WELL COMPLETION REPORT

BREAM A14A

GIPPSLAND BASIN, VICTORIA

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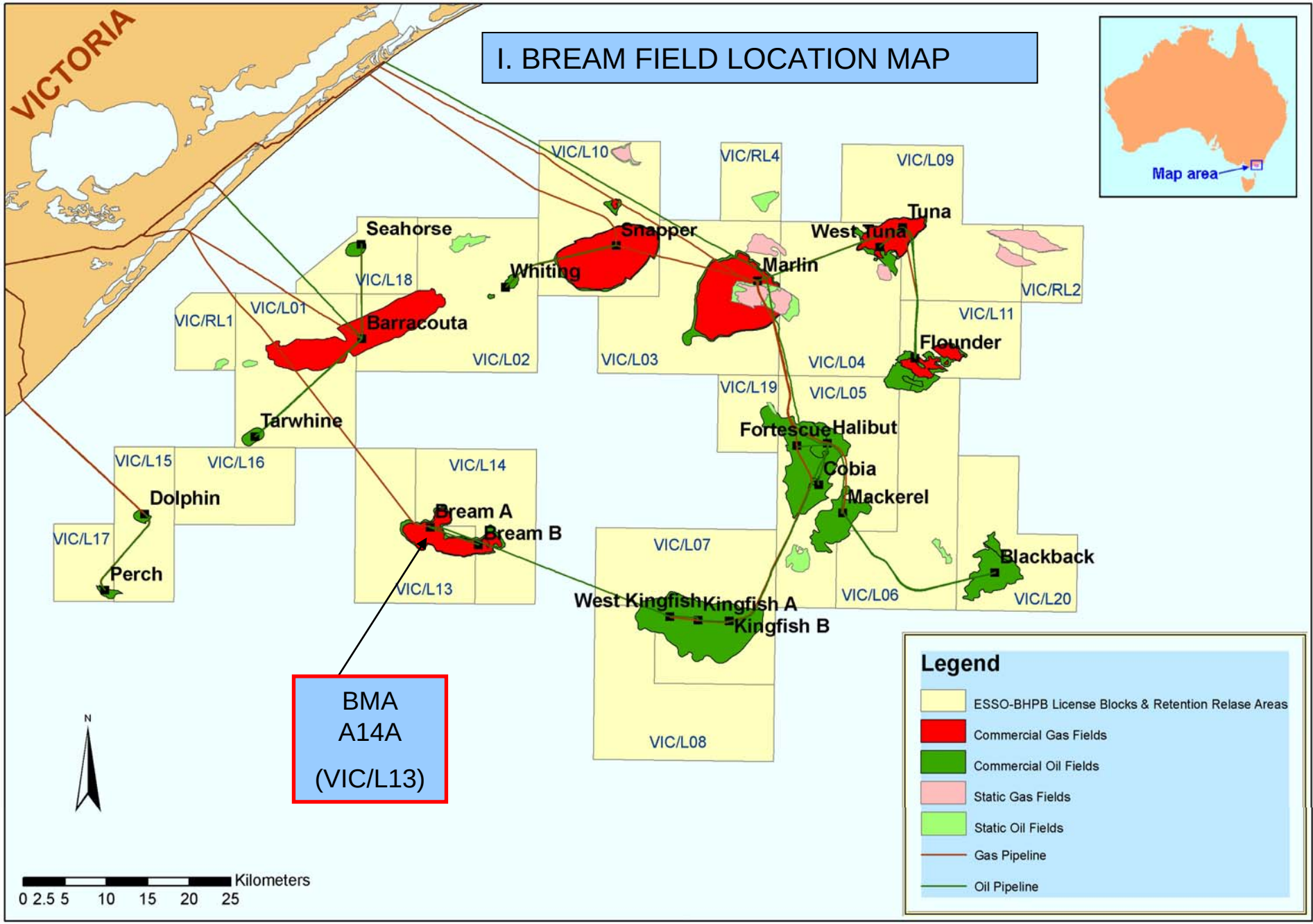
I. BREAM FIELD LOCATION MAP


I. BREAM FIELD LOCATION MAP
VICTORIA
Map area
VIC/L10
VIC/RL4
VIC/L09
Seahorse
Snapper
Tuna
West Tuna
Whiting
Marlin
VIC/L18
VIC/RL2
VIC/L01
VIC/RL1
Barracouta
VIC/L11
Flounder
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Tarwhine
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Blackback
Perch
VIC/L13
VIC/L06
VIC/L20
West Kingfish
Kingfish A
Kingfish B
VIC/L08
BMA
A14A
(VIC/L13)
N
Kilometers
0 2.5 5 10 15 20 25
Legend
ESSO-BHPB License Blocks & Retention Relase Areas
Commercial Gas Fields
Commercial Oil Fields
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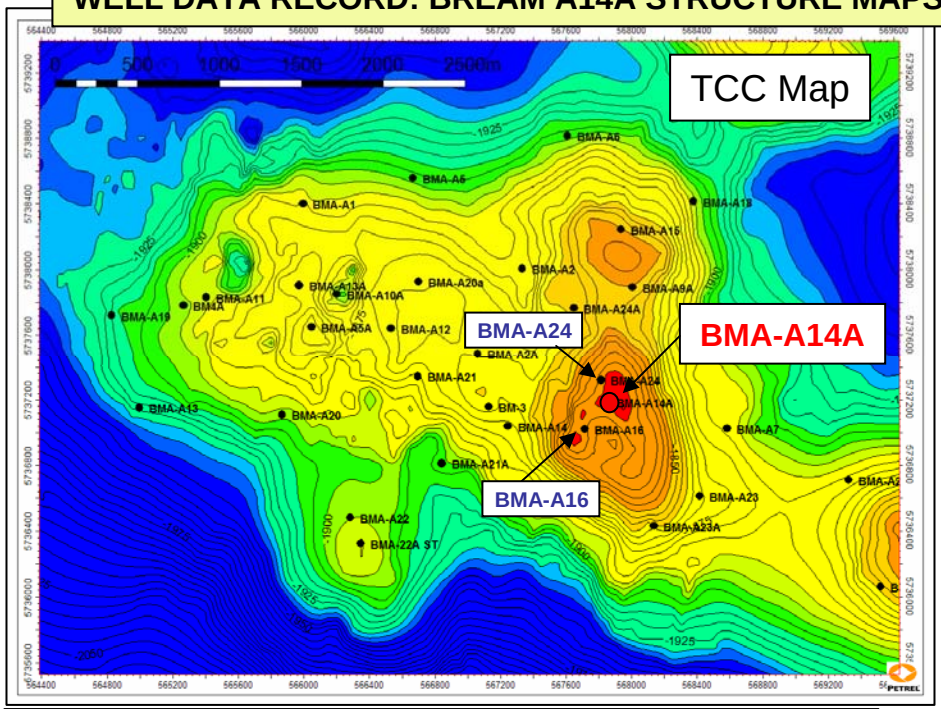
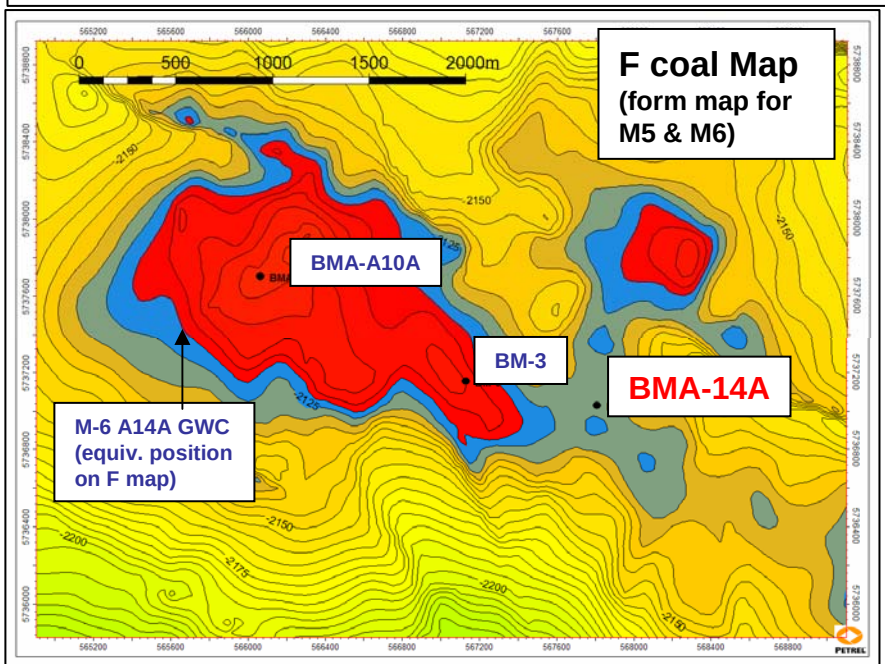
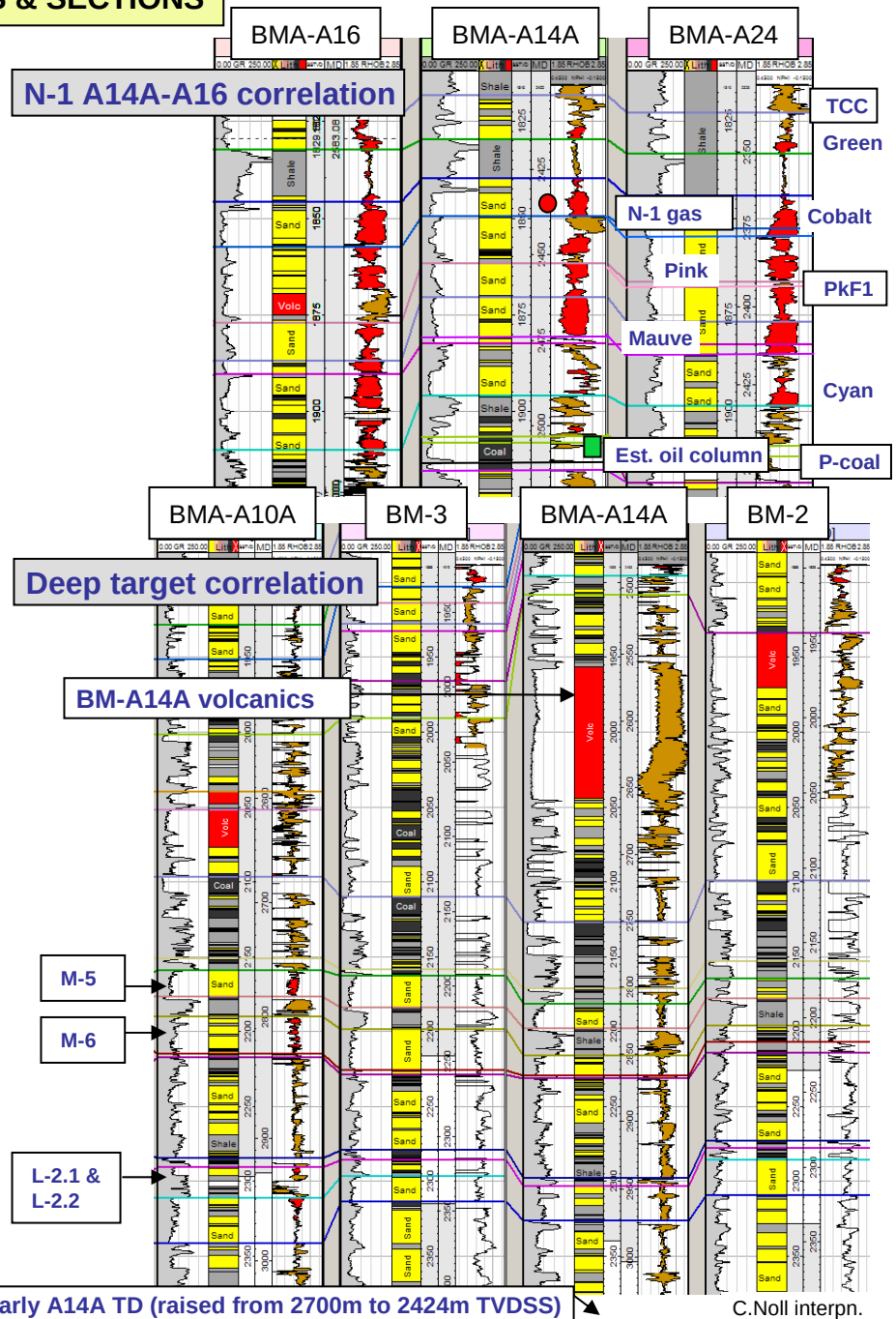
Static Oil Fields
Gas Pipeline
Oil Pipeline

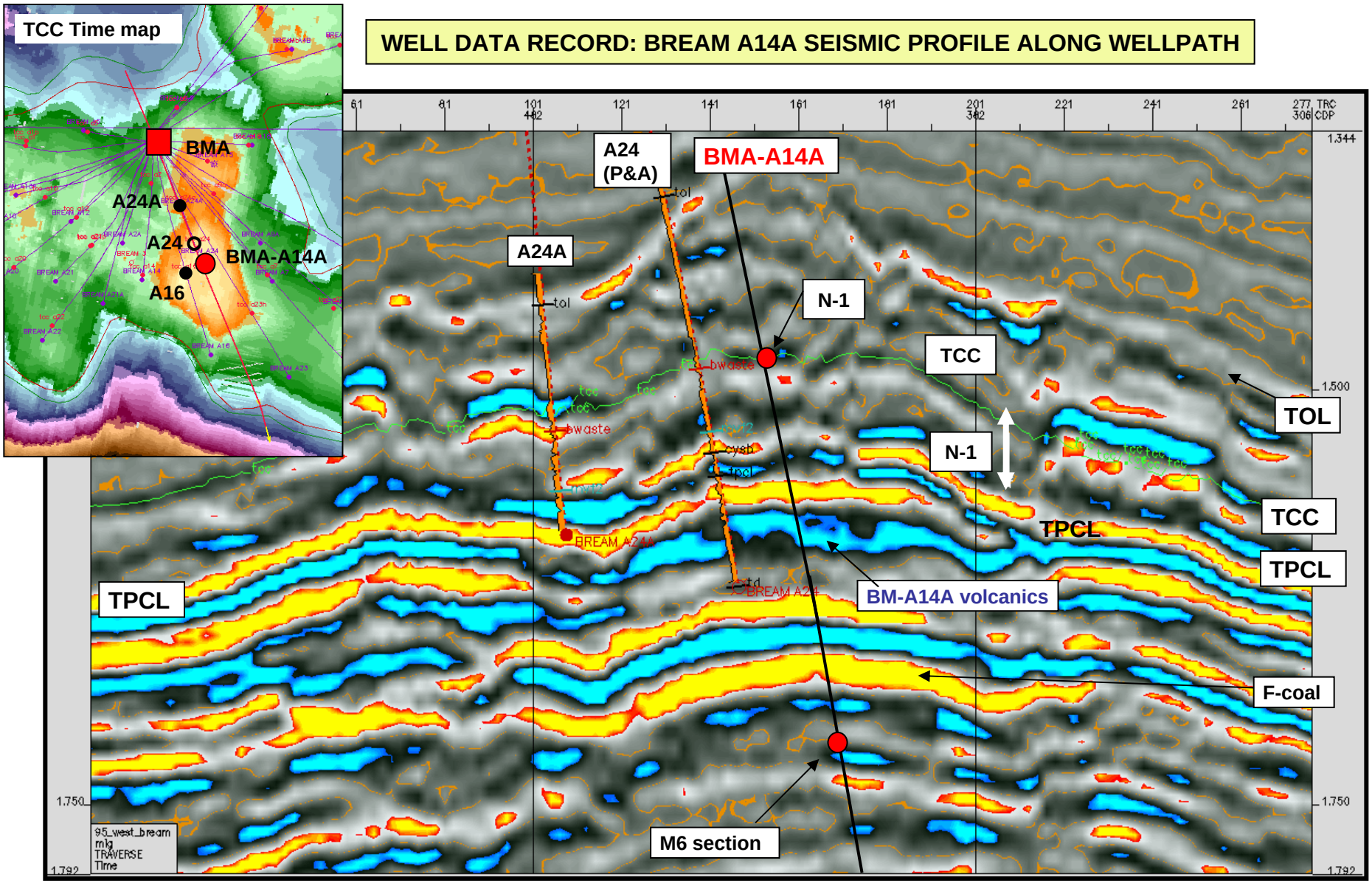
WELL DATA RECORD: BREAM A14A STRUCTURE MAPS & SECTIONS

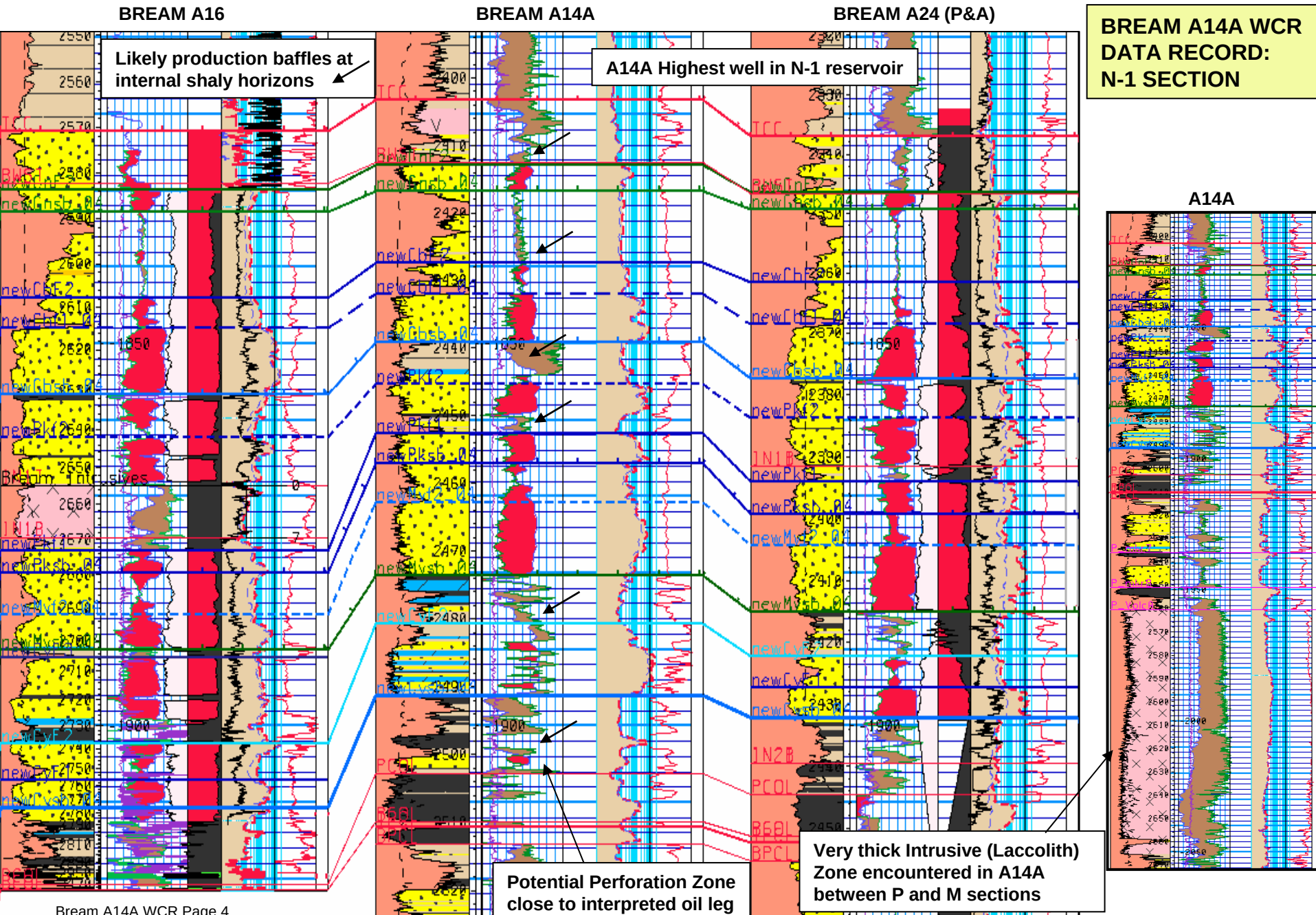




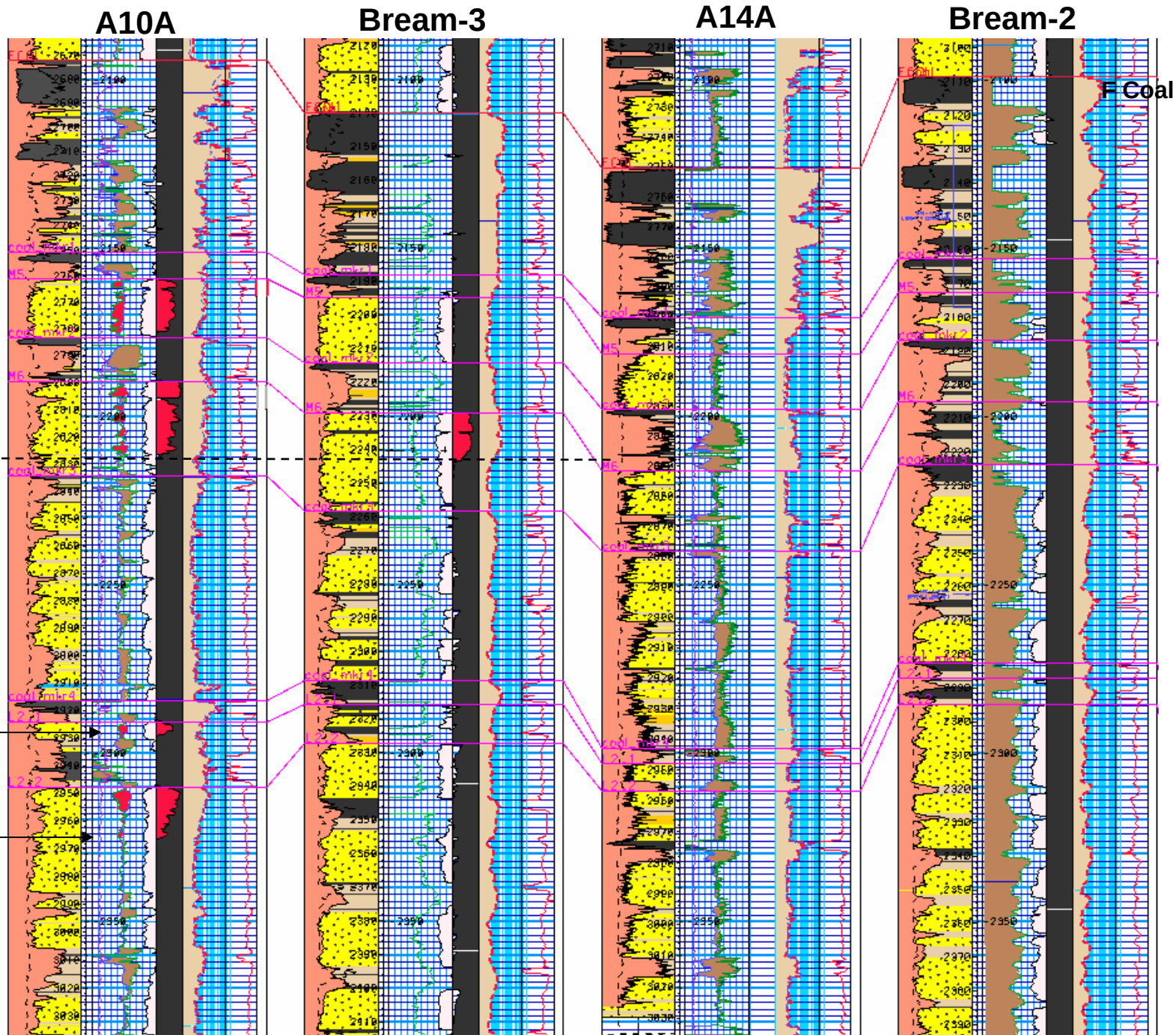


WELL DATA RECORD: BREAM A14A SEISMIC PROFILE ALONG WELLPATH




BREAM A16
BREAM A14A
BREAM A24 (P&A)
BREAM A14A WCR DATA RECORD: N-1 SECTION
Likely production baffles at internal shaly horizons
A14A Highest well in N-1 reservoir
A14A
Potential Perforation Zone close to interpreted oil leg
Very thick Intrusive (Laccolith) Zone encountered in A14A between P and M sections

BREAM A14A WCR DATA RECORD: DEEP SECTION



M-5 wet in A14A, below A10A "OWC" -2175m (oil/ very rich-gas in A10, A10A). (Bm-3 also wet, A10A sand must be isolated)

M-6 wet in A14A, below GWC -2213m (gas in A10, A10A, Bm-3).

L-2.1 GWC in A10A (A10A sand must be separated from Bm3 and A14A wet sands)

L-2.2 OWC in A10A (A10A sand must be separated from Bm3 and A14A wet sands)

II. WELL DATA RECORD: BREAM A14A DEEP SECTION

II. WELL DATA RECORD (cont'd)

LOCATION

Field	**Bream**		
Well Name	**A14A** (Loc D)	**Conductor #14 Surface Coordinates**	
Conductor Number	Slot 14	(GDA94) X	567344.8m E
State	Victoria	(MGA94) Y	5738459.5m N
Permit/Licence	Vic/L13	Latitude	38° 29' 58.848" S
Geological Basin	Gippsland	Longitude	147° 46' 20.327" E
Top of Latrobe	2205.0 m MDRT 1688.1m TVDRT -1655.3m TVDSS	**Perforations** (driller)	Not yet perforated.
MGA94 X	567808.6m E		
MGA94 Y	5737291.3m N		
Latitude	38º 30' 36.618" S	**Datum**	GDA94 (GRS80)
Longitude	147º 46' 39.881" E	**Projection**	Transverse Mercator MGA94/UTM Zone 55 (S)

ELEVATIONS & DEPTHS

Water Depth	59.43 m
Top Wellhead to MSL	27.66m
Main Deck Rel to MSL	25.12 m
RT Relative to MSL	32.82 m
Average Well Angle	44.5 to N-1 then 28 deg
Total Depth	3079.0 m MDRT 2456.9 m TVDRT -2424.1m TVDSS
Plug Back Depth	3034.9m MDRT

DATES

Skid Rig	29/07/2005
Kicked Off	01/08/2005
Development Rig Days	18.3
NPT Days	0.6
Rig Released	19/08/2005
I.P. Established	To be completed ~April 2006

MISCELLANEOUS

Operator	Esso Australia Pty Ltd		
Esso Interest	50%	**Contractor**	International Sea Drilling Ltd
Permittee/Licensee	Esso/BHPP	**Rig Name**	Nabors Rig 453
Other Interest	50% J.V. Interest	**Equipment Type**	Platform
Overriding Royalty	2.5%	**Completion Type**	Single
Drilling AFE No.	L0501F460	**Completion Size**	3-1/2"

WELL CLASSIFICATION

Before Drilling	Oil and gas Development	**After Drilling**	Cased and completed. Awaiting perforation.

CASING RECORD

Type	**Size** (Inches)	**Weight** (lb/ft)	**Grade**	**Thread**	**Depth** (mMDRT)
Original A14 Surface	$10^3/_4$	40.5	K-55	BTC	1006.1
Production Casing	7	26	L-80	Vam Top	3074.5

CEMENTING RECORD

Casing details	**Cement Type**	**Dry Cement Volume** (sacks)	**Cement Additives**	**Mix Water** (bbls)	**Slurry Volume** (bbls)	**Slurry Density** (ppg)	**Cement to/from** (m MDRT)	**Casing Pressure Test** (psi)
7" 26 lb/ft	Class G	607	HALAD 413L 27 gal / 10 bbl (270 gal) NF-5 0.225 gal / 10 bbl (2.25 gal) CFR-3L 2.7 gal / 10 bbl (27 gal) SCR-100L 0.45 gal / 10 bbl (4.5 gal)	70.2 freshwater	125	15.8	2100 to 3074.5	3000 psi

II. WELL DATA RECORD (cont.)

DRILLING PERFORMANCE

Esso Australia Pty Ltd. / ExxonMobil Development Company - Technical Report

BMA A14A - Final Well Report

GENERAL

Platform:	Bream	**Rig:**	453	**Reservoir:**	N-1 (TCC)/ L Sands
Well:	A14A	**Well Slot:**	#14	**RT-MSL (Rig453)**	32.82
Drilling Complexity Index	3.4	**Completion Complexity Index**	2.9		

DEPTH		**PERFORMANCE**		**MUD**	
m MDRT	3,079.00	**20" Cond. Hole**	N/A	**Max Wt (ppg)**	10.1
m TVDRT	2,456.90	**12-1/4" Surf. Hole**	N/A	**Type (Surf. Hole)**	N/A
Vert. Section (m)	1,619.02	**8-1/2" Prod. Hole**	268m/day	**Type (Inter. Hole)**	N/A
INCLINATION		**6" Liner Hole**	N/A	**Type (Prod. Hole)**	KCl/PHPA/Poly/Glycol
Max (deg) / Ave (deg)	47.4/ 44.5 (Tang)	* time to drill interval, incl's Connections & NPT.		**Type (Liner Hole)**	N/A

Comments: New hole drilled: 1,006m to 3,079mMDRT (2,073m MDRT drilled). Final TD was shortened by 319m MD after not finding any hydrocarbons in the L reservoir sands based on mud logs.

TIME ANALYSIS

Start Date:	1/08/2005, 0900hrs	**Finish Date:**	19/08/2005, 1700hrs		
Target Days (P10):	28.0	**Total Days:**	18.3	**% Under Target:**	35 % (under)
AFE Days (P50):	31.7	**NPT Days:**	0.6	**% of Total Days:**	3.3%
Supplementary AFE Days (P50):	N/A				

COSTS *(based on projected)*

AFE No.:	L0501F460	**Revisions:**	--	**$ per m**	A $1.98 k / metre (new hole)
$ per day:	A$ 225 k/day	**$ per day (excl. T + L)** * Equipment, LWD & Reeves	A$ 180 k/day		A$ 1.34 k / metre* * based on TD **not** new hole

	Equipment	**Materials**	**Contracts**	**Allocations**	**Contingency**	**Total**
AFE (Original)	1,022,000	789,900	4,088,400	566,500	449,200	A$6,916,000
AFE (Supplement)	-	-	-	-	-	-
Projected	707,000	485,000	2,323,000	400,000	200,000	A$4,115,000

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

	Size / Weight / Grade / Thread	**m MDRT**	**m TVDRT**	**PIT (ppg)**
Conductor Casing *	22"	167	167	N/A
Surface Casing *	10-3/4", 40.5 ppf, K55, BTC	1,006	835	13.0 (PIT)
Prod Casing	7", 26.0 ppf, L80, Vam Top HC	3,075	2,453	N/A

Comments: * Pre-existing casing strings.

COMPLETION

	Size / Weight / Grade / Thread	**MMDRT**	**MTVDRT**	**Type**
Completion	3-1/2", 9.2ppf, 13Cr80, Vam Ace	2,387.9	1,837.6	Single oil

	Upper Interval [m MDRT]	**Upper Interval [m TVDRT]**	**Lower Interval [mMDRT]**	**Lower Interval [mTVDRT]**	**Gun Type**
Perforation Interval:	Not yet perforated	NA	NA	NA	NA

Comments: Completion was 3-1/2" 13Cr80 with TR-SSSV and 3 SPMs for gas lift, and one packer set at 2,368m MDRT.

ADDITIONAL

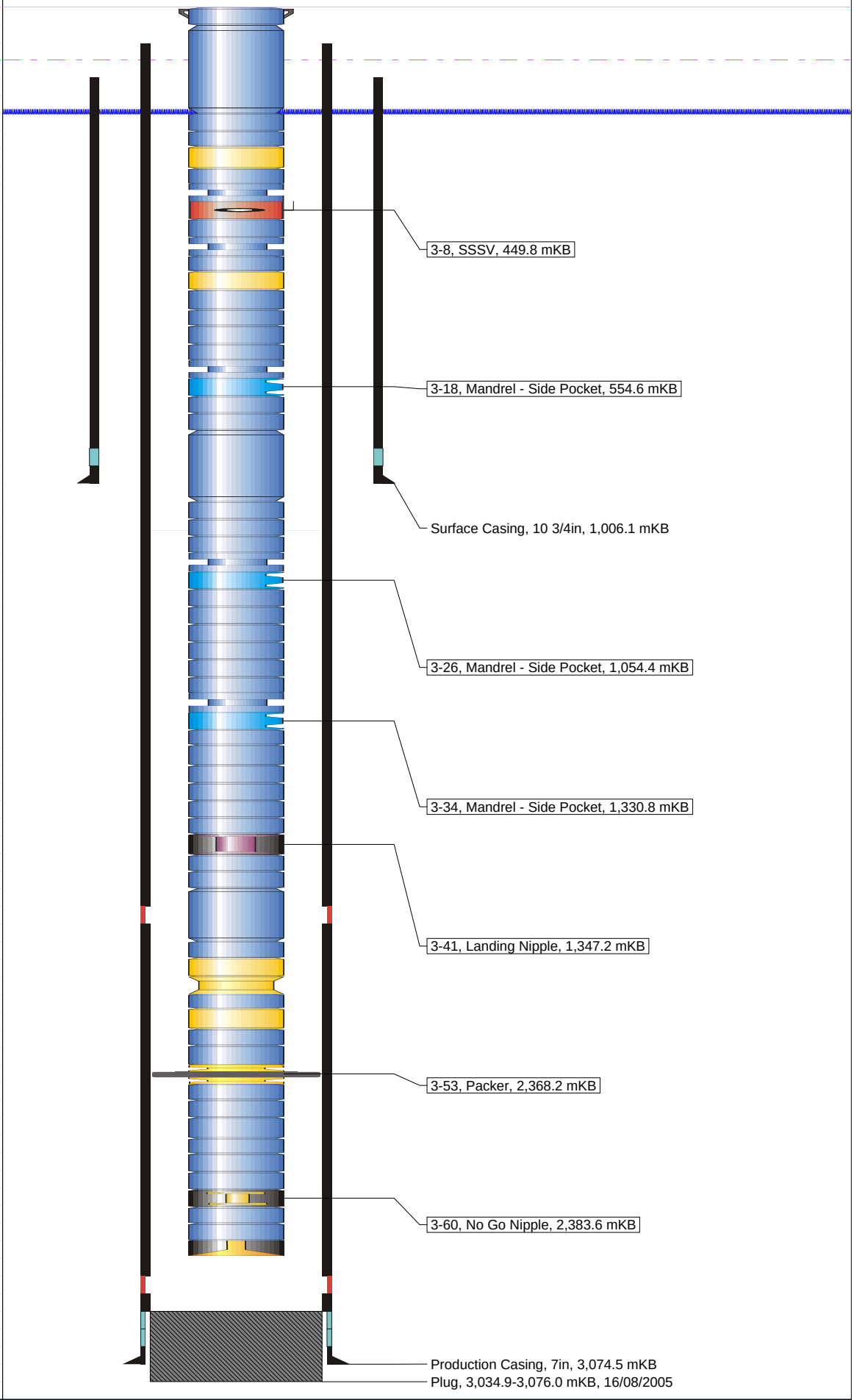
		Upper Interval [m MDRT]	**Lower Interval [m MDRT]**
Logs Run	GR-Resistivity-Density-Neutron-Sonic-Caliper	1006	3,059

Comments: The 8-1/2" hole interval was logged using the Reeves well shuttle system. All data was retrieved on first attempt. Hole started becoming tight and packing off at 3,062m prior to deploying logging tools.

Bream A14 A: Existing Schematic

Incl	mKB (TVD)
0.0	11
0.0	12
0.0	12
0.0	13
0.0	14
0.0	15
0.0	21
29.3	430
29.3	430
29.4	431
29.4	431
29.6	433
29.7	434
29.7	434
29.8	436
29.8	436
29.9	437
38.7	517
38.7	517
38.9	518
38.9	518
39.1	520
39.3	522
39.3	522
39.5	523
47.8	818
47.4	827
47.2	835
42.7	867
42.7	867
42.6	868
42.6	868
42.7	869
42.8	871
42.8	871
42.9	873
43.7	1,064
43.8	1,065
43.8	1,066
43.8	1,066
43.9	1,067
44.0	1,069
44.0	1,069
44.1	1,070
44.2	1,077
44.2	1,078
44.2	1,079
44.2	1,079
44.2	1,079
44.2	1,079
44.2	1,081
43.9	1,652
43.5	1,661
30.3	1,807
30.3	1,808
30.2	1,809
29.8	1,817
29.8	1,817
29.8	1,819
29.8	1,819
29.7	1,820
29.6	1,822
29.6	1,822
29.5	1,823
29.0	1,832
29.0	1,832
28.9	1,834
28.9	1,834
28.9	1,834
28.9	1,834
28.7	1,837
28.6	1,838
27.1	2,241
26.7	2,253
22.1	2,416
21.8	2,428
21.6	2,440
21.4	2,453
21.3	2,454

Schematic - Actual



III. SAMPLES

CUTTINGS

The cuttings sampling programme for BREAM A14A are detailed in the following table:

Interval	Formation	Sampling Details
KOP to 150 m above Top of Latrobe (prognosed at 2205.8mMDRT) 1050.0 – 2040.0 mMDRT	Lakes Entrance	Cuttings samples for description only at 30 m intervals.
150 m above Top of Latrobe to Top of Latrobe (prognosed at 2205.8mMDRT) 2040.0 – 2200.0 mMDRT	Lakes Entrance	Three sets of washed and oven dried cuttings at 10 m intervals.
Top of Latrobe (prognosed at 2205.8mMDRT) to **Total Depth (TD)** 2200.0 – 3079.0 mMDRT	Latrobe Group	Three sets of washed and oven dried cuttings at 5 m intervals.

Detailed cuttings descriptions for the interval 1050.0 to 3079.0 mMDRT (TD) are contained in Appendix 3a.

CONVENTIONAL CORING

No conventional cores were cut in BREAM A14A.

SIDEWALL CORING

No sidewall core samples were shot in BREAM A14A.

IV. LOGS AND SURVEYS

Survey/Log	Company	Top (m MDRT)	Bottom (m MDRT)
MWD Run 1, Powerpulse (Directional & GR)	Schlumberger/Anadrill	1005.0	2395.0
MWD Run 2, Powerpulse (Directional & GR)	Schlumberger/Anadrill	2395.0	3059.49
Run 1: Drillpipe conveyed Logging MCG-MDN-MPD-MSS-MDL - MAI	Reeves (Precision Logging) Compact wireline tools run on drillpipe (Shuttle System, memory mode)	1006.0	3059.0

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

V. FORMATION RESERVOIR TOPS - BREAM A14A

Horizon	m TVDSS			m MDRT	mTVT HC Column	
	Predicted Tops	ACTUAL	Diff. (m)	ACTUAL	Predicted	ACTUAL
Lakes Entrance Form.	-1000	-989.6	10.4 high	1269.5		
Top of Latrobe (TOL)	-1655	-1655.3	0.3 low	2205.0		
Top of Coarse Clastics (TCC)	-1823	-1818.2	4.8 high	2403.3		
Base of Waste (BWST)		-1826.3		2412.5		
newGnF2		-1826.6		2412.9	**2m** net gas in	**23.2m** net gas
newGnsb		-1830.0		2416.7	Green toGnsb	in Green and
NewCbF2		-1839.4		2427.4	**22m** in Cobalt	Cobalt sands:
newCbf1		-1843.5		2432.0	Gnsb to Cbsb	GnF2 to Cbsb
newCbsb	-1845	-1849.8	4.8 low	2439.1	**4** net to Pkf2	**-**
newPkf2		-1854.0		2443.9	**6m** net gas	**6.1m** net gas
newPkf1	-1860	-1861.7	1.7 low	2452.6	in Pkf2 to Pkf1	in Pkf2 to Pkf1
newPksb		-1865.6		2457.0	**15m** net gas	**19.0m** net gas
newMvF2		-1870.7		2462.8	Pkf1 to Mvsb	Pkf1 to Mvsb
newMvsb		-1880.3		2473.6		
newCyF2	-1885	-1886.6	1.6 low	2480.7	**4m** net gas	-
newCyF1		-1888.9		2483.3	**4m** net gas in	**3.7m** net gas
NewCySB		-1896.0		2491.3	CyF1 to CySB	CyF1 to CySB
P_coal	-1903	-1906.2	3.2 low	2502.8	-	**2m** gas abv P
					57m total	***54m total***
TPCL	-1910	-1913.2	3.2 low	2510.6		
P_Volcanic	-1953	-1957.5	4.5 low	2560.4		
F_coal	-2115	-2126.1	11.1 low	2750.2		
coal_mkr_1		-2170.6		2800.4		
Top M-5 Sand	-2175	-2181.6	6.6 low	2812.7	-	-
coal_mkr_2 (base M-5)		-2197.9		2831.1		
Top M-6 Sand	-2200	-2216.3	16.3 low	2849.0	13 gas (8 net)	-
Base M-6 Sand		-2229.4		2866.4		
coal_mkr_3		-2240.1		2878.3		
coal_mkr_4 (L2 coal)		-2298.5		2942.9		
Top L2-1 Sand	-2288	-2303.2	15.2 low	2948.0	-	-
Top L2-2 Sand	-2300	-2311.1	11.1 low	2956.7	19gas (15 net)	-
L-9 sand	-2500	Not pen.		Not pen.	-	-
J coal	-2645	Not pen.		Not pen.		
Total Depth (TD)	-2700	-2424.1	275.9 hi	3079.0		

VI. GEOLOGICAL ANALYSIS - BREAM A14A

Objectives

Bream A14A (Location D) was the fourth well drilled by the ISDL Rig 453 in the Bream A 2005-6 drilling program. The primary objectives of the Bream A14A well were 1) develop N-1 oil and gas reserves at the crest of the field in the BMA area where attic gas would occur and the underlying N-1 oil column is expected to focus and collect, and 2) test the distribution of intra-Latrobe rich gas sands recently encountered in Bream A10A and develop such sands. The well was drilled along a specific path to meet these objectives.

Results

Bream A14A was kicked off below the A14 10 ¾" surface casing shoe on 1 August 2005 at 1006 mMD and drilled to TD of 3079 mMDRT (-2424.1 TVDSS). Logging was conducted by Reeves (Precision Logging) drillpipe conveyed wireline tools on Shuttle. The well is yet to be completed as a gas producer with possible future oil production.

Top of Latrobe Group was encountered close to prediction at 2205 mMDRT (-1655.3m TVDSS). In the sandstone/ volcanic section (volcanic tuff?) between TOL and TCC, moderate gas chromatograph readings were encountered in the 2280-2300mMD interval, and there may be gas saturation present, however reservoir quality is apparently poor. Gas sands were encountered in the TOL to TCC section in Bream-2 and A10/ A10A.

Top of Coarse Clastics was intersected 4.8mTVD high to prediction at 2403.3 mMDRT (-1818.2 mTVDSS). Bream A14A is the structurally highest well on the field at the Top of Coarse Clastics / N-1 reservoir, with the TCC intersection 4mTVD updip of Bream A16, while at the internal N-1 Pink PkF1 shale surface (-1861.7mTVDSS vs -1877.1m) A14A is 15.4m TVD updip of A16. The good quality Green, Cobalt, Pink, Mauve and Cyan sands, which are separated by shale, siltstone, coal or volcanics production barriers, are all moderately to significantly updip of the nearby Bream A16 and Bream A24 wells.

A 79 mTVD thick gas column was observed in this crestal location at Bream A14A, with gas present from the Green GnF2 surface (2412.9m MDRT, -1826.6 mTVDSS) down to Lowest Known Gas at 2502.1 mMD (-1905.6 mTVDSS). The small gas sand representing the LKG just above the P.asperopolous coal is believed to be part of the N-1 gas system via faulting in the crestal area. A total of 54m TVD net gas is interpreted in the N-1 section in Bream A14A. An N-1 oil column was not observed, as the current location of the oil column coincides with the 10m TVD thick P-coal/TPCL coal unit (non-net).

Below the N-1 sands, Bream A14A intersected a section of thick intrusives, shales, coals and sands down to the F-coal at 2750m MD. The intrusive (top at 2560 mMD) located below the P coal/TPCL coal marker was approximately 94m TVD thick, greater than the pre-drill estimate of 65-70m TVD. Although sometimes loosely described as "volcanics", the rock is interpreted to be an igneous intrusive like a laccolith and its emplacement has caused the high structure at the N-1 level. Although thick, dense, and moderately hard, the intrusive material was drilled quite easily.

The greater than expected thickness of the intrusive unit, with its associated greater time pull-up effect, impacted depth prediction of the underlying section. The F-coal, which had been utilised as the mapping horizon for the underlying M reservoir section, was intersected 11.1m TVD low to prediction. In addition, there was stratigraphic thinning of the M-5 sand and also the primary M-6 target gas sand, compared to the Bream 3 offset well. Together the structural and stratigraphic factors resulted in the M-6 reservoir being intersected 16.3m TVD low to prediction at 2849m MDRT (-2216.3m TVDSS), below the M-6 GWC -2213m TVDSS seen in A10, A10A and Bream-3. The M-5 sand came in at -2181.6m TVDSS, below the M-5 hydrocarbon contact of -2175m TVDSS.

Similarly, the loss of deep structure associated with the intrusive-related velocity effects impacted

on the depth prediction of the L sands. The L-2.1 (a gas sand in Bream A10A with GWC -2294.7m TVDSS) was intersected in A14A 15.2m TVD low to prediction and wet at 2948.0m MDRT (-2303.2m TVDSS). The L-2.2 (a gas sand with oil leg and OWC -2325.5m TVDSS in A10A) was intersected 11.1m TVD low at 2956.7m MD (-2311.1m TVDSS). Despite being within the depth range of the A10A hydrocarbons, the L-2.2 was wet in A14A. Bream-3 is also wet in the L sands and is structurally higher than A10A, indicating possible stratigraphic isolation of the A10/A10A L sands. This is also the possible situation for the M-5 sand in A10A.

Based on the drilling results in the deep section, and the lack of significant remaining potential indicated by Bream-3, the TD for Bream A14A was shortened from -2700m TVDSS to -2424m TVDSS (3079m MD). The well was logged, then cased down to TD and completed for N-1 reserves capture.

The A14A well will provide a longterm N-1 gas supply drainage point for the future and will also allow for early oil leg production from the deepest N-1 gas sand intervals as blowdown progresses. It is expected to be perforated during the 2Q 2006.

APPENDIX 1a

BREAM A14A

Survey Data

BMA A-14A Final Geodetic Survey

Report Date:	October 28, 2005	Survey / DLS Computation Method:	Minimum Curvature / Lubinski
Client:	Esso Australia Pty Ltd	Vertical Section Azimuth:	167.400°
Field:	Bream A GDA 94	Vertical Section Origin:	S 2.900 m, E 8.310 m
Structure / Slot:	Bream A / 14	TVD Reference Datum:	RKB
Well:	14	TVD Reference Elevation:	32.8 m relative to MSL
Borehole:	BMA A-14A	Sea Bed / Ground Level Elevation:	-59.400 m relative to MSL
UWI/API#:		Magnetic Declination:	13.100°
Survey Name / Date:	BMA A-14A Final / August 2, 2005	Total Field Strength:	60144.971 nT
Tort / AHD / DDI / ERD ratio:	152.003° / 1729.94 m / 6.034 / 0.704	Magnetic Dip:	-69.024°
Grid Coordinate System:	GDA94/MGA94 Zone 55	Declination Date:	August 02, 2005
Location Lat/Long:	S 38 29 58.847, E 147 46 20.327	Magnetic Declination Model:	BGGM 2004
Location Grid N/E Y/X:	N 5738459.560 m, E 567344.810 m	North Reference:	Grid North
Grid Convergence Angle:	-0.48079080°	Total Corr Mag North -> Grid North:	+13.581°
Grid Scale Factor:	0.99965585	Local Coordinates Referenced To:	Structure Reference Point

Comments	Measured Depth (m)	Inclination (deg)	Azimuth (deg)	TVD (m)	Vertical Section (m)	NS (m)	EW (m)	DLS (deg/30 m)	Northing (m)	Easting (m)	Latitude	Longitude
Tie-In	0.00	0.00	0.00	0.00	0.00	-2.90	8.31	0.00	5738459.56	567344.81	S 38 29 58.847	E 147 46 20.327
	60.00	0.00	0.00	60.00	0.00	-2.90	8.31	0.00	5738459.56	567344.81	S 38 29 58.847	E 147 46 20.327
	89.32	0.25	284.50	89.32	-0.03	-2.88	8.25	0.26	5738459.58	567344.75	S 38 29 58.846	E 147 46 20.324
	104.32	0.75	173.50	104.32	0.06	-2.97	8.23	1.74	5738459.49	567344.73	S 38 29 58.849	E 147 46 20.323
	119.32	2.25	154.50	119.31	0.44	-3.34	8.37	3.12	5738459.12	567344.87	S 38 29 58.861	E 147 46 20.329
	134.32	4.50	148.50	134.29	1.28	-4.11	8.80	4.55	5738458.36	567345.30	S 38 29 58.886	E 147 46 20.347
	149.32	6.50	147.00	149.22	2.64	-5.32	9.57	4.01	5738457.14	567346.07	S 38 29 58.925	E 147 46 20.379
	159.32	8.00	144.50	159.14	3.81	-6.36	10.28	4.60	5738456.10	567346.78	S 38 29 58.958	E 147 46 20.409
	187.52	10.25	177.66	187.00	8.09	-10.47	11.53	5.98	5738452.00	567348.02	S 38 29 59.091	E 147 46 20.462
	215.02	11.75	183.16	213.99	13.19	-15.71	11.47	2.00	5738446.76	567347.97	S 38 29 59.261	E 147 46 20.462
	242.52	15.25	173.16	240.73	19.49	-22.10	11.75	4.58	5738440.37	567348.25	S 38 29 59.468	E 147 46 20.475
	298.42	18.00	175.16	294.29	35.36	-38.01	13.35	1.51	5738424.47	567349.85	S 38 29 59.984	E 147 46 20.547
	327.22	20.00	176.16	321.52	44.64	-47.36	14.06	2.11	5738415.12	567350.56	S 38 30 0.287	E 147 46 20.579
	356.02	22.00	177.16	348.41	54.83	-57.66	14.66	2.12	5738404.82	567351.15	S 38 30 0.621	E 147 46 20.607
	384.72	24.25	178.16	374.80	65.91	-68.92	15.11	2.39	5738393.56	567351.61	S 38 30 0.986	E 147 46 20.630
	413.42	26.25	178.16	400.75	77.94	-81.16	15.51	2.09	5738381.33	567352.00	S 38 30 1.383	E 147 46 20.651
	441.72	29.00	178.16	425.83	90.83	-94.27	15.93	2.92	5738368.22	567352.42	S 38 30 1.808	E 147 46 20.673
	470.42	31.00	178.16	450.68	104.93	-108.61	16.39	2.09	5738353.89	567352.88	S 38 30 2.273	E 147 46 20.697
	499.22	33.25	178.16	475.07	119.97	-123.92	16.88	2.34	5738338.58	567353.37	S 38 30 2.769	E 147 46 20.722
	527.72	36.50	178.66	498.45	135.97	-140.21	17.33	3.43	5738322.30	567353.82	S 38 30 3.297	E 147 46 20.746
	556.42	39.25	178.66	521.10	153.25	-157.82	17.74	2.87	5738304.69	567354.23	S 38 30 3.868	E 147 46 20.769
	584.92	42.00	179.16	542.73	171.43	-176.37	18.09	2.91	5738286.15	567354.59	S 38 30 4.470	E 147 46 20.790
	613.62	42.75	179.16	563.93	190.36	-195.71	18.38	0.78	5738266.82	567354.87	S 38 30 5.097	E 147 46 20.809
	642.32	43.75	179.66	584.83	209.60	-215.38	18.58	1.10	5738247.16	567355.07	S 38 30 5.734	E 147 46 20.824
	671.12	44.25	180.16	605.55	229.13	-235.38	18.61	0.63	5738227.16	567355.10	S 38 30 6.383	E 147 46 20.832
	699.92	44.25	180.66	626.18	248.71	-255.48	18.46	0.36	5738207.07	567354.96	S 38 30 7.035	E 147 46 20.833
	728.72	45.00	180.66	646.68	268.40	-275.71	18.23	0.78	5738186.85	567354.72	S 38 30 7.691	E 147 46 20.830
	757.42	45.25	181.16	666.93	288.18	-296.04	17.91	0.45	5738166.52	567354.40	S 38 30 8.351	E 147 46 20.824
	786.12	46.00	181.66	687.00	308.08	-316.55	17.40	0.87	5738146.02	567353.90	S 38 30 9.016	E 147 46 20.810
	814.82	46.75	181.66	706.80	328.21	-337.32	16.80	0.78	5738125.26	567353.29	S 38 30 9.689	E 147 46 20.793
	843.52	47.75	182.16	726.28	348.62	-358.38	16.10	1.11	5738104.20	567352.59	S 38 30 10.373	E 147 46 20.771
	872.32	48.25	182.16	745.55	369.31	-379.77	15.29	0.52	5738082.82	567351.79	S 38 30 11.066	E 147 46 20.745
	901.12	48.25	182.16	764.73	390.09	-401.24	14.48	0.00	5738061.36	567350.98	S 38 30 11.763	E 147 46 20.719
	929.82	48.25	182.66	783.84	410.77	-422.63	13.58	0.39	5738039.98	567350.08	S 38 30 12.457	E 147 46 20.689
	958.62	48.00	182.66	803.06	431.46	-444.05	12.59	0.26	5738018.56	567349.08	S 38 30 13.152	E 147 46 20.656
	987.42	47.75	183.16	822.38	452.04	-465.38	11.50	0.47	5737997.24	567348.00	S 38 30 13.844	E 147 46 20.618
	996.62	47.25	183.16	828.60	458.57	-472.16	11.13	1.63	5737990.47	567347.62	S 38 30 14.064	E 147 46 20.605
Tie-In	1005.00	47.36	182.94	834.28	464.50	-478.31	10.80	0.70	5737984.32	567347.30	S 38 30 14.263	E 147 46 20.594
	1051.91	42.60	171.91	867.50	497.02	-511.33	12.15	5.83	5737951.31	567348.65	S 38 30 15.334	E 147 46 20.661
	1080.45	43.67	168.59	888.33	516.50	-530.55	15.46	2.64	5737932.09	567351.96	S 38 30 15.956	E 147 46 20.804
	1109.32	45.42	164.58	908.91	536.74	-550.24	20.17	3.44	5737912.41	567356.66	S 38 30 16.593	E 147 46 21.005
	1138.30	45.67	159.74	929.21	557.33	-569.92	26.50	3.59	5737892.74	567362.99	S 38 30 17.230	E 147 46 21.274
	1166.89	46.01	155.20	949.14	577.52	-588.85	34.36	3.44	5737873.81	567370.85	S 38 30 17.842	E 147 46 21.605
	1195.74	45.44	149.44	969.29	597.45	-607.13	43.94	4.33	5737855.54	567380.43	S 38 30 18.432	E 147 46 22.006
	1224.47	44.07	143.40	989.70	616.33	-623.97	55.11	4.66	5737838.70	567391.59	S 38 30 18.975	E 147 46 22.473
	1253.38	43.26	142.42	1010.61	634.49	-639.90	67.15	1.10	5737822.78	567403.62	S 38 30 19.488	E 147 46 22.975
	1282.15	42.52	142.33	1031.69	652.23	-655.41	79.10	0.77	5737807.28	567415.57	S 38 30 19.988	E 147 46 23.474
	1310.56	43.07	143.02	1052.54	669.77	-670.75	90.80	0.76	5737791.94	567427.27	S 38 30 20.483	E 147 46 23.962

