ThruBit
A Schlumberger Company

ARRAY INDUCTION GAMMA RAY MEMORY LOG

Company SANDRIDGE ENERGY
Well JOANN 1-1H
Field WALDRON WEST
County BARBER
State KANSAS

Company SANDRIDGE ENERGY
Well JOANN 1-1H
Field WALDRON WEST
County BARBER State KANSAS
Location: API # : 15007238770000
SHL: 2440' FSL & 1245' FWL
PBHL: 2310' FNL & 660' FWL
SEC 1 TWP 35S RGE 10W

Other Services
THRUBIT
PORTAL BIT

Permanent Datum G.L. Elevation 1316'
Log Measured From K.B. 15' ABOVE PERM DATUM
Drilling Measured From K.B.

Elevation
K.B. 1331'
D.F. 1331'
G.L. 1316'

Date	3 JUNE 2012		
Run Number	ONE		
Depth Driller	8729		
Depth Logger	8702		
Bottom Logged Interval	8692		
Top Log Interval	2909		
Casing Driller	7" @ 5358'		
Casing Logger	5329		
Bit Size	6.125"		
Type Fluid in Hole	WBM		
Density / Viscosity	9.0 / 38		
pH / Fluid Loss	9.0 / 9.0		
Source of Sample	MUD PIT		
Rm @ Meas. Temp	0.56 ohms @ 70 degf		
Rmf @ Meas. Temp	0.42 ohms @ 70 degf		
Rmc @ Meas. Temp	0.7 ohms @ 70 degf		
Source of Rmf / Rmc	CALCULATED		
Rm @ BHT	0.31 ohms @ 134 degf		
Time Circulation Stopped	1:45 A.M. 6-3-2012		
Time Logger on Bottom	3:20 A.M. 6-3-2012		
Maximum Recorded Temperature	134 degf		
Equipment Number	T011		
Location	OKC, OK		
Recorded By	BROOMFIELD		
Witnessed By	BRENT SEGREST		

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Comments

SERVICE: LEVEL 4- HORIZONTAL MEMORY PUMPDOWN - BIT DEPTH 8638' LOG TO 2909'
ALL SCALES AND PRESENTATION PER CLIENT REQUEST
LIMESTONE POROSITY , 2.71 G/CC, USED FOR POROSITY CALCULATIONS
LOG RAN WITH SWIVEL AND DECENTRALIZER
TBHV REPRESENTS TOTAL BOREHOLE VOLUME, FT3
ABHV REPRESENTS ANNULAR BOREHOLE VOLUME, FT3, CALCULATED FOR 4.50" CASING
RIGMINDER LITE AND PASON USED TO CREATE DEPTH LOG
LOG DEPTH CORRELATED TO PIPE TALLY PROVIDED BY CUSTOMER

RIG: UNIT 310
CREW: R. BROOMFIELD, J. HIRSCHLER, Z. HOWARD

Service Ticket No.	1195	API No.	15007238770000	PGM Ver	WARRIOR 7.0

The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client

EQUIPMENT DATA

GAMMA RAY	NEUTRON	DENSITY	INDUCTION

Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	PS05T	Serial No.	ENP03N	Serial No.	PS35D	Serial No.	PS34R
Model No.	PS	Model No.	ENP	Model No.	PS	Model No.	PS
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	
ONE	8702'	2909'		35	

	GAMMA RAY		NEUTRON		DENSITY'		INDUCTION	
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
ONE	0 API	150 API	30 %	-10 %	30 %	-10 %	0.2 OHM-M	2000 OHM-M

DIRECTIONAL INFORMATION

Maximum Deviation	91.5	deg. @	6177'	KOP	3896'	

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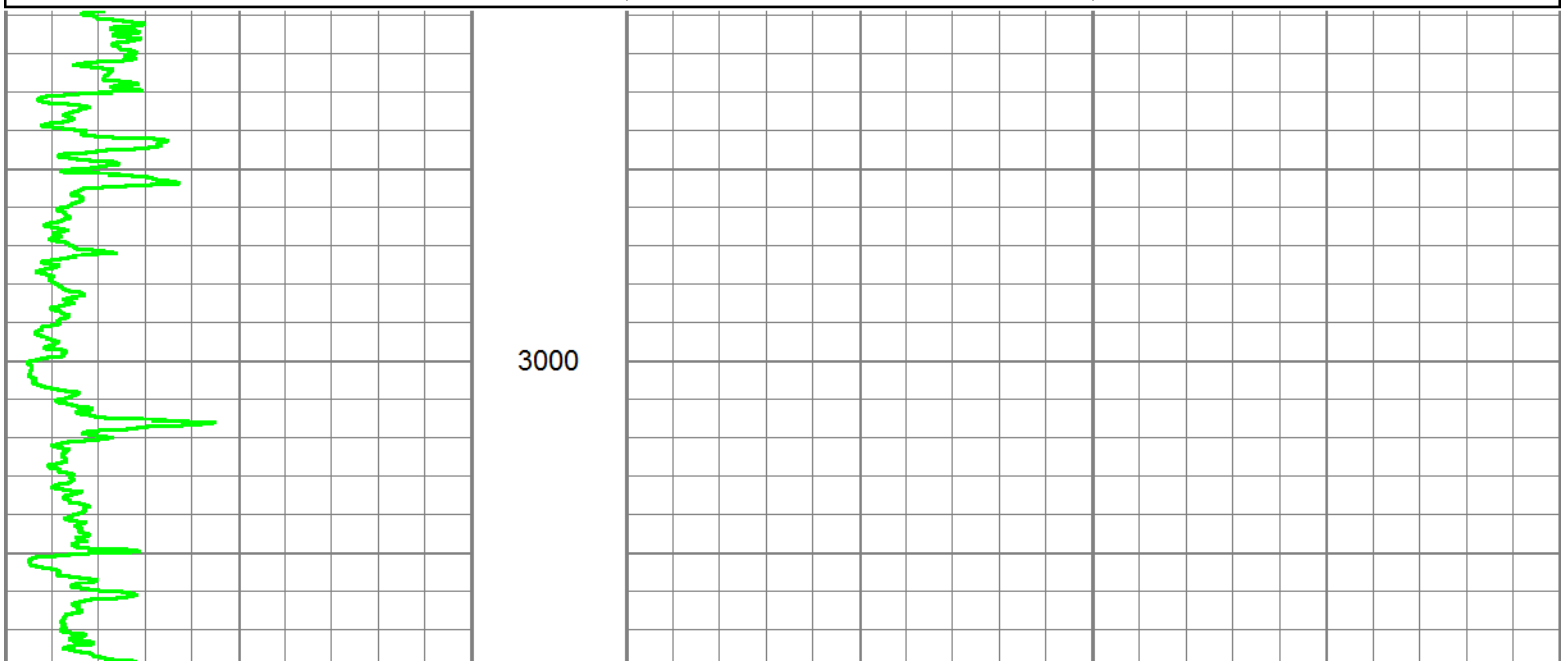
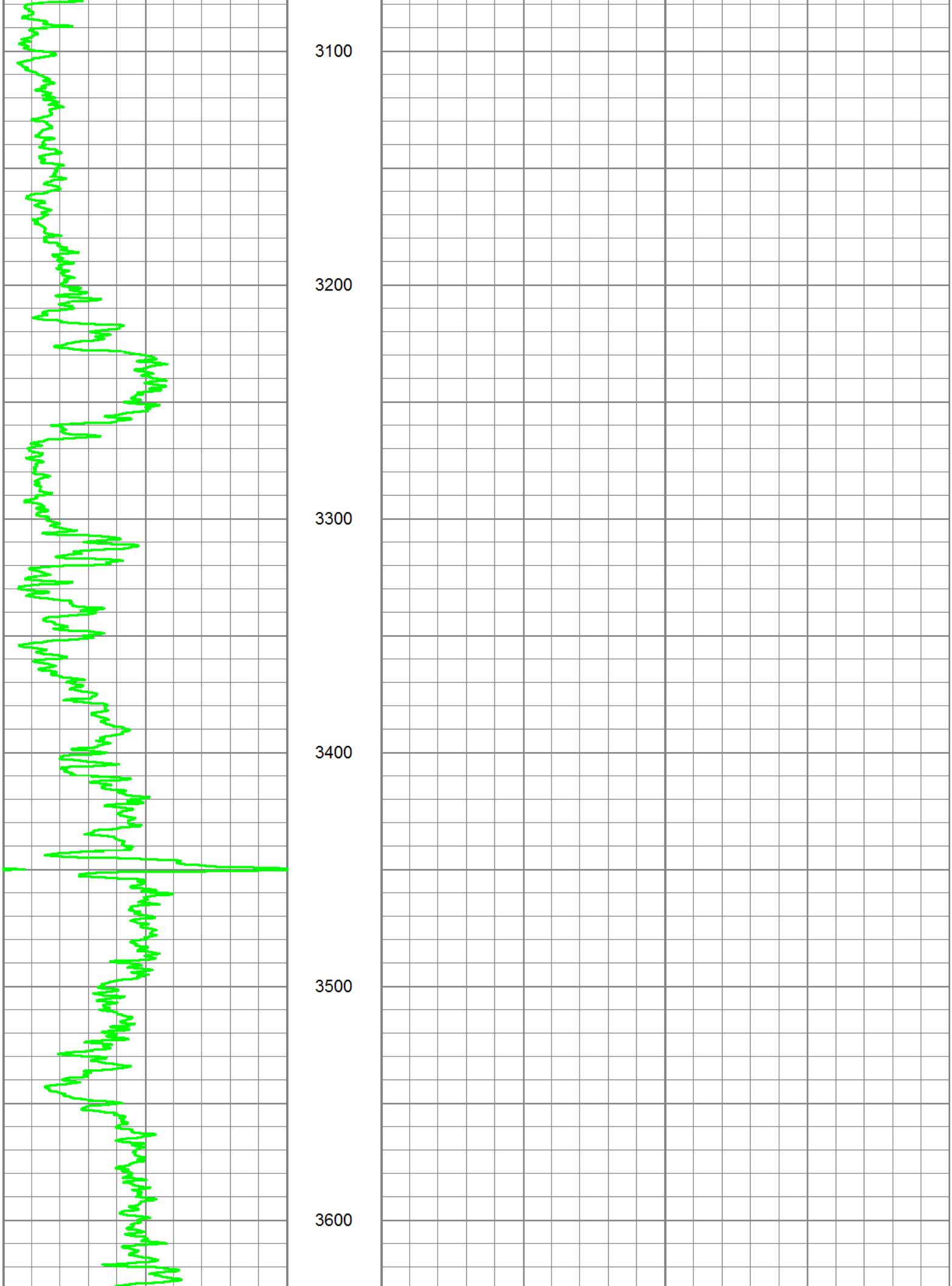
MAIN PASS

Database File: sandridge_joann_mem.db
Dataset Pathname: proc1/pass1.4
Presentation Format: chespk2r
Dataset Creation: Sun Jun 03 12:54:47 2012
Charted by: Depth in Feet scaled 1:600

