

WELL COMPLETION REPORT
FORTESCUE A9B
GIPPSLAND BASIN, VICTORIA

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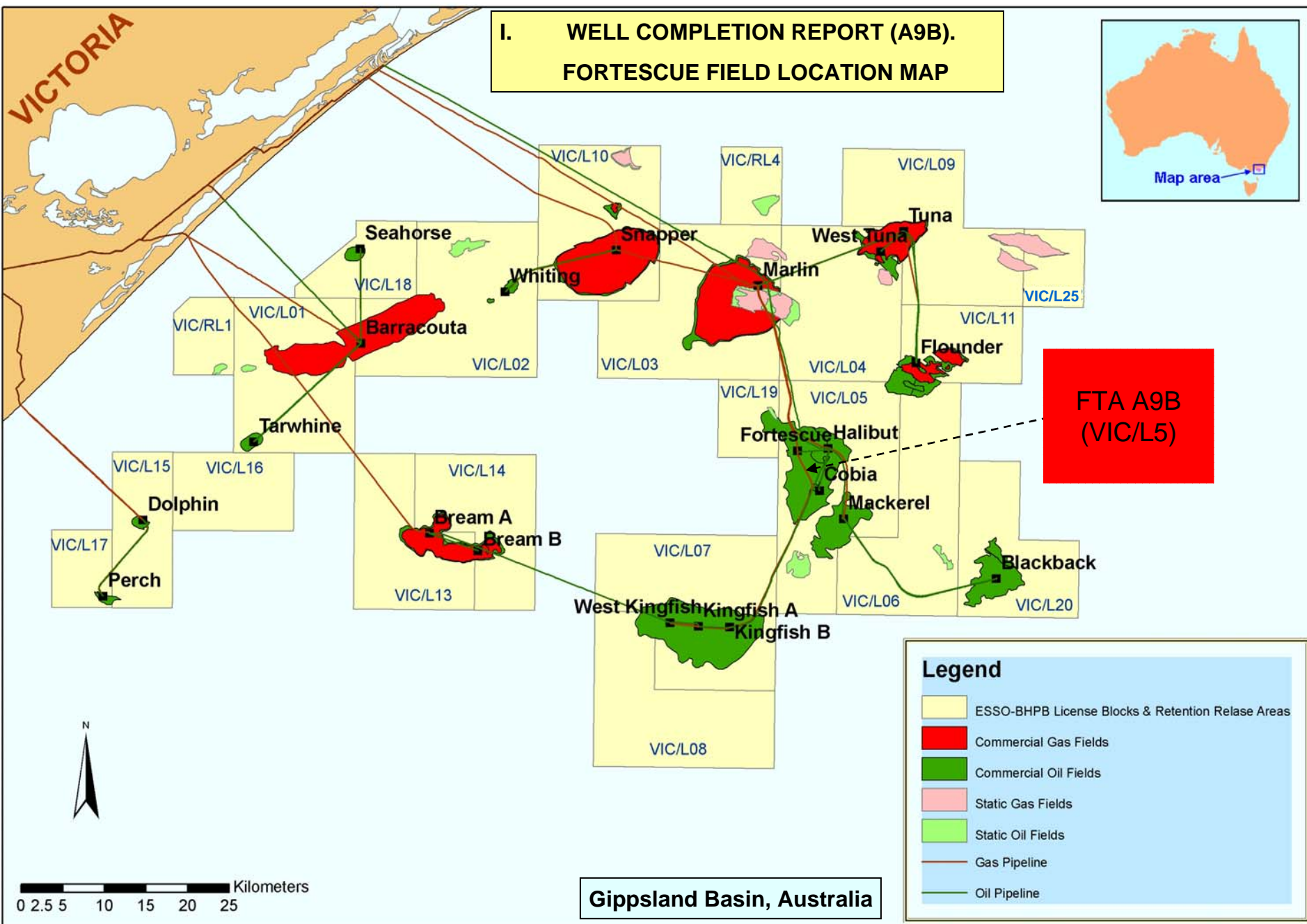


FIGURE 1

II. WELL DATA RECORD (FTA A9B)
TOP COARSE CLASTICS DEPTH MAP

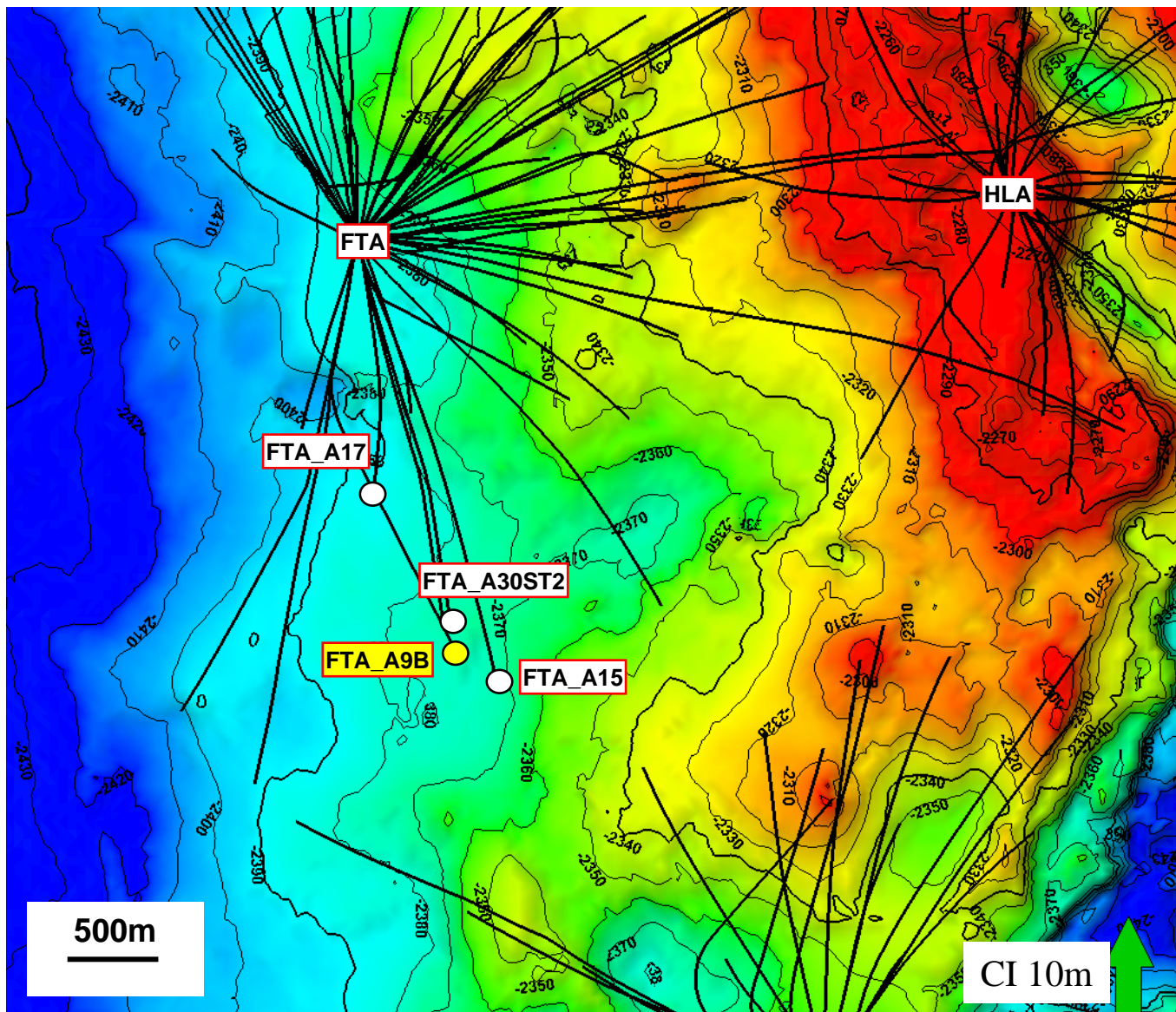


FIGURE 2

II. WELL DATA RECORD (FTA A9B) CROSS-SECTION

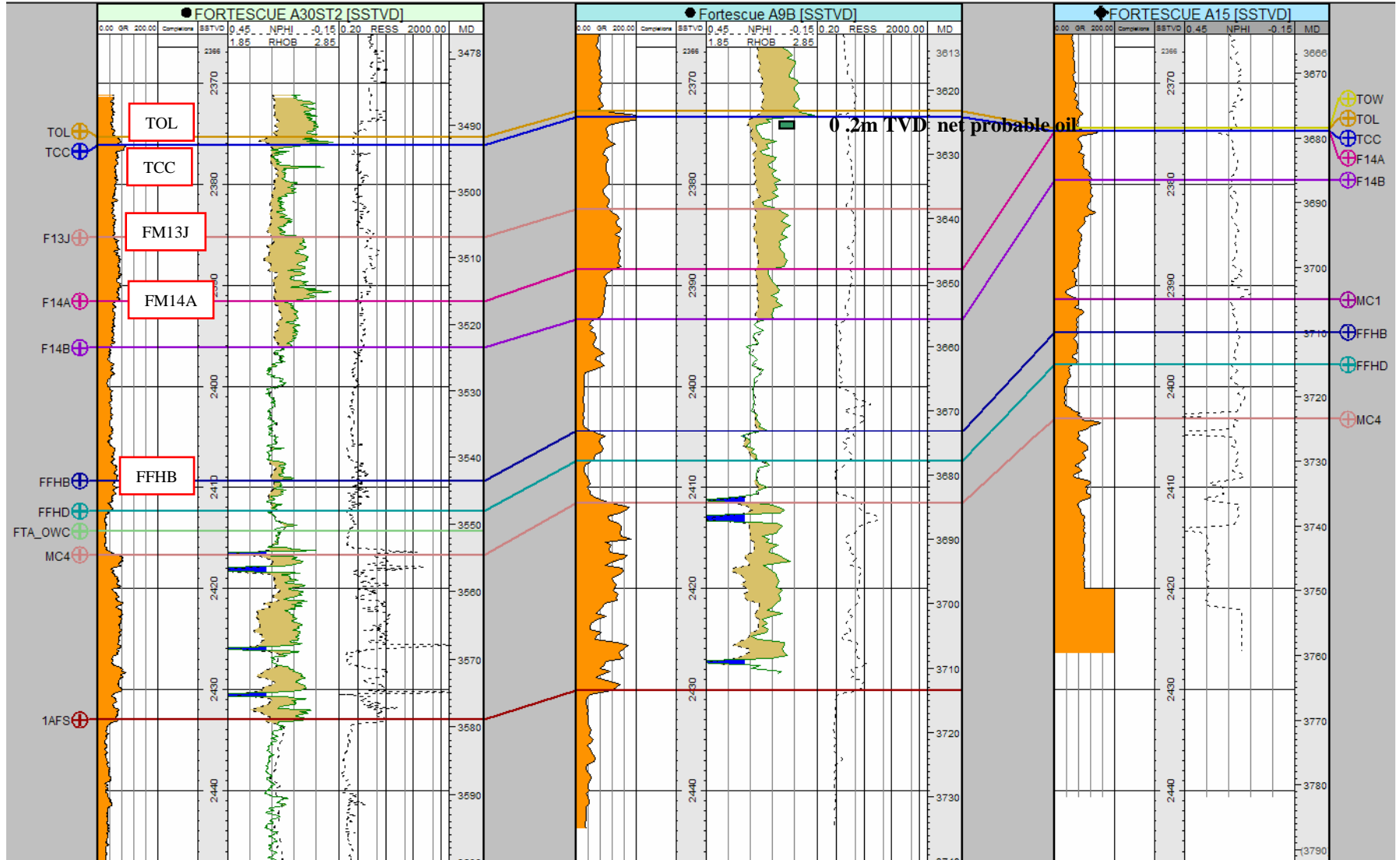


FIGURE 3

II. WELL DATA RECORD –FTA A9B (cont'd)

LOCATION

Field	Fortescue	Conductor #9 Surface Coordinates	
Well Name	FTA A9B (Predrill Loc F)	(MGA94) X	611590.350 mE
Conductor Number	Slot 9	(MGA94) Y	5748242.360 mN
State	Victoria	Latitude	38° 24' 25.534" S
Permit/Licence	Vic/L5	Longitude	148° 16' 41.061" E
Geological Basin	Gippsland	Perforations (driller)	3623.0 – 3626.5m MDRT
Top of Latrobe	3623.5m MDRT		2,415.1– 2,417.3m TVDRT
	2415.4m TVDRT		(2372.6 – 2374.8m TVDSS)
	-2372.9m TVDSS		
(MGA94) X	612150.88 mE	Datum	GDA94(Geocentric Datum of Australia)
(MGA94) Y	5745895.37 mN	Spheroid	GRS80(Geodetic Ref. System 1980)
Latitude	38° 25' 41.408" S	Projection	UTM (Universal Transverse Mercator)
Longitude	148° 17' 5.516" E	Map Grid / Zone	MGA Zone 55
		Central Meridian	147 deg E

ELEVATIONS & DEPTHS

Water Depth	69.0m
Main Deck Rel to MSL	25.88m
RT Relative to MSL	42.49m
Average Well Angle	50.5 deg in Latrobe
Total Depth	3746.0m MDRT
	2493.3m TVDRT
	-2450.8mTVDSS
Plug Back Depth	3712.6m MDRT

DATES

Skid Rig	15/08/2007
Spudded Well	18/08/2007
Development Rig Days	17.67
NPT Days	.52
Rig Released	02/09/2007
I.P. Established	17/09/2007

MISCELLANEOUS

Operator	Esso Australia Pty Ltd	Contractor	International Sea Drilling Ltd
Esso Interest	50%	Rig Name	Nabors Rig 175
Licensee	Esso / BHPBilliton	Equipment Type	Platform
Other JV Interest	50% (BHPB)	Completion Type	Selective Single oil
Overriding Royalty	2.5% (Weeks)	Completion Size	3-1/2"
Drilling AFE No.	L0501H008		

WELL CLASSIFICATION

Before Drilling	Oil Development	After Drilling	Cased & Completed - Oil well
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II. WELL DATA RECORD –FTA A9B (cont.)

CASING RECORD

Type	Size (inches)	Weight (lb/ft)	Grade	Thread	Depth (m MDRT)
Surface	10 ³ / ₄ "	40.5	K55	BTC	1389.0
Production	7"	26.0	L80	VAM TOP HC	3738.5
Tubing	3½"	9.3	13 CR-80	VAM ACE	3608.6

CEMENTING RECORD

Casing details	Cement Type	Dry Cement Volume (sacks)	Cement Additives	Mix Water (bbls)	Slurry Volume (bbls)	Slurry Density (ppg)	Cement to/from (mMDRT)	Casing Pressure Test (psi)
7" 26 lb/ft	CLAS S G (TAIL)	140	Gascon 469 10 gal / 10 bbl HALAD 413L 30 gal / 10 bbl NF-6 0.5 gal / 10 bbl CFR-3L 3 gal / 10 bbl SCR-100L 2 gal / 10 bbl	17.3	29.2	15.8	3738.5 to 3450.0	3000

II. WELL DATA RECORD (cont.)

FORTESCUE A9B FINAL WELL REPORT

GENERAL

Platform:	Fortescue	Rig:	175	Reservoir:	FM 13J, F 14a/b, FF HB & HD
Well:	A9b	Well Slot:	9	RT-MSL (Rig175)	42.49
Drilling Complexity Index	4.4	Wellwork Complexity Index	2.3		

DEPTH		PERFORMANCE		MUD	
m MDRT	3,746	20" Cond. Hole	N/A	Max Wt (ppg)	10.90 (1.31 gm/cc)
m TVDRT	2,493.6	12 ¹ / ₄ " Inter. Hole	N/A	Type (Surf. Hole)	N/A
Vert. Section (m)	2,504.9	8 ¹ / ₂ " Prod. Hole	392.1 m/day **	Type (Inter. Hole)	N/A
INCLINATION		6" Liner Hole	N/A	Type (Prod. Hole)	Accolade
Max (deg) / Ave (deg)	58.9 (tangent) / 50.5 avg in Latrobe	** time to drill new hole interval from spud to TD, incl connections & NPT.	(excl. completion)	Type (Liner Hole)	N/A

**Comments: 1,276 to TD 3,746 mMDRT = 2,470 mMDRT 8¹/₂" new hole drilled, in 6.3 days.

TIME ANALYSIS

Start Drillwell Opns Date:	15/08/07 1400	Finish Date (Rig Release):	02/09/07 0600	Kick Off (spud) Reach TD	18/08/07, 1700 25/08/07, 0030
Target Days (P10):	24.19	Total Days:	17.67	% Under Target:	27% (under)
AFE Days (P50):	28.84	NPT Days:	0.52	% of Total Days:	3%
Supplementary AFE Days (P50):	-				

COSTS (based on projected)

AFE No.:	L0501H008	Revisions:	0	\$ per m:	A\$ 2.6 k/metre (new hole)
\$ per day:	A\$ 365 k/day				A\$ 1.72 k/metre* * based on TD not new hole

	Equipment	Materials	Contracts	Allocations	Contingency	Total
AFE (Original)	1,028,000	1,171,150	5,930,554	2,407,835	275,353	A\$10,812,892
AFE (Supplement)	-	-	-	-	-	-
Projected (estim)	959,383	482,648	3,921,468	1,093,006	-	A\$6,456,505

CASING (all depths herein are based on Rig 175 elevations: RT-MSL= 42.49m)

	Size / Weight / Grade / Thread	m MDRT	m TVDRT	PIT (ppg)
Conductor Casing *	20", 94 ppf, K-55, BTC	190	190	N/A
Surface Casing *	10 3/4", 40.5 ppf, K-55, BTC	1,389	1,007	14.08 (PIT)
Prod Casing	7", 26 ppf, L-80, Vam Top HC	3,739	2,489	N/A

Comments: * Pre-existing casing strings.

COMPLETION

	Size / Weight / Grade / Thread	EOT mMDRT	mTVDRT	Type
Completion	3 1/2", 9.20 ppf, 13Cr80, Vam Top	3,608.6	2,406.2	Selective Single oil

	Upper Interval [m MDRT]	Upper Interval [m TVDRT]	Lower Interval [mMDRT]	Lower Interval [mTVDRT]	Gun Type
Perforation Interval	3,623 –3,626.5	2,415.1- 2,417.3	-	-	4 1/2" HSD

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

ADDITIONAL

		Top of Interval [m MDRT]	Base of Interval [m MDRT]
Logs Run	GR-Resistivity-Density-Neutron-Sonic-Caliper	1,581	3,746

Comments: 8¹/₂" hole interval was logged using Schlumberger D&M LWD tools from 1,581 m to 3,746 mMDRT

Hole Section	Cuttings Volume (m ³)	WBM Volume (bbl)	NAF (bbl)
8 ¹ / ₂ "	90	-	2,357

II. WELL DATA RECORD (cont.)

DRILLING OPERATIONS SUMMARY- FORTESCUE A9B

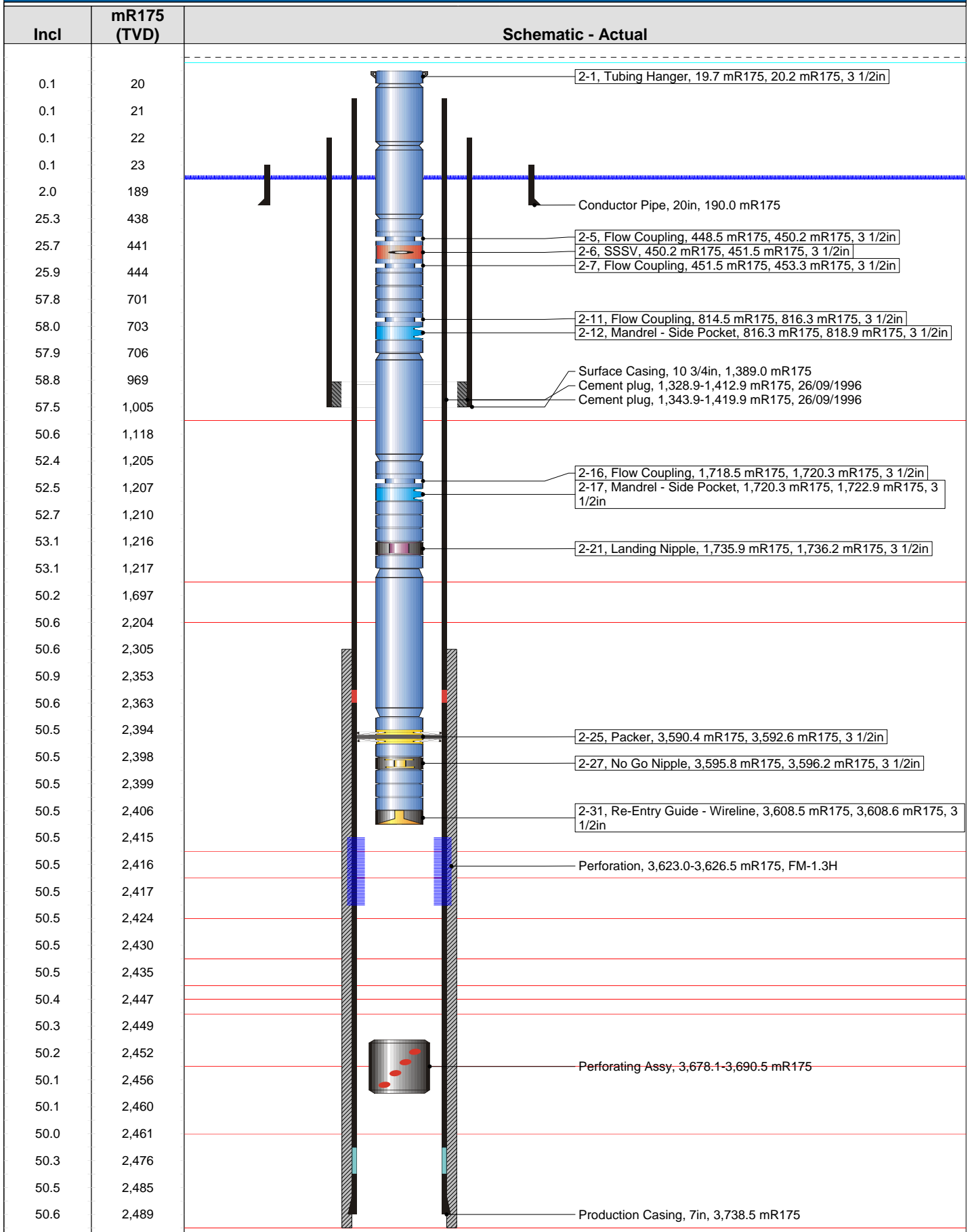
1. Skidded rig over Slot# 9. Removed main deck grating to access Xmas tree & wellhead. R/U to remove & removed Xmas tree from wellhead. Inspected bowl of csg head, severe corrosion & pitting to bowl. Cameron tech attempted to dress 13 $\frac{3}{8}$ " csg head sealing area. Bowl unserviceable – csg head to be duplicated w/- a piggyback spool. N/U riser & BOP's. Function tested BOP's – Ok. M/U 5 $\frac{1}{2}$ " BOP test assembly & test plug & RIH. R/U Howco & line test HP lines to 300/3,000 psi. Conduct full 14 day BOP test - pressure teste BOP's, choke manifold, standpipe manifold, cement manifold, TDS valves, mud pump valves & stabbing valves to 300/3,000 psi – Ok. POOH w/- test assembly & lay out. RIH w/- test plug & set in wellhead, back out & POOH w/- running tool. Test blind rams to 300/3,000 psi for 5 mins – Ok. Retrieve test plug & POOH. Shell test BOP's against 10 $\frac{3}{4}$ " surface csg to 1,000 psi for 15 mins – Ok. R/D Howco & HP lines. M/U Combo tool, ran & set wear bushing. Install mouse hole & R/U ST80 iron roughneck.
2. P/U & M/U 8 $\frac{1}{2}$ " Steerable Kick-Off BHA w/- Mill Tooth bit. Set motor bend to 1.5°. Scribed tool face & RIH to 34 m. Shallow tested tools - Ok. Continued to RIH on 5 $\frac{1}{2}$ " HWDP from 34 to 428 m filling pipe every 10 stands. Anadrill calibrated drawworks & depth sensor. Conducted accumulator volume & capacity tests as per EMDC procedures – Ok. Conducted power choke drill. Continued to RIH from 428 to tag TOC @ 1,276 m w/- 15k. Drilled out hard cement from 1,276 to 1,386 m. Pumped Hi-Vis sweeps each stand to clean hole. Continued to drill cement from 1,386 to 1,391 m. Pumped 40 bbl Hi-Vis Sweep & displaced hole to 10.6 ppg SBM. Flushed choke & kill lines, Choke & standpipe manifolds w/- SBM. Checked all choke manifold & standpipe pressure gauges – Ok. Kicked-Off well at 1,391 m. Time drilled off cement plug monitoring formation in returns. Oriented toolface 90° left of high side. Slide drilled from 1,391 to 1,405 m. Circulated hole clean for PIT test. POOH from 1,405 to inside csg shoe. Conducted PIT: EMW = 14.0 ppg.
3. Continued to RIH & drill 8 $\frac{1}{2}$ " production hole from 1,406 to 1,581 m – taking gyro surveys from 1,438 to 1,581 m to overcome magnetic interference. Circulated hole clean w/- 2 x's bottoms-up. Flow checked well – static. POOH 5 stands wet – hole in good condition. Flow checked, well static. Pumped slug & POOH to 34 m. Laid out bit & BHA. Flushed motor & MWD. Reset motor bend to 0°. P/U & M/U 8 $\frac{1}{2}$ " rotary steerable BHA w/ PDC bit & Xceed rotary steerable tools, ARC, resistivity/PWD tools, MWD, Sonci & AND tools. RIH to 37 m. Shallow tested BHA components – Ok. Loaded radioactive source. Continued to RIH from 37 to 1,581 m, filling DP every 10 stands & breaking circulation every 500 m. Took check survey on bottom. Continued to drill 8 $\frac{1}{2}$ " production hole from 1,581 to 2,495 m. TDS encoder failed. Fault found to be w/- encoder mounting bracket being loose & causing incorrect positioning signal. Continued to drill, steer & survey 8 $\frac{1}{2}$ " production hole from 2,945 to 3,603 m. Conducted 5 stand wiper trip from 3,603 to 3,461 m. Circulated hole clean w/- 5 x's BU, racking back 1 stand each BU. Washed & reamed to bottom from 3,461 to 3,603 m. Conditioned mud w/- Baracarb in preparation for drilling into Latrobe formation. Continued to drill, steer & survey from 3,461 to 3,746 m (TD). Circulated 5 x's bottom's up, back reaming 1 stand after each bottoms up. Performed flow check – observed 2 to 4 bph losses. Pumped OOH from 2,603 to inside csg shoe @ 1,364 m – hole in good condition. Circulated hole clean at 1,364 m. Flow checked – well static. Pumped slug & POOH on elevators from 1,364 to 165 m. R/D PS-21 slips. Installed master bushings. Continued to POOH from 165 to 38 m racking back HWDP. Recovered radioactive source. Laid out bit & BHA. Flushed all BHA tools.
4. M/U combo tool & RIH to pull wear bushing. Pulled & L/D wear bushing & combo tool. M/U jetting tools & RIH to jet BOP's. Jetted BOP's & POOH to surface & L/D jetting tools. R/U Weatherford to run 7" casing. P/U & M/U shoetrack joints. Bakerlok all shoe track joints. Checked floats – Ok. Ran and cemented 7" production casing string at 3,738.5 m. WOC. Removed cement head, N/D BOP's, lifted the BOP's and installed the casing slip/seal assembly. Cut casing, installed the Tubing Head and Tubing Head Adapter Flange. Prepared & cleaned bradenhead flange ring groove & face. Filed out & cleared out rust & debris from bradenhead flange bolt holes. Installed 13 $\frac{3}{8}$ " piggyback csg head spool over csg stub & N/U piggyback spool. P/U & M/U Baker 7" csg spear. RIH w/- 7" csg spear, engaged & latched csg string. P/U csg string to 200k. Cameron installed & set 7" csg slip & seal assembly. Released & laid out 7" csg spear. TKM Wellhead Services cut & dressed csg stub ready for installation. Cameron N/U new tubing head spool. Cameron attempted to pressure test new tubing head spool – some bleed-off observed. Re-energised & packed P sealed. Void tested P-seals to 3,000 psi for 15 mins – Ok. Installed wellhead valves & installed double block valves on tubing head.
5. Pressure tested the csg to 3,000 psi for 15 mins. N/U BOP's and riser and test assembly. R/U & set wear bushing. R/U Schlumberger unit & equipment to run gauge ring & junk basket to HUD of 3,690.5 m. POOH & logged 7" csg. R/U & RIH w/- 4 $\frac{1}{2}$ " HSD, 12 SPF Omega guns w/ GR/CCL for correlation. Correlated gun to set top shot @ 3,623 m. POOH w/- wireline. R/U Weatherford equipment to run 3 $\frac{1}{2}$ " tubing. M/U tail pipe assembly & run 3 $\frac{1}{2}$ " 9.20 ppf 13Cr-80 Vam-Top completion tubing. Land out tubing hanger head, applied 4 turns counter clockwise @ set tubing hanger. EOT @ 3,608.6 m. Cameron tested upper test port in tubing spool to 5,000 psi for 10 mins. R/U full open ball valve, Haliburton slickline lubricator, high pressure line. Tested line, FOBV & lubricator to 300/4,800 psi for 5 mins.
6. Function tested TRSSSV – Ok. RIH with N-test tool & set in XN nipple below AHC packer. R/U Howco. Pressured up tubing to 500 psi for 10 mins & confirmed N-test tool was set. Continued to pressure up tubing to 4,000 psi in stages to set packers. POOH w/- slickline & N-test tool. R/U Howco. Pressure tested packer seals to 2,000 psi – Ok. Pressure test completion tubing to 2,000 psi, shut in pressure on tubing. Pressured up on production annulus to 2,000 psi for 10 mins to test top packer seal - Ok. R/D slickline. Backed out THRT.
7. N/D flowline, Bell nipple, BOP's & HP riser. Cameron tech terminated control line at tubing head & prepared tubing head for Xmas tree. N/U Xmas tree into wellhead. Pressure tested Xmas tree – Ok. Handed well over to production operations.

Fortescue A9B: Existing Schematic

Original KB = 34.50 m

Fortescue A9B

Working KB = 42.49 m
Current KB selected = 42.49 m



III. SAMPLES –FTA A9B

The cuttings sampling programme for FORTESCUE A9B are detailed in the following table:

CUTTINGS SAMPLES

Interval	Formation	Sampling Details
KOP to 150 m above Top of Latrobe (prognosed at 3624.7 mMDRT) 1391– 3450. mMDRT	Gippsland Limestone & Lakes Entrance	Cuttings samples for description only at 30 m intervals.
150 m above Top of Latrobe to Top of Latrobe 3460.0 – 3620.0 mMDRT	Lakes Entrance	Three sets of washed and oven dried cuttings at 10 m intervals.
Top of Latrobe to Total Depth (TD) 3625.0 – 3746.0 mMDRT	Latrobe Group / Coarse Clastics	Three sets of washed and oven dried cuttings at 5 m intervals.

Detailed cuttings descriptions for the interval 1391.0 to 3746.0 mMDRT (TD) are contained in Appendix 3a.

CONVENTIONAL CORING

No conventional cores were cut in FORTESCUE A9B.

SIDEWALL CORING

No sidewall core samples were shot in FORTESCUE A9B.

IV. LOGS AND SURVEYS –FTA A9B

Survey/Log	Company	Top (m MDRT)	Bottom (m MDRT)
MWD Run 1, TeleScope	Schlumberger/Anadrill	1391.0	1581.0
LWD Run 2, TeleScope-ARC-ADN-sonicVISION	Schlumberger/Anadrill	1545.5	3736.3

V. RESERVOIR & FORMATION TOPS - FORTESCUE A9B

Horizon	m TVDSS			m MDRT ACTUAL	mTVT HC Column	
	Predicted Tops	ACTUAL	Diff. (m)		Predicted	ACTUAL
Top of Latrobe	-2374	2372.9	-1.2	3623.5		
TCC / FM13H	-2375	2373.4	-1.6	3624.3	8	0.2
F13J	-2383	2382.5	-0.5	3638.6		
F14A_RES	-2388	2388.5	-0.5	3648.0		
F14B_RES	-2393	2393.3	-0.3	3655.8		
FFHB_OIL	2407	2404.5	-2.5	3673.3		
FFHD_RES	-2410	2407.5	-2.5	3677.9		
MC4_RES	-2418	2421.4	3.4	3699.9		
Total Depth	-2443.45	-2450.8		3746.0		

VI. GEOLOGICAL ANALYSIS – FORTESCUE A9B

Objectives

The FTA-A9B well was designed as a redrill of FTA-A30ST2, positioned in an optimal location to develop remaining FM13H oil. The FTA-A30ST2 well was interpreted to have gone to 100% water-cut early in its life due to mechanical problems.

The primary objective of FTA-A9B was to intersect the FM13H reservoir at approximately the same depth as FTA-A30ST2 and 25m updip of FTA-A17 (Figure 2). The well was offset 125m from FTA-A30ST2 to avoid the potential for early water influx from the deeper high porosity M111 reservoir.

Results

The FTA-A9B spudded on the 18th of August 2007. An 8.5" production hole was drilled to a total depth of 3746mMDRT (2493.3mTVDRT). The well was logged with Schlumberger's MWD & LWD from 1391mMDRT to 3736.3mMDRT. After running 7" production casing, the well was completed with 3.5" tubing and perforated over one interval (3623.0 – 3626.5m MDRT).

The Top Latrobe was intersected at 3623.3mMDRT (-2372.9mSS), 1.2m shallow to prediction, while the Top of Coarse Clastics was intersected at 3624.3mMDRT(-2373.4mSS), 1.6m shallow to prediction. The depth difference between actual and predicted tops varied from 0.5m to 2.5m shallow to prediction TVD within the Latrobe Group.

Hydrocarbons were intersected within the the FM13H section, with 0.2m TVD net probable oil intersected with a porosity of 12.2%.

Production commenced on the 17th of September 2007 from the FM13H zone. Initial flow rate was 270 BOPD at 54% water-cut but the well declined to 30 BOPD with water-cut rising to 87% within 5 days.

The poor result from this well is thought to be due to the FM13H reservoir being less extensive than interpreted, and the FTA-A30ST2 well producing all the remaining oil within this area.

