

**Schlumberger**

Company: Lamont Doherty

Well: Expedition 339, Site U1391 WI-01B

Field: Mediterranean Outflow (Portugal)

Rig: JOIDES Resolution Ocean: Atlantic

[illegible][illegible][illegible][illegible][illegible]

Logging Date					
Run Number					
Depth Driller					
Schlumberger Depth					
Bottom Log Interval					
Top Log Interval					
Casing Driller Size @ Depth		@			
Casing Schlumberger					
Bit Size					
Type Fluid In Hole					
Density		Viscosity			
Fluid Loss		PH			
Source Of Sample					
RM @ Measured Temperature		@			
RMF @ Measured Temperature		@			
RMC @ Measured Temperature		@			
Source RMF		RMF			
RM @ MRT		RMF @ MRT	@		@
Maximum Recorded Temperatures					
Circulation Stopped		Time			
Logger On Bottom		Time			
Unit Number		Location			
Recorded By					
Witnessed By					

Run 4

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

OTHER SERVICES1
OS1: FMS/DSI
OS2:
OS3:
OS4:
OS5:
REMARKS: RUN NUMBER 1
Hole WI-01B Hole C was drilled with a 9 7/8" RCB bit to TDD of 671.5 mbs
This log originally acquired in measured depth from rig floor but played back
for sea floor reference.
Playback used LCAL and barite for processing with recompute for
Playback.
The original logs were acquired with bit size as the hole size assumption.
All logs recorded via wireline thru 5-5.5" drillpipe and RCB coring BHA
consisting of a bit release sub, Kinley sub, drill collars. Drill bit dropped
prior to logging.
Remarks on flipped downlog show spiking on HRLA curves. The
spiking is due to a tool return problem and not formation.
A return/ground problem close to the drill pipe is showing up as noise on
the HRLA curves close by the drill pipe.

RUN 1

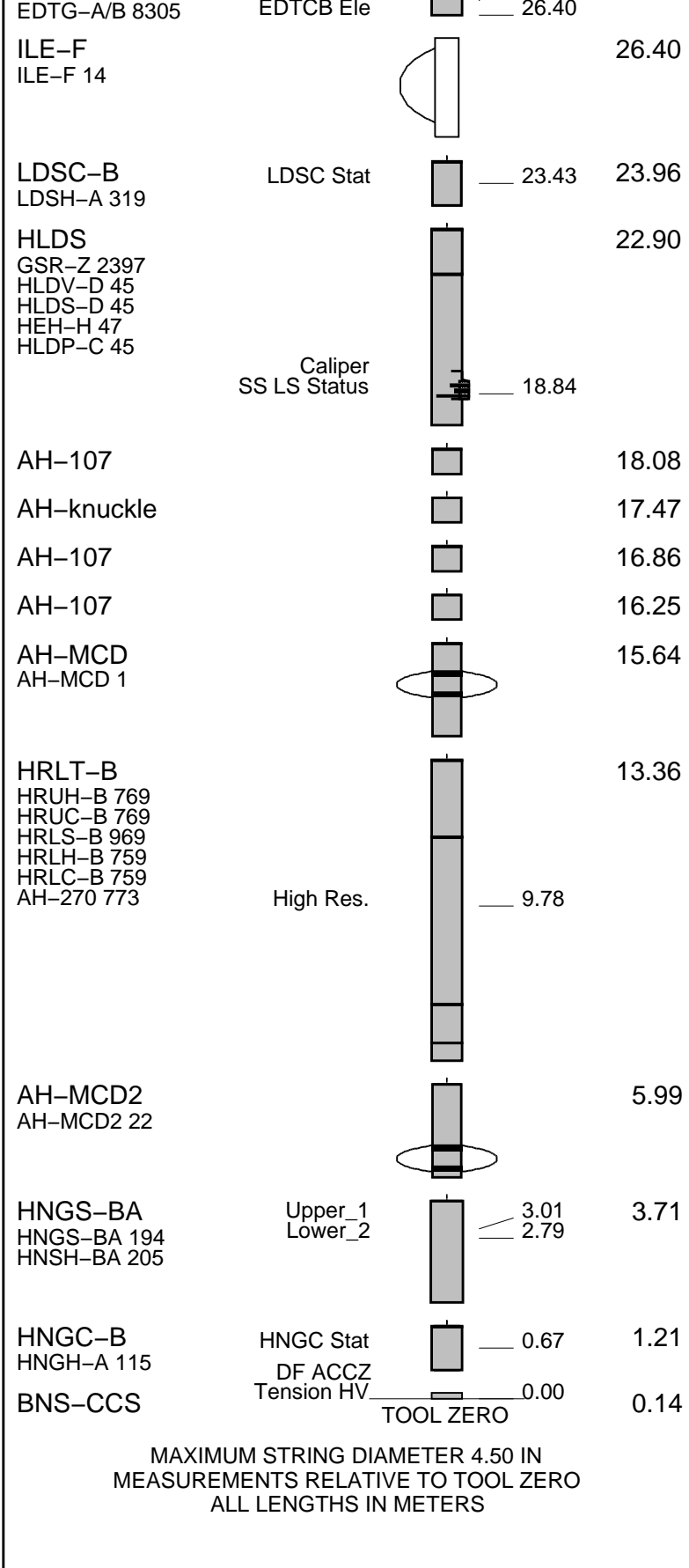
## SURFACE EQUIPMENT

## DOWNHOLE EQUIPMENT

MDSB\_EDTC  
Mud\_Tempe  
CTEM  
Gamma Ray  
EFTB\_DIAG  
TelStatus



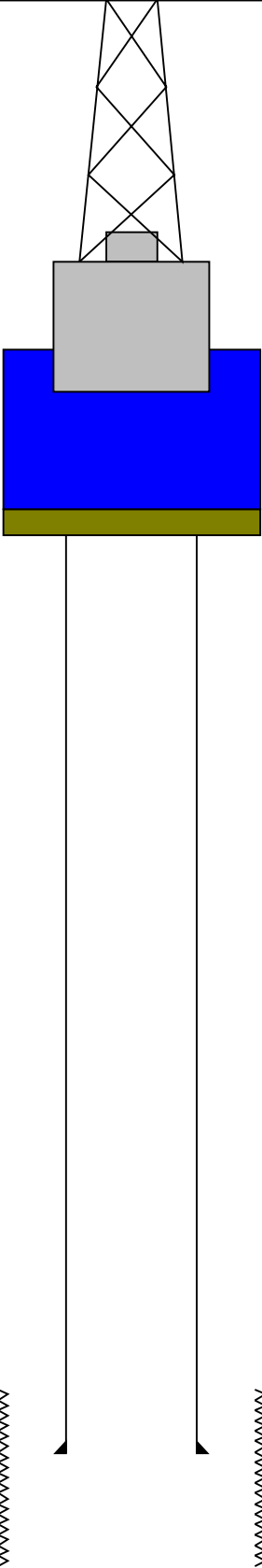
28.38  
27.32  
26.75



Production String	(in)	(M)	Well Schematic	(M)	(in)	Casing String
	OD	ID		MD	OD	

Kelly Bushing Elevation  
Derrick Floor Elevation  
  
Mean Sea Level

-1085.0  
-1085.0  
  
-1074.0



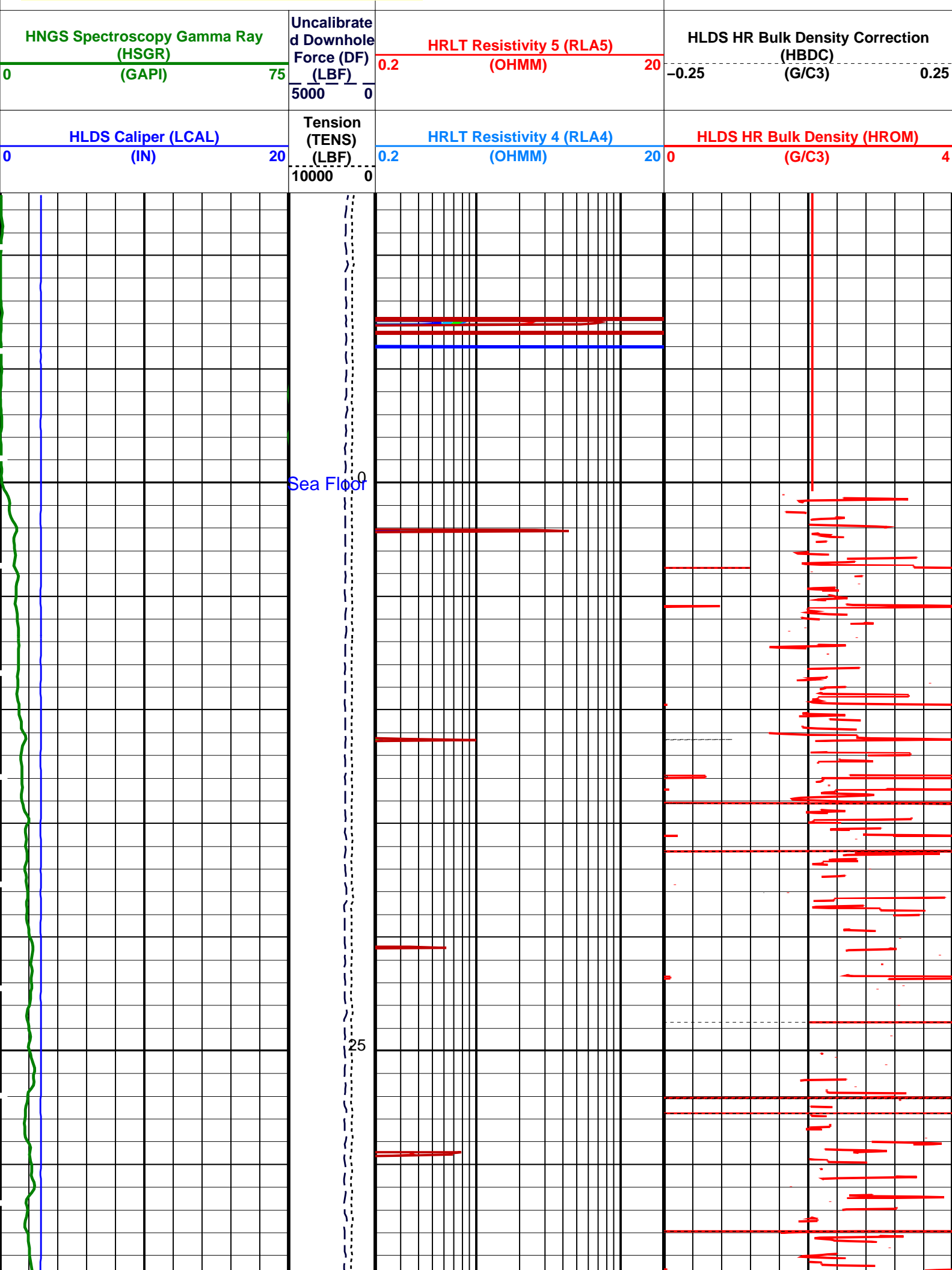
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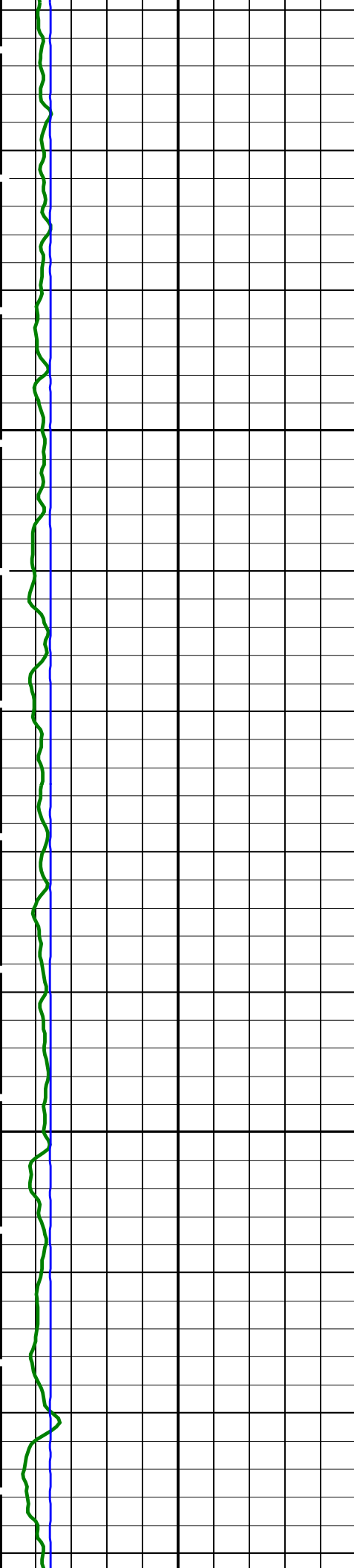
0  
98.9  
  
671.5

3.80  
9.875

Sea Floor  
Open Hole  
  
Total Depth

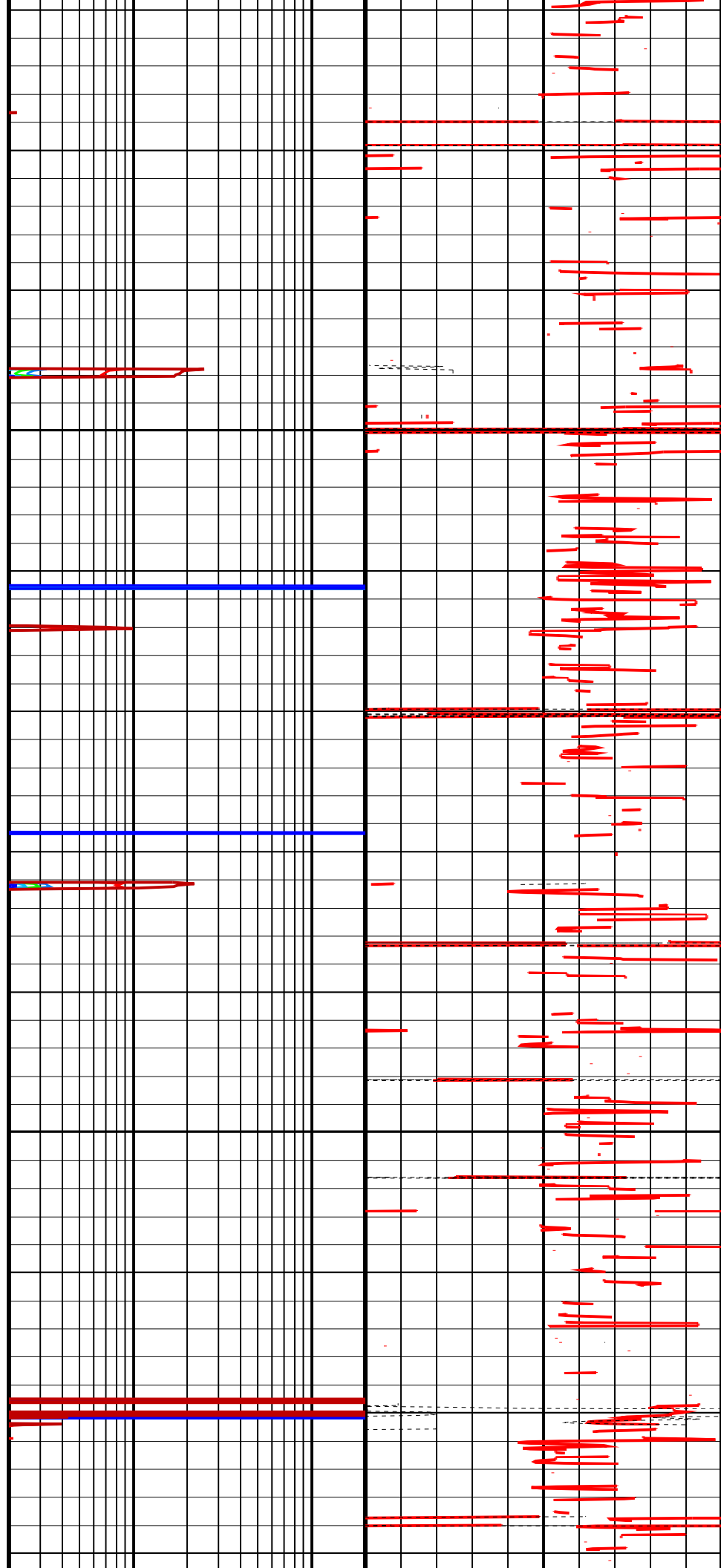


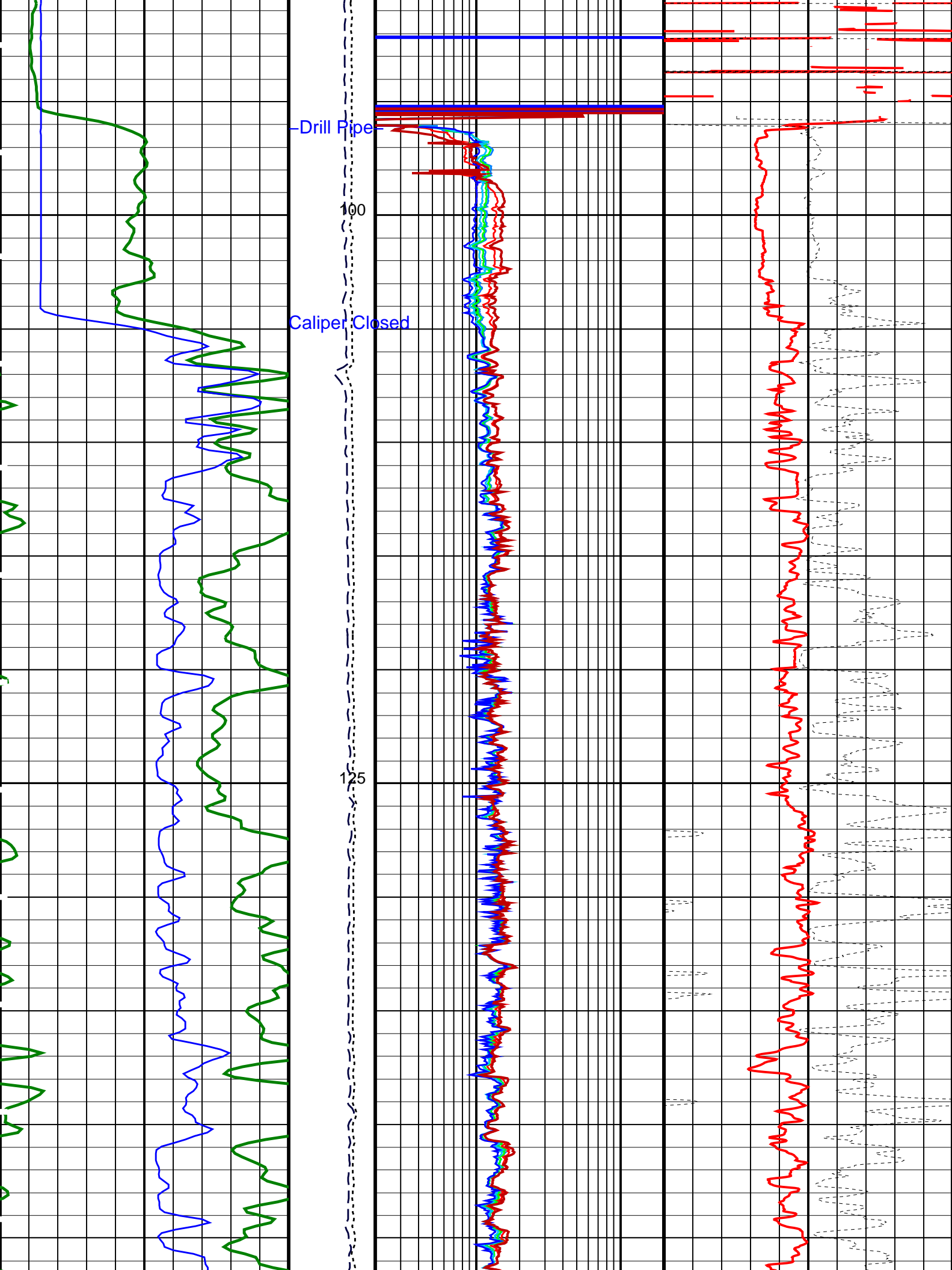




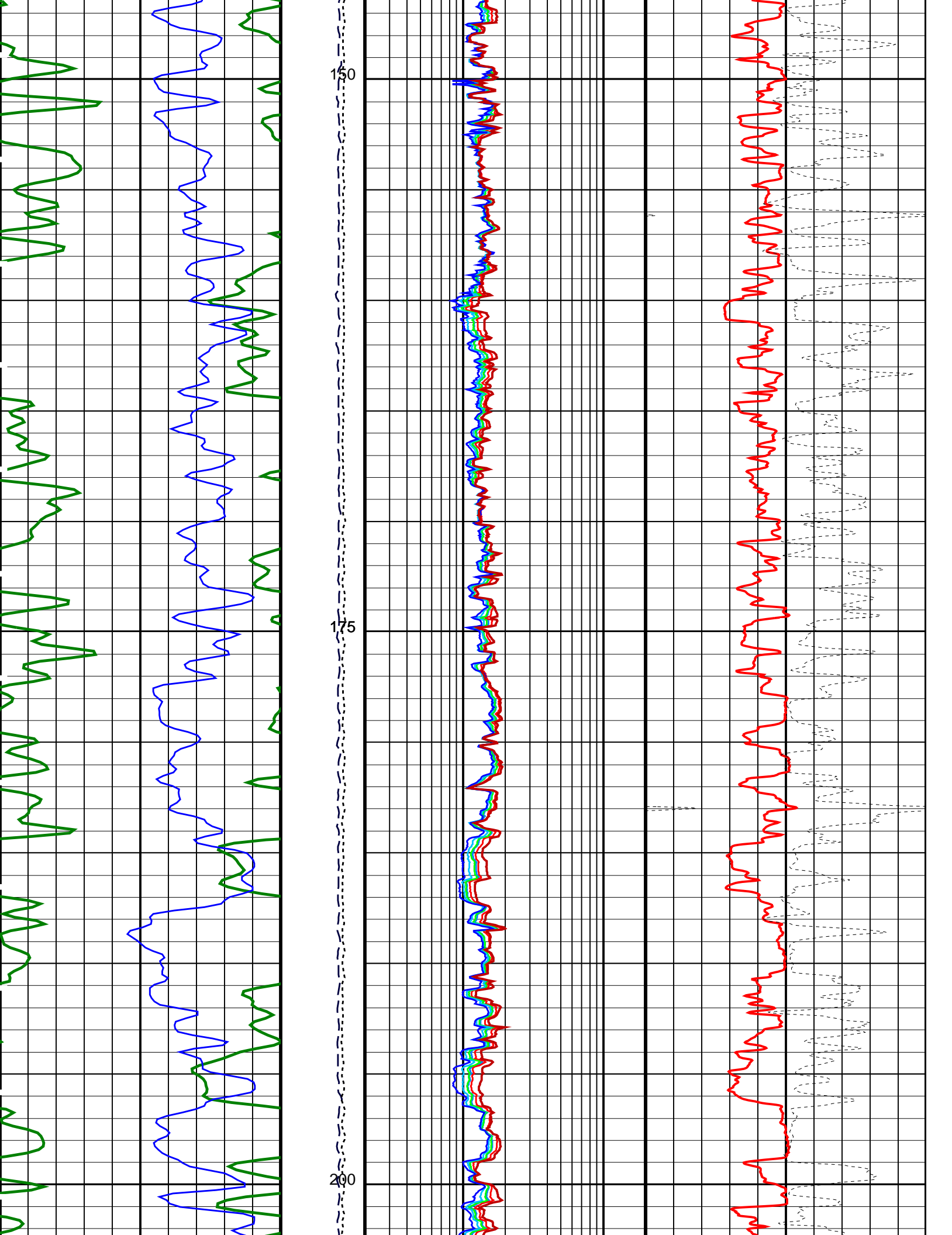
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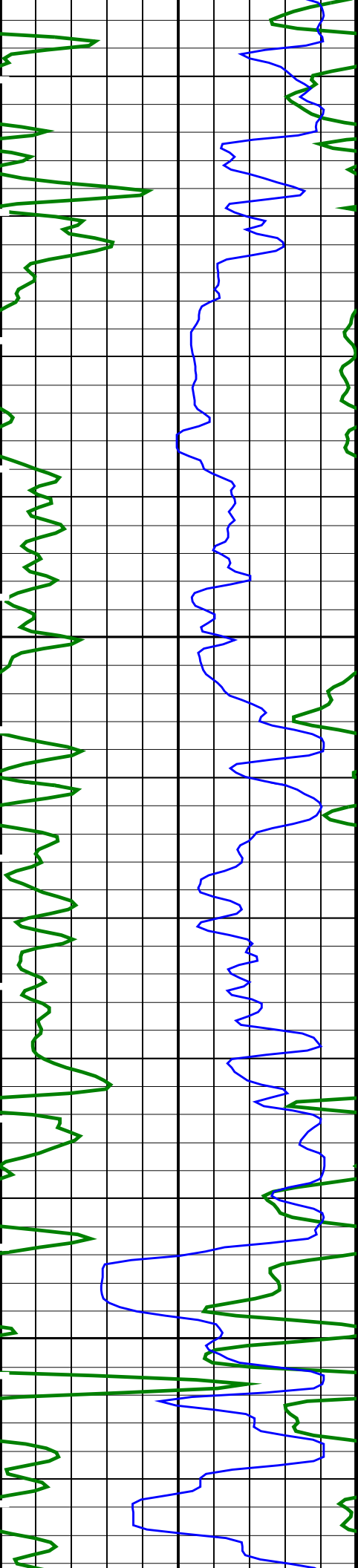
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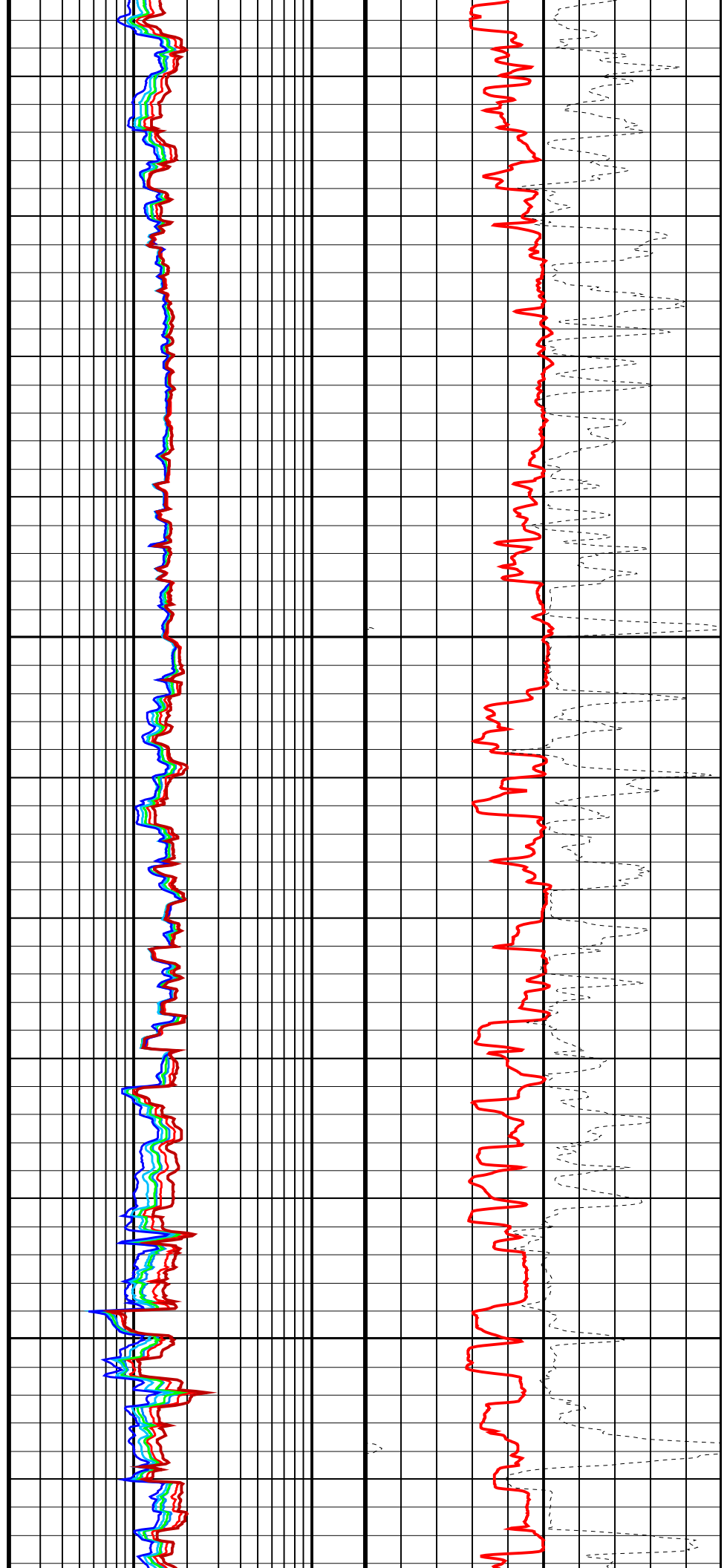


