

Bit Run Summary

Type		KCl/PHPA/Glycol	KCl/PHPA/Glycol	KCl/PHPA/Glycol						
Mud weight	ppg	9.60	9.70	9.85						
Solids	%	4.2	5.0	6.0						
Chlorides	mg/L	43000	45000	46000						
Rm	ohm.m@°C	0.10@21.0	0.10@21.1	0.09@20.8						
Rmf	ohm.m@°C	0.08@20.9	0.09@21.0	0.08@20.6						
Rmc	ohm.m@°C	0.13@21.0	0.13@21.7	0.14@21.0						
Potassium	%	8.0	8.0	8.0						
Environmental data										
GR										
Mud weight	ppg	9.60	9.70	9.85						
Bit size	in.	8.5	8.5	8.5						
Resistivity										
Neutron porosity										
Hole Size	in.	8.5	8.5	8.5						
Mud weight	ppg	9.60	9.70	9.85						
Temperature	°C	65.0	68.0	87.0						
Mud salinity	ppm	84775	76924	83929						
Formation salinity										
Recording rate 1	SEC	5 sec.	5 sec.	5 sec.						
Recording rate 2	SEC	5 sec.	5 sec.	5 sec.						
Filtering GR		3 pt.	3 pt.	3 pt.						
Filtering density		3 pt.	3 pt.	3 pt.						
Filtering Neutron		3 pt.	3 pt.	3 pt.						
Company representative		R. Bain	M. Jackson	J. MacKinnon						
Schlumberger D&M Personnel		J. Dolan	M. Y. Tan	D. Hastie	T. Auger	C. Soper	B. Hanson			

DISCLAIMER

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES FOR RUN2 Xceed* RSS D&I Survey		OTHER SERVICES FOR RUN3 Xceed* RSS D&I Survey		OTHER SERVICES FOR RUN4 Xceed* RSS D&I Survey	
REMARKS: RUN NUMBER 2 8-1/2 in. hole section was drilled from 843.0 m to 1253.0 m. Depth is referenced to Driller's Depth. All data presented is from tool memory. Environmental Corrections: – GR is corrected for mud weight, tool and bit size, but not corrected for Potassium content. GVR* resistivity is corrected for bit size, mud resistivity and borehole temperature. Neutron porosity is calculated with a limestone matrix and is corrected for hole size (DCAV), borehole salinity, temperature and mud hydrogen index (derived from mud weight, temperature and pressure at depth). Surface temperature is adjusted to give a correct computed downhole temperature gradient. Neutron porosity data was processed without		REMARKS: RUN NUMBER 3 8-1/2 in. hole section was drilled from 1253.0 m to 1902.0 m. Depth is referenced to Driller's Depth. All data presented is from tool memory. Environmental Corrections: – GR is corrected for mud weight, tool and bit size, but not corrected for Potassium content. GVR*6 resistivity is corrected for bit size, mud resistivity and borehole temperature. Neutron porosity is calculated with a limestone matrix and is corrected for hole size (DCAV), borehole salinity, temperature and mud hydrogen index (derived from mud weight, temperature and pressure at depth). Surface temperature is adjusted to give a correct computed downhole temperature gradient. Resistivity data was processed until the depth		REMARKS: RUN NUMBER 4 8-1/2 in. hole section was drilled from 1902.0 m to 2641.0 m. Depth is referenced to Driller's Depth. All data presented is from tool memory. Environmental Corrections: – GR is corrected for mud weight, tool and bit size, but not corrected for Potassium content. GVR* resistivity is corrected for bit size, mud resistivity and borehole temperature. Neutron porosity is calculated with a limestone matrix and is corrected for hole size (DCAV), borehole salinity, temperature and mud hydrogen index (derived from mud weight, temperature and pressure at depth). Surface temperature is adjusted to give a correct computed downhole temperature gradient. Resistivity data between the interval of	

FR11 and FR21.

of 1864.0 m MD.

1864.0 m to 1893.0 m MD was acquired by reaming down the section.

EQUIPMENT DESCRIPTION

RUN2

RUN3

RUN4

DOWNHOLE EQUIPMENT

6-3/4 in. ADN*6C Neutron F 31.81 33.78
 S/N: 0403 Neutron N 31.66
 8-1/4 in. Stabiliser Density S 30.79
 NSR-M A202 Density L 30.69
 GSR-J A1994 UltraSonic 30.31
 Software: V8.3A02 R-O Port 29.55

6-3/4 in. Sonic*6 27.18
 S/N: 34641
 Software: V6.4B10
 Receiver Array 24.12
 R-O Port 23.72
 Transmitter 20.68

6-3/4 in. PowerPulse* 19.89
 MDC Z411
 MEC 212
 MDI 1096
 MVC 282
 Software: V8.0B96
 D&I 15.69

6-3/4 in. GVR* 11.54
 S/N: 191
 Software: V6.2B01
 Shallow 10.04
 Medium 9.92
 Deep 9.74
 Ring Res 9.57
 R-O Port 9.43
 GR 9.21

6-3/4 in. Xceed* RSS 7.89
 S/N: 060

DOWNHOLE EQUIPMENT

6-3/4 in. ADN*6C Neutron F 31.79 33.74
 S/N: FE55 Neutron N 31.64
 8-3/16 in. Stabiliser Density S 30.77
 NSR-M A202 Density L 30.67
 GSR-J A1994 UltraSonic 30.29
 Software: V8.3B02 R-O Port 29.53

6-3/4 in. Sonic*6 27.14
 S/N: 34641
 Software: V6.4B10
 Receiver Array 24.08
 R-O Port 23.68
 Transmitter 20.64

6-3/4 in. PowerPulse* 19.85
 MDC Z411
 MEC 212
 MDI 1096
 MVC 282
 Software: V8.0B96
 D&I 15.65

6-3/4 in. GVR* 11.50
 S/N: 191
 Software: V6.2B01
 Shallow 10.00
 Medium 9.88
 Deep 9.70
 Ring Res 9.53
 R-O Port 9.39
 GR 9.17

6-3/4 in. Xceed* RSS 7.85
 S/N: 060

DOWNHOLE EQUIPMENT

6-3/4 in. ADN*6C Neutron F 31.75 33.70
 S/N: FE55 Neutron N 31.60
 8-3/16 in. Stabiliser Density S 30.73
 NSR-M A202 Density L 30.63
 GSR-J A1994 UltraSonic 30.25
 Software: V8.3B02 R-O Port 29.49

6-3/4 in. Sonic*6 27.10
 S/N: 34641
 Software: V6.2B01
 Receiver Array 24.04
 R-O Port 23.64
 Transmitter 20.60

6-3/4 in. PowerPulse* 19.81
 MDC Z411
 MEC 212
 MDI 1096
 MVC 282
 Software: V8.0B96
 D&I 15.61

6-3/4 in. GVR* 11.46
 S/N: 147
 Software: V6.2B01
 Shallow 9.99
 Medium 9.87
 Deep 9.69
 Ring Res 9.52
 R-O Port 9.38
 GR 9.16

6-3/4 in. Xceed* RSS 7.85
 S/N: 060



0.00

Maximum string diameter 8.50 in.
All lengths in Meters



— 0.00

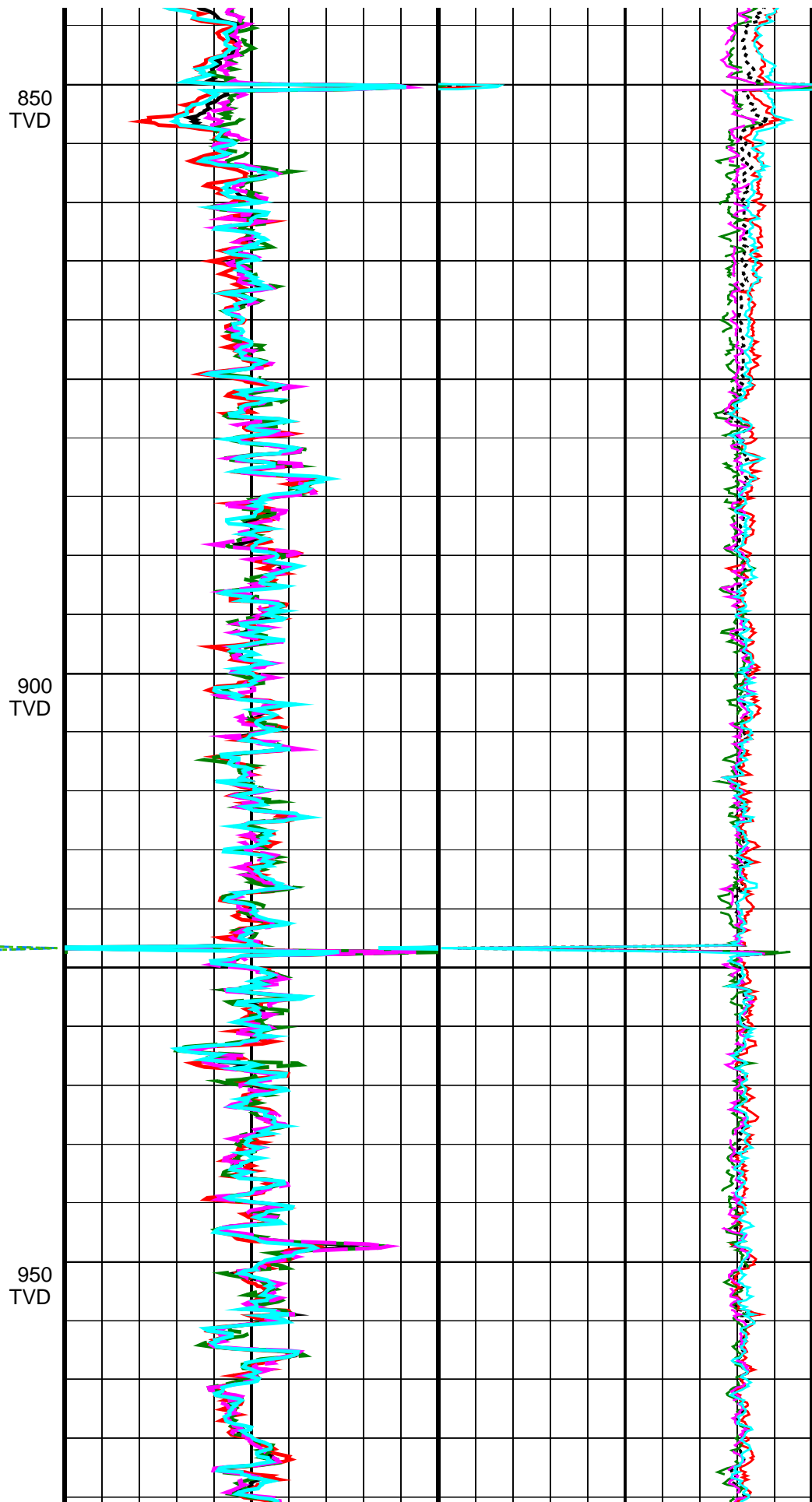
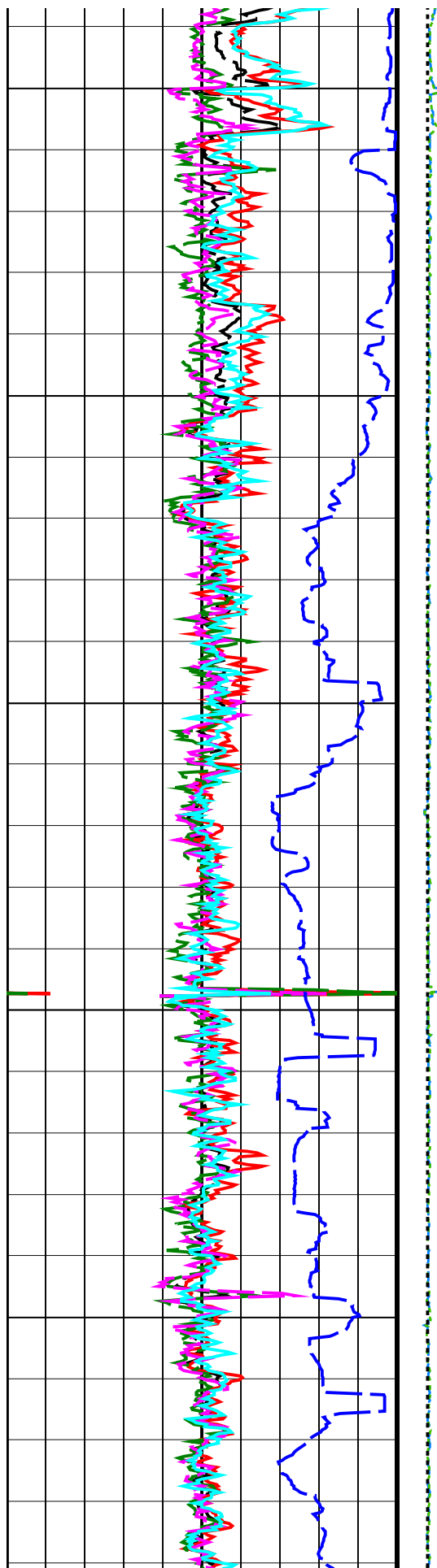
Maximum string diameter 8.50 in.
All lengths in Meters

