



**ARRAY INDUCTION
GAMMA RAY
MEMORY LOG**

Company SANDRIDGE ENERGY, INC. Well BRAD 1-12H Field BOUSE County HARPER State KANSAS	Company SANDRIDGE ENERGY, INC. Well BRAD 1-12H Field BOUSE County HARPER State KANSAS
Location: API #: 1507721795000 200' FSL & 1980' FWL OF SEC 12 TWP 35S RGE 8W	
Permanent Datum G.L. Log Measured From K.B. @15' ABOVE PERM DATUM Drilling Measured From K.B.	Elevation 1287' Other Services THURBIT PORTAL BIT Elevation K.B. 1302' D.F. 1302' G.L. 1287'

Date	13-FEB-2012
Run Number	ONE
Depth Driller	11754'
Depth Logger	11711'
Bottom Logged Interval	11700'
Top Log Interval	3000'
Casing Driller	5178'
Casing Logger	5171'
Bit Size	6.125"
Type Fluid in Hole	WBM
Density / Viscosity	8.2 / 27
pH / Fluid Loss	10 / 8
Source of Sample	MUD PIT
Rm @ Meas. Temp	2.2 OHM @ 109 DEGF
Rmf @ Meas. Temp	1.65 OHM @ 109 DEGF
Rmc @ Meas. Temp	2.75 OHM @ 109 DEGF
Source of Rmf / Rmc	CALCULATED
Rm @ BHT	1.8 OHM @ 140 DEGF
Time Circulation Stopped	05:00 12-FEB-2012
Time Logger on Bottom	05:45 12-FEB-2012
Maximum Recorded Temperature	140 DEGF
Equipment Number	T006
Location	TYLER
Recorded By	ROBERT KENNEDY
Witnessed By	T. ALCORN

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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

HORIZONTAL MEMORY PUMPDOWN BIT DEPTH 11662', LOGGED TO 3000 '
 ALL SCALES AND PRESENTATIONS PER CLIENT REQUEST
 LIMESTONE MATRIX, 2.71 g/cc USED FOR POROSITY MEASUREMENTS
 TOOLSTRING RAN WITH DECENTRALIZER AND SWIVEL
 TBHV REPRESENTS TOTAL BOREHOLE VOLUME, ft³
 ABHV REPRESENTS ANNULAR HOLE VOLUME, CALCULATED FOR 4.5 CSG ft³
 DEPTH REFERENCED TO BAKER HUGHS MWD LOG DATED 11-FEB-2012 AND THURBIT DOWNLOG
 10 INCH INDUCTION CURVE REMOVED FROM LOG

RIG: UNIT 310
 CREW: R., KENNEDY, R. WILSON, B. CROSS

Service Ticket No.	API No. 15-077-21790-01-00	PGM Ver
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The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client

EQUIPMENT DATA

GAMMA RAY	NEUTRON	DENSITY	INDUCTION
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Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	PS29T	Serial No.	PS28N	Serial No.	PS26D	Serial No.	PS25R
Model No.	TMG	Model No.	TBN	Model No.	TBD	Model No.	TBAI
Diameter	2.125"	Diameter	2.125"	Diameter	2.125"	Diameter	2.125"

LOGGING DATA

General Data

Pass	Depths		Well Head	Speed	Logging Run Comments		
No.	From	To	Pressure	Ft/Min			
MERGE1	11711'	3000'		30			

	GAMMA RAY		NEUTRON		DENSITY		INDUCTION	
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
ONE	0	150	30	-10	30	-10	0.2	2000

DIRECTIONAL INFORMATION

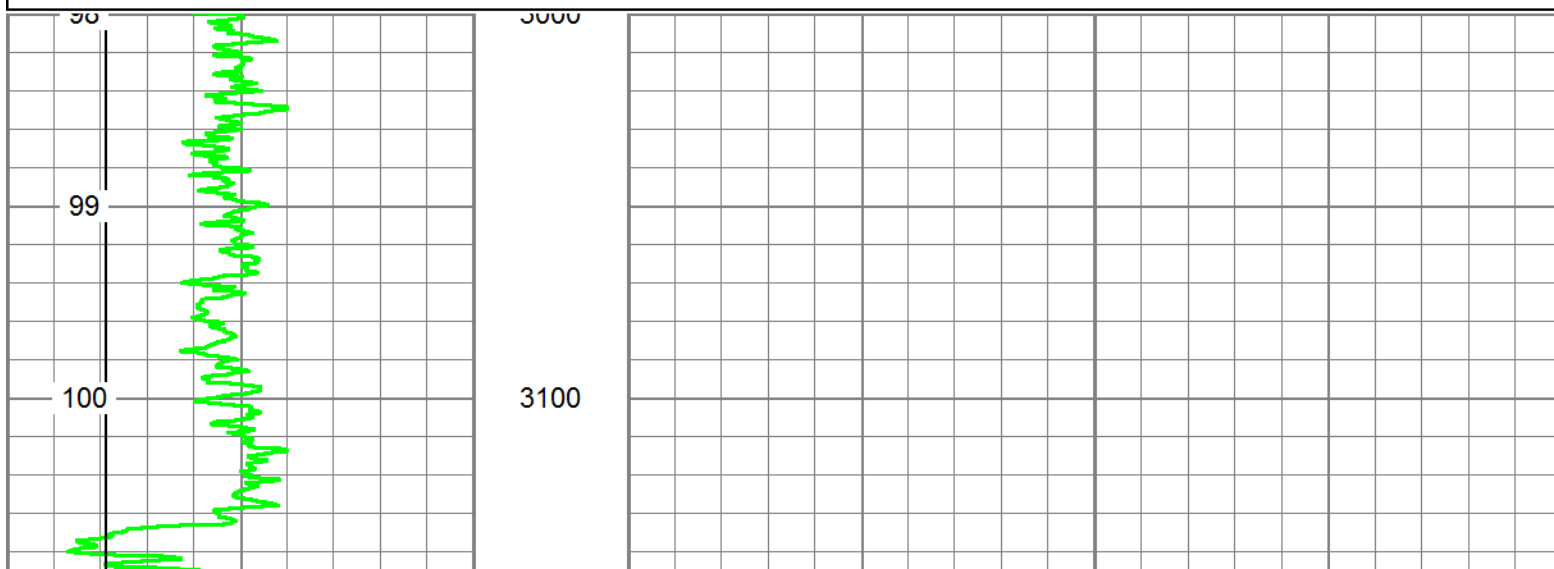
Maximum Deviation	90.8	deg. @	11754'	KOP	4003'	
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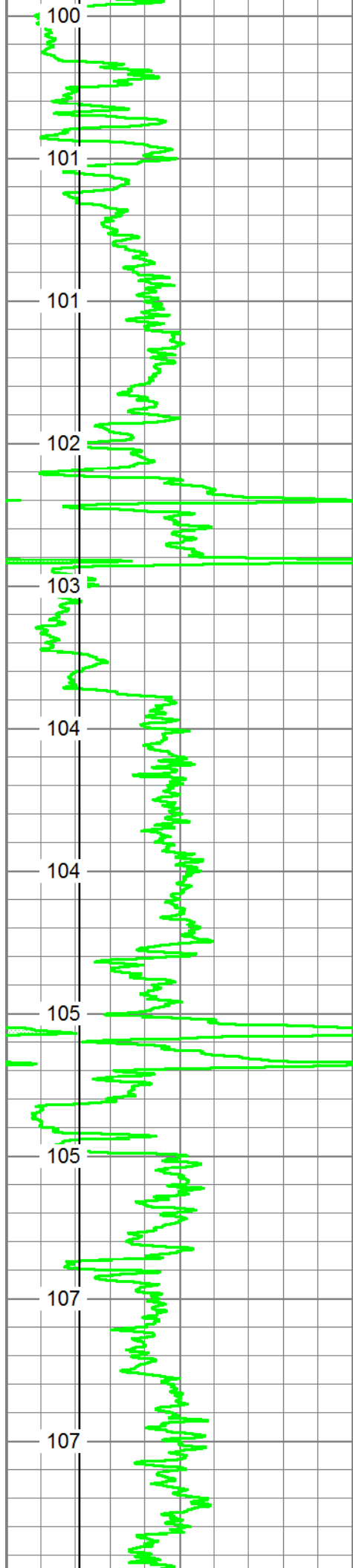


MAIN PASS

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 Dataset Pathname: proc3/MERGE1
 Presentation Format: sand2r
 Dataset Creation: Mon Feb 13 22:42:12 2012
 Charted by: Depth in Feet scaled 1:600

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4	DCAL (in)	14	50	90in 2ft Res (Ohm-m)	500	
-5	ACCY	5	1000	DEEP COND (mmho/m)		0
4	BOREID (in)	14	0	20in 2ft Res (Ohm-m)	50	
GRTEMP (degF)			0	90in 2ft Res (Ohm-m)	50	





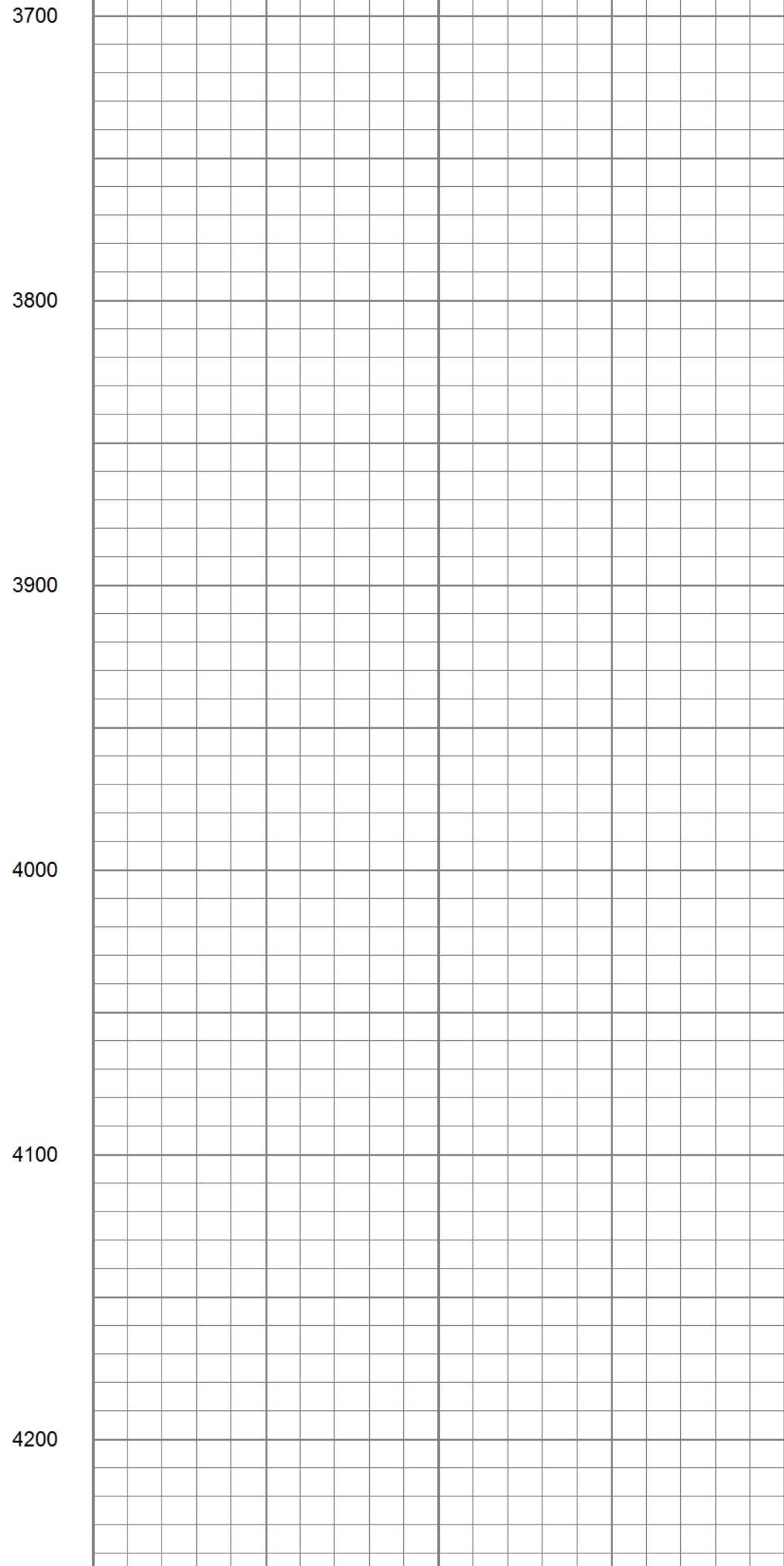
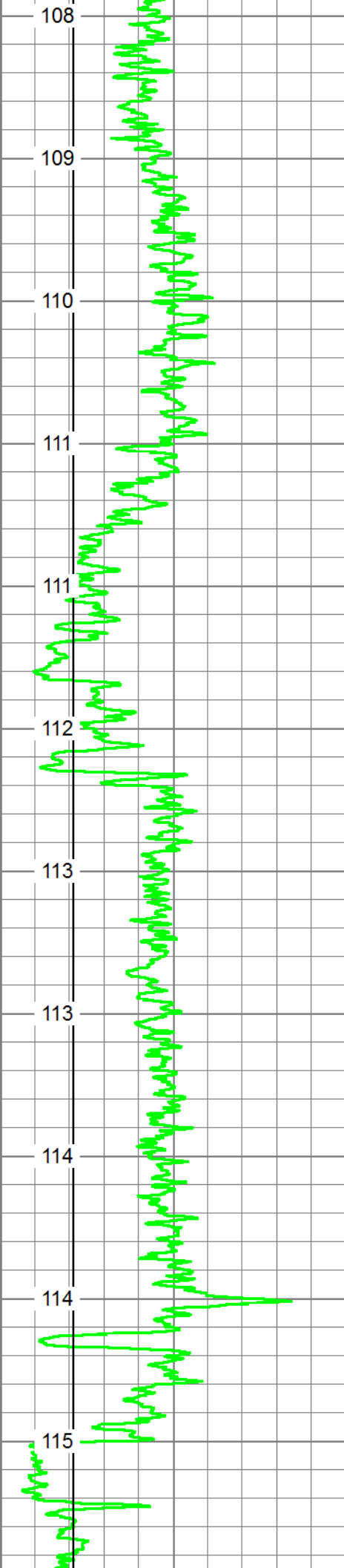
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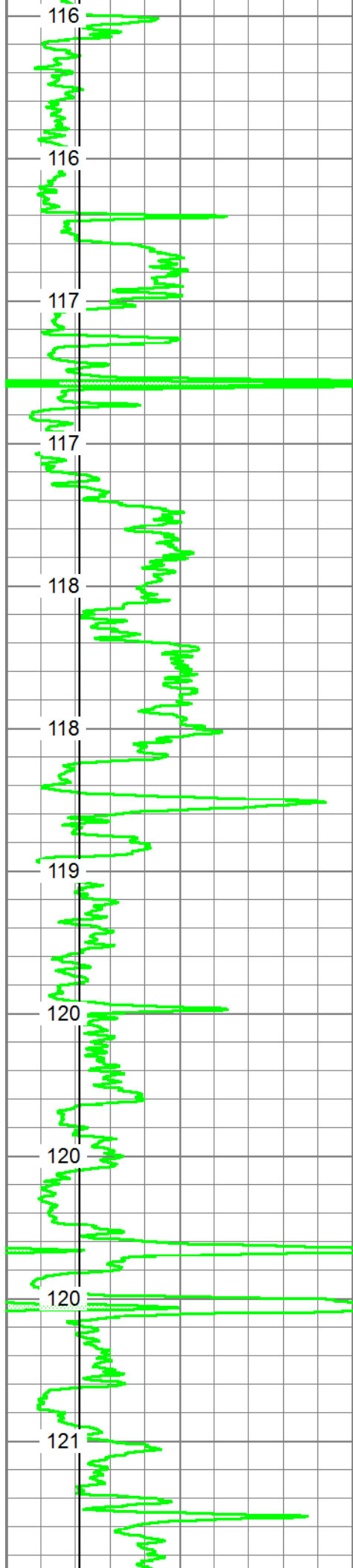
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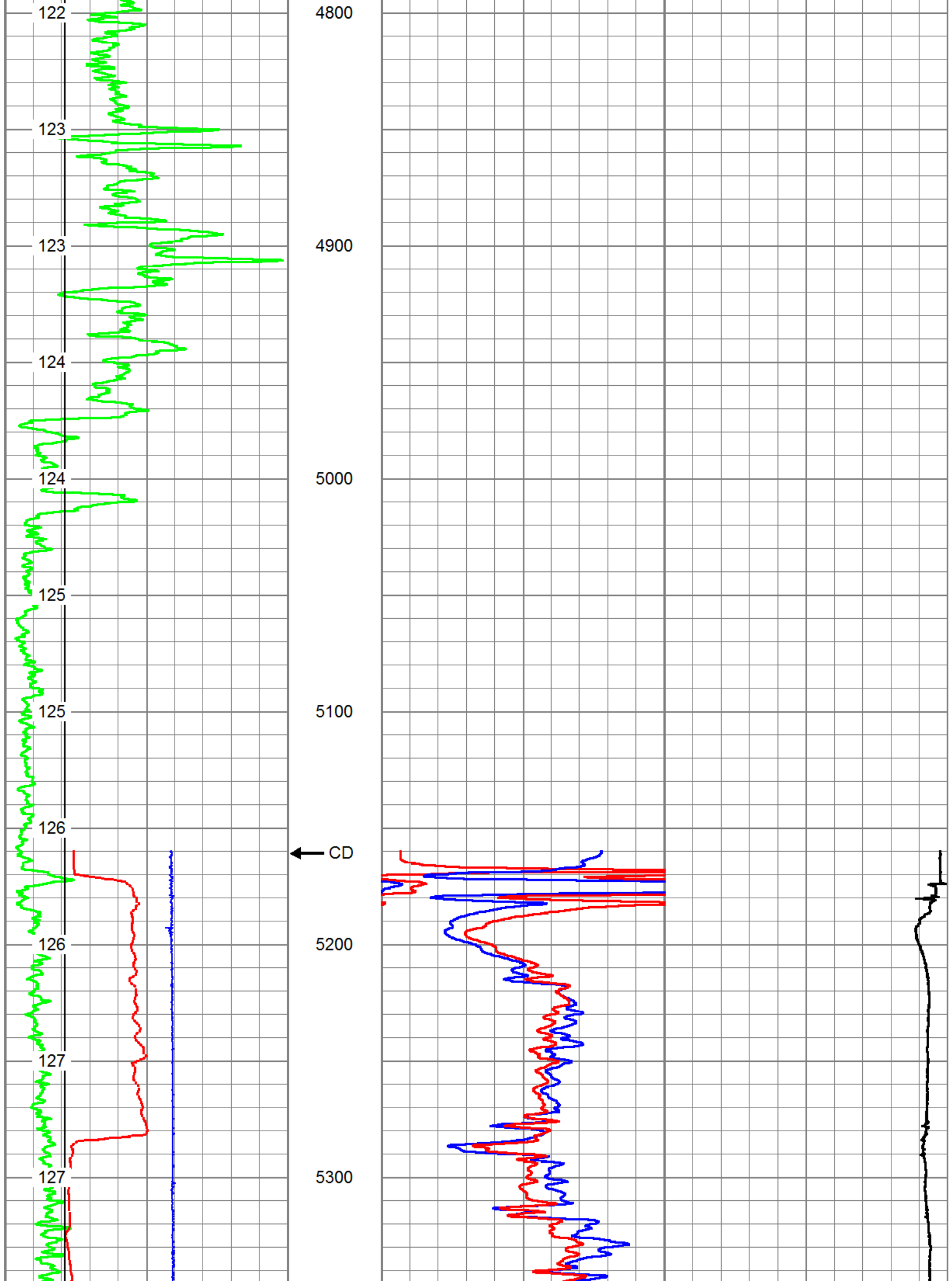
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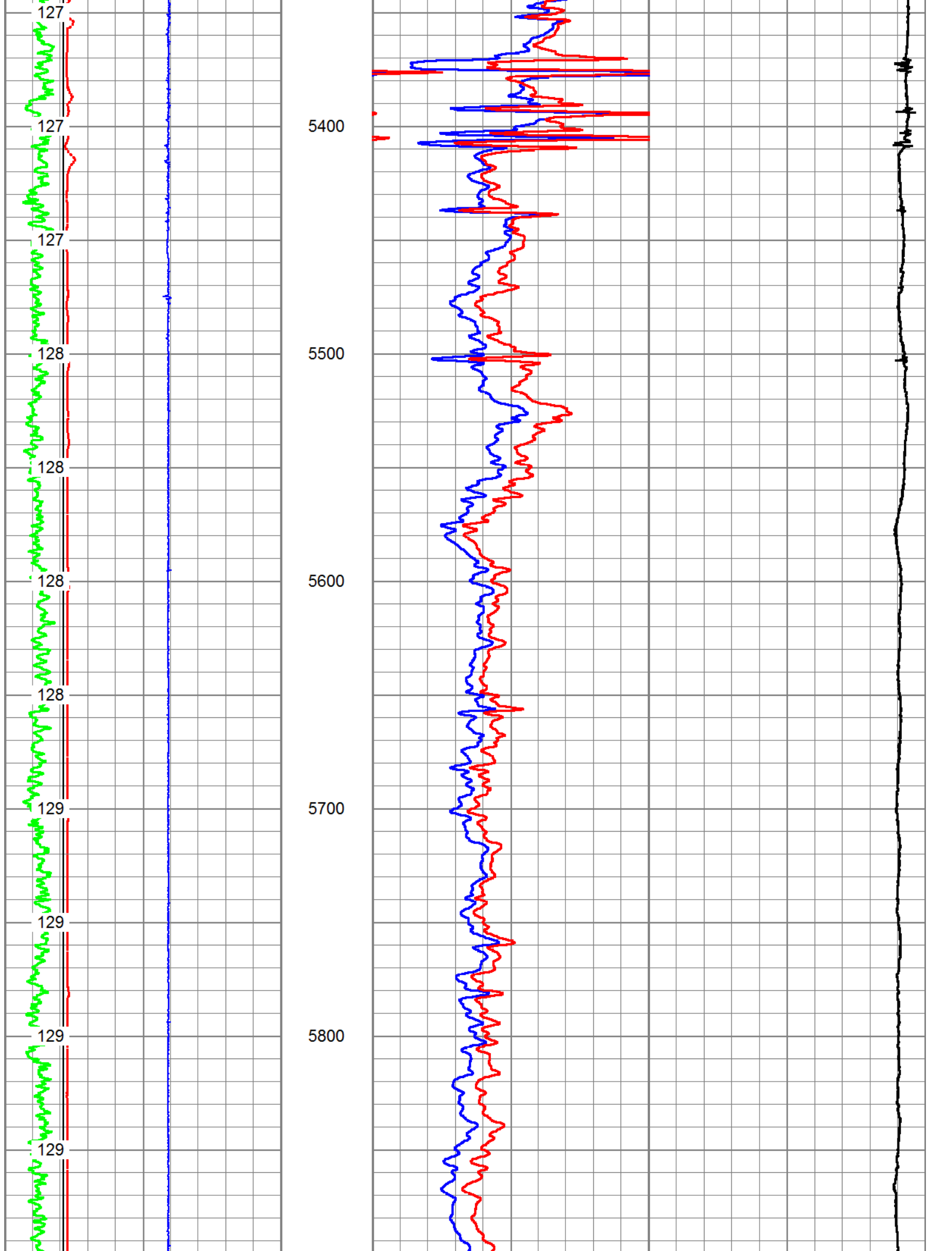
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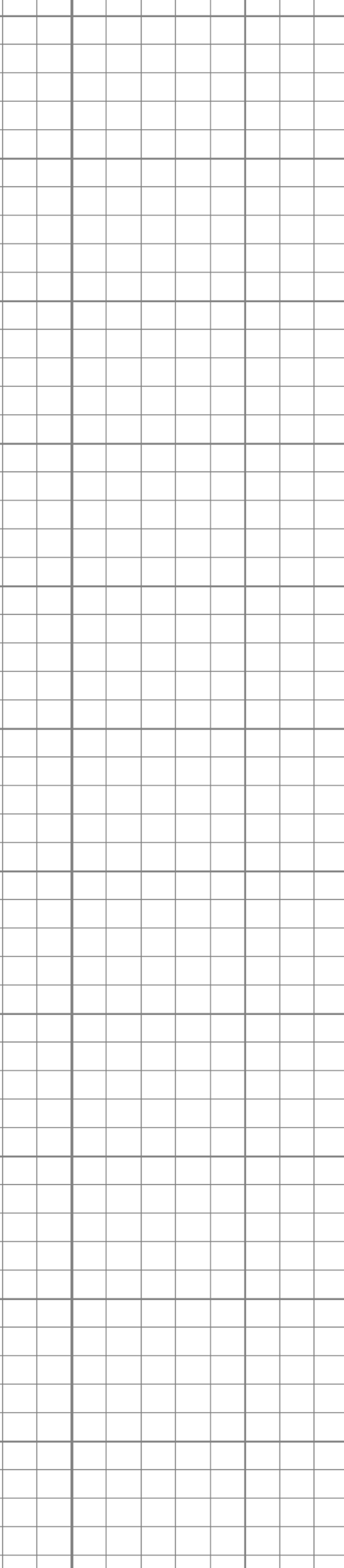
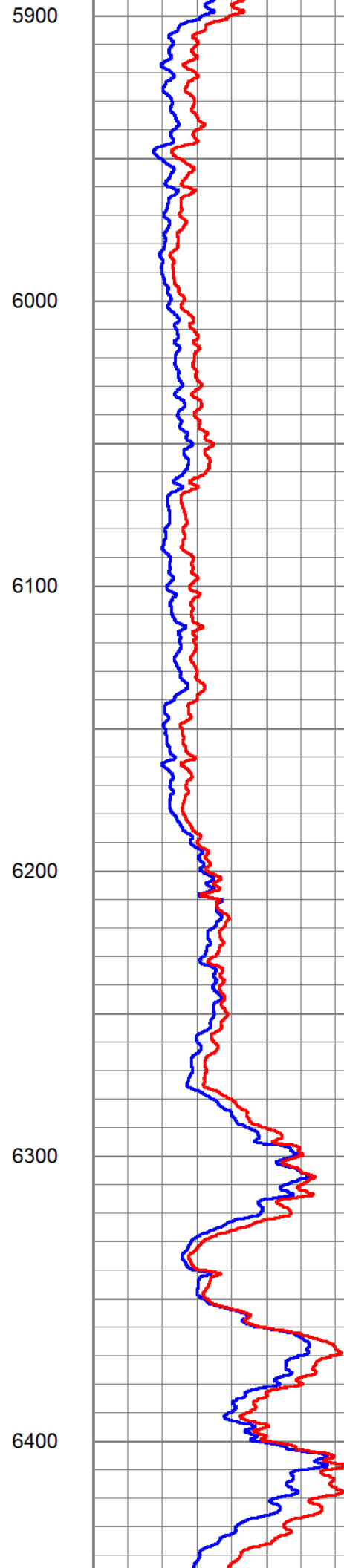
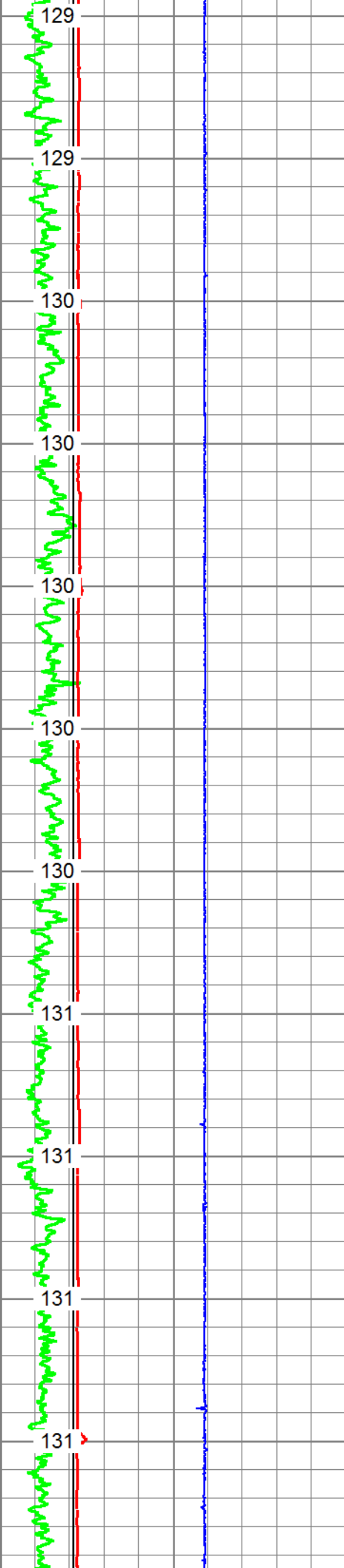
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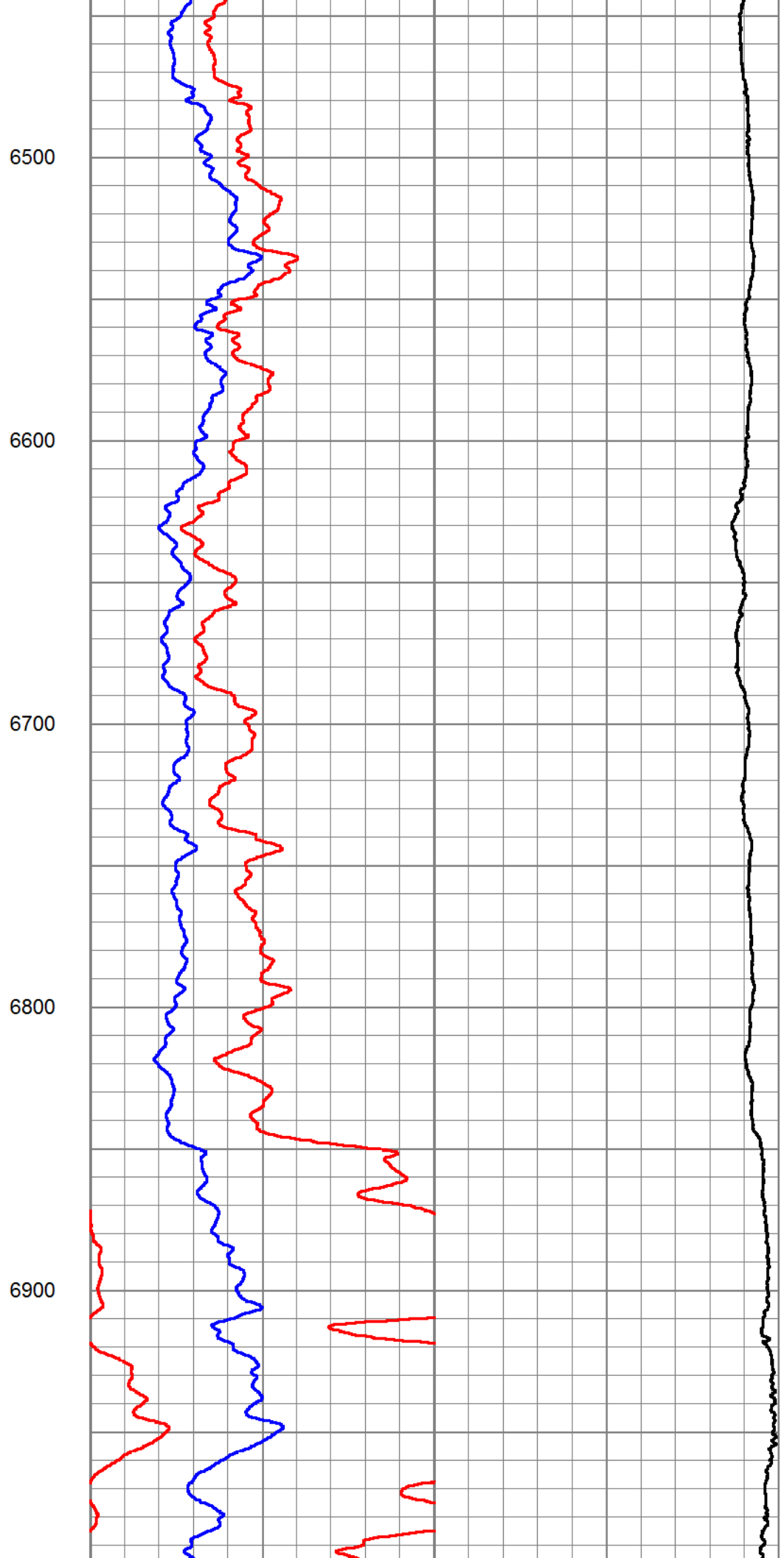
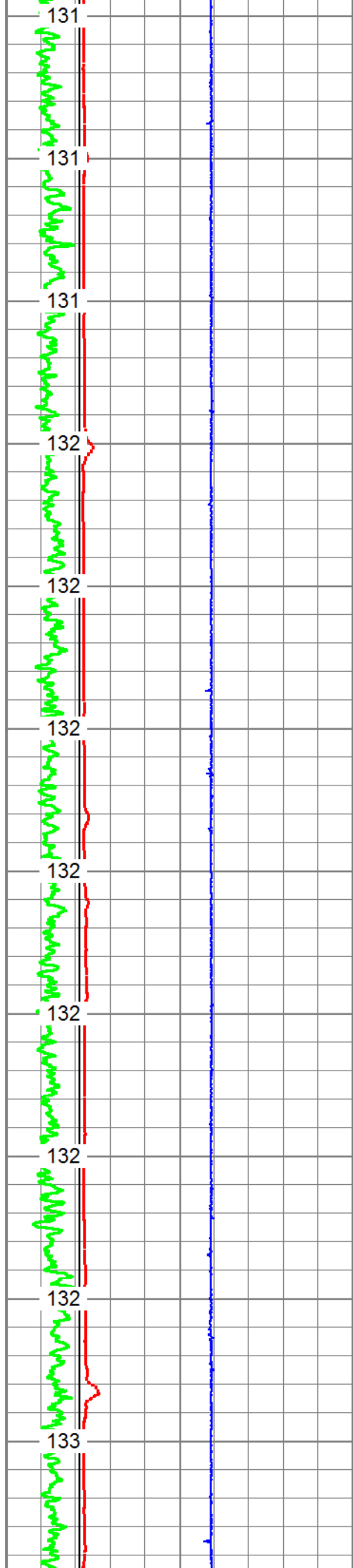
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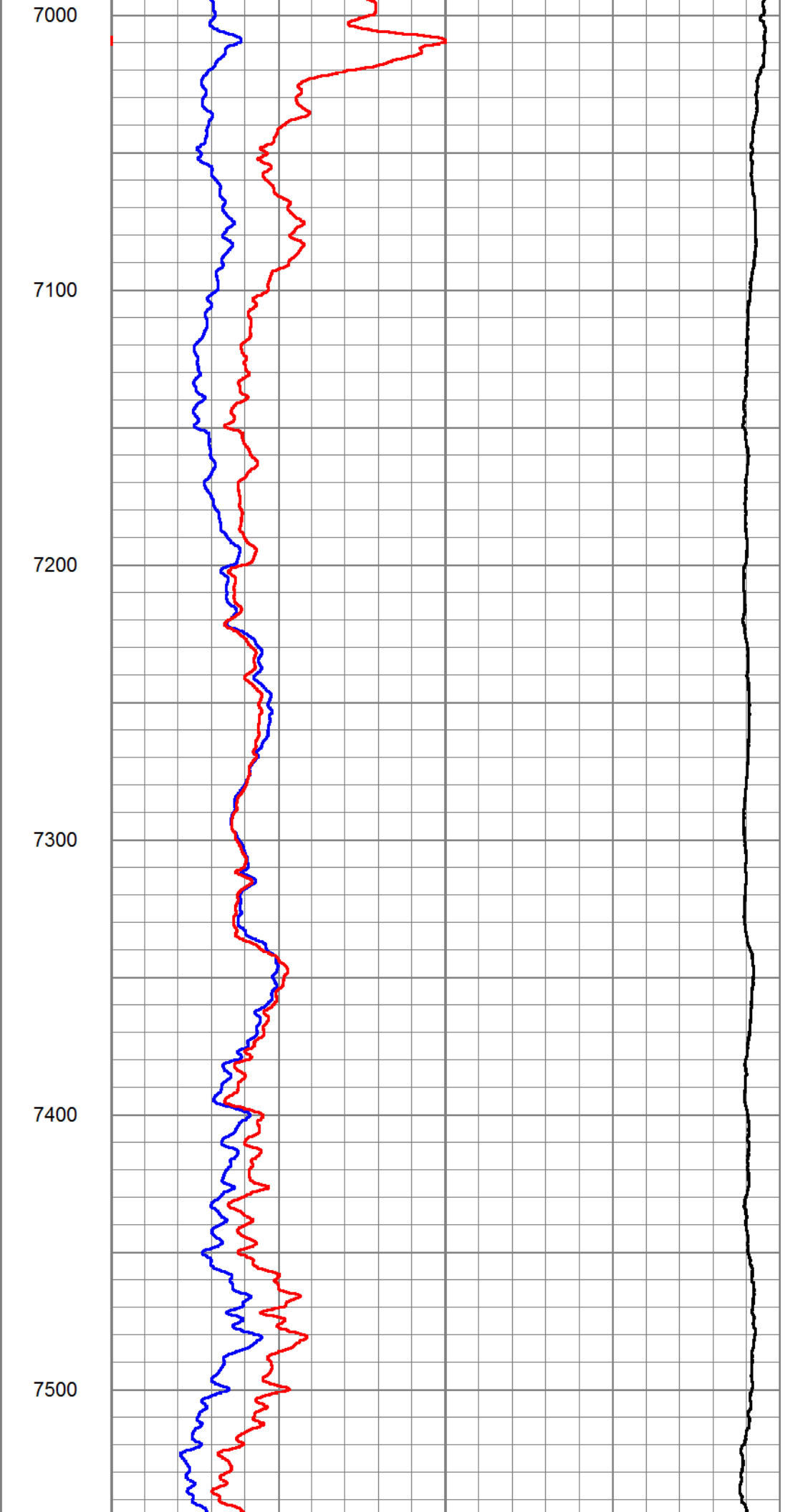
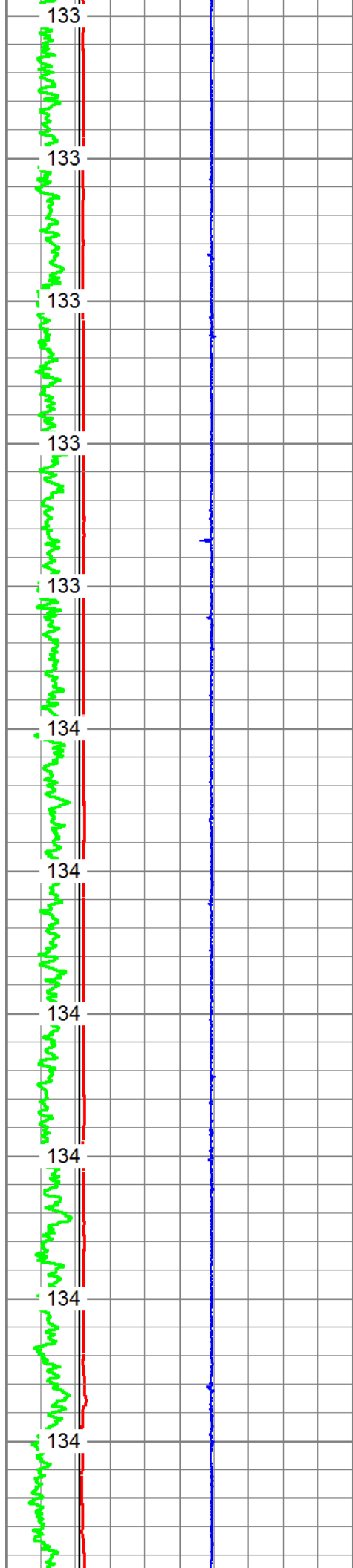
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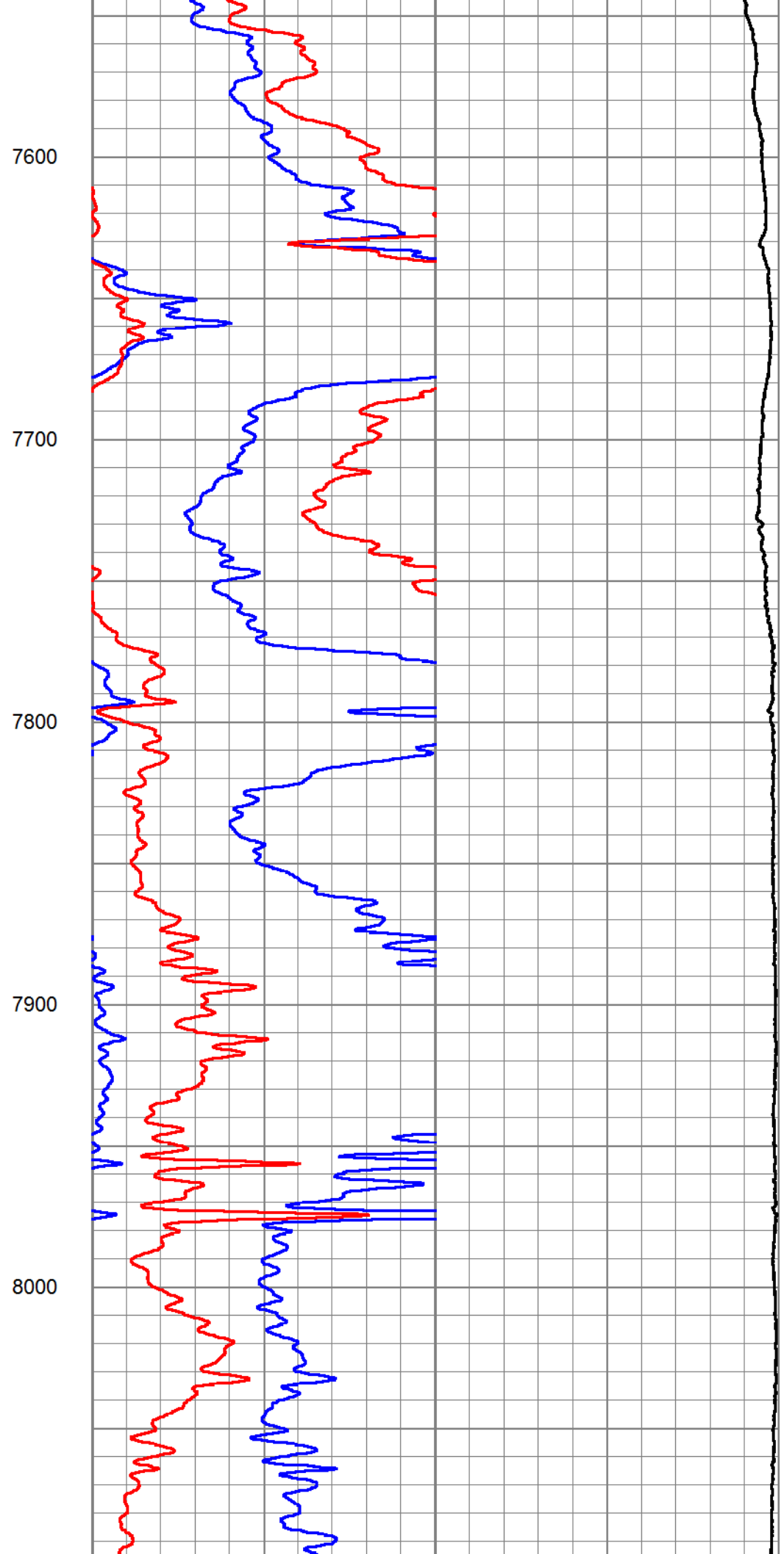
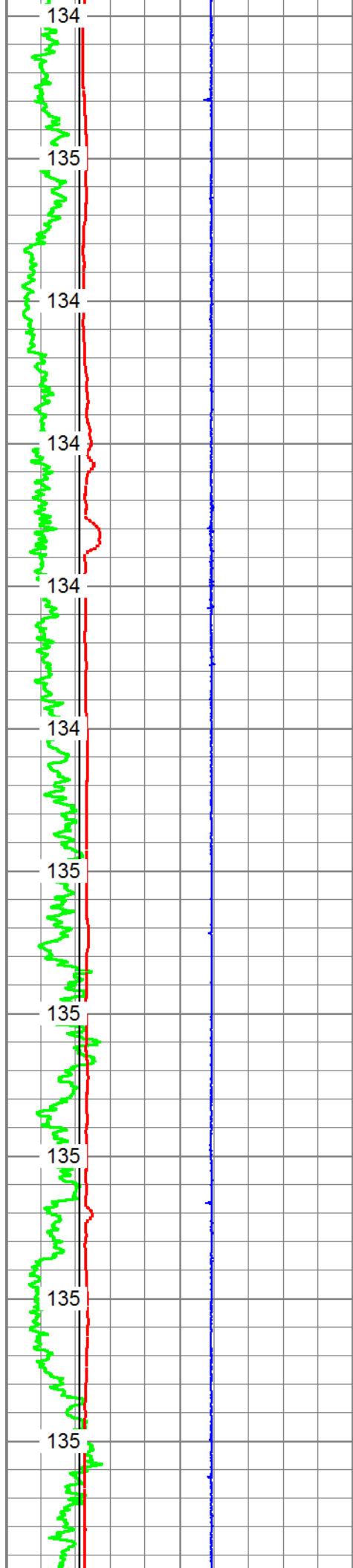