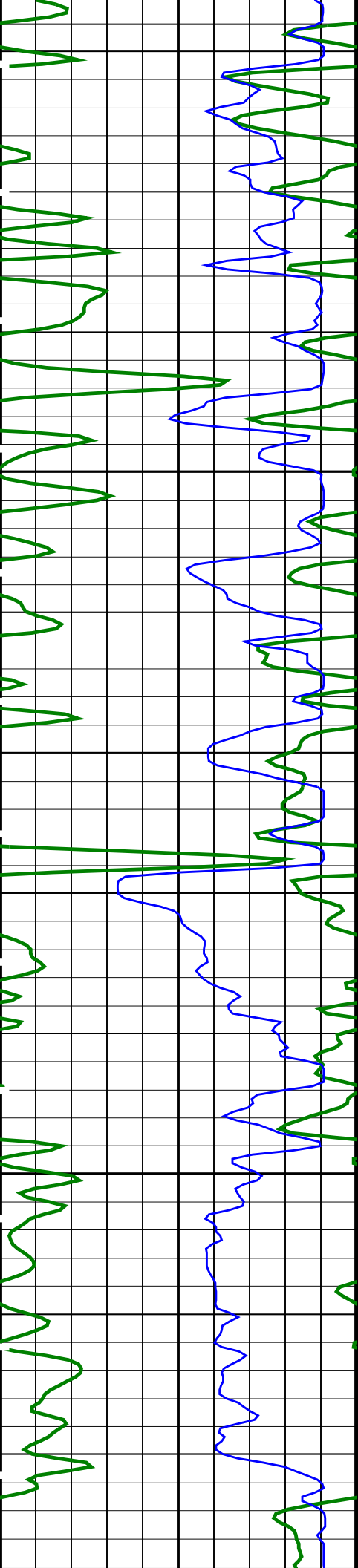






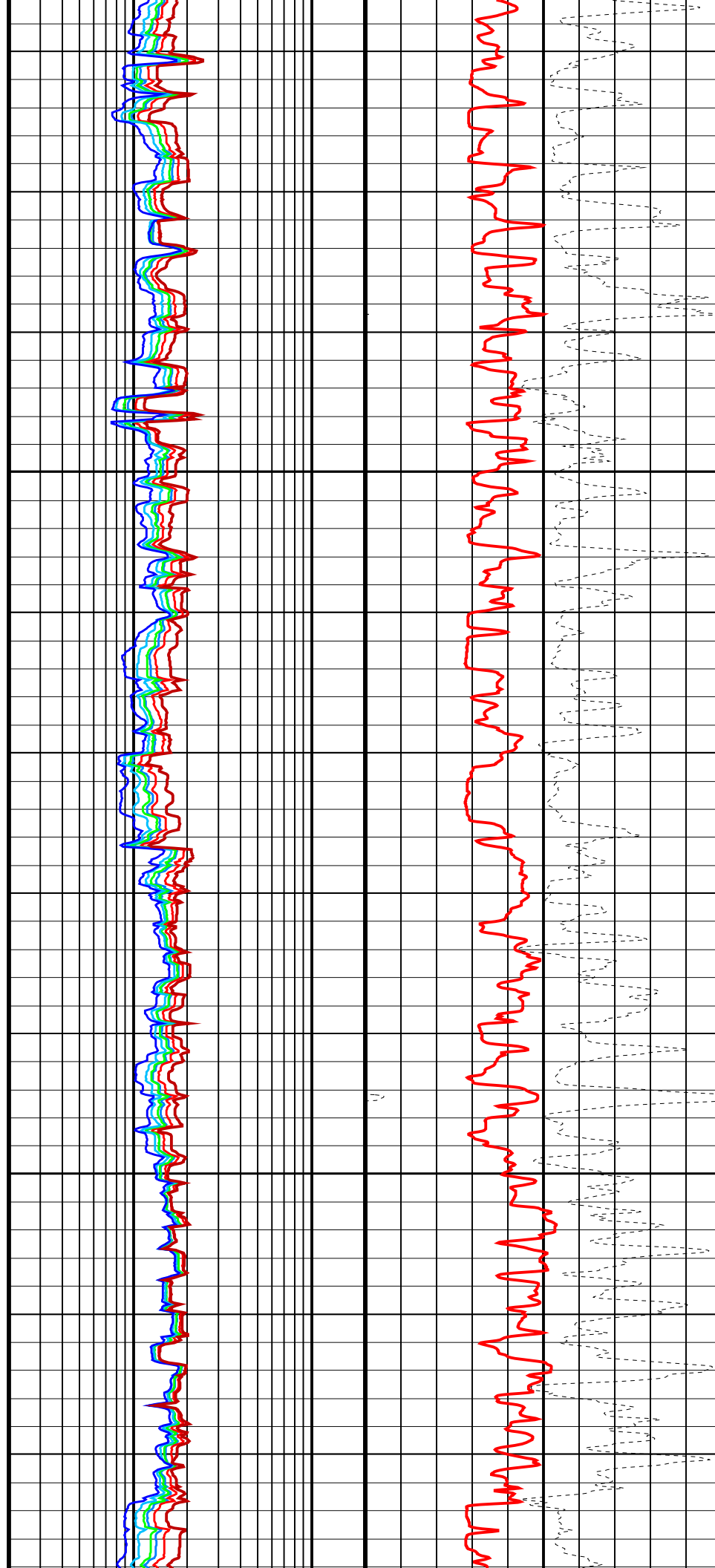
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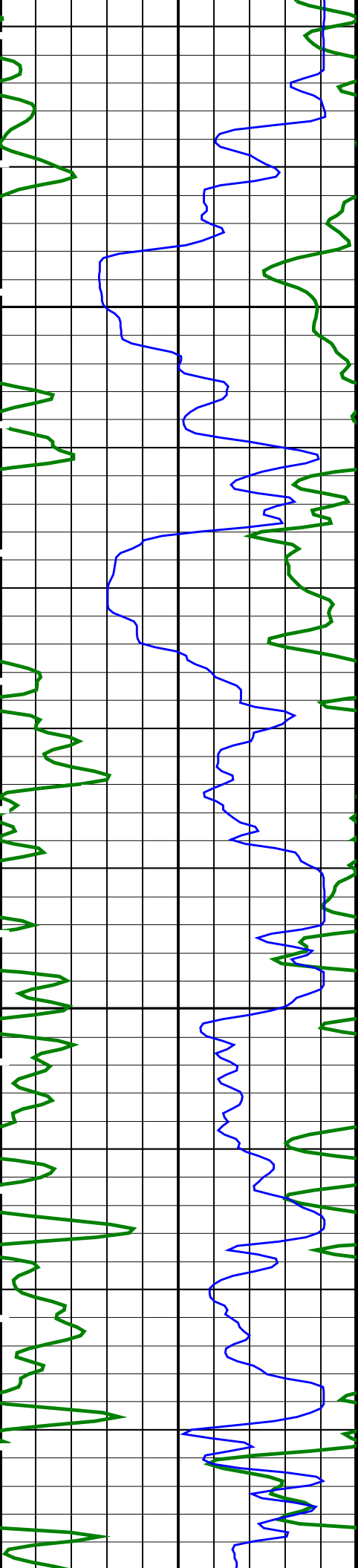




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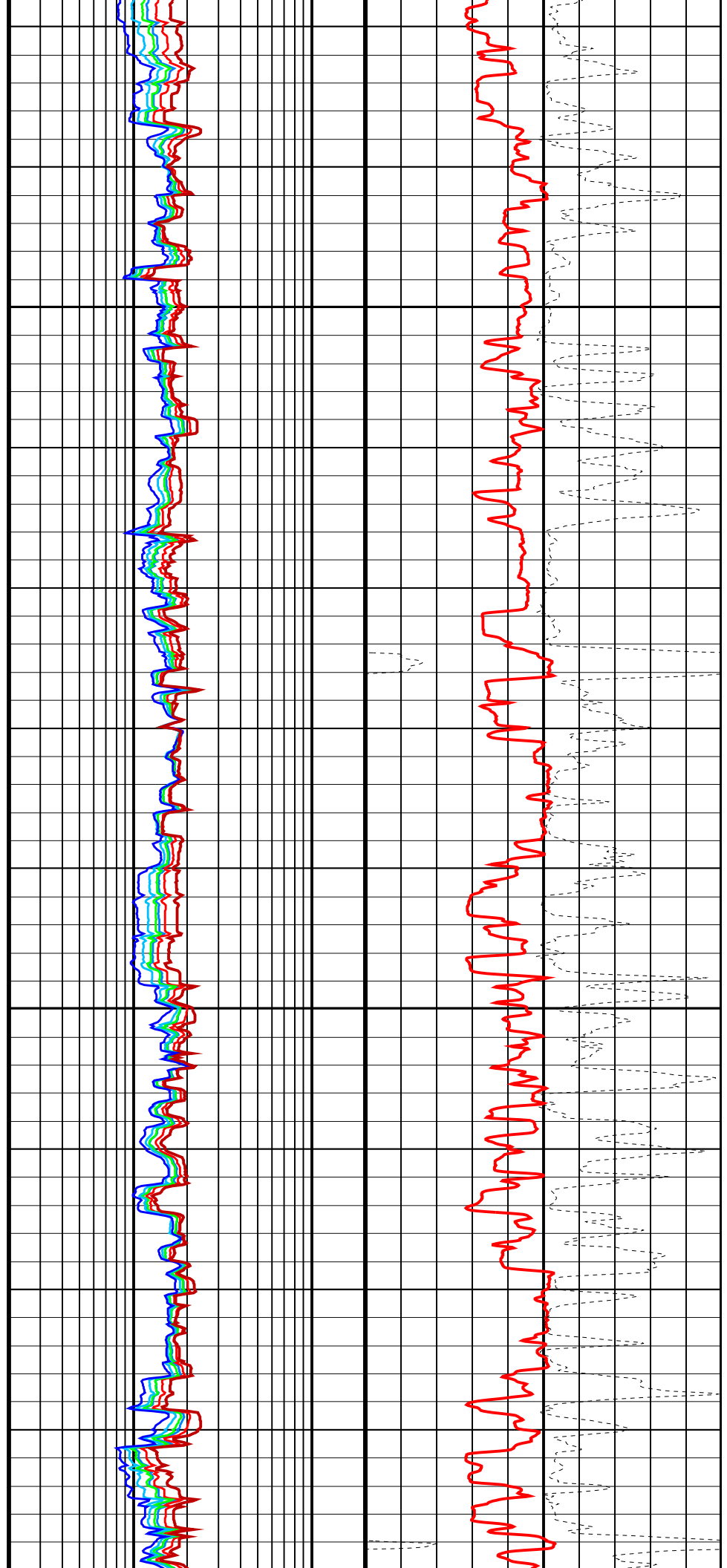
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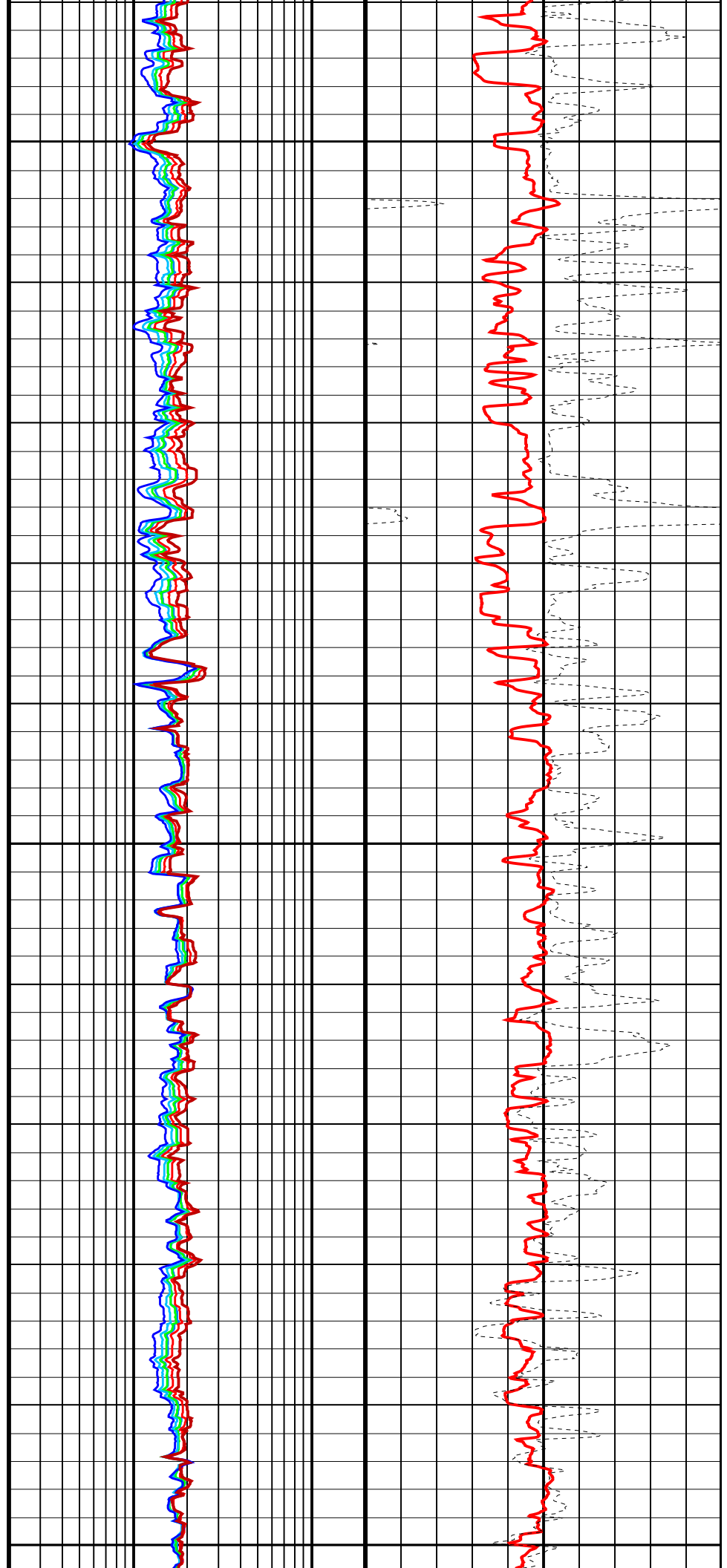
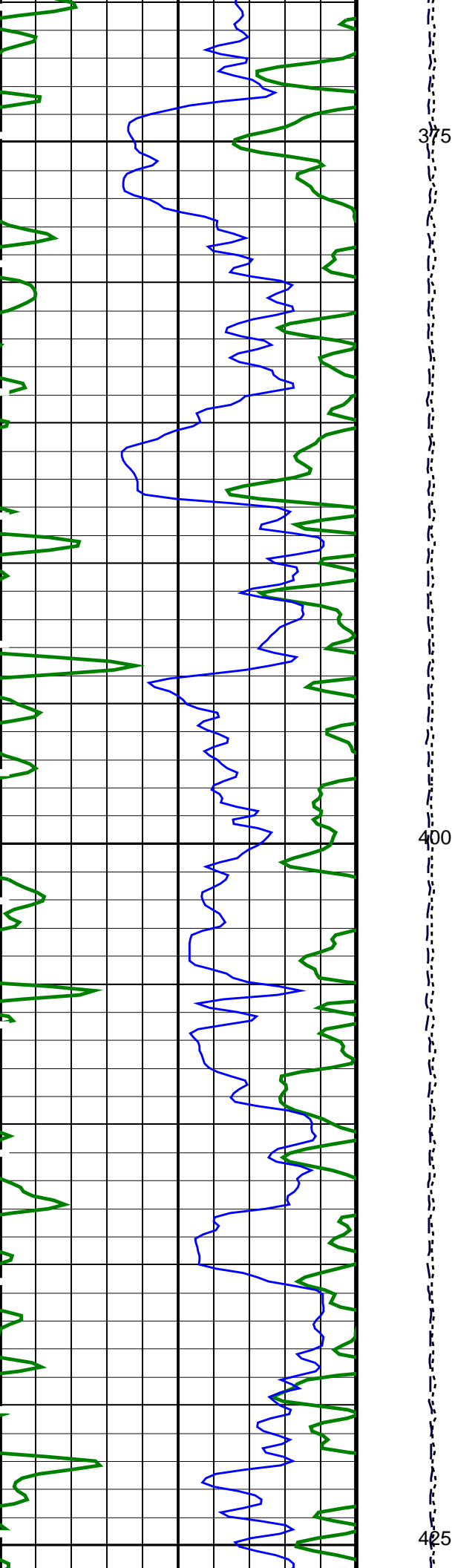


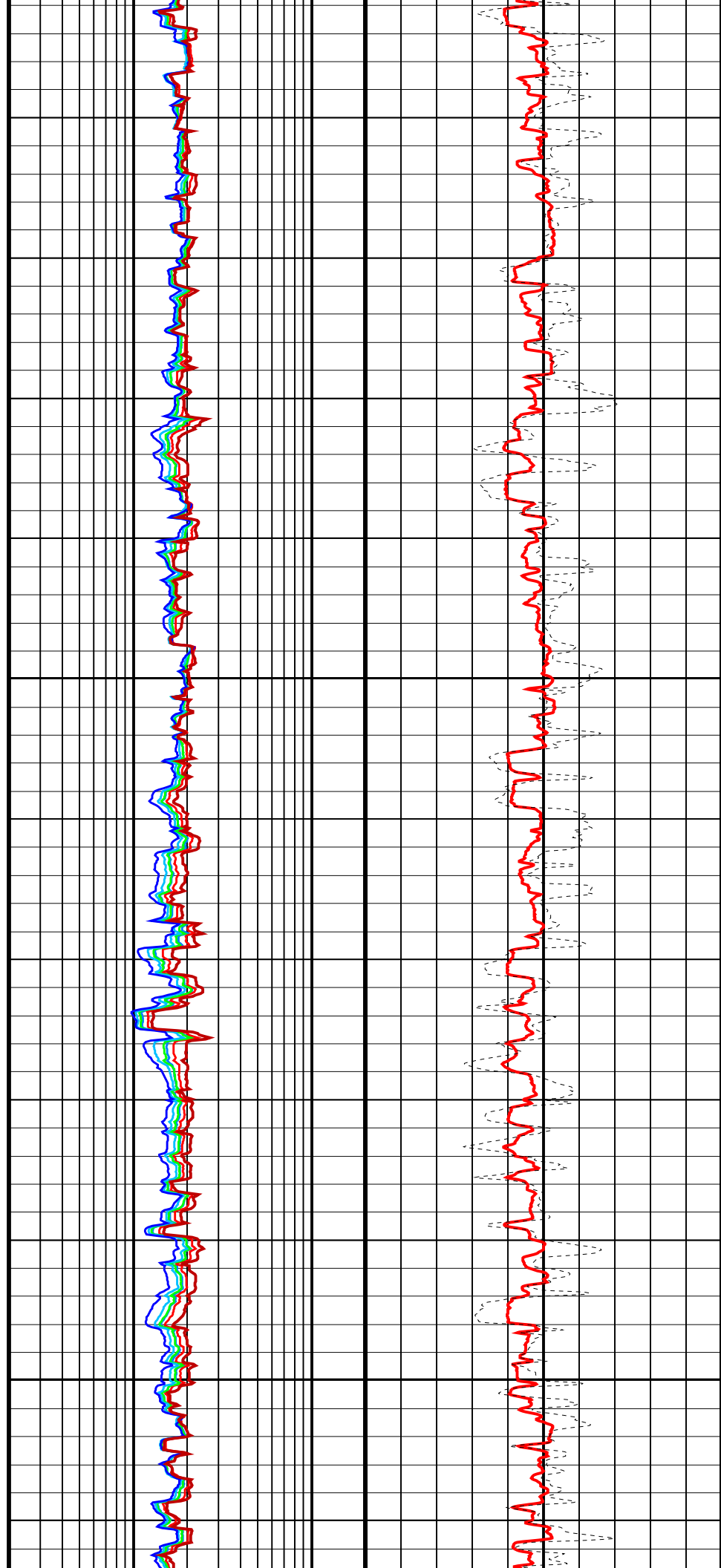
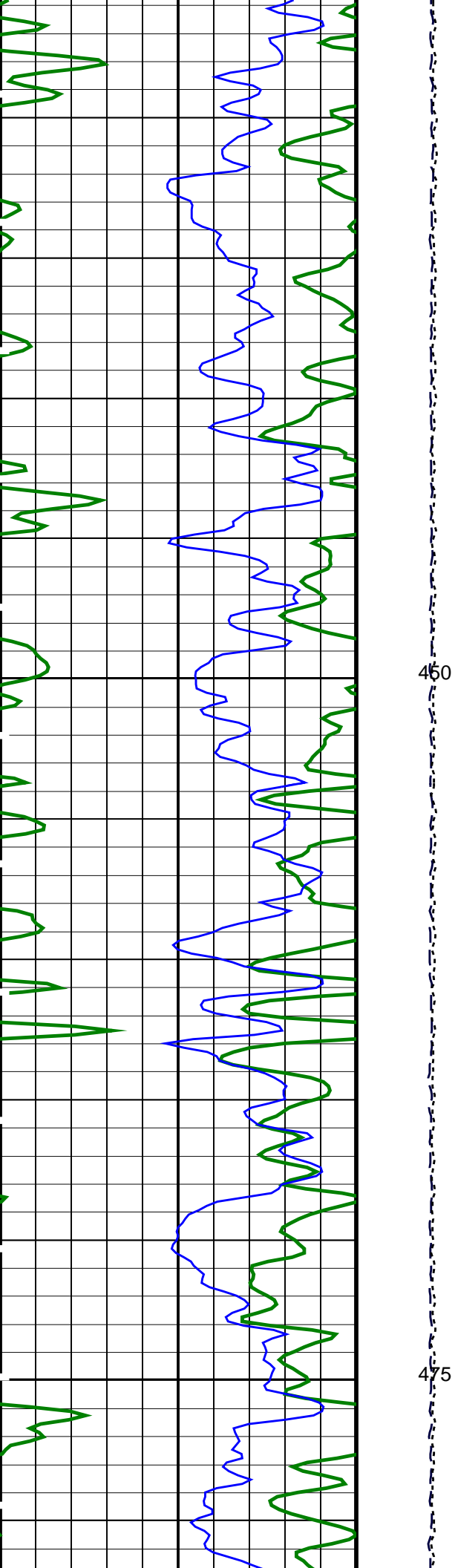