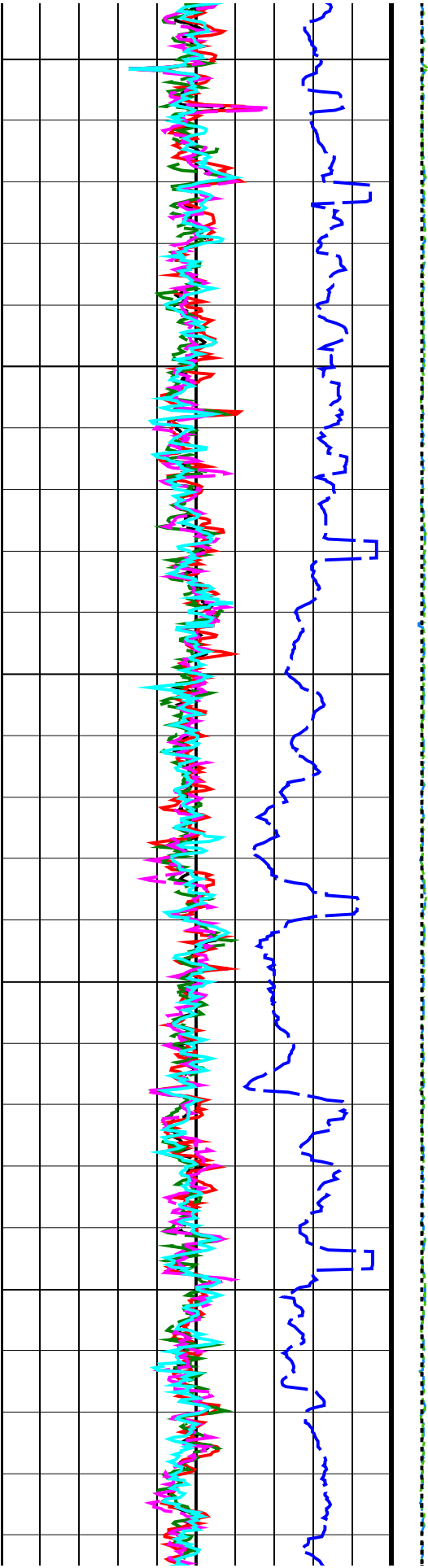


0.00

Maximum string diameter 8.50 in.
All lengths in Meters

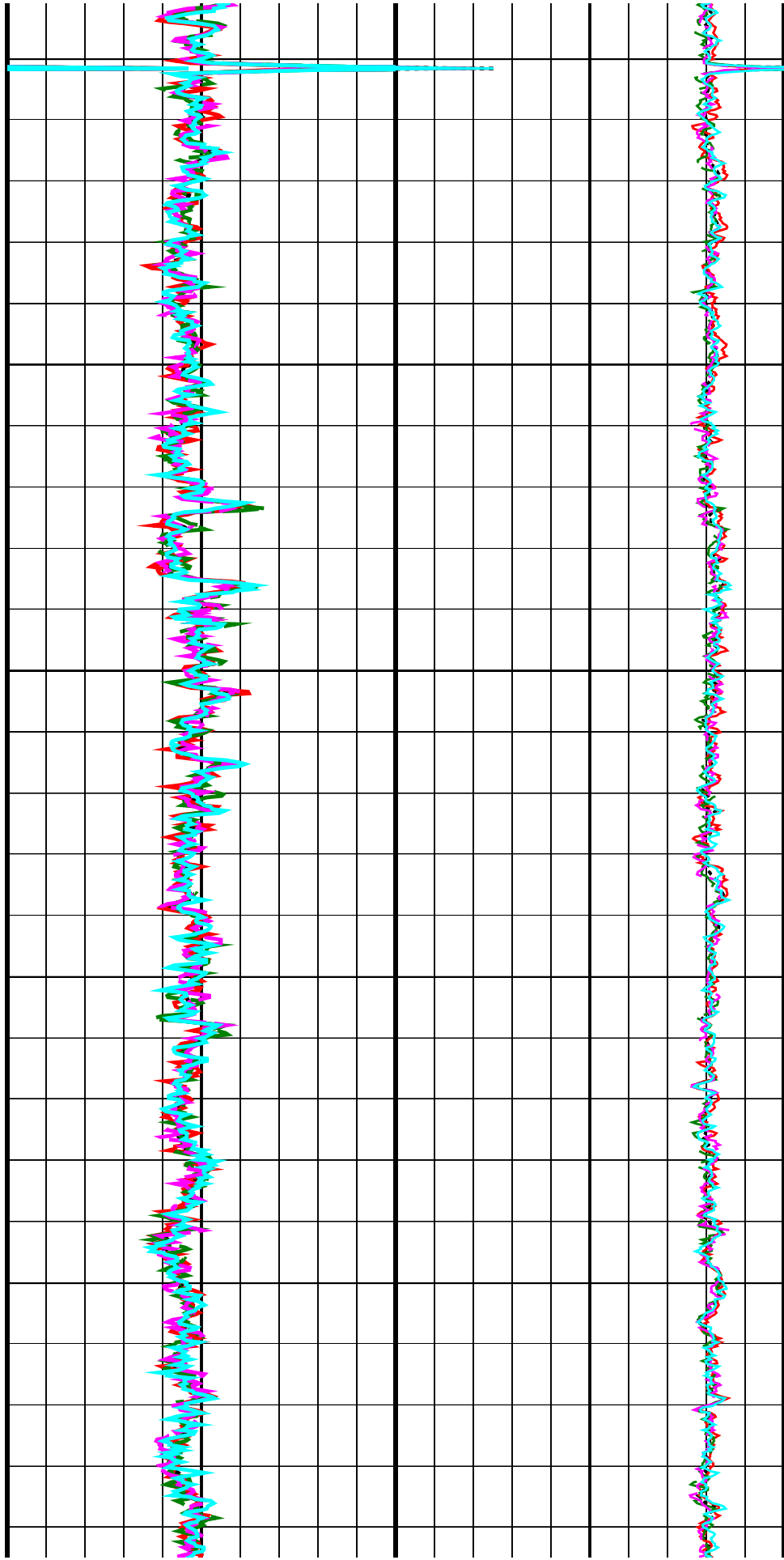
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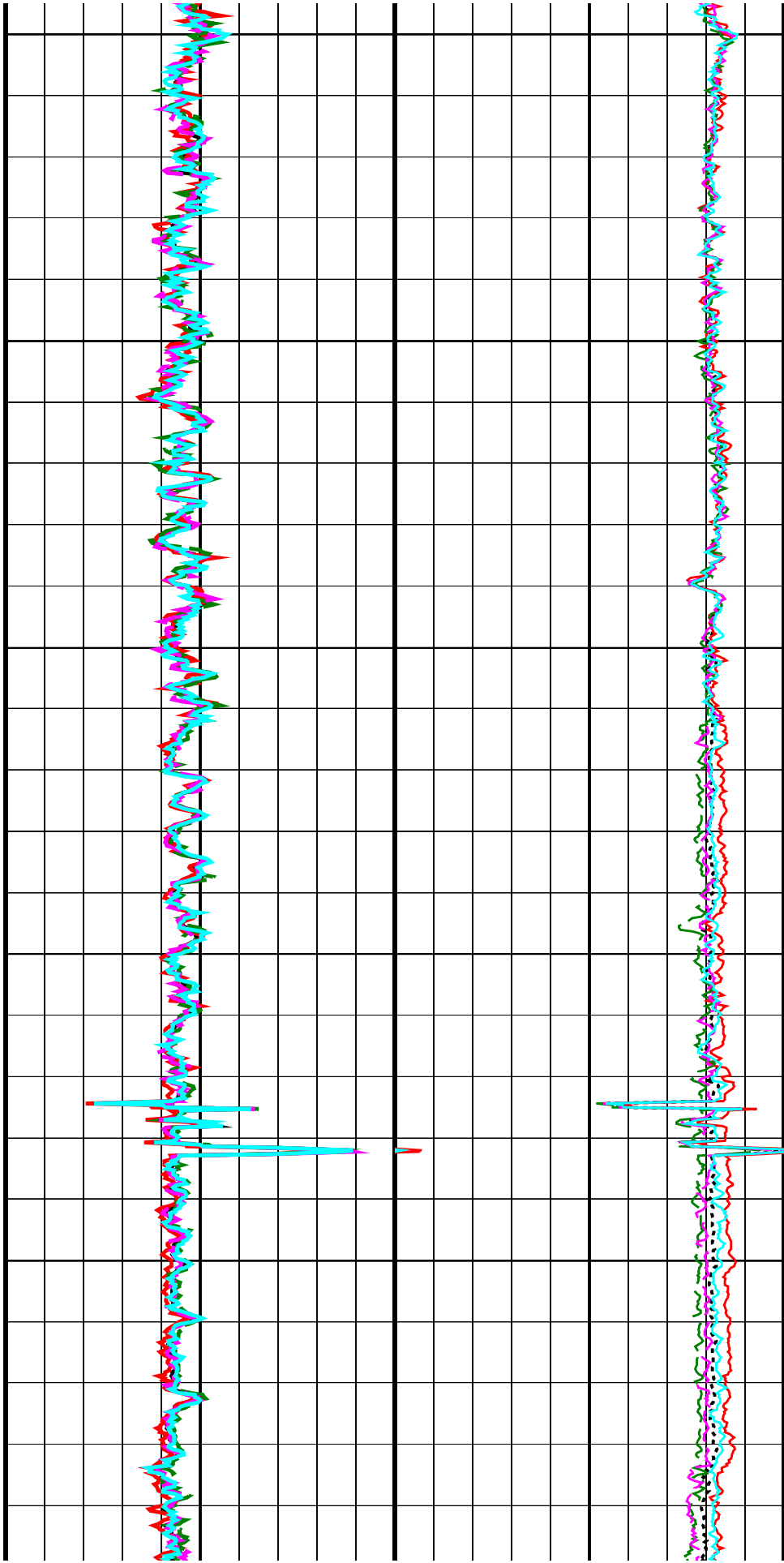
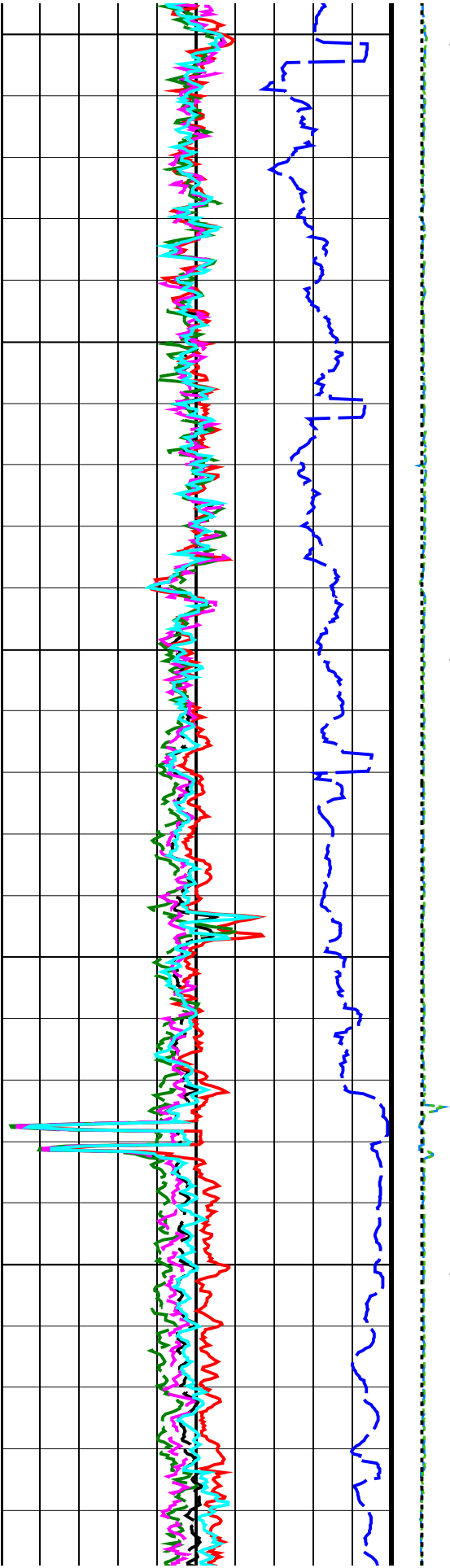


