



ThruBit
A Schlumberger Company

**SPECTRAL DENSITY
DUAL SPACED NEUTRON
GAMMA RAY
MEMORY LOG**

Company SANDRIDGE ENERGY, INC.
Well JENNIFER 3408 3-34H
Field EASTHAM
County HARPER
State KANSAS

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County HARPER State KANSAS

Location: API 15-077-218970000
225' FSL & 2220' FWL
SEC 34 TWP 34S RGE 8W
Permanent Datum G.L. Elevation 1263'
Log Measured From K.B. @ 17.5' ABOVE PERM DAT
Drilling Measured From K.B.
Other Services
THURBIT
PORTAL
BIT
Elevation
K.B. 1280.5'
D.F. 1279.5'
G.L. 1263'

Date	16-DEC-2012		
Run Number	ONE		
Depth Driller	9109'		
Depth Logger	9085'		
Bottom Logged Interval	9074'		
Top Log Interval	2500'		
Casing Driller	5274'		
Casing Logger	5268'		
Bit Size	6.125"		
Type Fluid in Hole	WBM		
Density / Viscosity	8.35 / 27		
pH / Fluid Loss	8.0 / 60		
Source of Sample	FLOW LINE		
Rm @ Meas. Temp	2.790 @ 63.4 DEGF		
Rmf @ Meas. Temp	2.093 @ 63.4 DEGF		
Rmc @ Meas. Temp	4.185 @ 63.4 DEGF		
Source of Rmf / Rmc	CALCULATED		
Rm @ BHT	1.469 @ 139.2 DEGF		
Time Circulation Stopped	13:39 16-DEC-2012		
Time Logger on Bottom	15:22 16-DEC-2012		
Maximum Recorded Temperature	139.2 DEGF		
Equipment Number	T006		
Location	TYLER, TX		
Recorded By	MARC MATHIAS		
Witnessed By	TAMMY ALCORN		

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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

Comments

HORIZONTAL PUMP DOWN MEMORY; BIT DEPTH: 9024' LOG TO: 2500'
ALL SCALES AND PRESENTATIONS PER CLIENT REQUEST
LIMESTONE MATRIX. 2.71g/cc USED FOR POROSITY MEASUREMENTS
TOOLSTRING RAN WITH DECENTRALIZER, KNUCKLES AND CENTRALIZERS
TBHV REPRESENTS TOTAL BOREHOLE VOLUME, ft³
ABHV REPRESENTS ANNULAR HOLE VOLUME, CALCULATED FOR 4.5" CSG ft³
DEPTH REFERENCE: MWD GAMMA RAY

RIG: UNIT 310

CREW: M. MATHIAS, J. REAZIN, B. ADAMS, D. MURPHY

Service Ticket No. 1641

API No. 15-077-218970000

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.	PS39T	Serial No.	PS21N	Serial No.	PS53D	Serial No.	PS26R	
Model No.	PS	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				
MERGE2	9085'	2500'		30				
	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		91.91	deg. @	5317'	KOP	3870'		



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MAIN PASS

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Dataset Pathname:proc1/merge2

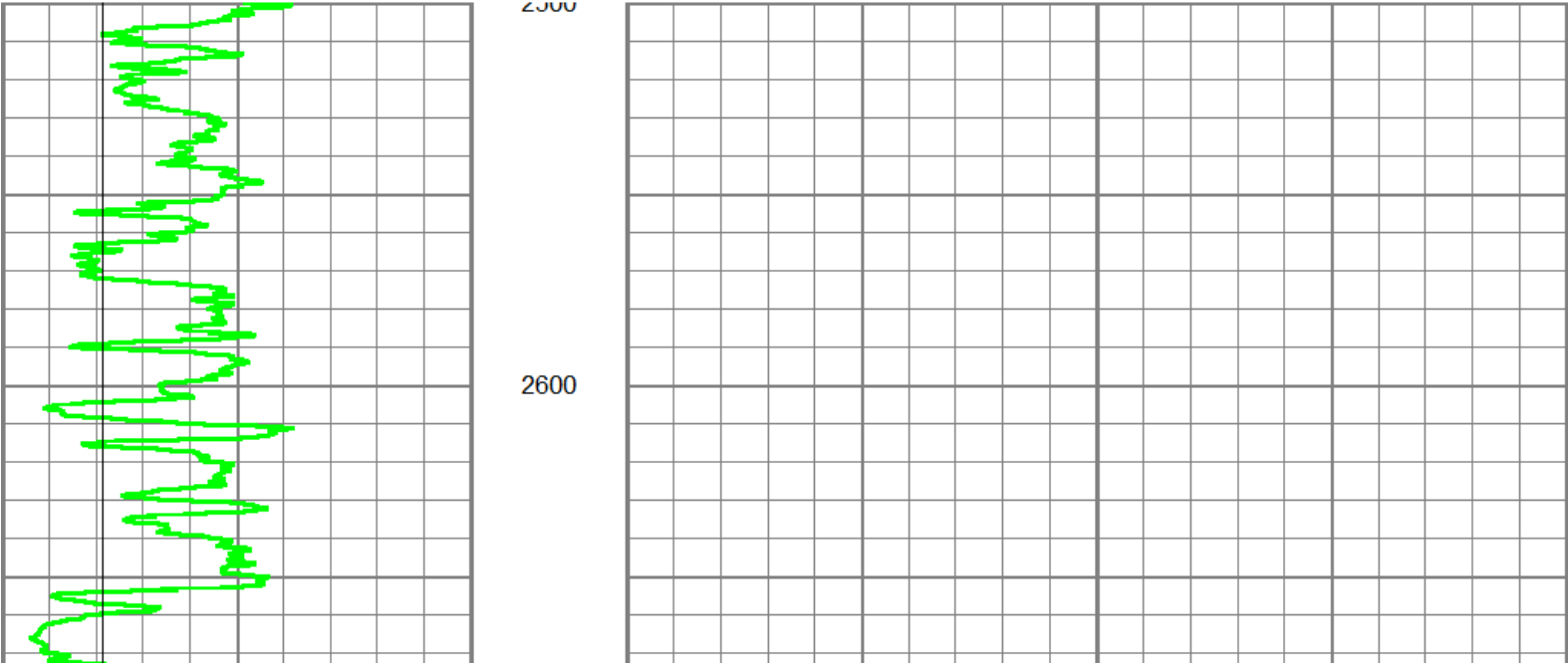
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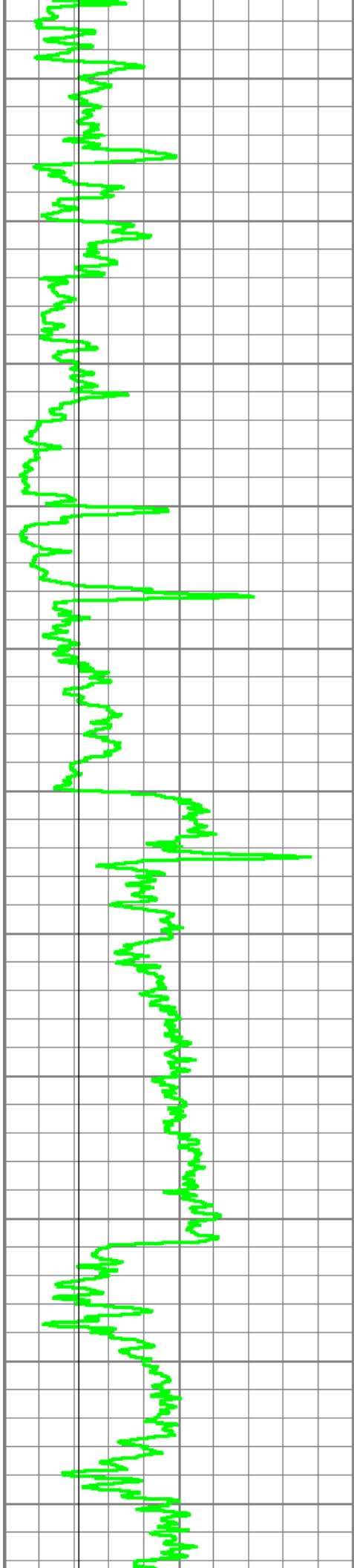
Dataset Creation:Sun Dec 16 23:49:58 2012

