



LOGGING SOLUTIONS

ARRAY INDUCTION
GAMMA RAY
MEMORY LOG

Company		CHESAPEAKE OPERATING, INC.		Company	CHESAPEAKE OPERATING, INC.
Well		YORK 31-31-17 1H		Well	YORK 31-31-17 1H
Field		MCKINNEY PROJECT/MISS LIME		Field	MCKINNEY PROJECT/MISS LIME
County		COMANCHE		County	COMANCHE
State		KANSAS		State	KANSAS
Location:		API # : 15-033-21591		Other Services	
SURF LOC: SW SW 200' FSL & 760' FWL				THRUBIT	
SEC 31 TWP 31S RGE 17W				PORTAL BIT	
Permanent Datum		G.L.	Elevation	Elevation	
Log Measured From		D.F.	16' ABOVE PERM DATUM	K.B. 2144'	
Drilling Measured From		D.F.		D.F. 2144'	
Date		16 SEPTEMBER 2011		G.L. 2128'	
Run Number	ONE				
Depth Driller	8963'				
Depth Logger	8836'				
Bottom Logged Interval	8825'				
Top Log Interval	4940'				
Casing Driller	7" @ 5730'				
Casing Logger	7" @ 5734'				
Bit Size	6.125"				
Type Fluid in Hole	FRESH WATER				
Density / Viscosity	8.6 / 33				
pH / Fluid Loss	9.8 / 14				
Source of Sample	MUD PIT				
Rm @ Meas. Temp	1.0 OHMS@70 DEGF				
Rmf @ Meas. Temp	0.75 HMS@70 DEGF				
Rmc @ Meas. Temp	1.25 OHMS@70 DEGF				
Source of Rmf / Rmc	CALCULATED				
Rm @ BHT	0.59 OHMS@123 DEGF				
Time Circulation Stopped	10:45 16SEPT2011				
Time Logger on Bottom	12:00 16SEPT2011				
Maximum Recorded Temperature	123 DEGF				
Equipment Number	T004				
Location	OKC. OK				
Recorded By	D. THOMAS				
Witnessed By	MR. BILL CANON				

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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

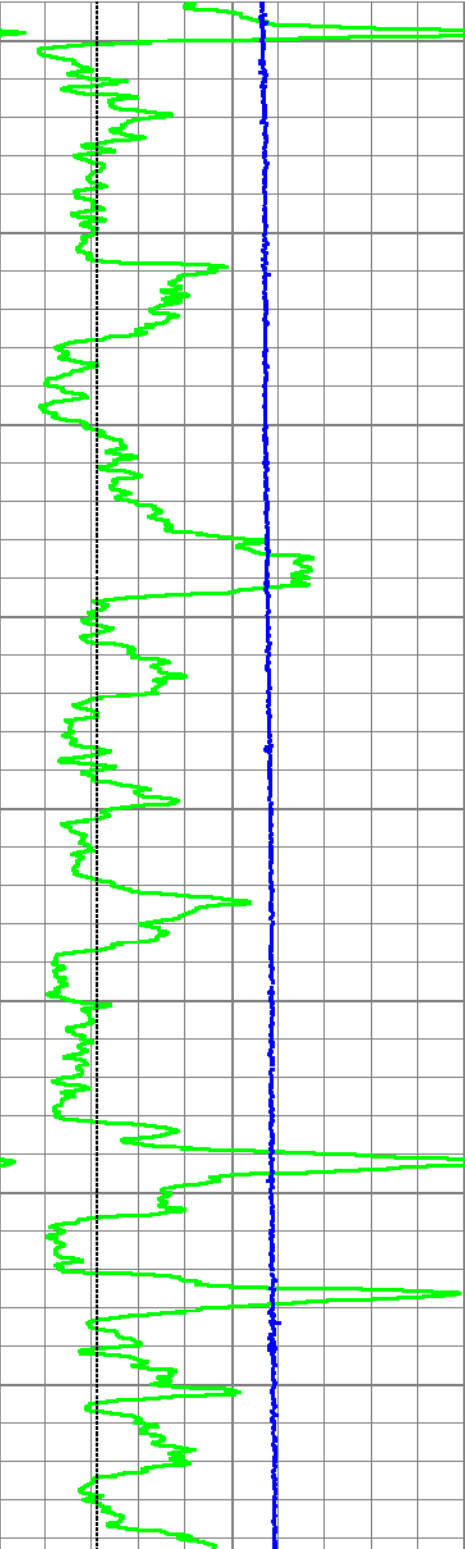
SERVICE: LEVEL 4 - HORIZONTAL MEMORY PUMPDOWN - BIT DEPTH: 8782' LOG TO: 4940'
ALL SCALES AND PRESENTATIONS PER CLIENT REQUEST
LIMESTONE MATRIX, 2.71 G/CC, USED FOR POROSITY MEASUREMENTS
TOOL STRING RAN WITH EVANS SWIVEL, S. DECENTRALIZER, AND NO STANDOFFS
TBHV REPRESENTS TOTAL BOREHOLE VOLUME, FT3
ABHV REPRESENTS ANNULAR BOREHOLE VOLUME, FT3, CALCULATED FOR 4.50" CSG
RIG MINDER LITE USED WITH RIGSENSE TO CREATE LOG DEPTH
LOG DEPTH CORRELATED TO MWD GAMMA RAY PER CUSTOMER REQUEST

RIG: NOMAC #115
CREW: D. THOMAS/K. REED/T. DENNIS

Database File: york_mem.db
Dataset Pathname: proc3/pass1.4
Presentation Format: 6_2r_chk
Dataset Creation: Fri Sep 16 19:36:05 2011
Charted by: Depth in Feet scaled 1:600

0	GR (GAPI)	150
4	DCAL (in)	14
-5	ACCY	5
4	BOREID (in)	14
GRTEMP		
(degF)		

50	20in 2ft Res (Ohm-m)	500
50	90in 2ft Res (Ohm-m)	500
1000	DEEP COND (Ohm-m)	0
0	20in 2ft Res (Ohm-m)	50
0	90in 2ft Res (Ohm-m)	50