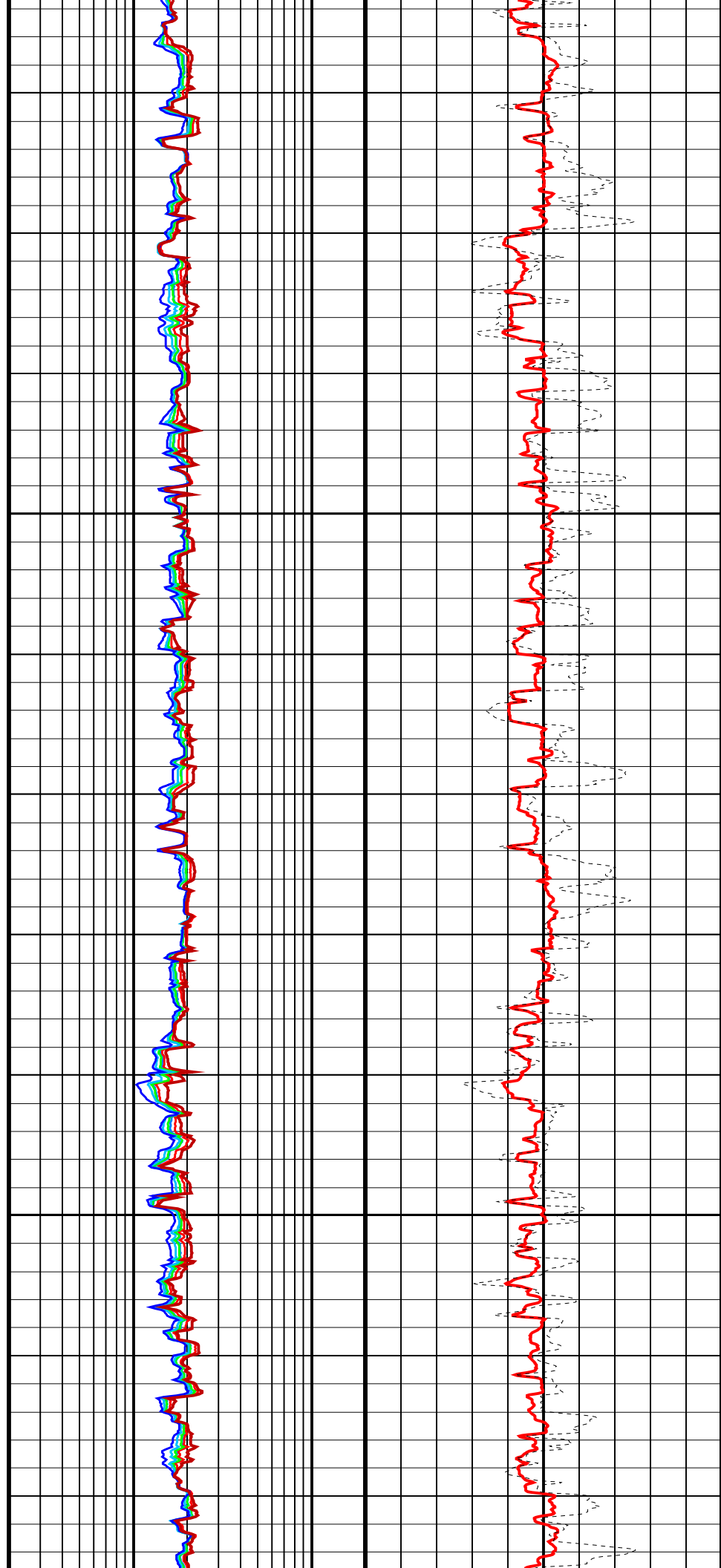
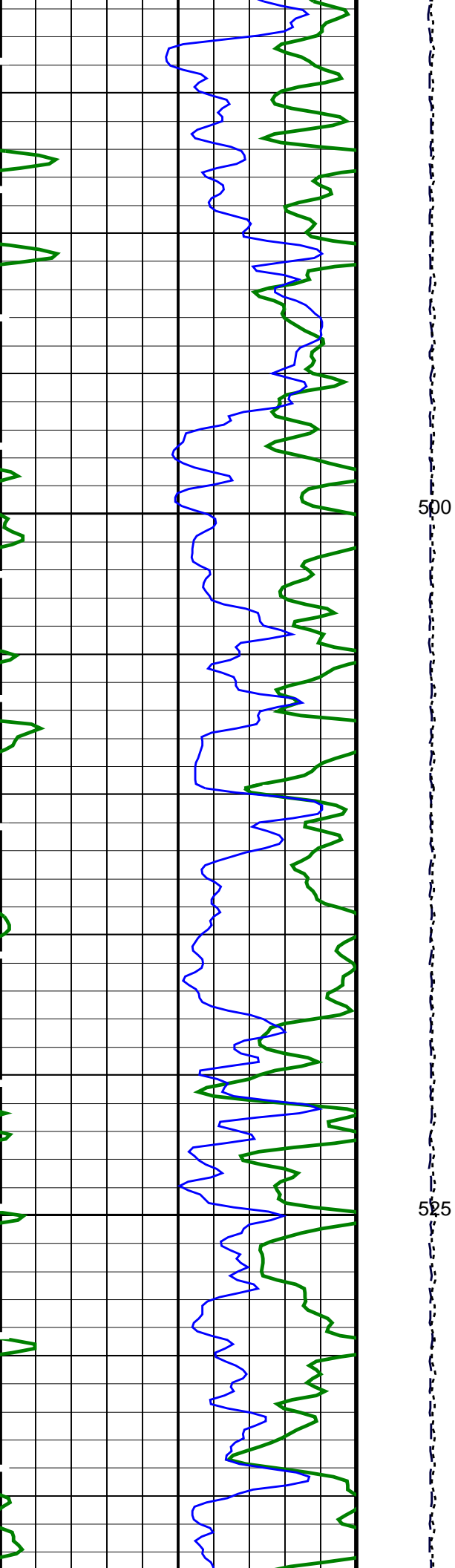
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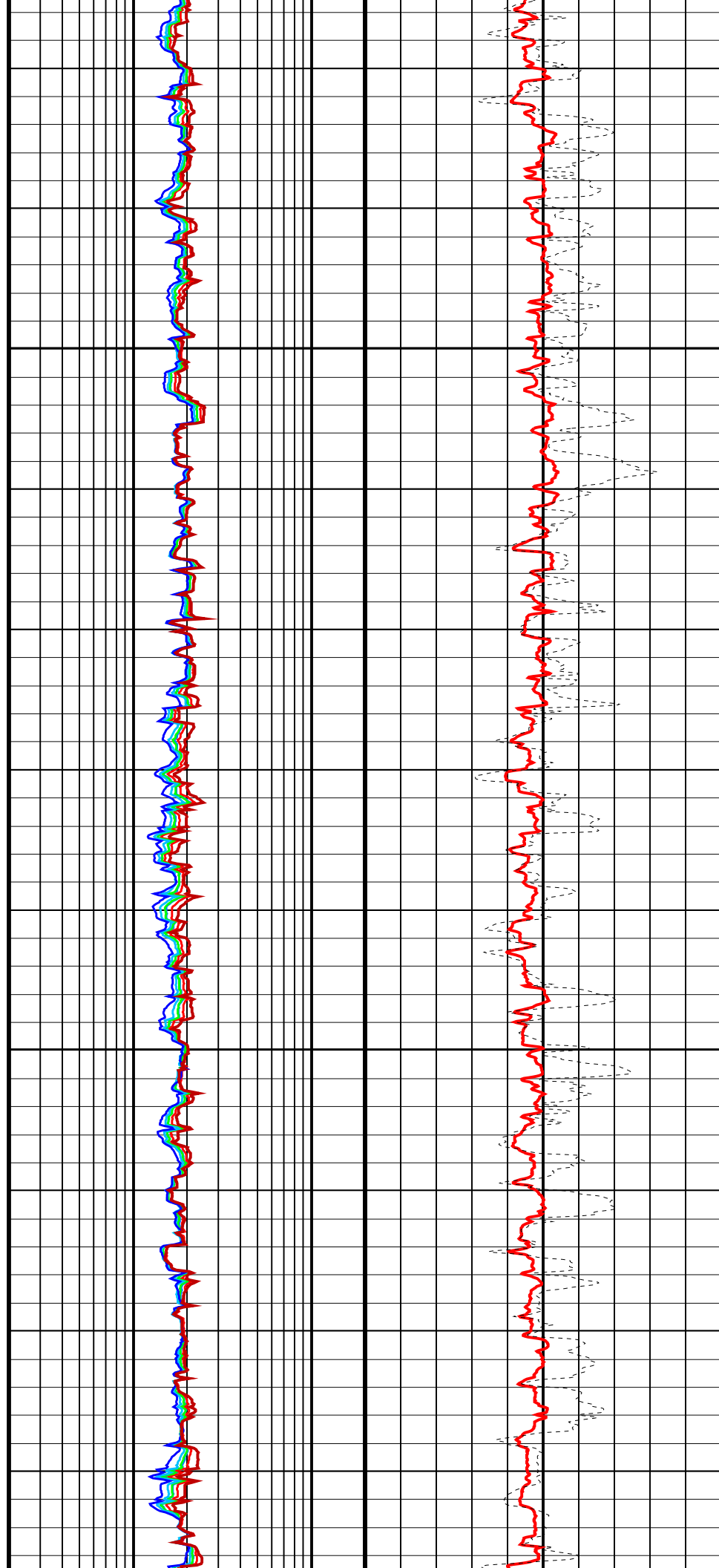
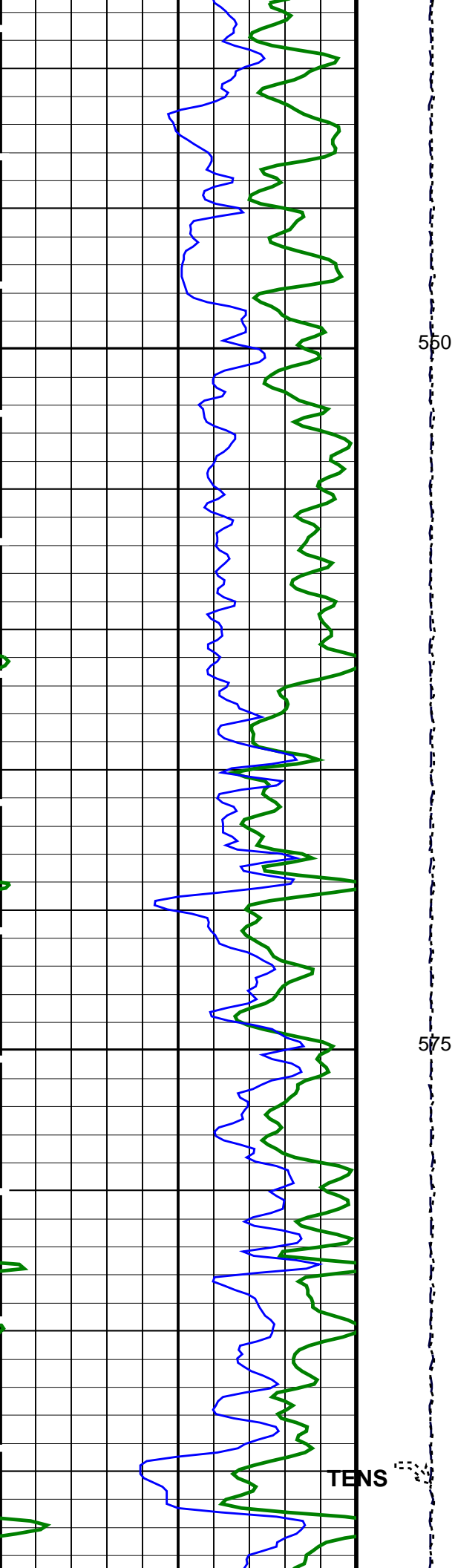
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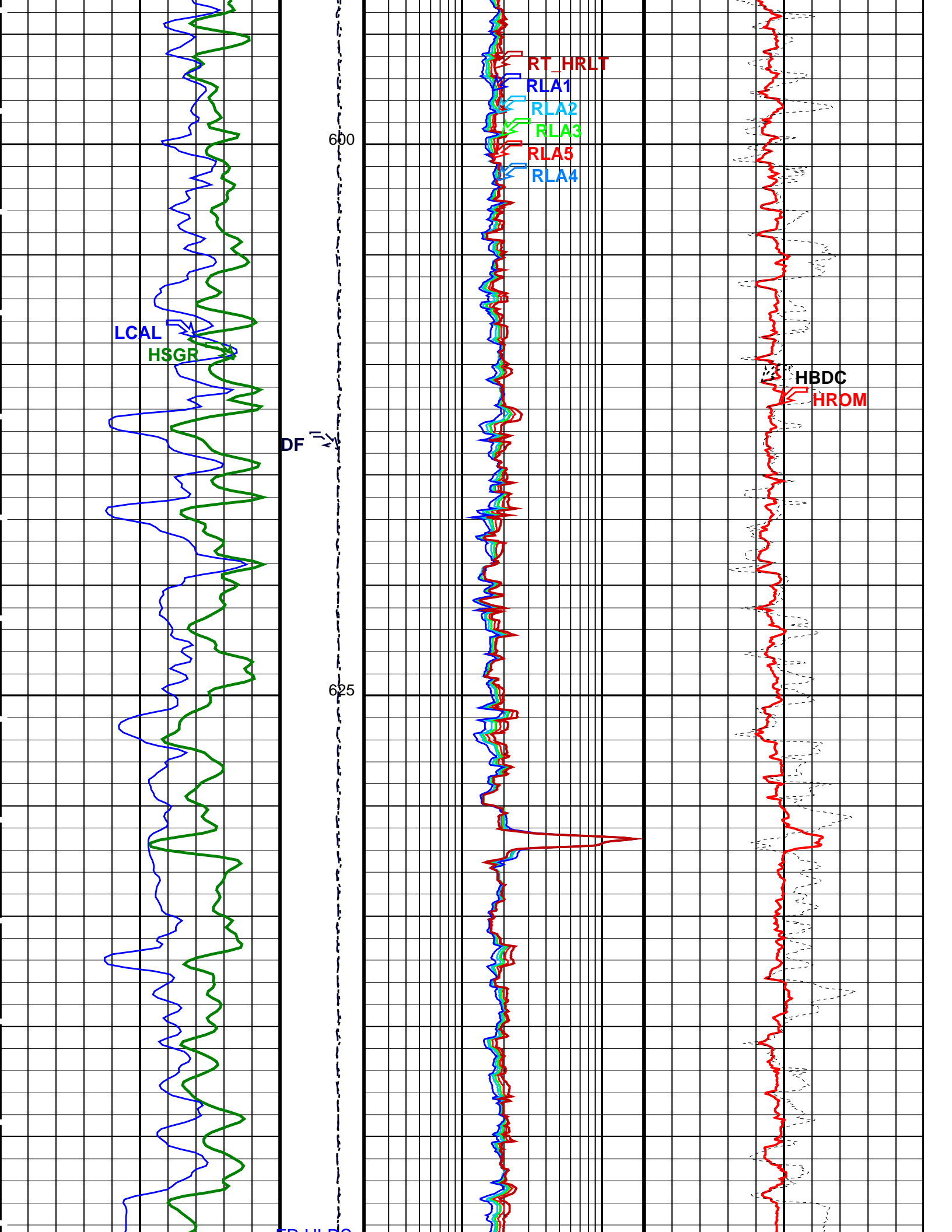


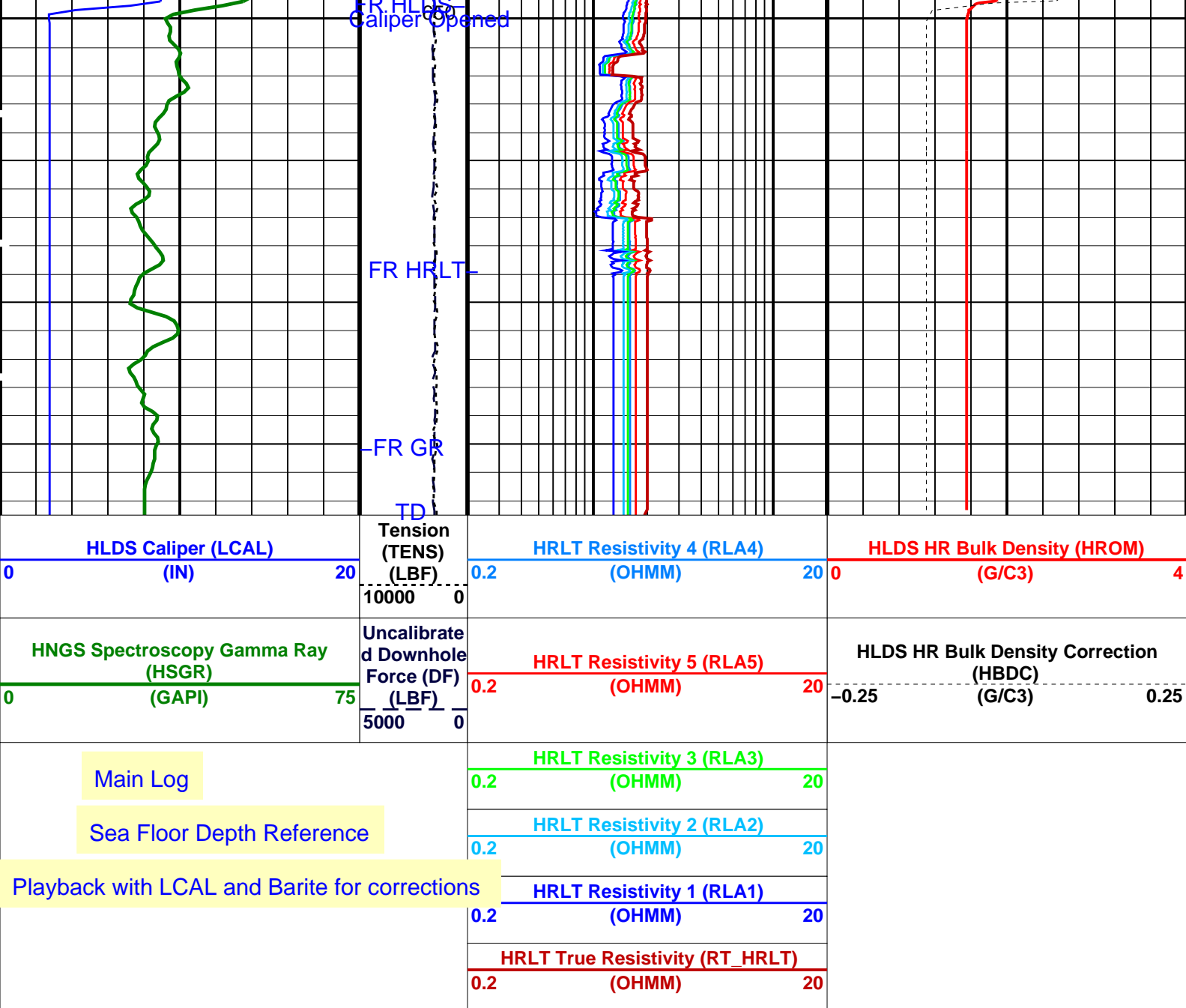












PIP SUMMARY

Time Mark Every 60 S

Parameters		
DLIS Name	Description	Value
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	-0.00416761
HALF	HNGS Alpha Filter Length	60 IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE
HMWM	Mud Weighting Material	BARI

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	CENT	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.974112	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.970002	
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	20.4572	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	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	
PROCNFL	Inversion Micro-Resistivity Selection	NO_EXTERNAL_RXO	
PROCMSO	Mechanical Standoff Fin Size	0	IN
PROCRM	Processing Mud Resistivity Select	HRLT_Compute	
PROCSPO	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	OFF	
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	
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	NOBARITE	
ISSBAR_EDTC	Nuclear Mud Type	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	YES	

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	-1086.0	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	RECOMPUTE	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1765	M
TDD	Total Depth - Driller	1765.00	M
TDL	Total Depth - Logger	1765.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: TripleCombo Vertical Scale: 1:200 Graphics File Created: 15-Jan-2012 07:48

### OP System Version: 19C0-187

HNGC-B	19C0-187	HNGS-BA	19C0-187
HRLT-B	19C0-187	HLDS	19C0-187
LDSC-B	19C0-187	EDTC-B	SKK-5169-EDTCB

#### Input DLIS Files

DEFAULT	NGS_HRLA_LDL_013LUP	FN:14	PRODUCER	15-Jan-2012 05:04	1753.4 M	1073.2 M
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#### Output DLIS Files

DEFAULT	NGS_HRLA_LDL_017PUP	FN:20	PRODUCER	15-Jan-2012 07:47		
BACKUPDLIS	NGS_HRLA_LDL_017PUP	FN:21	PRODUCER	15-Jan-2012 07:48		

#### Input DLIS Files

DEFAULT	NGS_HRLA_LDL_013LUP	FN:14	PRODUCER	15-Jan-2012 05:04	1753.4 M	1073.2 M
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#### Output DLIS Files

DEFAULT	NGS_HRLA_LDL_016PUP	FN:18	PRODUCER	15-Jan-2012 07:37	667.5 M	-12.8 M
BACKUPDLIS	NGS_HRLA_LDL_016PUP	FN:19	PRODUCER	15-Jan-2012 07:37	667.5 M	-12.8 M

### OP System Version: 19C0-187

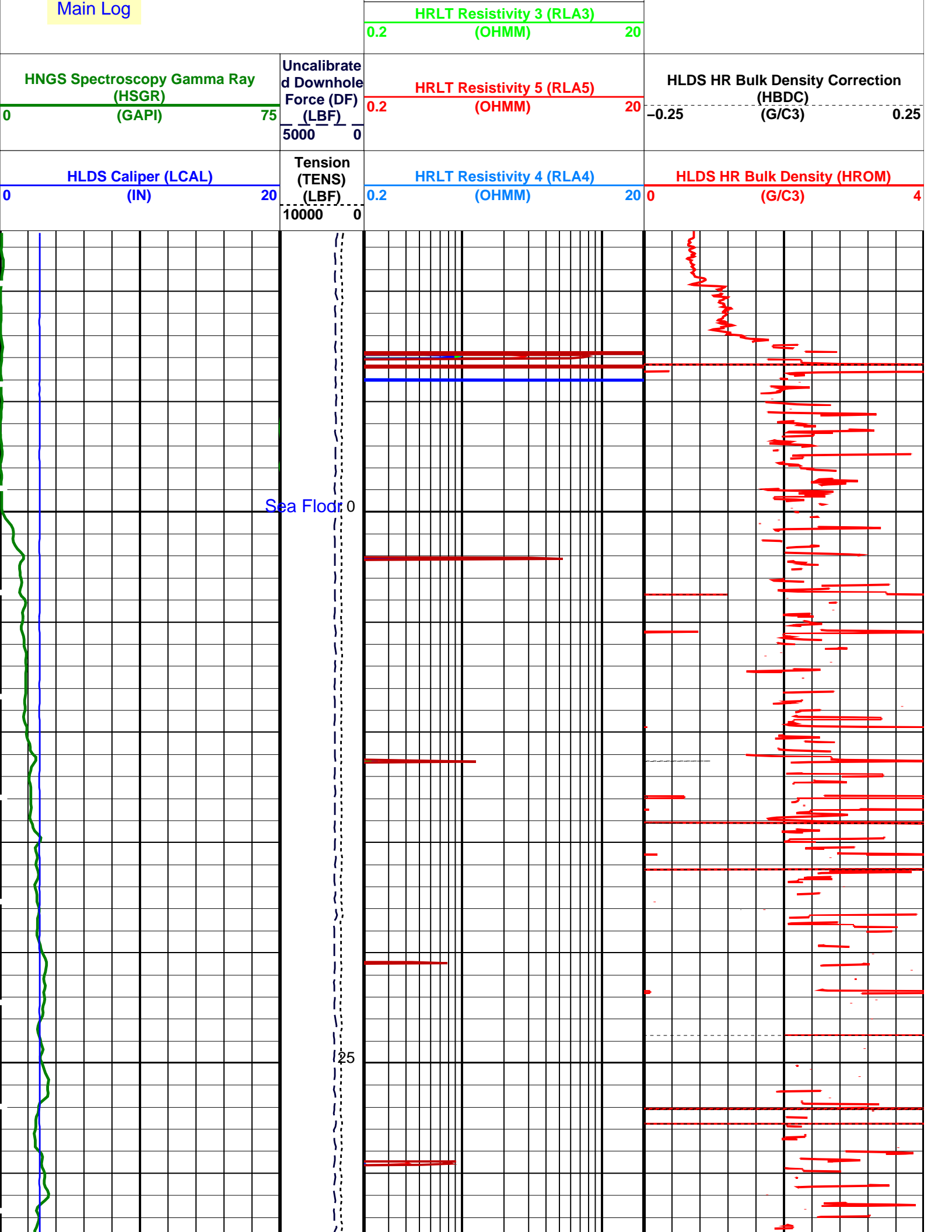
HNGC-B	19C0-187	HNGS-BA	19C0-187
HRLT-B	19C0-187	HLDS	19C0-187
LDSC-B	19C0-187	EDTC-B	SKK-5169-EDTCB

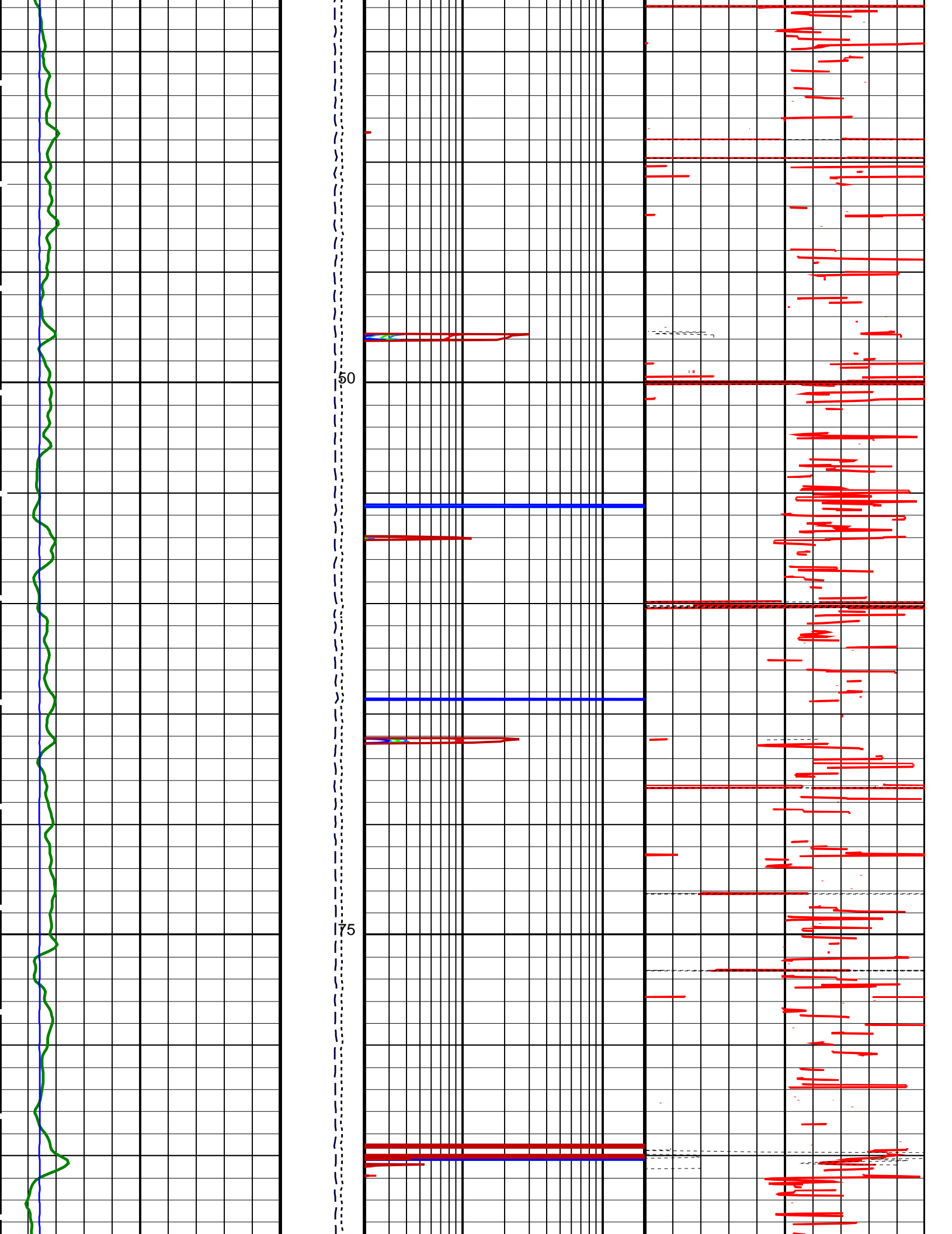
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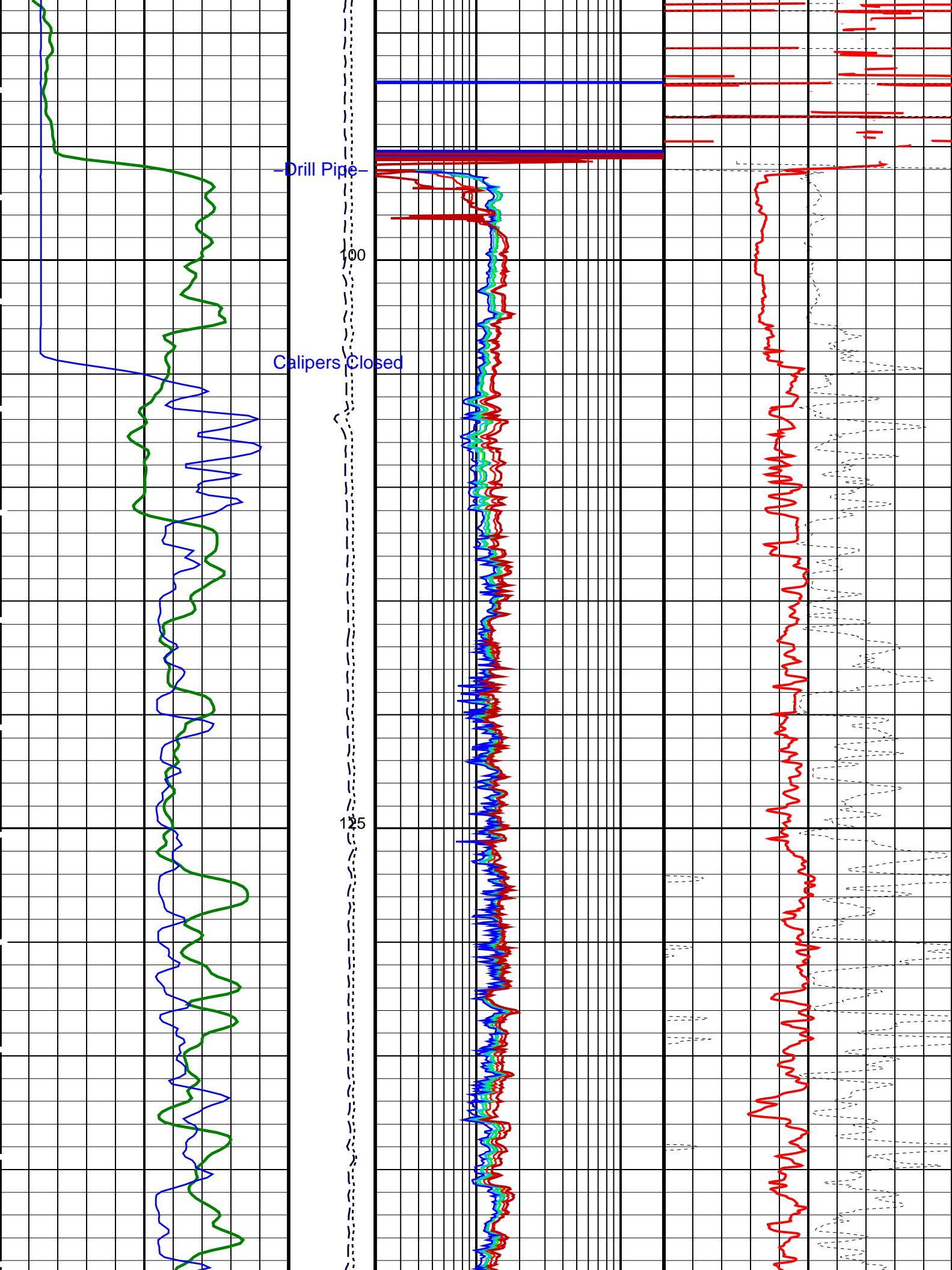
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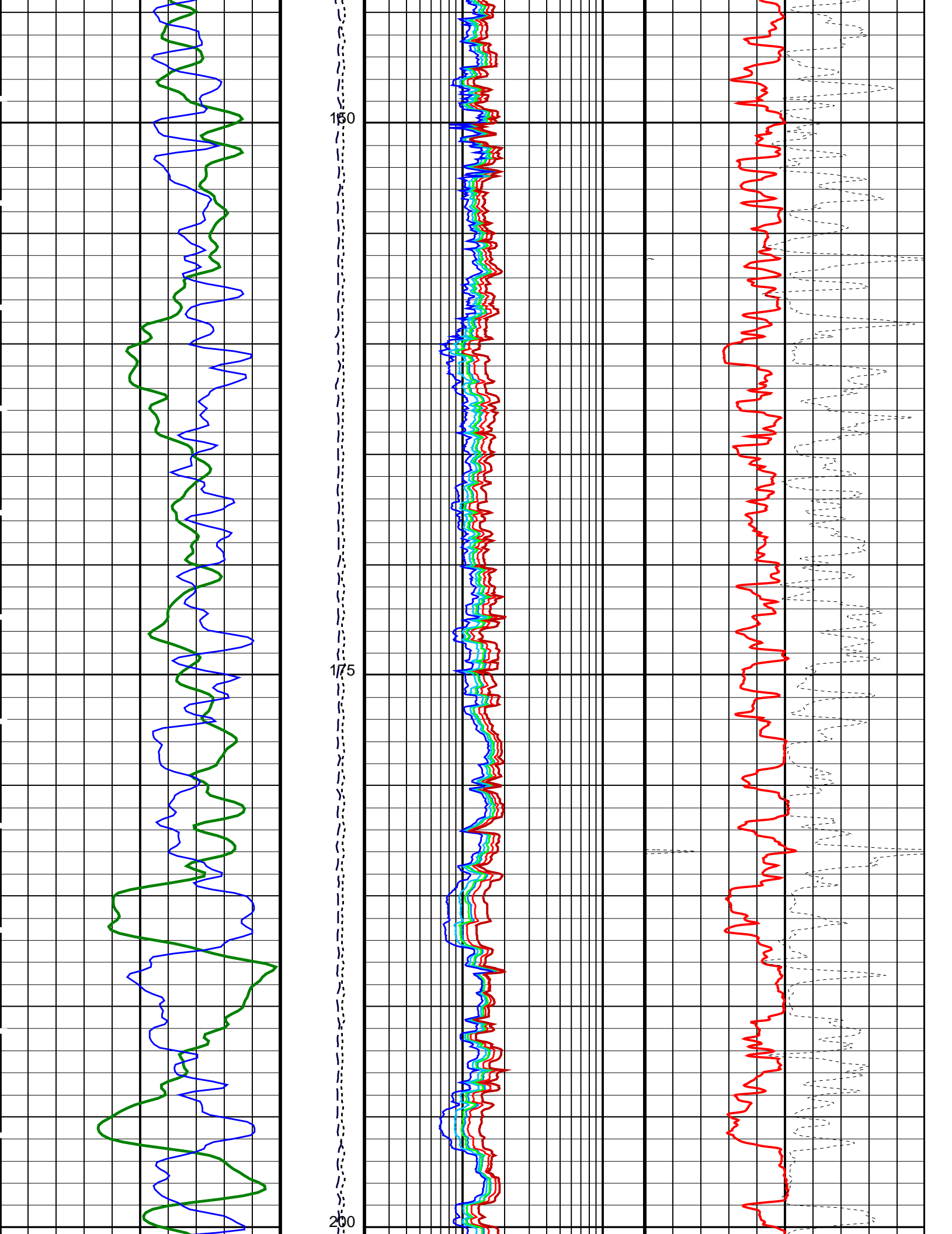
HRLT True Resistivity (RT_HRLT)		
0.2	(OHMM)	20
HRLT Resistivity 1 (RLA1)		
0.2	(OHMM)	20
HRLT Resistivity 2 (RLA2)		
0.2	(OHMM)	20

