	-1217.44	5737758.94	566118.87
2563	45.79	223.34	2050.89	-2018.07	-701.93	-1217.93	5737758.42	566118.38
2564	45.78	223.33	2051.59	-2018.77	-702.45	-1218.42	5737757.9	566117.89
2565	45.77	223.32	2052.29	-2019.47	-702.97	-1218.92	5737757.38	566117.4
2566	45.76	223.3	2052.99	-2020.17	-703.49	-1219.41	5737756.85	566116.9
2567	45.75	223.29	2053.68	-2020.86	-704.01	-1219.9	5737756.33	566116.41
2568	45.74	223.28	2054.38	-2021.56	-704.53	-1220.39	5737755.81	566115.92
2569	45.73	223.27	2055.08	-2022.26	-705.05	-1220.89	5737755.29	566115.43
2570	45.72	223.26	2055.77	-2022.95	-705.57	-1221.38	5737754.77	566114.93
2571	45.71	223.25	2056.47	-2023.65	-706.1	-1221.87	5737754.25	566114.44
2572	45.7	223.23	2057.17	-2024.35	-706.62	-1222.36	5737753.73	566113.95
2573	45.69	223.22	2057.86	-2025.04	-707.14	-1222.86	5737753.2	566113.46
2574	45.68	223.21	2058.56	-2025.74	-707.66	-1223.35	5737752.68	566112.96
2575	45.67	223.2	2059.26	-2026.44	-708.18	-1223.84	5737752.16	566112.47
2576	45.67	223.18	2059.96	-2027.14	-708.7	-1224.33	5737751.64	566111.98
2577	45.66	223.16	2060.66	-2027.84	-709.23	-1224.81	5737751.12	566111.5
2578	45.66	223.14	2061.36	-2028.54	-709.75	-1225.3	5737750.59	566111.01
2579	45.66	223.12	2062.06	-2029.24	-710.27	-1225.79	5737750.07	566110.52
2580	45.66	223.1	2062.75	-2029.93	-710.8	-1226.27	5737749.54	566110.04
2581	45.65	223.08	2063.45	-2030.63	-711.32	-1226.76	5737749.02	566109.55
2582	45.65	223.07	2064.15	-2031.33	-711.84	-1227.25	5737748.5	566109.06
2583	45.65	223.05	2064.85	-2032.03	-712.37	-1227.74	5737747.97	566108.58
2584	45.64	223.03	2065.55	-2032.73	-712.89	-1228.22	5737747.45	566108.09
2585	45.64	223.01	2066.25	-2033.43	-713.42	-1228.71	5737746.93	566107.6
2586	45.64	222.99	2066.95	-2034.13	-713.94	-1229.2	5737746.4	566107.12
2587	45.64	222.97	2067.65	-2034.83	-714.46	-1229.68	5737745.88	566106.63

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2588	45.63	222.95	2068.35	-2035.53	-714.99	-1230.17	5737745.36	566106.14
2589	45.63	222.93	2069.05	-2036.23	-715.51	-1230.66	5737744.83	566105.66
2590	45.63	222.91	2069.75	-2036.93	-716.03	-1231.14	5737744.31	566105.17
2591	45.63	222.89	2070.45	-2037.63	-716.56	-1231.63	5737743.79	566104.68
2592	45.62	222.87	2071.15	-2038.33	-717.08	-1232.12	5737743.26	566104.19
2593	45.62	222.85	2071.85	-2039.03	-717.6	-1232.6	5737742.74	566103.71
2594	45.62	222.83	2072.54	-2039.72	-718.13	-1233.09	5737742.22	566103.22
2595	45.61	222.81	2073.24	-2040.42	-718.65	-1233.58	5737741.69	566102.73
2596	45.61	222.79	2073.94	-2041.12	-719.17	-1234.06	5737741.17	566102.25
2597	45.61	222.78	2074.64	-2041.82	-719.7	-1234.55	5737740.65	566101.76
2598	45.61	222.76	2075.34	-2042.52	-720.22	-1235.04	5737740.12	566101.27
2599	45.6	222.74	2076.04	-2043.22	-720.74	-1235.52	5737739.6	566100.79
2600	45.6	222.72	2076.74	-2043.92	-721.27	-1236.01	5737739.08	566100.3
2601	45.6	222.7	2077.44	-2044.62	-721.79	-1236.5	5737738.55	566099.81
2602	45.59	222.68	2078.14	-2045.32	-722.31	-1236.99	5737738.03	566099.33
2603	45.59	222.66	2078.84	-2046.02	-722.84	-1237.47	5737737.51	566098.84
2604	45.59	222.66	2079.54	-2046.72	-723.36	-1237.96	5737736.98	566098.35
2605	45.6	222.67	2080.24	-2047.42	-723.88	-1238.45	5737736.46	566097.87
2606	45.61	222.69	2080.93	-2048.11	-724.41	-1238.93	5737735.93	566097.38
2607	45.61	222.71	2081.63	-2048.81	-724.93	-1239.42	5737735.41	566096.89
2608	45.62	222.72	2082.33	-2049.51	-725.46	-1239.91	5737734.89	566096.41
2609	45.62	222.74	2083.03	-2050.21	-725.98	-1240.39	5737734.36	566095.92
2610	45.63	222.76	2083.73	-2050.91	-726.51	-1240.88	5737733.84	566095.43
2611	45.64	222.77	2084.43	-2051.61	-727.03	-1241.37	5737733.31	566094.95
2612	45.64	222.79	2085.13	-2052.31	-727.55	-1241.85	5737732.79	566094.46
2613	45.65	222.81	2085.83	-2053.01	-728.08	-1242.34	5737732.26	566093.97
2614	45.65	222.82	2086.52	-2053.7	-728.6	-1242.83	5737731.74	566093.48
2615	45.66	222.84	2087.22	-2054.4	-729.13	-1243.31	5737731.22	566093
2616	45.67	222.85	2087.92	-2055.1	-729.65	-1243.8	5737730.69	566092.51
2617	45.67	222.87	2088.62	-2055.8	-730.18	-1244.29	5737730.17	566092.02
2618	45.68	222.89	2089.32	-2056.5	-730.7	-1244.77	5737729.64	566091.54
2619	45.68	222.9	2090.02	-2057.2	-731.22	-1245.26	5737729.12	566091.05
2620	45.69	222.92	2090.72	-2057.9	-731.75	-1245.75	5737728.6	566090.56
2621	45.7	222.94	2091.42	-2058.6	-732.27	-1246.23	5737728.07	566090.08
2622	45.7	222.95	2092.11	-2059.29	-732.8	-1246.72	5737727.55	566089.59
2623	45.71	222.97	2092.81	-2059.99	-733.32	-1247.21	5737727.02	566089.1
2624	45.71	222.99	2093.51	-2060.69	-733.84	-1247.69	5737726.5	566088.62
2625	45.72	223	2094.21	-2061.39	-734.37	-1248.18	5737725.97	566088.13
2626	45.73	223.02	2094.91	-2062.09	-734.89	-1248.67	5737725.45	566087.64
2627	45.73	223.03	2095.61	-2062.79	-735.42	-1249.16	5737724.93	566087.16
2628	45.74	223.05	2096.31	-2063.49	-735.94	-1249.64	5737724.4	566086.67
2629	45.74	223.07	2097.01	-2064.19	-736.47	-1250.13	5737723.88	566086.18
2630	45.75	223.08	2097.7	-2064.88	-736.99	-1250.62	5737723.35	566085.7
2631	45.76	223.1	2098.4	-2065.58	-737.51	-1251.1	5737722.83	566085.21
2632	45.76	223.11	2099.1	-2066.28	-738.04	-1251.59	5737722.3	566084.72
2633	45.77	223.1	2099.8	-2066.98	-738.56	-1252.08	5737721.78	566084.23
2634	45.78	223.1	2100.49	-2067.67	-739.09	-1252.57	5737721.26	566083.74
2635	45.79	223.09	2101.19	-2068.37	-739.61	-1253.06	5737720.73	566083.25
2636	45.8	223.09	2101.88	-2069.06	-740.14	-1253.55	5737720.21	566082.76
2637	45.81	223.09	2102.58	-2069.76	-740.66	-1254.04	5737719.68	566082.27
2638	45.82	223.08	2103.28	-2070.46	-741.19	-1254.53	5737719.16	566081.78
2639	45.83	223.08	2103.97	-2071.15	-741.71	-1255.02	5737718.63	566081.29
2640	45.84	223.07	2104.67	-2071.85	-742.24	-1255.51	5737718.11	566080.8
2641	45.85	223.07	2105.36	-2072.54	-742.76	-1256	5737717.58	566080.31
2642	45.86	223.06	2106.06	-2073.24	-743.29	-1256.49	5737717.06	566079.82
2643	45.87	223.06	2106.76	-2073.94	-743.81	-1256.98	5737716.53	566079.33
2644	45.88	223.05	2107.45	-2074.63	-744.34	-1257.47	5737716.01	566078.84
2645	45.89	223.05	2108.15	-2075.33	-744.86	-1257.96	5737715.48	566078.35

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2646	45.9	223.04	2108.84	-2076.02	-745.39	-1258.45	5737714.96	566077.86
2647	45.9	223.04	2109.54	-2076.72	-745.91	-1258.94	5737714.43	566077.37
2648	45.91	223.04	2110.24	-2077.42	-746.43	-1259.43	5737713.91	566076.88
2649	45.92	223.03	2110.93	-2078.11	-746.96	-1259.92	5737713.38	566076.39
2650	45.93	223.03	2111.63	-2078.81	-747.48	-1260.41	5737712.86	566075.9
2651	45.94	223.02	2112.32	-2079.5	-748.01	-1260.9	5737712.33	566075.41
2652	45.95	223.02	2113.02	-2080.2	-748.53	-1261.39	5737711.81	566074.92
2653	45.96	223.01	2113.72	-2080.9	-749.06	-1261.88	5737711.28	566074.43
2654	45.97	223.01	2114.41	-2081.59	-749.58	-1262.37	5737710.76	566073.94
2655	45.98	223	2115.11	-2082.29	-750.11	-1262.86	5737710.23	566073.45
2656	45.99	223	2115.8	-2082.98	-750.63	-1263.35	5737709.71	566072.96
2657	46	223	2116.5	-2083.68	-751.16	-1263.84	5737709.19	566072.47
2658	46.01	222.99	2117.2	-2084.38	-751.68	-1264.33	5737708.66	566071.98
2659	46.02	222.99	2117.89	-2085.07	-752.21	-1264.82	5737708.14	566071.49
2660	46.03	222.98	2118.59	-2085.77	-752.73	-1265.31	5737707.61	566071
2661	46	223.04	2119.29	-2086.47	-753.25	-1265.81	5737707.1	566070.5
2662	45.96	223.14	2119.99	-2087.17	-753.76	-1266.31	5737706.59	566070
2663	45.92	223.23	2120.69	-2087.87	-754.27	-1266.8	5737706.08	566069.51
2664	45.88	223.32	2121.39	-2088.57	-754.78	-1267.3	5737705.57	566069.01
2665	45.84	223.42	2122.09	-2089.27	-755.29	-1267.8	5737705.06	566068.51
2666	45.8	223.51	2122.8	-2089.98	-755.8	-1268.3	5737704.55	566068.01
2667	45.76	223.6	2123.5	-2090.68	-756.31	-1268.79	5737704.04	566067.52
2668	45.72	223.7	2124.2	-2091.38	-756.82	-1269.29	5737703.53	566067.02
2669	45.68	223.79	2124.9	-2092.08	-757.33	-1269.79	5737703.02	566066.52
2670	45.64	223.88	2125.6	-2092.78	-757.84	-1270.29	5737702.5	566066.02
2671	45.6	223.97	2126.3	-2093.48	-758.35	-1270.79	5737701.99	566065.53
2672	45.56	224.07	2127	-2094.18	-758.86	-1271.28	5737701.48	566065.03
2673	45.52	224.16	2127.71	-2094.89	-759.37	-1271.78	5737700.97	566064.53
2674	45.48	224.25	2128.41	-2095.59	-759.88	-1272.28	5737700.46	566064.03
2675	45.44	224.35	2129.11	-2096.29	-760.39	-1272.78	5737699.95	566063.54
2676	45.4	224.44	2129.81	-2096.99	-760.9	-1273.27	5737699.44	566063.04
2677	45.36	224.53	2130.51	-2097.69	-761.41	-1273.77	5737698.93	566062.54
2678	45.32	224.63	2131.21	-2098.39	-761.92	-1274.27	5737698.42	566062.04
2679	45.28	224.72	2131.91	-2099.09	-762.43	-1274.77	5737697.91	566061.55
2680	45.24	224.81	2132.62	-2099.8	-762.94	-1275.26	5737697.4	566061.05
2681	45.2	224.9	2133.32	-2100.5	-763.45	-1275.76	5737696.89	566060.55
2682	45.16	225	2134.02	-2101.2	-763.96	-1276.26	5737696.38	566060.05
2683	45.12	225.09	2134.72	-2101.9	-764.47	-1276.76	5737695.87	566059.56
2684	45.08	225.18	2135.42	-2102.6	-764.98	-1277.25	5737695.36	566059.06
2685	45.04	225.28	2136.12	-2103.3	-765.49	-1277.75	5737694.85	566058.56
2686	45	225.37	2136.82	-2104	-766	-1278.25	5737694.34	566058.06
2687	44.96	225.46	2137.53	-2104.71	-766.51	-1278.75	5737693.83	566057.56
2688	44.92	225.55	2138.23	-2105.41	-767.02	-1279.24	5737693.32	566057.07
2689	44.87	225.63	2138.93	-2106.11	-767.52	-1279.74	5737692.82	566056.57
2690	44.81	225.68	2139.65	-2106.83	-768	-1280.25	5737692.34	566056.07
2691	44.74	225.73	2140.37	-2107.55	-768.48	-1280.75	5737691.86	566055.56
2692	44.68	225.78	2141.09	-2108.27	-768.96	-1281.25	5737691.38	566055.06
2693	44.61	225.83	2141.81	-2108.99	-769.44	-1281.75	5737690.9	566054.56
2694	44.55	225.88	2142.53	-2109.71	-769.92	-1282.25	5737690.42	566054.06
2695	44.49	225.93	2143.25	-2110.43	-770.4	-1282.76	5737689.94	566053.56
2696	44.42	225.98	2143.97	-2111.15	-770.88	-1283.26	5737689.46	566053.05
2697	44.36	226.02	2144.69	-2111.87	-771.36	-1283.76	5737688.98	566052.55
2698	44.29	226.07	2145.41	-2112.59	-771.84	-1284.26	5737688.5	566052.05
2699	44.23	226.12	2146.13	-2113.31	-772.32	-1284.76	5737688.02	566051.55
2700	44.17	226.17	2146.85	-2114.03	-772.8	-1285.27	5737687.55	566051.05
2701	44.1	226.22	2147.57	-2114.75	-773.28	-1285.77	5737687.07	566050.54
2702	44.04	226.27	2148.29	-2115.47	-773.76	-1286.27	5737686.59	566050.04
2703	43.97	226.32	2149.01	-2116.19	-774.24	-1286.77	5737686.11	566049.54

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2704	43.91	226.36	2149.73	-2116.91	-774.72	-1287.27	5737685.63	566049.04
2705	43.85	226.41	2150.45	-2117.63	-775.2	-1287.78	5737685.15	566048.54
2706	43.78	226.46	2151.17	-2118.35	-775.68	-1288.28	5737684.67	566048.03
2707	43.72	226.51	2151.89	-2119.07	-776.16	-1288.78	5737684.19	566047.53
2708	43.65	226.56	2152.61	-2119.79	-776.63	-1289.28	5737683.71	566047.03
2709	43.59	226.61	2153.33	-2120.51	-777.11	-1289.78	5737683.23	566046.53
2710	43.53	226.66	2154.05	-2121.23	-777.59	-1290.29	5737682.75	566046.03
2711	43.46	226.71	2154.77	-2121.95	-778.07	-1290.79	5737682.27	566045.52
2712	43.4	226.75	2155.49	-2122.67	-778.55	-1291.29	5737681.79	566045.02
2713	43.33	226.8	2156.21	-2123.39	-779.03	-1291.79	5737681.31	566044.52
2714	43.27	226.85	2156.92	-2124.1	-779.51	-1292.29	5737680.83	566044.02
2715	43.2	226.9	2157.64	-2124.82	-779.99	-1292.79	5737680.35	566043.52
2716	43.14	226.95	2158.36	-2125.54	-780.47	-1293.3	5737679.87	566043.01
2717	43.08	227	2159.08	-2126.26	-780.95	-1293.8	5737679.39	566042.51
2718	43.03	227.04	2159.82	-2127	-781.41	-1294.3	5737678.93	566042.01
2719	42.99	227.08	2160.55	-2127.73	-781.87	-1294.8	5737678.47	566041.52
2720	42.95	227.11	2161.29	-2128.47	-782.32	-1295.29	5737678.02	566041.02
2721	42.91	227.15	2162.03	-2129.21	-782.78	-1295.79	5737677.56	566040.52
2722	42.87	227.19	2162.77	-2129.95	-783.24	-1296.29	5737677.11	566040.02
2723	42.83	227.23	2163.51	-2130.69	-783.69	-1296.79	5737676.65	566039.52
2724	42.79	227.26	2164.24	-2131.42	-784.15	-1297.29	5737676.2	566039.02
2725	42.75	227.3	2164.98	-2132.16	-784.6	-1297.79	5737675.74	566038.53
2726	42.71	227.34	2165.72	-2132.9	-785.06	-1298.28	5737675.29	566038.03
2727	42.67	227.38	2166.46	-2133.64	-785.51	-1298.78	5737674.83	566037.53
2728	42.63	227.42	2167.19	-2134.37	-785.97	-1299.28	5737674.37	566037.03
2729	42.58	227.45	2167.93	-2135.11	-786.42	-1299.78	5737673.92	566036.53
2730	42.54	227.49	2168.67	-2135.85	-786.88	-1300.28	5737673.46	566036.04
2731	42.5	227.53	2169.41	-2136.59	-787.33	-1300.77	5737673.01	566035.54
2732	42.46	227.57	2170.15	-2137.33	-787.79	-1301.27	5737672.55	566035.04
2733	42.42	227.6	2170.88	-2138.06	-788.25	-1301.77	5737672.1	566034.54
2734	42.38	227.64	2171.62	-2138.8	-788.7	-1302.27	5737671.64	566034.04
2735	42.34	227.68	2172.36	-2139.54	-789.16	-1302.77	5737671.19	566033.54
2736	42.3	227.72	2173.1	-2140.28	-789.61	-1303.27	5737670.73	566033.05
2737	42.26	227.76	2173.83	-2141.01	-790.07	-1303.76	5737670.28	566032.55
2738	42.22	227.79	2174.57	-2141.75	-790.52	-1304.26	5737669.82	566032.05
2739	42.18	227.83	2175.31	-2142.49	-790.98	-1304.76	5737669.36	566031.55
2740	42.14	227.87	2176.05	-2143.23	-791.43	-1305.26	5737668.91	566031.05
2741	42.1	227.91	2176.78	-2143.96	-791.89	-1305.76	5737668.45	566030.56
2742	42.06	227.95	2177.52	-2144.7	-792.35	-1306.25	5737668	566030.06
2743	42.02	227.98	2178.26	-2145.44	-792.8	-1306.75	5737667.54	566029.56
2744	41.98	228.02	2179	-2146.18	-793.26	-1307.25	5737667.09	566029.06
2745	41.94	228.06	2179.74	-2146.92	-793.71	-1307.75	5737666.63	566028.56
2746	41.9	228.1	2180.47	-2147.65	-794.17	-1308.25	5737666.18	566028.06
2747	41.84	228.14	2181.21	-2148.39	-794.62	-1308.74	5737665.72	566027.57
2748	41.7	228.21	2181.98	-2149.16	-795.04	-1309.23	5737665.31	566027.08
2749	41.55	228.29	2182.75	-2149.93	-795.45	-1309.71	5737664.89	566026.6
2750	41.4	228.36	2183.52	-2150.7	-795.87	-1310.19	5737664.47	566026.12
2751	41.25	228.44	2184.29	-2151.47	-796.29	-1310.68	5737664.05	566025.63
2752	41.1	228.51	2185.06	-2152.24	-796.71	-1311.16	5737663.63	566025.15
2753	40.95	228.59	2185.83	-2153.01	-797.13	-1311.65	5737663.22	566024.67
2754	40.8	228.67	2186.6	-2153.78	-797.55	-1312.13	5737662.8	566024.18
2755	40.66	228.74	2187.36	-2154.54	-797.96	-1312.61	5737662.38	566023.7
2756	40.51	228.82	2188.13	-2155.31	-798.38	-1313.1	5737661.96	566023.22
2757	40.36	228.89	2188.9	-2156.08	-798.8	-1313.58	5737661.54	566022.73
2758	40.21	228.97	2189.67	-2156.85	-799.22	-1314.06	5737661.13	566022.25
2759	40.06	229.04	2190.44	-2157.62	-799.64	-1314.55	5737660.71	566021.77
2760	39.91	229.12	2191.21	-2158.39	-800.05	-1315.03	5737660.29	566021.28
2761	39.76	229.19	2191.98	-2159.16	-800.47	-1315.51	5737659.87	566020.8

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2762	39.62	229.27	2192.75	-2159.93	-800.89	-1316	5737659.45	566020.31
2763	39.47	229.34	2193.51	-2160.69	-801.31	-1316.48	5737659.03	566019.83
2764	39.32	229.42	2194.28	-2161.46	-801.73	-1316.96	5737658.62	566019.35
2765	39.17	229.49	2195.05	-2162.23	-802.14	-1317.45	5737658.2	566018.86
2766	39.02	229.57	2195.82	-2163	-802.56	-1317.93	5737657.78	566018.38
2767	38.87	229.64	2196.59	-2163.77	-802.98	-1318.41	5737657.36	566017.9
2768	38.73	229.72	2197.36	-2164.54	-803.4	-1318.9	5737656.94	566017.41
2769	38.58	229.79	2198.13	-2165.31	-803.82	-1319.38	5737656.53	566016.93
2770	38.43	229.87	2198.9	-2166.08	-804.23	-1319.86	5737656.11	566016.45
2771	38.28	229.95	2199.66	-2166.84	-804.65	-1320.35	5737655.69	566015.96
2772	38.13	230.02	2200.43	-2167.61	-805.07	-1320.83	5737655.27	566015.48
2773	37.98	230.1	2201.2	-2168.38	-805.49	-1321.32	5737654.85	566015
2774	37.83	230.17	2201.97	-2169.15	-805.91	-1321.8	5737654.44	566014.51
2775	37.69	230.25	2202.74	-2169.92	-806.33	-1322.28	5737654.02	566014.03
2776	37.6	230.3	2203.53	-2170.71	-806.72	-1322.75	5737653.63	566013.56
2777	37.55	230.34	2204.33	-2171.51	-807.1	-1323.22	5737653.25	566013.09
2778	37.5	230.38	2205.13	-2172.31	-807.47	-1323.68	5737652.87	566012.63
2779	37.45	230.42	2205.93	-2173.11	-807.85	-1324.15	5737652.49	566012.16
2780	37.4	230.46	2206.73	-2173.91	-808.23	-1324.62	5737652.11	566011.7
2781	37.35	230.5	2207.53	-2174.71	-808.61	-1325.08	5737651.73	566011.23
2782	37.3	230.53	2208.33	-2175.51	-808.99	-1325.55	5737651.35	566010.77
2783	37.25	230.57	2209.13	-2176.31	-809.37	-1326.01	5737650.97	566010.3
2784	37.2	230.61	2209.93	-2177.11	-809.75	-1326.48	5737650.59	566009.83
2785	37.15	230.65	2210.73	-2177.91	-810.13	-1326.94	5737650.21	566009.37
2786	37.09	230.69	2211.52	-2178.7	-810.51	-1327.41	5737649.83	566008.9
2787	37.04	230.73	2212.32	-2179.5	-810.89	-1327.87	5737649.45	566008.44
2788	36.99	230.77	2213.12	-2180.3	-811.27	-1328.34	5737649.08	566007.97
2789	36.94	230.81	2213.92	-2181.1	-811.65	-1328.81	5737648.7	566007.51
2790	36.89	230.85	2214.72	-2181.9	-812.03	-1329.27	5737648.32	566007.04
2791	36.84	230.89	2215.52	-2182.7	-812.4	-1329.74	5737647.94	566006.58
2792	36.79	230.93	2216.32	-2183.5	-812.78	-1330.2	5737647.56	566006.11
2793	36.74	230.97	2217.12	-2184.3	-813.16	-1330.67	5737647.18	566005.64
2794	36.69	231.01	2217.92	-2185.1	-813.54	-1331.13	5737646.8	566005.18
2795	36.63	231.05	2218.72	-2185.9	-813.92	-1331.6	5737646.42	566004.71
2796	36.58	231.09	2219.52	-2186.7	-814.3	-1332.06	5737646.04	566004.25
2797	36.53	231.13	2220.32	-2187.5	-814.68	-1332.53	5737645.66	566003.78
2798	36.48	231.17	2221.12	-2188.3	-815.06	-1333	5737645.28	566003.32
2799	36.43	231.21	2221.92	-2189.1	-815.44	-1333.46	5737644.9	566002.85
2800	36.38	231.25	2222.72	-2189.9	-815.82	-1333.93	5737644.52	566002.39
2801	36.33	231.29	2223.52	-2190.7	-816.2	-1334.39	5737644.15	566001.92
2802	36.28	231.33	2224.32	-2191.5	-816.58	-1334.86	5737643.77	566001.45
2803	36.23	231.37	2225.12	-2192.3	-816.96	-1335.32	5737643.39	566000.99
2804	36.18	231.41	2225.92	-2193.1	-817.33	-1335.79	5737643.01	566000.52
2805	36.16	231.43	2226.73	-2193.91	-817.7	-1336.25	5737642.64	566000.06
2806	36.15	231.45	2227.53	-2194.71	-818.07	-1336.71	5737642.28	565999.6
2807	36.14	231.48	2228.34	-2195.52	-818.43	-1337.17	5737641.91	565999.14
2808	36.13	231.5	2229.15	-2196.33	-818.79	-1337.64	5737641.55	565998.68
2809	36.12	231.52	2229.96	-2197.14	-819.16	-1338.1	5737641.18	565998.21
2810	36.11	231.55	2230.77	-2197.95	-819.52	-1338.56	5737640.82	565997.75
2811	36.11	231.57	2231.58	-2198.76	-819.89	-1339.02	5737640.46	565997.29
2812	36.1	231.59	2232.39	-2199.57	-820.25	-1339.48	5737640.09	565996.83
2813	36.09	231.61	2233.19	-2200.37	-820.62	-1339.95	5737639.73	565996.37
2814	36.08	231.64	2234	-2201.18	-820.98	-1340.41	5737639.36	565995.9
2815	36.07	231.66	2234.81	-2201.99	-821.34	-1340.87	5737639	565995.44
2816	36.06	231.68	2235.62	-2202.8	-821.71	-1341.33	5737638.64	565994.98
2817	36.05	231.71	2236.43	-2203.61	-822.07	-1341.79	5737638.27	565994.52
2818	36.04	231.73	2237.24	-2204.42	-822.44	-1342.26	5737637.91	565994.06
2819	36.03	231.75	2238.05	-2205.23	-822.8	-1342.72	5737637.54	565993.59

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2820	36.02	231.78	2238.86	-2206.04	-823.17	-1343.18	5737637.18	565993.13
2821	36.01	231.8	2239.66	-2206.84	-823.53	-1343.64	5737636.81	565992.67
2822	36	231.82	2240.47	-2207.65	-823.89	-1344.1	5737636.45	565992.21
2823	35.99	231.84	2241.28	-2208.46	-824.26	-1344.57	5737636.09	565991.75
2824	35.98	231.87	2242.09	-2209.27	-824.62	-1345.03	5737635.72	565991.28
2825	35.97	231.89	2242.9	-2210.08	-824.99	-1345.49	5737635.36	565990.82
2826	35.96	231.91	2243.71	-2210.89	-825.35	-1345.95	5737634.99	565990.36
2827	35.95	231.94	2244.52	-2211.7	-825.72	-1346.41	5737634.63	565989.9
2828	35.95	231.96	2245.32	-2212.5	-826.08	-1346.87	5737634.26	565989.44
2829	35.94	231.98	2246.13	-2213.31	-826.44	-1347.34	5737633.9	565988.98
2830	35.93	232	2246.94	-2214.12	-826.81	-1347.8	5737633.54	565988.51
2831	35.92	232.03	2247.75	-2214.93	-827.17	-1348.26	5737633.17	565988.05
2832	35.91	232.05	2248.56	-2215.74	-827.54	-1348.72	5737632.81	565987.59
2833	35.9	232.07	2249.37	-2216.55	-827.9	-1349.18	5737632.44	565987.13
2834	35.89	232.08	2250.18	-2217.36	-828.26	-1349.65	5737632.08	565986.67
2835	35.88	232.08	2250.99	-2218.17	-828.62	-1350.11	5737631.73	565986.2
2836	35.87	232.08	2251.8	-2218.98	-828.98	-1350.57	5737631.37	565985.74
2837	35.86	232.09	2252.61	-2219.79	-829.34	-1351.03	5737631.01	565985.28
2838	35.86	232.09	2253.42	-2220.6	-829.69	-1351.49	5737630.65	565984.82
2839	35.85	232.1	2254.24	-2221.42	-830.05	-1351.95	5737630.29	565984.36
2840	35.84	232.1	2255.05	-2222.23	-830.41	-1352.41	5737629.93	565983.9
2841	35.83	232.11	2255.86	-2223.04	-830.77	-1352.88	5737629.57	565983.44
2842	35.82	232.11	2256.67	-2223.85	-831.13	-1353.34	5737629.21	565982.97
2843	35.81	232.12	2257.48	-2224.66	-831.49	-1353.8	5737628.85	565982.51
2844	35.8	232.12	2258.29	-2225.47	-831.85	-1354.26	5737628.5	565982.05
2845	35.79	232.13	2259.1	-2226.28	-832.21	-1354.72	5737628.14	565981.59
2846	35.79	232.13	2259.92	-2227.1	-832.56	-1355.18	5737627.78	565981.13
2847	35.78	232.13	2260.73	-2227.91	-832.92	-1355.65	5737627.42	565980.67
2848	35.77	232.14	2261.54	-2228.72	-833.28	-1356.11	5737627.06	565980.2
2849	35.76	232.14	2262.35	-2229.53	-833.64	-1356.57	5737626.7	565979.74
2850	35.75	232.15	2263.16	-2230.34	-834	-1357.03	5737626.34	565979.28
2851	35.74	232.15	2263.97	-2231.15	-834.36	-1357.49	5737625.98	565978.82
2852	35.73	232.16	2264.78	-2231.96	-834.72	-1357.95	5737625.63	565978.36
2853	35.72	232.16	2265.59	-2232.77	-835.08	-1358.41	5737625.27	565977.9
2854	35.72	232.17	2266.41	-2233.59	-835.44	-1358.88	5737624.91	565977.44
2855	35.71	232.17	2267.22	-2234.4	-835.79	-1359.34	5737624.55	565976.97
2856	35.7	232.17	2268.03	-2235.21	-836.15	-1359.8	5737624.19	565976.51
2857	35.69	232.18	2268.84	-2236.02	-836.51	-1360.26	5737623.83	565976.05
2858	35.68	232.18	2269.65	-2236.83	-836.87	-1360.72	5737623.47	565975.59
2859	35.67	232.19	2270.46	-2237.64	-837.23	-1361.18	5737623.11	565975.13
2860	35.66	232.19	2271.27	-2238.45	-837.59	-1361.65	5737622.75	565974.67
2861	35.65	232.2	2272.09	-2239.27	-837.95	-1362.11	5737622.4	565974.21
2862	35.65	232.21	2272.9	-2240.08	-838.3	-1362.57	5737622.04	565973.74
2863	35.65	232.23	2273.71	-2240.89	-838.66	-1363.03	5737621.68	565973.28
2864	35.65	232.24	2274.52	-2241.7	-839.01	-1363.49	5737621.33	565972.82
2865	35.65	232.26	2275.34	-2242.52	-839.37	-1363.95	5737620.97	565972.36
2866	35.65	232.28	2276.15	-2243.33	-839.72	-1364.42	5737620.62	565971.9
2867	35.64	232.3	2276.96	-2244.14	-840.08	-1364.88	5737620.26	565971.43
2868	35.64	232.32	2277.77	-2244.95	-840.43	-1365.34	5737619.91	565970.97
2869	35.64	232.34	2278.59	-2245.77	-840.79	-1365.8	5737619.55	565970.51
2870	35.64	232.36	2279.4	-2246.58	-841.14	-1366.26	5737619.2	565970.05
2871	35.64	232.37	2280.21	-2247.39	-841.5	-1366.73	5737618.84	565969.59
2872	35.64	232.39	2281.02	-2248.2	-841.85	-1367.19	5737618.49	565969.12
2873	35.64	232.41	2281.84	-2249.02	-842.21	-1367.65	5737618.13	565968.66
2874	35.64	232.43	2282.65	-2249.83	-842.56	-1368.11	5737617.78	565968.2
2875	35.64	232.45	2283.46	-2250.64	-842.92	-1368.57	5737617.42	565967.74
2876	35.63	232.47	2284.28	-2251.46	-843.27	-1369.04	5737617.07	565967.28
2877	35.63	232.49	2285.09	-2252.27	-843.63	-1369.5	5737616.71	565966.81

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2878	35.63	232.5	2285.9	-2253.08	-843.98	-1369.96	5737616.36	565966.35
2879	35.63	232.52	2286.71	-2253.89	-844.34	-1370.42	5737616	565965.89
2880	35.63	232.54	2287.53	-2254.71	-844.69	-1370.88	5737615.65	565965.43
2881	35.63	232.56	2288.34	-2255.52	-845.05	-1371.35	5737615.29	565964.97
2882	35.63	232.58	2289.15	-2256.33	-845.4	-1371.81	5737614.94	565964.5
2883	35.63	232.6	2289.96	-2257.14	-845.76	-1372.27	5737614.58	565964.04
2884	35.63	232.61	2290.78	-2257.96	-846.11	-1372.73	5737614.23	565963.58
2885	35.63	232.63	2291.59	-2258.77	-846.47	-1373.19	5737613.87	565963.12
2886	35.62	232.65	2292.4	-2259.58	-846.82	-1373.66	5737613.52	565962.66
2887	35.62	232.67	2293.22	-2260.4	-847.18	-1374.12	5737613.16	565962.19
2888	35.62	232.69	2294.03	-2261.21	-847.53	-1374.58	5737612.81	565961.73
2889	35.62	232.71	2294.84	-2262.02	-847.89	-1375.04	5737612.45	565961.27
2890	35.62	232.73	2295.65	-2262.83	-848.24	-1375.5	5737612.1	565960.81
2891	35.61	232.75	2296.47	-2263.65	-848.59	-1375.97	5737611.75	565960.34
2892	35.6	232.79	2297.28	-2264.46	-848.94	-1376.43	5737611.4	565959.88
2893	35.59	232.82	2298.1	-2265.28	-849.29	-1376.9	5737611.06	565959.42
2894	35.57	232.85	2298.91	-2266.09	-849.63	-1377.36	5737610.71	565958.95
2895	35.56	232.89	2299.73	-2266.91	-849.98	-1377.82	5737610.36	565958.49
2896	35.55	232.92	2300.54	-2267.72	-850.33	-1378.29	5737610.01	565958.02
2897	35.53	232.95	2301.36	-2268.54	-850.68	-1378.75	5737609.67	565957.56
2898	35.52	232.99	2302.17	-2269.35	-851.02	-1379.22	5737609.32	565957.09
2899	35.51	233.02	2302.99	-2270.17	-851.37	-1379.68	5737608.97	565956.63
2900	35.5	233.05	2303.8	-2270.98	-851.72	-1380.15	5737608.62	565956.17
2901	35.48	233.08	2304.62	-2271.8	-852.07	-1380.61	5737608.28	565955.7
2902	35.47	233.12	2305.43	-2272.61	-852.41	-1381.07	5737607.93	565955.24
2903	35.46	233.15	2306.24	-2273.42	-852.76	-1381.54	5737607.58	565954.77
2904	35.45	233.18	2307.06	-2274.24	-853.11	-1382	5737607.23	565954.31
2905	35.43	233.22	2307.87	-2275.05	-853.46	-1382.47	5737606.89	565953.84
2906	35.42	233.25	2308.69	-2275.87	-853.8	-1382.93	5737606.54	565953.38
2907	35.41	233.28	2309.5	-2276.68	-854.15	-1383.4	5737606.19	565952.92
2908	35.4	233.32	2310.32	-2277.5	-854.5	-1383.86	5737605.85	565952.45
2909	35.38	233.35	2311.13	-2278.31	-854.84	-1384.32	5737605.5	565951.99
2910	35.37	233.38	2311.95	-2279.13	-855.19	-1384.79	5737605.15	565951.52
2911	35.36	233.41	2312.76	-2279.94	-855.54	-1385.25	5737604.8	565951.06
2912	35.35	233.45	2313.58	-2280.76	-855.89	-1385.72	5737604.46	565950.59
2913	35.33	233.48	2314.39	-2281.57	-856.23	-1386.18	5737604.11	565950.13
2914	35.32	233.51	2315.21	-2282.39	-856.58	-1386.65	5737603.76	565949.67
2915	35.31	233.55	2316.02	-2283.2	-856.93	-1387.11	5737603.41	565949.2
2916	35.29	233.58	2316.84	-2284.02	-857.28	-1387.58	5737603.07	565948.74
2917	35.28	233.61	2317.65	-2284.83	-857.62	-1388.04	5737602.72	565948.27
2918	35.27	233.64	2318.47	-2285.65	-857.97	-1388.5	5737602.37	565947.81
2919	35.25	233.67	2319.28	-2286.46	-858.32	-1388.97	5737602.03	565947.34
2920	35.23	233.7	2320.1	-2287.28	-858.65	-1389.43	5737601.69	565946.88
2921	35.21	233.72	2320.92	-2288.1	-858.99	-1389.89	5737601.35	565946.42
2922	35.18	233.74	2321.74	-2288.92	-859.33	-1390.36	5737601.02	565945.96
2923	35.16	233.76	2322.56	-2289.74	-859.66	-1390.82	5737600.68	565945.49
2924	35.13	233.78	2323.38	-2290.56	-860	-1391.28	5737600.34	565945.03
2925	35.11	233.8	2324.2	-2291.38	-860.34	-1391.74	5737600.01	565944.57
2926	35.08	233.82	2325.02	-2292.2	-860.67	-1392.21	5737599.67	565944.1
2927	35.06	233.84	2325.84	-2293.02	-861.01	-1392.67	5737599.33	565943.64
2928	35.04	233.86	2326.66	-2293.84	-861.35	-1393.13	5737599	565943.18
2929	35.01	233.88	2327.48	-2294.66	-861.68	-1393.6	5737598.66	565942.72
2930	34.99	233.9	2328.3	-2295.48	-862.02	-1394.06	5737598.32	565942.25
2931	34.96	233.92	2329.12	-2296.3	-862.36	-1394.52	5737597.99	565941.79
2932	34.94	233.95	2329.94	-2297.12	-862.69	-1394.98	5737597.65	565941.33
2933	34.91	233.97	2330.76	-2297.94	-863.03	-1395.45	5737597.31	565940.87
2934	34.89	233.99	2331.58	-2298.76	-863.37	-1395.91	5737596.98	565940.4
2935	34.87	234.01	2332.4	-2299.58	-863.7	-1396.37	5737596.64	565939.94

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2936	34.84	234.03	2333.22	-2300.4	-864.04	-1396.83	5737596.3	565939.48
2937	34.82	234.05	2334.04	-2301.22	-864.38	-1397.3	5737595.97	565939.01
2938	34.79	234.07	2334.86	-2302.04	-864.71	-1397.76	5737595.63	565938.55
2939	34.77	234.09	2335.68	-2302.86	-865.05	-1398.22	5737595.29	565938.09
2940	34.75	234.11	2336.5	-2303.68	-865.39	-1398.69	5737594.96	565937.63
2941	34.72	234.13	2337.32	-2304.5	-865.72	-1399.15	5737594.62	565937.16
2942	34.7	234.15	2338.14	-2305.32	-866.06	-1399.61	5737594.28	565936.7
2943	34.67	234.17	2338.96	-2306.14	-866.4	-1400.07	5737593.95	565936.24
2944	34.65	234.19	2339.78	-2306.96	-866.73	-1400.54	5737593.61	565935.77
2945	34.62	234.22	2340.6	-2307.78	-867.07	-1401	5737593.27	565935.31
2946	34.6	234.24	2341.42	-2308.6	-867.41	-1401.46	5737592.94	565934.85
2947	34.58	234.26	2342.24	-2309.42	-867.74	-1401.93	5737592.6	565934.39
2948	34.56	234.28	2343.07	-2310.25	-868.08	-1402.39	5737592.27	565933.92
2949	34.55	234.29	2343.89	-2311.07	-868.41	-1402.85	5737591.94	565933.46
2950	34.54	234.3	2344.71	-2311.89	-868.73	-1403.31	5737591.61	565933
2951	34.54	234.32	2345.54	-2312.72	-869.06	-1403.77	5737591.28	565932.54
2952	34.53	234.33	2346.36	-2313.54	-869.39	-1404.23	5737590.95	565932.08
2953	34.52	234.34	2347.19	-2314.37	-869.72	-1404.69	5737590.62	565931.62
2954	34.52	234.36	2348.01	-2315.19	-870.05	-1405.15	5737590.29	565931.16
2955	34.51	234.37	2348.84	-2316.02	-870.38	-1405.61	5737589.96	565930.7
2956	34.5	234.38	2349.66	-2316.84	-870.71	-1406.07	5737589.64	565930.24
2957	34.49	234.4	2350.49	-2317.67	-871.04	-1406.53	5737589.31	565929.78
2958	34.49	234.41	2351.31	-2318.49	-871.36	-1406.99	5737588.98	565929.32
2959	34.48	234.43	2352.13	-2319.31	-871.69	-1407.45	5737588.65	565928.86
2960	34.47	234.44	2352.96	-2320.14	-872.02	-1407.91	5737588.32	565928.4
2961	34.47	234.45	2353.78	-2320.96	-872.35	-1408.37	5737587.99	565927.94
2962	34.46	234.47	2354.61	-2321.79	-872.68	-1408.83	5737587.66	565927.48
2963	34.45	234.48	2355.43	-2322.61	-873.01	-1409.29	5737587.33	565927.02
2964	34.44	234.49	2356.26	-2323.44	-873.34	-1409.75	5737587.01	565926.56
2965	34.44	234.51	2357.08	-2324.26	-873.67	-1410.21	5737586.68	565926.1
2966	34.43	234.52	2357.91	-2325.09	-874	-1410.68	5737586.35	565925.64
2967	34.42	234.54	2358.73	-2325.91	-874.32	-1411.14	5737586.02	565925.18
2968	34.42	234.55	2359.56	-2326.74	-874.65	-1411.6	5737585.69	565924.72
2969	34.41	234.56	2360.38	-2327.56	-874.98	-1412.06	5737585.36	565924.26
2970	34.4	234.58	2361.2	-2328.38	-875.31	-1412.52	5737585.03	565923.79
2971	34.4	234.59	2362.03	-2329.21	-875.64	-1412.98	5737584.7	565923.33
2972	34.39	234.6	2362.85	-2330.03	-875.97	-1413.44	5737584.37	565922.87
2973	34.38	234.62	2363.68	-2330.86	-876.3	-1413.9	5737584.05	565922.41
2974	34.37	234.63	2364.5	-2331.68	-876.63	-1414.36	5737583.72	565921.95
2975	34.37	234.65	2365.33	-2332.51	-876.95	-1414.82	5737583.39	565921.49
2976	34.36	234.66	2366.15	-2333.33	-877.28	-1415.28	5737583.06	565921.03
2977	34.34	234.68	2366.98	-2334.16	-877.61	-1415.74	5737582.74	565920.57
2978	34.33	234.7	2367.81	-2334.99	-877.93	-1416.2	5737582.41	565920.11
2979	34.31	234.72	2368.63	-2335.81	-878.25	-1416.66	5737582.09	565919.65
2980	34.3	234.74	2369.46	-2336.64	-878.57	-1417.12	5737581.77	565919.19
2981	34.28	234.76	2370.29	-2337.47	-878.89	-1417.58	5737581.45	565918.73
2982	34.27	234.78	2371.12	-2338.3	-879.22	-1418.04	5737581.13	565918.28
2983	34.25	234.81	2371.95	-2339.13	-879.54	-1418.5	5737580.8	565917.82
2984	34.24	234.83	2372.77	-2339.95	-879.86	-1418.96	5737580.48	565917.36
2985	34.22	234.85	2373.6	-2340.78	-880.18	-1419.41	5737580.16	565916.9
2986	34.2	234.87	2374.43	-2341.61	-880.51	-1419.87	5737579.84	565916.44
2987	34.19	234.89	2375.26	-2342.44	-880.83	-1420.33	5737579.52	565915.98
2988	34.17	234.91	2376.08	-2343.26	-881.15	-1420.79	5737579.19	565915.52
2989	34.16	234.93	2376.91	-2344.09	-881.47	-1421.25	5737578.87	565915.06
2990	34.14	234.95	2377.74	-2344.92	-881.79	-1421.71	5737578.55	565914.6
2991	34.13	234.97	2378.57	-2345.75	-882.12	-1422.17	5737578.23	565914.14
2992	34.11	234.99	2379.4	-2346.58	-882.44	-1422.63	5737577.9	565913.68
2993	34.09	235.01	2380.22	-2347.4	-882.76	-1423.09	5737577.58	565913.22