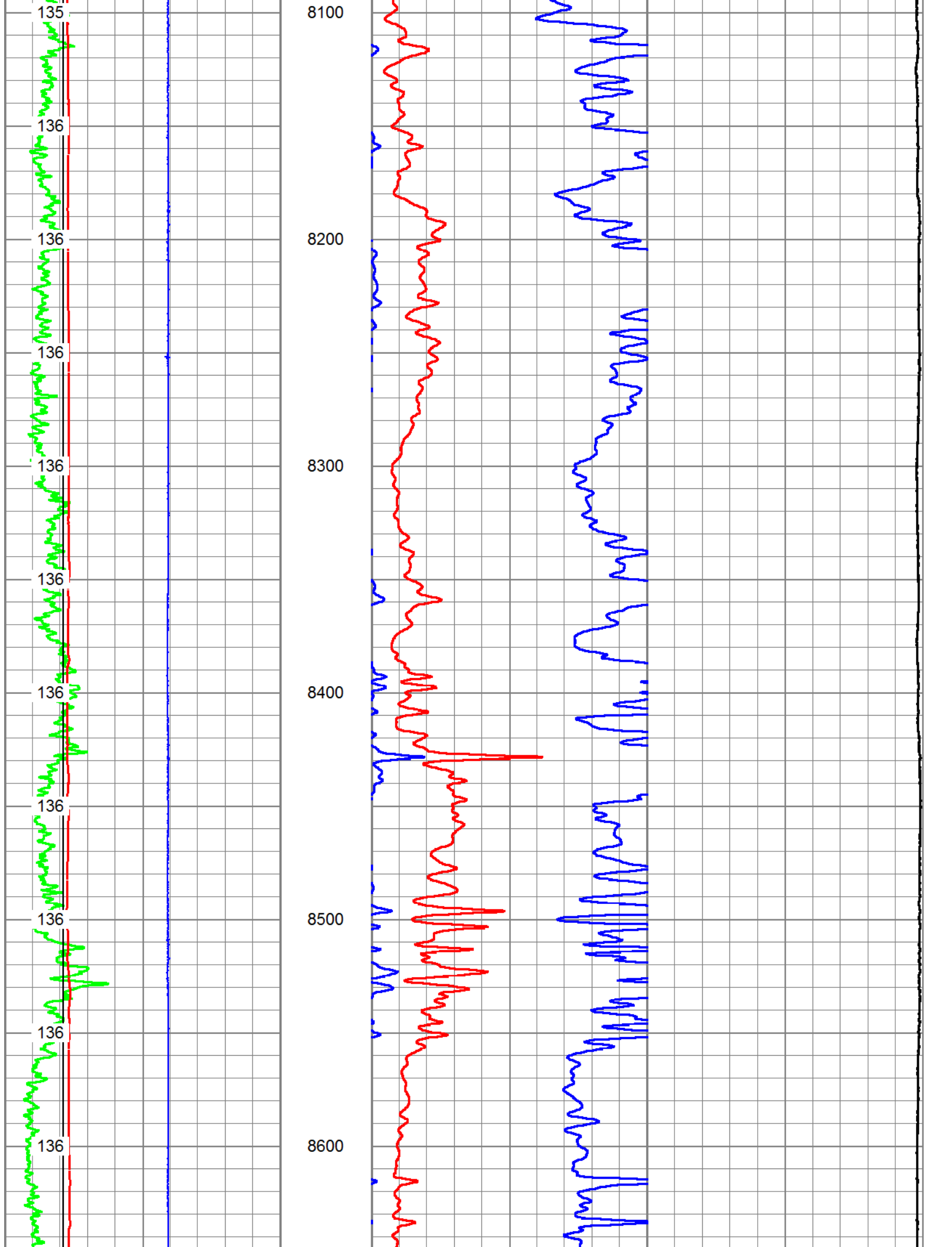


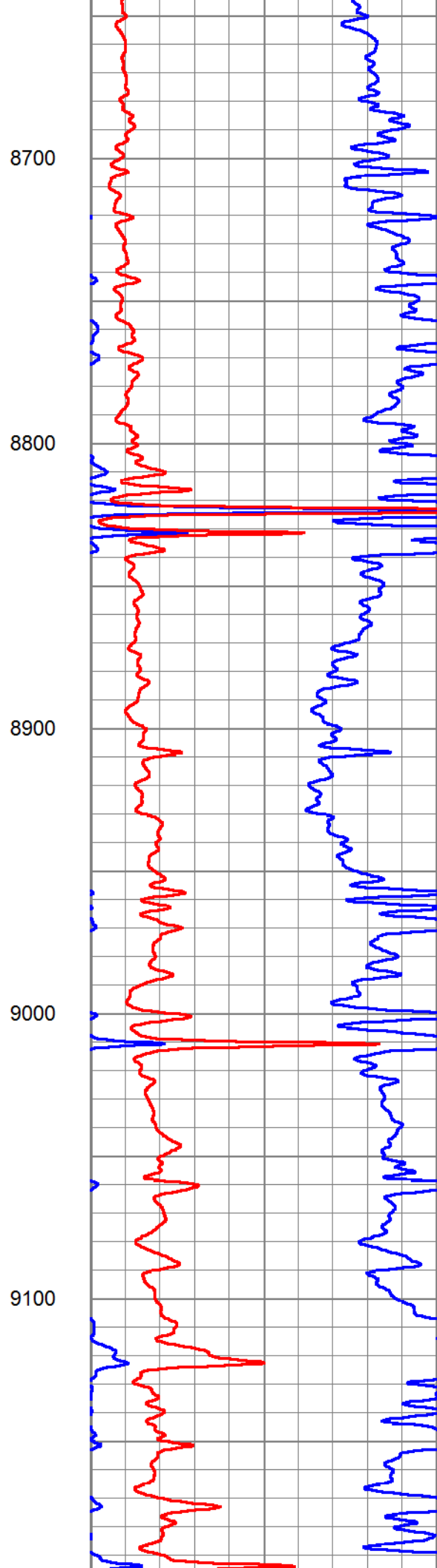
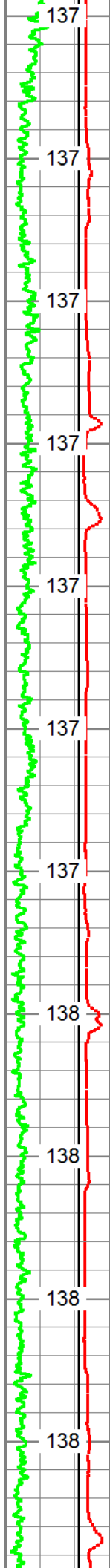


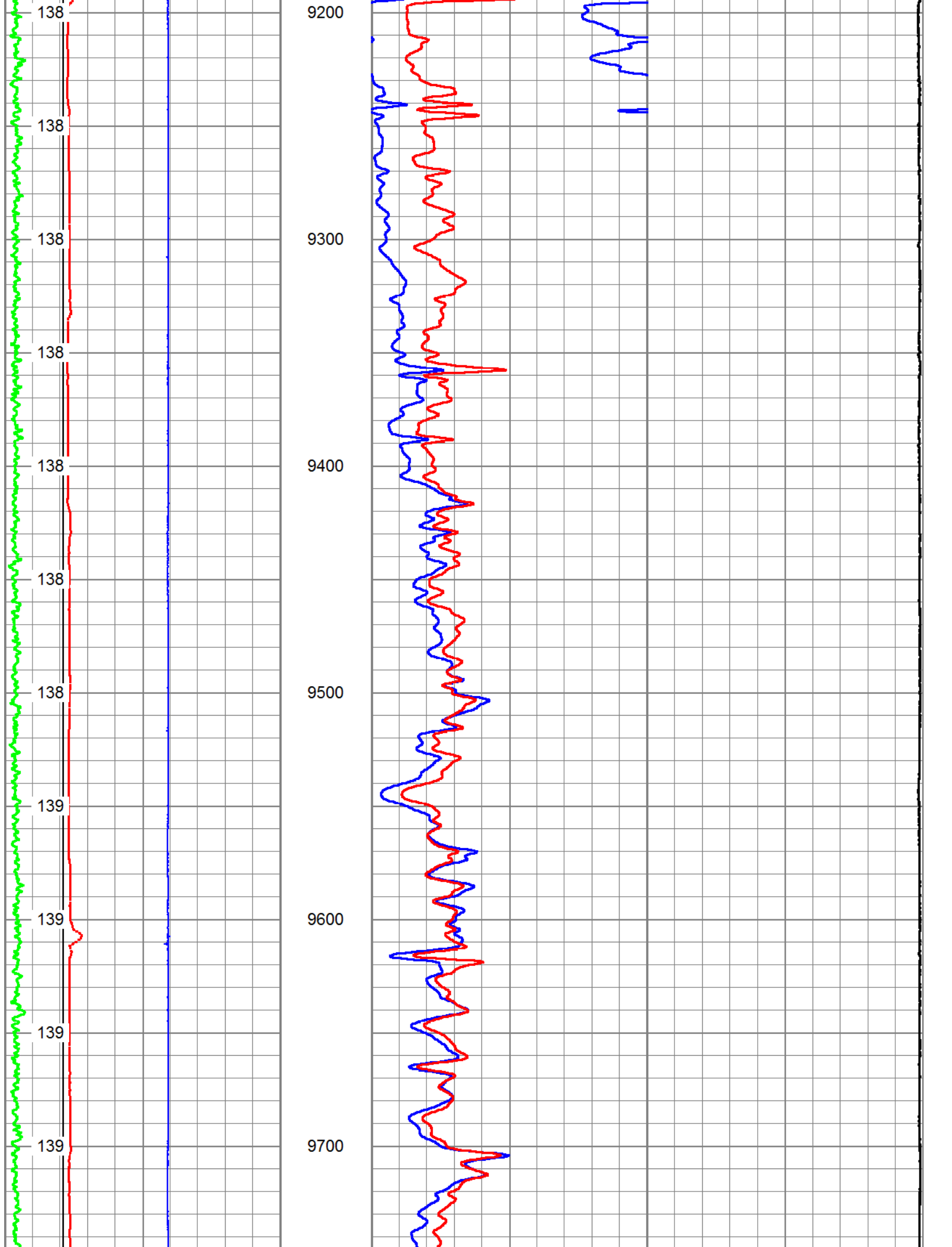


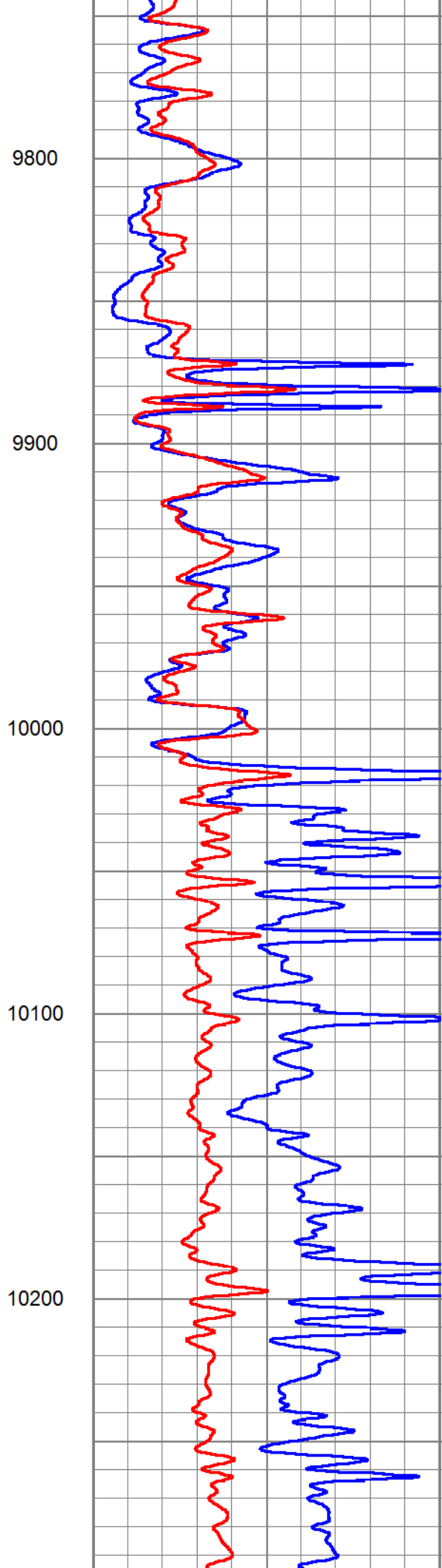
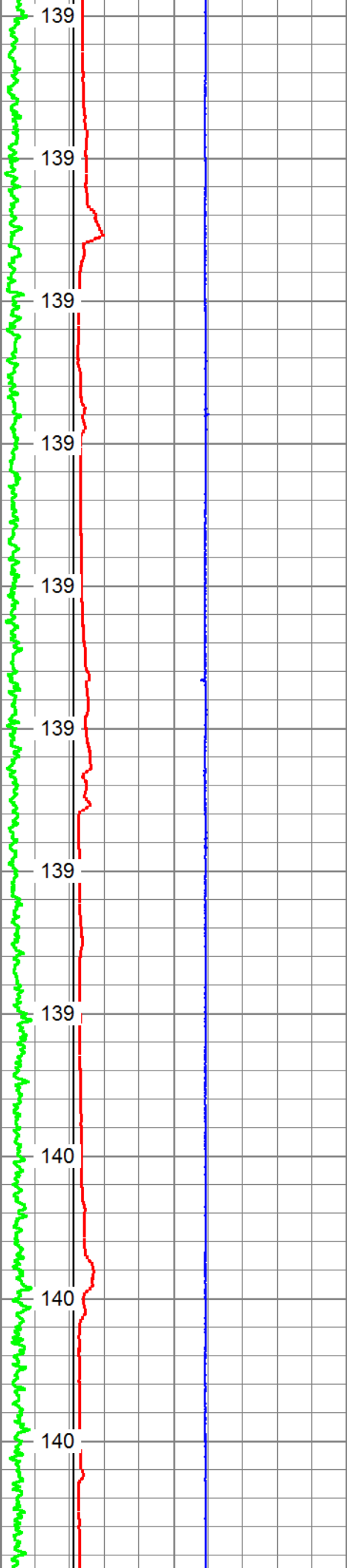


