

<div>Schlumberger</div>									
Company: Lamont Doherty									
Well: Expedition 339, Site U1387 GC-09A									
Field: Mediterranean Outflow (Portugal)									
Rig: JOIDES Resolution Ocean: Atlantic									
High Resolution Laterolog Array Hostile Litho Density Accelerator Porosity Sonde – GR									
Rig: JOIDES Resolution Field: Mediterranean Outflow (Portugal) Location: Latitude: N 36° 48.32' Well: Expedition 339, Site U1387 GC-09A Company: Lamont Doherty						LOCATION			
						Latitude: N 36° 48.32'		Elev.: K.B. 11.00 m	
						Longitude: W 7° 43.14'		G.L. -558.80 m	
								D.F. 11.00 m	
Permanent Datum:						Mean Sea Level		Elev.: 0.00 m	
Log Measured From:						Drill Floor		11.00 m above Perm. Datum	
Drilling Measured From:						Drill Floor			
API Serial No.						Max. Hole Devi. 0 deg		Longitude W 7° 43.14'	
								Latitude N 36° 48.32	
Logging Date						17-Dec-2011			
Run Number						1			
Depth Driller						870 m			
Schlumberger Depth						650 m			
Bottom Log Interval						0 m			
Top Log Interval						0 m			
Casing Driller Size @ Depth						10.750 in @ 104 m			
Casing Schlumberger						103 m			
Bit Size						9.875 in			
Type Fluid In Hole						Seawater Gel			
Density						1.25 g/cm3			
Fluid Loss						PH			
Source Of Sample						N/A			
RM @ Measured Temperature						@ @			
RMF @ Measured Temperature						@ @			
RMC @ Measured Temperature						@ @			
Source RMF						N/A N/A			
RM @ MRT						@ 21 @ 21 @ @			
Maximum Recorded Temperatures						21 degC			
Circulation Stopped						17-Dec-2011 Time 0:00			
Logger On Bottom						17-Dec-2011 Time 4:00			
Unit Number						625003 Houston			
Recorded By						K. Swain			
Witnessed By						T. Williams, J. Lofi			

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[illegible]

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RMF @ Measured Temperature						@ @			
RMC @ Measured Temperature						@ @			
Source RMF RMC						N/A N/A			
RM @ MRT RMF @ MRT						@ 21 @ 21			
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RMF @ Measured Temperature						@	@	@	
RMC @ Measured Temperature						@	@	@	
Source RMF						RMC	N/A		
RM @ MRT						RMF @ MRT	@ 21	@ 21	@
Maximum Recorded Temperatures						21 degC			
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[illegible]

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Logging Date										Run 1			Run 2			Run 3		
Run Number										Run Number								
Depth Driller										Depth Driller								
Schlumberger Depth										Schlumberger Depth								
Bottom Log Interval										Bottom Log Interval								
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Source RMF										Source RMF								
RM @ MRT										RM @ MRT			@			@		
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Unit Number										Unit Number			Location					
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Bit Size										Bit Size								
Type Fluid In Hole										Type Fluid In Hole								
Density										Density								
Fluid Loss										Fluid Loss								
Source Of Sample										Source Of Sample								
RM @ Measured Temperature										RM @ Measured Temperature			@					
RMF @ Measured Temperature										RMF @ Measured Temperature			@					
RMC @ Measured Temperature										RMC @ Measured Temperature			@					
Source RMF										Source RMF								
RM @ MRT										RM @ MRT			@			@		
Maximum Recorded Temperatures										Maximum Recorded Temperatures								
Circulation Stopped										Circulation Stopped			Time			Time		
Logger On Bottom										Logger On Bottom			Time			4:00		
Unit Number										Unit Number			Location					
Recorded By										Recorded By			K. Swain					
Witnessed By										Witnessed By			T. Williams, J. Lofi					

[illegible]

<p style="text-align: center;">DISCLAIMER</p> <p>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.</p>	
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SURFACE EQUIPMENT			
SFT-281	1		
SFT-178	1		
GSR-U 616008			
WITM (EDTS)-A	1		

DOWNHOLE EQUIPMENT			
LEH-QT	MDSB_EDTC		35.48
AH-369	Mud Tempe		34.16
	CTEM		33.09
	Gamma Ray		32.52
EDTC-B	EFTB DIAG		34.16
EDTH-B 8528	TelStatus		
EDTC-B 8529	EDTCB Ele		32.18

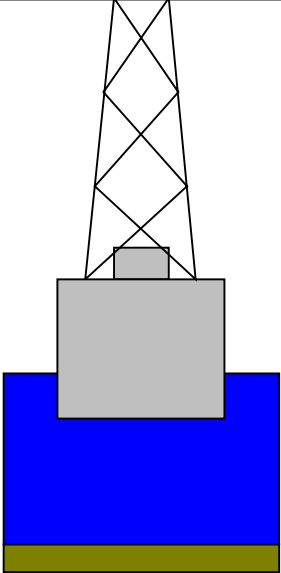
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Kelly Bushing Elevation
Derrick Floor Elevation

Mean Sea Level

-570
-570

-559



4.1

0
104

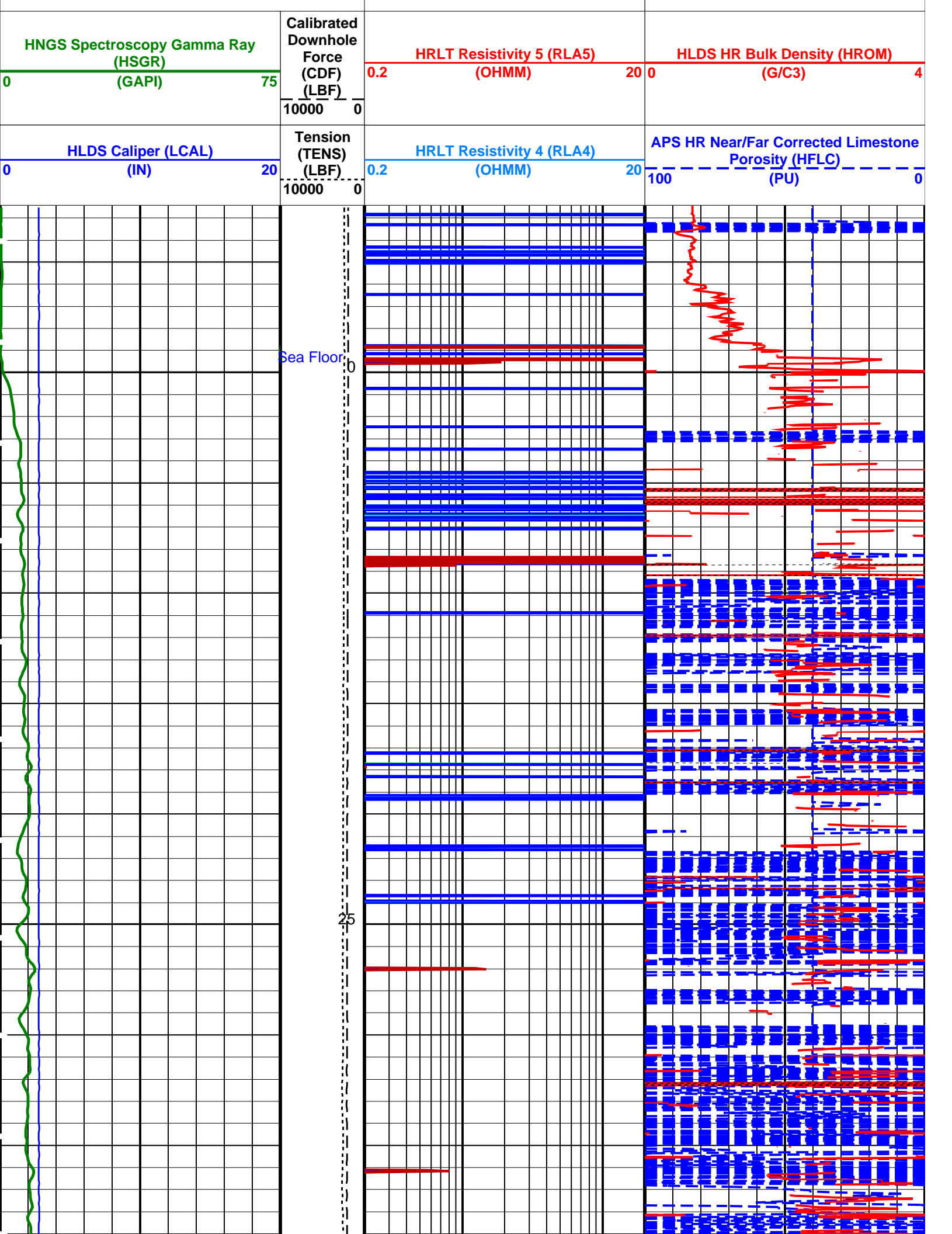
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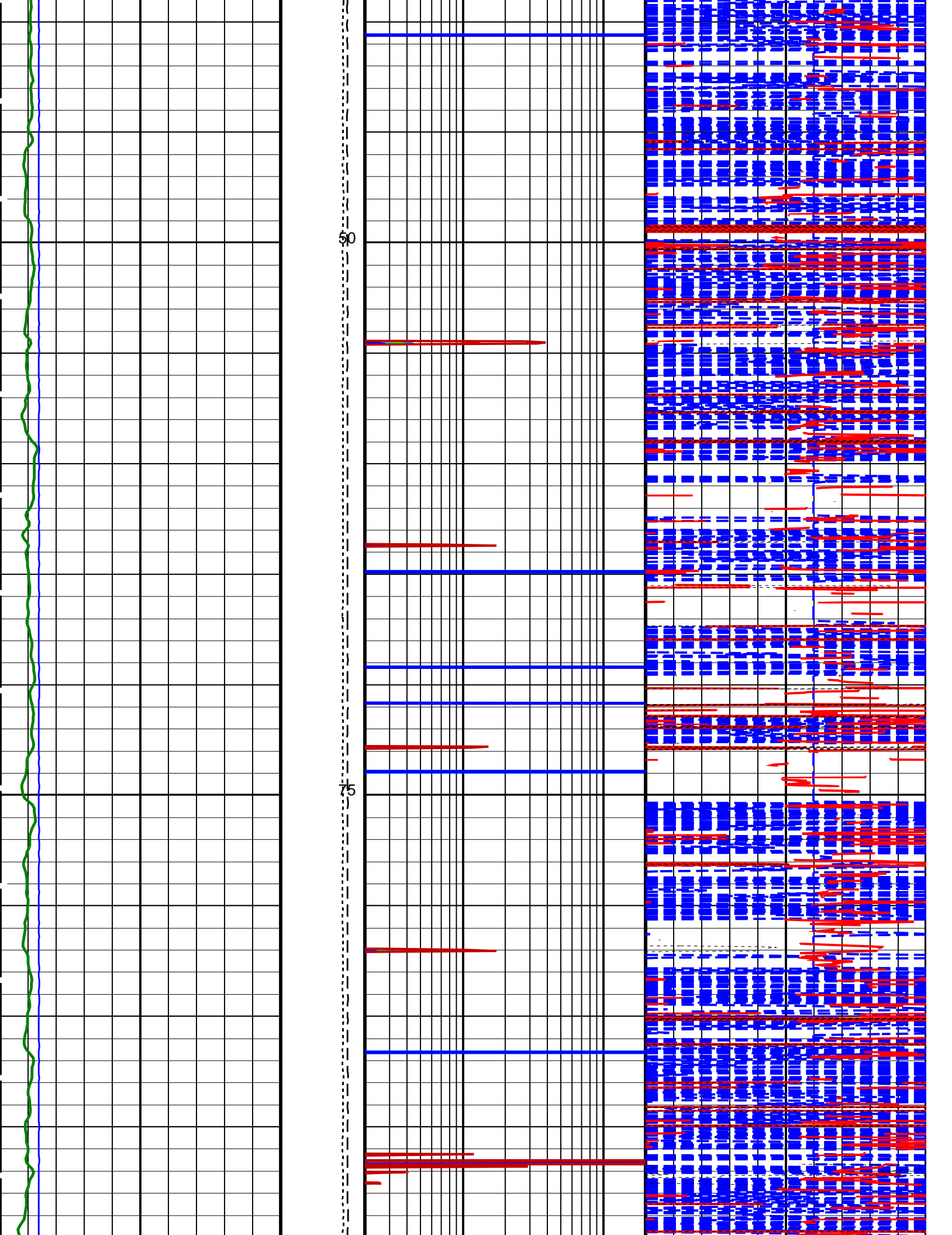
3.80
9.875

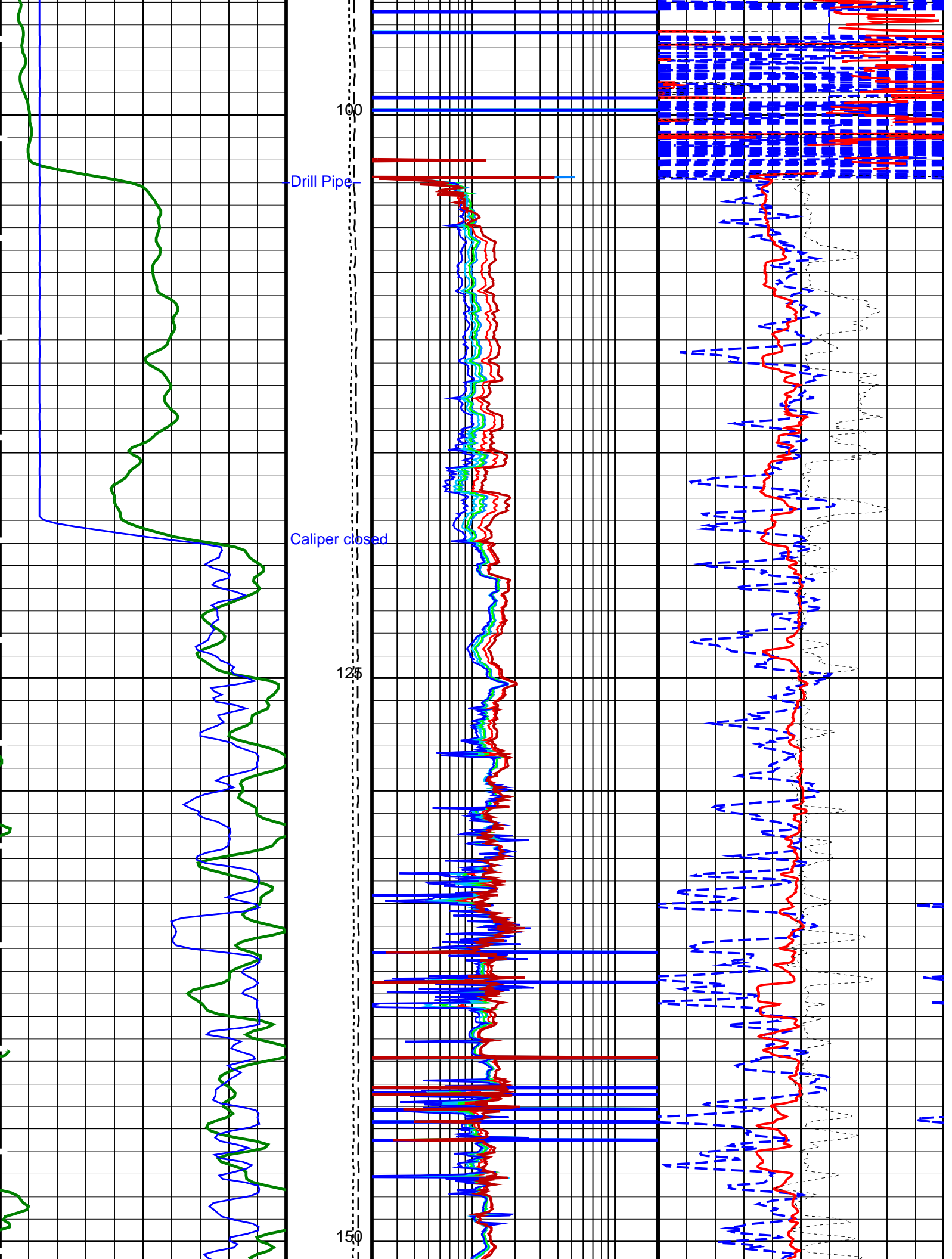
Sea Floor
Open Hole

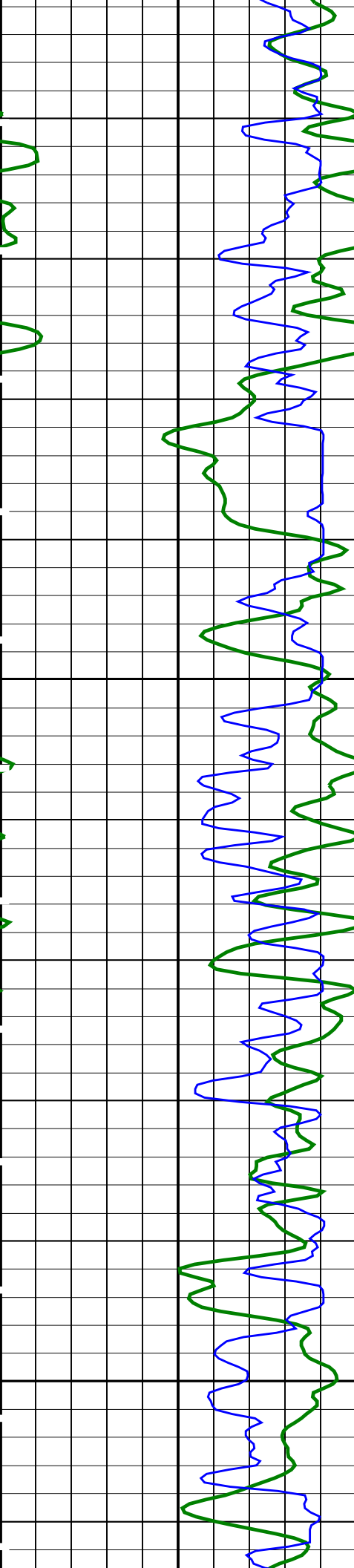
Total Depth

Input DLIS Files						
DEFAULT	HRLA_LDL_APS_NGS_054PUP	FN:73	PRODUCER	25-Dec-2011 22:46	1218.4 M	560.4 M
Output DLIS Files						
DEFAULT	HRLA_LDL_APS_NGS_068PUP	FN:86	PRODUCER	29-Dec-2011 00:01	651.5 M	-7.6 M
OP System Version: 19C0-187						
HRLT-B	19C0-187		HLDS	19C0-187		
LDSC-B	19C0-187		APS-C	19C0-187		
HNGC-B	19C0-187		HNGS-BA	19C0-187		
EDTC-B	19C0-187					
PIP SUMMARY						
Time Mark Every 60 S						
Main Uplog, Sea Floor Depth Reference	HRLT True Resistivity (RT_HRLT)					
	0.2	(OHMM)	20			
	HRLT Resistivity 1 (RLA1)					
Playback with LCAL for holesize, Barite for mud correction	0.2	(OHMM)	20			
	HRLT Resistivity 2 (RLA2)					
	0.2	(OHMM)	20			
	HRLT Resistivity 3 (RLA3)			HLDS HR Bulk Density Correction		
	0.2	(OHMM)	20	(HBDC)		
				(G/C3)		
				-0.25		0.25



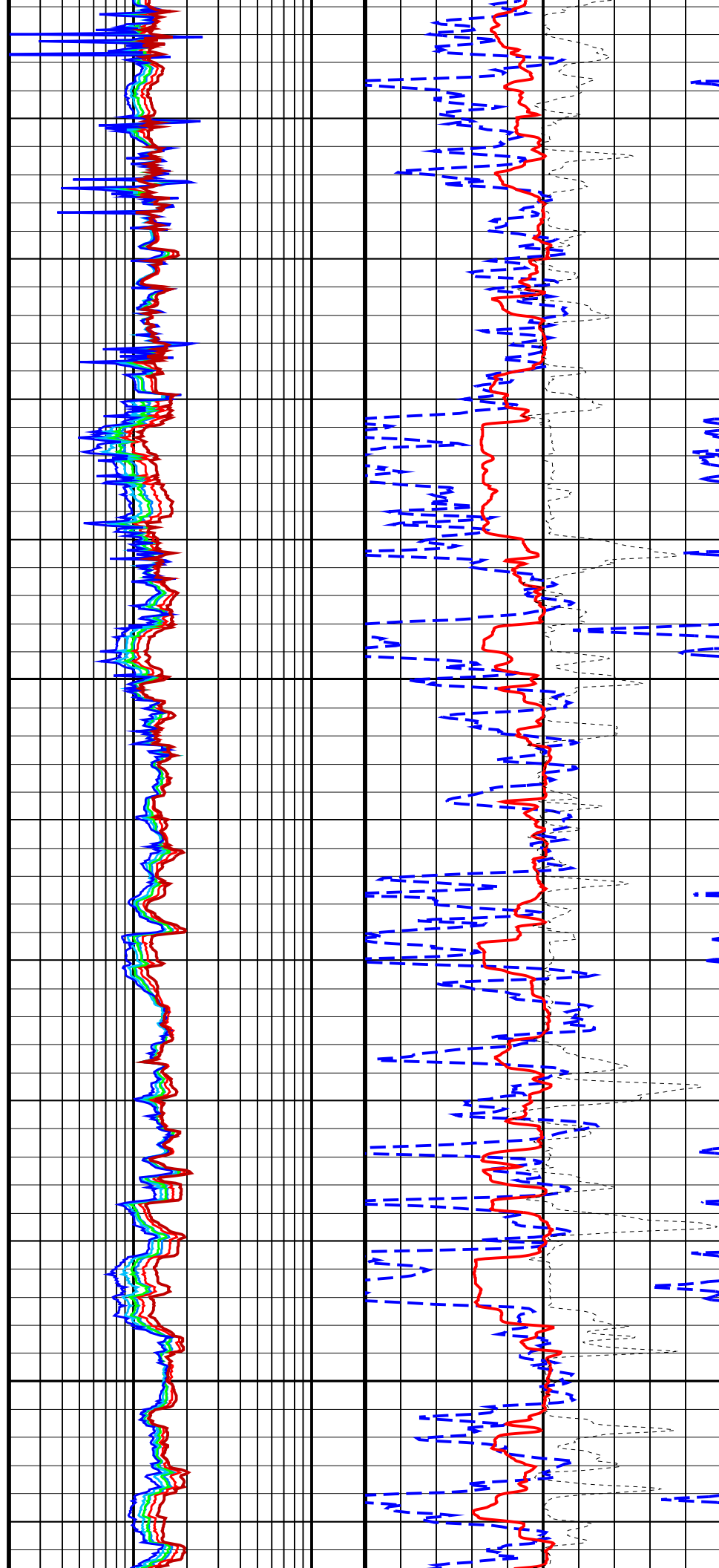


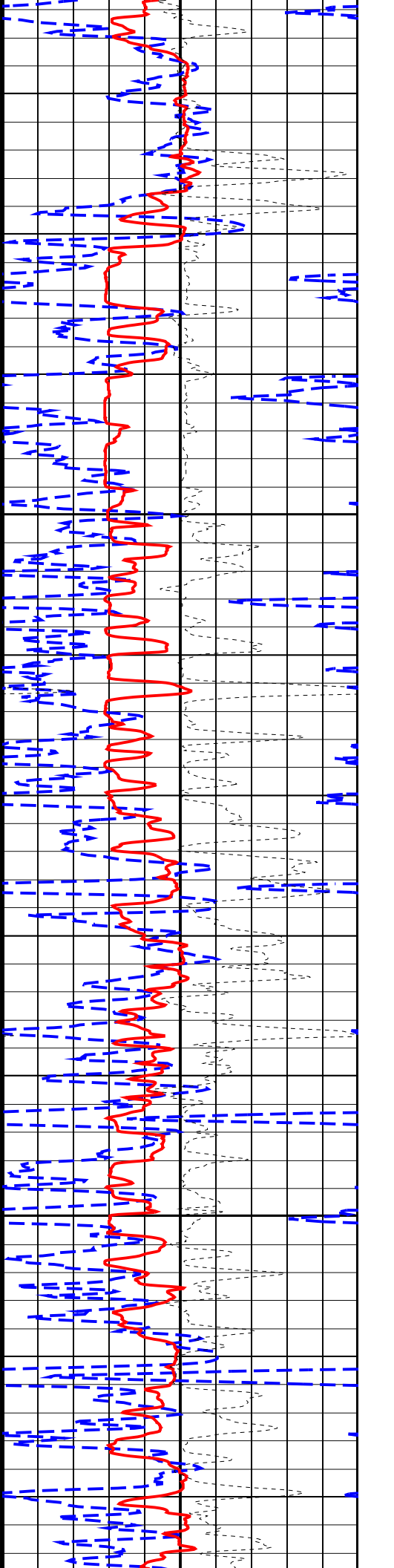
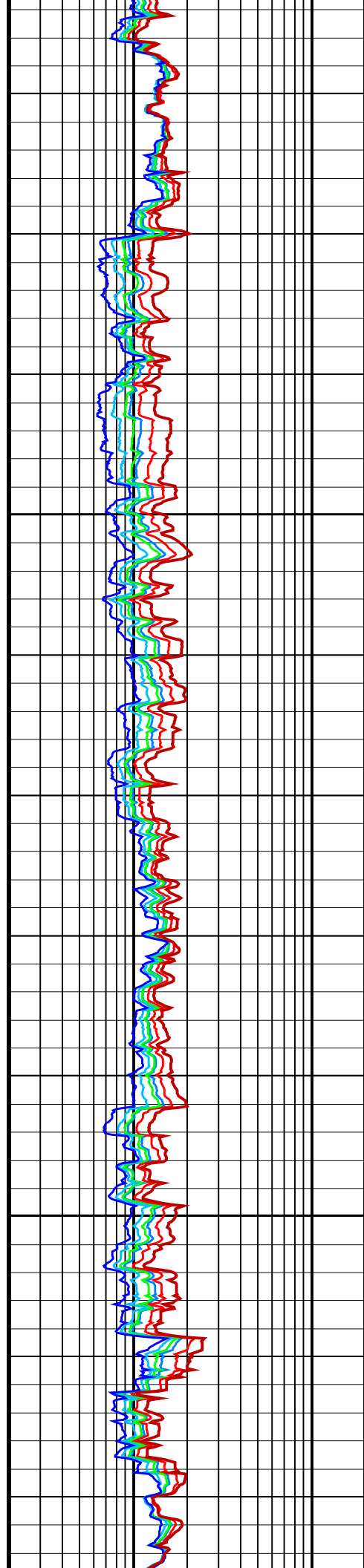
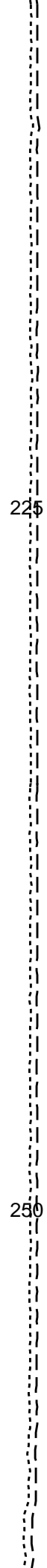
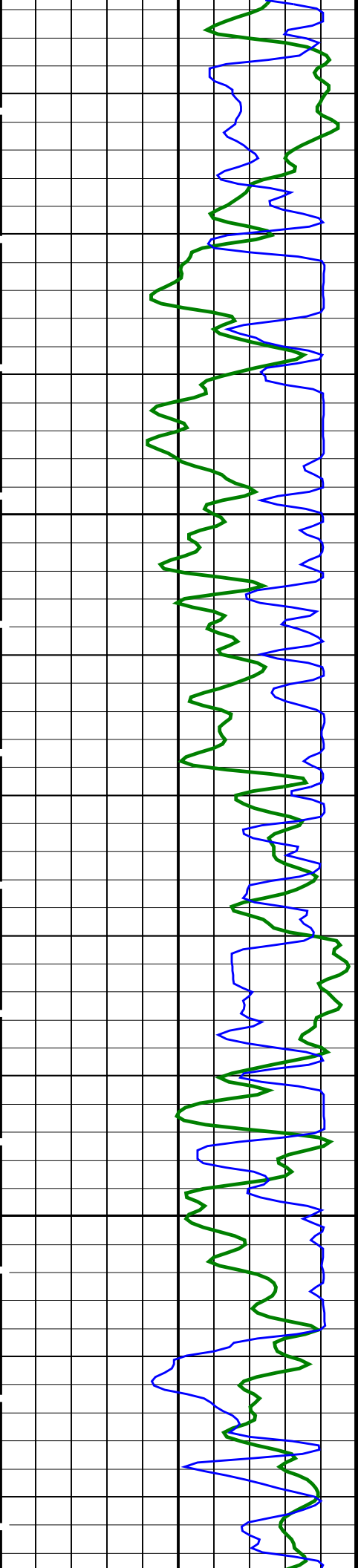