0	GR (GAPI)	150
4	DCAL (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

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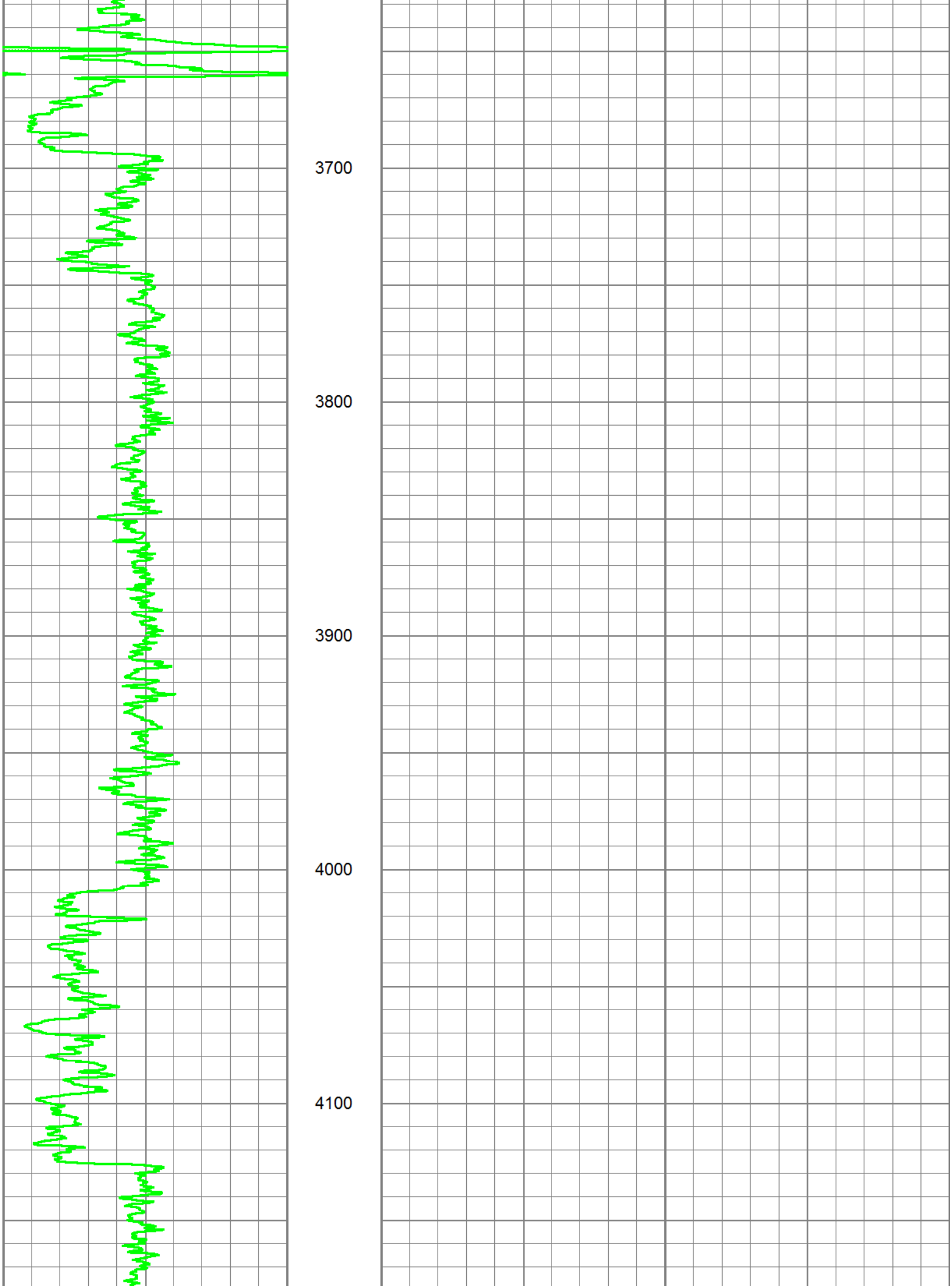
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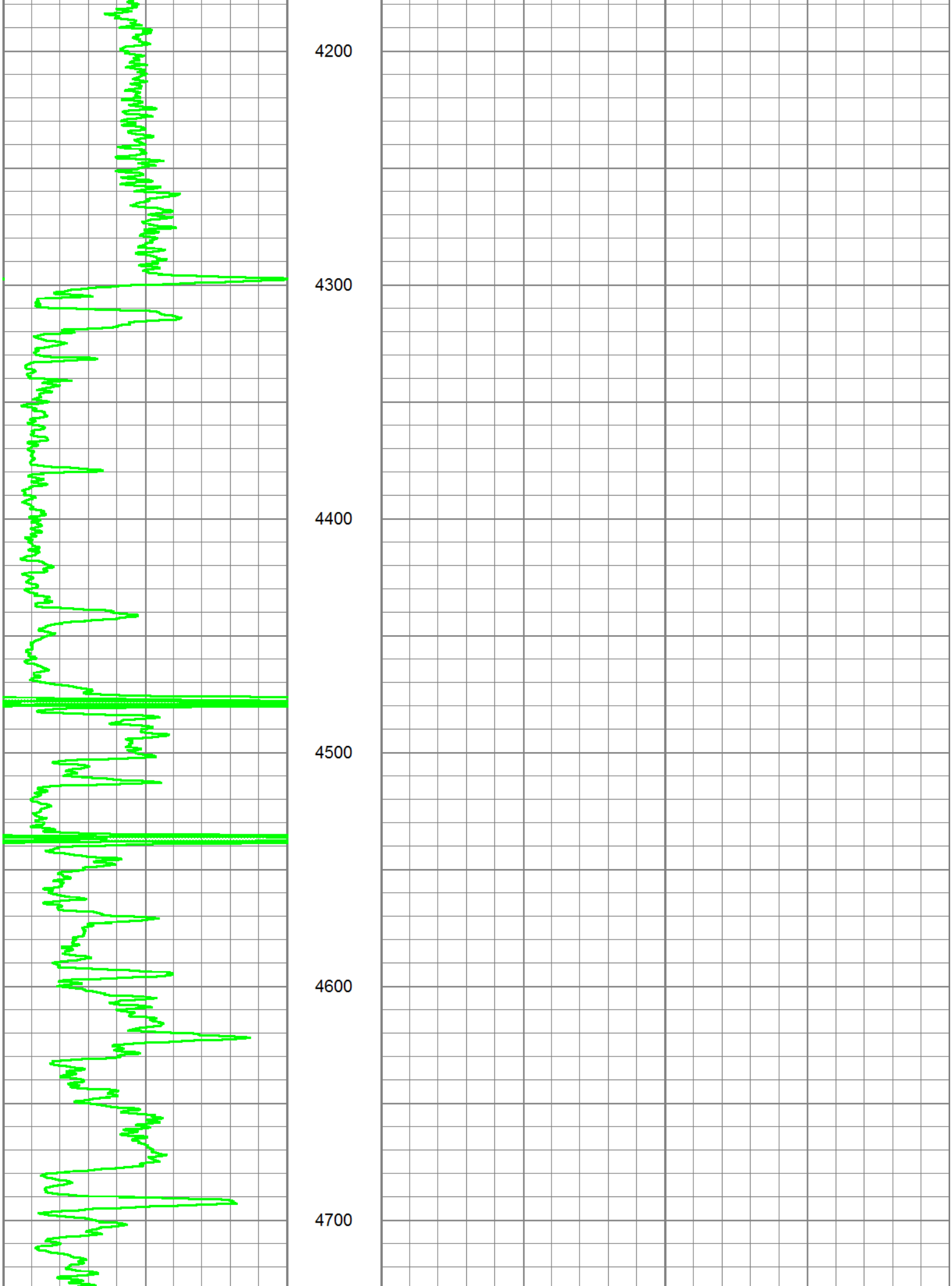
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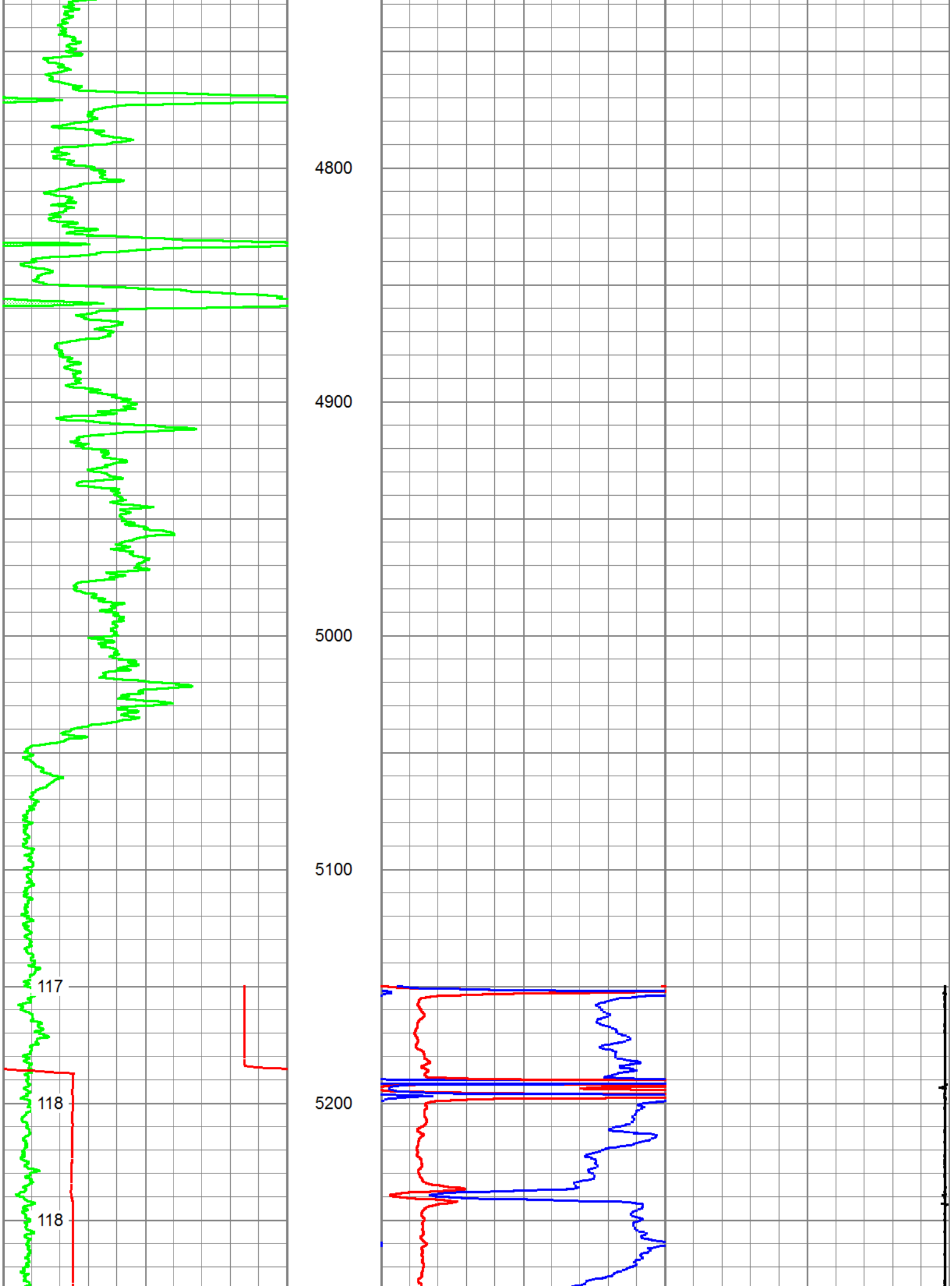
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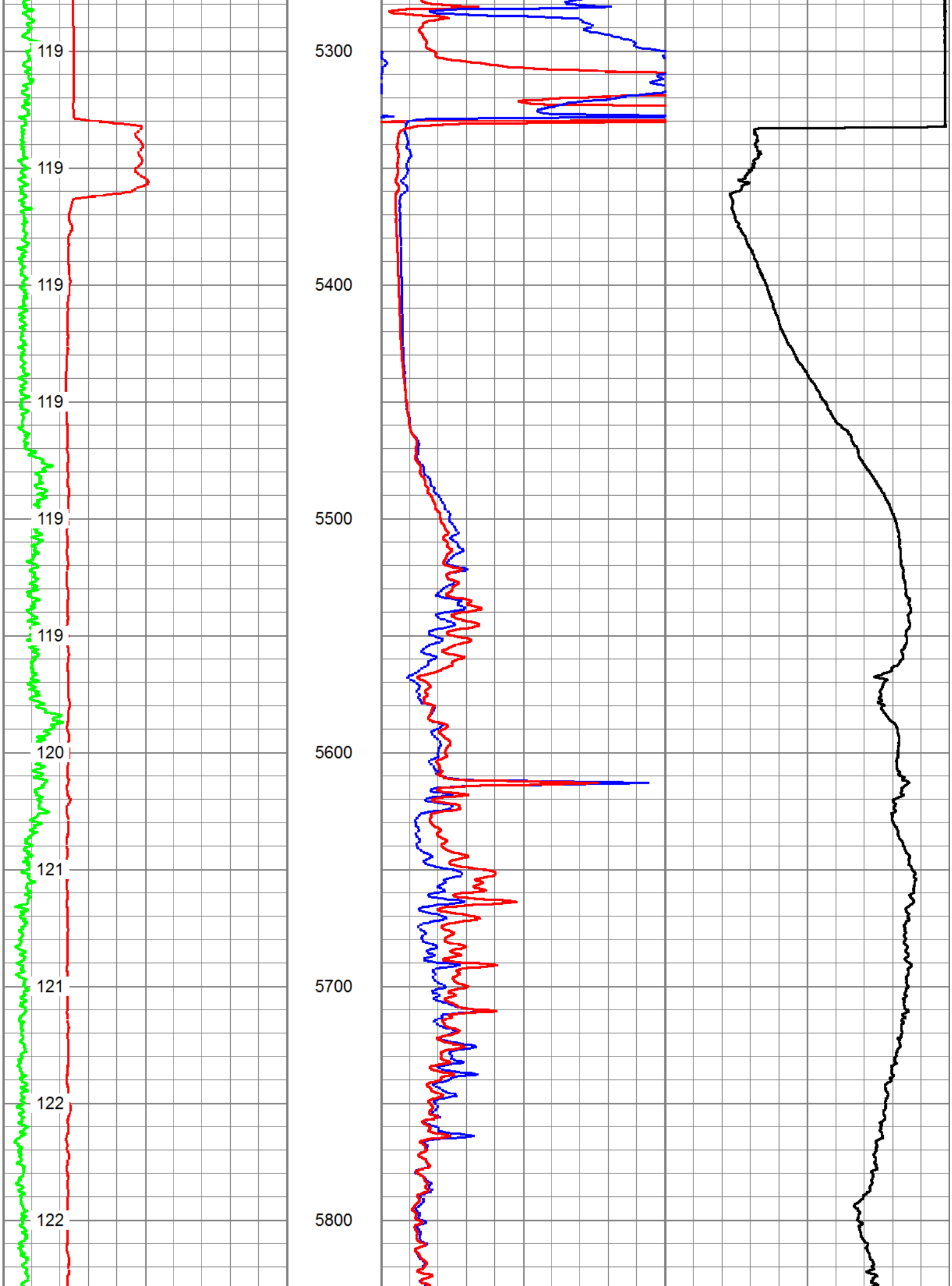
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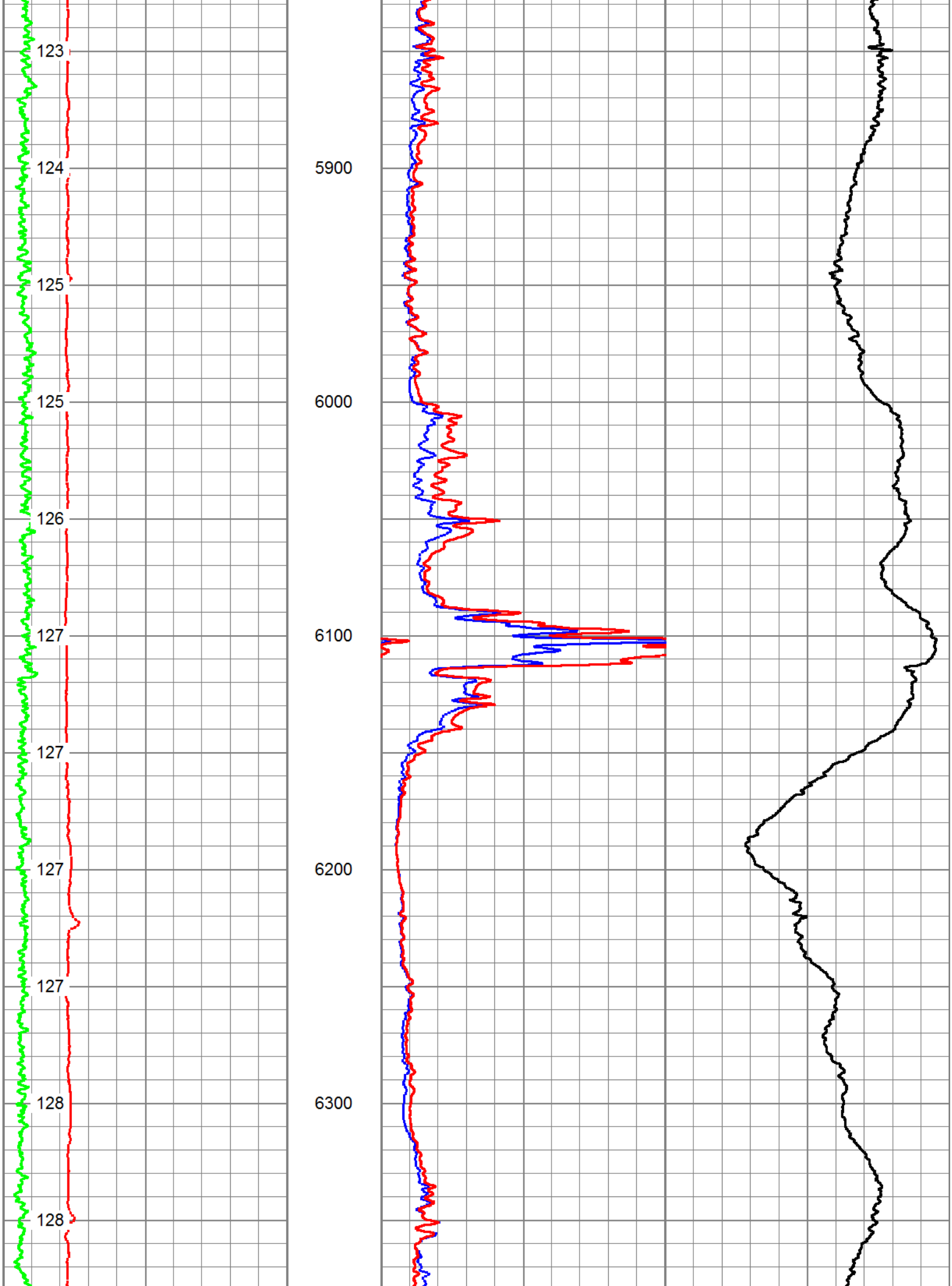
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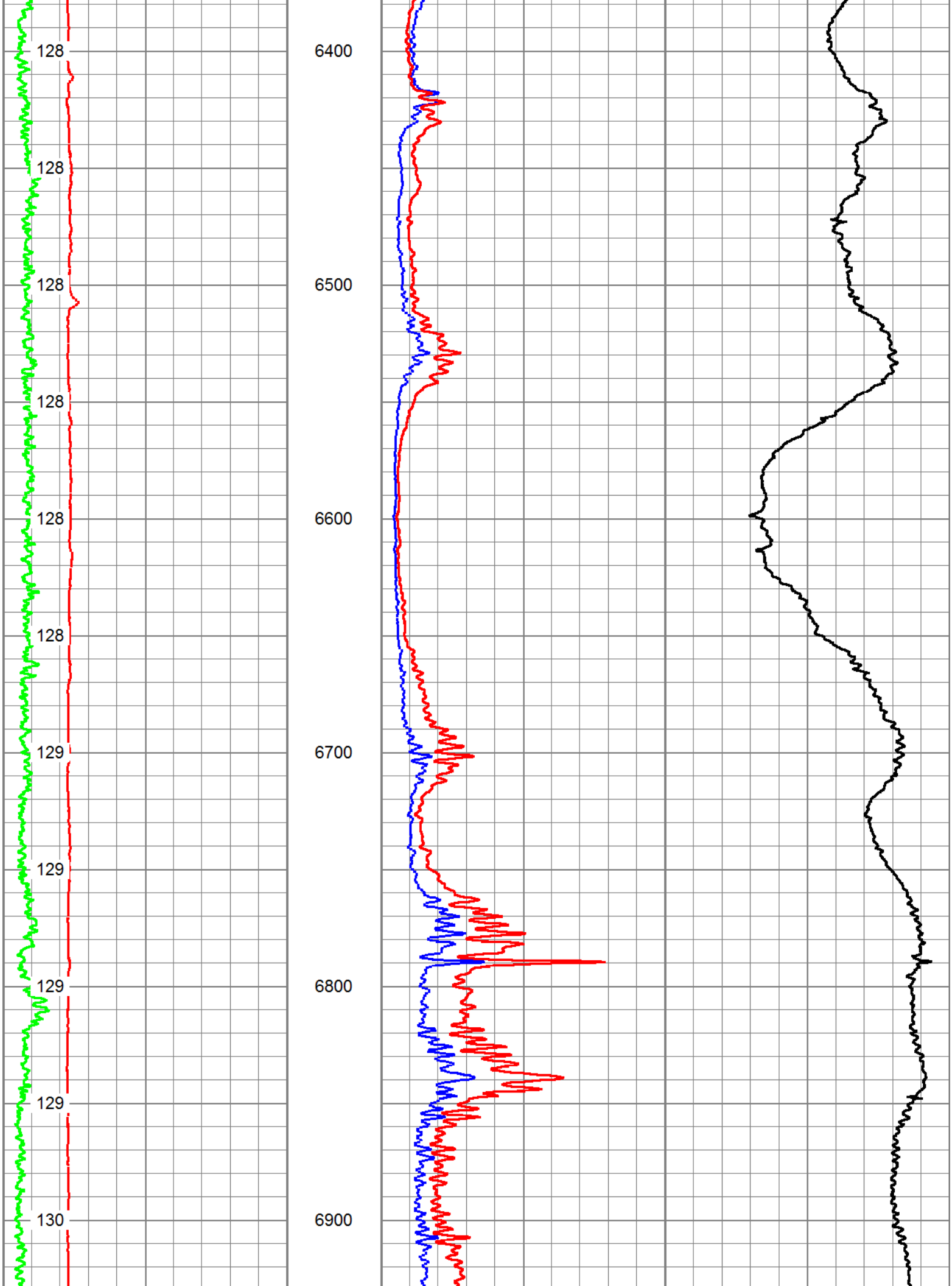
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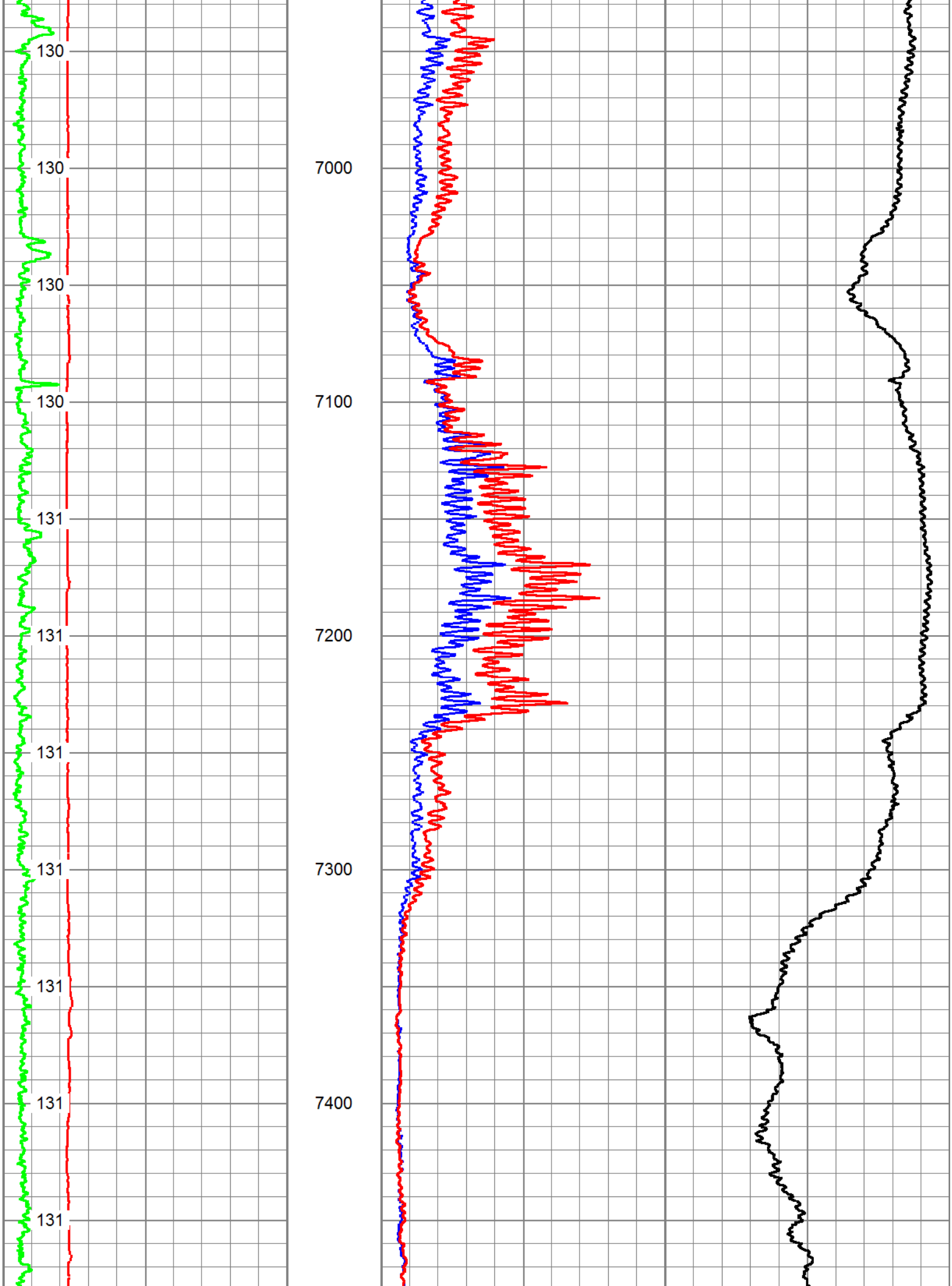
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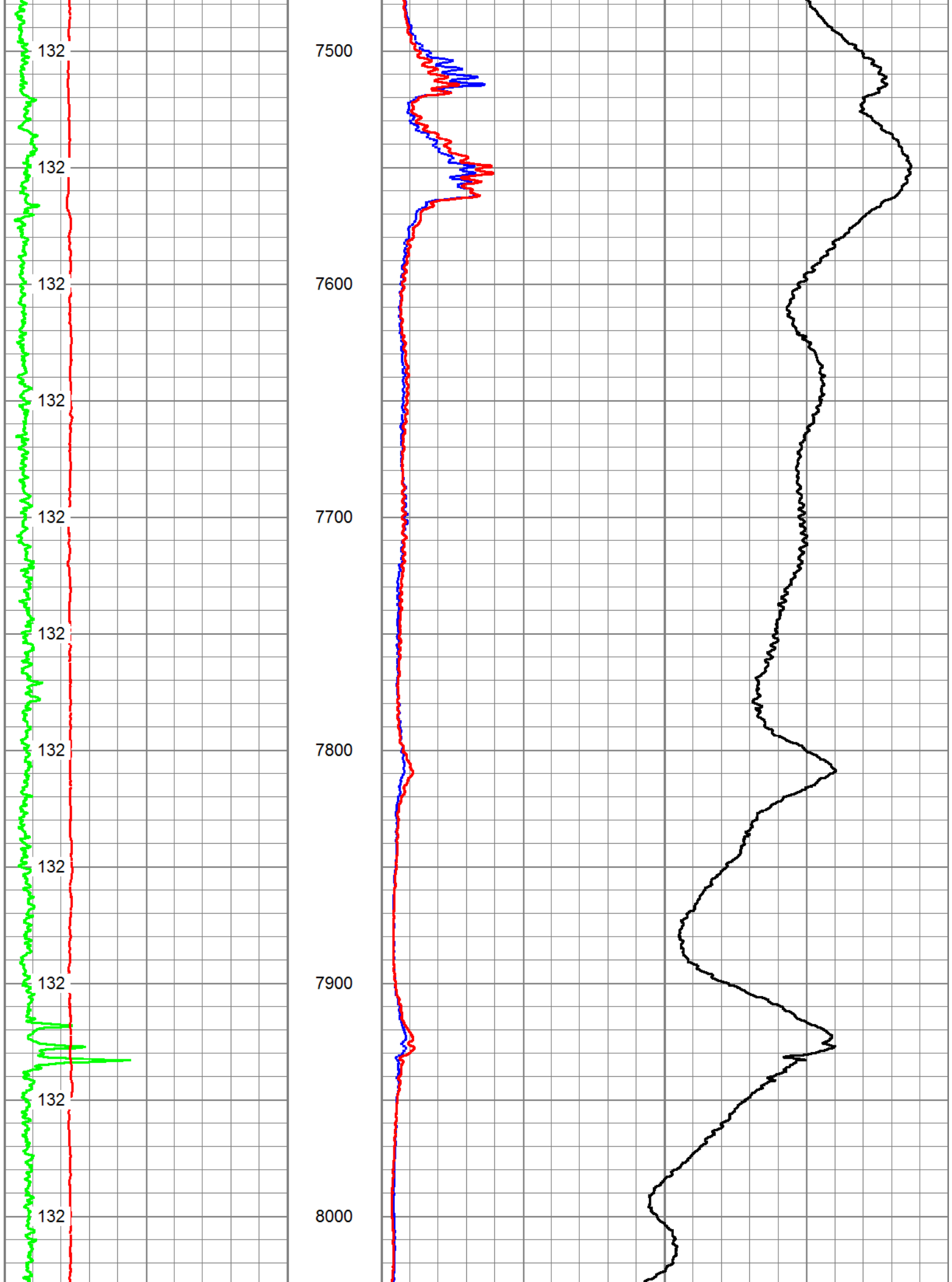
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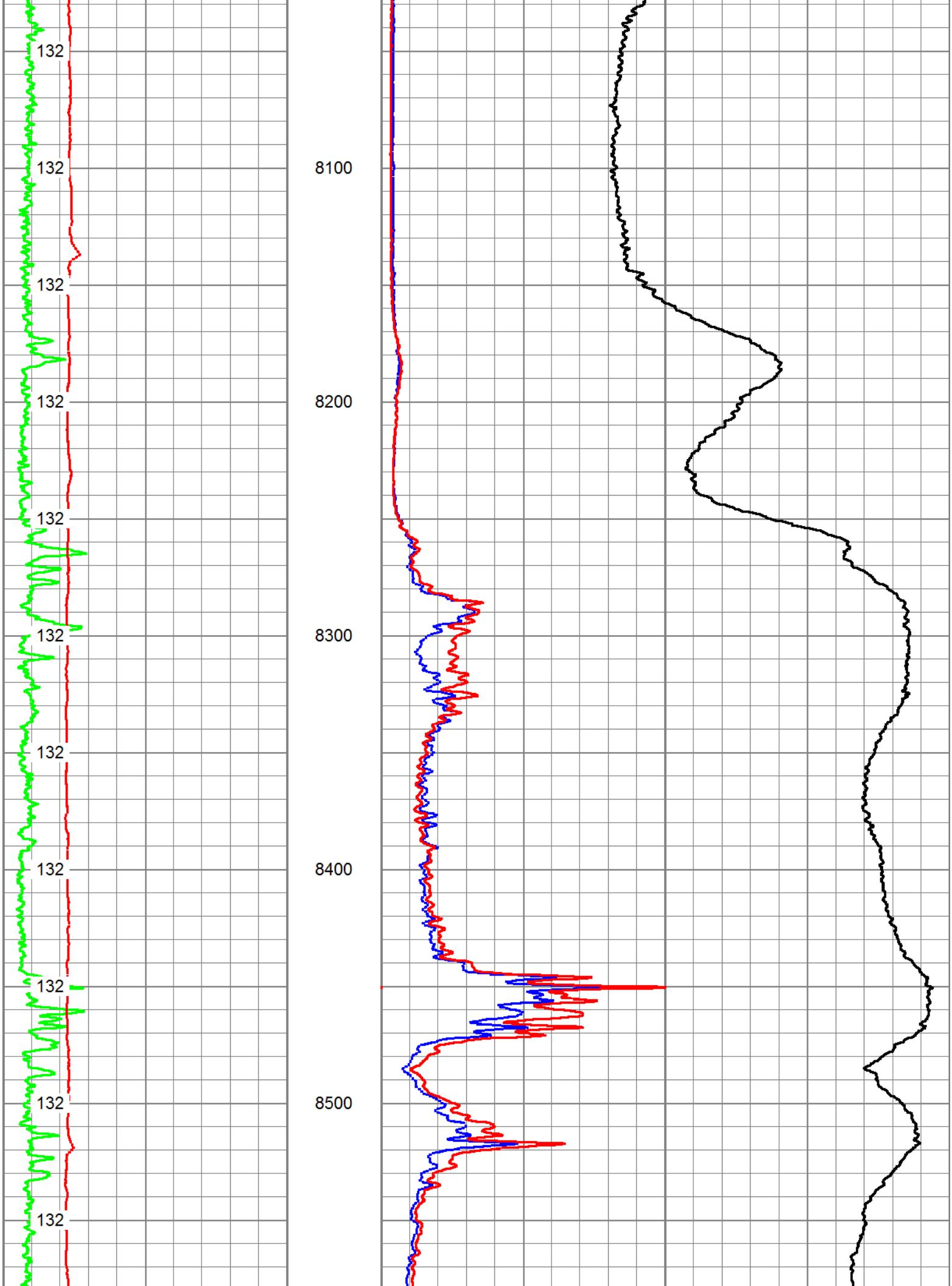
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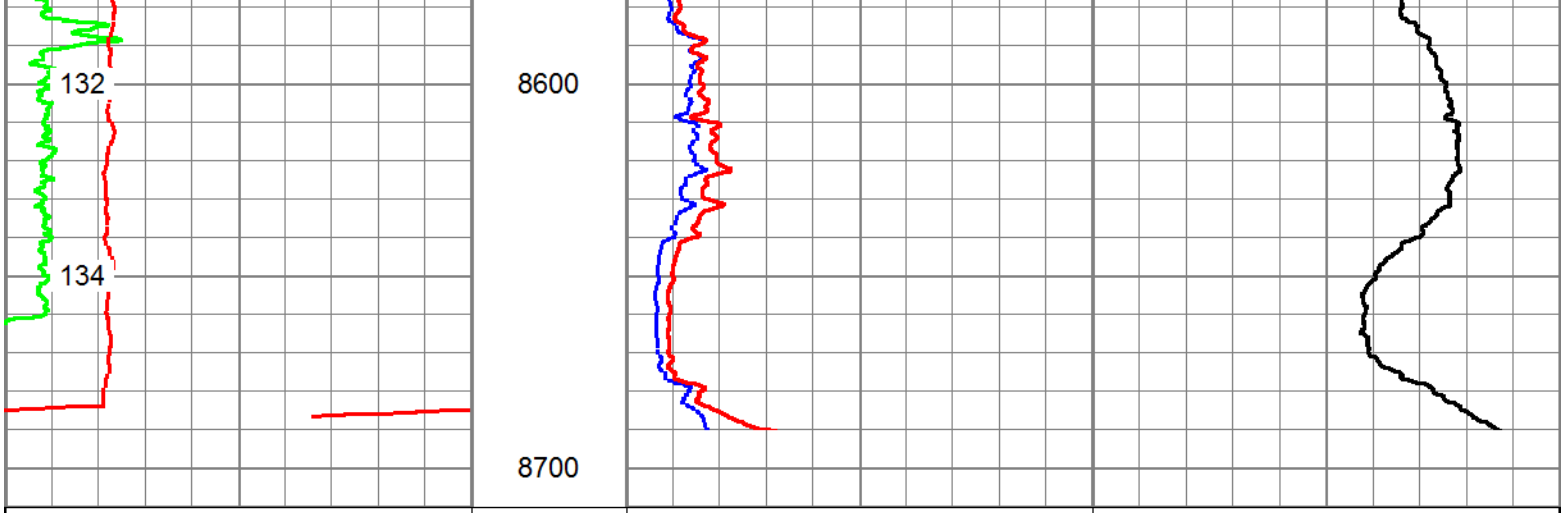

