



ThruBit
A Schlumberger Company

ARRAY INDUCTION GAMMA RAY MEMORY LOG

Company	SANDRIDGE ENERGY	Company	SANDRIDGE ENERGY
Well	BRAD 3508 2-12H	Well	BRAD 3508 2-12H
Field	BOUSE	Field	BOUSE
County	HARPER	County	HARPER
State	KANSAS	State	KANSAS
Location:	API # : 15-077-21898-0100 2440' FNL & 660' FWL	Other Services THRUBIT PORTAL BIT	
Permanent Datum	G.L.	Elevation	1280'
Log Measured From	K.B. 15' ABOVE PERM DATUM	Elevation	K.B. 1295'
Drilling Measured From	K.B.	Elevation	D.F. 1295'
		Elevation	G.L. 1280'
Date	4 JAN 2013		
Run Number	ONE		
Depth Driller	9211'		
Depth Logger	9181'		
Bottom Logged Interval	9170'		
Top Log Interval	2800'		
Casing Driller	7" @ 5267'		
Casing Logger	5260'		
Bit Size	6.125"		
Type Fluid in Hole	WBM		
Density / Viscosity	8.3 / 27		
pH / Fluid Loss	9.0 / N/C		
Source of Sample	MUD SENSOR		
Rm @ Meas. Temp	2.24 OHM @ 65 DEGF		
Rmt @ Meas. Temp	2.01 OHM @ 65 DEGF		
Rmc @ Meas. Temp	2.53 OHM @ 65 DEGF		
Source of Rmt / Rmc	CALCULATED		
Rm @ BHT	1.66 OHM @ 139 DEGF		
Time Circulation Stopped	20:42 3 DEC 2013		
Time Logger on Bottom	21:45 3 DEC 2013		
Maximum Recorded Temperature	139 DEGF		
Equipment Number	T005		
Location	OKC, OK		
Recorded By	C.PARKER		
Witnessed By	B.SEGCREST		

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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: HORIZONTAL PUMP DOWN MEMORY BIT DEPTH: 9170" LOGGED TO: 2800'
ALL SCALES AND PRESENTATIONS PER CLIENT REQUEST
LIMESTONE MATRIX, 2.71 g/cc. USED FOR POROSITY MEASUREMENTS
TOOLSTING RAN WITH SWIVEL AND SMALL DE-CENTRALIZER
TBHV REPRESENTS TOTAL BOREHOLE VOLUME, ft3
ABHV REPRESENTS ANNULAR HOLE VOLUME, CALCULATED FOR 4.5" CSG., ft3
RIGMINDER USED TO ACQUIRE LOG DEPTH
LOG CORRELATED TO MWD GR
RIG: UNIT 310

CREW: C.PARKER R.CRESSWELL R.WILSON



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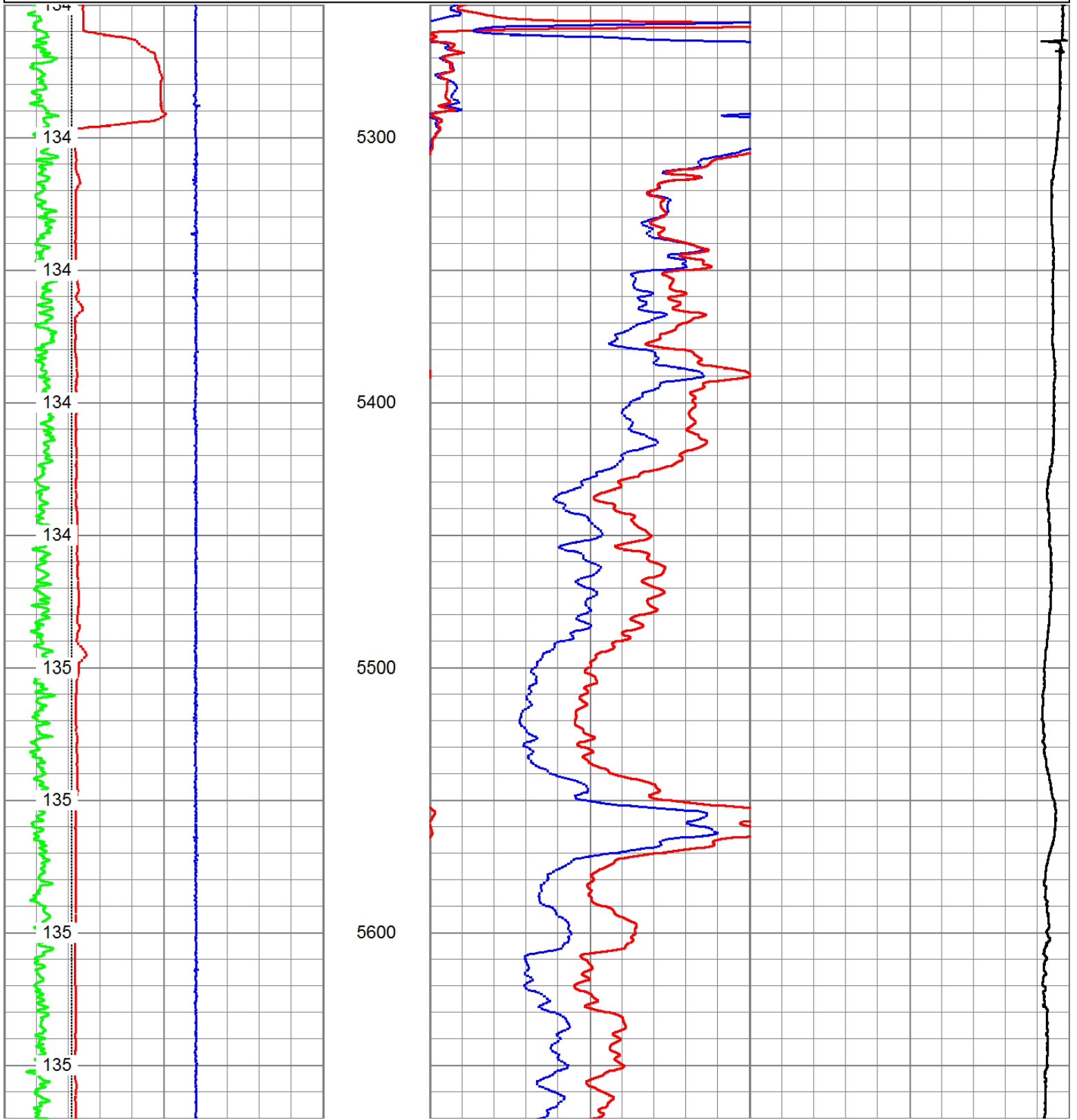
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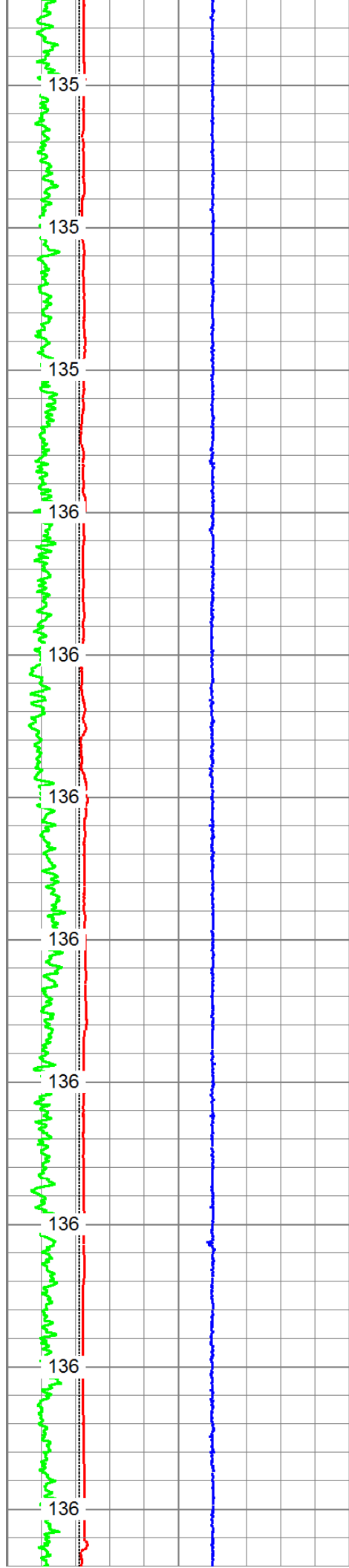
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Dataset Pathname: proc1/pass1.2
Presentation Format: 6_2r_chk
Dataset Creation: Fri Jan 04 05:20:57 2013
Charted by: Depth in Feet scaled 1:600

