



GAMMA RAY NEUTRON LOG

PIONEER
Pioneer Energy Services

Comp. PDC ENERGY INC.
Well RED CLOUD 0N
Field WATTENBERG
Co. WELD
State COLORADO

Company **PDC ENERGY INC.**
Well **RED CLOUD 0N**
Field **WATTENBERG**
County **WELD** State **COLORADO**

Location: API # : 05-123-49445
1530' FNL & 629' FEL
SE NE
SEC 1 TWP 4N RGE 64W
Permanent Datum GL Elevation 4602'
Log Measured From KB 23' Above Perm. Datum
Drilling Measured From KB
Other Services
SCBL
K.B. 4625'
D.F. N/A
G.L. 4602'

Date of Service	28 AUGUST 2019		
Run Number	ONE		
Depth Driller or P8TD	N/A		
Depth Logger	7146'		
Bottom Log Interval	7146'		
Top Log Interval	SURFACE		
Open Hole Size	8.5"		
Type Fluid	WATER		
Fluid Level	FULL		
Fluid Density	N/A		
Max. Recorded Temperature	N/A		
Max. Wellhead Pressure	ZERO		
Wellhead Connection	OPEN		
Estimated Cement Top	N/A		
Unit Number	P-57		
Wireline Size	9/32"		
Location	FORT MORGAN CO		
Recorded By	SCHOENROGGE		
Witnessed By	MR. MYERS		
	Size	Wt/Ft	Top
Tubing Record			Bottom
Surface Casing	9.625"	36#	SURFACE
Production Casing	5.5"	20#	SURFACE
Liner Record			

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, LLC will not 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.

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.
CORRELATED TO CUSTOMER MARKER JOINT

THANK YOU FOR USING PIONEER ENERGY SERVICES!

Your Pioneer Energy Services Crew	Tool Data - Services	Serial Number
Engineer: SCHOENROGGE Operator: TANNER Operator: BRANDON Operator:	SEE DIAGRAM PLUS OVERBODIES	

