



ThruBit
A Schlumberger Company

ARRAY INDUCTION GAMMA RAY MEMORY LOG

Company	SANDRIDGE ENERGY, INC.	Company	SANDRIDGE ENERGY, INC.
Well	JENNIFER 3408 2-34H	Well	JENNIFER 3408 2-34H
Field	HARPER KS / MISS LIME	Field	HARPER KS / MISS LIME
County	HARPER	County	HARPER
State	KANSAS	State	KANSAS
Location:	API #: 15-077-21881-0100	Other Services	THRUBIT PORTAL BIT
Permanent Datum	G.L. Elevation 1263'	Elevation	K.B. 1278' D.F. 1278' G.L. 1263'
Log Measured From	D.F. 15' ABOVE PERM DATUM		
Drilling Measured From	D.F.		
SEC 34 TWP 34S RGE 8W			
SURF LOC: 200' FSL & 1980' FEL			
Date	14 NOVEMBER 2012		
Run Number	ONE		
Depth Driller	9140'		
Depth Logger	9115'		
Bottom Logged Interval	9105'		
Top Log Interval	2990'		
Casing Driller	7" @ 5231'		
Casing Logger	7" @ 5212'		
Bit Size	6.125"		
Type Fluid in Hole	WBM		
Density / Viscosity	8.9 29		
pH / Fluid Loss	8.5 / 60		
Source of Sample	SUCTION PIT		
Rim @ Meas. Temp	1.23 OHMS@ 64 DEGF		
Rinf @ Meas. Temp	0.92 OHMS@ 64 DEGF		
Rmc @ Meas. Temp	1.54 OHMS@ 64 DEGF		
Source of Rinf / Rmc	CALCULATED		
Rim @ BHT	0.6 OHMS@ 140 DEGF		
Time Circulation Stopped	08:00 14NOV2012		
Time Logger on Bottom	09:20 14NOV2012		
Maximum Recorded Temperature	140 DEGF		
Equipment Number	T005		
Location	OKC, OK		
Recorded By	D. THOMAS		
Witnessed By	BRENT SEAGREST		

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The use of and reliance upon this recorded-data by the herein named company (and any of its affiliates, partners, representatives, agents, consultants and employees) is subject to the terms and conditions agreed upon between ThruBit LLC and the company, including: (a) Restrictions on use of the recorded-data; (b) Disclaimers and waivers of warranties and representations regarding company's use of and reliance upon the recorded-data; and (c) Customer's full and sole responsibility for any inference drawn or decision made in connection with the use of this recorded-data.

Comments

SERVICE: LEVEL 4 - HORIZONTAL MEMORY PUMP DOWN - BIT DEPTH: 9054' LOG TO: 3000'
ALL SCALES AND PRESENTATIONS PER CLIENT REQUEST
LIMESTONE MATRIX, 2.71 G/CC, USED TO MEASURE POROSITIES
TOOL STRING RAN WITH S. DECENTRALIZER, SWIVEL, NO STANDOFFS
TBHV = TOTAL BOREHOLE VOLUME, FT3
ABHV = ANNULAR BOREHOLE VOLUME, FT3, CALCULATED FOR 4.50" CSG
RIGMINDER LITE AND PASON USED TO CREATE LOG DEPTH
LOG DEPTH CORRELATED TO MWD GAMMA AT CUSTOMERS REQUEST

RIG: UNIT # 310
CREW: D. THOMAS, R. WILSON, R. CRESSWELL

Service Ticket No.	1573	API No.	15-077-21881-0100	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.	ENP5T	Serial No.	PS14N	Serial No.	PS24D	Serial No.	PS38R
Model No.	ENP	Model No.	PS	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	9115'	3000'		30			
	GAMMA RAY		NEUTRON		DENSITY		INDUCTION
Pass	Scale		Scale		Scale		Scale
No.	L	R	L	R	L	R	L
ONE	0 API	150 API	30 %	-10 %	30 %	-10 %	0.2 OHM-M 2000 OHM-M
DIRECTIONAL INFORMATION							
Maximum Deviation	93.8	deg. @	8945'	KOP	3881'		

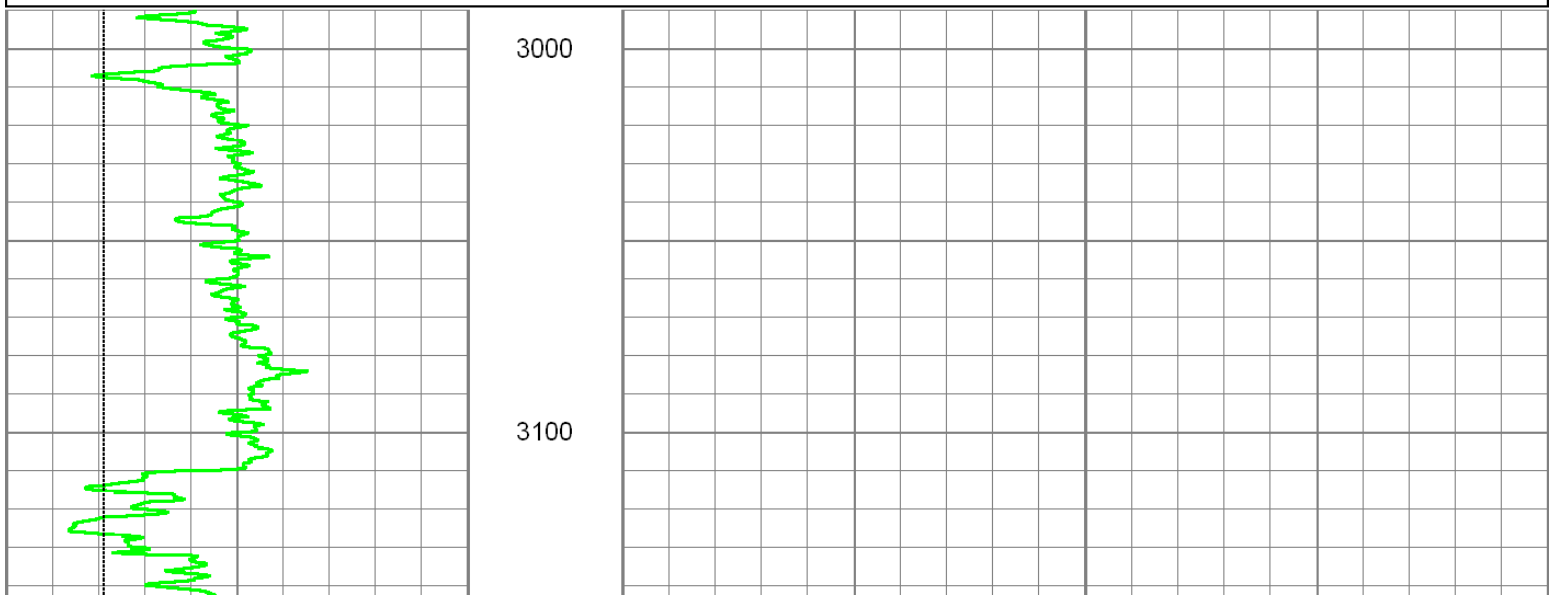


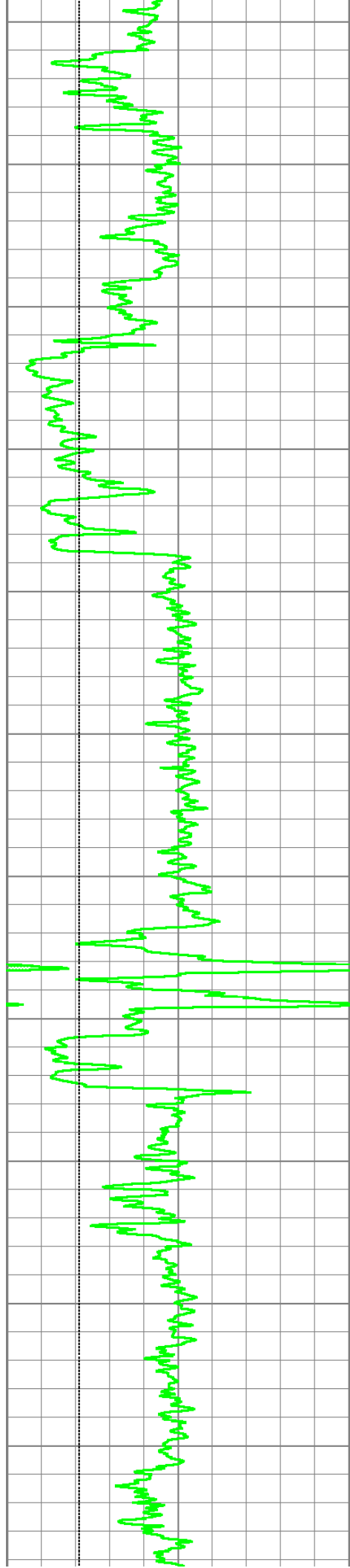
MAIN PASS

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 Dataset Pathname: proc3/pass1.3
 Presentation Format: 6_2r_chk
 Dataset Creation: Wed Nov 14 17:59:38 2012
 Charted by: Depth in Feet scaled 1:600

0	GR (GAPI)	150	50	20in 2ft Res (Ohm-m)	500
4	DCAL (in)	14	50	90in 2ft Res (Ohm-m)	500
-5	ACCY	5	1000	DEEP COND (mmho/m)	
4	BOREID (in)	14	0	20in 2ft Res (Ohm-m)	50
450	GR (GAPI)	600	0	90in 2ft Res (Ohm-m)	50

GRTEMP
 (degF)