0	GR (GAPI)	150
4	DCAL (in)	14
GRTEMP (degF)		

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

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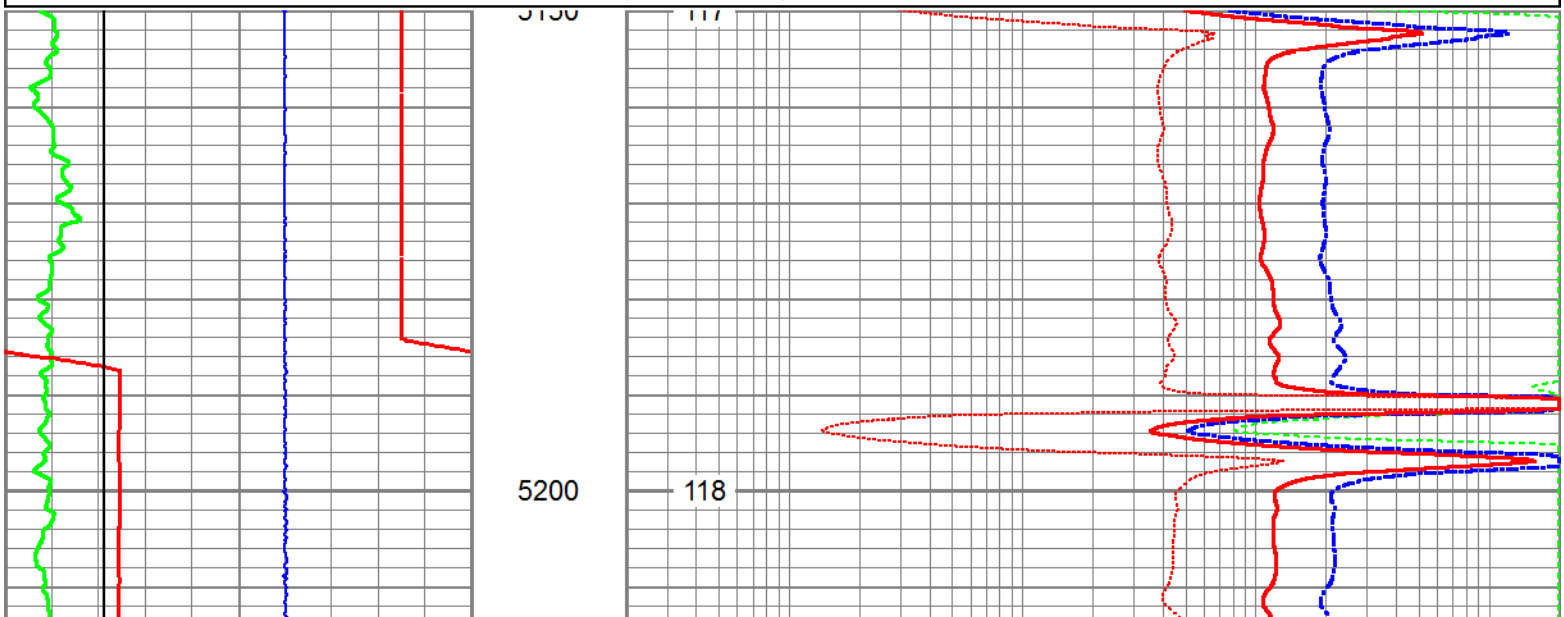
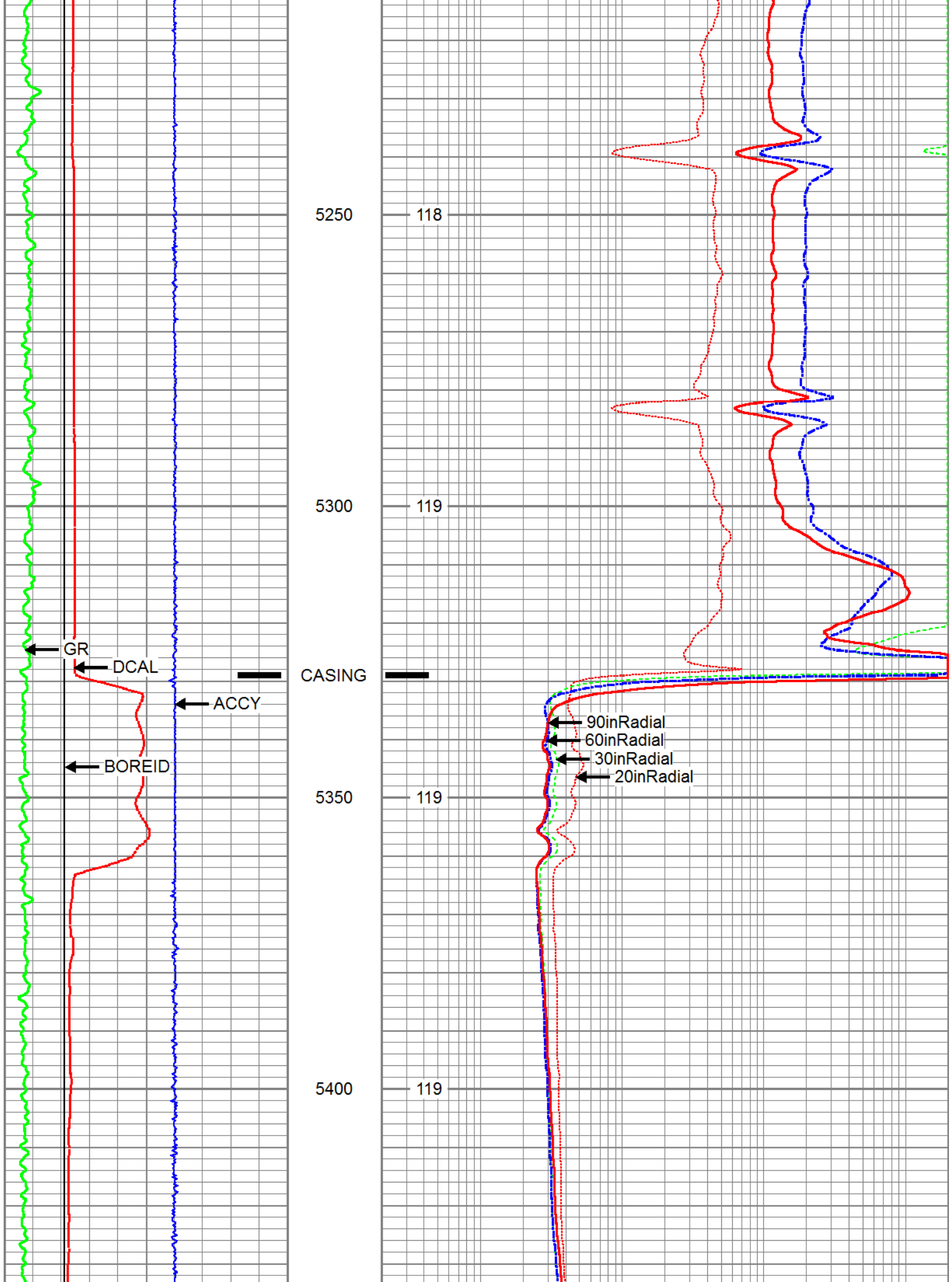
MAIN PASS

