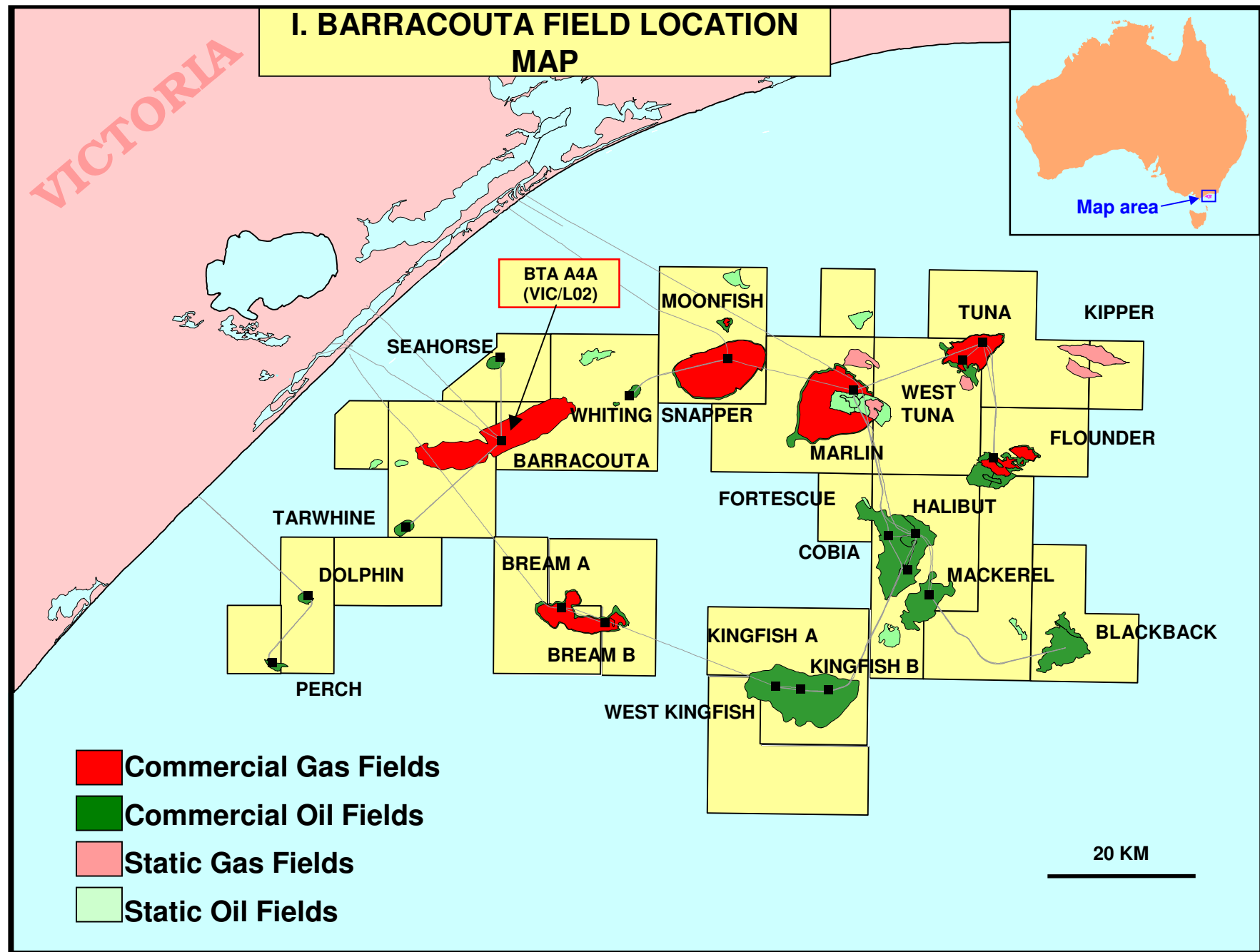


**WELL COMPLETION REPORT**  
**BARRACOUTA A4A, A4A ST & A4A ST1**  
**GIPPSLAND BASIN, VICTORIA**

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Compiler: Sheryl Sazenis  
September 2005

# CONTENTS

<b>I. BARRACOUTA FIELD LOCATION MAP</b>	<b>1</b>
<b>II. WELL DATA RECORD</b>	<b>2</b>
BARRACOUTA TOP M1 POST DRILL DEPTH MAP	2
BARRACOUTA A4AST1 POST DRILL SUMMARY	3
LOCATION	4
ELEVATIONS & DEPTHS	4
MISCELLANEOUS	4
WELL CLASSIFICATION	4
CASING RECORD	5
DRILLING PERFORMANCE	6
BTA A4A - FINAL WELL REPORT	6
<b>III. SAMPLES</b>	<b>9</b>
CUTTINGS	9
CONVENTIONAL CORING	9
SIDEWALL CORING	9
<b>IV. LOGS AND SURVEYS</b>	<b>10</b>
<b>V. FORMATION RESERVOIR TOPS</b>	<b>11</b>
<b>VI. GEOLOGICAL ANALYSIS - BARRACOUTA AA,A4AST A4AST1</b>	<b>12</b>
<b>VII. APPENDICES</b>	
1. Survey Data & Listing	
1a. Survey Data BTA A4A	
1b. Survey Data BTA A4A ST	
1c. Survey Data BTA A4A ST1	
1d. MD-TVD Survey Data Listing BTA A4A	
1e. MD-TVD Survey Data Listing BTA A4A ST	
1f. MD-TVD Survey Data Listing BTA A4A ST1	
2. Petrophysics	
2a. Petrophysics Evaluation Summary BTA A4A, A4A ST & A4A	
ST1	
3. Sample Descriptions	
3a. Lithology/Show Descriptions BTA A4A	
3b. Lithology/Show Descriptions BTA A4A ST	
3c. Lithology/Show Descriptions BTA A4A ST1	
4. Logs	
4a. Mud Log BTA A4A	
4b. Mud Log BTA A4A ST	
4c. Mud Log BTA A4A ST1	
4d. Well Completion Log BTA A4A	
4e. Well Completion Log BTA A4A ST	
4f. Well Completion Log BTA A4A ST1	



## Barracouta Top M1 reservoir Post-drill depth map

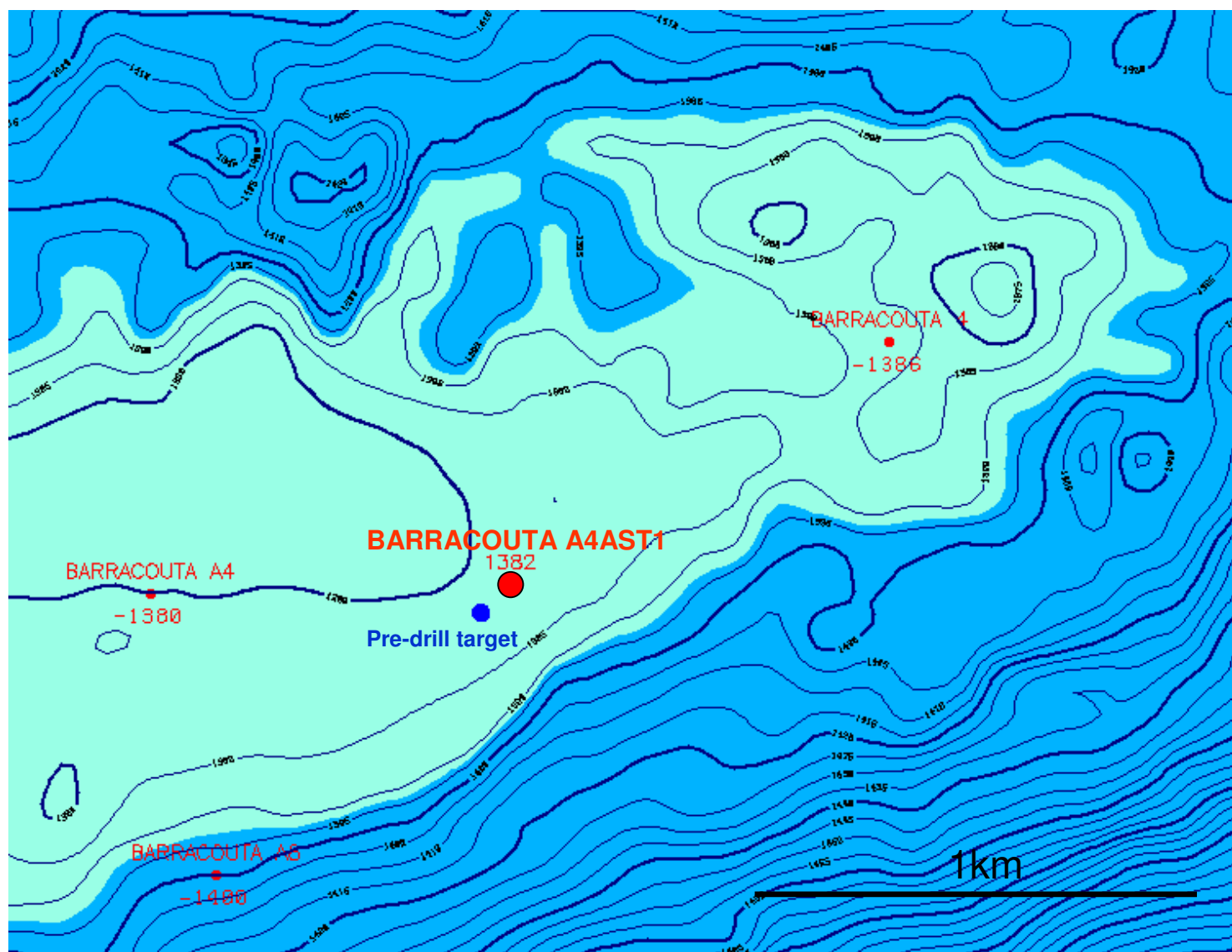


FIGURE 2



# Barracouta A4A-ST1 Post-drill Summary

	Pre-drill m	Post-drill m	Error m	Components Actual m	Description	Comments
Primary Target M1	1365	1382	17.3	10	Depth Conversion	Within range
				4.8	Interpretation / Pick	Outside of range
				2.5	Final Borehole Location	Within range
Secondary Target N4	1312	1322.5	10.5	7.5	Depth Conversion	Within range
				3	Final Borehole Location	Within range

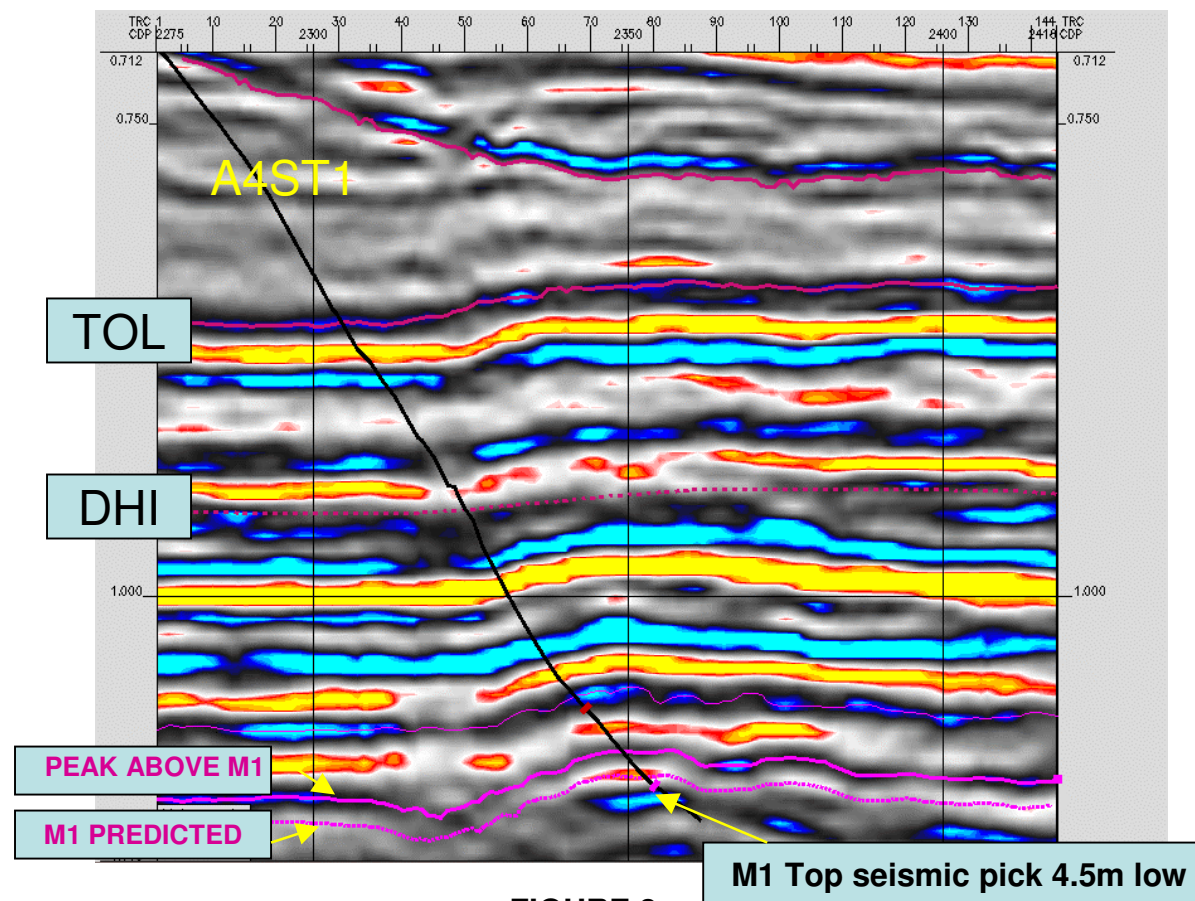


FIGURE 3

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

### LOCATION

<b>Field</b>	<b>Barracouta</b>	<b>Conductor #4 Surface Coordinates</b>	
<b>Well Name</b>	<b>A4A (Loc C1)</b>	(GDA94 ) X	559,117.68mE
<b>Conductor Number</b>	Slot 4	(MGA94) Y	5,761,070.26mN
<b>State</b>	Victoria	Latitude	38° 17' 47.414"S
<b>Permit/Licence</b>	Vic/L2	Longitude	147° 40' 33.852"E
<b>Geological Basin</b>	Gippsland	<b>Perforations</b>	1536.0- 1542.0m MDRT
<b>Top of Latrobe</b>	1508.8 m MDRT	(driller)	
<b>(A4A)</b>	1067.9 m TVDRT	<b>A4A (A4AST1)</b>	1081.5 - 1084.5m TVDRT
MGA94 X	559930.81m E		1542.0 - 1548.0m MDRT
MGA94 Y	5761277.92m N		1084.5 - 1087.4m TVDRT
<b>(N4)</b>	2138.5m MDRT		1600.0 - 1606.0m MDRT
	1377.9m TVDRT		1113.3 – 1116.3m TVDRT
MGA94 X	560461.00m E		1606.0 - 1612.0m MDRT
MGA94 Y	5761416.54m N		1116.3 – 1119.3m TVDRT
<b>(M1)</b>	2286.8m MDRT	<b>(A4AST)</b>	None- Well plugged back and Sidetracked
	1438.24m TVDRT		
MGA94 X	560581.5m MDRT	<b>Datum</b>	GDA94 (GRS80)
MGA94 Y	5761482.4m MDRT	<b>Projection</b>	MGA94/UTM Zone 55 (S)

### ELEVATIONS & DEPTHS

<b>Water Depth</b>	45.70 m
<b>Top Wellhead to MSL</b>	15.6m (Top of new Casing Head)
<b>Main Deck Rel to MSL</b>	19.8m
<b>RT Relative to MSL</b>	55.9 m
<b>Average Well Angle</b>	69° (tang)
<b>Total Depth (A4A)</b>	2108.0 m MDRT 1363.8 m TVDRT
<b>Total Depth (A4AST)</b>	2165.0 m MDRT 1390.8 m TVDRT
<b>Total Depth</b>	2385.0 m MDRT 1470.3m TVDRT
<b>Plug Back Depth</b>	2339.3m MDRT

### 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>	Production
<b>Overriding Royalty</b>	2.5%	<b>Completion Size</b>	3-1/2"
<b>Drilling AFE No.</b>	L0501F215		

### WELL CLASSIFICATION

<b>Before Drilling</b>	Oil Development	<b>After Drilling</b>	Cased and Completed Gas Well
------------------------	-----------------	-----------------------	------------------------------

## II. WELL DATA RECORD (cont.)

### CASING RECORD

Type	Size (Inches)	Weight (lb/ft)	Grade	Thread	Depth (mMDRT)
Existing Surface	13 "	68.0	L80	BTC	337.3
Intermediate 12¼" Hole	9 "	47	L80	LT&C	848.4
Production	7"	29	L80	LT&C	2376.0

### CEMENTING RECORD

#### 9 " Intermediate casing

Casing details	Cement Type	Dry Cement Volume (sx)	Cement Additives	Mix Water (bbls)	Slurry Volume (bbls)	Slurry Density (ppg)	Top of Cement (mMDRT)	Casing Pressure Test (psi)
Lead Slurry	G	408	10 bbl (15 gal) Econolite	126 Sea Water	160	12.5		
Tail Slurry	G	200	(5 gal) 10 bbl CFR-3L (0.25gal) / 10bbl NF-6	25 Sea Water	42	15.8		

## II. WELL DATA RECORD (cont.)

### DRILLING PERFORMANCE

#### BTA A4A - Final Well Report

#### GENERAL

<b>Platform:</b>	Barracouta	<b>Rig:</b>	Ensco 102	<b>Reservoir:</b>	M-1 oil, N-4 to N-6 oil
<b>Well:</b>	A4A	<b>Well Slot:</b>	#4	<b>RT-MSL (Ensco 102)</b>	56.0m
<b>Drilling Complexity Index</b>	3.2	<b>Completion Complexity</b>	2.4		

DEPTH		PERFORMANCE		MUD	
<b>m MDRT</b>	2,385.00	<b>20" Cond. Hole</b>	N/A	<b>Max Wt (ppg)</b>	10.50
<b>m TVDRT</b>	1,470.27	<b>12-1/4" Surf. Hole</b>	272.6 m/day	<b>Type (Surf. Hole)</b>	Bentonite / Seawater
<b>Vert. Section (m)</b>	1,612.29	<b>8-1/2" Prod. Hole</b>	95.6 m/day	<b>Type (Inter. Hole)</b>	N/A
<b>INCLINATION</b>	73.0 (TD) / 60.0 (Tang)	<b>6" Liner Hole</b>	N/A	<b>Type (Prod. Hole)</b>	KCl/PHPA/Poly/Glycol
<b>Max (deg) / Ave (deg)</b>		* time to drill interval, incl's connections & NPT.		<b>Type (Liner Hole)</b>	N/A

Comments: New hole drilled: 337m to 2,385mMDRT (2,588m drilled - 514m surface hole, original hole 851m to 2108m (1257m), sidetrack #1 1943m to 2165m (222m), sidetrack #2 1790m to 2385m (595m)).

#### TIME ANALYSIS

<b>Start Date:</b>	24/2/2005, 0300hrs	<b>Finish Date:</b>	23/3/2005, 1530hrs		
<b>Target Days (P10):</b>	14.88	<b>Total Days:</b>	27.52	<b>% Over Target:</b>	84.9%
<b>AFE Days (P50):</b>	16.74	<b>NPT Days:</b>	10.76	<b>% of Total Days:</b>	39.1%
<b>Supplementary AFE Days (P50):</b>	28.0				

#### COSTS (based on projected)

<b>AFE No.:</b>	L0501E215	<b>Revisions:</b>	x2	<b>\$ per m</b>	A\$4.155k / metre (new hole)
<b>\$ per day:</b>	A\$ 391k/day	<b>\$ per day (excl. T + L)</b> * Equipment, LWD & Reeves	A\$357k/day		A\$4.50k / metre* * based on TD <b>not</b> new hole

	Equipment	Materials	Contracts	Allocations	Contingency	Total
<b>AFE (Original)</b>	840,000	879,960	5,200,860	399,180	--	A\$7,320,000
<b>AFE (Supp #1)</b>	840,000	1,016,754	6,744,552	518,695	--	A\$9,120,000
<b>AFE (Supp #2)</b>	840,000	1,200,906	8,596,982	662,113	--	A\$11,300,000
<b>Projected</b>	645,500	654,500	8,706,000	656,000	--	A\$10,750,000

#### CASING (all depths herein are based on Ensco 102 elevations: RT-MSL=56.0m)

	Size / Weight / Grade / Thread	m MDRT	m TVDRT	PIT (ppg)
<b>Conductor Casing *</b>	N/A	170	170	N/A
<b>Surface Casing</b>	9-5/8", 47ppf, L80, LTC	848	745	13.5 (Jug)
<b>Prod Casing</b>	7", 29.0ppf, L80, LTC	2,376	1,468	N/A
<b>Prod Liner</b>	N/A	N/A	N/A	N/A

Comments: \* Pre-existing casing strings. Surface casing & production casing new strings.

#### COMPLETION

	Size / Weight / Grade / Thread	m MDRT	m TVDRT	Type
<b>Completion</b>	3.5", 9.3ppf, J-55, EUE 3.5" 9.2ppf, 13Cr80, Vam Ace	0 - 1496 1496 - 1521	0 - 1062 1062 - 1075	Production

	Upper Interval [m MDRT]	Upper Interval [m TVDRT]	Lower Interval [mMDRT]	Lower Interval [mTVDRT]	Gun Type
<b>Perforation Interval:</b>	-	-	-	-	-

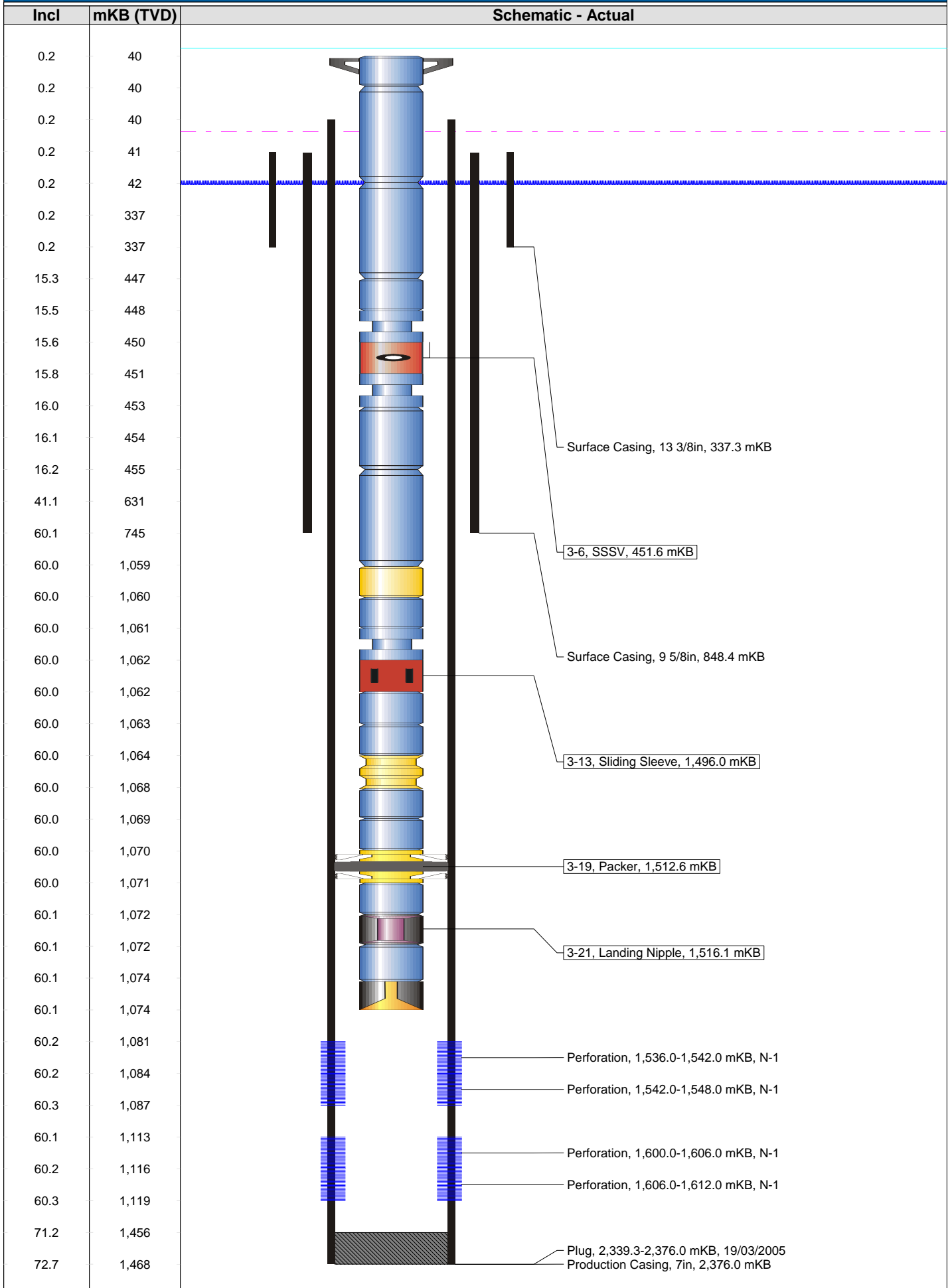
Comments: The well was left unperforated. The well will be perforated with wireline at a later date.

#### ADDITIONAL

		Upper Interval [m MDRT]	Lower Interval [m MDRT]
<b>Logs Run</b>	LWD (GR-Resistivity-Density-Neutron-Sonic-Caliper)	848	2,385

Comments: The 8-1/2" hole interval was logged via LWD from the surface casing shoe to TD. No failures of the LWD suite occurred during the drilling of this well.

# Barracouta A4Ast1: Existing Schematic





### III. SAMPLES

#### CUTTINGS

The ditch cuttings sampling programme for Barracouta A4A was as follows:

Interval (mMDRT)	Formation	Sampling Details
Surface Casing to 150m above Top of Latrobe (TOL)  342 m - 1370 m	Gippsland Limestone & Lakes Entrance Group	30 m sampling interval Spot samples only
150 m above TOL to TOL  1370 m – 1510 m	Lakes Entrance Formation	10 m sampling interval  Three sets of washed and oven dried cuttings.
TOL to Total Depth (TD)  1510 m – 2108 m (TD)	Latrobe Group	5 m sampling interval  Three sets of washed and oven dried cuttings.

Detailed cuttings descriptions for the interval 600 to 2108 mMDRT (TD) are contained in Appendix 3a.

The ditch cuttings sampling programme for Barracouta A4A-ST was as follows:

Interval (mMDRT)	Formation	Sampling Details
1930.5 - 1970.0	Latrobe Group	No samples collected.
1970 m – 2165 m (TD)	Latrobe Group	5 m sampling interval Three sets of washed and oven dried cuttings.

Detailed cuttings descriptions for the interval 1970 to 2165 mMDRT (TD) are contained in Appendix 3b.

The ditch cuttings sampling programme for Barracouta A4A-ST1 was as follows:

Interval (mMDRT)	Formation	Sampling Details
1785 m – 2385 m (TD)	Latrobe Group	5 m sampling interval Three sets of washed and oven dried cuttings.

Detailed cuttings descriptions for the interval 1970 to 2165 mMDRT (TD) are contained in Appendix 3c.

#### CONVENTIONAL CORING

No conventional cores were cut in BARRACOUTA A4A, A4AST & A4AST1.

#### SIDEWALL CORING

No sidewall core samples were shot in BARRACOUTA A4A, A4AST & A4AST1.

## IV. LOGS AND SURVEYS

Survey/Log	Company	Top (m MDRT)	Bottom (m MDRT)
Barracouta A4A			
MWD Powerpulse (Dir)	Schlumberger/Anadrill	337.3	2075.98
MWD GVR6 (GR/Resistivity)	Schlumberger/Anadrill	848.0	2108.0
MWD ADN6 (Density/Neutron)	Schlumberger/Anadrill	848.0	2108.0
<b>Barracouta A4A-ST</b>			
MWD Powerpulse (Dir)	Schlumberger/Anadrill	1930.5	2165.0
MWD GVR6 (GR/Resistivity)	Schlumberger/Anadrill	1930.5	2165.0
MWD ADN6 (Density/Neutron)	Schlumberger/Anadrill	1930.5	2165.0
<b>Barracouta A4A-ST1</b>			
MWD Powerpulse (Dir)	Schlumberger/Anadrill	1785.0	2385.0
MWD GVR6 (GR/Resistivity)	Schlumberger/Anadrill	1785.0	2385.0
MWD ADN6 (Density/Neutron)	Schlumberger/Anadrill	1785.0	2385.0



## V. FORMATION RESERVOIR TOPS

Zone	m TVDSS			m MDRT	M TVT Gross Oil Sand	
	Predicted Tops	Actual	Diff.		Predicted	Actual
Top of Latrobe Group(TOL)	-1020	-1012	-8 high	1508.8		
Top of N-1	-1034	-1025.1	-8.9 high	1535.0		
CGWC	-1111	-1109.5	-1.5 high	1707.8		
OCWC	-1151.7	-1151.5	-0.2 high	1794.6		
Top N4	-1312	-1322.5	10.5 low	2135.6		
Top M1	-1365	-1382.3	17.3 low	2286.8	16	0
Total Depth (TD)	-1424	-1414.4	-9.6 high	2385.0		

## VI. GEOLOGICAL ANALYSIS - BARRACOUTA AA, A4AST A4AST1

### Objectives

The primary objective of the Barracouta A4A (Location C1) infill well (Fig. 1) was to capture M-1 oil reserves in a closure located updip of the current A4 perfs between A4 production well (740m west) and the Barracouta-4 well (1090m north east) drilled in 1978. The secondary objective of the well was to appraise oil potential in the shallower N4 to N6 reservoir.

Production from the M-1 reservoir commenced in 1969 from six development wells (A3, A4, A5, A6, A7, A9). In 1972, four of them (A3, A6, A7, A9) were recompleted as N-1 gas producers (Cum M-1 production from these wells 2.7MB). The Barracouta-4 exploration well was drilled in 1977 and observed 2m of sweep in the M-1 oil column, moving from -1393m to -1391mSS. This was followed by the Barracouta-5 exploration well drilled in 1985, which saw a further 3m of sweep to a contact depth of -1388mSS. The A4 and A5 were shut-in in 1993 (Cum production 12MB) and 1997 (Cum production 7MB) respectively due to high watercut. A total of 21.7MB oil has been produced from the M-1.

### Results

Barracouta A4A was drilled to a total depth of 2108mMDKB (-1307.9mTVDss). The top of Latrobe Group was intersected at 1508.8mMDKB (-1012mTVDss), 8m metres TVD shallow to prediction. The top of Coarse Clastics (N-1 reservoir) was penetrated 8.9m shallow to prediction at 1535mMDKB (-1025.1mTVDss). The well encountered a 76.1mTVT gross gas column from the top of Coarse Clastics to a gas-water contact (CGWC) at 1707.85mMDKB (-1109.5mTVDss). Average porosity and net to gross within the gas column 21.2% and 90% respectively.

Due to drilling difficulties the well was sidetracked from 1930.5mMDKB (-1275.6mTVDss) to a total depth of 2165mMDKB (-1334.4mTVDss) and the sidetrack designated A4AST. A4AST did not intersect any of the target reservoirs.

After re-entering the well the drill bit went down the original A4A hole instead of the A4AST sidetrack. Due to this problem the well was plugged back and sidetracked a second time from 1785mMDKB (-1146.7mTVDss) to a total depth of 2385mMDKB (-1414.4mTVDss) and the second sidetrack designated A4AST1. A4AST1 intersected the N4 reservoir at 2135.6mMDKB (-1322.5mTVDss), 10.5m deep to prediction and was water wet. The primary M1 target was intersected at 2286.8mMDKB (-1382.3mTVDss), 17.3m deep top prediction and 1.3m below the predicted COWC. The M1 reservoir was found to be swept and water wet.

The A4AST1 well results indicate that no closure exists at the M1 reservoir level at this level (Fig. 2). Post drill analysis shows that the depth error of 17.3m can be partitioned into a depth conversion error of 10m, an interpretation pick error of 4.5m and a final borehole location error of 2.8m (Fig.3).

The well was completed as a N1 gas producer.

**APPENDIX 1a**  
**BARRACOUTA A4A**  
**Survey Data**



## BTA-A4A Survey Report

**Report Date:** March 4, 2005

**Client:** Esso Australia Pty Ltd

**Field:** Barracouta GDA 94

**Structure / Slot:** Barracouta / 5

**Well:** A-4

**Borehole:** BTA A-4A

**UWI/API#:**

**Survey Name / Date:** BTA-A4A Surveys / February 23, 2005

**Tort / AHD / DDI / ERD ratio:** 108.418° / 1335.88 m / 5.349 / 0.991

**Grid Coordinate System:** GDA94/MGA94 Zone 55

**Location Lat/Long:** S 38 17 47.414, E 147 40 33.851

**Location Grid N/E Y/X:** N 5761070.280 m, E 559117.640 m

**Grid Convergence Angle:** -0.41899350°

**Grid Scale Factor:** 0.99964304

**Survey / DLS Computation Method:** Minimum Curvature / Lubinski

**Vertical Section Azimuth:** 76.260°

**Vertical Section Origin:** N 0.850 m, E 8.533 m

**TVD Reference Datum:** Drillsite Elevation

**TVD Reference Elevation:** 55.9 m relative to MSL

**Sea Bed / Ground Level Elevation:** -45.700 m relative to MSL

**Magnetic Declination:** 12.974°

**Total Field Strength:** 60071.167 nT

**Magnetic Dip:** -68.871°

**Declination Date:** March 01, 2005

**Magnetic Declination Model:** BGGM 2004

**North Reference:** Grid North

**Total Corr Mag North -> Grid North:** +13.393°

**Local Coordinates Referenced To:** Structure Reference Point

Comments	Measured Depth ( m )	Inclination ( deg )	Azimuth ( deg )	TVD ( m )	Vertical Section ( m )	NS ( m )	EW ( m )	DLS ( deg/30 m )	Northing ( m )	Easting ( m )	Latitude	Longitude
Projected-Up	0.00	0.00	0.00	0.00	0.00	0.85	8.53	0.00	5761070.28	559117.64	S 38 17 47.414	E 147 40 33.851
Tie-In	31.47	0.00	0.00	31.47	0.00	0.85	8.53	0.00	5761070.28	559117.64	S 38 17 47.414	E 147 40 33.851
	66.47	0.76	286.62	66.47	-0.20	0.92	8.31	0.65	5761070.35	559117.42	S 38 17 47.412	E 147 40 33.841
	71.47	0.71	284.48	71.47	-0.26	0.93	8.25	0.34	5761070.36	559117.36	S 38 17 47.411	E 147 40 33.839
	76.47	0.39	272.29	76.47	-0.30	0.94	8.20	2.03	5761070.37	559117.31	S 38 17 47.411	E 147 40 33.837
	81.47	0.42	126.17	81.47	-0.30	0.93	8.20	4.65	5761070.36	559117.31	S 38 17 47.411	E 147 40 33.837
	86.47	0.45	111.50	86.47	-0.28	0.91	8.23	0.69	5761070.34	559117.34	S 38 17 47.412	E 147 40 33.838
	91.47	0.25	105.79	91.47	-0.25	0.90	8.26	1.22	5761070.33	559117.37	S 38 17 47.412	E 147 40 33.839
	96.47	0.35	113.23	96.47	-0.23	0.89	8.29	0.64	5761070.32	559117.39	S 38 17 47.412	E 147 40 33.840
	101.47	0.26	102.44	101.47	-0.21	0.89	8.31	0.64	5761070.32	559117.42	S 38 17 47.412	E 147 40 33.841
	106.47	0.29	108.71	106.47	-0.19	0.88	8.33	0.25	5761070.31	559117.44	S 38 17 47.413	E 147 40 33.842

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
	111.47	0.42	112.82	111.47	-0.16	0.87	8.36	0.79	5761070.30	559117.47	S 38 17 47.413	E 147 40 33.844
	116.47	0.57	109.96	116.47	-0.13	0.85	8.40	0.91	5761070.28	559117.51	S 38 17 47.414	E 147 40 33.845
	121.47	0.57	110.78	121.47	-0.08	0.84	8.45	0.05	5761070.27	559117.56	S 38 17 47.414	E 147 40 33.847
	126.47	0.59	114.03	126.47	-0.04	0.82	8.50	0.23	5761070.25	559117.60	S 38 17 47.415	E 147 40 33.849
	131.47	0.63	113.94	131.47	0.00	0.79	8.55	0.24	5761070.22	559117.65	S 38 17 47.415	E 147 40 33.851
	136.47	0.64	112.60	136.47	0.04	0.77	8.60	0.11	5761070.20	559117.70	S 38 17 47.416	E 147 40 33.853
	141.47	0.64	110.50	141.47	0.09	0.75	8.65	0.14	5761070.18	559117.76	S 38 17 47.417	E 147 40 33.855
	146.47	0.61	112.21	146.47	0.13	0.73	8.70	0.21	5761070.16	559117.81	S 38 17 47.417	E 147 40 33.857
	151.47	0.64	111.69	151.47	0.18	0.71	8.75	0.18	5761070.14	559117.86	S 38 17 47.418	E 147 40 33.859
	156.47	0.63	111.01	156.47	0.22	0.69	8.80	0.08	5761070.12	559117.91	S 38 17 47.419	E 147 40 33.862
	161.47	0.67	110.39	161.46	0.27	0.67	8.85	0.24	5761070.10	559117.96	S 38 17 47.419	E 147 40 33.864
	166.47	0.45	108.58	166.46	0.31	0.66	8.90	1.32	5761070.09	559118.01	S 38 17 47.420	E 147 40 33.866
	171.47	0.58	108.78	171.46	0.35	0.64	8.94	0.78	5761070.07	559118.05	S 38 17 47.420	E 147 40 33.867
	176.47	0.57	106.77	176.46	0.39	0.63	8.99	0.14	5761070.06	559118.10	S 38 17 47.421	E 147 40 33.869
	181.47	0.44	108.80	181.46	0.43	0.61	9.03	0.79	5761070.04	559118.14	S 38 17 47.421	E 147 40 33.871
	186.47	0.53	107.97	186.46	0.46	0.60	9.07	0.54	5761070.03	559118.18	S 38 17 47.422	E 147 40 33.873
	191.47	0.44	101.48	191.46	0.50	0.59	9.11	0.63	5761070.02	559118.22	S 38 17 47.422	E 147 40 33.874
	196.47	0.41	98.99	196.46	0.54	0.58	9.15	0.21	5761070.01	559118.26	S 38 17 47.422	E 147 40 33.876
	201.47	0.41	98.06	201.46	0.57	0.58	9.19	0.04	5761070.01	559118.29	S 38 17 47.422	E 147 40 33.877
	206.47	0.43	97.31	206.46	0.60	0.57	9.22	0.12	5761070.00	559118.33	S 38 17 47.422	E 147 40 33.879
	211.47	0.38	95.06	211.46	0.64	0.57	9.26	0.31	5761070.00	559118.36	S 38 17 47.423	E 147 40 33.880
	216.47	0.36	92.81	216.46	0.67	0.57	9.29	0.15	5761070.00	559118.40	S 38 17 47.423	E 147 40 33.882
	221.47	0.34	92.83	221.46	0.70	0.56	9.32	0.12	5761069.99	559118.43	S 38 17 47.423	E 147 40 33.883
	226.47	0.34	90.38	226.46	0.72	0.56	9.35	0.09	5761069.99	559118.46	S 38 17 47.423	E 147 40 33.884
	231.47	0.32	86.48	231.46	0.75	0.56	9.38	0.18	5761069.99	559118.48	S 38 17 47.423	E 147 40 33.885
	236.47	0.30	77.83	236.46	0.78	0.57	9.40	0.30	5761070.00	559118.51	S 38 17 47.423	E 147 40 33.886
	241.47	0.20	66.63	241.46	0.80	0.57	9.43	0.67	5761070.00	559118.53	S 38 17 47.422	E 147 40 33.887
	246.47	0.17	69.07	246.46	0.82	0.58	9.44	0.19	5761070.01	559118.55	S 38 17 47.422	E 147 40 33.888
	251.47	0.16	45.72	251.46	0.83	0.59	9.45	0.40	5761070.02	559118.56	S 38 17 47.422	E 147 40 33.888

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
	256.47	0.13	17.37	256.46	0.84	0.60	9.46	0.46	5761070.03	559118.57	S 38 17 47.422	E 147 40 33.889
	261.47	0.17	24.63	261.46	0.85	0.61	9.46	0.27	5761070.04	559118.57	S 38 17 47.421	E 147 40 33.889
	266.47	0.15	13.51	266.46	0.85	0.62	9.47	0.22	5761070.05	559118.58	S 38 17 47.421	E 147 40 33.889
	271.47	0.16	38.25	271.46	0.86	0.63	9.47	0.40	5761070.06	559118.58	S 38 17 47.420	E 147 40 33.889
	276.47	0.13	11.08	276.46	0.87	0.65	9.48	0.44	5761070.08	559118.59	S 38 17 47.420	E 147 40 33.890
	281.47	0.16	8.83	281.46	0.88	0.66	9.48	0.18	5761070.09	559118.59	S 38 17 47.420	E 147 40 33.890
	286.47	0.12	139.36	286.46	0.88	0.66	9.49	1.53	5761070.09	559118.59	S 38 17 47.420	E 147 40 33.890
	291.47	0.07	253.94	291.46	0.88	0.66	9.49	0.97	5761070.09	559118.59	S 38 17 47.420	E 147 40 33.890
	296.47	0.09	220.83	296.46	0.87	0.65	9.48	0.30	5761070.08	559118.59	S 38 17 47.420	E 147 40 33.890
	301.47	0.09	212.54	301.46	0.87	0.65	9.48	0.08	5761070.08	559118.58	S 38 17 47.420	E 147 40 33.889
	306.47	0.12	235.70	306.46	0.86	0.64	9.47	0.31	5761070.07	559118.58	S 38 17 47.420	E 147 40 33.889
	311.47	0.15	223.98	311.46	0.85	0.63	9.46	0.24	5761070.06	559118.57	S 38 17 47.420	E 147 40 33.889
	316.47	0.19	226.16	316.46	0.84	0.62	9.45	0.24	5761070.05	559118.56	S 38 17 47.421	E 147 40 33.888
	321.47	0.22	229.44	321.46	0.82	0.61	9.44	0.19	5761070.04	559118.54	S 38 17 47.421	E 147 40 33.888
	326.47	0.23	226.68	326.46	0.80	0.60	9.42	0.09	5761070.03	559118.53	S 38 17 47.422	E 147 40 33.887
	331.47	0.24	232.66	331.46	0.79	0.58	9.41	0.16	5761070.01	559118.51	S 38 17 47.422	E 147 40 33.887
	336.47	0.25	233.35	336.46	0.77	0.57	9.39	0.06	5761070.00	559118.50	S 38 17 47.422	E 147 40 33.886
	341.47	0.24	234.39	341.46	0.75	0.56	9.37	0.07	5761069.99	559118.48	S 38 17 47.423	E 147 40 33.885
Tie-In	344.00	0.25	235.37	343.99	0.74	0.55	9.36	0.13	5761069.98	559118.47	S 38 17 47.423	E 147 40 33.885
GYRO	351.60	3.14	130.65	351.59	0.84	0.41	9.51	12.68	5761069.84	559118.62	S 38 17 47.428	E 147 40 33.891
	371.56	6.26	115.73	371.48	2.00	-0.42	10.90	5.00	5761069.01	559120.01	S 38 17 47.454	E 147 40 33.948
GYRO	400.60	10.44	98.23	400.21	5.67	-1.49	14.94	5.01	5761067.94	559124.04	S 38 17 47.488	E 147 40 34.115
	430.00	13.39	92.42	428.97	11.41	-2.01	20.98	3.25	5761067.42	559130.08	S 38 17 47.503	E 147 40 34.363
	458.41	16.35	82.38	456.43	18.55	-1.62	28.23	4.13	5761067.81	559137.33	S 38 17 47.489	E 147 40 34.662
	487.44	19.21	75.25	484.08	27.39	0.14	36.90	3.71	5761069.57	559146.00	S 38 17 47.430	E 147 40 35.018
	516.58	22.78	75.14	511.28	37.82	2.81	46.99	3.68	5761072.24	559156.09	S 38 17 47.341	E 147 40 35.433
	545.52	27.31	73.86	537.49	50.06	6.09	58.79	4.73	5761075.52	559167.88	S 38 17 47.232	E 147 40 35.917
	574.63	31.33	72.34	562.87	64.29	10.24	72.42	4.21	5761079.67	559181.51	S 38 17 47.094	E 147 40 36.477
	603.86	34.81	75.42	587.36	80.22	14.65	87.74	3.97	5761084.08	559196.82	S 38 17 46.947	E 147 40 37.106
	632.38	38.27	75.46	610.27	97.20	18.92	104.18	3.64	5761088.34	559213.25	S 38 17 46.805	E 147 40 37.781

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
	661.80	41.30	75.07	632.88	116.02	23.71	122.38	3.10	5761093.13	559231.45	S 38 17 46.645	E 147 40 38.529
	691.10	45.16	74.90	654.22	136.08	28.91	141.76	3.95	5761098.33	559250.82	S 38 17 46.472	E 147 40 39.325
	719.99	48.91	74.32	673.91	157.21	34.52	162.14	3.92	5761103.94	559271.19	S 38 17 46.285	E 147 40 40.162
	749.12	52.83	74.48	692.29	179.79	40.60	183.90	4.04	5761110.01	559292.94	S 38 17 46.083	E 147 40 41.055
	778.33	56.53	75.07	709.17	203.61	46.85	206.89	3.83	5761116.26	559315.93	S 38 17 45.875	E 147 40 42.000
	806.73	58.42	75.06	724.44	227.55	53.02	230.03	2.00	5761122.43	559339.06	S 38 17 45.669	E 147 40 42.950
	826.51	60.05	75.43	734.56	244.54	57.35	246.46	2.52	5761126.76	559355.49	S 38 17 45.525	E 147 40 43.625
	857.08	60.11	75.02	749.81	271.03	64.11	272.08	0.35	5761133.51	559381.10	S 38 17 45.299	E 147 40 44.677
	885.76	61.34	74.96	763.83	296.04	70.59	296.25	1.29	5761139.99	559405.25	S 38 17 45.084	E 147 40 45.669
	914.88	60.95	74.82	777.88	321.54	77.23	320.87	0.42	5761146.64	559429.86	S 38 17 44.862	E 147 40 46.681
	943.53	60.68	75.21	791.85	346.55	83.70	345.03	0.46	5761153.10	559454.02	S 38 17 44.647	E 147 40 47.673
	972.56	59.77	76.43	806.27	371.74	89.88	369.46	1.44	5761159.27	559478.44	S 38 17 44.441	E 147 40 48.676
	1001.50	59.54	77.10	820.89	396.72	95.59	393.77	0.65	5761164.99	559502.74	S 38 17 44.249	E 147 40 49.675
	1030.64	59.11	76.93	835.76	421.78	101.22	418.19	0.47	5761170.62	559527.15	S 38 17 44.061	E 147 40 50.678
	1059.78	57.85	76.77	850.99	446.62	106.88	442.38	1.30	5761176.27	559551.33	S 38 17 43.872	E 147 40 51.672
	1089.10	58.34	76.70	866.49	471.51	112.59	466.61	0.51	5761181.98	559575.55	S 38 17 43.681	E 147 40 52.667
	1118.03	59.62	78.08	881.40	496.29	118.00	490.80	1.81	5761187.39	559599.74	S 38 17 43.500	E 147 40 53.661
	1147.18	61.65	77.56	895.69	521.69	123.36	515.63	2.14	5761192.74	559624.56	S 38 17 43.320	E 147 40 54.682
	1176.44	62.74	77.42	909.34	547.56	128.96	540.90	1.12	5761198.35	559649.82	S 38 17 43.132	E 147 40 55.720
	1205.78	63.29	77.18	922.65	573.70	134.71	566.40	0.60	5761204.09	559675.31	S 38 17 42.939	E 147 40 56.768
	1234.53	63.22	77.02	935.59	599.37	140.44	591.43	0.17	5761209.82	559700.33	S 38 17 42.748	E 147 40 57.796
	1263.41	63.32	74.80	948.58	625.16	146.72	616.45	2.06	5761216.10	559725.34	S 38 17 42.538	E 147 40 58.823
	1292.28	62.74	73.74	961.67	650.88	153.70	641.21	1.15	5761223.07	559750.09	S 38 17 42.306	E 147 40 59.840
	1321.68	61.29	72.83	975.47	676.80	161.16	666.08	1.69	5761230.54	559774.95	S 38 17 42.058	E 147 41 0.861
	1350.51	60.59	72.52	989.47	701.96	168.67	690.13	0.78	5761238.04	559799.00	S 38 17 41.809	E 147 41 1.849
	1379.66	60.36	72.02	1003.84	727.26	176.39	714.29	0.51	5761245.76	559823.15	S 38 17 41.552	E 147 41 2.841
	1408.57	60.11	72.24	1018.19	752.29	184.09	738.18	0.33	5761253.46	559847.03	S 38 17 41.297	E 147 41 3.821
	1437.70	60.53	73.72	1032.62	777.56	191.50	762.38	1.39	5761260.86	559871.22	S 38 17 41.051	E 147 41 4.815
	1466.67	60.32	73.21	1046.91	802.72	198.67	786.53	0.51	5761268.03	559895.36	S 38 17 40.812	E 147 41 5.807

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
	1494.99	59.98	74.68	1061.01	827.26	205.46	810.14	1.40	5761274.82	559918.96	S 38 17 40.586	E 147 41 6.776
	1524.16	60.08	76.01	1075.58	852.53	211.86	834.58	1.19	5761281.21	559943.39	S 38 17 40.373	E 147 41 7.780
	1553.56	60.34	75.95	1090.19	878.04	218.04	859.34	0.27	5761287.39	559968.14	S 38 17 40.167	E 147 41 8.797
	1582.31	59.93	76.35	1104.51	902.97	224.01	883.54	0.56	5761293.36	559992.34	S 38 17 39.967	E 147 41 9.791
	1611.11	60.27	75.83	1118.86	927.94	230.01	907.78	0.59	5761299.36	560016.56	S 38 17 39.767	E 147 41 10.786
	1640.37	60.83	76.43	1133.25	953.42	236.12	932.51	0.79	5761305.46	560041.29	S 38 17 39.563	E 147 41 11.802
	1669.37	61.92	76.44	1147.14	978.87	242.09	957.26	1.13	5761311.43	560066.03	S 38 17 39.363	E 147 41 12.819
	1697.95	61.74	77.55	1160.63	1004.07	247.76	981.81	1.04	5761317.10	560090.57	S 38 17 39.174	E 147 41 13.827
	1727.34	61.10	76.95	1174.69	1029.87	253.45	1006.98	0.85	5761322.79	560115.73	S 38 17 38.983	E 147 41 14.861
	1756.52	60.74	76.03	1188.88	1055.37	259.41	1031.77	0.91	5761328.75	560140.52	S 38 17 38.784	E 147 41 15.880
	1785.84	61.68	75.81	1203.00	1081.07	265.66	1056.70	0.98	5761334.99	560165.43	S 38 17 38.575	E 147 41 16.904
	1814.73	60.60	74.63	1216.94	1106.36	272.11	1081.16	1.55	5761341.45	560189.89	S 38 17 38.360	E 147 41 17.908
	1843.93	59.17	75.44	1231.59	1131.62	278.64	1105.56	1.64	5761347.97	560214.28	S 38 17 38.142	E 147 41 18.911
	1873.01	60.22	75.24	1246.27	1156.72	284.99	1129.85	1.10	5761354.32	560238.56	S 38 17 37.930	E 147 41 19.908
	1901.51	60.30	75.12	1260.40	1181.46	291.32	1153.77	0.14	5761360.65	560262.47	S 38 17 37.719	E 147 41 20.891
	1930.50	59.14	74.53	1275.02	1206.49	297.87	1177.94	1.31	5761367.20	560286.63	S 38 17 37.501	E 147 41 21.883
	1959.59	60.04	74.44	1289.75	1231.56	304.58	1202.11	0.93	5761373.90	560310.79	S 38 17 37.277	E 147 41 22.876
	1988.62	60.66	73.85	1304.11	1256.77	311.48	1226.38	0.83	5761380.80	560335.05	S 38 17 37.048	E 147 41 23.872
	2017.48	61.16	73.65	1318.14	1281.97	318.53	1250.59	0.55	5761387.85	560359.25	S 38 17 36.813	E 147 41 24.866
	2046.69	59.38	74.45	1332.62	1307.31	325.50	1274.98	1.96	5761394.82	560383.63	S 38 17 36.581	E 147 41 25.868
	2075.98	59.44	74.58	1347.53	1332.52	332.24	1299.28	0.13	5761401.55	560407.92	S 38 17 36.357	E 147 41 26.865

**Survey Type:** Definitive Survey

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

**Surveying Prog:**

**MD From ( m )**

**MD To ( m ) EOU Freq Survey Tool Type**



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
	0.00			344.00	Act-Stns	SLB_CNSG+CASING						
	344.00			351.60	Act-Stns	SLB_PHOTO-GMS						
	351.60			371.56	Act-Stns	SLB_MWD-STD						
	371.56			400.60	Act-Stns	SLB_PHOTO-GMS						
	400.60			2075.98	Act-Stns	SLB_MWD-STD						

**APPENDIX 1b**  
**BARRACOUTA A4AST**  
**Survey Data**



## BTA-A4A ST Survey Report

**Report Date:** March 7, 2005

**Client:** Esso Australia Pty Ltd

**Field:** Barracouta GDA 94

**Structure / Slot:** Barracouta / 5

**Well:** A-4

**Borehole:** BTA A-4A ST

**UWI/API#:**

**Survey Name / Date:** BTA A-4A ST Survey / March 5, 2005

**Tort / AHD / DDI / ERD ratio:** 116.085° / 1386.21 m / 5.397 / 1.008

**Grid Coordinate System:** GDA94/MGA94 Zone 55

**Location Lat/Long:** S 38 17 47.414, E 147 40 33.851

**Location Grid N/E Y/X:** N 5761070.280 m, E 559117.640 m

**Grid Convergence Angle:** -0.41899350°

**Grid Scale Factor:** 0.99964304

**Survey / DLS Computation Method:** Minimum Curvature / Lubinski

**Vertical Section Azimuth:** 76.260°

**Vertical Section Origin:** N 0.850 m, E 8.533 m

**TVD Reference Datum:** Drillsite Elevation

**TVD Reference Elevation:** 55.9 m relative to MSL

**Sea Bed / Ground Level Elevation:** -46.320 m relative to MSL

**Magnetic Declination:** 12.974°

**Total Field Strength:** 60070.862 nT

**Magnetic Dip:** -68.871°

**Declination Date:** March 05, 2005

**Magnetic Declination Model:** BGGM 2004

**North Reference:** Grid North

**Total Corr Mag North -> Grid North:** +13.393°

**Local Coordinates Referenced To:** Structure Reference Point

Comments	Measured Depth ( m )	Inclination ( deg )	Azimuth ( deg )	TVD ( m )	Vertical Section ( m )	NS ( m )	EW ( m )	DLS ( deg/30 m )	Northing ( m )	Easting ( m )	Latitude	Longitude
Projected-Up	0.00	0.00	0.00	0.00	0.00	0.85	8.53	0.00	5761070.28	559117.64	S 38 17 47.414	E 147 40 33.851
Tie-In	31.47	0.00	0.00	31.47	0.00	0.85	8.53	0.00	5761070.28	559117.64	S 38 17 47.414	E 147 40 33.851
	66.47	0.76	286.62	66.47	-0.20	0.92	8.31	0.65	5761070.35	559117.42	S 38 17 47.412	E 147 40 33.841
	71.47	0.71	284.48	71.47	-0.26	0.93	8.25	0.34	5761070.36	559117.36	S 38 17 47.411	E 147 40 33.839
	76.47	0.39	272.29	76.47	-0.30	0.94	8.20	2.03	5761070.37	559117.31	S 38 17 47.411	E 147 40 33.837
	81.47	0.42	126.17	81.47	-0.30	0.93	8.20	4.65	5761070.36	559117.31	S 38 17 47.411	E 147 40 33.837
	86.47	0.45	111.50	86.47	-0.28	0.91	8.23	0.69	5761070.34	559117.34	S 38 17 47.412	E 147 40 33.838
	91.47	0.25	105.79	91.47	-0.25	0.90	8.26	1.22	5761070.33	559117.37	S 38 17 47.412	E 147 40 33.839
	96.47	0.35	113.23	96.47	-0.23	0.89	8.29	0.64	5761070.32	559117.39	S 38 17 47.412	E 147 40 33.840
	101.47	0.26	102.44	101.47	-0.21	0.89	8.31	0.64	5761070.32	559117.42	S 38 17 47.412	E 147 40 33.841
	106.47	0.29	108.71	106.47	-0.19	0.88	8.33	0.25	5761070.31	559117.44	S 38 17 47.413	E 147 40 33.842

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
	111.47	0.42	112.82	111.47	-0.16	0.87	8.36	0.79	5761070.30	559117.47	S 38 17 47.413	E 147 40 33.844
	116.47	0.57	109.96	116.47	-0.13	0.85	8.40	0.91	5761070.28	559117.51	S 38 17 47.414	E 147 40 33.845
	121.47	0.57	110.78	121.47	-0.08	0.84	8.45	0.05	5761070.27	559117.56	S 38 17 47.414	E 147 40 33.847
	126.47	0.59	114.03	126.47	-0.04	0.82	8.50	0.23	5761070.25	559117.60	S 38 17 47.415	E 147 40 33.849
	131.47	0.63	113.94	131.47	0.00	0.79	8.55	0.24	5761070.22	559117.65	S 38 17 47.415	E 147 40 33.851
	136.47	0.64	112.60	136.47	0.04	0.77	8.60	0.11	5761070.20	559117.70	S 38 17 47.416	E 147 40 33.853
	141.47	0.64	110.50	141.47	0.09	0.75	8.65	0.14	5761070.18	559117.76	S 38 17 47.417	E 147 40 33.855
	146.47	0.61	112.21	146.47	0.13	0.73	8.70	0.21	5761070.16	559117.81	S 38 17 47.417	E 147 40 33.857
	151.47	0.64	111.69	151.47	0.18	0.71	8.75	0.18	5761070.14	559117.86	S 38 17 47.418	E 147 40 33.859
	156.47	0.63	111.01	156.47	0.22	0.69	8.80	0.08	5761070.12	559117.91	S 38 17 47.419	E 147 40 33.862
	161.47	0.67	110.39	161.46	0.27	0.67	8.85	0.24	5761070.10	559117.96	S 38 17 47.419	E 147 40 33.864
	166.47	0.45	108.58	166.46	0.31	0.66	8.90	1.32	5761070.09	559118.01	S 38 17 47.420	E 147 40 33.866
	171.47	0.58	108.78	171.46	0.35	0.64	8.94	0.78	5761070.07	559118.05	S 38 17 47.420	E 147 40 33.867
	176.47	0.57	106.77	176.46	0.39	0.63	8.99	0.14	5761070.06	559118.10	S 38 17 47.421	E 147 40 33.869
	181.47	0.44	108.80	181.46	0.43	0.61	9.03	0.79	5761070.04	559118.14	S 38 17 47.421	E 147 40 33.871
	186.47	0.53	107.97	186.46	0.46	0.60	9.07	0.54	5761070.03	559118.18	S 38 17 47.422	E 147 40 33.873
	191.47	0.44	101.48	191.46	0.50	0.59	9.11	0.63	5761070.02	559118.22	S 38 17 47.422	E 147 40 33.874
	196.47	0.41	98.99	196.46	0.54	0.58	9.15	0.21	5761070.01	559118.26	S 38 17 47.422	E 147 40 33.876
	201.47	0.41	98.06	201.46	0.57	0.58	9.19	0.04	5761070.01	559118.29	S 38 17 47.422	E 147 40 33.877
	206.47	0.43	97.31	206.46	0.60	0.57	9.22	0.12	5761070.00	559118.33	S 38 17 47.422	E 147 40 33.879
	211.47	0.38	95.06	211.46	0.64	0.57	9.26	0.31	5761070.00	559118.36	S 38 17 47.423	E 147 40 33.880
	216.47	0.36	92.81	216.46	0.67	0.57	9.29	0.15	5761070.00	559118.40	S 38 17 47.423	E 147 40 33.882
	221.47	0.34	92.83	221.46	0.70	0.56	9.32	0.12	5761069.99	559118.43	S 38 17 47.423	E 147 40 33.883
	226.47	0.34	90.38	226.46	0.72	0.56	9.35	0.09	5761069.99	559118.46	S 38 17 47.423	E 147 40 33.884
	231.47	0.32	86.48	231.46	0.75	0.56	9.38	0.18	5761069.99	559118.48	S 38 17 47.423	E 147 40 33.885
	236.47	0.30	77.83	236.46	0.78	0.57	9.40	0.30	5761070.00	559118.51	S 38 17 47.423	E 147 40 33.886
	241.47	0.20	66.63	241.46	0.80	0.57	9.43	0.67	5761070.00	559118.53	S 38 17 47.422	E 147 40 33.887
	246.47	0.17	69.07	246.46	0.82	0.58	9.44	0.19	5761070.01	559118.55	S 38 17 47.422	E 147 40 33.888
	251.47	0.16	45.72	251.46	0.83	0.59	9.45	0.40	5761070.02	559118.56	S 38 17 47.422	E 147 40 33.888

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
	256.47	0.13	17.37	256.46	0.84	0.60	9.46	0.46	5761070.03	559118.57	S 38 17 47.422	E 147 40 33.889
	261.47	0.17	24.63	261.46	0.85	0.61	9.46	0.27	5761070.04	559118.57	S 38 17 47.421	E 147 40 33.889
	266.47	0.15	13.51	266.46	0.85	0.62	9.47	0.22	5761070.05	559118.58	S 38 17 47.421	E 147 40 33.889
	271.47	0.16	38.25	271.46	0.86	0.63	9.47	0.40	5761070.06	559118.58	S 38 17 47.420	E 147 40 33.889
	276.47	0.13	11.08	276.46	0.87	0.65	9.48	0.44	5761070.08	559118.59	S 38 17 47.420	E 147 40 33.890
	281.47	0.16	8.83	281.46	0.88	0.66	9.48	0.18	5761070.09	559118.59	S 38 17 47.420	E 147 40 33.890
	286.47	0.12	139.36	286.46	0.88	0.66	9.49	1.53	5761070.09	559118.59	S 38 17 47.420	E 147 40 33.890
	291.47	0.07	253.94	291.46	0.88	0.66	9.49	0.97	5761070.09	559118.59	S 38 17 47.420	E 147 40 33.890
	296.47	0.09	220.83	296.46	0.87	0.65	9.48	0.30	5761070.08	559118.59	S 38 17 47.420	E 147 40 33.890
	301.47	0.09	212.54	301.46	0.87	0.65	9.48	0.08	5761070.08	559118.58	S 38 17 47.420	E 147 40 33.889
	306.47	0.12	235.70	306.46	0.86	0.64	9.47	0.31	5761070.07	559118.58	S 38 17 47.420	E 147 40 33.889
	311.47	0.15	223.98	311.46	0.85	0.63	9.46	0.24	5761070.06	559118.57	S 38 17 47.420	E 147 40 33.889
	316.47	0.19	226.16	316.46	0.84	0.62	9.45	0.24	5761070.05	559118.56	S 38 17 47.421	E 147 40 33.888
	321.47	0.22	229.44	321.46	0.82	0.61	9.44	0.19	5761070.04	559118.54	S 38 17 47.421	E 147 40 33.888
	326.47	0.23	226.68	326.46	0.80	0.60	9.42	0.09	5761070.03	559118.53	S 38 17 47.422	E 147 40 33.887
	331.47	0.24	232.66	331.46	0.79	0.58	9.41	0.16	5761070.01	559118.51	S 38 17 47.422	E 147 40 33.887
	336.47	0.25	233.35	336.46	0.77	0.57	9.39	0.06	5761070.00	559118.50	S 38 17 47.422	E 147 40 33.886
	341.47	0.24	234.39	341.46	0.75	0.56	9.37	0.07	5761069.99	559118.48	S 38 17 47.423	E 147 40 33.885
Tie-In	344.00	0.25	235.37	343.99	0.74	0.55	9.36	0.13	5761069.98	559118.47	S 38 17 47.423	E 147 40 33.885
GYRO	351.60	3.14	130.65	351.59	0.84	0.41	9.51	12.68	5761069.84	559118.62	S 38 17 47.428	E 147 40 33.891
	371.56	6.26	115.73	371.48	2.00	-0.42	10.90	5.00	5761069.01	559120.01	S 38 17 47.454	E 147 40 33.948
GYRO	400.60	10.44	98.23	400.21	5.67	-1.49	14.94	5.01	5761067.94	559124.04	S 38 17 47.488	E 147 40 34.115
	430.00	13.39	92.42	428.97	11.41	-2.01	20.98	3.25	5761067.42	559130.08	S 38 17 47.503	E 147 40 34.363
	458.41	16.35	82.38	456.43	18.55	-1.62	28.23	4.13	5761067.81	559137.33	S 38 17 47.489	E 147 40 34.662
	487.44	19.21	75.25	484.08	27.39	0.14	36.90	3.71	5761069.57	559146.00	S 38 17 47.430	E 147 40 35.018
	516.58	22.78	75.14	511.28	37.82	2.81	46.99	3.68	5761072.24	559156.09	S 38 17 47.341	E 147 40 35.433
	545.52	27.31	73.86	537.49	50.06	6.09	58.79	4.73	5761075.52	559167.88	S 38 17 47.232	E 147 40 35.917
	574.63	31.33	72.34	562.87	64.29	10.24	72.42	4.21	5761079.67	559181.51	S 38 17 47.094	E 147 40 36.477
	603.86	34.81	75.42	587.36	80.22	14.65	87.74	3.97	5761084.08	559196.82	S 38 17 46.947	E 147 40 37.106
	632.38	38.27	75.46	610.27	97.20	18.92	104.18	3.64	5761088.34	559213.25	S 38 17 46.805	E 147 40 37.781

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
	661.80	41.30	75.07	632.88	116.02	23.71	122.38	3.10	5761093.13	559231.45	S 38 17 46.645	E 147 40 38.529
	691.10	45.16	74.90	654.22	136.08	28.91	141.76	3.95	5761098.33	559250.82	S 38 17 46.472	E 147 40 39.325
	719.99	48.91	74.32	673.91	157.21	34.52	162.14	3.92	5761103.94	559271.19	S 38 17 46.285	E 147 40 40.162
	749.12	52.83	74.48	692.29	179.79	40.60	183.90	4.04	5761110.01	559292.94	S 38 17 46.083	E 147 40 41.055
	778.33	56.53	75.07	709.17	203.61	46.85	206.89	3.83	5761116.26	559315.93	S 38 17 45.875	E 147 40 42.000
	806.73	58.42	75.06	724.44	227.55	53.02	230.03	2.00	5761122.43	559339.06	S 38 17 45.669	E 147 40 42.950
	826.51	60.05	75.43	734.56	244.54	57.35	246.46	2.52	5761126.76	559355.49	S 38 17 45.525	E 147 40 43.625
	857.08	60.11	75.02	749.81	271.03	64.11	272.08	0.35	5761133.51	559381.10	S 38 17 45.299	E 147 40 44.677
	885.76	61.34	74.96	763.83	296.04	70.59	296.25	1.29	5761139.99	559405.25	S 38 17 45.084	E 147 40 45.669
	914.88	60.95	74.82	777.88	321.54	77.23	320.87	0.42	5761146.64	559429.86	S 38 17 44.862	E 147 40 46.681
	943.53	60.68	75.21	791.85	346.55	83.70	345.03	0.46	5761153.10	559454.02	S 38 17 44.647	E 147 40 47.673
	972.56	59.77	76.43	806.27	371.74	89.88	369.46	1.44	5761159.27	559478.44	S 38 17 44.441	E 147 40 48.676
	1001.50	59.54	77.10	820.89	396.72	95.59	393.77	0.65	5761164.99	559502.74	S 38 17 44.249	E 147 40 49.675
	1030.64	59.11	76.93	835.76	421.78	101.22	418.19	0.47	5761170.62	559527.15	S 38 17 44.061	E 147 40 50.678
	1059.78	57.85	76.77	850.99	446.62	106.88	442.38	1.30	5761176.27	559551.33	S 38 17 43.872	E 147 40 51.672
	1089.10	58.34	76.70	866.49	471.51	112.59	466.61	0.51	5761181.98	559575.55	S 38 17 43.681	E 147 40 52.667
	1118.03	59.62	78.08	881.40	496.29	118.00	490.80	1.81	5761187.39	559599.74	S 38 17 43.500	E 147 40 53.661
	1147.18	61.65	77.56	895.69	521.69	123.36	515.63	2.14	5761192.74	559624.56	S 38 17 43.320	E 147 40 54.682
	1176.44	62.74	77.42	909.34	547.56	128.96	540.90	1.12	5761198.35	559649.82	S 38 17 43.132	E 147 40 55.720
	1205.78	63.29	77.18	922.65	573.70	134.71	566.40	0.60	5761204.09	559675.31	S 38 17 42.939	E 147 40 56.768
	1234.53	63.22	77.02	935.59	599.37	140.44	591.43	0.17	5761209.82	559700.33	S 38 17 42.748	E 147 40 57.796
	1263.41	63.32	74.80	948.58	625.16	146.72	616.45	2.06	5761216.10	559725.34	S 38 17 42.538	E 147 40 58.823
	1292.28	62.74	73.74	961.67	650.88	153.70	641.21	1.15	5761223.07	559750.09	S 38 17 42.306	E 147 40 59.840
	1321.68	61.29	72.83	975.47	676.80	161.16	666.08	1.69	5761230.54	559774.95	S 38 17 42.058	E 147 41 0.861
	1350.51	60.59	72.52	989.47	701.96	168.67	690.13	0.78	5761238.04	559799.00	S 38 17 41.809	E 147 41 1.849
	1379.66	60.36	72.02	1003.84	727.26	176.39	714.29	0.51	5761245.76	559823.15	S 38 17 41.552	E 147 41 2.841
	1408.57	60.11	72.24	1018.19	752.29	184.09	738.18	0.33	5761253.46	559847.03	S 38 17 41.297	E 147 41 3.821
	1437.70	60.53	73.72	1032.62	777.56	191.50	762.38	1.39	5761260.86	559871.22	S 38 17 41.051	E 147 41 4.815
	1466.67	60.32	73.21	1046.91	802.72	198.67	786.53	0.51	5761268.03	559895.36	S 38 17 40.812	E 147 41 5.807

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
	1494.99	59.98	74.68	1061.01	827.26	205.46	810.14	1.40	5761274.82	559918.96	S 38 17 40.586	E 147 41 6.776
	1524.16	60.08	76.01	1075.58	852.53	211.86	834.58	1.19	5761281.21	559943.39	S 38 17 40.373	E 147 41 7.780
	1553.56	60.34	75.95	1090.19	878.04	218.04	859.34	0.27	5761287.39	559968.14	S 38 17 40.167	E 147 41 8.797
	1582.31	59.93	76.35	1104.51	902.97	224.01	883.54	0.56	5761293.36	559992.34	S 38 17 39.967	E 147 41 9.791
	1611.11	60.27	75.83	1118.86	927.94	230.01	907.78	0.59	5761299.36	560016.56	S 38 17 39.767	E 147 41 10.786
	1640.37	60.83	76.43	1133.25	953.42	236.12	932.51	0.79	5761305.46	560041.29	S 38 17 39.563	E 147 41 11.802
	1669.37	61.92	76.44	1147.14	978.87	242.09	957.26	1.13	5761311.43	560066.03	S 38 17 39.363	E 147 41 12.819
	1697.95	61.74	77.55	1160.63	1004.07	247.76	981.81	1.04	5761317.10	560090.57	S 38 17 39.174	E 147 41 13.827
	1727.34	61.10	76.95	1174.69	1029.87	253.45	1006.98	0.85	5761322.79	560115.73	S 38 17 38.983	E 147 41 14.861
	1756.52	60.74	76.03	1188.88	1055.37	259.41	1031.77	0.91	5761328.75	560140.52	S 38 17 38.784	E 147 41 15.880
	1785.84	61.68	75.81	1203.00	1081.07	265.66	1056.70	0.98	5761334.99	560165.43	S 38 17 38.575	E 147 41 16.904
	1814.73	60.60	74.63	1216.94	1106.36	272.11	1081.16	1.55	5761341.45	560189.89	S 38 17 38.360	E 147 41 17.908
	1843.93	59.17	75.44	1231.59	1131.62	278.64	1105.56	1.64	5761347.97	560214.28	S 38 17 38.142	E 147 41 18.911
	1873.01	60.22	75.24	1246.27	1156.72	284.99	1129.85	1.10	5761354.32	560238.56	S 38 17 37.930	E 147 41 19.908
Tie-In	1901.51	60.30	75.12	1260.40	1181.46	291.32	1153.77	0.14	5761360.65	560262.47	S 38 17 37.719	E 147 41 20.891
	1930.45	57.71	75.01	1275.30	1206.26	297.71	1177.74	2.69	5761367.04	560286.43	S 38 17 37.506	E 147 41 21.875
	1959.57	61.45	74.05	1290.05	1231.36	304.41	1201.94	3.95	5761373.73	560310.62	S 38 17 37.283	E 147 41 22.869
	1988.76	61.26	74.58	1304.04	1256.96	311.34	1226.60	0.52	5761380.66	560335.27	S 38 17 37.052	E 147 41 23.881
	2016.21	59.94	74.18	1317.52	1280.86	317.78	1249.63	1.49	5761387.09	560358.30	S 38 17 36.838	E 147 41 24.827
	2047.03	60.93	73.76	1332.72	1307.64	325.18	1275.40	1.03	5761394.49	560384.05	S 38 17 36.592	E 147 41 25.885
	2075.72	59.49	73.40	1346.98	1332.51	332.22	1299.28	1.54	5761401.53	560407.93	S 38 17 36.358	E 147 41 26.866
	2104.69	60.28	74.27	1361.51	1357.55	339.19	1323.35	1.13	5761408.50	560431.99	S 38 17 36.126	E 147 41 27.854
	2133.61	61.55	74.59	1375.57	1382.81	345.98	1347.69	1.35	5761415.28	560456.32	S 38 17 35.900	E 147 41 28.854

**Survey Type:** Definitive Survey

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

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
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**Surveying Prog:**

<u>MD From ( m )</u>	<u>MD To ( m )</u>	<u>EOU Freq</u>	<u>Survey Tool Type</u>
0.00	344.00	Act-Stns	SLB_CNSG+CASING
344.00	351.60	Act-Stns	SLB_PHOTO-GMS
351.60	371.56	Act-Stns	SLB_MWD-STD
371.56	400.60	Act-Stns	SLB_PHOTO-GMS
400.60	2133.61	Act-Stns	SLB_MWD-STD



**APPENDIX 1c**  
**BARRACOUTA A4AST1**  
**Survey Data**

## A4A ST 1 Survey Report

**Report Date:** March 17, 2005

**Client:** Esso Australia Pty Ltd

**Field:** Barracouta

**Structure / Slot:** Barracouta / 5

**Well:** A4

**Borehole:** A4A ST 1

**UWI/API#:**

**Survey Name / Date:** A4A ST 1 / March 14, 2005

**Tort / AHD / DDI / ERD ratio:** 125.403° / 1618.26 m / 6.033 / 1.101

**Grid Coordinate System:** GDA94/MGA94 Zone 55

**Location Lat/Long:** S 38 17 47.413, E 147 40 33.851

**Location Grid N/E Y/X:** N 5761070.286 m, E 559117.650 m

**Grid Convergence Angle:** -0.41899357°

**Grid Scale Factor:** 0.99964304

**Survey / DLS Computation Method:** Minimum Curvature / Lubinski

**Vertical Section Azimuth:** 76.260°

**Vertical Section Origin:** N 0.850 m, E 8.533 m

**TVD Reference Datum:** RKB

**TVD Reference Elevation:** 55.9 m relative to MSL

**Sea Bed / Ground Level Elevation:** -46.320 m relative to MSL

**Magnetic Declination:** 12.975°

**Total Field Strength:** 60070.177 nT

**Magnetic Dip:** -68.871°

**Declination Date:** March 14, 2005

**Magnetic Declination Model:** BGGM 2004

**North Reference:** Grid North

**Total Corr Mag North -> Grid North:** +13.394°

**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
	0.00	0.00	0.00	0.00	0.00	0.85	8.53	0.00	5761070.29	559117.65	S 38 17 47.413	E 147 40 33.851
	30.00	0.00	0.00	30.00	0.00	0.85	8.53	0.00	5761070.29	559117.65	S 38 17 47.413	E 147 40 33.851
	31.47	0.00	0.00	31.47	0.00	0.85	8.53	0.00	5761070.29	559117.65	S 38 17 47.413	E 147 40 33.851
	60.00	0.62	286.62	60.00	-0.13	0.89	8.39	0.65	5761070.33	559117.50	S 38 17 47.412	E 147 40 33.845
	66.47	0.76	286.62	66.47	-0.20	0.92	8.31	0.65	5761070.35	559117.43	S 38 17 47.411	E 147 40 33.842
	71.47	0.71	284.48	71.47	-0.26	0.93	8.25	0.34	5761070.37	559117.37	S 38 17 47.411	E 147 40 33.839
	76.47	0.39	272.29	76.47	-0.30	0.94	8.20	2.03	5761070.38	559117.32	S 38 17 47.411	E 147 40 33.837
	81.47	0.42	126.17	81.47	-0.30	0.93	8.20	4.65	5761070.37	559117.32	S 38 17 47.411	E 147 40 33.837
	86.47	0.45	111.50	86.47	-0.28	0.91	8.23	0.69	5761070.35	559117.35	S 38 17 47.411	E 147 40 33.839
	90.00	0.31	108.24	90.00	-0.26	0.91	8.25	1.20	5761070.34	559117.37	S 38 17 47.412	E 147 40 33.839
	91.47	0.25	105.79	91.47	-0.25	0.90	8.26	1.25	5761070.34	559117.38	S 38 17 47.412	E 147 40 33.840

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
	96.47	0.35	113.23	96.47	-0.23	0.89	8.29	0.64	5761070.33	559117.40	S 38 17 47.412	E 147 40 33.841
	101.47	0.26	102.44	101.47	-0.21	0.89	8.31	0.64	5761070.32	559117.43	S 38 17 47.412	E 147 40 33.842
	106.47	0.29	108.71	106.47	-0.19	0.88	8.33	0.25	5761070.32	559117.45	S 38 17 47.412	E 147 40 33.843
	111.47	0.42	112.82	111.47	-0.16	0.87	8.36	0.79	5761070.30	559117.48	S 38 17 47.413	E 147 40 33.844
	116.47	0.57	109.96	116.47	-0.13	0.85	8.40	0.91	5761070.29	559117.52	S 38 17 47.413	E 147 40 33.846
	120.00	0.57	110.54	120.00	-0.10	0.84	8.44	0.05	5761070.28	559117.55	S 38 17 47.414	E 147 40 33.847
	121.47	0.57	110.78	121.47	-0.08	0.84	8.45	0.05	5761070.27	559117.57	S 38 17 47.414	E 147 40 33.847
	126.47	0.59	114.03	126.47	-0.04	0.82	8.50	0.23	5761070.25	559117.61	S 38 17 47.415	E 147 40 33.849
	131.47	0.63	113.94	131.47	0.00	0.79	8.55	0.24	5761070.23	559117.66	S 38 17 47.415	E 147 40 33.851
	136.47	0.64	112.60	136.47	0.04	0.77	8.60	0.11	5761070.21	559117.71	S 38 17 47.416	E 147 40 33.854
	141.47	0.64	110.50	141.47	0.09	0.75	8.65	0.14	5761070.19	559117.76	S 38 17 47.417	E 147 40 33.856
	146.47	0.61	112.21	146.47	0.13	0.73	8.70	0.21	5761070.17	559117.82	S 38 17 47.417	E 147 40 33.858
	150.00	0.63	111.84	150.00	0.16	0.72	8.73	0.17	5761070.15	559117.85	S 38 17 47.418	E 147 40 33.859
	151.47	0.64	111.69	151.47	0.18	0.71	8.75	0.21	5761070.15	559117.87	S 38 17 47.418	E 147 40 33.860
	156.47	0.63	111.01	156.47	0.22	0.69	8.80	0.08	5761070.13	559117.92	S 38 17 47.418	E 147 40 33.862
	161.47	0.67	110.39	161.46	0.27	0.67	8.85	0.24	5761070.11	559117.97	S 38 17 47.419	E 147 40 33.864
	166.47	0.45	108.58	166.46	0.31	0.66	8.90	1.32	5761070.09	559118.02	S 38 17 47.420	E 147 40 33.866
	171.47	0.58	108.78	171.46	0.35	0.64	8.94	0.78	5761070.08	559118.06	S 38 17 47.420	E 147 40 33.868
	176.47	0.57	106.77	176.46	0.39	0.63	8.99	0.14	5761070.06	559118.11	S 38 17 47.421	E 147 40 33.870
	180.00	0.48	108.09	179.99	0.42	0.62	9.02	0.77	5761070.05	559118.14	S 38 17 47.421	E 147 40 33.871
	181.47	0.44	108.80	181.46	0.43	0.61	9.03	0.82	5761070.05	559118.15	S 38 17 47.421	E 147 40 33.872
	186.47	0.53	107.97	186.46	0.46	0.60	9.07	0.54	5761070.03	559118.19	S 38 17 47.421	E 147 40 33.873
	191.47	0.44	101.48	191.46	0.50	0.59	9.11	0.63	5761070.02	559118.23	S 38 17 47.422	E 147 40 33.875
	196.47	0.41	98.99	196.46	0.54	0.58	9.15	0.21	5761070.02	559118.27	S 38 17 47.422	E 147 40 33.876
	201.47	0.41	98.06	201.46	0.57	0.58	9.19	0.04	5761070.01	559118.30	S 38 17 47.422	E 147 40 33.878
	206.47	0.43	97.31	206.46	0.60	0.57	9.22	0.12	5761070.01	559118.34	S 38 17 47.422	E 147 40 33.879
	210.00	0.39	95.78	209.99	0.63	0.57	9.25	0.35	5761070.00	559118.36	S 38 17 47.422	E 147 40 33.880
	211.47	0.38	95.06	211.46	0.64	0.57	9.26	0.23	5761070.00	559118.37	S 38 17 47.422	E 147 40 33.881
	216.47	0.36	92.81	216.46	0.67	0.57	9.29	0.15	5761070.00	559118.41	S 38 17 47.422	E 147 40 33.882

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
	221.47	0.34	92.83	221.46	0.70	0.56	9.32	0.12	5761070.00	559118.44	S 38 17 47.423	E 147 40 33.883
	226.47	0.34	90.38	226.46	0.72	0.56	9.35	0.09	5761070.00	559118.47	S 38 17 47.423	E 147 40 33.885
	231.47	0.32	86.48	231.46	0.75	0.56	9.38	0.18	5761070.00	559118.49	S 38 17 47.422	E 147 40 33.886
	236.47	0.30	77.83	236.46	0.78	0.57	9.40	0.30	5761070.00	559118.52	S 38 17 47.422	E 147 40 33.887
	240.00	0.23	70.93	239.99	0.80	0.57	9.42	0.65	5761070.01	559118.54	S 38 17 47.422	E 147 40 33.888
	241.47	0.20	66.63	241.46	0.80	0.57	9.43	0.69	5761070.01	559118.54	S 38 17 47.422	E 147 40 33.888
	246.47	0.17	69.07	246.46	0.82	0.58	9.44	0.19	5761070.02	559118.56	S 38 17 47.422	E 147 40 33.888
	251.47	0.16	45.72	251.46	0.83	0.59	9.45	0.40	5761070.02	559118.57	S 38 17 47.422	E 147 40 33.889
	256.47	0.13	17.37	256.46	0.84	0.60	9.46	0.46	5761070.03	559118.58	S 38 17 47.421	E 147 40 33.889
	261.47	0.17	24.63	261.46	0.85	0.61	9.46	0.27	5761070.05	559118.58	S 38 17 47.421	E 147 40 33.889
	266.47	0.15	13.51	266.46	0.85	0.62	9.47	0.22	5761070.06	559118.58	S 38 17 47.421	E 147 40 33.889
	270.00	0.15	31.37	269.99	0.86	0.63	9.47	0.40	5761070.07	559118.59	S 38 17 47.420	E 147 40 33.890
	271.47	0.16	38.25	271.46	0.86	0.63	9.47	0.43	5761070.07	559118.59	S 38 17 47.420	E 147 40 33.890
	276.47	0.13	11.08	276.46	0.87	0.65	9.48	0.44	5761070.08	559118.60	S 38 17 47.420	E 147 40 33.890
	281.47	0.16	8.83	281.46	0.88	0.66	9.48	0.18	5761070.09	559118.60	S 38 17 47.419	E 147 40 33.890
	286.47	0.12	139.36	286.46	0.88	0.66	9.49	1.53	5761070.10	559118.60	S 38 17 47.419	E 147 40 33.890
	291.47	0.07	253.94	291.46	0.88	0.66	9.49	0.97	5761070.09	559118.60	S 38 17 47.419	E 147 40 33.890
	296.47	0.09	220.83	296.46	0.87	0.65	9.48	0.30	5761070.09	559118.60	S 38 17 47.420	E 147 40 33.890
	300.00	0.09	214.97	299.99	0.87	0.65	9.48	0.08	5761070.08	559118.59	S 38 17 47.420	E 147 40 33.890
	301.47	0.09	212.54	301.46	0.87	0.65	9.48	0.08	5761070.08	559118.59	S 38 17 47.420	E 147 40 33.890
	306.47	0.12	235.70	306.46	0.86	0.64	9.47	0.31	5761070.08	559118.59	S 38 17 47.420	E 147 40 33.890
	311.47	0.15	223.98	311.46	0.85	0.63	9.46	0.24	5761070.07	559118.58	S 38 17 47.420	E 147 40 33.889
	316.47	0.19	226.16	316.46	0.84	0.62	9.45	0.24	5761070.06	559118.57	S 38 17 47.421	E 147 40 33.889
	321.47	0.22	229.44	321.46	0.82	0.61	9.44	0.19	5761070.05	559118.55	S 38 17 47.421	E 147 40 33.888
	326.47	0.23	226.68	326.46	0.80	0.60	9.42	0.09	5761070.03	559118.54	S 38 17 47.421	E 147 40 33.888
	330.00	0.24	230.96	329.99	0.79	0.59	9.41	0.17	5761070.02	559118.53	S 38 17 47.422	E 147 40 33.887
	331.47	0.24	232.66	331.46	0.79	0.58	9.41	0.15	5761070.02	559118.52	S 38 17 47.422	E 147 40 33.887
	336.47	0.25	233.35	336.46	0.77	0.57	9.39	0.06	5761070.01	559118.51	S 38 17 47.422	E 147 40 33.886
	341.47	0.24	234.39	341.46	0.75	0.56	9.37	0.07	5761069.99	559118.49	S 38 17 47.423	E 147 40 33.886
	344.00	0.25	235.37	343.99	0.74	0.55	9.36	0.13	5761069.99	559118.48	S 38 17 47.423	E 147 40 33.885