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2994	34.08	235.03	2381.05	-2348.23	-883.08	-1423.55	5737577.26	565912.76
2995	34.06	235.06	2381.88	-2349.06	-883.41	-1424.01	5737576.94	565912.3
2996	34.05	235.08	2382.71	-2349.89	-883.73	-1424.47	5737576.62	565911.84
2997	34.03	235.1	2383.53	-2350.71	-884.05	-1424.93	5737576.29	565911.38
2998	34.02	235.12	2384.36	-2351.54	-884.37	-1425.39	5737575.97	565910.92
2999	34	235.14	2385.19	-2352.37	-884.69	-1425.85	5737575.65	565910.47
3000	33.99	235.16	2386.02	-2353.2	-885.02	-1426.31	5737575.33	565910.01
3001	33.97	235.18	2386.84	-2354.02	-885.34	-1426.77	5737575	565909.55
3002	33.95	235.2	2387.67	-2354.85	-885.66	-1427.22	5737574.68	565909.09
3003	33.94	235.22	2388.5	-2355.68	-885.98	-1427.68	5737574.36	565908.63
3004	33.92	235.24	2389.33	-2356.51	-886.31	-1428.14	5737574.04	565908.17
3005	33.91	235.26	2390.16	-2357.34	-886.63	-1428.6	5737573.72	565907.71
3006	33.89	235.28	2390.99	-2358.17	-886.94	-1429.06	5737573.4	565907.25
3007	33.87	235.3	2391.82	-2359	-887.25	-1429.52	5737573.09	565906.79
3008	33.86	235.32	2392.65	-2359.83	-887.57	-1429.97	5737572.78	565906.34
3009	33.84	235.33	2393.49	-2360.67	-887.88	-1430.43	5737572.46	565905.88
3010	33.83	235.35	2394.32	-2361.5	-888.2	-1430.89	5737572.15	565905.42
3011	33.81	235.37	2395.15	-2362.33	-888.51	-1431.35	5737571.83	565904.97
3012	33.79	235.39	2395.98	-2363.16	-888.82	-1431.8	5737571.52	565904.51
3013	33.78	235.4	2396.81	-2363.99	-889.14	-1432.26	5737571.21	565904.05
3014	33.76	235.42	2397.65	-2364.83	-889.45	-1432.72	5737570.89	565903.6
3015	33.74	235.44	2398.48	-2365.66	-889.77	-1433.17	5737570.58	565903.14
3016	33.73	235.46	2399.31	-2366.49	-890.08	-1433.63	5737570.26	565902.68
3017	33.71	235.48	2400.14	-2367.32	-890.39	-1434.09	5737569.95	565902.22
3018	33.69	235.49	2400.98	-2368.16	-890.71	-1434.54	5737569.64	565901.77
3019	33.68	235.51	2401.81	-2368.99	-891.02	-1435	5737569.32	565901.31
3020	33.66	235.53	2402.64	-2369.82	-891.34	-1435.46	5737569.01	565900.85
3021	33.65	235.55	2403.47	-2370.65	-891.65	-1435.92	5737568.69	565900.4
3022	33.63	235.56	2404.3	-2371.48	-891.96	-1436.37	5737568.38	565899.94
3023	33.61	235.58	2405.14	-2372.32	-892.28	-1436.83	5737568.07	565899.48
3024	33.6	235.6	2405.97	-2373.15	-892.59	-1437.29	5737567.75	565899.03
3025	33.58	235.62	2406.8	-2373.98	-892.91	-1437.74	5737567.44	565898.57
3026	33.56	235.64	2407.63	-2374.81	-893.22	-1438.2	5737567.12	565898.11
3027	33.55	235.65	2408.46	-2375.64	-893.53	-1438.66	5737566.81	565897.65
3028	33.53	235.67	2409.3	-2376.48	-893.85	-1439.11	5737566.5	565897.2
3029	33.52	235.69	2410.13	-2377.31	-894.16	-1439.57	5737566.18	565896.74
3030	33.5	235.71	2410.96	-2378.14	-894.47	-1440.03	5737565.87	565896.28
3031	33.48	235.72	2411.79	-2378.97	-894.79	-1440.49	5737565.55	565895.83
3032	33.47	235.74	2412.63	-2379.81	-895.1	-1440.94	5737565.24	565895.37
3033	33.45	235.76	2413.46	-2380.64	-895.42	-1441.4	5737564.93	565894.91
3034	33.43	235.78	2414.29	-2381.47	-895.73	-1441.86	5737564.62	565894.46
3035	33.41	235.8	2415.13	-2382.31	-896.03	-1442.31	5737564.31	565894
3036	33.38	235.81	2415.97	-2383.15	-896.34	-1442.76	5737564.01	565893.55
3037	33.36	235.83	2416.81	-2383.99	-896.64	-1443.21	5737563.7	565893.1
3038	33.33	235.85	2417.64	-2384.82	-896.95	-1443.67	5737563.4	565892.65
3039	33.31	235.87	2418.48	-2385.66	-897.25	-1444.12	5737563.09	565892.19
3040	33.28	235.89	2419.32	-2386.5	-897.56	-1444.57	5737562.79	565891.74
3041	33.26	235.91	2420.16	-2387.34	-897.86	-1445.02	5737562.48	565891.29
3042	33.23	235.93	2421	-2388.18	-898.17	-1445.48	5737562.18	565890.83
3043	33.21	235.94	2421.83	-2389.01	-898.47	-1445.93	5737561.87	565890.38
3044	33.18	235.96	2422.67	-2389.85	-898.78	-1446.38	5737561.57	565889.93
3045	33.16	235.98	2423.51	-2390.69	-899.08	-1446.84	5737561.26	565889.48
3046	33.13	236	2424.35	-2391.53	-899.39	-1447.29	5737560.96	565889.02
3047	33.11	236.02	2425.18	-2392.36	-899.69	-1447.74	5737560.65	565888.57
3048	33.08	236.04	2426.02	-2393.2	-900	-1448.19	5737560.35	565888.12
3049	33.06	236.06	2426.86	-2394.04	-900.3	-1448.65	5737560.04	565887.67
3050	33.03	236.08	2427.7	-2394.88	-900.61	-1449.1	5737559.74	565887.21
3051	33.01	236.09	2428.54	-2395.72	-900.91	-1449.55	5737559.43	565886.76

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3052	32.98	236.11	2429.37	-2396.55	-901.22	-1450	5737559.13	565886.31
3053	32.96	236.13	2430.21	-2397.39	-901.52	-1450.46	5737558.82	565885.86
3054	32.93	236.15	2431.05	-2398.23	-901.83	-1450.91	5737558.52	565885.4
3055	32.91	236.17	2431.89	-2399.07	-902.13	-1451.36	5737558.21	565884.95
3056	32.88	236.19	2432.73	-2399.91	-902.44	-1451.81	5737557.91	565884.5
3057	32.86	236.21	2433.56	-2400.74	-902.74	-1452.27	5737557.6	565884.04
3058	32.83	236.22	2434.4	-2401.58	-903.05	-1452.72	5737557.3	565883.59
3059	32.81	236.24	2435.24	-2402.42	-903.35	-1453.17	5737556.99	565883.14
3060	32.78	236.26	2436.08	-2403.26	-903.66	-1453.63	5737556.69	565882.69
3061	32.76	236.28	2436.91	-2404.09	-903.96	-1454.08	5737556.38	565882.23
3062	32.73	236.3	2437.75	-2404.93	-904.27	-1454.53	5737556.08	565881.78
3063	32.72	236.31	2438.59	-2405.77	-904.57	-1454.98	5737555.78	565881.33
3064	32.7	236.32	2439.44	-2406.62	-904.86	-1455.43	5737555.48	565880.88
3065	32.69	236.33	2440.28	-2407.46	-905.16	-1455.88	5737555.18	565880.44
3066	32.68	236.34	2441.12	-2408.3	-905.46	-1456.32	5737554.89	565879.99
3067	32.66	236.35	2441.97	-2409.15	-905.75	-1456.77	5737554.59	565879.54
3068	32.65	236.36	2442.81	-2409.99	-906.05	-1457.22	5737554.29	565879.09
3069	32.64	236.37	2443.65	-2410.83	-906.35	-1457.67	5737553.99	565878.64
3070	32.62	236.38	2444.5	-2411.68	-906.65	-1458.12	5737553.7	565878.2
3071	32.61	236.39	2445.34	-2412.52	-906.94	-1458.56	5737553.4	565877.75
3072	32.6	236.4	2446.18	-2413.36	-907.24	-1459.01	5737553.1	565877.3
3073	32.58	236.41	2447.03	-2414.21	-907.54	-1459.46	5737552.8	565876.85
3074	32.57	236.41	2447.87	-2415.05	-907.84	-1459.91	5737552.51	565876.4
3075	32.56	236.42	2448.71	-2415.89	-908.13	-1460.36	5737552.21	565875.95
3076	32.54	236.43	2449.55	-2416.73	-908.43	-1460.81	5737551.91	565875.51
3077	32.53	236.44	2450.4	-2417.58	-908.73	-1461.25	5737551.62	565875.06
3078	32.52	236.45	2451.24	-2418.42	-909.02	-1461.7	5737551.32	565874.61
3079	32.5	236.46	2452.08	-2419.26	-909.32	-1462.15	5737551.02	565874.16
3080	32.49	236.47	2452.93	-2420.11	-909.62	-1462.6	5737550.72	565873.71
3081	32.48	236.48	2453.77	-2420.95	-909.92	-1463.05	5737550.43	565873.26
3082	32.46	236.49	2454.61	-2421.79	-910.21	-1463.5	5737550.13	565872.82
3083	32.45	236.5	2455.46	-2422.64	-910.51	-1463.94	5737549.83	565872.37
3084	32.44	236.51	2456.3	-2423.48	-910.81	-1464.39	5737549.53	565871.92
3085	32.42	236.52	2457.14	-2424.32	-911.11	-1464.84	5737549.24	565871.47
3086	32.41	236.53	2457.99	-2425.17	-911.4	-1465.29	5737548.94	565871.02
3087	32.4	236.54	2458.83	-2426.01	-911.7	-1465.74	5737548.64	565870.58
3088	32.38	236.55	2459.67	-2426.85	-912	-1466.18	5737548.34	565870.13
3089	32.37	236.56	2460.51	-2427.69	-912.3	-1466.63	5737548.05	565869.68
3090	32.36	236.57	2461.36	-2428.54	-912.59	-1467.08	5737547.75	565869.23
3091	32.34	236.58	2462.2	-2429.38	-912.89	-1467.53	5737547.45	565868.78
3092	32.33	236.6	2463.05	-2430.23	-913.18	-1467.97	5737547.16	565868.34
3093	32.31	236.62	2463.89	-2431.07	-913.47	-1468.42	5737546.87	565867.89
3094	32.3	236.64	2464.74	-2431.92	-913.76	-1468.86	5737546.58	565867.45
3095	32.28	236.66	2465.59	-2432.77	-914.05	-1469.31	5737546.29	565867
3096	32.26	236.68	2466.43	-2433.61	-914.34	-1469.76	5737546	565866.56
3097	32.25	236.7	2467.28	-2434.46	-914.63	-1470.2	5737545.71	565866.11
3098	32.23	236.72	2468.13	-2435.31	-914.92	-1470.65	5737545.42	565865.67
3099	32.22	236.75	2468.98	-2436.16	-915.22	-1471.09	5737545.13	565865.22
3100	32.2	236.77	2469.82	-2437	-915.51	-1471.54	5737544.84	565864.78
3101	32.18	236.79	2470.67	-2437.85	-915.8	-1471.98	5737544.55	565864.33
3102	32.17	236.81	2471.52	-2438.7	-916.09	-1472.43	5737544.26	565863.88
3103	32.15	236.83	2472.36	-2439.54	-916.38	-1472.87	5737543.97	565863.44
3104	32.14	236.85	2473.21	-2440.39	-916.67	-1473.32	5737543.68	565862.99
3105	32.12	236.87	2474.06	-2441.24	-916.96	-1473.76	5737543.38	565862.55
3106	32.1	236.89	2474.9	-2442.08	-917.25	-1474.21	5737543.09	565862.1
3107	32.09	236.91	2475.75	-2442.93	-917.54	-1474.65	5737542.8	565861.66
3108	32.07	236.94	2476.6	-2443.78	-917.83	-1475.1	5737542.51	565861.21
3109	32.06	236.96	2477.45	-2444.63	-918.12	-1475.54	5737542.22	565860.77

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3110	32.04	236.98	2478.29	-2445.47	-918.41	-1475.99	5737541.93	565860.32
3111	32.03	237	2479.14	-2446.32	-918.7	-1476.43	5737541.64	565859.88
3112	32.01	237.02	2479.99	-2447.17	-918.99	-1476.88	5737541.35	565859.43
3113	31.99	237.04	2480.83	-2448.01	-919.28	-1477.32	5737541.06	565858.99
3114	31.98	237.06	2481.68	-2448.86	-919.57	-1477.77	5737540.77	565858.54
3115	31.96	237.08	2482.53	-2449.71	-919.86	-1478.21	5737540.48	565858.1
3116	31.95	237.11	2483.37	-2450.55	-920.15	-1478.66	5737540.19	565857.65
3117	31.93	237.13	2484.22	-2451.4	-920.44	-1479.11	5737539.9	565857.21
3118	31.91	237.15	2485.07	-2452.25	-920.73	-1479.55	5737539.61	565856.76
3119	31.9	237.17	2485.92	-2453.1	-921.02	-1480	5737539.32	565856.32
3120	31.88	237.19	2486.76	-2453.94	-921.31	-1480.44	5737539.03	565855.87
3121	31.87	237.2	2487.62	-2454.8	-921.59	-1480.88	5737538.75	565855.43
3122	31.85	237.22	2488.47	-2455.65	-921.88	-1481.32	5737538.47	565854.99
3123	31.84	237.23	2489.32	-2456.5	-922.16	-1481.77	5737538.18	565854.55
3124	31.82	237.25	2490.17	-2457.35	-922.44	-1482.21	5737537.9	565854.1
3125	31.81	237.26	2491.02	-2458.2	-922.73	-1482.65	5737537.62	565853.66
3126	31.79	237.28	2491.87	-2459.05	-923.01	-1483.09	5737537.33	565853.22
3127	31.77	237.3	2492.72	-2459.9	-923.29	-1483.54	5737537.05	565852.78
3128	31.76	237.31	2493.57	-2460.75	-923.57	-1483.98	5737536.77	565852.33
3129	31.74	237.33	2494.42	-2461.6	-923.86	-1484.42	5737536.49	565851.89
3130	31.73	237.34	2495.28	-2462.46	-924.14	-1484.86	5737536.2	565851.45
3131	31.71	237.36	2496.13	-2463.31	-924.42	-1485.3	5737535.92	565851.01
3132	31.7	237.37	2496.98	-2464.16	-924.71	-1485.75	5737535.64	565850.57
3133	31.68	237.39	2497.83	-2465.01	-924.99	-1486.19	5737535.35	565850.12
3134	31.67	237.4	2498.68	-2465.86	-925.27	-1486.63	5737535.07	565849.68
3135	31.65	237.42	2499.53	-2466.71	-925.55	-1487.07	5737534.79	565849.24
3136	31.64	237.43	2500.38	-2467.56	-925.84	-1487.52	5737534.51	565848.8
3137	31.62	237.45	2501.23	-2468.41	-926.12	-1487.96	5737534.22	565848.35
3138	31.61	237.46	2502.08	-2469.26	-926.4	-1488.4	5737533.94	565847.91
3139	31.59	237.48	2502.94	-2470.12	-926.68	-1488.84	5737533.66	565847.47
3140	31.57	237.5	2503.79	-2470.97	-926.97	-1489.28	5737533.38	565847.03
3141	31.56	237.51	2504.64	-2471.82	-927.25	-1489.73	5737533.09	565846.58
3142	31.54	237.53	2505.49	-2472.67	-927.53	-1490.17	5737532.81	565846.14
3143	31.53	237.54	2506.34	-2473.52	-927.82	-1490.61	5737532.53	565845.7
3144	31.51	237.56	2507.19	-2474.37	-928.1	-1491.05	5737532.24	565845.26
3145	31.5	237.57	2508.04	-2475.22	-928.38	-1491.5	5737531.96	565844.82
3146	31.48	237.59	2508.89	-2476.07	-928.66	-1491.94	5737531.68	565844.37
3147	31.47	237.6	2509.74	-2476.92	-928.95	-1492.38	5737531.4	565843.93
3148	31.45	237.62	2510.6	-2477.78	-929.23	-1492.82	5737531.11	565843.49
3149	31.43	237.63	2511.45	-2478.63	-929.51	-1493.26	5737530.83	565843.05
3150	31.4	237.64	2512.31	-2479.49	-929.79	-1493.7	5737530.56	565842.61
3151	31.37	237.66	2513.16	-2480.34	-930.06	-1494.13	5737530.28	565842.18
3152	31.33	237.67	2514.02	-2481.2	-930.33	-1494.57	5737530.01	565841.74
3153	31.3	237.68	2514.88	-2482.06	-930.61	-1495.01	5737529.73	565841.31
3154	31.27	237.69	2515.73	-2482.91	-930.88	-1495.44	5737529.46	565840.87
3155	31.23	237.7	2516.59	-2483.77	-931.16	-1495.88	5737529.19	565840.44
3156	31.2	237.71	2517.45	-2484.63	-931.43	-1496.31	5737528.91	565840
3157	31.17	237.72	2518.31	-2485.49	-931.71	-1496.75	5737528.64	565839.56
3158	31.13	237.74	2519.16	-2486.34	-931.98	-1497.18	5737528.36	565839.13
3159	31.1	237.75	2520.02	-2487.2	-932.25	-1497.62	5737528.09	565838.69
3160	31.07	237.76	2520.88	-2488.06	-932.53	-1498.05	5737527.81	565838.26
3161	31.03	237.77	2521.74	-2488.92	-932.8	-1498.49	5737527.54	565837.82
3162	31	237.78	2522.59	-2489.77	-933.08	-1498.92	5737527.27	565837.39
3163	30.97	237.79	2523.45	-2490.63	-933.35	-1499.36	5737526.99	565836.95
3164	30.94	237.81	2524.31	-2491.49	-933.63	-1499.8	5737526.72	565836.52
3165	30.9	237.82	2525.17	-2492.35	-933.9	-1500.23	5737526.44	565836.08
3166	30.87	237.83	2526.02	-2493.2	-934.18	-1500.67	5737526.17	565835.65
3167	30.84	237.84	2526.88	-2494.06	-934.45	-1501.1	5737525.89	565835.21

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3168	30.8	237.85	2527.74	-2494.92	-934.72	-1501.54	5737525.62	565834.77
3169	30.77	237.86	2528.6	-2495.78	-935	-1501.97	5737525.34	565834.34
3170	30.74	237.87	2529.45	-2496.63	-935.27	-1502.41	5737525.07	565833.9
3171	30.7	237.89	2530.31	-2497.49	-935.55	-1502.84	5737524.8	565833.47
3172	30.67	237.9	2531.17	-2498.35	-935.82	-1503.28	5737524.52	565833.03
3173	30.64	237.91	2532.02	-2499.2	-936.1	-1503.72	5737524.25	565832.6
3174	30.6	237.92	2532.88	-2500.06	-936.37	-1504.15	5737523.97	565832.16
3175	30.57	237.93	2533.74	-2500.92	-936.64	-1504.59	5737523.7	565831.73
3176	30.54	237.94	2534.6	-2501.78	-936.92	-1505.02	5737523.42	565831.29
3177	30.5	237.96	2535.46	-2502.64	-937.19	-1505.45	5737523.15	565830.86
3178	30.47	237.97	2536.32	-2503.5	-937.45	-1505.88	5737522.89	565830.43
3179	30.43	237.99	2537.19	-2504.37	-937.72	-1506.3	5737522.63	565830.01
3180	30.39	238	2538.06	-2505.24	-937.98	-1506.73	5737522.36	565829.59
3181	30.35	238.02	2538.92	-2506.1	-938.24	-1507.15	5737522.1	565829.16
3182	30.32	238.04	2539.79	-2506.97	-938.51	-1507.58	5737521.84	565828.74
3183	30.28	238.05	2540.65	-2507.83	-938.77	-1508	5737521.57	565828.31
3184	30.24	238.07	2541.52	-2508.7	-939.03	-1508.42	5737521.31	565827.89
3185	30.21	238.08	2542.39	-2509.57	-939.3	-1508.85	5737521.05	565827.46
3186	30.17	238.1	2543.25	-2510.43	-939.56	-1509.27	5737520.78	565827.04
3187	30.13	238.11	2544.12	-2511.3	-939.82	-1509.7	5737520.52	565826.61
3188	30.09	238.13	2544.99	-2512.17	-940.09	-1510.12	5737520.26	565826.19
3189	30.06	238.15	2545.85	-2513.03	-940.35	-1510.55	5737519.99	565825.76
3190	30.02	238.16	2546.72	-2513.9	-940.62	-1510.97	5737519.73	565825.34
3191	29.98	238.18	2547.58	-2514.76	-940.88	-1511.4	5737519.46	565824.91
3192	29.95	238.19	2548.45	-2515.63	-941.14	-1511.82	5737519.2	565824.49
3193	29.91	238.21	2549.32	-2516.5	-941.41	-1512.25	5737518.94	565824.06
3194	29.87	238.23	2550.18	-2517.36	-941.67	-1512.67	5737518.67	565823.64
3195	29.83	238.24	2551.05	-2518.23	-941.93	-1513.1	5737518.41	565823.22
3196	29.8	238.26	2551.91	-2519.09	-942.2	-1513.52	5737518.15	565822.79
3197	29.76	238.27	2552.78	-2519.96	-942.46	-1513.95	5737517.88	565822.37
3198	29.72	238.29	2553.65	-2520.83	-942.72	-1514.37	5737517.62	565821.94
3199	29.69	238.3	2554.51	-2521.69	-942.99	-1514.8	5737517.36	565821.52
3200	29.65	238.32	2555.38	-2522.56	-943.25	-1515.22	5737517.09	565821.09
3201	29.61	238.34	2556.24	-2523.42	-943.51	-1515.64	5737516.83	565820.67
3202	29.58	238.35	2557.11	-2524.29	-943.78	-1516.07	5737516.56	565820.24
3203	29.54	238.37	2557.98	-2525.16	-944.04	-1516.49	5737516.3	565819.82
3204	29.5	238.38	2558.84	-2526.02	-944.31	-1516.92	5737516.04	565819.39
3205	29.46	238.4	2559.71	-2526.89	-944.57	-1517.34	5737515.77	565818.97
3206	29.44	238.43	2560.58	-2527.76	-944.82	-1517.76	5737515.52	565818.55
3207	29.41	238.46	2561.46	-2528.64	-945.07	-1518.18	5737515.27	565818.14
3208	29.38	238.49	2562.33	-2529.51	-945.32	-1518.59	5737515.02	565817.72
3209	29.36	238.52	2563.2	-2530.38	-945.58	-1519.01	5737514.77	565817.3
3210	29.33	238.56	2564.08	-2531.26	-945.83	-1519.42	5737514.52	565816.89
3211	29.3	238.59	2564.95	-2532.13	-946.08	-1519.84	5737514.26	565816.47
3212	29.28	238.62	2565.83	-2533.01	-946.33	-1520.26	5737514.01	565816.06
3213	29.25	238.65	2566.7	-2533.88	-946.58	-1520.67	5737513.76	565815.64
3214	29.23	238.68	2567.57	-2534.75	-946.83	-1521.09	5737513.51	565815.22
3215	29.2	238.72	2568.45	-2535.63	-947.08	-1521.5	5737513.26	565814.81
3216	29.17	238.75	2569.32	-2536.5	-947.34	-1521.92	5737513.01	565814.39
3217	29.15	238.78	2570.2	-2537.38	-947.59	-1522.34	5737512.76	565813.98
3218	29.12	238.81	2571.07	-2538.25	-947.84	-1522.75	5737512.5	565813.56
3219	29.09	238.84	2571.94	-2539.12	-948.09	-1523.17	5737512.25	565813.14
3220	29.07	238.88	2572.82	-2540	-948.34	-1523.58	5737512	565812.73
3221	29.04	238.91	2573.69	-2540.87	-948.59	-1524	5737511.75	565812.31
3222	29.01	238.94	2574.56	-2541.74	-948.84	-1524.42	5737511.5	565811.9
3223	28.99	238.97	2575.44	-2542.62	-949.1	-1524.83	5737511.25	565811.48
3224	28.96	239	2576.31	-2543.49	-949.35	-1525.25	5737511	565811.06
3225	28.94	239.04	2577.19	-2544.37	-949.6	-1525.66	5737510.74	565810.65

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3226	28.91	239.07	2578.06	-2545.24	-949.85	-1526.08	5737510.49	565810.23
3227	28.88	239.1	2578.93	-2546.11	-950.1	-1526.5	5737510.24	565809.82
3228	28.86	239.13	2579.81	-2546.99	-950.35	-1526.91	5737509.99	565809.4
3229	28.83	239.16	2580.68	-2547.86	-950.6	-1527.33	5737509.74	565808.98
3230	28.8	239.2	2581.56	-2548.74	-950.86	-1527.74	5737509.49	565808.57
3231	28.78	239.23	2582.43	-2549.61	-951.11	-1528.16	5737509.24	565808.15
3232	28.75	239.26	2583.3	-2550.48	-951.36	-1528.58	5737508.98	565807.74
3233	28.72	239.29	2584.18	-2551.36	-951.61	-1528.99	5737508.73	565807.32
3234	28.7	239.32	2585.05	-2552.23	-951.86	-1529.4	5737508.49	565806.91
3235	28.67	239.33	2585.93	-2553.11	-952.1	-1529.81	5737508.25	565806.5
3236	28.64	239.35	2586.81	-2553.99	-952.34	-1530.22	5737508	565806.09
3237	28.62	239.37	2587.7	-2554.88	-952.58	-1530.63	5737507.76	565805.68
3238	28.59	239.38	2588.58	-2555.76	-952.82	-1531.04	5737507.52	565805.27
3239	28.56	239.4	2589.46	-2556.64	-953.06	-1531.45	5737507.28	565804.86
3240	28.54	239.42	2590.34	-2557.52	-953.3	-1531.86	5737507.04	565804.45
3241	28.51	239.43	2591.22	-2558.4	-953.54	-1532.27	5737506.8	565804.04
3242	28.48	239.45	2592.1	-2559.28	-953.78	-1532.68	5737506.56	565803.64
3243	28.46	239.47	2592.98	-2560.16	-954.02	-1533.09	5737506.32	565803.23
3244	28.43	239.49	2593.86	-2561.04	-954.26	-1533.49	5737506.08	565802.82
3245	28.4	239.5	2594.74	-2561.92	-954.5	-1533.9	5737505.84	565802.41
3246	28.38	239.52	2595.62	-2562.8	-954.74	-1534.31	5737505.6	565802
3247	28.35	239.54	2596.5	-2563.68	-954.98	-1534.72	5737505.36	565801.59
3248	28.32	239.55	2597.38	-2564.56	-955.22	-1535.13	5737505.12	565801.18
3249	28.3	239.57	2598.26	-2565.44	-955.46	-1535.54	5737504.88	565800.77
3250	28.27	239.59	2599.14	-2566.32	-955.7	-1535.95	5737504.64	565800.36
3251	28.24	239.6	2600.02	-2567.2	-955.94	-1536.36	5737504.4	565799.95
3252	28.22	239.62	2600.9	-2568.08	-956.18	-1536.77	5737504.16	565799.55
3253	28.19	239.64	2601.78	-2568.96	-956.42	-1537.18	5737503.92	565799.14
3254	28.16	239.65	2602.66	-2569.84	-956.67	-1537.58	5737503.68	565798.73
3255	28.14	239.67	2603.54	-2570.72	-956.91	-1537.99	5737503.44	565798.32
3256	28.11	239.69	2604.42	-2571.6	-957.15	-1538.4	5737503.2	565797.91
3257	28.08	239.7	2605.3	-2572.48	-957.39	-1538.81	5737502.96	565797.5
3258	28.06	239.72	2606.18	-2573.36	-957.63	-1539.22	5737502.72	565797.09
3259	28.03	239.74	2607.06	-2574.24	-957.87	-1539.63	5737502.48	565796.68
3260	28	239.75	2607.94	-2575.12	-958.11	-1540.04	5737502.24	565796.27
3261	27.98	239.77	2608.82	-2576	-958.35	-1540.45	5737501.99	565795.86
3262	27.95	239.79	2609.7	-2576.88	-958.59	-1540.86	5737501.75	565795.46
3263	27.92	239.8	2610.59	-2577.77	-958.83	-1541.26	5737501.52	565795.05
3264	27.85	239.81	2611.48	-2578.66	-959.05	-1541.65	5737501.29	565794.66
3265	27.77	239.81	2612.37	-2579.55	-959.28	-1542.04	5737501.06	565794.27
3266	27.7	239.82	2613.26	-2580.44	-959.51	-1542.44	5737500.83	565793.88
3267	27.63	239.82	2614.15	-2581.33	-959.74	-1542.83	5737500.61	565793.48
3268	27.56	239.83	2615.04	-2582.22	-959.96	-1543.22	5737500.38	565793.09
3269	27.49	239.83	2615.93	-2583.11	-960.19	-1543.61	5737500.15	565792.7
3270	27.42	239.84	2616.83	-2584.01	-960.42	-1544	5737499.93	565792.31
3271	27.35	239.84	2617.72	-2584.9	-960.64	-1544.39	5737499.7	565791.92
3272	27.28	239.85	2618.61	-2585.79	-960.87	-1544.79	5737499.47	565791.53
3273	27.21	239.85	2619.5	-2586.68	-961.1	-1545.18	5737499.24	565791.13
3274	27.14	239.86	2620.39	-2587.57	-961.33	-1545.57	5737499.02	565790.74
3275	27.07	239.86	2621.28	-2588.46	-961.55	-1545.96	5737498.79	565790.35
3276	27	239.86	2622.18	-2589.36	-961.78	-1546.35	5737498.56	565789.96
3277	26.93	239.87	2623.07	-2590.25	-962.01	-1546.74	5737498.33	565789.57
3278	26.86	239.87	2623.96	-2591.14	-962.24	-1547.14	5737498.11	565789.18
3279	26.79	239.88	2624.85	-2592.03	-962.46	-1547.53	5737497.88	565788.78
3280	26.72	239.88	2625.74	-2592.92	-962.69	-1547.92	5737497.65	565788.39
3281	26.65	239.89	2626.63	-2593.81	-962.92	-1548.31	5737497.42	565788
3282	26.57	239.89	2627.52	-2594.7	-963.15	-1548.7	5737497.2	565787.61
3283	26.5	239.9	2628.42	-2595.6	-963.37	-1549.09	5737496.97	565787.22

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3284	26.43	239.9	2629.31	-2596.49	-963.6	-1549.49	5737496.74	565786.83
3285	26.36	239.91	2630.2	-2597.38	-963.83	-1549.88	5737496.52	565786.43
3286	26.29	239.91	2631.09	-2598.27	-964.05	-1550.27	5737496.29	565786.04
3287	26.22	239.92	2631.98	-2599.16	-964.28	-1550.66	5737496.06	565785.65
3288	26.15	239.92	2632.87	-2600.05	-964.51	-1551.05	5737495.83	565785.26
3289	26.08	239.93	2633.77	-2600.95	-964.74	-1551.44	5737495.61	565784.87
3290	26.01	239.93	2634.66	-2601.84	-964.96	-1551.84	5737495.38	565784.48
3291	25.94	239.94	2635.55	-2602.73	-965.19	-1552.23	5737495.15	565784.08
3292	25.88	239.95	2636.45	-2603.63	-965.41	-1552.6	5737494.94	565783.71
3293	25.82	239.96	2637.36	-2604.54	-965.62	-1552.97	5737494.73	565783.34
3294	25.75	239.97	2638.26	-2605.44	-965.83	-1553.33	5737494.51	565782.98
3295	25.69	239.98	2639.17	-2606.35	-966.04	-1553.7	5737494.3	565782.61
3296	25.63	239.99	2640.07	-2607.25	-966.25	-1554.07	5737494.09	565782.24
3297	25.57	240	2640.98	-2608.16	-966.46	-1554.44	5737493.88	565781.88
3298	25.51	240.01	2641.89	-2609.07	-966.67	-1554.8	5737493.67	565781.51
3299	25.45	240.02	2642.79	-2609.97	-966.89	-1555.17	5737493.46	565781.14
3300	25.39	240.04	2643.7	-2610.88	-967.1	-1555.54	5737493.25	565780.77
3301	25.33	240.05	2644.6	-2611.78	-967.31	-1555.9	5737493.04	565780.41
3302	25.27	240.06	2645.51	-2612.69	-967.52	-1556.27	5737492.82	565780.04
3303	25.21	240.07	2646.41	-2613.59	-967.73	-1556.64	5737492.61	565779.67
3304	25.15	240.08	2647.32	-2614.5	-967.94	-1557.01	5737492.4	565779.31
3305	25.09	240.09	2648.23	-2615.41	-968.15	-1557.37	5737492.19	565778.94
3306	25.03	240.1	2649.13	-2616.31	-968.36	-1557.74	5737491.98	565778.57
3307	24.97	240.11	2650.04	-2617.22	-968.57	-1558.11	5737491.77	565778.2
3308	24.91	240.12	2650.94	-2618.12	-968.79	-1558.47	5737491.56	565777.84
3309	24.85	240.13	2651.85	-2619.03	-969	-1558.84	5737491.35	565777.47
3310	24.79	240.14	2652.76	-2619.94	-969.21	-1559.21	5737491.14	565777.1
3311	24.73	240.16	2653.66	-2620.84	-969.42	-1559.58	5737490.92	565776.74
3312	24.67	240.17	2654.57	-2621.75	-969.63	-1559.94	5737490.71	565776.37
3313	24.61	240.18	2655.47	-2622.65	-969.84	-1560.31	5737490.5	565776
3314	24.54	240.19	2656.38	-2623.56	-970.05	-1560.68	5737490.29	565775.63
3315	24.48	240.2	2657.28	-2624.46	-970.26	-1561.04	5737490.08	565775.27
3316	24.42	240.21	2658.19	-2625.37	-970.47	-1561.41	5737489.87	565774.9
3317	24.36	240.22	2659.1	-2626.28	-970.69	-1561.78	5737489.66	565774.53
3318	24.3	240.23	2660	-2627.18	-970.9	-1562.15	5737489.45	565774.17
3319	24.24	240.24	2660.91	-2628.09	-971.11	-1562.51	5737489.23	565773.8
3320	24.19	240.25	2661.82	-2629	-971.32	-1562.88	5737489.03	565773.44
3321	24.17	240.25	2662.73	-2629.91	-971.52	-1563.23	5737488.83	565773.08
3322	24.15	240.25	2663.64	-2630.82	-971.72	-1563.58	5737488.62	565772.73
3323	24.13	240.25	2664.56	-2631.74	-971.92	-1563.93	5737488.42	565772.38
3324	24.11	240.25	2665.47	-2632.65	-972.12	-1564.28	5737488.22	565772.03
3325	24.09	240.25	2666.39	-2633.57	-972.32	-1564.63	5737488.02	565771.68
3326	24.07	240.25	2667.3	-2634.48	-972.52	-1564.99	5737487.82	565771.33
3327	24.05	240.25	2668.22	-2635.4	-972.72	-1565.34	5737487.62	565770.97
3328	24.03	240.25	2669.13	-2636.31	-972.92	-1565.69	5737487.42	565770.62
3329	24.01	240.25	2670.04	-2637.22	-973.13	-1566.04	5737487.22	565770.27
3330	23.99	240.25	2670.96	-2638.14	-973.33	-1566.39	5737487.02	565769.92
3331	23.96	240.25	2671.87	-2639.05	-973.53	-1566.74	5737486.81	565769.57
3332	23.94	240.25	2672.79	-2639.97	-973.73	-1567.1	5737486.61	565769.22
3333	23.92	240.25	2673.7	-2640.88	-973.93	-1567.45	5737486.41	565768.86
3334	23.9	240.25	2674.62	-2641.8	-974.13	-1567.8	5737486.21	565768.51
3335	23.88	240.25	2675.53	-2642.71	-974.33	-1568.15	5737486.01	565768.16
3336	23.86	240.25	2676.44	-2643.62	-974.53	-1568.5	5737485.81	565767.81
3337	23.84	240.25	2677.36	-2644.54	-974.73	-1568.86	5737485.61	565767.46
3338	23.82	240.25	2678.27	-2645.45	-974.94	-1569.21	5737485.41	565767.1
3339	23.8	240.25	2679.19	-2646.37	-975.14	-1569.56	5737485.21	565766.75
3340	23.78	240.25	2680.1	-2647.28	-975.34	-1569.91	5737485.01	565766.4
3341	23.76	240.25	2681.02	-2648.2	-975.54	-1570.26	5737484.8	565766.05

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3342	23.74	240.25	2681.93	-2649.11	-975.74	-1570.61	5737484.6	565765.7
3343	23.71	240.25	2682.84	-2650.02	-975.94	-1570.97	5737484.4	565765.35
3344	23.69	240.25	2683.76	-2650.94	-976.14	-1571.32	5737484.2	565764.99
3345	23.67	240.25	2684.67	-2651.85	-976.34	-1571.67	5737484	565764.64
3346	23.65	240.25	2685.59	-2652.77	-976.54	-1572.02	5737483.8	565764.29
3347	23.63	240.25	2686.5	-2653.68	-976.74	-1572.37	5737483.6	565763.94
3348	23.61	240.25	2687.42	-2654.6	-976.95	-1572.72	5737483.4	565763.59
3349	23.59	240.23	2688.33	-2655.51	-977.15	-1573.07	5737483.2	565763.24
3350	23.56	240.19	2689.25	-2656.43	-977.35	-1573.42	5737483	565762.89
3351	23.54	240.14	2690.17	-2657.35	-977.54	-1573.76	5737482.8	565762.55
3352	23.52	240.1	2691.08	-2658.26	-977.74	-1574.11	5737482.6	565762.21
3353	23.49	240.06	2692	-2659.18	-977.94	-1574.45	5737482.4	565761.86
3354	23.47	240.02	2692.92	-2660.1	-978.14	-1574.8	5737482.2	565761.52
3355	23.44	239.97	2693.84	-2661.02	-978.34	-1575.14	5737482	565761.17
3356	23.42	239.93	2694.75	-2661.93	-978.54	-1575.49	5737481.8	565760.83
3357	23.39	239.89	2695.67	-2662.85	-978.74	-1575.83	5737481.6	565760.48
3358	23.37	239.84	2696.59	-2663.77	-978.94	-1576.17	5737481.41	565760.14
3359	23.35	239.8	2697.51	-2664.69	-979.14	-1576.52	5737481.21	565759.79
3360	23.32	239.76	2698.42	-2665.6	-979.34	-1576.86	5737481.01	565759.45
3361	23.3	239.72	2699.34	-2666.52	-979.53	-1577.21	5737480.81	565759.1
3362	23.27	239.67	2700.26	-2667.44	-979.73	-1577.54	5737480.61	565758.77
3363	23.25	239.63	2701.18	-2668.36	-979.93	-1577.88	5737480.41	565758.43
3364	23.22	239.58	2702.1	-2669.28	-980.13	-1578.22	5737480.21	565758.09
3365	23.2	239.54	2703.02	-2670.2	-980.33	-1578.55	5737480.01	565757.76
3366	23.18	239.5	2703.94	-2671.12	-980.53	-1578.89	5737479.81	565757.42
3367	23.15	239.45	2704.86	-2672.04	-980.73	-1579.23	5737479.61	565757.08
3368	23.13	239.41	2705.78	-2672.96	-980.93	-1579.56	5737479.41	565756.75
3369	23.1	239.37	2706.7	-2673.88	-981.13	-1579.9	5737479.21	565756.41
3370	23.08	239.32	2707.62	-2674.8	-981.33	-1580.24	5737479.01	565756.07
3371	23.05	239.28	2708.54	-2675.72	-981.53	-1580.57	5737478.81	565755.74
3372	23.03	239.23	2709.46	-2676.64	-981.73	-1580.91	5737478.61	565755.4
3373	23	239.19	2710.38	-2677.56	-981.93	-1581.25	5737478.41	565755.06
3374	22.98	239.15	2711.3	-2678.48	-982.13	-1581.58	5737478.21	565754.73
3375	22.96	239.1	2712.22	-2679.4	-982.34	-1581.92	5737478.01	565754.39
3376	22.93	239.06	2713.14	-2680.32	-982.54	-1582.26	5737477.81	565754.05
3377	22.91	239.02	2714.06	-2681.24	-982.74	-1582.59	5737477.61	565753.72
3378	22.88	238.97	2714.98	-2682.16	-982.94	-1582.93	5737477.41	565753.38
3379	22.86	238.93	2715.9	-2683.08	-983.14	-1583.27	5737477.21	565753.04
3380	22.83	238.88	2716.82	-2684	-983.34	-1583.6	5737477.01	565752.71
3381	22.81	238.84	2717.74	-2684.92	-983.54	-1583.94	5737476.81	565752.37

## **APPENDIX 2a**

### **BREAM A10A**

#### **Petrophysics Evaluation Summary**



**Esso Australia Pty Ltd.**  
Exploration Department

**Bream A10A  
Formation Evaluation  
Log Interpretation Report**

**Petrophysicist: P J Tarabbia  
OCT 2005**

## Bream A10A Log Interpretation

Bream A10A was drilled as a re-entry from the Bream A10 well on the 30<sup>th</sup> of April 2005. The Bream A10A well was designed to access deep gas and oil reserves and targeted the oil columns in the N1 and M5 sands.

The well was spudded on the 4th May 2005 by milling a window in the 9 5/8" casing of the Bream A10 production well at 2258mMDRT. The 8½" hole was drilled to a total depth of 3392mMDRT (2727.9mTVDRT) and a 7" production casing was run to 3391mMDRT. Bream A10A was completed on the 24th May 2005 as an M5 oil producer with a single 3.5" completion string run to 2770mMDRT with 2 completion zones (3 packers, 2 sleeves).

The Reeves wireline equivalent (shuttle) logs have been analysed for porosity, water saturation and net pay over the interval 2270 – 3350 mMDRT.

#Note: All depths quoted in this report are logged mMDRT unless otherwise specified.

### DATA

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

Survey/Log	Company	Top (m MDRT)	Hole size (inches)	Bottom (m MDRT)
Compact Gamma Ray - Compact Dual Neutron - Compact Photodensity - Compact Sonic - Compact Dual Laterolog	Reeves	2193.1	8 1/2	3376.5 (1st reading)

### Deviation

The well inclination over the M-5 reservoir (from to 2761 - 2800m MDRT) was ~37 degrees.

### Mud Data

Mud Type : KCl/Glycol/PHPA  
Mud Weight: 10.1 ppg  
RT: 32.8m  
Rm: 0.134 @ 25 °C  
Rmf: 0.103 @ 25 °C  
Rmc: 0.236 @ 25 °C  
BHT: 104 °C @3344m

### Hole Size

2258 – 3391 mMDRT      8½ inches

### Data Acquisition & Log Quality

No problems were encountered in the acquisition of the logs and the data quality of all the logs is acceptable.

### Data Processing

The DDLL (deep laterolog), DSLL (shallow laterolog), DEN (bulk density), NPRL (neutron porosity), DT35 (compressional sonic) and GGCE (borehole corrected gamma ray) curves were depth aligned to the LWD GR curve. All coal zones were manually picked and a coal flag (flag\_coal) was created. Igneous zones were correlated to offset wells and determined from the logs.

In addition, temperature (temp) and hydrocarbon flag (flag\_rhof) curves were also generated. All the new curves were used as inputs for the final petrophysical interpretation.

## INTERPRETATION

### Logs Used

The primary logs used in the interpretation were DDLL (deep resistivity), GGCE (borehole corrected gamma ray), DEN (bulk density) and NPRL (thermal neutron porosity in LPU).

### 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 25,000 ppm NaCl equivalent.

### Hydrocarbon Type Identification

#### Gurnard

The density-neutron cross-over in the sands in the Gurnard Formation indicate gas. Gas is also suggested using the neutron count rates and the PHIX-DT methodology.

#### N-1

The density-neutron cross-over in the upper portion of the N-1 sands indicate gas. The LKG for this unit is down to at least 2400mMDRT (1904.3mTVDSS). Below this depth, it is interpreted that a small oil leg is still present down to 2403.5mMDRT (1906.8mTVDSS). There appears to be a residual oil column down to 2421.5mMDRT (1919.2mTVDSS). A swept zone (high efficiency) is indicated to the original OWC of 2434.3mMDRT (1929mTVDSS). Fluorescence (from the mudlog) is not observed across the zone of interpreted oil. However, there is an increase in C5's on the gas log. The interpreted oil is determined from PHIX-DT methodology.

#### M5

The density-neutron cross-over in the M5 sand indicates the hydrocarbon type is a light oil with a OWC at 2781.3mMDRT (2175mTVDSS). Fluorescence (from the mudlog) was present with an increase in C5's from the gas log. RFT pressures from Bream A10 indicate that this sand package is a light oil.

#### M6

The density-neutron cross-over in the M6 sand indicates the hydrocarbon type is probably gas. However, neutron count rates and PHIX-DT could not clearly discern if the M6 sand is gas or oil. Therefore, it is considered that the M6 sand is most probably a condensate rich gas zone with a water contact at 2828mMDRT (2212.5mTVDSS). Fluorescence of up to 5% (from the mudlog) was present in this sand.

#### L2-1/2-2

The density-neutron cross-over in the L2-1 sand indicates the hydrocarbon type is a gas with a GWC at 2929mMDRT (2294.7mTVDSS). The density-neutron cross-over in the L2-2 sand indicates the hydrocarbon type is a gas with a GOC at 2962.8mMDRT (2322.5mTVDSS). A thin oil column is interpreted, with an OWC at 2966.5mMDRT (2325.5mTVDSS).

#### L series sands

Two small gas bearing sands exist between 3176 and 3196.3mMDRT. Gas is interpreted from the density-neutron cross-over. The lower sand has an interpreted GWC at ~3214.1mMDRT (2535mTVDSS) from pressure surveys in the Bream A10 well.

#### L12

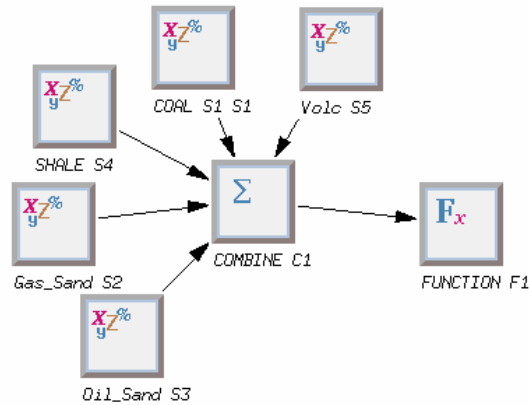
The density-neutron cross-over in the L12 sand could not be used to determine the hydrocarbon type. Gas is indicated from the use of neutron count rates and the PHIX-DT methodology.