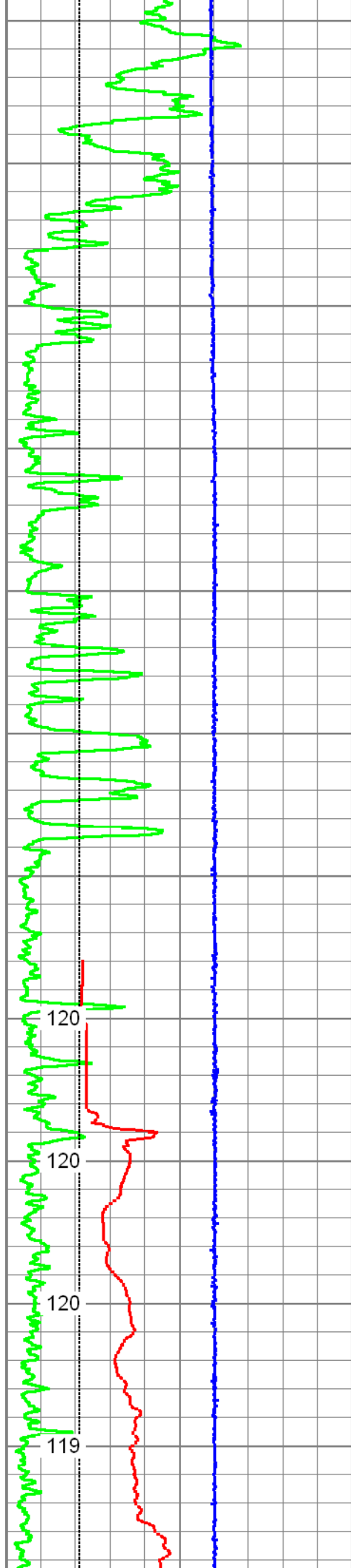


5000

5100

5200

5300



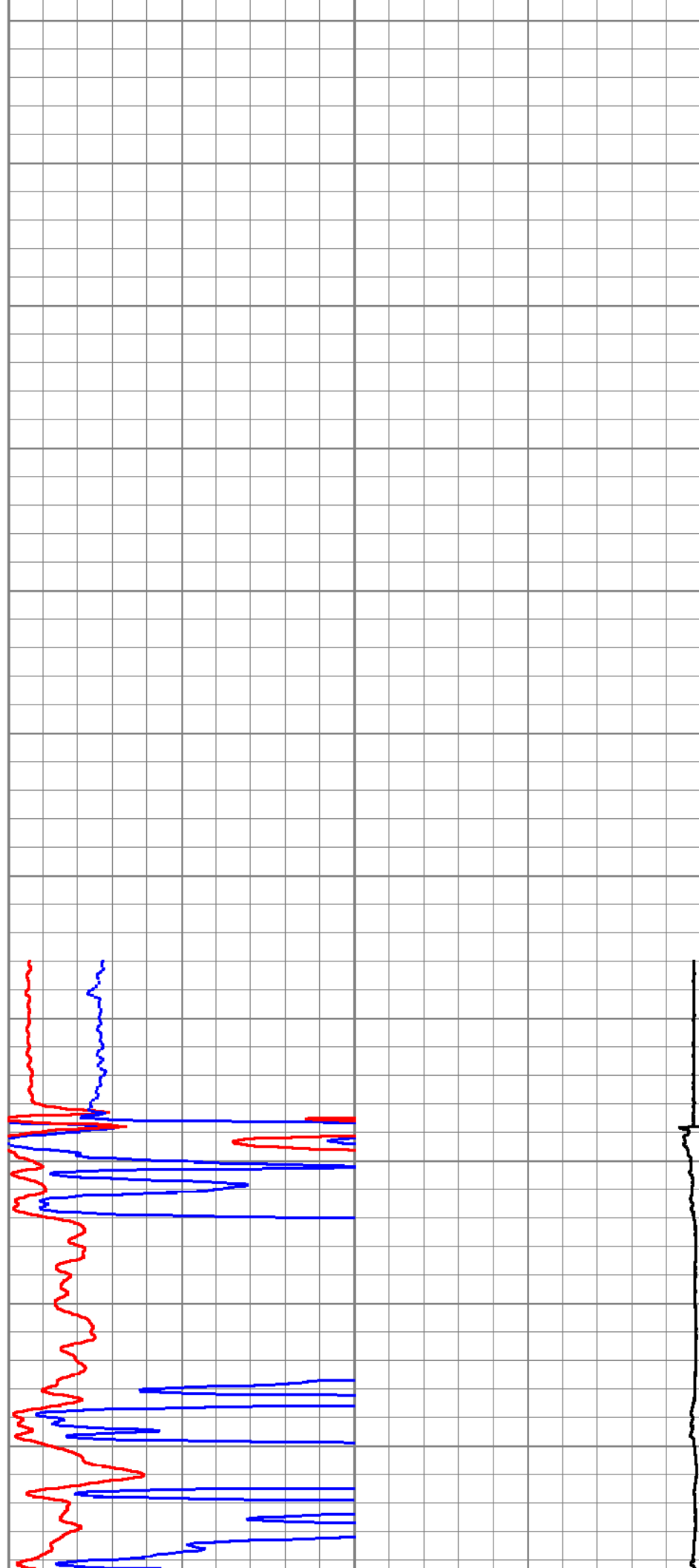
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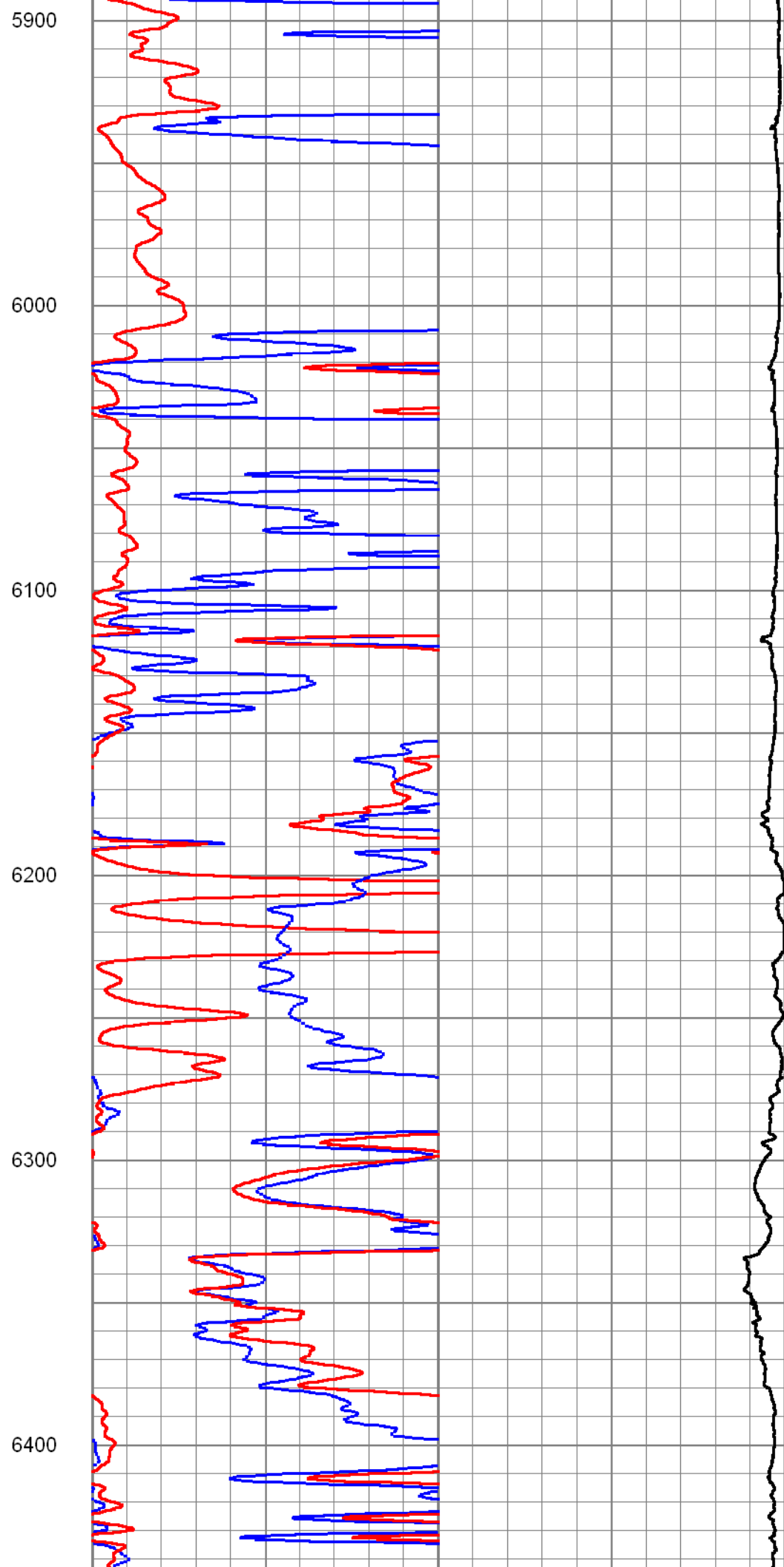
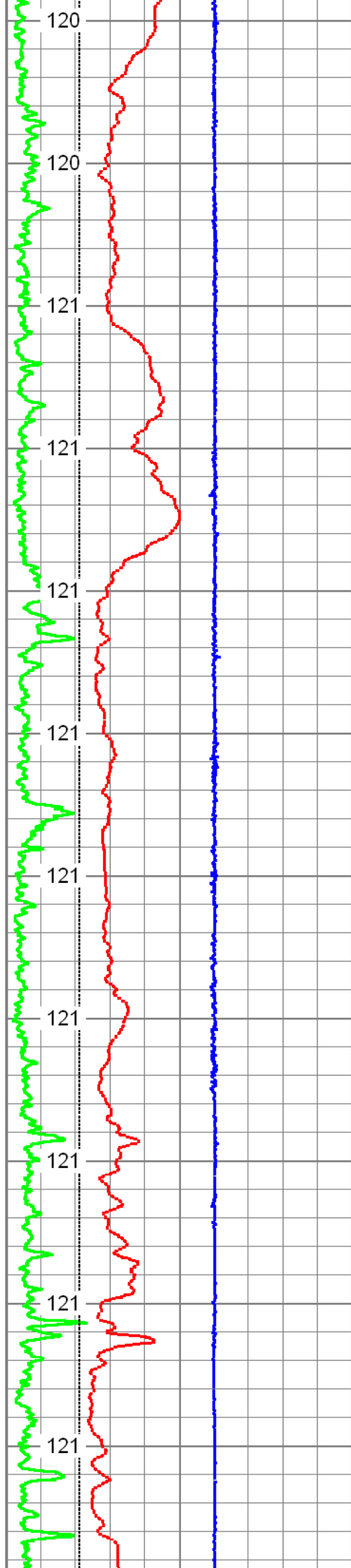
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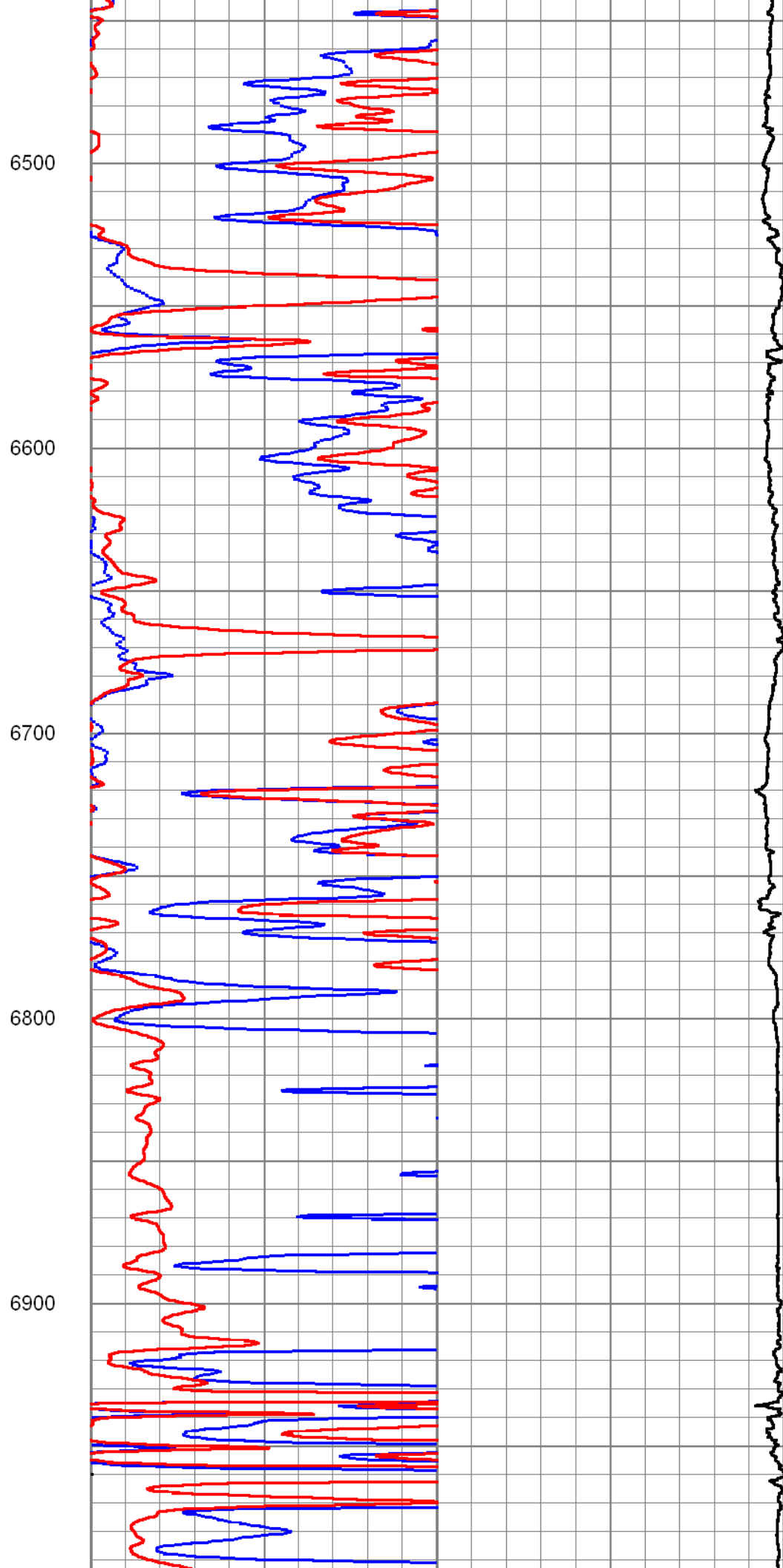
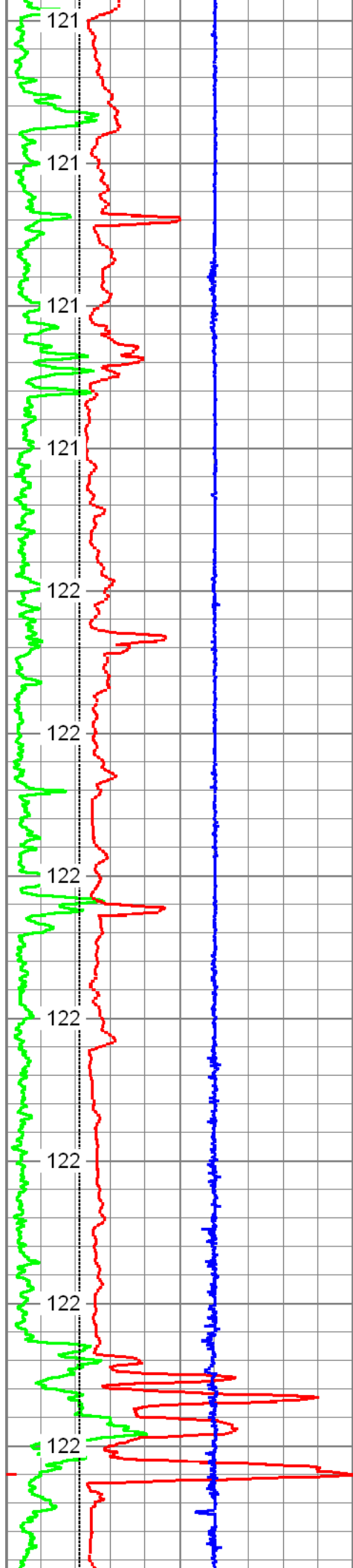
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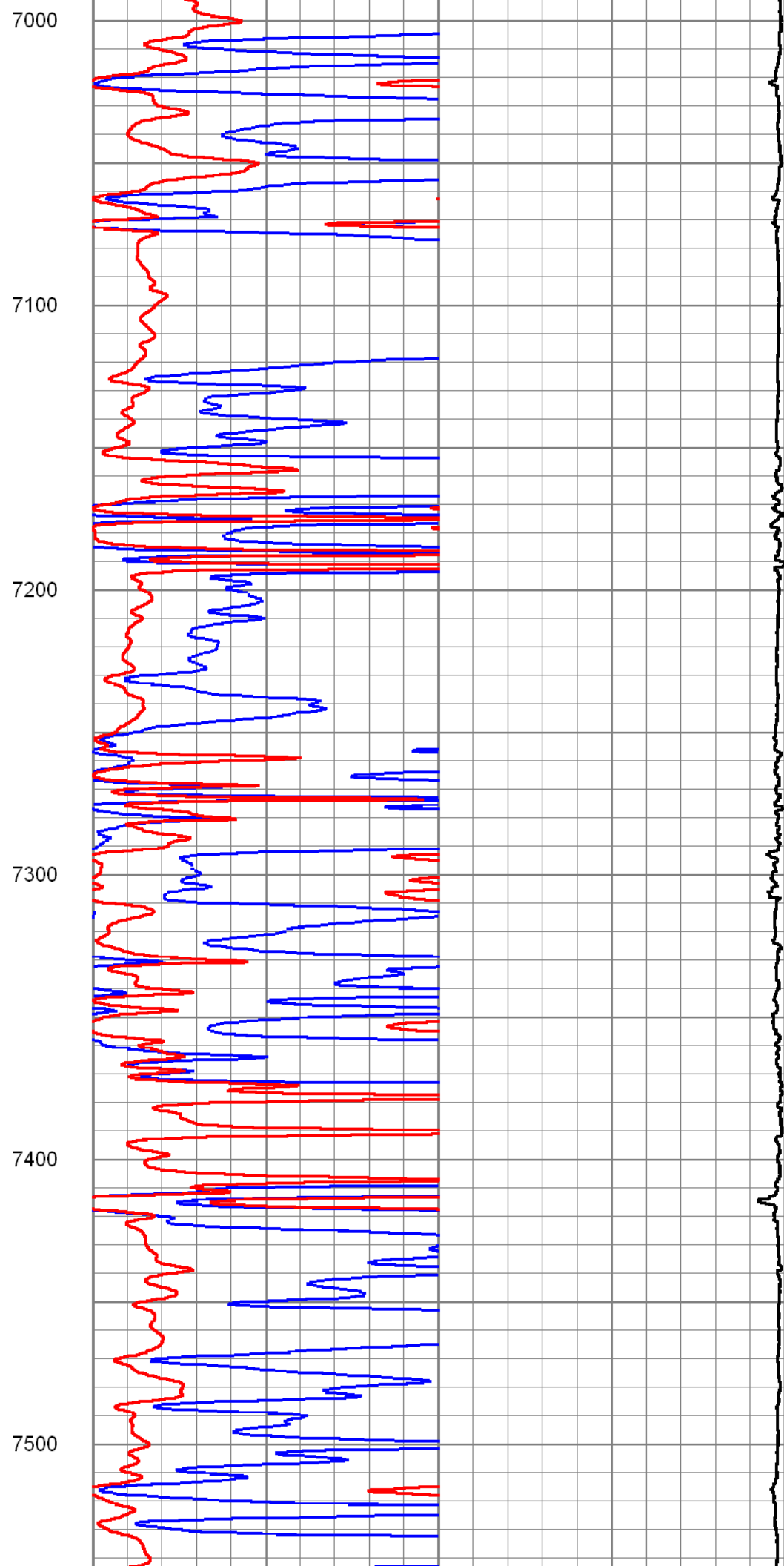
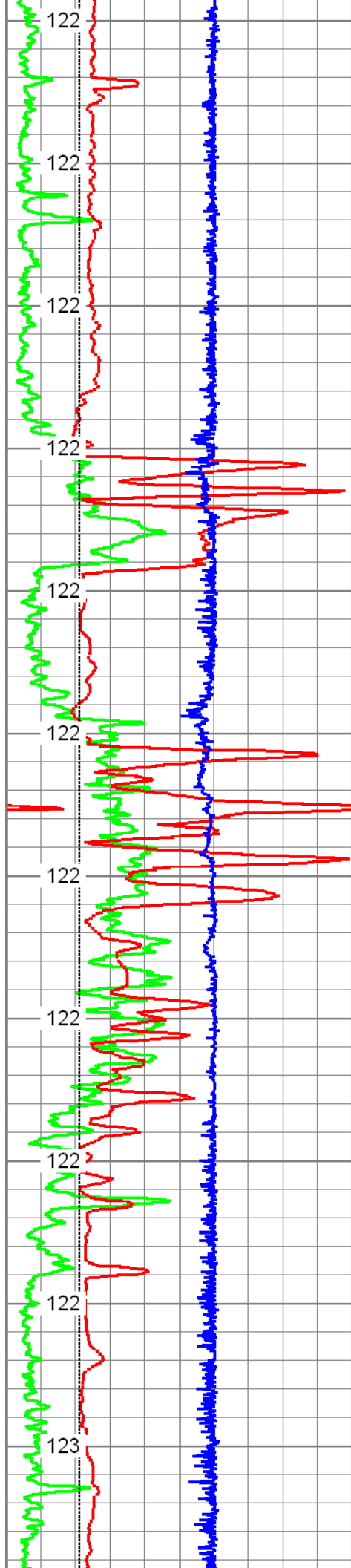
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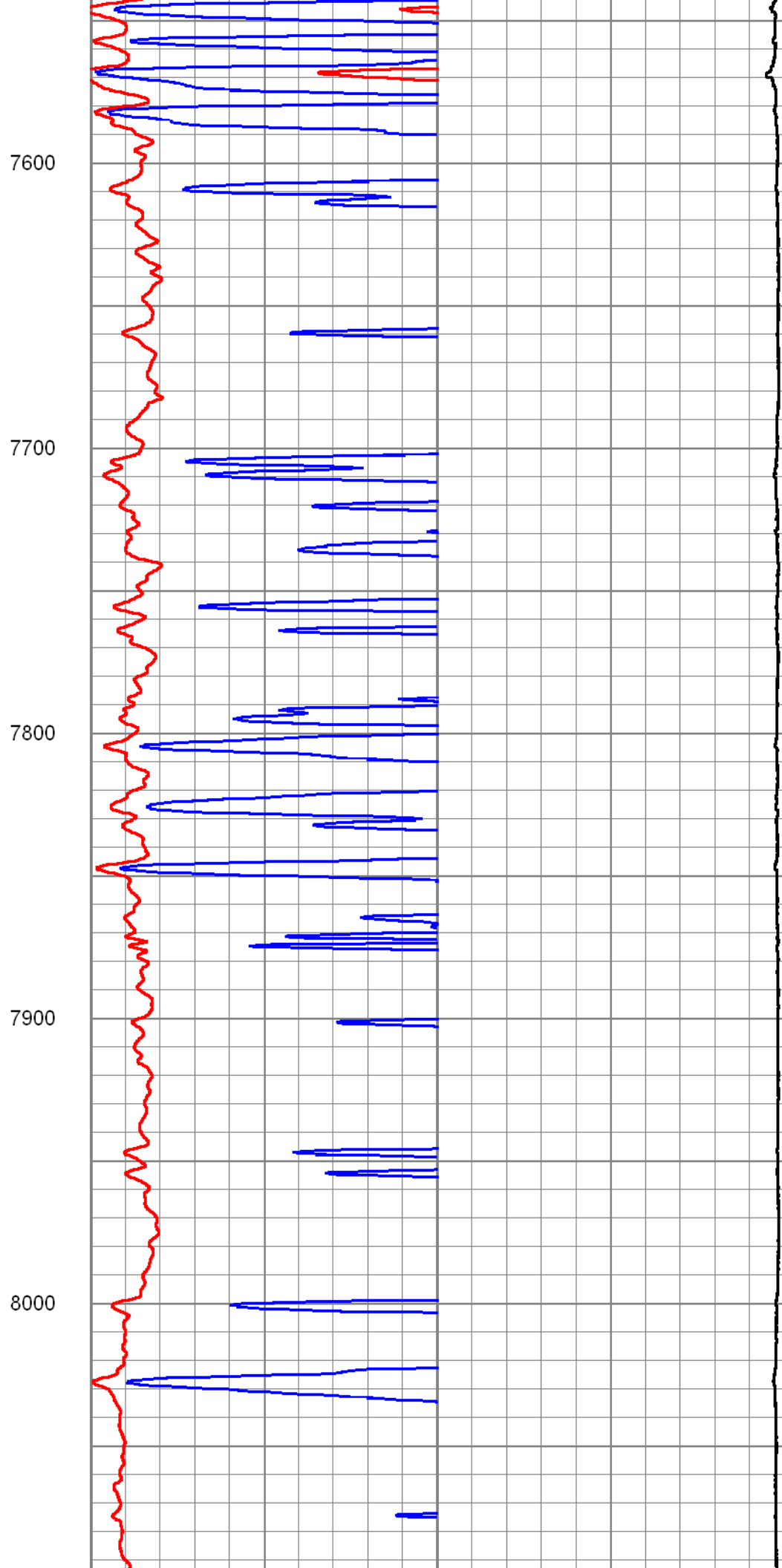
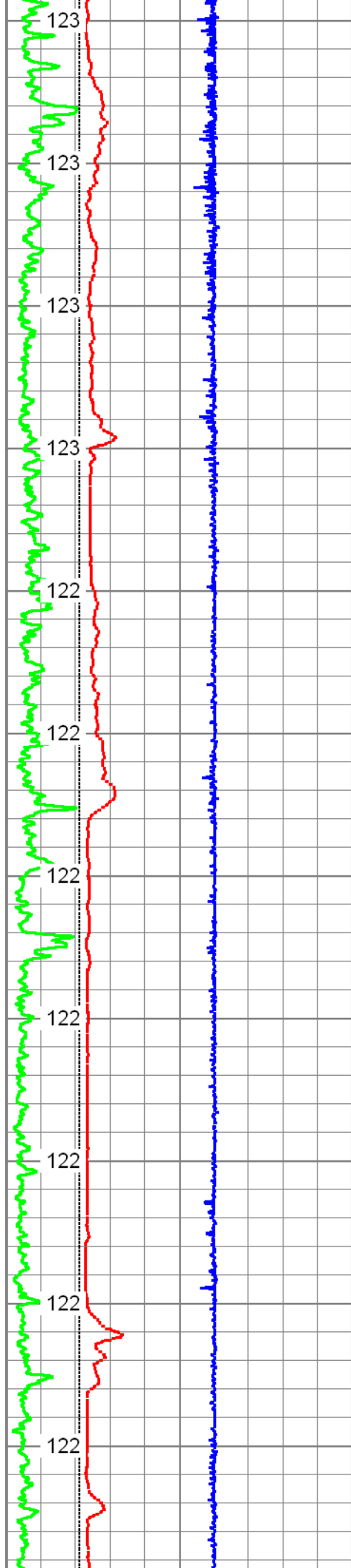
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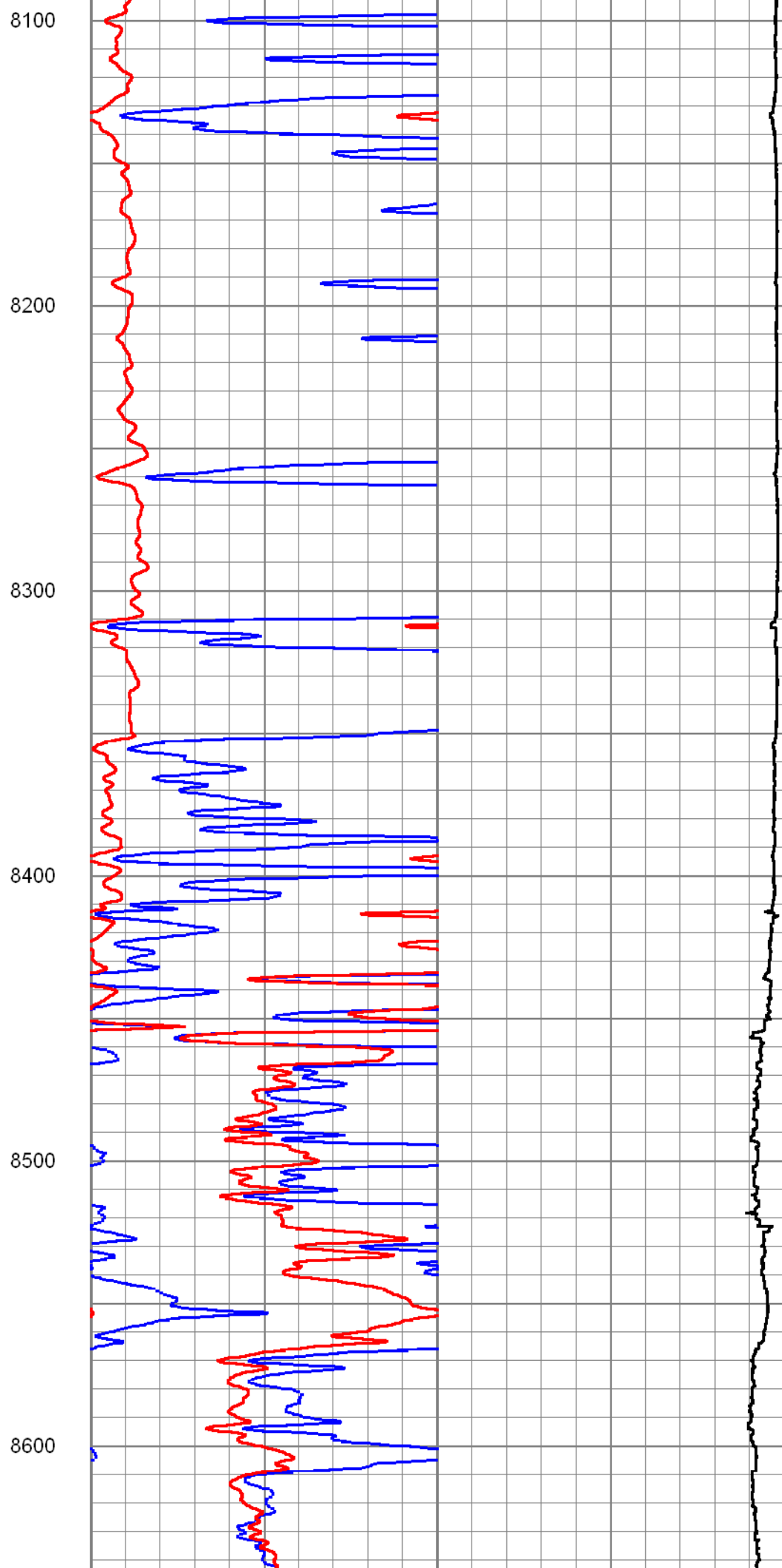
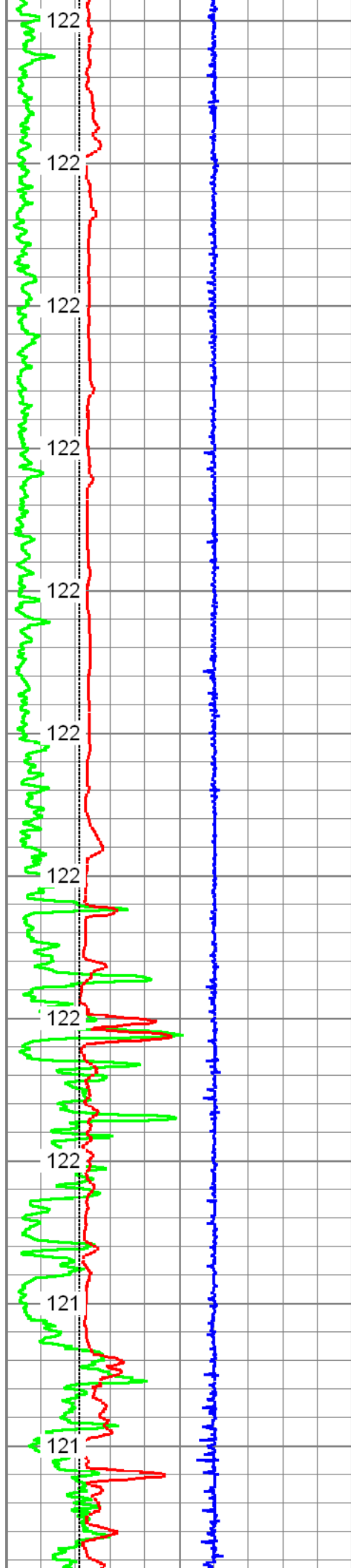


