

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

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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

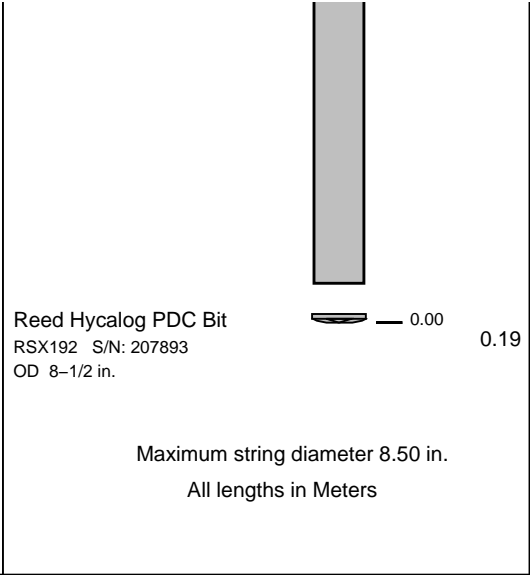
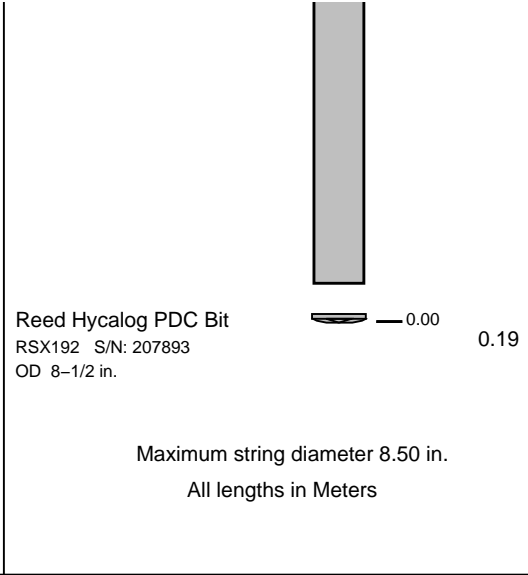
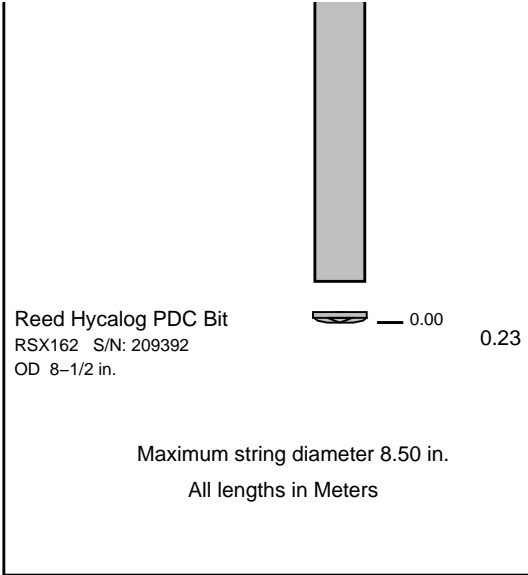
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 GSR-J A1994 UltraSonic 30.25
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 S/N: 34641
 Software: V6.2B01
 Receiver Array 24.04
 R-O Port 23.64
 Transmitter 20.60

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



IDEAL Version: ID10_0C_04
IDF

RAB id10_0c_04 MWD_10 id10_0c_04
ADN id10_0c_04

Format: GeoVISION Density Neutron Log

Vertical Scale: 1:200

Graphics File Created: 17-Aug-2005 11:01

Rate of Penetration, Averaged over Last
5ft (ROP5_RM)
200 (M/HR) 0

RAB Gamma Ray (GR_RAB)
0 (GAPI) 200

Density Caliper, Vertical (DCVE)
6 (IN) 16

Density Caliper, Horizontal (DCHO)
6 (IN) 16

Density Time After Bit (TAB_DEN)
0 (HR) 10

ADN
Rotational
Speed
(RPM_ADN)
(RPM)
0 250

Gas Area
From ADN/ROBB/DEPTH to ADN/TNPH/DEPTH

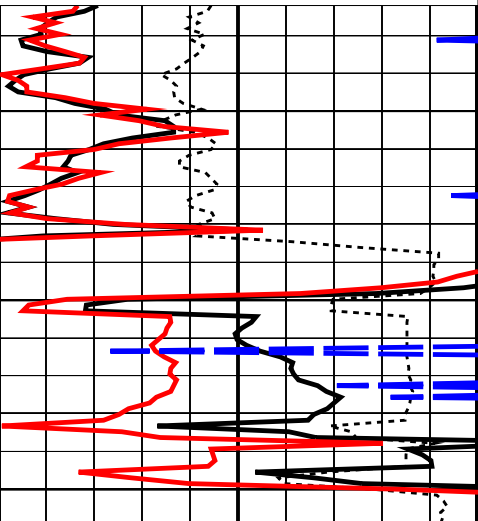
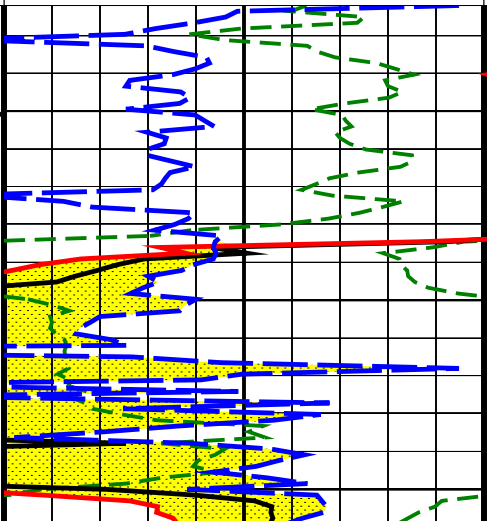
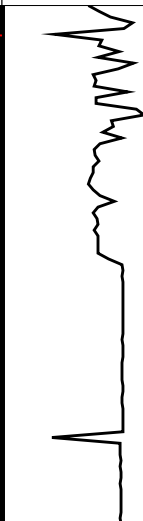
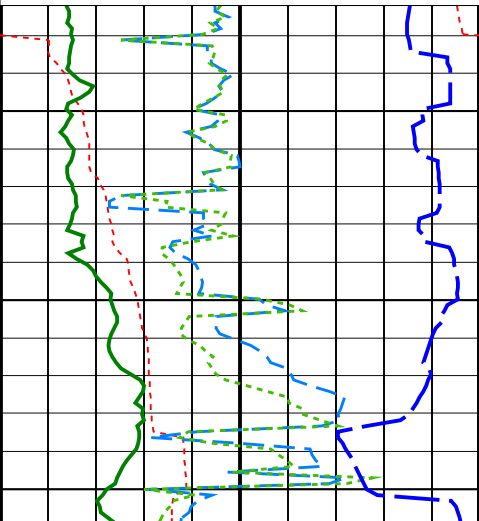
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45 (PU) -15

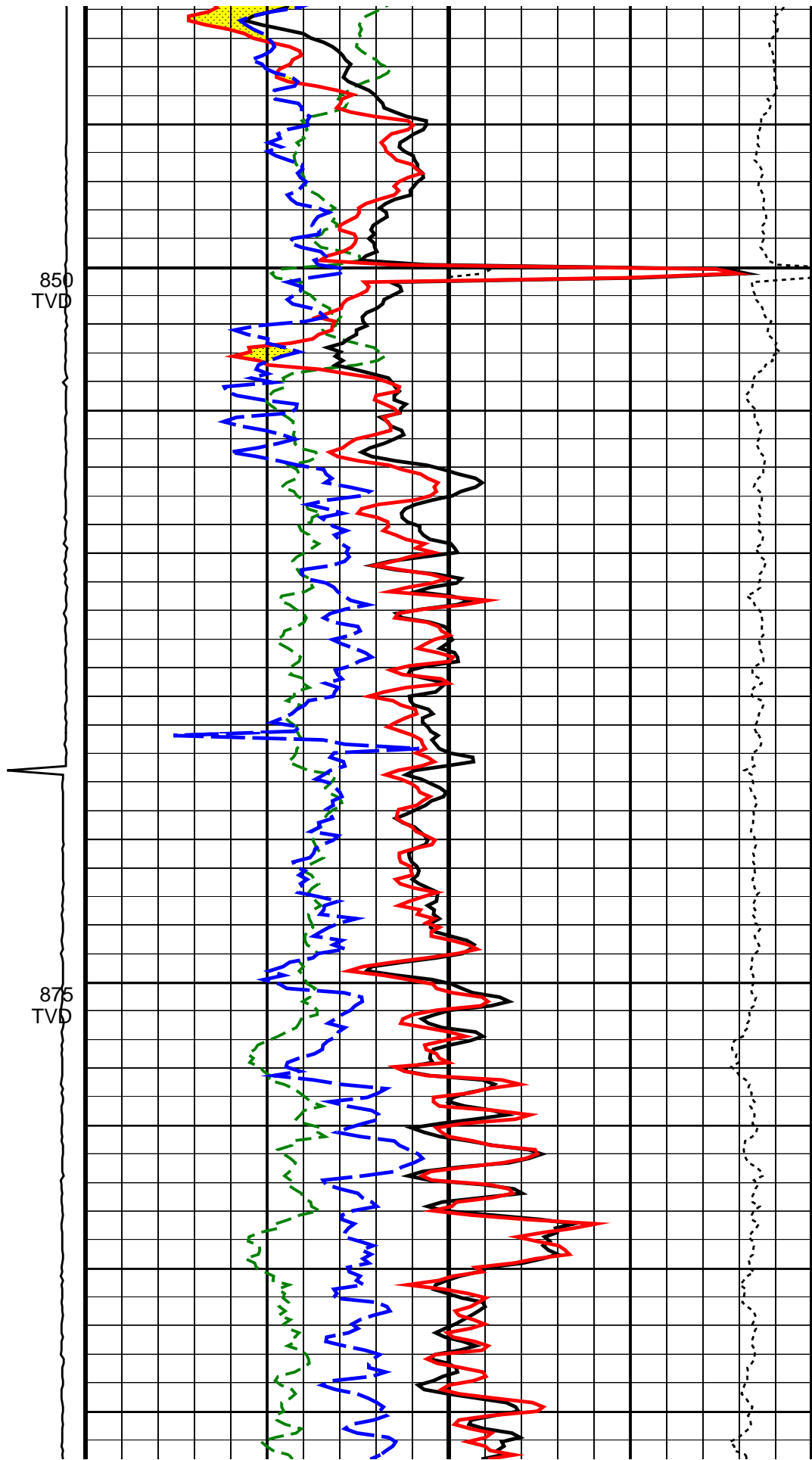
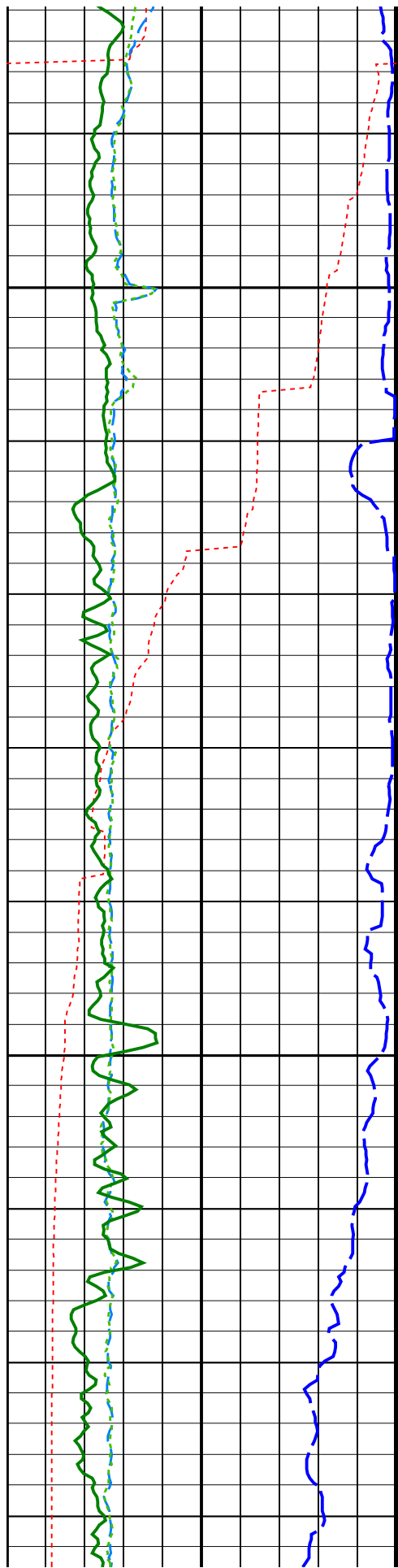
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1.85 (G/C3) 2.85

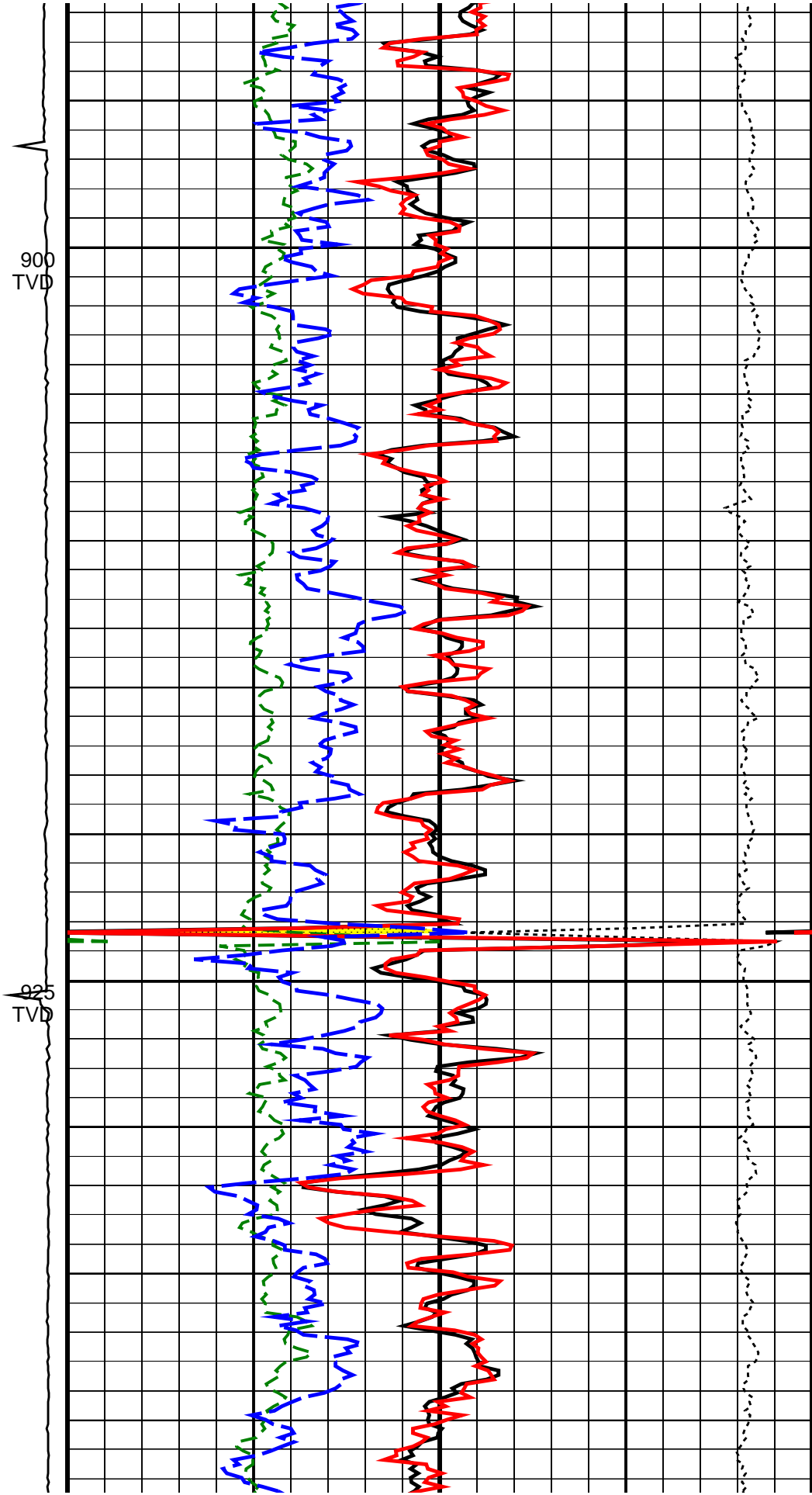
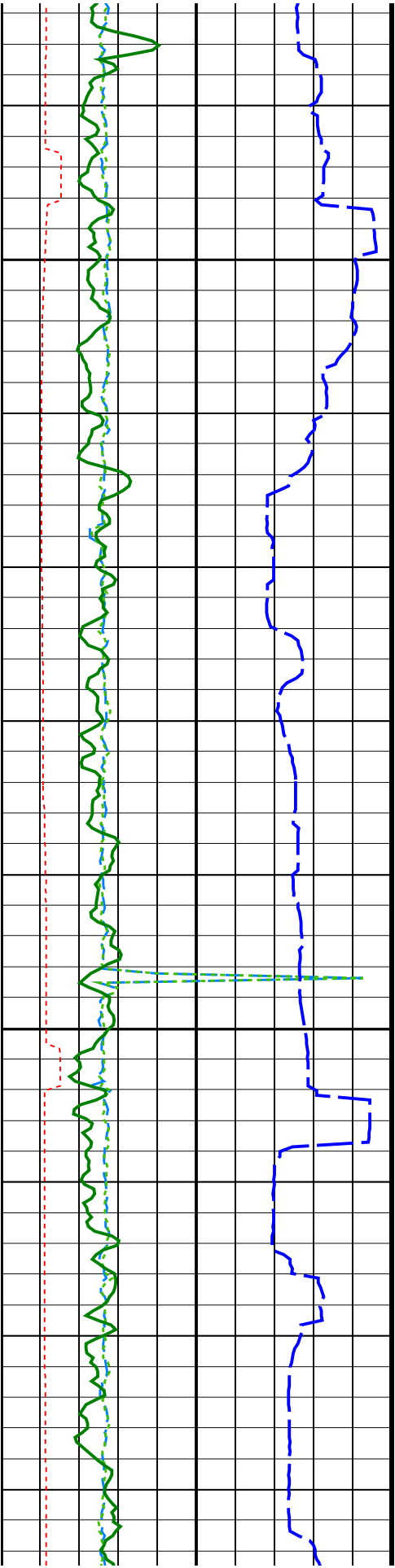
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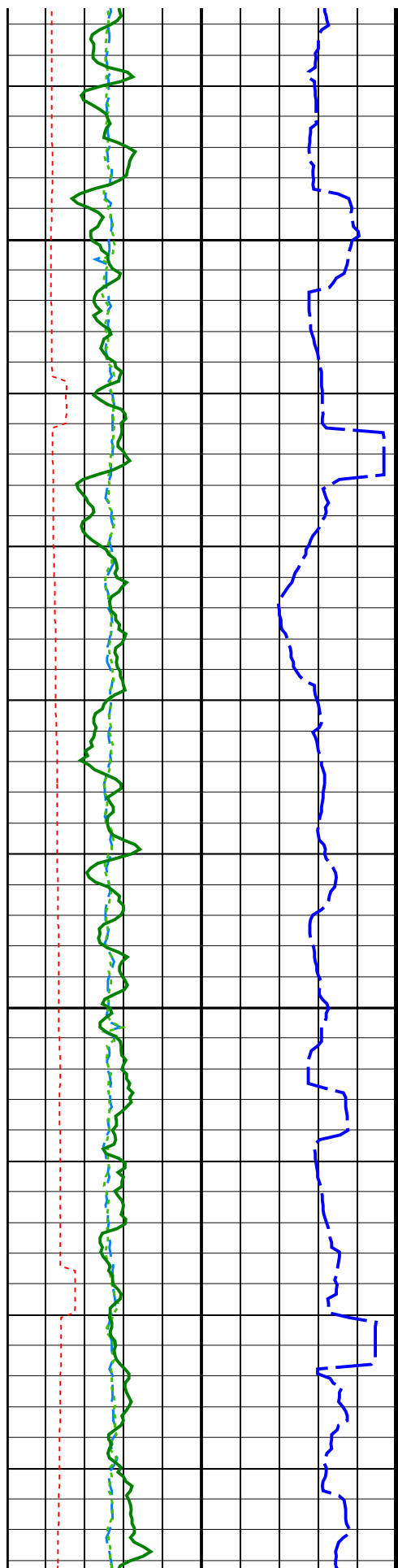
Photoelectric Factor, Bottom (PEB)
0 (----) 10