Database File:	sandridge_joann_mem.db
Dataset Pathname:	proc1/pass1.4
Presentation Format:	ches5r10
Dataset Creation:	Sun Jun 03 12:54:47 2012
Charted by:	Depth in Feet scaled 1:240

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)		

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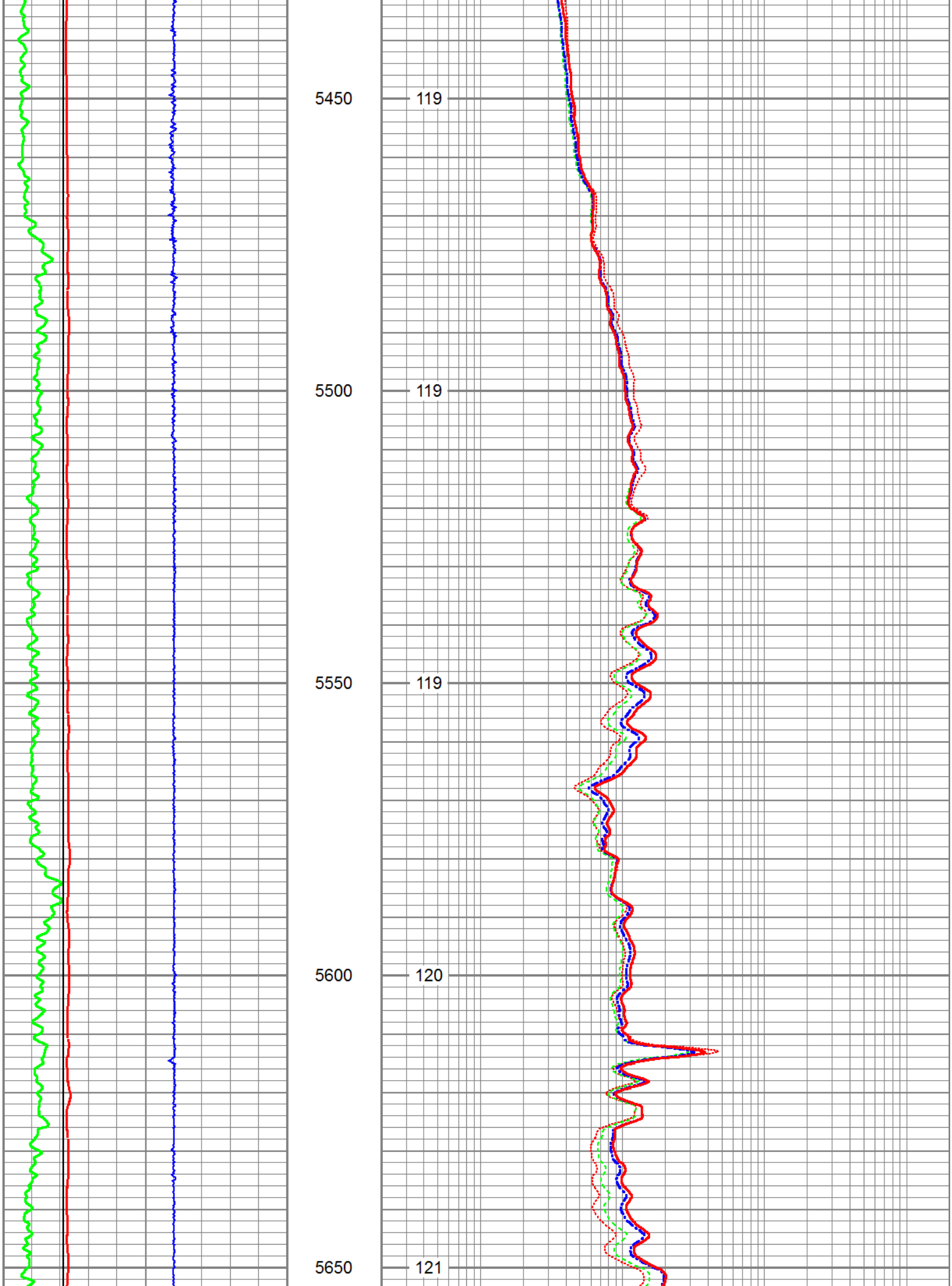
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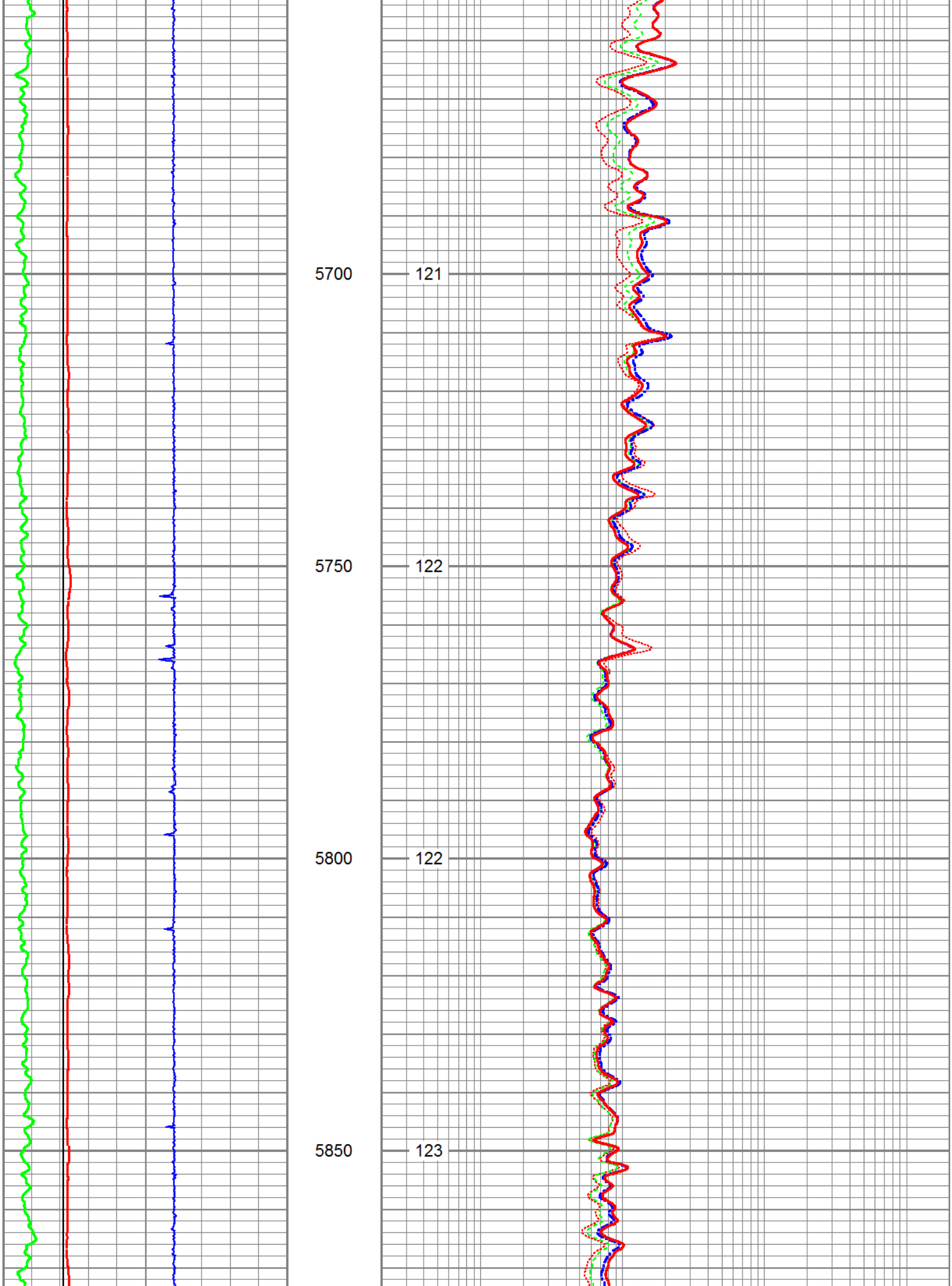
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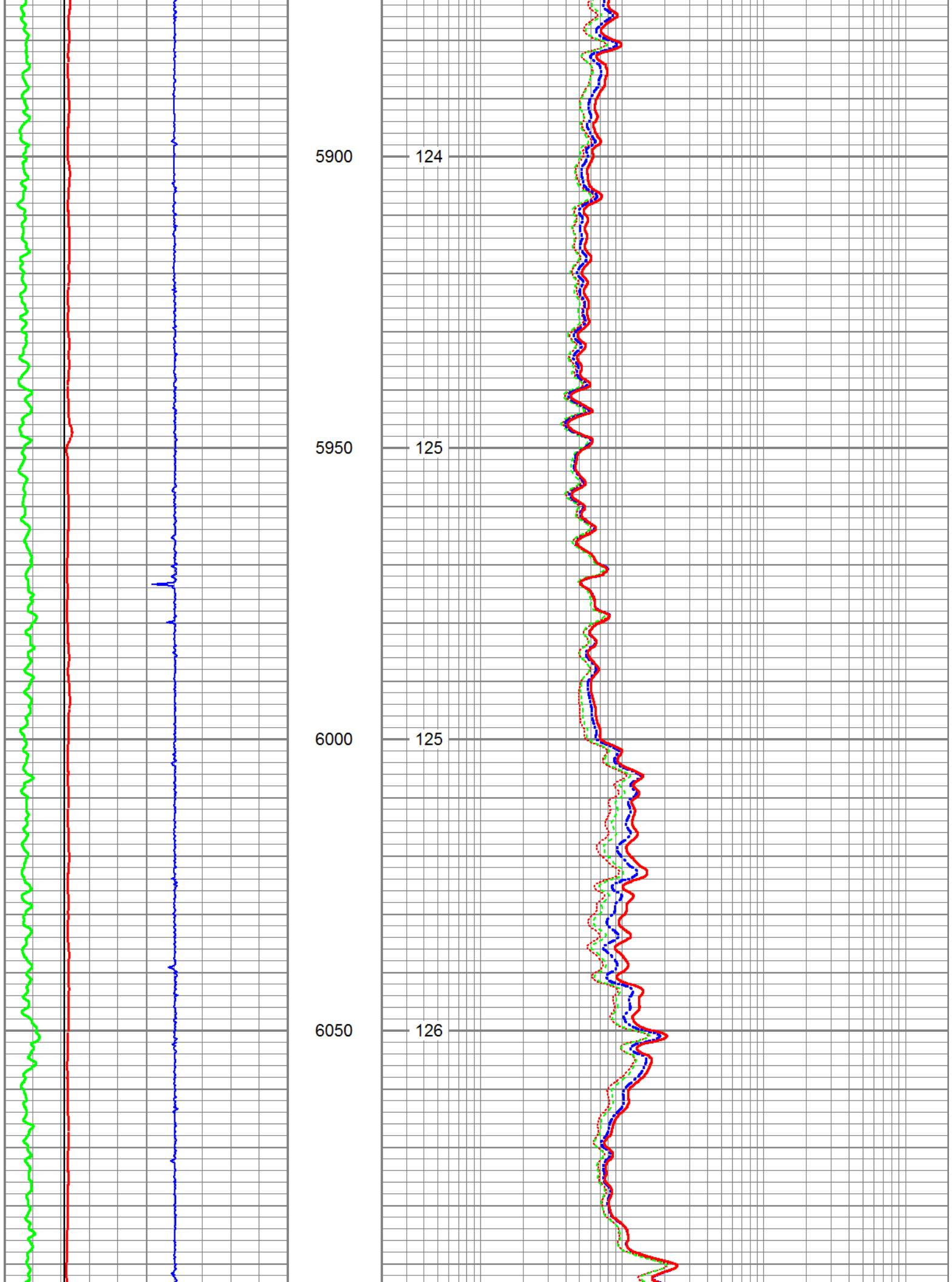