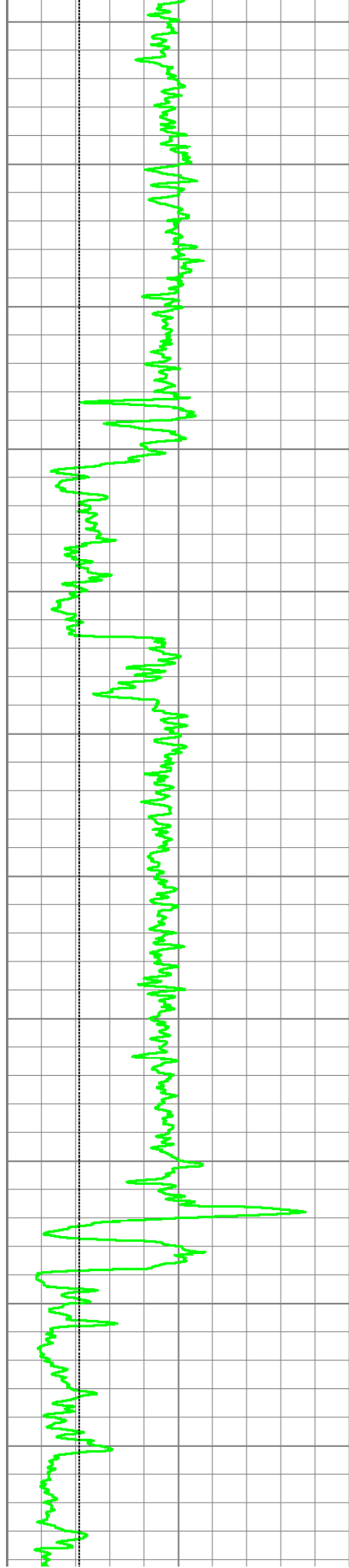
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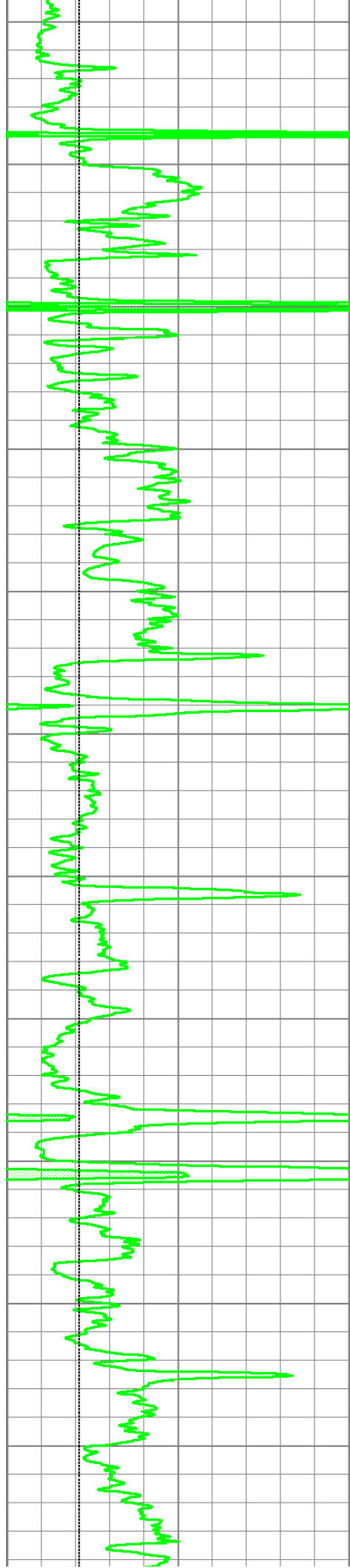
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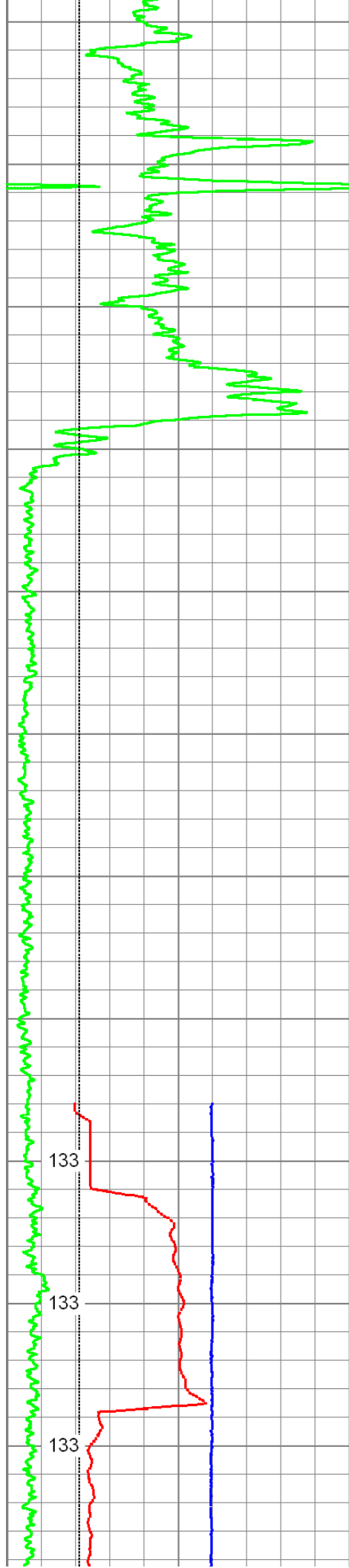
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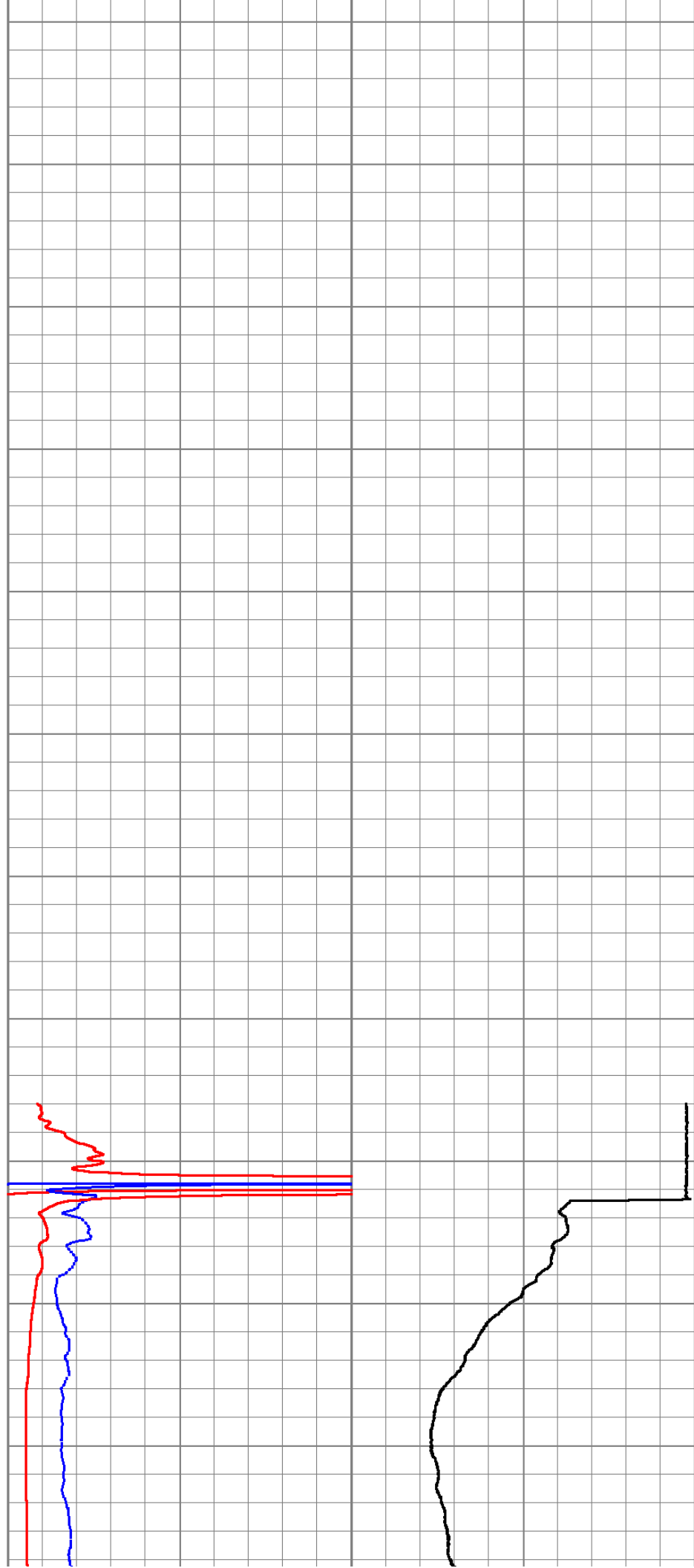
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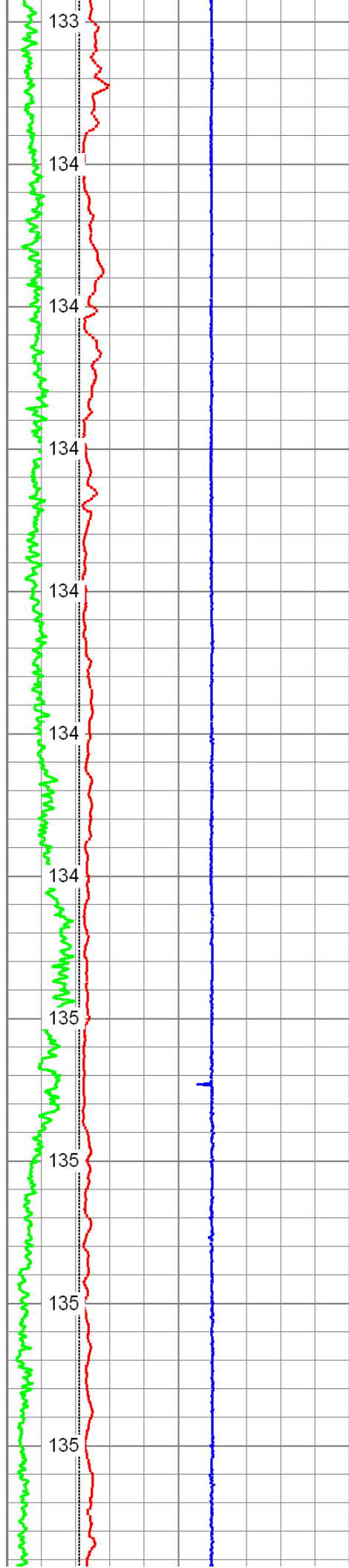
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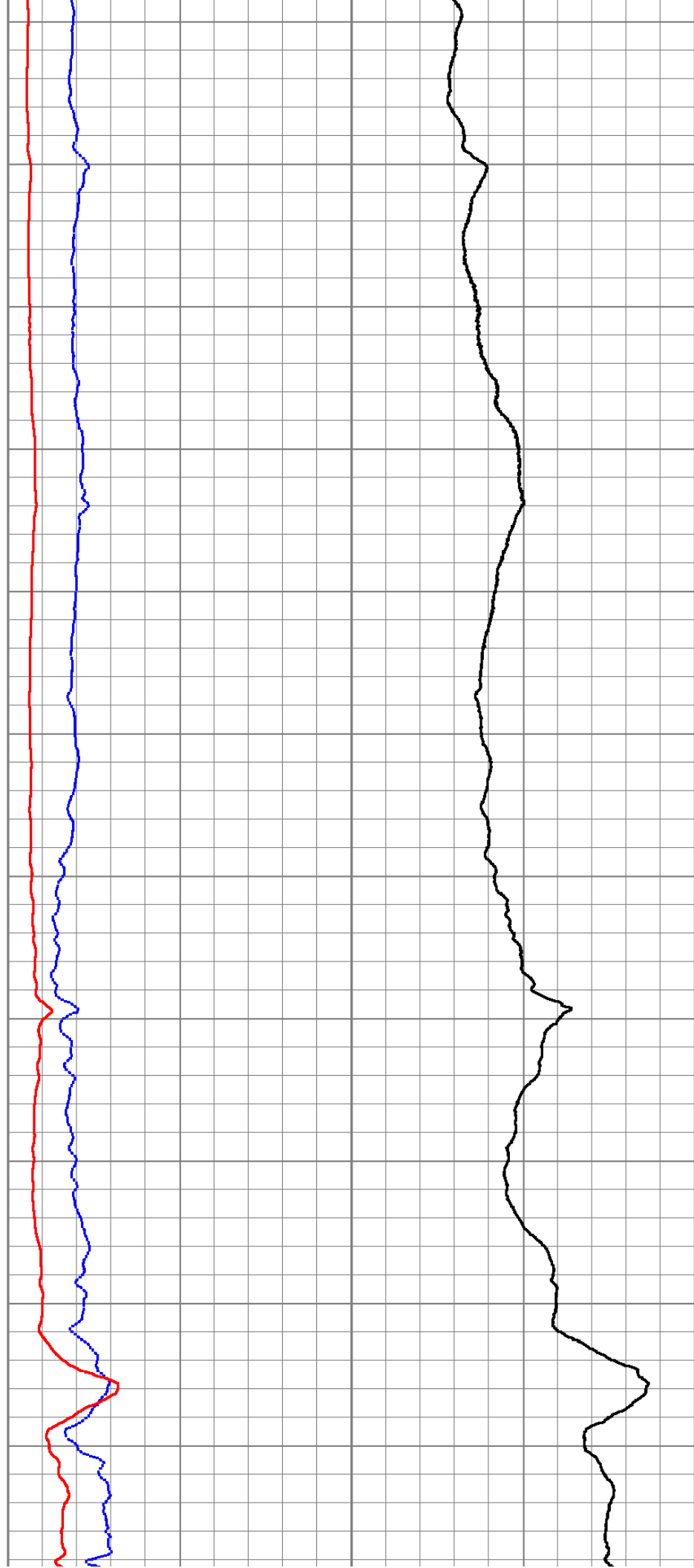
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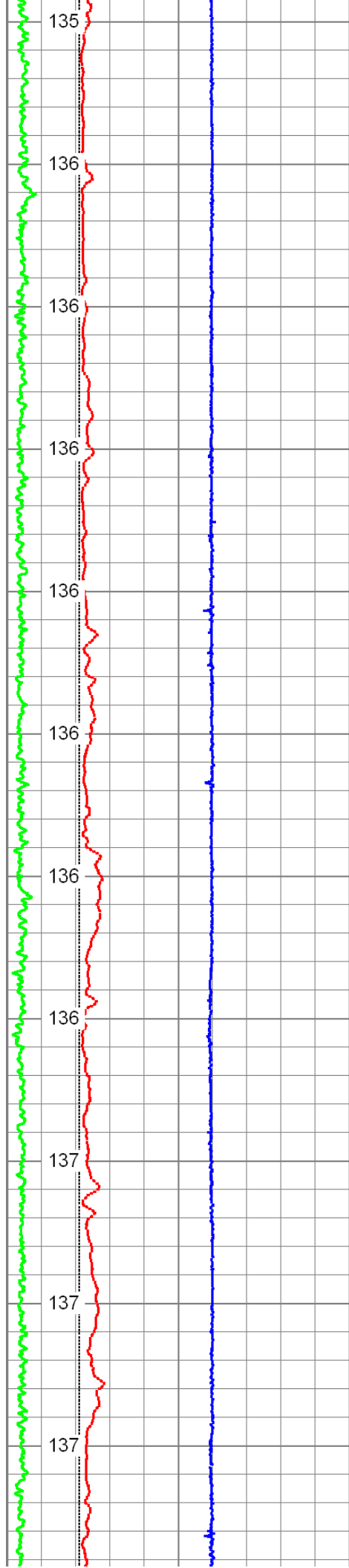
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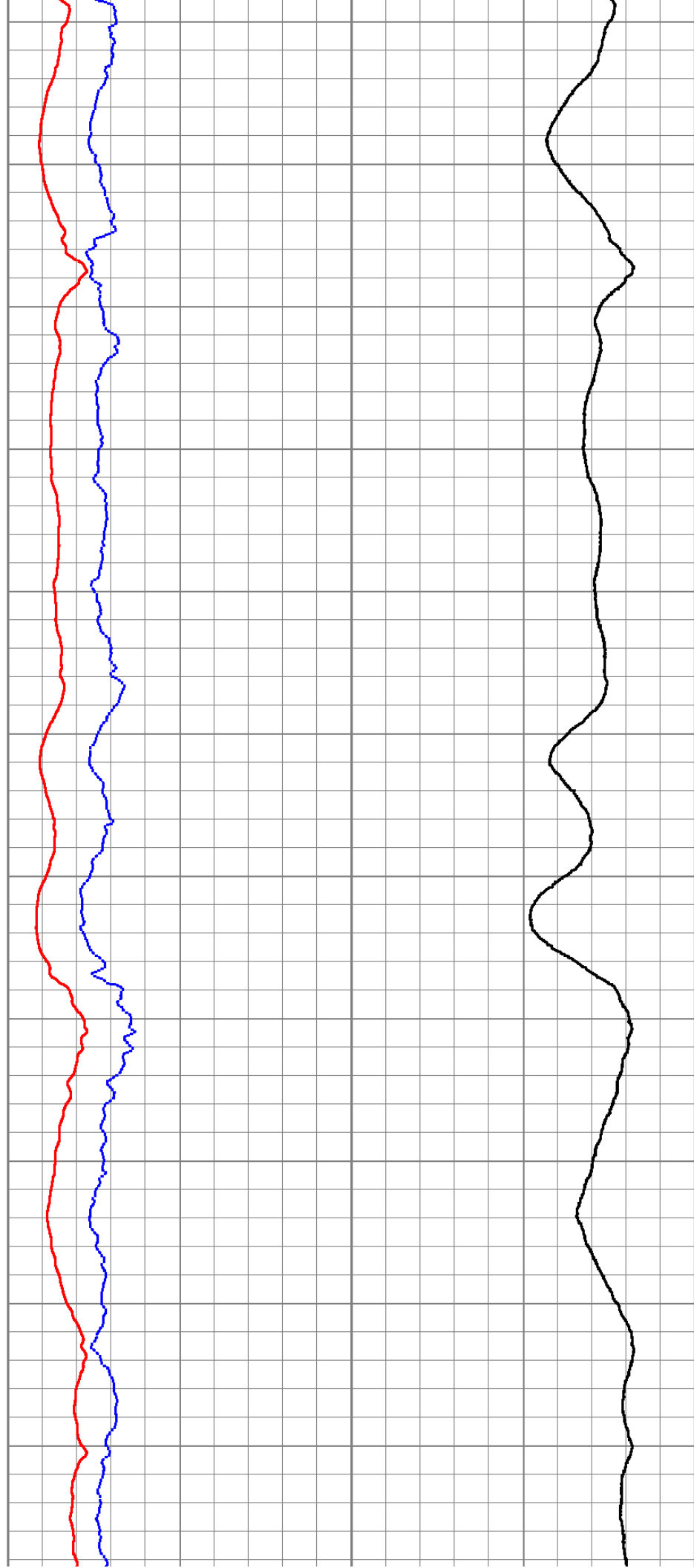
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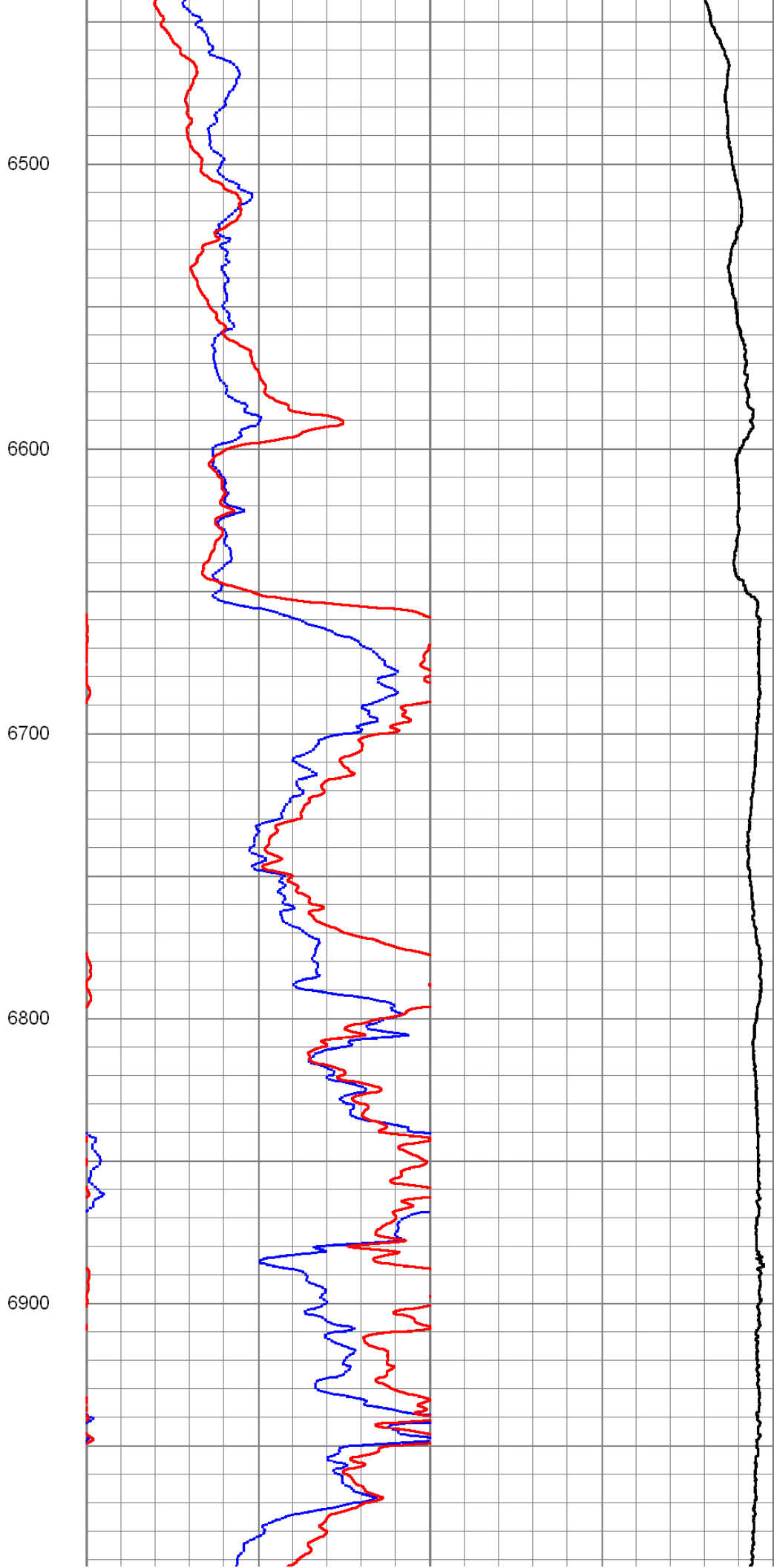
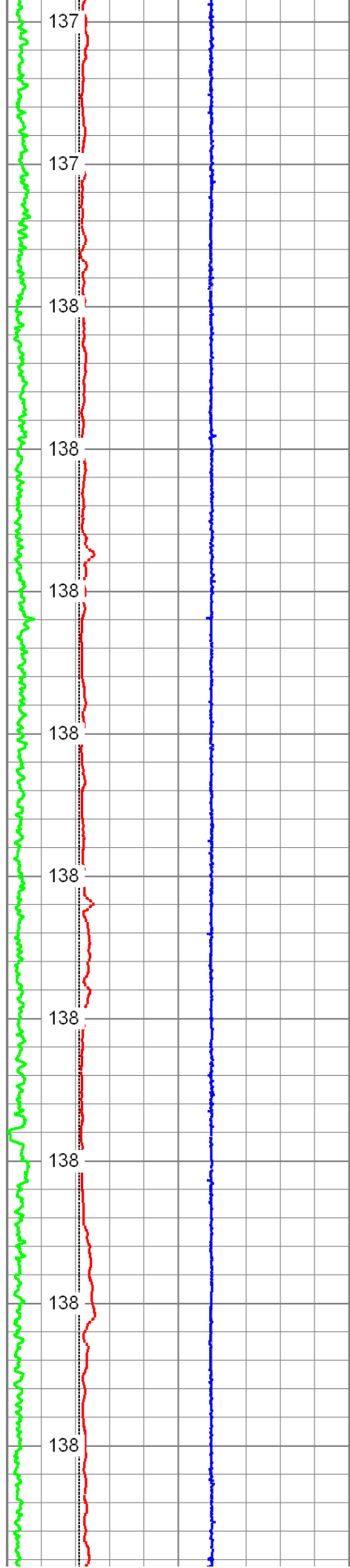
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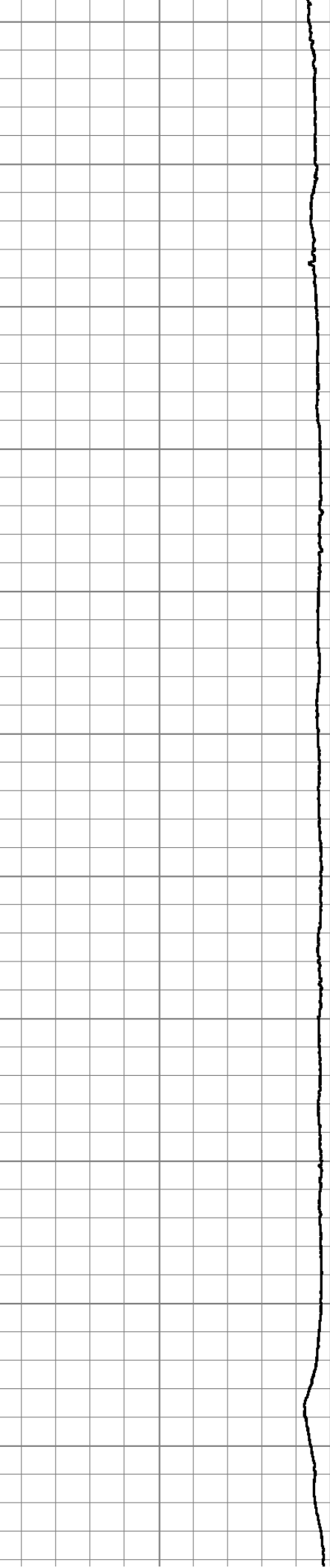
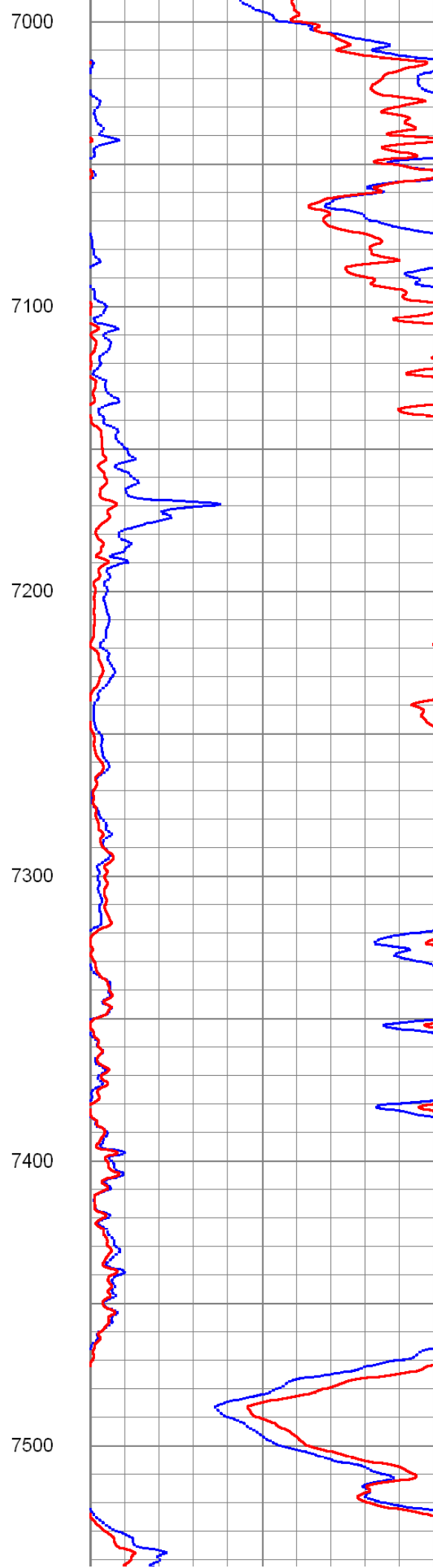
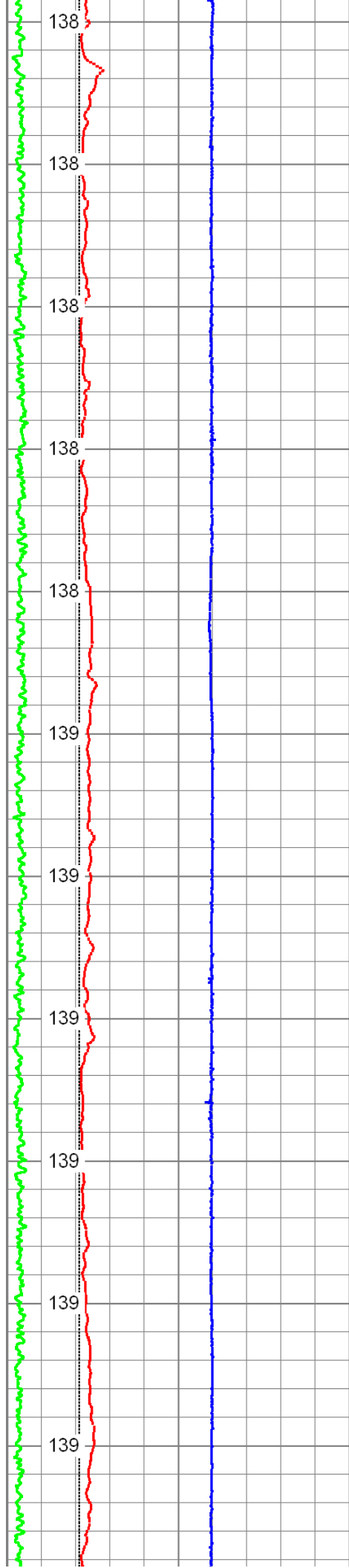


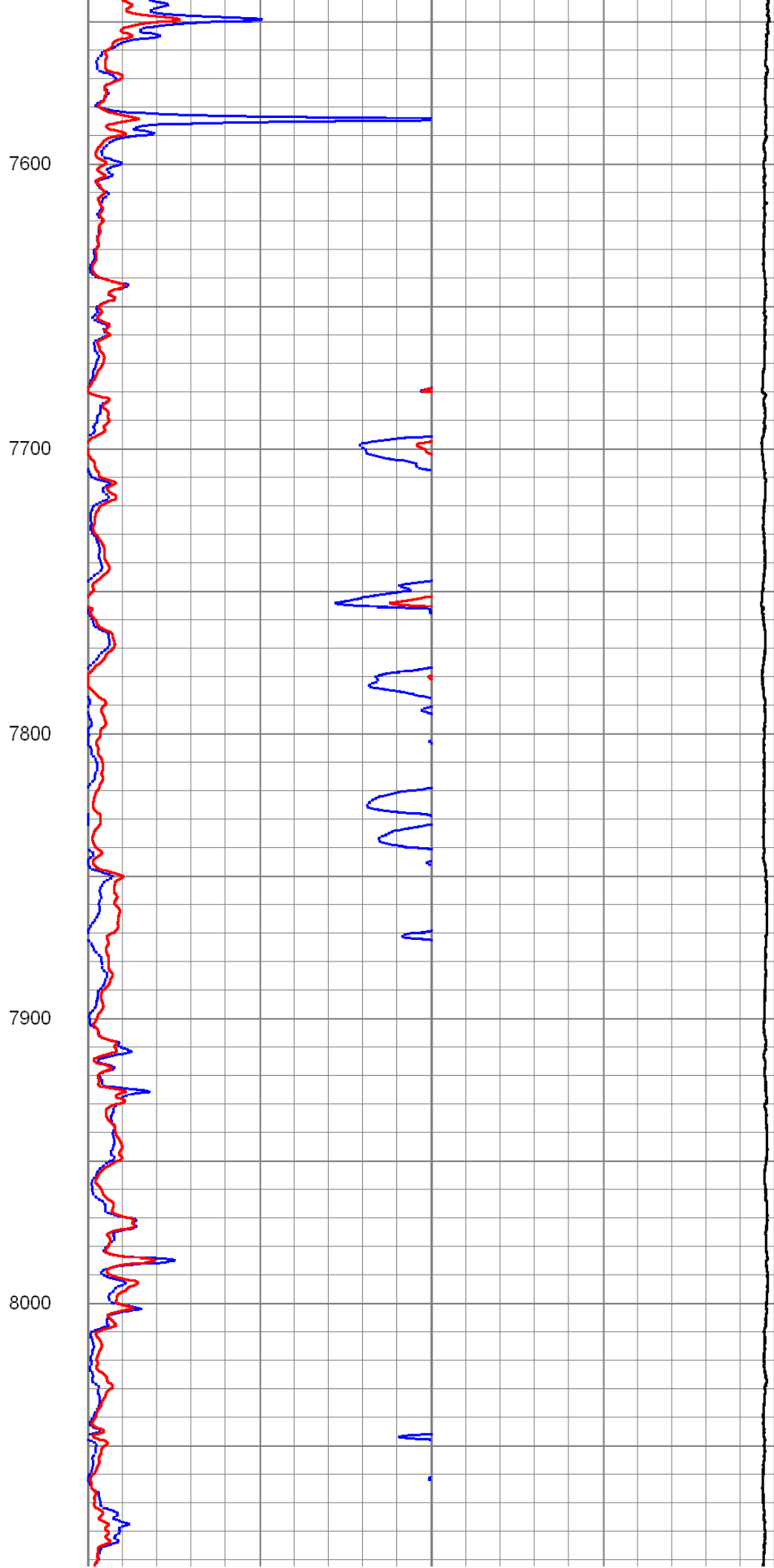
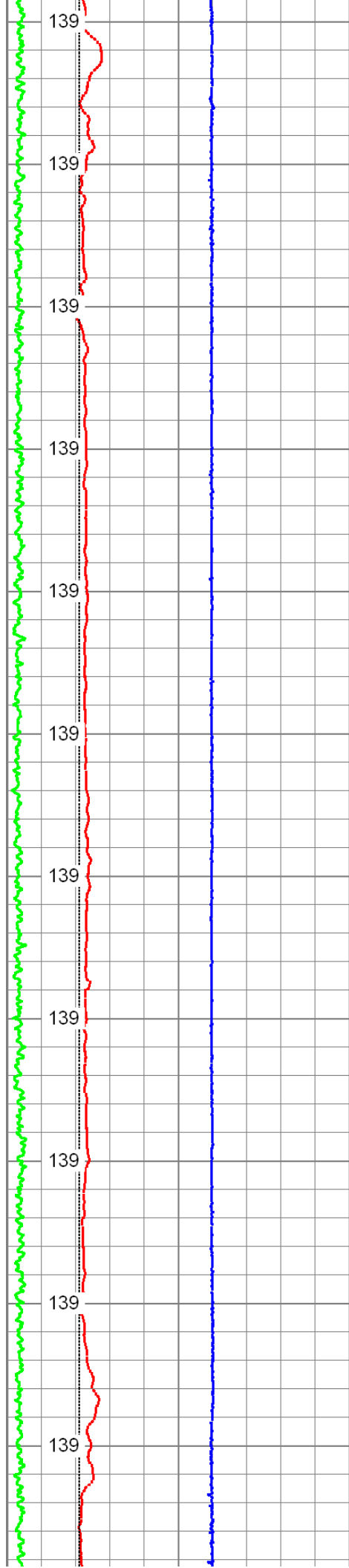