Top - Bottom

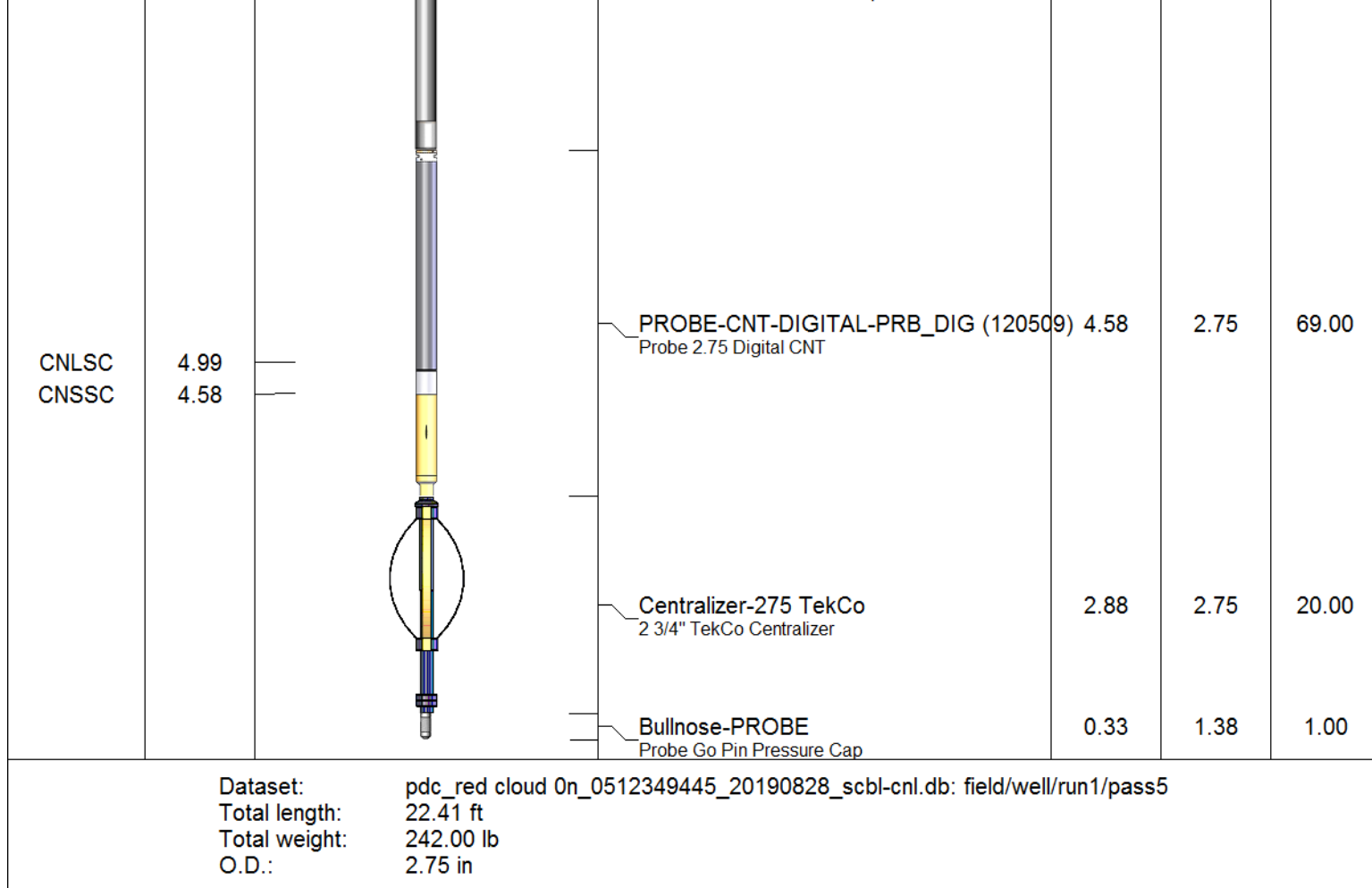
BOREID in 7.875	BOTTEMP degF 220	CASED? Yes	CASEOD in 5.5	CASETHCK in 0.361	CASEWGHT lb/ft 20	CMNTTHCK in 1.5
CMTTKCOR Off	CSTKCOR Off	MAXAMPL mV 71.9	MINAMPL mV 2.2	MINATTN db/ft 0.8	NPORSEL Limestone	PERFS 0
PPT usec 261	SRFTEMP degF 50	SZCOR Off	TDEPTH ft 7300			


Variable Description

BOREID : Borehole I.D.
BOTTEMP : Bottom Hole Temperature
CASED? : Cased hole ?
CASEOD : Casing O.D.
CASETHCK : Casing Thickness
CASEWGHT : Casing Weight
CMNTTHCK : Cement Thickness
CMTTKCOR : CN CemThk. Cor. ?
CSTKCOR : CN CasThk. Cor. ?

MAXAMPL : Maximum Amplitude
MINAMPL : Minimum Amplitude
MINATTN : Minimum Attenuation
NPORSEL : Neutron Porosity Curve Select
PERFS : Perforation Flag
PPT : Predicted Pipe Time
SRFTEMP : Surface Temperature
SZCOR : CN Size Cor. ?
TDEPTH : Total Depth

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Cable Head-Titan_144 1 7/16" Titan Cable Head	1.03	1.44	2.00
WVFS8	16.82		PROBE-RBT-DIGITAL-RBL-DC (FW1304-38.75 Probe 2 3/4" Radii Bond-Corrosion Package	3.8.75	2.75	100.00
WVFS7	16.82					
WVFS6	16.82					
WVFS5	16.82					
WVFS4	16.82					
WVFS3	16.82					
WVFS2	16.82					
WVFS1	16.82					
WVFCAL	16.82					
WVF3FT	16.82					
WVF5FT	15.82					
HEADVOLT	12.63					
CCL	11.71					
GR	10.38		PROBE-GR/CCL-DIGITAL-275_6-PIN (1114.83 Probe 2 3/4" Gamma CCL 6-pin Bottom for CNT	1114.83	2.75	50.00