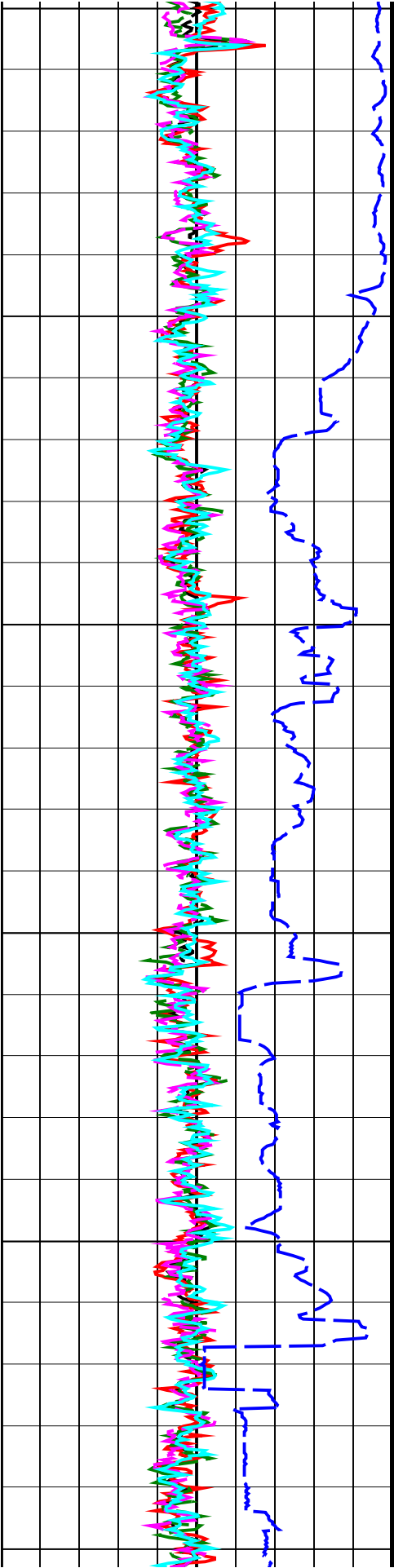


1000
TVD

1050
TVD



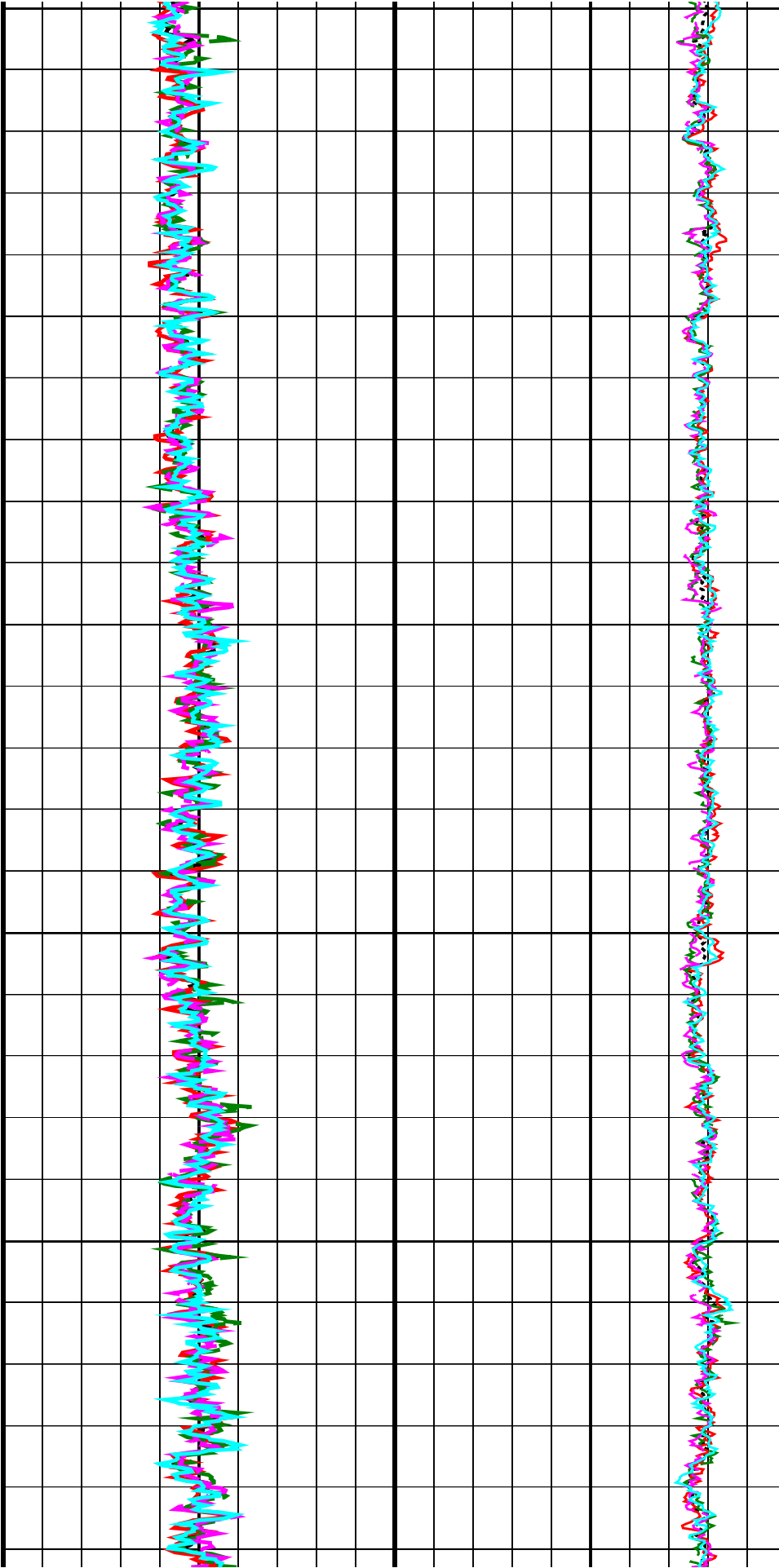


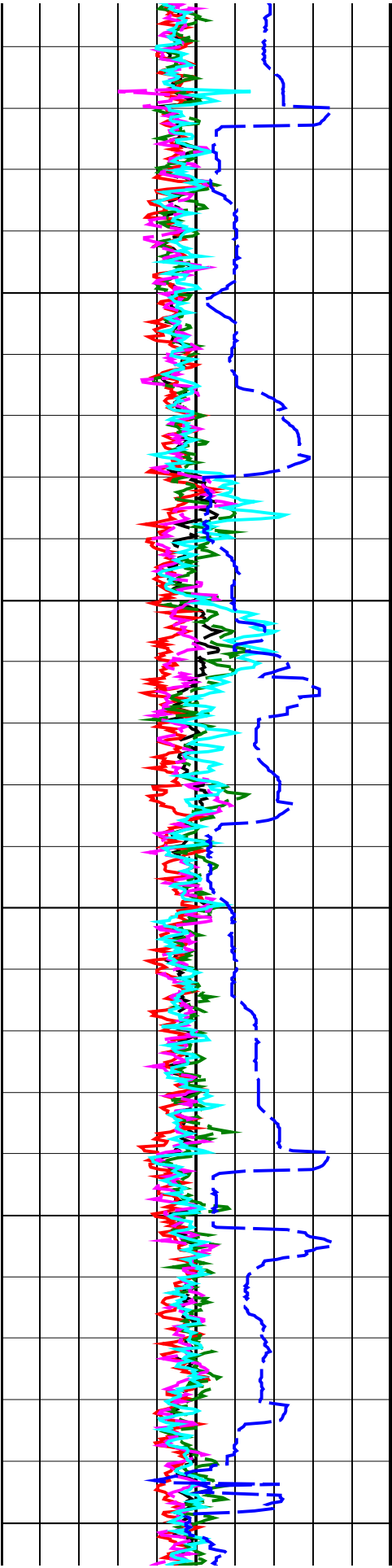


1250
TVD

1300
TVD

1350

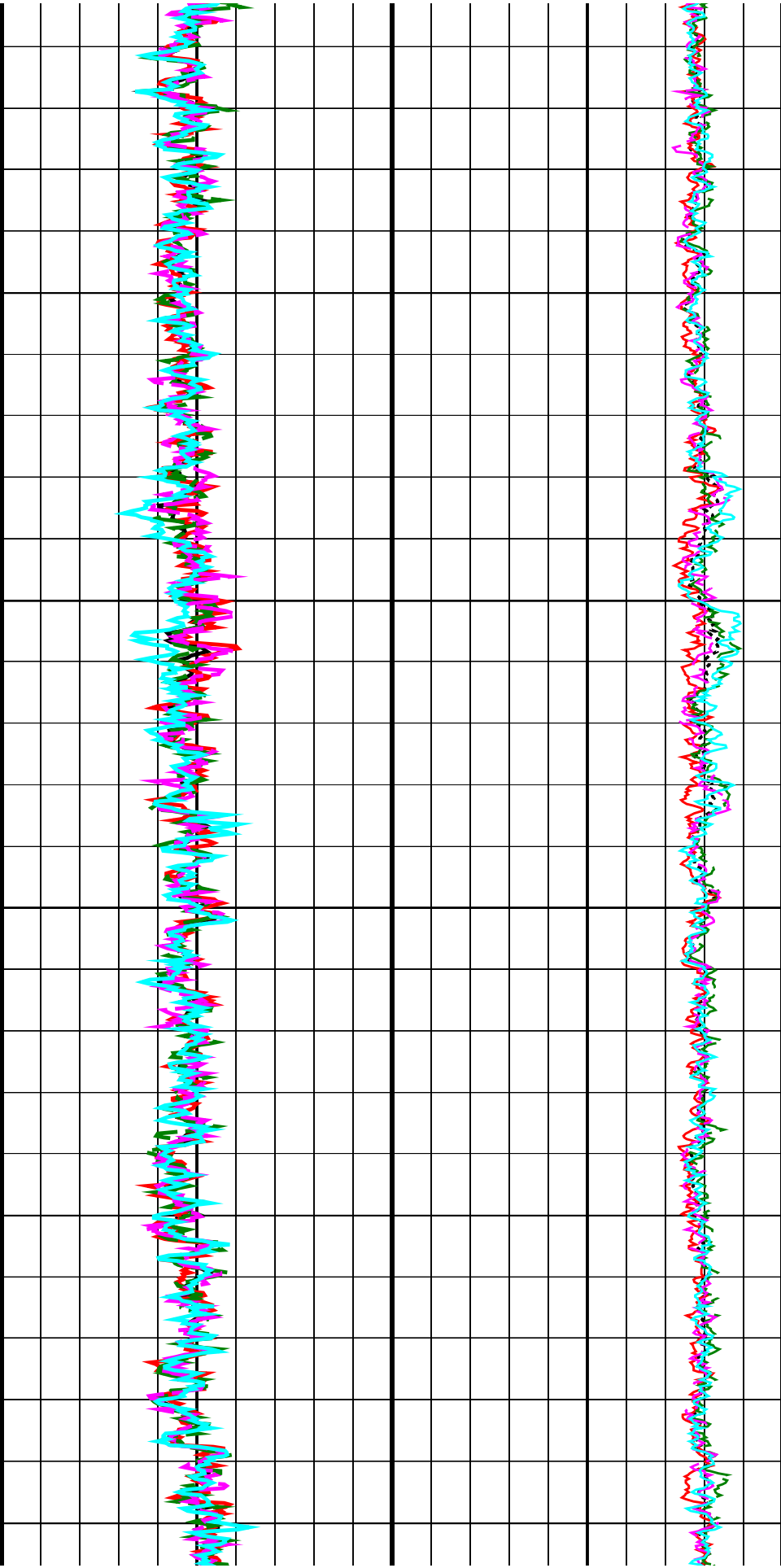