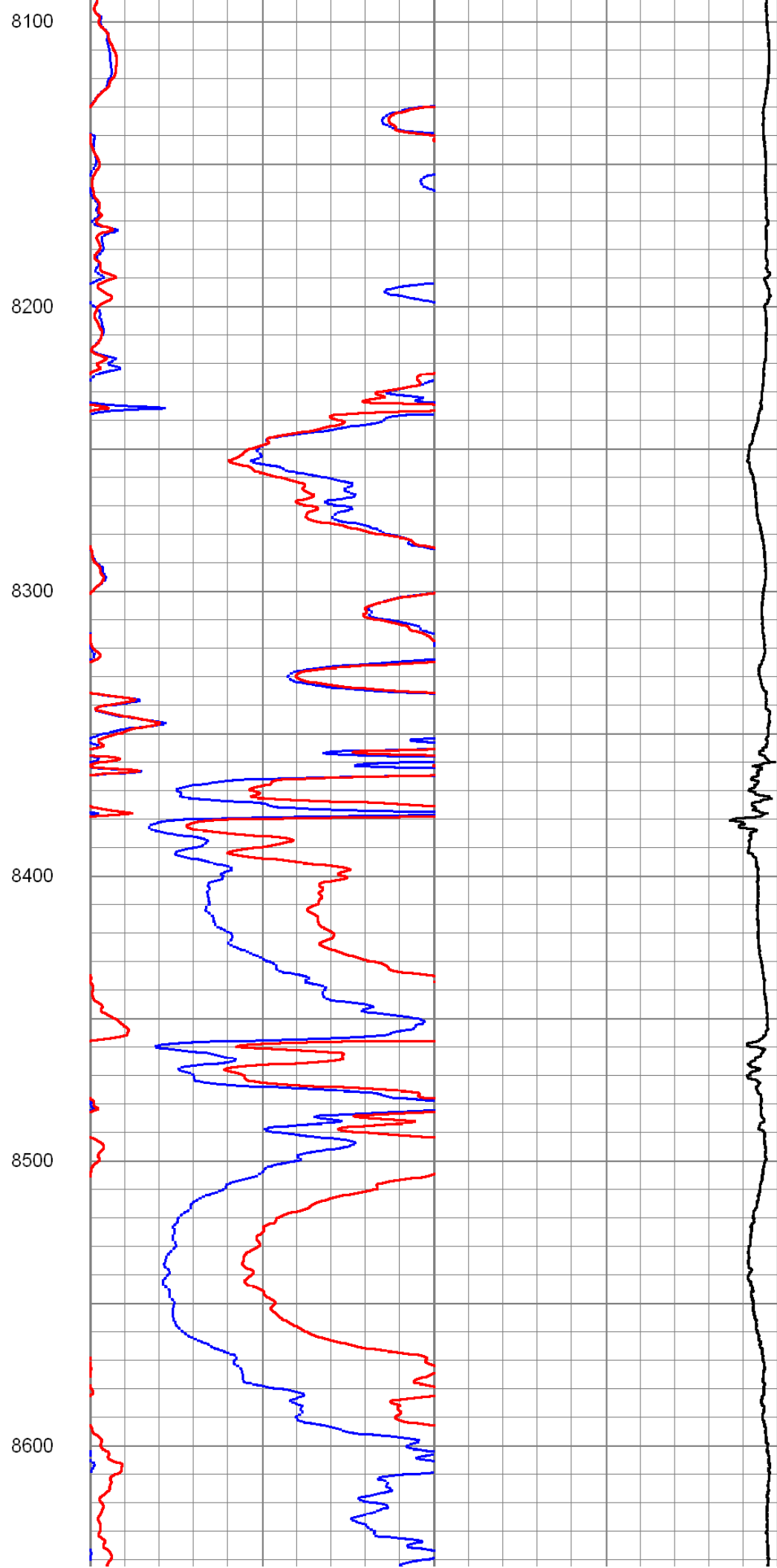
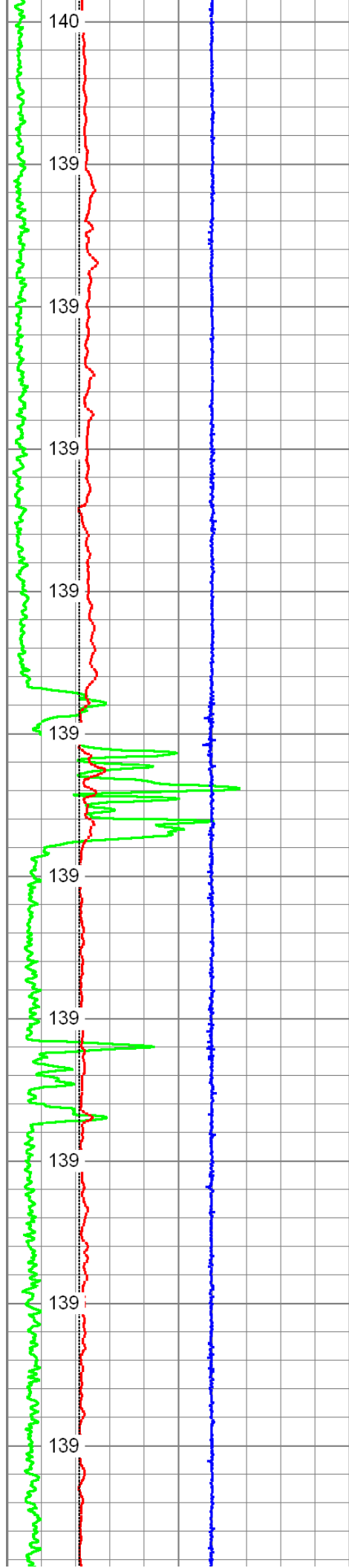
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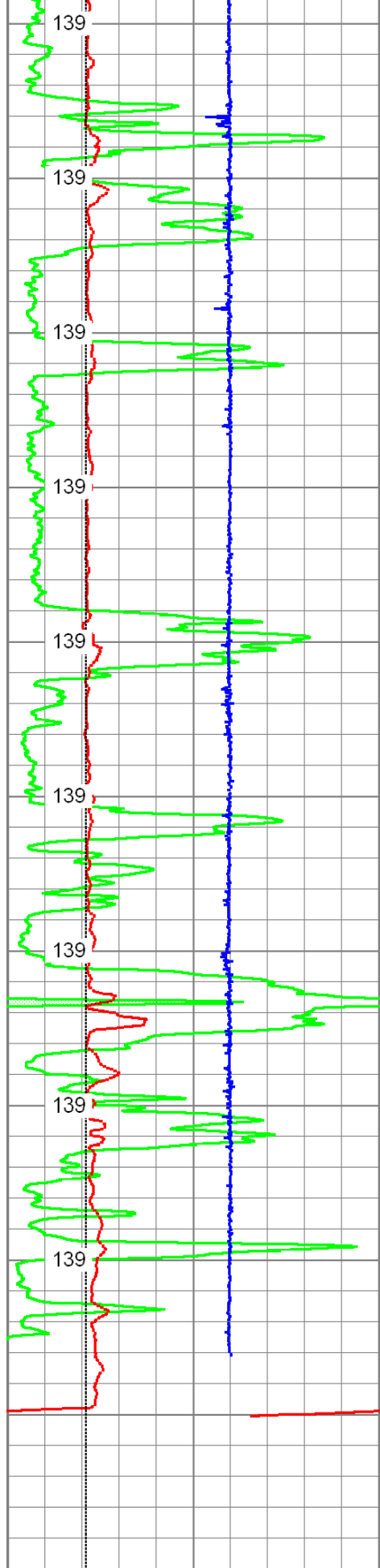




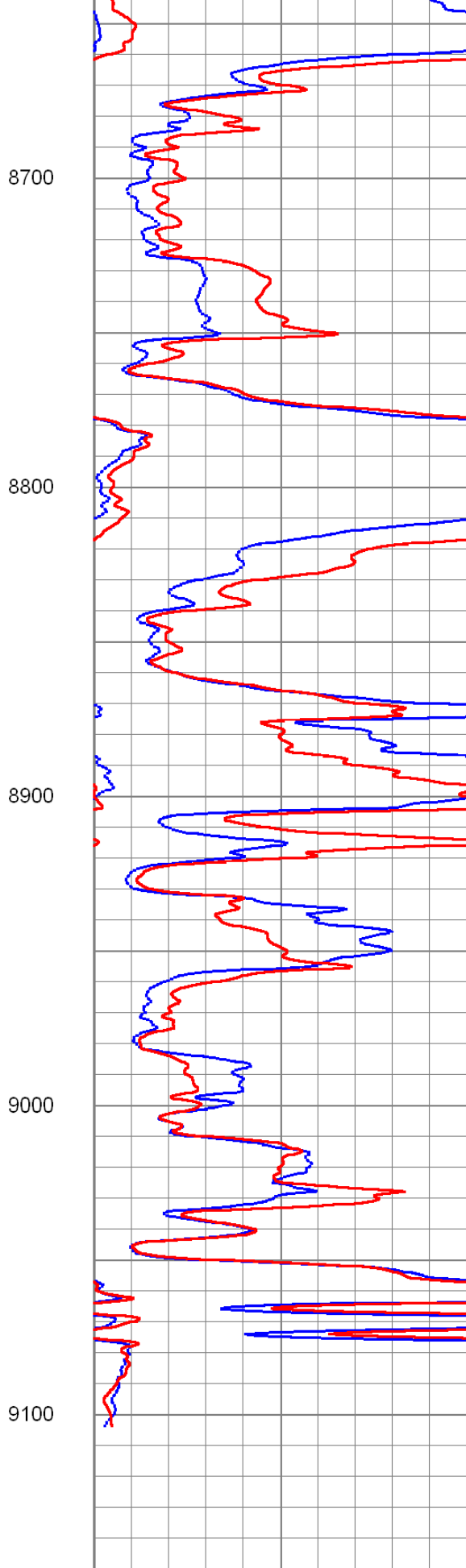








0	GR (GAPI)	150
4	DCAL (in)	14
-5	ACCY	5
4	BOREID (in)	14



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

450	GR (GAPI)	600
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0	90in 2ft Res (Ohm-m)	50
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GRTEMP
(degF)



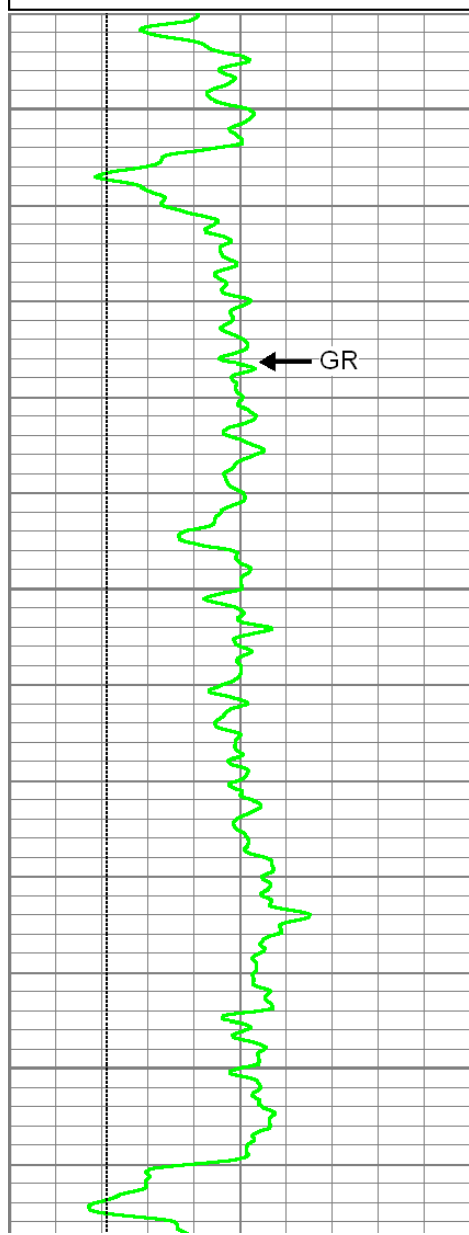
MAIN PASS

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 Dataset Pathname: proc3/pass1.3
 Presentation Format: 6_5r_chk
 Dataset Creation: Wed Nov 14 17:59:38 2012
 Charted by: Depth in Feet scaled 1:240

0	GR (GAPI)	150
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

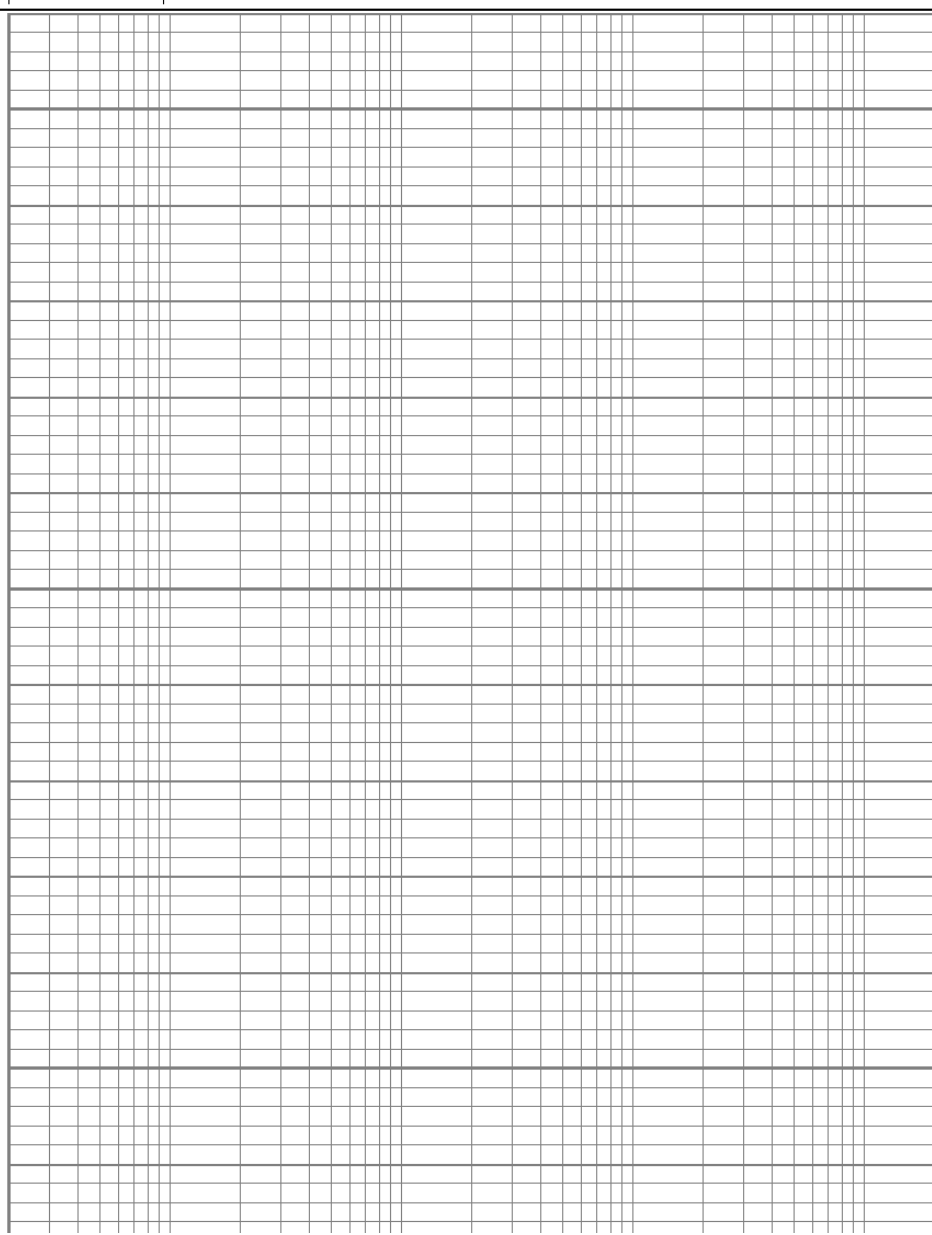
GRTEMP
(degF)

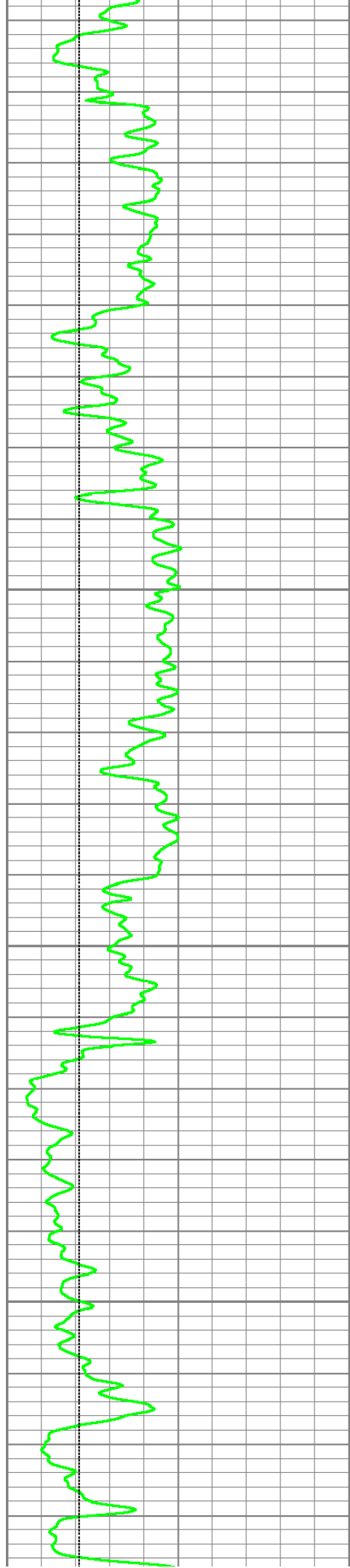


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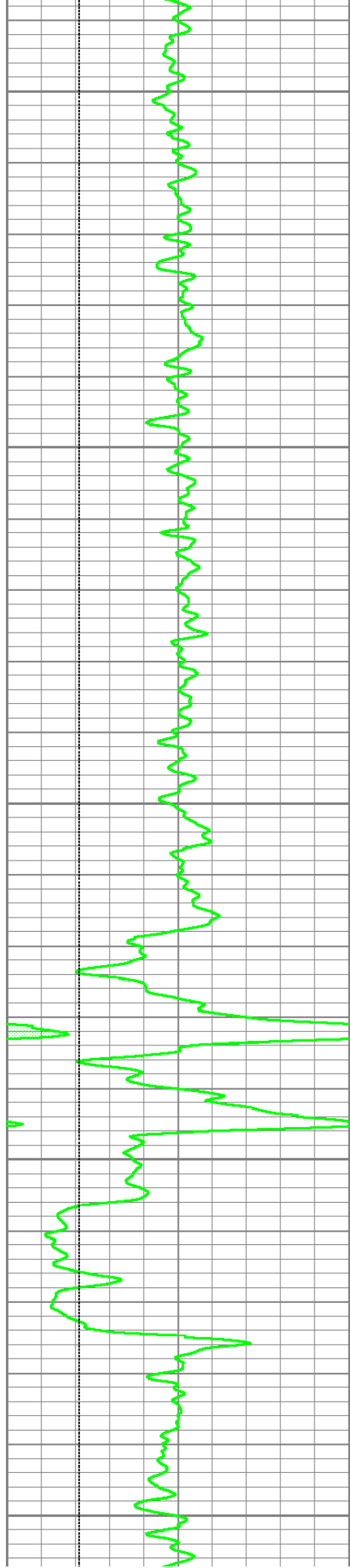


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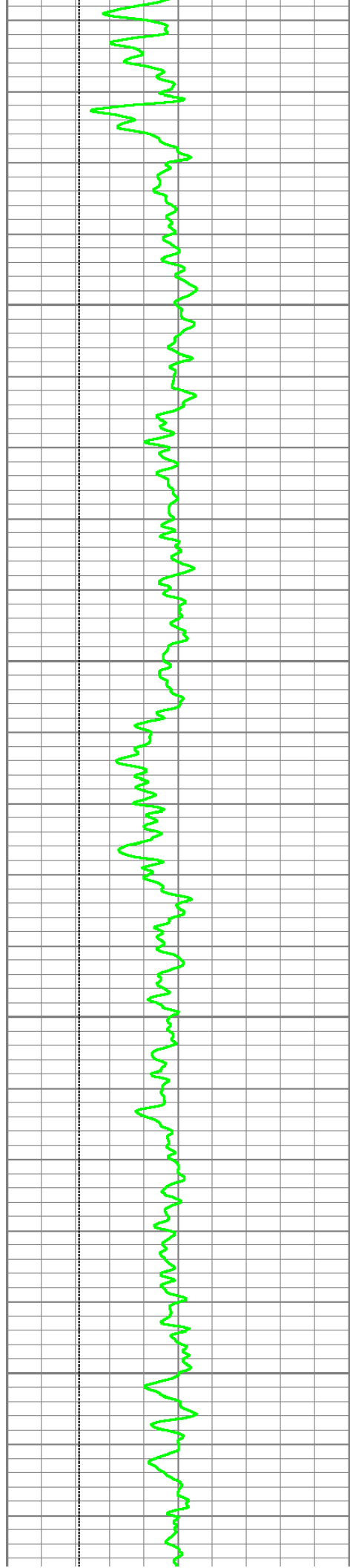
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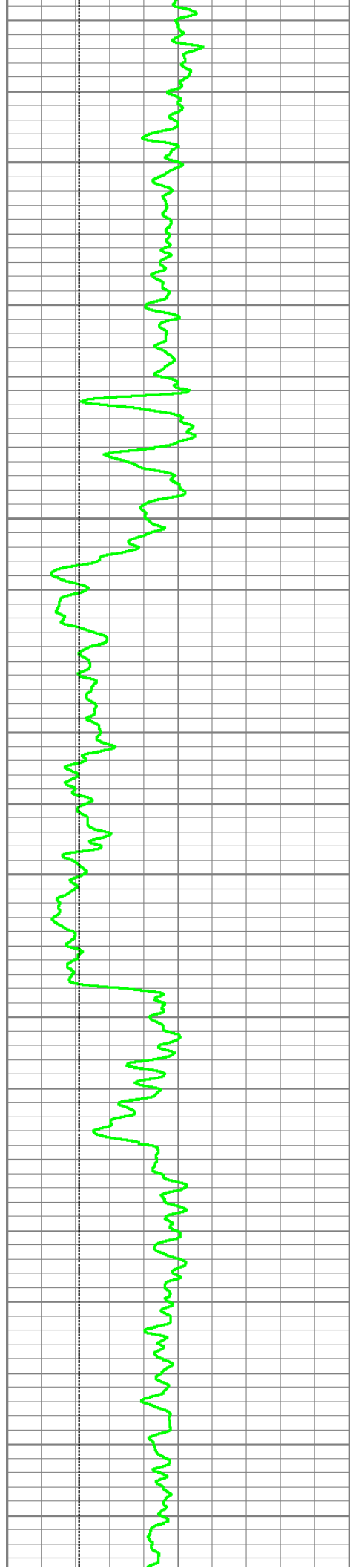


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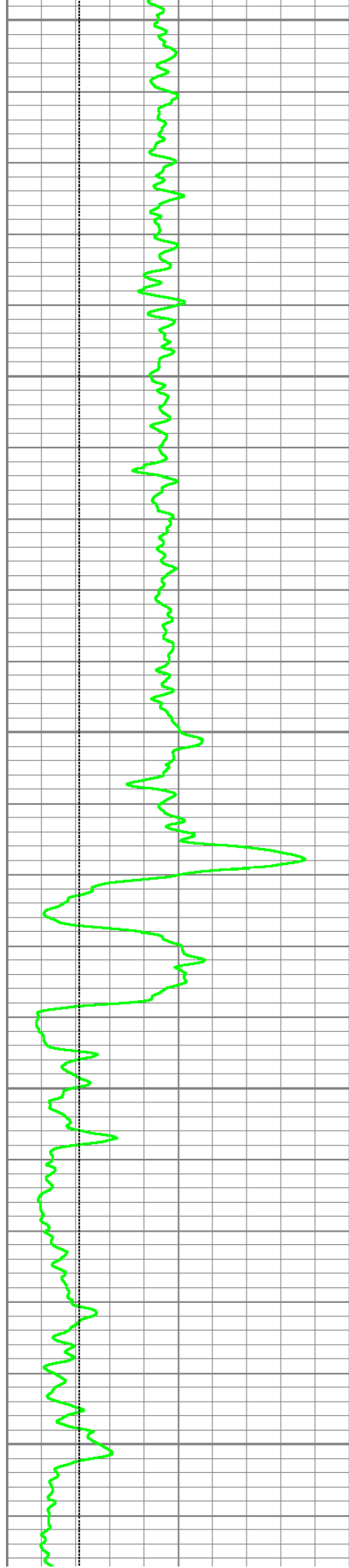