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





5700

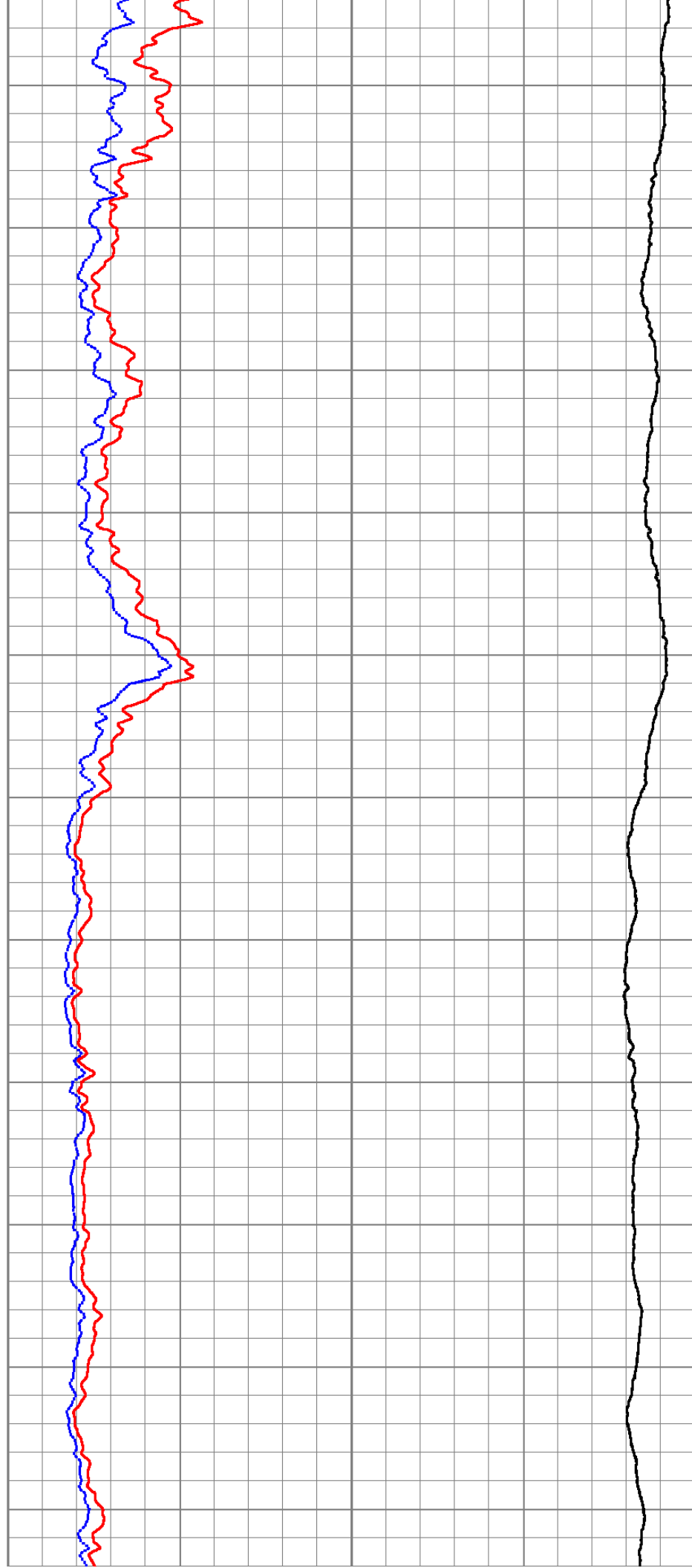
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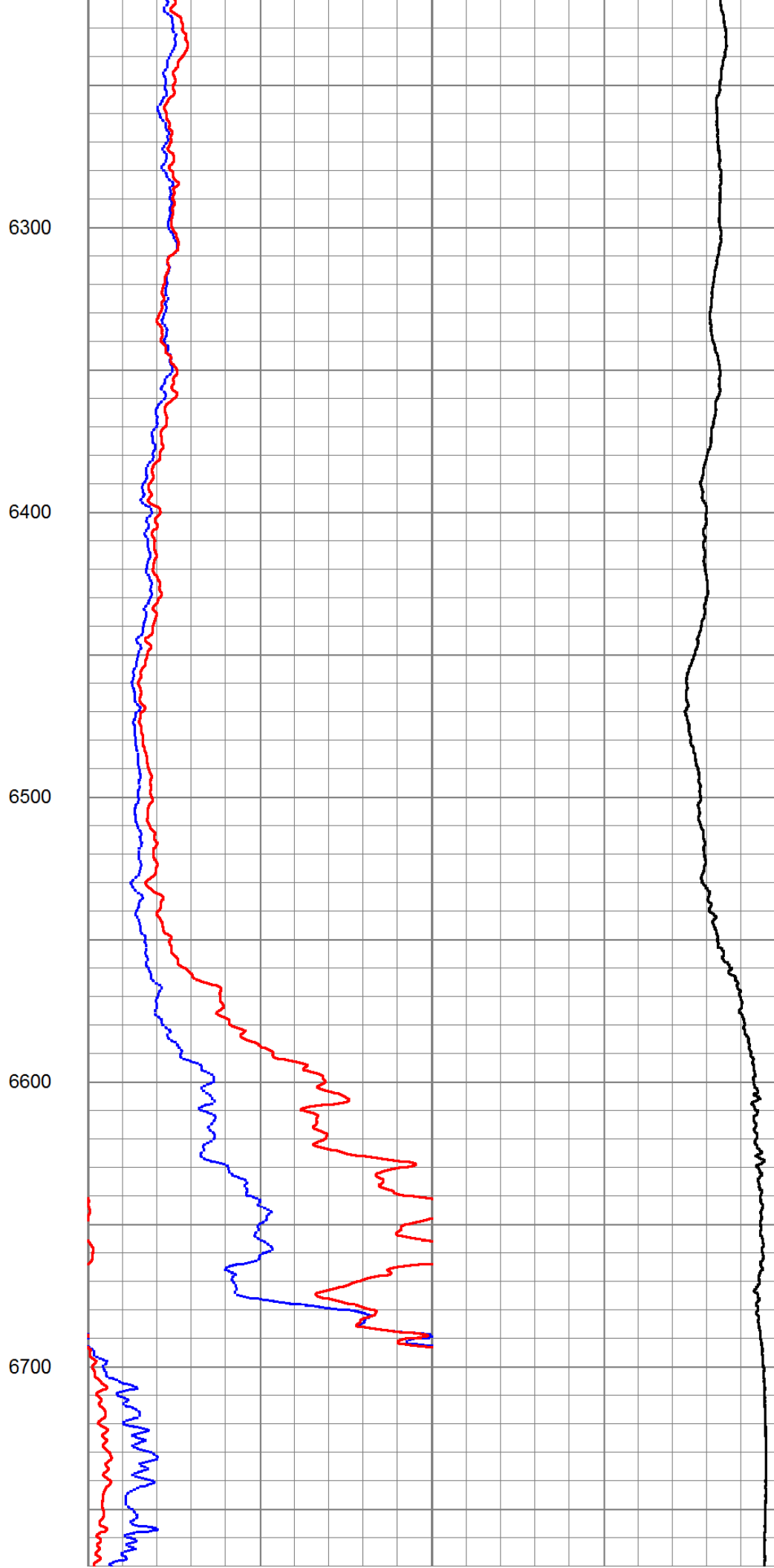
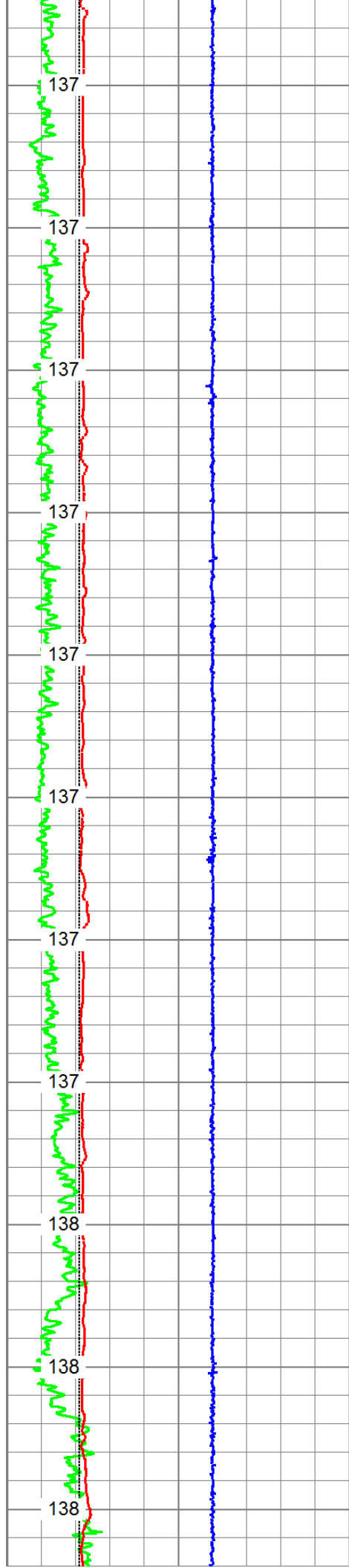
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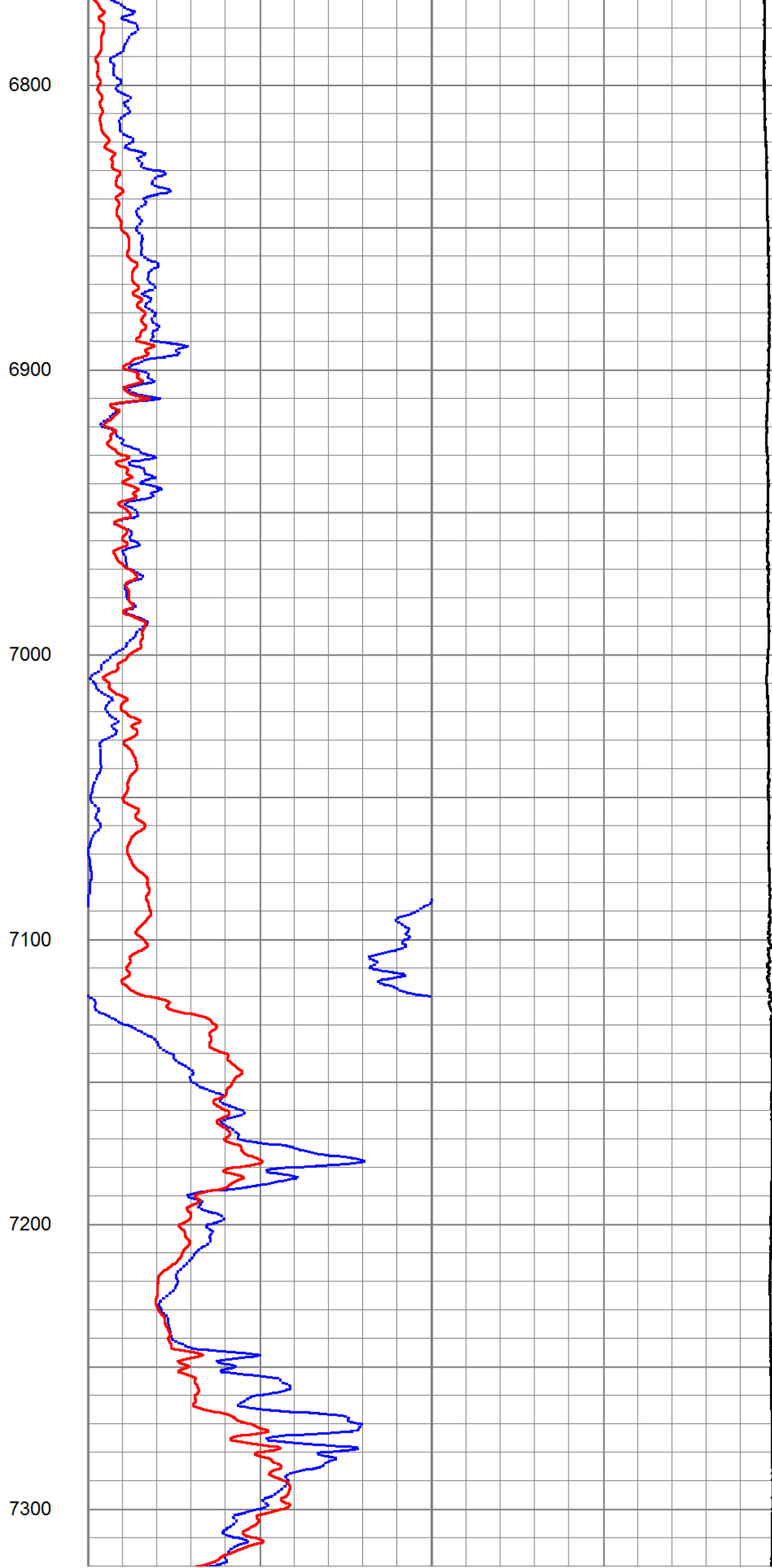
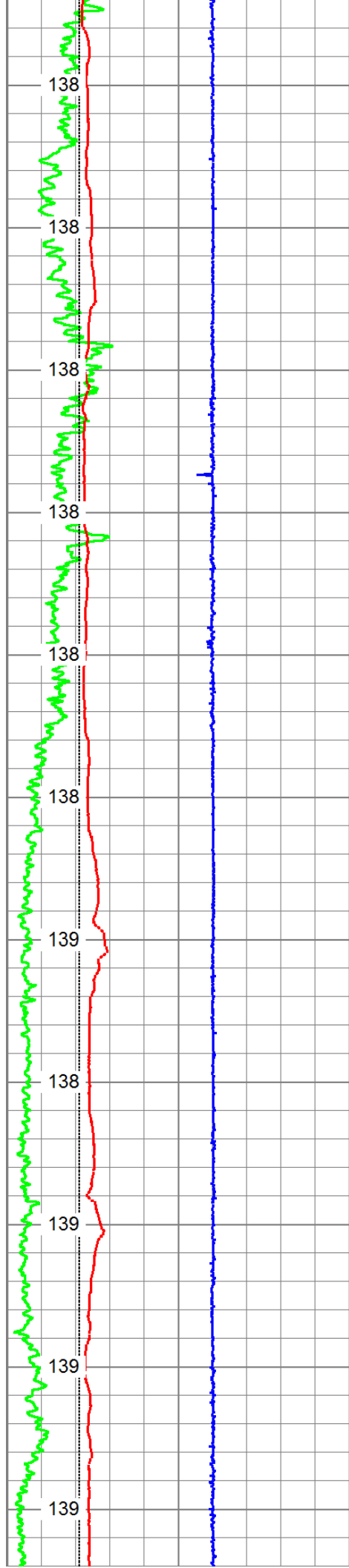
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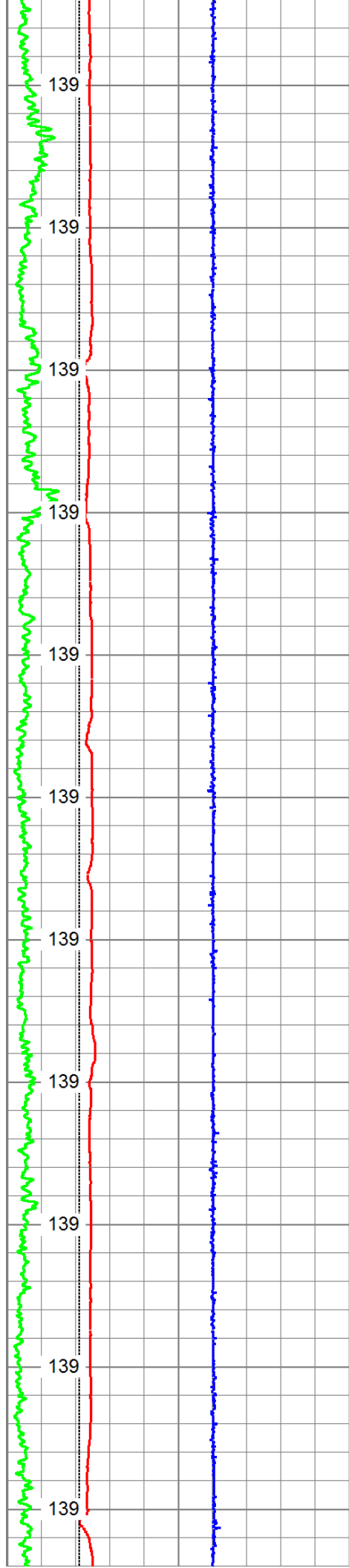