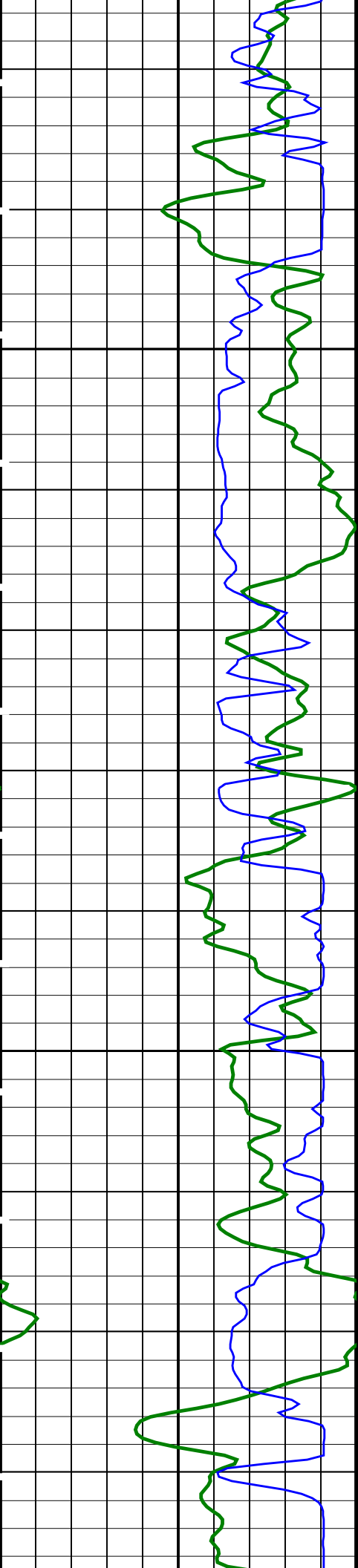


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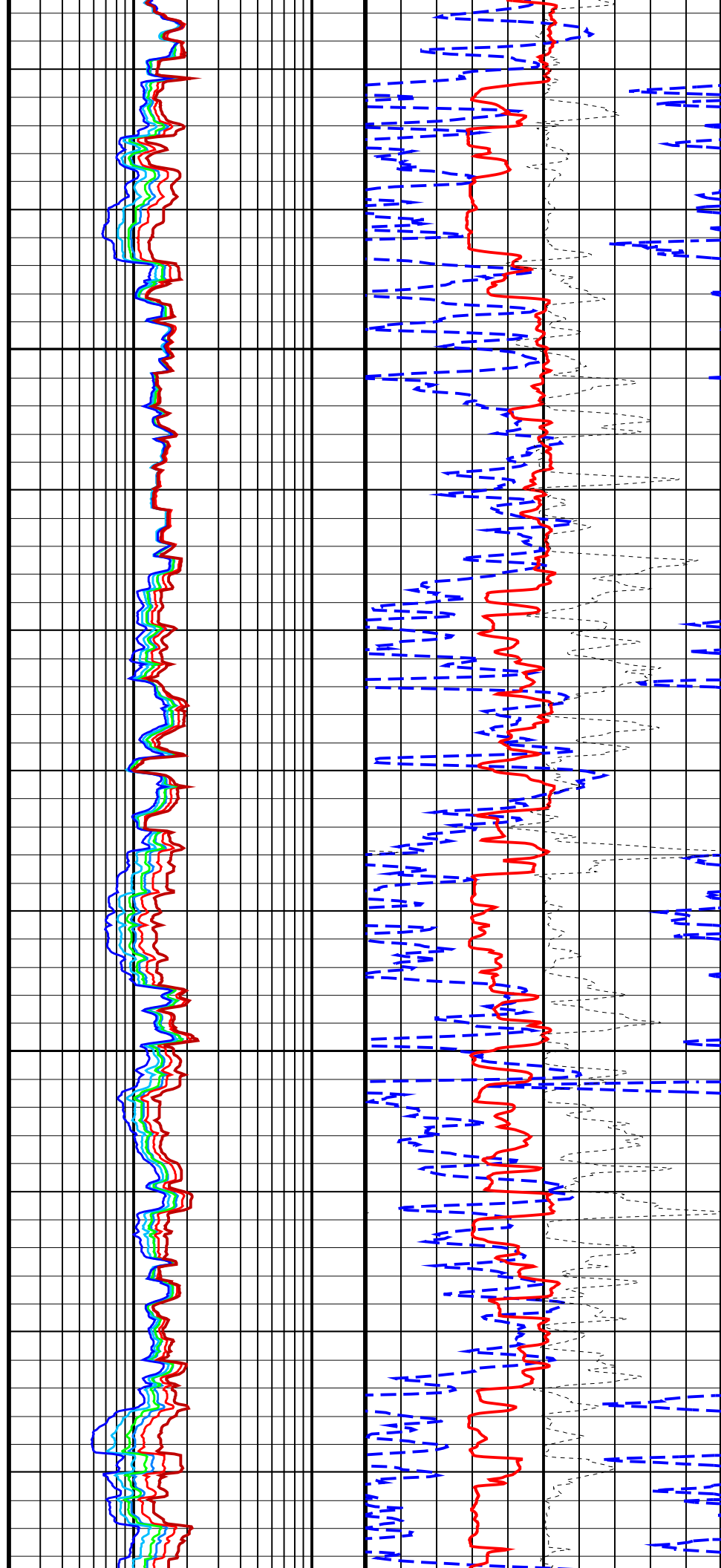


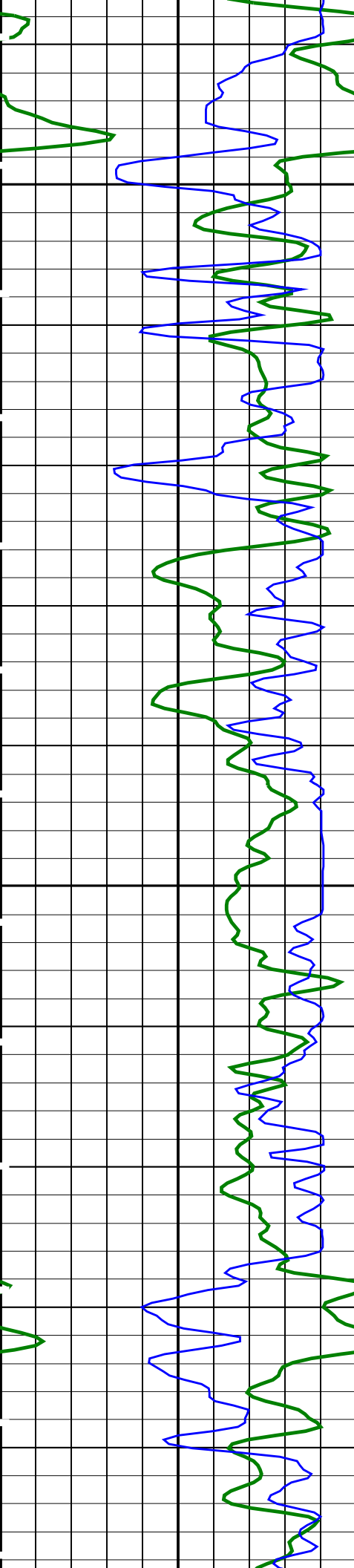




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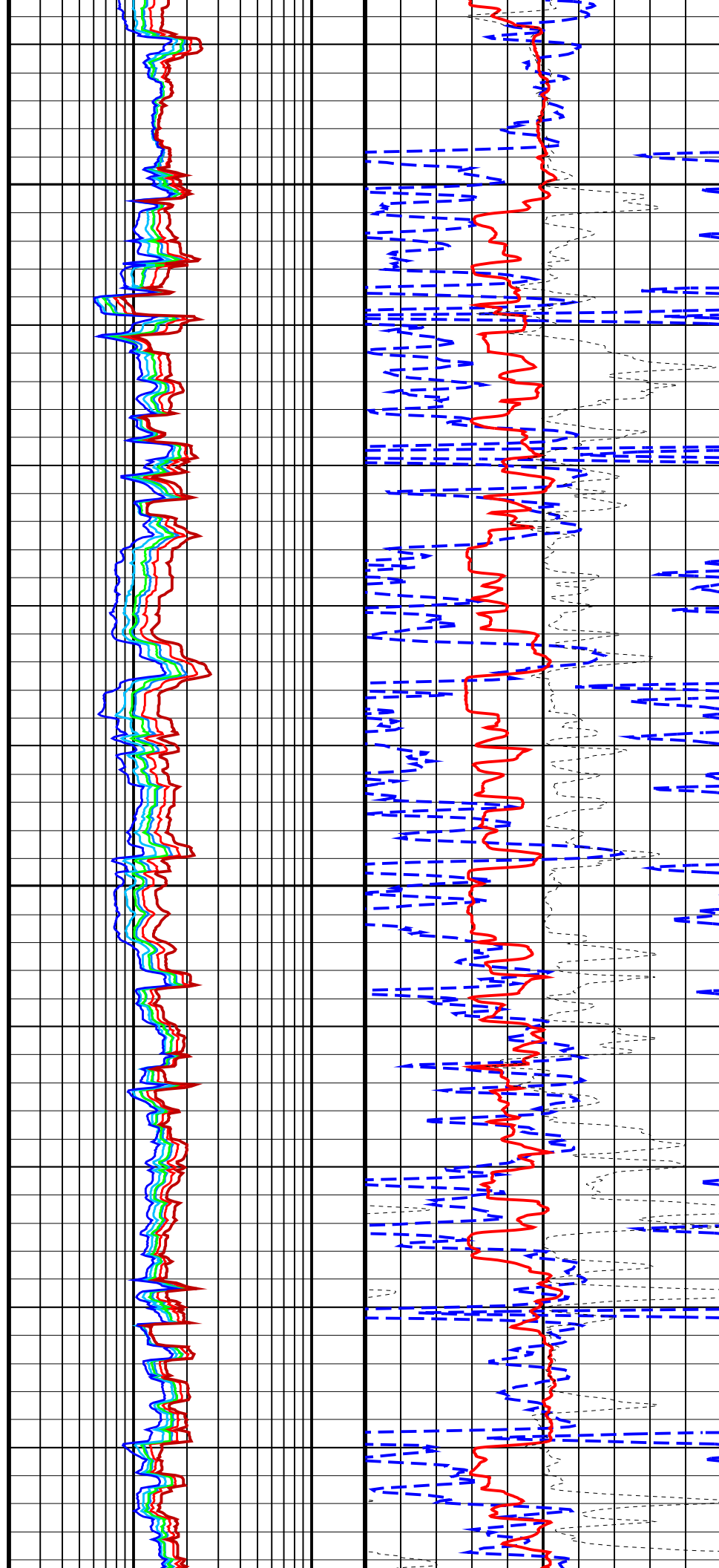
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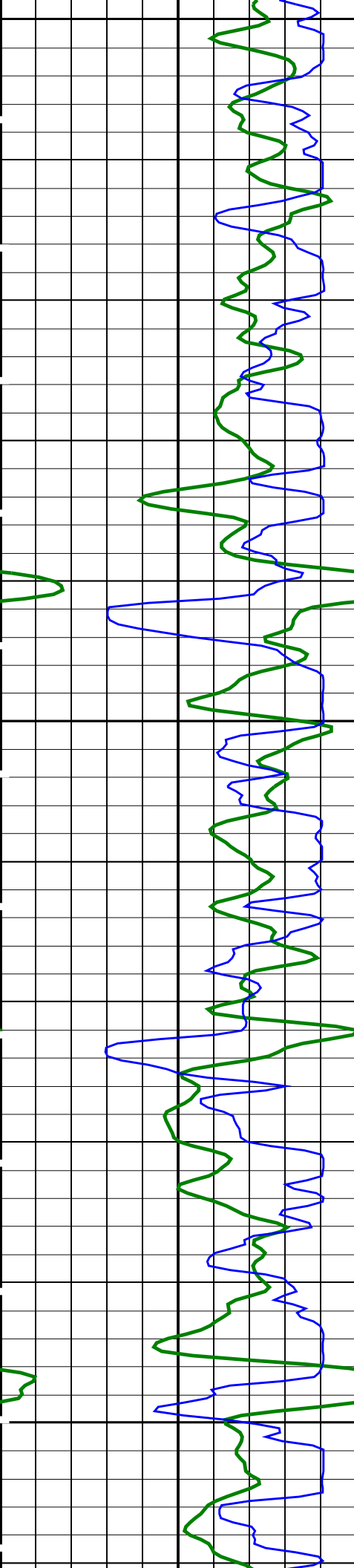




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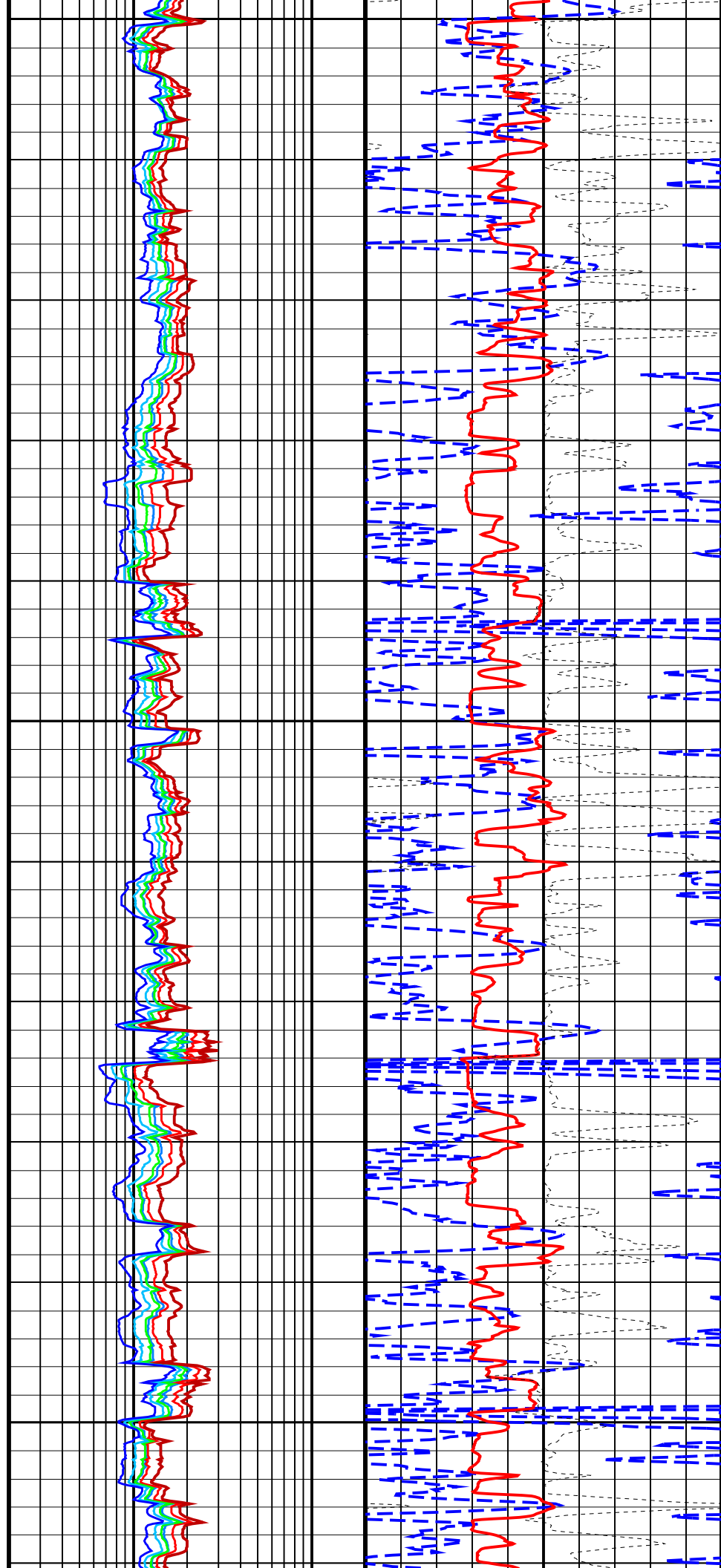


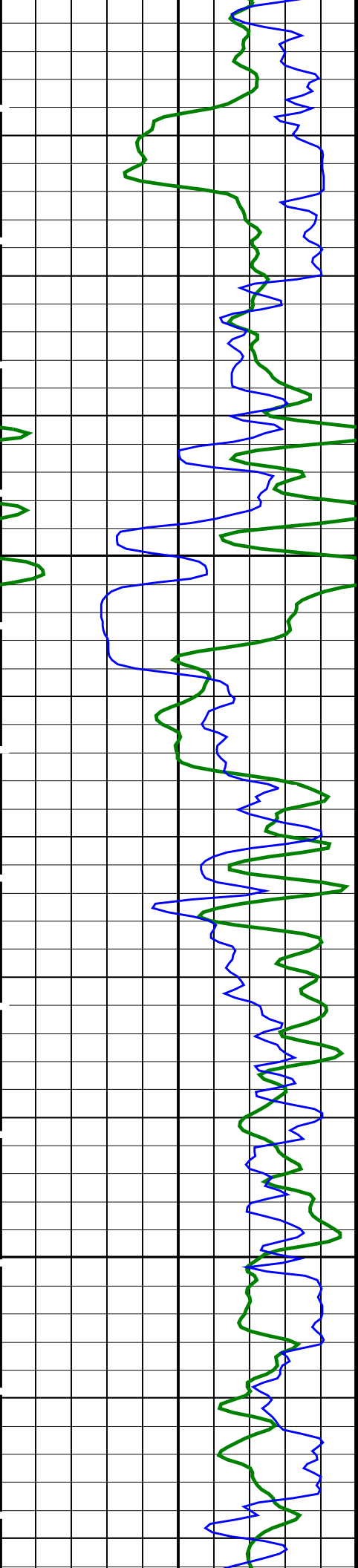


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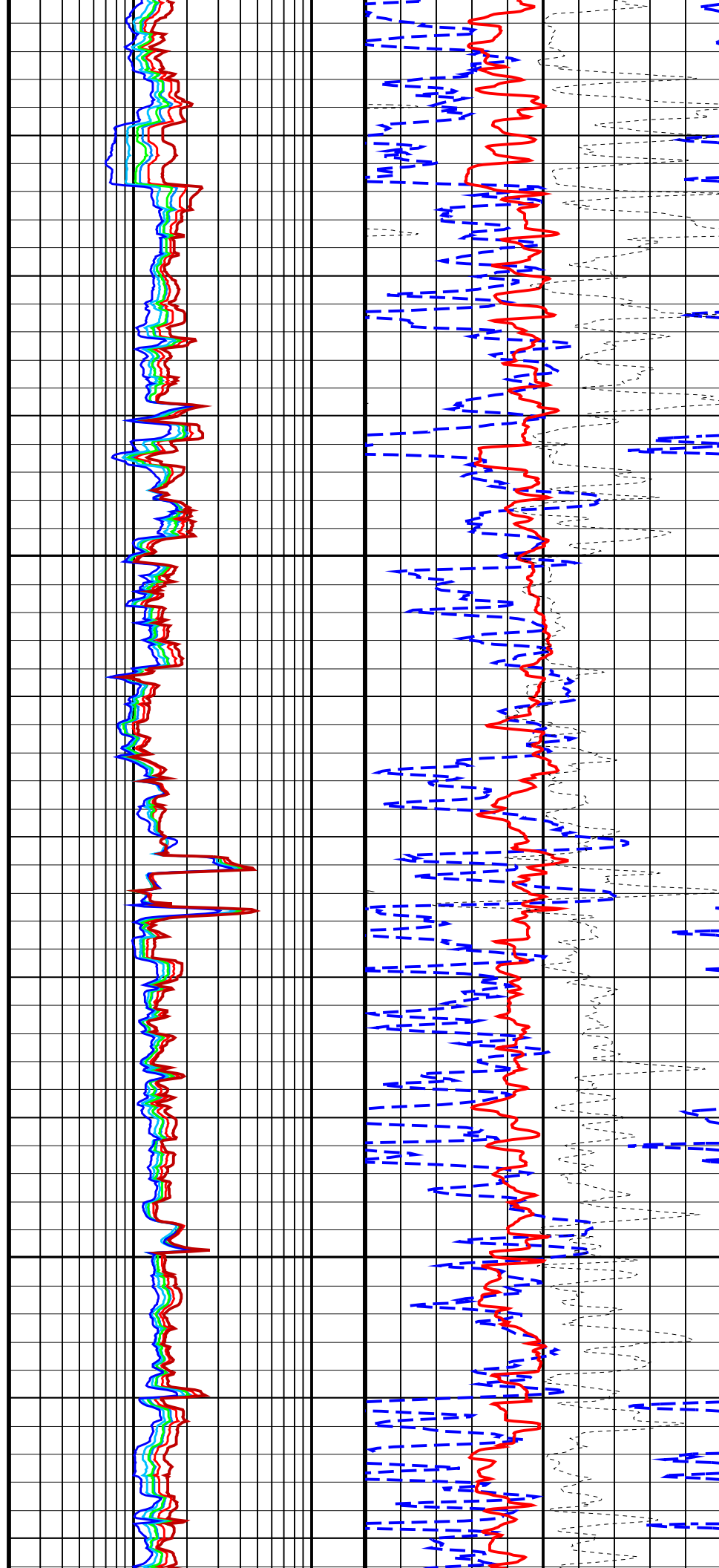
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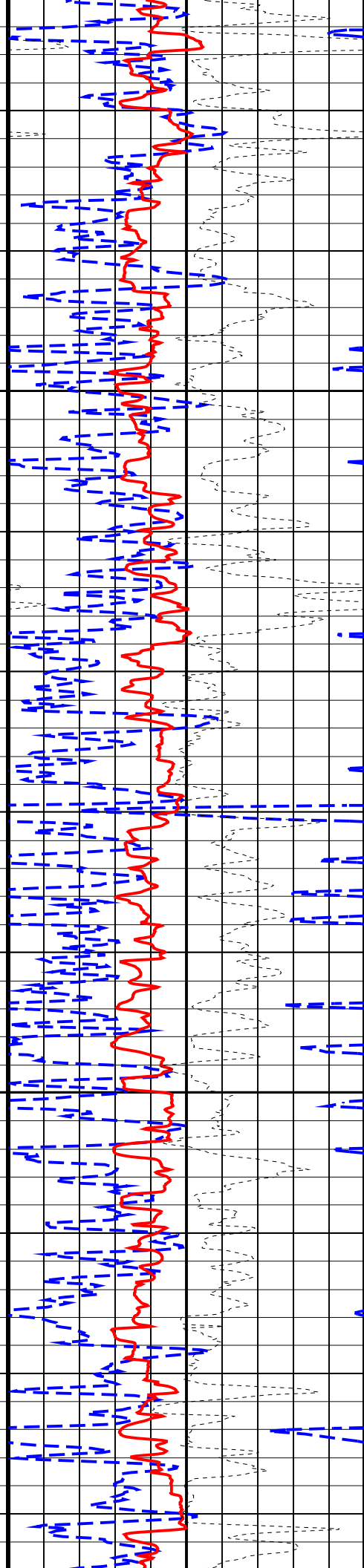
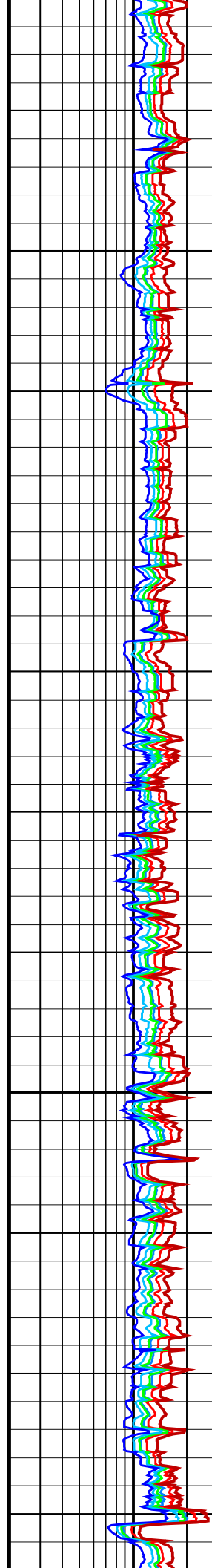
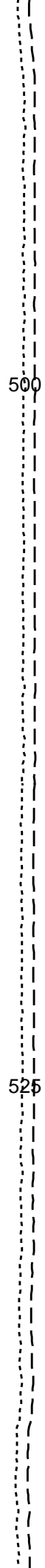
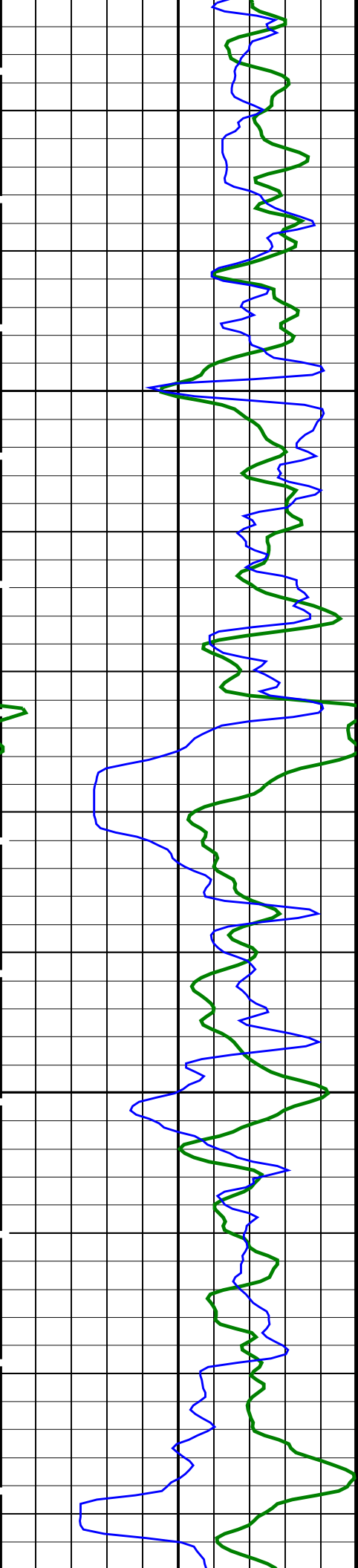


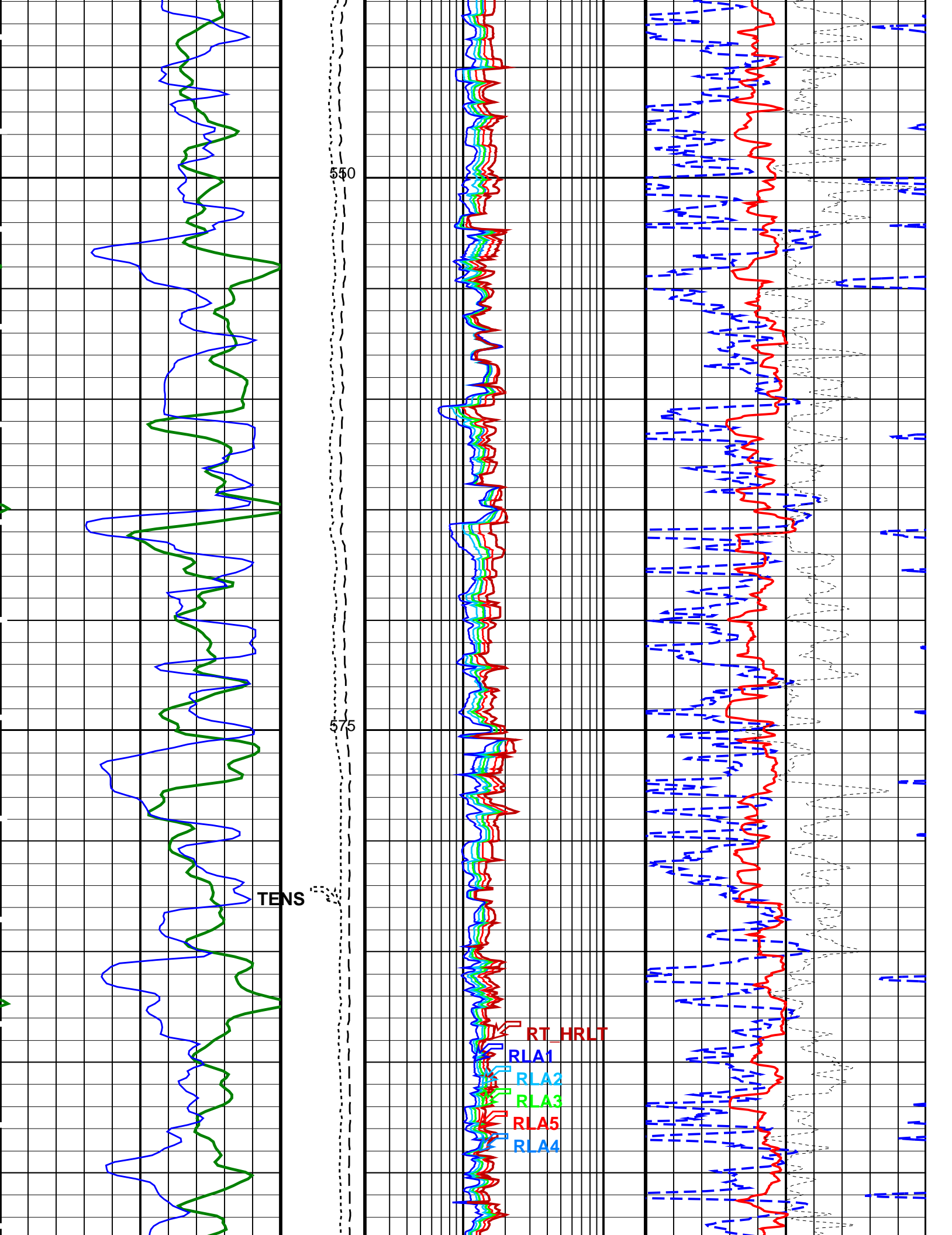


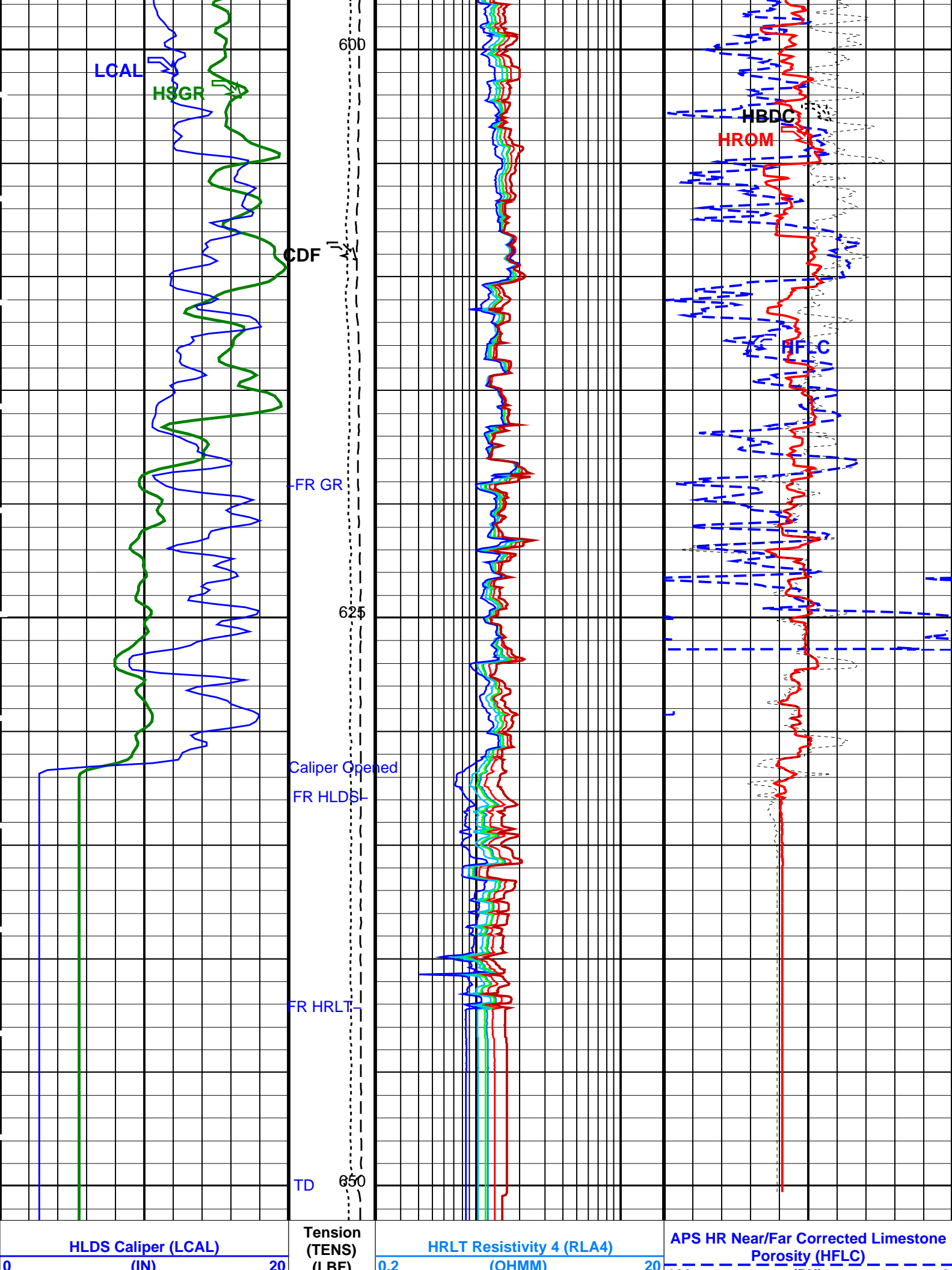
450

475









		10000	0			100	(PU)	0	
HNGS Spectroscopy Gamma Ray (HSGR)	Calibrated Downhole Force (CDF) (LBF)	HRLT Resistivity 5 (RLA5)			HLDS HR Bulk Density (HROM)				
		0.2	(OHMM)	20	0	(G/C3)		4	
		10000	0						
Main Uplog, Sea Floor Depth Reference			HRLT Resistivity 3 (RLA3)			HLDS HR Bulk Density Correction (HBDC)			
Playback with LCAL for holesize, Barite for mud correction			0.2	(OHMM)	20	-0.25	(G/C3)	0.25	
			HRLT Resistivity 2 (RLA2)						
			0.2	(OHMM)	20				
			HRLT Resistivity 1 (RLA1)						
			0.2	(OHMM)	20				
			HRLT True Resistivity (RT_HRLT)						
			0.2	(OHMM)	20				