Charted by:Depth in Feet scaled 1:600

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

0	PEF (barn)	10	-0.5	DRHO (g/cc)	0.5
2	RHOB (g/cc)		3		





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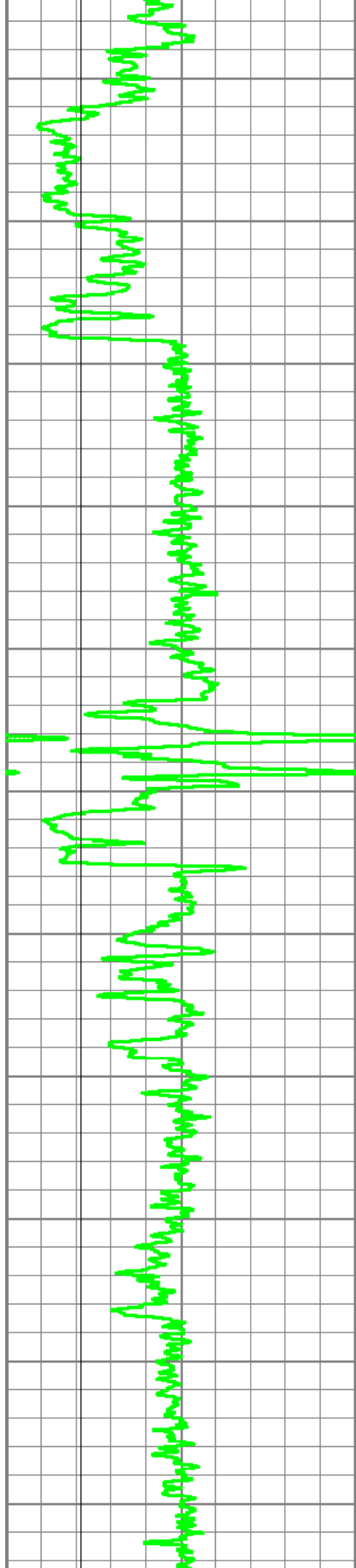
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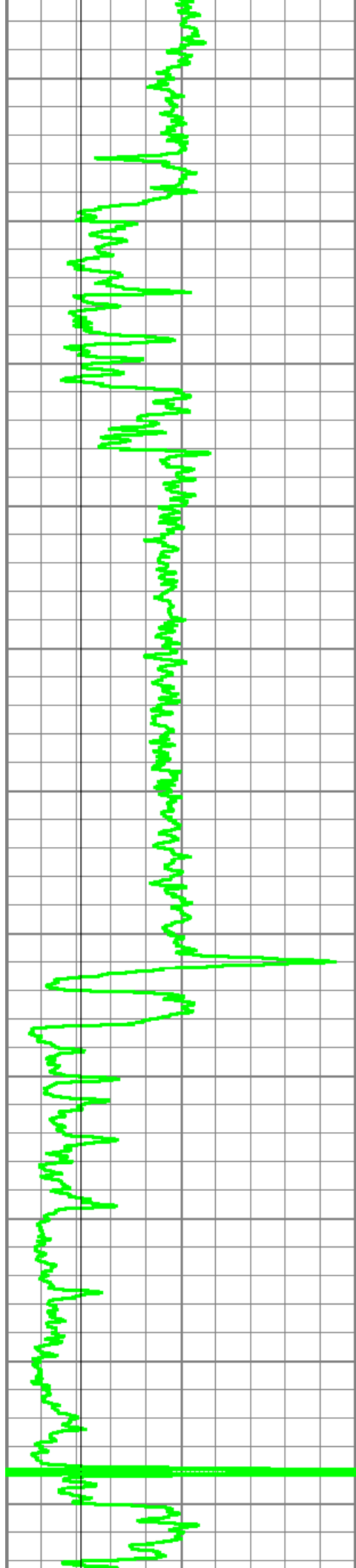
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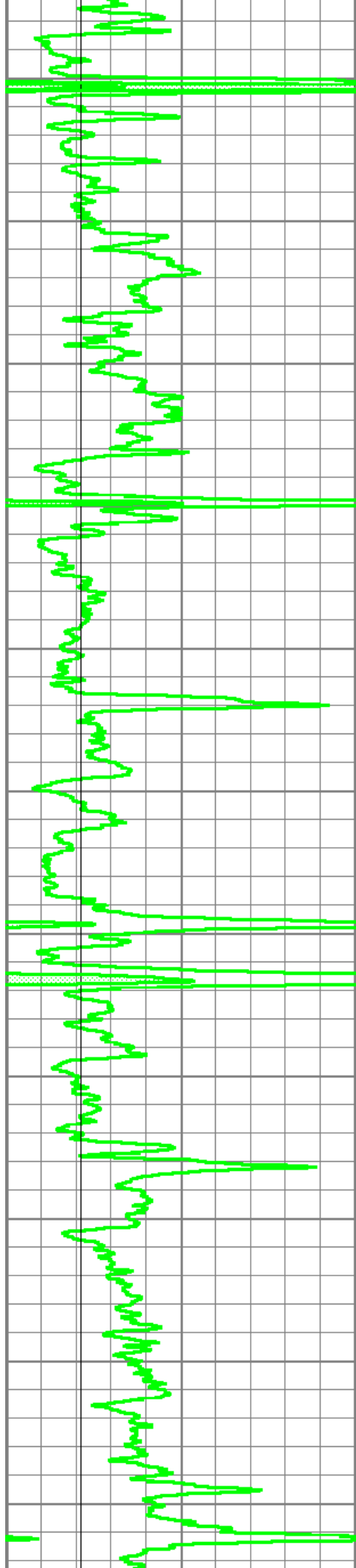
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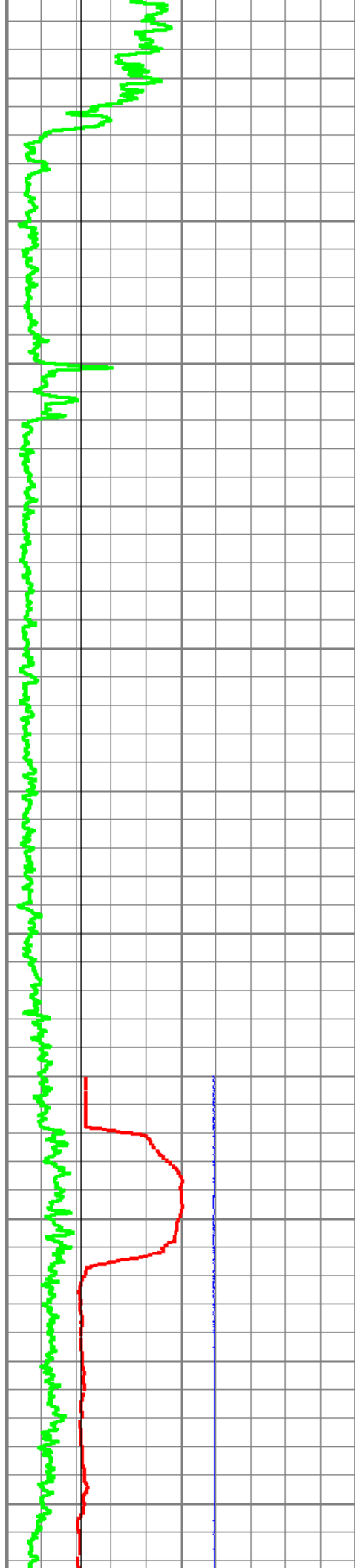
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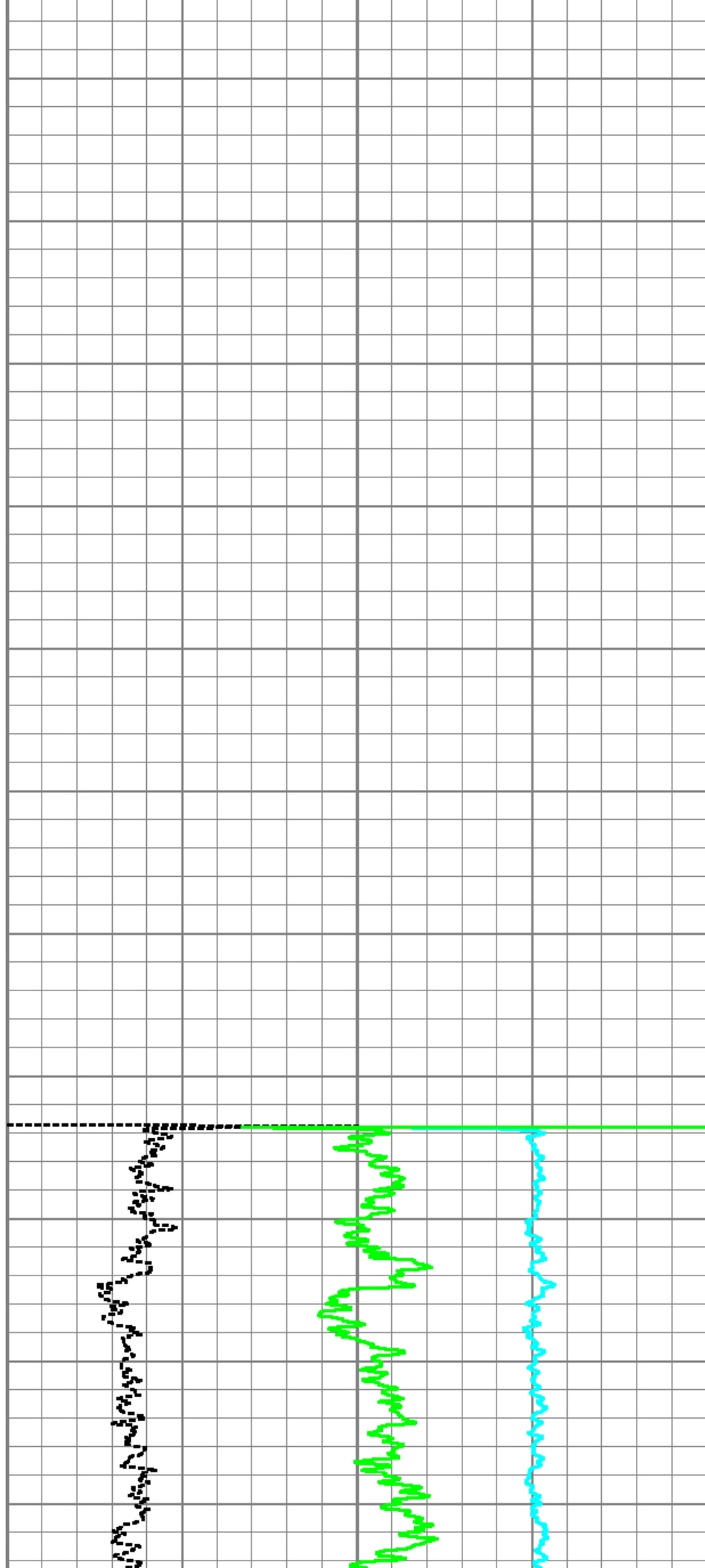
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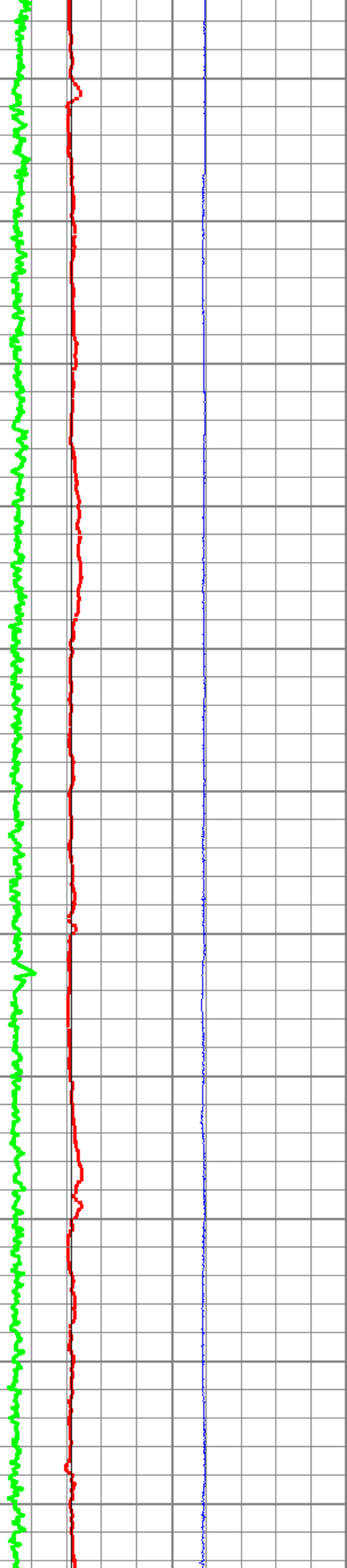
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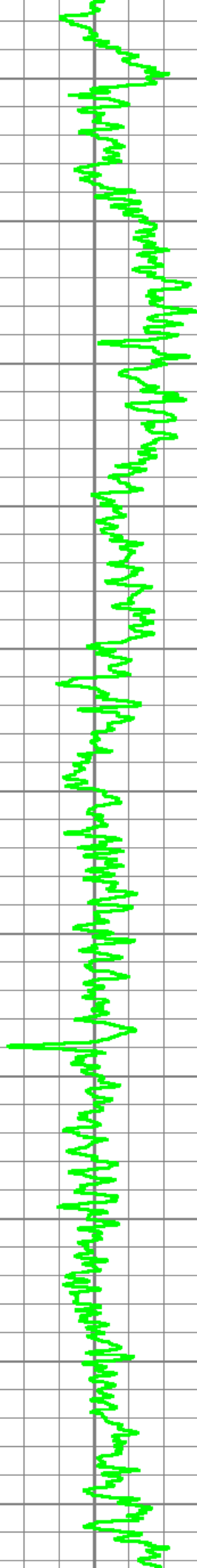
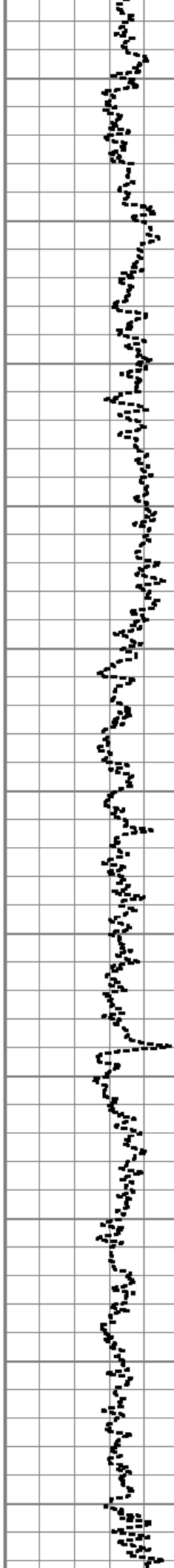
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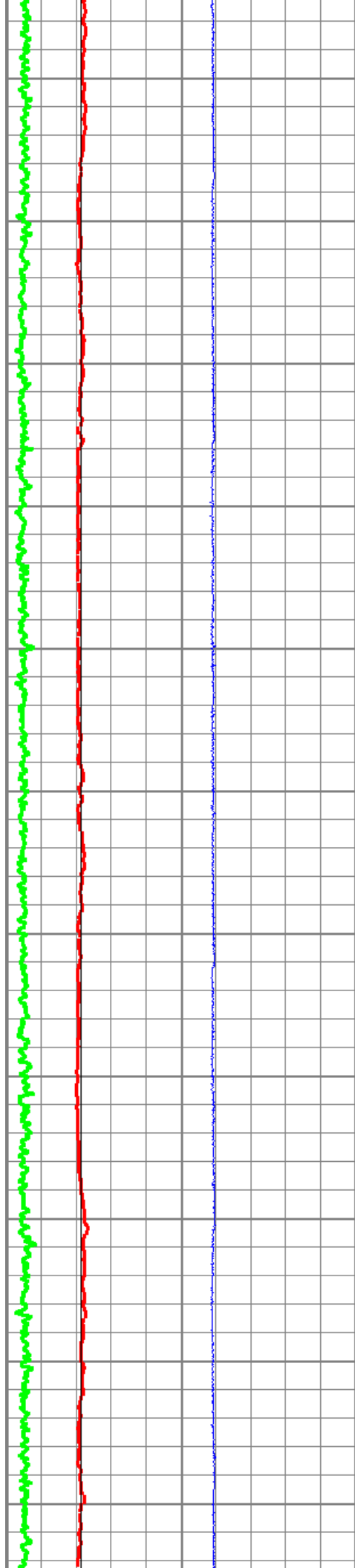
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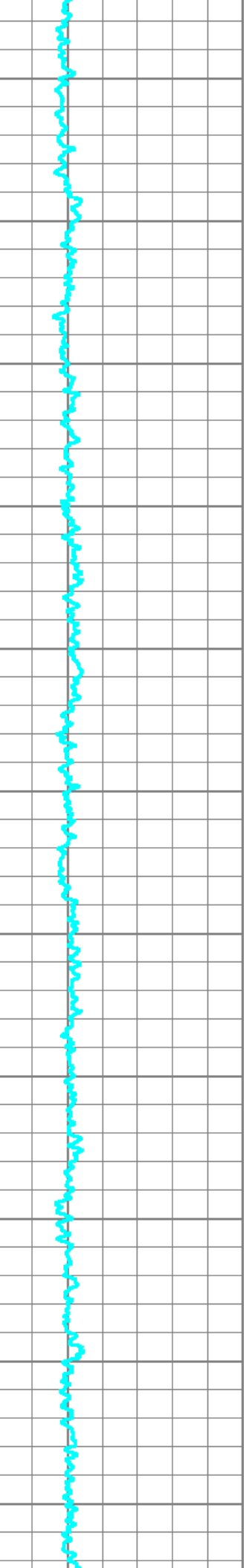
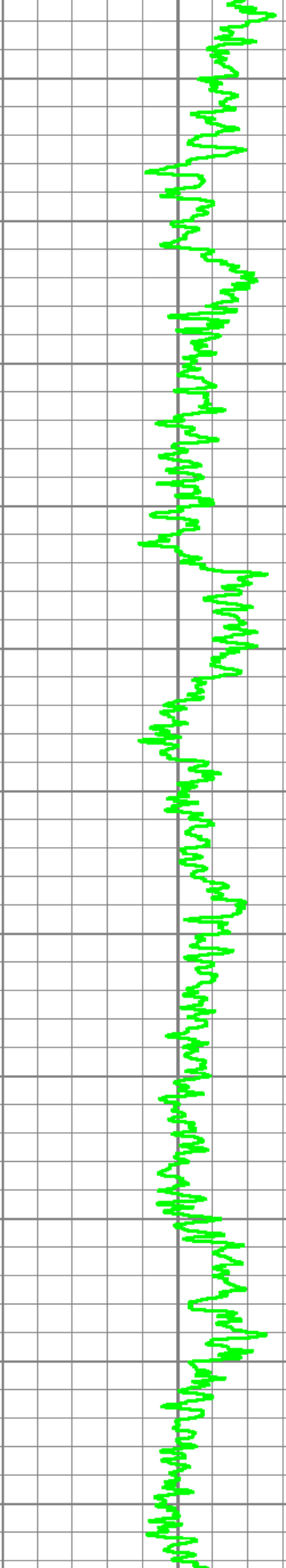
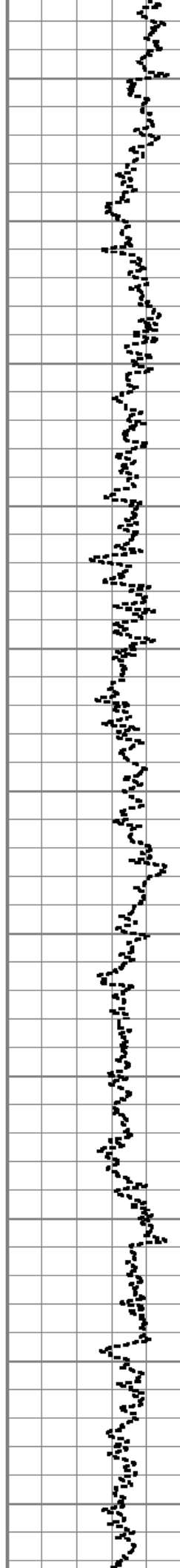
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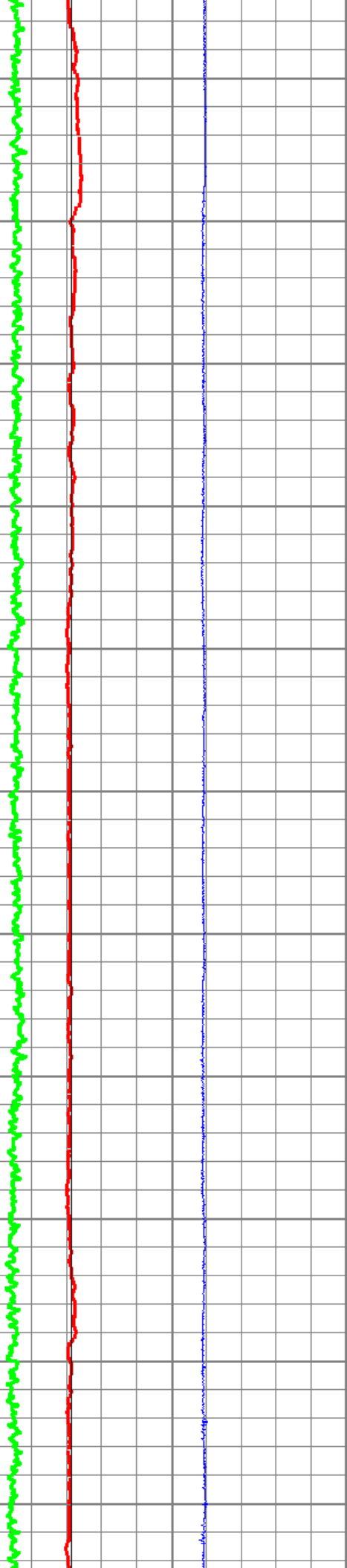
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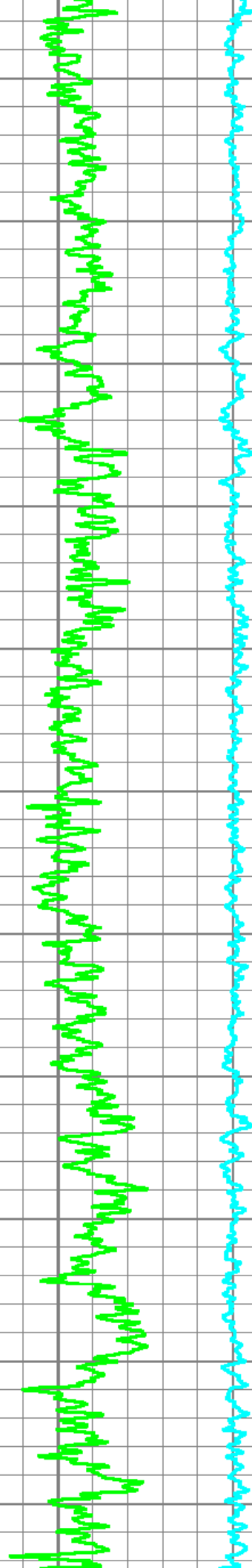
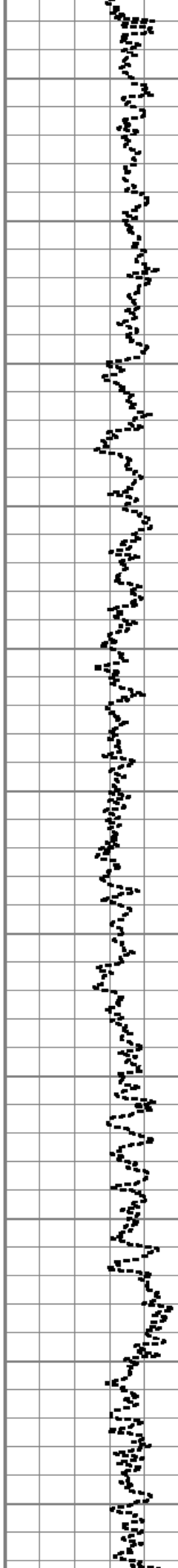
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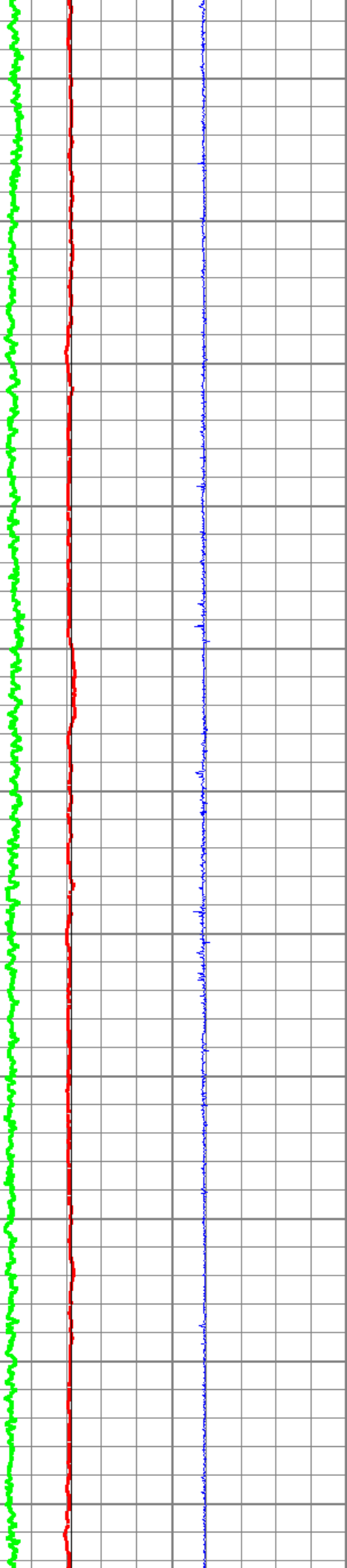
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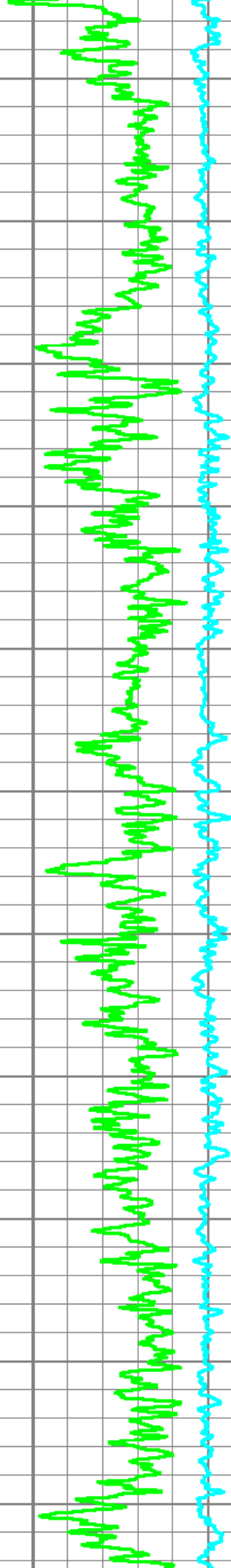
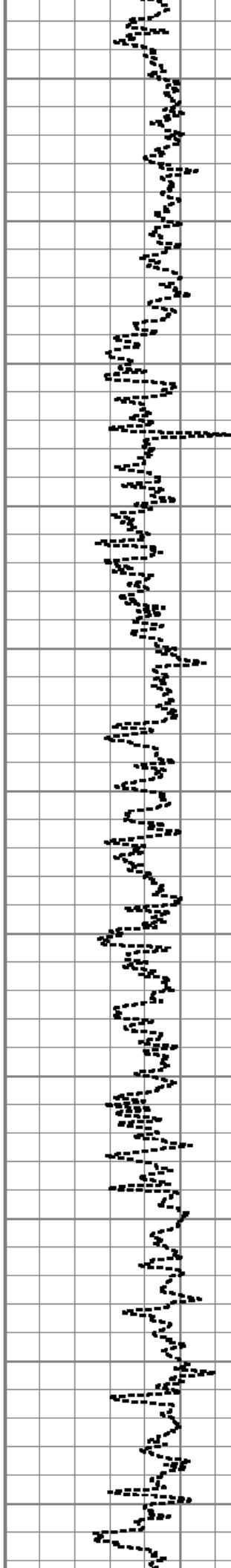
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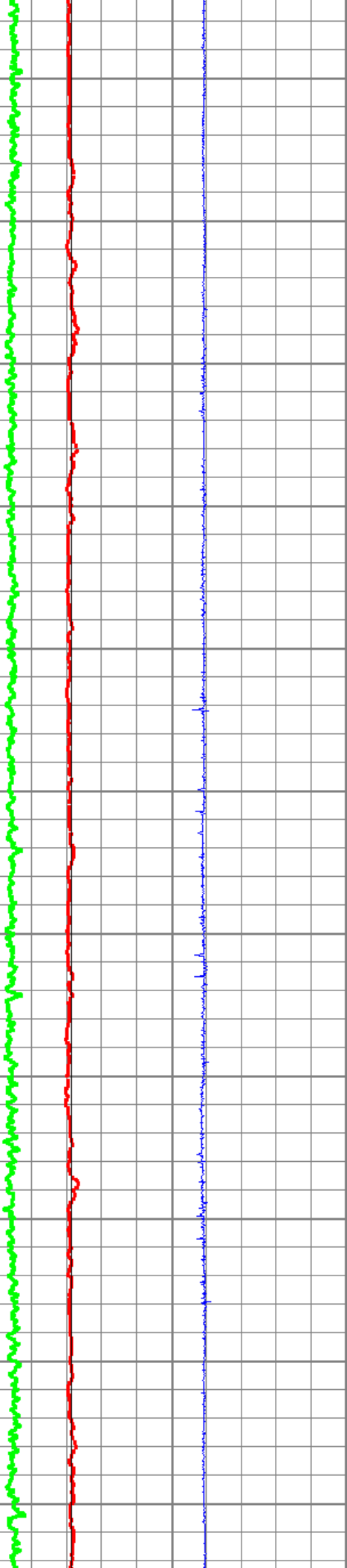
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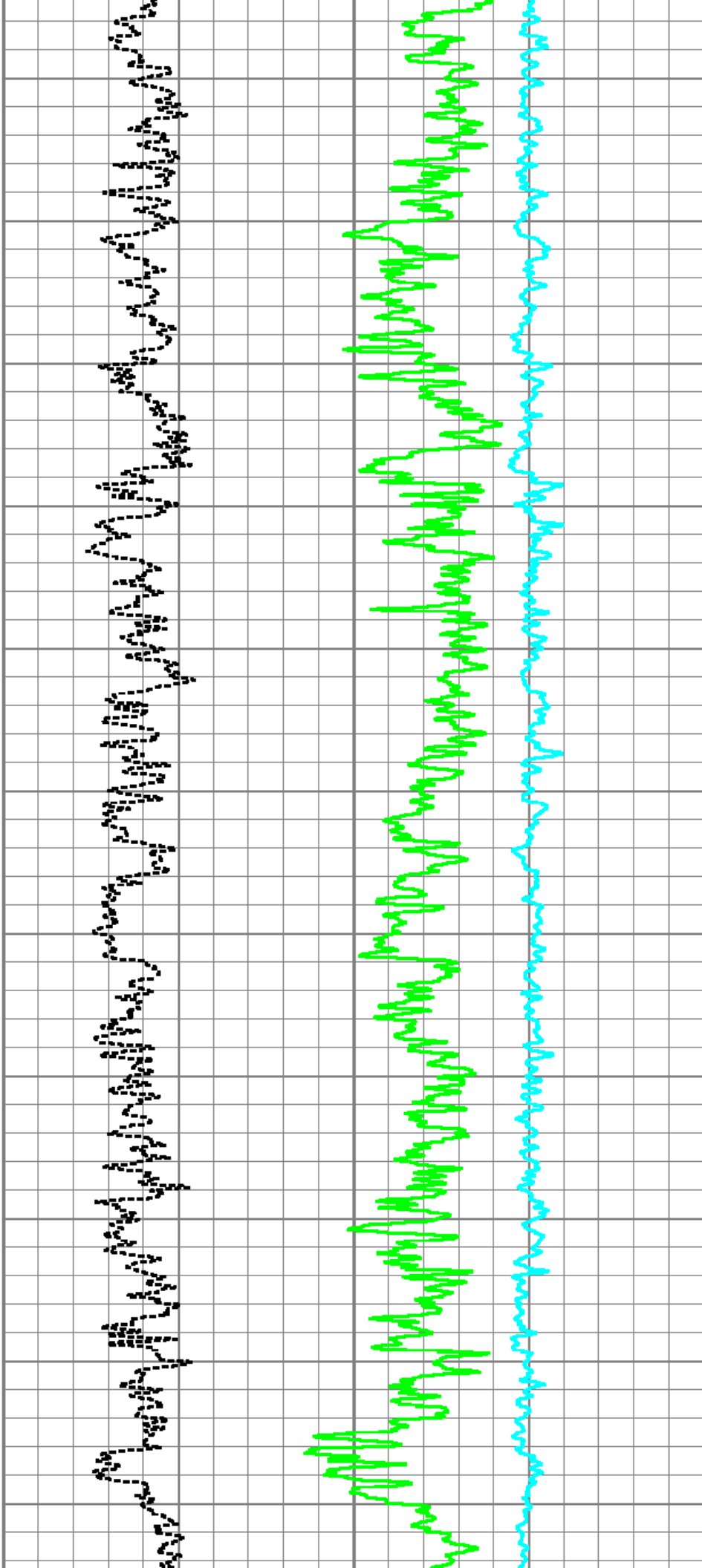
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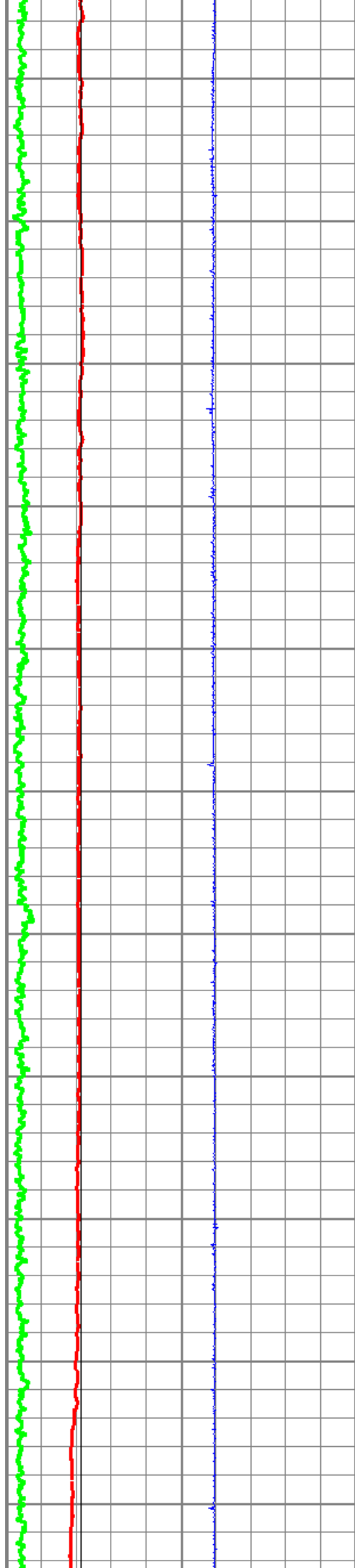
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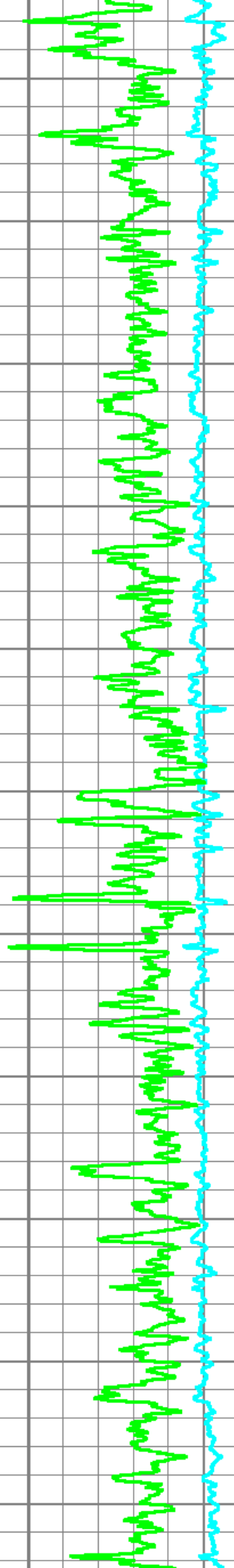
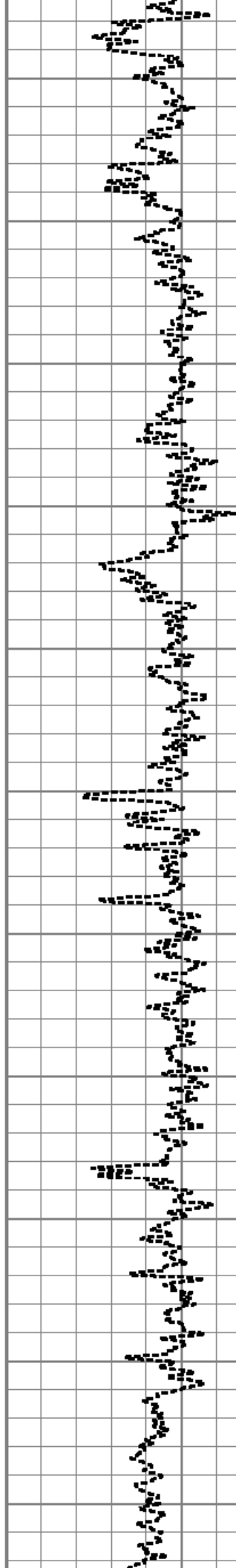
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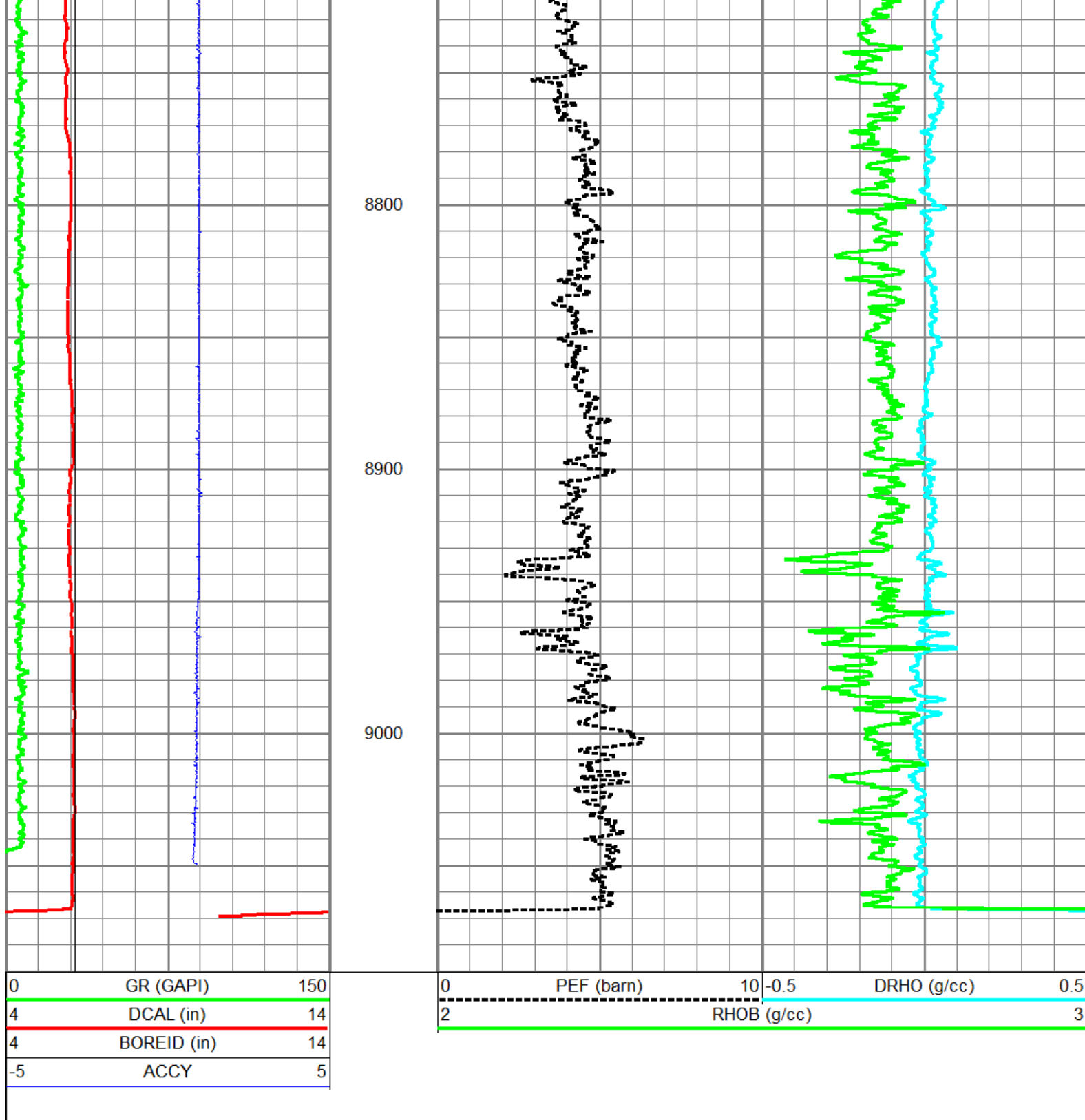
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MAIN PASS