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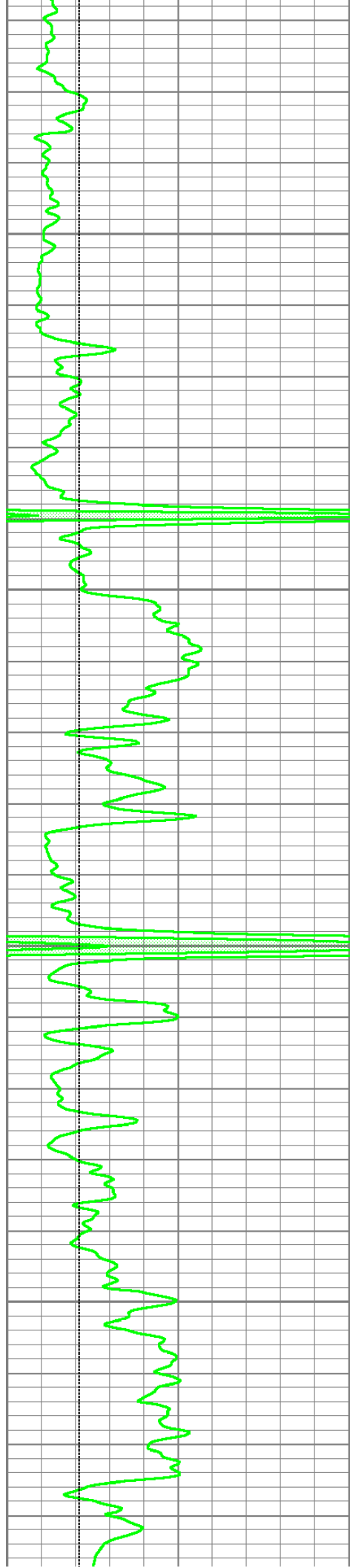
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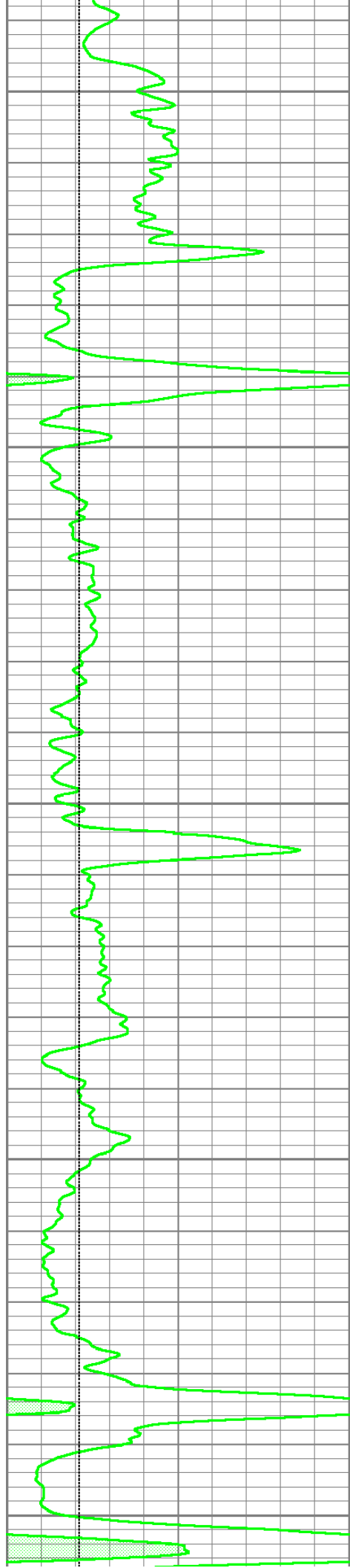


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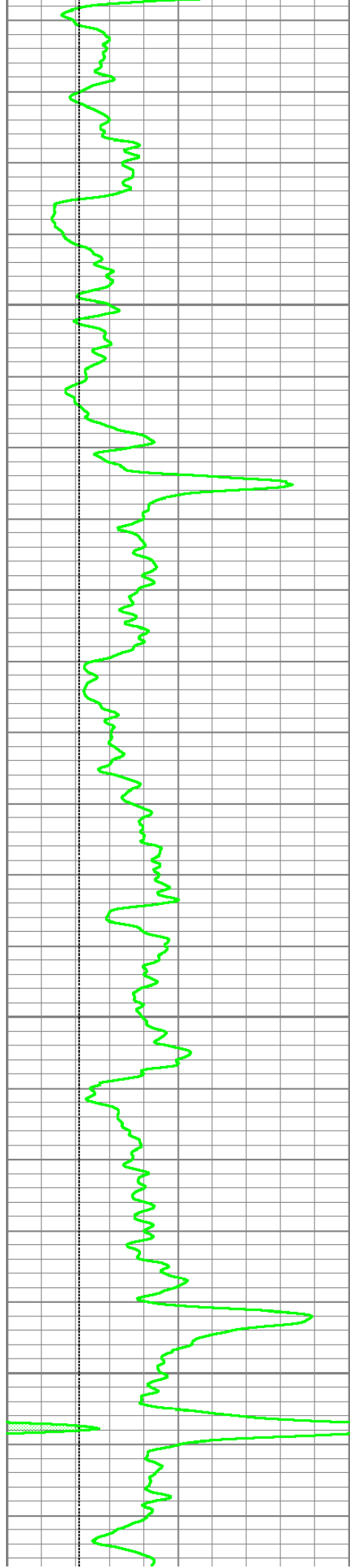
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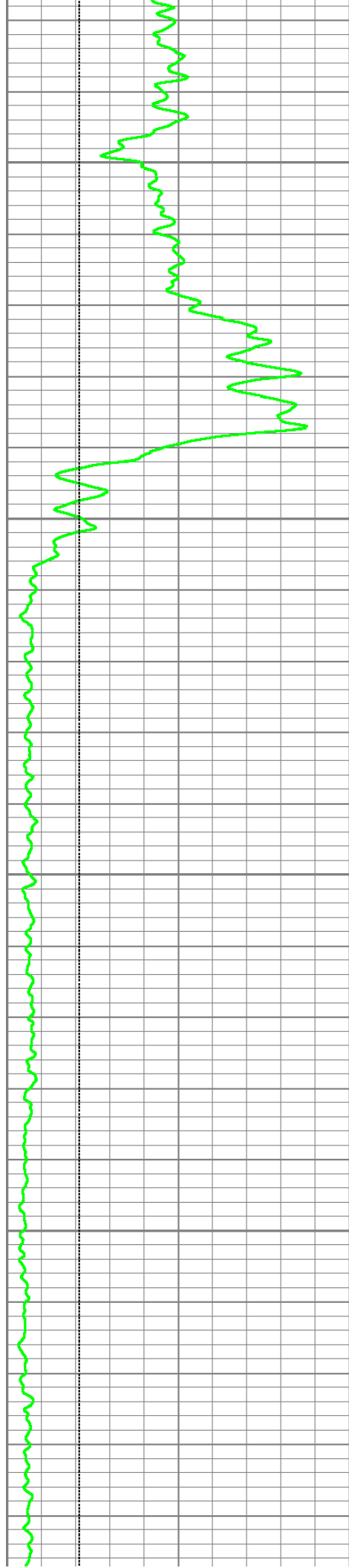


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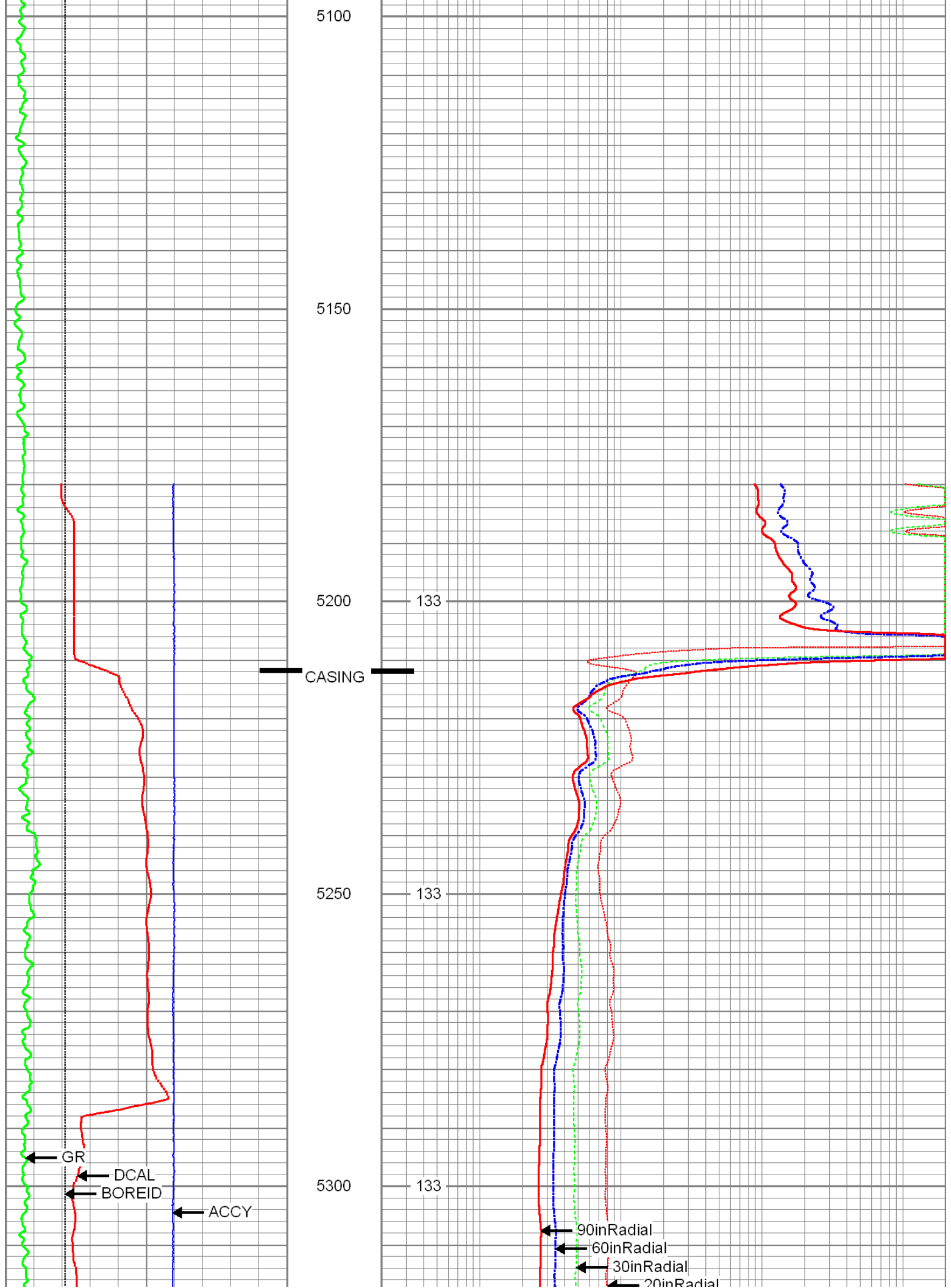