1339.29	44.26	142.42	1073.32	687.79	-686.54	102.82	1.32	5737776.16	567439.28	S 38 30 20.991	E 147 46 24.464
1368.51	44.14	142.11	1094.27	706.23	-702.65	115.29	0.25	5737760.05	567451.75	S 38 30 21.510	E 147 46 24.984
1397.20	44.83	144.19	1114.74	724.56	-718.73	127.34	1.69	5737743.97	567463.79	S 38 30 22.029	E 147 46 25.487
1425.97	44.98	144.23	1135.11	743.23	-735.21	139.22	0.16	5737727.50	567475.67	S 38 30 22.560	E 147 46 25.983
1454.65	44.45	144.24	1155.49	761.78	-751.58	151.01	0.55	5737711.14	567487.46	S 38 30 23.087	E 147 46 26.475
1483.50	44.91	144.10	1176.01	780.42	-768.03	162.88	0.49	5737694.70	567499.33	S 38 30 23.617	E 147 46 26.971
1512.14	44.59	143.62	1196.35	798.91	-784.31	174.78	0.49	5737678.42	567511.22	S 38 30 24.142	E 147 46 27.467
1540.94	45.07	143.26	1216.77	817.46	-800.62	186.87	0.57	5737662.12	567523.31	S 38 30 24.668	E 147 46 27.972
1569.16	43.99	143.07	1236.89	835.51	-816.46	198.73	1.16	5737646.28	567535.17	S 38 30 25.178	E 147 46 28.467
1598.09	44.78	143.33	1257.56	853.96	-832.66	210.86	0.84	5737630.08	567547.28	S 38 30 25.700	E 147 46 28.973
1626.86	44.58	142.03	1278.02	872.34	-848.75	223.12	0.98	5737614.00	567559.54	S 38 30 26.219	E 147 46 29.485
1655.64	45.17	140.98	1298.42	890.60	-864.64	235.76	0.99	5737598.12	567572.18	S 38 30 26.731	E 147 46 30.012
1684.30	44.75	141.08	1318.70	908.75	-880.39	248.50	0.45	5737582.38	567584.91	S 38 30 27.238	E 147 46 30.543
1713.06	45.26	141.14	1339.03	926.98	-896.22	261.26	0.53	5737566.55	567597.67	S 38 30 27.748	E 147 46 31.076
1741.44	45.84	141.03	1358.90	945.14	-911.98	273.99	0.62	5737550.79	567610.40	S 38 30 28.255	E 147 46 31.607
1769.98	45.13	141.10	1378.91	963.38	-927.81	286.78	0.75	5737534.97	567623.18	S 38 30 28.765	E 147 46 32.140
1799.28	45.39	141.40	1399.54	982.06	-944.04	299.81	0.34	5737518.74	567636.20	S 38 30 29.288	E 147 46 32.683
1828.01	45.40	141.48	1419.71	1000.45	-960.04	312.56	0.06	5737502.75	567648.95	S 38 30 29.803	E 147 46 33.215
1856.46	45.71	141.53	1439.63	1018.73	-975.93	325.20	0.33	5737486.86	567661.59	S 38 30 30.315	E 147 46 33.742
1885.59	45.01	141.31	1460.10	1037.36	-992.14	338.12	0.74	5737470.67	567674.51	S 38 30 30.837	E 147 46 34.281
1914.06	44.71	142.27	1480.28	1055.47	-1007.91	350.55	0.78	5737454.89	567686.93	S 38 30 31.346	E 147 46 34.800
1943.35	45.24	142.01	1501.00	1074.19	-1024.26	363.25	0.57	5737438.55	567699.63	S 38 30 31.872	E 147 46 35.330
1972.06	45.11	142.49	1521.24	1092.62	-1040.36	375.72	0.38	5737422.46	567712.09	S 38 30 32.391	E 147 46 35.850
2000.86	44.50	142.00	1541.68	1110.99	-1056.41	388.14	0.73	5737406.42	567724.51	S 38 30 32.908	E 147 46 36.368
2029.65	45.14	143.24	1562.10	1129.42	-1072.53	400.46	1.13	5737390.30	567736.83	S 38 30 33.427	E 147 46 36.882
2058.03	44.53	143.43	1582.22	1147.69	-1088.58	412.41	0.66	5737374.25	567748.77	S 38 30 33.945	E 147 46 37.381
2086.87	44.76	143.21	1602.74	1166.19	-1104.84	424.52	0.29	5737358.00	567760.87	S 38 30 34.468	E 147 46 37.886
2116.15	44.77	143.06	1623.53	1184.99	-1121.33	436.89	0.11	5737341.51	567773.24	S 38 30 35.000	E 147 46 38.403
2144.19	44.20	143.04	1643.53	1202.89	-1137.03	448.70	0.61	5737325.82	567785.04	S 38 30 35.506	E 147 46 38.896
2173.44	43.39	145.02	1664.65	1221.47	-1153.41	460.59	1.63	5737309.44	567796.93	S 38 30 36.034	E 147 46 39.392
2201.31	41.23	148.37	1685.26	1239.01	-1169.08	470.90	3.36	5737293.78	567807.23	S 38 30 36.539	E 147 46 39.823
2230.50	39.70	149.84	1707.47	1256.99	-1185.33	480.63	1.85	5737277.53	567816.96	S 38 30 37.064	E 147 46 40.230
2258.00	38.50	153.80	1728.81	1273.69	-1200.61	488.82	3.02	5737262.26	567825.15	S 38 30 37.557	E 147 46 40.574
2287.66	36.21	158.00	1752.39	1291.31	-1217.02	496.18	3.46	5737245.86	567832.51	S 38 30 38.087	E 147 46 40.883
2317.11	33.85	163.58	1776.51	1308.08	-1232.96	501.76	4.05	5737229.92	567838.09	S 38 30 38.602	E 147 46 41.119
2345.91	30.65	174.25	1800.88	1323.39	-1247.98	504.76	6.79	5737214.91	567841.09	S 38 30 39.088	E 147 46 41.248
2371.19	29.56	183.12	1822.77	1335.80	-1260.62	505.07	5.43	5737202.27	567841.40	S 38 30 39.498	E 147 46 41.265
2401.98	27.88	188.74	1849.77	1349.82	-1275.32	503.56	3.10	5737187.58	567839.89	S 38 30 39.976	E 147 46 41.208
2431.04	27.95	192.07	1875.45	1362.33	-1288.70	501.11	1.61	5737174.20	567837.43	S 38 30 40.410	E 147 46 41.112
2459.71	27.61	194.37	1900.82	1374.36	-1301.71	498.05	1.18	5737161.20	567834.38	S 38 30 40.833	E 147 46 40.990
2488.24	27.52	194.87	1926.11	1386.10	-1314.48	494.72	0.26	5737148.43	567831.05	S 38 30 41.248	E 147 46 40.857
2516.66	27.26	195.20	1951.34	1397.68	-1327.11	491.33	0.32	5737135.81	567827.66	S 38 30 41.658	E 147 46 40.721
2544.64	27.14	193.50	1976.23	1409.08	-1339.50	488.16	0.84	5737123.42	567824.49	S 38 30 42.061	E 147 46 40.595
2573.20	27.03	192.95	2001.66	1420.79	-1352.16	485.18	0.29	5737110.77	567821.52	S 38 30 42.472	E 147 46 40.477
2602.67	27.36	192.33	2027.87	1432.97	-1365.30	482.24	0.44	5737097.63	567818.57	S 38 30 42.899	E 147 46 40.359
2631.19	27.47	193.05	2053.19	1444.84	-1378.11	479.35	0.37	5737084.83	567815.69	S 38 30 43.315	E 147 46 40.245
2659.59	27.14	193.77	2078.42	1456.55	-1390.78	476.33	0.49	5737072.16	567812.67	S 38 30 43.727	E 147 46 40.125
2688.14	27.17	193.98	2103.83	1468.22	-1403.43	473.21	0.11	5737059.51	567809.54	S 38 30 44.138	E 147 46 40.000
2716.45	27.56	193.47	2128.97	1479.88	-1416.07	470.12	0.48	5737046.88	567806.46	S 38 30 44.549	E 147 46 39.877
2745.48	27.81	192.90	2154.67	1492.02	-1429.20	467.04	0.38	5737033.75	567803.38	S 38 30 44.976	E 147 46 39.755
2774.02	26.99	193.26	2180.01	1503.86	-1442.00	464.07	0.88	5737020.96	567800.41	S 38 30 45.392	E 147 46 39.636
2803.23	27.69	193.40	2205.96	1515.92	-1455.05	460.98	0.72	5737007.91	567797.32	S 38 30 45.816	E 147 46 39.513
2831.87	27.41	192.87	2231.35	1527.86	-1467.95	457.97	0.39	5736995.01	567794.31	S 38 30 46.235	E 147 46 39.394
2860.78	26.60	192.87	2257.11	1539.71	-1480.75	455.04	0.84	5736982.22	567791.39	S 38 30 46.651	E 147 46 39.277
2889.41	25.64	192.82	2282.82	1551.09	-1493.04	452.24	1.01	5736969.94	567788.59	S 38 30 47.050	E 147 46 39.166
2917.79	24.91	192.45	2308.48	1562.05	-1504.86	449.59	0.79	5736958.12	567785.94	S 38 30 47.434	E 147 46 39.061
2946.12	24.10	192.49	2334.26	1572.69	-1516.33	447.05	0.86	5736946.65	567783.40	S 38 30 47.807	E 147 46 38.960
2975.67	23.38	192.38	2361.31	1583.47	-1527.95	444.49	0.73	5736935.04	567780.84	S 38 30 48.184	E 147 46 38.858
3004.42	22.82	191.96	2387.75	1593.71	-1538.98	442.11	0.61	5736924.01	567778.46	S 38 30 48.543	E 147 46 38.764
3032.80	22.11	192.02	2413.98	1603.58	-1549.58	439.86	0.75	5736913.41	567776.21	S 38 30 48.887	E 147 46 38.675
3059.49	21.59	192.07	2438.75	1612.60	-1559.30	437.79	0.58	5736903.70	567774.14	S 38 30 49.203	E 147 46 38.593
3079.00	21.30	192.10	2456.91	1619.09	-1566.27	436.30	0.45	5736896.72	567772.64	S 38 30 49.429	E 147 46 38.533

Survey Type: Definitive Survey

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

Surveying Prog:

MD From (m)	MD To (m)	EOU Freq	Survey Tool Type	Borehole -> Survey
0.00	92.22	Act-Stns	SLB_MWD-STD-Depth Only	BMA A-14A -> BMA A-14A Final
92.22	3079.00	Act-Stns	SLB_MWD-STD	BMA A-14A -> BMA A-14A Final

APPENDIX 1b

BREAM A14A

MD-TVD Survey Data Listing

Report Date:	21 October 2005
Well:	Bream A14A
Structure / Slot:	NABORS Rig 453
TVD Reference Datum:	Drillsite Elevation
TVD Reference Elevation:	32.82 m relative to MSL
Sea Bed / Ground Level Elevation:	59.78 m relative to MSL
Grid Coordinate System:	GDA94/MGA94 Zone 55
Location Lat/Long:	S -38 29' 58.848000", E 147 46' 20.326800"
Location Grid N/E:	N 5738459.5237 m, E 567344.8128 m
Survey Azimuth Reference:	Grid North

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
0	0	360	0	32.82	0	0	5738459.56	567344.81
5	0	0	5	27.82	0	0	5738459.56	567344.81
10	0	0	10	22.82	0	0	5738459.56	567344.81
15	0	0	15	17.82	0	0	5738459.56	567344.81
20	0	0	20	12.82	0	0	5738459.56	567344.81
25	0	0	25	7.82	0	0	5738459.56	567344.81
30	0	0	30	2.82	0	0	5738459.56	567344.81
35	0	0	35	-2.18	0	0	5738459.56	567344.81
40	0	0	40	-7.18	0	0	5738459.56	567344.81
45	0	0	45	-12.18	0	0	5738459.56	567344.81
50	0	0	50	-17.18	0	0	5738459.56	567344.81
55	0	0	55	-22.18	0	0	5738459.56	567344.81
60	0	360	60	-27.18	0	0	5738459.56	567344.81
65	0.04	347.12	65	-32.18	0	-0.01	5738459.57	567344.8
70	0.09	334.25	70	-37.18	0.01	-0.02	5738459.57	567344.79
75	0.13	321.37	75	-42.18	0.01	-0.03	5738459.57	567344.78
80	0.17	308.5	80	-47.18	0.01	-0.04	5738459.57	567344.77
85	0.21	295.62	85	-52.18	0.01	-0.05	5738459.58	567344.76
90	0.27	279.47	90	-57.18	0.01	-0.06	5738459.57	567344.75
95	0.44	242.47	95	-62.18	-0.02	-0.07	5738459.54	567344.74
100	0.61	205.47	100	-67.18	-0.05	-0.08	5738459.51	567344.73
105	0.82	172.64	105	-72.18	-0.09	-0.08	5738459.47	567344.74
110	1.32	166.31	110	-77.18	-0.21	-0.03	5738459.35	567344.78
115	1.82	159.97	115	-82.18	-0.33	0.02	5738459.23	567344.83
120	2.35	154.23	119.99	-87.17	-0.47	0.08	5738459.09	567344.89
125	3.1	152.23	124.98	-92.16	-0.73	0.22	5738458.84	567345.03
130	3.85	150.23	129.97	-97.15	-0.98	0.36	5738458.58	567345.18
135	4.59	148.43	134.96	-102.14	-1.26	0.52	5738458.3	567345.34
140	5.26	147.93	139.94	-107.12	-1.66	0.78	5738457.9	567345.59
145	5.92	147.43	144.92	-112.1	-2.07	1.04	5738457.49	567345.85
150	6.6	146.83	149.89	-117.07	-2.49	1.31	5738457.07	567346.12
155	7.35	145.58	154.85	-122.03	-3.01	1.66	5738456.55	567346.48
160	8.05	145.3	159.81	-126.99	-3.56	2	5738456	567346.81
165	8.45	151.18	164.75	-131.93	-4.29	2.22	5738455.28	567347.03
170	8.85	157.06	169.69	-136.87	-5.02	2.44	5738454.55	567347.25
175	9.25	162.94	174.63	-141.81	-5.74	2.66	5738453.82	567347.47
180	9.65	168.82	179.57	-146.75	-6.47	2.88	5738453.09	567347.69
185	10.05	174.7	184.51	-151.69	-7.2	3.1	5738452.36	567347.91
190	10.39	178.16	189.43	-156.61	-8.04	3.21	5738451.52	567348.02
195	10.66	179.16	194.34	-161.52	-8.99	3.2	5738450.57	567348.01
200	10.93	180.16	199.25	-166.43	-9.95	3.19	5738449.62	567348
205	11.2	181.16	204.16	-171.34	-10.9	3.18	5738448.66	567347.99
210	11.48	182.16	209.06	-176.24	-11.85	3.17	5738447.71	567347.98
215	11.75	183.16	213.97	-181.15	-12.8	3.16	5738446.76	567347.97
220	12.38	181.35	218.83	-186.01	-13.97	3.21	5738445.6	567348.02
225	13.02	179.53	223.7	-190.88	-15.13	3.26	5738444.44	567348.07

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
230	13.66	177.71	228.56	-195.74	-16.29	3.31	5738443.27	567348.12
235	14.29	175.89	233.42	-200.6	-17.45	3.36	5738442.11	567348.17
240	14.93	174.08	238.28	-205.46	-18.61	3.41	5738440.95	567348.22
245	15.37	173.25	243.11	-210.29	-19.9	3.51	5738439.66	567348.32
250	15.62	173.43	247.9	-215.08	-21.33	3.65	5738438.24	567348.46
255	15.86	173.61	252.69	-219.87	-22.75	3.8	5738436.81	567348.61
260	16.11	173.79	257.48	-224.66	-24.17	3.94	5738435.39	567348.75
265	16.36	173.96	262.27	-229.45	-25.6	4.08	5738433.97	567348.89
270	16.6	174.14	267.06	-234.24	-27.02	4.23	5738432.54	567349.04
275	16.85	174.32	271.85	-239.03	-28.44	4.37	5738431.12	567349.18
280	17.09	174.5	276.64	-243.82	-29.86	4.51	5738429.7	567349.32
285	17.34	174.68	281.43	-248.61	-31.29	4.66	5738428.28	567349.47
290	17.59	174.86	286.22	-253.4	-32.71	4.8	5738426.85	567349.61
295	17.83	175.04	291.01	-258.19	-34.13	4.94	5738425.43	567349.75
300	18.11	175.21	295.78	-262.96	-35.62	5.08	5738423.94	567349.89
305	18.46	175.39	300.51	-267.69	-37.24	5.2	5738422.32	567350.01
310	18.8	175.56	305.24	-272.42	-38.87	5.33	5738420.7	567350.14
315	19.15	175.74	309.97	-277.15	-40.49	5.45	5738419.07	567350.26
320	19.5	175.91	314.69	-281.87	-42.11	5.57	5738417.45	567350.38
325	19.85	176.08	319.42	-286.6	-43.74	5.69	5738415.83	567350.5
330	20.19	176.26	324.12	-291.3	-45.45	5.8	5738414.11	567350.62
335	20.54	176.43	328.78	-295.96	-47.24	5.91	5738412.32	567350.72
340	20.89	176.6	333.45	-300.63	-49.03	6.01	5738410.54	567350.82
345	21.23	176.78	338.12	-305.3	-50.82	6.12	5738408.75	567350.93
350	21.58	176.95	342.79	-309.97	-52.6	6.22	5738406.96	567351.03
355	21.93	177.12	347.45	-314.63	-54.39	6.32	5738405.17	567351.13
360	22.31	177.3	352.07	-319.25	-56.32	6.41	5738403.24	567351.22
365	22.7	177.47	356.66	-323.84	-58.28	6.49	5738401.28	567351.3
370	23.1	177.65	361.26	-328.44	-60.24	6.57	5738399.32	567351.38
375	23.49	177.82	365.86	-333.04	-62.21	6.65	5738397.36	567351.46
380	23.88	178	370.46	-337.64	-64.17	6.73	5738395.4	567351.54
385	24.27	178.16	375.05	-342.23	-66.14	6.8	5738393.42	567351.62
390	24.62	178.16	379.57	-346.75	-68.27	6.87	5738391.29	567351.68
395	24.97	178.16	384.1	-351.28	-70.4	6.94	5738389.16	567351.75
400	25.31	178.16	388.62	-355.8	-72.53	7.01	5738387.03	567351.82
405	25.66	178.16	393.14	-360.32	-74.67	7.08	5738384.9	567351.89
410	26.01	178.16	397.66	-364.84	-76.8	7.15	5738382.77	567351.96
415	26.4	178.16	402.15	-369.33	-78.99	7.22	5738380.58	567352.03
420	26.89	178.16	406.58	-373.76	-81.3	7.29	5738378.26	567352.1
425	27.38	178.16	411.01	-378.19	-83.62	7.37	5738375.94	567352.18
430	27.86	178.16	415.44	-382.62	-85.94	7.44	5738373.62	567352.25
435	28.35	178.16	419.87	-387.05	-88.26	7.51	5738371.31	567352.33
440	28.83	178.16	424.3	-391.48	-90.57	7.59	5738368.99	567352.4
445	29.23	178.16	428.67	-395.85	-93.01	7.67	5738366.55	567352.48
450	29.58	178.16	433	-400.18	-95.51	7.75	5738364.06	567352.56
455	29.93	178.16	437.33	-404.51	-98.01	7.83	5738361.56	567352.64
460	30.27	178.16	441.66	-408.84	-100.5	7.91	5738359.06	567352.72
465	30.62	178.16	445.99	-413.17	-103	7.99	5738356.56	567352.8
470	30.97	178.16	450.32	-417.5	-105.5	8.07	5738354.06	567352.88
475	31.36	178.16	454.56	-421.74	-108.15	8.15	5738351.42	567352.96
480	31.75	178.16	458.79	-425.97	-110.8	8.24	5738348.76	567353.05
485	32.14	178.16	463.03	-430.21	-113.46	8.32	5738346.1	567353.14
490	32.53	178.16	467.26	-434.44	-116.12	8.41	5738343.45	567353.22
495	32.92	178.16	471.49	-438.67	-118.77	8.49	5738340.79	567353.31
500	33.34	178.17	475.71	-442.89	-121.46	8.58	5738338.1	567353.39
505	33.91	178.26	479.81	-446.99	-124.32	8.66	5738335.24	567353.47
510	34.48	178.35	483.91	-451.09	-127.18	8.74	5738332.38	567353.55
515	35.05	178.44	488.01	-455.19	-130.04	8.82	5738329.53	567353.63

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
520	35.62	178.52	492.11	-459.29	-132.89	8.89	5738326.67	567353.71
525	36.19	178.61	496.22	-463.4	-135.75	8.97	5738323.81	567353.78
530	36.72	178.66	500.25	-467.43	-138.7	9.05	5738320.86	567353.86
535	37.2	178.66	504.19	-471.37	-141.77	9.12	5738317.79	567353.93
540	37.68	178.66	508.14	-475.32	-144.84	9.19	5738314.72	567354
545	38.16	178.66	512.09	-479.27	-147.91	9.26	5738311.65	567354.08
550	38.63	178.66	516.03	-483.21	-150.98	9.34	5738308.58	567354.15
555	39.11	178.66	519.98	-487.16	-154.05	9.41	5738305.52	567354.22
560	39.6	178.72	523.82	-491	-157.25	9.47	5738302.31	567354.28
565	40.08	178.81	527.61	-494.79	-160.5	9.53	5738299.06	567354.35
570	40.56	178.9	531.41	-498.59	-163.76	9.6	5738295.8	567354.41
575	41.04	178.99	535.2	-502.38	-167.01	9.66	5738292.55	567354.47
580	41.53	179.07	538.99	-506.17	-170.27	9.72	5738289.3	567354.53
585	42	179.16	542.79	-509.97	-173.52	9.78	5738286.04	567354.59
590	42.13	179.16	546.48	-513.66	-176.89	9.83	5738282.67	567354.64
595	42.26	179.16	550.17	-517.35	-180.26	9.88	5738279.3	567354.69
600	42.39	179.16	553.87	-521.05	-183.63	9.93	5738275.93	567354.74
605	42.52	179.16	557.56	-524.74	-187	9.98	5738272.56	567354.79
610	42.66	179.16	561.26	-528.44	-190.37	10.03	5738269.19	567354.84
615	42.8	179.18	564.94	-532.12	-193.76	10.07	5738265.81	567354.88
620	42.97	179.27	568.58	-535.76	-197.18	10.11	5738262.38	567354.92
625	43.15	179.36	572.22	-539.4	-200.61	10.14	5738258.96	567354.95
630	43.32	179.45	575.86	-543.04	-204.03	10.18	5738255.53	567354.99
635	43.49	179.53	579.5	-546.68	-207.46	10.21	5738252.1	567355.02
640	43.67	179.62	583.14	-550.32	-210.88	10.25	5738248.68	567355.06
645	43.8	179.71	586.76	-553.94	-214.34	10.27	5738245.23	567355.08
650	43.88	179.79	590.36	-557.54	-217.81	10.27	5738241.75	567355.08
655	43.97	179.88	593.96	-561.14	-221.28	10.28	5738238.28	567355.09
660	44.06	179.97	597.55	-564.73	-224.76	10.28	5738234.81	567355.09
665	44.14	180.05	601.15	-568.33	-228.23	10.29	5738231.33	567355.1
670	44.23	180.14	604.75	-571.93	-231.7	10.29	5738227.86	567355.1
675	44.25	180.23	608.33	-575.51	-235.19	10.28	5738224.38	567355.09
680	44.25	180.31	611.91	-579.09	-238.68	10.25	5738220.89	567355.06
685	44.25	180.4	615.49	-582.67	-242.16	10.23	5738217.4	567355.04
690	44.25	180.49	619.08	-586.26	-245.65	10.2	5738213.91	567355.01
695	44.25	180.57	622.66	-589.84	-249.14	10.18	5738210.42	567354.99
700	44.25	180.66	626.24	-593.42	-252.63	10.15	5738206.93	567354.96
705	44.38	180.66	629.8	-596.98	-256.14	10.11	5738203.42	567354.92
710	44.51	180.66	633.35	-600.53	-259.66	10.07	5738199.91	567354.88
715	44.64	180.66	636.91	-604.09	-263.17	10.03	5738196.39	567354.84
720	44.77	180.66	640.47	-607.65	-266.68	9.99	5738192.88	567354.8
725	44.9	180.66	644.03	-611.21	-270.19	9.95	5738189.37	567354.76
730	45.01	180.68	647.58	-614.76	-273.71	9.9	5738185.85	567354.72
735	45.05	180.77	651.11	-618.29	-277.25	9.85	5738182.31	567354.66
740	45.1	180.86	654.64	-621.82	-280.8	9.79	5738178.77	567354.6
745	45.14	180.94	658.16	-625.34	-284.34	9.73	5738175.22	567354.55
750	45.19	181.03	661.69	-628.87	-287.88	9.68	5738171.68	567354.49
755	45.23	181.12	665.22	-632.4	-291.43	9.62	5738168.14	567354.43
760	45.32	181.2	668.73	-635.91	-294.98	9.55	5738164.58	567354.36
765	45.45	181.29	672.23	-639.41	-298.56	9.46	5738161.01	567354.27
770	45.58	181.38	675.73	-642.91	-302.13	9.37	5738157.43	567354.18
775	45.71	181.47	679.22	-646.4	-305.7	9.29	5738153.86	567354.1
780	45.84	181.55	682.72	-649.9	-309.28	9.2	5738150.29	567354.01
785	45.97	181.64	686.22	-653.4	-312.85	9.11	5738146.71	567353.92
790	46.1	181.66	689.68	-656.86	-316.46	9.01	5738143.11	567353.82
795	46.23	181.66	693.13	-660.31	-320.07	8.9	5738139.49	567353.71
800	46.36	181.66	696.58	-663.76	-323.69	8.8	5738135.87	567353.61
805	46.49	181.66	700.02	-667.2	-327.31	8.69	5738132.25	567353.51

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
810	46.62	181.66	703.47	-670.65	-330.93	8.59	5738128.64	567353.4
815	46.76	181.66	706.92	-674.1	-334.55	8.48	5738125.02	567353.3
820	46.93	181.75	710.32	-677.5	-338.22	8.36	5738121.35	567353.17
825	47.1	181.84	713.71	-680.89	-341.89	8.24	5738117.68	567353.05
830	47.28	181.92	717.1	-684.28	-345.56	8.12	5738114.01	567352.93
835	47.45	182.01	720.5	-687.68	-349.23	7.99	5738110.34	567352.8
840	47.63	182.1	723.89	-691.07	-352.89	7.87	5738106.67	567352.68
845	47.78	182.16	727.27	-694.45	-356.58	7.74	5738102.99	567352.55
850	47.86	182.16	730.62	-697.8	-360.29	7.6	5738099.27	567352.41
855	47.95	182.16	733.96	-701.14	-364	7.46	5738095.56	567352.27
860	48.04	182.16	737.31	-704.49	-367.72	7.32	5738091.85	567352.13
865	48.12	182.16	740.65	-707.83	-371.43	7.18	5738088.13	567351.99
870	48.21	182.16	744	-711.18	-375.14	7.04	5738084.42	567351.85
875	48.25	182.16	747.34	-714.52	-378.86	6.9	5738080.7	567351.71
880	48.25	182.16	750.67	-717.85	-382.59	6.76	5738076.97	567351.57
885	48.25	182.16	754	-721.18	-386.32	6.62	5738073.24	567351.43
890	48.25	182.16	757.33	-724.51	-390.05	6.48	5738069.52	567351.29
895	48.25	182.16	760.65	-727.83	-393.77	6.34	5738065.79	567351.15
900	48.25	182.16	763.98	-731.16	-397.5	6.2	5738062.06	567351.01
905	48.25	182.23	767.31	-734.49	-401.23	6.05	5738058.33	567350.86
910	48.25	182.31	770.64	-737.82	-404.96	5.89	5738054.61	567350.7
915	48.25	182.4	773.97	-741.15	-408.68	5.73	5738050.88	567350.54
920	48.25	182.49	777.3	-744.48	-412.41	5.58	5738047.15	567350.39
925	48.25	182.58	780.63	-747.81	-416.14	5.42	5738043.43	567350.23
930	48.25	182.66	783.96	-751.14	-419.86	5.26	5738039.7	567350.07
935	48.21	182.66	787.3	-754.48	-423.58	5.09	5738035.98	567349.9
940	48.16	182.66	790.64	-757.82	-427.3	4.92	5738032.26	567349.73
945	48.12	182.66	793.97	-761.15	-431.02	4.74	5738028.54	567349.55
950	48.07	182.66	797.31	-764.49	-434.74	4.57	5738024.82	567349.38
955	48.03	182.66	800.65	-767.83	-438.46	4.4	5738021.1	567349.21
960	47.99	182.68	803.99	-771.17	-442.17	4.22	5738017.39	567349.03
965	47.94	182.77	807.34	-774.52	-445.88	4.03	5738013.69	567348.84
970	47.9	182.86	810.7	-777.88	-449.58	3.84	5738009.98	567348.66
975	47.86	182.94	814.05	-781.23	-453.28	3.66	5738006.28	567348.47
980	47.81	183.03	817.41	-784.59	-456.99	3.47	5738002.58	567348.28
985	47.77	183.12	820.76	-787.94	-460.69	3.28	5737998.87	567348.09
990	47.61	183.16	824.13	-791.31	-464.38	3.08	5737995.18	567347.89
995	47.34	183.16	827.5	-794.68	-468.06	2.88	5737991.5	567347.69
1000	47.29	183.07	830.89	-798.07	-471.74	2.68	5737987.83	567347.49
1005	47.36	182.94	834.28	-801.46	-475.41	2.49	5737984.16	567347.3
1010	46.85	181.76	837.82	-805	-478.93	2.63	5737980.64	567347.44
1015	46.35	180.59	841.36	-808.54	-482.44	2.78	5737977.12	567347.59
1020	45.84	179.41	844.9	-812.08	-485.96	2.92	5737973.6	567347.73
1025	45.33	178.24	848.44	-815.62	-489.48	3.06	5737970.08	567347.87
1030	44.82	177.06	851.99	-819.17	-493	3.21	5737966.56	567348.02
1035	44.32	175.89	855.53	-822.71	-496.52	3.35	5737963.04	567348.16
1040	43.81	174.71	859.07	-826.25	-500.04	3.5	5737959.52	567348.31
1045	43.3	173.53	862.61	-829.79	-503.56	3.64	5737956	567348.45
1050	42.79	172.36	866.15	-833.33	-507.08	3.78	5737952.48	567348.6
1055	42.72	171.55	869.76	-836.94	-510.51	4.2	5737949.06	567349.01
1060	42.9	170.97	873.41	-840.59	-513.87	4.78	5737945.69	567349.59
1065	43.09	170.39	877.06	-844.24	-517.24	5.36	5737942.32	567350.17
1070	43.28	169.81	880.71	-847.89	-520.61	5.94	5737938.95	567350.75
1075	43.47	169.22	884.36	-851.54	-523.98	6.52	5737935.58	567351.33
1080	43.65	168.64	888	-855.18	-527.35	7.1	5737932.22	567351.91
1085	43.95	167.96	891.58	-858.76	-530.75	7.89	5737928.81	567352.7
1090	44.25	167.26	895.14	-862.32	-534.16	8.7	5737925.4	567353.52
1095	44.55	166.57	898.7	-865.88	-537.57	9.52	5737921.99	567354.33

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1100	44.86	165.87	902.27	-869.45	-540.98	10.34	5737918.58	567355.15
1105	45.16	165.18	905.83	-873.01	-544.39	11.15	5737915.17	567355.96
1110	45.43	164.47	909.39	-876.57	-547.8	12	5737911.76	567356.81
1115	45.47	163.63	912.89	-880.07	-551.19	13.1	5737908.37	567357.91
1120	45.51	162.8	916.39	-883.57	-554.59	14.19	5737904.97	567359
1125	45.56	161.96	919.9	-887.08	-557.99	15.28	5737901.58	567360.09
1130	45.6	161.13	923.4	-890.58	-561.38	16.38	5737898.18	567361.19
1135	45.64	160.29	926.9	-894.08	-564.78	17.47	5737894.79	567362.28
1140	45.69	159.47	930.4	-897.58	-568.14	18.66	5737891.42	567363.47
1145	45.75	158.68	933.88	-901.06	-571.45	20.03	5737888.11	567364.84
1150	45.81	157.88	937.37	-904.55	-574.77	21.41	5737884.8	567366.22
1155	45.87	157.09	940.85	-908.03	-578.08	22.78	5737881.49	567367.59
1160	45.93	156.29	944.34	-911.52	-581.39	24.15	5737878.17	567368.97
1165	45.99	155.5	947.82	-915	-584.7	25.53	5737874.86	567370.34
1170	45.95	154.58	951.31	-918.49	-587.92	27.08	5737871.64	567371.89
1175	45.85	153.58	954.8	-921.98	-591.09	28.74	5737868.47	567373.55
1180	45.75	152.58	958.29	-925.47	-594.26	30.4	5737865.31	567375.21
1185	45.65	151.58	961.79	-928.97	-597.43	32.06	5737862.14	567376.87
1190	45.55	150.59	965.28	-932.46	-600.59	33.72	5737858.97	567378.53
1195	45.45	149.59	968.77	-935.95	-603.76	35.38	5737855.8	567380.2
1200	45.24	148.54	972.31	-939.49	-606.73	37.29	5737852.83	567382.1
1205	45	147.49	975.86	-943.04	-609.66	39.23	5737849.9	567384.04
1210	44.76	146.44	979.42	-946.6	-612.59	41.17	5737846.97	567385.98
1215	44.52	145.39	982.97	-950.15	-615.52	43.12	5737844.04	567387.93
1220	44.28	144.34	986.52	-953.7	-618.45	45.06	5737841.11	567389.87
1225	44.06	143.38	990.08	-957.26	-621.37	47.02	5737838.2	567391.83
1230	43.92	143.21	993.7	-960.88	-624.12	49.1	5737835.44	567393.91
1235	43.77	143.04	997.31	-964.49	-626.87	51.18	5737832.69	567395.99
1240	43.63	142.87	1000.93	-968.11	-629.63	53.26	5737829.94	567398.07
1245	43.49	142.7	1004.55	-971.73	-632.38	55.34	5737827.18	567400.16
1250	43.35	142.53	1008.16	-975.34	-635.13	57.43	5737824.43	567402.24
1255	43.22	142.41	1011.8	-978.98	-637.87	59.51	5737821.69	567404.32
1260	43.09	142.4	1015.46	-982.64	-640.56	61.58	5737819	567406.4
1265	42.96	142.38	1019.12	-986.3	-643.26	63.66	5737816.3	567408.47
1270	42.83	142.37	1022.79	-989.97	-645.96	65.74	5737813.61	567410.55
1275	42.7	142.35	1026.45	-993.63	-648.65	67.82	5737810.91	567412.63
1280	42.58	142.34	1030.11	-997.29	-651.35	69.89	5737808.22	567414.71
1285	42.58	142.4	1033.78	-1000.96	-654.04	71.96	5737805.52	567416.77
1290	42.67	142.52	1037.45	-1004.63	-656.75	74.02	5737802.82	567418.83
1295	42.77	142.64	1041.12	-1008.3	-659.45	76.08	5737800.12	567420.89
1300	42.87	142.76	1044.79	-1011.97	-662.15	78.14	5737797.41	567422.95
1305	42.96	142.88	1048.46	-1015.64	-664.85	80.2	5737794.71	567425.01
1310	43.06	143.01	1052.13	-1019.31	-667.55	82.26	5737792.01	567427.07
1315	43.25	142.93	1055.75	-1022.93	-670.29	84.35	5737789.27	567429.16
1320	43.46	142.82	1059.36	-1026.54	-673.04	86.44	5737786.52	567431.25
1325	43.67	142.72	1062.98	-1030.16	-675.79	88.53	5737783.78	567433.34
1330	43.88	142.61	1066.6	-1033.78	-678.53	90.62	5737781.03	567435.43
1335	44.08	142.51	1070.21	-1037.39	-681.28	92.71	5737778.28	567437.52
1340	44.26	142.41	1073.83	-1041.01	-684.03	94.81	5737775.54	567439.62
1345	44.24	142.36	1077.41	-1044.59	-686.78	96.94	5737772.78	567441.75
1350	44.22	142.31	1081	-1048.18	-689.54	99.07	5737770.02	567443.89
1355	44.2	142.25	1084.58	-1051.76	-692.3	101.21	5737767.27	567446.02
1360	44.17	142.2	1088.17	-1055.35	-695.05	103.34	5737764.51	567448.15
1365	44.15	142.15	1091.75	-1058.93	-697.81	105.47	5737761.75	567450.29
1370	44.18	142.22	1095.33	-1062.51	-700.58	107.6	5737758.98	567452.41
1375	44.3	142.58	1098.9	-1066.08	-703.39	109.7	5737756.18	567454.51
1380	44.42	142.94	1102.46	-1069.64	-706.19	111.8	5737753.37	567456.61
1385	44.54	143.31	1106.03	-1073.21	-708.99	113.9	5737750.57	567458.71

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1390	44.66	143.67	1109.6	-1076.78	-711.8	116	5737747.77	567460.81
1395	44.78	144.03	1113.17	-1080.35	-714.6	118.1	5737744.96	567462.91
1400	44.84	144.19	1116.72	-1083.9	-717.44	120.18	5737742.13	567464.99
1405	44.87	144.2	1120.26	-1087.44	-720.3	122.25	5737739.26	567467.06
1410	44.9	144.21	1123.8	-1090.98	-723.16	124.31	5737736.4	567469.12
1415	44.92	144.21	1127.34	-1094.52	-726.03	126.37	5737733.54	567471.19
1420	44.95	144.22	1130.88	-1098.06	-728.89	128.44	5737730.67	567473.25
1425	44.97	144.23	1134.43	-1101.61	-731.75	130.5	5737727.81	567475.31
1430	44.91	144.23	1137.98	-1105.16	-734.61	132.56	5737724.95	567477.37
1435	44.81	144.23	1141.53	-1108.71	-737.46	134.62	5737722.1	567479.43
1440	44.72	144.23	1145.08	-1112.26	-740.32	136.67	5737719.25	567481.48
1445	44.63	144.24	1148.64	-1115.82	-743.17	138.73	5737716.39	567483.54
1450	44.54	144.24	1152.19	-1119.37	-746.03	140.78	5737713.54	567485.6
1455	44.46	144.24	1155.74	-1122.92	-748.88	142.84	5737710.68	567487.65
1460	44.54	144.21	1159.3	-1126.48	-751.73	144.9	5737707.83	567489.71
1465	44.62	144.19	1162.85	-1130.03	-754.58	146.96	5737704.98	567491.77
1470	44.69	144.17	1166.41	-1133.59	-757.43	149.02	5737702.13	567493.83
1475	44.77	144.14	1169.96	-1137.14	-760.28	151.07	5737699.28	567495.88
1480	44.85	144.12	1173.52	-1140.7	-763.13	153.13	5737696.43	567497.94
1485	44.89	144.07	1177.07	-1144.25	-765.98	155.19	5737693.58	567500.01
1490	44.84	143.99	1180.62	-1147.8	-768.82	157.27	5737690.74	567502.08
1495	44.78	143.91	1184.17	-1151.35	-771.67	159.35	5737687.9	567504.16
1500	44.73	143.82	1187.73	-1154.91	-774.51	161.42	5737685.05	567506.23
1505	44.67	143.74	1191.28	-1158.46	-777.35	163.5	5737682.21	567508.31
1510	44.61	143.66	1194.83	-1162.01	-780.19	165.57	5737679.37	567510.39
1515	44.64	143.58	1198.38	-1165.56	-783.03	167.66	5737676.53	567512.48
1520	44.72	143.52	1201.92	-1169.1	-785.86	169.76	5737673.7	567514.58
1525	44.8	143.46	1205.47	-1172.65	-788.69	171.86	5737670.87	567516.67
1530	44.89	143.4	1209.01	-1176.19	-791.52	173.96	5737668.04	567518.77
1535	44.97	143.33	1212.56	-1179.74	-794.36	176.06	5737665.21	567520.87
1540	45.05	143.27	1216.11	-1183.29	-797.19	178.16	5737662.38	567522.97
1545	44.91	143.23	1219.67	-1186.85	-800	180.26	5737659.56	567525.08
1550	44.72	143.2	1223.23	-1190.41	-802.8	182.37	5737656.76	567527.18
1555	44.53	143.17	1226.79	-1193.97	-805.61	184.47	5737653.95	567529.28
1560	44.34	143.13	1230.36	-1197.54	-808.42	186.57	5737651.15	567531.38
1565	44.15	143.1	1233.92	-1201.1	-811.22	188.67	5737648.34	567533.48
1570	44.01	143.08	1237.49	-1204.67	-814.03	190.77	5737645.53	567535.59
1575	44.15	143.12	1241.06	-1208.24	-816.83	192.87	5737642.73	567537.68
1580	44.29	143.17	1244.64	-1211.82	-819.63	194.96	5737639.93	567539.78
1585	44.42	143.21	1248.21	-1215.39	-822.43	197.06	5737637.13	567541.87
1590	44.56	143.26	1251.78	-1218.96	-825.23	199.15	5737634.33	567543.97
1595	44.7	143.3	1255.36	-1222.54	-828.03	201.25	5737631.53	567546.06
1600	44.77	143.24	1258.92	-1226.1	-830.83	203.36	5737628.73	567548.17
1605	44.73	143.02	1262.48	-1229.66	-833.63	205.49	5737625.94	567550.3
1610	44.7	142.79	1266.03	-1233.21	-836.42	207.62	5737623.14	567552.43
1615	44.66	142.57	1269.59	-1236.77	-839.22	209.75	5737620.35	567554.56
1620	44.63	142.34	1273.14	-1240.32	-842.01	211.88	5737617.55	567556.69
1625	44.59	142.11	1276.7	-1243.88	-844.81	214.01	5737614.75	567558.83
1630	44.64	141.92	1280.25	-1247.43	-847.58	216.19	5737611.98	567561
1635	44.75	141.73	1283.79	-1250.97	-850.34	218.38	5737609.22	567563.19
1640	44.85	141.55	1287.33	-1254.51	-853.1	220.58	5737606.46	567565.39
1645	44.95	141.37	1290.88	-1258.06	-855.87	222.77	5737603.7	567567.58
1650	45.05	141.19	1294.42	-1261.6	-858.63	224.97	5737600.94	567569.78
1655	45.16	141	1297.96	-1265.14	-861.39	227.16	5737598.18	567571.98
1660	45.11	141	1301.5	-1268.68	-864.14	229.38	5737595.43	567574.2
1665	45.03	141.01	1305.04	-1272.22	-866.88	231.61	5737592.68	567576.42
1670	44.96	141.03	1308.58	-1275.76	-869.63	233.83	5737589.93	567578.64
1675	44.89	141.05	1312.12	-1279.3	-872.38	236.05	5737587.19	567580.86

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1680	44.81	141.06	1315.65	-1282.83	-875.12	238.27	5737584.44	567583.08
1685	44.76	141.08	1319.19	-1286.37	-877.87	240.49	5737581.69	567585.31
1690	44.85	141.09	1322.73	-1289.91	-880.62	242.71	5737578.94	567587.53
1695	44.94	141.1	1326.26	-1293.44	-883.38	244.93	5737576.19	567589.75
1700	45.03	141.11	1329.8	-1296.98	-886.13	247.15	5737573.43	567591.96
1705	45.12	141.12	1333.33	-1300.51	-888.88	249.37	5737570.68	567594.18
1710	45.21	141.13	1336.87	-1304.05	-891.63	251.59	5737567.93	567596.4
1715	45.3	141.13	1340.39	-1307.57	-894.39	253.82	5737565.17	567598.63
1720	45.4	141.11	1343.89	-1311.07	-897.17	256.06	5737562.39	567600.88
1725	45.5	141.09	1347.39	-1314.57	-899.95	258.31	5737559.61	567603.12
1730	45.61	141.07	1350.89	-1318.07	-902.73	260.55	5737556.84	567605.36
1735	45.71	141.05	1354.4	-1321.58	-905.5	262.79	5737554.06	567607.6
1740	45.81	141.04	1357.9	-1325.08	-908.28	265.03	5737551.28	567609.84
1745	45.75	141.04	1361.4	-1328.58	-911.05	267.27	5737548.51	567612.08
1750	45.63	141.05	1364.91	-1332.09	-913.83	269.51	5737545.74	567614.33
1755	45.5	141.06	1368.41	-1335.59	-916.6	271.75	5737542.96	567616.57
1760	45.38	141.08	1371.92	-1339.1	-919.37	274	5737540.19	567618.81
1765	45.25	141.09	1375.42	-1342.6	-922.15	276.24	5737537.42	567621.05
1770	45.13	141.1	1378.93	-1346.11	-924.92	278.48	5737534.64	567623.29
1775	45.17	141.15	1382.45	-1349.63	-927.69	280.7	5737531.87	567625.51
1780	45.22	141.2	1385.97	-1353.15	-930.46	282.92	5737529.1	567627.73
1785	45.26	141.25	1389.49	-1356.67	-933.23	285.15	5737526.33	567629.96
1790	45.31	141.3	1393.01	-1360.19	-936	287.37	5737523.56	567632.18
1795	45.35	141.36	1396.53	-1363.71	-938.77	289.59	5737520.79	567634.4
1800	45.39	141.4	1400.04	-1367.22	-941.54	291.81	5737518.02	567636.62
1805	45.39	141.42	1403.55	-1370.73	-944.32	294.03	5737515.24	567638.84
1810	45.39	141.43	1407.07	-1374.25	-947.11	296.25	5737512.45	567641.06
1815	45.4	141.44	1410.58	-1377.76	-949.89	298.47	5737509.67	567643.28
1820	45.4	141.46	1414.09	-1381.27	-952.68	300.69	5737506.89	567645.5
1825	45.4	141.47	1417.6	-1384.78	-955.46	302.91	5737504.1	567647.72
1830	45.42	141.48	1421.11	-1388.29	-958.25	305.13	5737501.31	567649.94
1835	45.48	141.49	1424.61	-1391.79	-961.04	307.35	5737498.52	567652.16
1840	45.53	141.5	1428.11	-1395.29	-963.84	309.57	5737495.73	567654.38
1845	45.59	141.51	1431.61	-1398.79	-966.63	311.79	5737492.93	567656.61
1850	45.64	141.52	1435.11	-1402.29	-969.42	314.02	5737490.14	567658.83
1855	45.69	141.53	1438.61	-1405.79	-972.22	316.24	5737487.35	567661.05
1860	45.62	141.5	1442.12	-1409.3	-975	318.46	5737484.56	567663.27
1865	45.5	141.47	1445.63	-1412.81	-977.78	320.68	5737481.78	567665.49
1870	45.38	141.43	1449.15	-1416.33	-980.56	322.89	5737479	567667.71
1875	45.26	141.39	1452.66	-1419.84	-983.34	325.11	5737476.22	567669.92
1880	45.14	141.35	1456.17	-1423.35	-986.13	327.33	5737473.44	567672.14
1885	45.02	141.31	1459.69	-1426.87	-988.91	329.55	5737470.66	567674.36
1890	44.96	141.46	1463.23	-1430.41	-991.68	331.74	5737467.88	567676.55
1895	44.91	141.63	1466.77	-1433.95	-994.45	333.92	5737465.11	567678.73
1900	44.86	141.8	1470.32	-1437.5	-997.22	336.1	5737462.34	567680.91
1905	44.81	141.96	1473.86	-1441.04	-999.99	338.28	5737459.57	567683.09
1910	44.75	142.13	1477.41	-1444.59	-1002.76	340.46	5737456.8	567685.27
1915	44.73	142.26	1480.95	-1448.13	-1005.54	342.64	5737454.02	567687.45
1920	44.82	142.22	1484.49	-1451.67	-1008.33	344.81	5737451.23	567689.62
1925	44.91	142.17	1488.02	-1455.2	-1011.12	346.98	5737448.44	567691.79
1930	45	142.13	1491.56	-1458.74	-1013.91	349.15	5737445.65	567693.96
1935	45.09	142.08	1495.1	-1462.28	-1016.7	351.32	5737442.86	567696.13
1940	45.18	142.04	1498.63	-1465.81	-1019.49	353.49	5737440.07	567698.3
1945	45.23	142.04	1502.17	-1469.35	-1022.28	355.66	5737437.28	567700.47
1950	45.21	142.12	1505.69	-1472.87	-1025.09	357.83	5737434.48	567702.64
1955	45.19	142.2	1509.22	-1476.4	-1027.89	360	5737431.67	567704.81
1960	45.16	142.29	1512.74	-1479.92	-1030.7	362.17	5737428.87	567706.98
1965	45.14	142.37	1516.27	-1483.45	-1033.5	364.34	5737426.06	567709.15

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1970	45.12	142.46	1519.79	-1486.97	-1036.3	366.51	5737423.26	567711.32
1975	45.05	142.44	1523.33	-1490.51	-1039.1	368.67	5737420.47	567713.49
1980	44.94	142.35	1526.88	-1494.06	-1041.88	370.83	5737417.68	567715.64
1985	44.84	142.27	1530.42	-1497.6	-1044.67	372.99	5737414.89	567717.8
1990	44.73	142.18	1533.97	-1501.15	-1047.45	375.15	5737412.11	567719.96
1995	44.62	142.1	1537.52	-1504.7	-1050.24	377.3	5737409.32	567722.12
2000	44.52	142.01	1541.06	-1508.24	-1053.03	379.46	5737406.54	567724.27
2005	44.59	142.18	1544.61	-1511.79	-1055.82	381.6	5737403.74	567726.41
2010	44.7	142.39	1548.16	-1515.34	-1058.62	383.74	5737400.94	567728.55
2015	44.81	142.61	1551.71	-1518.89	-1061.43	385.88	5737398.14	567730.69
2020	44.93	142.82	1555.25	-1522.43	-1064.23	388.02	5737395.34	567732.83
2025	45.04	143.04	1558.8	-1525.98	-1067.03	390.16	5737392.54	567734.97
2030	45.13	143.24	1562.35	-1529.53	-1069.83	392.3	5737389.73	567737.11
2035	45.03	143.28	1565.89	-1533.07	-1072.66	394.4	5737386.91	567739.21
2040	44.92	143.31	1569.44	-1536.62	-1075.48	396.51	5737384.08	567741.32
2045	44.81	143.34	1572.98	-1540.16	-1078.31	398.61	5737381.25	567743.42
2050	44.7	143.38	1576.53	-1543.71	-1081.14	400.72	5737378.42	567745.53
2055	44.6	143.41	1580.07	-1547.25	-1083.97	402.82	5737375.6	567747.63
2060	44.55	143.41	1583.62	-1550.8	-1086.79	404.93	5737372.77	567749.74
2065	44.59	143.38	1587.18	-1554.36	-1089.61	407.02	5737369.95	567751.84
2070	44.63	143.34	1590.74	-1557.92	-1092.43	409.12	5737367.14	567753.93
2075	44.67	143.3	1594.3	-1561.48	-1095.24	411.22	5737364.32	567756.03
2080	44.71	143.26	1597.85	-1565.03	-1098.06	413.32	5737361.5	567758.13
2085	44.75	143.22	1601.41	-1568.59	-1100.88	415.42	5737358.68	567760.23
2090	44.76	143.19	1604.96	-1572.14	-1103.7	417.53	5737355.86	567762.34
2095	44.76	143.17	1608.51	-1575.69	-1106.51	419.64	5737353.05	567764.45
2100	44.76	143.14	1612.06	-1579.24	-1109.33	421.75	5737350.23	567766.56
2105	44.77	143.12	1615.61	-1582.79	-1112.15	423.86	5737347.41	567768.68
2110	44.77	143.09	1619.16	-1586.34	-1114.97	425.98	5737344.6	567770.79
2115	44.77	143.07	1622.71	-1589.89	-1117.78	428.09	5737341.78	567772.9
2120	44.69	143.06	1626.28	-1593.46	-1120.59	430.2	5737338.98	567775.01
2125	44.59	143.05	1629.84	-1597.02	-1123.39	432.3	5737336.18	567777.11
2130	44.49	143.05	1633.41	-1600.59	-1126.19	434.41	5737333.38	567779.22
2135	44.39	143.05	1636.98	-1604.16	-1128.99	436.51	5737330.58	567781.33
2140	44.29	143.04	1640.55	-1607.73	-1131.79	438.62	5737327.78	567783.43
2145	44.18	143.09	1644.12	-1611.3	-1134.59	440.71	5737324.98	567785.53
2150	44.04	143.43	1647.73	-1614.91	-1137.39	442.75	5737322.18	567787.56
2155	43.9	143.77	1651.34	-1618.52	-1140.19	444.78	5737319.38	567789.59
2160	43.76	144.11	1654.95	-1622.13	-1142.99	446.81	5737316.58	567791.62
2165	43.62	144.45	1658.56	-1625.74	-1145.79	448.85	5737313.78	567793.66
2170	43.49	144.79	1662.17	-1629.35	-1148.59	450.88	5737310.98	567795.69
2172	43.43	144.92	1663.61	-1630.79	-1149.71	451.69	5737309.86	567796.5
2173	43.4	144.99	1664.33	-1631.51	-1150.27	452.1	5737309.3	567796.91
2174	43.35	145.09	1665.06	-1632.24	-1150.83	452.48	5737308.74	567797.3
2175	43.27	145.21	1665.8	-1632.98	-1151.39	452.85	5737308.17	567797.66
2176	43.19	145.33	1666.54	-1633.72	-1151.95	453.22	5737307.61	567798.03
2177	43.11	145.45	1667.28	-1634.46	-1152.51	453.59	5737307.05	567798.4
2178	43.04	145.57	1668.02	-1635.2	-1153.08	453.96	5737306.49	567798.77
2179	42.96	145.69	1668.76	-1635.94	-1153.64	454.33	5737305.92	567799.14
2180	42.88	145.81	1669.5	-1636.68	-1154.2	454.7	5737305.36	567799.51
2181	42.8	145.93	1670.24	-1637.42	-1154.76	455.07	5737304.8	567799.88
2182	42.73	146.05	1670.98	-1638.16	-1155.32	455.44	5737304.24	567800.25
2183	42.65	146.17	1671.72	-1638.9	-1155.89	455.81	5737303.68	567800.62
2184	42.57	146.29	1672.46	-1639.64	-1156.45	456.18	5737303.11	567800.99
2185	42.49	146.41	1673.2	-1640.38	-1157.01	456.55	5737302.55	567801.36
2186	42.42	146.53	1673.94	-1641.12	-1157.57	456.92	5737301.99	567801.73
2187	42.34	146.65	1674.68	-1641.86	-1158.14	457.29	5737301.43	567802.1
2188	42.26	146.77	1675.42	-1642.6	-1158.7	457.66	5737300.86	567802.47