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	351.60	3.14	130.65	351.59	0.84	0.41	9.51	12.68	5761069.84	559118.62	S 38 17 47.428	E 147 40 33.891
	371.56	6.26	115.73	371.48	2.00	-0.42	10.90	5.00	5761069.01	559120.02	S 38 17 47.454	E 147 40 33.949
	400.60	10.44	98.23	400.21	5.66	-1.49	14.94	5.01	5761067.95	559124.05	S 38 17 47.488	E 147 40 34.115
	430.00	13.39	92.42	428.97	11.41	-2.01	20.98	3.25	5761067.42	559130.09	S 38 17 47.503	E 147 40 34.364
	458.41	16.35	82.38	456.43	18.54	-1.62	28.23	4.13	5761067.82	559137.34	S 38 17 47.489	E 147 40 34.662
	487.44	19.21	75.25	484.08	27.39	0.14	36.90	3.71	5761069.57	559146.01	S 38 17 47.430	E 147 40 35.018
	516.58	22.78	75.14	511.28	37.82	2.81	46.99	3.68	5761072.24	559156.09	S 38 17 47.341	E 147 40 35.433
	545.52	27.31	73.86	537.49	50.06	6.09	58.79	4.73	5761075.52	559167.89	S 38 17 47.232	E 147 40 35.918
	574.63	31.33	72.34	562.87	64.29	10.24	72.42	4.21	5761079.68	559181.52	S 38 17 47.094	E 147 40 36.477
	603.86	34.81	75.42	587.36	80.22	14.65	87.74	3.97	5761084.08	559196.83	S 38 17 46.947	E 147 40 37.106
	632.38	38.27	75.46	610.27	97.20	18.92	104.18	3.64	5761088.35	559213.26	S 38 17 46.805	E 147 40 37.781
	661.80	41.30	75.07	632.88	116.02	23.71	122.38	3.10	5761093.14	559231.46	S 38 17 46.645	E 147 40 38.529
	691.10	45.16	74.90	654.22	136.08	28.91	141.76	3.95	5761098.33	559250.83	S 38 17 46.472	E 147 40 39.325
	719.99	48.91	74.32	673.91	157.21	34.52	162.14	3.92	5761103.94	559271.20	S 38 17 46.285	E 147 40 40.162
	749.12	52.83	74.48	692.29	179.79	40.60	183.90	4.04	5761110.02	559292.95	S 38 17 46.083	E 147 40 41.056
	778.33	56.53	75.07	709.17	203.61	46.85	206.89	3.83	5761116.27	559315.94	S 38 17 45.874	E 147 40 42.000
	806.73	58.42	75.06	724.44	227.55	53.02	230.03	2.00	5761122.44	559339.07	S 38 17 45.669	E 147 40 42.950
	826.51	60.05	75.43	734.56	244.54	57.35	246.46	2.52	5761126.77	559355.49	S 38 17 45.525	E 147 40 43.625
	857.08	60.11	75.02	749.81	271.03	64.11	272.08	0.35	5761133.52	559381.11	S 38 17 45.299	E 147 40 44.677
	885.76	61.34	74.96	763.83	296.04	70.59	296.25	1.29	5761140.00	559405.26	S 38 17 45.083	E 147 40 45.670
	914.88	60.95	74.82	777.88	321.54	77.23	320.87	0.42	5761146.64	559429.87	S 38 17 44.862	E 147 40 46.681
	943.53	60.68	75.21	791.85	346.55	83.70	345.03	0.46	5761153.11	559454.03	S 38 17 44.646	E 147 40 47.673
	972.56	59.77	76.43	806.27	371.74	89.88	369.46	1.44	5761159.28	559478.45	S 38 17 44.440	E 147 40 48.677
	1001.50	59.54	77.10	820.89	396.72	95.59	393.77	0.65	5761165.00	559502.75	S 38 17 44.249	E 147 40 49.676
	1030.64	59.11	76.93	835.76	421.78	101.22	418.19	0.47	5761170.62	559527.16	S 38 17 44.061	E 147 40 50.679
	1059.78	57.85	76.77	850.99	446.62	106.88	442.38	1.30	5761176.27	559551.34	S 38 17 43.872	E 147 40 51.673
	1089.10	58.34	76.70	866.49	471.50	112.59	466.61	0.51	5761181.98	559575.56	S 38 17 43.681	E 147 40 52.668
	1118.03	59.62	78.08	881.40	496.29	118.00	490.80	1.81	5761187.39	559599.75	S 38 17 43.499	E 147 40 53.662
	1147.18	61.65	77.56	895.69	521.69	123.36	515.63	2.14	5761192.75	559624.57	S 38 17 43.320	E 147 40 54.682

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	1176.44	62.74	77.42	909.34	547.56	128.96	540.90	1.12	5761198.35	559649.83	S 38 17 43.132	E 147 40 55.720
	1205.78	63.29	77.18	922.65	573.70	134.71	566.40	0.60	5761204.10	559675.32	S 38 17 42.939	E 147 40 56.768
	1234.53	63.22	77.02	935.59	599.37	140.44	591.43	0.17	5761209.83	559700.34	S 38 17 42.747	E 147 40 57.796
	1263.41	63.32	74.80	948.58	625.16	146.72	616.45	2.06	5761216.11	559725.35	S 38 17 42.538	E 147 40 58.824
	1292.28	62.74	73.74	961.67	650.88	153.70	641.21	1.15	5761223.08	559750.10	S 38 17 42.306	E 147 40 59.841
	1321.68	61.29	72.83	975.47	676.80	161.16	666.08	1.69	5761230.54	559774.96	S 38 17 42.057	E 147 41 0.862
	1350.51	60.59	72.52	989.47	701.96	168.67	690.13	0.78	5761238.04	559799.01	S 38 17 41.808	E 147 41 1.849
	1379.66	60.36	72.02	1003.84	727.26	176.39	714.29	0.51	5761245.76	559823.16	S 38 17 41.552	E 147 41 2.841
	1408.57	60.11	72.24	1018.19	752.29	184.09	738.18	0.33	5761253.46	559847.04	S 38 17 41.297	E 147 41 3.822
	1437.70	60.53	73.72	1032.62	777.55	191.50	762.38	1.39	5761260.87	559871.23	S 38 17 41.051	E 147 41 4.815
	1466.67	60.32	73.21	1046.91	802.72	198.67	786.53	0.51	5761268.04	559895.37	S 38 17 40.812	E 147 41 5.807
	1494.99	59.98	74.68	1061.01	827.26	205.46	810.13	1.40	5761274.83	559918.97	S 38 17 40.586	E 147 41 6.776
	1524.16	60.08	76.01	1075.58	852.53	211.86	834.58	1.19	5761281.22	559943.40	S 38 17 40.373	E 147 41 7.780
	1553.56	60.34	75.95	1090.19	878.04	218.04	859.34	0.27	5761287.40	559968.15	S 38 17 40.167	E 147 41 8.797
	1582.31	59.93	76.35	1104.51	902.97	224.01	883.54	0.56	5761293.36	559992.35	S 38 17 39.967	E 147 41 9.791
	1611.11	60.27	75.83	1118.86	927.94	230.01	907.78	0.59	5761299.36	560016.57	S 38 17 39.767	E 147 41 10.787
	1640.37	60.83	76.43	1133.25	953.42	236.12	932.51	0.79	5761305.47	560041.30	S 38 17 39.563	E 147 41 11.803
	1669.37	61.92	76.44	1147.14	978.87	242.09	957.26	1.13	5761311.44	560066.04	S 38 17 39.363	E 147 41 12.819
	1697.95	61.74	77.55	1160.63	1004.07	247.76	981.81	1.04	5761317.10	560090.58	S 38 17 39.173	E 147 41 13.828
	1727.34	61.10	76.95	1174.69	1029.87	253.45	1006.98	0.85	5761322.80	560115.74	S 38 17 38.983	E 147 41 14.862
	1756.52	60.74	76.03	1188.88	1055.37	259.41	1031.77	0.91	5761328.75	560140.53	S 38 17 38.783	E 147 41 15.880
Kick - Off Point	1785.84	61.68	75.81	1203.00	1081.07	265.66	1056.70	0.98	5761335.00	560165.44	S 38 17 38.575	E 147 41 16.904
	1814.23	57.20	74.16	1217.43	1105.50	271.98	1080.30	4.97	5761341.32	560189.04	S 38 17 38.364	E 147 41 17.874
	1843.16	57.02	72.03	1233.14	1129.75	279.05	1103.55	1.86	5761348.38	560212.27	S 38 17 38.129	E 147 41 18.828
	1872.16	57.83	71.34	1248.75	1154.11	286.73	1126.75	1.03	5761356.06	560235.46	S 38 17 37.874	E 147 41 19.780
	1901.10	57.66	69.45	1264.20	1178.46	294.94	1149.80	1.67	5761364.27	560258.51	S 38 17 37.603	E 147 41 20.726
	1930.35	58.78	68.17	1279.60	1203.11	303.93	1172.98	1.60	5761373.25	560281.68	S 38 17 37.306	E 147 41 21.677
	1959.63	59.31	69.74	1294.67	1228.02	312.94	1196.41	1.48	5761382.27	560305.11	S 38 17 37.007	E 147 41 22.639
	1989.00	60.00	69.71	1309.50	1253.20	321.72	1220.19	0.71	5761391.05	560328.87	S 38 17 36.717	E 147 41 23.615

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	2017.89	60.94	69.71	1323.74	1278.17	330.44	1243.77	0.98	5761399.76	560352.44	S 38 17 36.428	E 147 41 24.582
	2046.51	61.25	70.17	1337.58	1303.07	339.03	1267.30	0.53	5761408.35	560375.97	S 38 17 36.144	E 147 41 25.548
	2075.67	62.09	69.78	1351.41	1328.58	347.82	1291.42	0.93	5761417.14	560400.08	S 38 17 35.853	E 147 41 26.538
	2104.56	63.13	70.22	1364.70	1354.08	356.60	1315.52	1.15	5761425.91	560424.17	S 38 17 35.563	E 147 41 27.527
	2133.93	64.38	69.72	1377.69	1380.27	365.62	1340.27	1.36	5761434.93	560448.91	S 38 17 35.264	E 147 41 28.543
	2162.50	65.22	70.13	1389.86	1405.96	374.49	1364.55	0.96	5761443.80	560473.18	S 38 17 34.971	E 147 41 29.539
	2191.52	65.95	69.84	1401.85	1432.22	383.54	1389.38	0.80	5761452.84	560498.00	S 38 17 34.671	E 147 41 30.558
	2220.60	67.13	70.21	1413.43	1458.74	392.65	1414.45	1.27	5761461.95	560523.06	S 38 17 34.370	E 147 41 31.587
	2249.25	67.94	70.44	1424.38	1485.08	401.56	1439.38	0.88	5761470.86	560547.99	S 38 17 34.074	E 147 41 32.610
	2278.91	68.53	71.12	1435.37	1512.50	410.63	1465.39	0.87	5761479.92	560573.99	S 38 17 33.774	E 147 41 33.677
	2308.05	69.63	71.29	1445.78	1539.61	419.40	1491.16	1.14	5761488.69	560599.74	S 38 17 33.483	E 147 41 34.735
	2336.56	71.09	71.22	1455.36	1566.36	428.03	1516.58	1.54	5761497.31	560625.16	S 38 17 33.197	E 147 41 35.779
	2359.61	72.05	71.58	1462.65	1588.15	435.00	1537.31	1.33	5761504.28	560645.88	S 38 17 32.966	E 147 41 36.629
Proj to TD	2385.00	73.00	71.90	1470.27	1612.29	442.59	1560.31	1.18	5761511.87	560668.87	S 38 17 32.715	E 147 41 37.573

**Survey Type:** Definitive Survey

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

**Surveying Prog:**

<u>MD From ( m )</u>	<u>MD To ( m )</u>	<u>EOU Freq</u>	<u>Survey Tool Type</u>
0.00	344.00	Act-Stns	SLB_CNSG+CASING
344.00	371.56	Act-Stns	SLB_CNSG+DPIPE
371.56	2385.00	Act-Stns	SLB_MWD-STD

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

**APPENDIX 1d**  
**BARRACOUTA A4A**  
**MD-TVD Survey Data Listing**



<b>Report Date:</b>	31 August 2005
<b>Well:</b>	Barracouta A4A
<b>Structure / Slot:</b>	ENSCO 102 / 5
<b>TVD Reference Datum:</b>	Drillsite Elevation
<b>TVD Reference Elevation:</b>	56 m relative to MSL
<b>Sea Bed / Ground Level Elevation:</b>	45.7 m relative to MSL
<b>Grid Coordinate System:</b>	GDA94/MGA94 Zone 55
<b>Location Lat/Long:</b>	S 38 17' 47", E 147 40' 33"
<b>Location Grid N/E:</b>	N 559117.6761 m, E 5761070.2550 m
<b>Survey Azimuth Reference:</b>	Grid North

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
0.00	0.00	360.00	0.00	55.90	0.00	0.00	5761070.28	559117.64
5.00	0.00	0.00	5.00	50.90	0.00	0.00	5761070.28	559117.64
10.00	0.00	0.00	10.00	45.90	0.00	0.00	5761070.28	559117.64
15.00	0.00	0.00	15.00	40.90	0.00	0.00	5761070.28	559117.64
20.00	0.00	0.00	20.00	35.90	0.00	0.00	5761070.28	559117.64
25.00	0.00	0.00	25.00	30.90	0.00	0.00	5761070.28	559117.64
30.00	0.00	360.00	30.00	25.90	0.00	0.00	5761070.28	559117.64
35.00	0.08	350.92	35.00	20.90	0.01	-0.02	5761070.29	559117.62
40.00	0.19	338.06	40.00	15.90	0.01	-0.04	5761070.29	559117.59
45.00	0.29	325.20	45.00	10.90	0.02	-0.07	5761070.30	559117.57
50.00	0.40	312.34	50.00	5.90	0.03	-0.10	5761070.31	559117.54
55.00	0.51	299.48	55.00	0.90	0.04	-0.12	5761070.32	559117.51
60.00	0.62	286.62	60.00	-4.10	0.04	-0.15	5761070.32	559117.49
65.00	0.73	286.62	65.00	-9.10	0.06	-0.21	5761070.34	559117.43
70.00	0.72	285.11	70.00	-14.10	0.08	-0.27	5761070.36	559117.37
75.00	0.48	275.87	75.00	-19.10	0.09	-0.32	5761070.37	559117.32
80.00	0.41	169.13	80.00	-24.10	0.09	-0.33	5761070.37	559117.30
85.00	0.44	115.81	85.00	-29.10	0.07	-0.31	5761070.35	559117.32
90.00	0.31	108.24	90.00	-34.10	0.06	-0.28	5761070.34	559117.36
95.00	0.32	111.04	95.00	-39.10	0.05	-0.25	5761070.33	559117.38
100.00	0.29	105.61	100.00	-44.10	0.04	-0.23	5761070.32	559117.41
105.00	0.28	106.87	105.00	-49.10	0.03	-0.21	5761070.31	559117.43
110.00	0.38	111.61	110.00	-54.10	0.02	-0.18	5761070.30	559117.46
115.00	0.53	110.80	115.00	-59.10	0.01	-0.14	5761070.29	559117.49
120.00	0.57	110.54	120.00	-64.10	-0.01	-0.10	5761070.27	559117.54
125.00	0.58	113.07	125.00	-69.10	-0.03	-0.05	5761070.25	559117.59
130.00	0.62	113.97	130.00	-74.10	-0.05	-0.00	5761070.23	559117.63
135.00	0.64	112.99	135.00	-79.10	-0.07	0.05	5761070.21	559117.68
140.00	0.64	111.12	140.00	-84.10	-0.09	0.10	5761070.19	559117.74
145.00	0.62	111.71	145.00	-89.10	-0.11	0.15	5761070.17	559117.79
150.00	0.63	111.84	150.00	-94.10	-0.13	0.20	5761070.15	559117.84
155.00	0.63	111.21	155.00	-99.10	-0.15	0.25	5761070.13	559117.89
160.00	0.66	110.57	160.00	-104.09	-0.17	0.31	5761070.11	559117.94
165.00	0.51	109.11	165.00	-109.09	-0.19	0.35	5761070.09	559117.99
170.00	0.54	108.72	169.99	-114.09	-0.20	0.40	5761070.08	559118.03
175.00	0.57	107.36	174.99	-119.09	-0.22	0.44	5761070.06	559118.08
180.00	0.48	108.09	179.99	-124.09	-0.23	0.49	5761070.05	559118.12
185.00	0.50	108.21	184.99	-129.09	-0.25	0.53	5761070.03	559118.16
190.00	0.47	103.39	189.99	-134.09	-0.26	0.57	5761070.02	559118.20
195.00	0.42	99.72	194.99	-139.09	-0.27	0.61	5761070.01	559118.24
200.00	0.41	98.33	199.99	-144.09	-0.27	0.64	5761070.01	559118.28
205.00	0.42	97.53	204.99	-149.09	-0.28	0.68	5761070.00	559118.31
210.00	0.39	95.78	209.99	-154.09	-0.28	0.71	5761070.00	559118.35
215.00	0.37	93.47	214.99	-159.09	-0.28	0.75	5761070.00	559118.38
220.00	0.35	92.82	219.99	-164.09	-0.29	0.78	5761070.00	559118.41
225.00	0.34	91.10	224.99	-169.09	-0.29	0.81	5761069.99	559118.44

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
230.00	0.33	87.63	229.99	-174.09	-0.29	0.84	5761069.99	559118.47
235.00	0.31	80.37	234.99	-179.09	-0.28	0.86	5761070.00	559118.50
240.00	0.23	70.93	239.99	-184.09	-0.28	0.89	5761070.00	559118.52
245.00	0.18	68.35	244.99	-189.09	-0.27	0.90	5761070.01	559118.54
250.00	0.16	52.58	249.99	-194.09	-0.27	0.92	5761070.02	559118.55
255.00	0.14	25.70	254.99	-199.09	-0.26	0.92	5761070.03	559118.56
260.00	0.16	22.50	259.99	-204.09	-0.24	0.93	5761070.04	559118.56
265.00	0.16	16.78	264.99	-209.09	-0.23	0.93	5761070.05	559118.57
270.00	0.15	31.37	269.99	-214.09	-0.22	0.94	5761070.06	559118.57
275.00	0.14	19.07	274.99	-219.09	-0.21	0.95	5761070.07	559118.58
280.00	0.15	9.49	279.99	-224.09	-0.20	0.95	5761070.09	559118.58
285.00	0.13	100.98	284.99	-229.09	-0.19	0.95	5761070.09	559118.59
290.00	0.08	220.25	289.99	-234.09	-0.19	0.95	5761070.09	559118.59
295.00	0.08	230.56	294.99	-239.09	-0.20	0.95	5761070.08	559118.58
300.00	0.09	214.97	299.99	-244.09	-0.20	0.94	5761070.08	559118.58
305.00	0.11	228.89	304.99	-249.09	-0.21	0.94	5761070.07	559118.57
310.00	0.14	227.43	309.99	-254.09	-0.22	0.93	5761070.07	559118.57
315.00	0.18	225.52	314.99	-259.09	-0.23	0.92	5761070.06	559118.56
320.00	0.21	228.48	319.99	-264.09	-0.24	0.91	5761070.04	559118.54
325.00	0.23	227.49	324.99	-269.09	-0.25	0.89	5761070.03	559118.53
330.00	0.24	230.96	329.99	-274.09	-0.26	0.88	5761070.02	559118.51
335.00	0.25	233.15	334.99	-279.09	-0.28	0.86	5761070.01	559118.50
340.00	0.24	234.08	339.99	-284.09	-0.29	0.84	5761069.99	559118.48
345.00	0.63	221.59	344.99	-289.09	-0.32	0.85	5761069.96	559118.48
350.00	2.53	152.70	349.99	-294.09	-0.41	0.94	5761069.87	559118.58
355.00	3.67	128.11	354.98	-299.08	-0.58	1.21	5761069.70	559118.85
360.00	4.45	124.37	359.96	-304.06	-0.79	1.56	5761069.49	559119.20
365.00	5.23	120.63	364.94	-309.04	-1.00	1.91	5761069.28	559119.55
370.00	6.02	116.90	369.93	-314.03	-1.21	2.26	5761069.07	559119.90
375.00	6.76	113.66	374.88	-318.98	-1.40	2.85	5761068.88	559120.48
380.00	7.47	110.64	379.83	-323.93	-1.58	3.54	5761068.70	559121.18
385.00	8.19	107.63	384.78	-328.88	-1.77	4.24	5761068.52	559121.87
390.00	8.91	104.62	389.72	-333.82	-1.95	4.93	5761068.33	559122.57
395.00	9.63	101.60	394.67	-338.77	-2.13	5.63	5761068.15	559123.26
400.00	10.35	98.59	399.62	-343.72	-2.31	6.32	5761067.97	559123.95
405.00	10.88	97.36	404.51	-348.61	-2.42	7.31	5761067.87	559124.94
410.00	11.38	96.37	409.41	-353.51	-2.50	8.33	5761067.78	559125.97
415.00	11.88	95.38	414.30	-358.40	-2.59	9.36	5761067.69	559127.00
420.00	12.39	94.40	419.19	-363.29	-2.68	10.39	5761067.60	559128.02
425.00	12.89	93.41	424.08	-368.18	-2.77	11.42	5761067.51	559129.05
430.00	13.39	92.42	428.97	-373.07	-2.86	12.44	5761067.42	559130.08
435.00	13.91	90.65	433.81	-377.91	-2.79	13.72	5761067.49	559131.35
440.00	14.43	88.89	438.64	-382.74	-2.72	15.00	5761067.56	559132.63
445.00	14.95	87.12	443.47	-387.57	-2.66	16.27	5761067.63	559133.91
450.00	15.47	85.35	448.31	-392.41	-2.59	17.55	5761067.69	559135.18
455.00	15.99	83.59	453.14	-397.24	-2.52	18.82	5761067.76	559136.46
460.00	16.51	81.99	457.95	-402.05	-2.37	20.17	5761067.91	559137.81
465.00	17.00	80.76	462.71	-406.81	-2.07	21.66	5761068.21	559139.30
470.00	17.49	79.53	467.47	-411.57	-1.77	23.16	5761068.51	559140.79
475.00	17.98	78.31	472.23	-416.33	-1.47	24.65	5761068.81	559142.29
480.00	18.48	77.08	476.99	-421.09	-1.16	26.14	5761069.12	559143.78
485.00	18.97	75.85	481.75	-425.85	-0.86	27.64	5761069.42	559145.27
490.00	19.52	75.24	486.47	-430.57	-0.48	29.25	5761069.80	559146.89
495.00	20.14	75.22	491.13	-435.23	-0.02	30.98	5761070.26	559148.62
500.00	20.75	75.20	495.80	-439.90	0.44	32.72	5761070.72	559150.35
505.00	21.36	75.18	500.47	-444.57	0.90	34.45	5761071.18	559152.08
510.00	21.97	75.16	505.14	-449.24	1.35	36.18	5761071.63	559153.81
515.00	22.59	75.15	509.80	-453.90	1.81	37.91	5761072.09	559155.55

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
520.00	23.32	74.99	514.38	-458.48	2.34	39.85	5761072.62	559157.49
525.00	24.10	74.77	518.91	-463.01	2.91	41.89	5761073.19	559159.53
530.00	24.88	74.55	523.43	-467.53	3.48	43.93	5761073.76	559161.57
535.00	25.66	74.33	527.96	-472.06	4.05	45.97	5761074.33	559163.60
540.00	26.45	74.10	532.49	-476.59	4.61	48.01	5761074.89	559165.64
545.00	27.23	73.88	537.02	-481.12	5.18	50.05	5761075.46	559167.68
550.00	27.93	73.63	541.40	-485.50	5.88	52.36	5761076.16	559169.99
555.00	28.62	73.36	545.76	-489.86	6.59	54.70	5761076.87	559172.33
560.00	29.31	73.10	550.11	-494.21	7.31	57.04	5761077.59	559174.67
565.00	30.00	72.84	554.47	-498.57	8.02	59.38	5761078.30	559177.02
570.00	30.69	72.58	558.83	-502.93	8.73	61.72	5761079.01	559179.36
575.00	31.37	72.38	563.18	-507.28	9.45	64.08	5761079.73	559181.72
580.00	31.97	72.91	567.37	-511.47	10.20	66.70	5761080.48	559184.34
585.00	32.56	73.43	571.56	-515.66	10.96	69.33	5761081.24	559186.96
590.00	33.16	73.96	575.75	-519.85	11.71	71.95	5761081.99	559189.58
595.00	33.76	74.49	579.94	-524.04	12.47	74.57	5761082.75	559192.20
600.00	34.35	75.01	584.13	-528.23	13.22	77.19	5761083.50	559194.82
605.00	34.95	75.42	588.28	-532.38	13.97	79.87	5761084.25	559197.50
610.00	35.55	75.43	592.29	-536.39	14.72	82.75	5761085.00	559200.38
615.00	36.16	75.44	596.31	-540.41	15.47	85.63	5761085.75	559203.26
620.00	36.77	75.44	600.33	-544.43	16.22	88.51	5761086.50	559206.15
625.00	37.37	75.45	604.34	-548.44	16.96	91.39	5761087.25	559209.03
630.00	37.98	75.46	608.36	-552.46	17.71	94.27	5761087.99	559211.91
635.00	38.54	75.43	612.28	-556.38	18.50	97.26	5761088.78	559214.90
640.00	39.05	75.36	616.13	-560.23	19.31	100.36	5761089.59	559217.99
645.00	39.57	75.29	619.97	-564.07	20.12	103.45	5761090.40	559221.09
650.00	40.08	75.23	623.81	-567.91	20.94	106.55	5761091.22	559224.18
655.00	40.60	75.16	627.65	-571.75	21.75	109.64	5761092.03	559227.27
660.00	41.11	75.09	631.49	-575.59	22.57	112.73	5761092.85	559230.37
665.00	41.72	75.05	635.21	-579.31	23.43	115.96	5761093.71	559233.60
670.00	42.38	75.02	638.85	-582.95	24.31	119.27	5761094.60	559236.91
675.00	43.04	74.99	642.49	-586.59	25.20	122.58	5761095.48	559240.21
680.00	43.70	74.96	646.13	-590.23	26.09	125.89	5761096.37	559243.52
685.00	44.36	74.94	649.78	-593.88	26.98	129.19	5761097.26	559246.83
690.00	45.02	74.91	653.42	-597.52	27.86	132.50	5761098.14	559250.13
695.00	45.67	74.82	656.88	-600.98	28.82	135.98	5761099.10	559253.61
700.00	46.32	74.72	660.29	-604.39	29.79	139.50	5761100.07	559257.14
705.00	46.96	74.62	663.69	-607.79	30.76	143.03	5761101.04	559260.67
710.00	47.61	74.52	667.10	-611.20	31.73	146.56	5761102.01	559264.19
715.00	48.26	74.42	670.51	-614.61	32.70	150.08	5761102.98	559267.72
720.00	48.91	74.32	673.91	-618.01	33.67	153.61	5761103.95	559271.25
725.00	49.58	74.35	677.07	-621.17	34.72	157.35	5761105.00	559274.98
730.00	50.26	74.37	680.22	-624.32	35.76	161.08	5761106.04	559278.72
735.00	50.93	74.40	683.38	-627.48	36.80	164.82	5761107.08	559282.45
740.00	51.60	74.43	686.53	-630.63	37.84	168.55	5761108.12	559286.19
745.00	52.28	74.46	689.69	-633.79	38.89	172.29	5761109.17	559289.92
750.00	52.94	74.50	692.80	-636.90	39.93	176.06	5761110.21	559293.69
755.00	53.57	74.60	695.69	-639.79	41.00	179.99	5761111.29	559297.63
760.00	54.21	74.70	698.58	-642.68	42.08	183.93	5761112.36	559301.56
765.00	54.84	74.80	701.47	-645.57	43.15	187.87	5761113.43	559305.50
770.00	55.47	74.90	704.36	-648.46	44.22	191.80	5761114.50	559309.44
775.00	56.11	75.00	707.25	-651.35	45.29	195.74	5761115.57	559313.37
780.00	56.64	75.07	710.07	-654.17	46.36	199.72	5761116.64	559317.35
785.00	56.97	75.07	712.76	-656.86	47.45	203.79	5761117.73	559321.43
790.00	57.31	75.07	715.45	-659.55	48.54	207.87	5761118.82	559325.50
795.00	57.64	75.06	718.13	-662.23	49.62	211.94	5761119.90	559329.57
800.00	57.97	75.06	720.82	-664.92	50.71	216.01	5761120.99	559333.65
805.00	58.30	75.06	723.51	-667.61	51.80	220.09	5761122.08	559337.72

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
810.00	58.69	75.12	726.11	-670.21	52.89	224.21	5761123.17	559341.85
815.00	59.10	75.21	728.67	-672.77	53.98	228.37	5761124.26	559346.00
820.00	59.51	75.31	731.23	-675.33	55.08	232.52	5761125.36	559350.16
825.00	59.93	75.40	733.79	-677.89	56.17	236.67	5761126.45	559354.31
830.00	60.06	75.38	736.30	-680.40	57.27	240.85	5761127.55	559358.49
835.00	60.07	75.32	738.79	-682.89	58.38	245.04	5761128.66	559362.68
840.00	60.08	75.25	741.29	-685.39	59.48	249.24	5761129.76	559366.87
845.00	60.09	75.18	743.78	-687.88	60.59	253.43	5761130.87	559371.06
850.00	60.10	75.11	746.27	-690.37	61.69	257.62	5761131.97	559375.25
855.00	60.11	75.05	748.77	-692.87	62.80	261.81	5761133.08	559379.44
860.00	60.24	75.01	751.23	-695.33	63.92	266.01	5761134.20	559383.64
865.00	60.45	75.00	753.68	-697.78	65.05	270.22	5761135.33	559387.86
870.00	60.66	74.99	756.12	-700.22	66.18	274.43	5761136.46	559392.07
875.00	60.88	74.98	758.57	-702.67	67.30	278.65	5761137.59	559396.28
880.00	61.09	74.97	761.01	-705.11	68.43	282.86	5761138.72	559400.50
885.00	61.31	74.96	763.46	-707.56	69.56	287.07	5761139.85	559404.71
890.00	61.28	74.94	765.88	-709.98	70.70	291.30	5761140.98	559408.93
895.00	61.22	74.92	768.29	-712.39	71.85	295.53	5761142.13	559413.16
900.00	61.15	74.89	770.70	-714.80	72.99	299.75	5761143.27	559417.39
905.00	61.08	74.87	773.12	-717.22	74.13	303.98	5761144.41	559421.62
910.00	61.02	74.84	775.53	-719.63	75.27	308.21	5761145.55	559425.84
915.00	60.95	74.82	777.94	-722.04	76.41	312.44	5761146.69	559430.07
920.00	60.90	74.89	780.38	-724.48	77.54	316.65	5761147.82	559434.29
925.00	60.85	74.96	782.82	-726.92	78.67	320.87	5761148.95	559438.50
930.00	60.81	75.03	785.26	-729.36	79.80	325.09	5761150.08	559442.72
935.00	60.76	75.09	787.69	-731.79	80.93	329.30	5761151.21	559446.94
940.00	60.71	75.16	790.13	-734.23	82.05	333.52	5761152.34	559451.16
945.00	60.63	75.27	792.58	-736.68	83.16	337.73	5761153.44	559455.37
950.00	60.48	75.48	795.07	-739.17	84.23	341.94	5761154.51	559459.58
955.00	60.32	75.69	797.55	-741.65	85.29	346.15	5761155.57	559463.78
960.00	60.16	75.90	800.03	-744.13	86.35	350.36	5761156.63	559467.99
965.00	60.01	76.11	802.52	-746.62	87.42	354.56	5761157.70	559472.20
970.00	59.85	76.32	805.00	-749.10	88.48	358.77	5761158.76	559476.41
975.00	59.75	76.49	807.50	-751.60	89.51	362.98	5761159.79	559480.61
980.00	59.71	76.60	810.03	-754.13	90.50	367.18	5761160.78	559484.81
985.00	59.67	76.72	812.56	-756.66	91.48	371.38	5761161.76	559489.01
990.00	59.63	76.83	815.08	-759.18	92.47	375.58	5761162.75	559493.21
995.00	59.59	76.95	817.61	-761.71	93.46	379.78	5761163.74	559497.41
1000.00	59.55	77.07	820.13	-764.23	94.45	383.98	5761164.73	559501.61
1005.00	59.49	77.08	822.68	-766.78	95.42	388.17	5761165.70	559505.81
1010.00	59.41	77.05	825.23	-769.33	96.39	392.36	5761166.67	559510.00
1015.00	59.34	77.02	827.78	-771.88	97.35	396.55	5761167.63	559514.19
1020.00	59.27	76.99	830.33	-774.43	98.32	400.74	5761168.60	559518.38
1025.00	59.19	76.96	832.88	-776.98	99.28	404.93	5761169.57	559522.57
1030.00	59.12	76.93	835.43	-779.53	100.25	409.12	5761170.53	559526.76
1035.00	58.92	76.91	838.04	-782.14	101.22	413.28	5761171.50	559530.91
1040.00	58.71	76.88	840.65	-784.75	102.19	417.43	5761172.47	559535.06
1045.00	58.49	76.85	843.27	-787.37	103.16	421.58	5761173.44	559539.21
1050.00	58.27	76.82	845.88	-789.98	104.13	425.73	5761174.41	559543.36
1055.00	58.06	76.80	848.49	-792.59	105.10	429.88	5761175.38	559547.52
1060.00	57.85	76.77	851.11	-795.21	106.07	434.03	5761176.35	559551.66
1065.00	57.94	76.76	853.75	-797.85	107.04	438.16	5761177.32	559555.80
1070.00	58.02	76.75	856.39	-800.49	108.02	442.29	5761178.30	559559.93
1075.00	58.10	76.73	859.04	-803.14	108.99	446.42	5761179.27	559564.06
1080.00	58.19	76.72	861.68	-805.78	109.96	450.56	5761180.25	559568.19
1085.00	58.27	76.71	864.32	-808.42	110.94	454.69	5761181.22	559572.32
1090.00	58.38	76.74	866.95	-811.05	111.91	458.83	5761182.19	559576.46
1095.00	58.60	76.98	869.53	-813.63	112.84	463.01	5761183.12	559580.64

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1100.00	58.82	77.22	872.11	-816.21	113.78	467.19	5761184.06	559584.82
1105.00	59.04	77.46	874.68	-818.78	114.71	471.37	5761184.99	559589.01
1110.00	59.26	77.70	877.26	-821.36	115.65	475.55	5761185.93	559593.19
1115.00	59.49	77.94	879.84	-823.94	116.58	479.73	5761186.86	559597.37
1120.00	59.76	78.04	882.36	-826.46	117.51	483.95	5761187.79	559601.58
1125.00	60.11	77.96	884.81	-828.91	118.43	488.20	5761188.71	559605.84
1130.00	60.45	77.87	887.27	-831.37	119.35	492.46	5761189.63	559610.10
1135.00	60.80	77.78	889.72	-833.82	120.27	496.72	5761190.55	559614.36
1140.00	61.15	77.69	892.17	-836.27	121.19	500.98	5761191.47	559618.62
1145.00	61.50	77.60	894.62	-838.72	122.11	505.24	5761192.39	559622.88
1150.00	61.76	77.55	897.01	-841.11	123.05	509.53	5761193.33	559627.17
1155.00	61.94	77.52	899.34	-843.44	124.01	513.85	5761194.29	559631.49
1160.00	62.13	77.50	901.67	-845.77	124.96	518.17	5761195.25	559635.80
1165.00	62.31	77.47	904.00	-848.10	125.92	522.49	5761196.20	559640.12
1170.00	62.50	77.45	906.33	-850.43	126.88	526.80	5761197.16	559644.44
1175.00	62.69	77.43	908.67	-852.77	127.84	531.12	5761198.12	559648.76
1180.00	62.81	77.39	910.95	-855.05	128.81	535.46	5761199.09	559653.10
1185.00	62.90	77.35	913.22	-857.32	129.79	539.81	5761200.07	559657.44
1190.00	62.99	77.31	915.49	-859.59	130.77	544.15	5761201.05	559661.79
1195.00	63.09	77.27	917.76	-861.86	131.75	548.50	5761202.03	559666.13
1200.00	63.18	77.23	920.03	-864.13	132.73	552.85	5761203.01	559670.48
1205.00	63.28	77.19	922.30	-866.40	133.71	557.19	5761203.99	559674.83
1210.00	63.28	77.16	924.55	-868.65	134.70	561.54	5761204.98	559679.18
1215.00	63.27	77.13	926.80	-870.90	135.70	565.90	5761205.98	559683.53
1220.00	63.26	77.10	929.05	-873.15	136.70	570.25	5761206.98	559687.88
1225.00	63.24	77.07	931.30	-875.40	137.69	574.60	5761207.97	559692.24
1230.00	63.23	77.05	933.55	-877.65	138.69	578.95	5761208.97	559696.59
1235.00	63.22	76.98	935.80	-879.90	139.70	583.30	5761209.98	559700.94
1240.00	63.24	76.60	938.05	-882.15	140.78	587.64	5761211.06	559705.27
1245.00	63.26	76.22	940.30	-884.40	141.87	591.97	5761212.15	559709.60
1250.00	63.27	75.83	942.55	-886.65	142.96	596.30	5761213.24	559713.93
1255.00	63.29	75.45	944.80	-888.90	144.04	600.63	5761214.33	559718.26
1260.00	63.31	75.06	947.05	-891.15	145.13	604.96	5761215.41	559722.59
1265.00	63.29	74.74	949.30	-893.40	146.26	609.28	5761216.54	559726.91
1270.00	63.19	74.56	951.57	-895.67	147.47	613.57	5761217.75	559731.20
1275.00	63.09	74.37	953.84	-897.94	148.67	617.86	5761218.95	559735.49
1280.00	62.99	74.19	956.11	-900.21	149.88	622.15	5761220.16	559739.78
1285.00	62.89	74.01	958.37	-902.47	151.09	626.43	5761221.37	559744.07
1290.00	62.79	73.82	960.64	-904.74	152.30	630.72	5761222.58	559748.36
1295.00	62.61	73.66	962.95	-907.05	153.54	634.98	5761223.82	559752.62
1300.00	62.36	73.50	965.30	-909.40	154.81	639.21	5761225.09	559756.84
1305.00	62.11	73.35	967.64	-911.74	156.08	643.44	5761226.36	559761.07
1310.00	61.87	73.19	969.99	-914.09	157.35	647.67	5761227.63	559765.30
1315.00	61.62	73.04	972.34	-916.44	158.62	651.89	5761228.90	559769.53
1320.00	61.37	72.88	974.68	-918.78	159.89	656.12	5761230.17	559773.76
1325.00	61.21	72.79	977.08	-921.18	161.18	660.31	5761231.46	559777.95
1330.00	61.09	72.74	979.51	-923.61	162.48	664.49	5761232.76	559782.12
1335.00	60.97	72.69	981.94	-926.04	163.78	668.66	5761234.06	559786.29
1340.00	60.85	72.63	984.37	-928.47	165.08	672.83	5761235.36	559790.47
1345.00	60.72	72.58	986.80	-930.90	166.38	677.00	5761236.66	559794.64
1350.00	60.60	72.53	989.23	-933.33	167.69	681.18	5761237.97	559798.81
1355.00	60.55	72.44	991.69	-935.79	169.01	685.32	5761239.29	559802.96
1360.00	60.52	72.36	994.15	-938.25	170.33	689.47	5761240.61	559807.10
1365.00	60.48	72.27	996.61	-940.71	171.66	693.61	5761241.94	559811.25
1370.00	60.44	72.19	999.08	-943.18	172.98	697.75	5761243.26	559815.39
1375.00	60.40	72.10	1001.54	-945.64	174.31	701.90	5761244.59	559819.53
1380.00	60.36	72.02	1004.01	-948.11	175.63	706.04	5761245.91	559823.68
1385.00	60.31	72.06	1006.49	-950.59	176.96	710.17	5761247.25	559827.81

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1390.00	60.27	72.10	1008.97	-953.07	178.30	714.30	5761248.58	559831.94
1395.00	60.23	72.14	1011.45	-955.55	179.63	718.43	5761249.91	559836.07
1400.00	60.18	72.17	1013.94	-958.04	180.96	722.57	5761251.24	559840.20
1405.00	60.14	72.21	1016.42	-960.52	182.29	726.70	5761252.57	559844.33
1410.00	60.13	72.31	1018.90	-963.00	183.61	730.83	5761253.89	559848.47
1415.00	60.20	72.57	1021.38	-965.48	184.88	734.99	5761255.16	559852.62
1420.00	60.27	72.82	1023.85	-967.95	186.15	739.14	5761256.43	559856.78
1425.00	60.35	73.07	1026.33	-970.43	187.42	743.29	5761257.70	559860.93
1430.00	60.42	73.33	1028.80	-972.90	188.69	747.45	5761258.97	559865.08
1435.00	60.49	73.58	1031.28	-975.38	189.96	751.60	5761260.24	559869.24
1440.00	60.51	73.68	1033.75	-977.85	191.22	755.76	5761261.50	559873.40
1445.00	60.48	73.59	1036.22	-980.32	192.46	759.93	5761262.74	559877.57
1450.00	60.44	73.50	1038.69	-982.79	193.69	764.10	5761263.97	559881.74
1455.00	60.40	73.42	1041.15	-985.25	194.93	768.27	5761265.21	559885.90
1460.00	60.37	73.33	1043.62	-987.72	196.17	772.44	5761266.45	559890.07
1465.00	60.33	73.24	1046.09	-990.19	197.41	776.61	5761267.69	559894.24
1470.00	60.28	73.38	1048.57	-992.67	198.62	780.77	5761268.90	559898.41
1475.00	60.22	73.64	1051.06	-995.16	199.82	784.94	5761270.10	559902.58
1480.00	60.16	73.90	1053.55	-997.65	201.02	789.11	5761271.30	559906.74
1485.00	60.10	74.16	1056.04	-1000.14	202.22	793.28	5761272.50	559910.91
1490.00	60.04	74.42	1058.53	-1002.63	203.42	797.44	5761273.70	559915.08
1495.00	59.98	74.68	1061.02	-1005.12	204.62	801.61	5761274.90	559919.25
1500.00	60.00	74.91	1063.51	-1007.61	205.71	805.80	5761275.99	559923.44
1505.00	60.01	75.14	1066.01	-1010.11	206.81	809.99	5761277.09	559927.63
1508.00	60.02	75.27	1067.51	-1011.61	207.46	812.51	5761277.75	559930.14
1509.00	60.03	75.32	1068.01	-1012.11	207.68	813.34	5761277.96	559930.98
1510.00	60.03	75.36	1068.51	-1012.61	207.90	814.18	5761278.18	559931.82
1511.00	60.03	75.41	1069.01	-1013.11	208.12	815.02	5761278.40	559932.65
1512.00	60.04	75.46	1069.51	-1013.61	208.34	815.86	5761278.62	559933.49
1513.00	60.04	75.50	1070.01	-1014.11	208.56	816.70	5761278.84	559934.33
1514.00	60.05	75.55	1070.51	-1014.61	208.78	817.53	5761279.06	559935.17
1515.00	60.05	75.59	1071.01	-1015.11	209.00	818.37	5761279.28	559936.01
1516.00	60.05	75.64	1071.51	-1015.61	209.22	819.21	5761279.50	559936.85
1517.00	60.06	75.68	1072.01	-1016.11	209.44	820.05	5761279.72	559937.68
1518.00	60.06	75.73	1072.51	-1016.61	209.66	820.89	5761279.94	559938.52
1519.00	60.06	75.77	1073.01	-1017.11	209.88	821.72	5761280.16	559939.36
1520.00	60.07	75.82	1073.50	-1017.60	210.09	822.56	5761280.38	559940.20
1521.00	60.07	75.87	1074.00	-1018.10	210.31	823.40	5761280.59	559941.04
1522.00	60.07	75.91	1074.50	-1018.60	210.53	824.24	5761280.81	559941.87
1523.00	60.08	75.96	1075.00	-1019.10	210.75	825.08	5761281.03	559942.71
1524.00	60.08	76.00	1075.50	-1019.60	210.97	825.92	5761281.25	559943.55
1525.00	60.09	76.01	1076.00	-1020.10	211.18	826.76	5761281.46	559944.39
1526.00	60.10	76.01	1076.50	-1020.60	211.39	827.60	5761281.67	559945.23
1527.00	60.11	76.00	1076.99	-1021.09	211.60	828.44	5761281.88	559946.08
1528.00	60.11	76.00	1077.49	-1021.59	211.81	829.28	5761282.09	559946.92
1529.00	60.12	76.00	1077.99	-1022.09	212.02	830.12	5761282.30	559947.76
1530.00	60.13	76.00	1078.48	-1022.58	212.23	830.97	5761282.51	559948.60
1531.00	60.14	76.00	1078.98	-1023.08	212.44	831.81	5761282.73	559949.44
1532.00	60.15	75.99	1079.48	-1023.58	212.65	832.65	5761282.94	559950.29
1533.00	60.16	75.99	1079.97	-1024.07	212.86	833.49	5761283.15	559951.13
1534.00	60.17	75.99	1080.47	-1024.57	213.08	834.33	5761283.36	559951.97
1535.00	60.18	75.99	1080.97	-1025.07	213.29	835.18	5761283.57	559952.81
1536.00	60.18	75.99	1081.47	-1025.57	213.50	836.02	5761283.78	559953.65
1537.00	60.19	75.98	1081.96	-1026.06	213.71	836.86	5761283.99	559954.50
1538.00	60.20	75.98	1082.46	-1026.56	213.92	837.70	5761284.20	559955.34
1539.00	60.21	75.98	1082.96	-1027.06	214.13	838.54	5761284.41	559956.18
1540.00	60.22	75.98	1083.45	-1027.55	214.34	839.39	5761284.62	559957.02
1541.00	60.23	75.98	1083.95	-1028.05	214.55	840.23	5761284.83	559957.86

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1542.00	60.24	75.97	1084.45	-1028.55	214.76	841.07	5761285.04	559958.71
1543.00	60.25	75.97	1084.94	-1029.04	214.97	841.91	5761285.25	559959.55
1544.00	60.26	75.97	1085.44	-1029.54	215.18	842.75	5761285.46	559960.39
1545.00	60.26	75.97	1085.94	-1030.04	215.39	843.60	5761285.67	559961.23
1546.00	60.27	75.97	1086.43	-1030.53	215.60	844.44	5761285.88	559962.07
1547.00	60.28	75.96	1086.93	-1031.03	215.81	845.28	5761286.09	559962.91
1548.00	60.29	75.96	1087.43	-1031.53	216.02	846.12	5761286.30	559963.76
1549.00	60.30	75.96	1087.92	-1032.02	216.23	846.96	5761286.51	559964.60
1550.00	60.31	75.96	1088.42	-1032.52	216.44	847.81	5761286.72	559965.44
1551.00	60.32	75.96	1088.92	-1033.02	216.65	848.65	5761286.93	559966.28
1552.00	60.33	75.95	1089.41	-1033.51	216.86	849.49	5761287.14	559967.12
1553.00	60.34	75.95	1089.91	-1034.01	217.07	850.33	5761287.35	559967.97
1554.00	60.33	75.96	1090.41	-1034.51	217.28	851.17	5761287.56	559968.81
1555.00	60.32	75.97	1090.91	-1035.01	217.49	852.02	5761287.77	559969.65
1556.00	60.31	75.98	1091.40	-1035.50	217.69	852.86	5761287.98	559970.49
1557.00	60.29	76.00	1091.90	-1036.00	217.90	853.70	5761288.18	559971.33
1558.00	60.28	76.01	1092.40	-1036.50	218.11	854.54	5761288.39	559972.18
1559.00	60.26	76.03	1092.90	-1037.00	218.32	855.38	5761288.60	559973.02
1560.00	60.25	76.04	1093.40	-1037.50	218.52	856.23	5761288.81	559973.86
1561.00	60.23	76.05	1093.89	-1037.99	218.73	857.07	5761289.01	559974.70
1562.00	60.22	76.07	1094.39	-1038.49	218.94	857.91	5761289.22	559975.54
1563.00	60.21	76.08	1094.89	-1038.99	219.15	858.75	5761289.43	559976.39
1564.00	60.19	76.10	1095.39	-1039.49	219.36	859.59	5761289.64	559977.23
1565.00	60.18	76.11	1095.89	-1039.99	219.56	860.44	5761289.84	559978.07
1566.00	60.16	76.12	1096.38	-1040.48	219.77	861.28	5761290.05	559978.91
1567.00	60.15	76.14	1096.88	-1040.98	219.98	862.12	5761290.26	559979.75
1568.00	60.13	76.15	1097.38	-1041.48	220.19	862.96	5761290.47	559980.60
1569.00	60.12	76.16	1097.88	-1041.98	220.39	863.80	5761290.67	559981.44
1570.00	60.11	76.18	1098.38	-1042.48	220.60	864.65	5761290.88	559982.28
1571.00	60.09	76.19	1098.87	-1042.97	220.81	865.49	5761291.09	559983.12
1572.00	60.08	76.21	1099.37	-1043.47	221.02	866.33	5761291.30	559983.96
1573.00	60.06	76.22	1099.87	-1043.97	221.22	867.17	5761291.50	559984.81
1574.00	60.05	76.23	1100.37	-1044.47	221.43	868.01	5761291.71	559985.65
1575.00	60.03	76.25	1100.87	-1044.97	221.64	868.86	5761291.92	559986.49
1576.00	60.02	76.26	1101.36	-1045.46	221.85	869.70	5761292.13	559987.33
1577.00	60.01	76.28	1101.86	-1045.96	222.05	870.54	5761292.33	559988.17
1578.00	59.99	76.29	1102.36	-1046.46	222.26	871.38	5761292.54	559989.02
1579.00	59.98	76.30	1102.86	-1046.96	222.47	872.22	5761292.75	559989.86
1580.00	59.96	76.32	1103.36	-1047.46	222.68	873.07	5761292.96	559990.70
1581.00	59.95	76.33	1103.85	-1047.95	222.88	873.91	5761293.17	559991.54
1582.00	59.93	76.35	1104.35	-1048.45	223.09	874.75	5761293.37	559992.38
1583.00	59.94	76.34	1104.85	-1048.95	223.30	875.59	5761293.58	559993.23
1584.00	59.95	76.32	1105.35	-1049.45	223.51	876.43	5761293.79	559994.07
1585.00	59.96	76.30	1105.85	-1049.95	223.72	877.27	5761294.00	559994.91
1586.00	59.97	76.28	1106.35	-1050.45	223.93	878.12	5761294.21	559995.75
1587.00	59.99	76.27	1106.84	-1050.94	224.13	878.96	5761294.41	559996.59
1588.00	60.00	76.25	1107.34	-1051.44	224.34	879.80	5761294.62	559997.43
1589.00	60.01	76.23	1107.84	-1051.94	224.55	880.64	5761294.83	559998.27
1590.00	60.02	76.21	1108.34	-1052.44	224.76	881.48	5761295.04	559999.12
1591.00	60.03	76.19	1108.84	-1052.94	224.97	882.32	5761295.25	559999.96
1592.00	60.04	76.18	1109.34	-1053.44	225.18	883.16	5761295.46	560000.80
1593.00	60.06	76.16	1109.83	-1053.93	225.38	884.01	5761295.66	560001.64
1594.00	60.07	76.14	1110.33	-1054.43	225.59	884.85	5761295.87	560002.48
1595.00	60.08	76.12	1110.83	-1054.93	225.80	885.69	5761296.08	560003.32
1596.00	60.09	76.10	1111.33	-1055.43	226.01	886.53	5761296.29	560004.17
1597.00	60.10	76.08	1111.83	-1055.93	226.22	887.37	5761296.50	560005.01
1598.00	60.12	76.07	1112.33	-1056.43	226.43	888.21	5761296.71	560005.85
1599.00	60.13	76.05	1112.83	-1056.93	226.63	889.05	5761296.92	560006.69

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1600.00	60.14	76.03	1113.32	-1057.42	226.84	889.90	5761297.12	560007.53
1601.00	60.15	76.01	1113.82	-1057.92	227.05	890.74	5761297.33	560008.37
1602.00	60.16	75.99	1114.32	-1058.42	227.26	891.58	5761297.54	560009.21
1603.00	60.17	75.98	1114.82	-1058.92	227.47	892.42	5761297.75	560010.06
1604.00	60.19	75.96	1115.32	-1059.42	227.68	893.26	5761297.96	560010.90
1605.00	60.20	75.94	1115.82	-1059.92	227.88	894.10	5761298.17	560011.74
1606.00	60.21	75.92	1116.31	-1060.41	228.09	894.94	5761298.37	560012.58
1607.00	60.22	75.90	1116.81	-1060.91	228.30	895.79	5761298.58	560013.42
1608.00	60.23	75.89	1117.31	-1061.41	228.51	896.63	5761298.79	560014.26
1609.00	60.25	75.87	1117.81	-1061.91	228.72	897.47	5761299.00	560015.10
1610.00	60.26	75.85	1118.31	-1062.41	228.93	898.31	5761299.21	560015.95
1611.00	60.27	75.83	1118.81	-1062.91	229.14	899.15	5761299.42	560016.79
1612.00	60.29	75.85	1119.30	-1063.40	229.34	900.00	5761299.62	560017.63
1613.00	60.31	75.87	1119.79	-1063.89	229.55	900.84	5761299.83	560018.48
1614.00	60.33	75.89	1120.28	-1064.38	229.76	901.69	5761300.04	560019.32
1615.00	60.34	75.91	1120.77	-1064.87	229.97	902.53	5761300.25	560020.17
1616.00	60.36	75.93	1121.27	-1065.37	230.18	903.38	5761300.46	560021.01
1617.00	60.38	75.95	1121.76	-1065.86	230.39	904.22	5761300.67	560021.86
1618.00	60.40	75.97	1122.25	-1066.35	230.60	905.07	5761300.88	560022.70
1619.00	60.42	75.99	1122.74	-1066.84	230.81	905.91	5761301.09	560023.55
1620.00	60.44	76.01	1123.23	-1067.33	231.01	906.76	5761301.29	560024.40
1621.00	60.46	76.03	1123.72	-1067.82	231.22	907.61	5761301.50	560025.24
1622.00	60.48	76.05	1124.22	-1068.32	231.43	908.45	5761301.71	560026.09
1623.00	60.50	76.07	1124.71	-1068.81	231.64	909.30	5761301.92	560026.93
1624.00	60.52	76.09	1125.20	-1069.30	231.85	910.14	5761302.13	560027.78
1625.00	60.54	76.11	1125.69	-1069.79	232.06	910.99	5761302.34	560028.62
1626.00	60.55	76.14	1126.18	-1070.28	232.27	911.83	5761302.55	560029.47
1627.00	60.57	76.16	1126.67	-1070.77	232.47	912.68	5761302.76	560030.31
1628.00	60.59	76.18	1127.17	-1071.27	232.68	913.52	5761302.96	560031.16
1629.00	60.61	76.20	1127.66	-1071.76	232.89	914.37	5761303.17	560032.00
1630.00	60.63	76.22	1128.15	-1072.25	233.10	915.21	5761303.38	560032.85
1631.00	60.65	76.24	1128.64	-1072.74	233.31	916.06	5761303.59	560033.69
1632.00	60.67	76.26	1129.13	-1073.23	233.52	916.91	5761303.80	560034.54
1633.00	60.69	76.28	1129.62	-1073.72	233.73	917.75	5761304.01	560035.39
1634.00	60.71	76.30	1130.12	-1074.22	233.94	918.60	5761304.22	560036.23
1635.00	60.73	76.32	1130.61	-1074.71	234.14	919.44	5761304.43	560037.08
1636.00	60.75	76.34	1131.10	-1075.20	234.35	920.29	5761304.63	560037.92
1637.00	60.77	76.36	1131.59	-1075.69	234.56	921.13	5761304.84	560038.77
1638.00	60.78	76.38	1132.08	-1076.18	234.77	921.98	5761305.05	560039.61
1639.00	60.80	76.40	1132.57	-1076.67	234.98	922.82	5761305.26	560040.46
1640.00	60.82	76.42	1133.07	-1077.17	235.19	923.67	5761305.47	560041.30
1641.00	60.85	76.43	1133.55	-1077.65	235.40	924.52	5761305.68	560042.15
1642.00	60.89	76.43	1134.03	-1078.13	235.60	925.37	5761305.88	560043.01
1643.00	60.93	76.43	1134.51	-1078.61	235.81	926.23	5761306.09	560043.86
1644.00	60.97	76.43	1134.99	-1079.09	236.01	927.08	5761306.29	560044.71
1645.00	61.00	76.43	1135.47	-1079.57	236.22	927.93	5761306.50	560045.57
1646.00	61.04	76.43	1135.95	-1080.05	236.42	928.78	5761306.71	560046.42
1647.00	61.08	76.43	1136.42	-1080.52	236.63	929.64	5761306.91	560047.27
1648.00	61.12	76.43	1136.90	-1081.00	236.84	930.49	5761307.12	560048.13
1649.00	61.15	76.43	1137.38	-1081.48	237.04	931.34	5761307.32	560048.98
1650.00	61.19	76.43	1137.86	-1081.96	237.25	932.20	5761307.53	560049.83
1651.00	61.23	76.43	1138.34	-1082.44	237.45	933.05	5761307.73	560050.69
1652.00	61.27	76.43	1138.82	-1082.92	237.66	933.90	5761307.94	560051.54
1653.00	61.30	76.43	1139.30	-1083.40	237.87	934.76	5761308.15	560052.39
1654.00	61.34	76.43	1139.78	-1083.88	238.07	935.61	5761308.35	560053.25
1655.00	61.38	76.44	1140.26	-1084.36	238.28	936.46	5761308.56	560054.10
1656.00	61.42	76.44	1140.74	-1084.84	238.48	937.32	5761308.76	560054.95
1657.00	61.46	76.44	1141.21	-1085.31	238.69	938.17	5761308.97	560055.81



MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1658.00	61.49	76.44	1141.69	-1085.79	238.89	939.02	5761309.18	560056.66
1659.00	61.53	76.44	1142.17	-1086.27	239.10	939.88	5761309.38	560057.51
1660.00	61.57	76.44	1142.65	-1086.75	239.31	940.73	5761309.59	560058.37
1661.00	61.61	76.44	1143.13	-1087.23	239.51	941.58	5761309.79	560059.22
1662.00	61.64	76.44	1143.61	-1087.71	239.72	942.44	5761310.00	560060.07
1663.00	61.68	76.44	1144.09	-1088.19	239.92	943.29	5761310.21	560060.93
1664.00	61.72	76.44	1144.57	-1088.67	240.13	944.14	5761310.41	560061.78
1665.00	61.76	76.44	1145.05	-1089.15	240.34	945.00	5761310.62	560062.63
1666.00	61.79	76.44	1145.53	-1089.63	240.54	945.85	5761310.82	560063.49
1667.00	61.83	76.44	1146.01	-1090.11	240.75	946.70	5761311.03	560064.34
1668.00	61.87	76.44	1146.48	-1090.58	240.95	947.56	5761311.23	560065.19
1669.00	61.91	76.44	1146.96	-1091.06	241.16	948.41	5761311.44	560066.04
1670.00	61.92	76.46	1147.44	-1091.54	241.36	949.27	5761311.64	560066.90
1671.00	61.91	76.50	1147.91	-1092.01	241.56	950.13	5761311.84	560067.76
1672.00	61.90	76.54	1148.38	-1092.48	241.76	950.98	5761312.04	560068.62
1673.00	61.90	76.58	1148.85	-1092.95	241.96	951.84	5761312.24	560069.48
1674.00	61.89	76.62	1149.33	-1093.43	242.15	952.70	5761312.43	560070.34
1675.00	61.88	76.66	1149.80	-1093.90	242.35	953.56	5761312.63	560071.20
1676.00	61.88	76.70	1150.27	-1094.37	242.55	954.42	5761312.83	560072.06
1677.00	61.87	76.74	1150.74	-1094.84	242.75	955.28	5761313.03	560072.91
1678.00	61.87	76.78	1151.22	-1095.32	242.95	956.14	5761313.23	560073.77
1679.00	61.86	76.81	1151.69	-1095.79	243.15	957.00	5761313.43	560074.63
1680.00	61.85	76.85	1152.16	-1096.26	243.34	957.86	5761313.63	560075.49
1681.00	61.85	76.89	1152.63	-1096.73	243.54	958.71	5761313.82	560076.35
1682.00	61.84	76.93	1153.10	-1097.20	243.74	959.57	5761314.02	560077.21
1683.00	61.83	76.97	1153.58	-1097.68	243.94	960.43	5761314.22	560078.07
1684.00	61.83	77.01	1154.05	-1098.15	244.14	961.29	5761314.42	560078.93
1685.00	61.82	77.05	1154.52	-1098.62	244.34	962.15	5761314.62	560079.79
1686.00	61.82	77.09	1154.99	-1099.09	244.53	963.01	5761314.82	560080.64
1687.00	61.81	77.12	1155.46	-1099.56	244.73	963.87	5761315.01	560081.50
1688.00	61.80	77.16	1155.94	-1100.04	244.93	964.73	5761315.21	560082.36
1689.00	61.80	77.20	1156.41	-1100.51	245.13	965.59	5761315.41	560083.22
1690.00	61.79	77.24	1156.88	-1100.98	245.33	966.45	5761315.61	560084.08
1691.00	61.78	77.28	1157.35	-1101.45	245.53	967.30	5761315.81	560084.94
1692.00	61.78	77.32	1157.82	-1101.92	245.72	968.16	5761316.01	560085.80
1693.00	61.77	77.36	1158.30	-1102.40	245.92	969.02	5761316.20	560086.66
1694.00	61.76	77.40	1158.77	-1102.87	246.12	969.88	5761316.40	560087.52
1695.00	61.76	77.44	1159.24	-1103.34	246.32	970.74	5761316.60	560088.37
1696.00	61.75	77.47	1159.71	-1103.81	246.52	971.60	5761316.80	560089.23
1697.00	61.75	77.51	1160.19	-1104.29	246.72	972.46	5761317.00	560090.09
1698.00	61.74	77.55	1160.66	-1104.76	246.92	973.32	5761317.20	560090.95
1699.00	61.72	77.53	1161.14	-1105.24	247.11	974.17	5761317.39	560091.81
1700.00	61.70	77.51	1161.61	-1105.71	247.30	975.03	5761317.58	560092.66
1701.00	61.67	77.49	1162.09	-1106.19	247.50	975.89	5761317.78	560093.52
1702.00	61.65	77.47	1162.57	-1106.67	247.69	976.74	5761317.97	560094.38
1703.00	61.63	77.45	1163.05	-1107.15	247.88	977.60	5761318.16	560095.23
1704.00	61.61	77.43	1163.53	-1107.63	248.08	978.46	5761318.36	560096.09
1705.00	61.59	77.41	1164.01	-1108.11	248.27	979.31	5761318.55	560096.95
1706.00	61.56	77.39	1164.49	-1108.59	248.47	980.17	5761318.75	560097.80
1707.00	61.54	77.37	1164.96	-1109.06	248.66	981.02	5761318.94	560098.66
1708.00	61.52	77.34	1165.44	-1109.54	248.85	981.88	5761319.13	560099.52
1709.00	61.50	77.32	1165.92	-1110.02	249.05	982.74	5761319.33	560100.37
1710.00	61.48	77.30	1166.40	-1110.50	249.24	983.59	5761319.52	560101.23
1711.00	61.46	77.28	1166.88	-1110.98	249.43	984.45	5761319.72	560102.09
1712.00	61.43	77.26	1167.36	-1111.46	249.63	985.31	5761319.91	560102.94
1713.00	61.41	77.24	1167.83	-1111.93	249.82	986.16	5761320.10	560103.80
1714.00	61.39	77.22	1168.31	-1112.41	250.02	987.02	5761320.30	560104.66
1715.00	61.37	77.20	1168.79	-1112.89	250.21	987.88	5761320.49	560105.51

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1716.00	61.35	77.18	1169.27	-1113.37	250.40	988.73	5761320.68	560106.37
1717.00	61.33	77.16	1169.75	-1113.85	250.60	989.59	5761320.88	560107.22
1718.00	61.30	77.14	1170.23	-1114.33	250.79	990.45	5761321.07	560108.08
1719.00	61.28	77.12	1170.70	-1114.80	250.99	991.30	5761321.27	560108.94
1720.00	61.26	77.10	1171.18	-1115.28	251.18	992.16	5761321.46	560109.79
1721.00	61.24	77.08	1171.66	-1115.76	251.37	993.02	5761321.65	560110.65
1722.00	61.22	77.06	1172.14	-1116.24	251.57	993.87	5761321.85	560111.51
1723.00	61.19	77.04	1172.62	-1116.72	251.76	994.73	5761322.04	560112.36
1724.00	61.17	77.02	1173.10	-1117.20	251.95	995.59	5761322.23	560113.22
1725.00	61.15	77.00	1173.57	-1117.67	252.15	996.44	5761322.43	560114.08
1726.00	61.13	76.98	1174.05	-1118.15	252.34	997.30	5761322.62	560114.93
1727.00	61.11	76.96	1174.53	-1118.63	252.54	998.15	5761322.82	560115.79
1728.00	61.09	76.93	1175.01	-1119.11	252.74	999.01	5761323.02	560116.64
1729.00	61.08	76.90	1175.50	-1119.60	252.94	999.86	5761323.22	560117.49
1730.00	61.07	76.87	1175.99	-1120.09	253.14	1000.71	5761323.43	560118.34
1731.00	61.05	76.83	1176.47	-1120.57	253.35	1001.56	5761323.63	560119.19
1732.00	61.04	76.80	1176.96	-1121.06	253.55	1002.41	5761323.83	560120.04
1733.00	61.03	76.77	1177.44	-1121.54	253.76	1003.26	5761324.04	560120.89
1734.00	61.02	76.74	1177.93	-1122.03	253.96	1004.11	5761324.24	560121.74
1735.00	61.01	76.71	1178.42	-1122.52	254.17	1004.95	5761324.45	560122.59
1736.00	60.99	76.68	1178.90	-1123.00	254.37	1005.80	5761324.65	560123.44
1737.00	60.98	76.65	1179.39	-1123.49	254.57	1006.65	5761324.85	560124.29
1738.00	60.97	76.61	1179.87	-1123.97	254.78	1007.50	5761325.06	560125.14
1739.00	60.96	76.58	1180.36	-1124.46	254.98	1008.35	5761325.26	560125.99
1740.00	60.94	76.55	1180.85	-1124.95	255.19	1009.20	5761325.47	560126.84
1741.00	60.93	76.52	1181.33	-1125.43	255.39	1010.05	5761325.67	560127.69
1742.00	60.92	76.49	1181.82	-1125.92	255.59	1010.90	5761325.87	560128.54
1743.00	60.91	76.46	1182.31	-1126.41	255.80	1011.75	5761326.08	560129.39
1744.00	60.89	76.42	1182.79	-1126.89	256.00	1012.60	5761326.28	560130.24
1745.00	60.88	76.39	1183.28	-1127.38	256.21	1013.45	5761326.49	560131.09
1746.00	60.87	76.36	1183.76	-1127.86	256.41	1014.30	5761326.69	560131.94
1747.00	60.86	76.33	1184.25	-1128.35	256.61	1015.15	5761326.90	560132.79
1748.00	60.85	76.30	1184.74	-1128.84	256.82	1016.00	5761327.10	560133.64
1749.00	60.83	76.27	1185.22	-1129.32	257.02	1016.85	5761327.30	560134.49
1750.00	60.82	76.24	1185.71	-1129.81	257.23	1017.70	5761327.51	560135.34
1751.00	60.81	76.20	1186.19	-1130.29	257.43	1018.55	5761327.71	560136.19
1752.00	60.80	76.17	1186.68	-1130.78	257.64	1019.40	5761327.92	560137.04
1753.00	60.78	76.14	1187.17	-1131.27	257.84	1020.25	5761328.12	560137.89
1754.00	60.77	76.11	1187.65	-1131.75	258.04	1021.10	5761328.32	560138.73
1755.00	60.76	76.08	1188.14	-1132.24	258.25	1021.95	5761328.53	560139.58
1756.00	60.75	76.05	1188.62	-1132.72	258.45	1022.80	5761328.73	560140.43
1757.00	60.76	76.03	1189.11	-1133.21	258.66	1023.65	5761328.94	560141.28
1758.00	60.79	76.02	1189.59	-1133.69	258.87	1024.50	5761329.15	560142.13
1759.00	60.82	76.01	1190.07	-1134.17	259.09	1025.35	5761329.37	560142.98
1760.00	60.85	76.00	1190.55	-1134.65	259.30	1026.20	5761329.58	560143.83
1761.00	60.88	76.00	1191.03	-1135.13	259.51	1027.05	5761329.79	560144.68
1762.00	60.92	75.99	1191.52	-1135.62	259.73	1027.90	5761330.01	560145.53
1763.00	60.95	75.98	1192.00	-1136.10	259.94	1028.75	5761330.22	560146.38
1764.00	60.98	75.97	1192.48	-1136.58	260.15	1029.60	5761330.43	560147.23
1765.00	61.01	75.97	1192.96	-1137.06	260.37	1030.45	5761330.65	560148.08
1766.00	61.04	75.96	1193.44	-1137.54	260.58	1031.30	5761330.86	560148.93
1767.00	61.08	75.95	1193.92	-1138.02	260.79	1032.15	5761331.07	560149.78
1768.00	61.11	75.94	1194.40	-1138.50	261.01	1033.00	5761331.29	560150.63
1769.00	61.14	75.94	1194.89	-1138.99	261.22	1033.85	5761331.50	560151.48
1770.00	61.17	75.93	1195.37	-1139.47	261.43	1034.70	5761331.71	560152.33
1771.00	61.20	75.92	1195.85	-1139.95	261.65	1035.55	5761331.93	560153.19
1772.00	61.24	75.91	1196.33	-1140.43	261.86	1036.40	5761332.14	560154.04
1773.00	61.27	75.91	1196.81	-1140.91	262.07	1037.25	5761332.35	560154.89

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1774.00	61.30	75.90	1197.29	-1141.39	262.29	1038.10	5761332.57	560155.74
1775.00	61.33	75.89	1197.78	-1141.88	262.50	1038.95	5761332.78	560156.59
1776.00	61.36	75.88	1198.26	-1142.36	262.71	1039.80	5761332.99	560157.44
1777.00	61.40	75.88	1198.74	-1142.84	262.93	1040.65	5761333.21	560158.29
1778.00	61.43	75.87	1199.22	-1143.32	263.14	1041.50	5761333.42	560159.14
1779.00	61.46	75.86	1199.70	-1143.80	263.35	1042.35	5761333.63	560159.99
1780.00	61.49	75.85	1200.18	-1144.28	263.56	1043.20	5761333.85	560160.84
1781.00	61.52	75.85	1200.67	-1144.77	263.78	1044.05	5761334.06	560161.69
1782.00	61.56	75.84	1201.15	-1145.25	263.99	1044.90	5761334.27	560162.54
1783.00	61.59	75.83	1201.63	-1145.73	264.20	1045.75	5761334.49	560163.39
1784.00	61.62	75.82	1202.11	-1146.21	264.42	1046.60	5761334.70	560164.24
1785.00	61.65	75.82	1202.59	-1146.69	264.63	1047.45	5761334.91	560165.09
1786.00	61.67	75.80	1203.07	-1147.17	264.85	1048.30	5761335.13	560165.94
1787.00	61.64	75.76	1203.56	-1147.66	265.07	1049.15	5761335.35	560166.78
1788.00	61.60	75.72	1204.04	-1148.14	265.29	1049.99	5761335.57	560167.63
1789.00	61.56	75.68	1204.52	-1148.62	265.52	1050.84	5761335.80	560168.48
1790.00	61.52	75.64	1205.00	-1149.10	265.74	1051.69	5761336.02	560169.32
1791.00	61.49	75.60	1205.49	-1149.59	265.96	1052.53	5761336.24	560170.17
1792.00	61.45	75.56	1205.97	-1150.07	266.19	1053.38	5761336.47	560171.02
1793.00	61.41	75.52	1206.45	-1150.55	266.41	1054.23	5761336.69	560171.86
1794.00	61.37	75.48	1206.94	-1151.04	266.63	1055.07	5761336.91	560172.71
1795.00	61.34	75.44	1207.42	-1151.52	266.86	1055.92	5761337.14	560173.56
1796.00	61.30	75.40	1207.90	-1152.00	267.08	1056.77	5761337.36	560174.40
1797.00	61.26	75.35	1208.38	-1152.48	267.30	1057.62	5761337.58	560175.25
1798.00	61.23	75.31	1208.87	-1152.97	267.53	1058.46	5761337.81	560176.10
1799.00	61.19	75.27	1209.35	-1153.45	267.75	1059.31	5761338.03	560176.94
1800.00	61.15	75.23	1209.83	-1153.93	267.97	1060.16	5761338.25	560177.79
1801.00	61.11	75.19	1210.31	-1154.41	268.20	1061.00	5761338.48	560178.64
1802.00	61.08	75.15	1210.80	-1154.90	268.42	1061.85	5761338.70	560179.48
1803.00	61.04	75.11	1211.28	-1155.38	268.64	1062.70	5761338.92	560180.33
1804.00	61.00	75.07	1211.76	-1155.86	268.87	1063.54	5761339.15	560181.18
1805.00	60.96	75.03	1212.24	-1156.34	269.09	1064.39	5761339.37	560182.02
1806.00	60.93	74.99	1212.73	-1156.83	269.31	1065.24	5761339.59	560182.87
1807.00	60.89	74.95	1213.21	-1157.31	269.54	1066.08	5761339.82	560183.72
1808.00	60.85	74.90	1213.69	-1157.79	269.76	1066.93	5761340.04	560184.57
1809.00	60.81	74.86	1214.18	-1158.28	269.98	1067.78	5761340.26	560185.41
1810.00	60.78	74.82	1214.66	-1158.76	270.21	1068.62	5761340.49	560186.26
1811.00	60.74	74.78	1215.14	-1159.24	270.43	1069.47	5761340.71	560187.11
1812.00	60.70	74.74	1215.62	-1159.72	270.65	1070.32	5761340.93	560187.95
1813.00	60.66	74.70	1216.11	-1160.21	270.88	1071.16	5761341.16	560188.80
1814.00	60.63	74.66	1216.59	-1160.69	271.10	1072.01	5761341.38	560189.65
1815.00	60.59	74.64	1217.08	-1161.18	271.32	1072.85	5761341.60	560190.49
1816.00	60.54	74.67	1217.58	-1161.68	271.55	1073.69	5761341.83	560191.33
1817.00	60.49	74.69	1218.08	-1162.18	271.77	1074.53	5761342.05	560192.16
1818.00	60.44	74.72	1218.58	-1162.68	271.99	1075.36	5761342.27	560193.00
1819.00	60.39	74.75	1219.08	-1163.18	272.22	1076.20	5761342.50	560193.83
1820.00	60.34	74.78	1219.59	-1163.69	272.44	1077.03	5761342.72	560194.67
1821.00	60.29	74.80	1220.09	-1164.19	272.66	1077.87	5761342.94	560195.50
1822.00	60.24	74.83	1220.59	-1164.69	272.89	1078.70	5761343.17	560196.34
1823.00	60.19	74.86	1221.09	-1165.19	273.11	1079.54	5761343.39	560197.18
1824.00	60.15	74.89	1221.59	-1165.69	273.33	1080.38	5761343.61	560198.01
1825.00	60.10	74.91	1222.09	-1166.19	273.56	1081.21	5761343.84	560198.85
1826.00	60.05	74.94	1222.60	-1166.70	273.78	1082.05	5761344.06	560199.68
1827.00	60.00	74.97	1223.10	-1167.20	274.00	1082.88	5761344.28	560200.52
1828.00	59.95	75.00	1223.60	-1167.70	274.23	1083.72	5761344.51	560201.35
1829.00	59.90	75.03	1224.10	-1168.20	274.45	1084.55	5761344.73	560202.19
1830.00	59.85	75.05	1224.60	-1168.70	274.67	1085.39	5761344.95	560203.02
1831.00	59.80	75.08	1225.10	-1169.20	274.90	1086.23	5761345.18	560203.86

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1832.00	59.75	75.11	1225.61	-1169.71	275.12	1087.06	5761345.40	560204.70
1833.00	59.71	75.14	1226.11	-1170.21	275.34	1087.90	5761345.63	560205.53
1834.00	59.66	75.16	1226.61	-1170.71	275.57	1088.73	5761345.85	560206.37
1835.00	59.61	75.19	1227.11	-1171.21	275.79	1089.57	5761346.07	560207.20
1836.00	59.56	75.22	1227.61	-1171.71	276.01	1090.40	5761346.30	560208.04
1837.00	59.51	75.25	1228.11	-1172.21	276.24	1091.24	5761346.52	560208.87
1838.00	59.46	75.28	1228.62	-1172.72	276.46	1092.07	5761346.74	560209.71
1839.00	59.41	75.30	1229.12	-1173.22	276.68	1092.91	5761346.97	560210.55
1840.00	59.36	75.33	1229.62	-1173.72	276.91	1093.75	5761347.19	560211.38
1841.00	59.31	75.36	1230.12	-1174.22	277.13	1094.58	5761347.41	560212.22
1842.00	59.26	75.39	1230.62	-1174.72	277.35	1095.42	5761347.64	560213.05
1843.00	59.22	75.41	1231.13	-1175.23	277.58	1096.25	5761347.86	560213.89
1844.00	59.17	75.44	1231.63	-1175.73	277.80	1097.09	5761348.08	560214.72
1845.00	59.21	75.43	1232.13	-1176.23	278.02	1097.92	5761348.30	560215.56
1846.00	59.24	75.43	1232.64	-1176.74	278.24	1098.76	5761348.52	560216.39
1847.00	59.28	75.42	1233.14	-1177.24	278.46	1099.59	5761348.74	560217.23
1848.00	59.32	75.41	1233.65	-1177.75	278.68	1100.43	5761348.96	560218.06
1849.00	59.35	75.41	1234.15	-1178.25	278.89	1101.26	5761349.17	560218.90
1850.00	59.39	75.40	1234.65	-1178.75	279.11	1102.10	5761349.39	560219.73
1851.00	59.43	75.39	1235.16	-1179.26	279.33	1102.93	5761349.61	560220.57
1852.00	59.46	75.38	1235.66	-1179.76	279.55	1103.77	5761349.83	560221.41
1853.00	59.50	75.38	1236.17	-1180.27	279.77	1104.61	5761350.05	560222.24
1854.00	59.53	75.37	1236.67	-1180.77	279.99	1105.44	5761350.27	560223.08
1855.00	59.57	75.36	1237.18	-1181.28	280.21	1106.28	5761350.49	560223.91
1856.00	59.61	75.36	1237.68	-1181.78	280.42	1107.11	5761350.70	560224.75
1857.00	59.64	75.35	1238.19	-1182.29	280.64	1107.95	5761350.92	560225.58
1858.00	59.68	75.34	1238.69	-1182.79	280.86	1108.78	5761351.14	560226.42
1859.00	59.71	75.34	1239.20	-1183.30	281.08	1109.62	5761351.36	560227.25
1860.00	59.75	75.33	1239.70	-1183.80	281.30	1110.45	5761351.58	560228.09
1861.00	59.79	75.32	1240.21	-1184.31	281.52	1111.29	5761351.80	560228.92
1862.00	59.82	75.32	1240.71	-1184.81	281.73	1112.12	5761352.02	560229.76
1863.00	59.86	75.31	1241.21	-1185.31	281.95	1112.96	5761352.23	560230.59
1864.00	59.89	75.30	1241.72	-1185.82	282.17	1113.79	5761352.45	560231.43
1865.00	59.93	75.30	1242.22	-1186.32	282.39	1114.63	5761352.67	560232.26
1866.00	59.97	75.29	1242.73	-1186.83	282.61	1115.46	5761352.89	560233.10
1867.00	60.00	75.28	1243.23	-1187.33	282.83	1116.30	5761353.11	560233.93
1868.00	60.04	75.27	1243.74	-1187.84	283.05	1117.13	5761353.33	560234.77
1869.00	60.08	75.27	1244.24	-1188.34	283.26	1117.97	5761353.55	560235.60
1870.00	60.11	75.26	1244.75	-1188.85	283.48	1118.80	5761353.76	560236.44
1871.00	60.15	75.25	1245.25	-1189.35	283.70	1119.64	5761353.98	560237.27
1872.00	60.18	75.25	1245.76	-1189.86	283.92	1120.47	5761354.20	560238.11
1873.00	60.22	75.24	1246.26	-1190.36	284.14	1121.31	5761354.42	560238.94
1874.00	60.22	75.24	1246.76	-1190.86	284.36	1122.15	5761354.64	560239.78
1875.00	60.23	75.23	1247.25	-1191.35	284.58	1122.99	5761354.86	560240.62
1876.00	60.23	75.23	1247.75	-1191.85	284.80	1123.83	5761355.09	560241.46
1877.00	60.23	75.22	1248.24	-1192.34	285.03	1124.67	5761355.31	560242.30
1878.00	60.23	75.22	1248.74	-1192.84	285.25	1125.51	5761355.53	560243.14
1879.00	60.24	75.21	1249.24	-1193.34	285.47	1126.35	5761355.75	560243.98
1880.00	60.24	75.21	1249.73	-1193.83	285.69	1127.19	5761355.97	560244.82
1881.00	60.24	75.21	1250.23	-1194.33	285.92	1128.02	5761356.20	560245.66
1882.00	60.25	75.20	1250.72	-1194.82	286.14	1128.86	5761356.42	560246.50
1883.00	60.25	75.20	1251.22	-1195.32	286.36	1129.70	5761356.64	560247.34
1884.00	60.25	75.19	1251.72	-1195.82	286.58	1130.54	5761356.86	560248.18
1885.00	60.25	75.19	1252.21	-1196.31	286.80	1131.38	5761357.08	560249.02
1886.00	60.26	75.19	1252.71	-1196.81	287.03	1132.22	5761357.31	560249.86
1887.00	60.26	75.18	1253.21	-1197.31	287.25	1133.06	5761357.53	560250.70
1888.00	60.26	75.18	1253.70	-1197.80	287.47	1133.90	5761357.75	560251.54
1889.00	60.26	75.17	1254.20	-1198.30	287.69	1134.74	5761357.97	560252.38

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1890.00	60.27	75.17	1254.69	-1198.79	287.91	1135.58	5761358.19	560253.21
1891.00	60.27	75.16	1255.19	-1199.29	288.14	1136.42	5761358.42	560254.05
1892.00	60.27	75.16	1255.69	-1199.79	288.36	1137.26	5761358.64	560254.89
1893.00	60.28	75.16	1256.18	-1200.28	288.58	1138.10	5761358.86	560255.73
1894.00	60.28	75.15	1256.68	-1200.78	288.80	1138.94	5761359.08	560256.57
1895.00	60.28	75.15	1257.17	-1201.27	289.02	1139.78	5761359.31	560257.41
1896.00	60.28	75.14	1257.67	-1201.77	289.25	1140.62	5761359.53	560258.25
1897.00	60.29	75.14	1258.17	-1202.27	289.47	1141.46	5761359.75	560259.09
1898.00	60.29	75.13	1258.66	-1202.76	289.69	1142.29	5761359.97	560259.93
1899.00	60.29	75.13	1259.16	-1203.26	289.91	1143.13	5761360.19	560260.77
1900.00	60.30	75.13	1259.65	-1203.75	290.13	1143.97	5761360.42	560261.61
1901.00	60.30	75.12	1260.15	-1204.25	290.36	1144.81	5761360.64	560262.45
1902.00	60.28	75.11	1260.65	-1204.75	290.58	1145.65	5761360.86	560263.28
1903.00	60.24	75.09	1261.15	-1205.25	290.81	1146.48	5761361.09	560264.12
1904.00	60.20	75.07	1261.66	-1205.76	291.03	1147.32	5761361.31	560264.95
1905.00	60.16	75.05	1262.16	-1206.26	291.26	1148.15	5761361.54	560265.78
1906.00	60.12	75.03	1262.67	-1206.77	291.48	1148.98	5761361.77	560266.62
1907.00	60.08	75.01	1263.17	-1207.27	291.71	1149.82	5761361.99	560267.45
1908.00	60.04	74.99	1263.68	-1207.78	291.94	1150.65	5761362.22	560268.29
1909.00	60.00	74.97	1264.18	-1208.28	292.16	1151.48	5761362.44	560269.12
1910.00	59.96	74.95	1264.68	-1208.78	292.39	1152.32	5761362.67	560269.95
1911.00	59.92	74.93	1265.19	-1209.29	292.61	1153.15	5761362.90	560270.79
1912.00	59.88	74.91	1265.69	-1209.79	292.84	1153.98	5761363.12	560271.62
1913.00	59.84	74.89	1266.20	-1210.30	293.07	1154.82	5761363.35	560272.45
1914.00	59.80	74.87	1266.70	-1210.80	293.29	1155.65	5761363.57	560273.29
1915.00	59.76	74.85	1267.21	-1211.31	293.52	1156.48	5761363.80	560274.12
1916.00	59.72	74.83	1267.71	-1211.81	293.75	1157.32	5761364.03	560274.95
1917.00	59.68	74.80	1268.21	-1212.31	293.97	1158.15	5761364.25	560275.79
1918.00	59.64	74.78	1268.72	-1212.82	294.20	1158.98	5761364.48	560276.62
1919.00	59.60	74.76	1269.22	-1213.32	294.42	1159.82	5761364.70	560277.45
1920.00	59.56	74.74	1269.73	-1213.83	294.65	1160.65	5761364.93	560278.29
1921.00	59.52	74.72	1270.23	-1214.33	294.88	1161.48	5761365.16	560279.12
1922.00	59.48	74.70	1270.73	-1214.83	295.10	1162.32	5761365.38	560279.95
1923.00	59.44	74.68	1271.24	-1215.34	295.33	1163.15	5761365.61	560280.79
1924.00	59.40	74.66	1271.74	-1215.84	295.55	1163.98	5761365.83	560281.62
1925.00	59.36	74.64	1272.25	-1216.35	295.78	1164.82	5761366.06	560282.45
1926.00	59.32	74.62	1272.75	-1216.85	296.01	1165.65	5761366.29	560283.29
1927.00	59.28	74.60	1273.26	-1217.36	296.23	1166.49	5761366.51	560284.12
1928.00	59.24	74.58	1273.76	-1217.86	296.46	1167.32	5761366.74	560284.95
1929.00	59.20	74.56	1274.26	-1218.36	296.68	1168.15	5761366.96	560285.79
1930.00	59.16	74.54	1274.77	-1218.87	296.91	1168.99	5761367.19	560286.62
1931.00	59.16	74.53	1275.27	-1219.37	297.14	1169.82	5761367.42	560287.45
1932.00	59.19	74.53	1275.78	-1219.88	297.37	1170.65	5761367.65	560288.28
1933.00	59.22	74.52	1276.29	-1220.39	297.60	1171.48	5761367.88	560289.12
1934.00	59.25	74.52	1276.79	-1220.89	297.83	1172.31	5761368.11	560289.95
1935.00	59.28	74.52	1277.30	-1221.40	298.06	1173.14	5761368.34	560290.78
1936.00	59.31	74.51	1277.80	-1221.90	298.29	1173.97	5761368.57	560291.61
1937.00	59.34	74.51	1278.31	-1222.41	298.52	1174.80	5761368.80	560292.44
1938.00	59.37	74.51	1278.82	-1222.92	298.75	1175.63	5761369.03	560293.27
1939.00	59.40	74.50	1279.32	-1223.42	298.98	1176.47	5761369.26	560294.10
1940.00	59.43	74.50	1279.83	-1223.93	299.21	1177.30	5761369.50	560294.93
1941.00	59.46	74.50	1280.34	-1224.44	299.44	1178.13	5761369.73	560295.76
1942.00	59.50	74.49	1280.84	-1224.94	299.68	1178.96	5761369.96	560296.59
1943.00	59.53	74.49	1281.35	-1225.45	299.91	1179.79	5761370.19	560297.42
1944.00	59.56	74.49	1281.85	-1225.95	300.14	1180.62	5761370.42	560298.26
1945.00	59.59	74.49	1282.36	-1226.46	300.37	1181.45	5761370.65	560299.09
1946.00	59.62	74.48	1282.87	-1226.97	300.60	1182.28	5761370.88	560299.92
1947.00	59.65	74.48	1283.37	-1227.47	300.83	1183.11	5761371.11	560300.75