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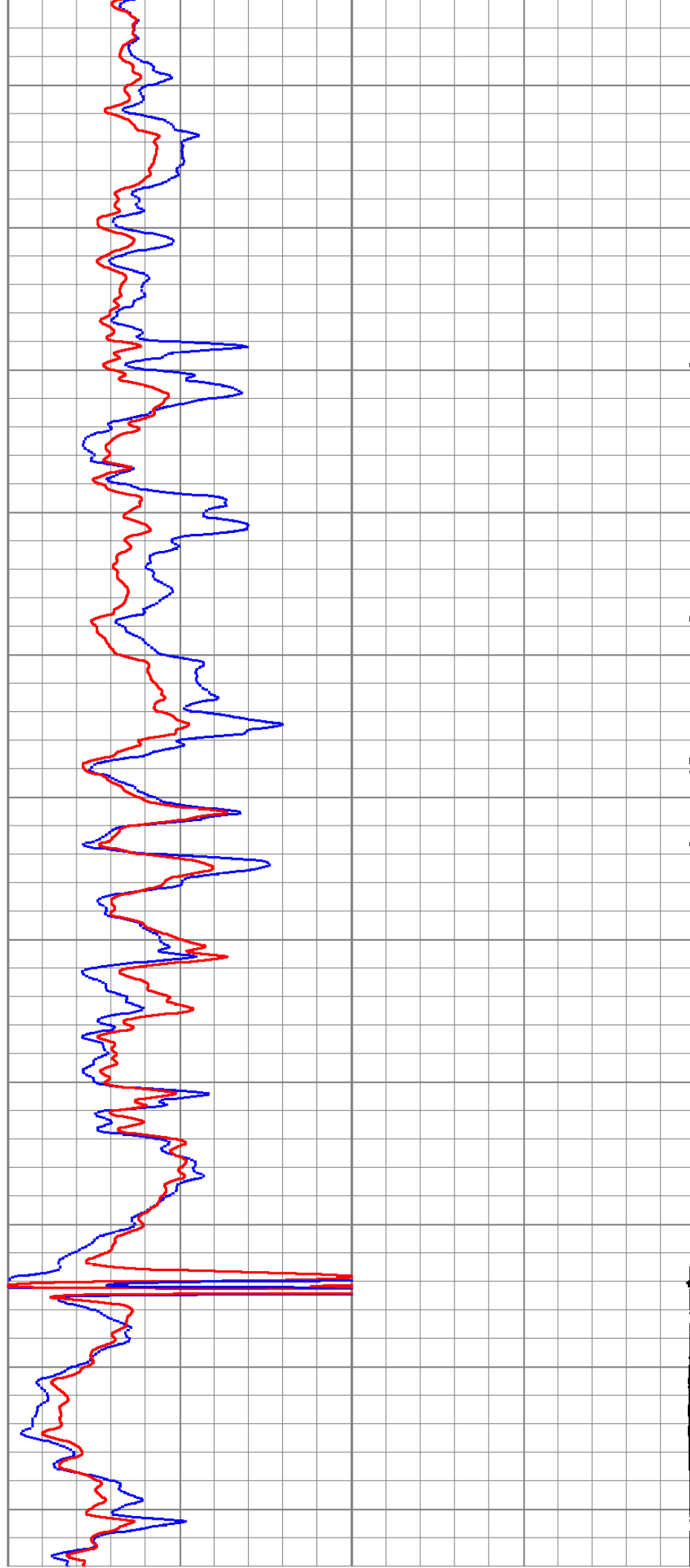
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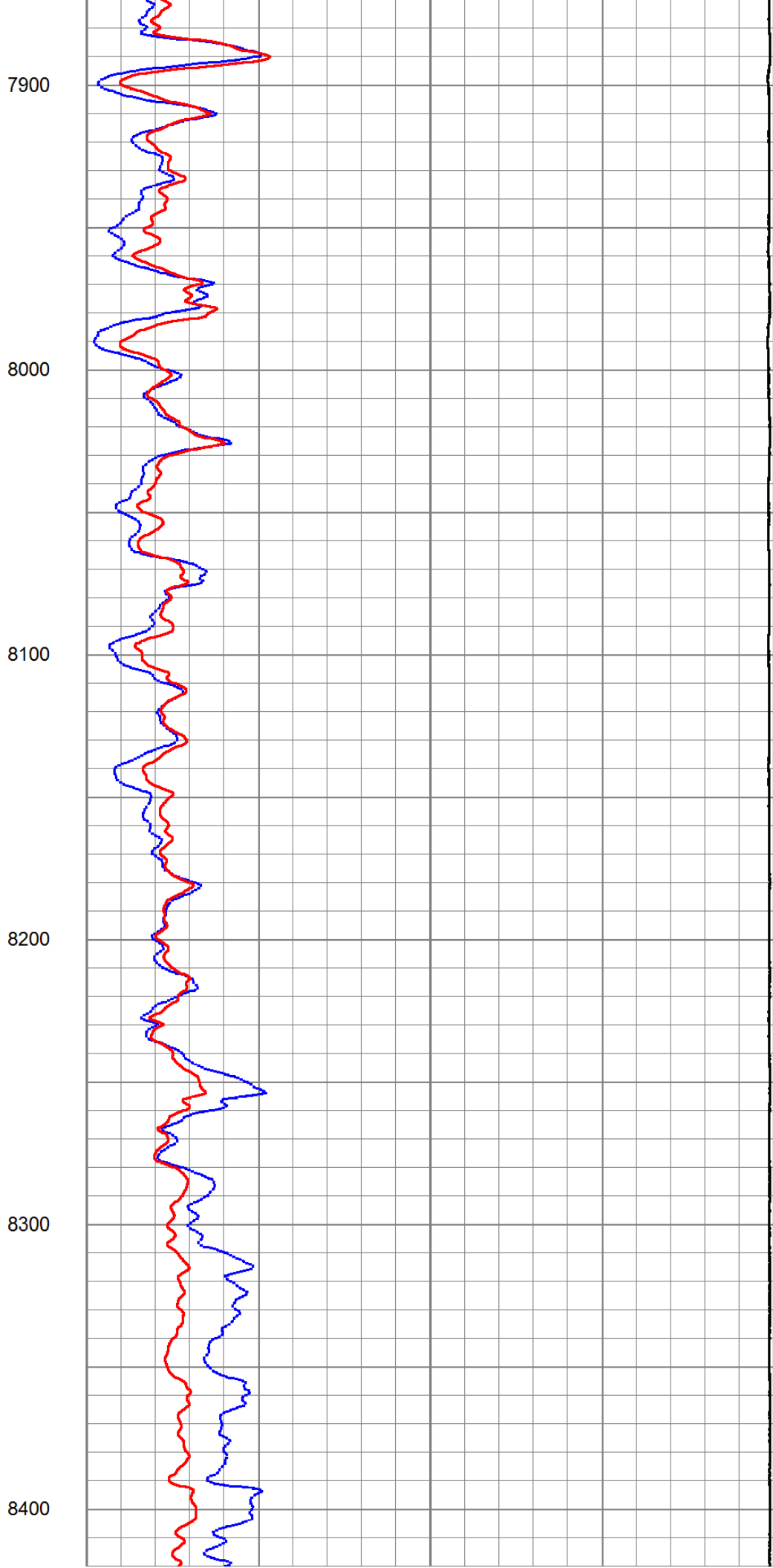
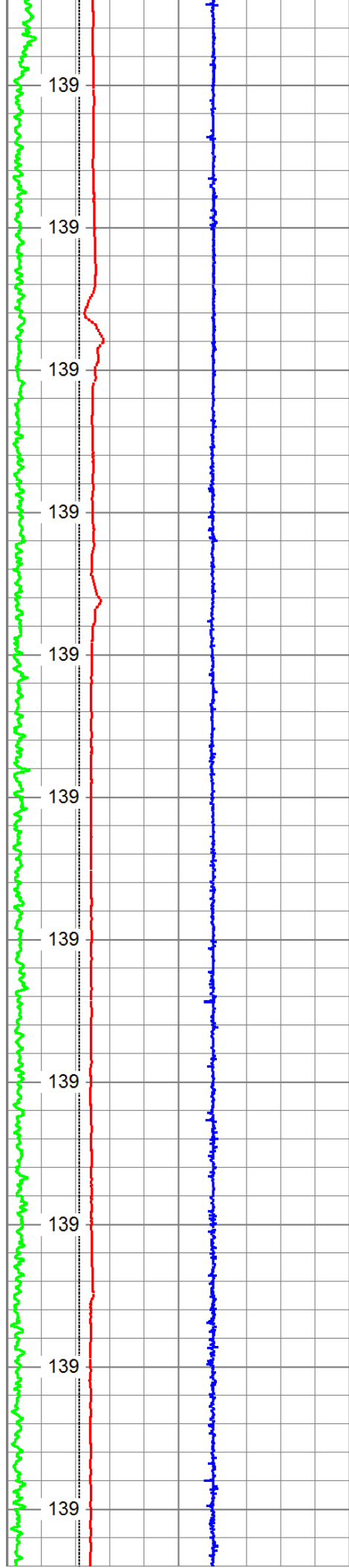
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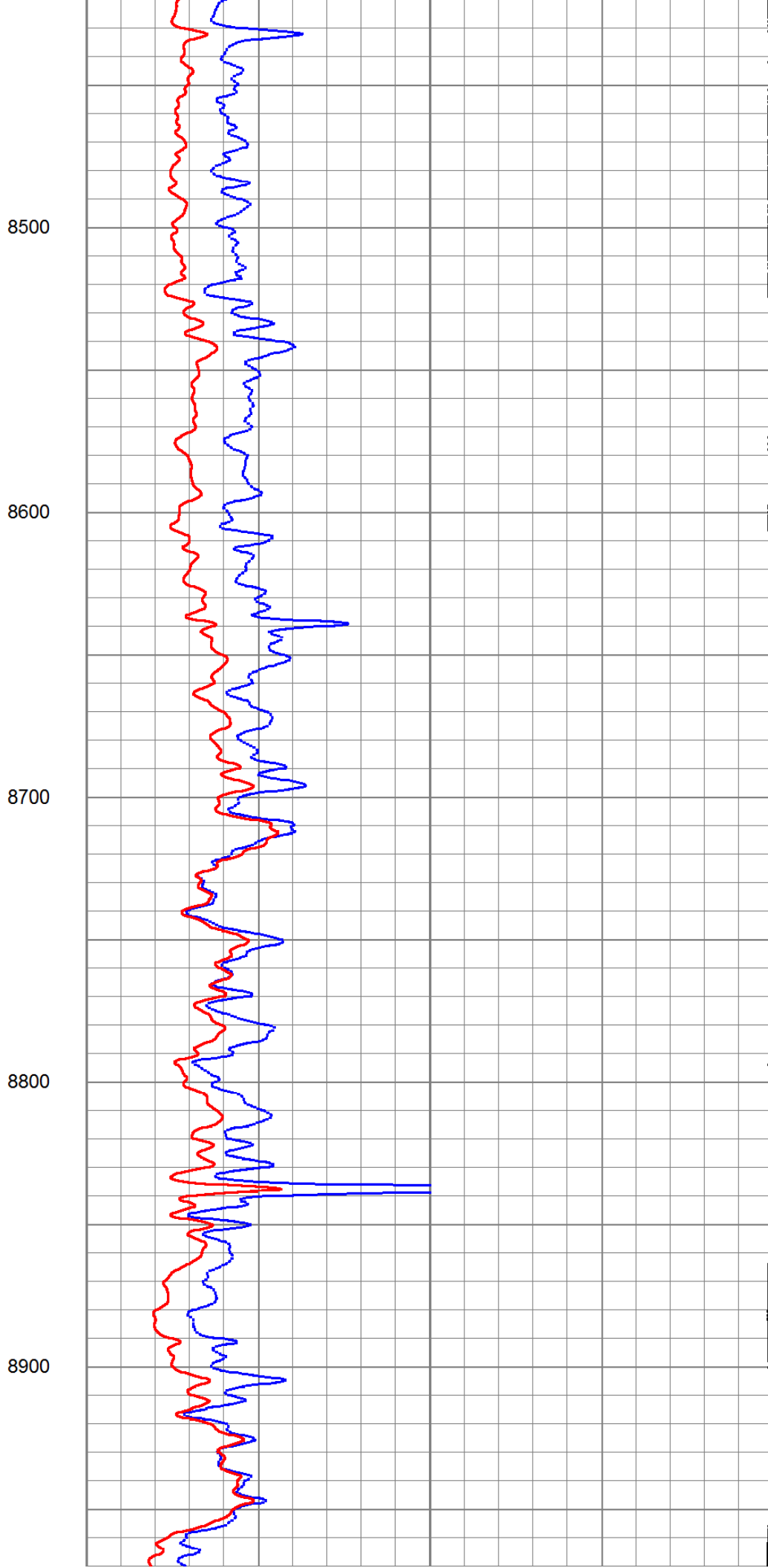
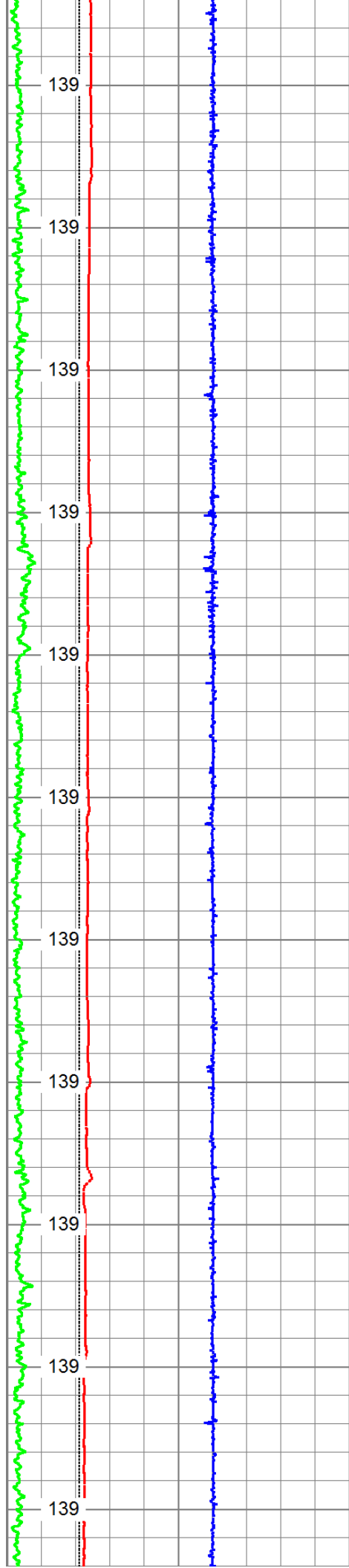
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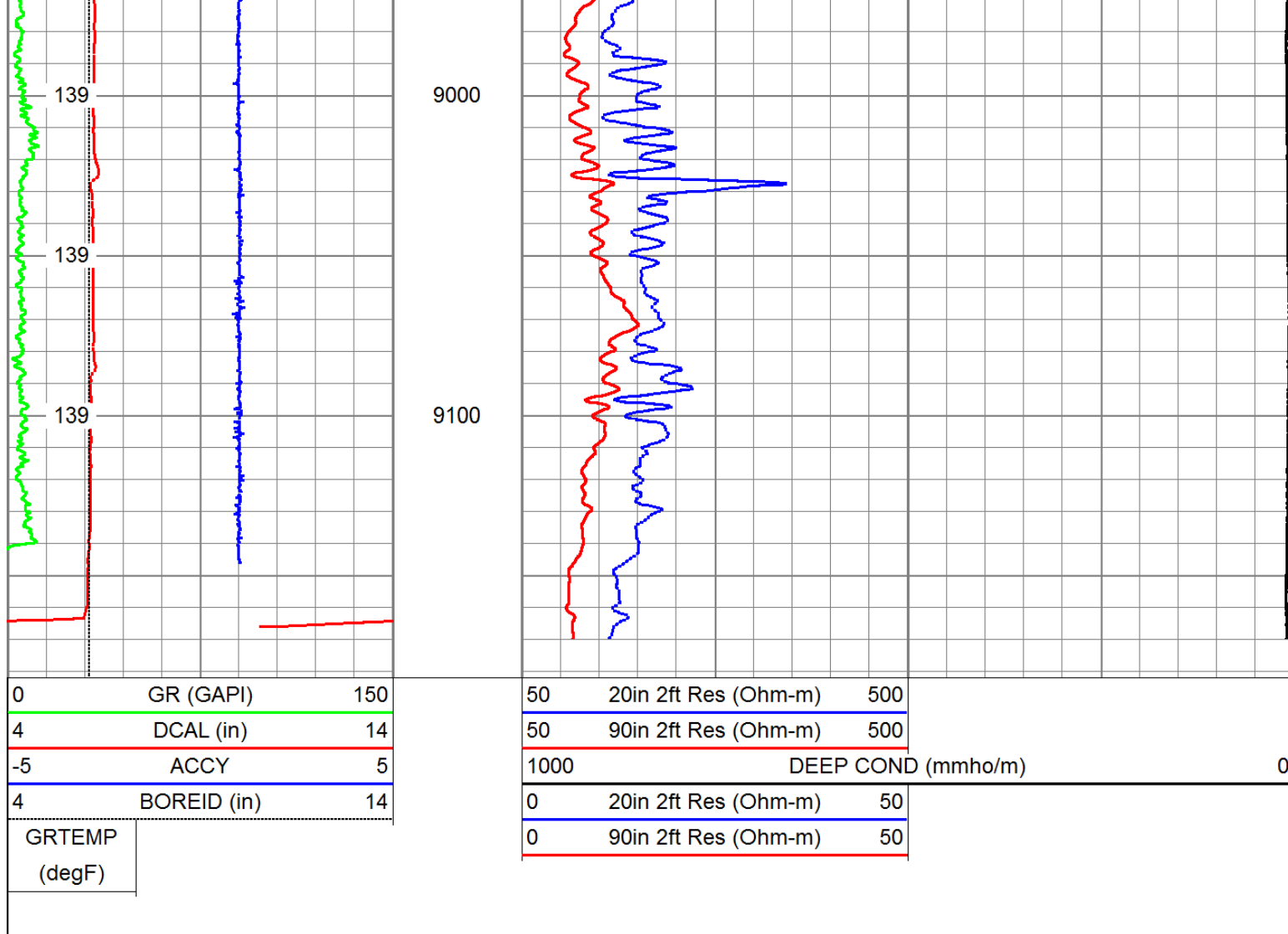
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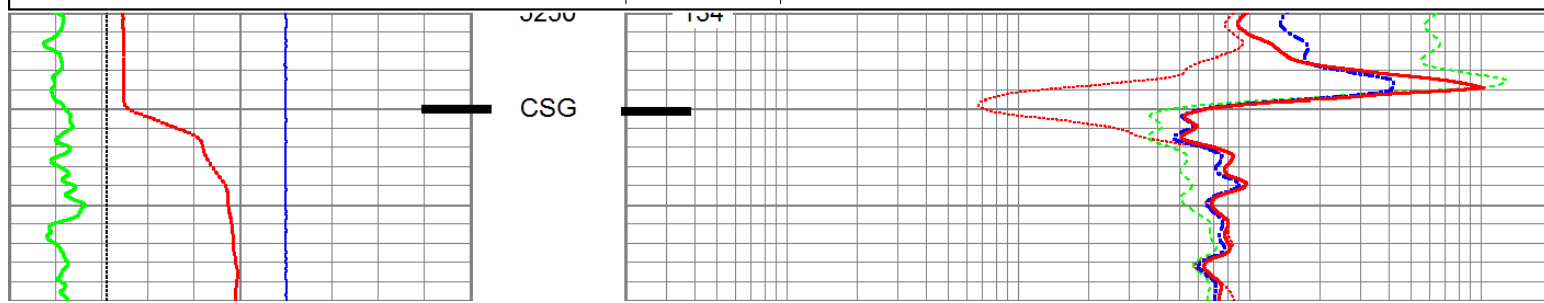