## 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

#### ELAN Processes



#### ELAN Input Channels

Name	Curve
Temp_CH	TEMP
RHOB_IFAC_CH	IFRH
NPHI_IFAC_CH	INPH
RHOB_CH	DEN:BPB
NPHI_CH	NPRL:BPB
PRB1_CH	FLAG_COAL
PRB2_CH	RHOF
PRB3_CH	FLAG_IGN

#### ELAN Global Parameters

Reference Index	MD
Processing Interval	2270.0000(m) To 3349.0000(m)
Sampling Rate	0.3281(m)
Uncertainty Channel	FALSE
Clay Input	DRY
Special Fluids	IMMOVABLE_HYDROCARBON

#### ELAN Zone Definition

Name	Bottom To Top
L12	3355.0017(m) To 3311.0002(m)
L2	3311.0002(m) To 2920.0000(m)
M5	2920.0000(m) To 2760.0000(m)
Pcoal	2760.0000(m) To 2405.5000(m)
Inv2	2405.5000(m) To 2400.0000(m)
N1	2400.0000(m) To 2391.0000(m)
TOL	2391.0000(m) To 2270.0000(m)

## ELAN Process Definiton

---

Process	SOLVE2 "Gas_Sand"							
Equations	RHOB	NPHI	CUDC_DWA	GR	CT1	CT3		
Volumes	QUAR	ORTH	ILLI	KAOL	XWAT	UWAT	XGAS	UGAS
User Constraints								
Constraint Zones	Bottom			Top				
UNDEFINED	3355.0017(m )			2270.0000(m )				

---

Process	SOLVE3 "Oil_Sand"							
Equations	RHOB	NPHI	CUDC_DWA	GR	CT1	CT2		
Volumes	QUAR	ORTH	ILLI	KAOL	XWAT	UWAT	XOIL	UOIL
User Constraints								
	UWAT+UIWA+USFL>=min(BVIRR, PHIT)							
	XWAT+XIWA+XSFL>=min(BVIRR, PHIT)							
Constraint Zones	Bottom			Top				
UNDEFINED	3355.0017(m )			2270.0000(m )				

---

Process	SOLVE1 "COAL S1"		
Equations	RHOB		
Volumes	COAL		
Constraint Zones	Bottom		Top
UNDEFINED	3355.0017(m )		2270.0000(m )

---

Process	SOLVE4 "SHALE"				
Equations	RHOB	NPHI	GR		
Volumes	QUAR	ILLI	KAOL	XWAT	UWAT
Constraint Zones	Bottom		Top		
UNDEFINED	3355.0017(m )		2270.0000(m )		

---

Process	SOLVE5 "Volc"		
Equations	RHOB		
Volumes	IGNE		
Constraint Zones	Bottom		Top
UNDEFINED	3355.0017(m )		2270.0000(m )

---

Process	COMBINE 1 "COMBINE"				
Order	SOL.3	SOL.2	SOL.4	SOL.5	SOL.1
Combine Method					
	"UNDEFINED " 11007.2236 (m ) Internal Average				
	"N0 " 7844.8164 (m ) Internal Average				
Probability Functions					
	probability ( SOL.1 , PRB1_CH)				
	probability ( SOL.5 , PRB3_CH)				
	prob1=linear (ILLI_VOL + KAOL_VOL,0.3,0,0.5,1)				
	probability ( SOL.4 , prob1)				
	prob2=if(PRB2_CH <= 0.25,1,0)				
	probability ( SOL.2 ,prob2)				

---

Process	FUNCTION 1 "FUNCTION"				
Outputs	SWT	VCL	SUWI	PIGN	PHIT
User-defined Function/n					
	swt_cmp=(UWAT_VOL+XBWA_VOL)/(UWAT_VOL+XBWA_VOL+UOIL_VOL+UGAS_VOL)				
output(SWT,swt_cmp)					

---

## ELAN Model Constraints

---

Model 2:       Constraint Zones  
          Name           Boundary    Temperature  
          UNDEFINED       11007.2236 -999.25

Model 3:       Constraint Zones  
          Name           Boundary    Temperature  
          UNDEFINED       11007.2236 -999.25

Model 1:       Constraint Zones  
          Name           Boundary    Temperature  
          UNDEFINED       11007.2236 -999.25

Model 4:       Constraint Zones  
          Name           Boundary    Temperature  
          UNDEFINED       11007.2236 -999.25

Model 5:       Constraint Zones  
          Name           Boundary    Temperature  
          UNDEFINED       11007.2236 -999.25

---

## ELAN Different Parameters

---

Parameters	L12	L2	M5	Pcoal
n *****	*****	*****	*****	*****
RHOB_XWAT (g/cm3 )	1.001	1.001	1.006	1.006
RHOB_UWAT (g/cm3 )	0.973	0.973	0.975	0.978
RHOB_XGAS (g/cm3 )	0.020	0.000	-0.006	-0.020
RHOB_UGAS (g/cm3 )	0.020	0.000	-0.006	-0.020
NPHI_XGAS (m3/m3 )	0.155	0.123	0.113	0.090
NPHI_UGAS (m3/m3 )	0.155	0.123	0.113	0.090
CXDC_XWAT (mS/m )	27.605	26.900	24.900	26.372
CUDC_UWAT (mS/m )	11.000	11.805	10.939	11.523
CUDC_UBWA (mS/m )	3.867	3.855	3.743	3.651
WCLP_ILLI (m3/m3 )	0.113	0.113	0.113	0.112
RMF (ohm.m )	0.125	0.128	0.135	0.125
RW (ohm.m )	0.508	0.471	0.496	0.459
CXDC_UNC_ZP (mS/m )	0.079	0.078	0.075	0.077
CUDC_UNC_ZP (mS/m )	0.050	0.052	0.050	0.051
RHOB_IFAC_ZP( )	0.500	0.500	0.500	0.500
NPHI_IFAC_ZP( )	0.500	0.500	.500	0.500

---

Parameters	Inv2	N1	TOL	
n *****	*****	*****	*****	*****
RHOB_XWAT (g/cm3 )	1.006	.006	1.006	
RHOB_UWAT (g/cm3 )	0.978	0.978	0.978	
RHOB_XGAS (g/cm3 )	-0.020	-0.020	-0.020	
RHOB_UGAS (g/cm3 )	-0.020	-0.020	-0.020	
NPHI_XGAS (m3/m3 )	0.090	0.090	0.090	
NPHI_UGAS (m3/m3 )	0.090	0.090	0.090	
CXDC_XWAT (mS/m )	25.047	25.015	25.000	
CUDC_UWAT (mS/m )	10.906	10.896	10.880	
CUDC_UBWA (mS/m )	3.431	3.428	3.422	
WCLP_ILLI (m3/m3 )	0.111	0.111	0.111	
RMF (ohm.m )	0.125	0.125	0.125	
RW (ohm.m )	0.459	0.459	0.459	
CXDC_UNC_ZP (mS/m )	0.075	0.075	0.075	
CUDC_UNC_ZP (mS/m )	0.050	0.050	0.049	
RHOB_IFAC_ZP( )	0.900	0.500	0.500	
NPHI_IFAC_ZP( )	0.700	0.500	0.500_	

---

## ELAN Probability Expressions

probability ( SOL.1 , PRB1\_CH)  
 probability ( SOL.5 , PRB3\_CH)  
 prob1=linear (ILLI\_VOL + KAOL\_VOL,0.3,0,0.5,1)  
 probability ( SOL.4 , prob1)  
 prob2=if(PRB2\_CH <= 0.25,1,0)  
 probability ( SOL.2,prob2)\_

## ELAN Same Parameters

Parameter	Value	Parameter	Value
RHOB_QUAR	2.650 (g/cm3)	RHOB_CALC	2.710 (g/cm3)
RHOB_DOLO	2.847 (g/cm3)	RHOB_ORTH	2.570 (g/cm3)
RHOB_ILLI	2.780 (g/cm3)	RHOB_KAOL	2.620 (g/cm3)
RHOB_COAL	1.200 (g/cm3)	RHOB_IGNE	2.250 (g/cm3)
RHOB_XWAT	1.074 (g/cm3)	RHOB_UWAT	0.987 (g/cm3)
RHOB_XOIL	0.800 (g/cm3)	RHOB_UOIL	0.800 (g/cm3)
RHOB_XBWA	1.000 (g/cm3)	NPHI_QUAR	-0.053 (m3/m3)
NPHI_CALC	0.000 (m3/m3)	NPHI_DOLO	0.032 (m3/m3)
NPHI_ORTH	-0.010 (m3/m3)	NPHI_ILLI	0.247 (m3/m3)
NPHI_KAOL	0.450 (m3/m3)	NPHI_COAL	0.600 (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_IGNE	0.400 (m3/m3)	NPHI_UGAS	0.090 (m3/m3)
NPHI_XBWA	1.000 (m3/m3)	DT_QUAR	55.500 (us/m)
CXDC_QUAR	0.000 (mS/m)	CUDC_ILLI	-999.250 (mS/m)
CUDC_KAOL	-999.250 (mS/m)	CXDC_XGAS	0.000 (gAPI)
CXDC_UGAS	-999.250 (mS/m)	CUDC_ILLI	-999.250 (mS/m)
CXDC_KAOL	-999.250 (mS/m)	CUDC_XGAS	0.000 (mS/m)
CUDC_UGAS	0.000 (mS/m)	GR_CALC	11.000 (gAPI)
GR_DOLO	3.000 (gAPI)	GR_ORTH	170.000 (gAPI)
GR_ILLI	220.000 (gAPI)	GR_KAOL	130.000 (gAPI)
GR_COAL	80.000 (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)	CT1_QUAR	0.080
CT1_CALC	0.000	CT1_DOLO	0.000
CT1_ORTH	-1.000	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	0.000
CT1_UGAS	0.000	CT1_XBWA	0.000
CT2_QUAR	0.000	CT2_CALC	0.000
CT2_DOLO	0.000	CT2_ORTH	0.000
CT2_ILLI	0.000	CT2_KAOL	0.000
CT2_XWAT	0.000	CT2_UWAT	0.000
CT2_XOIL	-1.000	CT2_UOIL	0.200
CT2_XGAS	0.000	CT2_UGAS	0.000
CT2_XBWA	0.000	CT3_QUAR	0.000
CT3_CALC	0.000	CT3_ORTH	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	1.000
CT3_UGAS	-0.300	CT3_XBWA	0.000
ARHOB_ILLI	2.780 (g/cm3)	ARHOB_KAOL	2.620 (g/cm3)
WCLP_ILLI	0.154 (m3/m3)	WCLP_KAOL	0.061 (m3/m3)
CBWA_ILLI	-999.250 (mS/m)	CBWA_KAOL	-999.250 (mS/m)
CECA_ILLI	0.200 (meq/g)	CECA_KAOL	0.090 (meq/g)
RMF	0.160 (ohm.m)	MST	61.880 (degC)
RWT	-999.250 (degC)	SALIN_ISOL	-999.250 (ppk)
SALIN_PARA	-999.250 (ppk)	SALIN_XWAT	8.964 (ppk)
SALIN_UWAT	30.000 (ppk)	SALIN_XIWA	-999.250 (ppk)
SALIN_UIWA	-999.250 (ppk)	SALIN_XOIL	0.000 (ppk)

Parameter	Value	Parameter	Value
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
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)
CT1_UNC_ZP	0.015	CT2_UNC_ZP	0.015
CT3_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	0.700
GR_UNC_WM	0.300	CT1_UNC_WM	0.200
CT2_UNC_WM	0.200	CT3_UNC_WM	0.900
VOLS_UNC_WM	1.000	RHOB_IFAC_ZP	1.000
NPHI_IFAC_ZP	1.000	A_ZP	1.000
N_ZP	2.000	C_DWA	0.000
M_DWA	2.000	BVIRR	0.040 (m3/m3)

## RESULTS AND DISCUSSION

The top of the Latrobe Group occurs at 2236.5mMDRT in this well. The sands of the Gurnard Formation are gas bearing (Fig 1). The mudlog shows up to 500units of gas and there is a lack of fluorescence. A total of 26.9m of net pay sand is present and is distributed among two units. The two sands have an average effective porosity of 19% and average effective water saturation of 70%.

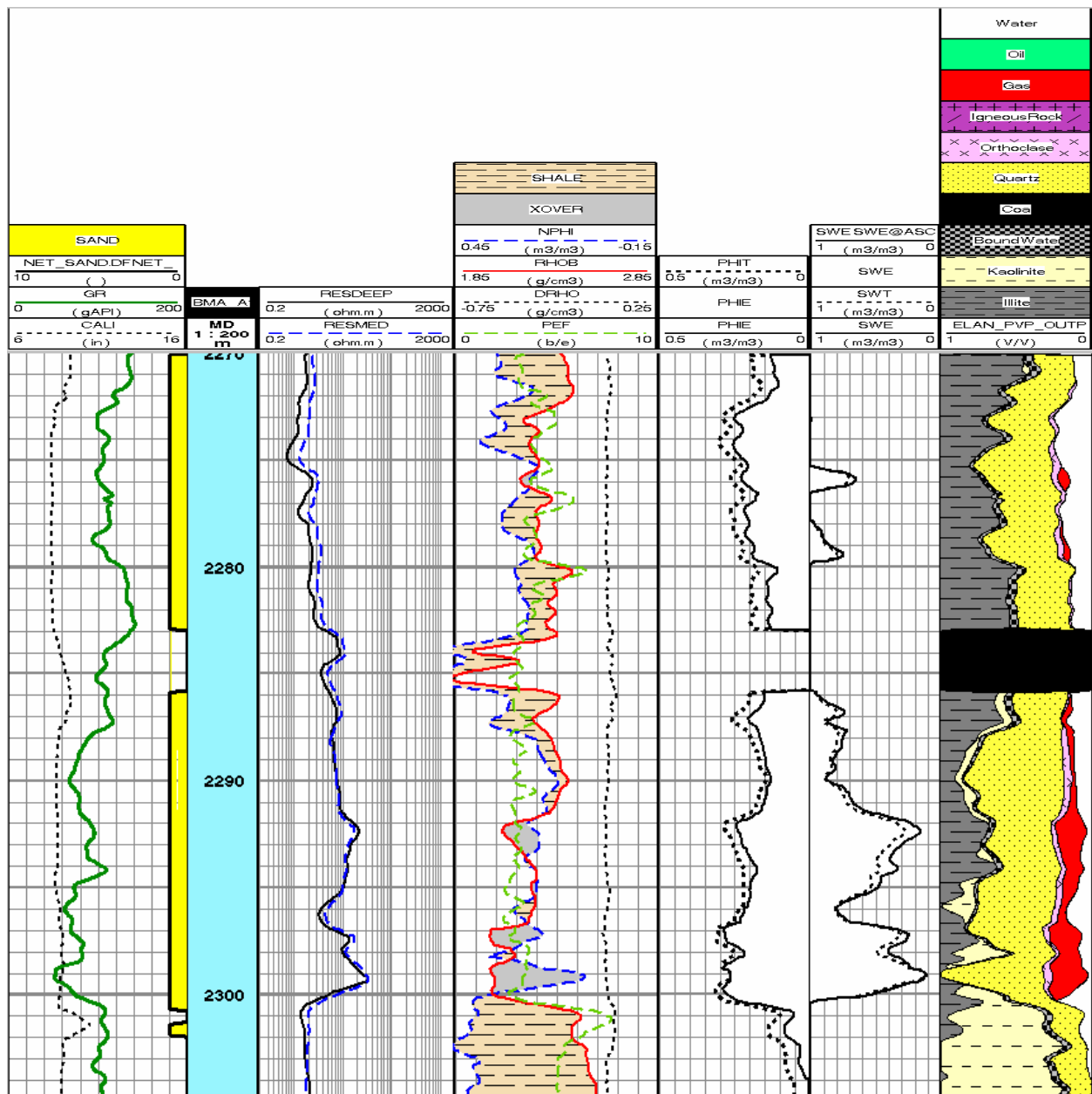


Figure 1. Gurnard Formation gas sands.

The underlying N-1 reservoir unit contains a 4.5mMD gas column (Fig 2). The sands in this interval are well defined and it is interpreted that there is gas down to 2400mMDRT. The sands of this unit have an average effective porosity of 22% and average effective water saturation of 26%.

There is a thin oil column below the gas cap. This 3.5mMD oil interval has an interpreted OWC at 2403.5mMDRT. The sands within the oil zone have an average effective porosity of 18% and average effective water saturation of 56%. A residual oil column is interpreted to 2421mMDRT.

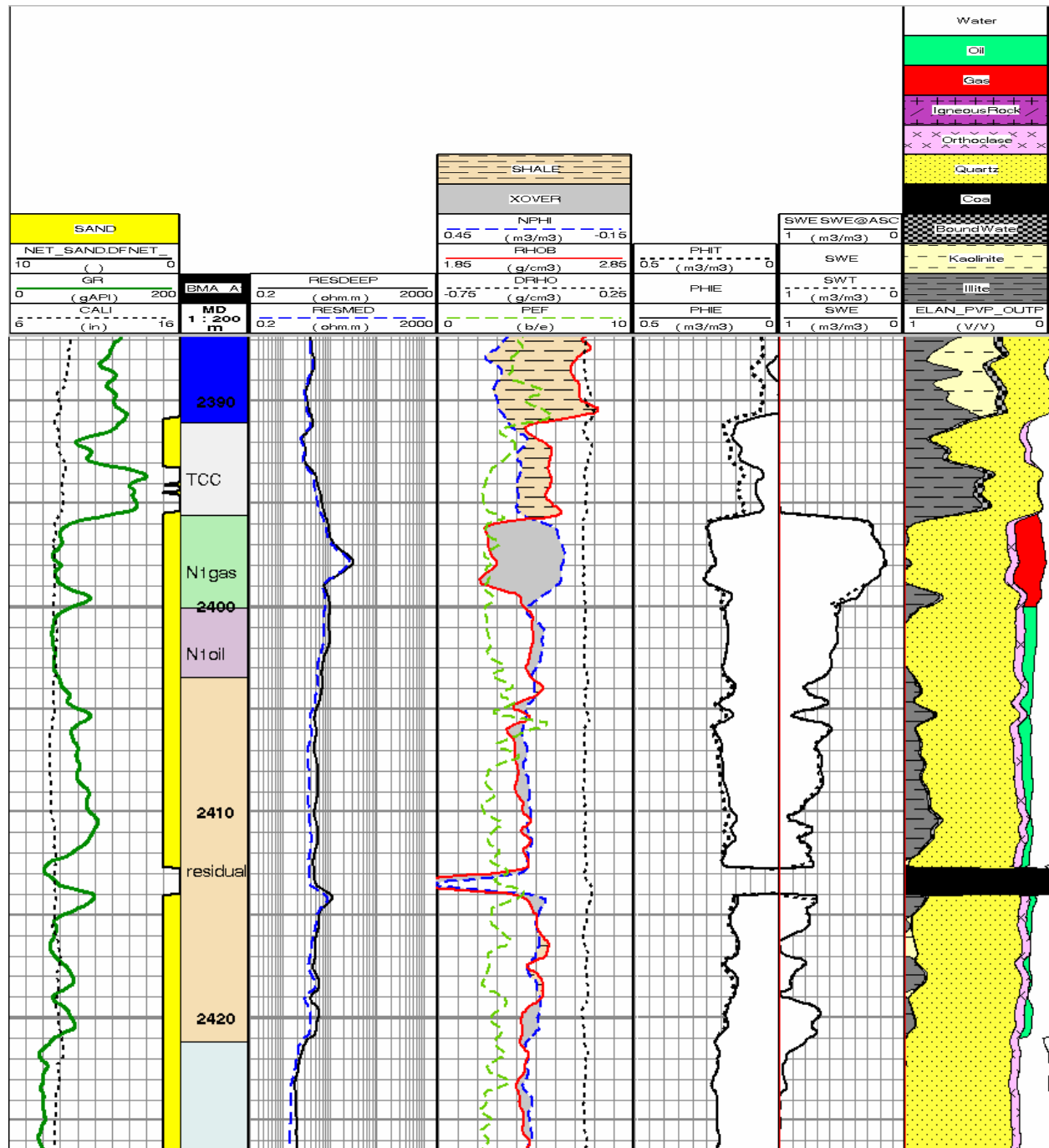


Figure 2. N-1 reservoir unit.

The M5 sand was intersected in this well at 2761mMDRT (Fig 3). This is an 18.9mMD oil bearing sand and has an average effective porosity calculated of 21%. The average effective saturation for this interval was 38%.

The M6 sand is interpreted to be gas saturated. A total of 28mMD is gas bearing and the effective porosity calculated was 17%. The average effective water saturation for the gas zone was 31% (Fig 4).

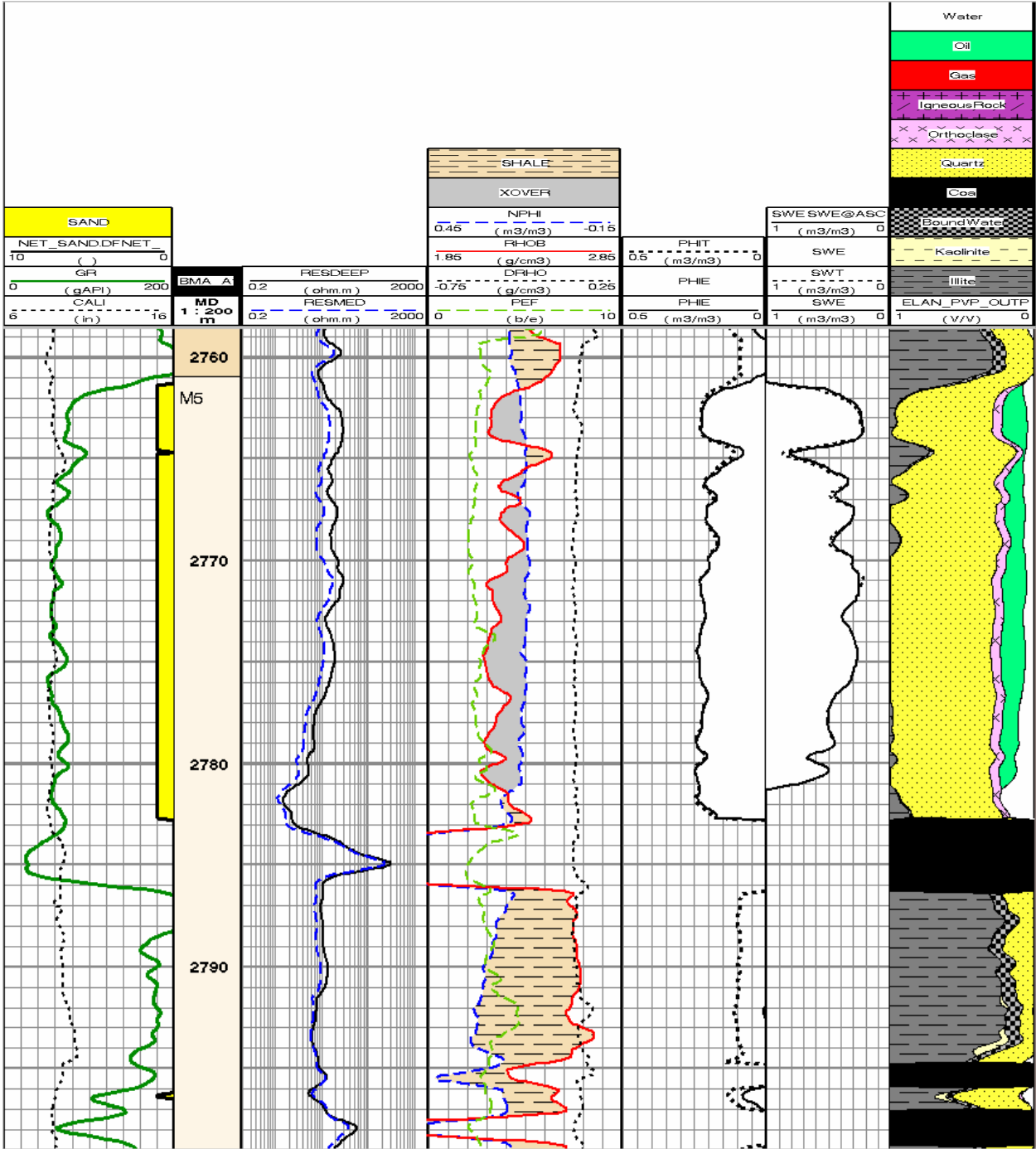


Figure 3. M5 sand.

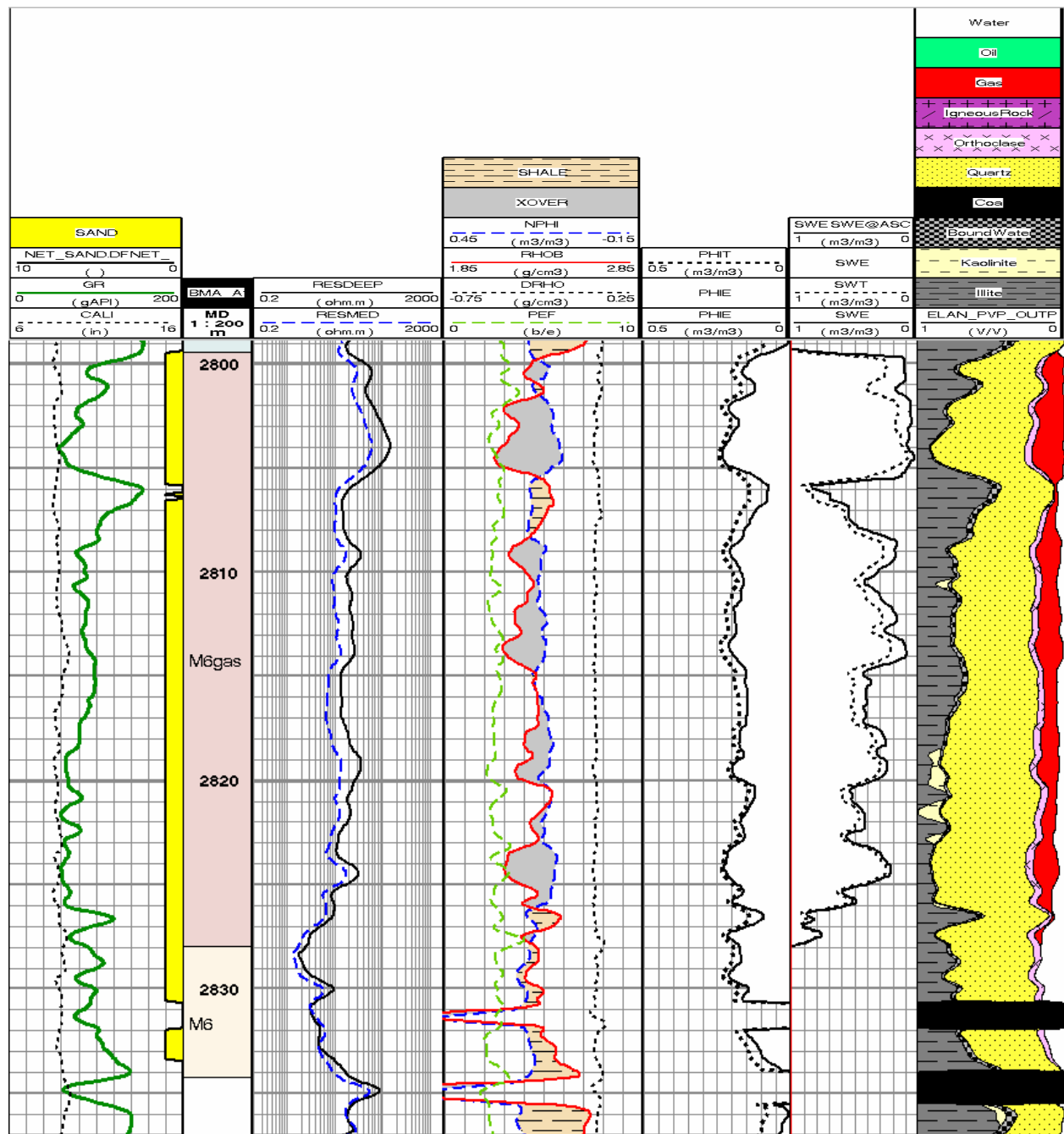


Figure 4. M6 sand.

The L2-1 reservoir unit contains a 4.9mMD gas column (Fig 5). The sands in this interval are well defined and it is interpreted that there is gas down to 2929mMDRT. The sands of this unit have an average effective porosity of 17% and average effective water saturation of 51%.

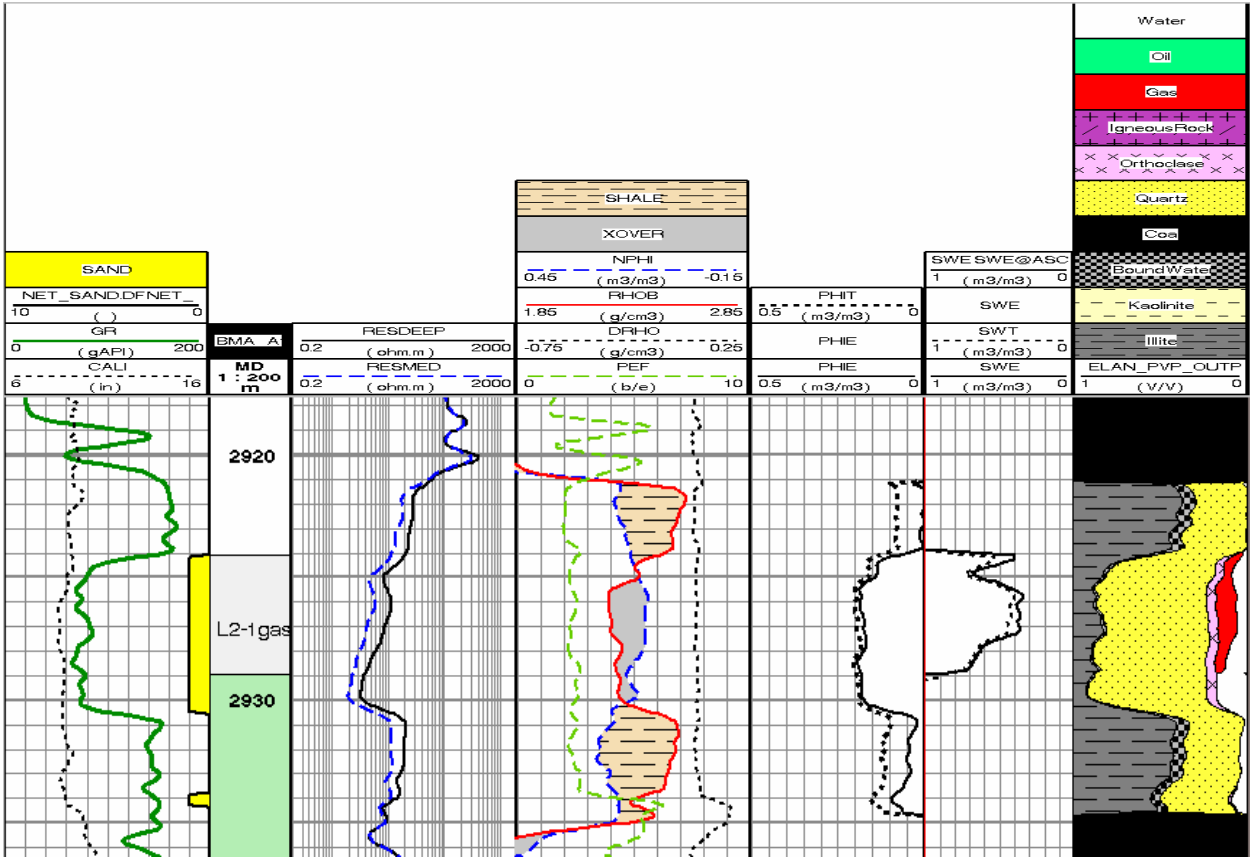


Figure 5. L2-1 sand.

The L2-2 reservoir unit contains a 14.8mMD gas column (Fig 6). The sands in this interval are well defined and it is interpreted that there is gas down to 2962.8mMDRT. The sands of this unit have an average effective porosity of 15% and average effective water saturation of 32%.

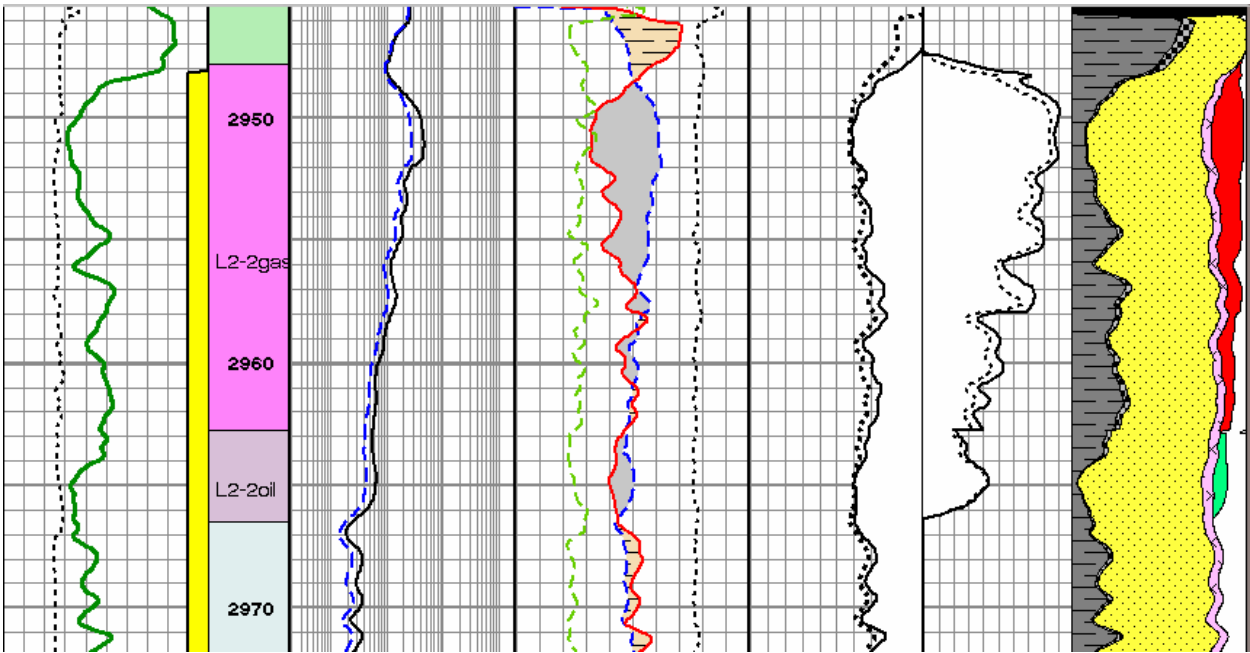


Figure 6. L2-2 sand.

Two small gas sands were observed within the L9 interval (Fig 7). The combined net pay thickness was 6.3mMD with greater potential down dip given that both displayed gas-on-rock. The average effective porosities were 12% for the upper and 16% for the lower. The effective water saturation were 39% for the upper and 16% for the lower.

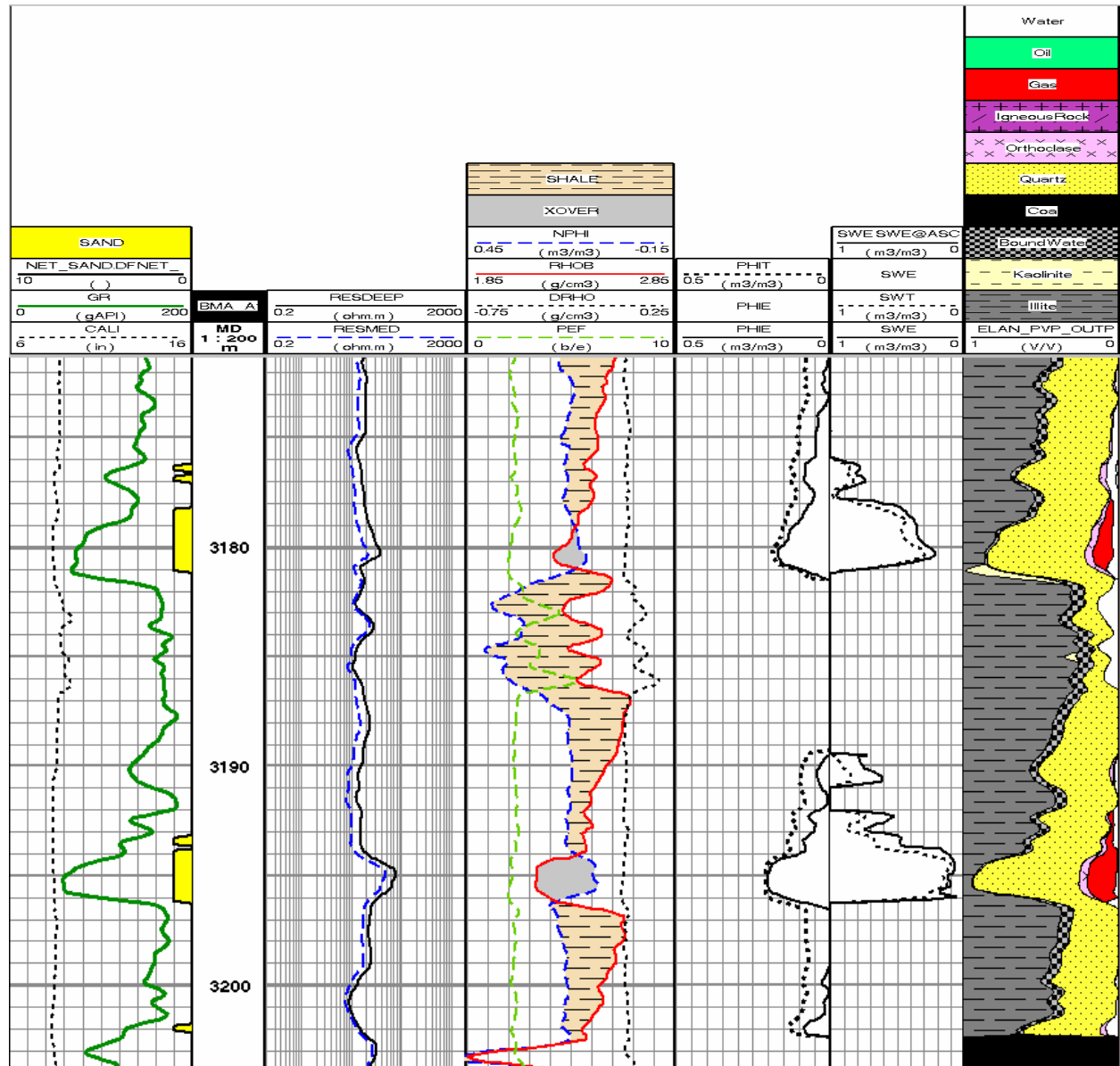


Figure 7. L9 reservoir interval sands.

The L12 sand was intersected in this well at 3322.02mMDRT (Fig 8). This is a 22.1mMD gas bearing sand and has an average effective porosity calculated of 12%. The average effective saturation for this interval was 27%.

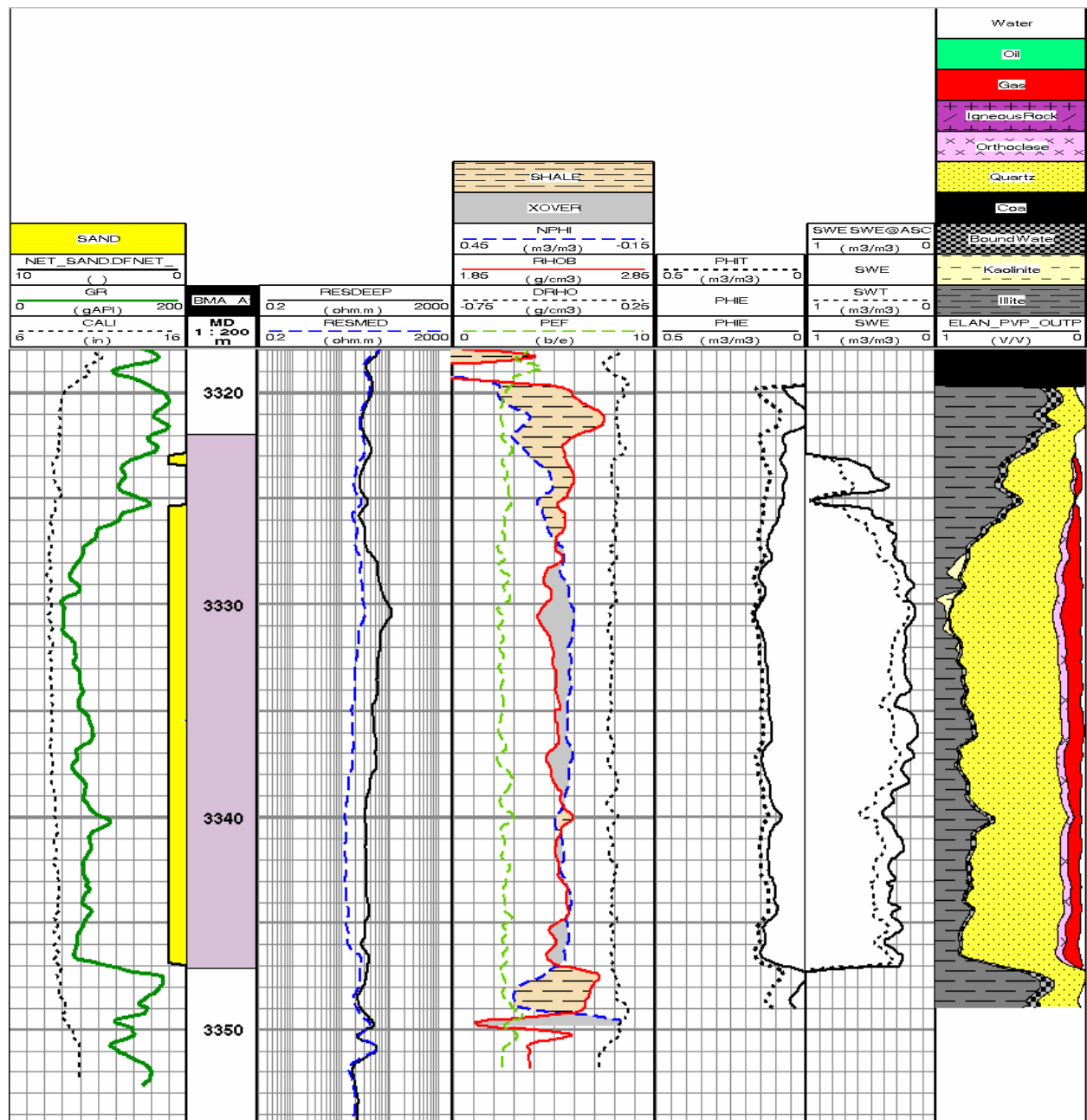


Figure 8. L12 reservoir interval sands.

## Bream A10A

Petrophysical Summary 2270 - 3348m 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	Bottom Depth mMD	Top Depth mTVDSS	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
Gurnard Gas	2270.0	2283.0	1812.0	1821.3	13.0	9.3	0.98	0.43	0.18	0.95	Gas bearing	12.8	9.2
Gurnard Gas	2286.0	2300.0	1823.5	1833.6	14.0	10.1	1.00	0.29	0.20	0.50	Gas bearing	14.0	10.1
TCC to BWST	2391.1	2395.6	1897.8	1901.1	4.5	3.2					Non-net		
N-1 gas	2395.6	2400.1	1901.1	1904.3	4.5	3.2	1.00	0.08	0.22	0.26	Gas bearing	4.5	3.2
<b>CGOC at 2400mMD (1904.3mTVDSS)</b>													
N-1 oil	2400.1	2403.5	1904.3	1906.8	3.5	2.5	1.00	0.02	0.18	0.56	Oil bearing	3.5	2.5
<b>COWC at 2403.5mMD (1906.8mTVDSS)</b>													
N-1 residual	2403.5	2421.2	1906.8	1919.2	17.7	12.5	0.92	0.11	0.17	0.76	Residual Oil		
N-1 to OOWC	2421.2	2434.5	1919.2	1928.5	13.3	9.3	0.95	0.04	0.21	1.00	Water bearing		
Gnsb to CbF2	2434.5	2442.8	1928.5	1934.4	8.3	5.9	0.54	0.17	0.16	1.00	Water bearing		
CbF2 to Cbf1	2442.8	2449.3	1934.4	1938.9	6.5	4.5	0.79	0.27	0.15	1.00	Water bearing		
Cbf1 to Pkf2	2449.3	2475.2	1938.9	1957.0	25.9	18.1	0.83	0.06	0.20	1.00	Water bearing		
Pkf2 to Pkf1	2475.2	2486.9	1957.0	1965.2	11.8	8.2	0.29	0.14	0.16	1.00	Water bearing		
Pkf1 to Fault	2486.9	2492.8	1965.2	1969.2	5.9	4.0				1.00	Carb sand		
M5oil	2761.1	2781.3	2159.2	2175.0	20.3	15.8	0.93	0.03	0.21	0.38	Oil bearing	18.9	14.7
<b>COWC at 2781.3mMD (2175mTVDSS)</b>													
M5 water	2781.3	2783.2	2175.0	2176.4	1.9	1.4	0.76	0.10	0.21	1.00	Water bearing		
M6gas	2799.5	2828.0	2189.5	2212.5	28.5	23.0	0.98	0.25	0.17	0.31	Gas bearing	28.0	22.6
<b>GWC at 2828mMD (2212.52mTVDSS)</b>													
M6 water	2828.0	2834.3	2212.5	2217.6	6.3	5.1	0.66	0.28	0.15	1.00	Water bearing		
L2-1gas	2924.1	2929.0	2290.7	2294.7	4.9	4.0	0.99	0.16	0.17	0.51	Gas bearing	4.8	4.0
<b>GWC at 2929mMD (2294.7mTVDSS)</b>													
L2-1 water	2929.0	2930.7	2294.7	2296.0	1.7	1.3	0.84	0.13	0.17	1.00	Water bearing		
L2-2gas	2947.8	2962.8	2310.1	2322.5	15.0	12.4	0.98	0.22	0.15	0.32	Gas bearing	14.8	12.2
<b>GOC at 2962.8mMD (2322.47mTVDSS)</b>													
L2-2oil	2962.8	2966.5	2322.5	2325.5	3.7	3.0	1.00	0.11	0.18	0.70	Oil bearing	3.7	3.0
<b>OWC at 2966.5mMD (2325.5mTVDSS)</b>													
L2-2	2966.5	2985.5	2325.5	2341.2	19.0	15.7	1.00	0.11	0.18	1.00	Water bearing		
L9gas1	3176.0	3181.0	2501.8	2506.1	5.0	4.3	0.68	0.28	0.12	0.39	Gas bearing	3.4	2.9
L9gas2	3181.0	3196.3	2506.1	2519.4	15.3	13.3	0.19	0.24	0.16	0.16	Gas bearing	2.9	2.5
L12gas	3322.0	3347.1	2630.9	2653.8	25.2	23.0	0.88	0.24	0.12	0.27	Gas bearing	22.1	20.2

## **APPENDIX 3a**

### **BREAM A10A**

#### **Lithology/Show Descriptions**

## **Bream A10A Lithology / Show Descriptions**

Interval (m) From To		%	Lithology / Show Description
Previous Well History:			
Bream A10 Plugged and Abandoned on 30 April 2005.			
Milled the 9.625" Casing : Top of window at 2258.2 mMDRT. : Bottom of window at 2263.5 mMDRT.			
BMA A10A Kick-off point with Milling assembly at 2258.0 mMDRT at 0715 hrs on 04 May 2005.			
Spot 1 metre samples from 2259.0-2270.5 mMDRT.			
<b>Kick-off point within the Latrobe formation.</b>			
<b>Bagged 5 metre samples from 2270.5 mMDRT (1846.0 mTVDRT).</b>			
Bagged 5 metre samples from 2270.5 mMDRT to TD of 3381.0 mMDRT (2717.7 mTVDRT).			
<b>Geologist on Rig from 2258.0 mMDRT (1836.9 mTVDRT), at 1030 hrs 02 May 2005.</b>			
2258	2259	100	Metal shavings
2259	2260	100	Metal shavings
2260	2261	100	Metal shavings
2261	2262	40	Metal shavings
		55	Cement, light brown..
		5	CLAYSTONE: dark grey to brownish black, occasionally greenish black, common glauconite, soft to moderately hard, amorphous to sub blocky.
2262	2262.4	30	Metal shavings
		60	Cement, light brown.
		5	CLAYSTONE: as above.
		5	SANDSTONE: light grey to medium grey, very fine, well sorted, sub angular to sub rounded, common carbonaceous specks, hard aggregates, poor inferred and visible porosity. No fluorescence.
2262	2263	15	Metal shavings
		50	Cement, light brown.
		20	CLAYSTONE: as above.
		10	SILTSTONE: brownish black to dark greenish grey, very arenaceous grading to very fine SANDSTONE, common micromica, common glauconite, moderately hard, sub blocky.
		5	SANDSTONE: as above.
2263	2270.5		Spot 1 metre samples, showed a decreasing percentage of cement and metal shavings, and an increasing percentage of new formation drilled, mainly SILTSTONE as above, which in the last 2270.5 sample was 85 % SILTSTONE as above. Stopped milling at 2270.5 mMDRT (1846.0 mTVDRT). <b>Baracarb added to the Mud system at 2267.0 mMDRT.</b>