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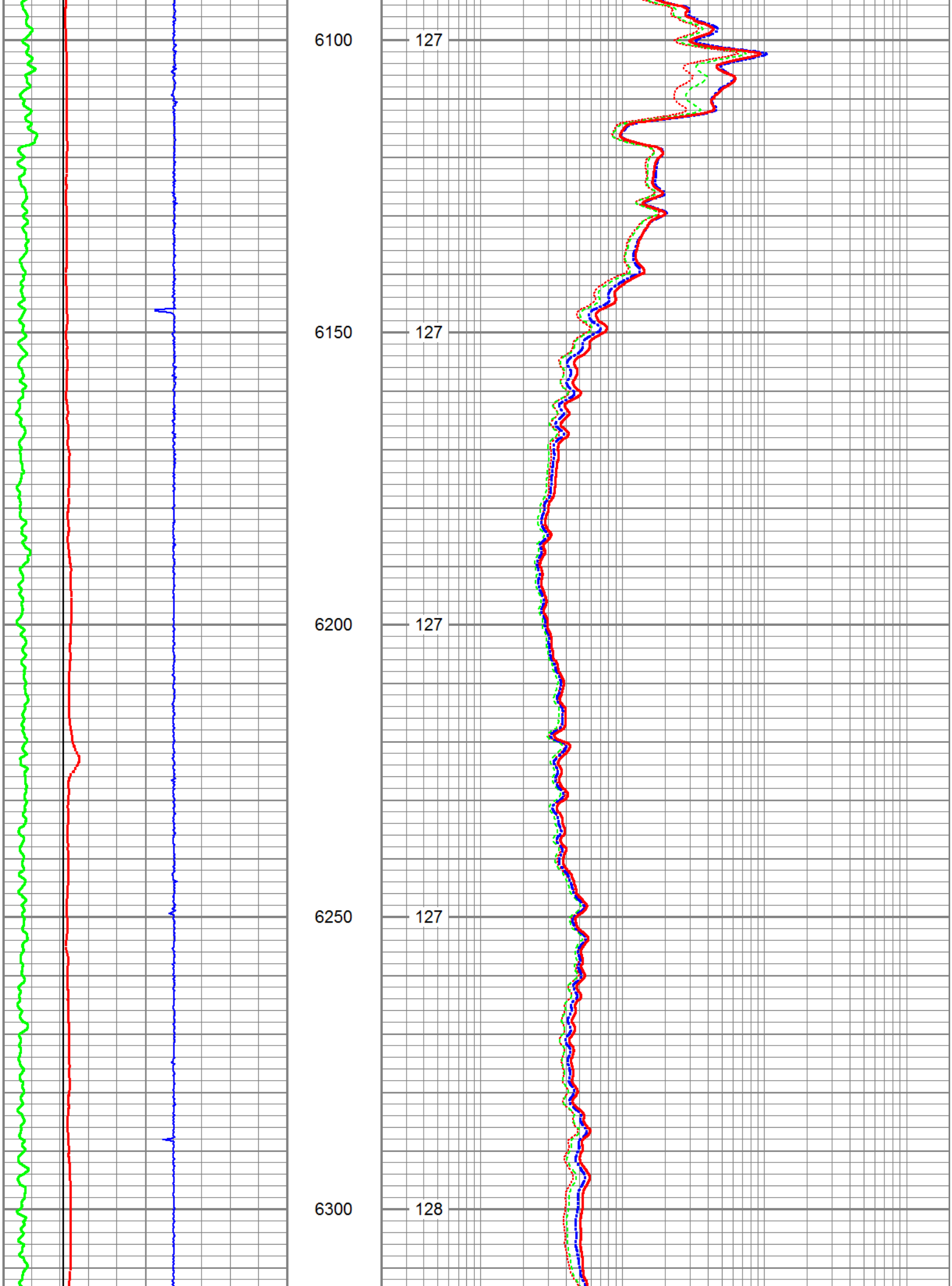
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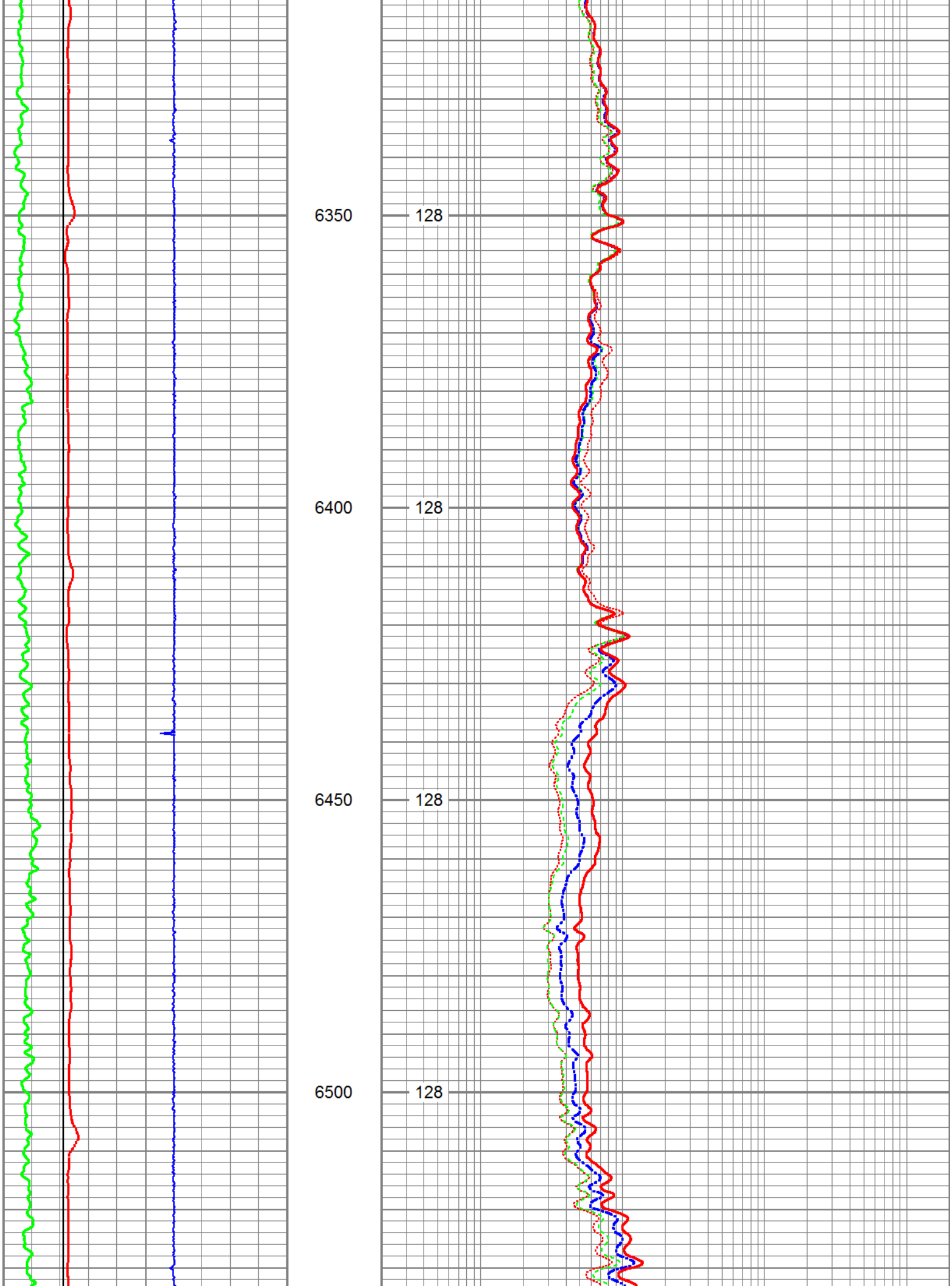
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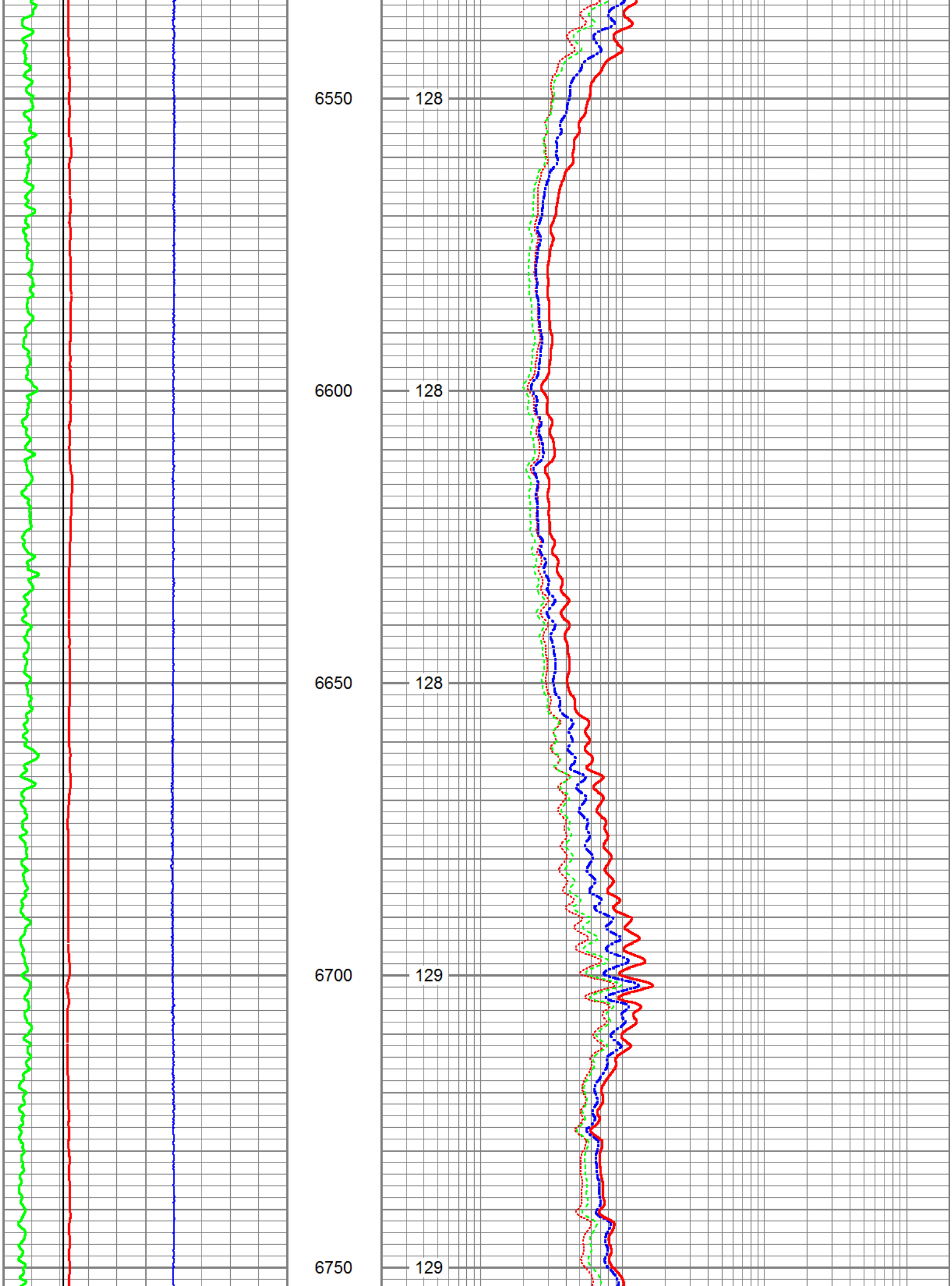
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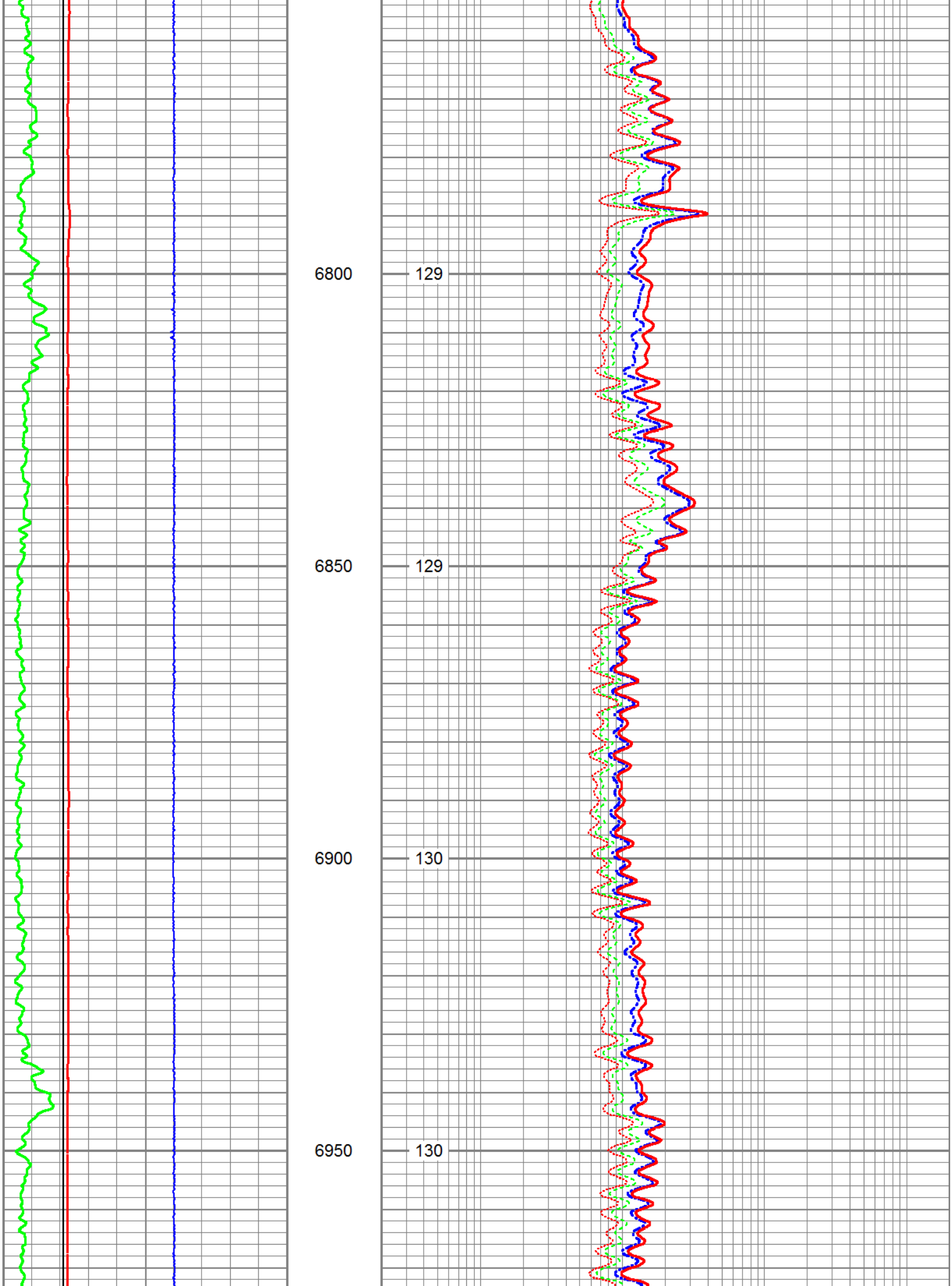
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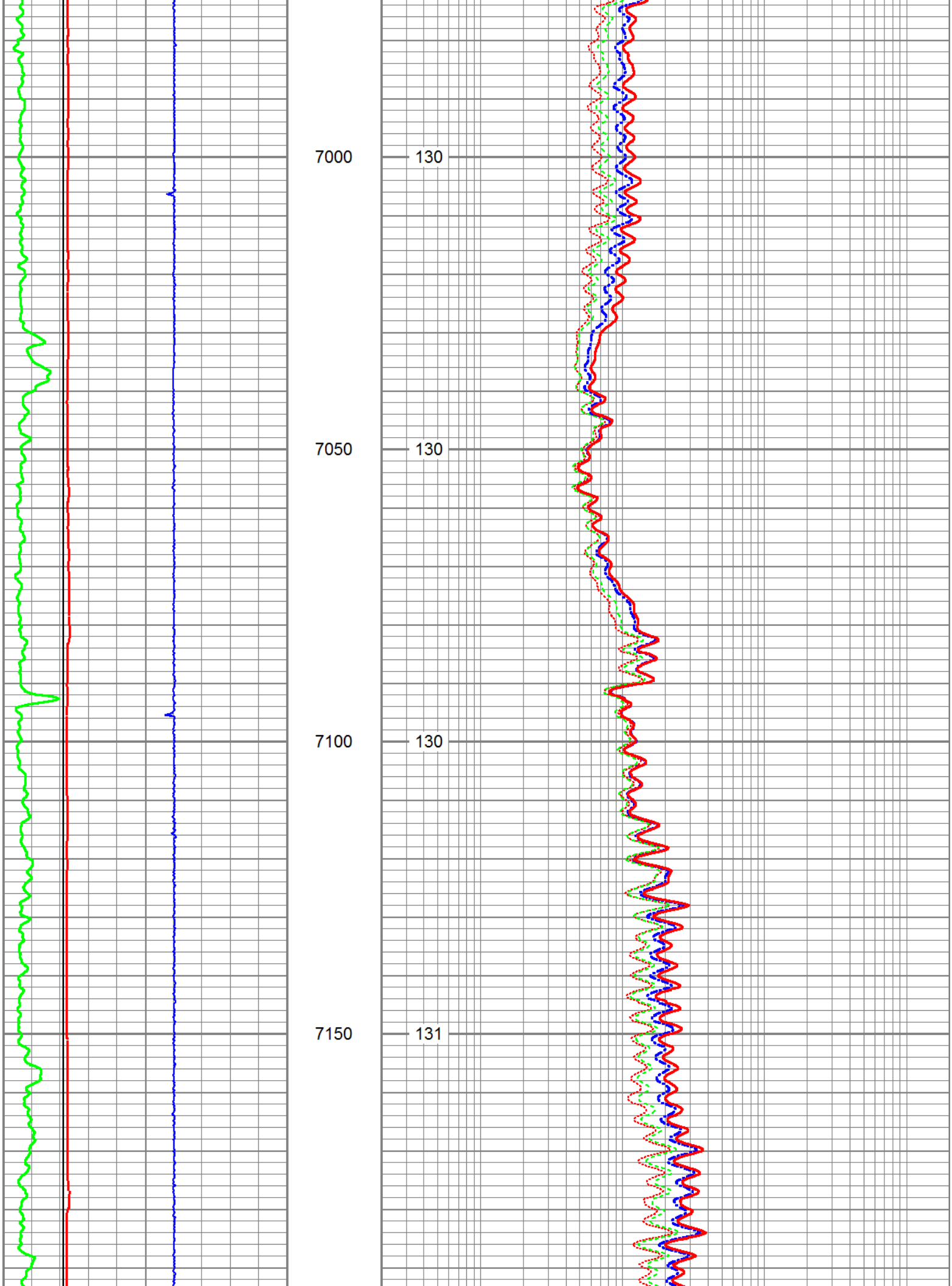
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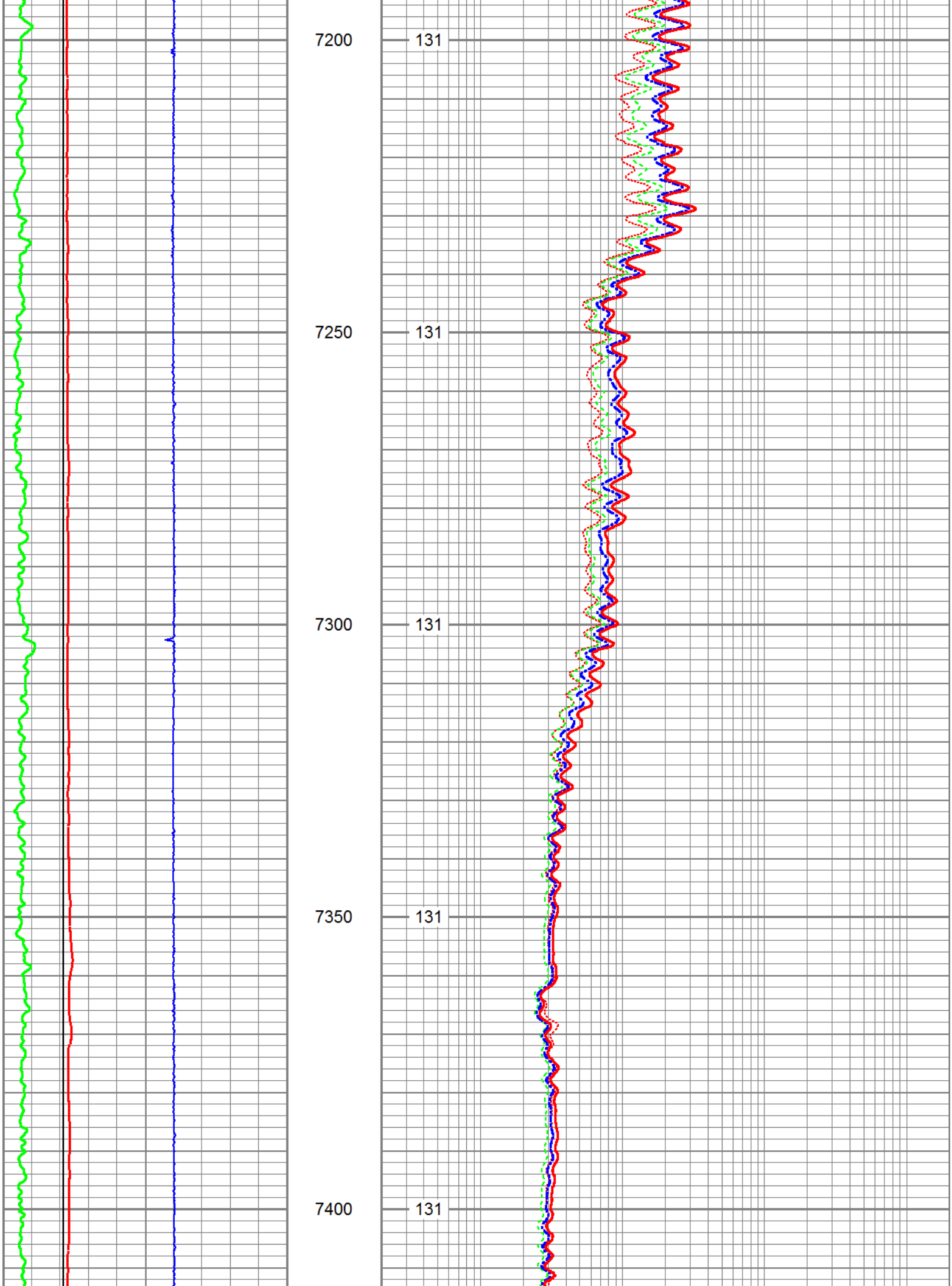