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2189	42.18	146.89	1676.16	-1643.34	-1159.26	458.03	5737300.3	567802.84
2190	42.11	147.01	1676.9	-1644.08	-1159.82	458.4	5737299.74	567803.21
2191	42.03	147.13	1677.64	-1644.82	-1160.38	458.77	5737299.18	567803.58
2192	41.95	147.25	1678.38	-1645.56	-1160.95	459.14	5737298.62	567803.95
2193	41.87	147.37	1679.12	-1646.3	-1161.51	459.51	5737298.05	567804.32
2194	41.8	147.49	1679.85	-1647.03	-1162.07	459.88	5737297.49	567804.69
2195	41.72	147.61	1680.59	-1647.77	-1162.63	460.25	5737296.93	567805.06
2196	41.64	147.73	1681.33	-1648.51	-1163.2	460.62	5737296.37	567805.43
2197	41.56	147.85	1682.07	-1649.25	-1163.76	460.99	5737295.8	567805.8
2198	41.49	147.97	1682.81	-1649.99	-1164.32	461.36	5737295.24	567806.17
2199	41.41	148.09	1683.55	-1650.73	-1164.88	461.73	5737294.68	567806.54
2200	41.33	148.21	1684.29	-1651.47	-1165.44	462.1	5737294.12	567806.91
2201	41.25	148.33	1685.03	-1652.21	-1166.01	462.47	5737293.56	567807.28
2202	41.19	148.4	1685.79	-1652.97	-1166.56	462.81	5737293	567807.62
2203	41.14	148.46	1686.55	-1653.73	-1167.12	463.15	5737292.44	567807.96
2204	41.09	148.51	1687.31	-1654.49	-1167.68	463.48	5737291.88	567808.29
2205	41.04	148.56	1688.07	-1655.25	-1168.24	463.81	5737291.33	567808.62
2206	40.98	148.61	1688.83	-1656.01	-1168.79	464.15	5737290.77	567808.96
2207	40.93	148.66	1689.59	-1656.77	-1169.35	464.48	5737290.21	567809.29
2208	40.88	148.71	1690.35	-1657.53	-1169.91	464.81	5737289.66	567809.62
2209	40.83	148.76	1691.11	-1658.29	-1170.46	465.15	5737289.1	567809.96
2210	40.77	148.81	1691.87	-1659.05	-1171.02	465.48	5737288.54	567810.29
2211	40.72	148.86	1692.63	-1659.81	-1171.58	465.81	5737287.99	567810.62
2212	40.67	148.91	1693.39	-1660.57	-1172.13	466.15	5737287.43	567810.96
2213	40.62	148.96	1694.15	-1661.33	-1172.69	466.48	5737286.87	567811.29
2214	40.56	149.01	1694.92	-1662.1	-1173.25	466.81	5737286.32	567811.62
2215	40.51	149.06	1695.68	-1662.86	-1173.8	467.15	5737285.76	567811.96
2216	40.46	149.11	1696.44	-1663.62	-1174.36	467.48	5737285.2	567812.29
2217	40.41	149.16	1697.2	-1664.38	-1174.92	467.81	5737284.65	567812.62
2218	40.36	149.21	1697.96	-1665.14	-1175.47	468.15	5737284.09	567812.96
2219	40.3	149.26	1698.72	-1665.9	-1176.03	468.48	5737283.53	567813.29
2220	40.25	149.31	1699.48	-1666.66	-1176.59	468.81	5737282.98	567813.62
2221	40.2	149.36	1700.24	-1667.42	-1177.14	469.15	5737282.42	567813.96
2222	40.15	149.41	1701	-1668.18	-1177.7	469.48	5737281.86	567814.29
2223	40.09	149.46	1701.76	-1668.94	-1178.26	469.81	5737281.31	567814.62
2224	40.04	149.51	1702.52	-1669.7	-1178.81	470.15	5737280.75	567814.96
2225	39.99	149.56	1703.28	-1670.46	-1179.37	470.48	5737280.19	567815.29
2226	39.94	149.61	1704.04	-1671.22	-1179.93	470.81	5737279.64	567815.62
2227	39.88	149.66	1704.81	-1671.99	-1180.48	471.15	5737279.08	567815.96
2228	39.83	149.71	1705.57	-1672.75	-1181.04	471.48	5737278.52	567816.29
2229	39.78	149.76	1706.33	-1673.51	-1181.6	471.81	5737277.96	567816.62
2230	39.73	149.81	1707.09	-1674.27	-1182.15	472.15	5737277.41	567816.96
2231	39.68	149.9	1707.86	-1675.04	-1182.71	472.46	5737276.85	567817.27
2232	39.63	150.03	1708.63	-1675.81	-1183.26	472.76	5737276.3	567817.57
2233	39.58	150.16	1709.41	-1676.59	-1183.82	473.06	5737275.74	567817.87
2234	39.54	150.29	1710.19	-1677.37	-1184.37	473.36	5737275.19	567818.17
2235	39.49	150.42	1710.96	-1678.14	-1184.93	473.66	5737274.64	567818.47
2236	39.44	150.54	1711.74	-1678.92	-1185.48	473.96	5737274.08	567818.77
2237	39.39	150.67	1712.52	-1679.7	-1186.03	474.26	5737273.53	567819.07
2238	39.35	150.8	1713.29	-1680.47	-1186.59	474.56	5737272.98	567819.37
2239	39.3	150.93	1714.07	-1681.25	-1187.14	474.86	5737272.42	567819.67
2240	39.25	151.05	1714.85	-1682.03	-1187.7	475.16	5737271.87	567819.97
2241	39.21	151.18	1715.62	-1682.8	-1188.25	475.46	5737271.31	567820.27
2242	39.16	151.31	1716.4	-1683.58	-1188.8	475.76	5737270.76	567820.57
2243	39.11	151.44	1717.18	-1684.36	-1189.36	476.06	5737270.21	567820.87
2244	39.07	151.57	1717.95	-1685.13	-1189.91	476.35	5737269.65	567821.17
2245	39.02	151.69	1718.73	-1685.91	-1190.46	476.65	5737269.1	567821.47
2246	38.97	151.82	1719.51	-1686.69	-1191.02	476.95	5737268.54	567821.76

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2247	38.92	151.95	1720.29	-1687.47	-1191.57	477.25	5737267.99	567822.06
2248	38.88	152.08	1721.06	-1688.24	-1192.13	477.55	5737267.44	567822.36
2249	38.83	152.21	1721.84	-1689.02	-1192.68	477.85	5737266.88	567822.66
2250	38.78	152.33	1722.62	-1689.8	-1193.23	478.15	5737266.33	567822.96
2251	38.74	152.46	1723.39	-1690.57	-1193.79	478.45	5737265.77	567823.26
2252	38.69	152.59	1724.17	-1691.35	-1194.34	478.75	5737265.22	567823.56
2253	38.64	152.72	1724.95	-1692.13	-1194.9	479.05	5737264.67	567823.86
2254	38.59	152.85	1725.72	-1692.9	-1195.45	479.35	5737264.11	567824.16
2255	38.55	152.97	1726.5	-1693.68	-1196	479.65	5737263.56	567824.46
2256	38.5	153.1	1727.28	-1694.46	-1196.56	479.95	5737263.01	567824.76
2257	38.45	153.23	1728.05	-1695.23	-1197.11	480.25	5737262.45	567825.06
2258	38.41	153.36	1728.83	-1696.01	-1197.67	480.55	5737261.9	567825.36
2259	38.35	153.5	1729.62	-1696.8	-1198.22	480.82	5737261.34	567825.64
2260	38.27	153.65	1730.41	-1697.59	-1198.77	481.07	5737260.79	567825.88
2261	38.2	153.81	1731.21	-1698.39	-1199.32	481.32	5737260.24	567826.13
2262	38.12	153.97	1732	-1699.18	-1199.87	481.57	5737259.69	567826.38
2263	38.05	154.13	1732.8	-1699.98	-1200.42	481.82	5737259.14	567826.63
2264	37.97	154.28	1733.59	-1700.77	-1200.98	482.07	5737258.59	567826.88
2265	37.9	154.44	1734.39	-1701.57	-1201.53	482.32	5737258.03	567827.13
2266	37.83	154.6	1735.18	-1702.36	-1202.08	482.57	5737257.48	567827.38
2267	37.75	154.75	1735.98	-1703.16	-1202.63	482.82	5737256.93	567827.63
2268	37.68	154.91	1736.78	-1703.96	-1203.18	483.07	5737256.38	567827.88
2269	37.6	155.07	1737.57	-1704.75	-1203.74	483.32	5737255.83	567828.13
2270	37.53	155.23	1738.37	-1705.55	-1204.29	483.57	5737255.28	567828.38
2271	37.45	155.38	1739.16	-1706.34	-1204.84	483.82	5737254.72	567828.63
2272	37.38	155.54	1739.96	-1707.14	-1205.39	484.07	5737254.17	567828.88
2273	37.3	155.7	1740.75	-1707.93	-1205.94	484.32	5737253.62	567829.13
2274	37.23	155.85	1741.55	-1708.73	-1206.49	484.57	5737253.07	567829.38
2275	37.15	156.01	1742.35	-1709.53	-1207.05	484.82	5737252.52	567829.63
2276	37.08	156.17	1743.14	-1710.32	-1207.6	485.07	5737251.97	567829.88
2277	37.01	156.33	1743.94	-1711.12	-1208.15	485.32	5737251.41	567830.13
2278	36.93	156.48	1744.73	-1711.91	-1208.7	485.57	5737250.86	567830.38
2279	36.86	156.64	1745.53	-1712.71	-1209.25	485.82	5737250.31	567830.63
2280	36.78	156.8	1746.32	-1713.5	-1209.8	486.07	5737249.76	567830.88
2281	36.71	156.95	1747.12	-1714.3	-1210.36	486.31	5737249.21	567831.13
2282	36.63	157.11	1747.91	-1715.09	-1210.91	486.56	5737248.66	567831.38
2283	36.56	157.27	1748.71	-1715.89	-1211.46	486.81	5737248.1	567831.63
2284	36.48	157.43	1749.51	-1716.69	-1212.01	487.06	5737247.55	567831.87
2285	36.41	157.58	1750.3	-1717.48	-1212.56	487.31	5737247	567832.12
2286	36.33	157.74	1751.1	-1718.28	-1213.11	487.56	5737246.45	567832.37
2287	36.26	157.9	1751.89	-1719.07	-1213.67	487.81	5737245.9	567832.62
2288	36.18	158.06	1752.7	-1719.88	-1214.21	488.04	5737245.35	567832.85
2289	36.1	158.25	1753.52	-1720.7	-1214.75	488.23	5737244.81	567833.04
2290	36.02	158.44	1754.33	-1721.51	-1215.3	488.42	5737244.27	567833.23
2291	35.94	158.63	1755.15	-1722.33	-1215.84	488.61	5737243.73	567833.42
2292	35.86	158.82	1755.97	-1723.15	-1216.38	488.8	5737243.18	567833.61
2293	35.78	159.01	1756.79	-1723.97	-1216.92	488.99	5737242.64	567833.8
2294	35.7	159.2	1757.61	-1724.79	-1217.46	489.18	5737242.1	567833.99
2295	35.62	159.39	1758.43	-1725.61	-1218	489.37	5737241.56	567834.18
2296	35.54	159.58	1759.25	-1726.43	-1218.54	489.56	5737241.02	567834.37
2297	35.46	159.77	1760.07	-1727.25	-1219.08	489.75	5737240.48	567834.56
2298	35.38	159.96	1760.89	-1728.07	-1219.63	489.94	5737239.94	567834.75
2299	35.3	160.15	1761.71	-1728.89	-1220.17	490.13	5737239.4	567834.94
2300	35.22	160.34	1762.52	-1729.7	-1220.71	490.31	5737238.85	567835.13
2301	35.14	160.53	1763.34	-1730.52	-1221.25	490.5	5737238.31	567835.32
2302	35.06	160.72	1764.16	-1731.34	-1221.79	490.69	5737237.77	567835.51
2303	34.98	160.91	1764.98	-1732.16	-1222.33	490.88	5737237.23	567835.69
2304	34.9	161.1	1765.8	-1732.98	-1222.87	491.07	5737236.69	567835.88

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2305	34.82	161.29	1766.62	-1733.8	-1223.41	491.26	5737236.15	567836.07
2306	34.74	161.47	1767.44	-1734.62	-1223.96	491.45	5737235.61	567836.26
2307	34.66	161.66	1768.26	-1735.44	-1224.5	491.64	5737235.07	567836.45
2308	34.58	161.85	1769.08	-1736.26	-1225.04	491.83	5737234.52	567836.64
2309	34.5	162.04	1769.9	-1737.08	-1225.58	492.02	5737233.98	567836.83
2310	34.42	162.23	1770.71	-1737.89	-1226.12	492.21	5737233.44	567837.02
2311	34.34	162.42	1771.53	-1738.71	-1226.66	492.4	5737232.9	567837.21
2312	34.26	162.61	1772.35	-1739.53	-1227.2	492.59	5737232.36	567837.4
2313	34.18	162.8	1773.17	-1740.35	-1227.74	492.78	5737231.82	567837.59
2314	34.1	162.99	1773.99	-1741.17	-1228.29	492.97	5737231.28	567837.78
2315	34.02	163.18	1774.81	-1741.99	-1228.83	493.16	5737230.74	567837.97
2316	33.94	163.37	1775.63	-1742.81	-1229.37	493.35	5737230.19	567838.16
2317	33.86	163.56	1776.45	-1743.63	-1229.91	493.54	5737229.65	567838.35
2318	33.75	163.91	1777.29	-1744.47	-1230.43	493.65	5737229.13	567838.46
2319	33.64	164.28	1778.14	-1745.32	-1230.95	493.75	5737228.61	567838.57
2320	33.53	164.65	1778.98	-1746.16	-1231.48	493.86	5737228.09	567838.67
2321	33.42	165.02	1779.83	-1747.01	-1232	493.96	5737227.57	567838.77
2322	33.31	165.39	1780.68	-1747.86	-1232.52	494.07	5737227.04	567838.88
2323	33.2	165.76	1781.52	-1748.7	-1233.04	494.17	5737226.52	567838.98
2324	33.08	166.13	1782.37	-1749.55	-1233.56	494.28	5737226	567839.09
2325	32.97	166.5	1783.22	-1750.4	-1234.08	494.38	5737225.48	567839.19
2326	32.86	166.87	1784.06	-1751.24	-1234.6	494.48	5737224.96	567839.3
2327	32.75	167.24	1784.91	-1752.09	-1235.12	494.59	5737224.44	567839.4
2328	32.64	167.61	1785.75	-1752.93	-1235.65	494.69	5737223.92	567839.5
2329	32.53	167.99	1786.6	-1753.78	-1236.17	494.8	5737223.4	567839.61
2330	32.42	168.36	1787.45	-1754.63	-1236.69	494.9	5737222.87	567839.71
2331	32.31	168.73	1788.29	-1755.47	-1237.21	495.01	5737222.35	567839.82
2332	32.2	169.1	1789.14	-1756.32	-1237.73	495.11	5737221.83	567839.92
2333	32.08	169.47	1789.99	-1757.17	-1238.25	495.21	5737221.31	567840.03
2334	31.97	169.84	1790.83	-1758.01	-1238.77	495.32	5737220.79	567840.13
2335	31.86	170.21	1791.68	-1758.86	-1239.3	495.42	5737220.27	567840.24
2336	31.75	170.58	1792.52	-1759.7	-1239.82	495.53	5737219.75	567840.34
2337	31.64	170.95	1793.37	-1760.55	-1240.34	495.63	5737219.22	567840.44
2338	31.53	171.32	1794.22	-1761.4	-1240.86	495.74	5737218.7	567840.55
2339	31.42	171.69	1795.06	-1762.24	-1241.38	495.84	5737218.18	567840.65
2340	31.31	172.06	1795.91	-1763.09	-1241.9	495.95	5737217.66	567840.76
2341	31.2	172.43	1796.76	-1763.94	-1242.42	496.05	5737217.14	567840.86
2342	31.08	172.8	1797.6	-1764.78	-1242.94	496.15	5737216.62	567840.97
2343	30.97	173.17	1798.45	-1765.63	-1243.47	496.26	5737216.1	567841.07
2344	30.86	173.54	1799.29	-1766.47	-1243.99	496.36	5737215.58	567841.17
2345	30.75	173.91	1800.14	-1767.32	-1244.51	496.47	5737215.05	567841.28
2346	30.65	174.28	1800.99	-1768.17	-1245.03	496.56	5737214.53	567841.37
2347	30.6	174.63	1801.85	-1769.03	-1245.53	496.58	5737214.03	567841.39
2348	30.56	174.98	1802.72	-1769.9	-1246.03	496.59	5737213.53	567841.4
2349	30.52	175.33	1803.59	-1770.77	-1246.53	496.6	5737213.03	567841.41
2350	30.47	175.69	1804.45	-1771.63	-1247.03	496.61	5737212.53	567841.42
2351	30.43	176.04	1805.32	-1772.5	-1247.53	496.62	5737212.03	567841.44
2352	30.39	176.39	1806.18	-1773.36	-1248.03	496.64	5737211.53	567841.45
2353	30.34	176.74	1807.05	-1774.23	-1248.53	496.65	5737211.03	567841.46
2354	30.3	177.09	1807.91	-1775.09	-1249.03	496.66	5737210.53	567841.47
2355	30.26	177.44	1808.78	-1775.96	-1249.53	496.67	5737210.03	567841.48
2356	30.21	177.79	1809.64	-1776.82	-1250.03	496.68	5737209.53	567841.5
2357	30.17	178.14	1810.51	-1777.69	-1250.53	496.7	5737209.03	567841.51
2358	30.13	178.49	1811.38	-1778.56	-1251.03	496.71	5737208.53	567841.52
2359	30.09	178.84	1812.24	-1779.42	-1251.53	496.72	5737208.03	567841.53
2360	30.04	179.19	1813.11	-1780.29	-1252.03	496.73	5737207.53	567841.54
2361	30	179.54	1813.97	-1781.15	-1252.53	496.75	5737207.03	567841.56
2362	29.96	179.9	1814.84	-1782.02	-1253.03	496.76	5737206.53	567841.57

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2363	29.91	180.25	1815.7	-1782.88	-1253.53	496.77	5737206.03	567841.58
2364	29.87	180.6	1816.57	-1783.75	-1254.03	496.78	5737205.53	567841.59
2365	29.83	180.95	1817.43	-1784.61	-1254.53	496.79	5737205.03	567841.61
2366	29.78	181.3	1818.3	-1785.48	-1255.03	496.81	5737204.53	567841.62
2367	29.74	181.65	1819.17	-1786.35	-1255.53	496.82	5737204.03	567841.63
2368	29.7	182	1820.03	-1787.21	-1256.03	496.83	5737203.53	567841.64
2369	29.65	182.35	1820.9	-1788.08	-1256.53	496.84	5737203.03	567841.65
2370	29.61	182.7	1821.76	-1788.94	-1257.03	496.85	5737202.53	567841.67
2371	29.57	183.05	1822.63	-1789.81	-1257.53	496.87	5737202.03	567841.68
2372	29.52	183.27	1823.5	-1790.68	-1258.01	496.83	5737201.55	567841.64
2373	29.46	183.45	1824.38	-1791.56	-1258.49	496.78	5737201.07	567841.59
2374	29.41	183.63	1825.26	-1792.44	-1258.97	496.73	5737200.59	567841.54
2375	29.35	183.82	1826.13	-1793.31	-1259.45	496.68	5737200.12	567841.49
2376	29.3	184	1827.01	-1794.19	-1259.92	496.63	5737199.64	567841.45
2377	29.24	184.18	1827.89	-1795.07	-1260.4	496.58	5737199.16	567841.4
2378	29.19	184.36	1828.77	-1795.95	-1260.88	496.54	5737198.68	567841.35
2379	29.13	184.55	1829.64	-1796.82	-1261.36	496.49	5737198.21	567841.3
2380	29.08	184.73	1830.52	-1797.7	-1261.83	496.44	5737197.73	567841.25
2381	29.02	184.91	1831.4	-1798.58	-1262.31	496.39	5737197.25	567841.2
2382	28.97	185.09	1832.27	-1799.45	-1262.79	496.34	5737196.77	567841.15
2383	28.92	185.28	1833.15	-1800.33	-1263.27	496.29	5737196.3	567841.1
2384	28.86	185.46	1834.03	-1801.21	-1263.74	496.24	5737195.82	567841.05
2385	28.81	185.64	1834.9	-1802.08	-1264.22	496.19	5737195.34	567841
2386	28.75	185.82	1835.78	-1802.96	-1264.7	496.14	5737194.86	567840.96
2387	28.7	186.01	1836.66	-1803.84	-1265.18	496.09	5737194.39	567840.91
2388	28.64	186.19	1837.54	-1804.72	-1265.65	496.05	5737193.91	567840.86
2389	28.59	186.37	1838.41	-1805.59	-1266.13	496	5737193.43	567840.81
2390	28.53	186.55	1839.29	-1806.47	-1266.61	495.95	5737192.95	567840.76
2391	28.48	186.74	1840.17	-1807.35	-1267.09	495.9	5737192.48	567840.71
2392	28.42	186.92	1841.04	-1808.22	-1267.56	495.85	5737192	567840.66
2393	28.37	187.1	1841.92	-1809.1	-1268.04	495.8	5737191.52	567840.61
2394	28.32	187.28	1842.8	-1809.98	-1268.52	495.75	5737191.04	567840.56
2395	28.26	187.47	1843.68	-1810.86	-1269	495.7	5737190.57	567840.51
2396	28.21	187.65	1844.55	-1811.73	-1269.47	495.65	5737190.09	567840.47
2397	28.15	187.83	1845.43	-1812.61	-1269.95	495.6	5737189.61	567840.42
2398	28.1	188.01	1846.31	-1813.49	-1270.43	495.56	5737189.13	567840.37
2399	28.04	188.2	1847.18	-1814.36	-1270.91	495.51	5737188.66	567840.32
2400	27.99	188.38	1848.06	-1815.24	-1271.39	495.46	5737188.18	567840.27
2401	27.93	188.56	1848.94	-1816.12	-1271.86	495.41	5737187.7	567840.22
2402	27.88	188.74	1849.82	-1817	-1272.34	495.36	5737187.22	567840.17
2403	27.88	188.86	1850.7	-1817.88	-1272.8	495.27	5737186.76	567840.09
2404	27.88	188.97	1851.58	-1818.76	-1273.26	495.19	5737186.3	567840
2405	27.89	189.09	1852.47	-1819.65	-1273.72	495.11	5737185.84	567839.92
2406	27.89	189.2	1853.35	-1820.53	-1274.18	495.02	5737185.38	567839.83
2407	27.89	189.32	1854.23	-1821.41	-1274.64	494.94	5737184.92	567839.75
2408	27.89	189.43	1855.12	-1822.3	-1275.1	494.85	5737184.46	567839.66
2409	27.9	189.54	1856	-1823.18	-1275.56	494.77	5737184	567839.58
2410	27.9	189.66	1856.89	-1824.07	-1276.02	494.68	5737183.54	567839.49
2411	27.9	189.77	1857.77	-1824.95	-1276.48	494.6	5737183.08	567839.41
2412	27.9	189.89	1858.65	-1825.83	-1276.94	494.51	5737182.62	567839.33
2413	27.91	190	1859.54	-1826.72	-1277.4	494.43	5737182.16	567839.24
2414	27.91	190.12	1860.42	-1827.6	-1277.86	494.34	5737181.7	567839.16
2415	27.91	190.23	1861.3	-1828.48	-1278.32	494.26	5737181.24	567839.07
2416	27.91	190.35	1862.19	-1829.37	-1278.78	494.18	5737180.78	567838.99
2417	27.92	190.46	1863.07	-1830.25	-1279.24	494.09	5737180.32	567838.9
2418	27.92	190.58	1863.95	-1831.13	-1279.7	494.01	5737179.86	567838.82
2419	27.92	190.69	1864.84	-1832.02	-1280.16	493.92	5737179.4	567838.73
2420	27.92	190.8	1865.72	-1832.9	-1280.62	493.84	5737178.94	567838.65

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2421	27.93	190.92	1866.61	-1833.79	-1281.09	493.75	5737178.48	567838.56
2422	27.93	191.03	1867.49	-1834.67	-1281.55	493.67	5737178.02	567838.48
2423	27.93	191.15	1868.37	-1835.55	-1282.01	493.58	5737177.56	567838.4
2424	27.93	191.26	1869.26	-1836.44	-1282.47	493.5	5737177.1	567838.31
2425	27.94	191.38	1870.14	-1837.32	-1282.93	493.42	5737176.64	567838.23
2426	27.94	191.49	1871.02	-1838.2	-1283.39	493.33	5737176.18	567838.14
2427	27.94	191.61	1871.91	-1839.09	-1283.85	493.25	5737175.72	567838.06
2428	27.94	191.72	1872.79	-1839.97	-1284.31	493.16	5737175.26	567837.97
2429	27.95	191.84	1873.68	-1840.86	-1284.77	493.08	5737174.8	567837.89
2430	27.95	191.95	1874.56	-1841.74	-1285.23	492.99	5737174.33	567837.8
2431	27.95	192.07	1875.44	-1842.62	-1285.69	492.91	5737173.87	567837.72
2432	27.94	192.15	1876.33	-1843.51	-1286.14	492.8	5737173.42	567837.61
2433	27.93	192.23	1877.21	-1844.39	-1286.6	492.7	5737172.97	567837.51
2434	27.91	192.31	1878.1	-1845.28	-1287.05	492.59	5737172.51	567837.4
2435	27.9	192.39	1878.98	-1846.16	-1287.5	492.48	5737172.06	567837.29
2436	27.89	192.47	1879.87	-1847.05	-1287.96	492.38	5737171.61	567837.19
2437	27.88	192.55	1880.75	-1847.93	-1288.41	492.27	5737171.15	567837.08
2438	27.87	192.63	1881.64	-1848.82	-1288.86	492.16	5737170.7	567836.97
2439	27.86	192.71	1882.52	-1849.7	-1289.32	492.06	5737170.24	567836.87
2440	27.84	192.79	1883.41	-1850.59	-1289.77	491.95	5737169.79	567836.76
2441	27.83	192.87	1884.29	-1851.47	-1290.22	491.84	5737169.34	567836.65
2442	27.82	192.95	1885.18	-1852.36	-1290.68	491.74	5737168.88	567836.55
2443	27.81	193.03	1886.06	-1853.24	-1291.13	491.63	5737168.43	567836.44
2444	27.8	193.11	1886.94	-1854.12	-1291.59	491.52	5737167.98	567836.34
2445	27.78	193.19	1887.83	-1855.01	-1292.04	491.42	5737167.52	567836.23
2446	27.77	193.27	1888.71	-1855.89	-1292.49	491.31	5737167.07	567836.12
2447	27.76	193.35	1889.6	-1856.78	-1292.95	491.2	5737166.62	567836.02
2448	27.75	193.43	1890.48	-1857.66	-1293.4	491.1	5737166.16	567835.91
2449	27.74	193.51	1891.37	-1858.55	-1293.85	490.99	5737165.71	567835.8
2450	27.73	193.59	1892.25	-1859.43	-1294.31	490.88	5737165.25	567835.7
2451	27.71	193.67	1893.14	-1860.32	-1294.76	490.78	5737164.8	567835.59
2452	27.7	193.75	1894.02	-1861.2	-1295.22	490.67	5737164.35	567835.48
2453	27.69	193.83	1894.91	-1862.09	-1295.67	490.57	5737163.89	567835.38
2454	27.68	193.91	1895.79	-1862.97	-1296.12	490.46	5737163.44	567835.27
2455	27.67	193.99	1896.68	-1863.86	-1296.58	490.35	5737162.99	567835.16
2456	27.65	194.07	1897.56	-1864.74	-1297.03	490.25	5737162.53	567835.06
2457	27.64	194.15	1898.45	-1865.63	-1297.48	490.14	5737162.08	567834.95
2458	27.63	194.23	1899.33	-1866.51	-1297.94	490.03	5737161.63	567834.84
2459	27.62	194.31	1900.22	-1867.4	-1298.39	489.93	5737161.17	567834.74
2460	27.61	194.38	1901.1	-1868.28	-1298.84	489.82	5737160.72	567834.63
2461	27.61	194.39	1901.99	-1869.17	-1299.29	489.7	5737160.27	567834.51
2462	27.6	194.41	1902.88	-1870.06	-1299.74	489.58	5737159.82	567834.39
2463	27.6	194.43	1903.76	-1870.94	-1300.19	489.47	5737159.38	567834.28
2464	27.6	194.45	1904.65	-1871.83	-1300.63	489.35	5737158.93	567834.16
2465	27.59	194.46	1905.53	-1872.71	-1301.08	489.23	5737158.48	567834.04
2466	27.59	194.48	1906.42	-1873.6	-1301.53	489.12	5737158.03	567833.93
2467	27.59	194.5	1907.31	-1874.49	-1301.98	489	5737157.59	567833.81
2468	27.58	194.52	1908.19	-1875.37	-1302.43	488.88	5737157.14	567833.69
2469	27.58	194.53	1909.08	-1876.26	-1302.87	488.77	5737156.69	567833.58
2470	27.58	194.55	1909.97	-1877.15	-1303.32	488.65	5737156.24	567833.46
2471	27.57	194.57	1910.85	-1878.03	-1303.77	488.53	5737155.79	567833.34
2472	27.57	194.59	1911.74	-1878.92	-1304.22	488.41	5737155.35	567833.23
2473	27.57	194.6	1912.63	-1879.81	-1304.66	488.3	5737154.9	567833.11
2474	27.56	194.62	1913.51	-1880.69	-1305.11	488.18	5737154.45	567832.99
2475	27.56	194.64	1914.4	-1881.58	-1305.56	488.06	5737154	567832.88
2476	27.56	194.66	1915.29	-1882.47	-1306.01	487.95	5737153.56	567832.76
2477	27.56	194.67	1916.17	-1883.35	-1306.45	487.83	5737153.11	567832.64
2478	27.55	194.69	1917.06	-1884.24	-1306.9	487.71	5737152.66	567832.53

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2479	27.55	194.71	1917.95	-1885.13	-1307.35	487.6	5737152.21	567832.41
2480	27.55	194.73	1918.83	-1886.01	-1307.8	487.48	5737151.76	567832.29
2481	27.54	194.74	1919.72	-1886.9	-1308.25	487.36	5737151.32	567832.18
2482	27.54	194.76	1920.6	-1887.78	-1308.69	487.25	5737150.87	567832.06
2483	27.54	194.78	1921.49	-1888.67	-1309.14	487.13	5737150.42	567831.94
2484	27.53	194.8	1922.38	-1889.56	-1309.59	487.01	5737149.97	567831.82
2485	27.53	194.81	1923.26	-1890.44	-1310.04	486.9	5737149.53	567831.71
2486	27.53	194.83	1924.15	-1891.33	-1310.48	486.78	5737149.08	567831.59
2487	27.52	194.85	1925.04	-1892.22	-1310.93	486.66	5737148.63	567831.47
2488	27.52	194.87	1925.92	-1893.1	-1311.38	486.55	5737148.18	567831.36
2489	27.51	194.88	1926.81	-1893.99	-1311.83	486.43	5737147.74	567831.24
2490	27.5	194.89	1927.7	-1894.88	-1312.27	486.31	5737147.29	567831.12
2491	27.49	194.9	1928.59	-1895.77	-1312.71	486.19	5737146.85	567831
2492	27.49	194.91	1929.47	-1896.65	-1313.16	486.07	5737146.4	567830.88
2493	27.48	194.93	1930.36	-1897.54	-1313.6	485.95	5737145.96	567830.76
2494	27.47	194.94	1931.25	-1898.43	-1314.05	485.83	5737145.52	567830.64
2495	27.46	194.95	1932.14	-1899.32	-1314.49	485.71	5737145.07	567830.52
2496	27.45	194.96	1933.03	-1900.21	-1314.94	485.59	5737144.63	567830.4
2497	27.44	194.97	1933.91	-1901.09	-1315.38	485.47	5737144.18	567830.28
2498	27.43	194.98	1934.8	-1901.98	-1315.82	485.35	5737143.74	567830.16
2499	27.42	194.99	1935.69	-1902.87	-1316.27	485.23	5737143.29	567830.05
2500	27.41	195.01	1936.58	-1903.76	-1316.71	485.11	5737142.85	567829.93
2501	27.4	195.02	1937.47	-1904.65	-1317.16	485	5737142.41	567829.81
2502	27.39	195.03	1938.35	-1905.53	-1317.6	484.88	5737141.96	567829.69
2503	27.38	195.04	1939.24	-1906.42	-1318.05	484.76	5737141.52	567829.57
2504	27.38	195.05	1940.13	-1907.31	-1318.49	484.64	5737141.07	567829.45
2505	27.37	195.06	1941.02	-1908.2	-1318.93	484.52	5737140.63	567829.33
2506	27.36	195.08	1941.91	-1909.09	-1319.38	484.4	5737140.18	567829.21
2507	27.35	195.09	1942.79	-1909.97	-1319.82	484.28	5737139.74	567829.09
2508	27.34	195.1	1943.68	-1910.86	-1320.27	484.16	5737139.3	567828.97
2509	27.33	195.11	1944.57	-1911.75	-1320.71	484.04	5737138.85	567828.85
2510	27.32	195.12	1945.46	-1912.64	-1321.16	483.92	5737138.41	567828.73
2511	27.31	195.13	1946.34	-1913.52	-1321.6	483.8	5737137.96	567828.61
2512	27.3	195.15	1947.23	-1914.41	-1322.04	483.68	5737137.52	567828.49
2513	27.29	195.16	1948.12	-1915.3	-1322.49	483.56	5737137.07	567828.38
2514	27.28	195.17	1949.01	-1916.19	-1322.93	483.44	5737136.63	567828.26
2515	27.28	195.18	1949.9	-1917.08	-1323.38	483.33	5737136.19	567828.14
2516	27.27	195.19	1950.78	-1917.96	-1323.82	483.21	5737135.74	567828.02
2517	27.26	195.18	1951.67	-1918.85	-1324.27	483.09	5737135.3	567827.9
2518	27.25	195.12	1952.56	-1919.74	-1324.71	482.98	5737134.85	567827.79
2519	27.25	195.06	1953.45	-1920.63	-1325.15	482.86	5737134.41	567827.67
2520	27.25	195	1954.34	-1921.52	-1325.59	482.75	5737133.97	567827.56
2521	27.24	194.94	1955.23	-1922.41	-1326.04	482.64	5737133.53	567827.45
2522	27.24	194.88	1956.12	-1923.3	-1326.48	482.52	5737133.08	567827.33
2523	27.23	194.81	1957.01	-1924.19	-1326.92	482.41	5737132.64	567827.22
2524	27.23	194.75	1957.9	-1925.08	-1327.36	482.3	5737132.2	567827.11
2525	27.22	194.69	1958.79	-1925.97	-1327.81	482.18	5737131.76	567826.99
2526	27.22	194.63	1959.68	-1926.86	-1328.25	482.07	5737131.31	567826.88
2527	27.22	194.57	1960.57	-1927.75	-1328.69	481.96	5737130.87	567826.77
2528	27.21	194.51	1961.46	-1928.64	-1329.14	481.84	5737130.43	567826.65
2529	27.21	194.45	1962.35	-1929.53	-1329.58	481.73	5737129.98	567826.54
2530	27.2	194.39	1963.23	-1930.41	-1330.02	481.62	5737129.54	567826.43
2531	27.2	194.33	1964.12	-1931.3	-1330.46	481.5	5737129.1	567826.31
2532	27.19	194.27	1965.01	-1932.19	-1330.91	481.39	5737128.66	567826.2
2533	27.19	194.21	1965.9	-1933.08	-1331.35	481.28	5737128.21	567826.09
2534	27.19	194.15	1966.79	-1933.97	-1331.79	481.16	5737127.77	567825.97
2535	27.18	194.09	1967.68	-1934.86	-1332.24	481.05	5737127.33	567825.86
2536	27.18	194.02	1968.57	-1935.75	-1332.68	480.94	5737126.88	567825.75

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2537	27.17	193.96	1969.46	-1936.64	-1333.12	480.82	5737126.44	567825.63
2538	27.17	193.9	1970.35	-1937.53	-1333.56	480.71	5737126	567825.52
2539	27.16	193.84	1971.24	-1938.42	-1334.01	480.6	5737125.56	567825.41
2540	27.16	193.78	1972.13	-1939.31	-1334.45	480.48	5737125.11	567825.29
2541	27.16	193.72	1973.02	-1940.2	-1334.89	480.37	5737124.67	567825.18
2542	27.15	193.66	1973.91	-1941.09	-1335.33	480.26	5737124.23	567825.07
2543	27.15	193.6	1974.8	-1941.98	-1335.78	480.14	5737123.79	567824.95
2544	27.14	193.54	1975.69	-1942.87	-1336.22	480.03	5737123.34	567824.84
2545	27.14	193.49	1976.58	-1943.76	-1336.66	479.92	5737122.9	567824.73
2546	27.13	193.47	1977.47	-1944.65	-1337.11	479.82	5737122.46	567824.63
2547	27.13	193.45	1978.36	-1945.54	-1337.55	479.71	5737122.01	567824.52
2548	27.13	193.44	1979.25	-1946.43	-1337.99	479.61	5737121.57	567824.42
2549	27.12	193.42	1980.14	-1947.32	-1338.44	479.5	5737121.13	567824.31
2550	27.12	193.4	1981.03	-1948.21	-1338.88	479.4	5737120.68	567824.21
2551	27.12	193.38	1981.92	-1949.1	-1339.32	479.29	5737120.24	567824.11
2552	27.11	193.36	1982.81	-1949.99	-1339.77	479.19	5737119.8	567824
2553	27.11	193.34	1983.7	-1950.88	-1340.21	479.09	5737119.35	567823.9
2554	27.1	193.32	1984.59	-1951.77	-1340.65	478.98	5737118.91	567823.79
2555	27.1	193.3	1985.48	-1952.66	-1341.1	478.88	5737118.47	567823.69
2556	27.1	193.28	1986.37	-1953.55	-1341.54	478.77	5737118.02	567823.58
2557	27.09	193.26	1987.26	-1954.44	-1341.98	478.67	5737117.58	567823.48
2558	27.09	193.24	1988.15	-1955.33	-1342.43	478.57	5737117.14	567823.38
2559	27.08	193.22	1989.04	-1956.22	-1342.87	478.46	5737116.69	567823.27
2560	27.08	193.2	1989.93	-1957.11	-1343.31	478.36	5737116.25	567823.17
2561	27.08	193.18	1990.82	-1958	-1343.76	478.25	5737115.81	567823.06
2562	27.07	193.17	1991.71	-1958.89	-1344.2	478.15	5737115.36	567822.96
2563	27.07	193.15	1992.6	-1959.78	-1344.64	478.04	5737114.92	567822.86
2564	27.07	193.13	1993.49	-1960.67	-1345.08	477.94	5737114.48	567822.75
2565	27.06	193.11	1994.38	-1961.56	-1345.53	477.84	5737114.03	567822.65
2566	27.06	193.09	1995.27	-1962.45	-1345.97	477.73	5737113.59	567822.54
2567	27.05	193.07	1996.16	-1963.34	-1346.41	477.63	5737113.15	567822.44
2568	27.05	193.05	1997.05	-1964.23	-1346.86	477.52	5737112.7	567822.33
2569	27.05	193.03	1997.94	-1965.12	-1347.3	477.42	5737112.26	567822.23
2570	27.04	193.01	1998.83	-1966.01	-1347.74	477.31	5737111.82	567822.13
2571	27.04	192.99	1999.73	-1966.91	-1348.19	477.21	5737111.37	567822.02
2572	27.03	192.97	2000.62	-1967.8	-1348.63	477.11	5737110.93	567821.92
2573	27.03	192.95	2001.51	-1968.69	-1349.07	477	5737110.49	567821.81
2574	27.04	192.93	2002.4	-1969.58	-1349.52	476.9	5737110.04	567821.71
2575	27.05	192.91	2003.29	-1970.47	-1349.97	476.8	5737109.6	567821.61
2576	27.06	192.89	2004.17	-1971.35	-1350.41	476.7	5737109.15	567821.51
2577	27.07	192.87	2005.06	-1972.24	-1350.86	476.6	5737108.71	567821.41
2578	27.08	192.85	2005.95	-1973.13	-1351.3	476.5	5737108.26	567821.31
2579	27.09	192.83	2006.84	-1974.02	-1351.75	476.4	5737107.81	567821.21
2580	27.11	192.81	2007.73	-1974.91	-1352.2	476.3	5737107.37	567821.11
2581	27.12	192.79	2008.62	-1975.8	-1352.64	476.2	5737106.92	567821.01
2582	27.13	192.76	2009.51	-1976.69	-1353.09	476.1	5737106.48	567820.91
2583	27.14	192.74	2010.4	-1977.58	-1353.53	476	5737106.03	567820.81
2584	27.15	192.72	2011.29	-1978.47	-1353.98	475.9	5737105.58	567820.71
2585	27.16	192.7	2012.18	-1979.36	-1354.43	475.8	5737105.14	567820.61
2586	27.17	192.68	2013.07	-1980.25	-1354.87	475.7	5737104.69	567820.51
2587	27.18	192.66	2013.96	-1981.14	-1355.32	475.6	5737104.25	567820.41
2588	27.2	192.64	2014.85	-1982.03	-1355.76	475.5	5737103.8	567820.31
2589	27.21	192.62	2015.74	-1982.92	-1356.21	475.4	5737103.35	567820.21
2590	27.22	192.6	2016.63	-1983.81	-1356.65	475.3	5737102.91	567820.11
2591	27.23	192.58	2017.52	-1984.7	-1357.1	475.2	5737102.46	567820.01
2592	27.24	192.55	2018.41	-1985.59	-1357.55	475.1	5737102.02	567819.91
2593	27.25	192.53	2019.3	-1986.48	-1357.99	475	5737101.57	567819.81
2594	27.26	192.51	2020.19	-1987.37	-1358.44	474.9	5737101.12	567819.71

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2595	27.27	192.49	2021.07	-1988.25	-1358.88	474.8	5737100.68	567819.61
2596	27.29	192.47	2021.96	-1989.14	-1359.33	474.7	5737100.23	567819.51
2597	27.3	192.45	2022.85	-1990.03	-1359.78	474.6	5737099.79	567819.41
2598	27.31	192.43	2023.74	-1990.92	-1360.22	474.5	5737099.34	567819.31
2599	27.32	192.41	2024.63	-1991.81	-1360.67	474.4	5737098.89	567819.21
2600	27.33	192.39	2025.52	-1992.7	-1361.11	474.3	5737098.45	567819.11
2601	27.34	192.37	2026.41	-1993.59	-1361.56	474.2	5737098	567819.01
2602	27.35	192.34	2027.3	-1994.48	-1362.01	474.1	5737097.56	567818.91
2603	27.36	192.34	2028.19	-1995.37	-1362.45	474	5737097.11	567818.81
2604	27.37	192.36	2029.08	-1996.26	-1362.9	473.9	5737096.66	567818.71
2605	27.37	192.39	2029.97	-1997.15	-1363.35	473.8	5737096.21	567818.61
2606	27.37	192.41	2030.85	-1998.03	-1363.8	473.7	5737095.76	567818.51
2607	27.38	192.44	2031.74	-1998.92	-1364.25	473.6	5737095.31	567818.41
2608	27.38	192.46	2032.63	-1999.81	-1364.7	473.5	5737094.86	567818.31
2609	27.38	192.49	2033.52	-2000.7	-1365.15	473.39	5737094.41	567818.21
2610	27.39	192.52	2034.4	-2001.58	-1365.6	473.29	5737093.97	567818.11
2611	27.39	192.54	2035.29	-2002.47	-1366.05	473.19	5737093.52	567818
2612	27.4	192.57	2036.18	-2003.36	-1366.5	473.09	5737093.07	567817.9
2613	27.4	192.59	2037.07	-2004.25	-1366.94	472.99	5737092.62	567817.8
2614	27.4	192.62	2037.95	-2005.13	-1367.39	472.89	5737092.17	567817.7
2615	27.41	192.64	2038.84	-2006.02	-1367.84	472.79	5737091.72	567817.6
2616	27.41	192.67	2039.73	-2006.91	-1368.29	472.69	5737091.27	567817.5
2617	27.42	192.69	2040.62	-2007.8	-1368.74	472.59	5737090.82	567817.4
2618	27.42	192.72	2041.51	-2008.69	-1369.19	472.48	5737090.37	567817.3
2619	27.42	192.74	2042.39	-2009.57	-1369.64	472.38	5737089.92	567817.19
2620	27.43	192.77	2043.28	-2010.46	-1370.09	472.28	5737089.47	567817.09
2621	27.43	192.79	2044.17	-2011.35	-1370.54	472.18	5737089.02	567816.99
2622	27.43	192.82	2045.06	-2012.24	-1370.99	472.08	5737088.58	567816.89
2623	27.44	192.84	2045.94	-2013.12	-1371.44	471.98	5737088.13	567816.79
2624	27.44	192.87	2046.83	-2014.01	-1371.89	471.88	5737087.68	567816.69
2625	27.45	192.89	2047.72	-2014.9	-1372.33	471.78	5737087.23	567816.59
2626	27.45	192.92	2048.61	-2015.79	-1372.78	471.68	5737086.78	567816.49
2627	27.45	192.94	2049.49	-2016.67	-1373.23	471.57	5737086.33	567816.39
2628	27.46	192.97	2050.38	-2017.56	-1373.68	471.47	5737085.88	567816.28
2629	27.46	192.99	2051.27	-2018.45	-1374.13	471.37	5737085.43	567816.18
2630	27.47	193.02	2052.16	-2019.34	-1374.58	471.27	5737084.98	567816.08
2631	27.47	193.05	2053.05	-2020.23	-1375.03	471.17	5737084.53	567815.98
2632	27.46	193.07	2053.93	-2021.11	-1375.48	471.06	5737084.09	567815.88
2633	27.45	193.1	2054.82	-2022	-1375.92	470.96	5737083.64	567815.77
2634	27.44	193.12	2055.71	-2022.89	-1376.37	470.85	5737083.19	567815.66
2635	27.43	193.15	2056.6	-2023.78	-1376.81	470.75	5737082.75	567815.56
2636	27.41	193.17	2057.49	-2024.67	-1377.26	470.64	5737082.3	567815.45
2637	27.4	193.2	2058.38	-2025.56	-1377.71	470.53	5737081.86	567815.34
2638	27.39	193.22	2059.27	-2026.45	-1378.15	470.43	5737081.41	567815.24
2639	27.38	193.25	2060.15	-2027.33	-1378.6	470.32	5737080.96	567815.13
2640	27.37	193.27	2061.04	-2028.22	-1379.05	470.21	5737080.52	567815.02
2641	27.36	193.3	2061.93	-2029.11	-1379.49	470.11	5737080.07	567814.92
2642	27.34	193.32	2062.82	-2030	-1379.94	470	5737079.62	567814.81
2643	27.33	193.35	2063.71	-2030.89	-1380.38	469.89	5737079.18	567814.71
2644	27.32	193.37	2064.6	-2031.78	-1380.83	469.79	5737078.73	567814.6
2645	27.31	193.4	2065.48	-2032.66	-1381.28	469.68	5737078.29	567814.49
2646	27.3	193.43	2066.37	-2033.55	-1381.72	469.58	5737077.84	567814.39
2647	27.29	193.45	2067.26	-2034.44	-1382.17	469.47	5737077.39	567814.28
2648	27.27	193.48	2068.15	-2035.33	-1382.62	469.36	5737076.95	567814.17
2649	27.26	193.5	2069.04	-2036.22	-1383.06	469.26	5737076.5	567814.07
2650	27.25	193.53	2069.93	-2037.11	-1383.51	469.15	5737076.05	567813.96
2651	27.24	193.55	2070.82	-2038	-1383.95	469.04	5737075.61	567813.85
2652	27.23	193.58	2071.7	-2038.88	-1384.4	468.94	5737075.16	567813.75

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2653	27.22	193.6	2072.59	-2039.77	-1384.85	468.83	5737074.72	567813.64
2654	27.2	193.63	2073.48	-2040.66	-1385.29	468.72	5737074.27	567813.54
2655	27.19	193.65	2074.37	-2041.55	-1385.74	468.62	5737073.82	567813.43
2656	27.18	193.68	2075.26	-2042.44	-1386.19	468.51	5737073.38	567813.32
2657	27.17	193.7	2076.15	-2043.33	-1386.63	468.4	5737072.93	567813.22
2658	27.16	193.73	2077.04	-2044.22	-1387.08	468.3	5737072.49	567813.11
2659	27.15	193.76	2077.92	-2045.1	-1387.52	468.19	5737072.04	567813
2660	27.14	193.77	2078.81	-2045.99	-1387.97	468.08	5737071.59	567812.9
2661	27.14	193.78	2079.7	-2046.88	-1388.41	467.97	5737071.15	567812.79
2662	27.14	193.79	2080.59	-2047.77	-1388.85	467.87	5737070.71	567812.68
2663	27.14	193.8	2081.48	-2048.66	-1389.3	467.76	5737070.26	567812.57
2664	27.14	193.8	2082.37	-2049.55	-1389.74	467.65	5737069.82	567812.46
2665	27.15	193.81	2083.26	-2050.44	-1390.18	467.54	5737069.38	567812.35
2666	27.15	193.82	2084.15	-2051.33	-1390.63	467.43	5737068.94	567812.24
2667	27.15	193.82	2085.04	-2052.22	-1391.07	467.32	5737068.49	567812.13
2668	27.15	193.83	2085.93	-2053.11	-1391.51	467.21	5737068.05	567812.02
2669	27.15	193.84	2086.82	-2054	-1391.96	467.1	5737067.61	567811.91
2670	27.15	193.85	2087.71	-2054.89	-1392.4	466.99	5737067.16	567811.8
2671	27.15	193.85	2088.6	-2055.78	-1392.84	466.88	5737066.72	567811.69
2672	27.15	193.86	2089.49	-2056.67	-1393.29	466.77	5737066.28	567811.58
2673	27.15	193.87	2090.38	-2057.56	-1393.73	466.66	5737065.83	567811.47
2674	27.16	193.88	2091.27	-2058.45	-1394.17	466.55	5737065.39	567811.36
2675	27.16	193.88	2092.16	-2059.34	-1394.62	466.44	5737064.95	567811.25
2676	27.16	193.89	2093.05	-2060.23	-1395.06	466.33	5737064.5	567811.14
2677	27.16	193.9	2093.94	-2061.12	-1395.5	466.22	5737064.06	567811.04
2678	27.16	193.91	2094.83	-2062.01	-1395.94	466.11	5737063.62	567810.93
2679	27.16	193.91	2095.72	-2062.9	-1396.39	466.01	5737063.18	567810.82
2680	27.16	193.92	2096.61	-2063.79	-1396.83	465.9	5737062.73	567810.71
2681	27.16	193.93	2097.5	-2064.68	-1397.27	465.79	5737062.29	567810.6
2682	27.16	193.93	2098.39	-2065.57	-1397.72	465.68	5737061.85	567810.49
2683	27.16	193.94	2099.28	-2066.46	-1398.16	465.57	5737061.4	567810.38
2684	27.17	193.95	2100.17	-2067.35	-1398.6	465.46	5737060.96	567810.27
2685	27.17	193.96	2101.06	-2068.24	-1399.05	465.35	5737060.52	567810.16
2686	27.17	193.96	2101.95	-2069.13	-1399.49	465.24	5737060.07	567810.05
2687	27.17	193.97	2102.84	-2070.02	-1399.93	465.13	5737059.63	567809.94
2688	27.17	193.98	2103.73	-2070.91	-1400.38	465.02	5737059.19	567809.83
2689	27.18	193.96	2104.62	-2071.8	-1400.82	464.91	5737058.74	567809.72
2690	27.2	193.95	2105.5	-2072.68	-1401.27	464.8	5737058.29	567809.61
2691	27.21	193.93	2106.39	-2073.57	-1401.71	464.69	5737057.85	567809.5
2692	27.22	193.91	2107.28	-2074.46	-1402.16	464.58	5737057.4	567809.4
2693	27.24	193.89	2108.17	-2075.35	-1402.61	464.47	5737056.96	567809.29
2694	27.25	193.87	2109.06	-2076.24	-1403.05	464.37	5737056.51	567809.18
2695	27.26	193.86	2109.94	-2077.12	-1403.5	464.26	5737056.06	567809.07
2696	27.28	193.84	2110.83	-2078.01	-1403.95	464.15	5737055.62	567808.96
2697	27.29	193.82	2111.72	-2078.9	-1404.39	464.04	5737055.17	567808.85
2698	27.31	193.8	2112.61	-2079.79	-1404.84	463.93	5737054.72	567808.74
2699	27.32	193.78	2113.5	-2080.68	-1405.29	463.82	5737054.28	567808.63
2700	27.33	193.77	2114.38	-2081.56	-1405.73	463.71	5737053.83	567808.52
2701	27.35	193.75	2115.27	-2082.45	-1406.18	463.6	5737053.38	567808.41
2702	27.36	193.73	2116.16	-2083.34	-1406.63	463.49	5737052.94	567808.3
2703	27.37	193.71	2117.05	-2084.23	-1407.07	463.38	5737052.49	567808.2
2704	27.39	193.69	2117.94	-2085.12	-1407.52	463.28	5737052.04	567808.09
2705	27.4	193.68	2118.83	-2086.01	-1407.97	463.17	5737051.6	567807.98
2706	27.42	193.66	2119.71	-2086.89	-1408.41	463.06	5737051.15	567807.87
2707	27.43	193.64	2120.6	-2087.78	-1408.86	462.95	5737050.7	567807.76
2708	27.44	193.62	2121.49	-2088.67	-1409.31	462.84	5737050.26	567807.65
2709	27.46	193.6	2122.38	-2089.56	-1409.75	462.73	5737049.81	567807.54
2710	27.47	193.59	2123.27	-2090.45	-1410.2	462.62	5737049.36	567807.43

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2711	27.48	193.57	2124.15	-2091.33	-1410.65	462.51	5737048.92	567807.32
2712	27.5	193.55	2125.04	-2092.22	-1411.09	462.4	5737048.47	567807.21
2713	27.51	193.53	2125.93	-2093.11	-1411.54	462.29	5737048.02	567807.11
2714	27.53	193.51	2126.82	-2094	-1411.98	462.18	5737047.58	567807
2715	27.54	193.5	2127.71	-2094.89	-1412.43	462.08	5737047.13	567806.89
2716	27.55	193.48	2128.59	-2095.77	-1412.88	461.97	5737046.68	567806.78
2717	27.56	193.46	2129.48	-2096.66	-1413.33	461.86	5737046.23	567806.67
2718	27.57	193.44	2130.37	-2097.55	-1413.78	461.75	5737045.78	567806.56
2719	27.58	193.42	2131.25	-2098.43	-1414.23	461.65	5737045.33	567806.46
2720	27.59	193.4	2132.14	-2099.32	-1414.68	461.54	5737044.88	567806.35
2721	27.6	193.38	2133.02	-2100.2	-1415.14	461.44	5737044.43	567806.25
2722	27.61	193.36	2133.91	-2101.09	-1415.59	461.33	5737043.97	567806.14
2723	27.62	193.34	2134.79	-2101.97	-1416.04	461.22	5737043.52	567806.04
2724	27.63	193.32	2135.68	-2102.86	-1416.49	461.12	5737043.07	567805.93
2725	27.63	193.3	2136.57	-2103.75	-1416.95	461.01	5737042.62	567805.82
2726	27.64	193.28	2137.45	-2104.63	-1417.4	460.91	5737042.16	567805.72
2727	27.65	193.26	2138.34	-2105.52	-1417.85	460.8	5737041.71	567805.61
2728	27.66	193.24	2139.22	-2106.4	-1418.3	460.69	5737041.26	567805.51
2729	27.67	193.22	2140.11	-2107.29	-1418.76	460.59	5737040.81	567805.4
2730	27.68	193.2	2140.99	-2108.17	-1419.21	460.48	5737040.35	567805.29
2731	27.69	193.18	2141.88	-2109.06	-1419.66	460.38	5737039.9	567805.19
2732	27.69	193.16	2142.76	-2109.94	-1420.11	460.27	5737039.45	567805.08
2733	27.7	193.15	2143.65	-2110.83	-1420.57	460.16	5737039	567804.98
2734	27.71	193.13	2144.54	-2111.72	-1421.02	460.06	5737038.55	567804.87
2735	27.72	193.11	2145.42	-2112.6	-1421.47	459.95	5737038.09	567804.76
2736	27.73	193.09	2146.31	-2113.49	-1421.92	459.85	5737037.64	567804.66
2737	27.74	193.07	2147.19	-2114.37	-1422.37	459.74	5737037.19	567804.55
2738	27.75	193.05	2148.08	-2115.26	-1422.83	459.63	5737036.74	567804.45
2739	27.75	193.03	2148.96	-2116.14	-1423.28	459.53	5737036.28	567804.34
2740	27.76	193.01	2149.85	-2117.03	-1423.73	459.42	5737035.83	567804.23
2741	27.77	192.99	2150.73	-2117.91	-1424.18	459.32	5737035.38	567804.13
2742	27.78	192.97	2151.62	-2118.8	-1424.64	459.21	5737034.93	567804.02
2743	27.79	192.95	2152.5	-2119.68	-1425.09	459.1	5737034.47	567803.92
2744	27.8	192.93	2153.39	-2120.57	-1425.54	459	5737034.02	567803.81
2745	27.81	192.91	2154.28	-2121.46	-1425.99	458.89	5737033.57	567803.7
2746	27.8	192.91	2155.16	-2122.34	-1426.44	458.79	5737033.12	567803.6
2747	27.77	192.92	2156.05	-2123.23	-1426.89	458.68	5737032.67	567803.49
2748	27.74	192.93	2156.94	-2124.12	-1427.34	458.58	5737032.22	567803.39
2749	27.71	192.94	2157.83	-2125.01	-1427.79	458.47	5737031.77	567803.29
2750	27.68	192.96	2158.71	-2125.89	-1428.24	458.37	5737031.33	567803.18
2751	27.65	192.97	2159.6	-2126.78	-1428.68	458.27	5737030.88	567803.08
2752	27.62	192.98	2160.49	-2127.67	-1429.13	458.16	5737030.43	567802.97
2753	27.59	192.99	2161.38	-2128.56	-1429.58	458.06	5737029.98	567802.87
2754	27.57	193.01	2162.27	-2129.45	-1430.03	457.95	5737029.53	567802.77
2755	27.54	193.02	2163.15	-2130.33	-1430.48	457.85	5737029.08	567802.66
2756	27.51	193.03	2164.04	-2131.22	-1430.93	457.75	5737028.64	567802.56
2757	27.48	193.05	2164.93	-2132.11	-1431.37	457.64	5737028.19	567802.45
2758	27.45	193.06	2165.82	-2133	-1431.82	457.54	5737027.74	567802.35
2759	27.42	193.07	2166.7	-2133.88	-1432.27	457.43	5737027.29	567802.25
2760	27.39	193.08	2167.59	-2134.77	-1432.72	457.33	5737026.84	567802.14
2761	27.36	193.1	2168.48	-2135.66	-1433.17	457.23	5737026.4	567802.04
2762	27.34	193.11	2169.37	-2136.55	-1433.62	457.12	5737025.95	567801.93
2763	27.31	193.12	2170.26	-2137.44	-1434.06	457.02	5737025.5	567801.83
2764	27.28	193.13	2171.14	-2138.32	-1434.51	456.91	5737025.05	567801.72
2765	27.25	193.15	2172.03	-2139.21	-1434.96	456.81	5737024.6	567801.62
2766	27.22	193.16	2172.92	-2140.1	-1435.41	456.7	5737024.15	567801.52
2767	27.19	193.17	2173.81	-2140.99	-1435.86	456.6	5737023.71	567801.41
2768	27.16	193.18	2174.69	-2141.87	-1436.31	456.5	5737023.26	567801.31