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
			<p>Start drilling at 2315 hrs on 05 May 2005, from 2270.5 mMDRT (1846.0 mTVDRT) to 2278.0 mMDRT (1851.8 mTVDRT)  PIT at 2278.0 mMDRT (1851.4 mTVDRT), 1135 psi with 9.90 ppg mud (13.50 ppg EMW).</p> <p>Drill with KCl/PHPA/Glycol mud system.</p> <p>Drilled from 2270.5 (1846.0 mTVDRT), to 2751.0 mMDRT (2185.0 mTVDRT), with a Smith PDC bit on steerable motor assembly.</p> <p>Bit Details:  Bit # 1, Size: 8.5", Manufacturer / Type: Smith S73VPX. Serial #: JT6968  Jets: 20 x 6, TFA: 1.841 sq.in, HOB: 109.70, Grading: <b>2-3-CT-S-X-IN-ER-PR</b>.  Krevs: 564.0, RPM: 48-120 ( + 175 RPM DHM).  Average ROP: 480.5 / 46.05 = 10.4 m/hr.  Rotating: 384.0 metres / Rotating HOB = 30.03, Average Rotating ROP = 12.8 m/hr  Steering: 96.5 metres / Steering HOB = 16.02 , Average Steering ROP = 6.0 m/hr.</p>
2270.5	2275	100	<p>SILTSTONE 1: arenaceous 40%, light brown to pale yellowish brown, very arenaceous grading to very fine SANDSTONE, trace micromica, trace glauconite, soft to moderately hard, amorphous to sub blocky.  SILTSTONE 2: carbonaceous 60%, blackish red to dusky red, very carbonaceous grading to silty COAL, firm to moderately hard, sub blocky.</p> <p>Trace SANDSTONE: trace, translucent to white, coarse to very coarse, moderately well sorted, hard, loose, very good inferred and visual porosity.  No fluorescence.</p> <p><b>Midnight depth 05 May 2005 = 2278.0 mMDRT (1851.8 mTVDRT)</b></p>
2275	2280	5	COAL: black to occasionally blackish red, sub vitreous, moderately hard, sub blocky, uneven, silty grading to carbonaceous SILTSTONE.
		95	<p>SILTSTONE 1: arenaceous 40%, as above.  SILTSTONE 2: carbonaceous 60%, as above.</p>
2280	2285	10	COAL: as above.
		90	<p>SILTSTONE 1: arenaceous 40%, as above.  SILTSTONE 2: carbonaceous 60%, as above.</p> <p><b>Gas peak at 2286.0 mMDRT=310 units.</b></p>
2285	2290	Trace	COAL: as above.
		90	<p>SILTSTONE 1: arenaceous 70%, as above.  SILTSTONE 2: carbonaceous 20%, as above.</p>
		10	SANDSTONE: clear to translucent, very fine to occasionally coarse, dominantly medium, poorly sorted, sub angular to sub rounded, trace pyrite cement, trace pyrite nodules, loose, hard, poor inferred and visible porosity. No fluorescence.
2290	2295	85	<p>SILTSTONE 1: arenaceous 75%, as above.  SILTSTONE 2: carbonaceous 10%, as above.</p>
		15	<p>SANDSTONE: as above.  No fluorescence.</p> <p><b>Gas peak at 2295.5 mMDRT=640 units.</b>  <b>Barablock added to the Mud system at 2300.0 mMDRT.</b></p>

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2295	2300	80	SILTSTONE 1: arenaceous 75%, light olive grey to pale yellowish brown, very arenaceous grading to very fine SANDSTONE, common glauconite, trace micromica, soft to moderately hard, amorphous to sub blocky. SILTSTONE 2: carbonaceous 5%, blackish red to dusky red, very carbonaceous grading to silty COAL, firm to moderately hard, sub blocky.
		20	SANDSTONE: as above. No fluorescence. <b>Gas peak at 2304.0 mMDRT=536 units.</b>
2300	2305	Trace	COAL: black to occasionally blackish red, sub vitreous, moderately hard, sub blocky, uneven, silty grading to carbonaceous SILTSTONE.
		80	SILTSTONE 1: arenaceous 70%, as above. SILTSTONE 2: carbonaceous 10%, as above.
		20	SANDSTONE: clear to translucent, fine to very coarse, dominantly coarse, moderately well sorted, sub angular to sub rounded, trace pyrite cement, trace pyrite nodules, loose, hard, poor to fair inferred and visible porosity. No fluorescence.
2305	2310	60	SILTSTONE 1: arenaceous 60%, as above. SILTSTONE 2: carbonaceous, trace, as above.
		40	SANDSTONE: clear to translucent, occasionally pinkish grey, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, trace pyrite cement, rare pyrite nodules, loose, hard, fair to good inferred and visible porosity. No fluorescence.
2310	2315	90	SILTSTONE 1: light olive grey to pale yellowish brown, very arenaceous grading to very fine SANDSTONE, common glauconite, trace micromica, soft to moderately hard, amorphous to sub blocky.
		10	SANDSTONE: clear to translucent, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, trace pyrite cement, rare pyrite nodules, loose, hard, fair to good inferred and visible porosity. No fluorescence.
2315	2320	90	SILTSTONE 1: arenaceous, as above.
		10	SANDSTONE: as above. No fluorescence.
2320	2325	90	SILTSTONE 1: arenaceous, as above.
		10	SANDSTONE: as above. No fluorescence.
2325	2330	80	SILTSTONE 1: arenaceous, as above.
		20	SANDSTONE: as above. No fluorescence.
2330	2335	75	SILTSTONE 1: light olive grey to pale yellowish brown, very arenaceous grading to very fine SANDSTONE, common glauconite, trace micromica, soft to moderately hard, amorphous to sub blocky.
		25	SANDSTONE: clear to translucent, occasionally greyish orange, coarse to dominantly very coarse, moderately well sorted, sub angular to sub rounded, common pyrite cement, trace pyrite nodules, loose, hard, fair to good inferred and visible porosity. No fluorescence.
2335	2340	80	SILTSTONE 1: arenaceous, as above.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
		20	SANDSTONE: clear to translucent, coarse to dominantly very coarse, moderately well sorted, sub angular to sub rounded, common pyrite cement, trace pyrite nodules, loose, hard, fair to good inferred and visible porosity. No fluorescence.
2340	2345	70	SILTSTONE 1: arenaceous, as above.
		30	SANDSTONE: as above. No fluorescence.
2345	2350	80	SILTSTONE 1: arenaceous, as above.
		20	SANDSTONE: as above. No fluorescence.
2350	2355	95	SILTSTONE 1: arenaceous, as above.
		5	SANDSTONE: as above. No fluorescence.
2355	2360	95	SILTSTONE 1: arenaceous, as above.
		5	SANDSTONE: clear to translucent, coarse to dominantly very coarse, moderately well sorted, sub angular to sub rounded, common pyrite cement, trace pyrite nodules, loose, hard, fair to good inferred and visible porosity. No fluorescence.
2360	2365	95	SILTSTONE 1: arenaceous, as above.
		5	SANDSTONE: as above. No fluorescence.
2365	2370	100	SILTSTONE 1: light olive grey to pale yellowish brown, very arenaceous grading to very fine SANDSTONE, common glauconite, trace micromica, soft to moderately hard, amorphous to sub blocky.
		trace	SANDSTONE: as above. No fluorescence.
2370	2375	100	SILTSTONE 1: arenaceous, as above.
		trace	SANDSTONE: as above. No fluorescence.
2375	2380	100	SILTSTONE 1: arenaceous, as above.
		trace	SANDSTONE: as above. No fluorescence.
2380	2385	95	SILTSTONE 1: light olive grey to pale yellowish brown, very arenaceous grading to very fine SANDSTONE, common glauconite, trace micromica, trace disseminated pyrite, soft to moderately hard, amorphous to sub blocky.
		5	SANDSTONE: clear to translucent, very fine to fine, dominantly fine, moderately well sorted, sub angular to sub rounded, trace pyrite cement, trace pyrite nodules, loose, hard, poor inferred and visible porosity. No fluorescence.
			<b>TOP COARSE CLASTICS at 2389.5 mMDRT (1929.6 mTVDRT, -1896.8 mTVDSS)</b>
2385	2390	90	SILTSTONE 1: arenaceous, as above.
		10	SANDSTONE: clear to translucent, fine to coarse, poorly sorted, sub angular to sub rounded, trace pyrite cement, trace pyrite nodules, trace disseminated pyrite, loose, hard, poor inferred and visible porosity. No fluorescence.
2390	2395	80	SILTSTONE 1: arenaceous, as above.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2395	2400	20	SANDSTONE: clear to translucent, coarse to very coarse, moderately well sorted, sub angular to sub rounded, trace pyrite cement, trace pyrite nodules, trace pyrite laminations, loose, hard, fair to good inferred and visible porosity. No fluorescence.
			<b>Gas peak at 2398.5 mMDRT=352 units.</b>
		50	SILTSTONE 1: light olive grey to pale yellowish brown, very arenaceous grading to very fine SANDSTONE, common glauconite, trace micromica, trace disseminated pyrite, soft to moderately hard, amorphous to sub blocky.
2400	2405	50	SANDSTONE: clear to translucent, fine to coarse, poorly sorted, sub angular to sub rounded, trace pyrite cement, common pyrite nodules, trace disseminated pyrite, loose, hard, fair to good inferred and visible porosity. No fluorescence.
			<b>Gas peak at 2411.0 mMDRT=315 units.</b>
		60	SILTSTONE 1: arenaceous, as above.
2405	2410	40	SANDSTONE: as above. No fluorescence.
		50	SILTSTONE 1: arenaceous, as above.
		50	SANDSTONE: as above. No fluorescence.
2410	2415		<b>Gas peak at 2413.5 mMDRT=393 units.</b>
		5	COAL: black, sub vitreous, brittle, firm to moderately hard, sub blocky to blocky, angular, trace pyrite laminations.
		20	SILTSTONE 1: arenaceous, as above.
2415	2420	75	SANDSTONE: as above. No fluorescence.
			<b>Gas peak at 2417.0 mMDRT=444 units.</b>
		10	COAL: as above.
2420	2425	40	SILTSTONE 1: arenaceous, as above.
		50	SANDSTONE: as above. No fluorescence.
			<b>Gas peak at 2421.5 mMDRT=196 units.</b>
2425	2430	15	SILTSTONE 1: arenaceous, as above.
		85	SANDSTONE: clear to translucent, coarse to dominantly very coarse, moderately well sorted, sub angular to sub rounded, trace pyrite cement, trace pyrite nodules, trace disseminated pyrite, occasionally bit crushed to rock flour, loose, hard, good inferred and visible porosity. Trace, dull, patchy, pale greenish yellow mineral fluorescence.
		10	COAL: black to occasionally blackish brown, blackish red, sub vitreous to occasionally earthy, brittle to firm, uneven, sub blocky to blocky, trace pyrite laminations occasionally woody texture.
2430	2435	20	SILTSTONE 1: arenaceous, as above.
		70	SANDSTONE: as above. Trace pinpoint, moderately bright greenish yellow mineral fluorescence.
			<b>Gas peak at 2434.0 mMDRT=278 units.</b>
2430	2435	15	SILTSTONE 1: arenaceous, as above.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2435	2440	85	SANDSTONE: clear to translucent, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, trace pyrite cement, trace pyrite nodules, trace disseminated pyrite, occasionally bit crushed to rock flour, loose, hard, good inferred and visible porosity. <b>FLUORESCENCE: 5%, dull, patchy, pale greenish yellow fluorescence, very slow streaming direct cut, thin ring residue.</b>
		5	COAL: as above.
		20	SILTSTONE 1: light olive grey to pale yellowish brown, very arenaceous grading to very fine SANDSTONE, common glauconite, trace micromica, trace disseminated pyrite, soft to moderately hard, amorphous to sub blocky.
2440	2445	75	SANDSTONE: clear to translucent, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, trace pyrite cement, trace pyrite nodules, trace disseminated pyrite, occasionally bit crushed to rock flour, loose, hard, good inferred and visible porosity. <b>FLUORESCENCE: Trace to 5%, dull, spotted, pale greenish yellow fluorescence, rapid blooming direct cut, thin film residue.</b> <b>Gas peak at 2445.5 mMDRT=139 units.</b>
		Trace	COAL: as above.
		20	SILTSTONE 1: arenaceous, as above.
2445	2450	80	SANDSTONE: as above. FLUORESCENCE: Rare, cavings, as above.
		5	COAL: as above.
		20	SILTSTONE 1: arenaceous, as above.
2450	2455	75	SANDSTONE: as above. No fluorescence.
		25	SILTSTONE: olive grey to trace yellow grey, occasionally brown grey, very arenaceous grading to very fine SANDSTONE, trace carbonaceous specks, trace micromicaceous, trace glauconite, soft to moderately hard, sub blocky.
		75	SANDSTONE: clear to translucent, opaque in part, occasionally medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, trace nodular pyrite and cement, loose, hard, fair visible and inferred porosity. FLUORESCENCE: Rare, cavings, as above.
2455	2460	5	COAL: black, sub vitreous, brittle, uneven, blocky, trace pyrite laminations.
		30	SILTSTONE 1: arenaceous, as above.
		65	SANDSTONE: clear to translucent, opaque in part, occasionally pale grey brown, dominantly medium to occasionally very coarse, moderately well sorted, sub angular to sub rounded, occasionally silty matrix, loose, hard, fair to poor visible and inferred porosity. FLUORESCENCE: Rare, cavings, as above.
2460	2465	5	COAL: as above.
		20	SILTSTONE 1: arenaceous, as above, trace glauconite laminations.
		75	SANDSTONE: as above. No fluorescence.
2465	2470	5	COAL: as above.
		40	SILTSTONE: olive grey to trace yellow grey, occasionally brown grey, very arenaceous grading to very fine SANDSTONE, trace carbonaceous specks, trace micromicaceous, trace glauconite, soft to moderately hard, sub blocky.
		55	SANDSTONE: as above. No fluorescence.

## Bream A10A Lithology / Show Descriptions

Interval (m) From      To		%	Lithology / Show Description
2470	2475	Trace	COAL: as above.
		60	SILTSTONE 1: arenaceous, as above.
		40	SANDSTONE: clear to translucent, occasionally pale grey brown, dominantly medium to fine, occasionally coarse, moderately well sorted, sub angular to sub rounded, occasionally weak silty matrix, trace glauconite and carbonaceous specks, loose, hard, poor to fair visible and inferred porosity. No fluorescence.
<b>Midnight depth 06 May 2005 = 2475.0 mMDRT (1989.2 mTVDRT)</b>			
2475	2480	15	COAL: black to occasionally blackish brown, sub vitreous to occasionally earthy, brittle to firm, uneven, sub blocky, trace pyrite laminations, occasionally woody texture.
		40	SILTSTONE: olive grey to trace yellow grey, occasionally brown grey, very arenaceous grading to very fine SANDSTONE, trace carbonaceous specks, trace micromicaceous, trace glauconite, soft to moderately hard, sub blocky.
		45	SANDSTONE: clear to translucent, occasionally frosted, dominantly very coarse to medium, moderately well sorted, sub angular to sub rounded, trace glauconite and carbonaceous specks, trace nodular pyrite and cement, loose, hard, poor to fair visible and inferred porosity. No fluorescence.
2480	2485	10	COAL: as above.
		70	SILTSTONE 1: arenaceous, as above, occasionally disseminated pyrite and glauconite.
		20	SANDSTONE: as above. No fluorescence.
<b>Top asperopolos Coal at 2487.0 mMDRT (1998.0 mTVDRT, -1965.2 mTVDSS).</b>			
2485	2490	Trace	COAL: as above.
		60	SILTSTONE 1: arenaceous, as above.
		40	SANDSTONE: generally as above, medium to coarse.. No fluorescence.
2490	2495	Trace	COAL: as above.
		70	SILTSTONE: olive grey to trace yellow grey, occasionally brown grey, very arenaceous grading to very fine SANDSTONE, trace carbonaceous specks, trace micromicaceous, trace glauconite, soft to moderately hard, sub blocky.
		30	SANDSTONE: as above. No fluorescence.
2495	2500	Trace	COAL: as above.
		80	SILTSTONE 1: arenaceous, as above.
		20	SANDSTONE: as above. No fluorescence.
2500	2505	Trace	COAL: as above.
		20	SILTSTONE 1: arenaceous, as above.
		80	SANDSTONE: clear to translucent, occasionally very pale yellow, medium to very coarse, dominantly medium, moderately well sorted, sub angular to sub rounded, trace nodular pyrite and cement, loose, hard, fair to good visible and inferred porosity. Trace dull yellow mineral fluorescence.
2505	2510	Trace	COAL: as above.
		70	SILTSTONE 1: arenaceous, as above.
		30	SANDSTONE: as above. Trace dull yellow mineral fluorescence.
2510	2515	10	COAL: as above.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2515	2520	70	SILTSTONE: olive grey to trace yellow grey, occasionally brown grey, very arenaceous grading to very fine SANDSTONE, trace carbonaceous specks, trace micromicaceous, trace glauconite, soft to moderately hard, sub blocky.
		20	SANDSTONE: generally as above, dominantly medium to occasionally very coarse. Trace dull yellow mineral fluorescence.
		10	COAL: as above.
		60	SILTSTONE 1: arenaceous, as above.
		30	SANDSTONE: generally as above, dominantly medium to occasionally very coarse. Trace dull yellow mineral fluorescence.
2520	2525	5	COAL: as above.
		30	SILTSTONE 1: arenaceous, as above.
		65	SANDSTONE: clear to translucent, occasionally greyish pink, fine to coarse, dominantly medium, moderately well sorted, sub angular to sub rounded, trace nodular pyrite and cement, loose, hard, fair to good visible and inferred porosity. Trace dull yellow mineral fluorescence.
2525	2530	25	COAL: black to occasionally blackish brown, blackish red, sub vitreous to occasionally earthy, brittle to firm, uneven, sub blocky, trace pyrite laminations, occasionally woody texture.
		20	SILTSTONE 1: arenaceous, as above.
		55	SANDSTONE: clear to translucent, medium to very coarse, dominantly coarse, moderately well sorted, sub angular to sub rounded, trace nodular pyrite and cement, loose, hard, poor to fair visible and inferred porosity. Trace, pinpoint, dull greenish yellow mineral fluorescence.
2530	2535	5	COAL: as above.
		65	SILTSTONE: light olive grey to pale brown, very arenaceous grading to very fine SANDSTONE, trace micromicaceous, trace glauconite, trace disseminated pyrite, soft to moderately hard, amorphous to sub blocky.
		30	SANDSTONE: as above. No fluorescence.
2535	2540	50	COAL: black to brownish black, sub vitreous to earthy, brittle to moderately hard, uneven, sub blocky, trace pyrite laminations, woody texture, silty, grading to carbonaceous SILTSTONE.
		40	SILTSTONE 1: arenaceous, 20%, light olive grey to pale brown, very arenaceous grading to very fine SANDSTONE, trace micromicaceous, trace glauconite, trace disseminated pyrite, soft to moderately hard, amorphous to sub blocky.
			SILTSTONE 2: carbonaceous, 20%: brownish black, very carbonaceous grading to SILTY COAL, firm, moderately hard, sub blocky.
		10	SANDSTONE: as above. No fluorescence.
2540	2545		<b>Gas peak at 2542.0 mMDRT=122 units.</b>
		40	COAL: as above.
		30	SILTSTONE 1: 20%, arenaceous, as above.
			SILTSTONE 2: 10%, carbonaceous, as above.
2545	2550	30	SANDSTONE: clear to translucent, fine to occasionally very coarse, poorly sorted, sub angular to sub rounded, trace nodular pyrite and cement, loose, hard, poor visible and inferred porosity. No fluorescence.
		5	COAL: as above.
		15	SILTSTONE 1: arenaceous, as above.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2550	2555	80	SANDSTONE: clear to translucent, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, trace nodular pyrite and cement, bit crushed to rock flour, loose, hard, fair to good visible and inferred porosity. No fluorescence.
		10	COAL: as above.
		30	SILTSTONE 1: arenaceous, as above.
		60	SANDSTONE: generally as above, dominantly medium to occasionally very coarse, moderately well sorted, sub angular to sub rounded, trace nodular pyrite and cement, bit crushed to rock flour, loose, hard, fair to good visible and inferred porosity. No fluorescence.
2555	2560	Trace	COAL: as above, cavings.
		80	SILTSTONE 1: pale yellowish brown to light brown, very arenaceous grading to very fine SANDSTONE, trace micromicaceous, trace glauconite, soft to moderately hard, amorphous to sub blocky.
		20	SANDSTONE: as above. No fluorescence.
2560	2565	50	SILTSTONE 1: arenaceous, as above.
		50	SANDSTONE: as above. No fluorescence.
2565	2570	5	COAL: black, sub vitreous to earthy, brittle, uneven, blocky, trace pyrite laminations.
		35	SILTSTONE 1: 30%, arenaceous, as above. SILTSTONE 2: carbonaceous, 5%: brownish black, very carbonaceous grading to SILTY COAL, soft to firm, amorphous to sub blocky.
		60	SANDSTONE: generally as above, fine to occasionally coarse, dominantly medium, poorly sorted, poor inferred and visible porosity. No fluorescence.
		Trace	COAL: as above.
2570	2575	30	SILTSTONE 1: arenaceous, as above
		70	SANDSTONE: clear to translucent, fine to very coarse, poorly sorted, sub angular to sub rounded, bit crushed to rock flour, common nodular pyrite and cement, loose, hard, poor visible and inferred porosity. No fluorescence.
		5	COAL: as above.
2575	2580	40	SILTSTONE 1: 35%, arenaceous, as above.
			SILTSTONE 2: 5%, carbonaceous, as above.
		55	SANDSTONE: as above. No fluorescence.
2580	2585		<b>Gas peak at 2583.0 to 2588.0 mMDRT = 96 units.</b>
		20	COAL: black to occasionally blackish brown, sub vitreous to earthy in part, brittle to moderately hard in part, uneven, blocky, trace pyrite laminations, woody texture in part.
		80	SANDSTONE: clear to translucent, fine to occasionally coarse, dominantly medium, moderately well sorted, sub angular to dominantly sub rounded, bit crushed to rock flour, common nodular pyrite, loose, hard, poor visible and inferred porosity. No fluorescence.
2585	2590	10	COAL: as above.
		35	SILTSTONE 1: 30%, arenaceous, as above. SILTSTONE 2: 5%, carbonaceous, as above.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2590	2595	55	SANDSTONE: clear to translucent, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, common (bit crushed to) rock flour, rare nodular pyrite, loose, hard, fair to good visible and inferred porosity. No fluorescence
		5	COAL: as above.
		25	SILTSTONE 1: arenaceous, 25%, pale yellowish brown to light brown, very arenaceous grading to very fine SANDSTONE, rare micromicaceous, rare glauconite, soft to moderately hard, amorphous to sub blocky. SILTSTONE 2: carbonaceous, trace, as above.
		70	SANDSTONE: clear to translucent, fine to occasionally coarse, dominantly fine, moderately well sorted, sub angular to sub rounded, common rock flour, weak siliceous cement, rare nodular pyrite, loose, hard, poor visible and inferred porosity. No fluorescence.
2595	2600	30	SILTSTONE 1: 20%, arenaceous, as above. SILTSTONE 2: carbonaceous, 10%.: brownish black to dusky brown, very carbonaceous grading to SILTY COAL, trace pyrite specks, firm to moderately hard, sub blocky to blocky.
		70	SANDSTONE: clear to translucent, coarse to dominantly very coarse, moderately well sorted, sub angular to sub rounded, common rock flour, strong pyrite cement, weak siliceous cement, common nodular pyrite, hard aggregates, poor visible and inferred porosity. No fluorescence.
Spot	2602.5	Trace	COAL: as above.
		20	SILTSTONE 1: 15%, arenaceous, as above. SILTSTONE 2: 5%, carbonaceous, as above.
		80	SANDSTONE: clear to translucent, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, common rock flour, strong pyrite cement, weak siliceous cement, common nodular pyrite, hard aggregates, poor visible and inferred porosity. No fluorescence.
2600	2605	10	COAL: black, sub vitreous, brittle, angular, trace pyrite laminations.
		25	SILTSTONE 1: 10%, arenaceous, as above. SILTSTONE 2: 15%, carbonaceous, as above.
		65	SANDSTONE: as above (spot sample at 2602.5). No fluorescence.
2605	2610	5	COAL: as above.
		60	SILTSTONE 1: 55%, arenaceous, as above. SILTSTONE 2: 5%, carbonaceous, as above.
		35	SANDSTONE: clear to translucent, medium to occasionally coarse, moderately well sorted, sub angular to sub rounded, common rock flour, moderate pyrite cement, weak siliceous cement, rare nodular pyrite, hard aggregates, poor visible and inferred porosity. <b>FLUORESCENCE: trace, spotted, moderately bright orange yellow fluorescence, very slow streaming cut, thin film residue.</b>
2610	2615	5	COAL: as above.
		35	SILTSTONE 1: 30%, arenaceous, as above. SILTSTONE 2: 5%, carbonaceous, as above.
		60	SANDSTONE: as above. No fluorescence.
2615	2620	10	COAL: as above

## **Bream A10A Lithology / Show Descriptions**

<b>Interval (m) From To</b>		<b>%</b>	<b>Lithology / Show Description</b>
2620	2625	15	SILTSTONE 1: arenaceous, 15%, moderate yellowish brown to light brown, very arenaceous grading to very fine SANDSTONE, trace micromicaceous, firm to moderately hard, amorphous to sub blocky. SILTSTONE 2: carbonaceous, trace, as above.
		75	SANDSTONE: clear to translucent, occasionally greyish pink, coarse to very coarse, moderately well sorted, sub angular to sub rounded, common rock flour, strong pyrite cement, weak siliceous cement, common nodular pyrite, hard aggregates, poor visible and inferred porosity. No fluorescence.
		20	COAL: black, sub vitreous, brittle, angular, sub blocky, bit crushed, abundant pyrite laminations.
		10	SILTSTONE 1: 10%, arenaceous, as above.
		70	SANDSTONE: clear to translucent, coarse to very coarse, moderately well sorted, sub angular to sub rounded, common rock flour, weak pyrite cement, weak siliceous cement, common nodular pyrite, hard aggregates, poor visible and inferred porosity. No fluorescence.
2625	2630	20	COAL: as above.
		5	SILTSTONE 1: 5%, arenaceous, as above.
		75	SANDSTONE: as above. No fluorescence.
2630	2635	10	COAL: as above.
		30	SILTSTONE 1: 30%, arenaceous, as above.
		60	SANDSTONE: as above. FLUORESCENCE: Trace, pinpoint moderately bright yellowish orange mineral fluorescence.
2635	2640	20	COAL: as above, abundant pyrite laminations.
		10	SILTSTONE 1: 30%, arenaceous, as above.
		70	SANDSTONE: clear to translucent, occasionally light brownish grey, coarse to dominantly very coarse, moderately well sorted, sub angular to sub rounded, common rock flour, strong pyrite cement, weak siliceous cement, abundant nodular pyrite, hard aggregates, poor visible and inferred porosity. FLUORESCENCE: Trace, pinpoint moderately bright yellowish orange mineral fluorescence.
2640	2645	30	COAL: as above, abundant pyrite laminations.
		5	SILTSTONE 1: 5%, arenaceous, as above.
		65	SANDSTONE: as above, abundant pyrite nodules. No fluorescence.
2645	2650	15	COAL: black, sub vitreous, brittle, angular, sub blocky, bit crushed, abundant pyrite laminations.
		10	SILTSTONE 1: arenaceous, 10%, pale brown to dark yellowish brown, very arenaceous grading to very fine SANDSTONE, trace micromicaceous, trace glauconite, firm to moderately hard, sub blocky to blocky.
		75	SANDSTONE: clear to translucent, occasionally greyish orange, coarse to very coarse, moderately well sorted, sub angular to sub rounded, common rock flour, strong pyrite cement, weak siliceous cement, abundant nodular pyrite, hard aggregates, poor visible and inferred porosity. FLUORESCENCE: Trace, patchy, moderately bright yellowish orange fluorescence, very slow direct cut, thin ring residue.
2650	2655	15	COAL: as above.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2655	2660	20	SILTSTONE 1: 5%, arenaceous, as above.
			SILTSTONE 2: carbonaceous, 10%.: brownish black to dusky red, very carbonaceous grading to SILTY COAL, firm to moderately hard, sub blocky to blocky.
		65	SANDSTONE: as above.
			No fluorescence.
			<b>Gas peak at 2657.5 mMDRT=184 units.</b>
2660	2665	25	COAL: as above, common pyrite laminations.
		10	SILTSTONE 1: 10%, arenaceous, as above.
		65	SANDSTONE: clear to translucent, medium to occasionally very coarse, poorly sorted, sub angular to sub rounded, common rock flour, moderate pyrite cement, weak siliceous cement, common nodular pyrite, hard aggregates, loose in part, poor to fair visible and inferred porosity.
2665	2670		No fluorescence.
		Trace	COAL: as above, trace cavings.
		5	SILTSTONE 1: 5%, arenaceous, as above.
2670	2675	95	SANDSTONE: clear to translucent, medium to occasionally very coarse, dominantly coarse, moderately well sorted, sub angular to sub rounded, common rock flour, weak pyrite cement, weak siliceous cement, trace nodular pyrite, hard aggregates, loose in part, fair visible and inferred porosity.
			No fluorescence.
			<b>Top F Coal Section at 2672.0 mMDRT (2127.0 mTVDRT, -2094.2 mTVDSS).</b>
2675	2680		<b>Gas peak at 2674.0 mMDRT= 102units.</b>
		50	COAL: black to dominantly blackish brown, earthy, firm to moderately hard, sub blocky to blocky, uneven, woody texture.
		10	SILTSTONE 1: arenaceous, 10%, pale brown to pale yellowish brown, very arenaceous grading to very fine SANDSTONE, trace micromicaceous, trace glauconite, soft to firm, amorphous to sub blocky.
2680	2685	40	SANDSTONE: clear to translucent, medium to occasionally very coarse, dominantly coarse, moderately well sorted, sub angular to sub rounded, common rock flour, weak pyrite cement, weak siliceous cement, rare nodular pyrite, loose, hard, fair visible and inferred porosity.
			No fluorescence.
			<b>Gas peak at 2678.5 mMDRT= 91units.</b>
2685	2690	60	COAL: as above.
		15	SILTSTONE 1: 15%, arenaceous, as above.
		25	SANDSTONE: as above, coarse to dominantly very coarse.
2690			No fluorescence.
		80	COAL: as above.
		10	SILTSTONE 1: 10%, arenaceous, as above.
2695		10	SANDSTONE: as above, coarse to dominantly very coarse.
			No fluorescence.
			<b>Gas peak at 2691.0mMDRT=98 units.</b>

## Bream A10A Lithology / Show Descriptions

Interval (m) From      To		%	Lithology / Show Description
2690	2695	25	COAL: as above.
		65	SILTSTONE 1: arenaceous, 65%, pale brown to pale yellowish brown, very arenaceous grading to very fine SANDSTONE, trace micromicaceous, trace glauconite, soft to firm, amorphous to sub blocky.
		10	SANDSTONE: as above, coarse to dominantly very coarse. No fluorescence.
<b>Midnight depth 07 May 2005 = 2700.0 mMDRT (2146.3 mTVDRT).</b>			
2695	2700	5	COAL: as above.
		80	SILTSTONE 1: 80%, arenaceous, as above.
		15	SANDSTONE: clear to translucent, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, common rock flour, weak pyrite cement, weak siliceous cement, rare nodular pyrite, loose, hard, fair visible and inferred porosity. <b>FLUORESCENCE: 5%, pinpoint, moderately bright orange yellow fluorescence, slow streaming cut, thin ring residue.</b>
2700	2705	60	SILTSTONE 1: 60%, arenaceous, as above.
		40	SANDSTONE: clear to translucent, medium to coarse, dominantly medium, moderately well sorted, sub angular to sub rounded, common rock flour, moderate pyrite cement, moderate siliceous cement, hard, loose, hard, poor visible and inferred porosity. FLUORESCENCE: cavings, trace as above..
2705	2710	50	COAL: black to blackish brown, earthy, firm to moderately hard, sub blocky to blocky, uneven, woody texture, common pyrite laminations.
		25	SILTSTONE 1: arenaceous, 25%, pale yellowish brown to pale brown, very arenaceous grading to very fine SANDSTONE, trace micromicaceous, trace glauconite, soft to moderately hard, amorphous to sub blocky.
		25	SANDSTONE: clear to translucent, medium to occasionally very coarse, dominantly coarse, moderately well sorted, sub angular to sub rounded, common rock flour, strong pyrite cement, weak siliceous cement, common nodular pyrite, hard aggregates, poor visible and inferred porosity. No fluorescence.
2710	2715	95	COAL 1: 50%, black , sub vitreous, brittle, blocky, angular, common pyrite laminations. COAL 2: 45%, brownish blackish to dusky brown, earthy, sub blocky to blocky, uneven, woody texture, silty in part grading to CARBONACEOUS SILTSTONE..
		Trace	SILTSTONE 1: Trace, arenaceous, as above.
		5	SANDSTONE: as above. No fluorescence.
2715	2720	25	COAL 1: 25%, as above.
		50	SILTSTONE 1: 20%, arenaceous, as above. SILTSTONE 2: 30%, blackish brown to moderate brown to greyish brown, very carbonaceous grading to SILTY COAL, firm to moderately hard, sub blocky to blocky.
		25	SANDSTONE: as above. No fluorescence.
<b>Gas peak at 2725.5mMDRT=97 units.</b>			
2720	2725	Trace	COAL 1: Trace cavings, as above.
		80	SILTSTONE 1: 75%, arenaceous, as above. SILTSTONE 2: 5%, carbonaceous, as above.
		20	SANDSTONE: clear to translucent, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, common rock flour, weak pyrite cement, weak siliceous cement, trace nodular pyrite, hard aggregates, poor visible and inferred porosity. No fluorescence.

## Bream A10A Lithology / Show Descriptions

Interval (m) From      To		%	Lithology / Show Description
			At 1415 hrs 08 May, at 2742.0 mMDRT, the mud was diluted to bring down the Mud weight from 10.05 ppg to 9.90 ppg, over 2 hours.
2725	2730	5	COAL 1: 5%, as above.
		85	SILTSTONE 1: 80%, arenaceous, as above.
			SILTSTONE 2: 5%, carbonaceous, as above.
		10	SANDSTONE: as above.
			Trace, pinpoint moderately bright yellow mineral fluorescence.
2730	2735	Trace	COAL 1: Trace, as above.
		85	SILTSTONE 1: 75%, arenaceous, as above.
			SILTSTONE 2: 10%, moderately brown to greyish brown, occasionally blackish brown, very carbonaceous grading to SILTY COAL, common pyrite laminations, firm to moderately hard, sub blocky to blocky.
		15	SANDSTONE: as above, trace pyrite nodules.
			No fluorescence.
2735	2740	90	SILTSTONE 1: 85%, arenaceous, as above.
			SILTSTONE 2: 5%, carbonaceous, as above.
		10	SANDSTONE: clear to translucent, coarse to dominantly very coarse, moderately well sorted, sub angular to sub rounded, common rock flour, weak pyrite cement, weak siliceous cement, trace nodular pyrite, hard aggregates, poor visible and inferred porosity.
			No fluorescence.
2740	2745	10	COAL : 10%, black , sub vitreous, brittle, blocky, angular, common pyrite laminations.
		80	SILTSTONE 1: 75%, arenaceous, 25%, pale yellowish brown to pale brown, very arenaceous grading to very fine SANDSTONE, trace micromicaceous, soft to firm, amorphous to sub blocky.
			SILTSTONE 2: 5%, moderately brown to greyish brown, occasionally blackish brown, very carbonaceous grading to SILTY COAL, common glauconite, firm to moderately hard, sub blocky to blocky.
		10	SANDSTONE: as above, trace pyrite nodules.
			No fluorescence.
2745	2750	Trace	COAL : Trace, as above.
		60	SILTSTONE 1: 50%, arenaceous, as above.
			SILTSTONE 2: 10%, carbonaceous, as above.
		40	SANDSTONE: as above, trace pyrite nodules.
			No fluorescence.
Spot	2751	20	COAL : Trace, as above.
		70	SILTSTONE 1: 60%, arenaceous, as above.
			SILTSTONE 2: 10%, carbonaceous, as above.
		10	SANDSTONE: clear to translucent, medium to very coarse, dominantly coarse, moderately well sorted, sub angular to sub rounded, common rock flour, weak pyrite cement, weak siliceous cement, abundant nodular pyrite, hard aggregates, loose in part, poor to fair visible and inferred porosity.
			No fluorescence.
			Stop drilling at 1645 hrs, 08 May 2005, at 2751.0 mMDRT (2185.0 mTVDRT).
			POOH to change the bit and mud motor.
			Midnight Depth 08 May 2005.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
			<p>Trip Gas at 1315 hrs, 09 May 2005 = 48 units. On bottom drilling at 13:05 hrs.</p> <p>Drilled from 2751.0 mMDRT (2185.0 mTVDRT), to the TD of 3381.0 mMDRT (2717.7 mTVDRT), with a Reed Hycalog PDC bit on steerable motor assembly.</p> <p>Bit Details:</p> <p>Bit # 3, Size: 8.5", Manufacturer / Type: Reed Hycalog RSX163. Serial #: 209694            Jets: 18 x 2, 21 x 4, TFA: 1.850 sq.in, HOB: 63.10, Grading: <b>1-3-WT-T/S-X-IN-PN-TD</b>.            Krevs: 1069.0, RPM: 97-120 ( + 173 RPM DHM).            Average ROP: 630.0 / 63.10 = 10.0 m/hr.            Rotating: 601.0 metres / Rotating HOB = 56.25, Average Rotating ROP = 10.7 m/hr.            Steering: 29.0 metres / Steering HOB = 6.85 , Average Steering ROP = 4.2 m/hr.</p> <p><b>Radiagreen lubricant added to the Mud system at 2752.0 mMDRT. At 2767.0 mMDRT, a 2% by volume concentration of radiagreen in the mud system was achieved and maintained to TD.</b>  <b>Fluorescence in the cuttings samples 2775 to TD display a stronger than normal dispersive patchy fluorescence due to the addition of the mud additives radiagreen and barablok.</b>  <b>Gas peak at 2751.5 mMDRT=110 units.</b></p>
2750	2755	50 50  10	<p>COAL : black , sub vitreous, brittle, blocky, angular, common pyrite laminations.</p> <p>SILTSTONE 1: 20%, olive grey to pale brown, very arenaceous grading to very fine SANDSTONE, abundant glauconite, trace micromicaceous, firm to moderately hard, amorphous to sub blocky.</p> <p>SILTSTONE 2: 20%, brownish black to dusky brown, very carbonaceous grading to SILTY COAL, trace pyrite laminations, firm to moderately hard, sub blocky to blocky.</p> <p>SANDSTONE: clear to translucent, occasionally light olive grey, medium to very coarse, dominantly coarse, moderately well sorted, sub angular to sub rounded, weak pyrite cement, weak siliceous cement, common nodular pyrite, hard, loose, poor to fair visible and inferred porosity.</p> <p>Trace, pinpoint moderately bright yellow mineral fluorescence.</p>
2755	2760	15 65 20	<p>COAL : as above.</p> <p>SILTSTONE 1: 45%, arenaceous, as above.</p> <p>SILTSTONE 2: 20%, carbonaceous, as above.</p> <p>SANDSTONE: as above.</p> <p>No fluorescence.</p> <p><b>Top M-5 Gas Sand at 2761.5 mMDRT (2192.4 mTVDRT, -2159.6 mTVDSS).</b>  <b>Gas peak at 2762.0 mMDRT = 172 units.</b></p>
2760	2765	Trace 80	<p>COAL : trace cavings, as above.</p> <p>SILTSTONE 1: 60%, arenaceous, as above.</p> <p>SILTSTONE 2: 20%, carbonaceous, as above.</p>