Bulk Density Correction, Bottom
(DRHB)
-0.75 (G/C3) 0.25



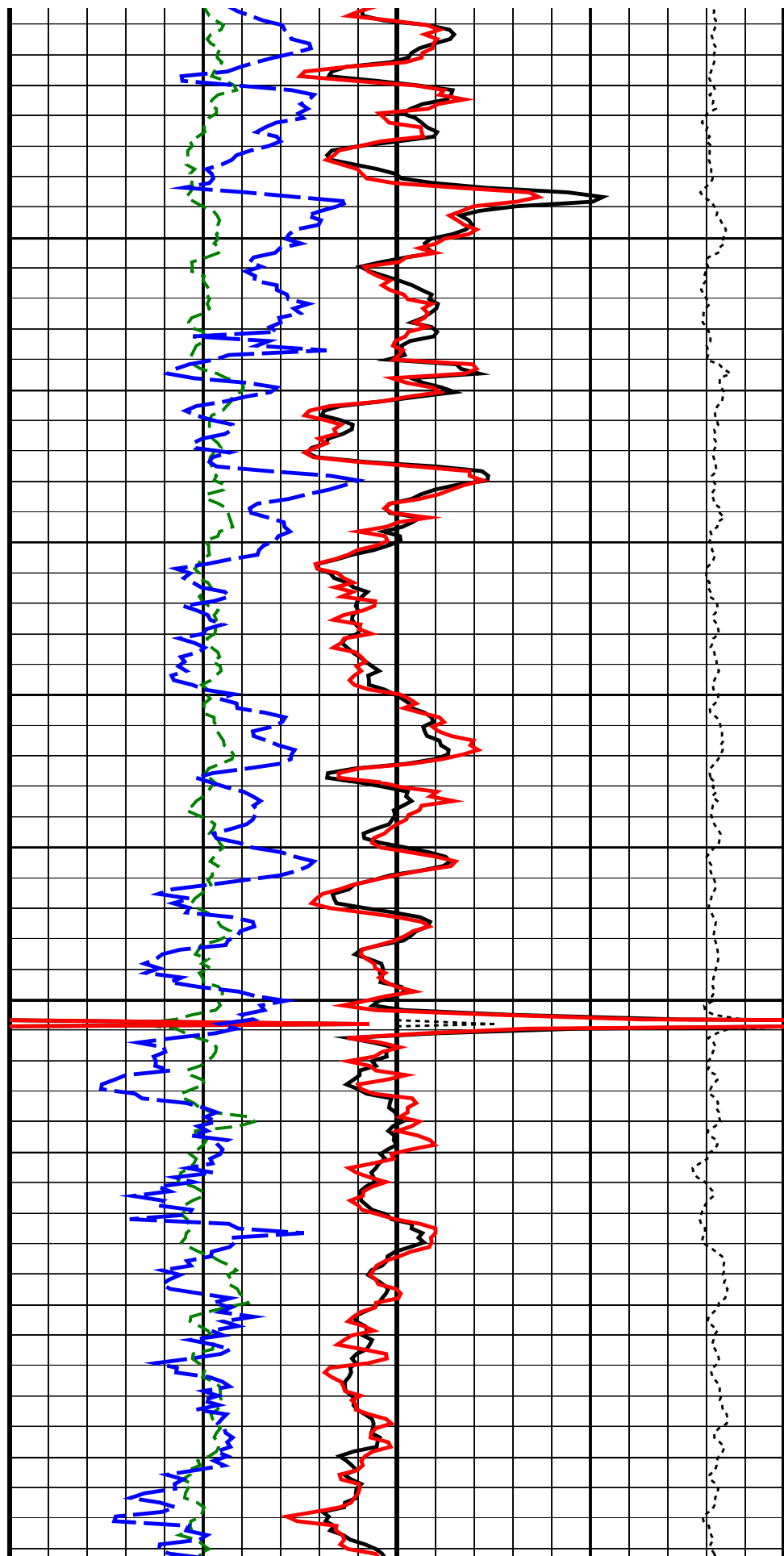


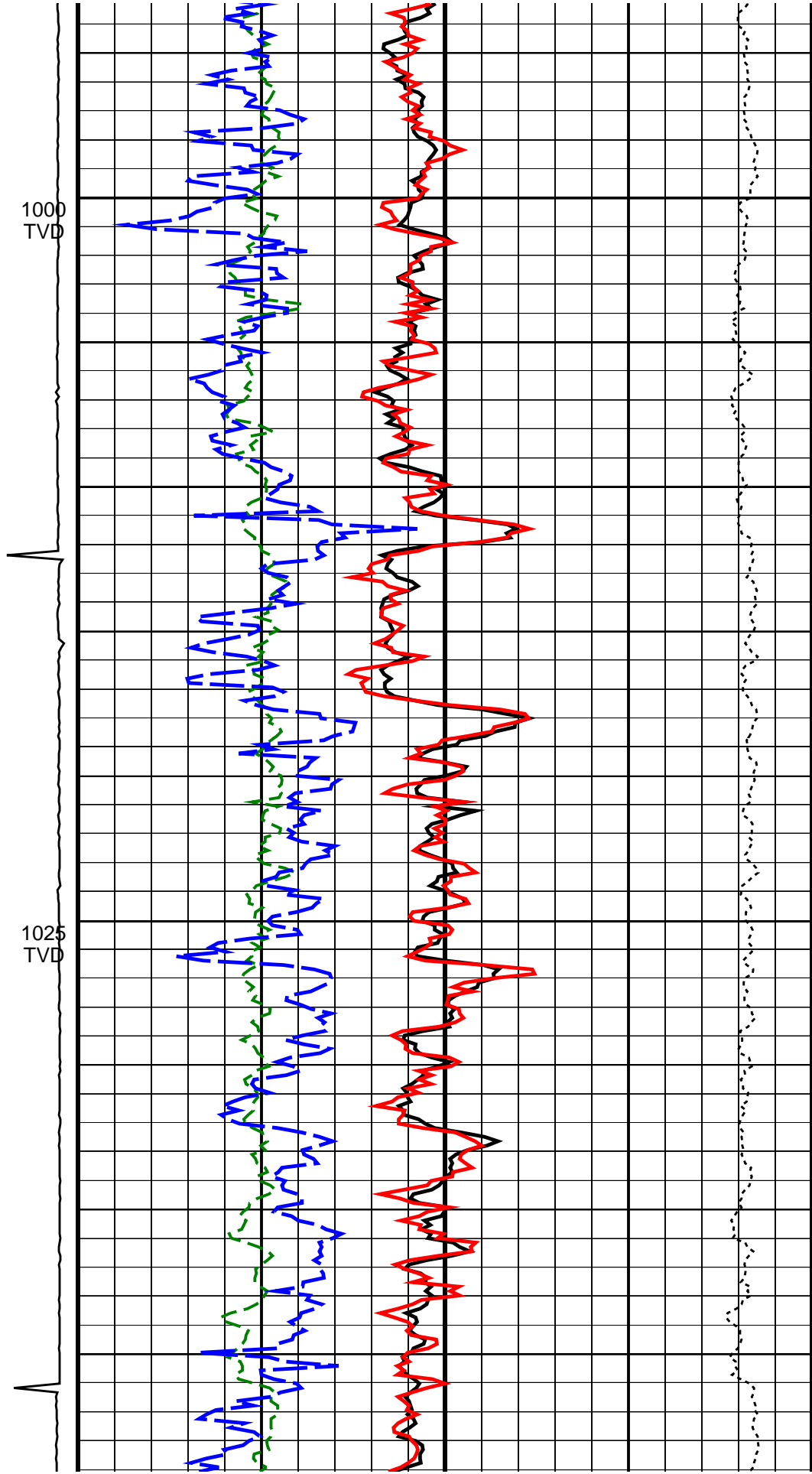
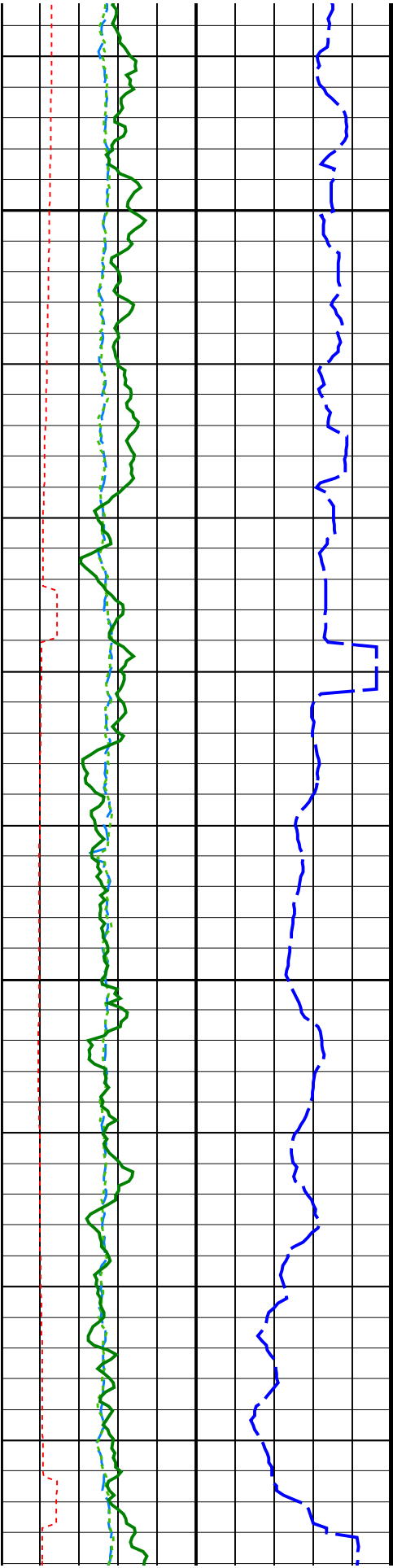


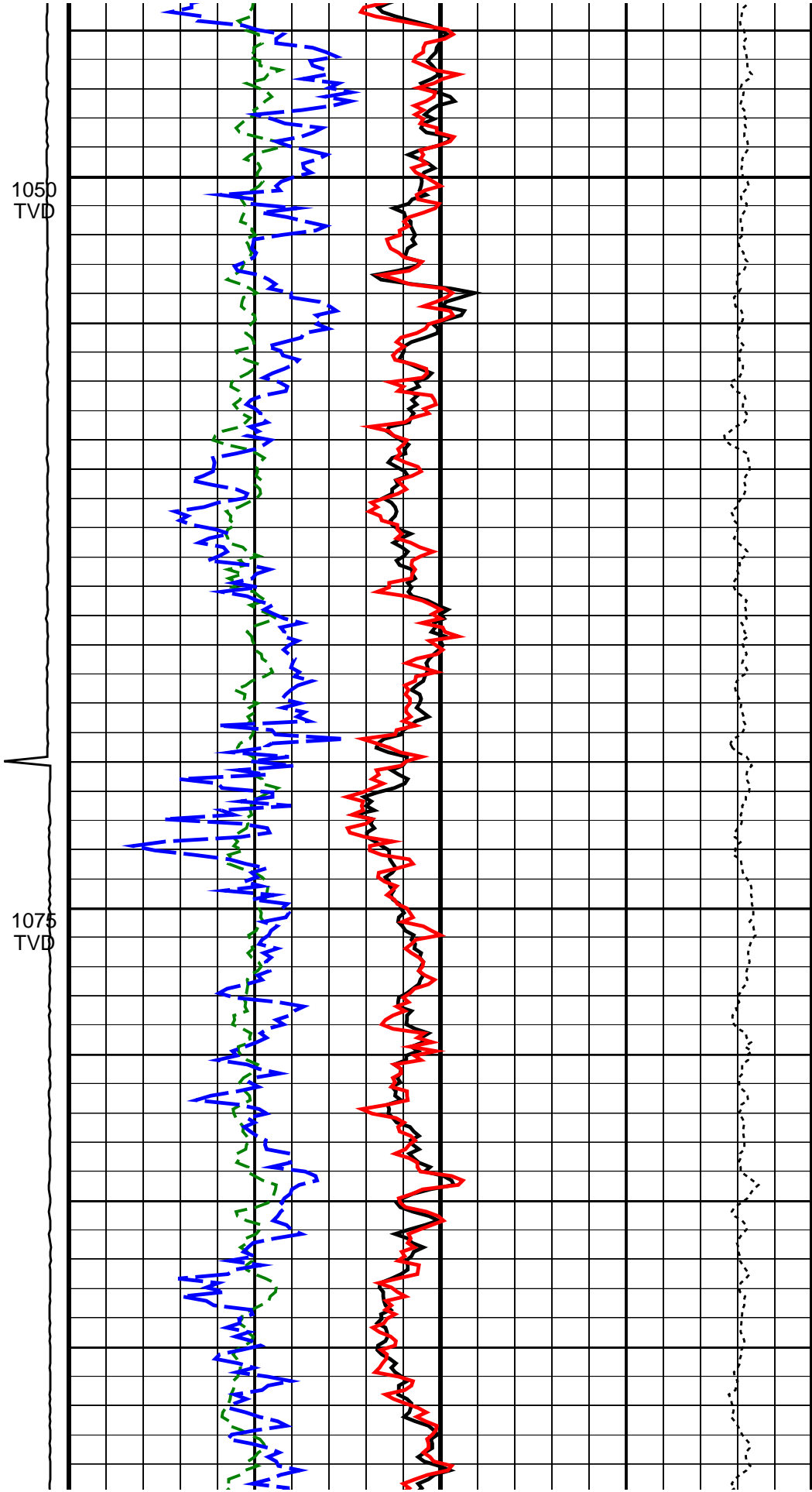
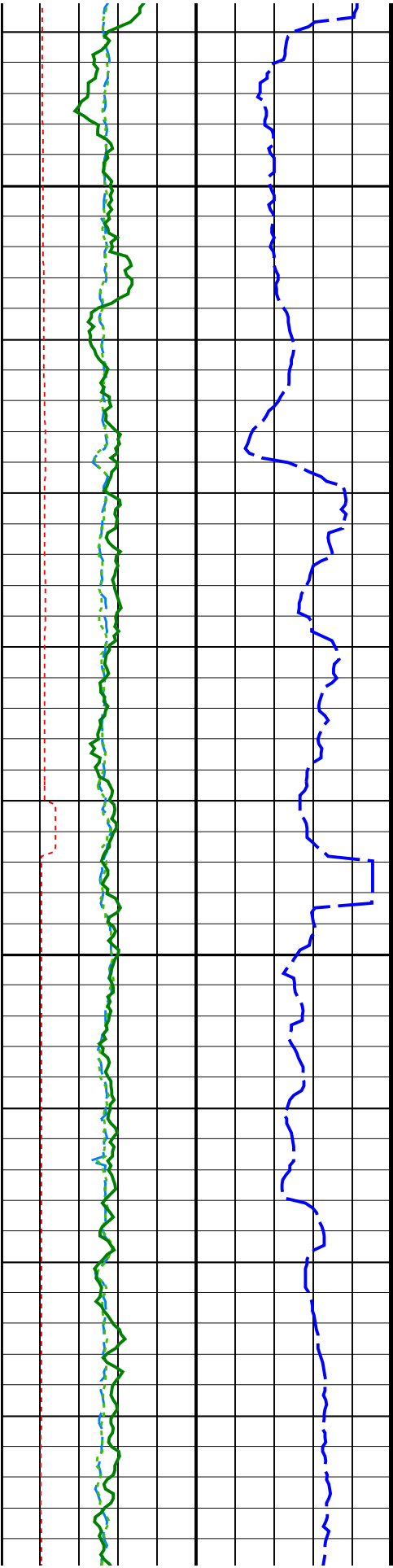