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2769	27.13	193.2	2175.58	-2142.76	-1436.75	456.39	5737022.81	567801.2
2770	27.11	193.21	2176.47	-2143.65	-1437.2	456.29	5737022.36	567801.1
2771	27.08	193.22	2177.36	-2144.54	-1437.65	456.18	5737021.91	567801
2772	27.05	193.23	2178.25	-2145.43	-1438.1	456.08	5737021.46	567800.89
2773	27.02	193.25	2179.13	-2146.31	-1438.55	455.98	5737021.02	567800.79
2774	26.99	193.26	2180.02	-2147.2	-1439	455.87	5737020.57	567800.68
2775	27.01	193.26	2180.91	-2148.09	-1439.44	455.77	5737020.12	567800.58
2776	27.04	193.27	2181.8	-2148.98	-1439.89	455.66	5737019.67	567800.47
2777	27.06	193.27	2182.69	-2149.87	-1440.34	455.55	5737019.23	567800.37
2778	27.09	193.28	2183.57	-2150.75	-1440.78	455.45	5737018.78	567800.26
2779	27.11	193.28	2184.46	-2151.64	-1441.23	455.34	5737018.33	567800.15
2780	27.13	193.29	2185.35	-2152.53	-1441.68	455.24	5737017.89	567800.05
2781	27.16	193.29	2186.24	-2153.42	-1442.12	455.13	5737017.44	567799.94
2782	27.18	193.3	2187.13	-2154.31	-1442.57	455.02	5737016.99	567799.84
2783	27.21	193.3	2188.02	-2155.2	-1443.02	454.92	5737016.55	567799.73
2784	27.23	193.31	2188.9	-2156.08	-1443.46	454.81	5737016.1	567799.62
2785	27.25	193.31	2189.79	-2156.97	-1443.91	454.71	5737015.65	567799.52
2786	27.28	193.32	2190.68	-2157.86	-1444.36	454.6	5737015.2	567799.41
2787	27.3	193.32	2191.57	-2158.75	-1444.8	454.5	5737014.76	567799.31
2788	27.33	193.33	2192.46	-2159.64	-1445.25	454.39	5737014.31	567799.2
2789	27.35	193.33	2193.35	-2160.53	-1445.7	454.28	5737013.86	567799.09
2790	27.37	193.34	2194.23	-2161.41	-1446.15	454.18	5737013.42	567798.99
2791	27.4	193.34	2195.12	-2162.3	-1446.59	454.07	5737012.97	567798.88
2792	27.42	193.35	2196.01	-2163.19	-1447.04	453.97	5737012.52	567798.78
2793	27.44	193.35	2196.9	-2164.08	-1447.49	453.86	5737012.08	567798.67
2794	27.47	193.36	2197.79	-2164.97	-1447.93	453.75	5737011.63	567798.57
2795	27.49	193.36	2198.68	-2165.86	-1448.38	453.65	5737011.18	567798.46
2796	27.52	193.37	2199.56	-2166.74	-1448.83	453.54	5737010.74	567798.35
2797	27.54	193.37	2200.45	-2167.63	-1449.27	453.44	5737010.29	567798.25
2798	27.56	193.37	2201.34	-2168.52	-1449.72	453.33	5737009.84	567798.14
2799	27.59	193.38	2202.23	-2169.41	-1450.17	453.22	5737009.4	567798.04
2800	27.61	193.38	2203.12	-2170.3	-1450.61	453.12	5737008.95	567797.93
2801	27.64	193.39	2204.01	-2171.19	-1451.06	453.01	5737008.5	567797.82
2802	27.66	193.39	2204.89	-2172.07	-1451.51	452.91	5737008.05	567797.72
2803	27.68	193.4	2205.78	-2172.96	-1451.95	452.8	5737007.61	567797.61
2804	27.68	193.39	2206.67	-2173.85	-1452.4	452.7	5737007.16	567797.51
2805	27.67	193.37	2207.56	-2174.74	-1452.85	452.59	5737006.71	567797.4
2806	27.66	193.35	2208.44	-2175.62	-1453.31	452.49	5737006.26	567797.3
2807	27.65	193.33	2209.33	-2176.51	-1453.76	452.38	5737005.81	567797.19
2808	27.64	193.31	2210.22	-2177.4	-1454.21	452.27	5737005.36	567797.09
2809	27.63	193.29	2211.1	-2178.28	-1454.66	452.17	5737004.91	567796.98
2810	27.62	193.27	2211.99	-2179.17	-1455.11	452.06	5737004.46	567796.88
2811	27.61	193.26	2212.87	-2180.05	-1455.56	451.96	5737004.01	567796.77
2812	27.6	193.24	2213.76	-2180.94	-1456.01	451.85	5737003.55	567796.67
2813	27.59	193.22	2214.65	-2181.83	-1456.46	451.75	5737003.1	567796.56
2814	27.58	193.2	2215.53	-2182.71	-1456.91	451.64	5737002.65	567796.46
2815	27.57	193.18	2216.42	-2183.6	-1457.36	451.54	5737002.2	567796.35
2816	27.57	193.16	2217.31	-2184.49	-1457.81	451.43	5737001.75	567796.25
2817	27.56	193.15	2218.19	-2185.37	-1458.26	451.33	5737001.3	567796.14
2818	27.55	193.13	2219.08	-2186.26	-1458.71	451.22	5737000.85	567796.04
2819	27.54	193.11	2219.97	-2187.15	-1459.16	451.12	5737000.4	567795.93
2820	27.53	193.09	2220.85	-2188.03	-1459.61	451.01	5736999.95	567795.83
2821	27.52	193.07	2221.74	-2188.92	-1460.06	450.91	5736999.5	567795.72
2822	27.51	193.05	2222.63	-2189.81	-1460.51	450.8	5736999.05	567795.61
2823	27.5	193.03	2223.51	-2190.69	-1460.96	450.7	5736998.6	567795.51
2824	27.49	193.02	2224.4	-2191.58	-1461.41	450.59	5736998.15	567795.4
2825	27.48	193	2225.29	-2192.47	-1461.86	450.49	5736997.7	567795.3
2826	27.47	192.98	2226.17	-2193.35	-1462.31	450.38	5736997.25	567795.19

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2827	27.46	192.96	2227.06	-2194.24	-1462.76	450.28	5736996.8	567795.09
2828	27.45	192.94	2227.95	-2195.13	-1463.21	450.17	5736996.35	567794.98
2829	27.44	192.92	2228.83	-2196.01	-1463.66	450.07	5736995.9	567794.88
2830	27.43	192.9	2229.72	-2196.9	-1464.12	449.96	5736995.45	567794.77
2831	27.42	192.89	2230.61	-2197.79	-1464.57	449.86	5736995	567794.67
2832	27.41	192.87	2231.49	-2198.67	-1465.02	449.75	5736994.55	567794.56
2833	27.38	192.87	2232.38	-2199.56	-1465.46	449.65	5736994.1	567794.46
2834	27.35	192.87	2233.28	-2200.46	-1465.9	449.55	5736993.66	567794.36
2835	27.32	192.87	2234.17	-2201.35	-1466.34	449.45	5736993.22	567794.26
2836	27.29	192.87	2235.06	-2202.24	-1466.79	449.35	5736992.78	567794.16
2837	27.27	192.87	2235.95	-2203.13	-1467.23	449.25	5736992.33	567794.06
2838	27.24	192.87	2236.84	-2204.02	-1467.67	449.15	5736991.89	567793.96
2839	27.21	192.87	2237.73	-2204.91	-1468.11	449.04	5736991.45	567793.86
2840	27.18	192.87	2238.62	-2205.8	-1468.56	448.94	5736991.01	567793.76
2841	27.15	192.87	2239.51	-2206.69	-1469	448.84	5736990.56	567793.65
2842	27.13	192.87	2240.4	-2207.58	-1469.44	448.74	5736990.12	567793.55
2843	27.1	192.87	2241.29	-2208.47	-1469.88	448.64	5736989.68	567793.45
2844	27.07	192.87	2242.19	-2209.37	-1470.33	448.54	5736989.24	567793.35
2845	27.04	192.87	2243.08	-2210.26	-1470.77	448.44	5736988.79	567793.25
2846	27.01	192.87	2243.97	-2211.15	-1471.21	448.34	5736988.35	567793.15
2847	26.99	192.87	2244.86	-2212.04	-1471.65	448.24	5736987.91	567793.05
2848	26.96	192.87	2245.75	-2212.93	-1472.1	448.13	5736987.47	567792.95
2849	26.93	192.87	2246.64	-2213.82	-1472.54	448.03	5736987.02	567792.85
2850	26.9	192.87	2247.53	-2214.71	-1472.98	447.93	5736986.58	567792.74
2851	26.87	192.87	2248.42	-2215.6	-1473.43	447.83	5736986.14	567792.64
2852	26.85	192.87	2249.31	-2216.49	-1473.87	447.73	5736985.69	567792.54
2853	26.82	192.87	2250.2	-2217.38	-1474.31	447.63	5736985.25	567792.44
2854	26.79	192.87	2251.1	-2218.28	-1474.75	447.53	5736984.81	567792.34
2855	26.76	192.87	2251.99	-2219.17	-1475.2	447.43	5736984.37	567792.24
2856	26.73	192.87	2252.88	-2220.06	-1475.64	447.33	5736983.92	567792.14
2857	26.71	192.87	2253.77	-2220.95	-1476.08	447.22	5736983.48	567792.04
2858	26.68	192.87	2254.66	-2221.84	-1476.52	447.12	5736983.04	567791.94
2859	26.65	192.87	2255.55	-2222.73	-1476.97	447.02	5736982.6	567791.83
2860	26.62	192.87	2256.44	-2223.62	-1477.41	446.92	5736982.15	567791.73
2861	26.59	192.87	2257.33	-2224.51	-1477.85	446.82	5736981.71	567791.63
2862	26.56	192.87	2258.23	-2225.41	-1478.28	446.72	5736981.28	567791.53
2863	26.53	192.87	2259.13	-2226.31	-1478.71	446.63	5736980.86	567791.44
2864	26.49	192.86	2260.03	-2227.21	-1479.14	446.53	5736980.43	567791.34
2865	26.46	192.86	2260.93	-2228.11	-1479.57	446.43	5736980	567791.24
2866	26.42	192.86	2261.82	-2229	-1480	446.33	5736979.57	567791.14
2867	26.39	192.86	2262.72	-2229.9	-1480.42	446.23	5736979.14	567791.05
2868	26.36	192.86	2263.62	-2230.8	-1480.85	446.14	5736978.71	567790.95
2869	26.32	192.86	2264.52	-2231.7	-1481.28	446.04	5736978.28	567790.85
2870	26.29	192.85	2265.41	-2232.59	-1481.71	445.94	5736977.85	567790.75
2871	26.26	192.85	2266.31	-2233.49	-1482.14	445.84	5736977.42	567790.65
2872	26.22	192.85	2267.21	-2234.39	-1482.57	445.74	5736976.99	567790.56
2873	26.19	192.85	2268.11	-2235.29	-1483	445.65	5736976.56	567790.46
2874	26.16	192.85	2269.01	-2236.19	-1483.43	445.55	5736976.13	567790.36
2875	26.12	192.85	2269.9	-2237.08	-1483.86	445.45	5736975.7	567790.26
2876	26.09	192.84	2270.8	-2237.98	-1484.29	445.35	5736975.28	567790.16
2877	26.06	192.84	2271.7	-2238.88	-1484.72	445.25	5736974.85	567790.07
2878	26.02	192.84	2272.6	-2239.78	-1485.15	445.16	5736974.42	567789.97
2879	25.99	192.84	2273.5	-2240.68	-1485.58	445.06	5736973.99	567789.87
2880	25.96	192.84	2274.39	-2241.57	-1486	444.96	5736973.56	567789.77
2881	25.92	192.83	2275.29	-2242.47	-1486.43	444.86	5736973.13	567789.67
2882	25.89	192.83	2276.19	-2243.37	-1486.86	444.77	5736972.7	567789.58
2883	25.85	192.83	2277.09	-2244.27	-1487.29	444.67	5736972.27	567789.48
2884	25.82	192.83	2277.98	-2245.16	-1487.72	444.57	5736971.84	567789.38

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2885	25.79	192.83	2278.88	-2246.06	-1488.15	444.47	5736971.41	567789.28
2886	25.75	192.83	2279.78	-2246.96	-1488.58	444.37	5736970.98	567789.19
2887	25.72	192.82	2280.68	-2247.86	-1489.01	444.28	5736970.55	567789.09
2888	25.69	192.82	2281.58	-2248.76	-1489.44	444.18	5736970.12	567788.99
2889	25.65	192.82	2282.47	-2249.65	-1489.87	444.08	5736969.7	567788.89
2890	25.62	192.81	2283.38	-2250.56	-1490.29	443.99	5736969.27	567788.8
2891	25.6	192.8	2284.28	-2251.46	-1490.71	443.89	5736968.86	567788.7
2892	25.57	192.79	2285.18	-2252.36	-1491.12	443.8	5736968.44	567788.61
2893	25.55	192.77	2286.09	-2253.27	-1491.54	443.7	5736968.02	567788.52
2894	25.52	192.76	2286.99	-2254.17	-1491.96	443.61	5736967.61	567788.42
2895	25.5	192.75	2287.9	-2255.08	-1492.37	443.52	5736967.19	567788.33
2896	25.47	192.73	2288.8	-2255.98	-1492.79	443.42	5736966.77	567788.24
2897	25.44	192.72	2289.71	-2256.89	-1493.21	443.33	5736966.36	567788.14
2898	25.42	192.71	2290.61	-2257.79	-1493.62	443.24	5736965.94	567788.05
2899	25.39	192.69	2291.51	-2258.69	-1494.04	443.14	5736965.52	567787.96
2900	25.37	192.68	2292.42	-2259.6	-1494.46	443.05	5736965.11	567787.86
2901	25.34	192.67	2293.32	-2260.5	-1494.87	442.96	5736964.69	567787.77
2902	25.32	192.66	2294.23	-2261.41	-1495.29	442.86	5736964.27	567787.68
2903	25.29	192.64	2295.13	-2262.31	-1495.71	442.77	5736963.86	567787.58
2904	25.26	192.63	2296.04	-2263.22	-1496.12	442.68	5736963.44	567787.49
2905	25.24	192.62	2296.94	-2264.12	-1496.54	442.58	5736963.02	567787.4
2906	25.21	192.6	2297.84	-2265.02	-1496.96	442.49	5736962.61	567787.3
2907	25.19	192.59	2298.75	-2265.93	-1497.37	442.4	5736962.19	567787.21
2908	25.16	192.58	2299.65	-2266.83	-1497.79	442.3	5736961.77	567787.11
2909	25.14	192.56	2300.56	-2267.74	-1498.21	442.21	5736961.36	567787.02
2910	25.11	192.55	2301.46	-2268.64	-1498.62	442.12	5736960.94	567786.93
2911	25.08	192.54	2302.37	-2269.55	-1499.04	442.02	5736960.52	567786.83
2912	25.06	192.53	2303.27	-2270.45	-1499.46	441.93	5736960.11	567786.74
2913	25.03	192.51	2304.17	-2271.35	-1499.87	441.84	5736959.69	567786.65
2914	25.01	192.5	2305.08	-2272.26	-1500.29	441.74	5736959.27	567786.55
2915	24.98	192.49	2305.98	-2273.16	-1500.71	441.65	5736958.86	567786.46
2916	24.96	192.47	2306.89	-2274.07	-1501.12	441.56	5736958.44	567786.37
2917	24.93	192.46	2307.79	-2274.97	-1501.54	441.46	5736958.02	567786.27
2918	24.9	192.45	2308.7	-2275.88	-1501.95	441.37	5736957.61	567786.18
2919	24.88	192.45	2309.61	-2276.79	-1502.36	441.28	5736957.2	567786.09
2920	24.85	192.45	2310.52	-2277.7	-1502.76	441.19	5736956.8	567786
2921	24.82	192.45	2311.43	-2278.61	-1503.17	441.1	5736956.39	567785.91
2922	24.79	192.46	2312.34	-2279.52	-1503.57	441.01	5736955.99	567785.82
2923	24.76	192.46	2313.25	-2280.43	-1503.98	440.92	5736955.58	567785.73
2924	24.73	192.46	2314.16	-2281.34	-1504.38	440.83	5736955.18	567785.64
2925	24.7	192.46	2315.07	-2282.25	-1504.79	440.74	5736954.77	567785.55
2926	24.68	192.46	2315.98	-2283.16	-1505.19	440.65	5736954.37	567785.47
2927	24.65	192.46	2316.89	-2284.07	-1505.6	440.56	5736953.97	567785.38
2928	24.62	192.46	2317.8	-2284.98	-1506	440.47	5736953.56	567785.29
2929	24.59	192.47	2318.71	-2285.89	-1506.41	440.38	5736953.16	567785.2
2930	24.56	192.47	2319.62	-2286.8	-1506.81	440.3	5736952.75	567785.11
2931	24.53	192.47	2320.53	-2287.71	-1507.22	440.21	5736952.35	567785.02
2932	24.5	192.47	2321.43	-2288.61	-1507.62	440.12	5736951.94	567784.93
2933	24.48	192.47	2322.34	-2289.52	-1508.03	440.03	5736951.54	567784.84
2934	24.45	192.47	2323.25	-2290.43	-1508.43	439.94	5736951.13	567784.75
2935	24.42	192.47	2324.16	-2291.34	-1508.84	439.85	5736950.73	567784.66
2936	24.39	192.48	2325.07	-2292.25	-1509.24	439.76	5736950.32	567784.57
2937	24.36	192.48	2325.98	-2293.16	-1509.65	439.67	5736949.92	567784.48
2938	24.33	192.48	2326.89	-2294.07	-1510.05	439.58	5736949.51	567784.39
2939	24.3	192.48	2327.8	-2294.98	-1510.46	439.49	5736949.11	567784.3
2940	24.27	192.48	2328.71	-2295.89	-1510.86	439.4	5736948.7	567784.21
2941	24.25	192.48	2329.62	-2296.8	-1511.27	439.31	5736948.3	567784.12
2942	24.22	192.48	2330.53	-2297.71	-1511.67	439.22	5736947.89	567784.03

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2943	24.19	192.49	2331.44	-2298.62	-1512.08	439.13	5736947.49	567783.94
2944	24.16	192.49	2332.35	-2299.53	-1512.48	439.04	5736947.08	567783.85
2945	24.13	192.49	2333.26	-2300.44	-1512.89	438.95	5736946.68	567783.76
2946	24.1	192.49	2334.17	-2301.35	-1513.29	438.86	5736946.27	567783.67
2947	24.08	192.49	2335.09	-2302.27	-1513.69	438.78	5736945.88	567783.59
2948	24.05	192.48	2336	-2303.18	-1514.08	438.69	5736945.48	567783.5
2949	24.03	192.48	2336.92	-2304.1	-1514.47	438.6	5736945.09	567783.41
2950	24.01	192.48	2337.83	-2305.01	-1514.87	438.52	5736944.7	567783.33
2951	23.98	192.47	2338.75	-2305.93	-1515.26	438.43	5736944.3	567783.24
2952	23.96	192.47	2339.67	-2306.85	-1515.65	438.34	5736943.91	567783.15
2953	23.93	192.46	2340.58	-2307.76	-1516.05	438.26	5736943.52	567783.07
2954	23.91	192.46	2341.5	-2308.68	-1516.44	438.17	5736943.12	567782.98
2955	23.88	192.46	2342.41	-2309.59	-1516.83	438.08	5736942.73	567782.89
2956	23.86	192.45	2343.33	-2310.51	-1517.22	438	5736942.34	567782.81
2957	23.83	192.45	2344.24	-2311.42	-1517.62	437.91	5736941.94	567782.72
2958	23.81	192.45	2345.16	-2312.34	-1518.01	437.82	5736941.55	567782.63
2959	23.79	192.44	2346.07	-2313.25	-1518.4	437.74	5736941.16	567782.55
2960	23.76	192.44	2346.99	-2314.17	-1518.8	437.65	5736940.77	567782.46
2961	23.74	192.43	2347.9	-2315.08	-1519.19	437.56	5736940.37	567782.37
2962	23.71	192.43	2348.82	-2316	-1519.58	437.48	5736939.98	567782.29
2963	23.69	192.43	2349.73	-2316.91	-1519.98	437.39	5736939.59	567782.2
2964	23.66	192.42	2350.65	-2317.83	-1520.37	437.3	5736939.19	567782.11
2965	23.64	192.42	2351.57	-2318.75	-1520.76	437.21	5736938.8	567782.03
2966	23.62	192.42	2352.48	-2319.66	-1521.16	437.13	5736938.41	567781.94
2967	23.59	192.41	2353.4	-2320.58	-1521.55	437.04	5736938.01	567781.85
2968	23.57	192.41	2354.31	-2321.49	-1521.94	436.95	5736937.62	567781.77
2969	23.54	192.4	2355.23	-2322.41	-1522.34	436.87	5736937.23	567781.68
2970	23.52	192.4	2356.14	-2323.32	-1522.73	436.78	5736936.83	567781.59
2971	23.49	192.4	2357.06	-2324.24	-1523.12	436.69	5736936.44	567781.51
2972	23.47	192.39	2357.97	-2325.15	-1523.51	436.61	5736936.05	567781.42
2973	23.45	192.39	2358.89	-2326.07	-1523.91	436.52	5736935.65	567781.33
2974	23.42	192.39	2359.8	-2326.98	-1524.3	436.43	5736935.26	567781.25
2975	23.4	192.38	2360.72	-2327.9	-1524.69	436.35	5736934.87	567781.16
2976	23.37	192.38	2361.64	-2328.82	-1525.08	436.26	5736934.48	567781.07
2977	23.35	192.36	2362.56	-2329.74	-1525.47	436.18	5736934.09	567780.99
2978	23.33	192.35	2363.48	-2330.66	-1525.85	436.1	5736933.71	567780.91
2979	23.32	192.33	2364.4	-2331.58	-1526.23	436.01	5736933.33	567780.83
2980	23.3	192.32	2365.31	-2332.49	-1526.62	435.93	5736932.94	567780.74
2981	23.28	192.3	2366.23	-2333.41	-1527	435.85	5736932.56	567780.66
2982	23.26	192.29	2367.15	-2334.33	-1527.39	435.77	5736932.18	567780.58
2983	23.24	192.27	2368.07	-2335.25	-1527.77	435.68	5736931.79	567780.49
2984	23.22	192.26	2368.99	-2336.17	-1528.15	435.6	5736931.41	567780.41
2985	23.2	192.24	2369.91	-2337.09	-1528.54	435.52	5736931.03	567780.33
2986	23.18	192.23	2370.83	-2338.01	-1528.92	435.44	5736930.64	567780.25
2987	23.16	192.21	2371.75	-2338.93	-1529.3	435.35	5736930.26	567780.16
2988	23.14	192.2	2372.67	-2339.85	-1529.69	435.27	5736929.88	567780.08
2989	23.12	192.19	2373.59	-2340.77	-1530.07	435.19	5736929.49	567780
2990	23.1	192.17	2374.51	-2341.69	-1530.45	435.1	5736929.11	567779.92
2991	23.08	192.16	2375.43	-2342.61	-1530.84	435.02	5736928.73	567779.83
2992	23.06	192.14	2376.35	-2343.53	-1531.22	434.94	5736928.34	567779.75
2993	23.04	192.13	2377.27	-2344.45	-1531.6	434.86	5736927.96	567779.67
2994	23.02	192.11	2378.19	-2345.37	-1531.99	434.77	5736927.57	567779.58
2995	23	192.1	2379.11	-2346.29	-1532.37	434.69	5736927.19	567779.5
2996	22.98	192.08	2380.03	-2347.21	-1532.75	434.61	5736926.81	567779.42
2997	22.96	192.07	2380.95	-2348.13	-1533.14	434.53	5736926.42	567779.34
2998	22.95	192.05	2381.87	-2349.05	-1533.52	434.44	5736926.04	567779.25
2999	22.93	192.04	2382.79	-2349.97	-1533.91	434.36	5736925.66	567779.17
3000	22.91	192.02	2383.71	-2350.89	-1534.29	434.28	5736925.27	567779.09

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3001	22.89	192.01	2384.63	-2351.81	-1534.67	434.19	5736924.89	567779.01
3002	22.87	192	2385.55	-2352.73	-1535.06	434.11	5736924.51	567778.92
3003	22.85	191.98	2386.47	-2353.65	-1535.44	434.03	5736924.12	567778.84
3004	22.83	191.97	2387.39	-2354.57	-1535.82	433.95	5736923.74	567778.76
3005	22.81	191.96	2388.31	-2355.49	-1536.2	433.87	5736923.36	567778.68
3006	22.78	191.96	2389.24	-2356.42	-1536.57	433.79	5736922.99	567778.6
3007	22.76	191.97	2390.16	-2357.34	-1536.95	433.71	5736922.61	567778.52
3008	22.73	191.97	2391.09	-2358.27	-1537.32	433.63	5736922.24	567778.44
3009	22.71	191.97	2392.01	-2359.19	-1537.7	433.55	5736921.87	567778.36
3010	22.68	191.97	2392.93	-2360.11	-1538.07	433.47	5736921.49	567778.28
3011	22.66	191.97	2393.86	-2361.04	-1538.44	433.39	5736921.12	567778.2
3012	22.63	191.98	2394.78	-2361.96	-1538.82	433.31	5736920.75	567778.12
3013	22.61	191.98	2395.71	-2362.89	-1539.19	433.23	5736920.37	567778.04
3014	22.58	191.98	2396.63	-2363.81	-1539.56	433.15	5736920	567777.96
3015	22.56	191.98	2397.55	-2364.73	-1539.94	433.07	5736919.62	567777.88
3016	22.53	191.98	2398.48	-2365.66	-1540.31	432.99	5736919.25	567777.8
3017	22.51	191.99	2399.4	-2366.58	-1540.69	432.91	5736918.88	567777.72
3018	22.48	191.99	2400.33	-2367.51	-1541.06	432.83	5736918.5	567777.65
3019	22.46	191.99	2401.25	-2368.43	-1541.43	432.75	5736918.13	567777.57
3020	22.43	191.99	2402.17	-2369.35	-1541.81	432.68	5736917.76	567777.49
3021	22.41	192	2403.1	-2370.28	-1542.18	432.6	5736917.38	567777.41
3022	22.38	192	2404.02	-2371.2	-1542.55	432.52	5736917.01	567777.33
3023	22.36	192	2404.95	-2372.13	-1542.93	432.44	5736916.63	567777.25
3024	22.33	192	2405.87	-2373.05	-1543.3	432.36	5736916.26	567777.17
3025	22.31	192	2406.8	-2373.98	-1543.68	432.28	5736915.89	567777.09
3026	22.28	192.01	2407.72	-2374.9	-1544.05	432.2	5736915.51	567777.01
3027	22.26	192.01	2408.64	-2375.82	-1544.42	432.12	5736915.14	567776.93
3028	22.23	192.01	2409.57	-2376.75	-1544.8	432.04	5736914.77	567776.85
3029	22.21	192.01	2410.49	-2377.67	-1545.17	431.96	5736914.39	567776.77
3030	22.18	192.01	2411.42	-2378.6	-1545.55	431.88	5736914.02	567776.69
3031	22.16	192.02	2412.34	-2379.52	-1545.92	431.8	5736913.64	567776.61
3032	22.13	192.02	2413.26	-2380.44	-1546.29	431.72	5736913.27	567776.53
3033	22.11	192.02	2414.19	-2381.37	-1546.66	431.64	5736912.9	567776.46
3034	22.09	192.02	2415.12	-2382.3	-1547.03	431.57	5736912.53	567776.38
3035	22.07	192.02	2416.04	-2383.22	-1547.39	431.49	5736912.17	567776.3
3036	22.05	192.03	2416.97	-2384.15	-1547.76	431.41	5736911.81	567776.22
3037	22.03	192.03	2417.9	-2385.08	-1548.12	431.33	5736911.44	567776.14
3038	22.01	192.03	2418.83	-2386.01	-1548.48	431.26	5736911.08	567776.07
3039	21.99	192.03	2419.76	-2386.94	-1548.85	431.18	5736910.71	567775.99
3040	21.97	192.03	2420.69	-2387.87	-1549.21	431.1	5736910.35	567775.91
3041	21.95	192.04	2421.61	-2388.79	-1549.58	431.02	5736909.99	567775.83
3042	21.93	192.04	2422.54	-2389.72	-1549.94	430.94	5736909.62	567775.76
3043	21.91	192.04	2423.47	-2390.65	-1550.3	430.87	5736909.26	567775.68
3044	21.89	192.04	2424.4	-2391.58	-1550.67	430.79	5736908.89	567775.6
3045	21.87	192.04	2425.33	-2392.51	-1551.03	430.71	5736908.53	567775.52
3046	21.85	192.04	2426.25	-2393.43	-1551.4	430.63	5736908.17	567775.45
3047	21.83	192.05	2427.18	-2394.36	-1551.76	430.56	5736907.8	567775.37
3048	21.81	192.05	2428.11	-2395.29	-1552.12	430.48	5736907.44	567775.29
3049	21.79	192.05	2429.04	-2396.22	-1552.49	430.4	5736907.07	567775.21
3050	21.77	192.05	2429.97	-2397.15	-1552.85	430.32	5736906.71	567775.13
3051	21.76	192.05	2430.9	-2398.08	-1553.22	430.25	5736906.35	567775.06
3052	21.74	192.06	2431.82	-2399	-1553.58	430.17	5736905.98	567774.98
3053	21.72	192.06	2432.75	-2399.93	-1553.94	430.09	5736905.62	567774.9
3054	21.7	192.06	2433.68	-2400.86	-1554.31	430.01	5736905.25	567774.82
3055	21.68	192.06	2434.61	-2401.79	-1554.67	429.93	5736904.89	567774.75
3056	21.66	192.06	2435.54	-2402.72	-1555.04	429.86	5736904.53	567774.67
3057	21.64	192.07	2436.46	-2403.64	-1555.4	429.78	5736904.16	567774.59
3058	21.62	192.07	2437.39	-2404.57	-1555.76	429.7	5736903.8	567774.51

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3059	21.6	192.07	2438.32	-2405.5	-1556.13	429.62	5736903.43	567774.44
3060	21.58	192.07	2439.25	-2406.43	-1556.49	429.55	5736903.07	567774.36
3061	21.57	192.07	2440.18	-2407.36	-1556.85	429.47	5736902.72	567774.28
3062	21.55	192.07	2441.11	-2408.29	-1557.2	429.39	5736902.36	567774.21
3063	21.54	192.08	2442.04	-2409.22	-1557.56	429.32	5736902	567774.13
3064	21.52	192.08	2442.97	-2410.15	-1557.92	429.24	5736901.64	567774.05
3065	21.51	192.08	2443.9	-2411.08	-1558.28	429.16	5736901.29	567773.98
3066	21.49	192.08	2444.84	-2412.02	-1558.63	429.09	5736900.93	567773.9
3067	21.48	192.08	2445.77	-2412.95	-1558.99	429.01	5736900.57	567773.82
3068	21.46	192.08	2446.7	-2413.88	-1559.35	428.93	5736900.21	567773.75
3069	21.45	192.08	2447.63	-2414.81	-1559.71	428.86	5736899.86	567773.67
3070	21.43	192.09	2448.56	-2415.74	-1560.06	428.78	5736899.5	567773.59
3071	21.42	192.09	2449.49	-2416.67	-1560.42	428.71	5736899.14	567773.52
3072	21.4	192.09	2450.42	-2417.6	-1560.78	428.63	5736898.78	567773.44
3073	21.39	192.09	2451.35	-2418.53	-1561.14	428.55	5736898.43	567773.36
3074	21.37	192.09	2452.28	-2419.46	-1561.49	428.48	5736898.07	567773.29
3075	21.36	192.09	2453.21	-2420.39	-1561.85	428.4	5736897.71	567773.21
3076	21.34	192.1	2454.14	-2421.32	-1562.21	428.32	5736897.35	567773.13
3077	21.33	192.1	2455.07	-2422.25	-1562.57	428.25	5736897	567773.06
3078	21.31	192.1	2456	-2423.18	-1562.92	428.17	5736896.64	567772.98
3079	21.3	192.1	2456.93	-2424.11	-1563.28	428.09	5736896.28	567772.9

APPENDIX 2a

BREAM A14A

Petrophysics Evaluation Summary

Esso Australia Pty Ltd.

Exploration Department

Bream A14A
Formation Evaluation
Log Interpretation Report

Petrophysicist: A. Cernovskis

November 2005

Bream A14A Log Interpretation

The Bream A14A well is a re-entry directional well sidetracked from the existing A14 well. The primary objective of the well was to access the N-1 and M-6 reservoir sands. Bream A14A well kicked off from 1006mMD and was drilled in 8½" hole with one bit run to a total depth of 3079mMDRT (2456.9mTVDRT). Reeves Compact Shuttle system was run on drill pipe to bottom where the tools were deployed at 3005mMDRT and the hole logged upwards from 3059-1006mMDRT. The well was completed with a 7" production casing to 3076mMD and 3½" tubing to 2374mMD.

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

DATA

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

Survey/Log	Run	Company	From (mMDRT)	To (mMDRT)
MCG-MDN-MPD-MLE-MDL	1	REEVES	3045.7	1006.0

Deviation

The well angle ranged from 27.59^{o} at 2431.04mMD (TCC) to 26.60^{o} at 2860.78mMD (M-6) and 21.30^{o} at 3079.0mMD (T.D.).

Mud Data

Mud Type	8½" hole section: KCL/PHPA/Polymer/Glycol-CP
Mud Weight:	9.9-10.2 ppg
Rm:	0.156 @ 25^{o} C
Rmf:	0.098 @ 25^{o} C
Rmc:	0.277 @ 25^{o} C
BHT:	104.8^{o} C @ 3045.7mMD

Hole Size

8½ inch	1006.0-3079.0mMDRT (Driller's Depth)

Data Acquisition & Log Quality

No problems were encountered with acquisition of key well log data. Data quality of the GR, Density-Neutron and Resistivity logs is acceptable, all log depths correlate to Anadrill MWD GR.

Data Processing

All coals were manually picked from the logs and Flag_Coal was created, a temperature curve (Temperature) was also generated and all new curves were included as inputs for the final petrophysical interpretation.

INTERPRETATION

Logs Used

The primary logs used in the interpretation were DDLL (Deep Resistivity), GRGC (Gamma Ray), DEN (Bulk Density) and NPRL (thermal neutron porosity in LPU).

Formation Water Salinity

R_{wa} analysis using a = 1, m = 2 and n = 2 indicates clean water sands have an apparent formation water salinity of 40,000ppm NaCl equivalent (Figure 1).

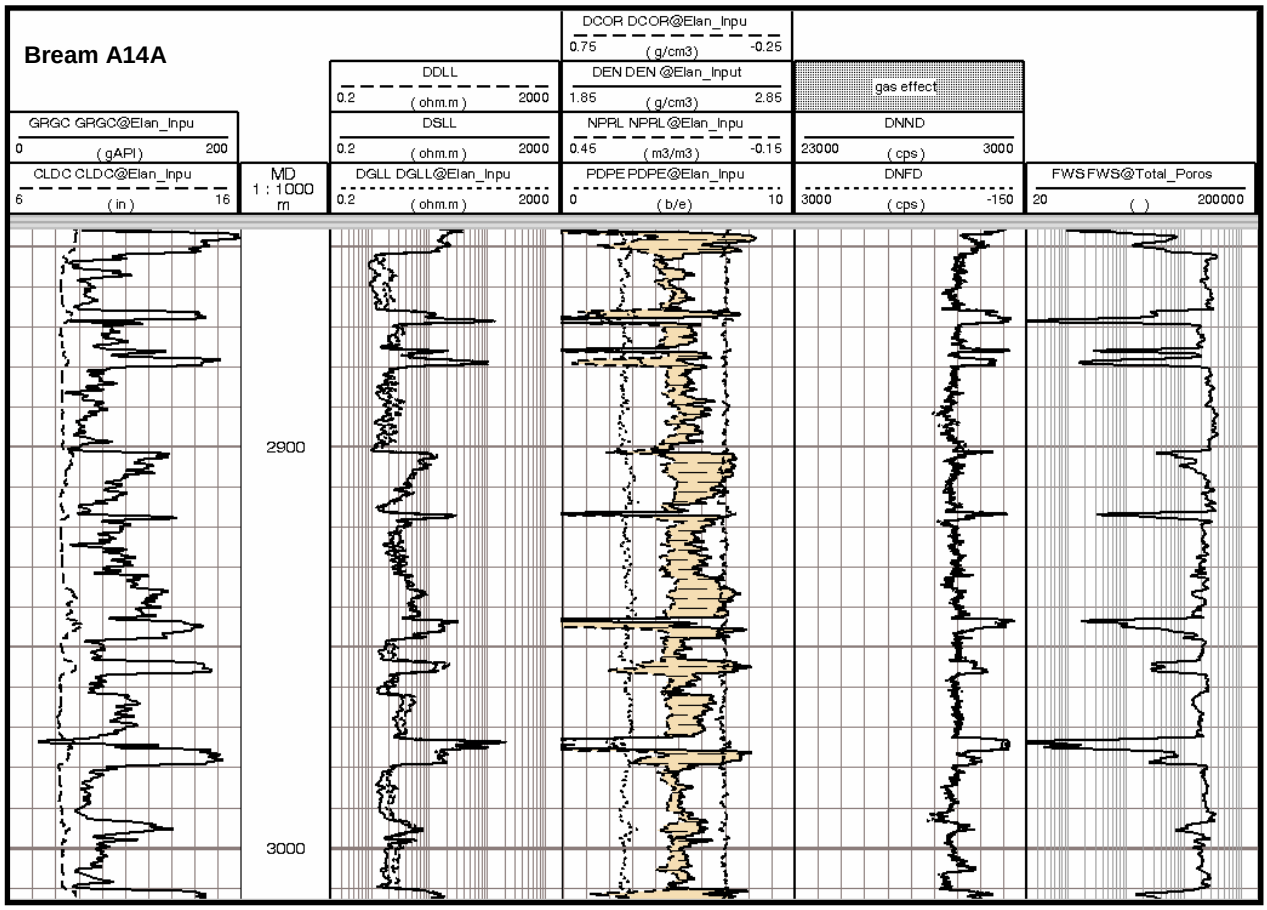


Figure 1. Apparent Formation Water Salinity (FWS)

Hydrocarbon Type Identification

2280-2300mMDRT

Comprehensive evaluation of the elevated ditch gas readings recorded across the interval 2280-2300mMD on the Mud Log indicated the shows are possibly due to gas but the Neutron-Density log character displays a significant shale effect as result of complex mineralogy. There is some minor separation between the near and far Neutron curves (DNFD and DNND) which may be an apparent gas effect (Figure 2).

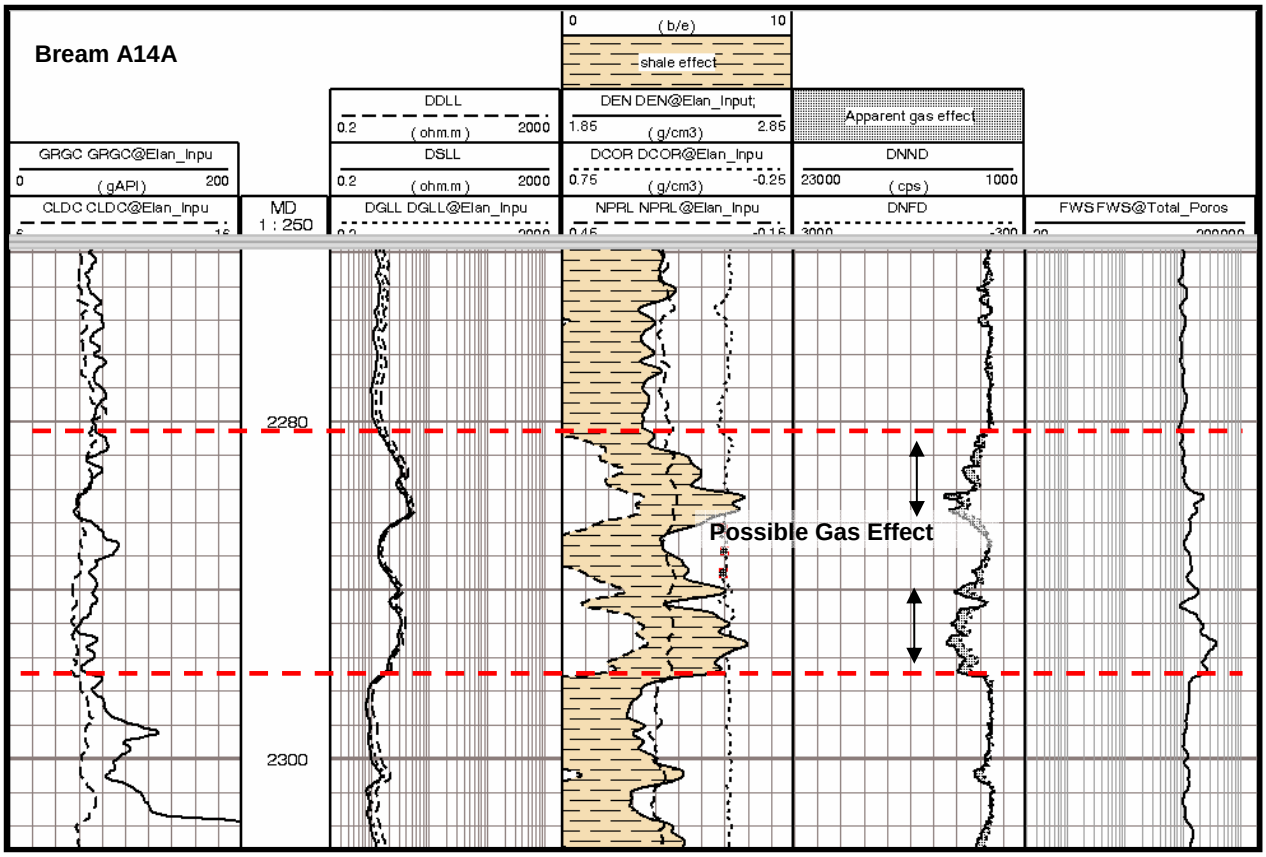


Figure 2. Hydrocarbon Type 2280-2300mMD

2412.3-2502.1mMDRT

The reservoir sand units across this interval are interpreted as gas bearing based on a combination of the Density-Neutron log character, separation of near and far Neutron curves (DNFD and DNND; Figure 3), the PHIX-DT log methodology and associated elevated ditch gas readings recorded on the Mud Log. Hydrocarbon fluorescence was not described in the ditch cuttings.

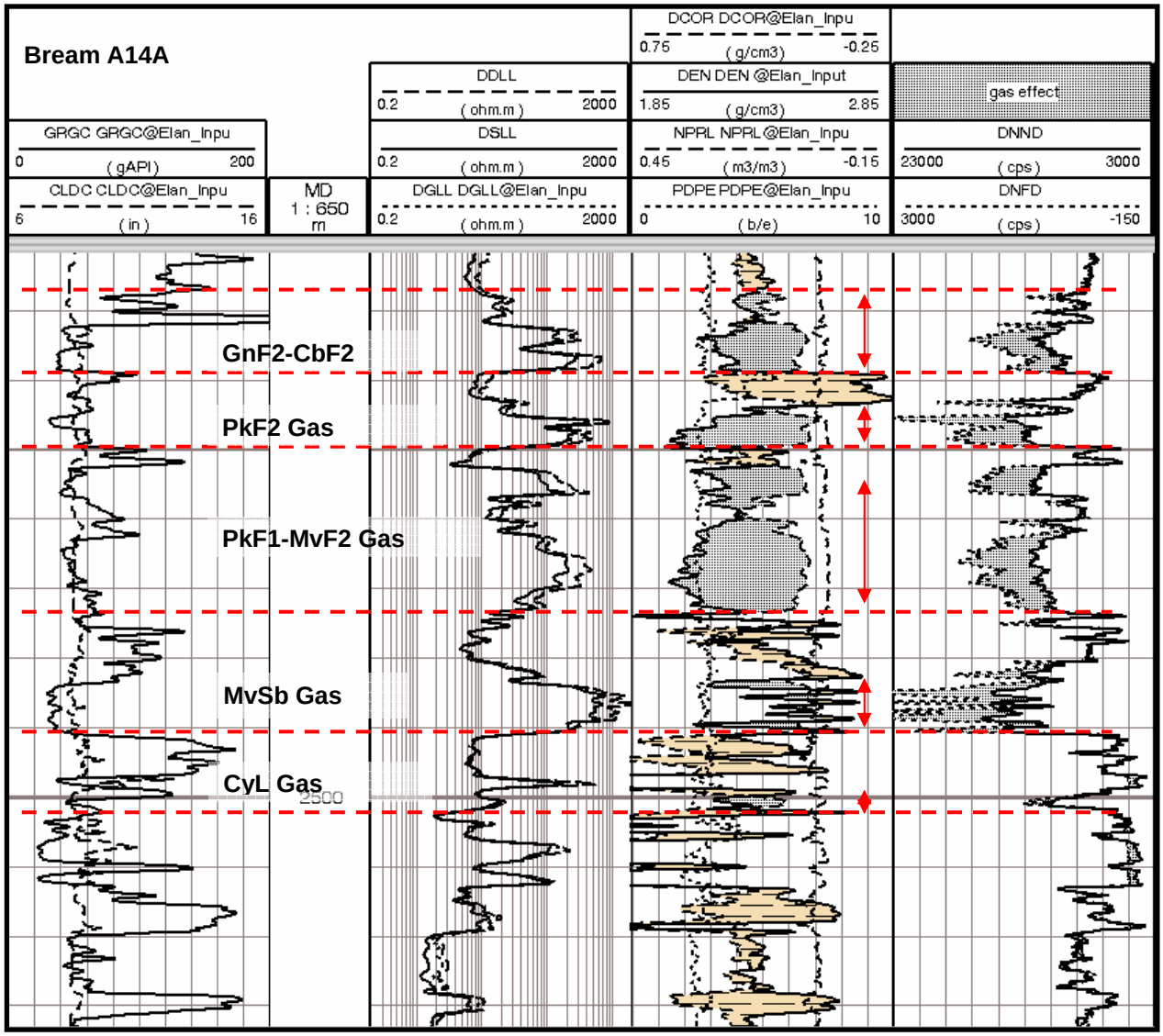


Figure 3. Hydrocarbon Type 2412.3-2502.1mMD

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

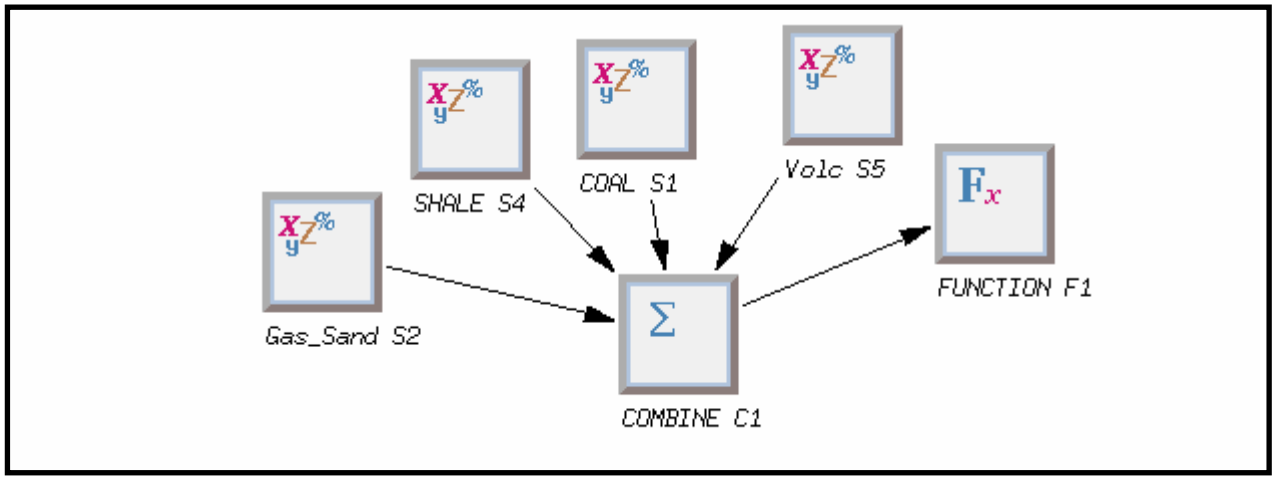


Figure 4. Elan + Model and Module Configuration

ELAN Input Channels

	Compound Name Spec	BREAM A14A
TEMP_CH	TEMP;*	TEMP TEMP@Elan_Input;5 [A1317883]
RHOB_IFAC_CH	IFRH;*	
NPHI_IFAC_CH	INPH;*	
RHOB_CH	DEN:BPB;*	DEN DEN@Elan_Input;5 [A1317864]
NPHI_CH	NPRL:BPB;*	NPRL NPRL@Elan_Input;6 [A1317871]
CUDC_CH/RT_CH	DGLL:BPB;*	DGLL DGLL@Elan_Input;5 [A1317881]
GR_CH	GRGC:BPB;*	GRGC GRGC@Elan_Input;6 [A1317869]
PRB1_CH	FLAG_COAL;*	FLAG_COAL FLAG_COAL@Elan_Input;14 [A13178
PRB2_CH	FLAG_RHOH;*	
PRB3_CH	FLAG_VOLC;*	FLAG_VOLC FLAG_VOLC@Elan_Input;6 [A131788

ELAN Global Parameters

Reference Index	MD
Processing Interval	2150 – 3035m
Sampling Rate	0.1m
Uncertainty Channel	FALSE
Clay Input	DRY
Special Fluids	IMMOVABLE_HYDROCARBON

ELAN Zone Definition

Name	Bottom To Top
Water	3035.6892(m) To 2520.0000(m)
HKW	2520.0000(m) To 2432.5000(m)
TCC No GR	2432.5000(m) To 2406.0000(m)
TCC Gas	2406.0000(m) To 2264.0000(m)
TOL	2264.0000(m) To 2160.0000(m)

ELAN Process Definition

Process	SOLVE2 "Gas_Sand"
Equations	RHOB NPHI CUDC_DWA_GR CT1 CT2
Volumes	QUAR ORTH ILLI XWAT UWAT XGAS UGAS
User Constraints	
Constraint Zones	Bottom Top
UNDEFINED	3035.6892(m) 2160.0000(m)
Constraints Applied	
	UNDEFINED - IrreducibleXWater
	UNDEFINED - IrreducibleUWater
	UNDEFINED - WaterBaseMud_SXO_gt_SW
Process	SOLVE1 "COAL"
Equations	RHOB
Volumes	COAL
Constraint Zones	Bottom Top
UNDEFINED	3035.6892(m) 2160.0000(m)
Process	SOLVE4 "SHALE"
Equations	RHOB NPHI GR
Volumes	QUAR ILLI XWAT UWAT
Constraint Zones	Bottom Top
UNDEFINED	3035.6892(m) 2160.0000(m)
Process	SOLVE5 "Volc"
Equations	RHOB
Volumes	IGNE
Constraint Zones	Bottom Top
UNDEFINED	3035.6892(m) 2160.0000(m)
Process	COMBINE 1 "COMBINE"
Order	SOL.2 SOL.4 SOL.5 SOL.1
Combine Method	
	UNDEFINED 9959.6104 (m) Internal Average
Probability Functions	
	probability (SOL.1 , PRB1_CH)
probability (SOL.5 , PRB3_CH)	
prob1=linear (ILLI_VOL,0.30,0,0.5,1)	
probability (SOL.4 , prob1)	
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)	

Probability Functions

probability (SOL.1 , PRB1_CH)
probability (SOL.5 , PRB3_CH)
prob1=linear (ILLI_VOL,0.30,0,0.5,1)
probability (SOL.4 , prob1)

Process "FUNCTION 1 ""FUNCTION""""

Outputs VCL SWT SUWI PIGN PHIT

User-defined Function

```
swt_cmp=(UWAT_VOL+XBWA_VOL)/(UWAT_VOL+XBWA_VOL+UGAS_VOL)
output(SWT,swt_cmp)
```

ELAN Different Parameters

Parameters	Water	HKW	TCC No GR	TCC Gas	TOL
RHOB_GLAU (g/cm3)	2.65	2.65	2.65	2.65	2.85
CXDC_XWAT (mS/m)	21.086	18.021	17.374	17.242	16.412
CUDC_UWAT (mS/m)	18.736	16.422	16.01	11	8
CUDC_UBWA (mS/m)	5.285	4.524	4.623	4.5	4.61
RW (ohm.m)	0.056	0.056	0.056	0.081	0.106
RHOB_UNC_ZP (g/cm3)	0.027	0.027	0.027	0.013	0.013
NPHI_UNC_ZP (m3/m3)	0.015	0.015	0.015	0.008	0.008
CUDC_UNC_ZP (mS/m)	0.065	0.061	0.06	0.05	0.042
DT_UNC_WM ( )	0	0	0	0.7	0.7
CUDC_UNC_WM ( )	0.67	0.67	1	0.5	0.5
GR_UNC_WM ( )	0.3	0.3	0	0	0
RHOB_IFAC_ZP( )	0.3	0.3	0.9	0.3	0.3
NPHI_IFAC_ZP( )	0.3	0.3	0.9	0.3	0.3

ELAN Same Parameters

Parameter	Value	Parameter	Value
RHOB_QUAR	2.650(g/cm3)	RHOB_CALC	2.710(g/cm3)
RHOB_DOLO	2.847(g/cm3)	RHOB_ORTH	2.570(g/cm3)
RHOB_ILLI	2.780(g/cm3)	RHOB_KAOL	2.620(g/cm3)
RHOB_COAL	2.000(g/cm3)	RHOB_IGNE	2.250(g/cm3)
RHOB_XWAT	0.800(g/cm3)	RHOB_UWAT	0.982(g/cm3)
RHOB_XOIL	0.800(g/cm3)	RHOB_UOIL	0.800(g/cm3)
RHOB_XGAS	-0.037(g/cm3)	RHOB_UGAS	-0.037(g/cm3)
RHOB_XBWA	1.000(g/cm3)	NPHI_QUAR	-0.070(m3/m3)
NPHI_CALC	0.000(m3/m3)	NPHI_DOLO	0.026(m3/m3)
NPHI_ORTH	-0.010(m3/m3)	NPHI_GLAU	0.410(m3/m3)
NPHI_ILLI	0.247(m3/m3)	NPHI_KAOL	0.451(m3/m3)
NPHI_COAL	0.450(m3/m3)	NPHI_IGNE	0.400(m3/m3)
NPHI_XWAT	1.000(m3/m3)	NPHI_UWAT	1.000(m3/m3)
NPHI_XOIL	1.000(m3/m3)	NPHI_UOIL	1.000(m3/m3)
NPHI_XGAS	0.048(m3/m3)	NPHI_UGAS	0.048(m3/m3)

Parameter	Value	Parameter	Value
NPHI_XBWA	1.000(m3/m3)	DT_QUAR	55.500(us/m)
DT_CALC	47.800(us/m)	DT_ORTH	60.000(us/m)
DT_ILLI	90.000(us/m)	DT_KAOL	80.000(us/m)
DT_COAL	121.920(us/m)	DT_IGNE	66.696(us/m)
DT_XWAT	189.000(us/m)	DT_UWAT	0.000(us/m)
DT_XOIL	200.000(us/m)	DT_UOIL	0.000(us/m)
DT_XGAS	215.000(us/m)	DT_UGAS	0.000(us/m)
DT_XBWA	189.000(us/m)	U_QUAR	5.000( )
U_ORTH	8.700( )	U_GLAU	16.500( )
U_ILLI	9.900( )	U_COAL	-999.250( )
U_IGNE	-999.250( )	U_XWAT	0.500( )
U_UWAT	0.000( )	U_XGAS	0.012( )
U_UGAS	0.000( )	U_XBWA	0.398( )
CXDC_QUAR	0.000(mS/m)	CXDC_ILLI	-999.250(mS/m)
CXDC_KAOL	-999.250(mS/m)	CXDC_XGAS	0.000(mS/m)
CXDC_UGAS	0.000(mS/m)	CXDC_XBWA	-999.250(mS/m)
CUDC_QUAR	0.000(mS/m)	CUDC_GLAU	-999.250(mS/m)
CUDC_ILLI	-999.250(mS/m)	CUDC_KAOL	-999.250(mS/m)
CUDC_XGAS	0.000(mS/m)	CUDC_UGAS	0.000(mS/m)
GR_QUAR	40.000(gAPI)	GR_CALC	11.000(gAPI)
GR_DOLO	8.000(gAPI)	GR_ORTH	170.000(gAPI)
GR_GLAU	150.000(gAPI)	GR_ILLI	220.000(gAPI)
GR_KAOL	130.000(gAPI)	GR_COAL	80.000(gAPI)
GR_IGNE	80.000(gAPI)	GR_XWAT	0.000(gAPI)
GR_UWAT	0.000(gAPI)	GR_XOIL	0.000(gAPI)
GR_UOIL	0.000(gAPI)	GR_XGAS	0.000(gAPI)
GR_UGAS	0.000(gAPI)	GR_XBWA	0.000(gAPI)
CT1_QUAR	0.080( )	CT1_CALC	0.000( )
CT1_DOLO	0.000( )	CT1_ORTH	-1.000( )
CT1_GLAU	0.000( )	CT1_ILLI	0.000( )
CT1_KAOL	0.000( )	CT1_COAL	0.000( )
CT1_IGNE	0.000( )	CT1_XWAT	0.000( )
CT1_UWAT	0.000( )	CT1_XOIL	0.000( )
CT1_UOIL	0.000( )	CT1_XGAS	0.000( )
CT1_UGAS	0.000( )	CT1_XBWA	0.000( )
CT2_QUAR	0.000( )	CT2_CALC	0.000( )
CT2_DOLO	0.000( )	CT2_ORTH	0.000( )
CT2_GLAU	0.000( )	CT2_ILLI	0.000( )
CT2_KAOL	0.000( )	CT2_COAL	0.000( )
CT2_IGNE	0.000( )	CT2_XWAT	0.000( )
CT2_UWAT	0.000( )	CT2_XOIL	-1.000( )
CT2_UOIL	0.200( )	CT2_XGAS	-1.000( )
CT2_UGAS	0.300( )	CT2_XBWA	0.000( )
CT3_QUAR	0.000( )	CT3_ORTH	0.000( )
CT3_ILLI	0.000( )	CT3_KAOL	0.000( )
CT3_COAL	0.000( )	CT3_IGNE	0.000( )
CT3_XWAT	0.000( )	CT3_UWAT	0.000( )
CT3_XOIL	0.000( )	CT3_UOIL	0.000( )
CT3_XGAS	1.000( )	CT3_UGAS	-0.300( )
CT3_XBWA	0.000( )	ARHOB_GLAU	2.960(g/cm3)
ARHOB_ILLI	2.780(g/cm3)	ARHOB_KAOL	2.620(g/cm3)
WCLP_GLAU	0.156(m3/m3)	WCLP_ILLI	0.154(m3/m3)
WCLP_KAOL	0.062(m3/m3)	CBWA_GLAU	-999.250(mS/m)
CBWA_ILLI	-999.250(mS/m)	CBWA_KAOL	-999.250(mS/m)
CECA_GLAU	0.233(meq/g)	CECA_ILLI	0.200(meq/g)

Parameter	Value	Parameter	Value
CECA_KAOL	0.090(meq/g)	RMF	10000.000(ohm.m)
MST	223.432(degC)	RWT	223.432(degC)
SALIN_ISOL	-999.250(ppk)	SALIN_PARA	-999.250(ppk)
SALIN_XWAT	0.000(ppk)	SALIN_UWAT	25.000(ppk)
SALIN_XIWA	-999.250(ppk)	SALIN_UIWA	-999.250(ppk)
SALIN_XOIL	0.000(ppk)	SALIN_UOIL	0.000(ppk)
SALIN_XGAS	0.000(ppk)	SALIN_UGAS	0.000(ppk)
SALIN_XSFL	-999.250(ppk)	SALIN_USFL	-999.250(ppk)
CT1_ZP	0.000( )	CT2_ZP	0.000( )
CT3_ZP	0.000( )	DT_UNC_ZP	2.250(us/m)
U_UNC_ZP	0.225( )	CXDC_UNC_ZP	0.079(mS/m)
GR_UNC_ZP	2.250(gAPI)	CT1_UNC_ZP	0.015( )
CT2_UNC_ZP	0.015( )	CT3_UNC_ZP	0.015( )
VOLS_UNC_ZP	0.015(m3/m3)	RHOB_UNC_WM	1.000( )
NPHI_UNC_WM	1.000( )	U_UNC_WM	0.400( )
CXDC_UNC_WM	0.500( )	CT1_UNC_WM	1.000( )
CT2_UNC_WM	1.000( )	CT3_UNC_WM	1.000( )
VOLS_UNC_WM	1.000( )	A_ZP	1.000( )
N_ZP	2.000( )	C_DWA	0.000( )
M_DWA	2.000( )	BVIRR	0.010(m3/m3)
BETA_0	0.750( )	M_SGS	-1.000( )
QV_CUT	1.000(meq/cm3)		

RESULTS AND DISCUSSION

A summary of the results of the interpretation is presented in Table 1.