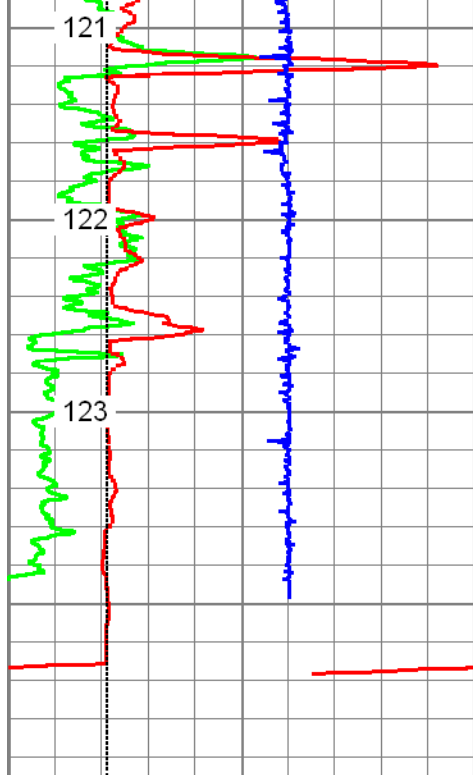








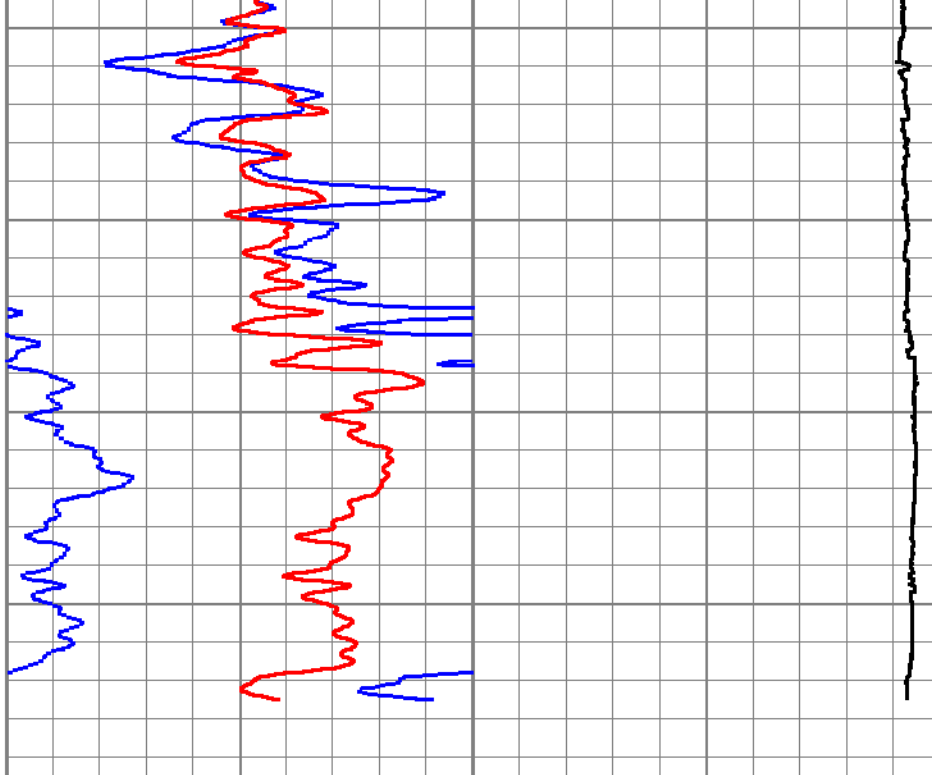




0	GR (GAPI)	150
4	DCAL (in)	14
-5	ACCY	5
4	BOREID (in)	14
GRTEMP (degF)		

8700

8800



50	20in 2ft Res (Ohm-m)	500
50	90in 2ft Res (Ohm-m)	500
1000	DEEP COND (Ohm-m)	0
0	20in 2ft Res (Ohm-m)	50
0	90in 2ft Res (Ohm-m)	50



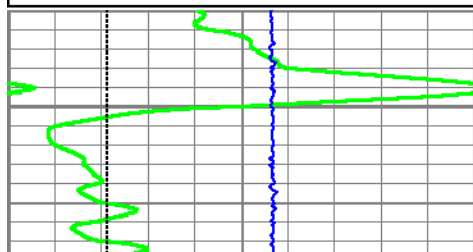
MAIN PASS

Database File: york_mem.db
 Dataset Pathname: proc3/pass1.4
 Presentation Format: 6_5r_chk
 Dataset Creation: Fri Sep 16 19:36:05 2011
 Charted by: Depth in Feet scaled 1:240

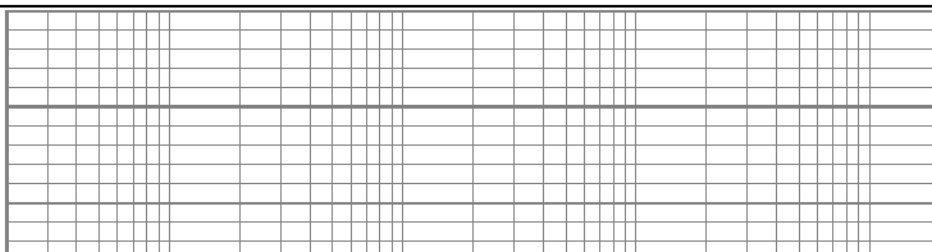
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4	BOREID (in)	14
4	DCAL (in)	14
-5	ACCY	5

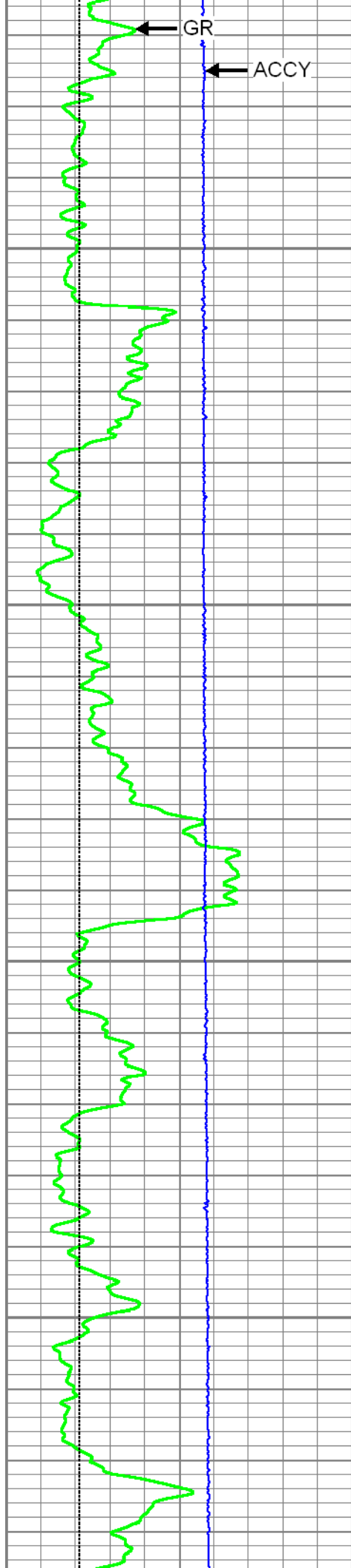
0.2	20inRadial (Ohm-m)	2000
0.2	30inRadial (Ohm-m)	2000
0.2	60inRadial (Ohm-m)	2000
0.2	90inRadial (Ohm-m)	2000