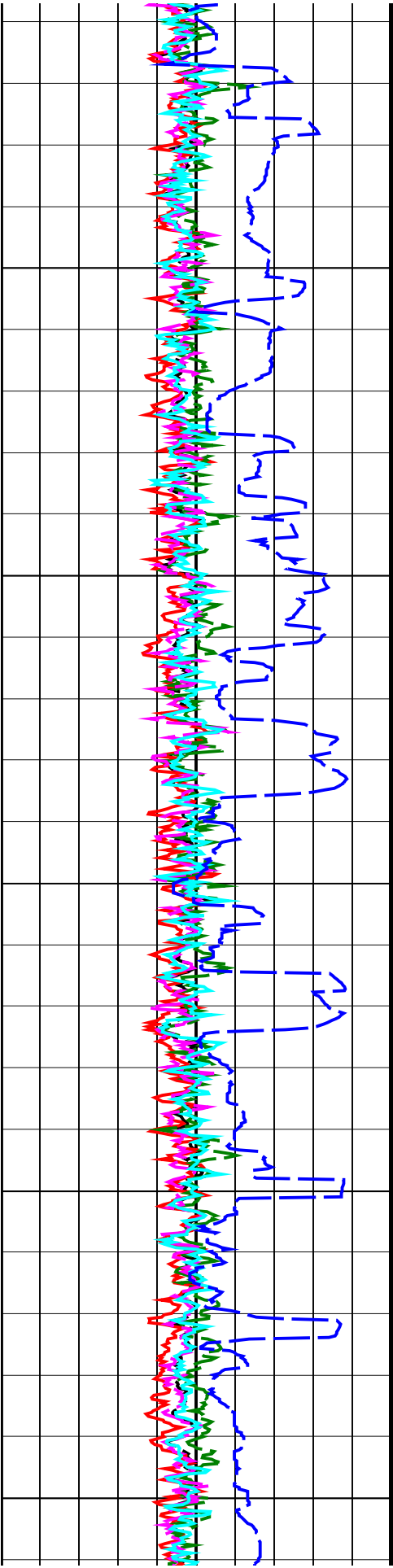


1300
TVD

1400
TVD

1450
TVD

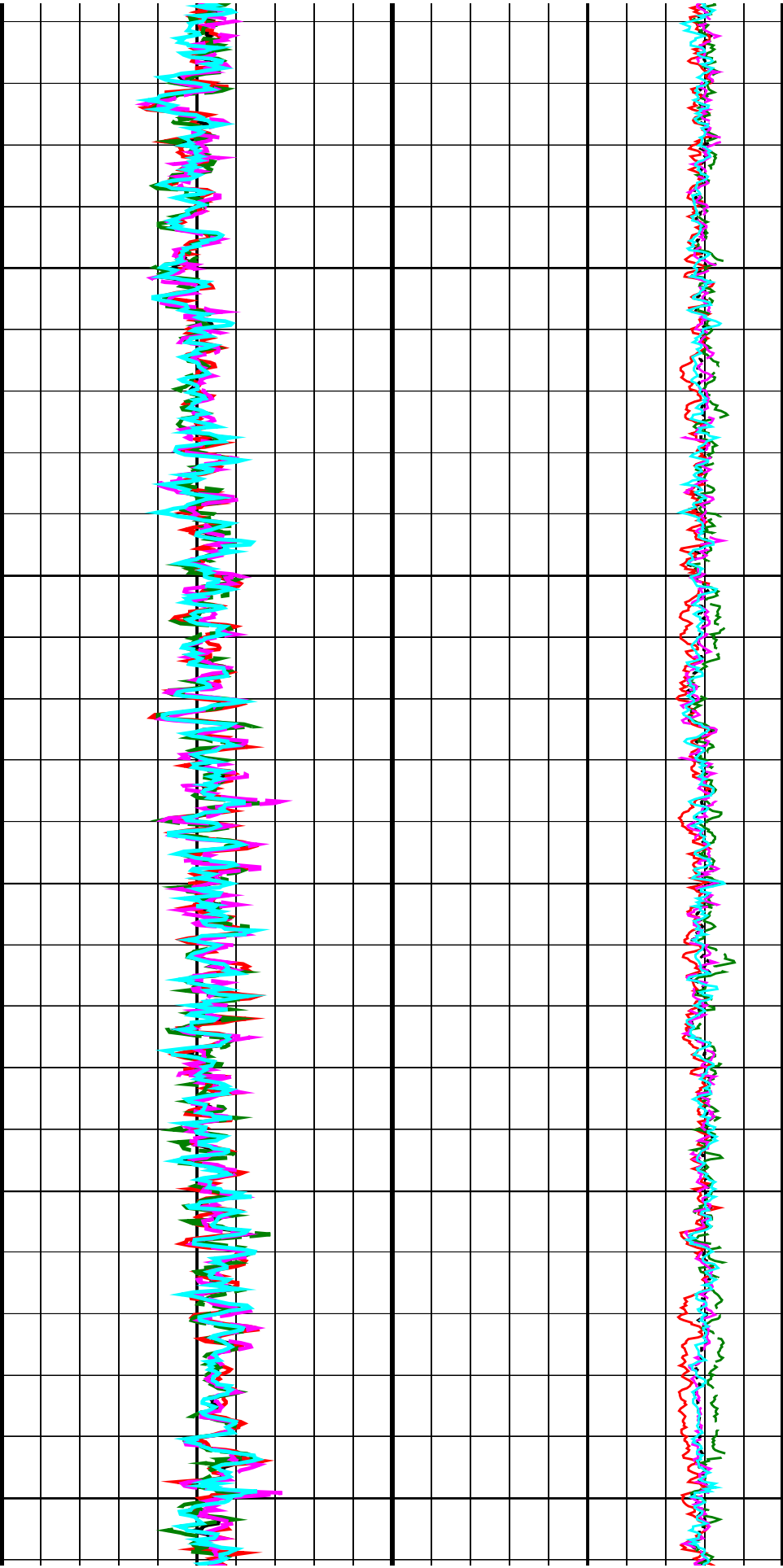


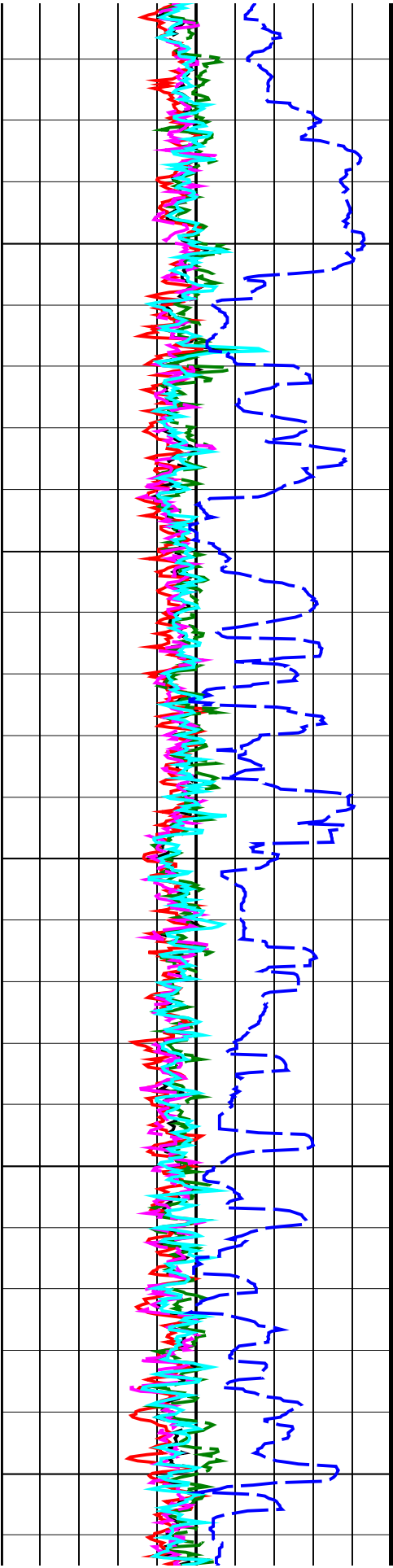


1500
TVD

1550
TVD

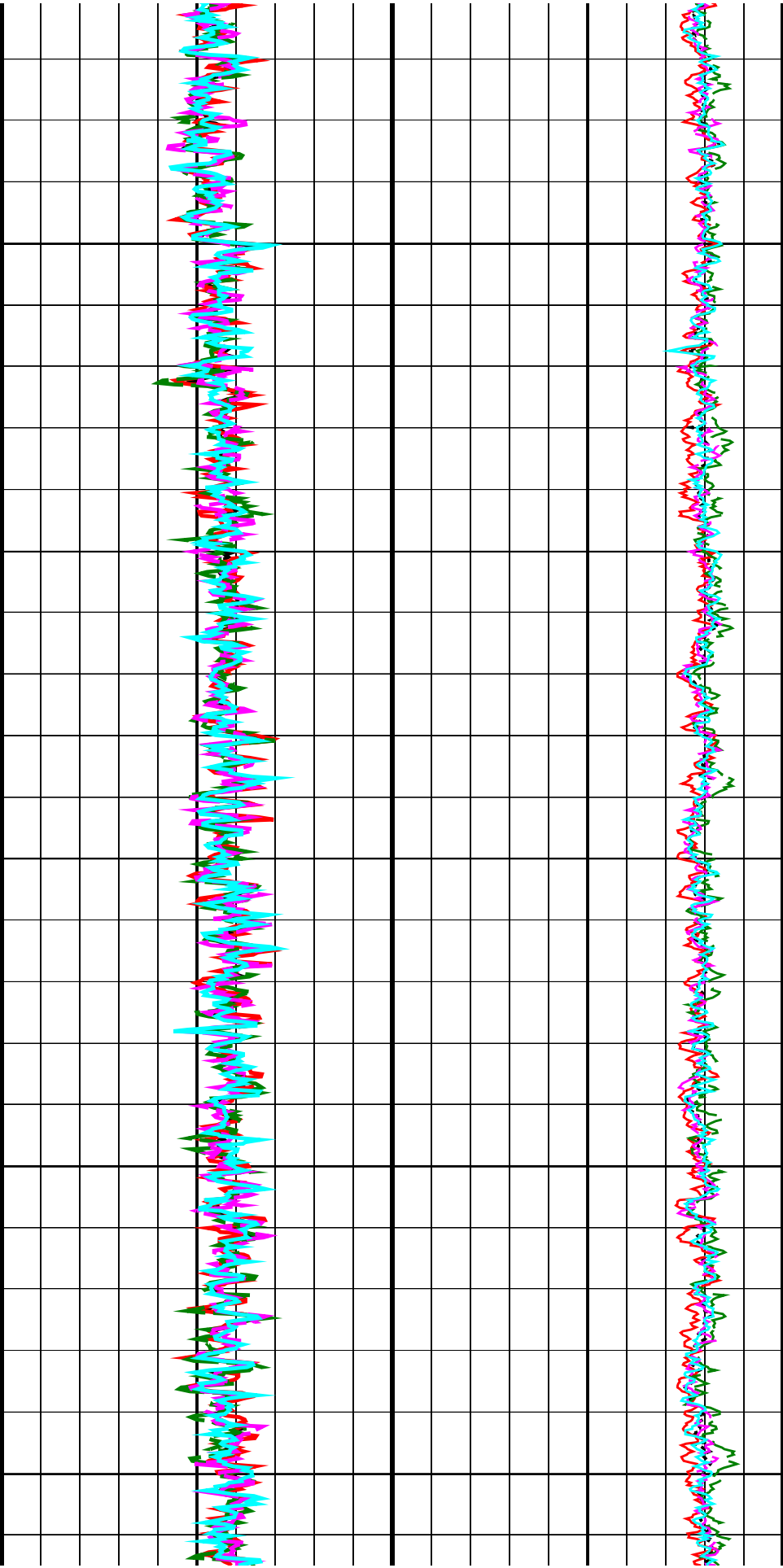
1600
TVD