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2765	2770	20	SANDSTONE: clear to translucent, medium to occasionally very coarse, fine to very fine in part occasionally grading to arenaceous SILTSTONE, moderately well sorted, sub angular to sub rounded, trace pyrite cement, weak siliceous cement, trace glauconite, occasional pyrite nodules, loose, moderately hard, poor to fair visual and inferred porosity. <b>FLUORESCENCE: trace, moderately bright, pinpoint greenish yellow fluorescence, very slow diffusing cut, thin ring residue.</b> <b>Gas peak at 2766.5mMDRT=249 units.</b>
		40	SILTSTONE 1: 25%, arenaceous, as above. SILTSTONE 2: 5%, carbonaceous, as above.
		60	SANDSTONE: as above. dominantly very fine to occasionally medium, rare coarse. <b>FLUORESCENCE: trace to 2%, moderately bright, patchy greenish yellow fluorescence, very slow bleeding direct cut, thin ring residue.</b> <b>Gas peak at 2771.0mMDRT=109 units.</b>
2770	2775	5	SILTSTONE : 5%, arenaceous, as above.
		95	SANDSTONE: as above, dominantly very fine to fine. <b>FLUORESCENCE: trace to 2%, dull to moderately bright, spotted yellowish orange fluorescence, moderately rapid bleeding direct cut, moderately thick ring residue.</b> <b>Gas peak at 2778mMDRT=160 units.</b>
2775	2780	20	SILTSTONE : 20%, arenaceous, as above.
		80	SANDSTONE: as above, dominantly very fine to fine. <b>FLUORESCENCE: trace to 2%, dull to moderately bright, spotted greenish yellow fluorescence, moderately rapid bleeding direct cut, moderately thick ring residue.</b>
2780	2785	5	COAL: black to brownish black, earthy, firm, blocky, uneven, woody texture, trace pyrite laminations, silty in part, grading to CARBONACEOUS SILTSTONE.
		15	SILTSTONE : 15%, arenaceous, as above.
		80	SANDSTONE: generally as above, very fine to medium, dominantly fine. <b>FLUORESCENCE: trace to 2%, dull to moderately bright, spotted yellowish orange fluorescence, moderately rapid bleeding direct cut, moderately thick ring residue.</b> <b>Gas peak at 2785.5 mMDRT=240 units.</b>
2785	2790	10	COAL : as above.
		30	SILTSTONE : 30%, arenaceous, as above.
		60	SANDSTONE: as above, fine to occasionally coarse, dominantly medium, moderately well sorted, sub angular to dominantly sub rounded, fair to good inferred porosity. <b>FLUORESCENCE: trace, dull to moderately bright, spotted yellowish orange fluorescence, moderately rapid bleeding direct cut, moderately thick ring residue.</b> <b>Gas peak at 2790.0 mMDRT=208 units.</b>
2790	2795	5	COAL : as above.
		65	SILTSTONE : 65%, arenaceous, as above.
		30	SANDSTONE: clear to translucent, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, moderatel pyrite cement, common pyrite nodules, loose, hard, poor to fair inferred and visual porosity. No Fluorescence.
2795	2800	5	COAL: black to brownish black, earthy, firm, blocky, uneven, woody texture, trace pyrite laminations, silty in part, grading to CARBONACEOUS SILTSTONE.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2800	2805	90	SILTSTONE 1: 85%, pale yellowish brown to light brown, very arenaceous grading to very fine SANDSTONE, trace micromicaceous, rare glauconite, firm to moderately hard, sub blocky to blocky.
			SILTSTONE 2: 5%, dark yellowish brown to greyish brown, very carbonaceous grading to SILTY COAL, trace pyrite laminations, firm to moderately hard, sub blocky to blocky.
		5	SANDSTONE: clear to translucent, fine to occasionally coarse, dominantly medium, poor sorted, sub angular to sub rounded, weak pyrite cement, trace pyrite nodules, loose, hard, poor to fair inferred porosity.
			No Fluorescence. <b>Top M-6 Gas Sand at 2802.0 mMDRT (2224.3 mTVDRT, -2191.5 mTVDSS). Gas peak at 2801.5 mMDRT=174 units.</b>
2805	2810	65	SILTSTONE 1: 60%, arenaceous, as above.
		35	SILTSTONE 2: 5%, carbonaceous, as above SANDSTONE: clear to translucent, very fine to medium, dominantly fine, moderately well sorted, sub angular to dominantly sub rounded, weak pyrite cement, common pyrite nodules, loose, hard, fair to good inferred and visual porosity. <b>FLUORESCENCE: trace, dull yellow green, patchy fluorescence, slow bleeding direct cut, thin ring residue.</b>
2810	2815	15	SILTSTONE 1: arenaceous, as above.
		85	SANDSTONE: clear to translucent, very fine to occasionally coarse, dominantly fine, moderately well sorted, sub angular to dominantly sub rounded, no matrix, no cement, common pyrite nodules, loose, hard, clean, good inferred and visual porosity.
			<b>FLUORESCENCE: 5%, moderately bright to bright, greenish yellow spotted fluorescence, moderately rapid, blooming direct cut, thick ring residue.</b>
			<b>Gas peak at 2812.0 mMDRT=948 units.</b>
2815	2820	30	SILTSTONE 1: arenaceous, as above.
		70	SANDSTONE: clear to translucent, dominantly very fine to fine, rare medium, moderately well sorted, sub angular to dominantly sub rounded, no matrix, no cement, clean, loose, hard, good inferred and visual porosity.
			<b>FLUORESCENCE: trace to 2%, dull, moderately bright, greenish yellow patchy fluorescence, very slow diffusing direct cut, trace ring residue.</b>
			<b>Midnight depth 09 May 2005 = 2816.0 mMDRT (2236.4 mTVDRT). Gas peak at 2816.0 mMDRT=633 units.</b>
2820	2825	20	SILTSTONE 1: arenaceous, as above.
		80	SANDSTONE: clear to translucent, fine to very coarse, sub rounded to angular, dominantly very fine, occasionally medium, trace pyrite nodules, clean, fair to good inferred porosity.
			No Fluorescence.
			<b>Gas peak at 2822.5 mMDRT=718 units.</b>
2825	2830	5	COAL : as above.
		25	SILTSTONE 1: arenaceous, as above.
		70	SANDSTONE: generally as above, very fine to occasionally coarse, dominantly fine, poor to fair visual porosity.
			No Fluorescence. <b>Gas peak at 2828.0 mMDRT=407 units.</b>
2825	2830	Trace	COAL : as above.
		20	SILTSTONE 1: arenaceous, as above.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2830	2835	80	SANDSTONE: clear to translucent, milky, dominantly medium, moderately well sorted, sub rounded to angular, trace pyrite nodules, loose, hard, fair inferred porosity. No Fluorescence.
		5	COAL : as above.
		25	SILTSTONE 1: arenaceous, as above.
		70	SANDSTONE: as above. No Fluorescence. <b>Gas peak at 2836.0 mMDRT=366 units.</b>
2835	2840	5	COAL : as above.
		50	SILTSTONE 1: 40%, pale yellowish brown to light brown, very arenaceous grading to very fine SANDSTONE, trace micromicaceous, rare glauconite, firm to moderately hard, sub blocky to blocky. SILTSTONE 2: 10%, dark yellowish brown to greyish brown, very carbonaceous grading to SILTY COAL, trace pyrite laminations, firm to moderately hard, sub blocky to blocky.
		45	SANDSTONE: as above. No Fluorescence.
			<b>Gas peak at 2845.0 mMDRT=383 units.</b>
2840	2845	70	SILTSTONE 1: 65%, arenaceous, as above.
			SILTSTONE 2: 5%, carbonaceous, as above
		30	SANDSTONE: clear to translucent, fine to coarse, poor sorted, sub angular to sub rounded, strong pyrite cement, common nodules pyrite, occasionally loose, hard, poor inferred and visual porosity. No Fluorescence.
2845	2850	40	SILTSTONE 1: arenaceous, as above.
		60	SANDSTONE: as above. No Fluorescence.
			<b>Gas peak at 2852.0 mMDRT=204 units.</b>
2850	2855	10	SILTSTONE: arenaceous, as above.
		90	SANDSTONE: SANDSTONE: clear to translucent, fine to medium, minor coarse, moderately sorted, sub angular to dominantly sub rounded, trace matrix, trace pyrite cement, common pyrite nodules, loose, hard, fair inferred and visual porosity. <b>FLUORESCENCE: trace-2%, dull, greenish yellow patchy fluorescence, very slow bleeding direct cut, thin ring residue.</b>
2855	2860	5	SILTSTONE 1: arenaceous, as above.
		95	SANDSTONE: generally as above. very fine to occasionally medium, dominantly fine, sub angular to dominantly sub rounded, good inferred porosity. No Fluorescence.
2860	2865	10	SILTSTONE 1: arenaceous, as above.
		90	SANDSTONE: generally as above. very fine to medium, dominantly fine, fair to good inferred and visual porosity. No Fluorescence.
2865	2870	10	SILTSTONE 1: arenaceous, as above.
		90	SANDSTONE: generally as above, very fine to medium, dominantly fine, sub angular to dominantly sub rounded, fair to good porosity. No Fluorescence.
2870	2875	5	SILTSTONE 1: arenaceous, as above.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2875	2880	95	SANDSTONE: clear to translucent, fine to occasionally coarse, dominantly medium, moderately well sorted, sub angular to dominantly sub rounded, weak pyrite cement, common pyrite nodules, clean, loose, hard, fair to good inferred and visual porosity. No Fluorescence.
		5	SILTSTONE 1: arenaceous, as above.
		95	SANDSTONE: generally as above, fine to occasionally coarse, dominantly medium, sub angular to dominantly sub rounded, trace pyrite nodules, clean, good inferred and visual porosity. No Fluorescence.
2880	2885	15	SILTSTONE 1: pale yellowish brown to light brown, very arenaceous grading to very fine SANDSTONE, trace micromicaceous, trace glauconite, soft to moderately hard, amorphous to sub blocky.
		85	SANDSTONE: clear to translucent, very fine to occasionally coarse, dominantly fine, moderately well sorted, sub angular to dominantly sub rounded, weak pyrite cement, trace pyrite nodules, fair to good inferred and visual porosity. No Fluorescence.
2885	2890	20	SILTSTONE 1: 15%, arenaceous, as above. SILTSTONE 2: 5%, greyish brown to brownish black, very carbonaceous grading to SILTY COAL, trace pyrite laminations, trace glauconite, moderately hard, sub blocky to blocky.
		80	SANDSTONE: clear to translucent, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, strong pyrite cement, trace pyrite nodules, occasionally loose, hard, fair inferred and visual porosity. No Fluorescence.
		10	SILTSTONE 1: 10%, arenaceous, as above.
2890	2895		SILTSTONE 2: trace, carbonaceous, as above.
		90	SANDSTONE: clear to translucent, fine to coarse, occasionally very coarse, dominantly medium, poor sorted, sub angular to sub rounded, moderate pyrite cement, trace pyrite nodules, fair inferred and visual porosity. No Fluorescence.
		20	SILTSTONE 1: 20%, arenaceous, as above.
2895	2900		SILTSTONE 2: trace, carbonaceous, as above.
		80	SANDSTONE: generally as above. No Fluorescence.
		30	SILTSTONE 1: 25%, arenaceous, as above.
2900	2905		SILTSTONE 2: 5%, carbonaceous, as above.
		70	SANDSTONE: generally as above. No Fluorescence.
		40	SILTSTONE 1: 30%, arenaceous, as above.
2905	2910		SILTSTONE 2: 10%, carbonaceous, as above.
		60	SANDSTONE: clear to translucent, fine to very coarse, poor sorted, sub angular to sub rounded, strong pyrite cement, abundant pyrite nodules, hard, poor inferred and visual porosity. No Fluorescence.
			<b>Top L-2 Coal at 2910.0 mMDRT (2311.9 mTVDRT, -2279.1 mTVDSS).</b>
Spot	2912.5	30	SILTSTONE 1: 30%, arenaceous, as above.
			SILTSTONE 2: 10%, carbonaceous, as above.
		50	SANDSTONE: as above. No fluorescence.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2910	2915	70	SILTSTONE 1: 50%, arenaceous, as above. SILTSTONE 2: 20%, carbonaceous, as above.
		30	SANDSTONE: clear to translucent, very fine to occasionally very coarse, dominantly fine, poor sorted, sub angular to sub rounded, strong siliceous cement, strong pyrite cement, abundant pyrite nodules, hard aggregates, poor inferred and visual porosity. No Fluorescence.
2915	2920	60	COAL: brownish black to black, earthy, firm to moderately hard, blocky, uneven, woody texture, silty grading to carbonaceous Siltstone.
		30	SILTSTONE 1: 20%, arenaceous, as above. SILTSTONE 2: 10%, carbonaceous, greyish brown to moderately brown, very carbonaceous grading to silty COAL, trace micromicaceous, trace glauconite, firm to moderately hard, sub blocky.
		20	SANDSTONE: clear to translucent, very fine to common very coarse, dominantly fine, poor sorted, sub angular to occasionally sub rounded, strong siliceous cement, strong pyrite cement, trace pyrite nodules, hard aggregates, occasionally loose, poor to fair inferred and visual porosity. FLUORESCENCE: 5%, moderately bright, yellowish orange spotted fluorescence, moderately rapid direct blooming cut, moderately thick ring residue. <b>Top L-2 Gas Sand at 2925.0 mMDRT (2324.2 mTVDRT, -2291.4 mTVDSS). Gas peak at 2921.0 mMDRT=178 units.</b>
2920	2925	60	COAL : as above.
		20	SILTSTONE 1: 10%, arenaceous, as above. SILTSTONE 2: 10%, carbonaceous, as above
		30	SANDSTONE: clear to translucent, very fine to rare coarse, dominantly very fine, moderately well sorted, sub angular to sub rounded, strong pyrite cement, strong siliceous cement, common pyrite nodules, hard aggregates, poor visual and inferred porosity. FLUORESCENCE: 5%, moderately bright, yellowish orange spotted fluorescence, slow blooming direct, thin ring residue. <b>Gas peak at 2929.0 mMDRT=332 units.</b>
2925	2930	Trace	COAL : as above.
		30	SILTSTONE 1: 20%, arenaceous, as above. SILTSTONE 2: 10%, carbonaceous, as above
		70	SANDSTONE: clear to translucent, very fine to occasionally coarse, dominantly medium, moderately well sorted, sub angular to sub rounded, strong pyrite cement, strong siliceous cement, common pyrite nodules, loose in part, poor inferred and visual porosity. FLUORESCENCE: 7% moderately bright, yellowish orange spotted fluorescence, very slow bleeding direct cut, thin ring residue.
2930	2935	60	SILTSTONE 1: 50%, arenaceous, as above. SILTSTONE 2: 10%, carbonaceous, as above
		40	SANDSTONE: clear to translucent, medium dominantly coarse, moderately well sorted, sub angular to dominantly sub rounded, trace siliceous cement, rare pyrite nodules, clean, loose, hard, good inferred and visual porosity. FLUORESCENCE: trace to 2%, moderately bright, yellowish orange spotted fluorescence, very slow bleeding direct cut, thin ring residue. <b>Gas peak at 2935.5 mMDRT=139 units.</b>
2935	2940	30	COAL : as above.
		40	SILTSTONE 1: 30%, arenaceous, as above. SILTSTONE 2: 10%, carbonaceous, as above.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2940	2945	30	SANDSTONE: clear to translucent, very fine to occasionally coarse, dominantly medium, moderately well sorted, sub angular to sub rounded, weak pyrite cement, trace pyrite nodules, hard aggregates, loose in part, poor to fair visual and inferred porosity. FLUORESCENCE: trace to 2% moderately bright, pinpoint, yellowish orange fluorescence, very slow, bleeding direct cut, thin ring residue. <b>Gas peak at 2944.0 mMDRT=246 units.</b>
		50	COAL : as above.
		40	SILTSTONE 1: 25%, arenaceous, as above. SILTSTONE 2: 15%, carbonaceous, as above.
		10	SANDSTONE: clear to translucent, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, nil cement, trace pyrite nodules, loose, hard, fair to good inferred and visual porosity. No Fluorescence.
2945	2950	5	COAL : as above.
		90	SILTSTONE 1: 20%, arenaceous, as above. SILTSTONE 2: 70%, carbonaceous, as above.
		5	SANDSTONE: as above. No Fluorescence.
		70	SILTSTONE 1: 20%, arenaceous, as above. SILTSTONE 2: 50%, carbonaceous, as above.
2950	2955	30	SANDSTONE: clear to translucent, medium to dominantly coarse, moderately well sorted, sub angular to sub rounded, trace pyrite cement, trace pyrite nodules, loose, hard, fair to good inferred and visual porosity. No Fluorescence. <b>Top 54.5my unconformity at 2960.0 mMDRT (2352.9 mTVDRT, -2320.1 mTVDSS). Gas peak at 2956.5 mMDRT=564 units.</b>
		30	SILTSTONE 1: 10%, arenaceous, as above. SILTSTONE 2: 20%, carbonaceous, as above.
		70	SANDSTONE: clear to translucent, fine to coarse, dominantly medium, moderately well sorted, sub angular to dominantly sub rounded, no matrix, no cement, rare pyrite nodules, clean, loose, hard, good inferred and visual porosity. No Fluorescence.
		20	SILTSTONE 1: 10%, arenaceous, as above. SILTSTONE 2: 10%, carbonaceous, as above.
2960	2965	80	SANDSTONE: clear to translucent, medium to very coarse, dominantly coarse, moderately well sorted, sub angular to sub rounded, no matrix, no cement, rare pyrite nodules, clean, loose, hard, good inferred and visual porosity. No Fluorescence.
		15	SILTSTONE 1: 5%, arenaceous, as above. SILTSTONE 2: 10%, carbonaceous, as above.
		85	SANDSTONE: clear to translucent, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, weak pyrite cement, rare pyrite nodules, loose, hard, clean, fair to good inferred and visual porosity. No Fluorescence. <b>Gas peak at 2970.5 mMDRT=253 units.</b>
		10	SILTSTONE 1: 5%, arenaceous, as above. SILTSTONE 2: 5%, carbonaceous, as above.
2970	2975	90	SANDSTONE: as above. No fluorescence.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2975	2980	5 95	SILTSTONE 2: 5%, carbonaceous, as above. SANDSTONE: as above. No fluorescence.
2980	2985	5 95	SILTSTONE 2: 5%, carbonaceous, as above. SANDSTONE: as above. No fluorescence.
			<b>Gas peak at 2989.0 mMDRT=143 units.</b>
2985	2990	5 95	SILTSTONE 2: 5%, carbonaceous, as above. SANDSTONE: as above. No fluorescence.
2990	2995	30 70	SILTSTONE 1: 30%, pale yellowish brown to pale brown, very arenaceous grading to very fine sandstone, trace micromicaceous, rare glauconite, soft to firm, amorphous to sub blocky. SANDSTONE: as above. No fluorescence.
2995	3000	5 95	SILTSTONE : arenaceous, as above. SANDSTONE: clear to translucent, fine to occasionally coarse, dominantly medium, moderately well sorted, sub angular to dominantly sub rounded, weak pyrite cement, weak siliceous cement, trace pyrite nodules, loose, hard, fair to good inferred and visual porosity. No Fluorescence.
3000	3005	10 90	SILTSTONE : arenaceous, as above. SANDSTONE: as above. No fluorescence.
3005	3010	25 75	SILTSTONE 1: 15%, pale yellowish brown to pale brown, very arenaceous grading to very fine sandstone, trace micromicaceous, rare glauconite, soft to firm, amorphous to sub blocky. SILTSTONE 2: 10%, brownish black to dusky brown, very carbonaceous grading to silty coal, trace pyrite laminations, trace glauconite, firm to moderately hard, sub blocky. SANDSTONE: as above. No fluorescence.
3010	3015	30 70	SILTSTONE 1: 25%, arenaceous, as above. SILTSTONE 2: 5%, carbonaceous, as above. SANDSTONE: as above. No fluorescence.
3015	3020	50 50	SILTSTONE : arenaceous, as above. SANDSTONE: clear to translucent, occasionally very coarse, poor sorted, sub angular to sub rounded, strong pyrite cement, strong siliceous cement, abundant pyrite nodules, hard aggregates, poor inferred and visual porosity. No Fluorescence.
3020	3025	20 80	SILTSTONE : arenaceous, as above. SANDSTONE: clear to translucent, fine to common very coarse, poor sorted, sub angular to sub rounded, in part strong pyrite and siliceous cement, common loose, hard aggregates in part, poor to fair inferred and visual porosity. No Fluorescence.
3025	3030	25 75	SILTSTONE : arenaceous, as above. SANDSTONE: as above. No fluorescence.
3030	3035	20	SILTSTONE : arenaceous, as above.

## **Bream A10A Lithology / Show Descriptions**

Interval (m) From To		%	Lithology / Show Description
3035	3040	80	SANDSTONE: clear to translucent, dominantly coarse to very coarse, moderately well sorted, sub angular to sub rounded, moderate pyrite cement, common pyrite nodules, common rock flour, hard aggregates in part, common loose, poor to fair inferred porosity. No Fluorescence.
		30	SILTSTONE : arenaceous, as above.
3040	3045	70	SANDSTONE: generally as above. fine to very coarse, moderate pyrite cement, moderate siliceous cement, common loose, poor to fair inferred and visual porosity. No Fluorescence.
		30	SILTSTONE : arenaceous, as above.
3045	3050	70	SANDSTONE: generally as above. weak pyrite cement, weak siliceous cement, loose, hard, fair inferred porosity. No Fluorescence.
		5	SILTSTONE : arenaceous, as above.
3050	3055	95	SANDSTONE: clear to translucent, milky, medium to very coarse, moderately well sorted, sub rounded to angular in part, strong siliceous cement in part, trace pyrite nodules, hard to loose, fair to visual and inferred porosity. No Fluorescence.
		20	SILTSTONE : arenaceous, as above.
3055	3060	80	SANDSTONE: clear to translucent, milky, coarse to dominantly very coarse, moderately well sorted, sub angular to sub rounded, weak pyrite cement, weak siliceous cement, trace pyrite nodules, dominantly loose, hard, fair to good inferred and visual porosity. No Fluorescence.
		60	SILTSTONE 1: 15%, pale yellowish brown to pale brown, very arenaceous grading to very fine sandstone, trace micromicaceous, rare glauconite, soft to firm, amorphous to sub blocky. SILTSTONE 2: 10%, brownish black to dusky brown, very carbonaceous grading to silty coal, trace pyrite laminations, trace glauconite, firm to moderately hard, sub blocky.
3060	3065	40	SANDSTONE: generally as above. clear to translucent, fine to occasionally coarse, dominantly medium, poor sorted, sub angular to sub rounded, fair to good inferred and visual porosity. No Fluorescence.
		50	SILTSTONE 1: 45%, arenaceous, as above. SILTSTONE 2: 5%, carbonaceous, as above.
3065	3070	50	SANDSTONE: as above. No Fluorescence.
		20	SILTSTONE : arenaceous, as above.
3070	3075	80	SANDSTONE: as above. No Fluorescence.
		10	SILTSTONE : arenaceous, as above.
3075	3080	90	SANDSTONE: as above. No Fluorescence.
		30	SILTSTONE: arenaceous, as above.
3080	3085	70	SANDSTONE: clear to translucent, fine to occasionally very coarse, dominantly medium, poor sorted, sub angular to sub rounded, trace pyrite cement, trace siliceous cement, trace nodules pyrite, poor to fair inferred and visual porosity. No Fluorescence.
		20	SILTSTONE: arenaceous, as above.
		80	SANDSTONE: as above. No Fluorescence.

## **Bream A10A Lithology / Show Descriptions**

Interval (m) From To		%	Lithology / Show Description
3085	3090	20	SILTSTONE: as above.
		80	SANDSTONE: as above. No Fluorescence.
3090	3095	10	SILTSTONE: as above.
		90	SANDSTONE: clear to translucent, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, strong pyrite cement, strong siliceous cement, common pyrite nodules, hard aggregates, poor inferred and visual porosity. No Fluorescence.
3095	3100	5	SILTSTONE: arenaceous, as above.
		95	SANDSTONE: as above. No Fluorescence.
3100	3105	5	SILTSTONE: arenaceous, as above.
		95	SANDSTONE: as above. No Fluorescence.
3105	3110	20	SILTSTONE: pale brownish yellow to dark yellow brown, very arenaceous grading to very fine sandstone, trace micromicaceous, rare glauconite, firm to moderately hard, sub blocky to blocky.
		80	SANDSTONE: clear to translucent, fine to occasionally very coarse, poor sorted, sub angular to sub rounded, moderate pyrite cement, moderate siliceous cement, trace to common pyrite nodules, hard aggregates, common rock flour, poor inferred and visual porosity. No Fluorescence.
3110	3115	70	SILTSTONE 1: 70% arenaceous, as above. SILTSTONE 2: Trace, moderately brown to grey brown, very carbonaceous grading to slty coal, trace glauconite, moderately hard, sub blocky to blocky.
		30	SANDSTONE: as above. No Fluorescence.
3115	3120	80	SILTSTONE 1: 75% arenaceous, as above.
		20	SILTSTONE 2: 5% carbonaceous, as above. SANDSTONE: as above. No Fluorescence.
3120	3125	50	SILTSTONE 1: 50% arenaceous, as above.
		50	SILTSTONE 2: Trace, carbonaceous, as above. SANDSTONE: clear to translucent, fine to occasionally very coarse, poor sorted, sub angular to sub rounded, strong pyrite cement, moderate siliceous cement, trace pyrite nodules, hard aggregates, common rock flour, poor inferred and visual porosity. No Fluorescence.
3125	3130	50	SILTSTONE 1: 50% arenaceous, as above.
		50	SILTSTONE 2: Trace, carbonaceous, as above. SANDSTONE: as above. No Fluorescence.
3130	3135	20	SILTSTONE : 20% arenaceous, as above.
		80	SANDSTONE: as above. No Fluorescence.
3135	3140	25	SILTSTONE : arenaceous, as above.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3140	3145	75	SANDSTONE: clear to translucent, fine to common very coarse, poor sorted, sub angular to sub rounded, moderate pyrite cement, moderate siliceous cement, trace pyrite nodules, hard aggregates, common rock flour, occasionally loose, poor inferred and visual porosity. No Fluorescence.
		5	SILTSTONE : arenaceous, as above.
3145	3150	95	SANDSTONE: as above. No Fluorescence.
		5	CLAYSTONE: light bluish grey to pale blue, trace glauconite, hard, blocky.
		30	SILTSTONE: dark yellowish brown to greyish brown, very arenaceous grading to very fine sandstone, trace glauconite, trace micromicaceous, soft to firm, sub blocky to blocky.
3150	3155	65	SANDSTONE: medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, strong pyrite cement, strong siliceous cement, common pyrite nodules, hard aggregates, common rock flour, poor visual and inferred porosity. No Fluorescence.
		10	SILTSTONE : arenaceous, as above.
		90	SANDSTONE: as above. No Fluorescence.
3155	3160		<b>Top 58.5m unconformity at 3158.5 mMDRT (2519.5 mTVDRT, -2486.7 mTVDSS).</b>
		25	COAL: dusky brown to brownish black, silty grading to carbonaceous siltstone, earthy, firm, blocky, uneven, woody texture.
		20	SILTSTONE 1: 10% arenaceous, as above. SILTSTONE 2: 10%, moderately brown to dusky brown, very carbonaceous grading to silty coal, trace glauconite, firm to moderately hard, sub blocky to blocky.
		55	SANDSTONE: clear to translucent, fine to occasionally very coarse, poor sorted, sub angular to sub rounded, moderate pyrite cement, moderate siliceous cement, rare pyrite nodules, hard aggregates, common rock flour, poor inferred and visual porosity. No Fluorescence.
3160	3165		<b>Gas peak at 3164.0 mMDRT=121 units.</b>
		75	COAL: as above .
		20	SILTSTONE 1: 10% arenaceous, as above. SILTSTONE 2: 10%, carbonaceous, as above.
		5	SANDSTONE: as above. No Fluorescence.
3165	3170	55	COAL: as above.
		40	SILTSTONE 1: 20% arenaceous, as above. SILTSTONE 2: 20%, carbonaceous, as above.
		5	SANDSTONE: as above. No Fluorescence.
3170	3175	5	COAL: as above.
		95	SILTSTONE 1: 85% arenaceous, as above. SILTSTONE 2: 10%, carbonaceous, as above.
		Trace	SANDSTONE: as above. No Fluorescence.
			<b>Top L-9 Gas Sand at 3177.0 mMDRT (2535.9 mTVDRT, -2503.1 mTVDSS).</b>
3175	3180	60	SILTSTONE 1: 55% arenaceous, as above. SILTSTONE 2: 5%, carbonaceous, as above.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3180	3185	40	SANDSTONE: clear to translucent, milky, medium to dominantly very coarse, moderately well sorted, sub angular to sub rounded, moderate pyrite cement, moderate siliceous cement, trace pyrite nodules, hard aggregates, common rock flour, poor visual and inferred porosity. No Fluorescence. <b>Gas peak at 3180.5 mMDRT=198 units.</b>
		20	COAL: dusky brown to occasionally brownish black, silty grading to carbonaceous siltstone, earthy, firm, blocky, uneven, woody texture.
		40	SILTSTONE 1: 35% arenaceous, as above. SILTSTONE 2: 5%, carbonaceous, as above.
		40	SANDSTONE: clear to translucent, dominantly fine to occasionally coarse, poor sorted, sub angular to sub rounded, moderate pyrite cement, moderate siliceous cement, trace nodules pyrite, hard aggregates, common rock flour, occasionally loose, poor to fair inferred and visual porosity. <b>FLUORESCENCE: trace to 2%, dull, spotted yellowish green fluorescence, slow streaming direct cut, very thin ring residue.</b>
3185	3190	55	SILTSTONE 1: 50% arenaceous, as above. SILTSTONE 2: 5%, carbonaceous, as above.
		45	SANDSTONE: generally as above. <b>FLUORESCENCE: trace, dull, pinpoint, yellowish green fluorescence, very slow diffusing direct cut, trace ring residue.</b>
3190	3195	50	SILTSTONE: arenaceous, as above.
		50	SANDSTONE: clear to translucent, very fine to medium, occasionally coarse, poor sorted, sub angular to sub rounded, moderate pyrite cement, moderate siliceous cement, trace to common pyrite nodules, common rock flour, hard aggregates, poor visual and inferred porosity. No Fluorescence.
3195	3200	80	SILTSTONE: pale yellowish brown to brownish grey, very arenaceous grading to very fine sandstone, trace micromicaceous, trace disseminated pyrite, soft to firm, amorphous to sub blocky.
		20	SANDSTONE: clear to translucent, fine to medium, occasionally coarse, poor sorted, sub angular to sub rounded, moderate pyrite cement, weak siliceous cement, trace pyrite nodules, common rock flour, hard aggregates, poor inferred and visual porosity. No Fluorescence.
3200	3205	5	COAL: as above.
		60	SILTSTONE: arenaceous, as above.
		35	SANDSTONE: clear to translucent, very fine to medium, rare coarse, poor sorted, sub angular to sub rounded, moderately pyrite cement, weak siliceous cement, trace nodules pyrite, hard aggregates, common rock flour, poor inferred and visual porosity. <b>FLUORESCENCE: trace, dull to moderately bright, spotted greenish yellow fluorescence, very slow diffusing direct cut, trace ring residue.</b>
3205	3210	5	COAL: as above.
		65	SILTSTONE 1: 60% arenaceous, as above. SILTSTONE 2: 5% carbonaceous, as above.
		30	SANDSTONE: as above. No Fluorescence. <b>Gas peak at 3214.0 mMDRT=159 units.</b>
3210	3215	10	COAL: as above.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3215	3220	70	SILTSTONE 1: 60% arenaceous, as above.
			SILTSTONE 2: 10% carbonaceous, as above.
		20	SANDSTONE: as above.
			No Fluorescence.
		10	COAL: as above.
3220	3225	65	SILTSTONE 1: 60% arenaceous, as above.
			SILTSTONE 2: 5% carbonaceous, as above.
		20	SANDSTONE: clear to translucent, milky, medium to dominantly coarse, moderately well sorted, angular to sub rounded, weak pyrite cement, rare to trace nodules pyrite, common rock flour, common hard aggregates, poor visual and inferred porosity.
			<b>FLUORESCENCE: trace to 3%, dull to moderately bright, yellowish green, spotted fluorescence, slow diffusing direct cut, thin ring residue.</b>
		5	COAL: as above.
3225	3230	45	SILTSTONE 1: 40% arenaceous, as above.
			SILTSTONE 2: 5% carbonaceous, as above.
		50	SANDSTONE: clear to translucent, medium to dominantly coarse, moderately well sorted, sub angular to sub rounded, moderately siliceous cement, moderately pyrite cement, trace to common pyrite nodules, hard aggregates, poor visual and inferred porosity.
			No Fluorescence
		5	COAL: as above.
3230	3235	35	SILTSTONE 1: 30% arenaceous, as above.
			SILTSTONE 2: 5% carbonaceous, as above.
		60	SANDSTONE: clear to translucent, coarse to dominantly very coarse, moderately well sorted, sub angular to sub rounded, moderately pyrite cement, weak siliceous cement, trace pyrite nodules, hard aggregates, common rock flour, poor inferred and visual porosity.
			No Fluorescence.
		Trace	COAL: as above.
3235	3240	10	SILTSTONE : arenaceous, as above.
		90	SANDSTONE: clear to translucent, fine to coarse, poor sorted, sub angular to sub rounded, strong pyrite cement, strong siliceous cement, common nodules pyrite, hard aggregates, common rock flour, poor visual and inferred porosity.
			No Fluorescence.
		20	COAL: dusky brown to brownish black, earthy, firm, blocky, uneven, woody texture, silty grading to carbonaceous siltstone.
		35	SILTSTONE 1: 15%, arenaceous as above.
3240	3245		SILTSTONE 2: 20%, carbonaceous as above.
		45	SANDSTONE: generally as above. fine to coarse, dominantly medium.
			No Fluorescence.
		5	COAL: as above.
		75	SILTSTONE 1: 70%, arenaceous as above.
3245	3250		SILTSTONE 2: 5%, carbonaceous as above.
		20	SANDSTONE: generally as above, fine to occasionally coarse, dominantly medium.
			No Fluorescence.
		Trace	COAL: as above.
		70	SILTSTONE 1: 65%, arenaceous as above.
			SILTSTONE 2: 5%, carbonaceous as above.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3250	3255	30	SANDSTONE: generally as above, fine to occasionally coarse, dominantly medium. No Fluorescence.
		20	COAL: brownish black to black, occasionally dusky brown, earthy, firm, blocky, uneven, woody texture, trace pyrite laminations, silty grading to carbonaceous siltstone.
		40	SILTSTONE 1: 30%, arenaceous as above. SILTSTONE 2: 10%, carbonaceous as above.
		40	SANDSTONE: clear to translucent, fine to occasionally coarse, dominantly medium, poor sorted, sub angular to sub rounded, common pyrite cement, common siliceous cement, trace to common pyrite nodules, common aggregates, common rock flour, poor inferred and visual porosity. No Fluorescence.
3255	3260	15	COAL: as above.
		65	SILTSTONE 1: 60%, arenaceous as above. SILTSTONE 2: 5%, carbonaceous as above.
		20	SANDSTONE: generally as above, fine to occasionally coarse, dominantly medium. No Fluorescence.
3260	3265	20	COAL: as above.
		75	SILTSTONE 1: 70%, arenaceous as above. SILTSTONE 2: 5%, carbonaceous as above.
		5	SANDSTONE: generally as above, fine to occasionally coarse, dominantly medium. No Fluorescence.
3265	3270	30	COAL: as above.
		60	SILTSTONE 1: 50%, arenaceous as above. SILTSTONE 2: 10%, carbonaceous as above.
		10	SANDSTONE: generally as above, fine to occasionally coarse, dominantly medium. No Fluorescence.
3270	3275	50	COAL: as above.
		50	SILTSTONE 1: 30%, arenaceous as above. SILTSTONE 2: 20%, carbonaceous as above.
		Trace	SANDSTONE: generally as above, fine to occasionally coarse, dominantly medium. No Fluorescence.
3275	3280	20	COAL: as above.
		75	SILTSTONE 1: 55%, arenaceous as above. SILTSTONE 2: 20%, carbonaceous as above.
		5	SANDSTONE: generally as above, fine to occasionally coarse, dominantly medium. No Fluorescence.
3280	3285	20	COAL: as above.
		75	SILTSTONE 1: 65%, arenaceous as above. SILTSTONE 2: 10%, carbonaceous as above.
		5	SANDSTONE: generally as above, fine to occasionally coarse, dominantly medium. No Fluorescence.
3285	3290	20	COAL: as above.
		75	SILTSTONE 1: 65%, arenaceous as above. SILTSTONE 2: 10%, carbonaceous as above.
		5	SANDSTONE: generally as above, fine to occasionally coarse, dominantly medium. No Fluorescence.
3290	3295		<b>Gas peak at 3293.0 mMDRT=303 units.</b>
		30	COAL: as above.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3295	3300	60	SILTSTONE 1: 50%, arenaceous as above. SILTSTONE 2: 10%, carbonaceous as above.
		10	SANDSTONE: generally as above, fine to occasionally coarse, dominantly medium. No Fluorescence.
		20	COAL: as above.
		75	SILTSTONE 1: 55%, arenaceous as above. SILTSTONE 2: 20%, carbonaceous as above.
		5	SANDSTONE: generally as above, fine to occasionally coarse, dominantly medium. No Fluorescence.
3300	3305		<b>Top J Coal at 3301.5 mMDRT (2645.1 mTVDRT, -2612.3 mTVDSS).</b>
		20	COAL: as above.
		75	SILTSTONE 1: 55%, arenaceous as above. SILTSTONE 2: 20%, carbonaceous as above.
		5	SANDSTONE: generally as above, fine to occasionally coarse, dominantly medium. No Fluorescence.
3305	3310	5	COAL: moderately brown to grey brown, earthy, firm, sub blocky, uneven, woody texture, silty grading to carbonaceous siltstone, occasionally black, sub vitreous, brittle, blocky, uneven, trace pyrite laminations.
		70	SILTSTONE 1: 65%, arenaceous as above. SILTSTONE 2: 5%, carbonaceous as above.
		25	SANDSTONE: clear to translucent, fine to occasionally coarse, dominantly medium, poor sorted, sub angular to sub rounded, moderate pyrite cement, moderate siliceous cement, trace pyrite nodules, hard aggregates, common rock flour, poor inferred and visual porosity.
			<b>FLUORESCENCE: trace to 2%, dull to moderately bright, spotted yellow orange fluorescence, very slow diffusing direct cut, thin ring residue.</b>
3310	3315	25	COAL: moderately brown to grey brown, earthy, firm, sub blocky, uneven, woody texture, silty grading to carbonaceous siltstone, occasionally black, sub vitreous, brittle, blocky, uneven, trace pyrite laminations.
		60	SILTSTONE 1: 50%, arenaceous as above. SILTSTONE 2: 10%, carbonaceous as above.
		15	SANDSTONE: clear to translucent, fine to occasionally coarse, dominantly medium, poor sorted, sub angular to sub rounded, moderate pyrite cement, moderate siliceous cement, trace pyrite nodules, hard aggregates, common rock flour, poor inferred and visual porosity. No Fluorescence.
			<b>Gas peak at 3319.0 mMDRT=348 units.</b>
3315	3320	40	COAL: moderately brown to grey brown, earthy, firm, sub blocky, uneven, woody texture, silty grading to carbonaceous siltstone, occasionally black, sub vitreous, brittle, blocky, uneven, trace pyrite laminations.
		60	SILTSTONE 1: 40%, arenaceous as above. SILTSTONE 2: 20%, carbonaceous as above.
		Trace	SANDSTONE: clear to translucent, fine to occasionally coarse, dominantly medium, poor sorted, sub angular to sub rounded, moderate pyrite cement, moderate siliceous cement, trace pyrite nodules, hard aggregates, common rock flour, poor inferred and visual porosity. No Fluorescence.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3320	3325	30	COAL: moderately brown to grey brown, earthy, firm, sub blocky, uneven, woody texture, silty grading to carbonaceous siltstone, occasionally black, sub vitreous, brittle, blocky, uneven, trace pyrite laminations.
		70	SILTSTONE 1: 60%, arenaceous as above. SILTSTONE 2: 10%, carbonaceous as above.
		Trace	SANDSTONE: clear to translucent, fine to occasionally coarse, dominantly medium, poor sorted, sub angular to sub rounded, moderate pyrite cement, moderate siliceous cement, trace pyrite nodules, hard aggregates, common rock flour, poor inferred and visual porosity. No Fluorescence. <b>Gas peak at 3330.0 mMDRT=386 units.</b>
3325	3330	15	COAL: moderately brown to grey brown, earthy, firm, sub blocky, uneven, woody texture, silty grading to carbonaceous siltstone, occasionally black, sub vitreous, brittle, blocky, uneven, trace pyrite laminations.
		60	SILTSTONE 1: 50%, arenaceous as above. SILTSTONE 2: 10%, carbonaceous as above.
		25	SANDSTONE: clear to translucent, medium to occasionally very coarse, dominantly coarse, moderately well sorted, sub angular to sub rounded, moderate pyrite cement, moderate siliceous cement, trace to common pyrite nodules, common rock flour, hard aggregates, poor inferred and visual porosity. No Fluorescence.
3330	3335	10	COAL: moderately brown to grey brown, earthy, firm, sub blocky, uneven, woody texture, silty grading to carbonaceous siltstone, occasionally black, sub vitreous, brittle, blocky, uneven, trace pyrite laminations.
		30	SILTSTONE 1: 25%, arenaceous as above. SILTSTONE 2: 5%, carbonaceous as above.
		60	SANDSTONE: clear to translucent, very fine to occasionally coarse, dominantly fine, moderately well sorted, sub angular to sub rounded, weak pyrite cement, weak siliceous cement, trace pyrite nodules, hard aggregates, trace rock flour, common loose grains, poor to fair inferred and visual porosity. <b>FLUORESCENCE: trace to 2% dull to moderately bright, greenish yellow spotted fluorescence, slow diffusing direct cut, thin ring residue.</b> <b>Gas peak at 3339.5 mMDRT=340 units.</b>
3335	3340	10	COAL: moderately brown to grey brown, earthy, firm, sub blocky, uneven, woody texture, silty grading to carbonaceous siltstone, occasionally black, sub vitreous, brittle, blocky, uneven, trace pyrite laminations.
		20	SILTSTONE 1: 15%, arenaceous as above. SILTSTONE 2: 5%, carbonaceous as above.
		70	SANDSTONE: clear to translucent, fine to dominantly very coarse, poor sorted, sub angular to sub rounded, moderate pyrite cement, moderate siliceous cement in part, rare pyrite nodules, hard aggregates in part, common loose grains, rock flour in part, poor to fair inferred and visual porosity. No Fluorescence.
3340	3345	10	COAL: black to brownish black, earthy to trace sub vitreous, brittle, blocky, uneven, trace pyrite laminations.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3345	3350	15	SILTSTONE 1: 10% light brown to pale yellow brown, very arenaceous grading to very fine sandstone, trace micromicaceous, trace glauconite, soft to firm, amorphous to sub blocky. SILTSTONE 2: 5%, moderately brown to greyish brown, very carbonaceous grading to silty coal, common glauconite, trace pyrite laminations, moderately hard to hard, sub blocky to blocky.
		75	SANDSTONE: clear to translucent, very fine to occasionally medium, dominantly fine, moderately well sorted, sub angular to sub rounded, in part moderate pyrite cement, moderate siliceous cement, trace pyrite nodules, common rock flour, hard aggregates in part, dominantly loose grains, poor to fair visual and inferred porosity. No Fluorescence.
		20	COAL: moderately brown to grey brown, earthy, firm, sub blocky, uneven, woody texture, silty grading to carbonaceous siltstone, occasionally black, sub vitreous, brittle, blocky, uneven, trace pyrite laminations.
		60	SILTSTONE 1: 50%, arenaceous as above. SILTSTONE 2: 10%, carbonaceous as above.
3350	3355	20	SANDSTONE: clear to translucent, medium to very coarse, poor sorted, sub angular to sub rounded, moderate pyrite cement, moderate siliceous cement, trace pyrite nodules, common rock flour, hard aggregates, occasionally medium to coarse loose grains, poor inferred and visual porosity. <b>FLUORESCENCE: trace to 2% moderately bright yellowish green spotted fluorescence, very slow bleeding direct cut, thin ring residue.</b> <b>Gas peak at 3352.0 mMDRT=184 units.</b>
		20	COAL: moderately brown to grey brown, earthy, firm, sub blocky, uneven, woody texture, silty grading to carbonaceous siltstone, occasionally black, sub vitreous, brittle, blocky, uneven, trace pyrite laminations.
		70	SILTSTONE 1: 60%, arenaceous as above. SILTSTONE 2: 10%, carbonaceous as above.
		10	SANDSTONE: generally as above. FLUORESCENCE: trace spotted, moderately bright yellowish green fluorescence, very slow diffusing direct cut, thin ring residue.
3355	3360	40	COAL: moderately brown to grey brown, earthy, firm, sub blocky, uneven, woody texture, silty grading to carbonaceous siltstone, occasionally black, sub vitreous, brittle, blocky, uneven, trace pyrite laminations.
		55	SILTSTONE 1: 40%, arenaceous as above. SILTSTONE 2: 15%, carbonaceous as above.
		5	SANDSTONE: generally as above, medium to occasionally very coarse. No Fluorescence.
			<b>Gas peak at 3362.0 mMDRT=214 units.</b>
3360	3365	20	COAL: moderately brown to grey brown, earthy, firm, sub blocky, uneven, woody texture, silty grading to carbonaceous siltstone, occasionally black, sub vitreous, brittle, blocky, uneven, trace pyrite laminations.
		50	SILTSTONE 1: 40%, arenaceous as above. SILTSTONE 2: 10%, carbonaceous as above.
		30	SANDSTONE: clear to translucent, very fine to medium, rare coarse, dominantly fine, moderately well sorted, angular to sub rounded, strong pyrite cement, strong siliceous cement, abundant pyrite nodules, hard aggregates, occasionally loose grains, poor to fair visual and inferred porosity. No Fluorescence.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3365	3370	15	COAL: moderately brown to grey brown, earthy, firm, sub blocky, uneven, woody texture, silty grading to carbonaceous siltstone, occasionally black, sub vitreous, brittle, blocky, uneven, trace pyrite laminations.
		40	SILTSTONE 1: 35%, arenaceous as above. SILTSTONE 2: 5%, carbonaceous as above.
		45	SANDSTONE: generally as above. FLUORESCENCE: trace moderately bright, spotted greenish yellow fluorescence, very slow diffusing direct cut, thick ring residue.
3370	3375	5	COAL: black to trace dark brown, dull to sub vitreous, trace pyrite inclusions, trace glauconite, hard, sub blocky.
		35	SILTSTONE 1: 30%, arenaceous as above. SILTSTONE 2: 5%, carbonaceous as above.
		55	SANDSTONE: clear to translucent, very fine to occasionally coarse, poor sorted, sub angular to sub rounded, moderately pyrite cement, moderately siliceous cement, trace pyrite nodules, hard aggregates, trace loose grains, common rock flour, poor inferred and visual porosity. No Fluorescence.
3375	3380		<b>Gas peak at 3377.0 mMDRT=167 units.</b>
		5	COAL: black to brownish black, sub vitreous, brittle, blocky, uneven, trace glauconite, trace pyrite laminations.
		25	SILTSTONE 1: 20%, pale yellowish brown to light brown, very arenaceous grading to very fine sandstone, trace micromicaceous, trace glauconite, soft to firm, amorphous to sub blocky. SILTSTONE 2: 5%, moderately brown to greyish brown, very carbonaceous grading to silty coal, trace glauconite, trace pyrite laminations, moderately hard to hard, sub blocky to blocky..
3380	3381 <b>TD</b>	70	SANDSTONE: clear to translucent, very fine to occasionally very coarse, poor sorted, angular to sub rounded, moderately pyrite cement, moderately siliceous cement, trace to common pyrite nodules, hard aggregates, common rock flour, occasional loose grains, poor inferred and visual porosity. No Fluorescence.
		20	COAL: as above.
		20	SILTSTONE 1: 15%, arenaceous as above. SILTSTONE 2: 5%, carbonaceous as above.
		60	SANDSTONE: as above. No Fluorescence.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To	%	Lithology / Show Description
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BMA A10A TD criterion:

To drill to the depth of 2717.82 mTVDRT.

Based on the Inclination, the MD (for the equivalent TVDRT of 2717.82 m) was 3381.0 mMDRT..

The final Schlumberger Direction Driller's projected TVDRT was 2717.74 m for the drilled TD of 3381.0 mMDRT.

**BMA A10A reached a TD of 3381.0 mMDRT = 2717.7 mTVDRT (-2684.9 mTVDSS) at 03:30 hrs 13 May 2005.**

CBU. POOH to shoe.

Wiper Trip.

Trip gas 82 units at 18:00 hrs, 14 May 2005.

Last circulation at 21:00 hrs, 14 March 2005.

Start POOH at 21:10 hrs, 14 March 2005 for Reeves Wireline Logging Run #1.

Reeves Logging from 3376.5 to 2193.1 mMDRT (65.1 metres inside casing)

**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.**

**Drilled a further 11.0 mMDRT, after Reeves wireline logging on 16 May 2005.**

Trip Gas at 0115 hrs, 17 May 2005 = 105 units.

On bottom drilling at 0100 hrs 17 May 2005.

Drilled from 3381.0 mMDRT (2717.7 mTVDRT), to a TD of 3392.0 mMDRT (2727.9 mTVDRT), with a Smith Tricone bit.

**New TD = 3392.0 mMDRT (2727.9 mTVDRT), reached at 1900 hrs on 17 May 2005.**

Bit Details:

Bit # 3RR, Size: 8.5", Manufacturer / Type: Smith GFI 11 YOD VPD. Serial #: MR5165  
Jets: 3 x 32, TFA: 2.356 sq.in, HOB: 15.0 hrs, Grading: **3-2-WT-A-E-2-16THS-NO-TD**.  
Krevs: 52.0, RPM: 80-90.

Average ROP: 11.0 m/ 15.0 hrs= 0.73 m/hr.

## Bream A10A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3381	3385	Trace 80	COAL: trace, black to occasionally brownish black, sub vitreous, brittle, blocky, uneven. SILTSTONE 1: 75%, pale brown to dark yellowish brown, greyish brown, very arenaceous grading to very fine Sandstone, trace pelletoidal glauconite, trace pyrite laminations, trace micromicaceous, moderately hard to hard, sub blocky to blocky. SILTSTONE 2: 5% minor, brownish black to blackish red, very carbonaceous grading to SILTY COAL, abundant pelletoidal glauconite, trace pyrite laminations, moderately hard to hard, sub blocky to blocky. SANDSTONE: clear to translucent, fine to occasionally very coarse, poorly sorted, angular to sub rounded, weak pyrite cement, weak siliceous cement, abundant pelletoidal glauconite, trace to common pyrite nodules, trace hard aggregates, dominantly loose grains, poor to fair inferred and visible porosity. <b>FLUORESCENCE: trace to 2%, dull, patchy, greenish yellow fluorescence, no direct cut, very slow diffusing crush cut, trace ring residue.</b>
3385	3390	Trace 70 30	COAL: trace, as above. SILTSTONE 1: 60%, arenaceous as above, common pelletoidal glauconite. SILTSTONE 2: 10% minor, carbonaceous, common pelletoidal glauconite. SANDSTONE: clear to translucent, fine to occasionally very coarse, poorly sorted, angular to sub rounded, weak pyrite cement, weak siliceous cement, common pelletoidal glauconite, abundant pyrite nodules, trace hard aggregates, dominantly loose grains, poor to fair inferred and visible porosity. <b>FLUORESCENCE: trace, pinpoint, dull, greenish yellow fluorescence, no direct cut, no crush cut.</b>
3390	3392.0 NEW TD	5 55 40	COAL: trace, as above. SILTSTONE 1: 45%, arenaceous as above, common pelletoidal glauconite. SILTSTONE 2: 10% minor, carbonaceous, common pelletoidal glauconite. SANDSTONE: clear to translucent, fine to occasionally very coarse, poorly sorted, angular to sub rounded, weak pyrite cement, weak siliceous cement, common pelletoidal glauconite, abundant pyrite nodules, trace hard aggregates, dominantly loose grains, poor to fair inferred and visible porosity. <b>FLUORESCENCE: trace, pinpoint, dull, greenish yellow fluorescence, very slow diffusing direct cut, thin ring residue.</b>

**APPENDIX 4a**

**BREAM A10A**

**Mud Log**



# MASTERLOG

## BMA A10A

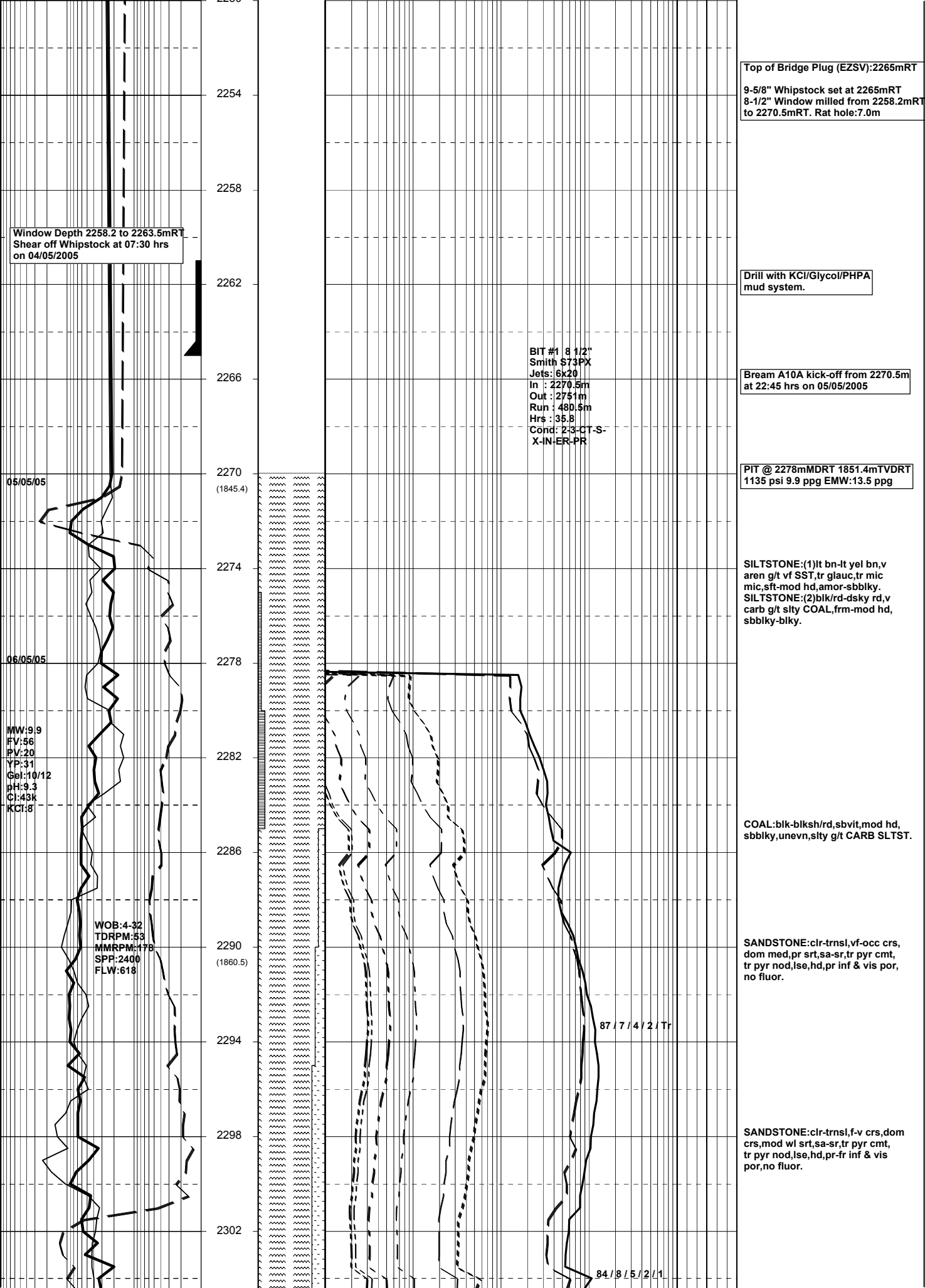


GENERAL	SURFACE POSITION	HOLE / CASING INFO	DATE / DEPTH	ENGINEERS
Country : AUSTRALIA	GDA Co-ord X : 147 46 19.976 E		Spud Date : 05/05/2005	Mark Smith
Permit : VIC L13	GDA Co-ord Y : 38 29 58.824 S	8-1/2" Hole to 3392 m	Total Depth Date : 17/05/2005	V.B. Jagarlamudi
Field : Bream	MGA Co-ord X : 567336.31 mE		Total Depth : 3392 m	Paul McGilveray
Basin : GIPPSLAND	MGA Co-ord Y : 5738460.34 mN	10-3/4" Surface Csg at 921 m	True Vertical Depth : 2727.9 m	Steve Oades
Well Type : DEVELOPMENT	RT to MSL : 32.82 m	7" Production Csg at 3391.7 m	Log Scale : 1/ 200	
Rig Name : NABORS 453	RT to Sea Bed : 92.25 m			

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

ROP (m/hr)	DEPTH (m) (TVD)	CUTTINGS LITHOLOGY	RESERVAL GAS DATA	CUT FLUOR	DIRECT FLUOR	LITHOLOGICAL DESCRIPTIONS and REMARKS
500 50 5 .5			C1 C2 C3 iC4 nC4 iC5 nC5 TG Total Gas in Units Chromatograph in PPM			
WOB (tons)		%	.5 5 50 500 5K 100 1K 10K 100K 1000K			
MWD Gamma Ray (api)						
0 100 200	2230					
	2234					
	2238					
	2242					
	2246					
	2250					

PREVIOUS WELL HISTORY  
Plugged & Abandoned in April 2005  
  
13-3/8" Surface Casing 921mKB  
9-5/8" Intermediate Casing 2520mKB  
7" Production Liner 3299mKB



Window Depth 2258.2 to 2263.5mRT  
Shear off Whipstock at 07:30 hrs  
on 04/05/2005

Top of Bridge Plug (EZSV):2265mRT  
9-5/8" Whipstock set at 2265mRT  
8-1/2" Window milled from 2258.2mRT  
to 2270.5mRT. Rat hole:7.0m

Drill with KCl/Glycol/PHPA  
mud system.