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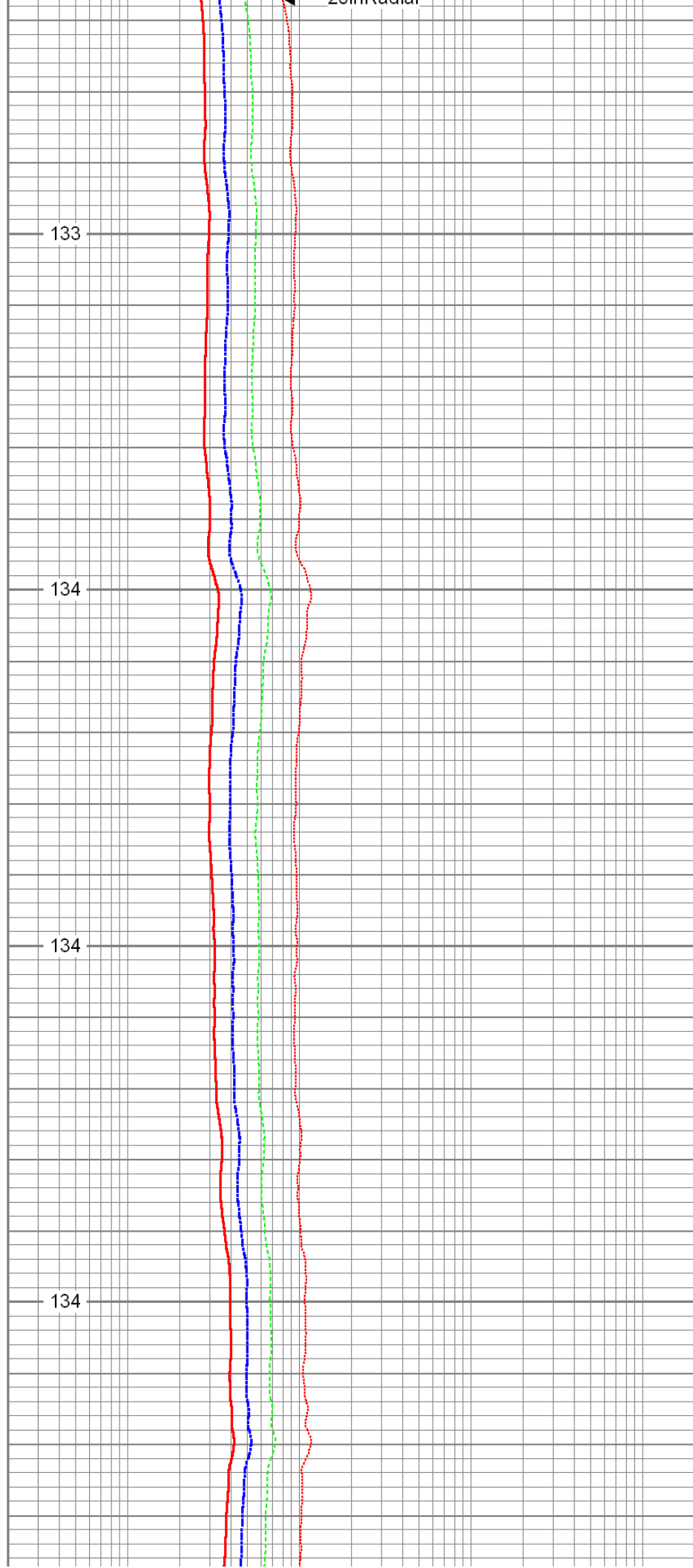
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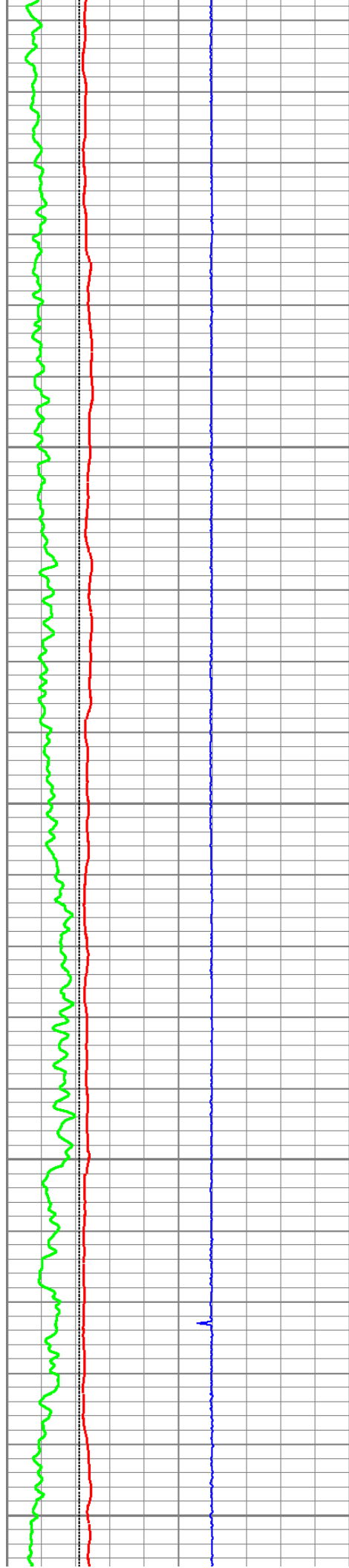
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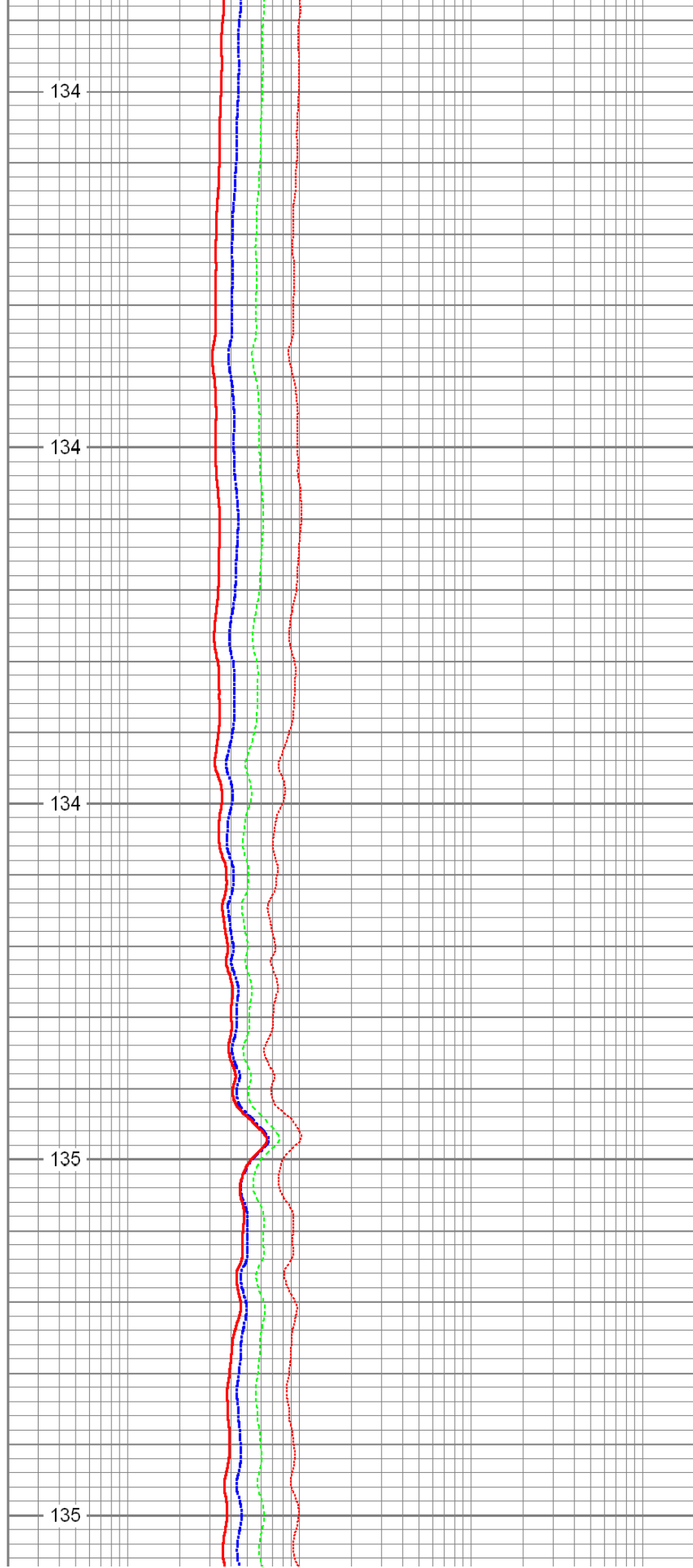
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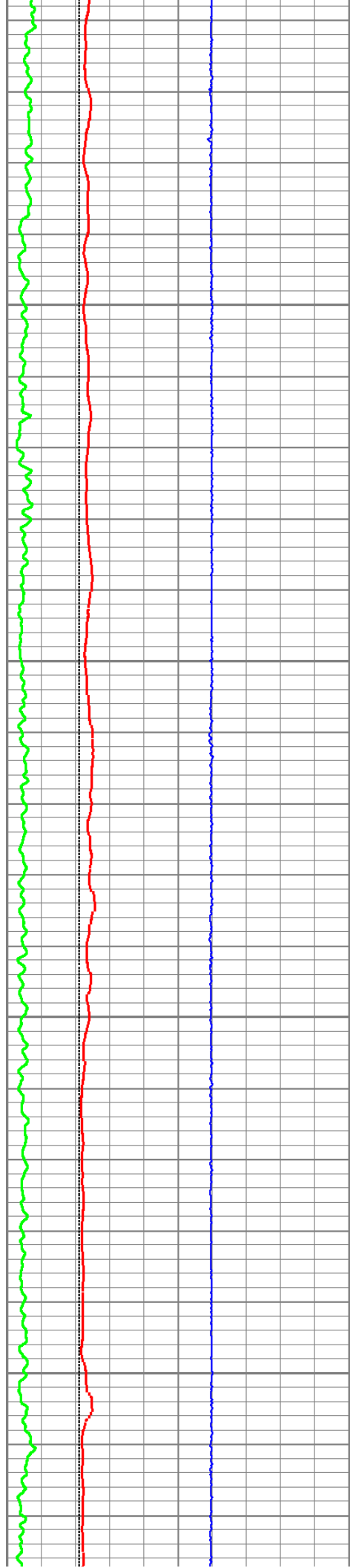
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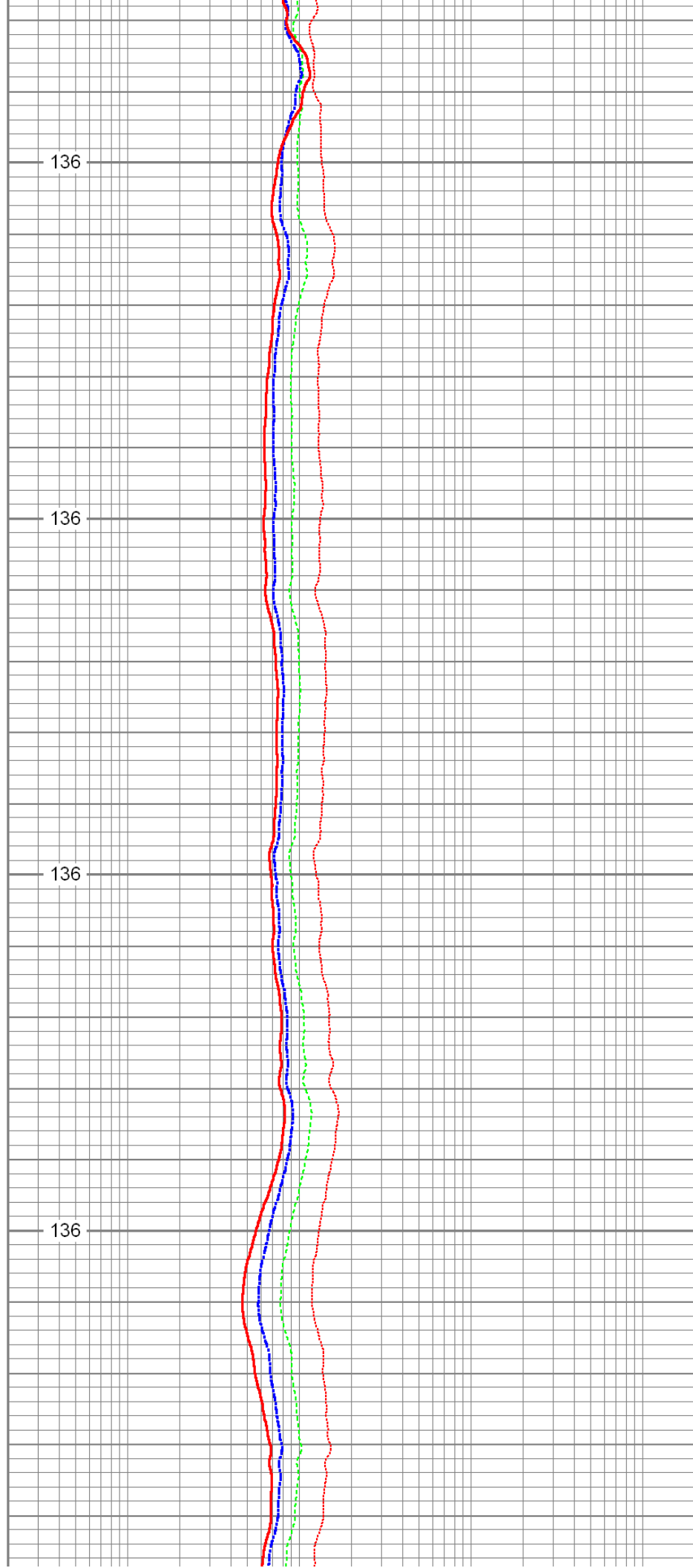
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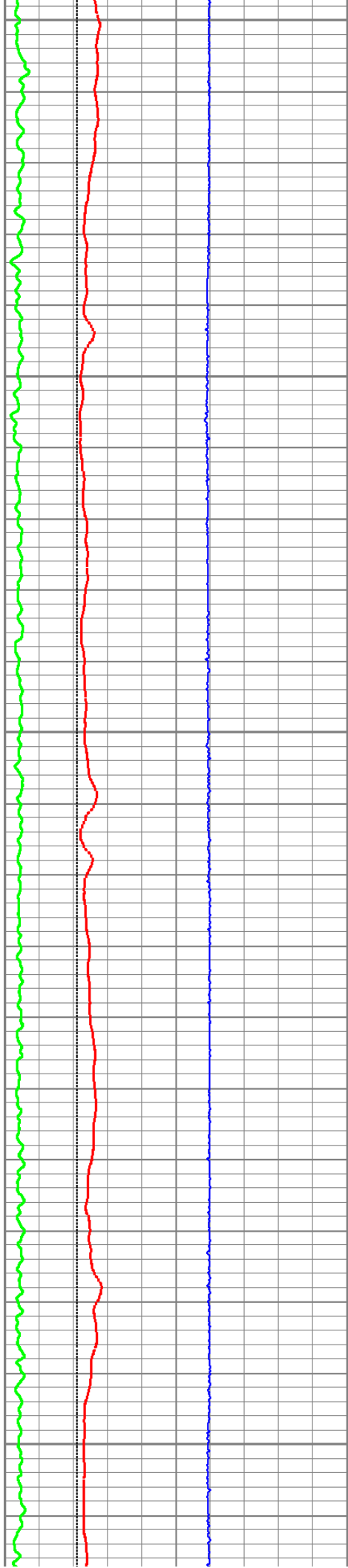
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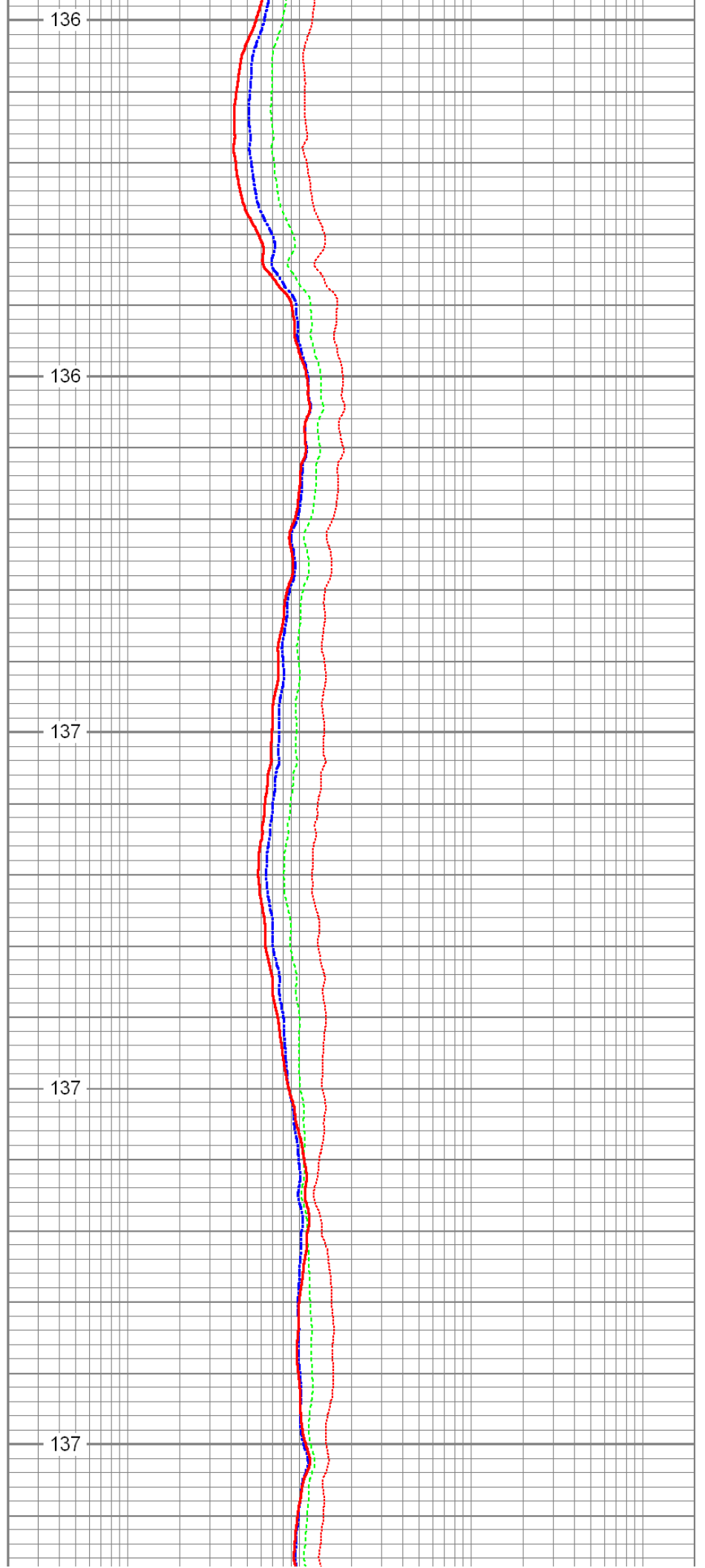
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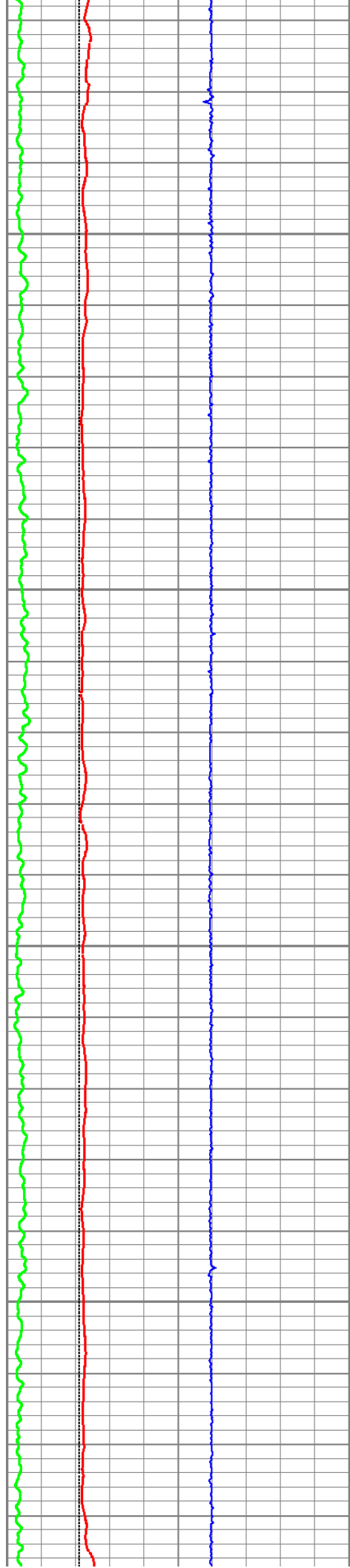
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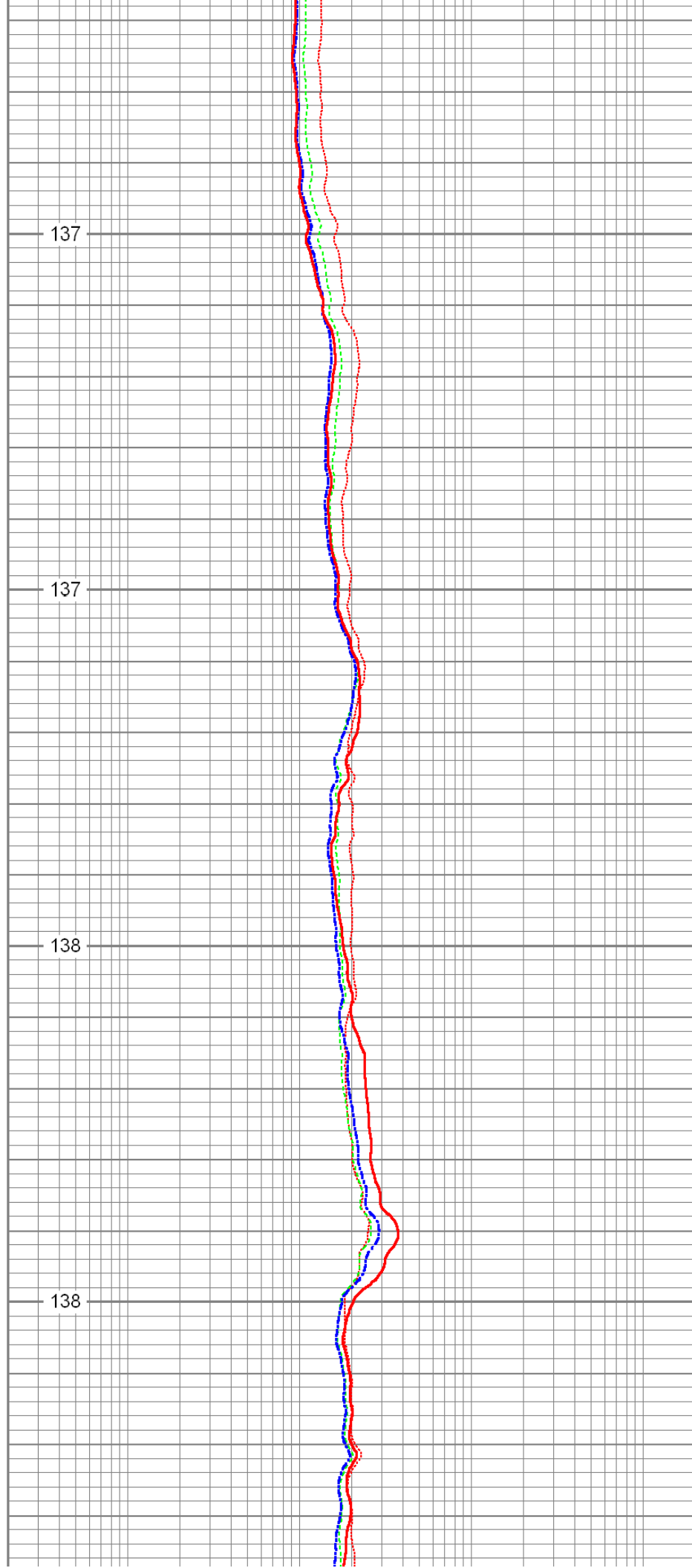
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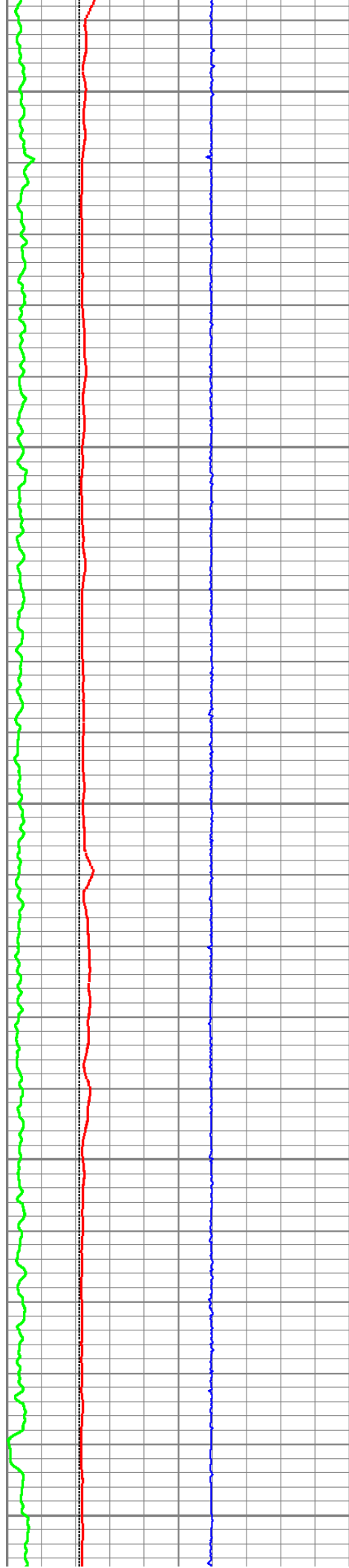
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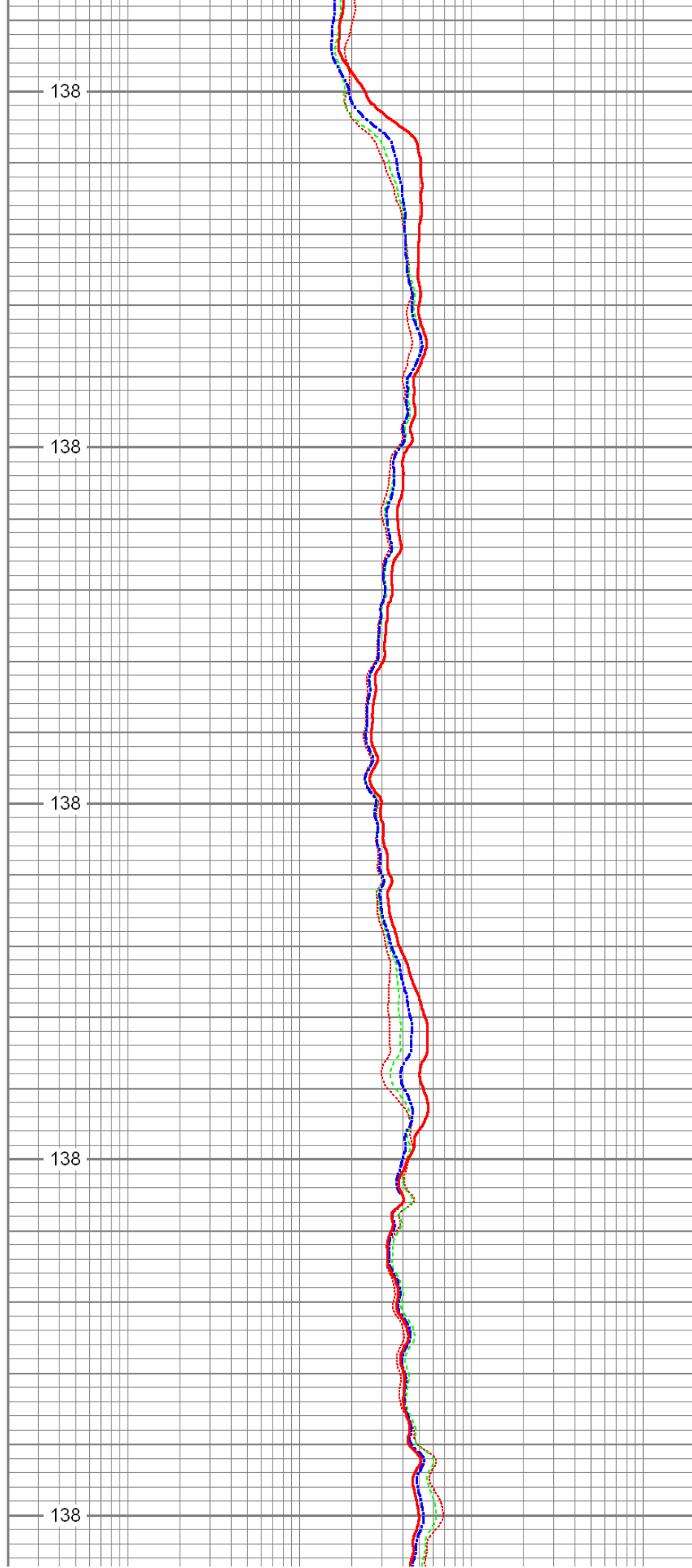
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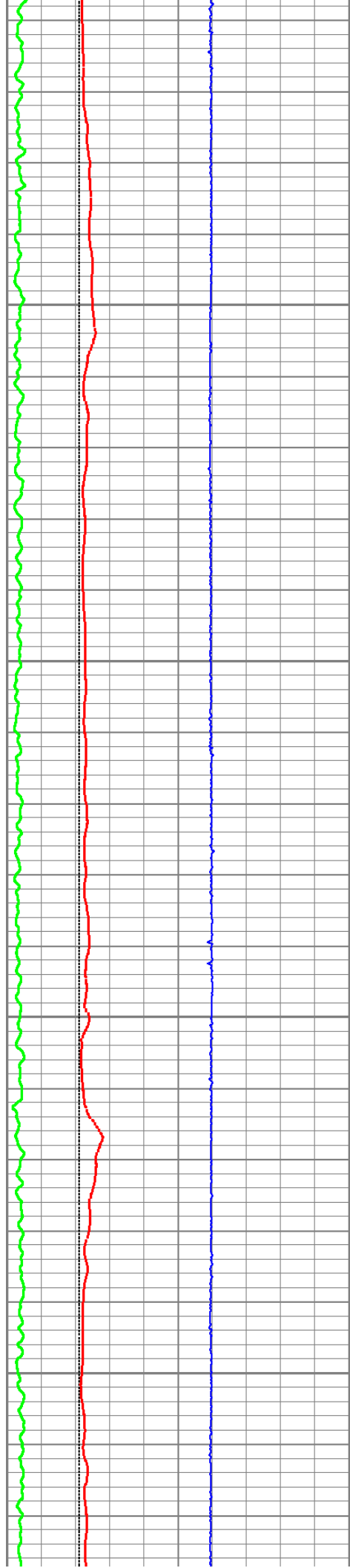
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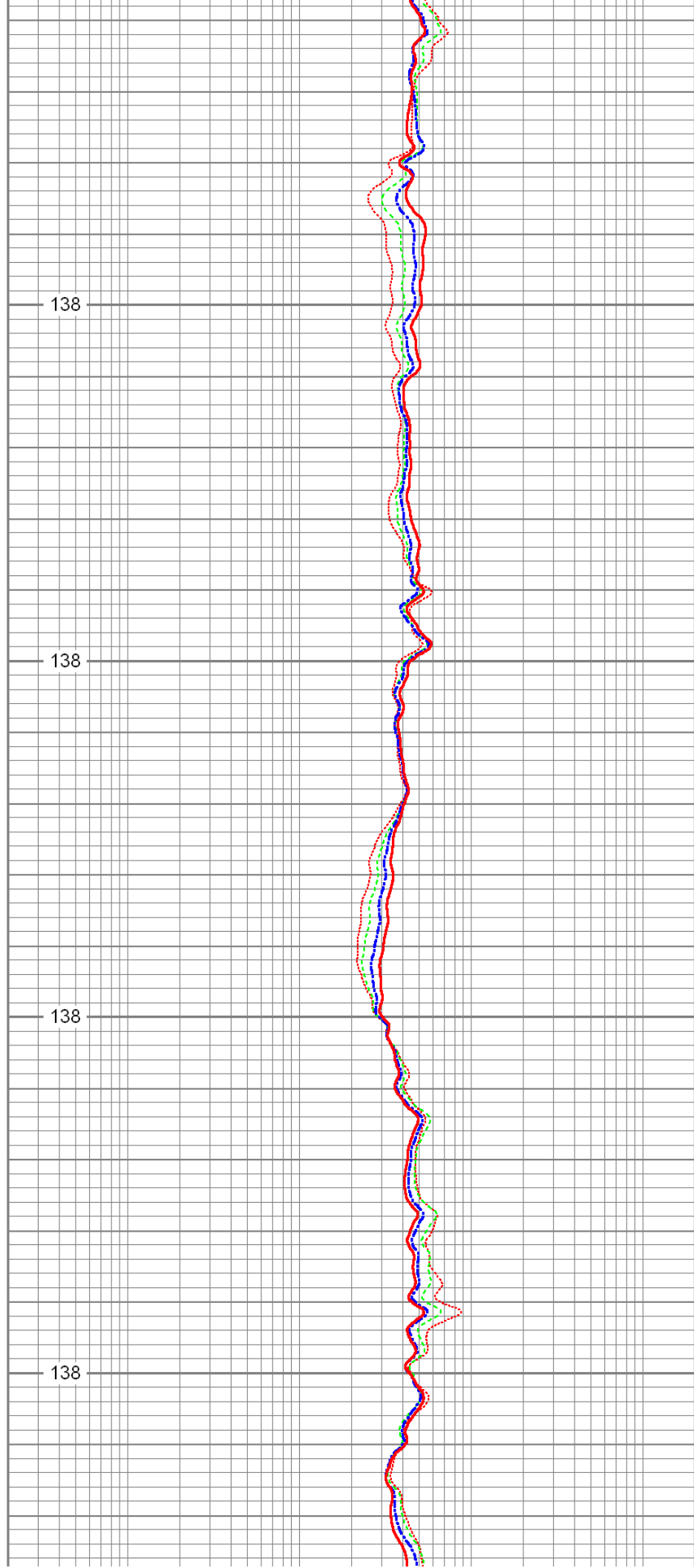
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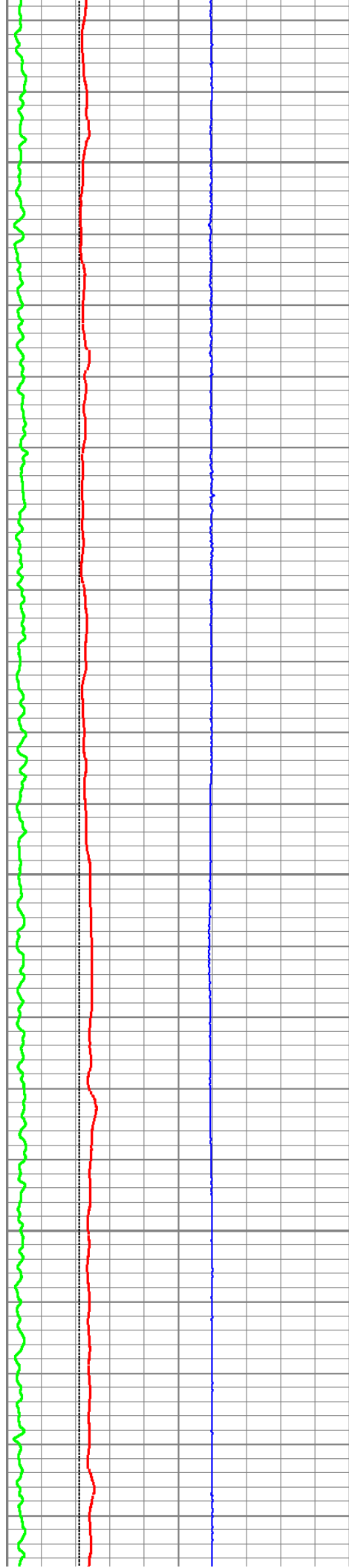
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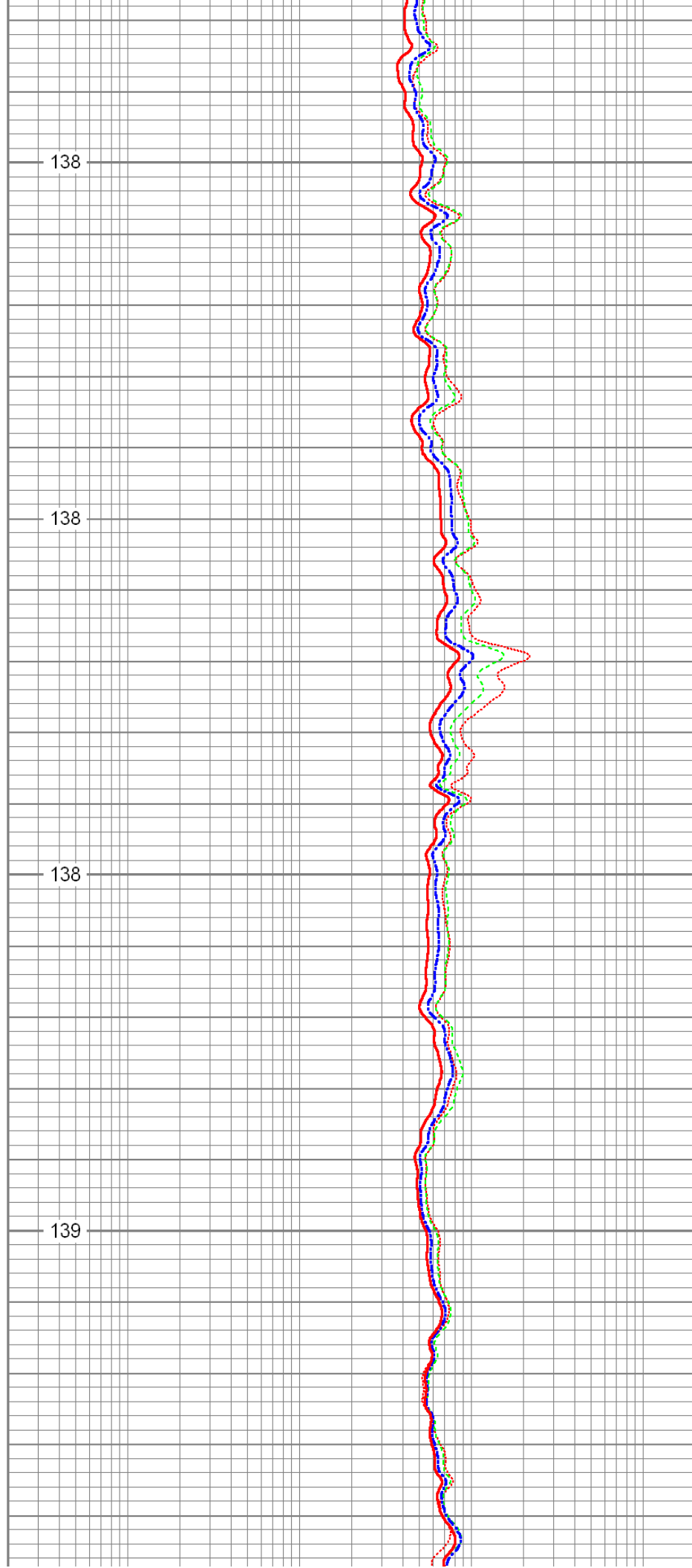