GRTEMP (degF)		
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4950





5000

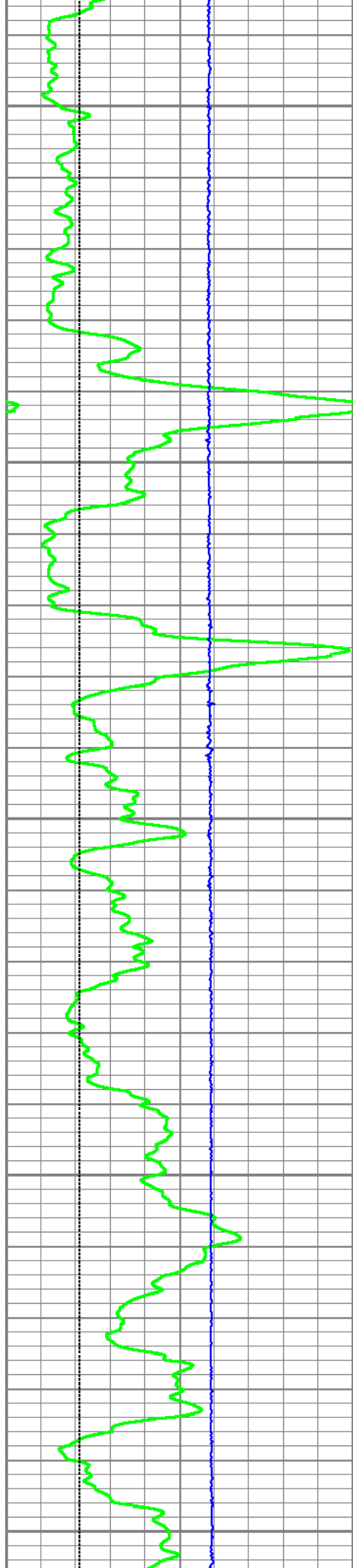
5050

5100

5150

GR

ACCY



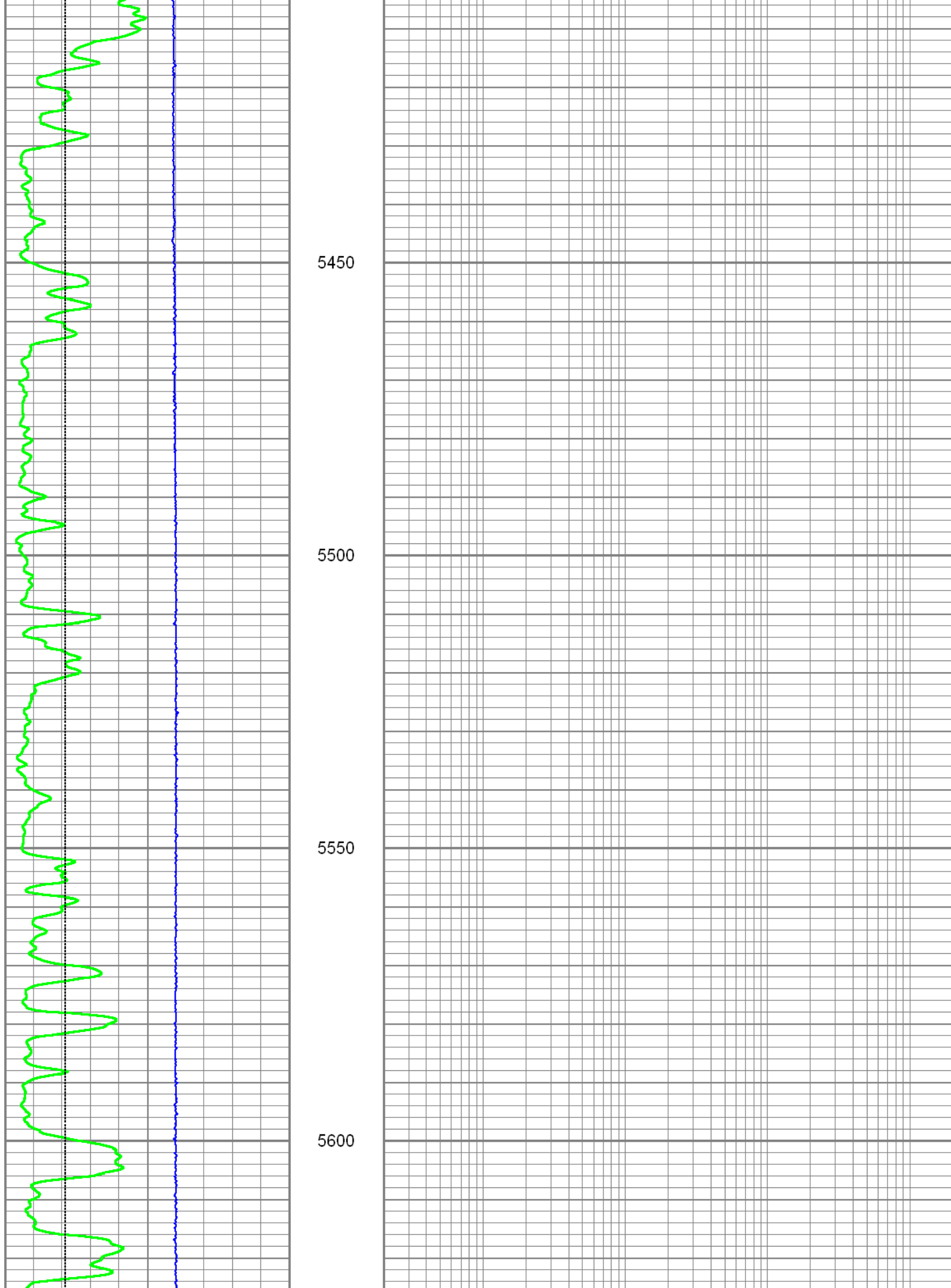
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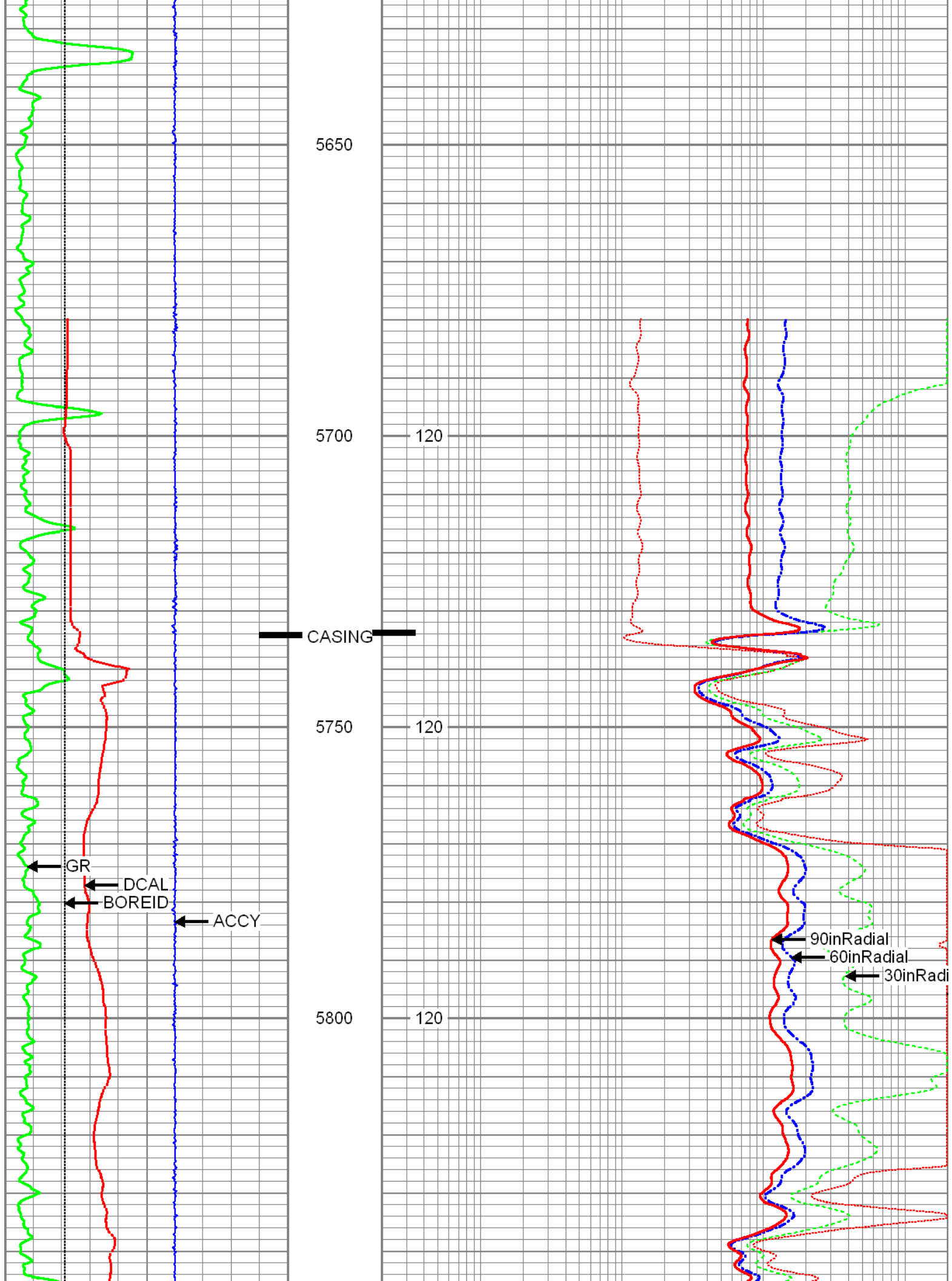
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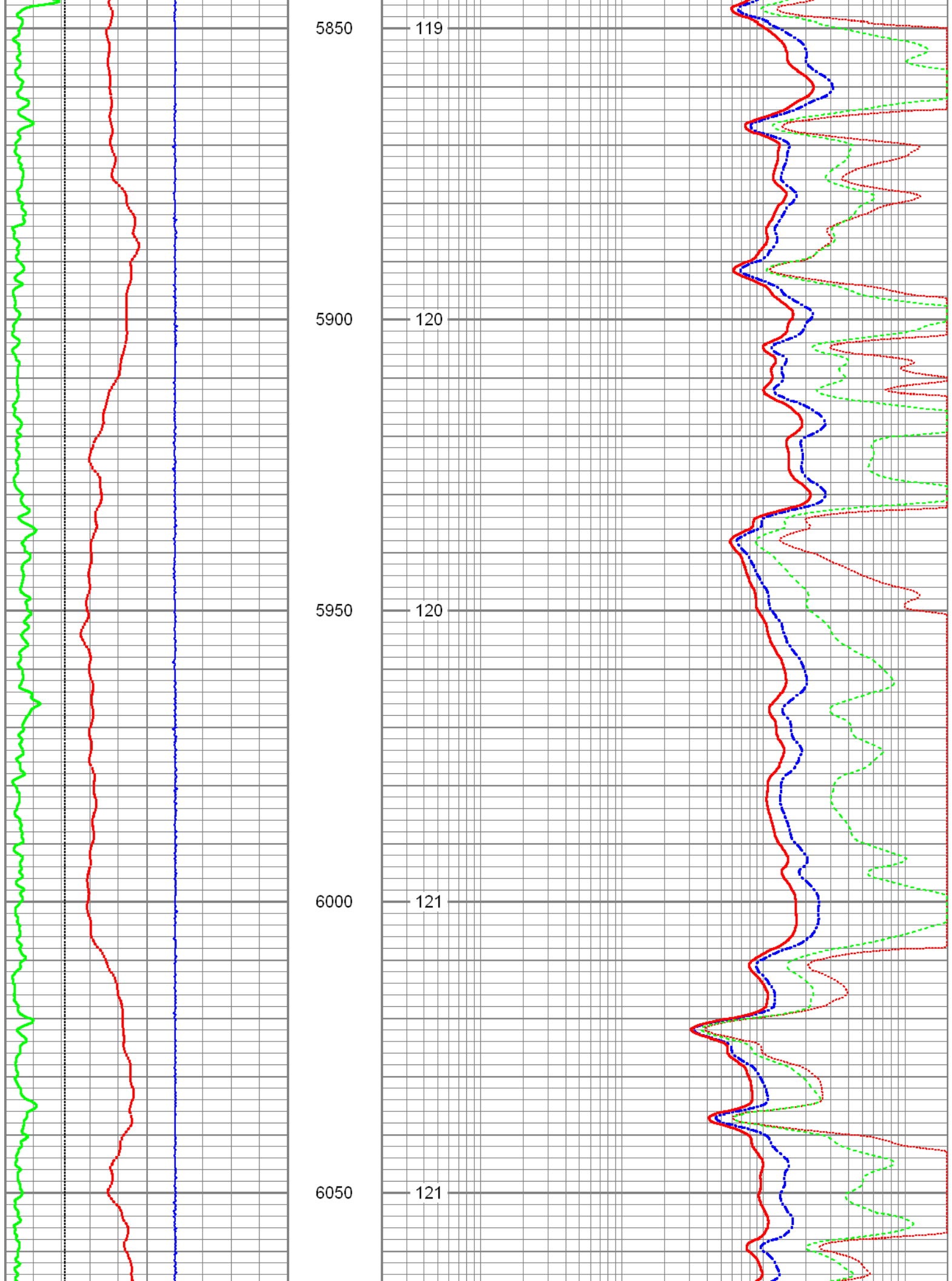
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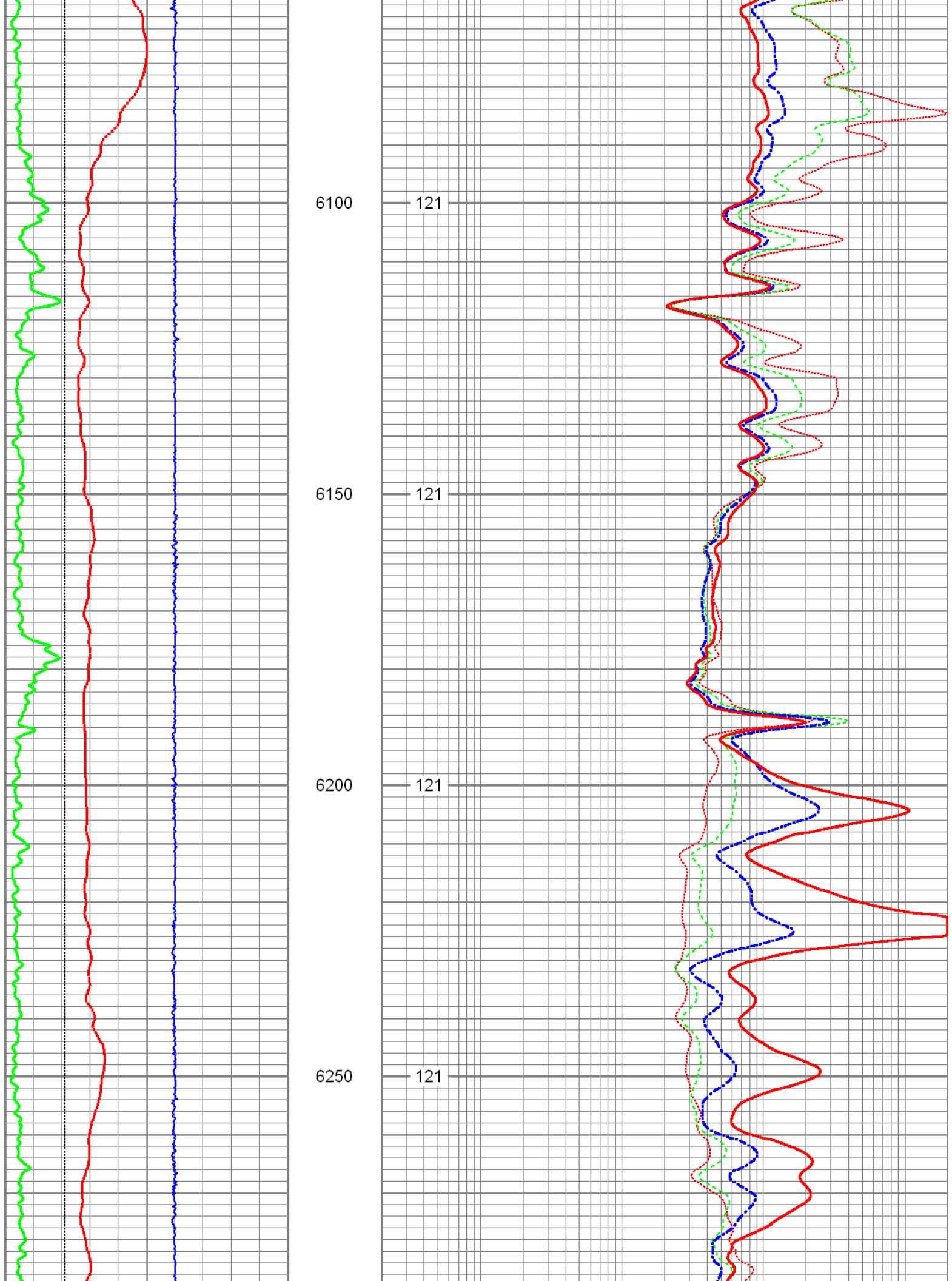
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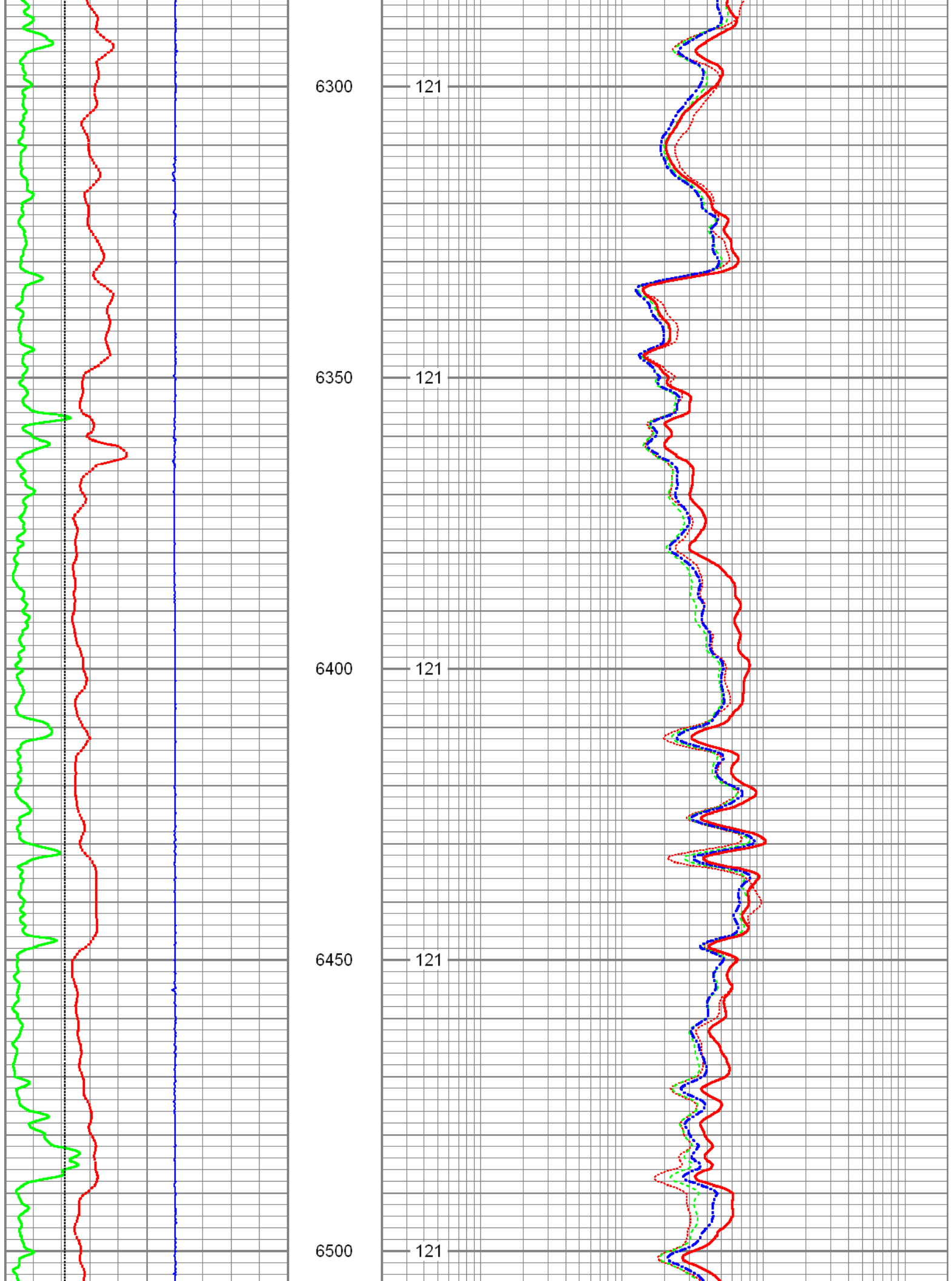
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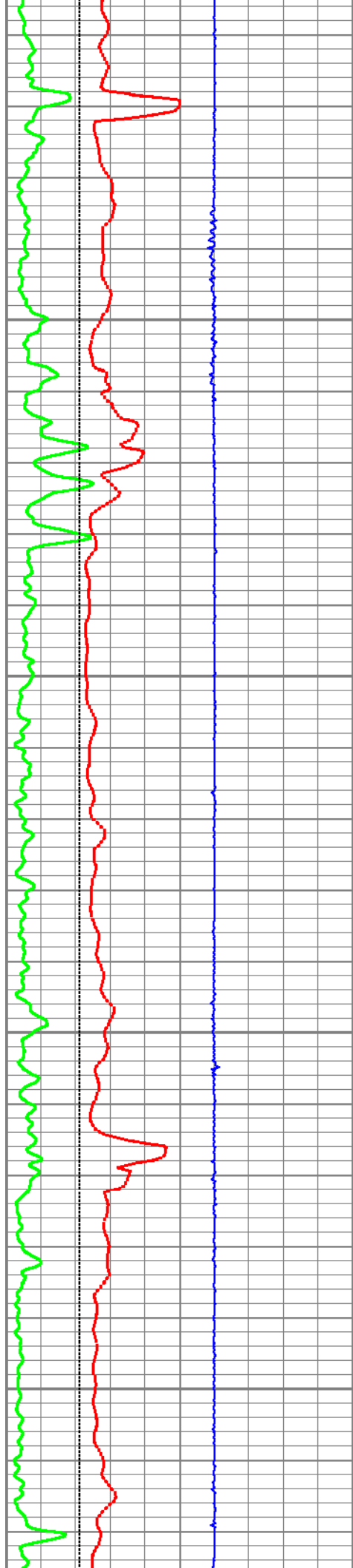