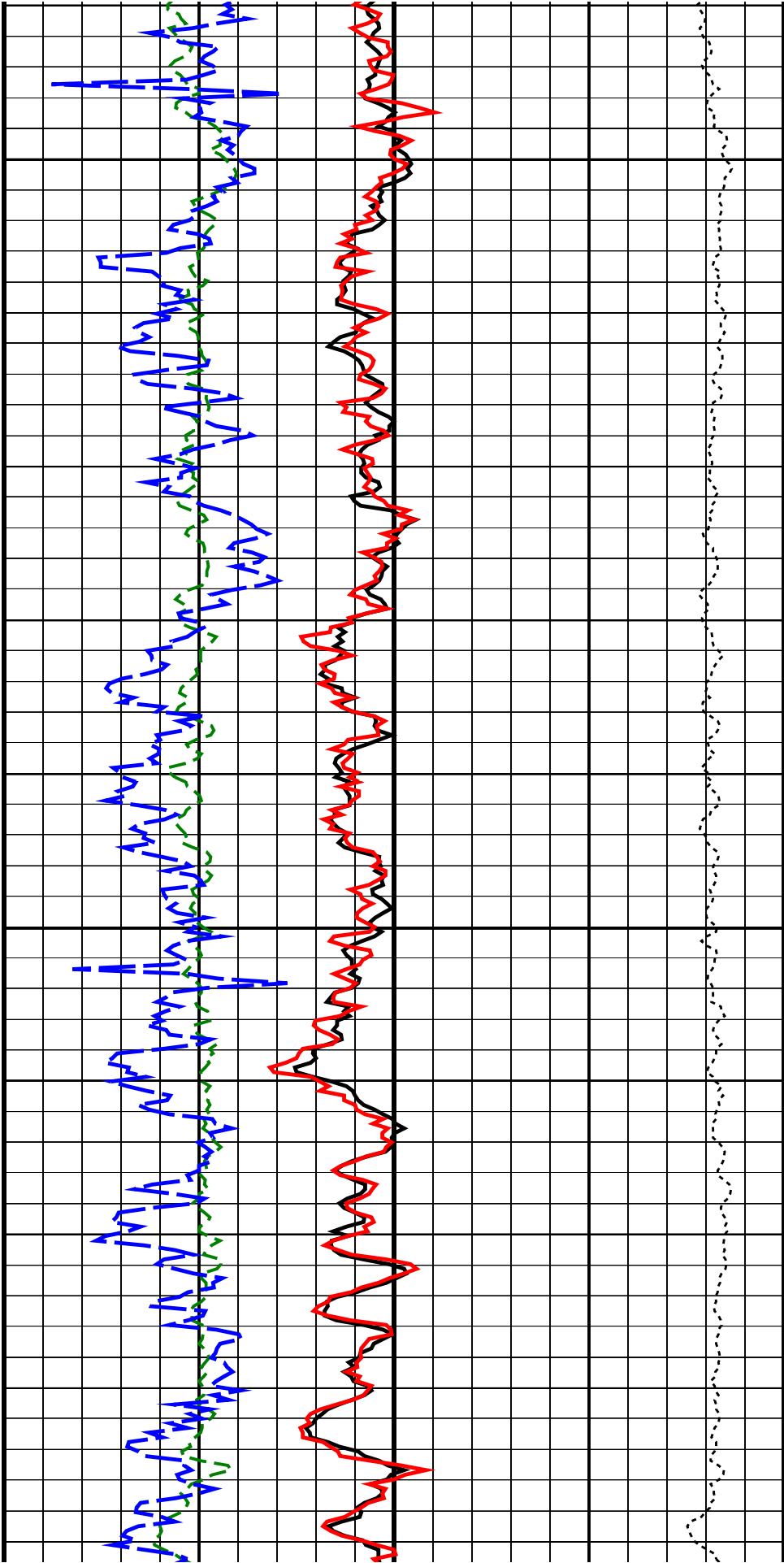
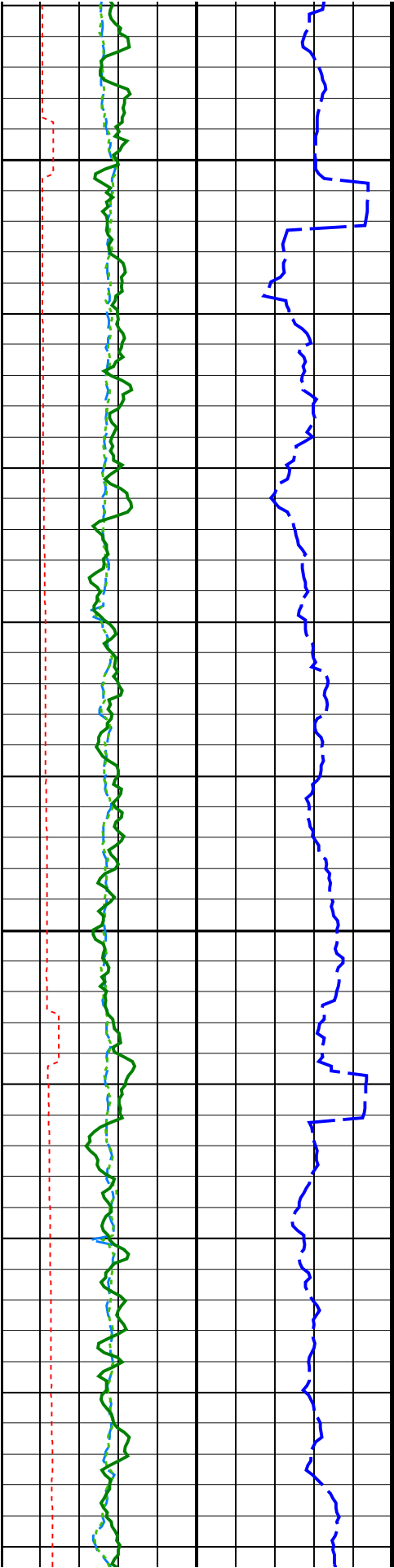
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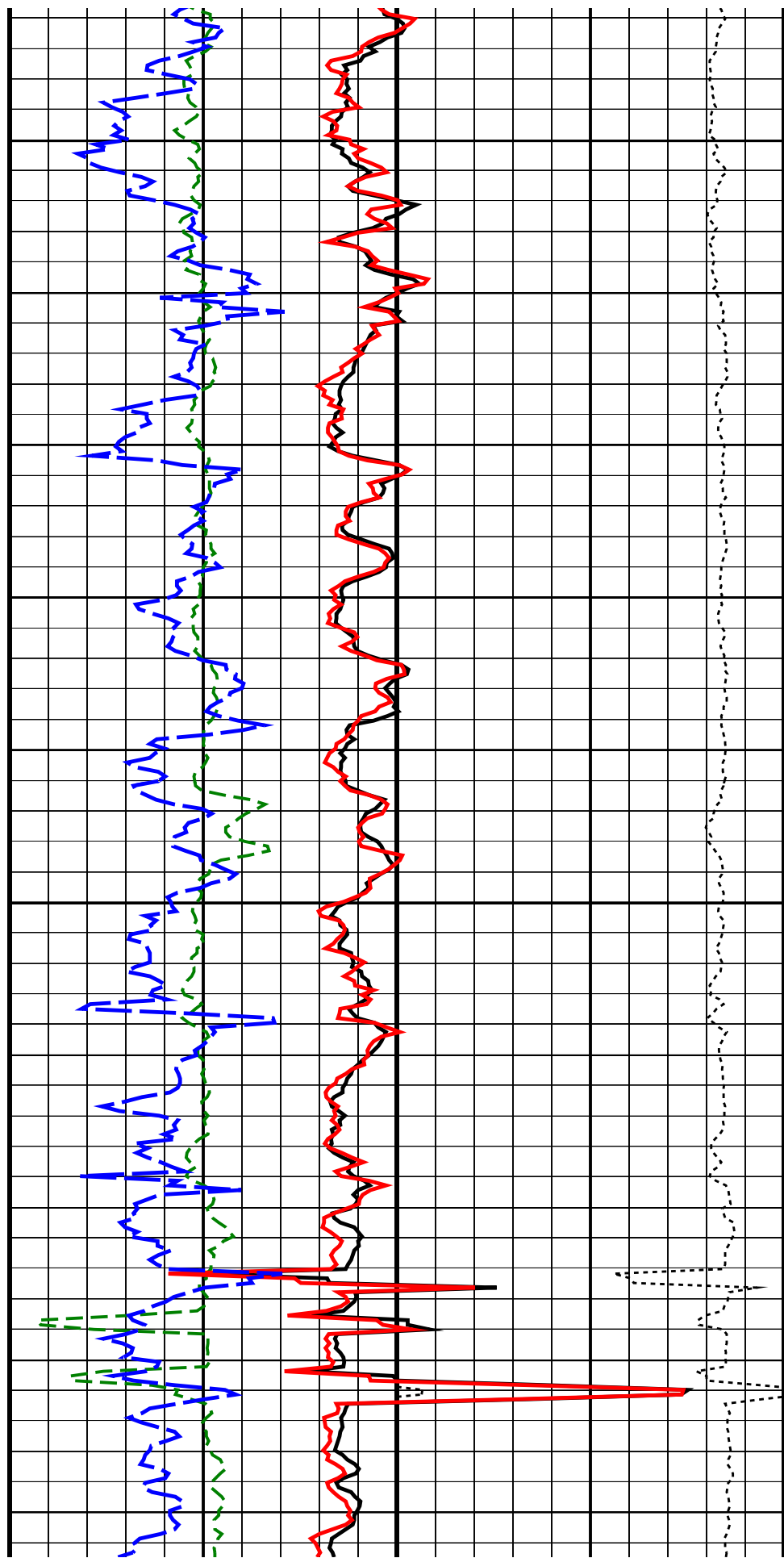
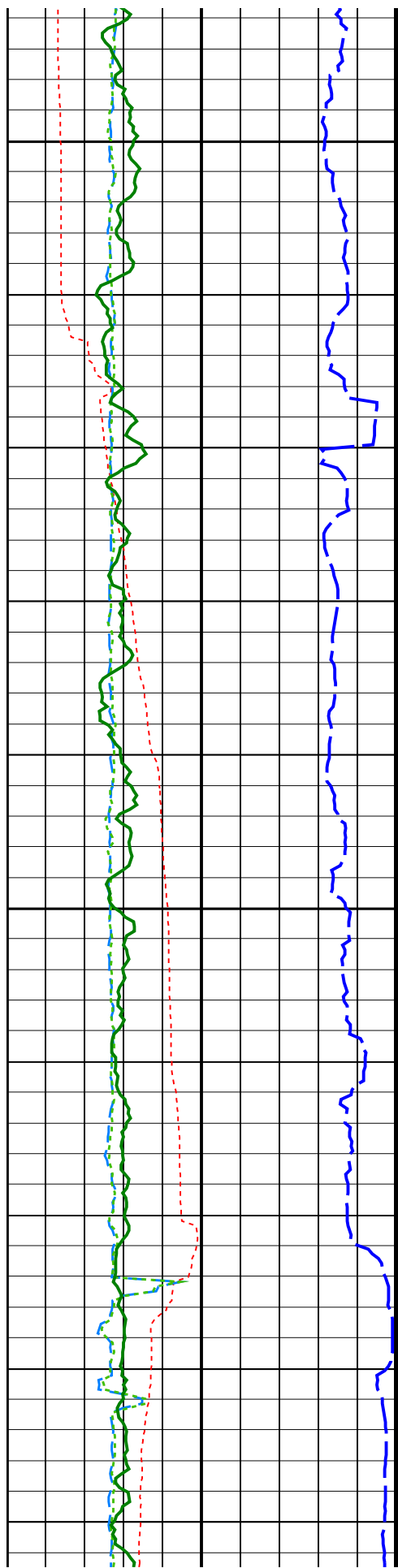
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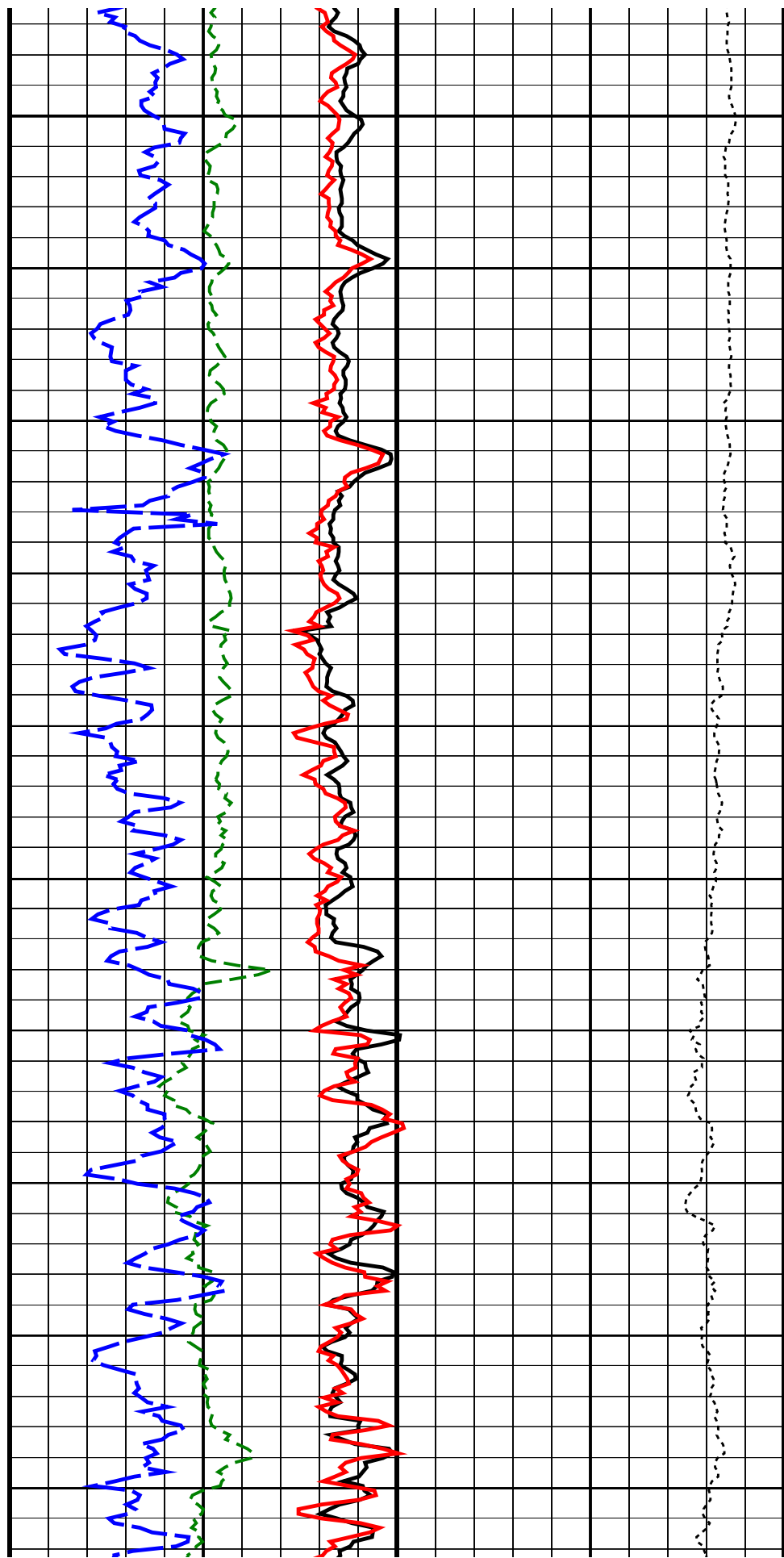
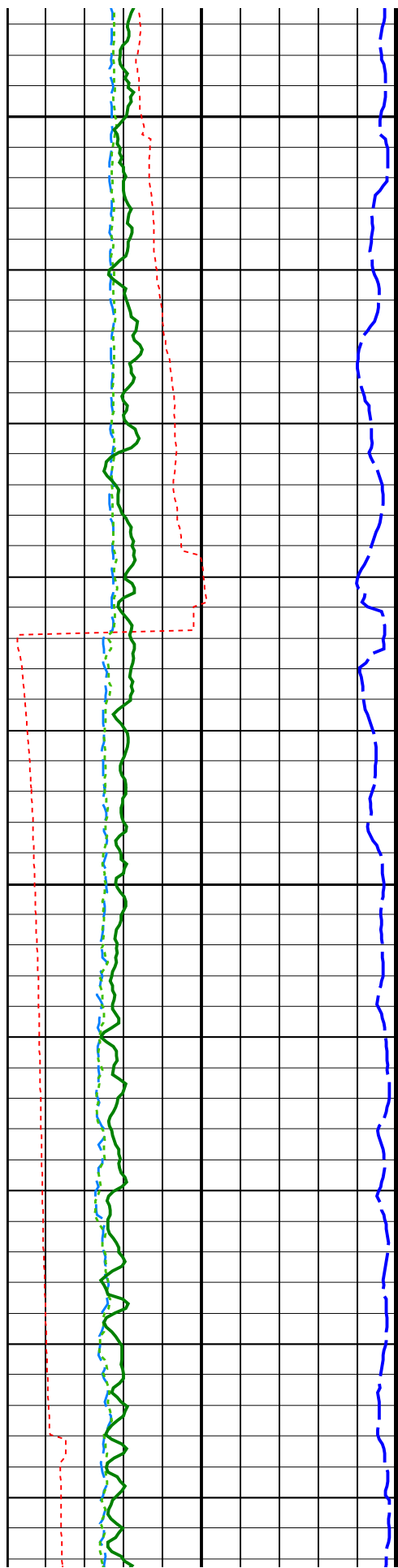


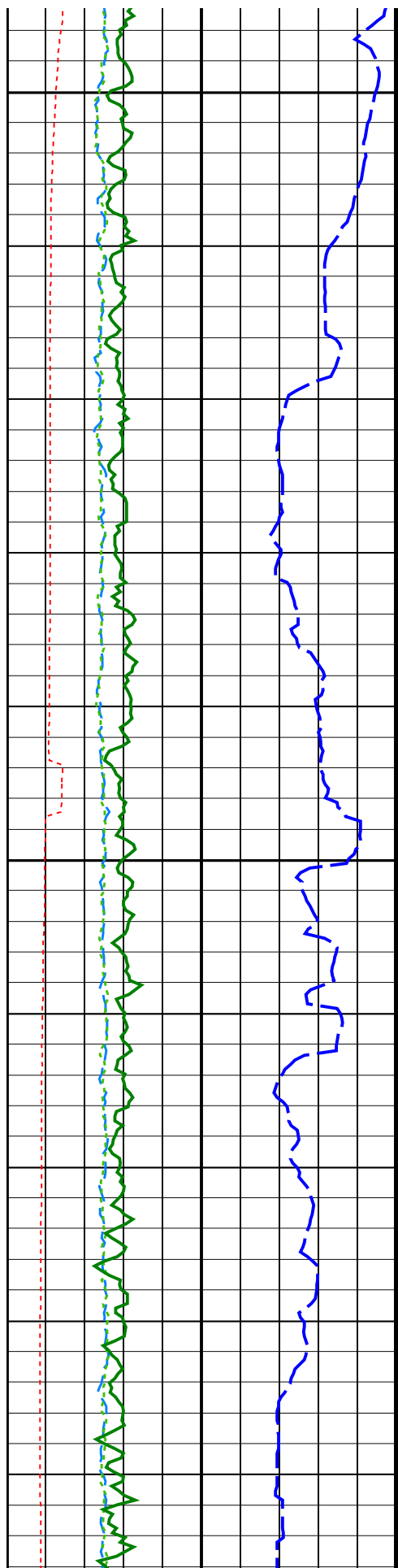






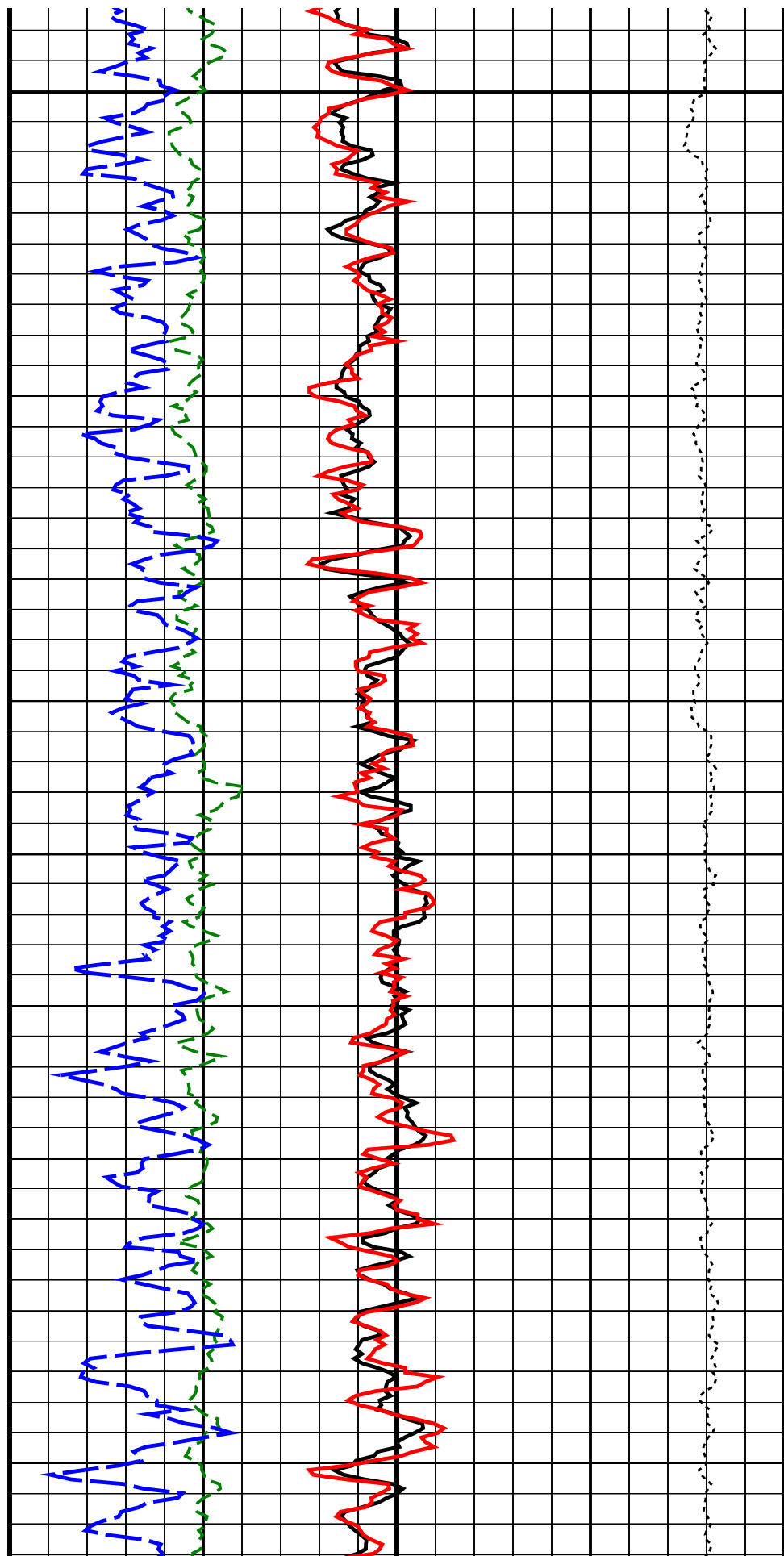


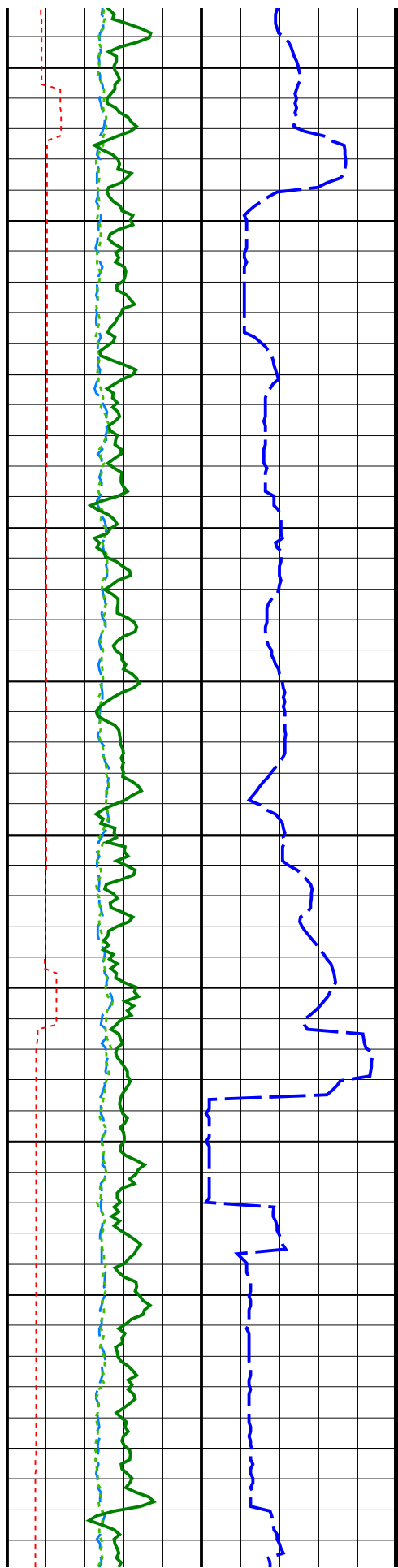




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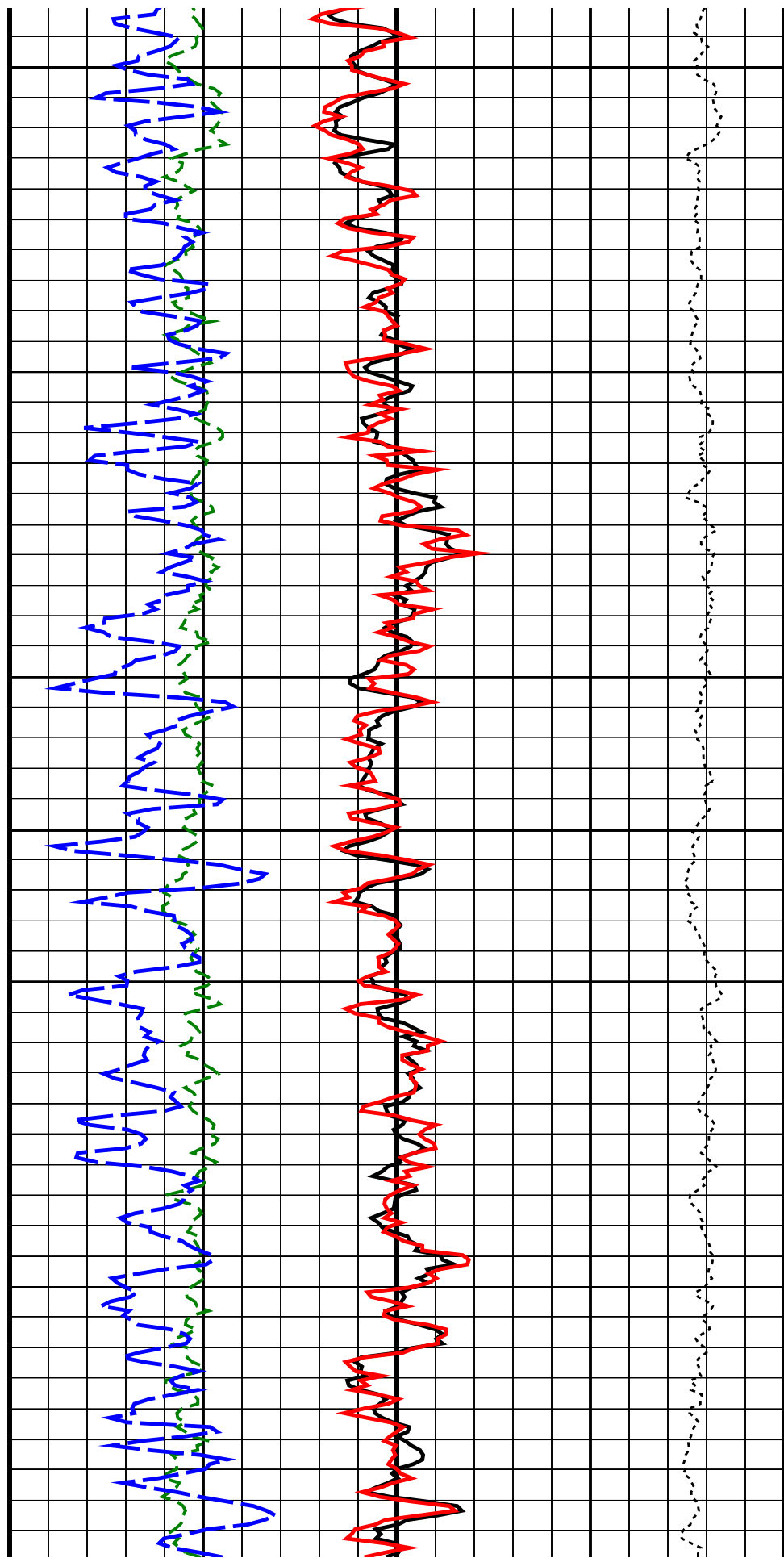
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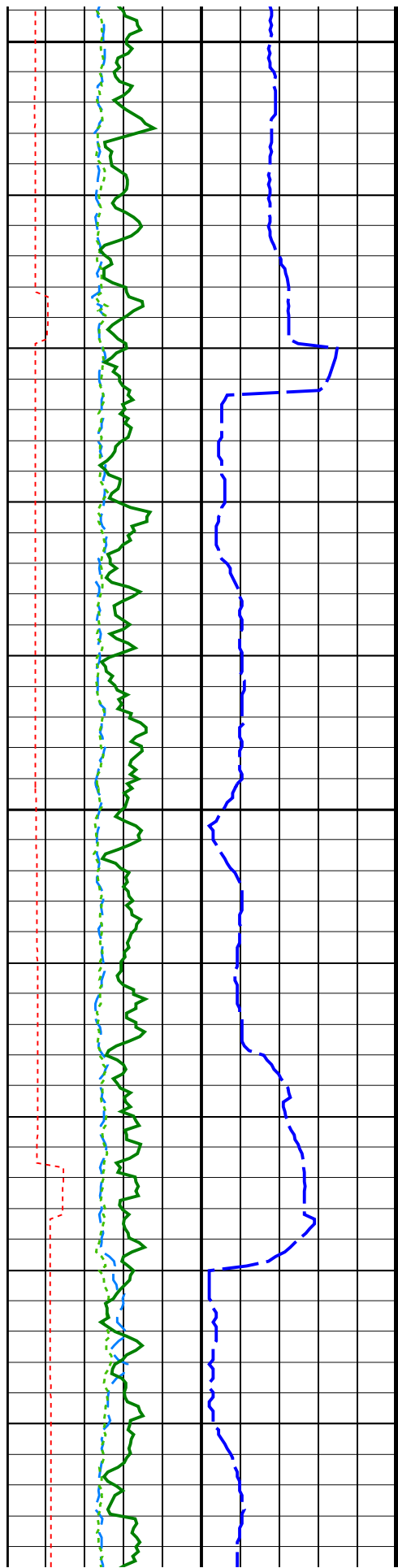