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1948.00	59.68	74.48	1283.88	-1227.98	301.06	1183.94	5761371.34	560301.58
1949.00	59.71	74.47	1284.38	-1228.48	301.29	1184.78	5761371.57	560302.41
1950.00	59.74	74.47	1284.89	-1228.99	301.52	1185.61	5761371.80	560303.24
1951.00	59.77	74.47	1285.40	-1229.50	301.75	1186.44	5761372.03	560304.07
1952.00	59.81	74.46	1285.90	-1230.00	301.98	1187.27	5761372.26	560304.90
1953.00	59.84	74.46	1286.41	-1230.51	302.21	1188.10	5761372.49	560305.73
1954.00	59.87	74.46	1286.92	-1231.02	302.44	1188.93	5761372.72	560306.57
1955.00	59.90	74.45	1287.42	-1231.52	302.67	1189.76	5761372.96	560307.40
1956.00	59.93	74.45	1287.93	-1232.03	302.91	1190.59	5761373.19	560308.23
1957.00	59.96	74.45	1288.43	-1232.53	303.14	1191.42	5761373.42	560309.06
1958.00	59.99	74.44	1288.94	-1233.04	303.37	1192.25	5761373.65	560309.89
1959.00	60.02	74.44	1289.45	-1233.55	303.60	1193.09	5761373.88	560310.72
1960.00	60.05	74.43	1289.95	-1234.05	303.83	1193.92	5761374.11	560311.55
1961.00	60.07	74.41	1290.44	-1234.54	304.07	1194.75	5761374.35	560312.39
1962.00	60.09	74.39	1290.94	-1235.04	304.31	1195.59	5761374.59	560313.23
1963.00	60.11	74.37	1291.43	-1235.53	304.54	1196.43	5761374.82	560314.06
1964.00	60.13	74.35	1291.93	-1236.03	304.78	1197.26	5761375.06	560314.90
1965.00	60.16	74.33	1292.42	-1236.52	305.02	1198.10	5761375.30	560315.73
1966.00	60.18	74.31	1292.92	-1237.02	305.26	1198.93	5761375.54	560316.57
1967.00	60.20	74.29	1293.41	-1237.51	305.49	1199.77	5761375.77	560317.41
1968.00	60.22	74.27	1293.91	-1238.01	305.73	1200.61	5761376.01	560318.24
1969.00	60.24	74.25	1294.40	-1238.50	305.97	1201.44	5761376.25	560319.08
1970.00	60.26	74.23	1294.90	-1239.00	306.21	1202.28	5761376.49	560319.91
1971.00	60.28	74.21	1295.39	-1239.49	306.44	1203.11	5761376.72	560320.75
1972.00	60.31	74.19	1295.88	-1239.98	306.68	1203.95	5761376.96	560321.59
1973.00	60.33	74.17	1296.38	-1240.48	306.92	1204.79	5761377.20	560322.42
1974.00	60.35	74.15	1296.87	-1240.97	307.16	1205.62	5761377.44	560323.26
1975.00	60.37	74.13	1297.37	-1241.47	307.39	1206.46	5761377.67	560324.09
1976.00	60.39	74.11	1297.86	-1241.96	307.63	1207.29	5761377.91	560324.93
1977.00	60.41	74.09	1298.36	-1242.46	307.87	1208.13	5761378.15	560325.77
1978.00	60.43	74.07	1298.85	-1242.95	308.11	1208.97	5761378.39	560326.60
1979.00	60.45	74.05	1299.35	-1243.45	308.34	1209.80	5761378.62	560327.44
1980.00	60.48	74.03	1299.84	-1243.94	308.58	1210.64	5761378.86	560328.27
1981.00	60.50	74.00	1300.34	-1244.44	308.82	1211.47	5761379.10	560329.11
1982.00	60.52	73.98	1300.83	-1244.93	309.05	1212.31	5761379.34	560329.95
1983.00	60.54	73.96	1301.33	-1245.43	309.29	1213.15	5761379.57	560330.78
1984.00	60.56	73.94	1301.82	-1245.92	309.53	1213.98	5761379.81	560331.62
1985.00	60.58	73.92	1302.32	-1246.42	309.77	1214.82	5761380.05	560332.45
1986.00	60.60	73.90	1302.81	-1246.91	310.00	1215.65	5761380.29	560333.29
1987.00	60.63	73.88	1303.31	-1247.41	310.24	1216.49	5761380.52	560334.13
1988.00	60.65	73.86	1303.80	-1247.90	310.48	1217.33	5761380.76	560334.96
1989.00	60.67	73.85	1304.29	-1248.39	310.72	1218.16	5761381.00	560335.80
1990.00	60.68	73.84	1304.78	-1248.88	310.96	1219.00	5761381.24	560336.64
1991.00	60.70	73.83	1305.26	-1249.36	311.21	1219.84	5761381.49	560337.48
1992.00	60.72	73.83	1305.75	-1249.85	311.45	1220.68	5761381.73	560338.32
1993.00	60.74	73.82	1306.24	-1250.34	311.70	1221.52	5761381.98	560339.15
1994.00	60.75	73.81	1306.72	-1250.82	311.94	1222.36	5761382.22	560339.99
1995.00	60.77	73.81	1307.21	-1251.31	312.19	1223.20	5761382.47	560340.83
1996.00	60.79	73.80	1307.69	-1251.79	312.43	1224.04	5761382.71	560341.67
1997.00	60.81	73.79	1308.18	-1252.28	312.68	1224.88	5761382.96	560342.51
1998.00	60.82	73.78	1308.67	-1252.77	312.92	1225.71	5761383.20	560343.35
1999.00	60.84	73.78	1309.15	-1253.25	313.16	1226.55	5761383.45	560344.19
2000.00	60.86	73.77	1309.64	-1253.74	313.41	1227.39	5761383.69	560345.03
2001.00	60.87	73.76	1310.13	-1254.23	313.65	1228.23	5761383.93	560345.87
2002.00	60.89	73.76	1310.61	-1254.71	313.90	1229.07	5761384.18	560346.71
2003.00	60.91	73.75	1311.10	-1255.20	314.14	1229.91	5761384.42	560347.54
2004.00	60.93	73.74	1311.58	-1255.68	314.39	1230.75	5761384.67	560348.38
2005.00	60.94	73.74	1312.07	-1256.17	314.63	1231.59	5761384.91	560349.22

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2006.00	60.96	73.73	1312.56	-1256.66	314.88	1232.43	5761385.16	560350.06
2007.00	60.98	73.72	1313.04	-1257.14	315.12	1233.26	5761385.40	560350.90
2008.00	61.00	73.72	1313.53	-1257.63	315.37	1234.10	5761385.65	560351.74
2009.00	61.01	73.71	1314.02	-1258.12	315.61	1234.94	5761385.89	560352.58
2010.00	61.03	73.70	1314.50	-1258.60	315.85	1235.78	5761386.14	560353.42
2011.00	61.05	73.69	1314.99	-1259.09	316.10	1236.62	5761386.38	560354.26
2012.00	61.07	73.69	1315.47	-1259.57	316.34	1237.46	5761386.62	560355.09
2013.00	61.08	73.68	1315.96	-1260.06	316.59	1238.30	5761386.87	560355.93
2014.00	61.10	73.67	1316.45	-1260.55	316.83	1239.14	5761387.11	560356.77
2015.00	61.12	73.67	1316.93	-1261.03	317.08	1239.98	5761387.36	560357.61
2016.00	61.13	73.66	1317.42	-1261.52	317.32	1240.81	5761387.60	560358.45
2017.00	61.15	73.65	1317.90	-1262.00	317.57	1241.65	5761387.85	560359.29
2018.00	61.13	73.66	1318.40	-1262.50	317.81	1242.49	5761388.09	560360.13
2019.00	61.07	73.69	1318.89	-1262.99	318.05	1243.33	5761388.33	560360.96
2020.00	61.01	73.72	1319.39	-1263.49	318.29	1244.16	5761388.57	560361.80
2021.00	60.95	73.75	1319.88	-1263.98	318.52	1245.00	5761388.80	560362.63
2022.00	60.88	73.77	1320.38	-1264.48	318.76	1245.83	5761389.04	560363.47
2023.00	60.82	73.80	1320.88	-1264.98	319.00	1246.67	5761389.28	560364.30
2024.00	60.76	73.83	1321.37	-1265.47	319.24	1247.50	5761389.52	560365.14
2025.00	60.70	73.86	1321.87	-1265.97	319.48	1248.33	5761389.76	560365.97
2026.00	60.64	73.88	1322.36	-1266.46	319.72	1249.17	5761390.00	560366.80
2027.00	60.58	73.91	1322.86	-1266.96	319.96	1250.00	5761390.24	560367.64
2028.00	60.52	73.94	1323.35	-1267.45	320.19	1250.84	5761390.48	560368.47
2029.00	60.46	73.97	1323.85	-1267.95	320.43	1251.67	5761390.71	560369.31
2030.00	60.40	73.99	1324.35	-1268.45	320.67	1252.51	5761390.95	560370.14
2031.00	60.34	74.02	1324.84	-1268.94	320.91	1253.34	5761391.19	560370.98
2032.00	60.28	74.05	1325.34	-1269.44	321.15	1254.18	5761391.43	560371.81
2033.00	60.21	74.08	1325.83	-1269.93	321.39	1255.01	5761391.67	560372.65
2034.00	60.15	74.10	1326.33	-1270.43	321.63	1255.85	5761391.91	560373.48
2035.00	60.09	74.13	1326.83	-1270.93	321.86	1256.68	5761392.15	560374.32
2036.00	60.03	74.16	1327.32	-1271.42	322.10	1257.52	5761392.38	560375.15
2037.00	59.97	74.18	1327.82	-1271.92	322.34	1258.35	5761392.62	560375.99
2038.00	59.91	74.21	1328.31	-1272.41	322.58	1259.19	5761392.86	560376.82
2039.00	59.85	74.24	1328.81	-1272.91	322.82	1260.02	5761393.10	560377.66
2040.00	59.79	74.27	1329.31	-1273.41	323.06	1260.86	5761393.34	560378.49
2041.00	59.73	74.29	1329.80	-1273.90	323.30	1261.69	5761393.58	560379.33
2042.00	59.67	74.32	1330.30	-1274.40	323.54	1262.53	5761393.82	560380.16
2043.00	59.60	74.35	1330.79	-1274.89	323.77	1263.36	5761394.05	560381.00
2044.00	59.54	74.38	1331.29	-1275.39	324.01	1264.20	5761394.29	560381.83
2045.00	59.48	74.40	1331.78	-1275.88	324.25	1265.03	5761394.53	560382.67
2046.00	59.42	74.43	1332.28	-1276.38	324.49	1265.87	5761394.77	560383.50
2047.00	59.38	74.45	1332.78	-1276.88	324.73	1266.70	5761395.01	560384.34
2048.00	59.38	74.46	1333.29	-1277.39	324.96	1267.53	5761395.24	560385.17
2049.00	59.38	74.46	1333.80	-1277.90	325.19	1268.36	5761395.47	560386.00
2050.00	59.39	74.46	1334.31	-1278.41	325.42	1269.19	5761395.70	560386.83
2051.00	59.39	74.47	1334.82	-1278.92	325.65	1270.02	5761395.93	560387.65
2052.00	59.39	74.47	1335.33	-1279.43	325.88	1270.85	5761396.16	560388.48
2053.00	59.39	74.48	1335.83	-1279.93	326.10	1271.68	5761396.39	560389.31
2054.00	59.39	74.48	1336.34	-1280.44	326.33	1272.51	5761396.62	560390.14
2055.00	59.40	74.49	1336.85	-1280.95	326.56	1273.34	5761396.85	560390.97
2056.00	59.40	74.49	1337.36	-1281.46	326.79	1274.17	5761397.08	560391.80
2057.00	59.40	74.50	1337.87	-1281.97	327.02	1275.00	5761397.31	560392.63
2058.00	59.40	74.50	1338.38	-1282.48	327.25	1275.83	5761397.54	560393.46
2059.00	59.41	74.50	1338.89	-1282.99	327.48	1276.66	5761397.76	560394.29
2060.00	59.41	74.51	1339.40	-1283.50	327.71	1277.49	5761397.99	560395.12
2061.00	59.41	74.51	1339.91	-1284.01	327.94	1278.32	5761398.22	560395.95
2062.00	59.41	74.52	1340.41	-1284.51	328.17	1279.14	5761398.45	560396.78
2063.00	59.41	74.52	1340.92	-1285.02	328.40	1279.97	5761398.68	560397.61

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2064.00	59.42	74.53	1341.43	-1285.53	328.63	1280.80	5761398.91	560398.44
2065.00	59.42	74.53	1341.94	-1286.04	328.86	1281.63	5761399.14	560399.27
2066.00	59.42	74.54	1342.45	-1286.55	329.09	1282.46	5761399.37	560400.10
2067.00	59.42	74.54	1342.96	-1287.06	329.32	1283.29	5761399.60	560400.93
2068.00	59.42	74.54	1343.47	-1287.57	329.55	1284.12	5761399.83	560401.76
2069.00	59.43	74.55	1343.98	-1288.08	329.78	1284.95	5761400.06	560402.59
2070.00	59.43	74.55	1344.48	-1288.58	330.01	1285.78	5761400.29	560403.42
2071.00	59.43	74.56	1344.99	-1289.09	330.24	1286.61	5761400.52	560404.25
2072.00	59.43	74.56	1345.50	-1289.60	330.47	1287.44	5761400.75	560405.08
2073.00	59.43	74.57	1346.01	-1290.11	330.70	1288.27	5761400.98	560405.90
2074.00	59.44	74.57	1346.52	-1290.62	330.93	1289.10	5761401.21	560406.73
2075.00	59.44	74.58	1347.03	-1291.13	331.16	1289.93	5761401.44	560407.56
2076.00	59.44	74.58	1347.54	-1291.64	331.39	1290.76	5761401.67	560408.39
2077.00	59.44	74.58	1348.05	-1292.15	331.62	1291.59	5761401.90	560409.22
2078.00	59.44	74.58	1348.55	-1292.65	331.85	1292.42	5761402.13	560410.05
2079.00	59.45	74.59	1349.06	-1293.16	332.08	1293.25	5761402.36	560410.89
2080.00	59.45	74.59	1349.57	-1293.67	332.31	1294.08	5761402.59	560411.72
2081.00	59.45	74.59	1350.08	-1294.18	332.53	1294.91	5761402.81	560412.55
2082.00	59.45	74.59	1350.59	-1294.69	332.76	1295.74	5761403.04	560413.38
2083.00	59.45	74.60	1351.09	-1295.19	332.99	1296.57	5761403.27	560414.21
2084.00	59.46	74.60	1351.60	-1295.70	333.22	1297.40	5761403.50	560415.04
2085.00	59.46	74.60	1352.11	-1296.21	333.45	1298.23	5761403.73	560415.87
2086.00	59.46	74.60	1352.62	-1296.72	333.68	1299.06	5761403.96	560416.70
2087.00	59.46	74.60	1353.13	-1297.23	333.91	1299.89	5761404.19	560417.53
2088.00	59.46	74.61	1353.63	-1297.73	334.13	1300.72	5761404.41	560418.36
2089.00	59.46	74.61	1354.14	-1298.24	334.36	1301.56	5761404.64	560419.19
2090.00	59.47	74.61	1354.65	-1298.75	334.59	1302.39	5761404.87	560420.02
2091.00	59.47	74.61	1355.16	-1299.26	334.82	1303.22	5761405.10	560420.85
2092.00	59.47	74.62	1355.67	-1299.77	335.05	1304.05	5761405.33	560421.68
2093.00	59.47	74.62	1356.17	-1300.27	335.28	1304.88	5761405.56	560422.51
2094.00	59.47	74.62	1356.68	-1300.78	335.50	1305.71	5761405.79	560423.34
2095.00	59.48	74.62	1357.19	-1301.29	335.73	1306.54	5761406.01	560424.17
2096.00	59.48	74.62	1357.70	-1301.80	335.96	1307.37	5761406.24	560425.00
2097.00	59.48	74.63	1358.21	-1302.31	336.19	1308.20	5761406.47	560425.83
2098.00	59.48	74.63	1358.71	-1302.81	336.42	1309.03	5761406.70	560426.67
2099.00	59.48	74.63	1359.22	-1303.32	336.65	1309.86	5761406.93	560427.50
2100.00	59.49	74.63	1359.73	-1303.83	336.88	1310.69	5761407.16	560428.33
2101.00	59.49	74.63	1360.24	-1304.34	337.10	1311.52	5761407.39	560429.16
2102.00	59.49	74.64	1360.75	-1304.85	337.33	1312.35	5761407.61	560429.99
2103.00	59.49	74.64	1361.25	-1305.35	337.56	1313.18	5761407.84	560430.82
2104.00	59.49	74.64	1361.76	-1305.86	337.79	1314.01	5761408.07	560431.65
2105.00	59.49	74.64	1362.27	-1306.37	338.02	1314.84	5761408.30	560432.48
2106.00	59.50	74.65	1362.78	-1306.88	338.25	1315.67	5761408.53	560433.31
2107.00	59.50	74.65	1363.29	-1307.39	338.48	1316.50	5761408.76	560434.14
2108.00	59.50	74.65	1363.79	-1307.89	338.70	1317.34	5761408.98	560434.97



**APPENDIX 1e**  
**BARRACOUTA A4AST**  
**MD-TVD Survey Data Listing**

<b>Report Date:</b>	31 August 2005
<b>Well:</b>	Barracouta A4AST
<b>Structure / Slot:</b>	ENSCO 102 / 5
<b>TVD Reference Datum:</b>	Drillsite Elevation
<b>TVD Reference Elevation:</b>	56 m relative to MSL
<b>Sea Bed / Ground Level Elevation:</b>	45.7 m relative to MSL
<b>Grid Coordinate System:</b>	GDA94/MGA94 Zone 55
<b>Location Lat/Long:</b>	S 38 17' 47", E 147 40' 33"
<b>Location Grid N/E:</b>	N 559117.6761 m, E 5761070.2550 m
<b>Survey Azimuth Reference:</b>	Grid North

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
0	0	360	0	55.9	0	0	5761070.28	559117.64
5	0	0	5	50.9	0	0	5761070.28	559117.64
10	0	0	10	45.9	0	0	5761070.28	559117.64
15	0	0	15	40.9	0	0	5761070.28	559117.64
20	0	0	20	35.9	0	0	5761070.28	559117.64
25	0	0	25	30.9	0	0	5761070.28	559117.64
30	0	360.00	30.00	25.90	0	0	5761070.28	559117.64
35	0.08	350.92	35.00	20.90	0.01	-0.02	5761070.29	559117.62
40	0.19	338.06	40.00	15.90	0.01	-0.04	5761070.29	559117.59
45	0.29	325.20	45.00	10.90	0.02	-0.07	5761070.30	559117.57
50	0.40	312.34	50.00	5.90	0.03	-0.10	5761070.31	559117.54
55	0.51	299.48	55.00	0.90	0.04	-0.12	5761070.32	559117.51
60	0.62	286.62	60.00	-4.10	0.04	-0.15	5761070.32	559117.49
65	0.73	286.62	65.00	-9.10	0.06	-0.21	5761070.34	559117.43
70	0.72	285.11	70.00	-14.10	0.08	-0.27	5761070.36	559117.37
75	0.48	275.87	75.00	-19.10	0.09	-0.32	5761070.37	559117.32
80	0.41	169.13	80.00	-24.10	0.09	-0.33	5761070.37	559117.30
85	0.44	115.81	85.00	-29.10	0.07	-0.31	5761070.35	559117.32
90	0.31	108.24	90.00	-34.10	0.06	-0.28	5761070.34	559117.36
95	0.32	111.04	95.00	-39.10	0.05	-0.25	5761070.33	559117.38
100	0.29	105.61	100.00	-44.10	0.04	-0.23	5761070.32	559117.41
105	0.28	106.87	105.00	-49.10	0.03	-0.21	5761070.31	559117.43
110	0.38	111.61	110.00	-54.10	0.02	-0.18	5761070.30	559117.46
115	0.53	110.80	115.00	-59.10	0.01	-0.14	5761070.29	559117.49
120	0.57	110.54	120.00	-64.10	-0.01	-0.10	5761070.27	559117.54
125	0.58	113.07	125.00	-69.10	-0.03	-0.05	5761070.25	559117.59
130	0.62	113.97	130.00	-74.10	-0.05	0.00	5761070.23	559117.63
135	0.64	112.99	135.00	-79.10	-0.07	0.05	5761070.21	559117.68
140	0.64	111.12	140.00	-84.10	-0.09	0.10	5761070.19	559117.74
145	0.62	111.71	145.00	-89.10	-0.11	0.15	5761070.17	559117.79
150	0.63	111.84	150.00	-94.10	-0.13	0.20	5761070.15	559117.84
155	0.63	111.21	155.00	-99.10	-0.15	0.25	5761070.13	559117.89
160	0.66	110.57	160.00	-104.09	-0.17	0.31	5761070.11	559117.94
165	0.51	109.11	165.00	-109.09	-0.19	0.35	5761070.09	559117.99
170	0.54	108.72	169.99	-114.09	-0.20	0.40	5761070.08	559118.03
175	0.57	107.36	174.99	-119.09	-0.22	0.44	5761070.06	559118.08
180	0.48	108.09	179.99	-124.09	-0.23	0.49	5761070.05	559118.12
185	0.50	108.21	184.99	-129.09	-0.25	0.53	5761070.03	559118.16
190	0.47	103.39	189.99	-134.09	-0.26	0.57	5761070.02	559118.20
195	0.42	99.72	194.99	-139.09	-0.27	0.61	5761070.01	559118.24
200	0.41	98.33	199.99	-144.09	-0.27	0.64	5761070.01	559118.28
205	0.42	97.53	204.99	-149.09	-0.28	0.68	5761070.00	559118.31
210	0.39	95.78	209.99	-154.09	-0.28	0.71	5761070.00	559118.35
215	0.37	93.47	214.99	-159.09	-0.28	0.75	5761070.00	559118.38
220	0.35	92.82	219.99	-164.09	-0.29	0.78	5761070.00	559118.41
225	0.34	91.10	224.99	-169.09	-0.29	0.81	5761069.99	559118.44
230	0.33	87.63	229.99	-174.09	-0.29	0.84	5761069.99	559118.47

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
235	0.31	80.37	234.99	-179.09	-0.28	0.86	5761070.00	559118.50
240	0.23	70.93	239.99	-184.09	-0.28	0.89	5761070.00	559118.52
245	0.18	68.35	244.99	-189.09	-0.27	0.90	5761070.01	559118.54
250	0.16	52.58	249.99	-194.09	-0.27	0.92	5761070.02	559118.55
255	0.14	25.70	254.99	-199.09	-0.26	0.92	5761070.03	559118.56
260	0.16	22.50	259.99	-204.09	-0.24	0.93	5761070.04	559118.56
265	0.16	16.78	264.99	-209.09	-0.23	0.93	5761070.05	559118.57
270	0.15	31.37	269.99	-214.09	-0.22	0.94	5761070.06	559118.57
275	0.14	19.07	274.99	-219.09	-0.21	0.95	5761070.07	559118.58
280	0.15	9.49	279.99	-224.09	-0.20	0.95	5761070.09	559118.58
285	0.13	100.98	284.99	-229.09	-0.19	0.95	5761070.09	559118.59
290	0.08	220.25	289.99	-234.09	-0.19	0.95	5761070.09	559118.59
295	0.08	230.56	294.99	-239.09	-0.20	0.95	5761070.08	559118.58
300	0.09	214.97	299.99	-244.09	-0.20	0.94	5761070.08	559118.58
305	0.11	228.89	304.99	-249.09	-0.21	0.94	5761070.07	559118.57
310	0.14	227.43	309.99	-254.09	-0.22	0.93	5761070.07	559118.57
315	0.18	225.52	314.99	-259.09	-0.23	0.92	5761070.06	559118.56
320	0.21	228.48	319.99	-264.09	-0.24	0.91	5761070.04	559118.54
325	0.23	227.49	324.99	-269.09	-0.25	0.89	5761070.03	559118.53
330	0.24	230.96	329.99	-274.09	-0.26	0.88	5761070.02	559118.51
335	0.25	233.15	334.99	-279.09	-0.28	0.86	5761070.01	559118.50
340	0.24	234.08	339.99	-284.09	-0.29	0.84	5761069.99	559118.48
345	0.63	221.59	344.99	-289.09	-0.32	0.85	5761069.96	559118.48
350	2.53	152.70	349.99	-294.09	-0.41	0.94	5761069.87	559118.58
355	3.67	128.11	354.98	-299.08	-0.58	1.21	5761069.70	559118.85
360	4.45	124.37	359.96	-304.06	-0.79	1.56	5761069.49	559119.20
365	5.23	120.63	364.94	-309.04	-1.00	1.91	5761069.28	559119.55
370	6.02	116.90	369.93	-314.03	-1.21	2.26	5761069.07	559119.90
375	6.76	113.66	374.88	-318.98	-1.40	2.85	5761068.88	559120.48
380	7.47	110.64	379.83	-323.93	-1.58	3.54	5761068.70	559121.18
385	8.19	107.63	384.78	-328.88	-1.77	4.24	5761068.52	559121.87
390	8.91	104.62	389.72	-333.82	-1.95	4.93	5761068.33	559122.57
395	9.63	101.60	394.67	-338.77	-2.13	5.63	5761068.15	559123.26
400	10.35	98.59	399.62	-343.72	-2.31	6.32	5761067.97	559123.95
405	10.88	97.36	404.51	-348.61	-2.42	7.31	5761067.87	559124.94
410	11.38	96.37	409.41	-353.51	-2.50	8.33	5761067.78	559125.97
415	11.88	95.38	414.30	-358.40	-2.59	9.36	5761067.69	559127.00
420	12.39	94.40	419.19	-363.29	-2.68	10.39	5761067.60	559128.02
425	12.89	93.41	424.08	-368.18	-2.77	11.42	5761067.51	559129.05
430	13.39	92.42	428.97	-373.07	-2.86	12.44	5761067.42	559130.08
435	13.91	90.65	433.81	-377.91	-2.79	13.72	5761067.49	559131.35
440	14.43	88.89	438.64	-382.74	-2.72	15.00	5761067.56	559132.63
445	14.95	87.12	443.47	-387.57	-2.66	16.27	5761067.63	559133.91
450	15.47	85.35	448.31	-392.41	-2.59	17.55	5761067.69	559135.18
455	15.99	83.59	453.14	-397.24	-2.52	18.82	5761067.76	559136.46
460	16.51	81.99	457.95	-402.05	-2.37	20.17	5761067.91	559137.81
465	17.00	80.76	462.71	-406.81	-2.07	21.66	5761068.21	559139.30
470	17.49	79.53	467.47	-411.57	-1.77	23.16	5761068.51	559140.79
475	17.98	78.31	472.23	-416.33	-1.47	24.65	5761068.81	559142.29
480	18.48	77.08	476.99	-421.09	-1.16	26.14	5761069.12	559143.78
485	18.97	75.85	481.75	-425.85	-0.86	27.64	5761069.42	559145.27
490	19.52	75.24	486.47	-430.57	-0.48	29.25	5761069.80	559146.89
495	20.14	75.22	491.13	-435.23	-0.02	30.98	5761070.26	559148.62
500	20.75	75.20	495.80	-439.90	0.44	32.72	5761070.72	559150.35
505	21.36	75.18	500.47	-444.57	0.90	34.45	5761071.18	559152.08
510	21.97	75.16	505.14	-449.24	1.35	36.18	5761071.63	559153.81
515	22.59	75.15	509.80	-453.90	1.81	37.91	5761072.09	559155.55
520	23.32	74.99	514.38	-458.48	2.34	39.85	5761072.62	559157.49

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
525	24.10	74.77	518.91	-463.01	2.91	41.89	5761073.19	559159.53
530	24.88	74.55	523.43	-467.53	3.48	43.93	5761073.76	559161.57
535	25.66	74.33	527.96	-472.06	4.05	45.97	5761074.33	559163.60
540	26.45	74.10	532.49	-476.59	4.61	48.01	5761074.89	559165.64
545	27.23	73.88	537.02	-481.12	5.18	50.05	5761075.46	559167.68
550	27.93	73.63	541.40	-485.50	5.88	52.36	5761076.16	559169.99
555	28.62	73.36	545.76	-489.86	6.59	54.70	5761076.87	559172.33
560	29.31	73.10	550.11	-494.21	7.31	57.04	5761077.59	559174.67
565	30.00	72.84	554.47	-498.57	8.02	59.38	5761078.30	559177.02
570	30.69	72.58	558.83	-502.93	8.73	61.72	5761079.01	559179.36
575	31.37	72.38	563.18	-507.28	9.45	64.08	5761079.73	559181.72
580	31.97	72.91	567.37	-511.47	10.20	66.70	5761080.48	559184.34
585	32.56	73.43	571.56	-515.66	10.96	69.33	5761081.24	559186.96
590	33.16	73.96	575.75	-519.85	11.71	71.95	5761081.99	559189.58
595	33.76	74.49	579.94	-524.04	12.47	74.57	5761082.75	559192.20
600	34.35	75.01	584.13	-528.23	13.22	77.19	5761083.50	559194.82
605	34.95	75.42	588.28	-532.38	13.97	79.87	5761084.25	559197.50
610	35.55	75.43	592.29	-536.39	14.72	82.75	5761085.00	559200.38
615	36.16	75.44	596.31	-540.41	15.47	85.63	5761085.75	559203.26
620	36.77	75.44	600.33	-544.43	16.22	88.51	5761086.50	559206.15
625	37.37	75.45	604.34	-548.44	16.96	91.39	5761087.25	559209.03
630	37.98	75.46	608.36	-552.46	17.71	94.27	5761087.99	559211.91
635	38.54	75.43	612.28	-556.38	18.50	97.26	5761088.78	559214.90
640	39.05	75.36	616.13	-560.23	19.31	100.36	5761089.59	559217.99
645	39.57	75.29	619.97	-564.07	20.12	103.45	5761090.40	559221.09
650	40.08	75.23	623.81	-567.91	20.94	106.55	5761091.22	559224.18
655	40.60	75.16	627.65	-571.75	21.75	109.64	5761092.03	559227.27
660	41.11	75.09	631.49	-575.59	22.57	112.73	5761092.85	559230.37
665	41.72	75.05	635.21	-579.31	23.43	115.96	5761093.71	559233.60
670	42.38	75.02	638.85	-582.95	24.31	119.27	5761094.60	559236.91
675	43.04	74.99	642.49	-586.59	25.20	122.58	5761095.48	559240.21
680	43.70	74.96	646.13	-590.23	26.09	125.89	5761096.37	559243.52
685	44.36	74.94	649.78	-593.88	26.98	129.19	5761097.26	559246.83
690	45.02	74.91	653.42	-597.52	27.86	132.50	5761098.14	559250.13
695	45.67	74.82	656.88	-600.98	28.82	135.98	5761099.10	559253.61
700	46.32	74.72	660.29	-604.39	29.79	139.50	5761100.07	559257.14
705	46.96	74.62	663.69	-607.79	30.76	143.03	5761101.04	559260.67
710	47.61	74.52	667.10	-611.20	31.73	146.56	5761102.01	559264.19
715	48.26	74.42	670.51	-614.61	32.70	150.08	5761102.98	559267.72
720	48.91	74.32	673.91	-618.01	33.67	153.61	5761103.95	559271.25
725	49.58	74.35	677.07	-621.17	34.72	157.35	5761105.00	559274.98
730	50.26	74.37	680.22	-624.32	35.76	161.08	5761106.04	559278.72
735	50.93	74.40	683.38	-627.48	36.80	164.82	5761107.08	559282.45
740	51.60	74.43	686.53	-630.63	37.84	168.55	5761108.12	559286.19
745	52.28	74.46	689.69	-633.79	38.89	172.29	5761109.17	559289.92
750	52.94	74.50	692.80	-636.90	39.93	176.06	5761110.21	559293.69
755	53.57	74.60	695.69	-639.79	41.00	179.99	5761111.29	559297.63
760	54.21	74.70	698.58	-642.68	42.08	183.93	5761112.36	559301.56
765	54.84	74.80	701.47	-645.57	43.15	187.87	5761113.43	559305.50
770	55.47	74.90	704.36	-648.46	44.22	191.80	5761114.50	559309.44
775	56.11	75.00	707.25	-651.35	45.29	195.74	5761115.57	559313.37
780	56.64	75.07	710.07	-654.17	46.36	199.72	5761116.64	559317.35
785	56.97	75.07	712.76	-656.86	47.45	203.79	5761117.73	559321.43
790	57.31	75.07	715.45	-659.55	48.54	207.87	5761118.82	559325.50
795	57.64	75.06	718.13	-662.23	49.62	211.94	5761119.90	559329.57
800	57.97	75.06	720.82	-664.92	50.71	216.01	5761120.99	559333.65
805	58.30	75.06	723.51	-667.61	51.80	220.09	5761122.08	559337.72
810	58.69	75.12	726.11	-670.21	52.89	224.21	5761123.17	559341.85

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
815	59.10	75.21	728.67	-672.77	53.98	228.37	5761124.26	559346.00
820	59.51	75.31	731.23	-675.33	55.08	232.52	5761125.36	559350.16
825	59.93	75.40	733.79	-677.89	56.17	236.67	5761126.45	559354.31
830	60.06	75.38	736.30	-680.40	57.27	240.85	5761127.55	559358.49
835	60.07	75.32	738.79	-682.89	58.38	245.04	5761128.66	559362.68
840	60.08	75.25	741.29	-685.39	59.48	249.24	5761129.76	559366.87
845	60.09	75.18	743.78	-687.88	60.59	253.43	5761130.87	559371.06
850	60.10	75.11	746.27	-690.37	61.69	257.62	5761131.97	559375.25
855	60.11	75.05	748.77	-692.87	62.80	261.81	5761133.08	559379.44
860	60.24	75.01	751.23	-695.33	63.92	266.01	5761134.20	559383.64
865	60.45	75.00	753.68	-697.78	65.05	270.22	5761135.33	559387.86
870	60.66	74.99	756.12	-700.22	66.18	274.43	5761136.46	559392.07
875	60.88	74.98	758.57	-702.67	67.30	278.65	5761137.59	559396.28
880	61.09	74.97	761.01	-705.11	68.43	282.86	5761138.72	559400.50
885	61.31	74.96	763.46	-707.56	69.56	287.07	5761139.85	559404.71
890	61.28	74.94	765.88	-709.98	70.70	291.30	5761140.98	559408.93
895	61.22	74.92	768.29	-712.39	71.85	295.53	5761142.13	559413.16
900	61.15	74.89	770.70	-714.80	72.99	299.75	5761143.27	559417.39
905	61.08	74.87	773.12	-717.22	74.13	303.98	5761144.41	559421.62
910	61.02	74.84	775.53	-719.63	75.27	308.21	5761145.55	559425.84
915	60.95	74.82	777.94	-722.04	76.41	312.44	5761146.69	559430.07
920	60.90	74.89	780.38	-724.48	77.54	316.65	5761147.82	559434.29
925	60.85	74.96	782.82	-726.92	78.67	320.87	5761148.95	559438.50
930	60.81	75.03	785.26	-729.36	79.80	325.09	5761150.08	559442.72
935	60.76	75.09	787.69	-731.79	80.93	329.30	5761151.21	559446.94
940	60.71	75.16	790.13	-734.23	82.05	333.52	5761152.34	559451.16
945	60.63	75.27	792.58	-736.68	83.16	337.73	5761153.44	559455.37
950	60.48	75.48	795.07	-739.17	84.23	341.94	5761154.51	559459.58
955	60.32	75.69	797.55	-741.65	85.29	346.15	5761155.57	559463.78
960	60.16	75.90	800.03	-744.13	86.35	350.36	5761156.63	559467.99
965	60.01	76.11	802.52	-746.62	87.42	354.56	5761157.70	559472.20
970	59.85	76.32	805.00	-749.10	88.48	358.77	5761158.76	559476.41
975	59.75	76.49	807.50	-751.60	89.51	362.98	5761159.79	559480.61
980	59.71	76.60	810.03	-754.13	90.50	367.18	5761160.78	559484.81
985	59.67	76.72	812.56	-756.66	91.48	371.38	5761161.76	559489.01
990	59.63	76.83	815.08	-759.18	92.47	375.58	5761162.75	559493.21
995	59.59	76.95	817.61	-761.71	93.46	379.78	5761163.74	559497.41
1000	59.55	77.07	820.13	-764.23	94.45	383.98	5761164.73	559501.61
1005	59.49	77.08	822.68	-766.78	95.42	388.17	5761165.70	559505.81
1010	59.41	77.05	825.23	-769.33	96.39	392.36	5761166.67	559510.00
1015	59.34	77.02	827.78	-771.88	97.35	396.55	5761167.63	559514.19
1020	59.27	76.99	830.33	-774.43	98.32	400.74	5761168.60	559518.38
1025	59.19	76.96	832.88	-776.98	99.28	404.93	5761169.57	559522.57
1030	59.12	76.93	835.43	-779.53	100.25	409.12	5761170.53	559526.76
1035	58.92	76.91	838.04	-782.14	101.22	413.28	5761171.50	559530.91
1040	58.71	76.88	840.65	-784.75	102.19	417.43	5761172.47	559535.06
1045	58.49	76.85	843.27	-787.37	103.16	421.58	5761173.44	559539.21
1050	58.27	76.82	845.88	-789.98	104.13	425.73	5761174.41	559543.36
1055	58.06	76.80	848.49	-792.59	105.10	429.88	5761175.38	559547.52
1060	57.85	76.77	851.11	-795.21	106.07	434.03	5761176.35	559551.66
1065	57.94	76.76	853.75	-797.85	107.04	438.16	5761177.32	559555.80
1070	58.02	76.75	856.39	-800.49	108.02	442.29	5761178.30	559559.93
1075	58.10	76.73	859.04	-803.14	108.99	446.42	5761179.27	559564.06
1080	58.19	76.72	861.68	-805.78	109.96	450.56	5761180.25	559568.19
1085	58.27	76.71	864.32	-808.42	110.94	454.69	5761181.22	559572.32
1090	58.38	76.74	866.95	-811.05	111.91	458.83	5761182.19	559576.46
1095	58.60	76.98	869.53	-813.63	112.84	463.01	5761183.12	559580.64
1100	58.82	77.22	872.11	-816.21	113.78	467.19	5761184.06	559584.82

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1105	59.04	77.46	874.68	-818.78	114.71	471.37	5761184.99	559589.01
1110	59.26	77.70	877.26	-821.36	115.65	475.55	5761185.93	559593.19
1115	59.49	77.94	879.84	-823.94	116.58	479.73	5761186.86	559597.37
1120	59.76	78.04	882.36	-826.46	117.51	483.95	5761187.79	559601.58
1125	60.11	77.96	884.81	-828.91	118.43	488.20	5761188.71	559605.84
1130	60.45	77.87	887.27	-831.37	119.35	492.46	5761189.63	559610.10
1135	60.80	77.78	889.72	-833.82	120.27	496.72	5761190.55	559614.36
1140	61.15	77.69	892.17	-836.27	121.19	500.98	5761191.47	559618.62
1145	61.50	77.60	894.62	-838.72	122.11	505.24	5761192.39	559622.88
1150	61.76	77.55	897.01	-841.11	123.05	509.53	5761193.33	559627.17
1155	61.94	77.52	899.34	-843.44	124.01	513.85	5761194.29	559631.49
1160	62.13	77.50	901.67	-845.77	124.96	518.17	5761195.25	559635.80
1165	62.31	77.47	904.00	-848.10	125.92	522.49	5761196.20	559640.12
1170	62.50	77.45	906.33	-850.43	126.88	526.80	5761197.16	559644.44
1175	62.69	77.43	908.67	-852.77	127.84	531.12	5761198.12	559648.76
1180	62.81	77.39	910.95	-855.05	128.81	535.46	5761199.09	559653.10
1185	62.90	77.35	913.22	-857.32	129.79	539.81	5761200.07	559657.44
1190	62.99	77.31	915.49	-859.59	130.77	544.15	5761201.05	559661.79
1195	63.09	77.27	917.76	-861.86	131.75	548.50	5761202.03	559666.13
1200	63.18	77.23	920.03	-864.13	132.73	552.85	5761203.01	559670.48
1205	63.28	77.19	922.30	-866.40	133.71	557.19	5761203.99	559674.83
1210	63.28	77.16	924.55	-868.65	134.70	561.54	5761204.98	559679.18
1215	63.27	77.13	926.80	-870.90	135.70	565.90	5761205.98	559683.53
1220	63.26	77.10	929.05	-873.15	136.70	570.25	5761206.98	559687.88
1225	63.24	77.07	931.30	-875.40	137.69	574.60	5761207.97	559692.24
1230	63.23	77.05	933.55	-877.65	138.69	578.95	5761208.97	559696.59
1235	63.22	76.98	935.80	-879.90	139.70	583.30	5761209.98	559700.94
1240	63.24	76.60	938.05	-882.15	140.78	587.64	5761211.06	559705.27
1245	63.26	76.22	940.30	-884.40	141.87	591.97	5761212.15	559709.60
1250	63.27	75.83	942.55	-886.65	142.96	596.30	5761213.24	559713.93
1255	63.29	75.45	944.80	-888.90	144.04	600.63	5761214.33	559718.26
1260	63.31	75.06	947.05	-891.15	145.13	604.96	5761215.41	559722.59
1265	63.29	74.74	949.30	-893.40	146.26	609.28	5761216.54	559726.91
1270	63.19	74.56	951.57	-895.67	147.47	613.57	5761217.75	559731.20
1275	63.09	74.37	953.84	-897.94	148.67	617.86	5761218.95	559735.49
1280	62.99	74.19	956.11	-900.21	149.88	622.15	5761220.16	559739.78
1285	62.89	74.01	958.37	-902.47	151.09	626.43	5761221.37	559744.07
1290	62.79	73.82	960.64	-904.74	152.30	630.72	5761222.58	559748.36
1295	62.61	73.66	962.95	-907.05	153.54	634.98	5761223.82	559752.62
1300	62.36	73.50	965.30	-909.40	154.81	639.21	5761225.09	559756.84
1305	62.11	73.35	967.64	-911.74	156.08	643.44	5761226.36	559761.07
1310	61.87	73.19	969.99	-914.09	157.35	647.67	5761227.63	559765.30
1315	61.62	73.04	972.34	-916.44	158.62	651.89	5761228.90	559769.53
1320	61.37	72.88	974.68	-918.78	159.89	656.12	5761230.17	559773.76
1325	61.21	72.79	977.08	-921.18	161.18	660.31	5761231.46	559777.95
1330	61.09	72.74	979.51	-923.61	162.48	664.49	5761232.76	559782.12
1335	60.97	72.69	981.94	-926.04	163.78	668.66	5761234.06	559786.29
1340	60.85	72.63	984.37	-928.47	165.08	672.83	5761235.36	559790.47
1345	60.72	72.58	986.80	-930.90	166.38	677.00	5761236.66	559794.64
1350	60.60	72.53	989.23	-933.33	167.69	681.18	5761237.97	559798.81
1355	60.55	72.44	991.69	-935.79	169.01	685.32	5761239.29	559802.96
1360	60.52	72.36	994.15	-938.25	170.33	689.47	5761240.61	559807.10
1365	60.48	72.27	996.61	-940.71	171.66	693.61	5761241.94	559811.25
1370	60.44	72.19	999.08	-943.18	172.98	697.75	5761243.26	559815.39
1375	60.40	72.10	1001.54	-945.64	174.31	701.90	5761244.59	559819.53
1380	60.36	72.02	1004.01	-948.11	175.63	706.04	5761245.91	559823.68
1385	60.31	72.06	1006.49	-950.59	176.96	710.17	5761247.25	559827.81
1390	60.27	72.10	1008.97	-953.07	178.30	714.30	5761248.58	559831.94

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1395	60.23	72.14	1011.45	-955.55	179.63	718.43	5761249.91	559836.07
1400	60.18	72.17	1013.94	-958.04	180.96	722.57	5761251.24	559840.20
1405	60.14	72.21	1016.42	-960.52	182.29	726.70	5761252.57	559844.33
1410	60.13	72.31	1018.90	-963.00	183.61	730.83	5761253.89	559848.47
1415	60.20	72.57	1021.38	-965.48	184.88	734.99	5761255.16	559852.62
1420	60.27	72.82	1023.85	-967.95	186.15	739.14	5761256.43	559856.78
1425	60.35	73.07	1026.33	-970.43	187.42	743.29	5761257.70	559860.93
1430	60.42	73.33	1028.80	-972.90	188.69	747.45	5761258.97	559865.08
1435	60.49	73.58	1031.28	-975.38	189.96	751.60	5761260.24	559869.24
1440	60.51	73.68	1033.75	-977.85	191.22	755.76	5761261.50	559873.40
1445	60.48	73.59	1036.22	-980.32	192.46	759.93	5761262.74	559877.57
1450	60.44	73.50	1038.69	-982.79	193.69	764.10	5761263.97	559881.74
1455	60.40	73.42	1041.15	-985.25	194.93	768.27	5761265.21	559885.90
1460	60.37	73.33	1043.62	-987.72	196.17	772.44	5761266.45	559890.07
1465	60.33	73.24	1046.09	-990.19	197.41	776.61	5761267.69	559894.24
1470	60.28	73.38	1048.57	-992.67	198.62	780.77	5761268.90	559898.41
1475	60.22	73.64	1051.06	-995.16	199.82	784.94	5761270.10	559902.58
1480	60.16	73.90	1053.55	-997.65	201.02	789.11	5761271.30	559906.74
1485	60.10	74.16	1056.04	-1000.14	202.22	793.28	5761272.50	559910.91
1490	60.04	74.42	1058.53	-1002.63	203.42	797.44	5761273.70	559915.08
1495	59.98	74.68	1061.02	-1005.12	204.62	801.61	5761274.90	559919.25
1500	60.00	74.91	1063.51	-1007.61	205.71	805.80	5761275.99	559923.44
1505	60.01	75.14	1066.01	-1010.11	206.81	809.99	5761277.09	559927.63
1508	60.02	75.27	1067.51	-1011.61	207.46	812.51	5761277.75	559930.14
1509	60.03	75.32	1068.01	-1012.11	207.68	813.34	5761277.96	559930.98
1510	60.03	75.36	1068.51	-1012.61	207.90	814.18	5761278.18	559931.82
1511	60.03	75.41	1069.01	-1013.11	208.12	815.02	5761278.40	559932.65
1512	60.04	75.46	1069.51	-1013.61	208.34	815.86	5761278.62	559933.49
1513	60.04	75.50	1070.01	-1014.11	208.56	816.70	5761278.84	559934.33
1514	60.05	75.55	1070.51	-1014.61	208.78	817.53	5761279.06	559935.17
1515	60.05	75.59	1071.01	-1015.11	209.00	818.37	5761279.28	559936.01
1516	60.05	75.64	1071.51	-1015.61	209.22	819.21	5761279.50	559936.85
1517	60.06	75.68	1072.01	-1016.11	209.44	820.05	5761279.72	559937.68
1518	60.06	75.73	1072.51	-1016.61	209.66	820.89	5761279.94	559938.52
1519	60.06	75.77	1073.01	-1017.11	209.88	821.72	5761280.16	559939.36
1520	60.07	75.82	1073.50	-1017.60	210.09	822.56	5761280.38	559940.20
1521	60.07	75.87	1074.00	-1018.10	210.31	823.40	5761280.59	559941.04
1522	60.07	75.91	1074.50	-1018.60	210.53	824.24	5761280.81	559941.87
1523	60.08	75.96	1075.00	-1019.10	210.75	825.08	5761281.03	559942.71
1524	60.08	76.00	1075.50	-1019.60	210.97	825.92	5761281.25	559943.55
1525	60.09	76.01	1076.00	-1020.10	211.18	826.76	5761281.46	559944.39
1526	60.10	76.01	1076.50	-1020.60	211.39	827.60	5761281.67	559945.23
1527	60.11	76.00	1076.99	-1021.09	211.60	828.44	5761281.88	559946.08
1528	60.11	76.00	1077.49	-1021.59	211.81	829.28	5761282.09	559946.92
1529	60.12	76.00	1077.99	-1022.09	212.02	830.12	5761282.30	559947.76
1530	60.13	76.00	1078.48	-1022.58	212.23	830.97	5761282.51	559948.60
1531	60.14	76.00	1078.98	-1023.08	212.44	831.81	5761282.73	559949.44
1532	60.15	75.99	1079.48	-1023.58	212.65	832.65	5761282.94	559950.29
1533	60.16	75.99	1079.97	-1024.07	212.86	833.49	5761283.15	559951.13
1534	60.17	75.99	1080.47	-1024.57	213.08	834.33	5761283.36	559951.97
1535	60.18	75.99	1080.97	-1025.07	213.29	835.18	5761283.57	559952.81
1536	60.18	75.99	1081.47	-1025.57	213.50	836.02	5761283.78	559953.65
1537	60.19	75.98	1081.96	-1026.06	213.71	836.86	5761283.99	559954.50
1538	60.20	75.98	1082.46	-1026.56	213.92	837.70	5761284.20	559955.34
1539	60.21	75.98	1082.96	-1027.06	214.13	838.54	5761284.41	559956.18
1540	60.22	75.98	1083.45	-1027.55	214.34	839.39	5761284.62	559957.02
1541	60.23	75.98	1083.95	-1028.05	214.55	840.23	5761284.83	559957.86
1542	60.24	75.97	1084.45	-1028.55	214.76	841.07	5761285.04	559958.71

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1543	60.25	75.97	1084.94	-1029.04	214.97	841.91	5761285.25	559959.55
1544	60.26	75.97	1085.44	-1029.54	215.18	842.75	5761285.46	559960.39
1545	60.26	75.97	1085.94	-1030.04	215.39	843.60	5761285.67	559961.23
1546	60.27	75.97	1086.43	-1030.53	215.60	844.44	5761285.88	559962.07
1547	60.28	75.96	1086.93	-1031.03	215.81	845.28	5761286.09	559962.91
1548	60.29	75.96	1087.43	-1031.53	216.02	846.12	5761286.30	559963.76
1549	60.30	75.96	1087.92	-1032.02	216.23	846.96	5761286.51	559964.60
1550	60.31	75.96	1088.42	-1032.52	216.44	847.81	5761286.72	559965.44
1551	60.32	75.96	1088.92	-1033.02	216.65	848.65	5761286.93	559966.28
1552	60.33	75.95	1089.41	-1033.51	216.86	849.49	5761287.14	559967.12
1553	60.34	75.95	1089.91	-1034.01	217.07	850.33	5761287.35	559967.97
1554	60.33	75.96	1090.41	-1034.51	217.28	851.17	5761287.56	559968.81
1555	60.32	75.97	1090.91	-1035.01	217.49	852.02	5761287.77	559969.65
1556	60.31	75.98	1091.40	-1035.50	217.69	852.86	5761287.98	559970.49
1557	60.29	76.00	1091.90	-1036.00	217.90	853.70	5761288.18	559971.33
1558	60.28	76.01	1092.40	-1036.50	218.11	854.54	5761288.39	559972.18
1559	60.26	76.03	1092.90	-1037.00	218.32	855.38	5761288.60	559973.02
1560	60.25	76.04	1093.40	-1037.50	218.52	856.23	5761288.81	559973.86
1561	60.23	76.05	1093.89	-1037.99	218.73	857.07	5761289.01	559974.70
1562	60.22	76.07	1094.39	-1038.49	218.94	857.91	5761289.22	559975.54
1563	60.21	76.08	1094.89	-1038.99	219.15	858.75	5761289.43	559976.39
1564	60.19	76.10	1095.39	-1039.49	219.36	859.59	5761289.64	559977.23
1565	60.18	76.11	1095.89	-1039.99	219.56	860.44	5761289.84	559978.07
1566	60.16	76.12	1096.38	-1040.48	219.77	861.28	5761290.05	559978.91
1567	60.15	76.14	1096.88	-1040.98	219.98	862.12	5761290.26	559979.75
1568	60.13	76.15	1097.38	-1041.48	220.19	862.96	5761290.47	559980.60
1569	60.12	76.16	1097.88	-1041.98	220.39	863.80	5761290.67	559981.44
1570	60.11	76.18	1098.38	-1042.48	220.60	864.65	5761290.88	559982.28
1571	60.09	76.19	1098.87	-1042.97	220.81	865.49	5761291.09	559983.12
1572	60.08	76.21	1099.37	-1043.47	221.02	866.33	5761291.30	559983.96
1573	60.06	76.22	1099.87	-1043.97	221.22	867.17	5761291.50	559984.81
1574	60.05	76.23	1100.37	-1044.47	221.43	868.01	5761291.71	559985.65
1575	60.03	76.25	1100.87	-1044.97	221.64	868.86	5761291.92	559986.49
1576	60.02	76.26	1101.36	-1045.46	221.85	869.70	5761292.13	559987.33
1577	60.01	76.28	1101.86	-1045.96	222.05	870.54	5761292.33	559988.17
1578	59.99	76.29	1102.36	-1046.46	222.26	871.38	5761292.54	559989.02
1579	59.98	76.30	1102.86	-1046.96	222.47	872.22	5761292.75	559989.86
1580	59.96	76.32	1103.36	-1047.46	222.68	873.07	5761292.96	559990.70
1581	59.95	76.33	1103.85	-1047.95	222.88	873.91	5761293.17	559991.54
1582	59.93	76.35	1104.35	-1048.45	223.09	874.75	5761293.37	559992.38
1583	59.94	76.34	1104.85	-1048.95	223.30	875.59	5761293.58	559993.23
1584	59.95	76.32	1105.35	-1049.45	223.51	876.43	5761293.79	559994.07
1585	59.96	76.30	1105.85	-1049.95	223.72	877.27	5761294.00	559994.91
1586	59.97	76.28	1106.35	-1050.45	223.93	878.12	5761294.21	559995.75
1587	59.99	76.27	1106.84	-1050.94	224.13	878.96	5761294.41	559996.59
1588	60.00	76.25	1107.34	-1051.44	224.34	879.80	5761294.62	559997.43
1589	60.01	76.23	1107.84	-1051.94	224.55	880.64	5761294.83	559998.27
1590	60.02	76.21	1108.34	-1052.44	224.76	881.48	5761295.04	559999.12
1591	60.03	76.19	1108.84	-1052.94	224.97	882.32	5761295.25	559999.96
1592	60.04	76.18	1109.34	-1053.44	225.18	883.16	5761295.46	560000.80
1593	60.06	76.16	1109.83	-1053.93	225.38	884.01	5761295.66	560001.64
1594	60.07	76.14	1110.33	-1054.43	225.59	884.85	5761295.87	560002.48
1595	60.08	76.12	1110.83	-1054.93	225.80	885.69	5761296.08	560003.32
1596	60.09	76.10	1111.33	-1055.43	226.01	886.53	5761296.29	560004.17
1597	60.10	76.08	1111.83	-1055.93	226.22	887.37	5761296.50	560005.01
1598	60.12	76.07	1112.33	-1056.43	226.43	888.21	5761296.71	560005.85
1599	60.13	76.05	1112.83	-1056.93	226.63	889.05	5761296.92	560006.69
1600	60.14	76.03	1113.32	-1057.42	226.84	889.90	5761297.12	560007.53



MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1601	60.15	76.01	1113.82	-1057.92	227.05	890.74	5761297.33	560008.37
1602	60.16	75.99	1114.32	-1058.42	227.26	891.58	5761297.54	560009.21
1603	60.17	75.98	1114.82	-1058.92	227.47	892.42	5761297.75	560010.06
1604	60.19	75.96	1115.32	-1059.42	227.68	893.26	5761297.96	560010.90
1605	60.20	75.94	1115.82	-1059.92	227.88	894.10	5761298.17	560011.74
1606	60.21	75.92	1116.31	-1060.41	228.09	894.94	5761298.37	560012.58
1607	60.22	75.90	1116.81	-1060.91	228.30	895.79	5761298.58	560013.42
1608	60.23	75.89	1117.31	-1061.41	228.51	896.63	5761298.79	560014.26
1609	60.25	75.87	1117.81	-1061.91	228.72	897.47	5761299.00	560015.10
1610	60.26	75.85	1118.31	-1062.41	228.93	898.31	5761299.21	560015.95
1611	60.27	75.83	1118.81	-1062.91	229.14	899.15	5761299.42	560016.79
1612	60.29	75.85	1119.30	-1063.40	229.34	900.00	5761299.62	560017.63
1613	60.31	75.87	1119.79	-1063.89	229.55	900.84	5761299.83	560018.48
1614	60.33	75.89	1120.28	-1064.38	229.76	901.69	5761300.04	560019.32
1615	60.34	75.91	1120.77	-1064.87	229.97	902.53	5761300.25	560020.17
1616	60.36	75.93	1121.27	-1065.37	230.18	903.38	5761300.46	560021.01
1617	60.38	75.95	1121.76	-1065.86	230.39	904.22	5761300.67	560021.86
1618	60.40	75.97	1122.25	-1066.35	230.60	905.07	5761300.88	560022.70
1619	60.42	75.99	1122.74	-1066.84	230.81	905.91	5761301.09	560023.55
1620	60.44	76.01	1123.23	-1067.33	231.01	906.76	5761301.29	560024.40
1621	60.46	76.03	1123.72	-1067.82	231.22	907.61	5761301.50	560025.24
1622	60.48	76.05	1124.22	-1068.32	231.43	908.45	5761301.71	560026.09
1623	60.50	76.07	1124.71	-1068.81	231.64	909.30	5761301.92	560026.93
1624	60.52	76.09	1125.20	-1069.30	231.85	910.14	5761302.13	560027.78
1625	60.54	76.11	1125.69	-1069.79	232.06	910.99	5761302.34	560028.62
1626	60.55	76.14	1126.18	-1070.28	232.27	911.83	5761302.55	560029.47
1627	60.57	76.16	1126.67	-1070.77	232.47	912.68	5761302.76	560030.31
1628	60.59	76.18	1127.17	-1071.27	232.68	913.52	5761302.96	560031.16
1629	60.61	76.20	1127.66	-1071.76	232.89	914.37	5761303.17	560032.00
1630	60.63	76.22	1128.15	-1072.25	233.10	915.21	5761303.38	560032.85
1631	60.65	76.24	1128.64	-1072.74	233.31	916.06	5761303.59	560033.69
1632	60.67	76.26	1129.13	-1073.23	233.52	916.91	5761303.80	560034.54
1633	60.69	76.28	1129.62	-1073.72	233.73	917.75	5761304.01	560035.39
1634	60.71	76.30	1130.12	-1074.22	233.94	918.60	5761304.22	560036.23
1635	60.73	76.32	1130.61	-1074.71	234.14	919.44	5761304.43	560037.08
1636	60.75	76.34	1131.10	-1075.20	234.35	920.29	5761304.63	560037.92
1637	60.77	76.36	1131.59	-1075.69	234.56	921.13	5761304.84	560038.77
1638	60.78	76.38	1132.08	-1076.18	234.77	921.98	5761305.05	560039.61
1639	60.80	76.40	1132.57	-1076.67	234.98	922.82	5761305.26	560040.46
1640	60.82	76.42	1133.07	-1077.17	235.19	923.67	5761305.47	560041.30
1641	60.85	76.43	1133.55	-1077.65	235.40	924.52	5761305.68	560042.15
1642	60.89	76.43	1134.03	-1078.13	235.60	925.37	5761305.88	560043.01
1643	60.93	76.43	1134.51	-1078.61	235.81	926.23	5761306.09	560043.86
1644	60.97	76.43	1134.99	-1079.09	236.01	927.08	5761306.29	560044.71
1645	61.00	76.43	1135.47	-1079.57	236.22	927.93	5761306.50	560045.57
1646	61.04	76.43	1135.95	-1080.05	236.42	928.78	5761306.71	560046.42
1647	61.08	76.43	1136.42	-1080.52	236.63	929.64	5761306.91	560047.27
1648	61.12	76.43	1136.90	-1081.00	236.84	930.49	5761307.12	560048.13
1649	61.15	76.43	1137.38	-1081.48	237.04	931.34	5761307.32	560048.98
1650	61.19	76.43	1137.86	-1081.96	237.25	932.20	5761307.53	560049.83
1651	61.23	76.43	1138.34	-1082.44	237.45	933.05	5761307.73	560050.69
1652	61.27	76.43	1138.82	-1082.92	237.66	933.90	5761307.94	560051.54
1653	61.30	76.43	1139.30	-1083.40	237.87	934.76	5761308.15	560052.39
1654	61.34	76.43	1139.78	-1083.88	238.07	935.61	5761308.35	560053.25
1655	61.38	76.44	1140.26	-1084.36	238.28	936.46	5761308.56	560054.10
1656	61.42	76.44	1140.74	-1084.84	238.48	937.32	5761308.76	560054.95
1657	61.46	76.44	1141.21	-1085.31	238.69	938.17	5761308.97	560055.81
1658	61.49	76.44	1141.69	-1085.79	238.89	939.02	5761309.18	560056.66

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1659	61.53	76.44	1142.17	-1086.27	239.10	939.88	5761309.38	560057.51
1660	61.57	76.44	1142.65	-1086.75	239.31	940.73	5761309.59	560058.37
1661	61.61	76.44	1143.13	-1087.23	239.51	941.58	5761309.79	560059.22
1662	61.64	76.44	1143.61	-1087.71	239.72	942.44	5761310.00	560060.07
1663	61.68	76.44	1144.09	-1088.19	239.92	943.29	5761310.21	560060.93
1664	61.72	76.44	1144.57	-1088.67	240.13	944.14	5761310.41	560061.78
1665	61.76	76.44	1145.05	-1089.15	240.34	945.00	5761310.62	560062.63
1666	61.79	76.44	1145.53	-1089.63	240.54	945.85	5761310.82	560063.49
1667	61.83	76.44	1146.01	-1090.11	240.75	946.70	5761311.03	560064.34
1668	61.87	76.44	1146.48	-1090.58	240.95	947.56	5761311.23	560065.19
1669	61.91	76.44	1146.96	-1091.06	241.16	948.41	5761311.44	560066.04
1670	61.92	76.46	1147.44	-1091.54	241.36	949.27	5761311.64	560066.90
1671	61.91	76.50	1147.91	-1092.01	241.56	950.13	5761311.84	560067.76
1672	61.90	76.54	1148.38	-1092.48	241.76	950.98	5761312.04	560068.62
1673	61.90	76.58	1148.85	-1092.95	241.96	951.84	5761312.24	560069.48
1674	61.89	76.62	1149.33	-1093.43	242.15	952.70	5761312.43	560070.34
1675	61.88	76.66	1149.80	-1093.90	242.35	953.56	5761312.63	560071.20
1676	61.88	76.70	1150.27	-1094.37	242.55	954.42	5761312.83	560072.06
1677	61.87	76.74	1150.74	-1094.84	242.75	955.28	5761313.03	560072.91
1678	61.87	76.78	1151.22	-1095.32	242.95	956.14	5761313.23	560073.77
1679	61.86	76.81	1151.69	-1095.79	243.15	957.00	5761313.43	560074.63
1680	61.85	76.85	1152.16	-1096.26	243.34	957.86	5761313.63	560075.49
1681	61.85	76.89	1152.63	-1096.73	243.54	958.71	5761313.82	560076.35
1682	61.84	76.93	1153.10	-1097.20	243.74	959.57	5761314.02	560077.21
1683	61.83	76.97	1153.58	-1097.68	243.94	960.43	5761314.22	560078.07
1684	61.83	77.01	1154.05	-1098.15	244.14	961.29	5761314.42	560078.93
1685	61.82	77.05	1154.52	-1098.62	244.34	962.15	5761314.62	560079.79
1686	61.82	77.09	1154.99	-1099.09	244.53	963.01	5761314.82	560080.64
1687	61.81	77.12	1155.46	-1099.56	244.73	963.87	5761315.01	560081.50
1688	61.80	77.16	1155.94	-1100.04	244.93	964.73	5761315.21	560082.36
1689	61.80	77.20	1156.41	-1100.51	245.13	965.59	5761315.41	560083.22
1690	61.79	77.24	1156.88	-1100.98	245.33	966.45	5761315.61	560084.08
1691	61.78	77.28	1157.35	-1101.45	245.53	967.30	5761315.81	560084.94
1692	61.78	77.32	1157.82	-1101.92	245.72	968.16	5761316.01	560085.80
1693	61.77	77.36	1158.30	-1102.40	245.92	969.02	5761316.20	560086.66
1694	61.76	77.40	1158.77	-1102.87	246.12	969.88	5761316.40	560087.52
1695	61.76	77.44	1159.24	-1103.34	246.32	970.74	5761316.60	560088.37
1696	61.75	77.47	1159.71	-1103.81	246.52	971.60	5761316.80	560089.23
1697	61.75	77.51	1160.19	-1104.29	246.72	972.46	5761317.00	560090.09
1698	61.74	77.55	1160.66	-1104.76	246.92	973.32	5761317.20	560090.95
1699	61.72	77.53	1161.14	-1105.24	247.11	974.17	5761317.39	560091.81
1700	61.70	77.51	1161.61	-1105.71	247.30	975.03	5761317.58	560092.66
1701	61.67	77.49	1162.09	-1106.19	247.50	975.89	5761317.78	560093.52
1702	61.65	77.47	1162.57	-1106.67	247.69	976.74	5761317.97	560094.38
1703	61.63	77.45	1163.05	-1107.15	247.88	977.60	5761318.16	560095.23
1704	61.61	77.43	1163.53	-1107.63	248.08	978.46	5761318.36	560096.09
1705	61.59	77.41	1164.01	-1108.11	248.27	979.31	5761318.55	560096.95
1706	61.56	77.39	1164.49	-1108.59	248.47	980.17	5761318.75	560097.80
1707	61.54	77.37	1164.96	-1109.06	248.66	981.02	5761318.94	560098.66
1708	61.52	77.34	1165.44	-1109.54	248.85	981.88	5761319.13	560099.52
1709	61.50	77.32	1165.92	-1110.02	249.05	982.74	5761319.33	560100.37
1710	61.48	77.30	1166.40	-1110.50	249.24	983.59	5761319.52	560101.23
1711	61.46	77.28	1166.88	-1110.98	249.43	984.45	5761319.72	560102.09
1712	61.43	77.26	1167.36	-1111.46	249.63	985.31	5761319.91	560102.94
1713	61.41	77.24	1167.83	-1111.93	249.82	986.16	5761320.10	560103.80
1714	61.39	77.22	1168.31	-1112.41	250.02	987.02	5761320.30	560104.66
1715	61.37	77.20	1168.79	-1112.89	250.21	987.88	5761320.49	560105.51
1716	61.35	77.18	1169.27	-1113.37	250.40	988.73	5761320.68	560106.37

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1717	61.33	77.16	1169.75	-1113.85	250.60	989.59	5761320.88	560107.22
1718	61.30	77.14	1170.23	-1114.33	250.79	990.45	5761321.07	560108.08
1719	61.28	77.12	1170.70	-1114.80	250.99	991.30	5761321.27	560108.94
1720	61.26	77.10	1171.18	-1115.28	251.18	992.16	5761321.46	560109.79
1721	61.24	77.08	1171.66	-1115.76	251.37	993.02	5761321.65	560110.65
1722	61.22	77.06	1172.14	-1116.24	251.57	993.87	5761321.85	560111.51
1723	61.19	77.04	1172.62	-1116.72	251.76	994.73	5761322.04	560112.36
1724	61.17	77.02	1173.10	-1117.20	251.95	995.59	5761322.23	560113.22
1725	61.15	77.00	1173.57	-1117.67	252.15	996.44	5761322.43	560114.08
1726	61.13	76.98	1174.05	-1118.15	252.34	997.30	5761322.62	560114.93
1727	61.11	76.96	1174.53	-1118.63	252.54	998.15	5761322.82	560115.79
1728	61.09	76.93	1175.01	-1119.11	252.74	999.01	5761323.02	560116.64
1729	61.08	76.90	1175.50	-1119.60	252.94	999.86	5761323.22	560117.49
1730	61.07	76.87	1175.99	-1120.09	253.14	1000.71	5761323.43	560118.34
1731	61.05	76.83	1176.47	-1120.57	253.35	1001.56	5761323.63	560119.19
1732	61.04	76.80	1176.96	-1121.06	253.55	1002.41	5761323.83	560120.04
1733	61.03	76.77	1177.44	-1121.54	253.76	1003.26	5761324.04	560120.89
1734	61.02	76.74	1177.93	-1122.03	253.96	1004.11	5761324.24	560121.74
1735	61.01	76.71	1178.42	-1122.52	254.17	1004.95	5761324.45	560122.59
1736	60.99	76.68	1178.90	-1123.00	254.37	1005.80	5761324.65	560123.44
1737	60.98	76.65	1179.39	-1123.49	254.57	1006.65	5761324.85	560124.29
1738	60.97	76.61	1179.87	-1123.97	254.78	1007.50	5761325.06	560125.14
1739	60.96	76.58	1180.36	-1124.46	254.98	1008.35	5761325.26	560125.99
1740	60.94	76.55	1180.85	-1124.95	255.19	1009.20	5761325.47	560126.84
1741	60.93	76.52	1181.33	-1125.43	255.39	1010.05	5761325.67	560127.69
1742	60.92	76.49	1181.82	-1125.92	255.59	1010.90	5761325.87	560128.54
1743	60.91	76.46	1182.31	-1126.41	255.80	1011.75	5761326.08	560129.39
1744	60.89	76.42	1182.79	-1126.89	256.00	1012.60	5761326.28	560130.24
1745	60.88	76.39	1183.28	-1127.38	256.21	1013.45	5761326.49	560131.09
1746	60.87	76.36	1183.76	-1127.86	256.41	1014.30	5761326.69	560131.94
1747	60.86	76.33	1184.25	-1128.35	256.61	1015.15	5761326.90	560132.79
1748	60.85	76.30	1184.74	-1128.84	256.82	1016.00	5761327.10	560133.64
1749	60.83	76.27	1185.22	-1129.32	257.02	1016.85	5761327.30	560134.49
1750	60.82	76.24	1185.71	-1129.81	257.23	1017.70	5761327.51	560135.34
1751	60.81	76.20	1186.19	-1130.29	257.43	1018.55	5761327.71	560136.19
1752	60.80	76.17	1186.68	-1130.78	257.64	1019.40	5761327.92	560137.04
1753	60.78	76.14	1187.17	-1131.27	257.84	1020.25	5761328.12	560137.89
1754	60.77	76.11	1187.65	-1131.75	258.04	1021.10	5761328.32	560138.73
1755	60.76	76.08	1188.14	-1132.24	258.25	1021.95	5761328.53	560139.58
1756	60.75	76.05	1188.62	-1132.72	258.45	1022.80	5761328.73	560140.43
1757	60.76	76.03	1189.11	-1133.21	258.66	1023.65	5761328.94	560141.28
1758	60.79	76.02	1189.59	-1133.69	258.87	1024.50	5761329.15	560142.13
1759	60.82	76.01	1190.07	-1134.17	259.09	1025.35	5761329.37	560142.98
1760	60.85	76.00	1190.55	-1134.65	259.30	1026.20	5761329.58	560143.83
1761	60.88	76.00	1191.03	-1135.13	259.51	1027.05	5761329.79	560144.68
1762	60.92	75.99	1191.52	-1135.62	259.73	1027.90	5761330.01	560145.53
1763	60.95	75.98	1192.00	-1136.10	259.94	1028.75	5761330.22	560146.38
1764	60.98	75.97	1192.48	-1136.58	260.15	1029.60	5761330.43	560147.23
1765	61.01	75.97	1192.96	-1137.06	260.37	1030.45	5761330.65	560148.08
1766	61.04	75.96	1193.44	-1137.54	260.58	1031.30	5761330.86	560148.93
1767	61.08	75.95	1193.92	-1138.02	260.79	1032.15	5761331.07	560149.78
1768	61.11	75.94	1194.40	-1138.50	261.01	1033.00	5761331.29	560150.63
1769	61.14	75.94	1194.89	-1138.99	261.22	1033.85	5761331.50	560151.48
1770	61.17	75.93	1195.37	-1139.47	261.43	1034.70	5761331.71	560152.33
1771	61.20	75.92	1195.85	-1139.95	261.65	1035.55	5761331.93	560153.19
1772	61.24	75.91	1196.33	-1140.43	261.86	1036.40	5761332.14	560154.04
1773	61.27	75.91	1196.81	-1140.91	262.07	1037.25	5761332.35	560154.89
1774	61.30	75.90	1197.29	-1141.39	262.29	1038.10	5761332.57	560155.74

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1775	61.33	75.89	1197.78	-1141.88	262.50	1038.95	5761332.78	560156.59
1776	61.36	75.88	1198.26	-1142.36	262.71	1039.80	5761332.99	560157.44
1777	61.40	75.88	1198.74	-1142.84	262.93	1040.65	5761333.21	560158.29
1778	61.43	75.87	1199.22	-1143.32	263.14	1041.50	5761333.42	560159.14
1779	61.46	75.86	1199.70	-1143.80	263.35	1042.35	5761333.63	560159.99
1780	61.49	75.85	1200.18	-1144.28	263.56	1043.20	5761333.85	560160.84
1781	61.52	75.85	1200.67	-1144.77	263.78	1044.05	5761334.06	560161.69
1782	61.56	75.84	1201.15	-1145.25	263.99	1044.90	5761334.27	560162.54
1783	61.59	75.83	1201.63	-1145.73	264.20	1045.75	5761334.49	560163.39
1784	61.62	75.82	1202.11	-1146.21	264.42	1046.60	5761334.70	560164.24
1785	61.65	75.82	1202.59	-1146.69	264.63	1047.45	5761334.91	560165.09
1786	61.67	75.80	1203.07	-1147.17	264.85	1048.30	5761335.13	560165.94
1787	61.64	75.76	1203.56	-1147.66	265.07	1049.15	5761335.35	560166.78
1788	61.60	75.72	1204.04	-1148.14	265.29	1049.99	5761335.57	560167.63
1789	61.56	75.68	1204.52	-1148.62	265.52	1050.84	5761335.80	560168.48
1790	61.52	75.64	1205.00	-1149.10	265.74	1051.69	5761336.02	560169.32
1791	61.49	75.60	1205.49	-1149.59	265.96	1052.53	5761336.24	560170.17
1792	61.45	75.56	1205.97	-1150.07	266.19	1053.38	5761336.47	560171.02
1793	61.41	75.52	1206.45	-1150.55	266.41	1054.23	5761336.69	560171.86
1794	61.37	75.48	1206.94	-1151.04	266.63	1055.07	5761336.91	560172.71
1795	61.34	75.44	1207.42	-1151.52	266.86	1055.92	5761337.14	560173.56
1796	61.30	75.40	1207.90	-1152.00	267.08	1056.77	5761337.36	560174.40
1797	61.26	75.35	1208.38	-1152.48	267.30	1057.62	5761337.58	560175.25
1798	61.23	75.31	1208.87	-1152.97	267.53	1058.46	5761337.81	560176.10
1799	61.19	75.27	1209.35	-1153.45	267.75	1059.31	5761338.03	560176.94
1800	61.15	75.23	1209.83	-1153.93	267.97	1060.16	5761338.25	560177.79
1801	61.11	75.19	1210.31	-1154.41	268.20	1061.00	5761338.48	560178.64
1802	61.08	75.15	1210.80	-1154.90	268.42	1061.85	5761338.70	560179.48
1803	61.04	75.11	1211.28	-1155.38	268.64	1062.70	5761338.92	560180.33
1804	61.00	75.07	1211.76	-1155.86	268.87	1063.54	5761339.15	560181.18
1805	60.96	75.03	1212.24	-1156.34	269.09	1064.39	5761339.37	560182.02
1806	60.93	74.99	1212.73	-1156.83	269.31	1065.24	5761339.59	560182.87
1807	60.89	74.95	1213.21	-1157.31	269.54	1066.08	5761339.82	560183.72
1808	60.85	74.90	1213.69	-1157.79	269.76	1066.93	5761340.04	560184.57
1809	60.81	74.86	1214.18	-1158.28	269.98	1067.78	5761340.26	560185.41
1810	60.78	74.82	1214.66	-1158.76	270.21	1068.62	5761340.49	560186.26
1811	60.74	74.78	1215.14	-1159.24	270.43	1069.47	5761340.71	560187.11
1812	60.70	74.74	1215.62	-1159.72	270.65	1070.32	5761340.93	560187.95
1813	60.66	74.70	1216.11	-1160.21	270.88	1071.16	5761341.16	560188.80
1814	60.63	74.66	1216.59	-1160.69	271.10	1072.01	5761341.38	560189.65
1815	60.59	74.64	1217.08	-1161.18	271.32	1072.85	5761341.60	560190.49
1816	60.54	74.67	1217.58	-1161.68	271.55	1073.69	5761341.83	560191.33
1817	60.49	74.69	1218.08	-1162.18	271.77	1074.53	5761342.05	560192.16
1818	60.44	74.72	1218.58	-1162.68	271.99	1075.36	5761342.27	560193.00
1819	60.39	74.75	1219.08	-1163.18	272.22	1076.20	5761342.50	560193.83
1820	60.34	74.78	1219.59	-1163.69	272.44	1077.03	5761342.72	560194.67
1821	60.29	74.80	1220.09	-1164.19	272.66	1077.87	5761342.94	560195.50
1822	60.24	74.83	1220.59	-1164.69	272.89	1078.70	5761343.17	560196.34
1823	60.19	74.86	1221.09	-1165.19	273.11	1079.54	5761343.39	560197.18
1824	60.15	74.89	1221.59	-1165.69	273.33	1080.38	5761343.61	560198.01
1825	60.10	74.91	1222.09	-1166.19	273.56	1081.21	5761343.84	560198.85
1826	60.05	74.94	1222.60	-1166.70	273.78	1082.05	5761344.06	560199.68
1827	60.00	74.97	1223.10	-1167.20	274.00	1082.88	5761344.28	560200.52
1828	59.95	75.00	1223.60	-1167.70	274.23	1083.72	5761344.51	560201.35
1829	59.90	75.03	1224.10	-1168.20	274.45	1084.55	5761344.73	560202.19
1830	59.85	75.05	1224.60	-1168.70	274.67	1085.39	5761344.95	560203.02
1831	59.80	75.08	1225.10	-1169.20	274.90	1086.23	5761345.18	560203.86
1832	59.75	75.11	1225.61	-1169.71	275.12	1087.06	5761345.40	560204.70

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1833	59.71	75.14	1226.11	-1170.21	275.34	1087.90	5761345.63	560205.53
1834	59.66	75.16	1226.61	-1170.71	275.57	1088.73	5761345.85	560206.37
1835	59.61	75.19	1227.11	-1171.21	275.79	1089.57	5761346.07	560207.20
1836	59.56	75.22	1227.61	-1171.71	276.01	1090.40	5761346.30	560208.04
1837	59.51	75.25	1228.11	-1172.21	276.24	1091.24	5761346.52	560208.87
1838	59.46	75.28	1228.62	-1172.72	276.46	1092.07	5761346.74	560209.71
1839	59.41	75.30	1229.12	-1173.22	276.68	1092.91	5761346.97	560210.55
1840	59.36	75.33	1229.62	-1173.72	276.91	1093.75	5761347.19	560211.38
1841	59.31	75.36	1230.12	-1174.22	277.13	1094.58	5761347.41	560212.22
1842	59.26	75.39	1230.62	-1174.72	277.35	1095.42	5761347.64	560213.05
1843	59.22	75.41	1231.13	-1175.23	277.58	1096.25	5761347.86	560213.89
1844	59.17	75.44	1231.63	-1175.73	277.80	1097.09	5761348.08	560214.72
1845	59.21	75.43	1232.13	-1176.23	278.02	1097.92	5761348.30	560215.56
1846	59.24	75.43	1232.64	-1176.74	278.24	1098.76	5761348.52	560216.39
1847	59.28	75.42	1233.14	-1177.24	278.46	1099.59	5761348.74	560217.23
1848	59.32	75.41	1233.65	-1177.75	278.68	1100.43	5761348.96	560218.06
1849	59.35	75.41	1234.15	-1178.25	278.89	1101.26	5761349.17	560218.90
1850	59.39	75.40	1234.65	-1178.75	279.11	1102.10	5761349.39	560219.73
1851	59.43	75.39	1235.16	-1179.26	279.33	1102.93	5761349.61	560220.57
1852	59.46	75.38	1235.66	-1179.76	279.55	1103.77	5761349.83	560221.41
1853	59.50	75.38	1236.17	-1180.27	279.77	1104.61	5761350.05	560222.24
1854	59.53	75.37	1236.67	-1180.77	279.99	1105.44	5761350.27	560223.08
1855	59.57	75.36	1237.18	-1181.28	280.21	1106.28	5761350.49	560223.91
1856	59.61	75.36	1237.68	-1181.78	280.42	1107.11	5761350.70	560224.75
1857	59.64	75.35	1238.19	-1182.29	280.64	1107.95	5761350.92	560225.58
1858	59.68	75.34	1238.69	-1182.79	280.86	1108.78	5761351.14	560226.42
1859	59.71	75.34	1239.20	-1183.30	281.08	1109.62	5761351.36	560227.25
1860	59.75	75.33	1239.70	-1183.80	281.30	1110.45	5761351.58	560228.09
1861	59.79	75.32	1240.21	-1184.31	281.52	1111.29	5761351.80	560228.92
1862	59.82	75.32	1240.71	-1184.81	281.73	1112.12	5761352.02	560229.76
1863	59.86	75.31	1241.21	-1185.31	281.95	1112.96	5761352.23	560230.59
1864	59.89	75.30	1241.72	-1185.82	282.17	1113.79	5761352.45	560231.43
1865	59.93	75.30	1242.22	-1186.32	282.39	1114.63	5761352.67	560232.26
1866	59.97	75.29	1242.73	-1186.83	282.61	1115.46	5761352.89	560233.10
1867	60.00	75.28	1243.23	-1187.33	282.83	1116.30	5761353.11	560233.93
1868	60.04	75.27	1243.74	-1187.84	283.05	1117.13	5761353.33	560234.77
1869	60.08	75.27	1244.24	-1188.34	283.26	1117.97	5761353.55	560235.60
1870	60.11	75.26	1244.75	-1188.85	283.48	1118.80	5761353.76	560236.44
1871	60.15	75.25	1245.25	-1189.35	283.70	1119.64	5761353.98	560237.27
1872	60.18	75.25	1245.76	-1189.86	283.92	1120.47	5761354.20	560238.11
1873	60.22	75.24	1246.26	-1190.36	284.14	1121.31	5761354.42	560238.94
1874	60.22	75.24	1246.76	-1190.86	284.36	1122.15	5761354.64	560239.78
1875	60.23	75.23	1247.25	-1191.35	284.58	1122.99	5761354.86	560240.62
1876	60.23	75.23	1247.75	-1191.85	284.80	1123.83	5761355.09	560241.46
1877	60.23	75.22	1248.24	-1192.34	285.03	1124.67	5761355.31	560242.30
1878	60.23	75.22	1248.74	-1192.84	285.25	1125.51	5761355.53	560243.14
1879	60.24	75.21	1249.24	-1193.34	285.47	1126.35	5761355.75	560243.98
1880	60.24	75.21	1249.73	-1193.83	285.69	1127.19	5761355.97	560244.82
1881	60.24	75.21	1250.23	-1194.33	285.92	1128.02	5761356.20	560245.66
1882	60.25	75.20	1250.72	-1194.82	286.14	1128.86	5761356.42	560246.50
1883	60.25	75.20	1251.22	-1195.32	286.36	1129.70	5761356.64	560247.34
1884	60.25	75.19	1251.72	-1195.82	286.58	1130.54	5761356.86	560248.18
1885	60.25	75.19	1252.21	-1196.31	286.80	1131.38	5761357.08	560249.02
1886	60.26	75.19	1252.71	-1196.81	287.03	1132.22	5761357.31	560249.86
1887	60.26	75.18	1253.21	-1197.31	287.25	1133.06	5761357.53	560250.70
1888	60.26	75.18	1253.70	-1197.80	287.47	1133.90	5761357.75	560251.54
1889	60.26	75.17	1254.20	-1198.30	287.69	1134.74	5761357.97	560252.38
1890	60.27	75.17	1254.69	-1198.79	287.91	1135.58	5761358.19	560253.21

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1891	60.27	75.16	1255.19	-1199.29	288.14	1136.42	5761358.42	560254.05
1892	60.27	75.16	1255.69	-1199.79	288.36	1137.26	5761358.64	560254.89
1893	60.28	75.16	1256.18	-1200.28	288.58	1138.10	5761358.86	560255.73
1894	60.28	75.15	1256.68	-1200.78	288.80	1138.94	5761359.08	560256.57
1895	60.28	75.15	1257.17	-1201.27	289.02	1139.78	5761359.31	560257.41
1896	60.28	75.14	1257.67	-1201.77	289.25	1140.62	5761359.53	560258.25
1897	60.29	75.14	1258.17	-1202.27	289.47	1141.46	5761359.75	560259.09
1898	60.29	75.13	1258.66	-1202.76	289.69	1142.29	5761359.97	560259.93
1899	60.29	75.13	1259.16	-1203.26	289.91	1143.13	5761360.19	560260.77
1900	60.30	75.13	1259.65	-1203.75	290.13	1143.97	5761360.42	560261.61
1901	60.30	75.12	1260.15	-1204.25	290.36	1144.81	5761360.64	560262.45
1902	60.26	75.12	1260.66	-1204.76	290.58	1145.65	5761360.86	560263.28
1903	60.17	75.11	1261.17	-1205.27	290.80	1146.47	5761361.08	560264.11
1904	60.08	75.11	1261.69	-1205.79	291.02	1147.30	5761361.30	560264.94
1905	59.99	75.11	1262.20	-1206.30	291.24	1148.13	5761361.52	560265.77
1906	59.90	75.10	1262.72	-1206.82	291.46	1148.96	5761361.74	560266.59
1907	59.81	75.10	1263.23	-1207.33	291.68	1149.79	5761361.96	560267.42
1908	59.72	75.10	1263.74	-1207.84	291.90	1150.62	5761362.18	560268.25
1909	59.63	75.09	1264.26	-1208.36	292.12	1151.44	5761362.41	560269.08
1910	59.54	75.09	1264.77	-1208.87	292.35	1152.27	5761362.63	560269.91
1911	59.45	75.08	1265.29	-1209.39	292.57	1153.10	5761362.85	560270.74
1912	59.36	75.08	1265.80	-1209.90	292.79	1153.93	5761363.07	560271.56
1913	59.27	75.08	1266.32	-1210.42	293.01	1154.76	5761363.29	560272.39
1914	59.18	75.07	1266.83	-1210.93	293.23	1155.59	5761363.51	560273.22
1915	59.09	75.07	1267.35	-1211.45	293.45	1156.41	5761363.73	560274.05
1916	59.00	75.06	1267.86	-1211.96	293.67	1157.24	5761363.95	560274.88
1917	58.91	75.06	1268.38	-1212.48	293.89	1158.07	5761364.17	560275.70
1918	58.82	75.06	1268.89	-1212.99	294.11	1158.90	5761364.39	560276.53
1919	58.73	75.05	1269.41	-1213.51	294.33	1159.73	5761364.61	560277.36
1920	58.65	75.05	1269.92	-1214.02	294.55	1160.55	5761364.84	560278.19
1921	58.56	75.05	1270.44	-1214.54	294.78	1161.38	5761365.06	560279.02
1922	58.47	75.04	1270.95	-1215.05	295.00	1162.21	5761365.28	560279.85
1923	58.38	75.04	1271.47	-1215.57	295.22	1163.04	5761365.50	560280.67
1924	58.29	75.03	1271.98	-1216.08	295.44	1163.87	5761365.72	560281.50
1925	58.20	75.03	1272.50	-1216.60	295.66	1164.70	5761365.94	560282.33
1926	58.11	75.03	1273.01	-1217.11	295.88	1165.52	5761366.16	560283.16
1927	58.02	75.02	1273.53	-1217.63	296.10	1166.35	5761366.38	560283.99
1928	57.93	75.02	1274.04	-1218.14	296.32	1167.18	5761366.60	560284.82
1929	57.84	75.02	1274.56	-1218.66	296.54	1168.01	5761366.82	560285.64
1930	57.75	75.01	1275.07	-1219.17	296.76	1168.84	5761367.04	560286.47
1931	57.78	74.99	1275.58	-1219.68	296.99	1169.67	5761367.27	560287.30
1932	57.91	74.96	1276.09	-1220.19	297.22	1170.50	5761367.50	560288.13
1933	58.04	74.93	1276.60	-1220.70	297.45	1171.33	5761367.73	560288.96
1934	58.17	74.89	1277.10	-1221.20	297.68	1172.16	5761367.96	560289.79
1935	58.29	74.86	1277.61	-1221.71	297.91	1172.99	5761368.19	560290.62
1936	58.42	74.83	1278.11	-1222.21	298.14	1173.82	5761368.42	560291.46
1937	58.55	74.79	1278.62	-1222.72	298.37	1174.65	5761368.65	560292.29
1938	58.68	74.76	1279.13	-1223.23	298.60	1175.48	5761368.88	560293.12
1939	58.81	74.73	1279.63	-1223.73	298.83	1176.31	5761369.11	560293.95
1940	58.94	74.70	1280.14	-1224.24	299.06	1177.14	5761369.34	560294.78
1941	59.06	74.66	1280.65	-1224.75	299.29	1177.98	5761369.57	560295.61
1942	59.19	74.63	1281.15	-1225.25	299.52	1178.81	5761369.80	560296.44
1943	59.32	74.60	1281.66	-1225.76	299.75	1179.64	5761370.03	560297.27
1944	59.45	74.56	1282.16	-1226.26	299.98	1180.47	5761370.26	560298.10
1945	59.58	74.53	1282.67	-1226.77	300.21	1181.30	5761370.49	560298.93
1946	59.71	74.50	1283.18	-1227.28	300.44	1182.13	5761370.72	560299.76
1947	59.84	74.46	1283.68	-1227.78	300.67	1182.96	5761370.95	560300.60
1948	59.96	74.43	1284.19	-1228.29	300.90	1183.79	5761371.18	560301.43