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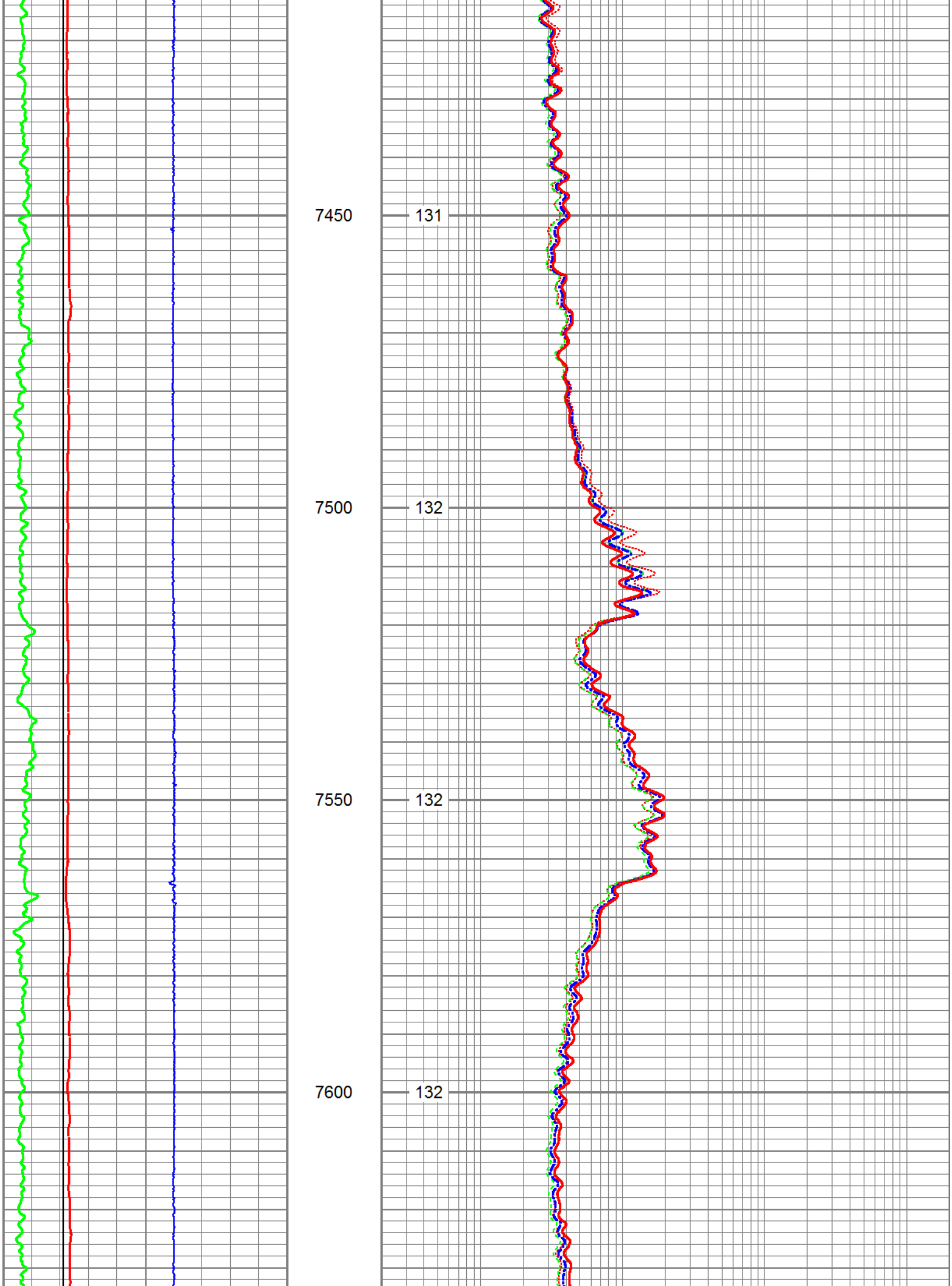
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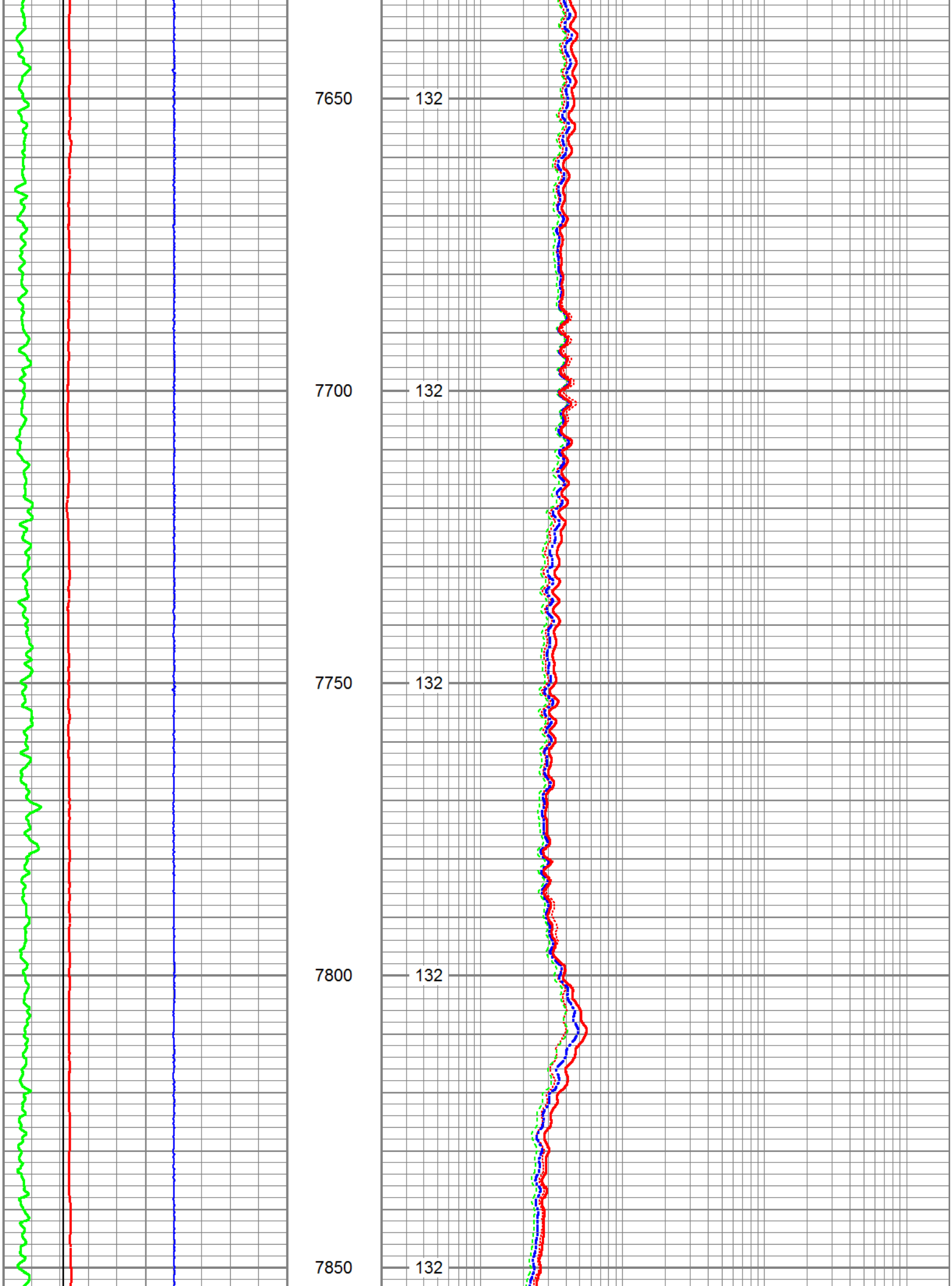
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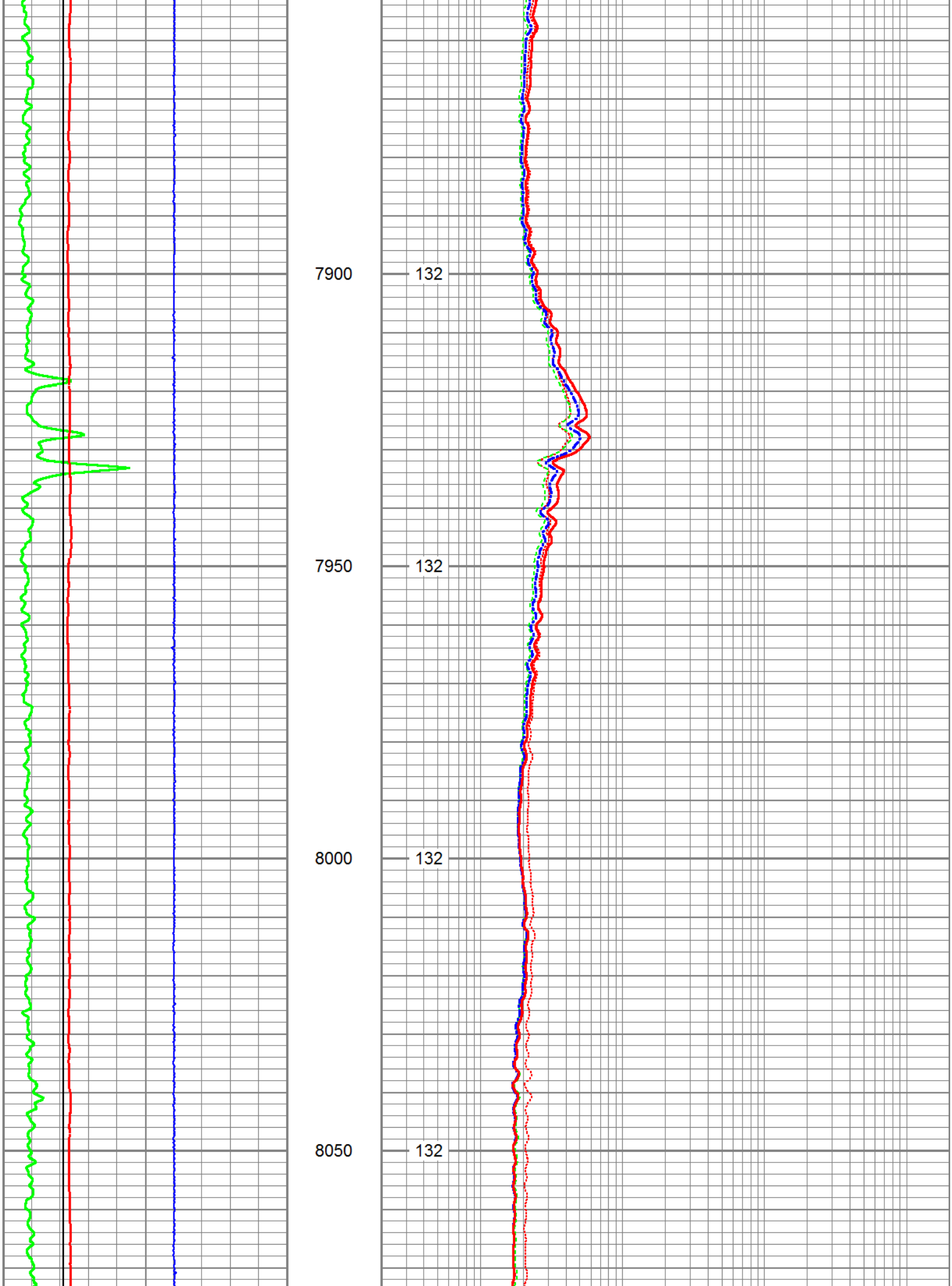
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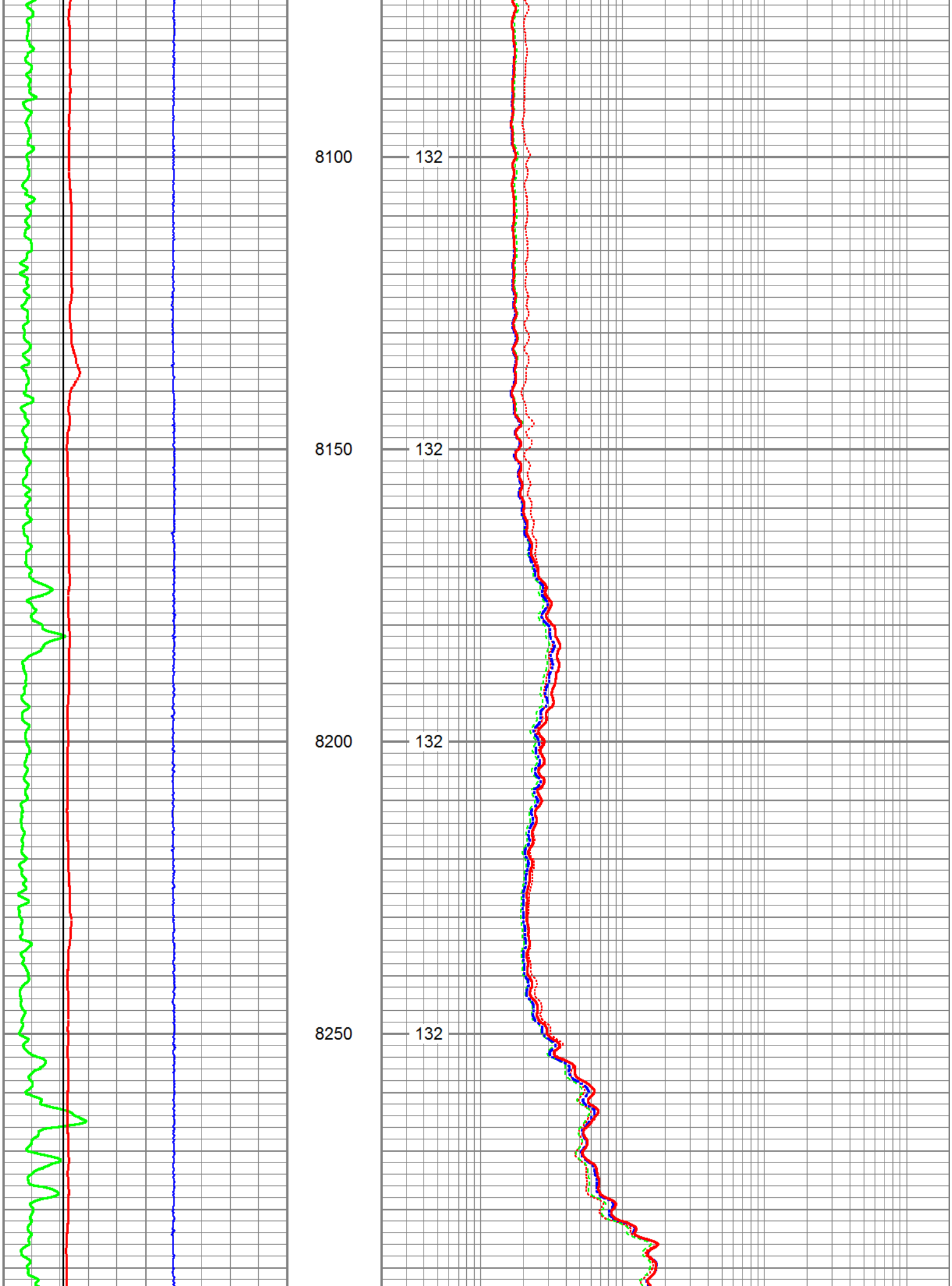
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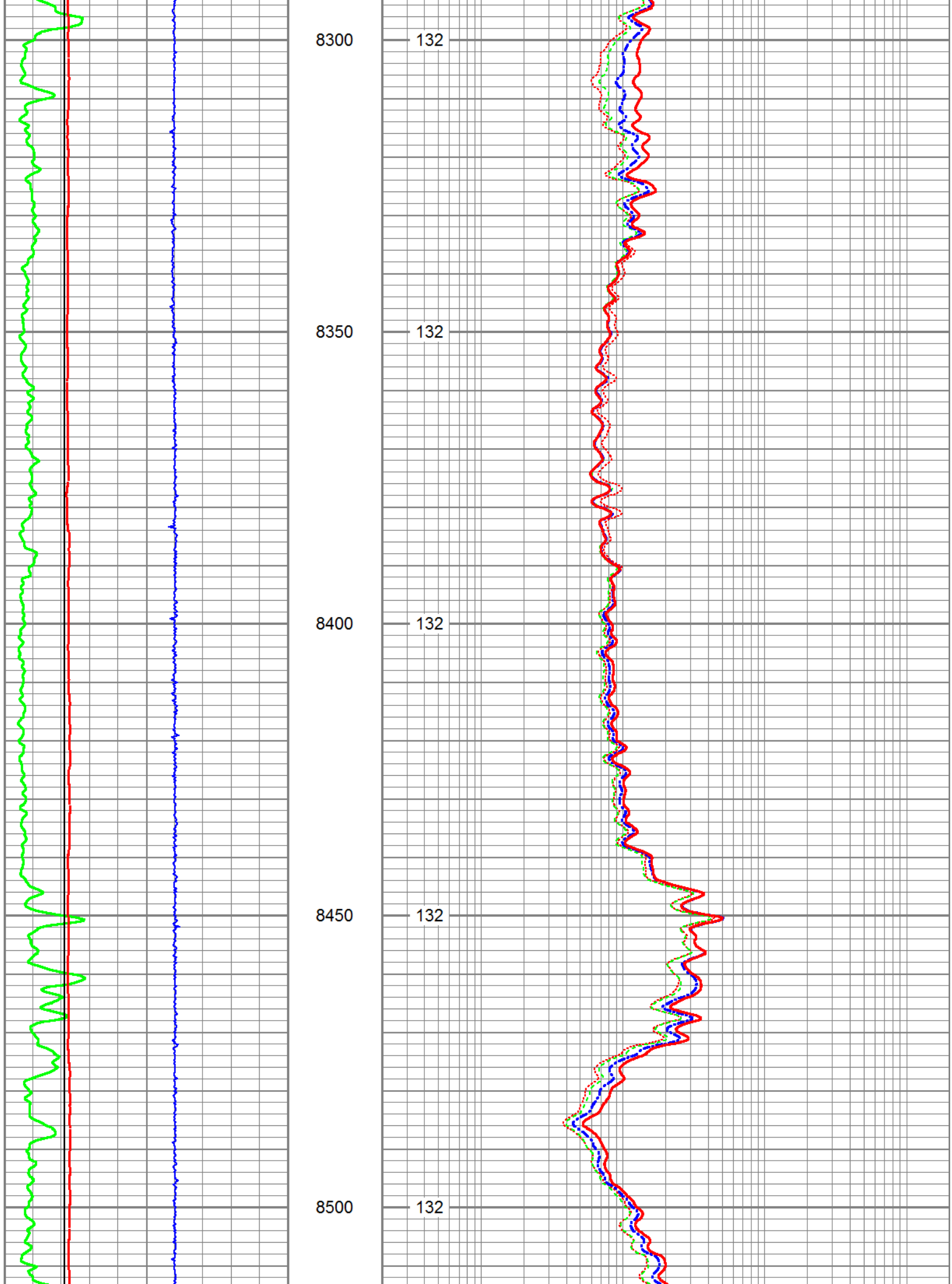
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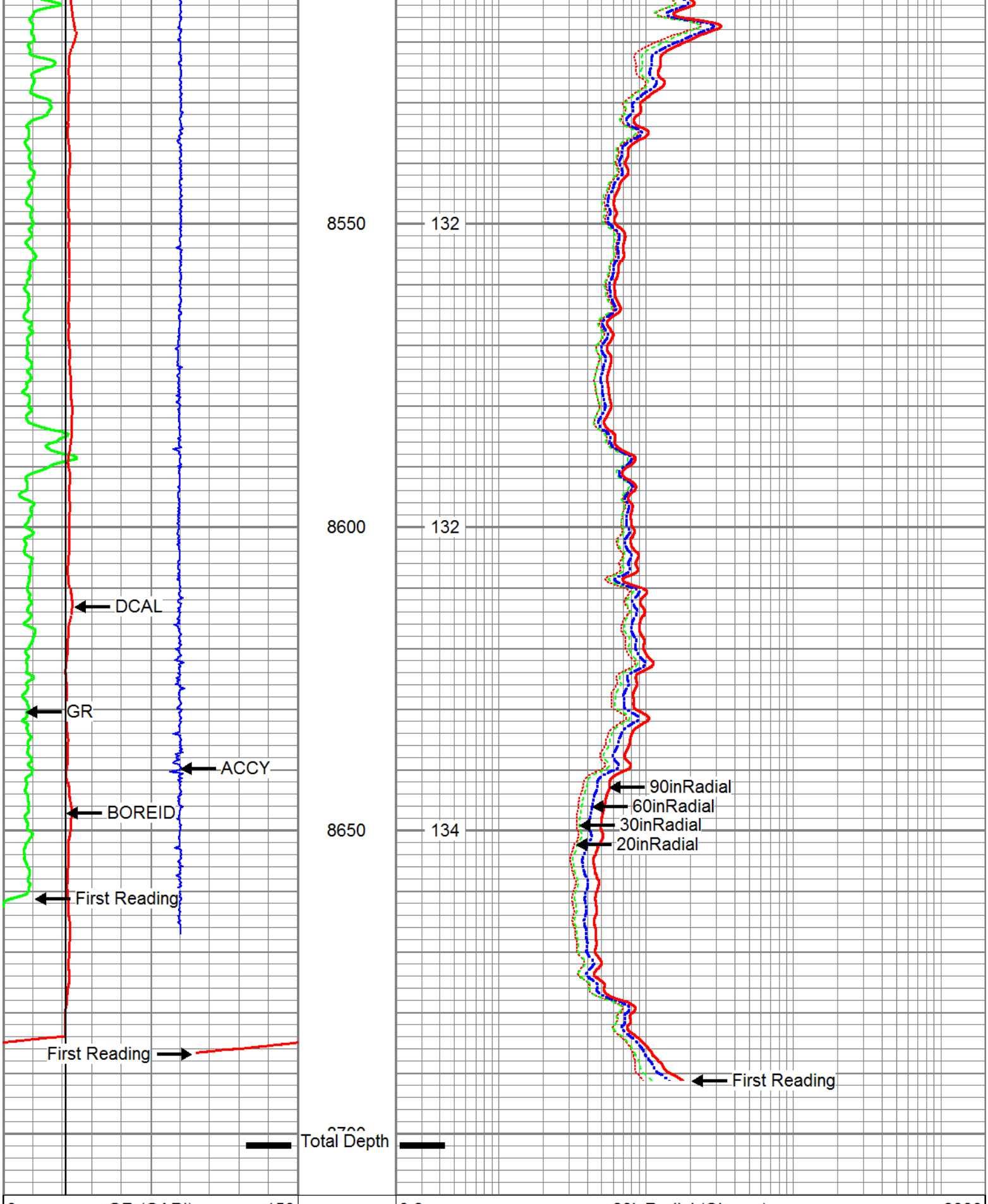