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
HRLT-B: High Resolution Laterolog Array – B			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	22.4104	DEGC
FREQ0	HRLT Frequency Index for Mode 0	32	
FREQ1	HRLT Frequency Index for Mode 1	128	
FREQ2	HRLT Frequency Index for Mode 2	104	
FREQ3	HRLT Frequency Index for Mode 3	86	
FREQ4	HRLT Frequency Index for Mode 4	56	
FREQ5	HRLT Frequency Index for Mode 5	44	
FREQ6	HRLT Frequency Index for Mode 6	116	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	BARITE	
KFAC_HRLT	HRLT K Factor Option	SONDE	
LOOPCOEF_S	HRLT Loop Coefficient for Shallow Modes	LOW	
LOOPMOD0	HRLT Mode 0 Loop Mode	OFF	
LOOPMOD1	HRLT Mode 1 Loop Mode	OFF	
LOOPMOD2	HRLT Mode 2 Loop Mode	OFF	
LOOPMOD3	HRLT Mode 3 Loop Mode	OFF	
LOOPMOD4	HRLT Mode 4 Loop Mode	OFF	
LOOPMOD5	HRLT Mode 5 Loop Mode	OFF	
LOOPMOD6	HRLT Mode 6 Loop Mode	OFF	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
PROCINV	Inversion Selection	ON	
PROCMFL	Inversion Micro-Resistivity Selection	NO_EXTERNAL_RXO	
PROCMSO	Mechanical Standoff Fin Size	0	IN
PROCRM	Processing Mud Resistivity Select	HRLT_Compute	
PROCSP0	Sonde Position	Centered	
SHT	Surface Hole Temperature	68	DEGF
HLDS: Hostile Litho-Density Sonde			
CLCL	HLDS LS Control Loop Controller Mode	AUTO_DEFAULT	
CLCS	HLDS SS Control Loop Controller Mode	AUTO_DEFAULT	
CLLS	HLDS Mode Loop Long Spacing	AUTO	
CLSS	HLDS Mode Loop Short Spacing	AUTO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1	G/C3
LATC	HLDS Activation Correction	ON	
LLDL	HLDS LS Low Level Discriminator DAC	14000	
LLDS	HLDS SS Low Level Discriminator DAC	14000	
LLML	HLDS LS Low Level Discriminator Mode	AUTO	
LLMS	HLDS SS Low Level Discriminator Mode	AUTO	
MDEN	Matrix Density	2.71	G/C3
PHVL	HLDS Long Spacing High Voltage Setting	1000	V
PHVS	HLDS Short Spacing High Voltage Setting	1000	V
PSPL	HLDS LS Pulse Shape Compensation DAC	20000	

PSDL	HLDS LS Pulse Shape Compensation DAC	30000	
PSDS	HLDS SS Pulse Shape Compensation DAC	30000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	
APS-C: Accelerator-Porosity Tool			
	APS Software Version	0	
AASD	APS Thermal and Array Detectors High Voltage Setting	1962.18	V
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2082.06	V
AHCS	APS Holesize Correction Source	GCSE	
AHSS	APS Holesize Correction Switch	ON	
AMTY	APS Environmental Corrections Mud Type	WaterBaseBarite	
ANSD	APS Near Detector High Voltage Setting	1731.78	V
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature-Pressure-Salinity Correction Switch	OFF	
BHFL_APS	APS TNPH Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
BSCO_APS	APS TNPH Borehole Salinity Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
DSCO_APS	APS TNPH Density Source Correction Option	COMPUTED	
FSAL	Formation Salinity	-50000	PPM
FSCO_APS	APS TNPH Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO_APS	APS TNPH Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO_APS	APS TNPH Mud Cake Correction Option	YES	
MCOR_APS	APS TNPH Mud Correction	BARI	
MWCO_APS	APS TNPH Mud Weight Correction Option	YES	
NARC	APS Near/Array Calibration Ratio	1.05701	
NFRC	APS Near/Far Calibration Ratio	0.887966	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	NO	
SHT	Surface Hole Temperature	68	DEGF
TNCO_APS	APS TNPH Computation Option	YES	
HNGS-BA: Hostile Natural Gamma Ray Sonde			
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	-0.00405156	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	68	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.993378	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.984839	
EDTC-B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	

HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	BARITE	
ISSBAR_EDTC	Nuclear Mud Type	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	BARI	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	68	DEGF
SOCN	Standoff Distance	0	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
U-ETELM_EDTS	Telemetry Mode for eWAFE	Standard_EDTS	
U-TELM_EDTS	Telemetry Mode for WAFE	Standard_EDTS	
System and Miscellaneous			
ALTDPCCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	10.750	IN
CWEI	Casing Weight	43.00	LB/F
DFD	Drilling Fluid Density	1.25	G/C3
DO	Depth Offset for Playback	-568.0	M
FLEV	Fluid Level	-50000.00	M
MST	Mud Sample Temperature	-50000.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	OFF	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	-50000	FT
TDD	Total Depth - Driller	870.00	M
TDL	Total Depth - Logger	650.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: TripleCombo Vertical Scale: 1:200 Graphics File Created: 29-Dec-2011 00:01

OP System Version: 19C0-187

HRLT-B	19C0-187	HLDS	19C0-187
LDSC-B	19C0-187	APS-C	19C0-187
HNGC-B	19C0-187	HNGS-BA	19C0-187
EDTC-B	19C0-187		

Input DLIS Files

DEFAULT	HRLA_LDL_APS_NGS_054PUP	FN:73	PRODUCER	25-Dec-2011 22:46	1218.4 M	560.4 M
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Output DLIS Files

DEFAULT	HRLA_LDL_APS_NGS_068PUP	FN:86	PRODUCER	29-Dec-2011 00:01		
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Input DLIS Files

DEFAULT	HRLA_LDL_APS_NGS_037PUP	FN:49	PRODUCER	17-Dec-2011 14:10	1218.4 M	560.4 M
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Output DLIS Files

DEFAULT	HRLA_LDL_APS_NGS_060PUP	FN:78	PRODUCER	28-Dec-2011 22:41	651.5 M	-7.6 M
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OP System Version: 19C0-187

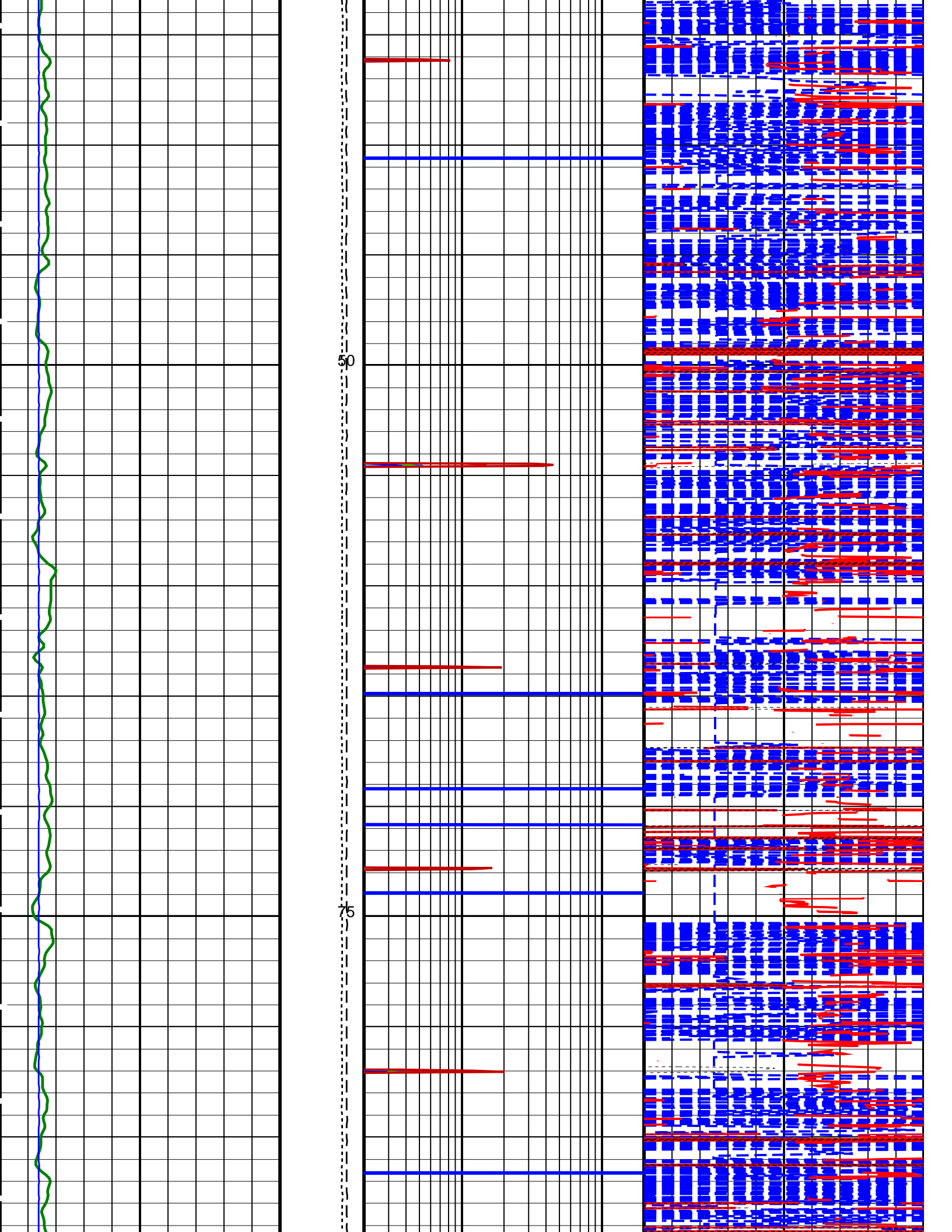
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HNGC-B	19C0-187	HNGS-BA	19C0-187
EDTC-B	19C0-187		

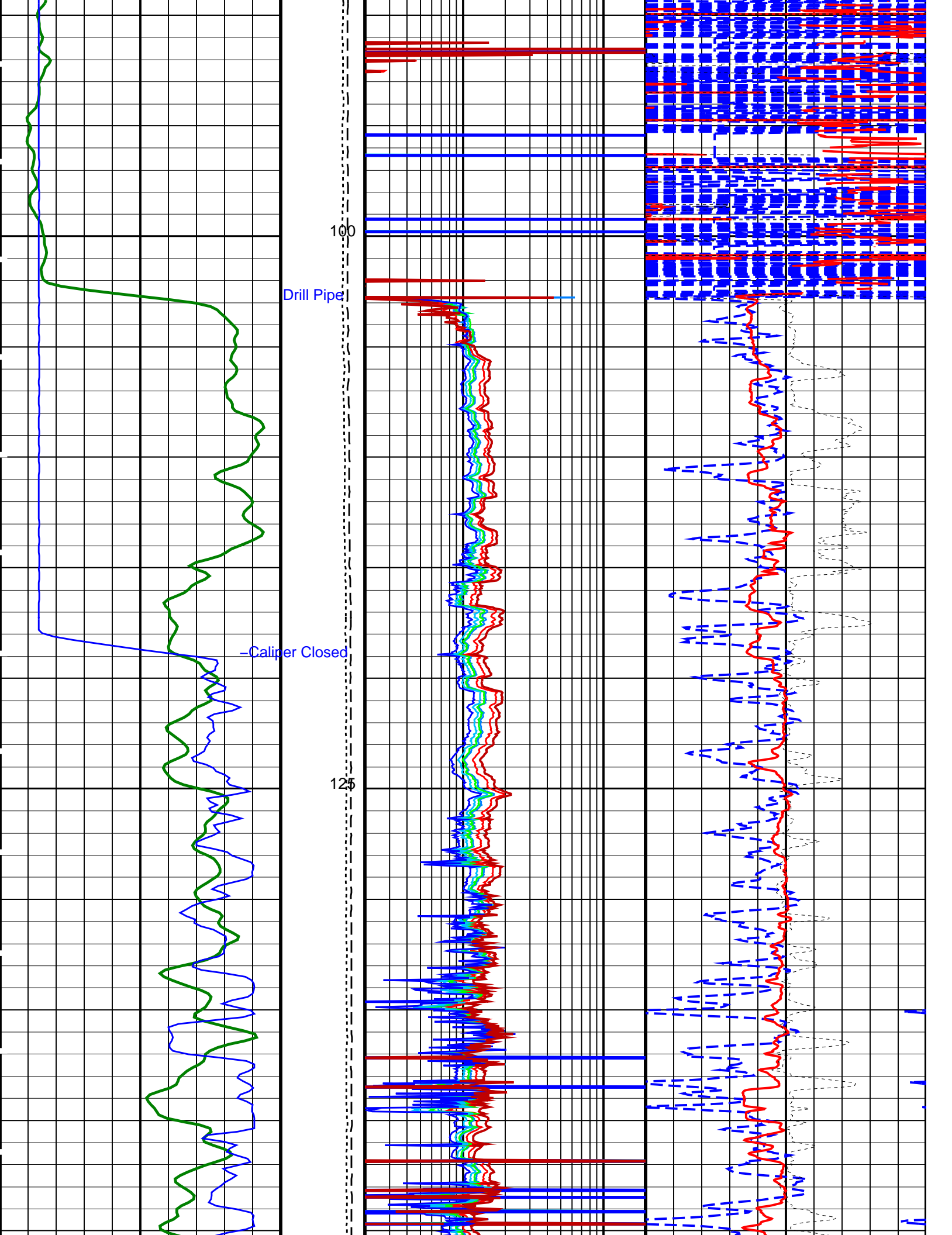
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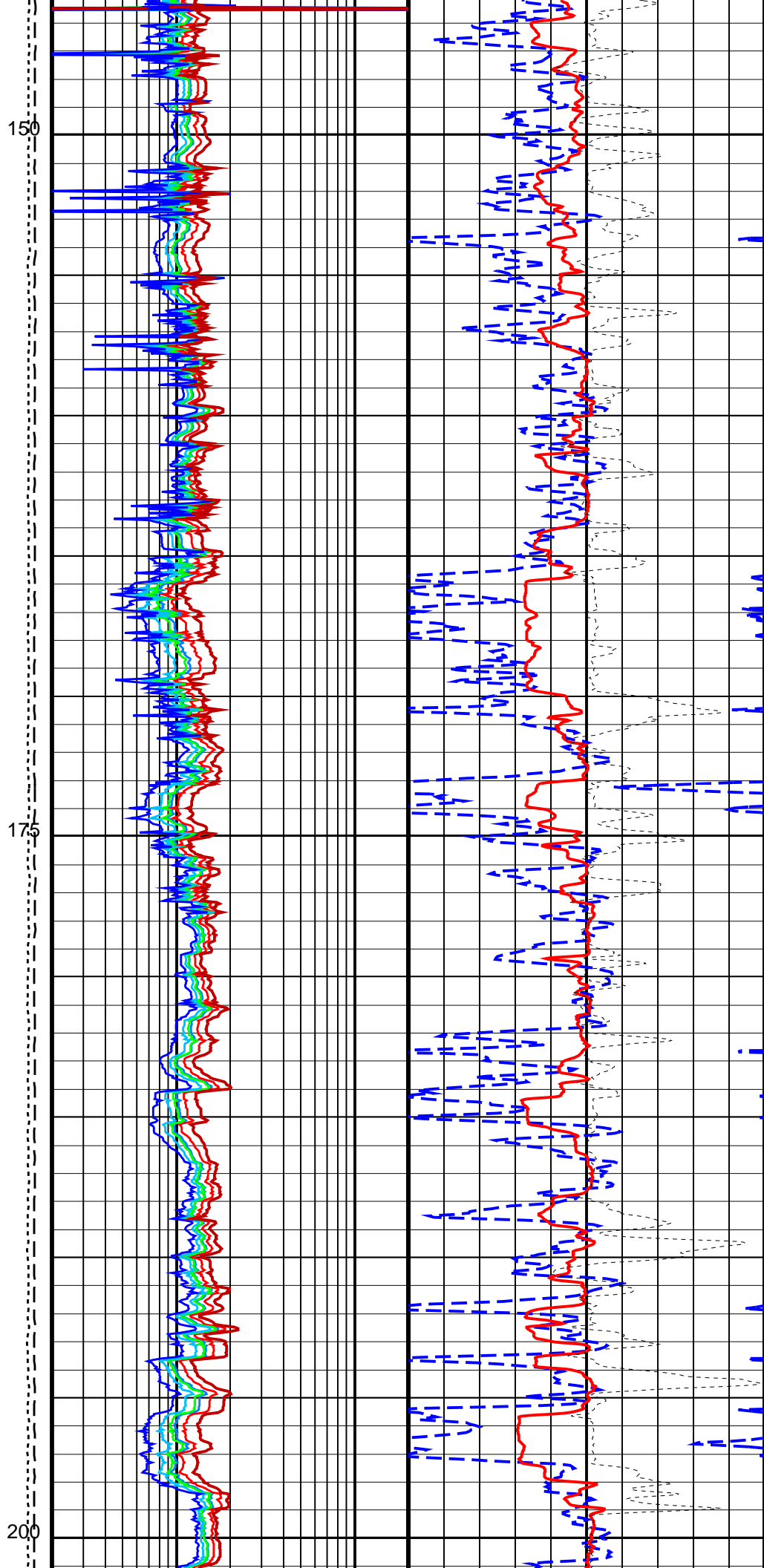
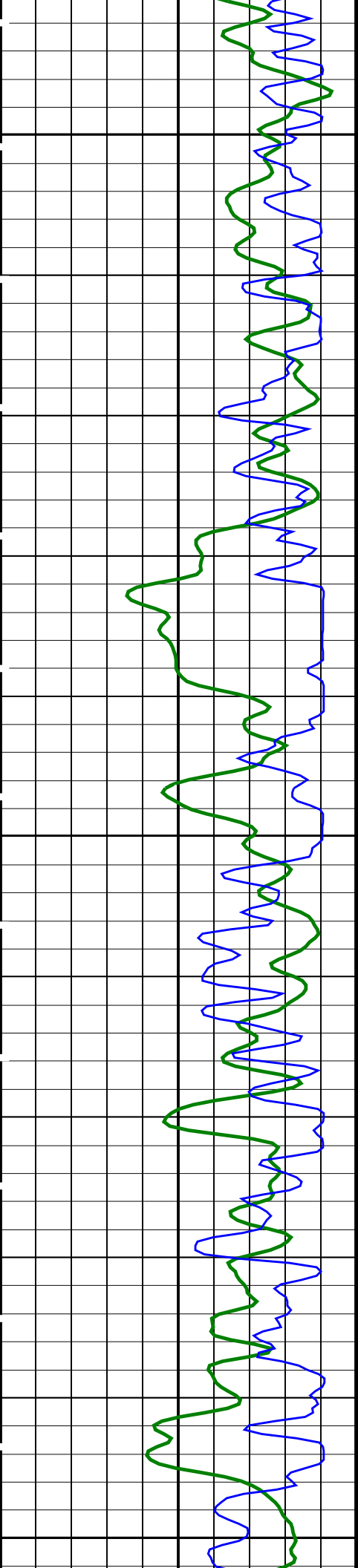
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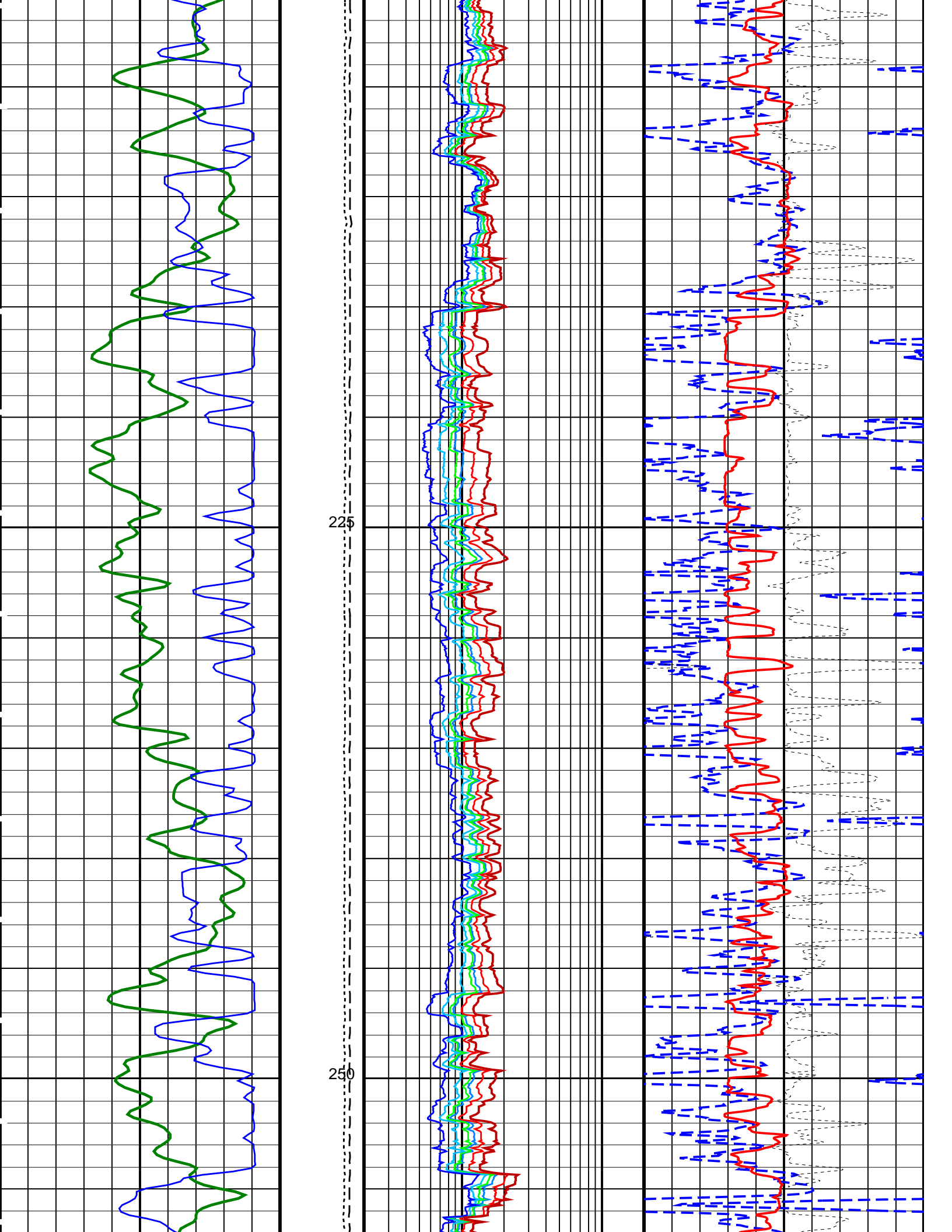
HRLT True Resistivity (RT_HRLT)		
0.2	(OHMM)	20
HRLT Resistivity 1 (RLA1)		
0.2	(OHMM)	20

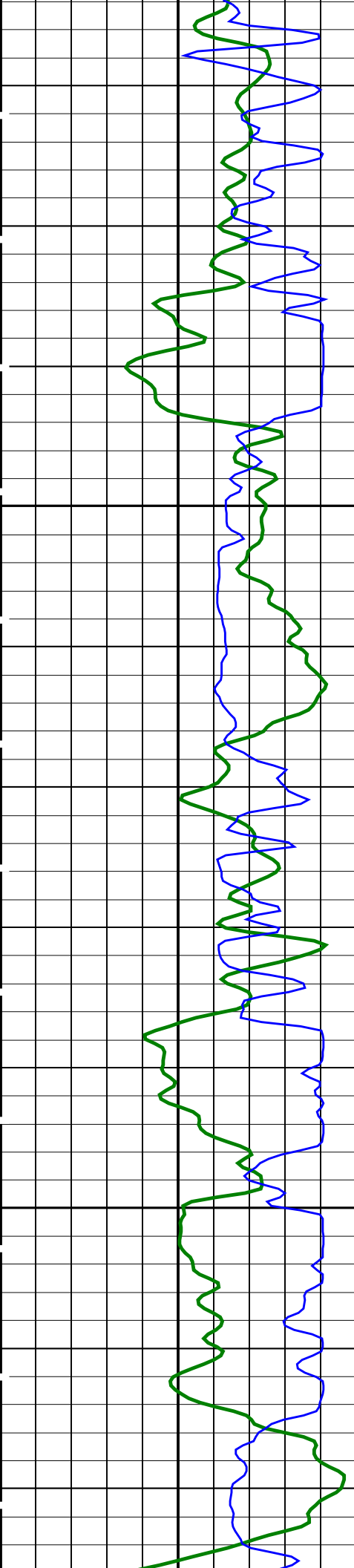
Main Uplog, Sea Floor Depth Reference		HRLT Resistivity 2 (RLA2) (OHMM)		HRLT Resistivity 3 (RLA3) (OHMM)		HLDS HR Bulk Density Correction (HBDC) (G/C3)	
		0.2 20		0.2 20		-0.25 0.25	
HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)		Calibrated Downhole Force (CDF) (LBF)		HRLT Resistivity 5 (RLA5) (OHMM)		HLDS HR Bulk Density (HROM) (G/C3)	
0 75		10000 0		0.2 20		0 4	
HLDS Caliper (LCAL) (IN)		Tension (TENS) (LBF)		HRLT Resistivity 4 (RLA4) (OHMM)		APS HR Near/Far Corrected Limestone Porosity (HFLC) (PU)	
0 20		10000 0		0.2 20		100 0	
Sea Floor		0					
		25					