APPENDIX 1a

FORTESCUE A9B

Survey Data



FTA A-9B Gyro Final Geodetic Survey True North

Report Date: August 25, 2007	Survey / DLS Computation Method: Minimum Curvature / Lubinski
Client: Esso Australia Pty Ltd	Vertical Section Azimuth: 166.150°
Field: Fortescue GDA 94	Vertical Section Origin: S 2.000 m, E 2.240 m
Structure / Slot: Fortescue Rig 19 / 9	TVD Reference Datum: RKB
Well: 9	TVD Reference Elevation: 42.49 m relative to MSL
Borehole: FTA A-9B	Sea Bed / Ground Level Elevation: -69.000 m relative to MSL
UWI/API#:	Magnetic Declination: 13.209°
Survey Name / Date: FTA A-9B Gyro Final / August 20, 2007	Total Field Strength: 59972.784 nT
Tort / AHD / DDI / ERD ratio: 143.878° / 2623.00 m / 6.270 / 1.052	Magnetic Dip: -68.861°
Grid Coordinate System: GDA94/MGA94 Zone 55	Declination Date: August 20, 2007
Location Lat/Long: S 38 24 25.534, E 148 16 41.061	Magnetic Declination Model: BGM 2007
Location Grid N/E Y/X: N 5748242.360 m, E 611590.350 m	North Reference: Grid North
Grid Convergence Angle: -0.79407779°	Total Corr Mag North -> Grid North: +14.003°
Grid Scale Factor: 0.99975335	Local Coordinates Referenced To: Structure Reference Point

Positions are calculated based on Grid North

Comments	Measured Depth (m)	Inclination (deg)	Grid North Azimuth (deg)	True North Azimuth (deg)	TVD (m)	Vertical Section (m)	NS Grid North (m)	EW Grid North (m)	DLS (deg/30 m)	Northing (m)	Easting (m)	Latitude	Longitude
Projected-Up	0.00	0.00	0.00	-0.79	0.00	0.00	-2.00	2.24	0.00	5748242.36	611590.35	S 38 24 25.534	E 148 16 41.061
Tie-In	2.89	0.00	0.00	-0.79	2.89	0.00	-2.00	2.24	0.00	5748242.36	611590.35	S 38 24 25.534	E 148 16 41.061
	57.89	0.23	75.39	74.60	57.89	0.00	-1.97	2.35	0.13	5748242.39	611590.46	S 38 24 25.533	E 148 16 41.066
	62.89	0.27	79.17	78.38	62.89	0.00	-1.97	2.37	0.26	5748242.39	611590.48	S 38 24 25.533	E 148 16 41.066
	67.89	0.35	76.82	76.03	67.89	0.00	-1.96	2.40	0.49	5748242.40	611590.50	S 38 24 25.532	E 148 16 41.068
	72.89	0.36	71.45	70.66	72.89	0.00	-1.95	2.42	0.21	5748242.41	611590.53	S 38 24 25.532	E 148 16 41.069
	77.89	0.32	61.77	60.98	77.89	-0.01	-1.94	2.45	0.42	5748242.42	611590.56	S 38 24 25.532	E 148 16 41.070
	82.89	0.31	63.50	62.71	82.89	-0.01	-1.93	2.48	0.08	5748242.43	611590.59	S 38 24 25.531	E 148 16 41.071
	87.89	0.37	64.77	63.98	87.89	-0.02	-1.92	2.50	0.36	5748242.44	611590.61	S 38 24 25.531	E 148 16 41.072
	92.89	0.42	66.11	65.32	92.89	-0.02	-1.90	2.53	0.31	5748242.46	611590.64	S 38 24 25.530	E 148 16 41.073
	97.89	0.40	71.96	71.17	97.89	-0.03	-1.89	2.57	0.28	5748242.47	611590.68	S 38 24 25.530	E 148 16 41.075
	102.89	0.37	90.40	89.61	102.89	-0.03	-1.88	2.60	0.76	5748242.48	611590.71	S 38 24 25.530	E 148 16 41.076
	107.89	0.39	114.71	113.92	107.89	-0.01	-1.89	2.63	0.97	5748242.47	611590.74	S 38 24 25.530	E 148 16 41.077
	112.89	0.48	114.84	114.05	112.89	0.01	-1.91	2.67	0.54	5748242.45	611590.78	S 38 24 25.530	E 148 16 41.079
	117.89	0.47	101.46	100.67	117.89	0.03	-1.92	2.71	0.67	5748242.44	611590.82	S 38 24 25.531	E 148 16 41.080
	122.89	0.44	117.58	116.79	122.89	0.06	-1.93	2.74	0.79	5748242.43	611590.85	S 38 24 25.531	E 148 16 41.082
	127.89	0.55	130.64	129.85	127.89	0.09	-1.96	2.78	0.94	5748242.40	611590.89	S 38 24 25.532	E 148 16 41.083
	132.89	0.79	149.41	148.62	132.89	0.14	-2.00	2.81	1.93	5748242.36	611590.92	S 38 24 25.533	E 148 16 41.085
	137.89	0.64	162.78	161.99	137.89	0.20	-2.06	2.84	1.34	5748242.30	611590.95	S 38 24 25.535	E 148 16 41.086
	142.89	1.06	186.23	185.44	142.89	0.27	-2.13	2.84	3.22	5748242.23	611590.95	S 38 24 25.538	E 148 16 41.086
	147.89	1.24	185.75	184.96	147.89	0.37	-2.23	2.83	1.08	5748242.13	611590.94	S 38 24 25.541	E 148 16 41.086
	152.89	1.04	171.86	171.07	152.88	0.46	-2.33	2.83	2.04	5748242.03	611590.94	S 38 24 25.544	E 148 16 41.086
	157.89	1.28	183.98	183.19	157.88	0.56	-2.43	2.84	2.05	5748241.93	611590.95	S 38 24 25.547	E 148 16 41.086
	162.89	1.52	187.27	186.48	162.88	0.68	-2.55	2.82	1.52	5748241.81	611590.93	S 38 24 25.551	E 148 16 41.086
	167.89	1.75	187.87	187.08	167.88	0.81	-2.69	2.80	1.38	5748241.67	611590.91	S 38 24 25.556	E 148 16 41.085
	172.89	1.76	181.19	180.40	172.88	0.95	-2.85	2.79	1.23	5748241.51	611590.90	S 38 24 25.561	E 148 16 41.084
	177.89	1.99	187.64	186.85	177.88	1.11	-3.01	2.78	1.87	5748241.35	611590.89	S 38 24 25.566	E 148 16 41.084
	182.89	2.09	191.62	190.83	182.87	1.27	-3.18	2.75	1.04	5748241.18	611590.86	S 38 24 25.572	E 148 16 41.083
	187.89	2.00	189.90	189.11	187.87	1.43	-3.36	2.72	0.65	5748241.00	611590.83	S 38 24 25.577	E 148 16 41.082
	192.89	2.14	190.02	189.23	192.87	1.60	-3.54	2.69	0.84	5748240.82	611590.79	S 38 24 25.583	E 148 16 41.080
	197.89	2.34	193.48	192.69	197.86	1.78	-3.73	2.65	1.45	5748240.63	611590.75	S 38 24 25.589	E 148 16 41.079
	202.89	2.37	195.15	194.36	202.86	1.96	-3.93	2.59	0.45	5748240.43	611590.70	S 38 24 25.596	E 148 16 41.077
	207.89	2.48	194.08	193.29	207.85	2.14	-4.13	2.54	0.71	5748240.23	611590.65	S 38 24 25.603	E 148 16 41.075
	212.89	2.80	192.73	191.94	212.85	2.35	-4.36	2.49	1.96	5748240.00	611590.60	S 38 24 25.610	E 148 16 41.073
	217.89	3.14	192.73	191.94	217.84	2.58	-4.61	2.43	2.04	5748239.75	611590.54	S 38 24 25.618	E 148 16 41.071
	222.89	3.73	192.67	191.88	222.83	2.85	-4.90	2.36	3.54	5748239.46	611590.47	S 38 24 25.628	E 148 16 41.068
	227.89	4.24	194.18	193.39	227.82	3.16	-5.24	2.28	3.12	5748239.12	611590.39	S 38 24 25.639	E 148 16 41.065
	232.89	4.91	196.08	195.29	232.80	3.50	-5.62	2.18	4.12	5748238.74	611590.29	S 38 24 25.651	E 148 16 41.061
	237.89	5.56	196.67	195.88	237.78	3.90	-6.06	2.05	3.91	5748238.30	611590.16	S 38 24 25.665	E 148 16 41.056
	242.89	6.21	195.45	194.66	242.76	4.34	-6.55	1.91	3.97	5748237.81	611590.02	S 38 24 25.681	E 148 16 41.050
	247.89	6.78	195.72	194.93	247.72	4.84	-7.10	1.76	3.42	5748237.26	611589.87	S 38 24 25.699	E 148 16 41.044
	252.89	7.33	195.47	194.68	252.69	5.37	-7.69	1.59	3.31	5748236.67	611589.70	S 38 24 25.718	E 148 16 41.038
	257.89	7.76	195.34	194.55	257.64	5.94	-8.32	1.42	2.58	5748236.04	611589.53	S 38 24 25.739	E 148 16 41.031
	262.89	8.30	195.27	194.48	262.59	6.55	-9.00	1.23	3.24	5748235.36	611589.34	S 38 24 25.761	E 148 16 41.024
	267.89	8.67	194.36	193.57	267.54	7.20	-9.71	1.04	2.36	5748234.65	611589.15	S 38 24 25.784	E 148 16 41.016
	272.89	9.02	194.71	193.92	272.48	7.88	-10.46	0.85	2.12	5748233.91	611588.96	S 38 24 25.808	E 148 16 41.009
	277.89	9.48	194.29	193.50	277.42	8.58	-11.23	0.65	2.79	5748233.13	611588.76	S 38 24 25.834	E 148 16 41.001
	282.89	9.98	192.82	192.03	282.34	9.33	-12.05	0.45	3.35	5748232.31	611588.56	S 38 24 25.860	E 148 16 40.993
	287.89	10.55	191.89	191.10	287.26	10.13	-12.93	0.26	3.56	5748231.44	611588.37	S 38 24 25.889	E 148 16 40.986
	292.89	11.14	190.68	189.89	292.17	10.99	-13.85	0.08	3.79	5748230.52	611588.19	S 38 24 25.919	E 148 16 40.979
	297.89	11.39	189.68	188.89	297.08	11.88	-14.81	-0.09	1.90	5748229.55	611588.02	S 38 24 25.950	E 148 16 40.972
	302.89	11.90	190.33	189.54	301.97	12.80	-15.80	-0.27	3.16	5748228.56	611587.84	S 38 24 25.982	E 148 16 40.966
	307.89	12.30	189.62	188.83	306.86	13.76	-16.84	-0.45	2.56	5748227.53	611587.66	S 38 24 26.016	E 148 16 40.959

312.89	12.56	189.35	188.56	311.75	14.75	-17.90	-0.63	1.60	5748226.47	611587.48	S 38 24 26.050	E 148 16 40.952
317.89	13.01	189.74	188.95	316.62	15.76	-18.99	-0.81	2.75	5748225.38	611587.30	S 38 24 26.086	E 148 16 40.945
322.89	13.54	189.75	188.96	321.49	16.82	-20.12	-1.01	3.18	5748224.25	611587.10	S 38 24 26.123	E 148 16 40.938
327.89	13.88	190.19	189.40	326.35	17.90	-21.29	-1.21	2.13	5748223.08	611586.90	S 38 24 26.161	E 148 16 40.930
332.89	14.51	190.37	189.58	331.19	19.02	-22.49	-1.43	3.79	5748221.87	611586.68	S 38 24 26.200	E 148 16 40.922
337.89	14.95	190.71	189.92	336.03	20.18	-23.74	-1.66	2.69	5748220.62	611586.45	S 38 24 26.240	E 148 16 40.913
342.89	15.49	191.56	190.77	340.85	21.37	-25.03	-1.92	3.51	5748219.34	611586.19	S 38 24 26.282	E 148 16 40.903
347.89	15.92	192.53	191.74	345.67	22.58	-26.35	-2.20	3.02	5748218.01	611585.91	S 38 24 26.325	E 148 16 40.892
352.89	16.28	193.48	192.69	350.47	23.82	-27.70	-2.51	2.68	5748216.66	611585.60	S 38 24 26.369	E 148 16 40.880
357.89	16.78	193.84	193.05	355.26	25.08	-29.09	-2.85	3.06	5748215.28	611585.26	S 38 24 26.414	E 148 16 40.867
362.89	17.53	193.97	193.18	360.04	26.39	-30.52	-3.20	4.51	5748213.85	611584.91	S 38 24 26.461	E 148 16 40.853
367.89	18.03	193.70	192.91	364.80	27.74	-32.00	-3.57	3.04	5748212.37	611584.54	S 38 24 26.509	E 148 16 40.839
372.89	18.50	193.53	192.74	369.55	29.13	-33.52	-3.94	2.84	5748210.84	611584.18	S 38 24 26.559	E 148 16 40.825
377.89	19.03	193.53	192.74	374.29	30.56	-35.09	-4.31	3.18	5748209.28	611583.80	S 38 24 26.610	E 148 16 40.810
382.89	19.52	193.42	192.63	379.01	32.02	-36.69	-4.70	2.95	5748207.68	611583.41	S 38 24 26.662	E 148 16 40.795
387.89	19.90	193.31	192.52	383.71	33.52	-38.33	-5.09	2.29	5748206.04	611583.03	S 38 24 26.715	E 148 16 40.780
392.89	20.47	193.18	192.39	388.41	35.06	-40.01	-5.48	3.43	5748204.36	611582.63	S 38 24 26.770	E 148 16 40.765
397.89	20.88	193.17	192.38	393.08	36.63	-41.73	-5.88	2.46	5748202.64	611582.23	S 38 24 26.826	E 148 16 40.749
402.89	21.46	193.10	192.31	397.75	38.24	-43.49	-6.29	3.48	5748200.88	611581.82	S 38 24 26.883	E 148 16 40.733
407.89	21.99	192.95	192.16	402.39	39.89	-45.29	-6.71	3.20	5748199.08	611581.40	S 38 24 26.942	E 148 16 40.717
412.89	22.41	192.74	191.95	407.02	41.58	-47.14	-7.13	2.56	5748197.24	611580.98	S 38 24 27.001	E 148 16 40.701
417.89	22.97	192.54	191.75	411.63	43.31	-49.02	-7.55	3.39	5748195.35	611580.56	S 38 24 27.063	E 148 16 40.684
422.89	23.29	192.37	191.58	416.23	45.07	-50.94	-7.98	1.96	5748193.44	611580.14	S 38 24 27.125	E 148 16 40.668
427.89	23.81	192.29	191.50	420.81	46.86	-52.89	-8.40	3.13	5748191.49	611579.71	S 38 24 27.189	E 148 16 40.652
432.89	24.21	192.27	191.48	425.38	48.69	-54.88	-8.84	2.40	5748189.50	611579.28	S 38 24 27.253	E 148 16 40.635
437.89	24.59	192.19	191.40	429.94	50.54	-56.89	-9.27	2.29	5748187.48	611578.84	S 38 24 27.319	E 148 16 40.618
442.89	25.01	192.16	191.37	434.47	52.43	-58.94	-9.72	2.52	5748185.43	611578.40	S 38 24 27.386	E 148 16 40.601
447.89	25.43	192.12	191.33	439.00	54.34	-61.03	-10.16	2.52	5748183.35	611577.95	S 38 24 27.453	E 148 16 40.584
452.89	25.91	192.13	191.34	443.50	56.29	-63.14	-10.62	2.88	5748181.23	611577.49	S 38 24 27.522	E 148 16 40.566
457.89	26.37	191.95	191.16	447.99	58.27	-65.30	-11.08	2.80	5748179.08	611577.03	S 38 24 27.592	E 148 16 40.548
462.89	26.84	191.71	190.92	452.46	60.29	-67.49	-11.54	2.89	5748176.89	611576.58	S 38 24 27.664	E 148 16 40.531
467.89	27.29	191.68	190.89	456.92	62.34	-69.72	-12.00	2.70	5748174.66	611576.11	S 38 24 27.736	E 148 16 40.513
472.89	27.75	191.59	190.80	461.35	64.43	-71.98	-12.46	2.77	5748172.40	611575.65	S 38 24 27.810	E 148 16 40.495
477.89	28.16	191.48	190.69	465.77	66.54	-74.28	-12.93	2.48	5748170.10	611575.18	S 38 24 27.884	E 148 16 40.477
482.89	28.63	191.30	190.51	470.16	68.69	-76.61	-13.40	2.87	5748167.77	611574.71	S 38 24 27.960	E 148 16 40.459
487.89	29.11	191.24	190.45	474.54	70.88	-78.98	-13.87	2.89	5748165.40	611574.24	S 38 24 28.037	E 148 16 40.441
492.89	29.59	191.12	190.33	478.90	73.10	-81.38	-14.35	2.90	5748163.00	611573.76	S 38 24 28.115	E 148 16 40.423
497.89	30.16	190.90	190.11	483.24	75.36	-83.82	-14.83	3.48	5748160.56	611573.29	S 38 24 28.195	E 148 16 40.405
502.89	30.65	190.81	190.02	487.55	77.66	-86.31	-15.30	2.95	5748158.07	611572.81	S 38 24 28.276	E 148 16 40.386
507.89	31.09	190.63	189.84	491.84	79.99	-88.83	-15.78	2.70	5748155.55	611572.34	S 38 24 28.357	E 148 16 40.368
512.89	31.61	190.60	189.81	496.11	82.36	-91.39	-16.26	3.12	5748153.00	611571.86	S 38 24 28.441	E 148 16 40.350
517.89	32.03	190.45	189.66	500.36	84.76	-93.98	-16.74	2.56	5748150.40	611571.37	S 38 24 28.525	E 148 16 40.332
522.89	32.48	190.30	189.51	504.59	87.20	-96.60	-17.22	2.74	5748147.78	611570.89	S 38 24 28.610	E 148 16 40.313
527.89	32.98	190.24	189.45	508.79	89.66	-99.26	-17.70	3.01	5748145.12	611570.41	S 38 24 28.697	E 148 16 40.295
532.89	33.38	190.19	189.40	512.98	92.16	-101.96	-18.19	2.41	5748142.43	611569.93	S 38 24 28.784	E 148 16 40.276
537.89	33.86	190.13	189.34	517.14	94.69	-104.68	-18.68	2.89	5748139.70	611569.44	S 38 24 28.873	E 148 16 40.258
542.89	34.29	190.06	189.27	521.28	97.25	-107.44	-19.17	2.59	5748136.95	611568.95	S 38 24 28.962	E 148 16 40.239
547.89	34.81	190.02	189.23	525.40	99.84	-110.23	-19.66	3.12	5748134.15	611568.45	S 38 24 29.053	E 148 16 40.220
552.89	35.17	189.98	189.19	529.50	102.47	-113.06	-20.16	2.16	5748131.33	611567.96	S 38 24 29.145	E 148 16 40.202
557.89	35.62	189.90	189.11	533.57	105.12	-115.91	-20.66	2.71	5748128.48	611567.46	S 38 24 29.238	E 148 16 40.183
562.89	36.17	189.83	189.04	537.62	107.80	-118.80	-21.16	3.31	5748125.59	611566.95	S 38 24 29.332	E 148 16 40.163
567.89	36.63	189.74	188.95	541.65	110.52	-121.72	-21.67	2.78	5748122.67	611566.45	S 38 24 29.427	E 148 16 40.144
572.89	37.20	189.65	188.86	545.65	113.27	-124.68	-22.17	3.44	5748119.71	611565.94	S 38 24 29.523	E 148 16 40.125
577.89	37.35	189.62	188.83	549.63	116.05	-127.67	-22.68	0.91	5748116.73	611565.44	S 38 24 29.620	E 148 16 40.106
582.89	38.22	189.52	188.73	553.58	118.86	-130.69	-23.19	5.23	5748113.70	611564.93	S 38 24 29.718	E 148 16 40.087
587.89	38.71	189.49	188.70	557.49	121.71	-133.75	-23.70	2.94	5748110.64	611564.42	S 38 24 29.818	E 148 16 40.067
592.89	39.24	189.46	188.67	561.38	124.60	-136.86	-24.22	3.18	5748107.54	611563.90	S 38 24 29.919	E 148 16 40.048
597.89	39.70	189.47	188.68	565.24	127.52	-139.99	-24.74	2.76	5748104.40	611563.38	S 38 24 30.021	E 148 16 40.028
602.89	40.16	189.53	188.74	569.07	130.47	-143.16	-25.27	2.77	5748101.24	611562.85	S 38 24 30.123	E 148 16 40.008
607.89	40.70	189.55	188.76	572.88	133.44	-146.35	-25.81	3.24	5748098.04	611562.31	S 38 24 30.227	E 148 16 39.988
612.89	41.08	189.51	188.72	576.66	136.45	-149.58	-26.35	2.29	5748094.81	611561.77	S 38 24 30.332	E 148 16 39.967
617.89	41.58	189.52	188.73	580.41	139.48	-152.84	-26.90	3.00	5748091.56	611561.22	S 38 24 30.438	E 148 16 39.947
622.89	42.25	189.51	188.72	584.13	142.55	-156.13	-27.45	4.02	5748088.27	611560.67	S 38 24 30.545	E 148 16 39.926
627.89	42.74	189.74	188.95	587.82	145.64	-159.46	-28.01	3.08	5748084.94	611560.10	S 38 24 30.653	E 148 16 39.904
632.89	43.34	189.69	188.90	591.48	148.77	-162.83	-28.59	3.61	5748081.57	611559.53	S 38 24 30.763	E 148 16 39.883
637.89	43.98	189.61	188.82	595.09	151.94	-166.23	-29.17	3.85	5748078.17	611558.95	S 38 24 30.873	E 148 16 39.861
642.89	44.59	189.48	188.69	598.67	155.14	-169.67	-29.75	3.70	5748074.73	611558.37	S 38 24 30.985	E 148 16 39.839
647.89	45.22	189.39	188.60	602.21	158.38	-173.15	-30.32	3.80	5748071.25	611557.79	S 38 24 31.098	E 148 16 39.817
652.89	45.83	189.31	188.52	605.72	161.66	-176.68	-30.90	3.68	5748067.73	611557.21	S 38 24 31.213	E 148 16 39.795
657.89	46.43	189.24	188.45	609.18	164.98	-180.23	-31.49	3.61	5748064.17	611556.63	S 38 24 31.329	E 148 16 39.773
662.89	47.05	189.20	188.41	612.61	168.33	-183.83	-32.07	3.72	5748060.58	611556.05	S 38 24 31.445	E 148 16 39.751
667.89	47.51	189.15	188.36	616.00	171.71	-187.45	-32.65	2.77	5748056.95	611555.46	S 38 24 31.563	E 148 16 39.729

672.89	47.96	189.13	188.34	619.36	175.11	-191.11	-33.24	2.70	5748053.30	611554.88	S 38 24 31.682	E 148 16 39.707
677.89	48.45	189.07	188.28	622.70	178.55	-194.79	-33.83	2.95	5748049.62	611554.29	S 38 24 31.802	E 148 16 39.685
682.89	48.84	189.06	188.27	626.00	182.00	-198.49	-34.42	2.34	5748045.92	611553.70	S 38 24 31.922	E 148 16 39.662
687.89	49.31	189.04	188.25	629.27	185.48	-202.22	-35.02	2.82	5748042.19	611553.10	S 38 24 32.043	E 148 16 39.640
692.89	49.68	188.99	188.20	632.52	188.99	-205.98	-35.61	2.23	5748038.43	611552.51	S 38 24 32.165	E 148 16 39.618
697.89	50.15	188.95	188.16	635.74	192.51	-209.76	-36.21	2.83	5748034.65	611551.91	S 38 24 32.288	E 148 16 39.595
702.89	50.76	188.94	188.15	638.92	196.07	-213.57	-36.81	3.66	5748030.85	611551.31	S 38 24 32.412	E 148 16 39.573
707.89	51.29	188.94	188.15	642.07	199.65	-217.41	-37.41	3.18	5748027.01	611550.71	S 38 24 32.537	E 148 16 39.550
712.89	51.81	188.97	188.18	645.18	203.26	-221.27	-38.02	3.12	5748023.14	611550.10	S 38 24 32.662	E 148 16 39.527
717.89	52.19	188.98	188.19	648.26	206.89	-225.17	-38.64	2.28	5748019.25	611549.48	S 38 24 32.789	E 148 16 39.504
722.89	52.65	189.01	188.22	651.31	210.54	-229.08	-39.26	2.76	5748015.34	611548.86	S 38 24 32.916	E 148 16 39.481
727.89	53.07	189.07	188.28	654.33	214.22	-233.02	-39.88	2.54	5748011.40	611548.24	S 38 24 33.044	E 148 16 39.457
732.89	53.51	189.09	188.30	657.31	217.91	-236.97	-40.52	2.64	5748007.44	611547.60	S 38 24 33.173	E 148 16 39.433
737.89	54.08	189.06	188.27	660.27	221.62	-240.96	-41.15	3.42	5748003.46	611546.97	S 38 24 33.302	E 148 16 39.409
742.89	54.61	189.05	188.26	663.18	225.37	-244.97	-41.79	3.18	5747999.45	611546.33	S 38 24 33.432	E 148 16 39.385
747.89	55.22	189.00	188.21	666.06	229.14	-249.01	-42.43	3.67	5747995.41	611545.69	S 38 24 33.564	E 148 16 39.361
752.89	55.59	189.00	188.21	668.89	232.93	-253.08	-43.08	2.22	5747991.35	611545.04	S 38 24 33.696	E 148 16 39.337
757.89	56.11	189.01	188.22	671.70	236.74	-257.16	-43.72	3.12	5747987.26	611544.40	S 38 24 33.829	E 148 16 39.313
762.89	56.58	189.02	188.23	674.47	240.58	-261.27	-44.38	2.82	5747983.15	611543.74	S 38 24 33.962	E 148 16 39.288
767.89	57.05	189.09	188.30	677.21	244.43	-265.41	-45.04	2.84	5747979.02	611543.09	S 38 24 34.097	E 148 16 39.263
772.89	57.52	189.00	188.21	679.91	248.31	-269.56	-45.70	2.86	5747974.87	611542.42	S 38 24 34.232	E 148 16 39.238
777.89	57.40	189.14	188.35	682.60	252.19	-273.72	-46.36	1.01	5747970.70	611541.76	S 38 24 34.367	E 148 16 39.213
782.89	57.25	189.18	188.39	685.30	256.06	-277.88	-47.03	0.92	5747966.55	611541.09	S 38 24 34.502	E 148 16 39.188
787.89	57.59	189.30	188.51	687.99	259.94	-282.04	-47.71	2.13	5747962.39	611540.41	S 38 24 34.637	E 148 16 39.163
792.89	57.78	189.33	188.54	690.67	263.82	-286.21	-48.39	1.15	5747958.22	611539.73	S 38 24 34.773	E 148 16 39.137
797.89	57.75	189.29	188.50	693.33	267.71	-290.38	-49.08	0.27	5747954.05	611539.05	S 38 24 34.908	E 148 16 39.111
802.89	57.79	189.35	188.56	696.00	271.60	-294.55	-49.76	0.39	5747949.88	611538.36	S 38 24 35.044	E 148 16 39.085
807.89	57.89	189.35	188.56	698.66	275.49	-298.73	-50.45	0.60	5747945.70	611537.67	S 38 24 35.180	E 148 16 39.059
812.89	57.79	189.48	188.69	701.32	279.38	-302.91	-51.14	0.89	5747941.53	611536.98	S 38 24 35.315	E 148 16 39.033
817.89	58.03	189.49	188.70	703.98	283.27	-307.08	-51.84	1.44	5747937.35	611536.28	S 38 24 35.451	E 148 16 39.007
822.89	57.89	189.50	188.71	706.63	287.16	-311.26	-52.54	0.84	5747933.17	611535.58	S 38 24 35.587	E 148 16 38.980
827.89	58.06	189.50	188.71	709.28	291.05	-315.45	-53.24	1.02	5747928.99	611534.89	S 38 24 35.723	E 148 16 38.954
832.89	58.07	189.48	188.69	711.93	294.95	-319.63	-53.94	0.12	5747924.81	611534.19	S 38 24 35.859	E 148 16 38.927
837.89	58.07	189.55	188.76	714.57	298.84	-323.82	-54.64	0.36	5747920.62	611533.48	S 38 24 35.995	E 148 16 38.901
842.89	57.94	189.58	188.79	717.22	302.73	-328.00	-55.34	0.79	5747916.44	611532.78	S 38 24 36.131	E 148 16 38.874
847.89	57.62	189.71	188.92	719.89	306.61	-332.17	-56.05	2.03	5747912.27	611532.07	S 38 24 36.267	E 148 16 38.847
852.89	57.49	189.82	189.03	722.57	310.48	-336.33	-56.77	0.96	5747908.12	611531.36	S 38 24 36.402	E 148 16 38.820
857.89	57.27	189.91	189.12	725.26	314.34	-340.48	-57.49	1.40	5747903.97	611530.63	S 38 24 36.537	E 148 16 38.793
862.89	57.12	189.99	189.20	727.97	318.18	-344.61	-58.22	0.99	5747899.83	611529.91	S 38 24 36.671	E 148 16 38.765
867.89	57.08	190.08	189.29	730.69	322.02	-348.75	-58.95	0.51	5747895.70	611529.18	S 38 24 36.805	E 148 16 38.738
872.89	57.04	190.16	189.37	733.41	325.85	-352.88	-59.68	0.47	5747891.57	611528.44	S 38 24 36.940	E 148 16 38.709
877.89	56.92	190.18	189.39	736.13	329.68	-357.01	-60.42	0.73	5747887.44	611527.70	S 38 24 37.074	E 148 16 38.681
882.89	56.67	190.26	189.47	738.87	333.50	-361.12	-61.17	1.55	5747883.33	611526.96	S 38 24 37.208	E 148 16 38.653
887.89	56.70	190.34	189.55	741.62	337.32	-365.23	-61.91	0.44	5747879.22	611526.21	S 38 24 37.341	E 148 16 38.625
892.89	56.95	190.35	189.56	744.35	341.13	-369.35	-62.67	1.50	5747875.10	611525.46	S 38 24 37.475	E 148 16 38.596
897.89	57.02	190.46	189.67	747.08	344.96	-373.47	-63.42	0.69	5747870.98	611524.70	S 38 24 37.609	E 148 16 38.567
902.89	57.16	190.38	189.59	749.79	348.78	-377.60	-64.18	0.93	5747866.85	611523.94	S 38 24 37.744	E 148 16 38.538
907.89	57.05	190.51	189.72	752.51	352.61	-381.73	-64.94	0.93	5747862.72	611523.18	S 38 24 37.878	E 148 16 38.509
912.89	57.16	190.49	189.70	755.22	356.43	-385.86	-65.71	0.67	5747858.60	611522.42	S 38 24 38.012	E 148 16 38.480
917.89	57.16	190.52	189.73	757.94	360.26	-389.99	-66.47	0.15	5747854.47	611521.65	S 38 24 38.146	E 148 16 38.451
922.89	57.23	190.59	189.80	760.65	364.09	-394.12	-67.24	0.55	5747850.34	611520.88	S 38 24 38.281	E 148 16 38.421
927.89	57.25	190.62	189.83	763.35	367.92	-398.25	-68.02	0.19	5747846.20	611520.11	S 38 24 38.415	E 148 16 38.392
932.89	57.22	190.69	189.90	766.06	371.74	-402.39	-68.80	0.40	5747842.07	611519.33	S 38 24 38.549	E 148 16 38.362
937.89	57.27	190.72	189.93	768.76	375.57	-406.52	-69.58	0.34	5747837.94	611518.55	S 38 24 38.684	E 148 16 38.332
942.89	57.21	190.81	190.02	771.47	379.39	-410.65	-70.36	0.58	5747833.81	611517.77	S 38 24 38.818	E 148 16 38.302
947.89	57.35	190.81	190.02	774.17	383.21	-414.78	-71.15	0.84	5747829.68	611516.98	S 38 24 38.952	E 148 16 38.272
952.89	57.47	190.91	190.12	776.86	387.04	-418.92	-71.94	0.88	5747825.54	611516.18	S 38 24 39.087	E 148 16 38.242
957.89	57.42	190.86	190.07	779.55	390.87	-423.06	-72.74	0.39	5747821.41	611515.39	S 38 24 39.221	E 148 16 38.211
962.89	57.47	190.95	190.16	782.24	394.69	-427.20	-73.54	0.55	5747817.27	611514.59	S 38 24 39.356	E 148 16 38.181
967.89	57.47	190.99	190.20	784.93	398.52	-431.33	-74.34	0.20	5747813.13	611513.79	S 38 24 39.490	E 148 16 38.150
972.89	57.55	191.13	190.34	787.62	402.34	-435.47	-75.15	0.86	5747808.99	611512.98	S 38 24 39.625	E 148 16 38.119
977.89	57.53	191.18	190.39	790.30	406.17	-439.61	-75.96	0.28	5747804.86	611512.16	S 38 24 39.760	E 148 16 38.088
982.89	57.49	191.15	190.36	792.99	409.99	-443.75	-76.78	0.28	5747800.72	611511.35	S 38 24 39.894	E 148 16 38.057
987.89	57.57	191.11	190.32	795.67	413.81	-447.89	-77.60	0.52	5747796.58	611510.53	S 38 24 40.029	E 148 16 38.026
992.89	57.49	191.21	190.42	798.36	417.64	-452.03	-78.41	0.70	5747792.44	611509.72	S 38 24 40.163	E 148 16 37.994
997.89	57.64	191.18	190.39	801.04	421.46	-456.17	-79.23	0.91	5747788.31	611508.90	S 38 24 40.298	E 148 16 37.963
1002.89	57.74	191.16	190.37	803.71	425.29	-460.31	-80.05	0.61	5747784.16	611508.08	S 38 24 40.433	E 148 16 37.931
1007.89	57.93	191.19	190.40	806.37	429.12	-464.47	-80.87	1.15	5747780.01	611507.26	S 38 24 40.568	E 148 16 37.900
1012.89	57.99	191.16	190.37	809.03	432.96	-468.62	-81.69	0.39	5747775.85	611506.44	S 38 24 40.703	E 148 16 37.869
1017.89	58.02	191.20	190.41	811.67	436.81	-472.78	-82.51	0.27	5747771.69	611505.62	S 38 24 40.838	E 148 16 37.837
1022.89	58.11	191.23	190.44	814.32	440.65	-476.95	-83.34	0.56	5747767.53	611504.79	S 38 24 40.974	E 148 16 37.805
1027.89	58.15	191.30	190.51	816.96	444.50	-481.11	-84.17	0.43	5747763.37	611503.96	S 38 24 41.109	E 148 16 37.774
1032.89	58.22	191.30	190.51	819.60	448.34	-485.28	-85.00	0.42	5747759.20	611503.13	S 38 24 41.245	E 148 16 37.742

	1037.89	58.34	191.33	190.54	822.22	452.19	-489.45	-85.84	0.74	5747755.03	611502.30	S 38 24 41.380	E 148 16 37.710
	1042.89	58.47	191.32	190.53	824.84	456.05	-493.62	-86.67	0.78	5747750.86	611501.46	S 38 24 41.516	E 148 16 37.678
	1047.89	58.51	191.34	190.55	827.46	459.90	-497.80	-87.51	0.26	5747746.68	611500.62	S 38 24 41.652	E 148 16 37.645
	1052.89	58.46	191.36	190.57	830.07	463.76	-501.98	-88.35	0.32	5747742.50	611499.78	S 38 24 41.788	E 148 16 37.613
	1057.89	58.63	191.32	190.53	832.68	467.62	-506.16	-89.19	1.04	5747738.32	611498.94	S 38 24 41.924	E 148 16 37.581
	1062.89	58.76	191.37	190.58	835.28	471.48	-510.35	-90.03	0.82	5747734.13	611498.10	S 38 24 42.060	E 148 16 37.549
	1067.89	58.80	191.37	190.58	837.87	475.35	-514.54	-90.87	0.24	5747729.94	611497.26	S 38 24 42.196	E 148 16 37.516
	1072.89	58.72	191.31	190.52	840.46	479.22	-518.74	-91.71	0.57	5747725.75	611496.42	S 38 24 42.333	E 148 16 37.484
	1077.89	58.63	191.38	190.59	843.06	483.09	-522.92	-92.55	0.65	5747721.57	611495.58	S 38 24 42.469	E 148 16 37.452
	1082.89	58.71	191.41	190.62	845.66	486.95	-527.11	-93.40	0.50	5747717.38	611494.74	S 38 24 42.605	E 148 16 37.420
	1087.89	58.80	191.40	190.61	848.26	490.82	-531.30	-94.24	0.54	5747713.19	611493.89	S 38 24 42.741	E 148 16 37.387
	1092.89	58.87	191.42	190.63	850.84	494.69	-535.49	-95.09	0.43	5747709.00	611493.05	S 38 24 42.878	E 148 16 37.355
	1097.89	58.73	191.41	190.62	853.43	498.55	-539.69	-95.93	0.84	5747704.81	611492.20	S 38 24 43.014	E 148 16 37.322
	1102.89	58.65	191.47	190.68	856.03	502.42	-543.87	-96.78	0.57	5747700.62	611491.35	S 38 24 43.150	E 148 16 37.290
	1107.89	58.54	191.48	190.69	858.64	506.27	-548.06	-97.63	0.66	5747696.44	611490.50	S 38 24 43.286	E 148 16 37.257
	1112.89	58.46	191.49	190.70	861.25	510.13	-552.23	-98.48	0.48	5747692.26	611489.66	S 38 24 43.422	E 148 16 37.224
	1117.89	58.52	191.54	190.75	863.86	513.98	-556.41	-99.33	0.44	5747688.09	611488.81	S 38 24 43.558	E 148 16 37.192
	1122.89	58.54	191.53	190.74	866.47	517.83	-560.59	-100.18	0.13	5747683.91	611487.95	S 38 24 43.694	E 148 16 37.159
	1127.89	58.59	191.61	190.82	869.08	521.68	-564.77	-101.04	0.51	5747679.73	611487.10	S 38 24 43.830	E 148 16 37.126
	1132.89	58.40	191.61	190.82	871.69	525.53	-568.94	-101.90	1.14	5747675.56	611486.24	S 38 24 43.965	E 148 16 37.093
	1137.89	58.25	191.61	190.82	874.32	529.37	-573.11	-102.75	0.90	5747671.39	611485.38	S 38 24 44.101	E 148 16 37.060
	1142.89	58.24	191.58	190.79	876.95	533.21	-577.28	-103.61	0.16	5747667.23	611484.53	S 38 24 44.236	E 148 16 37.027
	1147.89	58.35	191.60	190.81	879.58	537.05	-581.44	-104.46	0.67	5747663.06	611483.67	S 38 24 44.372	E 148 16 36.995
	1152.89	58.42	191.60	190.81	882.20	540.90	-585.62	-105.32	0.42	5747658.89	611482.82	S 38 24 44.507	E 148 16 36.962
	1157.89	58.47	191.64	190.85	884.82	544.75	-589.79	-106.18	0.36	5747654.72	611481.96	S 38 24 44.643	E 148 16 36.929
	1162.89	58.53	191.67	190.88	887.43	548.59	-593.96	-107.04	0.39	5747650.54	611481.10	S 38 24 44.779	E 148 16 36.896
	1167.89	58.47	191.68	190.89	890.04	552.44	-598.14	-107.90	0.36	5747646.37	611480.24	S 38 24 44.915	E 148 16 36.862
	1172.89	58.36	191.64	190.85	892.66	556.29	-602.31	-108.76	0.69	5747642.20	611479.38	S 38 24 45.050	E 148 16 36.829
	1177.89	58.36	191.67	190.88	895.28	560.13	-606.48	-109.62	0.15	5747638.03	611478.52	S 38 24 45.186	E 148 16 36.796
	1182.89	58.37	191.61	190.82	897.90	563.97	-610.65	-110.48	0.31	5747633.86	611477.66	S 38 24 45.322	E 148 16 36.763
	1187.89	58.44	191.65	190.86	900.52	567.81	-614.82	-111.34	0.47	5747629.69	611476.80	S 38 24 45.457	E 148 16 36.730
	1192.89	58.39	191.63	190.84	903.14	571.66	-618.99	-112.20	0.32	5747625.52	611475.94	S 38 24 45.593	E 148 16 36.697
	1197.89	58.49	191.64	190.85	905.76	575.51	-623.16	-113.06	0.60	5747621.35	611475.08	S 38 24 45.729	E 148 16 36.664
	1202.89	58.52	191.62	190.83	908.37	579.35	-627.34	-113.92	0.21	5747617.17	611474.22	S 38 24 45.864	E 148 16 36.631
	1207.89	58.55	191.63	190.84	910.98	583.20	-631.52	-114.78	0.19	5747613.00	611473.36	S 38 24 46.000	E 148 16 36.598
	1212.89	58.62	191.62	190.83	913.59	587.06	-635.70	-115.64	0.42	5747608.82	611472.50	S 38 24 46.136	E 148 16 36.565
	1217.89	58.56	191.64	190.85	916.19	590.91	-639.88	-116.50	0.37	5747604.64	611471.64	S 38 24 46.272	E 148 16 36.532
	1222.89	58.61	191.62	190.83	918.80	594.76	-644.06	-117.36	0.32	5747600.46	611470.78	S 38 24 46.408	E 148 16 36.499
	1227.89	58.53	191.59	190.80	921.41	598.61	-648.24	-118.21	0.50	5747596.28	611469.93	S 38 24 46.544	E 148 16 36.466
	1232.89	58.54	191.62	190.83	924.02	602.46	-652.41	-119.07	0.16	5747592.11	611469.07	S 38 24 46.680	E 148 16 36.433
	1237.89	58.49	191.62	190.83	926.63	606.31	-656.59	-119.93	0.30	5747587.93	611468.21	S 38 24 46.816	E 148 16 36.400
	1242.89	58.47	191.59	190.80	929.24	610.16	-660.77	-120.79	0.19	5747583.76	611467.35	S 38 24 46.951	E 148 16 36.367
	1247.89	58.52	191.61	190.82	931.86	614.01	-664.94	-121.65	0.32	5747579.58	611466.49	S 38 24 47.087	E 148 16 36.334
	1252.89	58.48	191.60	190.81	934.47	617.86	-669.12	-122.50	0.25	5747575.41	611465.64	S 38 24 47.223	E 148 16 36.301
	1257.89	58.57	191.63	190.84	937.08	621.71	-673.29	-123.36	0.56	5747571.23	611464.78	S 38 24 47.359	E 148 16 36.268
	1262.89	58.18	191.61	190.82	939.70	625.55	-677.46	-124.22	2.34	5747567.06	611463.92	S 38 24 47.494	E 148 16 36.235
	1267.89	58.49	191.61	190.82	942.32	629.40	-681.63	-125.08	1.86	5747562.90	611463.07	S 38 24 47.630	E 148 16 36.202
	1267.99	58.50	191.61	190.82	942.38	629.47	-681.72	-125.09	3.00	5747562.81	611463.05	S 38 24 47.633	E 148 16 36.201
	1268.79	58.57	191.61	190.82	942.79	630.09	-682.38	-125.23	2.62	5747562.14	611462.91	S 38 24 47.654	E 148 16 36.196
	1275.10	58.77	191.71	190.92	946.08	634.95	-687.66	-126.32	1.03	5747556.87	611461.82	S 38 24 47.826	E 148 16 36.154
	1285.60	58.71	191.77	190.98	951.52	643.05	-696.45	-128.15	0.23	5747548.08	611460.00	S 38 24 48.112	E 148 16 36.084
	1295.00	58.74	191.80	191.01	956.40	650.29	-704.32	-129.79	0.13	5747540.22	611458.36	S 38 24 48.368	E 148 16 36.021
	1305.30	58.76	191.80	191.01	961.75	658.23	-712.94	-131.59	0.06	5747531.60	611456.56	S 38 24 48.648	E 148 16 35.952
	1315.60	58.81	191.79	191.00	967.09	666.17	-721.56	-133.39	0.15	5747522.98	611454.76	S 38 24 48.928	E 148 16 35.882
	1326.00	58.73	191.72	190.93	972.48	674.19	-730.26	-135.20	0.29	5747514.28	611452.94	S 38 24 49.212	E 148 16 35.813
	1335.50	58.90	191.72	190.93	977.40	681.52	-738.22	-136.85	0.54	5747506.32	611451.29	S 38 24 49.470	E 148 16 35.749
	1345.20	58.66	191.65	190.86	982.42	689.01	-746.35	-138.53	0.77	5747498.20	611449.61	S 38 24 49.735	E 148 16 35.684
	1355.90	58.70	191.64	190.85	987.99	697.26	-755.30	-140.38	0.11	5747489.25	611447.77	S 38 24 50.026	E 148 16 35.614