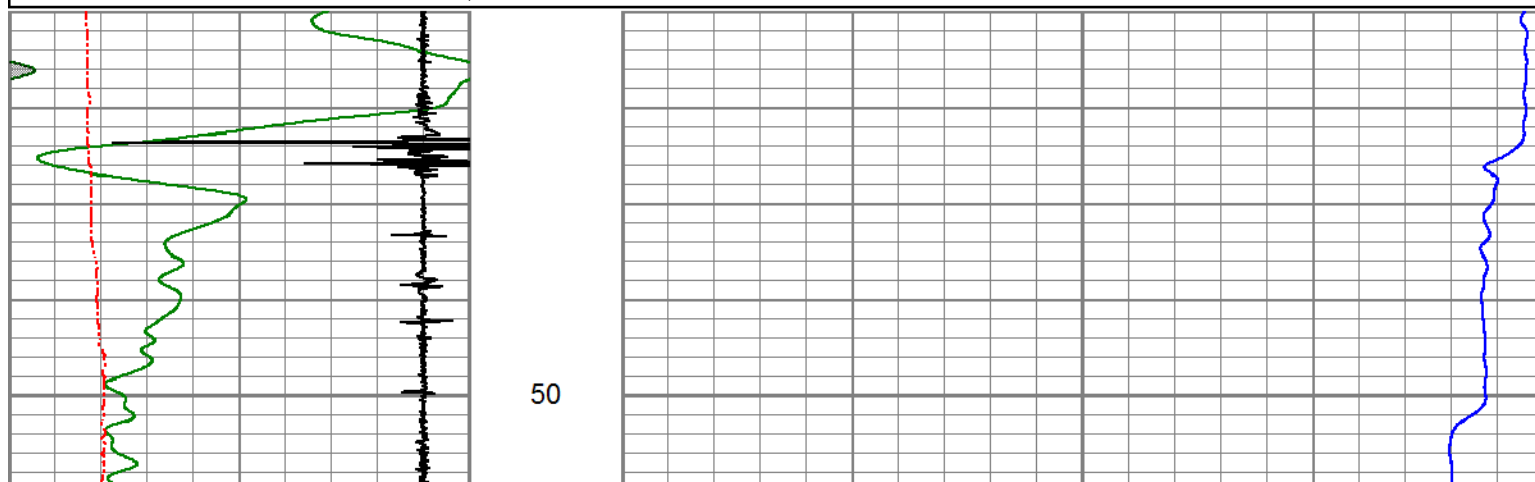
PIONEER
Pioneer Energy Services

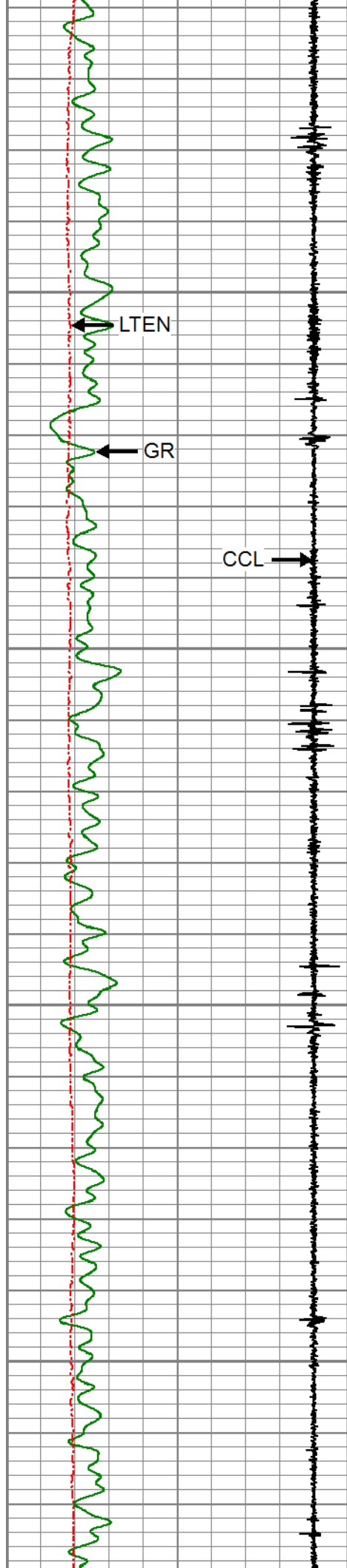
MAIN LOG

ZERO PSI APPLIED AT SURFACE

Database File	pdc_red cloud On_0512349445_20190828_scbl-cn1.db
Dataset Pathname	pass5
Presentation Format	pinr_cn1_co
Dataset Creation	Wed Aug 28 10:40:22 2019
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150	40	CNPOR (pu)	0
-9	Collars	1	80	CNPOR (pu)	40
150	Gamma Ray (GAPI)	300			
0	LineTension (lb)	2000			