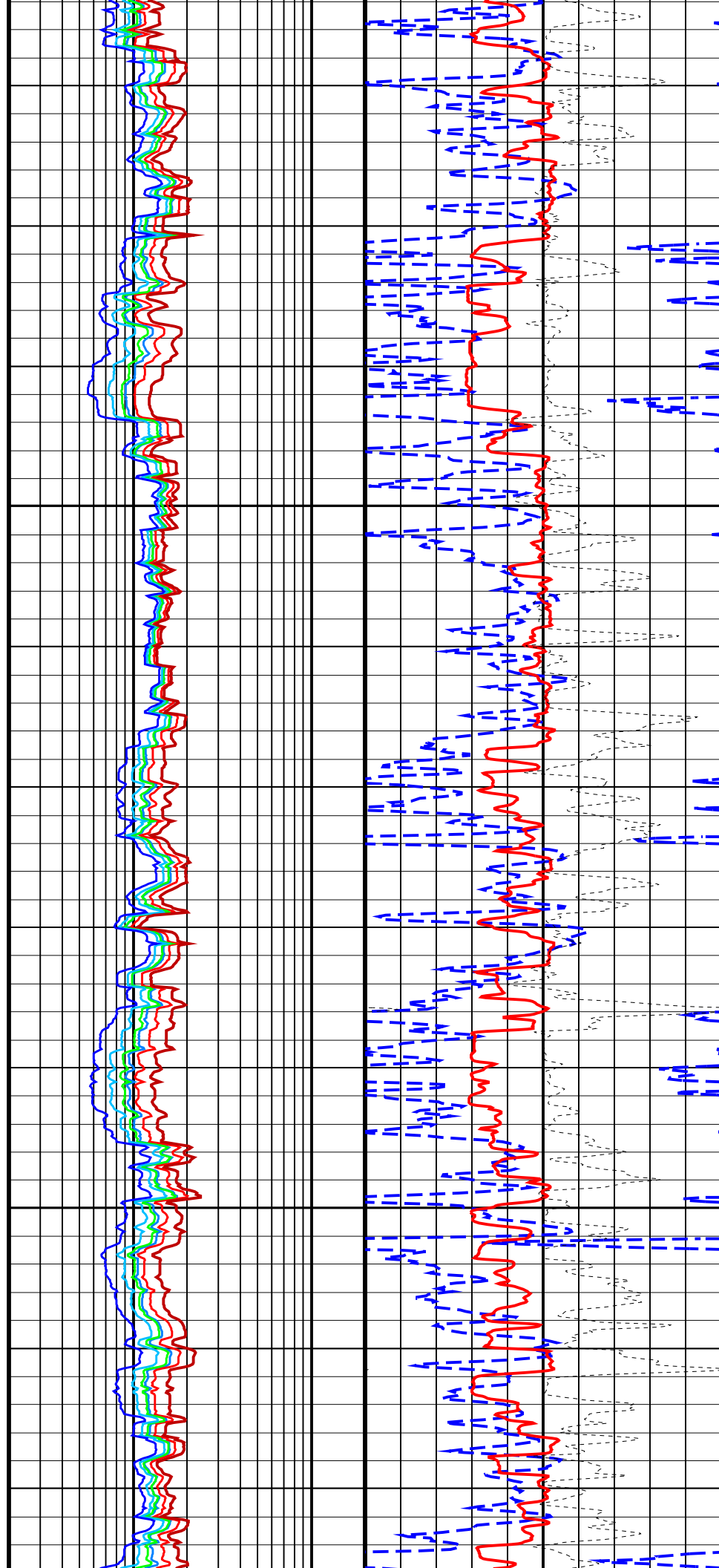


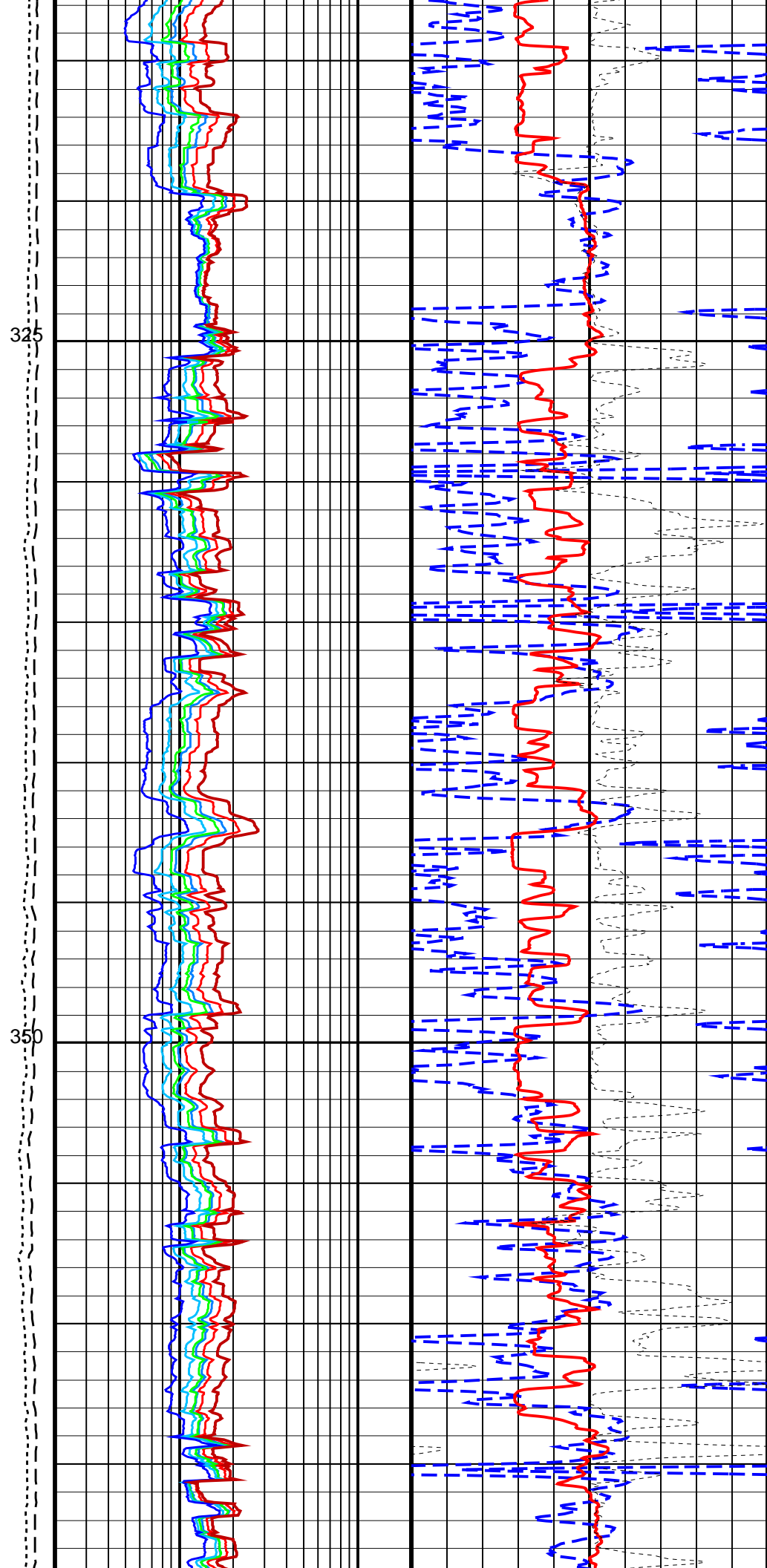
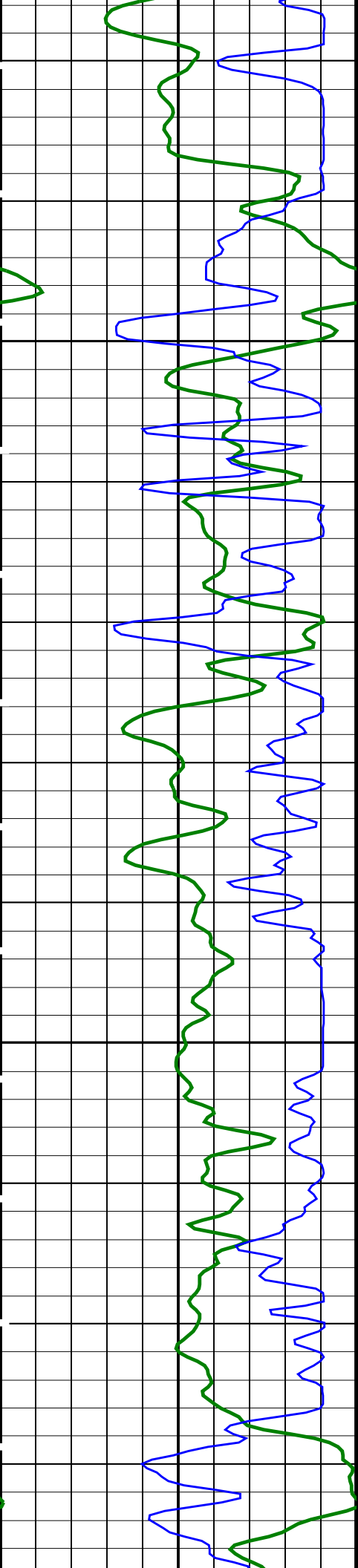


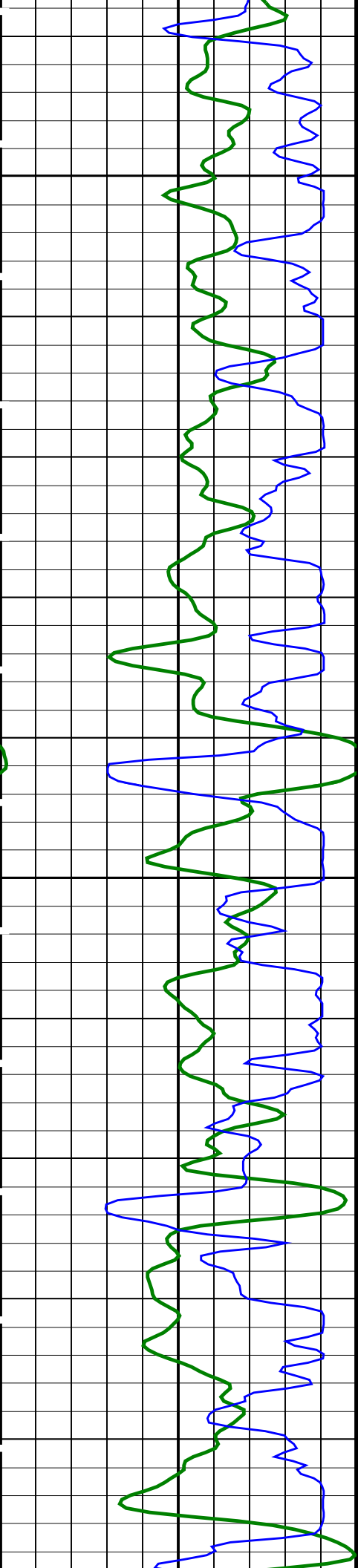


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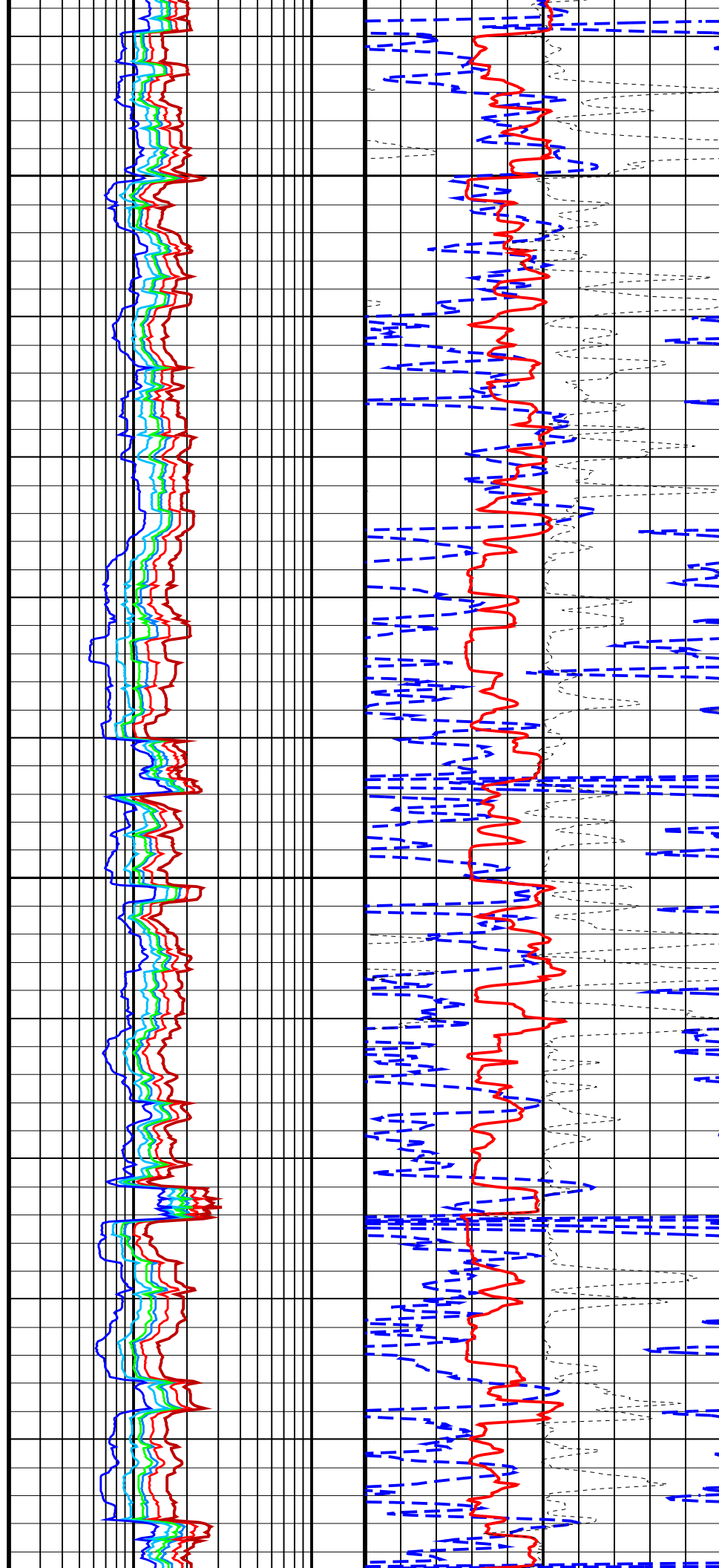


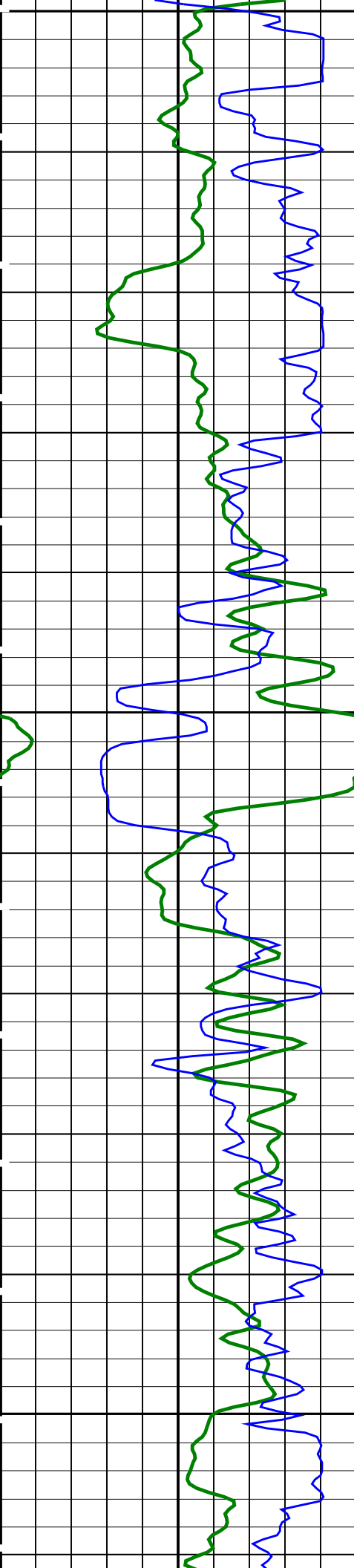




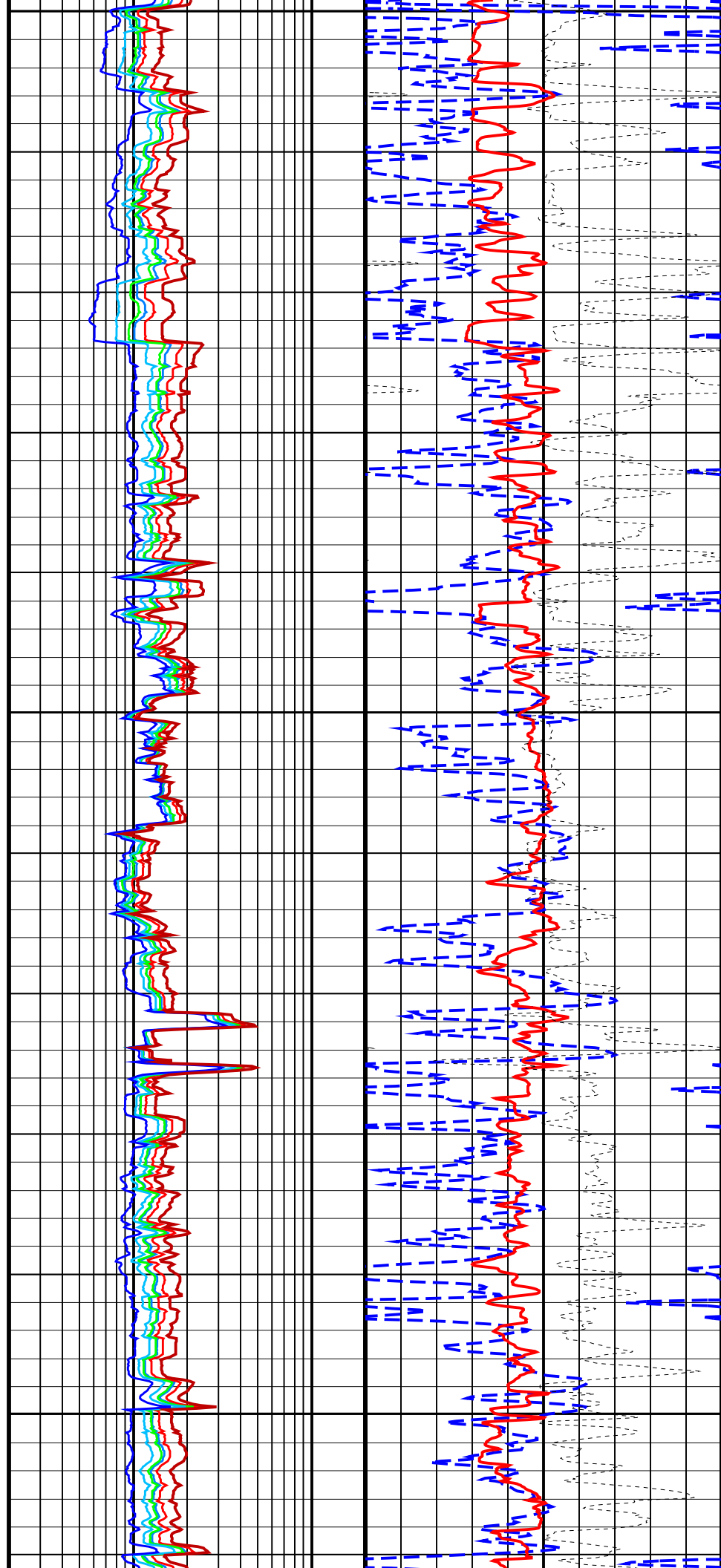
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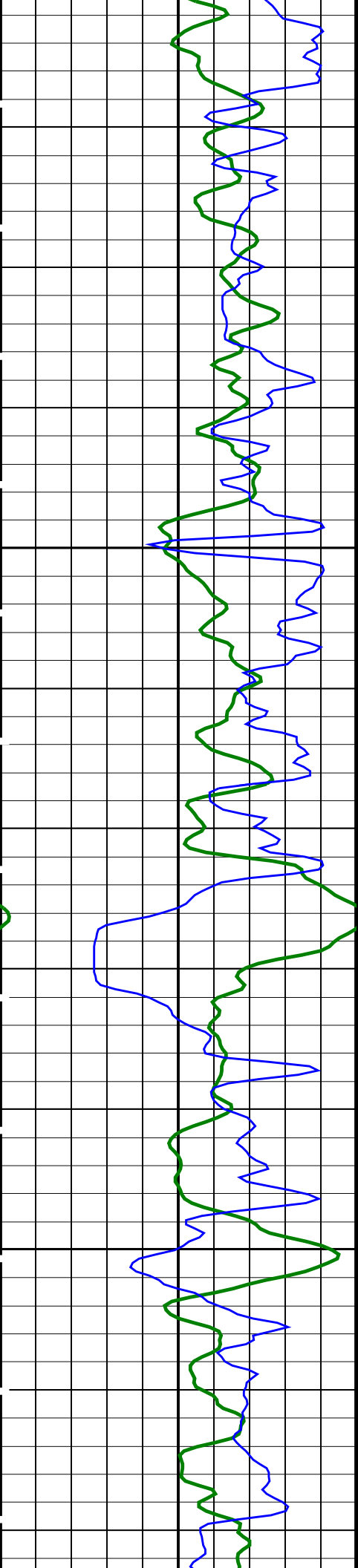
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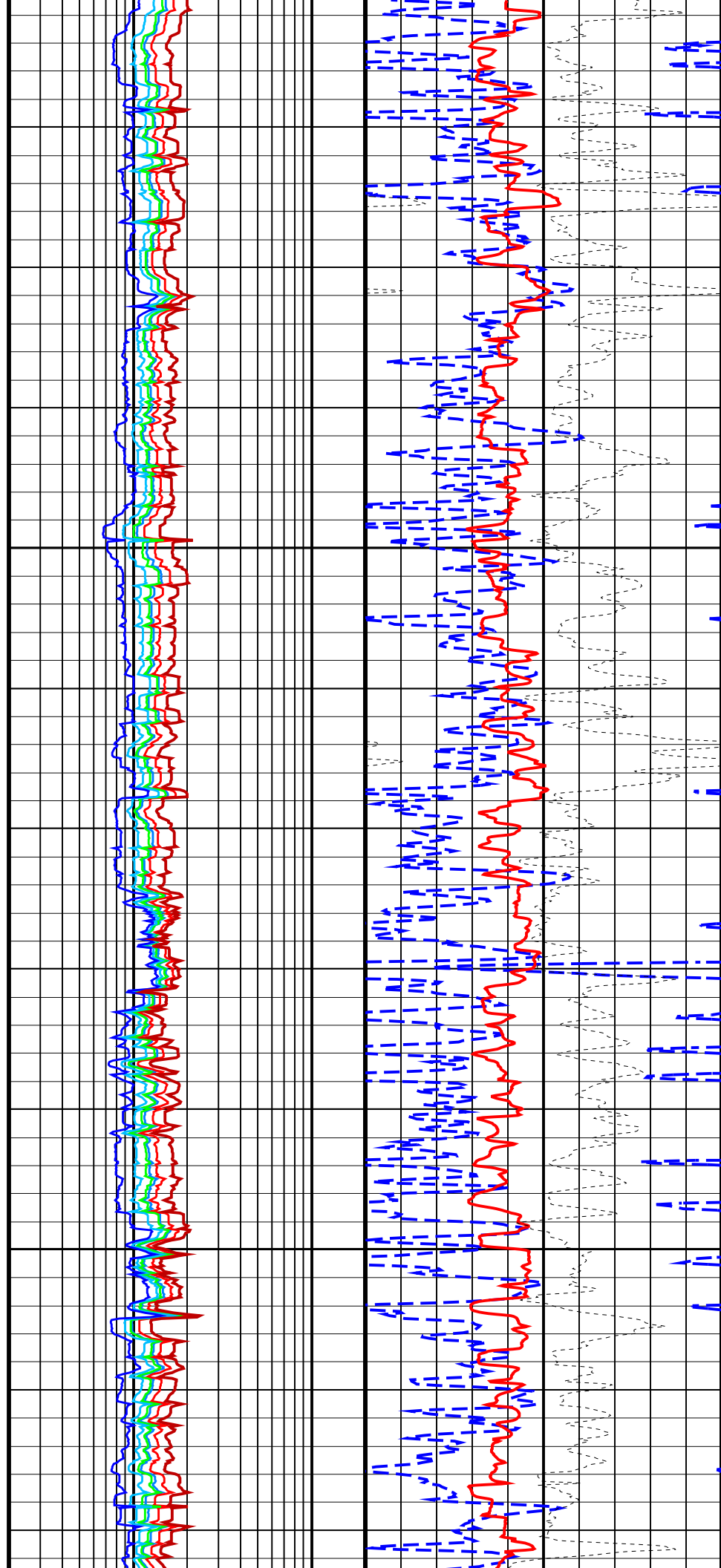
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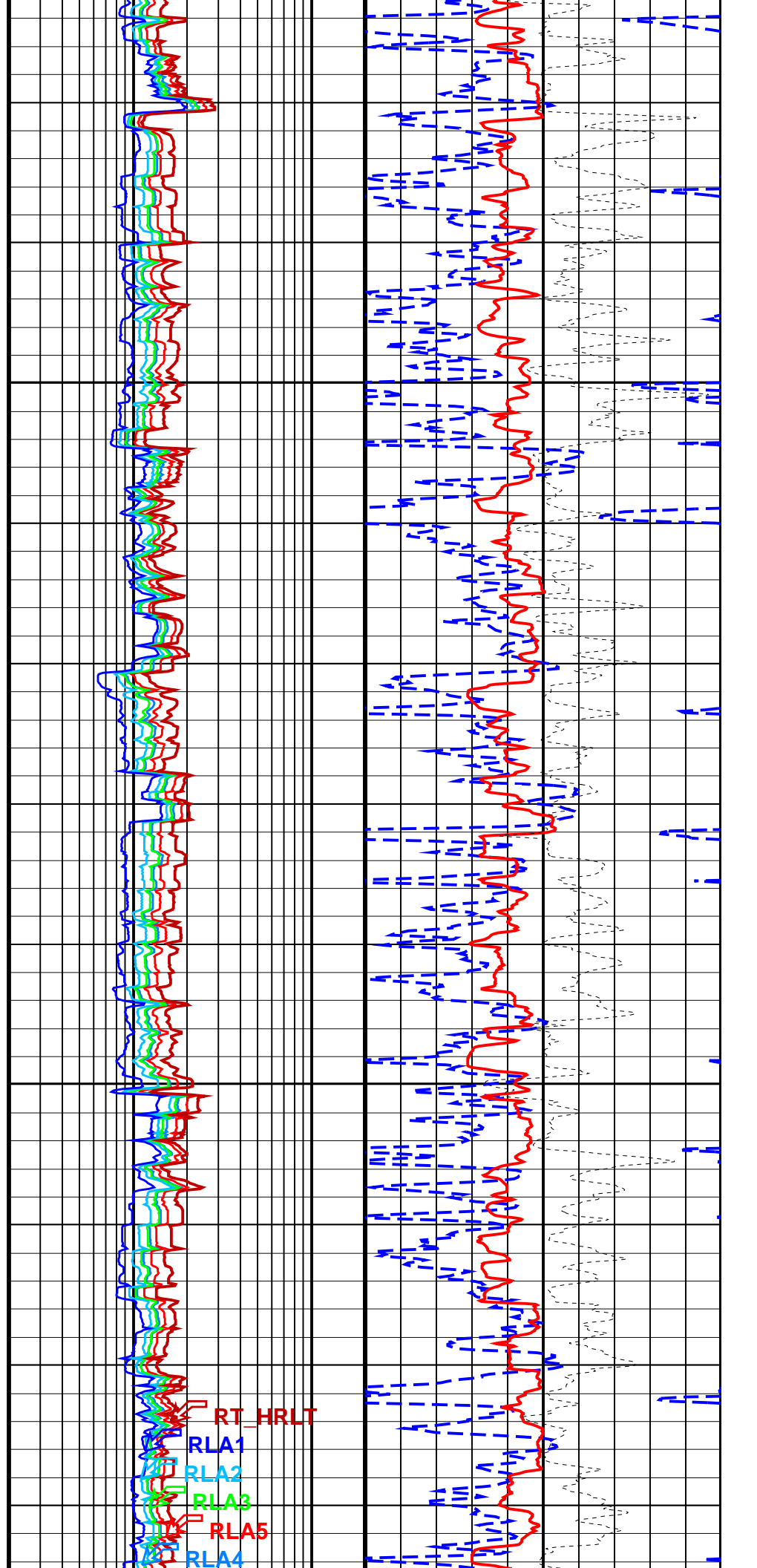
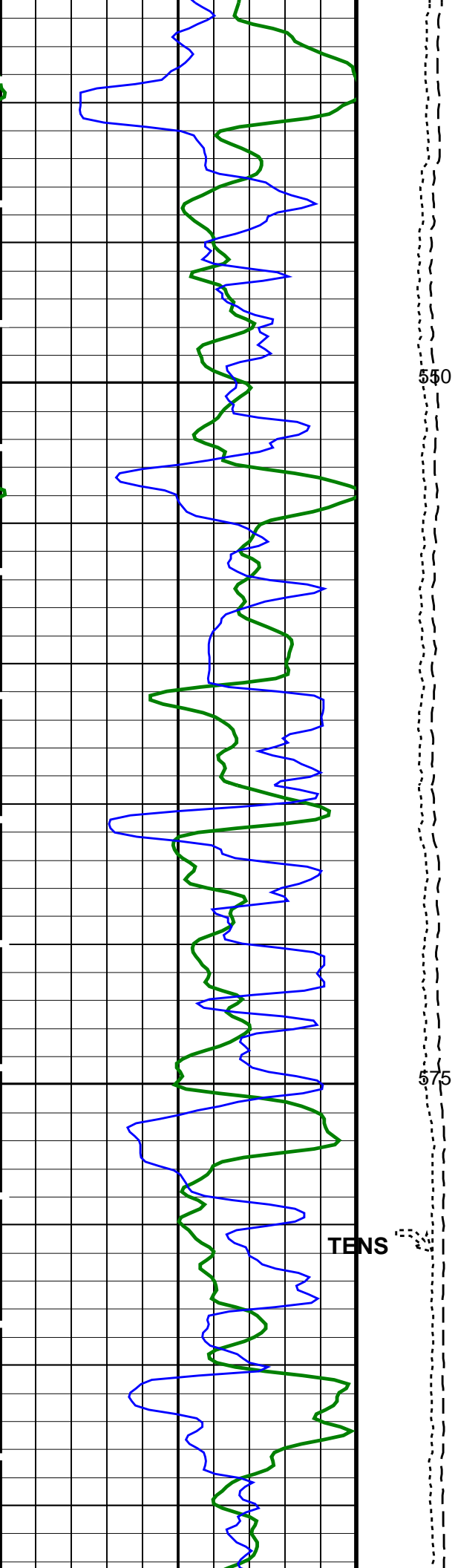