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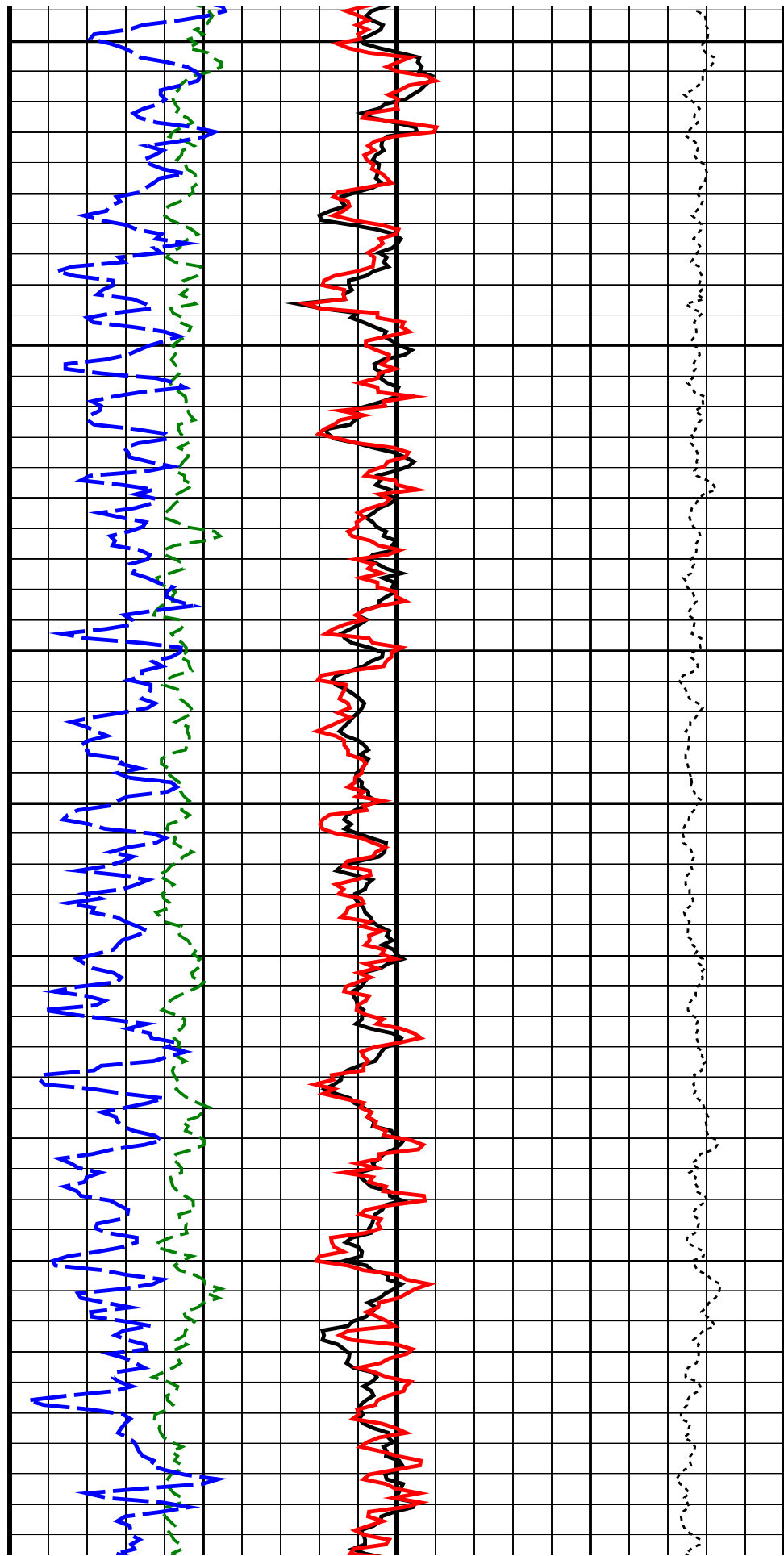
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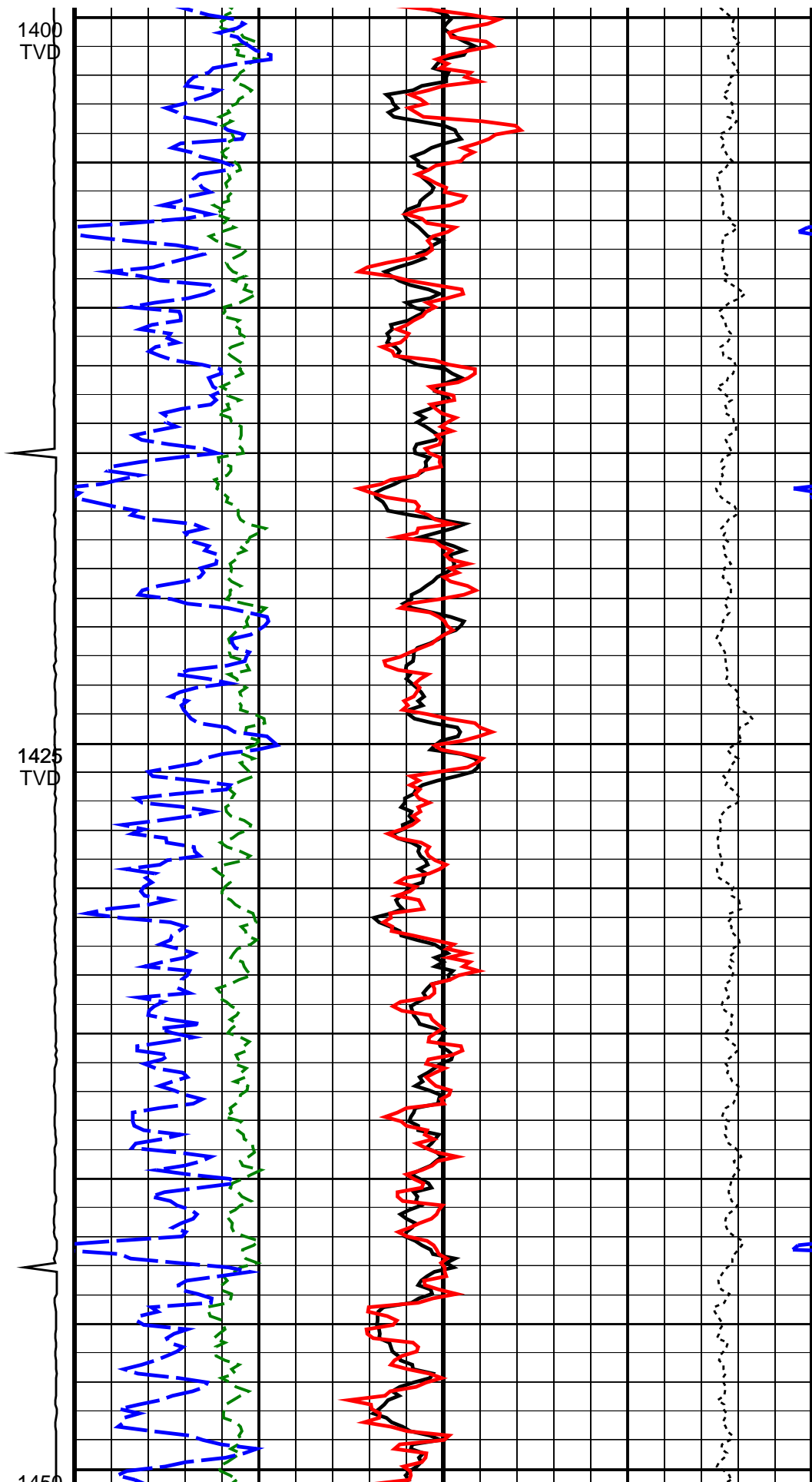
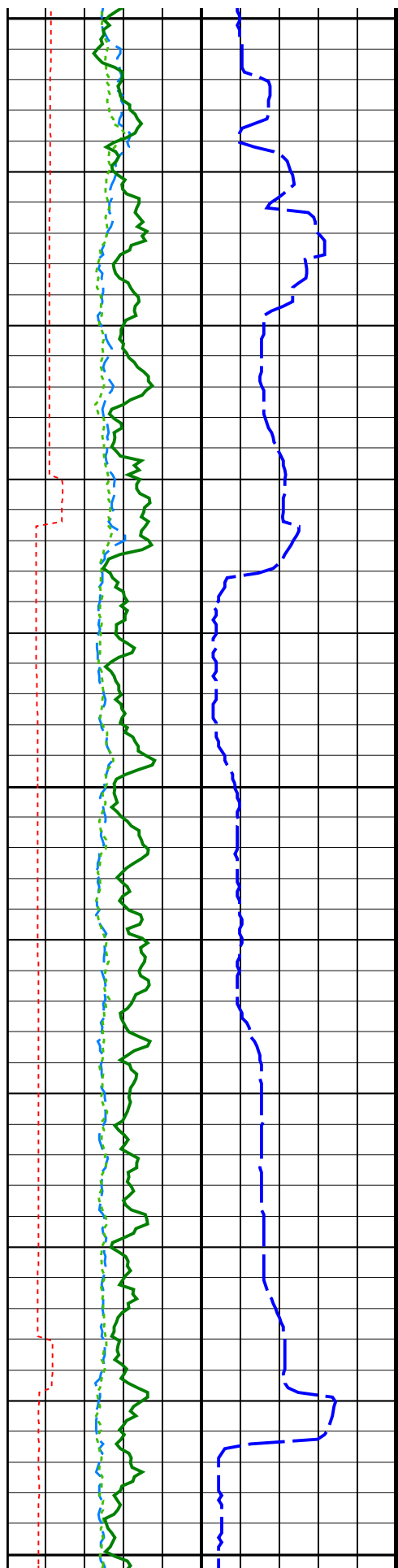


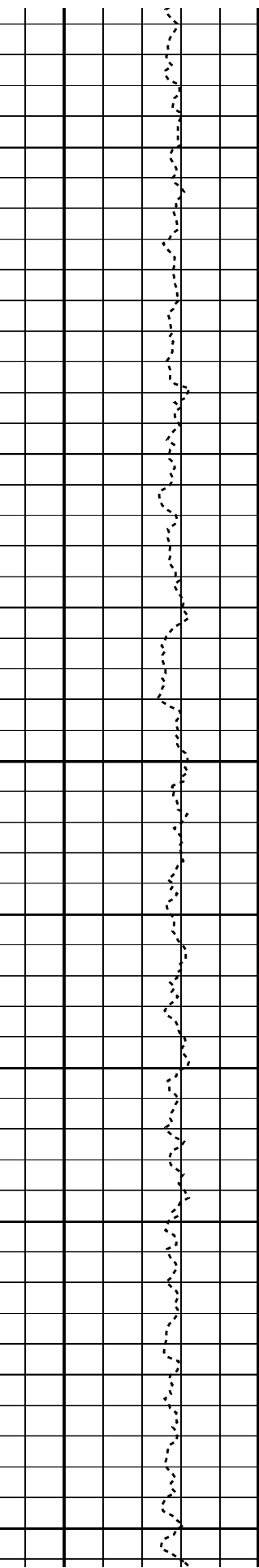
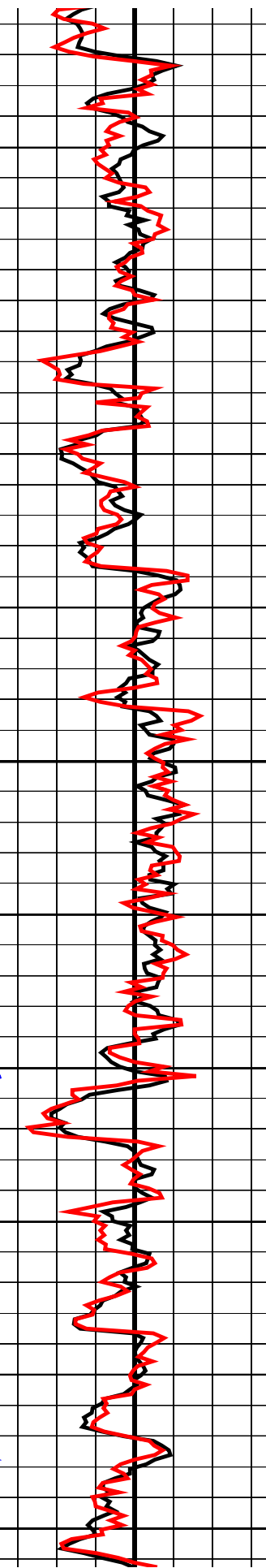
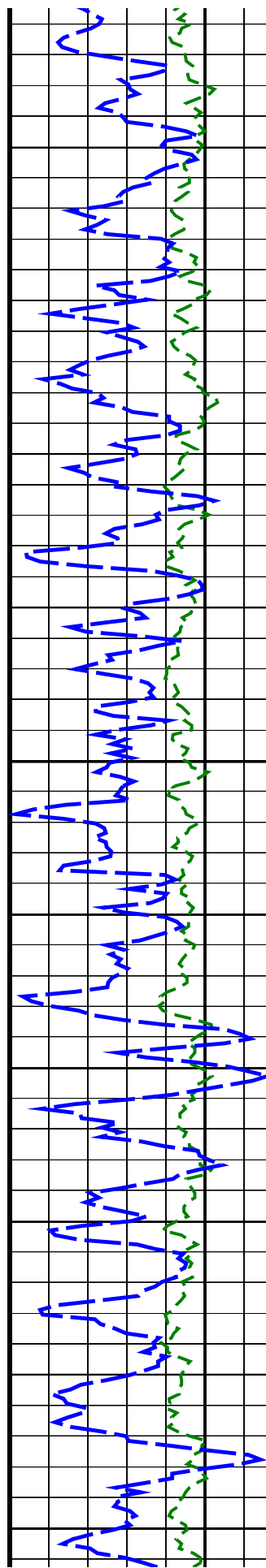
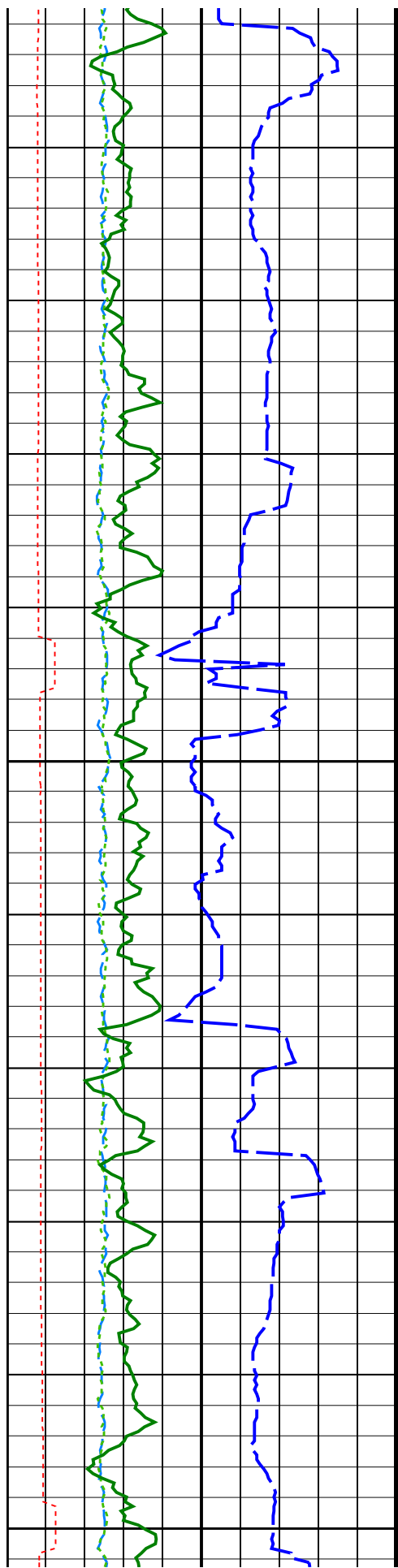