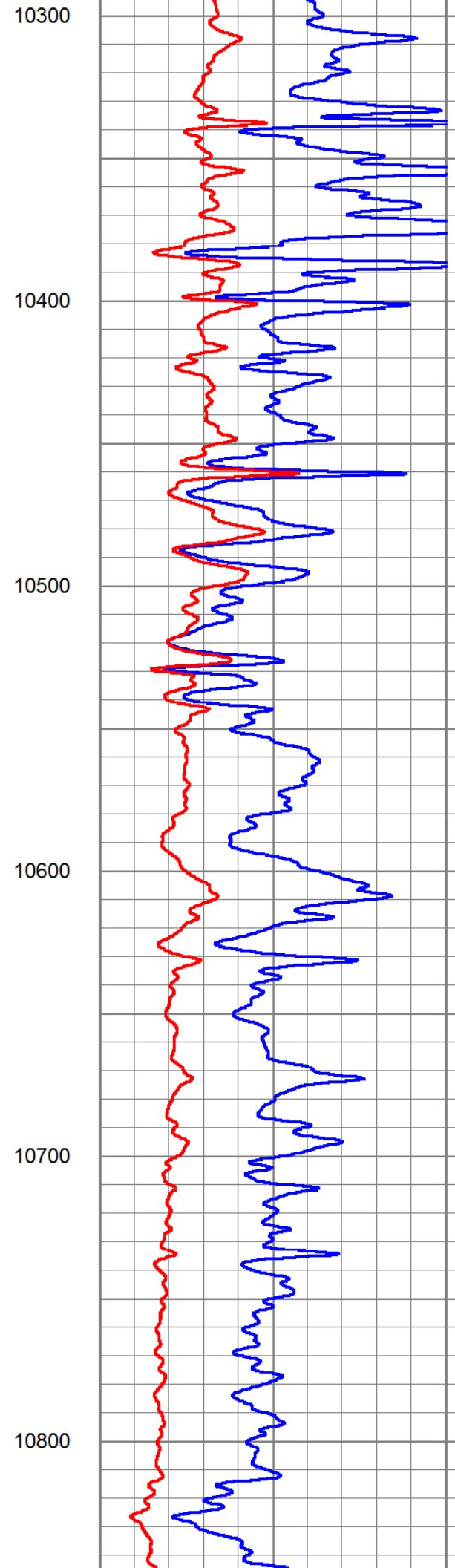
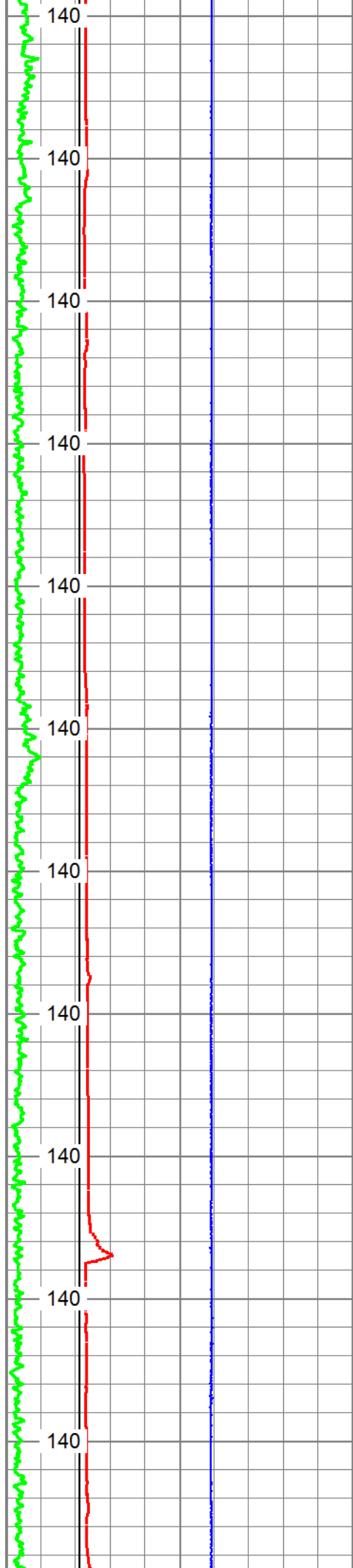


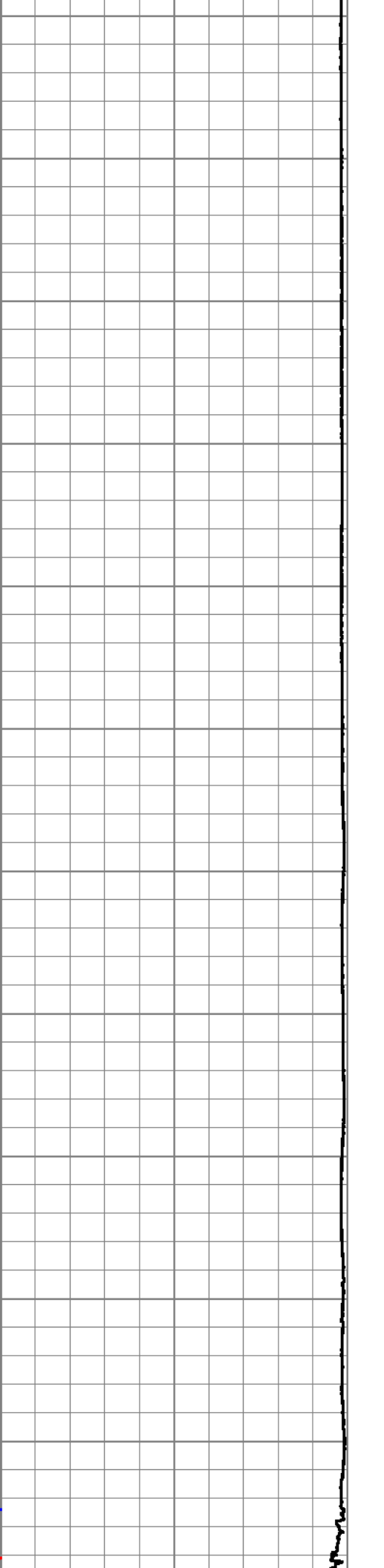
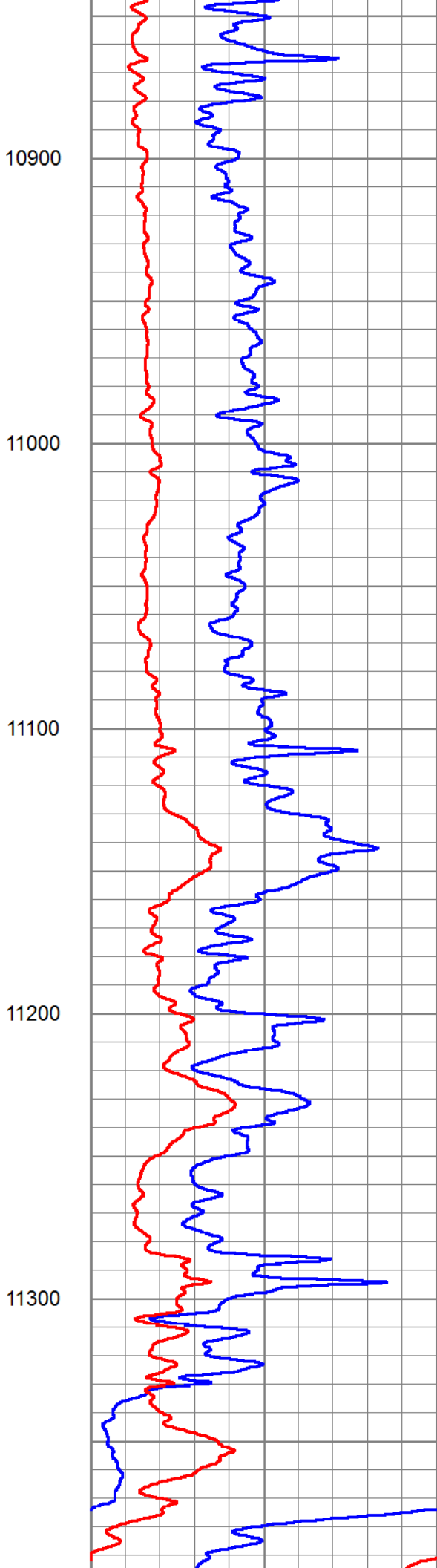
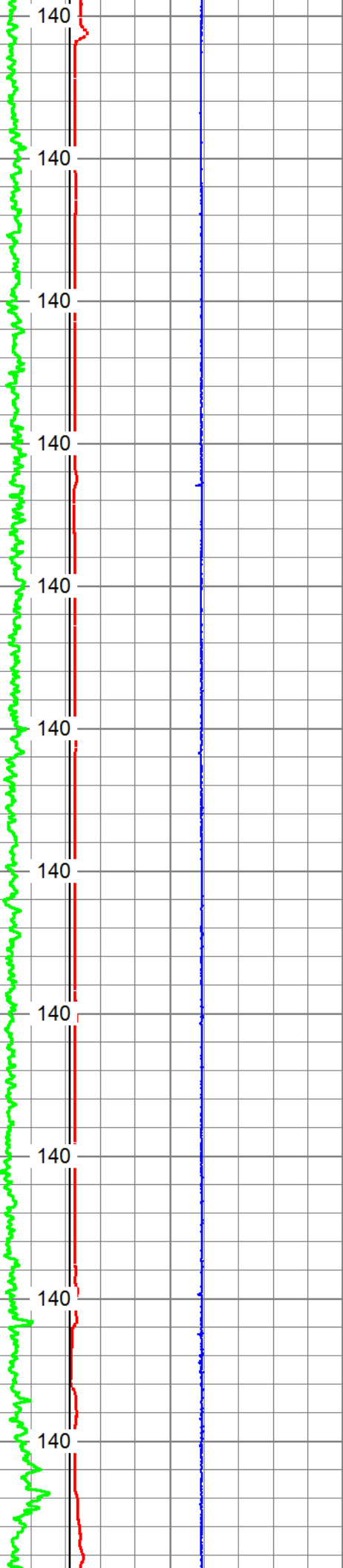


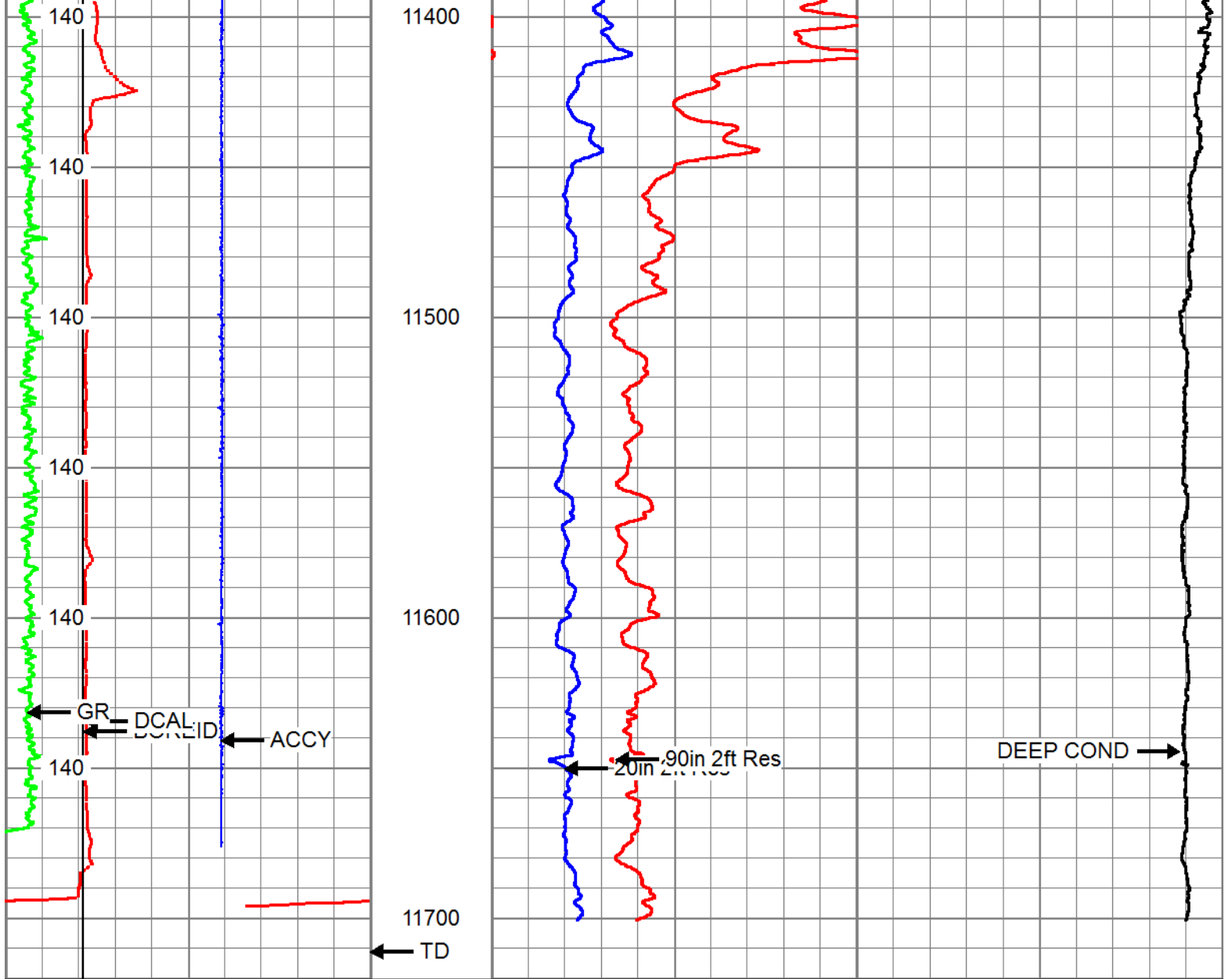












0	GR (GAPI)	150
4	DCAL (in)	14
-5	ACCY	5
4	BOREID (in)	14
GRTEMP		
(degF)		

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



MAIN PASS



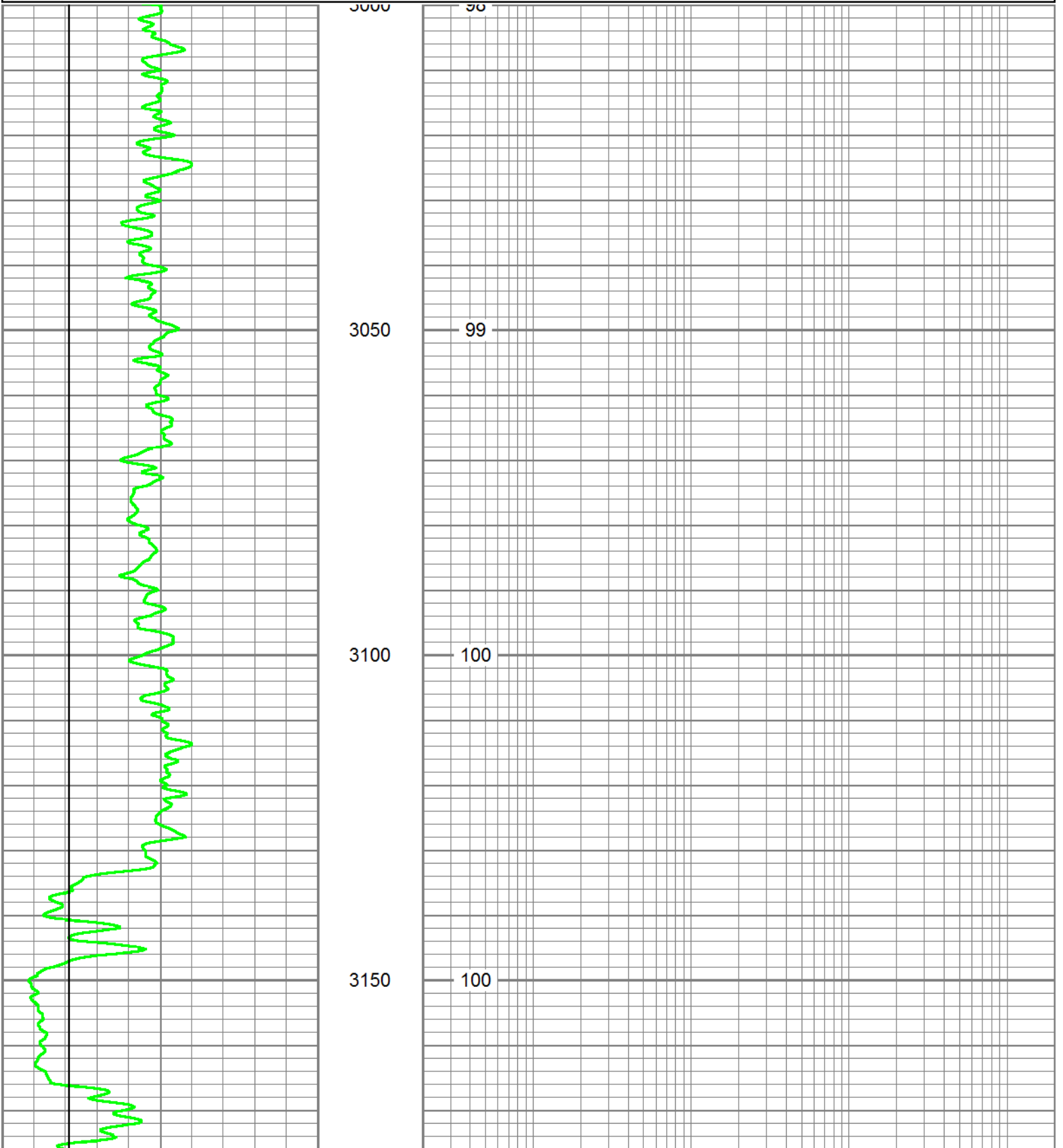
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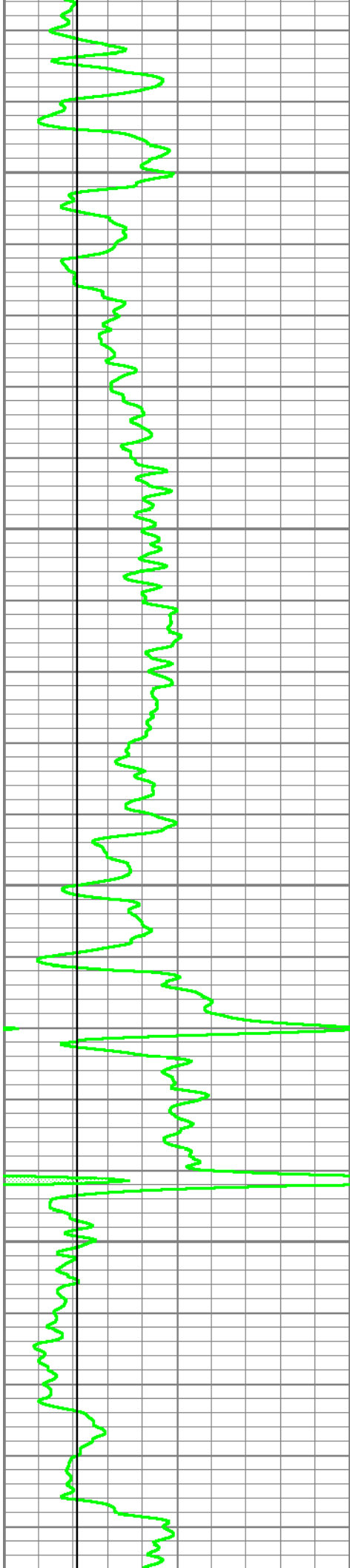
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4	DCAL (in)	14
4	BOREID (in)	14
-5	ACCY	5

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)