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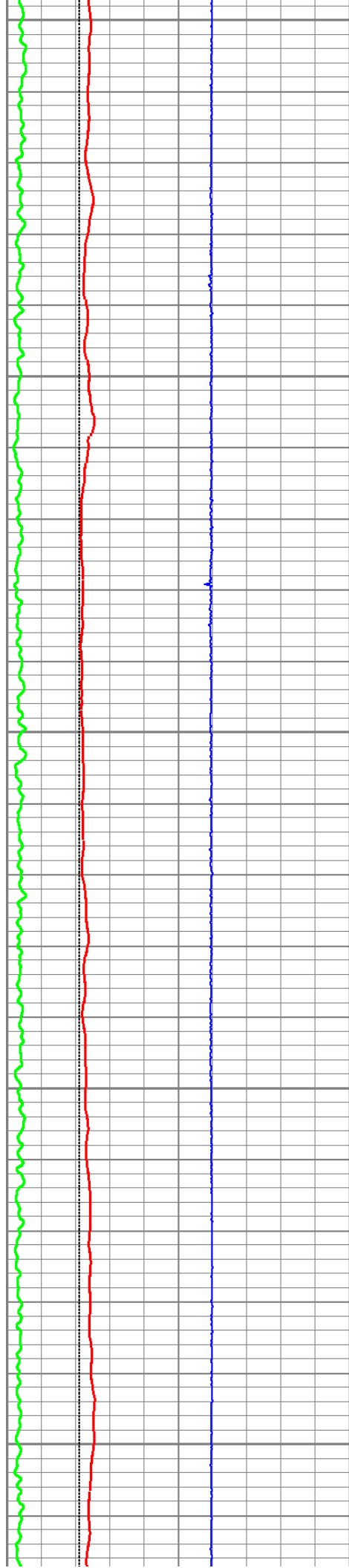
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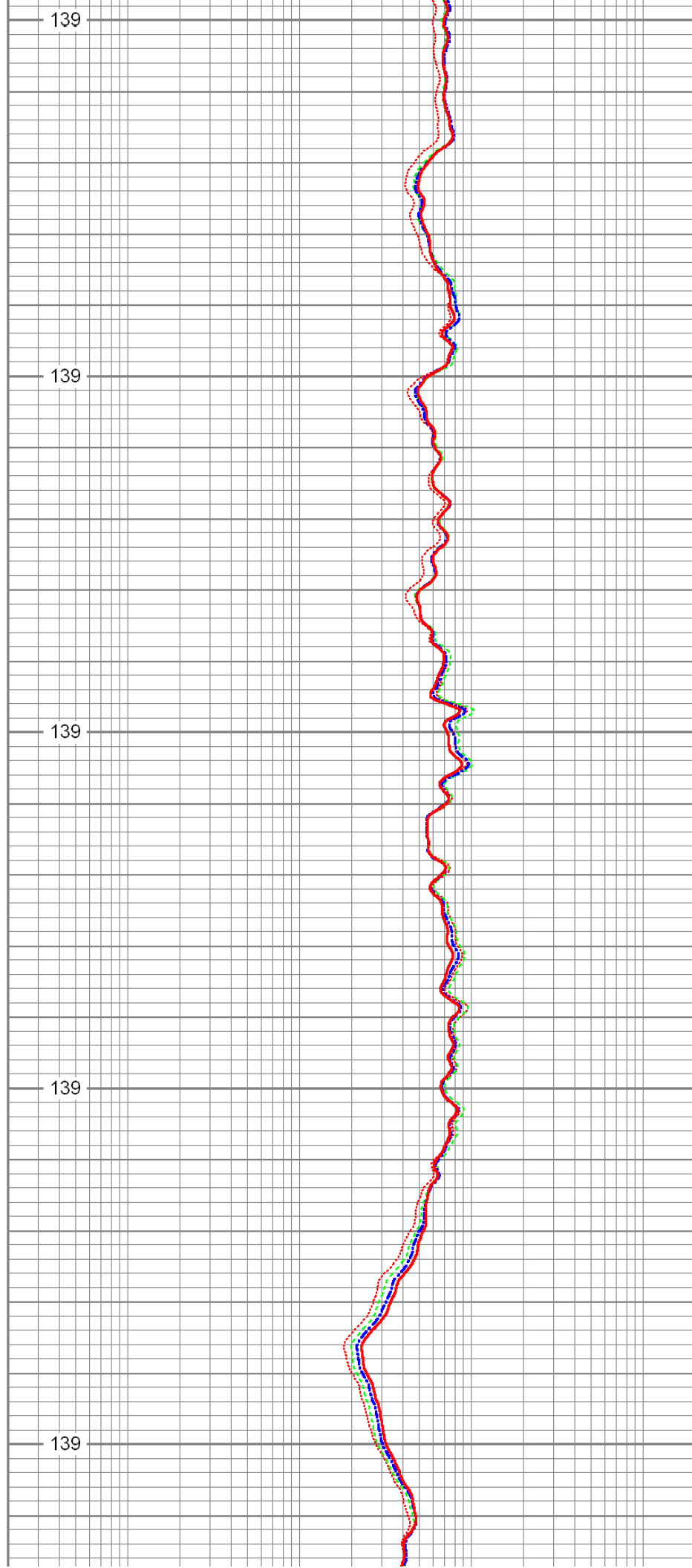
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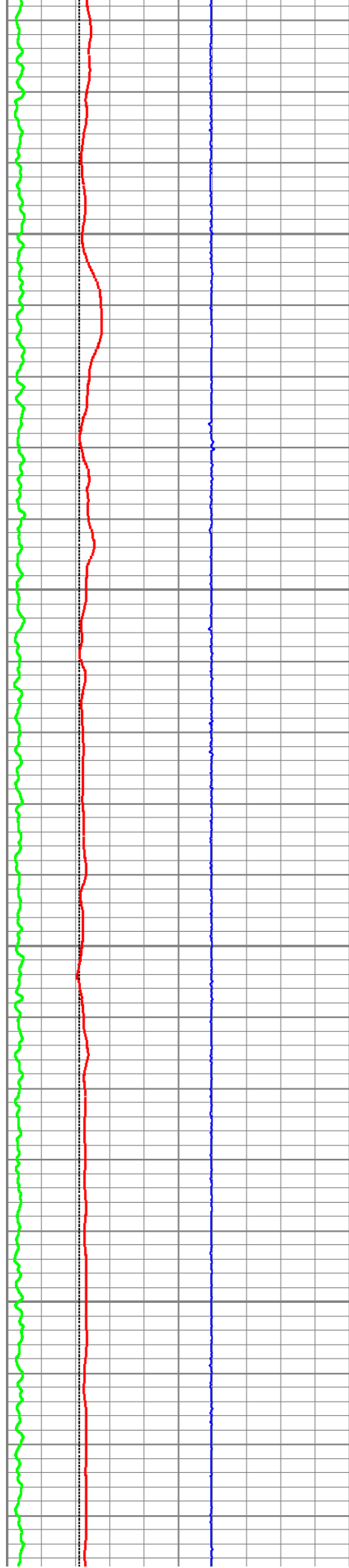
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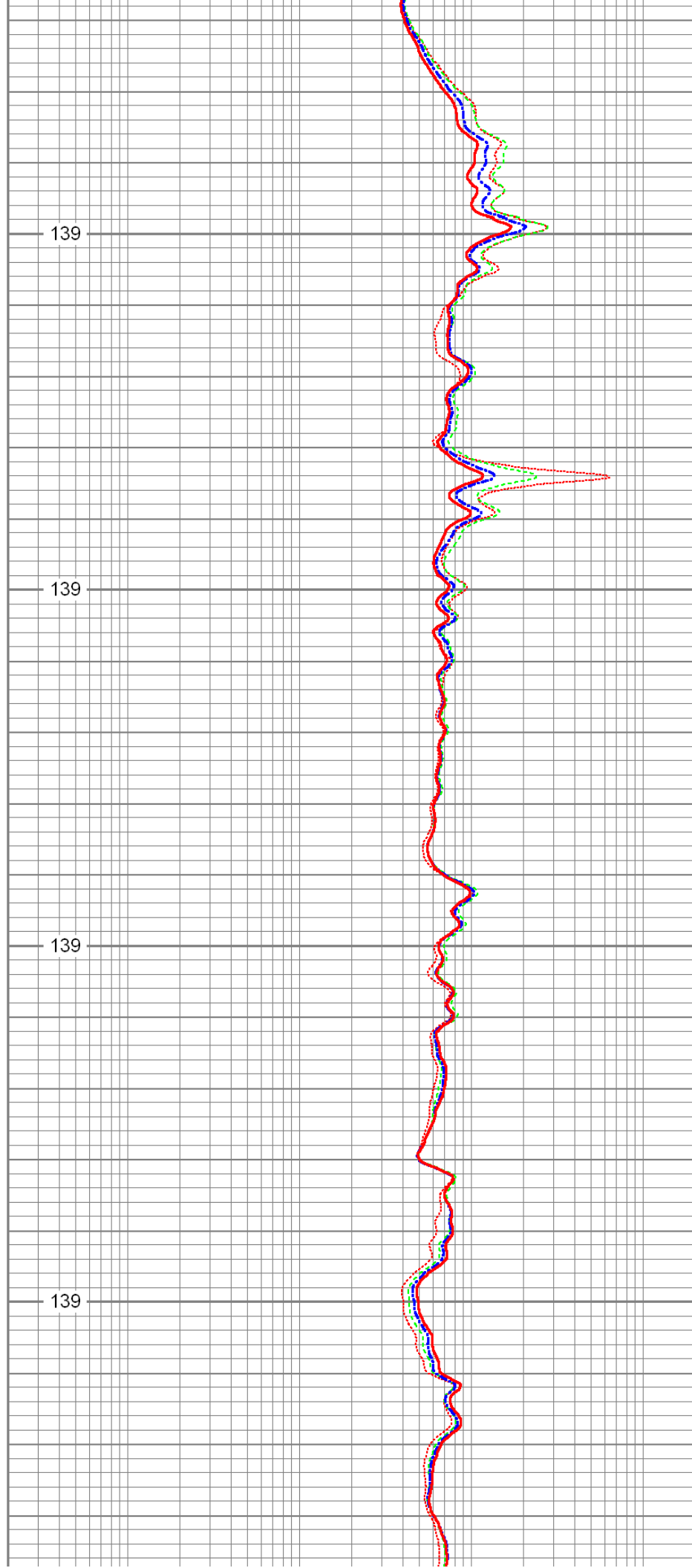
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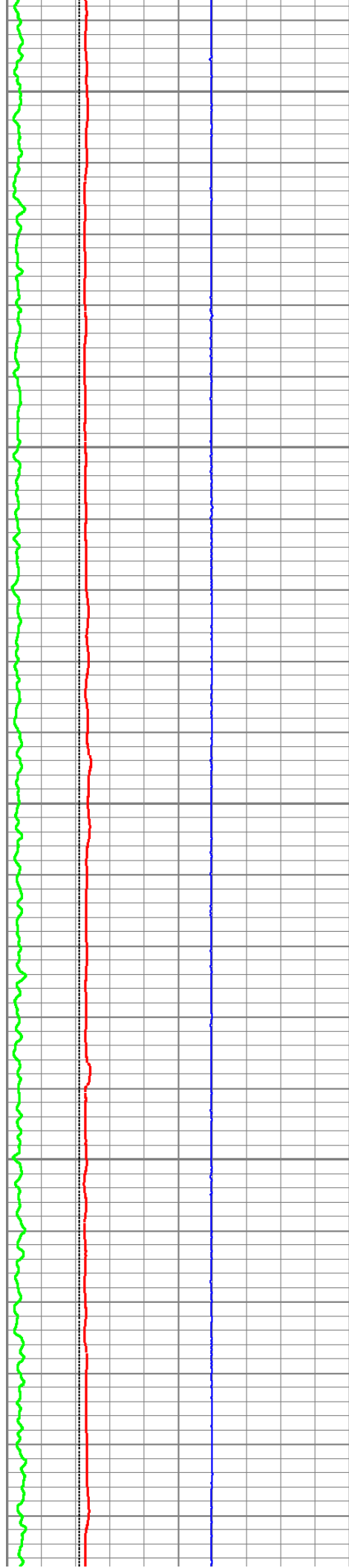
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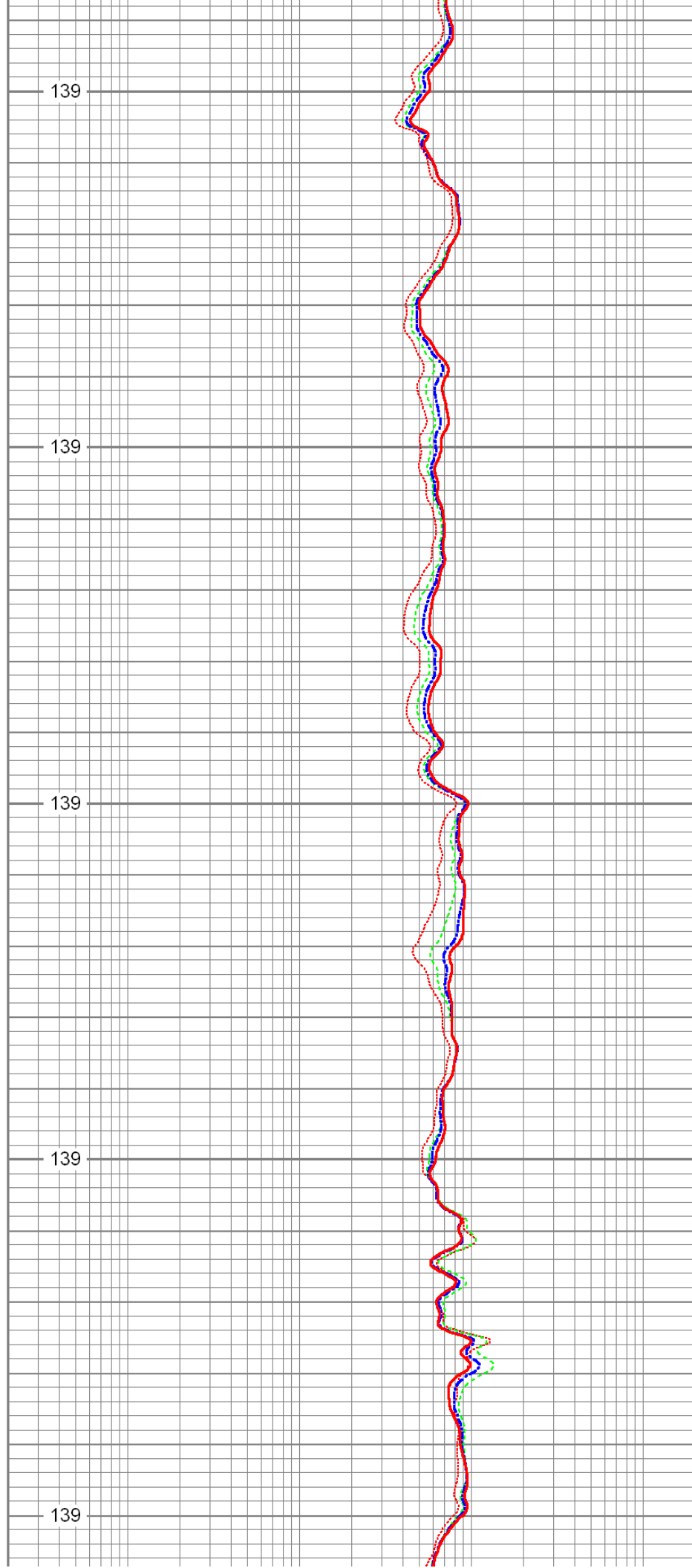
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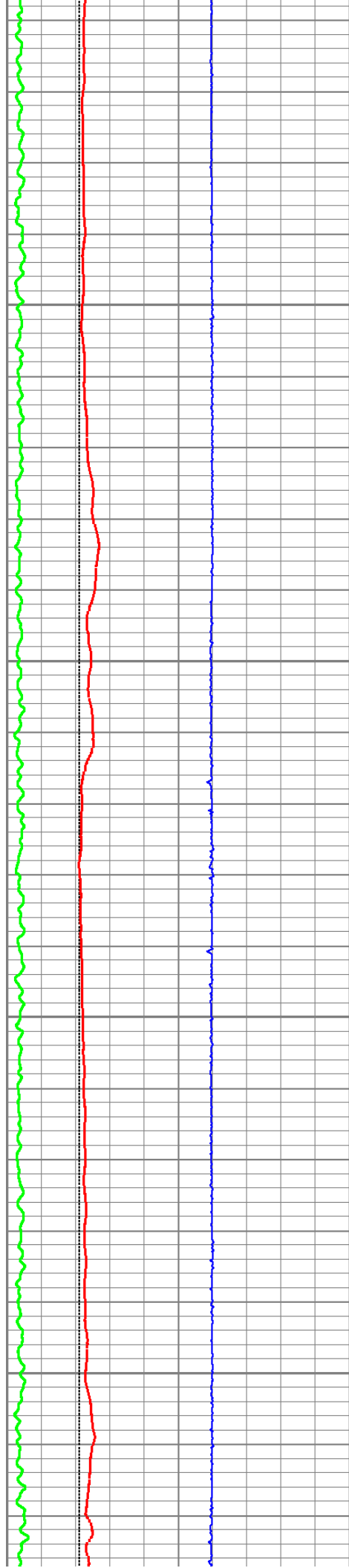
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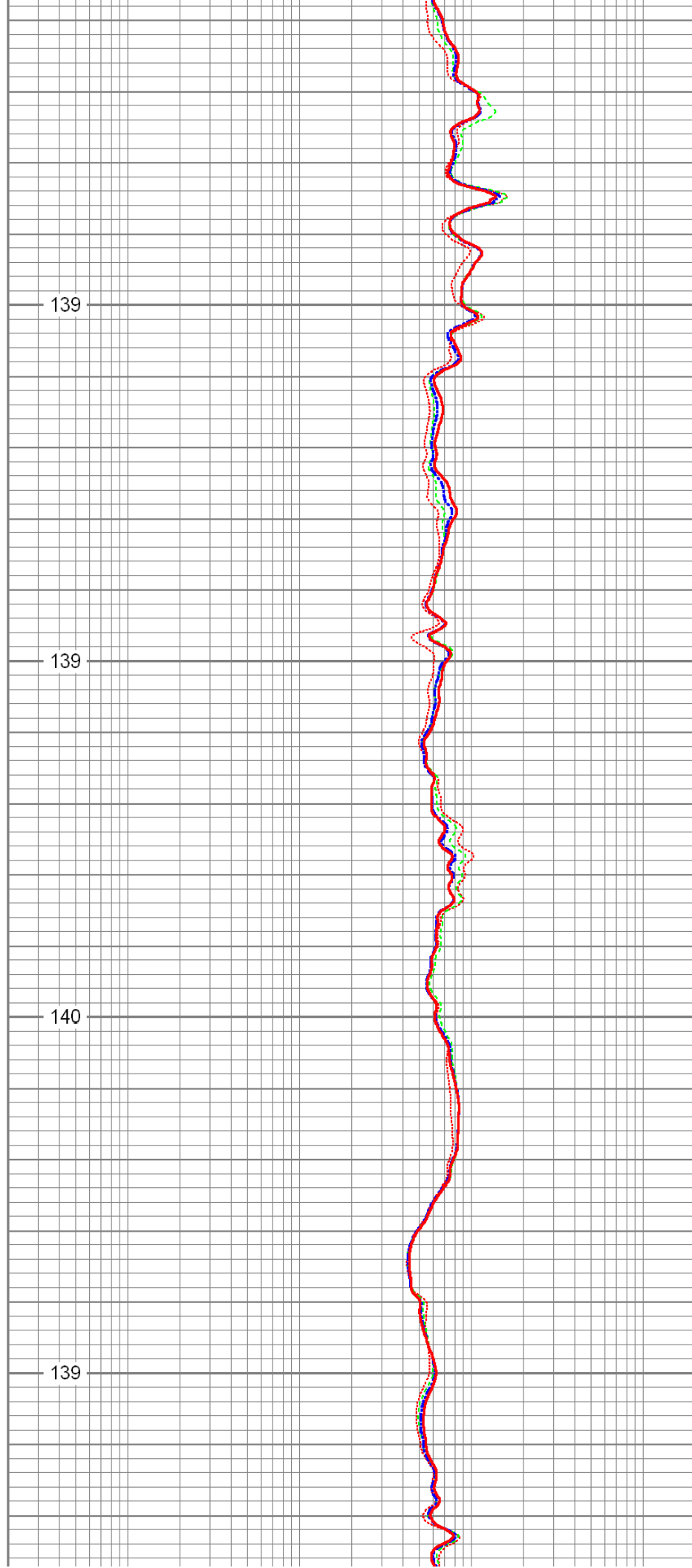
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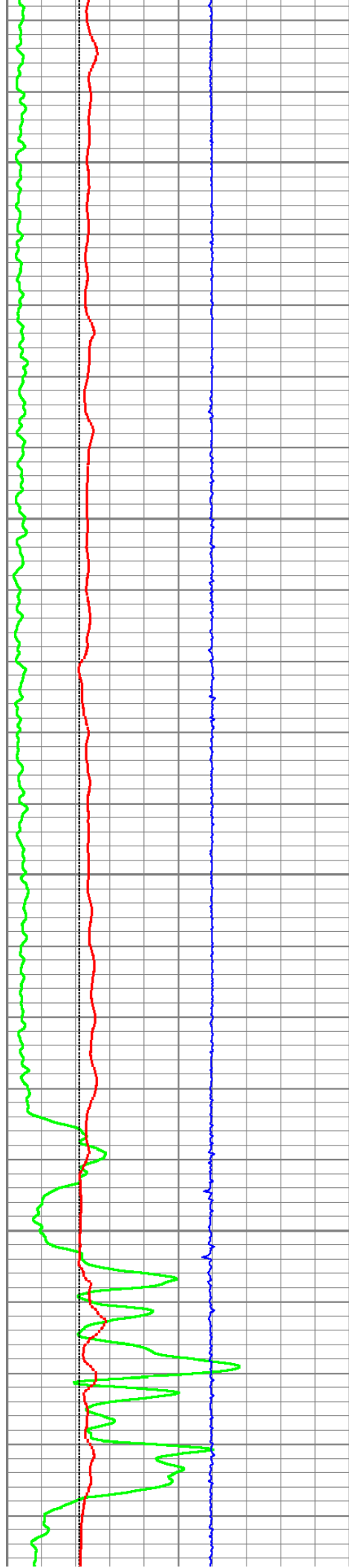
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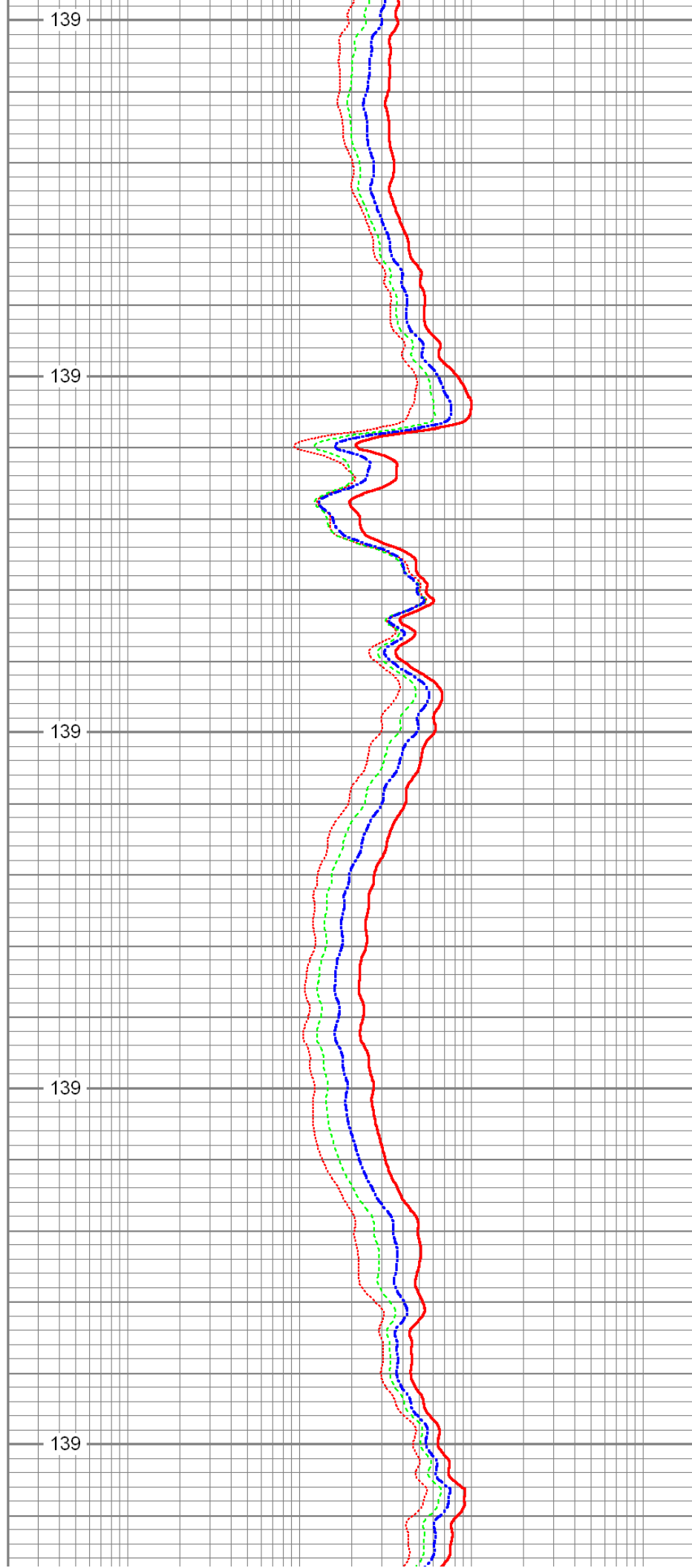
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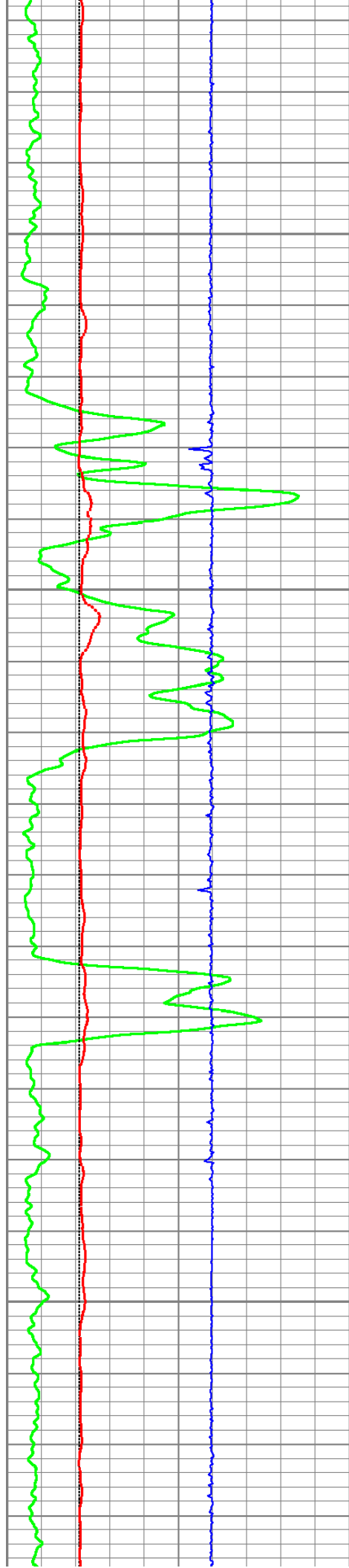
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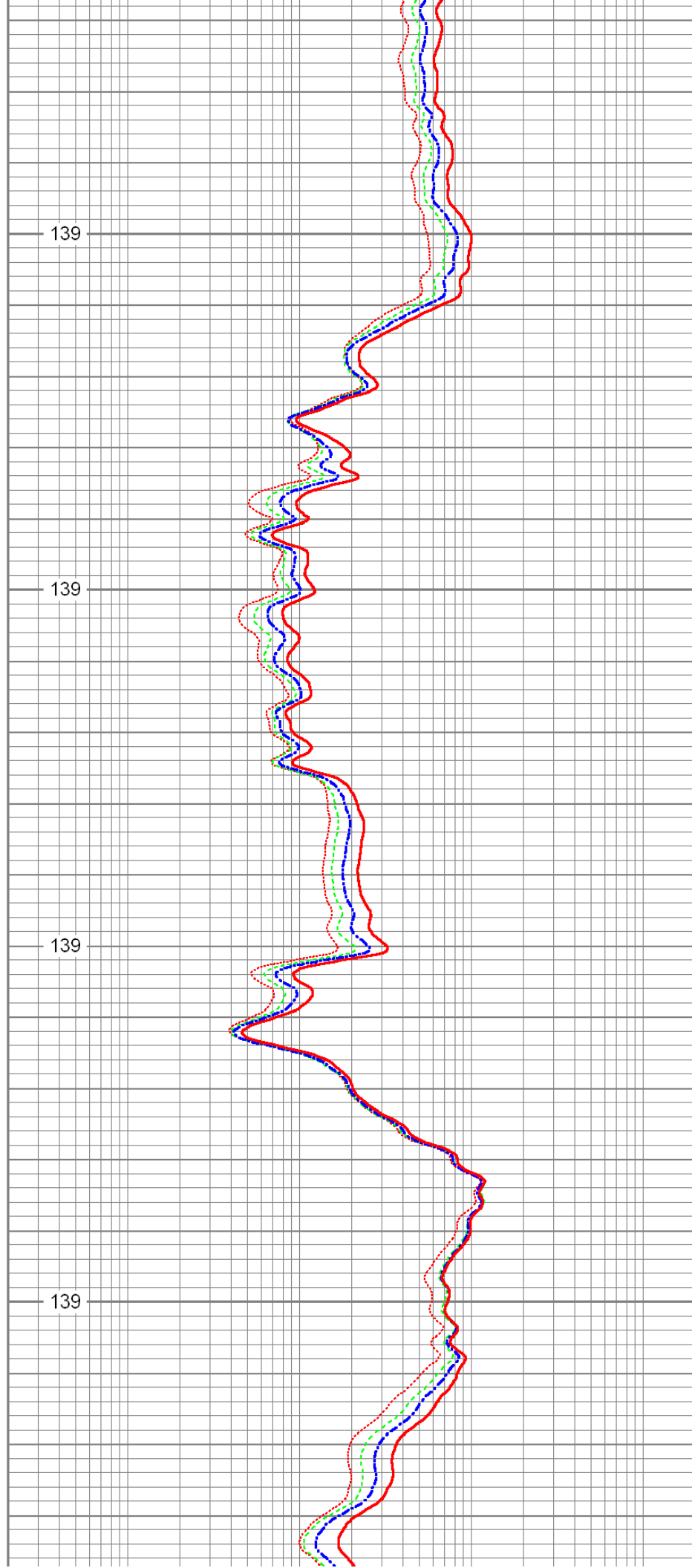
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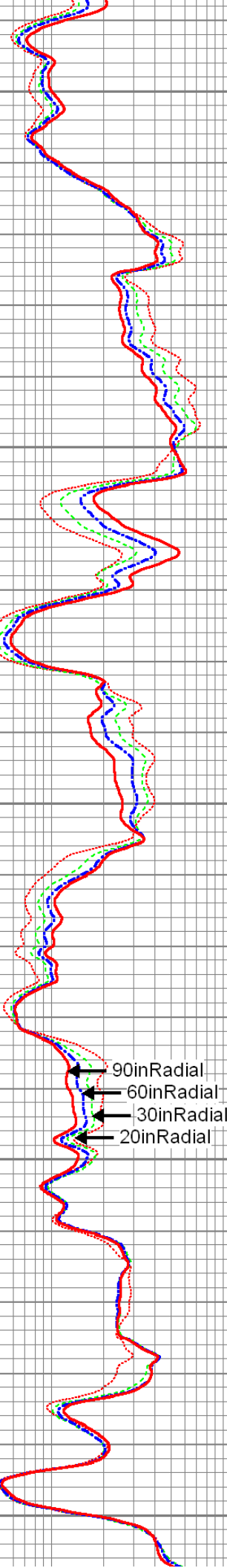
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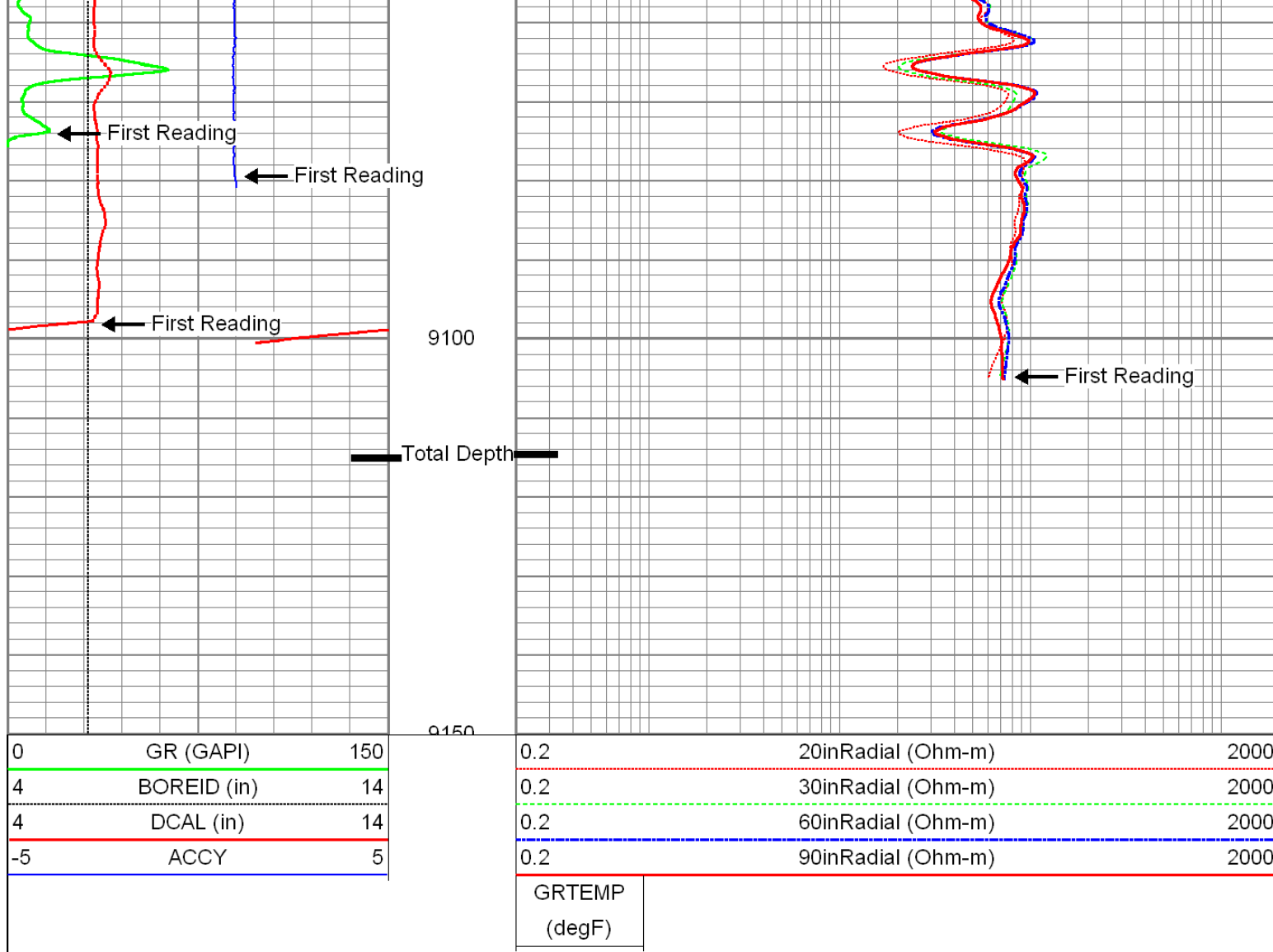