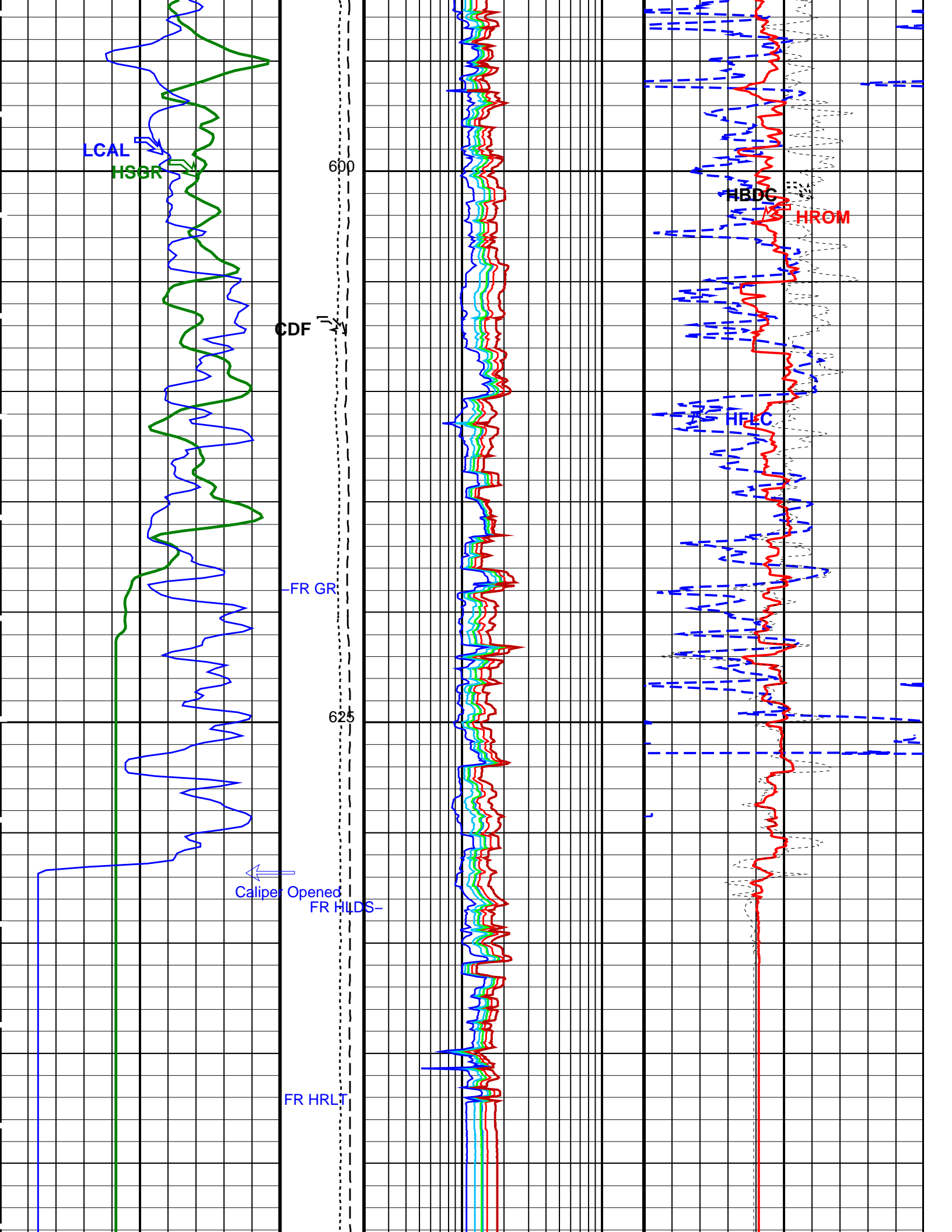


500

525







LATC	HLDS Activation Correction	ON	
LLDL	HLDS LS Low Level Discriminator DAC	14000	
LLDS	HLDS SS Low Level Discriminator DAC	14000	
LLML	HLDS LS Low Level Discriminator Mode	AUTO	
LLMS	HLDS SS Low Level Discriminator Mode	AUTO	
MDEN	Matrix Density	2.71	G/C3
PHVL	HLDS Long Spacing High Voltage Setting	1000	V
PHVS	HLDS Short Spacing High Voltage Setting	1000	V
PSDL	HLDS LS Pulse Shape Compensation DAC	30000	
PSDS	HLDS SS Pulse Shape Compensation DAC	30000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	

APS-C: Accelerator-Porosity Tool

AASD	APS Software Version	0	
ADSO	APS Thermal and Array Detectors High Voltage Setting	1962.18	V
AFSD	APS Array Detectors Data Source Switch	Both	
AHCS	APS Far Detector High Voltage Setting	2082.06	V
AHSS	APS Holesize Correction Source	BS	
AMTY	APS Holesize Correction Switch	ON	
ANSD	APS Environmental Corrections Mud Type	WaterBaseBarite	
ASOS	APS Near Detector High Voltage Setting	1731.78	V
ATSS	APS Standoff Correction Switch	ON	
BHFL_APS	APS Temperature-Pressure-Salinity Correction Switch	ON	
BHS	APS TNPH Borehole Fluid Type	WATER	
BHT	Borehole Status	OPEN	
BSCO_APS	Bottom Hole Temperature (used in calculations)	50	DEGF
DPPM	APS TNPH Borehole Salinity Correction Option	YES	
DSCO_APS	Density Porosity Processing Mode	HIRS	
FSAL	APS TNPH Density Source Correction Option	COMPUTED	
FSCO_APS	Formation Salinity	-50000	PPM
GCSE	APS TNPH Formation Salinity Correction Option	NO	
GDEV	Generalized Caliper Selection	BS	
GGRD	Average Angular Deviation of Borehole from Normal	0	DEG
GRSE	Geothermal Gradient	0.01	DF/F
GTSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
HSCO_APS	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	APS TNPH Hole Size Correction Option	YES	
MATR	Barite Mud Switch	NOBARITE	
MCCO_APS	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCOR_APS	APS TNPH Mud Cake Correction Option	YES	
MWCO_APS	APS TNPH Mud Correction	NATU	
NARC	APS TNPH Mud Weight Correction Option	YES	
NFRC	APS Near/Array Calibration Ratio	1.05701	
PTCO_APS	APS Near/Far Calibration Ratio	0.887966	
SHT	APS TNPH Pressure/Temperature Correction Option	YES	
TNCO_APS	Surface Hole Temperature	68	DEGF
	APS TNPH Computation Option	YES	

HNGS-BA: Hostile Natural Gamma Ray Sonde

BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	-0.00256348	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	68	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.972325	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.970487	

EDTC-B: Enhanced DTS Cartridge

BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
BSCO	Borehole Salinity Correction Option	NO	
BCCO	Casing & Cement Thickness Correction Option	NO	

COCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	68	DEGF
SOCN	Standoff Distance	0	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
U-ETELM_EDTS	Telemetry Mode for eWAFE	Standard_EDTS	
U-TELM_EDTS	Telemetry Mode for WAFE	Standard_EDTS	
System and Miscellaneous			
ALTDPCCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	10.750	IN
CWEI	Casing Weight	43.00	LB/F
DFD	Drilling Fluid Density	1.25	G/C3
DO	Depth Offset for Playback	-568.0	M
FLEV	Fluid Level	-50000.00	M
MST	Mud Sample Temperature	-50000.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	NORMAL	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	-50000	FT
TDD	Total Depth - Driller	870.00	M
TDL	Total Depth - Logger	650.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: TripleCombo Vertical Scale: 1:200 Graphics File Created: 28-Dec-2011 22:41

OP System Version: 19C0-187

HRLT-B	19C0-187	HLDS	19C0-187
LDSC-B	19C0-187	APS-C	19C0-187
HNGC-B	19C0-187	HNGS-BA	19C0-187
EDTC-B	19C0-187		

Input DLIS Files

DEFAULT	HRLA_LDL_APS_NGS_037PUP	FN:49	PRODUCER	17-Dec-2011 14:10	1218.4 M	560.4 M
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Output DLIS Files

DEFAULT	HRLA_LDL_APS_NGS_060PUP	FN:78	PRODUCER	28-Dec-2011 22:41		
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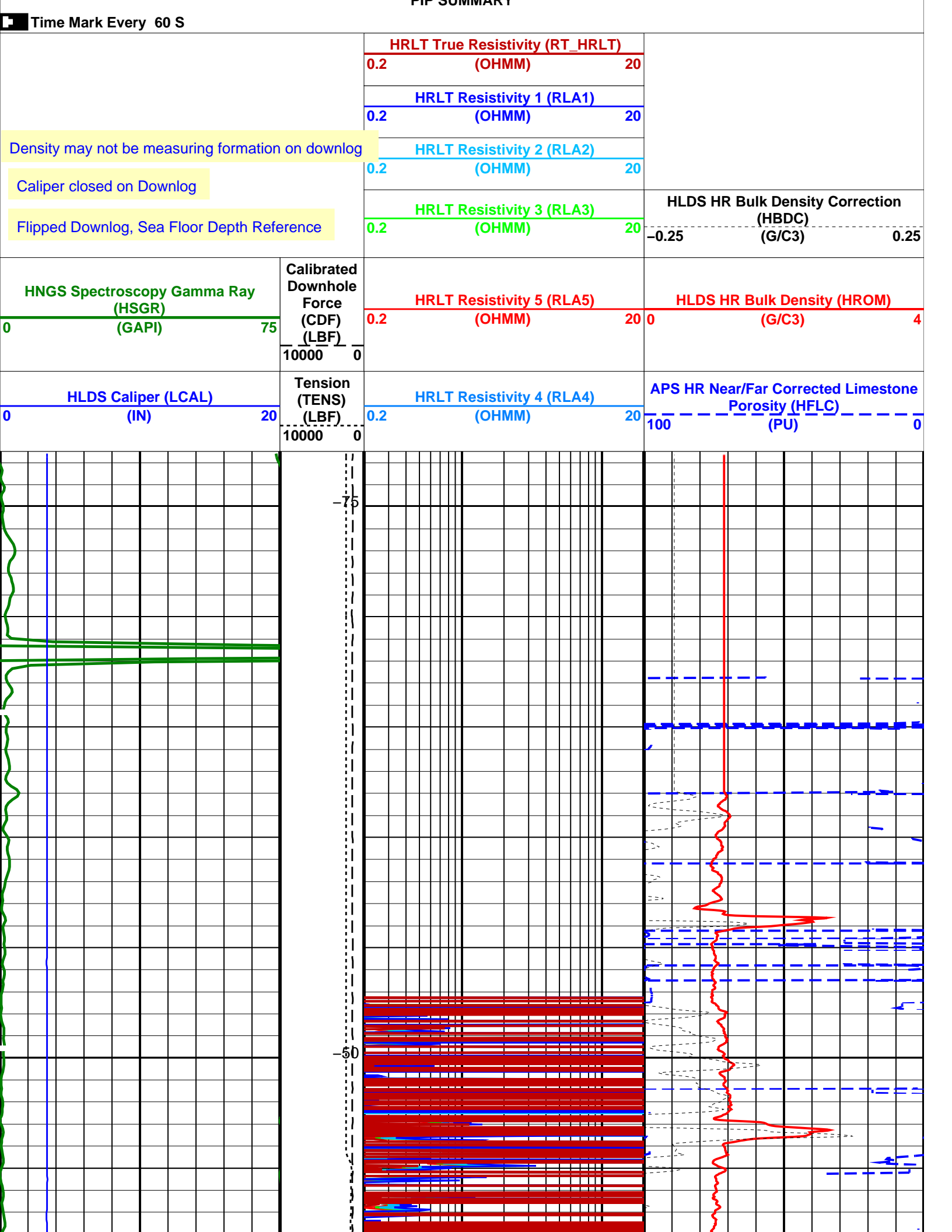
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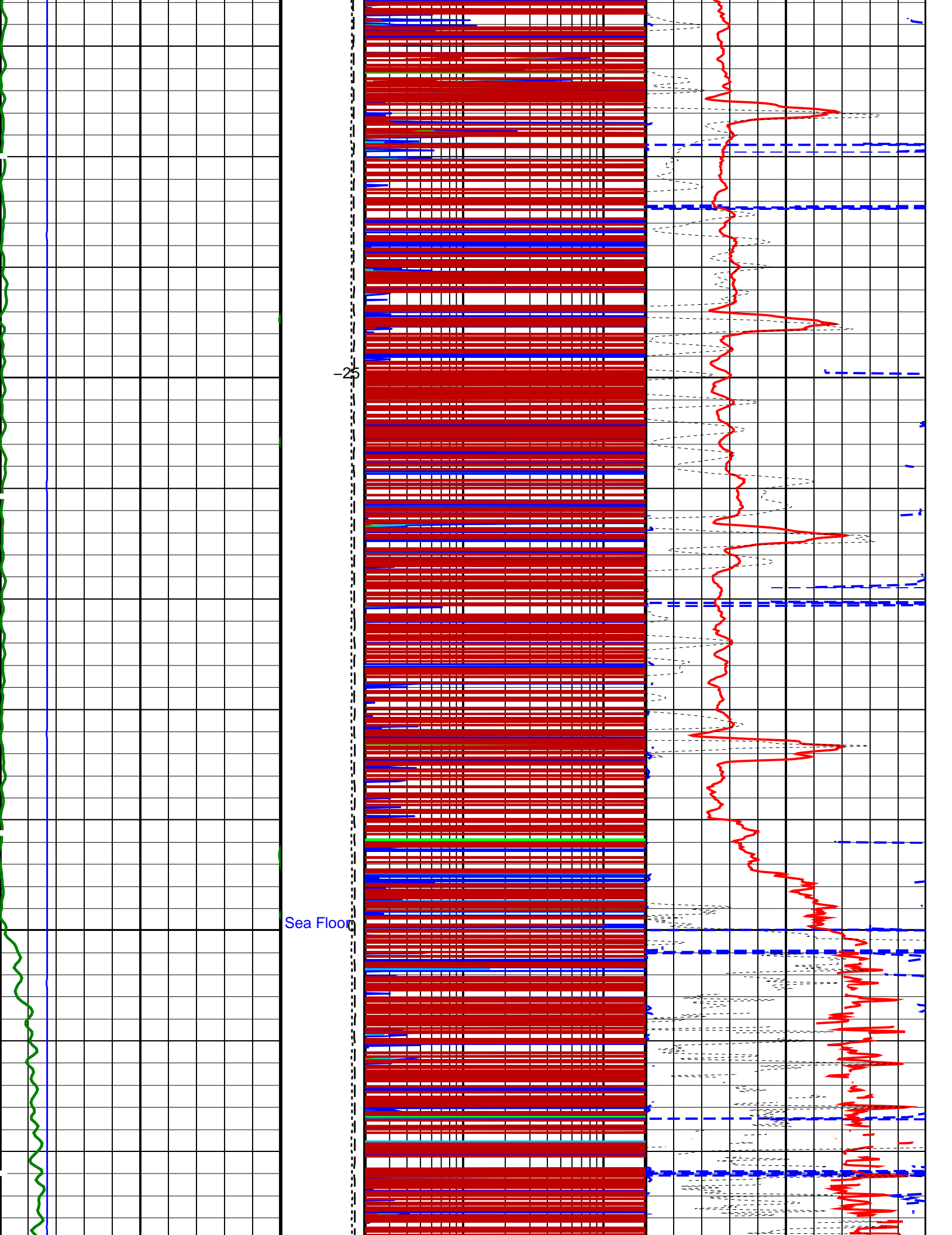
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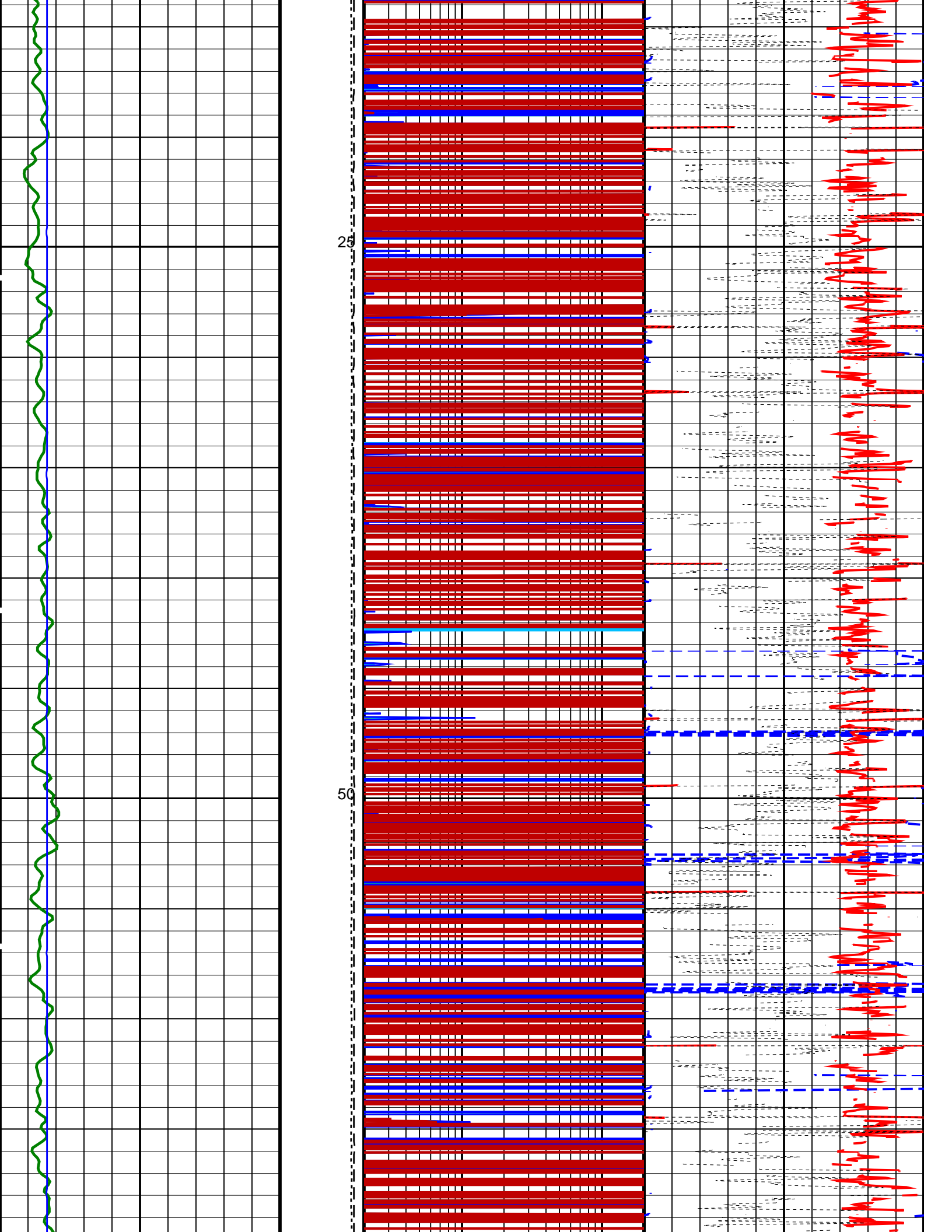
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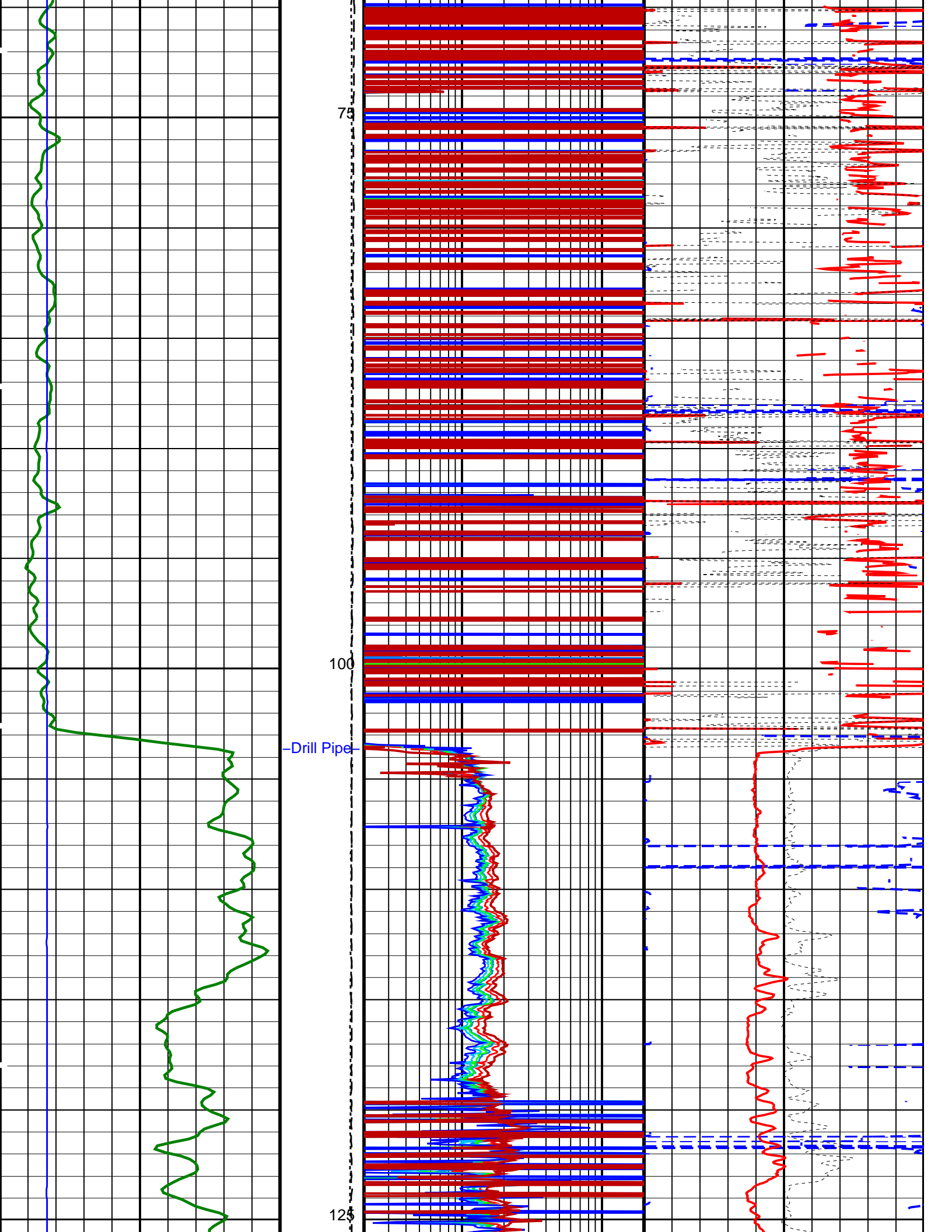
OP System Version: 19C0-187

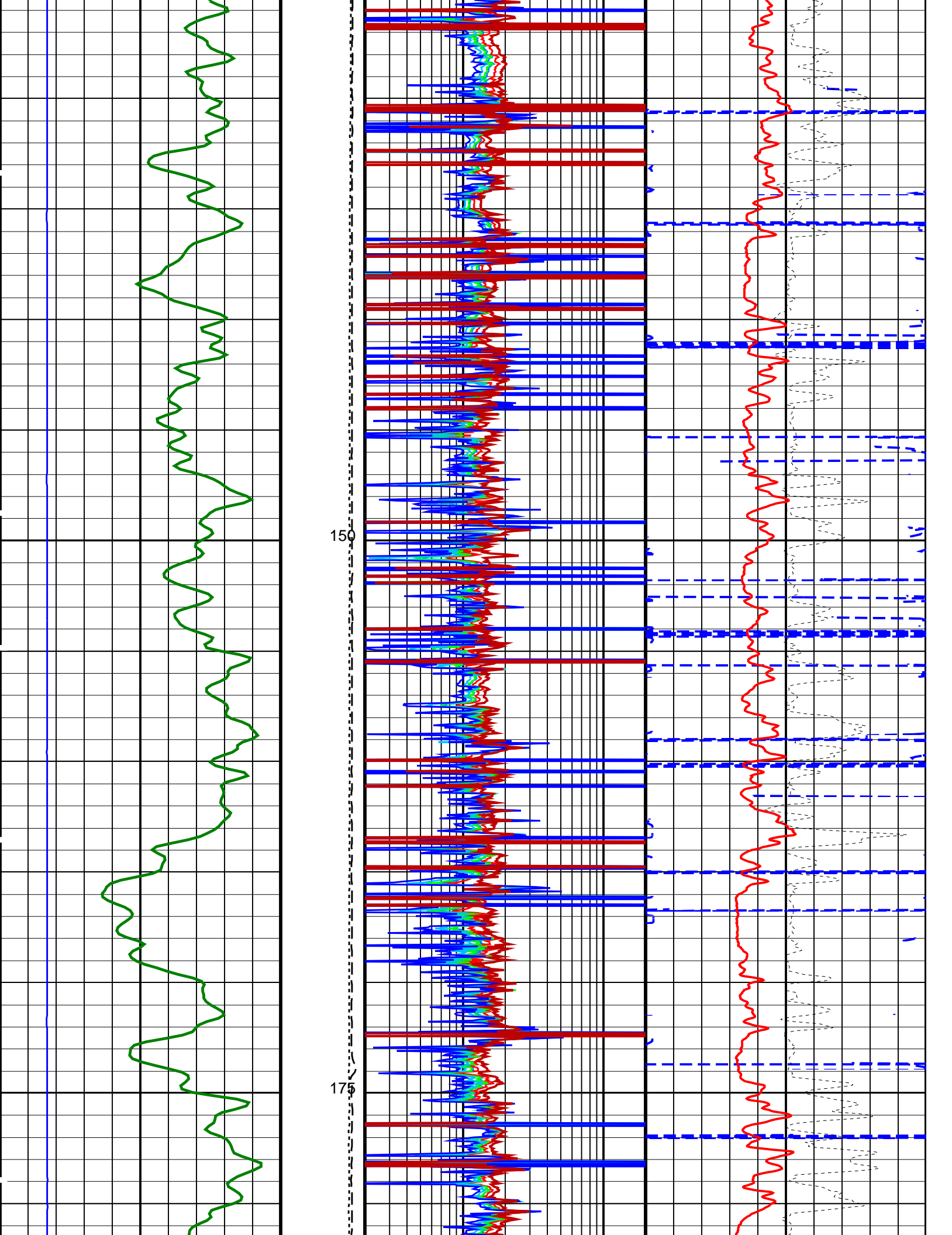
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LDSC-B	19C0-187	APS-C	19C0-187
HNGC-B	19C0-187	HNGS-BA	19C0-187
EDTC-B	19C0-187		