1593.30	50.17	168.48	167.69	1125.92	884.24	-945.91	-132.41	1.05	5747298.68	611455.73	S 38 24 56.203	E 148 16 36.051
1621.71	50.05	166.75	165.96	1144.14	906.03	-967.20	-127.74	1.41	5747277.39	611460.40	S 38 24 56.892	E 148 16 36.255
1650.61	49.25	165.08	164.29	1162.85	928.05	-988.57	-122.38	1.56	5747256.04	611465.76	S 38 24 57.582	E 148 16 36.488
1679.24	49.93	162.42	161.63	1181.41	949.83	-1009.49	-116.28	2.24	5747235.12	611471.86	S 38 24 58.258	E 148 16 36.752
1707.31	51.98	160.05	159.26	1199.10	971.54	-1030.13	-109.26	2.94	5747214.49	611478.88	S 38 24 58.924	E 148 16 37.053
1735.98	53.13	156.95	156.16	1216.53	994.10	-1051.30	-100.92	2.84	5747193.32	611487.22	S 38 24 59.607	E 148 16 37.409
1764.43	53.16	154.58	153.79	1233.60	1016.49	-1072.05	-91.57	2.00	5747172.57	611496.56	S 38 25 0.276	E 148 16 37.806
1793.28	52.50	153.99	153.20	1251.03	1038.98	-1092.77	-81.60	0.84	5747151.86	611506.53	S 38 25 0.943	E 148 16 38.229
1821.77	50.97	154.49	153.70	1268.67	1060.87	-1112.91	-71.88	1.66	5747131.72	611516.25	S 38 25 1.592	E 148 16 38.641
1849.83	50.44	154.56	153.77	1286.44	1082.14	-1132.51	-62.54	0.57	5747112.13	611525.59	S 38 25 2.223	E 148 16 39.037
1877.48	50.75	154.34	153.55	1303.99	1103.06	-1151.79	-53.32	0.38	5747092.85	611534.80	S 38 25 2.844	E 148 16 39.428
1905.89	51.30	153.13	152.34	1321.86	1124.63	-1171.59	-43.55	1.15	5747073.05	611544.57	S 38 25 3.482	E 148 16 39.842
1934.47	50.53	152.72	151.93	1339.88	1146.22	-1191.35	-33.45	0.87	5747053.31	611554.67	S 38 25 4.118	E 148 16 40.270
1963.14	50.86	153.66	152.87	1358.04	1167.84	-1211.15	-23.44	0.84	5747033.51	611564.67	S 38 25 4.755	E 148 16 40.693
1991.60	50.93	152.39	151.60	1375.99	1189.35	-1230.83	-13.43	1.04	5747013.84	611574.69	S 38 25 5.389	E 148 16 41.118
2019.95	50.02	151.80	151.01	1394.04	1210.56	-1250.15	-3.19	1.08	5746994.52	611584.92	S 38 25 6.011	E 148 16 41.550
2048.43	50.25	152.25	151.46	1412.29	1231.76	-1269.46	7.06	0.44	5746975.21	611595.17	S 38 25 6.633	E 148 16 41.984
2076.87	50.61	152.51	151.72	1430.41	1253.06	-1288.88	17.22	0.43	5746955.79	611605.33	S 38 25 7.258	E 148 16 42.414
2105.24	50.21	151.98	151.19	1448.49	1274.28	-1308.23	27.40	0.60	5746936.45	611615.51	S 38 25 7.881	E 148 16 42.845
2133.88	50.49	152.25	151.46	1466.76	1295.67	-1327.72	37.72	0.37	5746916.97	611625.82	S 38 25 8.508	E 148 16 43.281
2161.97	50.61	151.95	151.16	1484.61	1316.71	-1346.89	47.87	0.28	5746897.80	611635.97	S 38 25 9.125	E 148 16 43.710
2190.45	50.34	152.03	151.24	1502.74	1338.01	-1366.29	58.18	0.29	5746878.41	611646.28	S 38 25 9.750	E 148 16 44.147
2219.15	50.36	152.00	151.21	1521.05	1359.44	-1385.80	68.55	0.03	5746858.90	611656.65	S 38 25 10.378	E 148 16 44.585
2247.45	50.83	151.97	151.18	1539.01	1380.64	-1405.10	78.82	0.50	5746839.60	611666.91	S 38 25 10.999	E 148 16 45.020
2275.68	50.35	151.56	150.77	1556.94	1401.77	-1424.32	89.14	0.61	5746820.39	611677.23	S 38 25 11.618	E 148 16 45.456
2304.24	49.92	152.29	151.50	1575.24	1423.02	-1443.66	99.46	0.74	5746801.05	611687.55	S 38 25 12.240	E 148 16 45.892
2332.69	50.24	152.55	151.76	1593.50	1444.21	-1463.00	109.56	0.40	5746781.72	611697.64	S 38 25 12.863	E 148 16 46.320
2361.45	50.40	152.55	151.76	1611.86	1465.73	-1482.64	119.77	0.17	5746762.08	611707.85	S 38 25 13.495	E 148 16 46.752
2390.06	50.52	152.43	151.64	1630.08	1487.17	-1502.21	129.96	0.16	5746742.52	611718.03	S 38 25 14.125	E 148 16 47.183
2419.00	50.35	152.30	151.51	1648.51	1508.84	-1521.98	140.30	0.20	5746722.76	611728.38	S 38 25 14.761	E 148 16 47.621
2447.71	50.15	152.71	151.92	1666.87	1530.29	-1541.56	150.50	0.39	5746703.18	611738.57	S 38 25 15.392	E 148 16 48.052
2476.11	50.35	152.71	151.92	1685.03	1551.52	-1560.96	160.51	0.21	5746683.78	611748.58	S 38 25 16.017	E 148 16 48.476
2504.23	50.14	152.17	151.38	1703.01	1572.52	-1580.13	170.51	0.50	5746664.62	611758.58	S 38 25 16.633	E 148 16 48.899
2532.22	50.27	152.37	151.58	1720.93	1593.40	-1599.16	180.52	0.22	5746645.59	611768.58	S 38 25 17.246	E 148 16 49.322
2560.17	50.22	153.20	152.41	1738.80	1614.31	-1618.27	190.34	0.69	5746626.49	611778.41	S 38 25 17.861	E 148 16 49.738
2588.65	50.02	152.83	152.04	1757.06	1635.59	-1637.75	200.26	0.37	5746607.02	611788.32	S 38 25 18.489	E 148 16 50.158
2616.70	49.87	152.56	151.77	1775.11	1656.47	-1656.83	210.11	0.27	5746587.94	611798.17	S 38 25 19.103	E 148 16 50.575
2645.11	50.39	152.68	151.89	1793.32	1677.67	-1676.19	220.14	0.56	5746568.59	611808.19	S 38 25 19.726	E 148 16 51.000
2673.81	50.13	153.10	152.31	1811.67	1699.15	-1695.83	230.19	0.43	5746548.95	611818.25	S 38 25 20.359	E 148 16 51.425
2702.36	49.76	153.18	152.39	1830.05	1720.44	-1715.33	240.07	0.39	5746529.46	611828.12	S 38 25 20.986	E 148 16 51.844
2730.45	50.48	152.89	152.10	1848.06	1741.44	-1734.54	249.84	0.80	5746510.25	611837.89	S 38 25 21.605	E 148 16 52.258
2758.87	49.72	153.61	152.82	1866.29	1762.69	-1754.01	259.65	0.99	5746490.78	611847.70	S 38 25 22.232	E 148 16 52.673
2787.31	50.01	153.70	152.91	1884.62	1783.92	-1773.49	269.30	0.31	5746471.30	611857.35	S 38 25 22.859	E 148 16 53.082
2815.54	50.27	154.24	153.45	1902.71	1805.10	-1792.96	278.81	0.52	5746451.84	611866.85	S 38 25 23.487	E 148 16 53.485
2843.71	49.97	153.55	152.76	1920.77	1826.22	-1812.38	288.32	0.65	5746432.43	611876.36	S 38 25 24.112	E 148 16 53.888
2870.87	50.40	153.49	152.70	1938.16	1846.58	-1831.05	297.63	0.48	5746413.76	611885.66	S 38 25 24.713	E 148 16 54.283
2898.99	50.90	152.48	151.69	1955.99	1867.75	-1850.42	307.50	0.99	5746394.40	611895.54	S 38 25 25.337	E 148 16 54.701
2926.96	50.29	152.82	152.03	1973.75	1888.77	-1869.62	317.43	0.71	5746375.20	611905.46	S 38 25 25.955	E 148 16 55.121
2955.05	50.59	152.90	152.11	1991.64	1909.84	-1888.89	327.31	0.33	5746355.94	611915.34	S 38 25 26.575	E 148 16 55.539
2984.07	50.78	152.44	151.65	2010.03	1931.68	-1908.83	337.62	0.42	5746336.00	611925.65	S 38 25 27.217	E 148 16 55.976
3012.59	50.74	152.25	151.46	2028.07	1953.13	-1928.40	347.87	0.16	5746316.44	611935.90	S 38 25 27.847	E 148 16 56.410
3040.88	50.62	153.05	152.26	2045.99	1974.41	-1947.84	357.93	0.67	5746297.00	611945.95	S 38 25 28.473	E 148 16 56.835
3069.76	51.15	152.81	152.02	2064.21	1996.22	-1967.79	368.12	0.58	5746277.05	611956.14	S 38 25 29.116	E 148 16 57.267
3097.97	50.44	152.91	152.12	2082.04	2017.50	-1987.24	378.10	0.76	5746257.61	611966.11	S 38 25 29.742	E 148 16 57.689
3127.12	50.57	152.75	151.96	2100.58	2039.39	-2007.26	388.37	0.18	5746237.60	611976.38	S 38 25 30.386	E 148 16 58.124
3155.30	50.47	153.18	152.39	2118.50	2060.56	-2026.63	398.25	0.37	5746218.23	611986.27	S 38 25 31.010	E 148 16 58.543
3184.13	50.50	152.96	152.17	2136.84	2082.23	-2046.46	408.33	0.18	5746198.41	611996.34	S 38 25 31.648	E 148 16 58.969
3213.06	50.46	152.82	152.03	2155.25	2103.95	-2066.32	418.50	0.12	5746178.55	612006.50	S 38 25 32.288	E 148 16 59.400
3241.26	50.87	152.80	152.01	2173.13	2125.17	-2085.73	428.46	0.44	5746159.15	612016.47	S 38 25 32.913	E 148 16 59.822
3269.92	50.80	152.65	151.86	2191.23	2146.79	-2105.48	438.65	0.14	5746139.40	612026.65	S 38 25 33.549	E 148 17 0.253
3299.21	50.53	152.99	152.20	2209.80	2168.83	-2125.63	448.99	0.39	5746119.26	612036.99	S 38 25 34.197	E 148 17 0.691
3327.58	50.79	153.09	152.30	2227.78	2190.20	-2145.18	458.94	0.29	5746099.70	612046.94	S 38 25 34.827	E 148 17 1.113
3356.24	50.41	153.01	152.22	2245.97	2211.77	-2164.93	468.98	0.40	5746079.97	612056.97	S 38 25 35.463	E 148 17 1.538
3384.82	50.52	152.47	151.68	2264.16	2233.21	-2184.52	479.08	0.45	5746060.38	612067.07	S 38 25 36.094	E 148 17 1.965
3413.39	51.31	152.51	151.72	2282.18	2254.76	-2204.19	489.32	0.83	5746040.71	612077.31	S 38 25 36.727	E 148 17 2.399
3442.33	50.42	152.03	151.24	2300.44	2276.55	-2224.06	499.76	1.00	5746020.85	612087.75	S 38 25 37.366	E 148 17 2.841
3471.14	50.92	152.85	152.06	2318.70	2298.20	-2243.81	510.07	0.84	5746001.10	612098.06	S 38 25 38.002	E 148 17 3.277
3499.59	50.60	152.96	152.17	2336.70	2319.65	-2263.43	520.11	0.35	5745981.49	612108.09	S 38 25 38.634	E 148 17 3.702
3527.61	50.89	153.65	152.86	2354.43	2340.80	-2282.81	529.86	0.65	5745962.11	612117.83	S 38 25 39.258	E 148 17 4.115
3556.38	50.20	153.74	152.95	2372.71	2362.49	-2302.73	539.70	0.72	5745942.20	612127.68	S 38 25 39.899	E 148 17 4.532
3584.17	50.55	153.39	152.60	2390.43	2383.38	-2321.89	549.23	0.48	5745923.04	612137.20	S 38 25 40.517	E 148 17 4.936
3611.78	50.47	153.61	152.82	2407.99	2404.17	-2340.96	558.74	0.20	5745903.97	612146.71	S 38 25 41.131	E 148 17 5.339
3640.27	50.71	153.28	152.49	2426.08	2425.65	-2360.65	568.58	0.37				

	3668.34	50.64	153.17	152.38	2443.87	2446.81	-2380.04	578.36	0.12	5745864.91	612166.33	S 38 25 42.389	E 148 17 6.170
	3696.75	50.24	153.46	152.67	2461.96	2468.17	-2399.61	588.20	0.48	5745845.34	612176.16	S 38 25 43.019	E 148 17 6.587
	3726.16	50.59	153.30	152.51	2480.70	2490.27	-2419.87	598.35	0.38	5745825.08	612186.31	S 38 25 43.672	E 148 17 7.017
Projected to TD	3746.00	50.83	153.19	152.40	2493.27	2505.24	-2433.58	605.26	0.39	5745811.38	612193.22	S 38 25 44.113	E 148 17 7.310

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	111.49	Act-Stns	SLB_CNSG+CASING-Depth Only	FTA A-9A -> FTA A-9A Final Gyro
111.49	1268.79	Act-Stns	SLB_CNSG+CASING	FTA A-9A -> FTA A-9A Final Gyro
1268.79	1391.00	Act-Stns	SLB_CNSG+DPIPE	FTA A-9A -> FTA A-9A Final Gyro
1391.00	1550.60	Act-Stns	SLB_CNSG+DPIPE	FTA A-9B -> FTA A-9B Gyro Final
1550.60	3746.00	Act-Stns	SLB_MWD+SAG	FTA A-9B -> FTA A-9B Gyro Final

APPENDIX 1b

FORTESCUE A9B

Survey Data Listing

Report Date:	7 Febuary 2008
Well:	Fortescue A9B
Structure / Slot:	NABORS Rig 175/ 9
TVD Reference Datum:	Drillsite Elevation
TVD Reference Elevation:	42.5 m relative to MSL
Sea Bed / Ground Level Elevation:	111.5 m relative to MSL
Grid Coordinate System:	GDA94/MGA94 Zone 55
Location Lat/Long:	S 38 24' 25.534", E 148 16' 41.061"
Location Grid N/E:	N 5748242.360 m, E 611590.350 m
Survey Azimuth Reference:	Grid North

*Dnorth and Deast are with respect to top of conductor 9, whereas NS and EW offsets on Anadrill/Schlumberger survey data are with respect to No. 1 conductor. Northings and Eastings are absolute grid coordinates.

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
0	0	0	0	42.49	0	0	5748242.36	611590.35
5	0.01	2.89	5	37.49	0	0	5748242.36	611590.35
10	0.03	9.75	10	32.49	0	0	5748242.36	611590.35
15	0.05	16.6	15	27.49	0	0.01	5748242.37	611590.36
20	0.07	23.45	20.00	22.49	0.00	0.01	5748242.37	611590.36
25	0.09	30.31	25.00	17.49	0.01	0.02	5748242.37	611590.37
30	0.11	37.16	30.00	12.49	0.01	0.03	5748242.37	611590.38
35	0.13	44.01	35.00	7.49	0.01	0.04	5748242.37	611590.39
40	0.16	50.87	40.00	2.49	0.01	0.05	5748242.38	611590.40
45	0.18	57.72	45.00	-2.51	0.02	0.06	5748242.38	611590.42
50	0.20	64.57	50.00	-7.51	0.02	0.08	5748242.39	611590.43
55	0.22	71.43	55.00	-12.51	0.02	0.10	5748242.39	611590.45
60	0.25	76.99	60.00	-17.51	0.03	0.12	5748242.40	611590.47
65	0.30	78.18	65.00	-22.51	0.03	0.14	5748242.40	611590.49
70	0.35	74.55	70.00	-27.51	0.04	0.17	5748242.41	611590.52
75	0.34	67.37	75.00	-32.51	0.05	0.20	5748242.42	611590.55
80	0.32	62.50	80.00	-37.51	0.06	0.22	5748242.43	611590.57
85	0.34	64.04	85.00	-42.51	0.08	0.25	5748242.44	611590.60
90	0.39	65.34	90.00	-47.51	0.09	0.28	5748242.46	611590.63
95	0.41	68.58	95.00	-52.51	0.10	0.31	5748242.47	611590.66
100	0.39	79.74	100.00	-57.51	0.11	0.34	5748242.48	611590.69
105	0.38	100.66	105.00	-62.51	0.11	0.37	5748242.48	611590.73
110	0.43	114.76	110.00	-67.51	0.10	0.41	5748242.47	611590.76
115	0.48	109.19	115.00	-72.51	0.09	0.44	5748242.45	611590.80
120	0.46	108.26	120.00	-77.51	0.08	0.48	5748242.44	611590.84
125	0.49	123.09	125.00	-82.51	0.06	0.52	5748242.42	611590.87
130	0.65	138.56	130.00	-87.51	0.03	0.55	5748242.39	611590.91
135	0.73	155.05	135.00	-92.51	-0.03	0.59	5748242.34	611590.94
140	0.82	172.68	140.00	-97.51	-0.08	0.60	5748242.28	611590.96
145	1.14	186.03	145.00	-102.51	-0.17	0.60	5748242.19	611590.95
150	1.16	179.89	150.00	-107.51	-0.28	0.59	5748242.09	611590.94
155	1.14	176.97	155.00	-112.51	-0.37	0.60	5748241.99	611590.95
160	1.38	185.37	159.99	-117.50	-0.48	0.59	5748241.89	611590.94
165	1.62	187.52	164.99	-122.50	-0.61	0.58	5748241.76	611590.93
170	1.75	185.05	169.99	-127.50	-0.76	0.56	5748241.61	611590.91
175	1.86	183.91	174.99	-132.50	-0.91	0.55	5748241.45	611590.90
180	2.03	189.32	179.98	-137.49	-1.08	0.53	5748241.28	611590.88
185	2.05	190.89	184.98	-142.49	-1.26	0.49	5748241.11	611590.85
190	2.06	189.95	189.98	-147.49	-1.43	0.46	5748240.93	611590.82
195	2.22	191.48	194.97	-152.48	-1.62	0.43	5748240.75	611590.78
200	2.35	194.18	199.97	-157.48	-1.81	0.38	5748240.55	611590.74
205	2.42	194.70	204.97	-162.48	-2.01	0.33	5748240.35	611590.68
210	2.62	193.51	209.96	-167.47	-2.22	0.28	5748240.14	611590.63
215	2.94	192.73	214.96	-172.47	-2.46	0.22	5748239.91	611590.58
220	3.39	192.70	219.95	-177.46	-2.73	0.16	5748239.64	611590.52
225	3.95	193.31	224.94	-182.45	-3.04	0.09	5748239.33	611590.45
230	4.52	194.98	229.92	-187.43	-3.40	0.00	5748238.97	611590.36

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
235	5.18	196.33	234.91	-192.42	-3.80	-0.11	5748238.56	611590.24
240	5.83	196.16	239.88	-197.39	-4.26	-0.25	5748238.10	611590.10
245	6.45	195.56	244.85	-202.36	-4.78	-0.39	5748237.59	611589.96
250	7.01	195.61	249.82	-207.33	-5.34	-0.55	5748237.02	611589.80
255	7.51	195.42	254.78	-212.29	-5.95	-0.72	5748236.41	611589.63
260	7.99	195.31	259.73	-217.24	-6.60	-0.90	5748235.76	611589.45
265	8.46	194.89	264.68	-222.19	-7.29	-1.09	5748235.07	611589.27
270	8.82	194.51	269.63	-227.13	-8.02	-1.28	5748234.35	611589.08
275	9.21	194.53	274.56	-232.07	-8.78	-1.47	5748233.59	611588.88
280	9.69	193.67	279.50	-237.01	-9.57	-1.67	5748232.79	611588.68
285	10.22	192.43	284.42	-241.93	-10.41	-1.87	5748231.95	611588.48
290	10.80	191.38	289.34	-246.85	-11.31	-2.06	5748231.06	611588.30
295	11.25	190.26	294.24	-251.75	-12.25	-2.24	5748230.12	611588.12
300	11.61	189.95	299.14	-256.65	-13.22	-2.41	5748229.14	611587.95
305	12.07	190.03	304.04	-261.55	-14.23	-2.59	5748228.13	611587.77
310	12.41	189.51	308.93	-266.44	-15.28	-2.77	5748227.09	611587.59
315	12.75	189.51	313.81	-271.32	-16.35	-2.94	5748226.02	611587.41
320	13.23	189.74	318.68	-276.19	-17.46	-3.13	5748224.91	611587.22
325	13.68	189.94	323.54	-281.05	-18.60	-3.33	5748223.76	611587.02
330	14.15	190.27	328.39	-285.90	-19.78	-3.54	5748222.58	611586.81
335	14.70	190.51	333.24	-290.75	-21.01	-3.77	5748221.35	611586.59
340	15.18	191.07	338.07	-295.58	-22.28	-4.01	5748220.09	611586.35
345	15.67	191.97	342.89	-300.40	-23.58	-4.27	5748218.78	611586.08
350	16.07	192.93	347.70	-305.21	-24.92	-4.57	5748217.45	611585.79
355	16.49	193.63	352.50	-310.01	-26.28	-4.89	5748216.09	611585.46
360	17.10	193.89	357.28	-314.79	-27.68	-5.23	5748214.69	611585.12
365	17.74	193.86	362.05	-319.56	-29.13	-5.59	5748213.23	611584.76
370	18.23	193.63	366.81	-324.32	-30.63	-5.96	5748211.73	611584.39
375	18.72	193.53	371.55	-329.06	-32.17	-6.33	5748210.19	611584.02
380	19.24	193.48	376.28	-333.79	-33.75	-6.71	5748208.61	611583.64
385	19.68	193.37	380.99	-338.50	-35.37	-7.10	5748206.99	611583.25
390	20.14	193.26	385.69	-343.20	-37.03	-7.49	5748205.34	611582.86
395	20.64	193.18	390.38	-347.89	-38.73	-7.89	5748203.64	611582.46
400	21.12	193.14	395.05	-352.56	-40.46	-8.29	5748201.90	611582.06
405	21.68	193.04	399.71	-357.22	-42.24	-8.71	5748200.13	611581.64
410	22.17	192.86	404.35	-361.86	-44.06	-9.13	5748198.31	611581.23
415	22.65	192.66	408.97	-366.48	-45.92	-9.55	5748196.45	611580.81
420	23.11	192.47	413.57	-371.08	-47.81	-9.97	5748194.55	611580.38
425	23.51	192.34	418.17	-375.68	-49.74	-10.39	5748192.62	611579.96
430	23.98	192.28	422.74	-380.25	-51.71	-10.82	5748190.65	611579.53
435	24.37	192.24	427.31	-384.82	-53.71	-11.26	5748188.65	611579.09
440	24.77	192.18	431.85	-389.36	-55.74	-11.70	5748186.62	611578.66
445	25.19	192.14	436.38	-393.89	-57.81	-12.14	5748184.56	611578.21
450	25.63	192.12	440.90	-398.41	-59.90	-12.59	5748182.46	611577.76
455	26.10	192.05	445.40	-402.91	-62.04	-13.05	5748180.33	611577.30
460	26.57	191.85	449.88	-407.39	-64.21	-13.51	5748178.16	611576.84
465	27.03	191.70	454.34	-411.85	-66.41	-13.97	5748175.95	611576.38
470	27.48	191.64	458.79	-416.30	-68.66	-14.43	5748173.71	611575.92
475	27.92	191.54	463.22	-420.73	-70.93	-14.90	5748171.43	611575.45
480	28.36	191.40	467.63	-425.13	-73.24	-15.37	5748169.12	611574.98
485	28.83	191.27	472.01	-429.52	-75.59	-15.84	5748166.78	611574.51
490	29.31	191.19	476.38	-433.89	-77.97	-16.31	5748164.39	611574.04
495	29.83	191.03	480.73	-438.24	-80.39	-16.79	5748161.97	611573.57
500	30.37	190.86	485.06	-442.57	-82.85	-17.26	5748159.51	611573.09
505	30.84	190.73	489.36	-446.87	-85.35	-17.74	5748157.01	611572.61
510	31.31	190.62	493.65	-451.16	-87.89	-18.22	5748154.48	611572.14
515	31.79	190.54	497.91	-455.42	-90.46	-18.70	5748151.91	611571.65
520	32.22	190.39	502.15	-459.66	-93.06	-19.18	5748149.30	611571.17
525	32.69	190.27	506.37	-463.88	-95.70	-19.66	5748146.66	611570.69

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
530	33.15	190.22	510.56	-468.07	-98.38	-20.14	5748143.99	611570.21
535	33.58	190.16	514.74	-472.25	-101.08	-20.63	5748141.28	611569.72
540	34.04	190.10	518.89	-476.40	-103.82	-21.12	5748138.54	611569.23
545	34.51	190.04	523.02	-480.54	-106.59	-21.61	5748135.77	611568.74
550	34.96	190.00	527.13	-484.64	-109.40	-22.11	5748132.97	611568.25
555	35.36	189.95	531.22	-488.73	-112.23	-22.61	5748130.13	611567.75
560	35.85	189.87	535.29	-492.80	-115.10	-23.11	5748127.26	611567.25
565	36.36	189.79	539.33	-496.84	-118.00	-23.61	5748124.36	611566.74
570	36.87	189.70	543.34	-500.85	-120.94	-24.11	5748121.42	611566.24
575	37.26	189.64	547.33	-504.84	-123.92	-24.62	5748118.45	611565.73
580	37.72	189.58	551.30	-508.81	-126.91	-25.13	5748115.46	611565.23
585	38.43	189.51	555.23	-512.74	-129.95	-25.64	5748112.41	611564.71
590	38.93	189.48	559.14	-516.65	-133.03	-26.15	5748109.33	611564.20
595	39.43	189.46	563.01	-520.52	-136.15	-26.67	5748106.21	611563.68
600	39.89	189.50	566.86	-524.37	-139.30	-27.20	5748103.07	611563.15
605	40.39	189.54	570.68	-528.19	-142.48	-27.73	5748099.89	611562.62
610	40.86	189.53	574.48	-531.99	-145.69	-28.27	5748096.68	611562.08
615	41.29	189.51	578.25	-535.76	-148.93	-28.81	5748093.44	611561.54
620	41.86	189.52	581.99	-539.50	-152.20	-29.36	5748090.17	611560.99
625	42.46	189.61	585.69	-543.20	-155.51	-29.92	5748086.86	611560.43
630	42.99	189.72	589.37	-546.88	-158.85	-30.49	5748083.52	611559.86
635	43.61	189.66	593.01	-550.52	-162.23	-31.07	5748080.14	611559.29
640	44.24	189.56	596.61	-554.12	-165.65	-31.65	5748076.72	611558.71
645	44.86	189.44	600.17	-557.68	-169.11	-32.22	5748073.26	611558.13
650	45.48	189.36	603.70	-561.21	-172.60	-32.80	5748069.76	611557.55
655	46.08	189.28	607.18	-564.69	-176.14	-33.38	5748066.23	611556.97
660	46.69	189.22	610.63	-568.14	-179.71	-33.97	5748062.65	611556.39
665	47.24	189.18	614.04	-571.55	-183.32	-34.55	5748059.04	611555.80
670	47.70	189.14	617.42	-574.93	-186.96	-35.14	5748055.41	611555.22
675	48.17	189.10	620.77	-578.28	-190.62	-35.73	5748051.74	611554.63
680	48.61	189.07	624.09	-581.60	-194.31	-36.32	5748048.05	611554.04
685	49.04	189.05	627.38	-584.89	-198.03	-36.91	5748044.34	611553.45
690	49.47	189.02	630.65	-588.16	-201.77	-37.50	5748040.59	611552.85
695	49.88	188.97	633.88	-591.39	-205.53	-38.10	5748036.83	611552.25
700	50.41	188.95	637.09	-594.60	-209.32	-38.70	5748033.04	611551.66
705	50.98	188.94	640.26	-597.77	-213.15	-39.30	5748029.22	611551.06
710	51.51	188.95	643.39	-600.90	-217.00	-39.90	5748025.37	611550.45
715	51.97	188.97	646.48	-603.99	-220.88	-40.52	5748021.49	611549.84
720	52.38	188.99	649.55	-607.06	-224.78	-41.13	5748017.59	611549.22
725	52.83	189.04	652.58	-610.09	-228.70	-41.75	5748013.67	611548.60
730	53.26	189.08	655.59	-613.10	-232.64	-42.38	5748009.72	611547.97
735	53.75	189.08	658.57	-616.08	-236.61	-43.02	5748005.75	611547.34
740	54.30	189.06	661.50	-619.01	-240.61	-43.65	5748001.76	611546.70
745	54.87	189.03	664.40	-621.91	-244.63	-44.29	5747997.74	611546.06
750	55.38	189.00	667.26	-624.77	-248.68	-44.94	5747993.68	611545.42
755	55.81	189.00	670.08	-627.59	-252.75	-45.58	5747989.61	611544.77
760	56.31	189.01	672.88	-630.38	-256.85	-46.23	5747985.51	611544.12
765	56.78	189.05	675.63	-633.14	-260.97	-46.89	5747981.39	611543.47
770	57.25	189.05	678.35	-635.86	-265.11	-47.55	5747977.25	611542.81
775	57.47	189.06	681.04	-638.55	-269.27	-48.21	5747973.09	611542.15
780	57.34	189.16	683.74	-641.25	-273.43	-48.88	5747968.93	611541.48
785	57.39	189.23	686.44	-643.95	-277.58	-49.55	5747964.78	611540.81
790	57.67	189.31	689.12	-646.63	-281.75	-50.23	5747960.62	611540.13
795	57.77	189.31	691.79	-649.30	-285.92	-50.91	5747956.45	611539.44
800	57.77	189.32	694.46	-651.97	-290.09	-51.60	5747952.27	611538.76
805	57.83	189.35	697.12	-654.63	-294.27	-52.28	5747948.10	611538.07
810	57.85	189.40	699.78	-657.29	-298.44	-52.97	5747943.92	611537.38
815	57.89	189.48	702.45	-659.96	-302.62	-53.67	5747939.75	611536.69
820	57.97	189.49	705.10	-662.61	-306.80	-54.36	5747935.57	611535.99

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
825	57.96	189.50	707.75	-665.26	-310.98	-55.06	5747931.39	611535.29
830	58.06	189.49	710.40	-667.91	-315.16	-55.76	5747927.21	611534.59
835	58.07	189.51	713.04	-670.55	-319.34	-56.46	5747923.02	611533.89
840	58.02	189.56	715.69	-673.20	-323.53	-57.17	5747918.84	611533.19
845	57.80	189.63	718.34	-675.85	-327.70	-57.87	5747914.66	611532.48
850	57.57	189.76	721.02	-678.53	-331.87	-58.58	5747910.50	611531.77
855	57.40	189.86	723.70	-681.21	-336.02	-59.30	5747906.34	611531.05
860	57.21	189.94	726.41	-683.92	-340.17	-60.02	5747902.20	611530.33
865	57.10	190.03	729.12	-686.63	-344.30	-60.75	5747898.06	611529.60
870	57.06	190.11	731.84	-689.35	-348.43	-61.49	5747893.93	611528.87
875	56.99	190.17	734.56	-692.07	-352.56	-62.23	5747889.80	611528.13
880	56.81	190.21	737.29	-694.80	-356.69	-62.97	5747885.68	611527.39
885	56.68	190.29	740.03	-697.54	-360.80	-63.71	5747881.57	611526.64
890	56.81	190.34	742.77	-700.28	-364.91	-64.46	5747877.45	611525.89
895	56.98	190.40	745.50	-703.01	-369.03	-65.21	5747873.33	611525.14
900	57.08	190.43	748.23	-705.74	-373.16	-65.97	5747869.21	611524.38
905	57.11	190.43	750.94	-708.45	-377.29	-66.73	5747865.08	611523.62
910	57.10	190.50	753.66	-711.17	-381.41	-67.50	5747860.95	611522.86
915	57.16	190.50	756.37	-713.88	-385.54	-68.26	5747856.82	611522.09
920	57.19	190.55	759.08	-716.59	-389.67	-69.03	5747852.69	611521.33
925	57.24	190.60	761.79	-719.30	-393.80	-69.80	5747848.56	611520.55
930	57.24	190.65	764.49	-722.00	-397.93	-70.57	5747844.43	611519.78
935	57.24	190.70	767.20	-724.71	-402.07	-71.35	5747840.30	611519.00
940	57.24	190.76	769.90	-727.41	-406.20	-72.14	5747836.17	611518.22
945	57.27	190.81	772.61	-730.12	-410.33	-72.92	5747832.04	611517.43
950	57.40	190.85	775.31	-732.82	-414.46	-73.71	5747827.90	611516.64
955	57.45	190.89	778.00	-735.51	-418.60	-74.51	5747823.77	611515.85
960	57.44	190.90	780.69	-738.20	-422.74	-75.30	5747819.63	611515.05
965	57.47	190.97	783.38	-740.89	-426.87	-76.10	5747815.49	611514.25
970	57.50	191.05	786.07	-743.58	-431.01	-76.91	5747811.35	611513.45
975	57.54	191.15	788.75	-746.26	-435.15	-77.72	5747807.21	611512.63
980	57.51	191.17	791.43	-748.95	-439.29	-78.54	5747803.08	611511.82
985	57.52	191.13	794.12	-751.63	-443.43	-79.35	5747798.94	611511.00
990	57.54	191.15	796.80	-754.31	-447.56	-80.17	5747794.80	611510.19
995	57.55	191.20	799.49	-757.00	-451.70	-80.98	5747790.66	611509.37
1000	57.68	191.17	802.17	-759.68	-455.84	-81.80	5747786.52	611508.55
1005	57.82	191.17	804.84	-762.35	-459.99	-82.62	5747782.37	611507.73
1010	57.96	191.18	807.49	-765.00	-464.15	-83.44	5747778.22	611506.91
1015	58.00	191.18	810.14	-767.65	-468.31	-84.26	5747774.06	611506.09
1020	58.06	191.21	812.79	-770.30	-472.47	-85.09	5747769.90	611505.27
1025	58.13	191.26	815.43	-772.94	-476.63	-85.91	5747765.74	611504.44
1030	58.18	191.30	818.07	-775.58	-480.79	-86.75	5747761.57	611503.61
1035	58.27	191.31	820.71	-778.22	-484.96	-87.58	5747757.40	611502.77
1040	58.39	191.33	823.33	-780.84	-489.13	-88.41	5747753.23	611501.94
1045	58.49	191.33	825.95	-783.46	-493.31	-89.25	5747749.05	611501.10
1050	58.49	191.35	828.56	-786.07	-497.49	-90.09	5747744.88	611500.26
1055	58.53	191.34	831.17	-788.68	-501.67	-90.93	5747740.70	611499.43
1060	58.68	191.34	833.78	-791.29	-505.85	-91.77	5747736.51	611498.59
1065	58.78	191.37	836.37	-793.88	-510.04	-92.61	5747732.32	611497.74
1070	58.77	191.34	838.96	-796.47	-514.24	-93.45	5747728.13	611496.90
1075	58.68	191.34	841.56	-799.07	-518.42	-94.29	5747723.94	611496.06
1080	58.66	191.39	844.16	-801.67	-522.61	-95.13	5747719.75	611495.22
1085	58.75	191.41	846.76	-804.27	-526.80	-95.98	5747715.57	611494.38
1090	58.83	191.41	849.35	-806.86	-530.99	-96.82	5747711.38	611493.53
1095	58.81	191.42	851.93	-809.44	-535.18	-97.67	5747707.18	611492.68
1100	58.70	191.44	854.53	-812.04	-539.37	-98.51	5747702.99	611491.84
1105	58.60	191.47	857.13	-814.64	-543.56	-99.36	5747698.81	611490.99
1110	58.51	191.48	859.74	-817.25	-547.74	-100.21	5747694.63	611490.14
1115	58.49	191.51	862.35	-819.86	-551.91	-101.06	5747690.45	611489.29