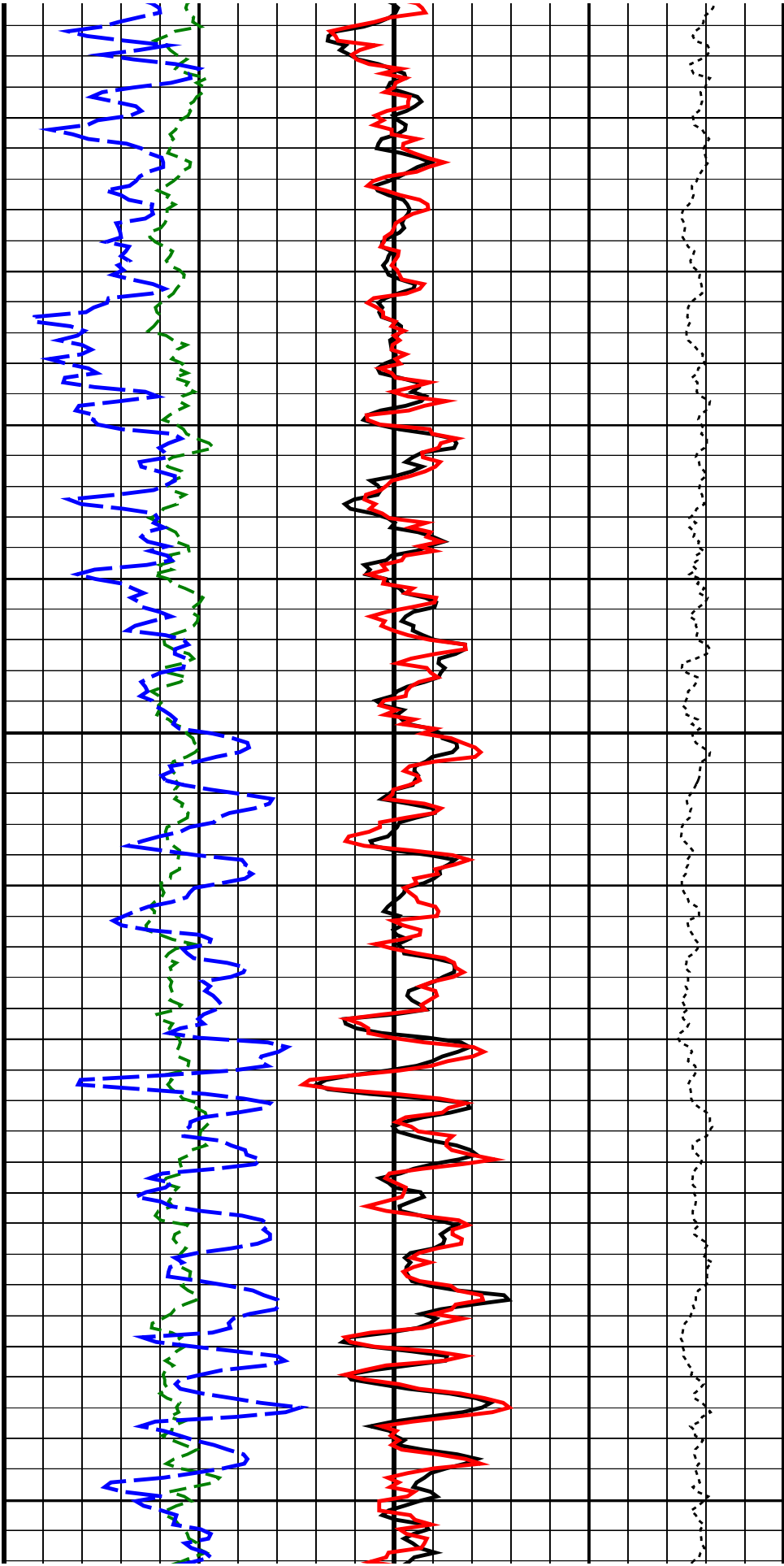
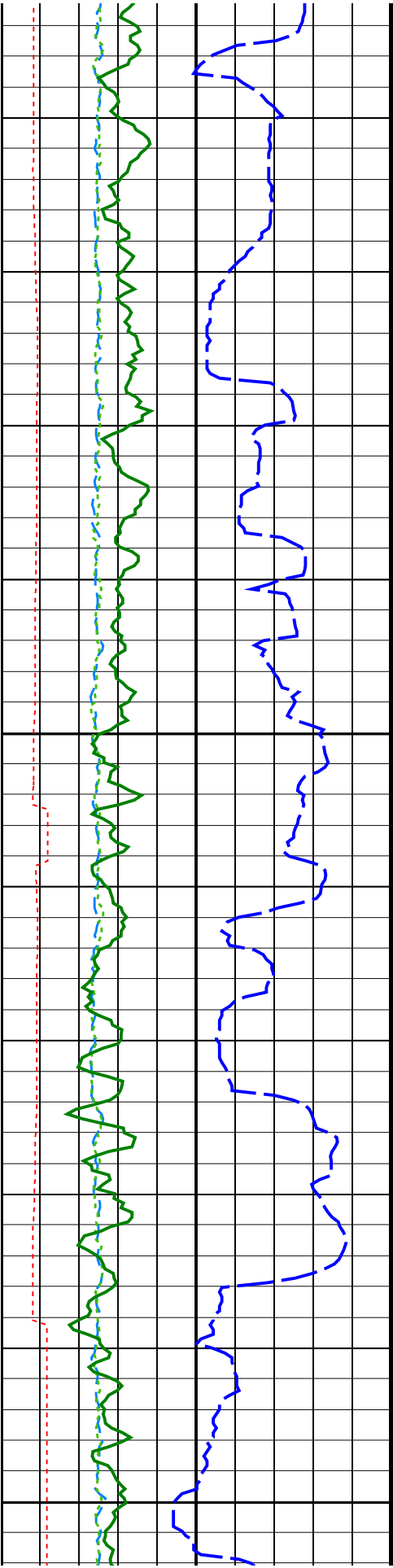
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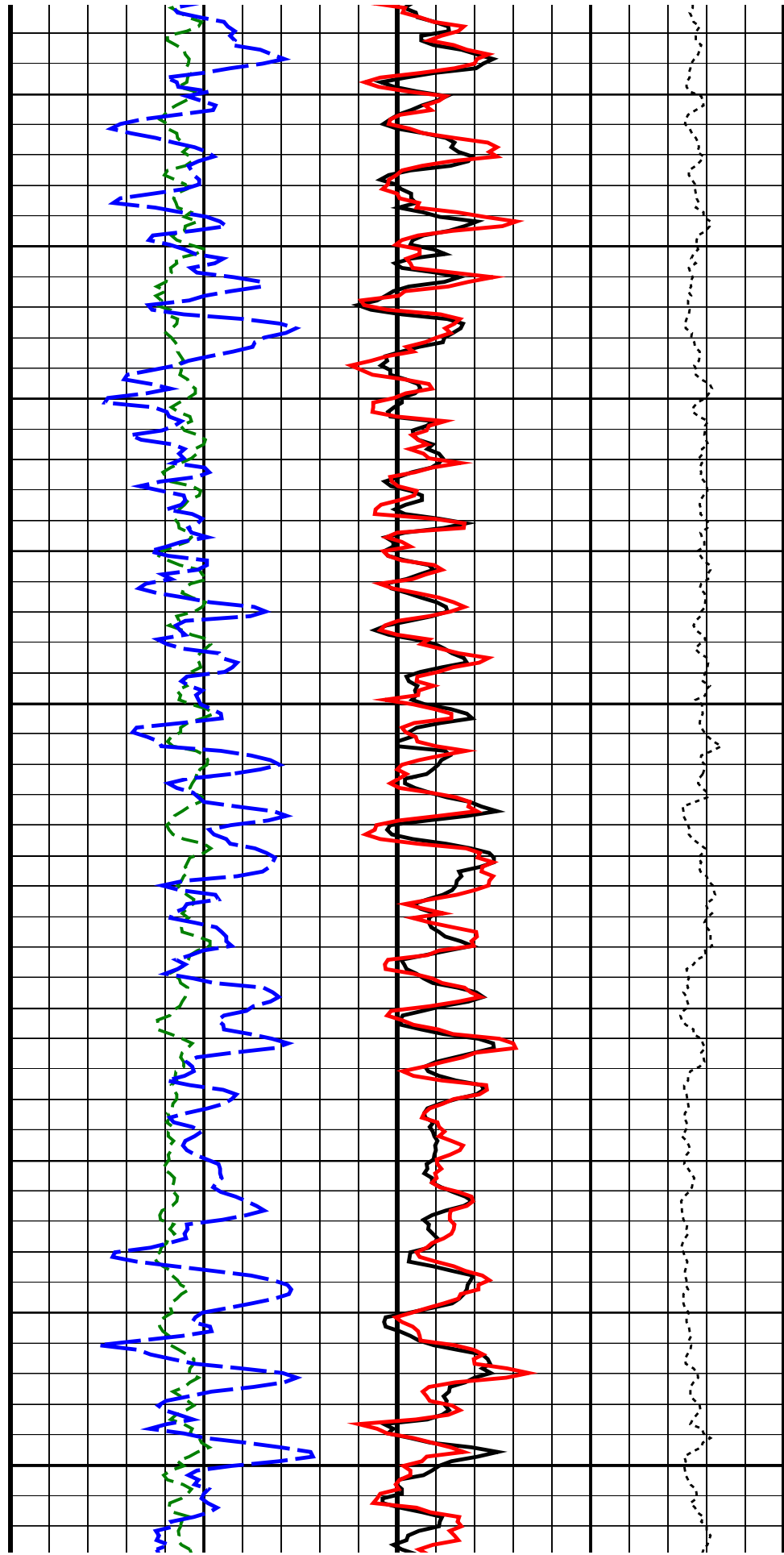
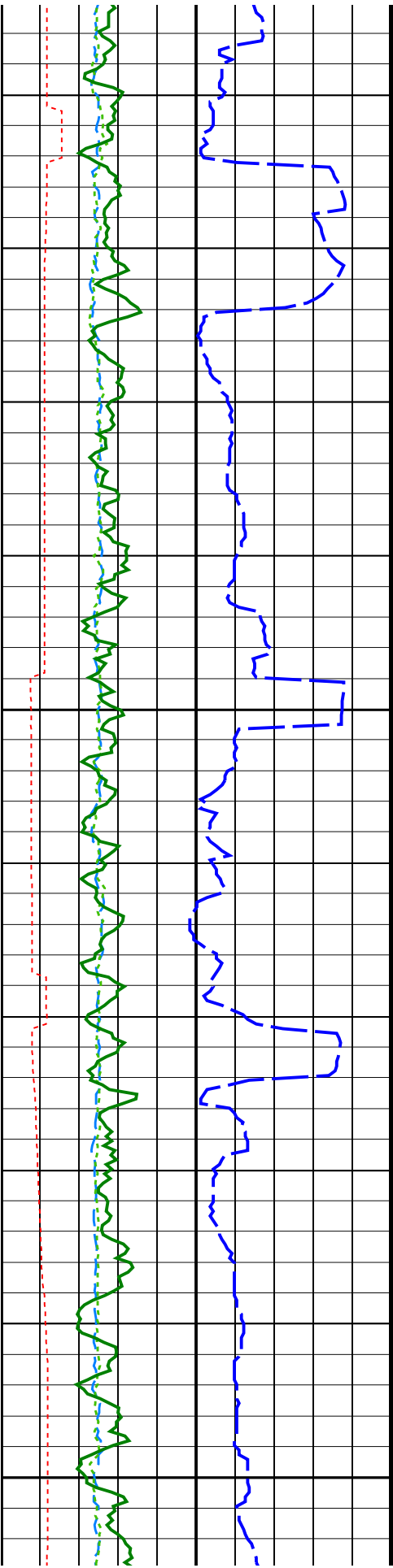
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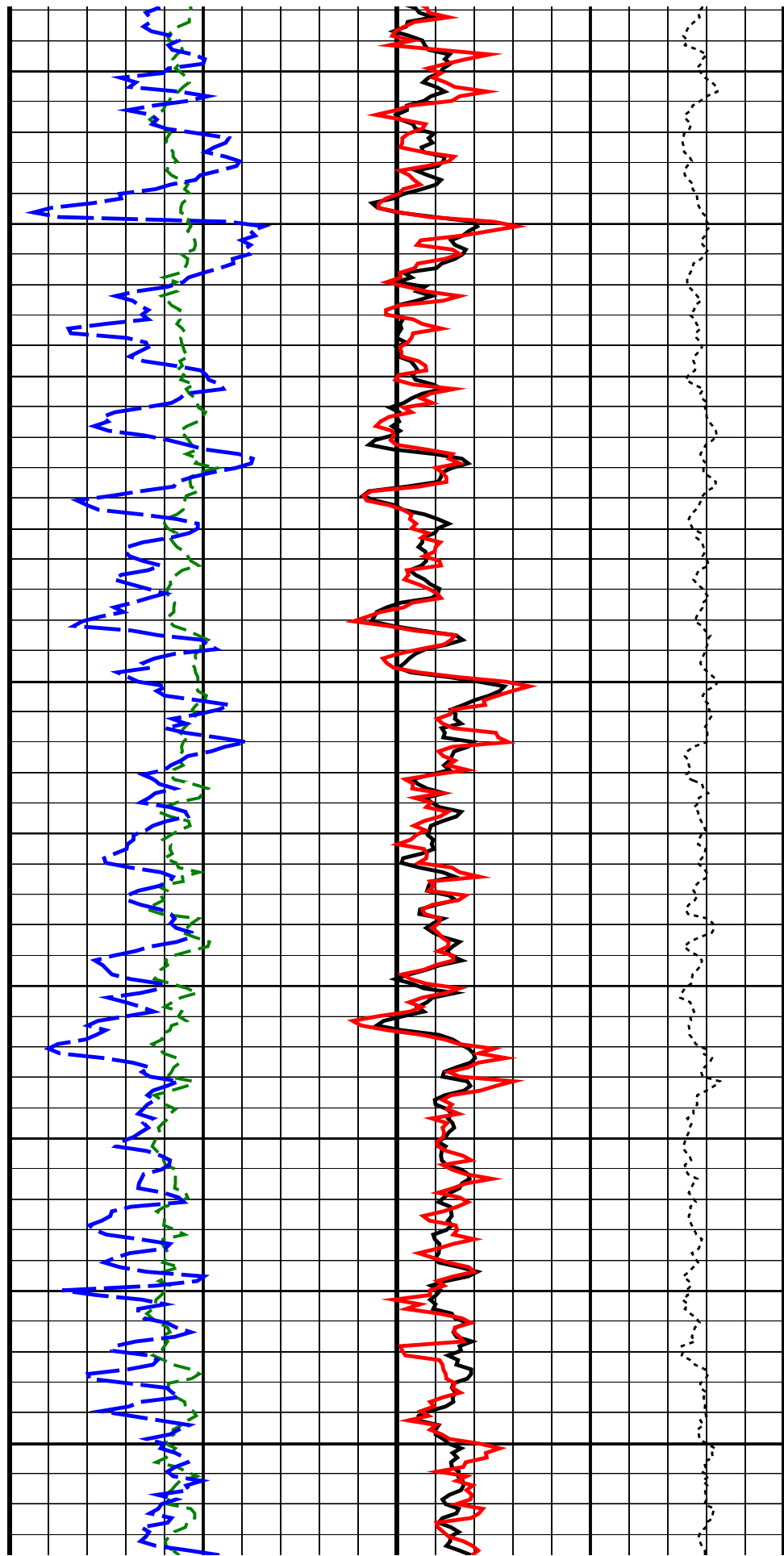
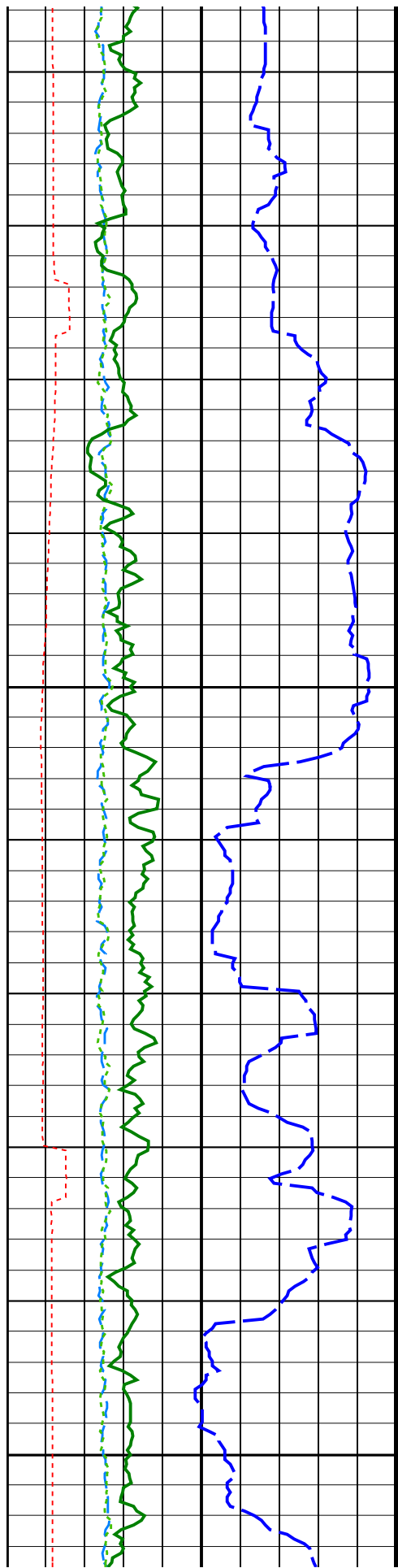


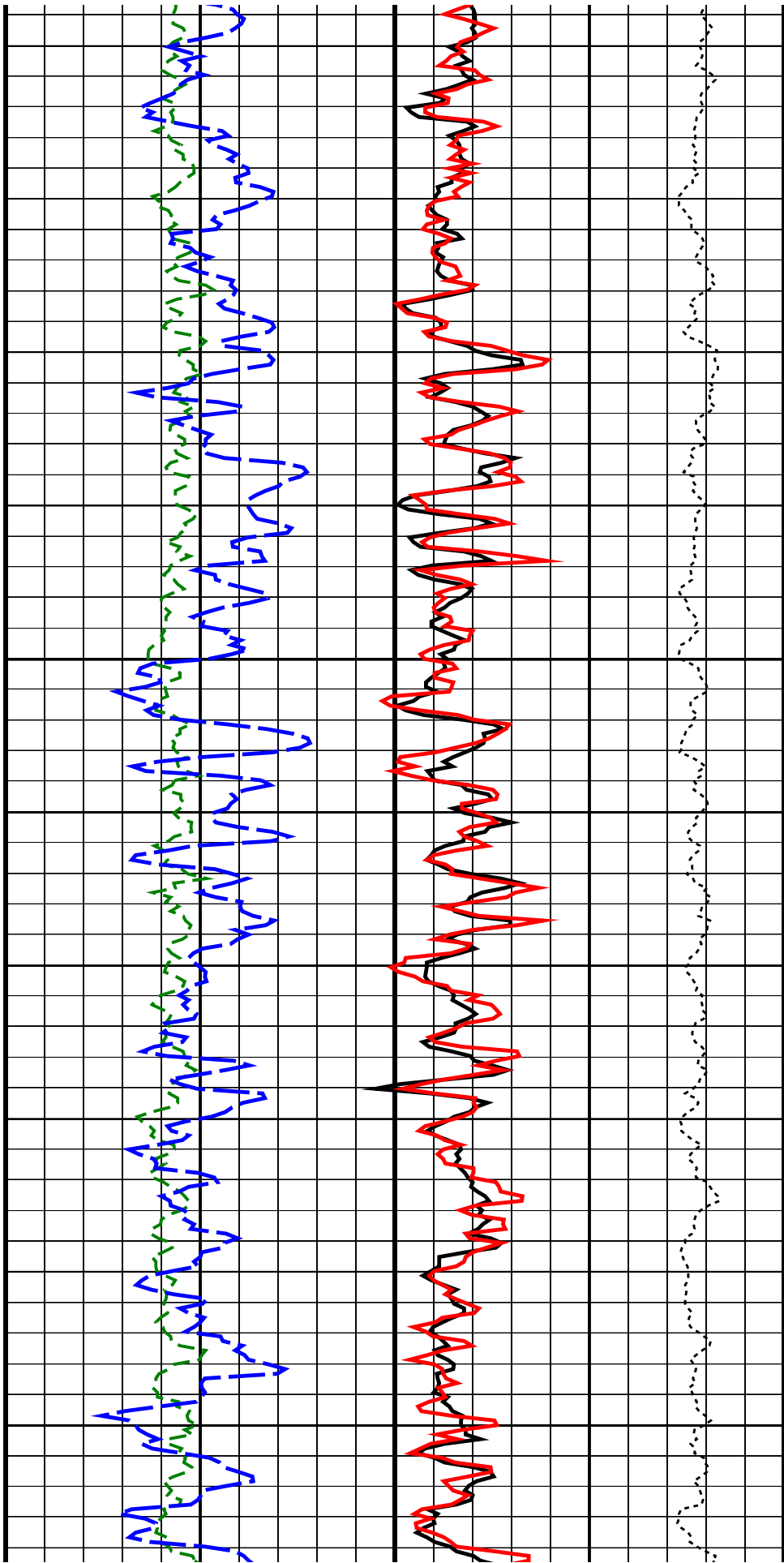
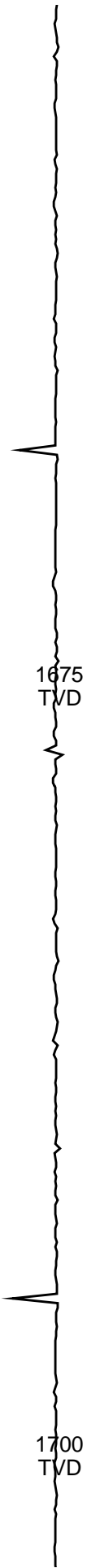
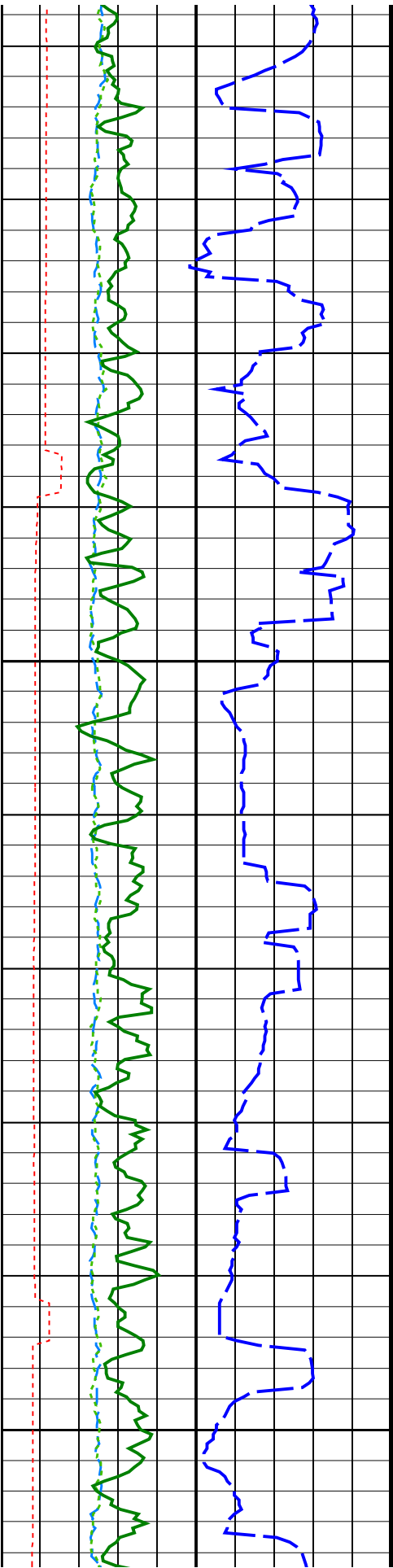


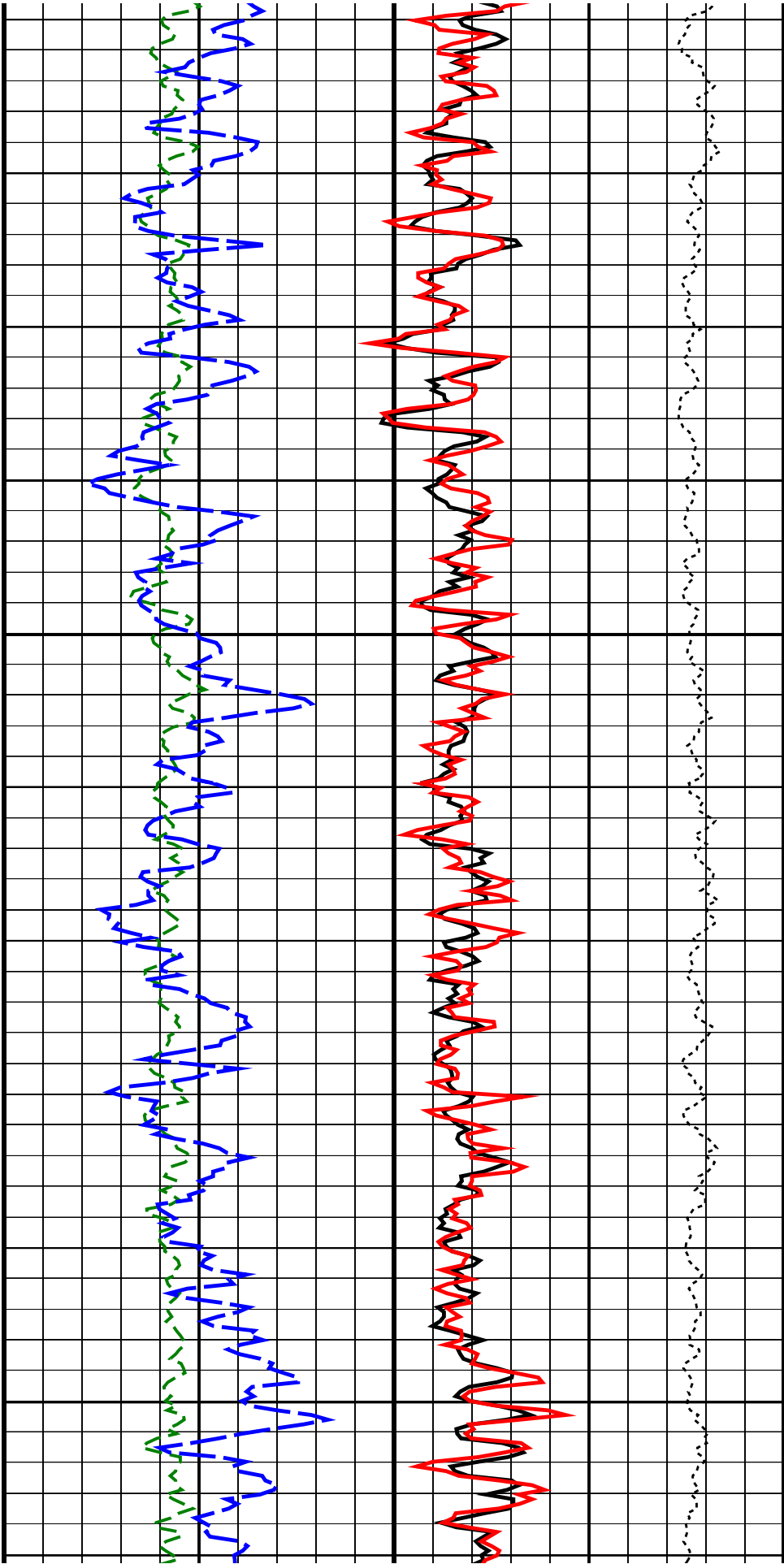
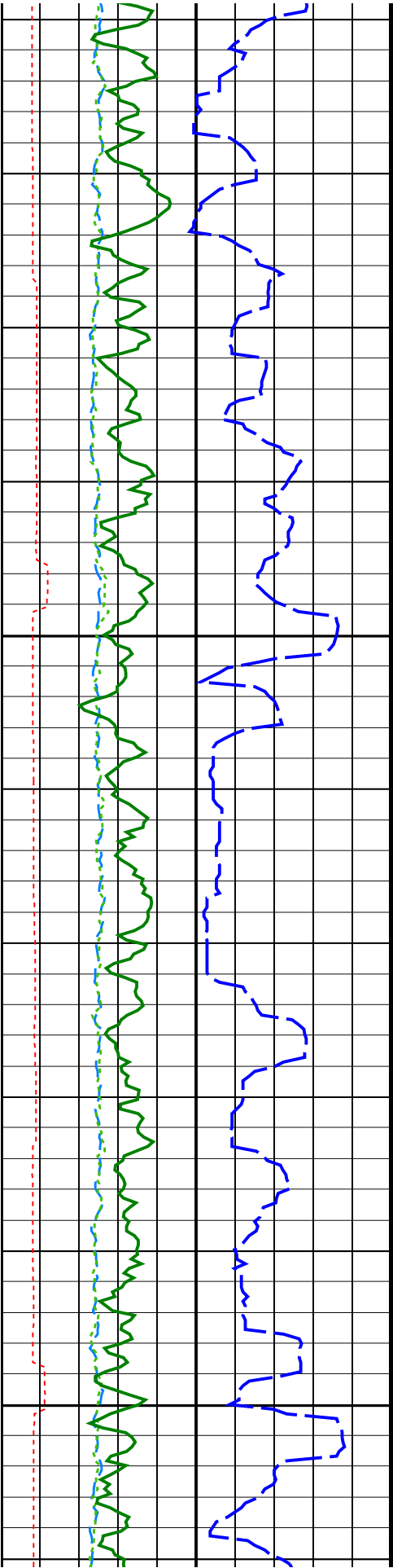