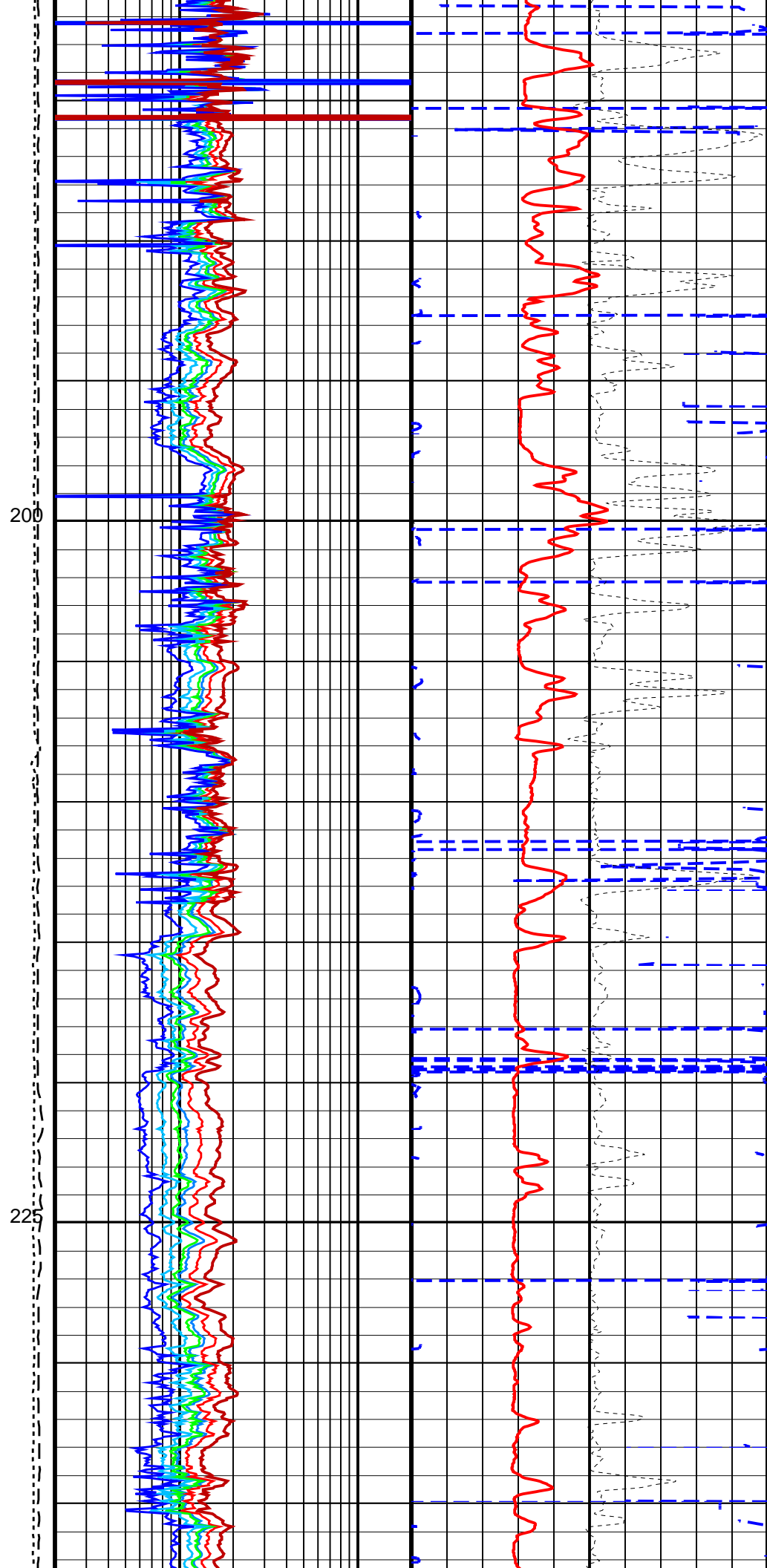
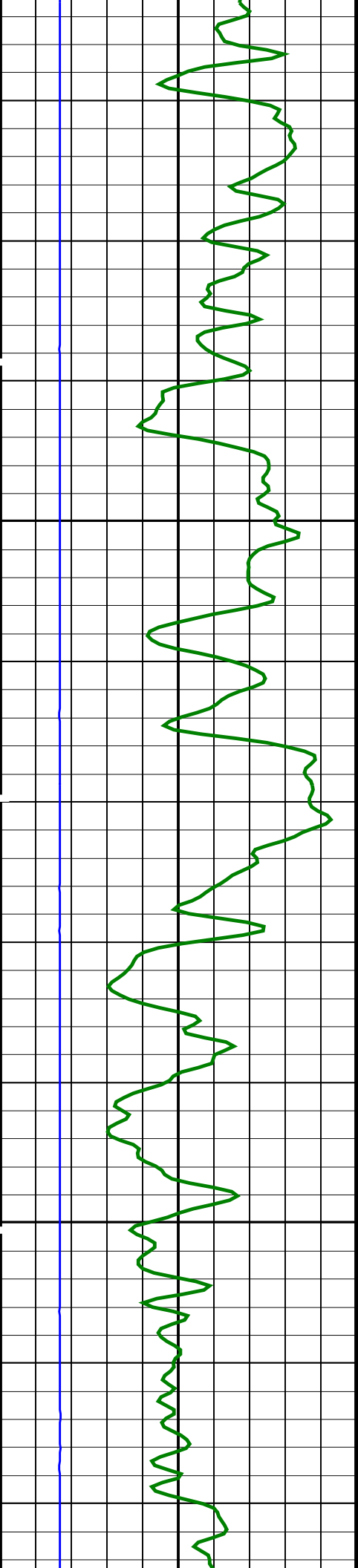


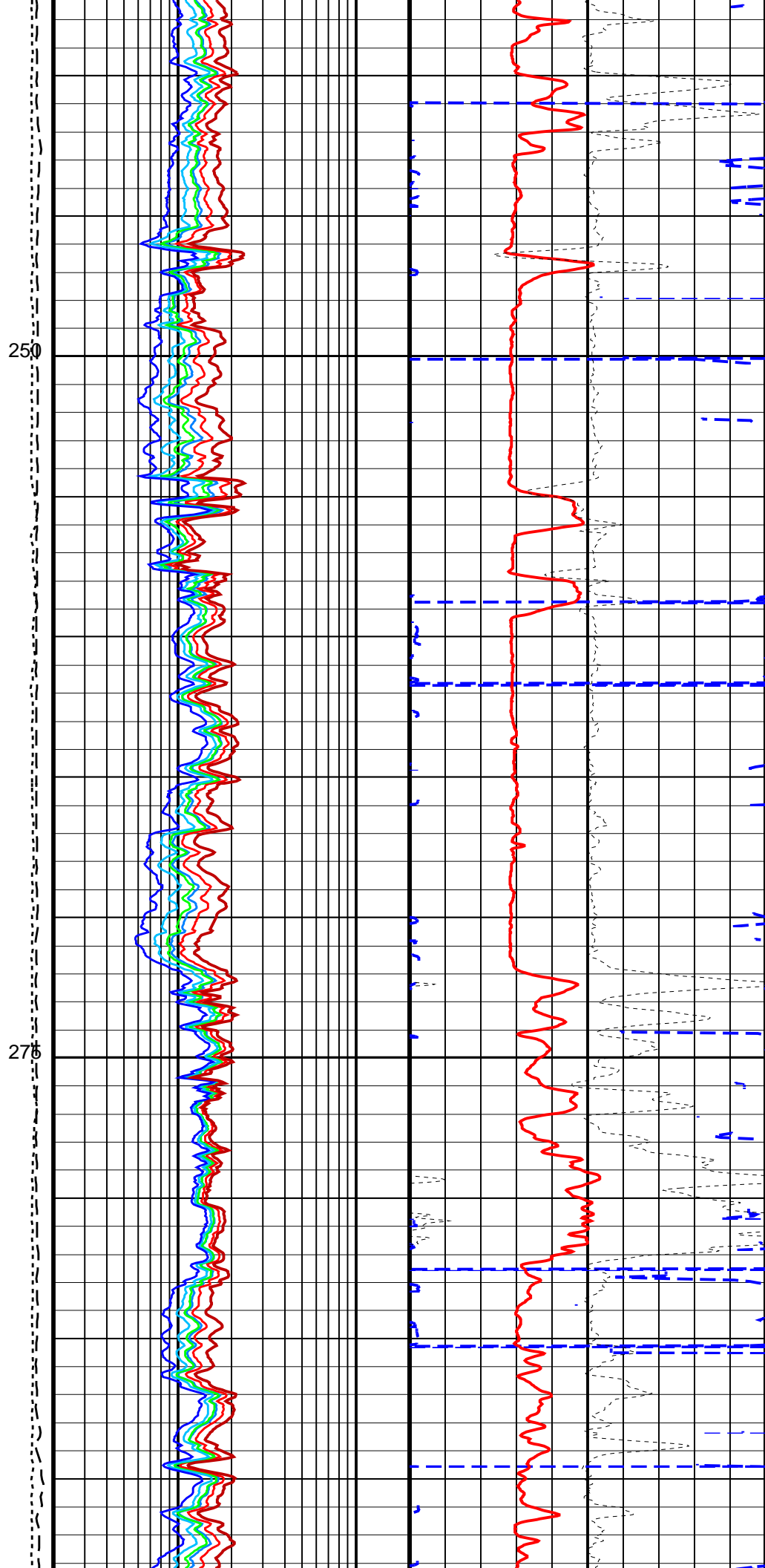
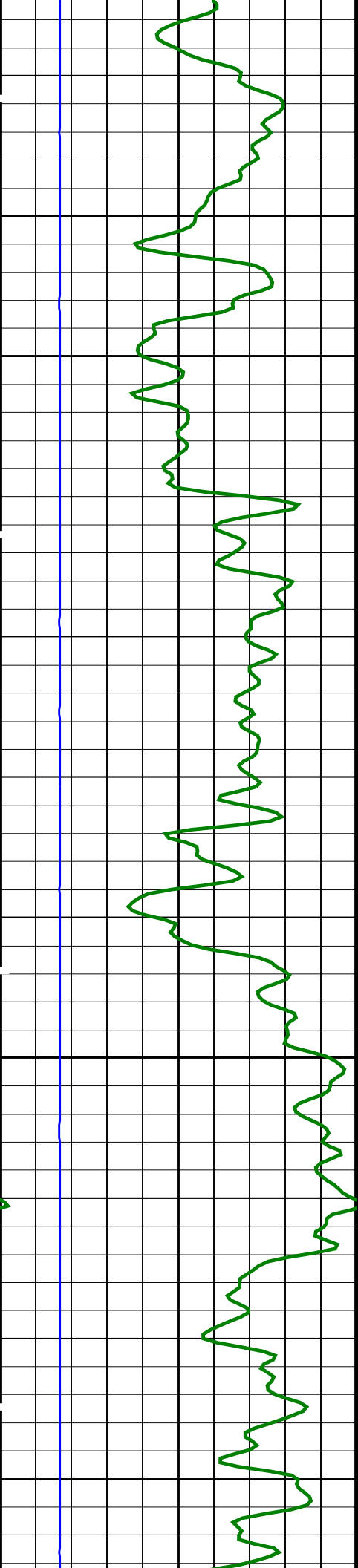


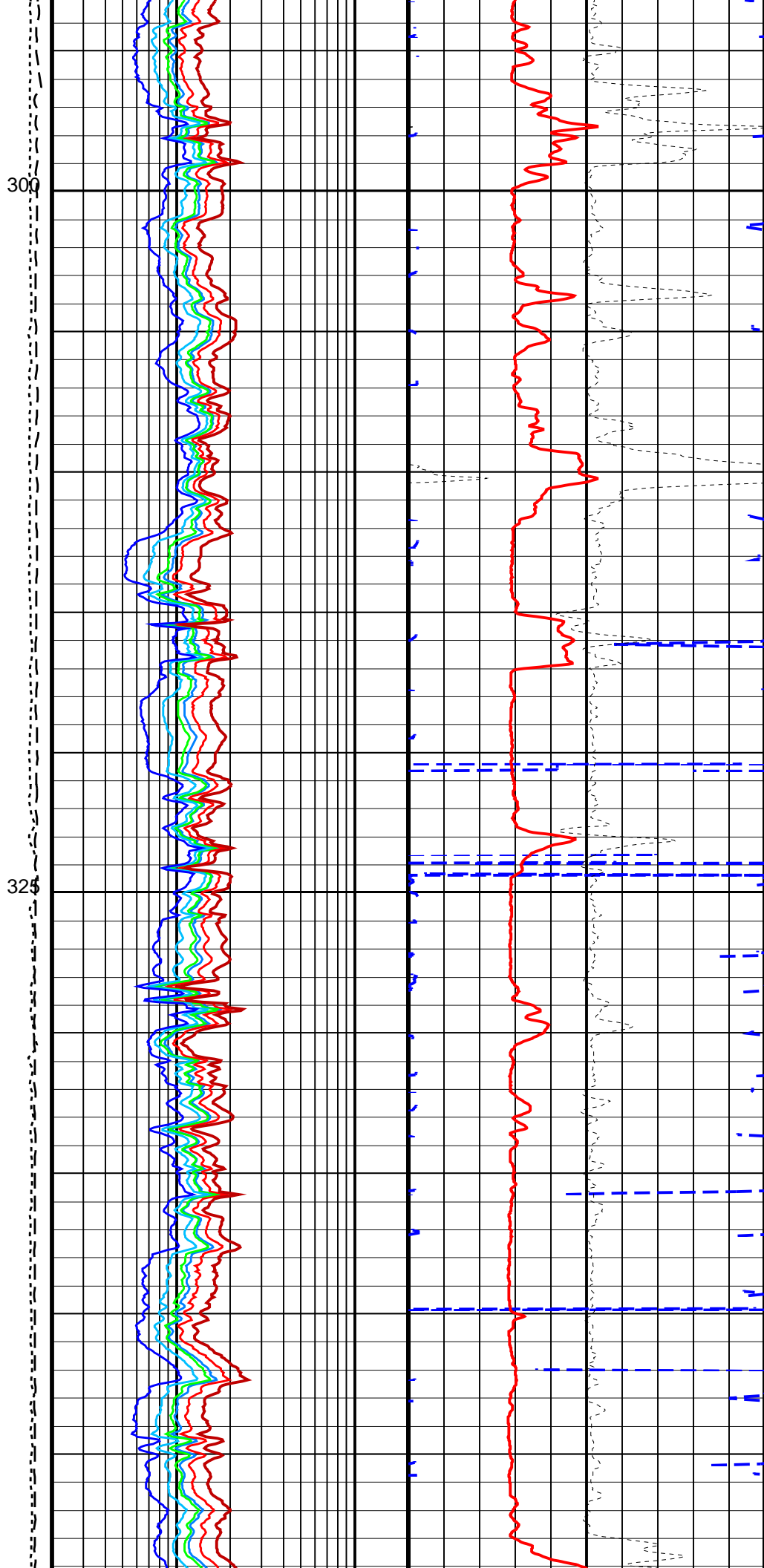
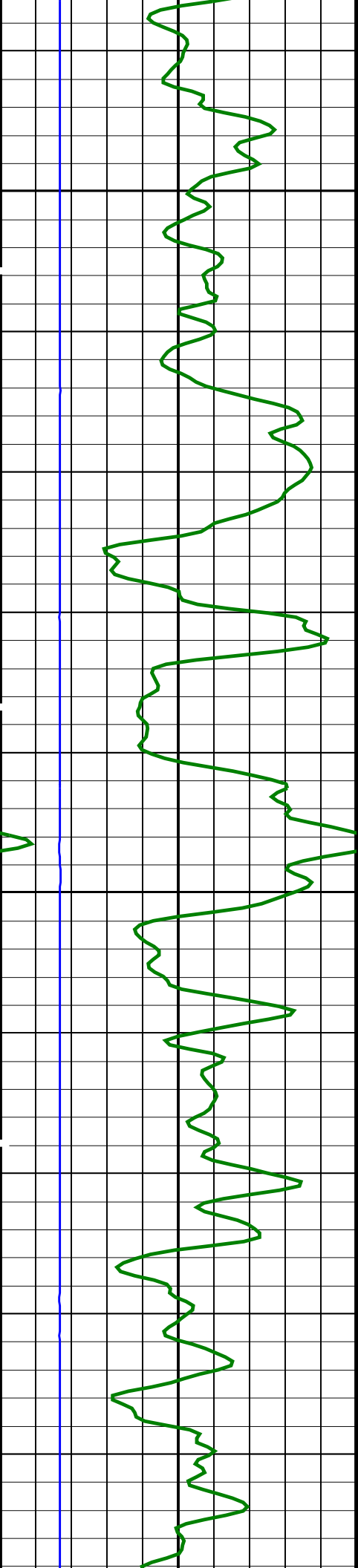


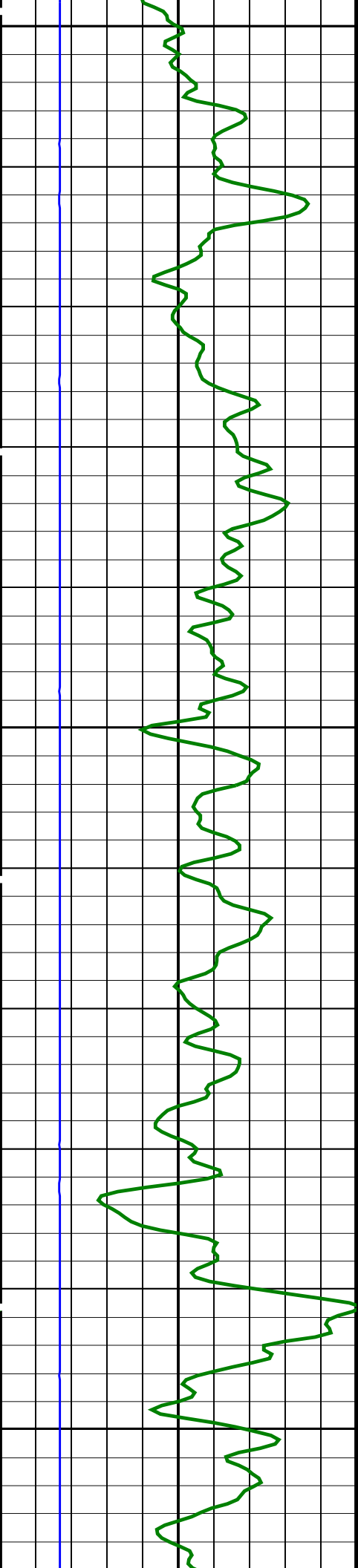








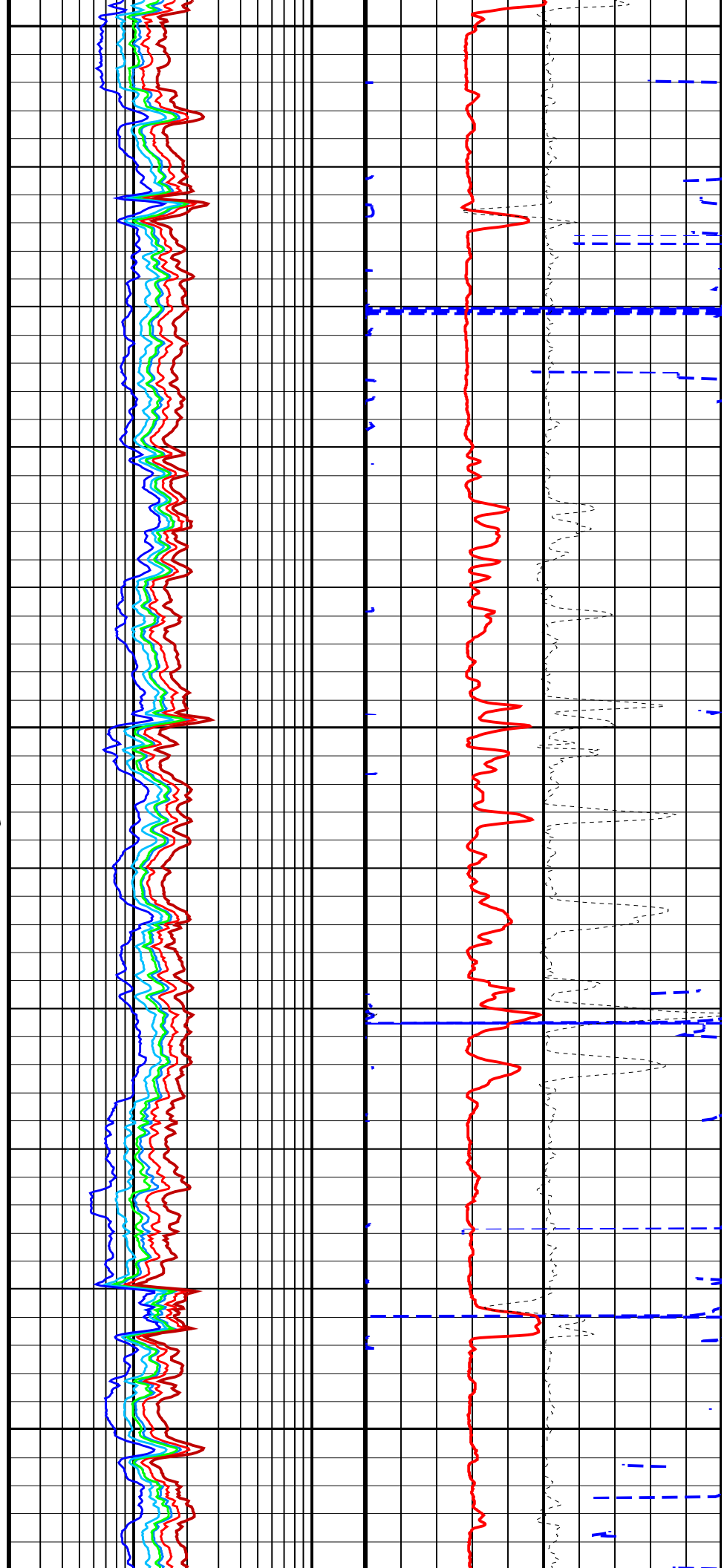


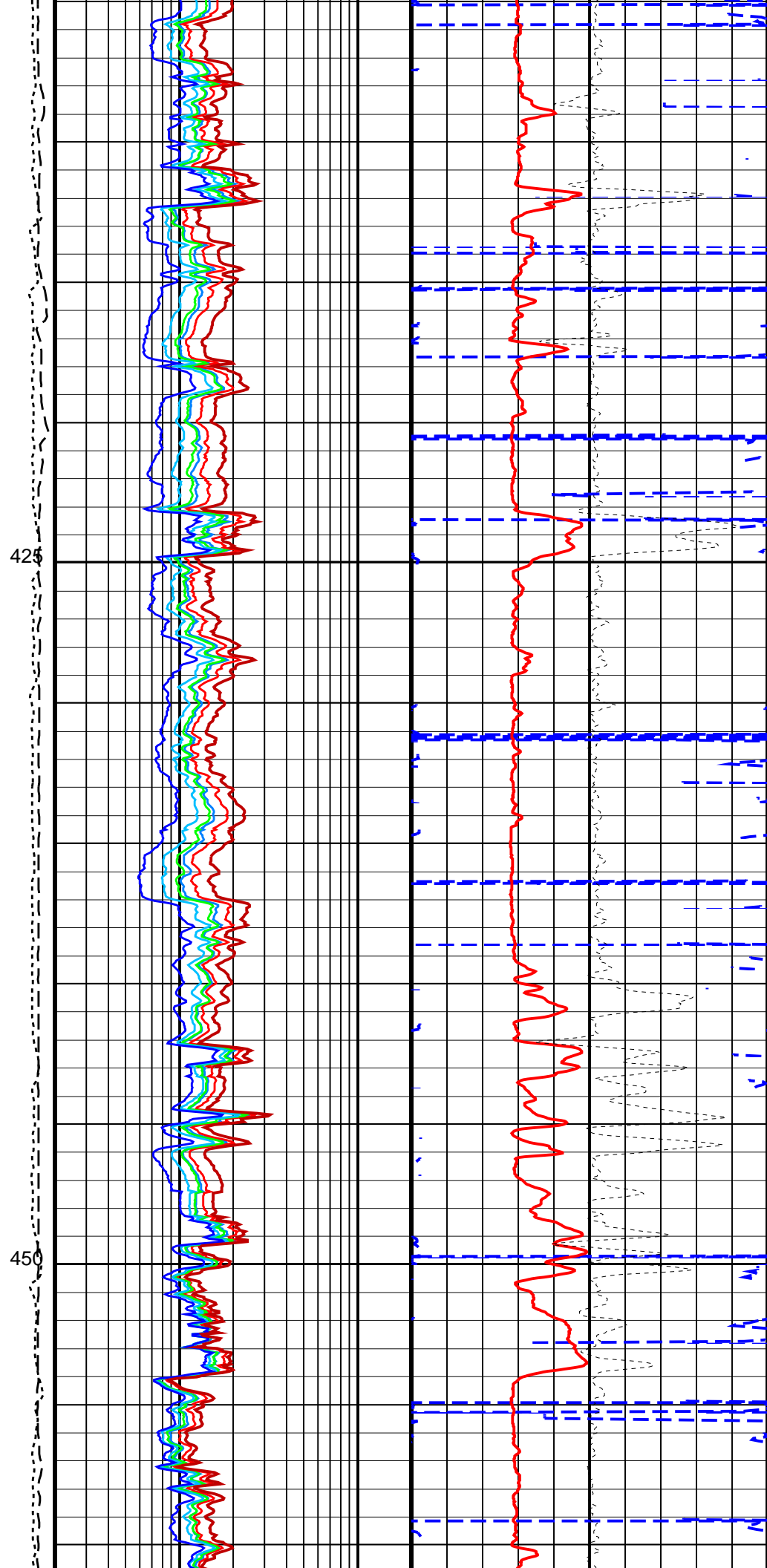
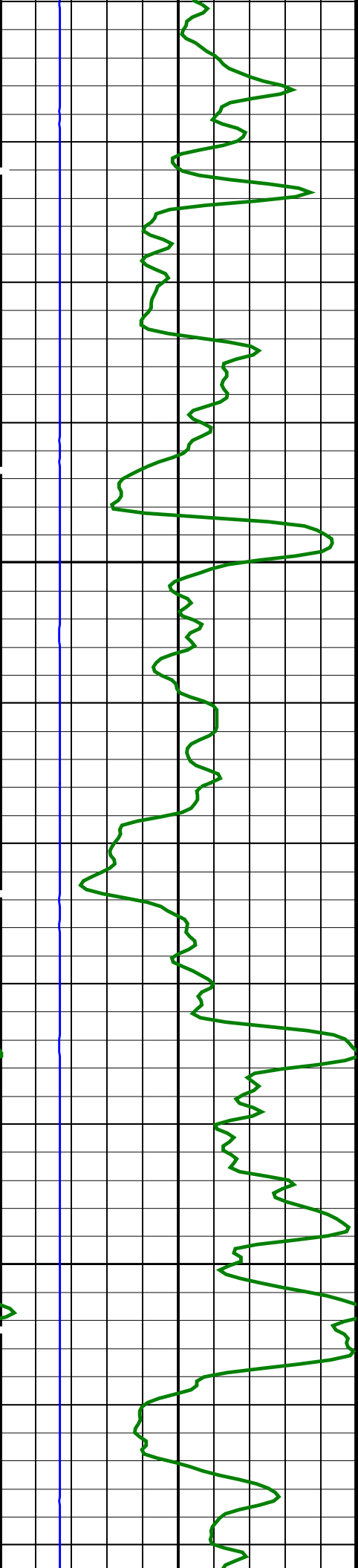