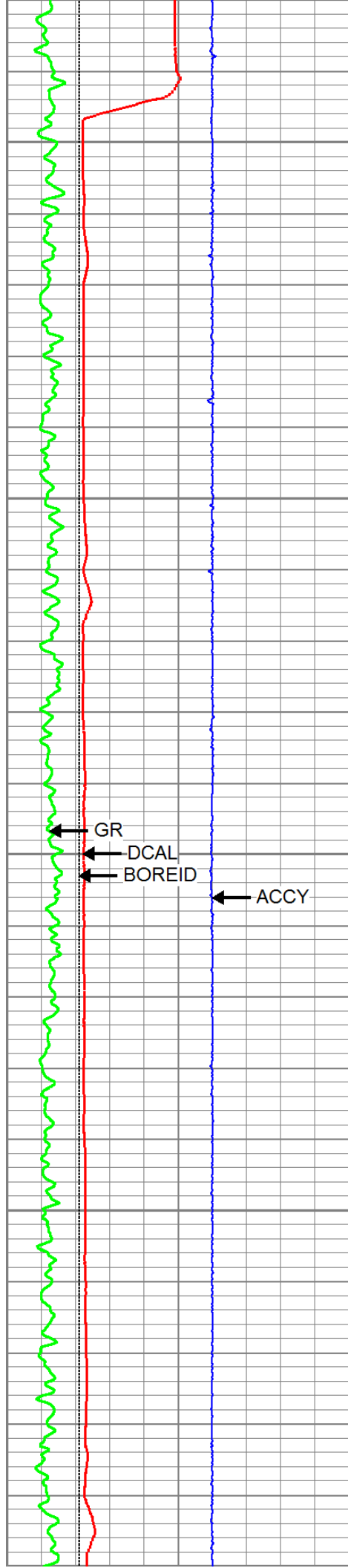


MAIN PASS

Database File: c:\users\kris.wetzel\desktop\brad 3508 2-12h\sandridge_brad_3598_2_12h_mem.db
 Dataset Pathname: proc1/pass1.2
 Presentation Format: 6_5r_chk
 Dataset Creation: Fri Jan 04 05:20:57 2013
 Charted by: Depth in Feet scaled 1:240

0	GR (GAPI)	150	0.2	20inRadial (Ohm-m)	2000
4	BOREID (in)	14	0.2	30inRadial (Ohm-m)	2000
4	DCAL (in)	14	0.2	60inRadial (Ohm-m)	2000
-5	ACCY	5	0.2	90inRadial (Ohm-m)	2000
GRTEMP (degF)					





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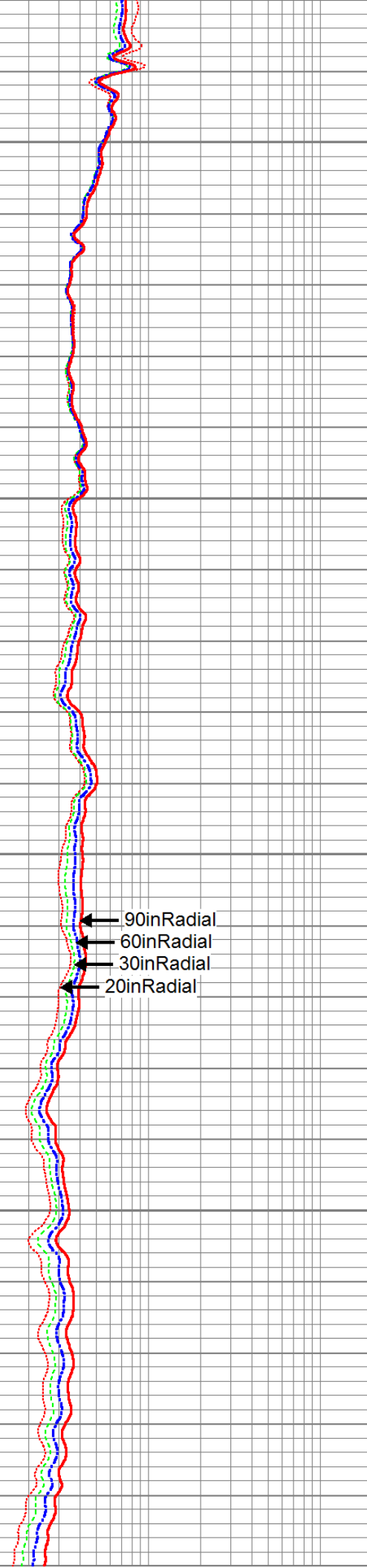
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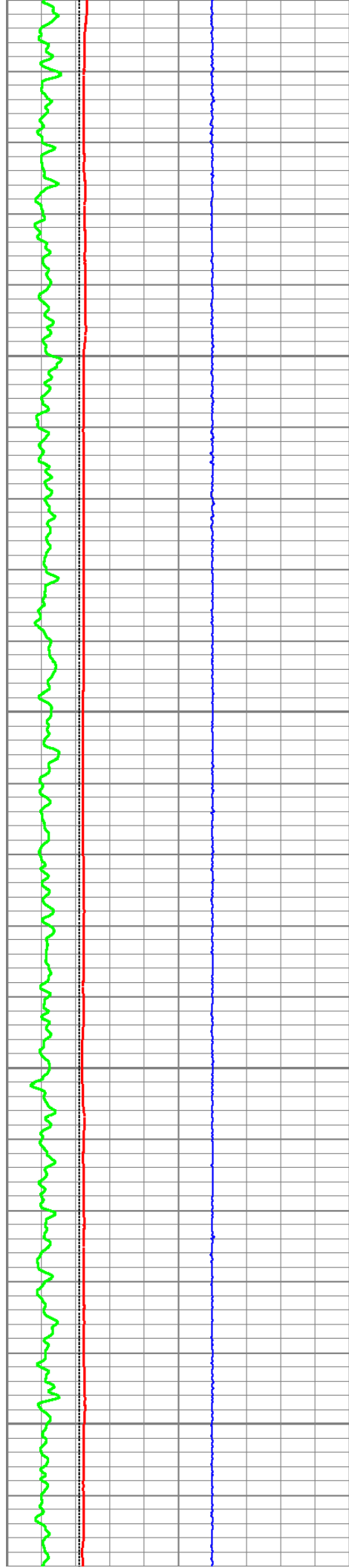


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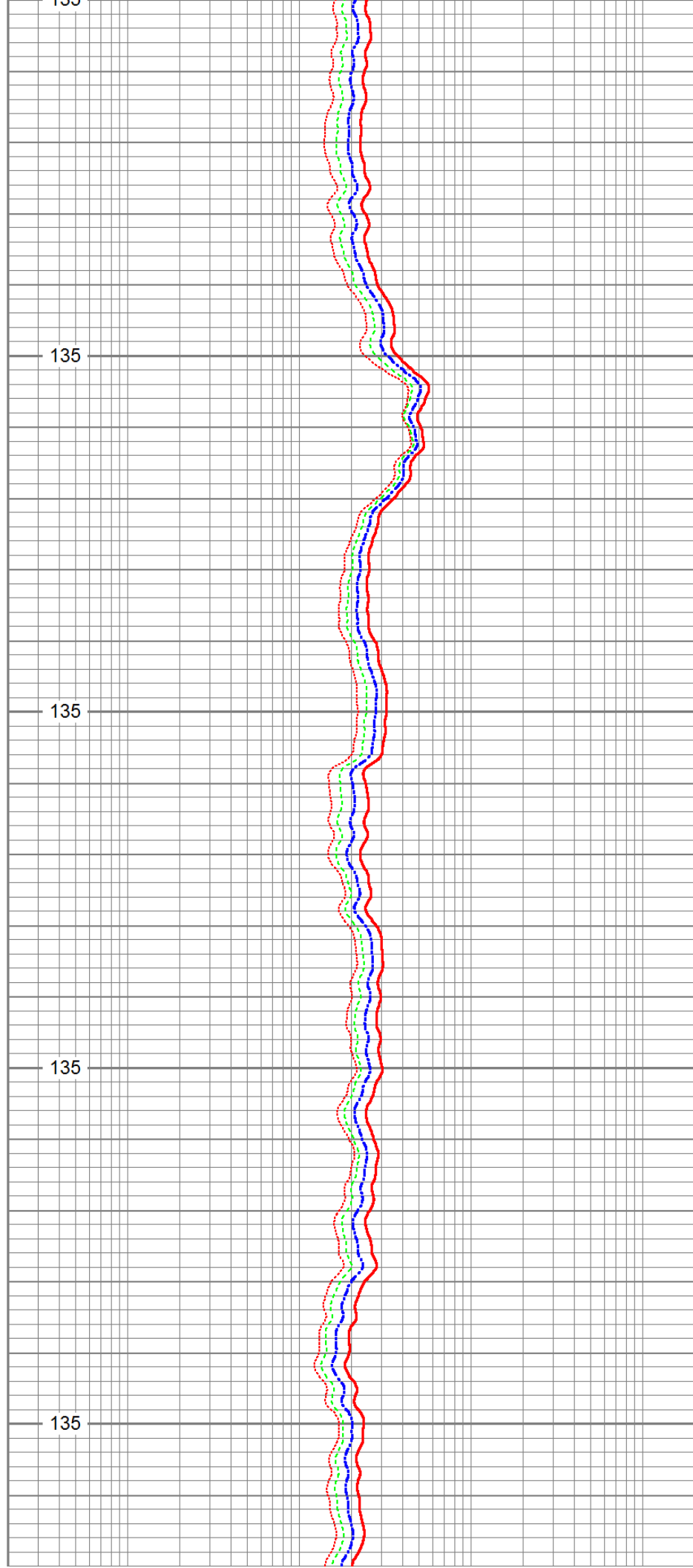
60inRadial