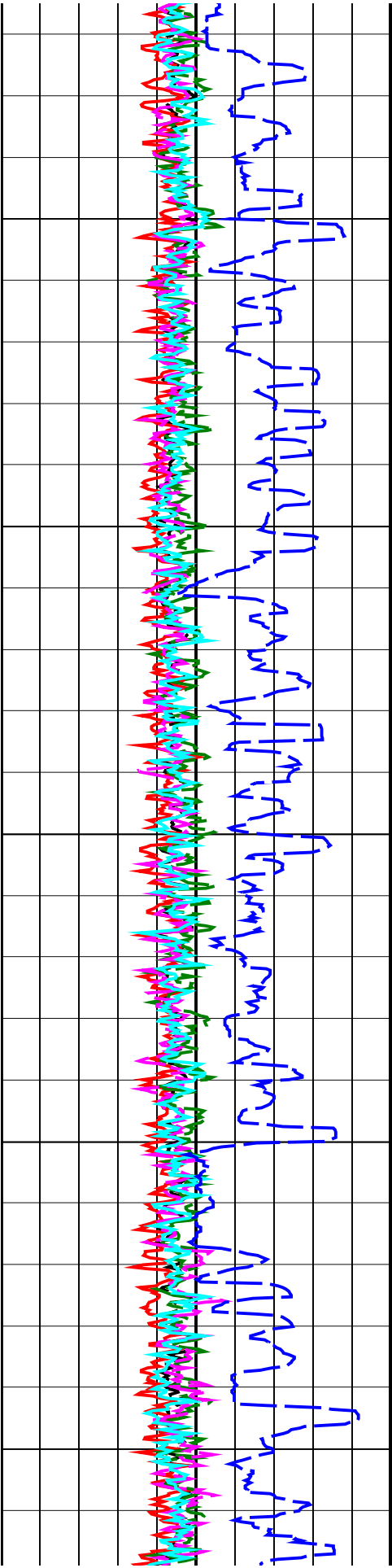




1650
TVD

1700
TVD

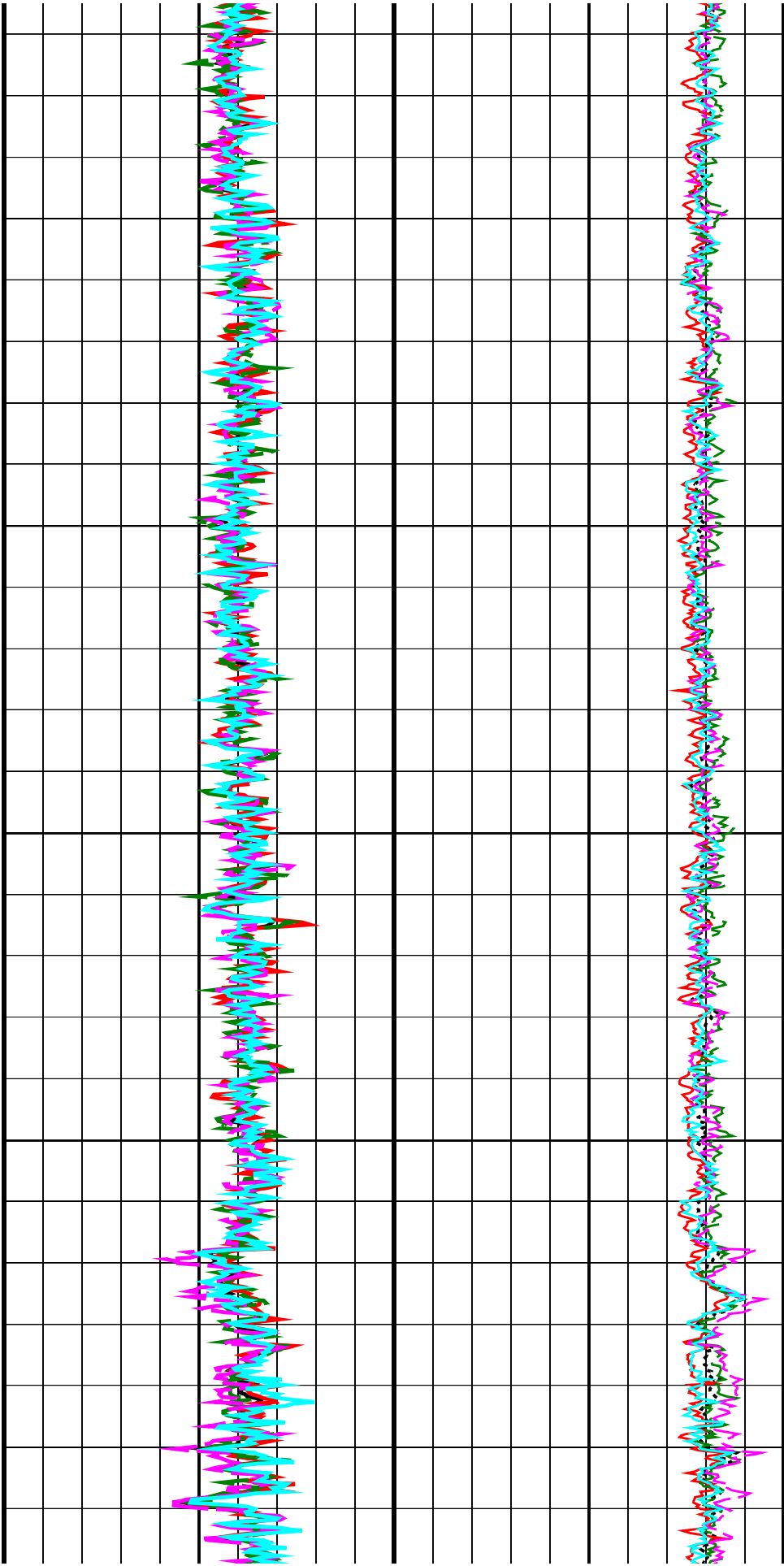


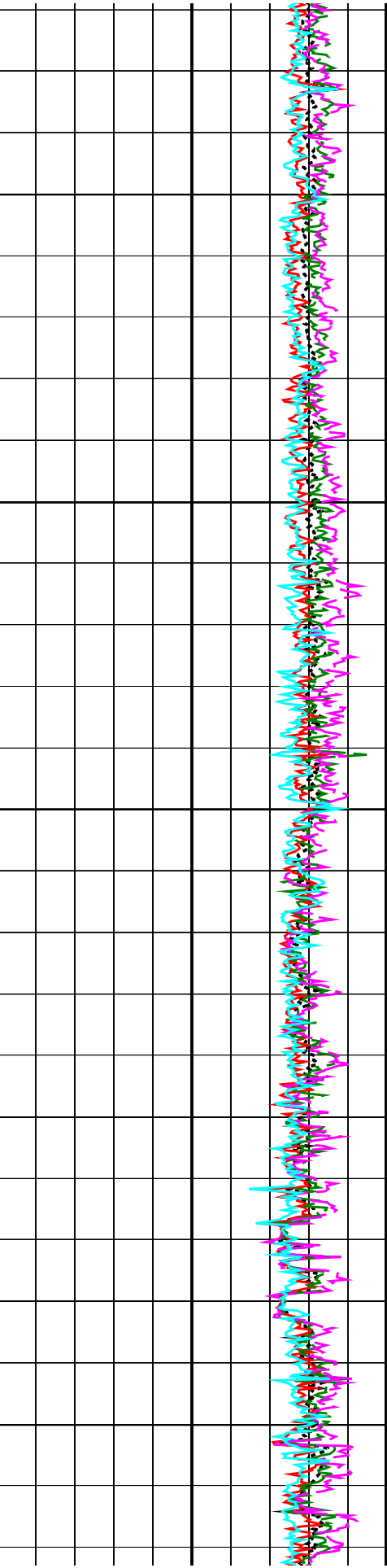
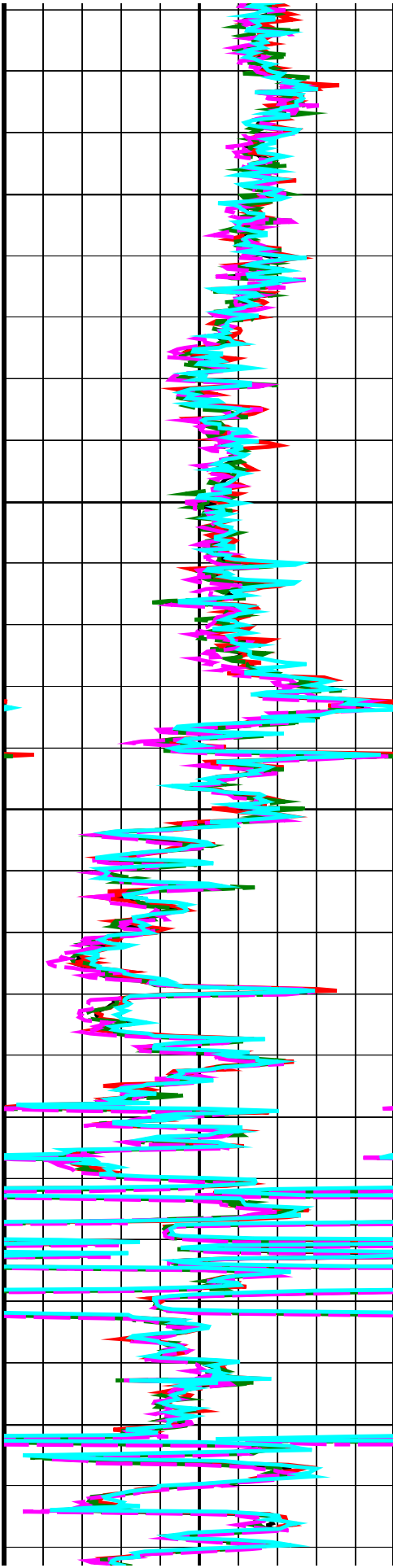
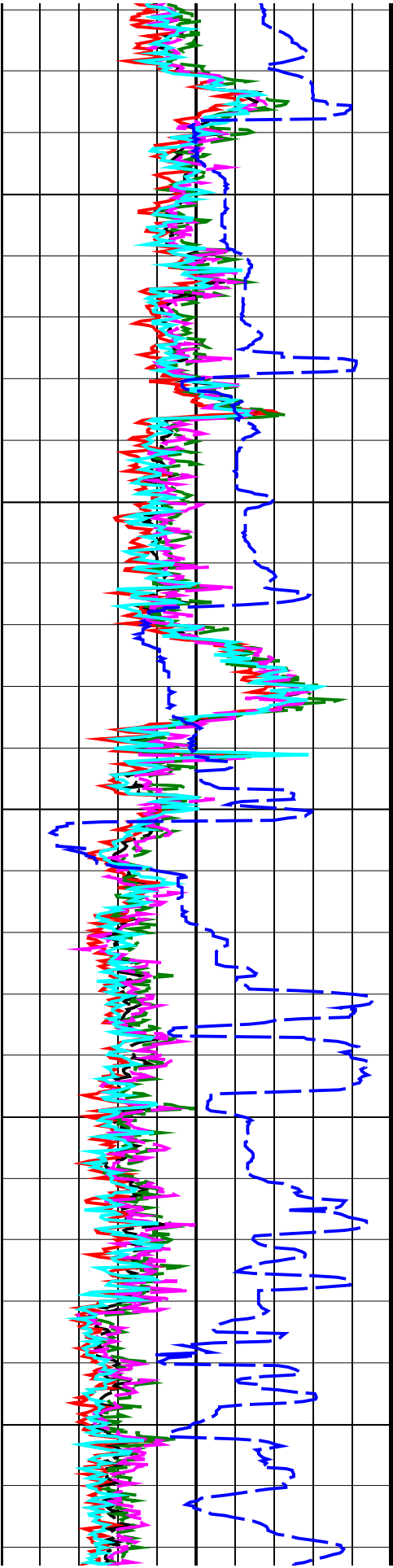