Bream A10A kick-off from 2270.5m  
at 22:45 hrs on 05/05/2005

PIT @ 2278mMDRT 1851.4mTVDRT  
1135 psi 9.9 ppg EMW:13.5 ppg

SILTSTONE:(1)lt bn-lt yel bn,v  
aren g/t vf SST,tr glauc,tr mic  
mic,sft-mod hd,amor-sbbiky.  
SILTSTONE:(2)blk/rd-dsky rd,v  
carb g/t slty COAL,frm-mod hd,  
sbbiky-blky.

COAL:blk-blksh/rd,sbvit,mod hd,  
sbbiky,unevn,slty g/t CARB SLTST.

SANDSTONE:clr-trnsl,vf-occ crs,  
dom med,pr srt,sa-sr,tr pyr cmt,  
tr pyr nod,lse,hd,pr inf & vis por,  
no fluor.

SANDSTONE:clr-trnsl,f-v crs,dom  
crs,mod wl srt,sa-sr,tr pyr cmt,  
tr pyr nod,lse,hd,pr-fr inf & vis  
por,no fluor.

05/05/05

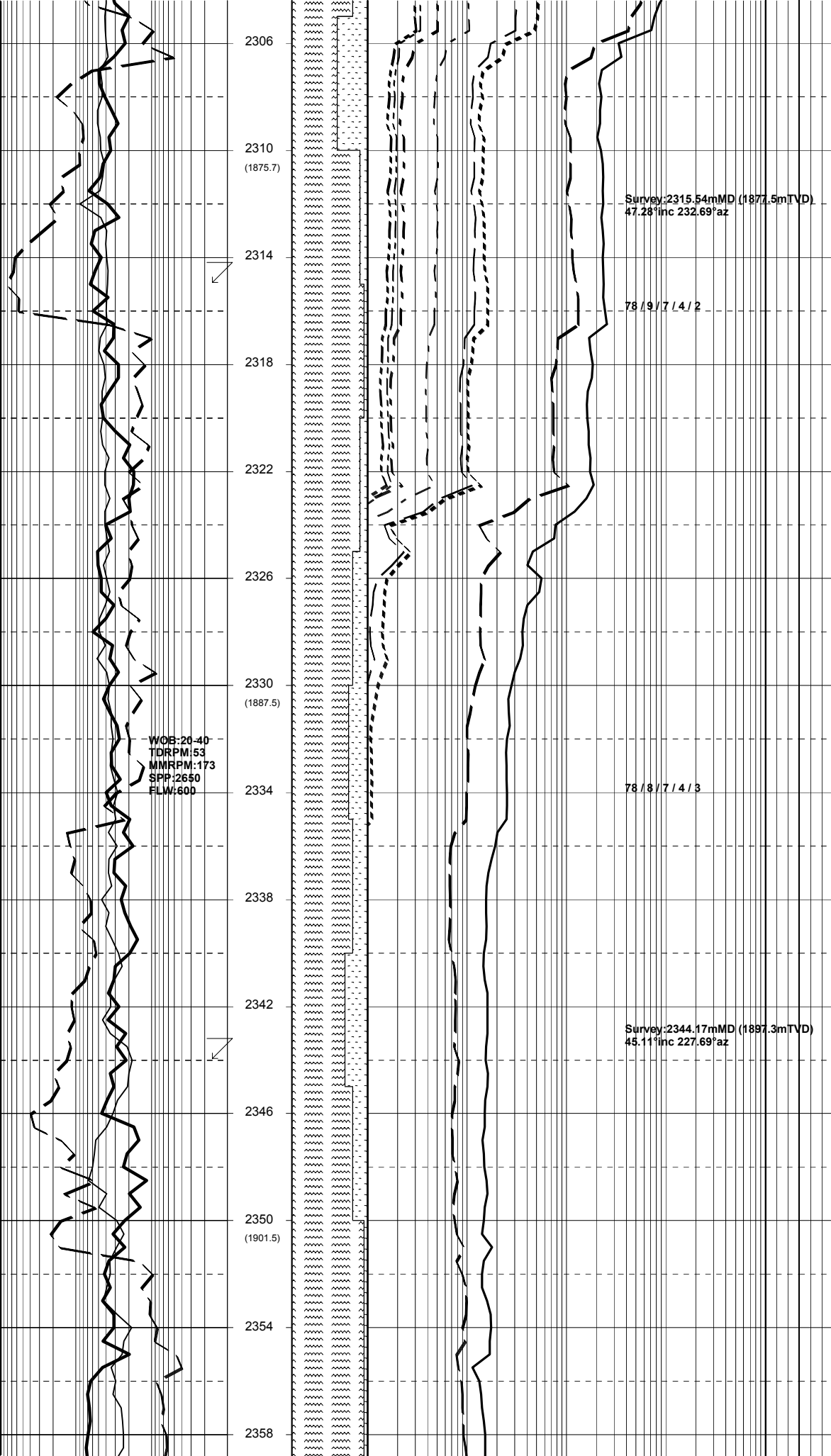
06/05/05

MW:9.9  
FV:56  
PV:20  
YP:31  
Gel:10/12  
pH:9.3  
Cl:43k  
KCl:8

WOB:4-32  
TDRPM:53  
MMRPM:178  
SPP:2400  
FLW:618

87 / 7 / 4 / 2 / Tr

84 / 8 / 5 / 2 / 1



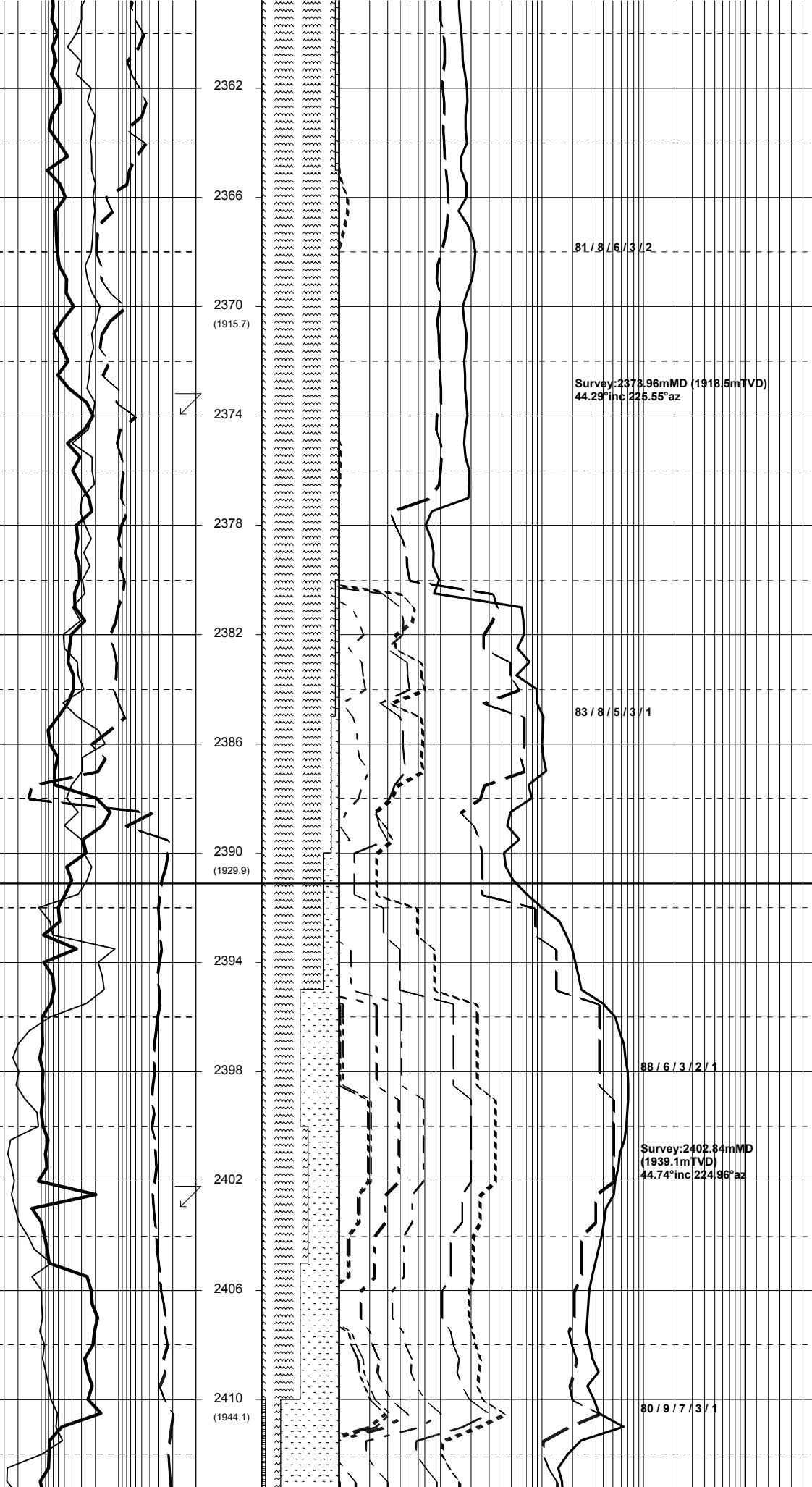
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pyr cmt,rr pyr nod,lse,hd,fr-gd inf  
& vis por,no fluor.

SILTSTONE:lt bn-lt yel bn,v aren  
g/t vf SST,tr glauc,tr micmic,  
sft-mod hd,amor-sbblyk.

SANDSTONE:clr-trnsl,occ gysh org,  
crs-dom v crs,mod wl srt,sa-sr,com  
pyr cmt,tr pyr nod,lse,hd,fr-gd inf  
& vis por,no fluor.

SILTSTONE:lt bn-lt yel bn,v aren  
g/t vf SST,tr glauc,tr micmic  
sft-mod hd,amor-sbblyk.

SANDSTONE:clr-trnsl,occ gysh org,  
crs-dom v crs,mod wl srt,sa-sr,com  
pyr cmt,tr pyr nod,lse,hd,fr-gd inf  
& vis por,no fluor.



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

81 / 8 / 6 / 3 / 2

REDUCED FLOW RATE  
2377.0m TO 2380.0m.

Survey:2373.96mMD (1918.5mTVD)  
44.29°inc 225.55°az

PULL BACK TO SHOE AT 2386.0m.  
CONDUCT RIG REPAIRS.

REPLACE BROKEN RESERVAL  
PROBE CABLE. FROM 2390.0m  
TO 2407.0m GAS DATA IS FROM  
GEOFID GAS EQUIPMENT.

83 / 8 / 5 / 3 / 1

Top of Coarse Clastics  
2391.1mMDRT 1930.7mTVDRT  
(-1897.9mTVDSS)

SANDSTONE:clr-trnsl,vf-f,dom f,  
mod wl srt,sa-sr,tr pyr cmt,tr  
nod pyr,hd,lse,pr inf & vis por,  
no fluor.

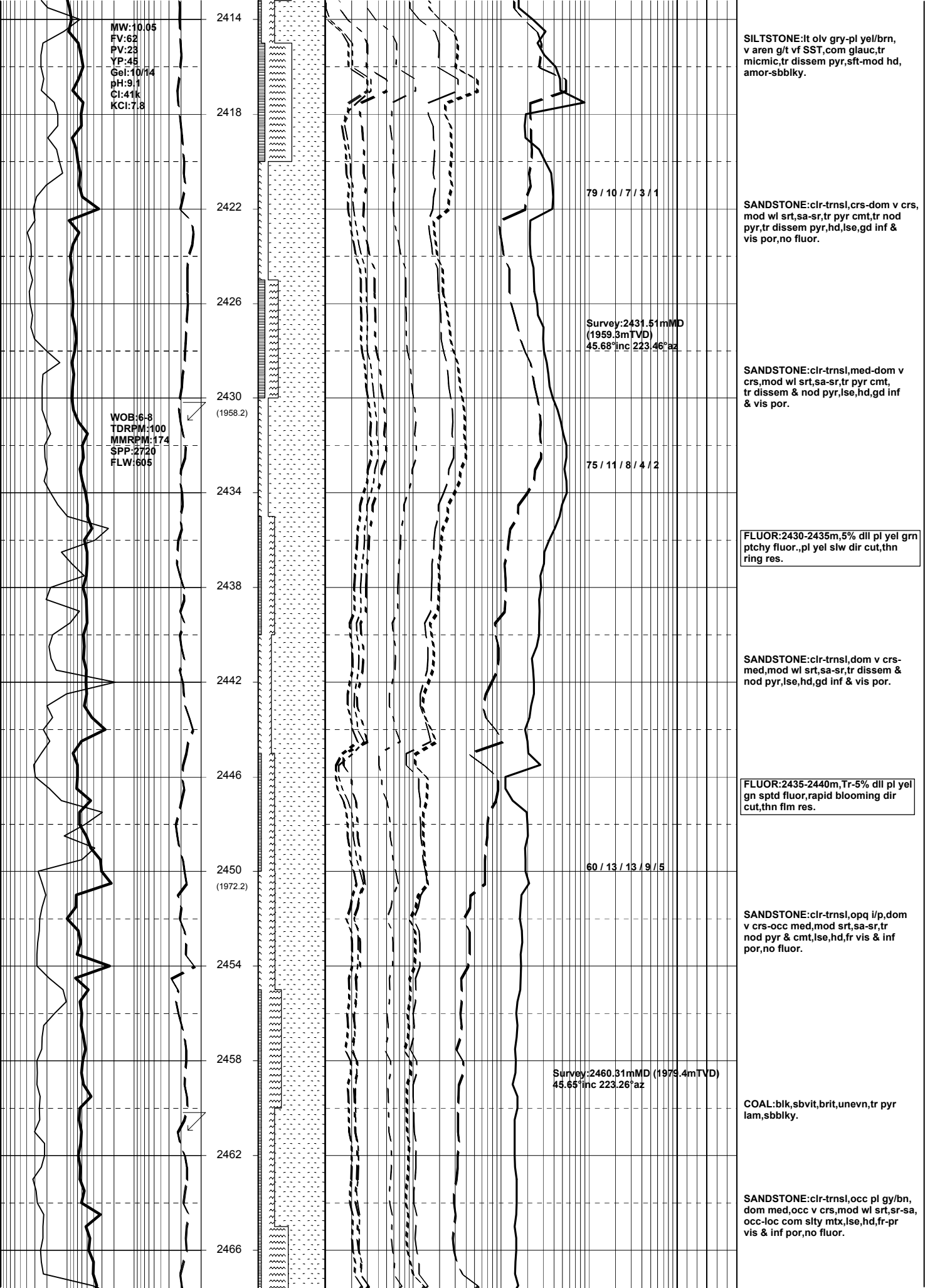
88 / 6 / 3 / 2 / 1

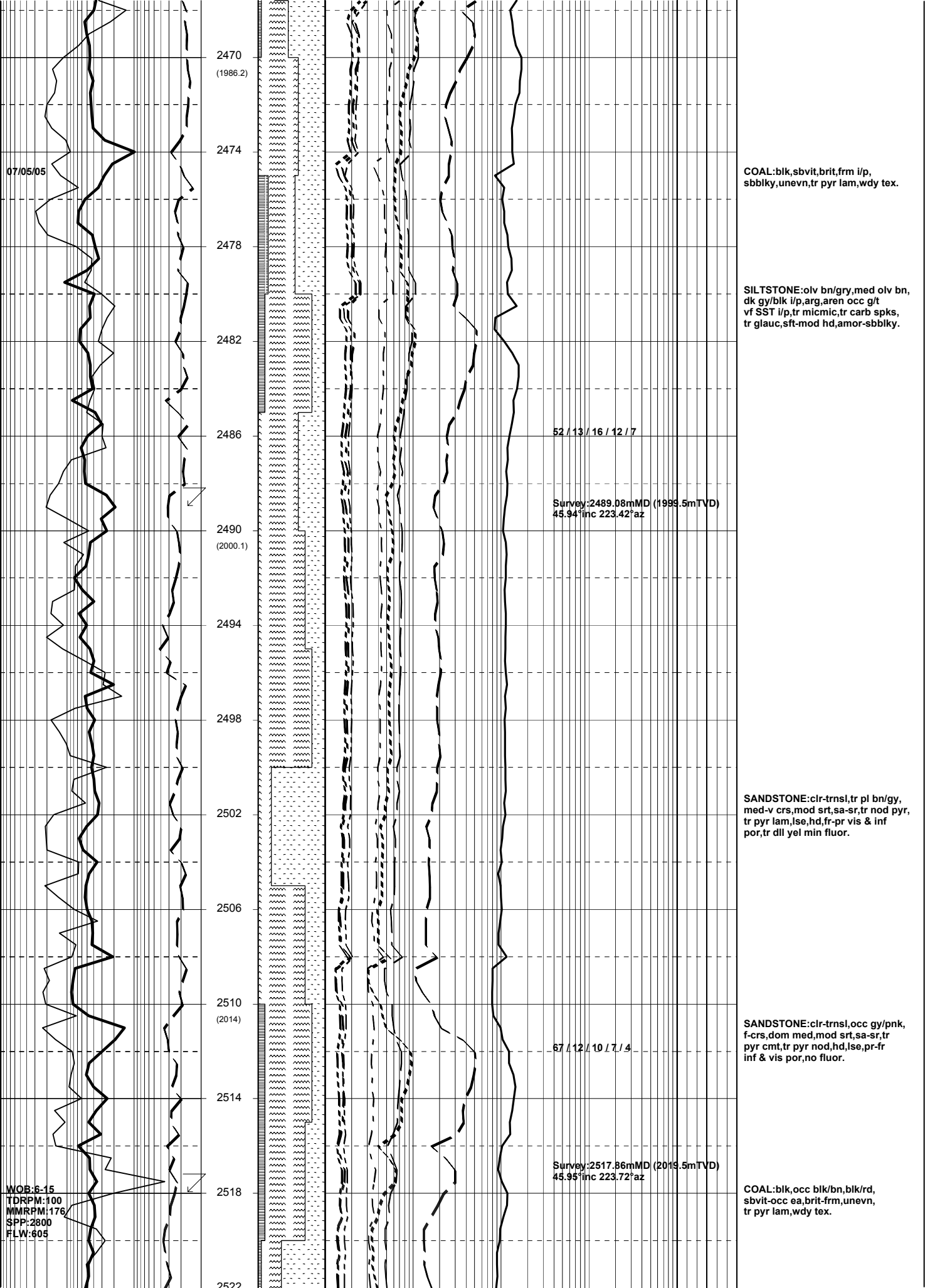
Survey:2402.84mMD  
(1939.1mTVD)  
44.74°inc 224.96°az

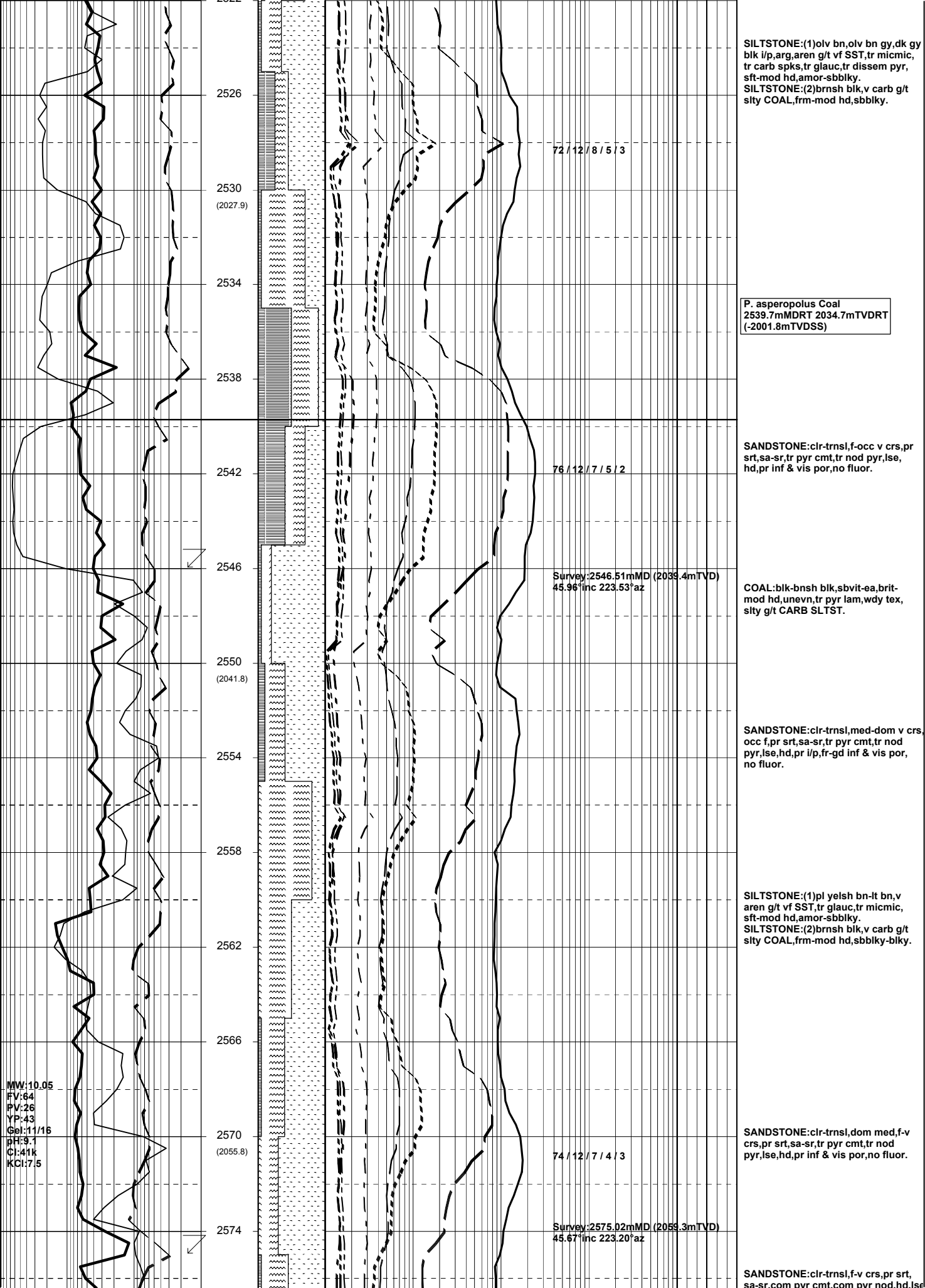
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nod pyr & lam,hd,lse,fr-gd inf &  
vis por,no fluor.

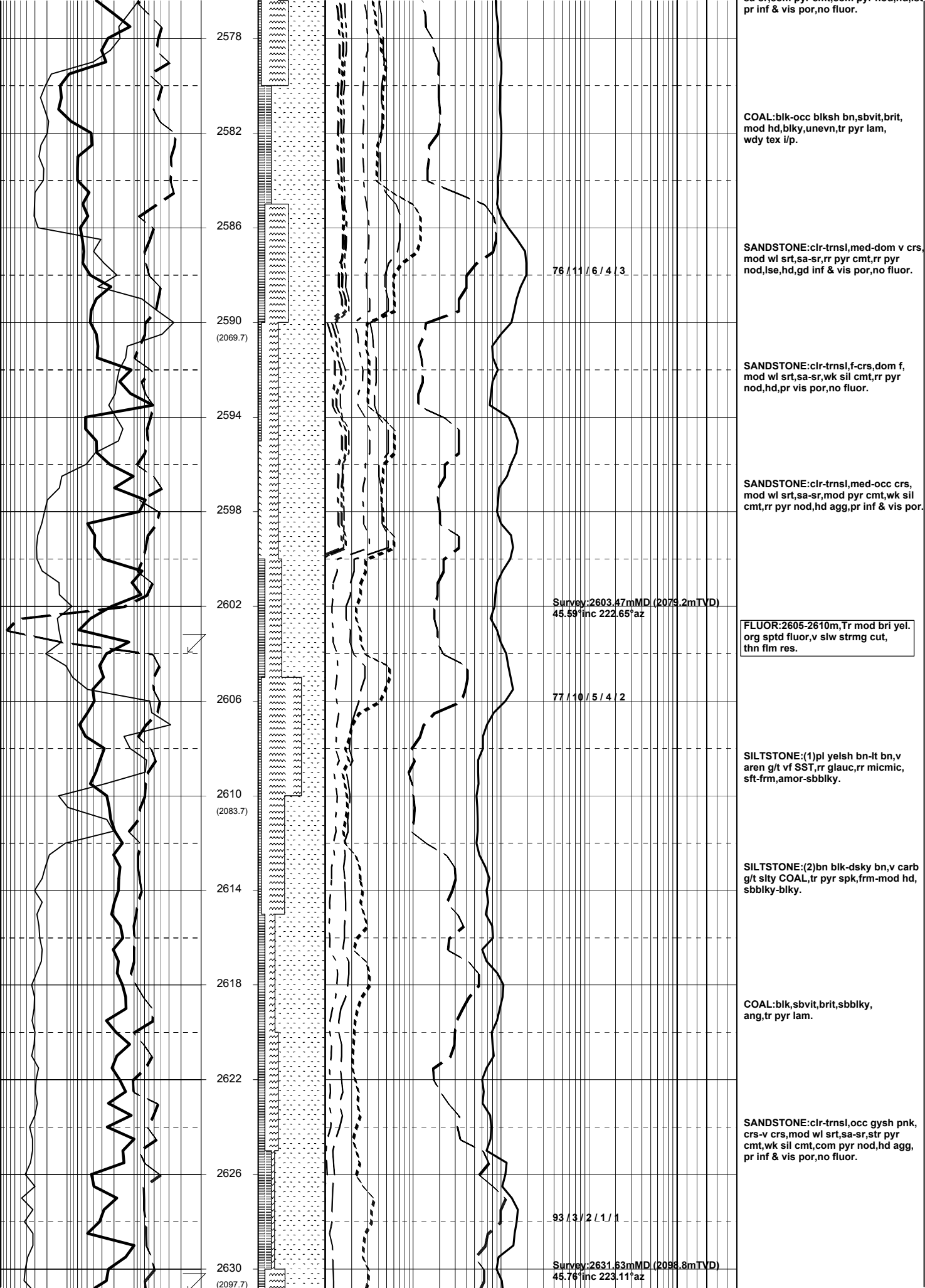
80 / 9 / 7 / 3 / 1

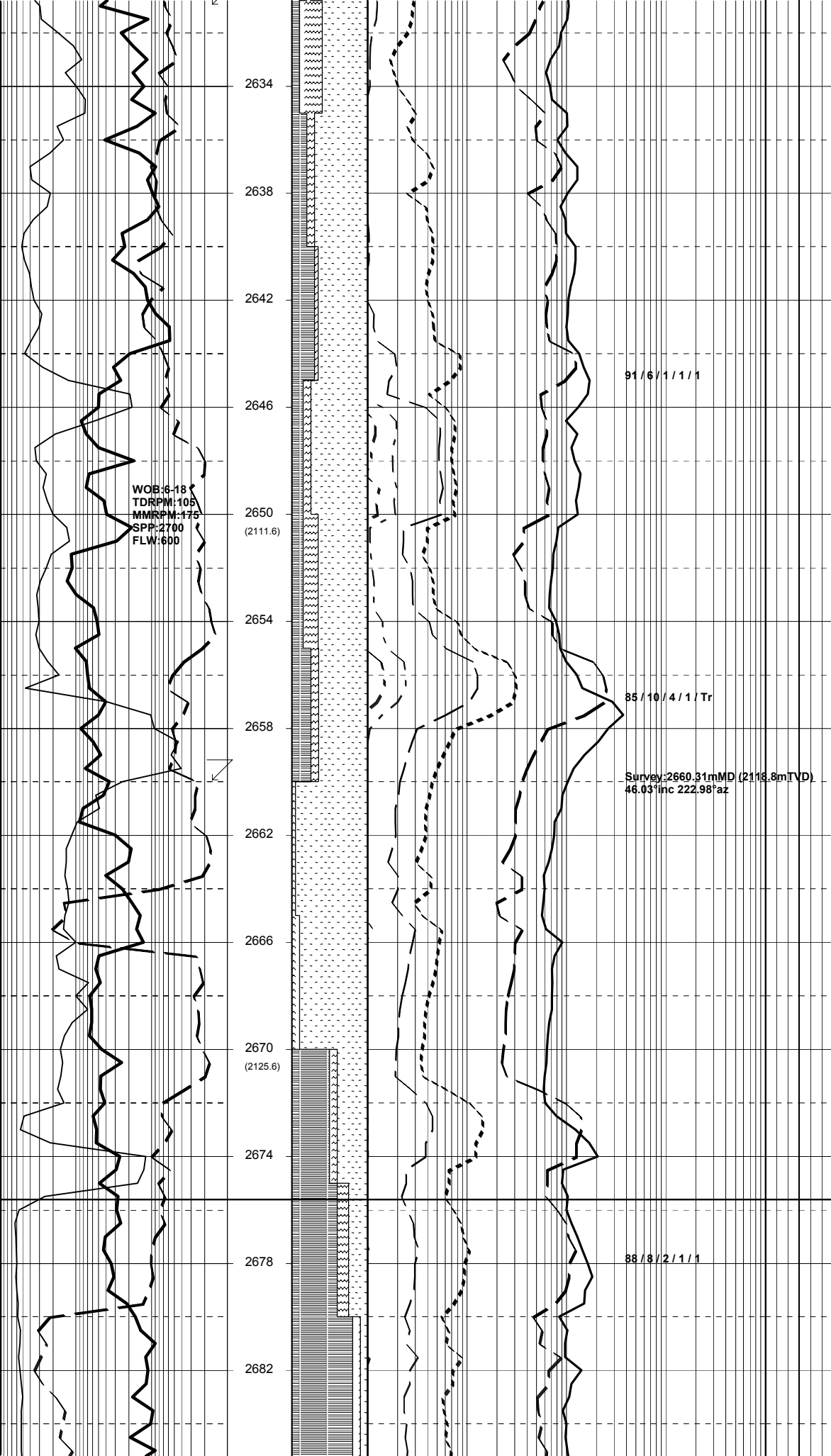
COAL:blk,sbvit,brit,frm-mod  
hd,tr pyr lam,ang,sbblky-blky.











SANDSTONE:clr-trnsl,occ lt bn/gy,  
crs-dom v crs,mod srt,sa-sr,str pyr  
cmt,wk sil cmt,abdt pyr nod,hd agg,  
pr inf & vis por,tr mod bri,yel/orng,  
sptd min fluor.

SANDSTONE:clr-trnsl,occ gry/org,  
crs-v crs,mod wl srt,sa-sr,str pyr  
cmt,wk sil cmt,hd agg,pr vis & inf  
por,fluor.

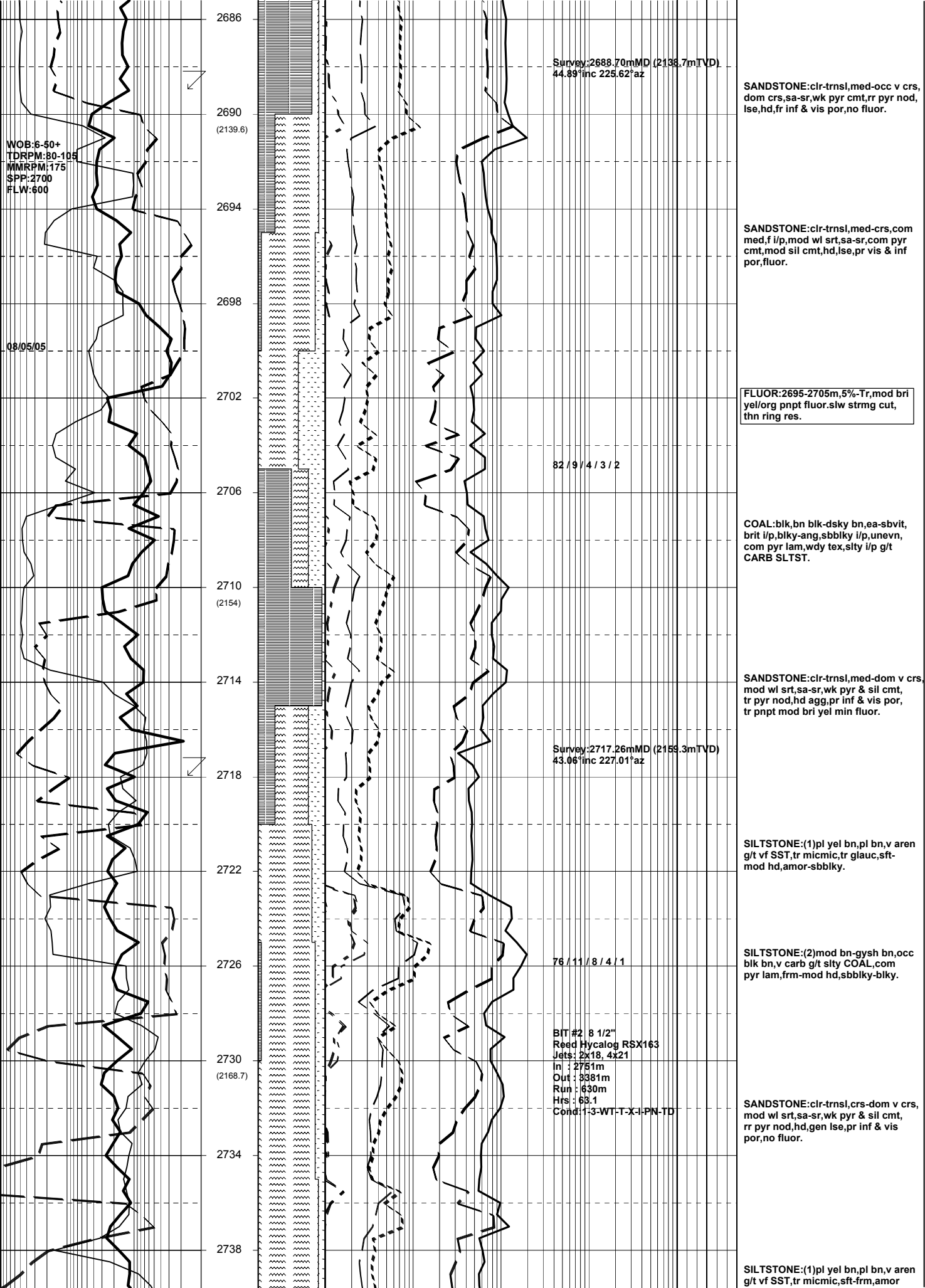
FLUOR:2645-2650m.Tr mod bri org/  
yel ptchy fluor,v slw dir cut,  
thn ring res.

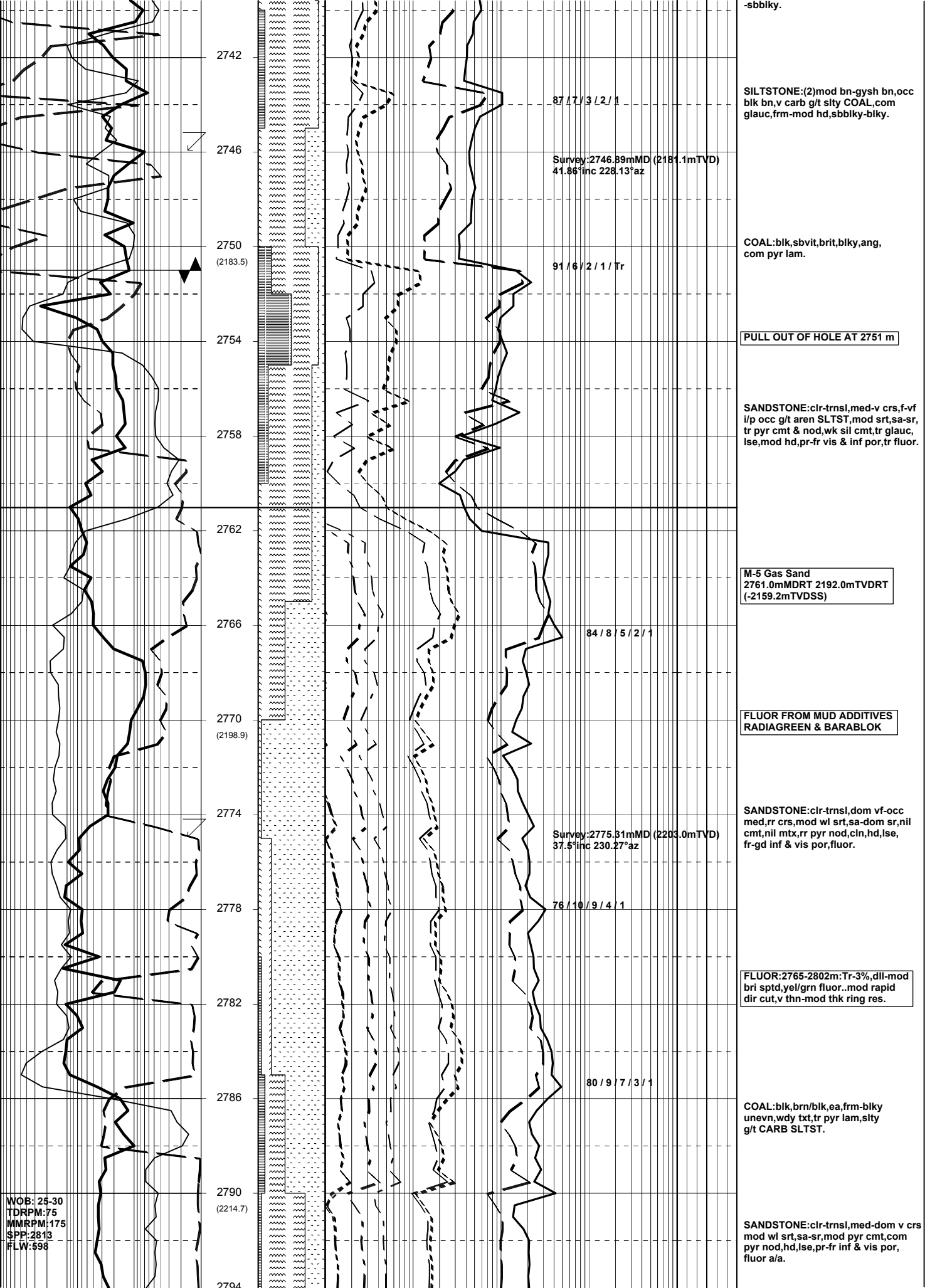
SANDSTONE:clr-trnsl,med-occ v crs,  
pr srt,sa-sr,mod pyr cmt,wk sil cmt,  
hd agg,lse i/p,pr-fr inf & vis por,  
no fluor.

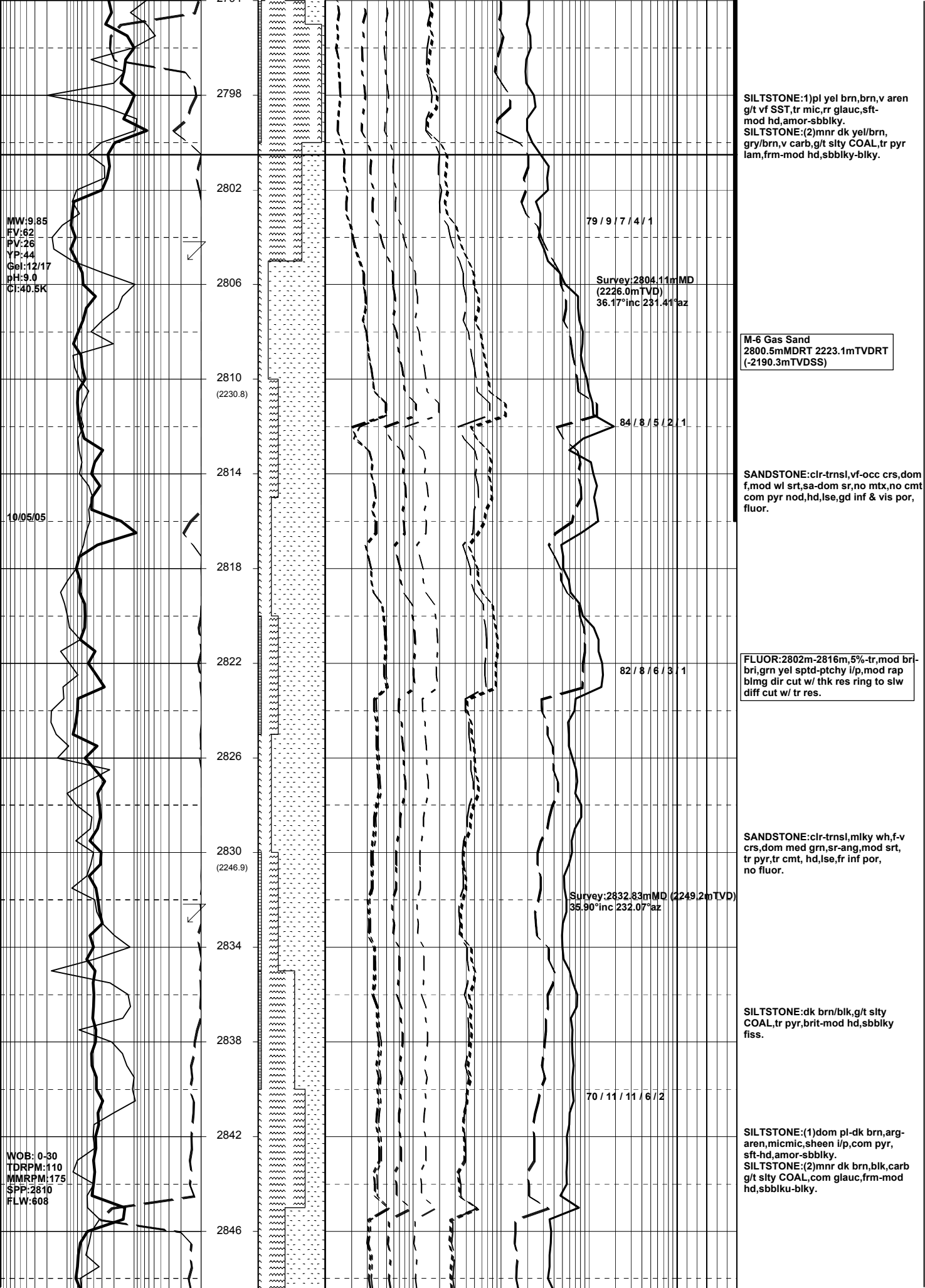
F Coal Section  
2675.6mMDRT 2129.5mTVDRT  
(-2096.7mTVDSS)

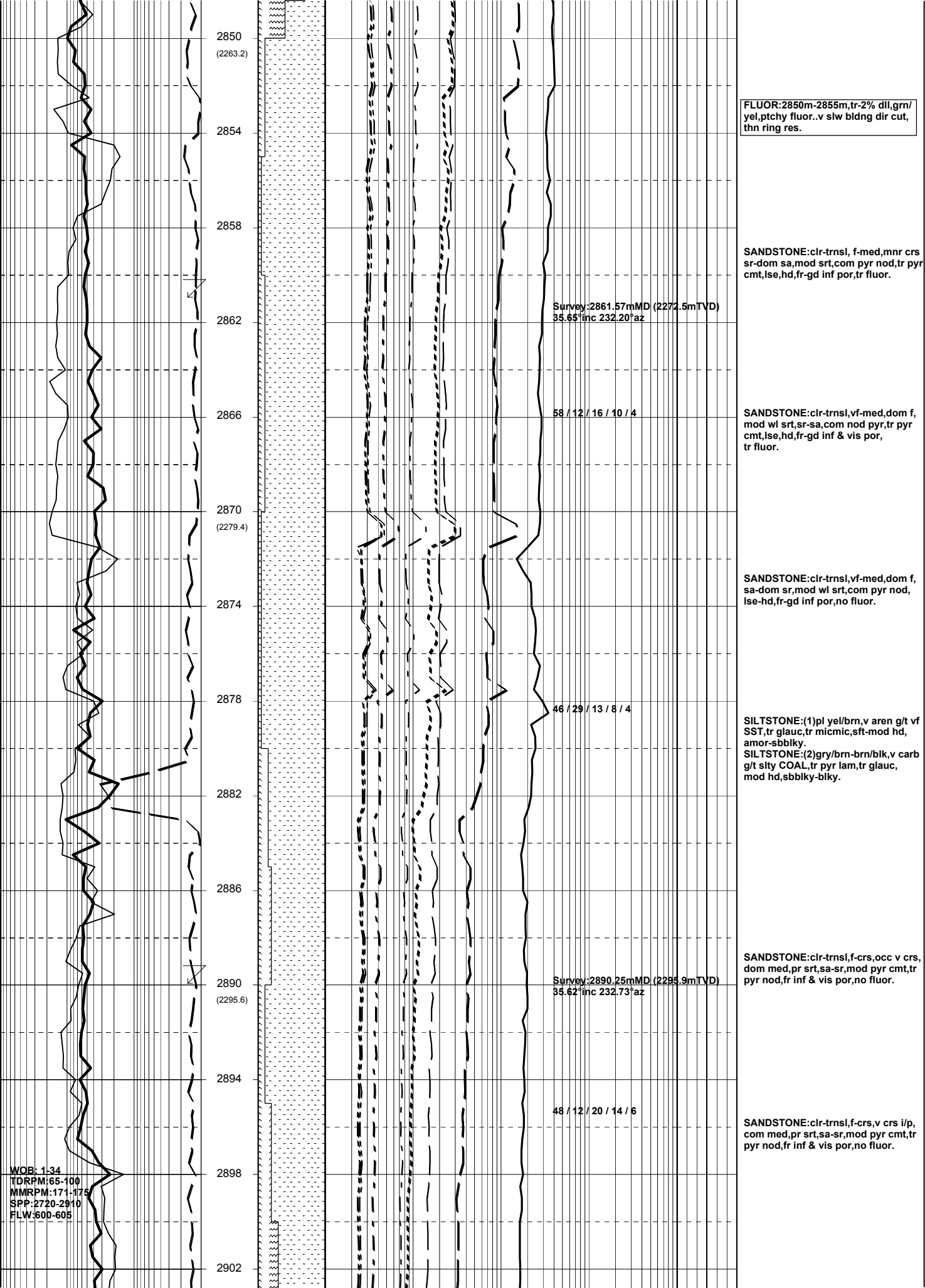
COAL:dom blk/bn,blk,ea,frm-mod  
hd,sbbiky-blky,unevn,wdy tex.