3200

101

3250

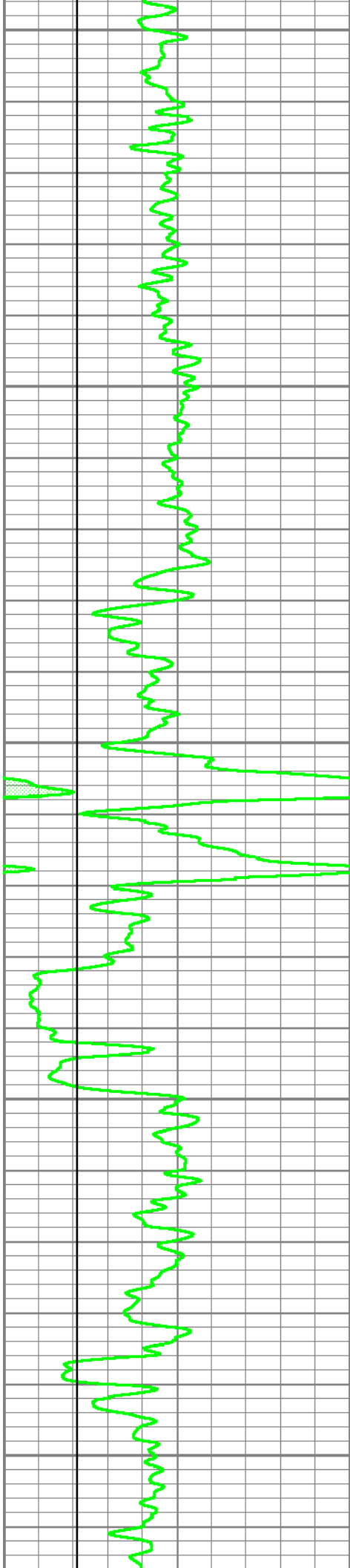
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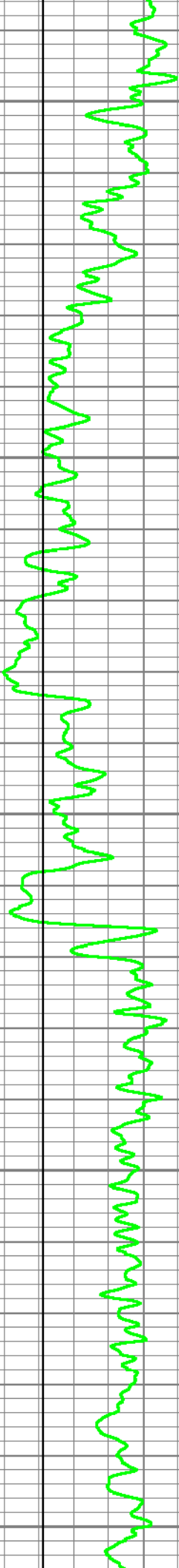
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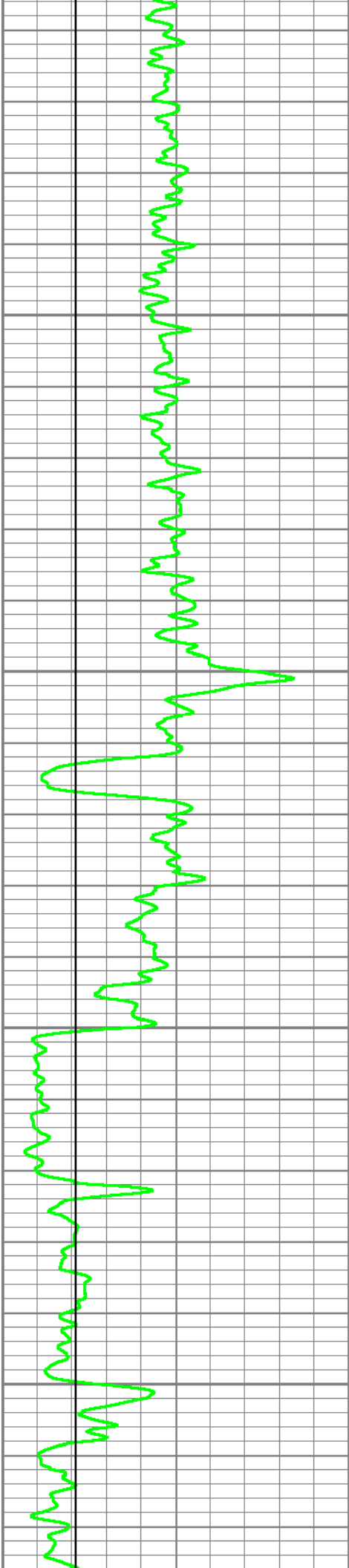
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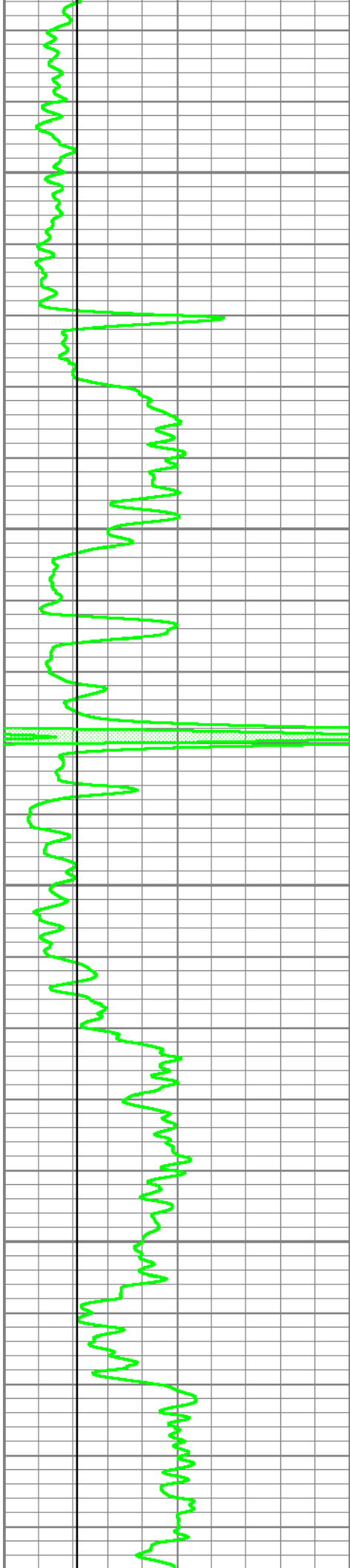
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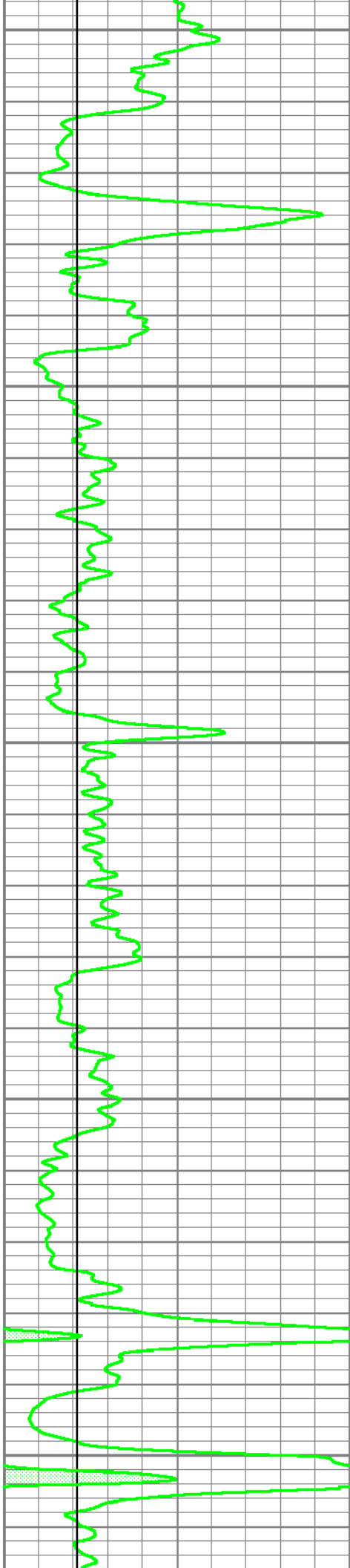
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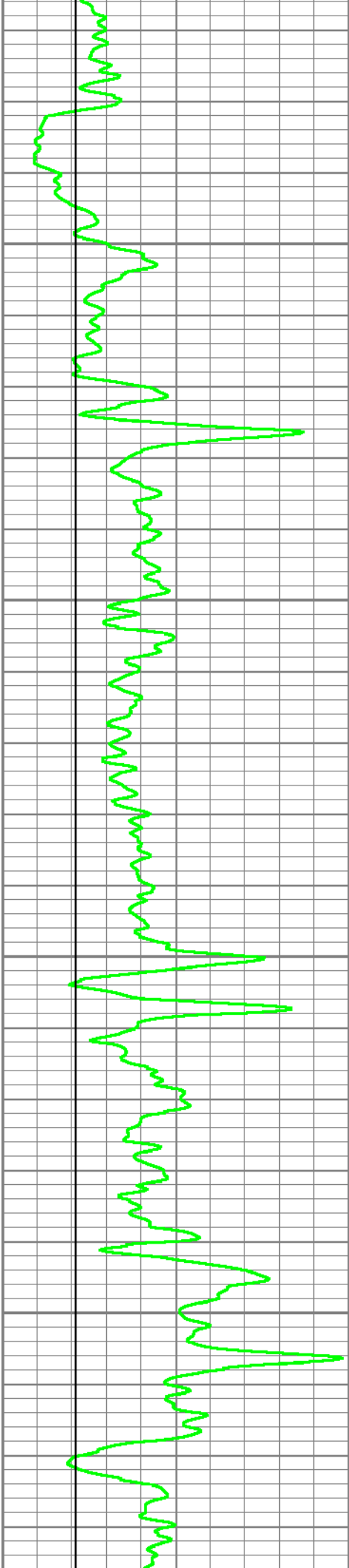
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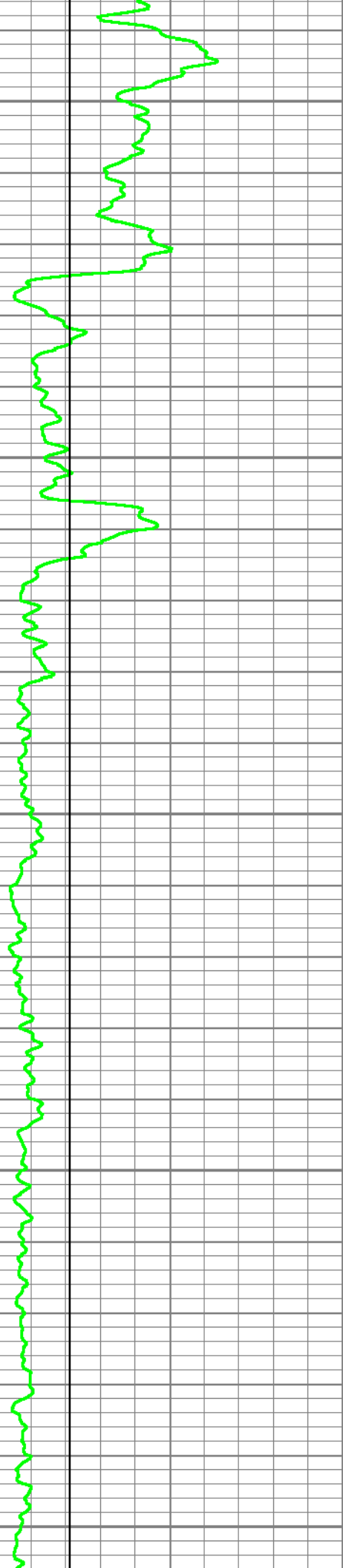
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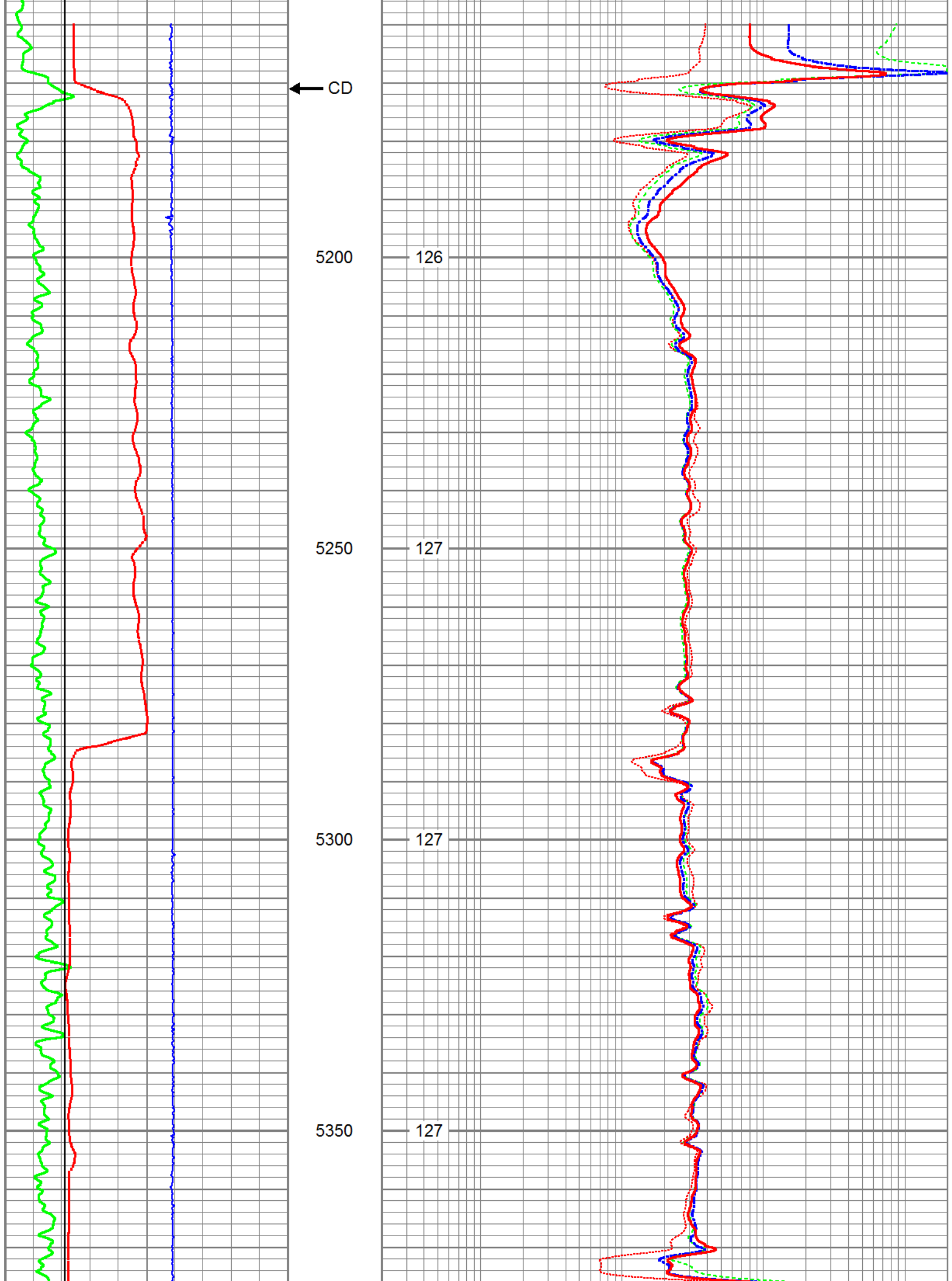
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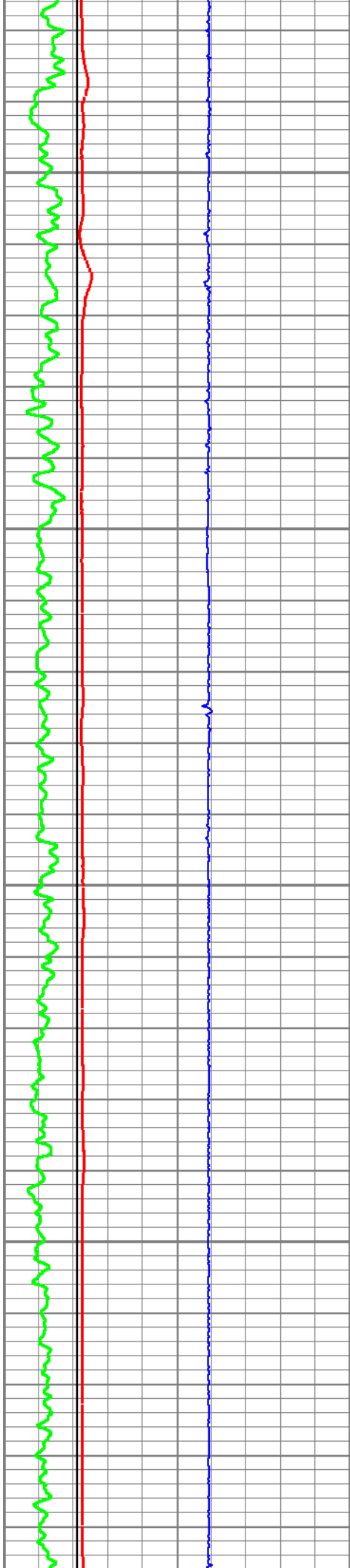
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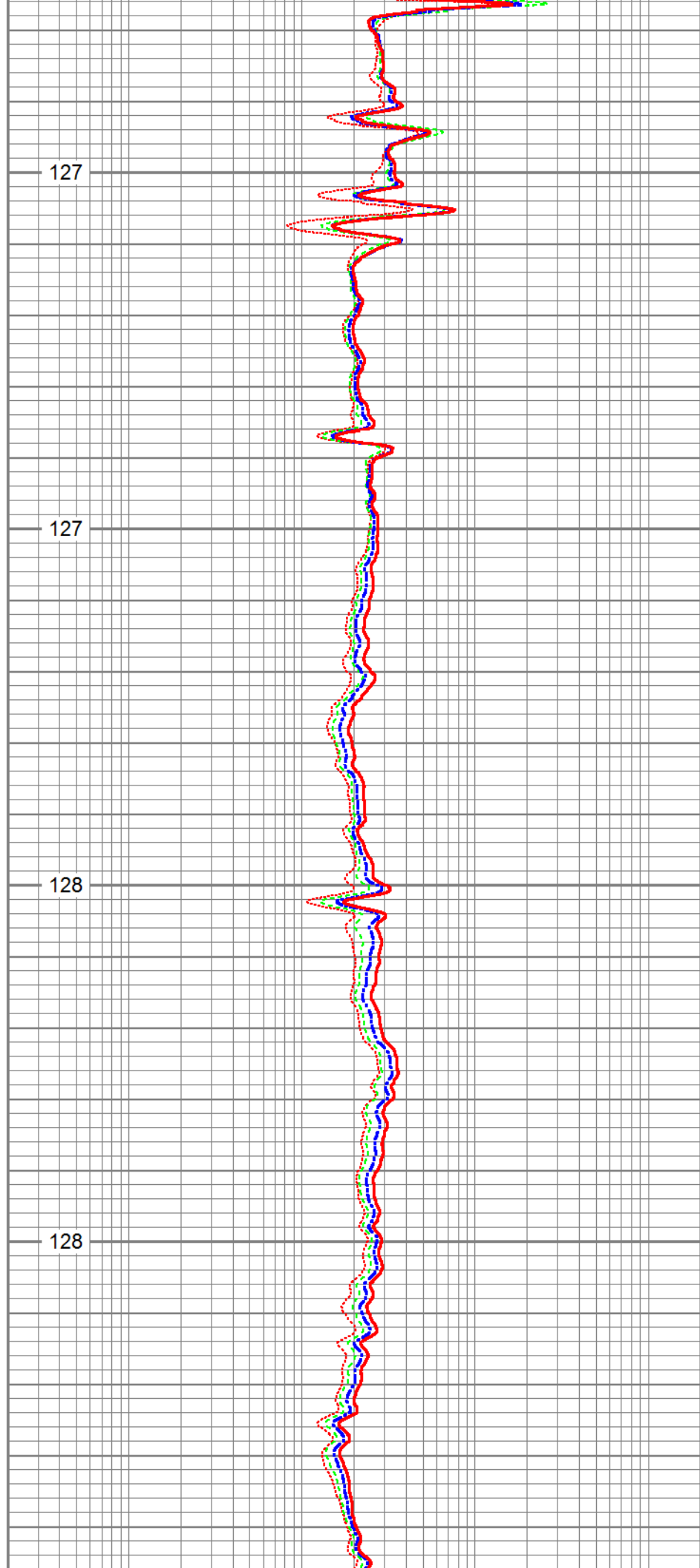
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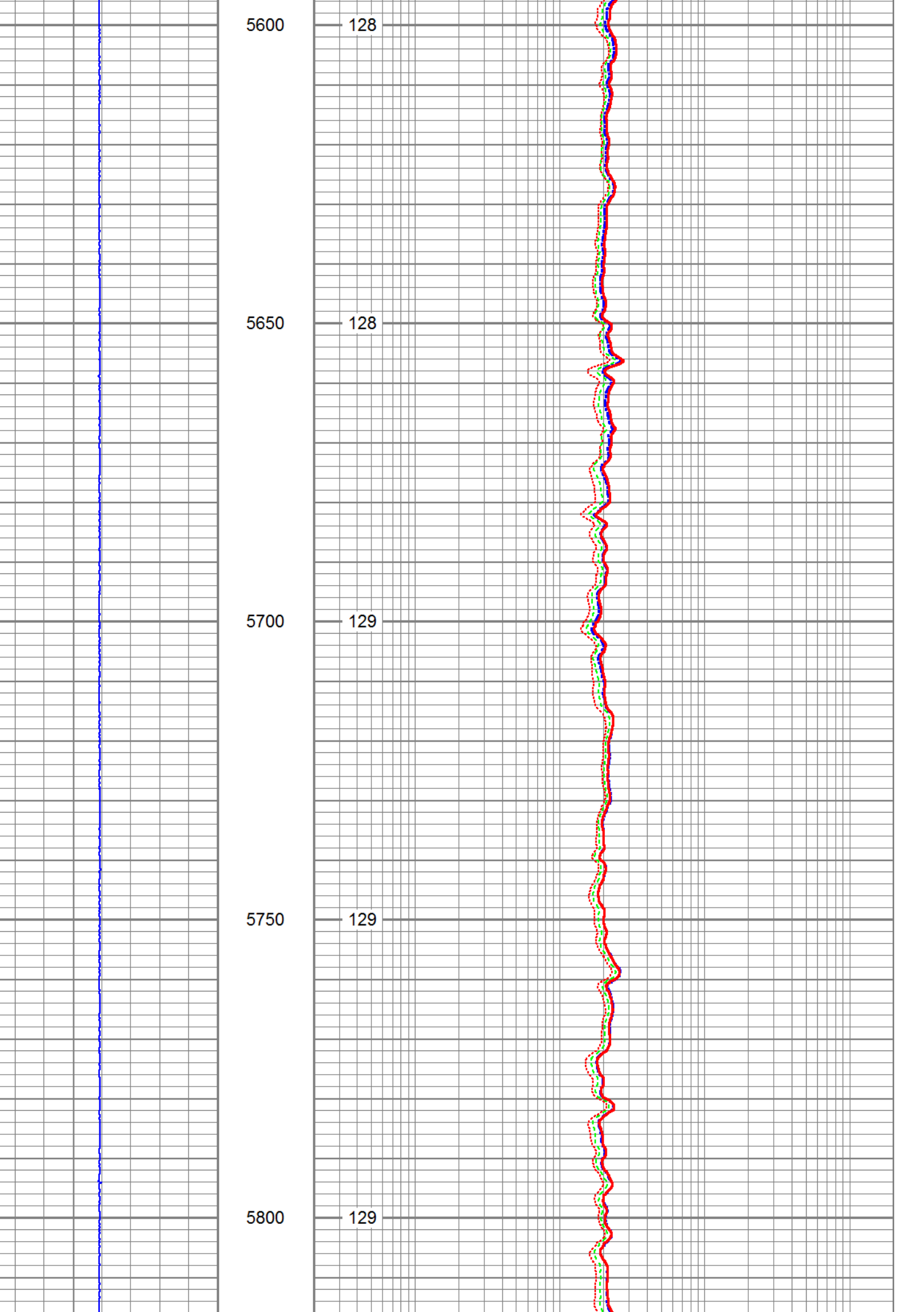
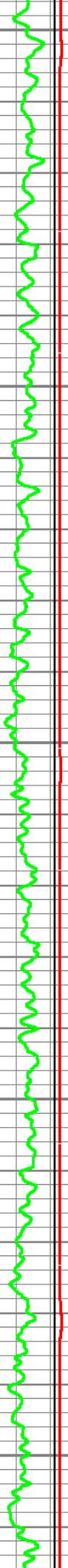
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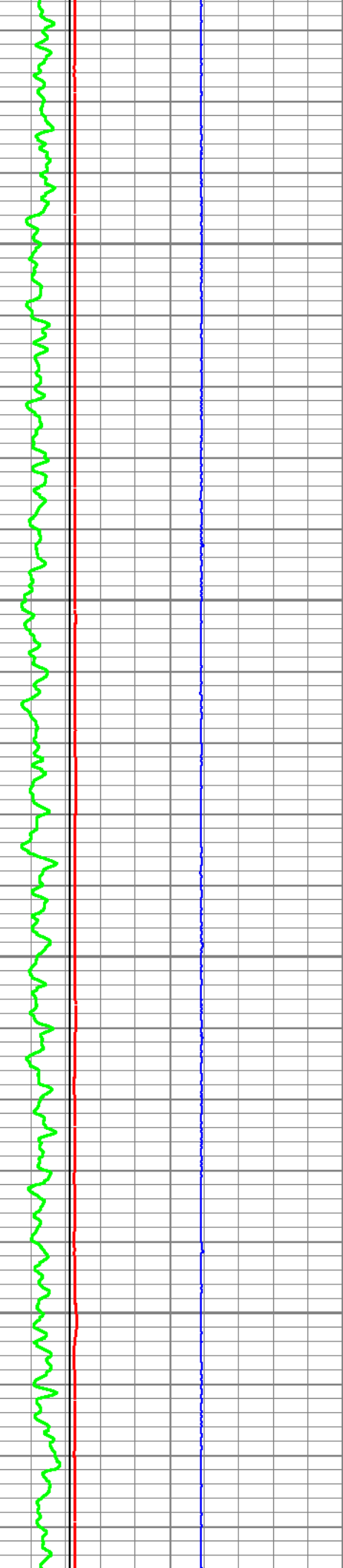
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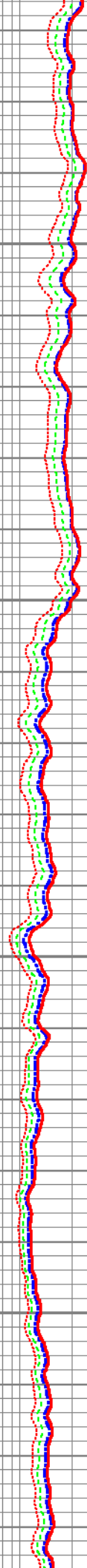
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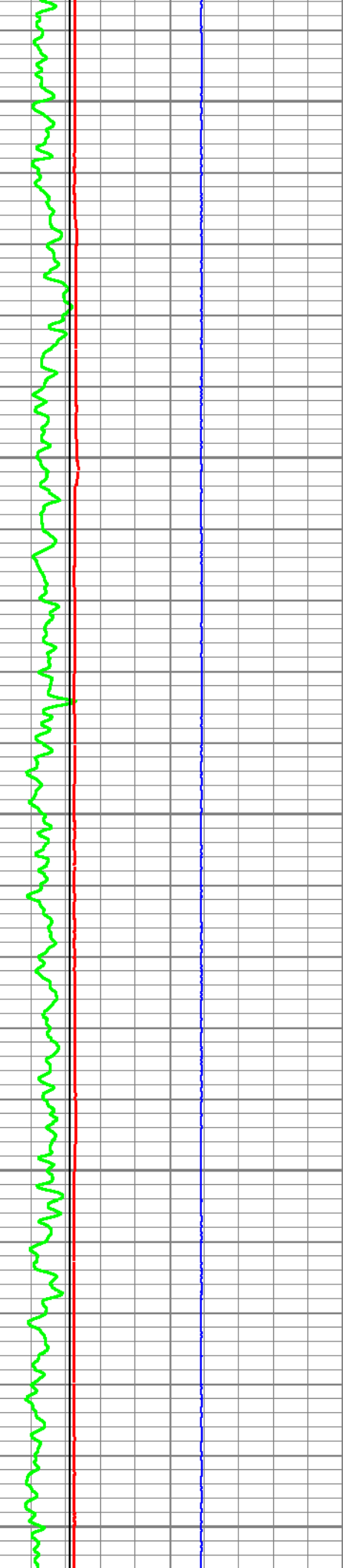
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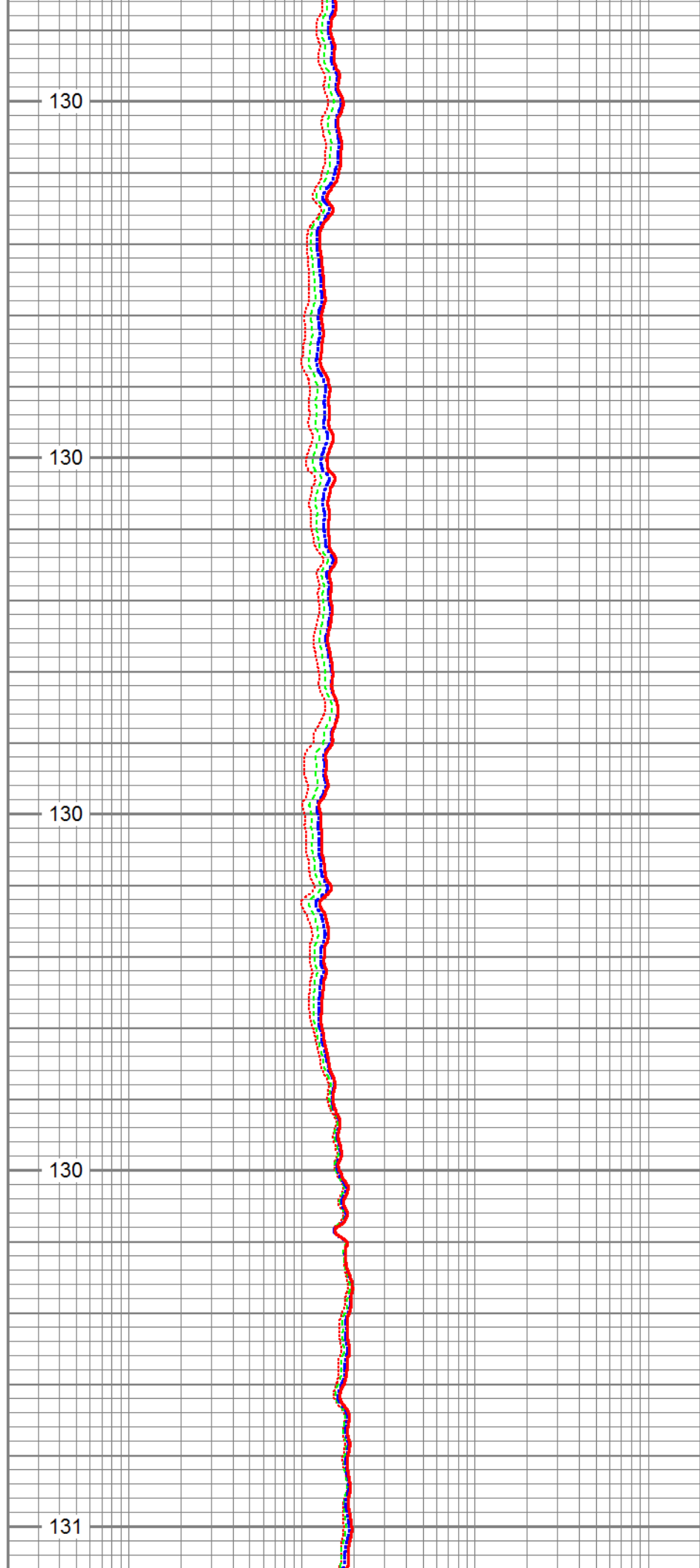
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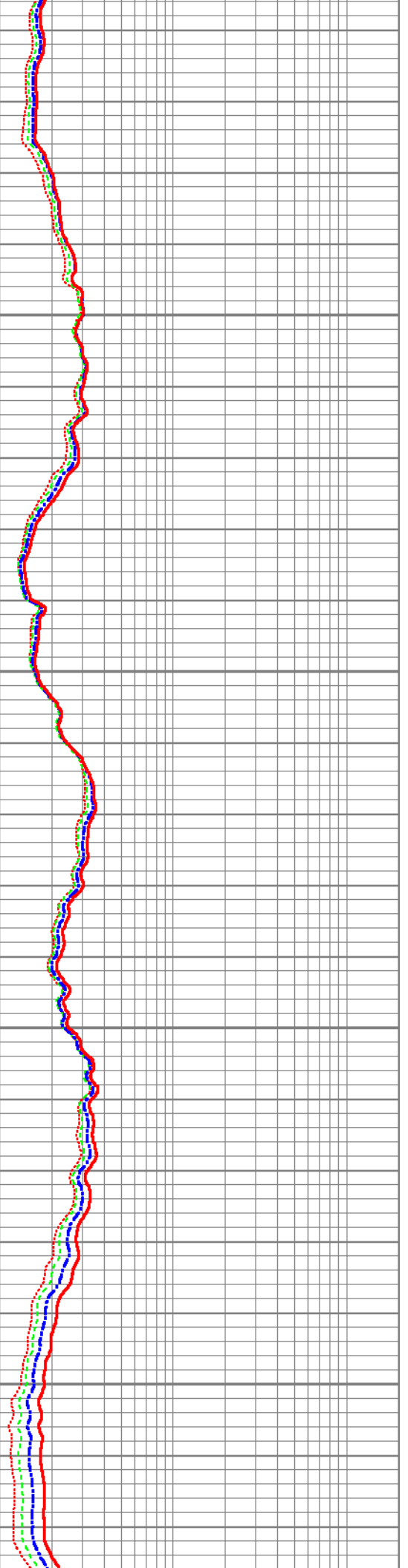
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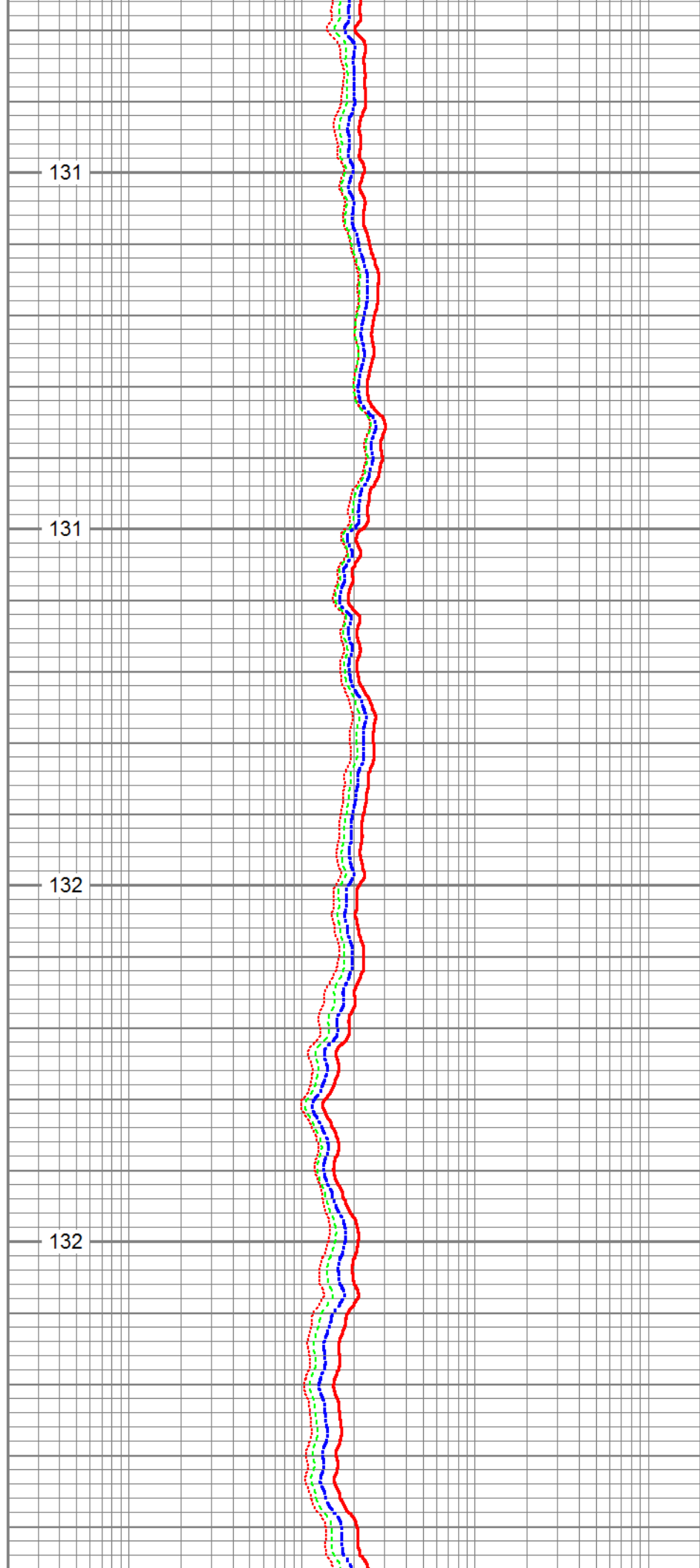
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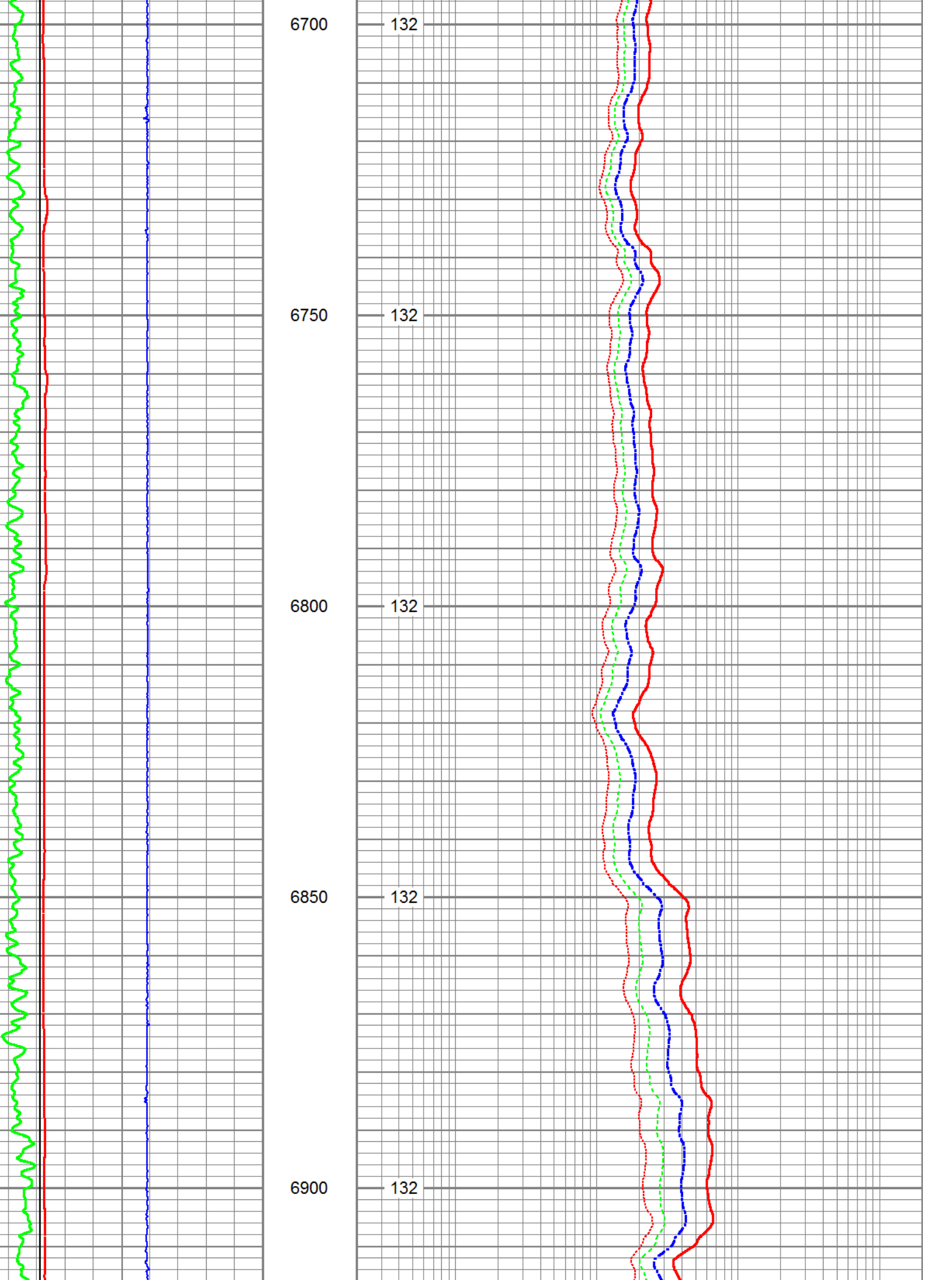