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1949	60.09	74.40	1284.70	-1228.80	301.13	1184.62	5761371.41	560302.26
1950	60.22	74.37	1285.20	-1229.30	301.36	1185.45	5761371.64	560303.09
1951	60.35	74.33	1285.71	-1229.81	301.59	1186.28	5761371.87	560303.92
1952	60.48	74.30	1286.21	-1230.31	301.82	1187.11	5761372.10	560304.75
1953	60.61	74.27	1286.72	-1230.82	302.05	1187.95	5761372.33	560305.58
1954	60.73	74.23	1287.23	-1231.33	302.28	1188.78	5761372.56	560306.41
1955	60.86	74.20	1287.73	-1231.83	302.51	1189.61	5761372.79	560307.24
1956	60.99	74.17	1288.24	-1232.34	302.74	1190.44	5761373.02	560308.07
1957	61.12	74.13	1288.75	-1232.85	302.97	1191.27	5761373.25	560308.90
1958	61.25	74.10	1289.25	-1233.35	303.20	1192.10	5761373.48	560309.74
1959	61.38	74.07	1289.76	-1233.86	303.43	1192.93	5761373.71	560310.57
1960	61.45	74.06	1290.25	-1234.35	303.67	1193.77	5761373.95	560311.40
1961	61.44	74.08	1290.73	-1234.83	303.90	1194.61	5761374.18	560312.25
1962	61.43	74.09	1291.21	-1235.31	304.14	1195.46	5761374.42	560313.09
1963	61.43	74.11	1291.69	-1235.79	304.38	1196.30	5761374.66	560313.94
1964	61.42	74.13	1292.17	-1236.27	304.61	1197.15	5761374.89	560314.78
1965	61.41	74.15	1292.65	-1236.75	304.85	1197.99	5761375.13	560315.63
1966	61.41	74.17	1293.13	-1237.23	305.09	1198.84	5761375.37	560316.47
1967	61.40	74.18	1293.61	-1237.71	305.33	1199.68	5761375.61	560317.32
1968	61.40	74.20	1294.09	-1238.19	305.56	1200.53	5761375.84	560318.16
1969	61.39	74.22	1294.57	-1238.67	305.80	1201.37	5761376.08	560319.01
1970	61.38	74.24	1295.05	-1239.15	306.04	1202.22	5761376.32	560319.85
1971	61.38	74.26	1295.53	-1239.63	306.28	1203.06	5761376.56	560320.70
1972	61.37	74.28	1296.01	-1240.11	306.51	1203.91	5761376.79	560321.54
1973	61.36	74.29	1296.49	-1240.59	306.75	1204.75	5761377.03	560322.39
1974	61.36	74.31	1296.96	-1241.06	306.99	1205.60	5761377.27	560323.23
1975	61.35	74.33	1297.44	-1241.54	307.22	1206.44	5761377.50	560324.08
1976	61.34	74.35	1297.92	-1242.02	307.46	1207.29	5761377.74	560324.92
1977	61.34	74.37	1298.40	-1242.50	307.70	1208.13	5761377.98	560325.77
1978	61.33	74.38	1298.88	-1242.98	307.94	1208.98	5761378.22	560326.61
1979	61.32	74.40	1299.36	-1243.46	308.17	1209.82	5761378.45	560327.46
1980	61.32	74.42	1299.84	-1243.94	308.41	1210.67	5761378.69	560328.30
1981	61.31	74.44	1300.32	-1244.42	308.65	1211.51	5761378.93	560329.15
1982	61.30	74.46	1300.80	-1244.90	308.88	1212.36	5761379.17	560329.99
1983	61.30	74.48	1301.28	-1245.38	309.12	1213.20	5761379.40	560330.84
1984	61.29	74.49	1301.76	-1245.86	309.36	1214.05	5761379.64	560331.68
1985	61.28	74.51	1302.24	-1246.34	309.60	1214.89	5761379.88	560332.53
1986	61.28	74.53	1302.72	-1246.82	309.83	1215.74	5761380.11	560333.37
1987	61.27	74.55	1303.20	-1247.30	310.07	1216.58	5761380.35	560334.22
1988	61.26	74.57	1303.68	-1247.78	310.31	1217.43	5761380.59	560335.06
1989	61.25	74.58	1304.16	-1248.26	310.55	1218.27	5761380.83	560335.90
1990	61.20	74.56	1304.65	-1248.75	310.78	1219.11	5761381.06	560336.74
1991	61.15	74.55	1305.14	-1249.24	311.01	1219.95	5761381.30	560337.58
1992	61.10	74.53	1305.63	-1249.73	311.25	1220.79	5761381.53	560338.42
1993	61.06	74.52	1306.12	-1250.22	311.48	1221.63	5761381.76	560339.26
1994	61.01	74.50	1306.61	-1250.71	311.72	1222.46	5761382.00	560340.10
1995	60.96	74.49	1307.10	-1251.20	311.95	1223.30	5761382.23	560340.94
1996	60.91	74.47	1307.59	-1251.69	312.19	1224.14	5761382.47	560341.78
1997	60.86	74.46	1308.08	-1252.18	312.42	1224.98	5761382.70	560342.62
1998	60.82	74.45	1308.58	-1252.68	312.66	1225.82	5761382.94	560343.46
1999	60.77	74.43	1309.07	-1253.17	312.89	1226.66	5761383.17	560344.29
2000	60.72	74.42	1309.56	-1253.66	313.13	1227.50	5761383.41	560345.13
2001	60.67	74.40	1310.05	-1254.15	313.36	1228.34	5761383.64	560345.97
2002	60.62	74.39	1310.54	-1254.64	313.59	1229.18	5761383.88	560346.81
2003	60.58	74.37	1311.03	-1255.13	313.83	1230.02	5761384.11	560347.65
2004	60.53	74.36	1311.52	-1255.62	314.06	1230.85	5761384.34	560348.49
2005	60.48	74.34	1312.01	-1256.11	314.30	1231.69	5761384.58	560349.33
2006	60.43	74.33	1312.50	-1256.60	314.53	1232.53	5761384.81	560350.17

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2007	60.38	74.31	1312.99	-1257.09	314.77	1233.37	5761385.05	560351.01
2008	60.33	74.30	1313.48	-1257.58	315.00	1234.21	5761385.28	560351.85
2009	60.29	74.29	1313.98	-1258.08	315.24	1235.05	5761385.52	560352.68
2010	60.24	74.27	1314.47	-1258.57	315.47	1235.89	5761385.75	560353.52
2011	60.19	74.26	1314.96	-1259.06	315.71	1236.73	5761385.99	560354.36
2012	60.14	74.24	1315.45	-1259.55	315.94	1237.57	5761386.22	560355.20
2013	60.09	74.23	1315.94	-1260.04	316.17	1238.41	5761386.46	560356.04
2014	60.05	74.21	1316.43	-1260.53	316.41	1239.24	5761386.69	560356.88
2015	60.00	74.20	1316.92	-1261.02	316.64	1240.08	5761386.92	560357.72
2016	59.95	74.18	1317.41	-1261.51	316.88	1240.92	5761387.16	560358.56
2017	59.97	74.17	1317.90	-1262.00	317.12	1241.76	5761387.40	560359.39
2018	60.00	74.16	1318.40	-1262.50	317.36	1242.60	5761387.64	560360.23
2019	60.03	74.14	1318.89	-1262.99	317.60	1243.43	5761387.88	560361.07
2020	60.06	74.13	1319.39	-1263.49	317.84	1244.27	5761388.12	560361.90
2021	60.09	74.11	1319.88	-1263.98	318.08	1245.10	5761388.36	560362.74
2022	60.13	74.10	1320.37	-1264.47	318.32	1245.94	5761388.60	560363.57
2023	60.16	74.09	1320.87	-1264.97	318.56	1246.78	5761388.84	560364.41
2024	60.19	74.07	1321.36	-1265.46	318.80	1247.61	5761389.08	560365.25
2025	60.22	74.06	1321.85	-1265.95	319.04	1248.45	5761389.32	560366.08
2026	60.25	74.05	1322.35	-1266.45	319.28	1249.28	5761389.56	560366.92
2027	60.29	74.03	1322.84	-1266.94	319.52	1250.12	5761389.80	560367.75
2028	60.32	74.02	1323.33	-1267.43	319.76	1250.95	5761390.04	560368.59
2029	60.35	74.01	1323.83	-1267.93	320.00	1251.79	5761390.28	560369.43
2030	60.38	73.99	1324.32	-1268.42	320.24	1252.63	5761390.52	560370.26
2031	60.42	73.98	1324.81	-1268.91	320.48	1253.46	5761390.76	560371.10
2032	60.45	73.96	1325.31	-1269.41	320.72	1254.30	5761391.00	560371.93
2033	60.48	73.95	1325.80	-1269.90	320.96	1255.13	5761391.24	560372.77
2034	60.51	73.94	1326.29	-1270.39	321.20	1255.97	5761391.48	560373.61
2035	60.54	73.92	1326.79	-1270.89	321.44	1256.81	5761391.72	560374.44
2036	60.58	73.91	1327.28	-1271.38	321.68	1257.64	5761391.96	560375.28
2037	60.61	73.90	1327.77	-1271.87	321.92	1258.48	5761392.20	560376.11
2038	60.64	73.88	1328.27	-1272.37	322.16	1259.31	5761392.44	560376.95
2039	60.67	73.87	1328.76	-1272.86	322.40	1260.15	5761392.68	560377.79
2040	60.70	73.86	1329.25	-1273.35	322.64	1260.99	5761392.92	560378.62
2041	60.74	73.84	1329.75	-1273.85	322.88	1261.82	5761393.16	560379.46
2042	60.77	73.83	1330.24	-1274.34	323.12	1262.66	5761393.40	560380.29
2043	60.80	73.81	1330.73	-1274.83	323.36	1263.49	5761393.64	560381.13
2044	60.83	73.80	1331.23	-1275.33	323.60	1264.33	5761393.88	560381.97
2045	60.86	73.79	1331.72	-1275.82	323.84	1265.17	5761394.12	560382.80
2046	60.90	73.77	1332.21	-1276.31	324.08	1266.00	5761394.36	560383.64
2047	60.93	73.76	1332.71	-1276.81	324.32	1266.84	5761394.60	560384.47
2048	60.88	73.75	1333.20	-1277.30	324.57	1267.67	5761394.85	560385.31
2049	60.83	73.74	1333.70	-1277.80	324.81	1268.50	5761395.09	560386.14
2050	60.78	73.72	1334.20	-1278.30	325.06	1269.34	5761395.34	560386.97
2051	60.73	73.71	1334.69	-1278.79	325.30	1270.17	5761395.59	560387.80
2052	60.68	73.70	1335.19	-1279.29	325.55	1271.00	5761395.83	560388.64
2053	60.63	73.69	1335.69	-1279.79	325.79	1271.83	5761396.08	560389.47
2054	60.58	73.67	1336.18	-1280.28	326.04	1272.67	5761396.32	560390.30
2055	60.53	73.66	1336.68	-1280.78	326.29	1273.50	5761396.57	560391.13
2056	60.48	73.65	1337.18	-1281.28	326.53	1274.33	5761396.81	560391.97
2057	60.43	73.63	1337.68	-1281.78	326.78	1275.16	5761397.06	560392.80
2058	60.38	73.62	1338.17	-1282.27	327.02	1276.00	5761397.30	560393.63
2059	60.33	73.61	1338.67	-1282.77	327.27	1276.83	5761397.55	560394.46
2060	60.28	73.60	1339.17	-1283.27	327.51	1277.66	5761397.79	560395.30
2061	60.23	73.58	1339.66	-1283.76	327.76	1278.49	5761398.04	560396.13
2062	60.18	73.57	1340.16	-1284.26	328.00	1279.32	5761398.28	560396.96
2063	60.13	73.56	1340.66	-1284.76	328.25	1280.16	5761398.53	560397.79
2064	60.08	73.55	1341.15	-1285.25	328.49	1280.99	5761398.77	560398.62



MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2065	60.03	73.53	1341.65	-1285.75	328.74	1281.82	5761399.02	560399.46
2066	59.98	73.52	1342.15	-1286.25	328.98	1282.65	5761399.26	560400.29
2067	59.93	73.51	1342.64	-1286.74	329.23	1283.49	5761399.51	560401.12
2068	59.88	73.50	1343.14	-1287.24	329.47	1284.32	5761399.76	560401.95
2069	59.83	73.48	1343.64	-1287.74	329.72	1285.15	5761400.00	560402.79
2070	59.78	73.47	1344.13	-1288.23	329.96	1285.98	5761400.25	560403.62
2071	59.73	73.46	1344.63	-1288.73	330.21	1286.82	5761400.49	560404.45
2072	59.68	73.45	1345.13	-1289.23	330.46	1287.65	5761400.74	560405.28
2073	59.63	73.43	1345.62	-1289.72	330.70	1288.48	5761400.98	560406.12
2074	59.58	73.42	1346.12	-1290.22	330.95	1289.31	5761401.23	560406.95
2075	59.53	73.41	1346.62	-1290.72	331.19	1290.15	5761401.47	560407.78
2076	59.50	73.41	1347.12	-1291.22	331.44	1290.98	5761401.72	560408.61
2077	59.52	73.44	1347.62	-1291.72	331.68	1291.81	5761401.96	560409.44
2078	59.55	73.47	1348.12	-1292.22	331.92	1292.64	5761402.20	560410.28
2079	59.58	73.50	1348.62	-1292.72	332.16	1293.47	5761402.44	560411.11
2080	59.61	73.53	1349.12	-1293.22	332.40	1294.30	5761402.68	560411.94
2081	59.63	73.56	1349.63	-1293.73	332.64	1295.13	5761402.92	560412.77
2082	59.66	73.59	1350.13	-1294.23	332.88	1295.96	5761403.16	560413.60
2083	59.69	73.62	1350.63	-1294.73	333.12	1296.79	5761403.40	560414.43
2084	59.72	73.65	1351.13	-1295.23	333.36	1297.62	5761403.64	560415.26
2085	59.74	73.68	1351.63	-1295.73	333.60	1298.46	5761403.88	560416.09
2086	59.77	73.71	1352.13	-1296.23	333.84	1299.29	5761404.12	560416.92
2087	59.80	73.74	1352.64	-1296.74	334.08	1300.12	5761404.37	560417.75
2088	59.82	73.77	1353.14	-1297.24	334.33	1300.95	5761404.61	560418.58
2089	59.85	73.80	1353.64	-1297.74	334.57	1301.78	5761404.85	560419.41
2090	59.88	73.83	1354.14	-1298.24	334.81	1302.61	5761405.09	560420.24
2091	59.91	73.86	1354.64	-1298.74	335.05	1303.44	5761405.33	560421.08
2092	59.93	73.89	1355.14	-1299.24	335.29	1304.27	5761405.57	560421.91
2093	59.96	73.92	1355.65	-1299.75	335.53	1305.10	5761405.81	560422.74
2094	59.99	73.95	1356.15	-1300.25	335.77	1305.93	5761406.05	560423.57
2095	60.02	73.98	1356.65	-1300.75	336.01	1306.76	5761406.29	560424.40
2096	60.04	74.01	1357.15	-1301.25	336.25	1307.59	5761406.53	560425.23
2097	60.07	74.04	1357.65	-1301.75	336.49	1308.43	5761406.77	560426.06
2098	60.10	74.07	1358.15	-1302.25	336.73	1309.26	5761407.01	560426.89
2099	60.12	74.10	1358.66	-1302.76	336.97	1310.09	5761407.25	560427.72
2100	60.15	74.13	1359.16	-1303.26	337.21	1310.92	5761407.50	560428.55
2101	60.18	74.16	1359.66	-1303.76	337.46	1311.75	5761407.74	560429.38
2102	60.21	74.19	1360.16	-1304.26	337.70	1312.58	5761407.98	560430.21
2103	60.23	74.22	1360.66	-1304.76	337.94	1313.41	5761408.22	560431.05
2104	60.26	74.25	1361.16	-1305.26	338.18	1314.24	5761408.46	560431.88
2105	60.29	74.27	1361.66	-1305.76	338.42	1315.08	5761408.70	560432.71
2106	60.34	74.28	1362.15	-1306.25	338.65	1315.92	5761408.93	560433.55
2107	60.38	74.30	1362.63	-1306.73	338.89	1316.76	5761409.17	560434.39
2108	60.43	74.31	1363.12	-1307.22	339.12	1317.60	5761409.40	560435.24
2109	60.47	74.32	1363.61	-1307.71	339.36	1318.44	5761409.64	560436.08
2110	60.51	74.33	1364.09	-1308.19	339.59	1319.28	5761409.87	560436.92
2111	60.56	74.34	1364.58	-1308.68	339.82	1320.13	5761410.10	560437.76
2112	60.60	74.35	1365.06	-1309.16	340.06	1320.97	5761410.34	560438.60
2113	60.64	74.36	1365.55	-1309.65	340.29	1321.81	5761410.57	560439.45
2114	60.69	74.37	1366.04	-1310.14	340.53	1322.65	5761410.81	560440.29
2115	60.73	74.38	1366.52	-1310.62	340.76	1323.49	5761411.04	560441.13
2116	60.78	74.40	1367.01	-1311.11	341.00	1324.34	5761411.28	560441.97
2117	60.82	74.41	1367.49	-1311.59	341.23	1325.18	5761411.51	560442.81
2118	60.86	74.42	1367.98	-1312.08	341.47	1326.02	5761411.75	560443.65
2119	60.91	74.43	1368.47	-1312.57	341.70	1326.86	5761411.98	560444.50
2120	60.95	74.44	1368.95	-1313.05	341.94	1327.70	5761412.22	560445.34
2121	61.00	74.45	1369.44	-1313.54	342.17	1328.54	5761412.45	560446.18
2122	61.04	74.46	1369.93	-1314.03	342.40	1329.39	5761412.69	560447.02

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2123	61.08	74.47	1370.41	-1314.51	342.64	1330.23	5761412.92	560447.86
2124	61.13	74.48	1370.90	-1315.00	342.87	1331.07	5761413.15	560448.70
2125	61.17	74.49	1371.38	-1315.48	343.11	1331.91	5761413.39	560449.55
2126	61.22	74.51	1371.87	-1315.97	343.34	1332.75	5761413.62	560450.39
2127	61.26	74.52	1372.36	-1316.46	343.58	1333.60	5761413.86	560451.23
2128	61.30	74.53	1372.84	-1316.94	343.81	1334.44	5761414.09	560452.07
2129	61.35	74.54	1373.33	-1317.43	344.05	1335.28	5761414.33	560452.91
2130	61.39	74.55	1373.81	-1317.91	344.28	1336.12	5761414.56	560453.76
2131	61.44	74.56	1374.30	-1318.40	344.52	1336.96	5761414.80	560454.60
2132	61.48	74.57	1374.79	-1318.89	344.75	1337.80	5761415.03	560455.44
2133	61.52	74.58	1375.27	-1319.37	344.98	1338.65	5761415.27	560456.28
2134	61.56	74.60	1375.75	-1319.85	345.22	1339.49	5761415.50	560457.13
2135	61.59	74.61	1376.22	-1320.32	345.45	1340.34	5761415.73	560457.98
2136	61.62	74.62	1376.69	-1320.79	345.68	1341.20	5761415.96	560458.83
2137	61.65	74.63	1377.16	-1321.26	345.91	1342.05	5761416.19	560459.68
2138	61.68	74.65	1377.63	-1321.73	346.14	1342.90	5761416.42	560460.54
2139	61.71	74.66	1378.10	-1322.20	346.38	1343.75	5761416.66	560461.39
2140	61.74	74.67	1378.57	-1322.67	346.61	1344.61	5761416.89	560462.24
2141	61.77	74.69	1379.04	-1323.14	346.84	1345.46	5761417.12	560463.09
2142	61.80	74.70	1379.50	-1323.60	347.07	1346.31	5761417.35	560463.95
2143	61.83	74.71	1379.97	-1324.07	347.30	1347.16	5761417.58	560464.80
2144	61.86	74.73	1380.44	-1324.54	347.53	1348.01	5761417.81	560465.65
2145	61.89	74.74	1380.91	-1325.01	347.77	1348.87	5761418.05	560466.50
2146	61.92	74.75	1381.38	-1325.48	348.00	1349.72	5761418.28	560467.35
2147	61.96	74.76	1381.85	-1325.95	348.23	1350.57	5761418.51	560468.21
2148	61.99	74.78	1382.32	-1326.42	348.46	1351.42	5761418.74	560469.06
2149	62.02	74.79	1382.79	-1326.89	348.69	1352.28	5761418.97	560469.91
2150	62.05	74.80	1383.26	-1327.36	348.92	1353.13	5761419.20	560470.76
2151	62.08	74.82	1383.73	-1327.83	349.15	1353.98	5761419.44	560471.62
2152	62.11	74.83	1384.20	-1328.30	349.39	1354.83	5761419.67	560472.47
2153	62.14	74.84	1384.66	-1328.76	349.62	1355.68	5761419.90	560473.32
2154	62.17	74.86	1385.13	-1329.23	349.85	1356.54	5761420.13	560474.17
2155	62.20	74.87	1385.60	-1329.70	350.08	1357.39	5761420.36	560475.02
2156	62.23	74.88	1386.07	-1330.17	350.31	1358.24	5761420.59	560475.88
2157	62.26	74.90	1386.54	-1330.64	350.54	1359.09	5761420.82	560476.73
2158	62.29	74.91	1387.01	-1331.11	350.78	1359.95	5761421.06	560477.58
2159	62.32	74.92	1387.48	-1331.58	351.01	1360.80	5761421.29	560478.43
2160	62.35	74.93	1387.95	-1332.05	351.24	1361.65	5761421.52	560479.29
2161	62.38	74.95	1388.42	-1332.52	351.47	1362.50	5761421.75	560480.14
2162	62.41	74.96	1388.89	-1332.99	351.70	1363.35	5761421.98	560480.99
2163	62.44	74.97	1389.36	-1333.46	351.93	1364.21	5761422.21	560481.84
2164	62.47	74.99	1389.82	-1333.92	352.17	1365.06	5761422.45	560482.69
2165	62.50	75.00	1390.29	-1334.39	352.40	1365.91	5761422.68	560483.55

**APPENDIX 1f**  
**BARRACOUTA A4AST1**  
**MD-TVD Survey Data Listing**

<b>Report Date:</b>	31 August 2005
<b>Well:</b>	Barracouta A4AST1
<b>Structure / Slot:</b>	ENSCO 102 / 5
<b>TVD Reference Datum:</b>	Drillsite Elevation
<b>TVD Reference Elevation:</b>	56 m relative to MSL
<b>Sea Bed / Ground Level Elevation:</b>	45.7 m relative to MSL
<b>Grid Coordinate System:</b>	GDA94/MGA94 Zone 55
<b>Location Lat/Long:</b>	S 38 17' 47", E 147 40' 33"
<b>Location Grid N/E:</b>	N 559117.6761 m, E 5761070.2550 m
<b>Survey Azimuth Reference:</b>	Grid North

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
0	0	360	0	55.9	5761070.28	559117.6	0	0
5	0	0	5	50.9	5761070.28	559117.6	0	0
10	0	0	10	45.9	5761070.28	559117.6	0	0
15	0	0	15	40.9	5761070.28	559117.6	0	0
20	0	0	20	35.9	5761070.28	559117.6	0	0
25	0	0	25	30.9	5761070.28	559117.6	0	0
30	0	360	30	25.9	5761070.28	559117.6	0	0
35	0.08	350.92	35.00	20.90	5761070.29	559117.62	0.01	-0.02
40	0.19	338.06	40.00	15.90	5761070.29	559117.59	0.01	-0.04
45	0.29	325.20	45.00	10.90	5761070.30	559117.57	0.02	-0.07
50	0.40	312.34	50.00	5.90	5761070.31	559117.54	0.03	-0.10
55	0.51	299.48	55.00	0.90	5761070.32	559117.51	0.04	-0.12
60	0.62	286.62	60.00	-4.10	5761070.32	559117.49	0.04	-0.15
65	0.73	286.62	65.00	-9.10	5761070.34	559117.43	0.06	-0.21
70	0.72	285.11	70.00	-14.10	5761070.36	559117.37	0.08	-0.27
75	0.48	275.87	75.00	-19.10	5761070.37	559117.32	0.09	-0.32
80	0.41	169.13	80.00	-24.10	5761070.37	559117.30	0.09	-0.33
85	0.44	115.81	85.00	-29.10	5761070.35	559117.32	0.07	-0.31
90	0.31	108.24	90.00	-34.10	5761070.34	559117.36	0.06	-0.28
95	0.32	111.04	95.00	-39.10	5761070.33	559117.38	0.05	-0.25
100	0.29	105.61	100.00	-44.10	5761070.32	559117.41	0.04	-0.23
105	0.28	106.87	105.00	-49.10	5761070.31	559117.43	0.03	-0.21
110	0.38	111.61	110.00	-54.10	5761070.30	559117.46	0.02	-0.18
115	0.53	110.80	115.00	-59.10	5761070.29	559117.49	0.01	-0.14
120	0.57	110.54	120.00	-64.10	5761070.27	559117.54	-0.01	-0.10
125	0.58	113.07	125.00	-69.10	5761070.25	559117.59	-0.03	-0.05
130	0.62	113.97	130.00	-74.10	5761070.23	559117.63	-0.05	0.00
135	0.64	112.99	135.00	-79.10	5761070.21	559117.68	-0.07	0.05
140	0.64	111.12	140.00	-84.10	5761070.19	559117.74	-0.09	0.10
145	0.62	111.71	145.00	-89.10	5761070.17	559117.79	-0.11	0.15
150	0.63	111.84	150.00	-94.10	5761070.15	559117.84	-0.13	0.20
155	0.63	111.21	155.00	-99.10	5761070.13	559117.89	-0.15	0.25
160	0.66	110.57	160.00	-104.09	5761070.11	559117.94	-0.17	0.31
165	0.51	109.11	165.00	-109.09	5761070.09	559117.99	-0.19	0.35
170	0.54	108.72	169.99	-114.09	5761070.08	559118.03	-0.20	0.40
175	0.57	107.36	174.99	-119.09	5761070.06	559118.08	-0.22	0.44
180	0.48	108.09	179.99	-124.09	5761070.05	559118.12	-0.23	0.49
185	0.50	108.21	184.99	-129.09	5761070.03	559118.16	-0.25	0.53
190	0.47	103.39	189.99	-134.09	5761070.02	559118.20	-0.26	0.57
195	0.42	99.72	194.99	-139.09	5761070.01	559118.24	-0.27	0.61
200	0.41	98.33	199.99	-144.09	5761070.01	559118.28	-0.27	0.64
205	0.42	97.53	204.99	-149.09	5761070.00	559118.31	-0.28	0.68
210	0.39	95.78	209.99	-154.09	5761070.00	559118.35	-0.28	0.71
215	0.37	93.47	214.99	-159.09	5761070.00	559118.38	-0.28	0.75
220	0.35	92.82	219.99	-164.09	5761070.00	559118.41	-0.29	0.78
225	0.34	91.10	224.99	-169.09	5761069.99	559118.44	-0.29	0.81

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
230	0.33	87.63	229.99	-174.09	5761069.99	559118.47	-0.29	0.84
235	0.31	80.37	234.99	-179.09	5761070.00	559118.50	-0.28	0.86
240	0.23	70.93	239.99	-184.09	5761070.00	559118.52	-0.28	0.89
245	0.18	68.35	244.99	-189.09	5761070.01	559118.54	-0.27	0.90
250	0.16	52.58	249.99	-194.09	5761070.02	559118.55	-0.27	0.92
255	0.14	25.70	254.99	-199.09	5761070.03	559118.56	-0.26	0.92
260	0.16	22.50	259.99	-204.09	5761070.04	559118.56	-0.24	0.93
265	0.16	16.78	264.99	-209.09	5761070.05	559118.57	-0.23	0.93
270	0.15	31.37	269.99	-214.09	5761070.06	559118.57	-0.22	0.94
275	0.14	19.07	274.99	-219.09	5761070.07	559118.58	-0.21	0.95
280	0.15	9.49	279.99	-224.09	5761070.09	559118.58	-0.20	0.95
285	0.13	100.98	284.99	-229.09	5761070.09	559118.59	-0.19	0.95
290	0.08	220.25	289.99	-234.09	5761070.09	559118.59	-0.19	0.95
295	0.08	230.56	294.99	-239.09	5761070.08	559118.58	-0.20	0.95
300	0.09	214.97	299.99	-244.09	5761070.08	559118.58	-0.20	0.94
305	0.11	228.89	304.99	-249.09	5761070.07	559118.57	-0.21	0.94
310	0.14	227.43	309.99	-254.09	5761070.07	559118.57	-0.22	0.93
315	0.18	225.52	314.99	-259.09	5761070.06	559118.56	-0.23	0.92
320	0.21	228.48	319.99	-264.09	5761070.04	559118.54	-0.24	0.91
325	0.23	227.49	324.99	-269.09	5761070.03	559118.53	-0.25	0.89
330	0.24	230.96	329.99	-274.09	5761070.02	559118.51	-0.26	0.88
335	0.25	233.15	334.99	-279.09	5761070.01	559118.50	-0.28	0.86
340	0.24	234.08	339.99	-284.09	5761069.99	559118.48	-0.29	0.84
345	0.63	221.59	344.99	-289.09	5761069.96	559118.48	-0.32	0.85
350	2.53	152.70	349.99	-294.09	5761069.87	559118.58	-0.41	0.94
355	3.67	128.11	354.98	-299.08	5761069.70	559118.85	-0.58	1.21
360	4.45	124.37	359.96	-304.06	5761069.49	559119.20	-0.79	1.56
365	5.23	120.63	364.94	-309.04	5761069.28	559119.55	-1.00	1.91
370	6.02	116.90	369.93	-314.03	5761069.07	559119.90	-1.21	2.26
375	6.76	113.66	374.88	-318.98	5761068.88	559120.48	-1.40	2.85
380	7.47	110.64	379.83	-323.93	5761068.70	559121.18	-1.58	3.54
385	8.19	107.63	384.78	-328.88	5761068.52	559121.87	-1.77	4.24
390	8.91	104.62	389.72	-333.82	5761068.33	559122.57	-1.95	4.93
395	9.63	101.60	394.67	-338.77	5761068.15	559123.26	-2.13	5.63
400	10.35	98.59	399.62	-343.72	5761067.97	559123.95	-2.31	6.32
405	10.88	97.36	404.51	-348.61	5761067.87	559124.94	-2.42	7.31
410	11.38	96.37	409.41	-353.51	5761067.78	559125.97	-2.50	8.33
415	11.88	95.38	414.30	-358.40	5761067.69	559127.00	-2.59	9.36
420	12.39	94.40	419.19	-363.29	5761067.60	559128.02	-2.68	10.39
425	12.89	93.41	424.08	-368.18	5761067.51	559129.05	-2.77	11.42
430	13.39	92.42	428.97	-373.07	5761067.42	559130.08	-2.86	12.44
435	13.91	90.65	433.81	-377.91	5761067.49	559131.35	-2.79	13.72
440	14.43	88.89	438.64	-382.74	5761067.56	559132.63	-2.72	15.00
445	14.95	87.12	443.47	-387.57	5761067.63	559133.91	-2.66	16.27
450	15.47	85.35	448.31	-392.41	5761067.69	559135.18	-2.59	17.55
455	15.99	83.59	453.14	-397.24	5761067.76	559136.46	-2.52	18.82
460	16.51	81.99	457.95	-402.05	5761067.91	559137.81	-2.37	20.17
465	17.00	80.76	462.71	-406.81	5761068.21	559139.30	-2.07	21.66
470	17.49	79.53	467.47	-411.57	5761068.51	559140.79	-1.77	23.16
475	17.98	78.31	472.23	-416.33	5761068.81	559142.29	-1.47	24.65
480	18.48	77.08	476.99	-421.09	5761069.12	559143.78	-1.16	26.14
485	18.97	75.85	481.75	-425.85	5761069.42	559145.27	-0.86	27.64
490	19.52	75.24	486.47	-430.57	5761069.80	559146.89	-0.48	29.25
495	20.14	75.22	491.13	-435.23	5761070.26	559148.62	-0.02	30.98
500	20.75	75.20	495.80	-439.90	5761070.72	559150.35	0.44	32.72
505	21.36	75.18	500.47	-444.57	5761071.18	559152.08	0.90	34.45
510	21.97	75.16	505.14	-449.24	5761071.63	559153.81	1.35	36.18
515	22.59	75.15	509.80	-453.90	5761072.09	559155.55	1.81	37.91

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
520	23.32	74.99	514.38	-458.48	5761072.62	559157.49	2.34	39.85
525	24.10	74.77	518.91	-463.01	5761073.19	559159.53	2.91	41.89
530	24.88	74.55	523.43	-467.53	5761073.76	559161.57	3.48	43.93
535	25.66	74.33	527.96	-472.06	5761074.33	559163.60	4.05	45.97
540	26.45	74.10	532.49	-476.59	5761074.89	559165.64	4.61	48.01
545	27.23	73.88	537.02	-481.12	5761075.46	559167.68	5.18	50.05
550	27.93	73.63	541.40	-485.50	5761076.16	559169.99	5.88	52.36
555	28.62	73.36	545.76	-489.86	5761076.87	559172.33	6.59	54.70
560	29.31	73.10	550.11	-494.21	5761077.59	559174.67	7.31	57.04
565	30.00	72.84	554.47	-498.57	5761078.30	559177.02	8.02	59.38
570	30.69	72.58	558.83	-502.93	5761079.01	559179.36	8.73	61.72
575	31.37	72.38	563.18	-507.28	5761079.73	559181.72	9.45	64.08
580	31.97	72.91	567.37	-511.47	5761080.48	559184.34	10.20	66.70
585	32.56	73.43	571.56	-515.66	5761081.24	559186.96	10.96	69.33
590	33.16	73.96	575.75	-519.85	5761081.99	559189.58	11.71	71.95
595	33.76	74.49	579.94	-524.04	5761082.75	559192.20	12.47	74.57
600	34.35	75.01	584.13	-528.23	5761083.50	559194.82	13.22	77.19
605	34.95	75.42	588.28	-532.38	5761084.25	559197.50	13.97	79.87
610	35.55	75.43	592.29	-536.39	5761085.00	559200.38	14.72	82.75
615	36.16	75.44	596.31	-540.41	5761085.75	559203.26	15.47	85.63
620	36.77	75.44	600.33	-544.43	5761086.50	559206.15	16.22	88.51
625	37.37	75.45	604.34	-548.44	5761087.25	559209.03	16.96	91.39
630	37.98	75.46	608.36	-552.46	5761087.99	559211.91	17.71	94.27
635	38.54	75.43	612.28	-556.38	5761088.78	559214.90	18.50	97.26
640	39.05	75.36	616.13	-560.23	5761089.59	559217.99	19.31	100.36
645	39.57	75.29	619.97	-564.07	5761090.40	559221.09	20.12	103.45
650	40.08	75.23	623.81	-567.91	5761091.22	559224.18	20.94	106.55
655	40.60	75.16	627.65	-571.75	5761092.03	559227.27	21.75	109.64
660	41.11	75.09	631.49	-575.59	5761092.85	559230.37	22.57	112.73
665	41.72	75.05	635.21	-579.31	5761093.71	559233.60	23.43	115.96
670	42.38	75.02	638.85	-582.95	5761094.60	559236.91	24.31	119.27
675	43.04	74.99	642.49	-586.59	5761095.48	559240.21	25.20	122.58
680	43.70	74.96	646.13	-590.23	5761096.37	559243.52	26.09	125.89
685	44.36	74.94	649.78	-593.88	5761097.26	559246.83	26.98	129.19
690	45.02	74.91	653.42	-597.52	5761098.14	559250.13	27.86	132.50
695	45.67	74.82	656.88	-600.98	5761099.10	559253.61	28.82	135.98
700	46.32	74.72	660.29	-604.39	5761100.07	559257.14	29.79	139.50
705	46.96	74.62	663.69	-607.79	5761101.04	559260.67	30.76	143.03
710	47.61	74.52	667.10	-611.20	5761102.01	559264.19	31.73	146.56
715	48.26	74.42	670.51	-614.61	5761102.98	559267.72	32.70	150.08
720	48.91	74.32	673.91	-618.01	5761103.95	559271.25	33.67	153.61
725	49.58	74.35	677.07	-621.17	5761105.00	559274.98	34.72	157.35
730	50.26	74.37	680.22	-624.32	5761106.04	559278.72	35.76	161.08
735	50.93	74.40	683.38	-627.48	5761107.08	559282.45	36.80	164.82
740	51.60	74.43	686.53	-630.63	5761108.12	559286.19	37.84	168.55
745	52.28	74.46	689.69	-633.79	5761109.17	559289.92	38.89	172.29
750	52.94	74.50	692.80	-636.90	5761110.21	559293.69	39.93	176.06
755	53.57	74.60	695.69	-639.79	5761111.29	559297.63	41.00	179.99
760	54.21	74.70	698.58	-642.68	5761112.36	559301.56	42.08	183.93
765	54.84	74.80	701.47	-645.57	5761113.43	559305.50	43.15	187.87
770	55.47	74.90	704.36	-648.46	5761114.50	559309.44	44.22	191.80
775	56.11	75.00	707.25	-651.35	5761115.57	559313.37	45.29	195.74
780	56.64	75.07	710.07	-654.17	5761116.64	559317.35	46.36	199.72
785	56.97	75.07	712.76	-656.86	5761117.73	559321.43	47.45	203.79
790	57.31	75.07	715.45	-659.55	5761118.82	559325.50	48.54	207.87
795	57.64	75.06	718.13	-662.23	5761119.90	559329.57	49.62	211.94
800	57.97	75.06	720.82	-664.92	5761120.99	559333.65	50.71	216.01
805	58.30	75.06	723.51	-667.61	5761122.08	559337.72	51.80	220.09

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
810	58.69	75.12	726.11	-670.21	5761123.17	559341.85	52.89	224.21
815	59.10	75.21	728.67	-672.77	5761124.26	559346.00	53.98	228.37
820	59.51	75.31	731.23	-675.33	5761125.36	559350.16	55.08	232.52
825	59.93	75.40	733.79	-677.89	5761126.45	559354.31	56.17	236.67
830	60.06	75.38	736.30	-680.40	5761127.55	559358.49	57.27	240.85
835	60.07	75.32	738.79	-682.89	5761128.66	559362.68	58.38	245.04
840	60.08	75.25	741.29	-685.39	5761129.76	559366.87	59.48	249.24
845	60.09	75.18	743.78	-687.88	5761130.87	559371.06	60.59	253.43
850	60.10	75.11	746.27	-690.37	5761131.97	559375.25	61.69	257.62
855	60.11	75.05	748.77	-692.87	5761133.08	559379.44	62.80	261.81
860	60.24	75.01	751.23	-695.33	5761134.20	559383.64	63.92	266.01
865	60.45	75.00	753.68	-697.78	5761135.33	559387.86	65.05	270.22
870	60.66	74.99	756.12	-700.22	5761136.46	559392.07	66.18	274.43
875	60.88	74.98	758.57	-702.67	5761137.59	559396.28	67.30	278.65
880	61.09	74.97	761.01	-705.11	5761138.72	559400.50	68.43	282.86
885	61.31	74.96	763.46	-707.56	5761139.85	559404.71	69.56	287.07
890	61.28	74.94	765.88	-709.98	5761140.98	559408.93	70.70	291.30
895	61.22	74.92	768.29	-712.39	5761142.13	559413.16	71.85	295.53
900	61.15	74.89	770.70	-714.80	5761143.27	559417.39	72.99	299.75
905	61.08	74.87	773.12	-717.22	5761144.41	559421.62	74.13	303.98
910	61.02	74.84	775.53	-719.63	5761145.55	559425.84	75.27	308.21
915	60.95	74.82	777.94	-722.04	5761146.69	559430.07	76.41	312.44
920	60.90	74.89	780.38	-724.48	5761147.82	559434.29	77.54	316.65
925	60.85	74.96	782.82	-726.92	5761148.95	559438.50	78.67	320.87
930	60.81	75.03	785.26	-729.36	5761150.08	559442.72	79.80	325.09
935	60.76	75.09	787.69	-731.79	5761151.21	559446.94	80.93	329.30
940	60.71	75.16	790.13	-734.23	5761152.34	559451.16	82.05	333.52
945	60.63	75.27	792.58	-736.68	5761153.44	559455.37	83.16	337.73
950	60.48	75.48	795.07	-739.17	5761154.51	559459.58	84.23	341.94
955	60.32	75.69	797.55	-741.65	5761155.57	559463.78	85.29	346.15
960	60.16	75.90	800.03	-744.13	5761156.63	559467.99	86.35	350.36
965	60.01	76.11	802.52	-746.62	5761157.70	559472.20	87.42	354.56
970	59.85	76.32	805.00	-749.10	5761158.76	559476.41	88.48	358.77
975	59.75	76.49	807.50	-751.60	5761159.79	559480.61	89.51	362.98
980	59.71	76.60	810.03	-754.13	5761160.78	559484.81	90.50	367.18
985	59.67	76.72	812.56	-756.66	5761161.76	559489.01	91.48	371.38
990	59.63	76.83	815.08	-759.18	5761162.75	559493.21	92.47	375.58
995	59.59	76.95	817.61	-761.71	5761163.74	559497.41	93.46	379.78
1000	59.55	77.07	820.13	-764.23	5761164.73	559501.61	94.45	383.98
1005	59.49	77.08	822.68	-766.78	5761165.70	559505.81	95.42	388.17
1010	59.41	77.05	825.23	-769.33	5761166.67	559510.00	96.39	392.36
1015	59.34	77.02	827.78	-771.88	5761167.63	559514.19	97.35	396.55
1020	59.27	76.99	830.33	-774.43	5761168.60	559518.38	98.32	400.74
1025	59.19	76.96	832.88	-776.98	5761169.57	559522.57	99.28	404.93
1030	59.12	76.93	835.43	-779.53	5761170.53	559526.76	100.25	409.12
1035	58.92	76.91	838.04	-782.14	5761171.50	559530.91	101.22	413.28
1040	58.71	76.88	840.65	-784.75	5761172.47	559535.06	102.19	417.43
1045	58.49	76.85	843.27	-787.37	5761173.44	559539.21	103.16	421.58
1050	58.27	76.82	845.88	-789.98	5761174.41	559543.36	104.13	425.73
1055	58.06	76.80	848.49	-792.59	5761175.38	559547.52	105.10	429.88
1060	57.85	76.77	851.11	-795.21	5761176.35	559551.66	106.07	434.03
1065	57.94	76.76	853.75	-797.85	5761177.32	559555.80	107.04	438.16
1070	58.02	76.75	856.39	-800.49	5761178.30	559559.93	108.02	442.29
1075	58.10	76.73	859.04	-803.14	5761179.27	559564.06	108.99	446.42
1080	58.19	76.72	861.68	-805.78	5761180.25	559568.19	109.96	450.56
1085	58.27	76.71	864.32	-808.42	5761181.22	559572.32	110.94	454.69
1090	58.38	76.74	866.95	-811.05	5761182.19	559576.46	111.91	458.83
1095	58.60	76.98	869.53	-813.63	5761183.12	559580.64	112.84	463.01

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1100	58.82	77.22	872.11	-816.21	5761184.06	559584.82	113.78	467.19
1105	59.04	77.46	874.68	-818.78	5761184.99	559589.01	114.71	471.37
1110	59.26	77.70	877.26	-821.36	5761185.93	559593.19	115.65	475.55
1115	59.49	77.94	879.84	-823.94	5761186.86	559597.37	116.58	479.73
1120	59.76	78.04	882.36	-826.46	5761187.79	559601.58	117.51	483.95
1125	60.11	77.96	884.81	-828.91	5761188.71	559605.84	118.43	488.20
1130	60.45	77.87	887.27	-831.37	5761189.63	559610.10	119.35	492.46
1135	60.80	77.78	889.72	-833.82	5761190.55	559614.36	120.27	496.72
1140	61.15	77.69	892.17	-836.27	5761191.47	559618.62	121.19	500.98
1145	61.50	77.60	894.62	-838.72	5761192.39	559622.88	122.11	505.24
1150	61.76	77.55	897.01	-841.11	5761193.33	559627.17	123.05	509.53
1155	61.94	77.52	899.34	-843.44	5761194.29	559631.49	124.01	513.85
1160	62.13	77.50	901.67	-845.77	5761195.25	559635.80	124.96	518.17
1165	62.31	77.47	904.00	-848.10	5761196.20	559640.12	125.92	522.49
1170	62.50	77.45	906.33	-850.43	5761197.16	559644.44	126.88	526.80
1175	62.69	77.43	908.67	-852.77	5761198.12	559648.76	127.84	531.12
1180	62.81	77.39	910.95	-855.05	5761199.09	559653.10	128.81	535.46
1185	62.90	77.35	913.22	-857.32	5761200.07	559657.44	129.79	539.81
1190	62.99	77.31	915.49	-859.59	5761201.05	559661.79	130.77	544.15
1195	63.09	77.27	917.76	-861.86	5761202.03	559666.13	131.75	548.50
1200	63.18	77.23	920.03	-864.13	5761203.01	559670.48	132.73	552.85
1205	63.28	77.19	922.30	-866.40	5761203.99	559674.83	133.71	557.19
1210	63.28	77.16	924.55	-868.65	5761204.98	559679.18	134.70	561.54
1215	63.27	77.13	926.80	-870.90	5761205.98	559683.53	135.70	565.90
1220	63.26	77.10	929.05	-873.15	5761206.98	559687.88	136.70	570.25
1225	63.24	77.07	931.30	-875.40	5761207.97	559692.24	137.69	574.60
1230	63.23	77.05	933.55	-877.65	5761208.97	559696.59	138.69	578.95
1235	63.22	76.98	935.80	-879.90	5761209.98	559700.94	139.70	583.30
1240	63.24	76.60	938.05	-882.15	5761211.06	559705.27	140.78	587.64
1245	63.26	76.22	940.30	-884.40	5761212.15	559709.60	141.87	591.97
1250	63.27	75.83	942.55	-886.65	5761213.24	559713.93	142.96	596.30
1255	63.29	75.45	944.80	-888.90	5761214.33	559718.26	144.04	600.63
1260	63.31	75.06	947.05	-891.15	5761215.41	559722.59	145.13	604.96
1265	63.29	74.74	949.30	-893.40	5761216.54	559726.91	146.26	609.28
1270	63.19	74.56	951.57	-895.67	5761217.75	559731.20	147.47	613.57
1275	63.09	74.37	953.84	-897.94	5761218.95	559735.49	148.67	617.86
1280	62.99	74.19	956.11	-900.21	5761220.16	559739.78	149.88	622.15
1285	62.89	74.01	958.37	-902.47	5761221.37	559744.07	151.09	626.43
1290	62.79	73.82	960.64	-904.74	5761222.58	559748.36	152.30	630.72
1295	62.61	73.66	962.95	-907.05	5761223.82	559752.62	153.54	634.98
1300	62.36	73.50	965.30	-909.40	5761225.09	559756.84	154.81	639.21
1305	62.11	73.35	967.64	-911.74	5761226.36	559761.07	156.08	643.44
1310	61.87	73.19	969.99	-914.09	5761227.63	559765.30	157.35	647.67
1315	61.62	73.04	972.34	-916.44	5761228.90	559769.53	158.62	651.89
1320	61.37	72.88	974.68	-918.78	5761230.17	559773.76	159.89	656.12
1325	61.21	72.79	977.08	-921.18	5761231.46	559777.95	161.18	660.31
1330	61.09	72.74	979.51	-923.61	5761232.76	559782.12	162.48	664.49
1335	60.97	72.69	981.94	-926.04	5761234.06	559786.29	163.78	668.66
1340	60.85	72.63	984.37	-928.47	5761235.36	559790.47	165.08	672.83
1345	60.72	72.58	986.80	-930.90	5761236.66	559794.64	166.38	677.00
1350	60.60	72.53	989.23	-933.33	5761237.97	559798.81	167.69	681.18
1355	60.55	72.44	991.69	-935.79	5761239.29	559802.96	169.01	685.32
1360	60.52	72.36	994.15	-938.25	5761240.61	559807.10	170.33	689.47
1365	60.48	72.27	996.61	-940.71	5761241.94	559811.25	171.66	693.61
1370	60.44	72.19	999.08	-943.18	5761243.26	559815.39	172.98	697.75
1375	60.40	72.10	1001.54	-945.64	5761244.59	559819.53	174.31	701.90
1380	60.36	72.02	1004.01	-948.11	5761245.91	559823.68	175.63	706.04
1385	60.31	72.06	1006.49	-950.59	5761247.25	559827.81	176.96	710.17



MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1390	60.27	72.10	1008.97	-953.07	5761248.58	559831.94	178.30	714.30
1395	60.23	72.14	1011.45	-955.55	5761249.91	559836.07	179.63	718.43
1400	60.18	72.17	1013.94	-958.04	5761251.24	559840.20	180.96	722.57
1405	60.14	72.21	1016.42	-960.52	5761252.57	559844.33	182.29	726.70
1410	60.13	72.31	1018.90	-963.00	5761253.89	559848.47	183.61	730.83
1415	60.20	72.57	1021.38	-965.48	5761255.16	559852.62	184.88	734.99
1420	60.27	72.82	1023.85	-967.95	5761256.43	559856.78	186.15	739.14
1425	60.35	73.07	1026.33	-970.43	5761257.70	559860.93	187.42	743.29
1430	60.42	73.33	1028.80	-972.90	5761258.97	559865.08	188.69	747.45
1435	60.49	73.58	1031.28	-975.38	5761260.24	559869.24	189.96	751.60
1440	60.51	73.68	1033.75	-977.85	5761261.50	559873.40	191.22	755.76
1445	60.48	73.59	1036.22	-980.32	5761262.74	559877.57	192.46	759.93
1450	60.44	73.50	1038.69	-982.79	5761263.97	559881.74	193.69	764.10
1455	60.40	73.42	1041.15	-985.25	5761265.21	559885.90	194.93	768.27
1460	60.37	73.33	1043.62	-987.72	5761266.45	559890.07	196.17	772.44
1465	60.33	73.24	1046.09	-990.19	5761267.69	559894.24	197.41	776.61
1470	60.28	73.38	1048.57	-992.67	5761268.90	559898.41	198.62	780.77
1475	60.22	73.64	1051.06	-995.16	5761270.10	559902.58	199.82	784.94
1480	60.16	73.90	1053.55	-997.65	5761271.30	559906.74	201.02	789.11
1485	60.10	74.16	1056.04	-1000.14	5761272.50	559910.91	202.22	793.28
1490	60.04	74.42	1058.53	-1002.63	5761273.70	559915.08	203.42	797.44
1495	59.98	74.68	1061.02	-1005.12	5761274.90	559919.25	204.62	801.61
1500	60.00	74.91	1063.51	-1007.61	5761275.99	559923.44	205.71	805.80
1505	60.01	75.14	1066.01	-1010.11	5761277.09	559927.63	206.81	809.99
1508	60.02	75.27	1067.51	-1011.61	5761277.75	559930.14	207.46	812.51
1509	60.03	75.32	1068.01	-1012.11	5761277.96	559930.98	207.68	813.34
1510	60.03	75.36	1068.51	-1012.61	5761278.18	559931.82	207.90	814.18
1511	60.03	75.41	1069.01	-1013.11	5761278.40	559932.65	208.12	815.02
1512	60.04	75.46	1069.51	-1013.61	5761278.62	559933.49	208.34	815.86
1513	60.04	75.50	1070.01	-1014.11	5761278.84	559934.33	208.56	816.70
1514	60.05	75.55	1070.51	-1014.61	5761279.06	559935.17	208.78	817.53
1515	60.05	75.59	1071.01	-1015.11	5761279.28	559936.01	209.00	818.37
1516	60.05	75.64	1071.51	-1015.61	5761279.50	559936.85	209.22	819.21
1517	60.06	75.68	1072.01	-1016.11	5761279.72	559937.68	209.44	820.05
1518	60.06	75.73	1072.51	-1016.61	5761279.94	559938.52	209.66	820.89
1519	60.06	75.77	1073.01	-1017.11	5761280.16	559939.36	209.88	821.72
1520	60.07	75.82	1073.50	-1017.60	5761280.38	559940.20	210.09	822.56
1521	60.07	75.87	1074.00	-1018.10	5761280.59	559941.04	210.31	823.40
1522	60.07	75.91	1074.50	-1018.60	5761280.81	559941.87	210.53	824.24
1523	60.08	75.96	1075.00	-1019.10	5761281.03	559942.71	210.75	825.08
1524	60.08	76.00	1075.50	-1019.60	5761281.25	559943.55	210.97	825.92
1525	60.09	76.01	1076.00	-1020.10	5761281.46	559944.39	211.18	826.76
1526	60.10	76.01	1076.50	-1020.60	5761281.67	559945.23	211.39	827.60
1527	60.11	76.00	1076.99	-1021.09	5761281.88	559946.08	211.60	828.44
1528	60.11	76.00	1077.49	-1021.59	5761282.09	559946.92	211.81	829.28
1529	60.12	76.00	1077.99	-1022.09	5761282.30	559947.76	212.02	830.12
1530	60.13	76.00	1078.48	-1022.58	5761282.51	559948.60	212.23	830.97
1531	60.14	76.00	1078.98	-1023.08	5761282.73	559949.44	212.44	831.81
1532	60.15	75.99	1079.48	-1023.58	5761282.94	559950.29	212.65	832.65
1533	60.16	75.99	1079.97	-1024.07	5761283.15	559951.13	212.86	833.49
1534	60.17	75.99	1080.47	-1024.57	5761283.36	559951.97	213.08	834.33
1535	60.18	75.99	1080.97	-1025.07	5761283.57	559952.81	213.29	835.18
1536	60.18	75.99	1081.47	-1025.57	5761283.78	559953.65	213.50	836.02
1537	60.19	75.98	1081.96	-1026.06	5761283.99	559954.50	213.71	836.86
1538	60.20	75.98	1082.46	-1026.56	5761284.20	559955.34	213.92	837.70
1539	60.21	75.98	1082.96	-1027.06	5761284.41	559956.18	214.13	838.54
1540	60.22	75.98	1083.45	-1027.55	5761284.62	559957.02	214.34	839.39
1541	60.23	75.98	1083.95	-1028.05	5761284.83	559957.86	214.55	840.23

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1542	60.24	75.97	1084.45	-1028.55	5761285.04	559958.71	214.76	841.07
1543	60.25	75.97	1084.94	-1029.04	5761285.25	559959.55	214.97	841.91
1544	60.26	75.97	1085.44	-1029.54	5761285.46	559960.39	215.18	842.75
1545	60.26	75.97	1085.94	-1030.04	5761285.67	559961.23	215.39	843.60
1546	60.27	75.97	1086.43	-1030.53	5761285.88	559962.07	215.60	844.44
1547	60.28	75.96	1086.93	-1031.03	5761286.09	559962.91	215.81	845.28
1548	60.29	75.96	1087.43	-1031.53	5761286.30	559963.76	216.02	846.12
1549	60.30	75.96	1087.92	-1032.02	5761286.51	559964.60	216.23	846.96
1550	60.31	75.96	1088.42	-1032.52	5761286.72	559965.44	216.44	847.81
1551	60.32	75.96	1088.92	-1033.02	5761286.93	559966.28	216.65	848.65
1552	60.33	75.95	1089.41	-1033.51	5761287.14	559967.12	216.86	849.49
1553	60.34	75.95	1089.91	-1034.01	5761287.35	559967.97	217.07	850.33
1554	60.33	75.96	1090.41	-1034.51	5761287.56	559968.81	217.28	851.17
1555	60.32	75.97	1090.91	-1035.01	5761287.77	559969.65	217.49	852.02
1556	60.31	75.98	1091.40	-1035.50	5761287.98	559970.49	217.69	852.86
1557	60.29	76.00	1091.90	-1036.00	5761288.18	559971.33	217.90	853.70
1558	60.28	76.01	1092.40	-1036.50	5761288.39	559972.18	218.11	854.54
1559	60.26	76.03	1092.90	-1037.00	5761288.60	559973.02	218.32	855.38
1560	60.25	76.04	1093.40	-1037.50	5761288.81	559973.86	218.52	856.23
1561	60.23	76.05	1093.89	-1037.99	5761289.01	559974.70	218.73	857.07
1562	60.22	76.07	1094.39	-1038.49	5761289.22	559975.54	218.94	857.91
1563	60.21	76.08	1094.89	-1038.99	5761289.43	559976.39	219.15	858.75
1564	60.19	76.10	1095.39	-1039.49	5761289.64	559977.23	219.36	859.59
1565	60.18	76.11	1095.89	-1039.99	5761289.84	559978.07	219.56	860.44
1566	60.16	76.12	1096.38	-1040.48	5761290.05	559978.91	219.77	861.28
1567	60.15	76.14	1096.88	-1040.98	5761290.26	559979.75	219.98	862.12
1568	60.13	76.15	1097.38	-1041.48	5761290.47	559980.60	220.19	862.96
1569	60.12	76.16	1097.88	-1041.98	5761290.67	559981.44	220.39	863.80
1570	60.11	76.18	1098.38	-1042.48	5761290.88	559982.28	220.60	864.65
1571	60.09	76.19	1098.87	-1042.97	5761291.09	559983.12	220.81	865.49
1572	60.08	76.21	1099.37	-1043.47	5761291.30	559983.96	221.02	866.33
1573	60.06	76.22	1099.87	-1043.97	5761291.50	559984.81	221.22	867.17
1574	60.05	76.23	1100.37	-1044.47	5761291.71	559985.65	221.43	868.01
1575	60.03	76.25	1100.87	-1044.97	5761291.92	559986.49	221.64	868.86
1576	60.02	76.26	1101.36	-1045.46	5761292.13	559987.33	221.85	869.70
1577	60.01	76.28	1101.86	-1045.96	5761292.33	559988.17	222.05	870.54
1578	59.99	76.29	1102.36	-1046.46	5761292.54	559989.02	222.26	871.38
1579	59.98	76.30	1102.86	-1046.96	5761292.75	559989.86	222.47	872.22
1580	59.96	76.32	1103.36	-1047.46	5761292.96	559990.70	222.68	873.07
1581	59.95	76.33	1103.85	-1047.95	5761293.17	559991.54	222.88	873.91
1582	59.93	76.35	1104.35	-1048.45	5761293.37	559992.38	223.09	874.75
1583	59.94	76.34	1104.85	-1048.95	5761293.58	559993.23	223.30	875.59
1584	59.95	76.32	1105.35	-1049.45	5761293.79	559994.07	223.51	876.43
1585	59.96	76.30	1105.85	-1049.95	5761294.00	559994.91	223.72	877.27
1586	59.97	76.28	1106.35	-1050.45	5761294.21	559995.75	223.93	878.12
1587	59.99	76.27	1106.84	-1050.94	5761294.41	559996.59	224.13	878.96
1588	60.00	76.25	1107.34	-1051.44	5761294.62	559997.43	224.34	879.80
1589	60.01	76.23	1107.84	-1051.94	5761294.83	559998.27	224.55	880.64
1590	60.02	76.21	1108.34	-1052.44	5761295.04	559999.12	224.76	881.48
1591	60.03	76.19	1108.84	-1052.94	5761295.25	559999.96	224.97	882.32
1592	60.04	76.18	1109.34	-1053.44	5761295.46	560000.80	225.18	883.16
1593	60.06	76.16	1109.83	-1053.93	5761295.66	560001.64	225.38	884.01
1594	60.07	76.14	1110.33	-1054.43	5761295.87	560002.48	225.59	884.85
1595	60.08	76.12	1110.83	-1054.93	5761296.08	560003.32	225.80	885.69
1596	60.09	76.10	1111.33	-1055.43	5761296.29	560004.17	226.01	886.53
1597	60.10	76.08	1111.83	-1055.93	5761296.50	560005.01	226.22	887.37
1598	60.12	76.07	1112.33	-1056.43	5761296.71	560005.85	226.43	888.21
1599	60.13	76.05	1112.83	-1056.93	5761296.92	560006.69	226.63	889.05

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1600	60.14	76.03	1113.32	-1057.42	5761297.12	560007.53	226.84	889.90
1601	60.15	76.01	1113.82	-1057.92	5761297.33	560008.37	227.05	890.74
1602	60.16	75.99	1114.32	-1058.42	5761297.54	560009.21	227.26	891.58
1603	60.17	75.98	1114.82	-1058.92	5761297.75	560010.06	227.47	892.42
1604	60.19	75.96	1115.32	-1059.42	5761297.96	560010.90	227.68	893.26
1605	60.20	75.94	1115.82	-1059.92	5761298.17	560011.74	227.88	894.10
1606	60.21	75.92	1116.31	-1060.41	5761298.37	560012.58	228.09	894.94
1607	60.22	75.90	1116.81	-1060.91	5761298.58	560013.42	228.30	895.79
1608	60.23	75.89	1117.31	-1061.41	5761298.79	560014.26	228.51	896.63
1609	60.25	75.87	1117.81	-1061.91	5761299.00	560015.10	228.72	897.47
1610	60.26	75.85	1118.31	-1062.41	5761299.21	560015.95	228.93	898.31
1611	60.27	75.83	1118.81	-1062.91	5761299.42	560016.79	229.14	899.15
1612	60.29	75.85	1119.30	-1063.40	5761299.62	560017.63	229.34	900.00
1613	60.31	75.87	1119.79	-1063.89	5761299.83	560018.48	229.55	900.84
1614	60.33	75.89	1120.28	-1064.38	5761300.04	560019.32	229.76	901.69
1615	60.34	75.91	1120.77	-1064.87	5761300.25	560020.17	229.97	902.53
1616	60.36	75.93	1121.27	-1065.37	5761300.46	560021.01	230.18	903.38
1617	60.38	75.95	1121.76	-1065.86	5761300.67	560021.86	230.39	904.22
1618	60.40	75.97	1122.25	-1066.35	5761300.88	560022.70	230.60	905.07
1619	60.42	75.99	1122.74	-1066.84	5761301.09	560023.55	230.81	905.91
1620	60.44	76.01	1123.23	-1067.33	5761301.29	560024.40	231.01	906.76
1621	60.46	76.03	1123.72	-1067.82	5761301.50	560025.24	231.22	907.61
1622	60.48	76.05	1124.22	-1068.32	5761301.71	560026.09	231.43	908.45
1623	60.50	76.07	1124.71	-1068.81	5761301.92	560026.93	231.64	909.30
1624	60.52	76.09	1125.20	-1069.30	5761302.13	560027.78	231.85	910.14
1625	60.54	76.11	1125.69	-1069.79	5761302.34	560028.62	232.06	910.99
1626	60.55	76.14	1126.18	-1070.28	5761302.55	560029.47	232.27	911.83
1627	60.57	76.16	1126.67	-1070.77	5761302.76	560030.31	232.47	912.68
1628	60.59	76.18	1127.17	-1071.27	5761302.96	560031.16	232.68	913.52
1629	60.61	76.20	1127.66	-1071.76	5761303.17	560032.00	232.89	914.37
1630	60.63	76.22	1128.15	-1072.25	5761303.38	560032.85	233.10	915.21
1631	60.65	76.24	1128.64	-1072.74	5761303.59	560033.69	233.31	916.06
1632	60.67	76.26	1129.13	-1073.23	5761303.80	560034.54	233.52	916.91
1633	60.69	76.28	1129.62	-1073.72	5761304.01	560035.39	233.73	917.75
1634	60.71	76.30	1130.12	-1074.22	5761304.22	560036.23	233.94	918.60
1635	60.73	76.32	1130.61	-1074.71	5761304.43	560037.08	234.14	919.44
1636	60.75	76.34	1131.10	-1075.20	5761304.63	560037.92	234.35	920.29
1637	60.77	76.36	1131.59	-1075.69	5761304.84	560038.77	234.56	921.13
1638	60.78	76.38	1132.08	-1076.18	5761305.05	560039.61	234.77	921.98
1639	60.80	76.40	1132.57	-1076.67	5761305.26	560040.46	234.98	922.82
1640	60.82	76.42	1133.07	-1077.17	5761305.47	560041.30	235.19	923.67
1641	60.85	76.43	1133.55	-1077.65	5761305.68	560042.15	235.40	924.52
1642	60.89	76.43	1134.03	-1078.13	5761305.88	560043.01	235.60	925.37
1643	60.93	76.43	1134.51	-1078.61	5761306.09	560043.86	235.81	926.23
1644	60.97	76.43	1134.99	-1079.09	5761306.29	560044.71	236.01	927.08
1645	61.00	76.43	1135.47	-1079.57	5761306.50	560045.57	236.22	927.93
1646	61.04	76.43	1135.95	-1080.05	5761306.71	560046.42	236.42	928.78
1647	61.08	76.43	1136.42	-1080.52	5761306.91	560047.27	236.63	929.64
1648	61.12	76.43	1136.90	-1081.00	5761307.12	560048.13	236.84	930.49
1649	61.15	76.43	1137.38	-1081.48	5761307.32	560048.98	237.04	931.34
1650	61.19	76.43	1137.86	-1081.96	5761307.53	560049.83	237.25	932.20
1651	61.23	76.43	1138.34	-1082.44	5761307.73	560050.69	237.45	933.05
1652	61.27	76.43	1138.82	-1082.92	5761307.94	560051.54	237.66	933.90
1653	61.30	76.43	1139.30	-1083.40	5761308.15	560052.39	237.87	934.76
1654	61.34	76.43	1139.78	-1083.88	5761308.35	560053.25	238.07	935.61
1655	61.38	76.44	1140.26	-1084.36	5761308.56	560054.10	238.28	936.46
1656	61.42	76.44	1140.74	-1084.84	5761308.76	560054.95	238.48	937.32
1657	61.46	76.44	1141.21	-1085.31	5761308.97	560055.81	238.69	938.17

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1658	61.49	76.44	1141.69	-1085.79	5761309.18	560056.66	238.89	939.02
1659	61.53	76.44	1142.17	-1086.27	5761309.38	560057.51	239.10	939.88
1660	61.57	76.44	1142.65	-1086.75	5761309.59	560058.37	239.31	940.73
1661	61.61	76.44	1143.13	-1087.23	5761309.79	560059.22	239.51	941.58
1662	61.64	76.44	1143.61	-1087.71	5761310.00	560060.07	239.72	942.44
1663	61.68	76.44	1144.09	-1088.19	5761310.21	560060.93	239.92	943.29
1664	61.72	76.44	1144.57	-1088.67	5761310.41	560061.78	240.13	944.14
1665	61.76	76.44	1145.05	-1089.15	5761310.62	560062.63	240.34	945.00
1666	61.79	76.44	1145.53	-1089.63	5761310.82	560063.49	240.54	945.85
1667	61.83	76.44	1146.01	-1090.11	5761311.03	560064.34	240.75	946.70
1668	61.87	76.44	1146.48	-1090.58	5761311.23	560065.19	240.95	947.56
1669	61.91	76.44	1146.96	-1091.06	5761311.44	560066.04	241.16	948.41
1670	61.92	76.46	1147.44	-1091.54	5761311.64	560066.90	241.36	949.27
1671	61.91	76.50	1147.91	-1092.01	5761311.84	560067.76	241.56	950.13
1672	61.90	76.54	1148.38	-1092.48	5761312.04	560068.62	241.76	950.98
1673	61.90	76.58	1148.85	-1092.95	5761312.24	560069.48	241.96	951.84
1674	61.89	76.62	1149.33	-1093.43	5761312.43	560070.34	242.15	952.70
1675	61.88	76.66	1149.80	-1093.90	5761312.63	560071.20	242.35	953.56
1676	61.88	76.70	1150.27	-1094.37	5761312.83	560072.06	242.55	954.42
1677	61.87	76.74	1150.74	-1094.84	5761313.03	560072.91	242.75	955.28
1678	61.87	76.78	1151.22	-1095.32	5761313.23	560073.77	242.95	956.14
1679	61.86	76.81	1151.69	-1095.79	5761313.43	560074.63	243.15	957.00
1680	61.85	76.85	1152.16	-1096.26	5761313.63	560075.49	243.34	957.86
1681	61.85	76.89	1152.63	-1096.73	5761313.82	560076.35	243.54	958.71
1682	61.84	76.93	1153.10	-1097.20	5761314.02	560077.21	243.74	959.57
1683	61.83	76.97	1153.58	-1097.68	5761314.22	560078.07	243.94	960.43
1684	61.83	77.01	1154.05	-1098.15	5761314.42	560078.93	244.14	961.29
1685	61.82	77.05	1154.52	-1098.62	5761314.62	560079.79	244.34	962.15
1686	61.82	77.09	1154.99	-1099.09	5761314.82	560080.64	244.53	963.01
1687	61.81	77.12	1155.46	-1099.56	5761315.01	560081.50	244.73	963.87
1688	61.80	77.16	1155.94	-1100.04	5761315.21	560082.36	244.93	964.73
1689	61.80	77.20	1156.41	-1100.51	5761315.41	560083.22	245.13	965.59
1690	61.79	77.24	1156.88	-1100.98	5761315.61	560084.08	245.33	966.45
1691	61.78	77.28	1157.35	-1101.45	5761315.81	560084.94	245.53	967.30
1692	61.78	77.32	1157.82	-1101.92	5761316.01	560085.80	245.72	968.16
1693	61.77	77.36	1158.30	-1102.40	5761316.20	560086.66	245.92	969.02
1694	61.76	77.40	1158.77	-1102.87	5761316.40	560087.52	246.12	969.88
1695	61.76	77.44	1159.24	-1103.34	5761316.60	560088.37	246.32	970.74
1696	61.75	77.47	1159.71	-1103.81	5761316.80	560089.23	246.52	971.60
1697	61.75	77.51	1160.19	-1104.29	5761317.00	560090.09	246.72	972.46
1698	61.74	77.55	1160.66	-1104.76	5761317.20	560090.95	246.92	973.32
1699	61.72	77.53	1161.14	-1105.24	5761317.39	560091.81	247.11	974.17
1700	61.70	77.51	1161.61	-1105.71	5761317.58	560092.66	247.30	975.03
1701	61.67	77.49	1162.09	-1106.19	5761317.78	560093.52	247.50	975.89
1702	61.65	77.47	1162.57	-1106.67	5761317.97	560094.38	247.69	976.74
1703	61.63	77.45	1163.05	-1107.15	5761318.16	560095.23	247.88	977.60
1704	61.61	77.43	1163.53	-1107.63	5761318.36	560096.09	248.08	978.46
1705	61.59	77.41	1164.01	-1108.11	5761318.55	560096.95	248.27	979.31
1706	61.56	77.39	1164.49	-1108.59	5761318.75	560097.80	248.47	980.17
1707	61.54	77.37	1164.96	-1109.06	5761318.94	560098.66	248.66	981.02
1708	61.52	77.34	1165.44	-1109.54	5761319.13	560099.52	248.85	981.88
1709	61.50	77.32	1165.92	-1110.02	5761319.33	560100.37	249.05	982.74
1710	61.48	77.30	1166.40	-1110.50	5761319.52	560101.23	249.24	983.59
1711	61.46	77.28	1166.88	-1110.98	5761319.72	560102.09	249.43	984.45
1712	61.43	77.26	1167.36	-1111.46	5761319.91	560102.94	249.63	985.31
1713	61.41	77.24	1167.83	-1111.93	5761320.10	560103.80	249.82	986.16
1714	61.39	77.22	1168.31	-1112.41	5761320.30	560104.66	250.02	987.02
1715	61.37	77.20	1168.79	-1112.89	5761320.49	560105.51	250.21	987.88

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1716	61.35	77.18	1169.27	-1113.37	5761320.68	560106.37	250.40	988.73
1717	61.33	77.16	1169.75	-1113.85	5761320.88	560107.22	250.60	989.59
1718	61.30	77.14	1170.23	-1114.33	5761321.07	560108.08	250.79	990.45
1719	61.28	77.12	1170.70	-1114.80	5761321.27	560108.94	250.99	991.30
1720	61.26	77.10	1171.18	-1115.28	5761321.46	560109.79	251.18	992.16
1721	61.24	77.08	1171.66	-1115.76	5761321.65	560110.65	251.37	993.02
1722	61.22	77.06	1172.14	-1116.24	5761321.85	560111.51	251.57	993.87
1723	61.19	77.04	1172.62	-1116.72	5761322.04	560112.36	251.76	994.73
1724	61.17	77.02	1173.10	-1117.20	5761322.23	560113.22	251.95	995.59
1725	61.15	77.00	1173.57	-1117.67	5761322.43	560114.08	252.15	996.44
1726	61.13	76.98	1174.05	-1118.15	5761322.62	560114.93	252.34	997.30
1727	61.11	76.96	1174.53	-1118.63	5761322.82	560115.79	252.54	998.15
1728	61.09	76.93	1175.01	-1119.11	5761323.02	560116.64	252.74	999.01
1729	61.08	76.90	1175.50	-1119.60	5761323.22	560117.49	252.94	999.86
1730	61.07	76.87	1175.99	-1120.09	5761323.43	560118.34	253.14	1000.71
1731	61.05	76.83	1176.47	-1120.57	5761323.63	560119.19	253.35	1001.56
1732	61.04	76.80	1176.96	-1121.06	5761323.83	560120.04	253.55	1002.41
1733	61.03	76.77	1177.44	-1121.54	5761324.04	560120.89	253.76	1003.26
1734	61.02	76.74	1177.93	-1122.03	5761324.24	560121.74	253.96	1004.11
1735	61.01	76.71	1178.42	-1122.52	5761324.45	560122.59	254.17	1004.95
1736	60.99	76.68	1178.90	-1123.00	5761324.65	560123.44	254.37	1005.80
1737	60.98	76.65	1179.39	-1123.49	5761324.85	560124.29	254.57	1006.65
1738	60.97	76.61	1179.87	-1123.97	5761325.06	560125.14	254.78	1007.50
1739	60.96	76.58	1180.36	-1124.46	5761325.26	560125.99	254.98	1008.35
1740	60.94	76.55	1180.85	-1124.95	5761325.47	560126.84	255.19	1009.20
1741	60.93	76.52	1181.33	-1125.43	5761325.67	560127.69	255.39	1010.05
1742	60.92	76.49	1181.82	-1125.92	5761325.87	560128.54	255.59	1010.90
1743	60.91	76.46	1182.31	-1126.41	5761326.08	560129.39	255.80	1011.75
1744	60.89	76.42	1182.79	-1126.89	5761326.28	560130.24	256.00	1012.60
1745	60.88	76.39	1183.28	-1127.38	5761326.49	560131.09	256.21	1013.45
1746	60.87	76.36	1183.76	-1127.86	5761326.69	560131.94	256.41	1014.30
1747	60.86	76.33	1184.25	-1128.35	5761326.90	560132.79	256.61	1015.15
1748	60.85	76.30	1184.74	-1128.84	5761327.10	560133.64	256.82	1016.00
1749	60.83	76.27	1185.22	-1129.32	5761327.30	560134.49	257.02	1016.85
1750	60.82	76.24	1185.71	-1129.81	5761327.51	560135.34	257.23	1017.70
1751	60.81	76.20	1186.19	-1130.29	5761327.71	560136.19	257.43	1018.55
1752	60.80	76.17	1186.68	-1130.78	5761327.92	560137.04	257.64	1019.40
1753	60.78	76.14	1187.17	-1131.27	5761328.12	560137.89	257.84	1020.25
1754	60.77	76.11	1187.65	-1131.75	5761328.32	560138.73	258.04	1021.10
1755	60.76	76.08	1188.14	-1132.24	5761328.53	560139.58	258.25	1021.95
1756	60.75	76.05	1188.62	-1132.72	5761328.73	560140.43	258.45	1022.80
1757	60.76	76.03	1189.11	-1133.21	5761328.94	560141.28	258.66	1023.65
1758	60.79	76.02	1189.59	-1133.69	5761329.15	560142.13	258.87	1024.50
1759	60.82	76.01	1190.07	-1134.17	5761329.37	560142.98	259.09	1025.35
1760	60.85	76.00	1190.55	-1134.65	5761329.58	560143.83	259.30	1026.20
1761	60.88	76.00	1191.03	-1135.13	5761329.79	560144.68	259.51	1027.05
1762	60.92	75.99	1191.52	-1135.62	5761330.01	560145.53	259.73	1027.90
1763	60.95	75.98	1192.00	-1136.10	5761330.22	560146.38	259.94	1028.75
1764	60.98	75.97	1192.48	-1136.58	5761330.43	560147.23	260.15	1029.60
1765	61.01	75.97	1192.96	-1137.06	5761330.65	560148.08	260.37	1030.45
1766	61.04	75.96	1193.44	-1137.54	5761330.86	560148.93	260.58	1031.30
1767	61.08	75.95	1193.92	-1138.02	5761331.07	560149.78	260.79	1032.15
1768	61.11	75.94	1194.40	-1138.50	5761331.29	560150.63	261.01	1033.00
1769	61.14	75.94	1194.89	-1138.99	5761331.50	560151.48	261.22	1033.85
1770	61.17	75.93	1195.37	-1139.47	5761331.71	560152.33	261.43	1034.70
1771	61.20	75.92	1195.85	-1139.95	5761331.93	560153.19	261.65	1035.55
1772	61.24	75.91	1196.33	-1140.43	5761332.14	560154.04	261.86	1036.40
1773	61.27	75.91	1196.81	-1140.91	5761332.35	560154.89	262.07	1037.25

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1774	61.30	75.90	1197.29	-1141.39	5761332.57	560155.74	262.29	1038.10
1775	61.33	75.89	1197.78	-1141.88	5761332.78	560156.59	262.50	1038.95
1776	61.36	75.88	1198.26	-1142.36	5761332.99	560157.44	262.71	1039.80
1777	61.40	75.88	1198.74	-1142.84	5761333.21	560158.29	262.93	1040.65
1778	61.43	75.87	1199.22	-1143.32	5761333.42	560159.14	263.14	1041.50
1779	61.46	75.86	1199.70	-1143.80	5761333.63	560159.99	263.35	1042.35
1780	61.49	75.85	1200.18	-1144.28	5761333.85	560160.84	263.56	1043.20
1781	61.52	75.85	1200.67	-1144.77	5761334.06	560161.69	263.78	1044.05
1782	61.56	75.84	1201.15	-1145.25	5761334.27	560162.54	263.99	1044.90
1783	61.59	75.83	1201.63	-1145.73	5761334.49	560163.39	264.20	1045.75
1784	61.62	75.82	1202.11	-1146.21	5761334.70	560164.24	264.42	1046.60
1785	61.65	75.82	1202.59	-1146.69	5761334.91	560165.09	264.63	1047.45
1786	61.65	75.80	1203.08	-1147.18	5761335.13	560165.93	264.85	1048.30
1787	61.50	75.74	1203.59	-1147.69	5761335.35	560166.76	265.07	1049.13
1788	61.34	75.68	1204.09	-1148.19	5761335.57	560167.60	265.29	1049.96
1789	61.18	75.63	1204.60	-1148.70	5761335.79	560168.43	265.51	1050.79
1790	61.02	75.57	1205.11	-1149.21	5761336.02	560169.26	265.74	1051.62
1791	60.87	75.51	1205.62	-1149.72	5761336.24	560170.09	265.96	1052.46
1792	60.71	75.45	1206.13	-1150.23	5761336.46	560170.92	266.18	1053.29
1793	60.55	75.39	1206.64	-1150.74	5761336.69	560171.75	266.40	1054.12
1794	60.39	75.34	1207.14	-1151.24	5761336.91	560172.58	266.63	1054.95
1795	60.23	75.28	1207.65	-1151.75	5761337.13	560173.42	266.85	1055.78
1796	60.08	75.22	1208.16	-1152.26	5761337.35	560174.25	267.07	1056.61
1797	59.92	75.16	1208.67	-1152.77	5761337.58	560175.08	267.30	1057.44
1798	59.76	75.10	1209.18	-1153.28	5761337.80	560175.91	267.52	1058.28
1799	59.60	75.05	1209.69	-1153.79	5761338.02	560176.74	267.74	1059.11
1800	59.45	74.99	1210.19	-1154.29	5761338.24	560177.57	267.96	1059.94
1801	59.29	74.93	1210.70	-1154.80	5761338.47	560178.41	268.19	1060.77
1802	59.13	74.87	1211.21	-1155.31	5761338.69	560179.24	268.41	1061.60
1803	58.97	74.81	1211.72	-1155.82	5761338.91	560180.07	268.63	1062.43
1804	58.81	74.75	1212.23	-1156.33	5761339.14	560180.90	268.86	1063.26
1805	58.66	74.70	1212.74	-1156.84	5761339.36	560181.73	269.08	1064.10
1806	58.50	74.64	1213.24	-1157.34	5761339.58	560182.56	269.30	1064.93
1807	58.34	74.58	1213.75	-1157.85	5761339.80	560183.39	269.52	1065.76
1808	58.18	74.52	1214.26	-1158.36	5761340.03	560184.23	269.75	1066.59
1809	58.03	74.46	1214.77	-1158.87	5761340.25	560185.06	269.97	1067.42
1810	57.87	74.41	1215.28	-1159.38	5761340.47	560185.89	270.19	1068.25
1811	57.71	74.35	1215.79	-1159.89	5761340.70	560186.72	270.41	1069.09
1812	57.55	74.29	1216.29	-1160.39	5761340.92	560187.55	270.64	1069.92
1813	57.39	74.23	1216.80	-1160.90	5761341.14	560188.38	270.86	1070.75
1814	57.24	74.17	1217.31	-1161.41	5761341.36	560189.22	271.08	1071.58
1815	57.20	74.10	1217.85	-1161.95	5761341.60	560190.03	271.32	1072.39
1816	57.19	74.03	1218.39	-1162.49	5761341.85	560190.83	271.57	1073.19
1817	57.18	73.96	1218.93	-1163.03	5761342.09	560191.63	271.81	1074.00
1818	57.18	73.88	1219.48	-1163.58	5761342.33	560192.44	272.05	1074.80
1819	57.17	73.81	1220.02	-1164.12	5761342.58	560193.24	272.30	1075.60
1820	57.16	73.74	1220.56	-1164.66	5761342.82	560194.04	272.54	1076.41
1821	57.16	73.66	1221.10	-1165.20	5761343.07	560194.85	272.79	1077.21
1822	57.15	73.59	1221.65	-1165.75	5761343.31	560195.65	273.03	1078.01
1823	57.15	73.51	1222.19	-1166.29	5761343.56	560196.45	273.27	1078.82
1824	57.14	73.44	1222.73	-1166.83	5761343.80	560197.26	273.52	1079.62
1825	57.13	73.37	1223.28	-1167.38	5761344.04	560198.06	273.76	1080.42
1826	57.13	73.29	1223.82	-1167.92	5761344.29	560198.86	274.01	1081.23
1827	57.12	73.22	1224.36	-1168.46	5761344.53	560199.67	274.25	1082.03
1828	57.11	73.15	1224.91	-1169.01	5761344.78	560200.47	274.50	1082.83
1829	57.11	73.07	1225.45	-1169.55	5761345.02	560201.27	274.74	1083.64
1830	57.10	73.00	1225.99	-1170.09	5761345.26	560202.08	274.98	1084.44
1831	57.10	72.93	1226.54	-1170.64	5761345.51	560202.88	275.23	1085.24

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1832	57.09	72.85	1227.08	-1171.18	5761345.75	560203.68	275.47	1086.05
1833	57.08	72.78	1227.62	-1171.72	5761346.00	560204.49	275.72	1086.85
1834	57.08	72.70	1228.16	-1172.26	5761346.24	560205.29	275.96	1087.65
1835	57.07	72.63	1228.71	-1172.81	5761346.48	560206.09	276.20	1088.46
1836	57.06	72.56	1229.25	-1173.35	5761346.73	560206.90	276.45	1089.26
1837	57.06	72.48	1229.79	-1173.89	5761346.97	560207.70	276.69	1090.06
1838	57.05	72.41	1230.34	-1174.44	5761347.22	560208.50	276.94	1090.87
1839	57.05	72.34	1230.88	-1174.98	5761347.46	560209.31	277.18	1091.67
1840	57.04	72.26	1231.42	-1175.52	5761347.71	560210.11	277.42	1092.47
1841	57.03	72.19	1231.97	-1176.07	5761347.95	560210.91	277.67	1093.28
1842	57.03	72.12	1232.51	-1176.61	5761348.19	560211.72	277.91	1094.08
1843	57.02	72.04	1233.05	-1177.15	5761348.44	560212.52	278.16	1094.88
1844	57.04	72.01	1233.59	-1177.69	5761348.70	560213.32	278.42	1095.68
1845	57.07	71.99	1234.13	-1178.23	5761348.96	560214.12	278.68	1096.48
1846	57.10	71.96	1234.67	-1178.77	5761349.23	560214.92	278.95	1097.28
1847	57.13	71.94	1235.21	-1179.31	5761349.49	560215.72	279.21	1098.08
1848	57.16	71.91	1235.74	-1179.84	5761349.76	560216.52	279.48	1098.88
1849	57.18	71.89	1236.28	-1180.38	5761350.02	560217.32	279.74	1099.68
1850	57.21	71.87	1236.82	-1180.92	5761350.29	560218.12	280.01	1100.48
1851	57.24	71.84	1237.36	-1181.46	5761350.55	560218.92	280.27	1101.28
1852	57.27	71.82	1237.90	-1182.00	5761350.82	560219.72	280.54	1102.08
1853	57.29	71.80	1238.44	-1182.54	5761351.08	560220.52	280.80	1102.88
1854	57.32	71.77	1238.98	-1183.08	5761351.35	560221.32	281.07	1103.68
1855	57.35	71.75	1239.51	-1183.61	5761351.61	560222.12	281.33	1104.48
1856	57.38	71.72	1240.05	-1184.15	5761351.88	560222.92	281.60	1105.28
1857	57.41	71.70	1240.59	-1184.69	5761352.14	560223.72	281.86	1106.08
1858	57.43	71.68	1241.13	-1185.23	5761352.41	560224.52	282.13	1106.88
1859	57.46	71.65	1241.67	-1185.77	5761352.67	560225.32	282.39	1107.68
1860	57.49	71.63	1242.21	-1186.31	5761352.94	560226.12	282.66	1108.48
1861	57.52	71.61	1242.74	-1186.84	5761353.20	560226.92	282.92	1109.28
1862	57.55	71.58	1243.28	-1187.38	5761353.47	560227.72	283.19	1110.08
1863	57.57	71.56	1243.82	-1187.92	5761353.73	560228.52	283.45	1110.88
1864	57.60	71.53	1244.36	-1188.46	5761354.00	560229.32	283.72	1111.68
1865	57.63	71.51	1244.90	-1189.00	5761354.26	560230.12	283.98	1112.48
1866	57.66	71.49	1245.44	-1189.54	5761354.53	560230.92	284.25	1113.28
1867	57.69	71.46	1245.97	-1190.07	5761354.79	560231.72	284.51	1114.08
1868	57.71	71.44	1246.51	-1190.61	5761355.06	560232.52	284.77	1114.88
1869	57.74	71.42	1247.05	-1191.15	5761355.32	560233.32	285.04	1115.68
1870	57.77	71.39	1247.59	-1191.69	5761355.59	560234.12	285.30	1116.48
1871	57.80	71.37	1248.13	-1192.23	5761355.85	560234.92	285.57	1117.28
1872	57.83	71.34	1248.67	-1192.77	5761356.11	560235.72	285.83	1118.08
1873	57.83	71.29	1249.20	-1193.30	5761356.40	560236.52	286.11	1118.88
1874	57.82	71.22	1249.74	-1193.84	5761356.68	560237.31	286.40	1119.68
1875	57.81	71.15	1250.27	-1194.37	5761356.96	560238.11	286.68	1120.47
1876	57.81	71.09	1250.80	-1194.90	5761357.25	560238.91	286.97	1121.27
1877	57.80	71.02	1251.34	-1195.44	5761357.53	560239.70	287.25	1122.07
1878	57.80	70.96	1251.87	-1195.97	5761357.81	560240.50	287.53	1122.86
1879	57.79	70.89	1252.40	-1196.50	5761358.10	560241.30	287.82	1123.66
1880	57.78	70.83	1252.94	-1197.04	5761358.38	560242.09	288.10	1124.46
1881	57.78	70.76	1253.47	-1197.57	5761358.67	560242.89	288.38	1125.25
1882	57.77	70.70	1254.00	-1198.10	5761358.95	560243.69	288.67	1126.05
1883	57.77	70.63	1254.54	-1198.64	5761359.23	560244.48	288.95	1126.85
1884	57.76	70.57	1255.07	-1199.17	5761359.52	560245.28	289.24	1127.64
1885	57.75	70.50	1255.61	-1199.71	5761359.80	560246.08	289.52	1128.44
1886	57.75	70.44	1256.14	-1200.24	5761360.08	560246.87	289.80	1129.24
1887	57.74	70.37	1256.67	-1200.77	5761360.37	560247.67	290.09	1130.03
1888	57.74	70.31	1257.21	-1201.31	5761360.65	560248.47	290.37	1130.83
1889	57.73	70.24	1257.74	-1201.84	5761360.93	560249.26	290.65	1131.63