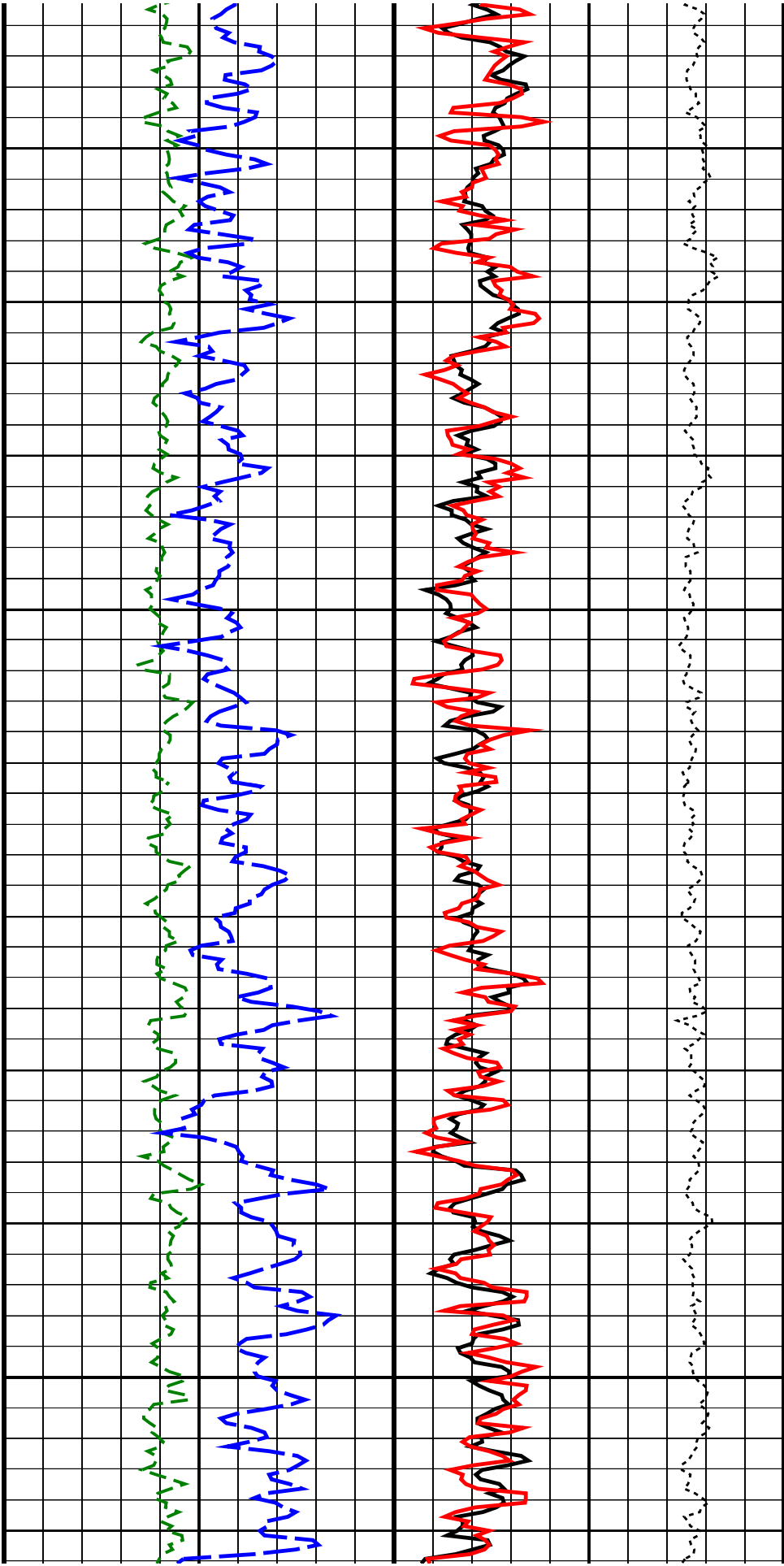
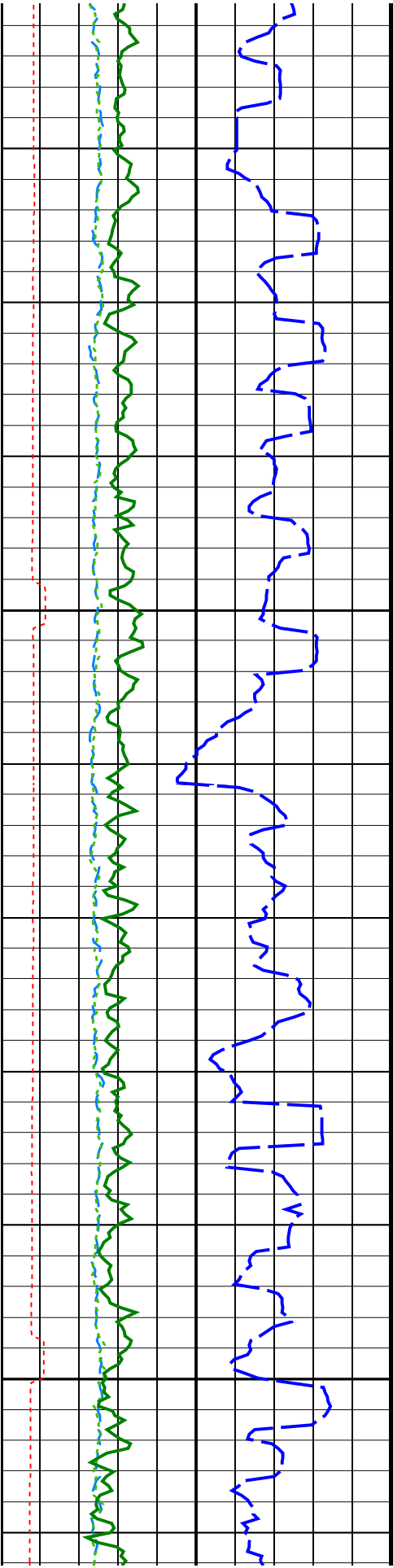


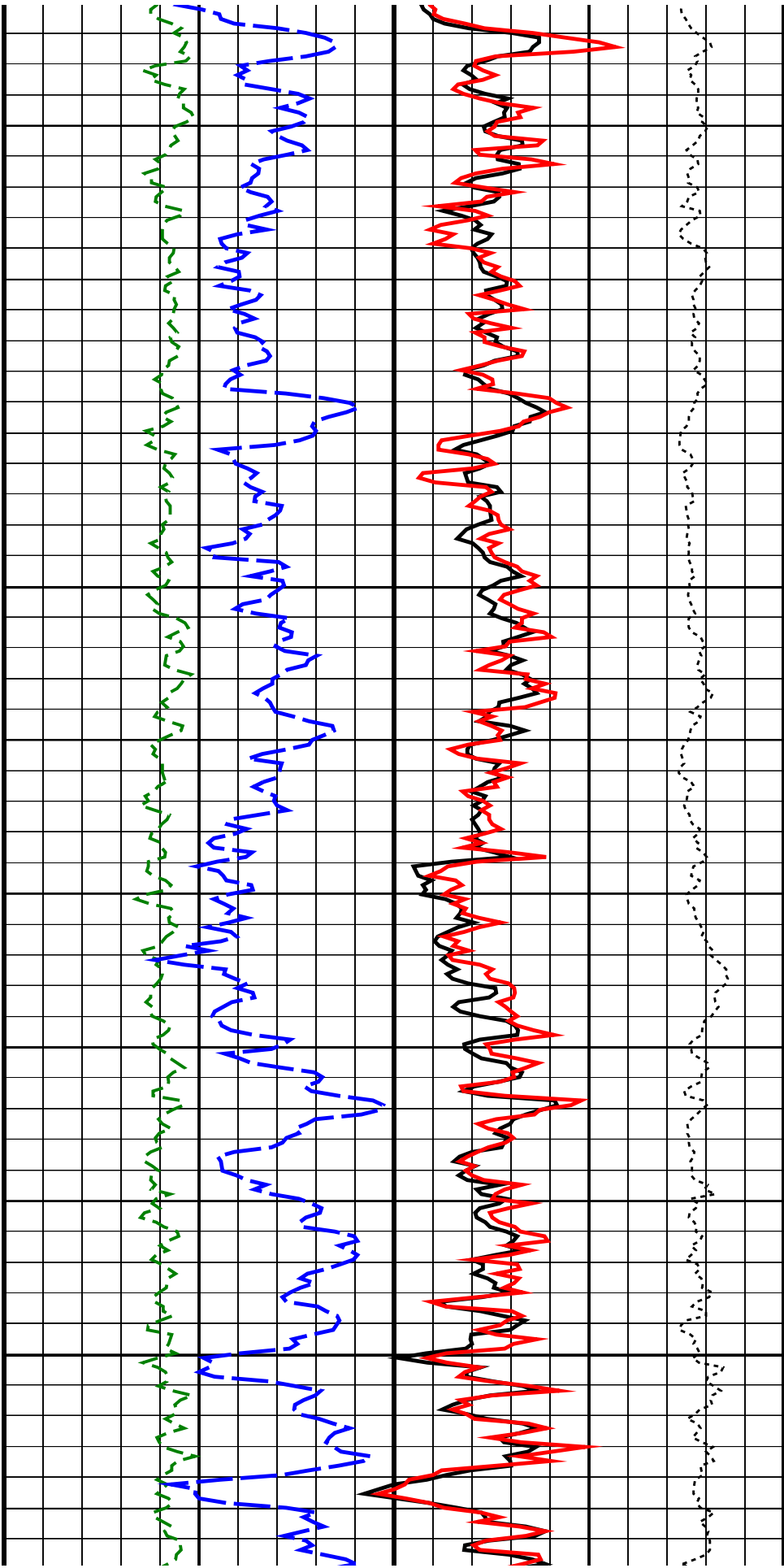
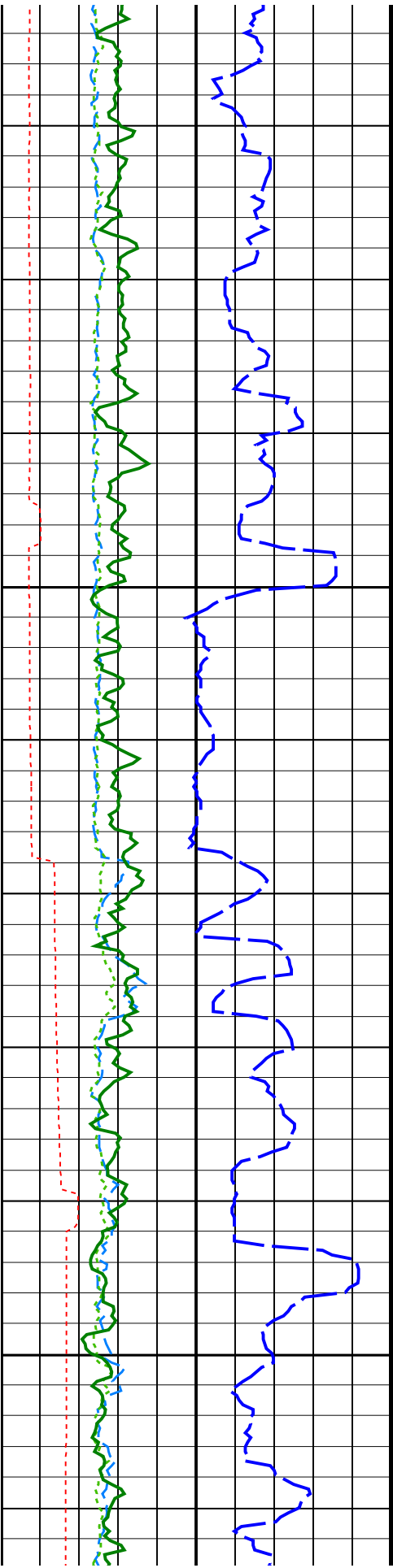


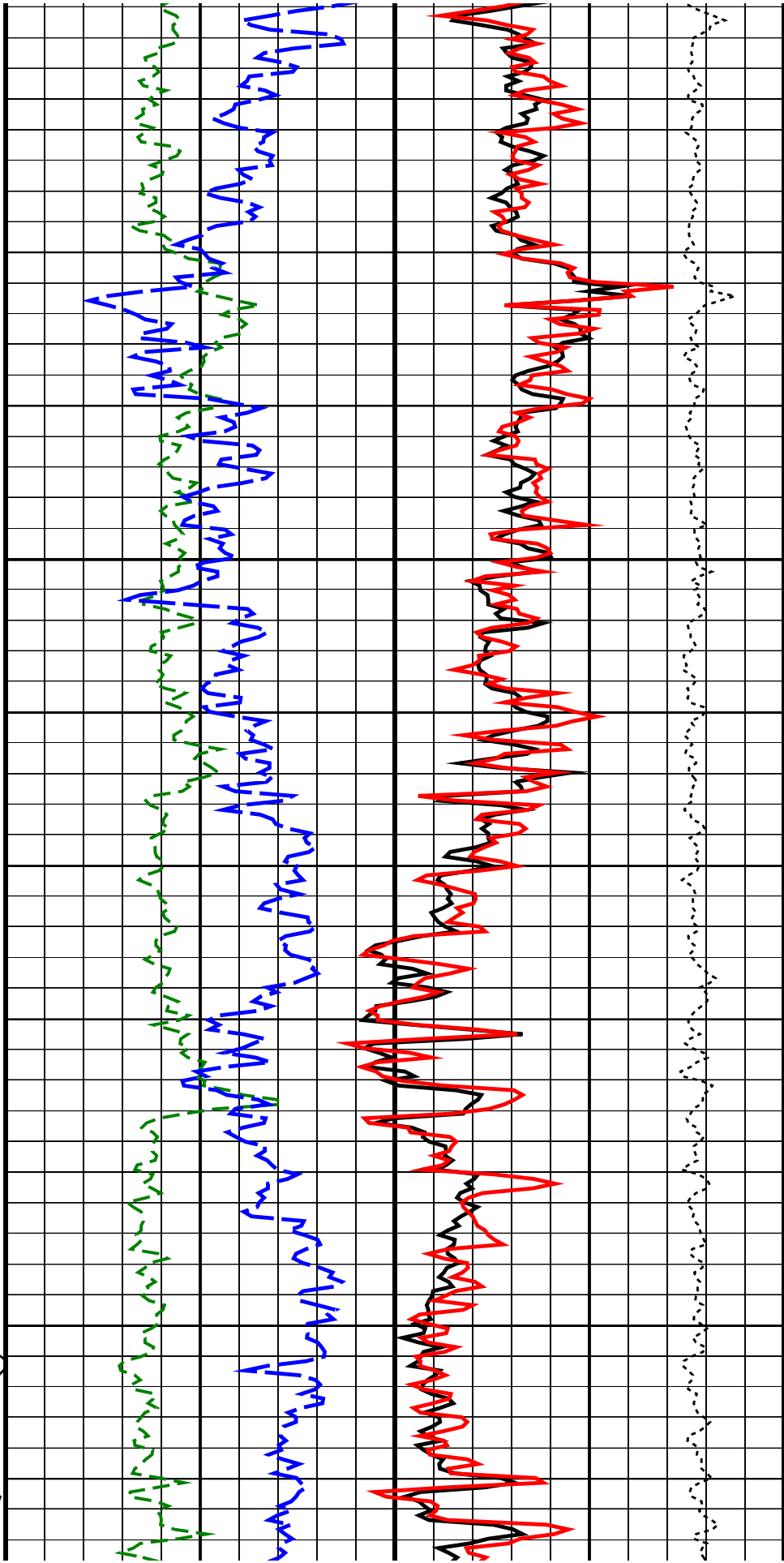
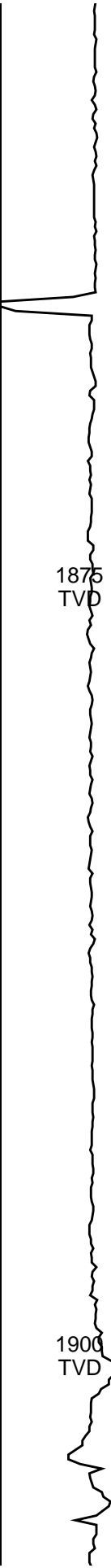
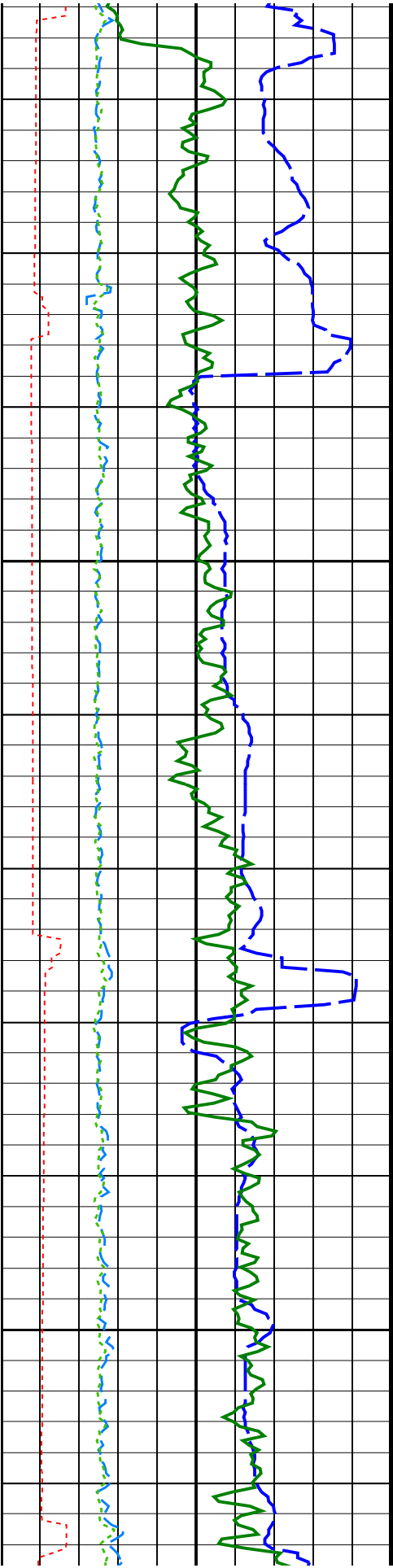


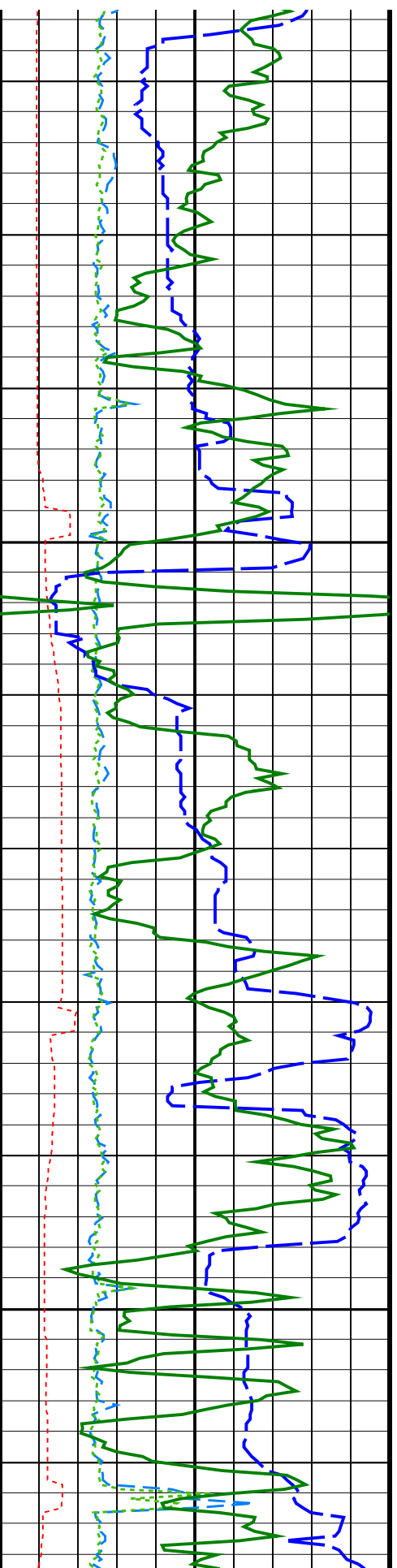
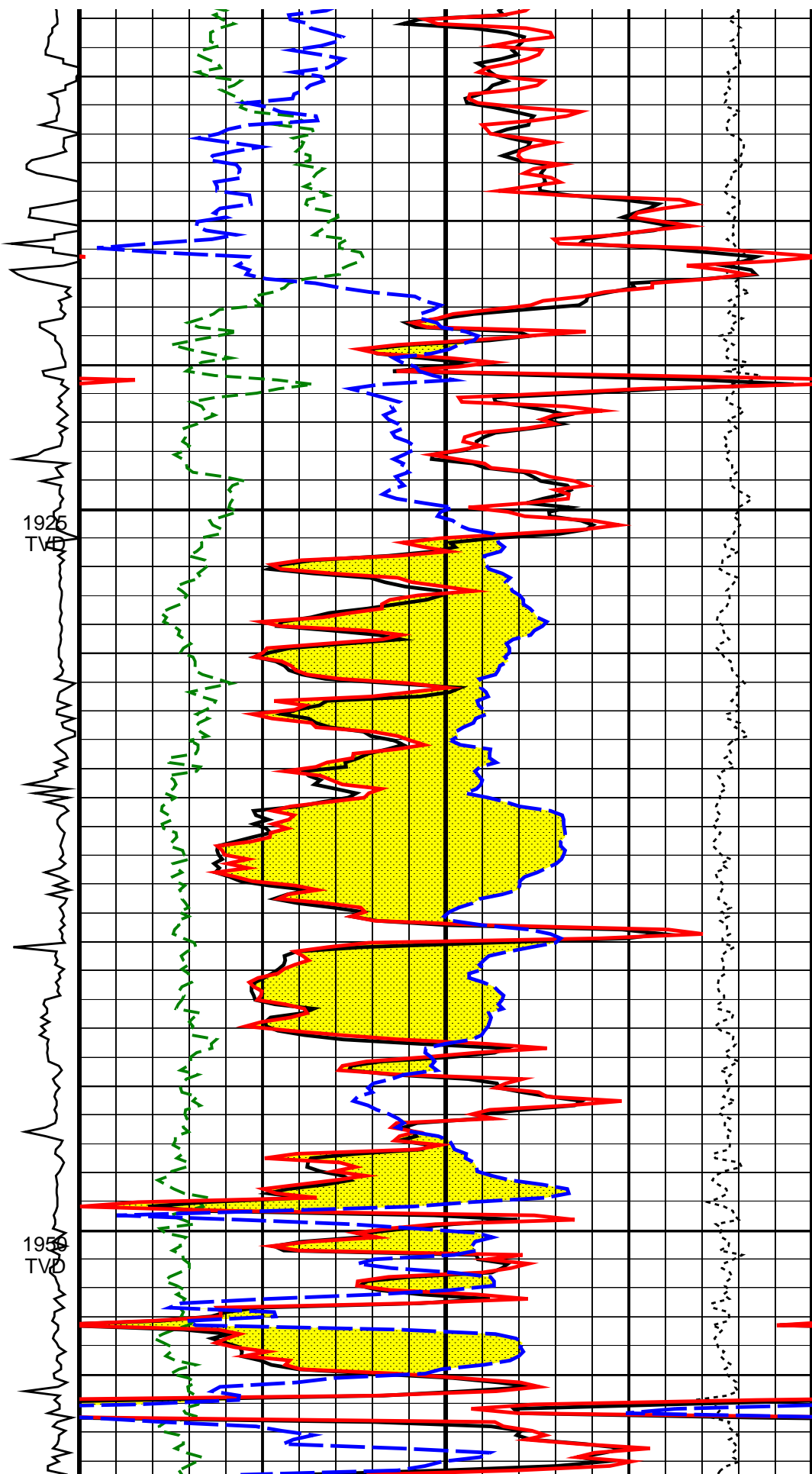