Sea Floor Depth Reference



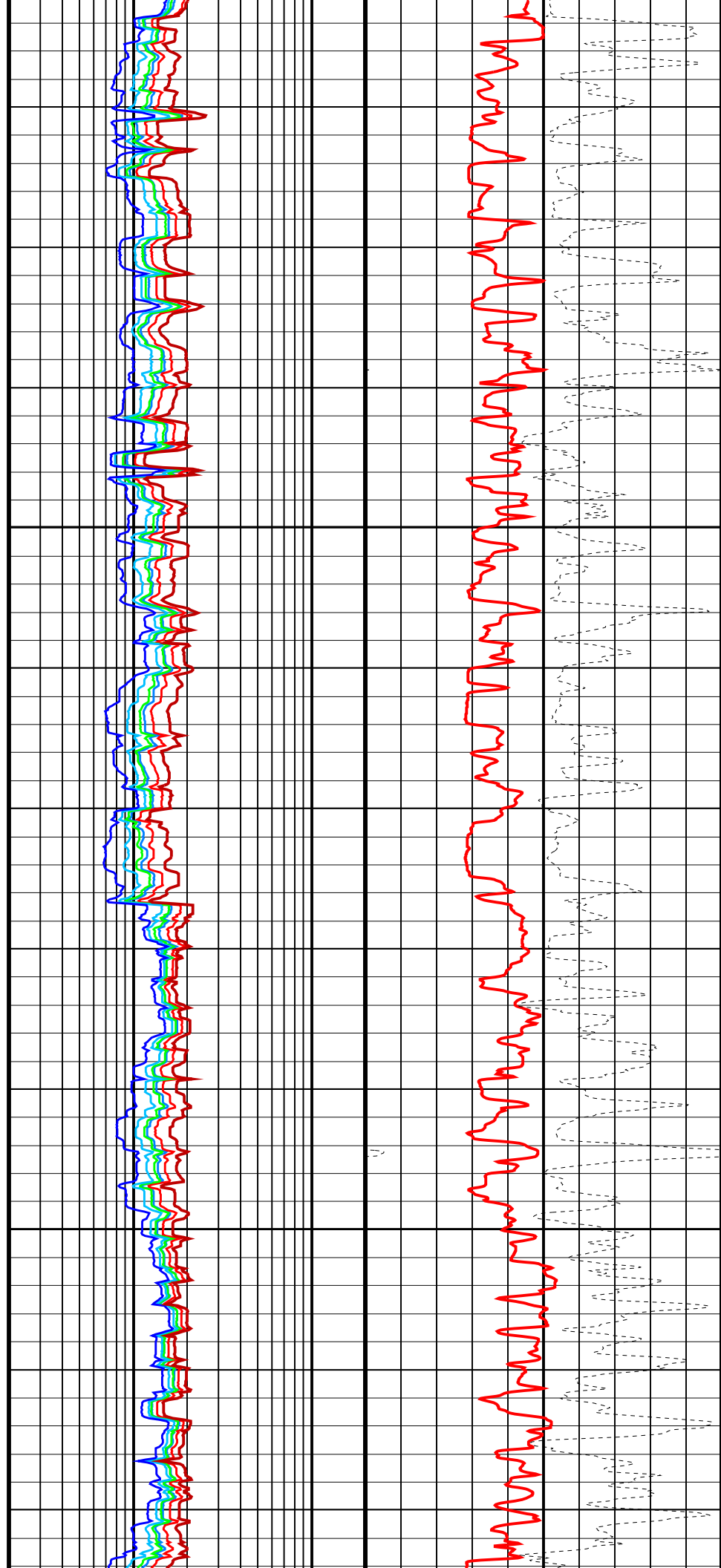
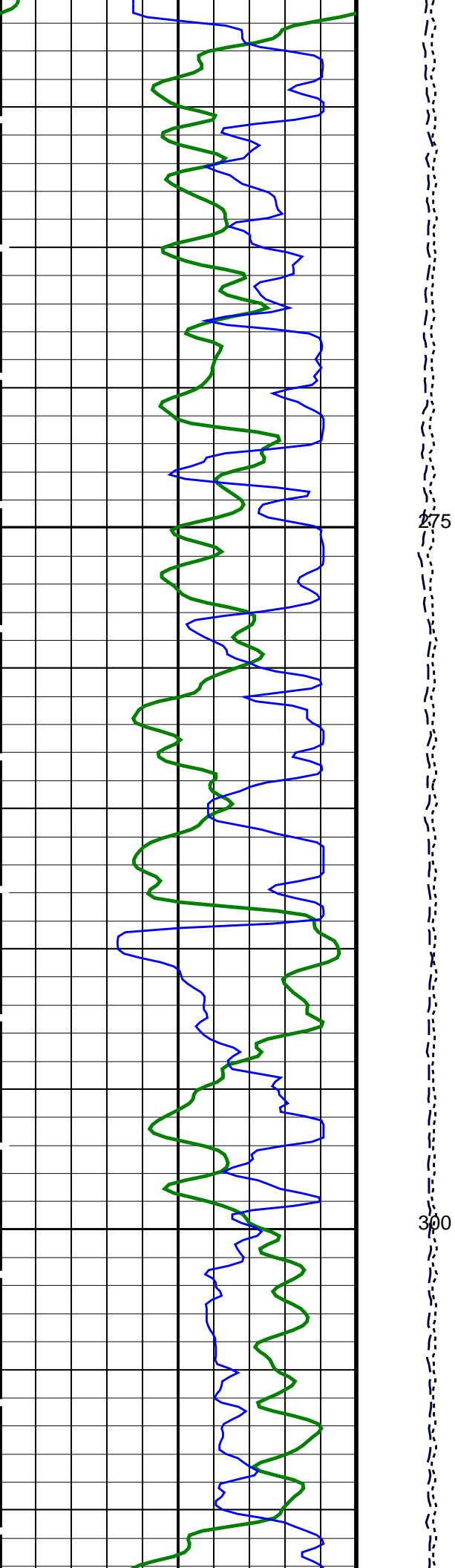


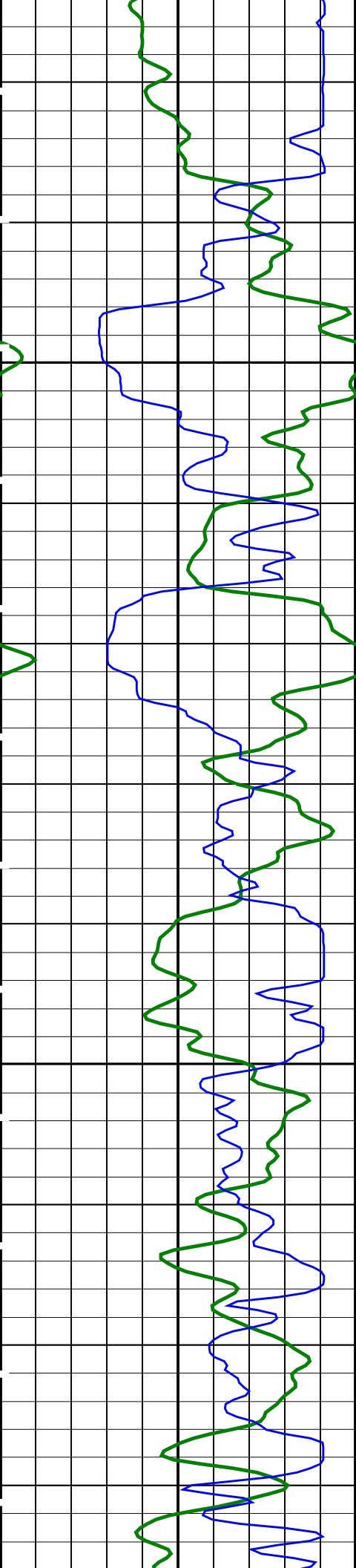






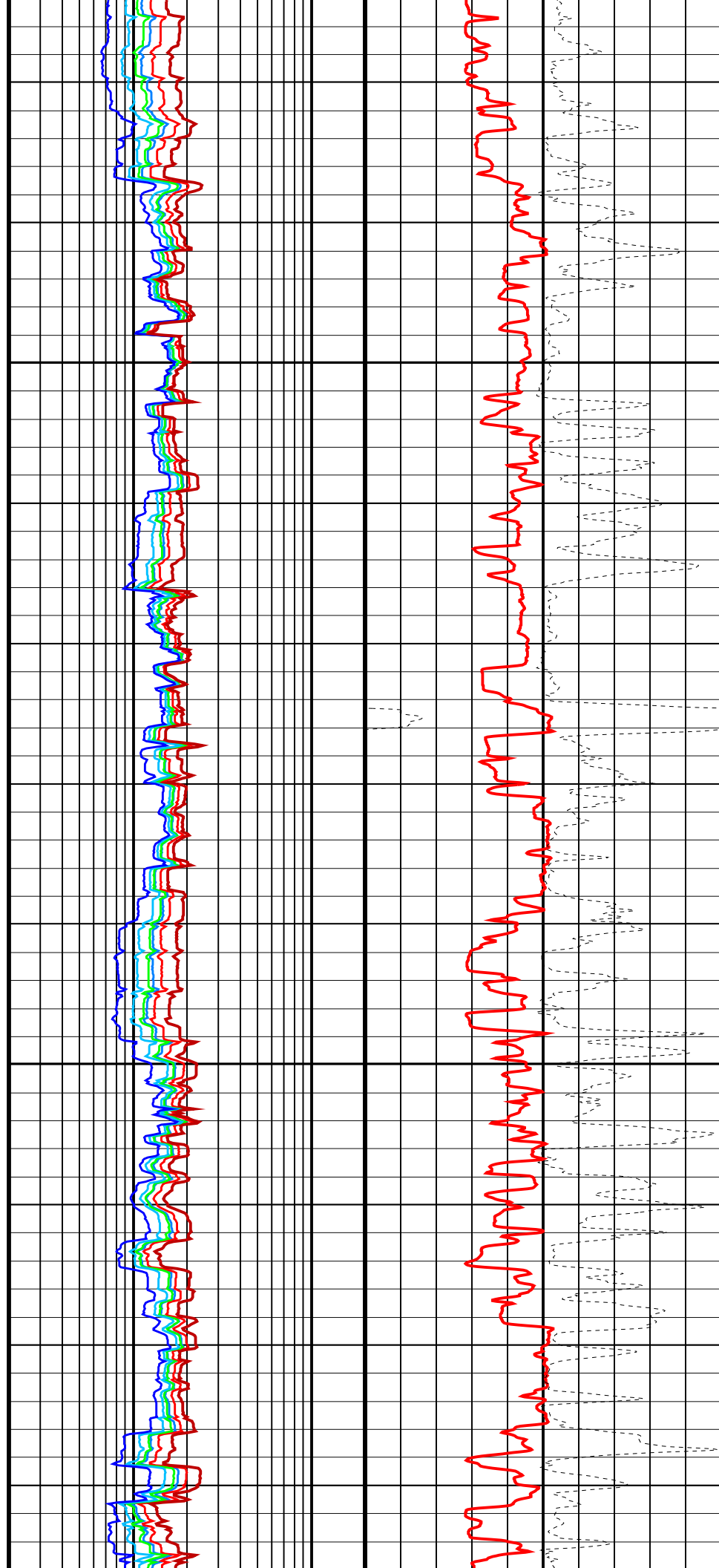


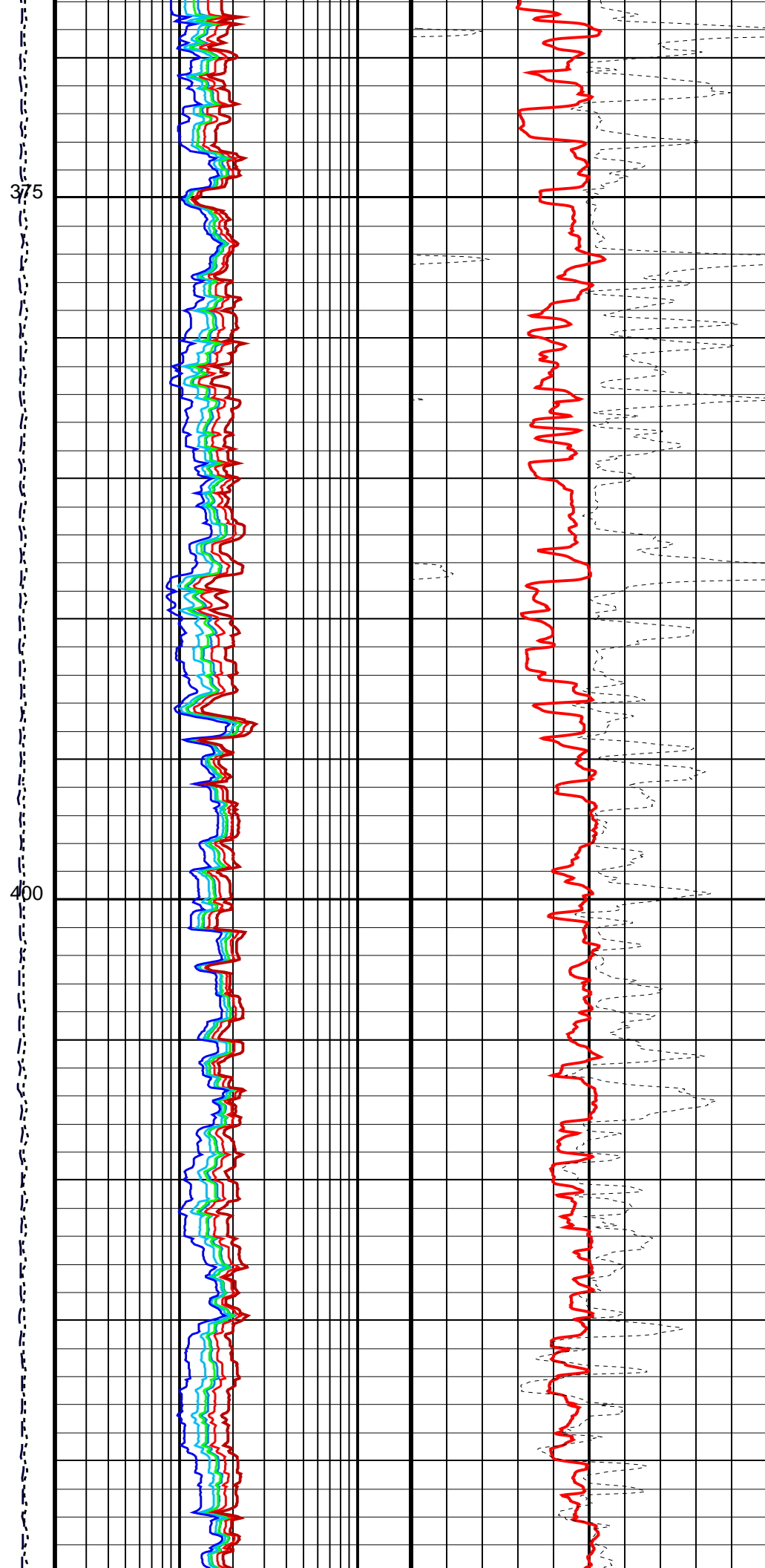
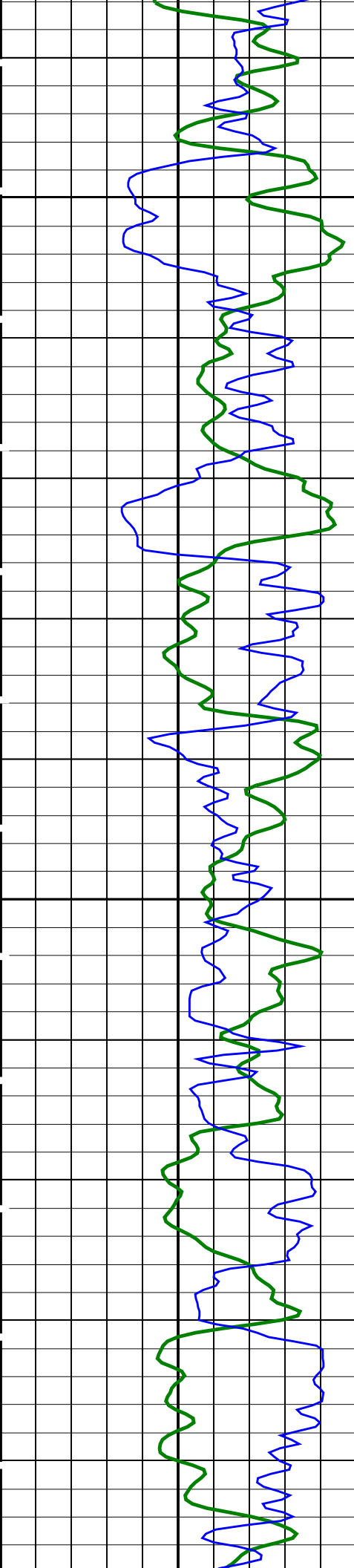


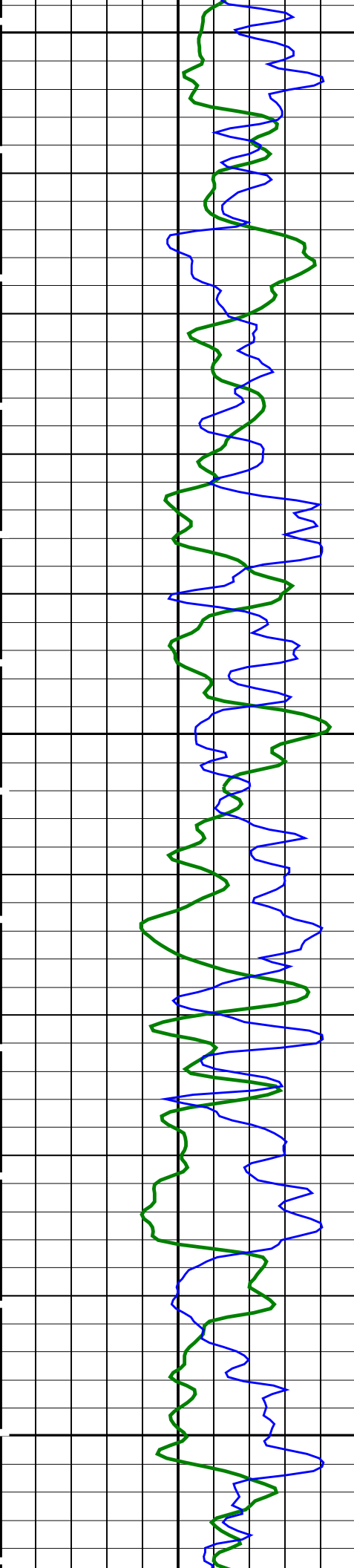


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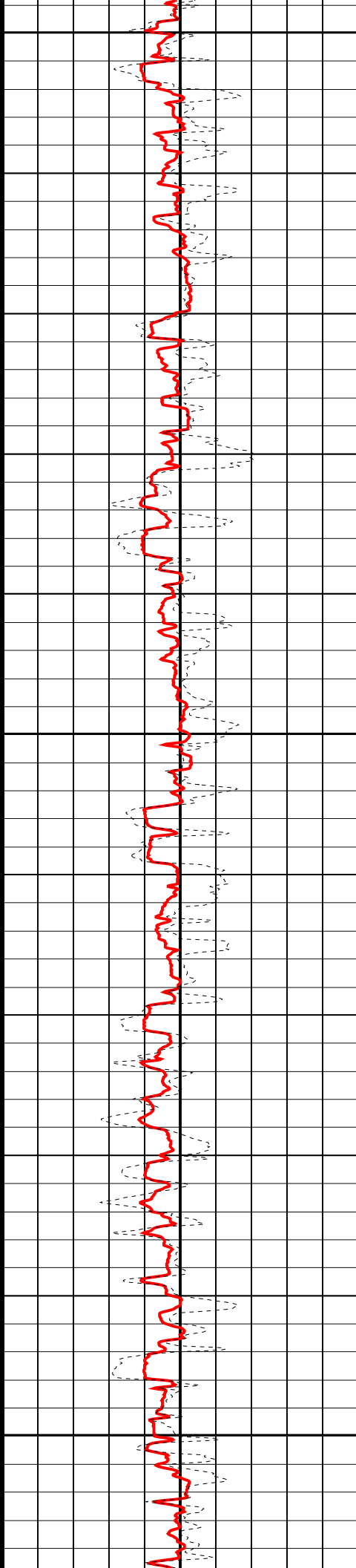
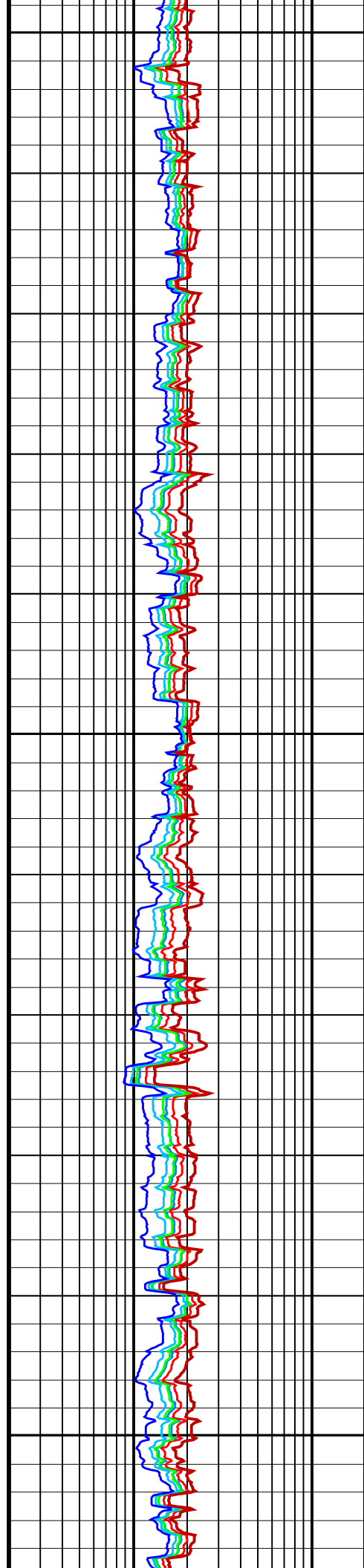


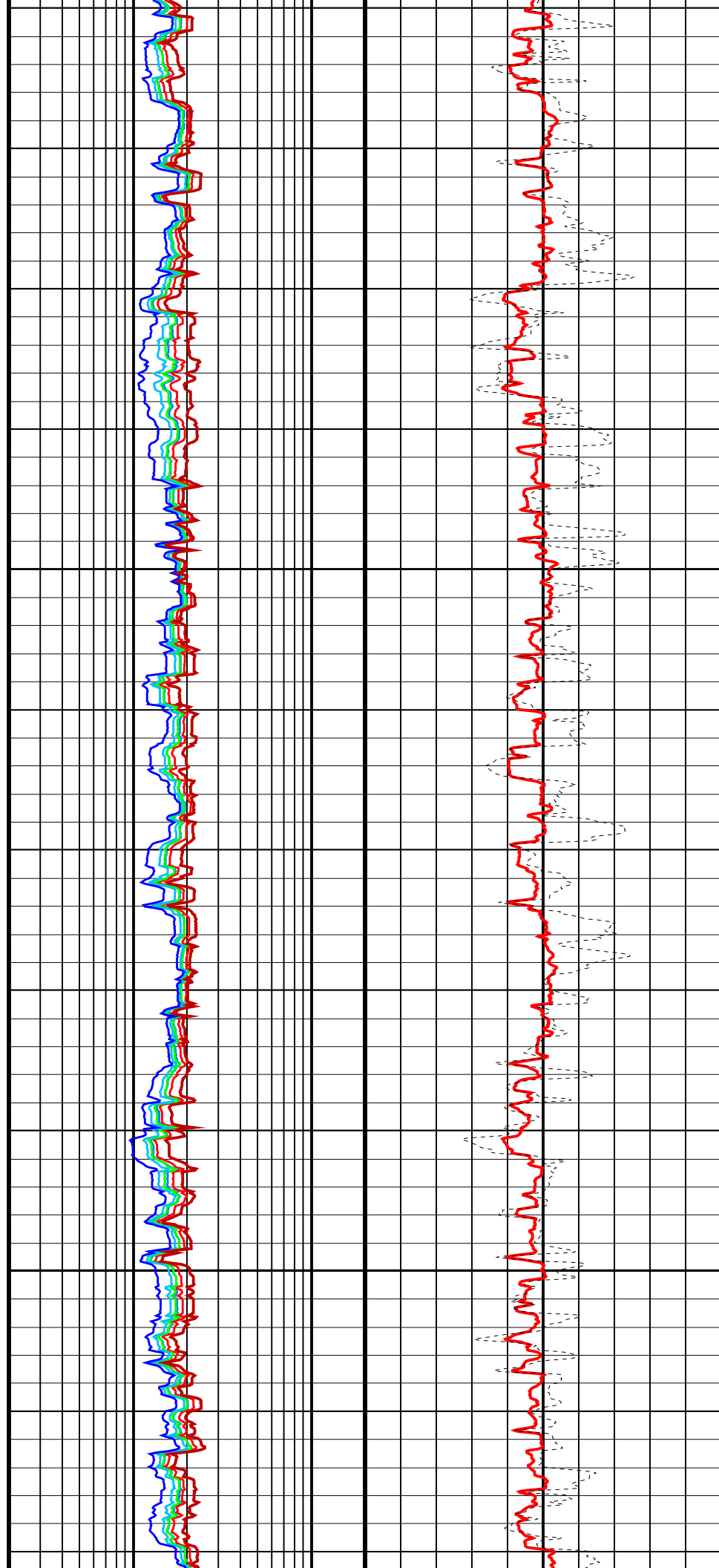
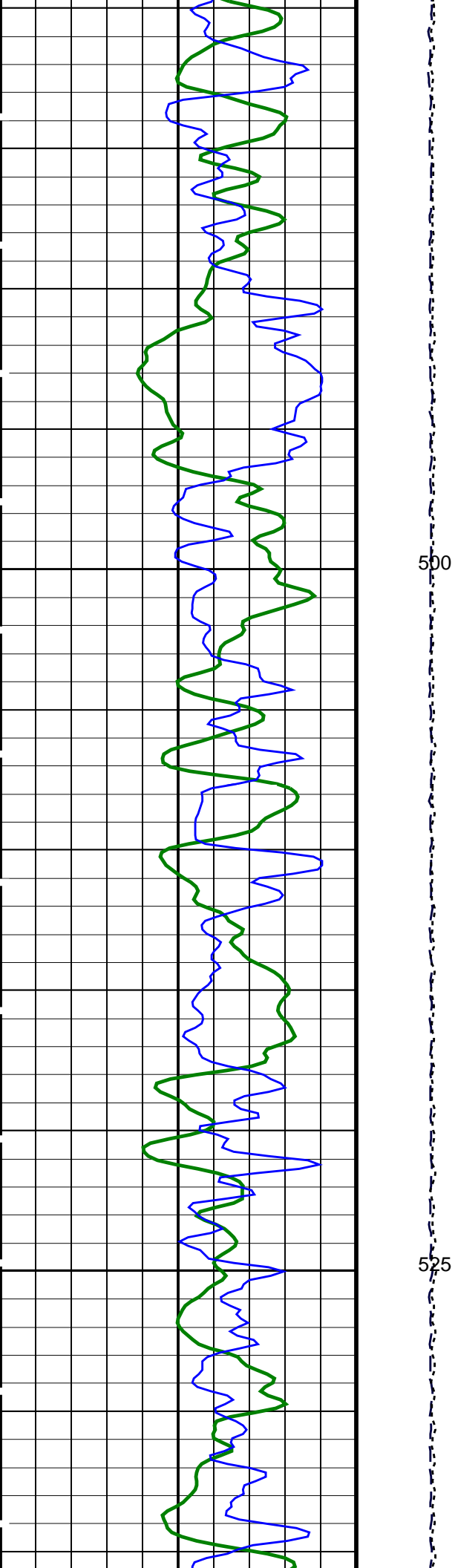