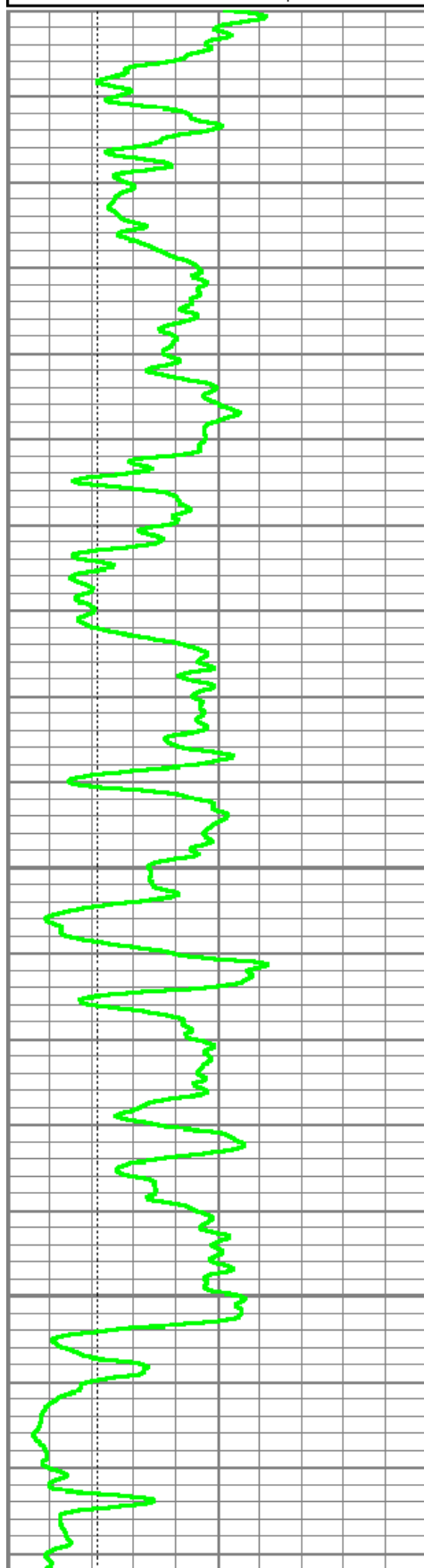


MAIN PASS

Dataset Pathname: proc1/merge2
Presentation Format: sand5n
Dataset Creation: Sun Dec 16 23:49:58 2012
Charted by: Depth in Feet scaled 1:240

4	DCAL (in)	14
4	BOREID (in)	14
0	GR (GAPI)	150
-5	ACCY	5
TBHV (ft3)		

30	CNPOR (pu)		-10
30	DPHI (pu)		-10
0	PEF (barn)	10	-0.5
ABHV (ft3)	DRHO (g/cc)		0.5

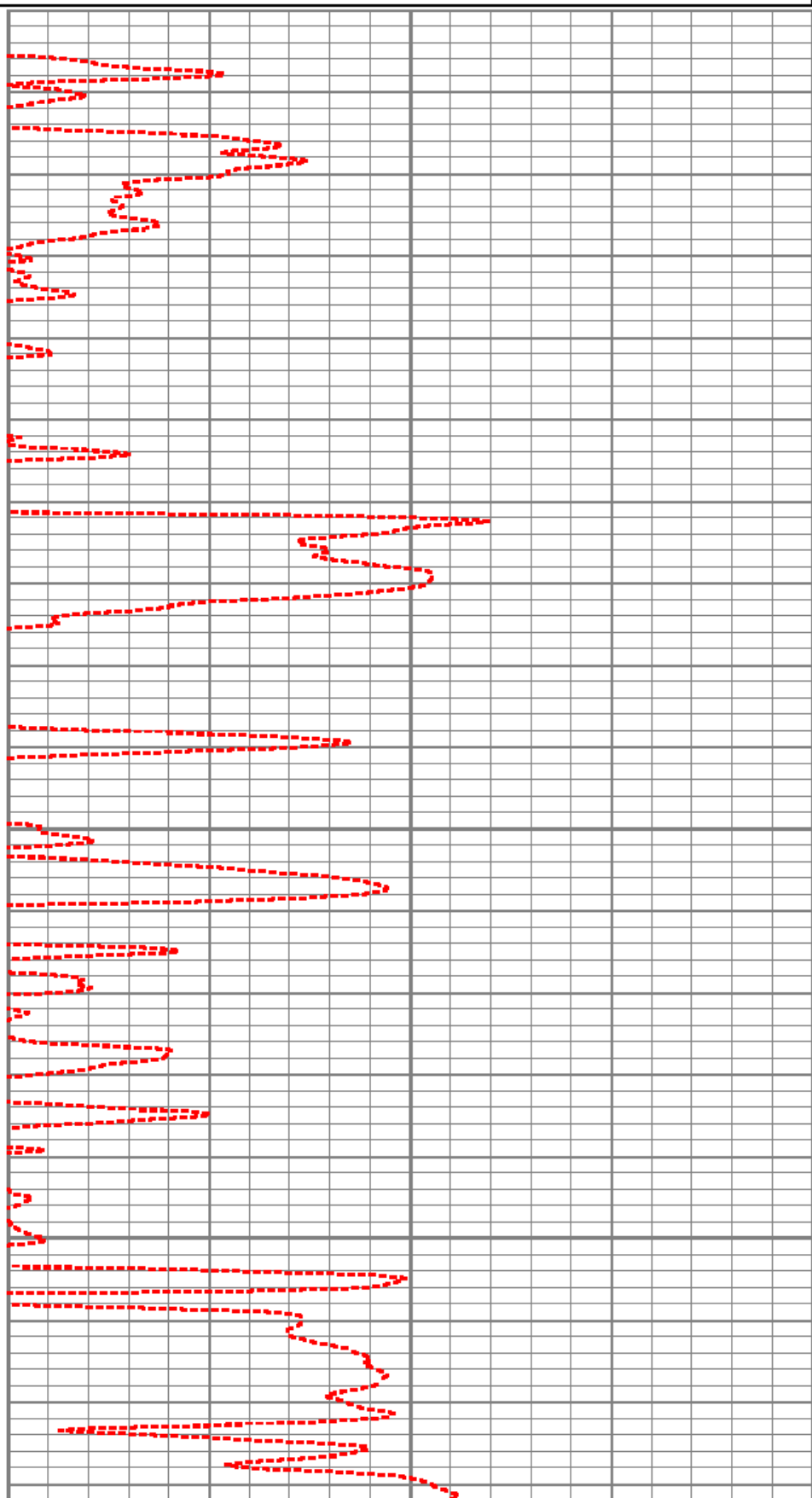


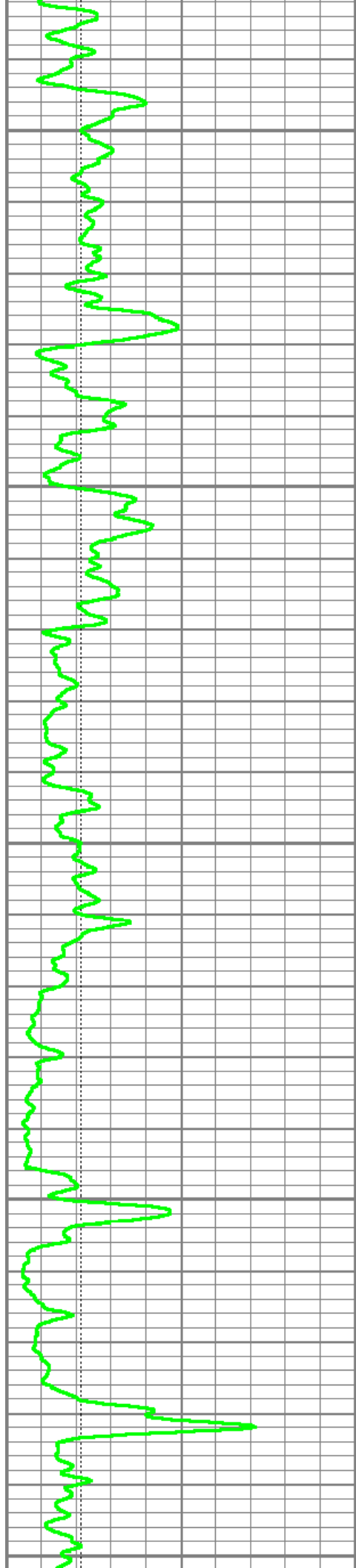
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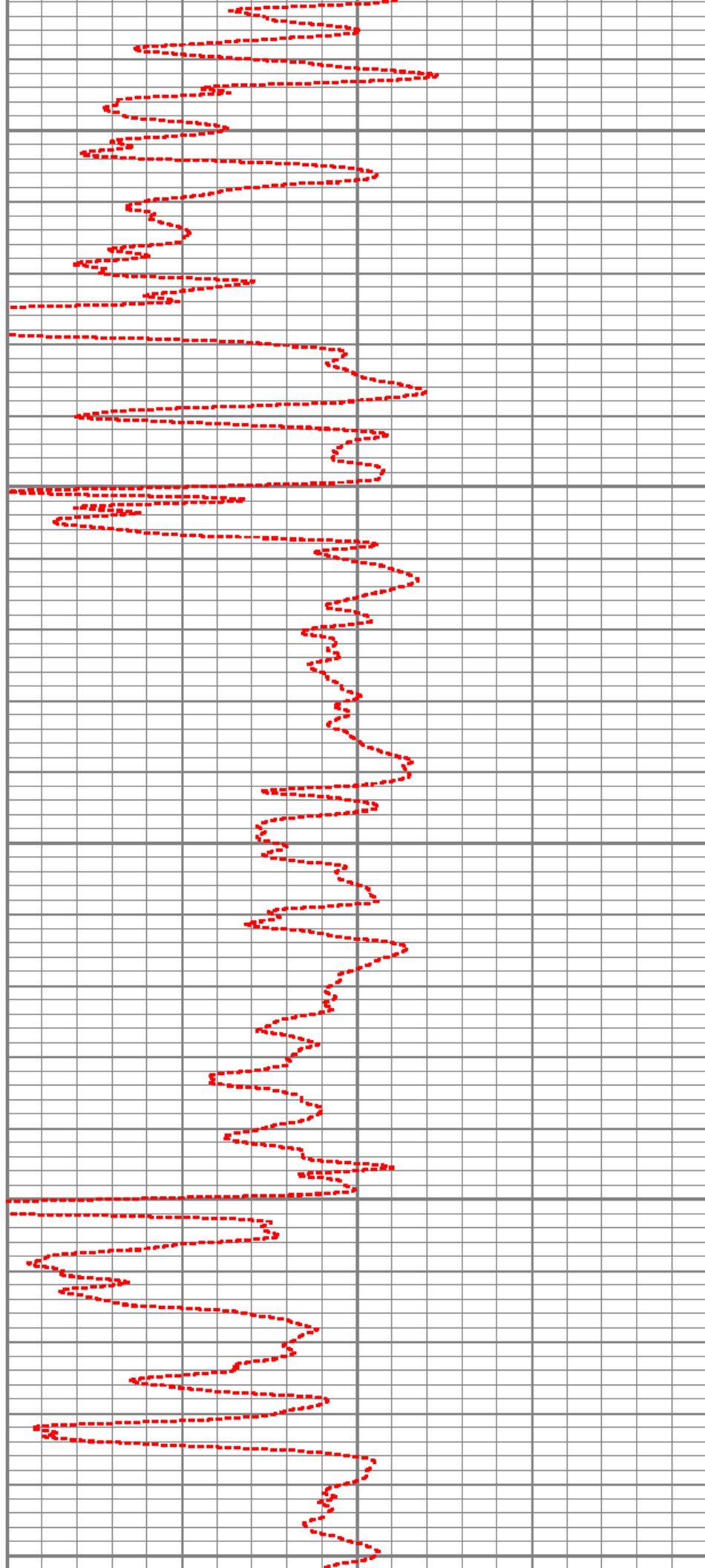
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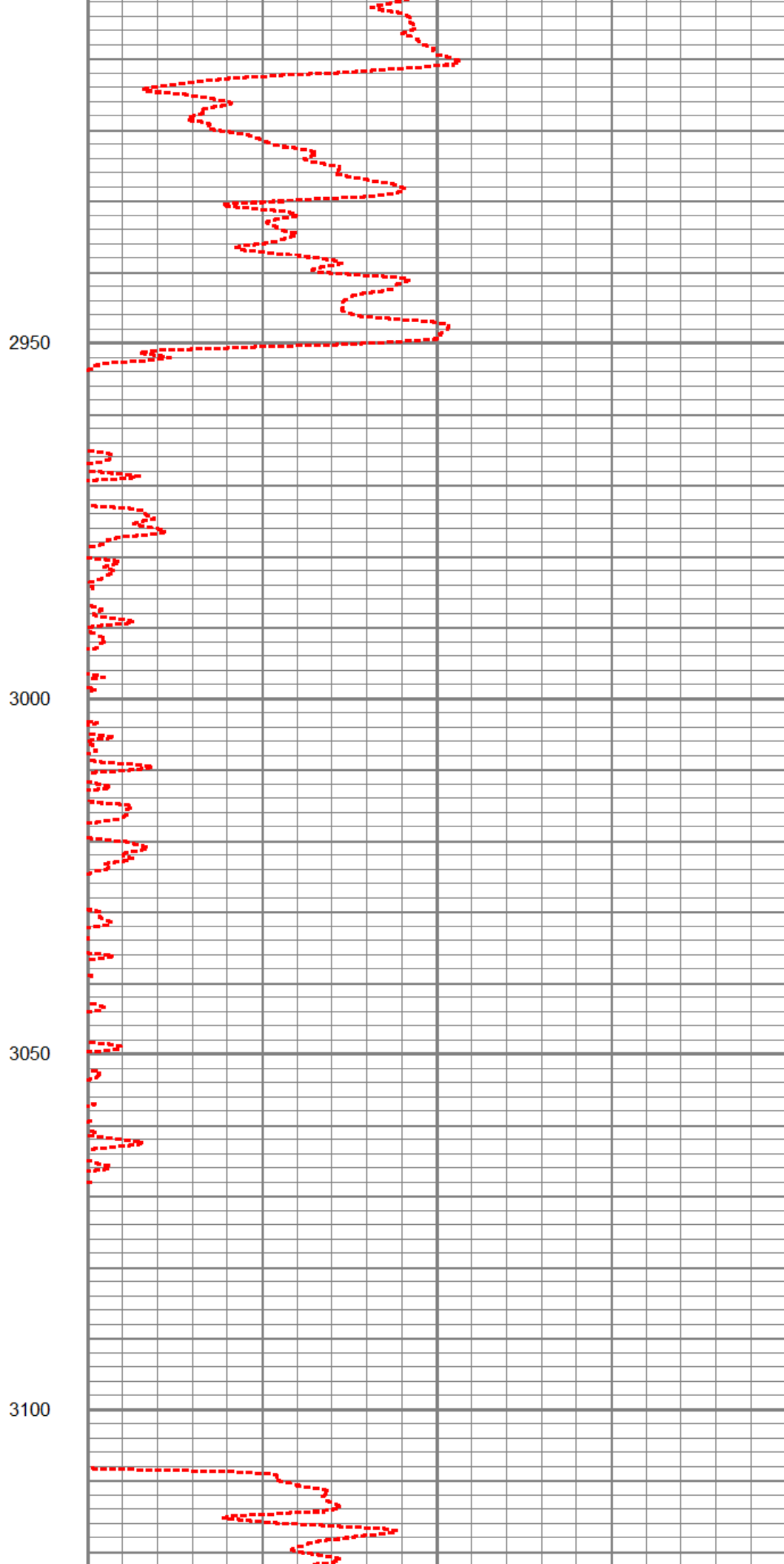
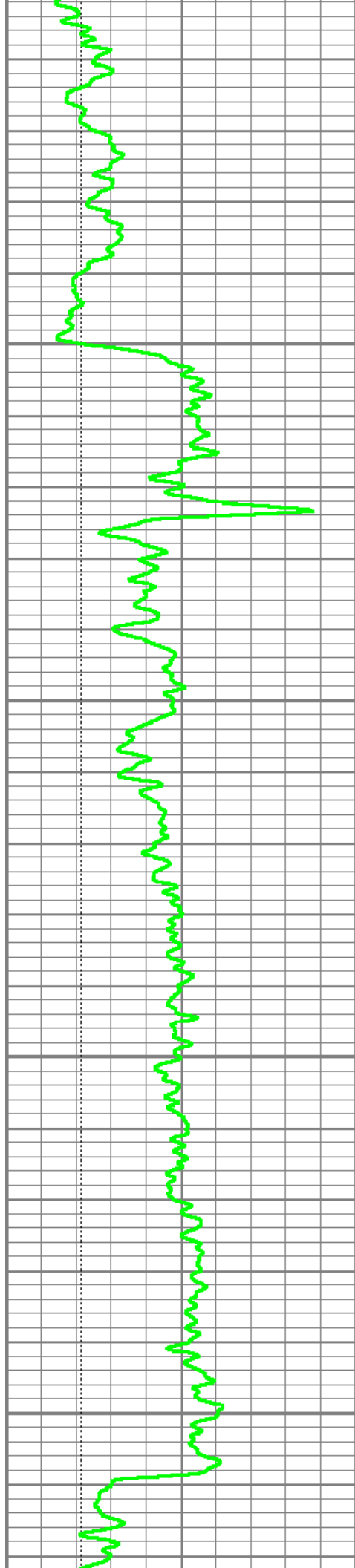
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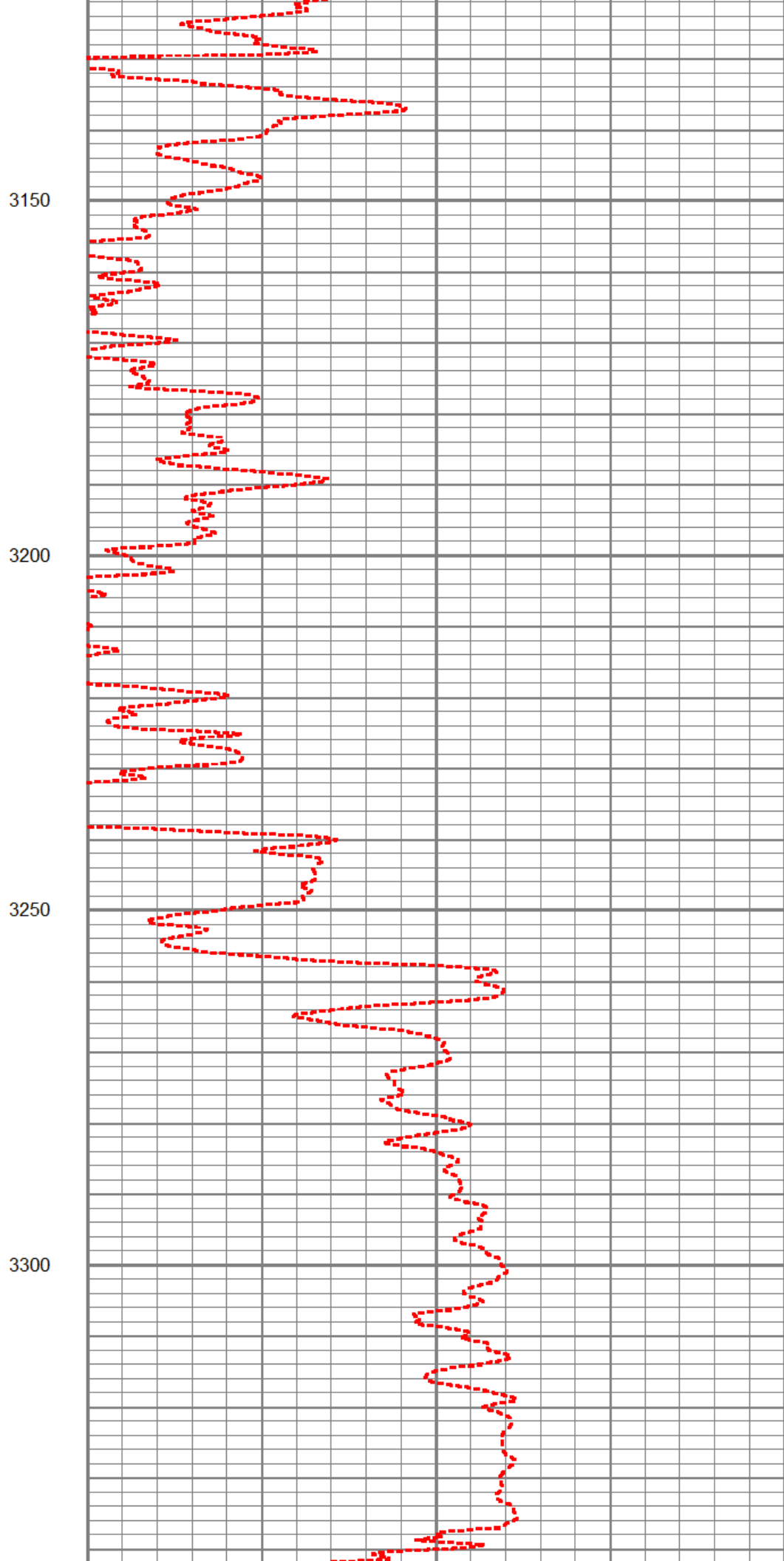
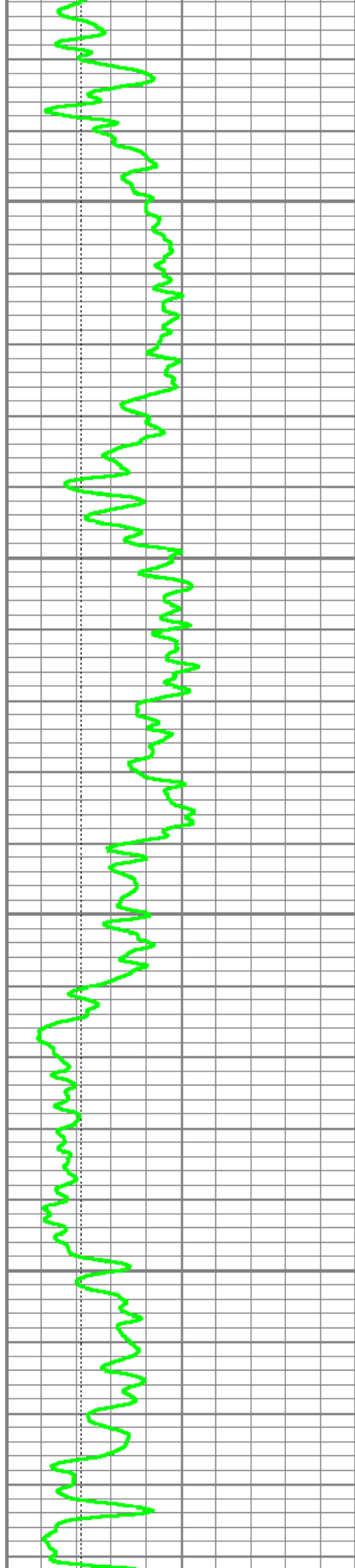
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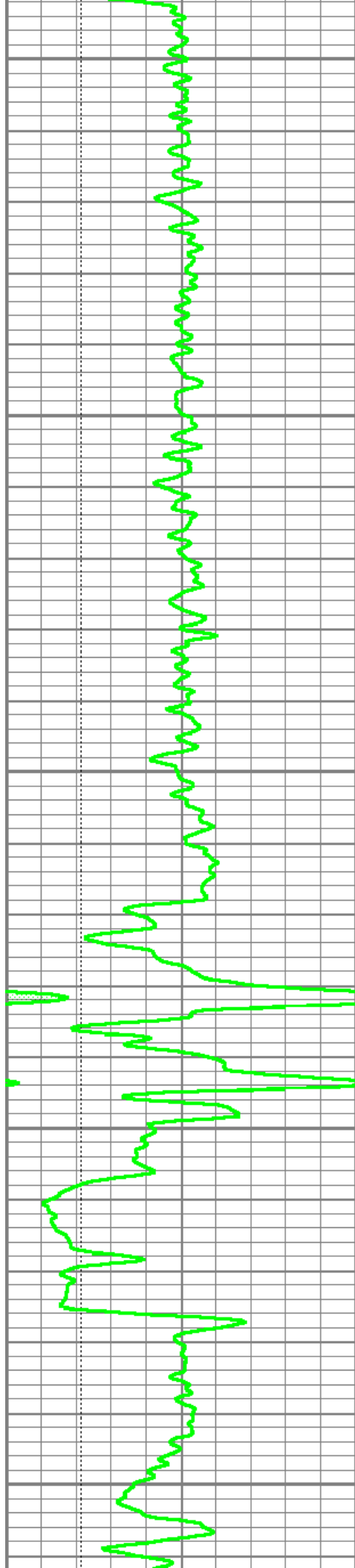
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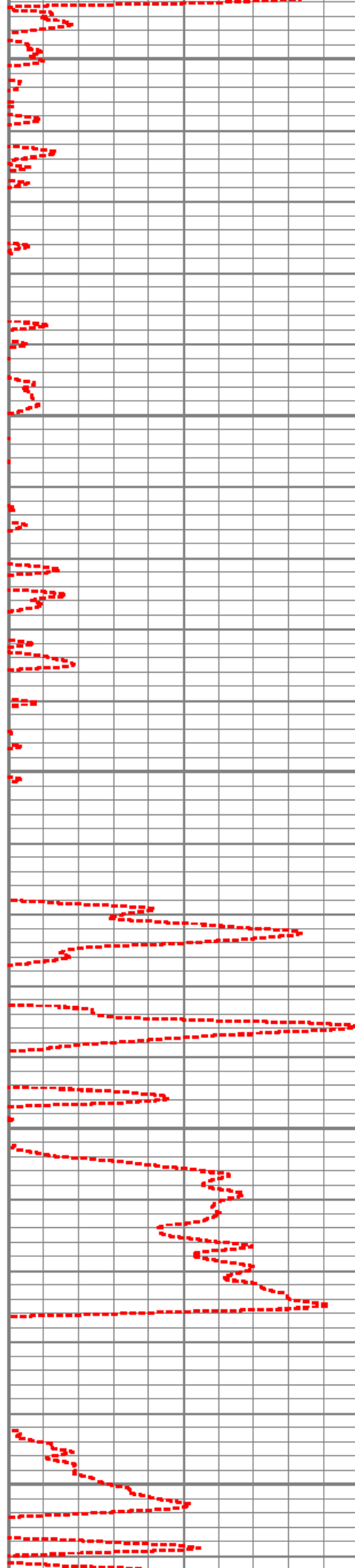
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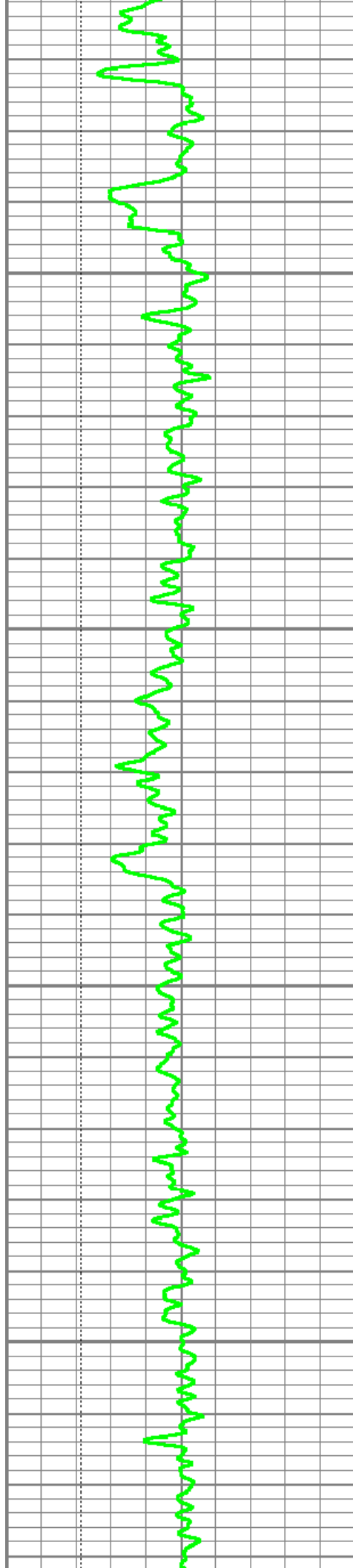
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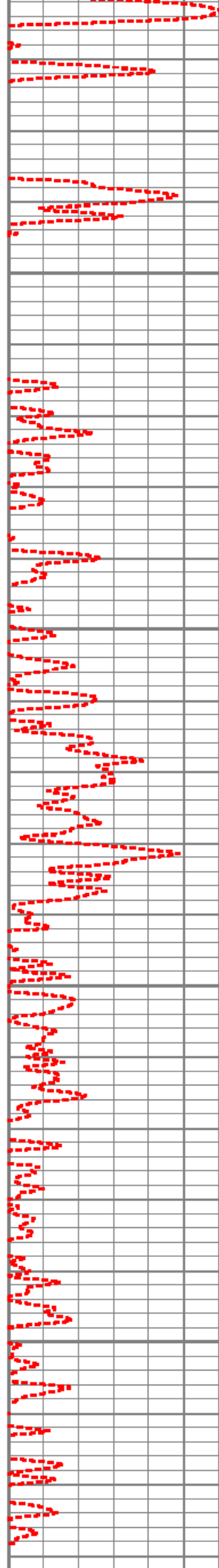