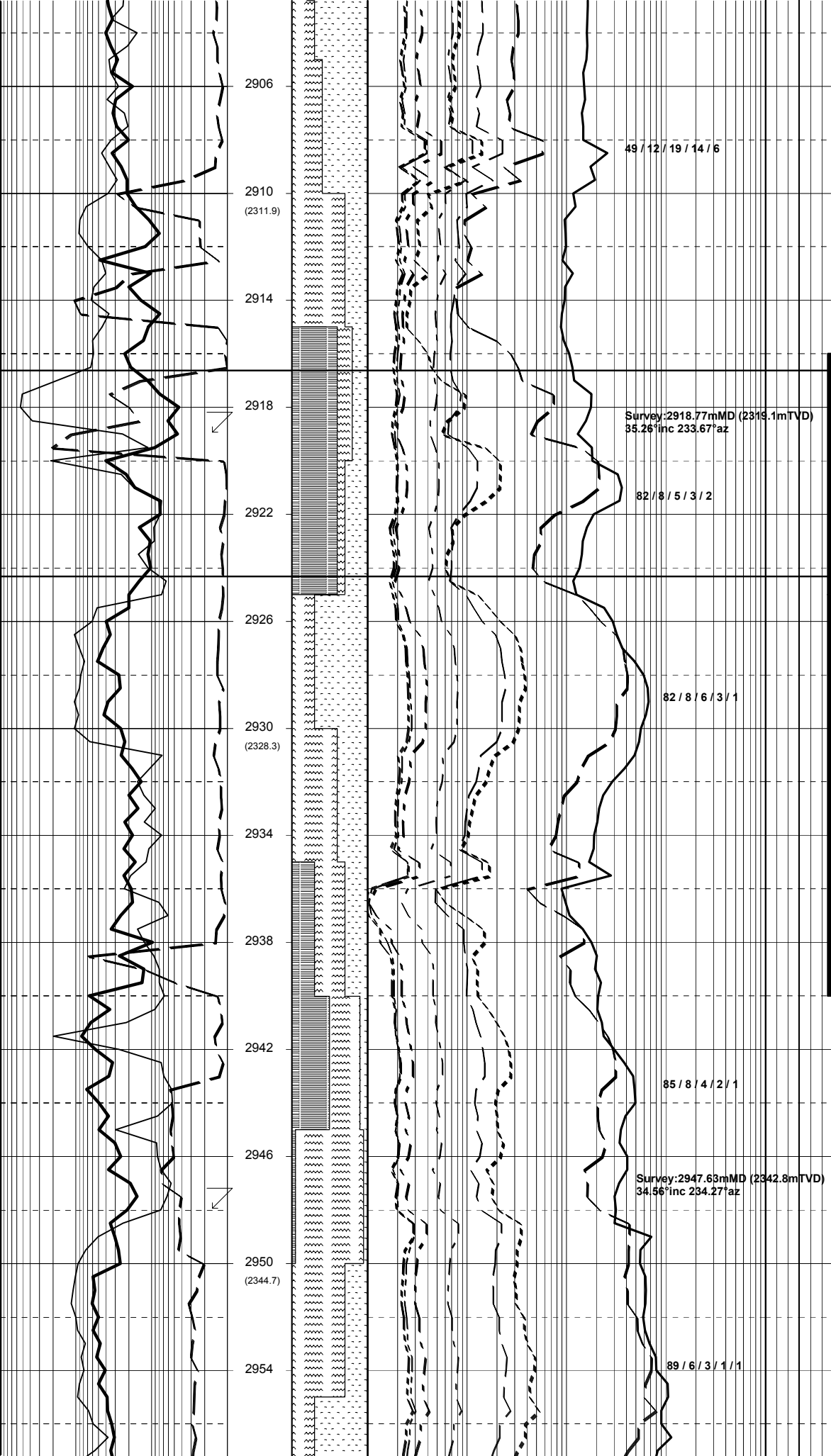
SILTSTONE:1)pl yel/bn-pl bn,v aren  
g/t vf SST,tr glauc,tr micmic,  
sft-frm,amor-sbbiky.











SANDSTONE:clr-trnsI,f-v crs,pr srt,  
sa-sr,str pyr cmt,abdt pyr nod,hd,  
pr inf & vis por,no fluor.

L-2 Coal  
2916.6mMDRT 2317.4mTVDRT  
(-2284.5mTVDSS)

COAL:brn/blk,blk,ea,frm-mod hd,  
sity g/t CARB SLTST,blky,unevn,  
wdy tex.

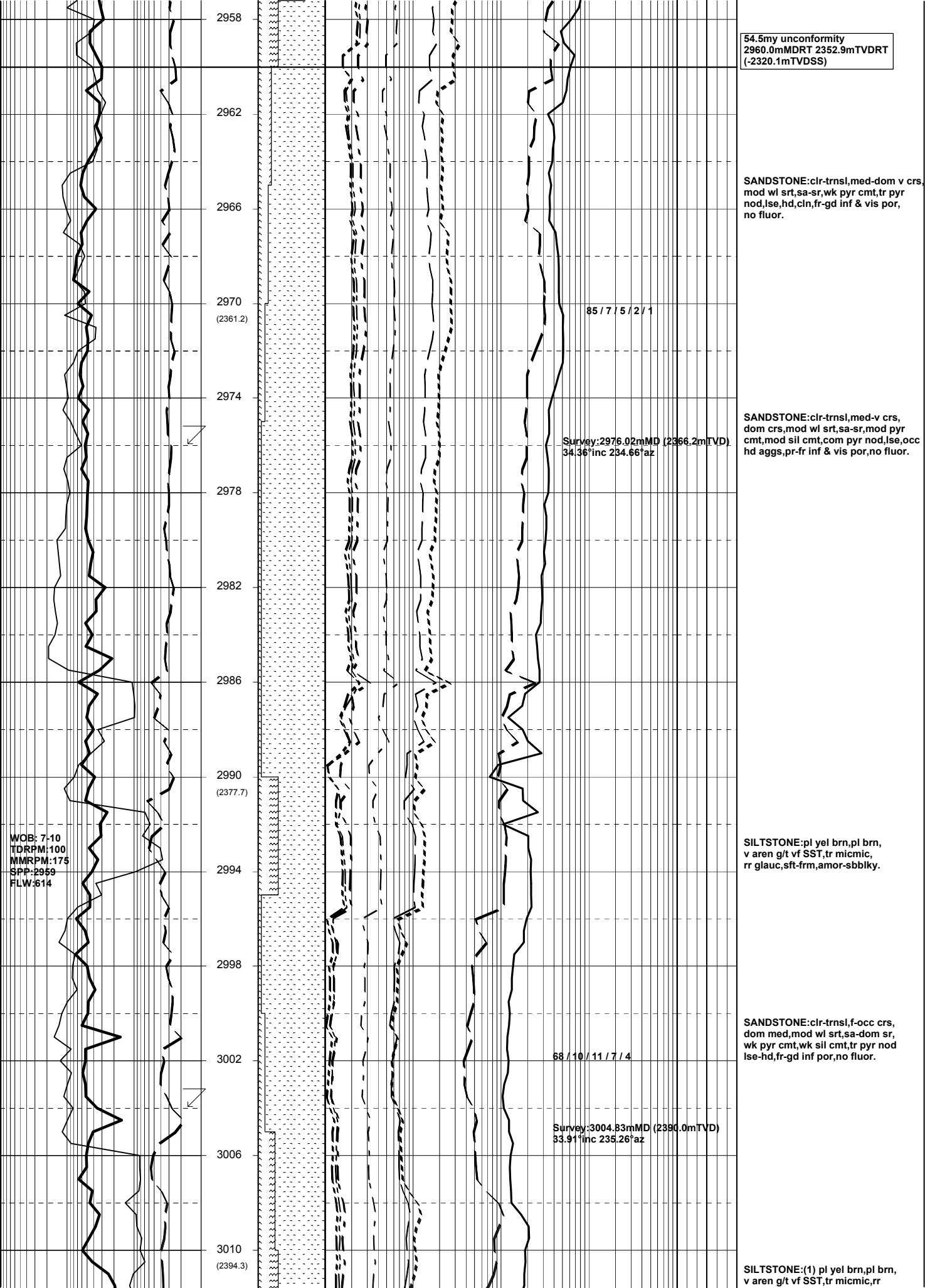
L-2 Gas Sand  
2924.3mMDRT 2323.7mTVDRT  
(-2290.8mTVDSS)

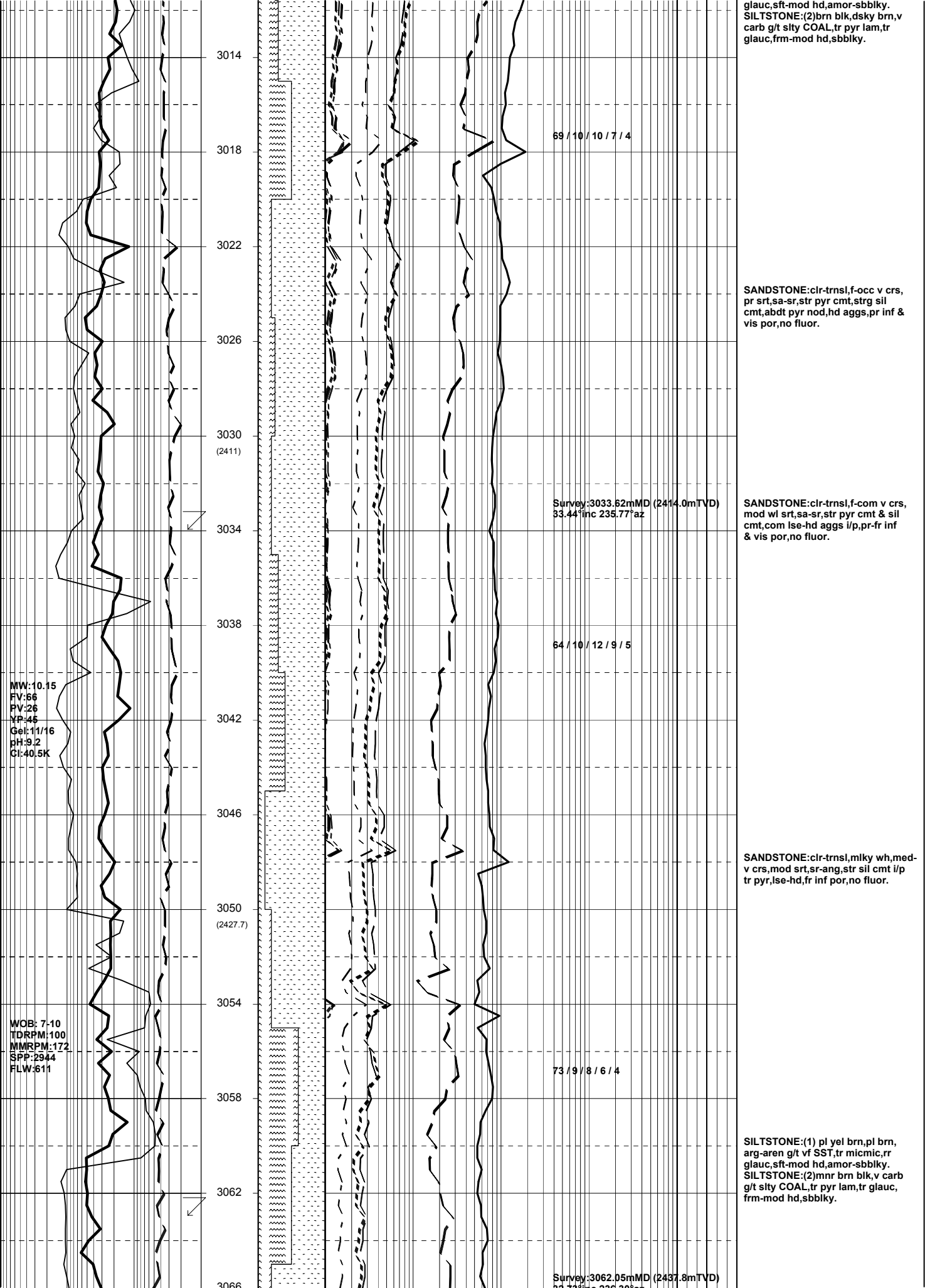
SANDSTONE:clr-trnsI,vf-occ crs,dom  
med,mod wl srt,sa-sr,str pyr cmt,  
strg sil cmt,com pyr nod,lse i/p,pr  
inf & vis por,fluor.

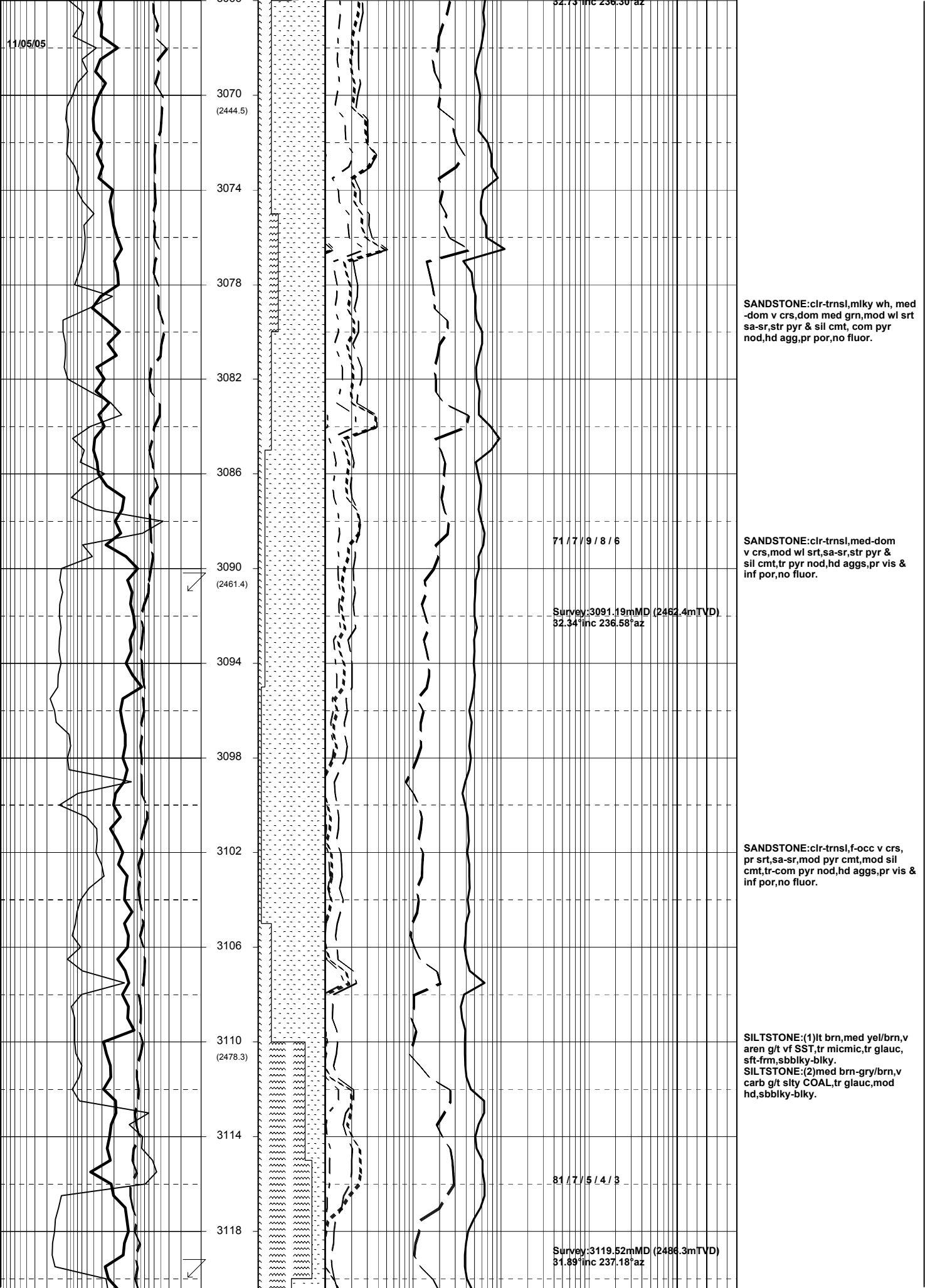
FLUOR:2916-2940m:Tr-7%,mod bri,  
yel/orng,sptd fluor.v slw bldng cut,  
thn-mod thk ring res.

SANDSTONE:clr-trnsI,vf-occ crs,  
dom med,mod wl srt,sa-sr,wk pyr  
cmt,tr pyr nod,hd aggs,lse i/p,pr-fr  
inf & vis por,fluor.

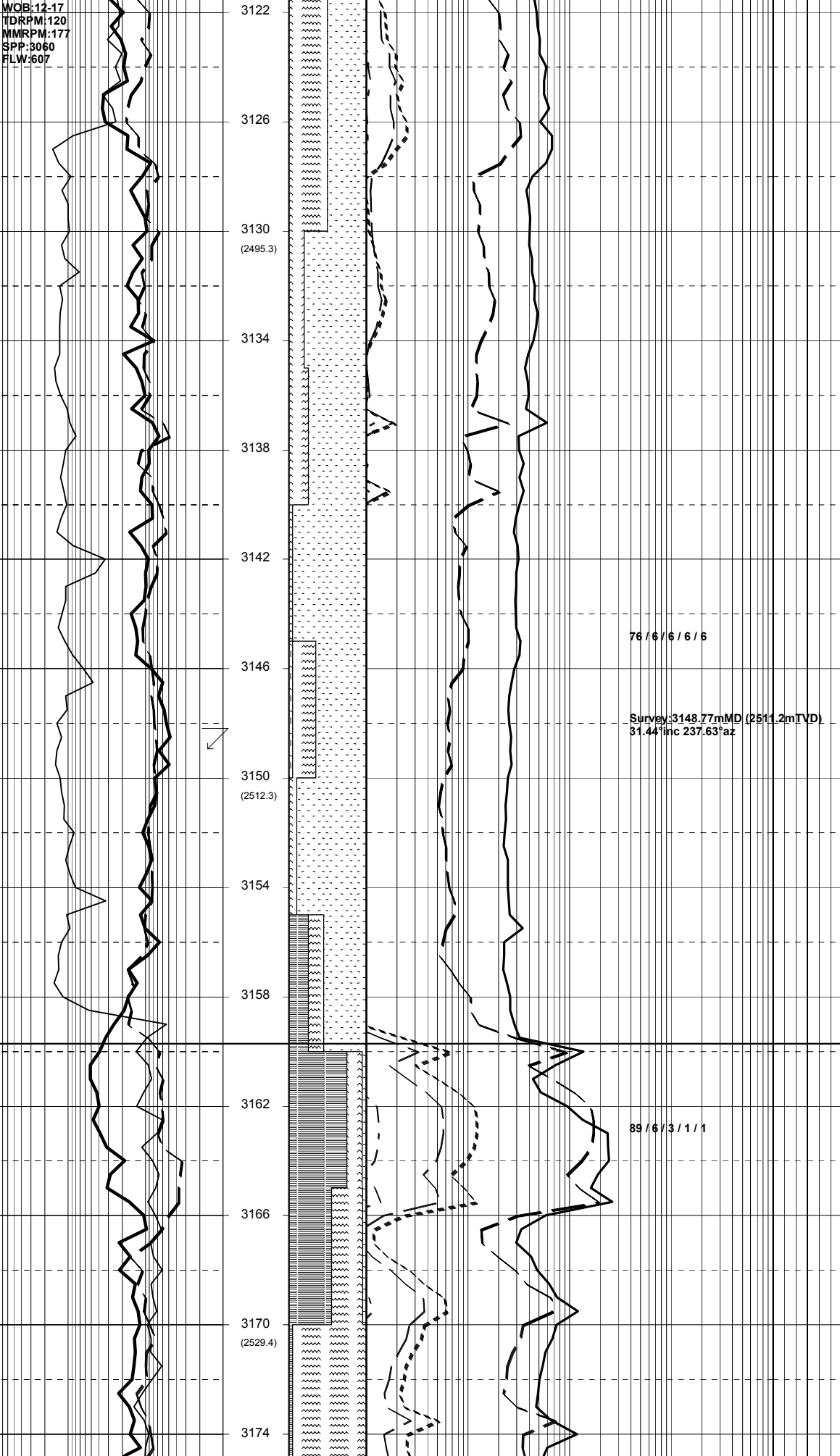
COAL:brn/blk,blk,ea,sity g/t  
CARB SLTST,frm-mod hd,blky,  
unevn,wdy tex.







WOB:12-17  
TDRPM:120  
MMRPM:177  
SPP:3060  
FLW:607



SANDSTONE:clr-trnsI,f-occ v crs,  
pr srt,sa-sr,str pyr cmt,mod sil  
cmt,tr pyr nod,hd aggs,pr vis & inf  
por,no fluor.

SANDSTONE:clr-trnsI,f-com crs,pr  
srt,sa-sr,mod pyr cmt,mod sil cmt,  
tr pyr nod,hd aggs,occ lse,pr inf &  
vis por,no fluor.

SILTSTONE:dk yel/brn-gry/brn,  
v aren g/t vf SST,tr glauc,tr micmic,  
sft frm,sbblky-blky.

CLAYSTONE:lt blu/gry-pl blu,tr  
glauc,hd,blky.

76 / 6 / 6 / 6 / 6

Survey:3148.77mMD (2511.2mTVD)  
31.44°inc 237.63°az

SANDSTONE:clr-trnsI,f-occ v crs,  
pr srt,sa-sr,mod pyr cmt,mod sil  
cmt,rr nod pyr,hd aggs,pr inf por,  
no fluor.

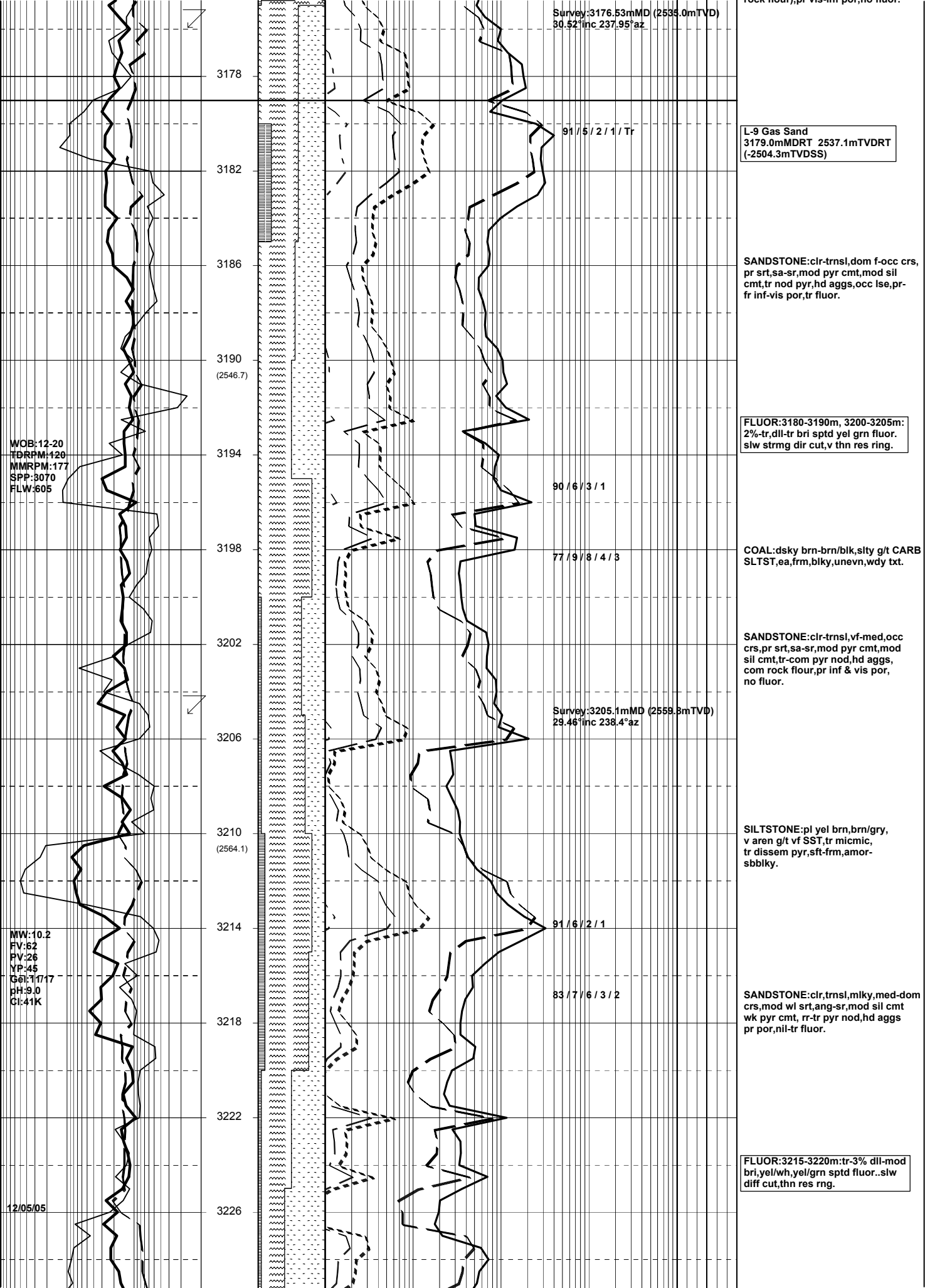
L-9 Coal  
3159.7mMDRT 2520.6mTVDRT  
(-24887.8mTVDSS)

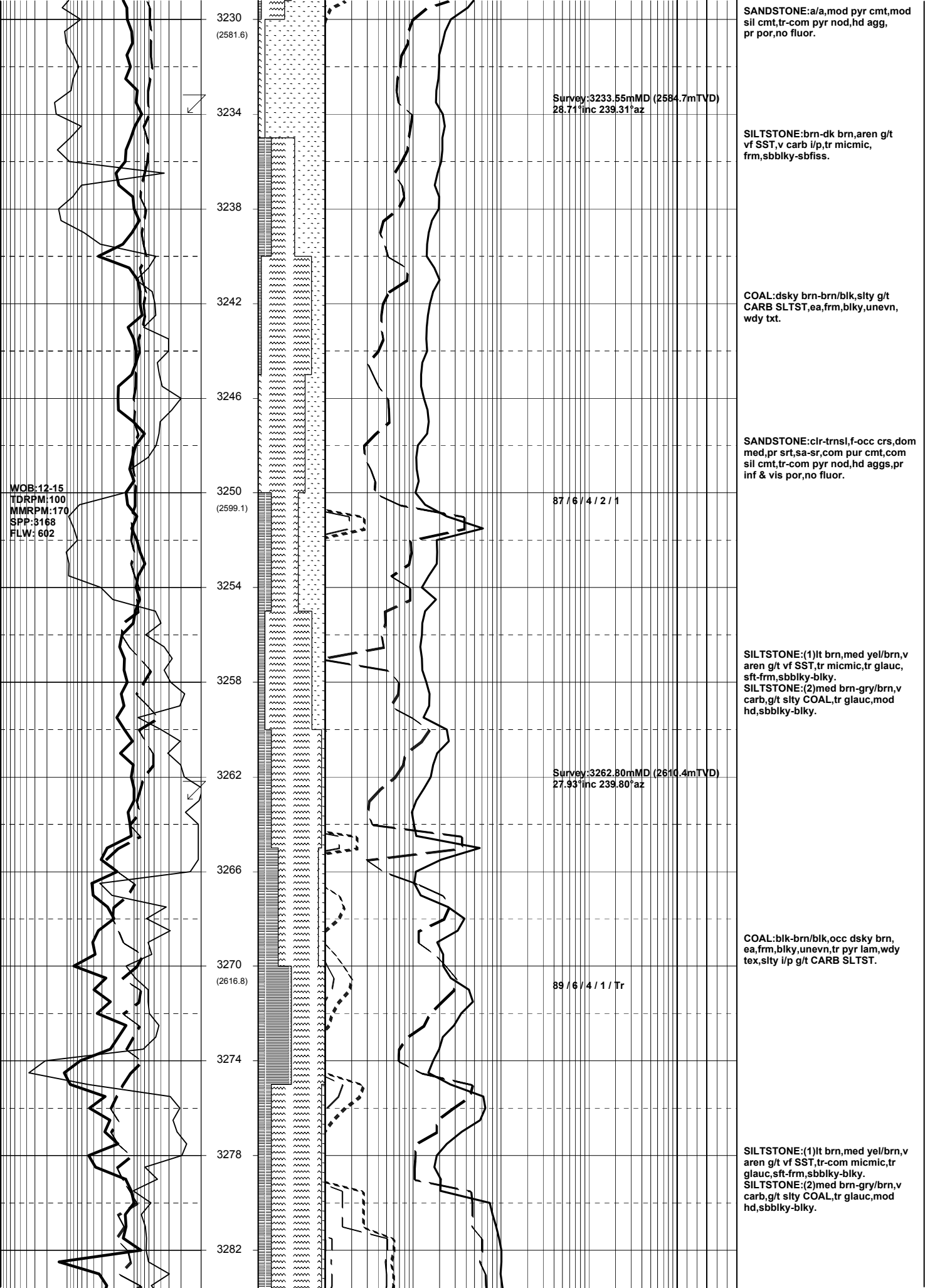
COAL:dsly brn-brn/blk,sly g/t CARB  
SLTST,ea,frm,blky,unevn,wdy tex.

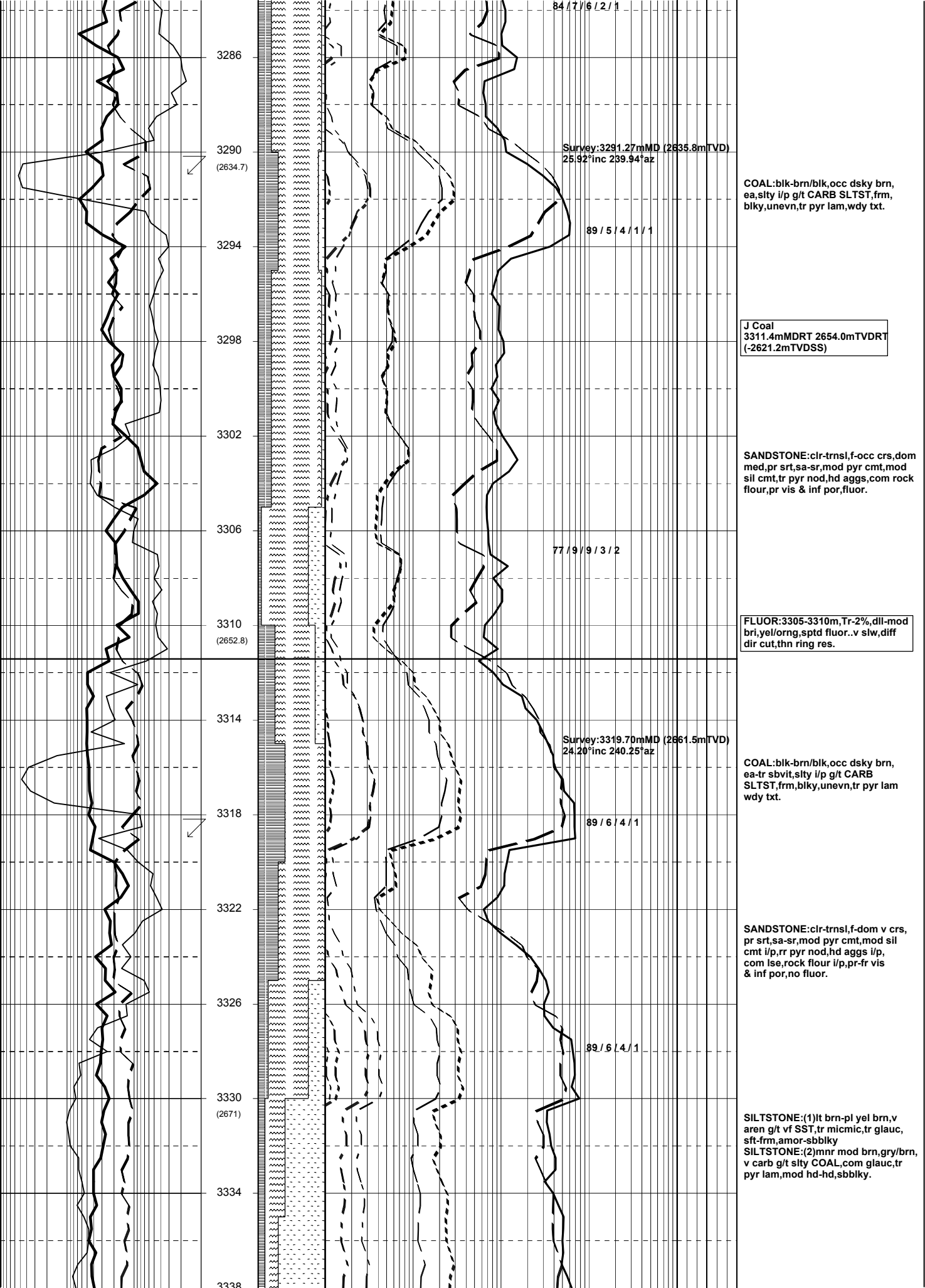
89 / 6 / 3 / 1 / 1

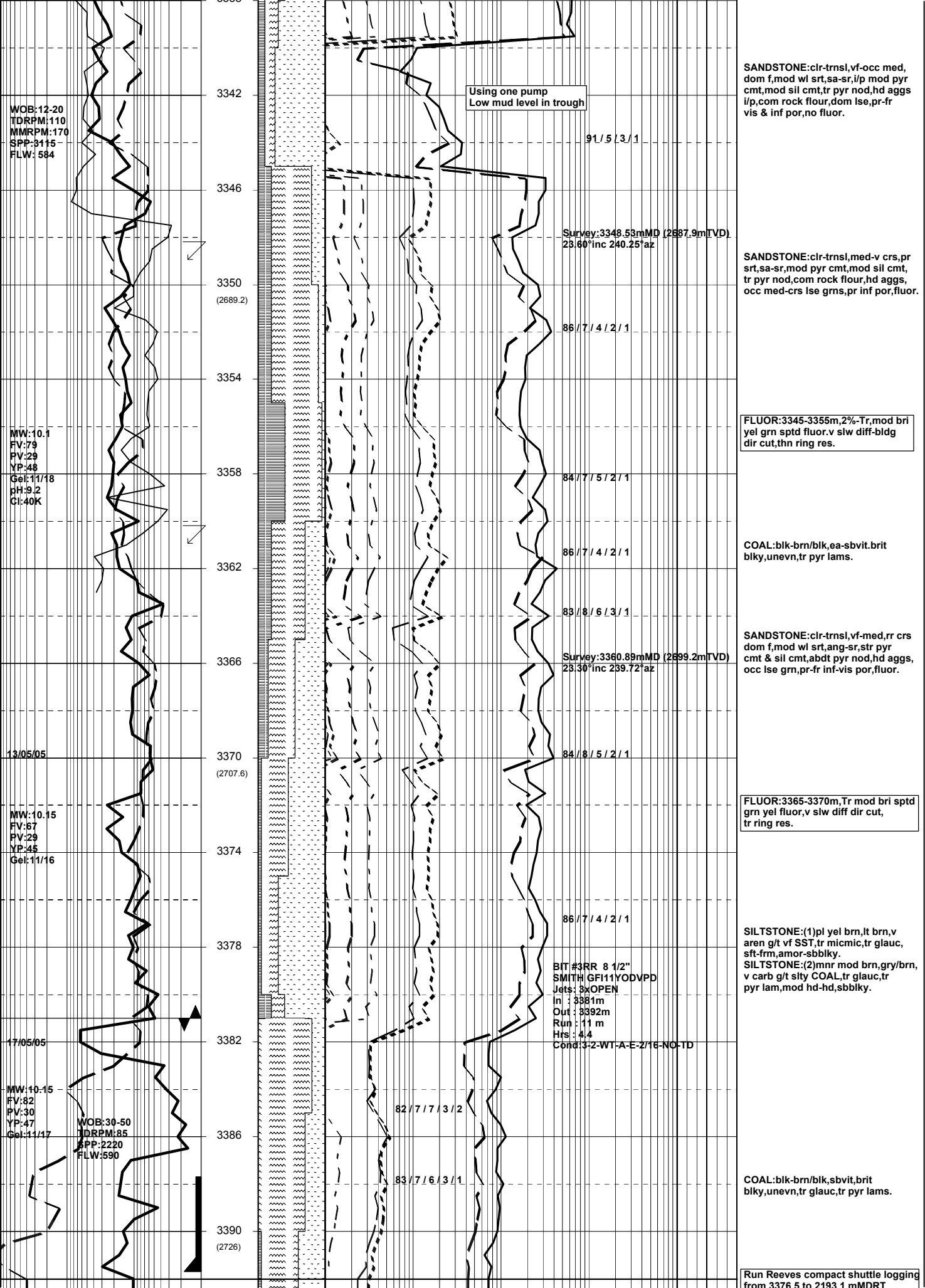
SILTSTONE:(1)lt brn,med yel/brn,v  
aren g/t vf SST,tr micmic,tr glauc,  
sft frm,sbblky-blky.  
SILTSTONE:(2)med brn-gry/brn,v  
carb,g/t sly COAL,tr glauc,mod  
hd,sbblky-blky.

SANDSTONE:clr-trnsI,mlky,med-dom  
v crs,mod wl srt,sa-sr,mod pyr cmt  
mod sil cmt,tr pyr nod,hd aggs(com  
rock flour) pr vis-inf nor no fluor.











**APPENDIX 4b**

**BREAM A10A**

**Well Completion Log**



WELL COMPLETION LOG



















Scale – 1:200

BREAM A-10A

Gippsland Basin, Victoria  
Concession: VIC/L13

POST-DRILL LOCATION: <i>Top of Latrobe</i>	Latitude:	38° 30' 16.907" S	COMPILED BY:	Sheryl Sazenis
	Longitude:	147° 45' 36.938" E	DRAFTED BY:	Arnaldo Ribeiro
	MGA X:	566289.24 mE	DRILLED BY:	Nabors Rig 453
	MGA Y:	5737911.63 mN	ELEVATION:	G.L.: -59.43 m
	Depth:	2236.5m MDRT 1820.2m TVDRT (-1787.4mTVDSS)		R.T.: 32.82 m above MSL
	Datum:	GDA94 (GRS80)		Water Depth: 59.43 m
	Projection:	MGA/ UTM Zone 55 (S)	TOTAL DEPTH:	3392.0 mMDRT / 2727.9 mTVDRT
DATES:	Spudded:	05/05/2005	PLUGGED BACK T.D.:	3350.5m
	Rig Released:	25/05/2005	CLASSIFICATION:	Development
	I.P. Established:	04/06/2005	STATUS:	Cased and Completed
	<i>(Initial production)</i>			
SERVICE COMPANIES:			PRODUCTION TESTING:	n/a
DRILLING CONTRACTOR:	International Sea drilling Nabors Rig 453		DIVERS:	n/a
MWD/DIRECT. DRLG:	Schlumberger Anadrill		MUD LOGGING:	Geoservices Overseas S.A.
GYRO SURVEYING:	SDI		PRESSURE RECORDING:	n/a
CORING:	n/a		WELL VELOCITY SURVEY:	n/a
Drillpipe conveyed LOGGING:	Precision (Reeves Compact Shuttle Logging System)			
CEMENTING:	Halliburton		MUD ENGINEERING:	Halliburton- Baroid
CASING:	Weatherford		LINER:	Weatherford

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		<div>DSTG</div>  DST WITH GAS RECOVERED	
		pH - Acidity/Alkalinity		<div>DSTO</div>  DST WITH OIL RECOVERED	
		WL - Water Loss		 SURVEY POINT	
		Cl - Chloride		<div>13-3/8"</div>  CASING SHOE	
		Ca - Calcium		 MUD	
		Sol - Solids			
		H2O - Water			
		Oil -Oil			
<div>←SST</div>		RECOVERED SIDE WALL CORE LITHOLOGY			
		SST - Sandstone CLST - Claystone			
		SLST - Siltstone LMST - Limestone			
		MST - Mudstone ML - Marl			
		SH - Shale COAL - Coal			
<div>←</div>		SIDE WALL CORE - NO RECOVERY			
<div>←</div>		FIT			
<div>←P2/11</div>		MDT/RFT PRETEST RUN/SEAT NUMBER			
<div>←S11/2</div>		MDT/RFT SAMPLE RUN/SAMPLE NUMBER			
<div>←P2/40</div>		MDT VERTICAL/HORIZONTAL PERMEABILITY TEST			
<div>⊥</div>		PACKER			
<div>□</div>		BRIDGE PLUG			

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

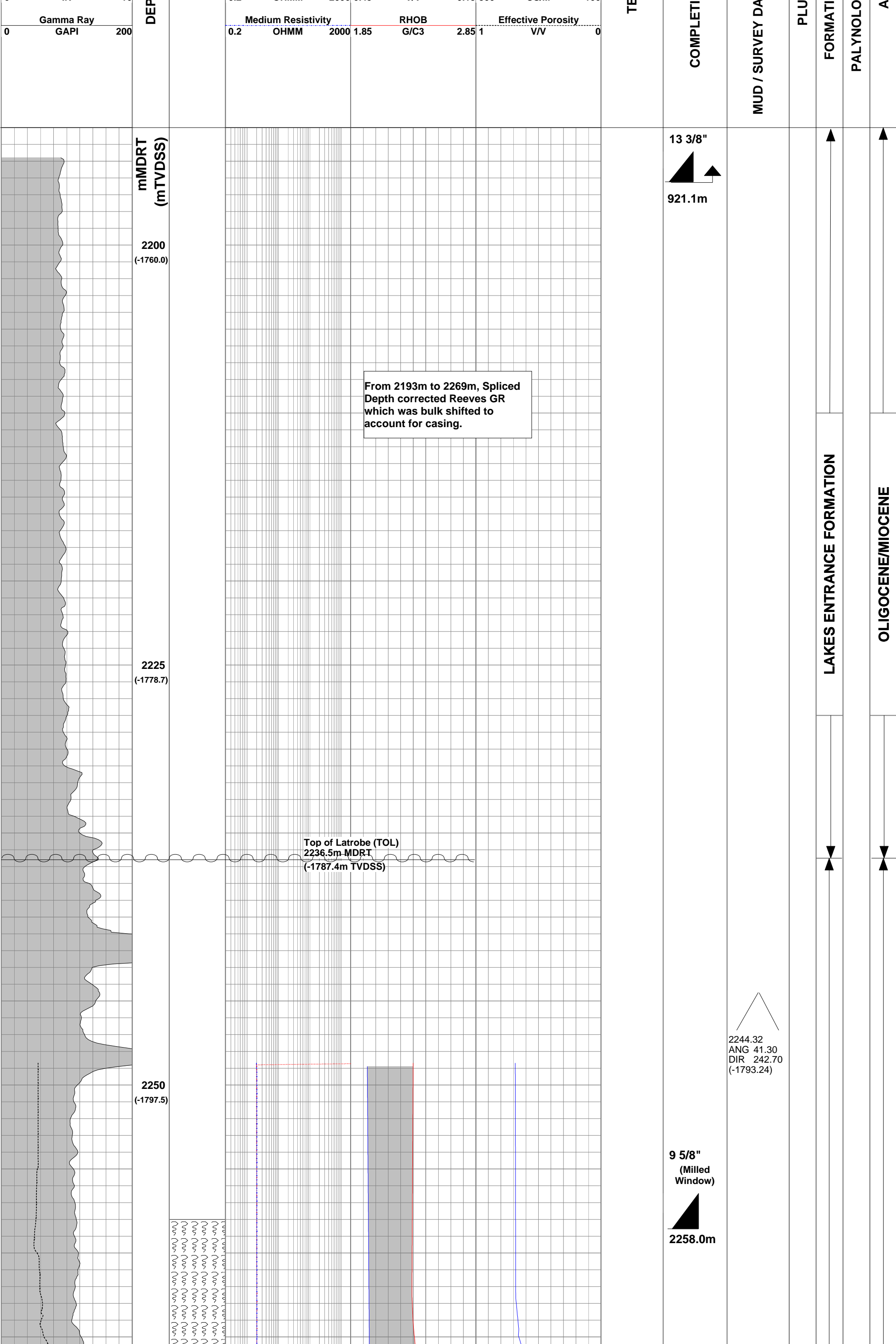
LOGGING AND SURVEYING			
Anadrill Schlumberger	Interval (mMDRT)	Precision ( Reeves Wireline tools drill pipe conveyed, memory)	Interval (mMDRT)
MWD (Directional & GR) – 3 Runs	2255.0 mMDRT - 3360.9 mMDRT	MCG-MDN-MPD-MSS-MDL (GR-Dual Neutron-Photo density-Sonic-Dual Letrolog)	2193.1 mMDRT - 3376.5 mMDRT

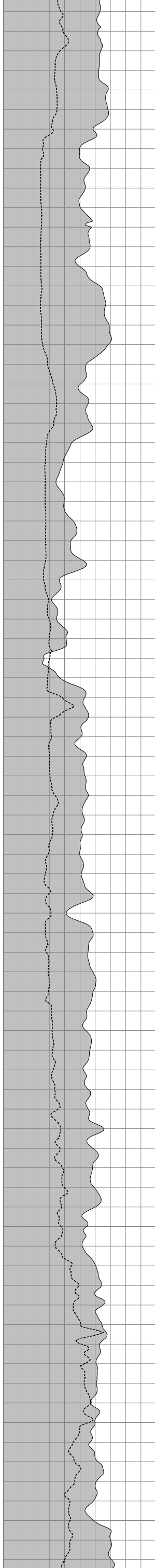
WELL DATA				
Date	03 May 2005 - 05 May 2005	05 May 2005 - 09 May 2005	09 May 2005 - 13 May 2005	15 May 2005 - 16 May 2005
Run	MWD #1	MWD #2	MWD #3	Wireline (Reeves) Run #1 on shuttle
Log	Powerpulse Directional	Powerpulse Directional & GR	Powerpulse Directional & GR	MCG-MDN-MPD-MSS-MDL
Depth Driller	2270.5 mMDRT	2751.0 mMDRT	3381.0 mMDRT**	3381.0 mMDRT**
Depth Logger	2270.5 mMDRT	2751.0 mMDRT	3381.0 mMDRT	3379.5 mMDRT
Bottom Log Interval	2270.5 mMDRT	2751.0 mMDRT	3360.9 mMDRT	3376.5 mMDRT
Top Log Interval	2255.0 mMDRT	2270.5 mMDRT	2751.0 mMDRT	2193.1 mMDRT
Casing Driller	2258.0 mMDRT	2258.0 mMDRT	2258.0 mMDRT	2258.0 mMDRT
Casing Logger	2258.0 mMDRT	2258.0 mMDRT	2258.0 mMDRT	2258.0 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	9.9 ppg	10.00 ppg	10.10 ppg	10.10 ppg
Rm @ Measured Temp.	N/A	N/A	N/A	0.134 ohmm @ 25°C
Rmf @ Measured Temp.	N/A	N/A	N/A	0.103 ohmm @ 25°C
Rmc @ Measured Temp.	N/A	N/A	N/A	0.236 ohmm @ 25°C
Max. Recorded Temp.	68.2°C	80.78°C	95.69°C	104.10°C
Equipment / Location	Sale	Sale	Sale	Sale
Recorded By	D.Hastie/L.Johnston	D.Hastie/L.Johnston	D.Hastie/L.Johnston	G. McManus/R. Tench
Witnessed By	Trevor Lobo	Trevor Lobo	Trevor Lobo	Trevor Lobo

CORES			PERFORATIONS		
From (mMDRT)	To (mMDRT)	Rec %	From (mMDRT)	To (mMDRT)	Gun type
----	----	---	2801.0	2810.0	Wireline
			2761.0	2767.5	Wireline

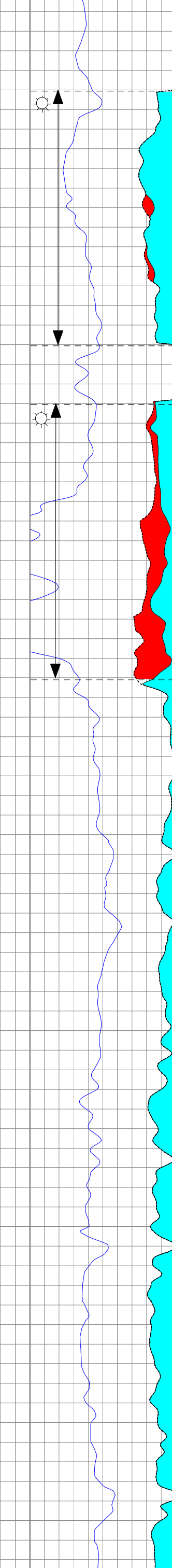
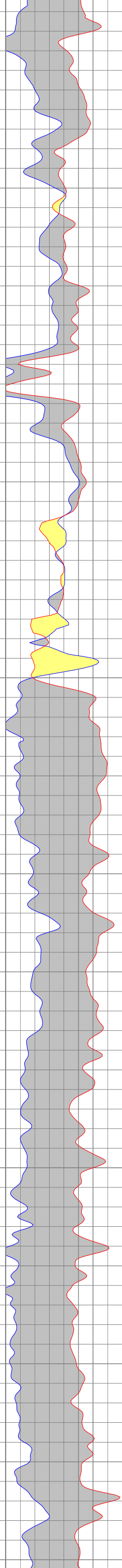
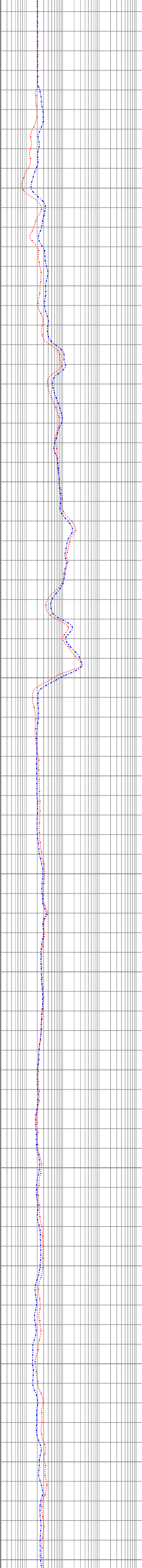
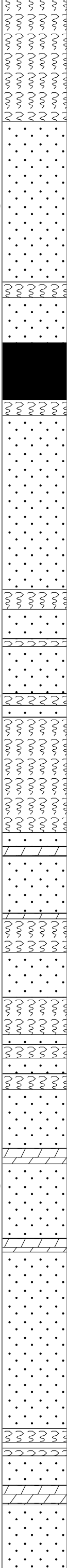
CASING				PLUGS		
Size	Set @ (mMDRT)	SX Cmt	Formation	From (mMDRT)	To (mMDRT)	SXCmt
13.375"	921.1	---	Gippsland Limestone			
9.625" (Top of milled window)	2258.0	---	Latrobe Group			
7" Liner	3391.0 (liner top at 2056.8m)	681	Latrobe Group	3350.5	3391	681

Caliper			DEPTH	LITHOLOGY	Deep Resistivity			Neutron Porosity			Delta-T			SS	ON	TA	GS	ON	GY	GE
6	IN	16			0.2	OHMM	2000	0.45	V/V	-0.15	500	US/M	100							
6	IN	16			0.2	OHMM	2000	0.45	V/V	-0.15	500	US/M	100							





**2275**  
(-1815.6)



Gas bearing  
12.8 MD Net  
9.2 TVD Net  
Ø = 18 %  
Sw= 95 %

Gas bearing  
14.0 MD Net  
10.1 TVD Net  
Ø = 20 %  
Sw= 50 %

Ø = 13 %  
Sw=100 %

**2300**  
(-1833.5)

**2325**  
(-1851.2)

2280  
MW 9.9ppg  
FV 56sec/qt  
PV 20cp  
YP 31  
pH 9.3

2350  
(-1868.6)

2375  
(-1886.4)

2400  
(-1904.2)

2425

Top of Coarse Clastics (TCC)  
2391.1m MDRT  
(-1897.8m TVDSS)

BWST  
2395.6m MDRT  
(-1901.1m TVDSS)

CGOC  
2400.1m MDRT  
(-1904.3m TVDSS)

COWC  
2403.5m MDRT  
(-1906.8m TVDSS)

newGnF2  
2413.8m MDRT  
(-1913.9m TVDSS)

Effec Por  
14%  
Non Net  
Tight.