30inRadial

20inRadial



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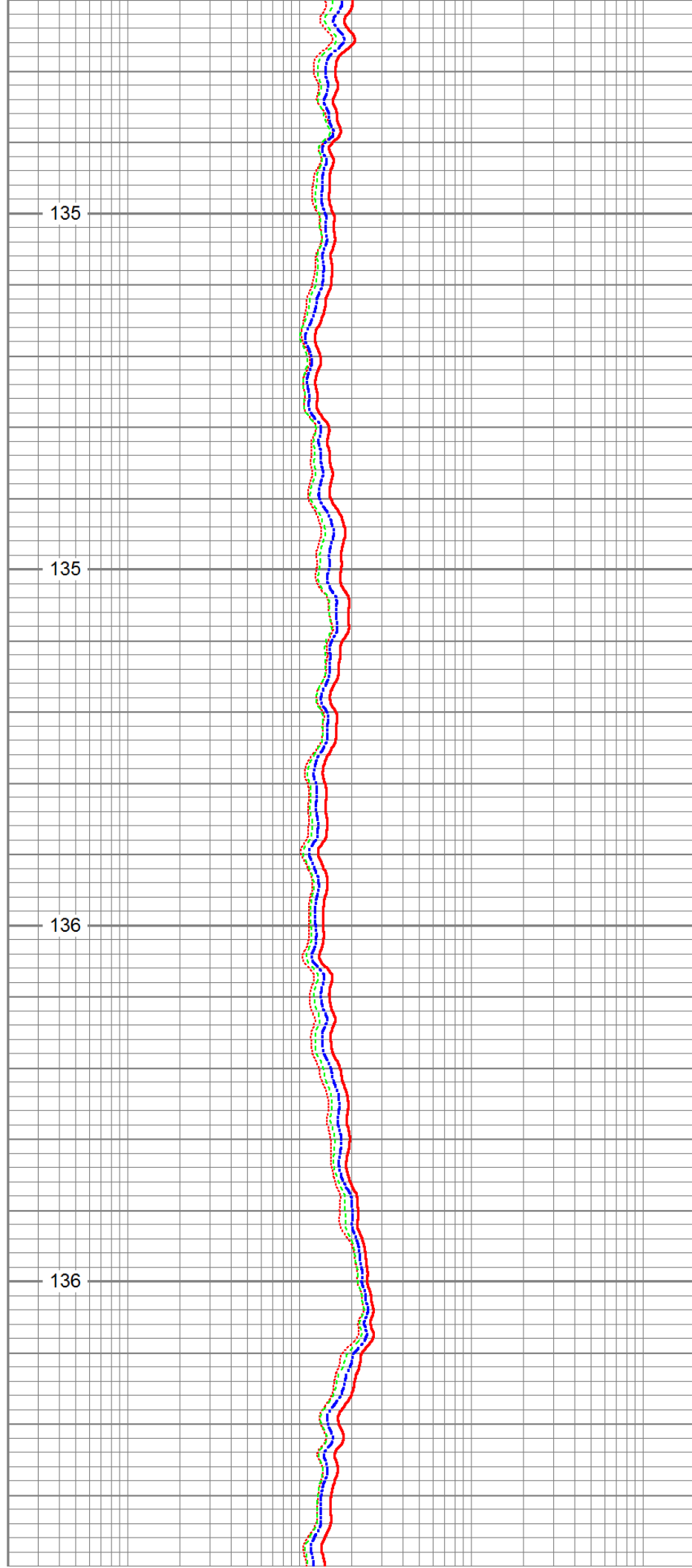
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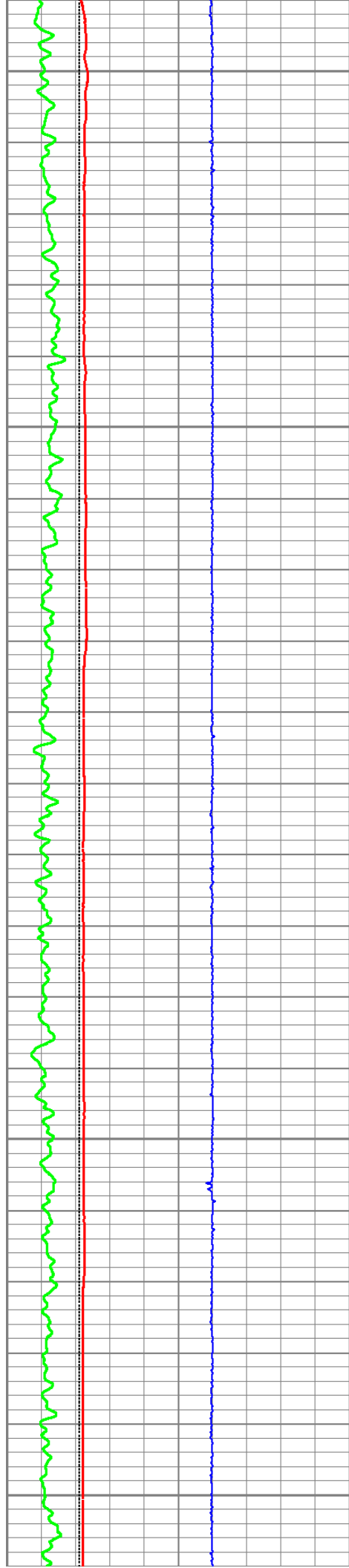
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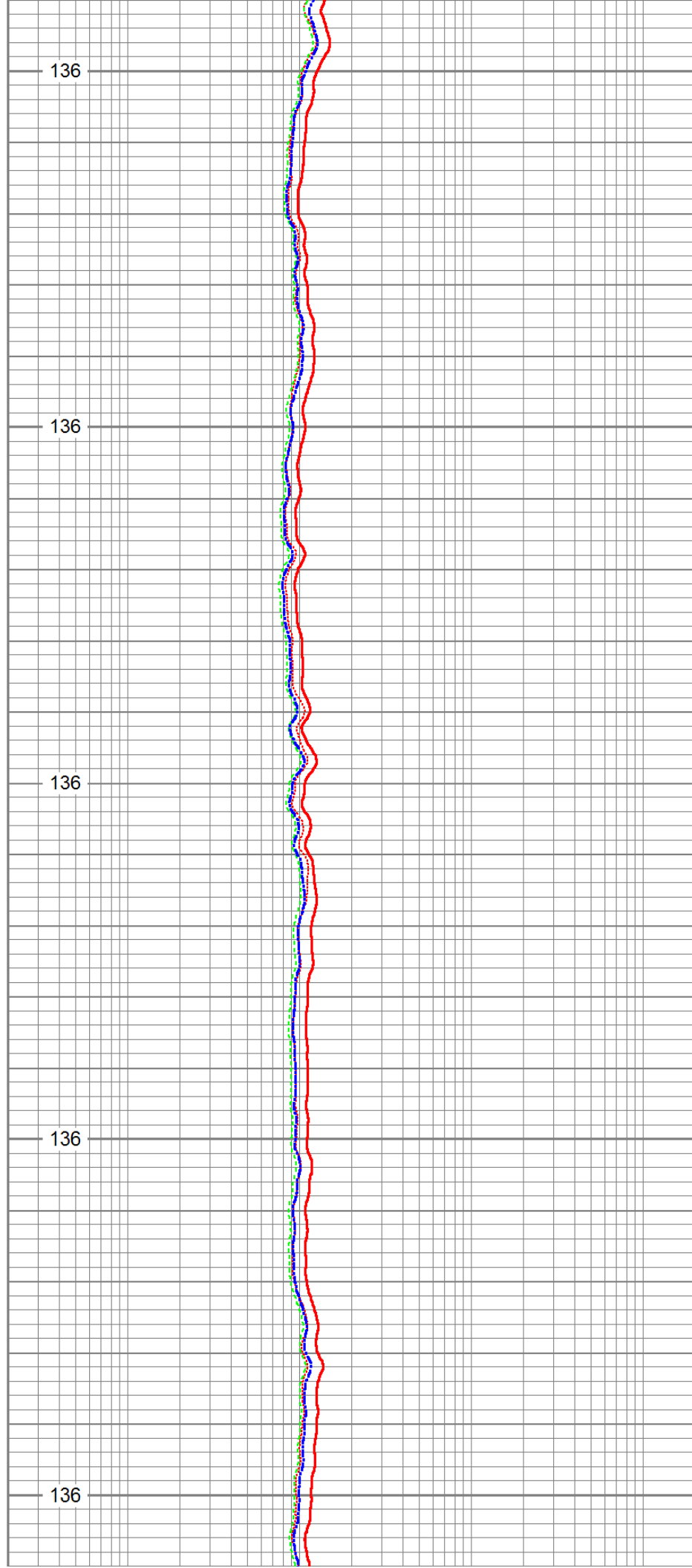
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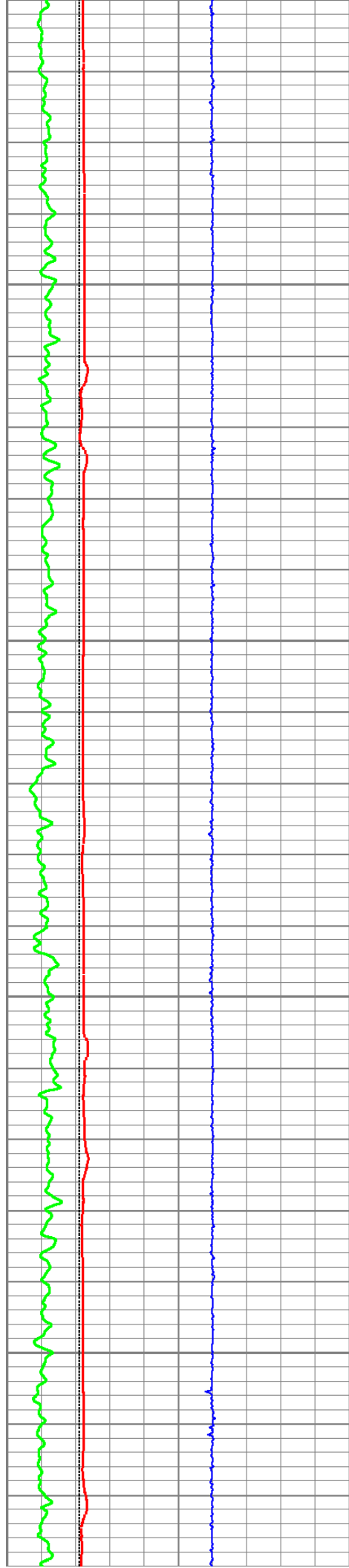
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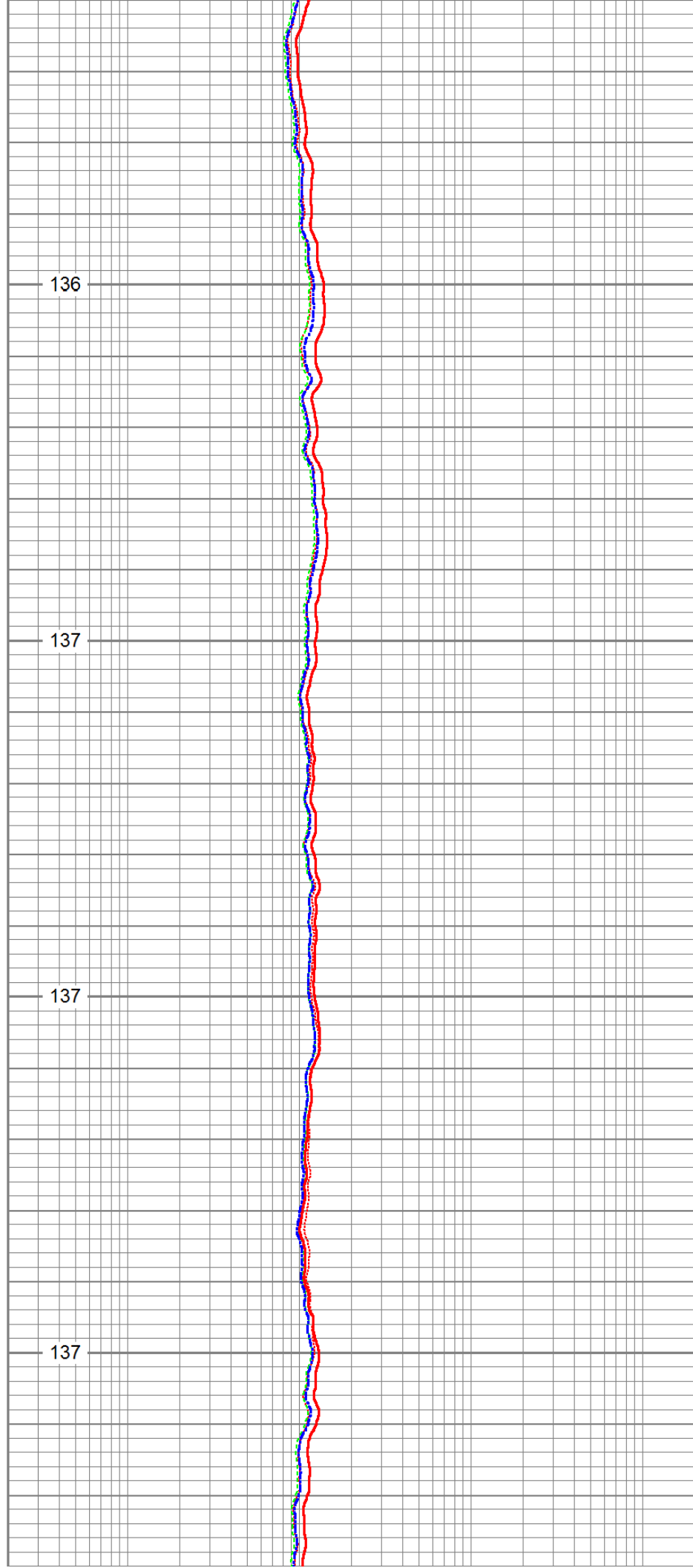
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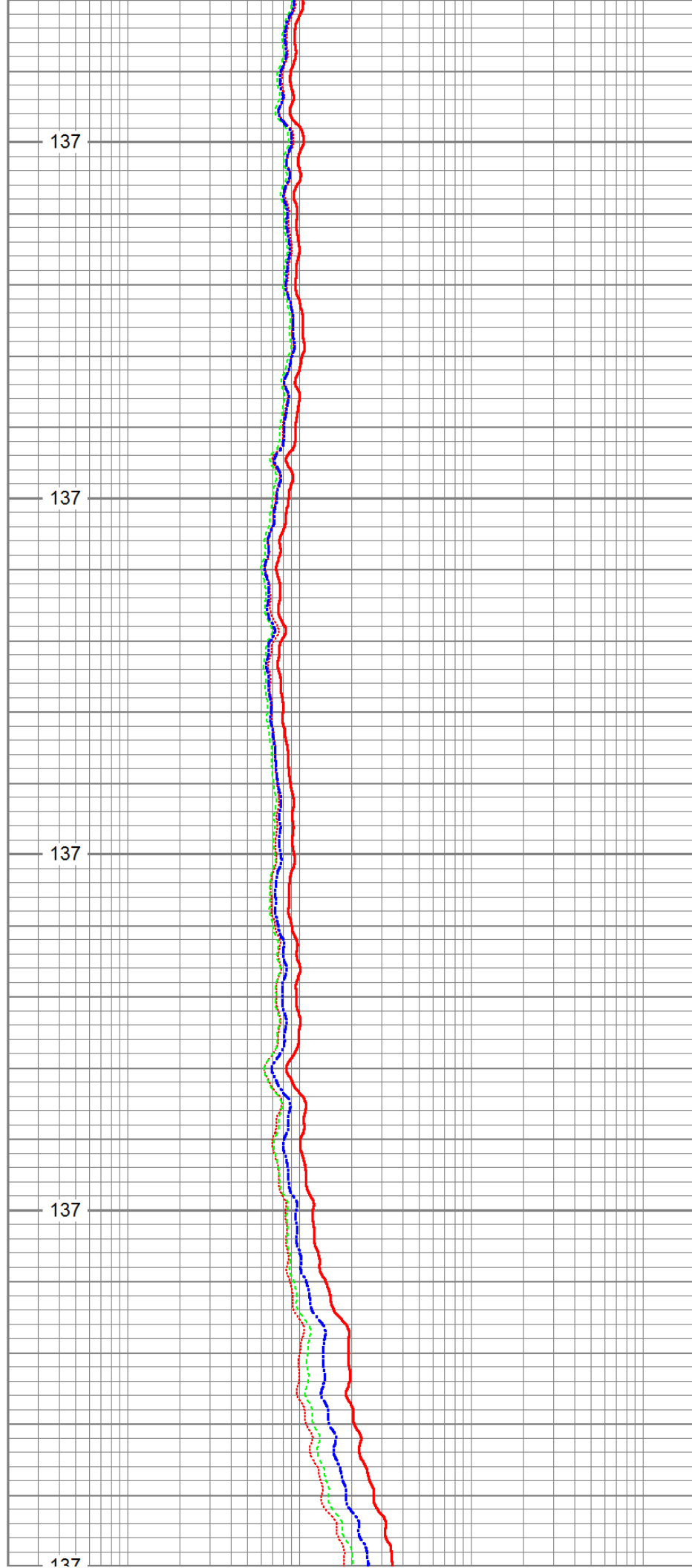
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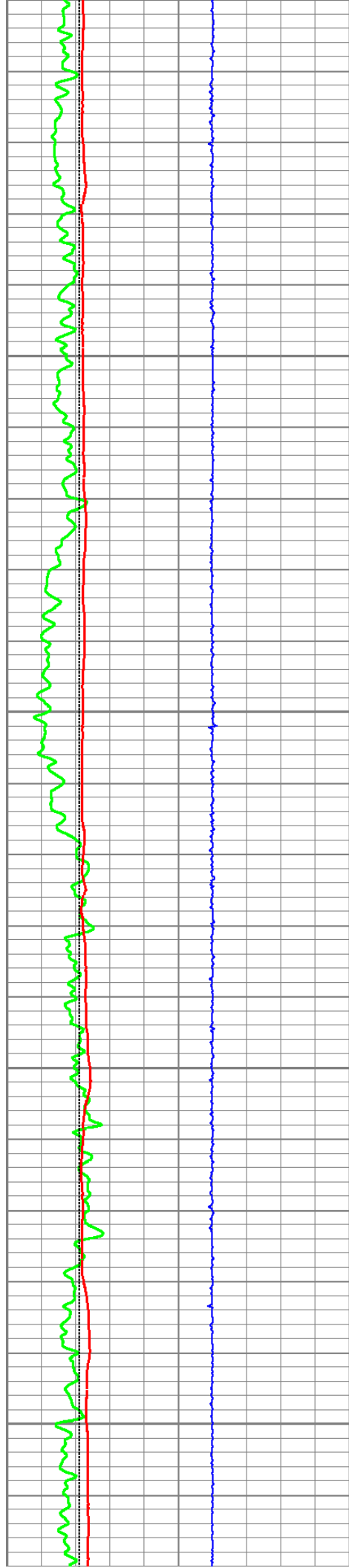
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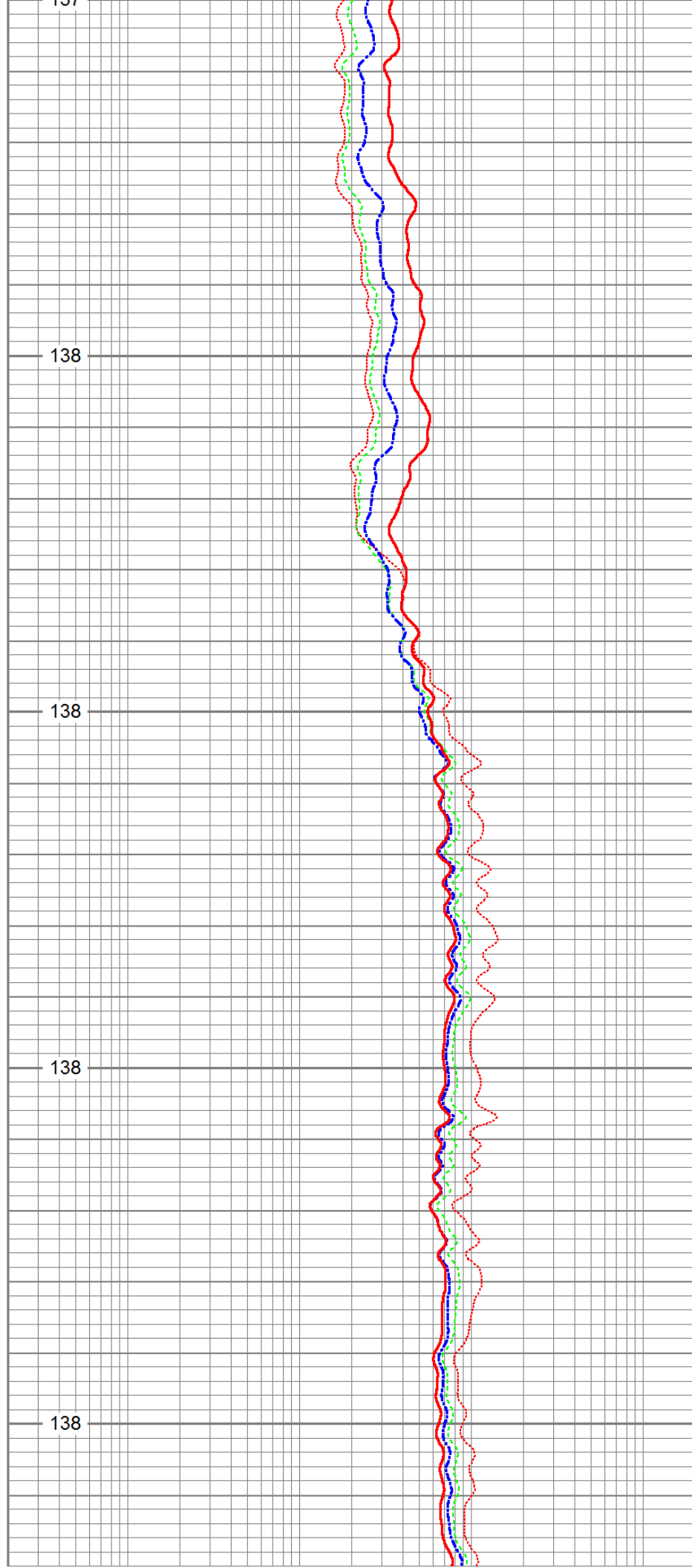
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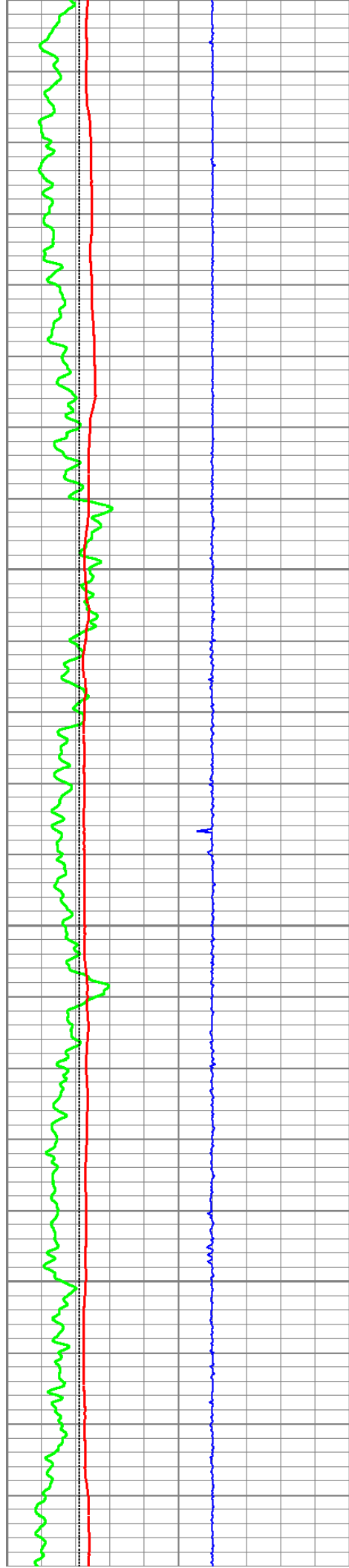