6550

6600

6650

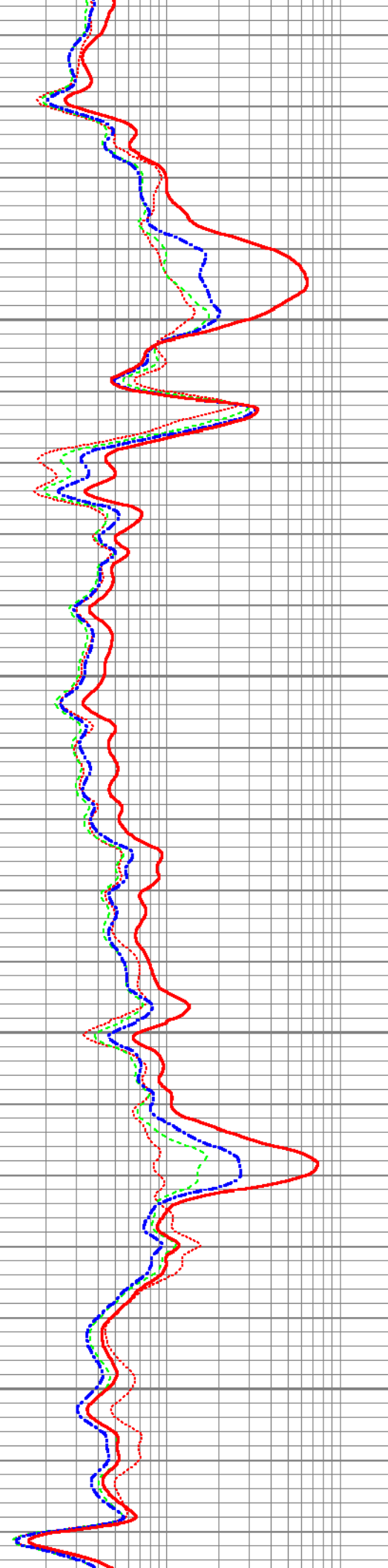
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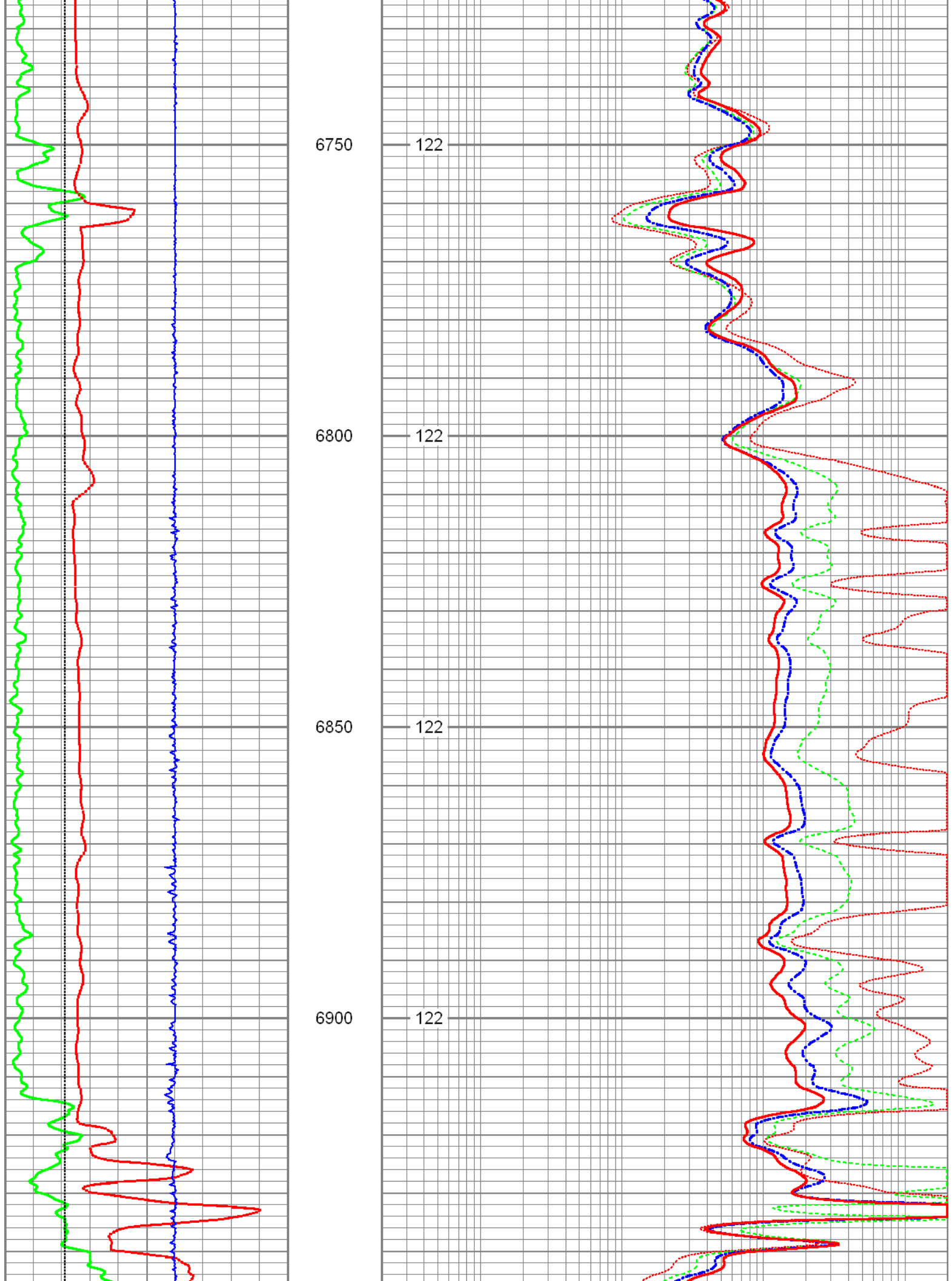
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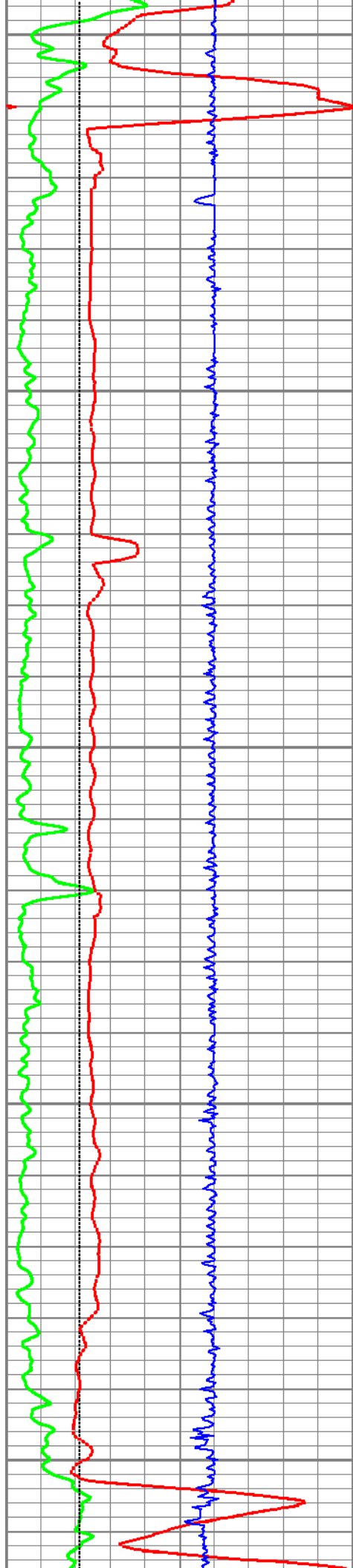
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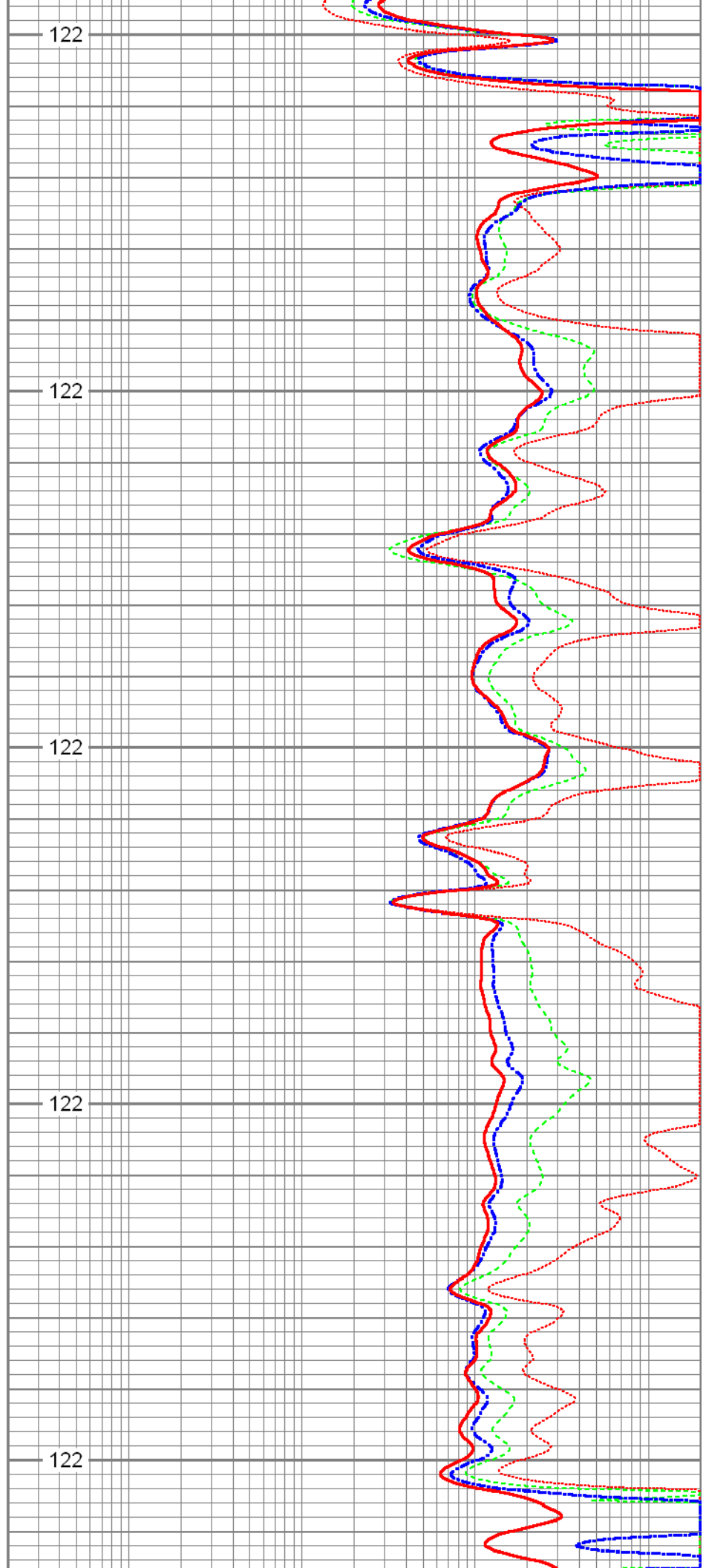
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7000

7050

7100

7150



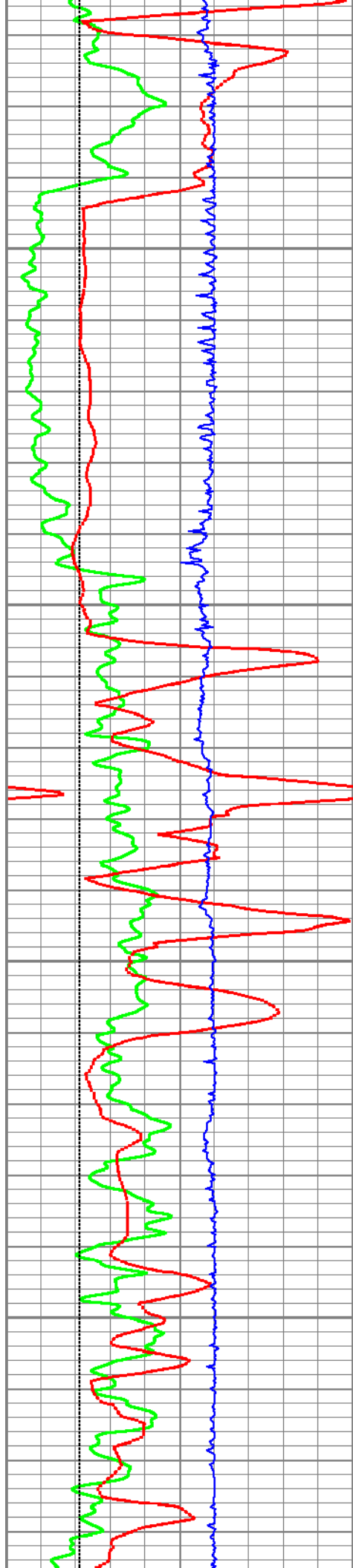
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122