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1120	58.53	191.54	864.96	-822.47	-556.09	-101.91	5747686.27	611488.44
1125	58.56	191.56	867.57	-825.08	-560.27	-102.77	5747682.10	611487.59
1130	58.51	191.61	870.18	-827.69	-564.45	-103.62	5747677.92	611486.73
1135	58.34	191.61	872.80	-830.31	-568.62	-104.48	5747673.75	611485.87
1140	58.25	191.60	875.43	-832.94	-572.78	-105.34	5747669.58	611485.02
1145	58.29	191.59	878.06	-835.57	-576.95	-106.19	5747665.42	611484.16
1150	58.38	191.60	880.68	-838.19	-581.12	-107.05	5747661.25	611483.31
1155	58.44	191.62	883.30	-840.81	-585.29	-107.90	5747657.08	611482.45
1160	58.50	191.65	885.92	-843.43	-589.46	-108.76	5747652.90	611481.59
1165	58.50	191.67	888.53	-846.04	-593.64	-109.62	5747648.73	611480.73
1170	58.42	191.66	891.14	-848.65	-597.81	-110.49	5747644.55	611479.87
1175	58.36	191.65	893.77	-851.28	-601.98	-111.34	5747640.38	611479.01
1180	58.36	191.64	896.39	-853.90	-606.15	-112.21	5747636.21	611478.15
1185	58.40	191.63	899.01	-856.52	-610.32	-113.06	5747632.04	611477.29
1190	58.42	191.64	901.63	-859.14	-614.49	-113.92	5747627.87	611476.43
1195	58.43	191.63	904.25	-861.76	-618.66	-114.78	5747623.70	611475.57
1200	58.50	191.63	906.86	-864.37	-622.84	-115.64	5747619.53	611474.71
1205	58.53	191.62	909.47	-866.98	-627.01	-116.50	5747615.35	611473.85
1210	58.58	191.63	912.08	-869.59	-631.19	-117.36	5747611.18	611472.99
1215	58.59	191.63	914.69	-872.20	-635.37	-118.22	5747607.00	611472.13
1220	58.58	191.63	917.29	-874.80	-639.55	-119.08	5747602.82	611471.27
1225	58.58	191.61	919.90	-877.41	-643.73	-119.94	5747598.64	611470.42
1230	58.53	191.60	922.51	-880.02	-647.91	-120.80	5747594.46	611469.56
1235	58.52	191.62	925.12	-882.63	-652.08	-121.65	5747590.28	611468.70
1240	58.48	191.61	927.73	-885.24	-656.26	-122.51	5747586.11	611467.84
1245	58.49	191.60	930.35	-887.86	-660.43	-123.37	5747581.93	611466.98
1250	58.50	191.61	932.96	-890.47	-664.61	-124.23	5747577.76	611466.13
1255	58.52	191.61	935.57	-893.08	-668.78	-125.08	5747573.58	611465.27
1260	58.41	191.62	938.18	-895.69	-672.96	-125.94	5747569.41	611464.41
1265	58.31	191.61	940.81	-898.32	-677.13	-126.80	5747565.24	611463.55
1270	58.61	191.63	943.42	-900.93	-681.30	-127.66	5747561.07	611462.70
1275	58.77	191.71	946.02	-903.53	-685.48	-128.52	5747556.88	611461.83
1280	58.74	191.74	948.62	-906.13	-689.67	-129.39	5747552.70	611460.96
1285	58.71	191.77	951.21	-908.72	-693.85	-130.26	5747548.51	611460.09
1290	58.72	191.78	953.81	-911.32	-698.03	-131.13	5747544.33	611459.22
1295	58.74	191.80	956.40	-913.91	-702.22	-132.00	5747540.15	611458.35
1300	58.75	191.80	959.00	-916.51	-706.40	-132.88	5747535.96	611457.47
1305	58.76	191.80	961.59	-919.10	-710.58	-133.75	5747531.78	611456.60
1310	58.78	191.80	964.18	-921.70	-714.77	-134.63	5747527.60	611455.73
1315	58.81	191.79	966.77	-924.28	-718.96	-135.50	5747523.41	611454.85
1320	58.78	191.76	969.37	-926.88	-723.14	-136.37	5747519.22	611453.98
1325	58.74	191.73	971.96	-929.47	-727.33	-137.24	5747515.04	611453.11
1330	58.80	191.72	974.55	-932.06	-731.51	-138.11	5747510.85	611452.24
1335	58.89	191.72	977.14	-934.65	-735.70	-138.98	5747506.66	611451.37
1340	58.79	191.69	979.73	-937.24	-739.89	-139.85	5747502.47	611450.50
1345	58.66	191.65	982.32	-939.83	-744.08	-140.71	5747498.29	611449.64
1350	58.68	191.65	984.92	-942.43	-748.26	-141.58	5747494.11	611448.78
1355	58.70	191.64	987.52	-945.03	-752.44	-142.44	5747489.92	611447.92
1360	58.65	191.63	990.12	-947.63	-756.62	-143.30	5747485.74	611447.06
1365	58.59	191.61	992.72	-950.23	-760.81	-144.16	5747481.56	611446.19
1370	58.52	191.63	995.33	-952.84	-764.98	-145.02	5747477.38	611445.34
1375	58.45	191.65	997.95	-955.46	-769.16	-145.88	5747473.21	611444.48
1380	58.21	191.23	1000.57	-958.08	-773.33	-146.72	5747469.04	611443.63
1385	57.97	190.81	1003.21	-960.72	-777.49	-147.53	5747464.87	611442.82
1390	57.39	189.98	1005.88	-963.39	-781.65	-148.30	5747460.71	611442.06
1395	56.60	188.68	1008.61	-966.12	-785.79	-148.98	5747456.58	611441.37
1400	56.79	187.01	1011.36	-968.87	-789.92	-149.55	5747452.44	611440.80
1405	57.09	185.31	1014.08	-971.59	-794.09	-150.00	5747448.27	611440.35
1410	57.12	185.56	1016.80	-974.31	-798.27	-150.39	5747444.09	611439.97

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1415	57.13	184.59	1019.51	-977.02	-802.45	-150.76	5747439.91	611439.59
1420	57.14	183.58	1022.23	-979.74	-806.64	-151.06	5747435.73	611439.29
1425	57.15	182.56	1024.94	-982.45	-810.83	-151.28	5747431.53	611439.07
1430	57.17	181.54	1027.66	-985.17	-815.03	-151.43	5747427.34	611438.92
1435	57.18	180.53	1030.37	-987.88	-819.23	-151.51	5747423.14	611438.84
1440	57.19	179.51	1033.08	-990.59	-823.43	-151.51	5747418.94	611438.84
1445	56.75	179.28	1035.81	-993.32	-827.62	-151.47	5747414.74	611438.89
1450	56.31	179.06	1038.56	-996.07	-831.79	-151.41	5747410.58	611438.95
1455	55.86	178.84	1041.35	-998.86	-835.94	-151.33	5747406.43	611439.02
1460	55.41	178.63	1044.17	-1001.68	-840.06	-151.24	5747402.30	611439.11
1465	54.97	178.41	1047.03	-1004.54	-844.17	-151.13	5747398.20	611439.22
1470	54.49	177.68	1049.92	-1007.43	-848.25	-151.00	5747394.12	611439.35
1475	53.99	176.82	1052.84	-1010.35	-852.30	-150.81	5747390.07	611439.55
1480	53.50	175.95	1055.80	-1013.31	-856.32	-150.55	5747386.04	611439.80
1485	53.01	175.08	1058.79	-1016.30	-860.32	-150.24	5747382.05	611440.11
1490	52.86	173.89	1061.80	-1019.31	-864.28	-149.86	5747378.08	611440.50
1495	52.74	172.67	1064.83	-1022.34	-868.24	-149.39	5747374.13	611440.96
1500	52.63	171.45	1067.86	-1025.37	-872.18	-148.84	5747370.19	611441.51
1505	52.51	170.23	1070.90	-1028.41	-876.09	-148.21	5747366.27	611442.14
1510	52.39	169.81	1073.95	-1031.46	-880.00	-147.52	5747362.37	611442.83
1515	52.27	169.46	1077.00	-1034.51	-883.89	-146.81	5747358.47	611443.54
1520	52.16	169.12	1080.07	-1037.58	-887.77	-146.08	5747354.59	611444.28
1525	52.04	168.77	1083.14	-1040.65	-891.64	-145.32	5747350.72	611445.03
1530	51.92	168.43	1086.22	-1043.73	-895.50	-144.54	5747346.86	611445.81
1535	51.82	168.35	1089.31	-1046.82	-899.36	-143.75	5747343.01	611446.60
1540	51.71	168.33	1092.40	-1049.91	-903.20	-142.96	5747339.16	611447.40
1545	51.61	168.31	1095.50	-1053.01	-907.04	-142.16	5747335.32	611448.19
1550	51.51	168.28	1098.61	-1056.12	-910.88	-141.37	5747331.49	611448.99
1555	51.40	168.33	1101.72	-1059.23	-914.71	-140.57	5747327.66	611449.78
1560	51.28	168.39	1104.85	-1062.36	-918.53	-139.79	5747323.83	611450.57
1565	51.16	168.45	1107.98	-1065.49	-922.35	-139.00	5747320.02	611451.35
1570	50.98	168.46	1111.12	-1068.63	-926.16	-138.23	5747316.21	611452.13
1575	50.81	168.46	1114.28	-1071.79	-929.96	-137.45	5747312.40	611452.90
1580	50.63	168.47	1117.44	-1074.95	-933.75	-136.67	5747308.61	611453.68
1585	50.46	168.47	1120.62	-1078.13	-937.54	-135.90	5747304.83	611454.45
1590	50.29	168.48	1123.81	-1081.32	-941.31	-135.13	5747301.06	611455.22
1595	50.16	168.38	1127.01	-1084.52	-945.07	-134.36	5747297.29	611455.99
1600	50.14	168.07	1130.21	-1087.72	-948.83	-133.58	5747293.54	611456.77
1605	50.12	167.77	1133.42	-1090.93	-952.58	-132.78	5747289.78	611457.57
1610	50.10	167.46	1136.62	-1094.13	-956.33	-131.96	5747286.04	611458.40
1615	50.08	167.16	1139.83	-1097.34	-960.07	-131.11	5747282.30	611459.24
1620	50.06	166.85	1143.04	-1100.55	-963.80	-130.25	5747278.56	611460.10
1625	49.96	166.56	1146.25	-1103.76	-967.53	-129.37	5747274.83	611460.98
1630	49.82	166.27	1149.48	-1106.99	-971.25	-128.47	5747271.11	611461.88
1635	49.68	165.98	1152.71	-1110.22	-974.96	-127.56	5747267.41	611462.79
1640	49.54	165.69	1155.95	-1113.46	-978.65	-126.63	5747263.72	611463.73
1645	49.41	165.40	1159.20	-1116.71	-982.33	-125.68	5747260.04	611464.67
1650	49.27	165.12	1162.45	-1119.96	-985.99	-124.71	5747256.37	611465.64
1655	49.35	164.67	1165.71	-1123.22	-989.65	-123.73	5747252.71	611466.63
1660	49.47	164.21	1168.97	-1126.48	-993.31	-122.71	5747249.05	611467.65
1665	49.59	163.74	1172.21	-1129.72	-996.97	-121.66	5747245.40	611468.70
1670	49.71	163.28	1175.45	-1132.96	-1000.62	-120.58	5747241.75	611469.78
1675	49.83	162.81	1178.68	-1136.19	-1004.27	-119.46	5747238.09	611470.89
1680	49.99	162.36	1181.90	-1139.41	-1007.92	-118.32	5747234.45	611472.04
1685	50.35	161.93	1185.11	-1142.62	-1011.57	-117.14	5747230.79	611473.21
1690	50.72	161.51	1188.28	-1145.79	-1015.24	-115.93	5747227.13	611474.42
1695	51.08	161.09	1191.44	-1148.95	-1018.91	-114.68	5747223.45	611475.67
1700	51.45	160.67	1194.57	-1152.08	-1022.60	-113.40	5747219.77	611476.95
1705	51.81	160.25	1197.67	-1155.18	-1026.29	-112.09	5747216.08	611478.26

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
1710	52.09	159.76	1200.75	-1158.26	-1029.99	-110.75	5747212.37	611479.61
1715	52.29	159.22	1203.82	-1161.33	-1033.69	-109.36	5747208.67	611480.99
1720	52.49	158.68	1206.87	-1164.38	-1037.38	-107.94	5747204.98	611482.41
1725	52.69	158.14	1209.91	-1167.42	-1041.08	-106.48	5747201.29	611483.88
1730	52.89	157.60	1212.93	-1170.44	-1044.76	-104.98	5747197.60	611485.38
1735	53.09	157.06	1215.94	-1173.45	-1048.45	-103.44	5747193.92	611486.91
1740	53.13	156.62	1218.94	-1176.45	-1052.12	-101.86	5747190.24	611488.49
1745	53.14	156.20	1221.94	-1179.45	-1055.79	-100.26	5747186.57	611490.09
1750	53.14	155.78	1224.94	-1182.45	-1059.44	-98.64	5747182.92	611491.72
1755	53.15	155.37	1227.94	-1185.45	-1063.09	-96.98	5747179.28	611493.37
1760	53.16	154.95	1230.94	-1188.45	-1066.72	-95.30	5747175.65	611495.05
1765	53.15	154.57	1233.94	-1191.45	-1070.34	-93.59	5747172.03	611496.76
1770	53.03	154.47	1236.94	-1194.45	-1073.94	-91.87	5747168.42	611498.48
1775	52.92	154.36	1239.95	-1197.46	-1077.54	-90.15	5747164.82	611500.20
1780	52.80	154.26	1242.97	-1200.48	-1081.14	-88.42	5747161.23	611501.93
1785	52.69	154.16	1246.00	-1203.51	-1084.72	-86.69	5747157.64	611503.66
1790	52.58	154.06	1249.03	-1206.54	-1088.29	-84.96	5747154.07	611505.40
1795	52.41	154.02	1252.07	-1209.58	-1091.86	-83.22	5747150.50	611507.14
1800	52.14	154.11	1255.13	-1212.64	-1095.42	-81.49	5747146.95	611508.86
1805	51.87	154.20	1258.21	-1215.72	-1098.96	-79.77	5747143.40	611510.58
1810	51.60	154.28	1261.31	-1218.82	-1102.50	-78.06	5747139.87	611512.29
1815	51.33	154.37	1264.42	-1221.93	-1106.02	-76.37	5747136.34	611513.98
1820	51.07	154.46	1267.56	-1225.07	-1109.54	-74.69	5747132.83	611515.67
1825	50.91	154.50	1270.70	-1228.21	-1113.04	-73.01	5747129.32	611517.34
1830	50.81	154.51	1273.86	-1231.37	-1116.54	-71.34	5747125.82	611519.01
1835	50.72	154.52	1277.02	-1234.53	-1120.04	-69.68	5747122.33	611520.68
1840	50.63	154.54	1280.19	-1237.70	-1123.53	-68.01	5747118.83	611522.34
1845	50.53	154.55	1283.37	-1240.88	-1127.02	-66.35	5747115.35	611524.00
1850	50.44	154.56	1286.55	-1244.06	-1130.50	-64.70	5747111.87	611525.66
1855	50.50	154.52	1289.73	-1247.24	-1133.98	-63.04	5747108.38	611527.31
1860	50.55	154.48	1292.91	-1250.42	-1137.46	-61.38	5747104.90	611528.98
1865	50.61	154.44	1296.08	-1253.59	-1140.95	-59.71	5747101.42	611530.64
1870	50.67	154.40	1299.26	-1256.77	-1144.44	-58.04	5747097.93	611532.31
1875	50.72	154.36	1302.42	-1259.93	-1147.92	-56.37	5747094.44	611533.98
1880	50.80	154.23	1305.59	-1263.10	-1151.42	-54.69	5747090.95	611535.66
1885	50.90	154.02	1308.74	-1266.25	-1154.90	-53.00	5747087.46	611537.35
1890	50.99	153.81	1311.89	-1269.40	-1158.39	-51.29	5747083.98	611539.06
1895	51.09	153.59	1315.04	-1272.55	-1161.87	-49.57	5747080.49	611540.78
1900	51.19	153.38	1318.18	-1275.68	-1165.36	-47.83	5747077.01	611542.52
1905	51.28	153.17	1321.31	-1278.82	-1168.84	-46.08	5747073.53	611544.27
1910	51.19	153.07	1324.43	-1281.94	-1172.32	-44.32	5747070.05	611546.04
1915	51.05	153.00	1327.57	-1285.08	-1175.79	-42.55	5747066.58	611547.80
1920	50.92	152.93	1330.72	-1288.23	-1179.25	-40.78	5747063.12	611549.57
1925	50.79	152.86	1333.88	-1291.39	-1182.70	-39.02	5747059.67	611551.33
1930	50.65	152.78	1337.04	-1294.55	-1186.14	-37.25	5747056.22	611553.10
1935	50.54	152.74	1340.22	-1297.73	-1189.58	-35.48	5747052.79	611554.87
1940	50.59	152.90	1343.39	-1300.90	-1193.01	-33.72	5747049.35	611556.63
1945	50.65	153.07	1346.57	-1304.08	-1196.45	-31.96	5747045.91	611558.39
1950	50.71	153.23	1349.73	-1307.24	-1199.90	-30.22	5747042.46	611560.14
1955	50.77	153.39	1352.90	-1310.41	-1203.36	-28.48	5747039.00	611561.88
1960	50.82	153.56	1356.06	-1313.57	-1206.83	-26.75	5747035.53	611563.61
1965	50.86	153.58	1359.22	-1316.73	-1210.30	-25.02	5747032.06	611565.33
1970	50.88	153.35	1362.37	-1319.88	-1213.77	-23.29	5747028.59	611567.06
1975	50.89	153.13	1365.53	-1323.04	-1217.24	-21.54	5747025.13	611568.81
1980	50.90	152.91	1368.68	-1326.19	-1220.69	-19.78	5747021.67	611570.57
1985	50.91	152.68	1371.83	-1329.34	-1224.15	-18.01	5747018.22	611572.34
1990	50.93	152.46	1374.98	-1332.49	-1227.59	-16.22	5747014.78	611574.13
1995	50.82	152.32	1378.14	-1335.65	-1231.03	-14.42	5747011.34	611575.93
2000	50.66	152.22	1381.30	-1338.81	-1234.45	-12.62	5747007.91	611577.73

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2005	50.50	152.11	1384.48	-1341.99	-1237.87	-10.82	5747004.49	611579.53
2010	50.34	152.01	1387.66	-1345.17	-1241.27	-9.01	5747001.09	611581.34
2015	50.18	151.90	1390.86	-1348.37	-1244.67	-7.21	5746997.70	611583.15
2020	50.02	151.80	1394.07	-1351.58	-1248.05	-5.40	5746994.32	611584.96
2025	50.06	151.88	1397.28	-1354.79	-1251.43	-3.59	5746990.94	611586.77
2030	50.10	151.96	1400.49	-1358.00	-1254.81	-1.78	5746987.55	611588.57
2035	50.14	152.04	1403.69	-1361.20	-1258.20	0.02	5746984.17	611590.37
2040	50.18	152.12	1406.90	-1364.41	-1261.59	1.82	5746980.77	611592.17
2045	50.22	152.20	1410.10	-1367.61	-1264.99	3.61	5746977.38	611593.96
2050	50.27	152.26	1413.29	-1370.80	-1268.39	5.40	5746973.97	611595.75
2055	50.33	152.31	1416.49	-1374.00	-1271.79	7.19	5746970.57	611597.54
2060	50.40	152.36	1419.68	-1377.19	-1275.21	8.98	5746967.16	611599.33
2065	50.46	152.40	1422.86	-1380.37	-1278.62	10.76	5746963.75	611601.12
2070	50.52	152.45	1426.04	-1383.55	-1282.04	12.55	5746960.33	611602.90
2075	50.59	152.49	1429.22	-1386.73	-1285.46	14.33	5746956.90	611604.69
2080	50.57	152.45	1432.40	-1389.91	-1288.89	16.12	5746953.48	611606.47
2085	50.50	152.36	1435.57	-1393.08	-1292.31	17.91	5746950.05	611608.26
2090	50.42	152.26	1438.76	-1396.27	-1295.72	19.70	5746946.64	611610.05
2095	50.35	152.17	1441.94	-1399.45	-1299.13	21.49	5746943.23	611611.85
2100	50.28	152.08	1445.14	-1402.65	-1302.53	23.29	5746939.83	611613.65
2105	50.21	151.98	1448.33	-1405.84	-1305.93	25.10	5746936.44	611615.45
2110	50.26	152.02	1451.53	-1409.04	-1309.32	26.90	5746933.04	611617.25
2115	50.31	152.07	1454.73	-1412.24	-1312.72	28.70	5746929.64	611619.06
2120	50.35	152.12	1457.92	-1415.43	-1316.12	30.50	5746926.24	611620.86
2125	50.40	152.17	1461.11	-1418.62	-1319.53	32.30	5746922.84	611622.66
2130	50.45	152.21	1464.29	-1421.80	-1322.93	34.10	5746919.43	611624.45
2135	50.49	152.24	1467.47	-1424.98	-1326.35	35.90	5746916.02	611626.25
2140	50.52	152.18	1470.66	-1428.17	-1329.76	37.70	5746912.60	611628.05
2145	50.54	152.13	1473.83	-1431.34	-1333.17	39.50	5746909.19	611629.85
2150	50.56	152.08	1477.01	-1434.52	-1336.58	41.31	5746905.78	611631.66
2155	50.58	152.02	1480.19	-1437.70	-1340.00	43.12	5746902.37	611633.47
2160	50.60	151.97	1483.36	-1440.87	-1343.41	44.93	5746898.96	611635.28
2165	50.58	151.96	1486.53	-1444.04	-1346.82	46.75	5746895.55	611637.10
2170	50.53	151.97	1489.71	-1447.22	-1350.23	48.56	5746892.14	611638.91
2175	50.49	151.99	1492.89	-1450.40	-1353.63	50.37	5746888.73	611640.73
2180	50.44	152.00	1496.07	-1453.58	-1357.04	52.18	5746885.33	611642.54
2185	50.39	152.01	1499.26	-1456.77	-1360.44	53.99	5746881.93	611644.35
2190	50.34	152.03	1502.45	-1459.96	-1363.84	55.80	5746878.52	611646.15
2195	50.34	152.03	1505.64	-1463.15	-1367.24	57.60	5746875.13	611647.96
2200	50.35	152.02	1508.83	-1466.34	-1370.64	59.41	5746871.73	611649.76
2205	50.35	152.01	1512.02	-1469.53	-1374.04	61.22	5746868.33	611651.57
2210	50.35	152.01	1515.21	-1472.72	-1377.44	63.02	5746864.93	611653.37
2215	50.36	152.00	1518.40	-1475.91	-1380.84	64.83	5746861.53	611655.18
2220	50.37	152.00	1521.59	-1479.10	-1384.24	66.64	5746858.13	611656.99
2225	50.46	151.99	1524.78	-1482.29	-1387.64	68.45	5746854.73	611658.80
2230	50.54	151.99	1527.96	-1485.47	-1391.05	70.26	5746851.32	611660.61
2235	50.62	151.98	1531.13	-1488.64	-1394.46	72.07	5746847.91	611662.42
2240	50.71	151.98	1534.30	-1491.81	-1397.87	73.89	5746844.49	611664.24
2245	50.79	151.97	1537.47	-1494.98	-1401.29	75.71	5746841.08	611666.06
2250	50.79	151.93	1540.63	-1498.14	-1404.71	77.53	5746837.66	611667.88
2255	50.70	151.86	1543.79	-1501.30	-1408.12	79.35	5746834.24	611669.71
2260	50.62	151.79	1546.96	-1504.47	-1411.53	81.18	5746830.83	611671.53
2265	50.53	151.72	1550.14	-1507.65	-1414.93	83.01	5746827.43	611673.36
2270	50.45	151.64	1553.32	-1510.83	-1418.33	84.84	5746824.03	611675.19
2275	50.36	151.57	1556.50	-1514.01	-1421.72	86.67	5746820.65	611677.02
2280	50.28	151.67	1559.69	-1517.20	-1425.11	88.50	5746817.26	611678.85
2285	50.21	151.80	1562.89	-1520.40	-1428.49	90.32	5746813.87	611680.67
2290	50.13	151.93	1566.10	-1523.61	-1431.88	92.13	5746810.49	611682.48
2295	50.06	152.05	1569.30	-1526.81	-1435.26	93.93	5746807.10	611684.28

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2300	49.98	152.18	1572.52	-1530.03	-1438.65	95.72	5746803.72	611686.08
2305	49.93	152.30	1575.73	-1533.24	-1442.04	97.50	5746800.33	611687.86
2310	49.98	152.34	1578.95	-1536.46	-1445.43	99.28	5746796.94	611689.64
2315	50.04	152.39	1582.16	-1539.67	-1448.82	101.06	5746793.54	611691.41
2320	50.10	152.43	1585.37	-1542.88	-1452.22	102.84	5746790.15	611693.19
2325	50.15	152.48	1588.58	-1546.09	-1455.62	104.61	5746786.74	611694.96
2330	50.21	152.53	1591.78	-1549.29	-1459.03	106.38	5746783.34	611696.74
2335	50.25	152.55	1594.98	-1552.49	-1462.44	108.15	5746779.93	611698.51
2340	50.28	152.55	1598.17	-1555.68	-1465.85	109.93	5746776.51	611700.28
2345	50.31	152.55	1601.37	-1558.88	-1469.26	111.70	5746773.10	611702.05
2350	50.34	152.55	1604.56	-1562.07	-1472.68	113.47	5746769.69	611703.83
2355	50.36	152.55	1607.75	-1565.26	-1476.09	115.25	5746766.27	611705.60
2360	50.39	152.55	1610.94	-1568.45	-1479.51	117.02	5746762.85	611707.38
2365	50.41	152.54	1614.13	-1571.64	-1482.93	118.80	5746759.43	611709.15
2370	50.44	152.51	1617.31	-1574.82	-1486.35	120.58	5746756.01	611710.93
2375	50.46	152.49	1620.49	-1578.01	-1489.77	122.36	5746752.59	611712.71
2380	50.48	152.47	1623.68	-1581.19	-1493.19	124.14	5746749.17	611714.49
2385	50.50	152.45	1626.86	-1584.37	-1496.61	125.92	5746745.75	611716.28
2390	50.52	152.43	1630.04	-1587.55	-1500.03	127.71	5746742.33	611718.06
2395	50.49	152.41	1633.22	-1590.73	-1503.45	129.49	5746738.91	611719.85
2400	50.46	152.39	1636.40	-1593.91	-1506.87	131.28	5746735.49	611721.63
2405	50.43	152.36	1639.59	-1597.10	-1510.29	133.07	5746732.08	611723.42
2410	50.40	152.34	1642.77	-1600.28	-1513.70	134.86	5746728.67	611725.21
2415	50.37	152.32	1645.96	-1603.47	-1517.11	136.65	5746725.25	611727.00
2420	50.34	152.31	1649.15	-1606.66	-1520.52	138.44	5746721.84	611728.79
2425	50.31	152.39	1652.34	-1609.85	-1523.93	140.22	5746718.43	611730.57
2430	50.27	152.46	1655.54	-1613.05	-1527.34	142.00	5746715.03	611732.35
2435	50.24	152.53	1658.73	-1616.24	-1530.75	143.78	5746711.62	611734.13
2440	50.20	152.60	1661.93	-1619.44	-1534.16	145.55	5746708.21	611735.90
2445	50.17	152.67	1665.13	-1622.64	-1537.57	147.31	5746704.79	611737.67
2450	50.17	152.71	1668.34	-1625.85	-1540.98	149.07	5746701.38	611739.43
2455	50.20	152.71	1671.54	-1629.05	-1544.40	150.83	5746697.97	611741.19
2460	50.24	152.71	1674.74	-1632.25	-1547.81	152.60	5746694.55	611742.95
2465	50.27	152.71	1677.93	-1635.44	-1551.23	154.36	5746691.14	611744.71
2470	50.31	152.71	1681.13	-1638.64	-1554.64	156.12	5746687.72	611746.48
2475	50.34	152.71	1684.32	-1641.83	-1558.07	157.89	5746684.30	611748.24
2480	50.32	152.64	1687.51	-1645.02	-1561.48	159.65	5746680.88	611750.01
2485	50.28	152.54	1690.70	-1648.21	-1564.90	161.42	5746677.47	611751.78
2490	50.25	152.44	1693.90	-1651.41	-1568.31	163.20	5746674.05	611753.55
2495	50.21	152.35	1697.10	-1654.61	-1571.72	164.98	5746670.65	611755.33
2500	50.17	152.25	1700.30	-1657.81	-1575.12	166.77	5746667.25	611757.12
2505	50.14	152.18	1703.51	-1661.02	-1578.51	168.56	5746663.85	611758.91
2510	50.17	152.21	1706.71	-1664.22	-1581.91	170.35	5746660.46	611760.70
2515	50.19	152.25	1709.91	-1667.42	-1585.31	172.14	5746657.06	611762.49
2520	50.21	152.28	1713.11	-1670.62	-1588.71	173.92	5746653.66	611764.28
2525	50.24	152.32	1716.31	-1673.82	-1592.11	175.71	5746650.26	611766.06
2530	50.26	152.35	1719.51	-1677.02	-1595.51	177.49	5746646.85	611767.85
2535	50.27	152.45	1722.70	-1680.21	-1598.92	179.28	5746643.44	611769.63
2540	50.26	152.60	1725.90	-1683.41	-1602.33	181.05	5746640.03	611771.40
2545	50.25	152.75	1729.10	-1686.61	-1605.75	182.81	5746636.62	611773.17
2550	50.24	152.90	1732.30	-1689.81	-1609.17	184.57	5746633.20	611774.92
2555	50.23	153.05	1735.49	-1693.00	-1612.59	186.32	5746629.77	611776.67
2560	50.22	153.19	1738.69	-1696.20	-1616.02	188.05	5746626.35	611778.41
2565	50.19	153.14	1741.89	-1699.40	-1619.45	189.79	5746622.92	611780.14
2570	50.15	153.07	1745.10	-1702.61	-1622.87	191.52	5746619.49	611781.88
2575	50.12	153.01	1748.30	-1705.81	-1626.29	193.26	5746616.07	611783.62
2580	50.08	152.94	1751.51	-1709.02	-1629.71	195.01	5746612.66	611785.36
2585	50.05	152.88	1754.72	-1712.23	-1633.12	196.75	5746609.24	611787.11

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2590	50.01	152.82	1757.93	-1715.44	-1636.53	198.50	5746605.83	611788.85
2595	49.99	152.77	1761.14	-1718.65	-1639.94	200.25	5746602.42	611790.61
2600	49.96	152.72	1764.36	-1721.87	-1643.34	202.01	5746599.02	611792.36
2605	49.93	152.67	1767.58	-1725.09	-1646.74	203.76	5746595.62	611794.11
2610	49.91	152.62	1770.80	-1728.31	-1650.14	205.52	5746592.22	611795.87
2615	49.88	152.58	1774.02	-1731.53	-1653.54	207.28	5746588.83	611797.63
2620	49.93	152.57	1777.24	-1734.75	-1656.93	209.04	5746585.43	611799.39
2625	50.02	152.60	1780.45	-1737.96	-1660.33	210.80	5746582.03	611801.16
2630	50.11	152.62	1783.66	-1741.17	-1663.73	212.57	5746578.63	611802.92
2635	50.20	152.64	1786.87	-1744.38	-1667.14	214.33	5746575.22	611804.69
2640	50.30	152.66	1790.06	-1747.57	-1670.56	216.10	5746571.81	611806.45
2645	50.39	152.68	1793.25	-1750.76	-1673.98	217.87	5746568.39	611808.22
2650	50.35	152.75	1796.44	-1753.95	-1677.40	219.63	5746564.96	611809.98
2655	50.30	152.82	1799.64	-1757.15	-1680.82	221.39	5746561.54	611811.74
2660	50.26	152.90	1802.83	-1760.34	-1684.25	223.14	5746558.12	611813.50
2665	50.21	152.97	1806.03	-1763.54	-1687.67	224.89	5746554.70	611815.25
2670	50.16	153.04	1809.23	-1766.74	-1691.09	226.64	5746551.27	611816.99
2675	50.11	153.10	1812.44	-1769.95	-1694.51	228.38	5746547.85	611818.73
2680	50.05	153.12	1815.64	-1773.15	-1697.93	230.11	5746544.43	611820.46
2685	49.98	153.13	1818.86	-1776.37	-1701.35	231.84	5746541.01	611822.19
2690	49.92	153.15	1822.07	-1779.58	-1704.77	233.57	5746537.60	611823.92
2695	49.86	153.16	1825.30	-1782.81	-1708.18	235.30	5746534.19	611825.65
2700	49.79	153.17	1828.52	-1786.03	-1711.59	237.02	5746530.78	611827.38
2705	49.83	153.15	1831.75	-1789.26	-1715.00	238.74	5746527.37	611829.10
2710	49.96	153.10	1834.97	-1792.48	-1718.41	240.47	5746523.96	611830.83
2715	50.08	153.05	1838.18	-1795.69	-1721.82	242.21	5746520.54	611832.56
2720	50.21	153.00	1841.39	-1798.90	-1725.24	243.95	5746517.12	611834.30
2725	50.34	152.95	1844.58	-1802.09	-1728.67	245.70	5746513.70	611836.05
2730	50.47	152.89	1847.77	-1805.28	-1732.10	247.45	5746510.26	611837.80
2735	50.36	153.01	1850.95	-1808.46	-1735.53	249.20	5746506.83	611839.56
2740	50.22	153.13	1854.15	-1811.66	-1738.96	250.95	5746503.40	611841.30
2745	50.09	153.26	1857.35	-1814.86	-1742.39	252.68	5746499.98	611843.03
2750	49.96	153.39	1860.57	-1818.08	-1745.81	254.40	5746496.55	611844.75
2755	49.82	153.51	1863.79	-1821.30	-1749.23	256.11	5746493.13	611846.46
2760	49.73	153.61	1867.02	-1824.53	-1752.65	257.81	5746489.71	611848.16
2765	49.78	153.63	1870.25	-1827.76	-1756.07	259.50	5746486.29	611849.85
2770	49.83	153.65	1873.47	-1830.98	-1759.49	261.20	5746482.87	611851.55
2775	49.88	153.66	1876.70	-1834.21	-1762.92	262.89	5746479.45	611853.25
2780	49.94	153.68	1879.92	-1837.43	-1766.35	264.59	5746476.02	611854.94
2785	49.99	153.69	1883.13	-1840.64	-1769.78	266.29	5746472.59	611856.64
2790	50.03	153.75	1886.35	-1843.86	-1773.21	267.98	5746469.15	611858.34
2795	50.08	153.85	1889.56	-1847.07	-1776.65	269.68	5746465.71	611860.03
2800	50.13	153.94	1892.76	-1850.27	-1780.10	271.36	5746462.27	611861.72
2805	50.17	154.04	1895.97	-1853.48	-1783.55	273.05	5746458.82	611863.40
2810	50.22	154.13	1899.17	-1856.68	-1787.00	274.72	5746455.36	611865.08
2815	50.27	154.23	1902.37	-1859.88	-1790.46	276.40	5746451.90	611866.75
2820	50.22	154.13	1905.56	-1863.07	-1793.92	278.07	5746448.44	611868.43
2825	50.17	154.01	1908.76	-1866.27	-1797.38	279.75	5746444.99	611870.11
2830	50.12	153.89	1911.97	-1869.48	-1800.83	281.44	5746441.54	611871.79
2835	50.06	153.76	1915.18	-1872.69	-1804.27	283.13	5746438.09	611873.48
2840	50.01	153.64	1918.39	-1875.90	-1807.71	284.83	5746434.66	611875.18
2845	49.99	153.55	1921.60	-1879.11	-1811.14	286.53	5746431.23	611876.88
2850	50.07	153.54	1924.82	-1882.33	-1814.57	288.24	5746427.80	611878.59
2855	50.15	153.53	1928.02	-1885.53	-1818.00	289.95	5746424.36	611880.30
2860	50.23	153.51	1931.22	-1888.73	-1821.44	291.66	5746420.93	611882.01
2865	50.31	153.50	1934.42	-1891.93	-1824.88	293.38	5746417.48	611883.73
2870	50.39	153.49	1937.61	-1895.12	-1828.33	295.09	5746414.04	611885.45
2875	50.47	153.34	1940.80	-1898.31	-1831.77	296.82	5746410.59	611887.17
2880	50.56	153.16	1943.97	-1901.48	-1835.22	298.55	5746407.15	611888.91