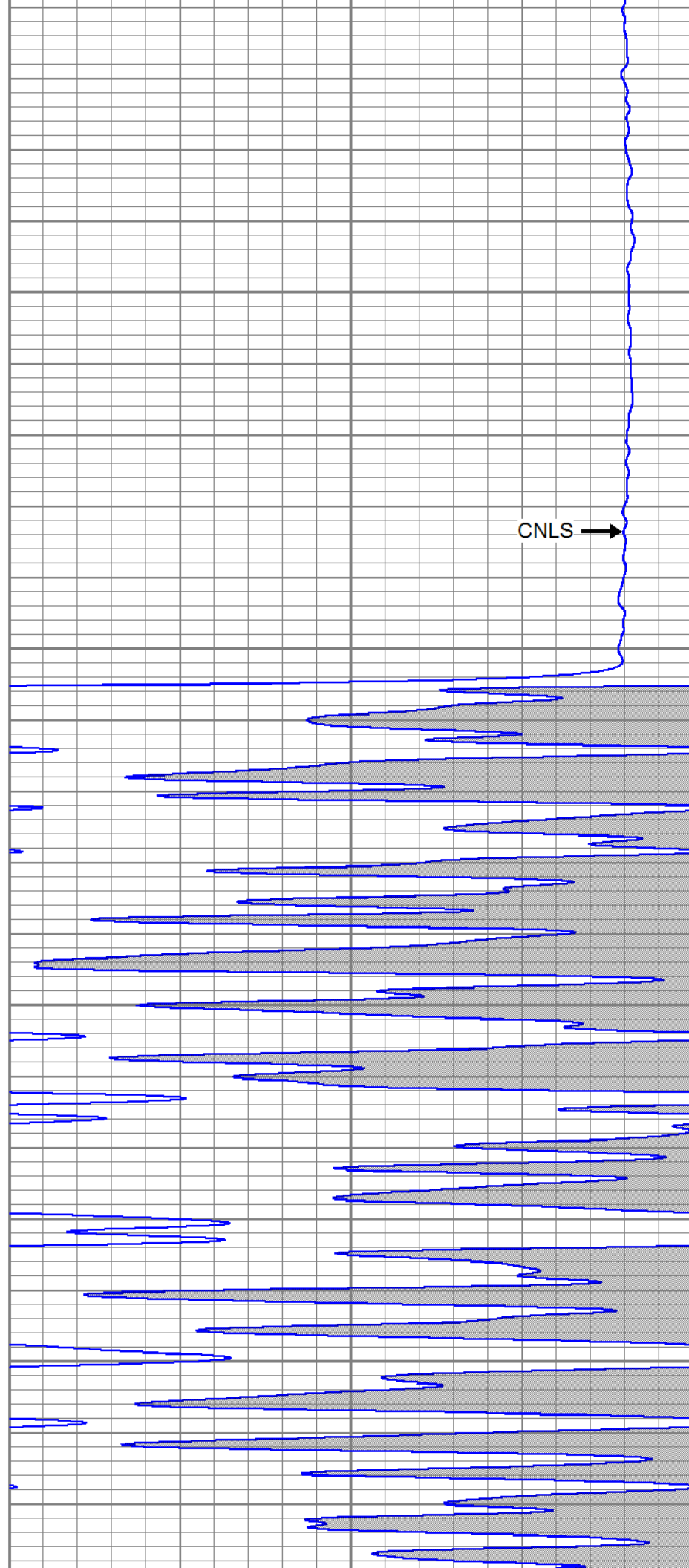


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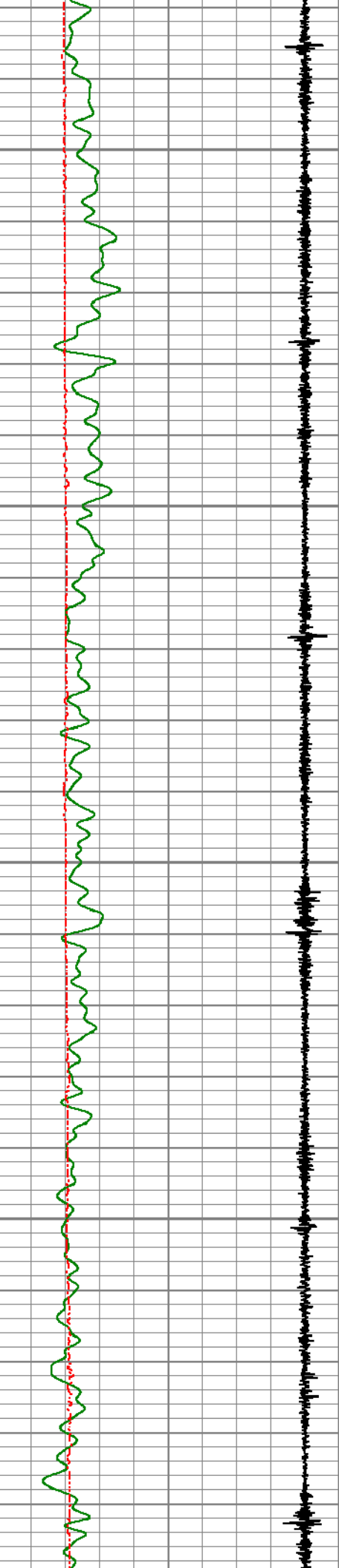
150