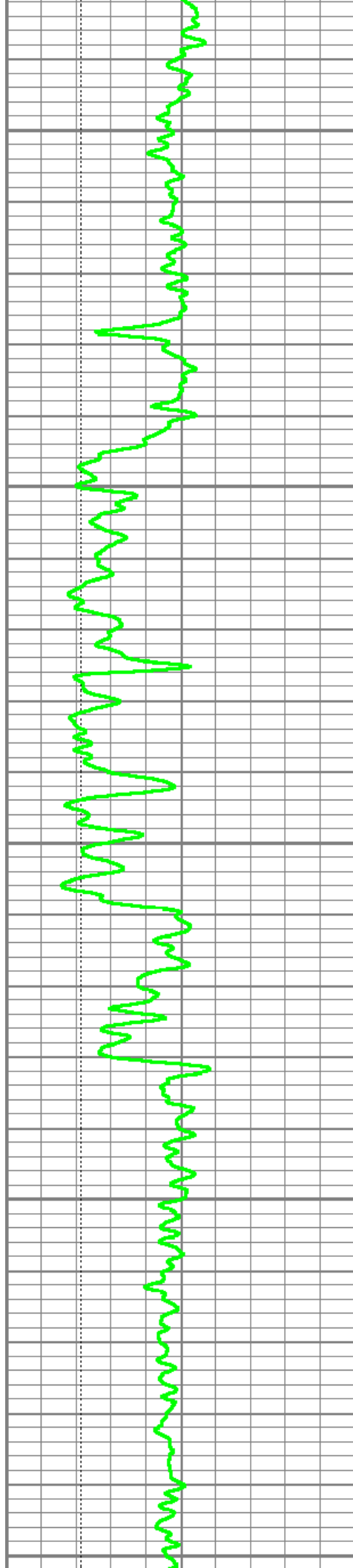
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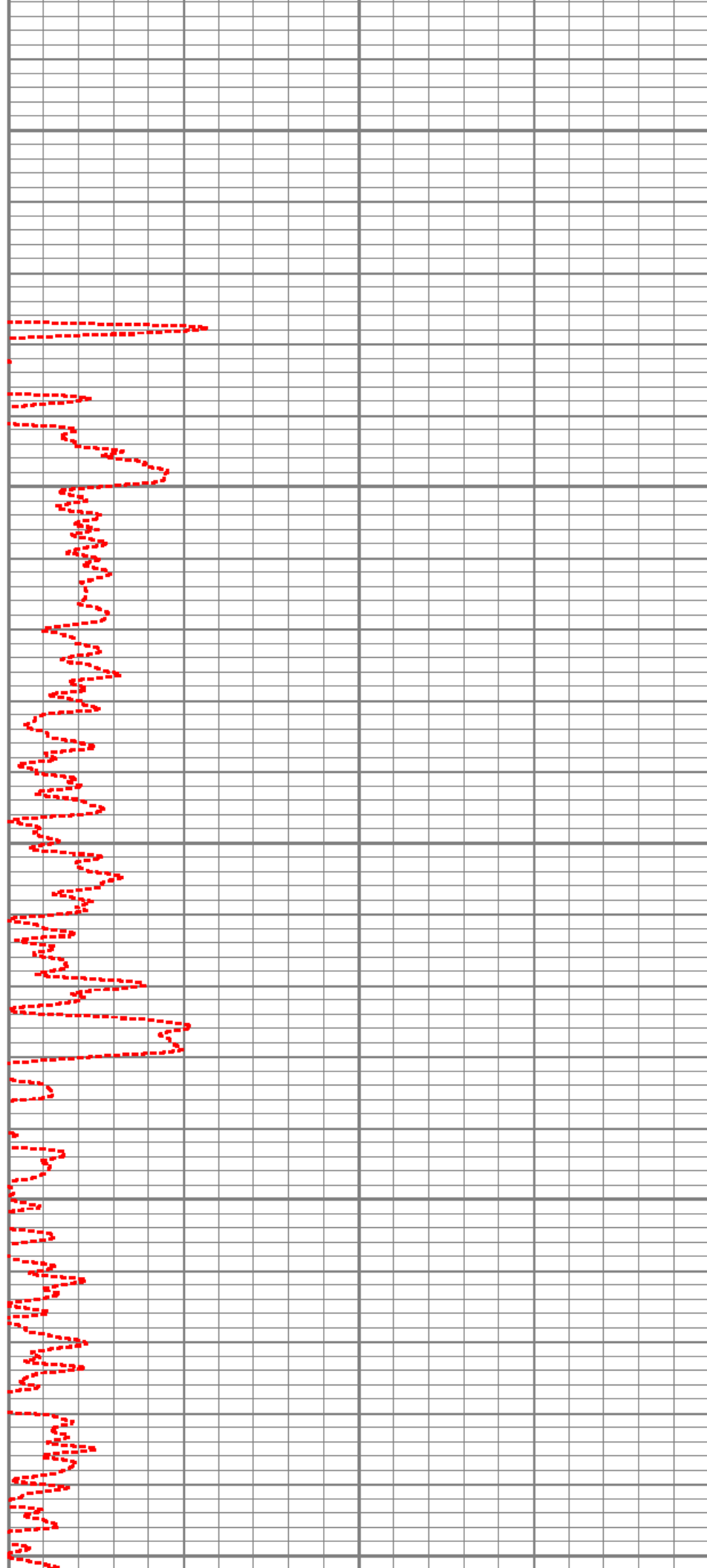
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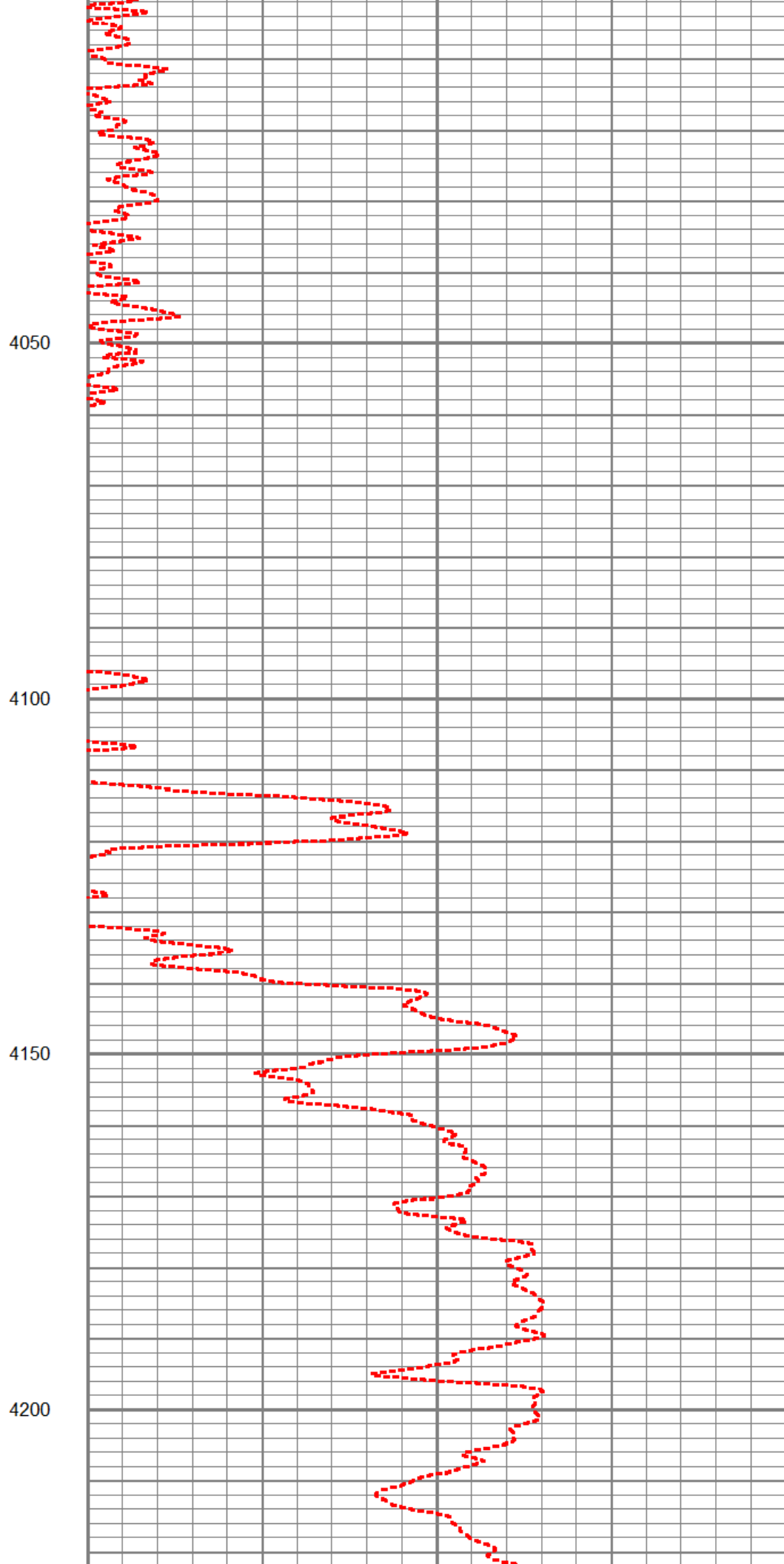
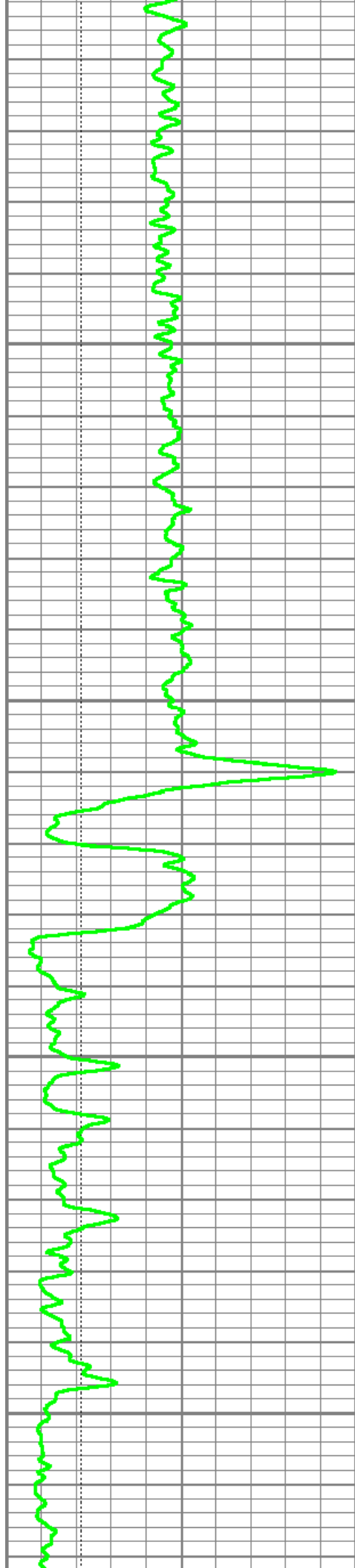
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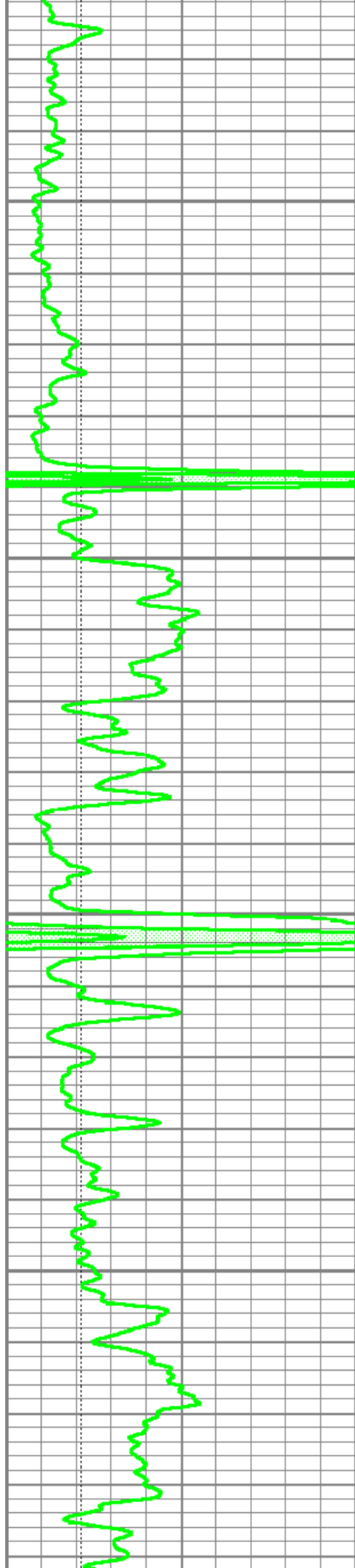
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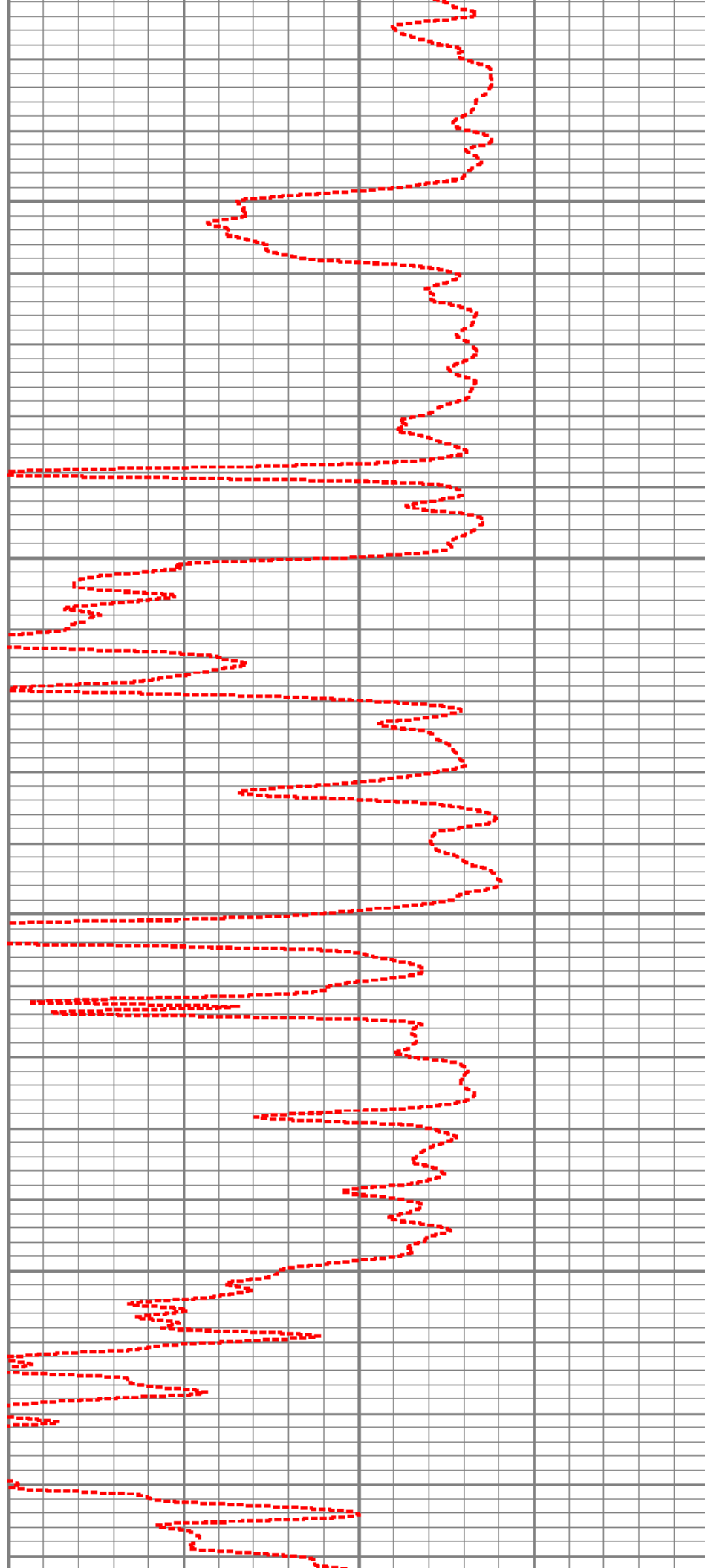


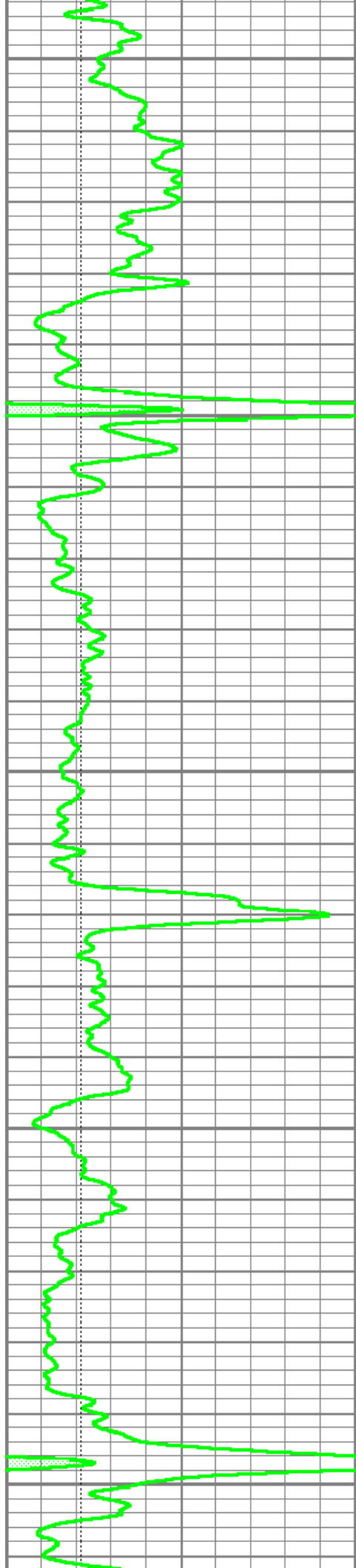
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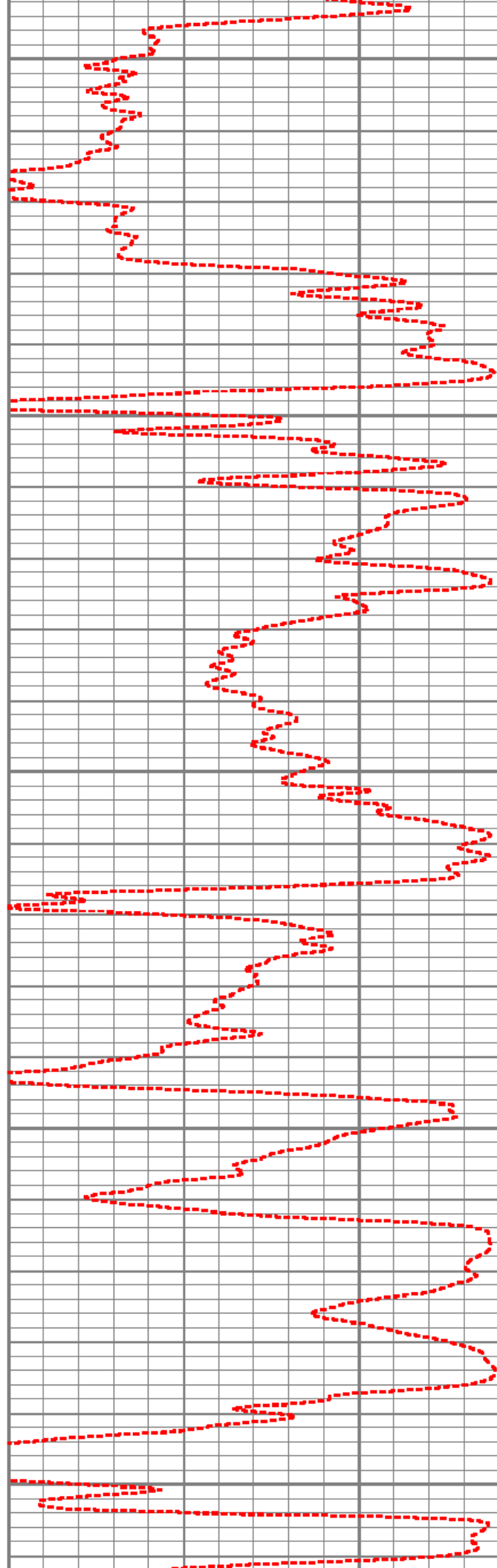
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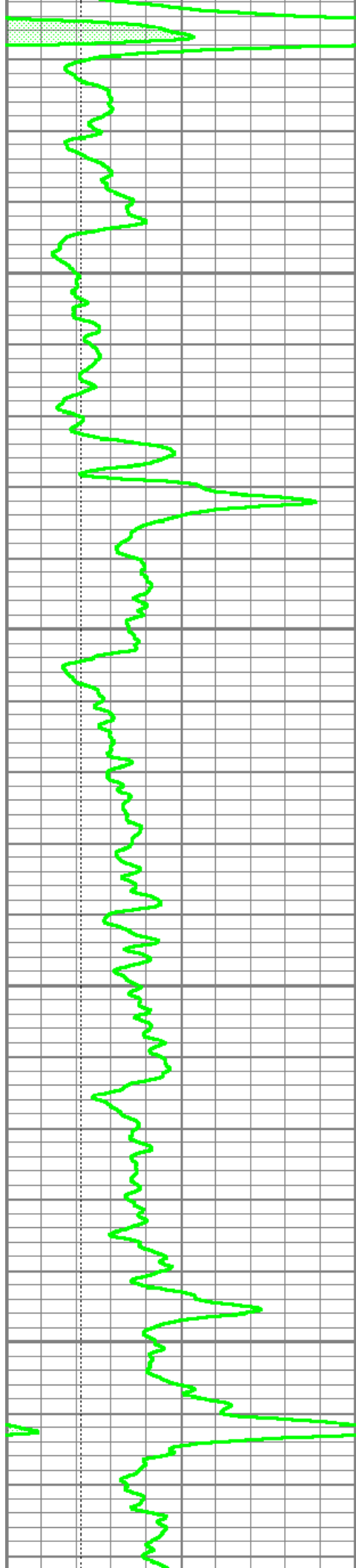
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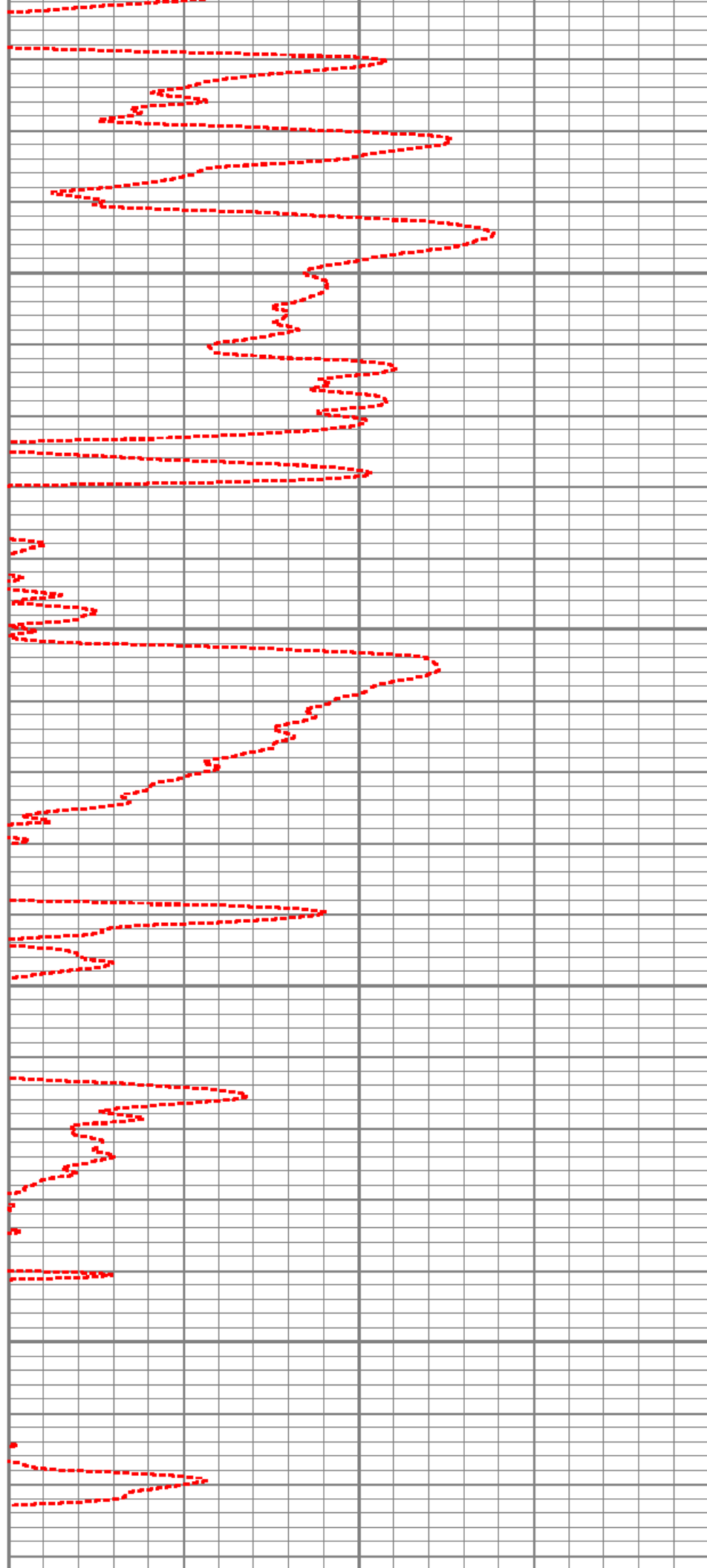