90inRadial

60inRadial

30inRadial

20inRadial



Log Variables

Database: C:\Warrior\Data\jennifer_mem.db
Dataset: field/well/proc3/pass1.3

Top - Bottom

BHCOR	BHFL_TYPE	BHFLRES Ohm-m	BHFLRESSRC	BHIDSRC	BOREID in	BOTTEMP degF
On	WBM	1	MUDCELL	CURVE	6.125	140
CASED?	CASEOD in	CASETHCK in	CEMWATERSA kppm	CMNTTHCK in	DPORSEL	FLUIDDEN g/cc
No	4.5	0	0	0	RHOB	1
FRMSALIN kppm	LATNOR	MATRXDEN g/cc	MUDSALIN kppm	MudWgt lb/gal	NPORSEL	PERFS
0	Off	2.71	0.6	8.9	Limestone	0
RESTMP SRC	SO in	SRFTEMP degF	SZCOR	TDEPTH ft	TMPCOR	TOOLPOS
INTERNAL	0.5	65	On	9140	On	Ec-centered
XXXX						
0						

Database File: jennifer_mem.db
Dataset Pathname: proc3/pass1.3
Dataset Creation: Wed Nov 14 17:59:38 2012

ThruBit Induction Calibration Report

Tool Model-Serial Number: PS-PS38R
Shop Calibration Performed: Wed Sep 19 09:28:12 2012

BASELINE

	R	Expected	X	Expected
Freq 1				
A1	-478.6470	[-500.00, -400.00]	173.0000	[-500.00, 500.00]
A2	-136.1660	[-180.00, -100.00]	298.4330	[-500.00, 500.00]
A3	-26.9944	[-50.00, -10.00]	-68.1870	[-500.00, 500.00]
A4	-16.5753	[-30.00, -10.00]	252.8430	[-500.00, 500.00]
A5	-14.5693	[-30.00, -10.00]	150.3510	[-500.00, 500.00]
Freq 2				
A1	-252.6960	[-280.00, -180.00]	84.1946	[-500.00, 500.00]
A2	-87.5233	[-130.00, -50.00]	165.5460	[-500.00, 500.00]
A3	-19.5990	[-50.00, -10.00]	-97.2460	[-500.00, 500.00]
A4	-19.8898	[-30.00, -10.00]	75.3812	[-500.00, 500.00]
A5	-19.5554	[-30.00, -10.00]	-0.3546	[-500.00, 500.00]
Freq 3				
A1	-163.6960	[-180.00, -80.00]	-7.9103	[-500.00, 500.00]
A2	-67.0263	[-130.00, -30.00]	78.9750	[-500.00, 500.00]
A3	-16.3076	[-50.00, -10.00]	-130.2510	[-500.00, 500.00]
A4	-21.4341	[-30.00, -10.00]	-42.9782	[-500.00, 500.00]
A5	-22.0719	[-30.00, -10.00]	-109.4460	[-500.00, 500.00]
Freq 4				
A1	-91.5984	[-120.00, -40.00]	-163.9400	[-500.00, 500.00]
A2	-48.3989	[-110.00, -10.00]	-37.1792	[-500.00, 500.00]
A3	-13.2104	[-50.00, -10.00]	-195.2460	[-500.00, 500.00]
A4	-24.0555	[-30.00, -10.00]	-219.8520	[-500.00, 500.00]
A5	-26.9658	[-30.00, -10.00]	-291.9350	[-500.00, 500.00]

CALIBRATION COEFFICIENTS

	R	Expected	X	Expected
Freq 1				
A1	0.9932	[0.95, 1.05]	-0.0014	[-0.05, 0.05]
A2	0.9912	[0.95, 1.05]	0.0015	[-0.05, 0.05]
A3	1.0012	[0.95, 1.05]	-0.0059	[-0.05, 0.05]
A4	0.9886	[0.95, 1.05]	0.0041	[-0.05, 0.05]
A5	0.9941	[0.95, 1.05]	0.0005	[-0.05, 0.05]
Freq 2				
A1	0.9875	[0.95, 1.05]	-0.0069	[-0.05, 0.05]
A2	0.9856	[0.95, 1.05]	-0.0048	[-0.05, 0.05]
A3	0.9898	[0.95, 1.05]	-0.0048	[-0.05, 0.05]
A4	0.9843	[0.95, 1.05]	-0.0026	[-0.05, 0.05]
A5	0.9899	[0.95, 1.05]	-0.0066	[-0.05, 0.05]
Freq 3				
A1	0.9906	[0.95, 1.05]	-0.0084	[-0.05, 0.05]
A2	0.9890	[0.95, 1.05]	-0.0064	[-0.05, 0.05]
A3	0.9929	[0.95, 1.05]	-0.0065	[-0.05, 0.05]
A4	0.9861	[0.95, 1.05]	-0.0043	[-0.05, 0.05]
A5	0.9936	[0.95, 1.05]	-0.0085	[-0.05, 0.05]

Freq 4				
A1	0.9898	[0.95, 1.05]	-0.0038	[-0.05, 0.05]
A2	0.9878	[0.95, 1.05]	-0.0023	[-0.05, 0.05]
A3	0.9935	[0.95, 1.05]	-0.0043	[-0.05, 0.05]
A4	0.9844	[0.95, 1.05]	0.0001	[-0.05, 0.05]
A5	0.9985	[0.95, 1.05]	-0.0062	[-0.05, 0.05]
Temperature	26.7102 degC			

ThruBit Density Calibration Report

Tool Model-Serial Number: PS-PS24D

Source Number:

Shop Calibration Performed: Fri Oct 26 15:03:57 2012

REFERENCE

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

READINGS

Outputs	Counts	Units	Expected
SS1 Background	159.95	cps	[130.00, 170.00]
LS1 Background	144.85	cps	[130.00, 170.00]
LS4 Background	31.39	cps	[27.00, 35.00]
SS1 Aluminium	4547.56	cps	[4500.00, 5500.00]
LS1 Aluminium	921.54	cps	[750.00, 950.00]
LS4 Aluminium	995.25	cps	[843.00, 1068.00]
SS1 Magnesium	7450.89	cps	[7000.00, 9000.00]
LS1 Magnesium	6012.51	cps	[5250.00, 6250.00]
LS1 Al + Fe	798.33	cps	[650.00, 800.00]
LS4 Al + Fe	452.78	cps	[382.00, 471.00]

RESULTS

SS Slope	1.68	[1.52, 1.77]
LS Slope	0.42	[0.38, 0.45]
PEF K Factor	4.823	[3.510, 6.170]
PEF B Factor	-0.513	[-0.700, -0.410]

Caliper Shop Calibration performed: Fri Oct 26 15:03:57 2012

RESULTS

Reference	Reading	Units
12.00	1904.83	in
9.00	2057.59	in
6.00	2220.09	in

DENSITY PRE-SURVEY CHECK Performed: Tue Nov 13 13:44:41 2012

Outputs	Counts	Units	Expected
SS1 Background	161.54	cps	[155.15, 164.74]
LS1 Background	146.74	cps	[140.51, 149.20]
LS4 Background	30.22	cps	[29.50, 33.27]

DENSITY POST-SURVEY CHECK Performed:		Wed Dec 31 18:00:00 1969	
Outputs	Counts	Units	Expected
SS1 Background	0.00	cps	[155.15, 164.74]
LS1 Background	0.00	cps	[140.51, 149.20]
LS4 Background	0.00	cps	[29.50, 33.27]

CALIPER PRE-SURVEY CHECK Performed:		Tue Nov 13 13:45:16 2012	
Reference	Readings	Units	Expected
9.00	8.91	in	[8.80, 9.20]

CALIPER POST-SURVEY CHECK Performed:		Wed Dec 31 18:00:00 1969	
Reference	Readings	Units	Expected
0.00	0.00	in	[-0.20, 0.20]

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Compensated Neutron Calibration Report			
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Tool Model-Serial Number: Source Number:		PS-PS14N	
Calibration Tank Temperature: Shop Calibration Performed:		75.8 degF Mon Oct 22 09:52:31 2012	