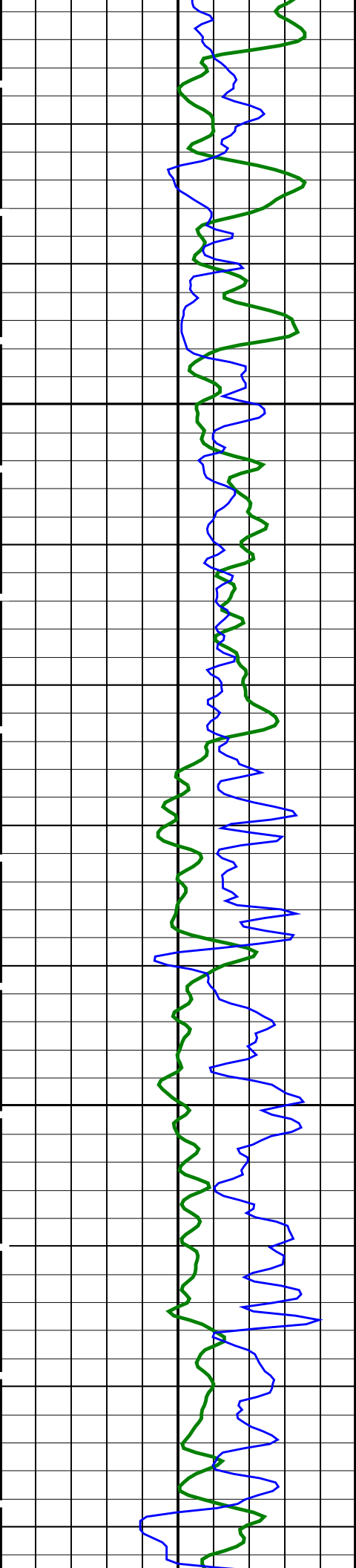
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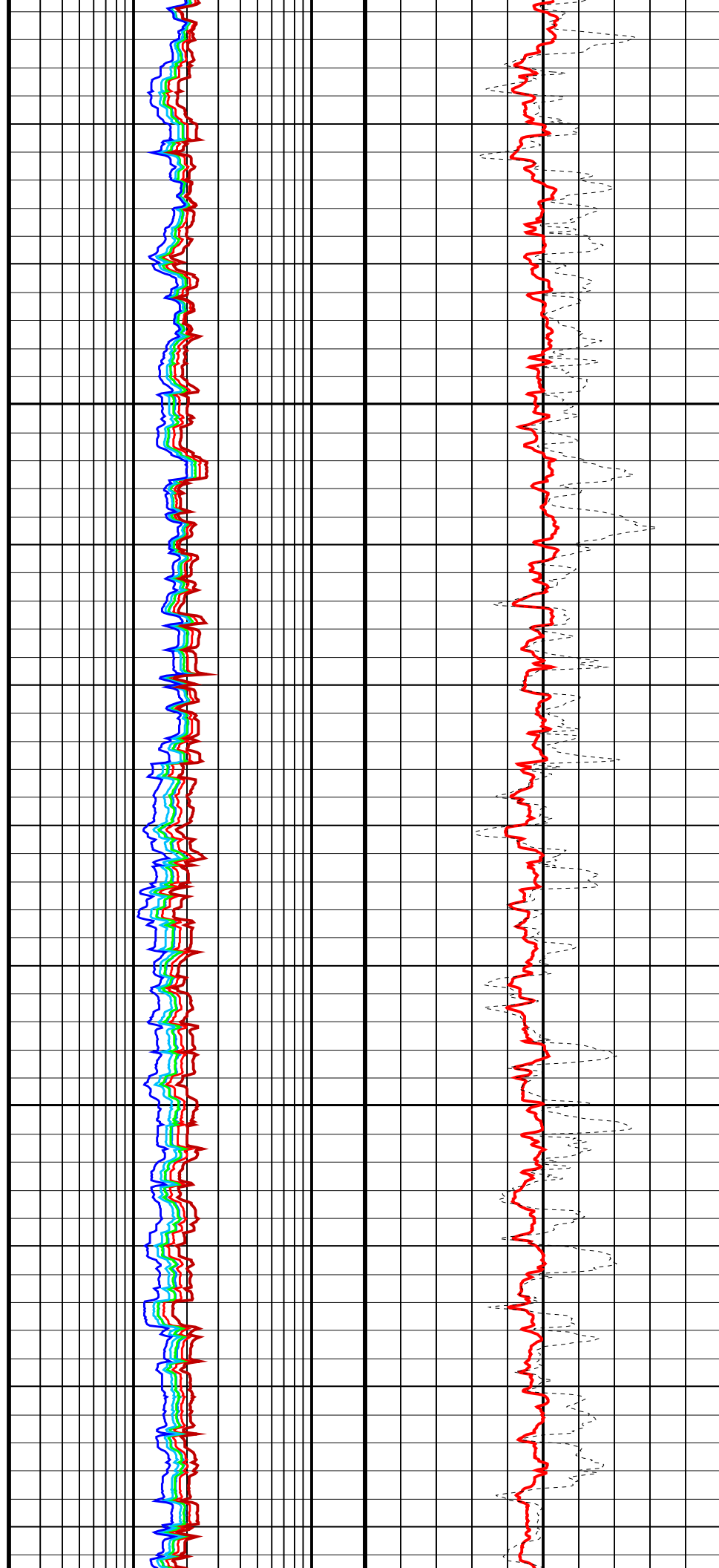


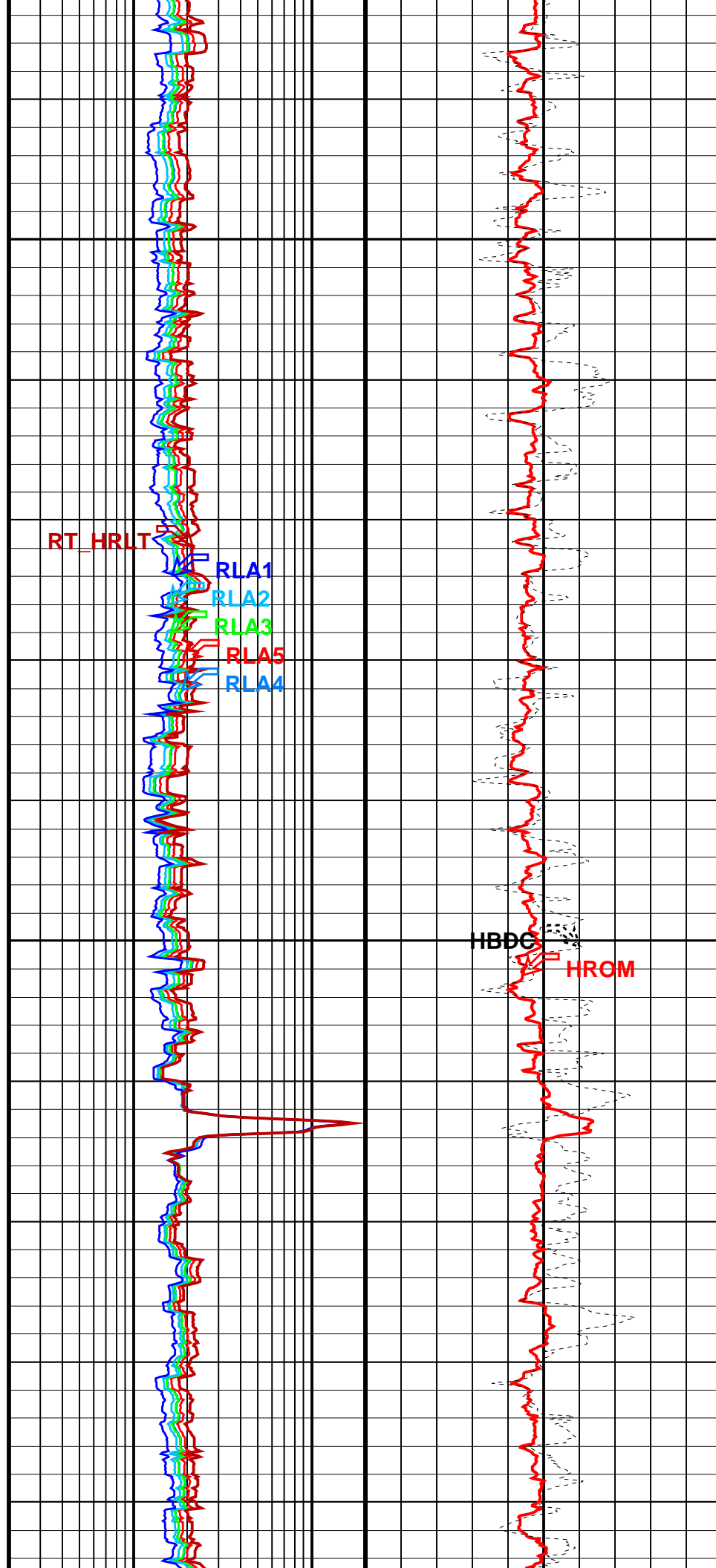
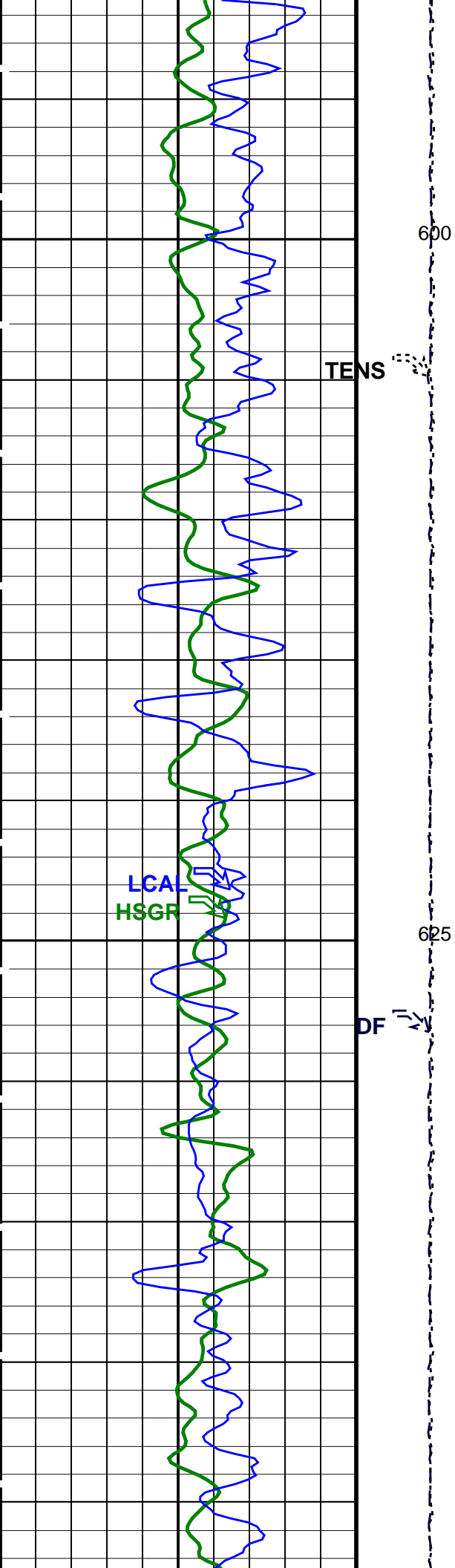




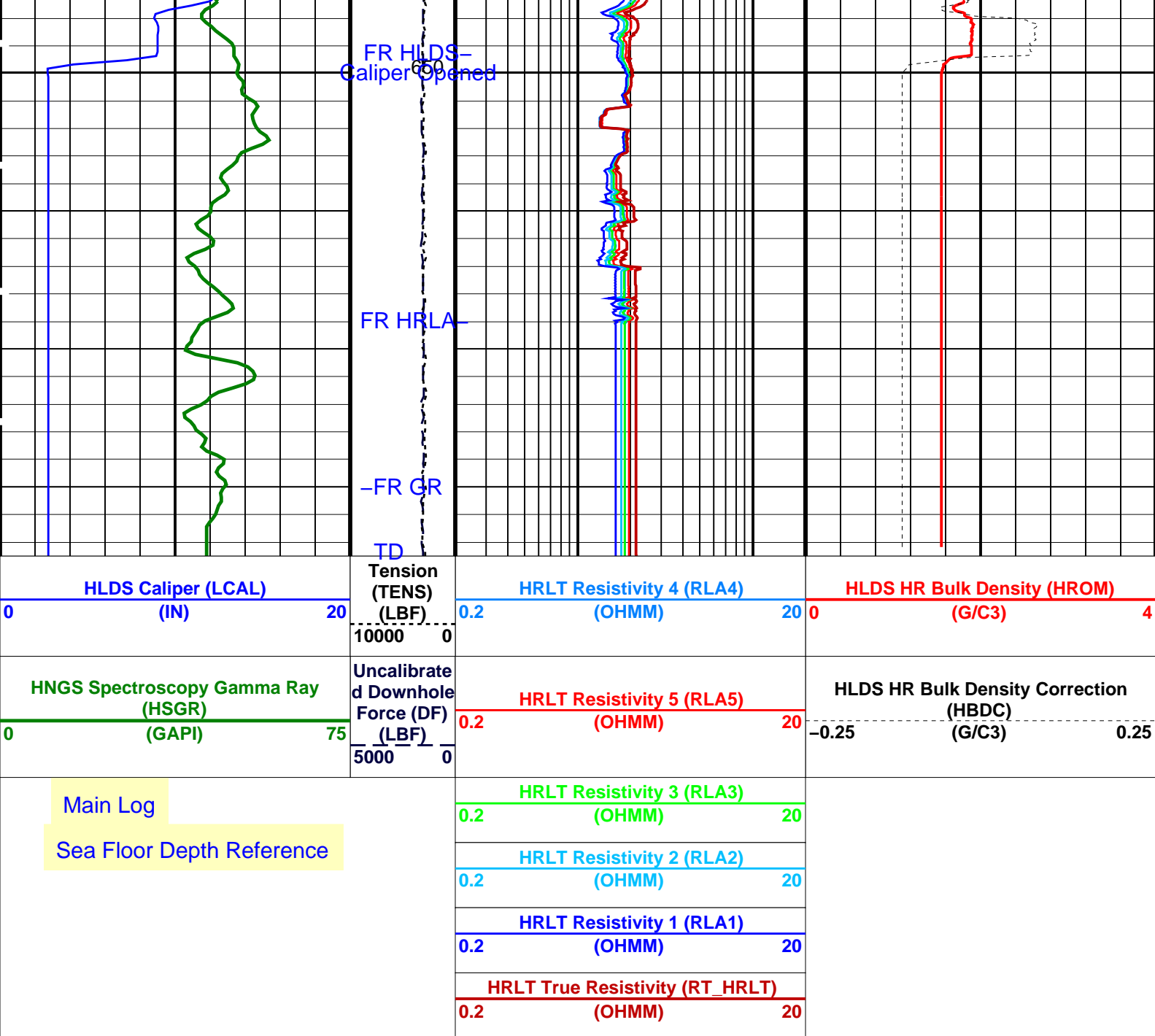
550

575









Parameters		
DLIS Name	Description	Value
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	-0.00416761

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	0.974112	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.970002	
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	20.4572	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	
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	OFF	
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	
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	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	

MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	NO	
MCCO	Mud Cake Correction Option	NATU	YES	
MCOR	Mud Correction	NO		
MWCO	Mud Weight Correction Option	SOCN	68	DEGF
PTCO	Pressure/Temperature Correction Option	0		IN
SDAT	Standoff Data Source	NO		
SHT	Surface Hole Temperature			
SOCN	Standoff Distance			
SOCO	Standoff Correction Option			
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				
ALTDPCHAN	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	-1086.0		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	1765		M
TDD	Total Depth - Driller	1765.00		M
TDL	Total Depth - Logger	1765.00		M
TWS	Temperature of Connate Water Sample	37.78		DEGC

Format: TripleCombo Vertical Scale: 1:200 Graphics File Created: 15-Jan-2012 07:37

### OP System Version: 19C0-187

HNGC-B	19C0-187	HNGS-BA	19C0-187
HRLT-B	19C0-187	HLDS	19C0-187
LDSC-B	19C0-187	EDTC-B	SKK-5169-EDTCB

### Input DLIS Files

DEFAULT	NGS_HRLA_LDL_013LUP	FN:14	PRODUCER	15-Jan-2012 05:04	1753.4 M	1073.2 M
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### Output DLIS Files

DEFAULT	NGS_HRLA_LDL_016PUP	FN:18	PRODUCER	15-Jan-2012 07:37		
BACKUPDLIS	NGS_HRLA_LDL_016PUP	FN:19	PRODUCER	15-Jan-2012 07:37		

### Input DLIS Files

DEFAULT	Flip_NGS_HRLA_LDL_014LUP		PRODUCER	15-Jan-2012 07:22	1726.3 M	1028.7 M
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### Output DLIS Files

DEFAULT	NGS_HRLA_LDL_018PUP	FN:22	PRODUCER	15-Jan-2012 07:58	639.2 M	-58.4 M
BACKUPDLIS	NGS_HRLA_LDL_018PUP	FN:23	PRODUCER	15-Jan-2012 07:58	639.2 M	-58.4 M

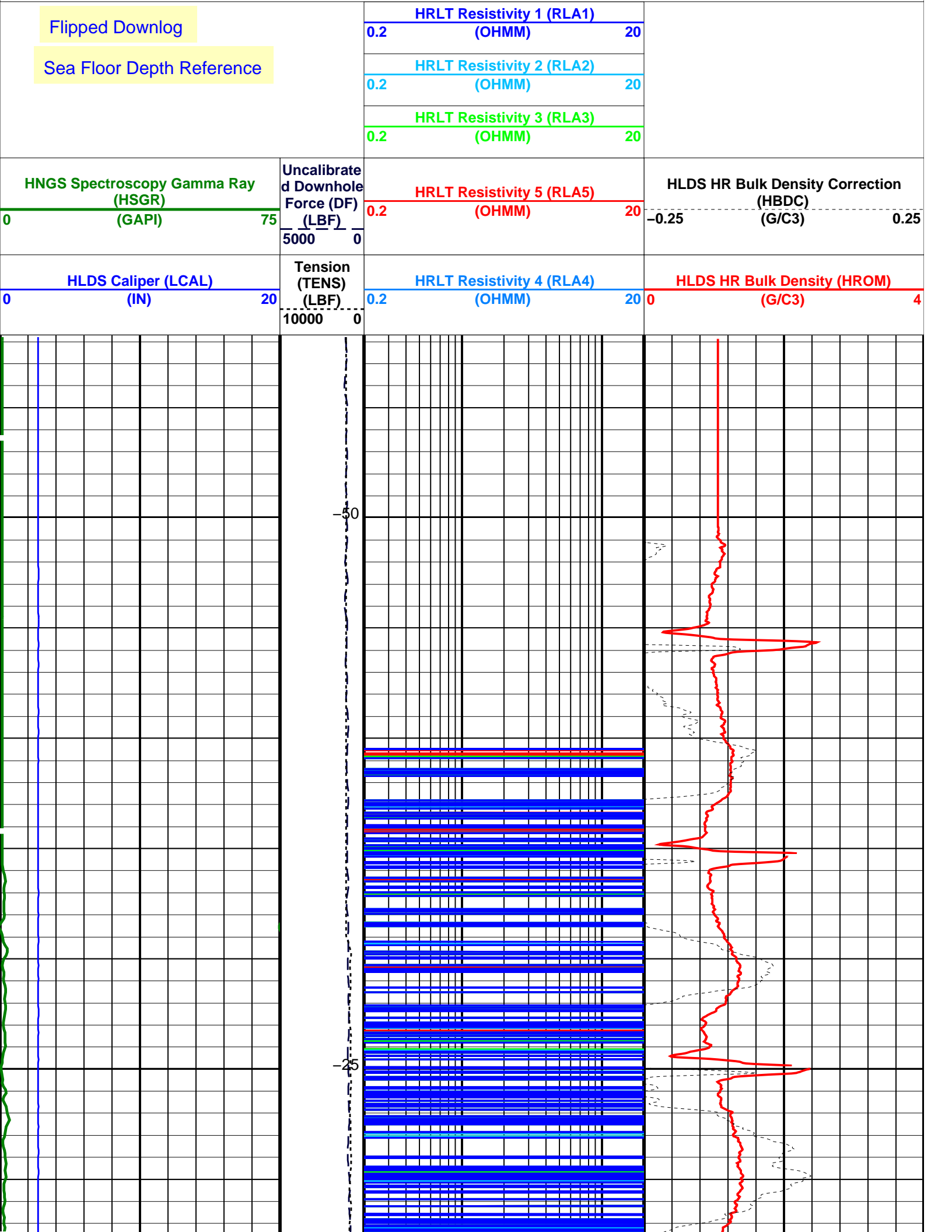
### OP System Version: 19C0-187

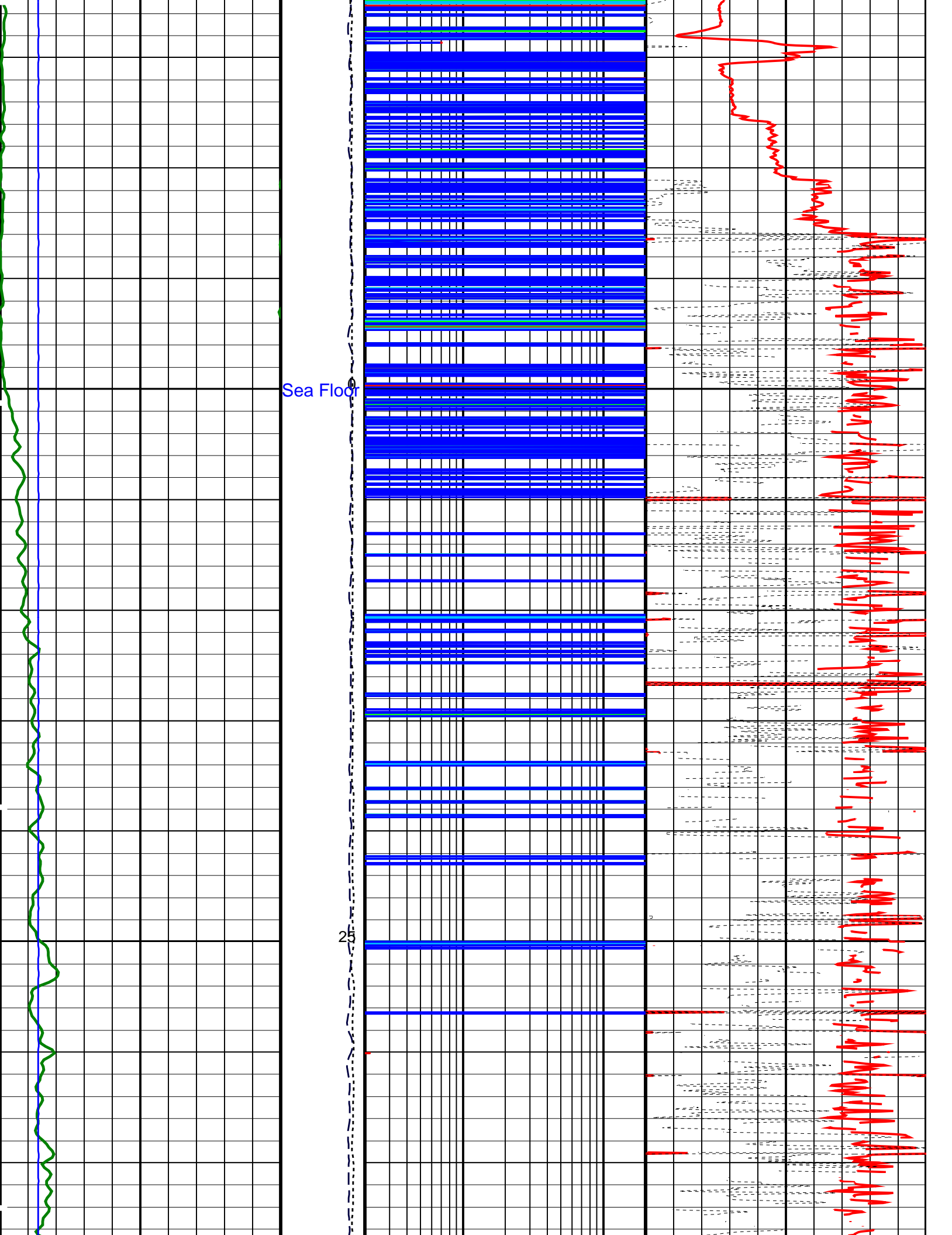
HNGC-B	19C0-187	HNGS-BA	19C0-187
HRLT-B	19C0-187	HLDS	19C0-187
LDSC-B	19C0-187	EDTC-B	SKK-5169-EDTCB