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
2885	50.65	152.98	1947.15	-1904.66	-1838.67	300.30	5746403.70	611890.66
2890	50.74	152.80	1950.31	-1907.82	-1842.11	302.07	5746400.26	611892.42
2895	50.83	152.62	1953.48	-1910.99	-1845.55	303.84	5746396.81	611894.20
2900	50.88	152.49	1956.63	-1914.14	-1848.99	305.63	5746393.37	611895.98
2905	50.77	152.55	1959.79	-1917.30	-1852.43	307.42	5746389.93	611897.77
2910	50.66	152.61	1962.96	-1920.47	-1855.87	309.20	5746386.50	611899.55
2915	50.55	152.67	1966.13	-1923.64	-1859.30	310.98	5746383.06	611901.33
2920	50.44	152.74	1969.31	-1926.82	-1862.73	312.75	5746379.64	611903.10
2925	50.33	152.80	1972.50	-1930.01	-1866.15	314.51	5746376.21	611904.86
2930	50.32	152.83	1975.69	-1933.20	-1869.58	316.27	5746372.79	611906.62
2935	50.38	152.84	1978.88	-1936.39	-1873.00	318.03	5746369.36	611908.38
2940	50.43	152.86	1982.07	-1939.58	-1876.43	319.78	5746365.93	611910.14
2945	50.48	152.87	1985.25	-1942.76	-1879.86	321.54	5746362.50	611911.89
2950	50.54	152.89	1988.43	-1945.94	-1883.30	323.30	5746359.07	611913.65
2955	50.59	152.90	1991.61	-1949.12	-1886.74	325.06	5746355.63	611915.41
2960	50.62	152.82	1994.78	-1952.29	-1890.17	326.82	5746352.19	611917.17
2965	50.66	152.74	1997.95	-1955.46	-1893.61	328.59	5746348.75	611918.94
2970	50.69	152.66	2001.12	-1958.63	-1897.05	330.36	5746345.31	611920.72
2975	50.72	152.58	2004.29	-1961.80	-1900.49	332.14	5746341.88	611922.50
2980	50.75	152.50	2007.45	-1964.96	-1903.92	333.93	5746338.44	611924.28
2985	50.78	152.43	2010.61	-1968.12	-1907.36	335.72	5746335.01	611926.07
2990	50.77	152.40	2013.78	-1971.29	-1910.79	337.51	5746331.58	611927.86
2995	50.76	152.37	2016.94	-1974.45	-1914.22	339.31	5746328.14	611929.66
3000	50.76	152.33	2020.10	-1977.61	-1917.65	341.10	5746324.71	611931.46
3005	50.75	152.30	2023.26	-1980.77	-1921.08	342.90	5746321.28	611933.26
3010	50.74	152.27	2026.43	-1983.94	-1924.51	344.70	5746317.86	611935.06
3015	50.73	152.32	2029.59	-1987.10	-1927.94	346.50	5746314.43	611936.86
3020	50.71	152.46	2032.76	-1990.27	-1931.37	348.30	5746311.00	611938.65
3025	50.69	152.60	2035.93	-1993.43	-1934.80	350.08	5746307.57	611940.44
3030	50.67	152.74	2039.09	-1996.60	-1938.24	351.86	5746304.13	611942.21
3035	50.64	152.88	2042.26	-1999.77	-1941.68	353.63	5746300.69	611943.98
3040	50.62	153.03	2045.43	-2002.94	-1945.12	355.38	5746297.25	611945.74
3045	50.70	153.02	2048.61	-2006.12	-1948.57	357.14	5746293.80	611947.49
3050	50.79	152.97	2051.77	-2009.28	-1952.02	358.89	5746290.35	611949.25
3055	50.88	152.93	2054.93	-2012.44	-1955.47	360.66	5746286.90	611951.01
3060	50.97	152.89	2058.08	-2015.59	-1958.92	362.42	5746283.44	611952.78
3065	51.06	152.85	2061.22	-2018.73	-1962.38	364.20	5746279.98	611954.55
3070	51.14	152.81	2064.36	-2021.87	-1965.85	365.97	5746276.52	611956.33
3075	51.02	152.83	2067.50	-2025.01	-1969.31	367.75	5746273.06	611958.10
3080	50.89	152.85	2070.65	-2028.16	-1972.76	369.52	5746269.60	611959.88
3085	50.77	152.86	2073.81	-2031.32	-1976.21	371.29	5746266.15	611961.65
3090	50.64	152.88	2076.98	-2034.49	-1979.66	373.06	5746262.71	611963.41
3095	50.51	152.90	2080.15	-2037.66	-1983.09	374.82	5746259.27	611965.17
3100	50.45	152.90	2083.34	-2040.85	-1986.53	376.57	5746255.84	611966.93
3105	50.47	152.87	2086.52	-2044.03	-1989.96	378.33	5746252.40	611968.68
3110	50.49	152.84	2089.70	-2047.21	-1993.39	380.09	5746248.97	611970.44
3115	50.52	152.82	2092.88	-2050.39	-1996.83	381.85	5746245.54	611972.20
3120	50.54	152.79	2096.06	-2053.57	-2000.26	383.62	5746242.11	611973.97
3125	50.56	152.76	2099.24	-2056.75	-2003.69	385.38	5746238.67	611975.73
3130	50.56	152.79	2102.41	-2059.92	-2007.13	387.15	5746235.24	611977.50
3135	50.54	152.87	2105.59	-2063.10	-2010.56	388.91	5746231.80	611979.26
3140	50.52	152.95	2108.77	-2066.28	-2014.00	390.67	5746228.37	611981.02
3145	50.51	153.02	2111.95	-2069.46	-2017.44	392.42	5746224.93	611982.77
3150	50.49	153.10	2115.13	-2072.64	-2020.88	394.17	5746221.49	611984.52
3155	50.47	153.18	2118.31	-2075.82	-2024.32	395.91	5746218.05	611986.27
3160	50.47	153.14	2121.49	-2079.00	-2027.76	397.65	5746214.60	611988.01
3165	50.48	153.11	2124.67	-2082.18	-2031.20	399.40	5746211.16	611989.75
3170	50.49	153.07	2127.86	-2085.37	-2034.64	401.14	5746207.72	611991.50
3175	50.49	153.03	2131.04	-2088.55	-2038.08	402.89	5746204.29	611993.24
3180	50.50	152.99	2134.22	-2091.73	-2041.52	404.64	5746200.85	611994.99
3185	50.50	152.96	2137.40	-2094.91	-2044.95	406.39	5746197.41	611996.75

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3190	50.49	152.93	2140.58	-2098.09	-2048.39	408.15	5746193.97	611998.50
3195	50.48	152.91	2143.76	-2101.27	-2051.83	409.91	5746190.54	612000.26
3200	50.48	152.88	2146.94	-2104.45	-2055.26	411.66	5746187.11	612002.02
3205	50.47	152.86	2150.12	-2107.63	-2058.69	413.42	5746183.67	612003.77
3210	50.46	152.83	2153.31	-2110.82	-2062.12	415.18	5746180.24	612005.53
3215	50.49	152.82	2156.49	-2114.00	-2065.55	416.94	5746176.81	612007.30
3220	50.56	152.82	2159.67	-2117.18	-2068.99	418.70	5746173.38	612009.06
3225	50.63	152.81	2162.84	-2120.35	-2072.43	420.47	5746169.94	612010.82
3230	50.71	152.81	2166.01	-2123.52	-2075.87	422.24	5746166.50	612012.59
3235	50.78	152.80	2169.18	-2126.68	-2079.31	424.01	5746163.05	612014.36
3240	50.85	152.80	2172.33	-2129.84	-2082.76	425.78	5746159.61	612016.13
3245	50.86	152.78	2175.49	-2133.00	-2086.21	427.55	5746156.16	612017.90
3250	50.85	152.75	2178.65	-2136.16	-2089.66	429.33	5746152.71	612019.68
3255	50.84	152.73	2181.80	-2139.31	-2093.10	431.10	5746149.26	612021.45
3260	50.82	152.70	2184.96	-2142.47	-2096.55	432.88	5746145.82	612023.23
3265	50.81	152.68	2188.12	-2145.63	-2099.99	434.66	5746142.37	612025.01
3270	50.80	152.65	2191.28	-2148.79	-2103.43	436.44	5746138.93	612026.79
3275	50.75	152.71	2194.44	-2151.95	-2106.88	438.21	5746135.49	612028.57
3280	50.71	152.77	2197.61	-2155.12	-2110.32	439.99	5746132.05	612030.34
3285	50.66	152.83	2200.78	-2158.28	-2113.76	441.76	5746128.61	612032.11
3290	50.61	152.88	2203.95	-2161.46	-2117.20	443.52	5746125.17	612033.87
3295	50.57	152.94	2207.12	-2164.63	-2120.64	445.28	5746121.73	612035.63
3300	50.54	152.99	2210.30	-2167.81	-2124.08	447.03	5746118.29	612037.39
3305	50.58	153.01	2213.47	-2170.98	-2127.52	448.79	5746114.85	612039.14
3310	50.63	153.03	2216.65	-2174.16	-2130.96	450.54	5746111.40	612040.89
3315	50.67	153.05	2219.82	-2177.33	-2134.41	452.29	5746107.95	612042.64
3320	50.72	153.06	2222.98	-2180.49	-2137.86	454.04	5746104.51	612044.40
3325	50.77	153.08	2226.15	-2183.66	-2141.31	455.80	5746101.05	612046.15
3330	50.76	153.08	2229.31	-2186.82	-2144.77	457.55	5746097.60	612047.90
3335	50.69	153.07	2232.47	-2189.99	-2148.22	459.30	5746094.15	612049.66
3340	50.63	153.06	2235.65	-2193.16	-2151.67	461.06	5746090.70	612051.41
3345	50.56	153.04	2238.82	-2196.33	-2155.11	462.81	5746087.25	612053.16
3350	50.49	153.03	2242.00	-2199.51	-2158.55	464.56	5746083.82	612054.91
3355	50.43	153.01	2245.18	-2202.69	-2161.99	466.31	5746080.38	612056.66
3360	50.42	152.94	2248.37	-2205.88	-2165.42	468.06	5746076.94	612058.41
3365	50.44	152.84	2251.55	-2209.06	-2168.85	469.81	5746073.51	612060.17
3370	50.46	152.75	2254.74	-2212.24	-2172.28	471.58	5746070.08	612061.93
3375	50.48	152.66	2257.92	-2215.43	-2175.71	473.34	5746066.66	612063.70
3380	50.50	152.56	2261.10	-2218.61	-2179.13	475.12	5746063.23	612065.47
3385	50.52	152.47	2264.28	-2221.79	-2182.56	476.90	5746059.81	612067.25
3390	50.66	152.48	2267.45	-2224.96	-2185.99	478.69	5746056.38	612069.04
3395	50.80	152.48	2270.62	-2228.13	-2189.42	480.47	5746052.95	612070.83
3400	50.94	152.49	2273.77	-2231.28	-2192.86	482.26	5746049.51	612072.62
3405	51.08	152.50	2276.92	-2234.43	-2196.31	484.06	5746046.06	612074.41
3410	51.22	152.51	2280.05	-2237.57	-2199.76	485.86	5746042.60	612076.21
3415	51.26	152.48	2283.18	-2240.69	-2203.22	487.66	5746039.14	612078.01
3420	51.11	152.40	2286.32	-2243.83	-2206.68	489.46	5746035.69	612079.81
3425	50.95	152.32	2289.46	-2246.97	-2210.12	491.26	5746032.25	612081.62
3430	50.80	152.23	2292.62	-2250.13	-2213.55	493.07	5746028.81	612083.42
3435	50.65	152.15	2295.78	-2253.29	-2216.98	494.87	5746025.39	612085.23
3440	50.49	152.07	2298.96	-2256.47	-2220.39	496.68	5746021.97	612087.03
3445	50.47	152.11	2302.14	-2259.65	-2223.80	498.49	5746018.57	612088.84
3450	50.55	152.25	2305.32	-2262.83	-2227.21	500.29	5746015.15	612090.64
3455	50.64	152.39	2308.49	-2266.01	-2230.63	502.08	5746011.73	612092.43
3460	50.73	152.53	2311.66	-2269.17	-2234.06	503.87	5746008.30	612094.22
3465	50.81	152.68	2314.83	-2272.34	-2237.50	505.65	5746004.86	612096.00
3470	50.90	152.82	2317.98	-2275.49	-2240.95	507.43	5746001.41	612097.78
3475	50.88	152.86	2321.14	-2278.65	-2244.40	509.20	5745997.96	612099.55
3480	50.82	152.88	2324.29	-2281.80	-2247.86	510.97	5745994.51	612101.32
3485	50.76	152.90	2327.45	-2284.96	-2251.30	512.73	5745991.06	612103.08
3490	50.71	152.92	2330.62	-2288.13	-2254.75	514.49	5745987.61	612104.85

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3495	50.65	152.94	2333.78	-2291.30	-2258.20	516.25	5745984.17	612106.61
3500	50.60	152.97	2336.96	-2294.47	-2261.64	518.01	5745980.72	612108.36
3505	50.66	153.09	2340.13	-2297.64	-2265.08	519.76	5745977.28	612110.12
3510	50.71	153.22	2343.30	-2300.81	-2268.54	521.51	5745973.83	612111.86
3515	50.76	153.34	2346.46	-2303.97	-2271.99	523.25	5745970.37	612113.60
3520	50.81	153.46	2349.62	-2307.13	-2275.46	524.99	5745966.91	612115.34
3525	50.86	153.59	2352.78	-2310.29	-2278.93	526.71	5745963.43	612117.07
3530	50.83	153.66	2355.94	-2313.45	-2282.41	528.44	5745959.96	612118.79
3535	50.71	153.67	2359.10	-2316.61	-2285.88	530.15	5745956.49	612120.51
3540	50.59	153.69	2362.27	-2319.78	-2289.34	531.87	5745953.02	612122.22
3545	50.47	153.70	2365.45	-2322.96	-2292.80	533.58	5745949.56	612123.93
3550	50.35	153.72	2368.63	-2326.14	-2296.26	535.28	5745946.10	612125.64
3555	50.23	153.74	2371.83	-2329.34	-2299.71	536.99	5745942.65	612127.34
3560	50.25	153.69	2375.03	-2332.54	-2303.16	538.69	5745939.21	612129.04
3565	50.31	153.63	2378.22	-2335.73	-2306.60	540.39	5745935.76	612130.75
3570	50.37	153.57	2381.41	-2338.92	-2310.05	542.11	5745932.31	612132.46
3575	50.43	153.51	2384.60	-2342.11	-2313.50	543.82	5745928.86	612134.18
3580	50.50	153.44	2387.78	-2345.29	-2316.95	545.54	5745925.41	612135.90
3585	50.55	153.40	2390.96	-2348.47	-2320.40	547.27	5745921.96	612137.63
3590	50.53	153.44	2394.14	-2351.65	-2323.86	549.00	5745918.51	612139.35
3595	50.52	153.48	2397.32	-2354.83	-2327.31	550.73	5745915.05	612141.08
3600	50.50	153.52	2400.50	-2358.01	-2330.76	552.45	5745911.60	612142.80
3605	50.49	153.56	2403.68	-2361.19	-2334.22	554.17	5745908.15	612144.52
3610	50.48	153.60	2406.86	-2364.37	-2337.67	555.88	5745904.69	612146.24
3615	50.47	153.54	2410.04	-2367.55	-2341.13	557.60	5745901.24	612147.95
3620	50.48	153.42	2413.22	-2370.73	-2344.58	559.32	5745897.79	612149.67
3625	50.49	153.30	2416.41	-2373.92	-2348.03	561.05	5745894.34	612151.40
3626	50.49	153.28	2417.04	-2374.55	-2348.72	561.40	5745893.65	612151.75
3627	50.49	153.26	2417.68	-2375.19	-2349.41	561.74	5745892.96	612152.10
3628	50.49	153.23	2418.31	-2375.82	-2350.10	562.09	5745892.27	612152.44
3629	50.49	153.21	2418.95	-2376.46	-2350.78	562.44	5745891.58	612152.79
3630	50.50	153.19	2419.59	-2377.10	-2351.47	562.79	5745890.89	612153.14
3631	50.50	153.16	2420.22	-2377.73	-2352.16	563.13	5745890.20	612153.49
3632	50.50	153.14	2420.86	-2378.37	-2352.85	563.48	5745889.52	612153.84
3633	50.50	153.12	2421.49	-2379.00	-2353.54	563.83	5745888.83	612154.18
3634	50.50	153.10	2422.13	-2379.64	-2354.23	564.18	5745888.14	612154.53
3635	50.50	153.07	2422.77	-2380.28	-2354.91	564.53	5745887.45	612154.88
3636	50.50	153.05	2423.40	-2380.91	-2355.60	564.88	5745886.76	612155.23
3637	50.51	153.03	2424.04	-2381.55	-2356.29	565.23	5745886.07	612155.58
3638	50.51	153.00	2424.67	-2382.18	-2356.98	565.58	5745885.39	612155.93
3639	50.51	152.98	2425.31	-2382.82	-2357.67	565.93	5745884.70	612156.28
3640	50.51	152.96	2425.95	-2383.46	-2358.35	566.28	5745884.01	612156.63
3641	50.51	152.95	2426.58	-2384.09	-2359.04	566.63	5745883.32	612156.98
3642	50.51	152.94	2427.22	-2384.73	-2359.73	566.98	5745882.64	612157.34
3643	50.50	152.94	2427.85	-2385.36	-2360.42	567.33	5745881.95	612157.69
3644	50.50	152.94	2428.49	-2386.00	-2361.10	567.69	5745881.26	612158.04
3645	50.50	152.93	2429.13	-2386.64	-2361.79	568.04	5745880.57	612158.39
3646	50.50	152.93	2429.76	-2387.27	-2362.48	568.39	5745879.89	612158.74
3647	50.49	152.93	2430.40	-2387.91	-2363.17	568.74	5745879.20	612159.09
3648	50.49	152.92	2431.03	-2388.55	-2363.85	569.09	5745878.51	612159.44
3649	50.49	152.92	2431.67	-2389.18	-2364.54	569.44	5745877.83	612159.79
3650	50.49	152.92	2432.31	-2389.82	-2365.23	569.79	5745877.14	612160.14
3651	50.48	152.91	2432.94	-2390.45	-2365.91	570.14	5745876.45	612160.50
3652	50.48	152.91	2433.58	-2391.09	-2366.60	570.49	5745875.77	612160.85
3653	50.48	152.90	2434.22	-2391.73	-2367.29	570.85	5745875.08	612161.20
3654	50.48	152.90	2434.85	-2392.36	-2367.97	571.20	5745874.39	612161.55
3655	50.47	152.90	2435.49	-2393.00	-2368.66	571.55	5745873.70	612161.90
3656	50.47	152.89	2436.13	-2393.64	-2369.35	571.90	5745873.02	612162.25
3657	50.47	152.89	2436.76	-2394.27	-2370.03	572.25	5745872.33	612162.60
3658	50.47	152.89	2437.40	-2394.91	-2370.72	572.60	5745871.64	612162.96
3659	50.46	152.88	2438.03	-2395.55	-2371.41	572.95	5745870.96	612163.31

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3660	50.46	152.88	2438.67	-2396.18	-2372.09	573.31	5745870.27	612163.66
3661	50.46	152.88	2439.31	-2396.82	-2372.78	573.66	5745869.58	612164.01
3662	50.46	152.87	2439.95	-2397.45	-2373.47	574.01	5745868.90	612164.36
3663	50.45	152.87	2440.58	-2398.09	-2374.15	574.36	5745868.21	612164.71
3664	50.45	152.87	2441.22	-2398.73	-2374.84	574.71	5745867.53	612165.06
3665	50.45	152.86	2441.86	-2399.36	-2375.53	575.06	5745866.84	612165.42
3666	50.45	152.86	2442.49	-2400.00	-2376.21	575.42	5745866.15	612165.77
3667	50.44	152.85	2443.13	-2400.64	-2376.90	575.77	5745865.47	612166.12
3668	50.44	152.85	2443.76	-2401.28	-2377.58	576.12	5745864.78	612166.47
3669	50.43	152.86	2444.40	-2401.91	-2378.27	576.47	5745864.09	612166.82
3670	50.41	152.86	2445.04	-2402.55	-2378.96	576.82	5745863.41	612167.18
3671	50.40	152.87	2445.68	-2403.19	-2379.64	577.17	5745862.72	612167.53
3672	50.38	152.88	2446.31	-2403.82	-2380.33	577.53	5745862.04	612167.88
3673	50.37	152.89	2446.95	-2404.46	-2381.01	577.88	5745861.35	612168.23
3674	50.35	152.90	2447.59	-2405.10	-2381.70	578.23	5745860.67	612168.58
3675	50.34	152.90	2448.23	-2405.74	-2382.38	578.58	5745859.98	612168.93
3676	50.32	152.91	2448.87	-2406.38	-2383.07	578.93	5745859.29	612169.28
3677	50.31	152.92	2449.51	-2407.01	-2383.76	579.28	5745858.61	612169.63
3678	50.29	152.93	2450.14	-2407.65	-2384.44	579.63	5745857.92	612169.98
3679	50.28	152.94	2450.78	-2408.29	-2385.13	579.98	5745857.24	612170.33
3680	50.26	152.94	2451.42	-2408.93	-2385.81	580.33	5745856.55	612170.68
3681	50.25	152.95	2452.06	-2409.57	-2386.50	580.68	5745855.87	612171.03
3682	50.23	152.96	2452.70	-2410.21	-2387.18	581.03	5745855.18	612171.38
3683	50.22	152.97	2453.34	-2410.85	-2387.87	581.38	5745854.50	612171.73
3684	50.20	152.98	2453.98	-2411.49	-2388.55	581.73	5745853.82	612172.08
3685	50.19	152.98	2454.62	-2412.13	-2389.23	582.08	5745853.13	612172.43
3686	50.17	152.99	2455.26	-2412.77	-2389.92	582.42	5745852.45	612172.78
3687	50.16	153.00	2455.90	-2413.41	-2390.60	582.77	5745851.76	612173.13
3688	50.14	153.01	2456.54	-2414.05	-2391.29	583.12	5745851.08	612173.47
3689	50.13	153.02	2457.18	-2414.69	-2391.97	583.47	5745850.39	612173.82
3690	50.11	153.03	2457.82	-2415.34	-2392.66	583.82	5745849.71	612174.17
3691	50.10	153.03	2458.47	-2415.98	-2393.34	584.17	5745849.03	612174.52
3692	50.08	153.04	2459.11	-2416.62	-2394.02	584.51	5745848.34	612174.87
3693	50.07	153.05	2459.75	-2417.26	-2394.71	584.86	5745847.66	612175.21
3694	50.05	153.06	2460.39	-2417.90	-2395.39	585.21	5745846.97	612175.56
3695	50.04	153.07	2461.03	-2418.54	-2396.07	585.56	5745846.29	612175.91
3696	50.02	153.07	2461.68	-2419.19	-2396.76	585.90	5745845.61	612176.26
3697	50.01	153.08	2462.32	-2419.83	-2397.44	586.25	5745844.92	612176.60
3698	50.02	153.07	2462.96	-2420.47	-2398.12	586.60	5745844.24	612176.95
3699	50.04	153.06	2463.60	-2421.11	-2398.81	586.94	5745843.56	612177.30
3700	50.05	153.06	2464.25	-2421.76	-2399.49	587.29	5745842.88	612177.64
3701	50.06	153.05	2464.89	-2422.40	-2400.17	587.64	5745842.19	612177.99
3702	50.07	153.04	2465.53	-2423.04	-2400.86	587.99	5745841.51	612178.34
3703	50.08	153.04	2466.17	-2423.68	-2401.54	588.33	5745840.82	612178.69
3704	50.09	153.03	2466.81	-2424.32	-2402.22	588.68	5745840.14	612179.03
3705	50.10	153.02	2467.45	-2424.97	-2402.91	589.03	5745839.46	612179.38
3706	50.11	153.01	2468.10	-2425.61	-2403.59	589.38	5745838.77	612179.73
3707	50.13	153.01	2468.74	-2426.25	-2404.28	589.73	5745838.09	612180.08
3708	50.14	153.00	2469.38	-2426.89	-2404.96	590.07	5745837.40	612180.43
3709	50.15	152.99	2470.02	-2427.53	-2405.65	590.42	5745836.72	612180.78
3710	50.16	152.99	2470.66	-2428.17	-2406.33	590.77	5745836.04	612181.12
3711	50.17	152.98	2471.30	-2428.81	-2407.01	591.12	5745835.35	612181.47
3712	50.18	152.97	2471.94	-2429.45	-2407.70	591.47	5745834.67	612181.82
3713	50.19	152.96	2472.58	-2430.09	-2408.38	591.82	5745833.98	612182.17
3714	50.20	152.96	2473.22	-2430.73	-2409.07	592.17	5745833.30	612182.52
3715	50.21	152.95	2473.86	-2431.37	-2409.75	592.52	5745832.61	612182.87
3716	50.23	152.94	2474.50	-2432.01	-2410.44	592.87	5745831.93	612183.22
3717	50.24	152.94	2475.14	-2432.65	-2411.12	593.22	5745831.25	612183.57
3718	50.25	152.93	2475.78	-2433.29	-2411.80	593.57	5745830.56	612183.92
3719	50.26	152.92	2476.42	-2433.93	-2412.49	593.92	5745829.87	612184.27
3720	50.27	152.91	2477.06	-2434.57	-2413.17	594.27	5745829.19	612184.62

MD	Angle	Direction	TVDRT	TVDSS	Dnorth	Deast	Northing	Easting
3721	50.28	152.91	2477.70	-2435.21	-2413.86	594.62	5745828.51	612184.97
3722	50.29	152.90	2478.34	-2435.85	-2414.54	594.97	5745827.82	612185.32
3723	50.30	152.89	2478.98	-2436.49	-2415.23	595.32	5745827.14	612185.67
3724	50.32	152.89	2479.61	-2437.12	-2415.91	595.67	5745826.45	612186.02
3725	50.33	152.88	2480.25	-2437.76	-2416.60	596.02	5745825.77	612186.37
3726	50.34	152.87	2480.89	-2438.40	-2417.28	596.37	5745825.08	612186.72
3727	50.36	152.88	2481.53	-2439.04	-2417.97	596.72	5745824.40	612187.07
3728	50.39	152.90	2482.17	-2439.68	-2418.65	597.07	5745823.71	612187.43
3729	50.41	152.92	2482.80	-2440.32	-2419.34	597.42	5745823.02	612187.78
3730	50.43	152.93	2483.44	-2440.95	-2420.03	597.77	5745822.34	612188.13
3731	50.46	152.95	2484.08	-2441.59	-2420.71	598.12	5745821.65	612188.48
3732	50.48	152.96	2484.72	-2442.22	-2421.40	598.48	5745820.96	612188.83
3733	50.51	152.98	2485.35	-2442.86	-2422.09	598.83	5745820.28	612189.18
3734	50.53	153.00	2485.99	-2443.50	-2422.78	599.18	5745819.59	612189.53
3735	50.56	153.01	2486.62	-2444.13	-2423.46	599.53	5745818.90	612189.88
3736	50.58	153.03	2487.26	-2444.77	-2424.15	599.88	5745818.21	612190.23
3737	50.61	153.04	2487.89	-2445.40	-2424.84	600.23	5745817.52	612190.58
3738	50.63	153.06	2488.53	-2446.04	-2425.53	600.58	5745816.83	612190.93
3739	50.66	153.08	2489.16	-2446.67	-2426.22	600.93	5745816.14	612191.28
3740	50.68	153.09	2489.80	-2447.30	-2426.91	601.28	5745815.45	612191.63
3741	50.71	153.11	2490.43	-2447.94	-2427.60	601.63	5745814.76	612191.98
3742	50.73	153.13	2491.06	-2448.57	-2428.29	601.98	5745814.07	612192.33
3743	50.76	153.14	2491.69	-2449.20	-2428.98	602.33	5745813.38	612192.68
3744	50.78	153.16	2492.33	-2449.84	-2429.67	602.68	5745812.69	612193.03
3745	50.81	153.17	2492.96	-2450.47	-2430.37	603.03	5745812.00	612193.38
3746	50.83	153.19	2493.59	-2451.10	-2431.06	603.38	5745811.31	612193.73

APPENDIX 2a

FORTESCUE A9B

Petrophysics Evaluation Summary

Fortescue A9B Formation Evaluation



Esso Australia Pty Ltd.
Exploration Department

Fortescue A9B

Formation Evaluation Report

Scott Dyksterhuis
January 2008

Fortescue A9B Formation Evaluation

INTRODUCTION

The objective of the FTA-A9B well was to access remaining FM13H oil reserves not produced by FTA-A30ST2. The well was a re-drill of the FTA-A30ST2 well, which was interpreted to have gone to 100% water cut early in its life due to possible mechanical problems.

FTA-A9A was plugged and abandoned by Rig 19 in October 1997 when FTA-A9A was declared a dry well. A 15.8 ppg cement plug was set across the pay zone. Two 15.9 ppg cement plugs were required to isolate the 10¾" surface casing shoe. The second plug was tagged with 20 Klbs at 1276.0 mMDRT.

FTA-A9B commenced on 15th August 2007. An 8½" Reed Hycalog HP21G tri-cone bit, with 3 x 20 jets, in conjunction with a motorised steerable assembly was run in hole to 1276.0 mMDRT where the top of cement was tagged. The cement was drilled with seawater to the 10¾" surface casing shoe at 1389.0 mMDRT and then the hole was displaced to Accolade NAF mud. The well was kicked off at 1391 mMDRT at 16:45 hrs, 18 August 2007 and time drilled to 1404.0 mMDRT where 70% formation was observed in samples. The 8½" production hole was drilled and steered from to 1404.0 mMDRT to 1581.0 mMDRT.

LWD was run in the hole to 1499.0 mMDRT. The 8½" production hole was drilled from 1581.0 mMDRT to 3603.0 mMDRT where the hole was circulated clean and the bit backreamed from 3603.0 mMDRT to 3461.0 mMDRT. Drilling resumed from 3603.0 mMDRT to a Total Depth of 3746.0 mMDRT was reached at 00:30 hrs on 25th August 2007. The casing was run to 3738.5 mMDRT with no problems. The hole was in good condition and the 3½" tubing was run in hole and landed out at 3608.6 mMDRT.

The Schlumberger LWD logs were analysed for porosity, water saturation and net pay over the interval 3615 – 3710 mMDRT.

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

DATA

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

Survey/Log	Suite	Company	Top (m MDRT)	Bottom (m MDRT)
arcVISION Resistivity (attenuation and phase shift), Gamma Ray (GR_ARC), Density (ROBB) and Compensated Neutron (TNPH).	1	Schlumberger	1545.5	3735.6

Deviation

The average well deviation over the reservoir interval was approx. 50° towards an average azimuth of 152°.

Mud Data

Depth:	3713 m MDRT
Mud Type:	Accolade SBM
Mud Weight:	10.7 ppg
Chlorides:	46066 mg/L
Rm:	N/A
Rmf:	N/A
Rmc:	N/A
KCL	N/A

Depth m MDRT	Temperature °C
3746	93

Hole Size

1581 - 3746 mMDRT 8 ½ inches

Data Quality and Processing

Fortescue A9B Formation Evaluation

LWD logs were generally good quality, with only minor depth alignment made to the neutron (TNPH) curve with the density (RHOB) curve.

Between the interval 3666m and 3673mMD whole mud invasion can be seen (Figure 1). This is illustrated by the increase in deep resistivity measurements half way through a water saturated sand as well as the increased PE value due to invasion of barite (solids) into the formation. In order to prevent hydrocarbons from being calculated over the interval the deep phase shift resistivity curve (P34H) was set to a constant value of 1 Ohm.m equivalent to water saturated sands.

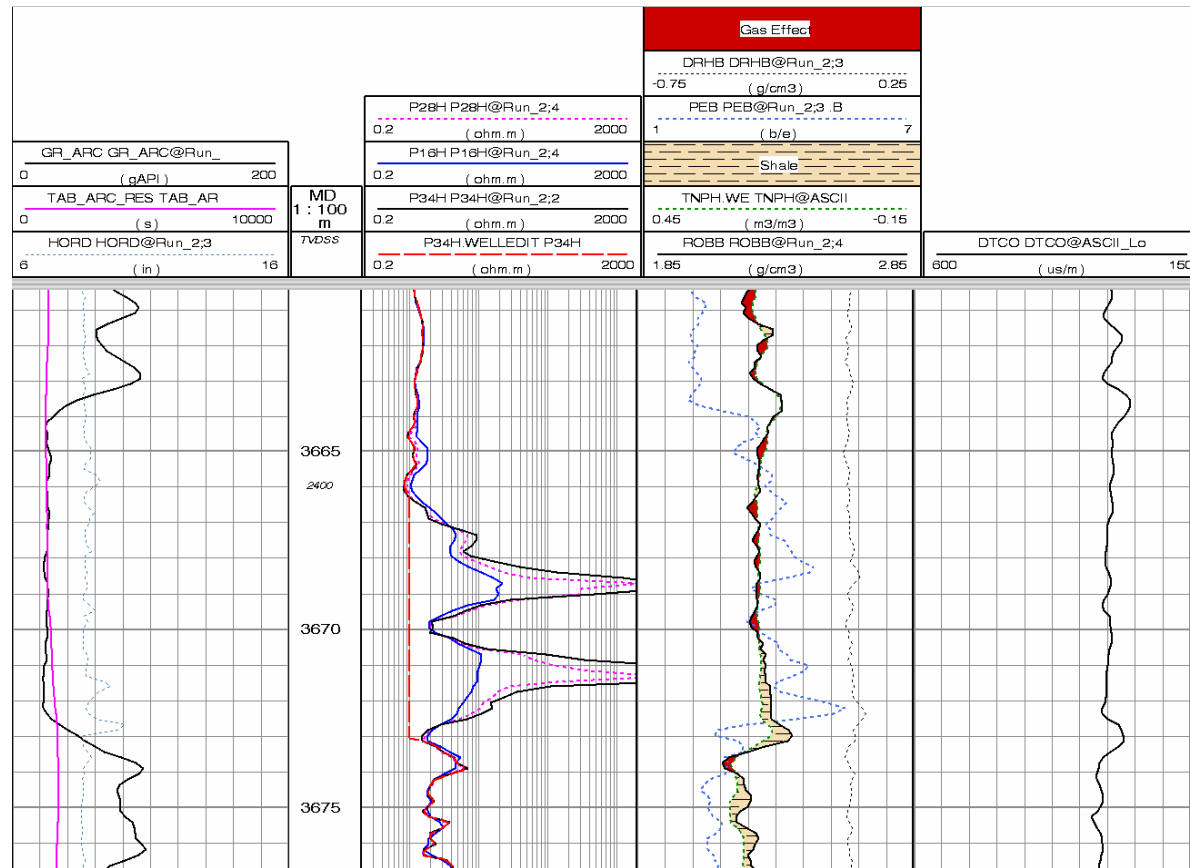


Figure 1 Whole mud invasion can be seen here indicated by the increased values of the P28H and P34H curves (dashed pink and solid black curves respectively) as well as the elevated PE curve (dashed blue). The edited P34H curve used in the ELAN+ analysis is also shown (dashed red resistivity curve).

A region of increased porosity response (low density values) and erratic resistivity response between 3673 and 3676 bounded by tight streaks (Figure 2) is interpreted here to be a slightly silty sandstone. This region is interpreted to be finer grained lithology with increased feldspar content leading to elevated gamma ray response. The absence of any regional sealing mechanism seems to preclude an isolated net pay section. The increased and erratic resistivity response is interpreted here as likely caused by an increased residual oil saturation or “hung up” oil resulting from the finer grained lithology, increased clay content, reduced effective porosity and hence less efficient sweeping of the hydrocarbon. However, oil based mud filtrate invasion cannot be ruled out, even though the expected “reverse” invasion profile is not evident. The region from 3676.4 to 3678mMD is interpreted here as residual oil with an average oil saturation of roughly 50%.