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1890	57.73	70.17	1258.27	-1202.37	5761361.22	560250.06	290.94	1132.42
1891	57.72	70.11	1258.81	-1202.91	5761361.50	560250.86	291.22	1133.22
1892	57.71	70.04	1259.34	-1203.44	5761361.79	560251.65	291.51	1134.02
1893	57.71	69.98	1259.88	-1203.98	5761362.07	560252.45	291.79	1134.81
1894	57.70	69.91	1260.41	-1204.51	5761362.35	560253.25	292.07	1135.61
1895	57.70	69.85	1260.94	-1205.04	5761362.64	560254.04	292.36	1136.41
1896	57.69	69.78	1261.48	-1205.58	5761362.92	560254.84	292.64	1137.20
1897	57.68	69.72	1262.01	-1206.11	5761363.20	560255.64	292.92	1138.00
1898	57.68	69.65	1262.54	-1206.64	5761363.49	560256.43	293.21	1138.80
1899	57.67	69.59	1263.08	-1207.18	5761363.77	560257.23	293.49	1139.59
1900	57.67	69.52	1263.61	-1207.71	5761364.06	560258.03	293.78	1140.39
1901	57.66	69.46	1264.15	-1208.25	5761364.34	560258.82	294.06	1141.19
1902	57.69	69.41	1264.67	-1208.77	5761364.64	560259.61	294.36	1141.98
1903	57.73	69.37	1265.20	-1209.30	5761364.95	560260.41	294.67	1142.77
1904	57.77	69.32	1265.73	-1209.83	5761365.26	560261.20	294.98	1143.56
1905	57.81	69.28	1266.25	-1210.35	5761365.57	560261.99	295.29	1144.36
1906	57.85	69.24	1266.78	-1210.88	5761365.87	560262.78	295.59	1145.15
1907	57.89	69.19	1267.31	-1211.41	5761366.18	560263.58	295.90	1145.94
1908	57.92	69.15	1267.83	-1211.93	5761366.49	560264.37	296.21	1146.73
1909	57.96	69.10	1268.36	-1212.46	5761366.80	560265.16	296.51	1147.53
1910	58.00	69.06	1268.89	-1212.99	5761367.10	560265.95	296.82	1148.32
1911	58.04	69.02	1269.41	-1213.51	5761367.41	560266.75	297.13	1149.11
1912	58.08	68.97	1269.94	-1214.04	5761367.72	560267.54	297.44	1149.90
1913	58.12	68.93	1270.47	-1214.57	5761368.02	560268.33	297.74	1150.70
1914	58.15	68.89	1270.99	-1215.09	5761368.33	560269.12	298.05	1151.49
1915	58.19	68.84	1271.52	-1215.62	5761368.64	560269.92	298.36	1152.28
1916	58.23	68.80	1272.05	-1216.15	5761368.95	560270.71	298.67	1153.07
1917	58.27	68.75	1272.57	-1216.67	5761369.25	560271.50	298.97	1153.87
1918	58.31	68.71	1273.10	-1217.20	5761369.56	560272.29	299.28	1154.66
1919	58.35	68.67	1273.63	-1217.73	5761369.87	560273.09	299.59	1155.45
1920	58.38	68.62	1274.15	-1218.25	5761370.18	560273.88	299.90	1156.24
1921	58.42	68.58	1274.68	-1218.78	5761370.48	560274.67	300.20	1157.04
1922	58.46	68.54	1275.21	-1219.31	5761370.79	560275.47	300.51	1157.83
1923	58.50	68.49	1275.73	-1219.83	5761371.10	560276.26	300.82	1158.62
1924	58.54	68.45	1276.26	-1220.36	5761371.41	560277.05	301.12	1159.41
1925	58.58	68.40	1276.79	-1220.89	5761371.71	560277.84	301.43	1160.21
1926	58.61	68.36	1277.31	-1221.41	5761372.02	560278.64	301.74	1161.00
1927	58.65	68.32	1277.84	-1221.94	5761372.33	560279.43	302.05	1161.79
1928	58.69	68.27	1278.37	-1222.47	5761372.63	560280.22	302.35	1162.59
1929	58.73	68.23	1278.89	-1222.99	5761372.94	560281.01	302.66	1163.38
1930	58.77	68.19	1279.42	-1223.52	5761373.25	560281.81	302.97	1164.17
1931	58.79	68.20	1279.94	-1224.04	5761373.56	560282.60	303.28	1164.97
1932	58.81	68.26	1280.45	-1224.55	5761373.86	560283.40	303.58	1165.77
1933	58.83	68.31	1280.97	-1225.07	5761374.17	560284.20	303.89	1166.57
1934	58.85	68.37	1281.48	-1225.58	5761374.48	560285.00	304.20	1167.37
1935	58.86	68.42	1282.00	-1226.10	5761374.79	560285.80	304.51	1168.17
1936	58.88	68.47	1282.51	-1226.61	5761375.10	560286.60	304.82	1168.97
1937	58.90	68.53	1283.02	-1227.12	5761375.40	560287.41	305.12	1169.77
1938	58.92	68.58	1283.54	-1227.64	5761375.71	560288.21	305.43	1170.57
1939	58.94	68.63	1284.05	-1228.15	5761376.02	560289.01	305.74	1171.37
1940	58.95	68.69	1284.57	-1228.67	5761376.33	560289.81	306.05	1172.17
1941	58.97	68.74	1285.08	-1229.18	5761376.64	560290.61	306.36	1172.97
1942	58.99	68.79	1285.60	-1229.70	5761376.94	560291.41	306.66	1173.77
1943	59.01	68.85	1286.11	-1230.21	5761377.25	560292.21	306.97	1174.57
1944	59.03	68.90	1286.63	-1230.73	5761377.56	560293.01	307.28	1175.37
1945	59.05	68.96	1287.14	-1231.24	5761377.87	560293.81	307.59	1176.17
1946	59.06	69.01	1287.65	-1231.75	5761378.18	560294.61	307.89	1176.97
1947	59.08	69.06	1288.17	-1232.27	5761378.48	560295.41	308.20	1177.77



MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1948	59.10	69.12	1288.68	-1232.78	5761378.79	560296.21	308.51	1178.57
1949	59.12	69.17	1289.20	-1233.30	5761379.10	560297.01	308.82	1179.37
1950	59.14	69.22	1289.71	-1233.81	5761379.41	560297.81	309.13	1180.17
1951	59.15	69.28	1290.23	-1234.33	5761379.72	560298.61	309.43	1180.97
1952	59.17	69.33	1290.74	-1234.84	5761380.02	560299.41	309.74	1181.78
1953	59.19	69.38	1291.25	-1235.35	5761380.33	560300.21	310.05	1182.58
1954	59.21	69.44	1291.77	-1235.87	5761380.64	560301.01	310.36	1183.38
1955	59.23	69.49	1292.28	-1236.38	5761380.95	560301.81	310.67	1184.18
1956	59.24	69.55	1292.80	-1236.90	5761381.25	560302.61	310.97	1184.98
1957	59.26	69.60	1293.31	-1237.41	5761381.56	560303.41	311.28	1185.78
1958	59.28	69.65	1293.83	-1237.93	5761381.87	560304.21	311.59	1186.58
1959	59.30	69.71	1294.34	-1238.44	5761382.18	560305.01	311.90	1187.38
1960	59.32	69.74	1294.85	-1238.95	5761382.48	560305.82	312.20	1188.18
1961	59.34	69.74	1295.36	-1239.46	5761382.78	560306.63	312.50	1188.99
1962	59.37	69.74	1295.86	-1239.96	5761383.08	560307.44	312.80	1189.80
1963	59.39	69.74	1296.37	-1240.47	5761383.38	560308.25	313.10	1190.61
1964	59.41	69.74	1296.87	-1240.97	5761383.68	560309.05	313.40	1191.42
1965	59.44	69.73	1297.38	-1241.48	5761383.98	560309.86	313.70	1192.23
1966	59.46	69.73	1297.88	-1241.98	5761384.28	560310.67	314.00	1193.04
1967	59.48	69.73	1298.39	-1242.49	5761384.58	560311.48	314.30	1193.85
1968	59.51	69.73	1298.89	-1242.99	5761384.88	560312.29	314.59	1194.66
1969	59.53	69.73	1299.40	-1243.50	5761385.17	560313.10	314.89	1195.47
1970	59.55	69.73	1299.90	-1244.00	5761385.47	560313.91	315.19	1196.28
1971	59.58	69.73	1300.41	-1244.51	5761385.77	560314.72	315.49	1197.09
1972	59.60	69.73	1300.91	-1245.01	5761386.07	560315.53	315.79	1197.90
1973	59.62	69.73	1301.42	-1245.52	5761386.37	560316.34	316.09	1198.71
1974	59.65	69.73	1301.92	-1246.02	5761386.67	560317.15	316.39	1199.51
1975	59.67	69.72	1302.43	-1246.53	5761386.97	560317.96	316.69	1200.32
1976	59.69	69.72	1302.94	-1247.04	5761387.27	560318.77	316.99	1201.13
1977	59.72	69.72	1303.44	-1247.54	5761387.57	560319.58	317.29	1201.94
1978	59.74	69.72	1303.95	-1248.05	5761387.87	560320.39	317.58	1202.75
1979	59.77	69.72	1304.45	-1248.55	5761388.16	560321.20	317.88	1203.56
1980	59.79	69.72	1304.96	-1249.06	5761388.46	560322.01	318.18	1204.37
1981	59.81	69.72	1305.46	-1249.56	5761388.76	560322.82	318.48	1205.18
1982	59.84	69.72	1305.97	-1250.07	5761389.06	560323.63	318.78	1205.99
1983	59.86	69.72	1306.47	-1250.57	5761389.36	560324.44	319.08	1206.80
1984	59.88	69.72	1306.98	-1251.08	5761389.66	560325.25	319.38	1207.61
1985	59.91	69.71	1307.48	-1251.58	5761389.96	560326.05	319.68	1208.42
1986	59.93	69.71	1307.99	-1252.09	5761390.26	560326.86	319.98	1209.23
1987	59.95	69.71	1308.49	-1252.59	5761390.56	560327.67	320.28	1210.04
1988	59.98	69.71	1309.00	-1253.10	5761390.86	560328.48	320.58	1210.85
1989	60.00	69.71	1309.50	-1253.60	5761391.15	560329.29	320.87	1211.66
1990	60.03	69.71	1310.00	-1254.10	5761391.46	560330.11	321.18	1212.47
1991	60.07	69.71	1310.49	-1254.59	5761391.76	560330.93	321.48	1213.29
1992	60.10	69.71	1310.98	-1255.08	5761392.06	560331.74	321.78	1214.11
1993	60.13	69.71	1311.47	-1255.57	5761392.36	560332.56	322.08	1214.92
1994	60.16	69.71	1311.97	-1256.07	5761392.66	560333.37	322.38	1215.74
1995	60.20	69.71	1312.46	-1256.56	5761392.97	560334.19	322.68	1216.55
1996	60.23	69.71	1312.95	-1257.05	5761393.27	560335.01	322.99	1217.37
1997	60.26	69.71	1313.45	-1257.55	5761393.57	560335.82	323.29	1218.19
1998	60.29	69.71	1313.94	-1258.04	5761393.87	560336.64	323.59	1219.00
1999	60.33	69.71	1314.43	-1258.53	5761394.17	560337.45	323.89	1219.82
2000	60.36	69.71	1314.92	-1259.02	5761394.47	560338.27	324.19	1220.63
2001	60.39	69.71	1315.42	-1259.52	5761394.78	560339.09	324.49	1221.45
2002	60.42	69.71	1315.91	-1260.01	5761395.08	560339.90	324.80	1222.27
2003	60.46	69.71	1316.40	-1260.50	5761395.38	560340.72	325.10	1223.08
2004	60.49	69.71	1316.90	-1261.00	5761395.68	560341.53	325.40	1223.90
2005	60.52	69.71	1317.39	-1261.49	5761395.98	560342.35	325.70	1224.72

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2006	60.55	69.71	1317.88	-1261.98	5761396.28	560343.17	326.00	1225.53
2007	60.59	69.71	1318.37	-1262.47	5761396.59	560343.98	326.31	1226.35
2008	60.62	69.71	1318.87	-1262.97	5761396.89	560344.80	326.61	1227.16
2009	60.65	69.71	1319.36	-1263.46	5761397.19	560345.61	326.91	1227.98
2010	60.68	69.71	1319.85	-1263.95	5761397.49	560346.43	327.21	1228.80
2011	60.72	69.71	1320.35	-1264.45	5761397.79	560347.25	327.51	1229.61
2012	60.75	69.71	1320.84	-1264.94	5761398.09	560348.06	327.81	1230.43
2013	60.78	69.71	1321.33	-1265.43	5761398.40	560348.88	328.12	1231.24
2014	60.81	69.71	1321.82	-1265.92	5761398.70	560349.69	328.42	1232.06
2015	60.85	69.71	1322.32	-1266.42	5761399.00	560350.51	328.72	1232.88
2016	60.88	69.71	1322.81	-1266.91	5761399.30	560351.33	329.02	1233.69
2017	60.91	69.71	1323.30	-1267.40	5761399.60	560352.14	329.32	1234.51
2018	60.94	69.71	1323.80	-1267.90	5761399.90	560352.96	329.62	1235.32
2019	60.95	69.73	1324.28	-1268.38	5761400.21	560353.78	329.92	1236.15
2020	60.96	69.74	1324.76	-1268.86	5761400.51	560354.60	330.22	1236.97
2021	60.97	69.76	1325.25	-1269.35	5761400.81	560355.43	330.52	1237.79
2022	60.98	69.78	1325.73	-1269.83	5761401.11	560356.25	330.83	1238.61
2023	61.00	69.79	1326.21	-1270.31	5761401.41	560357.07	331.13	1239.44
2024	61.01	69.81	1326.70	-1270.80	5761401.71	560357.89	331.43	1240.26
2025	61.02	69.82	1327.18	-1271.28	5761402.01	560358.72	331.73	1241.08
2026	61.03	69.84	1327.66	-1271.76	5761402.31	560359.54	332.03	1241.90
2027	61.04	69.86	1328.15	-1272.25	5761402.61	560360.36	332.33	1242.73
2028	61.05	69.87	1328.63	-1272.73	5761402.91	560361.18	332.63	1243.55
2029	61.06	69.89	1329.11	-1273.21	5761403.21	560362.01	332.93	1244.37
2030	61.07	69.90	1329.60	-1273.70	5761403.51	560362.83	333.23	1245.19
2031	61.08	69.92	1330.08	-1274.18	5761403.81	560363.65	333.53	1246.01
2032	61.09	69.94	1330.56	-1274.66	5761404.11	560364.47	333.83	1246.84
2033	61.10	69.95	1331.05	-1275.15	5761404.41	560365.29	334.13	1247.66
2034	61.11	69.97	1331.53	-1275.63	5761404.71	560366.12	334.43	1248.48
2035	61.13	69.99	1332.01	-1276.11	5761405.01	560366.94	334.73	1249.30
2036	61.14	70.00	1332.50	-1276.60	5761405.31	560367.76	335.03	1250.13
2037	61.15	70.02	1332.98	-1277.08	5761405.61	560368.58	335.33	1250.95
2038	61.16	70.03	1333.46	-1277.56	5761405.91	560369.41	335.63	1251.77
2039	61.17	70.05	1333.95	-1278.05	5761406.21	560370.23	335.93	1252.59
2040	61.18	70.07	1334.43	-1278.53	5761406.51	560371.05	336.23	1253.42
2041	61.19	70.08	1334.91	-1279.01	5761406.81	560371.87	336.53	1254.24
2042	61.20	70.10	1335.40	-1279.50	5761407.11	560372.70	336.83	1255.06
2043	61.21	70.11	1335.88	-1279.98	5761407.41	560373.52	337.13	1255.88
2044	61.22	70.13	1336.36	-1280.46	5761407.71	560374.34	337.43	1256.70
2045	61.23	70.15	1336.85	-1280.95	5761408.01	560375.16	337.73	1257.53
2046	61.24	70.16	1337.33	-1281.43	5761408.31	560375.98	338.03	1258.35
2047	61.26	70.16	1337.81	-1281.91	5761408.61	560376.81	338.33	1259.17
2048	61.29	70.15	1338.28	-1282.38	5761408.91	560377.64	338.63	1260.00
2049	61.32	70.14	1338.76	-1282.86	5761409.22	560378.46	338.94	1260.83
2050	61.35	70.12	1339.23	-1283.33	5761409.52	560379.29	339.24	1261.66
2051	61.38	70.11	1339.71	-1283.81	5761409.82	560380.12	339.54	1262.48
2052	61.41	70.10	1340.18	-1284.28	5761410.12	560380.94	339.84	1263.31
2053	61.44	70.08	1340.66	-1284.76	5761410.42	560381.77	340.14	1264.14
2054	61.47	70.07	1341.13	-1285.23	5761410.72	560382.60	340.44	1264.96
2055	61.49	70.06	1341.60	-1285.70	5761411.03	560383.43	340.74	1265.79
2056	61.52	70.04	1342.08	-1286.18	5761411.33	560384.25	341.05	1266.62
2057	61.55	70.03	1342.55	-1286.65	5761411.63	560385.08	341.35	1267.44
2058	61.58	70.02	1343.03	-1287.13	5761411.93	560385.91	341.65	1268.27
2059	61.61	70.00	1343.50	-1287.60	5761412.23	560386.73	341.95	1269.10
2060	61.64	69.99	1343.98	-1288.08	5761412.53	560387.56	342.25	1269.93
2061	61.67	69.98	1344.45	-1288.55	5761412.83	560388.39	342.55	1270.75
2062	61.70	69.96	1344.93	-1289.03	5761413.14	560389.21	342.85	1271.58
2063	61.73	69.95	1345.40	-1289.50	5761413.44	560390.04	343.16	1272.41

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2064	61.75	69.94	1345.88	-1289.98	5761413.74	560390.87	343.46	1273.23
2065	61.78	69.92	1346.35	-1290.45	5761414.04	560391.70	343.76	1274.06
2066	61.81	69.91	1346.83	-1290.93	5761414.34	560392.52	344.06	1274.89
2067	61.84	69.90	1347.30	-1291.40	5761414.64	560393.35	344.36	1275.71
2068	61.87	69.88	1347.77	-1291.87	5761414.94	560394.18	344.66	1276.54
2069	61.90	69.87	1348.25	-1292.35	5761415.25	560395.00	344.96	1277.37
2070	61.93	69.86	1348.72	-1292.82	5761415.55	560395.83	345.27	1278.20
2071	61.96	69.84	1349.20	-1293.30	5761415.85	560396.66	345.57	1279.02
2072	61.98	69.83	1349.67	-1293.77	5761416.15	560397.48	345.87	1279.85
2073	62.01	69.82	1350.15	-1294.25	5761416.45	560398.31	346.17	1280.68
2074	62.04	69.80	1350.62	-1294.72	5761416.75	560399.14	346.47	1281.50
2075	62.07	69.79	1351.10	-1295.20	5761417.05	560399.97	346.77	1282.33
2076	62.10	69.79	1351.57	-1295.67	5761417.36	560400.80	347.08	1283.16
2077	62.14	69.80	1352.03	-1296.13	5761417.66	560401.63	347.38	1283.99
2078	62.17	69.82	1352.49	-1296.59	5761417.96	560402.46	347.68	1284.83
2079	62.21	69.83	1352.95	-1297.05	5761418.27	560403.30	347.99	1285.66
2080	62.25	69.85	1353.41	-1297.51	5761418.57	560404.13	348.29	1286.50
2081	62.28	69.86	1353.87	-1297.97	5761418.87	560404.97	348.59	1287.33
2082	62.32	69.88	1354.33	-1298.43	5761419.18	560405.80	348.90	1288.17
2083	62.35	69.89	1354.79	-1298.89	5761419.48	560406.64	349.20	1289.00
2084	62.39	69.91	1355.25	-1299.35	5761419.78	560407.47	349.50	1289.83
2085	62.43	69.92	1355.71	-1299.81	5761420.09	560408.30	349.81	1290.67
2086	62.46	69.94	1356.17	-1300.27	5761420.39	560409.14	350.11	1291.50
2087	62.50	69.95	1356.63	-1300.73	5761420.70	560409.97	350.42	1292.34
2088	62.53	69.97	1357.09	-1301.19	5761421.00	560410.81	350.72	1293.17
2089	62.57	69.98	1357.55	-1301.65	5761421.30	560411.64	351.02	1294.01
2090	62.61	70.00	1358.01	-1302.11	5761421.61	560412.48	351.33	1294.84
2091	62.64	70.01	1358.47	-1302.57	5761421.91	560413.31	351.63	1295.67
2092	62.68	70.03	1358.93	-1303.03	5761422.21	560414.14	351.93	1296.51
2093	62.71	70.04	1359.39	-1303.49	5761422.52	560414.98	352.24	1297.34
2094	62.75	70.06	1359.85	-1303.95	5761422.82	560415.81	352.54	1298.18
2095	62.79	70.07	1360.31	-1304.41	5761423.12	560416.65	352.84	1299.01
2096	62.82	70.09	1360.77	-1304.87	5761423.43	560417.48	353.15	1299.85
2097	62.86	70.10	1361.23	-1305.33	5761423.73	560418.32	353.45	1300.68
2098	62.89	70.12	1361.69	-1305.79	5761424.04	560419.15	353.76	1301.52
2099	62.93	70.14	1362.15	-1306.25	5761424.34	560419.98	354.06	1302.35
2100	62.97	70.15	1362.61	-1306.71	5761424.64	560420.82	354.36	1303.18
2101	63.00	70.17	1363.07	-1307.17	5761424.95	560421.65	354.67	1304.02
2102	63.04	70.18	1363.53	-1307.63	5761425.25	560422.49	354.97	1304.85
2103	63.07	70.20	1363.99	-1308.09	5761425.55	560423.32	355.27	1305.69
2104	63.11	70.21	1364.45	-1308.55	5761425.86	560424.16	355.58	1306.52
2105	63.15	70.21	1364.90	-1309.00	5761426.16	560424.99	355.88	1307.36
2106	63.19	70.20	1365.34	-1309.44	5761426.47	560425.84	356.19	1308.20
2107	63.23	70.18	1365.78	-1309.88	5761426.78	560426.68	356.50	1309.04
2108	63.28	70.16	1366.23	-1310.33	5761427.08	560427.52	356.80	1309.89
2109	63.32	70.14	1366.67	-1310.77	5761427.39	560428.36	357.11	1310.73
2110	63.36	70.13	1367.11	-1311.21	5761427.70	560429.21	357.42	1311.57
2111	63.40	70.11	1367.55	-1311.65	5761428.01	560430.05	357.73	1312.41
2112	63.45	70.09	1367.99	-1312.09	5761428.31	560430.89	358.03	1313.26
2113	63.49	70.08	1368.44	-1312.54	5761428.62	560431.74	358.34	1314.10
2114	63.53	70.06	1368.88	-1312.98	5761428.93	560432.58	358.65	1314.94
2115	63.57	70.04	1369.32	-1313.42	5761429.24	560433.42	358.95	1315.79
2116	63.62	70.03	1369.76	-1313.86	5761429.54	560434.26	359.26	1316.63
2117	63.66	70.01	1370.21	-1314.31	5761429.85	560435.11	359.57	1317.47
2118	63.70	69.99	1370.65	-1314.75	5761430.16	560435.95	359.88	1318.31
2119	63.74	69.97	1371.09	-1315.19	5761430.46	560436.79	360.18	1319.16
2120	63.79	69.96	1371.53	-1315.63	5761430.77	560437.63	360.49	1320.00
2121	63.83	69.94	1371.97	-1316.07	5761431.08	560438.48	360.80	1320.84

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2122	63.87	69.92	1372.42	-1316.52	5761431.39	560439.32	361.10	1321.68
2123	63.91	69.91	1372.86	-1316.96	5761431.69	560440.16	361.41	1322.53
2124	63.96	69.89	1373.30	-1317.40	5761432.00	560441.00	361.72	1323.37
2125	64.00	69.87	1373.74	-1317.84	5761432.31	560441.85	362.03	1324.21
2126	64.04	69.86	1374.19	-1318.29	5761432.61	560442.69	362.33	1325.05
2127	64.09	69.84	1374.63	-1318.73	5761432.92	560443.53	362.64	1325.90
2128	64.13	69.82	1375.07	-1319.17	5761433.23	560444.37	362.95	1326.74
2129	64.17	69.80	1375.51	-1319.61	5761433.54	560445.22	363.26	1327.58
2130	64.21	69.79	1375.95	-1320.05	5761433.84	560446.06	363.56	1328.42
2131	64.26	69.77	1376.40	-1320.50	5761434.15	560446.90	363.87	1329.27
2132	64.30	69.75	1376.84	-1320.94	5761434.46	560447.75	364.18	1330.11
2133	64.34	69.74	1377.28	-1321.38	5761434.77	560448.59	364.48	1330.95
2134	64.38	69.72	1377.72	-1321.82	5761435.07	560449.43	364.79	1331.80
2135	64.41	69.74	1378.15	-1322.25	5761435.38	560450.28	365.10	1332.65
2136	64.44	69.75	1378.57	-1322.67	5761435.69	560451.13	365.41	1333.50
2137	64.47	69.76	1379.00	-1323.10	5761436.00	560451.98	365.72	1334.35
2138	64.50	69.78	1379.42	-1323.52	5761436.31	560452.83	366.03	1335.20
2139	64.53	69.79	1379.85	-1323.95	5761436.63	560453.68	366.34	1336.04
2140	64.56	69.81	1380.28	-1324.38	5761436.94	560454.53	366.66	1336.89
2141	64.59	69.82	1380.70	-1324.80	5761437.25	560455.38	366.97	1337.74
2142	64.62	69.84	1381.13	-1325.23	5761437.56	560456.23	367.28	1338.59
2143	64.65	69.85	1381.55	-1325.65	5761437.87	560457.08	367.59	1339.44
2144	64.68	69.86	1381.98	-1326.08	5761438.18	560457.93	367.90	1340.29
2145	64.71	69.88	1382.41	-1326.51	5761438.49	560458.78	368.21	1341.14
2146	64.73	69.89	1382.83	-1326.93	5761438.80	560459.63	368.52	1341.99
2147	64.76	69.91	1383.26	-1327.36	5761439.11	560460.48	368.83	1342.84
2148	64.79	69.92	1383.68	-1327.78	5761439.42	560461.33	369.14	1343.69
2149	64.82	69.94	1384.11	-1328.21	5761439.73	560462.18	369.45	1344.54
2150	64.85	69.95	1384.53	-1328.63	5761440.04	560463.03	369.76	1345.39
2151	64.88	69.96	1384.96	-1329.06	5761440.35	560463.88	370.07	1346.24
2152	64.91	69.98	1385.39	-1329.49	5761440.66	560464.73	370.38	1347.09
2153	64.94	69.99	1385.81	-1329.91	5761440.97	560465.58	370.69	1347.94
2154	64.97	70.01	1386.24	-1330.34	5761441.28	560466.43	371.00	1348.79
2155	65.00	70.02	1386.66	-1330.76	5761441.59	560467.28	371.31	1349.64
2156	65.03	70.04	1387.09	-1331.19	5761441.90	560468.13	371.62	1350.49
2157	65.06	70.05	1387.51	-1331.61	5761442.22	560468.98	371.93	1351.34
2158	65.09	70.07	1387.94	-1332.04	5761442.53	560469.83	372.25	1352.19
2159	65.12	70.08	1388.37	-1332.47	5761442.84	560470.68	372.56	1353.04
2160	65.15	70.09	1388.79	-1332.89	5761443.15	560471.53	372.87	1353.89
2161	65.18	70.11	1389.22	-1333.32	5761443.46	560472.38	373.18	1354.74
2162	65.21	70.12	1389.64	-1333.74	5761443.77	560473.23	373.49	1355.59
2163	65.23	70.13	1390.06	-1334.16	5761444.08	560474.08	373.80	1356.44
2164	65.26	70.12	1390.48	-1334.58	5761444.39	560474.94	374.11	1357.30
2165	65.28	70.11	1390.89	-1334.99	5761444.70	560475.79	374.42	1358.16
2166	65.31	70.10	1391.30	-1335.40	5761445.01	560476.65	374.73	1359.01
2167	65.33	70.09	1391.72	-1335.82	5761445.33	560477.50	375.05	1359.87
2168	65.36	70.08	1392.13	-1336.23	5761445.64	560478.36	375.36	1360.72
2169	65.38	70.07	1392.54	-1336.64	5761445.95	560479.21	375.67	1361.58
2170	65.41	70.06	1392.96	-1337.06	5761446.26	560480.07	375.98	1362.43
2171	65.43	70.05	1393.37	-1337.47	5761446.57	560480.92	376.29	1363.29
2172	65.46	70.04	1393.78	-1337.88	5761446.88	560481.78	376.60	1364.14
2173	65.48	70.03	1394.20	-1338.30	5761447.20	560482.64	376.92	1365.00
2174	65.51	70.02	1394.61	-1338.71	5761447.51	560483.49	377.23	1365.86
2175	65.53	70.01	1395.02	-1339.12	5761447.82	560484.35	377.54	1366.71
2176	65.56	70.00	1395.44	-1339.54	5761448.13	560485.20	377.85	1367.57
2177	65.58	69.99	1395.85	-1339.95	5761448.44	560486.06	378.16	1368.42
2178	65.61	69.98	1396.26	-1340.36	5761448.75	560486.91	378.47	1369.28
2179	65.64	69.97	1396.68	-1340.78	5761449.07	560487.77	378.79	1370.13

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2180	65.66	69.96	1397.09	-1341.19	5761449.38	560488.62	379.10	1370.99
2181	65.69	69.95	1397.50	-1341.60	5761449.69	560489.48	379.41	1371.84
2182	65.71	69.94	1397.92	-1342.02	5761450.00	560490.34	379.72	1372.70
2183	65.74	69.93	1398.33	-1342.43	5761450.31	560491.19	380.03	1373.56
2184	65.76	69.92	1398.74	-1342.84	5761450.62	560492.05	380.34	1374.41
2185	65.79	69.91	1399.16	-1343.26	5761450.94	560492.90	380.66	1375.27
2186	65.81	69.90	1399.57	-1343.67	5761451.25	560493.76	380.97	1376.12
2187	65.84	69.89	1399.98	-1344.08	5761451.56	560494.61	381.28	1376.98
2188	65.86	69.88	1400.40	-1344.50	5761451.87	560495.47	381.59	1377.83
2189	65.89	69.87	1400.81	-1344.91	5761452.18	560496.32	381.90	1378.69
2190	65.91	69.86	1401.22	-1345.32	5761452.49	560497.18	382.21	1379.54
2191	65.94	69.85	1401.64	-1345.74	5761452.81	560498.04	382.53	1380.40
2192	65.97	69.85	1402.04	-1346.14	5761453.12	560498.89	382.84	1381.26
2193	66.01	69.86	1402.44	-1346.54	5761453.43	560499.76	383.15	1382.12
2194	66.05	69.87	1402.84	-1346.94	5761453.75	560500.62	383.46	1382.98
2195	66.09	69.88	1403.24	-1347.34	5761454.06	560501.48	383.78	1383.85
2196	66.13	69.90	1403.63	-1347.73	5761454.37	560502.34	384.09	1384.71
2197	66.17	69.91	1404.03	-1348.13	5761454.69	560503.21	384.40	1385.57
2198	66.21	69.92	1404.43	-1348.53	5761455.00	560504.07	384.72	1386.43
2199	66.25	69.94	1404.83	-1348.93	5761455.31	560504.93	385.03	1387.29
2200	66.29	69.95	1405.23	-1349.33	5761455.63	560505.79	385.34	1388.16
2201	66.33	69.96	1405.63	-1349.73	5761455.94	560506.65	385.66	1389.02
2202	66.38	69.97	1406.02	-1350.12	5761456.25	560507.52	385.97	1389.88
2203	66.42	69.99	1406.42	-1350.52	5761456.57	560508.38	386.28	1390.74
2204	66.46	70.00	1406.82	-1350.92	5761456.88	560509.24	386.60	1391.61
2205	66.50	70.01	1407.22	-1351.32	5761457.19	560510.10	386.91	1392.47
2206	66.54	70.02	1407.62	-1351.72	5761457.51	560510.96	387.22	1393.33
2207	66.58	70.04	1408.01	-1352.11	5761457.82	560511.83	387.54	1394.19
2208	66.62	70.05	1408.41	-1352.51	5761458.13	560512.69	387.85	1395.05
2209	66.66	70.06	1408.81	-1352.91	5761458.45	560513.55	388.16	1395.92
2210	66.70	70.08	1409.21	-1353.31	5761458.76	560514.41	388.48	1396.78
2211	66.74	70.09	1409.61	-1353.71	5761459.07	560515.28	388.79	1397.64
2212	66.78	70.10	1410.00	-1354.10	5761459.39	560516.14	389.10	1398.50
2213	66.82	70.11	1410.40	-1354.50	5761459.70	560517.00	389.42	1399.36
2214	66.86	70.13	1410.80	-1354.90	5761460.01	560517.86	389.73	1400.23
2215	66.90	70.14	1411.20	-1355.30	5761460.33	560518.72	390.04	1401.09
2216	66.94	70.15	1411.60	-1355.70	5761460.64	560519.59	390.36	1401.95
2217	66.98	70.16	1411.99	-1356.09	5761460.95	560520.45	390.67	1402.81
2218	67.02	70.18	1412.39	-1356.49	5761461.27	560521.31	390.98	1403.68
2219	67.07	70.19	1412.79	-1356.89	5761461.58	560522.17	391.30	1404.54
2220	67.11	70.20	1413.19	-1357.29	5761461.89	560523.03	391.61	1405.40
2221	67.14	70.21	1413.58	-1357.68	5761462.20	560523.90	391.92	1406.26
2222	67.17	70.22	1413.96	-1358.06	5761462.52	560524.77	392.23	1407.13
2223	67.20	70.23	1414.35	-1358.45	5761462.83	560525.64	392.55	1408.01
2224	67.23	70.24	1414.73	-1358.83	5761463.14	560526.51	392.86	1408.88
2225	67.25	70.25	1415.11	-1359.21	5761463.45	560527.38	393.17	1409.75
2226	67.28	70.25	1415.49	-1359.59	5761463.76	560528.25	393.48	1410.62
2227	67.31	70.26	1415.87	-1359.97	5761464.07	560529.12	393.79	1411.49
2228	67.34	70.27	1416.26	-1360.36	5761464.38	560529.99	394.10	1412.36
2229	67.37	70.28	1416.64	-1360.74	5761464.69	560530.86	394.41	1413.23
2230	67.40	70.29	1417.02	-1361.12	5761465.00	560531.73	394.72	1414.10
2231	67.42	70.29	1417.40	-1361.50	5761465.32	560532.60	395.04	1414.97
2232	67.45	70.30	1417.78	-1361.88	5761465.63	560533.47	395.35	1415.84
2233	67.48	70.31	1418.17	-1362.27	5761465.94	560534.34	395.66	1416.71
2234	67.51	70.32	1418.55	-1362.65	5761466.25	560535.21	395.97	1417.58
2235	67.54	70.33	1418.93	-1363.03	5761466.56	560536.08	396.28	1418.45
2236	67.57	70.33	1419.31	-1363.41	5761466.87	560536.95	396.59	1419.32
2237	67.59	70.34	1419.69	-1363.79	5761467.18	560537.82	396.90	1420.19

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2238	67.62	70.35	1420.08	-1364.18	5761467.49	560538.69	397.21	1421.06
2239	67.65	70.36	1420.46	-1364.56	5761467.81	560539.56	397.52	1421.93
2240	67.68	70.37	1420.84	-1364.94	5761468.12	560540.43	397.84	1422.80
2241	67.71	70.37	1421.22	-1365.32	5761468.43	560541.30	398.15	1423.67
2242	67.74	70.38	1421.61	-1365.71	5761468.74	560542.17	398.46	1424.54
2243	67.76	70.39	1421.99	-1366.09	5761469.05	560543.04	398.77	1425.41
2244	67.79	70.40	1422.37	-1366.47	5761469.36	560543.91	399.08	1426.28
2245	67.82	70.41	1422.75	-1366.85	5761469.67	560544.78	399.39	1427.15
2246	67.85	70.41	1423.13	-1367.23	5761469.98	560545.65	399.70	1428.02
2247	67.88	70.42	1423.52	-1367.62	5761470.29	560546.52	400.01	1428.89
2248	67.90	70.43	1423.90	-1368.00	5761470.61	560547.39	400.32	1429.76
2249	67.93	70.44	1424.28	-1368.38	5761470.92	560548.26	400.64	1430.63
2250	67.95	70.46	1424.65	-1368.75	5761471.22	560549.14	400.94	1431.50
2251	67.97	70.48	1425.02	-1369.12	5761471.53	560550.02	401.25	1432.38
2252	67.99	70.50	1425.40	-1369.50	5761471.83	560550.89	401.55	1433.26
2253	68.01	70.53	1425.77	-1369.87	5761472.14	560551.77	401.86	1434.14
2254	68.03	70.55	1426.14	-1370.24	5761472.45	560552.65	402.17	1435.01
2255	68.05	70.57	1426.51	-1370.61	5761472.75	560553.52	402.47	1435.89
2256	68.07	70.59	1426.88	-1370.98	5761473.06	560554.40	402.78	1436.77
2257	68.09	70.62	1427.25	-1371.35	5761473.36	560555.28	403.08	1437.64
2258	68.11	70.64	1427.62	-1371.72	5761473.67	560556.15	403.39	1438.52
2259	68.13	70.66	1427.99	-1372.09	5761473.98	560557.03	403.69	1439.40
2260	68.15	70.69	1428.36	-1372.46	5761474.28	560557.91	404.00	1440.27
2261	68.17	70.71	1428.73	-1372.83	5761474.59	560558.79	404.31	1441.15
2262	68.19	70.73	1429.10	-1373.20	5761474.89	560559.66	404.61	1442.03
2263	68.21	70.76	1429.47	-1373.57	5761475.20	560560.54	404.92	1442.90
2264	68.23	70.78	1429.85	-1373.95	5761475.50	560561.42	405.22	1443.78
2265	68.25	70.80	1430.22	-1374.32	5761475.81	560562.29	405.53	1444.66
2266	68.27	70.82	1430.59	-1374.69	5761476.12	560563.17	405.83	1445.54
2267	68.29	70.85	1430.96	-1375.06	5761476.42	560564.05	406.14	1446.41
2268	68.31	70.87	1431.33	-1375.43	5761476.73	560564.92	406.45	1447.29
2269	68.33	70.89	1431.70	-1375.80	5761477.03	560565.80	406.75	1448.17
2270	68.35	70.92	1432.07	-1376.17	5761477.34	560566.68	407.06	1449.04
2271	68.37	70.94	1432.44	-1376.54	5761477.64	560567.56	407.36	1449.92
2272	68.39	70.96	1432.81	-1376.91	5761477.95	560568.43	407.67	1450.80
2273	68.41	70.98	1433.18	-1377.28	5761478.26	560569.31	407.97	1451.67
2274	68.43	71.01	1433.55	-1377.65	5761478.56	560570.19	408.28	1452.55
2275	68.45	71.03	1433.92	-1378.02	5761478.87	560571.06	408.59	1453.43
2276	68.47	71.05	1434.29	-1378.39	5761479.17	560571.94	408.89	1454.30
2277	68.49	71.08	1434.67	-1378.77	5761479.48	560572.82	409.20	1455.18
2278	68.51	71.10	1435.04	-1379.14	5761479.78	560573.69	409.50	1456.06
2279	68.53	71.12	1435.41	-1379.51	5761480.09	560574.57	409.81	1456.94
2280	68.57	71.13	1435.76	-1379.86	5761480.39	560575.46	410.11	1457.82
2281	68.61	71.13	1436.12	-1380.22	5761480.69	560576.34	410.41	1458.70
2282	68.65	71.14	1436.48	-1380.58	5761480.99	560577.22	410.71	1459.59
2283	68.68	71.14	1436.83	-1380.93	5761481.29	560578.11	411.01	1460.47
2284	68.72	71.15	1437.19	-1381.29	5761481.59	560578.99	411.31	1461.36
2285	68.76	71.16	1437.55	-1381.65	5761481.89	560579.88	411.61	1462.24
2286	68.80	71.16	1437.91	-1382.01	5761482.20	560580.76	411.91	1463.13
2287	68.84	71.17	1438.26	-1382.36	5761482.50	560581.65	412.22	1464.01
2288	68.87	71.17	1438.62	-1382.72	5761482.80	560582.53	412.52	1464.89
2289	68.91	71.18	1438.98	-1383.08	5761483.10	560583.41	412.82	1465.78
2290	68.95	71.18	1439.33	-1383.43	5761483.40	560584.30	413.12	1466.66
2291	68.99	71.19	1439.69	-1383.79	5761483.70	560585.18	413.42	1467.55
2292	69.02	71.20	1440.05	-1384.15	5761484.00	560586.07	413.72	1468.43
2293	69.06	71.20	1440.41	-1384.51	5761484.30	560586.95	414.02	1469.32
2294	69.10	71.21	1440.76	-1384.86	5761484.60	560587.83	414.32	1470.20
2295	69.14	71.21	1441.12	-1385.22	5761484.90	560588.72	414.62	1471.08

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2296	69.18	71.22	1441.48	-1385.58	5761485.20	560589.60	414.92	1471.97
2297	69.21	71.23	1441.83	-1385.93	5761485.51	560590.49	415.23	1472.85
2298	69.25	71.23	1442.19	-1386.29	5761485.81	560591.37	415.53	1473.74
2299	69.29	71.24	1442.55	-1386.65	5761486.11	560592.26	415.83	1474.62
2300	69.33	71.24	1442.90	-1387.00	5761486.41	560593.14	416.13	1475.51
2301	69.36	71.25	1443.26	-1387.36	5761486.71	560594.02	416.43	1476.39
2302	69.40	71.25	1443.62	-1387.72	5761487.01	560594.91	416.73	1477.27
2303	69.44	71.26	1443.98	-1388.08	5761487.31	560595.79	417.03	1478.16
2304	69.48	71.27	1444.33	-1388.43	5761487.61	560596.68	417.33	1479.04
2305	69.51	71.27	1444.69	-1388.79	5761487.91	560597.56	417.63	1479.93
2306	69.55	71.28	1445.05	-1389.15	5761488.21	560598.45	417.93	1480.81
2307	69.59	71.28	1445.40	-1389.50	5761488.52	560599.33	418.23	1481.69
2308	69.63	71.29	1445.76	-1389.86	5761488.82	560600.21	418.54	1482.58
2309	69.68	71.29	1446.10	-1390.20	5761489.12	560601.11	418.84	1483.47
2310	69.73	71.29	1446.43	-1390.53	5761489.42	560602.00	419.14	1484.36
2311	69.78	71.28	1446.77	-1390.87	5761489.72	560602.89	419.44	1485.25
2312	69.83	71.28	1447.11	-1391.21	5761490.03	560603.78	419.75	1486.15
2313	69.88	71.28	1447.44	-1391.54	5761490.33	560604.67	420.05	1487.04
2314	69.93	71.28	1447.78	-1391.88	5761490.63	560605.57	420.35	1487.93
2315	69.99	71.27	1448.11	-1392.21	5761490.93	560606.46	420.65	1488.82
2316	70.04	71.27	1448.45	-1392.55	5761491.24	560607.35	420.96	1489.71
2317	70.09	71.27	1448.79	-1392.89	5761491.54	560608.24	421.26	1490.61
2318	70.14	71.27	1449.12	-1393.22	5761491.84	560609.13	421.56	1491.50
2319	70.19	71.26	1449.46	-1393.56	5761492.15	560610.02	421.86	1492.39
2320	70.24	71.26	1449.80	-1393.90	5761492.45	560610.92	422.17	1493.28
2321	70.29	71.26	1450.13	-1394.23	5761492.75	560611.81	422.47	1494.17
2322	70.34	71.26	1450.47	-1394.57	5761493.05	560612.70	422.77	1495.06
2323	70.40	71.25	1450.80	-1394.90	5761493.36	560613.59	423.08	1495.96
2324	70.45	71.25	1451.14	-1395.24	5761493.66	560614.48	423.38	1496.85
2325	70.50	71.25	1451.48	-1395.58	5761493.96	560615.38	423.68	1497.74
2326	70.55	71.25	1451.81	-1395.91	5761494.26	560616.27	423.98	1498.63
2327	70.60	71.24	1452.15	-1396.25	5761494.57	560617.16	424.29	1499.52
2328	70.65	71.24	1452.48	-1396.58	5761494.87	560618.05	424.59	1500.42
2329	70.70	71.24	1452.82	-1396.92	5761495.17	560618.94	424.89	1501.31
2330	70.75	71.24	1453.16	-1397.26	5761495.47	560619.83	425.19	1502.20
2331	70.81	71.23	1453.49	-1397.59	5761495.78	560620.73	425.50	1503.09
2332	70.86	71.23	1453.83	-1397.93	5761496.08	560621.62	425.80	1503.98
2333	70.91	71.23	1454.16	-1398.26	5761496.38	560622.51	426.10	1504.88
2334	70.96	71.23	1454.50	-1398.60	5761496.69	560623.40	426.40	1505.77
2335	71.01	71.22	1454.84	-1398.94	5761496.99	560624.29	426.71	1506.66
2336	71.06	71.22	1455.17	-1399.27	5761497.29	560625.19	427.01	1507.55
2337	71.11	71.23	1455.50	-1399.60	5761497.59	560626.08	427.31	1508.45
2338	71.15	71.24	1455.82	-1399.92	5761497.90	560626.98	427.62	1509.34
2339	71.19	71.26	1456.13	-1400.23	5761498.20	560627.88	427.92	1510.24
2340	71.23	71.27	1456.45	-1400.55	5761498.50	560628.78	428.22	1511.14
2341	71.27	71.29	1456.76	-1400.86	5761498.80	560629.68	428.52	1512.04
2342	71.32	71.30	1457.08	-1401.18	5761499.11	560630.58	428.83	1512.94
2343	71.36	71.32	1457.40	-1401.50	5761499.41	560631.48	429.13	1513.84
2344	71.40	71.34	1457.71	-1401.81	5761499.71	560632.38	429.43	1514.74
2345	71.44	71.35	1458.03	-1402.13	5761500.01	560633.27	429.73	1515.64
2346	71.48	71.37	1458.35	-1402.45	5761500.32	560634.17	430.04	1516.54
2347	71.52	71.38	1458.66	-1402.76	5761500.62	560635.07	430.34	1517.44
2348	71.57	71.40	1458.98	-1403.08	5761500.92	560635.97	430.64	1518.34
2349	71.61	71.41	1459.29	-1403.39	5761501.22	560636.87	430.94	1519.24
2350	71.65	71.43	1459.61	-1403.71	5761501.53	560637.77	431.25	1520.13
2351	71.69	71.45	1459.93	-1404.03	5761501.83	560638.67	431.55	1521.03
2352	71.73	71.46	1460.24	-1404.34	5761502.13	560639.57	431.85	1521.93
2353	71.77	71.48	1460.56	-1404.66	5761502.43	560640.47	432.15	1522.83

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2354	71.82	71.49	1460.87	-1404.97	5761502.74	560641.37	432.46	1523.73
2355	71.86	71.51	1461.19	-1405.29	5761503.04	560642.27	432.76	1524.63
2356	71.90	71.52	1461.51	-1405.61	5761503.34	560643.16	433.06	1525.53
2357	71.94	71.54	1461.82	-1405.92	5761503.65	560644.06	433.36	1526.43
2358	71.98	71.55	1462.14	-1406.24	5761503.95	560644.96	433.67	1527.33
2359	72.02	71.57	1462.46	-1406.56	5761504.25	560645.86	433.97	1528.23
2360	72.06	71.58	1462.77	-1406.87	5761504.55	560646.76	434.27	1529.13
2361	72.10	71.60	1463.07	-1407.17	5761504.85	560647.67	434.57	1530.03
2362	72.14	71.61	1463.37	-1407.47	5761505.15	560648.58	434.87	1530.94
2363	72.18	71.62	1463.67	-1407.77	5761505.45	560649.48	435.17	1531.85
2364	72.21	71.64	1463.97	-1408.07	5761505.75	560650.39	435.47	1532.75
2365	72.25	71.65	1464.27	-1408.37	5761506.05	560651.29	435.76	1533.66
2366	72.29	71.66	1464.57	-1408.67	5761506.34	560652.20	436.06	1534.56
2367	72.33	71.67	1464.87	-1408.97	5761506.64	560653.10	436.36	1535.47
2368	72.36	71.69	1465.17	-1409.27	5761506.94	560654.01	436.66	1536.38
2369	72.40	71.70	1465.47	-1409.57	5761507.24	560654.92	436.96	1537.28
2370	72.44	71.71	1465.77	-1409.87	5761507.54	560655.82	437.26	1538.19
2371	72.48	71.72	1466.07	-1410.17	5761507.84	560656.73	437.56	1539.09
2372	72.51	71.74	1466.37	-1410.47	5761508.14	560657.63	437.86	1540.00
2373	72.55	71.75	1466.67	-1410.77	5761508.44	560658.54	438.16	1540.90
2374	72.59	71.76	1466.97	-1411.07	5761508.74	560659.45	438.45	1541.81
2375	72.63	71.77	1467.27	-1411.37	5761509.03	560660.35	438.75	1542.72
2376	72.66	71.79	1467.57	-1411.67	5761509.33	560661.26	439.05	1543.62
2377	72.70	71.80	1467.87	-1411.97	5761509.63	560662.16	439.35	1544.53
2378	72.74	71.81	1468.17	-1412.27	5761509.93	560663.07	439.65	1545.43
2379	72.78	71.82	1468.47	-1412.57	5761510.23	560663.97	439.95	1546.34
2380	72.81	71.84	1468.77	-1412.87	5761510.53	560664.88	440.25	1547.24
2381	72.85	71.85	1469.07	-1413.17	5761510.83	560665.79	440.55	1548.15
2382	72.89	71.86	1469.37	-1413.47	5761511.13	560666.69	440.85	1549.06
2383	72.93	71.87	1469.67	-1413.77	5761511.43	560667.60	441.14	1549.96
2384	72.96	71.89	1469.97	-1414.07	5761511.72	560668.50	441.44	1550.87
2385	73.00	71.90	1470.27	-1414.37	5761512.02	560669.41	441.74	1551.77



**APPENDIX 2a**

**BARRACOUTA A4A, A4AST & A4AST1**

**Petrophysics Evaluation Summary**



**Esso Australia Pty Ltd.**  
Exploration Department

**Barracouta A4A, A4AST & A4AST1  
Formation Evaluation  
Log Interpretation Report**

**Petrophysicist: P J Tarabbia  
Sept 2005**

## Barracouta A4A, A4AST & A4AST1 Log Interpretation

Barracouta A4A was drilled as a re-entry from the Barracouta A4 well which was plugged & abandoned on the 24<sup>th</sup> Feb 2005. The Barracouta A4A well was designed to access additional M1 reserves and be completed as an N1 gas producer.

The well was spudded on the 24th February 2005 by milling a window in the 12.25" casing of the Barracouta A4 production well at 342mMDRT (Kick off point). A 12.25" hole was drilled to a casing depth of 851mMDRT with 9.625" casing run to 848mMDRT. The well was then drilled using an 8.5" bit to a depth of 2108mMDRT (1419.7mTVDRT). Due to hole problems a sidetrack was planned. Barracouta A4AST was drilled from 1930.5 to 2165mMDRT using an 8.5" bit. Again due to hole problems a further sidetrack was planned. After two attempts at kicking off the Barracouta A4AST1, this well was drilled from 1785 to 2385mMDRT. The 7" production casing was run to 2376mMDRT. Barracouta A4AST1 was completed on the 23th March 2005 as a N1 gas producer with a single 3½" completion string run to 1521mMDRT.

Schlumberger LWD logs have been analysed for porosity, water saturation and net pay over the intervals:

Barracouta A4A 1508.8 – 2075 mMDRT.

Barracouta A4AST 1930.5 – 2131 mMDRT.

Barracouta A4AST1 1785 – 2345 mMDRT.

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

DATA

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

GVR6-ADN6

### Deviation

The well inclination over the N1 reservoir (from to 1500 - 1795m MDRT) for the Barracouta A4AST1 well was from 60-62 degrees.

### Mud Data

Well	Barracouta A4A	Barracouta A4A	Barracouta A4AST	Barracouta A4AST1
Depth	851m	2108m	2165m	2385m
Mud Type :	Bentonite/Sea water	KCl/Glycol/PHPA	KCl/Glycol/PHPA	KCl/Glycol/PHPA
Mud Wt:	9.1 ppg	10 ppg	10 ppg	10 ppg
RT:	55.9m	55.9m	55.9m	55.9m
Rm:		0.142 @ 24.5 °C	0.136 @ 24.6 °C	0.158 @ 22.2 °C
Rmf:		0.116 @ 23.5 °C	0.115 @ 24 °C	0.123 @ 22.1 °C
Rmc:		0.230 @ 24.5 °C	0.133 @ 24.9 °C	0.184 @ 22.3 °C
BHT:		70.6 °C	73 °C	75.3 °C

### Data Acquisition & Log Quality

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

### Data Processing

Due to sliding zones not being back-reamed, density information across these zones should be treated with caution. The density curve was edited in places where the RPM dropped below the tool acquisition limits. All log curves were depth aligned relative to each other. All coal zones were manually picked and a coal flag (flag\_coal) was created. The ring resistivity curve was edited in places where conductive portions of the sediments affected the response.

In addition, a temperature (temp) was generated by applying 10% to the recorded temperature from the logs.

## INTERPRETATION

### Logs Used

The primary logs used in the interpretation were RES\_ring (ring resistivity), GR\_RAB (RAB gamma ray), ROBB (bulk density bottom quadrant) and TNPH (environmentally corrected neutron porosity) and PEB (photoelectric factor bottom quadrant).

### Formation Water Salinity

Based on corporate experience, an  $R_{wa}$  of 20,000 ppm NaCl equivalent was used across the gas zone and a  $R_{wa}$  analysis using  $a = 1$ ,  $m = 2$  and  $n = 2$  indicates clean water sands below have an apparent formation water salinity of 3000 ppm NaCl equivalent.

### Hydrocarbon Type Identification

#### Latrobe gas sands

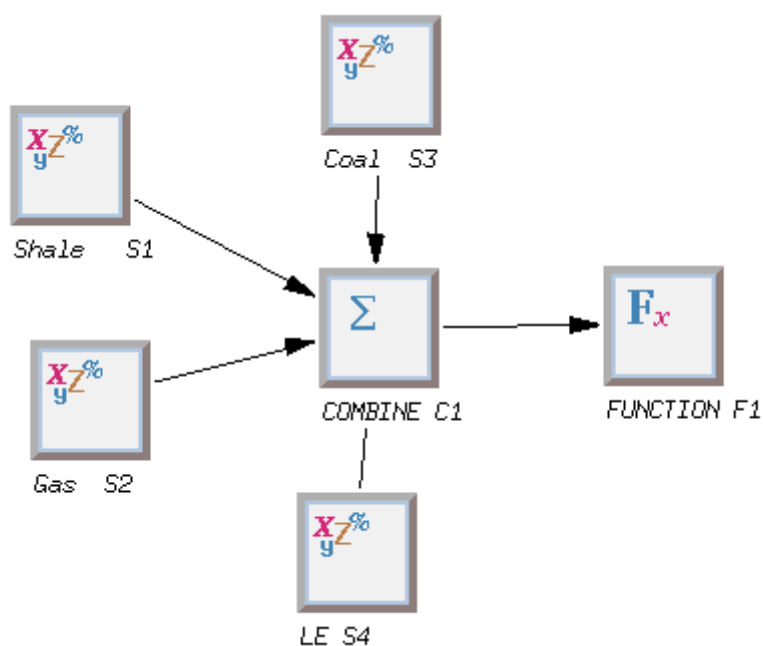
The density-neutron cross-over and the reduction in resistivity in the N1 sands indicate the current gas water contact is at 1707.8mMDRT (1109.45mTVDSS). Below this depth to the original gas water contact, there is a residual hydrocarbon column.

### 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	ROBB
NPHI_CH	TNPH

## ELAN Global Parameters

	A4A	A4AST	A4AST1
Reference Index	MD		
Processing Interval	1508.8-2075m	1930.5-2131m	1785-2345m
Sampling Rate	0.3281(m)	0.3281	0.3281
Uncertainty Channel	FALSE	FALSE	FALSE
Clay Input	DRY	DRY	DRY
Special Fluids	WATER	WATER	WATER

## ELAN Zone Definition

Name	Bottom To Top		
Latrobe	2345.9502(m)	To	1777.0000(m)
Gas	1777.0000(m)	To	1770.0000(m)
OGWC	1770.0000(m)	To	1706.0000(m)
Inv7	1706.0000(m)	To	1635.0000(m)
Inv6	1635.0000(m)	To	1620.0000(m)
Inv5	1620.0000(m)	To	1614.0000(m)
Inv4	1614.0000(m)	To	1596.0001(m)
Cond2	1596.0001(m)	To	1588.0000(m)
Inv3	1588.0000(m)	To	1570.0000(m)
Cond1	1570.0000(m)	To	1568.0000(m)
Inv2	1568.0000(m)	To	1542.0000(m)
Inv1	1542.0000(m)	To	1535.0000(m)
TOL	1535.0000(m)	To	1508.0000(m)

## ELAN Process Definiton

Process	SOLVE1 "Shale"					
Equations	RHOB	NPHI	GR			
Volumes	QUAR	ILLI	KAOL	XWAT	UWAT	

Constraint Zones	Bottom	Top
UNDEFINED	2345.0000(m)	1508.0000(m )

Process	SOLVE2 "GAS"						
Equations	RHOB	NPHI	U	CUCD_DWA	GR	CT2	
Volumes	QUAR	ORTH	ILLI	KAOL	UWAT	XWAT	XGAS
User Constraints	constraint(maxDolomite, DOLO<0)						
Constraint Zones	Bottom	Top					
UNDEFINED	2345.0000(m)	1508.0000(m )					

## Constraints Applied

UNDEFINED	- IrreducibleXWater
UNDEFINED	- IrreducibleUWater
UNDEFINED	- WaterBaseMud_SXO_gt_SW

## ELAN Process Definiton Con't

---

Process	SOLVE3	"Coal"
Equations	RHOB	
Volumes	COAL	
Constraint Zones	Bottom	Top
UNDEFINED	2345.0000(m)	1508.0000(m )

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Process	SOLVE6	"L_Entranace"
Equations	RHOB	
Volumes	ILLI	
Constraint Zones	Bottom	Top
UNDEFINED	2345.0000(m)	1508.0000(m )

---

---

Process	COMBINE 1	"COMBINE"
Order	SOL.2	SOL.1 SOL.3 SOL.4
Combine Method		
"LATROBE"	2345 (m )	Internal Average
"LE"	1508.8 (m )	Sol.4

Probability Functions

```
probability(SOL.4, 0)
probability(SOL.3, PRB1_CH)
probl = linear(ILLI_VOL.SOL.3, 0.3, 0, 0.6, 1)
probability(SOL.1, probl)
```

---

---

Process	FUNCTION 1	"FUNCTION"
Outputs	VCL	SWT SUWI PIGN PHIT

User-defined Function/n swt\_cmp=(UWAT\_VOL + XBWA\_VOL)/(UWAT\_VOL + XBWA\_VOL + UGAS\_VOL))

output(SWT, swt\_cmp)

---

## ELAN Probability Expressions

---

```
probability(SOL.4, 0)

probability(SOL.3, PRB1_CH)

probl = linear(ILLI_VOL.SOL.3, 0.3, 0, 0.6, 1)
probability(SOL.1, probl)
```

---

## ELAN Different Parameters

---

Parameters		LATROBE	gas	OGWC	Inv7
*****		*****	*****	*****	*****
RHOB_UWAT	(g/cm3 )	0.969	0.988	0.974	0.989
CUDC_CHLO	(mS/m )	-999.250	-999.250	-999.250	-999.250
CUDC_UWAT	(mS/m )	0.500	8.766	0.500	8.490
CUDC_UBWA	(mS/m )	4.752	4.245	4.245	4.098
CT1_QUAR	( )	0.000	0.000	0.000	0.000
CT1_PYRI	( )	0.000	0.000	0.000	0.000
CT1_CHLO	( )	0.000	0.000	0.000	0.000
RW	(ohm.m )	9.523	0.480	8.536	0.480
SALIN_UWAT	(ppk )	3.013	23.712	3.378	23.712
CUDC_UNC_ZP	(mS/m )	0.011	0.044	0.011	0.044
RHOB_UNC_WM	( )	1.000	1.000	1.000	0.500
NPHI_UNC_WM	( )	1.000	1.000	1.000	0.500
CT1_UNC_WM	( )	1.000	1.000	1.000	1.000
RHOB_IFAC_ZP	( )	1.000	1.000	1.000	1.000
NPHI_IFAC_ZP	( )	1.000	1.000	1.000	1.000

## ELAN Different Parameters Con't

Parameters *****	Inv6 *****	Inv5 *****	Inv4 *****	Cond2 *****
RHOB_UWAT (g/cm3 )	0.989	0.990	0.990	0.989
CUDC_CHLO (mS/m )	-999.250	-999.250	-999.250	0.010
CUDC_UWAT (mS/m )	8.490	8.398	8.398	8.490
CUDC_UBWA (mS/m )	4.098	4.049	4.049	4.098
CT1_QUAR ( )	0.000	0.000	0.000	-0.300
CT1_PYRI ( )	0.000	0.000	0.000	1.000
CT1_CHLO ( )	0.000	0.000	0.000	-1.000
RW (ohm.m )	0.480	0.480	0.480	0.480
SALIN_UWAT (ppk )	23.712	23.712	23.712	23.712
CUDC_UNC_ZP (mS/m )	0.044	0.043	0.043	0.044
RHOB_UNC_WM ( )	0.800	1.000	0.500	1.000
NPHI_UNC_WM ( )	0.500	1.000	0.500	1.000
CT1_UNC_WM ( )	1.000	1.000	1.000	0.500
RHOB_IFAC_ZP( )	0.800	0.600	1.000	0.400
NPHI_IFAC_ZP( )	1.000	1.000	1.000	0.500

Parameters *****	Inv3 *****	Cond1 *****	Inv2 *****	Inv1 *****
RHOB_UWAT (g/cm3 )	0.989	0.989	0.989	0.990
CUDC_CHLO (mS/m )	-999.250	0.010	-999.250	-999.250
CUDC_UWAT (mS/m )	8.398	8.398	8.398	8.306
CUDC_UBWA (mS/m )	4.049	4.049	4.049	4.000
CT1_QUAR ( )	0.000	-0.300	0.000	0.000
CT1_PYRI ( )	0.000	1.000	0.000	0.000
CT1_CHLO ( )	0.000	-1.000	0.000	0.000
RW (ohm.m )	0.480	0.480	0.480	0.480
SALIN_UWAT (ppk )	23.712	23.712	23.712	23.712
CUDC_UNC_ZP (mS/m )	0.043	0.043	0.043	0.043
RHOB_UNC_WM ( )	0.500	1.000	0.500	1.000
NPHI_UNC_WM ( )	0.500	1.000	0.800	0.500
CT1_UNC_WM ( )	1.000	0.500	1.000	1.000
RHOB_IFAC_ZP( )	0.800	0.500	1.000	1.000
NPHI_IFAC_ZP( )	1.000	0.500	1.000	1.000

Parameters *****	TOL *****	*****	*****	*****
RHOB_UWAT (g/cm3 )	0.990			
CUDC_CHLO (mS/m )	-999.250			
CUDC_UWAT (mS/m )	8.306			
CUDC_UBWA (mS/m )	4.000			
CT1_QUAR ( )	0.000			
CT1_PYRI ( )	0.000			
CT1_CHLO ( )	0.000			
RW (ohm.m )	0.480			
SALIN_UWAT (ppk )	23.712			
CUDC_UNC_ZP (mS/m )	0.043			
RHOB_UNC_WM ( )	1.000			
NPHI_UNC_WM ( )	1.000			
CT1_UNC_WM ( )	1.000			
RHOB_IFAC_ZP( )	1.000			
NPHI_IFAC_ZP( )	1.000			

## ELAN Same Parameters

Parameter	Value	Parameter	Value
RHOB_QUAR	2.650(g/cm3)	RHOB_ORTH	2.570(g/cm3)
RHOB_PYRI	4.990(g/cm3)	RHOB_ILLI	2.610(g/cm3)
RHOB_KAOL	2.550(g/cm3)	RHOB_CHLO	2.810(g/cm3)
RHOB_COAL	1.200(g/cm3)	RHOB_XWAT	1.040(g/cm3)
RHOB_XGAS	-0.087(g/cm3)	RHOB_UGAS	-0.087(g/cm3)
RHOB_XBWA	1.000(g/cm3)	NPHI_QUAR	-0.060(m3/m3)
NPHI_ORTH	-0.010(m3/m3)	NPHI_PYRI	0.008(m3/m3)
NPHI_ILLI	0.352(m3/m3)	NPHI_KAOL	0.507(m3/m3)
NPHI_CHLO	0.480(m3/m3)	NPHI_COAL	0.450(m3/m3)
NPHI_XWAT	1.000(m3/m3)	NPHI_UWAT	1.000(m3/m3)
NPHI_XGAS	-0.030(m3/m3)	NPHI_UGAS	-0.030(m3/m3)
NPHI_XBWA	1.000(m3/m3)	U_QUAR	5.000( )
U_ORTH	8.700( )	U_ILLI	9.900( )
U_KAOL	5.100( )	U_CHLO	21.700( )
U_COAL	2.000( )	U_XWAT	0.500( )
U_UWAT	0.000( )	U_XGAS	0.012( )
U_UGAS	0.000( )	U_XBWA	0.398( )
CXDC_ILLI	-999.250(mS/m)	CXDC_KAOL	-999.250(mS/m)
CXDC_CHLO	-999.250(mS/m)	CXDC_XWAT	-999.250(mS/m)
CXDC_XBWA	-999.250(mS/m)	CUDC_QUAR	0.000(mS/m)
CUDC_ORTH	0.000(mS/m)	CUDC_ILLI	-999.250(mS/m)
CUDC_KAOL	-999.250(mS/m)	CUDC_COAL	0.000(mS/m)
CUDC_XWAT	0.000(mS/m)	CUDC_XGAS	0.000(mS/m)
CUDC_UGAS	0.000(mS/m)	GR_QUAR	40.000(gAPI)
GR_ORTH	170.000(gAPI)	GR_PYRI	0.000(gAPI)
GR_ILLI	200.000(gAPI)	GR_KAOL	98.000(gAPI)
GR_CHLO	56.000(gAPI)	GR_COAL	20.000(gAPI)
GR_XWAT	0.000(gAPI)	GR_UWAT	0.000(gAPI)
GR_XGAS	0.000(gAPI)	GR_UGAS	0.000(gAPI)
GR_XBWA	0.000(gAPI)	CT1_ORTH	0.000( )
CT1_ILLI	0.000( )	CT1_KAOL	0.000( )
CT1_COAL	0.000( )	CT1_XWAT	0.000( )
CT1_UWAT	0.000( )	CT1_XGAS	0.000( )
CT1_UGAS	0.000( )	CT1_XBWA	0.000( )
CT2_QUAR	0.100( )	CT2_ORTH	-1.000( )
CT2_PYRI	0.000( )	CT2_ILLI	0.000( )
CT2_KAOL	0.000( )	CT2_CHLO	0.000( )
CT2_COAL	0.000( )	CT2_XWAT	0.000( )
CT2_UWAT	0.000( )	CT2_XGAS	0.000( )
CT2_UGAS	0.000( )	CT2_XBWA	0.000( )
ARHOB_ILLI	2.794(g/cm3)	ARHOB_KAOL	2.630(g/cm3)
ARHOB_CHLO	3.010(g/cm3)	WCLP_ILLI	0.154(m3/m3)
WCLP_KAOL	0.058(m3/m3)	WCLP_CHLO	0.101(m3/m3)
CBWA_ILLI	-999.250(mS/m)	CBWA_KAOL	-999.250(mS/m)
CBWA_CHLO	-999.250(mS/m)	CECA_ILLI	0.160(meq/g)
CECA_KAOL	0.090(meq/g)	CECA_CHLO	0.150(meq/g)
RMF	-999.250(ohm.m)	MST	-999.250(degC)
RWT	-999.250(DEGC)	SALIN_ISOL	-999.250(PPK)



## ELAN Same Parameters Con't

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SALIN_PARA	-999.250(ppk	)	SALIN_XWAT	-999.250(ppk	)
SALIN_XIWA	-999.250(ppk	)	SALIN_UIWA	-999.250(ppk	)
SALIN_XOIL	0.000(ppk	)	SALIN_UOIL	0.000(ppk	)
SALIN_XGAS	0.000(ppk	)	SALIN_UGAS	0.000(ppk	)
SALIN_XSFL	-999.250(ppk	)	SALIN_USFL	-999.250(ppk	)
CT1_ZP	0.000(	)	CT2_ZP	0.000(	)
RHOB_UNC_ZP	0.027(g/cm3	)	NPHI_UNC_ZP	0.015(m3/m3	)
U_UNC_ZP	0.225(	)	CXDC_UNC_ZP	0.065(mS/m	)
GR_UNC_ZP	2.250(gAPI	)	CT1_UNC_ZP	0.015(	)
CT2_UNC_ZP	0.015(	)	VOLS_UNC_ZP	0.015(m3/m3	)
U_UNC_WM	0.400(	)	CXDC_UNC_WM	0.500(	)
CUDC_UNC_WM	0.670(	)	GR_UNC_WM	0.300(	)
CT2_UNC_WM	1.000(	)	VOLS_UNC_WM	1.000(	)
A_ZP	1.000(	)	N_ZP	2.000(	)
C_DWA	1.000(	)	M_DWA	1.800(	)
BVIRR	0.010(m3/m3	)	BETA_0	0.750(	)
M_SGS	-1.000(	)	QV_CUT	1.000(MEQ/CM3)	)

## RESULTS AND DISCUSSION

The top of the N1 reservoir occurs at 1535mMDRT (1025.1mTVDSS) in this well. The sands are gas bearing (Fig 1). A total of 155.78m of net pay sand is present in this well to the current GWC at 1707.8mMDRT (1109.5mTVDSS). The gas bearing sands have an average effective porosity of 21% and average effective water saturation of 9%. Figure 2 displays residual gas saturation down to the OGWC at 1794.6mMDRT (1151.5mTVDSS). Two small sands between 1770-1777mMDRT are not well swept.

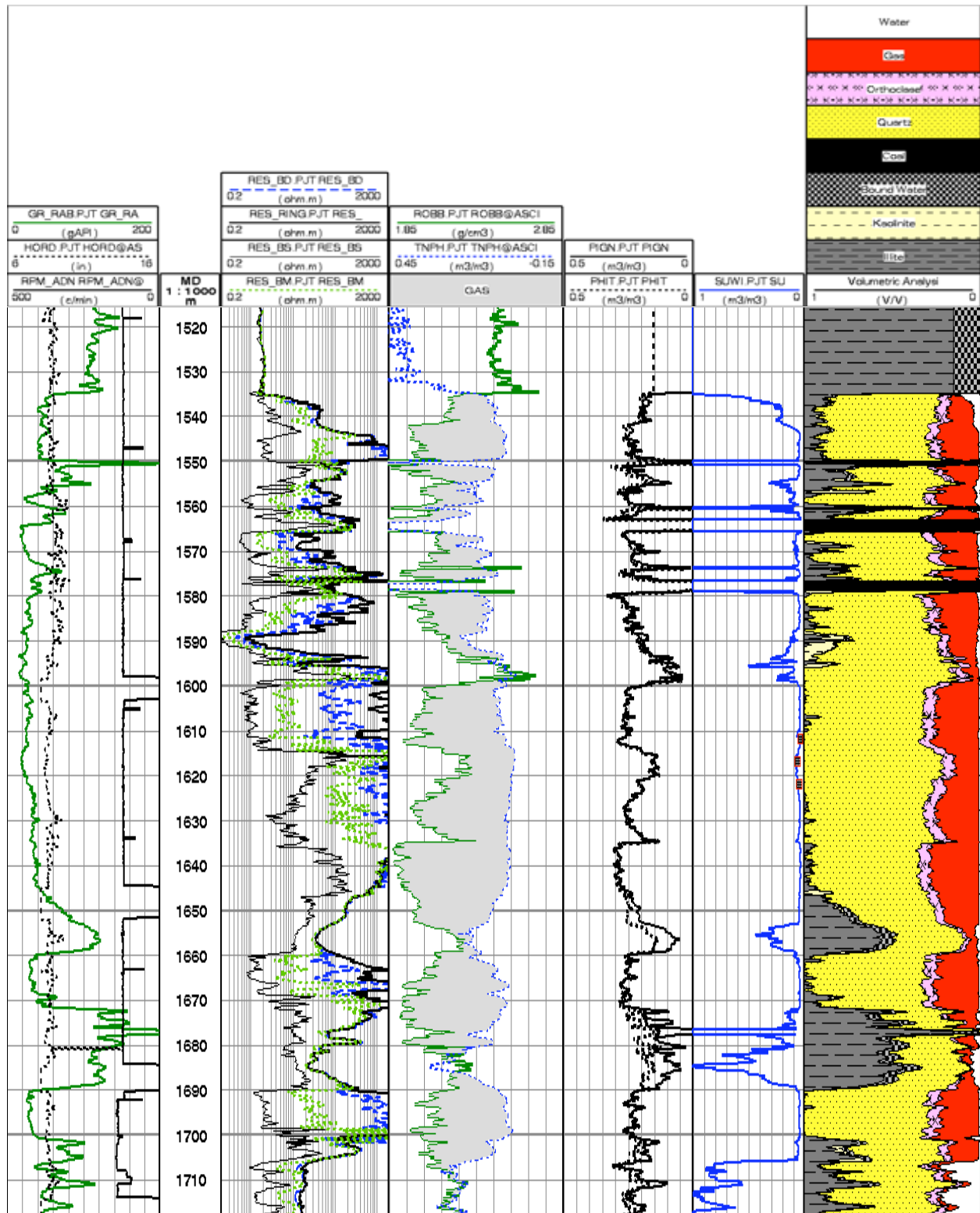


Figure 1. N1 gas bearing formation.

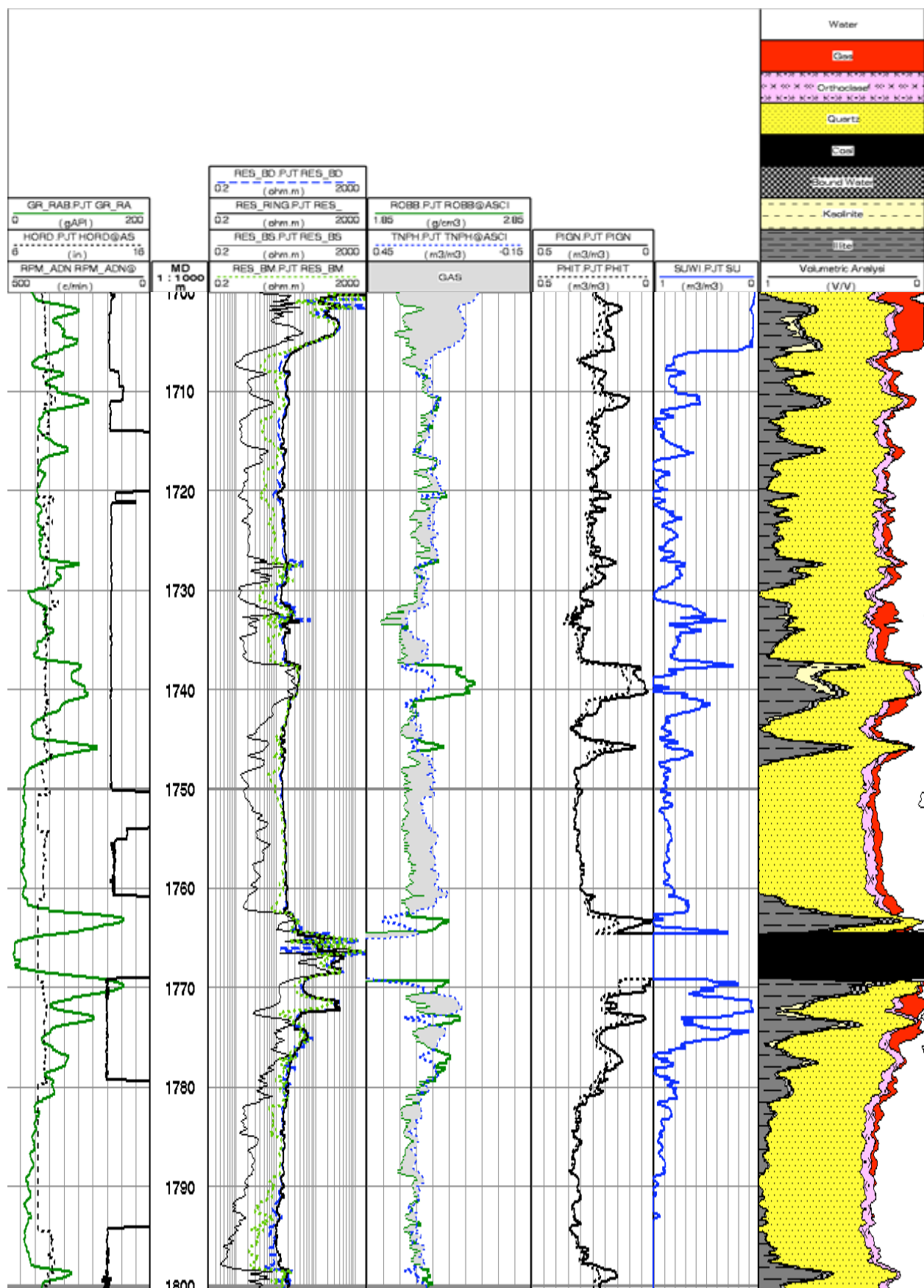


Figure 2. Residual gas zone.

## Barracouta A4A

Petrophysical Summary 1508.8 - 2075m MD

Logged interval 851-2089m MD

Depth Reference:

Mean VCL, Mean PHIE (or PIGN), Mean SWE (or SUWl) is based on a PHIE or PIGN cutoff of 0.08

Primary:MDKB

Zone	Top Depth mMD	Top Depth mTVDSS	Bottom Depth mMD	Bottom Depth mTVDSS	Gross Thickness mMD	Gross Thickness mTVD	Net/Gross	Mean VCL	Mean PHIE	Mean SWE		Comments	Net Pay Thickness mMD	Net Pay Thickness mTVD
Lakes Entrance	1336.9	927	1508.8	1012	171.9	85.0								
TOL	1508.8	1012	1535	1025.1	26.2	13.1								
TCC-GAS	1535	1025.1	1707.8	1109.45	172.8	84.4	0.90	0.15	0.212	0.09		Gas bearing	155.78	76.08
<b>CGWC at 1707.8mMD (1109.45mTVDSS)</b>														
TCC-Residual	1707.8	1109.45	1794.6	1151.5	86.7999	42.0	0.88	0.15	0.253	0.83		Residual gas		
<b>OGWC at 1794.6mMD (1151.5mTVDSS)</b>														
Inter_LaTrobe	1794.6	1151.5	2108	1307.9	313.4	156.6	0.64	0.20	0.231	1.00		Water bearing		

## Barracouta A4AST

Petrophysical Summary 1930.5 - 2131m MD

Logged interval 1930.5-2146m MD

Depth Reference:

Mean VCL, Mean PHIE (or PIGN), Mean SWE (or SUWl) is based on a PHIE or PIGN cutoff of 0.08

Primary:MDKB

Zone	Top Depth mMD	Top Depth mTVDSS	Bottom Depth mMD	Bottom Depth mTVDSS	Gross Thickness mMD	Gross Thickness mTVD	Net/Gross	Mean VCL	Mean PHIE	Mean SWE		Comments	Net Pay Thickness mMD	Net Pay Thickness mTVD
Inter_LaTrobe	1930.5	1219.7	2131	1318.4	200.5	98.7	0.70	0.18	0.244	1.00		Water bearing		

## Barracouta A4AST1

Petrophysical Summary 1785 - 2345m MD

Logged interval 1785-2365m MD

Depth Reference:

Mean VCL, Mean PHIE (or PIGN), Mean SWE (or SUWl) is based on a PHIE or PIGN cutoff of 0.08

Primary:MDKB

Zone	Top Depth mMD	Top Depth mTVDSS	Bottom Depth mMD	Bottom Depth mTVDSS	Gross Thickness mMD	Gross Thickness mTVD	Net/Gross	Mean VCL	Mean PHIE	Mean SWE		Comments	Net Pay Thickness mMD	Net Pay Thickness mTVD
TCC-Residual	1785	1146.7	1794.6	1151.5	9.6	4.8	1.00	0.10	0.280	1.00		Water bearing		
<b>OGWC at 1794.6mMD (1151.5mTVDSS)</b>														
Inter_LaTrobe	1794.6	1151.5	2135.6	1322.5	341	171.0	0.61	0.21	0.224	1.00		Water bearing		
N4	2135.6	1322.5	2286.8	1382.3	151.20	59.8	0.58	0.18	0.228	1.00		Water bearing		
M1	2286.8	1382.3	2385	1470.3	98.2	32.0	0.93	0.21	0.207	1.00		Water bearing		

**APPENDIX 3a**

**BARRACOUTA A4A**

**Lithology/Show Descriptions**

## Barracouta A4A Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
600	630	100	<b>Geologist on board (25/02/05) during drilling of 12¼" Hole section.</b> <b>CALCAREOUS CLAYSTONE:</b> medium light grey to light olive grey, commonly grading to argillaceous calcisiltite/calcarenite, rare to minor fossil fragments, inc. Forams, ooids, trace disseminated pyrite, soft to moderately firm, dispersive, predominantly amorphous to minor sub blocky, strongly calcareous.
630	660	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
660	690	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
690	720	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
720	750	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
750	780	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
780	810	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
810	840	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
840	851	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
<b>TD 12¼" Hole section 851mMDRT (746.3mTVDRT) reached 1530 hrs 26/02/05</b>			
851	880	60	<b>CEMENT:</b>
		40	<b>CALCAREOUS CLAYSTONE:</b> generally as above, medium light grey to light olive grey, commonly grading to argillaceous calcisiltite/calcarenite, rare to minor fossil fragments, inc. Forams, ooids, trace disseminated pyrite, soft to moderately firm, dispersive, predominantly amorphous to minor sub blocky, strongly calcareous.
880	900	30	<b>CEMENT:</b>
		70	<b>CALCAREOUS CLAYSTONE:</b> as above.
900	930	10	<b>CEMENT:</b>
		90	<b>CALCAREOUS CLAYSTONE:</b> as above.
930	960	100	<b>ARGILLACEOUS CALCISILTITE:</b> medium light grey to light olive grey, very light grey, grading to calcareous claystone, rare to minor fossil fragments, inc. Forams, ooids, trace glauconite, trace carbonaceous specks, trace disseminated pyrite, soft to moderately firm, dispersive, predominantly amorphous to minor sub blocky
960	990	100	<b>ARGILLACEOUS CALCISILTITE:</b> as above.
990	1020	60	<b>CALCARENITE:</b> white to very light grey, friable to firm, sub blocky, fine to medium grained, grading to calcisiltite in part, nil to trace argillaceous matrix, minor to common glauconite throughout, minor coarse quartz grains in aggregates of calcarenite, fair inferred porosity.
		40	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, medium to coarse grained, common very coarse, sub angular to sub rounded, trace bit fracture grains, poorly sorted, minor calcareous cement in part, good inferred porosity.
1020	1050	90	<b>SANDSTONE:</b> generally white to very light grey, light brownish grey, clear to translucent grains, returned loose, medium to coarse grained, trace very coarse, sub angular to sub rounded, trace bit fracture grains, moderately sorted, minor calcareous cement in part, good inferred porosity.
		10	<b>CALCISILTITE:</b> generally as above, white to very light grey, friable to firm, sub blocky, grading to calcarenite and calcilutite in part, nil to trace argillaceous matrix, minor to common glauconite throughout, minor coarse quartz grains in aggregates of calcarenite, fair inferred porosity.

Interval (m)		%	Lithology / Show Description
From	To		
1050	1080	95	<b>SANDSTONE:</b> generally white to very light grey, light brownish grey, trace pale yellowish orange, clear to translucent grains, returned loose, predominantly medium to coarse grained, trace very coarse, sub angular to sub rounded, occasionally rounded, trace lithic grains, trace bit fracture grains, moderately well sorted, minor calcareous cement in part, good inferred porosity.
		5	<b>CALCISILTITE:</b> generally as above, white to very light grey, friable to firm, sub blocky, grading to calcilutite in part, nil to trace argillaceous matrix, minor glauconite throughout, minor medium quartz grains in aggregates, trace fossil fragments, fair inferred porosity.
1080	1110	95	<b>SANDSTONE:</b> as above.
		5	<b>CALCISILTITE:</b> as above.
1110	1140	100	<b>CALCAREOUS CLAYSTONE:</b> medium light grey to light grey, occasionally light olive grey, grading to argillaceous calcarenite in part, moderately firm to firm, dispersive, predominantly amorphous to minor sub blocky, trace to minor fossil fragments, nil to trace disseminated pyrite, trace medium to coarse grained quartz, trace ooids, strongly calcareous.
1140	1170	100	<b>CALCAREOUS CLAYSTONE:</b> generally as above, minor cavings.
1170	1200	100	<b>CALCAREOUS CLAYSTONE:</b> generally as above, minor cavings.
1200	1230	100	<b>CALCAREOUS CLAYSTONE:</b> generally as above, minor cavings.
1230	1260	100	<b>CALCAREOUS CLAYSTONE:</b> medium light grey to light grey, occasionally light olive grey, becoming medium light grey to medium grey, grading to argillaceous calcarenite in part, moderately firm to firm, dispersive, predominantly amorphous to minor sub blocky, trace to minor fossil fragments, nil to trace disseminated pyrite, trace medium to coarse grained quartz, trace ooids, strongly calcareous.
1260	1290	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
1290	1320	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
1320	1350	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
1350	1370	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
1370	1380	100	<b>CALCAREOUS CLAYSTONE:</b> medium light grey to light grey, occasionally light olive grey, becoming light greenish grey to greenish grey, grading to argillaceous calcarenite in part, moderately firm to firm, dispersive, predominantly amorphous to minor sub blocky, trace to minor fossil fragments, nil to trace disseminated pyrite, trace glauconite, trace ooids, strongly calcareous.
1380	1390	100	<b>CALCAREOUS CLAYSTONE:</b> as above. *Note: samples now contain Baracarb and Barablok mud additives.
1390	1400	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
1400	1410	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
1410	1420	100	<b>CALCAREOUS CLAYSTONE:</b> medium light grey to light grey, occasionally light olive grey, becoming light greenish grey to greenish grey, grading to argillaceous calcarenite in part, moderately firm to firm, dispersive, predominantly amorphous to minor sub blocky, trace fossil fragments, nil to trace disseminated pyrite, minor to common glauconite, trace ooids, strongly calcareous.
1420	1430	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
1430	1440	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
1440	1450	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
1450	1460	100	<b>CALCAREOUS CLAYSTONE:</b> medium light grey to light greenish grey, occasionally light olive grey, grading to argillaceous calcarenite in part, moderately firm to firm, dispersive, predominantly amorphous to minor sub blocky, nil to trace fossil fragments, nil to trace disseminated pyrite, minor glauconite, trace ooids, strongly calcareous.
1460	1470	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
1470	1480	100	<b>CALCAREOUS CLAYSTONE:</b> as above.

Interval (m)		%	Lithology / Show Description
From	To		
1480	1490	100	<b>CALCAREOUS CLAYSTONE:</b> generally as above, medium light grey to light greenish grey, occasionally light olive grey, grading to argillaceous calcarenite in part, moderately firm to firm, dispersive, predominantly amorphous to minor sub blocky, nil to trace fossil fragments, nil to trace disseminated pyrite, minor glauconite, trace ooids, strongly calcareous.
1490	1500	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
1500	1510	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
1510	1520	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
1520	1525	100	<b>CALCAREOUS CLAYSTONE:</b> , medium light grey to light greenish grey, occasionally light olive grey, grading to argillaceous calcarenite in part, moderately firm to firm, dispersive, predominantly amorphous to minor sub blocky, nil to trace fossil fragments, nil to trace disseminated pyrite, abundant glauconite, trace ooids, strongly calcareous.
1525	1530	100	<b>CALCAREOUS CLAYSTONE:</b> generally as above, medium light grey to light greenish grey, occasionally light olive grey, grading to argillaceous calcarenite in part, moderately firm to firm, dispersive, predominantly amorphous to minor sub blocky, nil to trace fossil fragments, nil to trace disseminated pyrite, minor glauconite, trace ooids, strongly calcareous.
1530	1535	100	<b>CALCAREOUS CLAYSTONE:</b> as above.
1535	1540	60	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, coarse to very coarse grained, trace granule, sub angular to sub rounded, occasionally rounded, trace lithic grains, trace bit fractured grains, moderately sorted, good inferred porosity.
		40	<b>CALCAREOUS CLAYSTONE:</b> as above.
1540	1545	70	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, predominantly medium grained, trace coarse to very coarse grained, sub angular to sub rounded, occasionally angular and rounded, trace lithic grains, trace bit fractured grains, well sorted, good inferred porosity.
		30	<b>CALCAREOUS CLAYSTONE:</b> as above.
1545	1550	70	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, commonly medium grained, minor coarse to very coarse grained, trace granule, sub angular to sub rounded, occasionally rounded, trace lithic grains, trace bit fractured grains, poorly sorted, good inferred porosity.
		30	<b>CALCAREOUS CLAYSTONE:</b> as above.
1550	1555	70	<b>SANDSTONE:</b> generally as above, becoming dominantly coarse to very coarse grained.
		20	<b>CALCAREOUS CLAYSTONE:</b> as above.
		10	<b>COAL:</b> brownish black to olive black, earthy to sub vitreous in part, brittle, sub fissile to sub blocky, hackly to angular fracture, lignitic, trace medium quartz grains.
1555	1560	100	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, medium to coarse grained, minor coarse to very coarse grained, trace granule, sub angular to sub rounded, occasionally rounded, trace bit fractured grains, poorly sorted, good inferred porosity.
1560	1565	80	<b>SANDSTONE:</b> generally as above.
		20	<b>COAL:</b> as above.
1565	1570	60	<b>SANDSTONE:</b> generally as above, becoming dominantly coarse to very coarse grained.
		40	<b>COAL:</b> as above.
1570	1575	90	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, medium to very coarse grained, dominantly coarse to very coarse grained, trace granule, sub angular to sub rounded, occasionally well rounded, trace bit fractured grains, poorly to moderately sorted, good inferred porosity.
		10	<b>COAL:</b> as above.