200

250



CNLS



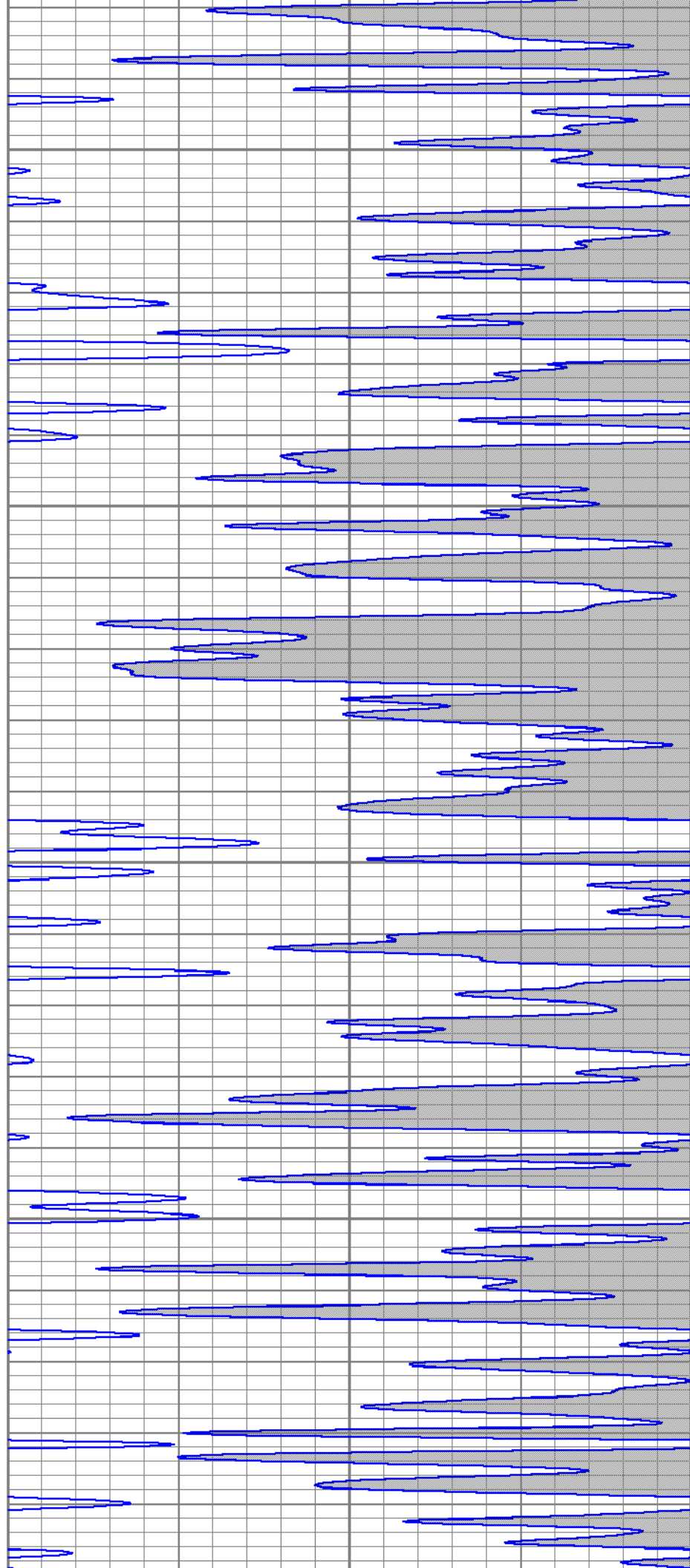
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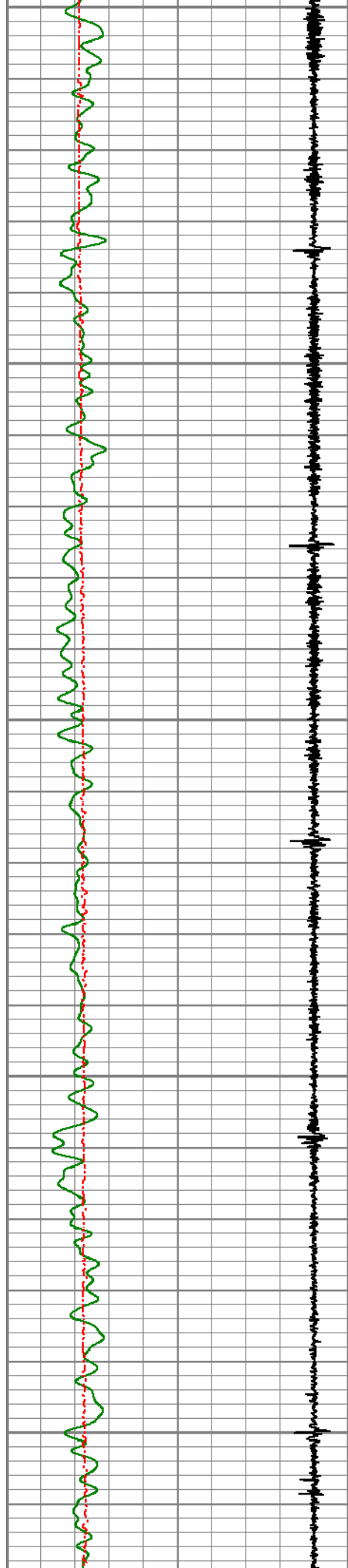
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400