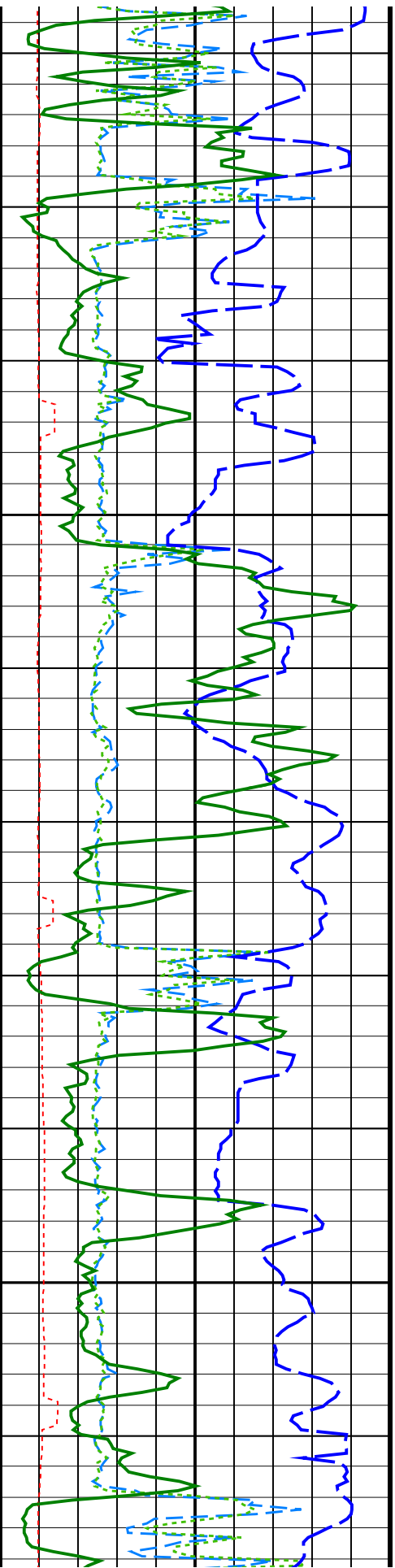
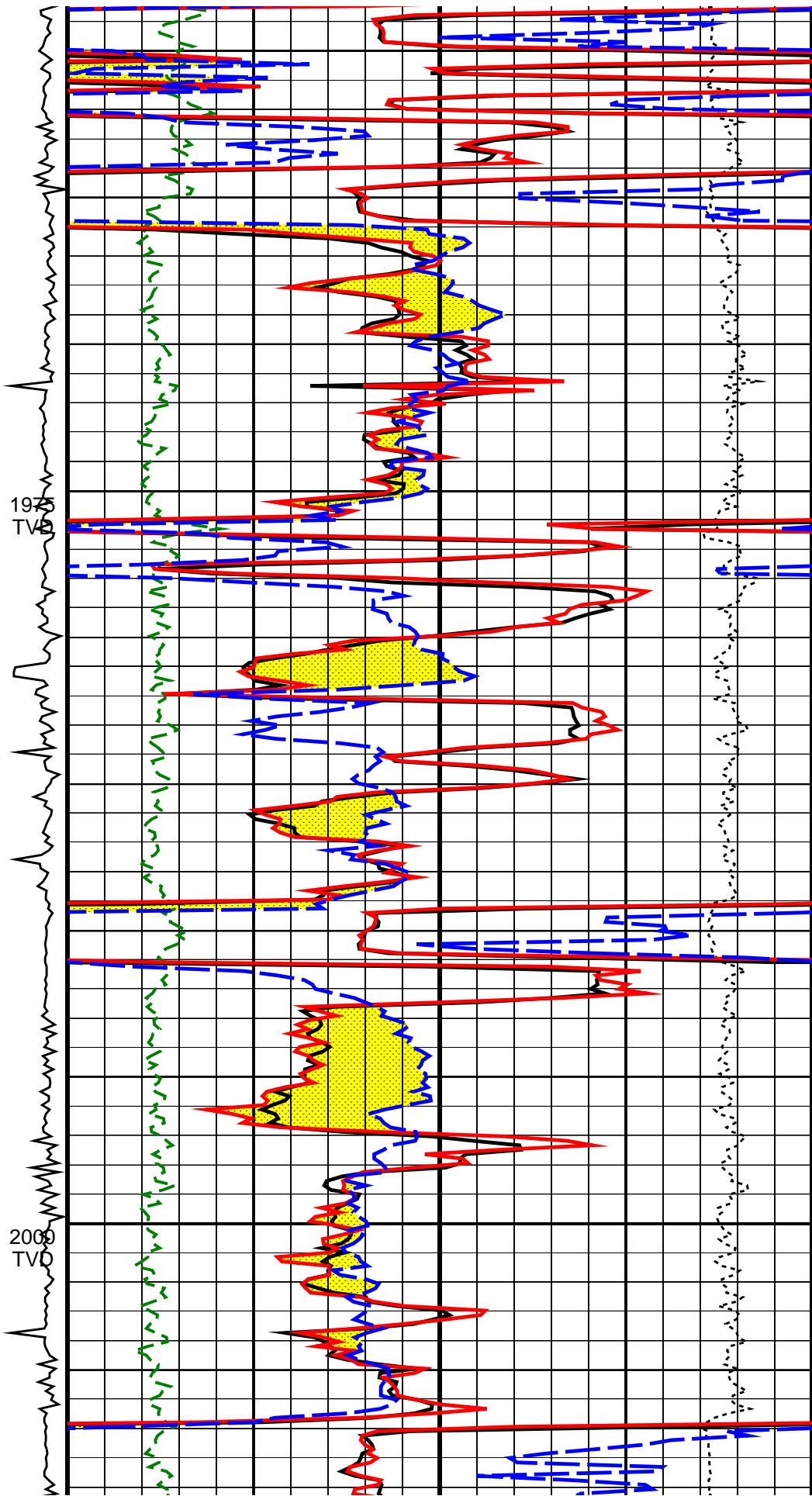


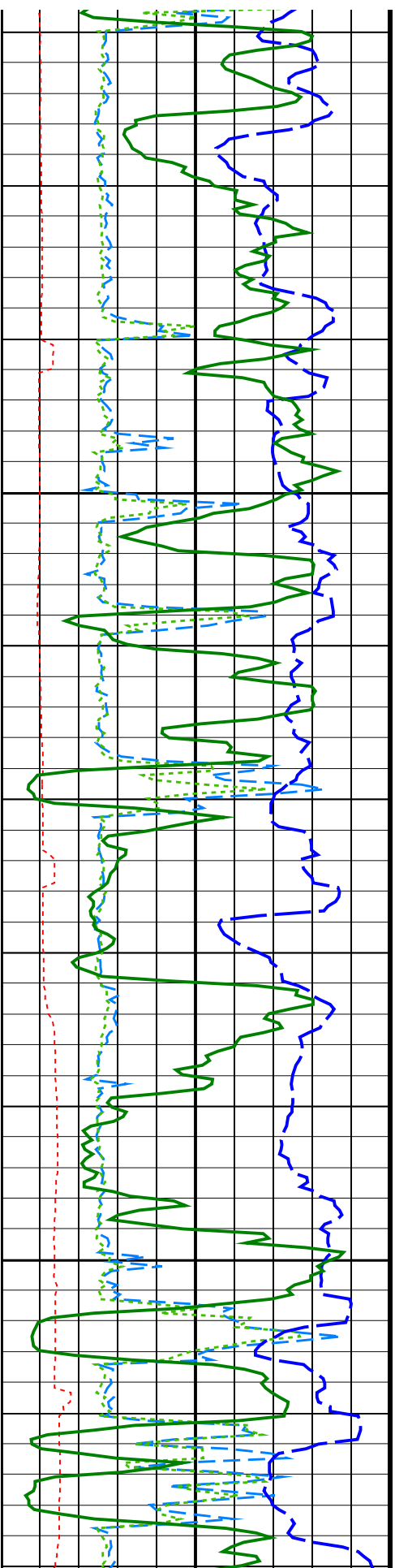
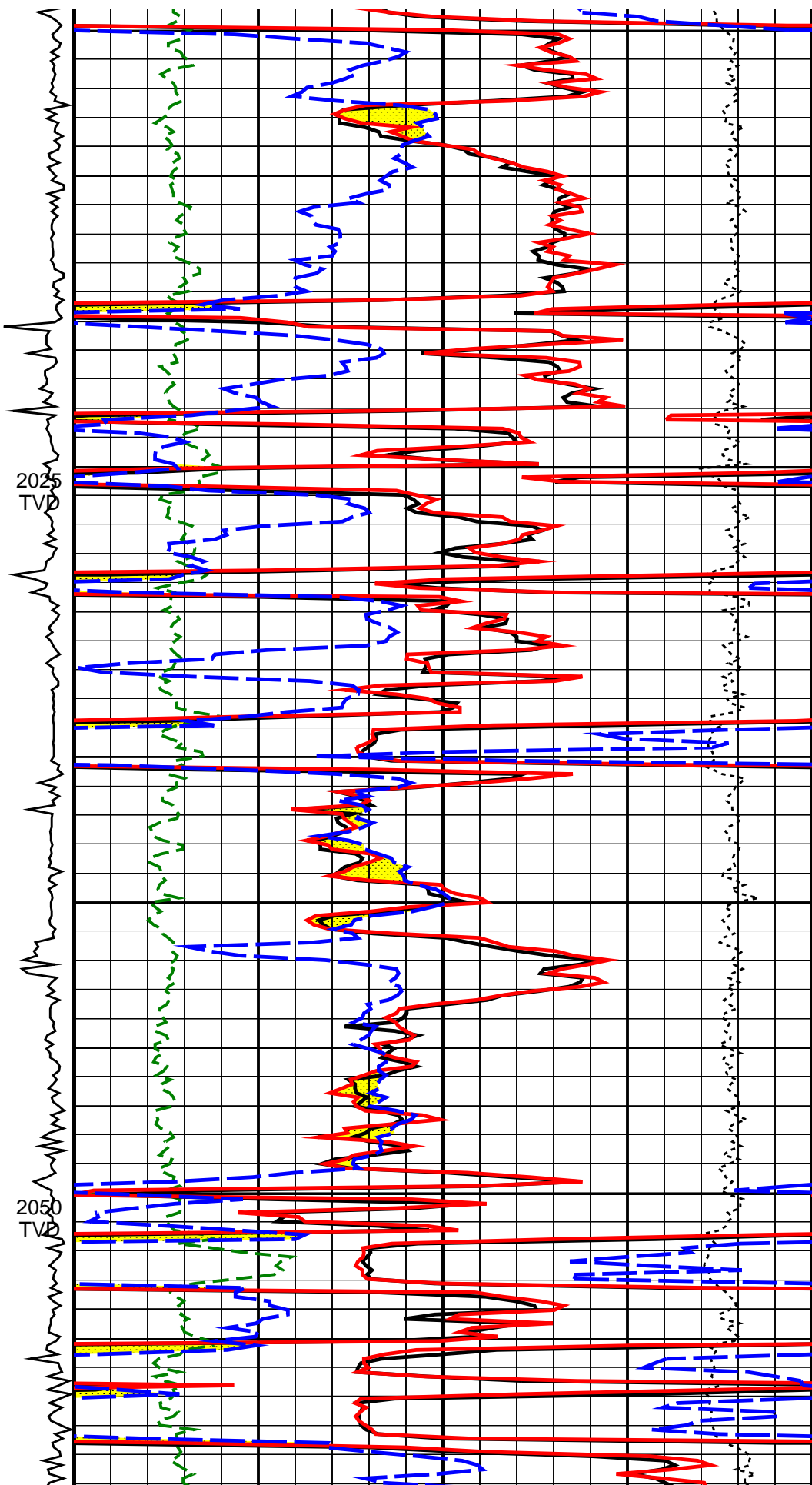


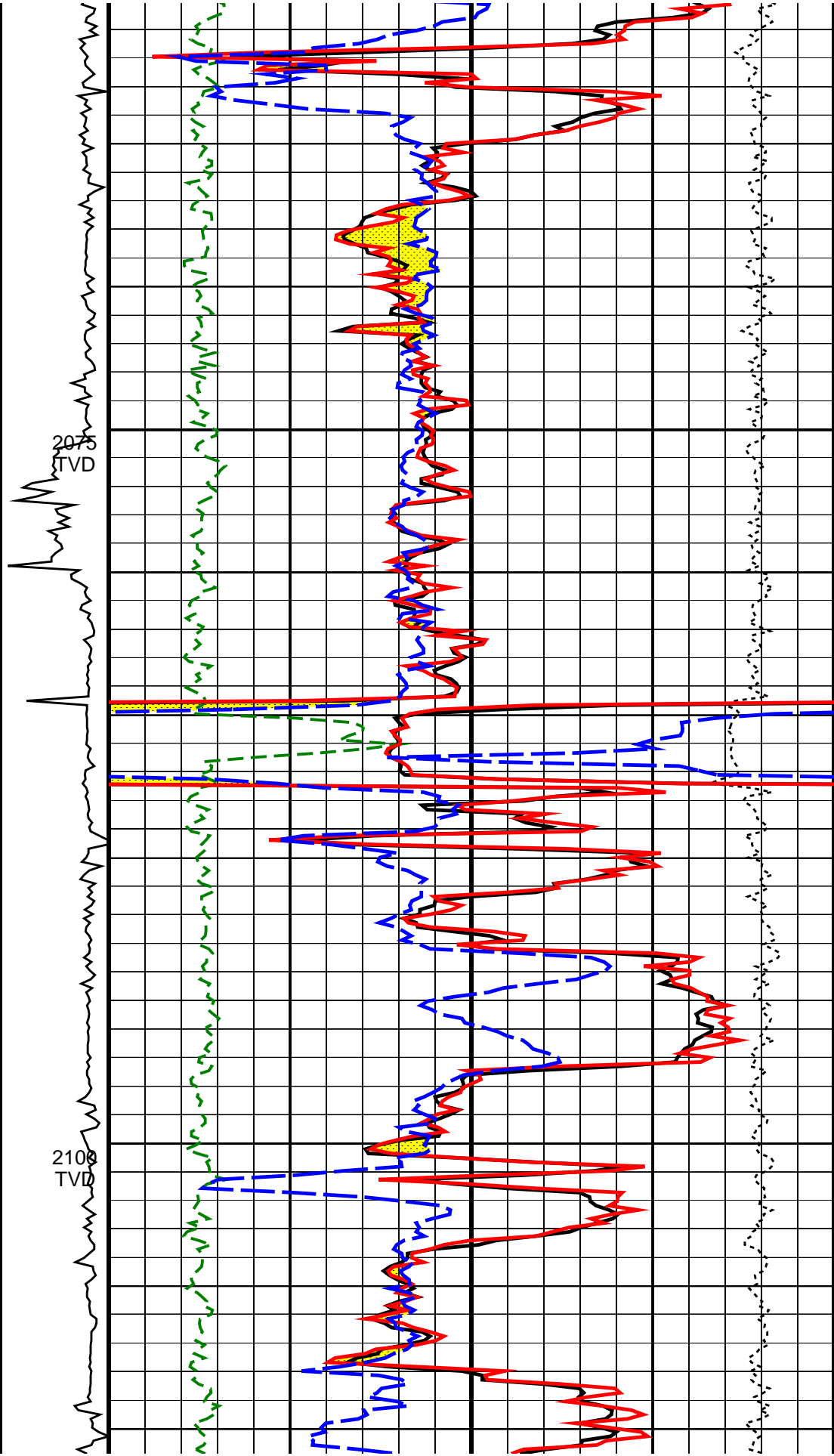
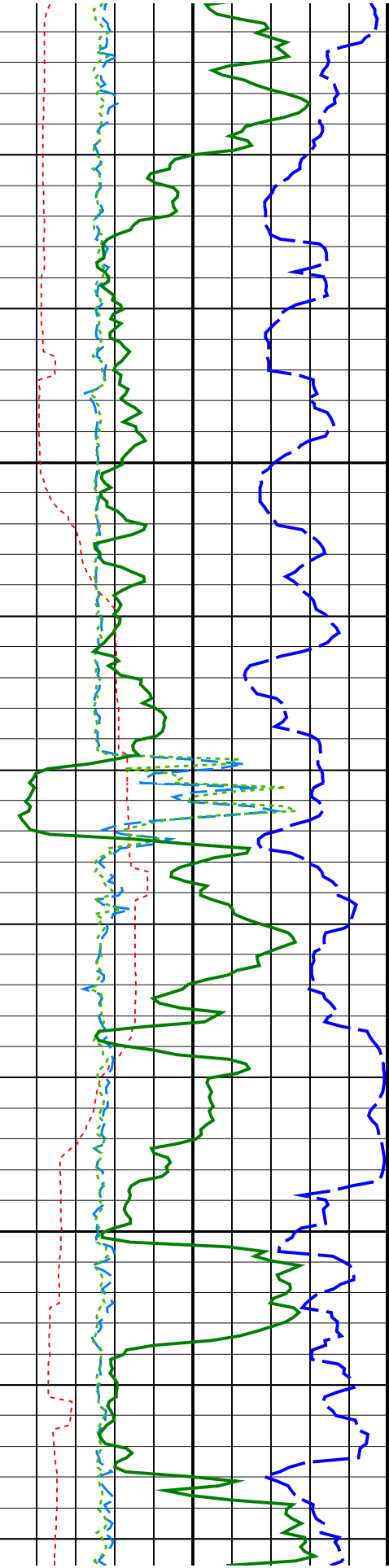