Fortescue A9B Formation Evaluation

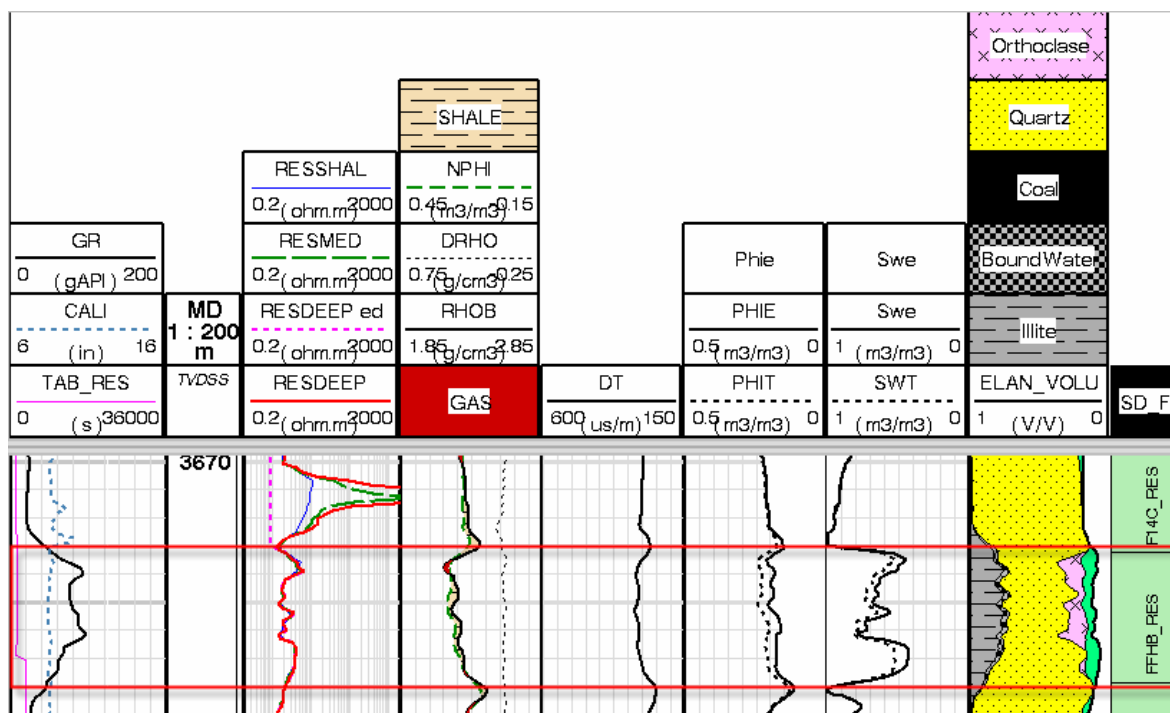


Figure 2 Region shown in red rectangle represents a region of higher interpreted residual oil saturation.

INTERPRETATION

Logs Used

The primary logs used in the interpretation were the phase shift and attenuation resistivity curves, ROBB (bulk density), GR_ARC (gamma ray), TNPH (thermal neutron porosity) and DTCO (compressional sonic velocity). A coal flag (Flag_coal) was calculated, but no hydrocarbon flag (Flag_rhoh) was required as oil is the only hydrocarbon present. A temperature log was created using the following data:

Depth (mMDRT)	Temperature (deg. C)
111.5	10
3746	103

The temperature at depth 111.5 mMDRT represents the temperature of the sea-bed and the temperature at 3746 mMDRT is the estimated formation temperature equal to BHT + 10 degC.

Formation Water Salinity

Analysis of R_{wa} was run using $a = 1$, $m = 1.8$ and $n = 2$ with an apparent salinity of 35kppm NaCleq to provide resultant S_{or} values of about 10-20s.u. Residual oil intervals were chosen for this calibration in the absence of any 100% water saturated intervals. Intervals were interpreted to be either oil bearing, or only partially swept once $S_{or} > 20$ s.u, except for interval FFHB which is interpreted here as residual oil with $S_{or} \sim 50$ su.

Fortescue A9B Formation Evaluation

Hydrocarbon Type Identification

A combination of resistivity invasion profiles, calculated water saturation, and resistivity / porosity / clay volume relationships were used to determine fluid types present in the reservoirs.

	Depth		
	Top	Bottom	
Zone	MD (m)	MD (m)	Comments
TCC	3624.3	3626.8	Probable oil pay
TCC_RES	3626.8	3638.6	Residual oil
F13J	3638.6	3648.0	Siltstone
F14A_RES	3648.0	3655.8	Residual oil
F14B_RES	3655.8	3663.1	Residual oil
F14C_RES	3663.1	3673.3	Residual oil
FFHB_RES	3673.3	3677.9	Residual oil
FFHD_RES	3677.9	3699.9	Residual oil
MC4_RES	3684.42	3699.9	Residual oil
MC3_RES	3699.9	3713.5	Residual oil

Table 1 Fluid zones and interpreted fluid types

Clay Volume, Porosity and Water Saturation

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

ELAN+ MODEL

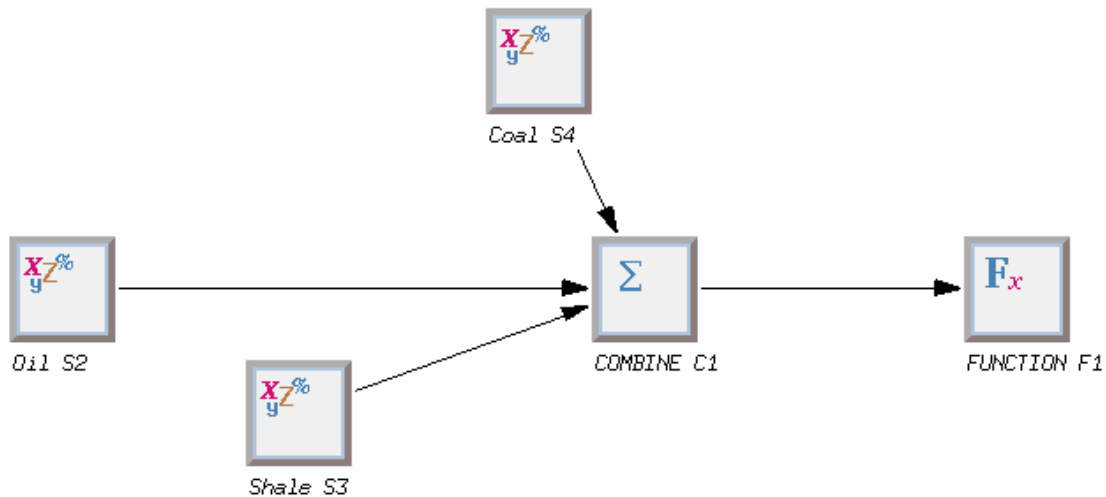


Figure 3 ELAN+ model and module configuration

Fortescue A9B Formation Evaluation

	Compound Name Spec	Fortescue A9B
TEMP_CH	TEMP;*	TEMP.DF TEMP@WELLEDIT;3 .DF [A2870125]
RHOB_IFAC_CH	IFRH;*	
NPHI_IFAC_CH	INPH;*	
RHOB_CH	RHOB;*	RHOB.DF RHOB@DataFunction;2 .DF [A2870120]
NPHI_CH	NPHI;*	NPHI.DF NPHI@DataFunction;1 .DF [A2870115]
PHIT_CH	NPHI;*	NPHI.DF NPHI@DataFunction;1 .DF [A2870115]
CUDC_CH/RT_CH	P34H;*	P34H.WELLEDIT P34H@Run_2;5 .CUSTOMER .WE
GR_CH	GR;*	GR.DF GR@DataFunction;1 .DF [A2870110]
M_CH	MXP;*	
N_CH	SXP;*	
PRB2_CH	DEPT;*	DEPT DEPT@ASCII_Load;2 [A2535129]
PRB3_CH	PRB3;*	
PRB4_CH	COAL;*	COAL.DF COAL@DataFunction;1 .DF [A2870100]

Figure 4 ELAN+ input channels

ELAN Global Parameters

Reference Index	MD
Processing Interval	3745(m) To 3910(m)
Sampling Rate	0.1(m)
Uncertainty Channel	FALSE
Clay Input	DRY
Special Fluids	IMMOVABLE_HYDROCARBON

ELAN Process Definition

```

process Solve 2 {
    label "Oil" ;
    equations RHOB NPHI CUDC_DWA GR CT2 ;
    volumes QUAR ORTH ILLI XWAT UWAT XOIL UOIL ;
    constraintZoning { ( "UNDEFINED" 12205.501953 -999.250000 ) };
    constraints {      ("UNDEFINED" OilBaseMud_SXO_lt_SW )};
    constraints {      ("UNDEFINED" IrreducibleXWater )};
    constraints {      ("UNDEFINED" IrreducibleUWater )};
    {pyrcut=if((PRB2_CH>2490),PYRI,0)
constraint(pyrlim,PYRI<pyrcut)};

```

```

process Solve 3 {

```

Fortescue A9B Formation Evaluation

```
label "Shale" ;
equations RHOB NPHI CUDC_DWA GR ;
volumes QUAR PYRI ILLI XWAT UWAT ;
constraintZoning { ( "UNDEFINED" 12205.501953 -999.250000 ) };
{pyrcut=if((PRB2_CH>2490),PYRI,0)
constraint(pyrlim,PYRI<pyrcut)};

process Solve 4 {
  label "Coal" ;
  equations RHOB ;
  volumes COAL ;
  constraintZoning { ( "UNDEFINED" 12205.501953 -999.250000 ) };

process Combine 1 {
  label "COMBINE" ;
  combineMethod { ( "C_Clastics" 12205.501953 INT_AVE ) };
  combineOrder SOL_2 SOL_3 SOL_4 ;
  expressions "HLA_A24_oil_COMBINE_1.prob"
  {probability(SOL.4, PRB4_CH)

prob3 = linear(ILLI_VOL.SOL.3, 0.2, 0, 0.5, 1)
probability(SOL.3, prob3)

process Function 1 {
  label "FUNCTION" ;
  outputs (
    VCL
    SXWI
    SWT
    SUWI
    PIGN
    PHIT );
  {swt_cmp=if((PRB4_CH > 0),1,(UWAT_VOL + XBWA_VOL)/(UWAT_VOL + XBWA_VOL +
UOIL_VOL))
output(SWT, swt_cmp)
```

RESULTS AND DISCUSSION

Invasion of oil based mud filtrate or even whole mud in some regions resulted in spurious resistivity values, potentially complicating ELAN analysis. Thus, the spurious data, where obvious, were removed by the petrophysicist. Consequently, the cleanest swept sands above the OOWC were calculated to have a residual oil saturation of 10-20su consistent with field-wide experience. Conversely, clean sands which have been interpreted to be still oil bearing have calculated oil saturations which typically range from 80-90su.

Approximately 0.3 mMD of probable pay is calculated in zone TCC between 3624.3mMD and 3626.8mMD with an average effective porosity of 12.2pu and average effective water saturation of 60.5su. Zone FFHB is interpreted here as residual oil with oil saturations ranging roughly between 20% to 50% in rock with effective porosities ranging from roughly between 15pu to 18pu. Tight streaks, representing potential vertical flow barriers, are interpreted at the top and base of the interval (Figure 2). The centre of this interval (3674-76.5mMD) is clearly swept with possible thin intervals of oil lagging behind both above and below, though no obvious seals are apparent.

Fortescue A9B Formation Evaluation

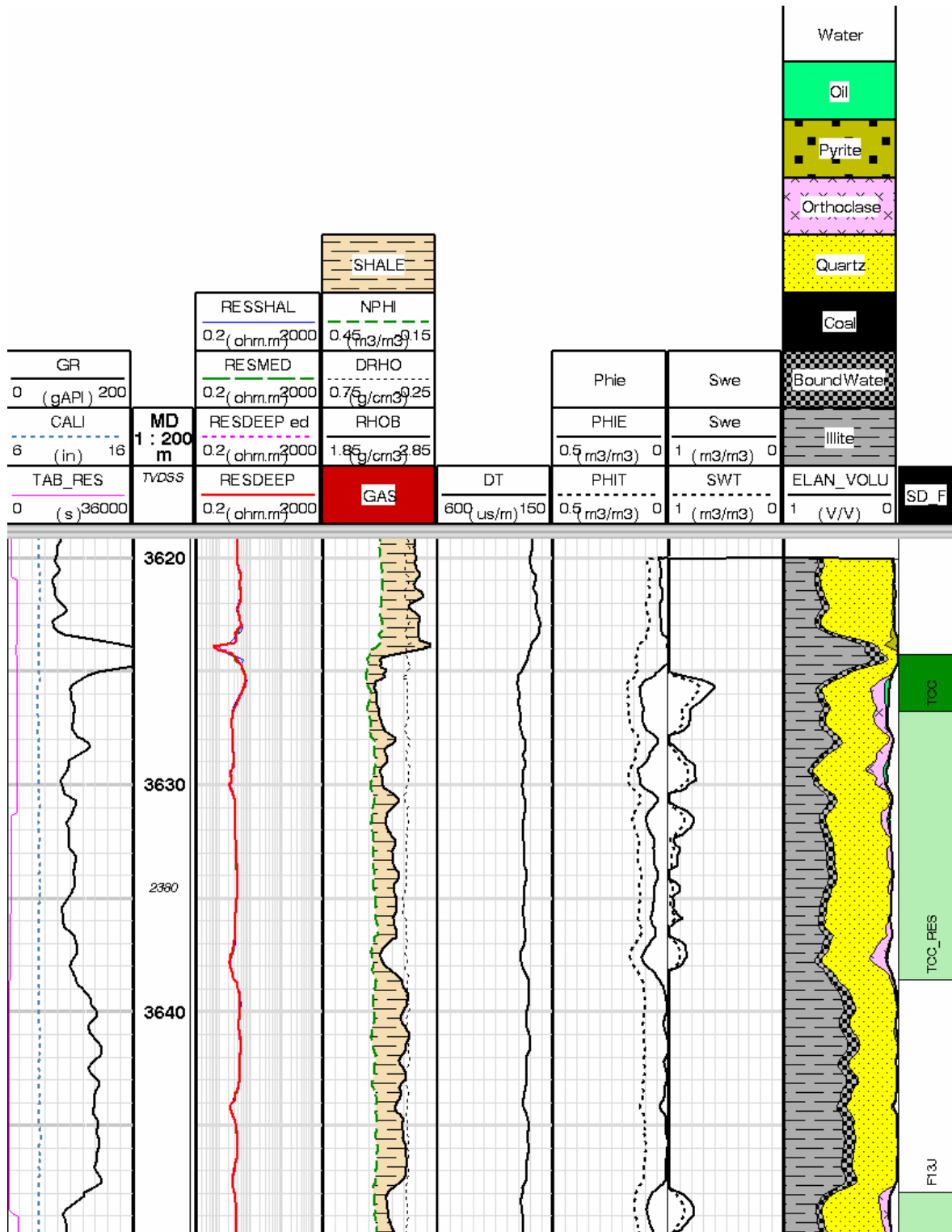


Figure 5 Fortescue A9B summary plot of formation evaluation between 3619 – 3650m MDRT

Fortescue A9B Formation Evaluation

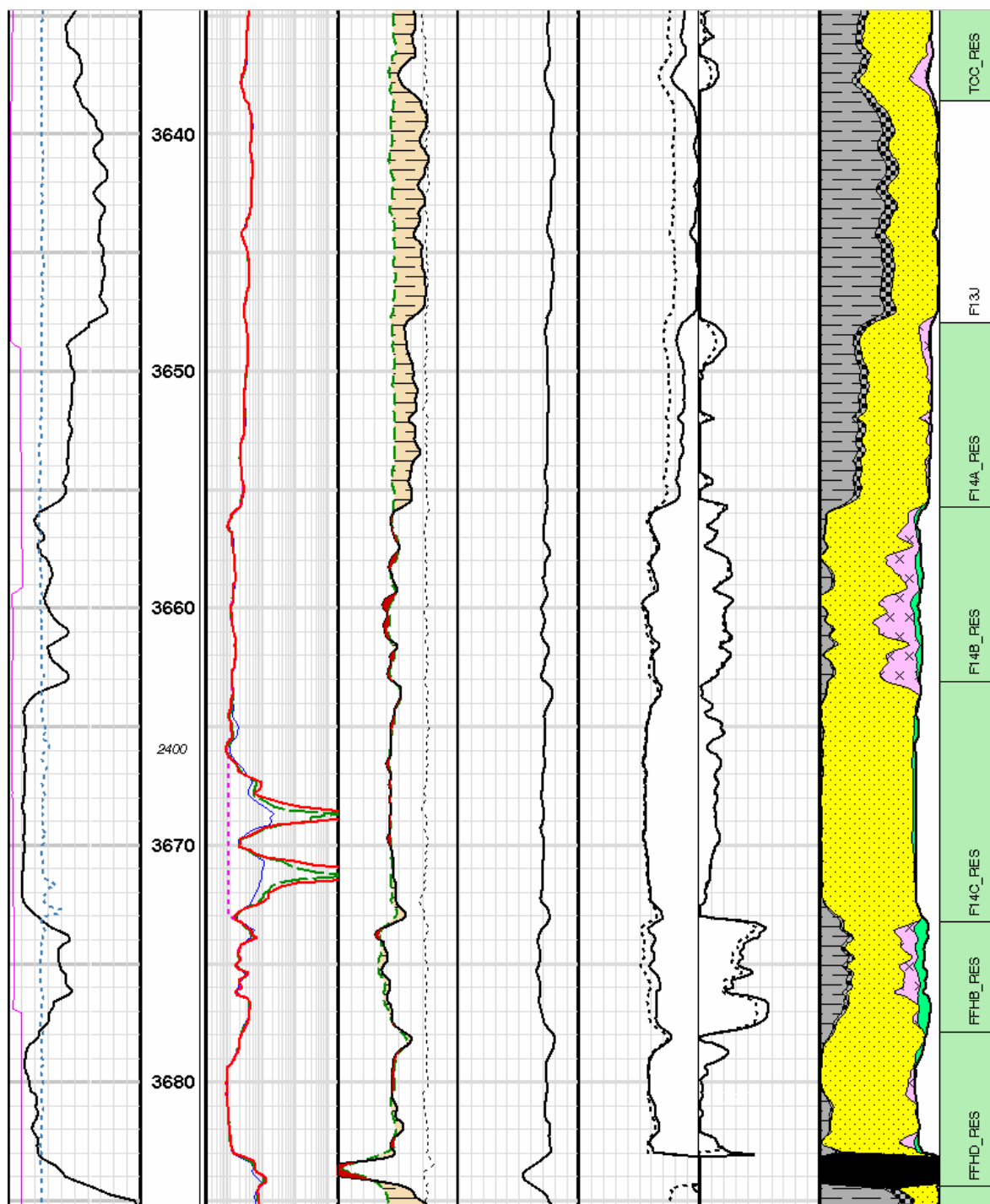


Figure 6 Fortescue A9B summary plot of formation evaluation between 3635 – 3685m MDRT

Fortescue A9B Formation Evaluation

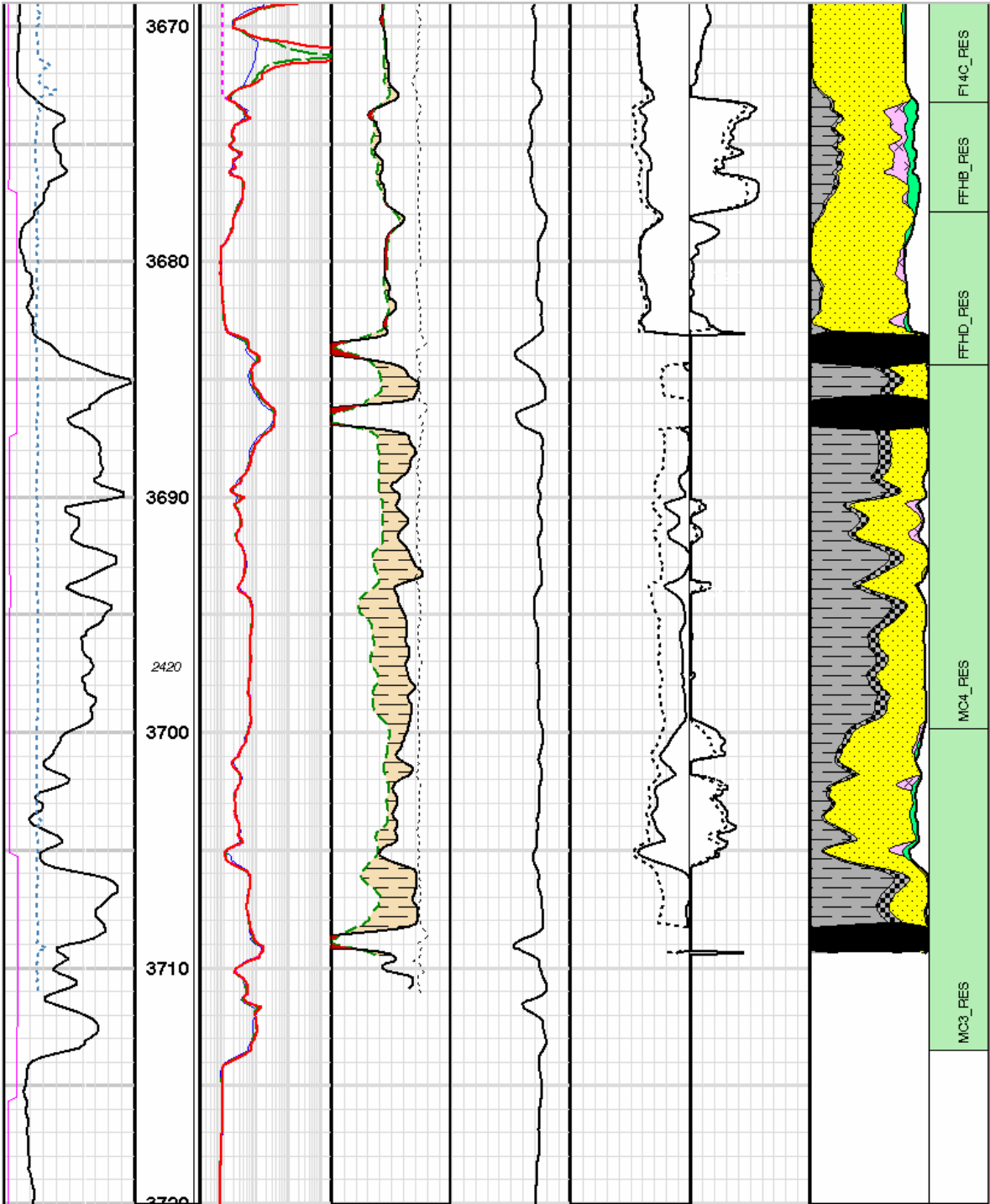


Figure 7 Fortescue A9B summary plot of formation evaluation between 3670 – 3720m MDRT

Fortescue A9B Formation Evaluation

<p style="text-align: center;">WELL NAME</p> <p style="text-align: center;">Petrophysical summary TOP - BOTTOM mMD</p> <p style="text-align: center;">Depth reference: MDKB</p> <p style="text-align: center;">Average Vcl, Phie, Swe based on Phie cutoff Phie => 0.12</p>													
Zone	Depth		Gross		Thickness		Net Pay		N/G	Average Parameters			Comments
	Top MD (m)	Bottom MD (m)	MD (m)	TVD (m)	MD (m)	TVD (m)	MD (m)	TVD (m)		Clay Volume (m3/m3)	Porosity (m3/m3)	Water Saturation (m3/m3)	
TCC	3624.3	3626.8	2.5	1.6	0.3	0.2	0.3	0.2	0.12	0.352	0.122	0.605	Probable oil pay
TCC_RES	3626.8	3638.6	11.9	7.6	0.8	0.5	-	-	0.06	0.287	0.125	0.772	Residual oil
F13J	3638.6	3648.0	9.4	6.0	0.0	0.0	-	-	0.00				Siltstone
F14A_RES	3648.0	3655.8	7.8	5.0	0.2	0.1	-	-	0.02	0.221	0.134	0.775	Residual oil
F14B_RES	3655.8	3663.1	7.4	4.7	7.4	4.7	-	-	1.00	0.079	0.192	0.804	Residual oil
F14C_RES	3663.1	3673.3	10.1	6.5	10.1	6.5	-	-	1.00	0.037	0.207	0.880	Residual oil
FFHB_RES	3673.3	3677.9	4.6	3.0	4.6	3.0	-	-	1.00	0.236	0.181	0.576	Residual oil
FFHD_RES	3677.9	3684.4	6.5	4.2	5.0	3.2	-	-	0.77	0.062	0.186	0.920	Residual oil
MC4_RES	3684.4	3699.9	15.5	9.9	0.0	0.0	-	-	0.00				Residual oil
MC3_RES	3699.9	3713.5	13.7	8.8	3.2	2.0	-	-	0.33	0.209	0.152	0.731	Residual oil

Table 2 Fortescue A9B statistics using a 12 pu PHIE cut-off for net pay.



FORTESCUE A9B

Petrophysical Analysis

COMPANY: Esso Australia Pty. Ltd.
WELL: FORTESCUE A9B
FIELD: FORTESCUE
STATE: VIC
COUNTRY:

PETROPHYSICIST: S. Dyksterhuis

Date Logged: 21-Aug-2007 Date Processed:
Well Location: <PROCESS_DATE>
Elevations: K.B. <KB>
Latitude: S 38 24 25.534 D.F. <DF>
Longitude: E 148 16 41.061 G.L. <GL>

Moved Water

Moved Hydrocarbon

Water

Oil

Pyrite

Orthoclase

Quartz

Coal

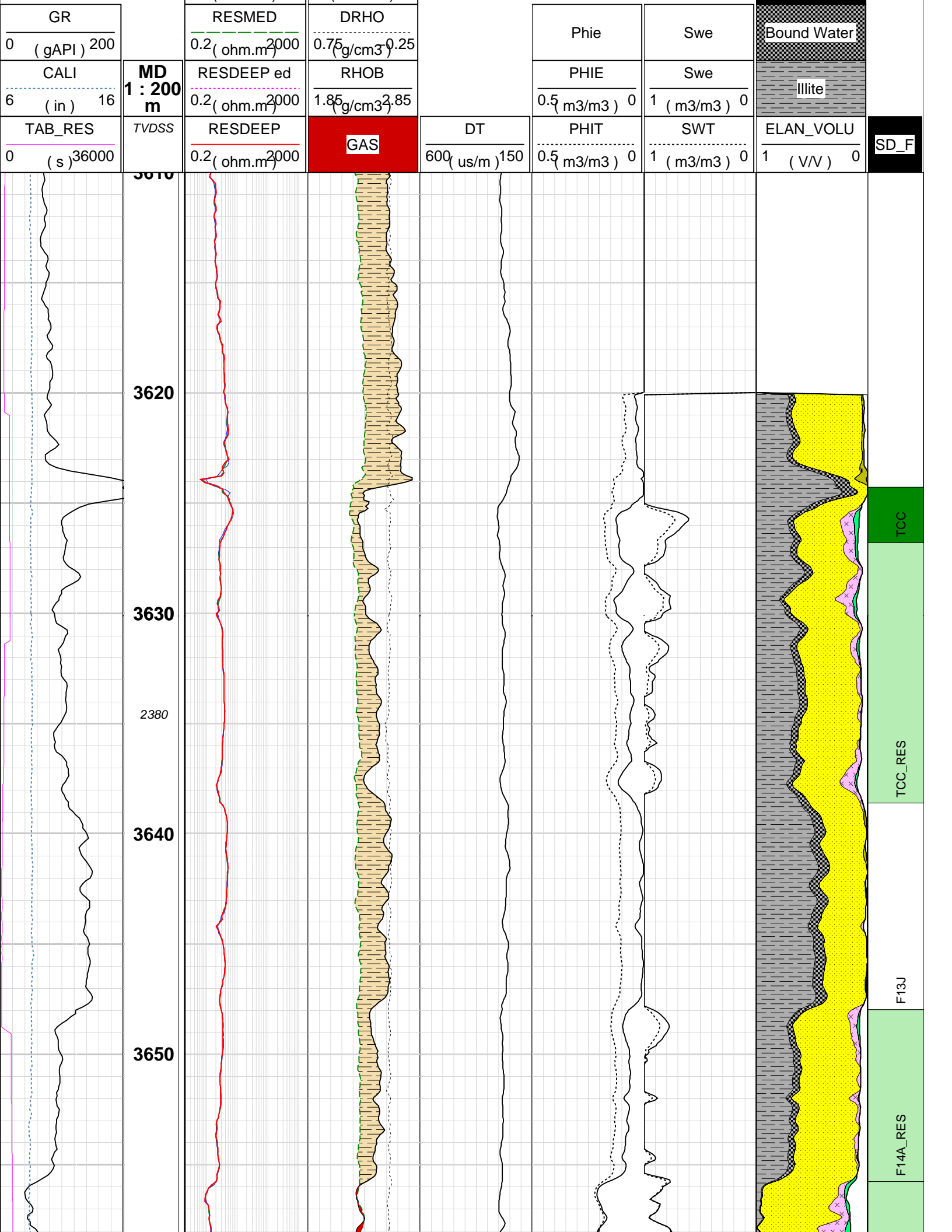
SHALE

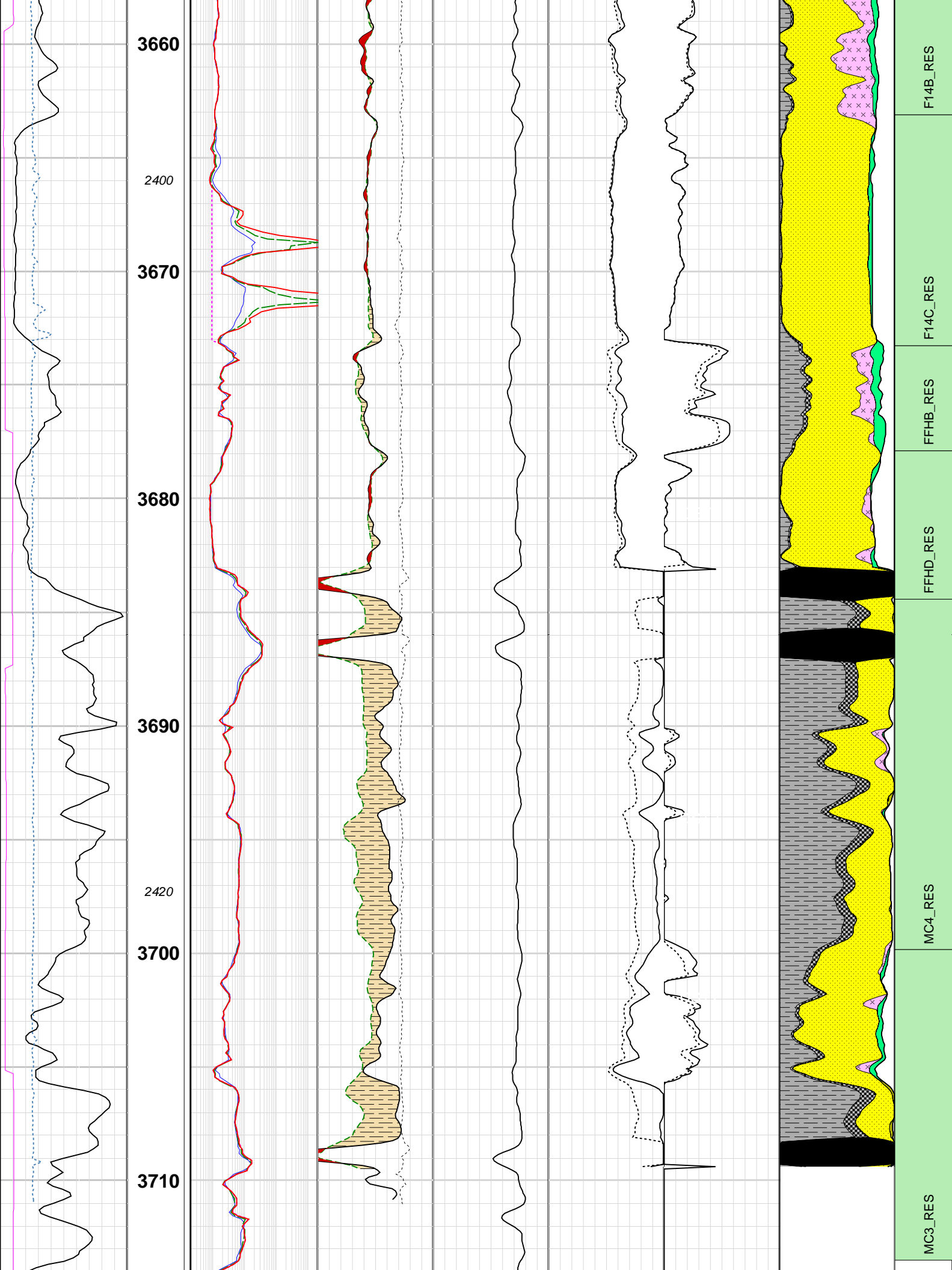
NPHI

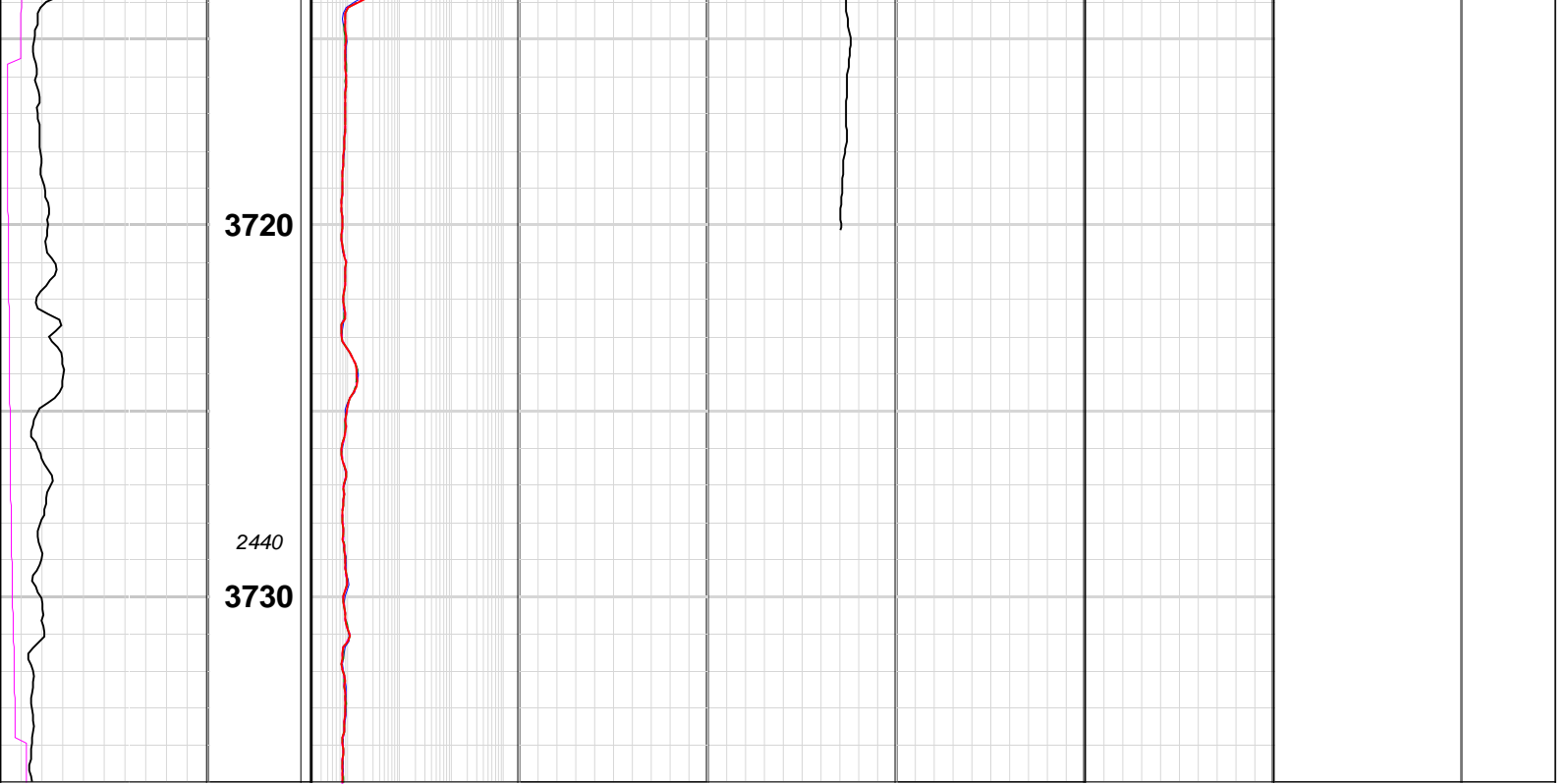
0.45 (m3/m3) 0.15

RESSHAL

0.2 (ohm.m) 2000







APPENDIX 3a

FORTESCUE A9B

Lithology/Show Descriptions

Fortescue A9B Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
<p style="color: blue;">Geologist on rig at 1100 hrs, 20 August 2007. Kick off 8½" section at 1391 mMDRT / 1006.4 mTVDRT / -963.9 mTVDSS at 16:45 hrs, 18 August 2007.</p>			
1391	1392	10	CALCILUTITE: pale greyish brown to medium dark greyish brown, silty in part grading to Calcisiltite, moderately hard, sub-fissile to sub-blocky. 90% Cement
1392	1393	5	CALCILUTITE: as above. 95% Cement
1393	1394	5	CALCILUTITE: as above. 95% Cement
1394	1395	5	CALCILUTITE: as above. 95% Cement
1395	1396	1	CALCILUTITE: as above. 99% Cement
1396	1397	2	CALCILUTITE: as above. 98% Cement
1397	1398	3	CALCILUTITE: as above. 97% Cement
1398	1399	5	CALCILUTITE: as above. 95% Cement
1399	1400	5	CALCILUTITE: as above. 95% Cement
1400	1401	25	CALCILUTITE: pale greyish brown to medium dark greyish brown, silty in part grading to Calcisiltite, moderately hard, sub-fissile to sub-blocky. 75% Cement
1401	1402	30	CALCILUTITE: as above. 70% Cement
1402	1403	50	CALCILUTITE: as above. 50% Cement
1403	1404	70	CALCILUTITE: as above. 30% Cement
1404	1405	70	CALCILUTITE: as above. 30% Cement
1405	1407	60	CALCILUTITE: as above. 40% Cement
1407	1410	70	CALCILUTITE: as above. 30% Cement
1410	1415	90	CALCILUTITE: pale greyish brown to medium dark greyish brown, silty in part grading to Calcisiltite, moderately hard, sub-fissile to sub-blocky. 10% Cement
1415	1420	95	CALCILUTITE: as above. 5% Cement
1420	1430	80	CALCILUTITE: pale greyish brown to medium dark greyish brown, silty in part commonly grading to Calcisiltite, moderately hard, sub-fissile to sub-blocky.
		20	CALCISILTITE: medium greyish brown, pale grey, minor medium dark greyish brown, grading to Calcilutite in part, locally argillaceous, minor disseminated pyrite, trace very fine glauconite grains, moderately hard, sub-fissile.
1430	1440	40	CALCILUTITE: as above.
		60	CALCISILTITE: as above.