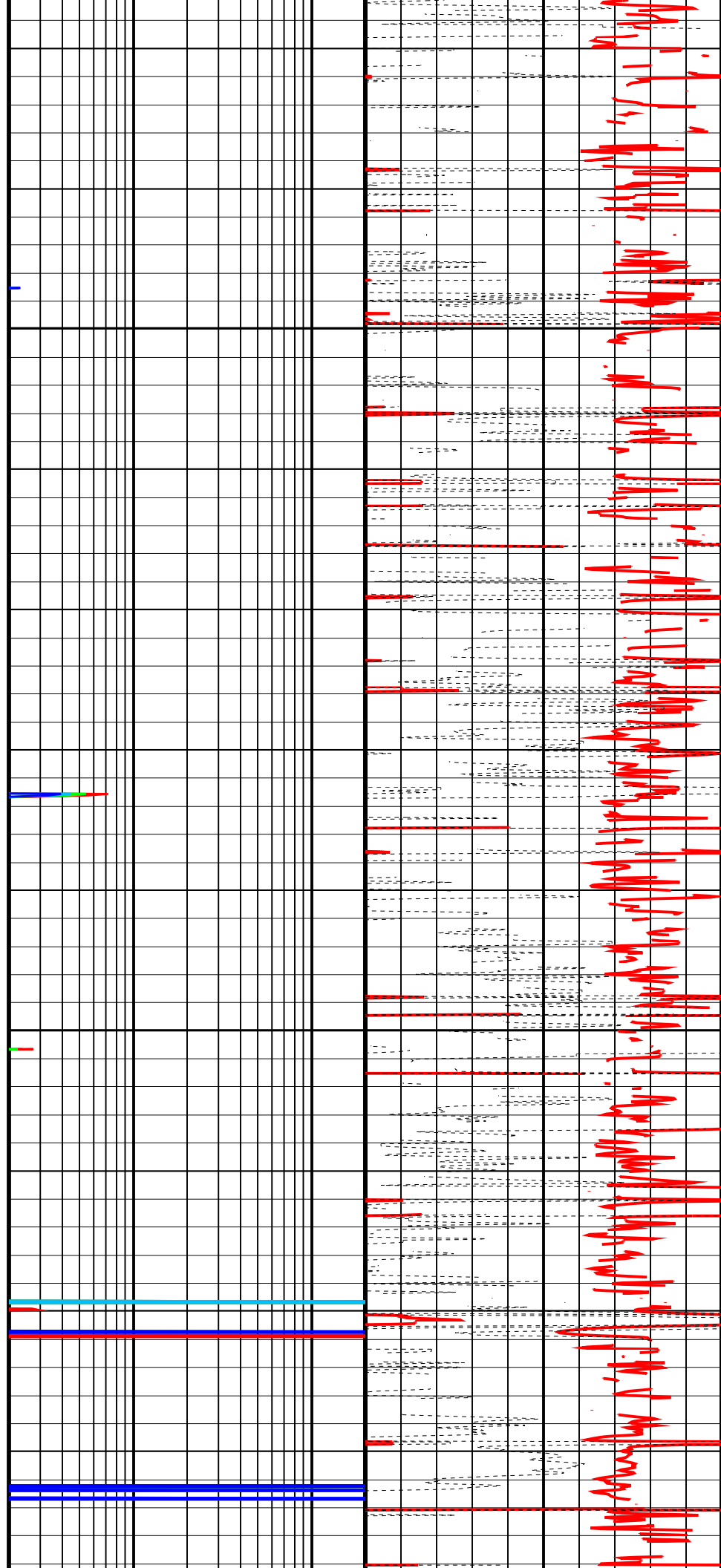
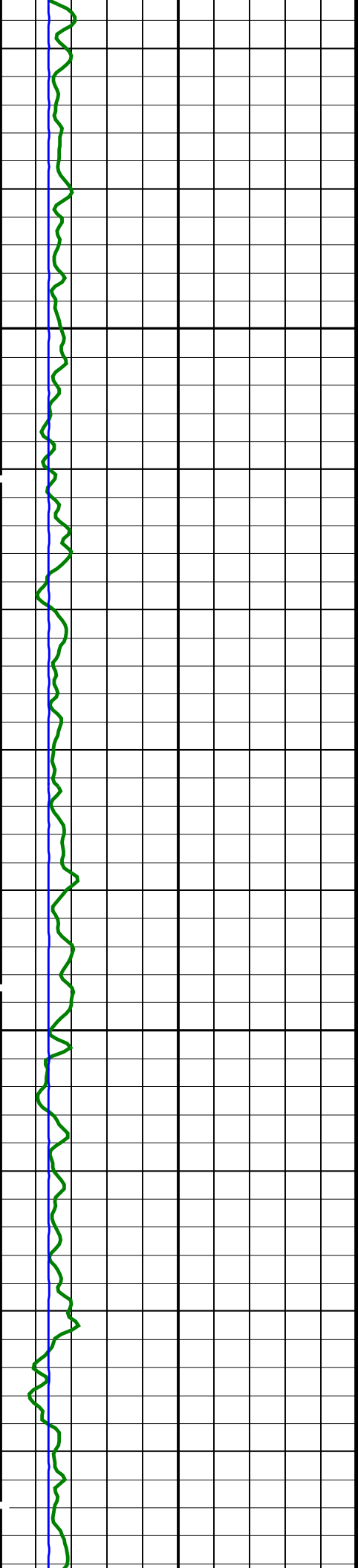
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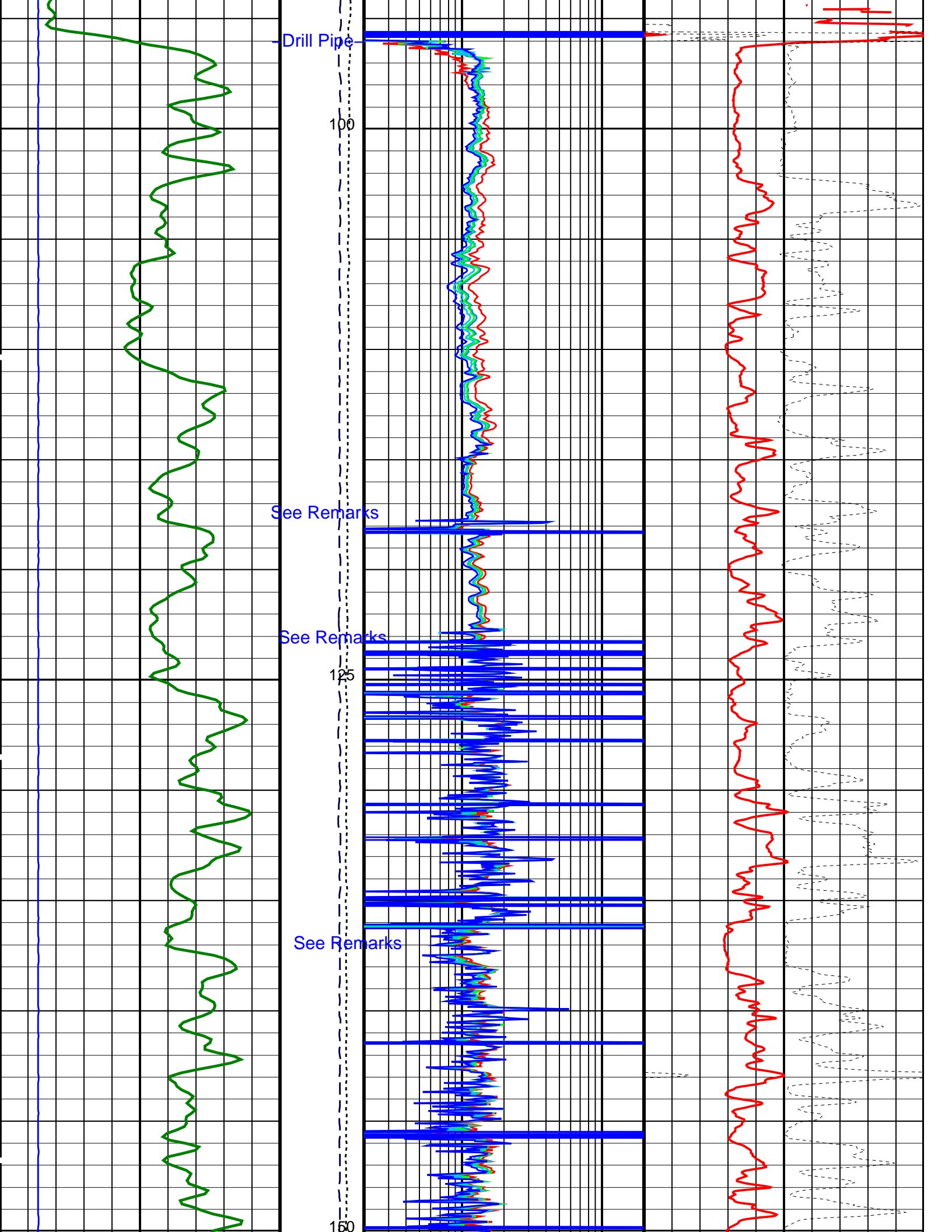
DLIS Name	New Value	Previous Value	Depth & Time
TDD	671.00 M	1765.00 M	107.6 07:59:32
TDL	667.00 M	1765.00 M	64.2 07:59:37

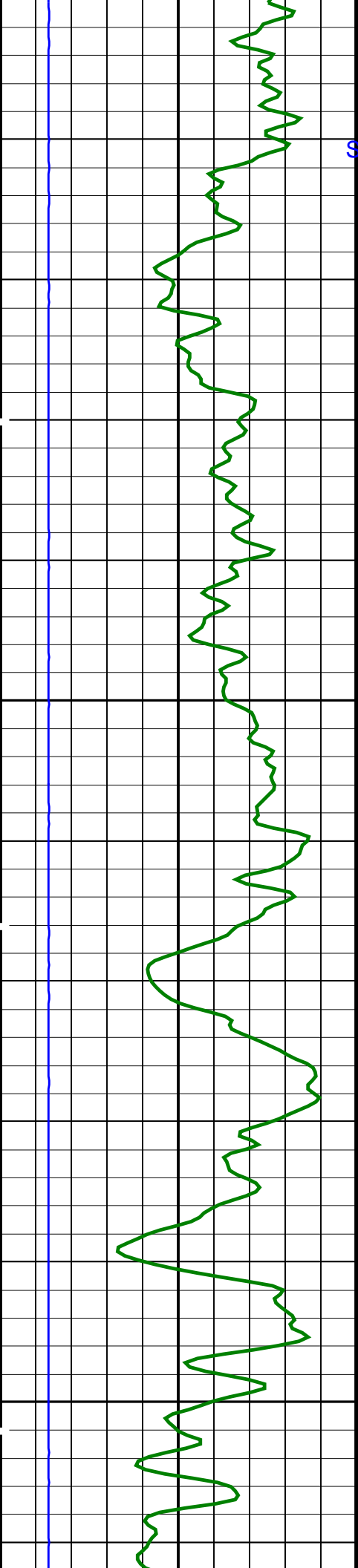
### PIP SUMMARY







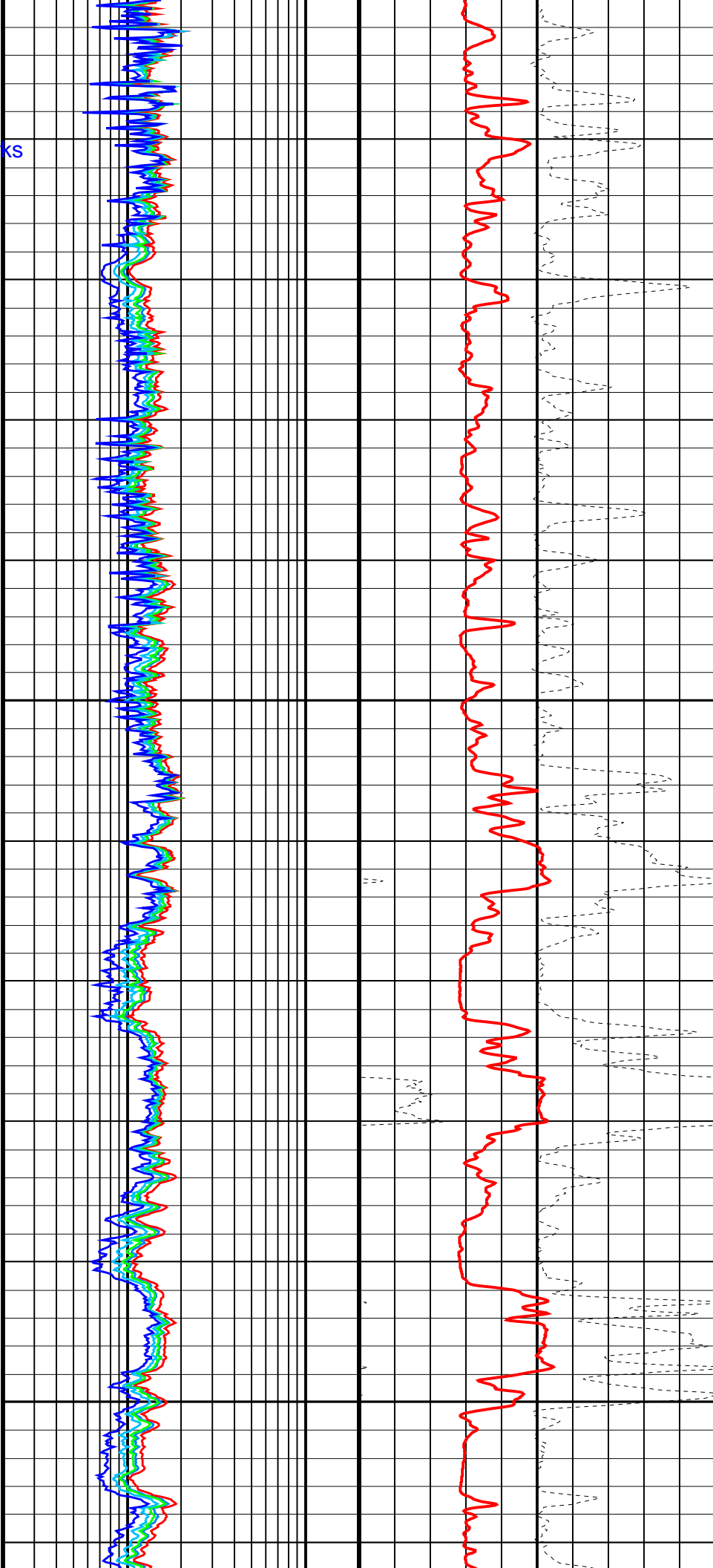




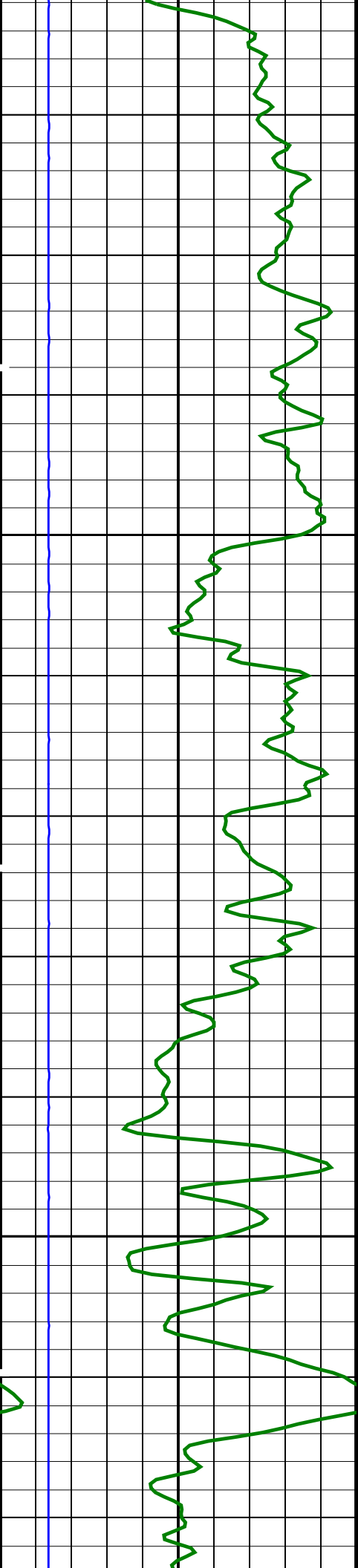
See Remarks

175

200

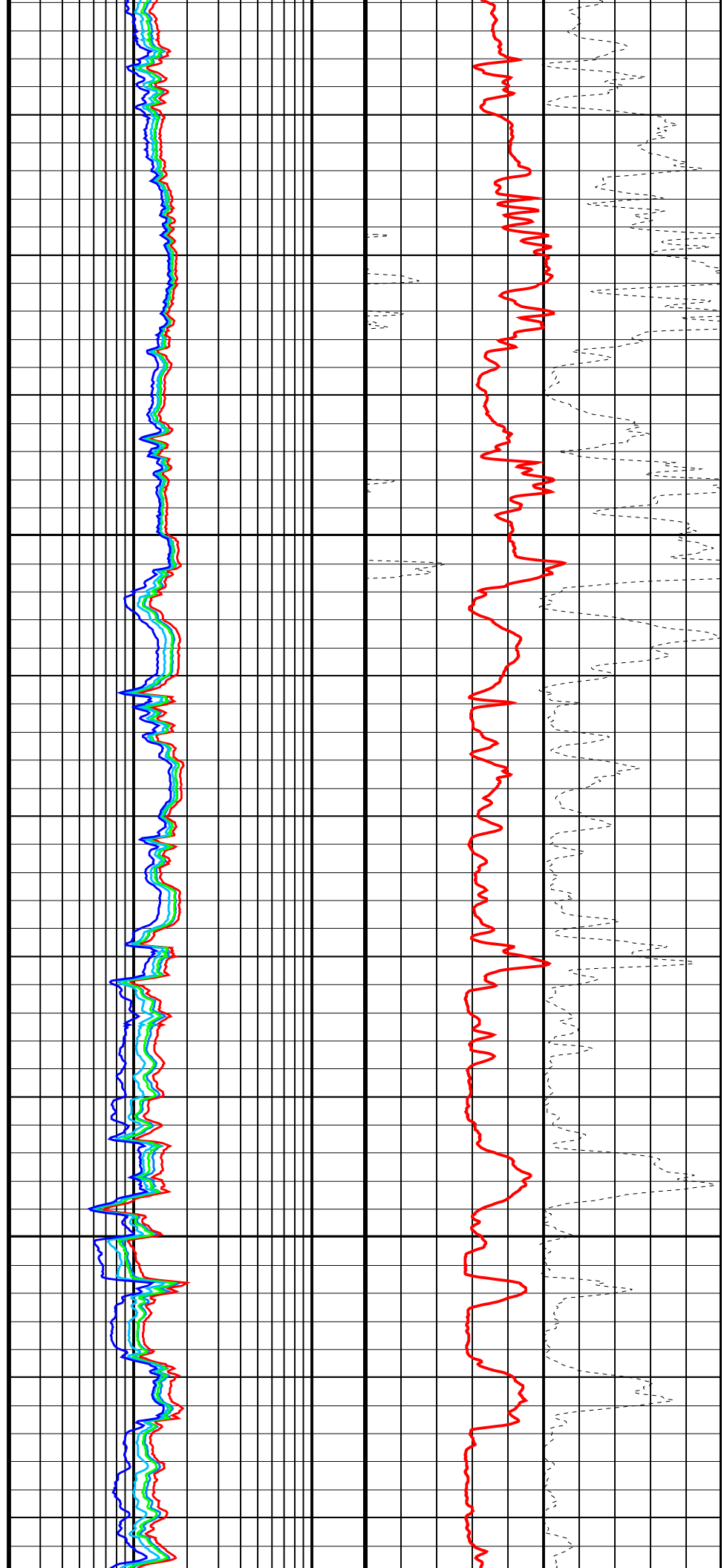


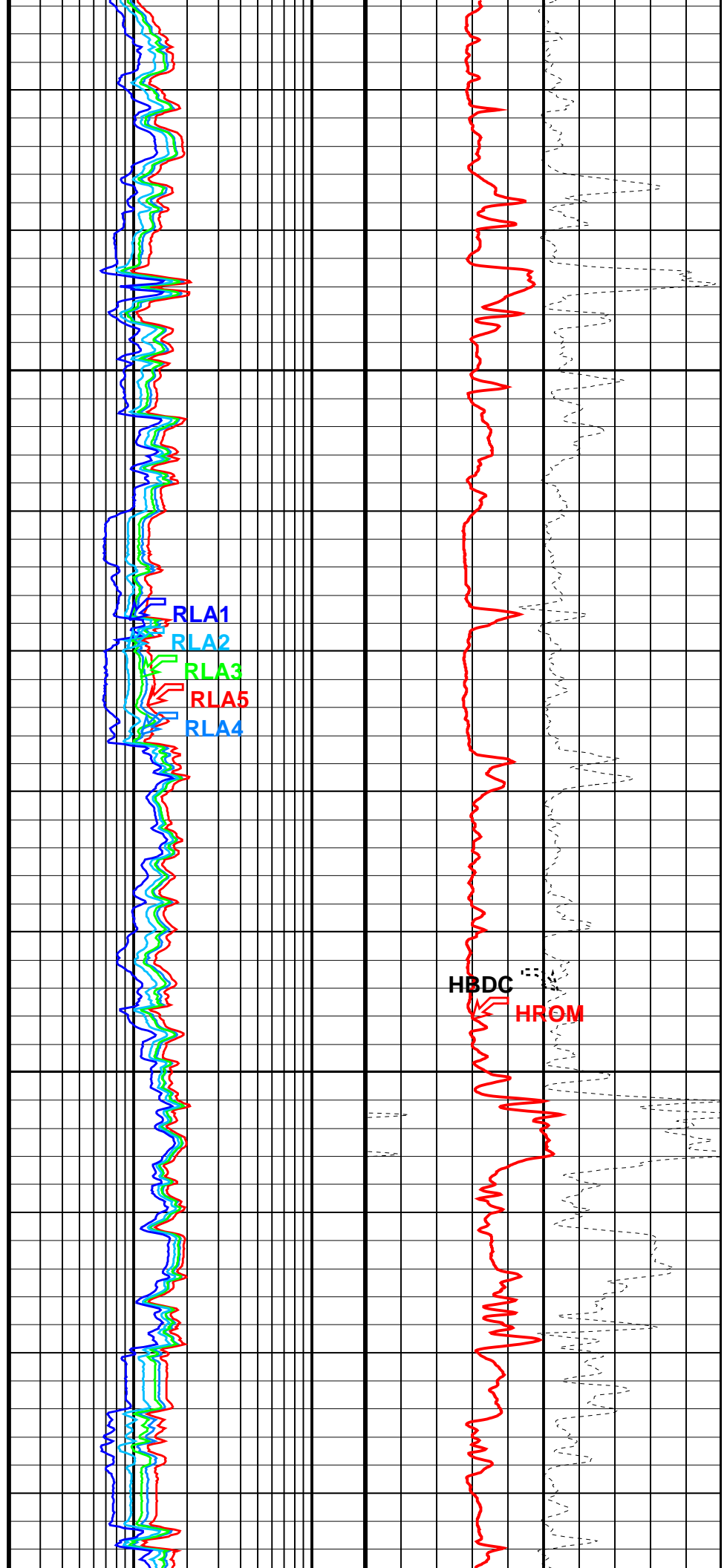
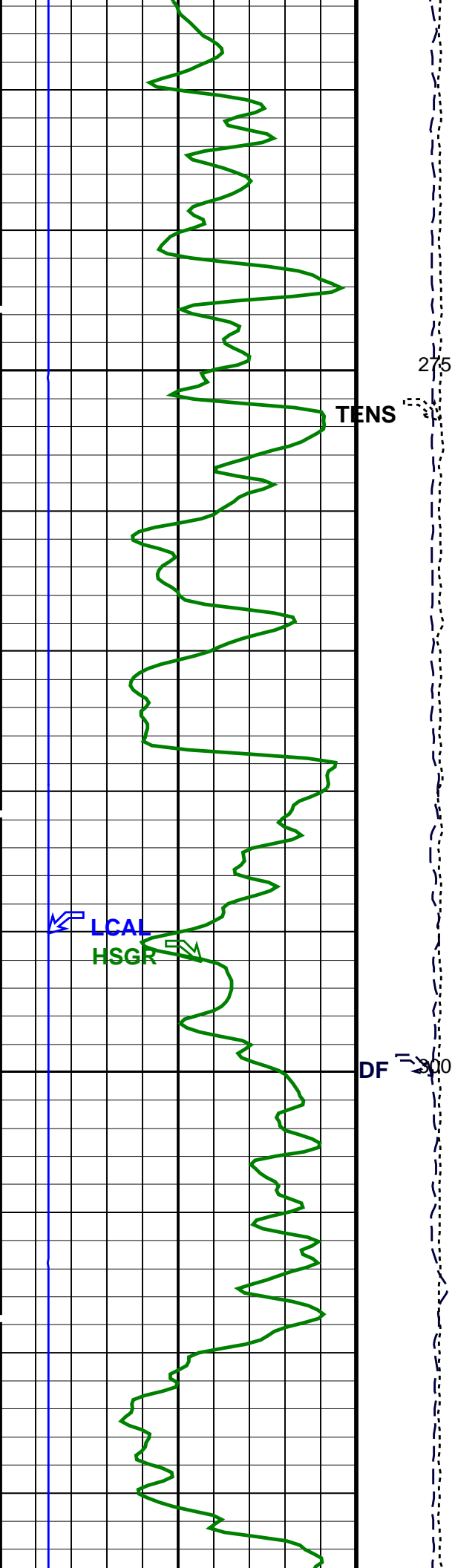


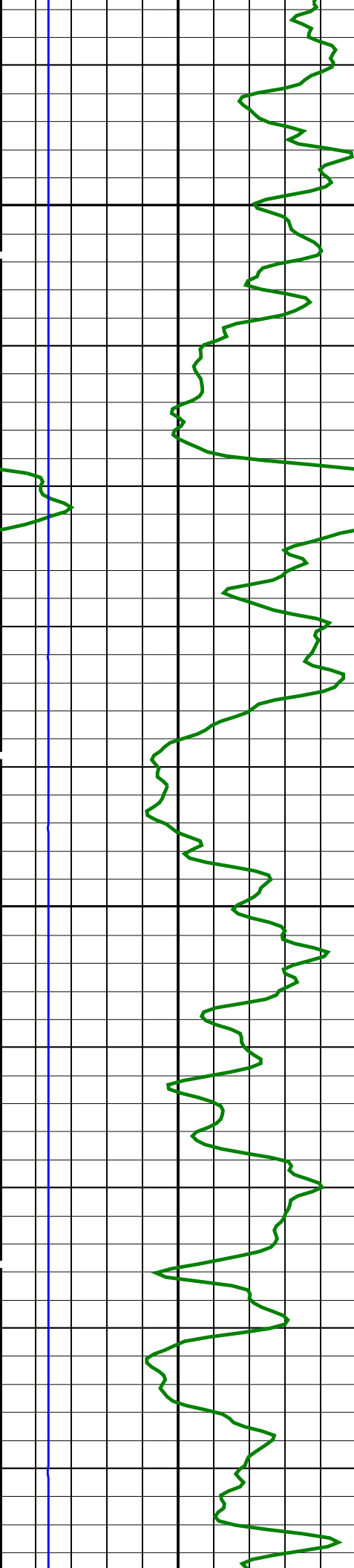


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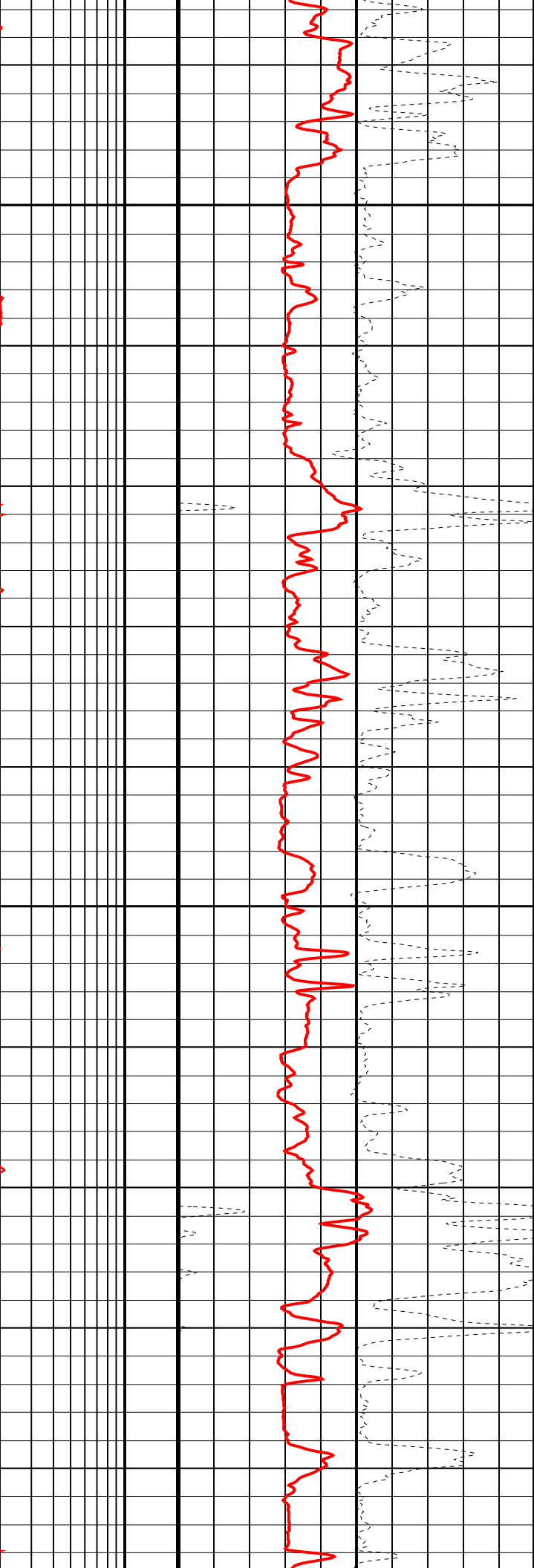
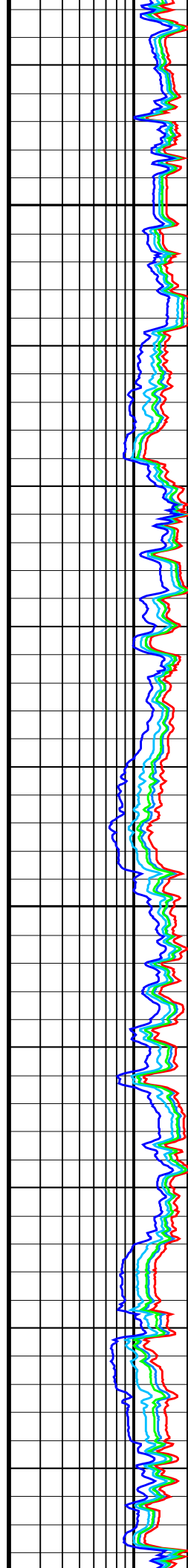
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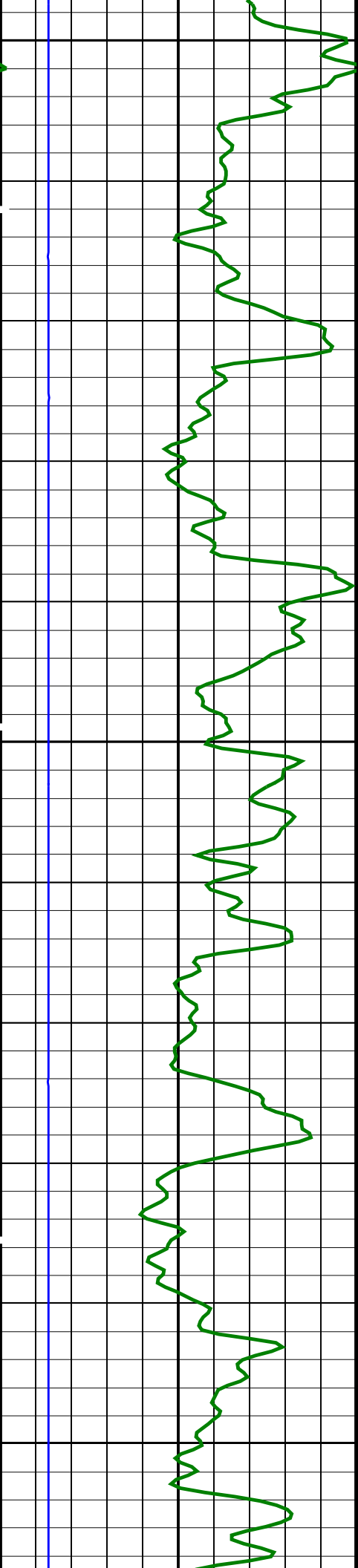