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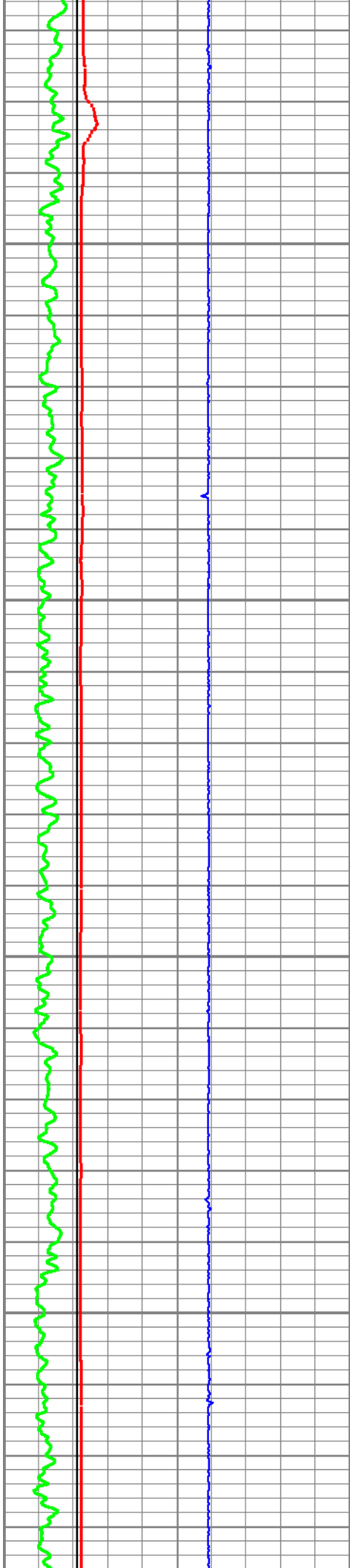
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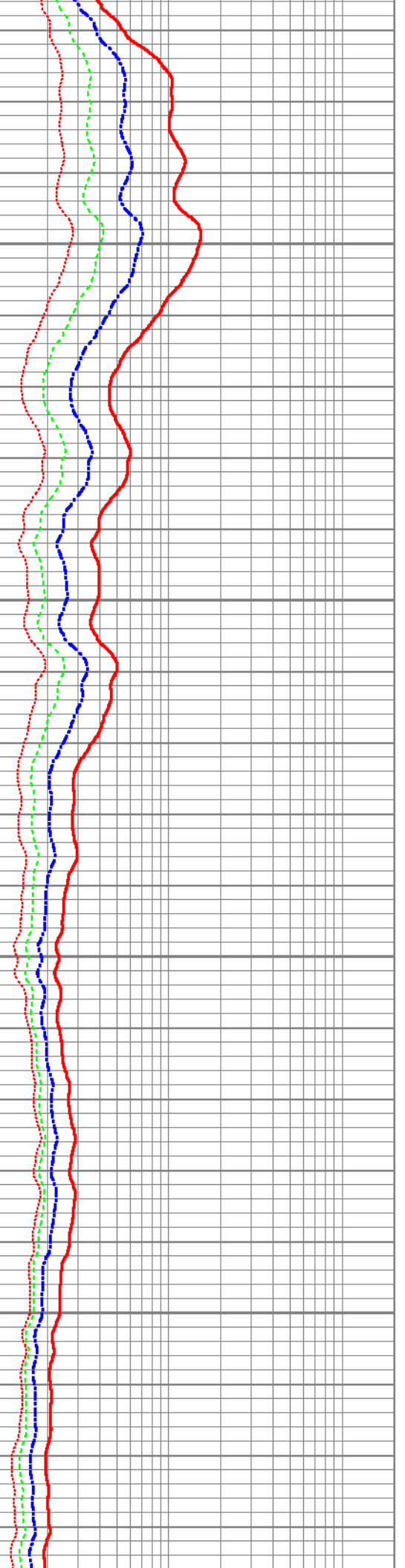
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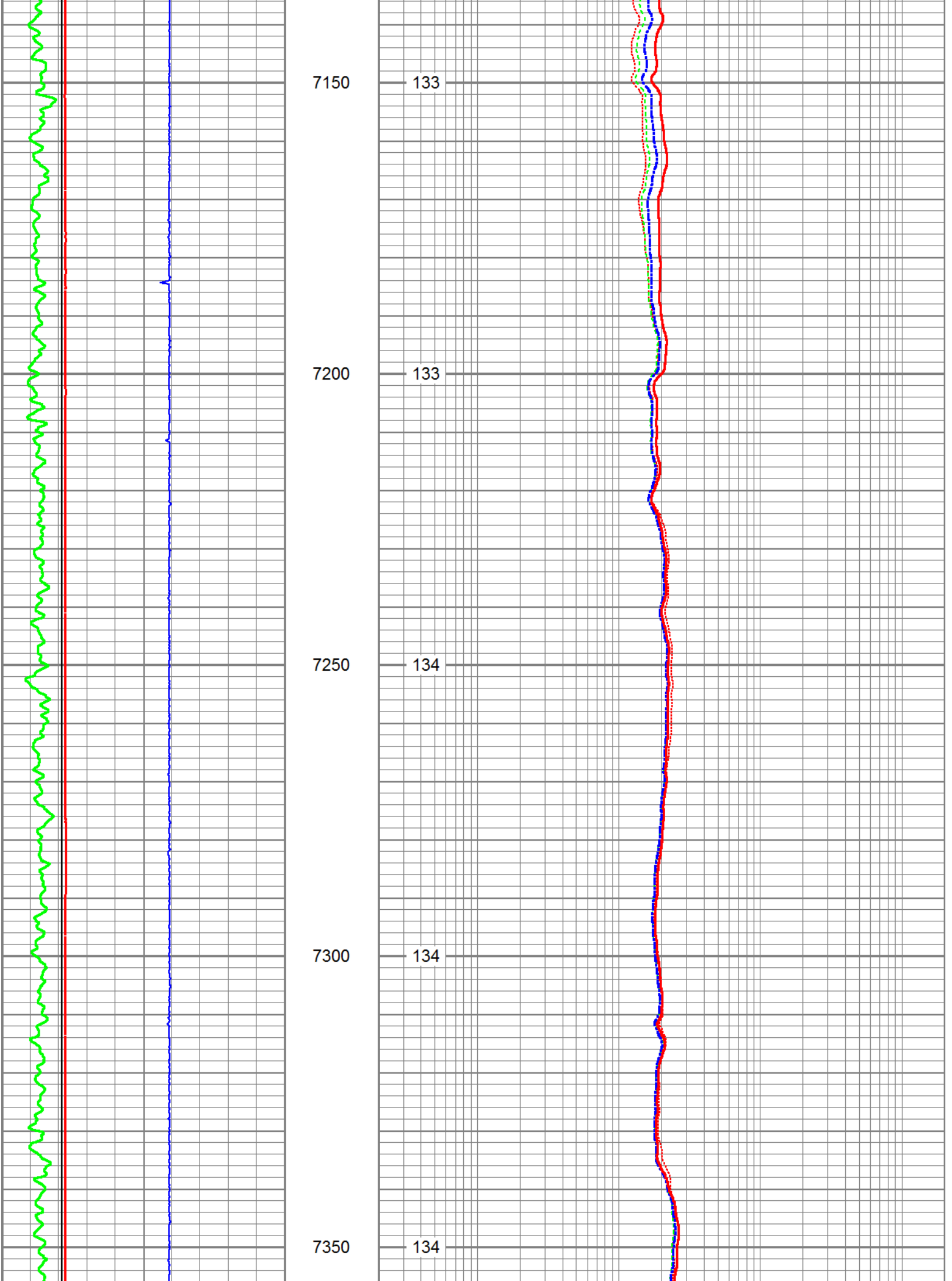
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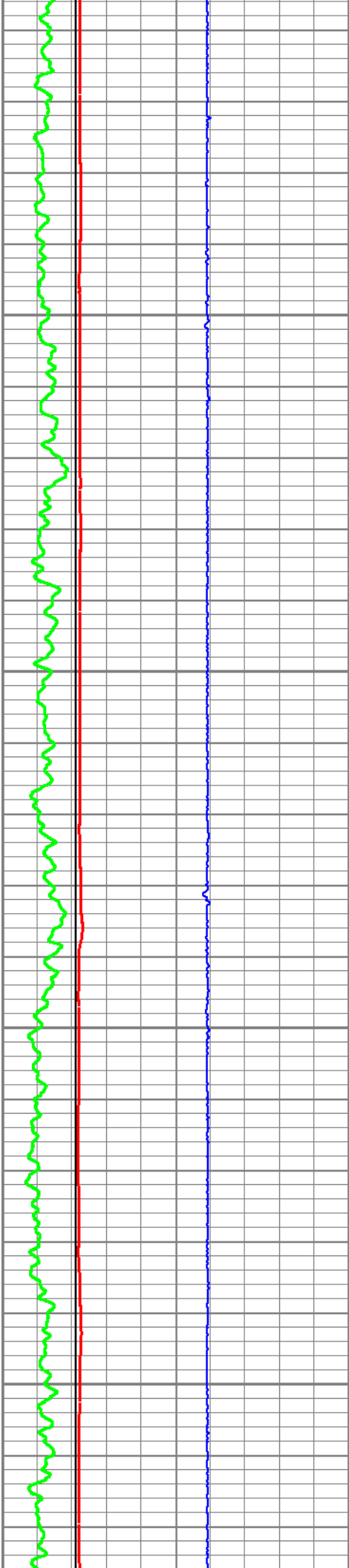
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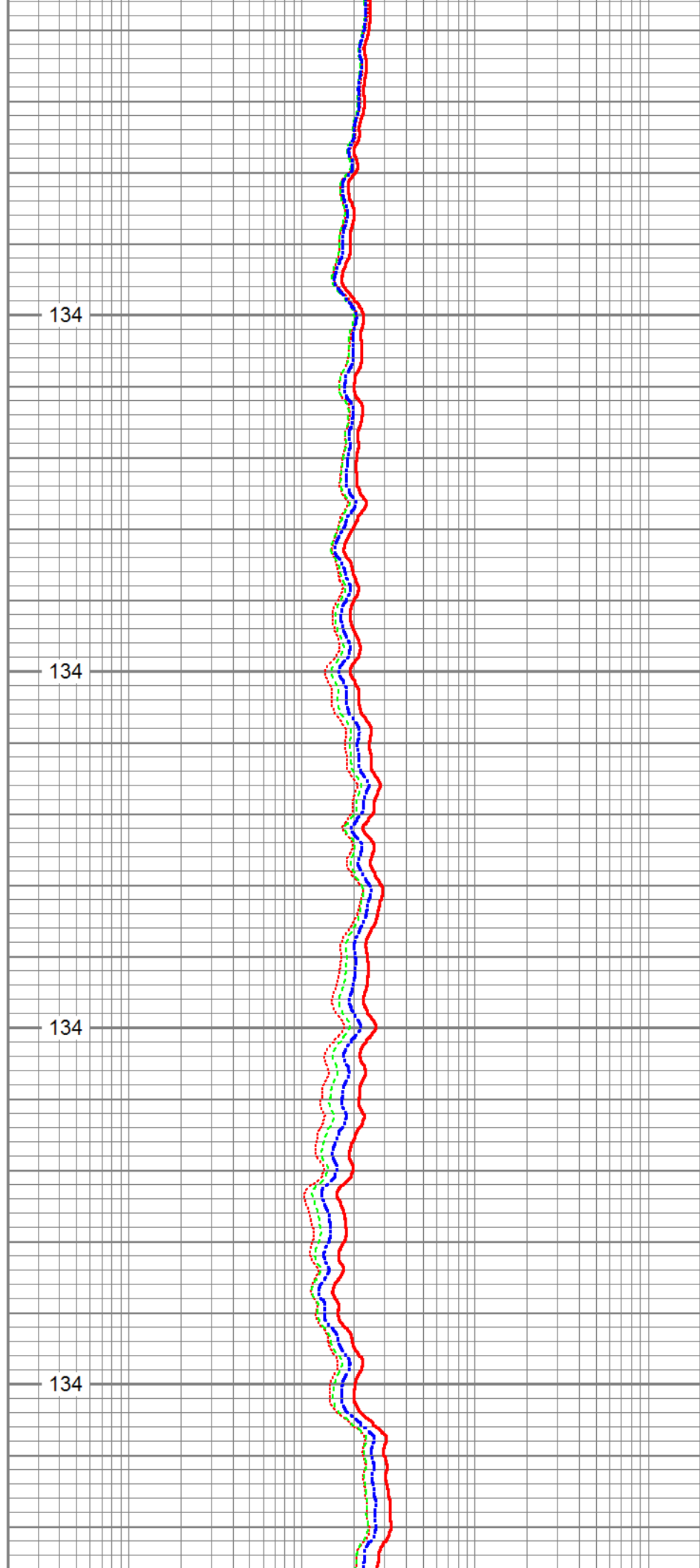
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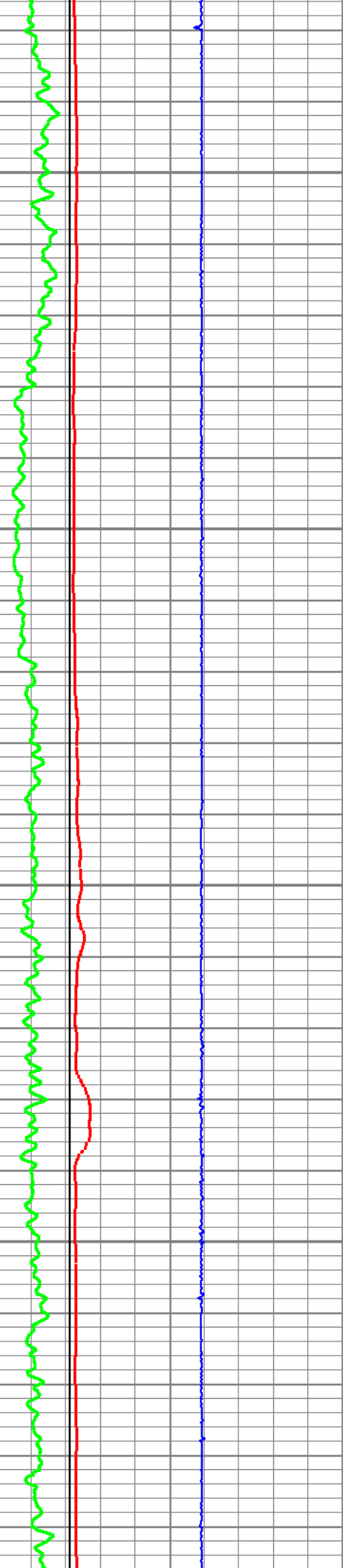
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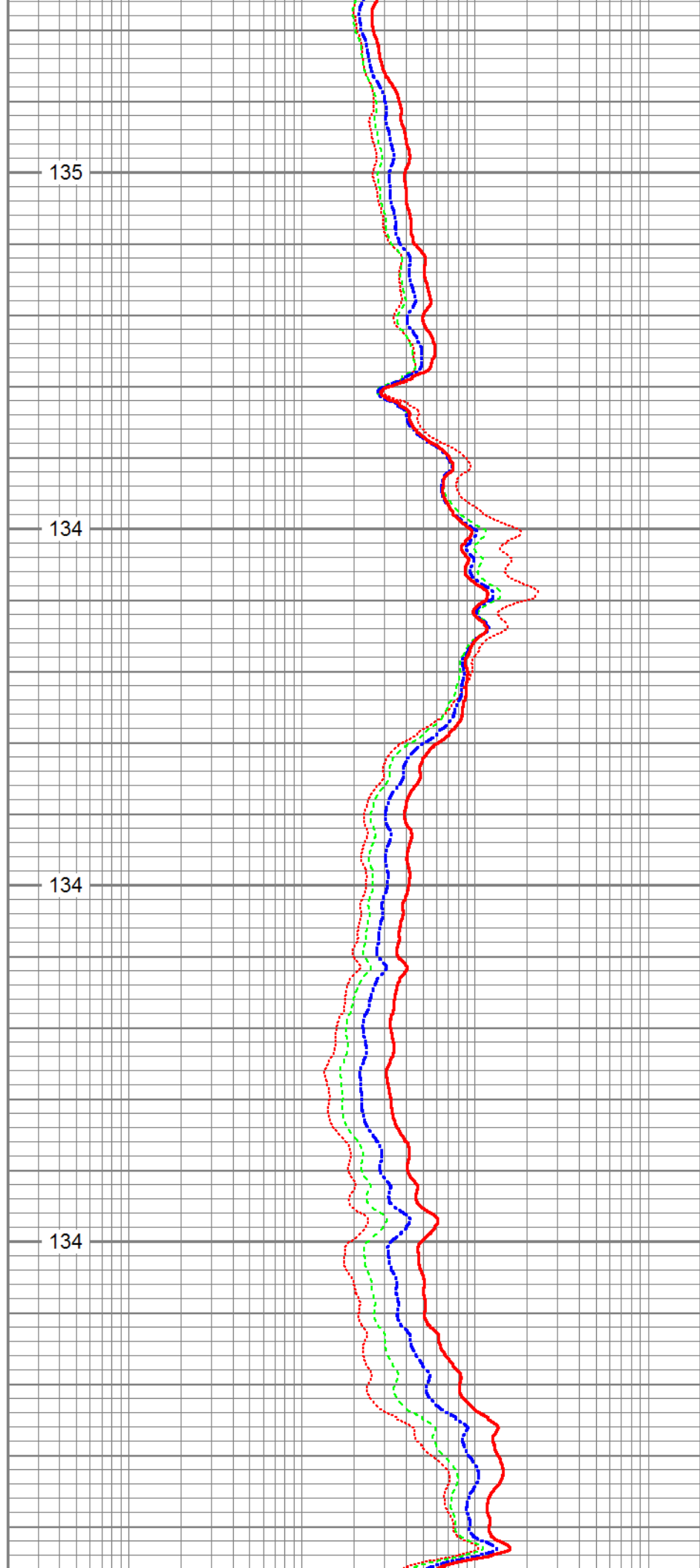
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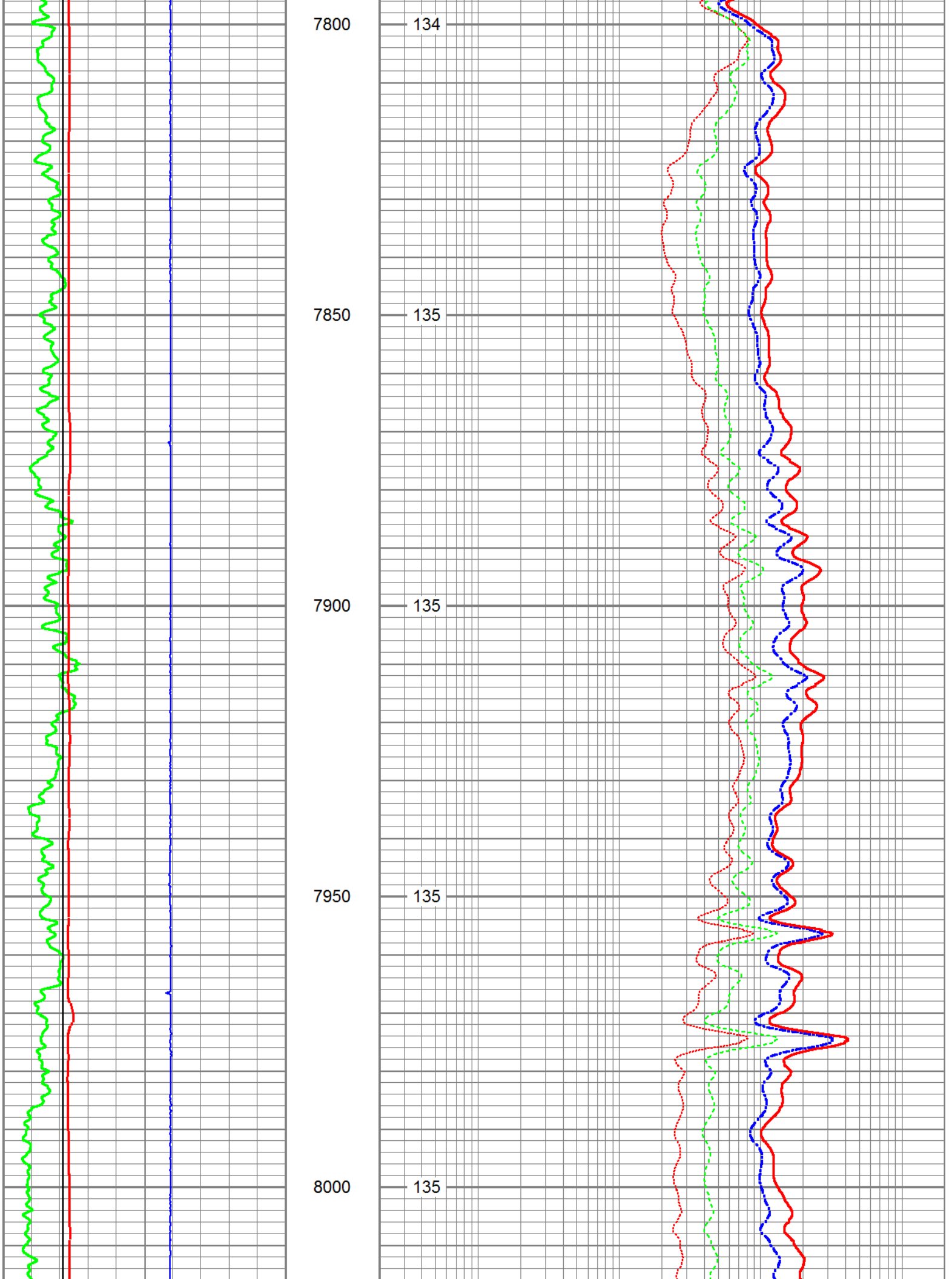
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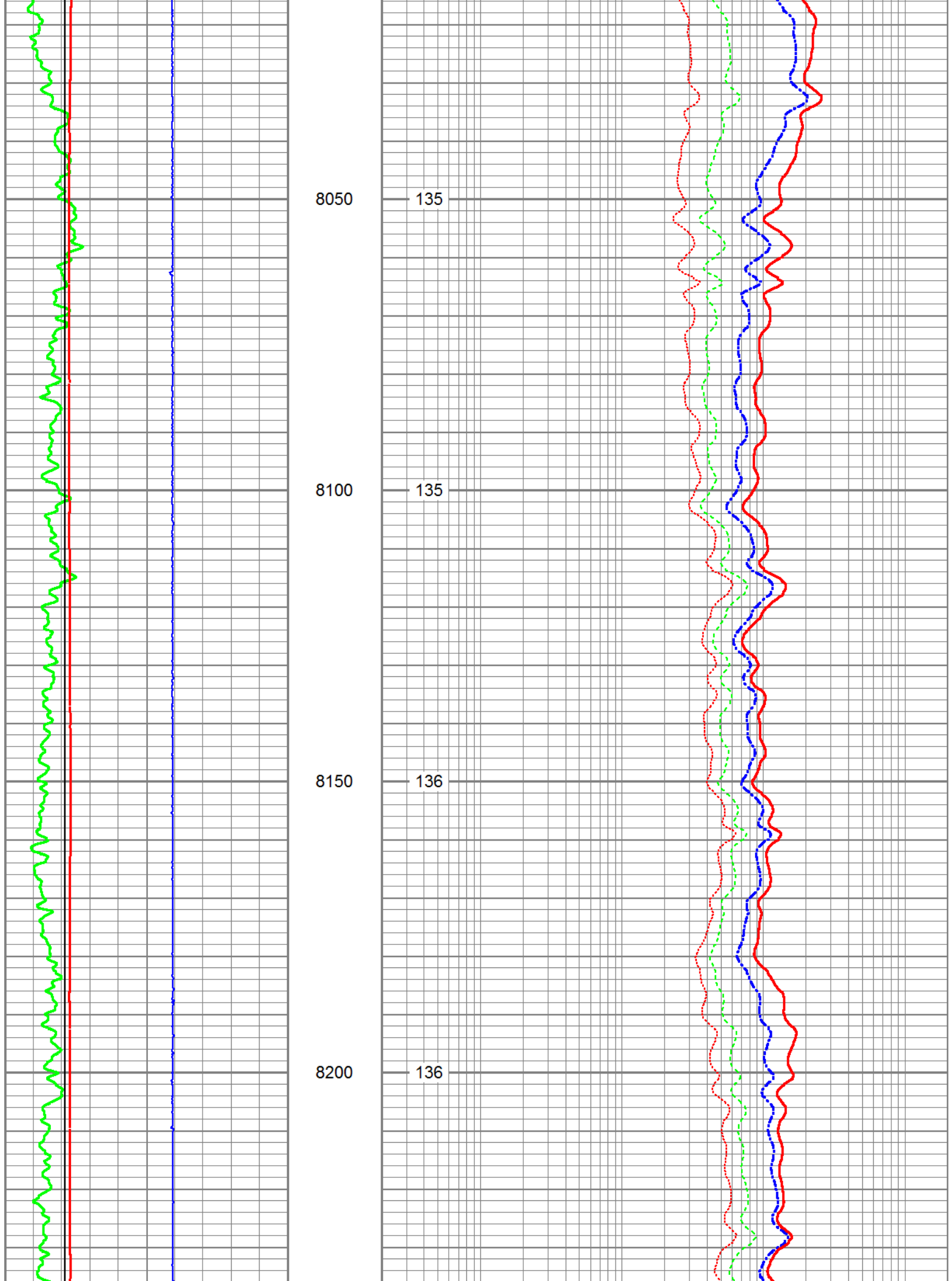
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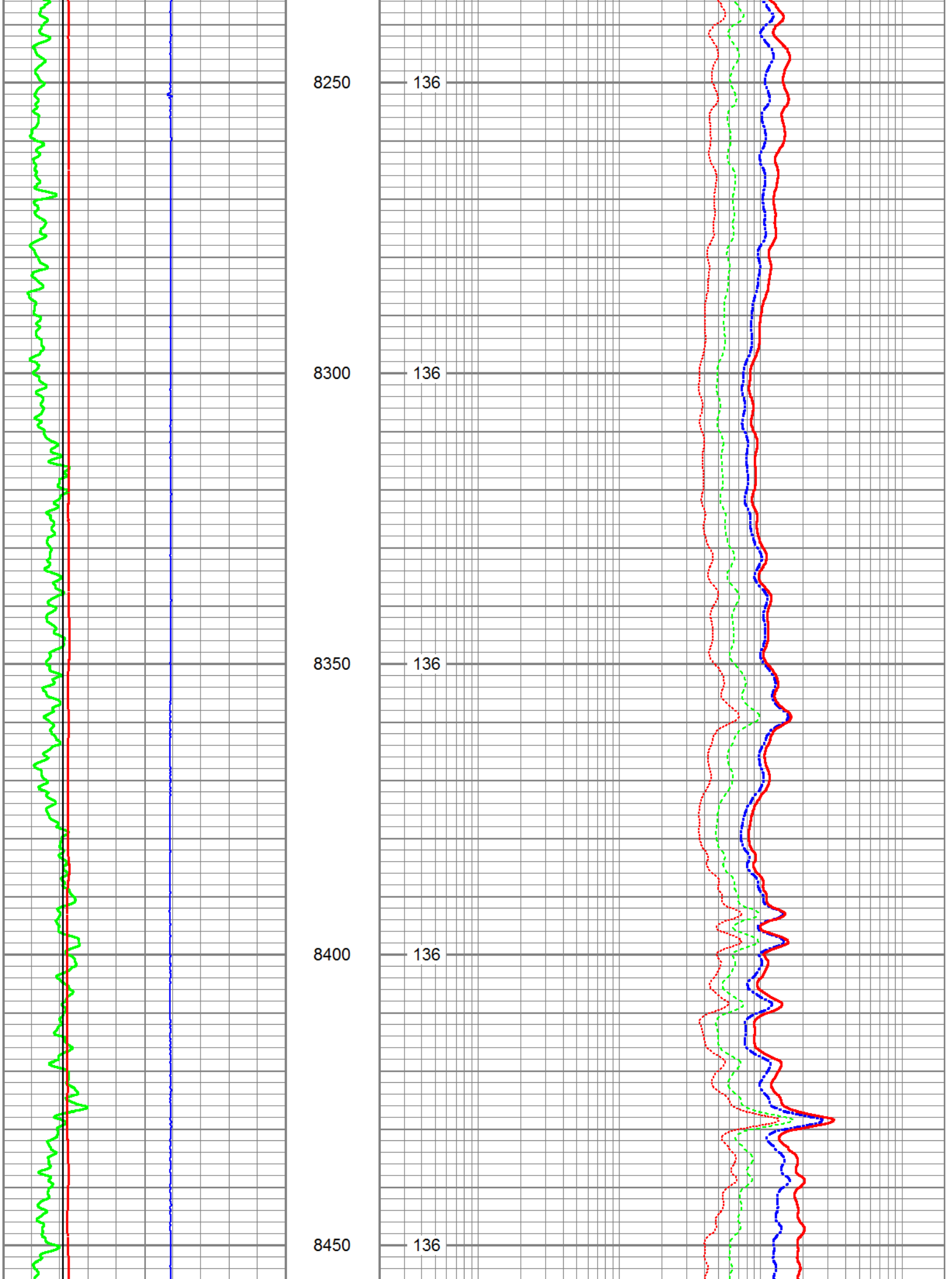
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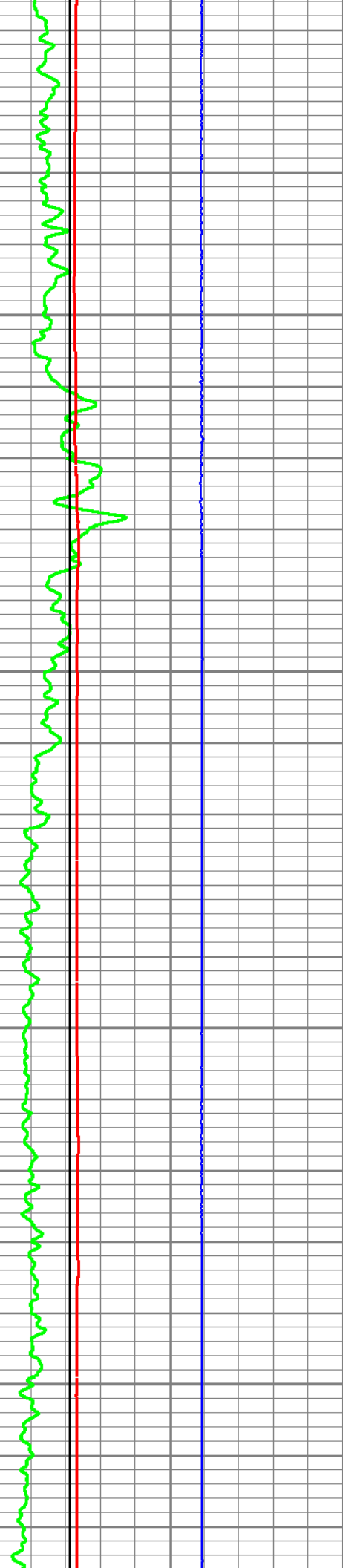
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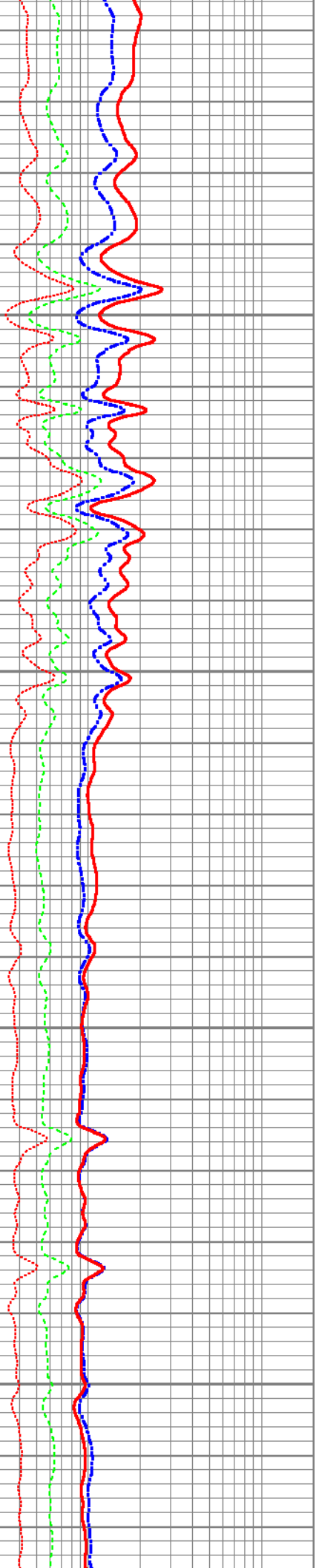
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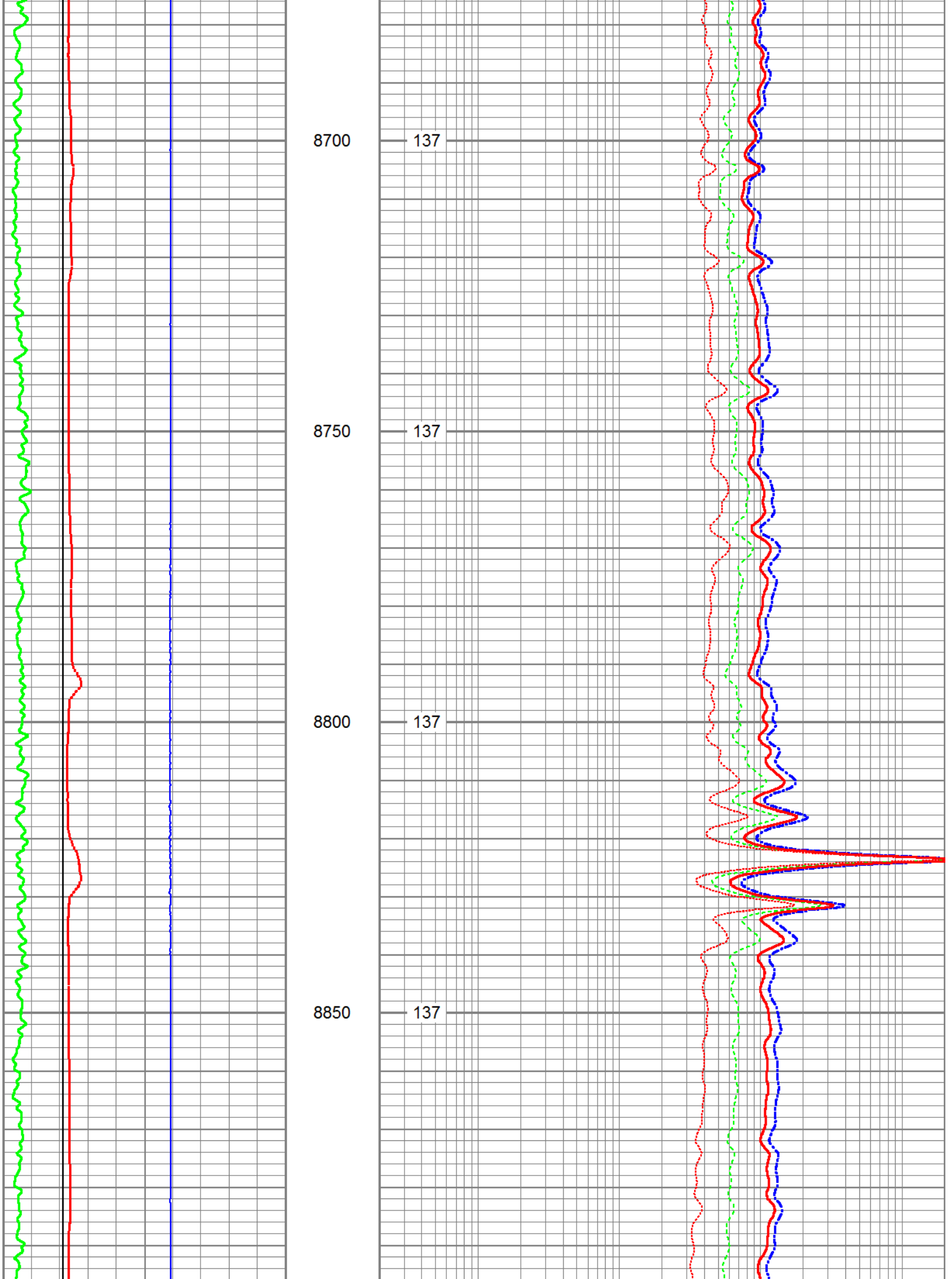
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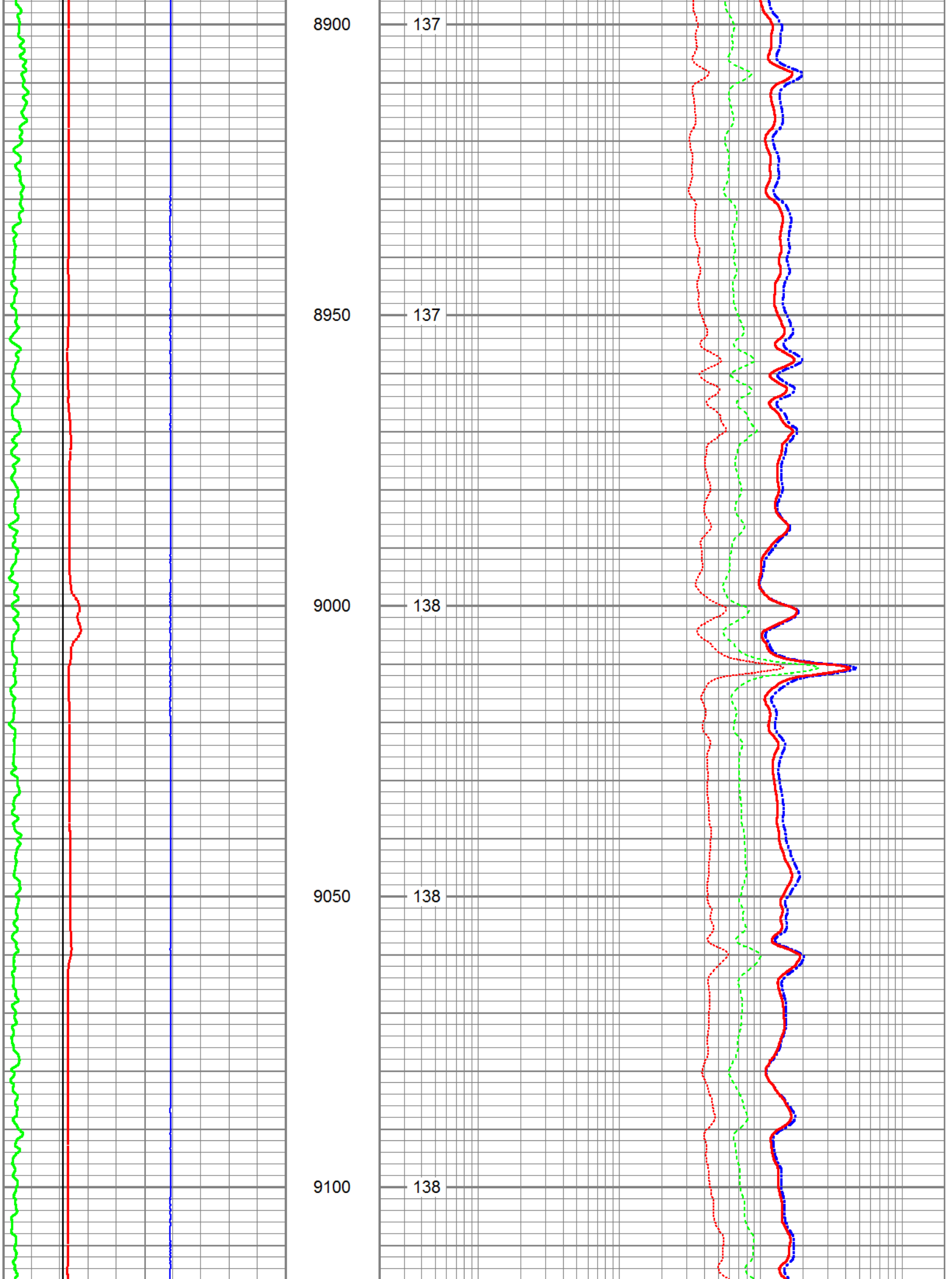
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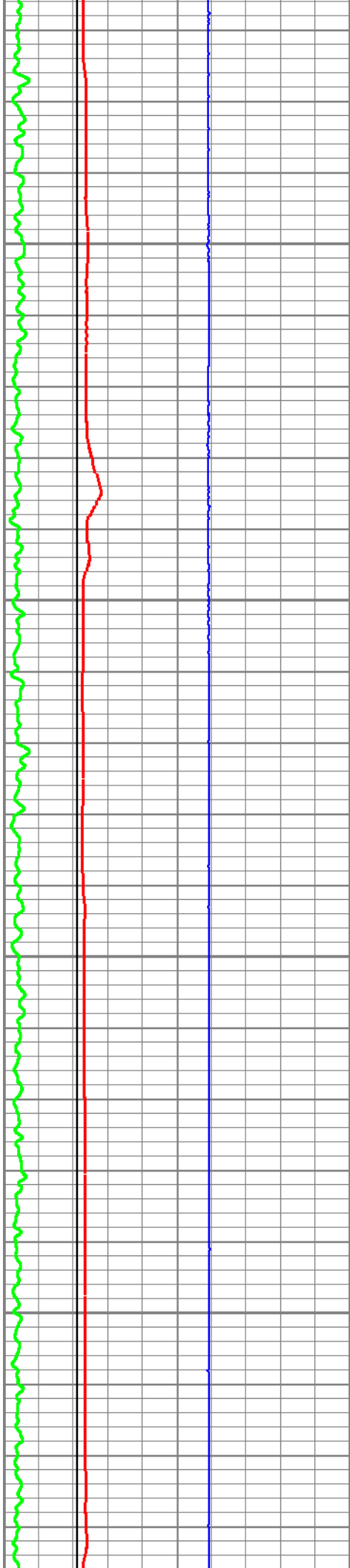
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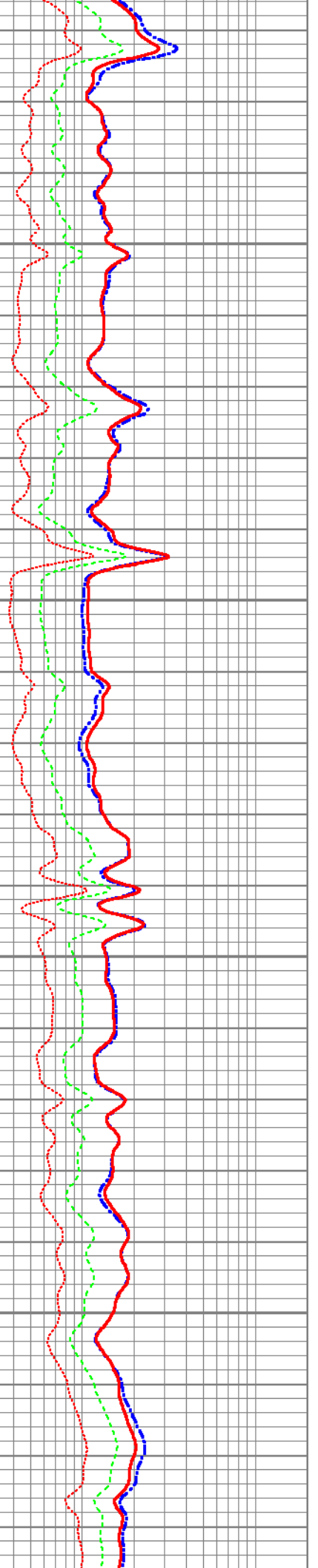
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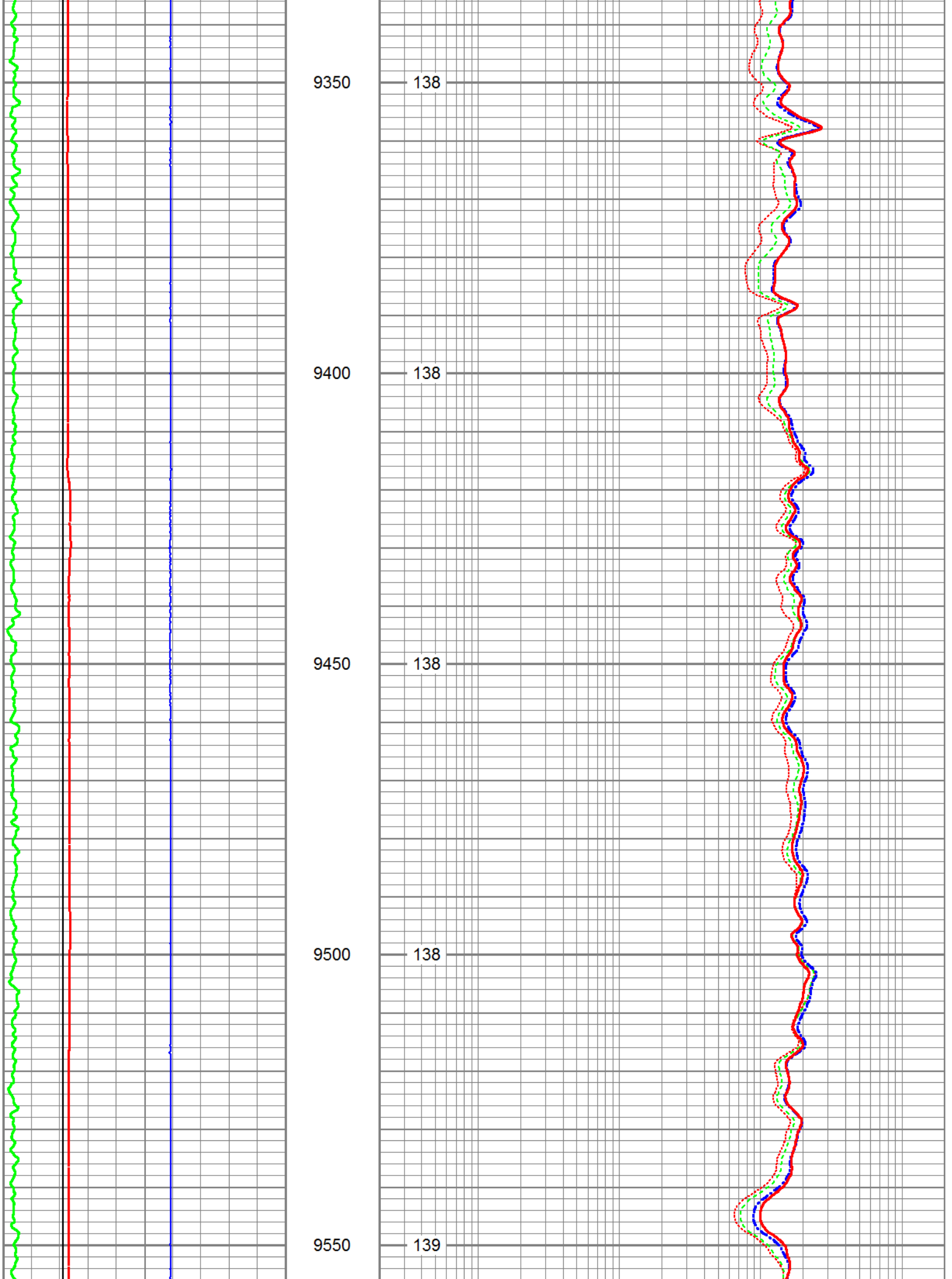
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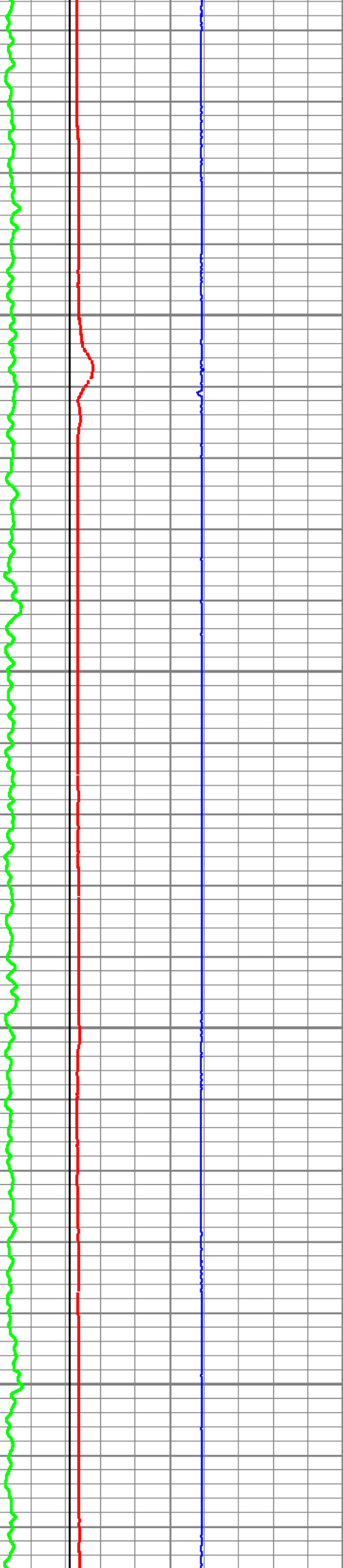
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139