Although there are significant gas shows across the interval 2280-2300mMD, due to the complexity of the mineralogy within this zone it has not been possible to quantify the reservoir parameters with an acceptable degree of certainty. The petrophysical analysis suggests the interval to be non-hydrocarbon bearing.

The top of the N-1 gas reservoir (GnF2 zone) was intersected at 2412.3mMDRT (-1826.1mTVDSS) with Lowest Known Gas interpreted at 2502.1mMD (-1905.6mTVDSS).

The M-6 reservoir sand are interpreted to be water saturated.

A graphical presentation of the N-1 reservoir interpretation is presented in Figure 5.

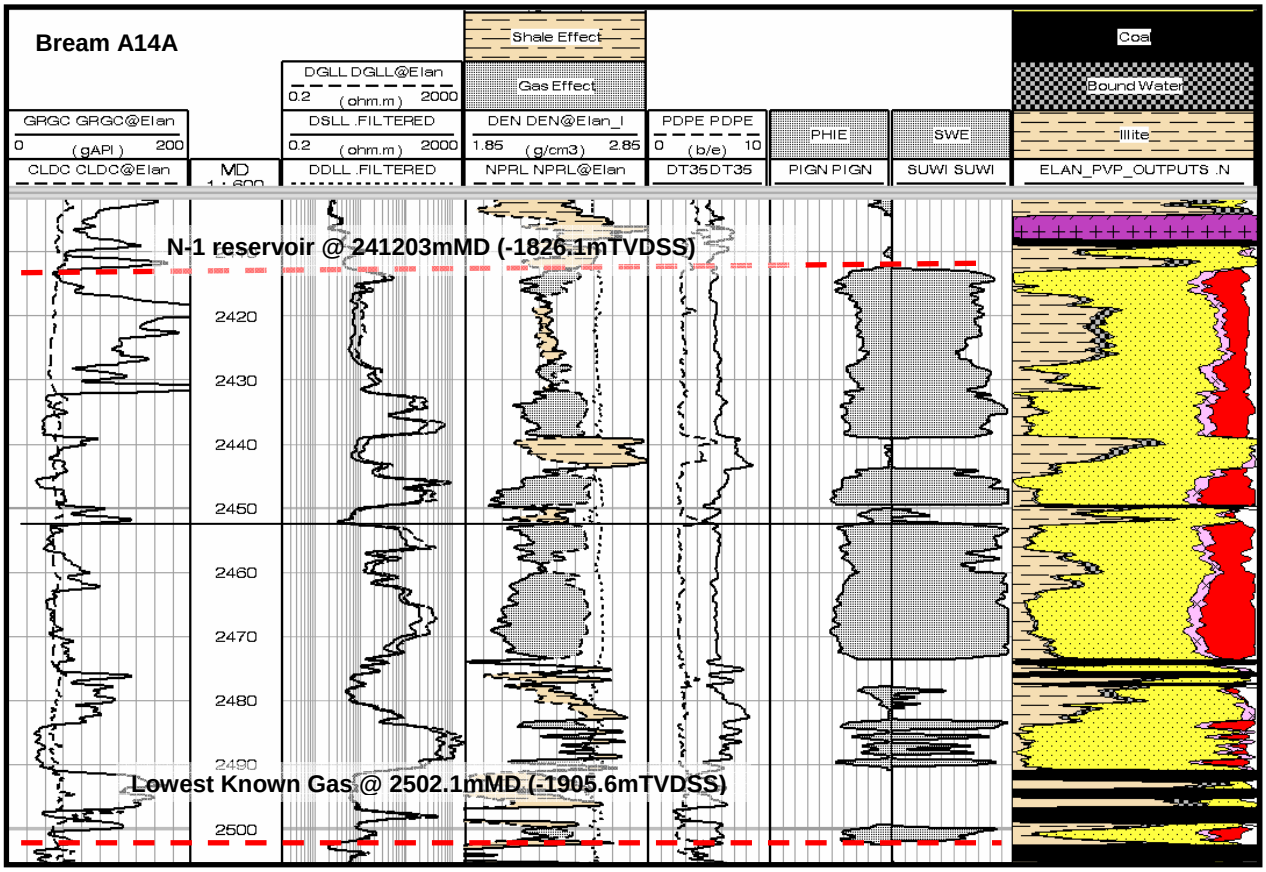


Figure 5. Bream A14A Interpretation Results 2400-2500mMD

Bream A14A

Petrophysical Summary 2160 - 3000m MD

Depth Reference: Primary: MDKB

Mean VCL, Mean PHIE (or PIGN), Mean SWE (or SUWI) is based on a PHIE or PIGN cutoff: 0.08 for Gas, 0.12 for oil and water

Zone	Top Depth mMD	Bottom Depth mMD	Top Depth mTVDSS	Bottom Depth mTVDSS	Gross Thickness mMD	Gross Thickness mTVD	Net/Gross	Mean VCL	Mean PHIE	Mean SWE	Comments	Net Pay Thickness mMD	Net Pay Thickness mTVD
GnF2-CbF2Gas	2412.3	2439.3	1826.1	1850.0	27.0	23.9	0.97	0.21	0.160	0.26	Gas Bearing	26.3	23.2
PkF2Gas	2443.6	2451.5	1853.8	1860.8	7.9	7.0	0.88	0.14	0.184	0.21	Gas Bearing	6.9	6.1
PkF1-MvF2Gas	2452.0	2473.9	1861.2	1880.6	21.9	19.4	0.98	0.15	0.201	0.12	Gas Bearing	21.5	19.0
MvSbGas	2483.0	2490.6	1888.7	1895.4	7.6	6.7	0.55	0.07	0.150	0.25	Gas Bearing	4.2	3.7
CyLGas	2499.8	2502.1	1903.6	1905.6	2.3	2.0	0.98	0.25	0.172	0.39	Gas Bearing	2.3	2.0
	Lowest Known Gas @ 2502.1mMD (1905.6mTVDSS)												
P-1UWtr	2519.5	2534.0	1921.1	1934.0	14.5	12.9	0.73	0.18	0.173	0.97	Water Bearing		
P-1LWtr	2541.3	2549.8	1940.5	1948.0	8.5	7.6	0.91	0.15	0.176	1.00	Water Bearing		
M-5Wtr	2806.1	2831.0	2175.7	2197.8	24.9	22.1	0.67	0.22	0.158	0.97	Water Bearing		
M-6Wtr	2851.6	2866.7	2216.1	2229.6	15.1	13.5	0.86	0.23	0.156	0.97	Water Bearing		
M-7wtr	2869.4	2875.4	2232.1	2237.4	6.0	5.4	0.18	0.27	0.137	0.91	Water Bearing		
M-8Wtr	2876.5	2901.1	2238.4	2260.6	24.6	22.2	0.52	0.21	0.140	1.00	Water Bearing		

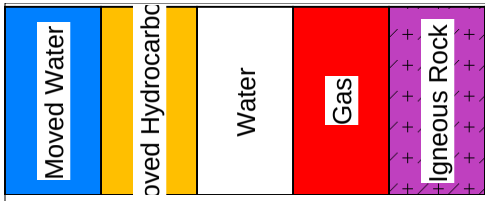
ExxonMobil

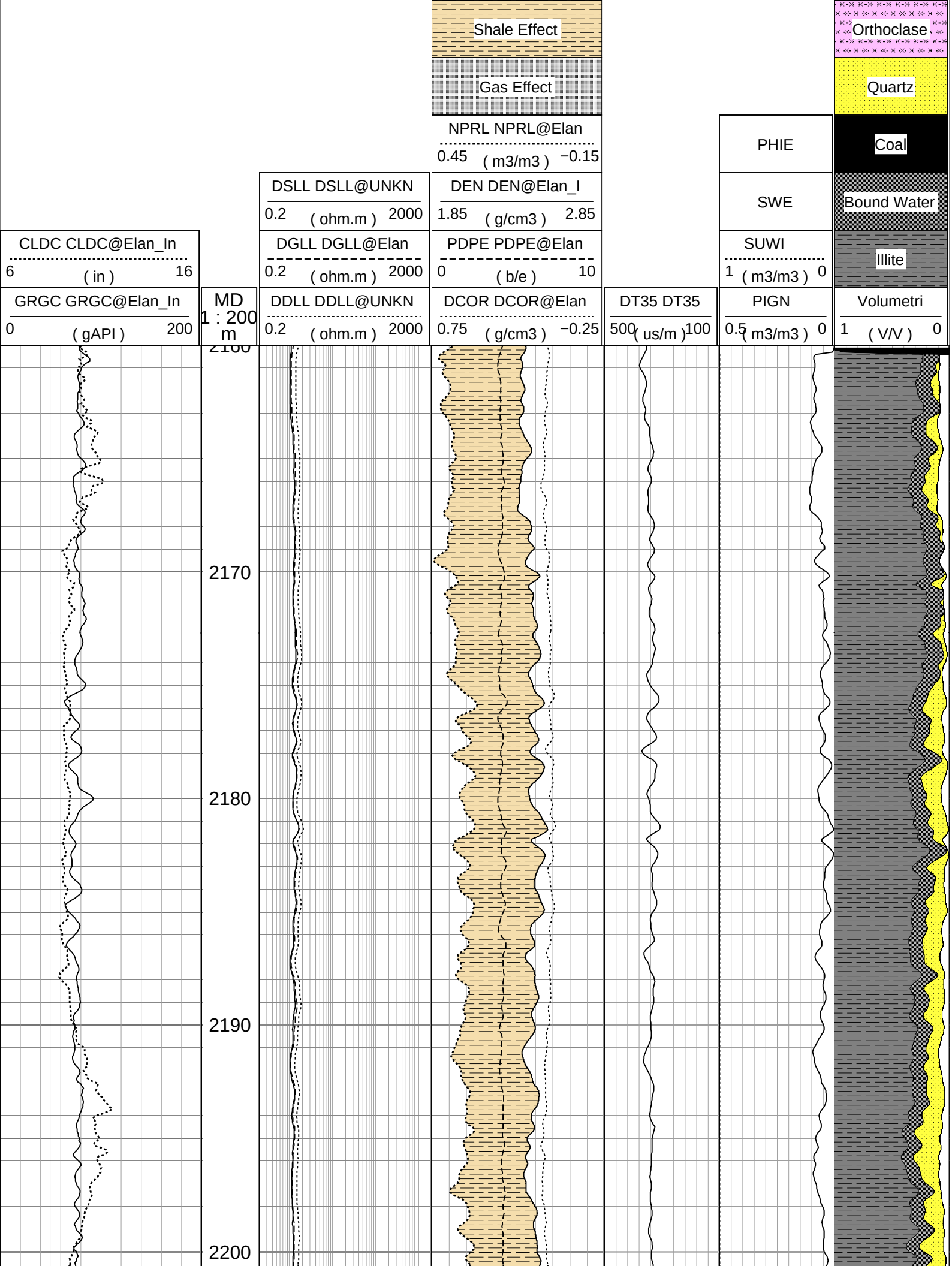
BREAM A14A

Petrophysical Analysis

COMPANY:	Esso Australia Pty. Ltd.
WELL:	Bream A14A
BOREHOLE:	
FIELD:	Bream
STATE:	Victoria
COUNTRY:	Australia
PETROPHYSICIST:	Angie Cernovskis

Date Logged:	Aug 2005	Date of Analysis: November 2005
Well Location:	Gippsland Basin	
Elevations:	R.T. 32.82m	
Latitude:	38 29'58.847"S	RT to MSL : 92.22m
Longitude:	147 46'20.327"E	

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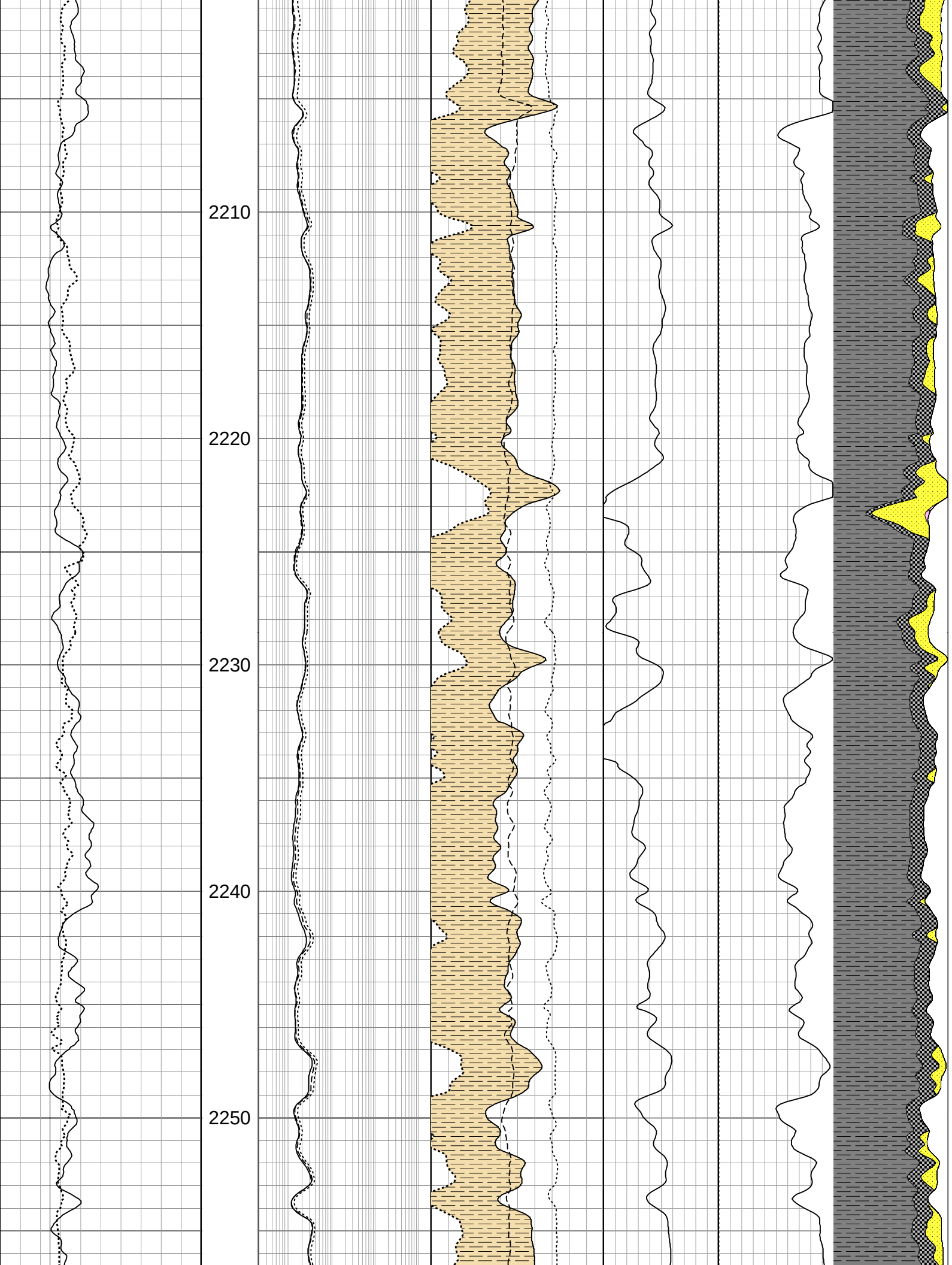
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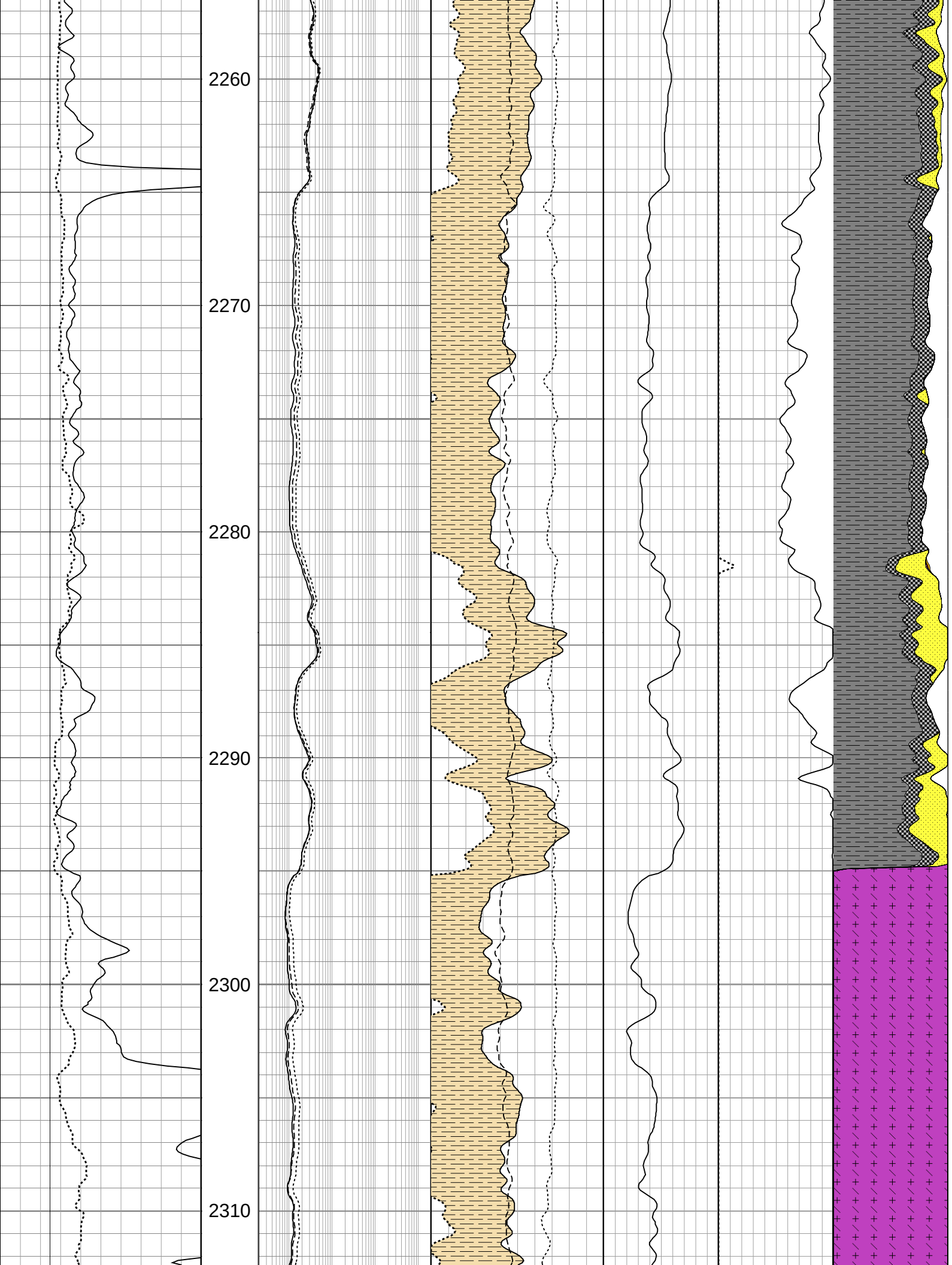
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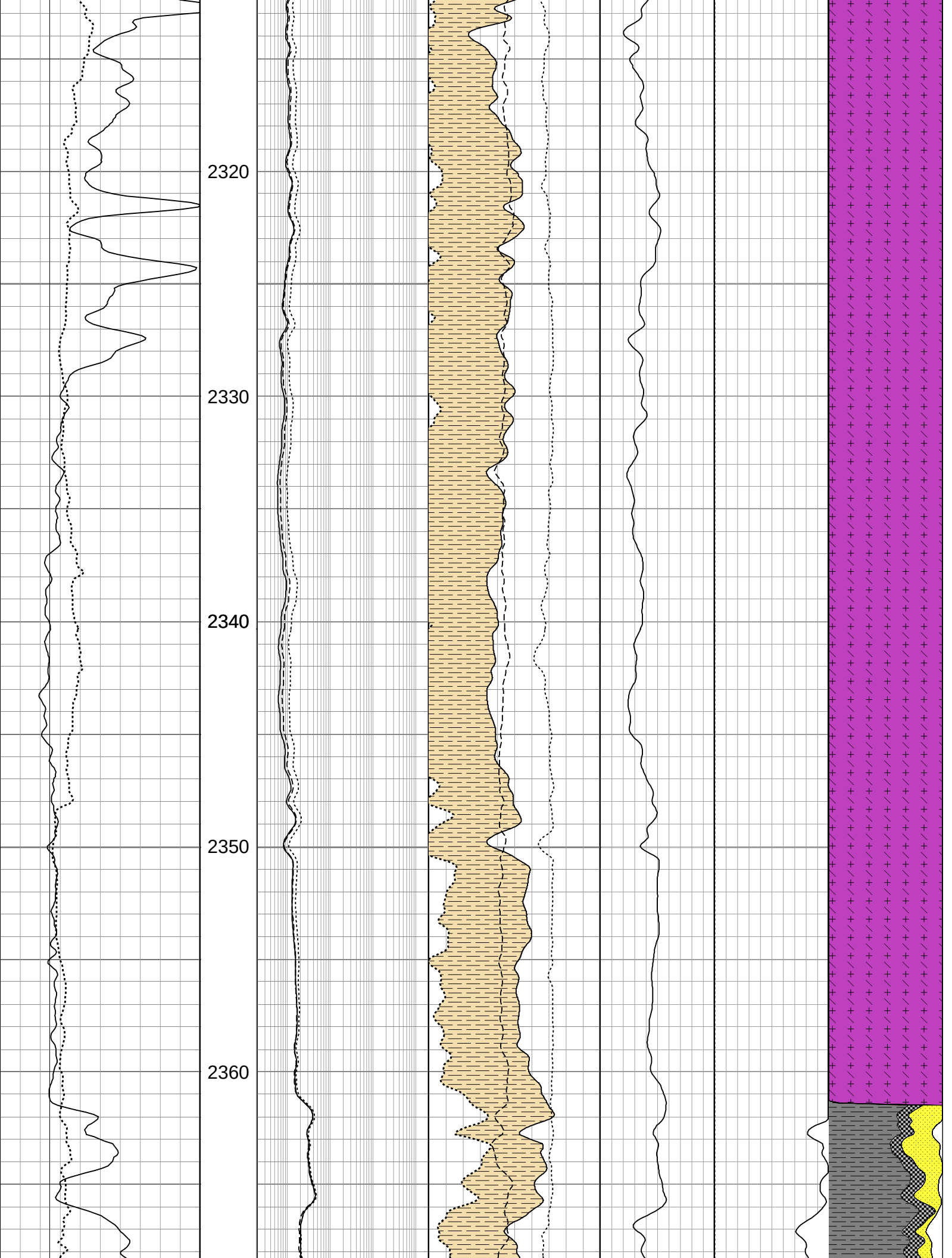
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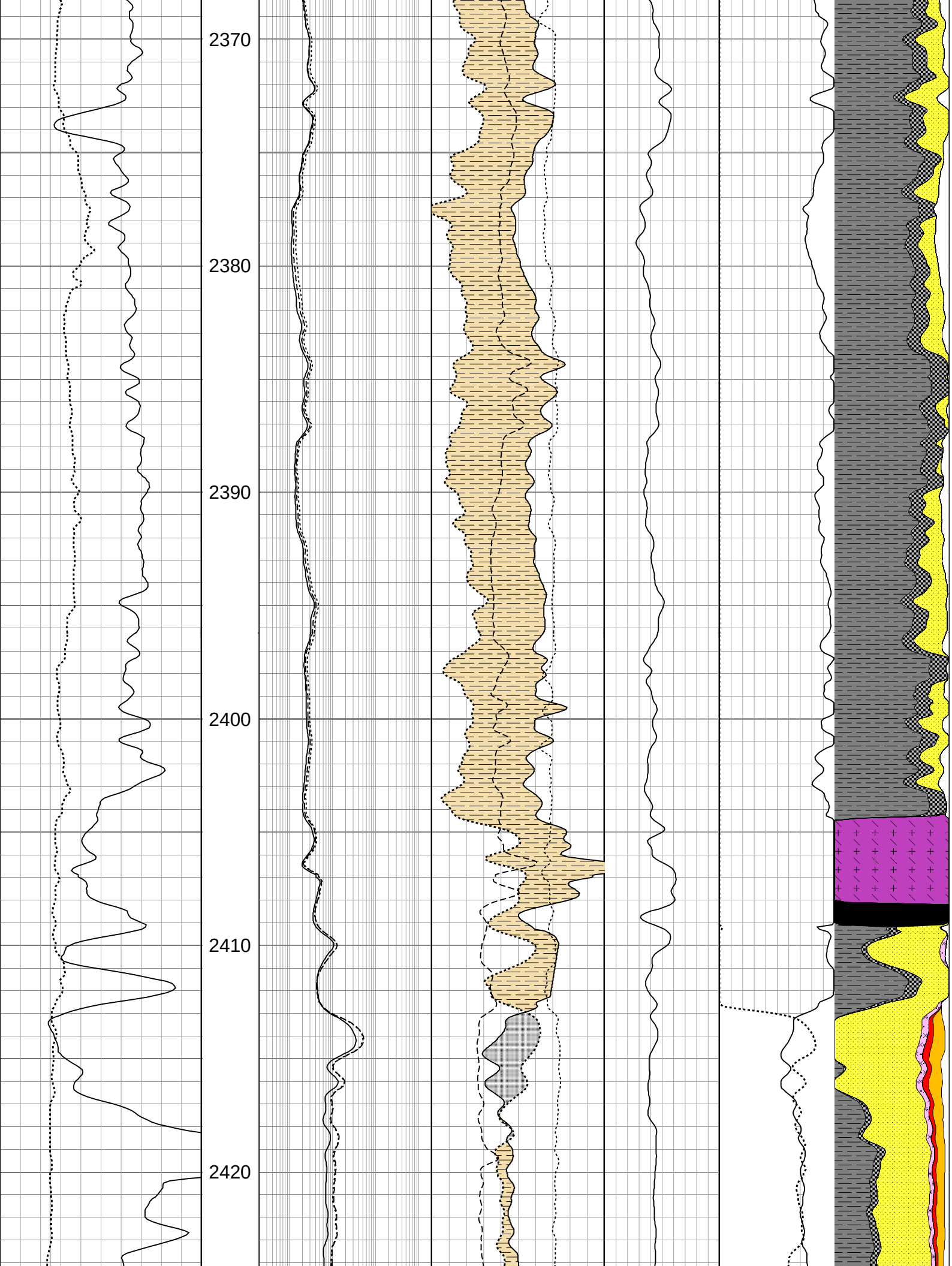
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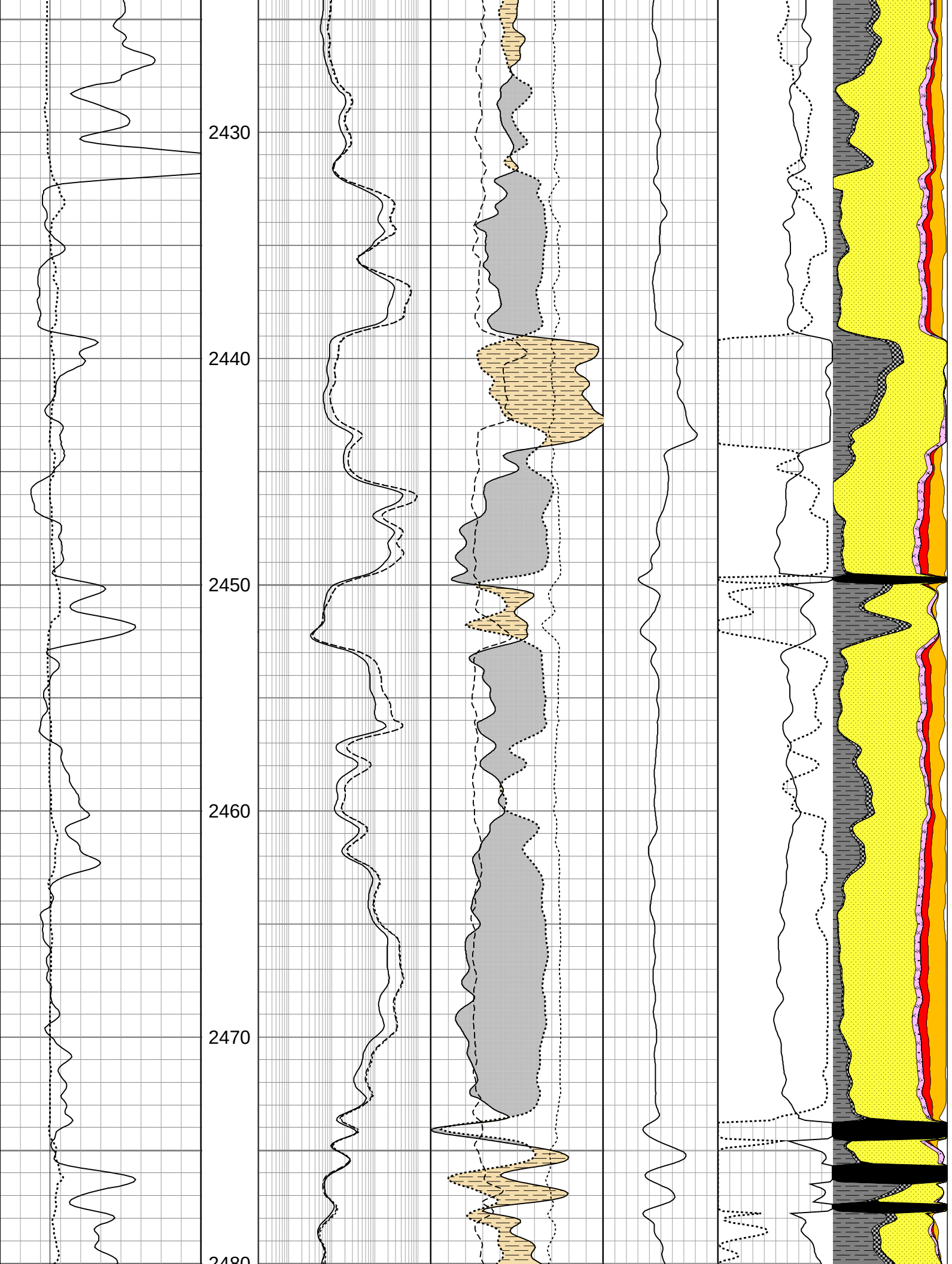
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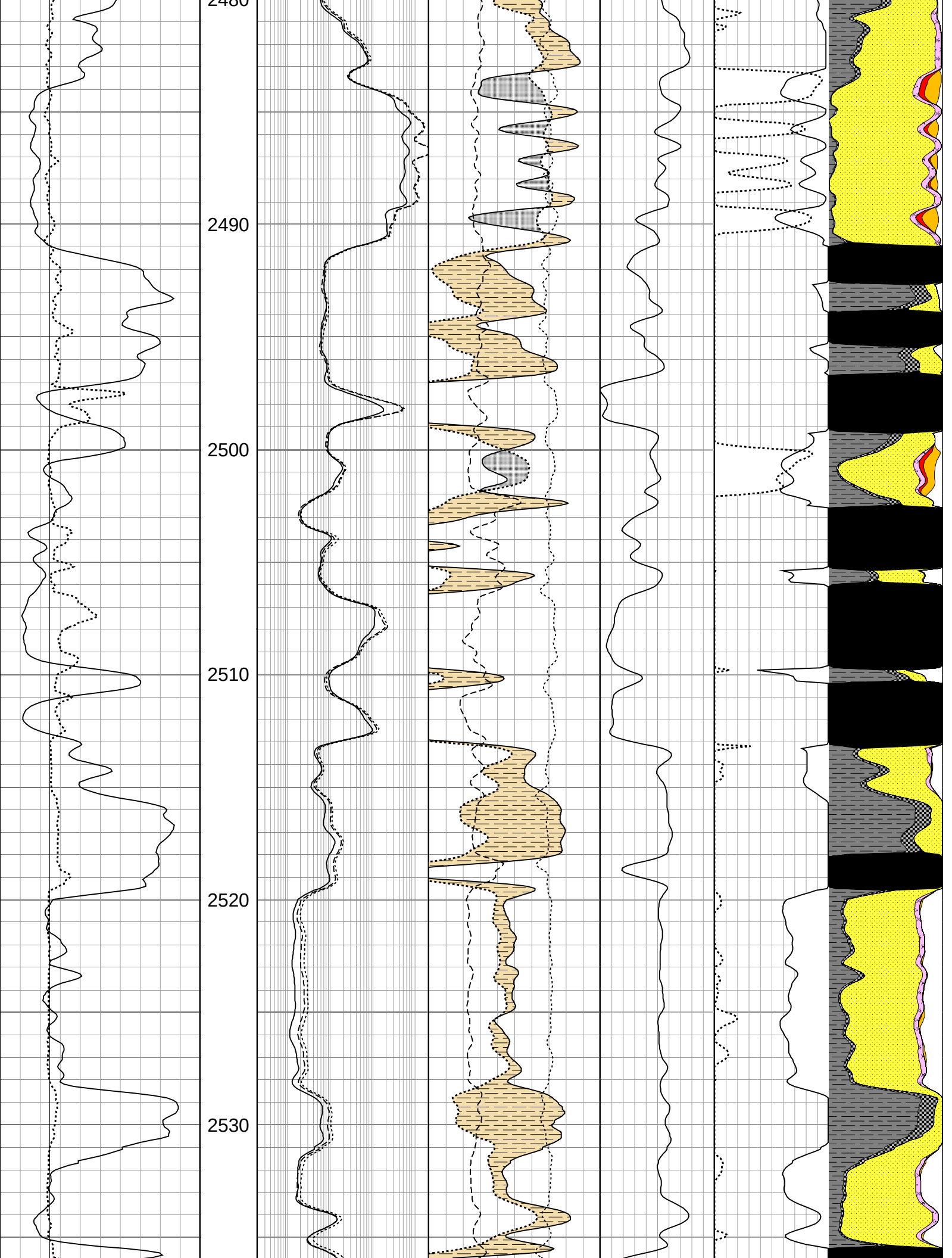
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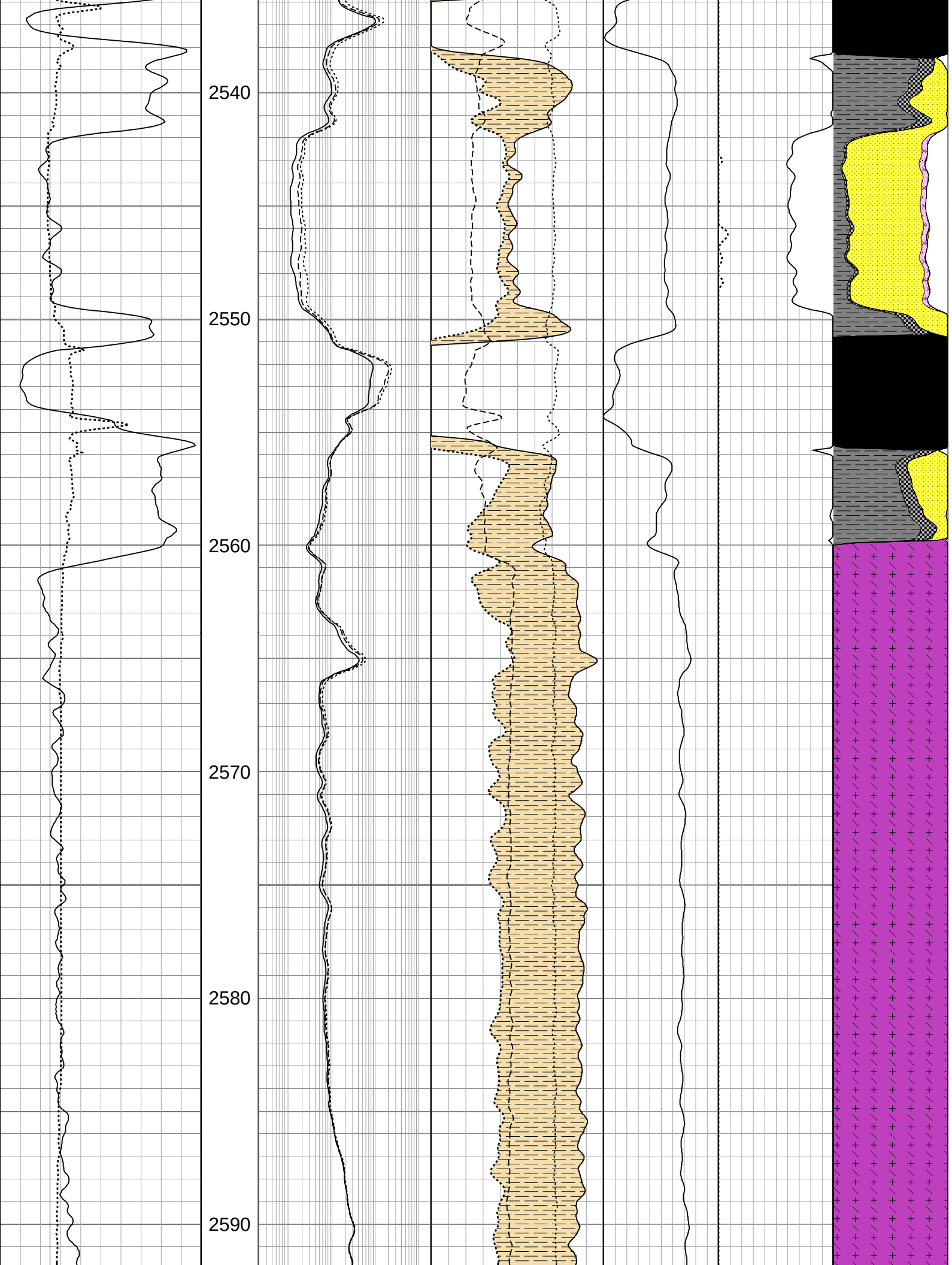
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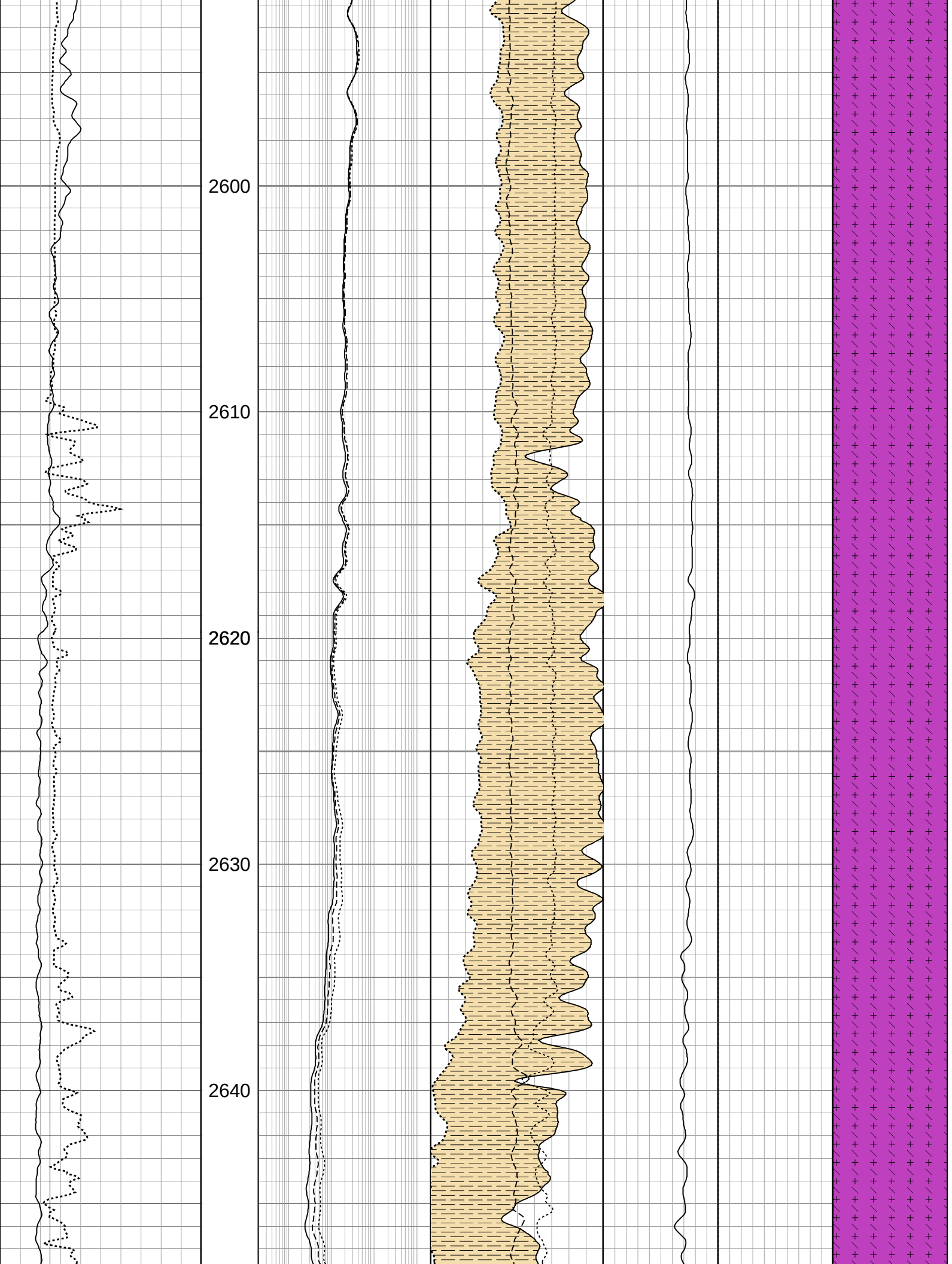
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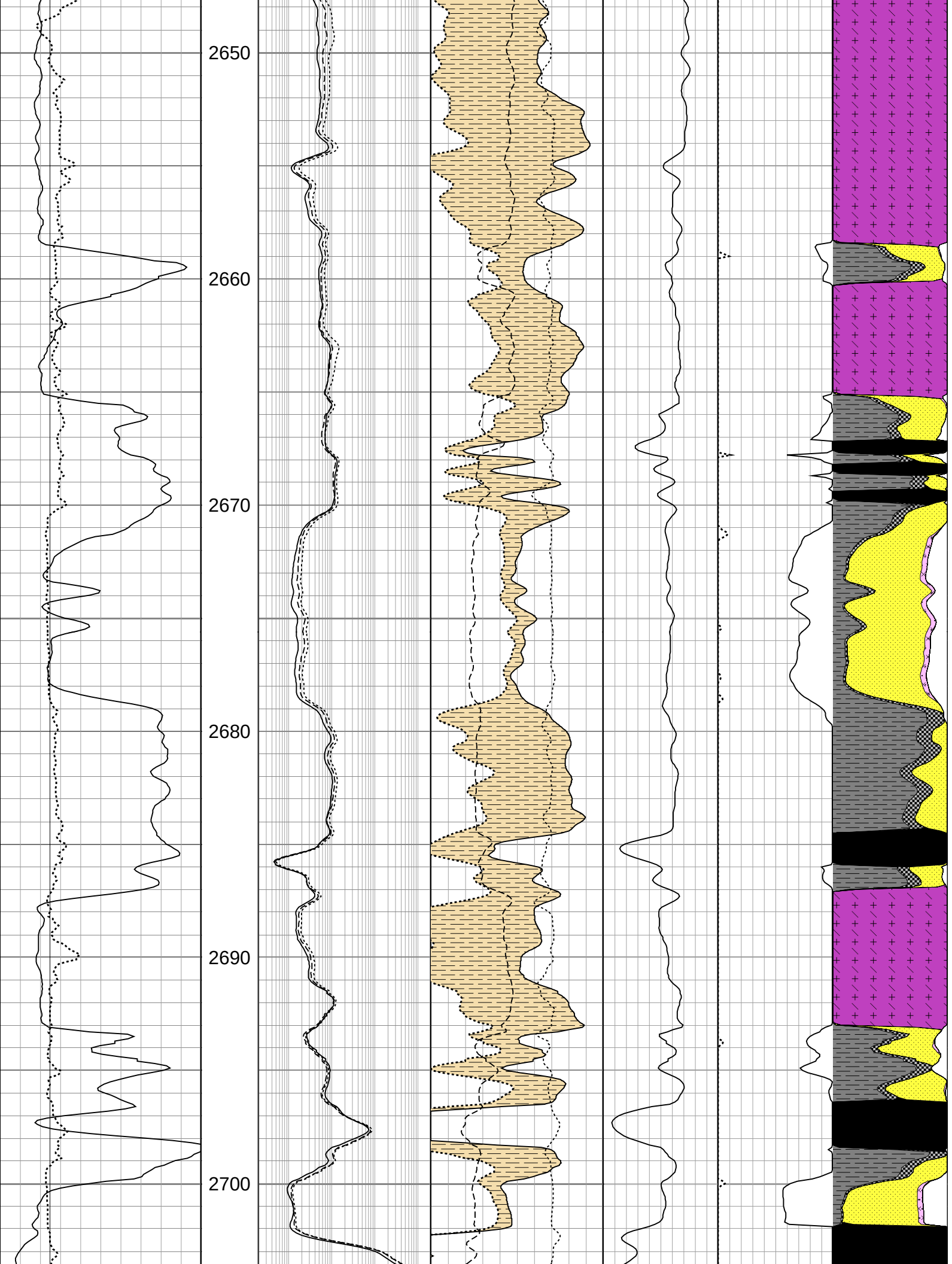
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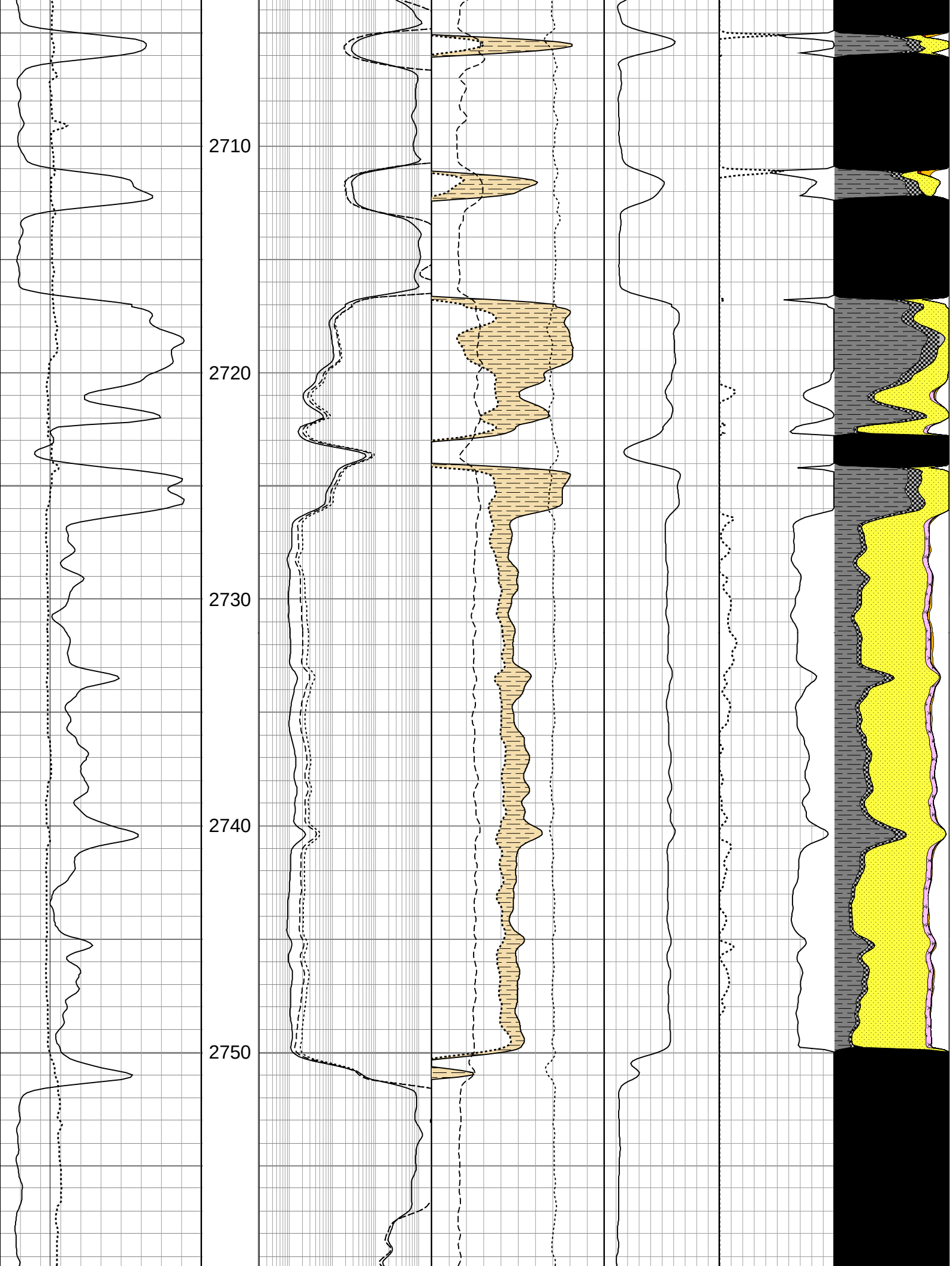
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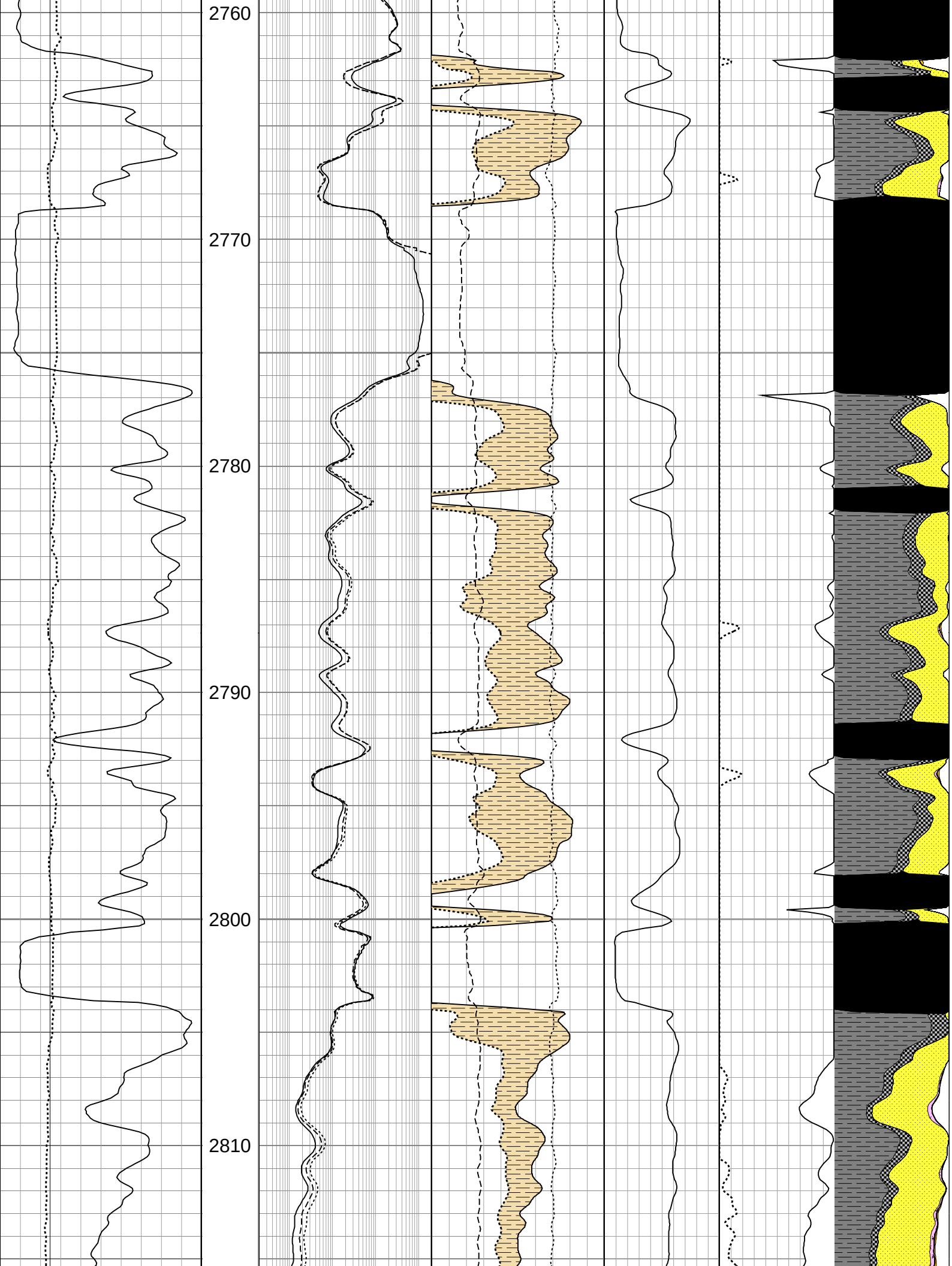
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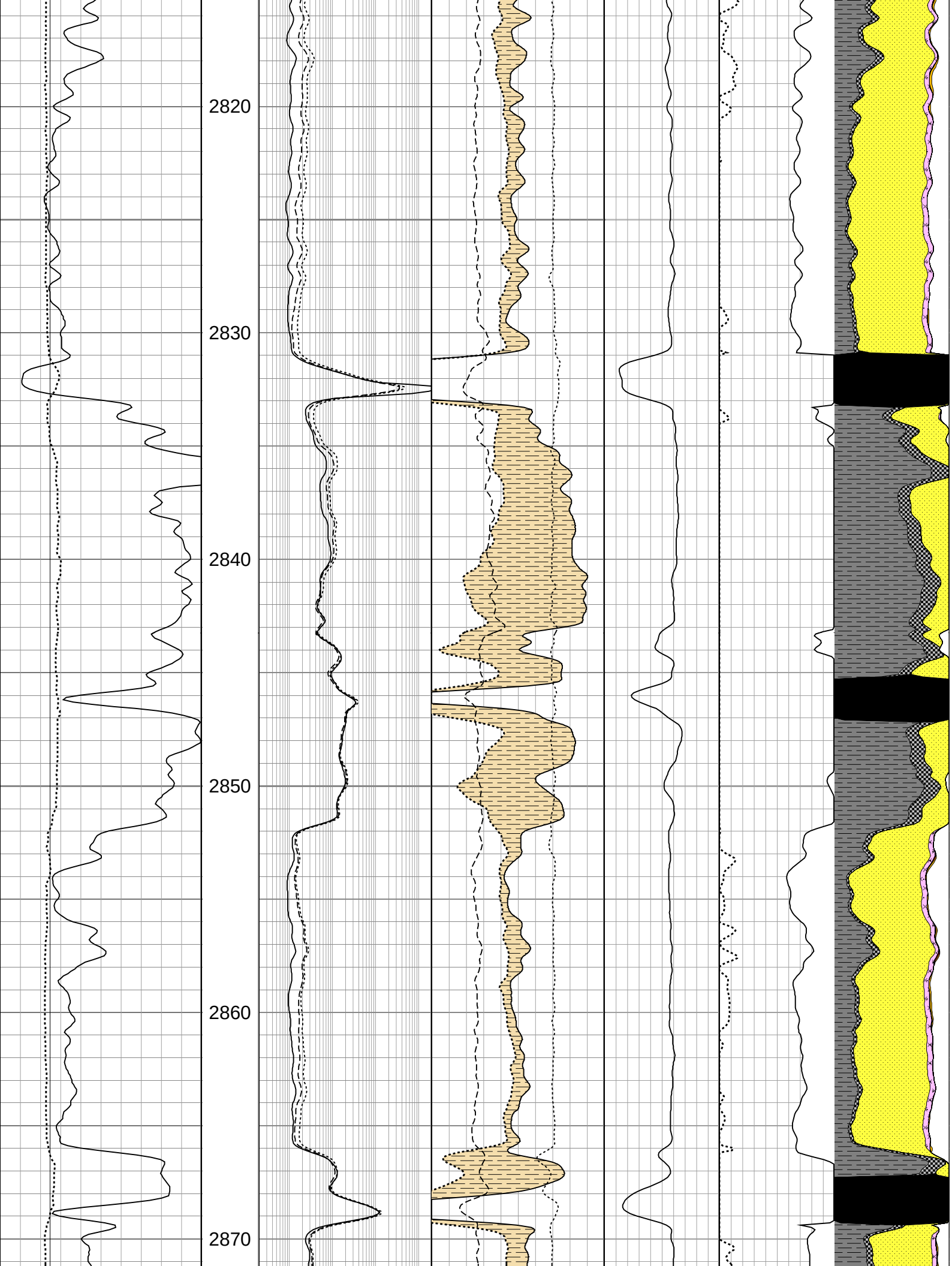
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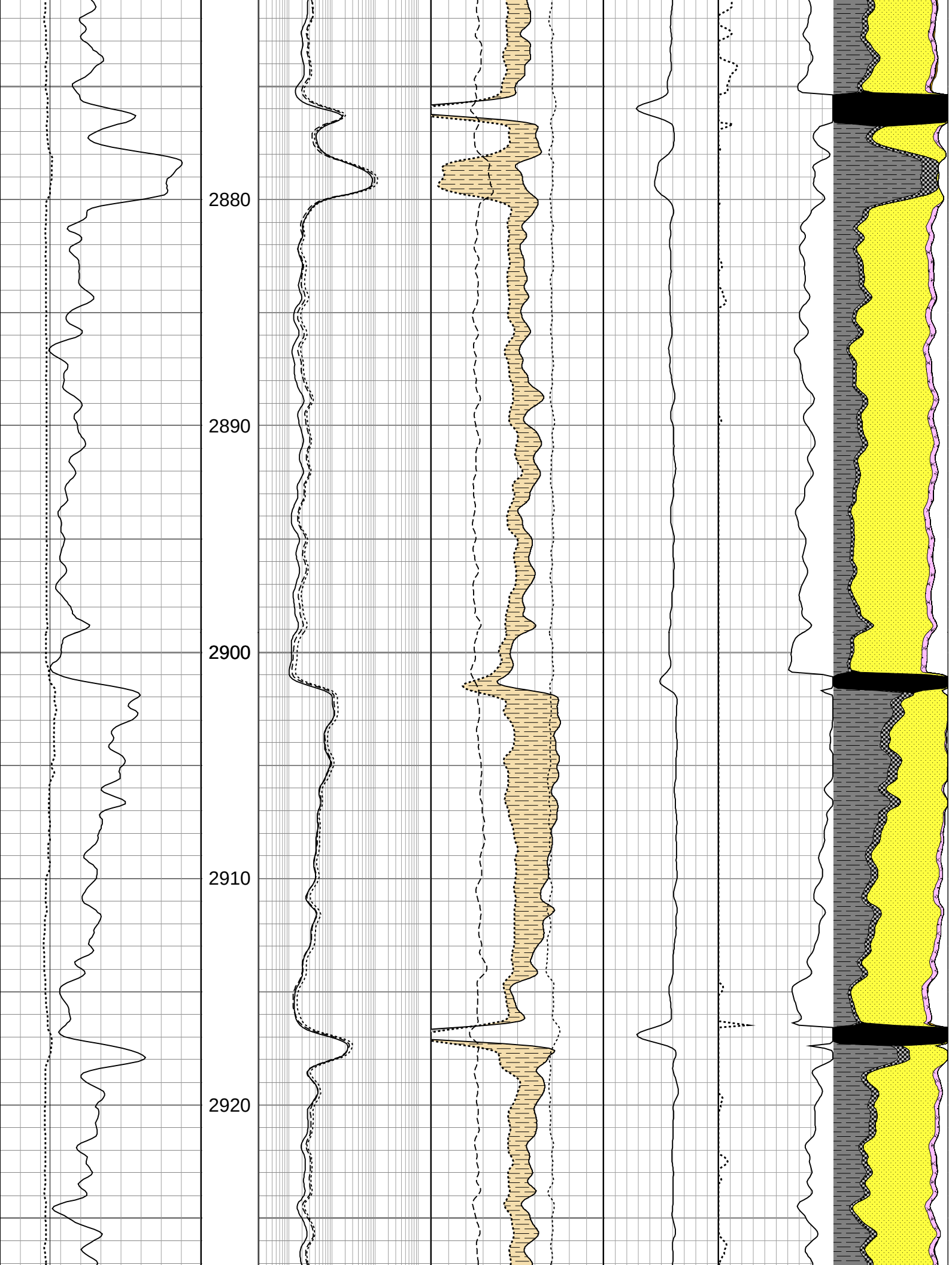
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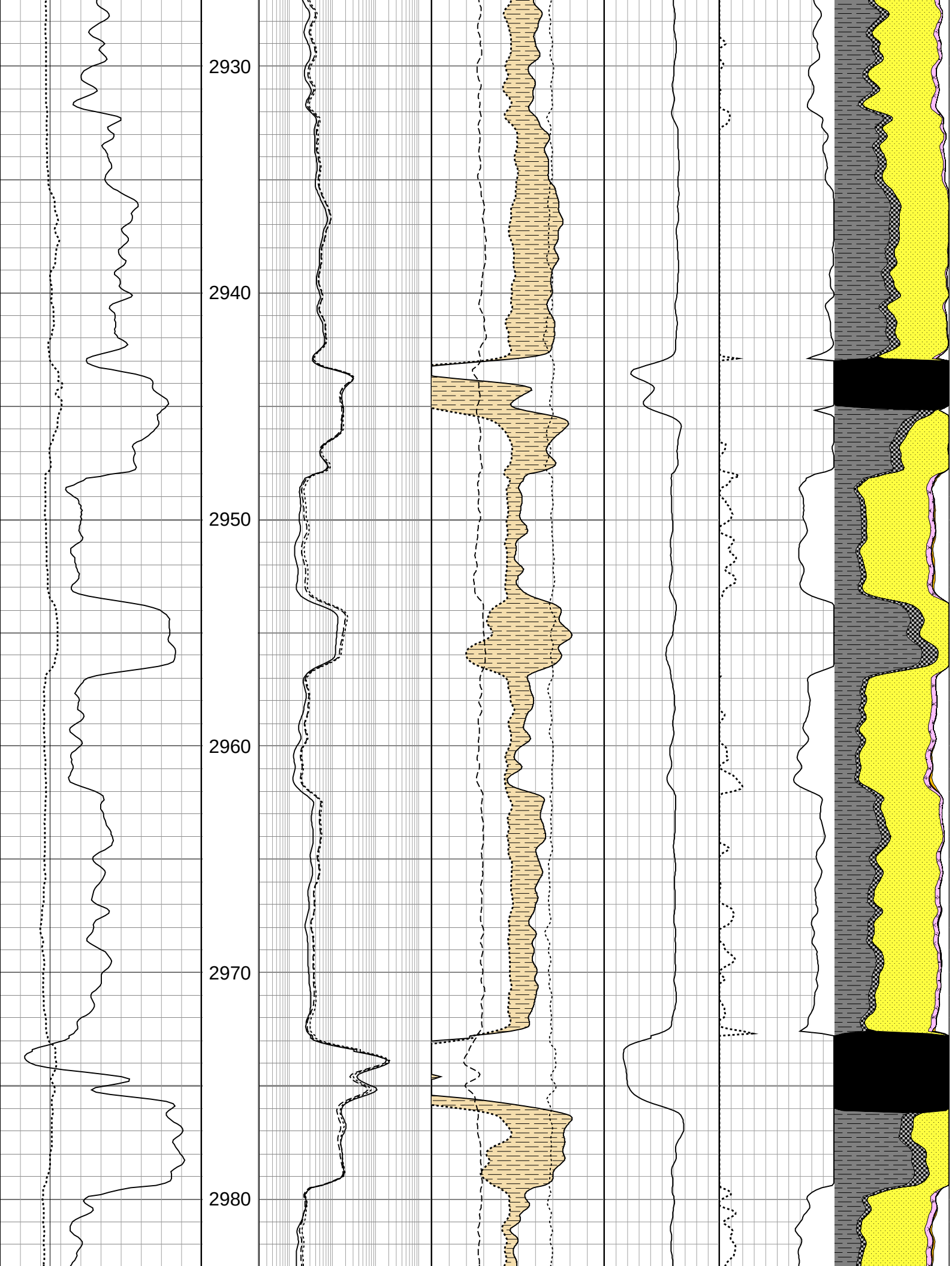
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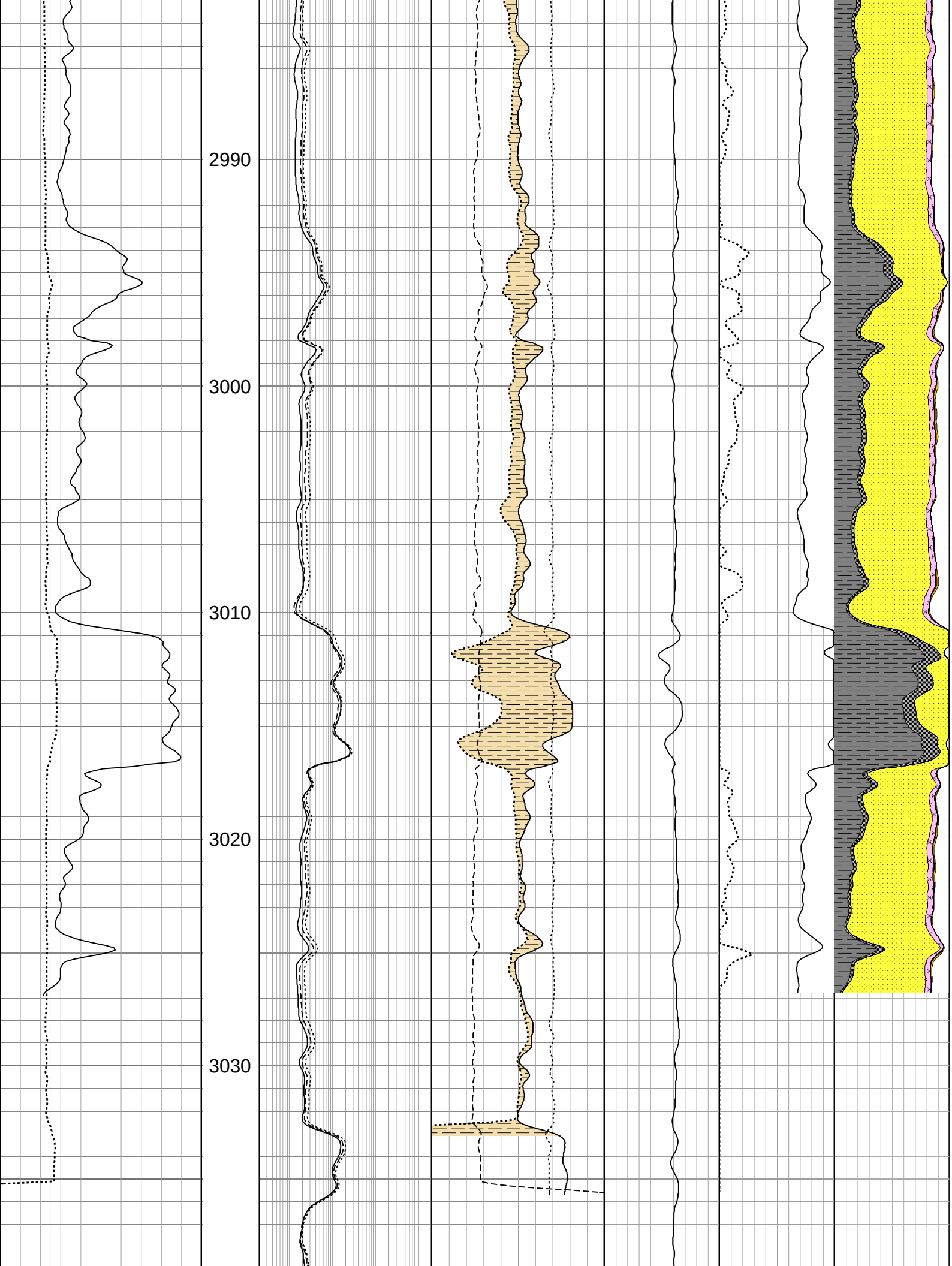
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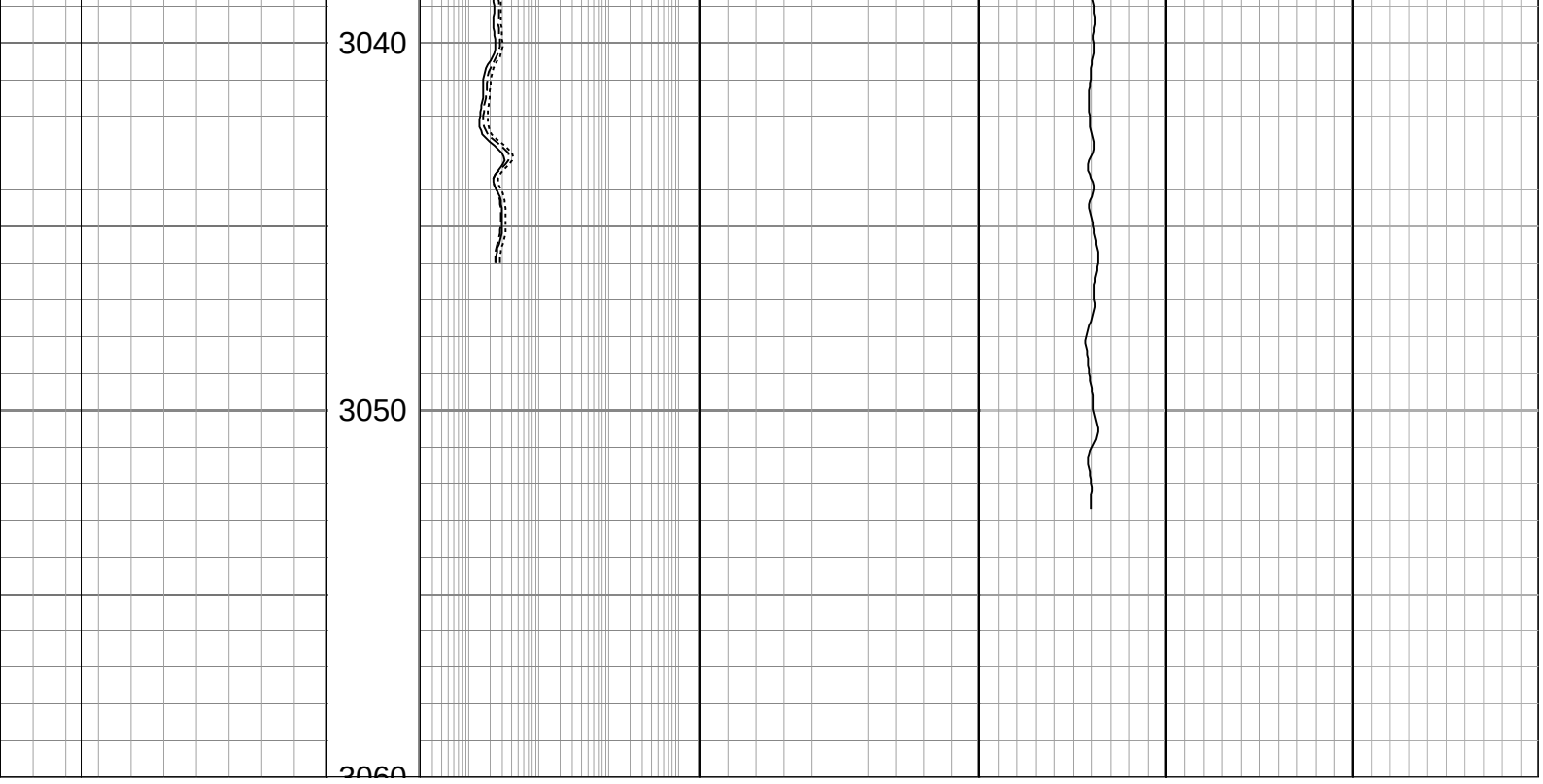
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APPENDIX 3a