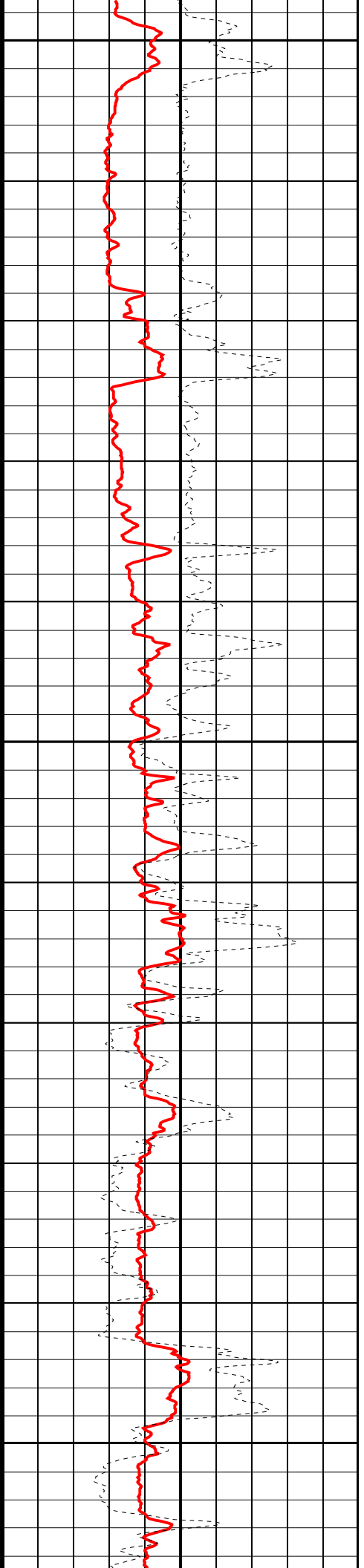
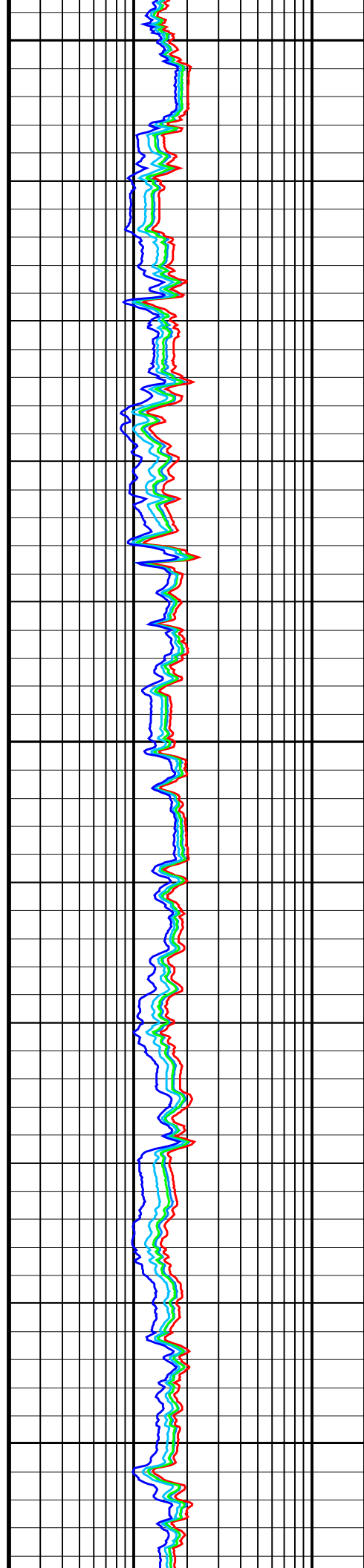


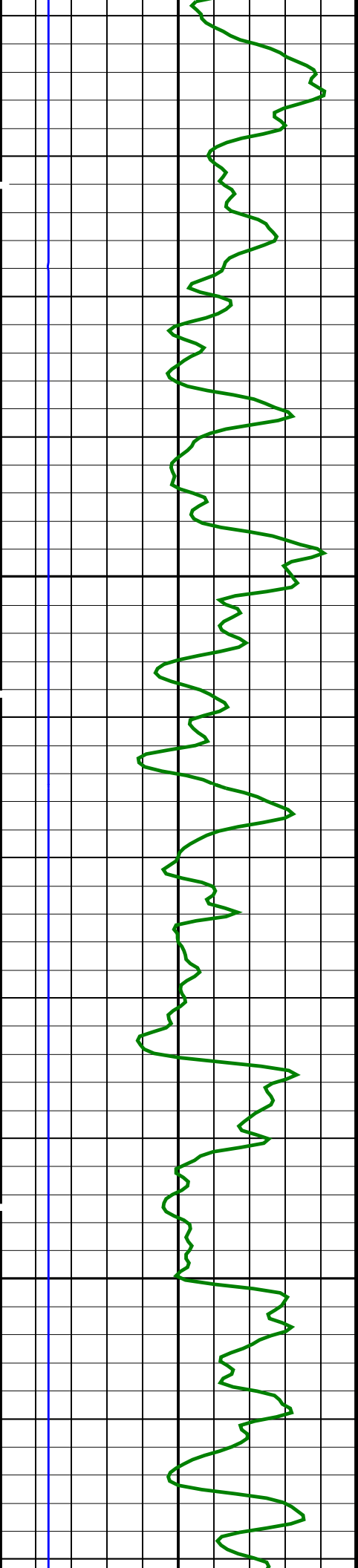
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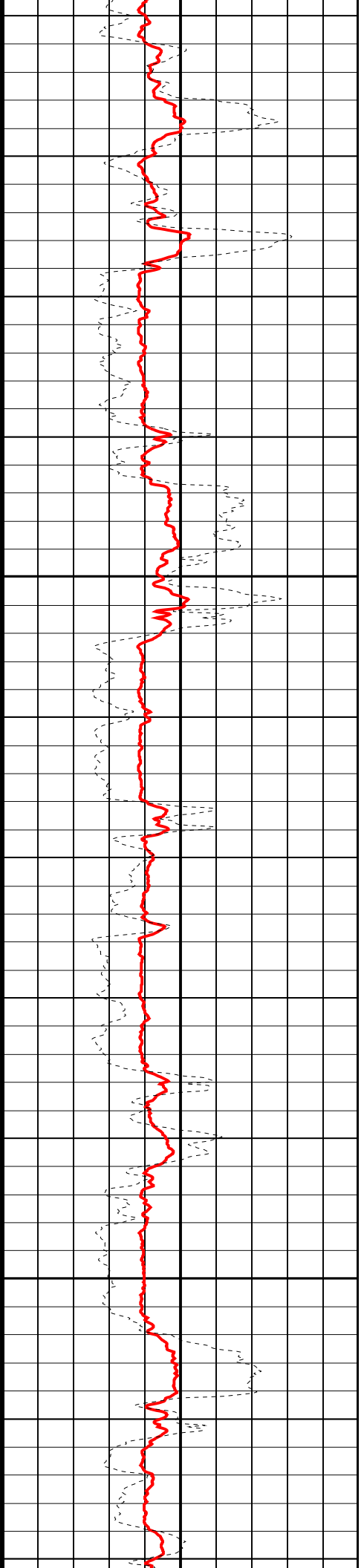
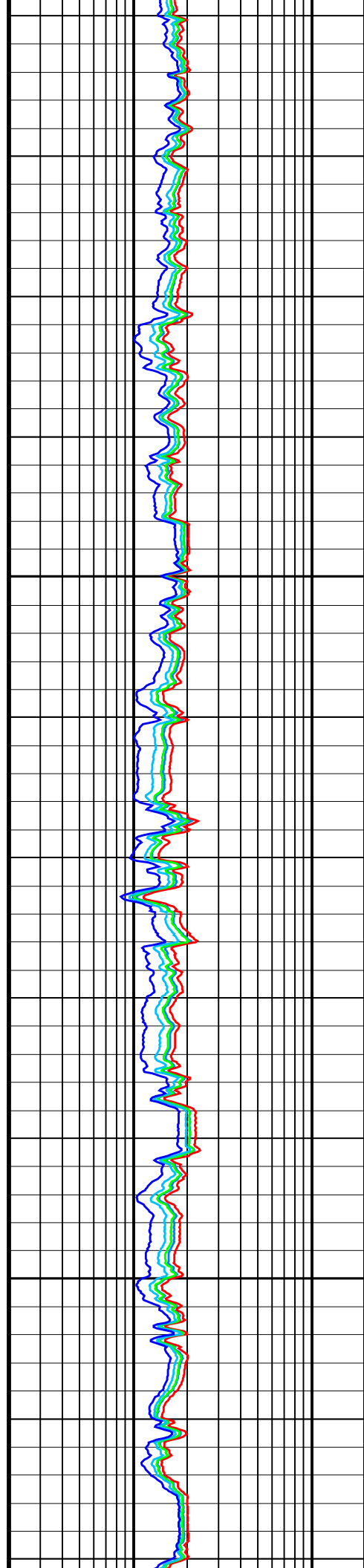


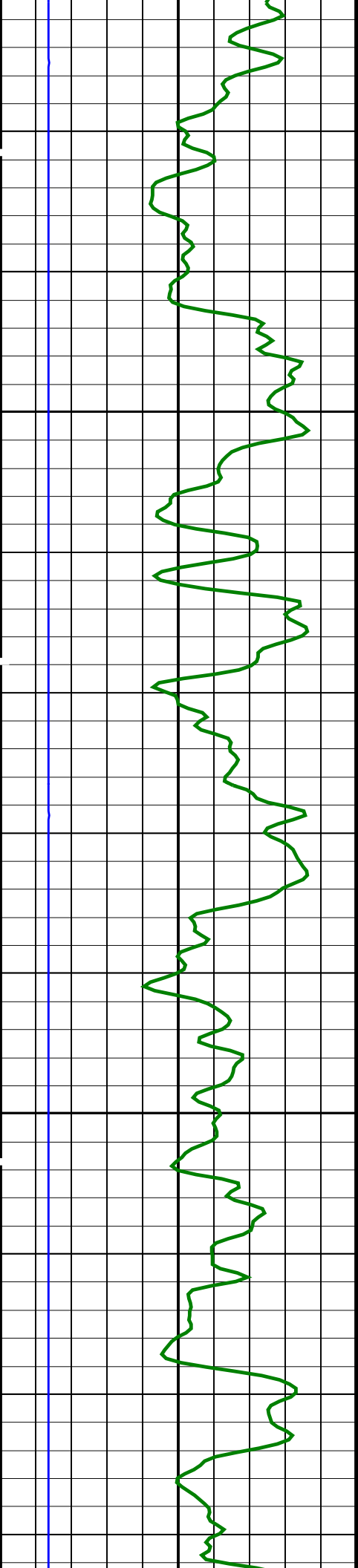
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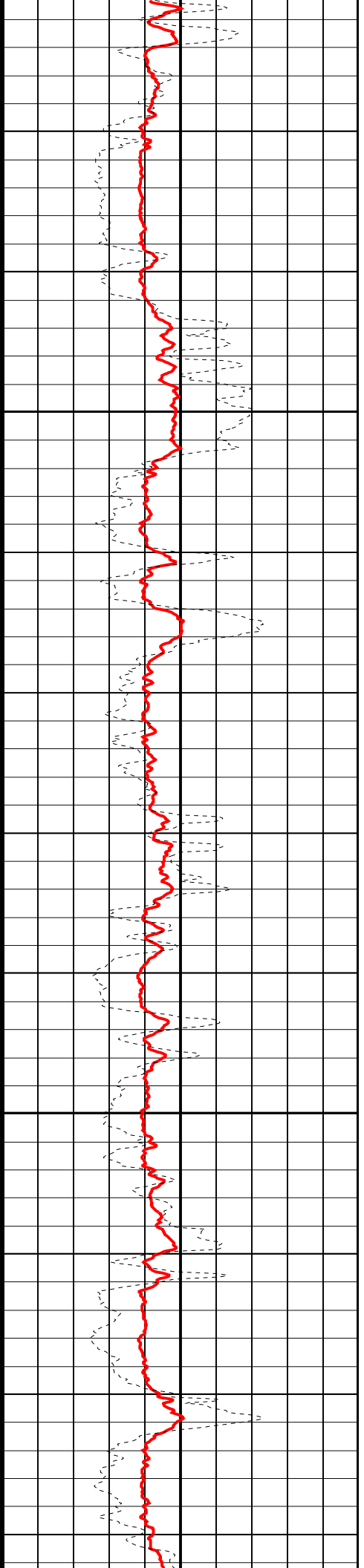
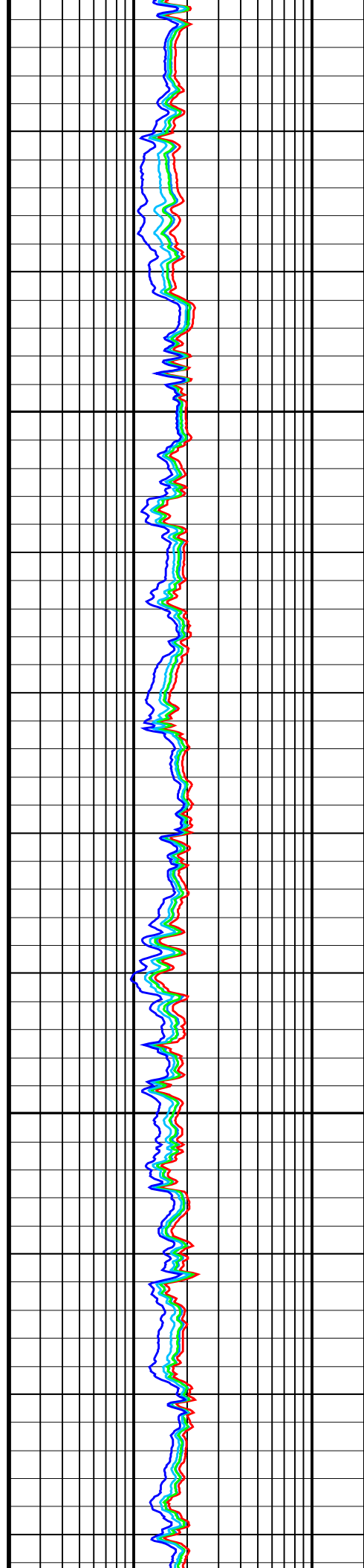
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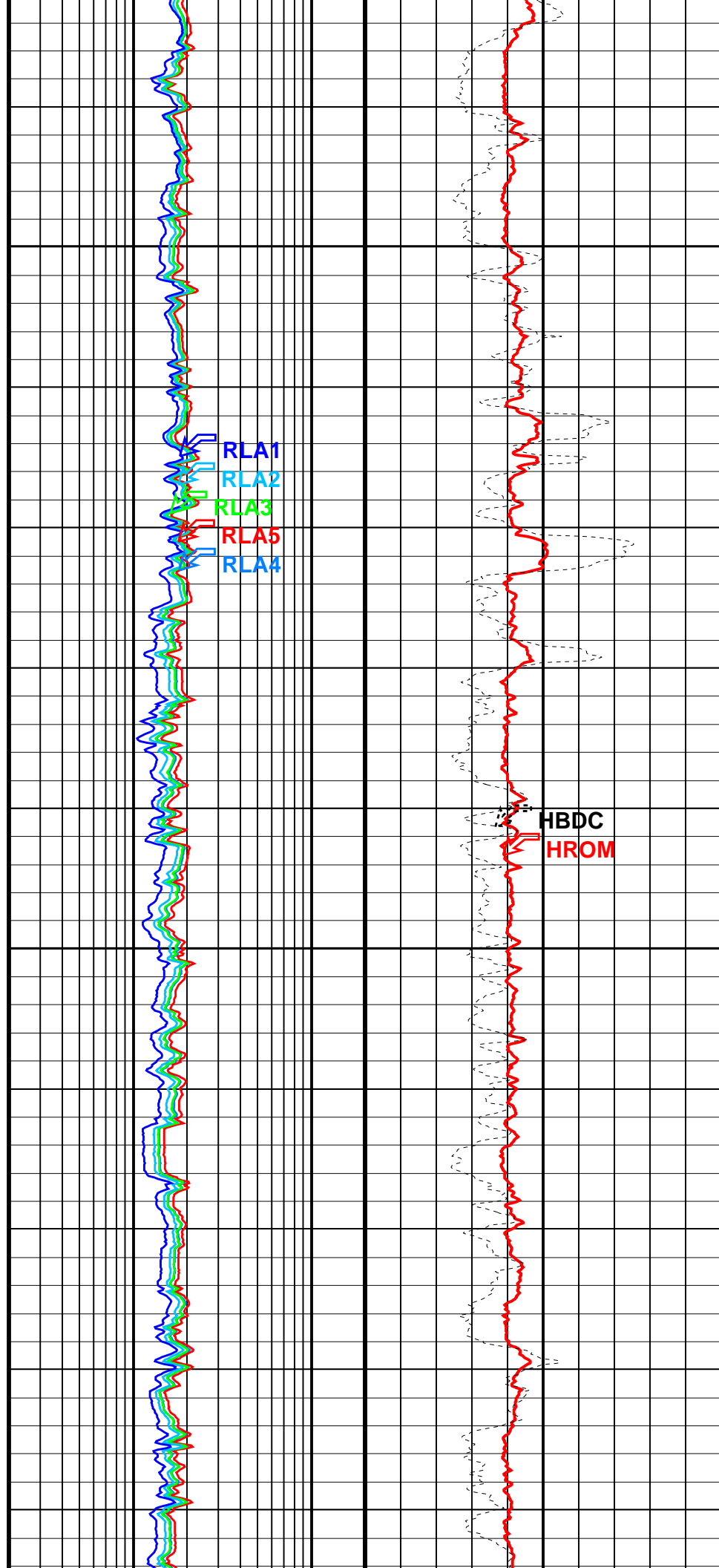
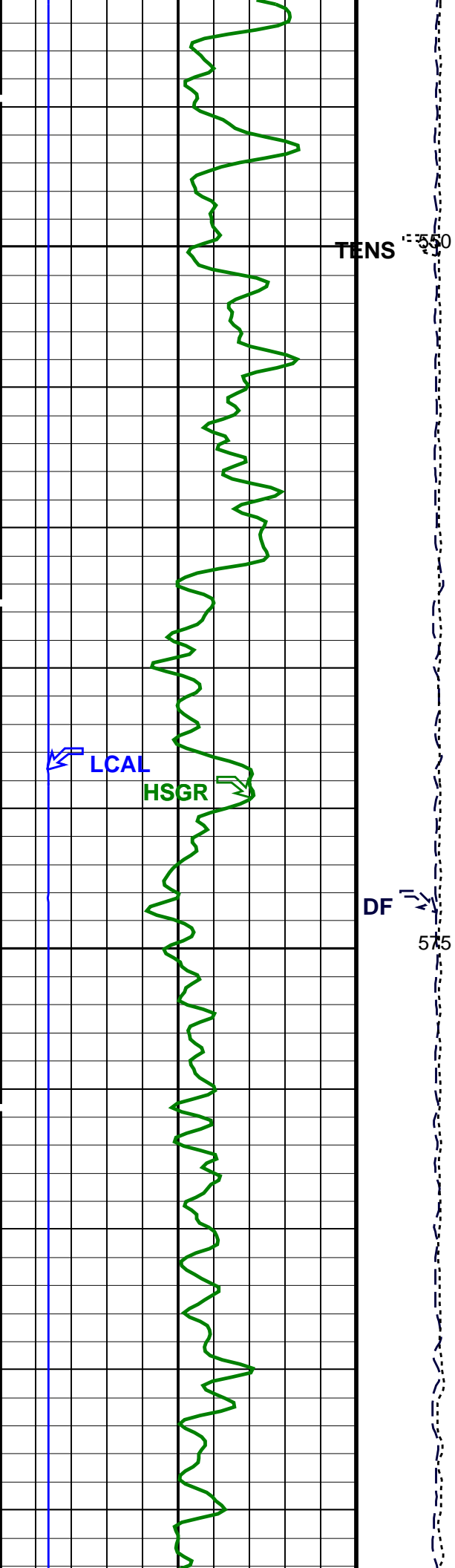


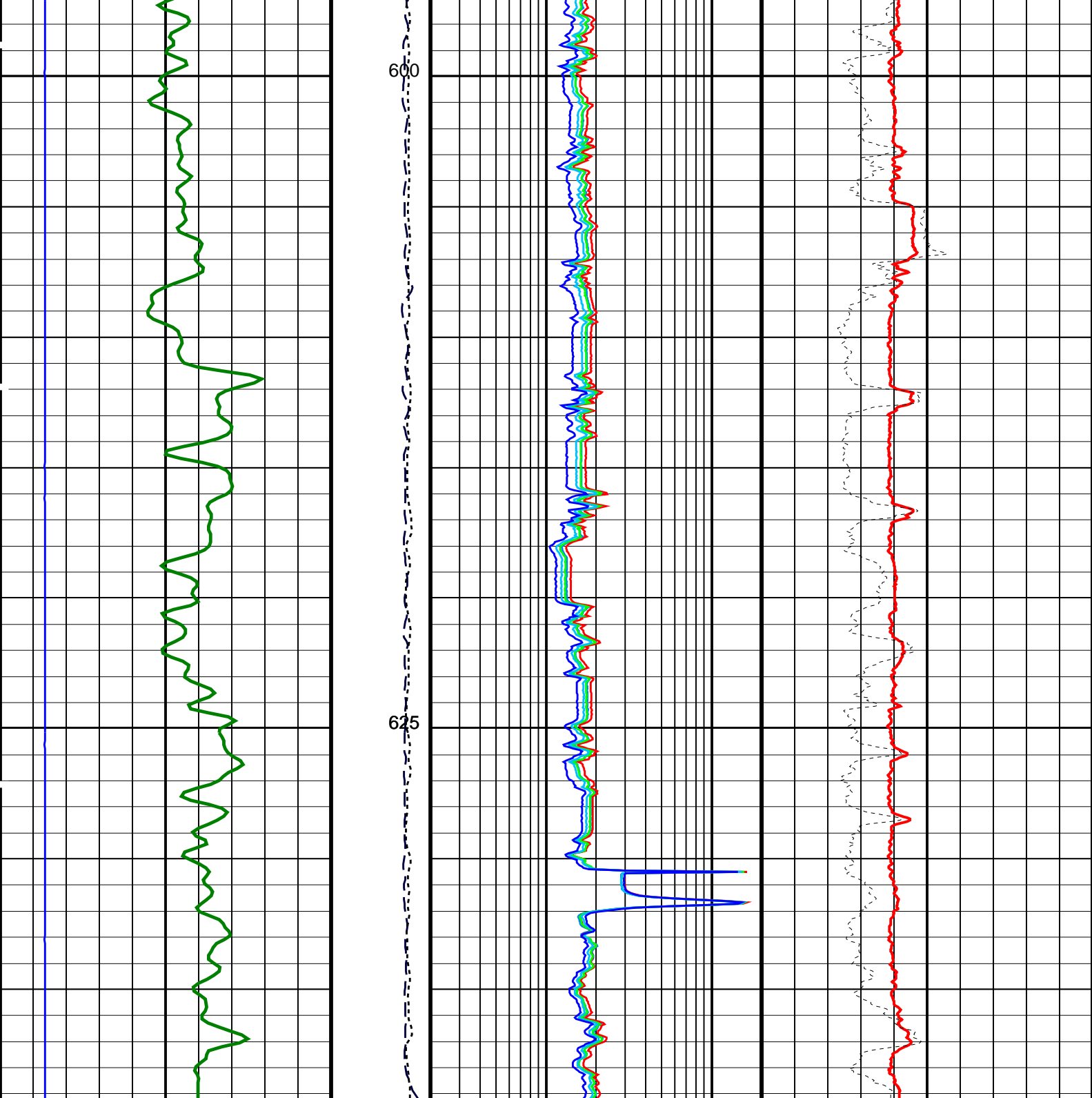


500

525







<div>HLDS Caliper (LCAL)</div> <div>(IN)</div> <div>020</div>	<div>Tension (TENS) (LBF)</div> <div>100000</div>	<div>HRLT Resistivity 4 (RLA4) (OHMM)</div> <div>0.220</div>	<div>HLDS HR Bulk Density (HROM) (G/C3)</div> <div>04</div>
<div>HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)</div> <div>075</div>	<div>Uncalibrated Downhole Force (DF) (LBF)</div> <div>50000</div>	<div>HRLT Resistivity 5 (RLA5) (OHMM)</div> <div>0.220</div>	<div>HLDS HR Bulk Density Correction (HBDC) (G/C3)</div> <div>-0.250.25</div>

Flipped Downlog

Sea Floor Depth Reference

<div>HRLT Resistivity 3 (RLA3) (OHMM)</div> <div>0.220</div>
<div>HRLT Resistivity 2 (RLA2) (OHMM)</div> <div>0.220</div>
<div>HRLT Resistivity 1 (RLA1)</div>



## PIP SUMMARY

Time Mark Every 60 S

## Parameters

DLIS Name	Description	Value	
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	-0.00488026	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
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	CENT	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.973892	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.969842	
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	20.4572	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	
PROGINV	Inversion Selection	OFF	
PROCMFL	Inversion Micro-Resistivity Selection	NO_EXTERNAL_RXO	
PROCMFO	Mechanical Standoff Fin Size	0	IN
PROCRM	Processing Mud Resistivity Select	HRLT_Compute	
PROCSPO	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	OFF	
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	
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	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	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
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	-1087.0	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	1765	M
TDD	Total Depth - Driller	1765.00	M
TDL	Total Depth - Logger	1765.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: TripleCombo    Vertical Scale: 1:200    Graphics File Created: 15-Jan-2012 07:58

## OP System Version: 19C0-187

HNGC-B	19C0-187	HNGS-BA	19C0-187
HRLT-B	19C0-187	HLDS	19C0-187
LDSC-B	19C0-187	EDTC-B	SKK-5169-EDTCB

## Input DLIS Files

DEFAULT	Flip_NGS_HRLA_LDL_014LUP	PRODUCER	15-Jan-2012 07:22	1726.3 M	1028.7 M
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## Output DLIS Files

DEFAULT	NGS_HRLA_LDL_018PUP	FN:22	PRODUCER	15-Jan-2012 07:58
BACKUPDLIS	NGS_HRLA_LDL_018PUP	FN:23	PRODUCER	15-Jan-2012 07:58

## Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Stille Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check							
Master: 7-Jan-2012 4:44	Before: 7-Jan-2012 4:51	After: 7-Jan-2012 4:55					
Na 511 Peak Loc	40.00	39.70	39.60	39.67	0.07420	1.000	
Na 511 Peak Res	15.50	14.54	15.72	14.52	-1.200	2.000	%
High Voltage	1150	1164	1164	1165	1.242	N/A	V
Na 1785 Peak Loc	142.6	142.8	141.9	142.4	0.4669	7.000	
Na 1785 Peak Res	8.500	8.009	7.428	9.127	1.699	2.000	%
Temperature	15.50	20.95	20.87	20.87	0	N/A	DEGC
Na Count Rate	45.00	21.00	21.59	21.17	-0.4197	8.000	CPS

## Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check

Master: 7-Jan-2012 4:44 Before: 7-Jan-2012 4:51 After: 7-Jan-2012 4:55

Na 511 Peak Loc	40.00	39.71	39.51	39.47	-0.03513	1.000	
Na 511 Peak Res	15.50	15.37	15.57	15.81	0.2371	2.000	%
High Voltage	1150	1091	1090	1089	-0.07922	N/A	V
Na 1785 Peak Loc	142.6	142.7	141.7	141.6	-0.06053	7.000	
Na 1785 Peak Res	8.500	7.507	7.898	8.025	0.1269	2.000	%
Temperature	15.50	21.06	21.04	21.06	0.02601	N/A	DEGC
Na Count Rate	45.00	20.73	21.49	20.79	-0.7021	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Ratio Of Detector 1 To Detector 2

Master: 7-Jan-2012 4:44 Before: 7-Jan-2012 4:51 After: 7-Jan-2012 4:55

Coincidence Count Rate Ratio	1.000	1.014	1.001	1.019	0.01773	0.05000
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## Hostile Natural Gamma Ray Sonde Master Calibration – Detector 1 Calibration

Master: 7-Jan-2012 4:39

Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	211.0	--	--	--	--	
Th Peak Res	7.000	7.010	--	--	--	--	%
Background Count Rate	142.5	29.12	--	--	--	--	CPS
Gain Ratio	1.000	1.011	--	--	--	--	

## Hostile Natural Gamma Ray Sonde Master Calibration – Detector 2 Calibration

Master: 7-Jan-2012 4:39

Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	208.9	--	--	--	--	
Th Peak Res	7.000	7.601	--	--	--	--	%
Background Count Rate	142.5	29.39	--	--	--	--	CPS
Gain Ratio	1.000	1.001	--	--	--	--	

## High Resolution Laterolog Array – B Wellsite Calibration – HRLT M01

Before: 15-Jan-2012 3:14 After: 15-Jan-2012 7:34

HRLT M0-M1 Voltage Plus - 0	0	N/A	-319.7	-318.5	1.203	9.681	UV
HRLT M0-M1 Voltage Plus - 1	0	N/A	-336.9	-334.8	2.149	9.681	UV
HRLT M0-M1 Voltage Plus - 2	0	N/A	-337.1	-334.1	3.007	9.681	UV
HRLT M0-M1 Voltage Plus - 3	0	N/A	-339.6	-337.5	2.090	9.681	UV
HRLT M0-M1 Voltage Plus - 4	0	N/A	-327.0	-325.4	1.580	9.681	UV
HRLT M0-M1 Voltage Plus - 5	0	N/A	-322.6	-321.4	1.239	9.681	UV
HRLT M0-M1 Voltage Plus - 6	0	N/A	327.3	325.0	-2.256	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: 15-Jan-2012 3:14 After: 15-Jan-2012 7:34

HRLT M1-M2 Voltage Plus - 0	0	N/A	1757	1754	-3.424	53.42	UV
HRLT M1-M2 Voltage Plus - 1	0	N/A	1851	1841	-10.51	53.42	UV
HRLT M1-M2 Voltage Plus - 2	0	N/A	1848	1832	-15.16	53.42	UV
HRLT M1-M2 Voltage Plus - 3	0	N/A	1861	1852	-8.751	53.42	UV
HRLT M1-M2 Voltage Plus - 4	0	N/A	1794	1788	-5.676	53.42	UV
HRLT M1-M2 Voltage Plus - 5	0	N/A	1771	1768	-3.766	53.42	UV
HRLT M1-M2 Voltage Plus - 6	0	N/A	-1806	-1794	12.05	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: 15-Jan-2012 3:14 After: 15-Jan-2012 7:34

HRLT M2-M3 Voltage Plus - 0	0	N/A	1743	1740	-3.191	53.42	UV
HRLT M2-M3 Voltage Plus - 1	0	N/A	1848	1838	-10.76	53.42	UV
HRLT M2-M3 Voltage Plus - 2	0	N/A	1846	1831	-15.12	53.42	UV
HRLT M2-M3 Voltage Plus - 3	0	N/A	1863	1855	-8.475	53.42	UV
HRLT M2-M3 Voltage Plus - 4	0	N/A	1789	1783	-5.630	53.42	UV
HRLT M2-M3 Voltage Plus - 5	0	N/A	1768	1765	-3.171	53.42	UV
HRLT M2-M3 Voltage Plus - 6	0	N/A	-1792	-1781	11.60	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: 15-Jan-2012 3:14 After: 15-Jan-2012 7:34

HRLT A3-A4 Voltage Plus - 0	0	N/A	68530	68400	-126.1	2100	UV
HRLT A3-A4 Voltage Plus - 1	0	N/A	72470	72060	-406.0	2100	UV
HRLT A3-A4 Voltage Plus - 2	0	N/A	72660	72100	-558.7	2100	UV
HRLT A3-A4 Voltage Plus - 3	0	N/A	73620	73270	-343.8	2100	UV
HRLT A3-A4 Voltage Plus - 4	0	N/A	70660	70450	-219.3	2100	UV
HRLT A3-A4 Voltage Plus - 5	0	N/A	69840	69710	-133.3	2100	UV
HRLT A3-A4 Voltage Plus - 6	0	N/A	-69280	-68830	453.3	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: 15-Jan-2012 3:14 After: 15-Jan-2012 7:34

HRLT A4-A5 Voltage Plus - 0	0	N/A	68810	68680	-124.2	2100	UV
HRLT A4-A5 Voltage Plus - 1	0	N/A	72850	72450	-400.5	2100	UV
HRLT A4-A5 Voltage Plus - 2	0	N/A	73030	72460	-565.2	2100	UV
HRLT A4-A5 Voltage Plus - 3	0	N/A	73960	73610	-353.7	2100	UV
HRLT A4-A5 Voltage Plus - 4	0	N/A	70950	70740	-210.6	2100	UV
HRLT A4-A5 Voltage Plus - 5	0	N/A	70120	69980	-145.0	2100	UV
HRLT A4-A5 Voltage Plus - 6	0	N/A	-69660	-69200	467.2	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: 15-Jan-2012 3:14 After: 15-Jan-2012 7:34

HRLT A5-A6 Voltage Plus - 0	0	N/A	68710	68590	-118.6	2100	UV
HRLT A5-A6 Voltage Plus - 1	0	N/A	72580	72180	-400.5	2100	UV
HRLT A5-A6 Voltage Plus - 2	0	N/A	72780	72220	-562.8	2100	UV
HRLT A5-A6 Voltage Plus - 3	0	N/A	73770	73430	-338.5	2100	UV
HRLT A5-A6 Voltage Plus - 4	0	N/A	70830	70600	-228.0	2100	UV
HRLT A5-A6 Voltage Plus - 5	0	N/A	70000	69860	-132.0	2100	UV
HRLT A5-A6 Voltage Plus - 6	0	N/A	-69370	-68910	462.0	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: 15-Jan-2012 3:14 After: 15-Jan-2012 7:34

HRLT Torpedo-M0 Voltage - 0	0	N/A	-68390	-68250	140.2	2100	UV
HRLT Torpedo-M0 Voltage - 1	0	N/A	-72920	-72500	419.9	2100	UV
HRLT Torpedo-M0 Voltage - 2	0	N/A	-73090	-72510	584.2	2100	UV
HRLT Torpedo-M0 Voltage - 3	0	N/A	-74070	-73710	355.9	2100	UV
HRLT Torpedo-M0 Voltage - 4	0	N/A	-71030	-70800	232.3	2100	UV
HRLT Torpedo-M0 Voltage - 5	0	N/A	-70170	-70020	145.3	2100	UV
HRLT Torpedo-M0 Voltage - 6	0	N/A	69660	69180	-474.1	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: 15-Jan-2012 3:14 After: 15-Jan-2012 7:34

HRLT Bridle#9-M0 Voltage - 0	0	N/A	-68380	-68250	125.8	2100	UV
HRLT Bridle#9-M0 Voltage - 1	0	N/A	-72890	-72470	421.6	2100	UV
HRLT Bridle#9-M0 Voltage - 2	0	N/A	-73080	-72490	589.7	2100	UV
HRLT Bridle#9-M0 Voltage - 3	0	N/A	-74050	-73690	355.9	2100	UV
HRLT Bridle#9-M0 Voltage - 4	0	N/A	-71010	-70800	216.4	2100	UV
HRLT Bridle#9-M0 Voltage - 5	0	N/A	-70150	-70020	134.8	2100	UV
HRLT Bridle#9-M0 Voltage - 6	0	N/A	69630	69170	-456.0	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: 15-Jan-2012 3:14 After: 15-Jan-2012 7:34

HRLT Source Current Plus - 0	0	N/A	285.1	284.6	-0.5565	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: 15-Jan-2012 3:14 After: 15-Jan-2012 7:34

HRLT Vertical Voltage PI - 0	0	N/A	-322.1	-321.1	0.9331	9.681	UV
HRLT Vertical Voltage PI - 1	0	N/A	-331.1	-328.9	2.140	9.681	UV
HRLT Vertical Voltage PI - 2	0	N/A	-330.5	-327.5	3.036	9.681	UV
HRLT Vertical Voltage PI - 3	0	N/A	-331.3	-329.4	1.834	9.681	UV
HRLT Vertical Voltage PI - 4	0	N/A	-316.3	-315.1	1.268	9.681	UV
HRLT Vertical Voltage PI - 5	0	N/A	-327.3	-326.4	0.9203	9.681	UV
HRLT Vertical Voltage PI - 6	0	N/A	334.6	332.2	-2.409	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: 9-Jan-2012 1:31 Before: 9-Jan-2012 5:28 After: 9-Jan-2012 5:41

SS Cs Resolution Bkg	9.000	7.671	7.699	7.674	-0.02595	1.800	%
LS Cs Resolution Bkg	9.000	7.932	7.932	7.903	-0.02832	1.800	%
LSW1 Background	100.0	86.47	87.96	88.18	0.2268	3.000	CPS
LSW2 Background	100.0	79.53	78.84	77.83	-1.012	3.000	CPS
LSW3 Background	200.0	181.2	177.4	176.9	-0.4995	6.000	CPS

SSW3 Background	200.0	181.2	177.4	176.9	-0.4993	6.000	CPS
LSW4 Background	250.0	222.9	222.9	222.1	-0.8559	7.500	CPS
LSW5 Background	600.0	520.3	522.4	523.9	1.526	18.00	CPS
SSW1 Background	100.0	84.85	84.97	85.18	0.2121	3.000	CPS
SSW2 Background	200.0	146.1	146.8	146.4	-0.3670	6.000	CPS
SSW3 Background	500.0	411.2	408.9	409.6	0.6414	15.00	CPS
SSW4 Background	270.0	221.2	219.6	222.1	2.435	8.100	CPS
SSW5 Background	200.0	157.4	157.7	158.8	1.064	6.000	CPS
Hostile Litho-Density Sonde Wellsite Calibration – Aluminum Measurement							
Master: 9-Jan-2012 1:31							
LSW1 Aluminum	600.0	529.4	N/A	N/A	N/A	N/A	CPS
LSW2 Aluminum	900.0	768.5	N/A	N/A	N/A	N/A	CPS
LSW3 Aluminum	1100	932.7	N/A	N/A	N/A	N/A	CPS
LSW4 Aluminum	580.0	473.3	N/A	N/A	N/A	N/A	CPS
LSW5 Aluminum	570.0	425.6	N/A	N/A	N/A	N/A	CPS
SSW1 Aluminum	2800	2541	N/A	N/A	N/A	N/A	CPS
SSW2 Aluminum	8000	6940	N/A	N/A	N/A	N/A	CPS
SSW3 Aluminum	11600	9683	N/A	N/A	N/A	N/A	CPS
SSW4 Aluminum	5000	3909	N/A	N/A	N/A	N/A	CPS
SSW5 Aluminum	660.0	464.7	N/A	N/A	N/A	N/A	CPS
Hostile Litho-Density Sonde Wellsite Calibration – Lithology Measurement							
Master: 9-Jan-2012 1:31							
LSW1 Iron	400.0	371.1	N/A	N/A	N/A	N/A	CPS
LSW2 Iron	730.0	638.6	N/A	N/A	N/A	N/A	CPS
LSW3 Iron	1000	849.1	N/A	N/A	N/A	N/A	CPS
LSW4 Iron	520.0	442.4	N/A	N/A	N/A	N/A	CPS
LSW5 Iron	470.0	405.0	N/A	N/A	N/A	N/A	CPS
SSW1 Iron	2100	1889	N/A	N/A	N/A	N/A	CPS
SSW2 Iron	6800	5949	N/A	N/A	N/A	N/A	CPS
SSW3 Iron	10800	9074	N/A	N/A	N/A	N/A	CPS
SSW4 Iron	4600	3693	N/A	N/A	N/A	N/A	CPS
SSW5 Iron	580.0	431.1	N/A	N/A	N/A	N/A	CPS
Hostile Litho-Density Sonde Wellsite Calibration – Caliper Calibration							
Before: 9-Jan-2012 5:30							
HLDS Caliper Small Ring	12.00	N/A	14.30	N/A	N/A	N/A	IN
HLDS Caliper Large Ring	15.19	N/A	18.07	N/A	N/A	N/A	IN
Enhanced DTS Cartridge Wellsite Calibration – EDTC Accelerometer Calibration							
Before: 15-Jan-2012 3:14							
EDTC Z-Axis Acceleration	9.810	N/A	9.797	N/A	N/A	N/A	M/S2
Enhanced DTS Cartridge Wellsite Calibration – Detector Calibration							
Before: 27-Dec-2011 9:12							
Gamma Ray (Jig – Bkg)	160.1	N/A	160.1	N/A	N/A	14.56	GAPI
Gamma Ray (Calibrated)	164.0	N/A	164.0	N/A	N/A	15.00	GAPI

#### 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

HNSH – BA

205

Gamma Source Radioactive

GSR – U

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		14.54	Master		1164
Before		39.60	Before		15.72	Before		1164

After		39.67	After		14.52	After		1165			
	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			142.8	Master			8.009	Master			20.95
Before			141.9	Before			7.428	Before			20.87
After			142.4	After			9.127	After			20.87
	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			21.00								
Before			21.59								
After			21.17								
	10.00 (Minimum)	45.00 (Nominal)	100.0 (Maximum)								
Master: 7-Jan-2012 4:44				Before: 7-Jan-2012 4:51				After: 7-Jan-2012 4:55			

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			39.71	Master			15.37	Master			1091
Before			39.51	Before			15.57	Before			1090
After			39.47	After			15.81	After			1089
	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			142.7	Master			7.507	Master			21.06
Before			141.7	Before			7.898	Before			21.04
After			141.6	After			8.025	After			21.06
	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			20.73								
Before			21.49								
After			20.79								
	10.00 (Minimum)	45.00 (Nominal)	100.0 (Maximum)								
Master: 7-Jan-2012 4:44				Before: 7-Jan-2012 4:51				After: 7-Jan-2012 4:55			

Hostile Natural Gamma Ray Sonde Wellsite Calibration			
Ratio Of Detector 1 To Detector 2			
Phase	Coincidence Count Rate Ratio	Value	
Master		1.014	
Before		1.001	
After		1.019	
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)
Master: 7-Jan-2012 4:44			
Before: 7-Jan-2012 4:51			
After: 7-Jan-2012 4:55			

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			211.0	Master			7.010
	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			29.12	Master			1.011				
	10.00 (Minimum)	11.50 (Nominal)	20.00 (Maximum)		0.999 (Minimum)	1.000 (Nominal)	1.001 (Maximum)				

10.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)	0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)						
Master: 7-Jan-2012 4:39											
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			208.9	Master			7.601
	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			29.39	Master			1.001				
	10.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)		0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)				
Master: 7-Jan-2012 4:39											

### 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

















HRLC – 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		-319.7	-322.7	-280.7	-379.7
	After		-318.5			
1	Before		-336.9	-322.7	-280.7	-379.7
	After		-334.8			
2	Before		-337.1	-322.7	-280.7	-379.7
	After		-334.1			
3	Before		-339.6	-322.7	-280.7	-379.7
	After		-337.5			
4	Before		-327.0	-322.7	-280.7	-379.7
	After		-325.4			
5	Before		-322.6	-322.7	-280.7	-379.7
	After		-321.4			
6	Before		327.3	322.7	379.7	280.7
	After		325.0			
7	Before		-322.7	-322.7	-280.7	-379.7
	After		-322.7			
		(Minimum) (Nominal) (Maximum)				
Before: 15-Jan-2012 3:14						
After: 15-Jan-2012 7:34						













High Resolution Laterolog Array – B Wellsite Calibration						
HRLT M12						
Idx	Phase	HRLT M1-M2 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		1757	1781	2095	1549
	After		1754			
1	Before		1851	1781	2095	1549

















2	After		1841	1781	2095	1549
	Before		1848			
	After		1832			
3	Before		1861	1781	2095	1549
	After		1852			
4	Before		1794	1781	2095	1549
	After		1788			
5	Before		1771	1781	2095	1549
	After		1768			
6	Before		-1806	-1781	-1549	-2095
	After		-1794			
7	Before		1781	1781	2095	1549
	After		1781			
(Minimum) (Nominal) (Maximum)						
Before: 15-Jan-2012 3:14						
After: 15-Jan-2012 7:34						









High Resolution Laterolog Array – B Wellsite Calibration							
HRLT M23							
Idx	Phase	HRLT M2-M3 Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		1743	1781	2095	1549	
	After		1740				
1	Before		1848	1781	2095	1549	
	After		1838				
2	Before		1846	1781	2095	1549	
	After		1831				
3	Before		1863	1781	2095	1549	
	After		1855				
4	Before		1789	1781	2095	1549	
	After		1783				
5	Before		1768	1781	2095	1549	
	After		1765				
6	Before		-1792	-1781	-1549	-2095	
	After		-1781				
7	Before		1781	1781	2095	1549	
	After		1781				
(Minimum) (Nominal) (Maximum)							
Before: 15-Jan-2012 3:14							
After: 15-Jan-2012 7:34							











High Resolution Laterolog Array – B Wellsite Calibration							
HRLT V34							
Idx	Phase	HRLT A3-A4 Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		68530	70000	82360	60900	
	After		68400				
1	Before		72470	70000	82360	60900	
	After		72060				
2	Before		72660	70000	82360	60900	
	After		72660				




























3	After		72100	70000	82360	60900
	Before		73620			
4	After		73270	70000	82360	60900
	Before		70660			
5	After		70450	70000	82360	60900
	Before		69840			
6	After		69710	70000	82360	60900
	Before		-69280			
7	After		-68830	-70000	-60900	-82360
	Before		70000			
8	After		70000	70000	82360	60900
	Before					
(Minimum) (Nominal) (Maximum)						
Before: 15-Jan-2012 3:14						
After: 15-Jan-2012 7:34						







High Resolution Laterolog Array – B Wellsite Calibration						
HRLT V45						
Idx	Phase	HRLT A4–A5 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68810	70000	82360	60900
	After		68680			
1	Before		72850	70000	82360	60900
	After		72450			
2	Before		73030	70000	82360	60900
	After		72460			
3	Before		73960	70000	82360	60900
	After		73610			
4	Before		70950	70000	82360	60900
	After		70740			
5	Before		70120	70000	82360	60900
	After		69980			
6	Before		-69660	-70000	-60900	-82360
	After		-69200			
7	Before		70000	70000	82360	60900
	After		70000			
(Minimum) (Nominal) (Maximum)						
Before: 15-Jan-2012 3:14						
After: 15-Jan-2012 7:34						

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT V56						
Idx	Phase	HRLT A5–A6 Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		68710	70000	82360	60900
	After		68590			
1	Before		72580	70000	82360	60900
	After		72180			
2	Before		72780	70000	82360	60900
	After		72220			
3	Before		73770	70000	82360	60900
	After					
(Minimum) (Nominal) (Maximum)						

4	After		73430	70000	82360	60900
	Before		70830			
5	After		70600	70000	82360	60900
	Before		70000			
6	After		69860	70000	82360	60900
	Before		-69370			
7	After		-68910	-70000	-60900	-82360
	Before		70000			
7	After		70000	70000	82360	60900
	Before		70000			
(Minimum) (Nominal) (Maximum)						
Before: 15-Jan-2012 3:14						
After: 15-Jan-2012 7:34						

















High Resolution Laterolog Array – B Wellsite Calibration							
HRLT VTP							
Idx	Phase	HRLT Torpedo-M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		-68390	-70000	-60900	-82360	
	After		-68250				
1	Before		-72920	-70000	-60900	-82360	
	After		-72500				
2	Before		-73090	-70000	-60900	-82360	
	After		-72510				
3	Before		-74070	-70000	-60900	-82360	
	After		-73710				
4	Before		-71030	-70000	-60900	-82360	
	After		-70800				
5	Before		-70170	-70000	-60900	-82360	
	After		-70020				
6	Before		69660	70000	82360	60900	
	After		69180				
7	Before		-70000	-70000	-60900	-82360	
	After		-70000				
(Minimum) (Nominal) (Maximum)							
Before: 15-Jan-2012 3:14							
After: 15-Jan-2012 7:34							

High Resolution Laterolog Array – B Wellsite Calibration							
HRLT VBD							
Idx	Phase	HRLT Bridle#9-M0 Voltage Plus UV	Value	Nominal	Maximum	Minimum	
0	Before		-68380	-70000	-60900	-82360	
	After		-68250				
1	Before		-72890	-70000	-60900	-82360	
	After		-72470				
2	Before		-73080	-70000	-60900	-82360	
	After		-72490				
3	Before		-74050	-70000	-60900	-82360	
	After		-73690				
4	Before		-71010	70000	82360	60900	

5	After		-70800	-70000	-60900	-82360
	Before		-70150			
6	After		-70020	70000	82360	60900
	Before		69630			
7	After		69170	-70000	-60900	-82360
	Before		-70000			
(Minimum) (Nominal) (Maximum)						











Before: 15-Jan-2012 3:14

After: 15-Jan-2012 7:34

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT ISO						
Idx	Phase	HRLT Source Current Plus UA	Value	Nominal	Maximum	Minimum
0	Before		285.1	284.0	334.1	247.0
	After		284.6			
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: 15-Jan-2012 3:14

After: 15-Jan-2012 7:34

High Resolution Laterolog Array – B Wellsite Calibration						
HRLT MV						
Idx	Phase	HRLT Vertical Voltage Plus UV	Value	Nominal	Maximum	Minimum
0	Before		-322.1	-322.7	-280.7	-379.7
	After		-321.1			
1	Before		-331.1	-322.7	-280.7	-379.7
	After		-328.9			
2	Before		-330.5	-322.7	-280.7	-379.7
	After		-327.5			
3	Before		-331.3	-322.7	-280.7	-379.7
	After		-329.4			
4	Before		-316.3	-322.7	-280.7	-379.7
	After		-315.1			
5	Before		-327.3	-322.7	-280.7	-379.7

6	After		-326.4	-322.7	-280.7	-379.7
	Before		334.6	322.7	379.7	280.7
	After		332.2			
7	Before		-322.7	-322.7	-280.7	-379.7
	After		-322.7			
(Minimum) (Nominal) (Maximum)						
Before: 15-Jan-2012 3:14						
After: 15-Jan-2012 7:34						

### Hostile Litho-Density Sonde / Equipment Identification

#### Primary Equipment:

Hostile Litho Density Sonde  
Hostile Litho Density High Voltage  
Gamma Source Radioactive

HLDS - D 45  
HLDV - D 45  
GSR - Z 2397

#### Auxiliary Equipment:

Hostile Litho Density Pad  
Hostile Litho Density High Voltage Housi

HLDP - C 45  
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		7.671	Master		7.932	Master		86.47
Before		7.699	Before		7.932	Before		87.96
After		7.674	After		7.903	After		88.18
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		79.53	Master		181.2	Master		222.9
Before		78.84	Before		177.4	Before		222.9
After		77.83	After		176.9	After		222.1
50.00 (Minimum) 100.0 (Nominal) 140.0 (Maximum)			110.0 (Minimum) 200.0 (Nominal) 290.0 (Maximum)			140.0 (Minimum) 250.0 (Nominal) 360.0 (Maximum)		
Phase	LSW5 Background CPS	Value	Phase	SSW1 Background CPS	Value	Phase	SSW2 Background CPS	Value
Master		520.3	Master		84.85	Master		146.1
Before		522.4	Before		84.97	Before		146.8
After		523.9	After		85.18	After		146.4
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	SSW3 Background CPS	Value	Phase	SSW4 Background CPS	Value	Phase	SSW5 Background CPS	Value
Master		411.2	Master		221.2	Master		157.4
Before		408.9	Before		219.6	Before		157.7
After		409.6	After		222.1	After		158.8
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: 9-Jan-2012 1:31			Before: 9-Jan-2012 5:28			After: 9-Jan-2012 5:41		

### 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		86.47	Master		79.53	Master		181.2
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		222.9	Master		520.3	Master		7.932
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)		

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			529.4	Master			768.5	Master			932.7
	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			473.3	Master			425.6	Master			2541
	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			6940	Master			9683	Master			3909
	5800 (Minimum)	8000 (Nominal)	9300 (Maximum)		8300 (Minimum)	11600 (Nominal)	13500 (Maximum)		3500 (Minimum)	5000 (Nominal)	5800 (Maximum)
Phase	SSW5 Aluminum CPS		Value								
Master			464.7								
	430.0 (Minimum)	660.0 (Nominal)	770.0 (Maximum)								

Master: 9-Jan-2012 1:31

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	<div><div></div></div>			1.038	Master	<div><div></div></div>			2.214	Master	<div><div></div></div>			0.5889			
0.9000 (Minimum)				1.000 (Nominal)	1.100 (Maximum)	1.900 (Minimum)				2.100 (Nominal)	2.300 (Maximum)	0.4500 (Minimum)				0.5500 (Nominal)	0.6500 (Maximum)
Phase	AL CALIBRATION RATIO 4			Value	Phase	Pad-Wear SS Ratio			Value	Phase	Pad-Wear LS Ratio			Value			
Master	<div><div></div></div>			0.5809	Master	<div><div></div></div>			0.9926	Master	<div><div></div></div>			0.9854			
0.4000 (Minimum)				0.5500 (Nominal)	0.6500 (Maximum)	0.9800 (Minimum)				0.9880 (Nominal)	0.9960 (Maximum)	0.9800 (Minimum)				0.9880 (Nominal)	0.9960 (Maximum)
Phase	Pad-Position SS Ratio			Value	Phase	Pad-Position LS Ratio			Value								
Master	<div><div></div></div>			1.007	Master	<div><div></div></div>			0.9939								
0.9900 (Minimum)				0.9940 (Nominal)	1.015 (Maximum)	0.9850 (Minimum)									0.9940 (Nominal)	1.010 (Maximum)	


Master: 0 Jan 2012 1:31

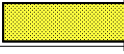


## Litho-Density Spectroscopy Cartridge – B / Equipment Identification

Primary Equipment:		
LDSC Cartridge	LDSC – B	521
Auxiliary Equipment:		
LDSC Housing	LDSH – A	319

## Enhanced DTS Cartridge / Equipment Identification

Primary Equipment:		
EDTC Gamma Ray Detector	EDTG – A/B	8305
Enhanced DTS Cartridge	EDTC – B	8317
Auxiliary Equipment:		
EDTC Housing	EDTH – B	8303

Enhanced DTS Cartridge Wellsite Calibration		
EDTC Accelerometer Calibration		
Phase	EDTC Z-Axis Acceleration M/S2	Value
Before		9.797
	9.610 (Minimum)	10.01 (Maximum)
Before: 15-Jan-2012 3:14		

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				6.619	Before				160.1	Before				164.0
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)			145.6 (Minimum)	160.1 (Nominal)	174.7 (Maximum)			149.0 (Minimum)	164.0 (Nominal)	179.0 (Maximum)	
Before: 27-Dec-2011 9:12														

Company: **Lamont Doherty****Schlumberger**Well: **Expedition 339, Site U1391 WI-01B**Field: **Mediterranean Outflow (Portugal)**Rig: **JOIDES Resolution**Ocean: **Atlantic**

High Resolution Laterolog Array

Hostile Litho Density Sonde

Gamma Ray / Caliper