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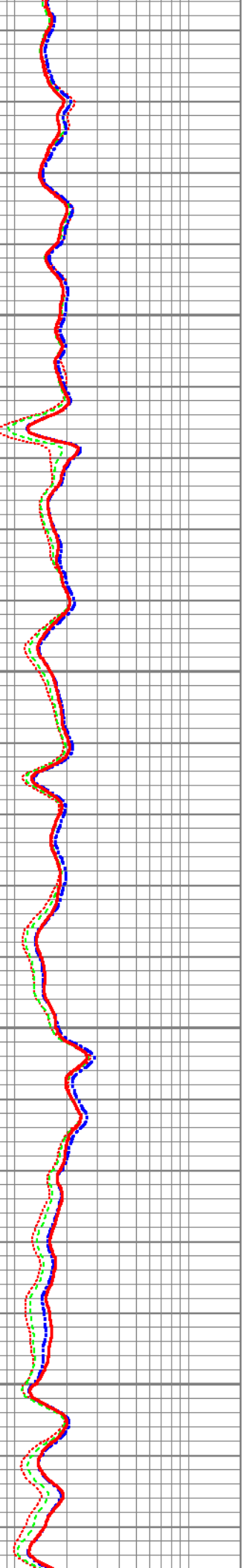
139

9700

139

9750

139





9800

139

9850

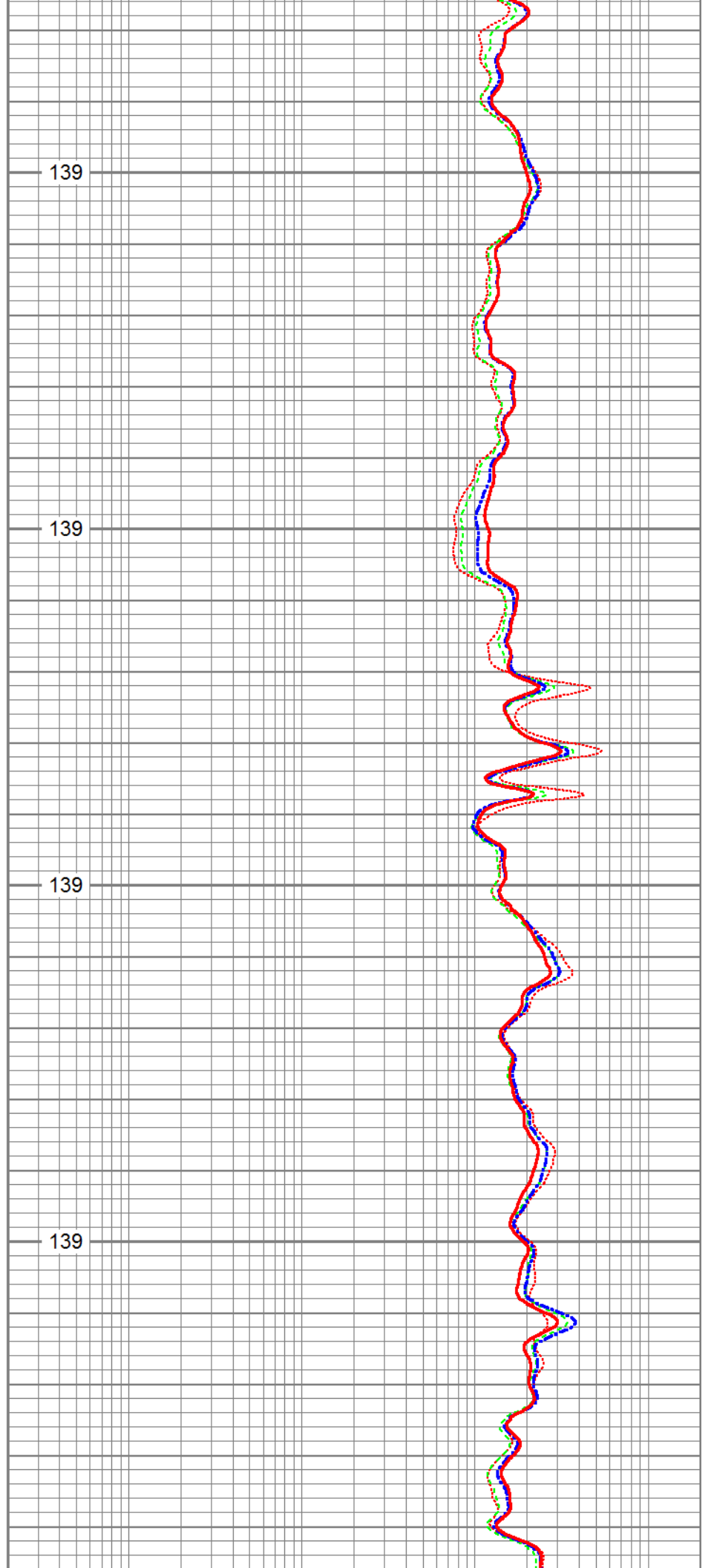
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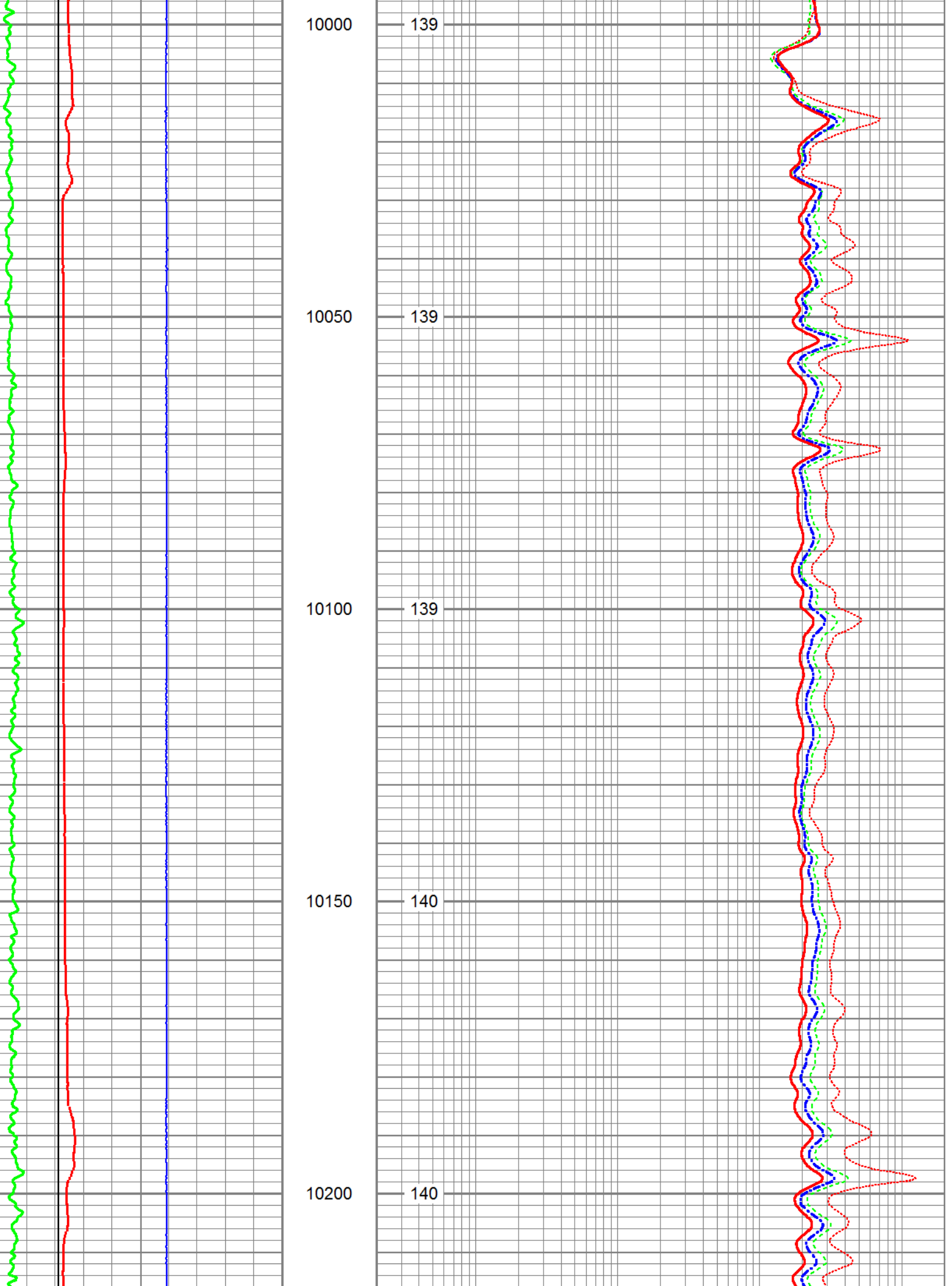
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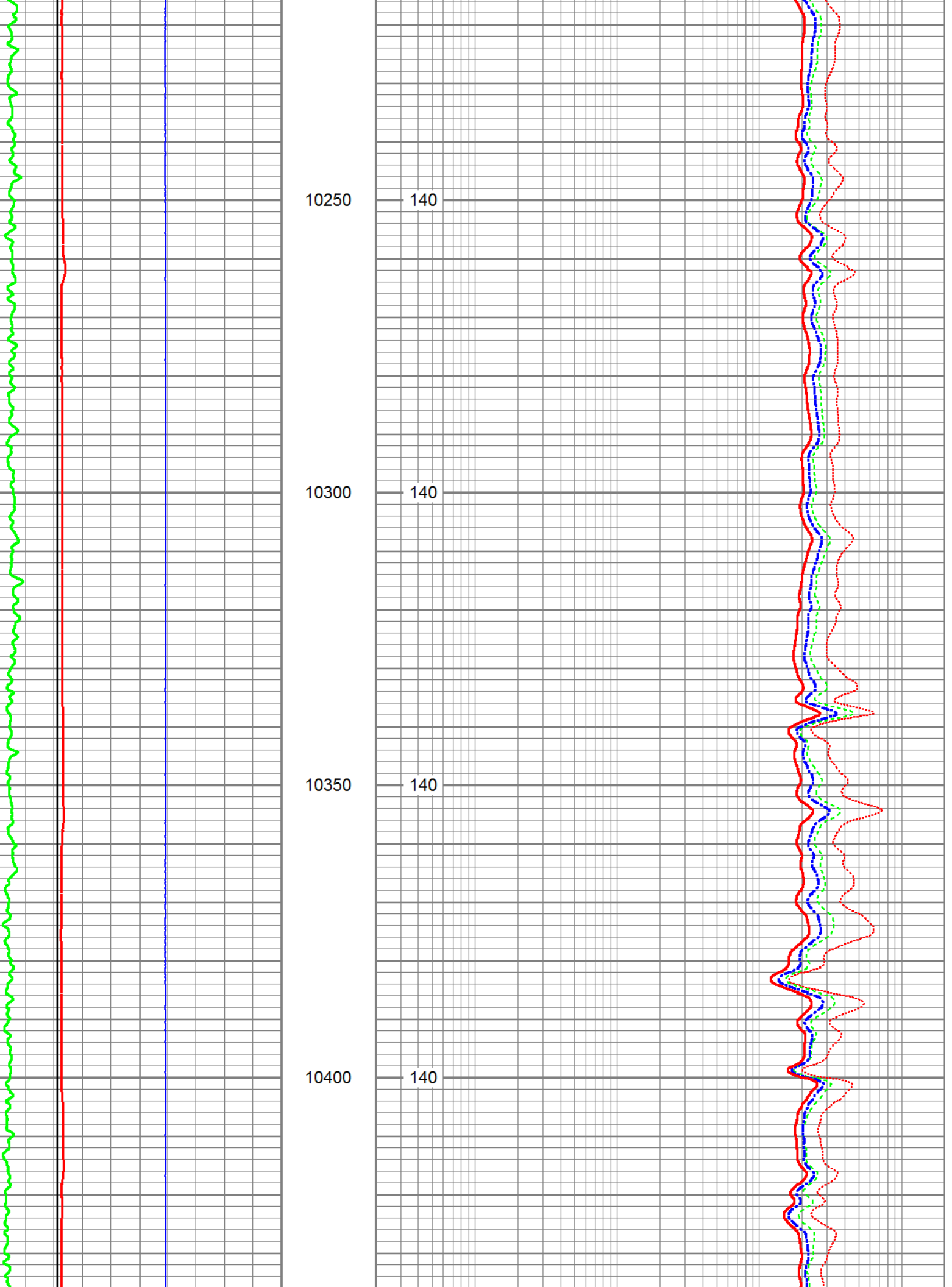
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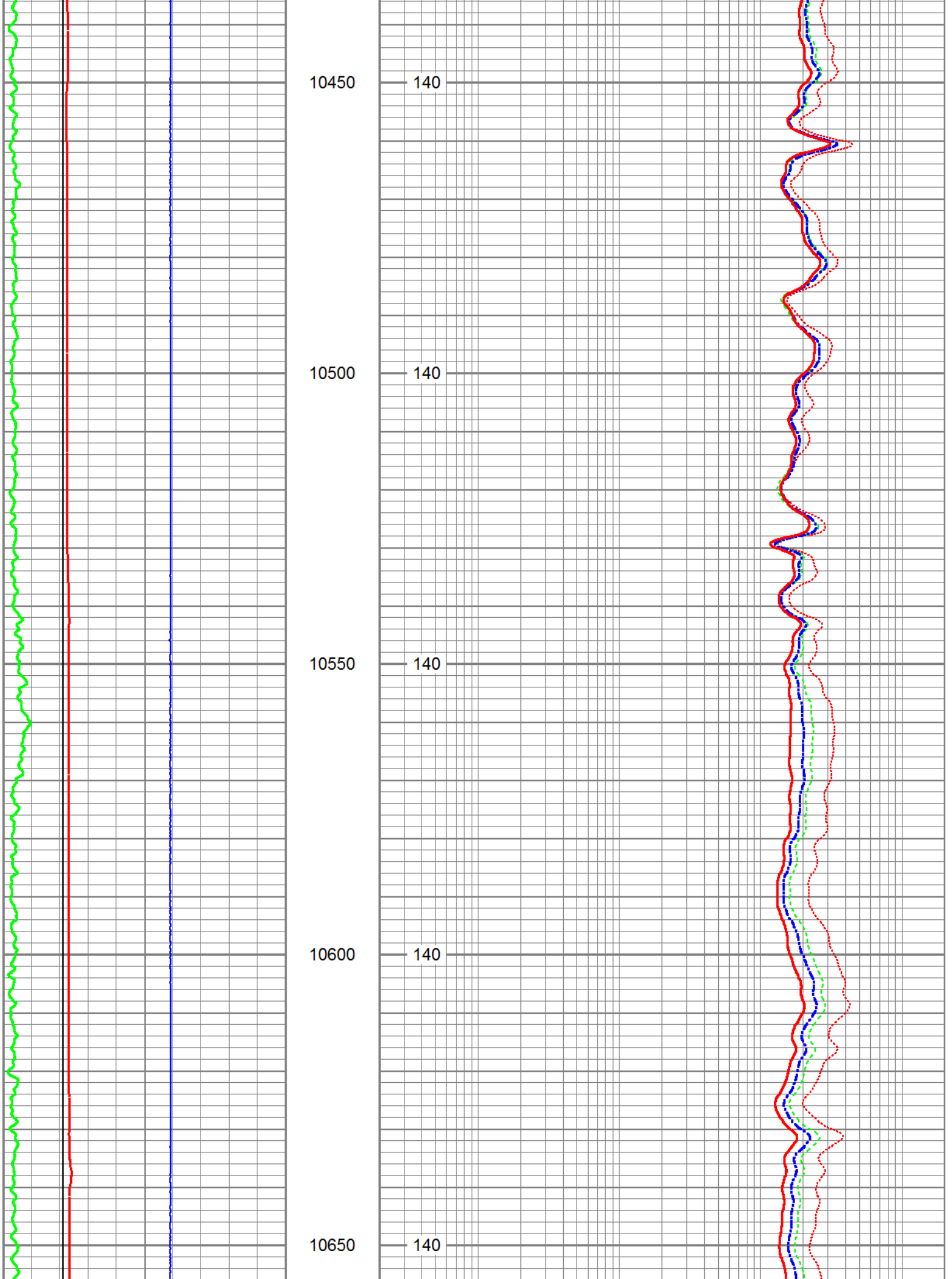
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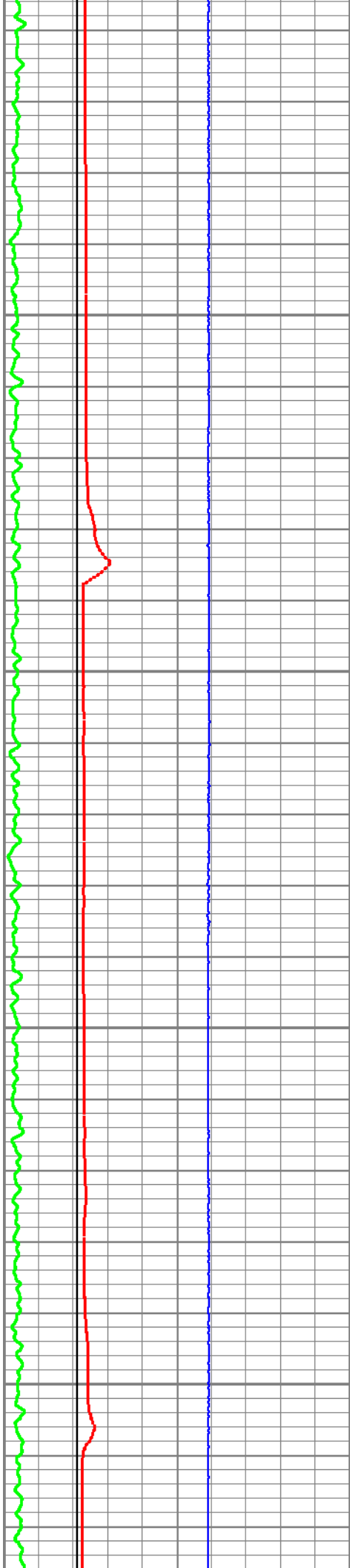
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10700