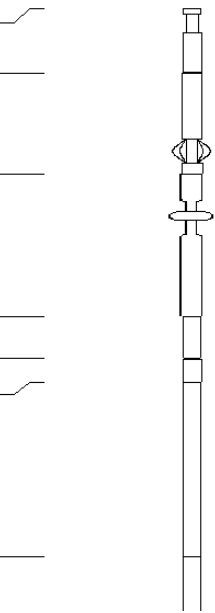
BACKGROUND MEASUREMENT			
Outputs	Measured	Units	Expected
SS Counts	0.1	cps	<10
LS Counts	0.1	cps	<4

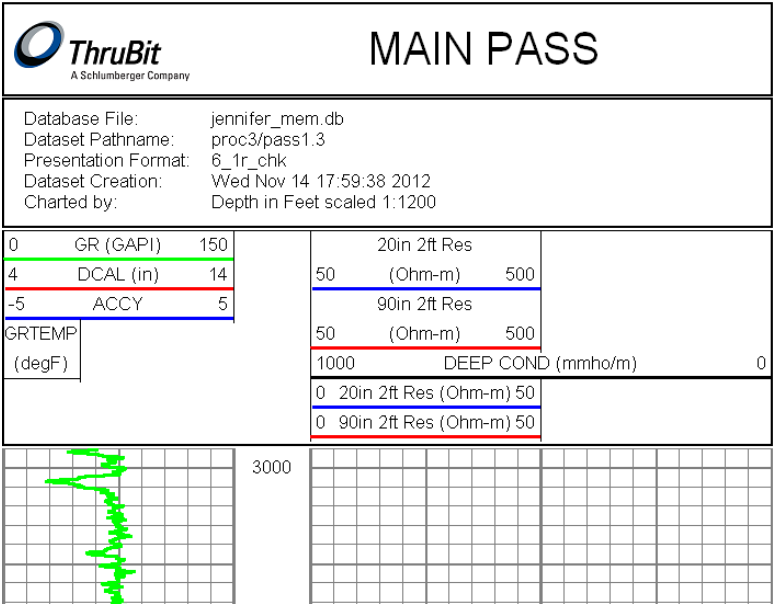
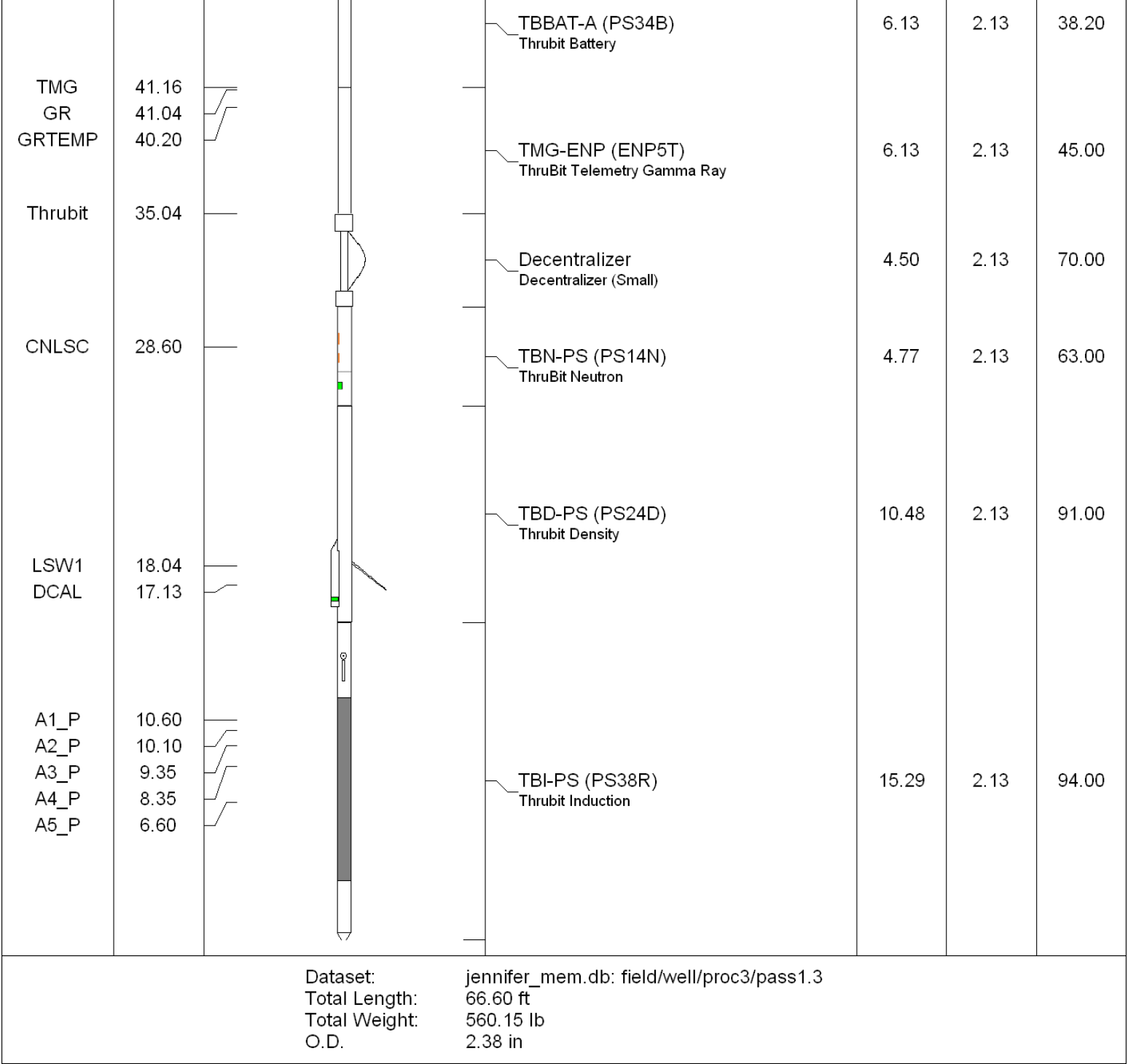
WATER TANK REFERENCE			
Outputs	Measured	Units	Expected
SS Counts	893.1	cps	
LS Counts	29.0	cps	
Tank Ratio Ref	30.9580	SS/LS	
Tank Ratio	30.7863	SS/LS	
Tank Ratio Gain	1.0056		[0.85, 1.15]

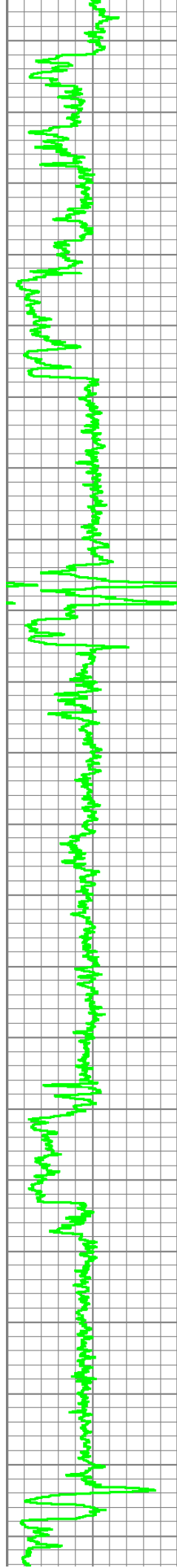
ALUMINUM SLEEVE REFERENCE			
Outputs	Measured	Units	Expected
SS Counts	9979.5	cps	
LS Counts	935.9	cps	
Al Ratio Ref	10.797	SS/LS	
Al Ratio	10.722	SS/LS	
Al Ratio Gain	1.01		[0.90, 1.10]
Sleeve Porosity	14.46	pu	

PRE-SURVEY BACKGROUND CHECK Performed:			Tue Nov 13 13:41:14 2012	
Outputs	Measured	Units	Expected	
SS Counts	0.0	cps	<10	
LS Counts	0.1	cps	<4	
POST-SURVEY BACKGROUND CHECK Performed:				
Outputs	Measured	Units	Expected	
SS Counts	0.0	cps	<10	
LS Counts	0.0	cps	<4	

Gamma Ray Calibration Report					
Tool Model-Serial Number:		ENP-ENP5T			
Performed:		Mon Oct 29 14:53:10 2012			
Calibrator Value:		165.0	GAPI		
Background Reading:		83.7	cps		
Calibrator Reading:		478.7	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	66.60		Cablehead-S	2.31	2.13	5.00
Thrubit	64.29		Solid Weakpoint			
			BDOT	3.54	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
TBBAT2	53.41		TBBAT2-A (PS33B)	6.13	2.13	40.00
			Thrubit Battery			
TBBAT	47.29					





3100

3200

3300

3400

3500

3600

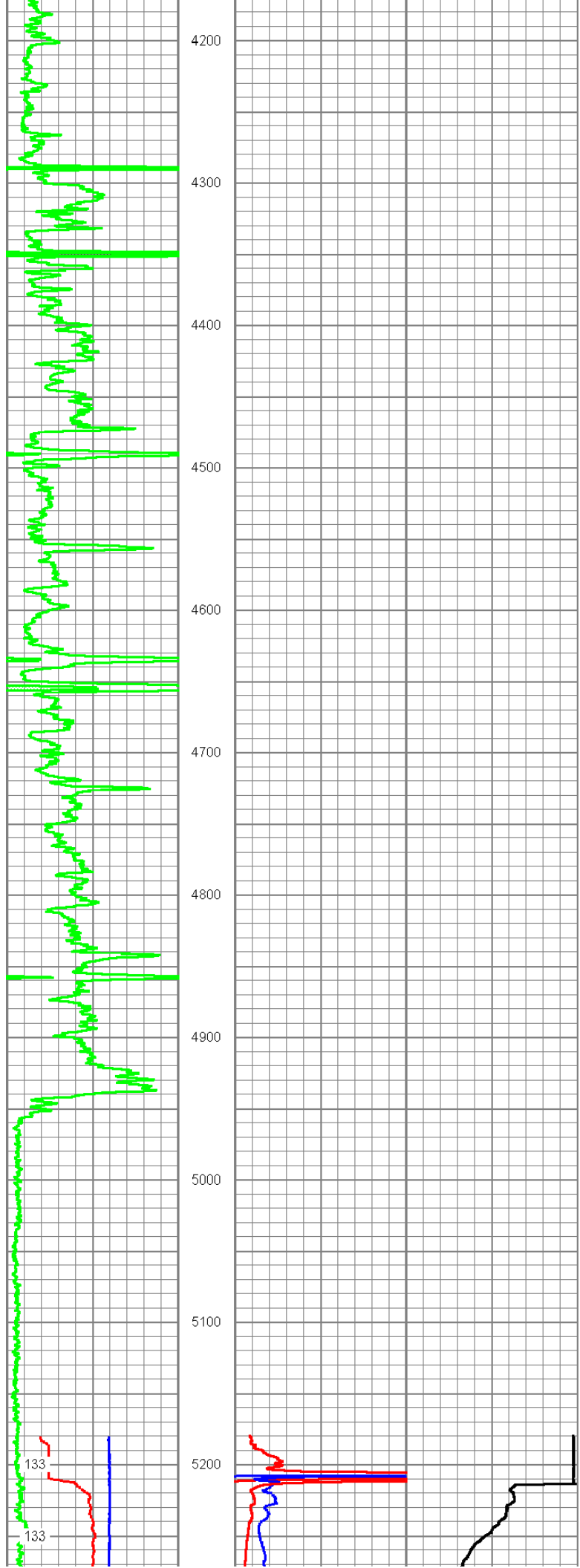
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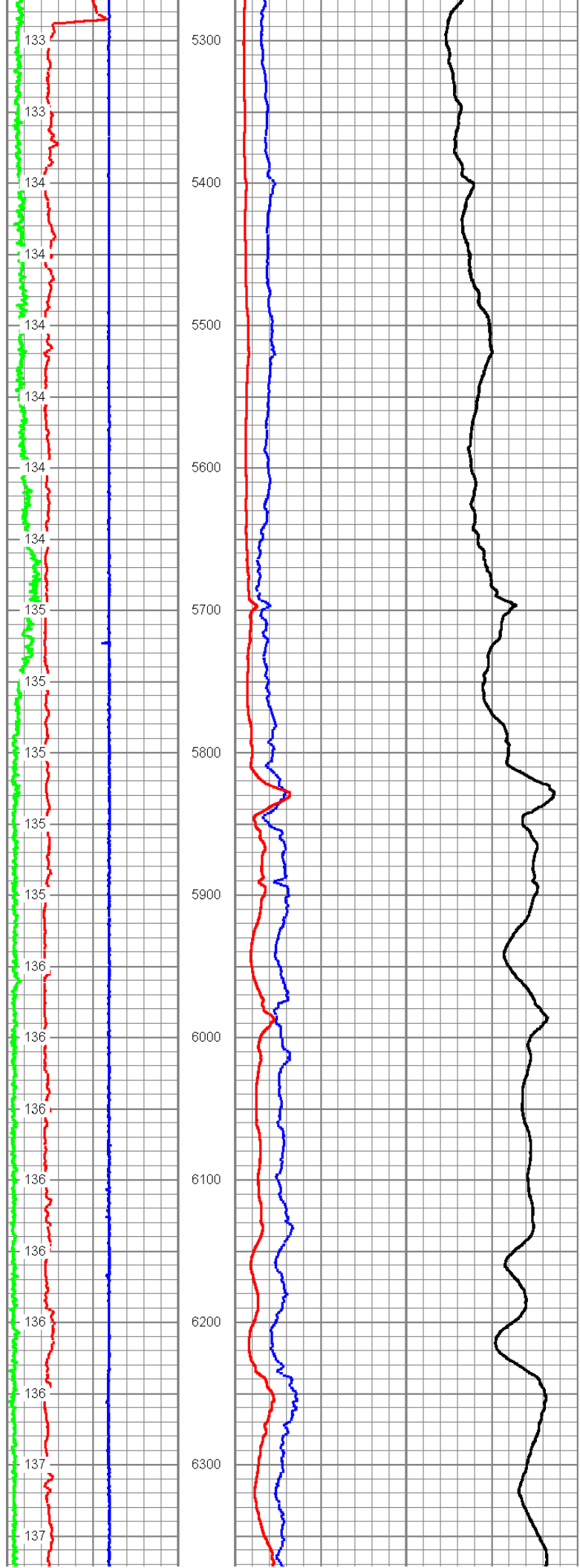
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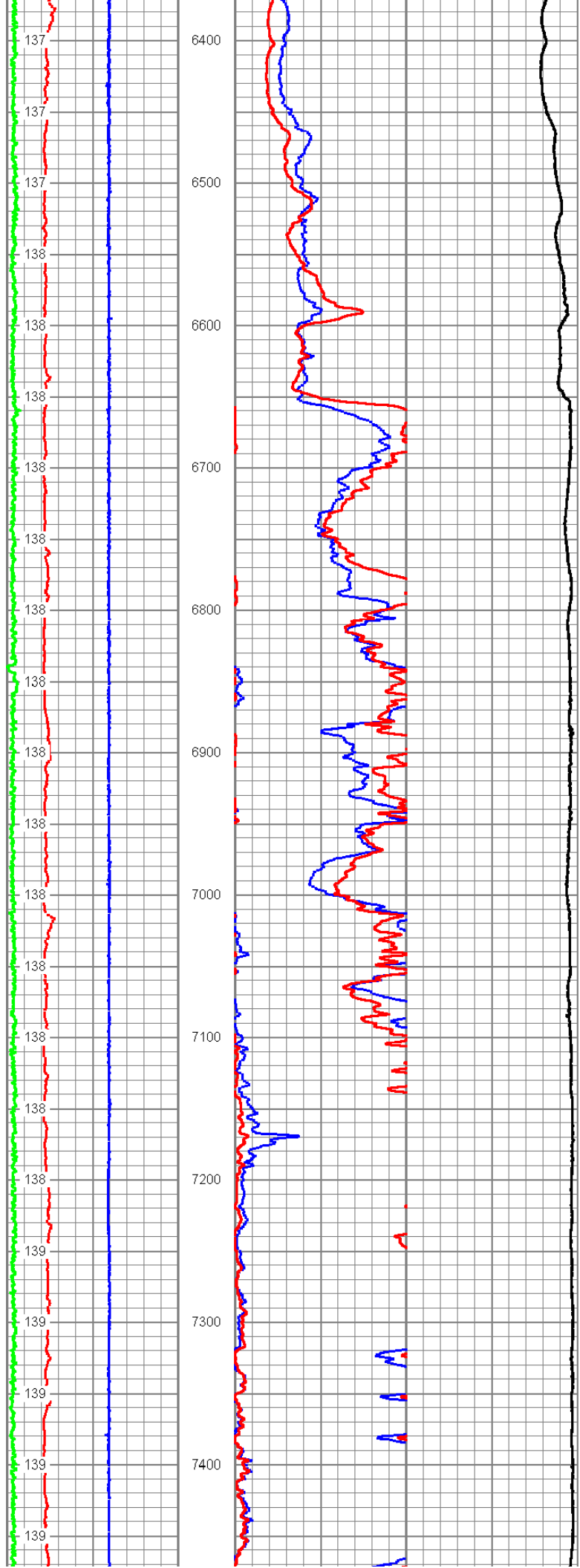
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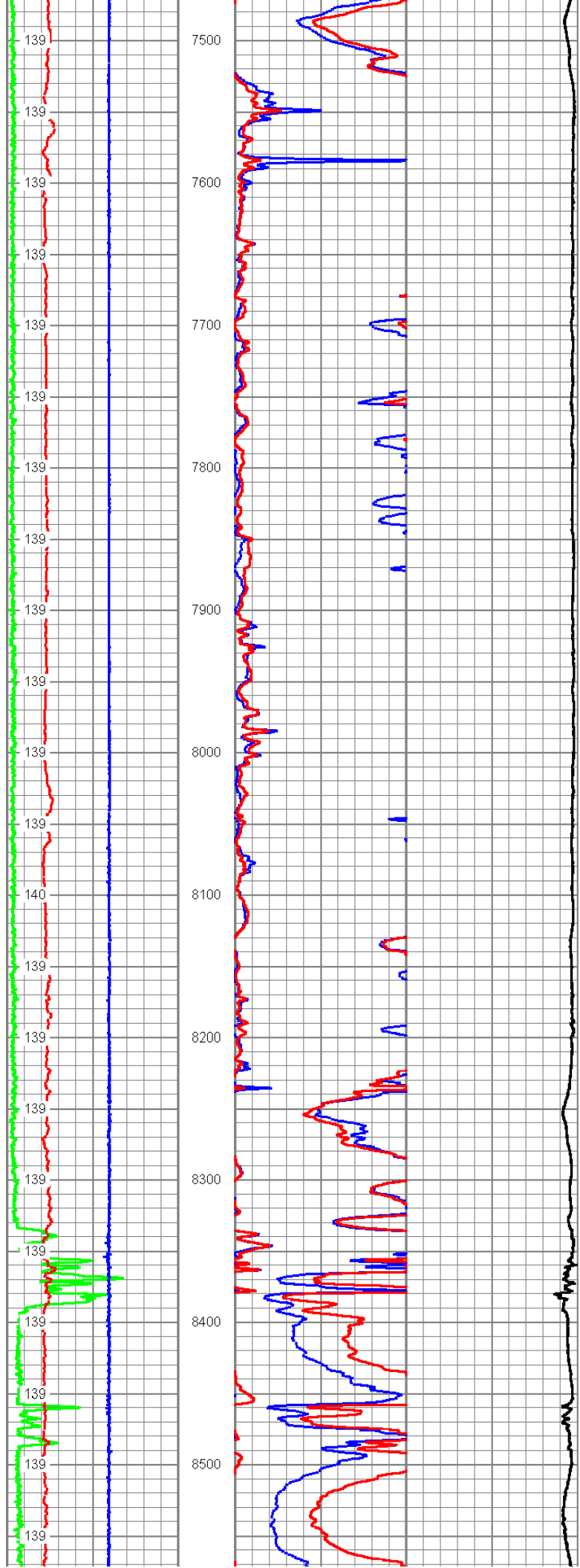
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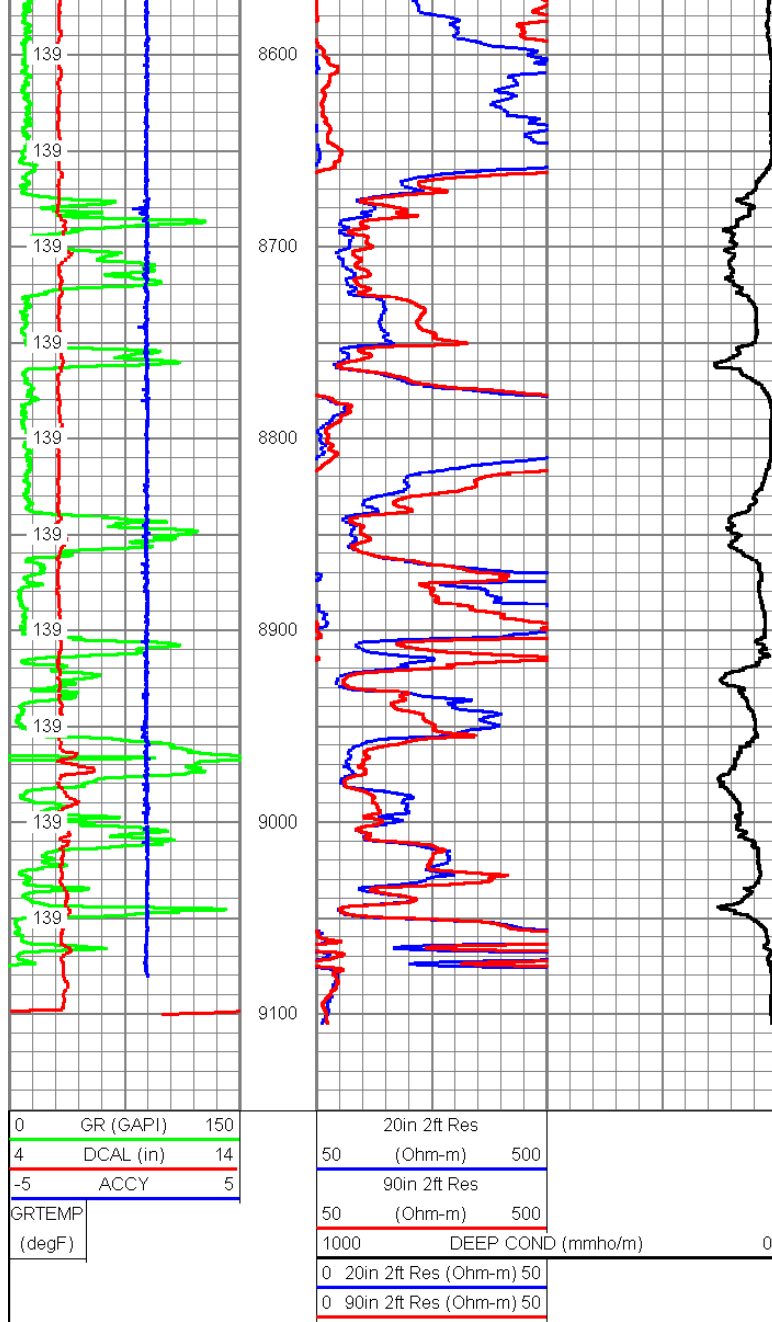
4100











ThruBit
A Schlumberger Company

Company	SANDRIDGE ENERGY, INC.
Well	JENNIFER 3408 2-34H
Field	HARPER KS / MISS LIME
County	HARPER
State	KANSAS