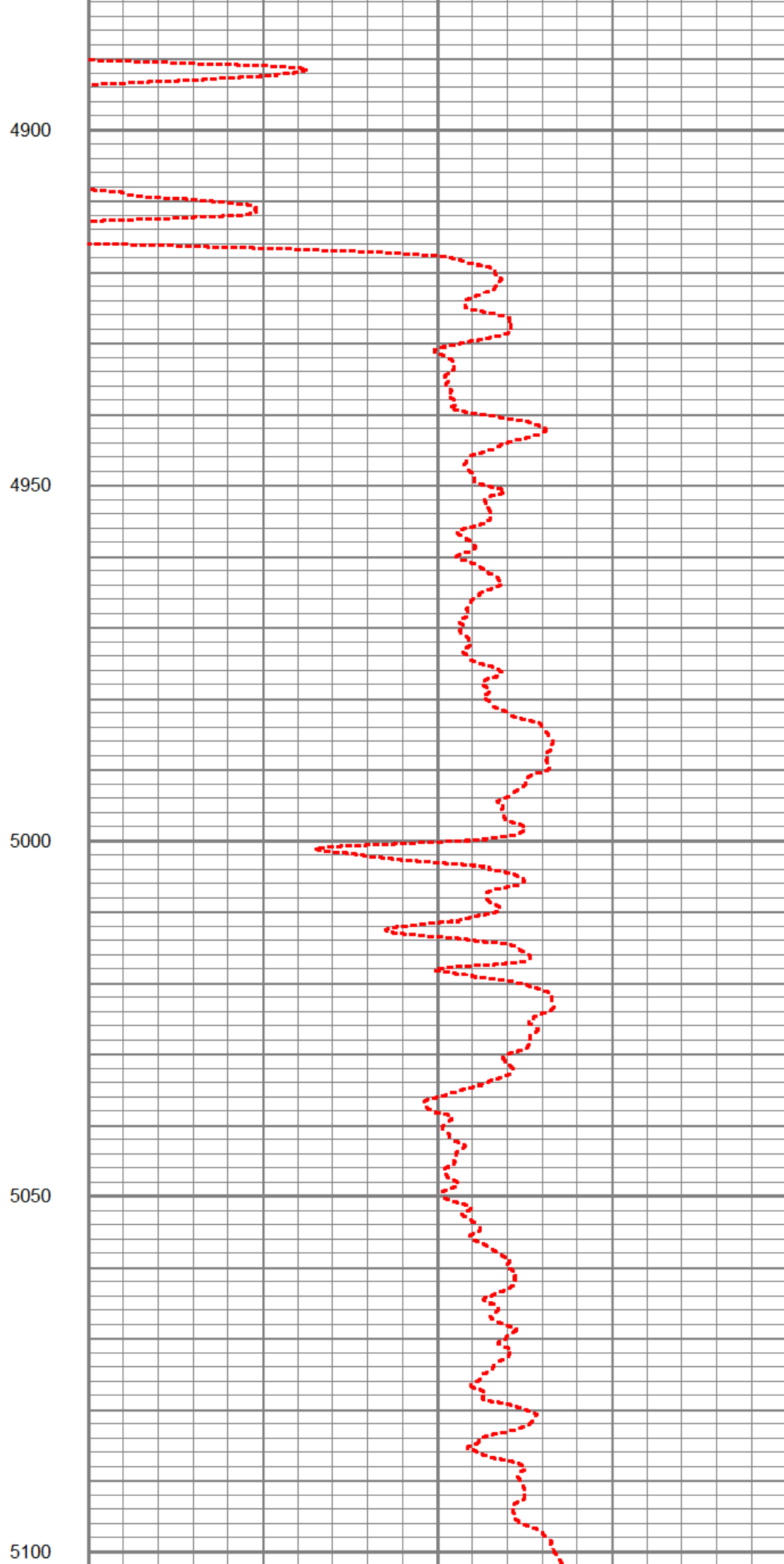
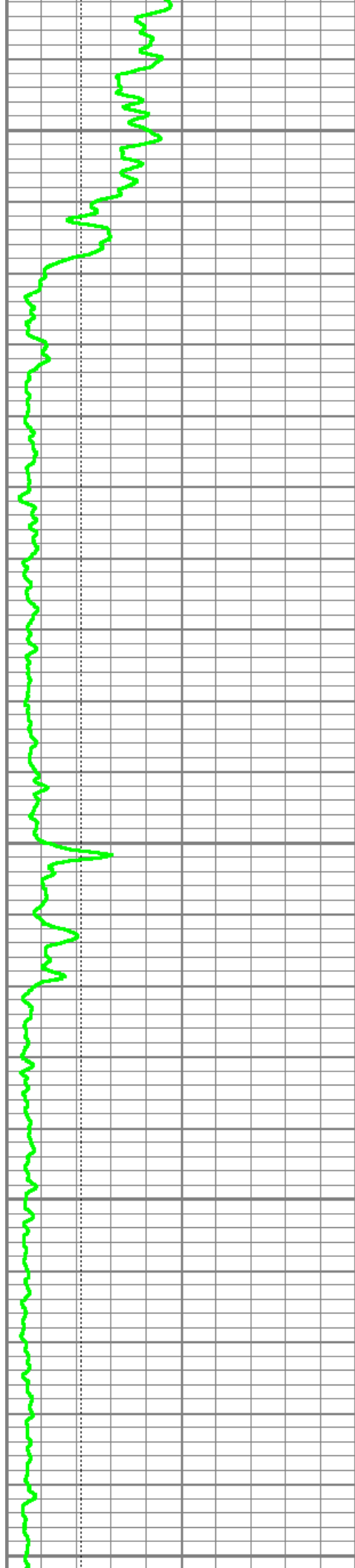
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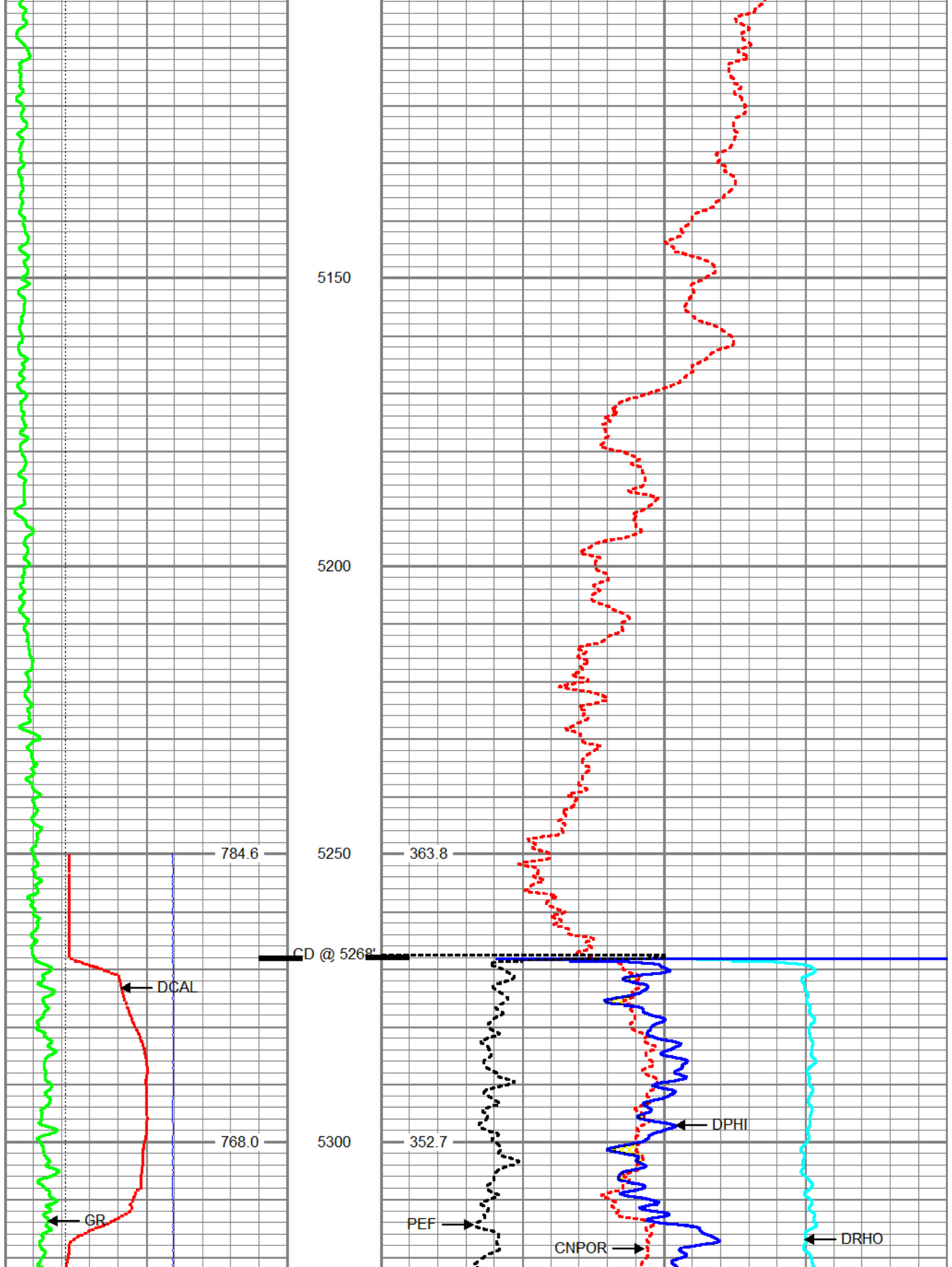
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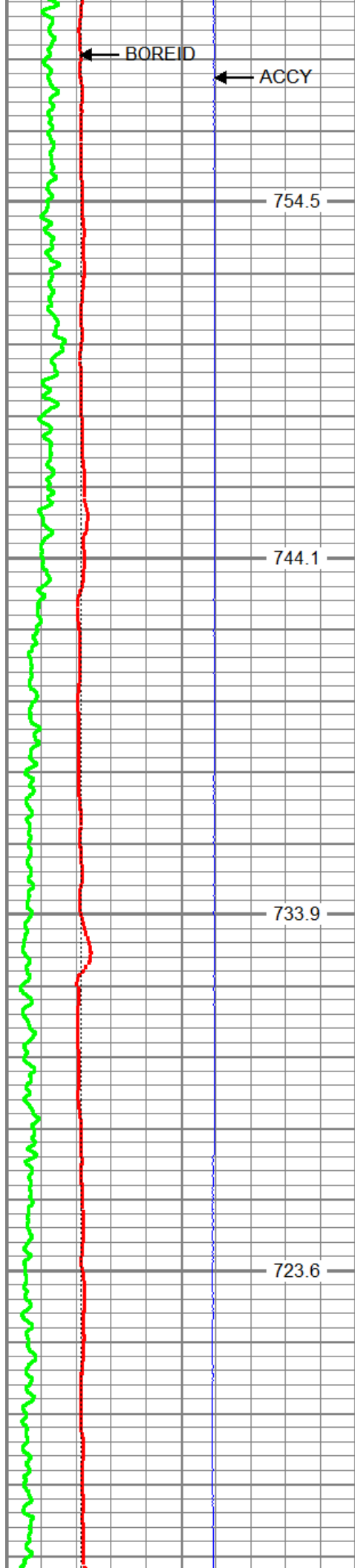
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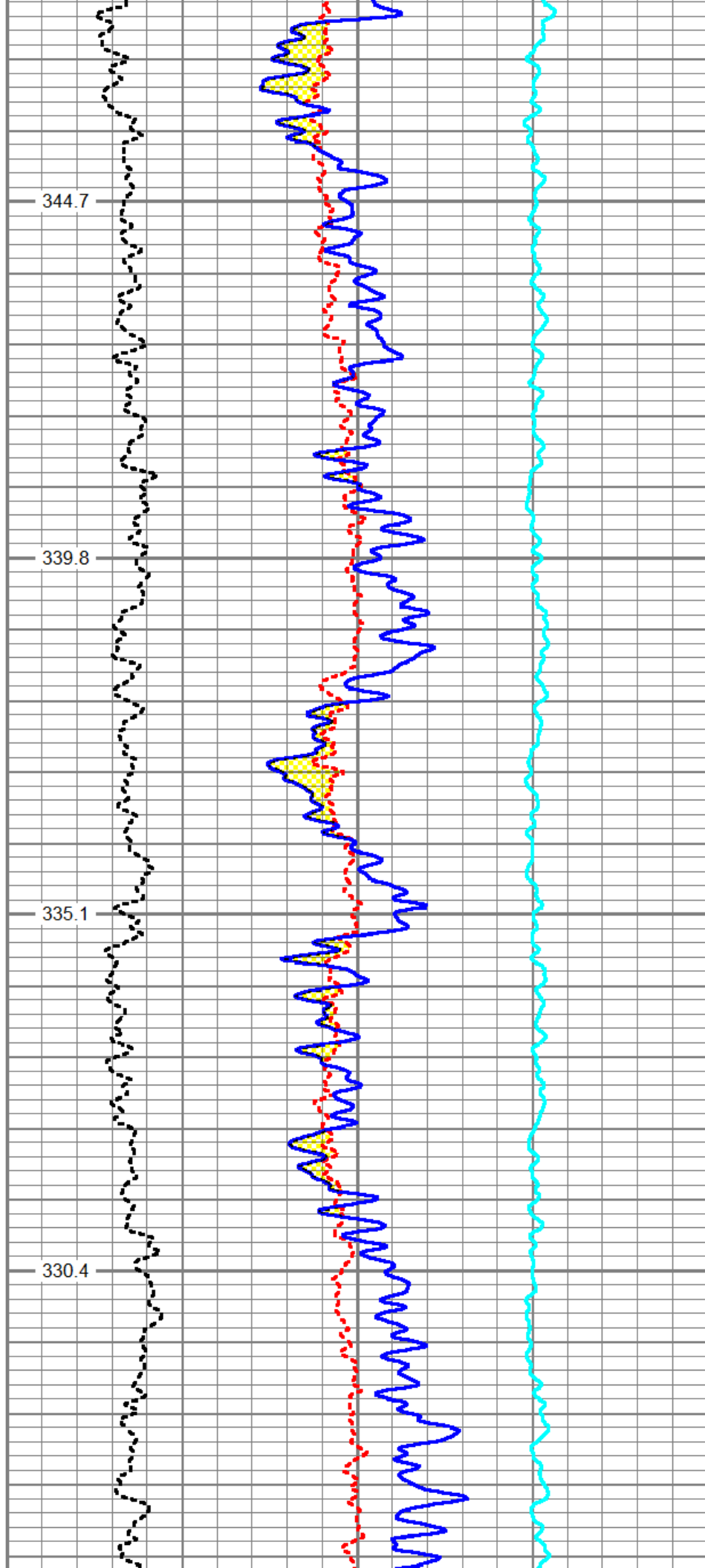


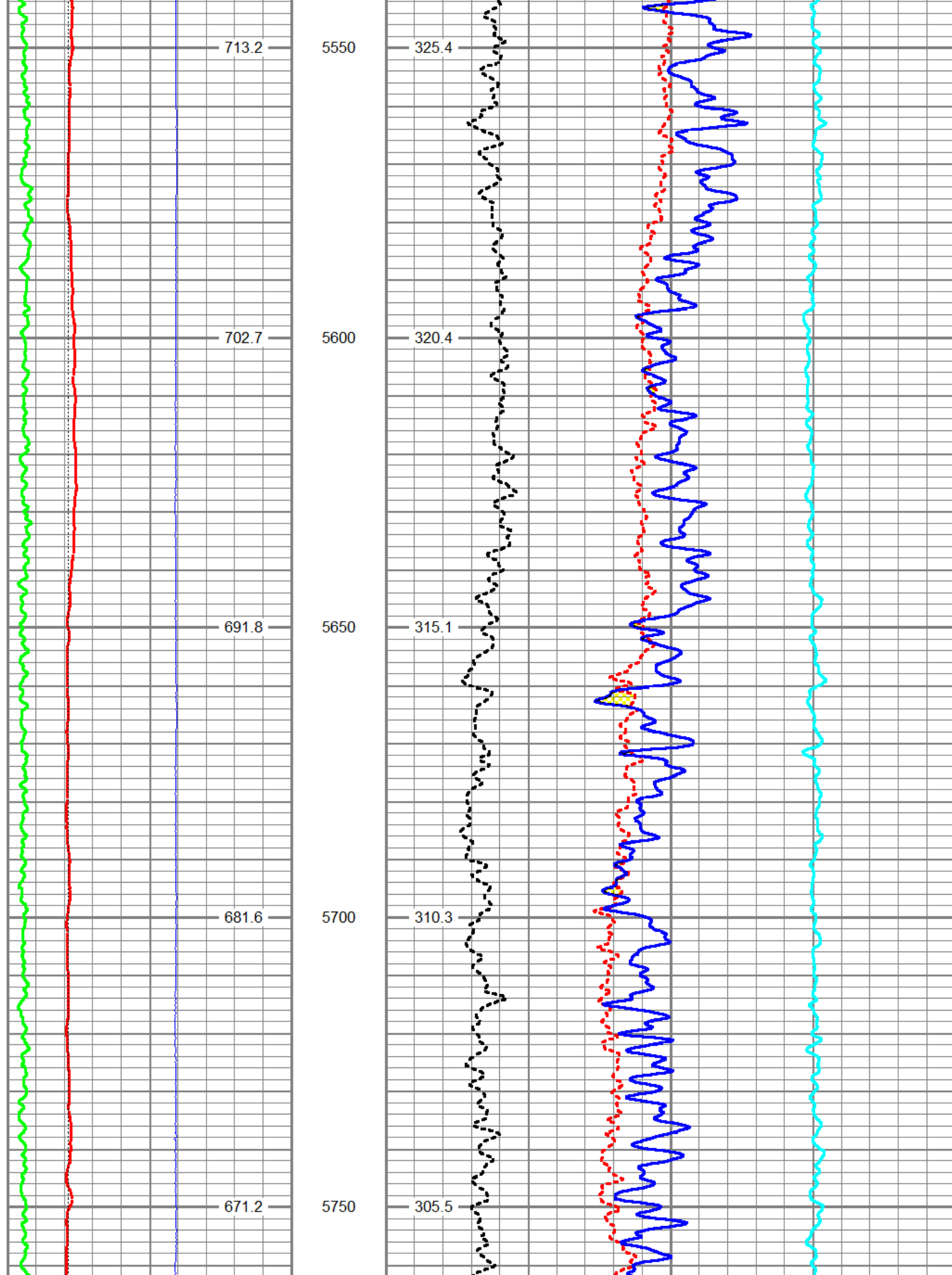
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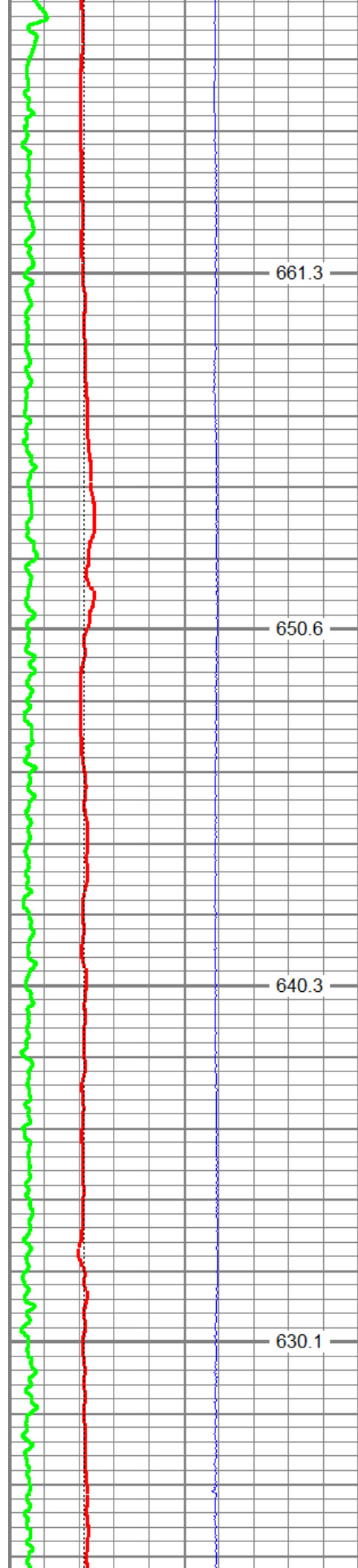
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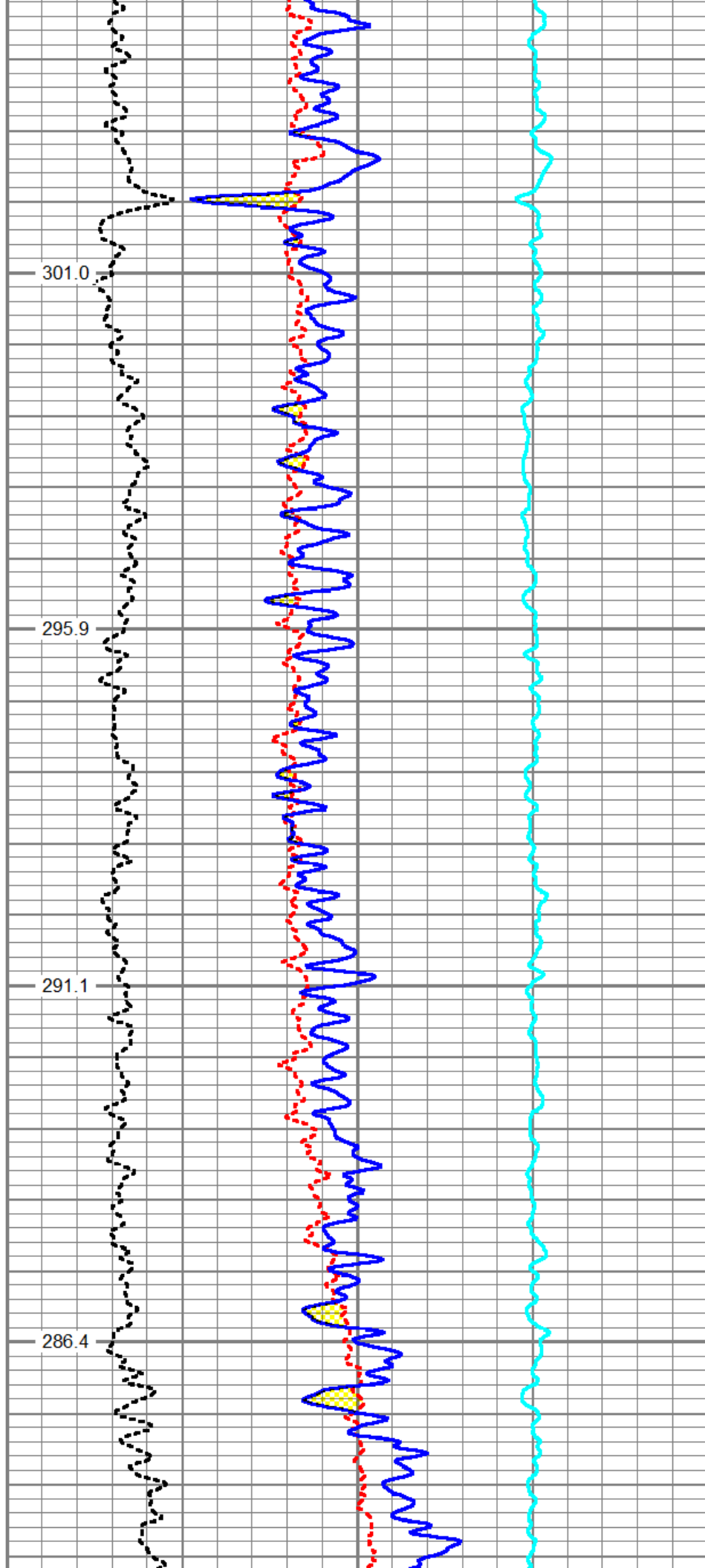