Interval (m)		%	Lithology / Show Description
From	To		
1575	1580	80	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, medium to coarse grained, common coarse to very coarse grained, rare granules, sub angular to sub rounded, occasionally rounded, trace bit fractured grains, poorly to moderately sorted, good inferred porosity.
		20	<b>COAL:</b> brownish black to olive black, earthy to sub vitreous in part, brittle, sub fissile to sub blocky, hackly to angular fracture, lignitic, trace medium quartz grains.
1580	1585	100	<b>SANDSTONE:</b> generally as above.
		Tr	<b>COAL:</b> as above.
1585	1590	100	<b>SANDSTONE:</b> light brownish grey to very light grey, clear to translucent grains, returned loose, coarse to granule, predominantly very coarse to granules, sub angular to sub rounded, commonly rounded, trace bit fractured grains, well sorted, good inferred porosity.
		Tr	<b>COAL:</b> as above.
1590	1595	100	<b>SANDSTONE:</b> generally as above, predominantly coarse to very coarse.
			<b>COAL:</b> as above.
1595	1600	100	<b>SANDSTONE:</b> light brownish grey to very light grey, clear to translucent grains, returned loose, coarse to granule, predominantly very coarse to granules, sub angular to sub rounded, commonly rounded, trace bit fractured grains, well sorted, common bit generated rock flour, good inferred porosity.
1600	1605	100	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, medium to coarse grained, common coarse to very coarse grained, rare granules, sub angular to sub rounded, minor angular, occasionally rounded, trace bit fractured grains, poorly to moderately sorted, good inferred porosity.
1605	1610	100	<b>SANDSTONE:</b> generally as above, bimodal.
1610	1615	100	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, medium to predominantly coarse grained, trace very coarse grained, sub angular to sub rounded, minor angular, occasionally rounded, trace bit fractured grains, well sorted, good inferred porosity.
1615	1620	100	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, fine to predominantly medium grained, sub angular to sub rounded, minor angular, very well sorted, fair to good inferred porosity.
1620	1625	100	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, medium to predominantly coarse grained, trace very coarse grained, sub angular to sub rounded, minor angular, occasionally rounded, trace bit fractured grains, common bit generated rock flour, well sorted, good inferred porosity.
1625	1630	100	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, medium to coarse grained, common coarse to very coarse grained, rare granules, sub angular to sub rounded, minor angular, occasionally rounded, trace bit fractured grains, poorly to moderately sorted, common bit generated rock flour, good inferred porosity.
1630	1635	100	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, fine to predominantly medium grained, trace coarse sub angular to sub rounded, minor angular, well sorted, fair to good inferred porosity.
1635	1640	100	<b>SANDSTONE:</b> generally as above.
1640	1645	100	<b>SANDSTONE:</b> generally as above.
1645	1650	100	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, fine to predominantly medium grained, trace coarse sub angular to sub rounded, minor angular, well sorted, minor to common medium light grey argillaceous matrix, fair to good inferred porosity.
1650	1655	100	<b>SANDSTONE:</b> as above.
1655	1660	100	<b>SANDSTONE:</b> as above.
1660	1665	100	<b>SANDSTONE:</b> as above.

Interval (m)		%	Lithology / Show Description
From	To		
1665	1670	100	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, medium to predominantly coarse grained, trace very coarse, sub angular to sub rounded, minor angular, occasionally rounded, trace bit fractured grains, moderately well sorted, good inferred porosity.
1670	1675	100	<b>SANDSTONE:</b> generally as above, common bit generated rock flour.
1675	1680	70	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, fine to predominantly medium grained, trace coarse sub angular to sub rounded, minor angular, well sorted, minor to common medium light grey argillaceous matrix, fair to good inferred porosity.
		30	<b>CLAYSTONE:</b> light brownish grey to brownish grey, minor greyish brown, trace to common silt, grading to argillaceous siltstone in part, trace very fine quartz, trace carbonaceous specks and fragments, trace micromica, trace disseminated pyrite, very soft to moderately firm, blocky to sub blocky.
1680	1685	80	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, medium to coarse grained, common coarse to very coarse grained, rare granules, sub angular to sub rounded, minor angular, occasionally rounded, trace bit fractured grains, poorly to moderately sorted, common bit generated rock flour, good inferred porosity.
		20	<b>CLAYSTONE:</b> as above.
1685	1690	60	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, medium to predominantly coarse grained, trace very coarse grained, sub angular to sub rounded, minor angular, occasionally rounded, trace bit fractured grains, common bit generated rock flour, well sorted, good inferred porosity.
		40	<b>CLAYSTONE:</b> as above.
1690	1695	90	<b>SANDSTONE:</b> as above.
		10	<b>CLAYSTONE:</b> as above.
1695	1700	100	<b>SANDSTONE:</b> as above.
		Tr	<b>CLAYSTONE:</b> as above.
1700	1705	100	<b>SANDSTONE:</b> generally as above, trace granules.
		Tr	<b>CLAYSTONE:</b> as above.
1705	1710	60	<b>SANDSTONE:</b> generally as above, white to very light grey, clear to translucent grains, returned loose, medium to predominantly coarse grained, trace very coarse grained, sub angular to sub rounded, minor angular, occasionally rounded, trace bit fractured grains, common bit generated rock flour, well sorted, good inferred porosity.
		40	<b>CLAYSTONE:</b> as above.
1710	1715	100	<b>SANDSTONE:</b> light grey to very light grey, clear to translucent grains, returned loose, coarse to granule, predominantly very coarse to granules, sub angular to sub rounded, commonly rounded, trace bit fractured grains, poorly sorted, common bit generated rock flour, good inferred porosity.
		Tr	<b>CLAYSTONE:</b> as above.
1715	1720	100	<b>SANDSTONE:</b> light grey to very light grey, clear to translucent grains, returned loose, coarse to granule, predominantly coarse to very coarse, minor granules, sub angular to sub rounded, commonly rounded, trace bit fractured grains, poorly sorted, common bit generated rock flour, good inferred porosity.
		Tr	<b>CLAYSTONE:</b> as above.
1720	1725	70	<b>SANDSTONE:</b> as above.
		30	<b>CLAYSTONE:</b> light brownish grey to brownish grey, minor greyish brown, trace to common silt, grading to argillaceous siltstone in part, trace very fine quartz, trace carbonaceous specks and fragments, trace micromica, trace disseminated pyrite, very soft to moderately firm, blocky to sub blocky, weakly calcareous.

Interval (m)		%	Lithology / Show Description
From	To		
1725	1730	80	<b>SANDSTONE:</b> light grey to very light grey, clear to translucent grains, returned loose, coarse to granule, predominantly coarse to very coarse, minor granules, sub angular to sub rounded, commonly rounded, trace bit fractured grains, poorly sorted, common bit generated rock flour, good inferred porosity.
		10	<b>CLAYSTONE:</b> light brownish grey to brownish grey, minor greyish brown, trace to common silt, grading to argillaceous siltstone in part, trace very fine quartz, trace carbonaceous specks and fragments, trace micromica, trace disseminated pyrite, very soft to moderately firm, blocky to sub blocky, weakly calcareous.
		10	<b>COAL:</b> brownish black to olive black, earthy to sub vitreous in part, brittle, sub fissile to sub blocky, hackly to angular fracture, lignitic.
1730	1735	80	<b>SANDSTONE:</b> as above.
		10	<b>CLAYSTONE:</b> as above.
		10	<b>COAL:</b> as above.
1735	1740	70	<b>SANDSTONE:</b> as above.
		10	<b>CLAYSTONE:</b> as above.
		20	<b>COAL:</b> as above.
1740	1745	70	<b>SANDSTONE:</b> generally as above, minor medium grained.
		30	<b>CLAYSTONE:</b> as above.
		Tr	<b>COAL:</b> as above.
1745	1750	80	<b>SANDSTONE:</b> generally as above, minor medium grained.
		20	<b>CLAYSTONE:</b> as above.
1750	1755	90	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, medium to predominantly coarse grained, trace very coarse grained, sub angular to sub rounded, minor angular, occasionally rounded, trace bit fractured grains, minor bit generated rock flour, well sorted, good inferred porosity.
		10	<b>CLAYSTONE:</b> as above.
		100	<b>SANDSTONE:</b> as above.
1755	1760	Tr	<b>CLAYSTONE:</b> as above.
		60	<b>SANDSTONE:</b> generally as above, minor fine grained.
		20	<b>CLAYSTONE:</b> as above.
1760	1765	20	<b>COAL:</b> brownish black to olive black, earthy to sub vitreous in part, brittle, sub fissile to sub blocky, hackly to angular fracture, lignitic.
		10	<b>CLAYSTONE:</b> as above.
		90	<b>COAL:</b> brownish black to olive black, earthy to sub vitreous in part, brittle, sub blocky to blocky, angular to sub conchoidal fracture, lignitic.
1765	1770	10	<b>CLAYSTONE:</b> as above.
		90	<b>COAL:</b> brownish black to olive black, earthy to sub vitreous in part, brittle, sub blocky to blocky, angular to sub conchoidal fracture, lignitic.
		90	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, fine to predominantly medium grained, trace coarse grained, sub angular to sub rounded, minor angular, occasionally rounded, minor bit generated rock flour, well sorted, trace medium light grey argillaceous matrix, good inferred porosity.
1770	1775	10	<b>CLAYSTONE:</b> as above.
		10	<b>COAL:</b> as above.
		90	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, medium to coarse grained, predominantly medium grained, trace very coarse grained, sub angular to sub rounded, minor angular, occasionally rounded, minor bit generated rock flour, moderately well sorted, trace medium light grey argillaceous matrix, good inferred porosity.
1775	1780	10	<b>CLAYSTONE:</b> as above.
		100	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, medium to coarse grained, trace very coarse grained, sub angular to sub rounded, minor angular, occasionally rounded, minor bit generated rock flour, moderately well sorted, trace medium light grey argillaceous matrix, good inferred porosity.
		100	<b>SANDSTONE:</b> as above, trace nodular pyrite.
1780	1785	100	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, medium to coarse grained, trace very coarse grained, sub angular to sub rounded, minor angular, occasionally rounded, minor bit generated rock flour, moderately well sorted, trace medium light grey argillaceous matrix, good inferred porosity.
1785	1790	100	<b>SANDSTONE:</b> as above, trace nodular pyrite.

Interval (m)		%	Lithology / Show Description
From	To		
1790	1795	100	<b>SANDSTONE:</b> as above, trace nodular pyrite.
1795	1800	100	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, medium to predominantly coarse grained, trace very coarse grained, sub angular to sub rounded, minor angular, occasionally rounded, minor bit generated rock flour, well sorted, trace medium light grey argillaceous matrix, good inferred porosity.
1800	1805	100	<b>SANDSTONE:</b> as above.
1805	1810	80	<b>CLAYSTONE:</b> light brownish grey to brownish grey, minor greyish brown, trace to common silt, dispersive, grading to argillaceous siltstone in part, trace very fine quartz, trace carbonaceous specks and fragments, trace micromica, trace disseminated pyrite, very soft to moderately firm, blocky to sub blocky, weakly calcareous.
		20	<b>SANDSTONE:</b> as above.
		Tr	<b>COAL:</b> brownish black to olive black, earthy to sub vitreous in part, brittle, sub blocky to blocky, angular to sub conchoidal fracture, lignitic.
1810	1815	100	<b>SANDSTONE:</b> as above.
		Tr	<b>CLAYSTONE:</b> as above.
		Tr	<b>COAL:</b> as above.
1815	1820	100	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, medium to predominantly coarse grained, nil to trace very coarse grained, sub angular to sub rounded, minor angular, occasionally rounded, well sorted, trace medium light grey argillaceous matrix, good inferred porosity.
1820	1825	100	<b>SANDSTONE:</b> as above.
1825	1830	100	<b>SANDSTONE:</b> as above.
1830	1835	90	<b>SANDSTONE:</b> as above.
		10	<b>CLAYSTONE:</b> as above.
1835	1840	100	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, medium to coarse grained, nil to trace very coarse grained, sub angular to sub rounded, minor angular, occasionally rounded, well sorted, trace medium light grey argillaceous matrix, good inferred porosity.
1840	1845	100	<b>SANDSTONE:</b> as above.
1845	1850	100	<b>SANDSTONE:</b> as above.
1850	1855	95	<b>SANDSTONE:</b> as above.
		5	<b>COAL:</b> as above.
1855	1860	90	<b>SANDSTONE:</b> white to very light grey, clear to translucent grains, returned loose, medium to coarse grained, predominantly medium grained, sub angular to sub rounded, minor angular, occasionally rounded, minor bit generated rock flour, moderately well sorted, good inferred porosity.
		10	<b>COAL:</b> as above.
1860	1865	100	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, medium to coarse grained, predominantly medium grained, sub angular to sub rounded, minor angular, occasionally rounded, minor bit generated rock flour, moderately well sorted, rare medium light grey argillaceous matrix, good inferred porosity.
			<b>COAL:</b> as above.
		Tr	
1865	1870	70	<b>SANDSTONE:</b> as above.
		25	<b>CLAYSTONE:</b> light brownish grey to brownish grey, minor greyish brown, trace to common silt, dispersive, grading to argillaceous siltstone in part, trace very fine quartz, trace carbonaceous specks and fragments, trace micromica, trace disseminated pyrite, very soft to moderately firm, blocky to sub blocky, weakly calcareous.
		5	<b>COAL:</b> as above.

Interval (m)		%	Lithology / Show Description
From	To		
1870	1875	70	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, medium to coarse grained, predominantly medium grained, sub angular to sub rounded, minor angular, occasionally rounded, minor bit generated rock flour, moderately well sorted, rare medium light grey argillaceous matrix, good inferred porosity.
		30	<b>CLAYSTONE:</b> light brownish grey to brownish grey, minor greyish brown, trace to common silt, dispersive, grading to argillaceous siltstone in part, trace very fine quartz, trace carbonaceous specks and fragments, trace micromica, trace disseminated pyrite, very soft to moderately firm, blocky to sub blocky, weakly calcareous.
			<b>COAL:</b> as above.
1875	1880	80	<b>SANDSTONE:</b> as above.
		20	<b>CLAYSTONE:</b> as above.
		Tr	<b>COAL:</b> as above.
1880	1885	90	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, medium to coarse grained, sub angular to sub rounded, minor angular, occasionally rounded, minor bit generated rock flour, moderately well sorted, rare medium light grey argillaceous matrix, good inferred porosity.
		10	<b>CLAYSTONE:</b> as above.
1885	1890	90	<b>SANDSTONE:</b> as above.
		10	<b>CLAYSTONE:</b> as above.
1890	1895	100	<b>SANDSTONE:</b> as above.
1895	1900	100	<b>SANDSTONE:</b> as above.
1900	1905	100	<b>SANDSTONE:</b> as above.
1905	1910	90	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, medium to predominantly coarse grained, sub angular to sub rounded, minor angular, occasionally rounded, minor bit generated rock flour, moderately well sorted, rare medium light grey argillaceous matrix, good inferred porosity.
		10	<b>COAL:</b> brownish black to olive black, earthy to commonly sub vitreous, occasionally vitreous, brittle, sub blocky to blocky, minor fissile, angular to sub conchoidal fracture, lignitic.
1910	1915	100	<b>COAL:</b> as above.
		Tr	<b>SANDSTONE:</b> as above.
1915	1920	100	<b>COAL:</b> as above.
		Tr	<b>SANDSTONE:</b> as above.
1920	1925	100	<b>COAL:</b> as above.
		Tr	<b>SANDSTONE:</b> as above.
1925	1930	95	<b>COAL:</b> as above.
		5	<b>SANDSTONE:</b> generally as above, dominantly coarse to very coarse.
1930	1935	95	<b>COAL:</b> as above.
		5	<b>SANDSTONE:</b> generally as above, dominantly coarse to very coarse.
1935	1940	80	<b>COAL:</b> as above.
		20	<b>CLAYSTONE:</b> as above.
		Tr	<b>SANDSTONE:</b> as above.
1940	1945	60	<b>COAL:</b> as above.
		20	<b>CLAYSTONE:</b> as above.
		20	<b>SANDSTONE:</b> as above.
1945	1950	95	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, medium to predominantly coarse grained, sub angular to sub rounded, minor angular, occasionally rounded, minor bit generated rock flour, moderately well sorted, rare medium light grey argillaceous matrix, good inferred porosity.
		5	<b>COAL:</b> brownish black to olive black, earthy to commonly sub vitreous, occasionally vitreous, brittle, sub blocky to blocky, minor fissile, angular to sub conchoidal fracture, lignitic.

Interval (m)		%	Lithology / Show Description
From	To		
1950	1955	80	<b>SANDSTONE:</b> generally as above, predominantly medium grained.
		20	<b>COAL:</b> as above.
1955	1960	30	<b>SANDSTONE:</b> generally as above, predominantly medium grained.
		70	<b>COAL:</b> as above.
1960	1965	60	<b>COAL:</b> brownish black to olive black, earthy to commonly sub vitreous, occasionally vitreous, brittle, sub blocky to blocky, minor fissile, angular to sub conchoidal fracture, lignitic.
		30	<b>CLAYSTONE:</b> light brownish grey to brownish grey, minor greyish brown, trace to common silt, dispersive, grading to argillaceous siltstone in part, trace very fine quartz, trace carbonaceous specks and fragments, trace micromica, trace disseminated pyrite, very soft to moderately firm, blocky to sub blocky, weakly calcareous.
		20	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, medium to predominantly coarse grained, sub angular to sub rounded, minor angular, occasionally rounded, minor bit generated rock flour, well sorted, rare medium light grey argillaceous matrix, good inferred porosity.
1965	1970	50	<b>COAL:</b> generally as above, brownish black to olive black, earthy to commonly sub vitreous, occasionally vitreous, brittle, sub blocky to blocky, minor fissile, angular to sub conchoidal fracture, lignitic. (Mostly cavings).
		40	<b>CLAYSTONE:</b> as above.
		10	<b>SANDSTONE:</b> as above.
1970	1975	10	<b>COAL:</b> as above.
		10	<b>CLAYSTONE:</b> as above.
		80	<b>SANDSTONE:</b> as above.
1975	1980	10	<b>COAL:</b> as above.
		20	<b>CLAYSTONE:</b> as above.
		70	<b>SANDSTONE:</b> as above.
1980	1985	20	<b>COAL:</b> as above.
		10	<b>CLAYSTONE:</b> as above.
		70	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, predominantly medium to coarse grained, sub angular to angular, minor sub rounded, occasionally rounded, minor bit generated rock flour, well sorted, trace medium light grey argillaceous matrix, fair inferred porosity.
1985	1990	10	<b>COAL:</b> as above.
		10	<b>CLAYSTONE:</b> as above.
		80	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, medium to predominantly coarse grained, sub angular to angular, minor sub rounded, occasionally rounded, minor bit generated rock flour, well sorted, trace medium light grey argillaceous matrix, fair inferred porosity.
1990	1995	10	<b>COAL:</b> as above.
		Tr	<b>CLAYSTONE:</b> as above.
		90	<b>SANDSTONE:</b> as above.
			<b>*NOTE: Returned samples below 2000m dominantly coal and are not representative.</b>
1995	2000	60	<b>COAL:</b> generally as above, brownish black to olive black, earthy to commonly sub vitreous, occasionally vitreous, brittle, sub blocky to blocky, minor fissile, angular to sub conchoidal fracture, lignitic. (Mostly cavings).
		40	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, predominantly medium to coarse grained, sub angular to angular, minor sub rounded, occasionally rounded, abundant bit generated rock flour, well sorted, (possibly strongly silica cemented) trace medium light grey argillaceous matrix, fair inferred porosity.

Interval (m)		%	Lithology / Show Description
From	To		
2000	2005	60	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, predominantly medium to coarse grained, sub angular to angular, minor sub rounded, occasionally rounded, abundant bit generated rock flour, well sorted, trace medium light grey argillaceous matrix, fair inferred porosity.
		40	<b>COAL:</b> as above.
2005	2010	90	<b>SANDSTONE:</b> as above.
		10	<b>COAL:</b> as above.
2010	2015	90	<b>SANDSTONE:</b> as above.
		10	<b>COAL:</b> as above.
2015	2020	90	<b>SANDSTONE:</b> as above.
		10	<b>COAL:</b> cavings as above.
2020	2025	90	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, fine to medium grained, minor medium to coarse, sub angular to angular, minor sub rounded, occasionally rounded in coarser grains, abundant bit generated rock flour, moderately well sorted, minor light brownish grey argillaceous matrix, fair inferred porosity.
		10	<b>COAL:</b> cavings as above.
2025	2030	80	<b>SANDSTONE:</b> as above.
		10	<b>COAL:</b> cavings as above.
		10	<b>CLAYSTONE:</b> light brownish grey to brownish grey, minor greyish brown, trace to common silt, dispersive, grading to argillaceous siltstone in part, trace very fine quartz, trace carbonaceous specks and fragments, trace micromica, trace disseminated pyrite, very soft to moderately firm, blocky to sub blocky, weakly calcareous.
2030	2035	80	<b>SANDSTONE:</b> as above.
		10	<b>COAL:</b> cavings as above.
		10	<b>CLAYSTONE:</b> as above.
2035	2040	80	<b>SANDSTONE:</b> as above.
		10	<b>COAL:</b> cavings as above.
		10	<b>CLAYSTONE:</b> as above.
2040	2045	60	<b>SANDSTONE:</b> as above.
		10	<b>COAL:</b> cavings as above.
		30	<b>CLAYSTONE:</b> as above.
2045	2050	60	<b>SANDSTONE:</b> as above.
		10	<b>COAL:</b> cavings as above.
		30	<b>CLAYSTONE:</b> as above.
2050	2055	40	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, fine to medium grained, minor medium to coarse, sub angular to angular, minor sub rounded, occasionally rounded in coarser grains, abundant bit generated rock flour, moderately well sorted, minor light brownish grey argillaceous matrix, fair inferred porosity.
		30	<b>COAL:</b> generally as above, brownish black to olive black, earthy to commonly sub vitreous, occasionally vitreous, brittle, sub blocky to blocky, minor fissile, angular to sub conchoidal fracture, lignitic.
		30	<b>CLAYSTONE:</b> light brownish grey to brownish grey, minor greyish brown, trace to common silt, dispersive, grading to argillaceous siltstone in part, trace very fine quartz, trace carbonaceous specks and fragments, trace micromica, trace disseminated pyrite, very soft to moderately firm, blocky to sub blocky, weakly calcareous.
2055	2060	40	<b>SANDSTONE:</b> as above.
		40	<b>COAL:</b> cavings as above.
		20	<b>CLAYSTONE:</b> as above.

Interval (m)		%	Lithology / Show Description
From	To		
2060	2065	20	<b>SANDSTONE:</b> as above.
		80	<b>COAL:</b> cavings as above.
		Tr	<b>CLAYSTONE:</b> as above.
2065	2070	20	<b>SANDSTONE:</b> as above.
		80	<b>COAL:</b> cavings as above.
		Tr	<b>CLAYSTONE:</b> as above.
2070	2075	40	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, predominantly medium to coarse grained, sub angular to angular, minor sub rounded, occasionally rounded, abundant bit generated rock flour, well sorted, trace medium light grey argillaceous matrix, fair inferred porosity.
		40	<b>CLAYSTONE:</b> as above.
		10	<b>COAL:</b> cavings as above.
2075	2080	90	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, medium to predominantly coarse grained, minor very coarse, sub angular to angular, minor sub rounded, occasionally rounded, abundant bit generated rock flour, moderately well sorted, trace medium light grey argillaceous matrix, fair inferred porosity.
		10	<b>CLAYSTONE:</b> as above.
			Sample contains abundant coal cavings.
2080	2085	95	<b>SANDSTONE:</b> as above.
		5	<b>CLAYSTONE:</b> as above.
			Sample contains abundant coal cavings.
2085	2090	95	<b>SANDSTONE:</b> as above.
		5	<b>CLAYSTONE:</b> as above.
			Sample contains abundant coal cavings.
2090	2095	95	<b>SANDSTONE:</b> generally as above, predominantly rock flour.
		5	<b>CLAYSTONE:</b> as above.
			Sample contains abundant coal cavings.
2095	2100	95	<b>SANDSTONE:</b> as above.
		5	<b>CLAYSTONE:</b> as above.
			Sample contains abundant coal cavings.
2100	2105	95	<b>SANDSTONE:</b> generally as above, white to very light grey, light brownish grey, clear to translucent grains, returned loose, medium to predominantly coarse grained, minor very coarse, sub angular to angular, minor sub rounded, occasionally rounded, abundant bit generated rock flour, moderately well sorted, trace medium light grey argillaceous matrix, fair inferred porosity.
		5	<b>CLAYSTONE:</b> generally as above, light brownish grey to brownish grey, minor greyish brown, trace to common silt, dispersive, grading to argillaceous siltstone in part, trace very fine quartz, trace carbonaceous specks and fragments, trace micromica, trace disseminated pyrite, very soft to moderately firm, blocky to sub blocky, weakly calcareous.
			Sample contains abundant coal cavings.
2105	2110		
2110	2115		



**APPENDIX 3b**

**BARRACOUTA A4A ST**

**Lithology/Show Descriptions**

## Barracouta A4A - ST Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
			<b>Barracouta A4A-ST unintentionally sidetracked from BTA A4A at circa 1930 mMDRT.</b>
1930	1970		Samples not collected.
1970	1980	60	<b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent, medium to predominantly coarse grained, predominantly loose grains, moderately sorted, subangular to subrounded, trace siliceous cement, trace to 2% argillaceous matrix, fair inferred porosity, no fluorescence.
		20	<b>CLAYSTONE:</b> light brownish grey to brownish grey, 5% greyish brown, trace to 5% silt, dispersive, grading to Argillaceous Siltstone in part, trace very fine quartz grains, trace micromica, trace disseminated fine pyrite, very soft to firm, trace calcareous.
		20	<b>COAL:</b> brownish black to olive black, earthy to sub vitreous lustre, brittle, subblocky to blocky, subconchoidal fracture.
1980	1990	70	<b>SANDSTONE:</b> as above, predominantly translucent, fine to predominantly medium grained, 5% coarse to very coarse grained, 10% rock flour, fair inferred porosity, no fluorescence.
		20	<b>CLAYSTONE:</b> as above, also medium dark grey, 5 to 10% calcareous.
		10	<b>COAL:</b> as above.
			Slow ROPs from 1997.5 to 2005 mMDRT.
1990	2000	80	<b>SANDSTONE:</b> as above, predominantly translucent, predominantly coarse grained, grading to very coarse grained, 10% rock flour, fair inferred porosity, no fluorescence.
		10	<b>CLAYSTONE:</b> as above.
		10	<b>COAL:</b> as above.
2000	2010	90	<b>SANDSTONE:</b> as above, fine to predominantly coarse grained, 20% rock flour, fair inferred porosity, no fluorescence.
		15	<b>CLAYSTONE:</b> as above.
		5	<b>COAL:</b> as above.
2010	2020	70	<b>SANDSTONE:</b> as above, predominantly coarse to very coarse grained, subangular to angular, 10% fractured clasts, 10% rock flour, fair inferred porosity, no fluorescence.
		20	<b>COAL:</b> as above.
		10	<b>CLAYSTONE:</b> as above.
2020	2030	50	<b>SANDSTONE:</b> as above, predominantly coarse to very coarse grained, subangular to angular, 5% fractured clasts, 40% rock flour, fair inferred porosity, no fluorescence.
		10	<b>COAL:</b> as above.
		40	<b>CLAYSTONE:</b> as above.
2030	2040	50	<b>SANDSTONE:</b> as above, predominantly medium to coarse grained, predominantly subangular, trace fractured clasts, 30% rock flour, poor to fair inferred porosity, no fluorescence.
		20	<b>COAL:</b> as above.
		30	<b>CLAYSTONE:</b> as above.
2040	2050	80	<b>COAL:</b> as above.
		20	<b>SANDSTONE:</b> as above, predominantly poor inferred porosity, no fluorescence.
2050	2060	90	<b>COAL:</b> as above.
		10	<b>SANDSTONE:</b> as above, poor inferred porosity, no fluorescence.
2060	2070	80	<b>COAL:</b> as above.
		20	<b>CLAYSTONE:</b> as above.

## Barracouta A4A - ST Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2070	2080	90	<b>SANDSTONE:</b> clear to predominantly translucent, medium to coarse grained, moderately sorted, subangular, subspherical, trace to 2% moderately strong siliceous cement, trace argillaceous matrix, trace siliceous overgrowths, 60% loose grains, 40% rock flour, fair inferred porosity, no fluorescence.
		10	<b>CLAYSTONE:</b> light brownish grey to brownish grey, 5% greyish brown, trace to 5% silt, dispersive, grading to Argillaceous Siltstone in part, trace very fine quartz grains, trace micromica, trace disseminated fine pyrite, very soft to firm, trace calcareous.
2080	2090	90	<b>SANDSTONE:</b> as above, medium to predominantly coarse grained, grading to very coarse grained, 10% fractured clasts, fair to good inferred porosity, no fluorescence.
		5	<b>CLAYSTONE:</b> as above.
		5	<b>COAL:</b> as above.
2090	2100	85	<b>SANDSTONE:</b> as above, 50% loose grains, 60% rock flour, fair to good inferred porosity, no fluorescence.
		15	<b>COAL:</b> as above. 5m samples from 2100 mMDRT
2100	2105	100	<b>SANDSTONE:</b> as above, 70% loose grains, 30% rock flour, fair to good inferred porosity, no fluorescence.
2105	2110	100	<b>SANDSTONE:</b> as above, coarse grained, fair inferred porosity, no fluorescence.
2110	2115	95	<b>SANDSTONE:</b> as above, medium to predominantly coarse grained, 40% loose grains, 60% rock Flour, no fluorescence.
		5	<b>CLAYSTONE:</b> as above.
2115	2120	95	<b>SANDSTONE:</b> as above, fine to predominantly medium grained, moderately to well sorted, fair inferred porosity.
		5	<b>COAL:</b> as above. Most likely cavings.
2120	2125	95	<b>SANDSTONE:</b> as above, medium to coarse grained, 70% loose grains, 30% rock Flour.
		5	<b>COAL:</b> as above.
2125	2130	90	<b>SANDSTONE:</b> as above, fine to predominantly medium grained, 90% loose grains, 10% rock Flour, fair inferred porosity, no fluorescence.
		10	<b>COAL:</b> as above.
2130	2135	90	<b>SANDSTONE:</b> as above, 30% loose grains, 70% rock flour, fair inferred porosity, no fluorescence.
		10	<b>COAL:</b> as above.
2135	2140	85	<b>SANDSTONE:</b> as above, 10% hard aggregates with strong dolomite cement, 50% loose grains, 40% rock flour, poor to fair inferred porosity, no fluorescence.
		15	<b>COAL:</b> as above.
2140	2145	80	<b>SANDSTONE:</b> as above, coarse to very coarse grained, 5% hard aggregates with strong dolomite cement, 10% fractured clasts, 65% loose grains, 20% rock flour, poor inferred porosity, no fluorescence.
		20	<b>COAL:</b> as above, cavings?
2145	2150	100	<b>SANDSTONE:</b> as above, medium to predominantly coarse grained, 70% loose grains, 30% rock flour, fair to good inferred porosity.
2150	2155	90	<b>SANDSTONE:</b> as above, fine to coarse grained, predominantly medium to coarse grained, moderately sorted, 80% loose grains, 20% rock flour, fair to good inferred porosity, no fluorescence.
		10	<b>COAL:</b> as above, cavings?
2155	2160	85	<b>SANDSTONE:</b> as above, medium to coarse grained, 70% loose grains, 30% rock flour, poor to fair inferred porosity, no fluorescence.
		15	<b>COAL:</b> as above.

## Barracouta A4A - ST Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2160	2165	95	<b>COAL:</b> brownish black to olive black, earthy to sub vitreous lustre, brittle, subblocky to blocky, subconchoidal fracture.
		5	<b>CLAYSTONE:</b> light brownish grey to brownish grey, trace calcareous, trace to 5% silt, dispersive, grading to Argillaceous Siltstone in part, trace very fine quartz grains, trace micromica, trace disseminated fine pyrite, soft.

## **APPENDIX 3c**

### **BARRACOUTA A4A ST1**

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

## Barracouta A4A - ST1 Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
			<p><b>Barracouta A4A-ST1 sidetracked from BTA A4A.</b>  <b>Kick-off from 1785.0 mMDRT at 1330 hrs on 13-03-2005.</b></p> <p><b>Bit #5 RR2: 8.50" Reed Hycalog RSX 163, Jets 6 x 14.</b>  <b>IN: 1733.0 mMDRT, OUT: 2291.0 mMDRT.</b>  <b>Run: 558.0 m, HOB: 56.3.</b>  <b>COND: 5-5-WT-A-X-I-CT-TQ.</b></p> <p><b>Tagged Top of Cement at 1733.0 mMDRT.</b></p> <p><b>Drilled with KCl/PHPA/Glycol Mud System, from 1785.0 mMDRT to TD of 2385.0 mMDRT with a steerable motor assembly.</b></p>
1785	1790	100	<p><b>SANDSTONE:</b> white to very light grey, light brownish grey, clear to translucent grains, returned loose, medium to coarse grained, trace very coarse grained, sub angular to sub rounded, minor angular, occasionally rounded, minor bit generated rock flour, moderately well sorted, trace medium light grey argillaceous matrix, good inferred porosity.  No fluorescence.</p>
1790	1795	100	<p><b>SANDSTONE:</b> as above, trace nodular pyrite.  No fluorescence.</p>
1795	1800	5	<p><b>CLAYSTONE:</b> light brownish grey to brownish grey, minor greyish brown, trace to common silt, dispersive, grading to ARGILLACEOUS SILTSTONE in part, trace very fine quartz, trace carbonaceous specks and fragments, trace micromica, trace disseminated pyrite, very soft to moderately firm, blocky to sub blocky, weakly calcareous.</p>
		95	<p><b>SANDSTONE:</b> as above, trace nodular pyrite.  No fluorescence.</p>
1800	1805	30	<p><b>COAL:</b> brownish black, argillaceous, woody in part, dull to earthy lustre, angular to uneven fracture, moderately hard, blocky.</p>
		70	<p><b>SANDSTONE:</b> as above, trace nodular pyrite.  No fluorescence.</p>
1805	1810	30	<p><b>COAL:</b> as above.</p>
		70	<p><b>SANDSTONE:</b> as above, trace nodular pyrite.  No fluorescence.</p>
1810	1815	100	<p><b>SANDSTONE:</b> as above.  No fluorescence.</p>
1815	1820	100	<p><b>SANDSTONE:</b> as above.  No fluorescence.</p>
1820	1825	100	<p><b>SANDSTONE:</b> predominantly translucent, light brownish grey, coarse to medium in part sub angular to sub rounded, minor bit generated rock flour, moderately well sorted, minor to common medium light grey brown argillaceous matrix, poor to fair inferred porosity.  <b>FLUORESCENCE (1825 to 1845 mMDRT):</b> Trace dull yellow fluorescence, no direct cut, moderately fast diffusive crush cut, moderately bright yellow, thick ring residue.</p>
1825	1830	100	<p><b>SANDSTONE:</b> as above.  <b>FLUORESCENCE:</b> as above.</p>
1830	1835	100	<p><b>SANDSTONE:</b> as above.  <b>FLUORESCENCE:</b> as above.</p>
1835	1840	100	<p><b>SANDSTONE:</b> as above.  <b>FLUORESCENCE:</b> as above.</p>
1840	1845	100	<p><b>SANDSTONE:</b> as above.  <b>FLUORESCENCE:</b> as above.</p>

## Barracouta A4A - ST1 Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
1845	1850	100	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, sub angular to sub rounded, moderately well sorted, trace siliceous cement, trace brown argillaceous matrix, loose grains, common rock flour, fair inferred porosity. No fluorescence.
1850	1855	100	<b>SANDSTONE:</b> as above. No fluorescence.
1855	1860	100	<b>SANDSTONE:</b> as above. No fluorescence.
1860	1865	100	<b>SANDSTONE:</b> as above. No fluorescence.
1865	1870	100	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, sub angular to sub rounded, moderately well sorted, trace siliceous cement, trace brown argillaceous matrix, loose grains, common rock flour, fair inferred porosity. No fluorescence.
1870	1875	100	<b>SANDSTONE:</b> as above. No fluorescence.
1875	1880	100	<b>SANDSTONE:</b> as above. No fluorescence.
			<b>Adding Baracarb to the Mud System at 1885.0 mMDRT.</b>
1880	1885	100	<b>SANDSTONE:</b> as above. No fluorescence.
1885	1890	10	<b>COAL:</b> dark brownish black, woody, dull lustre, moderately hard to hard, angular to uneven fracture, blocky.
		20	<b>CLAYSTONE:</b> brown to dark brown, firm to moderately hard, sub blocky to sub fissile, common carbonaceous specks and fragments, grading to ARGILLACEOUS SILTSTONE.
		70	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, sub angular to sub rounded, moderately well sorted, trace siliceous cement, trace brown argillaceous matrix, loose grains, common rock flour, fair inferred porosity. No fluorescence.
1890	1895	10	<b>COAL:</b> as above.
		5	<b>CLAYSTONE:</b> as above.
		85	<b>SANDSTONE:</b> as above. No fluorescence.
1895	1900	50	<b>COAL:</b> dark brownish black, woody, dull lustre, moderately hard to hard, angular to uneven fracture, blocky.
		5	<b>CLAYSTONE:</b> as above.
		45	<b>SANDSTONE:</b> as above. No fluorescence.
1900	1905	60	<b>COAL:</b> as above.
		20	<b>CLAYSTONE:</b> as above.
		20	<b>SANDSTONE:</b> as above. No fluorescence.
1905	1910	75	<b>COAL:</b> as above.
		20	<b>CLAYSTONE:</b> brown to dark brown, firm to moderately hard, sub blocky to sub fissile, common carbonaceous specks and fragments, grading to ARGILLACEOUS SILTSTONE.
		5	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, sub angular to sub rounded, moderately well sorted, trace siliceous cement, trace brown argillaceous matrix, loose grains, common rock flour, fair inferred porosity. No fluorescence.
1910	1915	65	<b>COAL:</b> dark brownish black, woody, dull lustre, moderately hard to hard, angular to uneven fracture, blocky.

## Barracouta A4A - ST1 Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
1915	1920	30	<b>CLAYSTONE:</b> as above.
		5	<b>SANDSTONE:</b> as above.
			No fluorescence.
		65	<b>COAL:</b> as above.
		30	<b>CLAYSTONE:</b> as above.
		5	<b>SANDSTONE:</b> as above.
1920	1925		No fluorescence.
		65	<b>COAL:</b> as above.
		30	<b>CLAYSTONE:</b> as above.
		5	<b>SANDSTONE:</b> as above.
			No fluorescence.
		65	<b>COAL:</b> as above.
1925	1930	5	<b>CLAYSTONE:</b> medium brown, firm to moderately hard, sub blocky to sub fissile, common carbonaceous specks and fragments, grading to ARGILLACEOUS SILTSTONE.
		30	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, sub angular to sub rounded, moderately well sorted, trace siliceous cement, trace brown argillaceous matrix, loose grains, common rock flour, fair inferred porosity.
			No fluorescence.
		50	<b>COAL:</b> dark brownish black, woody, dull lustre, moderately hard to hard, angular to uneven fracture, blocky.
		5	<b>CLAYSTONE:</b> as above.
		45	<b>SANDSTONE:</b> as above.
1930	1935		No fluorescence.
		10	<b>COAL:</b> as above.
		90	<b>SANDSTONE:</b> as above.
			No fluorescence.
		20	<b>COAL:</b> as above.
		5	<b>CLAYSTONE:</b> as above.
1940	1945	75	<b>SANDSTONE:</b> as above.
			No fluorescence.
		20	<b>COAL:</b> as above.
		80	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, sub angular to sub rounded, moderately well sorted, trace siliceous cement, trace brown argillaceous matrix, loose grains, common rock flour, fair inferred porosity.
			No fluorescence.
		20	<b>COAL:</b> as above.
1945	1950	5	<b>CLAYSTONE:</b> medium brown, firm to moderately hard, sub blocky to sub fissile, common carbonaceous specks and fragments, grading to ARGILLACEOUS SILTSTONE.
		75	<b>SANDSTONE:</b> as above.
			No fluorescence.
		20	<b>COAL:</b> as above.
		80	<b>SANDSTONE:</b> as above.
			No fluorescence.
1950	1955	20	<b>COAL:</b> as above.
		80	<b>SANDSTONE:</b> as above.
			No fluorescence.
		20	<b>COAL:</b> as above.
		90	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, sub angular to sub rounded, moderately well sorted, trace siliceous cement, trace brown argillaceous matrix, loose grains, common rock flour, fair inferred porosity.
			No fluorescence.
1955	1960	10	<b>COAL:</b> dark brownish black, woody, dull lustre, moderately hard to hard, angular to uneven fracture, blocky.
		90	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, sub angular to sub rounded, moderately well sorted, trace siliceous cement, trace brown argillaceous matrix, loose grains, common rock flour, fair inferred porosity.
			No fluorescence.
		100	<b>SANDSTONE:</b> as above.
			No fluorescence.
1960	1965		
1965	1970		



## Barracouta A4A - ST1 Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
1970	1975	100	<b>SANDSTONE:</b> as above. No fluorescence.
1975	1980	100	<b>SANDSTONE:</b> as above. No fluorescence.
1980	1985	100	<b>SANDSTONE:</b> as above. No fluorescence.
1985	1990	10	<b>COAL:</b> dark brownish black, woody, dull lustre, moderately hard to hard, angular to uneven fracture, blocky.
		90	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, sub angular to sub rounded, moderately well sorted, trace siliceous cement, trace brown argillaceous matrix, loose grains, common rock flour, fair inferred porosity. No fluorescence.
1990	1995	100	<b>SANDSTONE:</b> as above. No fluorescence.
1995	2000	40	<b>COAL:</b> as above.
		60	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, sub angular to sub rounded, moderately well sorted, trace siliceous cement, trace brown argillaceous matrix, 10% dolomitic cement, loose grains, common rock flour, poor inferred porosity. 10% dull yellowish mineral fluorescence.
2000	2005	50	<b>COAL:</b> dark brownish black, woody, dull lustre, moderately hard to hard, angular to uneven fracture, blocky.
		50	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, sub angular to sub rounded, moderately well sorted, trace siliceous cement, trace brown argillaceous matrix, loose grains, common rock flour, fair inferred porosity. No fluorescence.
2005	2010	10	<b>COAL:</b> as above.
		90	<b>SANDSTONE:</b> as above. No fluorescence.
2010	2015	10	<b>COAL:</b> as above.
		90	<b>SANDSTONE:</b> as above. No fluorescence.
2015	2020	10	<b>COAL:</b> as above.
		90	<b>SANDSTONE:</b> as above. No fluorescence.
2020	2025	10	<b>COAL:</b> as above.
		40	<b>CLAYSTONE:</b> light brownish grey to brownish grey, trace calcareous, trace to 5% silt grading to ARGILLACEOUS SILTSTONE in part, trace very fine quartz grains, trace micromica, trace disseminated pyrite, predominantly soft to firm, sub fissile.
		50	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, sub angular to sub rounded, moderately well sorted, trace siliceous cement, trace brown argillaceous matrix, loose grains, common rock flour, fair inferred porosity. No fluorescence.
2025	2030	100	<b>COAL:</b> dark brownish black, woody, dull lustre, moderately hard to hard, angular to uneven fracture, blocky.
2030	2035	100	<b>COAL:</b> as above.
2035	2040	10	<b>COAL:</b> as above.
		90	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, sub angular to sub rounded, moderately well sorted, trace siliceous cement, trace brown argillaceous matrix, 10% dolomitic cement, loose grains, common rock flour, poor inferred porosity. 10% dull yellowish mineral fluorescence.

## Barracouta A4A - ST1 Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2040	2045	100	<b>COAL:</b> dark brownish black, woody, dull lustre, moderately hard to hard, angular to uneven fracture, blocky.
2045	2050	100	<b>COAL:</b> as above.
2050	2055	100	<b>COAL:</b> as above.
2055	2060	15	<b>COAL:</b> as above.
		85	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, predominantly coarse, sub angular, well sorted, trace siliceous cement, trace to 2% brown argillaceous matrix, loose grains, fair inferred porosity. No fluorescence.
2060	2065	10	<b>COAL:</b> as above.
		90	<b>SANDSTONE:</b> as above. No fluorescence.
2065	2070	100	<b>SANDSTONE:</b> as above. No fluorescence.
2070	2075	40	<b>COAL:</b> brownish black, woody, dull lustre, moderately hard to hard, angular to uneven fracture, blocky.
		60	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, sub angular to sub rounded, moderately well sorted, trace siliceous cement, trace brown argillaceous matrix, loose grains, common rock flour, fair inferred porosity. No fluorescence.
2075	2080	20	<b>COAL:</b> as above.
		80	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, predominantly coarse, sub angular, well sorted, trace siliceous cement, 10% strong dolomitic cement, trace to 2% brown argillaceous matrix, predominantly rock flour, poor inferred porosity. 10% dull yellow orange mineral (dolomite) fluorescence.
2080	2085	30	<b>COAL:</b> as above.
		70	<b>SANDSTONE:</b> as above. No fluorescence.
2085	2090	30	<b>COAL:</b> as above.
		70	<b>SANDSTONE:</b> as above. No fluorescence.
2090	2095	20	<b>COAL:</b> brownish black, woody, dull lustre, moderately hard to hard, angular to uneven fracture, blocky.
		80	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, predominantly coarse, sub angular, well sorted, trace siliceous cement, trace to 2% brown argillaceous matrix, common rock flour, poor inferred porosity. No fluorescence.
2095	2100	100	<b>SANDSTONE:</b> as above. No fluorescence.
2100	2105	100	<b>SANDSTONE:</b> as above. No fluorescence.
2105	2110	100	<b>SANDSTONE:</b> as above. No fluorescence.
2110	2115	100	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, predominantly coarse, sub angular, well sorted, trace siliceous cement, trace to 2% brown argillaceous matrix, common rock flour, poor inferred porosity. No fluorescence.
2115	2120	100	<b>SANDSTONE:</b> as above. No fluorescence.

## Barracouta A4A - ST1 Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2120	2125	100	<b>SANDSTONE:</b> as above. No fluorescence.
2125	2130	100	<b>SANDSTONE:</b> as above. No fluorescence.
2130	2135	100	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, predominantly coarse, sub angular, well sorted, trace siliceous cement, trace to 2% brown argillaceous matrix, common rock flour, poor inferred porosity. No fluorescence.
2135	2140	100	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, predominantly coarse, sub angular, well sorted, trace siliceous cement, 10% strong dolomitic cement, trace to 2% brown argillaceous matrix, predominantly rock flour, poor inferred porosity. No fluorescence.
2140	2145	100	<b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, predominantly coarse, sub angular, well sorted, trace siliceous cement, trace to 2% brown argillaceous matrix, common rock flour, poor inferred porosity. No fluorescence.
2145	2150	10 90	<b>COAL:</b> brownish black, firm, lignitic texture, earthy lustre, sub fissile, silty. <b>SANDSTONE:</b> as above. No fluorescence.
2150	2155	25 75	<b>COAL:</b> as above. <b>SANDSTONE:</b> as above. No fluorescence.
2155	2160	30 70	<b>COAL:</b> as above. <b>SANDSTONE:</b> as above. No fluorescence.
2160	2165	90 10	<b>COAL:</b> as above. <b>SANDSTONE:</b> clear to predominantly translucent, medium to very coarse, predominantly coarse, sub angular, well sorted, trace siliceous cement, trace to 2% brown argillaceous matrix, common rock flour, poor inferred porosity. No fluorescence.
2165	2170	20 75 5	<b>COAL:</b> brownish black, firm, lignitic texture, earthy lustre, sub fissile, silty. <b>CLAYSTONE:</b> pale yellowish brown to moderate yellowish brown, trace silt grading to ARGILLACEOUS SILTSTONE in part, trace very fine quartz grains, trace micromica, 5% fine carbonaceous specks, predominantly soft and dispersive. <b>SANDSTONE:</b> as above. No fluorescence.
2170	2175	5 85 10	<b>COAL:</b> as above. <b>CLAYSTONE:</b> as above. <b>SANDSTONE:</b> as above. No fluorescence.
2175	2180	5 85 10	<b>COAL:</b> as above. <b>CLAYSTONE:</b> as above. <b>SANDSTONE:</b> as above. No fluorescence.
2180	2185	50 45 5	<b>COAL:</b> brownish black, firm, lignitic texture, earthy lustre, sub fissile, silty. <b>CLAYSTONE:</b> pale yellowish brown to moderate yellowish brown, trace silt grading to ARGILLACEOUS SILTSTONE in part, trace very fine quartz grains, trace micromica, 5% fine carbonaceous specks, predominantly soft and dispersive. <b>SANDSTONE:</b> as above. No fluorescence.

## Barracouta A4A - ST1 Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2185	2190	100	<b>SANDSTONE:</b> as above. No fluorescence.
2190	2195	100	<b>SANDSTONE:</b> clear to predominantly translucent, fine to medium, sub angular, moderately sorted, trace siliceous cement, trace to 1% brown argillaceous matrix, trace dolomitic cement, abundant rock flour, 5% loose grains, poor to fair inferred porosity. No fluorescence.
2195	2200	100	<b>SANDSTONE:</b> as above. No fluorescence.
2200	2205	100	<b>SANDSTONE:</b> as above. No fluorescence.
2205	2210	100	<b>SANDSTONE:</b> as above. No fluorescence.
2210	2215	100	<b>SANDSTONE:</b> as above. No fluorescence.
2215	2220	100	<b>SANDSTONE:</b> as above. No fluorescence.
2220	2225	100	<b>SANDSTONE:</b> as above. No fluorescence.
2225	2230	100	<b>SANDSTONE:</b> as above. No fluorescence.
2230	2235	100	<b>SANDSTONE:</b> clear to predominantly translucent, medium to predominantly coarse, sub angular, moderately sorted, trace siliceous cement, trace brown argillaceous matrix, common rock flour, 85% loose grains, fair inferred porosity. No fluorescence.
2235	2240	100	<b>SANDSTONE:</b> as above. No fluorescence.
2240	2245	100	<b>SANDSTONE:</b> as above. No fluorescence.
2245	2250	100	<b>SANDSTONE:</b> as above. No fluorescence.
2250	2255	100	<b>SANDSTONE:</b> clear to predominantly translucent, medium to predominantly coarse, sub angular, moderately sorted, trace siliceous cement, trace brown argillaceous matrix, common rock flour, 80% loose grains, fair inferred porosity. No fluorescence.
2255	2260	10	<b>COAL:</b> brownish black, woody, dull lustre, moderately hard to hard, angular to uneven fracture, blocky.
		90	<b>SANDSTONE:</b> as above. No fluorescence.
2260	2265	100	<b>SANDSTONE:</b> as above. No fluorescence.
2265	2270	100	<b>SANDSTONE:</b> as above. No fluorescence.
2270	2275	70	<b>COAL:</b> brownish black, woody, dull lustre, moderately hard to hard, angular to uneven fracture, blocky.
		30	<b>SANDSTONE:</b> as above. No fluorescence.
2275	2280	100	<b>SANDSTONE:</b> clear to predominantly translucent, medium to predominantly coarse, sub angular, moderately sorted, trace siliceous cement, trace brown argillaceous matrix, common rock flour, 85% loose grains, fair inferred porosity. No fluorescence.

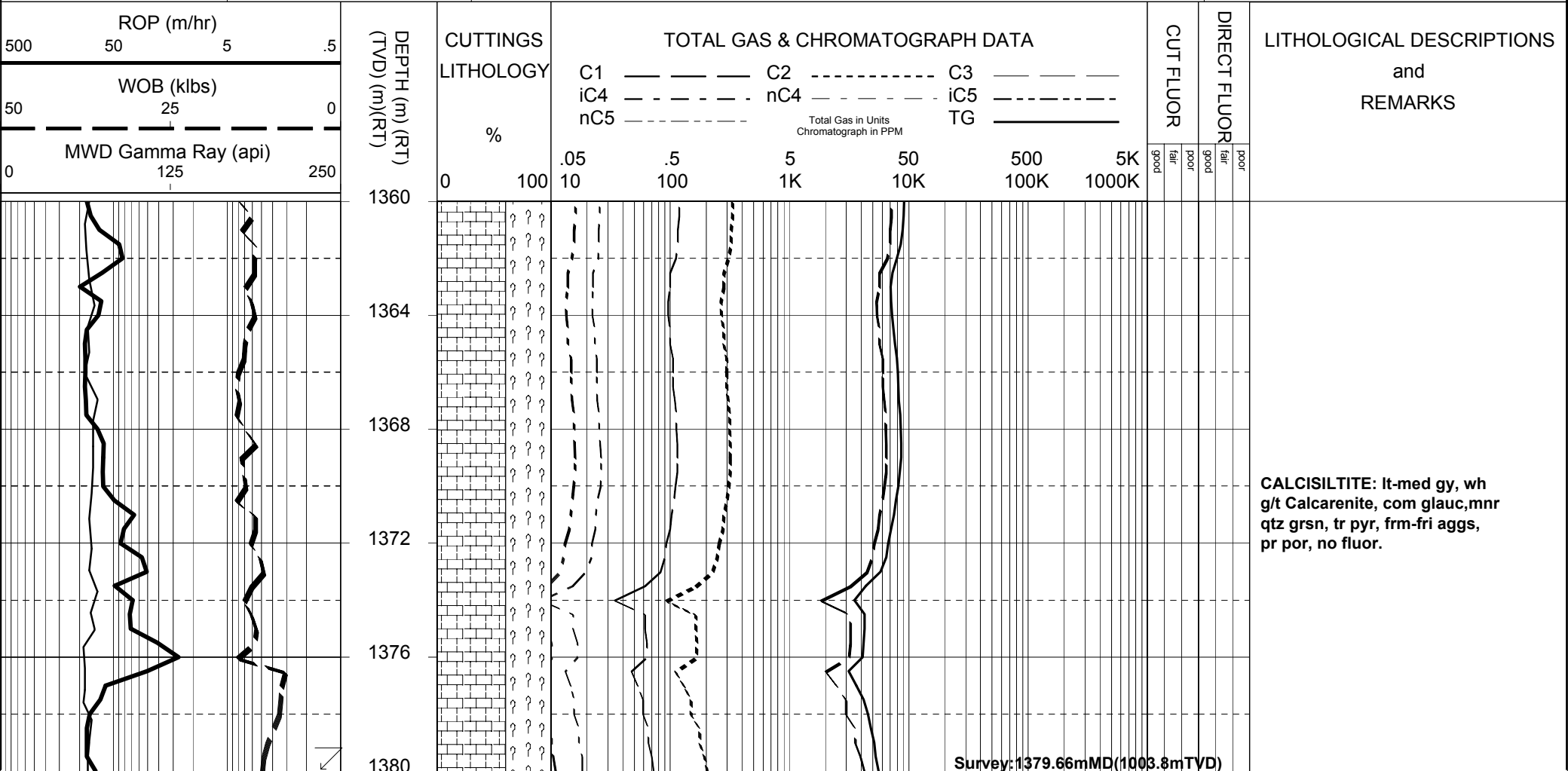
## Barracouta A4A - ST1 Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2280	2285	100	<b>SANDSTONE:</b> as above. No fluorescence.
2285	2290	100	<b>SANDSTONE:</b> as above. No fluorescence.
<b>POOH at 2291.0 mMDRT for bit change.</b>			
<b>Bit #6 RR2: 8.50" Reed Hycalog RSX 163, Jets 6 x 14.</b>			
<b>IN: 2291.0 mMDRT, OUT: 2385.0 mMDRT.</b>			
<b>Run: 94.0 m, HOB: 2.3.</b>			
<b>COND: 1-1-CT-A-X-IN-NO-TD.</b>			
2290	2295	100	<b>SANDSTONE:</b> as above. No fluorescence.
2295	2300	100	<b>SANDSTONE:</b> as above. No fluorescence.
2300	2305	5 95	<b>COAL:</b> brownish black, firm, lignitic texture, earthy lustre, sub blocky to sub fissile. <b>SANDSTONE:</b> clear to predominantly translucent, medium to predominantly coarse, sub angular, moderately sorted, trace siliceous cement, trace brown argillaceous matrix, trace rock flour, 85% loose grains, fair inferred porosity. No fluorescence.
2305	2310	100	<b>SANDSTONE:</b> as above. No fluorescence.
2310	2315	5 95	<b>COAL:</b> brownish black, firm, lignitic texture, earthy lustre, sub blocky to sub fissile. <b>SANDSTONE:</b> as above. No fluorescence.
2315	2320	100	<b>SANDSTONE:</b> as above. No fluorescence.
2320	2325	100	<b>SANDSTONE:</b> as above. No fluorescence.
2325	2330	100	<b>SANDSTONE:</b> as above. No fluorescence.
2330	2335	100	<b>SANDSTONE:</b> as above. No fluorescence.
2335	2340	100	<b>SANDSTONE:</b> clear to predominantly translucent, medium to predominantly coarse, sub angular, moderately sorted, trace siliceous cement, trace brown argillaceous matrix, trace rock flour, dominantly loose grains, fair to good inferred porosity. No fluorescence.
2340	2345	100	<b>SANDSTONE:</b> as above. No fluorescence.
2345	2350	100	<b>SANDSTONE:</b> as above. No fluorescence.
2350	2355	100	<b>SANDSTONE:</b> as above. No fluorescence.
2355	2360	100	<b>SANDSTONE:</b> as above. No fluorescence.
2360	2365	100	<b>SANDSTONE:</b> as above. No fluorescence.
2365	2370	100	<b>SANDSTONE:</b> as above. No fluorescence.

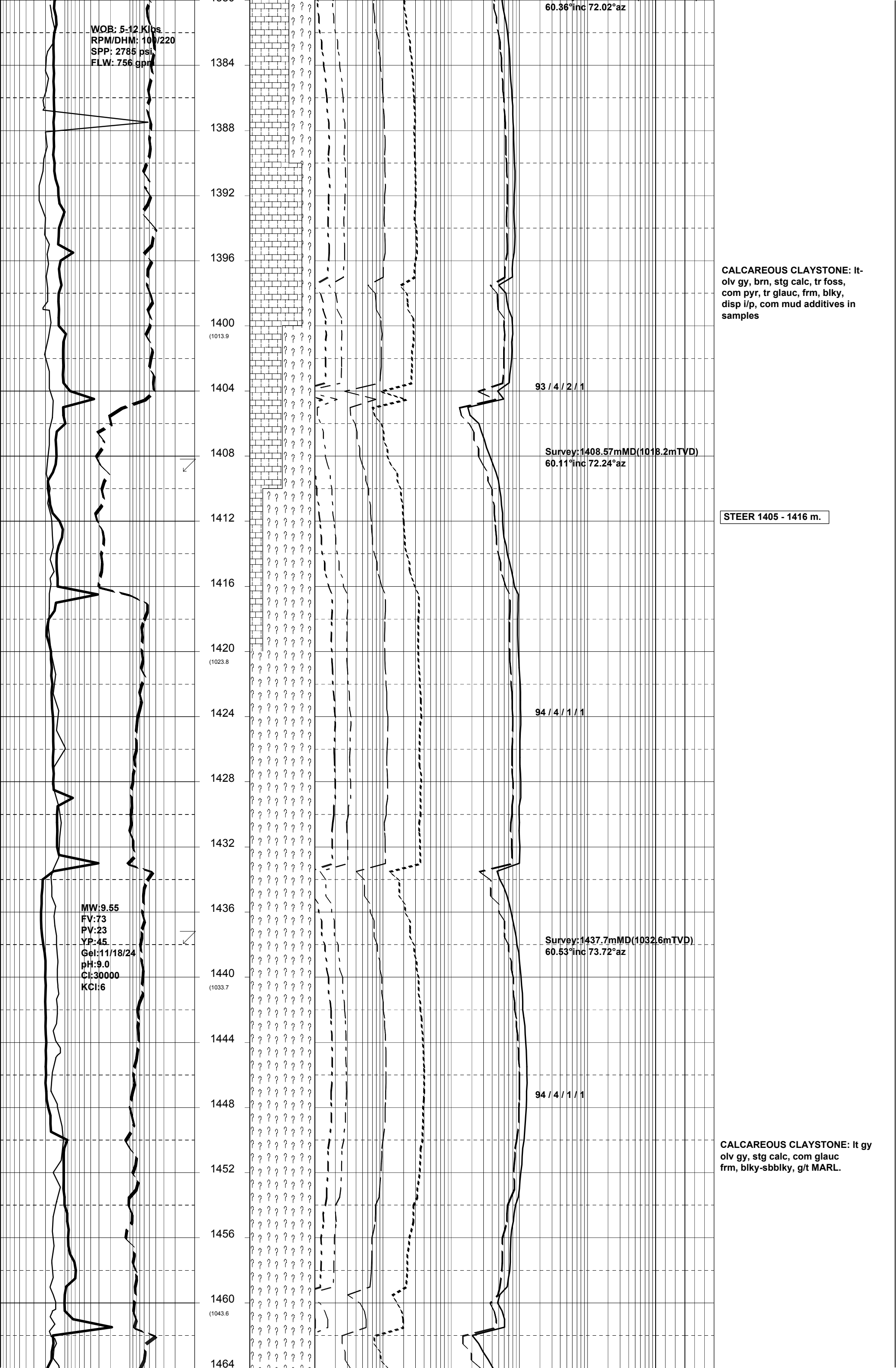
## Barracouta A4A - ST1 Lithology / Show Descriptions

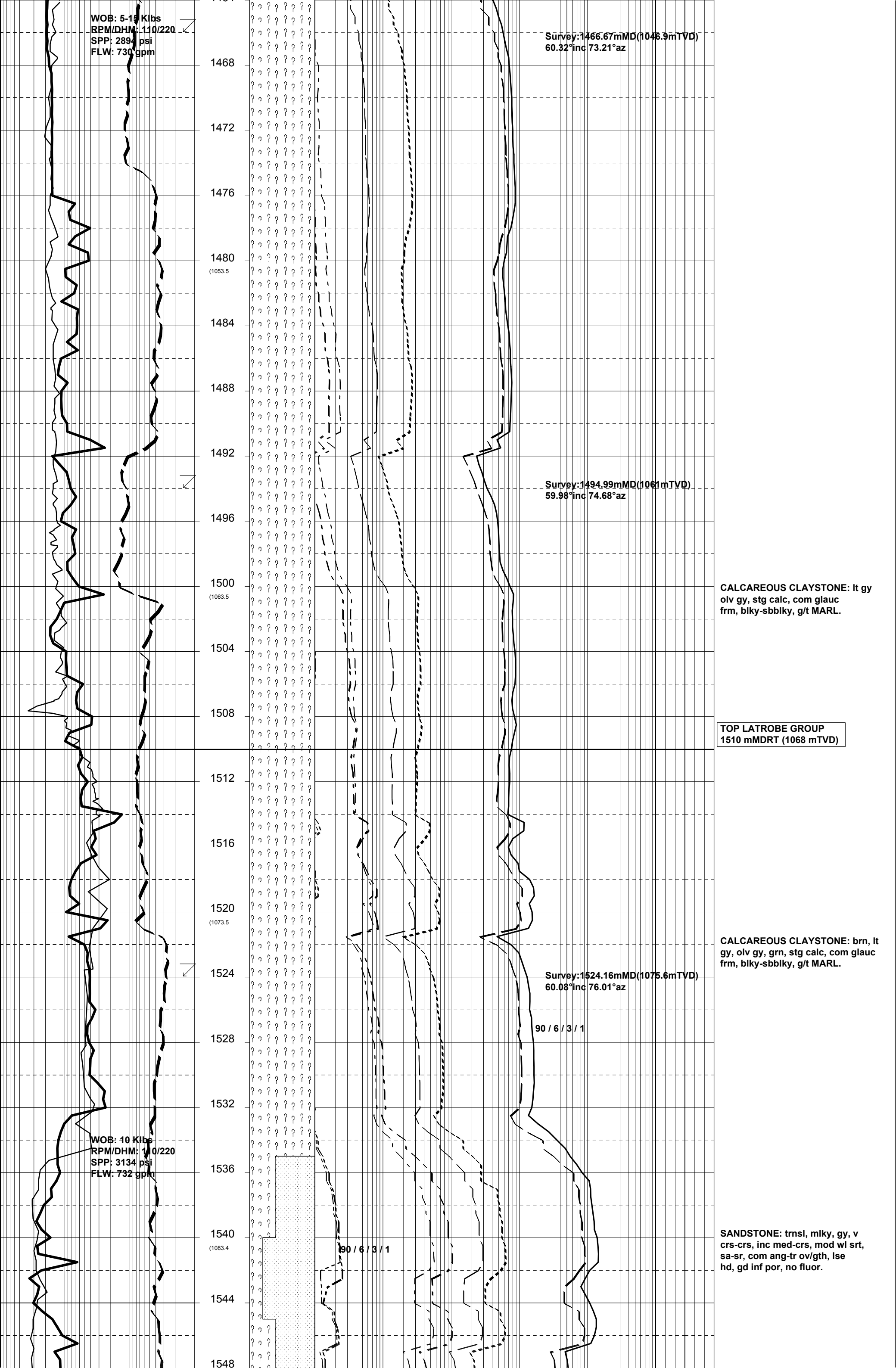
Interval (m) From To		%	Lithology / Show Description
2370	2375	100	<b>SANDSTONE:</b> clear to predominantly translucent, medium to occasionally very coarse, sub angular, moderately well sorted, trace siliceous cement, trace brown argillaceous matrix, trace rock flour, dominantly loose grains, fair to good inferred porosity. No fluorescence.
2375	2380	100	<b>SANDSTONE:</b> as above. No fluorescence.
2380	2385	100	<b>SANDSTONE:</b> as above. No fluorescence. <b>BTA-A4A-ST1 reached a TD of 2385.0m MDRT at 1200 hrs on 17-03-2005.</b>

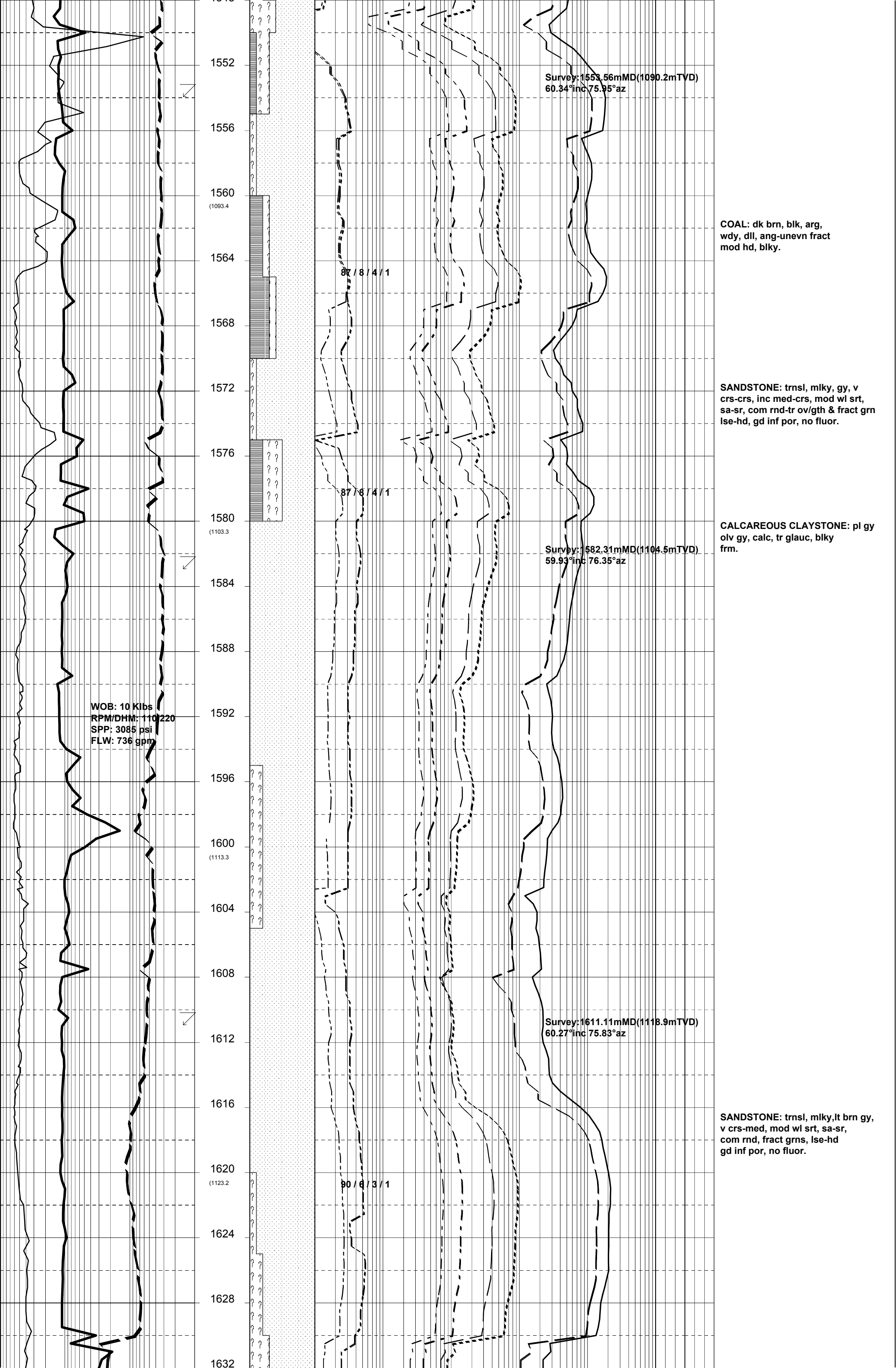
**APPENDIX 4a**  
**BARRACOUTA A4A**  
**Mud Log**

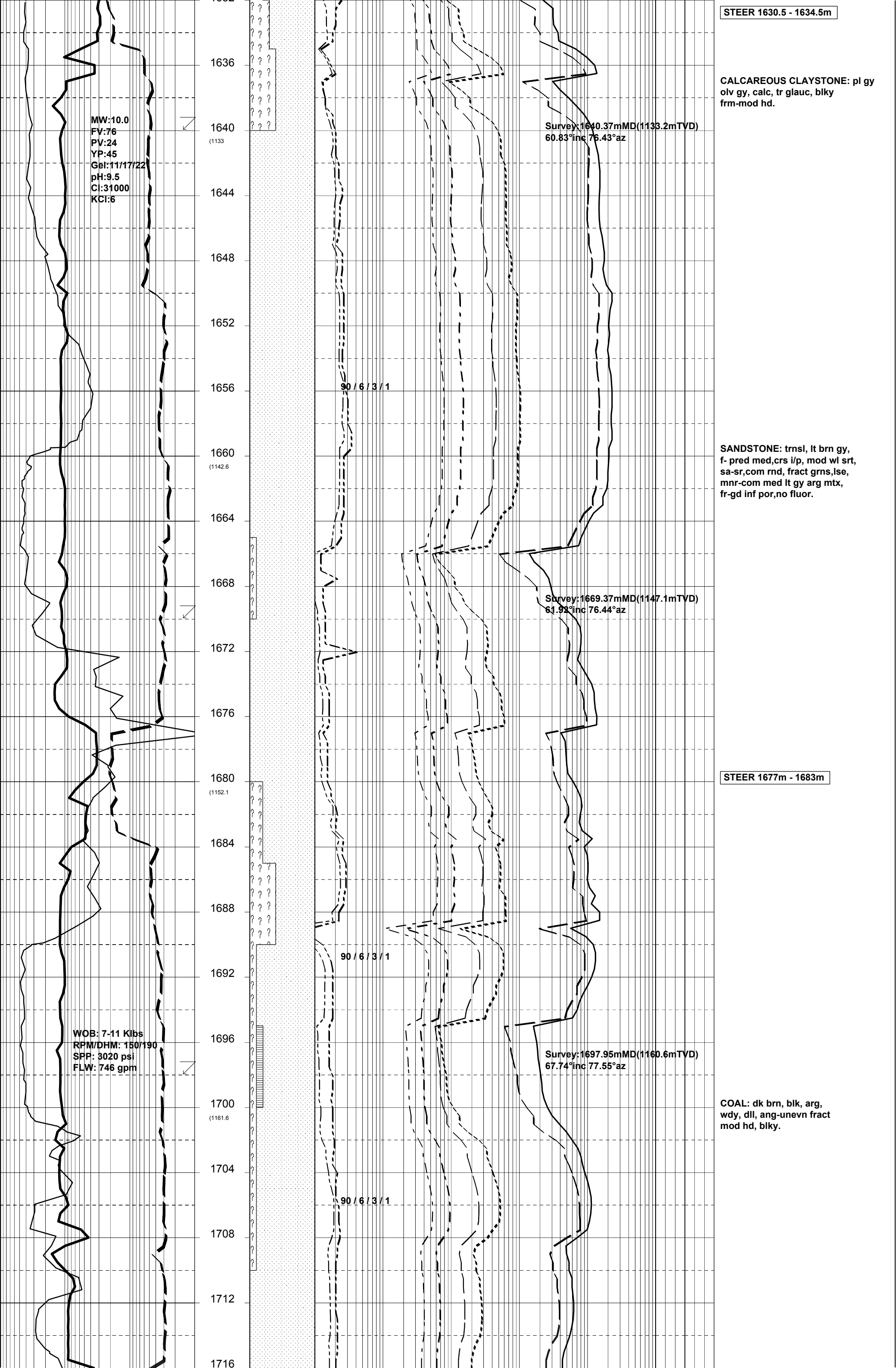


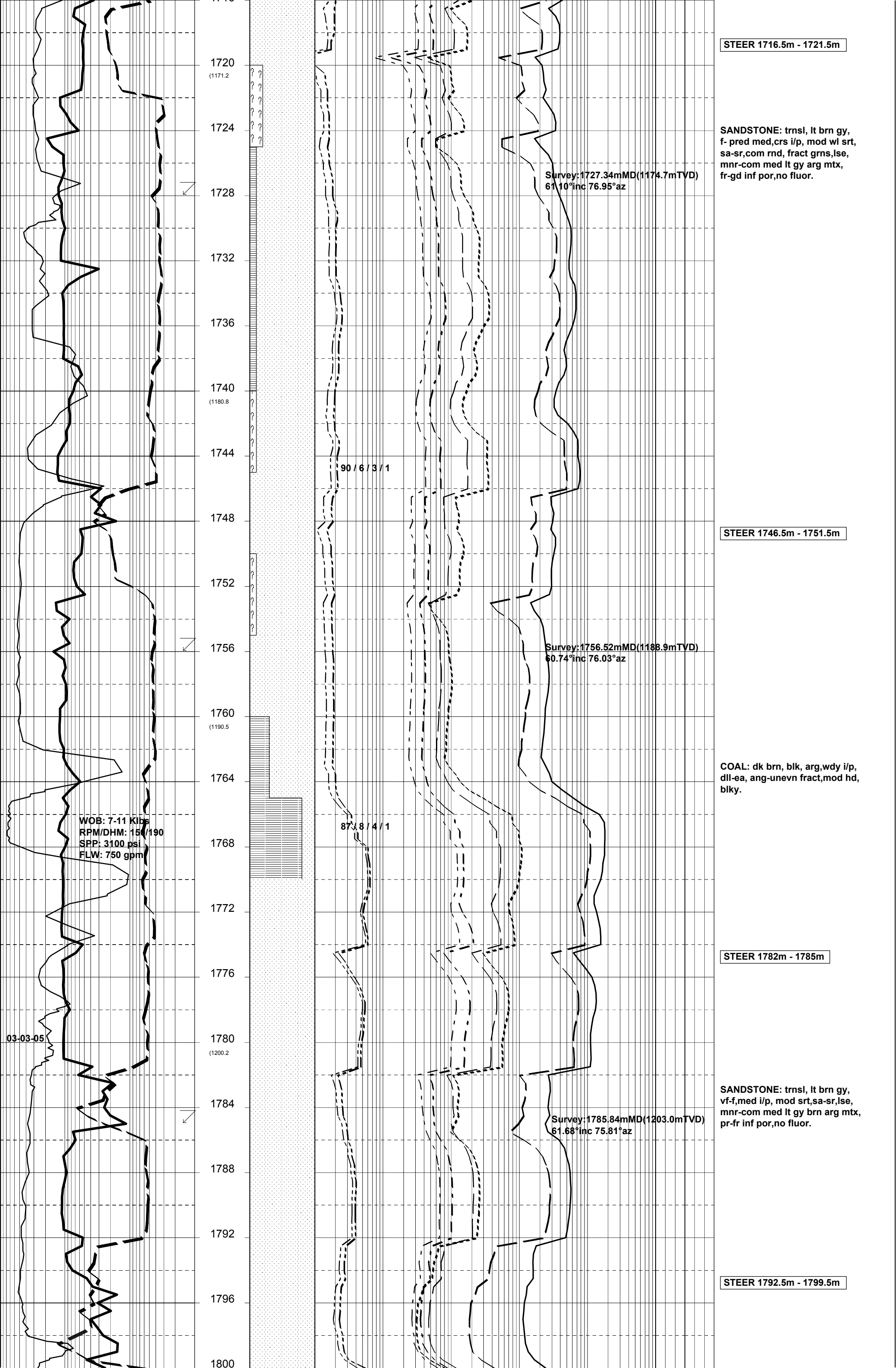


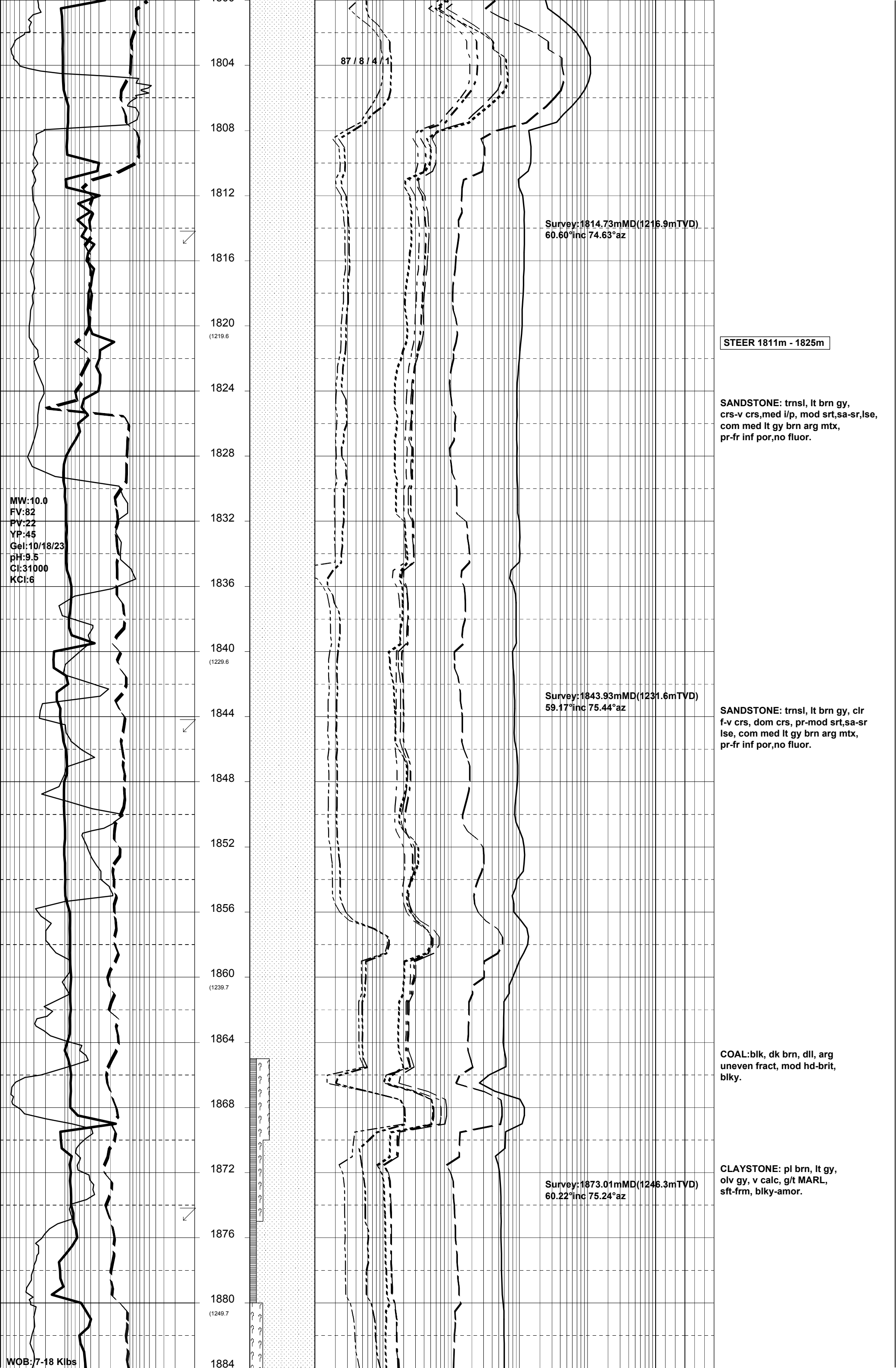


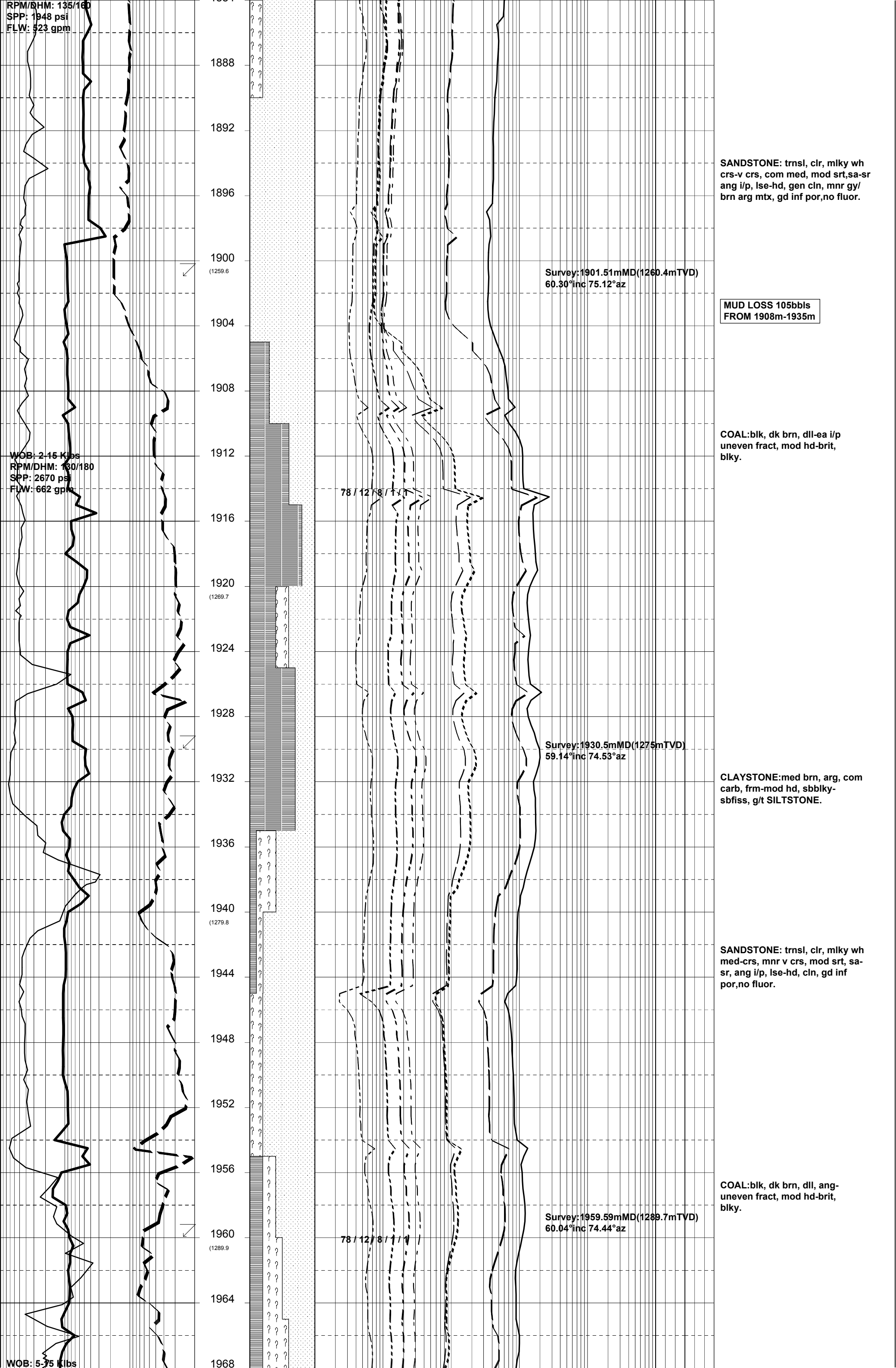


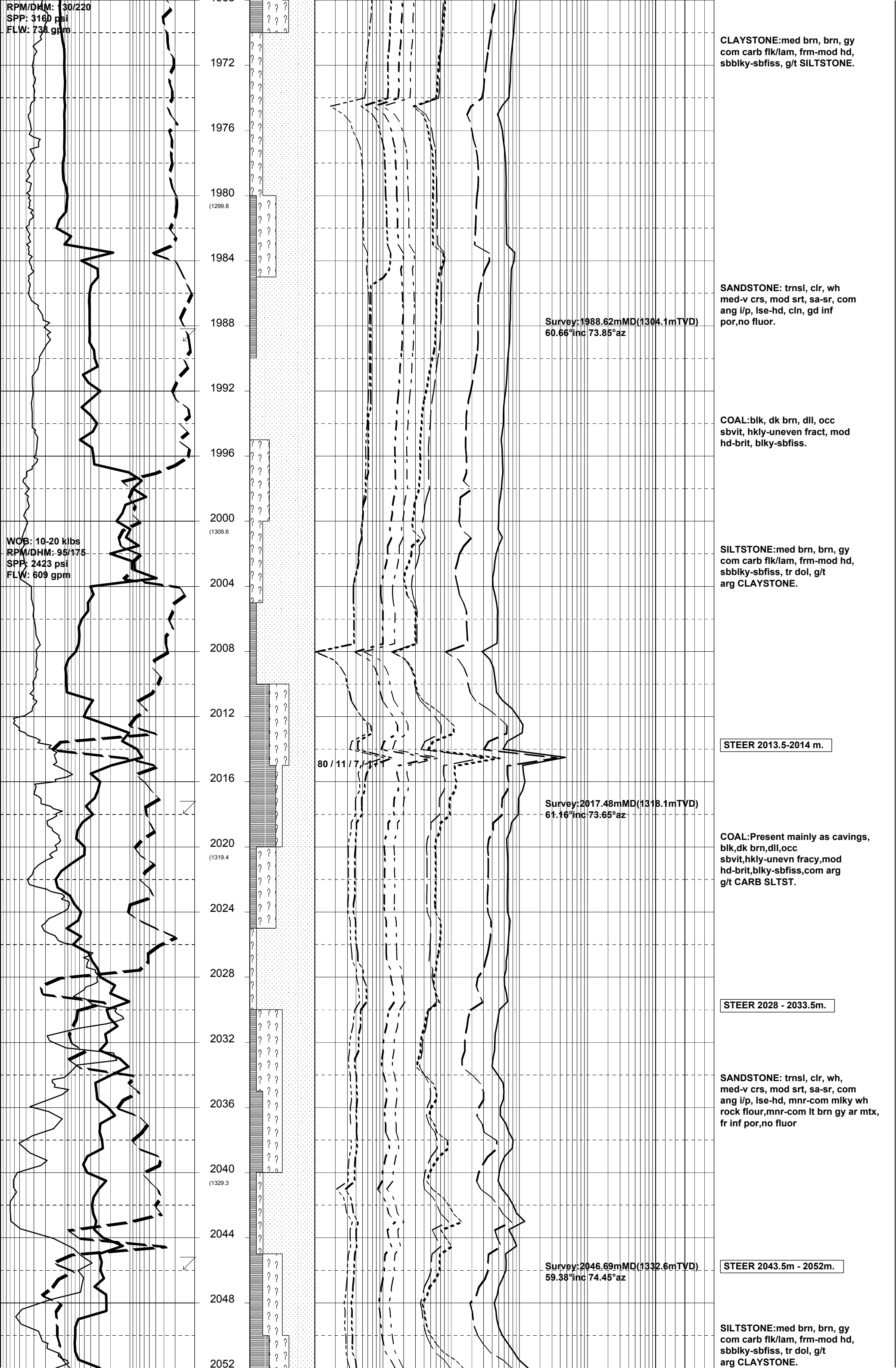














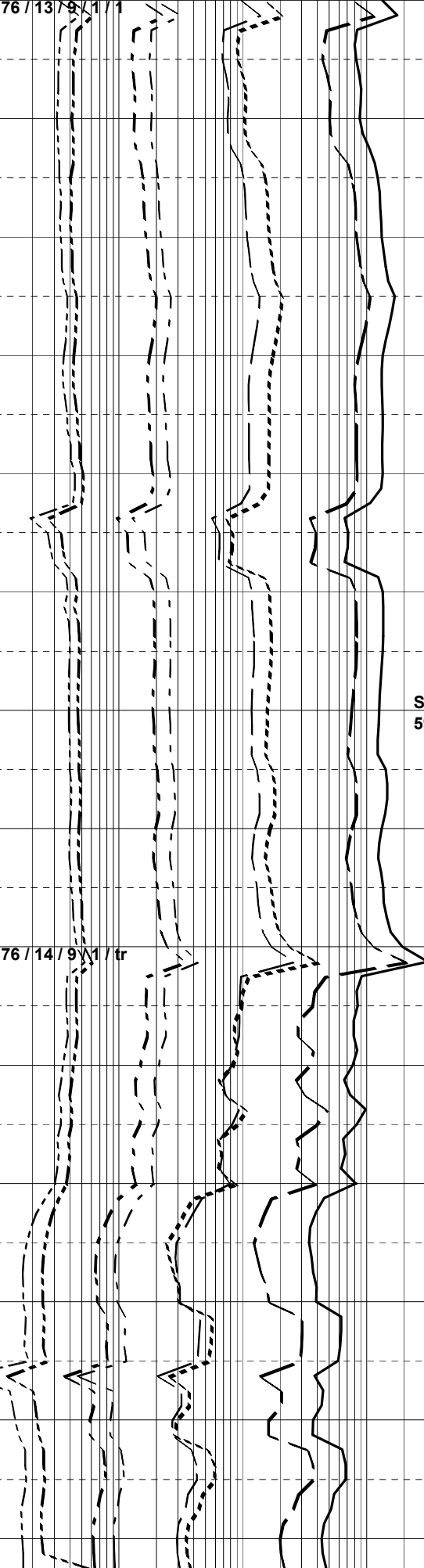
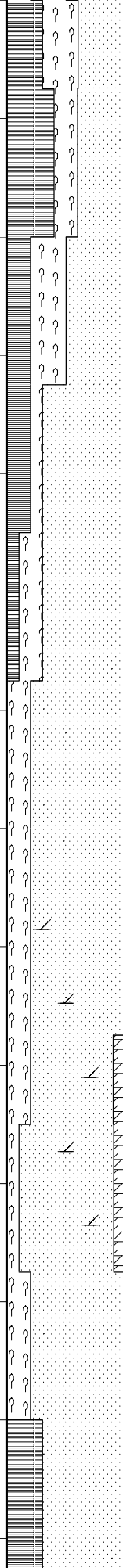
WOB: 10-20 kips  
RPM/DHM: 160/190  
SPP: 2790/3250 psi  
FLW: 650/750 gpm

04-03-05

MW:10.0  
FV:68  
PV:23  
YP:47  
Gel:11/20/24  
pH:9.5  
CI:31000  
KCI:6

06-03-05

2052  
2056  
2060  
(1339.4)  
2064  
2068  
2072  
2076  
2080  
(1349.5)  
2084  
2088  
2092  
2096  
2100  
(1359.7)  
2104  
2108  
2112  
2116  
2120  
2124  
2128  
2132  
2136



Survey:2075.98mMD(1347.5mTVD)  
59.44°inc 74.58°az

COAL:Present mainly as cavings,  
blk,dk brn,dll,occ sbvit,hlky-  
unevn fracy,mod hd-brit,blky-  
sbfiss,com arg g/t CARB SLTST.