122

122



7200

7250

7300

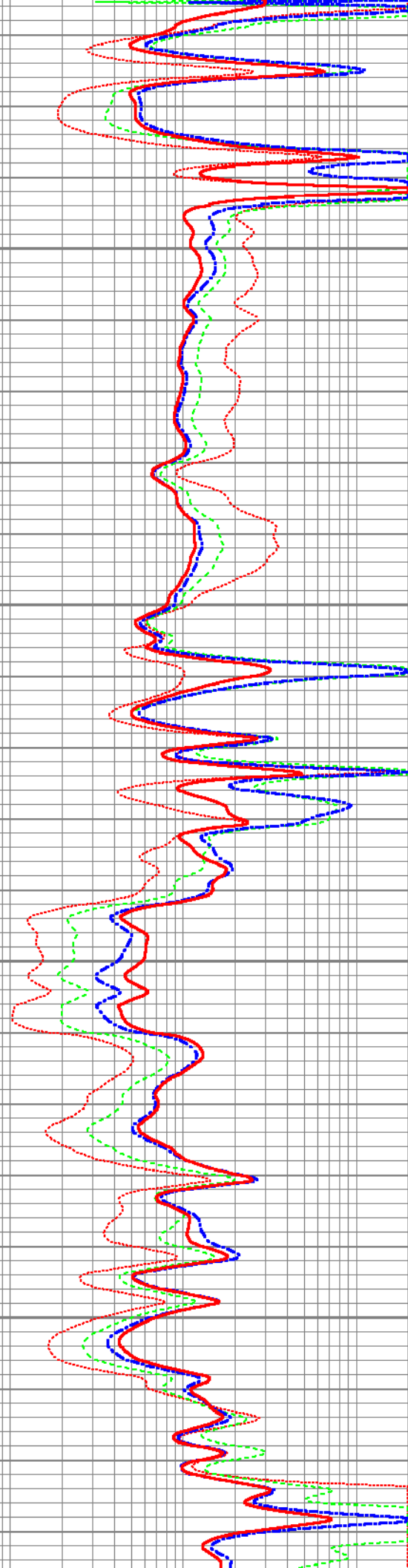
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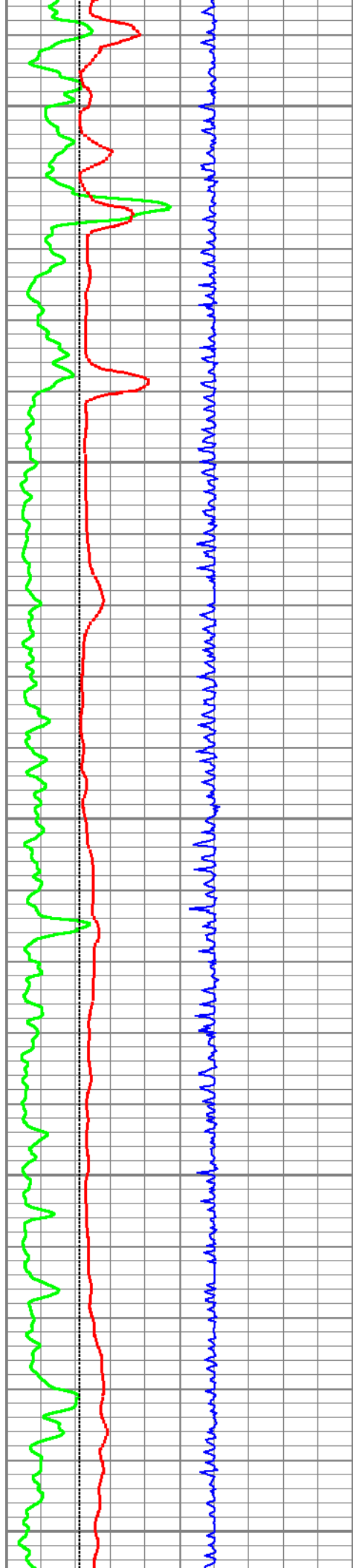
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122

122

122





7400

7450

7500

7550

7600

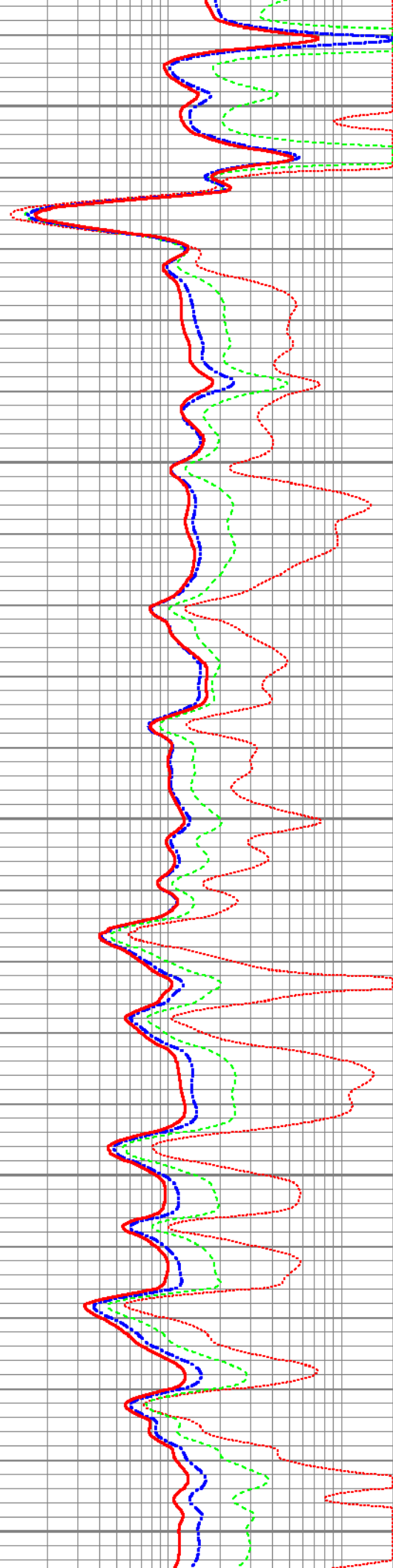
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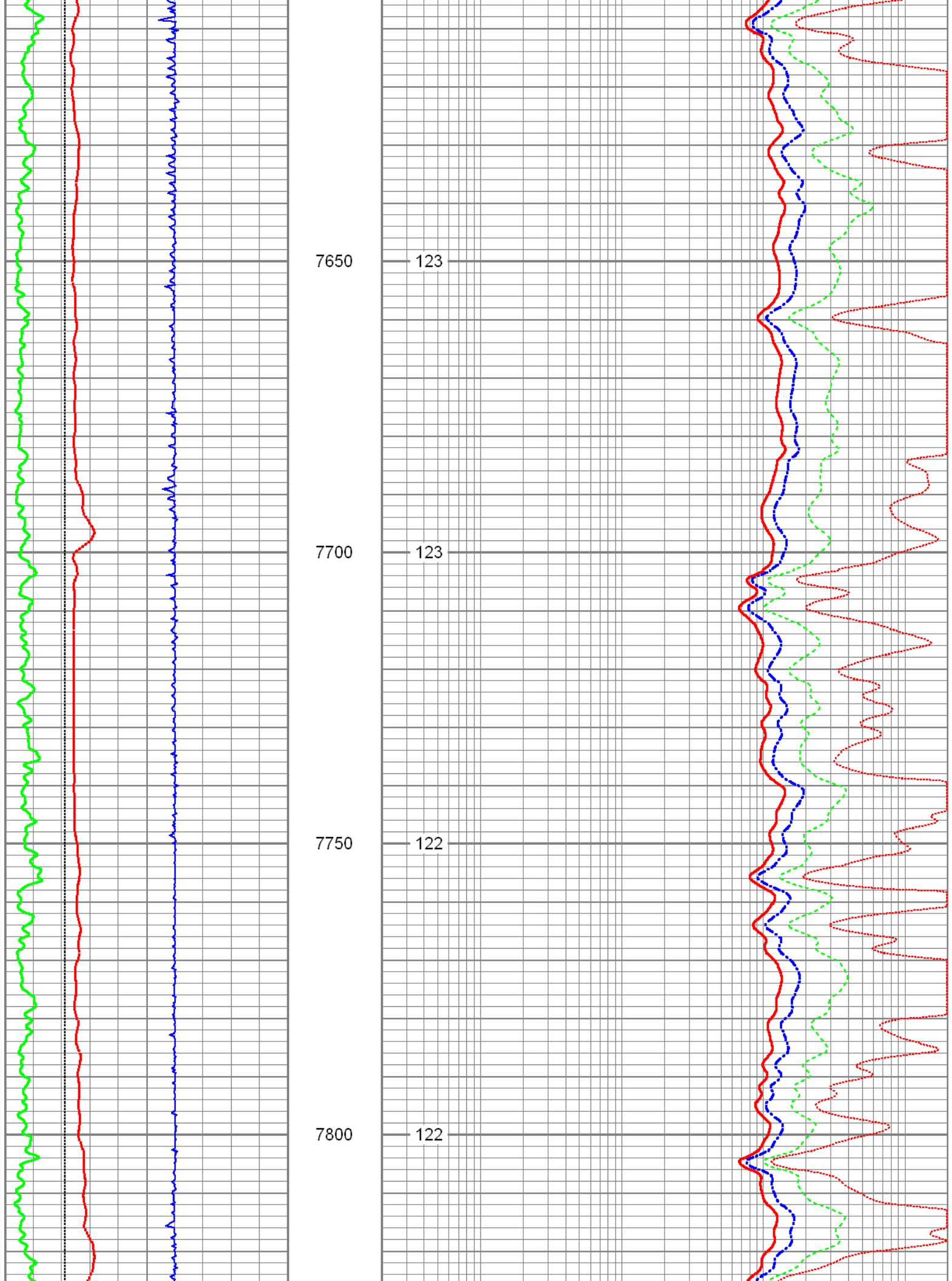
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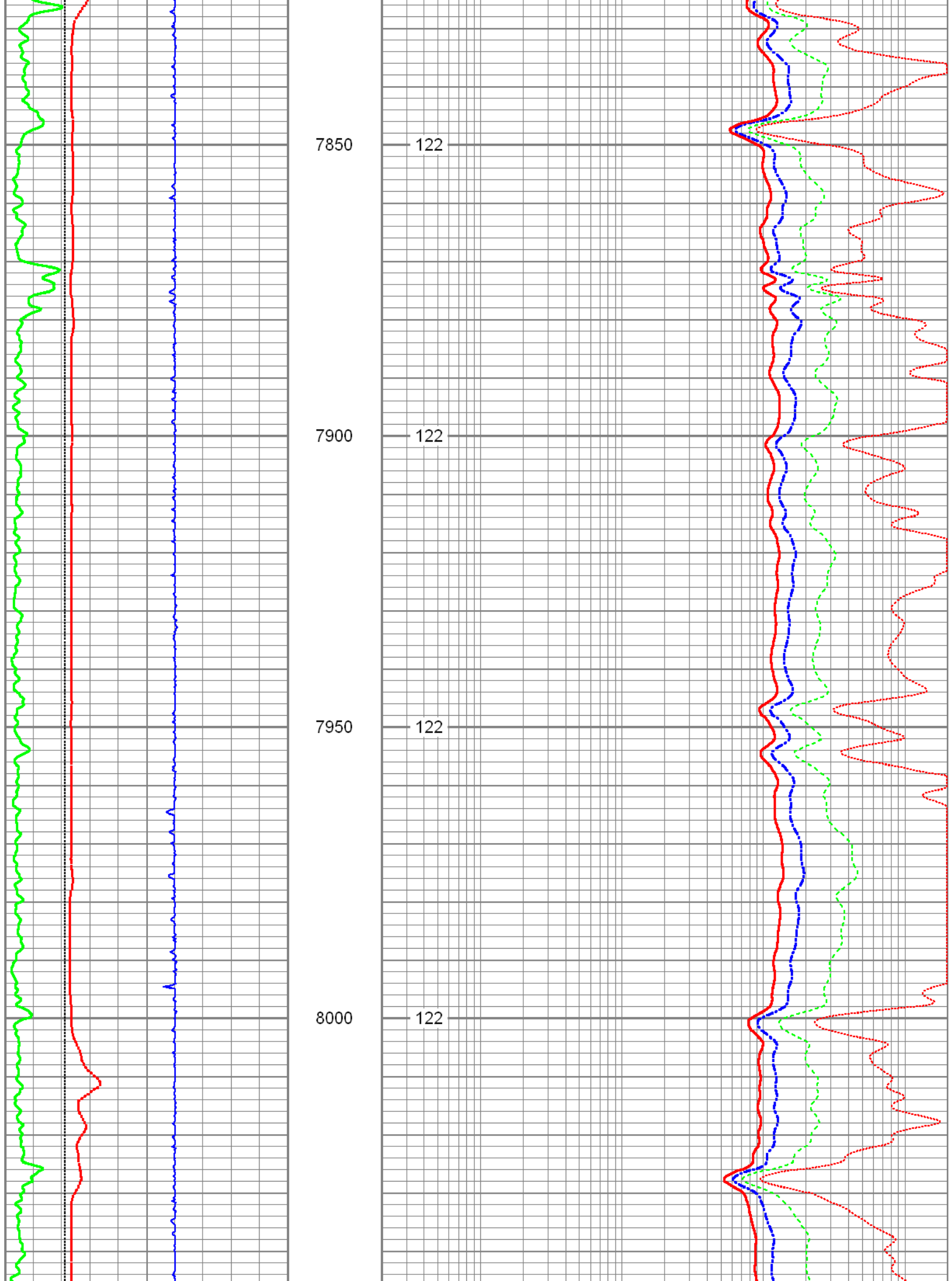
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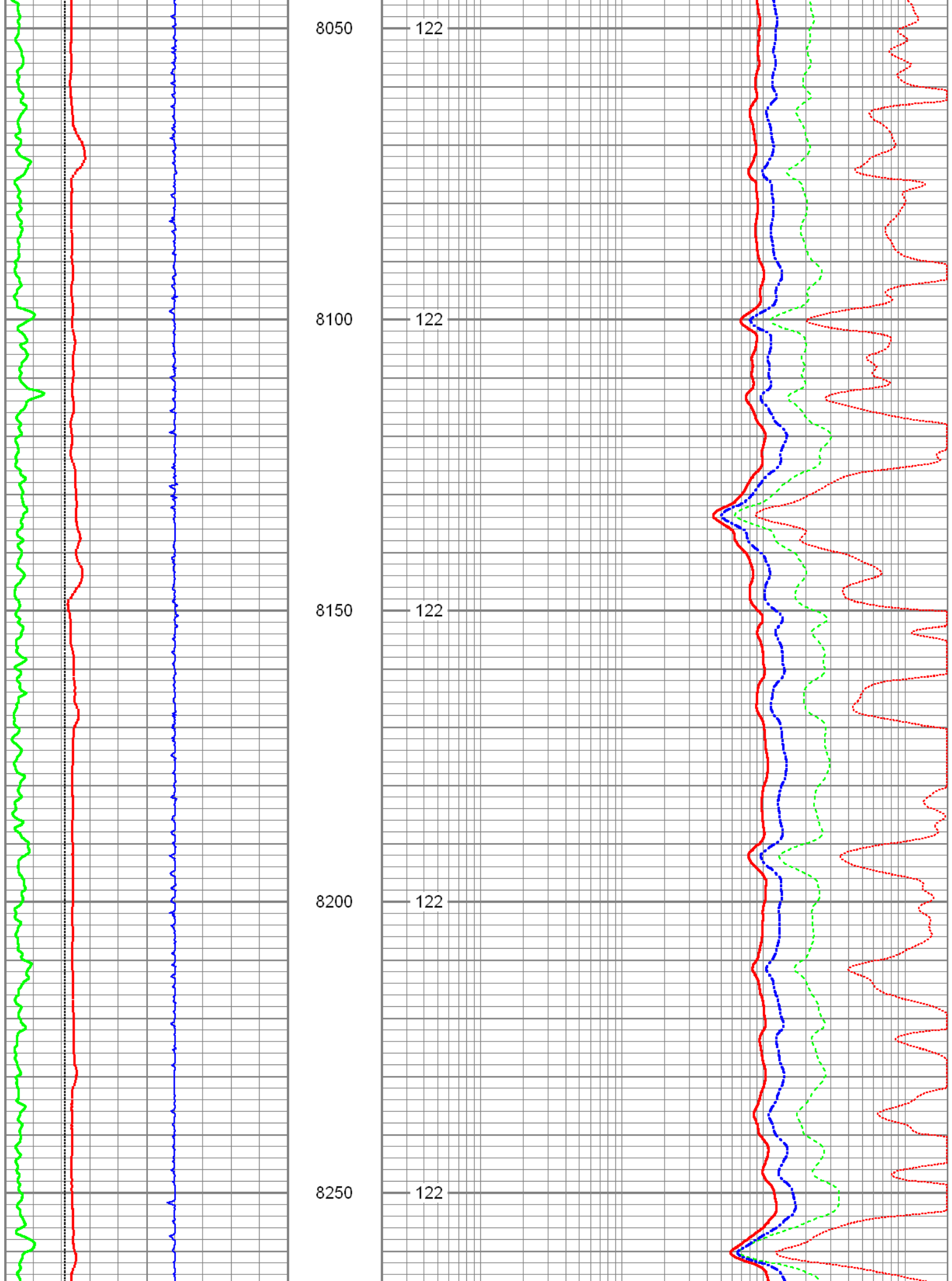
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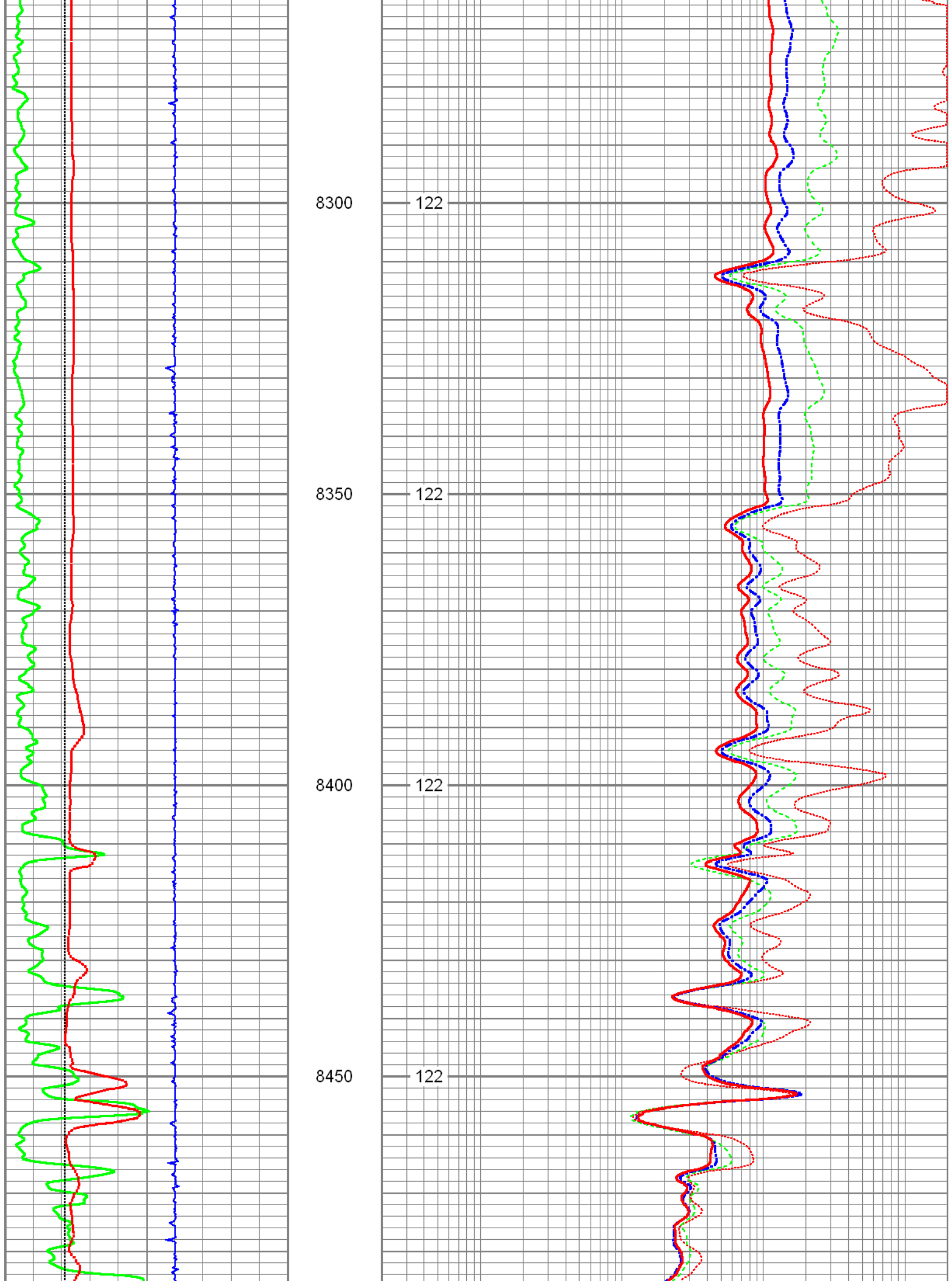
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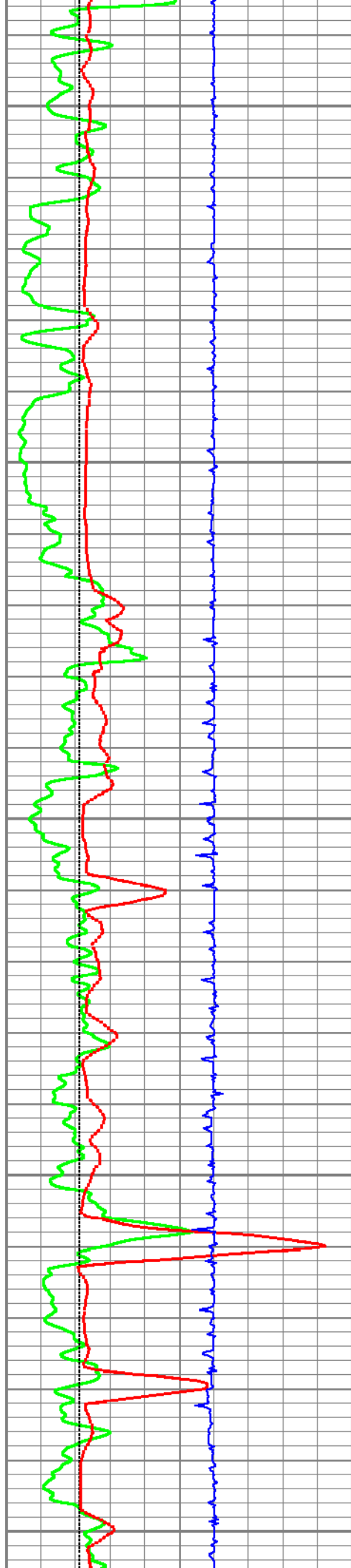