Fortescue A9B Lithology / Show Descriptions

Interval (m)		%	Lithology / Show Description
From	To		
1440	1470	10	CALCILUTITE: as above.
		90	CALCISILTITE: as above.
1470	1500	95	CALCISILTITE: as above.
		5	COAL: black, sub-vitreous, hard, sub-blocky, irregular to hackly.
1500	1530	100	CALCISILTITE: medium greyish brown, pale grey, minor medium dark greyish brown, grading to Calcilutite in part, locally argillaceous, minor disseminated pyrite, trace very fine glauconite grains, moderately hard, sub-fissile.
		Trace	COAL: as above.
1530	1560	100	CALCISILTITE: as above.
		Trace	COAL: as above.
			POOH to lay out kick off BHA and pick up RSS BHA at 1581.0 mMDRT / 1118.2 mTVDRT / -1075.7 mTVDSS.
1560	1590	10	CALCILUTITE: pale to medium brown grey, silty in part grading to Calcisiltite, minor fine glauconite grains, trace carbonaceous laminations, soft, sub-blocky to sub-fissile.
		90	CALCISILTITE: pale to medium dark greyish brown, minor carbonaceous specks, trace fine glauconite, firm to moderately hard, sub-blocky to sub-fissile.
1590	1620	100	CALCISILTITE: pale to medium dark greyish brown, trace grading to Calcilutite, trace fine glauconite grains, trace carbonaceous specks & micro-laminations, firm to moderately hard, sub-blocky to rare sub-fissile.
1620	1650	100	CALCISILTITE: as above, predominantly medium dark greyish brown.
1650	1680	100	CALCISILTITE: light to medium dark greyish brown, trace fine glauconite grains, trace lithics, trace carbonaceous specks, firm to moderately hard, sub-blocky to sub-fissile.
1680	1710	60	CALCISILTITE: as above.
		40	CALCARENITE: pale brown, pale greyish brown to brownish grey, silty in part, very fine to fine, moderately sorted, sub-angular to sub-rounded, minor lithics, trace carbonaceous specks, soft, dispersive in part, sub-blocky, poor visual porosity.
			No Fluorescence.
1710	1740	70	CALCISILTITE: as above.
		30	CALCARENITE: as above, minor carbonaceous specks.
1740	1770	30	CALCILUTITE: pale to medium grey, silty in part, trace carbonaceous specks, soft, sub-blocky.
		70	CALCISILTITE: light to medium dark grey, medium dark greyish brown, minor carbonaceous specks, trace lithics, firm to moderately hard, rare soft, sub-blocky.
1770	1800	80	CALCISILTITE: as above, trace calcite fragments.
		20	CALCARENITE: pale brown, pale greyish brown, silty in part, very fine to fine, moderately well sorted, sub-angular to sub-rounded, minor lithics, trace carbonaceous specks, dispersive to firm, sub-blocky, poor visual porosity.
			No Fluorescence.
1800	1830	60	CALCISILTITE: as above.
		40	CALCARENITE: as above.
1830	1860	90	CALCISILTITE: as above.
		10	CALCARENITE: as above.
1860	1890	100	CALCISILTITE: medium to medium dark greyish brown, olive grey in part, arenaceous in part grading to very fine Calcarenite, trace lithics, trace carbonaceous specks, minor micro-laminations, trace calcite fragments, firm to rare moderately hard, sub-blocky.
1890	1920	10	CALCILUTITE: medium light grey to medium grey, light olive grey in part, rare carbonaceous laminations, trace carbonaceous specks, firm, sub-blocky.

Fortescue A9B Lithology / Show Descriptions

Interval (m)		%	Lithology / Show Description
From	To		
1920	1950	90	CALCISILTITE: as above.
		30	CALCILUTITE: as above.
		70	CALCISILTITE: as above.
1950	1980	40	CALCILUTITE: light to medium light grey, light olive grey in part, trace carbonaceous specks, soft, sub-blocky.
		60	CALCISILTITE: as above.
1980	2010	10	CALCILUTITE: as above.
		90	CALCISILTITE: as above.
2010	2040	100	CALCISILTITE: medium to medium dark greyish brown, brownish grey, olive grey in part, trace carbonaceous specks, trace lithics, firm to moderately hard, sub-blocky.
2040	2070	100	CALCISILTITE: as above.
2070	2100	20	CALCILUTITE: medium light grey to medium grey, light olive grey, trace carbonaceous specks, soft, sub-blocky.
2100	2130	80	CALCISILTITE: as above.
		20	CALCILUTITE: as above.
		80	CALCISILTITE: light olive grey to light grey, light brownish grey, rare arenaceous, trace glauconite, trace lithics, trace carbonaceous lams and fragments, soft to firm, sub-blocky.
2130	2160	60	CALCISILTITE: as above.
		40	CALCARENITE: pale brown, pale greyish brown, very fine to fine, moderately well sorted, sub-angular to sub-rounded, trace glauconite, trace disseminated pyrite, trace carbonaceous specks, friable, poor visual porosity. No Fluorescence.
2160	2190	90	CALCISILTITE: light olive grey to olive grey, brownish grey, trace arenaceous, trace lithics, minor carbonaceous specks and laminations, soft to firm, sub-blocky to rare blocky.
2190	2220	10	CALCARENITE: as above.
		80	CALCISILTITE: as above.
		20	CALCARENITE: as above.
2220	2250	90	CALCISILTITE: light olive grey to olive grey, medium brownish grey, trace lithics, trace carbonaceous specks and fragments, carbonaceous laminations, soft to firm, sub-blocky.
		10	CALCARENITE: pale brown to medium greyish brown, very fine to fine, moderately well sorted, sub-angular to sub-rounded, trace carbonaceous specks, friable, poor visual porosity. No Fluorescence.
2250	2280	100	CALCISILTITE: light olive grey to olive grey, medium brownish grey, arenaceous in part, grading to Calcarenite, trace lithics, trace carbonaceous specks and micro laminations, firm to rare moderately hard, sub-blocky.
2280	2310	100	CALCISILTITE: light olive grey to olive grey, light to medium greyish brown, as above.
2310	2340	100	CALCISILTITE: light olive grey to olive grey, light to medium brownish grey, trace lithics, trace carbonaceous specks and laminations, firm to moderately hard, rare soft, sub-blocky.
2340	2370	100	CALCISILTITE: as above.
2370	2400	100	CALCISILTITE: as above, soft to firm, grading to Calcilutite in part.
2400	2430	10	CALCILUTITE: pale to medium light grey, silty in part, trace glauconite grains, trace lithics, soft, sub-blocky.
2430	2460	90	CALCISILTITE: as above.
		20	CALCILUTITE: as above.

Fortescue A9B Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
2460	2490	80	CALCISILTITE: as above.
		100	CALCISILTITE: light olive grey to olive grey, medium brownish grey, minor lithics, trace carbonaceous specks and laminations, soft to firm, sub-blocky.
2490	2520	80	CALCILUTITE: light to medium grey, light brown grey in part, silty in part, trace glauconite, trace lithics, trace fossil fragments, soft, sub-blocky.
		20	CALCISILTITE: as above.
2520	2550	70	CALCILUTITE: as above.
		30	CALCISILTITE: as above.
2550	2580	100	CALCILUTITE: light to medium grey, light olive grey, trace glauconite, trace carbonaceous specks, trace lithics, soft, amorphous.
		70	CALCILUTITE: as above.
2580	2610	30	CALCISILTITE: olive grey, medium to medium dark grey, greyish brown in part, trace carbonaceous specks, trace lithics, firm, rare soft, sub-blocky.
		70	CALCILUTITE: as above, very light grey to medium grey.
2610	2640	30	CALCISILTITE: as above.
		100	CALCILUTITE: as above.
2640	2670	100	CALCILUTITE: light to medium light grey, light olive grey, silty grading to Calcisiltite in part, trace calcareous grains, trace disseminated and nodular pyrite, trace glauconite grains, trace carbonaceous specks, soft, amorphous to sub-blocky.
		100	CALCILUTITE: as above.
2700	2730	100	CALCILUTITE: light to medium light grey, olive grey in part, silty grading to Calcisiltite in part, trace lithics, trace calcareous specks, trace disseminated pyrite, soft, amorphous to sub-blocky.
		100	CALCILUTITE: as above.
2760	2790	100	CALCILUTITE: light to medium light grey, medium greyish brown, olive grey, silty grading to Calcisiltite in part, trace carbonaceous specks, soft, rare firm, amorphous to sub-blocky.
		100	CALCILUTITE: as above.
2820	2850	100	CALCILUTITE: light to medium grey, medium greyish brown in part, rare silty, trace carbonaceous specks, minor disseminated and trace nodular pyrite, amorphous to sub-blocky.
		100	CALCILUTITE: as above.
2880	2910	100	CALCILUTITE: light to medium grey, medium greyish brown in part, rare silty, trace carbonaceous specks, minor disseminated and trace nodular pyrite, soft, amorphous to sub-blocky.
		100	CALCILUTITE: as above, trace glauconite.
2910	2940	100	CALCILUTITE: light to medium grey, olive grey, trace disseminated pyrite, trace glauconite grains, soft, amorphous to sub-blocky.
		100	CALCILUTITE: as above.
2970	3000	100	CALCILUTITE: as above.
		100	CALCILUTITE: as above.
3000	3030	100	CALCILUTITE: light to medium grey, olive grey, minor disseminated pyrite, minor carbonaceous specks, trace glauconite grains, soft, amorphous to sub-blocky.
		100	CALCILUTITE: light to medium grey, olive grey, medium dark greyish brown in part, silty in medium dark greyish brown cuttings, minor disseminated pyrite, minor carbonaceous specks, soft to rare firm, sub-blocky, rare amorphous.
3060	3090	100	CALCILUTITE: as above.
		100	CALCILUTITE: as above, trace calcite fragments, silty grading to Calcisiltite in part.
3090	3120	80	CALCILUTITE: as above.
		20	CALCISILTITE: light medium to medium dark grey, minor lithics, trace micro-micaceous, trace disseminated pyrite, firm to medium hard, sub-blocky.
3120	3150	80	CALCILUTITE: as above.
		20	CALCISILTITE: light medium to medium dark grey, minor lithics, trace micro-micaceous, trace disseminated pyrite, firm to medium hard, sub-blocky.
3150	3180	80	CALCILUTITE: as above.
		20	CALCISILTITE: light medium to medium dark grey, minor lithics, trace micro-micaceous, trace disseminated pyrite, firm to medium hard, sub-blocky.

Fortescue A9B Lithology / Show Descriptions

Interval (m)		%	Lithology / Show Description
From	To		
3180	3210	90	CALCILUTITE: as above, trace nodular pyrite, trace glauconite.
		10	CALCISILTITE: as above.
3210	3240	100	CALCILUTITE: as above, light brownish grey, rare light to medium dark greyish brown, rare carbonaceous specks.
3240	3270	90	CALCILUTITE: light to medium grey, olive grey, light to medium dark greyish brown in part, minor disseminated and rare nodular pyrite, trace carbonaceous specks, trace glauconite, soft to rare firm, sub-blocky, rare amorphous.
		10	CALCISILTITE: as above.
			Top of Lakes Entrance = 3290.0 mMDRT / 2203.9 mTVDRT / -2161.4 mTVDSS.
3270	3300	15	CALCAREOUS CLAYSTONE: very light to medium grey, olive grey in part, moderately calcareous, trace fossil fragments, trace glauconite grains, trace carbonaceous specks, very soft, amorphous.
		85	CALCISILTITE: as above.
3300	3330	60	CALCAREOUS CLAYSTONE: as above.
		40	CALCISILTITE: as above.
3330	3360	80	CALCAREOUS CLAYSTONE: as above.
		20	CALCISILTITE: as above, light brownish grey.
3360	3390	100	CALCAREOUS CLAYSTONE: light brownish grey, light olive grey, brownish grey in part, trace disseminated and nodular pyrite, trace carbonaceous specks, soft, rare firm, amorphous to sub-blocky.
3390	3420	100	CALCAREOUS CLAYSTONE: as above, minor disseminated pyrite.
3420	3450	100	CALCAREOUS CLAYSTONE: as above.
			10 metre bagged samples from 3450.0 m to 3620.0 mMDRT.
3450	3460	100	CALCAREOUS CLAYSTONE: as above.
3460	3470	100	CALCAREOUS CLAYSTONE: light to medium grey, greyish brown, olive grey in part, silty in part, moderately calcareous, trace carbonaceous specks, trace lithics, minor disseminated pyrite, soft to rare firm, sub-blocky, rare amorphous.
3470	3480	100	CALCAREOUS CLAYSTONE: as above, trace calcite fragments, trace fossil fragments.
3480	3490	100	CALCAREOUS CLAYSTONE: light to medium dark grey, predominantly medium grey, olive grey in part, silty in part, moderately calcareous, trace carbonaceous specks, minor disseminated and trace nodular pyrite, soft to rare firm, sub-blocky, rare amorphous.
3490	3500	100	CALCAREOUS CLAYSTONE: light to medium grey, olive grey, silty in part, moderately calcareous, minor nodular and disseminated pyrite, minor calcite fragments, trace fossil fragments, soft to rare firm, sub-blocky.
3500	3510	100	CALCAREOUS CLAYSTONE: as above.
3510	3520	100	CALCAREOUS CLAYSTONE: as above, greenish grey in part.
3520	3530	100	CALCAREOUS CLAYSTONE: light to medium grey, greenish grey, olive grey, silty in part, moderately calcareous, minor nodular pyrite, minor calcite fragments, soft to rare firm, sub-blocky.
3530	3540	100	CALCAREOUS CLAYSTONE: as above, common nodular pyrite, common calcite fragments.
3540	3550	100	CALCAREOUS CLAYSTONE: as above.
3550	3560	100	CALCAREOUS CLAYSTONE: light to medium grey, greenish grey, olive grey, silty in part, moderately calcareous, minor nodular and disseminated pyrite, trace calcite fragments, trace glauconite, soft to firm, sub-blocky.
3560	3570	100	CALCAREOUS CLAYSTONE: light to medium brown, light to medium grey, olive grey, as above.

Fortescue A9B Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3570	3580	100	CALCAREOUS CLAYSTONE: light to medium grey, light to medium greyish brown, olive grey in part, silty in part, moderately calcareous, minor nodular and disseminated pyrite, trace calcite fragments, trace lithics, soft to firm, sub-blocky.
3580	3590	100	CALCAREOUS CLAYSTONE: as above, glauconite grains.
3590	3600	100	CALCAREOUS CLAYSTONE: light to medium grey, light to medium greyish brown, olive grey in part, moderately calcareous, silty in part, minor nodular and disseminated pyrite, trace calcite fragments, minor glauconite grains, trace lithics, soft to firm, sub-blocky. Baracarb at a concentration of 5 ppb added to the Mud system at 3604.0 mMDRT (2403.0 mTVDRT / -2360.5 mTVDSS). Baracarb seen in samples from 3610.0 mMDRT to 3746.0 mMDRT (TD).
3600	3610	100	CALCAREOUS CLAYSTONE: light to medium grey, silty in part, moderately calcareous, trace disseminated pyrite, trace lithics, soft to firm, sub-blocky.
3610	3620	100	CALCAREOUS CLAYSTONE: as above. 5 metre bagged samples from 3620.0 to 3746.0 mMDRT (TD). Top of Latrobe Group = 3623.5 mMDRT / 2415.4 mTVDRT / -2372.9 mTVDSS.
3620	3625	95 5	CALCAREOUS CLAYSTONE: as above. SILTSTONE: medium to dark grey, arenaceous in part, minor micro-micaceous, minor disseminated pyrite, soft to firm, sub-blocky. Top of Coarse Clastics (Top FM13H) = 3625.2 mMDRT / 2416.5mTVDRT / -2374.0 mTVDSS.
3625	3630	50 20 30	CALCAREOUS CLAYSTONE: as above. SILTSTONE: as above, common micro-micaceous. SANDSTONE: pale grey, clear to translucent, very fine to medium, moderately well sorted, sub-angular to sub-rounded, sub-spherical, trace glauconite grains, friable to firm, poor inferred and visual porosity. No Fluorescence.
3630	3635	20 40 40	CALCAREOUS CLAYSTONE: as above. SILTSTONE: as above, greyish black in part. SANDSTONE: pale grey, clear to translucent, very fine to medium, moderately well sorted, sub-angular to sub-rounded, sub-spherical, trace glauconite grains, trace lithics, trace carbonaceous specks, friable to firm, poor inferred and visual porosity. Fluorescence: Trace: pale yellow green patchy Fluorescence. No Direct cut, very slow bleeding crush cut, thin dull blue white film residue. Top of FM13J = 3637.0 mMDRT / 2424.0 mTVDRT / -2381.5 mTVDSS.
3635	3640	30 70	SILTSTONE: as above. SANDSTONE: pale to medium grey, clear to translucent, fine to medium, moderately well sorted, sub-angular to sub-rounded, sub-spherical, trace lithics, trace carbonaceous specks, friable to firm, poor inferred and visual porosity. Fluorescence: 2%: pale yellow green patchy Fluorescence. No Direct cut, very slow bleeding crush cut, thin dull blue white film residue.
3640	3645	30 70	SILTSTONE: brownish black to greyish black, common disseminated and nodular pyrite, minor micro-micaceous, soft to firm, sub-blocky. SANDSTONE: clear to translucent, pale to medium grey in part, fine to medium, moderately well sorted, sub-angular to sub-rounded, sub-spherical, trace lithics, minor nodular pyrite, friable to firm, rare moderately hard, sub-blocky. Fluorescence: 5%: pale yellow green patchy Fluorescence. No Direct cut, very slow bleeding crush cut, thin dull blue white film residue. Top of FM14A = 3181.4 mMDRT / 2367.0 mTVDRT / -2324.5 mTVDSS.
3645	3650	20	SILTSTONE: as above.

Fortescue A9B Lithology / Show Descriptions

Interval (m) From To		%	Lithology / Show Description
3650	3655	80	SANDSTONE: clear to translucent, pale to medium grey in part, fine to medium, moderately well sorted, sub-angular to sub-rounded, sub-spherical, trace lithics, minor nodular pyrite, friable to firm, rare moderately hard, sub-blocky. No Fluorescence.
		40	SILTSTONE: as above.
		60	SANDSTONE: clear to translucent, pale grey, fine to medium, moderately well sorted, sub-angular to sub-rounded, sub-spherical, trace lithics, trace glauconite, minor nodular pyrite, friable to firm, sub-blocky. No Fluorescence.
3655	3660		Top of FM14B = 3656.0 mMDRT / 2436.0 mTVDRT / -2393.5 mTVDSS.
		80	SILTSTONE: medium dark brown to brownish black, dark grey, common disseminated and nodular pyrite, minor micro-micaceous, firm, sub-blocky.
3660	3665	20	SANDSTONE: as above, loose in part. Fluorescence: Trace: pale yellow green patchy Fluorescence. No Direct cut, very slow bleeding crush cut, thin dull blue white ring residue.
		50	SILTSTONE: as above.
		50	SANDSTONE: clear to translucent, pale grey in part, medium to very coarse, moderately sorted, sub-angular to sub-rounded, sub-spherical, minor pyrite cement, loose clean quartz grains. No Fluorescence.
3665	3670	100	SANDSTONE: as above. No Fluorescence.
3670	3675		Top of FFHB / M-101B = 3673.4 mMDRT / 2447.0 mTVDRT / -2404.5 mTVDSS.
			SANDSTONE: clear to translucent, pale grey in part, medium to very coarse, moderately sorted, sub-angular to sub-rounded, sub-spherical, minor pyrite cement, loose clean quartz grains. No Fluorescence.
3675	3680		Top of FFHD / M-101D = 3676.5 mMDRT / 2449.0 mTVDRT / -2406.5 mTVDSS.
			SILTSTONE: medium to medium dark grey, greyish black, common nodular pyrite, minor disseminated pyrite, minor micro-micaceous, firm, sub-blocky.
			SANDSTONE: clear to translucent, very pale grey, medium to very coarse, moderately sorted, sub-angular to sub-rounded, sub-spherical, predominantly loose clean quartz grains, minor pyrite cement, fair inferred porosity. No Fluorescence.
3680	3685		Top of MC4 Coal = 3684.3 mMDRT / 2454.0 mTVDRT / -2411.5 mTVDSS.
		Trace	COAL: very dark grey to black, sub-vitreous, earthy in part, firm to brittle, sub-blocky.
		10	SILTSTONE: as above.
3685	3690	90	SANDSTONE: as above. No Fluorescence.
			FTA OOWC = 3687.5 mMDRT / 2452.5 mTVDRT / -2410.0 mTVDSS.
		5	COAL: as above.
		25	SILTSTONE: medium to medium dark brown, medium dark grey, common micro-micaceous, minor disseminated pyrite, minor carbonaceous mat, firm, sub-blocky.
		70	SANDSTONE: as above. No Fluorescence.
3690	3695	80	SILTSTONE: as above, common carbonaceous material grading to Carbonaceous Siltstone in part.

Fortescue A9B Lithology / Show Descriptions

Interval (m)		%	Lithology / Show Description
From	To		
3695	3700	20	SANDSTONE: clear to translucent, very pale grey, medium to coarse, moderately well sorted, sub-angular to sub-rounded, sub-spherical, loose clean quartz grains, trace pyrite cement, fair inferred porosity. No Fluorescence.
		90	SILTSTONE: as above.
		10	SANDSTONE: as above, medium to very coarse, moderately sorted. No Fluorescence.
3700	3705	70	SILTSTONE: medium to medium dark brown, medium dark grey, common carbonaceous material grading to Carbonaceous Siltstone in part, common micro-micaceous, firm, sub-blocky.
		30	SANDSTONE: clear to translucent, very pale grey, fine to medium, moderately well sorted, sub-angular to sub-rounded, sub-spherical, trace lithics, friable to firm aggregates, sub-blocky. No Fluorescence.
3705	3710	80	SILTSTONE: as above, arenaceous grading to very fine Sandstone in part.
		20	SANDSTONE: as above. No Fluorescence.
3710	3715	95	SILTSTONE: as above.
		5	SANDSTONE: as above, trace coarse loose quartz grains. No Fluorescence.
3715	3720	90	SILTSTONE: as above.
		10	SANDSTONE: clear to translucent, pale grey, fine to medium aggregates, trace very coarse quartz grains, moderately sorted, sub-angular to sub-rounded, sub-spherical, friable to firm aggregates, sub-blocky. No Fluorescence.
3720	3725	5	SILTSTONE: as above.
		95	SANDSTONE: clear to translucent, pale grey, medium to very coarse, moderately sorted, sub-angular to sub-rounded, sub-spherical, friable to firm aggregates, poor visual porosity. No Fluorescence.
3725	3730	100	SANDSTONE: as above, angular to sub-rounded, poor to fair inferred porosity. No Fluorescence.
3730	3735	5	SILTSTONE: medium to medium dark brown, medium dark grey, common carbonaceous material grading to Carbonaceous Siltstone in part, common micro-micaceous, firm, sub-blocky.
		95	SANDSTONE: clear to translucent, pale grey, pale yellowish brown, medium to very coarse, moderately sorted, sub-angular to sub-rounded, rare angular, sub-spherical, trace pyrite cement, trace Fe staining, minor nodular pyrite, loose clean quartz grains, poor to fair inferred porosity. No Fluorescence.
3735	3740	Trace	SILTSTONE: as above.
		100	SANDSTONE: clear to translucent, pale grey, medium to very coarse, moderately sorted, angular to sub-rounded, sub-spherical, trace pyrite cement, minor nodular pyrite, loose clean quartz grains, poor to fair inferred porosity. No Fluorescence.
3740	3746 TD	5	SILTSTONE: as above.
		95	SANDSTONE: as above. No Fluorescence.

Fortescue A9B Lithology / Show Descriptions

Interval (m)		%	Lithology / Show Description
From	To		

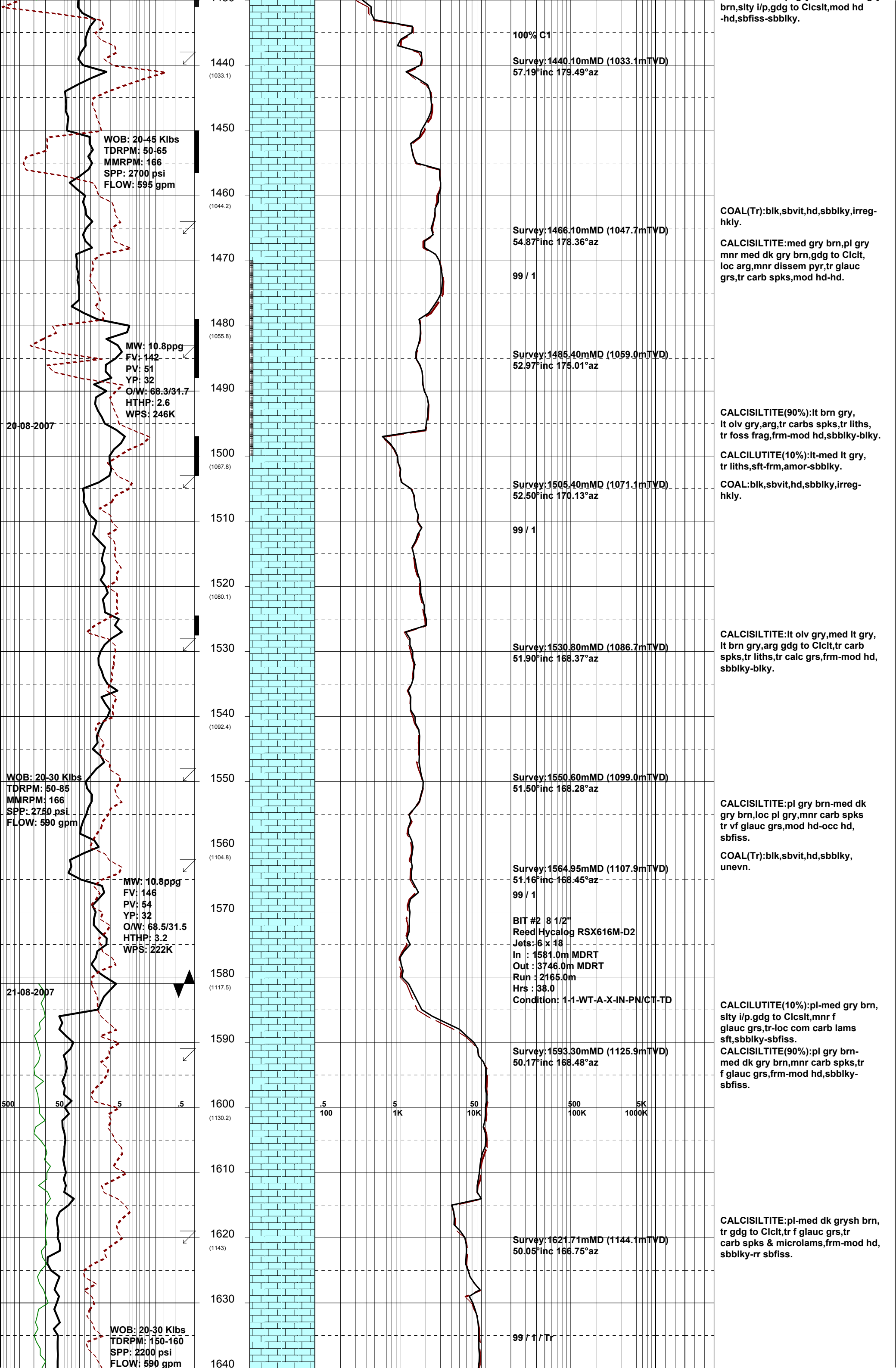
FTA A9B reached a TD of 3746.00 mMDRT / 2493.24 mTVDRT / -2450.74 mTVDSS at 0030 hrs on 25 August 2007.