SANDSTONE: trnsI, clr, mlky wh  
med-v crs, mod srt, sa-sr, com  
ang i/p, lse-hd, abdt mlky wh  
rock flour,mnr-com lt brn gy ar mtx,  
fr inf por,no fluor.

MUD LOSS 50bbIs  
AT 2080m

DOLOMITE: wh,lt gy brn, frm.

SANDSTONE: trnsI, clr, mlky wh  
med-v crs, mod srt, sa-sr, com  
ang i/p, lse-hd, abdt mlky wh  
rock flour,mnr-com lt brn gy ar mtx,  
fr inf por,no fluor

BIT#3: 8.5" HYCALOG  
DSX210 JETS:4x13 1x16  
IN: 2108m OUT:2108m  
RUN:0m HRS:0  
COND:NO RUN

POOH @ 2108m FOR BIT &  
BHA CHANGE.RIH WITH  
ROTARY ASSY BUT UNABLE TO  
REACH BOTTOM. POOH & RIH  
WITH STEERABLE ASSY

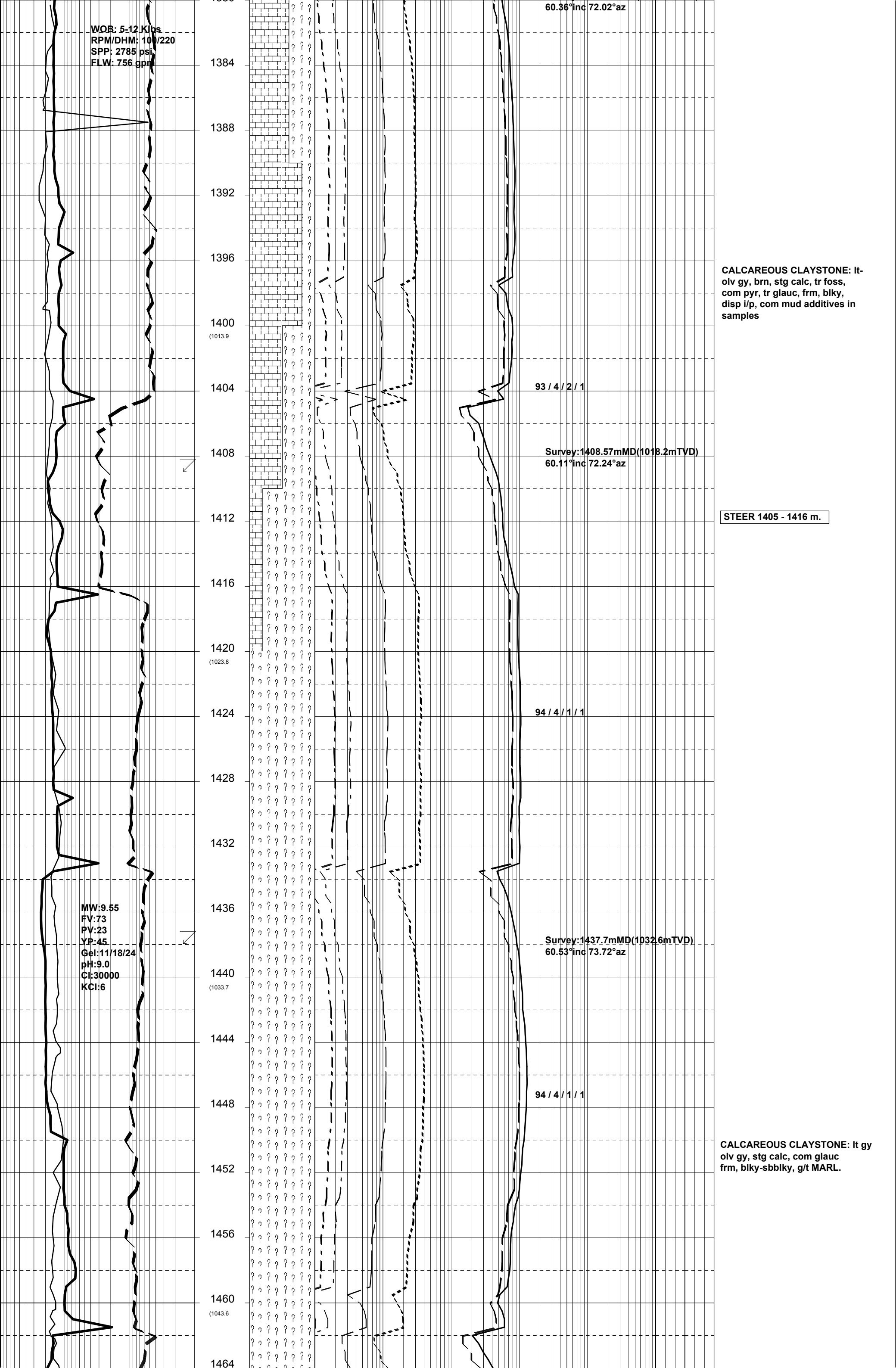
[illegible]

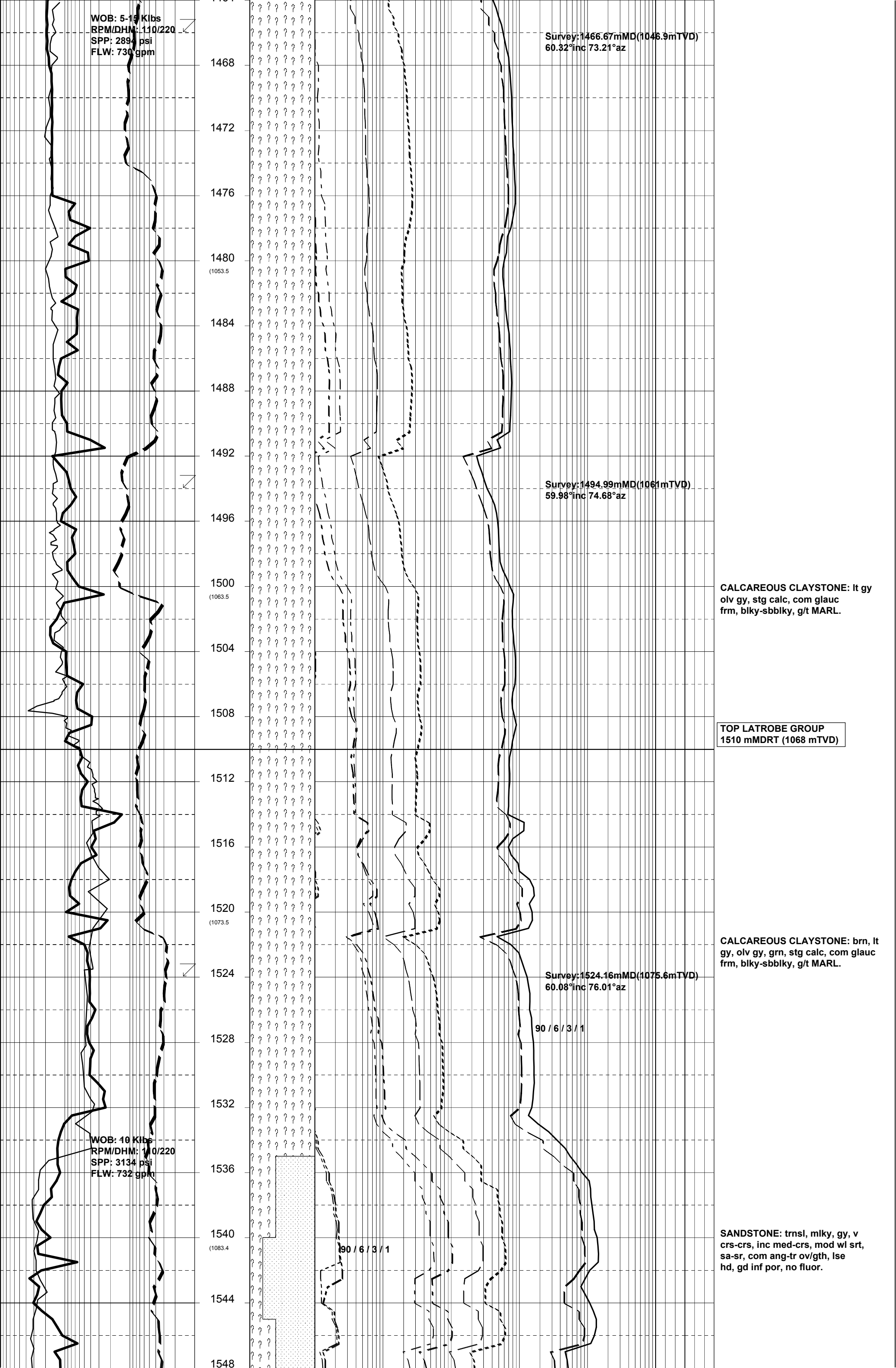
**APPENDIX 4b**  
**BARRACOUTA A4AST**  
**Mud Log**

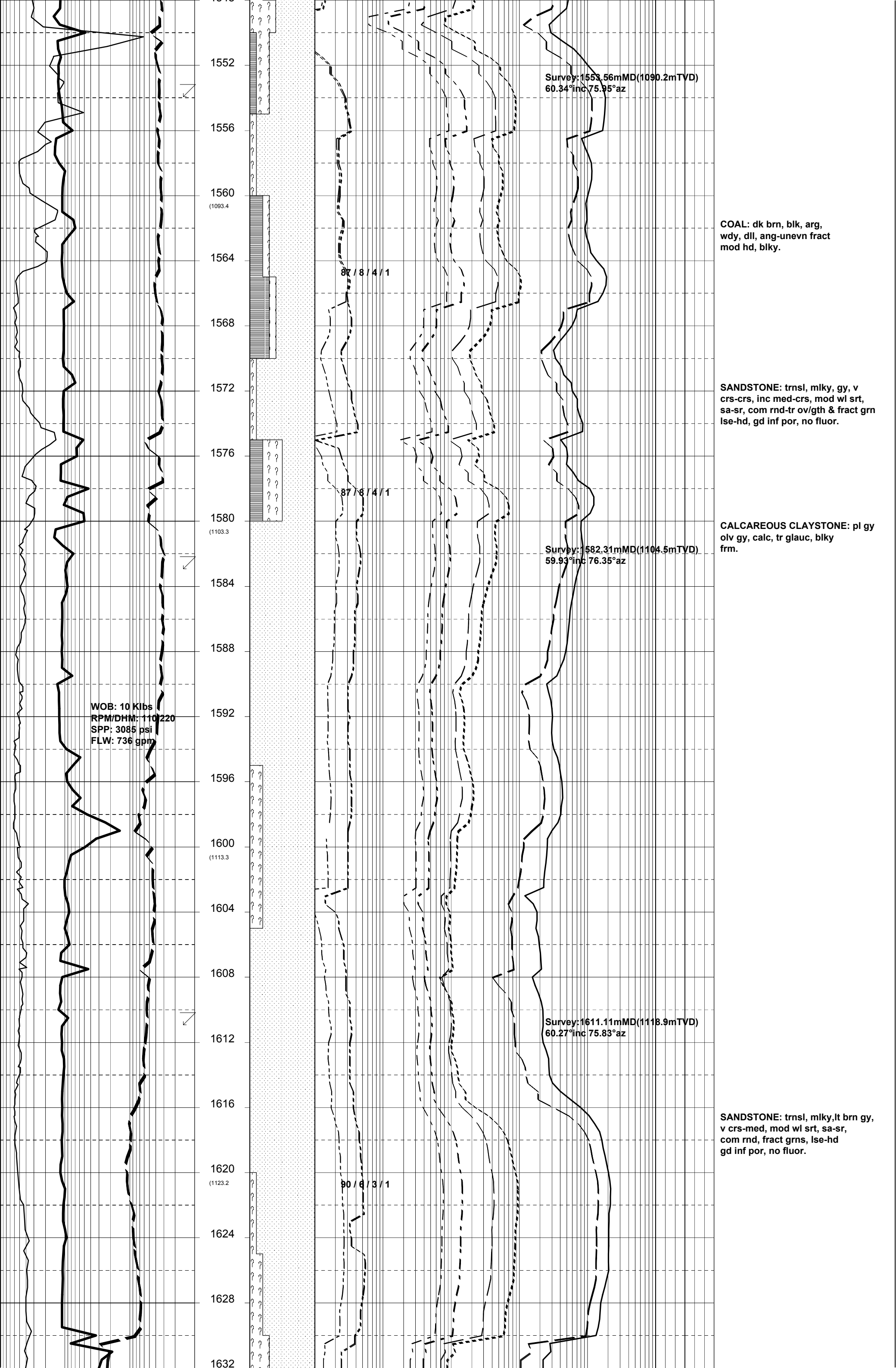


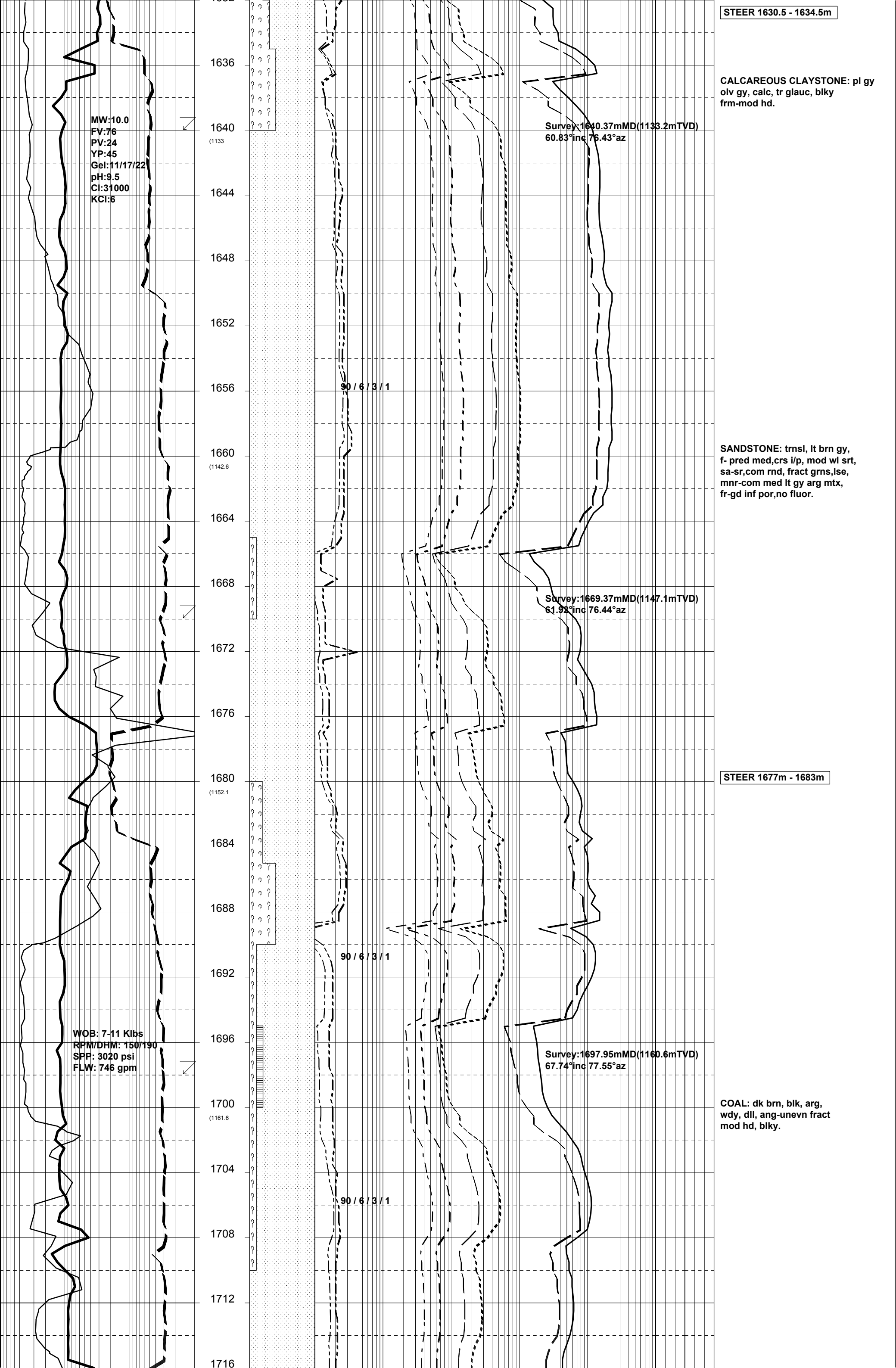
ROP (m/hr)			TOTAL GAS & CHROMATOGRAPH DATA							CUT FLUOR			DIRECT FLUOR		LITHOLOGICAL DESCRIPTIONS and REMARKS
WOB (klbs)			C1	C2		C3		Total Gas in Units Chromatograph in PPM		TG	good	poor	good	poor	
MWD Gamma Ray (api)			iC4	nC4		iC5					good	poor	good	poor	
DEPTH (m) (RT) (TVD) (m)(RT)	CUTTINGS LITHOLOGY	%	.05	.5	5	50	500	5K							
		0 100	10 100	1K	10K	100K	1000K								
1360															
1364															
1368															
1372															
1376															
1380															

Survey: 1379.66mMD(1003.8mTVD)

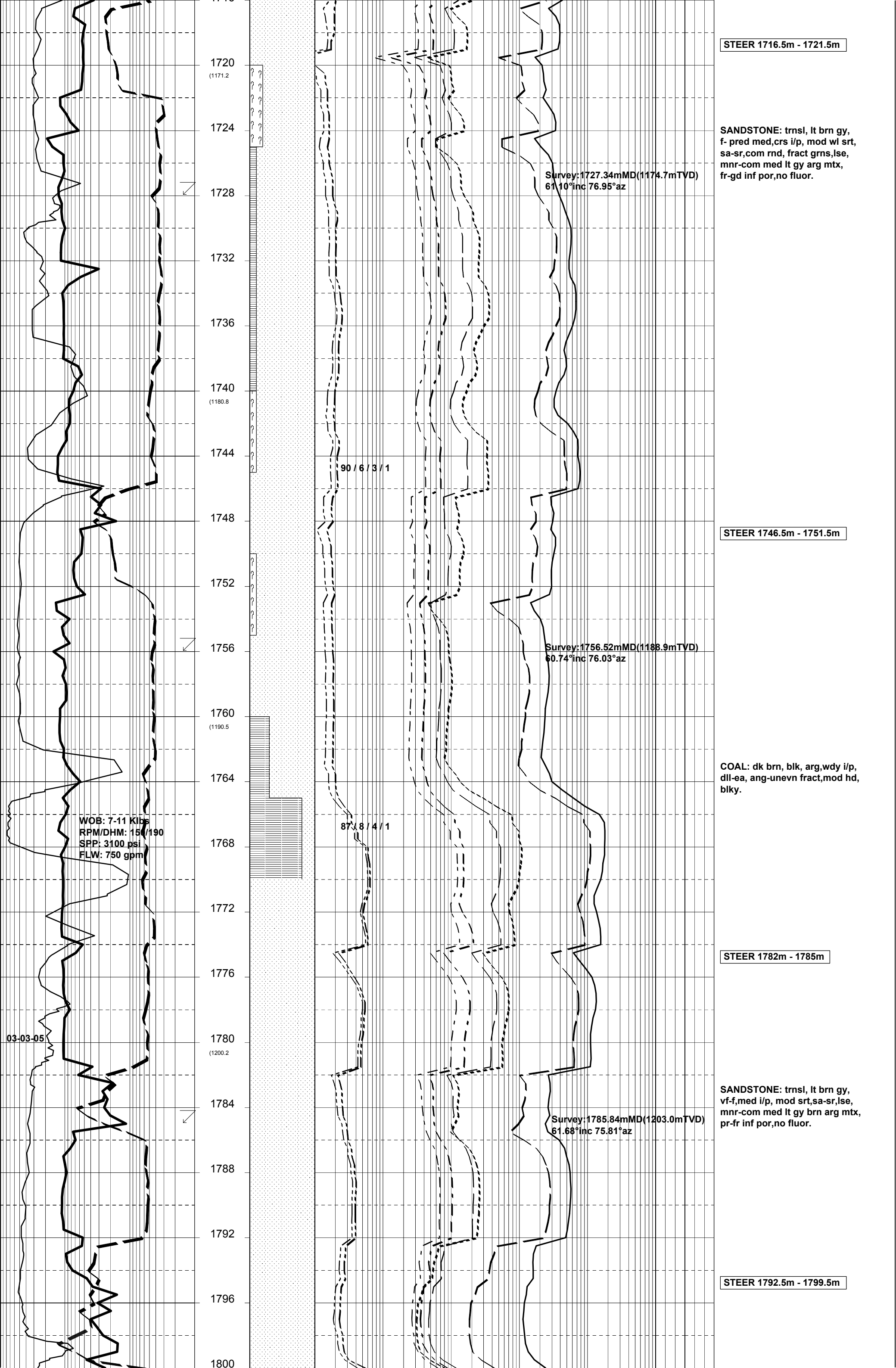


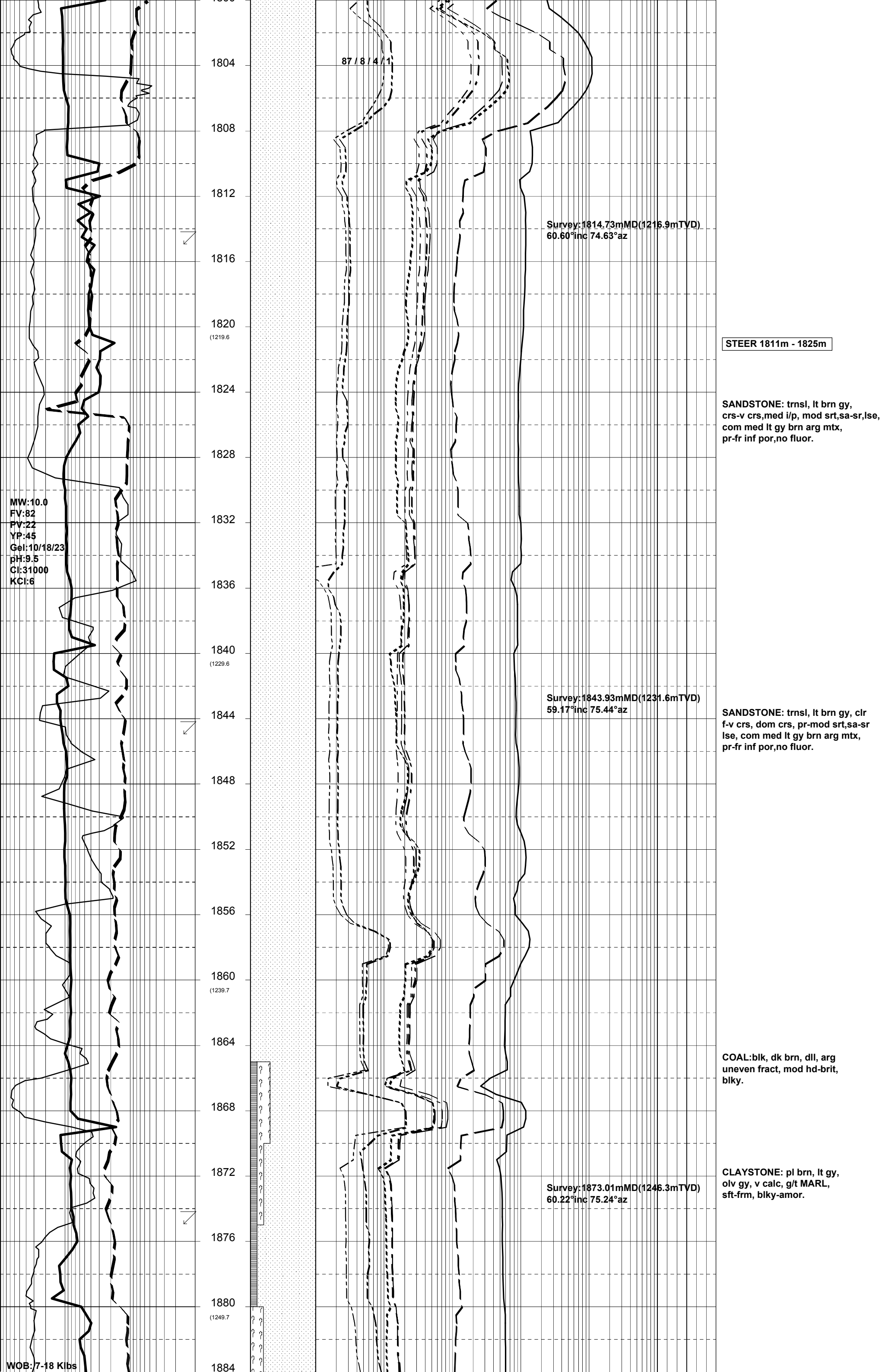


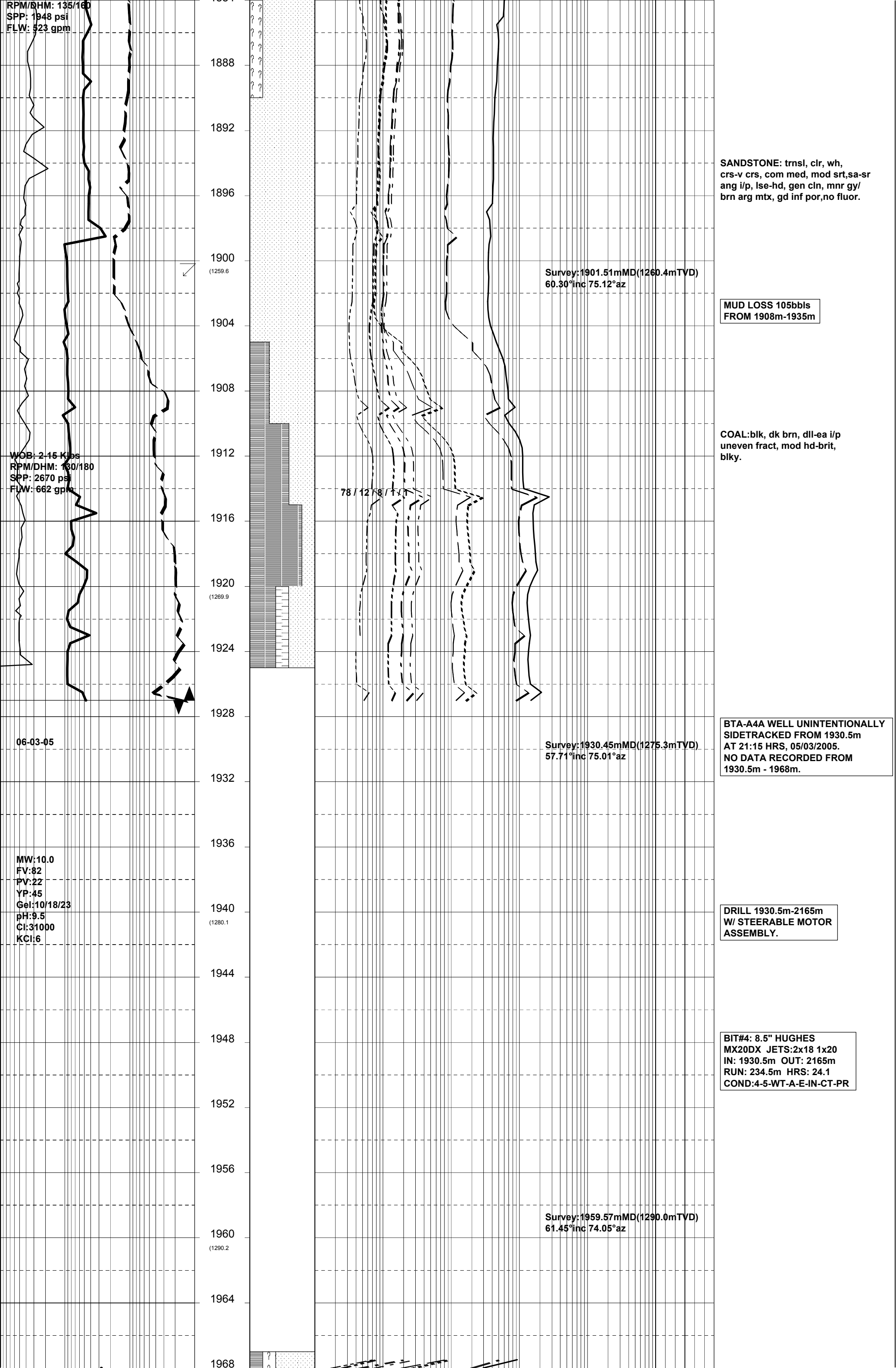


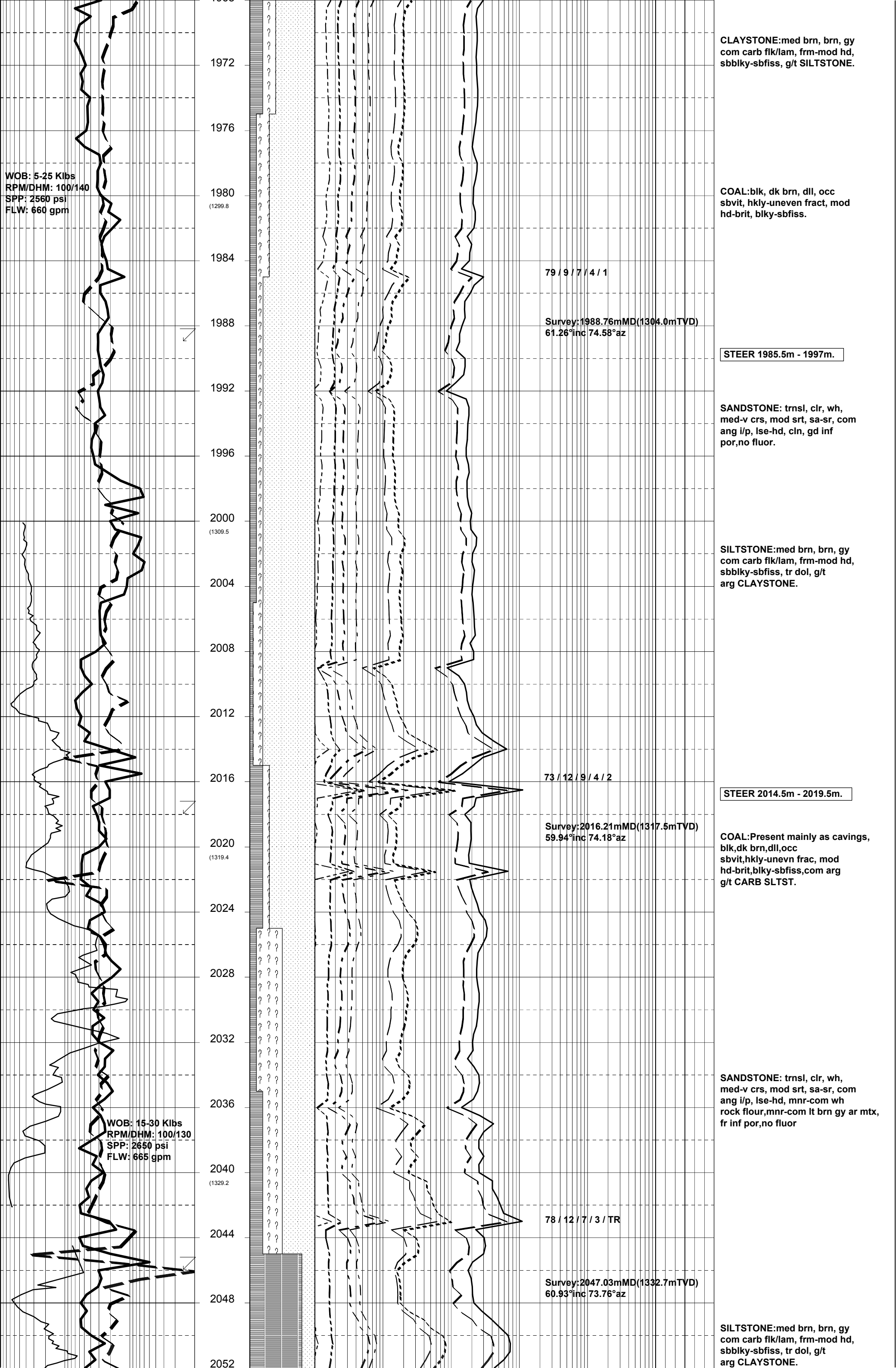


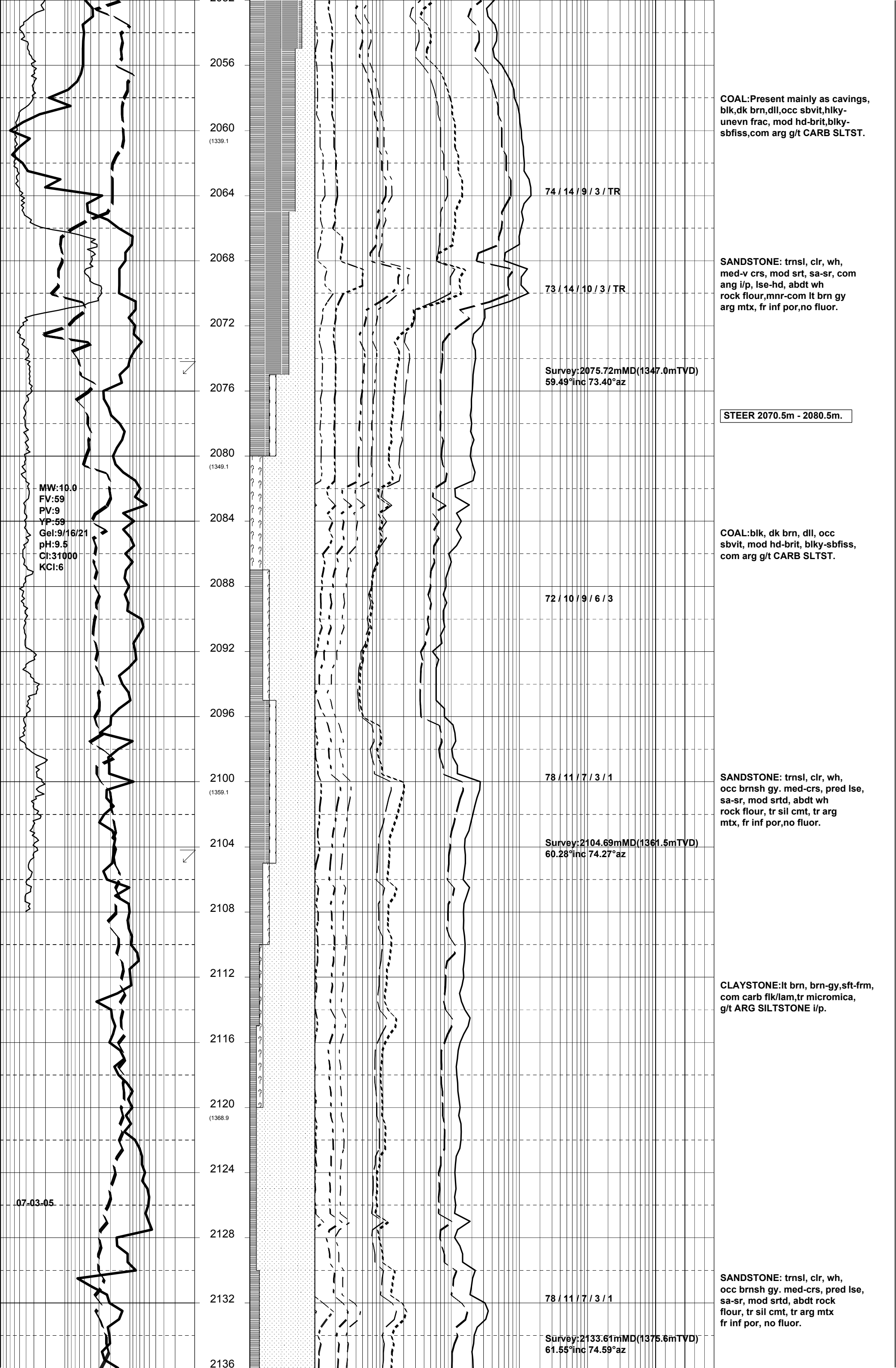












MW:10.0  
FV:59  
PV:9  
YP:59  
Gel:9/16/21  
pH:9.5  
Cl:31000  
KCl:6

07-03-05

2052

2056

(1339.1)

2060

2064

2068

2072

2076

2080

(1349.1)

2084

2088

2092

2096

2100

(1359.1)

2104

2108

2112

2116

2120

(1368.9)

2124

2128

2132

2136

74 / 14 / 9 / 3 / TR

73 / 14 / 10 / 3 / TR

Survey:2075.72mMD(1347.0mTVD)  
59.49°inc 73.40°az

COAL:Present mainly as cavings,  
blk,dk brn,dll,occ sbvit,hlky-  
unevn frac, mod hd-brit,blky-  
sbfiss,com arg g/t CARB SLTST.

SANDSTONE: trnsl, clr, wh,  
med-v crs, mod srt, sa-sr, com  
ang i/p, lse-hd, abdt wh  
rock flour,mnr-com lt brn gy  
arg mtx, fr inf por,no fluor.

STEER 2070.5m - 2080.5m.

COAL:blk, dk brn, dll, occ  
sbvit, mod hd-brit, blky-sbfiss,  
com arg g/t CARB SLTST.

72 / 10 / 9 / 6 / 3

SANDSTONE: trnsl, clr, wh,  
occ brnsh gy. med-crs, pred lse,  
sa-sr, mod srted, abdt wh  
rock flour, tr sil cmt, tr arg  
mtx, fr inf por,no fluor.

78 / 11 / 7 / 3 / 1

Survey:2104.69mMD(1361.5mTVD)  
60.28°inc 74.27°az

CLAYSTONE:lt brn, brn-gy,sft-frm,  
com carb flk/lam,tr micromica,  
g/t ARG SILTSTONE i/p.

SANDSTONE: trnsl, clr, wh,  
occ brnsh gy. med-crs, pred lse,  
sa-sr, mod srted, abdt rock  
flour, tr sil cmt, tr arg mtx  
fr inf por, no fluor.

78 / 11 / 7 / 3 / 1

Survey:2133.61mMD(1375.6mTVD)  
61.55°inc 74.59°az

WOB: 25-30 Klbs  
RPM/DHM: 76/146  
SPP: 2850 psi  
FLW: 665 gpm

2140  
(1378.6)

2144

2148

2152

2156

2160  
(1388)

2164

2168

2172

2176

2180

COAL:brn blk-olv blk,ea-sbvit,  
brit,sbblky-blky,sbconch frac.

SANDSTONE: clr-pred trnsI,med-crs,  
mod srtd,sa,ssph,tr mod strg sil cmt,  
dol cmt i/p,lse grns,abdt rock flour,  
fr inf por,no fluor.

CLAYSTONE:lt brn gy-brn gy,tr calc,  
tr silt,disp,g/t ARG SLITSTONE i/p,  
tr vf qtz grns,tr micromica,tr  
disem f pyrite,soft.

75 / 10 / 9 / 5 / 1

PULL OUT OF HOLE AT 2165m  
FOR BIT CHANGE.

TD REACHED AT 2165m AT  
08:00 HRS,07-03-2005 DUE TO  
PROBLEMS EXPERIENCED  
DURING BIT TRIP AT 2165m.  
WELL WAS PLUGGED BACK TO  
DRILL REMEDIAL SIDETRACK  
BTA-A4A-ST1

**APPENDIX 4c**  
**BARRACOUTA A4AST1**  
**Mud Log**

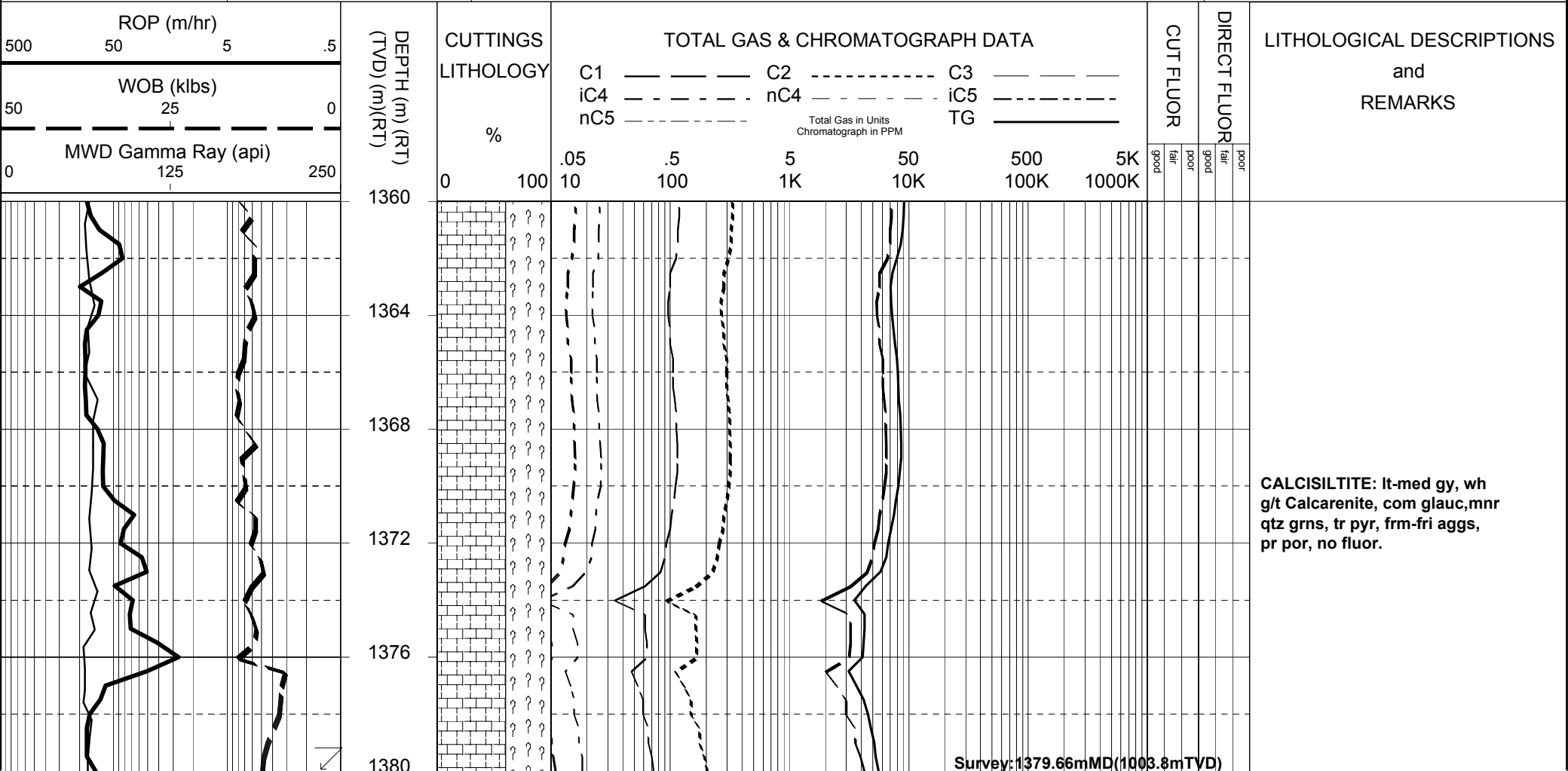


MASTERLOG  
BTA-A4a-ST1

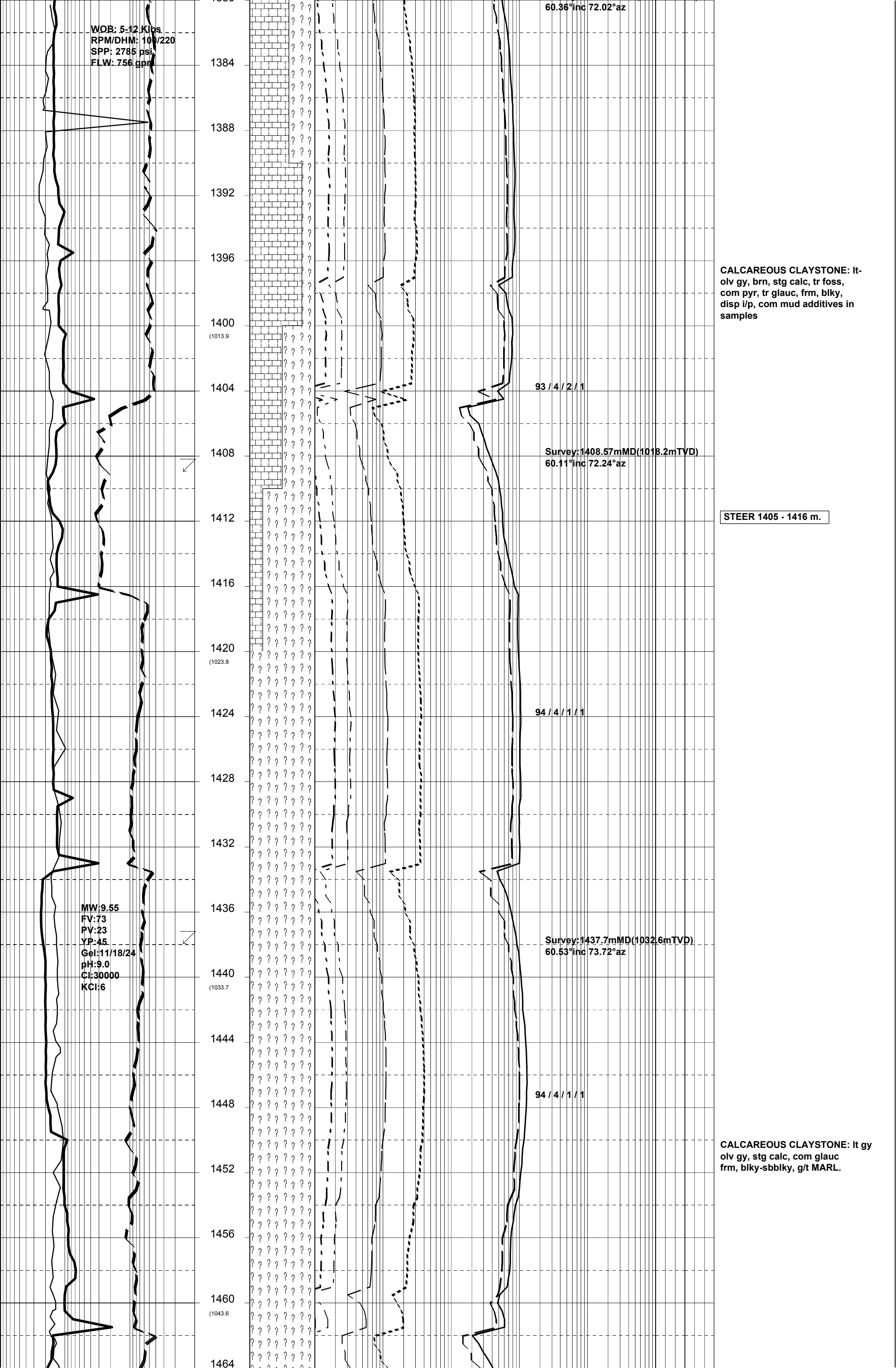


GENERAL	POSITION	HOLE / CASING INFO	DATE / DEPTH	ENGINEERS
Country : AUSTRALIA Permit : VIC/L02 Field : BARRACOUTA Basin: GIPPSLAND BASIN Well Type: DEVELOPMENT Rig Name : ENSCO 102	Latitude : 38 17'47.414"S Longitude : 147 40'33.851"E MGA94 Coord X: 559,117.64mE MGA94 Coord Y: 5761070.28mN RT to MSL : 56.0m RT to Sea Bed : 101.7m	13-3/8" Casing @ 337.3mMDRT 12-1/2" Hole to: 851.0mMDRT 9-5/8" Casing @ 848.0mMDRT 8 1/2" Hole to: 2385.0mMDRT 7" Casing @: 2376.4mMDRT	Spud Date : 25-02-2005 Total Depth Date : 17-03-2005 Total Depth : 2385.0mMDRT True Vertical Depth : 1470.3mMDRT Kick off Depth : 1785.0mMDRT Final Status : CASED & COMPLETED	Paul Mc Gilveray Daniel van der Aa Boris Beranek Tom Platt

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







WOB: 5-12 Klbs  
RPM/DHM: 10W/220  
SPP: 2785 psi  
FLW: 756 gpm

60.36°inc 72.02°az

CALCAREOUS CLAYSTONE: lt-  
olv gy, brn, stg calc, tr foss,  
com pyr, tr glauc, frm, blk,  
disp i/p, com mud additives in  
samples

93 / 4 / 2 / 1

Survey: 1408.57mMD(1018.2mTVD)  
60.11°inc 72.24°az

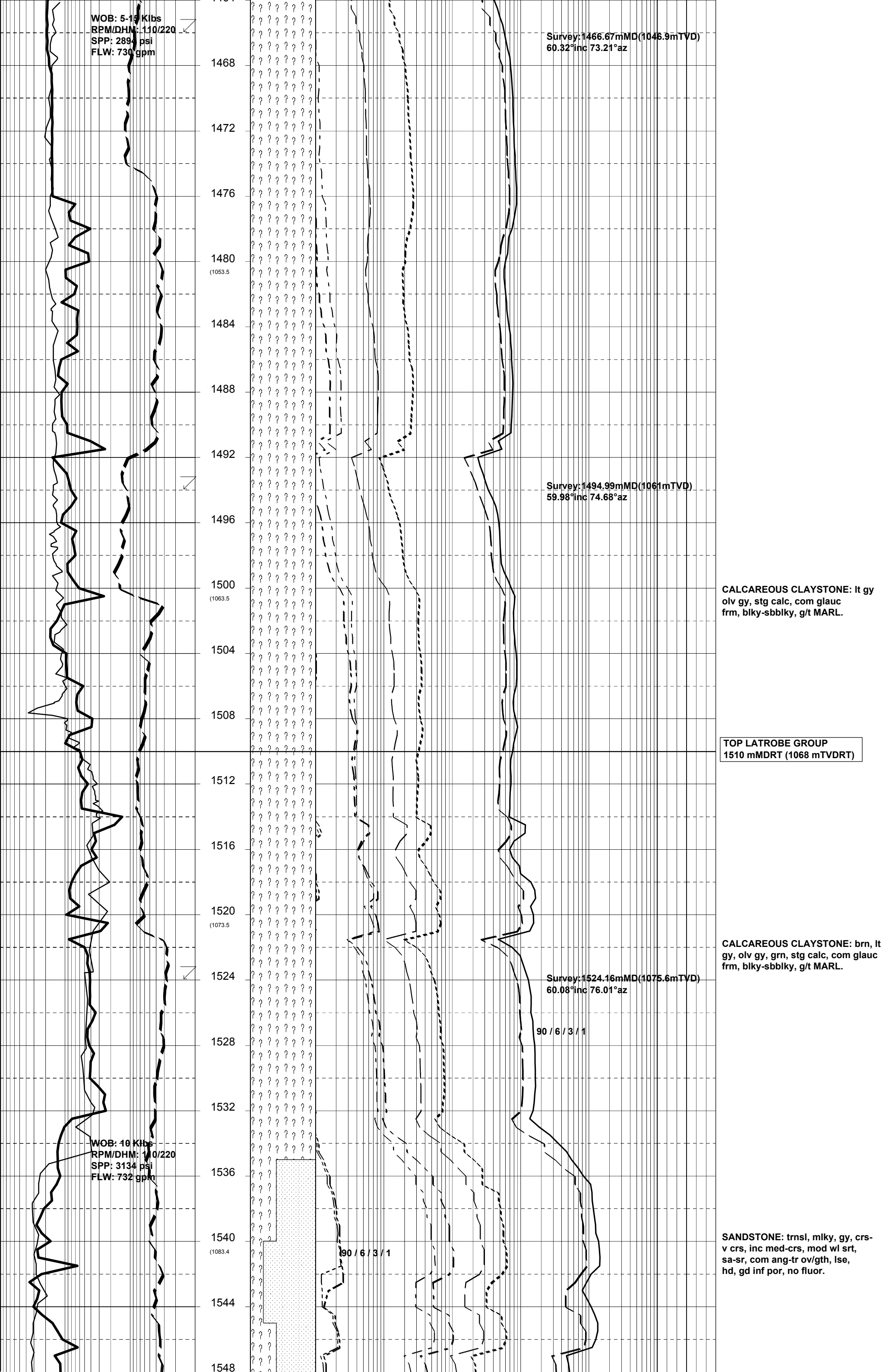
STEER 1405 - 1416 m.

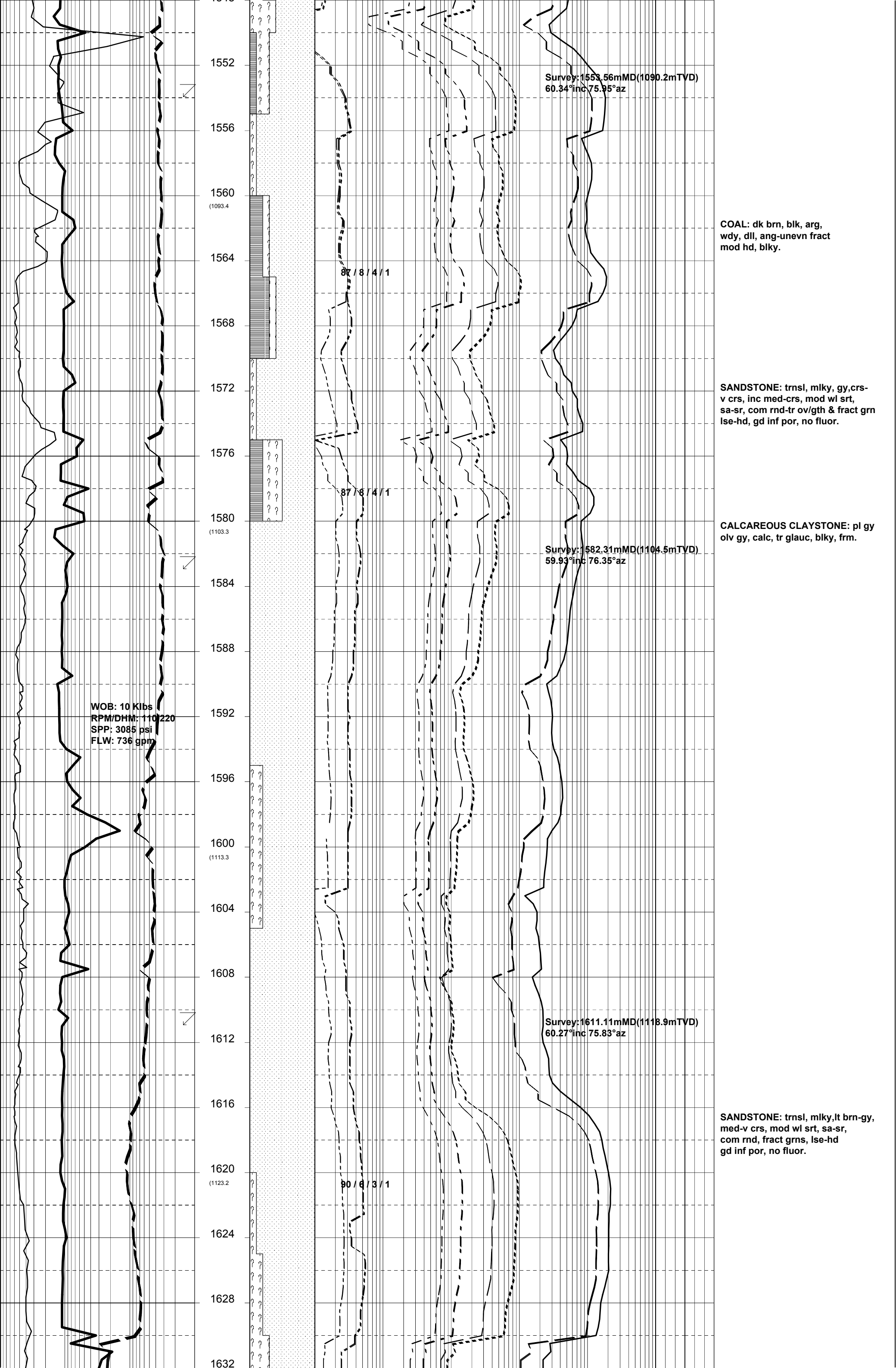
94 / 4 / 1 / 1

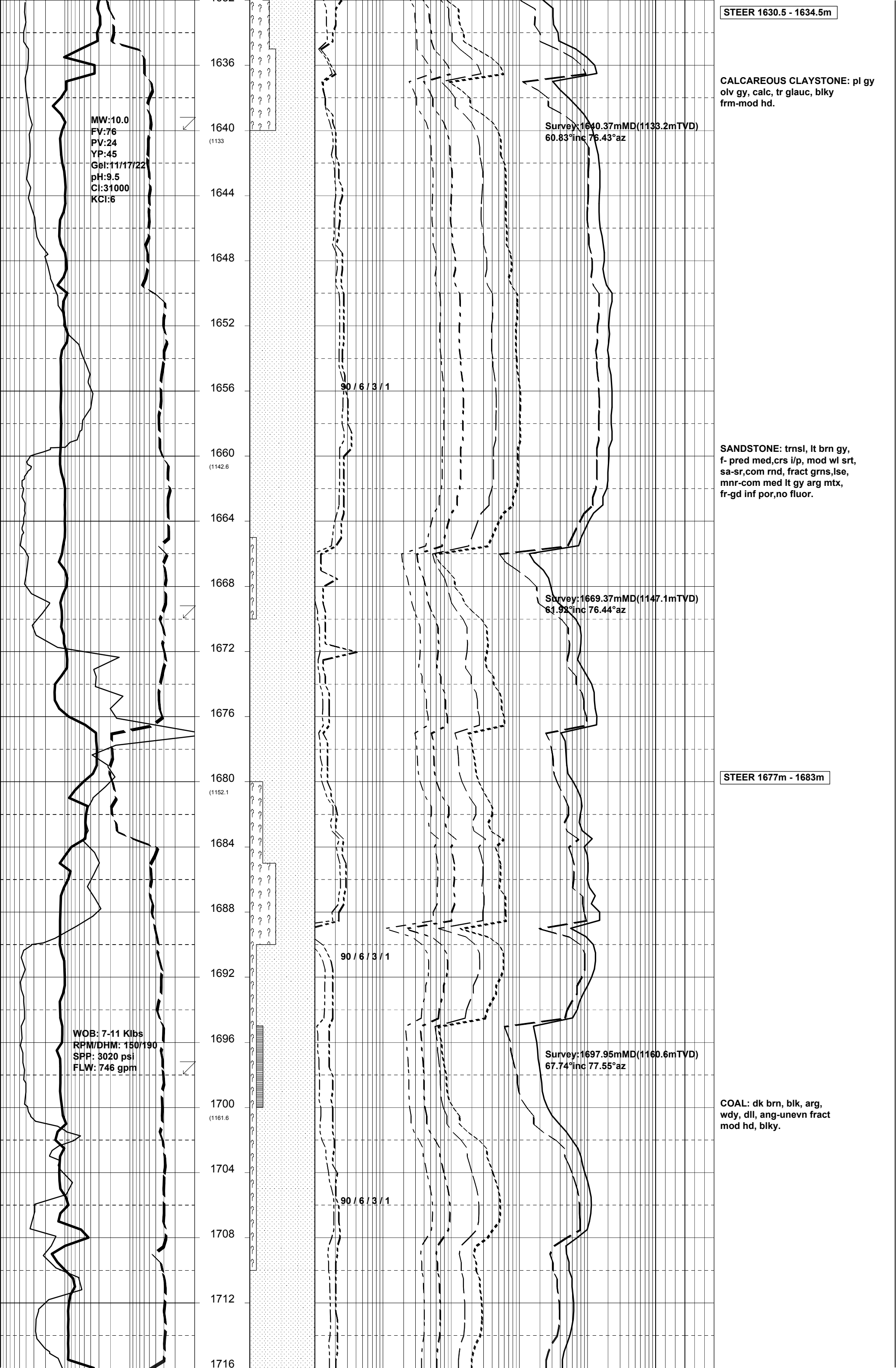
Survey: 1437.7mMD(1032.6mTVD)  
60.53°inc 73.72°az

94 / 4 / 1 / 1

CALCAREOUS CLAYSTONE: lt gy  
olv gy, stg calc, com glauc  
frm, blk-sbbk, g/t MARL.







STEER 1630.5 - 1634.5m

CALCAREOUS CLAYSTONE: pl gy  
olv gy, calc, tr glauc, blk  
frm-mod hd.

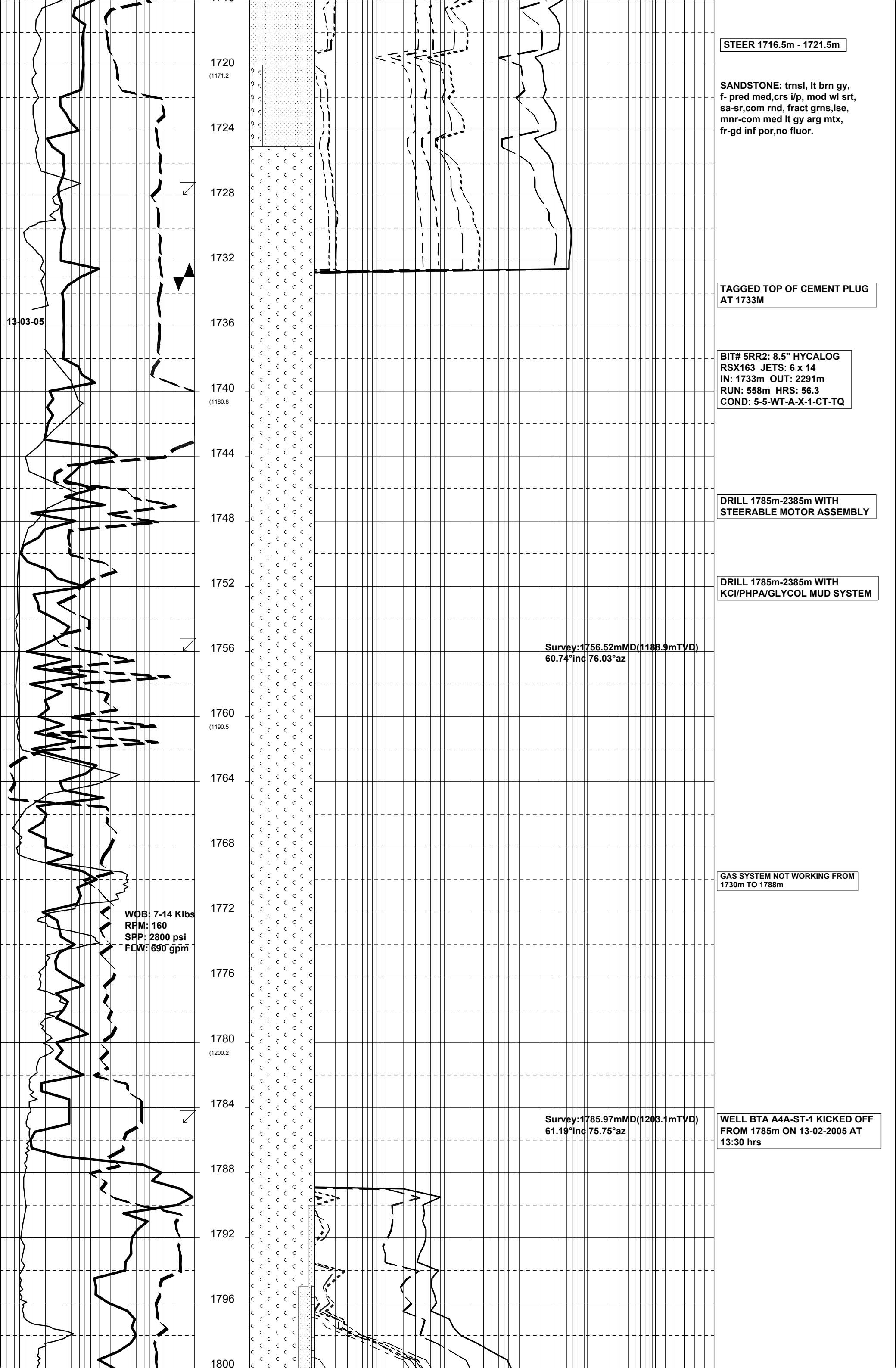
Survey: 1640.37mMD(1133.2mTVD)  
60.83°inc 76.43°az

SANDSTONE: trnsi, lt brn gy,  
f- pred med,crs i/p, mod wl srt,  
sa-sr,com rnd, fract grns,lse,  
mnr-com med lt gy arg mtx,  
fr-gd inf por,no fluor.

STEER 1677m - 1683m

Survey: 1697.95mMD(1160.6mTVD)  
67.74°inc 77.55°az

COAL: dk brn, blk, arg,  
wdy, dll, ang-unevn fract  
mod hd, blk.



STEER 1716.5m - 1721.5m

SANDSTONE: trns l, lt brn gy, f- pred med, crs i/p, mod wl srt, sa-sr, com rnd, fract grns, lse, mn-r-com med lt gy arg mtx, fr-gd inf por, no fluor.

TAGGED TOP OF CEMENT PLUG AT 1733M

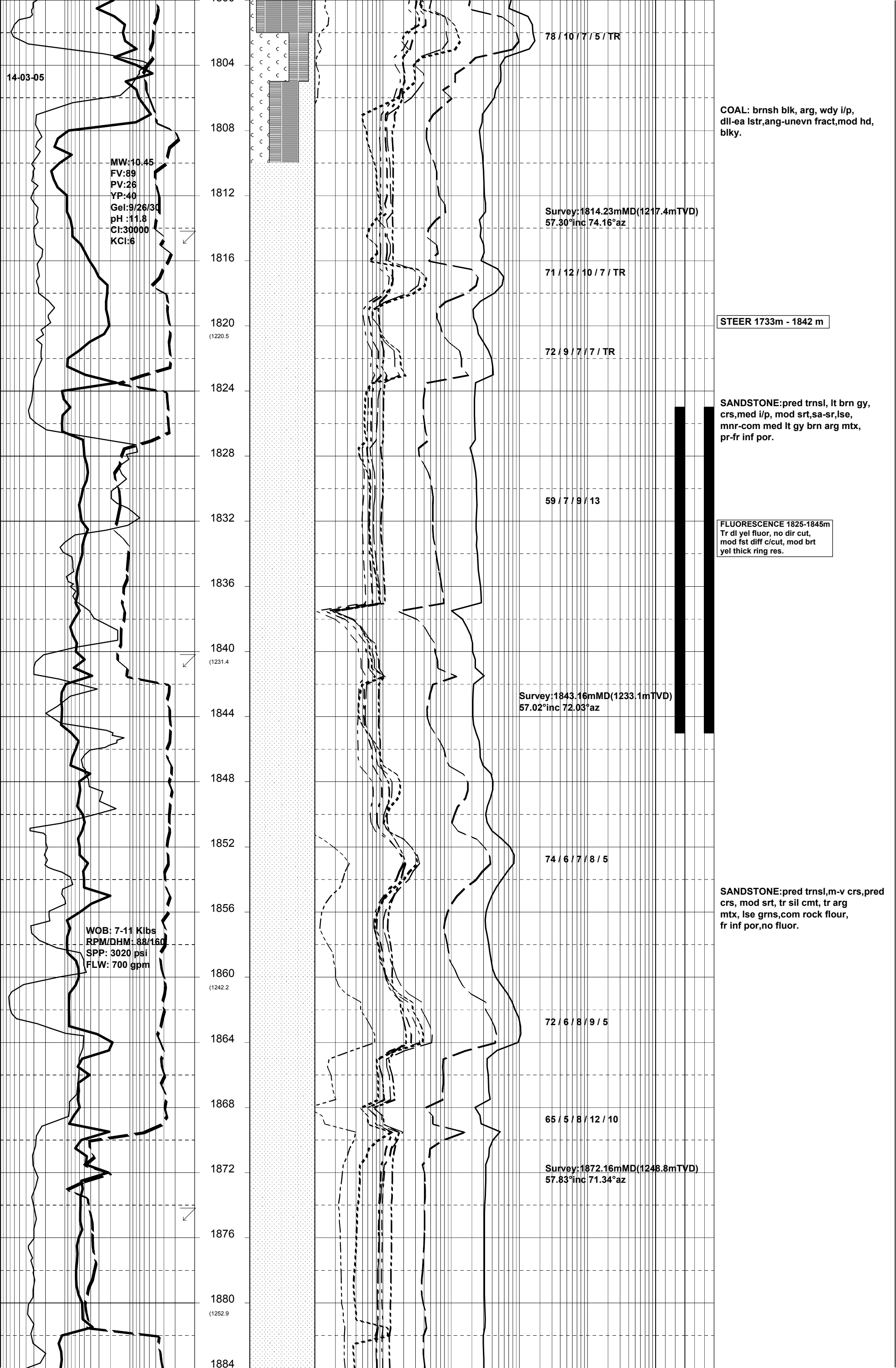
BIT# 5RR2: 8.5" HYCALOG  
RSX163 JETS: 6 x 14  
IN: 1733m OUT: 2291m  
RUN: 558m HRS: 56.3  
COND: 5-5-WT-A-X-1-CT-TQ

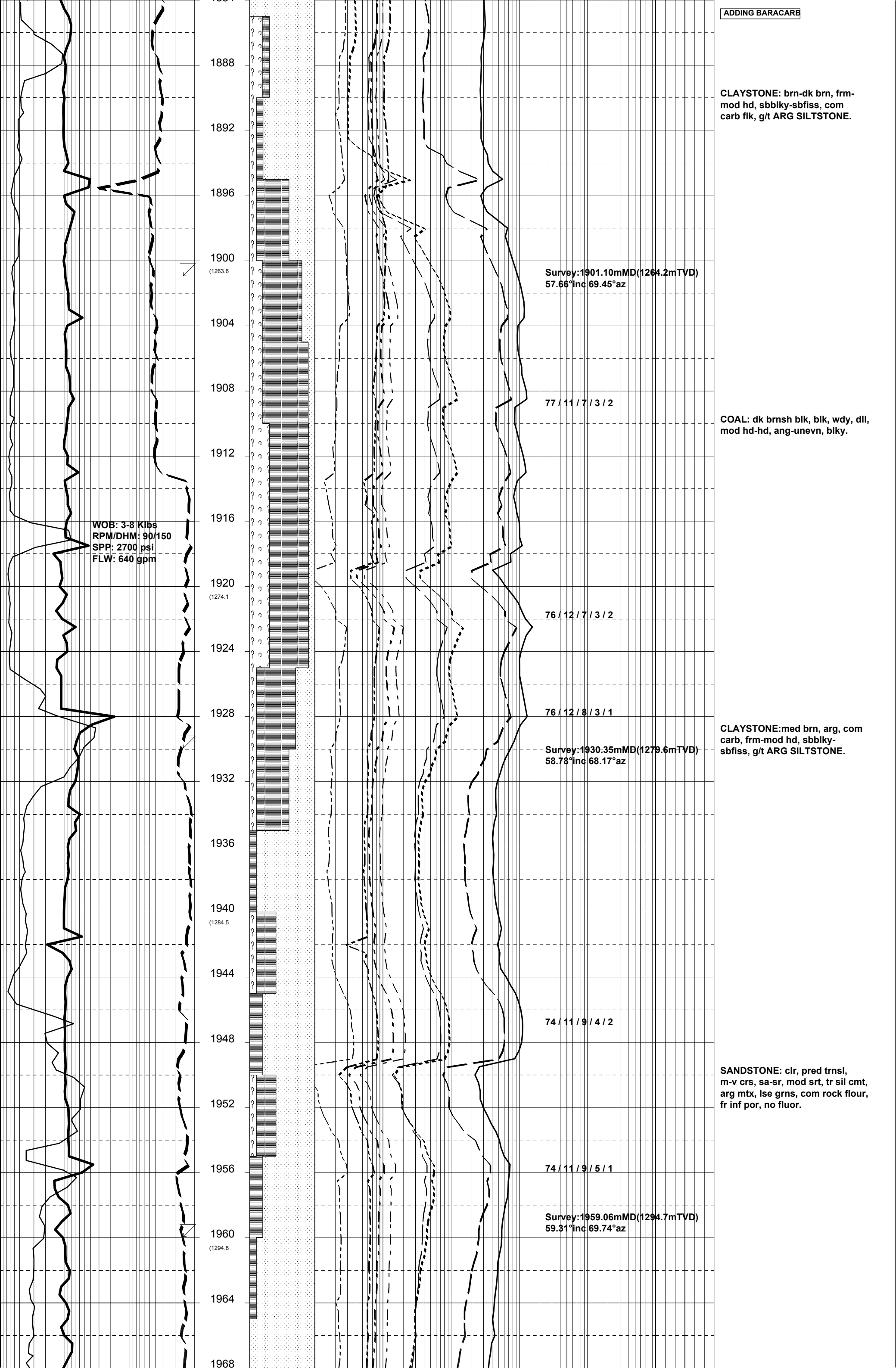
DRILL 1785m-2385m WITH STEERABLE MOTOR ASSEMBLY

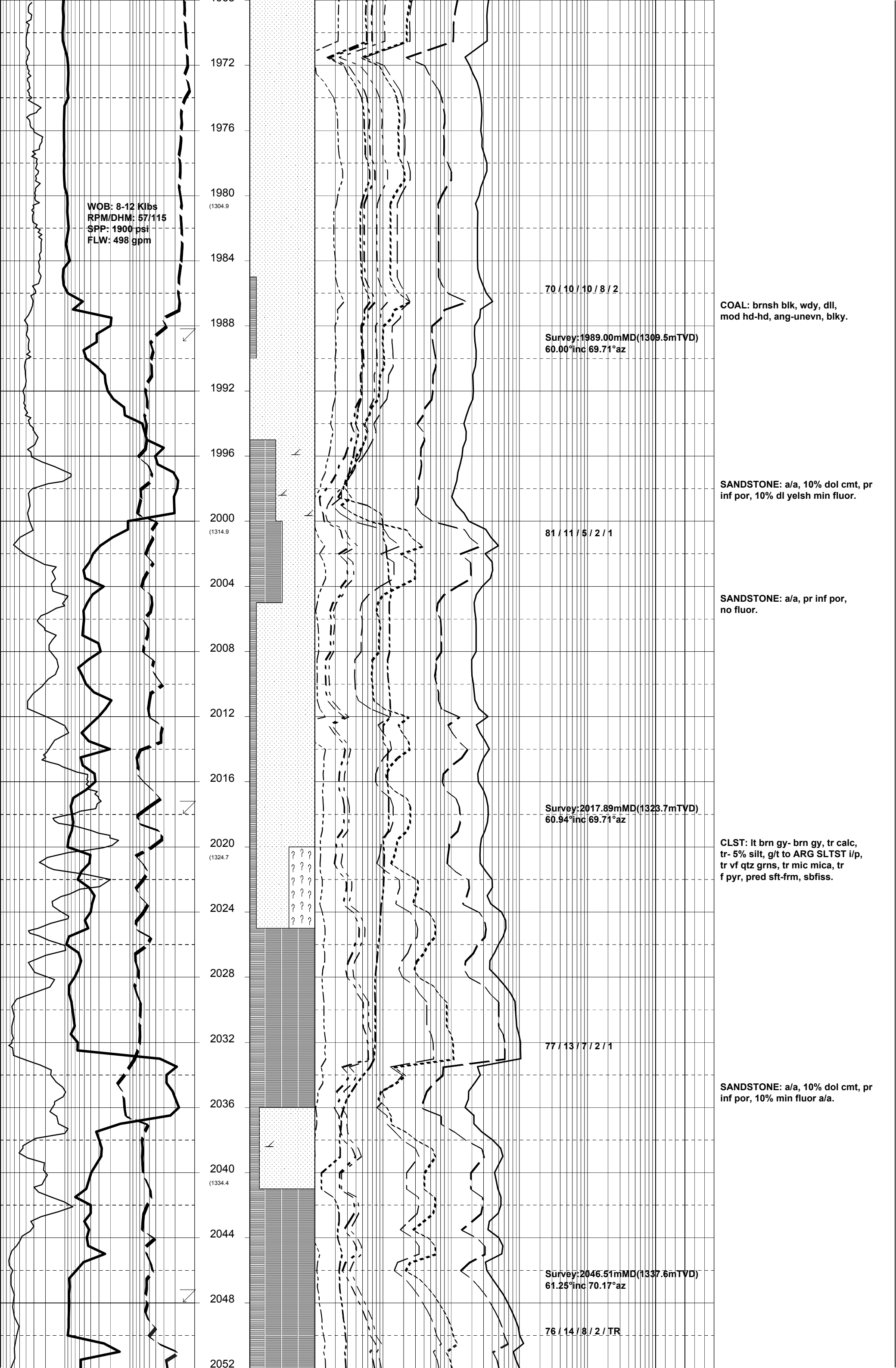
DRILL 1785m-2385m WITH KCI/PHPA/GLYCOL MUD SYSTEM

GAS SYSTEM NOT WORKING FROM 1730m TO 1788m

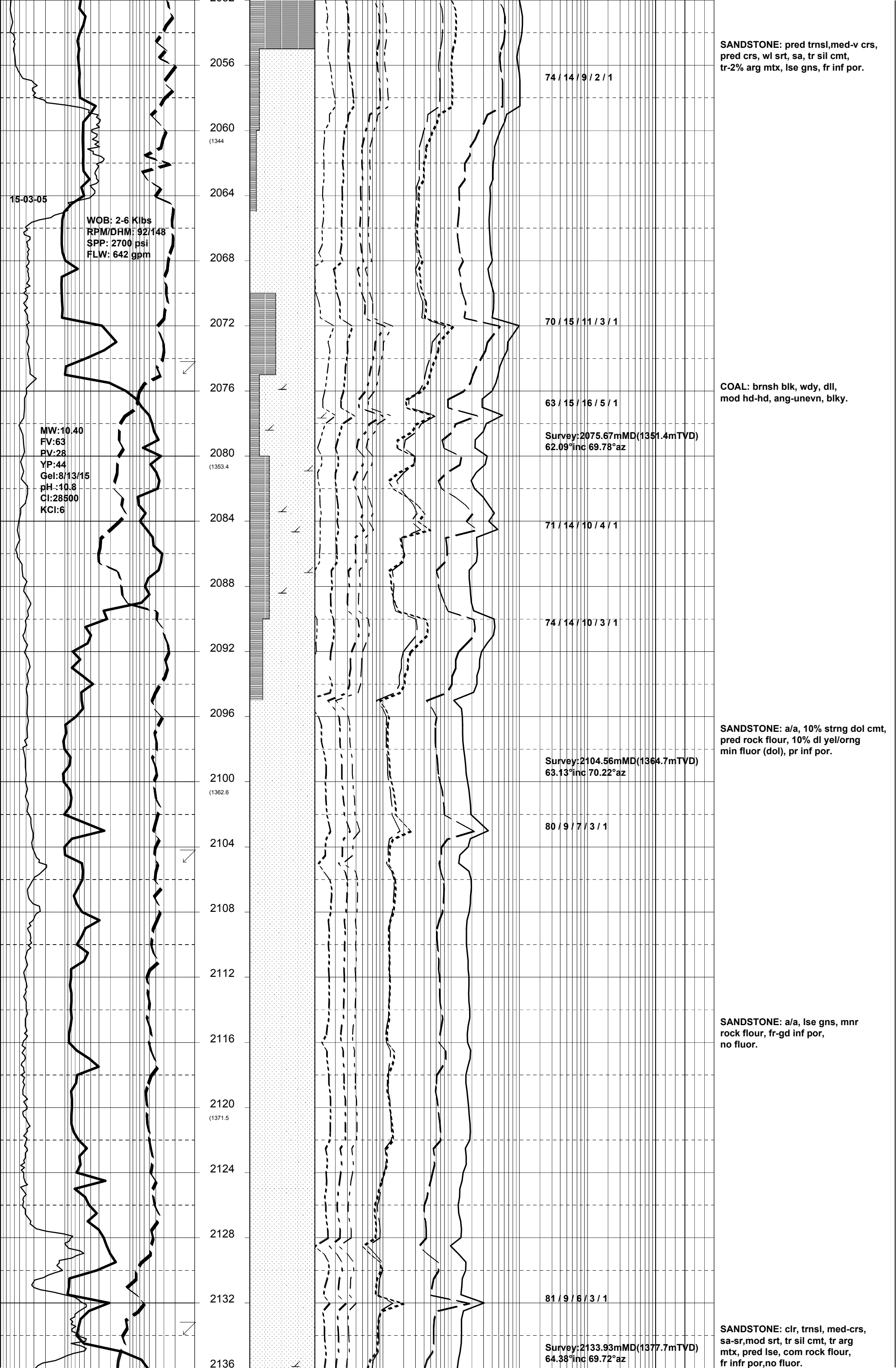
WELL BTA A4A-ST-1 KICKED OFF FROM 1785m ON 13-02-2005 AT 13:30 hrs

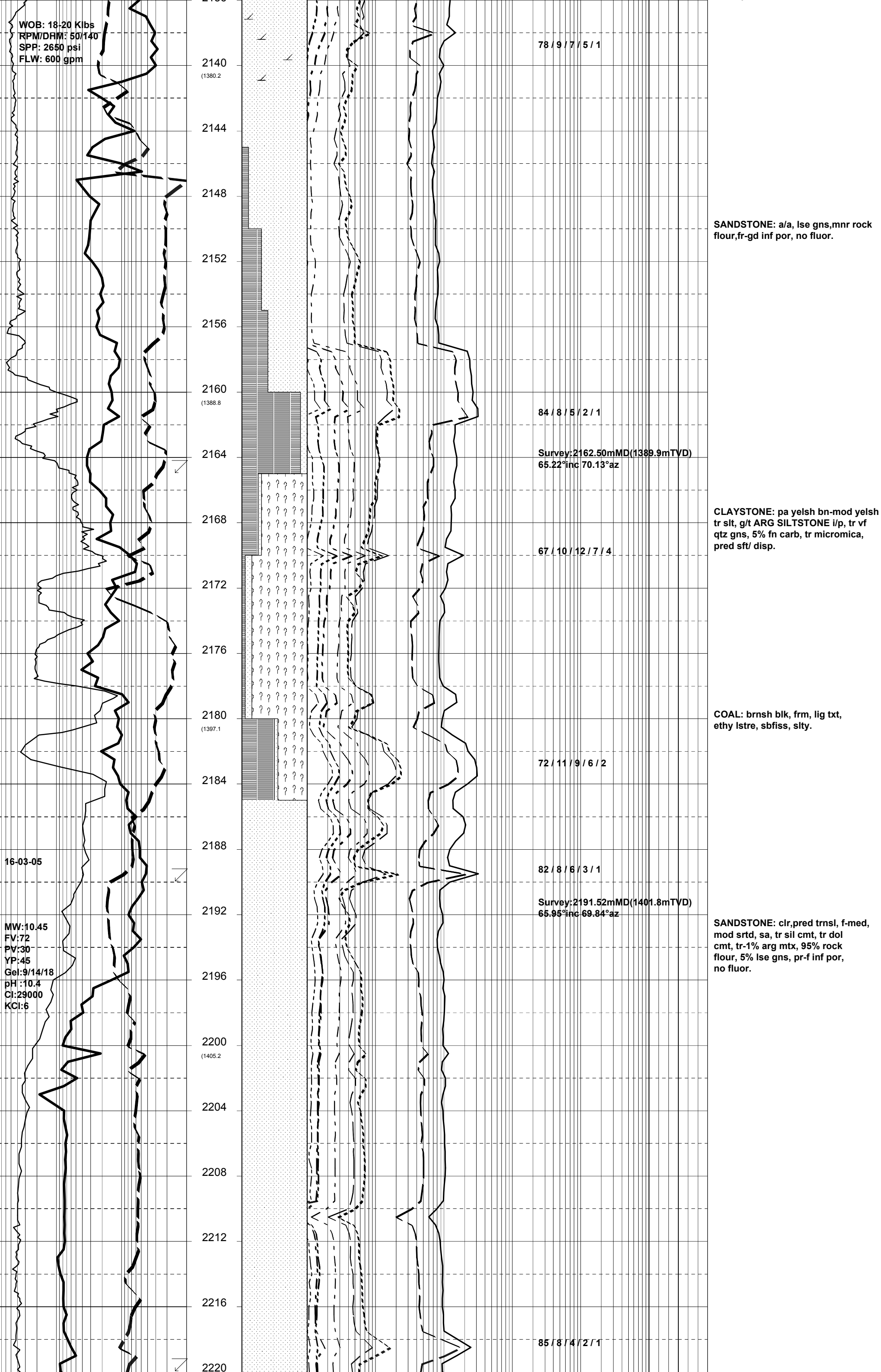












(1380.2)

(1388.8)

(1397.1)

(1405.2)

WOB: 14-20 Klbs  
RPM/DHM: 105/148  
SPP: 2951 psi  
FLW: 640 gpm

17-03-05

2224

2228

2232

2236

2240

2244

2248

2252

2256

2260

2264

2268

2272

2276

2280

2284

2288

2292

2296

2300

2304

(1420.8)

(1428.3)

(1435.7)

(1442.9)

Survey:2220.60mMD(1413.4mTVD)  
67.13°inc 70.21°az

78 / 11 / 6 / 4 / 1

85 / 8 / 4 / 2 / 1

Survey:2249.25mMD(1424.4mTVD)  
67.94°inc 70.44°az

62 / 14 / 15 / 6 / 3

56 / 12 / 18 / 11 / 3

Survey:2278.91mMD(1435.4mTVD)  
68.53°inc 71.12°az

31 / 26 / 23 / 12 / 8

41 / 25 / 17 / 11 / 6

SANDSTONE: clr, pred trnsl,med-crs,  
pred crs,mod srt, sa, tr sil cmt,  
tr arg mtx, 85% lse gns, 15% rock  
flour, fr inf por, no fluor.

COAL: brnsh blk, wdy, dll,  
mod hd-hd, ang-unevn, blk.

POOH AT 2291mMDRT  
FOR BIT CHANGE

BIT# 6RR2: 8.5" HYCALOG  
RSX163 JETS: 6 x 14  
IN: 2291m OUT: 2385m  
RUN: 94m HRS: 2.3  
COND:1-1-CT-A-X-IN-NO-TD

SANDSTONE: clr, pred trnsl,med-crs,  
pred crs,mod srt, sa, tr sil cmt,  
tr arg mtx, lse gns, fr inf por,

MW:10.45  
FV:73  
PV:35  
YP:45  
Gel:9/14/18  
pH :10.4  
Cl:32000  
KCl:6

WOB: 4-10 Klbs  
RPM/DHM: 105/135  
SPP: 2850 psi  
FLW: 600 gpm

Survey:2308.05mMD(1445.8mTVD)  
69.63°inc 71.29°az

60 / 15 / 9 / 8 / 8

Survey:2336.56mMD(1455.4mTVD)  
71.09°inc 71.22°az

SANDSTONE: clr-trnsl, med-crs,  
pred crs, mod-w srt ,sa, tr sil cmt,  
tr arg mtx, lse gns, fr-gd inf por,  
no fluor.