8500

8550

8600

8650

8700

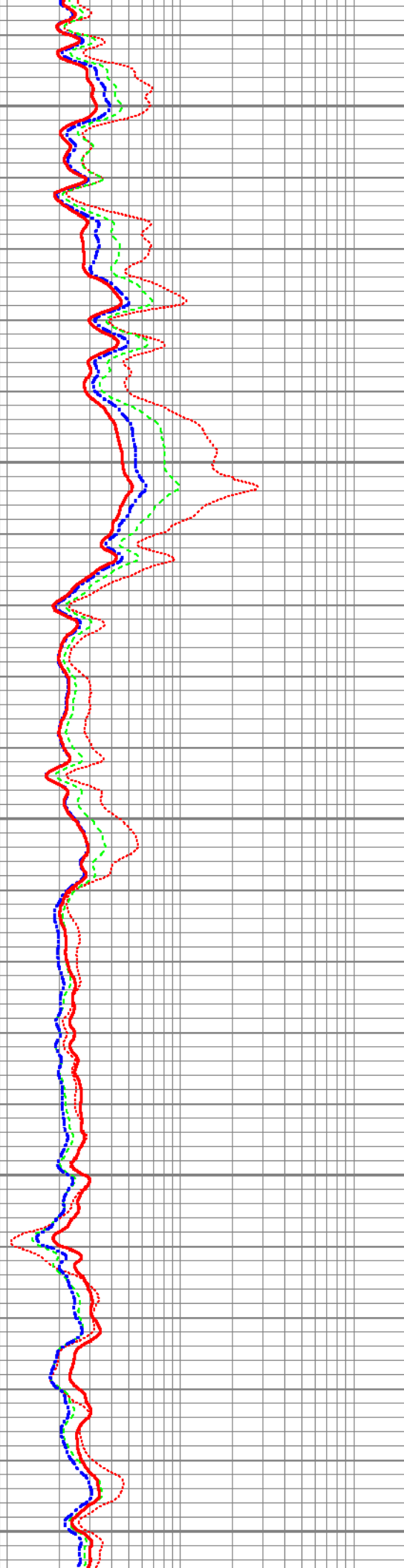
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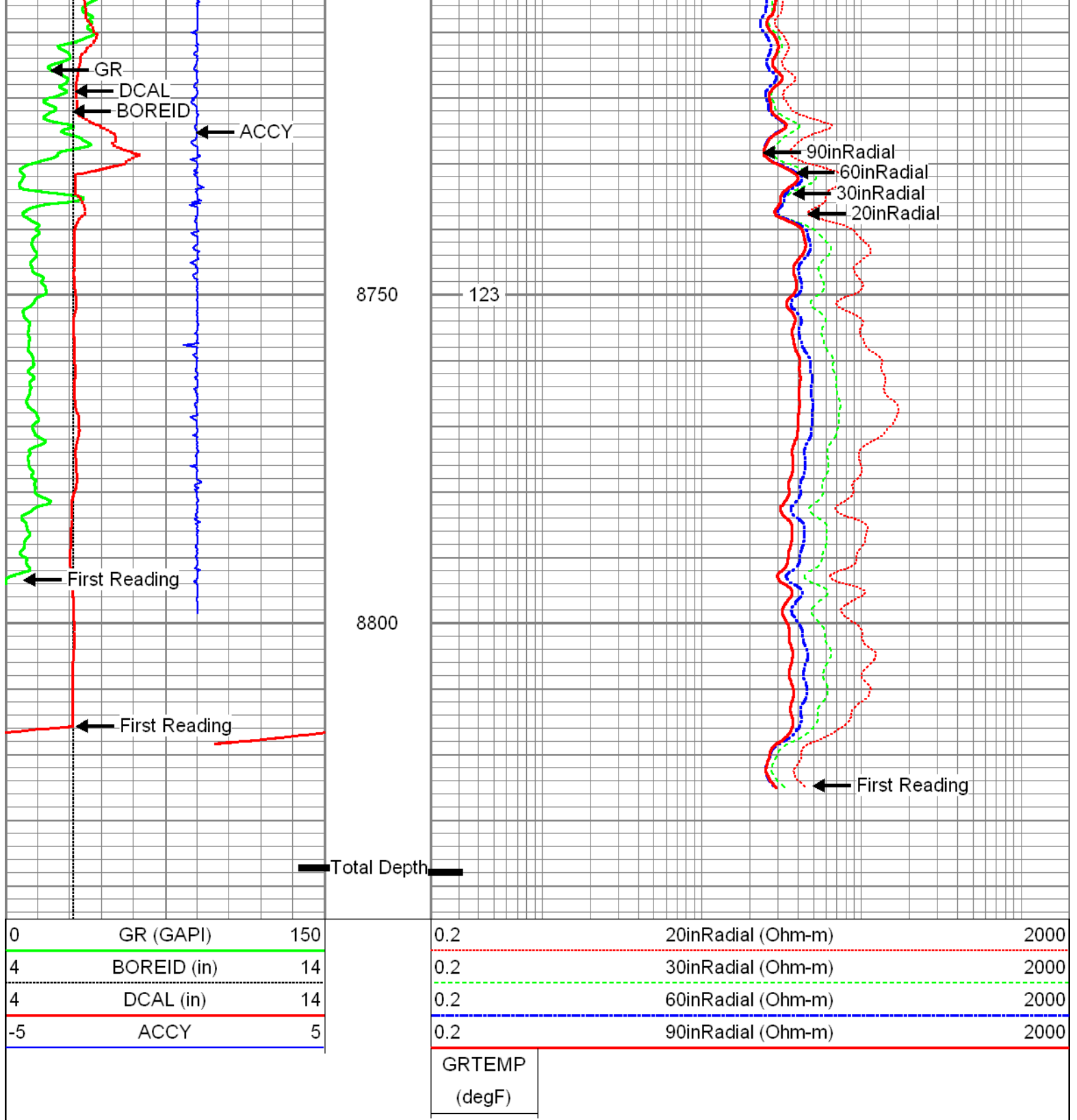
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121

122





Log Variables

Database: C:\Warrior\Data\york_mem.db
Dataset: field/well/proc3/pass1.4

Top - Bottom

A	BHCOR	BHFL_TYPE	BHIDSRC	BOREID	BOTTEMP	CASED?
1	On	WBM	CURVE	in 6.125	degF 123	No
CASEOD	CASETHCK	CEMWATERSA	CMNTTHCK	FLUIDDEN	FRMSALIN	LATNOR
in 4.5	in 0	kppm 0	in 0	g/cc 1	kppm 0	Off

M	MATRXDEN g/cc	MUDSALIN kppm	MudWgt lb/gal	NPORSEL	PERFS	RESTMPsrc
2	2.71	1.1	8.6	Limestone	0	INTERNAL
SO in	SRFTEMP degF	SZCOR	TDEPTH ft	TMPCOR	TOOLPOS	
0.5	65	On	8963	On	Free	

Calibration Report

Database File: york_mem.db
Dataset Pathname: proc3/pass1.4
Dataset Creation: Fri Sep 16 19:36:05 2011

ThruBit Induction Calibration Report

Serial-Model: 28-PS
Shop Calibration Performed: Sat Sep 03 11:16:18 2011

BaseLine

R X

Freq 1

A1	-469.2690	242.8270
A2	-139.1180	356.2730
A3	-24.2833	103.6150
A4	-14.2774	241.3390
A5	-13.0893	121.8110

Freq 2

A1	-244.3640	128.1320
A2	-90.6536	203.7130
A3	-18.7401	16.1688
A4	-17.5485	71.9563
A5	-17.7948	-14.4559

Freq 3

A1	-156.0320	21.3573
A2	-70.1178	107.3870
A3	-15.0995	-45.1136
A4	-18.7864	-40.4596
A5	-19.3813	-114.2380

Freq 4

A1	-84.6690	-146.4640
A2	-50.7592	-18.2619
A3	-13.1682	-136.4420
A4	-22.5289	-207.0720
A5	-25.4386	-280.4840

Calibration Coefficients

R X

Freq 1

A1	0.9879	0.0034
A2	0.9904	0.0043
A3	0.9959	0.0032

A3	0.9950	-0.0032
A4	0.9867	0.0060
A5	0.9878	0.0045
Freq 2		
A1	0.9823	-0.0051
A2	0.9842	-0.0040
A3	0.9830	-0.0040
A4	0.9823	-0.0023
A5	0.9841	-0.0038
Freq 3		
A1	0.9980	-0.0098
A2	1.0002	-0.0087
A3	0.9986	-0.0089
A4	0.9975	-0.0071
A5	1.0003	-0.0087
Freq 4		
A1	0.9920	-0.0022
A2	0.9936	-0.0016
A3	0.9939	-0.0036
A4	0.9935	-0.0004
A5	1.0025	-0.0037
Temperature	34.7054	

ThruBit Density Calibration Report		
Serial-Model:	43-PS	
Shop Calibration Performed:	Sun Sep 11 20:39:05 2011	

References		
	Density	Units
Aluminium	2.602	g/cc
Magnesium	1.715	g/cc
Readings		
	Counts	Units
SS1 Background	141.44	cps
LS1 Background	146.61	cps
LS4 Background	30.83	cps
SS1 Aluminium	4203.29	cps
LS1 Aluminium	857.60	cps
LS4 Aluminium	953.05	cps
SS1 Magnesium	6865.62	cps
LS1 Magnesium	5300.34	cps
LS1 Al + Fe	732.72	cps
LS4 Al + Fe	420.95	cps
Results		
SS Slope	1.76	
LS Slope	0.45	
PEF K Factor	3.360	
PEF B Factor	-0.106	