450

500





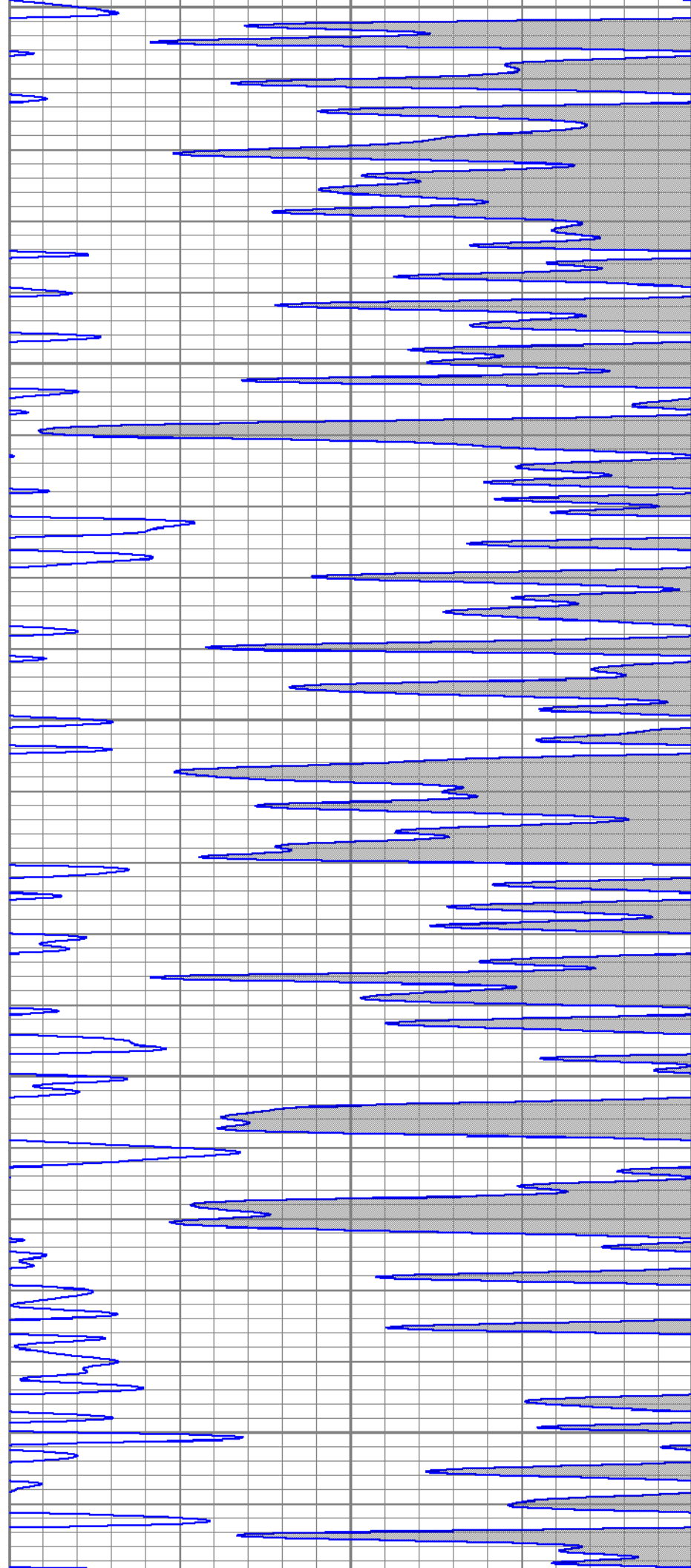
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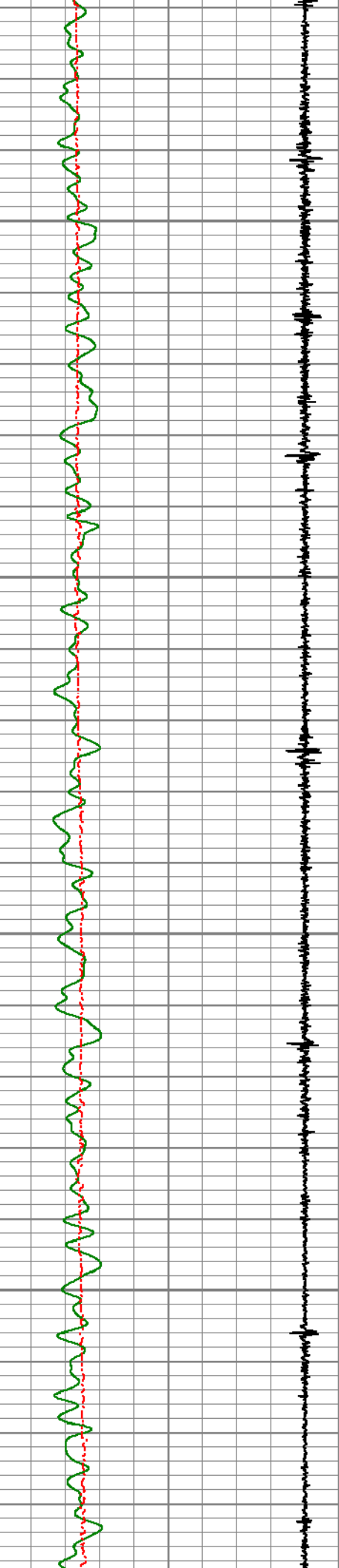
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600