1750 TVD

1800 TVD

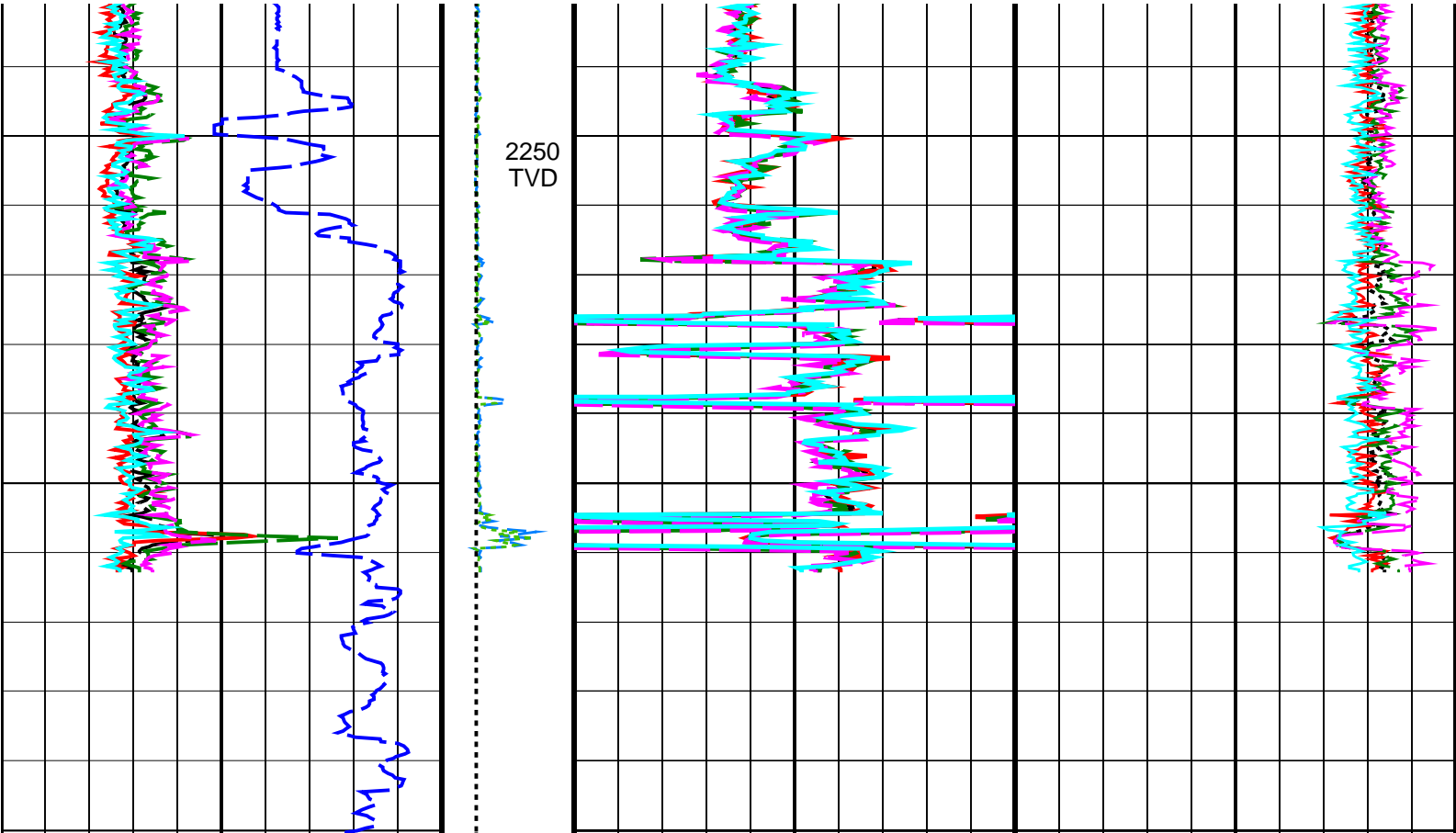
1850 TVD





1900
TVD

1950
TVD



Photoelectric Factor (PEF) 0 (----) 10	Bit Size (BS) 2200 6 (IN) 16	Bulk Density (RHOB) 1.85 (G/C3) 2.85	Bulk Density Correction (DRHO) -0.75 (G/C3) 0.25
Photoelectric Factor, Bottom (PEB) 0 (----) 10	Density Caliper, Horizontal (DCHO) 6 (IN) 16	Bulk Density, Bottom (ROBB) 1.85 (G/C3) 2.85	Bulk Density Correction, Bottom (DRHB) -0.75 (G/C3) 0.25
Photoelectric Factor, Up (PEU) 0 (----) 10	Density Caliper, Vertical (DCVE) 6 (IN) 16	Bulk Density, Up (ROBU) 1.85 (G/C3) 2.85	Bulk Density Correction, Up (DRHU) -0.75 (G/C3) 0.25
Photoelectric Factor, Left (PEL) 0 (----) 10		Bulk Density, Left (ROBL) 1.85 (G/C3) 2.85	Bulk Density Correction, Left (DRHL) -0.75 (G/C3) 0.25
Photoelectric Factor, Right (PER) 0 (----) 10		Bulk Density, Right (ROBR) 1.85 (G/C3) 2.85	Bulk Density Correction, Right (DRHR) -0.75 (G/C3) 0.25
Rate of Penetration, Averaged over Last 5ft (ROP5_RM) 200 (M/HR) 0			

IDEAL Version: ID10_0C_04
IDF

RAB id10_0c_04 MWD_10 id10_0c_04
ADN id10_0c_04

True Vertical Depth Log

6.75-in. Azimuthal Density Neutron / Equipment Identification

Primary Equipment:
Tool Name and Serial Number
Collar Type and Serial Number
Chassis Type and Serial Number
Stabilizer Type and Serial Number
Neutron Logging Source
Density Logging Source
Stabilizer Size
Calibration Status

ADN6 – CA 0403
ADDC – AA 0403
ADSE – EA 18
Clamp-On 699198
NSR – M 202
GSR – J/Z 1994
8.25 – in.
Valid

Master: 21-Jun-2005 11:22

6.75-in. Azimuthal Density Neutron Calibration

Density: Magnesium Block

Phase	LS window 3 – Mg CPS	Value	Phase	SS window 1 – Mg CPS	Value	Phase	SS window 3 – Mg CPS	Value
Master		1052	Master		2361	Master		6156
	250.0 (Minimum) 4125 (Nominal) 8000 (Maximum)			700.0 (Minimum) 9350 (Nominal) 18000 (Maximum)			2500 (Minimum) 23750 (Nominal) 45000 (Maximum)	

Master: 21-Jun-2005 11:22

6.75-in. Azimuthal Density Neutron Calibration

Density: Aluminum Block

Phase	LS window 3 – Al CPS	Value	Phase	SS window 1 – Al CPS	Value	Phase	SS window 3 – Al CPS	Value
Master		163.3	Master		1238	Master		3922
	50.00 (Minimum) 725.0 (Nominal) 1400 (Maximum)			500.0 (Minimum) 4250 (Nominal) 8000 (Maximum)			1500 (Minimum) 15750 (Nominal) 30000 (Maximum)	

Master: 21-Jun-2005 11:22

6.75-in. Azimuthal Density Neutron Calibration

Density: Background

Phase	LS window 3 – Background CPS	Value	Phase	SS window 1 – Background CPS	Value	Phase	SS window 3 – Background CPS	Value
Master		33.84	Master		106.5	Master		474.2
	15.00 (Minimum) 82.50 (Nominal) 150.0 (Maximum)			40.00 (Minimum) 220.0 (Nominal) 400.0 (Maximum)			150.0 (Minimum) 825.0 (Nominal) 1500 (Maximum)	

Master: 21-Jun-2005 11:22

6.75-in. Azimuthal Density Neutron Calibration

Density: Water Block Check

Phase	Long spacing water density G/C3	Value	Phase	Short spacing water density G/C3	Value
Master		1.030	Master		1.120
	1.024 (Minimum) 1.039 (Nominal) 1.054 (Maximum)			1.096 (Minimum) 1.126 (Nominal) 1.156 (Maximum)	

Master: 21-Jun-2005 11:22

6.75-in. Azimuthal Density Neutron Calibration

Neutron: 3-Point Calibration

Phase	Far 1 tube 1 Air Point Measure CPS	Value	Phase	Far 1 tube 1 Rod Point Measure CPS	Value	Phase	Far 1 tube 1 H2O Point Measure CPS	Value
Master		17.01	Master		4.142	Master		2.060
	15.00 (Minimum) 19.05 (Nominal) 21.00 (Maximum)			4.000 (Minimum) 4.857 (Nominal) 5.500 (Maximum)			1.900 (Minimum) 2.363 (Nominal) 2.700 (Maximum)	
Phase	Far 1 tube 2 Air Point Measure CPS	Value	Phase	Far 1 tube 2 Rod Point Measure CPS	Value	Phase	Far 1 tube 2 H2O Point Measure CPS	Value
Master		18.12	Master		4.335	Master		2.137
	16.00 (Minimum) 19.05 (Nominal) 22.00 (Maximum)			4.000 (Minimum) 4.857 (Nominal) 5.500 (Maximum)			1.900 (Minimum) 2.363 (Nominal) 2.800 (Maximum)	
Phase	Far 1 tube 3 Air Point Measure CPS	Value	Phase	Far 1 tube 3 Rod Point Measure CPS	Value	Phase	Far 1 tube 3 H2O Point Measure CPS	Value
Master		17.15	Master		4.188	Master		2.066
	15.00 (Minimum) 19.05 (Nominal) 21.00 (Maximum)			4.000 (Minimum) 4.857 (Nominal) 5.500 (Maximum)			1.900 (Minimum) 2.363 (Nominal) 2.700 (Maximum)	
Phase	Far 2 tube 1 Air Point Measure CPS	Value	Phase	Far 2 tube 1 Rod Point Measure CPS	Value	Phase	Far 2 tube 1 H2O Point Measure CPS	Value
Master		17.52	Master		4.365	Master		2.173
	15.00 (Minimum) 19.05 (Nominal) 21.00 (Maximum)			4.000 (Minimum) 4.857 (Nominal) 5.500 (Maximum)			1.900 (Minimum) 2.363 (Nominal) 2.700 (Maximum)	

15.00 (Minimum)	19.05 (Nominal)	21.00 (Maximum)	4.000 (Minimum)	4.857 (Nominal)	5.500 (Maximum)	1.900 (Minimum)	2.363 (Nominal)	2.700 (Maximum)
Phase Far 2 tube 2 Air Point Measure	CPS	Value	Phase Far 2 tube 2 Rod Point Measure	CPS	Value	Phase Far 2 tube 2 H2O Point Measure	CPS	Value
Master		18.07	Master		4.211	Master		1.982
16.00 (Minimum)	19.05 (Nominal)	22.00 (Maximum)	4.000 (Minimum)	4.857 (Nominal)	5.500 (Maximum)	1.900 (Minimum)	2.363 (Nominal)	2.800 (Maximum)
Phase Far 2 tube 3 Air Point Measure	CPS	Value	Phase Far 2 tube 3 Rod Point Measure	CPS	Value	Phase Far 2 tube 3 H2O Point Measure	CPS	Value
Master		17.03	Master		4.348	Master		2.060
15.00 (Minimum)	19.05 (Nominal)	21.00 (Maximum)	4.000 (Minimum)	4.857 (Nominal)	5.500 (Maximum)	1.900 (Minimum)	2.363 (Nominal)	2.700 (Maximum)
Phase Near 1 tube 1 Air Point Measure	CPS	Value	Phase Near 1 tube 1 Rod Point Measure	CPS	Value	Phase Near 1 tube 1 H2O Point Measure	CPS	Value
Master		458.8	Master		722.7	Master		319.9
400.0 (Minimum)	487.5 (Nominal)	540.0 (Maximum)	610.0 (Minimum)	768.8 (Nominal)	850.0 (Maximum)	270.0 (Minimum)	343.7 (Nominal)	390.0 (Maximum)
Phase Near 2 tube 1 Air Point Measure	CPS	Value	Phase Near 2 tube 1 Rod Point Measure	CPS	Value	Phase Near 2 tube 1 H2O Point Measure	CPS	Value
Master		454.0	Master		727.3	Master		320.0
400.0 (Minimum)	487.5 (Nominal)	540.0 (Maximum)	610.0 (Minimum)	768.8 (Nominal)	850.0 (Maximum)	270.0 (Minimum)	343.7 (Nominal)	390.0 (Maximum)

Master: 21-Jun-2005 11:22		
6.75-in. Azimuthal Density Neutron Calibration		
Neutron: Water Block Check		
Phase	Far Neutron water porosity PU	Value
Master		92.83
90.00 (Minimum)	100.0 (Nominal)	125.0 (Maximum)

6.75-in. Resistivity At-the-Bit / Equipment Identification

Primary Equipment:

Tool Name and Serial Number


RAB6 - CA 191

Calibration Status





Valid





Master: 29-Jul-2005 15:21											
6.75-in. Resistivity At-the-Bit Calibration											
Resistivity: Fixture											
Phase	Ring/T1 factor ----		Value	Phase	Ring/T2 factor ----		Value	Phase	M0/T1 factor ----		Value
Master			0.9949	Master			0.9924	Master			1.006
	0.9750 (Minimum)	1.000 (Nominal)	1.025 (Maximum)		0.9750 (Minimum)	1.000 (Nominal)	1.025 (Maximum)		0.9750 (Minimum)	1.000 (Nominal)	1.025 (Maximum)
Phase	M0/T2 factor ----		Value	Phase	M2/T1 factor ----		Value	Phase	M2/T2 factor ----		Value
Master			1.003	Master			1.007	Master			1.003
	0.9750 (Minimum)	1.000 (Nominal)	1.025 (Maximum)		0.9750 (Minimum)	1.000 (Nominal)	1.025 (Maximum)		0.9750 (Minimum)	1.000 (Nominal)	1.025 (Maximum)
Phase	BTN shallow/T1 factor ----		Value	Phase	BTN shallow/T2 factor ----		Value	Phase	BTN medium/T1 factor ----		Value
Master			1.002	Master			0.9996	Master			0.9951
	0.9750 (Minimum)	1.000 (Nominal)	1.025 (Maximum)		0.9750 (Minimum)	1.000 (Nominal)	1.025 (Maximum)		0.9750 (Minimum)	1.000 (Nominal)	1.025 (Maximum)
Phase	BTN medium/T2 factor ----		Value	Phase	BTN deep/T1 factor ----		Value	Phase	BTN deep/T2 factor ----		Value
Master			0.9922	Master			1.012	Master			1.009
	0.9750	1.000	1.025		0.9750	1.000	1.025		0.9750	1.000	1.025





(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)
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Master: 29-Jul-2005 15:21			
6.75-in. Resistivity At-the-Bit Calibration			
Gamma Ray: Blanket			
Phase	Gamma ray factor ----		Value
Master			0.9256
	0.7500 (Minimum)	1.000 (Nominal)	1.250 (Maximum)





6.75-in. Azimuthal Density Neutron / Equipment Identification								
Primary Equipment:								
Tool Name and Serial Number			ADN6 - CA			FE55		
Collar Type and Serial Number			ADDC - AA			FE55		
Chassis Type and Serial Number			ADSE - EA			380		
Stabilizer Type and Serial Number			IBS					
Neutron Logging Source			NSR - M			202		
Density Logging Source			GSR - J/Z			1994		
Stabilizer Size			8-3/16 - in.					
Calibration Status			Valid					