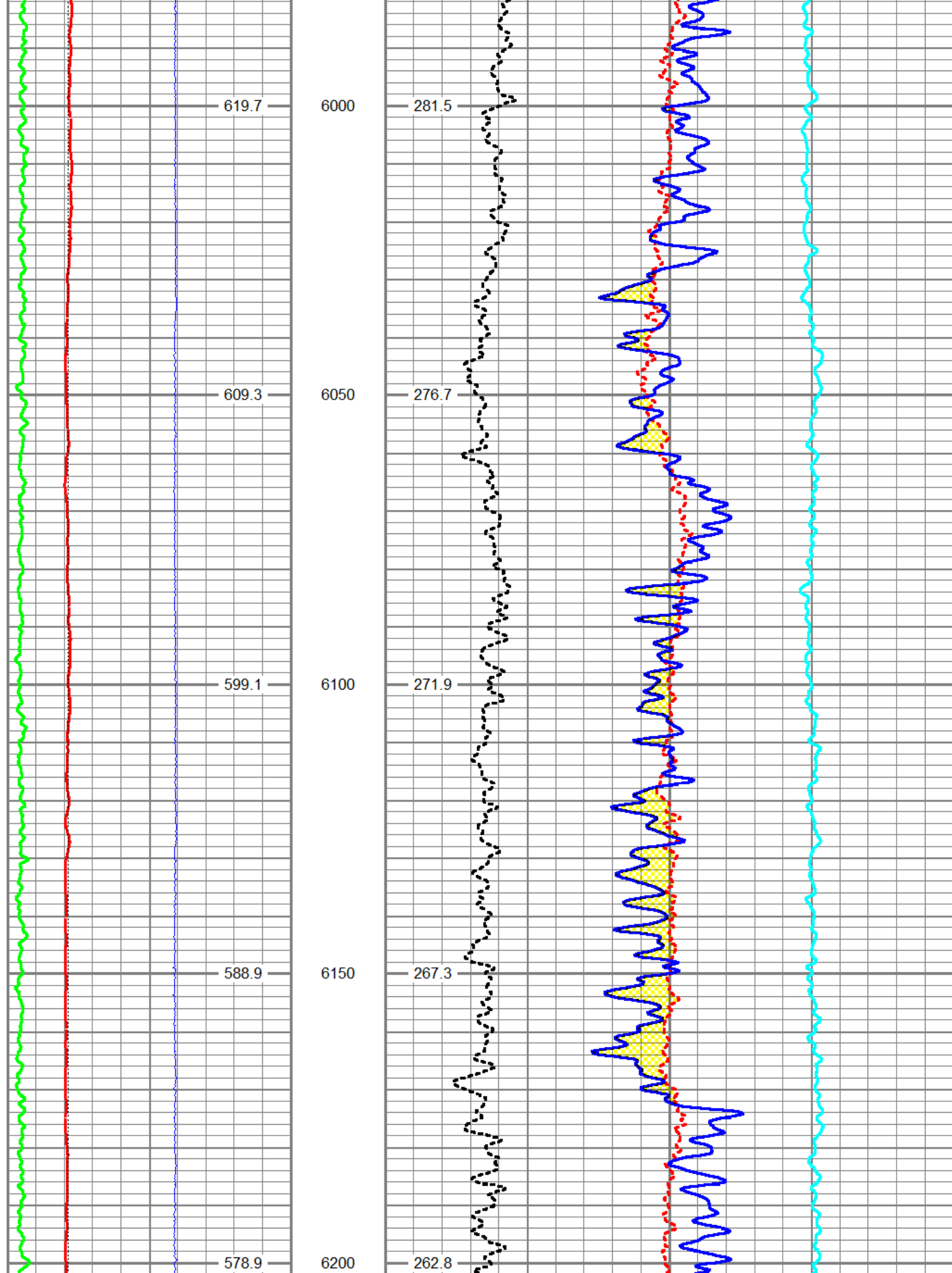
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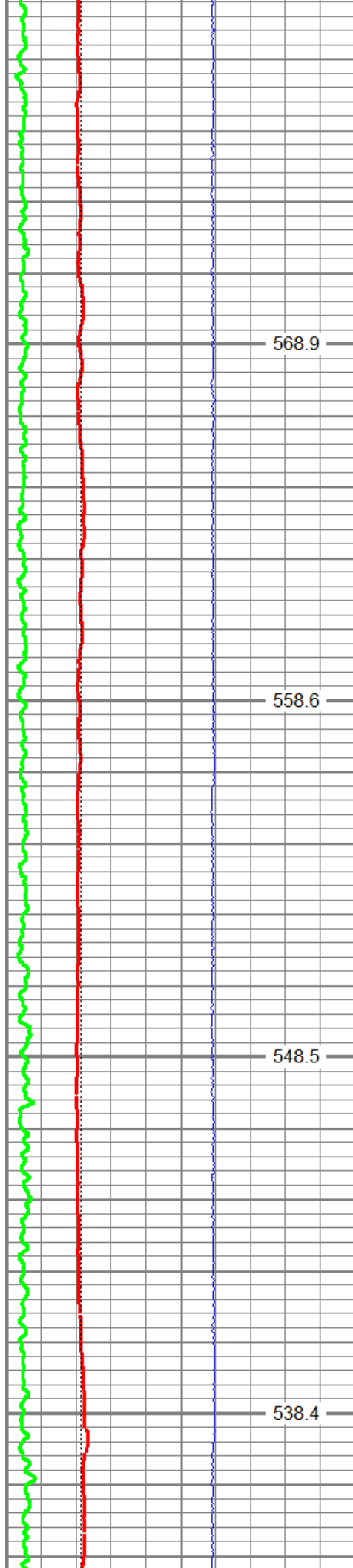
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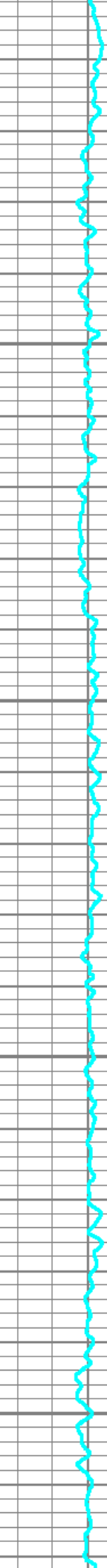
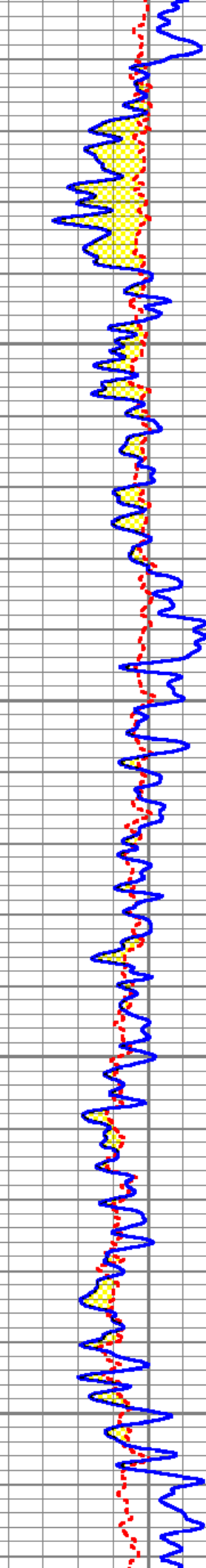
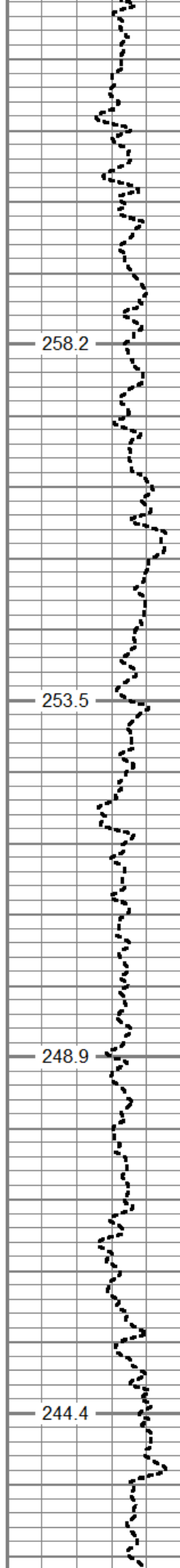


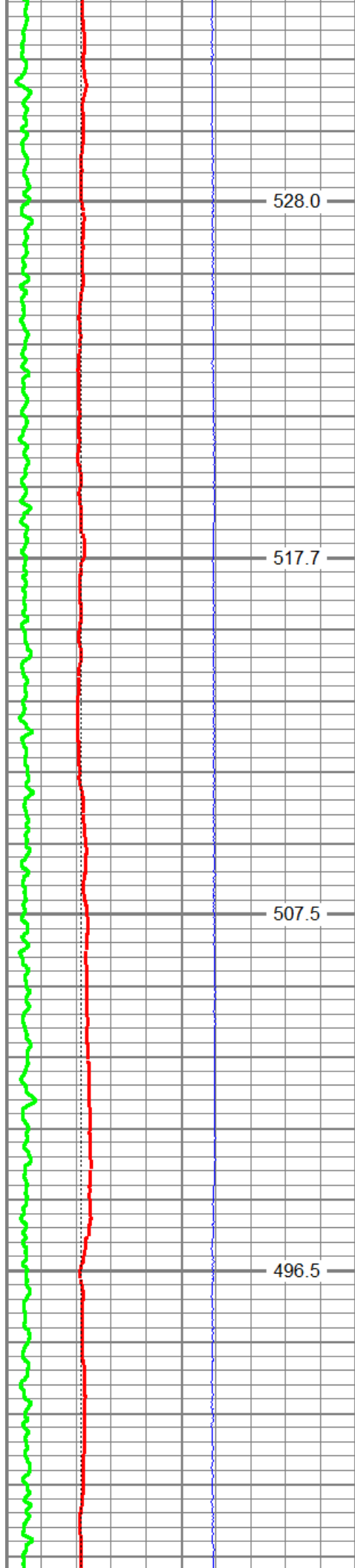
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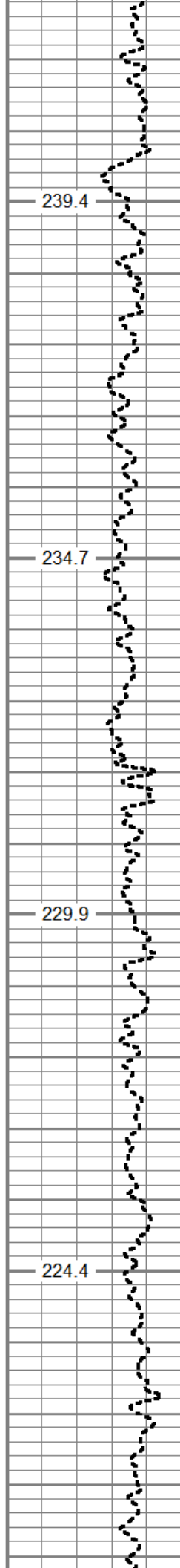


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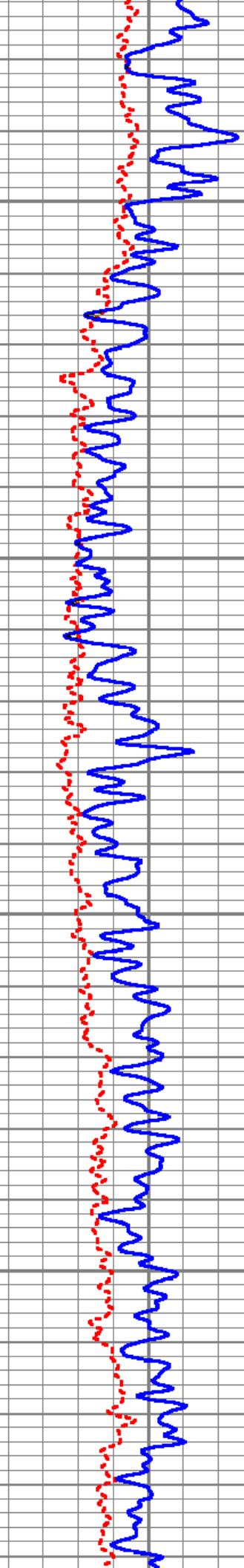


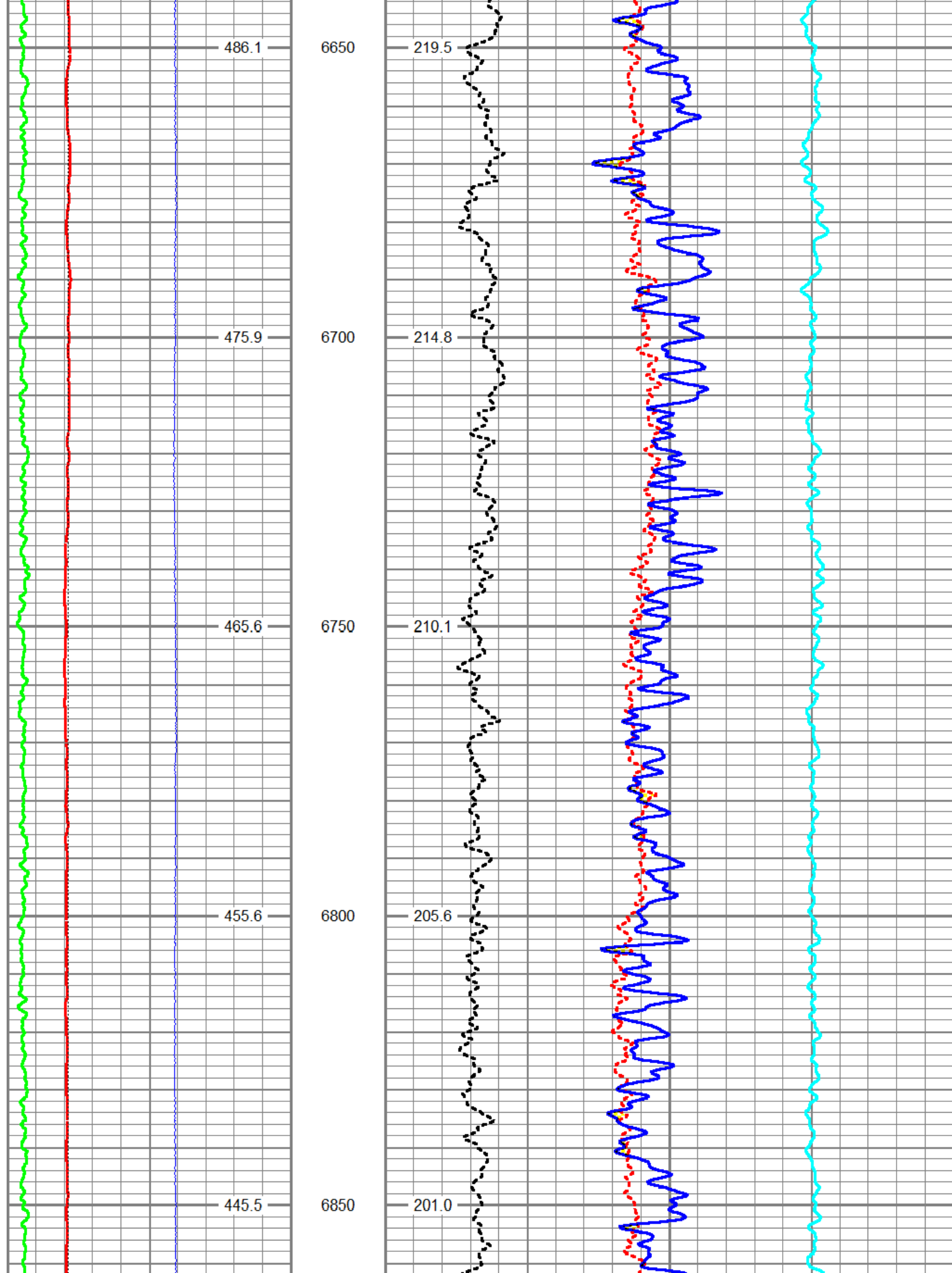
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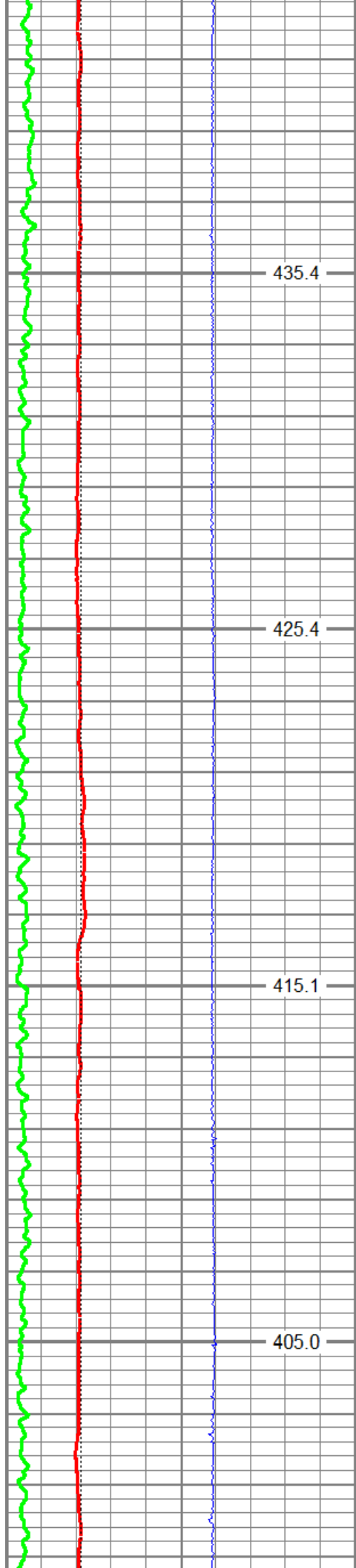
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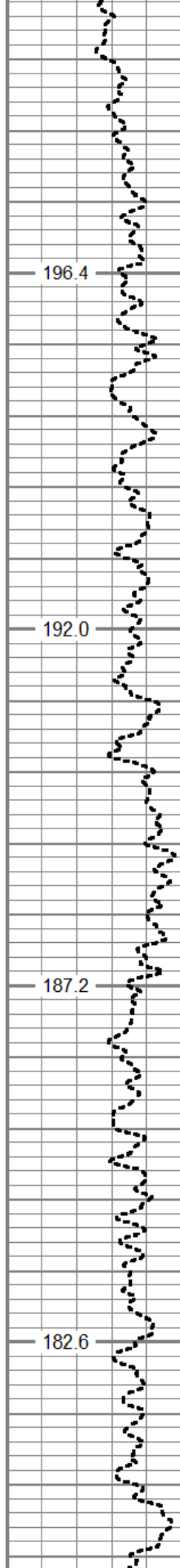
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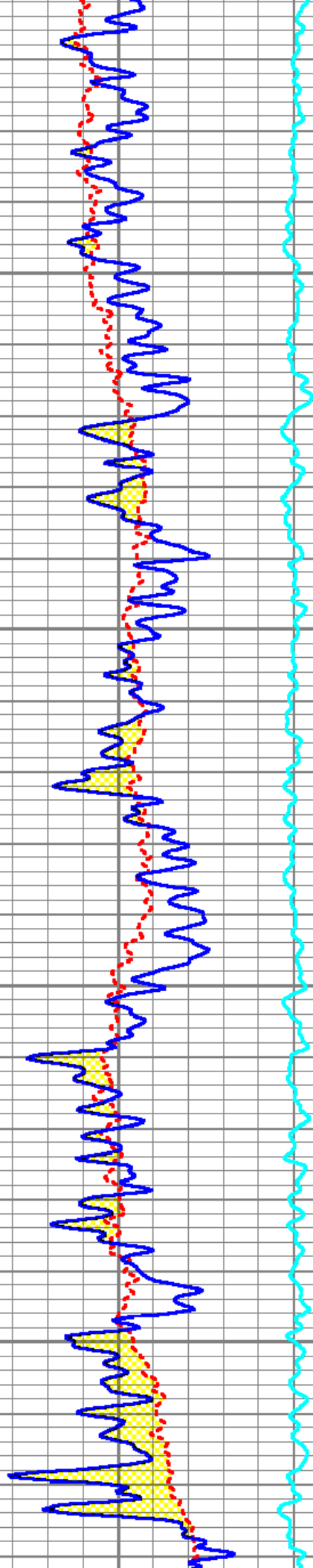