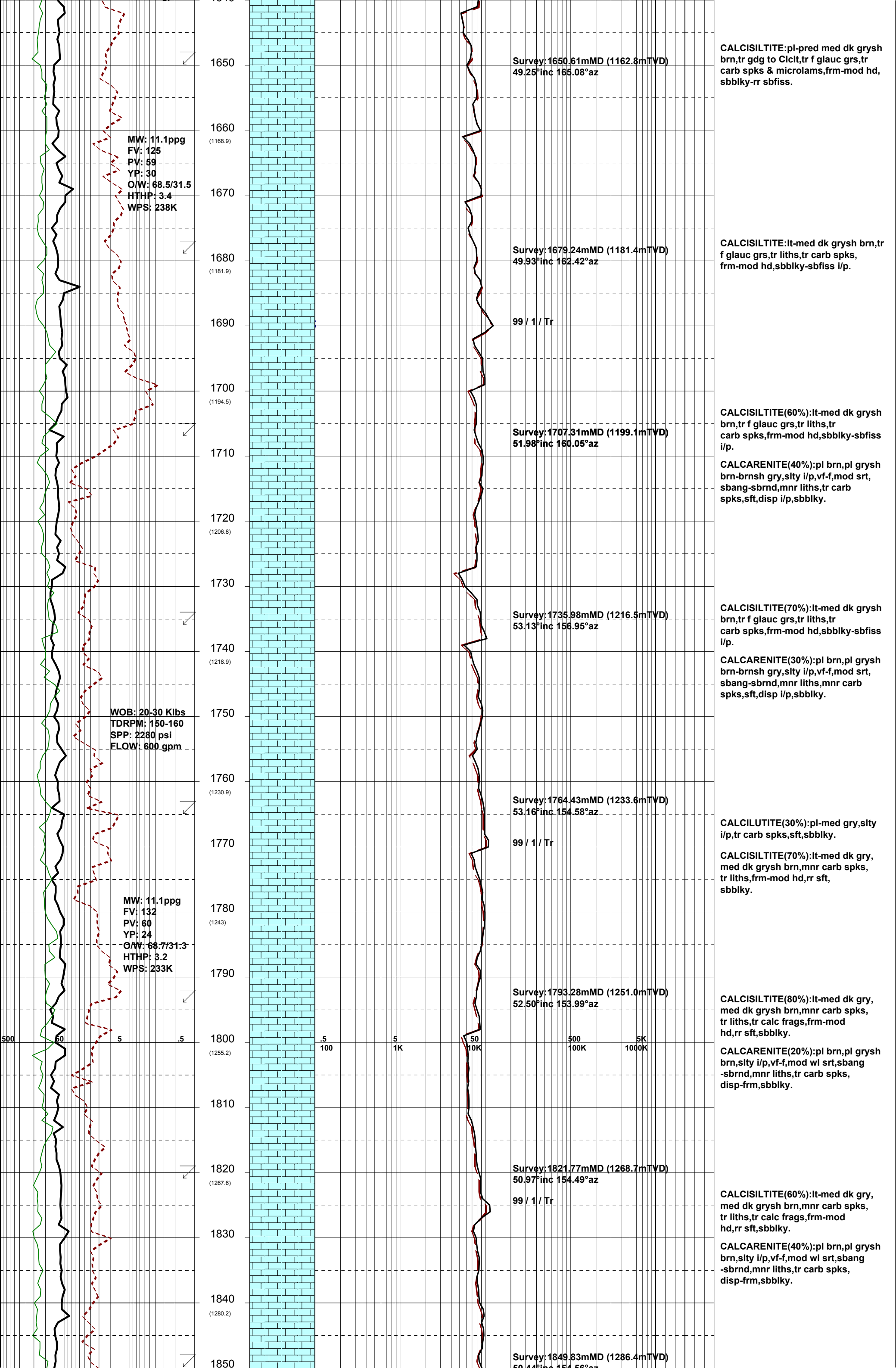
APPENDIX 4a

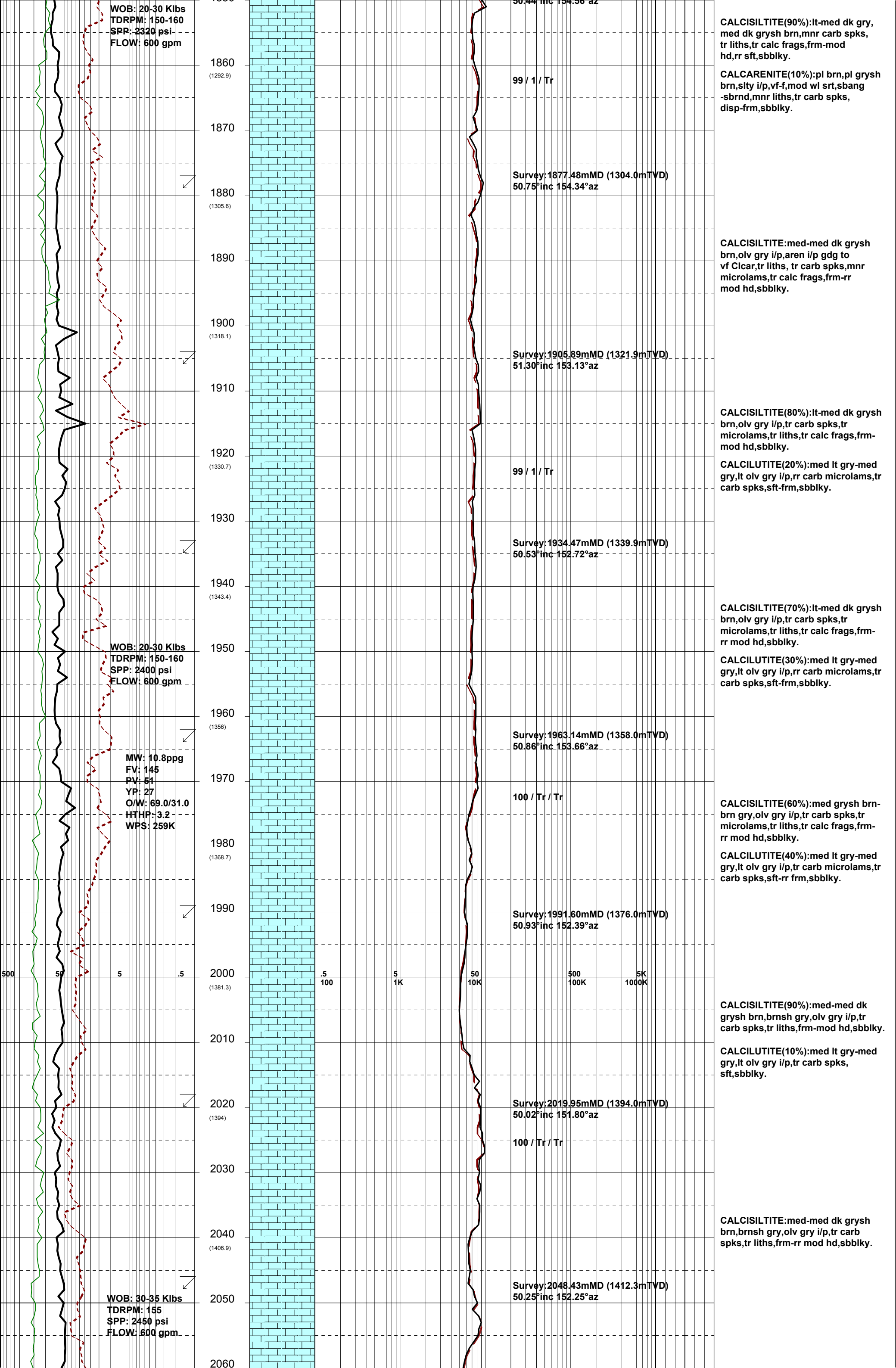
FORTESCUE A9B

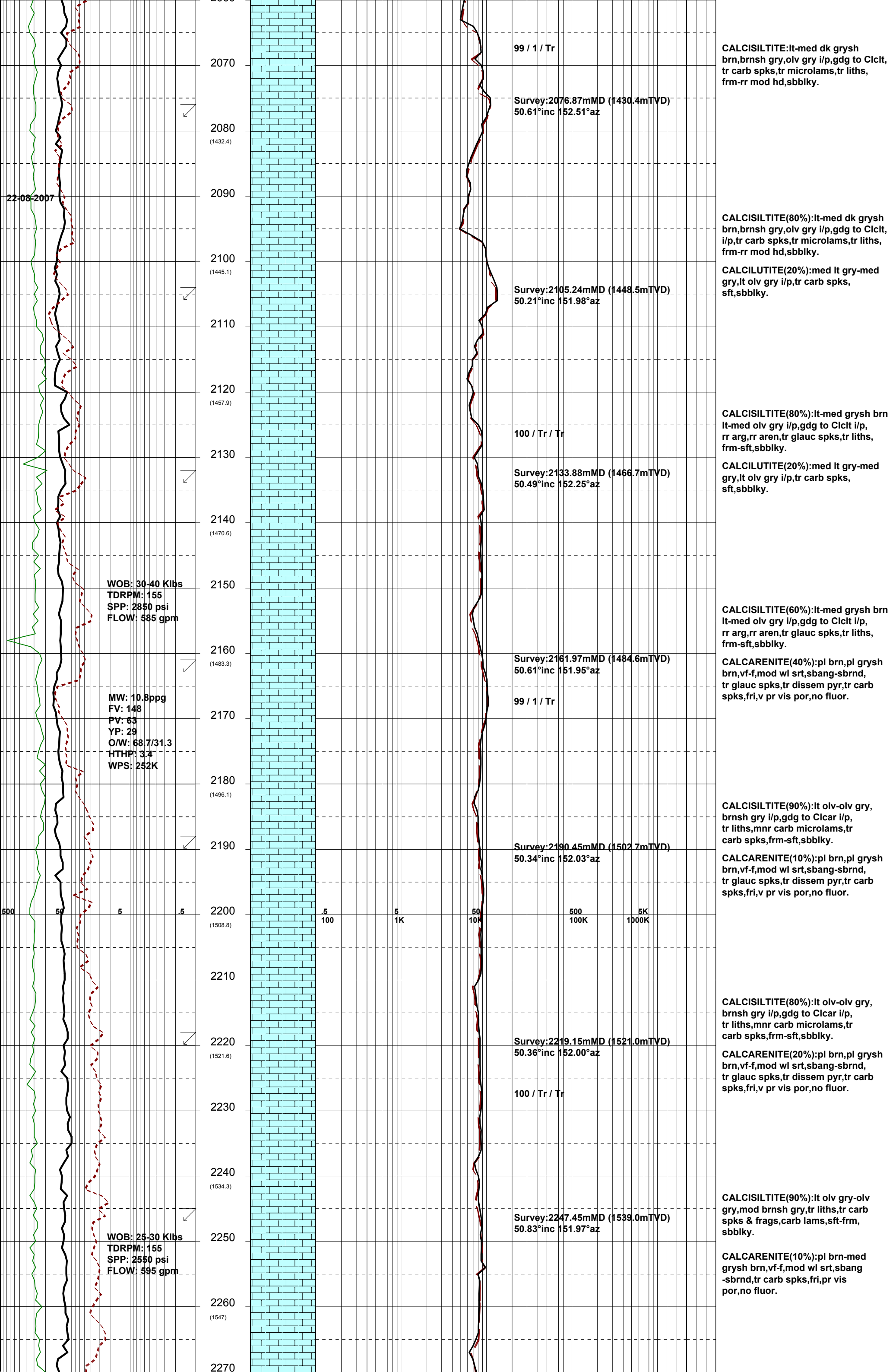
Mud Log

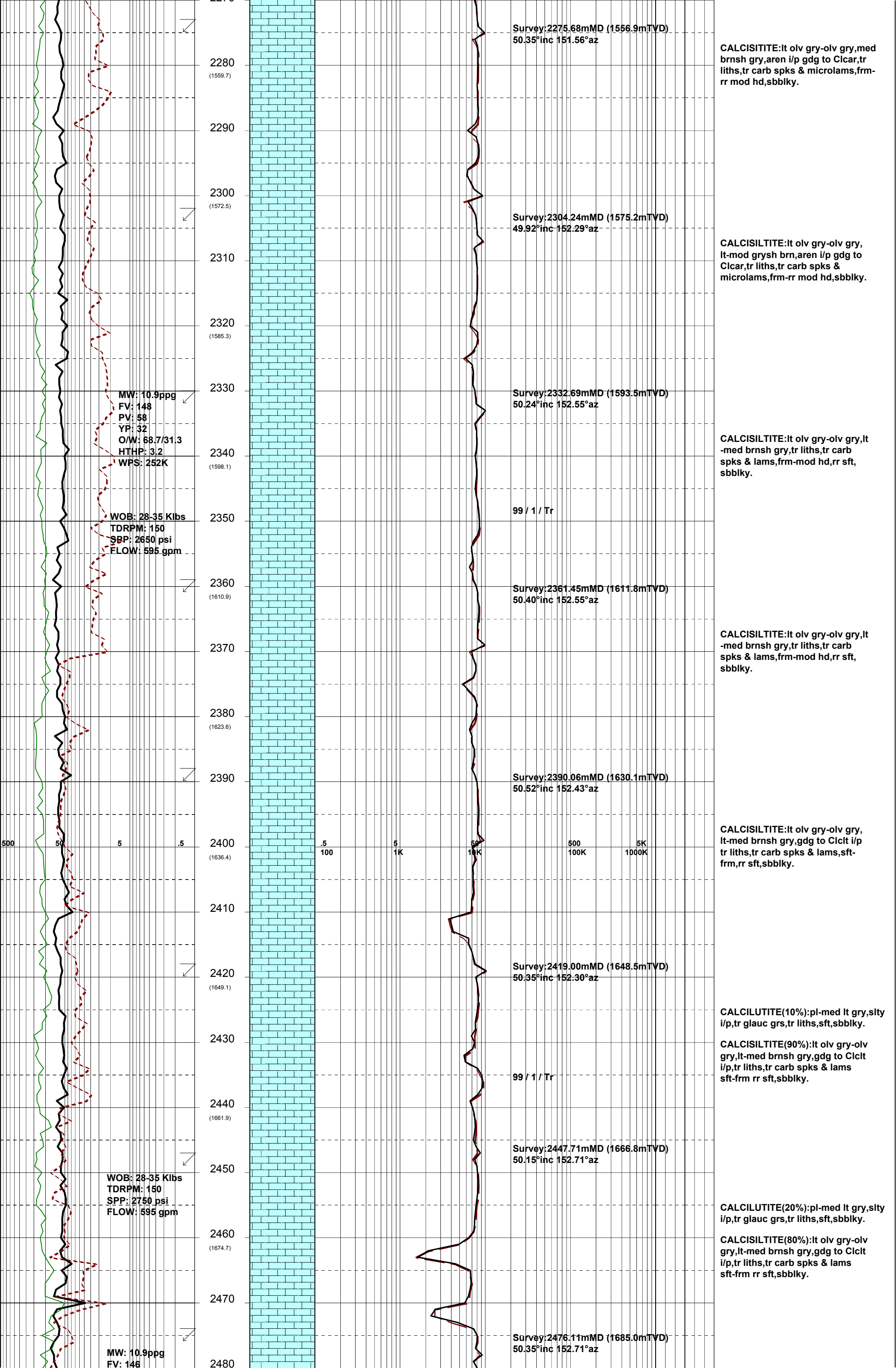
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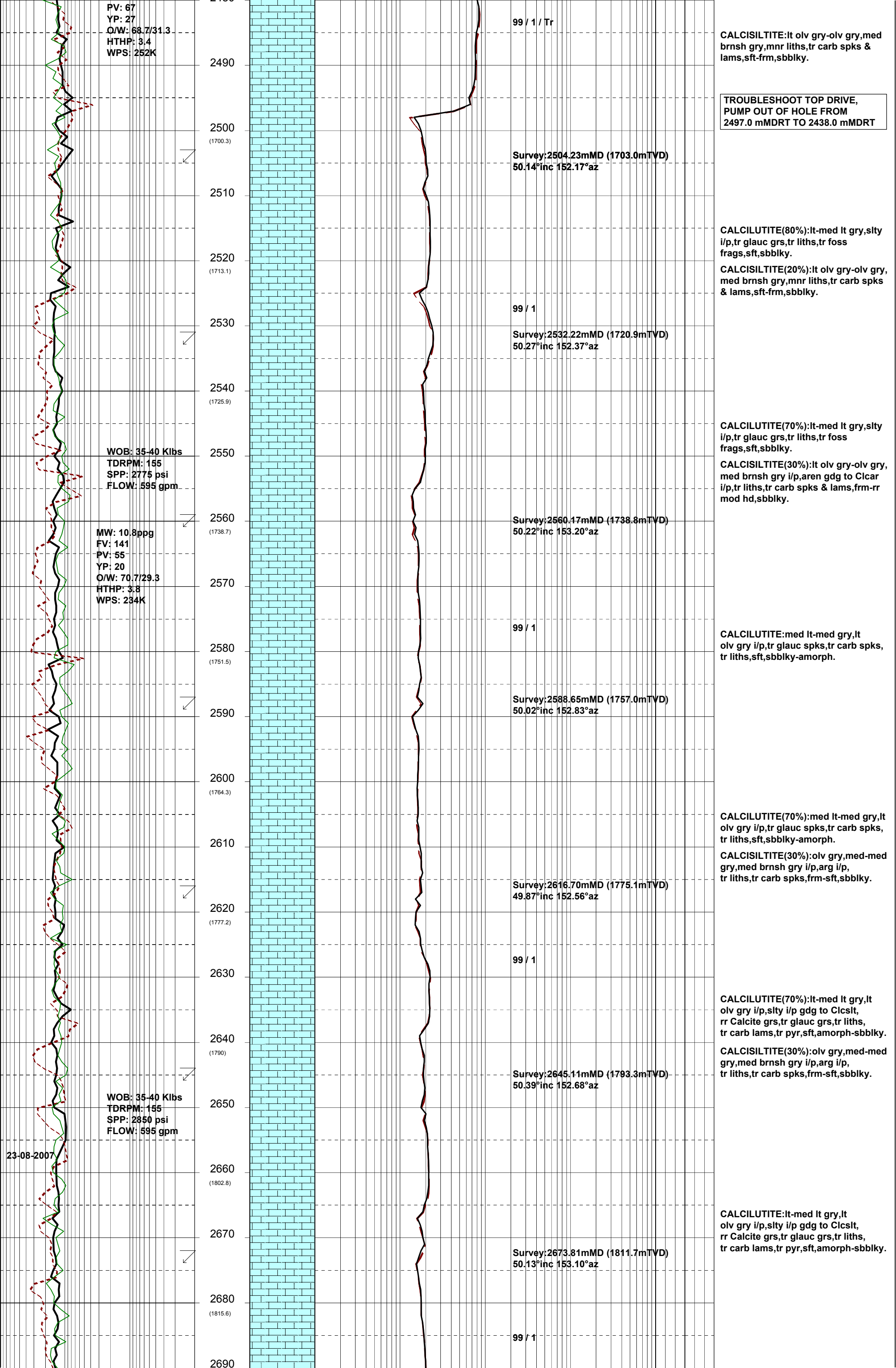


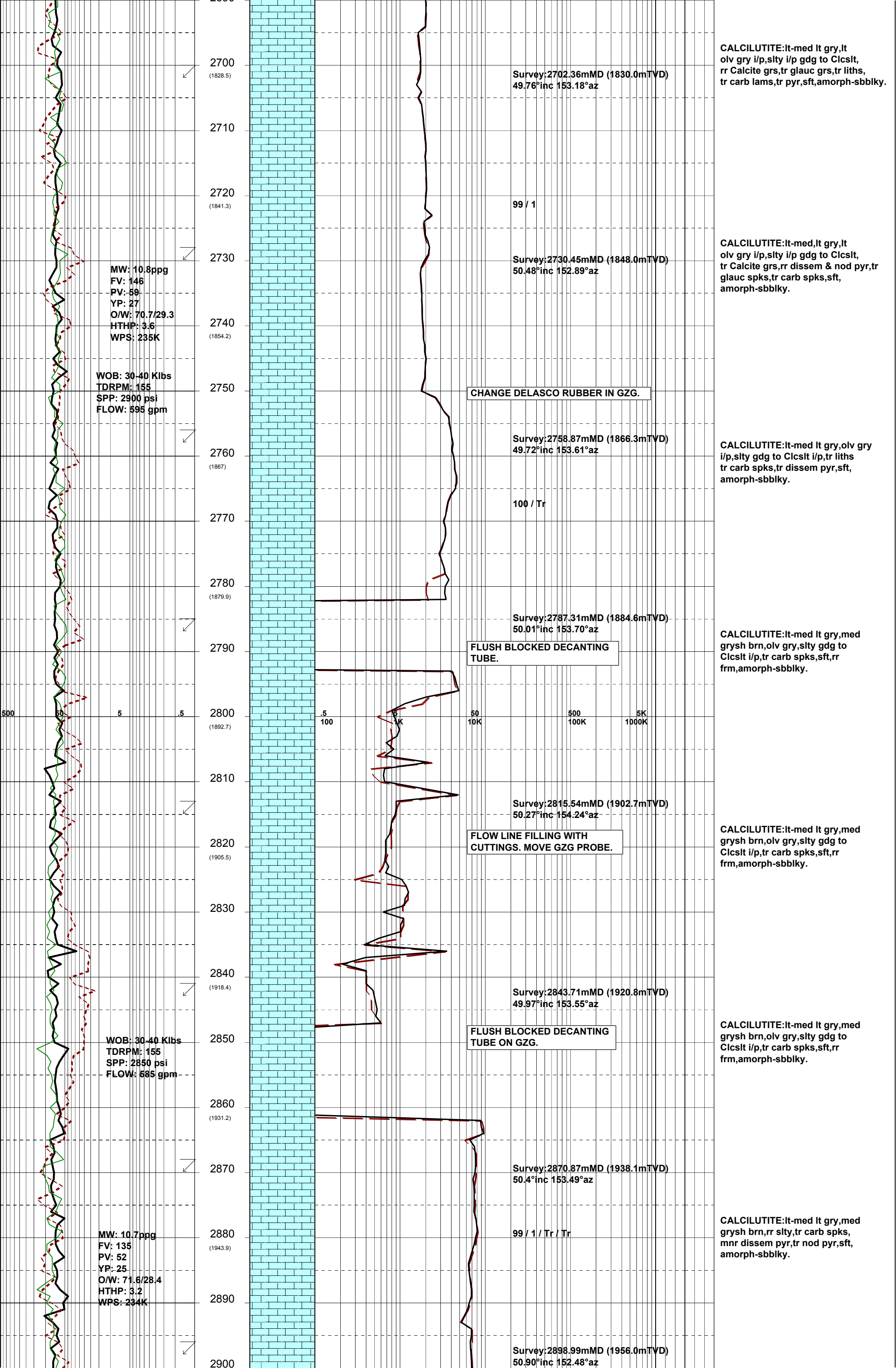


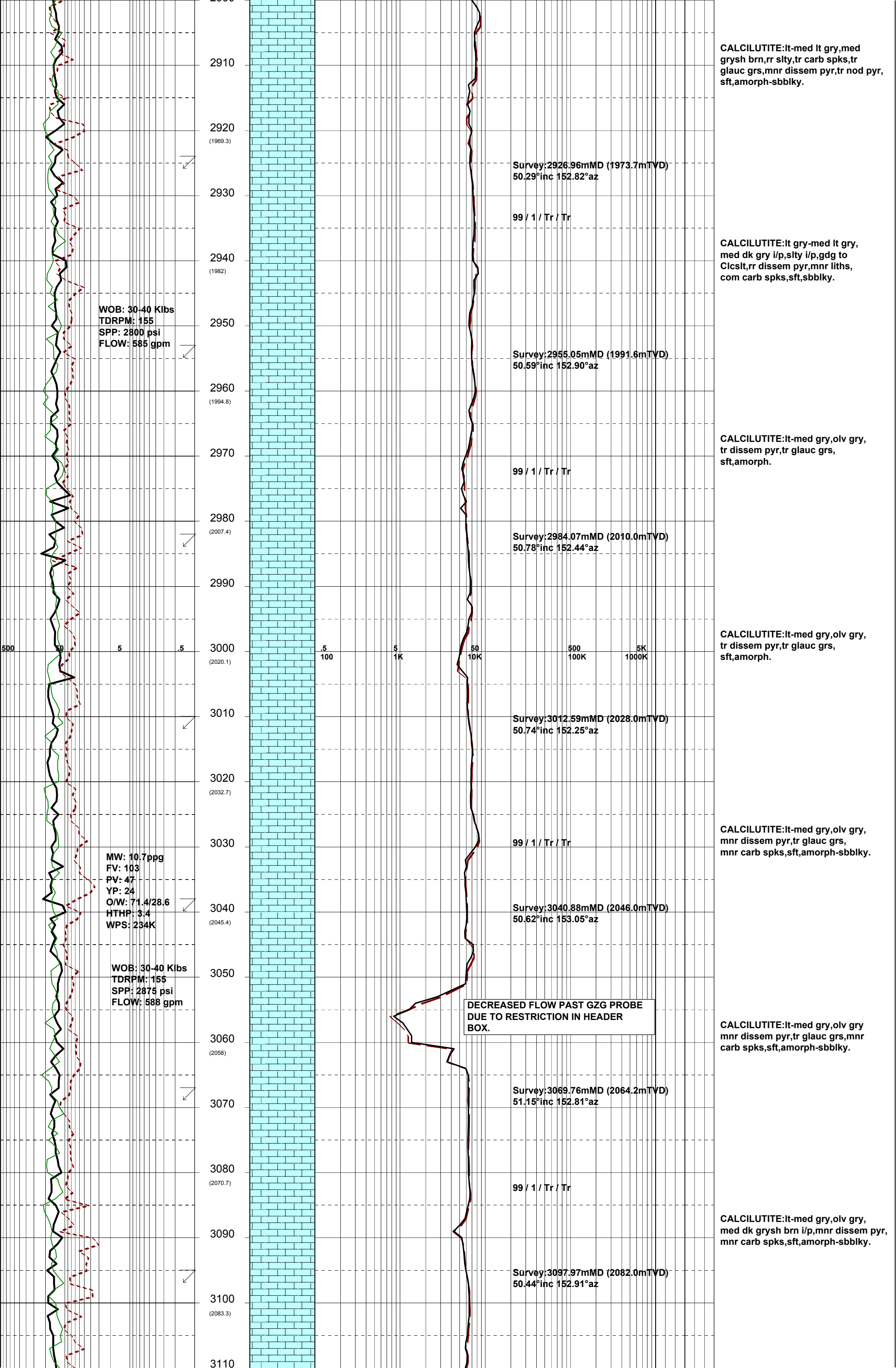


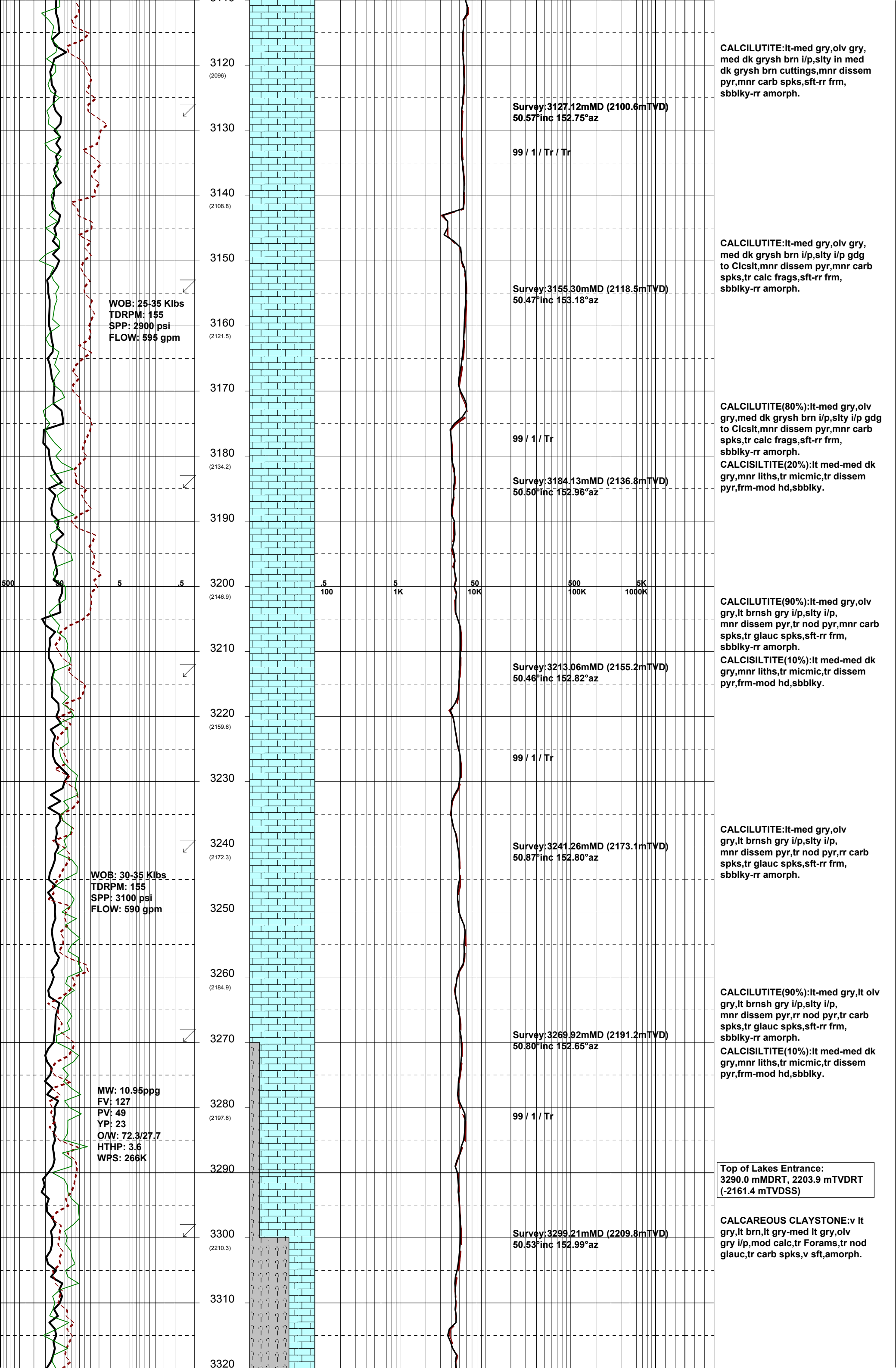


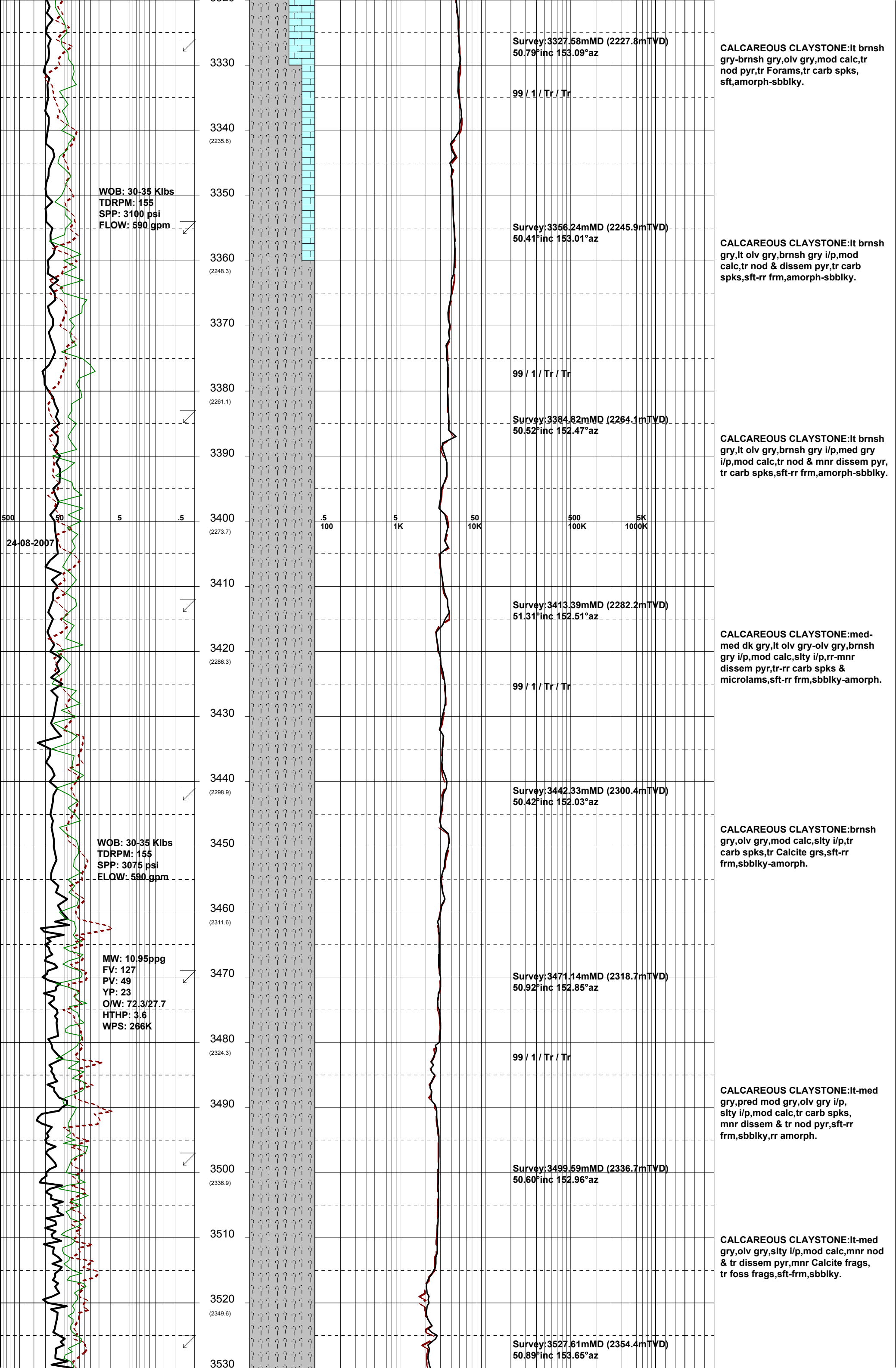


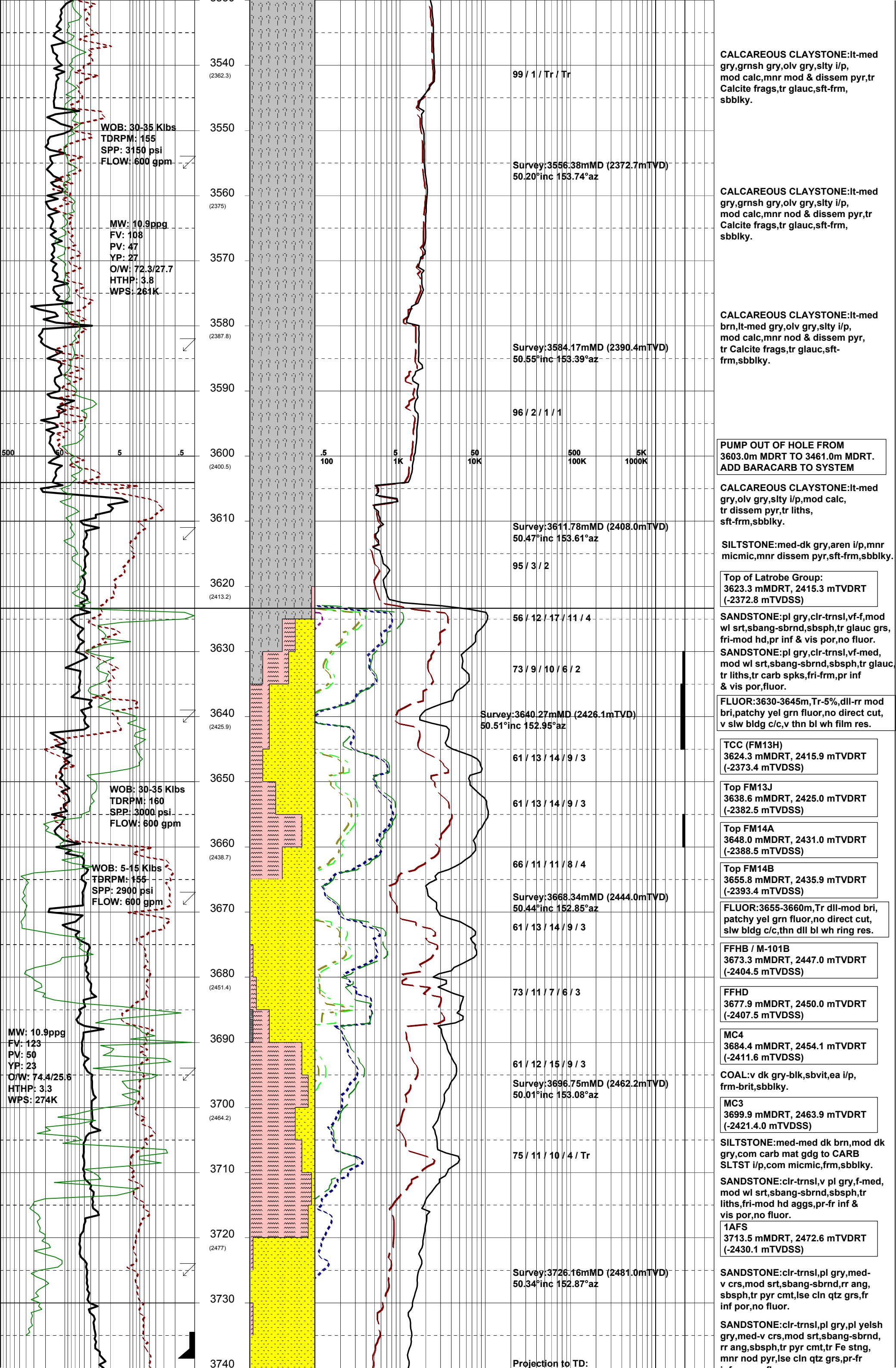


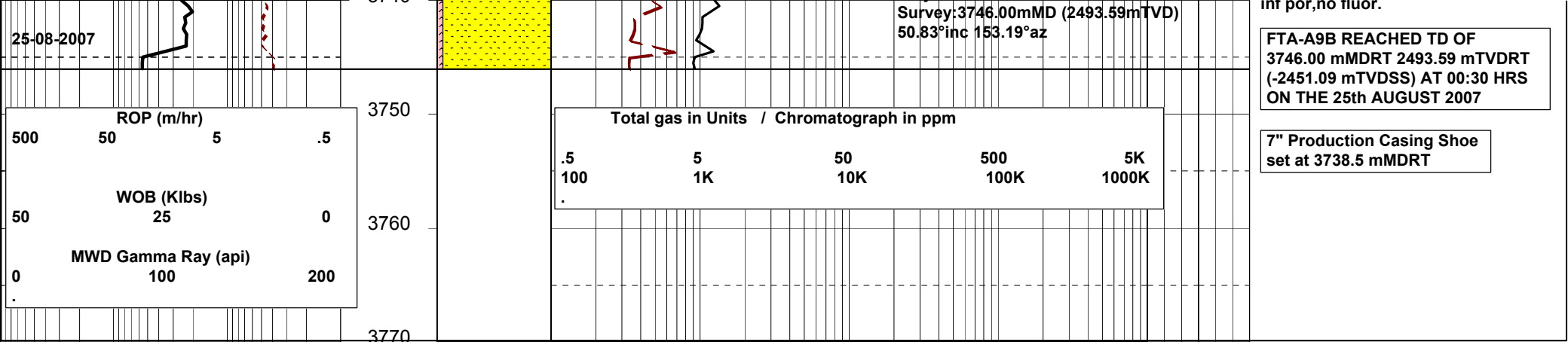












APPENDIX 4b

FORTESCUE A9B

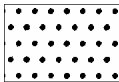


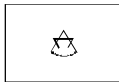
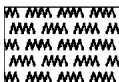
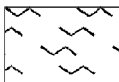



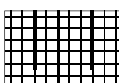

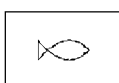
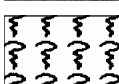

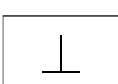
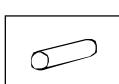
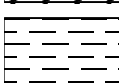

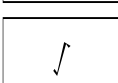
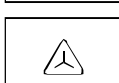


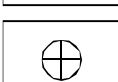

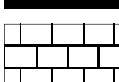
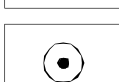
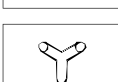
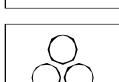
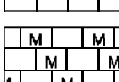
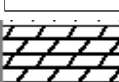
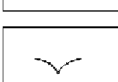
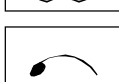
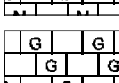


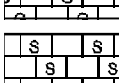
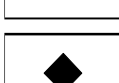
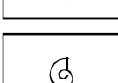
Well Completion Log



Gippsland Basin, Victoria
Concession: VIC/L5

PRODUCTION TESTING:	n/a
WELLSITE GEOLOGIST:	AIPC (Australian International Petro-Consultants)
MUD LOGGING:	Geoservices Overseas S.A.
PRESSURE RECORDING:	n/a
WELL VELOCITY SURVEY:	n/a
MUD ENGINEERING:	Halliburton- Baroid
LINER:	n/a

↓ MUD

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

LOGGING AND SURVEYING			
Anadrill Schlumberger	Interval (mMDRT)	Anadrill Schlumberger	Interval (mMDRT)
MWD (TeleScope) : Run 1	1391.0 mMDRT – 1581.0 mMDRT		
LWD (TeleScope – ADN – ARC - sonicVISION6) : Run 1	1545.5 mMDRT – 3736.3 mMDRT		

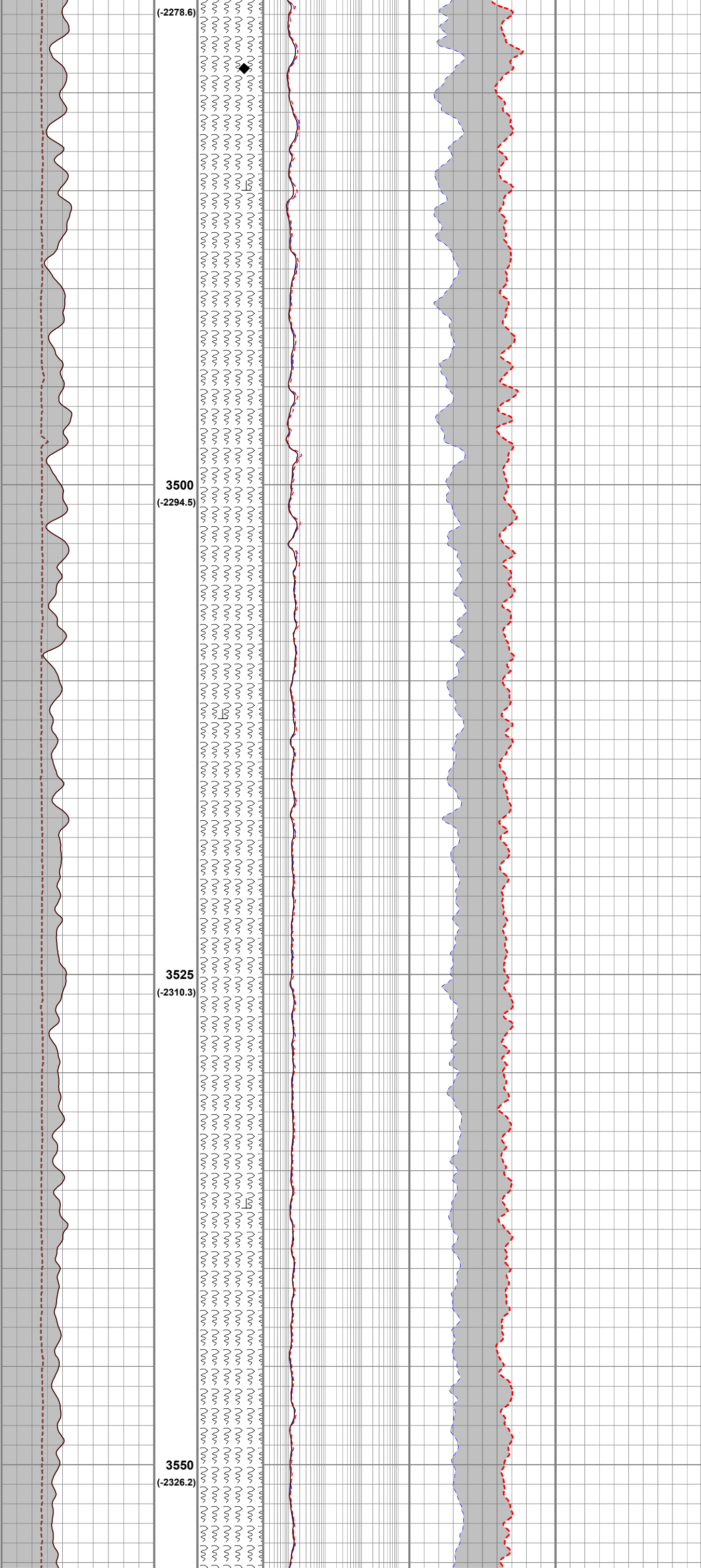
WELL DATA				
Date	17 August 2007 - 20 August 2007	20 August 2007 - 26 August 2007		
Run	MWD # 1	LWD # 2		
Log	TeleScope	TeleScope-ARC-ADN sonicVISION		
Depth Driller	1581.0m MDRT	3746.0m MDRT		
Depth Logger	1581.0m MDRT	3746.0m MDRT		
Bottom Log Interval	1581.0m MDRT	3736.3m MDRT		
Top Log Interval	1391.0m MDRT	1545.5m MDRT		
Casing Driller	1389.0m MDRT	1389.0m MDRT		
Casing Logger	1389.0m MDRT	1389.0m MDRT		
Casing Size	10 ¾"	10 ¾"		
Casing Weight	40.5 ppf	40.5 ppf		
Bit Size	8.5"	8.5"		
Type of Fluid in Hole	ACCOLADE NAF	ACCOLADE NAF		
Density	10.8 ppg	10.8 ppg		
Rm @ Measured Temp.	N/A	N/A		
Rmf @ Measured Temp.	N/A	N/A		
Rmc @ Measured Temp.	N/A	N/A		
Max. Recorded Temp.	58°C	93°C		
Equipment / Location	Sale	Sale		
Recorded By	M.Y. Tan / C. Skibo / C. Hibberson	M.Y. Tan / C. Skibo / C. Hibberson		
Witnessed By	D. van der Aa	D. van der Aa		

CORES			PERFORATIONS		
From (mMDRT)	To (mMDRT)	Rec %	From (mMDRT)	To (mMDRT)	Gun Type
---	---		3623.0	3626.5	HSD

CASING				PLUGS		
Size	Set @ (mMDRT)	SX Cmt	Formation	From (mMDRT)	To (mMDRT)	SXCmt
10.75"	1389.0	--	Gippsland Limestone	---		
7"	3738.5	140	Latrobe Group	3712.6(PBTD)		

Caliper			DEPTH	LITHOLOGY	Deep Resistivity			Neutron Porosity			Delta-T			NET SAND	MPLETION	VEY DATA	PLUGS	ORMATION	YNOLOGY	AGE
6	IN	16			0.2	OHMM	2000	0.45	V/V	-0.15	500	US/M	1000							
Gamma Ray					Medium Resistivity Generic			Bulk Density			Effective Porosity									
0	GAPI	200			0.2	OHMM	2000	1.85	G/C3	2.85	1	V/V	0							





DIR 152.65
(-2276.20)

3499.59
ANG 50.60
DIR 152.96
(-2294.20)

3527.61
ANG 50.89
DIR 153.65
(-2311.93)

LAKES ENTRANCE FM

OLIGOCENE - MIOCENE