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0.2	60inRadial (Ohm-m)	2000
0.2	90inRadial (Ohm-m)	2000
GRTEMP		

(degF)

Log Variables

Database:C:\Warrior\Data\sandridge_joann_mem.db
Dataset: field/well/proc1/pass1.4

Top - Bottom

BHCOR	BHFL_TYPE	BHFLRES Ohm-m	BHFLRESSRC	BHIDSRC	BOREID in	BOTTEMP degF
On	WBM	1	MUDCELL	CURVE	6.125	134
CASED?	CASEOD in	CASETHCK in	CEMWATERSA kppm	CMNTTHCK in	DNBHC?	DPORSEL
No	4.5	0	0	0	NO	RHOB
FLUIDDEN g/cc	FRMSALIN kppm	LATNOR	MATRXDEN g/cc	MUDSALIN kppm	MudWgt lb/gal	NPORSEL
1	0	Off	2.71	18	9	Limestone
PEBHC?	PERFS	RESTMPSRC	SO in	SRFTEMP degF	SZCOR	TDEPTH ft
YES	0	INTERNAL	0.5	65	On	8729
TMPCOR	TOOLPOS					
On	Free					

Calibration Report

Database File: sandridge_joann_mem.db
Dataset Pathname: proc1/pass1.4
Dataset Creation: Sun Jun 03 12:54:47 2012

ThruBit Induction Calibration Report

Tool Model-Serial Number: PS-PS34R

Shop Calibration Performed: Wed Apr 18 11:00:00 2012

BASELINE

	R	Expected	X	Expected
Freq 1				
A1	-472.7030	[-500.00, -400.00]	405.6950	[-500.00, 500.00]
A2	-134.0730	[-180.00, -100.00]	277.2720	[-500.00, 500.00]
A3	-25.9740	[-50.00, -10.00]	104.0810	[-500.00, 500.00]
A4	-15.0914	[-30.00, -10.00]	203.4500	[-500.00, 500.00]
A5	-12.8337	[-30.00, -10.00]	114.0400	[-500.00, 500.00]
Freq 2				
A1	-249.1070	[-280.00, -180.00]	238.2790	[-500.00, 500.00]
A2	-87.4523	[-130.00, -50.00]	152.3080	[-500.00, 500.00]
A3	-20.0225	[-50.00, -10.00]	17.7457	[-500.00, 500.00]
A4	-18.3800	[-30.00, -10.00]	51.4551	[-500.00, 500.00]
A5	-17.5406	[-30.00, -10.00]	-16.0400	[-500.00, 500.00]
Freq 3				
A1	-158.4050	[-180.00, -80.00]	106.8180	[-500.00, 500.00]
A2	-67.2762	[-130.00, -30.00]	70.5968	[-500.00, 500.00]

A3	-17.1473	[-50.00, -10.00]	-43.4482	[-500.00, 500.00]
A4	-20.1836	[-30.00, -10.00]	-51.6392	[-500.00, 500.00]
A5	-20.2781	[-30.00, -10.00]	-112.1930	[-500.00, 500.00]
Freq 4				
A1	-86.9348	[-120.00, -40.00]	-87.2159	[-500.00, 500.00]
A2	-49.7859	[-110.00, -10.00]	-39.7942	[-500.00, 500.00]
A3	-13.4772	[-50.00, -10.00]	-135.6790	[-500.00, 500.00]
A4	-22.1678	[-30.00, -10.00]	-206.5520	[-500.00, 500.00]
A5	-24.2627	[-30.00, -10.00]	-273.6070	[-500.00, 500.00]

CALIBRATION COEFFICIENTS

	R	Expected	X	Expected
Freq 1				
A1	0.9972	[0.95, 1.05]	-0.0006	[-0.05, 0.05]
A2	0.9978	[0.95, 1.05]	0.0019	[-0.05, 0.05]
A3	1.0033	[0.95, 1.05]	-0.0057	[-0.05, 0.05]
A4	0.9981	[0.95, 1.05]	0.0039	[-0.05, 0.05]
A5	1.0002	[0.95, 1.05]	0.0011	[-0.05, 0.05]
Freq 2				
A1	0.9913	[0.95, 1.05]	-0.0101	[-0.05, 0.05]
A2	0.9918	[0.95, 1.05]	-0.0080	[-0.05, 0.05]
A3	0.9914	[0.95, 1.05]	-0.0085	[-0.05, 0.05]
A4	0.9934	[0.95, 1.05]	-0.0063	[-0.05, 0.05]
A5	0.9982	[0.95, 1.05]	-0.0098	[-0.05, 0.05]
Freq 3				
A1	1.0017	[0.95, 1.05]	-0.0051	[-0.05, 0.05]
A2	1.0027	[0.95, 1.05]	-0.0035	[-0.05, 0.05]
A3	1.0021	[0.95, 1.05]	-0.0040	[-0.05, 0.05]
A4	1.0029	[0.95, 1.05]	-0.0020	[-0.05, 0.05]
A5	1.0109	[0.95, 1.05]	-0.0057	[-0.05, 0.05]
Freq 4				
A1	0.9977	[0.95, 1.05]	0.0038	[-0.05, 0.05]
A2	0.9983	[0.95, 1.05]	0.0050	[-0.05, 0.05]
A3	0.9993	[0.95, 1.05]	0.0024	[-0.05, 0.05]
A4	0.9983	[0.95, 1.05]	0.0066	[-0.05, 0.05]
A5	1.0201	[0.95, 1.05]	-0.0000	[-0.05, 0.05]

Temperature 25.6896 degC

ThruBit Density Calibration Report

Tool Model-Serial Number:	PS-PS35D
Source Number:	
Shop Calibration Performed:	Sun May 20 18:35:39 2012

REFERENCE

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

READINGS

READINGS

Outputs	Counts	Units	Expected
SS1 Background	126.46	cps	[130.00, 170.00]
LS1 Background	131.50	cps	[130.00, 170.00]
LS4 Background	27.70	cps	[27.00, 35.00]
SS1 Aluminium	5011.39	cps	[4500.00, 5500.00]
LS1 Aluminium	883.15	cps	[750.00, 950.00]
LS4 Aluminium	1009.07	cps	[843.00, 1068.00]
SS1 Magnesium	8287.62	cps	[7000.00, 9000.00]
LS1 Magnesium	5779.23	cps	[5250.00, 6250.00]
LS1 Al + Fe	750.21	cps	[650.00, 800.00]
LS4 Al + Fe	444.36	cps	[382.00, 471.00]

RESULTS

SS Slope	1.67	[1.52, 1.77]
LS Slope	0.42	[0.38, 0.45]
PEF K Factor	5.108	[3.510, 6.170]
PEF B Factor	-0.518	[-0.700, -0.410]

Caliper Shop Calibration performed: Sun May 20 18:35:39 2012

RESULTS

Reference	Reading	Units
12.00	1907.58	in
9.00	2073.84	in
6.00	2238.03	in

DENSITY PRE-SURVEY CHECK Performed: Fri Jun 01 13:28:52 2012

Outputs	Counts	Units	Expected
SS1 Background	127.85	cps	[122.67, 130.26]
LS1 Background	132.54	cps	[127.56, 135.45]
LS4 Background	28.17	cps	[26.04, 29.36]

CALIPER PRE-SURVEY CHECK Performed: Fri Jun 01 13:26:29 2012

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

Compensated Neutron Calibration Report

Tool Model-Serial Number: ENP-ENP3N
Source Number:

Calibration Tank Temperature: 72.2 degF
Shop Calibration Performed: Tue May 15 11:16:04 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	3898.6	cps	
LS Counts	119.6	cps	
Tank Ratio Ref	30.9580	SS/LS	
Tank Ratio	32.5850	SS/LS	
Tank Ratio Gain	0.9501		[0.85, 1.15]

ALUMINUM SLEEVE REFERENCE

Outputs	Measured	Units	Expected
SS Counts	45034.9	cps	
LS Counts	3866.2	cps	
Al Ratio Ref	10.797	SS/LS	
Al Ratio	11.067	SS/LS	
Al Ratio Gain	0.98		[0.90, 1.10]
Sleeve Porosity	14.46	pu	

PRE-SURVEY BACKGROUND CHECK Performed: Fri Jun 01 13:33:56 2012

Outputs	Measured	Units	Expected
SS Counts	0.1	cps	<10
LS Counts	0.1	cps	<4

Gamma Ray Calibration Report

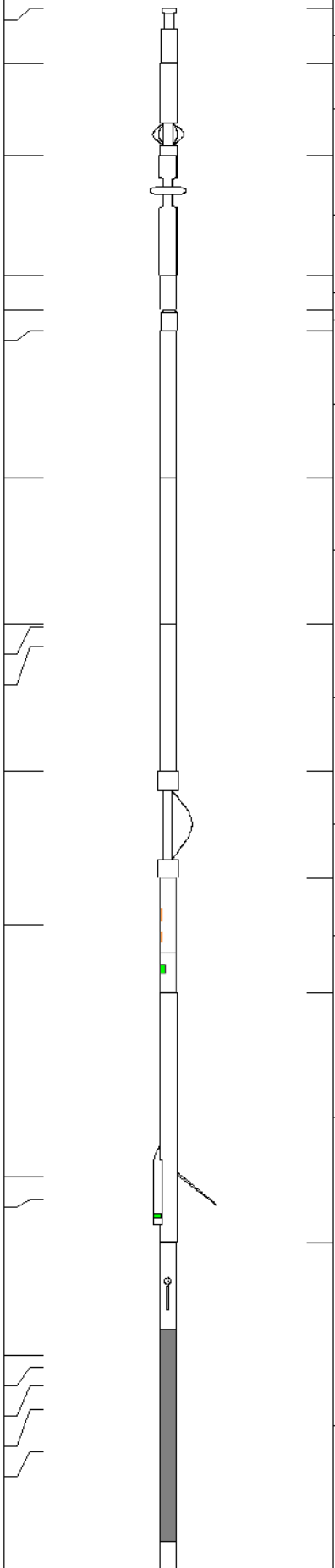
Tool Model-Serial Number:	PS-PS05T	
Performed:	Tue May 15 09:57:48 2012	
Calibrator Value:	162.7	GAPI
Background Reading:	72.1	cps
Calibrator Reading:	468.0	cps
Sensitivity:	0.3750	GAPI/cps

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	66.92		Cablehead-S Solid Weakpoint	2.31	2.13	5.00
Thrubit	64.61					
			PSBDOT	3.87	2.25	35.00
Thrubit	60.75					
			HangOff_Tool	5.00	2.38	60.00
Thrubit	55.75		Universal Joint	1.46	2.06	15.00
Thrubit	54.29		10-1	0.88	2.13	3.95
TBBAT	53.41					
			TBBAT-A (PS07B) Thrubit Battery	6.13	2.13	38.20
TBBAT2	47.29					
			TBBAT2-A (PS22B) Thrubit Battery	6.13	2.13	40.00
TMG	41.16					
GR	41.04					
GRTEMP	40.20		TMG-PS (PS05T) ThruBit Telemetry Gamma Ray	6.13	2.13	45.00
Thrubit	35.04					
			Decentralizer Decentralizer (Small)	4.50	2.13	70.00
CNLSC	28.60					
			TBN-ENP (ENP3N) ThruBit Neutron	4.77	2.13	63.00
			TBD-PS (PS35D) 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		TBI-PS (PS34R) Thrubit Induction	15.29	2.13	94.00
A4_P	8.35					
A5_P	6.60					

Dataset:	sandridge_joann_mem.db: field/well/proc1/pass1.4
Total Length:	66.92 ft
Total Weight:	560.15 lb
O.D.	2.38 in