Master: 19-Jun-2005 14:46								
6.75-in. Azimuthal Density Neutron Calibration								
Density: Magnesium Block								
Phase	LS window 3 - Mg CPS			Value	Phase	SS window 1 - Mg CPS		
Master				1069	Master			
250.0 (Minimum)			4125 (Nominal)	8000 (Maximum)	700.0 (Minimum)			9350 (Nominal)
						18000 (Maximum)		
Phase	SS window 3 - Mg CPS			Value	Phase	SS window 3 - Mg CPS		
Master				6392	Master			
2500 (Minimum)			23750 (Nominal)	45000 (Maximum)				

Master: 19-Jun-2005 14:46								
6.75-in. Azimuthal Density Neutron Calibration								
Density: Aluminum Block								
Phase	LS window 3 - Al CPS			Value	Phase	SS window 1 - Al CPS		
Master				160.3	Master			
50.00 (Minimum)			725.0 (Nominal)	1400 (Maximum)	500.0 (Minimum)			4250 (Nominal)
						8000 (Maximum)		
Phase	SS window 3 - Al CPS			Value	Phase	SS window 3 - Al CPS		
Master				4004	Master			
1500 (Minimum)			15750 (Nominal)	30000 (Maximum)				

Master: 19-Jun-2005 14:46								
6.75-in. Azimuthal Density Neutron Calibration								
Density: Background								
Phase	LS window 3 - Background CPS			Value	Phase	SS window 1 - Background CPS		
Master				50.02	Master			
15.00 (Minimum)			82.50 (Nominal)	150.0 (Maximum)	40.00 (Minimum)			220.0 (Nominal)
						400.0 (Maximum)		
Phase	SS window 3 - Background CPS			Value	Phase	SS window 3 - Background CPS		
Master				555.3	Master			
150.0 (Minimum)			825.0 (Nominal)	1500 (Maximum)				

Master: 19-Jun-2005 14:46								
6.75-in. Azimuthal Density Neutron Calibration								
Density: Water Block Check								
Phase	Long spacing water density G/C3			Value	Phase	Short spacing water density G/C3		
Master				1.031	Master			
1.024 (Minimum)			1.039 (Nominal)	1.054 (Maximum)	1.096 (Minimum)			1.126 (Nominal)
						1.156 (Maximum)		

Master: 19-Jun-2005 14:46								
6.75-in. Azimuthal Density Neutron Calibration								
Neutron: 3-Point Calibration								
Phase	Far 1 tube 1 Air Point Measure CPS			Value	Phase	Far 1 tube 1 Rod Point Measure CPS		
Master				17.72	Master			
15.00 (Minimum)			19.05 (Nominal)	21.00 (Maximum)	4.000 (Minimum)			4.857 (Nominal)
						5.500 (Maximum)		
Phase	Far 1 tube 1 H2O Point Measure CPS			Value	Phase	Far 1 tube 1 H2O Point Measure CPS		
Master				2.147	Master			
1.900 (Minimum)			2.363 (Nominal)	2.700 (Maximum)				
Phase	Far 1 tube 2 Air Point Measure CPS			Value	Phase	Far 1 tube 2 Rod Point Measure CPS		
Master					Master			


Phase	Far 1 tube 3 Air Point Measure	CPS	Value	Phase	Far 1 tube 3 Rod Point Measure	CPS	Value	Phase	Far 1 tube 3 H2O Point Measure	CPS	Value
Master			18.93	Master			4.707	Master			2.299
	16.00 (Minimum)	19.05 (Nominal)	22.00 (Maximum)		4.000 (Minimum)	4.857 (Nominal)	5.500 (Maximum)		1.900 (Minimum)	2.363 (Nominal)	2.800 (Maximum)
Phase	Far 1 tube 3 Air Point Measure	CPS	Value	Phase	Far 1 tube 3 Rod Point Measure	CPS	Value	Phase	Far 1 tube 3 H2O Point Measure	CPS	Value
Master			18.55	Master			4.486	Master			2.279
	15.00 (Minimum)	19.05 (Nominal)	21.00 (Maximum)		4.000 (Minimum)	4.857 (Nominal)	5.500 (Maximum)		1.900 (Minimum)	2.363 (Nominal)	2.700 (Maximum)
Phase	Far 2 tube 1 Air Point Measure	CPS	Value	Phase	Far 2 tube 1 Rod Point Measure	CPS	Value	Phase	Far 2 tube 1 H2O Point Measure	CPS	Value
Master			17.65	Master			4.416	Master			2.151
	15.00 (Minimum)	19.05 (Nominal)	21.00 (Maximum)		4.000 (Minimum)	4.857 (Nominal)	5.500 (Maximum)		1.900 (Minimum)	2.363 (Nominal)	2.700 (Maximum)
Phase	Far 2 tube 2 Air Point Measure	CPS	Value	Phase	Far 2 tube 2 Rod Point Measure	CPS	Value	Phase	Far 2 tube 2 H2O Point Measure	CPS	Value
Master			18.97	Master			4.543	Master			2.222
	16.00 (Minimum)	19.05 (Nominal)	22.00 (Maximum)		4.000 (Minimum)	4.857 (Nominal)	5.500 (Maximum)		1.900 (Minimum)	2.363 (Nominal)	2.800 (Maximum)
Phase	Far 2 tube 3 Air Point Measure	CPS	Value	Phase	Far 2 tube 3 Rod Point Measure	CPS	Value	Phase	Far 2 tube 3 H2O Point Measure	CPS	Value
Master			18.19	Master			4.596	Master			2.253
	15.00 (Minimum)	19.05 (Nominal)	21.00 (Maximum)		4.000 (Minimum)	4.857 (Nominal)	5.500 (Maximum)		1.900 (Minimum)	2.363 (Nominal)	2.700 (Maximum)
Phase	Near 1 tube 1 Air Point Measure	CPS	Value	Phase	Near 1 tube 1 Rod Point Measure	CPS	Value	Phase	Near 1 tube 1 H2O Point Measure	CPS	Value
Master			455.2	Master			728.7	Master			326.1
	400.0 (Minimum)	487.5 (Nominal)	540.0 (Maximum)		610.0 (Minimum)	768.8 (Nominal)	850.0 (Maximum)		270.0 (Minimum)	343.7 (Nominal)	390.0 (Maximum)
Phase	Near 2 tube 1 Air Point Measure	CPS	Value	Phase	Near 2 tube 1 Rod Point Measure	CPS	Value	Phase	Near 2 tube 1 H2O Point Measure	CPS	Value
Master			474.0	Master			746.7	Master			342.4
	400.0 (Minimum)	487.5 (Nominal)	540.0 (Maximum)		610.0 (Minimum)	768.8 (Nominal)	850.0 (Maximum)		270.0 (Minimum)	343.7 (Nominal)	390.0 (Maximum)

Master: 19-Jun-2005 14:46											
6.75-in. Azimuthal Density Neutron Calibration											
Neutron: Water Block Check											
Phase	Far Neutron water porosity PU									Value	
Master										94.31	
	90.00 (Minimum)			100.0 (Nominal)			125.0 (Maximum)				

6.75-in. Resistivity At-the-Bit / Equipment Identification		
Primary Equipment:		
Tool Name and Serial Number	RAB6 – CA	147
Calibration Status	Valid	

Master: 29-Jul-2005 17:20														
6.75-in. Resistivity At-the-Bit Calibration														
Resistivity: Fixture														
Phase	Ring/T1 factor ----			Value	Phase	Ring/T2 factor ----			Value	Phase	M0/T1 factor ----			Value
Master				1.012	Master				1.011	Master				1.002
0.9750 (Minimum)					0.9750 (Minimum)					0.9750 (Minimum)				
1.000 (Nominal)					1.000 (Nominal)					1.000 (Nominal)				
1.025 (Maximum)					1.025 (Maximum)					1.025 (Maximum)				
Phase	M0/T2 factor ----			Value	Phase	M2/T1 factor ----			Value	Phase	M2/T2 factor ----			Value
Master				1.002	Master				0.9986	Master				0.9992

Master	0.9750 (Minimum)	1.000 (Nominal)	1.025 (Maximum)	Master	0.9750 (Minimum)	1.000 (Nominal)	1.025 (Maximum)	Master	0.9750 (Minimum)	1.000 (Nominal)	1.025 (Maximum)
Phase	BTN shallow/T1 factor ----			Phase	BTN shallow/T2 factor ----			Phase	BTN medium/T1 factor ----		
Master	1.009			Master	1.009			Master	1.002		
Phase	BTN medium/T2 factor ----			Phase	BTN deep/T1 factor ----			Phase	BTN deep/T2 factor ----		
Master	1.001			Master	1.001			Master	0.9999		

Master: 29-Jul-2005 17:20			
6.75-in. Resistivity At-the-Bit Calibration			
Gamma Ray: Blanket			
Phase	Gamma ray factor ----		Value
Master			0.9611
	0.7500 (Minimum)	1.000 (Nominal)	1.250 (Maximum)

SCHLUMBERGER

Survey report

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Client..... ESSO Australia Pty. Ltd.
Field..... Bream B

Well..... BMB-B16
API number.....
Engineer..... J.Dolan, M.Y.Tan, D.Hastie

RIG..... ENSCO 102
STATE..... Victoria

Spud date..... 05-Jul-2005
Last survey date..... 09-Aug-05
Total accepted surveys... 92
MD of first survey..... 0.00 m
MD of last survey..... 2641.00 m

----- Survey calculation methods-----
Method for positions..... Minimum curvature
Method for DLS..... Mason & Taylor

----- Geomagnetic data -----
Magnetic model..... BGGM version 2005
Magnetic date..... 29-Jul-2005
Magnetic field strength... 1203.00 HCONT
Magnetic dec (+E/W-)..... 13.10 degrees
Magnetic dip..... -69.05 degrees

----- Depth reference -----
Permanent datum..... Mean Sea Level
Depth reference..... Driller's Depth
GL above permanent..... -61.00 m
KB above permanent..... Top Drive
DF above permanent..... 47.17 m

----- MWD survey Reference Criteria -----
Reference G..... 1000.05 mGal
Reference H..... 1203.00 HCONT
Reference Dip..... -69.05 degrees
Tolerance of G..... (+/-) 2.50 mGal
Tolerance of H..... (+/-) 6.00 HCONT
Tolerance of Dip..... (+/-) 0.45 degrees

----- Vertical section origin-----
Latitude (+N/S-)..... -7.80 m
Departure (+E/W-)..... -0.30 m

----- Corrections -----
Magnetic dec (+E/W-)..... 13.10 degrees
Grid convergence (+E/W-).. -0.52 degrees
Total az corr (+E/W-)..... 13.62 degrees
(Total az corr = magnetic dec - grid conv)
Survey Correction Type ...:
I=Sag Corrected Inclination
M=Schlumberger Magnetic Correction
S=Shell Magnetic Correction
F=Failed Axis Correction
R=Magnetic Resonance Tool Correction
D=Dmag Magnetic Correction

----- Platform reference point-----
Latitude (+N/S-).....
Departure (+E/W-).....