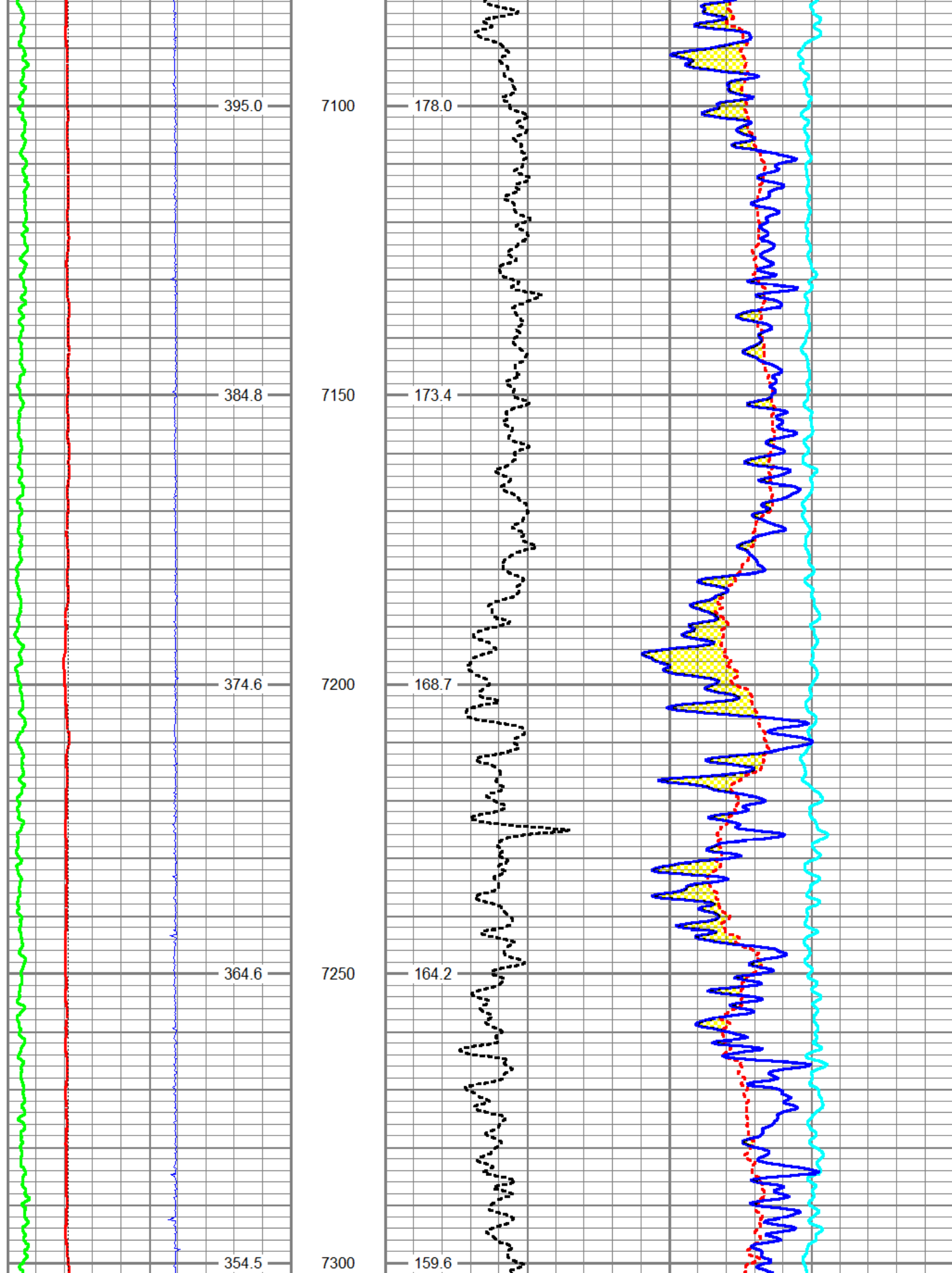
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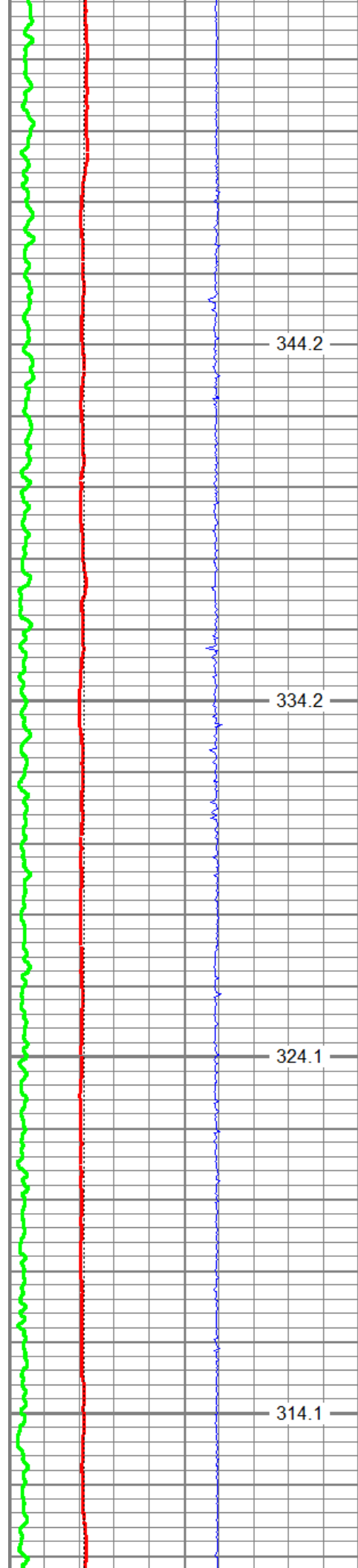
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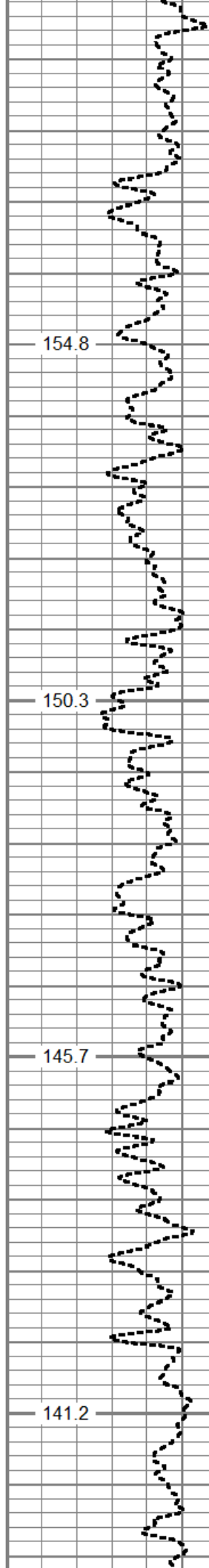
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7450

7500

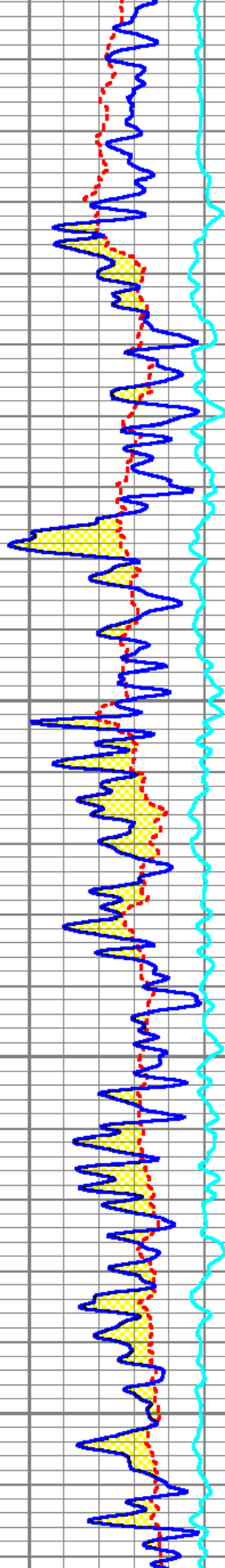


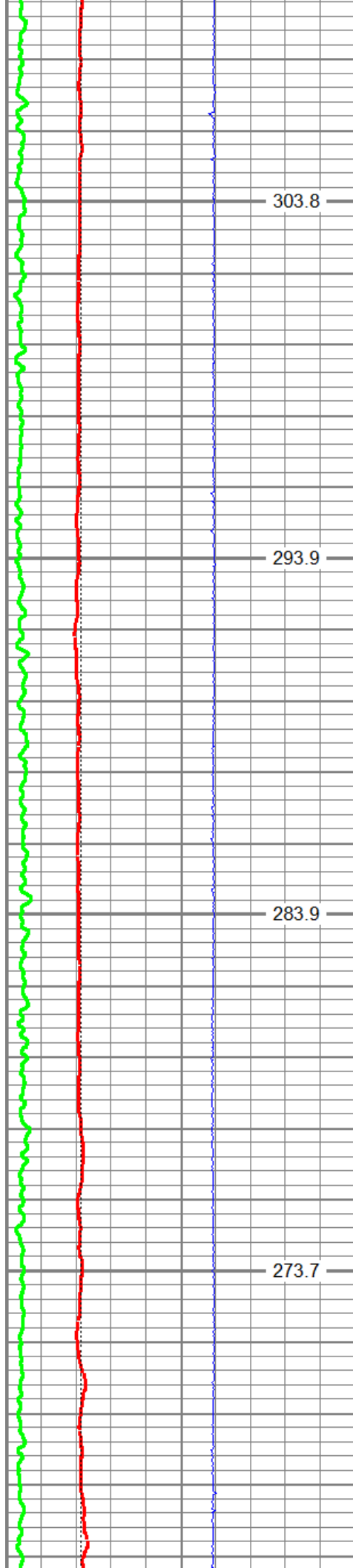
154.8

150.3

145.7

141.2



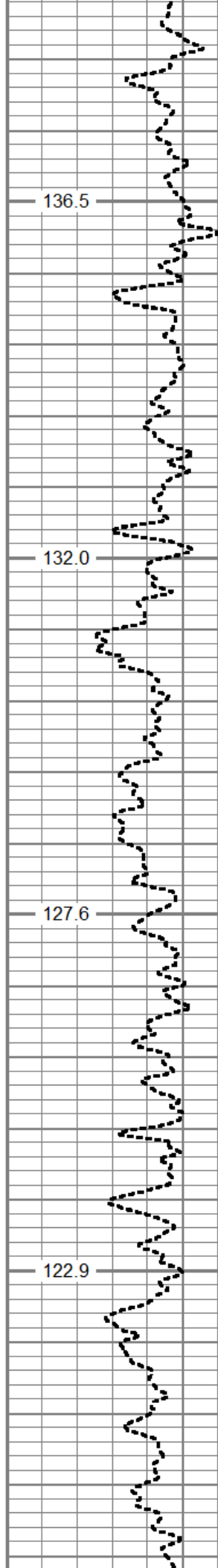


7550

7600

7650

7700

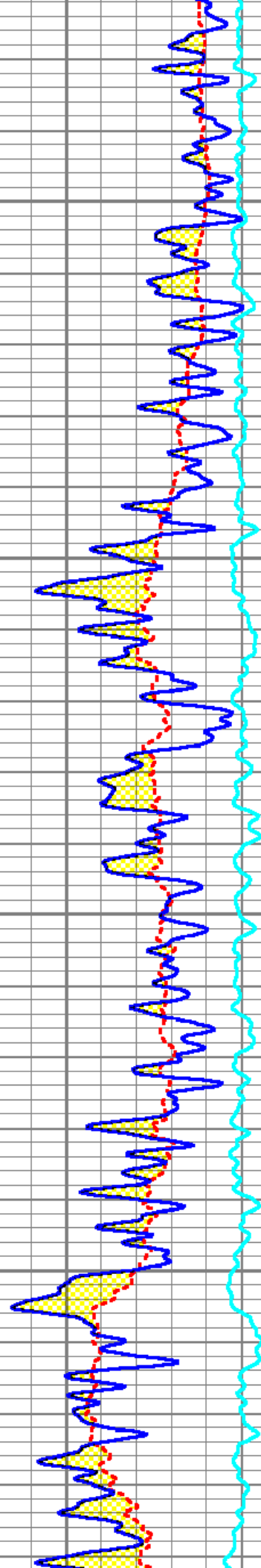


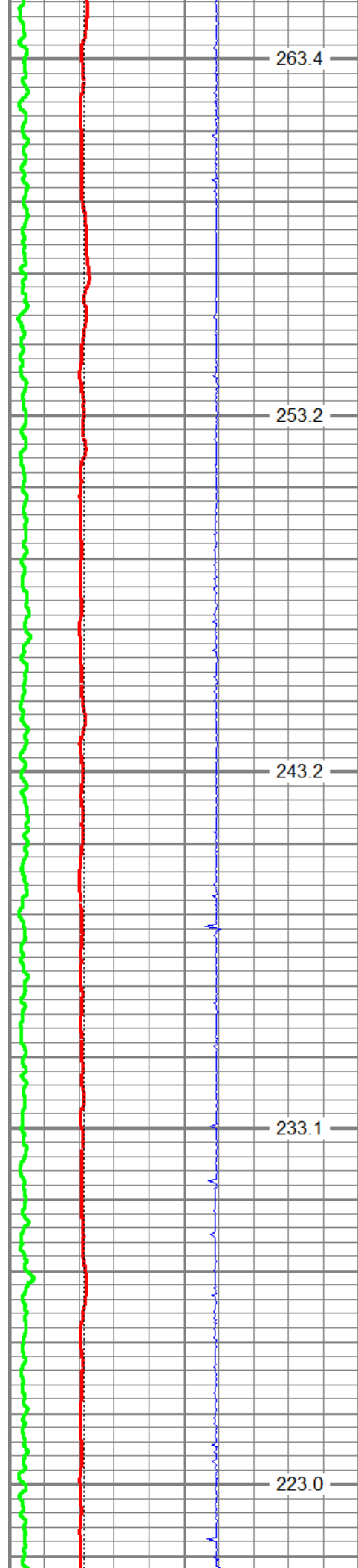
136.5

132.0

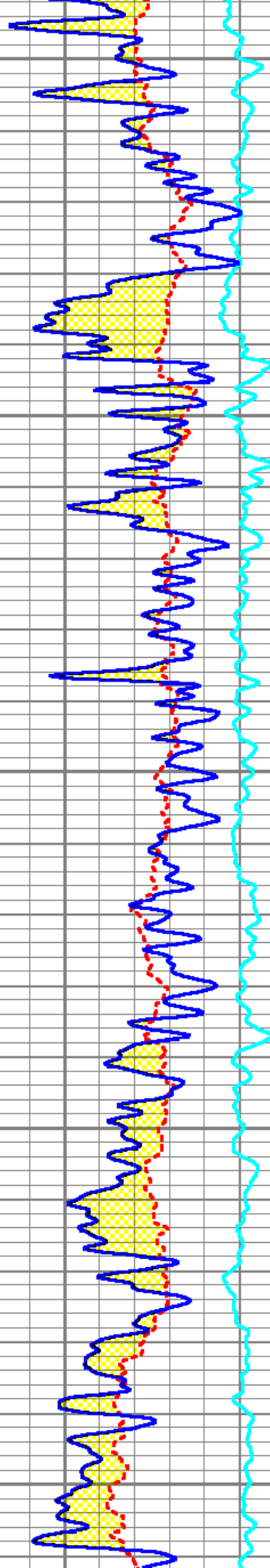
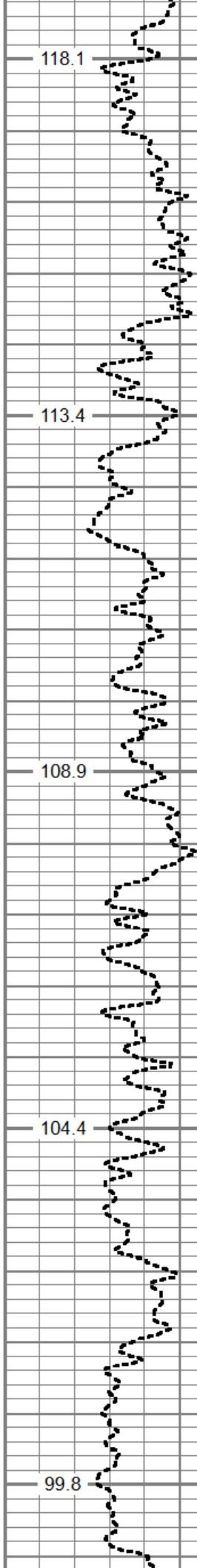
127.6

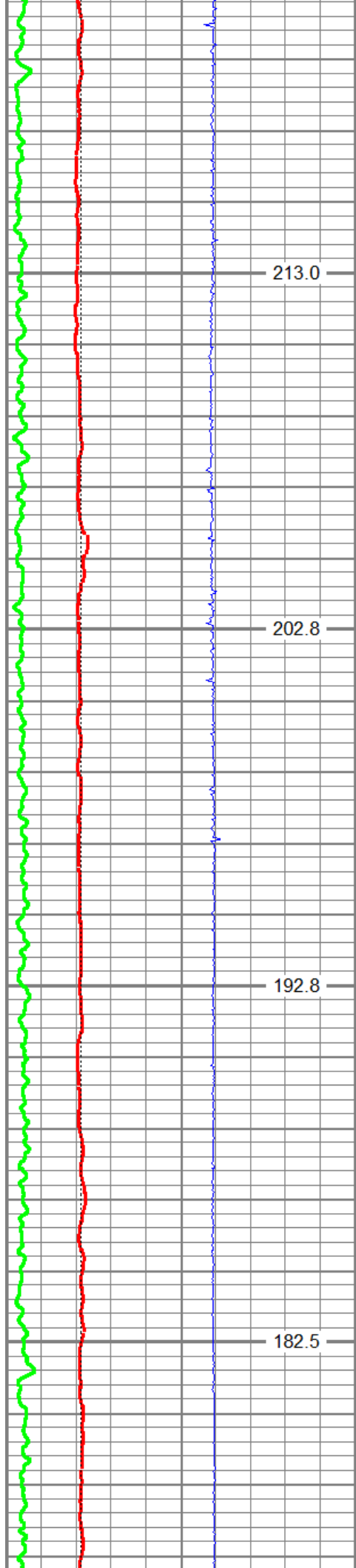
122.9





7750 7800 7850 7900 7950





213.0

202.8

192.8

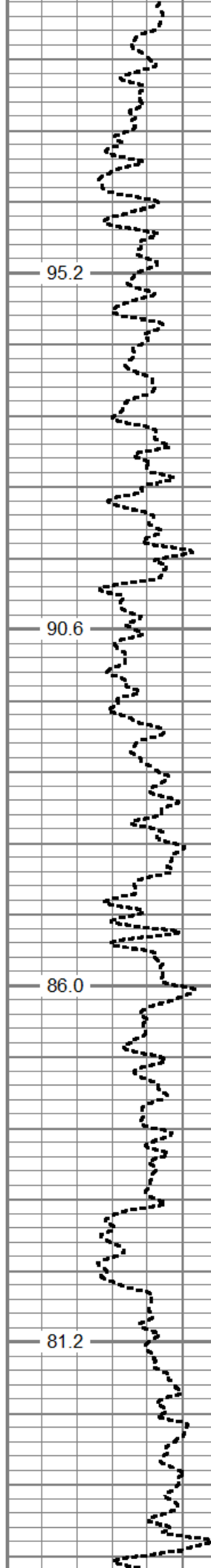
182.5

8000

8050

8100

8150

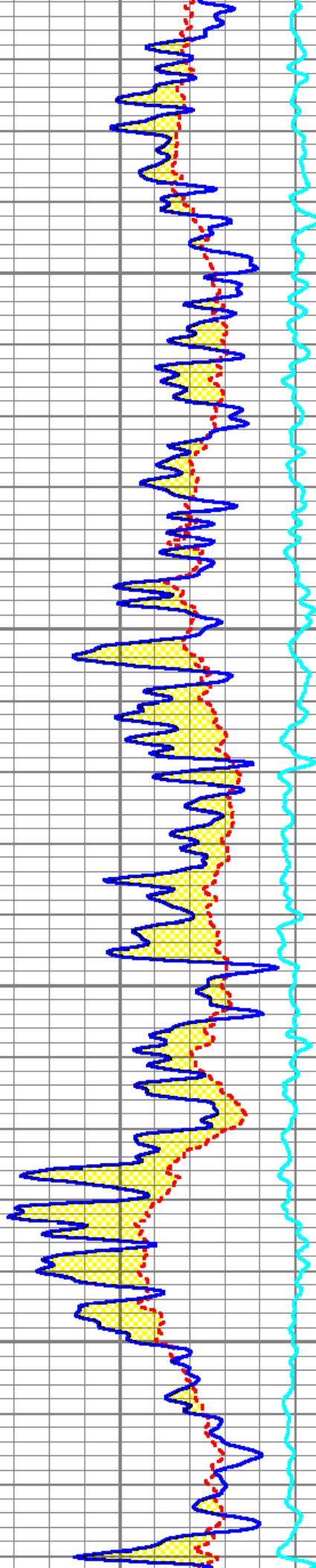


95.2

90.6

86.0

81.2

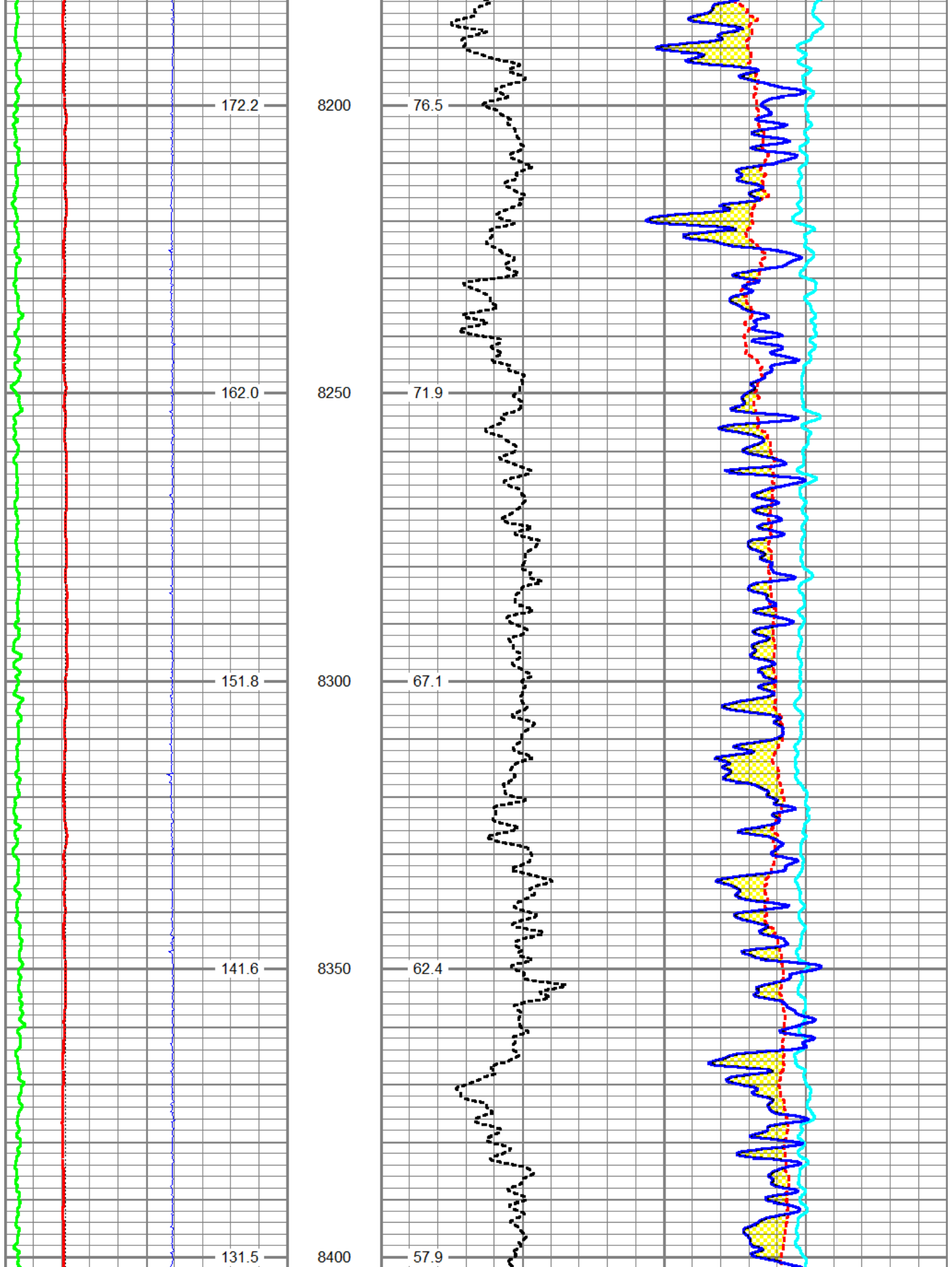


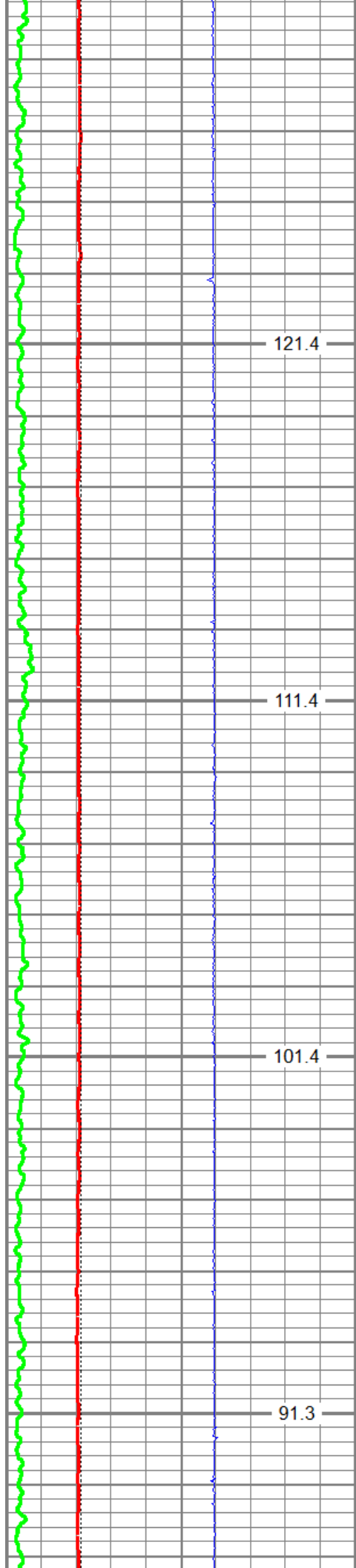
95.2

90.6

86.0

81.2





121.4

8450

111.4

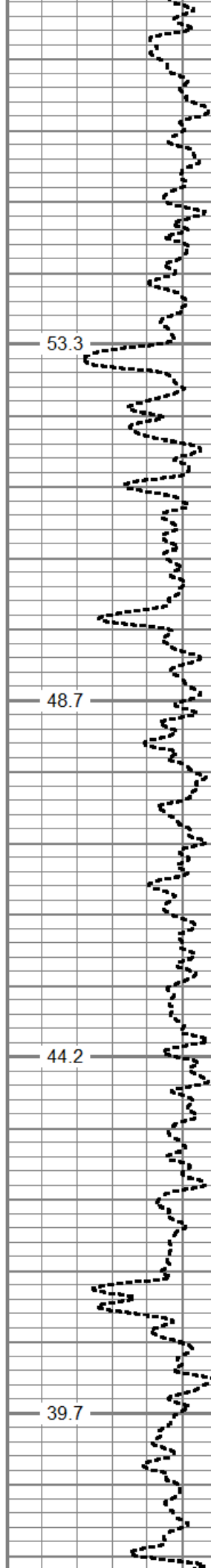
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101.4