Gas bearing  
4.5 MD Net  
3.2 TVD Net  
Ø = 22 %  
Sw= 26 %

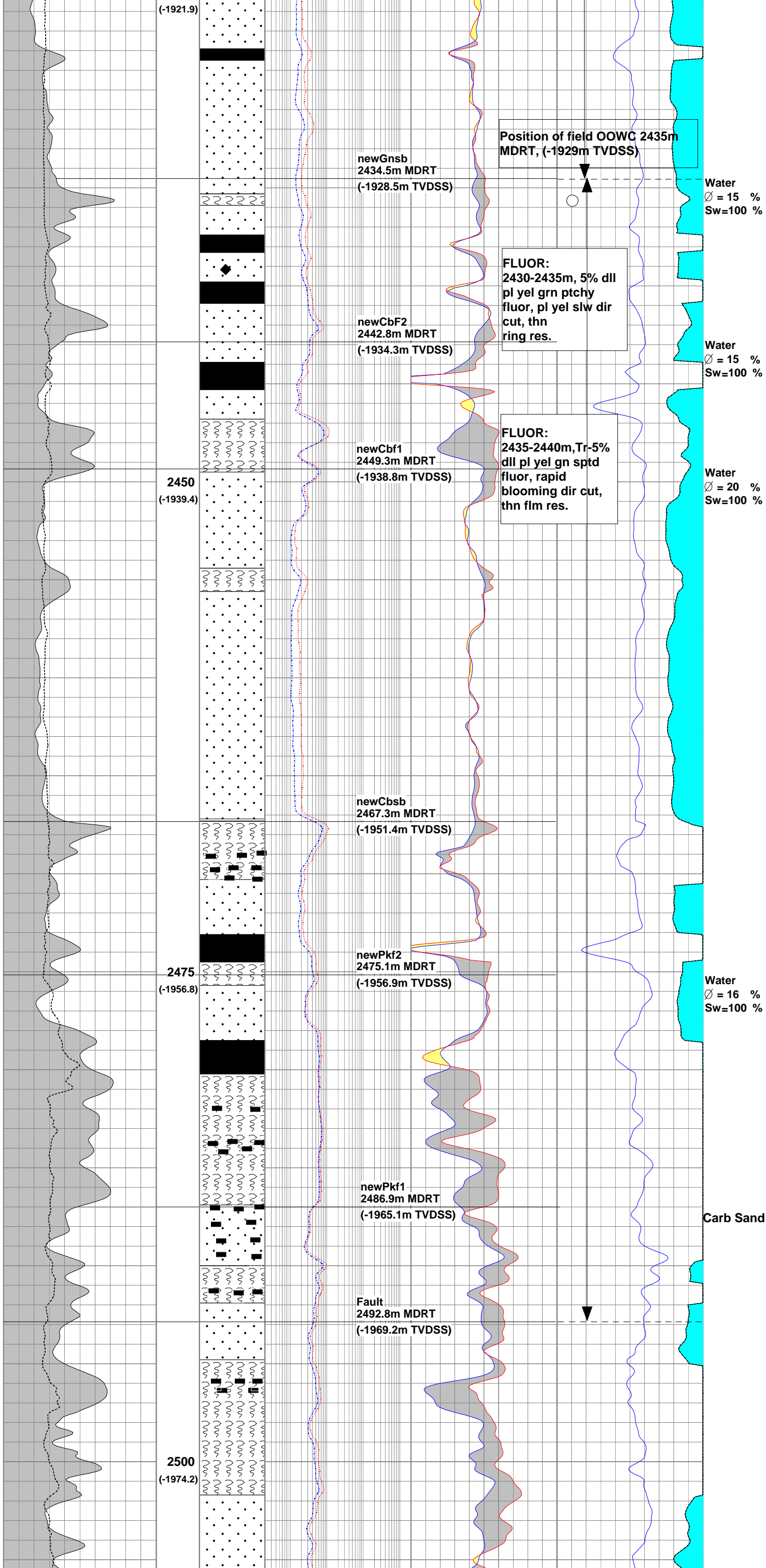
Oil bearing  
3.5 MD Net  
2.5 TVD Net  
Ø = 18 %  
Sw= 56 %

Residual Oil  
Ø = 17 %  
Sw=76 %

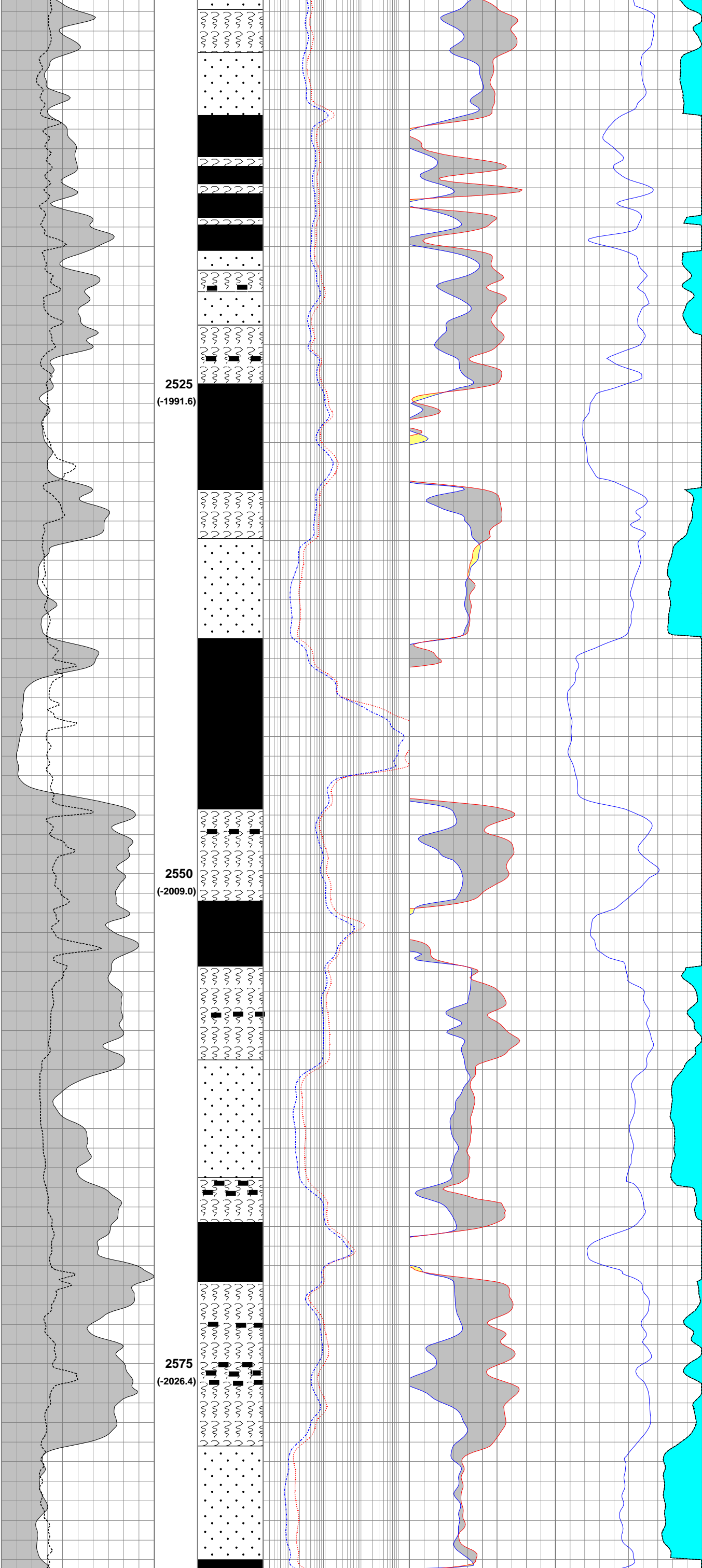
Water/Residual  
Ø = 19 %  
Sw=100 %

2373.96  
ANG 44.29  
DIR 225.55  
(-1885.67)

2414  
MW 10.05ppg  
FV 62sec/qt  
PV 23cp  
YP 45  
pH 9.1



2460.31  
ANG 45.65  
DIR 223.26  
(-1946.8)

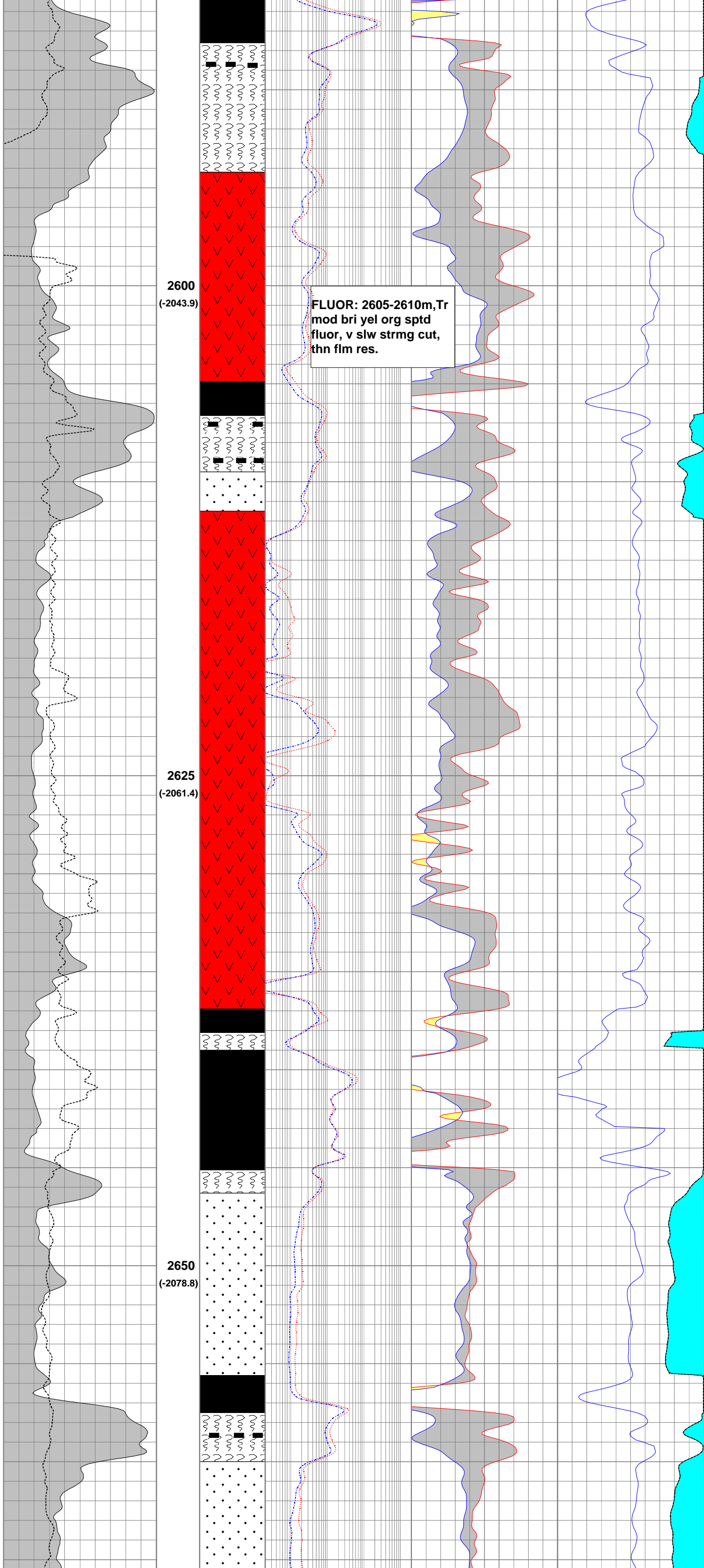


2546.51  
ANG 45.96  
DIR 223.53  
(-2006.58)

2567  
MW 10.05ppg  
FV 64sec/qt  
PV 26cp  
YP 43  
pH 9.1

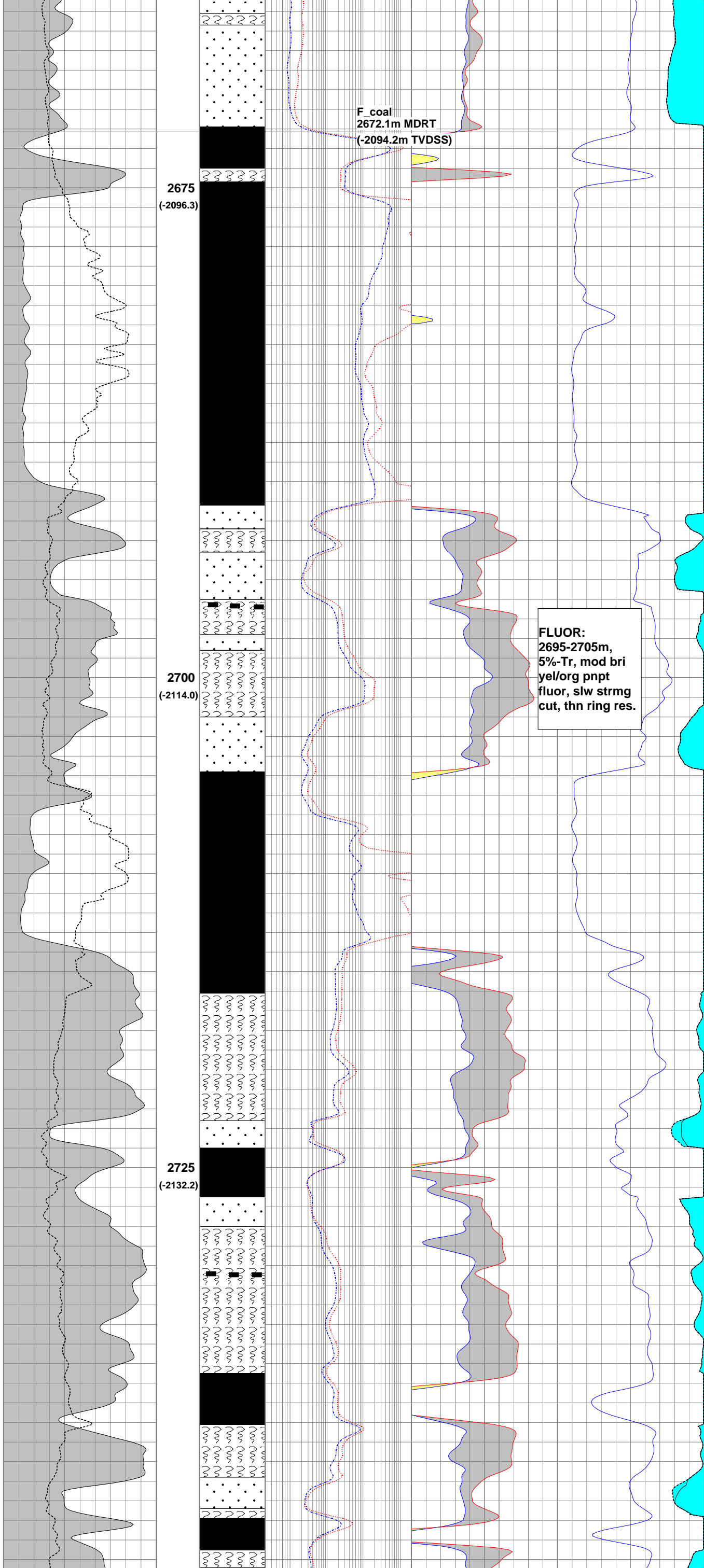
LATROBE GROUP

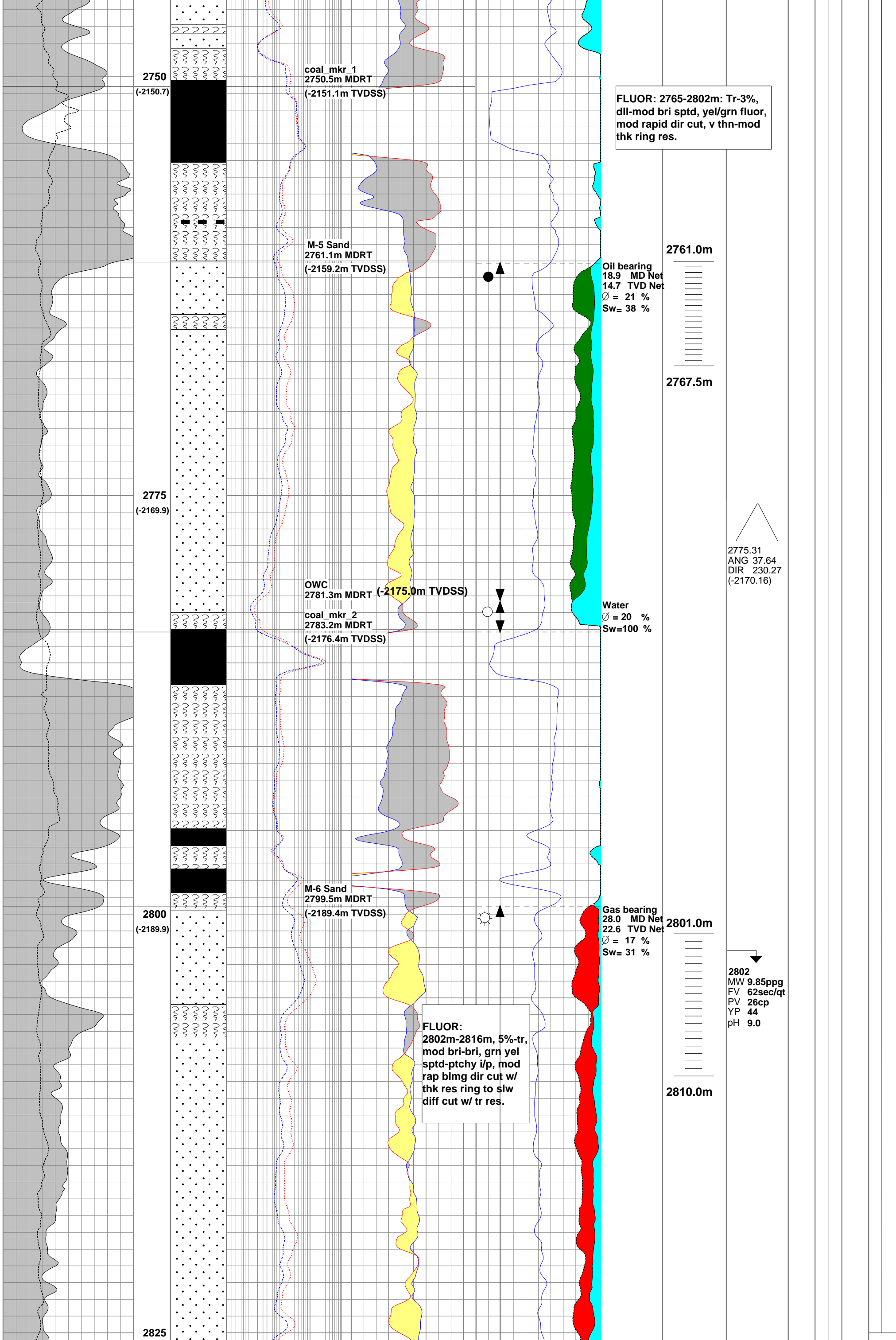
EOCENE



FLUOR: 2645-2650m. Tr mod  
bri org/ yel ptchy fluor,v slw  
dir cut, thn ring res.

2660.31  
ANG 46.03  
DIR 222.98  
(-2085.98)





FLUOR: 2765-2802m: Tr-3%,  
dll-mod bri sptd, yel/grn fluor,  
mod rapid dir cut, v thn-mod  
thk ring res.

2761.0m

Oil bearing  
18.9 MD Net  
14.7 TVD Net  
Ø = 21 %  
Sw= 38 %

2767.5m

2775.31  
ANG 37.64  
DIR 230.27  
(-2170.16)

Water  
Ø = 20 %  
Sw=100 %

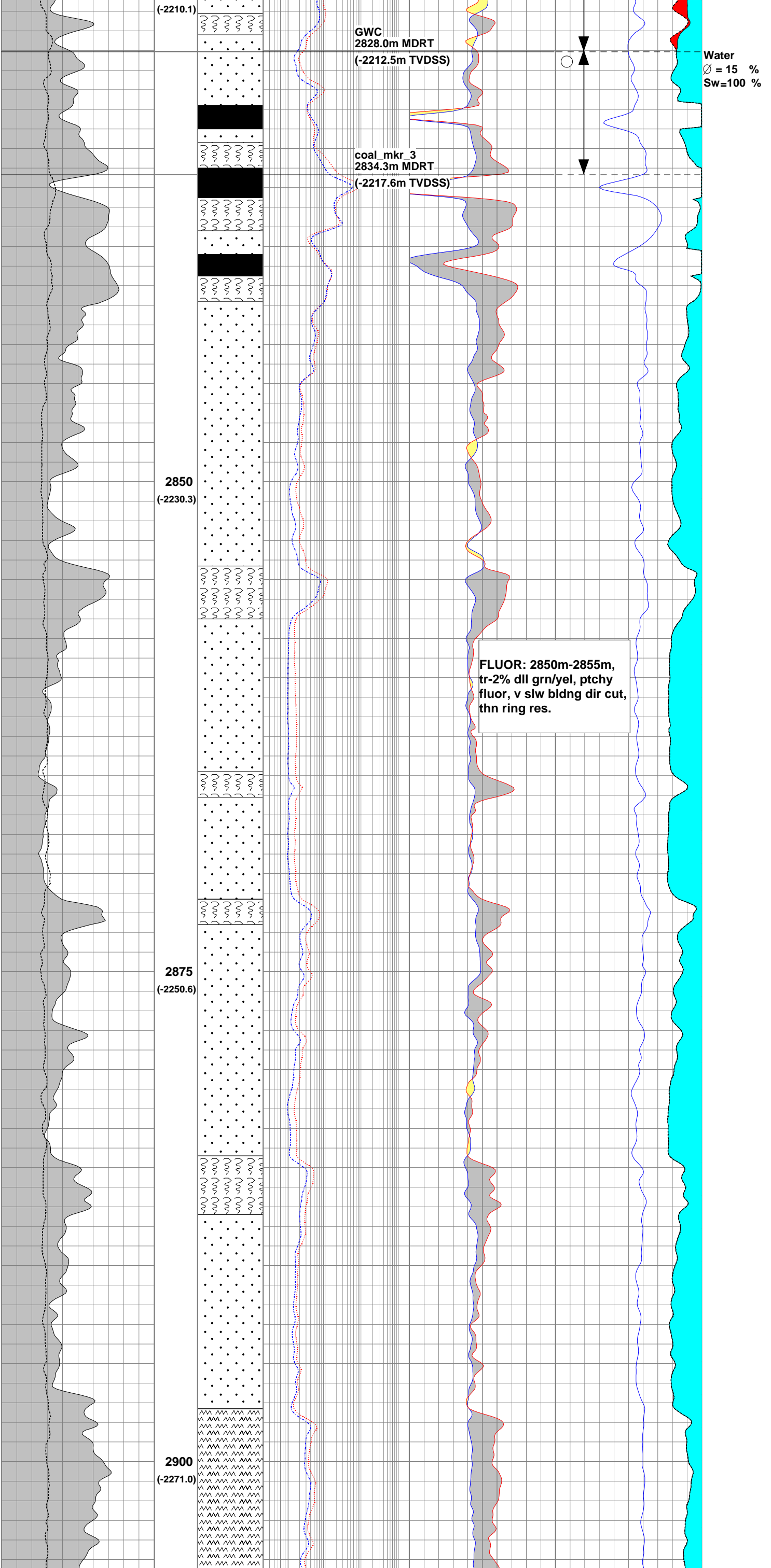
2801.0m

Gas bearing  
28.0 MD Net  
22.6 TVD Net  
Ø = 17 %  
Sw= 31 %

2802  
MW 9.85ppg  
FV 62sec/qt  
PV 26cp  
YP 44  
pH 9.0

2810.0m

FLUOR:  
2802m-2816m, 5%-tr,  
mod bri-bri, grn yel  
sptd-ptchy i/p, mod  
rap blmg dir cut w/  
thk res ring to slw  
diff cut w/ tr res.

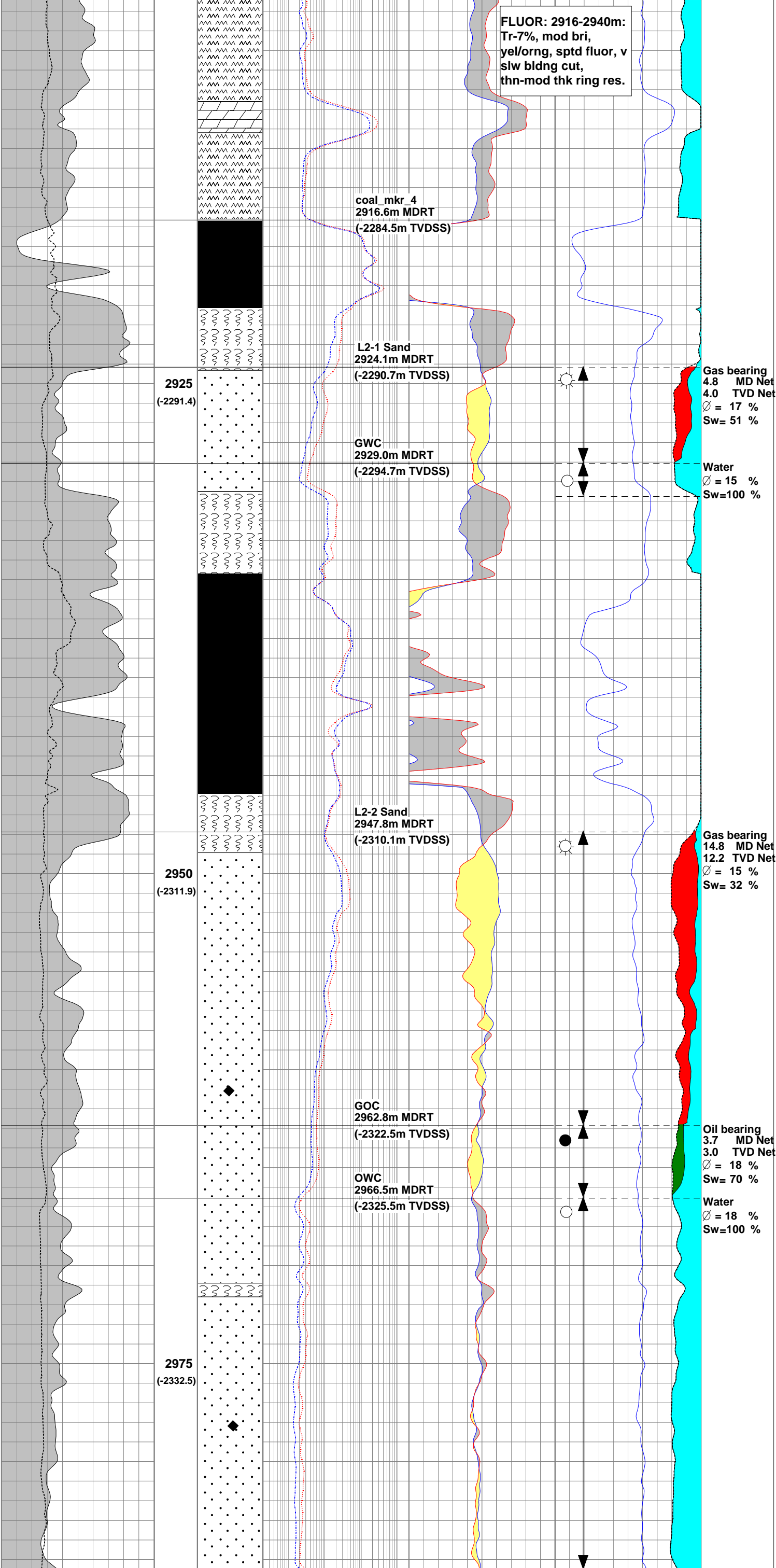


Water  
Ø = 15 %  
Sw=100 %

2890.25  
ANG 35.62  
DIR 232.73  
(-2263.04)

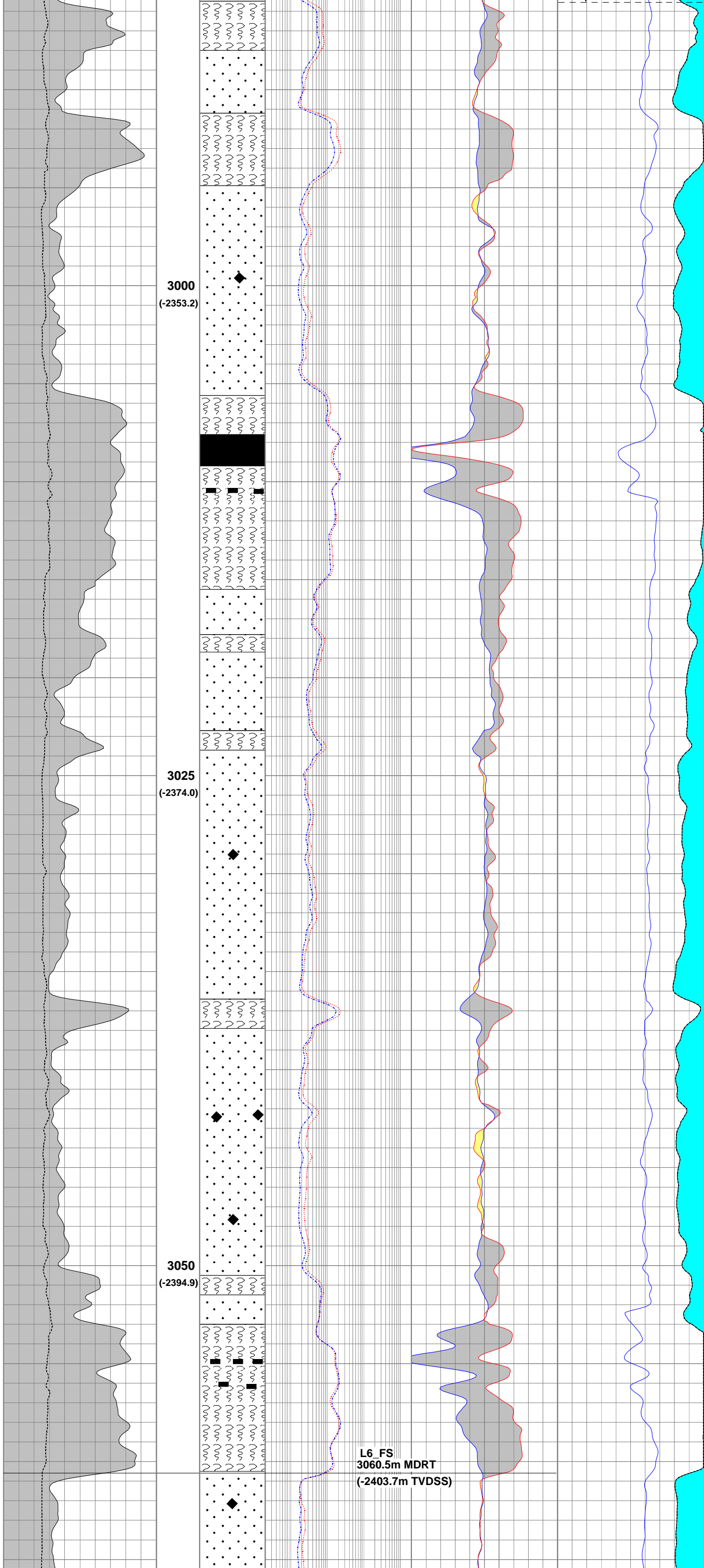
LATROBE GROUP

EOCENE

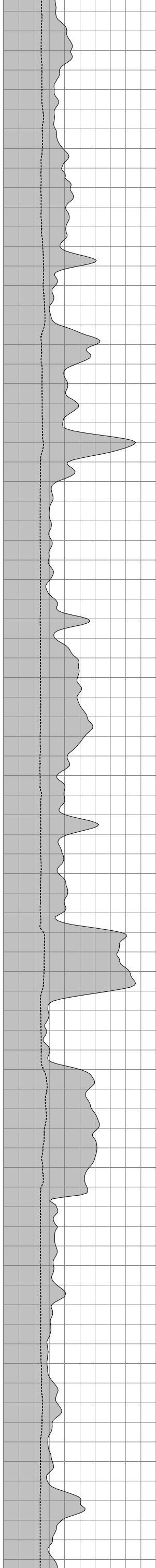


PALEOCENE

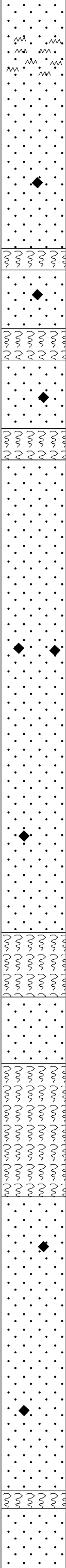
2976.02  
ANG 34.36  
DIR 234.66  
(-2333.35)



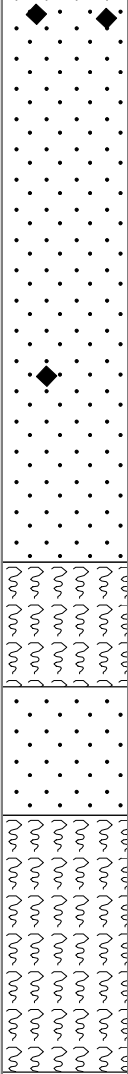
3040  
MW 10.15ppg  
FV 66sec/qt  
PV 26cp  
YP 45  
pH 9.2



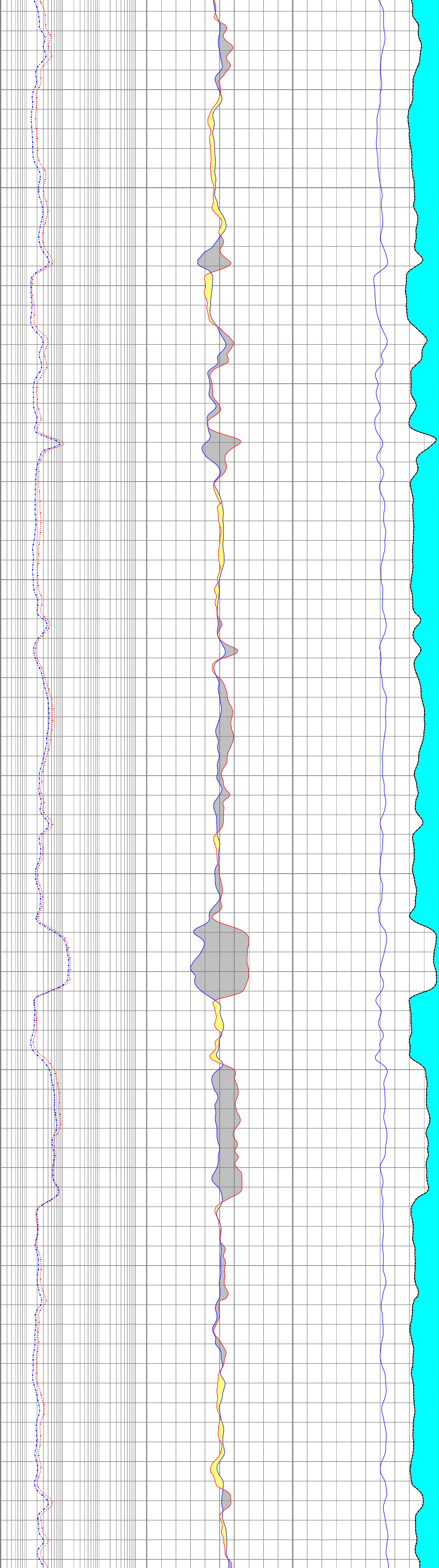
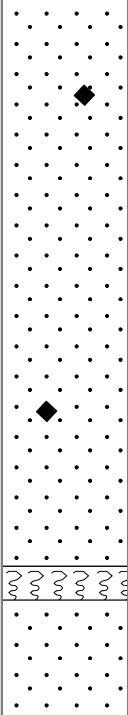
**3075**  
(-2415.9)



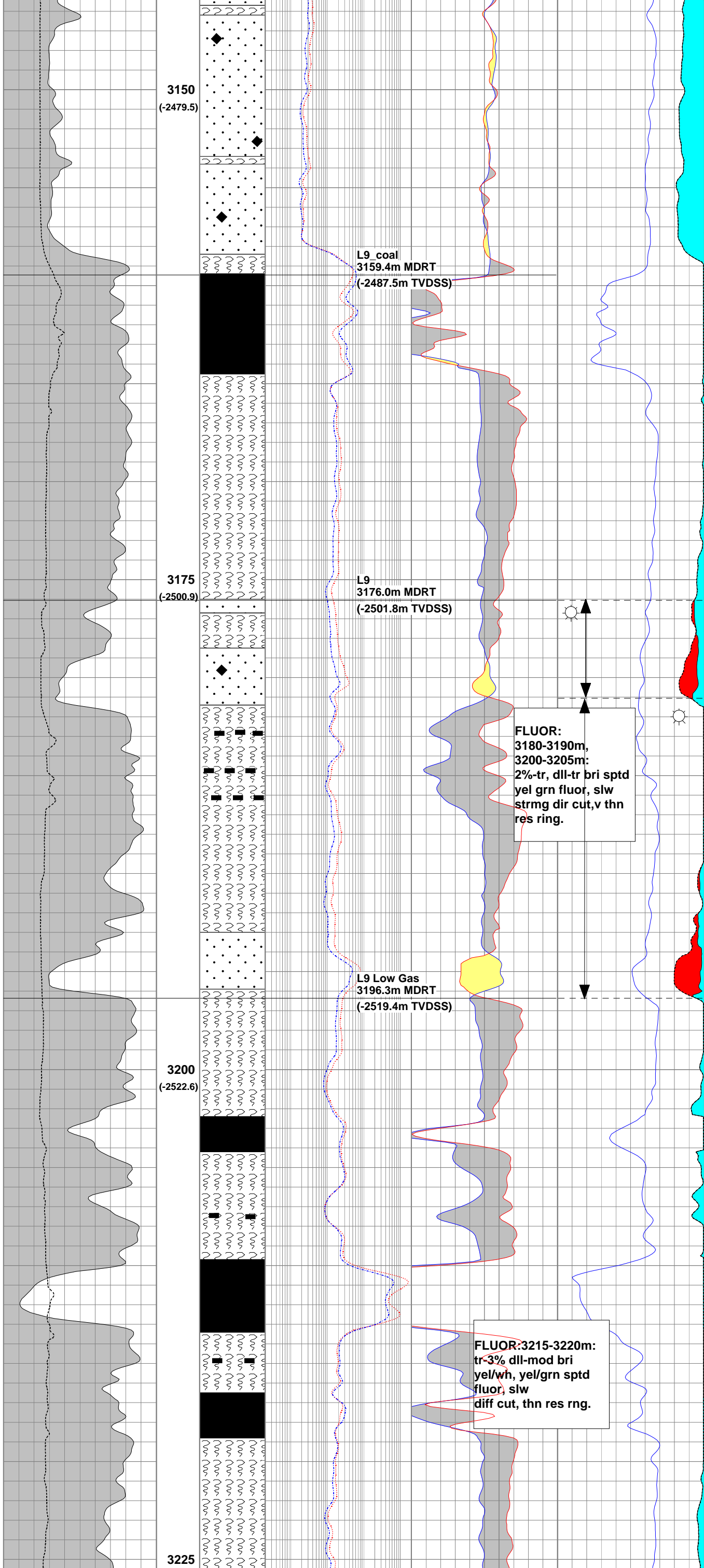
**3100**  
(-2437.0)



**3125**  
(-2458.2)



3091.19  
ANG 32.34  
DIR 236.58  
(-2429.54)



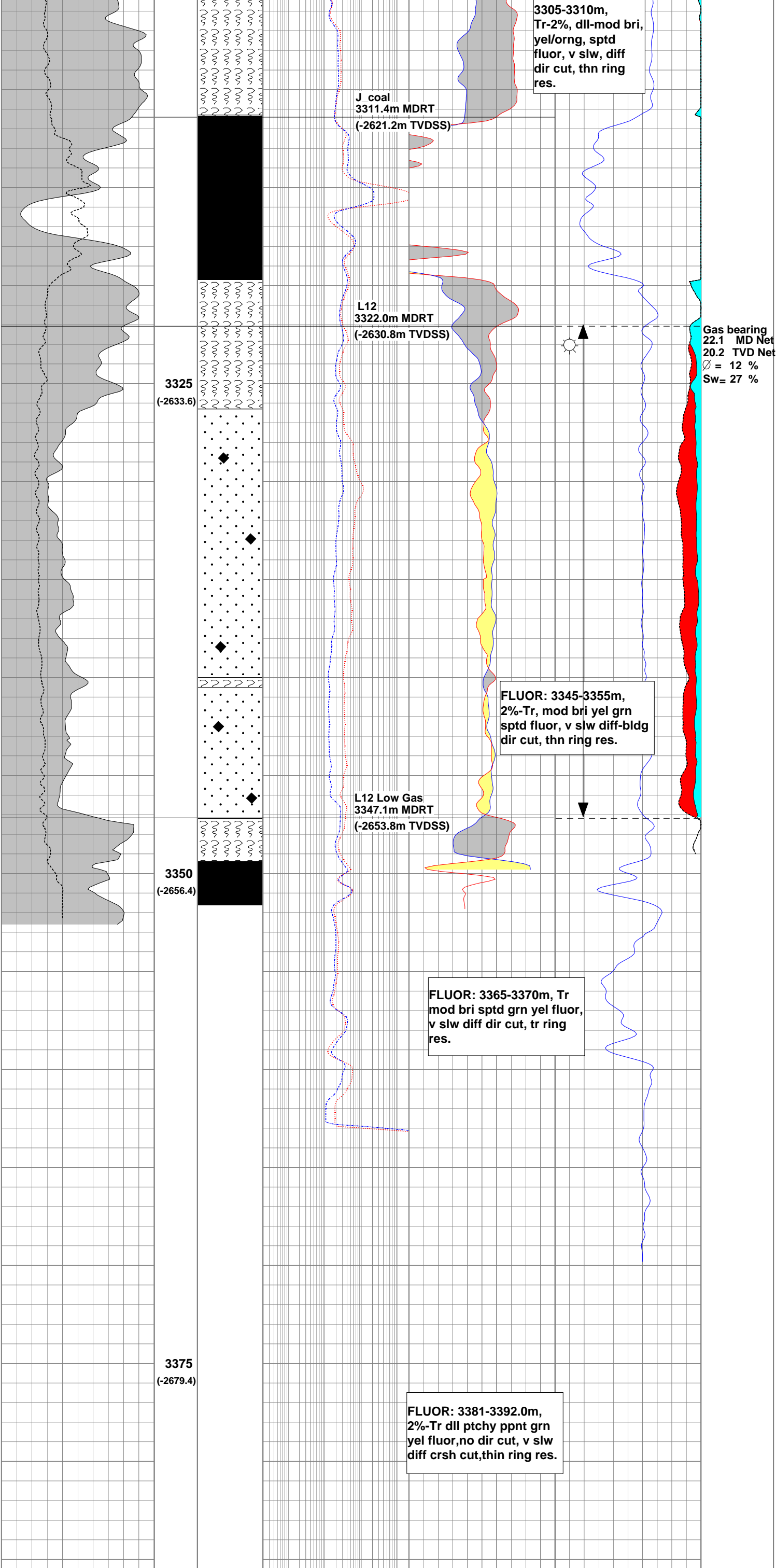
Gas bearing  
3.4 MD Net  
2.9 TVD Net  
Ø = 12 %  
Sw= 39 %

Gas bearing  
2.9 MD Net  
2.5 TVD Net  
Ø = 16 %  
Sw= 16 %

3176.53  
ANG 30.52  
DIR 237.95  
(-2502.23)

3214  
MW 10.2ppg  
FV 62sec/qt  
PV 26cp  
YP 45  
pH 9.0





3348.52  
ANG 23.60  
DIR 240.25  
(-2655.07)

3355  
MW 10.1ppg  
FV 79sec/qt  
PV 29cp  
YP 48  
pH 9.2