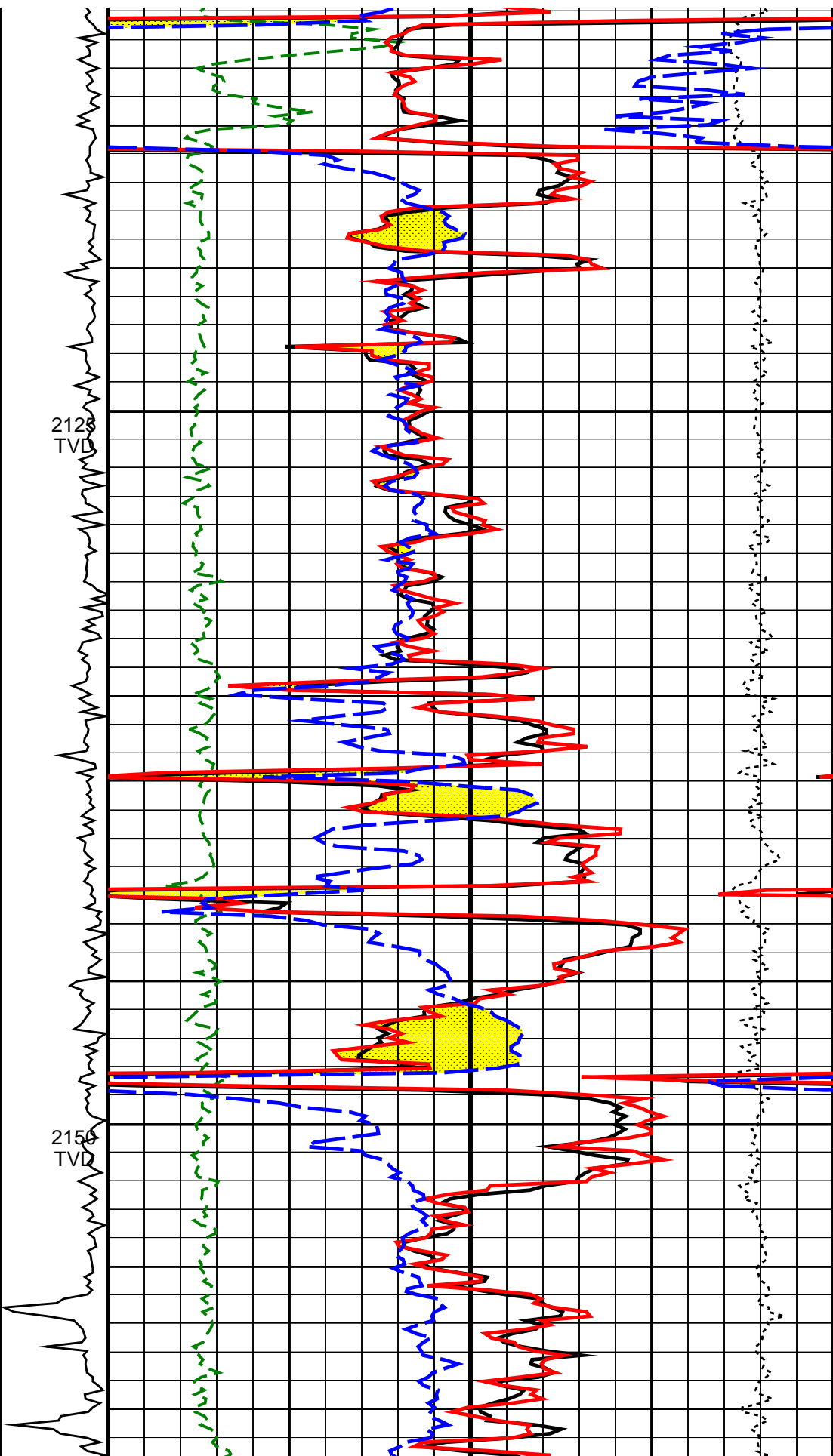
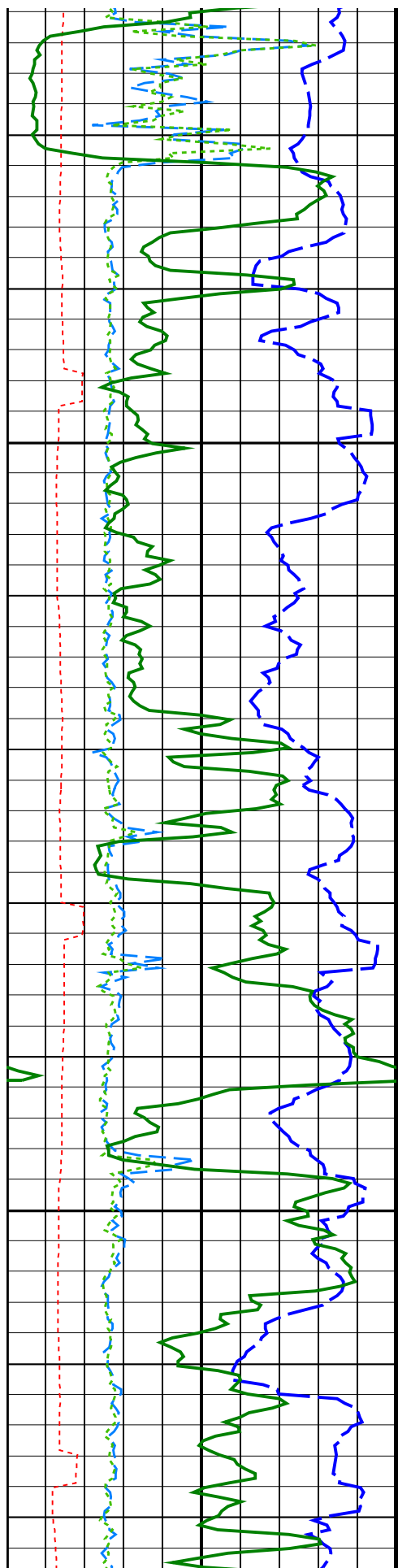


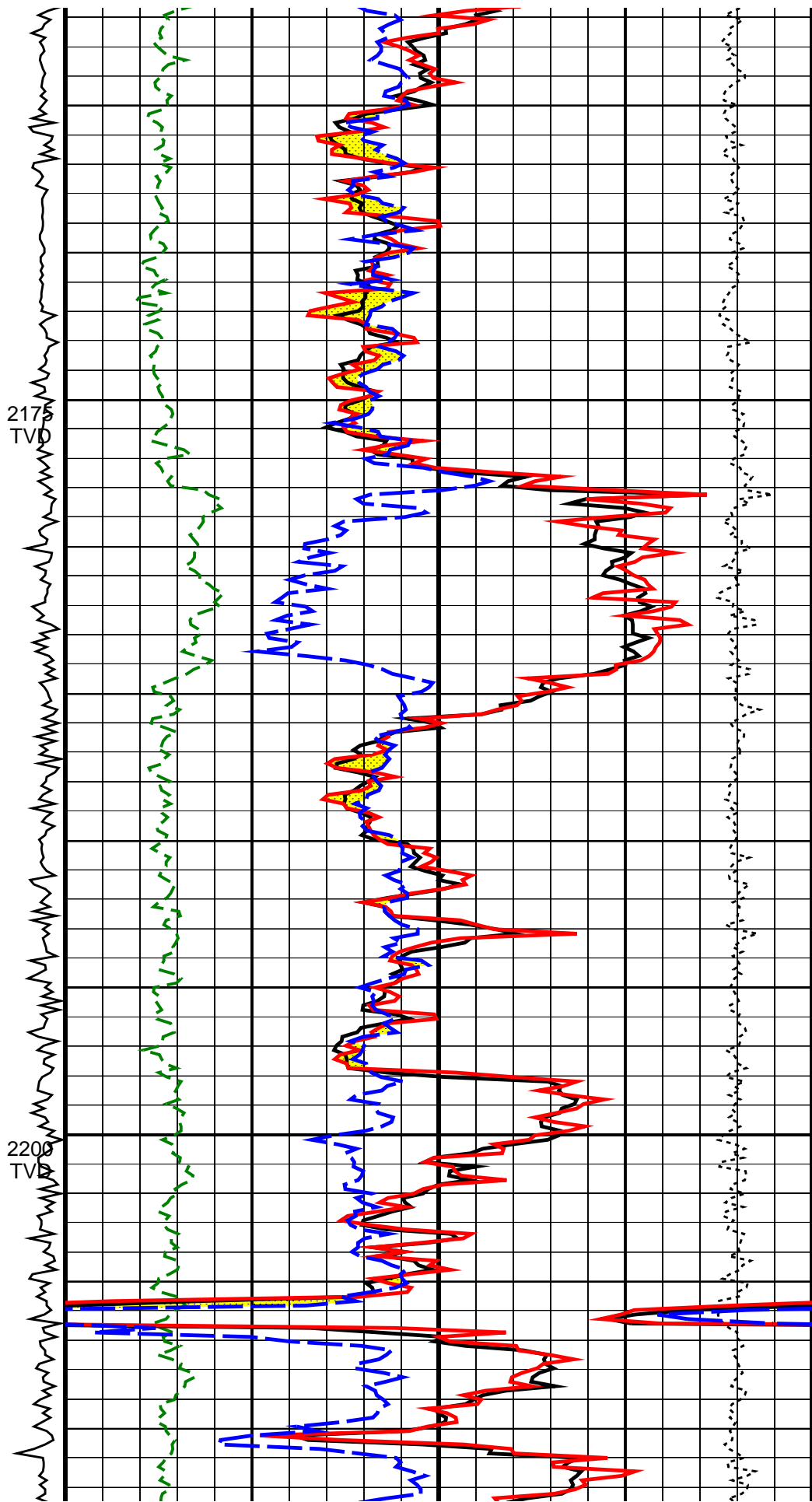
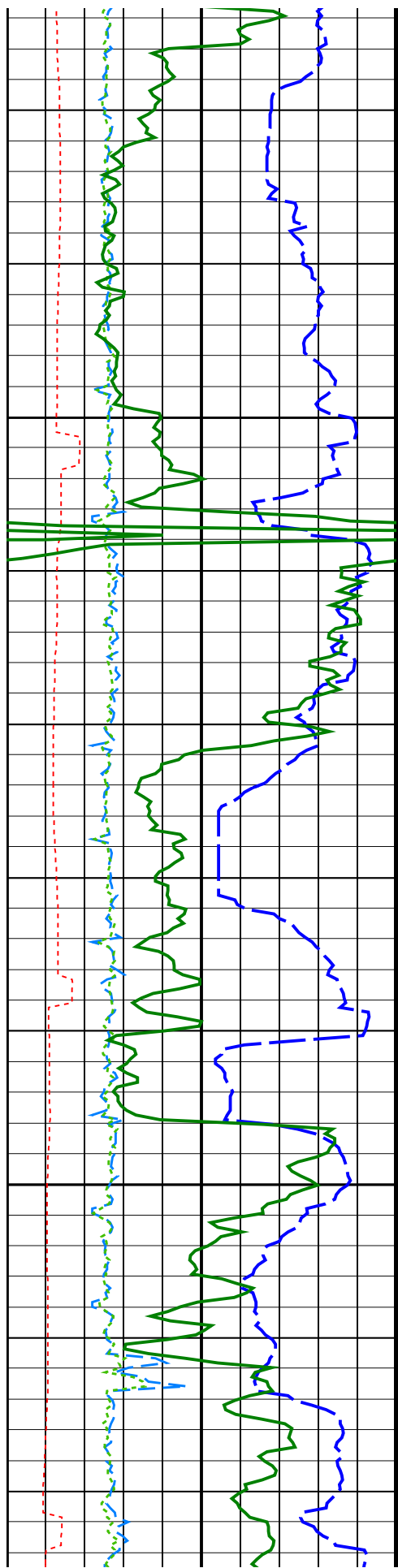






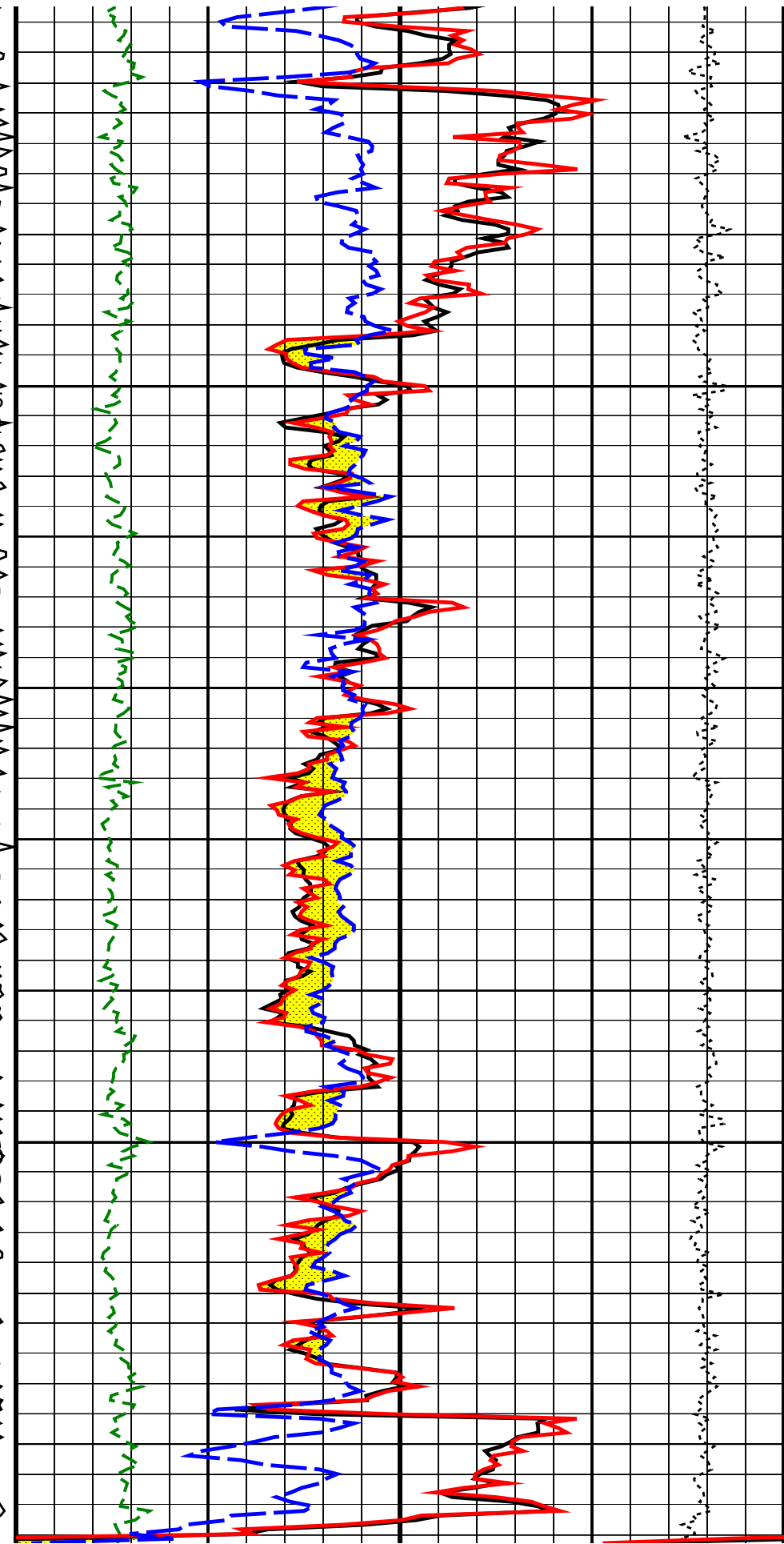


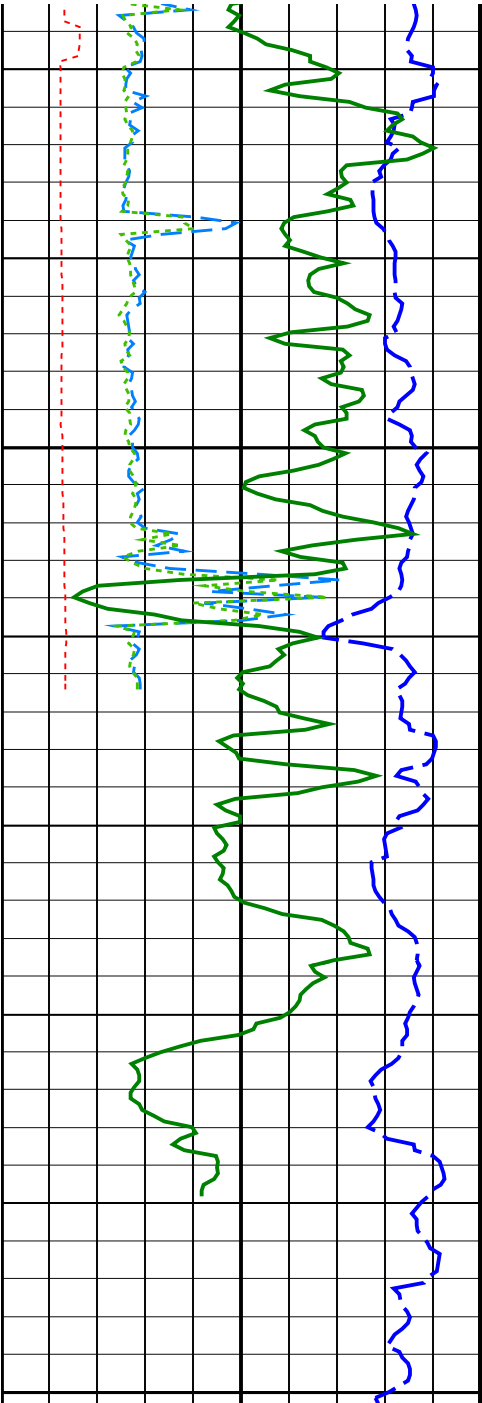




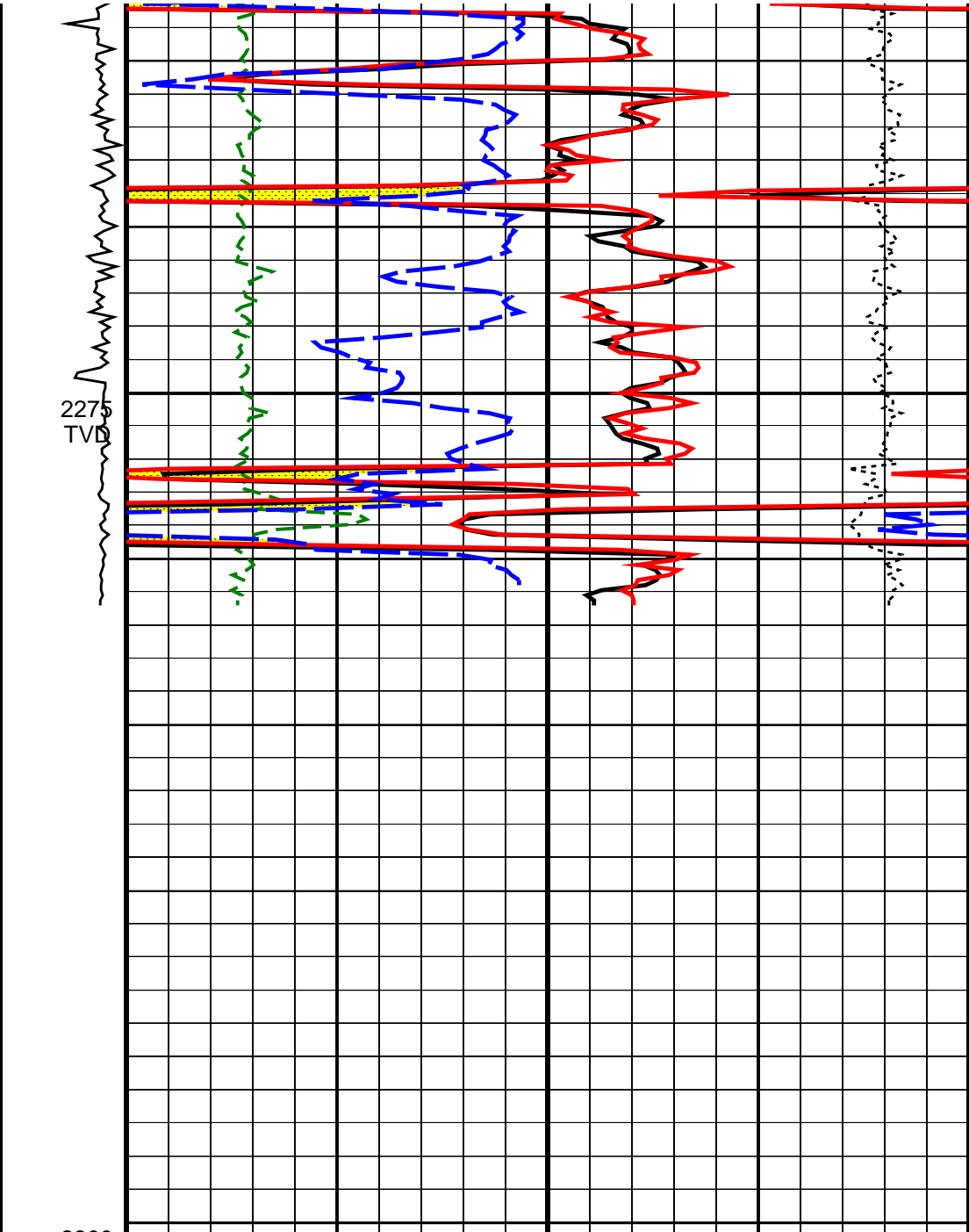
2225
T₁

2250
T₂





Density Time After Bit (TAB_DEN) (HR)	0	10
Density Caliper, Horizontal (DCHO) (IN)	6	16
Density Caliper, Vertical (DCVE) (IN)	6	16
RAB Gamma Ray (GR_RAB) (GAPI)	0	200
Rate of Penetration, Averaged over Last 5ft (ROP5 PM)		



Photoelectric Factor, Bottom (PEB) (G/C3)	0	10
Bulk Density Correction, Bottom (DRHB) (G/C3)	-0.75	0.25
Bulk Density (RHOB) (G/C3)	1.85	2.85
Bulk Density, Bottom (ROBB) (G/C3)	1.85	2.85
Thermal Neutron Porosity (TNPH) (PU)	45	-15
Gas Area		

IDEAL Version: ID10_0C_04

IDF

RAB id10_0c_04 MWD_10 id10_0c_04
ADN id10_0c_04

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)	

(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(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	19.05	21.00			4.000	4.857	5.500			1.900	2.363	2.700	
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(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	19.05	21.00			4.000	4.857	5.500			1.900	2.363	2.700	
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(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	19.05	22.00			4.000	4.857	5.500			1.900	2.363	2.800	
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(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	19.05	21.00			4.000	4.857	5.500			1.900	2.363	2.700	
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(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	487.5	540.0			610.0	768.8	850.0			270.0	343.7	390.0	
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(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	487.5	540.0			610.0	768.8	850.0			270.0	343.7	390.0	
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(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												125.0	
	(Minimum)												(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	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)	
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	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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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	<div><div></div></div>		17.72	Master	<div><div></div></div>		4.474	Master	<div><div></div></div>		2.147
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	<div><div></div></div>		18.93	Master	<div><div></div></div>		4.707	Master	<div><div></div></div>		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	<div><div></div></div>		18.55	Master	<div><div></div></div>		4.486	Master	<div><div></div></div>		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	<div><div></div></div>		17.65	Master	<div><div></div></div>		4.416	Master	<div><div></div></div>		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	<div><div></div></div>		18.97	Master	<div><div></div></div>		4.543	Master	<div><div></div></div>		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	<div><div></div></div>		18.19	Master	<div><div></div></div>		4.596	Master	<div><div></div></div>		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	<div><div></div></div>		455.2	Master	<div><div></div></div>		728.7	Master	<div><div></div></div>		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	<div><div></div></div>		474.0	Master	<div><div></div></div>		746.7	Master	<div><div></div></div>		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

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

Primary Equipment:

Tool Name and Serial Number

RAB6 – CA













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
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)	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			1.002	Master			0.9986	Master			0.9982
	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			1.009	Master			1.009	Master			1.002
	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			1.001	Master			1.001	Master			0.9999
	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)

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

9-Aug-2005 16:39:27

Page 1 of 5

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

----- 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

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

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

Azimuth from Vsect Origin to target: 119.19 degrees

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

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

----- 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

[(c)2005 IDEAL ID10_2C_01]
SCHLUMBERGER Survey Report

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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-	disol	Azim	(dea/	tool	Corr

—	(m)	(deg)	(deg)	(m)	(m)	(m)	(m)	(m)	(m)	(deg)	100f	type	(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	244.30	4.13	267.49	30.20	244.24	-1.87	-8.13	-2.63	8.55	197.94	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	55.69	106.87	28.76	1995.54	324.22	-222.19	251.32	335.45	131.48	0.73	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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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 Density Neutron
1:200 True Vertical Depth
Recorded Mode Log**