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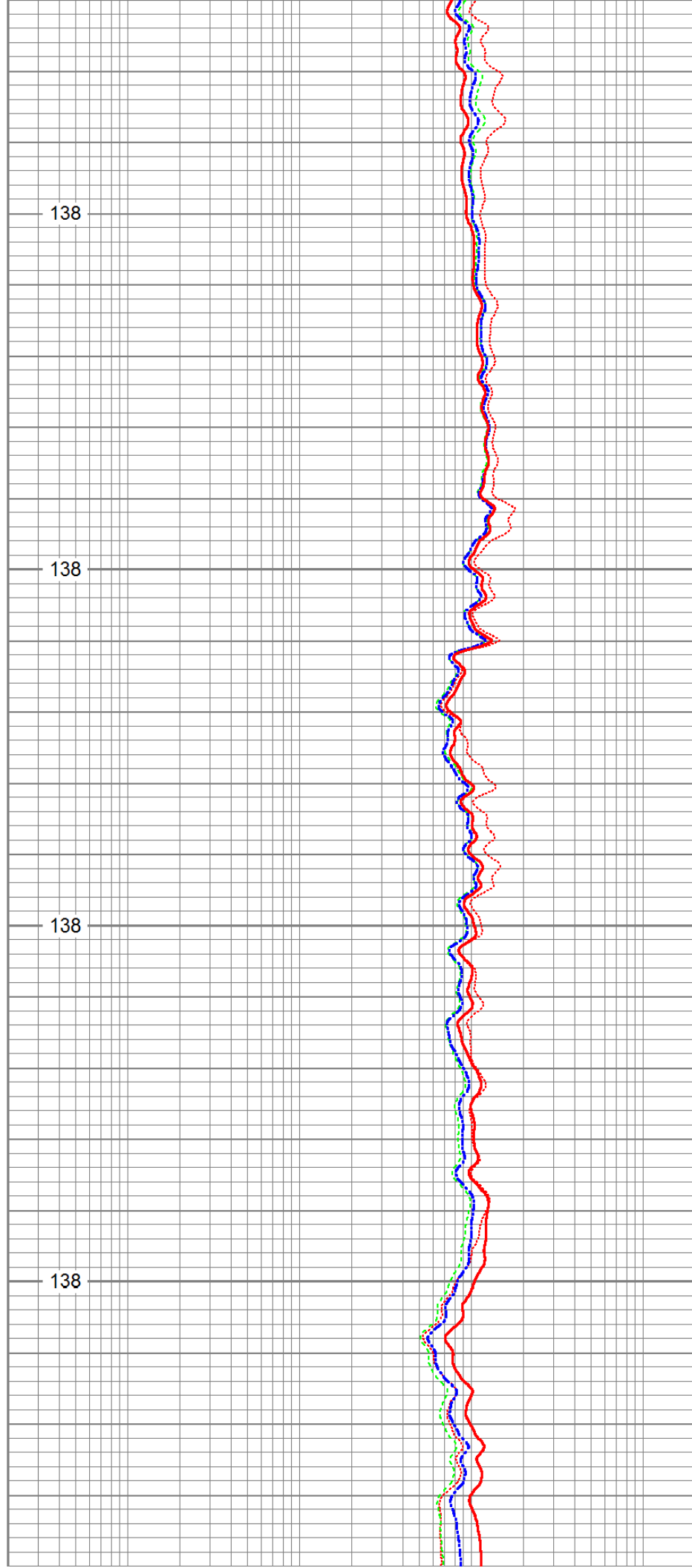
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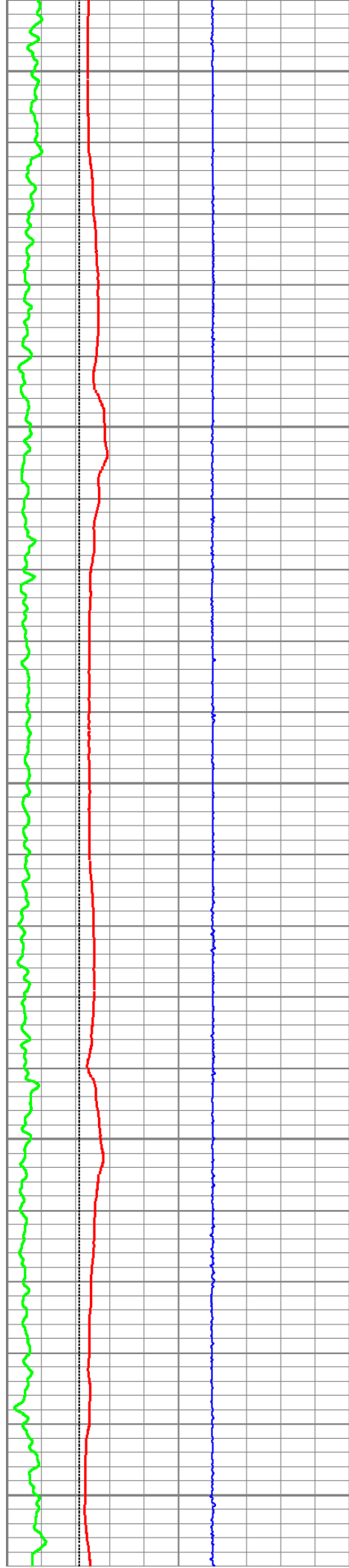
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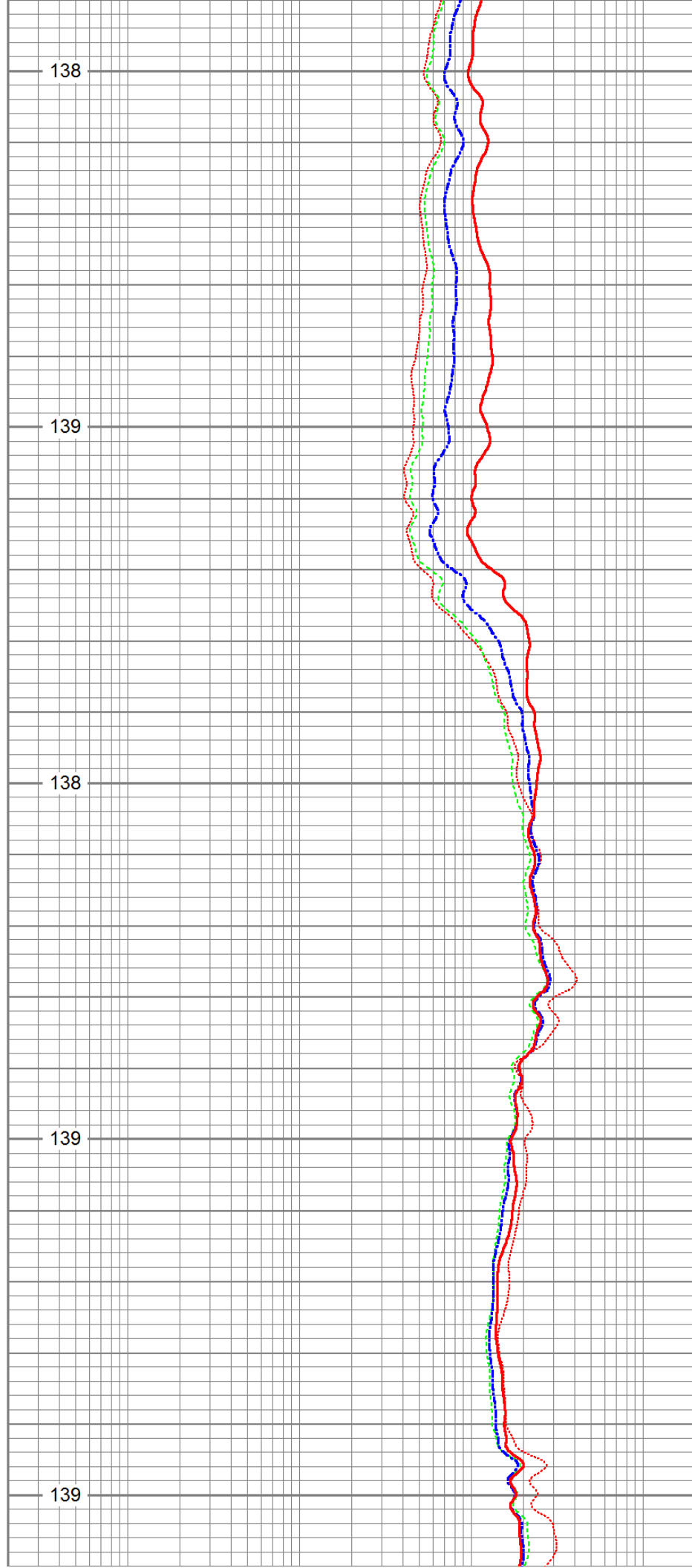
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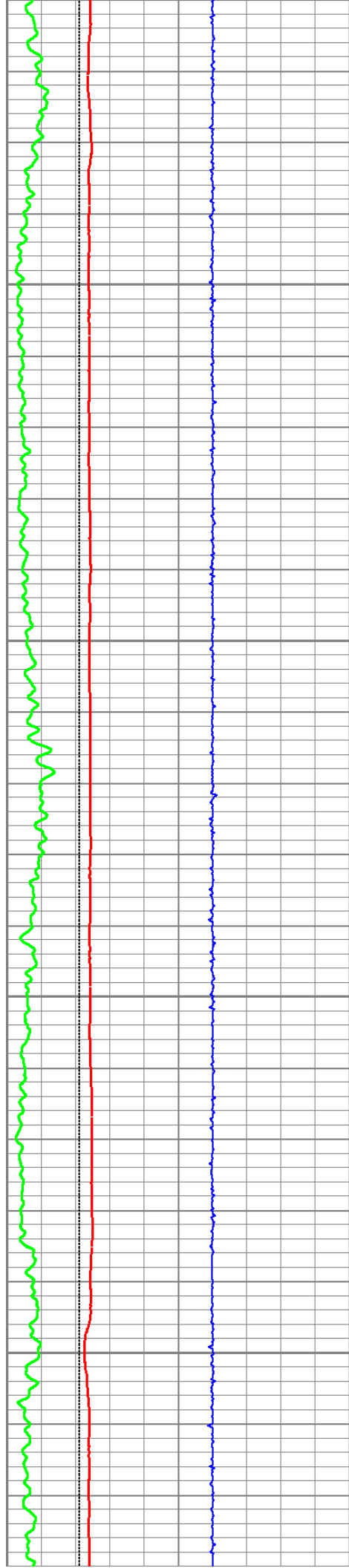
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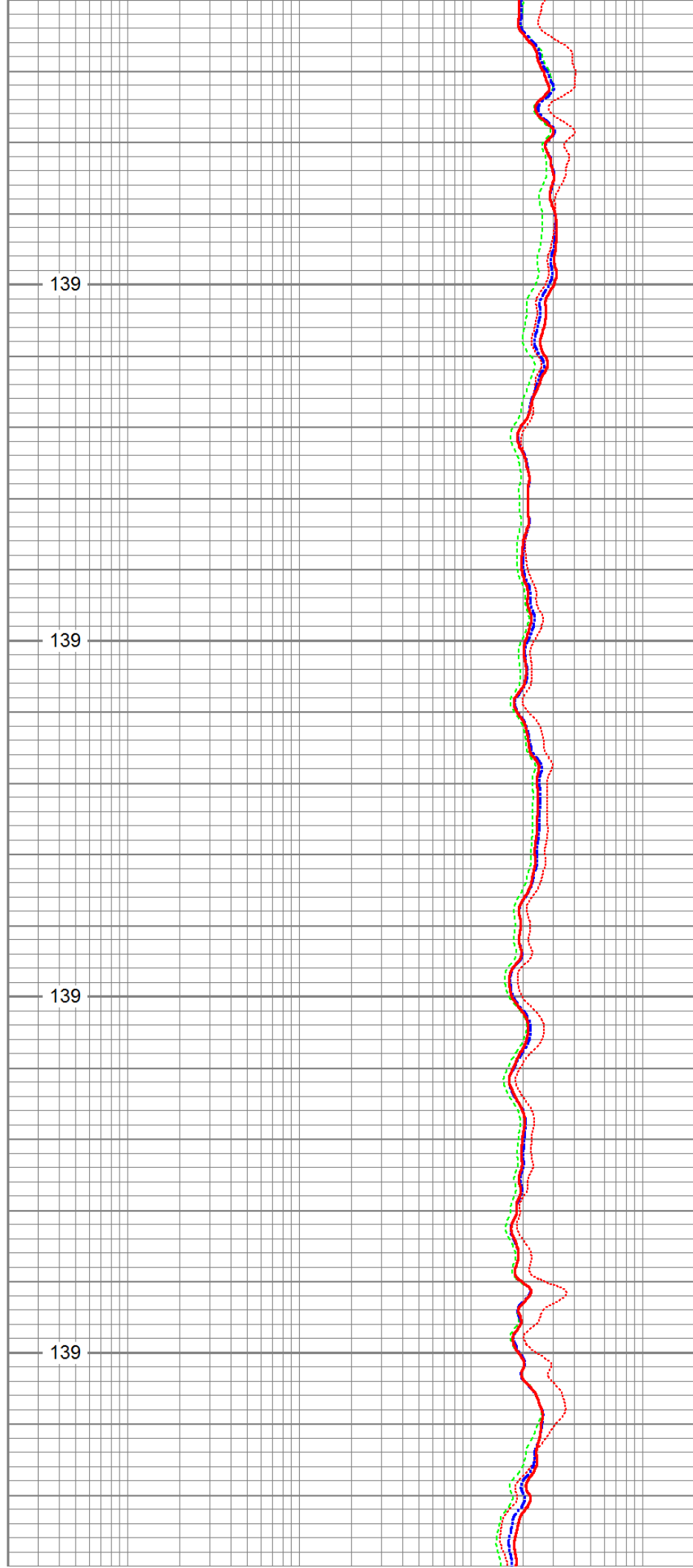
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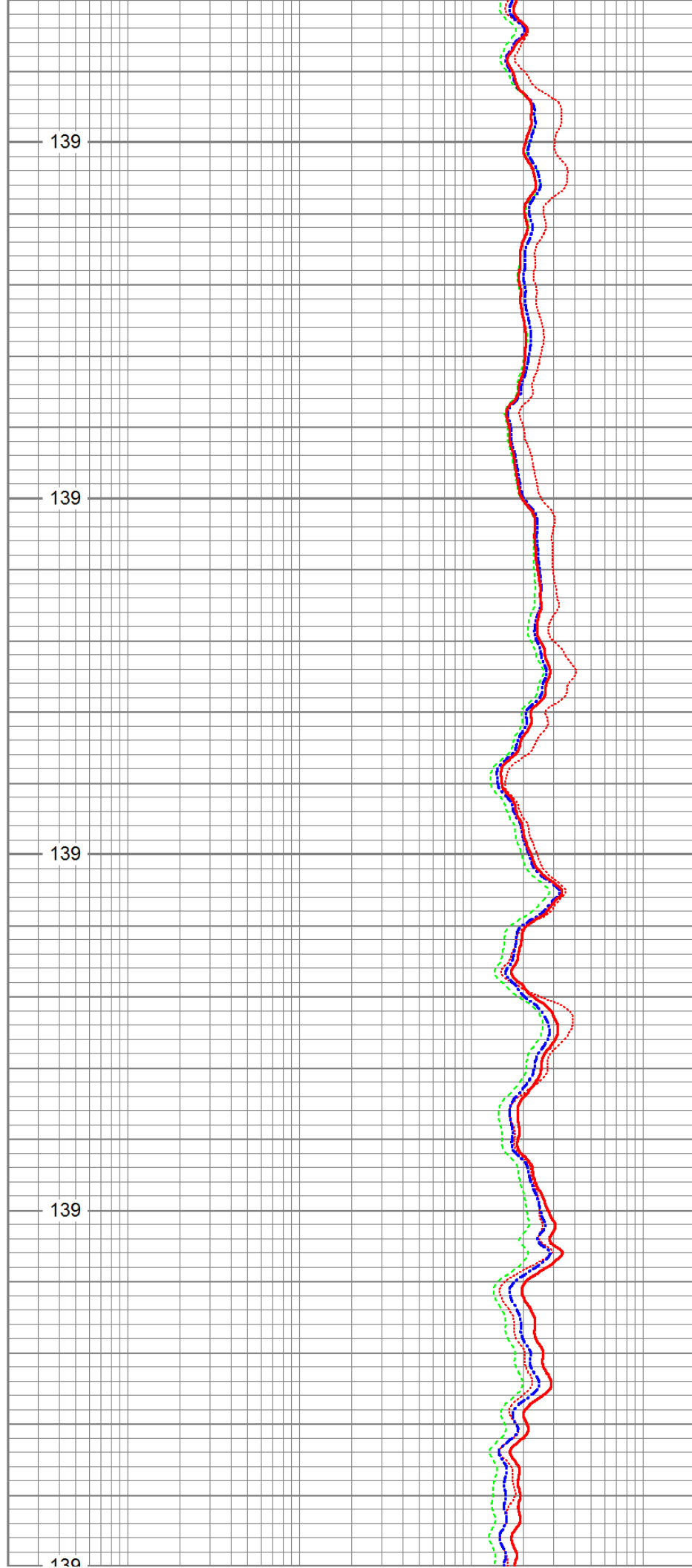
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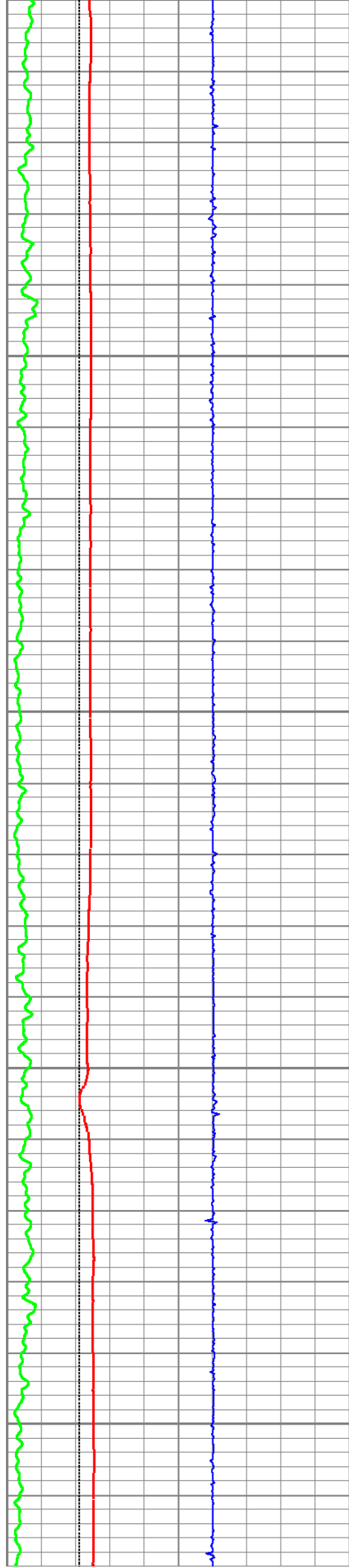
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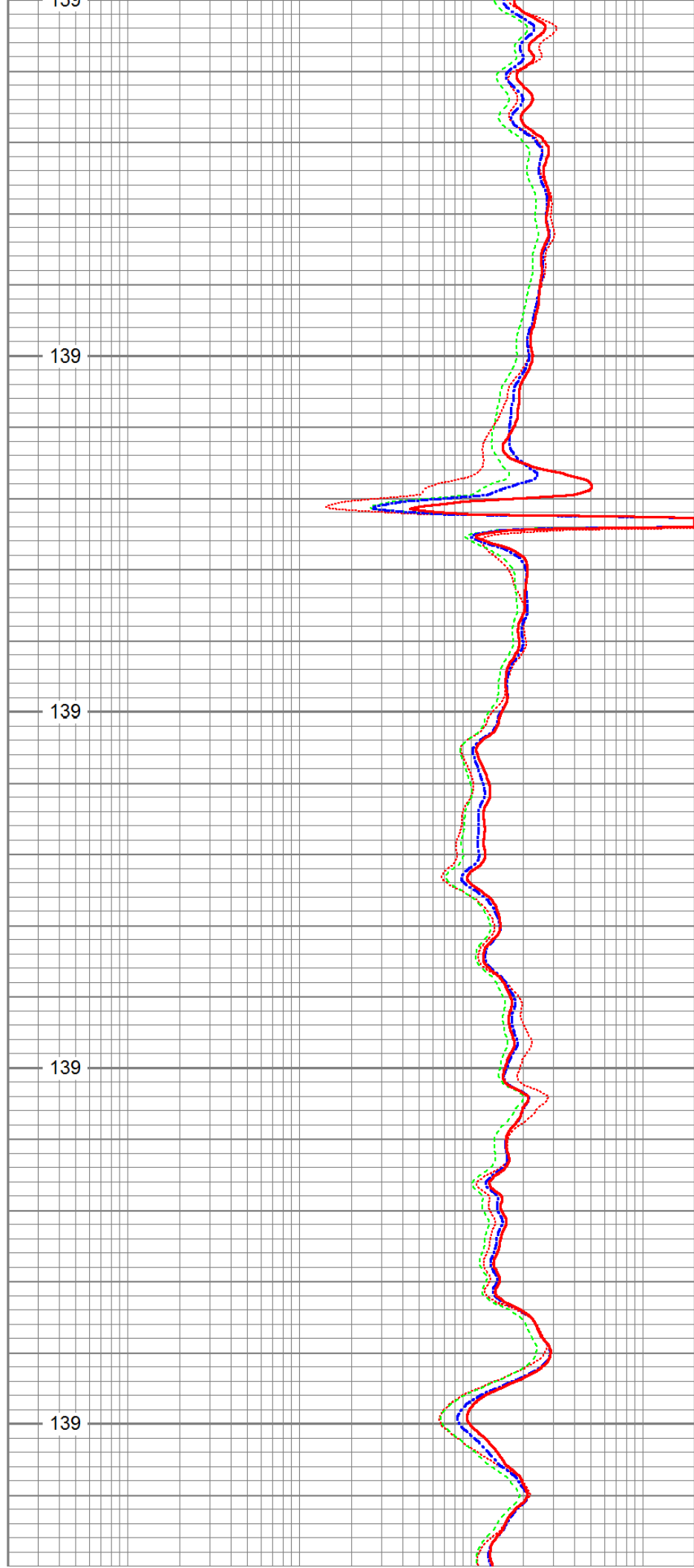
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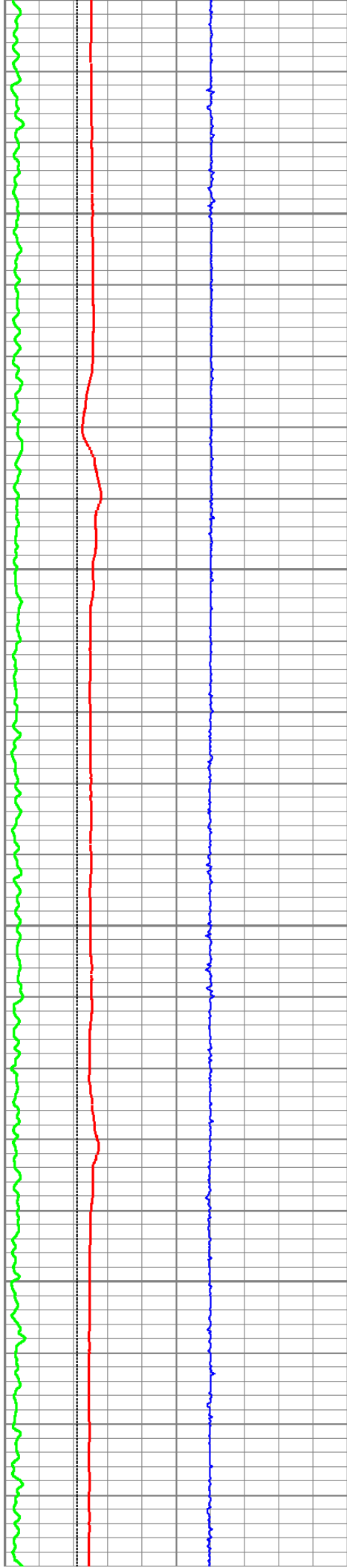
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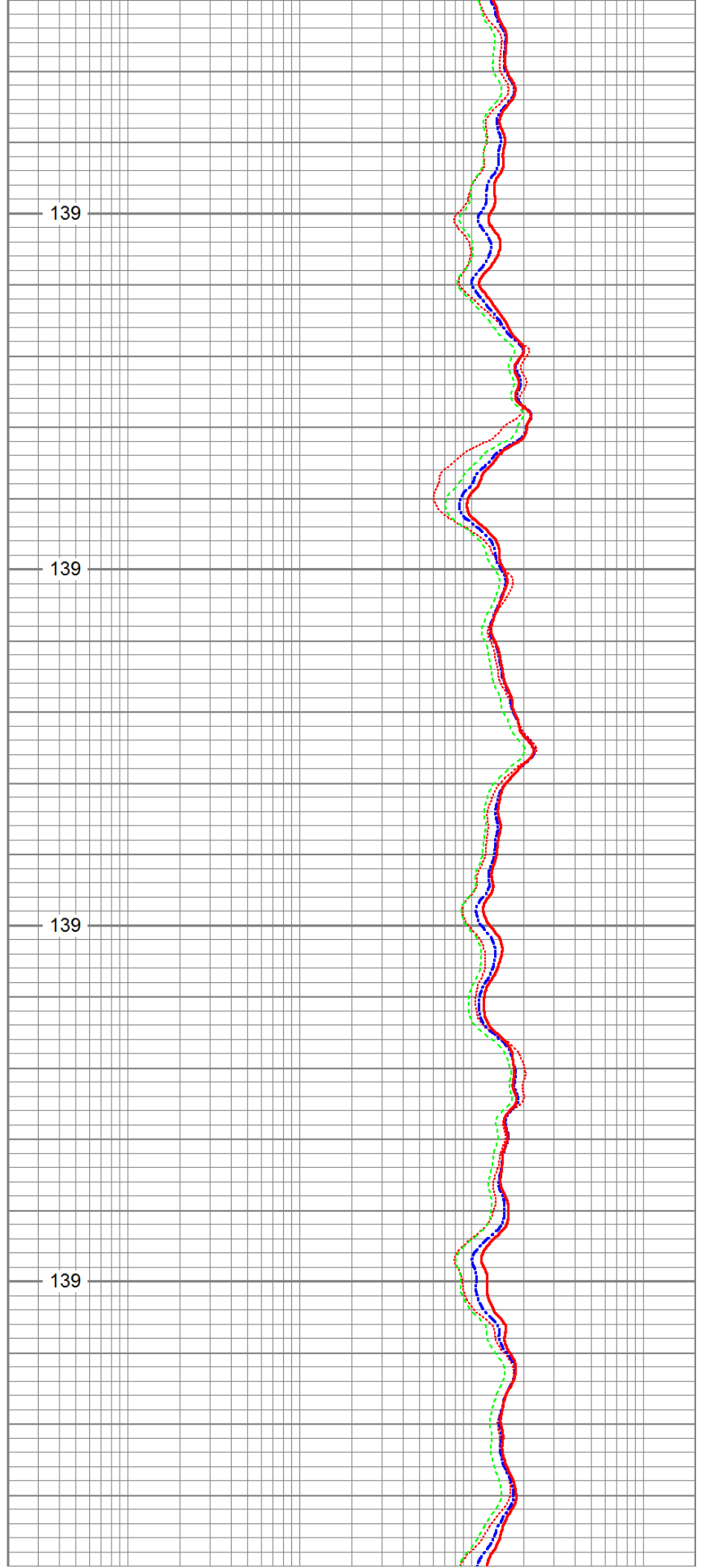