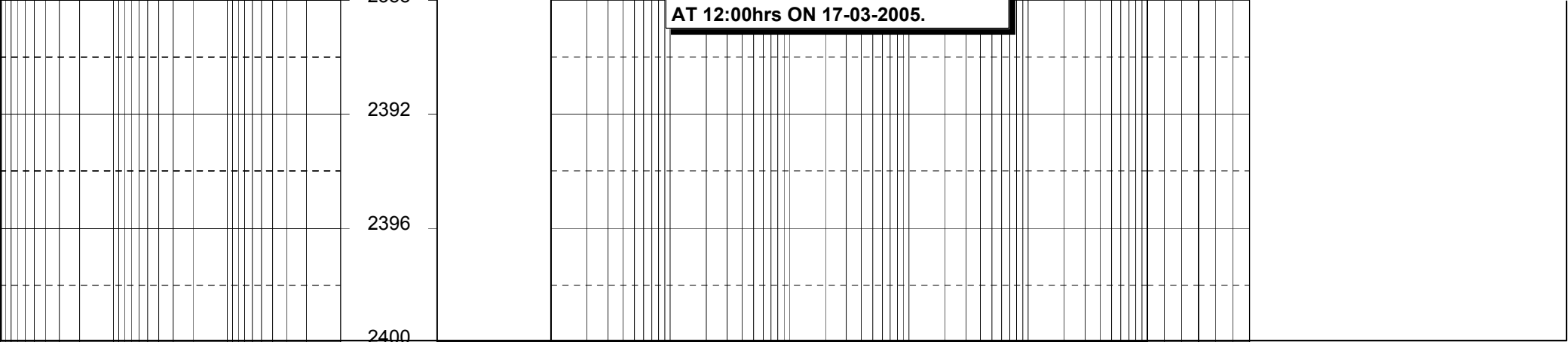
Survey:2359.58mMD(1462.6mTVD)  
72.05°inc 71.90°az

63 / 12 / 10 / 8 / 7

7"LINER SET @ 2376.4 mMDRT

SANDSTONE:clr, pred trnsl, med-crs,  
occ v crs, mod-w srted,sa, tr sil cmt,  
tr arg mtx, lse gns, fr-gd inf por,  
no fluor.

BTA-A4A-ST1 TD AT 2385mMDR1



**APPENDIX 4d**  
**BARRACOUTA A4A**  
**Well Completion Log**



WELL COMPLETION LOG



















Scale - 1:200

BARRACOUTA A4A

Gippsland Basin, Victoria  
Concession: VIC/L02

POST-DRILL (surface) LOCATION: (Top of Latrobe)	Latitude:	38° 17' 40.483" S	COMPILED BY:	Sheryl Sazenis
	Longitude:	147° 41' 7.263" E	DRAFTED BY:	Arnaldo Ribeiro
	MGA X:	559930.81 mE	DRILLED BY:	ENSCO 102
	MGA Y:	5761277.92 mN	ELEVATION:	G.L.: -45.7 m
	Depth:	1508.8m MDRT (-1012.0mTVDSS)		R.T.: 55.9 m
	Datum:	GDA94 (GRS80)		Water Depth: 45.7 m
	Projection:	MGA/ UTM Zone 55 (S)	TOTAL DEPTH:	2108.0 m MDRT / 1363.8 mTVDRT
DATES:	Kicked off:	25/02/2005	PLUGGED BACK T.D.:	N/A
	Sidetracked:	06/03/2005	CLASSIFICATION:	Development
			STATUS:	Unplanned Side Track from 1930.5 mMDRT.
SERVICE COMPANIES:				
DRILLING CONTRACTOR:	ENSCO International Rig 102	PRODUCTION TESTING:	n/a	
MWD/DIRECT. DRLG:	Schlumberger Anadrill	ROV:	Total Marine Technology	
GYRO SURVEYING:	SDI	MUD LOGGING:	Geoservices Overseas S.A.	
CORING:	n/a	PRESSURE RECORDING:	n/a	
CEMENTING:	Halliburton	WELL VELOCITY SURVEY:	n/a	
CASING:	Weatherford	MUD ENGINEERING:	Baroid	
WIRELINE LOGGING:	Schlumberger	LINER:	n/a	

LEGEND

<div>2.7m NOS </div> <div>Ø = 17%</div> <div>Sw = 32%</div>		LOG ANALYSIS DATA		 SHOW OR STAIN	
		NS - Net Sand		 HYDROCARBON CUT	
		NOS - Net Oil Sand		 FLUORESCENCE	
		NGS - Net Gas Sand		 GAS SHOW	
		Sw - Water Saturation		 OIL PRODUCTIVE	
<div>No Rec.</div> <div>CORE</div> <div>Rec.</div>		MUD DATA		 GAS PRODUCTIVE	
		Ø - Porosity		 INTERPRETED OIL PRODUCTION	
		Snd - Sand		 INTERPRETED GAS PRODUCTION	
		MW - Mud Weight		 INTERPRETED WATER PRODUCTION	
		FV - Funnel Velocity		 WATER PRODUCTIVE	
		PV - Plastic Velocity		 CONDENSATE PRODUCTION	
		YP - Yield Point		 INTEPRETED CONDENSATE BEARING	
		Gel - Gel Strength		<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> <div>RECOVERED SIDE WALL CORE LITHOLOGY</div> <div>SST - Sandstone</div> <div>SLST - Siltstone</div> <div>MST - Mudstone</div> <div>SH - Shale</div> <div>CLST - Claystone</div> <div>LMST - Limestone</div> <div>ML - Marl</div> <div>COAL - Coal</div>					
<div>←</div> <div>SIDE WALL CORE - NO RECOVERY</div>					
<div>←</div> <div>FIT</div>					
<div>←P2/11</div> <div>MDT/RFT PRETEST RUN/SEAT NUMBER</div>					
<div>←S11/2</div> <div>MDT/RFT SAMPLE RUN/SAMPLE NUMBER</div>					
<div>←P2/40</div> <div>MDT VERTICAL/HORIZONTAL PERMEABILITY TEST</div>					
<div>+</div> <div>PACKER</div>					
<div>□</div> <div>BRIDGE PLUG</div>					

# LITHOLOGICAL SYMBOLS

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

## LOGGING AND SURVEYING

LOGGING AND SURVEYING			
Anadrill Schlumberger	Interval (mMDRT)		
Powerpulse (Dir)	337.3 – 2075.98		
RAB6 (Res & GR)	848.0 - 2108.0		
ADN6 (Dens & Neutron)	848.0 - 2108.0		

## WELL DATA

WELL DATA				
Date	24 - 27 February 2005	1 – 4 March 2005	4 - 5 March 2005	
Run	MWD 1	MWD 2	MWD 3 (No logs acquired)	
Log	Powerpulse	Powerpulse-GVR6-ADN6	Powerpulse-GVR6-ADN6	
Depth Driller	851 m MDRT	2108 mMDRT	2108 mMDRT	
Depth Logger	851 m MDRT	2108 mMDRT	N/A	
Bottom Log Interval	851 m MDRT	2075.98 mMDRT	No hole logged - run aborted due to hole problems.	
Top Log Interval	342 m MDRT	851 mMDRT	N/A	
Casing Driller	337.3m MDRT	848 mMDRT	848 mMDRT	
Casing Logger	----	----	----	
Casing Size	13 3/8"	9 5/8"	9 5/8"	
Casing Weight	54.5ppf	47.0ppf	47.0ppf	
Bit Size	12.25"	8.5"	8.5"	
Type of Fluid in Hole	Bentonite/Sea Water	KCL/PHPA/Glycol	KCL/PHPA/Glycol	
Density	9.1 ppg	10.0 ppg	10.0 ppg	
Rm @ Measured Temp.	N/A	0.142 @ 24.5°C	N/A	
Rmf @ Measured Temp.	N/A	0.116 @ 23.5°C	N/A	
Rmc @ Measured Temp.	N/A	0.230 @ 24.5°C	N/A	
Max. Recorded Temp.	70.6°C	70.6°C	N/A	
Equipment / Location	OLU-JA-9602/Sale	OLU-JA-9602/Sale	OLU-JA-9602/Sale	
Recorded By	J. Dolan / K. Handley / M. Y. Tan	J. Dolan / K. Handley / M. Y. Tan	J. Dolan / K. Handley / M. Y. Tan	
Witnessed By	C. Menhennitt	C. Menhennitt/M Turner	M Turner	

## CORES

## PERFORATIONS

CORES			PERFORATIONS		
From (mMDRT)	To (mMDRT)	Rec %	From (mMDRT)	To (mMDRT)	Gun Type
			1536	1548	Wireline
----	----	---	1600	1612	Wireline

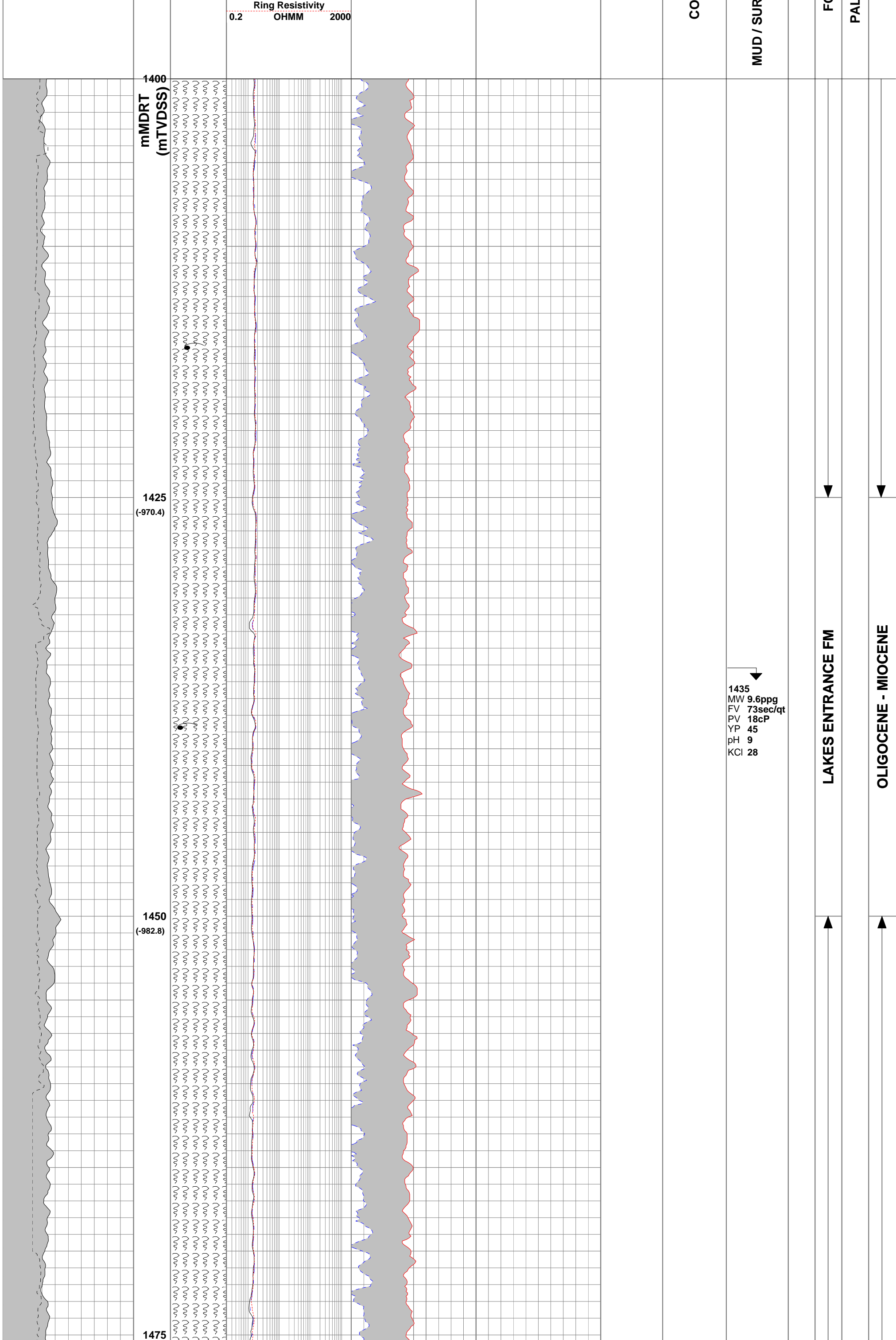
## CASING

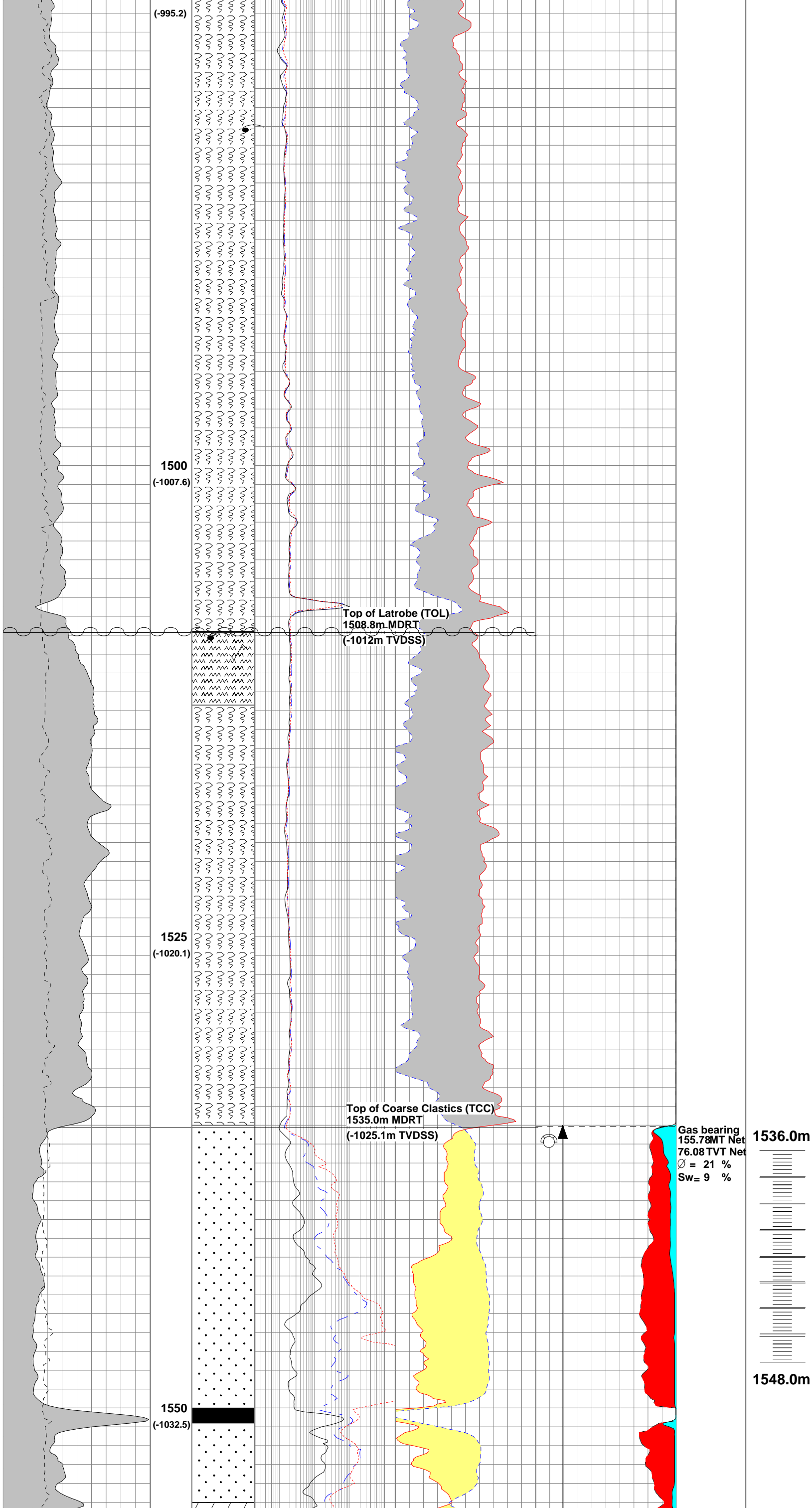
## PLUGS

CASING				PLUGS		
Size	Set @ (mMDRT)	SX Cmt	Formation	From (mMDRT)	To (mMDRT)	SXCmt
13.375"	337.3	---	Gippsland Limestone			
9.625" Intermediate	848.0	608	Latrobe Group	--	--	--

RAB Gamma Ray			DEPTH	LITHOLOGY	Medium Button Resistivity			Bulk Density			Effective Porosity			TEST	COMPLETION	SURVEY DATA	PLUGS	FORMATION	LITHOLOGY	AGE	
0	GAPI			200		0.2	OHMM	2000	1.85	G/C3	2.85	1	V/V								0
Horizontal Hole Diameter					Shallow Button Resistivity	Neutron Porosity			Volume of Water												
6	IN			16		0.2	OHMM	2000	0.45	V/V	-0.15	1	V/V								0

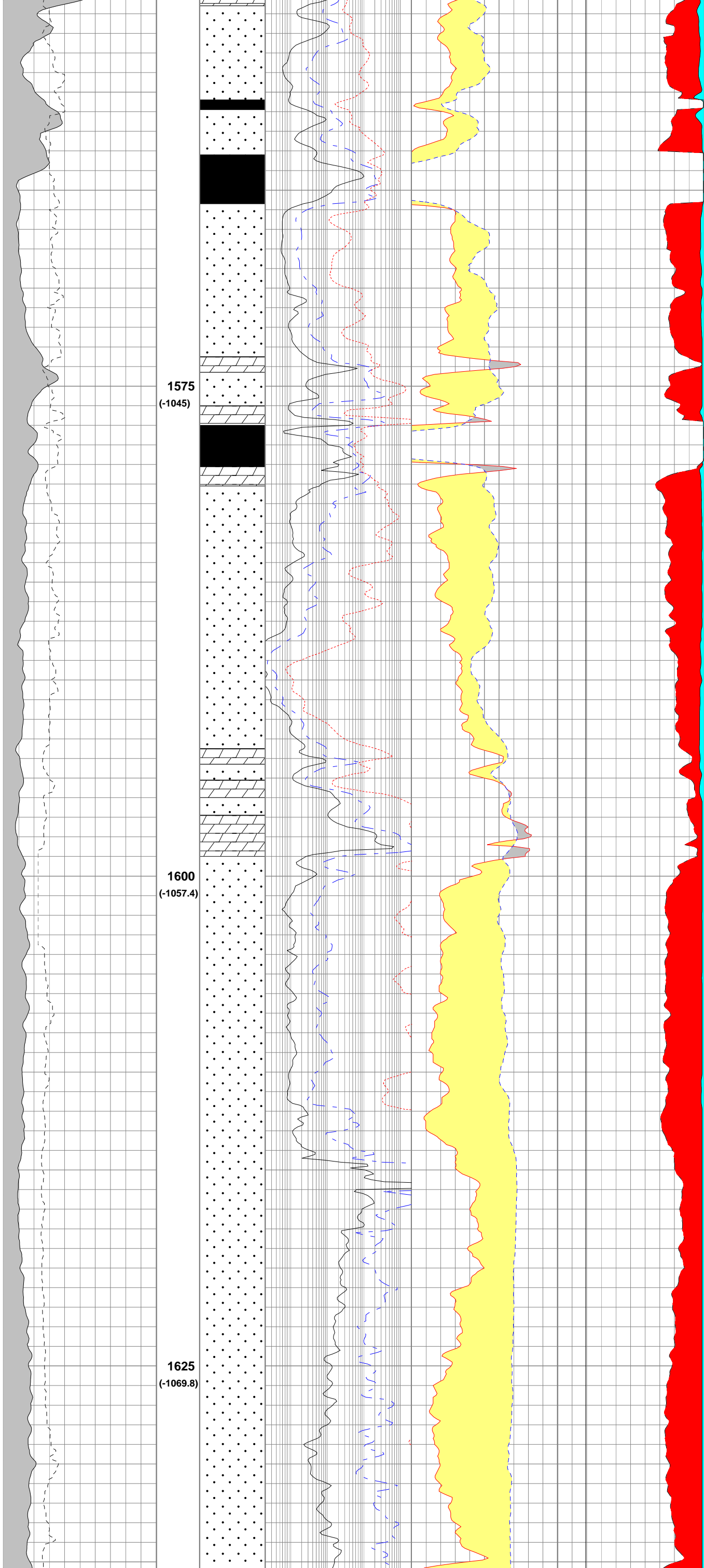






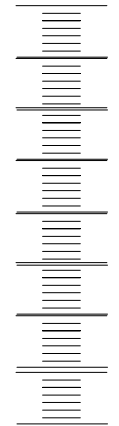
1536.0m

1548.0m



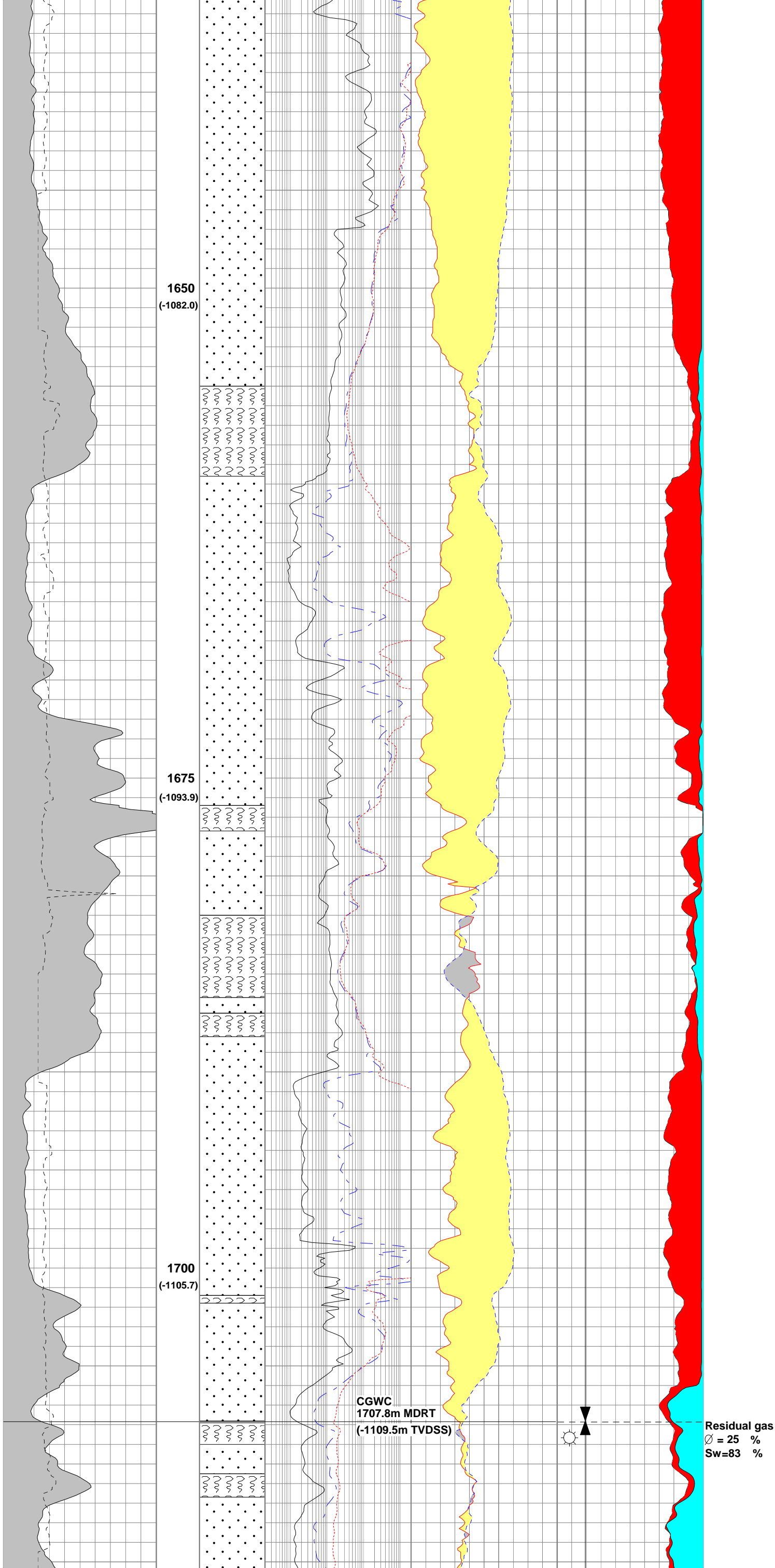
1553.56  
ANG 60.34  
DIR 75.95  
(-1034.29)

1600.0m



1612.0m

1639  
MW 10m

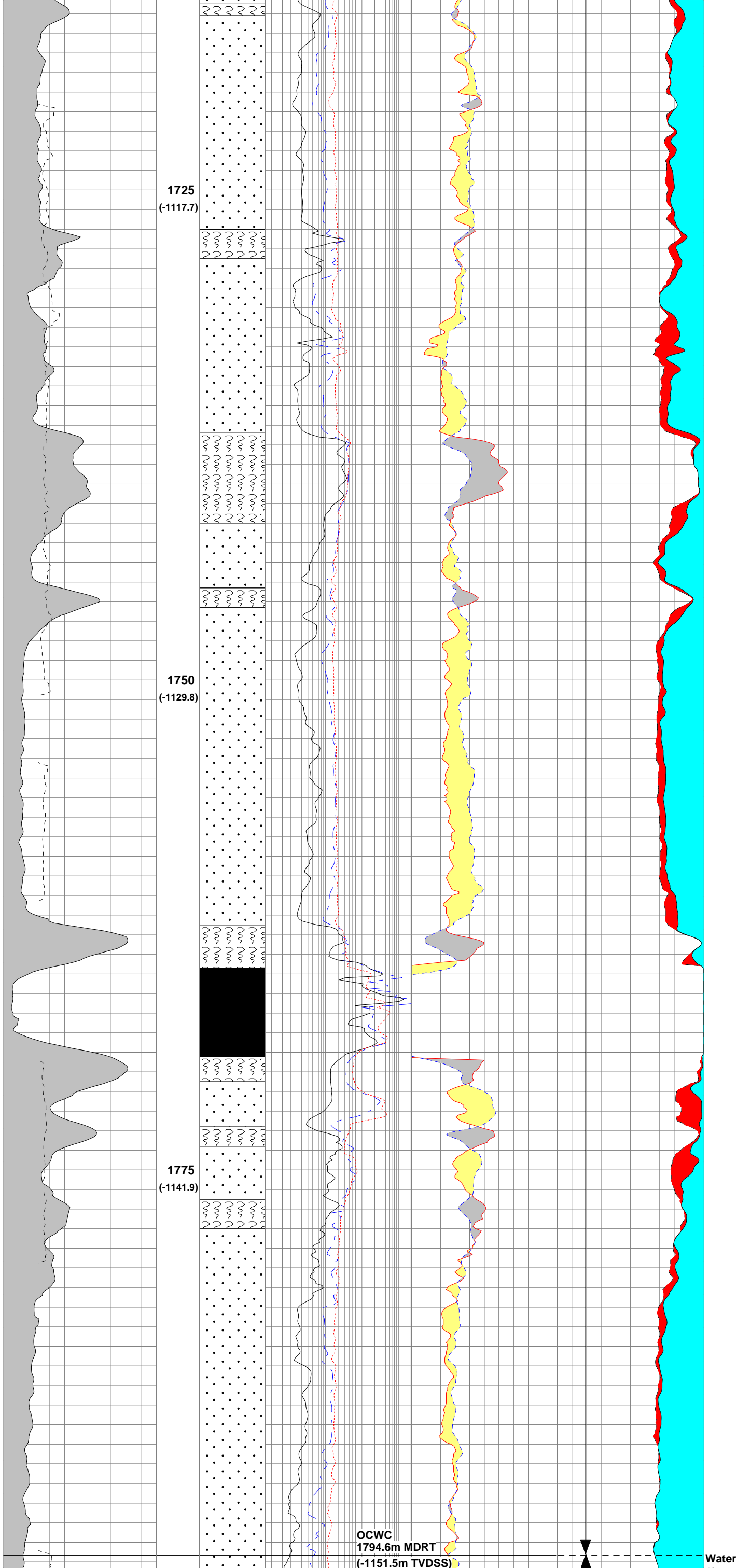


MW 10ppg  
FV 76sec/qt  
PV 27cP  
YP 45  
pH 9.5  
KCl 28

1640.37  
ANG 60.83  
DIR 76.43  
(-1077.35)



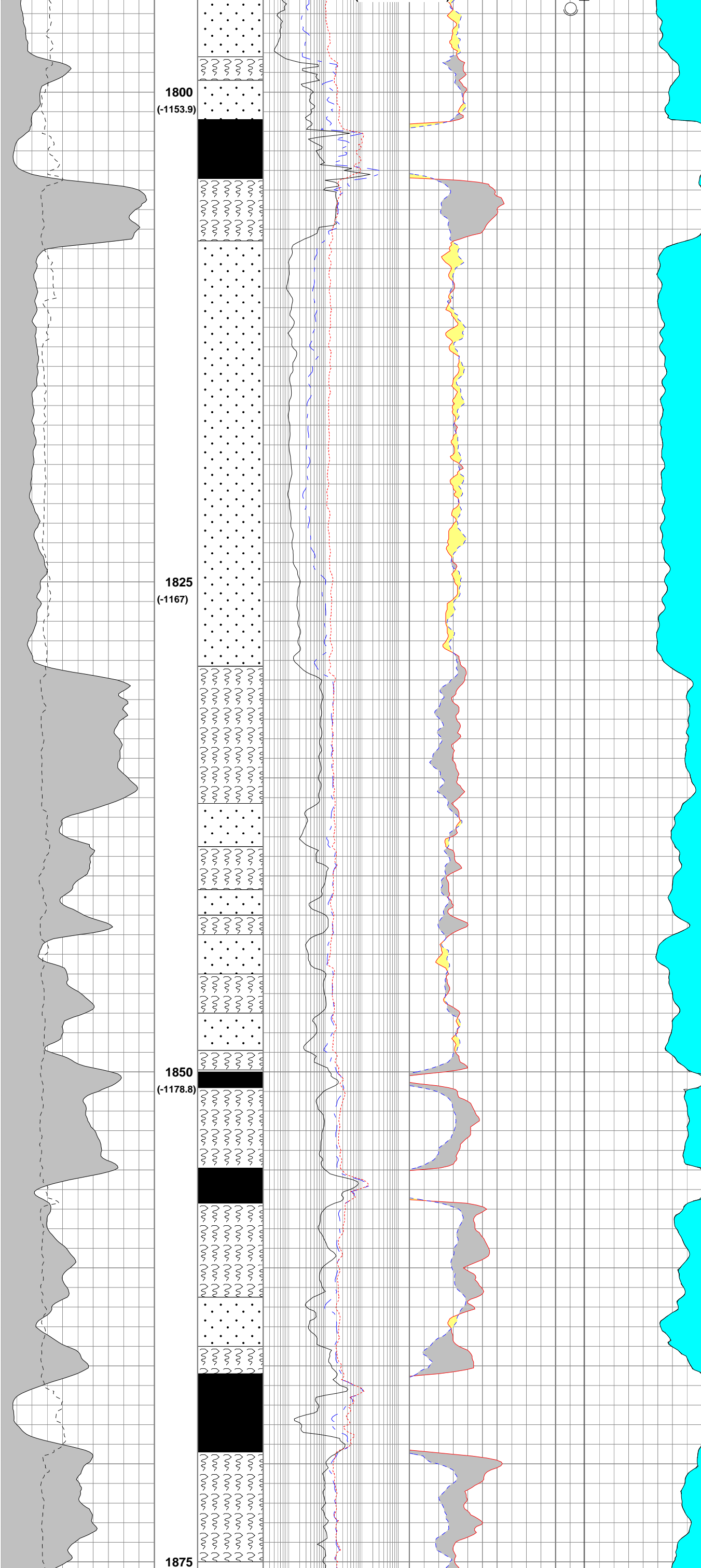
Residual gas  
Ø = 25 %  
Sw=83 %



1727.34  
ANG 61.10  
DIR 76.95  
(-1118.79)

PALEOCENE - EARLY EOCENE

OCWC  
1794.6m MDRT  
(-1151.5m TVDSS)



1800  
(-1153.9)

1825  
(-1167)

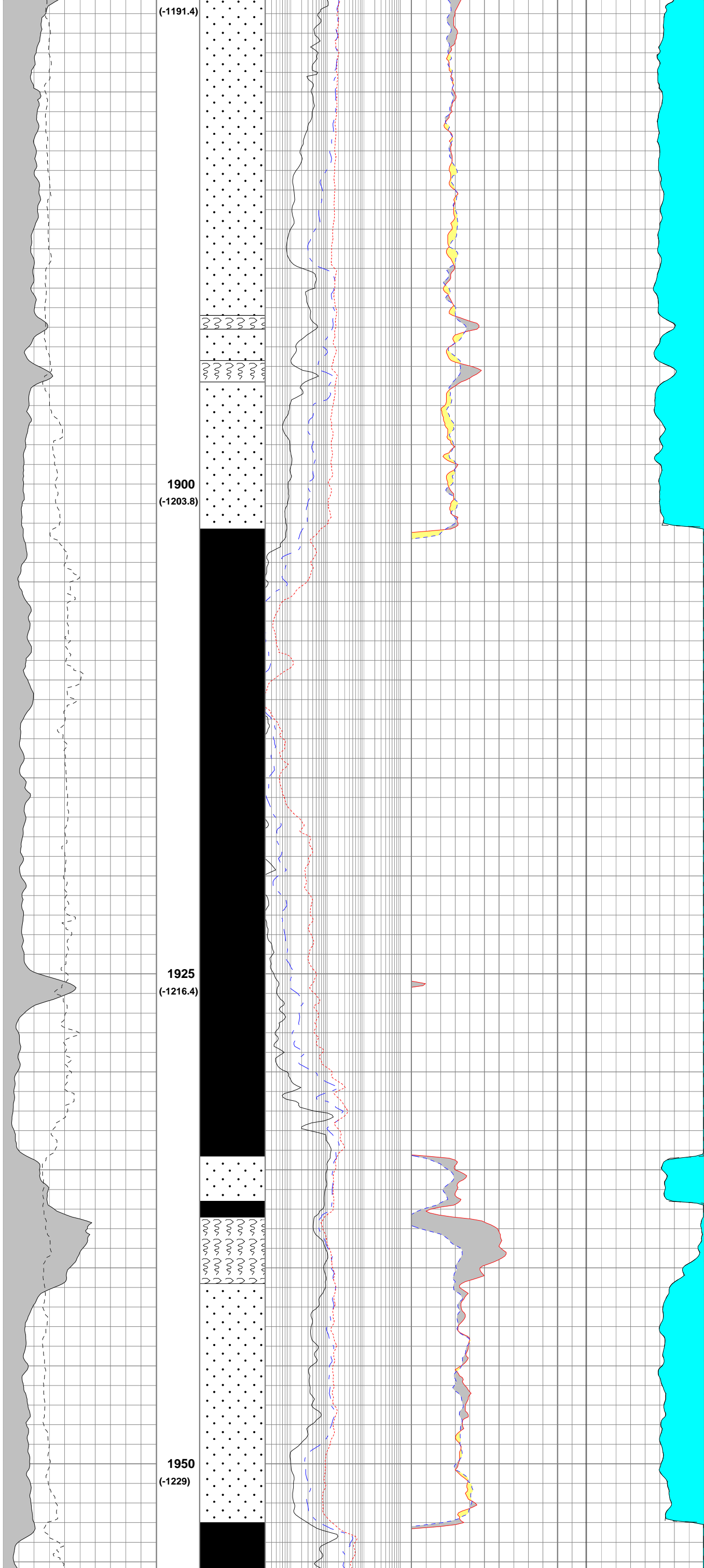
1850  
(-1178.8)

1875

1814.73  
ANG 60.6  
DIR 74.63  
(-1161.04)

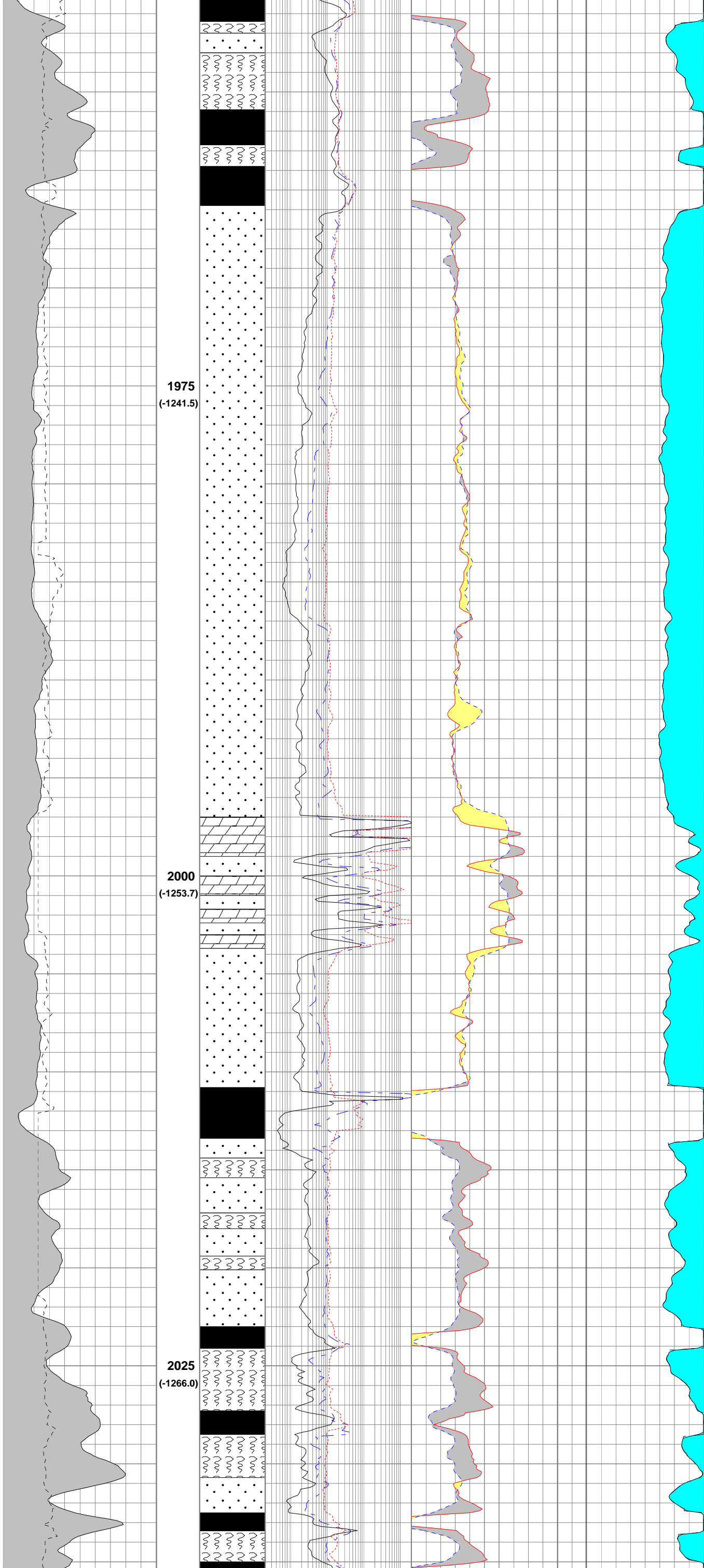
1832  
MW 10ppg  
FV 82sec/qt  
PV 22cP  
YP 45  
pH 9.5  
KCl 28

LATROBE GROUP



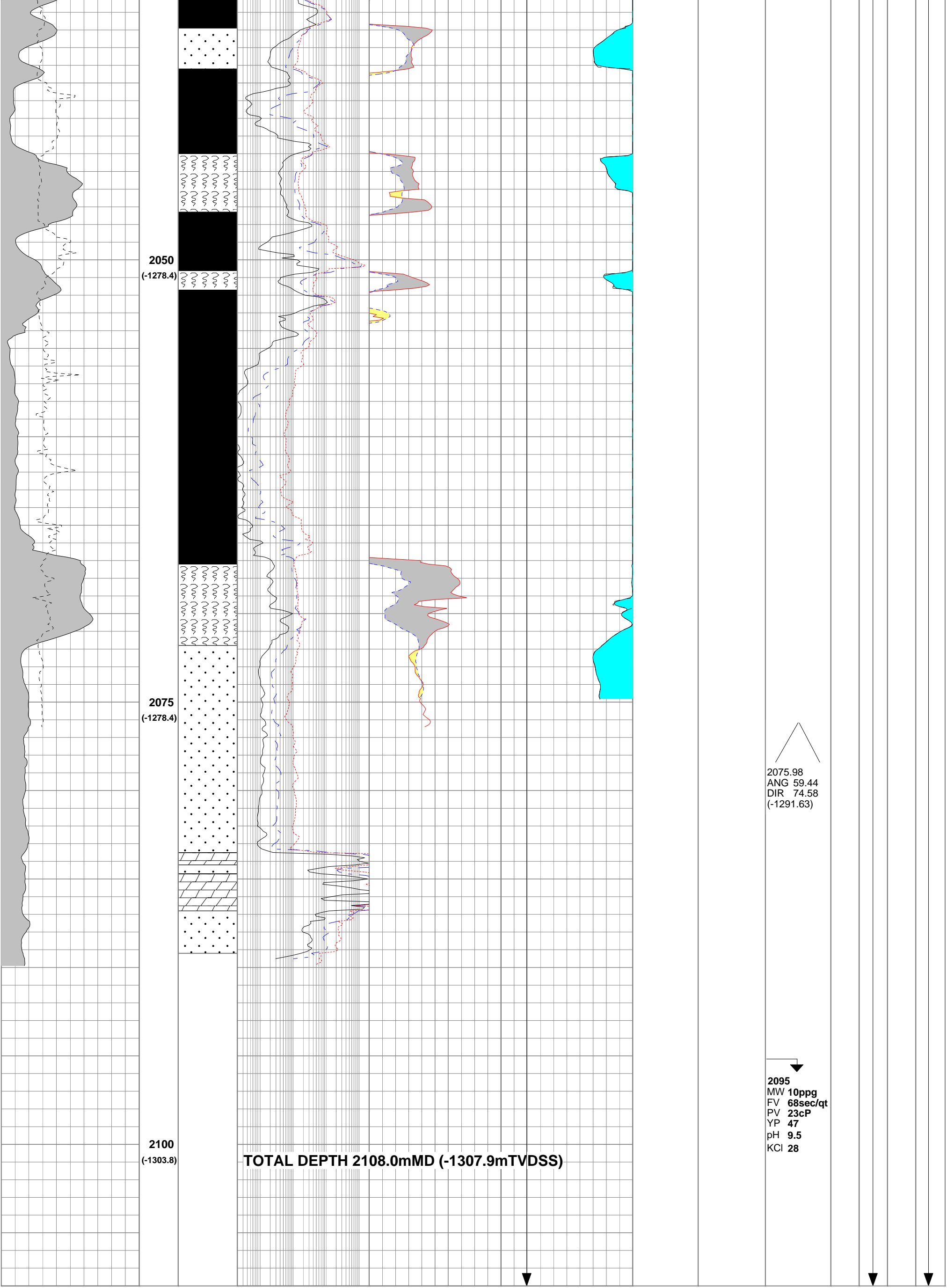
1901.51  
ANG 60.30  
DIR 75.12  
(-1204.50)





1988.62  
ANG 60.66  
DIR 73.85  
(-1248.21)





GR\_RAB Gamma Ray  
HORD Horizontal hole diameter  
RESDEEP Deep Resistivity  
RESMED Medium Resistivity  
RESSHAL Shallow Resistivity  
ROBB Bulk Density-Bottom  
SWT Total water Saturation

Barracouta A4A  
Sidetracked 06/03/2005

SWI	Total Water Saturation	
PIGN	Effective Porosity	
VUWA	Bulk Volume Water	

**APPENDIX 4e**  
**BARRACOUTA A4AST**  
**Well Completion Log**



WELL COMPLETION LOG

Scale - 1:200

BARRACOUTA A4AST

Gippsland Basin, Victoria  
Concession: VIC/L02

POST-DRILL LOCATION: (N4)	Latitude:	38° 17' 35.858" S	COMPILED BY:	Sheryl Sazenis
	Longitude:	147° 41' 29.044" E	DRAFTED BY:	Arnaldo Ribeiro
	MGA X:	560460.96 mE	DRILLED BY:	ENSCO 102
	MGA Y:	5761416.54 mN	ELEVATION:	G.L.: -45.7 m
	Depth:	2139.7m MDRT (-1322.5mTVDSS)		R.T.: 55.9 m
	Datum:	GDA94 (GRS80)		Water Depth: 45.7 m
	Projection:	MGA/ UTM Zone 55 (S)	TOTAL DEPTH:	2165.0 m MDRT / 1390.8 mTVDRT
			PLUGGED BACK T.D.:	1798m MDRT
DATES:	Kicked off:	06/03/2005	CLASSIFICATION:	Development
	Sidetracked:	11/03/2005	STATUS:	Plugged back and side tracked due to hole problems.
SERVICE COMPANIES:				
DRILLING CONTRACTOR:	ENSCO International Rig 102	PRODUCTION TESTING:	n/a	
MWD/DIRECT. DRLG:	Schlumberger Anadrill	ROV:	Total Marine Technology	
GYRO SURVEYING:	SDI	MUD LOGGING:	Geoservices Overseas S.A.	
CORING:	n/a	PRESSURE RECORDING:	n/a	
CEMENTING:	Halliburton	WELL VELOCITY SURVEY:	n/a	
CASING:	Weatherford	MUD ENGINEERING:	Baroid	
WIRELINE LOGGING:	Schlumberger	LINER:	n/a	

LEGEND

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

## LITHOLOGICAL SYMBOLS

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

## LOGGING AND SURVEYING

LOGGING AND SURVEYING			
Anadrill Schlumberger	Interval (mMDRT)		
Powerpulse (Dir)	1930.5 - 2165.0		
RAB6 (Res & GR)	1930.5 - 2165.0		
ADN6 (Dens & Neutron)	1930.5 - 2165.0		

## WELL DATA

WELL DATA				
Date	5 - 7 March 2005	7 - 8 March 2005	9 - 10 March 2005	11 - 12 March 2005
Run	MWD 4	MWD 5 (No logs acquired)	MWD 6 (No logs acquired)	MWD 7 (No logs acquired)
Log	Powerpulse-GVR6-ADN6	Powerpulse-GVR6-ADN6	Powerpulse-GVR6-ADN6	Powerpulse-GVR6-ADN6
Depth Driller	2165 mMDRT	2165 mMDRT	2165 mMDRT	2165 mMDRT
Depth Logger	2165 mMDRT	N/A	N/A	N/A
Bottom Log Interval	2165 mMDRT	No hole logged - run aborted due to hole problems	No hole logged - failed attempt to kick off sidetrack.	No hole logged - failed attempt to kick off sidetrack.
Top Log Interval	1930.5 mMDRT (Kickoff)	N/A	N/A	N/A
Casing Driller	848.4 mMDRT	848.4 mMDRT	848.4 mMDRT	848.4 mMDRT
Casing Logger	----	----	----	----
Casing Size	9 5/8"	9 5/8"	9 5/8"	9 5/8"
Casing Weight	47.0ppf	47.0ppf	47.0ppf	47.0ppf
Bit Size	8.5"	8.5"	8.5"	8.5"
Type of Fluid in Hole	KCL/PHPA/Glycol	KCL/PHPA/Glycol	KCL/PHPA/Glycol	KCL/PHPA/Glycol
Density	10.0 ppg	10.0 ppg	10.0 ppg	10.4 ppg
Rm @ Measured Temp.	0.136 @ 24.6°C	N/A	N/A	N/A
Rmf @ Measured Temp.	0.115 @ 24.0°C	N/A	N/A	N/A
Rmc @ Measured Temp.	0.133 @ 24.9°C	N/A	N/A	N/A
Max. Recorded Temp.	69.0°C	N/A	N/A	N/A
Equipment / Location	OLU-JA-9602/Sale	OLU-JA-9602/Sale	OLU-JA-9602/Sale	OLU-JA-9602/Sale
Recorded By	J. Dolan / K. Handley / M. Y. Tan	J. Dolan / K. Handley / M. Y. Tan	R. Burns / K. Handley / M. Y. Tan	R. Burns / K. Handley / M. Y. Tan
Witnessed By	M Turner	M Turner	M Turner	M Turner

## CORES

## PERFORATIONS

CORES			PERFORATIONS		
From (mMDRT)	To (mMDRT)	Rec %	From (mMDRT)	To (mMDRT)	Gun Type
----	----	---	---	---	---

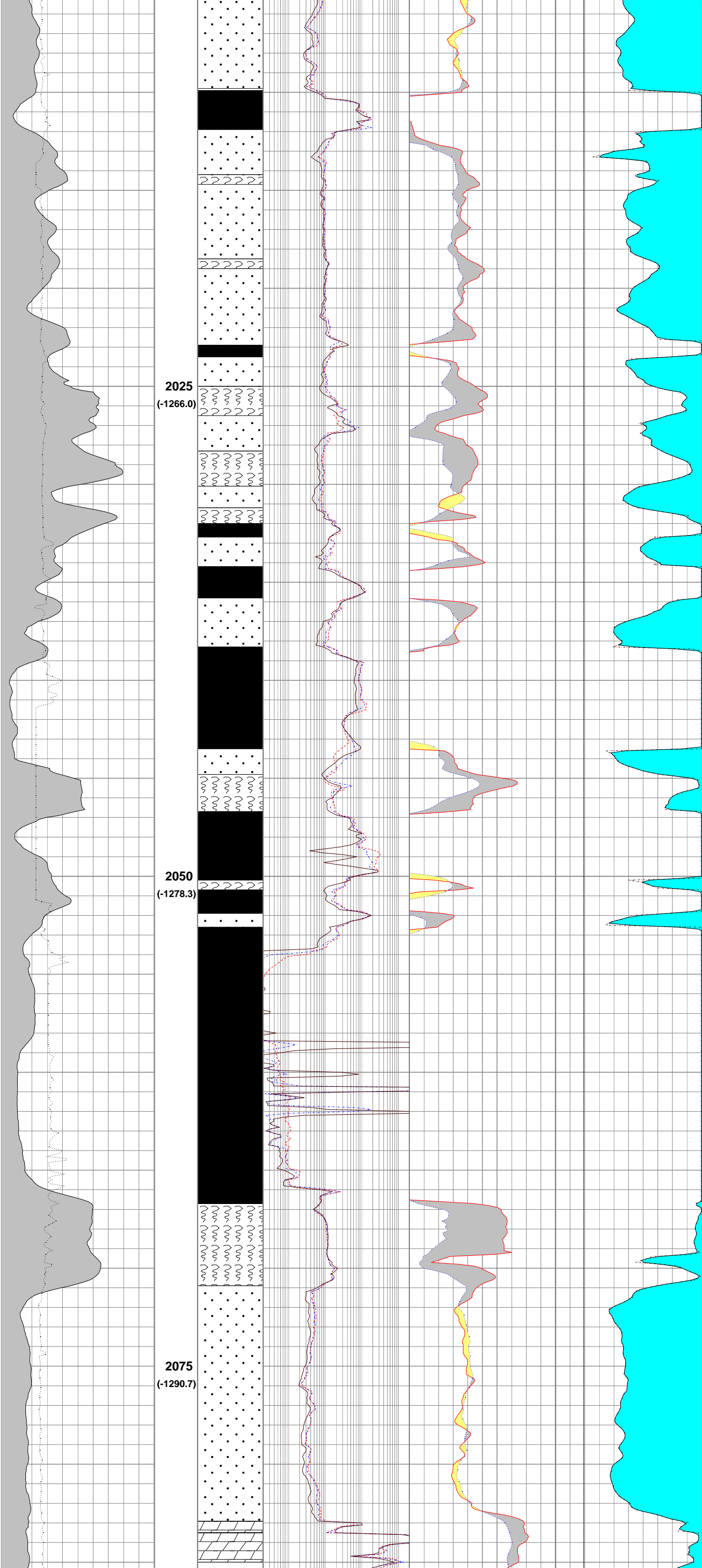
## CASING

## PLUGS

CASING				PLUGS		
Size	Set @ (mMDRT)	SX Cmt	Formation	From (mMDRT)	To (mMDRT)	SXCmt
13.375"	337.3	---	Gippsland Limestone	1875	1920	--
9.625" Intermediate	848.4	--	Latrobe Group	1798	1868	--

RAB Gamma Ray			DEPTH	LITHOLOGY	Deep Resistivity			Bulk Density			Effective Porosity			TEST	COMPLETION	SURVEY DATA	PLUGS	FORMATION	GEOLOGY	AGE
0	GAPI	200			0.2	OHMM	2000	1.85	G/C3	2.85	0.5	V/V	0							
Caliper					Medium Resistivity			Neutron Porosity			Volume of Water in Undisturbed									
6	IN	16			0.2	OHMM	2000	0.45	V/V	-0.15	0.5	V/V	0							





2025  
(-1266.0)

2050  
(-1278.3)

2075  
(-1290.7)

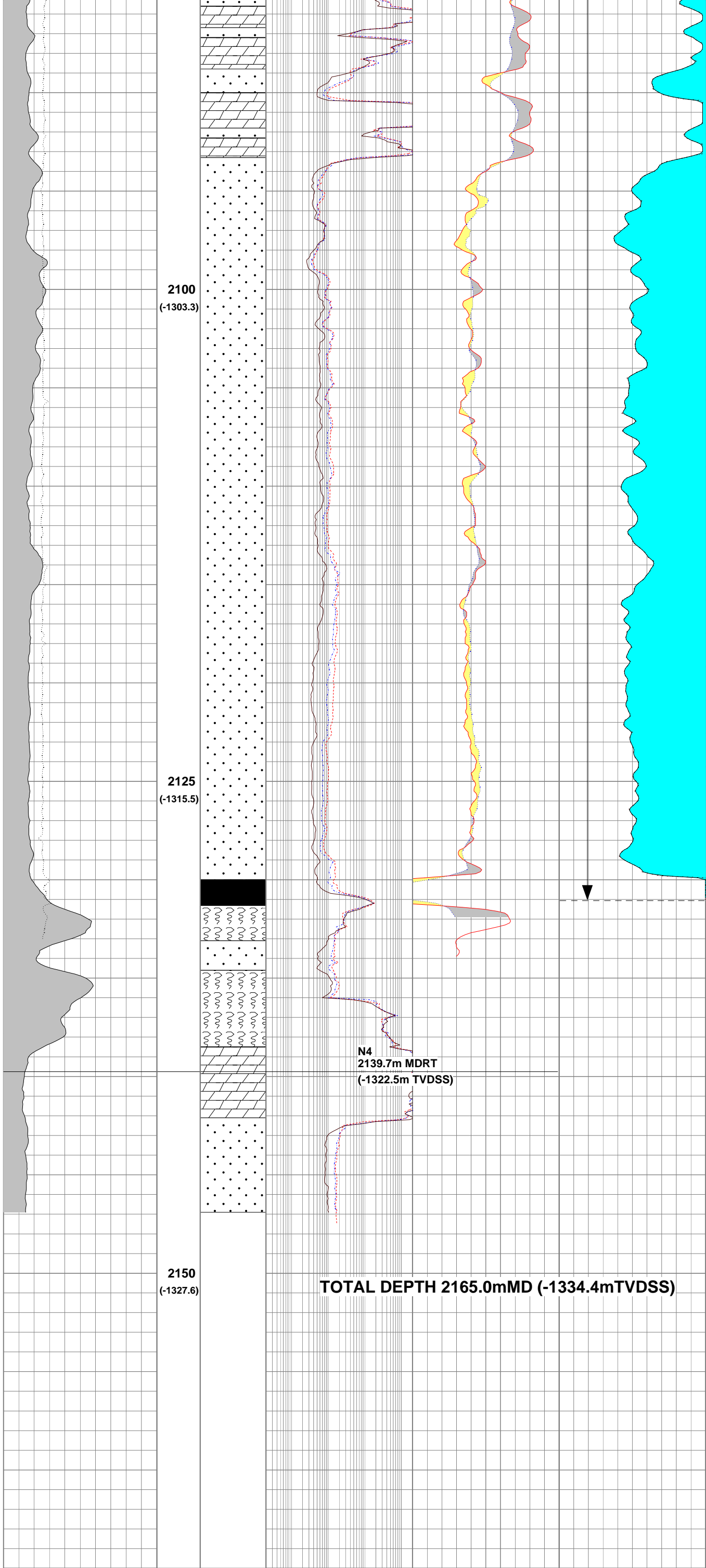
2016.2  
ANG 60  
DIR 74  
(-1261.62)

2075.7  
ANG 59  
DIR 73  
(-1291.07)

2082  
MW 10ppg  
FV 59sec/qt  
PV 9cp

LATROBE GROUP

PALEOCENE - EARLY EOCENE



YP 59  
pH 10  
KCl 28



GR_RAB	Gamma Ray	Barracouta A4A ST Sidetracked 11/03/2005
HORD	Horizontal hole diameter	
RESDEEP	Deep Resistivity	
RESMED	Medium Resistivity	
RESSHAL	Shallow Resistivity	
ROBB	Bulk Density-Bottom	
SWT	Total water Saturation	
PIGN	Effective Porosity	
VUWA	Bulk Volume Water	
TNPH	Thermal Neutron Porosity	

**APPENDIX 4f**  
**BARRACOUTA A4AST1**  
**Well Completion Log**

**Scale - 1:200**

**Gippsland Basin, Victoria**  
**Concession: VIC/L02**

Latitude: 38° 17' 33.691" S  
Longitude: 147° 41' 33.985" E  
MGA X: 560581.47 mE  
MGA Y: 5761482.44 mN  
Depth: 2286.8m MDRT  
(-1382.3mTVDSS)

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

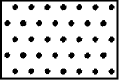
**DATES:** Kicked off: 11/03/2005  
Rig Released: 23/03/2005


DRILLING CONTRACTOR:	ENSCO International Rig 102
MWD/DIRECT. DRLG:	Schlumberger Anadrill
GYRO SURVEYING:	SDI
CORING:	n/a
CEMENTING:	Halliburton
CASING:	Weatherford
WIRELINE LOGGING:	Schlumberger


PRODUCTION TESTING:	n/a
ROV:	Total Marine Technology
MUD LOGGING:	Geoservices Overseas S.A.
PRESSURE RECORDING:	n/a
WELL VELOCITY SURVEY:	n/a
MUD ENGINEERING:	Baroid
LINER:	n/a

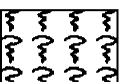
<div> <div>2.7m NOS</div> <div> <div>Ø = 17%</div> <div>Sw = 32%</div> </div> </div>		<div>LOG ANALYSIS DATA</div> <div> NS - Net Sand  NOS - Net Oil Sand  NGS - Net Gas Sand  Sw - Water Saturation </div>		<div> <div>SHOW OR STAIN</div> <div>HYDROCARBON CUT</div> <div>FLUORESCENCE</div> <div>GAS SHOW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

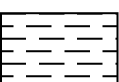
LITHOLOGICAL SYMBOLS


Sandstone

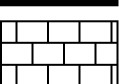
Siltstone

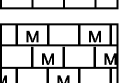
Mudstone

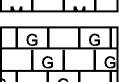
Claystone

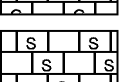
Shale


Coal


Limestone

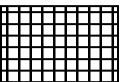
Micritic Limestone

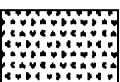
Grain Limestone


Skeletal Limestone


Dolomite

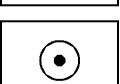
Marl

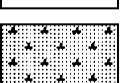
Anhydrite

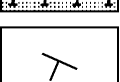
Volcanics


Basement


Granule


Oolites

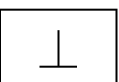
Dolomitic

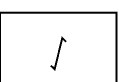
Pyrite

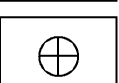
Mica


Chert

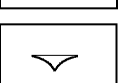
Carbonaceous Matter


Calcareous

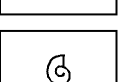
Glauconite


Corals


Bryozoans

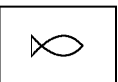
Brachiopods

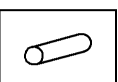
Gastropods


Cephalopods


Pelecypods

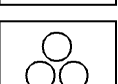
Echinoids


Fish Remains

Plant Remains

Spores

Leaves

Foram

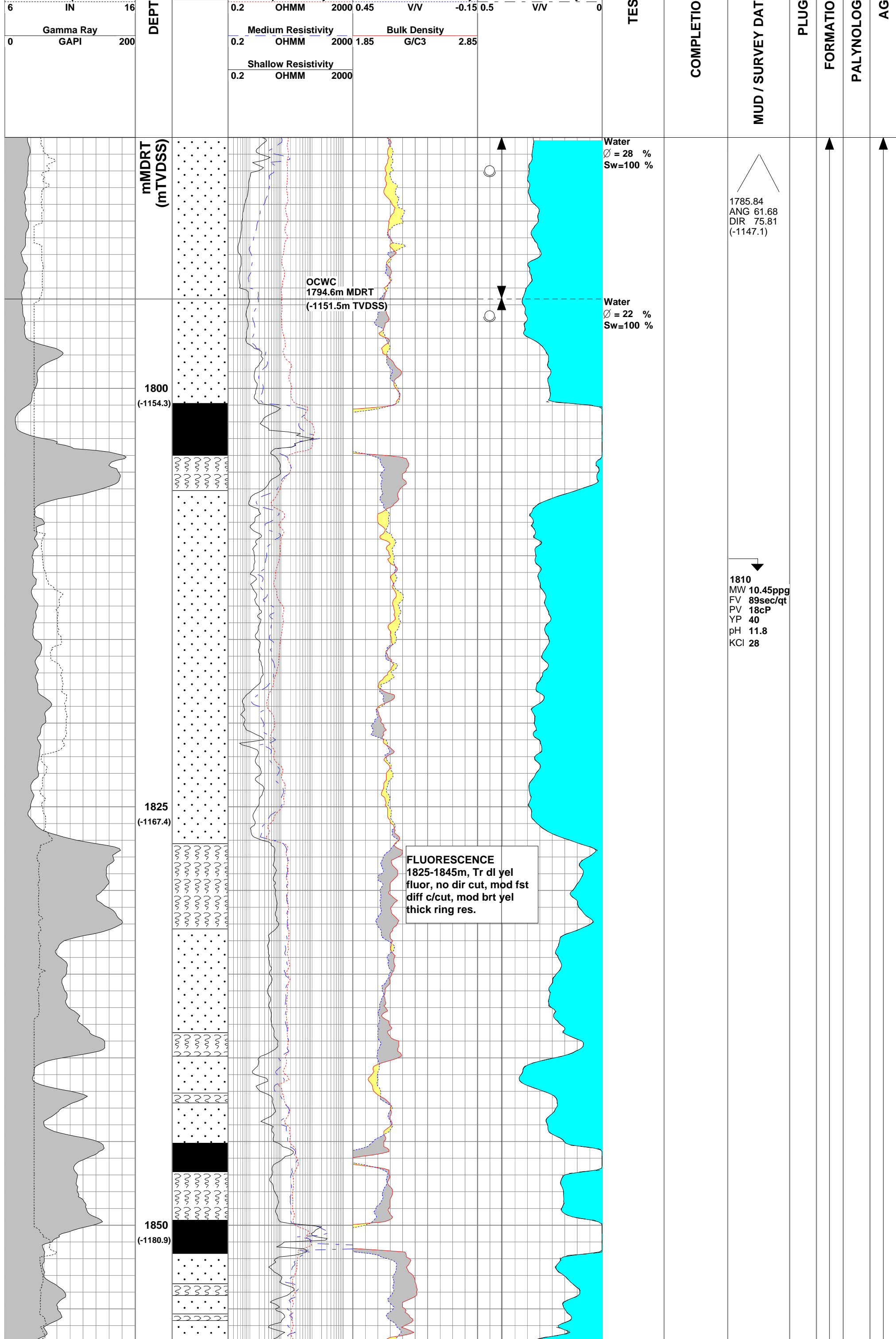
Fossils

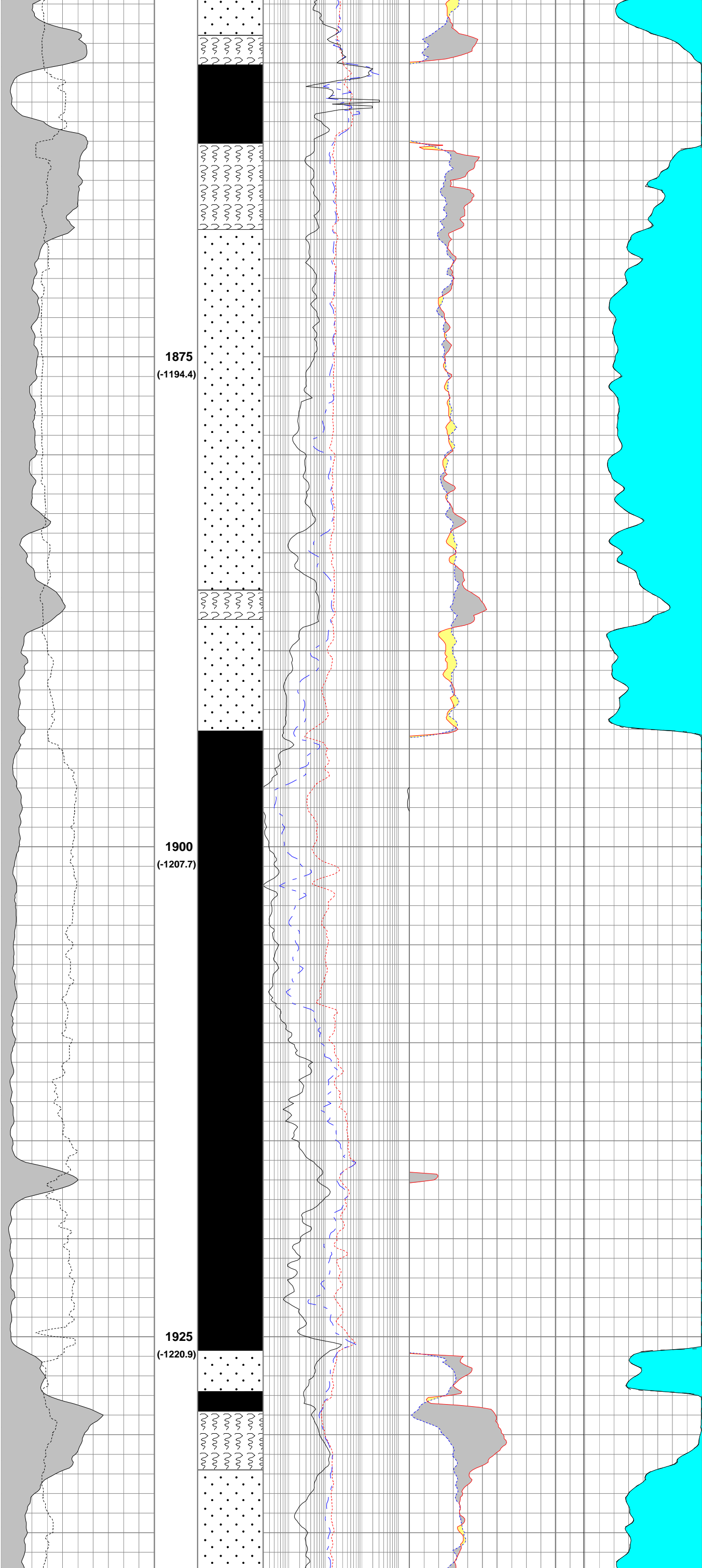
LOGGING AND SURVEYING			
Anadrill/Schlumberger	Interval (mMDRT)		
Powerpulse (Dir)	1785.84 – 2359.61		
RAB6 (Res & GR)	1785 - 2385		
ADN6 (Dens & Neutron)	1785 - 2385		

WELL DATA					
Date	11 - 16 March 2005	16 - 18 March 2005			
Run	MWD 8	MWD 9			
Log	Powerpulse-GVR6-ADN6	Powerpulse-GVR6-ADN6			
Depth Driller	2291 mMDRT	2385 mMDRT			
Depth Logger	2291 mMDRT	2385 mMDRT			
Bottom Log Interval	2385 mMDRT	2385 mMDRT			
Top Log Interval	1785.84mMDRT (Kickoff)	2291mMDRT			
Casing Driller	848 mMDRT	848 mMDRT			
Casing Logger	----	----			
Casing Size	9 5/8"	9 5/8"			
Casing Weight	47.0ppf	47.0ppf			
Bit Size	8.5"	8.5"			
Type of Fluid in Hole	KCL/PHPA/Glycol	KCL/PHPA/Glycol			
Density	10.0 ppg	10.0 ppg			
Rm @ Measured Temp.	0.158 @ 22.2°C	0.152 @ 21.5°C			
Rmf @ Measured Temp.	0.123 @ 22.1°C	0.118 @ 21.4°C			
Rmc @ Measured Temp.	0.184 @ 22.3°C	0.177 @ 21.6°C			
Max. Recorded Temp.	75.3°C	68.2°C			
Equipment / Location	OLU-JA-9602/Sale	OLU-JA-9602/Sale			
Recorded By	R Borjas / K. Handley / M. Y. Tan/ R. Burns	R Borjas / K. Handley / M. Y. Tan			
Witnessed By	M Turner	M Turner			
CORES			PERFORATIONS		
From (mMDRT)	To (mMDRT)	Rec %	From (mMDRT)	To (mMDRT)	Gun Type
			1536	1542	Wireline
----	----	---	1542	1548	Wireline
			1600	1606	Wireline
			1606	1612	Wireline

CASING				PLUGS		
Size	Set @ (mMDRT)	SX Cmt	Formation	From (mMDRT)	To (mMDRT)	SXCmt
13.375"	337.3	---	Gippsland Limestone	--	--	--
9.625" Intermediate	848.4	---	Latrobe Group	2339.34	2376.0	--
7" Production	2376.0	535				

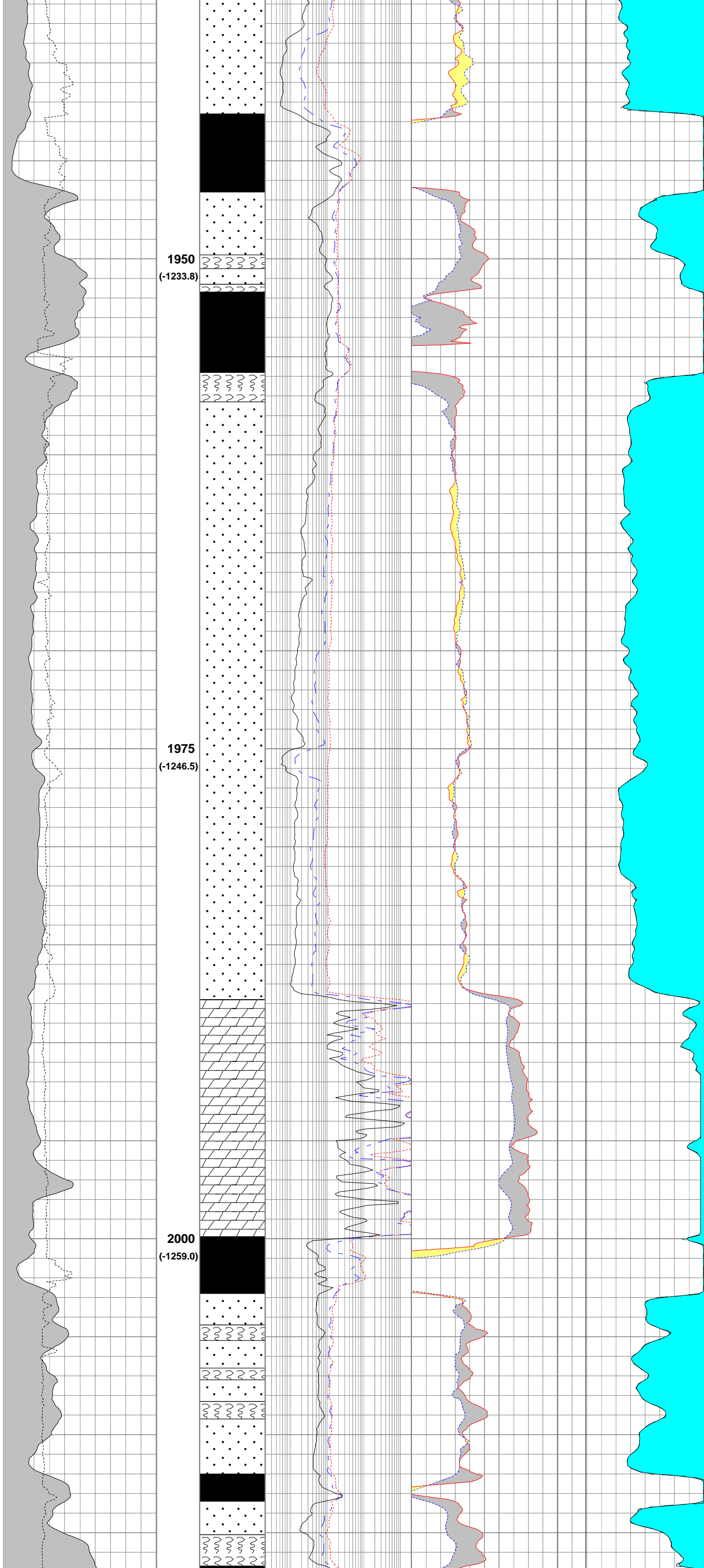
Caliper	⚡	LITHOLOGY	Deep Resistivity	Thermal Neutron Porosity	Effective Porosity	⚡	Z	A	S	Z	Y	E
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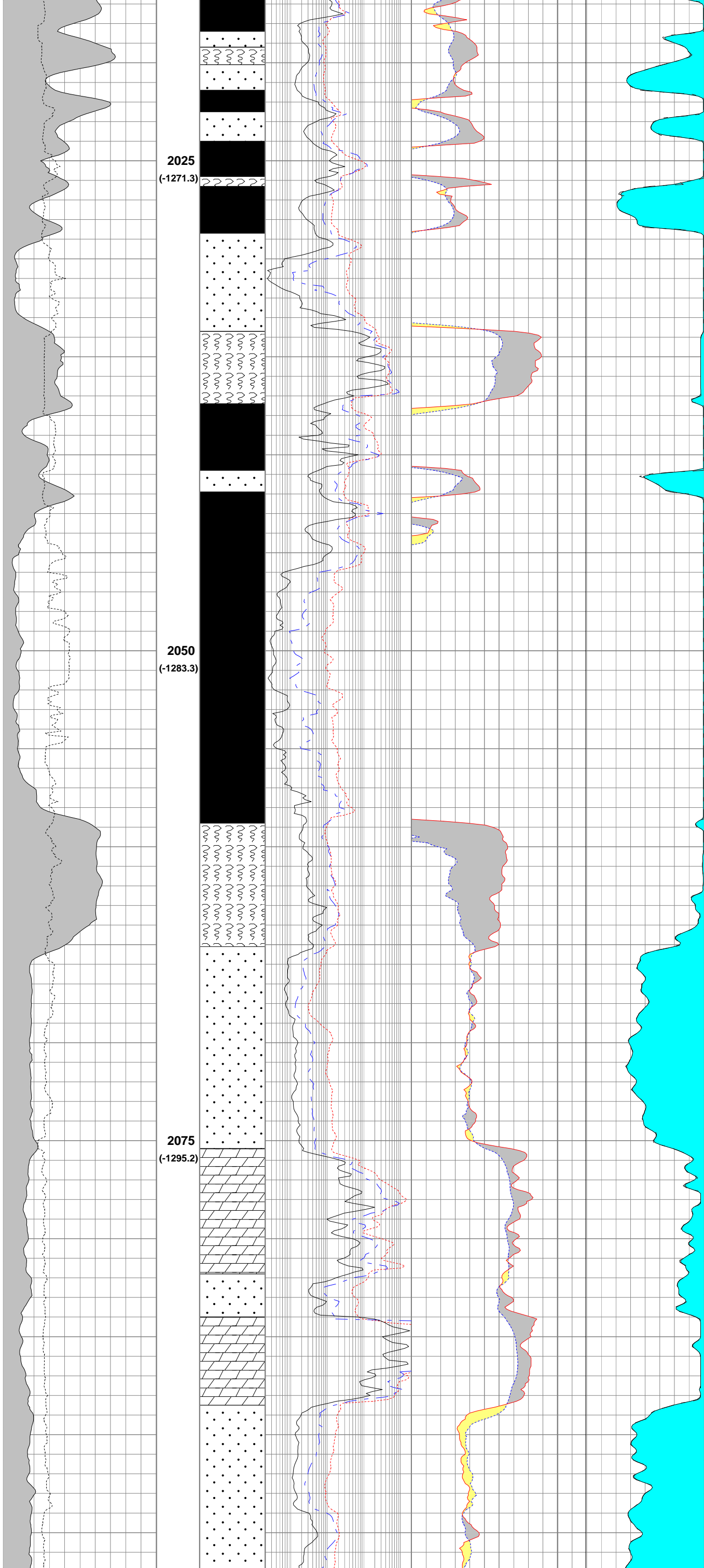


1872.16  
ANG 57.83  
DIR 71.34  
(-1192.85)

LATROBE GROUP



PALEOCENE - EARLY EOCENE



2046.51  
ANG 61.25  
DIR 70.17  
(-1281.68)

2078  
MW 10.40ppg  
FV 63sec/qt  
PV 28cP  
YP 44  
pH 10.8  
KCl 28



2100  
(-1306.7)

2125  
(-1317.8)

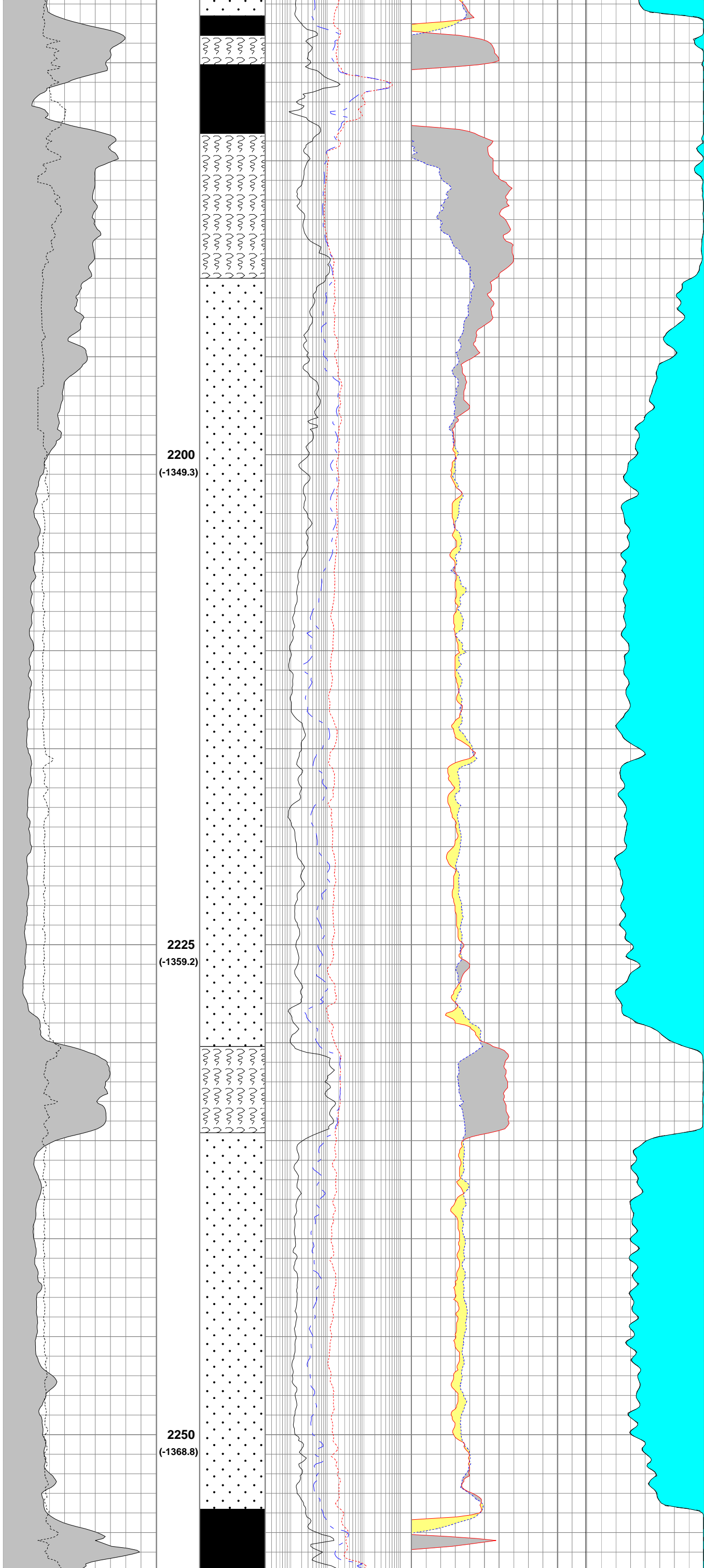
N4  
2135.6mMDRT  
(-1322.5m TVDSS)

Water  
Ø = 23 %  
Sw=100 %

2150  
(-1328.6)

2175  
(-1339.1)

2133.93  
ANG 64.38  
DIR 69.72  
(-1321.79)



2193  
MW 10.45ppg  
FV 72sec/qt  
PV 30cP  
YP 45  
pH 10.4  
KCl 28

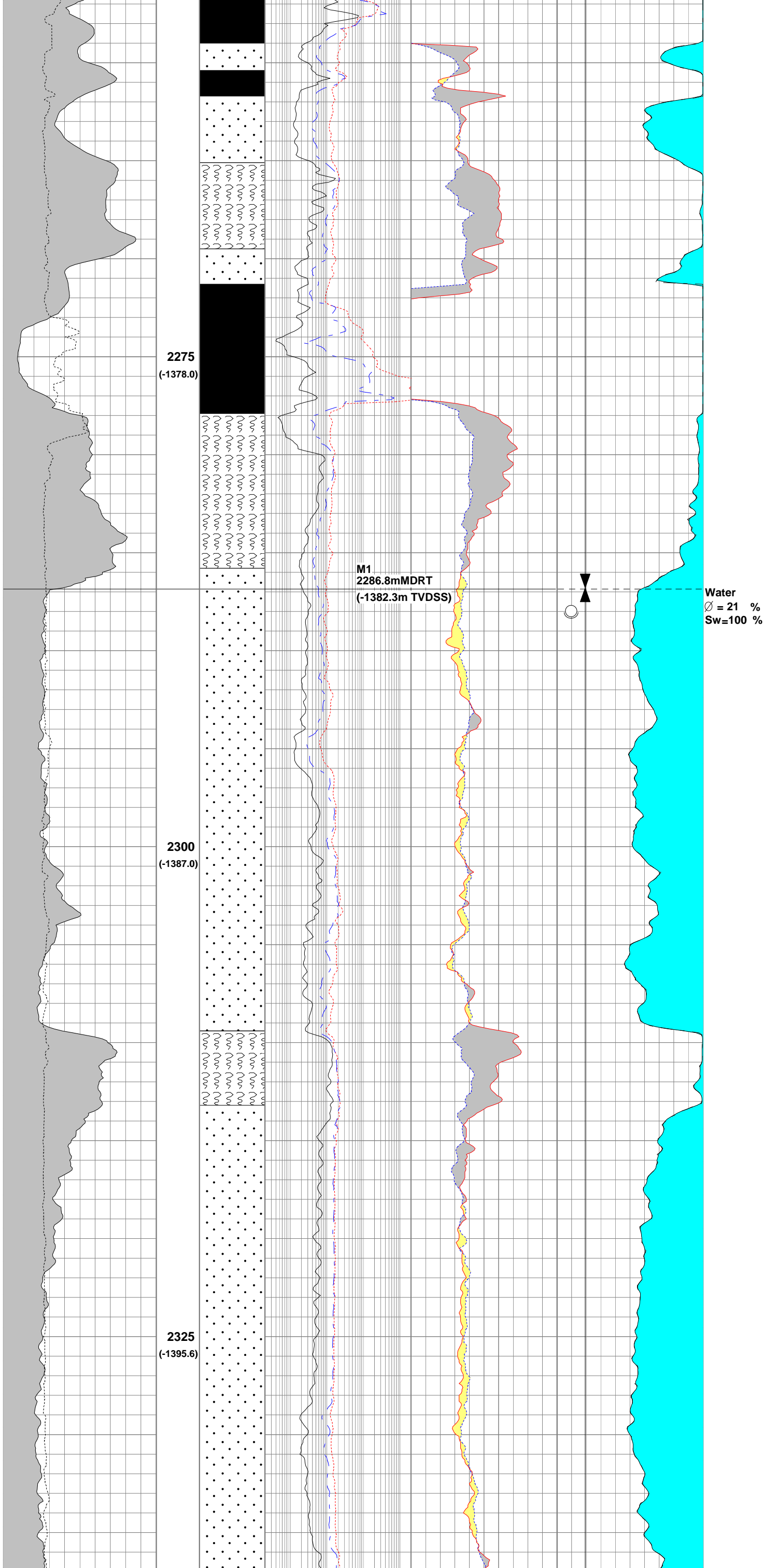


2220.6  
ANG 67.13  
DIR 70.21  
(-1357.53)

2200  
(-1349.3)

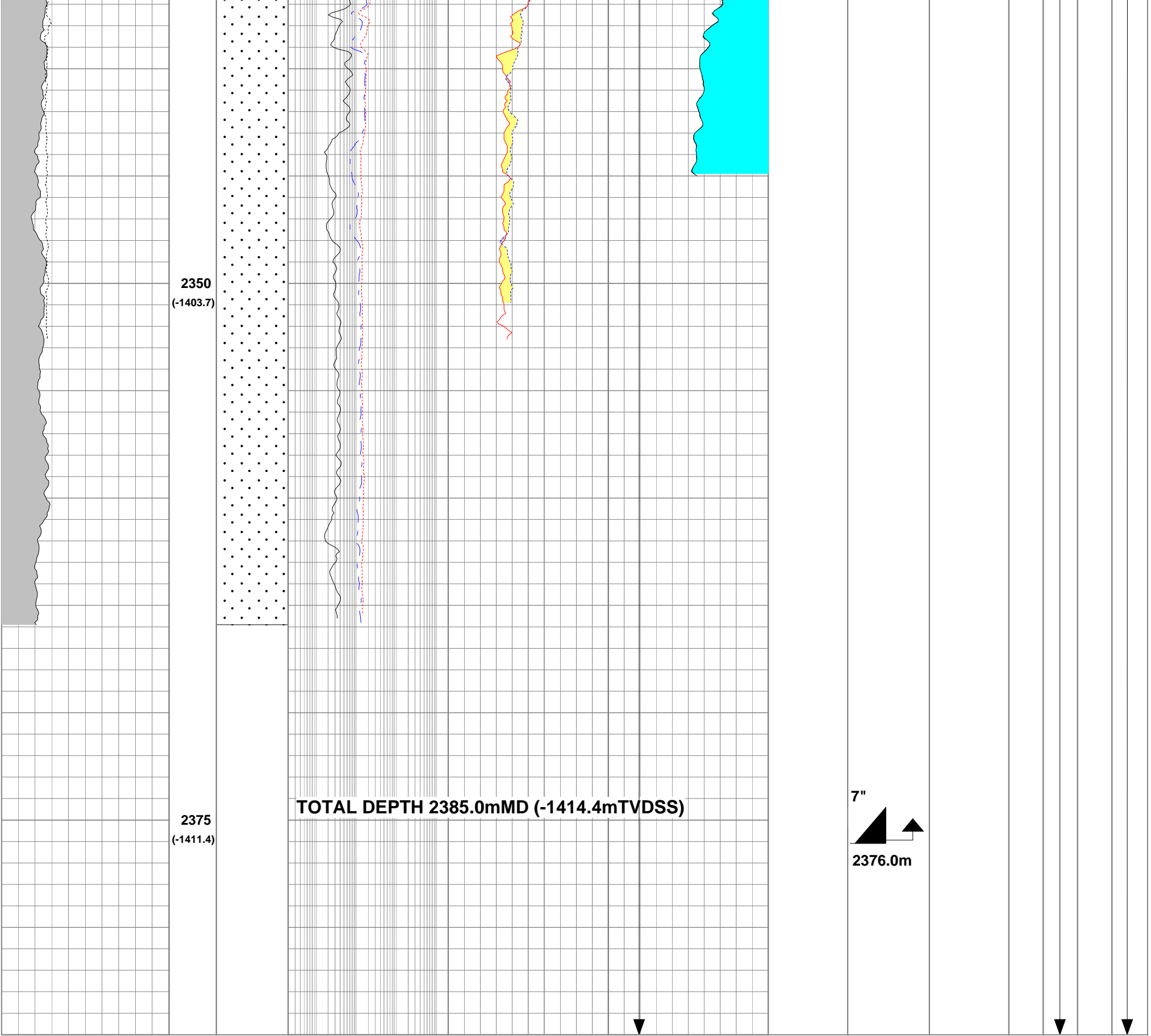
2225  
(-1359.2)

2250  
(-1368.8)



2305  
MW 10.45ppg  
FV 73sec/qt  
PV 35cP  
YP 45  
pH 10.4  
KCl 28

2308.05  
ANG 69.63  
DIR 71.29  
(-1389.88)



GR_RAB	Gamma Ray	Barracouta A4A ST1 To be put on production at a later date.
HORD	Horizontal hole diameter	
RESDEEP	Deep Resistivity	
RESMED	Medium Resistivity	
RESSHAL	Shallow Resistivity	
ROBB	Bulk Density-Bottom	
SWT	Total water Saturation	
PIGN	Effective Porosity	
VUWA	Bulk Volume Water	