BREAM A14A

Lithology/Show Descriptions

Bream A14A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
			Previous Well History:
			Bream A14 Plugged and Abandoned on 30 July 2005.
			Cut 7" casing at 1077.0 mMDRT Set Cement plug with the top at 976.0 mMDRT.
			BMA A23A Kick-off point with Drilling assembly at 1009.0 mMDRT (837.1 mTVDRT) at 2000 hrs on 01 August 2005.
			PIT at 1430 hrs 02 August 2005:
			PIT at 1006.0 mMDRT (835.0 mTVDRT), 570 psi using 9.0 ppg mud, EMW of 13.0 ppg.
			Drilled from 1006.0 mMDRT (835.0 mTVDRT) at 1815 hrs 01 August 2005, to 2395.0 mMDRT (1843.5 mTVDRT) at 1600 hrs on 05 August 2005, with a Smith PDC bit on steerable motor assembly.
			POOH at 2395.0 mMDRT, to change the Bit and do a BOP stack test.
			Bit Details:
			BHA # 1, Bit # 1, Size: 8.5", Manufacturer / Type: Smith S73VPX Serial #: JW0240 Jets: 20 x 6, TFA: 1.841 sq.in, HOB: 55.30, Grading: **1-1-WT-A-X-I-NO-FM** Krevs: 740.0, TDRPM: 100-120 (+ 174 RPM DHM). Average ROP: 1389.0 / 55.3 = 25.1 m/hr. Rotating: 1121.0 metres / Rotating HOB = 28.24, Average Rotating ROP = 39.7 m/hr. Steering: 268.0 metres / Steering HOB = 27.06 , Average Steering ROP = 9.9 m/hr.
			Spot 1 metre samples from 1006.0-1050.0 mMDRT showed an increasing percentage of new formation (Calcilutite). The 1050.0 mMDRT spot sample had 60% new formation. The decision to perform the PIT was taken after seeing 60% new formation in the 1050.0 mMDRT sample.
			Cuttings samples for description only at 30 m intervals from 1050.0 to 2040.0 mMDRT. (To 150 mMD above the Top of Latrobe prognosed at 2205.8 mMDRT).
			Cuttings samples bagged at 10 m intervals from 2040.0 to 2200.0 mMDRT
			Cuttings samples bagged at 5 m intervals from 2200.0 to TD of 3079.0 mMDRT.
			Geologist on Rig from 1050.0 mMDRT(865.0 mTVDRT), at 1330 hrs 02 August 2005.
Spot	1050	60	CALCILUTITE: light grey to medium light grey, soft to firm, amorphous to sub blocky.
		40	Cement.
	1080	95	CALCILUTITE: as above, common forams.

Bream A14A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
		5	Cement.
	1110	100	CALCILUTITE: light grey to medium light grey, occasionally greenish grey, soft to firm, common forams, amorphous to sub blocky.
	1140	100	CALCILUTITE: light grey to medium light grey, occasionally greenish grey, common forams, rare pyrite nodules, soft to firm, amorphous to sub blocky.
	1170	100	CALCILUTITE: light grey to medium light grey, occasionally greenish grey, common forams, soft to firm, amorphous to sub blocky.
			Midnight Depth 02 August 2005 = 1200.0 mMDRT (972.7 mTVDRT).
	1200	100	CALCILUTITE: as above, trace forams.
	1230	100	CALCILUTITE: as above.
	1260	100	CALCILUTITE: light grey to medium light grey, minor light olive grey, trace forams, soft to firm, amorphous to sub blocky.
			Top of Lakes Entrance at 1269.5 mMDRT (1022.4 mTVDRT / -990.2 TVDSS).
	1290	90	CALCILUTITE: as above.
		10	CALCAREOUS CLAYSTONE: medium light grey to medium grey, silty in part, moderately calcareous (20%), firm to occasionally moderately hard, sub blocky to blocky.
	1320	40	CALCILUTITE: as above.
		60	CALCAREOUS CLAYSTONE: as above.
	1350	10	CALCILUTITE: as above.
		90	CALCAREOUS CLAYSTONE: medium grey to medium light grey, silty in part, moderately calcareous (20%), rare forams, rare ooids, firm to occasionally moderately hard, sub blocky to blocky.
	1380	100	CALCAREOUS CLAYSTONE: as above.
	1410	100	CALCAREOUS CLAYSTONE: as above.
	1440	100	CALCAREOUS CLAYSTONE: medium grey to occasionally medium light grey, silty in part, moderately calcareous (20%), rare forams, rare ooids, firm to occasionally moderately hard, sub blocky to blocky.
	1470	100	CALCAREOUS CLAYSTONE: as above.
	1500	100	CALCAREOUS CLAYSTONE: medium grey, silty in part, moderately calcareous (20%), rare forams, rare ooids, rare glauconite specks, firm to moderately hard, sub blocky to blocky.
	1530	100	CALCAREOUS CLAYSTONE: as above, trace pyrite nodules, no glauconite.
	1560	100	CALCAREOUS CLAYSTONE: as above, trace pyrite nodules, trace disseminated pyrite, no glauconite.
	1590	100	CALCAREOUS CLAYSTONE: medium grey to medium dark grey, silty in part, moderately calcareous (20%), trace pyrite nodules, trace disseminated pyrite, trace ooids, rare forams, firm to moderately hard, sub blocky to blocky.
	1620	100	CALCAREOUS CLAYSTONE: as above, occasionally light olive grey, (no nodular pyrite)
	1650	100	CALCAREOUS CLAYSTONE: medium grey to medium dark grey, occasionally light olive grey, silty in part, moderately calcareous (20%), trace disseminated pyrite, trace ooids, trace forams, firm to moderately hard, sub blocky to blocky.
	1680	100	CALCAREOUS CLAYSTONE: as above.
	1710	100	CALCAREOUS CLAYSTONE: as above.
			Midnight Depth 03 August 2005 = 1733.0 mMDRT (1353.0 mTVDRT).
	1740	100	CALCAREOUS CLAYSTONE: light grey to medium light grey, silty in part, moderately calcareous (20%), trace disseminated pyrite, trace ooids, firm to moderately hard, sub blocky to blocky.
	1770	100	CALCAREOUS CLAYSTONE: as above.

Bream A14A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
	1800	100	CALCAREOUS CLAYSTONE: as above, trace forams, trace pyrite nodules.
	1830	100	CALCAREOUS CLAYSTONE: light medium grey to medium grey, occasionally light olive grey, silty in part, moderately calcareous (20%), trace ooids, rare glauconite, firm to moderately hard, sub blocky to blocky.
	1860	100	CALCAREOUS CLAYSTONE: as above.
Spot	1883	100	Slow drilling from 1882.5 to 1884.0 mMDRT: CALCAREOUS CLAYSTONE: as above, with common disseminated pyrite.
	1890	100	CALCAREOUS CLAYSTONE: medium grey to medium dark grey, occasionally light olive grey, silty in part, moderately calcareous (20%), trace ooids, trace disseminated pyrite, rare glauconite, firm to occasionally hard, sub blocky to blocky.
	1920	100	CALCAREOUS CLAYSTONE: medium grey to medium dark grey, common light olive grey, silty in part, moderately calcareous (15%), trace ooids, trace disseminated pyrite, rare glauconite, firm to moderately hard, sub blocky to blocky.
	1950	100	CALCAREOUS CLAYSTONE: as above, trace pyrite nodules.
Spot	1965.5	100	Slow drilling from 1964.5 to 1966.0 mMDRT: CALCAREOUS CLAYSTONE: as above, with common disseminated pyrite, and trace pyrite nodules.
	1980	100	CALCAREOUS CLAYSTONE: light olive grey to medium grey, silty in part, moderately calcareous (15%), trace ooids, trace disseminated pyrite, firm to moderately hard, sub blocky to blocky.
	2010	100	CALCAREOUS CLAYSTONE: as above. **Bagged 10 m samples from 2040 mMDRT onwards.**
2010	2040	100	CALCAREOUS CLAYSTONE: light olive grey to medium grey, silty in part, moderately calcareous (15%), trace ooids, trace disseminated pyrite, trace pyrite nodules, firm to moderately hard, sub blocky to blocky.
2040	2050	100	CALCAREOUS CLAYSTONE: as above.
2050	2060	100	CALCAREOUS CLAYSTONE: light olive grey to medium grey, silty in part, moderately calcareous (15%), trace ooids, trace pyrite nodules, firm to moderately hard, sub blocky to blocky.
2060	2070	100	CALCAREOUS CLAYSTONE: as above.
2070	2080	100	CALCAREOUS CLAYSTONE: light olive grey to occasionally medium grey, silty in part, moderately calcareous (15%), trace ooids, trace disseminated pyrite, trace pyrite nodules, rare carbonaceous specks, firm to moderately hard, sub blocky to blocky.
2080	2090	100	CALCAREOUS CLAYSTONE: as above, no carbonaceous specks.
2090	2100	100	CALCAREOUS CLAYSTONE: as above.
2100	2110	100	CALCAREOUS CLAYSTONE: as above.
2110	2120	100	CALCAREOUS CLAYSTONE: light olive grey to medium grey, silty in part, moderately calcareous (15%), trace ooids, trace disseminated pyrite, trace pyrite nodules, firm to moderately hard, sub blocky to blocky.
2120	2130	100	CALCAREOUS CLAYSTONE: as above.
2130	2140	100	CALCAREOUS CLAYSTONE: light olive grey to light brownish grey, silty in part, moderately calcareous (15%), trace ooids, trace disseminated pyrite, firm to moderately hard, sub blocky to blocky. **Midnight Depth 04 August 2005 = 2147.0 mMDRT (1645.0 mTVDRT).**
2140	2150	100	CALCAREOUS CLAYSTONE: as above, rare pyrite nodules, rare glauconite.
2150	2160	100	CALCAREOUS CLAYSTONE: as above. Carbide Lag check at stand down 2164.5 mMDRT: Theoretical strokes: 7212/ Actual strokes 7700. Hole 6.7 % overgauge. Lag adjusted for increased hole size..
2160	2170	100	CALCAREOUS CLAYSTONE: as above.

Bream A14A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
2170	2180	100	CALCAREOUS CLAYSTONE: light olive grey to light brownish grey, silty in part, moderately calcareous (15%), trace ooids, trace disseminated pyrite, rare glauconite, firm to moderately hard, sub blocky to blocky.
2180	2190	100	CALCAREOUS CLAYSTONE: as above.
2190	2200	100	CALCAREOUS CLAYSTONE: as above. **Top of Latrobe at 2205.0 mMDRT (1688.0 mTVDRT / -1655.2 TVDSS).** **Bagged 5 m samples from 2200 mMDRT to TD.**
2200	2205	95	CALCAREOUS CLAYSTONE: light olive grey to light brownish grey, silty in part, moderately calcareous (15%), trace ooids, trace disseminated pyrite, rare glauconite, firm to moderately hard, sub blocky to blocky.
		5	SANDSTONE: translucent to dominantly light green, very fine to fine, moderately well sorted, sub angular to sub rounded, abundant glauconite matrix and abundant fine green glauconite pellets, common siliceous cement, hard aggregates, tight to very poor visual and inferred porosity. No fluorescence.
2205	2210	50	CALCAREOUS CLAYSTONE: as above.
		30	SILTSTONE: dark yellowish brown to pale brown, occasionally dark yellowish orange, very arenaceous grading to very fine Sandstone, trace micromicaceous, moderately hard to hard, sub blocky to blocky.
		20	SANDSTONE: as above. No fluorescence.
2210	2215	20	CALCAREOUS CLAYSTONE: as above.
		65	SILTSTONE: as above.
		15	SANDSTONE: as above. Trace bright orange yellow mineral fluorescence.
2215	2220	10	CALCAREOUS CLAYSTONE: as above.
		50	SILTSTONE: as above.
		40	SANDSTONE: as above. Trace bright orange yellow mineral fluorescence.
2220	2225	15	CALCAREOUS CLAYSTONE: 10%, light olive grey to light brownish grey, silty in part, moderately calcareous, trace ooids, trace disseminated pyrite, rare glauconite, firm to moderately hard, sub blocky to blocky. CLAYSTONE: 5%, light brown to pale yellowish orange, non calcareous, soft to firm, amorphous to sub blocky.
		50	SILTSTONE: dark yellowish brown to pale brown, occasionally dark yellowish orange, very arenaceous grading to very fine Sandstone, trace micromicaceous, moderately hard to hard, sub blocky to blocky.
		35	SANDSTONE: translucent to dominantly light green, very fine to fine, moderately well sorted, sub angular to sub rounded, abundant glauconite matrix and abundant green glauconite pellets, common siliceous cement, hard aggregates, tight to very poor visual and inferred porosity. No fluorescence.
2225	2230	10	CALCAREOUS CLAYSTONE: 5%, as above. CLAYSTONE: 5%, as above.
		25	SILTSTONE: as above.
		65	SANDSTONE: as above. Trace bright orange yellow mineral fluorescence.

Bream A14A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
2230	2235	10	CALCAREOUS CLAYSTONE: 5%, as above.
			CLAYSTONE: 5%, as above.
		25	SILTSTONE: as above.
		65	SANDSTONE: as above.
			Trace bright orange yellow mineral fluorescence.
2235	2240	20	CALCAREOUS CLAYSTONE: 5%, light olive grey to light brownish grey, silty in part, moderately calcareous, trace ooids, trace disseminated pyrite, rare glauconite, firm to moderately hard, sub blocky to blocky.
			CLAYSTONE: 15%, light brown to pale yellowish orange, non calcareous, soft to firm, amorphous to sub blocky.
		30	SILTSTONE: dark yellowish brown to pale brown, occasionally dark yellowish orange, very arenaceous grading to very fine Sandstone, trace micromicaceous, trace disseminated pyrite and laminations, firm to moderately hard, sub blocky to blocky.
		50	SANDSTONE: translucent to dominantly light green, occasionally moderate orange pink, very fine to fine, ooccasionally very coarse, moderately well sorted, sub angular to sub rounded, abundant glauconite matrix and abundant green glauconite pellets, common siliceous cement, hard aggregates, tight to very poor visual and inferred porosity.
			Trace bright orange yellow mineral fluorescence.
2240	2245	5	CLAYSTONE: 5%, light brown to pale yellowish orange, silty in part, non calcareous, soft to firm, amorphous to sub blocky.
		30	SILTSTONE: as above.
		65	SANDSTONE: as above.
			Trace bright orange yellow mineral fluorescence.
2245	2250	5	CLAYSTONE: as above
		25	SILTSTONE: as above.
		70	SANDSTONE: as above.
			No fluorescence.
2250	2255	5	CLAYSTONE: light brown to pale yellowish orange, silty in part, non calcareous, soft to firm, amorphous to sub blocky.
		15	SILTSTONE: pale brown to dark yellowish brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, trace disseminated pyrite and laminations, moderately hard to hard, sub blocky to blocky.
		80	SANDSTONE: translucent, white, light green, occasionally moderate orange pink, very fine to fine, rare very coarse, moderately well sorted, sub angular to sub rounded, abundant glauconite matrix and abundant green glauconite pellets, common siliceous cement, rare pyrite nodules, hard aggregates, tight to very poor visual and inferred porosity.
			Trace bright orange yellow mineral fluorescence.
2255	2260	5	CLAYSTONE: as above.
		15	SILTSTONE: as above.
		80	SANDSTONE: as above.
			No fluorescence.
2260	2265	10	CLAYSTONE: as above.
		25	SILTSTONE: as above.
		65	SANDSTONE: as above.
			No fluorescence.
2265	2270	5	CLAYSTONE: as above.
		20	SILTSTONE: as above.

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Interval (m) From	To	%	Lithology / Show Description
		75	SANDSTONE: as above. No fluorescence.
2270	2275	5	CLAYSTONE: as above.
		20	SILTSTONE: as above.
		75	SANDSTONE: as above. Trace bright orange yellow mineral fluorescence.
2275	2280	5	CLAYSTONE: as above
		15	SILTSTONE: as above.
		80	SANDSTONE: translucent, white, light green, occasionally moderate orange pink, very fine to fine, rare very coarse, moderately well sorted, sub angular to sub rounded, abundant glauconite matrix and abundant green glauconite pellets, common siliceous cement, rare pyrite nodules, hard aggregates, tight to very poor visual and inferred porosity. No fluorescence. Gas peak at 2283.0 mMDRT: 122 units/BG 45 units.
2280	2285	5	CLAYSTONE: as above
		20	SILTSTONE: as above.
		75	SANDSTONE: as above. Trace bright orange yellow mineral fluorescence.
2285	2290	10	CLAYSTONE: light brown to pale yellowish orange, silty in part, non calcareous, soft to firm, amorphous to sub blocky.
		20	SILTSTONE: pale brown to dark yellowish brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, trace disseminated pyrite and laminations, moderately hard to hard, sub blocky to blocky.
		70	SANDSTONE: translucent, white, light green, occasionally moderate orange pink, very fine to fine, rare very coarse, moderately well sorted, sub angular to sub rounded, abundant glauconite matrix and abundant green glauconite pellets, common siliceous cement, hard aggregates, tight to very poor visual and inferred porosity. No fluorescence.
2290	2295	Trace	CLAYSTONE: Trace, as above.
		15	SILTSTONE: as above.
		85	SANDSTONE: as above. No fluorescence.
2295	2300	5	CLAYSTONE: as above
		20	SILTSTONE: as above.
		75	SANDSTONE: as above. Trace bright orange yellow mineral fluorescence.
2300	2305	Trace	CLAYSTONE: Trace, as above
		20	SILTSTONE: as above.
		80	SANDSTONE: translucent, white, light green, occasionally moderate orange pink, very fine to fine, occasionally very coarse, moderately well sorted, sub angular to sub rounded, abundant glauconite matrix and pellets, common siliceous cement, hard aggregates, tight to very poor visual and inferred porosity. No fluorescence.
2305	2310	5	CLAYSTONE: as above.
		40	SILTSTONE: as above.
		55	SANDSTONE: as above. No fluorescence.
2310	2315	15	CLAYSTONE: as above.

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Interval (m) From	To	%	Lithology / Show Description
		25	SILTSTONE: as above.
		60	SANDSTONE: clear to translucent, white to light green, occasionally moderate orange pink, very fine to fine, common coarse to very coarse, poorly sorted, sub angular to sub rounded, abundant glauconite matrix and pellets, common siliceous cement, dominantly hard aggregates, poor visual and inferred porosity. No fluorescence. Gas peak at 2320.0 mMDRT: 171 units/BG 38 units.
2315	2320	25	CLAYSTONE: as above.
		20	SILTSTONE: as above.
		55	SANDSTONE: as above. No fluorescence.
2320	2325	15	CLAYSTONE: light brown to pale yellowish orange, silty in part, non calcareous, soft to firm, amorphous to sub blocky.
		20	SILTSTONE: pale brown to dark yellowish brown, very arenaceous grading to very fine Sandstone, common disseminated pyrite and laminations, trace micromicaceous, moderately hard to hard, sub blocky to blocky.
		65	SANDSTONE: clear to translucent, white to light green, occasionally moderate orange pink, very fine to occasionally very coarse, poorly sorted, sub angular to sub rounded, abundant glauconite matrix and pellets, common siliceous cement, dominantly hard aggregates, poor visual and inferred porosity. No fluorescence.
2325	2330	10	CLAYSTONE: as above.
		35	SILTSTONE: as above.
		55	SANDSTONE: as above. Trace bright orange yellow mineral fluorescence.
2330	2335	5	CLAYSTONE: as above.
		20	SILTSTONE: as above.
		75	SANDSTONE: clear to translucent, white to light green, occasionally moderate orange pink, very fine to occasionally very coarse, poorly sorted, sub angular to sub rounded, common glauconite matrix and pellets, common siliceous cement, common light grey argillaceous matrix, hard aggregates, very poor visual and inferred porosity. Trace bright orange yellow mineral fluorescence.
2335	2340	5	CLAYSTONE: as above.
		20	SILTSTONE: as above.
		75	SANDSTONE: as above. No fluorescence.
2340	2345	5	CLAYSTONE: as above.
		25	SILTSTONE: as above.
		70	SANDSTONE: as above. Trace bright orange yellow mineral fluorescence.
2345	2350	5	CLAYSTONE: as above.
		20	SILTSTONE: as above.
		75	SANDSTONE: as above. Trace bright orange yellow mineral fluorescence. Baracarb (5 pounds per barrel) added to the mud system at 2350 mMDRT, at 1245 hrs 05 August 2005. Baracarb seen in the 2360 samples down to TD.
2350	2355	5	CLAYSTONE: as above.
		15	SILTSTONE: as above.

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Interval (m) From	To	%	Lithology / Show Description
		80	SANDSTONE: as above. Trace bright orange yellow mineral fluorescence.
2355	2360	15	CLAYSTONE 1: 5%, light brown to pale yellowish orange, silty in part, non calcareous, soft to firm, amorphous to sub blocky. CLAYSTONE 2: 10%, light grey to light blueish grey, non calcareous, hard, blocky, common bit crushed to rock flour.
		15	SILTSTONE: pale brown to dark yellowish brown, very arenaceous grading to very fine Sandstone, trace disseminated pyrite, trace micromicaceous, moderately hard to hard, sub blocky to blocky.
		70	SANDSTONE: clear to translucent, white to light green, rare moderate orange pink, very fine to fine, occasionally very coarse, poorly sorted, sub angular to sub rounded, trace to common glauconite matrix and pellets, common siliceous cement, weak pyrite cement, trace pyrite nodules, hard aggregates, very poor visual and inferred porosity. No fluorescence.
2360	2365	15	CLAYSTONE 1: 5%, as above. CLAYSTONE 2: 10%, as above.
		35	SILTSTONE: as above.
		50	SANDSTONE: as above. No fluorescence.
2365	2370	15	CLAYSTONE 1: 5%, as above. CLAYSTONE 2: 10%, as above.
		30	SILTSTONE: as above.
		65	SANDSTONE: clear to translucent, white to light green, rare moderate orange pink, very fine to fine, occasionally very coarse, poorly sorted, sub angular to sub rounded, trace to common glauconite matrix and pellets, common siliceous cement, moderate pyrite cement, trace pyrite nodules, hard aggregates, very poor visual and inferred porosity. Trace bright orange yellow mineral fluorescence.
2370	2375	20	CLAYSTONE 1: 5%, as above. CLAYSTONE 2: 15%, as above.
		45	SILTSTONE: as above.
		35	SANDSTONE: as above. Trace bright orange yellow mineral fluorescence.
2375	2380	20	CLAYSTONE 1: 5%, light brown to pale yellowish orange, silty in part, non calcareous, soft to firm, amorphous to sub blocky. CLAYSTONE 2: 15%, light grey to light blueish grey, non calcareous, hard, blocky, common bit crushed to rock flour.
		55	SILTSTONE: greyish brown to dark yellowish brown, occasionally pale brown, very arenaceous grading to very fine Sandstone, common micromicaceous, trace glauconite, rare disseminated pyrite, firm to moderately hard, sub blocky to blocky.
		20	SANDSTONE: clear to translucent, white to light green, rare moderate orange pink, very fine to fine, occasionally very coarse, poorly sorted, sub angular to sub rounded, trace to common glauconite matrix and pellets, common siliceous cement, moderate pyrite cement, trace pyrite nodules, hard aggregates, very poor visual and inferred porosity. Trace bright orange yellow mineral fluorescence.
		5	VOLCANICS: greyish brown to occasionally brownish black, crystalline, weathered, common chlorite, hard.
2380	2385	20	CLAYSTONE 2: 15%, light grey to light blueish grey, non calcareous, hard, blocky, common bit crushed to rock flour.
		55	SILTSTONE: as above.

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Interval (m) From	To	%	Lithology / Show Description
		15	SANDSTONE: as above. Trace bright orange yellow mineral fluorescence.
		10	VOLCANICS: as above.
2385	2390	20	CLAYSTONE: as above.
		70	SILTSTONE: as above.
		30	SANDSTONE: as above. No fluorescence.
		20	VOLCANICS: as above.
2390	2395	20	CLAYSTONE : light grey to light blueish grey, non calcareous, hard, blocky, common bit crushed to rock flour.
		30	SILTSTONE: greyish brown to dark yellowish brown, occasionally pale brown, very arenaceous grading to very fine Sandstone, common micromicaceous, trace glauconite, rare disseminated pyrite, firm to moderately hard, sub blocky to blocky.
		10	SANDSTONE: clear to translucent, white to light green, rare moderate orange pink, very fine to fine, occasionally very coarse, poorly sorted, sub angular to sub rounded, common glauconite matrix and pellets, common siliceous cement, moderate pyrite cement, common pyrite nodules, hard aggregates, tight to very poor visual and inferred porosity. No fluorescence.
		40	VOLCANICS: greyish brown to occasionally brownish black, crystalline, weathered, trace chlorite, hard. **POOH at 2395.0 mMDRT (1843.5 mTVDRT), to change the Bit and BOP stack test.** **Midnight Depth 05 August 2005 = 2395.0 mMDRT (1843.5 mTVDRT).**
			Drilled from 2395.0 mMDRT (1843.5 mTVDRT) at 0015 hrs 07 August 2005, to 3079.0 mMDRT (2456.9 mTVDRT) at 0900 hrs 10 August 2005, with a Reed Hycalog PDC bit on steerable motor assembly. Bit Details: BHA # 2, Bit # 2, Size: 8.5". Manufacturer / Type: Hycalog RSX163DGW, Serial #: 210116 Jets: 20 x 6, TFA: 1.841 sq.in, HOB: 59.40, Grading: **1-3-WT-A-X-1/16-CT-TD.** Krevs: 989.0, RPM: 105-120 (+ 175 RPM DHM). Average ROP: 684.0 / 59.40 = 11.52 m/hr. Rotating: 634.0 metres / Rotating HOB = 50.99, Average Rotating ROP = 12.43 m/hr. Steering: 50.0 metres / Steering HOB = 8.41 , Average Steering ROP = 5.95 m/hr.
2395	2400	10	CLAYSTONE : light grey to light blueish grey, silty in part, non calcareous, hard, blocky.
		80	SILTSTONE: pale yellowish brown to pale brown, arenaceous in part grading to very fine Sandstone, trace micromicaceous, trace glauconite, firm to moderately hard, sub blocky to blocky.
		5	SANDSTONE: translucent, white to light green, very fine to fine, moderately well sorted, sub angular to sub rounded, common glauconite matrix and pellets, common siliceous cement, hard aggregates, very poor visual and inferred porosity. No fluorescence.

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Interval (m) From	To	%	Lithology / Show Description
		5	VOLCANICS: greyish brown to occasionally brownish black, crystalline, weathered, trace chlorite, hard.
			Top Coarse Clastics (N-1 gas and oil sands) at 2403.5 mMDRT.
			(1851.1 mTVDRT / -1818.3 TVDSS).
2400	2405	5	CLAYSTONE: as above.
		80	SILTSTONE: as above, common glauconite pellets.
		10	SANDSTONE 1: 5%, translucent, white to light green, very fine to fine, moderately well sorted, sub angular to sub rounded, common glauconite matrix and pellets, common siliceous cement, hard aggregates, very poor visual and inferred porosity.
			No fluorescence.
			SANDSTONE 2: 5%, clear to translucent, coarse to very coarse, moderately well sorted, sub angular to sub rounded, weak pyrite cement, dominantly loose, generally clean, fair visual and inferred porosity.
			No fluorescence.
		5	VOLCANICS: as above.
2405	2410	15	CLAYSTONE: as above.
		60	SILTSTONE: as above.
		20	SANDSTONE 1: 5%, as above.
			SANDSTONE 2: 15%, as above.
			No fluorescence.
		5	VOLCANICS: as above.
2410	2415	30	CLAYSTONE: as above.
		35	SILTSTONE: as above.
		30	SANDSTONE 1: 5%, as above.
			SANDSTONE 2: 25%, as above.
			No fluorescence.
		5	VOLCANICS: as above.
2415	2420	10	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		85	SANDSTONE 2: 85%, clear to translucent, coarse to very coarse, moderately well sorted, sub angular to dominantly sub rounded, weak pyrite cement, rare pyrite nodules, dominantly loose, clean, fair to good visual and inferred porosity.
			FLUORESCENCE: trace, pinpoint, moderately bright greenish yellow fluorescence, very slow diffusive crush cut, thin pale yellow ring residue.
		Trace	VOLCANICS: as above.
			Gas peak at 2423.5 mMDRT: 446 units/BG 90 units.
2420	2425	30	CLAYSTONE: as above.
		20	SILTSTONE: as above.
		45	SANDSTONE: clear to translucent, fine to occasionally very coarse, dominantly medium, moderately well sorted, sub angular to sub rounded, common siliceous cement, weak pyrite cement, trace pyrite nodules, dominantly loose, occasionally hard aggregates, poor to fair visual and inferred porosity.
			No fluorescence.
		5	VOLCANICS: as above.
2425	2430	30	CLAYSTONE : light grey to light blueish grey, silty in part, non calcareous, hard, blocky.
		5	SILTSTONE: pale yellowish brown to pale brown, arenaceous in part grading to very fine Sandstone, trace micromicaceous, rare glauconite, firm to moderately hard, sub blocky to blocky.

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Interval (m) From	To	%	Lithology / Show Description
		60	SANDSTONE: clear to translucent, occasionally greyish pink, very coarse to dominantly coarse, moderately well sorted, sub angular to sub rounded, weak glauconitic cement, weak pyrite cement, common pyrite nodules, dominantly loose, generally clean, fair to good visual and inferred porosity. No fluorescence.
		5	VOLCANICS: greyish brown to occasionally brownish black, crystalline, weathered, trace chlorite, hard. **Top CBF1 at 2432.1 mMDRT (1876.4 mTVDRT / -1843.6 TVDSS).** Gas peak at 2432.0 mMDRT: 228 units/BG 110 units.
2430	2435	20	CLAYSTONE: as above.
		10	SILTSTONE: as above.
		65	SANDSTONE: as above, rare greyish pink fossil fragments. No fluorescence.
		5	VOLCANICS: as above. **Top CBSB at 2438.9 mMDRT (1882.4 mTVDRT / -1849.6 TVDSS).** Gas peak at 2440.5 mMDRT: 124 units/BG 75 units.
2435	2440	20	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		70	SANDSTONE: as above. No fluorescence.
		5	VOLCANICS: as above.
2440	2445	15	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		80	SANDSTONE: clear to translucent, occasionally greyish pink, very coarse to dominantly coarse, moderately well sorted, sub angular to sub rounded, weak glauconitic cement, weak pyrite cement, common pyrite nodules, dominantly loose, generally clean, fair to good visual and inferred porosity. **FLUORESCENCE: trace, pinpoint, moderately bright greenish yellow fluorescence, very slow diffusive crush cut, thin dull blueish yellow ring residue.**
		Trace	VOLCANICS: as above.
2445	2450	10	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		85	SANDSTONE: clear to translucent, very coarse to dominantly coarse, moderately well sorted, sub angular to sub rounded, weak glauconitic cement, weak pyrite cement, common pyrite nodules, dominantly loose, generally clean, fair to good visual and inferred porosity. No fluorescence.
		Trace	VOLCANICS: as above. At 2451 mMDRT, add Barablock to the Mud system. Achieved a concentration of 6 ppb at 2488 mMDRT. Barablock seen in samples from 2460 mMDRT to TD. **Top PKF1 at 2452.2 mMDRT (1894.5 mTVDRT / -1861.7 TVDSS).** Gas peak at 2450.5 mMDRT: 240 units/BG 70 units.
2450	2455	20	CLAYSTONE: as above.
		Trace	SILTSTONE: as above.
		70	SANDSTONE: as above. No fluorescence.
		5	VOLCANICS: as above.
2455	2460	15	CLAYSTONE: as above.

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Interval (m) From	To	%	Lithology / Show Description
		20	SILTSTONE: as above.
		60	SANDSTONE: as above. No fluorescence.
		5	VOLCANICS: as above. Gas peak at 2461.0 mMDRT: 407 units/BG 100 units.
2460	2465	15	CLAYSTONE : light grey to light blueish grey, silty in part, non calcareous, hard, blocky.
		10	SILTSTONE: pale yellowish brown to pale brown, arenaceous in part grading to very fine Sandstone, trace micromicaceous, rare glauconite, firm to moderately hard, sub blocky to blocky.
		70	SANDSTONE: clear to translucent, rare light brownish grey, very coarse to coarse, moderately well sorted, sub angular to sub rounded, weak pyrite cement, trace pyrite nodules, dominantly loose, generally clean, fair to good visual and inferred porosity. No fluorescence.
		5	VOLCANICS: greyish brown to occasionally brownish black, crystalline, weathered, trace chlorite, hard.
2465	2470	10	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		80	SANDSTONE: as above, medium to occasionally very coarse, dominantly medium. No fluorescence.
		5	VOLCANICS: as above.
2470	2475	20	COAL: black, subvitreous, brittle, subfissile, angular, common pyrite and silica laminations.
		5	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		70	SANDSTONE: as above. No fluorescence.
		Trace	VOLCANICS: as above. **Top MVSB at 2475.9 mMDRT (1915.2 mTVDRT / -1882.4 TVDSS).**
2475	2480	5	COAL: as above.
		10	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		80	SANDSTONE: clear to translucent, occasionally medium to dominantly very coarse, moderately well sorted, sub angular to dominantly sub rounded, weak pyrite cement, trace pyrite nodules, loose, clean, fair to good visual and inferred porosity. No fluorescence.
		Trace	VOLCANICS: as above.
2480	2485	30	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		60	SANDSTONE: clear to translucent, coarse to dominantly very coarse, moderately well sorted, sub angular to dominantly sub rounded, weak pyrite cement, trace pyrite nodules, loose, clean, fair to good visual and inferred porosity. No fluorescence.
		5	VOLCANICS: greyish brown to occasionally brownish black, crystalline, weathered, trace chlorite, hard.
2485	2490	20	CLAYSTONE: as above.
		10	SILTSTONE: as above.
		65	SANDSTONE: as above. No fluorescence.

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Interval (m) From	To	%	Lithology / Show Description
		5	VOLCANICS: as above.
			Top CYSB at 2491.3 mMDRT (1928.8 mTVDRT / -1896.0 TVDSS).
2490	2495	10	CLAYSTONE: as above.
		80	SILTSTONE: moderate yellowish brown to pale brown, arenaceous in part, common micromicaceous, soft to firm, amorphous to sub blocky.
		10	SANDSTONE: as above.
			No fluorescence.
		Trace	VOLCANICS: as above.
			Gas peak at 2499.0 mMDRT: 332 units.
2495	2500	40	COAL: black, subvitreous, brittle, subfissile, angular, trace pyrite laminations.
		5	CLAYSTONE : light grey to light blueish grey, silty in part, non calcareous, hard, blocky.
		45	SILTSTONE: as above.
		10	SANDSTONE: clear to translucent, coarse to dominantly very coarse, moderately well sorted, sub angular to dominantly sub rounded, weak pyrite cement, trace pyrite nodules, loose, clean, good visual and inferred porosity.
			No fluorescence.
		Trace	VOLCANICS: as above.
			Gas peak at 2504.0 mMDRT: 342 units.
2500	2505	40	COAL: as above.
		5	CLAYSTONE: as above.
		25	SILTSTONE: moderate yellowish brown to pale brown, arenaceous in part, common micromicaceous, soft to firm, amorphous to sub blocky.
		30	SANDSTONE: as above.
			No fluorescence.
		Trace	VOLCANICS: as above.
			Top P. asperopolus Coal at 2505.0 mMDRT (1941.0 mTVDRT / -1908.2 TVDSS).
2505	2510	85	COAL: brownish black to black, sub vitreous, silty in part grading to Carbonaceous Siltstone, moderately hard, blocky, uneven, woody texture, common quartz inclusions.
		Trace	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		10	SANDSTONE: as above.
			No fluorescence.
			Gas peak at 2513.5 mMDRT: 406 units.
2510	2515	85	COAL: as above.
		Trace	CLAYSTONE: as above.
		10	SILTSTONE: as above.
		5	SANDSTONE: as above.
			No fluorescence.
2515	2520	25	COAL: as above.
		50	CLAYSTONE 1: Trace, light grey to light blueish grey, silty in part, non calcareous, hard, blocky.
			CLAYSTONE 2: 50%, greyish orange pink to light brown, non calcareous, soft to firm, amorphous.
		20	SILTSTONE: moderate yellowish brown to pale brown, arenaceous in part, common micromicaceous, soft to firm, amorphous to sub blocky.