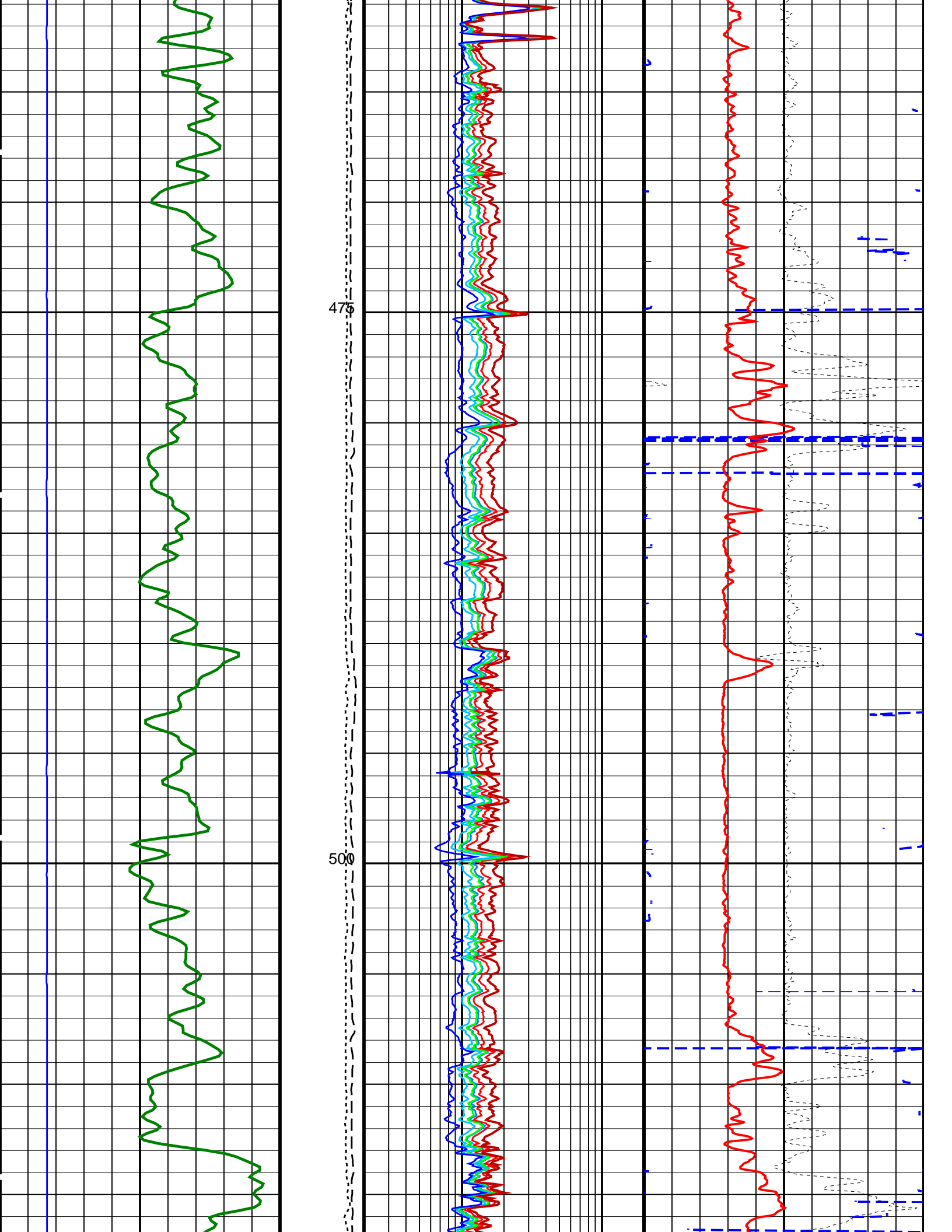
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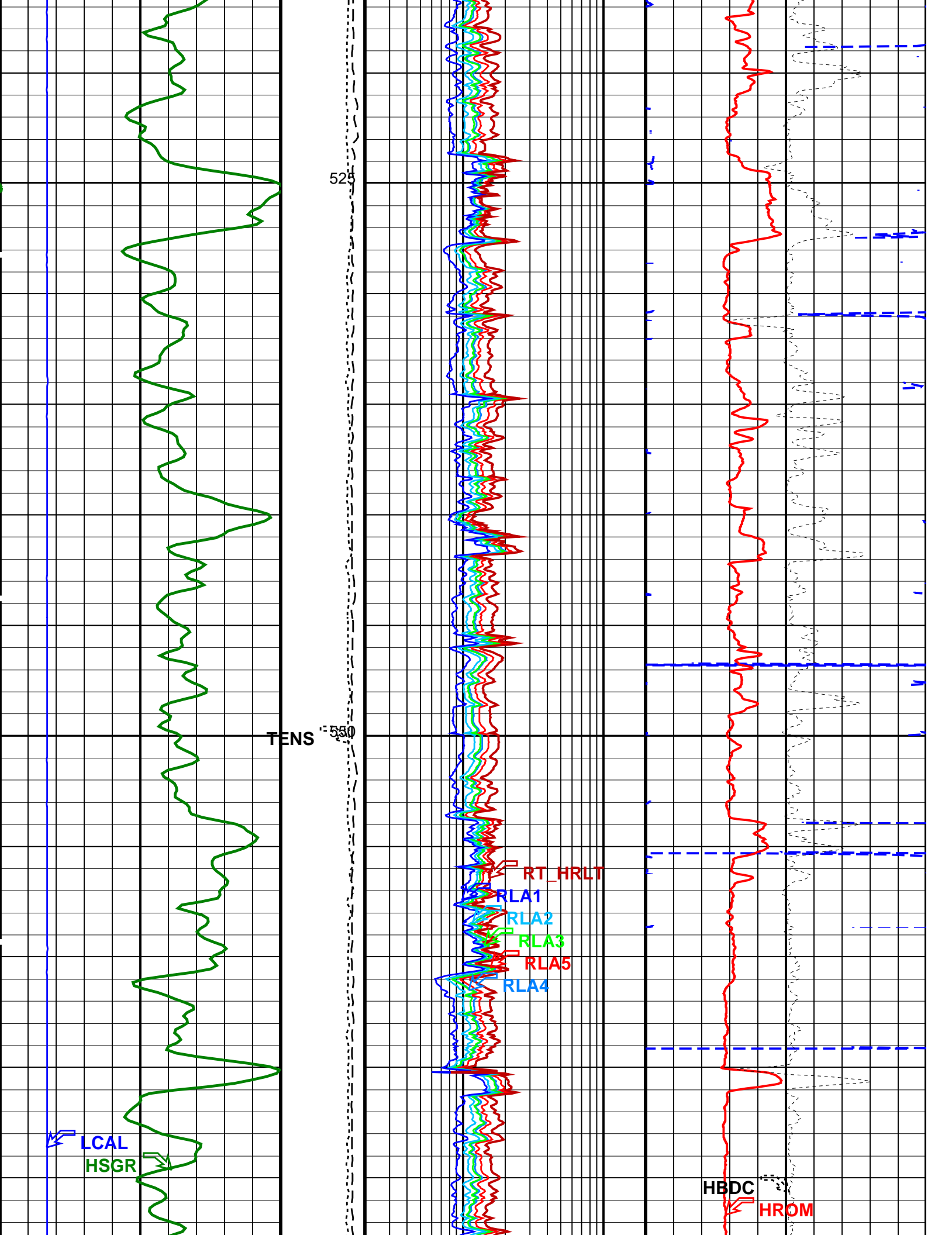
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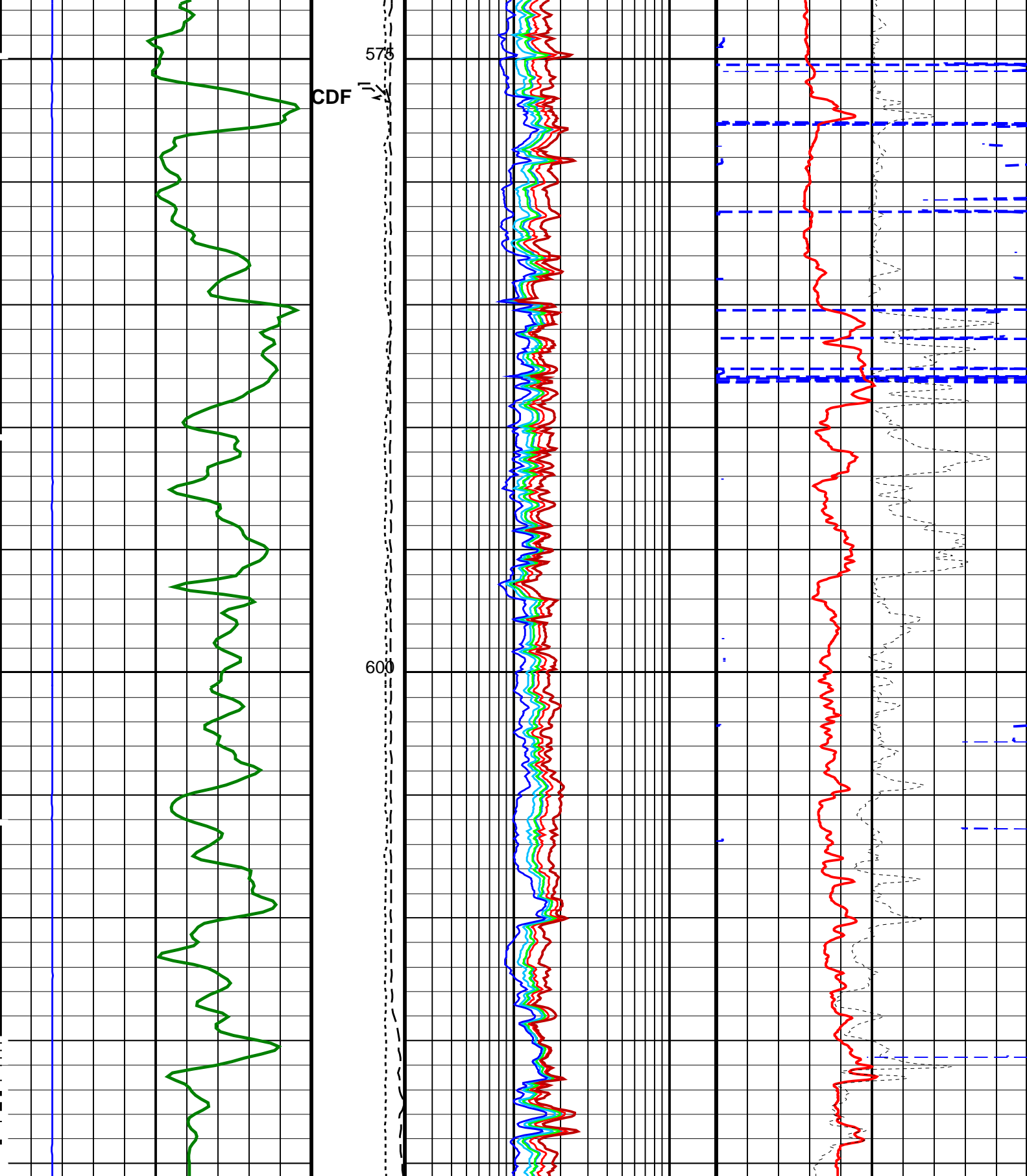
400











HLDS Caliper (LCAL) (IN)		Tension (TENS) (LBF)	HRLT Resistivity 4 (RLA4) (OHMM)		APS HR Near/Far Corrected Limestone Porosity (HFLC) (PU)	
0	20	10000 0	0.2	20	100	0
HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)		Calibrated Downhole Force (CDF) (LBF)	HRLT Resistivity 5 (RLA5) (OHMM)		HLDS HR Bulk Density (HROM) (G/C3)	
0	75	10000 0	0.2	20 0		4

	10000	0		
Flipped Downlog, Sea Floor Depth Reference	HRLT Resistivity 3 (RLA3)		HLDS HR Bulk Density Correction	
	0.2	(OHMM)	20	(HBDC)
Caliper closed on Downlog	HRLT Resistivity 2 (RLA2)			
	0.2	(OHMM)	20	
Density may not be measuring formation on downlog	HRLT Resistivity 1 (RLA1)			
	0.2	(OHMM)	20	
	HRLT True Resistivity (RT_HRLT)			
	0.2	(OHMM)	20	

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
HRLT-B: High Resolution Laterolog Array – B			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
CALSTAT	HRLTB Calibration Status	SHALLOW_DONE	
CALTEMP	HRLTB Calibration Temperature	22.4104	DEGC
FREQ0	HRLT Frequency Index for Mode 0	32	
FREQ1	HRLT Frequency Index for Mode 1	128	
FREQ2	HRLT Frequency Index for Mode 2	104	
FREQ3	HRLT Frequency Index for Mode 3	86	
FREQ4	HRLT Frequency Index for Mode 4	56	
FREQ5	HRLT Frequency Index for Mode 5	44	
FREQ6	HRLT Frequency Index for Mode 6	116	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	NOBARITE	
KFAC_HRLT	HRLT K Factor Option	SONDE	
LOOPCOEF_S	HRLT Loop Coefficient for Shallow Modes	LOW	
LOOPMOD0	HRLT Mode 0 Loop Mode	OFF	
LOOPMOD1	HRLT Mode 1 Loop Mode	OFF	
LOOPMOD2	HRLT Mode 2 Loop Mode	OFF	
LOOPMOD3	HRLT Mode 3 Loop Mode	OFF	
LOOPMOD4	HRLT Mode 4 Loop Mode	OFF	
LOOPMOD5	HRLT Mode 5 Loop Mode	OFF	
LOOPMOD6	HRLT Mode 6 Loop Mode	OFF	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
PROCINV	Inversion Selection	ON	
PROCML	Inversion Micro-Resistivity Selection	NO_EXTERNAL_RXO	
PROCMSO	Mechanical Standoff Fin Size	0	IN
PROCRM	Processing Mud Resistivity Select	HRLT_Compute	
PROCSP0	Sonde Position	Centered	
SHT	Surface Hole Temperature	68	DEGF
HLDS: Hostile Litho-Density Sonde			
CLCL	HLDS LS Control Loop Controller Mode	AUTO_DEFAULT	
CLCS	HLDS SS Control Loop Controller Mode	AUTO_DEFAULT	
CLLS	HLDS Mode Loop Long Spacing	AUTO	
CLSS	HLDS Mode Loop Short Spacing	AUTO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1	G/C3
LATC	HLDS Activation Correction	ON	
LLDL	HLDS LS Low Level Discriminator DAC	14000	
LLDS	HLDS SS Low Level Discriminator DAC	14000	
LLML	HLDS LS Low Level Discriminator Mode	AUTO	
LLMS	HLDS SS Low Level Discriminator Mode	AUTO	
MDEN	Matrix Density	2.71	G/C3
PHVL	HLDS Long Spacing High Voltage Setting	1000	V
PHVS	HLDS Short Spacing High Voltage Setting	1000	V
PSDL	HLDS LS Pulse Shape Compensation DAC	30000	
PSDS	HLDS SS Pulse Shape Compensation DAC	30000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	
APS-C: Accelerator-Porosity Tool			
	APS Software Version	0	
AASD	APS Thermal and Array Detectors High Voltage Setting	1962.18	V
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2082.06	V

AHCS	APS Holesize Correction Source	BS	
AHSS	APS Holesize Correction Switch	ON	
AMTY	APS Environmental Corrections Mud Type	WaterBaseBarite	
ANSD	APS Near Detector High Voltage Setting	1731.78	V
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature-Pressure-Salinity Correction Switch	ON	
BHFL_APS	APS TNPH Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
BSCO_APS	APS TNPH Borehole Salinity Correction Option	YES	
DPPM	Density Porosity Processing Mode	HIRS	
DSCO_APS	APS TNPH Density Source Correction Option	COMPUTED	
FSAL	Formation Salinity	-50000	PPM
FSCO_APS	APS TNPH Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO_APS	APS TNPH Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO_APS	APS TNPH Mud Cake Correction Option	YES	
MCOR_APS	APS TNPH Mud Correction	NATU	
MWCO_APS	APS TNPH Mud Weight Correction Option	YES	
NARC	APS Near/Array Calibration Ratio	1.05701	
NFRC	APS Near/Far Calibration Ratio	0.887966	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	YES	
SHT	Surface Hole Temperature	68	DEGF
TNCO_APS	APS TNPH Computation Option	YES	
HNGBS-BA: Hostile Natural Gamma Ray Sonde			
BAR1	HNGBS Detector 1 Barite Constant	1	
BAR2	HNGBS Detector 2 Barite Constant	1	
BHK	HNGBS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGBS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGBS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGBS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGBS Borehole Potassium Running Average	-0.00256348	
HALF	HNGBS Alpha Filter Length	60	IN
HCRB	HNGBS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGBS Processing Enable	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGBS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGBS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGBS Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	68	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGBS Detector 1 Variable Barite Factor Running Average	0.972325	
VBA2	HNGBS Detector 2 Variable Barite Factor Running Average	0.970487	
EDTCS-B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	50	DEGF
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	

SDAT	Standard Data Source	68	DEGF
SHT	Surface Hole Temperature	0	IN
SOCN	Standoff Distance	NO	
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
U-ETELM_EDTS	Telemetry Mode for eWAFE	Standard_EDTS	
U-TELM_EDTS	Telemetry Mode for WAFE	Standard_EDTS	
System and Miscellaneous			
ALTDPCCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	10.750	IN
CWEI	Casing Weight	43.00	LB/F
DFD	Drilling Fluid Density	1.25	G/C3
DO	Depth Offset for Playback	-569.0	M
FLEV	Fluid Level	-50000.00	M
MST	Mud Sample Temperature	-50000.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	NORMAL	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	-50000	FT
TDD	Total Depth - Driller	870.00	M
TDL	Total Depth - Logger	650.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: TripleCombo Vertical Scale: 1:200 Graphics File Created: 28-Dec-2011 23:07

OP System Version: 19C0-187

HRLT-B	19C0-187	HLDS	19C0-187
LDSC-B	19C0-187	APS-C	19C0-187
HNGC-B	19C0-187	HNGS-BA	19C0-187
EDTC-B	19C0-187		

Input DLIS Files

DEFAULT	Flip_HRLA_LDL_APS_055LUP	PRODUCER	28-Dec-2011 22:18	1189.6 M	491.5 M
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Output DLIS Files

DEFAULT	HRLA_LDL_APS_NGS_061PUP	FN:79	PRODUCER	28-Dec-2011 23:07
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Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High Resolution Laterolog Array - B Wellsite Calibration - HRLT M01							
Before: 17-Dec-2011 2:13 After: 17-Dec-2011 8:15							
HRLT M0-M1 Voltage Plus - 0	0	N/A	-319.1	-318.5	0.6041	9.681	UV
HRLT M0-M1 Voltage Plus - 1	0	N/A	-334.0	-331.6	2.329	9.681	UV
HRLT M0-M1 Voltage Plus - 2	0	N/A	-335.1	-333.4	1.640	9.681	UV
HRLT M0-M1 Voltage Plus - 3	0	N/A	-338.3	-336.7	1.649	9.681	UV
HRLT M0-M1 Voltage Plus - 4	0	N/A	-326.3	-325.3	1.021	9.681	UV
HRLT M0-M1 Voltage Plus - 5	0	N/A	-322.4	-321.5	0.8535	9.681	UV
HRLT M0-M1 Voltage Plus - 6	0	N/A	326.4	322.6	-3.747	9.681	UV
HRLT M0-M1 Voltage Plus - 7	0	N/A	-322.7	-322.7	0	9.681	UV
High Resolution Laterolog Array - B Wellsite Calibration - HRLT M12							
Before: 17-Dec-2011 2:13 After: 17-Dec-2011 8:15							
HRLT M1-M2 Voltage Plus - 0	0	N/A	1755	1752	-2.796	53.42	UV
HRLT M1-M2 Voltage Plus - 1	0	N/A	1835	1822	-12.68	53.42	UV
HRLT M1-M2 Voltage Plus - 2	0	N/A	1836	1828	-7.900	53.42	UV
HRLT M1-M2 Voltage Plus - 3	0	N/A	1855	1846	-8.424	53.42	UV
HRLT M1-M2 Voltage Plus - 4	0	N/A	1790	1785	-4.618	53.42	UV
HRLT M1-M2 Voltage Plus - 5	0	N/A	1770	1767	-3.615	53.42	UV
HRLT M1-M2 Voltage Plus - 6	0	N/A	-1801	-1781	20.46	53.42	UV
HRLT M1-M2 Voltage Plus - 7	0	N/A	1781	1781	0	53.42	UV
High Resolution Laterolog Array - B Wellsite Calibration - HRLT M23							
Before: 17-Dec-2011 2:13 After: 17-Dec-2011 8:15							
HRLT M2-M3 Voltage Plus - 0	0	N/A	1741	1739	-2.432	53.42	UV
HRLT M2-M3 Voltage Plus - 1	0	N/A	1834	1822	-12.40	53.42	UV
HRLT M2-M3 Voltage Plus - 2	0	N/A	1837	1829	-7.651	53.42	UV
HRLT M2-M3 Voltage Plus - 3	0	N/A	1858	1850	-8.055	53.42	UV

HRLT M2-M3 Voltage Plus - 4	0	N/A	1787	1782	-4.191	53.42	UV
HRLT M2-M3 Voltage Plus - 5	0	N/A	1768	1765	-3.490	53.42	UV
HRLT M2-M3 Voltage Plus - 6	0	N/A	-1789	-1769	19.77	53.42	UV
HRLT M2-M3 Voltage Plus - 7	0	N/A	1781	1781	0	53.42	UV

High Resolution Laterolog Array - B Wellsite Calibration - HRLT V34

Before: 17-Dec-2011 2:13 After: 17-Dec-2011 8:15

HRLT A3-A4 Voltage Plus - 0	0	N/A	68420	68310	-112.3	2100	UV
HRLT A3-A4 Voltage Plus - 1	0	N/A	71860	71360	-500.1	2100	UV
HRLT A3-A4 Voltage Plus - 2	0	N/A	72250	71940	-310.5	2100	UV
HRLT A3-A4 Voltage Plus - 3	0	N/A	73370	73030	-339.3	2100	UV
HRLT A3-A4 Voltage Plus - 4	0	N/A	70520	70340	-180.5	2100	UV
HRLT A3-A4 Voltage Plus - 5	0	N/A	69790	69660	-134.6	2100	UV
HRLT A3-A4 Voltage Plus - 6	0	N/A	-69090	-68290	804.4	2100	UV
HRLT A3-A4 Voltage Plus - 7	0	N/A	70000	70000	0	2100	UV

High Resolution Laterolog Array - B Wellsite Calibration - HRLT V45

Before: 17-Dec-2011 2:13 After: 17-Dec-2011 8:15

HRLT A4-A5 Voltage Plus - 0	0	N/A	68700	68590	-106.0	2100	UV
HRLT A4-A5 Voltage Plus - 1	0	N/A	72220	71730	-487.4	2100	UV
HRLT A4-A5 Voltage Plus - 2	0	N/A	72600	72290	-304.8	2100	UV
HRLT A4-A5 Voltage Plus - 3	0	N/A	73720	73380	-339.3	2100	UV
HRLT A4-A5 Voltage Plus - 4	0	N/A	70810	70640	-164.4	2100	UV
HRLT A4-A5 Voltage Plus - 5	0	N/A	70060	69930	-130.1	2100	UV
HRLT A4-A5 Voltage Plus - 6	0	N/A	-69460	-68660	807.9	2100	UV
HRLT A4-A5 Voltage Plus - 7	0	N/A	70000	70000	0	2100	UV

High Resolution Laterolog Array - B Wellsite Calibration - HRLT V56

Before: 17-Dec-2011 2:13 After: 17-Dec-2011 8:15

HRLT A5-A6 Voltage Plus - 0	0	N/A	68590	68490	-101.0	2100	UV
HRLT A5-A6 Voltage Plus - 1	0	N/A	71940	71460	-485.5	2100	UV
HRLT A5-A6 Voltage Plus - 2	0	N/A	72350	72050	-299.9	2100	UV
HRLT A5-A6 Voltage Plus - 3	0	N/A	73500	73190	-316.5	2100	UV
HRLT A5-A6 Voltage Plus - 4	0	N/A	70690	70490	-190.5	2100	UV
HRLT A5-A6 Voltage Plus - 5	0	N/A	69940	69800	-141.7	2100	UV
HRLT A5-A6 Voltage Plus - 6	0	N/A	-69170	-68390	781.0	2100	UV
HRLT A5-A6 Voltage Plus - 7	0	N/A	70000	70000	0	2100	UV

High Resolution Laterolog Array - B Wellsite Calibration - HRLT VTP

Before: 17-Dec-2011 2:13 After: 17-Dec-2011 8:15

HRLT Torpedo-M0 Voltage - 0	0	N/A	-68280	-68170	102.4	2100	UV
HRLT Torpedo-M0 Voltage - 1	0	N/A	-72280	-71790	488.5	2100	UV
HRLT Torpedo-M0 Voltage - 2	0	N/A	-72660	-72360	300.3	2100	UV
HRLT Torpedo-M0 Voltage - 3	0	N/A	-73800	-73480	323.3	2100	UV
HRLT Torpedo-M0 Voltage - 4	0	N/A	-70870	-70700	171.1	2100	UV
HRLT Torpedo-M0 Voltage - 5	0	N/A	-70100	-69970	136.6	2100	UV
HRLT Torpedo-M0 Voltage - 6	0	N/A	69450	68650	-801.5	2100	UV
HRLT Torpedo-M0 Voltage - 7	0	N/A	-70000	-70000	0	2100	UV

High Resolution Laterolog Array - B Wellsite Calibration - HRLT VBD

Before: 17-Dec-2011 2:13 After: 17-Dec-2011 8:15

HRLT Bridle#9-M0 Voltage - 0	0	N/A	-68270	-68160	112.0	2100	UV
HRLT Bridle#9-M0 Voltage - 1	0	N/A	-72250	-71760	493.8	2100	UV
HRLT Bridle#9-M0 Voltage - 2	0	N/A	-72650	-72320	323.8	2100	UV
HRLT Bridle#9-M0 Voltage - 3	0	N/A	-73780	-73450	328.4	2100	UV
HRLT Bridle#9-M0 Voltage - 4	0	N/A	-70870	-70690	175.5	2100	UV
HRLT Bridle#9-M0 Voltage - 5	0	N/A	-70100	-69960	140.3	2100	UV
HRLT Bridle#9-M0 Voltage - 6	0	N/A	69430	68640	-796.5	2100	UV
HRLT Bridle#9-M0 Voltage - 7	0	N/A	-70000	-70000	0	2100	UV

High Resolution Laterolog Array - B Wellsite Calibration - HRLT ISO

Before: 17-Dec-2011 2:13 After: 17-Dec-2011 8:15

HRLT Source Current Plus - 0	0	N/A	284.7	284.2	-0.4252	8.520	UA
HRLT Source Current Plus - 1	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus - 2	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus - 3	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus - 4	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus - 5	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus - 6	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus - 7	0	N/A	281.1	281.1	0	8.520	UA

High Resolution Laterolog Array - B Wellsite Calibration - HRLT MV

Before: 17-Dec-2011 2:13 After: 17-Dec-2011 8:15

HRLT Vertical Voltage PI - 0	0	N/A	-321.5	-321.1	0.4413	9.681	UV
HRLT Vertical Voltage PI - 1	0	N/A	-328.2	-326.0	2.258	9.681	UV
HRLT Vertical Voltage PI - 2	0	N/A	-328.5	-327.2	1.317	9.681	UV
HRLT Vertical Voltage PI - 3	0	N/A	-330.1	-328.7	1.466	9.681	UV
HRLT Vertical Voltage PI - 4	0	N/A	-315.7	-315.0	0.7631	9.681	UV
HRLT Vertical Voltage PI - 5	0	N/A	-327.1	-326.5	0.5655	9.681	UV
HRLT Vertical Voltage PI - 6	0	N/A	333.5	329.9	-3.597	9.681	UV
HRLT Vertical Voltage PI - 7	0	N/A	-322.7	-322.7	0	9.681	UV

Hostile Litho–Density Sonde Wellsite Calibration – Background Measurement								
Master: 17–Nov–2011 16:03		Before: 17–Nov–2011 15:55		After: 17–Dec–2011 8:50				
SS Cs Resolution Bkg	9.000	7.741	7.618	7.594	–0.02418	1.800	%	
LS Cs Resolution Bkg	9.000	8.089	8.025	8.065	0.04037	1.800	%	
LSW1 Background	100.0	87.45	87.45	87.53	0.08757	3.000	CPS	
LSW2 Background	100.0	80.38	80.38	79.58	–0.7984	3.000	CPS	
LSW3 Background	200.0	180.0	180.0	180.4	0.3738	6.000	CPS	
LSW4 Background	250.0	224.8	224.8	226.5	1.701	7.500	CPS	
LSW5 Background	600.0	526.0	526.0	519.3	–6.693	18.00	CPS	
SSW1 Background	100.0	85.28	85.28	84.82	–0.4580	3.000	CPS	
SSW2 Background	200.0	147.3	147.3	146.1	–1.170	6.000	CPS	
SSW3 Background	500.0	409.2	409.2	411.5	2.230	15.00	CPS	
SSW4 Background	270.0	221.7	221.7	221.2	–0.4445	8.100	CPS	
SSW5 Background	200.0	158.7	158.7	157.7	–1.014	6.000	CPS	
Hostile Litho–Density Sonde Wellsite Calibration – Aluminum Measurement								
Master: 17–Nov–2011 16:33								
LSW1 Aluminum	600.0	560.2	N/A	N/A	N/A	N/A	CPS	
LSW2 Aluminum	900.0	815.4	N/A	N/A	N/A	N/A	CPS	
LSW3 Aluminum	1100	984.8	N/A	N/A	N/A	N/A	CPS	
LSW4 Aluminum	580.0	493.4	N/A	N/A	N/A	N/A	CPS	
LSW5 Aluminum	570.0	450.2	N/A	N/A	N/A	N/A	CPS	
SSW1 Aluminum	2800	2639	N/A	N/A	N/A	N/A	CPS	
SSW2 Aluminum	8000	7196	N/A	N/A	N/A	N/A	CPS	
SSW3 Aluminum	11600	10050	N/A	N/A	N/A	N/A	CPS	
SSW4 Aluminum	5000	4135	N/A	N/A	N/A	N/A	CPS	
SSW5 Aluminum	660.0	504.7	N/A	N/A	N/A	N/A	CPS	
Hostile Litho–Density Sonde Wellsite Calibration – Lithology Measurement								
Master: 17–Nov–2011 16:29								
LSW1 Iron	400.0	389.4	N/A	N/A	N/A	N/A	CPS	
LSW2 Iron	730.0	674.0	N/A	N/A	N/A	N/A	CPS	
LSW3 Iron	1000	897.0	N/A	N/A	N/A	N/A	CPS	
LSW4 Iron	520.0	464.0	N/A	N/A	N/A	N/A	CPS	
LSW5 Iron	470.0	424.7	N/A	N/A	N/A	N/A	CPS	
SSW1 Iron	2100	1967	N/A	N/A	N/A	N/A	CPS	
SSW2 Iron	6800	6145	N/A	N/A	N/A	N/A	CPS	
SSW3 Iron	10800	9395	N/A	N/A	N/A	N/A	CPS	
SSW4 Iron	4600	3871	N/A	N/A	N/A	N/A	CPS	
SSW5 Iron	580.0	460.2	N/A	N/A	N/A	N/A	CPS	
Hostile Litho–Density Sonde Wellsite Calibration – Caliper Calibration								
Before: 17–Dec–2011 9:53								
HLDS Caliper Small Ring	12.00	N/A	14.33	N/A	N/A	N/A	IN	
HLDS Caliper Large Ring	15.19	N/A	18.10	N/A	N/A	N/A	IN	
Accelerator–Porosity Tool Wellsite Calibration – Detector Background								
Master: 16–Nov–2011 15:14		Before: 17–Dec–2011 2:21		After: 16–Nov–2011 15:18				
Near Det Bkg Cntrate	30.00	31.42	31.43	31.77	0.3362	N/A	CPS	
Far Det Bkg Cntrate	30.00	33.69	33.21	32.51	–0.7060	N/A	CPS	
Array–1 Det Bkg Cntrate	30.00	30.06	29.74	28.01	–1.725	N/A	CPS	
Array–2 Det Bkg Cntrate	30.00	29.35	29.57	29.48	–0.08990	N/A	CPS	
Array Therm Det Bkg Cntrate	30.00	30.97	30.41	31.05	0.6424	N/A	CPS	
Accelerator–Porosity Tool Wellsite Calibration – Calibration Ratios								
Master: 16–Nov–2011 15:12								
Near/Far Calibration Ratio	0.9250	0.8880	N/A	N/A	N/A	N/A		
Near/Array Calibration Ratio	1.030	1.057	N/A	N/A	N/A	N/A		
Near/Array Cal Ratio Up/Down	1.000	1.006	N/A	N/A	N/A	N/A		
Accelerator–Porosity Tool Wellsite Calibration – Tank Check								
Master: 16–Nov–2011 15:14								
Array–1 Standoff Porosity	11.75	11.83	N/A	N/A	N/A	N/A	PU	
Array–2 Standoff Porosity	11.75	11.78	N/A	N/A	N/A	N/A	PU	
Average Slowing Down Time	6.000	5.843	N/A	N/A	N/A	N/A	US	
Array–1 SDT Ratio Up/Down	1.000	0.9874	N/A	N/A	N/A	N/A		
Array–2 SDT Ratio Up/Down	1.000	1.012	N/A	N/A	N/A	N/A		
Sigma Formation	27.50	29.40	N/A	N/A	N/A	N/A	CU	
Accelerator–Porosity Tool Wellsite Calibration – CCR7 signal boxes								
Master: 16–Nov–2011 14:29								
Near Detector Plateau Setting	1650	1732	N/A	N/A	N/A	N/A	V	
Far Detector Plateau Setting	2000	2082	N/A	N/A	N/A	N/A	V	
Array Detector Plateau Setting	2000	1962	N/A	N/A	N/A	N/A	V	
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check								
Master: 17–Nov–2011 7:57		Before: 26–Nov–2011 0:21		After: 8–Dec–2011 1:11				
Na 511 Peak Loc	40.00	39.70	39.69	39.60	–0.09224	1.000		
Na 511 Peak Res	15.50	15.50	15.07	14.85	–0.2178	2.000	%	
High Voltage	1150	1176	1168	1164	–3.540	N/A	V	
Na 1785 Peak Loc	142.6	142.1	141.8	143.0	1.198	7.000		