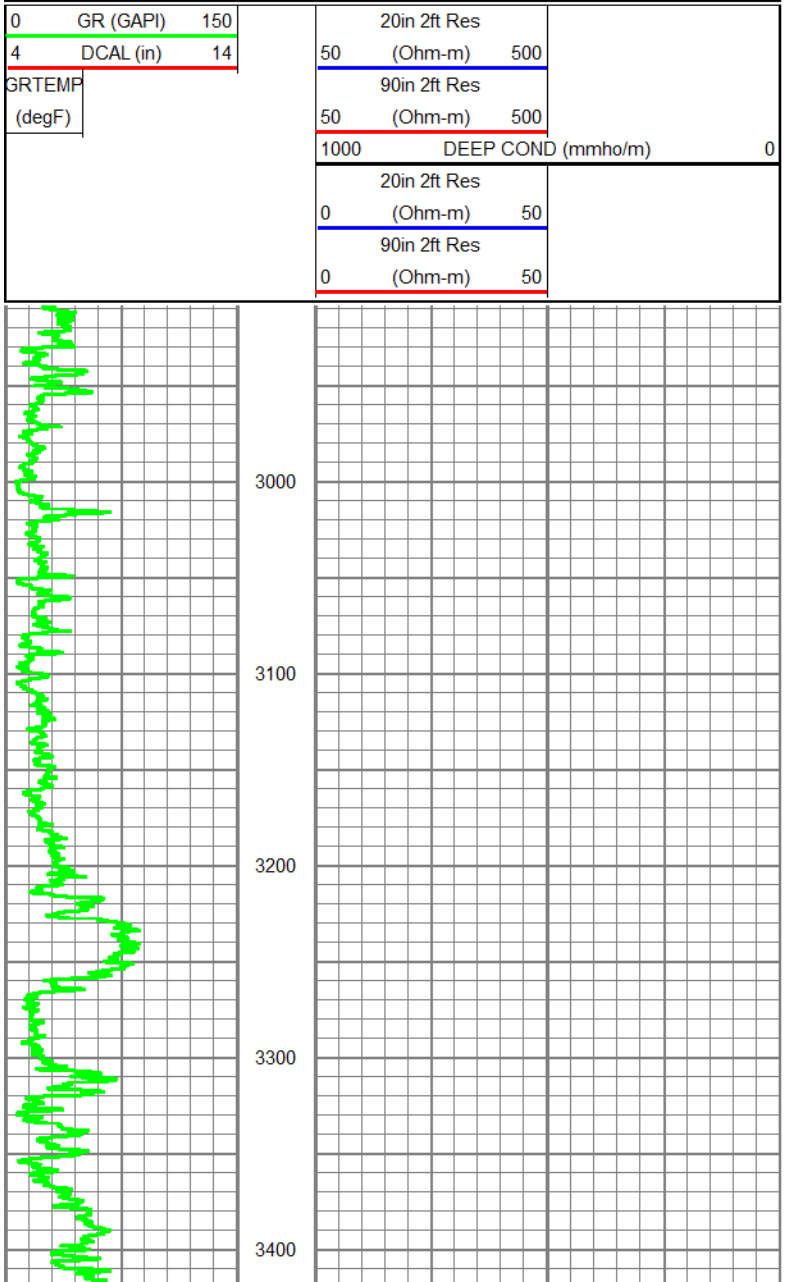
ThruBit
A Schlumberger Company

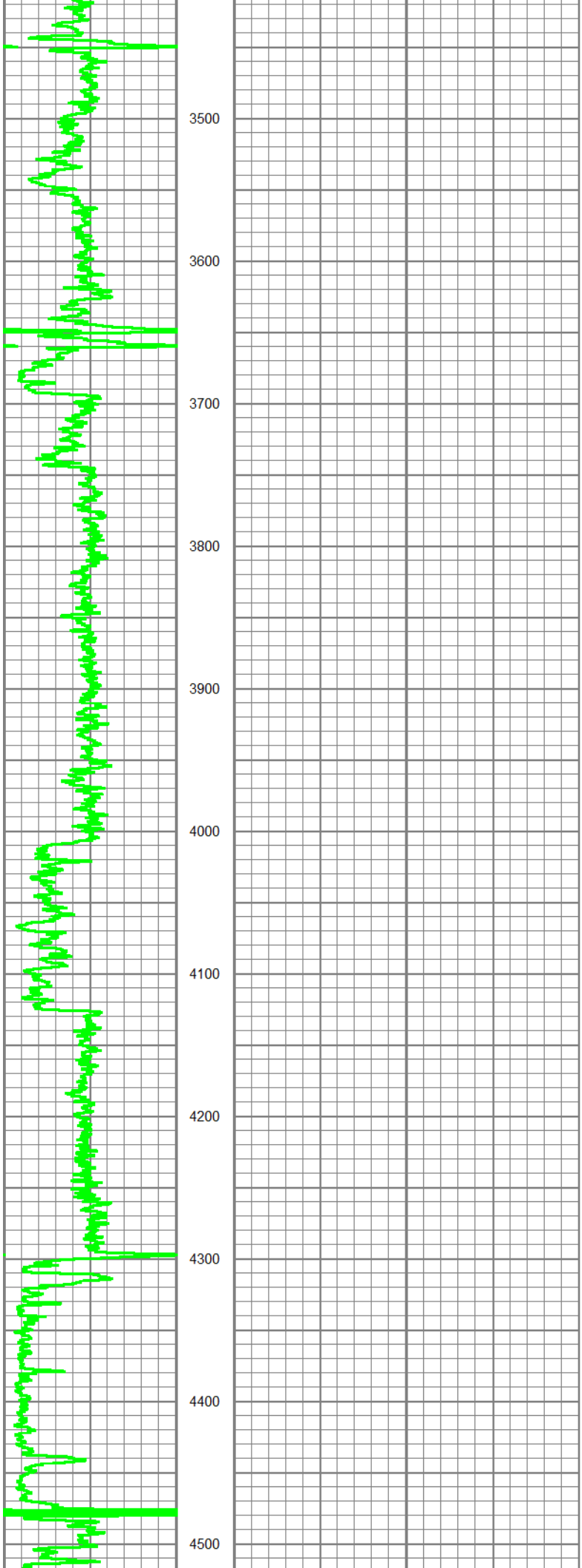
Company	SANDRIDGE ENERGY
Well	JOANN 1-1H
Field	WALDRON WEST
County	BARBER
State	KANSAS

ThruBit
A Schlumberger Company

MAIN PASS

Database File:	sandridge_joann_mem.db
Dataset Pathname:	proc1/pass1.4
Presentation Format:	chespk1r
Dataset Creation:	Sun Jun 03 12:54:47 2012
Charted by:	Depth in Feet scaled 1:1200

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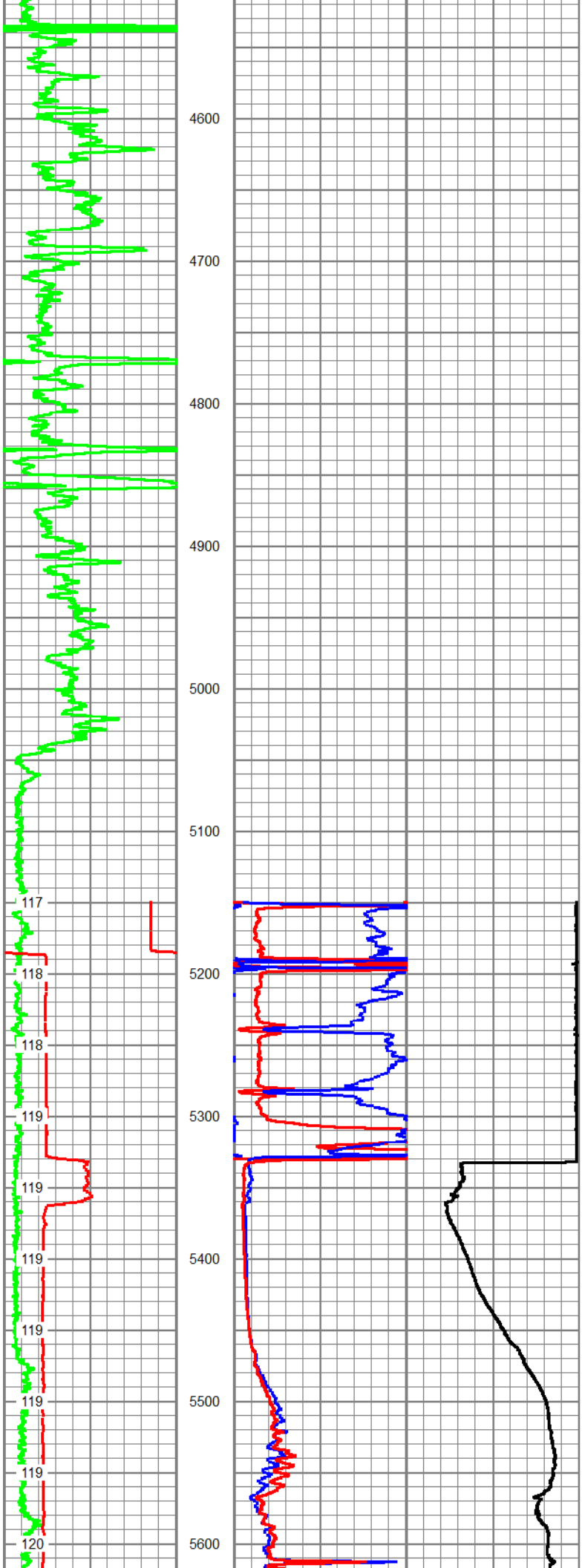
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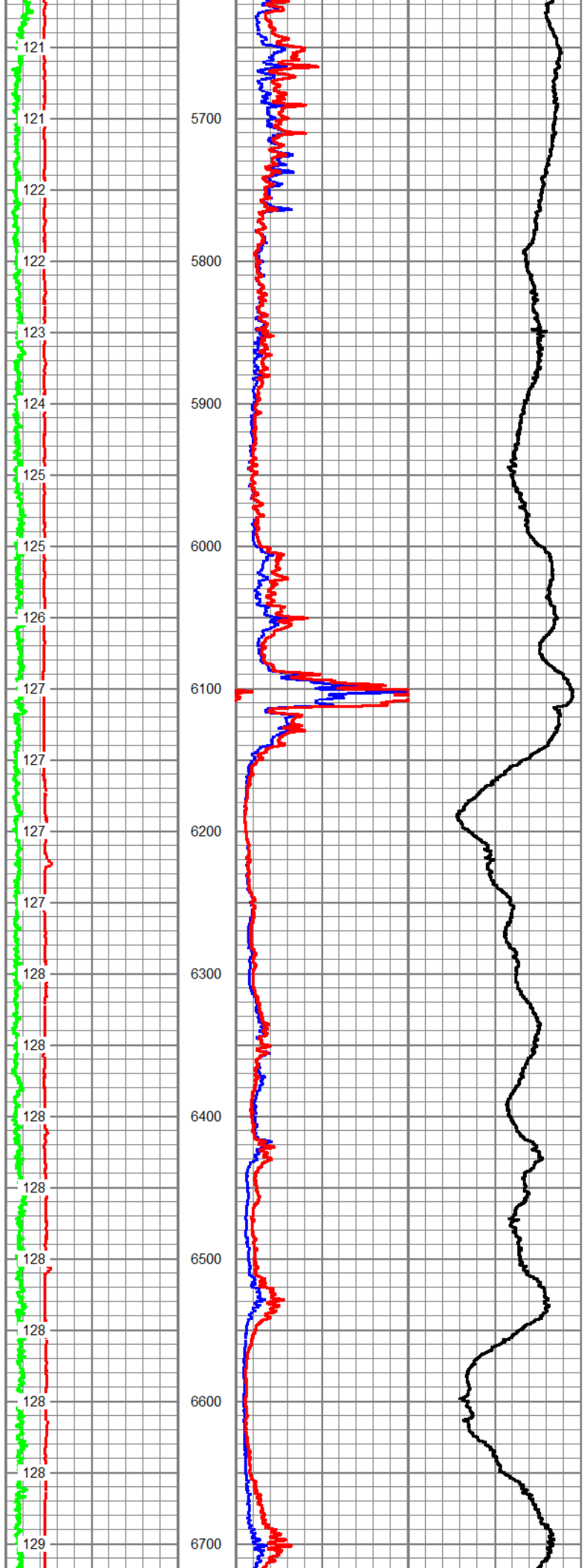
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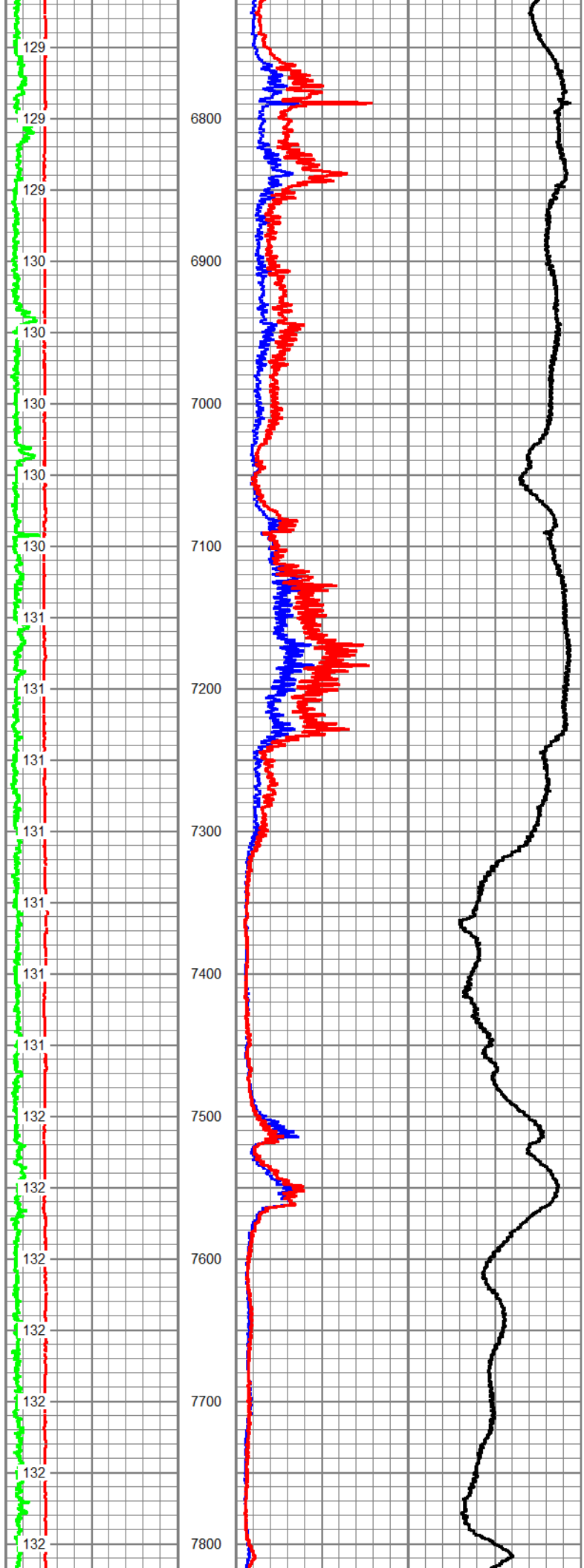
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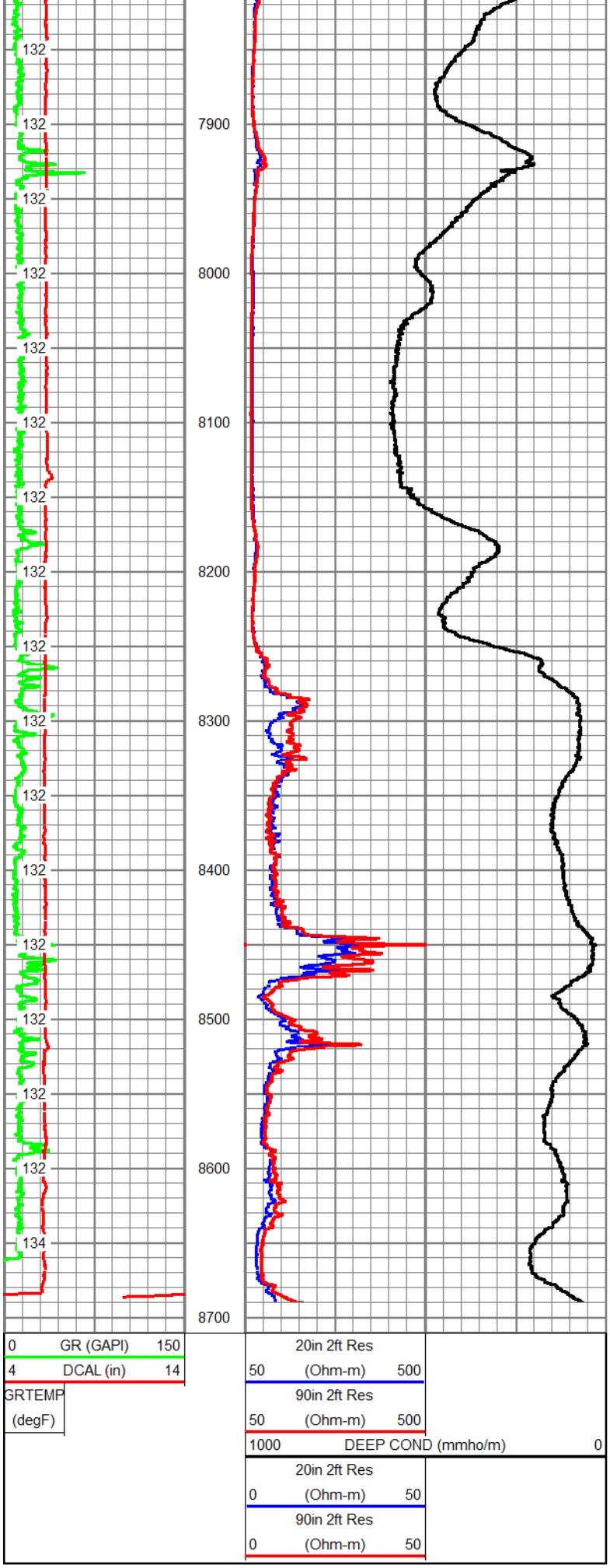
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8500
8600
8700
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4 DCAL (in) 14
GRTEMP (degF)
20in 2ft Res
50 (Ohm-m) 500
90in 2ft Res
50 (Ohm-m) 500
1000 DEEP COND (mmho/m) 0
20in 2ft Res
0 (Ohm-m) 50
90in 2ft Res
0 (Ohm-m) 50