140

10750

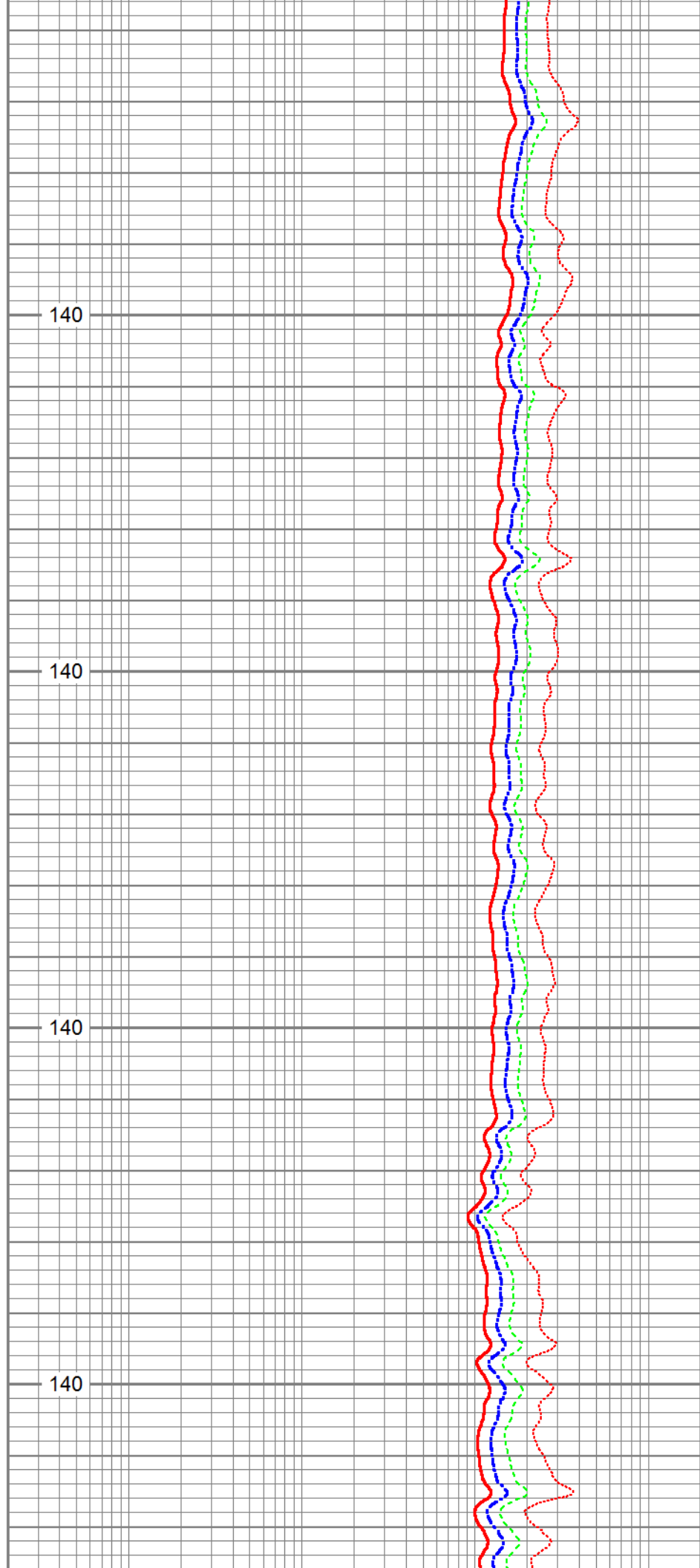
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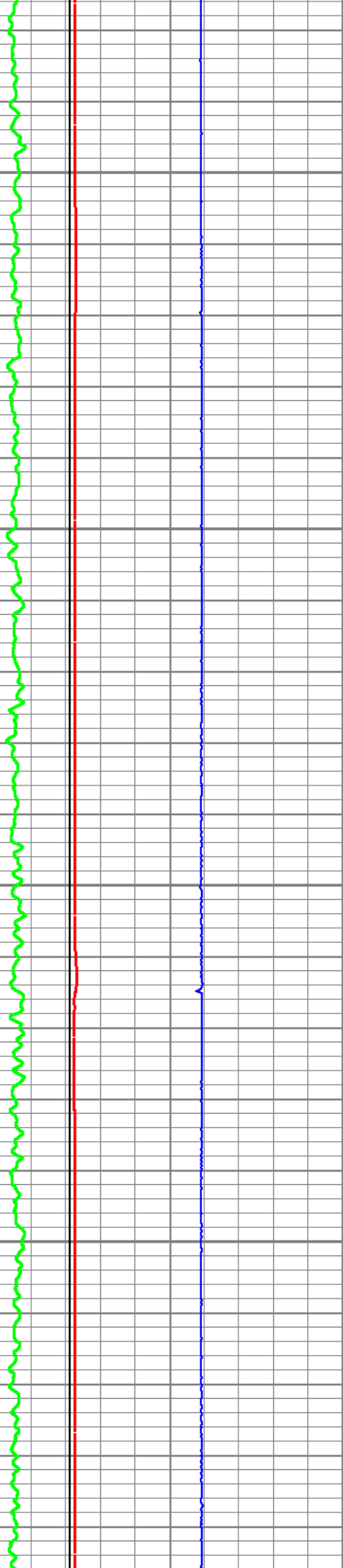
10800

140

10850

140





10900

140

10950

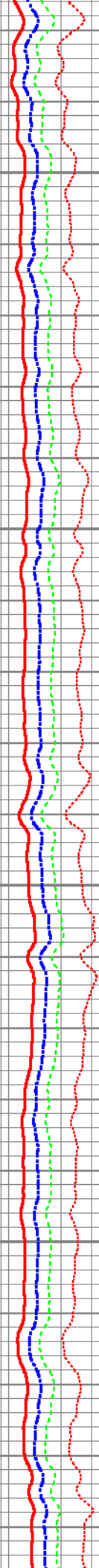
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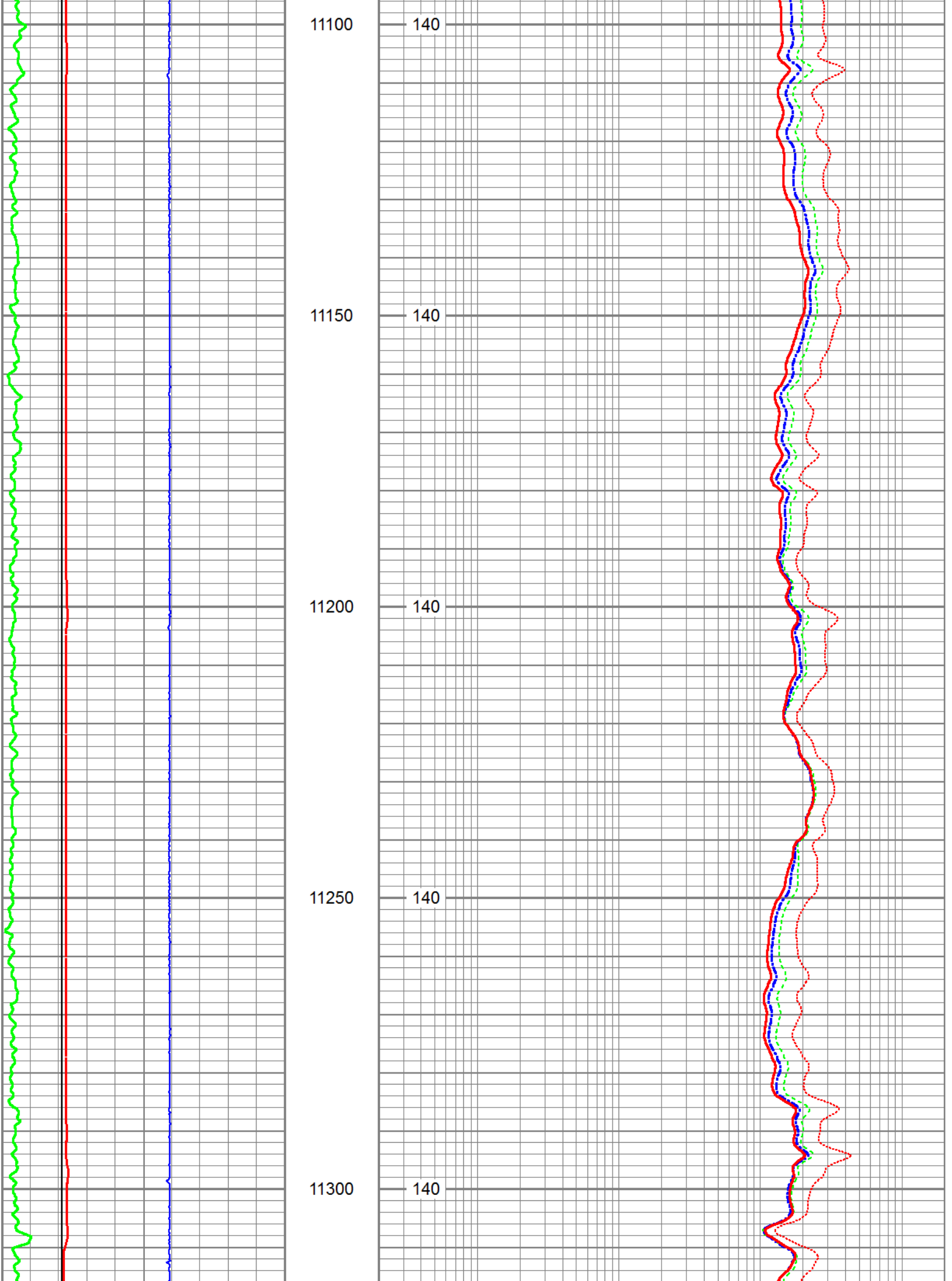
11000

140

11050

140







11350

140

11400

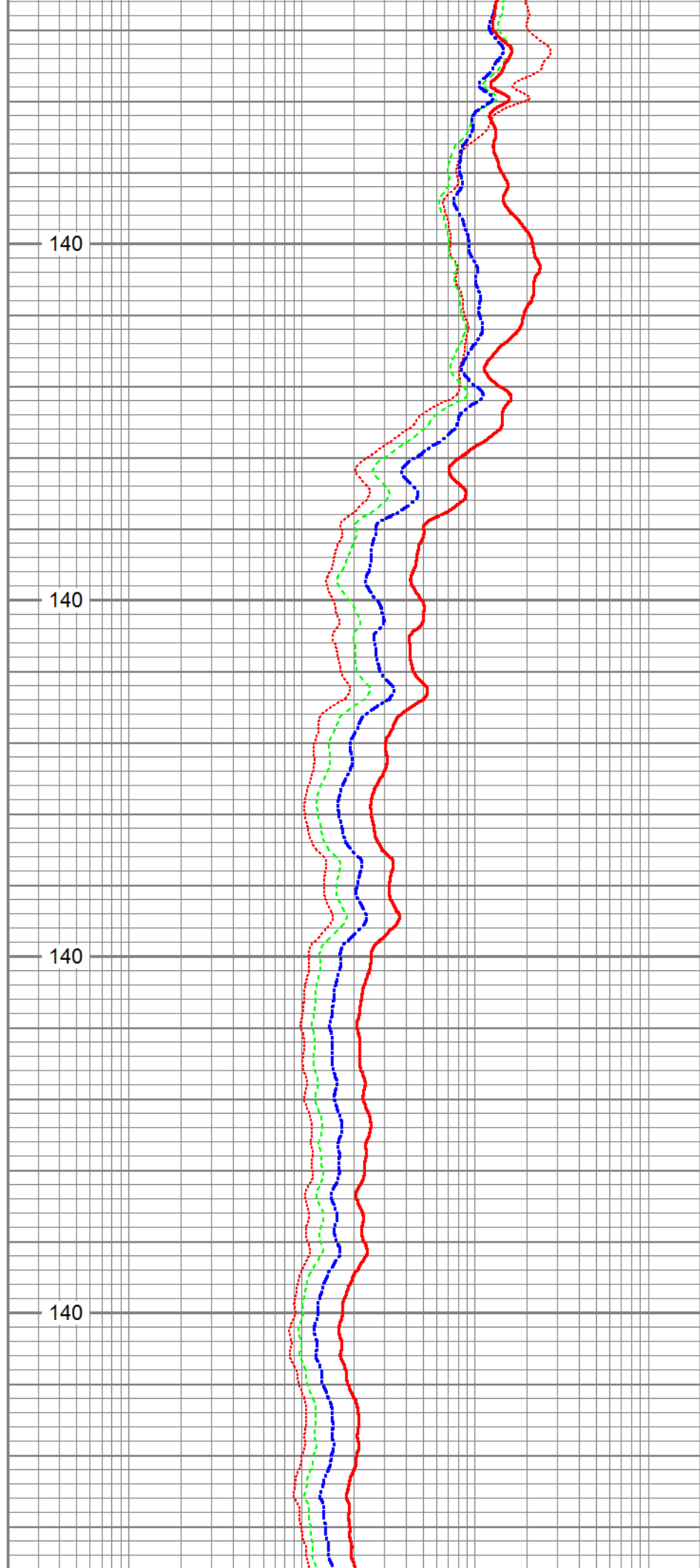
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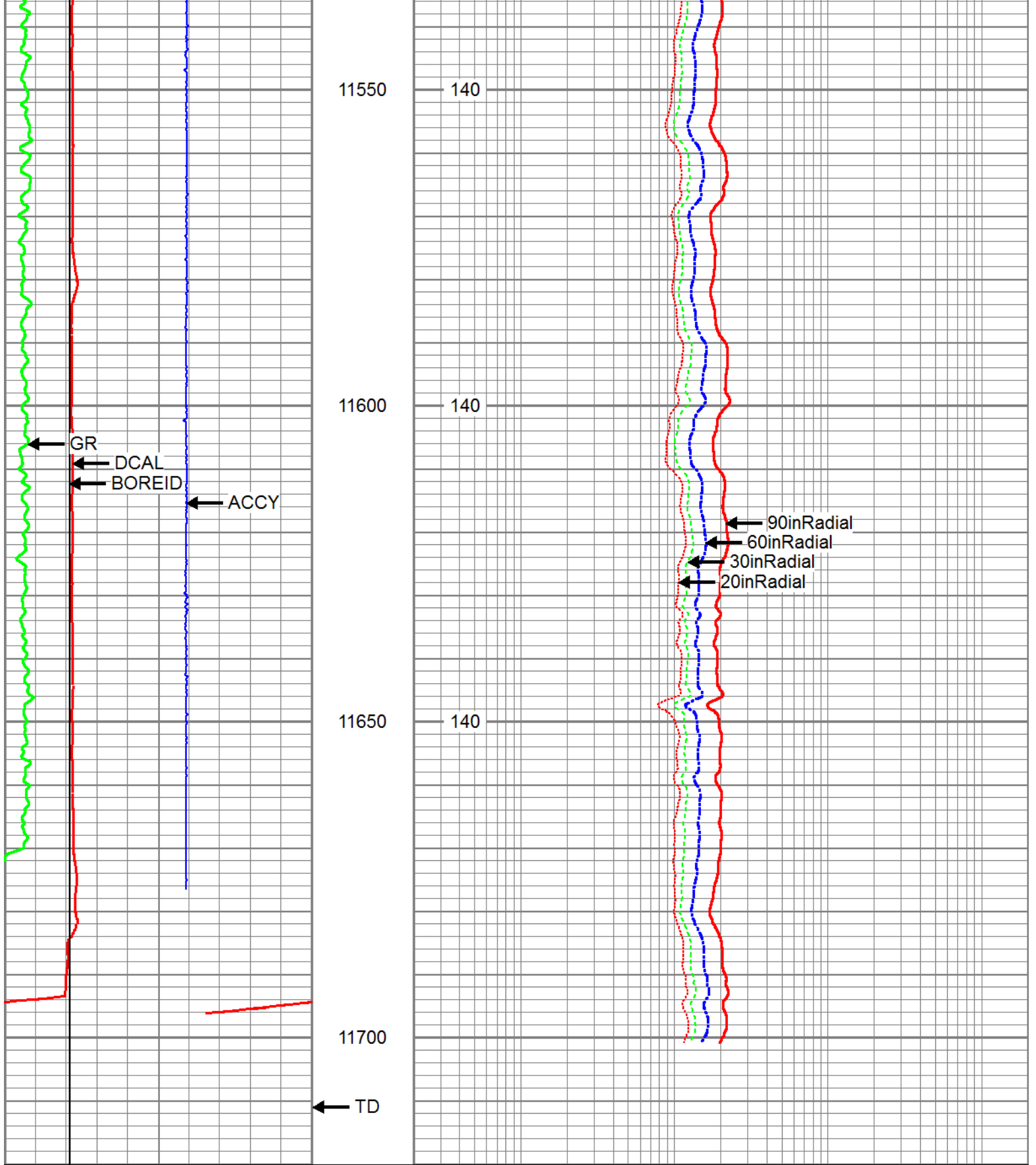
11450

140

11500

140





0	GR (GAPI)	150
4	DCAL (in)	14
4	BOREID (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)

Log Variables

Database: C:\Warrior\Data\brad 1-12h mem.db
Dataset: field/well/proc3/MERGE1

Top - Bottom

A	BHCOR	BHFL_TYPE	BHFLRES Ohm-m	BHFLRESSRC	BHIDSRC	BOREID in
1	On	WBM	0	MUDCELL	CURVE	6.125
BOTTEMP degF	CASED?	CASEOD in	CASETHCK in	CEMWATERSA kppm	CMNTTHCK in	DNBHC?
140	No	4.5	0	0	0	NO
DPORSEL	FLUIDDEN g/cc	FRMSALIN kppm	LATNOR	M	MATRXDEN g/cc	MUDSALIN kppm
RHOB	1	0	Off	2	2.71	0.5
MudWgt lb/gal	NPORSEL	PEBHC?	PERFS	RESTMPSRC	SO in	SRFTEMP degF
8.2	Limestone	YES	0	INTERNAL	0.5	65
SZCOR	TDEPTH ft	TMPCOR	TOOLPOS			
On	11711	On	Free			

Calibration Report

Database File: brad 1-12h tool ck.db
Dataset Pathname: pass1
Dataset Creation: Sun Feb 12 00:05:29 2012 by Log ThruBit 110523

ThruBit Induction Calibration Report

Tool Model-Serial Number: PS-PS25R
Shop Calibration Performed: Tue Nov 15 11:17:53 2011

BASELINE

	R	Expected	X	Expected
Freq 1				
A1	-454.9800	[-500.00, -400.00]	315.7810	[-500.00, 500.00]
A2	-145.8610	[-180.00, -100.00]	293.8830	[-500.00, 500.00]
A3	-33.2543	[-50.00, -10.00]	-8.4904	[-500.00, 500.00]
A4	-15.5625	[-30.00, -10.00]	259.2240	[-500.00, 500.00]
A5	-13.1964	[-30.00, -10.00]	101.3950	[-500.00, 500.00]
Freq 2				
A1	-235.8650	[-280.00, -180.00]	174.6280	[-500.00, 500.00]
A2	-94.7325	[-130.00, -50.00]	163.0440	[-500.00, 500.00]
A3	-24.8774	[-50.00, -10.00]	-55.2476	[-500.00, 500.00]
A4	-18.6333	[-30.00, -10.00]	86.1766	[-500.00, 500.00]
A5	-17.8894	[-30.00, -10.00]	-28.2449	[-500.00, 500.00]

Freq 3

Freq 5				
A1	-147.9980	[-180.00, -80.00]	59.5462	[-500.00, 500.00]
A2	-71.9207	[-130.00, -30.00]	78.0794	[-500.00, 500.00]
A3	-19.7890	[-50.00, -10.00]	-96.3198	[-500.00, 500.00]
A4	-19.5054	[-30.00, -10.00]	-27.1267	[-500.00, 500.00]
A5	-19.8623	[-30.00, -10.00]	-124.3060	[-500.00, 500.00]
Freq 4				
A1	-79.8178	[-120.00, -40.00]	-118.8280	[-500.00, 500.00]
A2	-52.7112	[-110.00, -10.00]	-35.6581	[-500.00, 500.00]
A3	-16.4369	[-50.00, -10.00]	-166.8140	[-500.00, 500.00]
A4	-22.9153	[-30.00, -10.00]	-192.6260	[-500.00, 500.00]
A5	-25.8370	[-30.00, -10.00]	-287.8920	[-500.00, 500.00]

CALIBRATION COEFFICIENTS

	R	Expected	X	Expected
Freq 1				
A1	0.9935	[0.95, 1.05]	0.0010	[-0.05, 0.05]
A2	0.9930	[0.95, 1.05]	0.0018	[-0.05, 0.05]
A3	1.0007	[0.95, 1.05]	-0.0051	[-0.05, 0.05]
A4	0.9881	[0.95, 1.05]	0.0039	[-0.05, 0.05]
A5	0.9952	[0.95, 1.05]	0.0043	[-0.05, 0.05]
Freq 2				
A1	0.9880	[0.95, 1.05]	-0.0085	[-0.05, 0.05]
A2	0.9869	[0.95, 1.05]	-0.0075	[-0.05, 0.05]
A3	0.9890	[0.95, 1.05]	-0.0075	[-0.05, 0.05]
A4	0.9815	[0.95, 1.05]	-0.0052	[-0.05, 0.05]
A5	0.9911	[0.95, 1.05]	-0.0060	[-0.05, 0.05]
Freq 3				
A1	0.9961	[0.95, 1.05]	-0.0079	[-0.05, 0.05]
A2	0.9955	[0.95, 1.05]	-0.0068	[-0.05, 0.05]
A3	0.9973	[0.95, 1.05]	-0.0071	[-0.05, 0.05]
A4	0.9870	[0.95, 1.05]	-0.0050	[-0.05, 0.05]
A5	1.0023	[0.95, 1.05]	-0.0044	[-0.05, 0.05]
Freq 4				
A1	0.9895	[0.95, 1.05]	-0.0152	[-0.05, 0.05]
A2	0.9893	[0.95, 1.05]	-0.0139	[-0.05, 0.05]
A3	0.9934	[0.95, 1.05]	-0.0161	[-0.05, 0.05]
A4	0.9756	[0.95, 1.05]	-0.0112	[-0.05, 0.05]
A5	1.0066	[0.95, 1.05]	-0.0118	[-0.05, 0.05]
Temperature	29.1571 degC			

ThruBit Density Calibration Report

Tool Model-Serial Number: PS-PS26D

Source Number:

Shop Calibration Performed: Mon Jan 30 11:33:36 2012

REFERENCE

	Density	Units
Aluminium	2.607	g/cc
Magnesium	1.752	g/cc

Magnesium 1.752 g/cc

READINGS

Outputs	Counts	Units	Expected
SS1 Background	143.85	cps	[130.00, 170.00]
LS1 Background	165.88	cps	[130.00, 170.00]
LS4 Background	34.24	cps	[27.00, 35.00]
SS1 Aluminium	4467.16	cps	[4500.00, 5500.00]
LS1 Aluminium	903.31	cps	[750.00, 950.00]
LS4 Aluminium	994.90	cps	[843.00, 1068.00]
SS1 Magnesium	7398.31	cps	[7000.00, 9000.00]
LS1 Magnesium	5893.85	cps	[5250.00, 6250.00]
LS1 Al + Fe	807.06	cps	[650.00, 800.00]
LS4 Al + Fe	463.13	cps	[382.00, 471.00]

RESULTS

SS Slope	1.65	[1.52, 1.77]
LS Slope	0.42	[0.38, 0.45]
PEF K Factor	5.082	[3.510, 6.170]
PEF B Factor	-0.518	[-0.700, -0.410]

Caliper Shop Calibration performed: Mon Jan 30 11:33:36 2012

RESULTS

Reference	Reading	Units
12.00	2108.93	in
9.00	2272.68	in
6.00	2451.72	in

DENSITY PRE-SURVEY CHECK Performed: Sun Feb 12 00:00:29 2012

Outputs	Counts	Units	Expected
SS1 Background	145.20	cps	[139.53, 148.16]
LS1 Background	166.88	cps	[160.91, 170.86]
LS4 Background	35.52	cps	[32.19, 36.30]

CALIPER PRE-SURVEY CHECK Performed: Wed Feb 08 18:22:28 2012

Reference	Readings	Units	Expected
6.00	5.98	in	[5.80, 6.20]

Compensated Neutron Calibration Report

Tool Model-Serial Number: PS-PS28N
 Source Number:
 Calibration Tank Temperature: 62.9 degF
 Shop Calibration Performed: Mon Jan 30 15:44:17 2012

BACKGROUND MEASUREMENT

Outputs	Measured	Units	Expected
SS Counts	0.0	cps	<10
LS Counts	0.0	cps	<4

WATER TANK REFERENCE

Outputs	Measured	Units	Expected
SS Counts	3550.3	cps	
LS Counts	98.5	cps	
Tank Ratio Ref	30.9580	SS/LS	
Tank Ratio	36.0554	SS/LS	
Tank Ratio Gain	0.8586		[0.85, 1.15]

ALUMINUM SLEEVE REFERENCE

Outputs	Measured	Units	Expected
SS Counts	41552.7	cps	
LS Counts	3204.2	cps	
Al Ratio Ref	10.797	SS/LS	
Al Ratio	11.135	SS/LS	
Al Ratio Gain	0.97		[0.90, 1.10]
Sleeve Porosity	14.46	pu	