Azimuth from Vsect Origin to target: 119.19 degrees

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Seq #	Measured depth (m)	Incl angle (deg)	Azimuth angle (deg)	Course length (m)	TVD depth (m)	Vertical section (m)	Displ +N/S- (m)	Displ +E/W- (m)	Total displ (m)	At Azim (deg)	DLS (deg/100f)	Srvy tool type	Tool Corr (deg)
1	0.00	0.00	0.00	0.00	0.00	0.00	-7.80	-0.30	7.81	182.20	0.00	TIP	None
2	107.50	0.00	0.00	107.50	107.50	0.00	-7.80	-0.30	7.81	182.20	0.00	GYR	None
3	110.30	0.15	158.53	2.80	110.30	0.00	-7.80	-0.30	7.81	182.19	1.63	GYR	None
4	138.80	0.18	157.67	28.50	138.80	0.07	-7.88	-0.27	7.88	181.95	0.03	GYR	None
5	157.60	0.16	154.47	18.80	157.60	0.11	-7.93	-0.25	7.93	181.77	0.04	GYR	None
6	174.50	0.11	156.53	16.90	174.50	0.14	-7.97	-0.23	7.97	181.65	0.09	GYR	None
7	183.49	0.57	272.31	8.99	183.49	0.11	-7.97	-0.27	7.98	181.94	2.12	GYR	None
8	214.10	2.13	263.97	30.61	214.09	-0.49	-8.03	-0.99	8.09	187.02	1.56	GYR	None
9	244.20	4.12	267.40	30.00	244.24	1.07	-8.12	-0.62	8.55	187.04	2.02	GYR	None

9	244.30	4.13	207.43	30.20	244.24	-1.07	-0.13	-2.03	0.33	137.94	2.03	GYR	None
10	273.44	6.20	258.68	29.14	273.26	-3.96	-8.49	-5.22	9.97	211.61	2.31	GYR	None
11	302.32	6.79	248.99	28.88	301.96	-6.24	-9.41	-8.35	12.58	221.59	1.31	GYR	None
12	320.98	6.50	238.20	18.66	320.49	-7.46	-10.36	-10.27	14.59	224.77	2.09	MWD	None
13	360.36	6.56	225.35	39.38	359.62	-9.17	-13.11	-13.77	19.02	226.40	1.13	GYR	None
14	389.61	6.38	219.35	29.25	388.69	-9.92	-15.54	-15.99	22.30	225.81	0.73	GYR	None
15	418.79	6.26	225.03	29.18	417.69	-10.64	-17.92	-18.14	25.50	225.35	0.66	GYR	None
16	447.48	6.24	222.63	28.69	446.21	-11.43	-20.18	-20.30	28.62	225.18	0.28	GYR	None
17	476.58	6.16	224.05	29.10	475.14	-12.20	-22.46	-22.46	31.77	225.00	0.18	GYR	None
18	505.66	6.06	219.91	29.08	504.05	-12.88	-24.76	-24.53	34.85	224.73	0.47	GYR	None
19	534.65	6.06	217.45	28.99	532.88	-13.39	-27.15	-26.44	37.90	224.25	0.27	GYR	None
20	563.70	6.02	217.76	29.05	561.77	-13.83	-29.57	-28.31	40.94	223.75	0.05	GYR	None
21	592.73	5.72	226.27	29.03	590.65	-14.49	-31.77	-30.29	43.90	223.63	0.97	GYR	None
22	621.85	5.72	231.95	29.12	619.62	-15.47	-33.67	-32.48	46.78	223.97	0.59	GYR	None
23	650.71	5.56	228.28	28.86	648.34	-16.49	-35.49	-34.65	49.60	224.32	0.42	GYR	None
24	680.04	5.51	231.33	29.33	677.54	-17.48	-37.31	-36.81	52.41	224.61	0.31	GYR	None
25	697.53	5.50	228.98	17.49	694.95	-18.08	-38.39	-38.10	54.08	224.78	0.39	MWD	None
26	726.22	5.50	228.97	28.69	723.50	-19.01	-40.19	-40.17	56.82	224.99	0.00	MWD	None
27	755.02	5.47	224.63	28.80	752.17	-19.84	-42.07	-42.18	59.57	225.07	0.44	MWD	None
28	784.05	5.45	220.42	29.03	781.07	-20.48	-44.11	-44.04	62.33	224.96	0.42	MWD	None
29	812.94	5.55	224.13	28.89	809.83	-21.11	-46.15	-45.91	65.10	224.85	0.39	MWD	None
30	856.11	5.52	225.75	43.17	852.80	-22.24	-49.10	-48.85	69.26	224.85	0.11	MWD	None

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Seq #	Measured depth (m)	Incl angle (deg)	Azimuth angle (deg)	Course length (m)	TVD depth (m)	Vertical section (m)	Displ +N/S- (m)	Displ +E/W- (m)	Total displ (m)	At Azim (deg)	DLS (deg/100f)	Srvy tool type	Tool Corr (deg)
31	885.50	5.60	224.98	29.39	882.05	-23.03	-51.10	-50.87	72.11	224.87	0.11	MWD	None
32	914.67	5.60	223.80	29.17	911.08	-23.78	-53.14	-52.86	74.95	224.85	0.12	MWD	None
33	943.84	5.47	223.94	29.17	940.11	-24.49	-55.16	-54.81	77.77	224.82	0.14	MWD	None
34	972.77	5.37	223.05	28.93	968.91	-25.17	-57.15	-56.69	80.50	224.77	0.14	MWD	None
35	1001.99	5.46	223.36	29.22	998.00	-25.83	-59.16	-58.58	83.26	224.72	0.10	MWD	None
36	1030.57	5.41	224.95	28.58	1026.46	-26.53	-61.10	-60.47	85.96	224.70	0.17	MWD	None
37	1059.72	5.32	225.10	29.15	1055.48	-27.28	-63.03	-62.40	88.69	224.71	0.10	MWD	None
38	1088.71	5.11	226.63	28.99	1084.35	-28.03	-64.86	-64.29	91.32	224.75	0.26	MWD	None
39	1117.66	5.03	225.28	28.95	1113.18	-28.77	-66.64	-66.13	93.88	224.78	0.15	MWD	None
40	1146.60	5.09	226.31	28.94	1142.01	-29.50	-68.42	-67.96	96.43	224.81	0.11	MWD	None
41	1175.41	5.01	225.26	28.81	1170.71	-30.22	-70.19	-69.77	98.97	224.83	0.13	MWD	None
42	1204.65	4.90	227.98	29.24	1199.84	-30.98	-71.92	-71.61	101.49	224.87	0.27	MWD	None
43	1233.79	4.85	227.90	29.14	1228.87	-31.78	-73.58	-73.45	103.96	224.95	0.05	MWD	None
44	1262.27	5.07	228.33	28.48	1257.25	-32.57	-75.22	-75.28	106.42	225.02	0.24	MWD	None
45	1291.51	5.31	229.22	29.24	1286.37	-33.46	-76.97	-77.27	109.06	225.11	0.26	MWD	None
46	1320.64	5.99	219.17	29.13	1315.36	-34.19	-79.03	-79.25	111.92	225.08	1.25	MWD	None
47	1349.52	7.66	193.37	28.88	1344.04	-33.92	-82.07	-80.65	115.06	224.50	3.64	MWD	None
48	1378.46	10.94	165.80	28.94	1372.61	-31.51	-86.61	-80.42	118.19	222.88	5.73	MWD	None
49	1407.52	13.12	139.65	29.06	1401.05	-26.52	-91.80	-77.61	120.21	220.21	6.09	MWD	None
50	1436.56	14.26	126.97	29.04	1429.27	-19.89	-96.46	-72.61	120.74	216.97	3.36	MWD	None
51	1465.33	14.22	127.37	28.77	1457.16	-12.88	-100.74	-66.97	120.97	213.62	0.11	MWD	None
52	1494.32	13.91	123.06	28.99	1485.28	-5.88	-104.80	-61.22	121.37	210.29	1.15	MWD	None
53	1523.35	13.91	114.26	29.03	1513.46	1.08	-108.14	-55.12	121.38	207.01	2.22	MWD	None
54	1552.33	13.77	107.16	28.98	1541.60	7.93	-110.59	-48.64	120.82	203.74	1.79	MWD	None
55	1581.19	13.47	106.93	28.86	1569.65	14.57	-112.58	-42.15	120.21	200.52	0.32	MWD	None
56	1610.23	13.22	106.90	29.04	1597.90	21.12	-114.53	-35.73	119.98	197.33	0.26	MWD	None
57	1639.24	12.97	106.76	29.01	1626.16	27.54	-116.43	-29.44	120.10	194.19	0.26	MWD	None
58	1668.40	14.75	106.71	29.16	1654.47	34.36	-118.45	-22.75	120.61	190.87	1.86	MWD	None
59	1697.46	18.56	110.49	29.06	1682.31	42.55	-121.13	-14.88	122.04	187.00	4.15	MWD	None
60	1726.01	22.22	113.20	28.55	1709.06	52.41	-124.85	-5.65	124.98	182.59	4.03	MWD	None

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Seq #	Measured depth (m)	Incl angle (deg)	Azimuth angle (deg)	Course length (m)	TVD depth (m)	Vertical section (m)	Displ +N/S- (m)	Displ +E/W- (m)	Total displ (m)	At Azim (deg)	DLS (deg/100f)	Srvy tool type	Tool Corr (deg)
61	1755.12	25.46	114.56	29.11	1735.69	64.12	-129.62	5.10	129.72	177.75	3.44	MWD	None
62	1784.08	28.71	115.07	28.96	1761.47	77.27	-135.15	17.06	136.23	172.80	3.43	MWD	None
63	1813.12	32.21	113.25	29.04	1786.50	91.93	-141.17	30.50	144.42	167.81	3.80	MWD	None
64	1842.22	35.30	112.90	29.10	1810.69	108.01	-147.50	45.37	154.32	162.90	3.24	MWD	None
65	1871.31	38.11	113.30	29.09	1834.01	125.29	-154.32	61.36	166.08	158.32	2.95	MWD	None
66	1899.95	41.20	113.37	28.64	1856.05	143.47	-161.56	78.14	179.47	154.19	3.29	MWD	None
67	1929.05	45.21	113.03	29.10	1877.26	163.28	-169.41	96.45	194.94	150.35	4.21	MWD	None
68	1958.45	49.07	111.54	29.40	1897.26	184.67	-177.57	116.39	212.32	146.76	4.16	MWD	None
69	1987.31	52.44	109.37	28.86	1915.51	206.75	-185.37	137.33	230.70	143.47	3.98	MWD	None
70	2016.22	56.23	108.21	28.91	1932.37	229.85	-192.93	159.56	250.36	140.41	4.12	MWD	None
71	2044.75	58.13	107.85	28.53	1947.83	253.37	-200.35	182.36	270.91	137.69	2.06	MWD	None
72	2073.75	56.68	107.89	29.00	1963.45	277.33	-207.84	205.61	292.36	135.31	1.52	MWD	None
73	2102.65	56.17	107.47	28.90	1979.43	300.92	-215.16	228.55	313.89	133.27	0.65	MWD	None
74	2131.41	55.60	106.87	28.76	1995.54	324.22	-222.10	251.22	325.45	131.40	0.72	MWD	None

74	2131.41	55.85	106.48	28.94	2011.82	347.58	-229.06	274.24	357.31	129.87	0.38	MWD	None
75	2160.35	55.85	106.48	28.94	2011.82	347.58	-229.06	274.24	357.31	129.87	0.38	MWD	None
76	2189.30	54.86	106.25	28.95	2028.28	370.80	-235.77	297.09	379.27	128.44	1.06	MWD	None
77	2218.83	53.99	105.47	29.53	2045.46	394.17	-242.33	320.19	401.56	127.12	1.11	MWD	None
78	2247.97	53.59	105.31	29.14	2062.68	417.01	-248.57	342.86	423.49	125.94	0.44	MWD	None
79	2277.03	54.85	105.22	29.06	2079.67	439.89	-254.78	365.60	445.62	124.87	1.32	MWD	None
80	2306.49	53.74	104.80	29.46	2096.86	463.08	-260.97	388.71	468.19	123.88	1.20	MWD	None
81	2335.48	53.21	104.61	28.99	2114.11	485.64	-266.89	411.24	490.25	122.98	0.58	MWD	None
82	2364.40	53.21	104.10	28.92	2131.43	508.03	-272.63	433.68	512.25	122.16	0.43	MWD	None
83	2393.21	51.92	103.86	28.81	2148.94	530.10	-278.16	455.88	534.04	121.39	1.38	MWD	None
84	2422.27	52.23	104.37	29.06	2166.81	552.23	-283.75	478.11	555.97	120.69	0.53	MWD	None
85	2451.33	52.61	104.69	29.06	2184.53	574.52	-289.53	500.40	578.12	120.05	0.48	MWD	None
86	2480.33	52.86	105.28	29.00	2202.09	596.89	-295.49	522.70	600.44	119.48	0.56	MWD	None
87	2509.25	51.86	105.68	28.92	2219.75	619.14	-301.60	544.77	622.68	118.97	1.11	MWD	None
88	2538.42	52.71	106.56	29.17	2237.59	641.61	-308.01	566.93	645.20	118.52	1.15	MWD	None
89	2567.49	53.16	106.46	29.07	2255.11	664.24	-314.60	589.17	667.91	118.10	0.48	MWD	None
90	2596.48	52.44	107.42	28.99	2272.64	686.81	-321.33	611.26	690.58	117.73	1.10	MWD	None

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Seq	Measured	Incl	Azimuth	Course	TVD	Vertical	Displ	Displ	Total	At	DLS	Srvy	Tool
#	depth	angle	angle	length	depth	section	+N/S-	+E/W-	displ	Azim	(deg/	tool	Corr
-	(m)	(deg)	(deg)	(m)	(m)	(m)	(m)	(m)	(m)	(deg)	100f)	type	(deg)
91	2623.96	51.70	107.50	27.48	2289.53	708.03	-327.83	631.94	711.91	117.42	0.82	MWD	None
92	2641.00	51.70	107.50	17.04	2300.10	721.13	-331.86	644.69	725.09	117.24	0.00	Projection to TD	

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Company: **ESSO Australia Pty. Ltd.**

Schlumberger

Well: **BMB-B16**

Field: **Bream B**

Rig: **ENSCO 102**

8.5 in. Section

State: **Victoria**

**GeoVISION Quadrant Density
1:500 True Vertical Depth
Recorded Mode Log**