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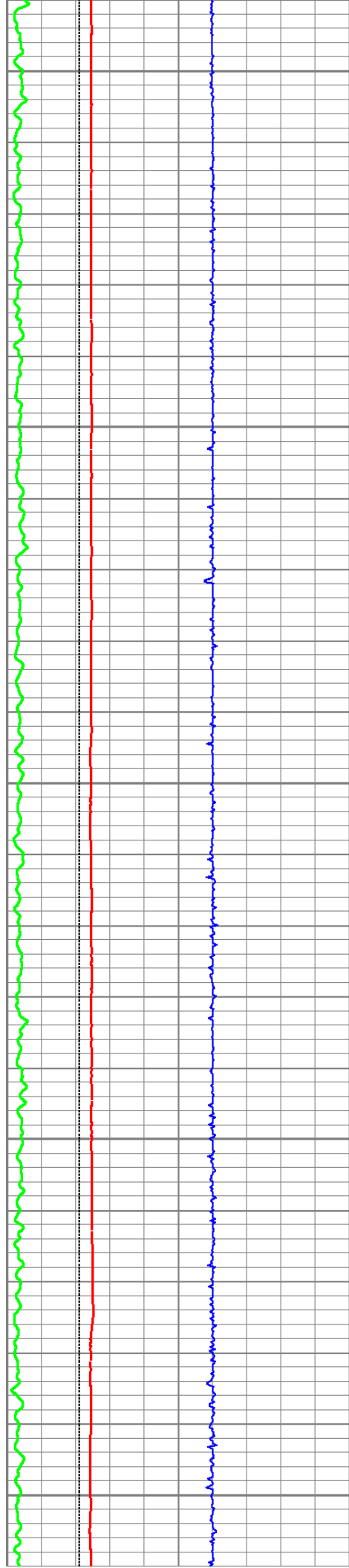
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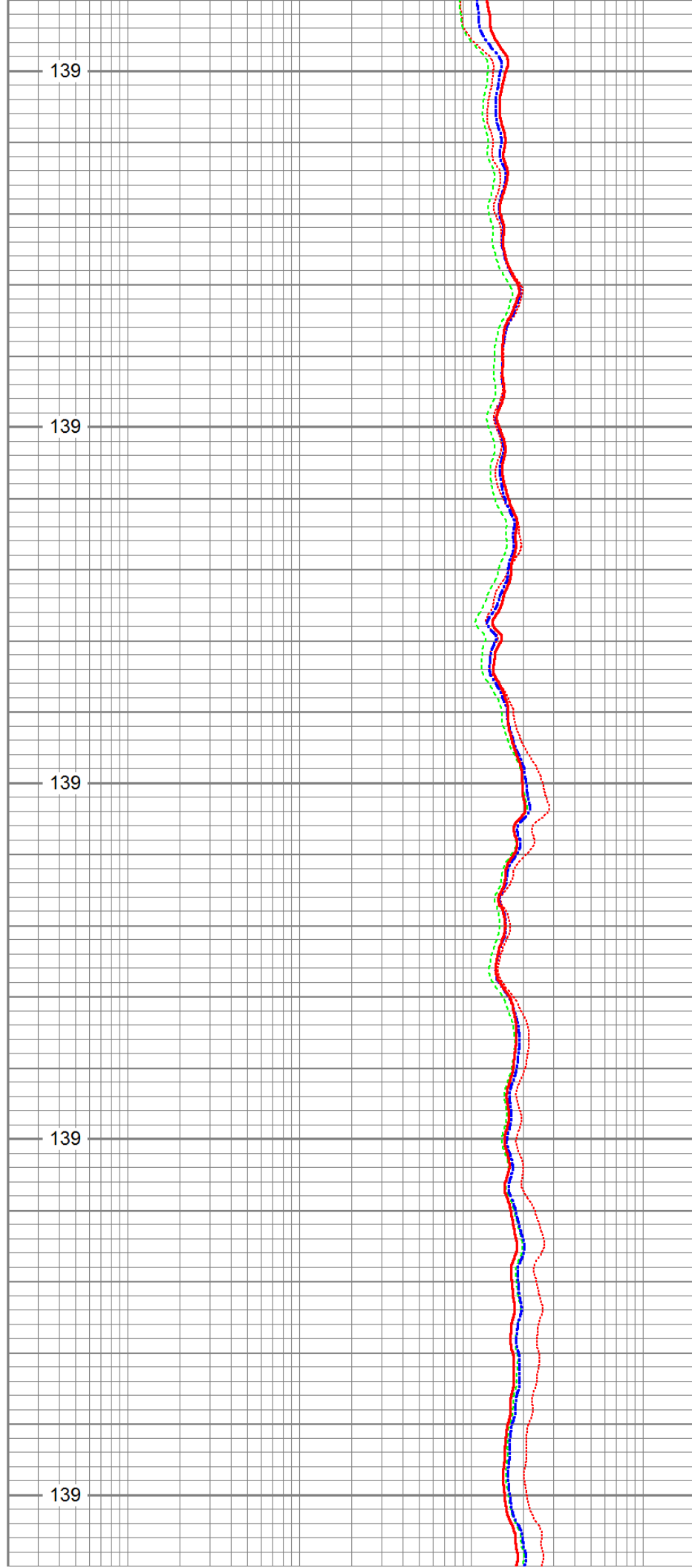
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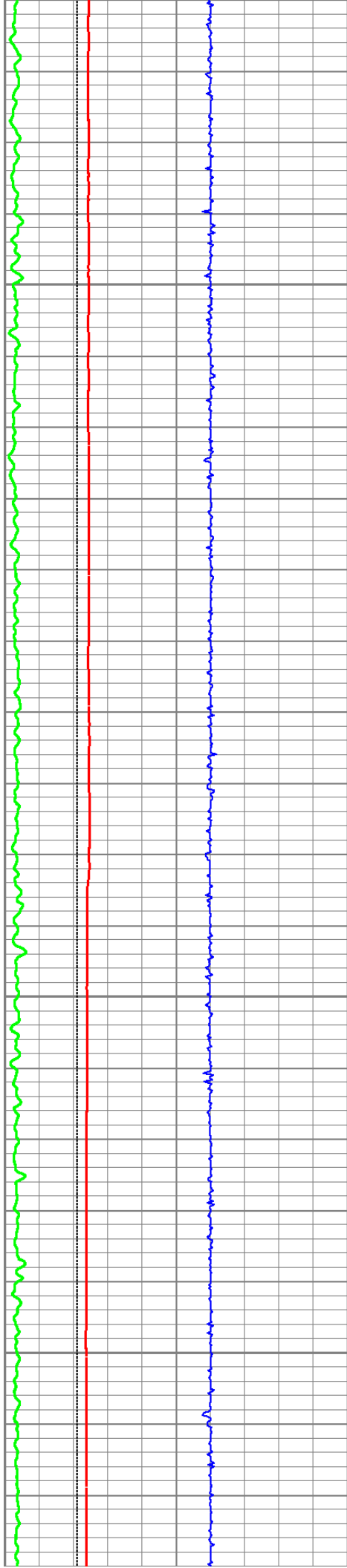
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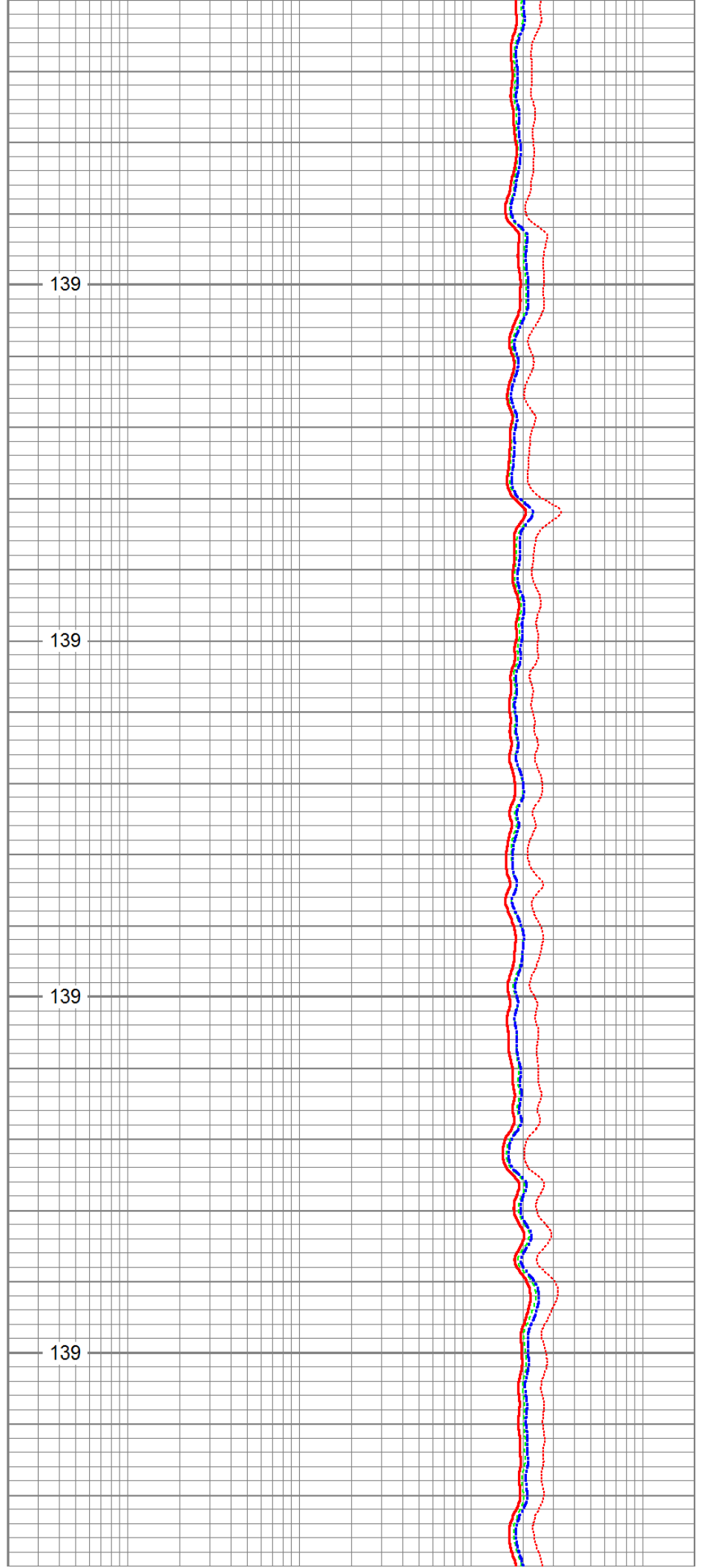
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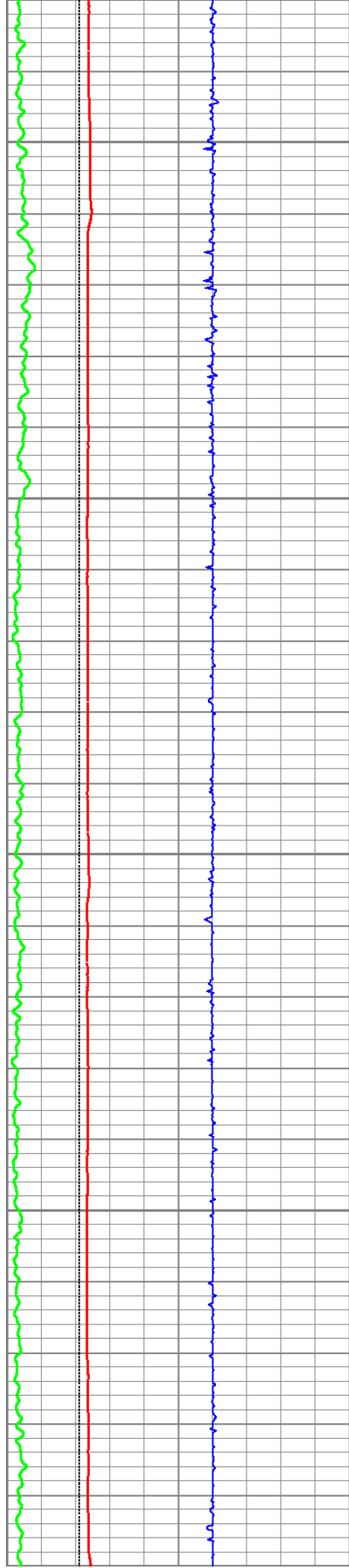
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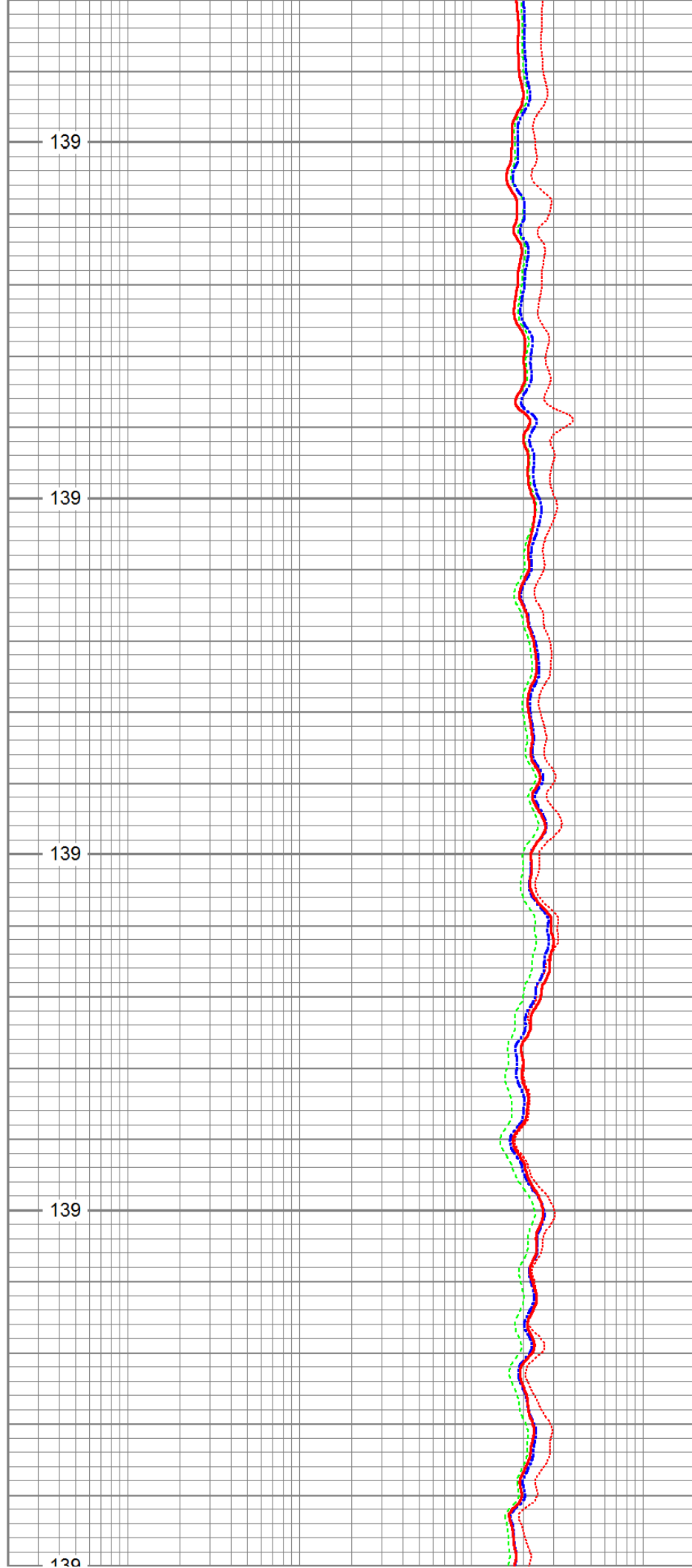
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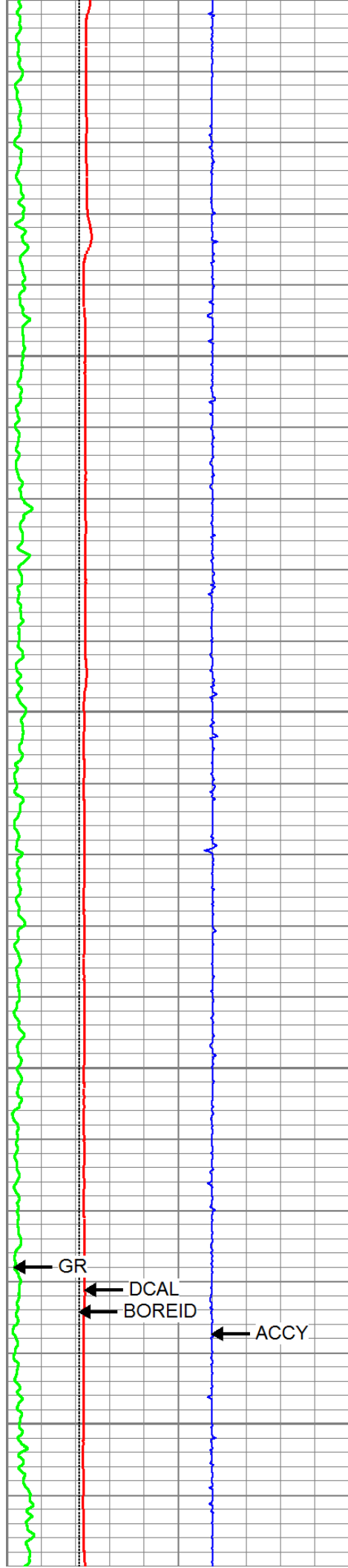
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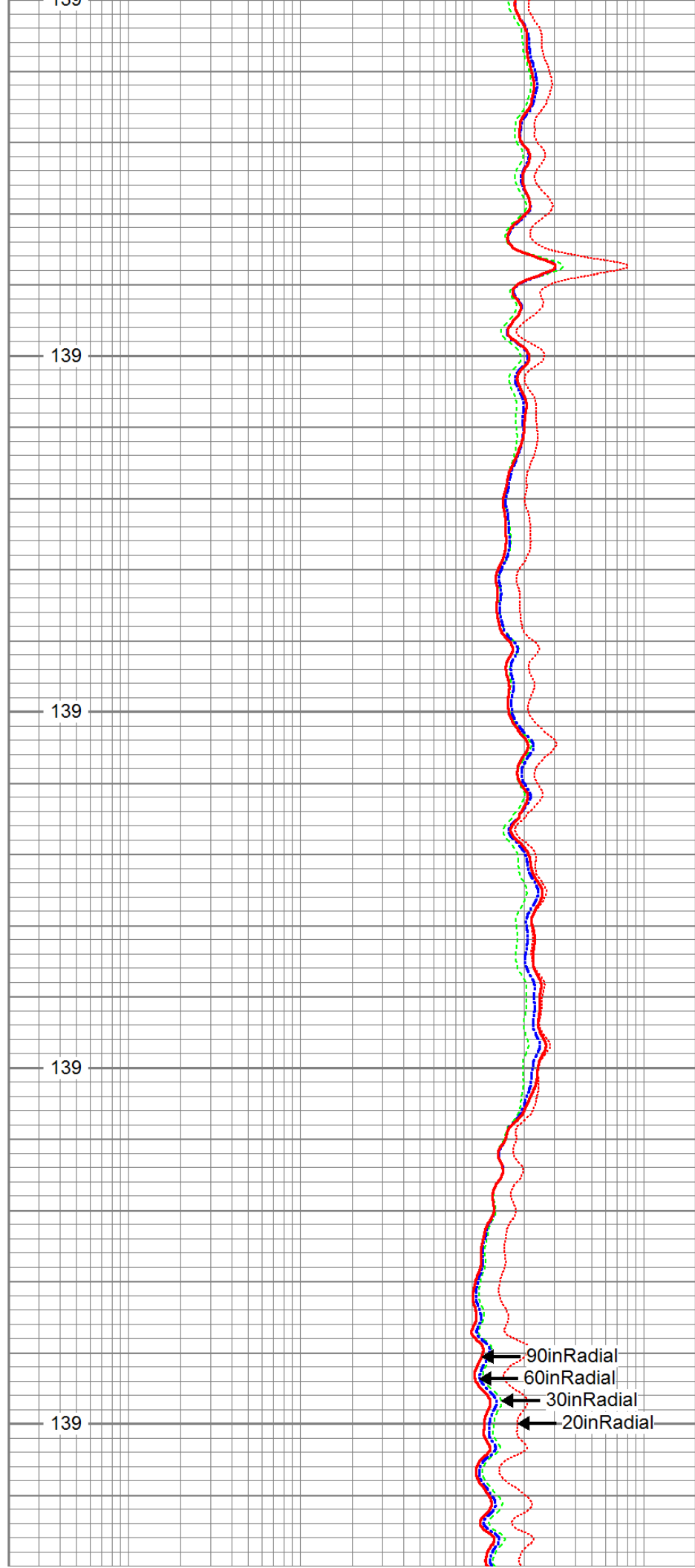
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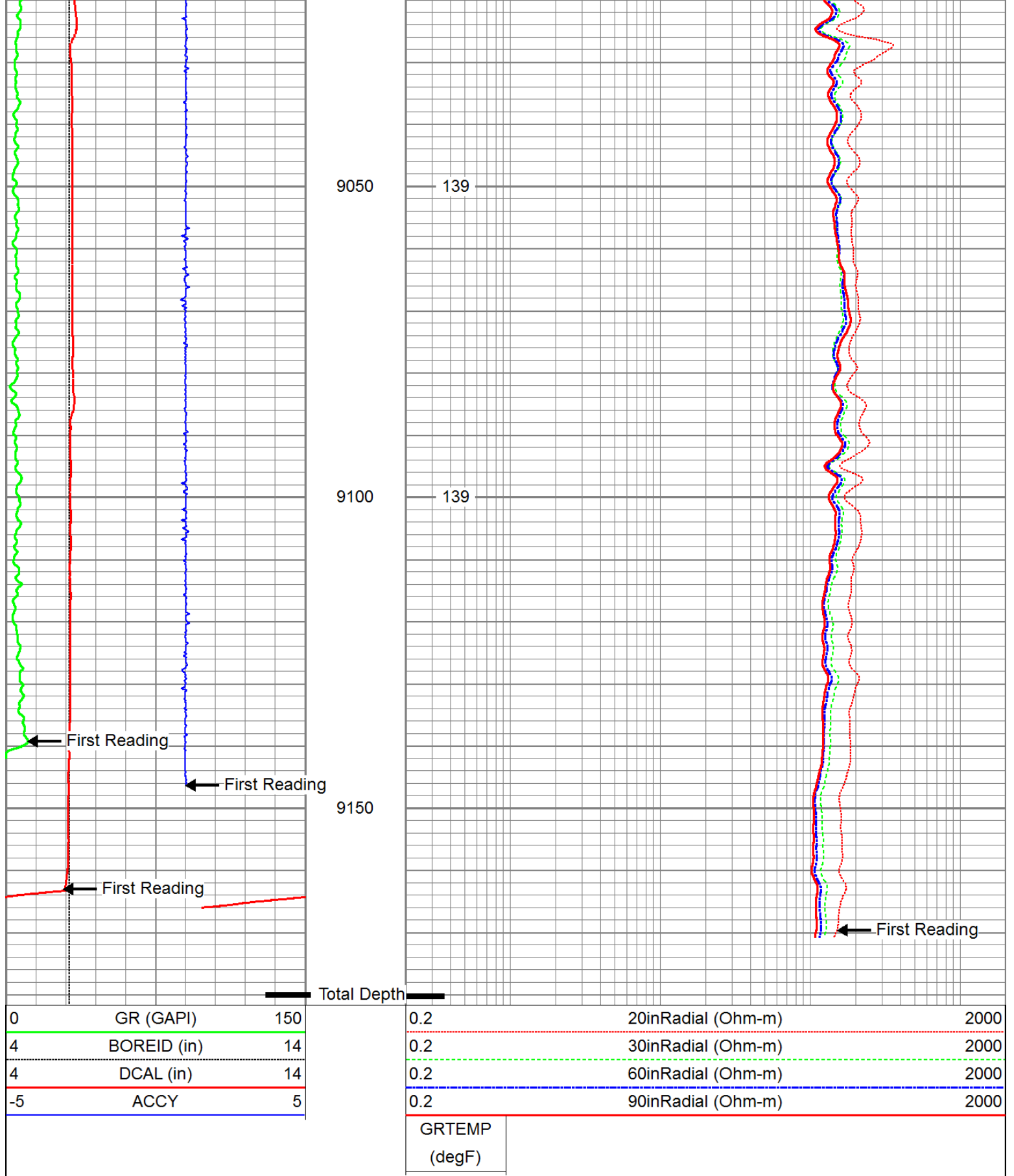