8550

91.3

8600

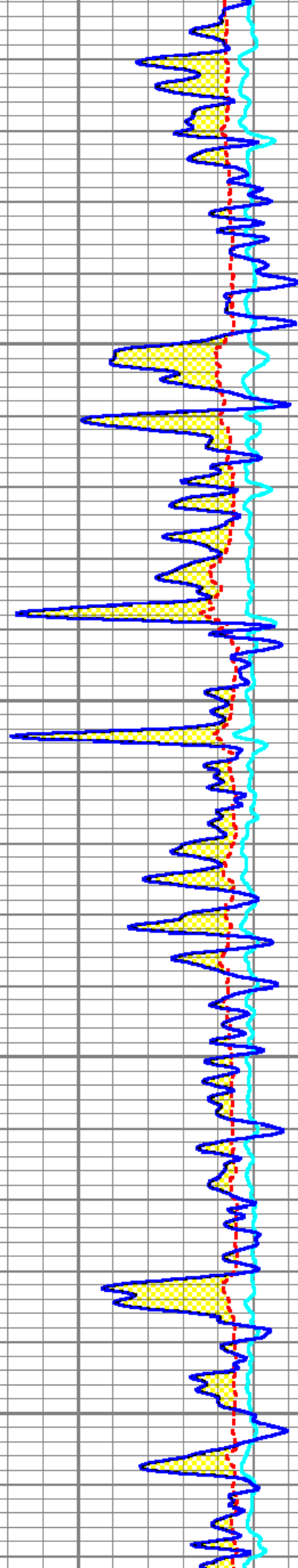


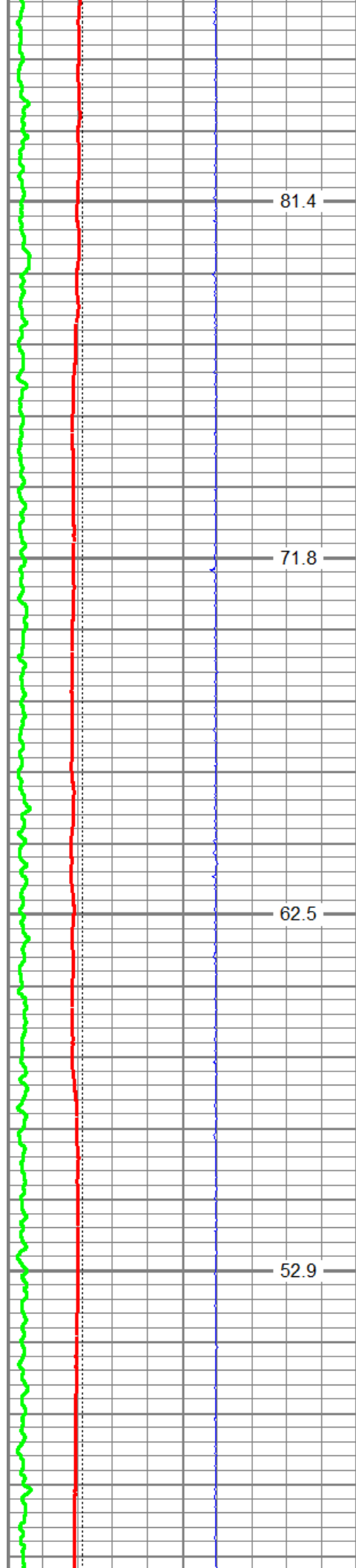
53.3

48.7

44.2

39.7



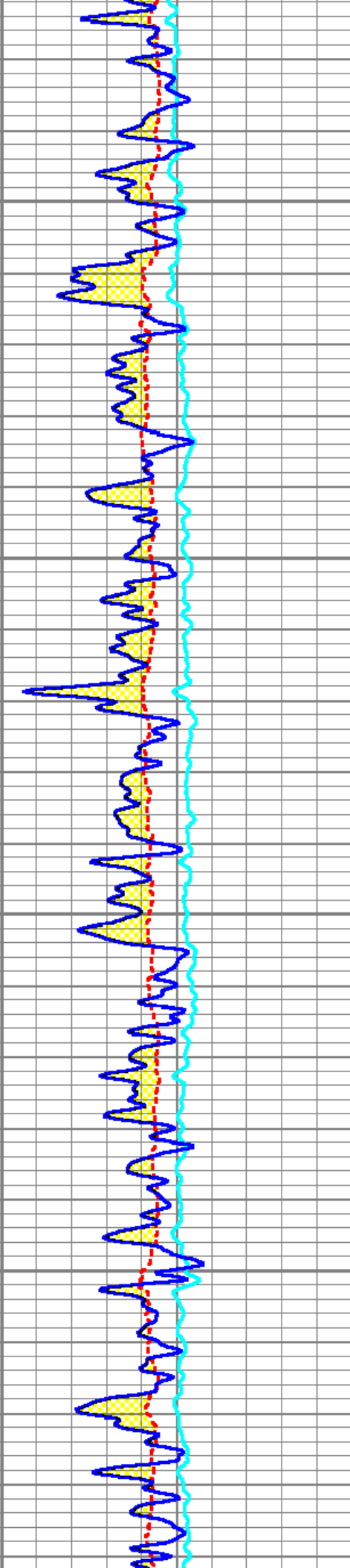
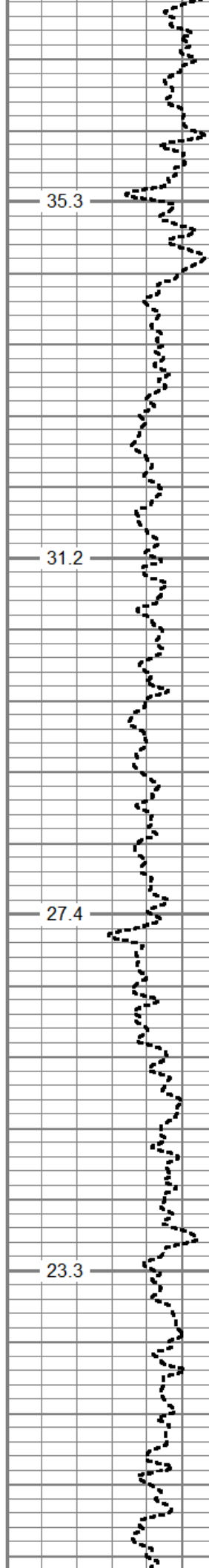


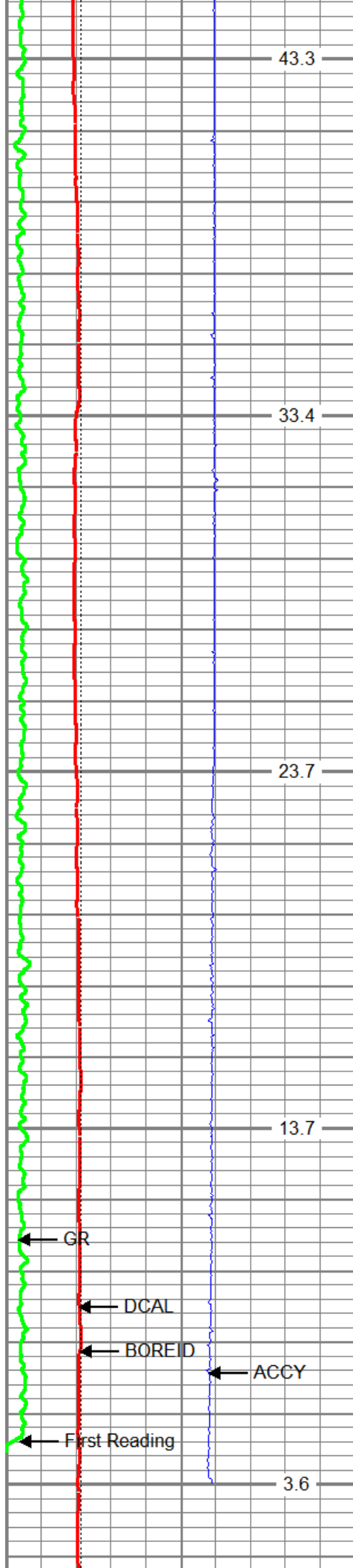
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8700

8750

8800





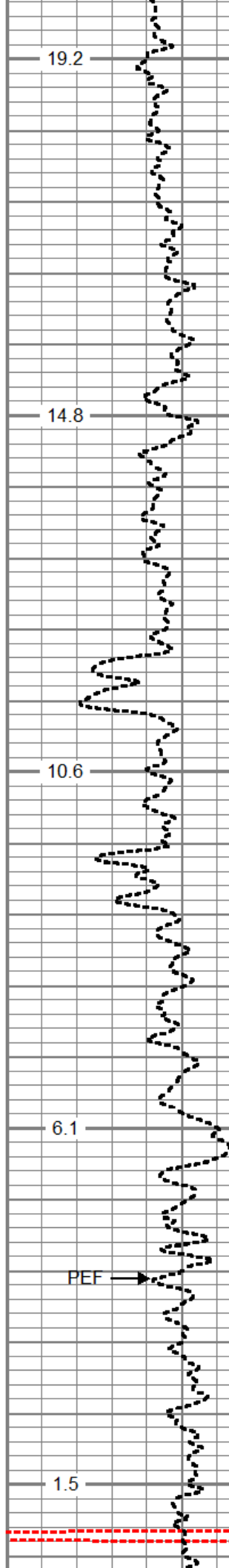
8850

8900

8950

9000

9050



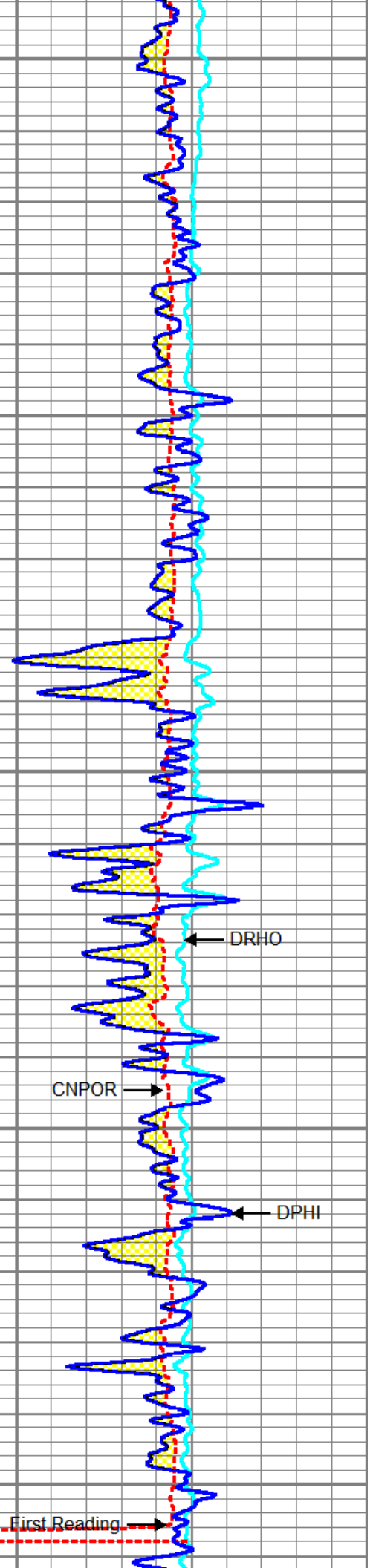
19.2

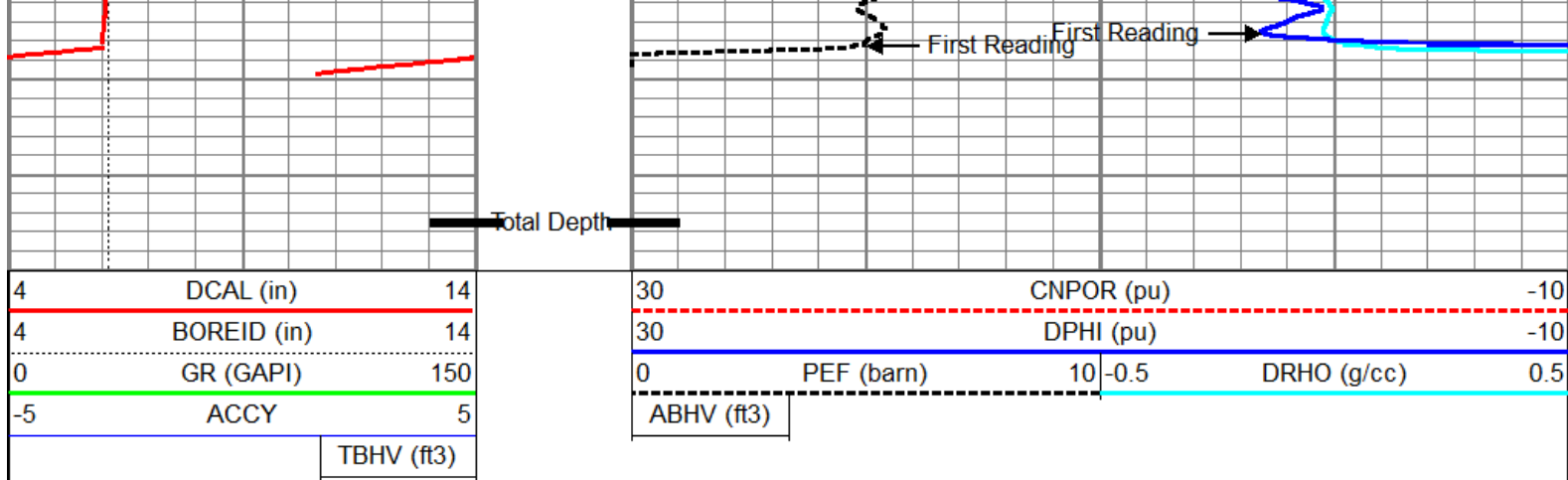
14.8

10.6

6.1

1.5





MAIN PASS

Log Variables

Database: C:\Warrior\Data\sandridge_jennifer3408_3_34h_mem.db
Dataset: field/well/proc1/merge2

Top - Bottom

A	BHCOR	BHFL_TYPE	BHFLRES Ohm-m	BHFLRESSRC	BHIDSRC	BOREID in
1	On	WBM	1	MUDCELL	CURVE	6.125
BOTTEMP degF	CASED?	CASEOD in	CASETHCK in	CEMWATERSA kppm	CMNTTHCK in	DNBHC?
139.2	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	0.7
MudWgt lb/gal	NPORSEL	PEBHC?	PERFS	RESTMPSRC	SO in	SRFTEMP degF
8.35	Limestone	YES	0	INTERNAL	0.5	68
SZCOR	TDEPTH ft	TMPCOR	TOOLPOS			
On	9085	On	Ec-centered			

Calibration Report

Database File: sandridge_jennifer3408_3_34h_mem.db
Dataset Pathname: proc1/merge2
Dataset Creation: Sun Dec 16 23:49:58 2012

ThruBit Induction Calibration Report

Tool Model-Serial Number: PS-PS26R
Shop Calibration Performed: Sat Oct 20 10:32:35 2012

BASELINE

R Expected X Expected

Freq 1

A1	-455.2300	[-500.00, -400.00]	16.9302	[-500.00, 500.00]
A2	-141.2090	[-180.00, -100.00]	256.1410	[-500.00, 500.00]
A3	-27.0516	[-50.00, -10.00]	190.9480	[-500.00, 500.00]
A4	-16.2520	[-30.00, -10.00]	277.0580	[-500.00, 500.00]
A5	-14.0912	[-30.00, -10.00]	123.7860	[-500.00, 500.00]
Freq 2				
A1	-233.1060	[-280.00, -180.00]	-27.5735	[-500.00, 500.00]
A2	-92.3268	[-130.00, -50.00]	136.6490	[-500.00, 500.00]
A3	-21.2252	[-50.00, -10.00]	74.2362	[-500.00, 500.00]
A4	-19.6877	[-30.00, -10.00]	96.1708	[-500.00, 500.00]
A5	-19.3154	[-30.00, -10.00]	-12.5810	[-500.00, 500.00]
Freq 3				
A1	-145.8530	[-180.00, -80.00]	-100.1720	[-500.00, 500.00]
A2	-70.9469	[-130.00, -30.00]	57.6288	[-500.00, 500.00]
A3	-17.3844	[-50.00, -10.00]	-1.1321	[-500.00, 500.00]
A4	-21.1404	[-30.00, -10.00]	-21.5033	[-500.00, 500.00]
A5	-21.7564	[-30.00, -10.00]	-111.7210	[-500.00, 500.00]
Freq 4				
A1	-79.2369	[-120.00, -40.00]	-232.2400	[-500.00, 500.00]
A2	-52.7903	[-110.00, -10.00]	-50.7404	[-500.00, 500.00]
A3	-14.2617	[-50.00, -10.00]	-106.8500	[-500.00, 500.00]
A4	-24.7855	[-30.00, -10.00]	-191.9090	[-500.00, 500.00]
A5	-28.0145	[-30.00, -10.00]	-276.8720	[-500.00, 500.00]

CALIBRATION COEFFICIENTS				
	R	Expected	X	Expected
Freq 1				
A1	1.0025	[0.95, 1.05]	-0.0011	[-0.05, 0.05]
A2	1.0070	[0.95, 1.05]	-0.0003	[-0.05, 0.05]
A3	1.0102	[0.95, 1.05]	-0.0085	[-0.05, 0.05]
A4	1.0005	[0.95, 1.05]	0.0012	[-0.05, 0.05]
A5	1.0059	[0.95, 1.05]	-0.0005	[-0.05, 0.05]
Freq 2				
A1	0.9947	[0.95, 1.05]	-0.0115	[-0.05, 0.05]
A2	0.9990	[0.95, 1.05]	-0.0109	[-0.05, 0.05]
A3	0.9964	[0.95, 1.05]	-0.0116	[-0.05, 0.05]
A4	0.9924	[0.95, 1.05]	-0.0094	[-0.05, 0.05]
A5	1.0007	[0.95, 1.05]	-0.0113	[-0.05, 0.05]
Freq 3				
A1	1.0031	[0.95, 1.05]	-0.0153	[-0.05, 0.05]
A2	1.0079	[0.95, 1.05]	-0.0145	[-0.05, 0.05]
A3	1.0050	[0.95, 1.05]	-0.0154	[-0.05, 0.05]
A4	0.9988	[0.95, 1.05]	-0.0131	[-0.05, 0.05]
A5	1.0111	[0.95, 1.05]	-0.0142	[-0.05, 0.05]
Freq 4				
A1	0.9980	[0.95, 1.05]	-0.0046	[-0.05, 0.05]
A2	1.0033	[0.95, 1.05]	-0.0037	[-0.05, 0.05]
A3	1.0027	[0.95, 1.05]	-0.0066	[-0.05, 0.05]
A4	0.9902	[0.95, 1.05]	-0.0021	[-0.05, 0.05]
A5	1.0191	[0.95, 1.05]	-0.0054	[-0.05, 0.05]
Temperature	24.1668 degC			

ThruBit Density Calibration Report	
Tool Model-Serial Number:	PS-PS53D
Source Number:	
Shop Calibration Performed:	Sat Dec 15 16:27:40 2012

REFERENCE			
	Density	Units	
Aluminium	2.607	g/cc	
Magnesium	1.752	g/cc	
READINGS			
Outputs	Counts	Units	Expected
SS1 Background	138.67	cps	[130.00, 170.00]
LS1 Background	135.33	cps	[130.00, 170.00]
LS4 Background	28.20	cps	[27.00, 35.00]
SS1 Aluminium	4781.17	cps	[4500.00, 5500.00]
LS1 Aluminium	854.47	cps	[750.00, 950.00]
LS4 Aluminium	914.00	cps	[843.00, 1068.00]
SS1 Magnesium	8067.99	cps	[7000.00, 9000.00]
LS1 Magnesium	5896.39	cps	[5250.00, 6250.00]
LS1 Al + Fe	758.35	cps	[650.00, 800.00]
LS4 Al + Fe	448.74	cps	[382.00, 471.00]
RESULTS			
SS Slope	1.60		[1.52, 1.77]
LS Slope	0.41		[0.38, 0.45]
PEF K Factor	4.464		[3.510, 6.170]
PEF B Factor	-0.618		[-0.700, -0.410]

Caliper Shop Calibration performed:		Sat Dec 15 16:27:40 2012
RESULTS		
Reference	Reading	Units
12.00	1850.28	in
9.00	2013.93	in
6.00	2177.49	in

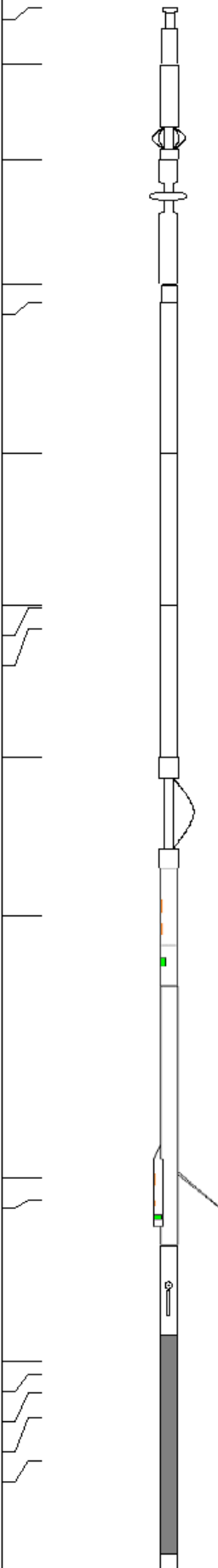
DENSITY PRE-SURVEY CHECK Performed:		Sun Dec 16 10:08:36 2012	
Outputs	Counts	Units	Expected
SS1 Background	139.91	cps	[134.51, 142.83]
LS1 Background	136.16	cps	[131.27, 139.39]
LS4 Background	28.65	cps	[26.51, 29.89]

CALIPER PRE-SURVEY CHECK Performed:		Sat Dec 15 16:34:00 2012	
Reference	Readings	Units	Expected
6.00	6.07	in	[5.80, 6.20]

Compensated Neutron Calibration Report			
Tool Model-Serial Number:		PS-PS21N	
Source Number:			
Calibration Tank Temperature:		61.6 degF	
Shop Calibration Performed:		Tue Dec 11 10:04:10 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	2961.4	cps			
LS Counts	101.3	cps			
Tank Ratio Ref	30.9580	SS/LS			
Tank Ratio	29.2334	SS/LS			
Tank Ratio Gain	1.0590		[0.85, 1.15]		
ALUMINUM SLEEVE REFERENCE					
Outputs	Measured	Units	Expected		
SS Counts	33699.4	cps			
LS Counts	3261.2	cps			
Al Ratio Ref	10.797	SS/LS			
Al Ratio	10.943	SS/LS			
Al Ratio Gain	0.99		[0.90, 1.10]		
Sleeve Porosity	14.46	pu			
PRE-SURVEY BACKGROUND CHECK Performed: Sun Dec 16 10:13:39 2012					
Outputs	Measured	Units	Expected		
SS Counts	1.7	cps	<10		
LS Counts	3.3	cps	<4		
Gamma Ray Calibration Report					
Tool Model-Serial Number:		PS-PS39T			
Performed:		Tue Dec 11 09:00:29 2012			
Calibrator Value:		152.0	GAPI		
Background Reading:		65.5	cps		
Calibrator Reading:		478.2	cps		
Sensitivity:		0.3750	GAPI/cps		
Inclinometer Calibration Report					
Performed:		Sun Jun 13 13:33:21 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	

	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	65.33		Cablehead-S	2.31	2.13	5.00
Thrubit	63.02		Solid Weakpoint			
			PSBDOT	3.87	2.25	35.00
Thrubit	59.16		HangOff_Tool	5.00	2.38	60.00
Thrubit	54.16		10-1	0.75	2.13	3.95
TBBAT	53.41		TBBAT-A (PS32B) Thrubit Battery	6.13	2.13	38.20
TBBAT2	47.28		TBBAT2-A (PS31B) Thrubit Battery	6.13	2.13	40.00
TMG GR GRTEMP	41.16 41.03 40.20		TMG-PS (PS39T) ThruBit Telemetry Gamma Ray	6.13	2.13	45.00
Thrubit	35.03		Decentralizer Decentralizer (Small)	4.50	2.13	70.00
CNLSC	28.59		TBN-PS (PS21N) ThruBit Neutron	4.77	2.13	63.00
			TBD-PS (PS53D) Thrubit Density	10.47	2.13	91.00
LSW1 DCAL	18.04 17.13					
A1_P A2_P A3_P A4_P A5_P	10.60 10.10 9.35 8.35 6.60		TBI-PS (PS26R) Thrubit Induction	15.29	2.13	94.00

Dataset:	sandridge_jennifer3408_3_34h_mem.db: field/well/proc1/merge2
Total Length:	65.33 ft
Total Weight:	545.15 lb
O.D.	2.38 in



ThruBit

A Schlumberger Company

Company	SANDRIDGE ENERGY, INC.
Well	JENNIFER 3408 3-34H
Field	EASTHAM
County	HARPER
State	KANSAS