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Interval (m) From	To	%	Lithology / Show Description
		5	SANDSTONE: clear to translucent, coarse to dominantly very coarse, moderately well sorted, sub angular to dominantly sub rounded, weak pyrite cement, trace pyrite nodules, loose, clean, fair to good visual and inferred porosity.
			No fluorescence.
			Gas peak at 2520.5 mMDRT: 196 units.
2520	2525	Trace	COAL: as above.
		55	CLAYSTONE 1: 5%, as above.
			CLAYSTONE 2: 50%, as above.
		15	SILTSTONE: as above.
		30	SANDSTONE: as above.
			No fluorescence.
2525	2530	Trace	COAL: as above.
		35	CLAYSTONE 1: 5%, as above.
			CLAYSTONE 2: 30%, as above.
		10	SILTSTONE: as above.
		55	SANDSTONE: clear to translucent, dominantly coarse to very coarse, occasionally medium, moderately well sorted, sub angular to sub rounded, weak pyrite cement, trace pyrite nodules, dominantly loose, generally clean, fair visual and inferred porosity.
			No fluorescence.
2530	2535	5	COAL: black, subvitreous, brittle, blocky, angular, trace quartz inclusions.
		25	CLAYSTONE 1: 15%, as above.
			CLAYSTONE 2: 10%, as above.
		5	SILTSTONE: as above.
		60	SANDSTONE: as above.
			No fluorescence.
		5	VOLCANICS: greyish brown to occasionally brownish black, crystalline, weathered, trace chlorite, hard.
2535	2540	55	COAL: as above.
		20	CLAYSTONE 1: 5%, as above.
			CLAYSTONE 2: 15%, as above.
		5	SILTSTONE: as above.
		20	SANDSTONE: as above.
			No fluorescence.
2540	2545	5	COAL: as above.
		60	CLAYSTONE 1: 10%, as above.
			CLAYSTONE 2: 50%, as above.
		10	SILTSTONE: as above.
		20	SANDSTONE: as above.
			No fluorescence.
		5	VOLCANICS: as above.
2545	2550	5	COAL: as above.
		60	CLAYSTONE 1: 10%, as above.
			CLAYSTONE 2: 50%, as above.
		5	SILTSTONE: as above.
		30	SANDSTONE: as above.
			No fluorescence.
		Trace	VOLCANICS: as above.
			Gas peak at 2554.5 mMDRT: 156 units.
2550	2555	25	COAL: as above.

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Interval (m) From	To	%	Lithology / Show Description
		50	CLAYSTONE 1: 5%, as above. CLAYSTONE 2: 45%, as above.
		5	SILTSTONE: as above.
		20	SANDSTONE: as above. No fluorescence.
			Top of Volcanics at 2560.0 mMDRT (1889.9 mTVDRT / -1857.1 TVDSS).
2555	2560	10	COAL: as above.
		20	CLAYSTONE 1: 5%, as above. CLAYSTONE 2: 15%, as above.
		30	SILTSTONE: medium dark grey to occasionally moderate yellowish brown, arenaceous in part, common micromicaceous, firm, sub blocky, common bit crushed rock flour.
		30	SANDSTONE: clear to translucent, coarse to dominantly very coarse, moderately well sorted, occasionally fractured quartz grains, sub angular to dominantly sub rounded, moderate pyrite cement, trace pyrite nodules, common hard aggregates, occasionally loose, clean, poor visual and inferred porosity. No fluorescence.
		10	VOLCANICS: greyish green, grey, mottled, common basalt, chlorite in part, common bit crushed rock flour, crystalline, hard.
Spot	2561.5	5	CLAYSTONE: Trace, light grey to light blueish grey, silty in part, non calcareous, hard, blocky.
		10	SANDSTONE: as above. No fluorescence.
		85	VOLCANICS: as above.
2660	2565	10	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		35	SANDSTONE: as above. No fluorescence.
		50	VOLCANICS: as above.
2565	2570	5	CLAYSTONE: Trace, light grey to light blueish grey, silty in part, non calcareous, hard, blocky.
		25	SANDSTONE: as above. No fluorescence.
		70	VOLCANICS: greyish green, grey, mottled, common basalt, chlorite in part, crystalline, hard, common bit crushed rock flour.
2570	2575	5	CLAYSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
		85	VOLCANICS: as above.
2575	2580	5	CLAYSTONE: as above.
		5	SANDSTONE: as above. No fluorescence.
		90	VOLCANICS: as above.
			Midnight Depth 07 August 2005 = 2582.0 mMDRT (2009.5 mTVDRT).
2580	2585	Trace	CLAYSTONE: Trace, light grey to light blueish grey, silty in part, non calcareous, hard, blocky.
		Trace	SANDSTONE: as above. No fluorescence.
		100	VOLCANICS: greyish green, grey, mottled, common basalt, chlorite in part, crystalline, hard, common bit crushed rock flour.

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Interval (m) From	To	%	Lithology / Show Description
2585	2590	Trace	CLAYSTONE: as above.
		Trace	SANDSTONE: as above.
			No fluorescence.
		100	VOLCANICS: as above.
2590	2595	Trace	SANDSTONE: as above.
			No fluorescence.
		100	VOLCANICS: as above.
2595	2600	Trace	SANDSTONE: as above.
			No fluorescence.
		100	VOLCANICS: greyish green, grey, mottled, common basalt, chlorite in part, crystalline, hard, common bit crushed rock flour.
2600	2605	Trace	CLAYSTONE: as above.
		Trace	SANDSTONE: as above.
			No fluorescence.
		100	VOLCANICS: as above.
2605	2610	Trace	SANDSTONE: as above.
			No fluorescence.
		100	VOLCANICS: as above.
2610	2615	Trace	CLAYSTONE: Trace, light grey to light blueish grey, silty in part, non calcareous, hard, blocky.
		Trace	SANDSTONE: clear to translucent, very coarse, well sorted, common fractured quartz grains, sub angular to dominantly sub rounded, weak pyrite cement, trace pyrite nodules, occasionally hard aggregates, poor to fair visual and inferred porosity.
			No fluorescence.
		100	VOLCANICS: as above.
2615	2620	Trace	CLAYSTONE: as above.
		Trace	SANDSTONE: as above.
			No fluorescence.
		100	VOLCANICS: greyish green, grey, mottled, common basalt, chlorite in part, common bit crushed rock flour, crystalline, hard.
2620	2625	Trace	CLAYSTONE: as above.
		Trace	SANDSTONE: as above.
			No fluorescence.
		100	VOLCANICS: as above.
2625	2630	Trace	CLAYSTONE: as above.
		Trace	SANDSTONE: as above.
			No fluorescence.
		100	VOLCANICS: as above.
2630	2635	Trace	SANDSTONE: as above.
			No fluorescence.
		100	VOLCANICS: greyish green, grey, mottled, common basalt, chlorite in part, crystalline, hard, common bit crushed rock flour.
2635	2640	Trace	SANDSTONE: as above, occasionally white to light green.
			No fluorescence.
		100	VOLCANICS: as above.

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Interval (m) From	To	%	Lithology / Show Description
2640	2645	5	SANDSTONE: clear to translucent, moderate yellow to moderate greenish yellow, very fine to occasionally medium, dominantly fine, moderately well sorted, sub angular to sub rounded, abundant white to light greenish grey siliceous cement, hard aggregates, tight to very poor to fair visual and inferred porosity. No fluorescence.
		95	VOLCANICS: as above.
2645	2650	5	SANDSTONE: as above. No fluorescence.
		95	VOLCANICS: greyish green, grey, mottled, common basalt, chlorite in part, crystalline, hard, common bit crushed rock flour.
2650	2655	10	SANDSTONE: as above. No fluorescence.
		90	VOLCANICS: as above.
2655	2660	Trace	CLAYSTONE: as above.
		10	SANDSTONE: as above. No fluorescence.
		90	VOLCANICS: as above.
2660	2665	10	CLAYSTONE: Trace, light grey to light greenish grey, silty in part, hard, blocky.
		15	SANDSTONE 1: 5%, clear to translucent, moderate yellow to moderate greenish yellow, very fine to occasionally medium, dominantly fine, moderately well sorted, sub angular to sub rounded, abundant white to light greenish grey siliceous cement, hard aggregates, tight to very poor to fair visual and inferred porosity. SANDSTONE 2: 10%, clear to translucent, very coarse, well sorted, common fractured quartz grains, sub angular to sub rounded, weak pyrite cement, trace pyrite nodules, dominantly loose, generally clean, fair visual and inferred porosity. No fluorescence.
		75	VOLCANICS: greyish green, grey, mottled, common basalt, chlorite in part, crystalline, hard, common bit crushed rock flour.
2665	2670	20	COAL: brownish black to dusky brown, subvitreous, brittle, blocky, angular, common quartz inclusions.
		15	CLAYSTONE: as above.
		20	SILTSTONE: light brown, minor dark grey, arenaceous in part, common micromicaceous, trace carbonaceous specks, soft to firm, amorphous to sub blocky, common bit crushed rock flour.
		10	SANDSTONE 1: 5%, as above. SANDSTONE 1: 5%, as above. No fluorescence.
		35	VOLCANICS: as above.
2670	2675	10	COAL: as above.
		20	CLAYSTONE: as above.
		30	SILTSTONE: as above.
		30	SANDSTONE 1: translucent, white to pale green, quartzite, fine to occasionally very coarse, angular to sub angular, common fractured quatzite grains metamorphosed with glauconite inclusions, hard aggregates, tight to very poor visible and inferred porosity. No fluorescence.
		10	VOLCANICS: greyish green, grey, mottled, common basalt, chlorite in part, crystalline, hard, common bit crushed rock flour.
2675	2680	5	COAL: as above.

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Interval (m) From	To	%	Lithology / Show Description
		45	CLAYSTONE 1: 10%, light grey to light greenish grey, silty in part, hard, blocky. CLAYSTONE 2: 35%, greyish orange pink to light brown, silty inpart, soft to firm, amorphous to sub blocky.
		15	SILTSTONE: as above.
		35	SANDSTONE 1: 5%, translucent, white to pale green, quartzite, fine to occasionally very coarse, angular to sub angular, common fractured quatzite grains metamorphosed with glauconite inclusions, hard aggregates, tight to very poor visible and inferred porosity. SANDSTONE 2: 30%, clear to translucent, occasionally medium to dominantly coarse, well sorted, sub angular to sub rounded, weak pyrite cement, rare pyrite nodules, dominantly loose, generally clean, fair visual and inferred porosity. No fluorescence.
		Trace	VOLCANICS: as above.
2680	2685	5	COAL: as above.
		50	CLAYSTONE 1: 15%, as above. CLAYSTONE 2: 35%, as above.
		5	SILTSTONE: as above.
		40	SANDSTONE 1: 20%, as above. SANDSTONE 2: 20%, as above. No fluorescence.
		Trace	VOLCANICS: as above.
2685	2690	15	COAL: brownish black to dusky brown, subvitreous, brittle, blocky, angular, common quartz inclusions.
		65	CLAYSTONE 1: 10%, as above. CLAYSTONE 2: 50%, as above.
		10	SILTSTONE: light brown, minor dark grey, arenaceous in part, common micromicaceous, trace carbonaceous specks, soft to firm, amorphous to sub blocky, common bit crushed rock flour.
		10	SANDSTONE 1: 5%, as above. SANDSTONE 2: 5%, as above. No fluorescence.
		Trace	VOLCANICS: as above.
2690	2695	10	COAL: as above.
		40	CLAYSTONE 1: 5%, light grey to light greenish grey, silty in part, hard, blocky. CLAYSTONE 2: 35%, greyish orange pink to light brown, silty inpart, soft to firm, amorphous to sub blocky.
		25	SILTSTONE: as above.
		25	SANDSTONE 1: 15%, translucent, white to pale green, quartzite, fine to occasionally very coarse, angular to sub angular, common fractured quatzite grains metamorphosed with glauconite inclusions, hard aggregates, tight to very poor visible and inferred porosity. SANDSTONE 2: 10%, clear to translucent, occasionally medium to dominantly coarse, well sorted, sub angular to sub rounded, weak pyrite cement, rare pyrite nodules, dominantly loose, generally clean, fair visual and inferred porosity. No fluorescence.
2695	2700	10	COAL: as above.
		40	CLAYSTONE 1: 10%, as above. CLAYSTONE 2: 30%, as above.
		30	SILTSTONE: moderate brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, firm to moderately hard, sub blocky.

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Interval (m) From	To	%	Lithology / Show Description
		20	SANDSTONE 1: 15%, as above. SANDSTONE 1: 5%, as above. No fluorescence.
2700	2705	70	COAL: moderate brown to dusky brown, earthy, silty grading to Carbonaceous Siltstone, moderately hard, blocky, angular, woody texture.
		10	CLAYSTONE 1: 5%, as above. CLAYSTONE 2: 5%, as above.
		10	SILTSTONE: as above.
		10	SANDSTONE 1: 5%, as above. SANDSTONE 2: 5%, as above. No fluorescence.
2705	2710	60	COAL: as above.
		30	CLAYSTONE 1: Trace, light grey to light greenish grey, silty in part, hard, blocky. CLAYSTONE 2: 30%, greyish orange pink to light brown, silty inpart, soft to firm, amorphous to sub blocky.
		10	SANDSTONE 1: 5%, as above. SANDSTONE 2: 5%, as above. No fluorescence.
2710	2715	5	COAL: black, subvitreous, brittle, blocky, angular.
		20	CLAYSTONE 1: 10%, as above. CLAYSTONE 2: 10%, as above.
		20	SILTSTONE: as above.
		55	SANDSTONE 1: 5%, translucent, white to pale green, quartzite, fine to occasionally very coarse, angular to sub angular, common fractured quatzite grains metamorphosed with glauconite inclusions, hard aggregates, tight to very poor visible and inferred porosity. SANDSTONE 2: 50%, clear to translucent, dominantly medium to occasionally very coarse, moderately well sorted, sub angular to sub rounded, weak pyrite cement, rare pyrite nodules, dominantly loose, generally clean, fair visual and inferred porosity. No fluorescence.
2715	2720	5	COAL: as above.
		65	CLAYSTONE 1: 10%, as above. CLAYSTONE 2: 55%, as above.
		25	SILTSTONE: moderate brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, firm to moderately hard, sub blocky.
		5	SANDSTONE 2: All 5%, clear to translucent, occasionally medium to dominantly coarse, well sorted, sub angular to sub rounded, weak pyrite cement, rare pyrite nodules, dominantly loose, generally clean, fair visual and inferred porosity. No fluorescence.
2720	2725	Trace	COAL: as above.
		60	CLAYSTONE 1: 5%, light grey to light greenish grey, silty in part, hard, blocky. CLAYSTONE 2: 55%, greyish orange pink to light brown, silty inpart, soft to firm, amorphous to sub blocky.
		10	SILTSTONE: as above.
		30	SANDSTONE: as above. No fluorescence.
2725	2730	Trace	COAL: as above.
		35	CLAYSTONE 1: 5%, as above. CLAYSTONE 2: 30%, as above.
		5	SILTSTONE: as above.

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Interval (m) From	To	%	Lithology / Show Description
		60	SANDSTONE: clear to translucent, fine to occasionally very coarse,dominantly medium, moderately well sorted, sub angular to sub rounded, weak pyrite cement, rare pyrite nodules, dominantly loose, generally clean, fair visual and inferred porosity. No fluorescence.
2730	2735	5	COAL: black, subvitreous, brittle, blocky, angular.
		50	CLAYSTONE 1: 5%, as above. CLAYSTONE 2: 45%, as above.
		5	SILTSTONE: moderate brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, firm to moderately hard, sub blocky.
		40	SANDSTONE: as above. No fluorescence.
2735	2740	15	CLAYSTONE 1: 5%, as above. CLAYSTONE 2: 10%, as above.
		Trace	SILTSTONE: as above.
		85	SANDSTONE 1: as above. No fluorescence.
2740	2745	5	COAL: as above.
		30	CLAYSTONE 1: 5%, light grey to light greenish grey, silty in part, hard, blocky. CLAYSTONE 2: 25%, greyish orange pink to light brown, silty inpart, soft to firm, amorphous to sub blocky.
		10	SILTSTONE: as above.
		55	SANDSTONE: clear to translucent, opaque, occasionally medium to very coarse, trace quartz overgrowths, fractured grains in part, moderately well sorted, sub angular to sub rounded, loose, generally clean, fair visual and inferred porosity. No fluorescence. **Top F Coal section at 2747.0 mMDRT (2156.1 mTVDRT / -2123.3 TVDSS).**
2745	2750	15	COAL: moderate brown to dusky brown, earthy, silty grading to Carbonaceous Siltstone, moderately hard, blocky, angular, woody texture.
		15	CLAYSTONE: light grey to light greenish grey, silty in part, hard, blocky.
		10	SILTSTONE: moderate brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, firm to moderately hard, sub blocky.
		60	SANDSTONE: as above. No fluorescence.
2750	2755	70	COAL: as above.
		5	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		20	SANDSTONE: as above. No fluorescence.
2755	2760	45	COAL: as above.
		5	CLAYSTONE: as above.
		10	SILTSTONE: as above.
		40	SANDSTONE: clear to translucent, opaque, occasionally medium to very coarse, trace quartz overgrowths, fractured grains in part, moderately well sorted, sub angular to sub rounded, loose, generally clean, fair visual and inferred porosity. No fluorescence.
2760	2765	10	COAL: as above.
		10	CLAYSTONE: as above.

Bream A14A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
		30	SILTSTONE: moderate brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, rare carbonaceous specks, firm to moderately hard, sub blocky.
		45	SANDSTONE 1: 20%, translucent, white to pale green, quartzite, fine to occasionally very coarse, angular to sub angular, common fractured quatzite grains metamorphosed with glauconite inclusions, hard aggregates, tight to very poor visible and inferred porosity. SANDSTONE 1: 25%, clear to translucent, opaque, occasionally medium to very coarse, trace quartz overgrowths, fractured grains in part, moderately well sorted, sub angular to sub rounded, loose, generally clean, fair visual and inferred porosity. No fluorescence.
		5	VOLCANICS: greyish green, grey, mottled, common basalt, chlorite in part, crystalline, hard, common bit crushed rock flour.
2765	2770	10	COAL: as above.
		20	CLAYSTONE: as above.
		50	SILTSTONE: moderate brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, rare carbonaceous specks, firm to moderately hard, sub blocky.
		20	SANDSTONE: clear to translucent, opaque, medium to very coarse, trace quartz overgrowths, moderately well sorted, sub angular to sub rounded, generally unconsolidated, fair visual and inferred porosity. No fluorescence.
2770	2775	70	COAL: as above.
		10	CLAYSTONE: light grey to light greenish grey, silty in part, hard, blocky.
		10	SILTSTONE: as above.
		10	SANDSTONE: as above. No fluorescence. **Midnight Depth 08 August 2005 = 2777.0 mMDRT (2181.5 mTVDRT).** Gas peak at 2777.5 mMDRT: 224 units.
2775	2780	30	COAL: as above.
		10	CLAYSTONE: as above.
		55	SILTSTONE: as above.
		5	SANDSTONE: as above. No fluorescence.
2780	2785	Trace	COAL: as above.
		10	CLAYSTONE 1: 5%, light grey to light greenish grey, silty in part, hard, blocky. CLAYSTONE 2: 5%, greyish orange pink to light brown, silty inpart, soft to firm, amorphous to sub blocky.
		80	SILTSTONE: moderate brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, rare carbonaceous specks, firm to moderately hard, sub blocky.
		10	SANDSTONE: clear to translucent, opaque, medium to granular, trace granular fractured quartz, poorly sorted, sub angular to sub rounded, generally clean, fair visual and inferred porosity. No fluorescence. Gas peak at 2787.5 mMDRT: 167 units.
2785	2790	5	COAL: as above.
		10	CLAYSTONE 1: 5%, as above. CLAYSTONE 2: 5, as above.

Bream A14A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
		70	SILTSTONE: as above.
		15	SANDSTONE: as above.
			No fluorescence.
2790	2795	5	COAL: black, subvitreous, brittle, moderately hard, blocky, angular.
		10	CLAYSTONE 1: 5%, as above.
			CLAYSTONE 2: 5%, as above.
		70	SILTSTONE: moderate brown to greyish brown, greyish pink, very arenaceous grading to very fine Sandstone, common micromicaceous, rare carbonaceous specks, firm to moderately hard, sub blocky.
		15	SANDSTONE: as above.
			No fluorescence.
2795	2800	20	COAL: moderate brown to dusky brown, earthy, silty grading to Carbonaceous Siltstone, moderately hard, blocky, angular, woody texture.
		10	CLAYSTONE: light grey to light greenish grey, silty in part, hard, blocky.
		65	SILTSTONE: as above.
		5	SANDSTONE: as above.
			No fluorescence.
2800	2805	85	COAL: as above.
		5	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		5	SANDSTONE: as above.
			No fluorescence.
2805	2810	5	COAL: as above.
		5	CLAYSTONE 1: 5%, light grey to light greenish grey, silty in part, hard, blocky.
			CLAYSTONE 2: Trace, greyish orange pink to light brown, silty inpart, soft to firm, amorphous to sub blocky.
		80	SILTSTONE: pale brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, trace carbonaceous specks, firm to moderately hard, sub blocky.
		10	SANDSTONE 1: 15%, as above.
			SANDSTONE 1: 10%, as above.
			No fluorescence.
			Top M5 SAND at 2812.5 mMDRT (2214.2 mTVDRT / -2181.4 TVDSS).
2810	2815	5	COAL: as above.
		25	CLAYSTONE 1: 10%, as above.
			CLAYSTONE 2: 15%, as above.
		60	SILTSTONE: as above.
		10	SANDSTONE: clear to translucent, medium to occasionally very coarse, dominantly medium, moderately well sorted, sub angular to sub rounded, common siliceous cement, dominantly hard aggregates, poor to very poor visual and inferred porosity.
			No fluorescence.
2815	2820	Trace	COAL: as above.
		45	CLAYSTONE 1: 10%, as above.
			CLAYSTONE 2: 35%, as above.
		25	SILTSTONE: as above.
		30	SANDSTONE 1: 15%, as above.
			SANDSTONE 1: 10%, as above.
			No fluorescence.
2820	2825	Trace	COAL: as above.

Bream A14A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
		20	CLAYSTONE 1: 20%, as above. CLAYSTONE 2: Trace, as above.
		10	SILTSTONE: pale brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, trace carbonaceous specks, firm to moderately hard, sub blocky.
		70	SANDSTONE: clear to translucent, medium to occasionally very coarse, dominantly coarse, moderately well sorted, sub angular to sub rounded, trace siliceous cement, rare pyrite nodules, dominantly loose, generally clean, fair visual and inferred porosity. No fluorescence.
2825	2830	35	CLAYSTONE 1: 10%, light grey to light greenish grey, silty in part, hard, blocky. CLAYSTONE 2: 25%, Trace, greyish orange pink to light brown, silty inpart, soft to firm, amorphous to sub blocky.
		10	SILTSTONE: as above.
		50	SANDSTONE 1: 10%, translucent, greyish green to pale green, quartzite, fine to occasionally very coarse, angular to sub angular, common fractured quatzite grains metamorphosed with glauconite inclusions, hard aggregates, tight to very poor visible and inferred porosity. SANDSTONE 1: 40%, clear to translucent, medium to occasionally very coarse, dominantly coarse, moderately well sorted, sub angular to sub rounded, trace siliceous cement, rare pyrite nodules, dominantly loose, generally clean, fair visual and inferred porosity. No fluorescence.
		5	VOLCANICS: greyish green, grey, mottled, common basalt, chlorite in part, crystalline, hard, common bit crushed rock flour.
2830	2835	70	COAL: brown black to black, earthy, silty grading to Carbonaceous Siltstone, moderately hard, blocky, angular, woody texture, trace quartz inclusions.
		10	CLAYSTONE 1: 5%, as above. CLAYSTONE 2: 5%, as above.
		5	SILTSTONE: as above.
		15	SANDSTONE 1: Trace, as above. SANDSTONE 1: 15%, as above. No fluorescence.
2835	2840	10	COAL: as above.
		30	CLAYSTONE 1: 15%, as above. CLAYSTONE 2: 15%, as above.
		15	SILTSTONE: pale brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, trace carbonaceous specks, firm to moderately hard, sub blocky.
		45	SANDSTONE 1: 5%, as above. SANDSTONE 1: 40%, as above. No fluorescence.
2840	2845	5	COAL: as above.
		65	CLAYSTONE 1: 10%, as above. CLAYSTONE 2: 5%, as above.
		20	SILTSTONE: as above.
		10	SANDSTONE 1: 15%, as above. SANDSTONE 1: 10%, as above. No fluorescence.
2845	2850	Trace	COAL: as above.

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Interval (m) From	To	%	Lithology / Show Description
		30	CLAYSTONE 1: 10%, light grey to light greenish grey, silty in part, hard, blocky. CLAYSTONE 2: 20%, Trace, greyish orange pink to light brown, silty inpart, soft to firm, amorphous to sub blocky.
		65	SILTSTONE: pale brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, rare carbonaceous specks, firm to moderately hard, sub blocky.
		5	SANDSTONE 1: Trace, as above. SANDSTONE 1: 10%, as above. No fluorescence.
			Top M6 SAND at 2852.0 mMDRT (2249.3 mTVDRT / -2216.5 TVDSS).
2850	2855	40	CLAYSTONE 1: 10%, as above. CLAYSTONE 2: 30%, as above.
		40	SILTSTONE: as above.
		15	SANDSTONE 1: 5%, translucent, greyish green to pale green, quartzite, fine to occasionally very coarse, angular to sub angular, common fractured quatzite grains metamorphosed with glauconite inclusions, hard aggregates, tight to very poor visible and inferred porosity. SANDSTONE 1: 10%, clear to translucent, medium to occasionally very coarse, dominantly coarse, moderately well sorted, sub angular to sub rounded, trace siliceous cement, rare pyrite nodules, dominantly loose, generally clean, fair visual and inferred porosity. No fluorescence.
		5	VOLCANICS: greyish green, greenish black, mottled, common basalt, occasional chlorite crystalline, hard.
2855	2860	20	CLAYSTONE 1: 10%, as above. CLAYSTONE 2: 10%, as above.
		40	SILTSTONE: as above.
		40	SANDSTONE: clear to translucent, fine to occasionally very coarse, poorly sorted, sub angular to sub rounded, common siliceous cement, weak pyrite cement, rare pyrite nodules, hard aggregates, common bit crushed rock flour, fair visual and inferred porosity. No fluorescence.
		Trace	VOLCANICS: as above.
2860	2865	10	CLAYSTONE 1: 5%, light grey to light greenish grey, silty in part, hard, blocky. CLAYSTONE 2: 5%, Trace, greyish orange pink to light brown, silty inpart, soft to firm, amorphous to sub blocky.
		10	SILTSTONE: pale brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, rare carbonaceous specks, firm to moderately hard, sub blocky.
		80	SANDSTONE: as above. No fluorescence.
2865	2870	30	COAL: brown black to black, earthy, silty grading to Carbonaceous Siltstone, moderately hard, blocky, angular, woody texture, trace quartz inclusions.
		5	CLAYSTONE: light grey to light greenish grey, silty in part, hard, blocky
		25	SILTSTONE: as above.
		40	SANDSTONE: as above. No fluorescence.
2870	2875	10	CLAYSTONE: as above.
		25	SILTSTONE: as above.

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Interval (m) From	To	%	Lithology / Show Description
		65	SANDSTONE: clear to translucent, coarse to very coarse, moderately well sorted, sub angular to dominantly sub rounded, common siliceous cement, weak pyrite cement, trace pyrite nodules, hard aggregates, common bit crushed rock flour, fair visual and inferred porosity. No fluorescence.
2875	2880	20	COAL: moderate brown to greyish brown, earthy, silty grading to Carbonaceous Siltstone, firm to moderately hard, blocky, uneven, woody texture, trace quartz inclusions.
		5	CLAYSTONE: as above.
		15	SILTSTONE: pale brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, trace carbonaceous specks, firm to moderately hard, sub blocky.
		60	SANDSTONE: clear to translucent, medium to very coarse, poorly sorted, sub angular to sub rounded, common siliceous cement, weak pyrite cement, rare pyrite nodules, hard aggregates, common bit crushed rock flour, poor visual and inferred porosity. No fluorescence.
2880	2885	50	COAL: moderate brown to greyish brown, earthy, silty grading to Carbonaceous Siltstone, firm to moderately hard, blocky, uneven, woody texture, trace quartz inclusions.
		5	CLAYSTONE: light grey to light greenish grey, silty in part, hard, blocky
		15	SILTSTONE: as above.
		30	SANDSTONE: as above. No fluorescence.
2885	2890	5	COAL: as above.
		5	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		85	SANDSTONE: as above. No fluorescence.
2890	2895	5	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		90	SANDSTONE: as above. No fluorescence.
2895	2900	5	CLAYSTONE: as above.
		10	SILTSTONE: pale brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, rare carbonaceous specks, firm to moderately hard, sub blocky.
		85	SANDSTONE: as above. No fluorescence.
2900	2905	5	CLAYSTONE: light grey to light greenish grey, silty in part, hard, blocky
		15	SILTSTONE: as above.
		75	SANDSTONE 1: 5%, translucent, greyish green to pale green, quartzite, fine to occasionally very coarse, angular to sub angular, common fractured quatzite grains metamorphosed with glauconite inclusions, hard aggregates, tight to very poor visible and inferred porosity. SANDSTONE 1: 70%, clear to translucent, coarse to very coarse, moderately well sorted, sub angular to sub rounded, common siliceous cement, moderate pyrite cement, common pyrite nodules, dominantly hard aggregates, common rock flour, poor visual and inferred porosity. No fluorescence.
		5	VOLCANICS: greyish green, greenish black, mottled, common basalt, occasional chlorite crystalline, hard.

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Interval (m) From	To	%	Lithology / Show Description
2905	2910	15	CLAYSTONE: as above.
		25	SILTSTONE: as above.
		60	SANDSTONE: as above.
			No fluorescence.
2910	2915	10	CLAYSTONE: as above.
		5	SILTSTONE: pale brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, rare carbonaceous specks, firm to moderately hard, sub blocky.
		85	SANDSTONE: clear to translucent, coarse to very coarse, moderately well sorted, sub angular to sub rounded, common siliceous cement, moderate pyrite cement, common pyrite nodules, dominantly hard aggregates, common rock flour, poor visual and inferred porosity.
			No fluorescence.
2915	2920	5	COAL: moderate brown to greyish brown, earthy, silty grading to Carbonaceous Siltstone, firm to moderately hard, blocky, uneven, woody texture, trace quartz inclusions.
		15	CLAYSTONE: light grey to light greenish grey, silty in part, hard, blocky
		20	SILTSTONE: as above.
		55	SANDSTONE 1: 5%, translucent, greyish green to pale green, quartzite, fine to occasionally very coarse, angular to sub angular, common fractured quatzite grains metamorphosed with glauconite inclusions, hard aggregates, tight to very poor visible and inferred porosity.
			SANDSTONE 1: 50%, clear to translucent, coarse to very coarse, moderately well sorted, sub angular to sub rounded, common siliceous cement, moderate pyrite cement, common pyrite nodules, dominantly hard aggregates, common rock flour, poor visual and inferred porosity.
			No fluorescence.
		5	VOLCANICS: greyish green, greenish black, mottled, common basalt, occasional chlorite crystalline, hard.
2920	2925	10	CLAYSTONE: as above.
		20	SILTSTONE: as above.
		70	SANDSTONE: as above.
			No fluorescence.
		Trace	VOLCANICS: as above.
2925	2930	10	CLAYSTONE: as above.
		15	SILTSTONE: pale brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, rare carbonaceous specks, firm to moderately hard, sub blocky.
		75	SANDSTONE: clear to translucent, medium to very coarse, dominantly coarse, moderately well sorted, sub angular to sub rounded, common siliceous cement, weak pyrite cement, trace pyrite nodules, hard aggregates, common rock flour, poor visual and inferred porosity.
			No fluorescence.
2930	2935	5	CLAYSTONE: as above.
		10	SILTSTONE: as above.
		85	SANDSTONE: as above.
			No fluorescence.
2935	2940	10	CLAYSTONE: light grey to light greenish grey, silty in part, hard, blocky
		15	SILTSTONE: as above.

Bream A14A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
		75	SANDSTONE: as above. No fluorescence.
2940	2945	25	COAL: moderate brown to greyish brown, earthy, silty grading to Carbonaceous Siltstone, firm to moderately hard, blocky, angular, woody texture.
		5	CLAYSTONE: as above.
		20	SILTSTONE: as above.
		50	SANDSTONE: as above. No fluorescence. **Top L2 SAND at 2948.0 mMDRT (2336.0 mTVDRT / -2303.2 TVDSS).**
2945	2950	25	SILTSTONE: as above.
		75	SANDSTONE: as above. No fluorescence.
2950	2955	5	COAL: as above.
		5	CLAYSTONE: as above.
		30	SILTSTONE: as above.
		60	SANDSTONE: as above. No fluorescence.
2955	2960	5	COAL: as above.
		5	CLAYSTONE: as above.
		30	SILTSTONE: pale brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, rare carbonaceous specks, firm to moderately hard, sub blocky.
		60	SANDSTONE: clear to translucent, medium to very coarse, dominantly medium to coarse, moderately well sorted, sub angular to sub rounded, common siliceous cement, weak pyrite cement, trace pyrite nodules, dominantly hard aggregates,minor loose, common rock flour, poor visual and inferred porosity. No fluorescence.
2960	2965	Trace	COAL: as above.
		10	CLAYSTONE: light grey to light greenish grey, silty in part, hard, blocky
		25	SILTSTONE: as above.
		65	SANDSTONE: as above. No fluorescence.
2965	2970	Trace	COAL: as above.
		10	CLAYSTONE: as above.
		25	SILTSTONE: pale brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, rare carbonaceous specks, firm to moderately hard, sub blocky.
		65	SANDSTONE: as above. No fluorescence.
2970	2975	70	COAL: moderate brown to greyish brown, brownish black, earthy, silty grading to Carbonaceous Siltstone, firm to moderately hard, blocky, angular, woody texture.
		10	SILTSTONE: as above.
		20	SANDSTONE: as above. No fluorescence.
2975	2980	20	COAL: as above.
		5	CLAYSTONE: light grey to light greenish grey, silty in part, hard, blocky
		25	SILTSTONE: as above.
		50	SANDSTONE: as above. No fluorescence.

Bream A14A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
2980	2985	5	COAL: as above.
		5	CLAYSTONE: as above.
		20	SILTSTONE: as above.
		70	SANDSTONE: as above.
			No fluorescence.
2985	2990	5	COAL: as above.
		5	CLAYSTONE: as above.
		10	SILTSTONE: pale brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, rare carbonaceous specks, firm to moderately hard, sub blocky.
		80	SANDSTONE: as above.
			No fluorescence.
2990	2995	Trace	COAL: as above.
		5	CLAYSTONE: as above.
		10	SILTSTONE: as above.
		85	SANDSTONE: clear to translucent, fine to coarse, dominantly medium, moderately well sorted, sub angular to sub rounded, common siliceous cement, weak pyrite cement, rare pyrite nodules, hard aggregates, minor loose, minor rock flour, fair visual and inferred porosity.
			No fluorescence.
			Midnight Depth 09 August 2005 = 2996.0 mMDRT (2379.0 mTVDRT).
2995	3000	Trace	COAL: as above.
		10	CLAYSTONE: light grey to light greenish grey, silty in part, hard, blocky
		5	SILTSTONE: as above.
		85	SANDSTONE: as above.
			No fluorescence.
3000	3005	Trace	COAL: as above.
		5	CLAYSTONE: as above.
		5	SILTSTONE: pale brown to greyish brown, very arenaceous grading to very fine Sandstone, common micromicaceous, rare carbonaceous specks, firm to moderately hard, sub blocky.
		90	SANDSTONE: as above.
			No fluorescence.
3005	3010	5	COAL: moderate brown to greyish brown, brownish black, earthy, silty grading to Carbonaceous Siltstone, firm to moderately hard, blocky, uneven, woody texture.
		5	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		85	SANDSTONE: clear to translucent, fine to coarse, dominantly medium, moderately well sorted, sub angular to sub rounded, common siliceous cement, weak pyrite cement, rare pyrite nodules, hard aggregates, minor loose, minor rock flour, fair visual and inferred porosity.
			No fluorescence.
3010	3015	5	COAL: as above.
		10	CLAYSTONE: light grey to light greenish grey, silty in part, hard, blocky
		25	SILTSTONE: light brown to moderate brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, firm to moderately hard, sub blocky.

Bream A14A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
		60	SANDSTONE: clear to translucent, fine to occasionally coarse, dominantly medium, moderately well sorted, sub angular to sub rounded, common siliceous cement, weak pyrite cement, rare pyrite nodules, hard aggregates, minor loose, minor rock flour, poor to fair visual and inferred porosity. No fluorescence.
3015	3020	10	CLAYSTONE: as above.
		30	SILTSTONE: as above.
		60	SANDSTONE: as above. No fluorescence.
3020	3025	Trace	COAL: as above.
		10	CLAYSTONE: as above.
		10	SILTSTONE: moderate brown to pale brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, firm to moderately hard, sub blocky to blocky.
		80	SANDSTONE: clear to translucent, fine to very coarse, dominantly medium to coarse, occasionally fractured quartz grains, moderately well sorted, sub angular to sub rounded, weak siliceous cement, weak pyrite cement, rare pyrite nodules, hard aggregates, minor loose, minor rock flour, poor to fair visual and inferred porosity. No fluorescence.
3025	3030	Trace	COAL: as above.
		15	CLAYSTONE: light grey to light greenish grey, silty, hard, blocky.
		20	SILTSTONE: as above.
		65	SANDSTONE: as above. No fluorescence.
3030	3035	5	COAL: black to brownish black, sub vitreous, brittle, blocky, uneven.
		15	CLAYSTONE: as above.
		30	SILTSTONE: moderate brown to pale brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, firm to moderately hard, sub blocky to blocky.
		50	SANDSTONE: as above, fine to very coarse, dominantly medium to coarse. No fluorescence.
3035	3040	Trace	COAL: as above.
		10	CLAYSTONE: as above.
		20	SILTSTONE: as above.
		70	SANDSTONE: as above, dominantly medium to coarse. No fluorescence.
3040	3045	Trace	COAL: as above.
		10	CLAYSTONE: as above.
		15	SILTSTONE: as above.
		75	SANDSTONE: as above, medium to occasionally very coarse, dominantly medium to coarse. No fluorescence.
3045	3050	Trace	COAL: as above.
		10	CLAYSTONE: light grey to light greenish grey, silty, hard, blocky.
		10	SILTSTONE: as above.
		80	SANDSTONE: as above. No fluorescence.
3050	3055	10	CLAYSTONE: as above.
		10	SILTSTONE: moderate brown to pale brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, firm to moderately hard, sub blocky to blocky.

Bream A14A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description
		80	SANDSTONE: clear to translucent, medium to occasionally very coarse, dominantly medium to coarse, moderately well sorted, sub angular to sub rounded, weak siliceous cement, weak pyrite cement, rare pyrite nodules, minor hard aggregates, minor rock flour, poor to fair visual and inferred porosity. No fluorescence.
3055	3060	10	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		85	SANDSTONE: as above. No fluorescence.
3060	3065	10	CLAYSTONE: as above.
		25	SILTSTONE: as above.
		65	SANDSTONE: as above. No fluorescence.
3065	3070	10	CLAYSTONE: as above.
		15	SILTSTONE: as above.
		75	SANDSTONE: clear to translucent, medium to occasionally very coarse, dominantly medium to coarse, moderately well sorted, sub angular to sub rounded, common fractured quartz grains, moderate siliceous cement, weak pyrite cement, rare pyrite nodules, hard aggregates, common rock flour, poor to fair visual and inferred porosity. No fluorescence.
3070	3075	5	CLAYSTONE: as above.
		5	SILTSTONE: as above.
		90	SANDSTONE: as above. No fluorescence.
3075	3079	10	CLAYSTONE: light grey to light greenish grey, silty, hard, blocky.
	TD	10	SILTSTONE: moderate brown to pale brown, very arenaceous grading to very fine Sandstone, trace micromicaceous, firm to moderately hard, sub blocky to blocky.
		80	SANDSTONE: clear to translucent, medium to occasionally very coarse, dominantly coarse, moderately well sorted, sub angular to sub rounded, common fractured quartz grains, moderate siliceous cement, weak pyrite cement, rare pyrite nodules, hard aggregates, common rock flour, poor to fair visual and inferred porosity. No fluorescence.

Bream A14A Lithology / Show Descriptions

Interval (m) From	To	%	Lithology / Show Description

BMA A14A reached a TD of 3079.0 mMDRT = 2456.9 mTVDRT (-2424.1 mTVDSS) at 09:00 hrs on 10 August 2005.

CBU. POOH to shoe, then to surface.

Wiper Trip from surface.

Start circulating at bottom at 1800 hrs 11 August 2005.

Trip gas 1710 units at 18:35 hrs, 11 August 2005.

Last circulation on bottom at 22:35 hrs, 11 August 2005.
Total circulating time on bottom = 4 hrs 35 minutes.

Start POOH at 22:35 hrs, 11 August 2005 for Reeves Wireline Logging Run #1.
Bit on Surface at 10:30 hrs 12 August 2005.

At 03:00 hrs, 13 August 2005, start Reeves Logging at Logging speed (0.1 metre/second) from 3059.1 mMDRT to 2084.7 mMDRT (minimum 80.0 mTVDRT above the Top of Latrobe at 2205.0 mMDRT (1688.0 mTVDRT)).

At 07:45 hrs, 13 August 2005, at Tripping speed from 2084.7 mMDRT to the Casing shoe at 1006.0 mMDRT.

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

APPENDIX 4a

BREAM A14A

Mud Log

MASTERLOG
BMA A14A

GENERAL
Country : AUSTRALIA
Permit : VIC L13
Field : Bream
Basin : GIPPSLAND
Well Type : DEVELOPMENT
Rig Name : NABORS 453

POSITION
GDA Co-ord X : 147 46 20.327 E
GDA Co-ord Y : 38 29 58.847 S
MGA Co-ord X : 567344.810mE
MGA Co-ord Y : 5738459.560mN
RT to MSL : 32.82 m
RT to Sea Bed : 92.22 m

HOLE / CASING INFO
8-1/2" Hole to 3079 m

10-3/4" Casing Shoe at 1006 m
7" Production Csg at 3076 m

DATE / DEPTH
Kick Off Date : 01-08-2005
Total Depth Date : 10-08-2005
Total Depth : 3079 m
True Vertical Depth : 2456.9 m
Log Scale : 1/ 500

ENGINEERS
V.B. Jagarlamudi
Paul McGilveray
Steve Oades
Mark Smith

ABBREVIATIONS

MW	Mud Weight	WOB	Weight on Bit (klbs)
FV	Funnel Viscosity	RPM	Rotations Per Min
PV	Plastic Viscosity	FLW	Flow Rate (gpm)
YP	Yield Point	SPP	Pump Pressure (psi)
Gel	Gel Strength	RR	Re-Run Bit
WL	Water Loss	TG	Trip Gas
KCl	Potassium Chloride	CG	Connection Gas
Cl	Chlorides	BG	Background Gas
Incl	Inclination	DGP	Drilled Gas Peak
Az	Azimuth	MM	Mud Motor

LITHOLOGY LEGEND
CLAYSTONE, MARL, BRYOZOA, CARB FRAGMENT
SILTSTONE, LIMESTONE, RADIOLARITES, QUARTZITE
SST: F - V FINE, DOLOMITE, ECHINOIDS, INTRUSIVES
SST: MEDIUM, CHERT, CORALS, GLAUCONITE
SST: COARSE, CONGLOMERATE, FORAMINIFERA, PYRITE
SHALE, COAL, LITHIC FRAGMENT, CEMENT

ENGINEERING LEGEND
CASING SHOE, WIRELINE LOGS
LINER HANGER, MDT POINTS:
BIT CHANGE, PRESSURE ONLY
DEVIA. SURVEY, SAMPLE
SWC UNRECOV, SEAL FAILURE
SIDEWALL CORE, TIGHT
CORE

ROP (m/hr) 500 50 5 .5
WOB (tons) 50 25 0
MWD Gamma Ray (api) 0 100 200
DEPTH (m) (TVD)
CUTTINGS LITHOLOGY % 0 100
RESERVAL GAS DATA
C1, C2, C3, iC4, nC4, iC5, nC5, TG
Total Gas in Units Chromatograph in PPM
.5 5 50 500 5K
100 1K 10K 100K 1000K
CUT FLUOR good fair poor
DIRECT FLUOR good fair poor
LITHOLOGICAL DESCRIPTIONS and REMARKS

970
980
990
1000
(834.8)
1010
1020

01-08-05
02-08-05

Tie in Survey:1005.0mMD (834.28mTVD)
47.36°inc 182.94°az

BIT #1, 8 1/2"
Smith S73VPX
Jets:6x20
In :970.0m
Out :2395.0m
Run :1425.0m
Hrs :55.3
Cond:1-1-WT-A-X-I-NO-FM

PREVIOUS WELL HISTORY
Plugged & Abandoned July,2005

10-3/4" Surface Csg 1006mMDRT

7" Casing cut and pulled from 1077mMDRT
Cement plug at 970mMDRT

Bream A14A kick-off at 20:00 hours on 01-08-2005 from 1006mMDRT.

PIT at 1006mMDRT 835mTVD
570 psi, 9.0 ppg, EMW:13.0 ppg

Drill with KCl/Glycol/PHPA mud system.

No H2S or CO2 Detected

MW: 8.75
FV: 57
PV: 10
YP: 25
Gel:9/12
WI: 5.6
pH: 9.5
Cl: 45k

WOB:5-10
TDRPM:50
MMRPM:148
SPP: 1210
FLW: 511

(849)
1030

Survey:1029.92mMD (851.8mTVD)
42.76°inc 177.75°az

CALCILUTITE:lt gy,lt olv gy,occ pl gy/bm,tr nod & dissem pyr,rr glauc,tr foss,sft-frm,mod hd i/p, sbblky.

1040

99 / 1 / Tr

(863.6)
1050

Survey:1051.91mMD (867.5mTVD)
42.6°inc 171.91°az

1060

(877.8)
1070

CALCILUTITE:lt gy,med-lt gy,occ lt gn/gy,sft,amor.

1080

Survey:1080.45mMD (888.3mTVD)
44.67°inc 168.59°az

(892.3)
1090

99 / 1 / Tr

CALCILUTITE:lt gy, lt olv gy, sft,sbblky-amor.

WOB: 5-10
TDRPM:50
MMRPM:170
SPP: 1960
FLW: 584

1100

(906.5)
1110

Survey:1109.32mMD (908.9mTVD)
45.42°inc 164.58°az

1120

(920.6)
1130

100 / Tr / Tr

Survey:1138.3mMD (929.2mTVD)
45.67°inc 159.74°az

CALCILUTITE:lt-med lt gy,com foram,rr pyr nod,sft-frm,amor-sbblky.

1140

(934.6)
1150

1160

Survey:1166.89mMD (949.1mTVD)
46.01°inc 155.2°az

(948.5)
1170

500 50 5 .5 .5 5 50 500 5K
100 1K 10K 100K 1000K

1180

99 / 1 / Tr

(962.5)
1190

WOB: 15-20
TDRPM:50
MMRPM:170
SPP: 1930
FLW: 586

CALCILUTITE:lt-med lt gy,com foram,rr pyr nod,sft-frm,amor-sbblky.

03-08-05

1200

Survey:1195.74mMD (969.3mTVD)
45.44°inc 149.44°az

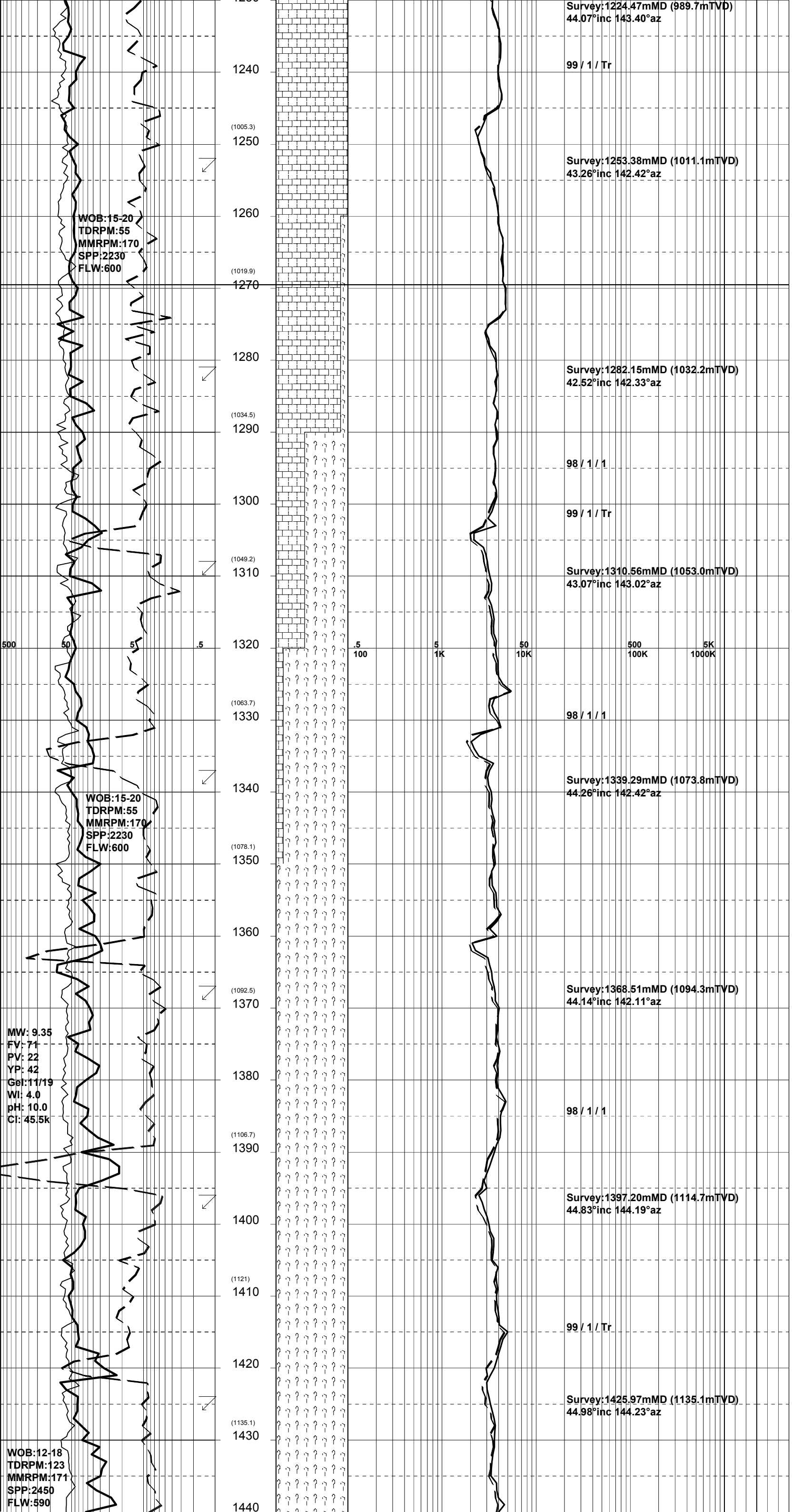
(976.6)
1210

MW: 9.15
FV: 85
PV: 22
YP: 44
Gel:11/25
WI: 4.0
pH: 11.1
Cl: 46k

1220

CALCILUTITE:lt-med lt gy,lt gy, mnr olv gy,bn/gy i/p,tr-rr pyr, tr foss,rr vf glauc,frm-sft,blky-sbblky.

(990.8)
1230


1240
(1005.3)
1250
1260
(1019.9)
1270
1280
(1034.5)
1290
1300
(1049.2)
1310
1320
(1063.7)
1330
1340
1350
1360
(1092.5)
1370
1380
(1106.7)
1390
1400
(1121)
1410
1420
(1135.1)
1430
1440
500
50
5
.5
.5
100
5
1K
50
10K
500
100K
5K
1000K
WOB:15-20
TDRPM:55
MMRPM:170
SPP:2230
FLW:600
WOB:15-20
TDRPM:55
MMRPM:170
SPP:2230
FLW:600
MW: 9.35
FV: 71
PV: 22
YP: 42
Gel:11/19
WI: 4.0
pH: 10.0
Cl: 45.5k
WOB:12-18
TDRPM:123
MMRPM:171
SPP:2450
FLW:590
Survey:1224.47mMD (989.7mTVD)
44.07°inc 143.40°az
99 / 1 / Tr
Survey:1253.38mMD (1011.1mTVD)
43.26°inc 142.42°az
Survey:1282.15mMD (1032.2mTVD)
42.52°inc 142.33°az
98 / 1 / 1
99 / 1 / Tr
Survey:1310.56mMD (1053.0mTVD)
43.07°inc 143.02°az
Survey:1339.29mMD (1073.8mTVD)
44.26°inc 142.42°az
Survey:1368.51mMD (1094.3mTVD)
44.14°inc 142.11°az
98 / 1 / 1
Survey:1397.20mMD (1114.7mTVD)
44.83°inc 144.19°az
99 / 1 / Tr
Survey:1425.97mMD (1135.1mTVD)
44.98°inc 144.23°az
CALCILUTITE:lt-med lt gy,lt gy, mnr olv gy,bn/gy i/p,tr-rr pyr, tr foss,rr vf glauc,frm-sft,blky-sbblky.
Top of Lakes Entrance
1269.5mMDRT 1022.4mTVDRT
(-989.6mTVDSS)
CALCILUTITE:lt-med lt gy,lt gy, mnr olv gy,bn/gy i/p,tr-rr pyr, tr foss,rr vf glauc,frm-sft,blky-sbblky.
CALCAREOUS CLAYSTONE:med lt gy-med gy,mod calc,frm-occ mod hd,sbblky-blky.
CALCAREOUS CLAYSTONE:med lt gy,med gy,mod calc,frm-occ mod hd, sbblky-blky.
CALCAREOUS CLAYSTONE:med gy, occ med lt gy,slty i/p,mod calc,rr foram,frm-occ mod hd,sbblky-blky.
CALCAREOUS CLAYSTONE:med gy, occ med lt gy,slty i/p,mod calc,tr foram,rr ooid,frm-occ mod hd, sbblky-blky.

CALCAREOUS CLAYSTONE:med gy, occ med lt gy,slty i/p,mod calc,tr foram,rr ooid,frm-occ mod hd, sbblky-blky.

CALCAREOUS CLAYSTONE:med gy, occ med lt gy,slty i/p,mod calc,tr foram,rr ooid,frm-occ mod hd, sbblky-blky.

CALCAREOUS CLAYSTONE:med gy, occ med lt gy,slty i/p,mod calc,tr foram,rr ooid,frm-occ mod hd, sbblky-blky.

CALCAREOUS CLAYSTONE:med gy, occ med lt gy,slty i/p,mod calc,tr foram,rr ooid,frm-occ mod hd, sbblky-blky.