PRE-SURVEY BACKGROUND CHECK Performed: Sun Feb 12 00:05:03 2012

Outputs	Measured	Units	Expected
SS Counts	1.0	cps	<10
LS Counts	2.2	cps	<4

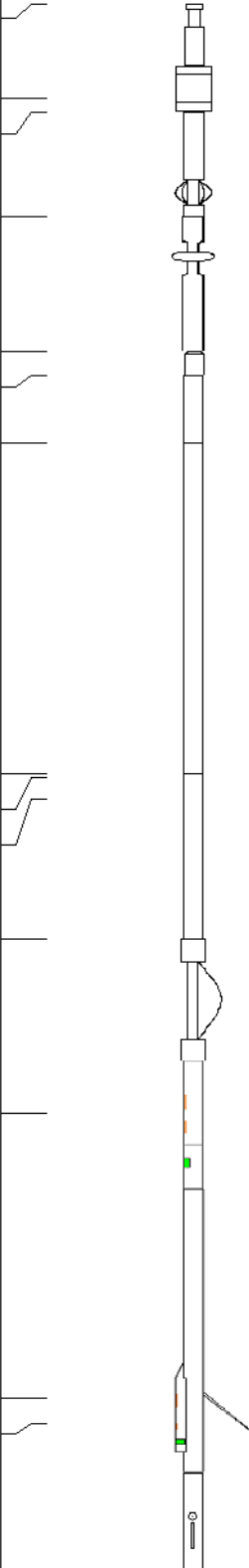
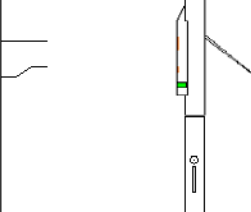
Gamma Ray Calibration Report

Tool Model-Serial Number: PS-PS29T
 Performed: Mon Jan 30 10:34:41 2012
 Calibrator Value: 152.0 GAPI
 Background Reading: 62.6 cps
 Calibrator Reading: 372.9 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	0.00	1.00	0.00	1.00	gee

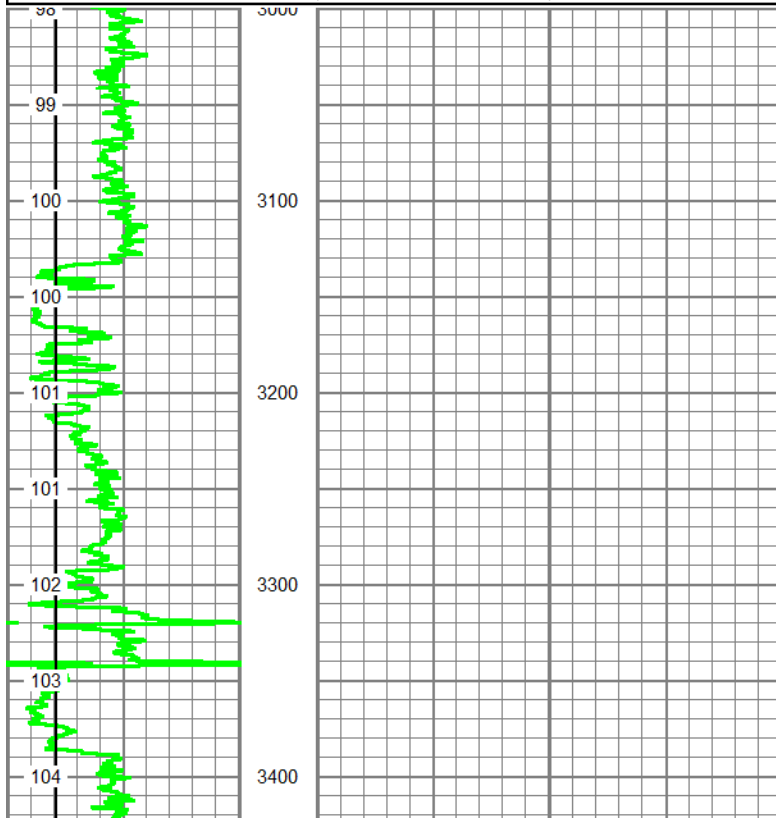
Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
ThruBit	69.67		Cablehead-S Solid Weakpoint	2.31	2.13	5.00
CCL	66.15		CCL-SDSCCL (SDS) CCL For Testing	1.71	2.13	5.00
ThruBit	65.65		PSBDOT	3.87	2.25	35.00
ThruBit	61.79		HangOff_Tool	5.00	2.38	60.00
ThruBit	56.79		10-1	0.88	2.13	3.95
ThruBit	55.91		Swivel	2.50	2.06	25.00
TBBAT	53.41		TBBAT-A (PS09B) ThruBit Battery	12.25	2.13	38.20
TMG	41.16		TMG-PS (PS29T) ThruBit Telemetry Gamma Ray	6.13	2.13	45.00
GR	41.04					
GRTEMP	40.20					
ThruBit	35.04		Decentralizer Decentralizer (Small)	4.50	2.13	70.00
CNLSC	28.60		TBN-PS (PS28N) ThruBit Neutron	4.77	2.13	63.00
			TBD-PS (PS26D) ThruBit Density	10.48	2.13	91.00
LSW1	18.04					
DCAL	17.13					
A1_P	10.60					
A2_P	10.10					
A3_P	9.35					

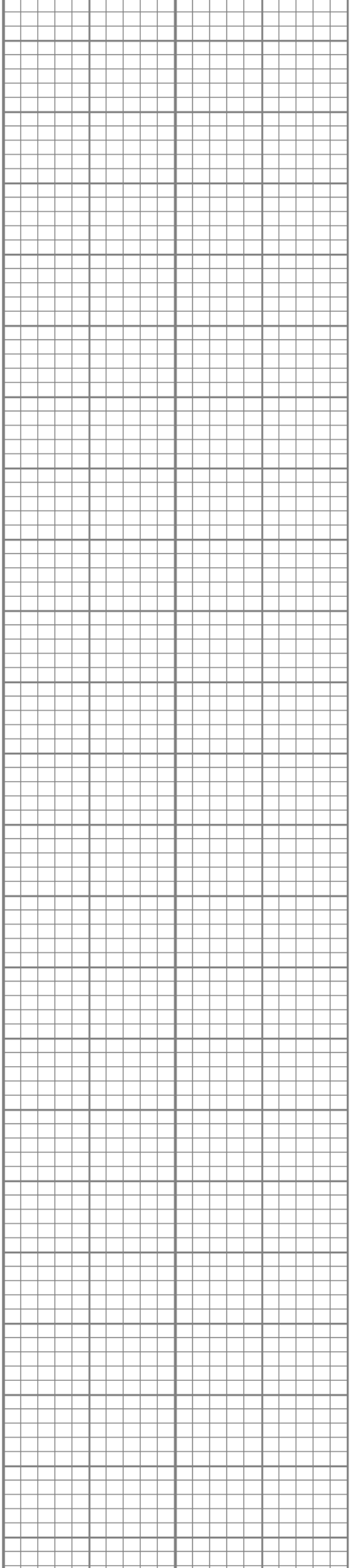
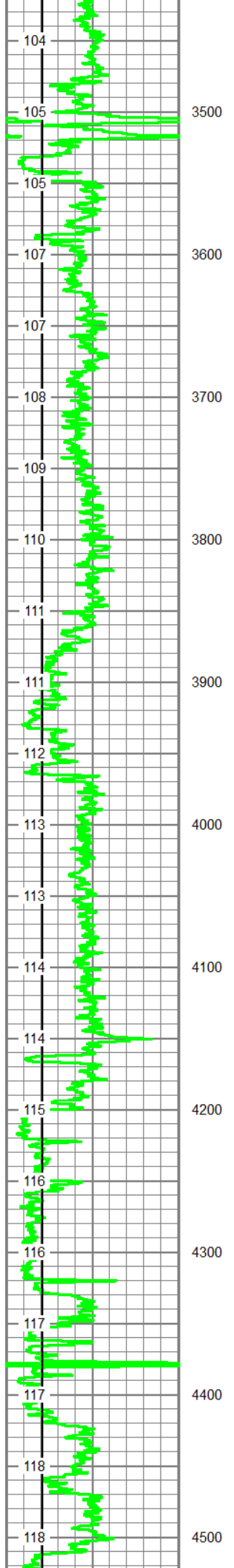
A3_P	9.35			15.29	2.13	94.00
A4_P	8.35					
A5_P	6.60					

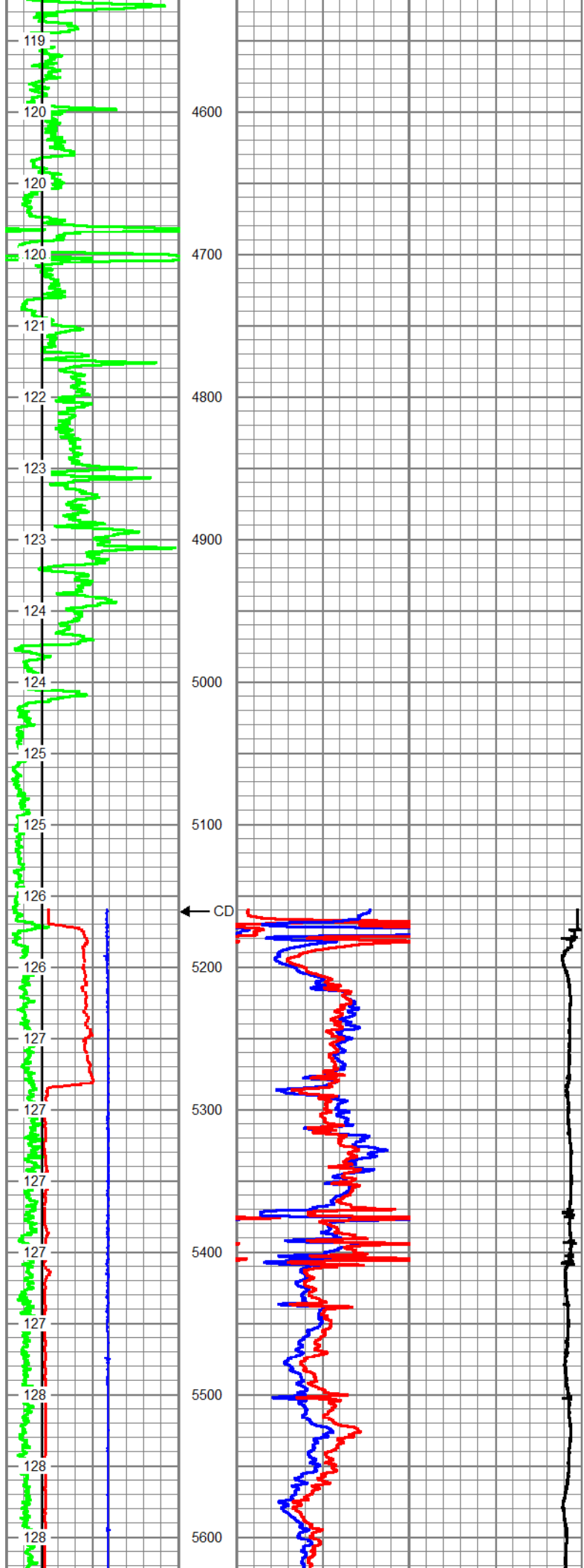
Dataset: brad 1-12h tool ck.db: field/well/run1/pass1
 Total Length: 69.67 ft
 Total Weight: 535.15 lb
 O.D.: 2.38 in

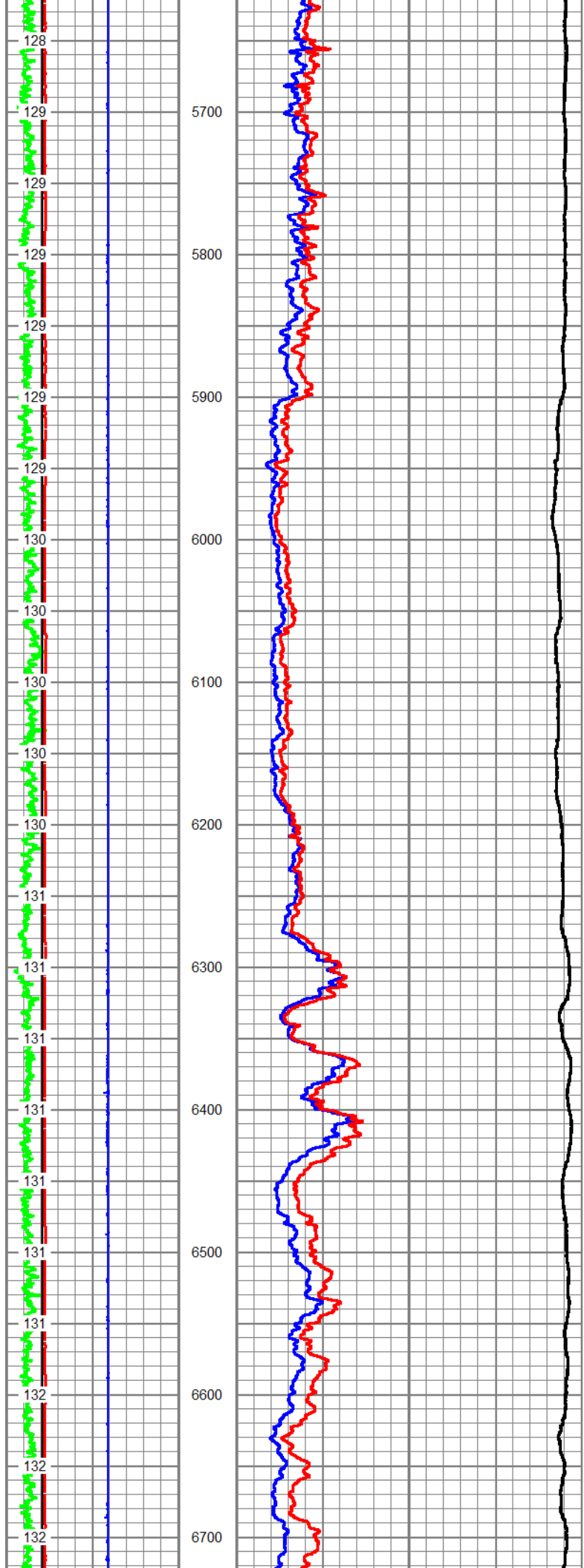
	Company	SANDRIDGE ENERGY, INC.
	Well	BRAD 1-12H
	Field	BOUSE
	County	HARPER
	State	KANSAS

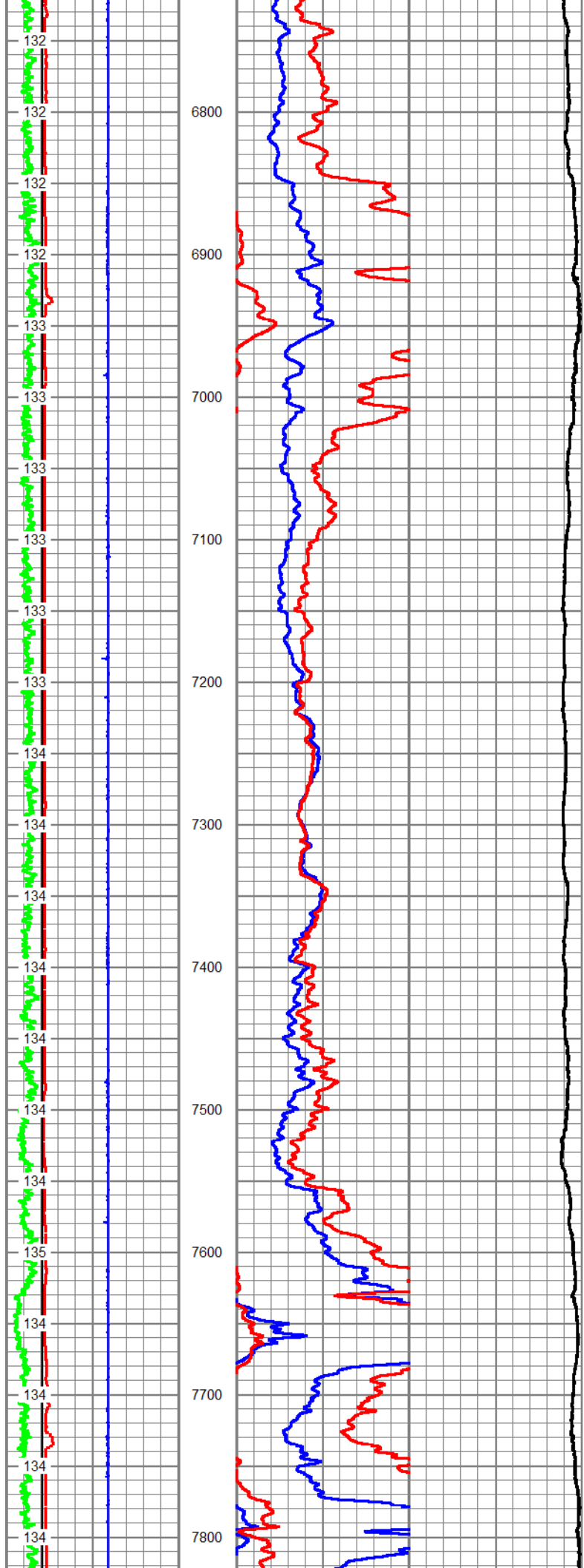
		<h2>MAIN PASS</h2>	
Database File: brad 1-12h mem.db Dataset Pathname: proc3/MERGE1 Presentation Format: sand2r Dataset Creation: Mon Feb 13 22:42:12 2012 Charted by: Depth in Feet scaled 1:1200			
0	GR (GAPI)	150	
4	DCAL (in)	14	
-5	ACCY	5	
4	BOREID (in)	14	
GRTEMP			
(degF)			
		20in 2ft Res	
		50 (Ohm-m)	500
		90in 2ft Res	
		50 (Ohm-m)	500
		1000 DEEP COND (mmho/m)	0
		20in 2ft Res	
		0 (Ohm-m)	50
		90in 2ft Res	
		0 (Ohm-m)	50

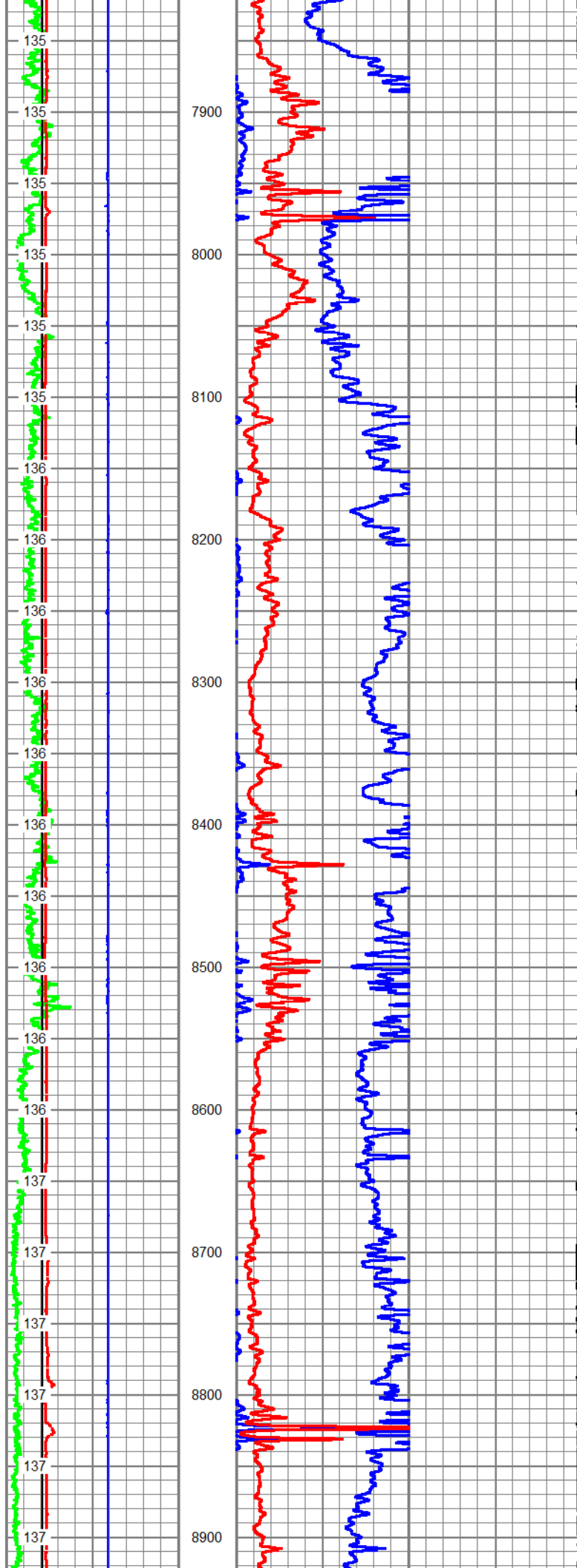


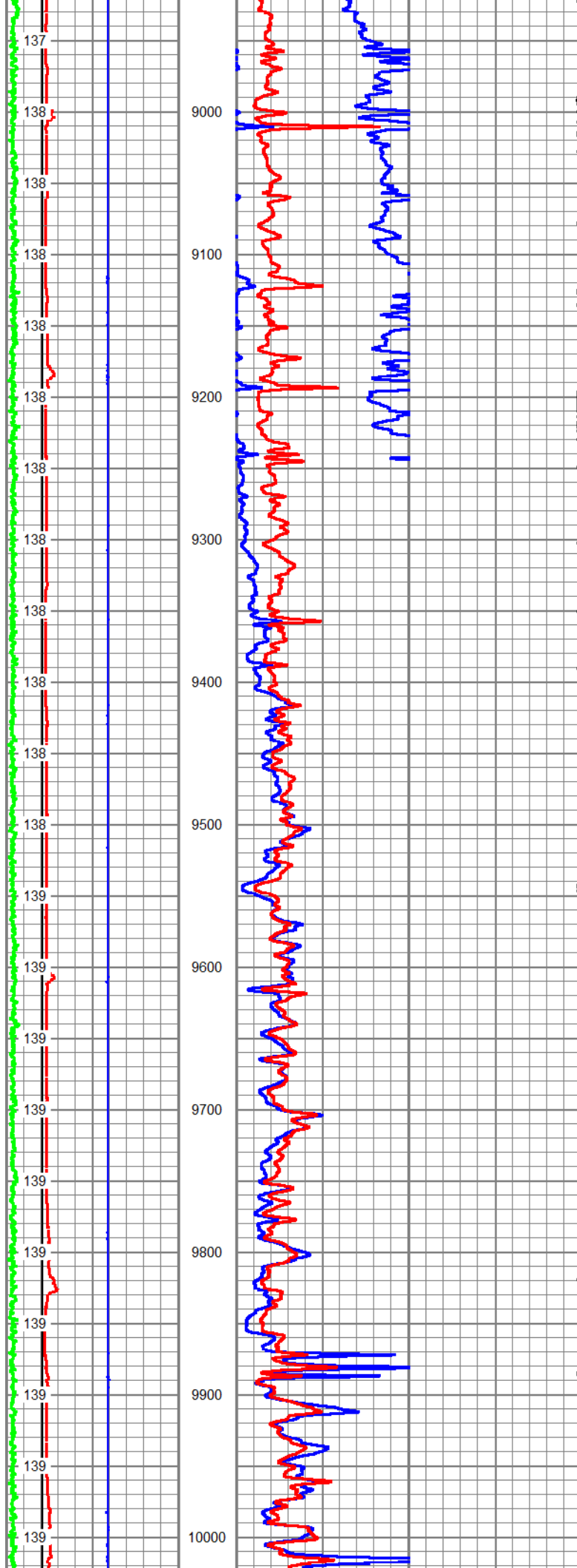


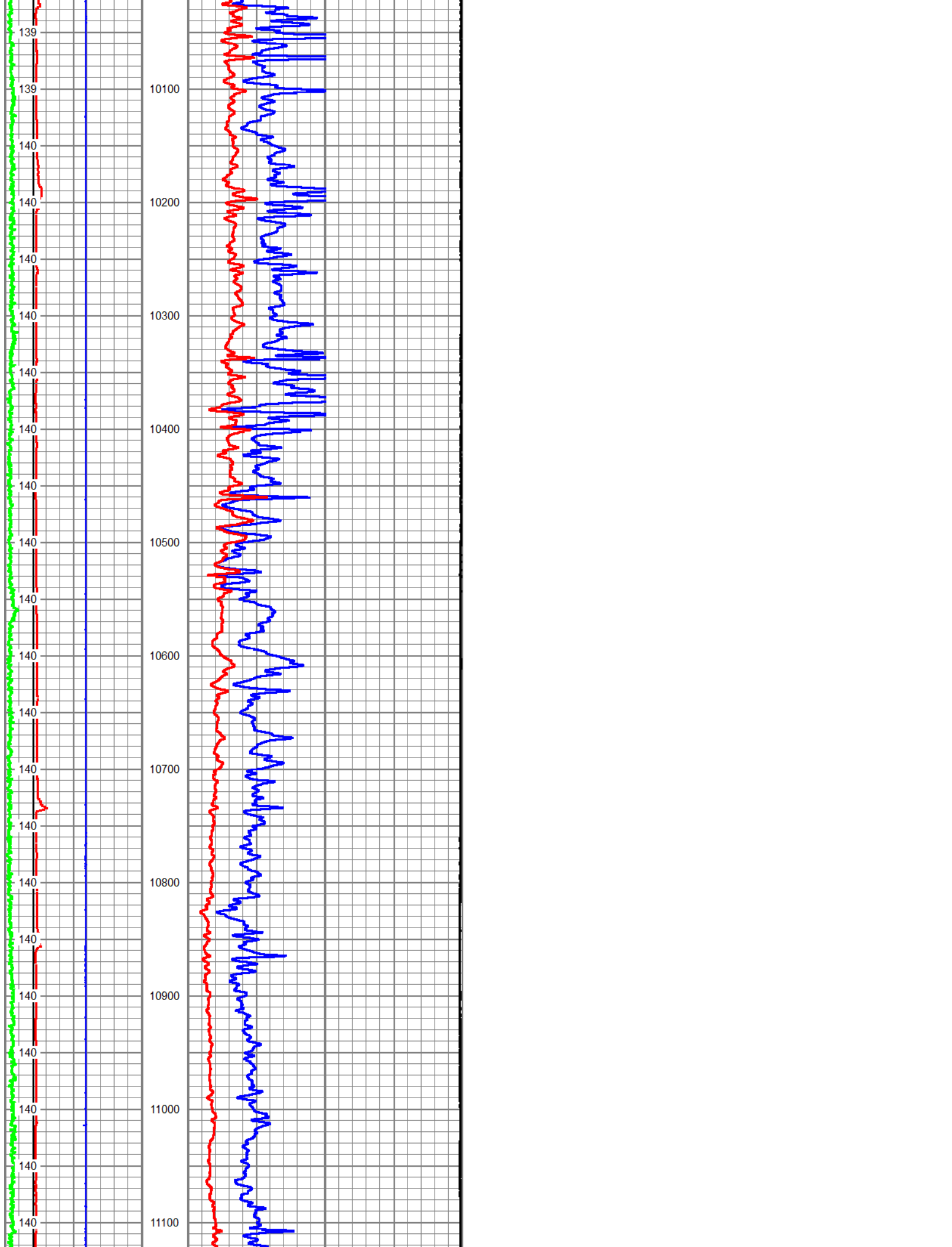


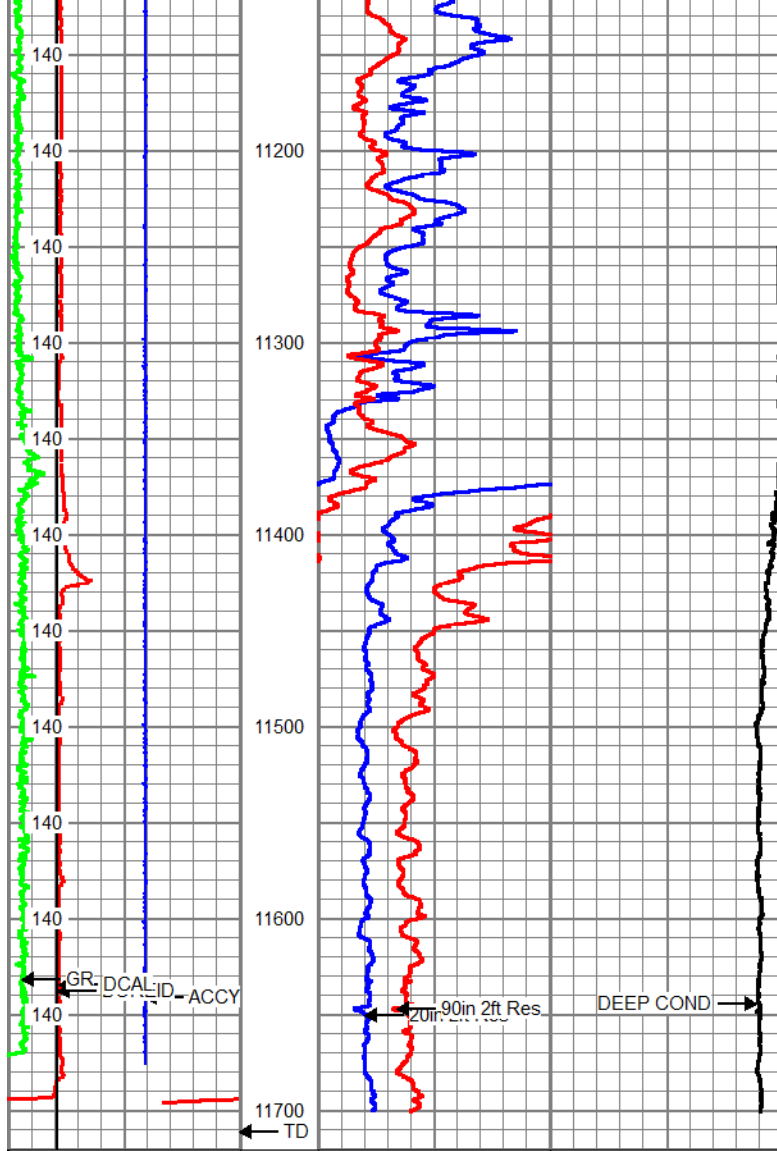












0	GR (GAPI)	150
4	DCAL (in)	14
-5	ACCY	5
4	BOREID (in)	14

GRTEMP
(degF)

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



MAIN PASS