Compensated Neutron Calibration Report					
Serial Number:		23			
Tool Model:		PS			
Source Number:					
Calibration Tank Temperature:		0.0 degF			
BACKGROUND MEASUREMENT					
SS Counts		LS Counts			
0.0		0.0			
WATER TANK REFERENCE		Sun Sep 11 19:08:54 2011			
SS Counts		LS Counts			
0.0	cps	0.0	cps		
Tank Ratio Ref		Tank Ratio		Tank Ratio Gain	
30.9580	SS/LS	30.1831	SS/LS	1.0257	
ALUMINUM SLEEVE REFERENCE					
SS Counts		LS Counts			
0.0	cps	0.0	cps		
Al Ratio Ref		Al Ratio		Al Ratio Gain	
0.000	SS/LS	0.000	SS/LS	1.01	
Sleeve Porosity					
0.00	pu				
Gamma Ray Calibration Report					
Serial Number:		27			
Tool Model:		PS			
Performed:		Sun Sep 11 19:18:56 2011			
Calibrator Value:		166.3	GAPI		
Background Reading:		76.5	cps		
Calibrator Reading:		438.4	cps		
Sensitivity:		0.3750	GAPI/cps		
Inclinometer Calibration Report					
Performed:		Sun Jun 13 14:33:21 1993			
		Low Read.	High Read.	Low Ref.	High Ref.
X Accelerometer	0.00	1.00		0.00	1.00 gee
Y Accelerometer	0.00	1.00		0.00	1.00 gee
Z Accelerometer					

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
Thrubit	66.19		WPhead Weak Point Cable Head	1.58	2.13	5.15
Thrubit	64.61		10-1 Thrubit 10 to 1 Crossover	0.88	2.13	3.95
Thrubit	63.73		Small_Release Thrubit Small Release Tool	4.54	2.13	42.00
Thrubit	59.19		HangOff_Tool Thrubit Hang Off Tool	5.00	2.25	35.00
Thrubit	54.19		10-1 Thrubit 10 to 1 Crossover	0.88	2.13	3.95
TBBAT	53.31		TBBAT-A (1) Thrubit Battery	12.17	2.13	38.20
TMG	41.15		TMG-PS (27) ThruBit Telemetry Gamma Ray	6.13	2.13	45.00
Thrubit	35.02		Decentralizer Thrubit Small Decentralizer	4.50	2.13	60.00
ACCX	35.02		TBN-PS (23) ThruBit Neutron	4.76	2.13	63.00
ACCY	35.02		TBD-PS (43) Thrubit Density	10.47	2.13	94.00
ACCZ	35.02		TBI-PS (28) Thrubit Induction	15.29	2.13	94.00
GRHEADV	35.02					
DHTEN	35.02					

Total Weight: 484.25 lb
O.D. 2.25 in



MAIN PASS

Database File: york_mem.db
Dataset Pathname: proc3/pass1.4
Presentation Format: 8_1r_chk
Dataset Creation: Fri Sep 16 19:36:05 2011
Charted by: Depth in Feet scaled 1:1200

0	GR (GAPI)	150
4	DCAL (in)	14
-5	ACCY	5

GRTEMP
(degF)

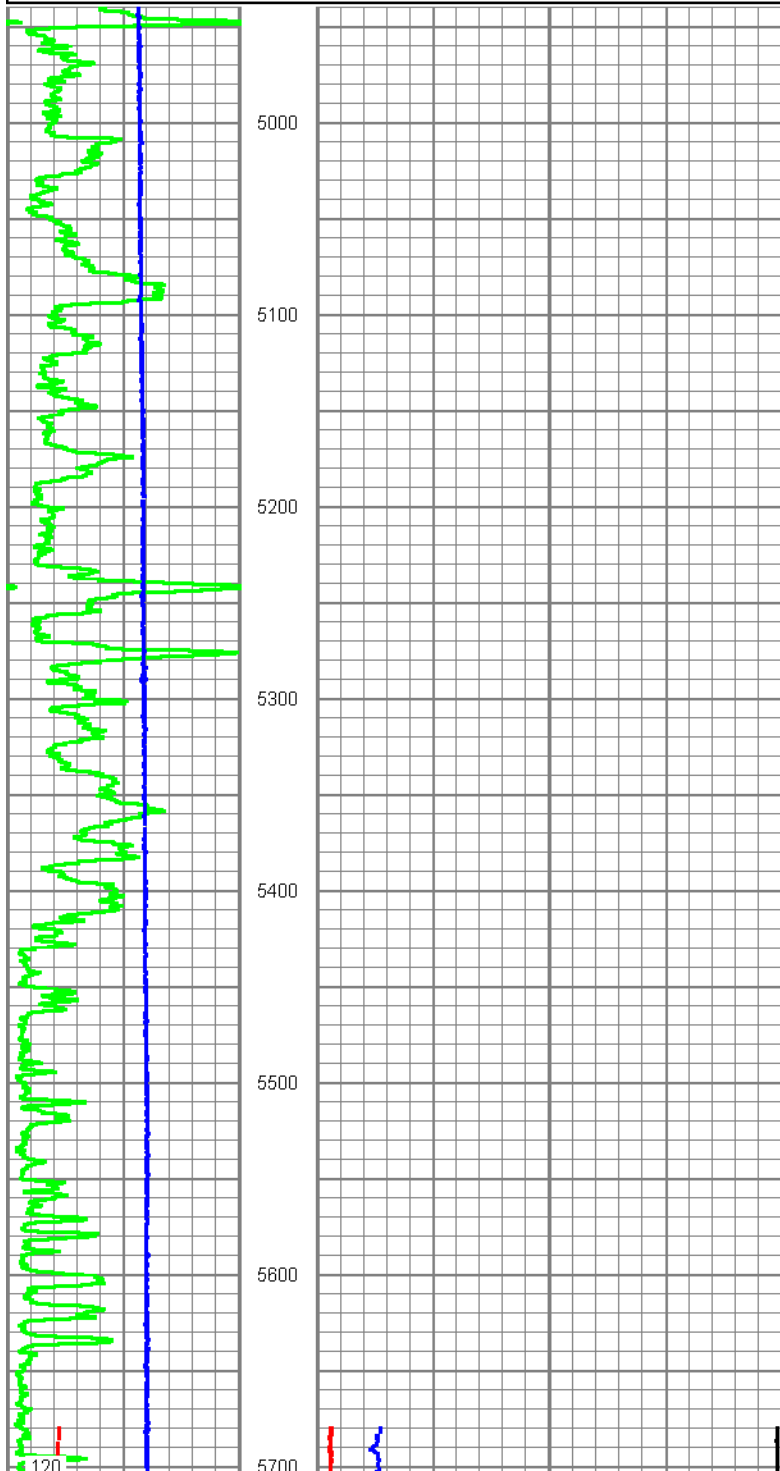
20in 2ft Res
50 (Ohm-m) 500

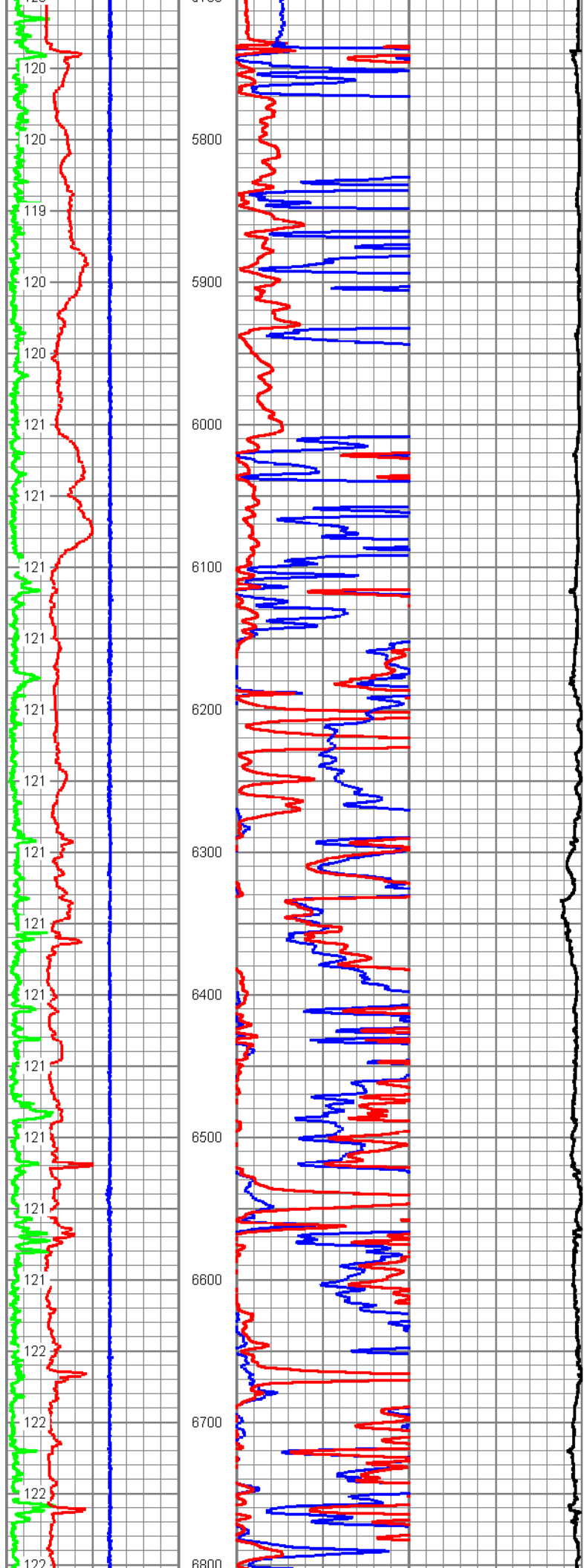
90in 2ft Res
50 (Ohm-m) 500

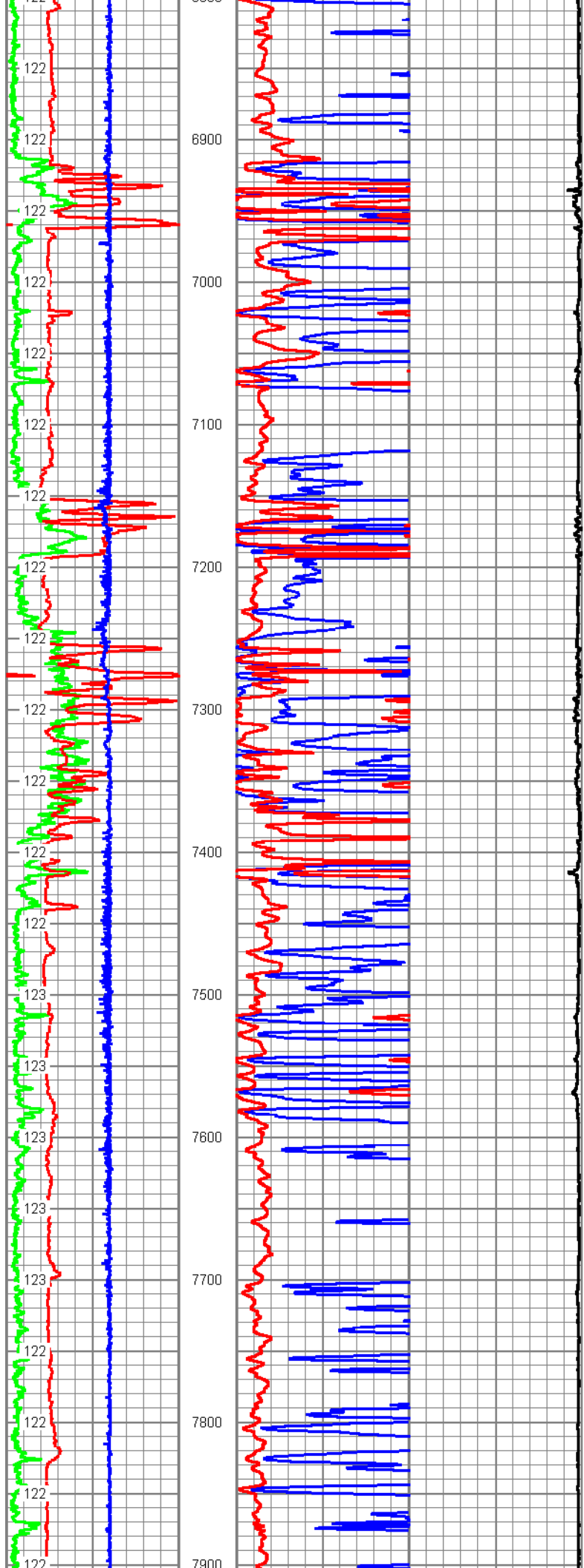
1000 DEEP COND (Ohm-m) 0

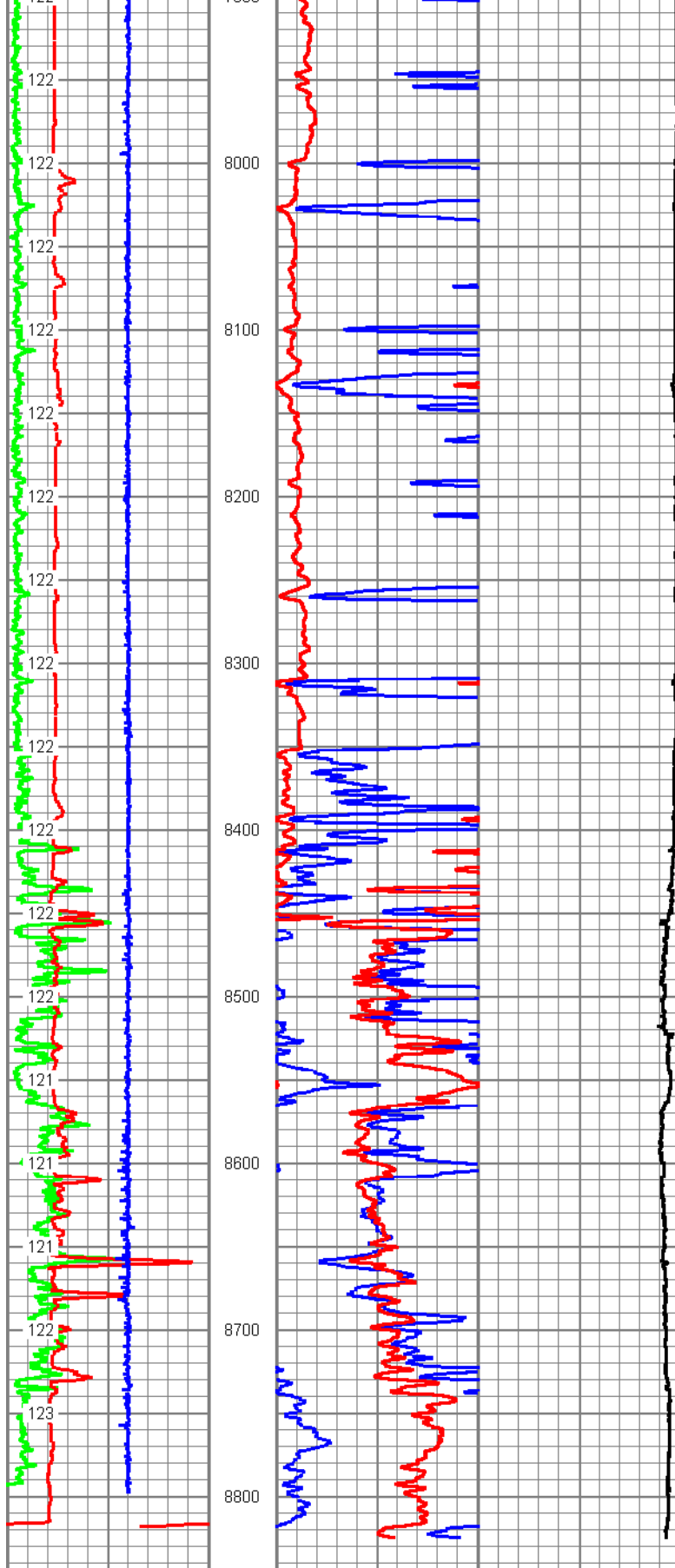
20in 2ft Res
0 (Ohm-m) 50

90in 2ft Res
0 (Ohm-m) 50









0	GR (GAPI)	150
4	DCAL (in)	14
-5	ACCY	5

GRTEMP
(degF)

20in 2ft Res	
50	(Ohm-m)
500	
90in 2ft Res	
50	(Ohm-m)
500	
1000	DEEP COND (Ohm-m)
0	

20in 2ft Res	
0	(Ohm-m)
50	
90in 2ft Res	
0	(Ohm-m)
50	



Company	CHESAPEAKE OPERATING, INC.
Well	YORK 31-31-17 1H
Field	MCKINNEY PROJECT/MISS LIME
County	COMANCHE
State	KANSAS