1660

(1305.7)
1670

1680

(1319.9)
1690

1700

(1334)
1710

WOB:15-25
TDRPM:120
MMRPM:174
SPP: 2737
FLW: 598

1720

(1348.1)
1730

04-08-05

MW: 9.73
FV: 72
PV: 25
YP: 42
Gel:10/20
WI: 3.5
pH: 9.4
Cl: 45k

(1362.1)
1740

1750

500 50 5 .5

1760

(1376.1)
1770

1780

(1390.2)
1790

1800

(1404.3)
1810

1820

WOB:11-20
TDRPM:120
MMRPM:175
SPP: 3060
FLW: 600

(1418.3)
1830

1840

(1432.3)
1850

1860

.5 5 50 500 5K
100 1K 10K 100K 1000K

Survey:1655.64mMD (1298.4mTVD)
45.17°inc 140.98°az

Survey:1684.30mMD (1318.7mTVD)
44.75°inc 141.08°az

Survey:1713.06mMD (1339.0mTVD)
45.26°inc 141.14°az

99 / 1 / Tr

Survey:1741.44mMD (1358.9mTVD)
45.84°inc 141.03°az

Survey:1769.98mMD (1378.9mTVD)
45.13°inc 141.10°az

99 / 1 / Tr

Survey:1799.28mMD (1399.5mTVD)
45.39°inc 141.40°az

99 / 1 / Tr

Survey:1828.01mMD (1419.7mTVD)
45.40°inc 141.48°az

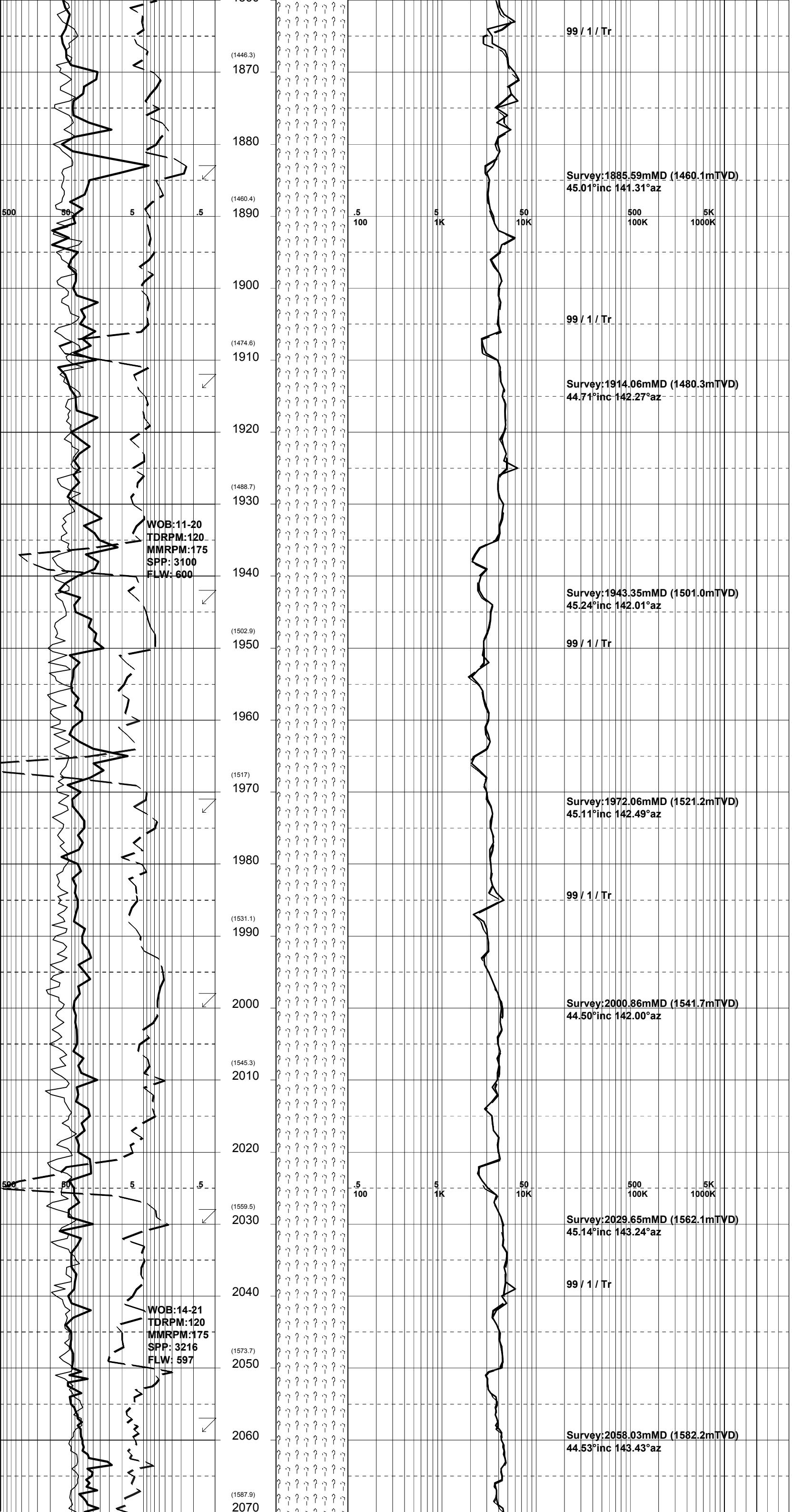
Survey:1856.46mMD (1439.6mTVD)
45.71°inc 141.53°az

CALCAREOUS CLAYSTONE:med gy, occ med lt gy,slty i/p,mod calc,tr foram,rr ooid,frm-occ mod hd, sbblky-blky.

CALCAREOUS CLAYSTONE:med gy, med dk gy,occ lt olv gy,slty, mod calc,tr diss pyr,tr foram, tr ooid,frm-mod hd,sbblky-blky.

CALCAREOUS CLAYSTONE:med gy, med dk gy,occ lt olv gy,slty, mod calc,tr diss pyr,tr foram, tr ooid,frm-mod hd,sbblky-blky.

CALCAREOUS CLAYSTONE:med gy, med dk gy,occ lt olv gy,slty,mod clac, tr diss pyr,tr foram,tr ooid,frm-



mod hd,sbblky-blky.

CALCAREOUS CLAYSTONE:med gy,med dk gy,occ lt olv gy,slty i/p, mod calc,tr diss pyr,tr ooid,rr glauc,frm-mod hd,sbblky-blky.

CALCAREOUS CLAYSTONE:med gy,med dk gy,occ lt olv gy,com pyr nod,tr diss pyr,tr ooid,rr glauc, frm-mod hd,sbblky-blky.

CALCAREOUS CLAYSTONE:lt olv gy,med gy,occ lt olv gy,tr diss pyr, tr ooid,frm-mod hd,sbblky-blky.

CALCAREOUS CLAYSTONE:lt olv gy,med gy,occ lt olv gy,tr diss pyr, tr ooid,frm-mod hd,sbblky-blky.

2080

(1602.1)

2090

2100

(1616.3)

2110

2120

(1630.6)

2130

2140

(1644.8)

2150

2160

(1659.3)

2170

2180

(1673.9)

2190

2200

(1688.8)

2210

2220

(1704)

2230

2240

(1719.5)

2250

2260

(1735.2)

2270

2280

500 50 5 .5

.5 5 50 500 5K
100 1K 10K 100K 1000K

WOB:15-21
TDRPM:120
MMRPM:175
SPP: 3243
FLW: 600

05-08-05

MW: 9.80
FV: 70
PV: 25
YP: 43
Gel:10/20
WI: 3.2
pH: 8.9
Cl: 45k

WOB:15-21
TDRPM:120
MMRPM:170
SPP: 3192
FLW: 585

Survey:2086.87mMD (1602.7mTVD)
44.76°inc 143.21°az

99 / 1 / Tr

Survey:2116.15mMD (1623.5mTVD)
44.77°inc 143.06°az

Survey:2144.19mMD (1643.5mTVD)
44.20°inc 143.04°az

Survey:2173.44mMD (1664.6mTVD)
43.39°inc 145.02°az

97 / 2 / 1 / Tr

Survey:2201.31mMD (1685.3mTVD)
41.23°inc 148.37°az

97 / 2 / 1 / Tr

96 / 3 / 1 / Tr

Survey:2230.50mMD (1707.5mTVD)
39.70°inc 149.84°az

98 / 2 / Tr

Survey:2258.57mMD (1729.3mTVD)
38.38°inc 153.43°az

CALCAREOUS CLAYSTONE:lt olv gy,med gy,occ lt olv gy,tr diss pyr, tr ooid,frm-mod hd,sbblky-blky.

CARBIDE Lag Check @ 2165m
Theor: 7212 strokes
Act: 7700 strokes
Hole 6.7% Overgauge

CALCAREOUS CLAYSTONE:lt olv gy,med gy,occ lt olv gy,tr diss pyr, tr ooid,frm-mod hd,sbblky-blky.

Top of Latrobe
2172.0mMDRT 1663.6mTVDRT
(-1630.8 mTVDSS)

CALCAREOUS CLAYSTONE:lt bn gy,lt olv gy,slty i/p,mod calc, tr diss pyr,tr ooid,frm-mod hd sbblky-blky.

SANDSTONE:trnsl,dom lt gn,vf-f mod wl srt,sa-sr,abdt glauc mtx, abdt vf glauc,com sil cmt,hd agg ti-v pr vis por,no fluor.

SILTSTONE:lt bn-dk yel org,v aren g/t vf SST,tr micmic,mod hd-hd,sbblky-blky.

SANDSTONE:trnsl,dom lt gn,vf-f mod wl srt,sa-sr,abdt glauc mtx, abdt vf glauc,com sil cmt,hd agg ti-v pr vis por,tr min fluor.

CLAYSTONE:lt bn-pl yel org,non calc,sft-frm,amor,sbblky.

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

SANDSTONE:trnsl,lt gn,occ mod org pnk,vf-f,occ v crs,mod wl srt, sa-sr,mod sil cmt,dom glauc mtx & pellets,hd agg,ti- v pr vis por, tr min fluor.

CLAYSTONE:lt bn-pl yel org,non

74 / 13 / 4 / 6 / 3

Survey:2287.66mMD (1752.4mTVD)
36.21°inc 158.00°az

77 / 7 / 7 / 6 / 3

85 / 6 / 4 / 3 / 2

Survey:2317.11mMD (1776.5mTVD)
33.85°inc 163.58°az

75 / 8 / 8 / 6 / 3

73 / 8 / 8 / 7 / 4

Survey:2345.91mMD (1800.9mTVD)
30.65°inc 174.25°az

73 / 7 / 7 / 9 / 4

73 / 7 / 7 / 10 / 3

Survey:2371.19mMD (1822.8mTVD)
29.56°inc 183.12°az

77 / 8 / 7 / 5 / 3

BIT #2, 8 1/2"
Hycalog RSX163CGW
Jets:6x20
In :2395m
Out :3079m
Run :684m
Hrs :59.4
Cond:1-3-WT-A-X-1/16-CT-TD

TG: 125 u

Survey:2401.98mMD (1849.8mTVD)
27.88°inc 188.74°az

84 / 7 / 5 / 3 / 1

86 / 7 / 4 / 2 / 1

87 / 7 / 4 / 2 / Tr

84 / 8 / 5 / 2 / 1

Survey:2431.04mMD (1875.5mTVD)
27.95°inc 192.07°az

81 / 9 / 6 / 3 / 1

82 / 8 / 6 / 3 / 1

Survey:2459.71mMD (1900.8mTVD)
27.61°inc 194.37°az

85 / 8 / 4 / 2 / 1

83 / 9 / 5 / 2 / 1

81 / 9 / 6 / 3 / 1

Survey:2488.24mMD (1926.4mTVD)
27.52°inc 194.87°az

WOB:15-21
TDRPM:120
MMRPM:170
SPP: 3252
FLW: 585

MW: 10.05
FV: 80
PV: 29
YP: 45
Gel:12/26
WI: 3.0
pH: 8.9
Cl: 44.5k

07-08-05

WOB:3-20
TDRPM:60
MMRPM:165
SPP: 3321
FLW: 595

MW: 10.1
FV: 95
PV: 29
YP: 44
Gel:12/25
WI: 3.0
pH: 8.9
Cl: 44.5k

500 50 5 .5

.5 5 50 500 5K
100 1K 10K 100K 1000K

(1751.1) 2290
(1767.4) 2310
(1784.1) 2330
(1801) 2350
(1818.3) 2370
(1835.8) 2390
(1853.4) 2410
(1871) 2430
(1888.7) 2450
(1906.4) 2470
(1924.2) 2490
2300 2320 2340 2360 2380 2400 2420 2440 2460 2480

CLAYSTONE:(1)lt bn-pl yel org, slty i/p,non calc,sft-frm,amor-sbblky.
CLAYSTONE:(2)lt gy-lt blu gy,non calc,slty i/p,hd,com rock flour.

SILTSTONE:gy bn-dk yel bn,occ pl bn,v aren g/t vf SST,com micmic,tr glauc,rr dissem pyr,frm-mod hd, sbblky-blky.
SANDSTONE:clr-trnsl,wh-lt gn,rr mod org pnk,vf-f,occ v crs,pr srt,sa-sr, com glauc mtx & pellets,mod pyr cmt, com nod pyr,hd agg,v pr vis por,no fluor.
VOLCANICS:gy bn-bn blk,weathrd xln,com chlor,hd.

SILTSTONE:gy bn-dk yel bn,occ pl bn,v aren g/t vf SST,com micmic,tr glauc,rr dissem pyr,frm-mod hd, sbblky-blky.

Top of Coarse Clastics
2403.4mMDRT 1851.1mTVDRT
(-1818.3mTVDSS)

SANDSTONE:(1)clr-trnsl,wh-lt gn,rr org pnk,vf-f,occ v crs,pr srt,sa-sr, com glauc mtx & pellets,mod pyr cmt, nod pyr,hd agg,v pr vis por,no fluor.
SANDSTONE:(2)clr-trnsl,crs-v crs, mod wl srt,sa-sr,wk pyr cmt,dom lse, fr inf & vis por,no fluor.
CLAYSTONE:lt gy-lt blu gy,non calc,slty i/p,hd,com rock flour.
SILTSTONE:gy bn-dk yel bn,occ pl bn,v aren g/t vf SST,com micmic,tr glauc,rr dissem pyr,frm-mod hd, sbblky-blky.
SANDSTONE:clr-trnsl,crs-v crs,wl srt, sa-dom sr,wk pyr cmt,rr pyr nod,dom lse,cln,fr-gd inf & vis por,fluor.

FLUOR:2415-2420m Tr pnpt mod bri gn-yel fluor,no dir cut,v slw diff c/c,thn pl yel res rng.

	mMDRT	mTVDRT	mTVDSS
CbF1	2432.1	1876.4	-1843.6
CbSb	2438.9	1882.5	-1849.7
PkF1	2452.6	1894.5	-1861.7
MvSb	2473.9	1913.4	-1880.6

SANDSTONE:clr-trnsl,v crs-dom crs, mod wl srt,sa-sr,wk pyr cmt,wk glauc cmt,com nod pyr,dom lse,gen cln,fr-gd inf por,tr fluor.

FLUOR:2440-2445m,Tr pnpt mod bri gn-yel fluor,no dir cut,v slw diff c/c,thn dll blu yel rng res.

CLAYSTONE:lt gy-lt blu gy,slty i/p,non calc,hd,blky.
VOLCANICS:gy bn-bn blk,xln, weathered,tr chlorite,hd.
SANDSTONE:clr-trnsl,rr lt bn gy,crs-v crs,mod wl srt,sa-sr,wk pyr cmt,tr nod pyr,dom lse,gen cln,fr-gd inf por, no fluor.

COAL:blk,sbvit,brit,sbfiss,ang,com pyr & sil lam.

SILTSTONE:pl yel bn-lt bn,v aren g/t vf SST,tr micmic,rr glauc,frm-mod hd,sbblky.
SANDSTONE:clr-trnsl,occ med-dom v crs,mod wl srt,sa-dom sr,wk pyr cmt,rr nod pyr,cln,lse,fr-gd inf por, no fluor.

CySb
2491.3mMDRT 1928.8mTVDRT
(-1896.0mTVDSS)

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

SILTSTONE:mod yel bn-pl bn,aren i/p,com micmic,sft-frm,amor-sbblky.

COAL:blk,sbvit,brit,sbfiss,ang,tr pyr lam.

78 / 11 / 7 / 3 / 1

80 / 10 / 6 / 3 / 1

2500

P.asperopolus Coal
2505.0mMDRT 1941.0mTVDRT
(-1908.2 mTVDSS)

(1941.9)

2510

COAL:bn blk-blk,sbvit,mod hd,blky unevn,wdy tex,com qtz incl,slty i/p g/t CARB SLTST.

78 / 11 / 7 / 3 / 1

WOB:5-20
TDRPM:122
MMRPM:172
SPP: 3395
FLW: 595

Survey:2516.66mMD (1951.4mTVD)
27.26°inc 195.20°az

CLAYSTONE:gy org pnk,lt bn,non calc,sft-frm,amor.

2520

72 / 12 / 12 / 3 / 1

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

(1959.7)

2530

VOLCANICS:gy bn-bn blk,weathrd xln,com chlor,hd.

71 / 13 / 9 / 5 / 2

SILTSTONE:mod yel bn-pl bn,aren i/p,com micmic,sft-frm,amor-sbblky.

75 / 13 / 8 / 3 / 1

2540

COAL:blk,sbvit,brit,blky,ang ang,tr qtz incl.

Survey:2544.64mMD (1976.3mTVD)
27.14°inc 193.50°az

CLAYSTONE:(1)lt gy-lt blu gy, slty i/p,non calc,hd,blky.
CLAYSTONE:(2)gy org pnk,lt bn, non calc,sft-frm,amor.

68 / 12 / 10 / 8 / 2

(1977.5)

2550

82 / 12 / 4 / 1 / 1

Volcanics
2560.0mMDRT 1989.9mTVDRT
(-1957.1mTVDSS)

2560

64 / 13 / 12 / 7 / 4

VOLCANICS:bn-blk,med dk gy-dk gy,xln,hd,dom basalt,tr chlor, com rock flour (bit crushed).

MW: 10.0
FV: 60
PV: 27
YP: 39
Gel:10/22
WI: 3.0
pH: 8.9
Cl: 45.5k

(1995.3)

2570

SANDSTONE:clr-trnsl,crs-dom v crs,mod wl srt,sa-sr,occ fract qtz grns,mod pyr cmt,tr pyr nod,com hd agg,occ lse,pr inf & vis por, no fluor.

66 / 11 / 10 / 8 / 5

Survey:2573.20mMD (2001.7mTVD)
27.03°inc 192.95°az

WOB:15-20
TDRPM:120
MMRPM:175
SPP: 3242
FLW: 604

2580

08-08-05

VOLCANICS:gy/gn,gy,mttld,chlor i/p xln,dom basalt,hd,com bit crushed rock flour.

(2013.1)

2590

500 50 5 .5 | .5 5 50 500 5K | 100 1K 10K 100K 1000K

76 / 9 / 7 / 5 / 3

2600

Survey:2602.67mMD (2027.9mTVD)
27.36°inc 192.33°az

VOLCANICS:gy/gn,gy,mttld,chlor i/p xln,dom basalt,hd,com bit crushed rock flour.

(2030.9)

2610

2620

VOLCANICS:gy/gn,gy,mttld,chlor i/p xln,dom basalt,hd,com bit crushed rock flour.

(2048.6)

2630

Survey:2631.19mMD (2053.2mTVD)
27.47°inc 193.05°az

MW: 10.0
FV: 60
PV: 27
YP: 39
Gel:10/22
WI: 3.0
pH: 8.9
Cl: 45.5k

2640

SANDSTONE:clr-trnsl,mod gnsh yell, vf-occ med,dom f,sa-sr,abdt wh-lt gy sil cmt,hd agg,ti-v pr vis por,no fluor.

(2066.4)

2650

78 / 8 / 6 / 4 / 4

VOLCANICS:gy/gn,gy,mttld,chlor i/p xln,dom basalt,hd,com bit crushed rock flour.

78 / 8 / 6 / 4 / 4

2660

COAL:blk,sbvit,brit,blky,ang ang,tr qtz incl.

80 / 8 / 5 / 4 / 3

Survey:2659.59mMD (2078.4mTVD)
27.14°inc 193.77°az

CLAYSTONE:(1)lt gy,gn gy,slty i/p,hd,blky.
CLAYSTONE:(2)gy org pnk-lt bn gy slty i/p,sft-frm,amor-sbblky.

WOB:5-21
TDRPM:120
MMRPM:174
SPP: 3390
FLW: 595

(2084.2)

2670

80 / 14 / 4 / 1 / 1

SILTSTONE:lt bn,dk gy,aren i/p, com micmic,com carb spk,sft-frm amor-sbblky,com rock flour.

2680

82 / 10 / 5 / 2 / 1

SANDSTONE:(1)trnsl,wh-pl gn,qtzite f-occ v crs,ang-sa,com fract grn5s, metamorph w/ glauc incl,hd agg,ti-v pr vis & inf por,no fluor.
SANDSTONE:(2)clr-trnsl,occ med-dom crs,mod wl srt,sa-sr,wk pyr cmt,rr pyr nod,dom lse,gen cln, fr inf & vis por,no fluor.

(2101.9)

2690

Survey:2688.14mMD (2103.9mTVD)
27.17°inc 193.98°az

SILTSTONE:mod bn-gy bn,v aren g/t vf SST,com micmic,frm-mod hd,sbblky.

2700

85 / 10 / 3 / 2

COAL:mod bn dsky bn,ea slty

WOB:15-20
TDRPM:120
MMRPM:167
SPP: 3263
FLW: 589

MW: 10.0
FV: 69
PV: 27
YP: 41
Gel:11/21
WL: 3.0
pH: 9.0
Cl: 45k

500 50 5 .5

09-08-05

WOB:15-20
TDRPM:120
MMRPM:167
SPP: 3163
FLW: 592

WOB:15-22
TDRPM:120
MMRPM:172
SPP: 3280
FLW: 589

WOB: 20
TDRPM:115
MMRPM:170
SPP: 3304
FLW: 592

(2119.7)
2710
2720
(2137.5)
2730
2740
(2155.2)
2750
2760
(2172.9)
2770
2780
(2190.7)
2790
2800
(2208.4)
2810
2820
(2226.2)
2830
2840
(2244)
2850
2860
(2261.8)
2870
2880
(2279.8)
2890
2900
(2297.8)
2910

.5 5 50 500 5K
100 1K 10K 100K 1000K

86 / 10 / 3 / 1

88 / 9 / 2 / 1

Survey:2716.45mMD (2129.0mTVD)
27.56°inc 193.47°az

80 / 11 / 5 / 3 / 1

Survey:2745.48mMD (2154.7mTVD)
27.81°inc 192.90°az

84 / 10 / 4 / 2 / Tr

87 / 8 / 3 / 2 / Tr

Survey:2774.02mMD (2180.0mTVD)
26.99°inc 193.26°az

84 / 8 / 6 / 2 / Tr

81 / 10 / 7 / 2 / Tr

84 / 8 / 4 / 3 / 1

Survey:2803.23mMD (2206.0mTVD)
27.69°inc 193.40°az

78 / 9 / 7 / 4 / 2

Survey:2831.87mMD (2231.4mTVD)
27.41°inc 192.87°az

82 / 9 / 6 / 3 / 1

80 / 11 / 6 / 2 / 1

Survey:2860.78mMD (2257.1mTVD)
26.60°inc 192.87°az

80 / 11 / 6 / 2 / 1

Survey:2889.41mMD (2282.8mTVD)
25.64°inc 192.82°az

75 / 10 / 8 / 5 / 2

COAL:mod bn,dsky bn,ea,slty g/t CARB SLTST,mod hd,blky,ang wdy tex.

SANDSTONE:(1)trnsl,gy/gn-pl gn, qtzite,f-occ v crs,ang-sa,com fract grns,metamorph w/ glauc incl,hd agg,ti por,no fluor.
SANDSTONE:(2)clr-trnsl,dom med-occ v crs,mod wl srt,sa-sr,wk pyr cmt, rr pyr nod,dom lse,gen cln,fr inf por, no fluor.

COAL:blk,sbvit,brit,blky,ang.

CLAYSTONE:(1)lt gy,lt gn gy, slty i/p,hd,blky.
CLAYSTONE:(2)pl bn-gy org pnk, slty i/p,sft-frm,amor-sbblky.

SILTSTONE:mod bn-gy bn,v aren g/t vf SST,com micmic,frm-mod hd,sbblky.

COAL:blk,sbvit,brit,blky,ang.

SANDSTONE:clr,trsl,opq,med-v crs,sa-ang,occ fract grn,tr qtz ov/gth,hd,gen cln,lse,fr inf por,no fluor.

F Coal Section
2751.4mMDRT 2159.9mTVDRT (-2127.1mTVDSS)

COAL:mod bn,dsky bn,ea,slty g/t CARB SLTST,mod hd,blky,ang wdy tex.
SANDSTONE:(1)trnsl,gy/gn-pl gn, qtzite,f-occ v crs,ang-sa,com fract grn,metamorph w/ glauc incl,hd agg,ti por,no fluor.
SANDSTONE:(2)clr-trnsl,dom med-occ v crs,mod wl srt,sa-sr,wk pyr cmt, rr pyr nod,dom lse,gen cln,fr inf por, no fluor.
CLAYSTONE:(1)lt gy,lt gn gy, slty i/p,hd,blky.
CLAYSTONE:(2)gy org pnk-lt bn slty,sft-frm,amor-sbblky.
COAL:mod bn,dsky bn,ea,slty g/t CARB SLTST,mod hd,blky,ang wdy tex.
SILTSTONE:mod bn-gy bn,v aren g/t vf SST,com micmic,frm-mod hd,sbblky.
SANDSTONE:clr-trnsl,med-v crs,pr srt,sa-ang,mnr gran frac qtz,gen cln,fr-gd inf & vis por,no fluor.

SILTSTONE:pl bn-gy bn,v aren g/t vf SST,com micmic,tr carb spk,frm-mod hd,sbblky.

COAL:mod bn,dsky bn,ea,slty g/t CARB SLTST,mod hd,blky,ang wdy tex.

M-5 Sand
2812.7mMDRT 2214.4mTVDRT (-2181.6mTVDSS)

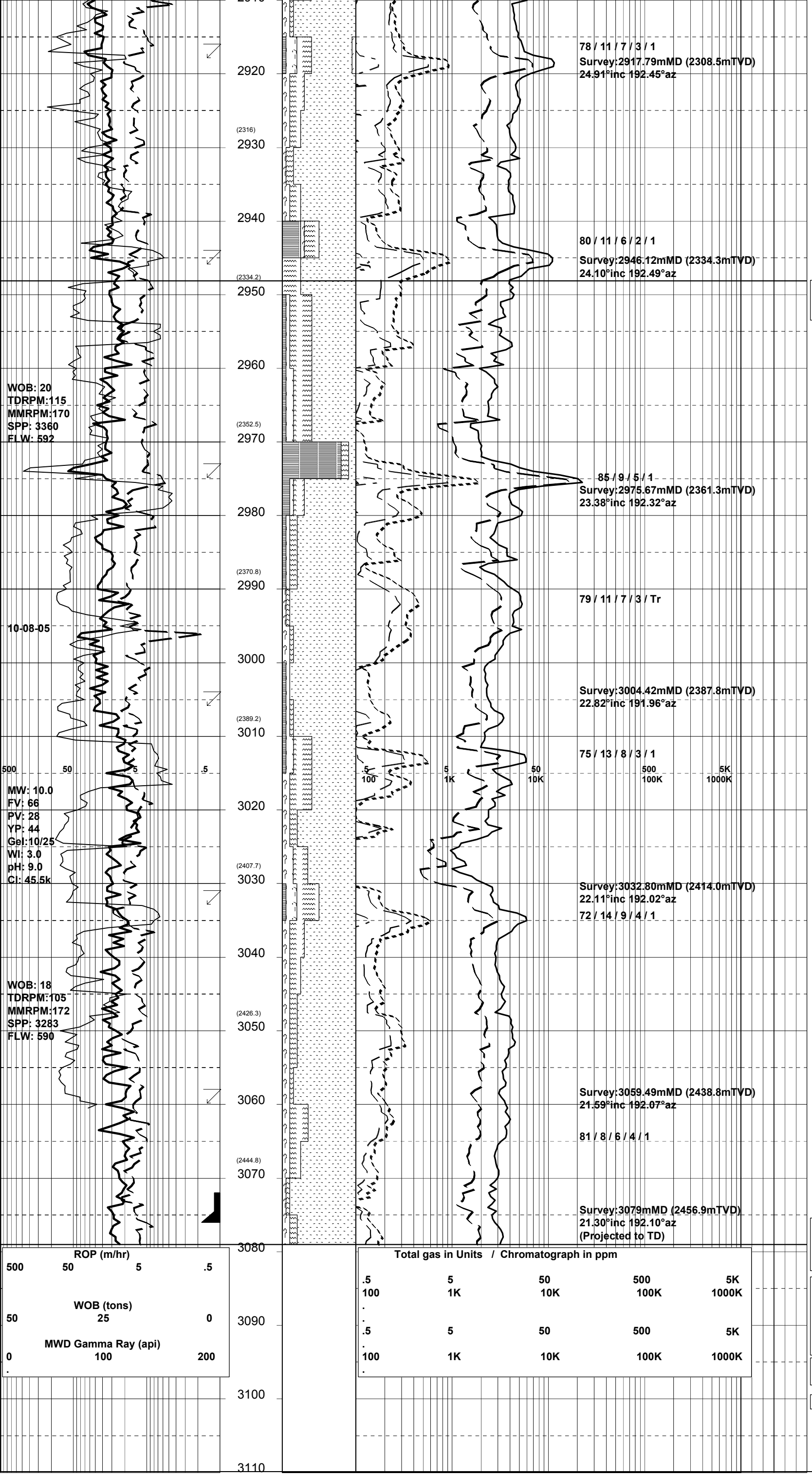
SANDSTONE:clr-trnsl,med-occ v crs,dom med,mod wl srt,sa-sr,com sil cmt,dom hd agg,pr-v pr inf & vis por,no fluor.

SANDSTONE:clr-trnsl,med-occ v crs,dom crs,mod wl srt,sa-sr,tr sil cmt,rr pyr nod,dom lse,gen cln,fr inf & vis por,no fluor.
CLAYSTONE:(1)lt gy,lt gn gy, slty i/p,hd,blky.
CLAYSTONE:(2)gy org pnk-lt bn slty,sft-frm,amor-sbblky.
COAL:bn blk-blk,ea,slty g/t CARB SLTST,mod hd,blky,ang, wdy tex,tr qtz incl.
VOLCANICS:gy gn-gn,mttld,com basalt,chlor i/p,xln,hd,blky, com rock flour.
SANDSTONE:(1)trnsl,gy-gn,pl gn qtzite,crs-v crs,mod wl srt,ang -sa,com fract qtz grn,metamorph w/ glauc incl,hd agg,ti por,no fluor.

M-6 Sand
2851.9mMDRT 2249.2mTVDRT (-2216.4mTVDSS)

SILTSTONE:pl bn-gy bn,v aren g/t vf SST,com micmic,rr carb spk,frm-mod hd,sbblky.
SANDSTONE:clr-trnsl,f-occ v crs,poor srt,sa-sr,com sil cmt wk pyr cmt,rr pyr nod,hd agg, com bit crushed rock flour,pr inf por,no fluor.
COAL:bn blk-blk,ea,slty g/t CARB SLTST,mod hd,blky,ang, wdy tex,tr qtz incl.
CLAYSTONE:lt gy,lt gn gy, slty i/p,hd,blky.
SANDSTONE:clr-trnsl,crs-v crs, mod wl srt,sa-dom sr,com sil cmt wk pyr cmt,rr pyr nod,hd agg, com bit crushed rock flour,fr inf por,no fluor.
COAL:mod bn-gy bn,ea,slty g/t CARB SLTST,frm-mod hd,blky,unevn, wdy tex.
SANDSTONE:clr-trnsl,med-v crs pr srt,sa-sr,com sil cmt,wk pyr cmt,rr pyr nod,hd agg,pr inf & vis por,no fluor.
SILTSTONE:pl bn-gy bn,v aren g/t vf SST,com micmic,tr carb spk,frm-mod hd,sbblky.

SANDSTONE:(1)5% trnsl,gy/gn-pl gn, qtzite,f-occ v crs,ang-sa,com fract grn,metamorph w/ glauc incl,hd agg,ti por,no fluor.



SANDSTONE:(2)70% clr-trnsl,dom med-v crs,mod wl srt,sa-sr,wk pyr cmt, rr pyr nod,dom lse,gen cln,fr inf por, no fluor.

CLAYSTONE:lt gy,lt gn gy, slty i/p,hd,blky.

SILTSTONE:pl bn-gy bn,v aren g/t vf SST,com micmic,tr carb spk,frm-mod hd,sbblky.

SANDSTONE:clr-trnsl,med-v crs, dom crs,mod wl srt,sa-sr,com sil cmt,wk pyr cmt,tr pyr nod,hd agg, com rock flour.pr inf por,pr vis por, no fluor.

CLAYSTONE:lt gy,lt gn gy, slty i/p,hd,blky.

SILTSTONE:pl bn-gy bn,v aren g/t vf SST,com micmic,tr carb spk,frm-mod hd,sbblky.

COAL:mod bn-gy bn,ea,slty g/t CARB SLTST,frm-mod hd,blky,unevn, wdy tex.

L-2 Sand
2948.1mMDRT 2336.1mTVDRT (-2303.3mTVDSS)

SILTSTONE:pl bn-gy bn,v aren g/t vf SST,com micmic,tr carb spk,frm-mod hd,sbblky.

SANDSTONE:clr-trnsl,med-v crs, dom crs,mod wl srt,sa-sr,com sil cmt,wk pyr cmt,tr pyr nod,hd agg, com rock flour.pr inf por,pr vis por, no fluor.

COAL:mod bn-gy bn,ea,slty g/t CARB SLTST,frm-mod hd,blky, unevn,wdy tex.

SILTSTONE:pl bn-gy bn,v aren g/t vf SST,com micmic,tr carb spk,frm-mod hd,sbblky.

CLAYSTONE:lt gy,lt gn gy, slty i/p,hd,blky.

SANDSTONE:clr-trnsl,f-crs,dom med, mod wl srt,com sil cmt,tr wh rock flour,uncons i/p,mnr hd agg,rr pyr cmt,fr inf por,fr vis por,no fluor.

SILTSTONE:pl bn-gy bn,v aren g/t vf SST,com micmic,tr carb spks,frm-mod hd,sbblky.

COAL:mod bn-gy bn,ea,slty g/t CARB SLTST,frm-mod hd,blky, unevn,wdy tex.

CLAYSTONE:lt gy,lt gn gy, slty i/p,hd,blky.

SANDSTONE:clr-trnsl,f-v crs,dom med-crs,mod wl srt,sa-sr,occ fract qtz grn,wk sil cmt,wk pyr cmt, rr pyr nod,mnr rock flour,pr-fr inf por,pr-fr vis por,no fluor.
CLAYSTONE:lt gy,lt gn gy, slty i/p,hd,blky.

COAL:blk,bn-blk,sbvit,brit, blky,unevn fract.

SANDSTONE:clr-trnsl,med-occ v crs med-crs,mod wl srt,sa-sr,wk sil cmt,wk pyr cmt,rr pyr nod,mnr hd agg,pr-fr inf & vis por,no fluor.

CLAYSTONE:lt gy,gn gy,slty hd,blky.

SILTSTONE:mod bn-pl bn,v aren g/t vf SST,tr micmic,tr carb spks,frm-mod hd,sbblky.

SANDSTONE:clr-trnsl,med-occ v crs dom med-crs,mod wl srt,sa-sr,com fract qtz grn,mod sil cmt,wk pyr cmt,tr pyr nod,hd agg,com rock flour,pr-fr inf & vis por,no fluor.

Bream A14A Total Depth of 3079mMDRT 2456.9mTVDRT (-2424.1mTVDSS) at 09:00 hours on the 10-08-2005.

Run Precision Energy Services compact shuttle logging from 3059m to 989mMDRT. Unable to run below 3062m 17m above original T.D Run:MCG-MDN-MPD-MDL-MSS-MAI

Conduct wiper trips before and after logging.

7" Shoe at 3076mMDRT

APPENDIX 4b

BREAM A14A

Well Completion Log

ESSO AUSTRALIA RESOURCES PTY LTD.

WELL COMPLETION LOG
Scale – 1:200
BREAM A-14A

Gippsland Basin, Victoria
Concession: VIC/L13

POST-DRILL LOCATION:	Latitude:	38º 30' 36.618" S	**COMPILED BY:**	Sheryl Sazenis
	Longitude:	147º 46' 39.881" E		
Top of Latrobe	MGA X:	567808.62 mE	**DRAFTED BY:**	Andrew Hodgson
	MGA Y:	5737291.33 mN		
	Depth	2205.0m MDRT 1688.1m TVDRT (-1655.3mTVDSS)	**DRILLED BY:**	Nabors Rig 453
			Datum:	GDA94 (GRS80)
ELEVATION:	G.L.:	-59.40 m	**Projection:**	MGA/ UTM Zone 55 (S)
	R.T.:	32.82 m above MSL		
	Water Depth:	59.40 m	**TOTAL DEPTH:**	3079.0 mMDRT / 2456.9 mTVDRT
DATES:	Spudded:	01/08/2005	**PLUGGED BACK T.D.:**	3034.9m MDRT
	Rig Released:	19/08/2005		
	I.P. Established:	To be put on production ~April 2006	**CLASSIFICATION:**	Gas and Oil Development
			STATUS:	Cased and Completed Awaiting perforations.

SERVICE COMPANIES:

DRILLING CONTRACTOR:	International Sea Drilling Ltd (Nabors Rig 453)	PRODUCTION TESTING:	n/a
MWD/DIRECT. DRLG:	Schlumberger Anadrill	DIVERS:	n/a
GYRO SURVEYING:	SDI	MUD LOGGING:	Geoservices Overseas S.A.
CORING:	n/a	PRESSURE RECORDING:	n/a
PIPE CONVEYED LOGGING:	Precision(Reeves Compact Shuttle Logging System)	WELL VELOCITY SURVEY:	n/a
CEMENTING:	Halliburton	MUD ENGINEERING:	Halliburton- Baroid
CASING:	Weatherford	LINER:	n/a

LEGEND

2.7m NOS
Ø = 17%
Sw = 32%

No Rec.
CORE
Rec.

PERFORATED INTERVAL

PLUG

SST RECOVERED SIDE WALL CORE LITHOLOGY
SST - Sandstone CLST - Claystone
SLST - Siltstone LMST - Limestone
MST - Mudstone ML - Marl
SH - Shale 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

LOG ANALYSIS DATA
NS - Net Sand
NOS - Net Oil Sand
NGS - Net Gas Sand
Sw - Water Saturation

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

SHOW OR STAIN

HYDROCARBON CUT

FLUORESCENCE

GAS SHOW

OIL PRODUCTIVE

GAS PRODUCTIVE

INTERPRETED OIL PRODUCTION

INTERPRETED GAS PRODUCTION

INTERPRETED WATER PRODUCTION

WATER PRODUCTIVE

CONDENSATE PRODUCTION

INTEPRETED CONDENSATE BEARING

DSTG DST WITH GAS RECOVERED

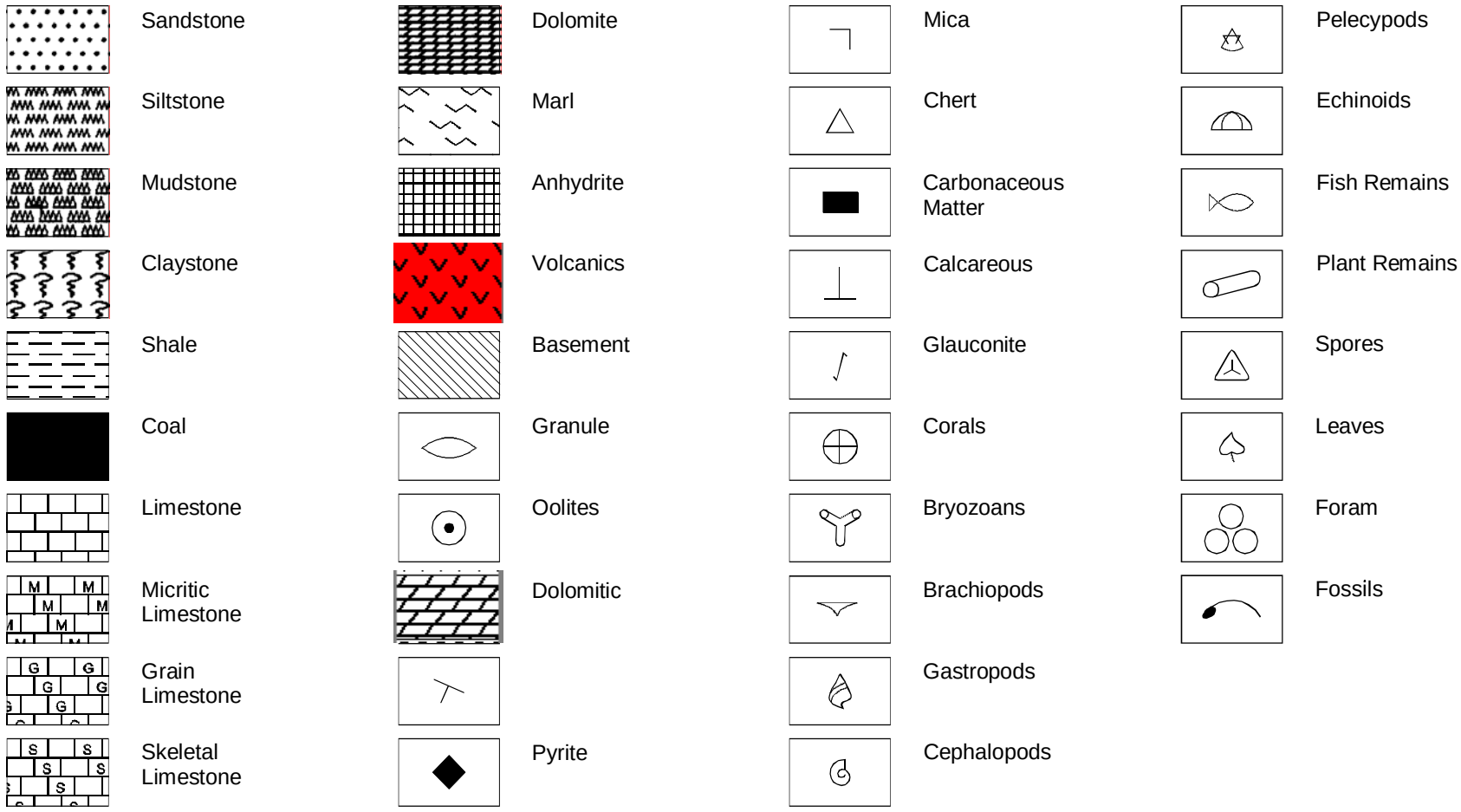
DSTO DST WITH OIL RECOVERED

SURVEY POINT

13-3/8" CASING SHOE

MUD

LITHOLOGICAL SYMBOLS



LOGGING AND SURVEYING

Anadrill Schlumberger	Interval (mMDRT)	Reeves (wireline tools drillpipe conveyed,memory)	Interval (mMDRT)
MWD (Directional & GR) – 2 Runs	1005.0 mMDRT - 3059.49mMDRT	MCG-MDN-MPD-MSS-MDL -1 Run (GR-Dual Neutron-Photo Density-Sonic-Dual Laterolog)	3059.0 mMDRT - 1006 mMDRT

Date	01 August 2005 - 06 August 2005	06 August 2005 - 11 August 2005	12 August 2005 - 13 August 2005	
Run	MWD # 1	MWD # 2	Wireline Run #1 on shuttle	
Log	Powerpulse Directional & GR	Powerpulse Directional & GR	MCG-MDN-MPD-MSS-MDL	
Depth Driller	2395.0 mMDRT	3079.0 mMDRT	3062.0 mMDRT	
Depth Logger	2395.0 mMDRT	3079.0 mMDRT	3062.0 mMDRT	
Bottom Log Interval	2395.0 mMDRT	3059.49 mMDRT	3059.0 mMDRT	
Top Log Interval	1005.0 mMDRT	2395.0 mMDRT	1006.0 mMDRT	
Casing Driller	1006.0 mMDRT	1006.0 mMDRT	1006.0 mMDRT	
Casing Logger	1006.0 mMDRT	1006.0 mMDRT	1006.0 mMDRT	
Casing Size	10 3/4"	10 3/4"	10 3/4"	
Casing Weight	40.5 ppf	40.5 ppf	40.5 ppf	
Bit Size	8.5"	8.5"	8.5"	
Type of Fluid in Hole	KCl/PHPA/GLYCOL	KCl/PHPA/GLYCOL	KCl/PHPA/GLYCOL	
Density	10.05 ppg	10.05 ppg	10.20 ppg	
Rm @ Measured Temp.	N/A	N/A	0.156	
Rmf @ Measured Temp.	N/A	N/A	0.098	
Rmc @ Measured Temp.	N/A	N/A	0.277	
Max. Recorded Temp.	75.0°C	89.0°C	104.8°C	
Equipment / Location	Sale	Sale	Sale	
Recorded By	R.Borjas / L.Johnston	R.Borjas / L.Johnston	G.McManus / B. Goodwin	
Witnessed By	Trevor Lobo	Trevor Lobo	Trevor Lobo	

CORES

From (mMDRT)	To (mMDRT)	Rec %
----	----	---

PERFORATIONS

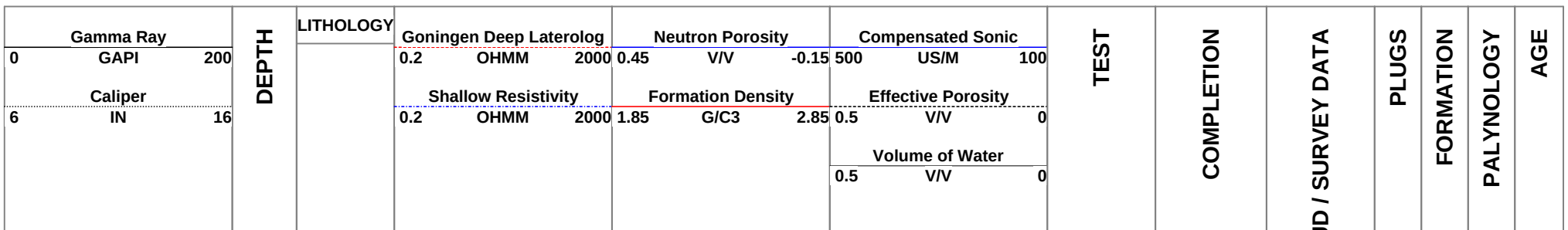
From (mMDRT)	To (mMDRT)	Shots/ft
Not perforated yet		

CASING

Size	Set @ (mMDRT)	Sx Cmt	Formation
10.75"	1006.1	---	Gippsland Limestone
7”	3074.5	602	Latrobe Group

PLUGS

From (mMDRT)	To (mMDRT)	Sx Cmt
3076	3034.9	PBTD casing collars.



2150

2125
(-1597.0)

2100
(-1579.2)

mMDRT
(mTVDSS)
2075

10.75"
1006.1m

2144.2
ANG 44
DIR 143
(-1610.7)

MU

LAKES ENTRANCE FM

OLIGOCENE - MIOCENE

(-1614.9)

2152
MW **9.8**
FV **70sec/qt**
PV **25cP**
YP **43**
pH **8.9**
KCl **28**

2175
(-1633.0)

2173.4
ANG 43
DIR 145
(-1631.9)

2200
(-1651.5)

Top Latrobe Group 2205.0mMDRT
(-1655.3mTVDSS)

2225
(-1670.5)

2250
(-1689.8)

2275
(-1709.5)

2300
(-1729.7)

2230.5
ANG 40
DIR 150
(-1674.7)

2325
(-1750.4)

2350
(-1771.6)

2375
(-1793.3)

2317.1
ANG 34
DIR 164
(-1743.7)

2374
MW **10**
FV **80sec/qt**
PV **29cP**
YP **45**
pH **8.9**
KCl **28**

2400
(-1815.2)

Top of Coarse Clastics (TCC)
2403.3mMDRT
(-1818.2mTVDSS)

Base of Waste (BWST)
2412.5mMDRT
(-1826.3m TVDSS)

NewGnF2
2412.9mMDRT
(-1826.6mTVDSS)

Gas Bearing
26.3 MD Net
23.2 TVD Net
∅ = 16 %
Sw= 26 %

NewGnsb
2416.7mMDRT
(-1830.0mTVDSS)

2418
MW 10.1
FV 95sec/qt
PV 29cP
YP 44
pH 8.9
KCl 28

2425
(-1837.3)

NewCbF2
2427.4mMDRT
(-1839.4mTVDSS)

NewCbf1
2432.0mMDRT
(-1843.5mTVDSS)

NewCbsb
2439.1mMDRT
(-1849.8mTVDSS)

FLUOR: 2440-2445m, Tr pnpt mod bri gn-yel fluor, no dir cut, v slw diff c/c, thn dll blu yel rng res.

NewPkf2
2443.9mMDRT
(-1854.0mTVDSS)

Gas Bearing
6.9 MD Net
6.1 TVD Net
∅ = 18 %
Sw= 21 %

2450
(-1859.4)

NewPkf1
2452.6mMDRT
(-1861.7mTVDSS)

Gas Bearing
21.5 MD Net
19.0 TVD Net
∅ = 20 %
Sw= 12 %

NewPksb
2457.0mMDRT
(-1865.6mTVDSS)

NewMvF2
2462.8mMDRT
(-1870.7mTVDSS)

2459.7
ANG 28
DIR 194
(-1868.0)

2475
(-1881.6)

NewMvsb
2473.6mMDRT
(-1880.3mTVDSS)

NewCyF1
2483.3mMDRT
(-1888.9mTVDSS)

Gas Bearing
4.2 MD Net
3.7 TVD Net
∅ = 15 %
Sw= 25 %

NewCySB
2491.3mMDRT
(-1896.0mTVDSS)

2500
(-1903.6)

P_coal
2502.8mMDRT
(-1906.2mTVDSS)

Gas Bearing
2.3 MD Net
2.0 TVD Net
∅ = 17 %
Sw= 39 %

TPCL
2510.6mMDRT
(-1913.2mTVDSS)

Water Bearing
∅ = 17 %
Sw=96 %

2525
(-1926.0)

Water Bearing
∅ = 17 %
Sw=10 %

2544.6
ANG 27
DIR 194
(-1943.4)

2550

(-1948.2)

P_Volcanic
2560.4mMDRT
(-1957.5mTVDSS)

2567
MW 10
FV 60sec/qt
PV 27cP
YP 39
pH 8.9
KCl 28

EOCENE

2575
(-1970.5)

2600
(-1992.7)

2625
(-2014.9)

FLUOR: 2630-2640 m, Tr dll ptchy pa gn yel-wh fluor, no dir cut, v slw diff yel c/cut, mod thk yel rng res.

2631.2
ANG 27
DIR 193
(-2020.4)

2636
MW **10**
FV **60sec/qt**
PV **27cP**
YP **39**
pH **8.9**
KCl **28**

LATROBE GROUP

2650
(-2037.1)

2675
(-2059.3)

2700
(-2081.6)

2716.5
ANG 28
DIR 193
(-2096.2)

2727
MW **10**
FV **69sec/qt**
PV **27cP**
YP **41**
pH **9**
KCl **25**

2725
(-2103.8)

2750
(-2125.9)

F_coal
2750.2mMDRT
(-2126.1mTVDSS)

2775
(-2148.1)

2800
(-2170.3)

Coal_mkr_1
2800.4mMDRT
(-2170.6mTVDSS)

Water Bearing
∅ = 15 %
Sw=97 %

2803.2
ANG 28
DIR 193
(-2173.2)

2825
(-2192.5)

Coal_mkr_2
2831.1mMDRT
(-2197.9mTVDSS)

2850
(-2214.7)

Top M-5 Sand
2812.7mMDRT
(-2181.6mTVDSS)

Top M-6 Sand
2851.7mMDRT
(-2216.3mTVDSS)

Water Bearing
∅ = 15 %
Sw=96 %

Base M-6 Sand
2866.4mMDRT
(-2229.4mTVDSS)

Water Bearing

∅ = 13 %
Sw=91 %

2875
(-2237.1)

Coal_mkr_3
2878.3mMDRT
(-2240.1mTVDSS)

Water Bearing
∅ = 14 %
Sw=99 %

2900
(-2259.6)

2925
(-2282.3)

Coal_mkr_4
2942.9mMDRT
(-2298.5mTVDSS)

Top L2-1 Sand
2948.0mMDRT
(-2303.2mTVDSS)

2950

2946.1
ANG 24

(-2305.0)

Top L2-2 Sand
2956.7mMDRT
(-2311.1mTVDSS)

2975
(-2327.9)

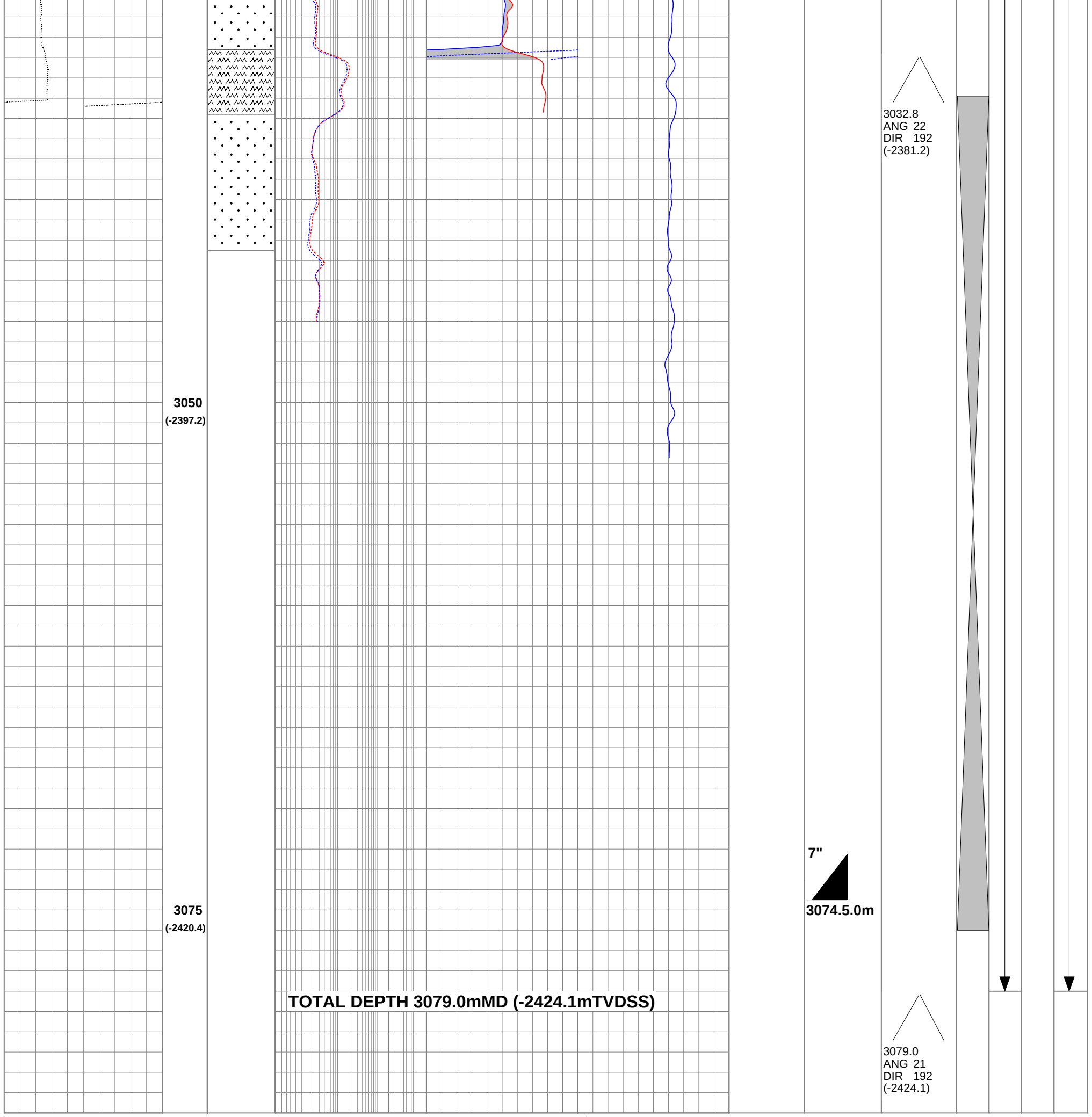
3000
(-2350.9)

3025
(-2374.0)

DIR 192
(-2334.3)

3017
MW **10**
FV **66sec/qt**
PV **28cP**
YP **44**
pH **9**
KCl **26**

PALEOCENE



GRGC	Gamma Ray
DSLL	Shallow Laterolog
DGLL	Groningen Deep Laterlog
DEN	Compensated Density
NPRL	Limestone Neutron Porosity
DT35	Compensated Sonic
PHIE	Effective Porosity

Bream A14A
To be put on production
Approx, April 2006 as N-1 gas/oil producer.