Na 1785 Peak Res	8.500	8.309	8.731	7.037	-1.693	2.000	%
Temperature	15.50	29.76	21.55	20.40	-1.158	N/A	DEGC
Na Count Rate	45.00	20.77	21.01	20.72	-0.2956	8.000	CPS
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check							
Master: 17–Nov–2011 7:57 Before: 26–Nov–2011 0:21 After: 8–Dec–2011 1:11							
Na 511 Peak Loc	40.00	39.60	39.49	39.54	0.04988	1.000	
Na 511 Peak Res	15.50	16.99	15.91	15.93	0.01764	2.000	%
High Voltage	1150	1109	1091	1088	-3.384	N/A	V
Na 1785 Peak Loc	142.6	142.6	142.3	140.3	-1.968	7.000	
Na 1785 Peak Res	8.500	9.914	8.591	8.815	0.2231	2.000	%
Temperature	15.50	29.91	21.84	22.02	0.1821	N/A	DEGC
Na Count Rate	45.00	21.44	20.97	21.04	0.06492	8.000	CPS
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Ratio Of Detector 1 To Detector 2							
Master: 17–Nov–2011 7:57 Before: 26–Nov–2011 0:21 After: 8–Dec–2011 1:11							
Coincidence Count Rate Ratio	1.000	0.9705	1.004	0.9862	-0.01783	0.05000	
Hostile Natural Gamma Ray Sonde Master Calibration – Detector 1 Calibration							
Master: 17–Nov–2011 7:52							
Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	210.8	--	--	--	--	
Th Peak Res	7.000	6.865	--	--	--	--	%
Background Count Rate	142.5	24.91	--	--	--	--	CPS
Gain Ratio	1.000	1.010	--	--	--	--	
Hostile Natural Gamma Ray Sonde Master Calibration – Detector 2 Calibration							
Master: 17–Nov–2011 7:52							
Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	208.5	--	--	--	--	
Th Peak Res	7.000	6.879	--	--	--	--	%
Background Count Rate	142.5	24.15	--	--	--	--	CPS
Gain Ratio	1.000	1.001	--	--	--	--	
Enhanced DTS Cartridge Wellsite Calibration – EDTC Accelerometer Calibration							
Before: 17–Dec–2011 2:08							
EDTC Z–Axis Acceleration	9.810	N/A	9.831	N/A	N/A	N/A	M/S2
Enhanced DTS Cartridge Wellsite Calibration – Detector Calibration							
Before: Calibration out of date 26–Nov–2011 0:18							
Gamma Ray (Jig – Bkg)	163.8	N/A	163.8	N/A	N/A	14.89	GAPI
Gamma Ray (Calibrated)	164.0	N/A	164.0	N/A	N/A	15.00	GAPI
Accelerator–Porosity Tool – Detector Plateau Settings :							
Near Detector Plateau Setting	1732 V						
Far Detector Plateau Setting	2082 V						
Array Detector Plateau Setting	1962 V						

High Resolution Laterolog Array – B / Equipment Identification		
Primary Equipment:		
HRLT Sonde	HRLS – B	969
Auxiliary Equipment:		
HRLT lower Housing	HRLH – B	759
HRLT Lower Cartridge	HRLC – B	759
HRLT upper Housing	HRLH – B	769
HRLT Upper Cartridge	HRUC – B	769

High Resolution Laterolog Array – B Wellsite Calibration							
HRLT M01							
Idx	Phase	HRLT M0–M1 Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		-319.1	-322.7	-280.7	-379.7	
	After		-318.5				
1	Before		-334.0	-322.7	-280.7	-379.7	
	After		-331.6				
2	Before		-335.1	-322.7	-280.7	-379.7	
	After		-333.4				









3	Before		-338.3	-322.7	-280.7	-379.7
	After		-336.7			
4	Before		-326.3	-322.7	-280.7	-379.7
	After		-325.3			
5	Before		-322.4	-322.7	-280.7	-379.7
	After		-321.5			
6	Before		326.4	322.7	379.7	280.7
	After		322.6			
7	Before		-322.7	-322.7	-280.7	-379.7
	After		-322.7			
(Minimum) (Nominal) (Maximum)						

















Before: 17-Dec-2011 2:13
After: 17-Dec-2011 8:15











High Resolution Laterolog Array – B Wellsite Calibration						
HRLT M12						
Idx	Phase	HRLT M1–M2 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1755	1781	2095	1549
	After		1752			
1	Before		1835	1781	2095	1549
	After		1822			
2	Before		1836	1781	2095	1549
	After		1828			
3	Before		1855	1781	2095	1549
	After		1846			
4	Before		1790	1781	2095	1549
	After		1785			
5	Before		1770	1781	2095	1549
	After		1767			
6	Before		-1801	-1781	-1549	-2095
	After		-1781			
7	Before		1781	1781	2095	1549
	After		1781			
(Minimum) (Nominal) (Maximum)						







Before: 17-Dec-2011 2:13
After: 17-Dec-2011 8:15

















High Resolution Laterolog Array – B Wellsite Calibration						
HRLT M23						
Idx	Phase	HRLT M2–M3 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1741	1781	2095	1549
	After		1739			
1	Before		1834	1781	2095	1549
	After		1822			
2	Before		1837	1781	2095	1549
	After		1829			
3	Before		1858	1781	2095	1549
	After		1850			








4	Before		1787	1781	2095	1549
	After		1782			
5	Before		1768	1781	2095	1549
	After		1765			
6	Before		-1789	-1781	-1549	-2095
	After		-1769			
7	Before		1781	1781	2095	1549
	After		1781			
(Minimum) (Nominal) (Maximum)						
Before: 17-Dec-2011 2:13						
After: 17-Dec-2011 8:15						

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT V34						
Idx	Phase	HRLT A3–A4 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68420	70000	82360	60900
	After		68310			
1	Before		71860	70000	82360	60900
	After		71360			
2	Before		72250	70000	82360	60900
	After		71940			
3	Before		73370	70000	82360	60900
	After		73030			
4	Before		70520	70000	82360	60900
	After		70340			
5	Before		69790	70000	82360	60900
	After		69660			
6	Before		-69090	-70000	-60900	-82360
	After		-68290			
7	Before		70000	70000	82360	60900
	After		70000			
(Minimum) (Nominal) (Maximum)						
Before: 17-Dec-2011 2:13						
After: 17-Dec-2011 8:15						

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT V45						
Idx	Phase	HRLT A4–A5 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68700	70000	82360	60900
	After		68590			
1	Before		72220	70000	82360	60900
	After		71730			
2	Before		72600	70000	82360	60900
	After		72290			
3	Before		73720	70000	82360	60900
	After		73380			
4	Before		70810	70000	82360	60900
	After		70640			

5	Before		70060	70000	82360	60900
	After		69930			
6	Before		-69460	-70000	-60900	-82360
	After		-68660			
7	Before		70000	70000	82360	60900
	After		70000			
(Minimum) (Nominal) (Maximum)						
Before: 17-Dec-2011 2:13						
After: 17-Dec-2011 8:15						



High Resolution Laterolog Array – B Wellsite Calibration						
HRLT V56						
Idx	Phase	HRLT A5–A6 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68590	70000	82360	60900
	After		68490			
1	Before		71940	70000	82360	60900
	After		71460			
2	Before		72350	70000	82360	60900
	After		72050			
3	Before		73500	70000	82360	60900
	After		73190			
4	Before		70690	70000	82360	60900
	After		70490			
5	Before		69940	70000	82360	60900
	After		69800			
6	Before		-69170	-70000	-60900	-82360
	After		-68390			
7	Before		70000	70000	82360	60900
	After		70000			
(Minimum) (Nominal) (Maximum)						
Before: 17-Dec-2011 2:13						
After: 17-Dec-2011 8:15						

















High Resolution Laterolog Array – B Wellsite Calibration						
HRLT VTP						
Idx	Phase	HRLT Torpedo–M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		-68280	-70000	-60900	-82360
	After		-68170			
1	Before		-72280	-70000	-60900	-82360
	After		-71790			
2	Before		-72660	-70000	-60900	-82360
	After		-72360			
3	Before		-73800	-70000	-60900	-82360
	After		-73480			
4	Before		-70870	-70000	-60900	-82360
	After		-70700			
5	Before		-70100	-70000	-60900	-82360
	After		-69970			

6	Before		69450	70000	82360	60900
	After		68650			
7	Before		-70000	-70000	-60900	-82360
	After		-70000			
(Minimum) (Nominal) (Maximum)						
Before: 17-Dec-2011 2:13						
After: 17-Dec-2011 8:15						







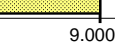










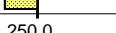
High Resolution Laterolog Array – B Wellsite Calibration							
HRLT VBD							
Idx	Phase	HRLT Bridle#9-M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		-68270	-70000	-60900	-82360	
	After		-68160				
1	Before		-72250	-70000	-60900	-82360	
	After		-71760				
2	Before		-72650	-70000	-60900	-82360	
	After		-72320				
3	Before		-73780	-70000	-60900	-82360	
	After		-73450				
4	Before		-70870	-70000	-60900	-82360	
	After		-70690				
5	Before		-70100	-70000	-60900	-82360	
	After		-69960				
6	Before		69430	70000	82360	60900	
	After		68640				
7	Before		-70000	-70000	-60900	-82360	
	After		-70000				
(Minimum) (Nominal) (Maximum)							
Before: 17-Dec-2011 2:13							
After: 17-Dec-2011 8:15							

High Resolution Laterolog Array – B Wellsite Calibration							
HRLT ISO							
Idx	Phase	HRLT Source Current Plus UA	Value	Nominal	Maximum	Minimum	
0	Before		284.7	284.0	334.1	247.0	
	After		284.2				
1	Before		281.1	281.1	330.7	244.4	
	After		281.1				
2	Before		281.1	281.1	330.7	244.4	
	After		281.1				
3	Before		281.1	281.1	330.7	244.4	
	After		281.1				
4	Before		281.1	281.1	330.7	244.4	
	After		281.1				
5	Before		281.1	281.1	330.7	244.4	
	After		281.1				
6	Before		281.1	281.1	330.7	244.4	
	After		281.1				

7	Before		281.1	281.1	330.7	244.4
	After		281.1			
(Minimum) (Nominal) (Maximum)						
Before: 17-Dec-2011 2:13						
After: 17-Dec-2011 8:15						

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT MV						
Idx	Phase	HRLT Vertical Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		-321.5	-322.7	-280.7	-379.7
	After		-321.1			
1	Before		-328.2	-322.7	-280.7	-379.7
	After		-326.0			
2	Before		-328.5	-322.7	-280.7	-379.7
	After		-327.2			
3	Before		-330.1	-322.7	-280.7	-379.7
	After		-328.7			
4	Before		-315.7	-322.7	-280.7	-379.7
	After		-315.0			
5	Before		-327.1	-322.7	-280.7	-379.7
	After		-326.5			
6	Before		333.5	322.7	379.7	280.7
	After		329.9			
7	Before		-322.7	-322.7	-280.7	-379.7
	After		-322.7			
(Minimum) (Nominal) (Maximum)						
Before: 17-Dec-2011 2:13						
After: 17-Dec-2011 8:15						

Hostile Litho-Density Sonde / Equipment Identification			
Primary Equipment:			
Hostile Litho Density Sonde	HLDS – D	45	
Hostile Litho Density High Voltage	HLDV – D	45	
Gamma Source Radioactive	GSR – Z	2397	
Auxiliary Equipment:			
Hostile Litho Density Pad	HLDP – C	45	
Hostile Litho Density High Voltage Housi	HEH – H	47	

Hostile Litho-Density Sonde Wellsite Calibration								
Background Measurement								
Phase	SS Cs Resolution Bkg %	Value	Phase	LS Cs Resolution Bkg %	Value	Phase	LSW1 Background CPS	Value
Master		7.741	Master		8.089	Master		87.45
Before		7.618	Before		8.025	Before		87.45
After		7.594	After		8.065	After		87.53
7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)			7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)			55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)		
Phase	LSW2 Background CPS	Value	Phase	LSW3 Background CPS	Value	Phase	LSW4 Background CPS	Value
Master		80.38	Master		180.0	Master		224.8
Before		80.38	Before		180.0	Before		224.8
After		79.58	After		180.4	After		226.5
50.00 100.0 140.0			110.0 200.0 290.0			140.0 250.0 360.0		

LSW5 Background CPS			Value	SSW1 Background CPS			Value	SSW2 Background CPS			Value
Phase				Phase				Phase			
Master			526.0	Master			85.28	Master			147.3
Before			526.0	Before			85.28	Before			147.3
After			519.3	After			84.82	After			146.1
330.0 (Minimum) 600.0 (Nominal) 830.0 (Maximum)				55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)				100.0 (Minimum) 200.0 (Nominal) 260.0 (Maximum)			
Phase				Phase				Phase			
Master			409.2	Master			221.7	Master			158.7
Before			409.2	Before			221.7	Before			158.7
After			411.5	After			221.2	After			157.7
280.0 (Minimum) 500.0 (Nominal) 700.0 (Maximum)				150.0 (Minimum) 270.0 (Nominal) 380.0 (Maximum)				110.0 (Minimum) 200.0 (Nominal) 270.0 (Maximum)			
Master: 17–Nov–2011 16:03				Before: 17–Nov–2011 15:55				After: 17–Dec–2011 8:50			

Hostile Litho–Density Sonde Master Calibration								
Detector Background Measurement								
Phase	LSW1 Background CPS	Value	Phase	LSW2 Background CPS	Value	Phase	LSW3 Background CPS	Value
Master		87.45	Master		80.38	Master		180.0
55.00 (Minimum)	100.0 (Nominal)	150.0 (Maximum)	50.00 (Minimum)	100.0 (Nominal)	140.0 (Maximum)	110.0 (Minimum)	200.0 (Nominal)	290.0 (Maximum)
Phase	LSW4 Background CPS	Value	Phase	LSW5 Background CPS	Value	Phase	LS Cs Resolution Bkg %	Value
Master		224.8	Master		526.0	Master		8.089
140.0 (Minimum)	250.0 (Nominal)	360.0 (Maximum)	330.0 (Minimum)	600.0 (Nominal)	830.0 (Maximum)	7.000 (Minimum)	9.000 (Nominal)	11.00 (Maximum)
Phase	SSW1 Background CPS	Value	Phase	SSW2 Background CPS	Value	Phase	SSW3 Background CPS	Value
Master		85.28	Master		147.3	Master		409.2
55.00 (Minimum)	100.0 (Nominal)	150.0 (Maximum)	100.0 (Minimum)	200.0 (Nominal)	260.0 (Maximum)	280.0 (Minimum)	500.0 (Nominal)	700.0 (Maximum)
Phase	SSW4 Background CPS	Value	Phase	SSW5 Background CPS	Value	Phase	SS Cs Resolution Bkg %	Value
Master		221.7	Master		158.7	Master		7.741
150.0 (Minimum)	270.0 (Nominal)	380.0 (Maximum)	110.0 (Minimum)	200.0 (Nominal)	270.0 (Maximum)	7.000 (Minimum)	9.000 (Nominal)	11.00 (Maximum)
Master: 17–Nov–2011 16:03								

Hostile Litho–Density Sonde Master Calibration											
Detector Aluminum Measurement (bkgd–subtracted)											
Phase	LSW1 Aluminum CPS		Value	Phase	LSW2 Aluminum CPS		Value	Phase	LSW3 Aluminum CPS		Value
Master			560.2	Master			815.4	Master			984.8
420.0 (Minimum) 600.0 (Nominal) 770.0 (Maximum)				650.0 (Minimum) 900.0 (Nominal) 1150 (Maximum)				800.0 (Minimum) 1100 (Nominal) 1450 (Maximum)			
Phase	LSW4 Aluminum CPS		Value	Phase	LSW5 Aluminum CPS		Value	Phase	SSW1 Aluminum CPS		Value
Master			493.4	Master			450.2	Master			2639
410.0 (Minimum) 580.0 (Nominal) 740.0 (Maximum)				410.0 (Minimum) 570.0 (Nominal) 740.0 (Maximum)				2000 (Minimum) 2800 (Nominal) 3200 (Maximum)			
Phase	SSW2 Aluminum CPS		Value	Phase	SSW3 Aluminum CPS		Value	Phase	SSW4 Aluminum CPS		Value
Master			7196	Master			10050	Master			4135
5800 (Minimum) 8000 (Nominal) 9300 (Maximum)				8300 (Minimum) 11600 (Nominal) 13500 (Maximum)				3500 (Minimum) 5000 (Nominal) 5800 (Maximum)			
Phase	SSW5 Aluminum CPS		Value								
Master			504.7								
430.0 (Minimum) 660.0 (Nominal) 770.0 (Maximum)											
Master: 17–Nov–2011 16:33											

Hostile Litho–Density Sonde Master Calibration								
Detector Litholog Measurement (bkgd–subtracted)								
Phase	LSW1 Iron CPS	Value	Phase	LSW2 Iron CPS	Value	Phase	LSW3 Iron CPS	Value
Master		389.4	Master		674.0	Master		897.0
290.0 (Minimum)	400.0 (Nominal)	560.0 (Maximum)	520.0 (Minimum)	730.0 (Nominal)	950.0 (Maximum)	720.0 (Minimum)	1000 (Nominal)	1350 (Maximum)
Phase	LSW4 Iron CPS	Value	Phase	LSW5 Iron CPS	Value	Phase	SSW1 Iron CPS	Value
Master		464.0	Master		424.7	Master		1267

Master		6145	Master		9395	Master		3871
Phase	SSW2 Iron CPS	Value	Phase	SSW3 Iron CPS	Value	Phase	SSW4 Iron CPS	Value
Master		460.2						
Phase	SSW5 Iron CPS	Value						
Master		460.2						
Phase								
Master								

Master: 17-Nov-2011 16:29

Hostile Litho-Density Sonde Master Calibration								
Quality Ratios								
Phase	AL CALIBRATION RATIO 1	Value	Phase	AL CALIBRATION RATIO 2	Value	Phase	AL CALIBRATION RATIO 3	Value
Master		1.044	Master		2.167	Master		0.5937
Phase	AL CALIBRATION RATIO 4	Value	Phase	Pad-Wear SS Ratio	Value	Phase	Pad-Wear LS Ratio	Value
Master		0.5690	Master		0.9915	Master		0.9856
Phase	Pad-Position SS Ratio	Value	Phase	Pad-Position LS Ratio	Value			
Master		1.003	Master		0.9882			

Master: 17-Nov-2011 16:35

Litho-Density Spectroscopy Cartridge - B / Equipment Identification		
Primary Equipment: LDSC Cartridge	LDSC - B	521
Auxiliary Equipment: LDSC Housing	LDSh - A	319

Accelerator-Porosity Tool / Equipment Identification		
Primary Equipment: Accelerator-Porosity Sonde APS Minitron	APS - C MNTR - F	22 5978
Auxiliary Equipment: Accelerator-Porosity Housing APS Calibration Water Tank APS Aluminum Calibrator Sleeve	APH - AC SFT - 178 SFT - 281	22 1 1

Accelerator-Porosity Tool Wellsite Calibration								
Detector Background								
Phase	Near Det Bkg Cntrate CPS	Value	Phase	Far Det Bkg Cntrate CPS	Value	Phase	Array-1 Det Bkg Cntrate CPS	Value
Master		31.42	Master		33.69	Master		30.06
Before		31.43	Before		33.21	Before		29.74
After		31.77	After		32.51	After		28.01
Phase	Array-2 Det Bkg Cntrate CPS	Value	Phase	Array Therm Det Bkg Cntrate CPS	Value			
Master		29.35	Master		30.97			
Before		29.57	Before		30.41			
After		29.48	After		31.05			

Master: 16-Nov-2011 15:14

Before: 17-Dec-2011 2:21

After: 16-Nov-2011 15:18

Accelerator-Porosity Tool Wellsite Calibration											
Calibration Ratios											
Phase	Near/Far Calibration Ratio		Value	Phase	Near/Array Calibration Ratio		Value	Phase	Near/Array Cal Ratio Up/Down	Value	
Master			0.8880	Master			1.057	Master			1.006
	0.8000 (Minimum)	0.9250 (Nominal)	1.050 (Maximum)		0.9000 (Minimum)	1.030 (Nominal)	1.170 (Maximum)		0.9700 (Minimum)	1.000 (Nominal)	1.030 (Maximum)
Master: 16-Nov-2011 15:12											

Accelerator-Porosity Tool Wellsite Calibration														
Tank Check														
Phase	Array-1 Standoff Porosity PU			Value	Phase	Array-2 Standoff Porosity PU			Value	Phase	Average Slowing Down Time US			Value
Master				11.83	Master				11.78	Master				5.843
9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum)					9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum)					5.500 (Minimum) 6.000 (Nominal) 6.250 (Maximum)				
Phase	Array-1 SDT Ratio Up/Down			Value	Phase	Array-2 SDT Ratio Up/Down			Value	Phase	Sigma Formation CU			Value
Master				0.9874	Master				1.012	Master				29.40
0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)					0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)					20.00 (Minimum) 27.50 (Nominal) 35.00 (Maximum)				
Master: 16-Nov-2011 15:14														

Accelerator-Porosity Tool Master Calibration											
Detector Calibration											
Phase	Near/Far Calibration Ratio		Value	Phase	Near/Array Calibration Ratio		Value	Phase	Near/Array Cal Ratio Up/Down	Value	
Master			0.8880	Master			1.057	Master			1.006
	0.8000 (Minimum)	0.9250 (Nominal)	1.050 (Maximum)		0.9000 (Minimum)	1.030 (Nominal)	1.170 (Maximum)		0.9700 (Minimum)	1.000 (Nominal)	1.030 (Maximum)
Master: 16-Nov-2011 15:12											

Accelerator-Porosity Tool Master Calibration														
Tank Check														
Phase	Array-1 Standoff Porosity PU			Value	Phase	Array-2 Standoff Porosity PU			Value	Phase	Average Slowing Down Time US			Value
Master				11.83	Master				11.78	Master				5.843
	9.900 (Minimum)	11.75 (Nominal)	13.60 (Maximum)		9.900 (Minimum)	11.75 (Nominal)	13.60 (Maximum)		5.500 (Minimum)	6.000 (Nominal)	6.250 (Maximum)			
Phase	Array-1 SDT Ratio Up/Down			Value	Phase	Array-2 SDT Ratio Up/Down			Value	Phase	Sigma Formation CU			Value
Master				0.9874	Master				1.012	Master				29.40
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		20.00 (Minimum)	27.50 (Nominal)	35.00 (Maximum)			
Master: 16-Nov-2011 15:14														




Hostile Natural Gamma Ray Cartridge – B / Equipment Identification		
Primary Equipment: HNGC Cartridge	HNGC – B	300
Auxiliary Equipment: HNGC Housing	HNGH – A	115

Hostile Natural Gamma Ray Sonde / Equipment Identification		
Primary Equipment: HNGS Sonde	HNGS – BA	194
Auxiliary Equipment: HNGS Sonde Housing Gamma Source Radioactive	HNSH – BA GSR – U	205 616008



Hostile Natural Gamma Ray Sonde Wellsite Calibration								
Detector 1 Check								
Phase	Na 511 Peak Loc	Value	Phase	Na 511 Peak Res %	Value	Phase	High Voltage V	Value
Master		39.70	Master		15.50	Master		1176
Before		39.60	Before		15.07	Before		1168

Before		141.8	Before		8.731	Before		21.55			
After		143.0	After		7.037	After		20.40			
135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)			7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum)			-28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)					
Phase	Na 1785 Peak Loc		Value	Phase	Na 1785 Peak Res %		Value	Phase	Temperature DEGC		Value
Master			142.1	Master			8.309	Master			29.76
Before			141.8	Before			8.731	Before			21.55
After			143.0	After			7.037	After			20.40
135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)			7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum)			-28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)					
Phase	Na Count Rate CPS		Value								
Master			20.77								
Before			21.01								
After			20.72								
10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)											
Master: 17-Nov-2011 7:57				Before: 26-Nov-2011 0:21				After: 8-Dec-2011 1:11			




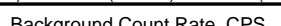
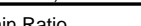
Hostile Natural Gamma Ray Sonde Wellsite Calibration																
Detector 2 Check																
Phase	Na 511 Peak Loc		Value	Phase	Na 511 Peak Res %		Value	Phase	High Voltage V		Value					
Master	<div><div></div></div>		39.60	Master	<div><div></div></div>		16.99	Master	<div><div></div></div>		1109					
Before	<div><div></div></div>		39.49	Before	<div><div></div></div>		15.91	Before	<div><div></div></div>		1091					
After	<div><div></div></div>		39.54	After	<div><div></div></div>		15.93	After	<div><div></div></div>		1088					
37.50 (Minimum)			40.00 (Nominal)	43.50 (Maximum)			12.00 (Minimum)			15.50 (Nominal)	19.00 (Maximum)	900.0 (Minimum)			1150 (Nominal)	1600 (Maximum)
Phase	Na 1785 Peak Loc		Value	Phase	Na 1785 Peak Res %		Value	Phase	Temperature DEGC		Value					
Master	<div><div></div></div>		142.6	Master	<div><div></div></div>		9.914	Master	<div><div></div></div>		29.91					
Before	<div><div></div></div>		142.3	Before	<div><div></div></div>		8.591	Before	<div><div></div></div>		21.84					
After	<div><div></div></div>		140.3	After	<div><div></div></div>		8.815	After	<div><div></div></div>		22.02					
135.0 (Minimum)			142.6 (Nominal)	150.3 (Maximum)			7.000 (Minimum)			8.500 (Nominal)	11.00 (Maximum)	-28.89 (Minimum)			15.50 (Nominal)	60.00 (Maximum)
Phase	Na Count Rate CPS		Value													
Master	<div><div></div></div>		21.44													
Before	<div><div></div></div>		20.97													
After	<div><div></div></div>		21.04													
10.00 (Minimum)			45.00 (Nominal)									100.0 (Maximum)				
Master: 17-Nov-2011 7:57				Before: 26-Nov-2011 0:21				After: 8-Dec-2011 1:11								

Hostile Natural Gamma Ray Sonde Wellsite Calibration			
Ratio Of Detector 1 To Detector 2			
Phase	Coincidence Count Rate Ratio	Value	
Master		0.9705	
Before		1.004	
After		0.9862	
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)
Master: 17-Nov-2011 7:57			
Before: 26-Nov-2011 0:21			
After: 8-Dec-2011 1:11			


Hostile Natural Gamma Ray Sonde Master Calibration											
Detector 1 Calibration											
Phase	Na 511 Peak Set Point		Value	Phase	Th Peak Loc		Value	Phase	Th Peak Res %		Value
Master			41.00	Master			210.8	Master			6.865
	38.00 (Minimum)	40.00 (Nominal)	43.00 (Maximum)		201.0 (Minimum)	209.6 (Nominal)	218.3 (Maximum)		5.000 (Minimum)	7.000 (Nominal)	9.000 (Maximum)
Phase	Background Count Rate CPS		Value	Phase	Gain Ratio		Value				
Master				Master							

Master		24.91	Master		1.010
10.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)	0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)




Master: 17-Nov-2011 7:52

Hostile Natural Gamma Ray Sonde Master Calibration														
Detector 2 Calibration														
Phase	Na 511 Peak Set Point			Value	Phase	Th Peak Loc			Value	Phase	Th Peak Res %			Value
Master				41.00	Master				208.5	Master				6.879
	38.00 (Minimum)	40.00 (Nominal)	43.00 (Maximum)		201.0 (Minimum)	209.6 (Nominal)	218.3 (Maximum)			5.000 (Minimum)	7.000 (Nominal)	9.000 (Maximum)		
Phase	Background Count Rate CPS			Value	Phase	Gain Ratio			Value					
Master				24.15	Master				1.001					
	10.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)		0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)							
Master: 17-Nov-2011 7:52														

Enhanced DTS Cartridge / Equipment Identification		
Primary Equipment:		
EDTC Gamma Ray Detector	EDTG - A/B	77693
Enhanced DTS Cartridge	EDTC - B	8529
Auxiliary Equipment:		
EDTC Housing	EDTH - B	8528

Enhanced DTS Cartridge Wellsite Calibration			
EDTC Accelerometer Calibration			
Phase	EDTC Z-Axis Acceleration M/S2		Value
Before			9.831
	9.610 (Minimum)	9.810 (Nominal)	10.01 (Maximum)

Before: 17-Dec-2011 2:08

Enhanced DTS Cartridge Wellsite Calibration											
Detector Calibration											
Phase	Gamma Ray Background GAPI		Value	Phase	Gamma Ray (Jig – Bkg) GAPI		Value	Phase	Gamma Ray (Calibrated) GAPI		Value
Before			9.201	Before			163.8	Before			164.0
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)		148.9 (Minimum)	163.8 (Nominal)	178.7 (Maximum)		149.0 (Minimum)	164.0 (Nominal)	179.0 (Maximum)
Before: Calibration out of date 26–Nov–2011 0:18											

Company: **Lamont Doherty**

Schlumberger

Well: **Expedition 339, Site U1387 GC-09A**

Field: **Mediterranean Outflow (Portugal)**

Rig: **JOIDES Resolution**

Ocean: **Atlantic**

High Resolution Laterolog Array

Hostile Litho Density

Accelerator Porosity Sonde - GR