8800
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9000



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90inRadial
60inRadial
30inRadial
20inRadial



Log Variables

Database: c:\users\kris.wetzel\desktop\brad 3508 2-12h\sandridge_brad_3598_2_12h_mem.db
Dataset: field/well/proc1/pass1.2

Top - Bottom

A	BHCOR	BHFL_TYPE	BHFLRES Ohm-m	BHFLRESSRC	BHIDSRC	BOREID in
1	On	WBM	1	MUDCELL	CURVE	6.125

BOTTEMP degF 139	CASED? No	CASEOD in 4.5	CASETHCK in 0	CEMWATERSA kppm 0	CMNTTHCK in 0	DNBHC? NO
DPORSEL RHOB	FLUIDDEN g/cc 1	FRMSALIN kppm 0	LATNOR Off	M 2	MATRXDEN g/cc 2.71	MUDSALIN kppm 0.75
MudWgt lb/gal 8.3	NPORSEL Limestone	PEBHC? YES	PERFS 0	RESTMPsrc INTERNAL	SO in 0.5	SRFTEMP degF 65
SZCOR On	TDEPTH ft 9211	TMPCOR On	TOOLPOS Ec-centered			

Calibration Report				
Database File:	c:\users\kris.wetzel\desktop\brad 3508 2-12h\sandridge_brad_3598_2_12h_mem.db			
Dataset Pathname:	proc1/pass1.2			
Dataset Creation:	Fri Jan 04 05:20:57 2013			
ThruBit Induction Calibration Report				
Tool Model-Serial Number:		PS-PS33R		
Shop Calibration Performed:		Mon Sep 17 17:43:26 2012		
BASELINE				
	R	Expected	X	Expected
Freq 1				
A1	-462.8340	[-500.00, -400.00]	368.7990	[-500.00, 500.00]
A2	-140.3220	[-180.00, -100.00]	335.5340	[-500.00, 500.00]
A3	-23.3732	[-50.00, -10.00]	47.0749	[-500.00, 500.00]
A4	-15.7522	[-30.00, -10.00]	230.8150	[-500.00, 500.00]
A5	-13.0059	[-30.00, -10.00]	103.4250	[-500.00, 500.00]
Freq 2				
A1	-239.7640	[-280.00, -180.00]	214.3450	[-500.00, 500.00]
A2	-89.4889	[-130.00, -50.00]	193.0120	[-500.00, 500.00]
A3	-17.5704	[-50.00, -10.00]	-18.2748	[-500.00, 500.00]
A4	-19.0066	[-30.00, -10.00]	64.1851	[-500.00, 500.00]
A5	-18.4206	[-30.00, -10.00]	-30.9540	[-500.00, 500.00]
Freq 3				
A1	-150.3860	[-180.00, -80.00]	92.9270	[-500.00, 500.00]
A2	-67.7934	[-130.00, -30.00]	102.2420	[-500.00, 500.00]
A3	-14.7812	[-50.00, -10.00]	-69.0802	[-500.00, 500.00]
A4	-20.8919	[-30.00, -10.00]	-47.6626	[-500.00, 500.00]
A5	-21.3030	[-30.00, -10.00]	-131.6200	[-500.00, 500.00]
Freq 4				
A1	-80.1984	[-120.00, -40.00]	-91.0663	[-500.00, 500.00]
A2	-48.3632	[-110.00, -10.00]	-17.0021	[-500.00, 500.00]
A3	-11.5826	[-50.00, -10.00]	-149.9760	[-500.00, 500.00]
A4	-23.4522	[-30.00, -10.00]	-215.9070	[-500.00, 500.00]
A5	-26.9293	[-30.00, -10.00]	-306.0460	[-500.00, 500.00]
CALIBRATION COEFFICIENTS				
	B	Expected	Y	Expected

	K	Expected	X	Expected
Freq 1				
A1	0.9956	[0.95, 1.05]	0.0019	[-0.05, 0.05]
A2	0.9965	[0.95, 1.05]	0.0026	[-0.05, 0.05]
A3	1.0083	[0.95, 1.05]	-0.0047	[-0.05, 0.05]
A4	0.9968	[0.95, 1.05]	0.0047	[-0.05, 0.05]
A5	1.0020	[0.95, 1.05]	0.0013	[-0.05, 0.05]
Freq 2				
A1	0.9900	[0.95, 1.05]	-0.0068	[-0.05, 0.05]
A2	0.9906	[0.95, 1.05]	-0.0059	[-0.05, 0.05]
A3	0.9964	[0.95, 1.05]	-0.0059	[-0.05, 0.05]
A4	0.9921	[0.95, 1.05]	-0.0038	[-0.05, 0.05]
A5	0.9981	[0.95, 1.05]	-0.0082	[-0.05, 0.05]
Freq 3				
A1	0.9993	[0.95, 1.05]	-0.0029	[-0.05, 0.05]
A2	1.0001	[0.95, 1.05]	-0.0019	[-0.05, 0.05]
A3	1.0058	[0.95, 1.05]	-0.0023	[-0.05, 0.05]
A4	1.0017	[0.95, 1.05]	0.0005	[-0.05, 0.05]
A5	1.0078	[0.95, 1.05]	-0.0034	[-0.05, 0.05]
Freq 4				
A1	0.9845	[0.95, 1.05]	-0.0049	[-0.05, 0.05]
A2	0.9851	[0.95, 1.05]	-0.0045	[-0.05, 0.05]
A3	0.9927	[0.95, 1.05]	-0.0071	[-0.05, 0.05]
A4	0.9882	[0.95, 1.05]	-0.0017	[-0.05, 0.05]
A5	0.9987	[0.95, 1.05]	-0.0089	[-0.05, 0.05]
Temperature	34.2558 degC			

ThruBit Density Calibration Report	
Tool Model-Serial Number:	PS-PS50D
Source Number:	
Shop Calibration Performed:	Thu Dec 27 06:06:11 2012

REFERENCE			
	Density	Units	
Aluminium	2.607	g/cc	
Magnesium	1.752	g/cc	
READINGS			
Outputs	Counts	Units	Expected
SS1 Background	125.08	cps	[130.00, 170.00]
LS1 Background	132.68	cps	[130.00, 170.00]
LS4 Background	27.55	cps	[27.00, 35.00]
SS1 Aluminium	5026.04	cps	[4500.00, 5500.00]
LS1 Aluminium	885.98	cps	[750.00, 950.00]
LS4 Aluminium	957.29	cps	[843.00, 1068.00]
SS1 Magnesium	8268.06	cps	[7000.00, 9000.00]
LS1 Magnesium	5859.46	cps	[5250.00, 6250.00]
LS1 Al + Fe	757.05	cps	[650.00, 800.00]
LS4 Al + Fe	443.15	cps	[382.00, 471.00]
RESULTS			
SS Slope	1.68		[1.52, 1.77]
LS Slope	0.42		[0.38, 0.45]
PFF K Factor	4.601		[3.510, 6.170]

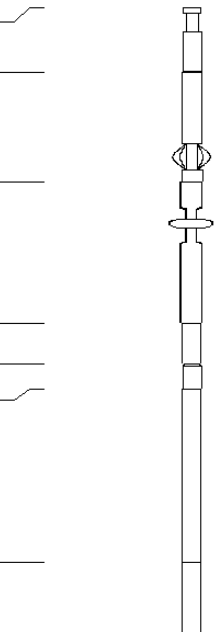
PEF B Factor		-0.580	[-0.700, -0.410]	
RESULTS				
Caliper Shop Calibration performed:		Thu Dec 27 06:06:11 2012		
Reference	Reading	Units		
12.00	1867.75	in		
9.00	2023.04	in		
6.00	2181.57	in		
DENSITY PRE-SURVEY CHECK Performed:		Mon Dec 31 11:08:16 2012		
Outputs	Counts	Units	Expected	
SS1 Background	123.97	cps	[121.32, 128.83]	
LS1 Background	132.24	cps	[128.70, 136.66]	
LS4 Background	27.63	cps	[25.90, 29.20]	
CALIPER PRE-SURVEY CHECK Performed:		Mon Dec 31 11:08:45 2012		
Reference	Readings	Units	Expected	
6.00	6.02	in	[5.80, 6.20]	
Compensated Neutron Calibration Report				
Tool Model-Serial Number:		PS-PS14N		
Source Number:				
Calibration Tank Temperature:		61.7 degF		
Shop Calibration Performed:		Thu Dec 20 14:04:16 2012		
BACKGROUND MEASUREMENT				
Outputs	Measured	Units	Expected	
SS Counts	0.0	cps	<10	
LS Counts	0.1	cps	<4	
WATER TANK REFERENCE				
Outputs	Measured	Units	Expected	
SS Counts	831.5	cps		
LS Counts	27.5	cps		
Tank Ratio Ref	30.9580	SS/LS		
Tank Ratio	30.2825	SS/LS		
Tank Ratio Gain	1.0223		[0.85, 1.15]	
ALUMINUM SLEEVE REFERENCE				
Outputs	Measured	Units	Expected	
SS Counts	9319.4	cps		
LS Counts	876.4	cps		
Al Ratio Ref	10.797	SS/LS		

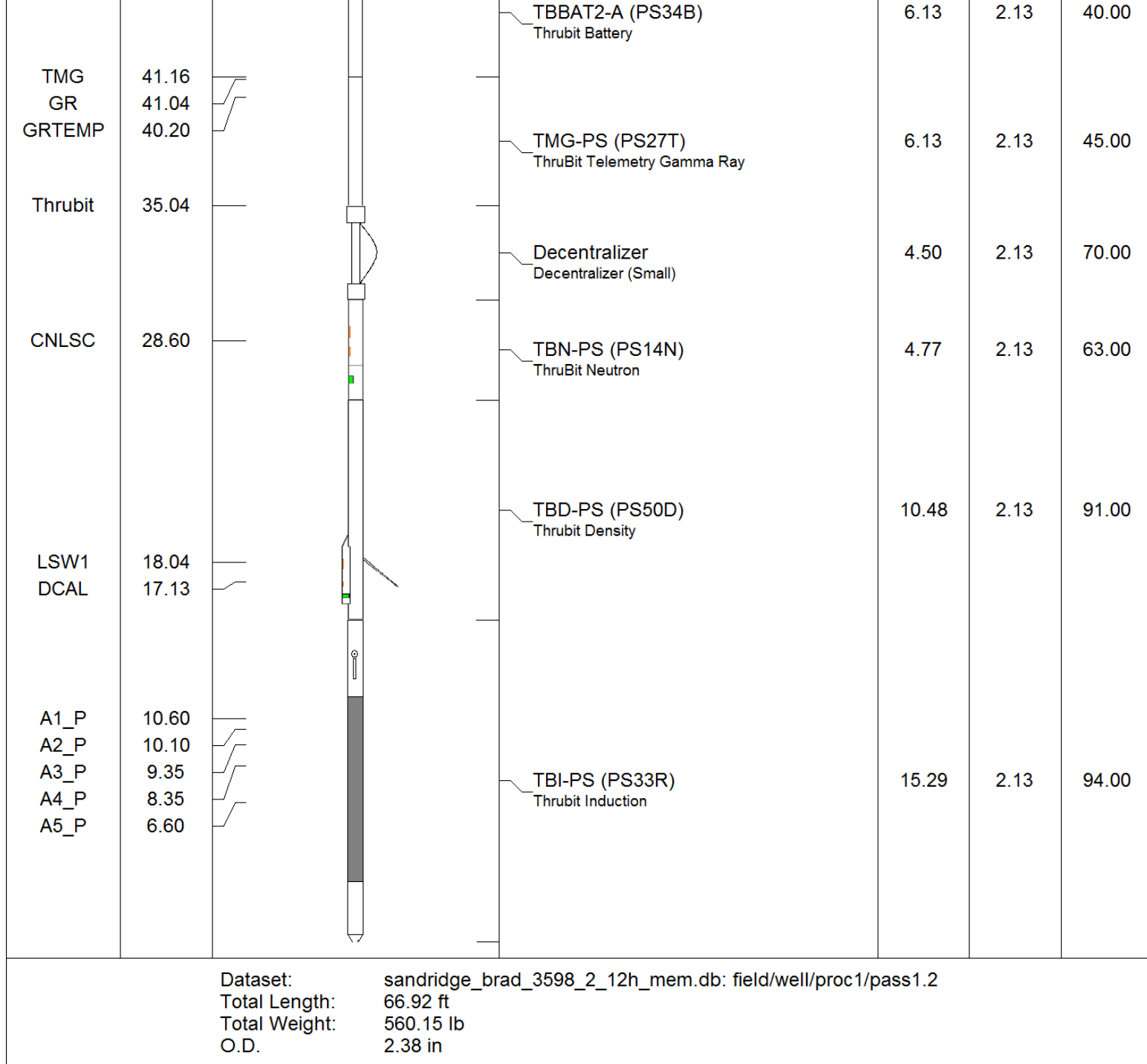
AI Ratio	10.870	SS/LS	
AI Ratio Gain	0.99		[0.90, 1.10]
Sleeve Porosity	14.46	pu	

PRE-SURVEY BACKGROUND CHECK Performed:		Mon Dec 31 11:14:58 2012	
Outputs	Measured	Units	Expected
SS Counts	0.0	cps	<10
LS Counts	0.1	cps	<4

Gamma Ray Calibration Report			
Tool Model-Serial Number:	PS-PS27T		
Performed:	Fri Oct 05 13:51:54 2012		
Calibrator Value:	150.0	GAPI	
Background Reading:	75.0	cps	
Calibrator Reading:	350.0	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	2.31	2.13	5.00
Thrubit	64.61		Solid Weakpoint			
			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 (PS11B)	6.13	2.13	38.20
			Thrubit Battery			
TBBAT2	47.29					





ThruBit

A Schlumberger Company

Company

Well

Field

County

State

SANDRIDGE ENERGY

BRAD 3508 2-12H

BOUSE

HARPER

KANSAS



MAIN PASS

Database File:

Dataset Pathname:

Presentation Format:

Dataset Creation:

Charted by:

c:\users\kris.wetzel\desktop\brad 3508 2-12h\sandridge_brad_3598_2

proc1/pass1.2

6_1r_chk

Fri Jan 04 05:20:57 2013

Depth in Feet scaled 1:1200

0

GR (GAPI)

150

20in 2ft Res

4

DCAL (in)

14

50

(Ohm-m)

500

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