650

700



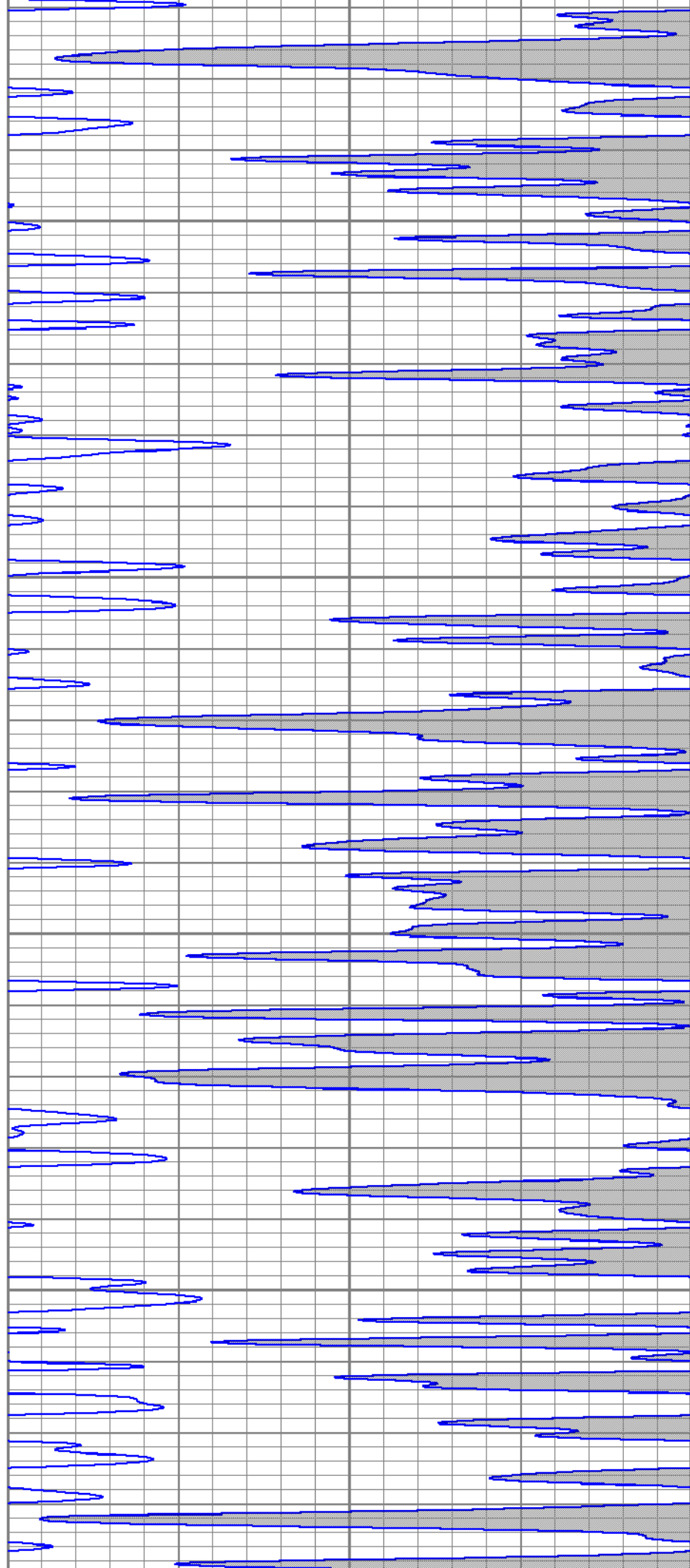


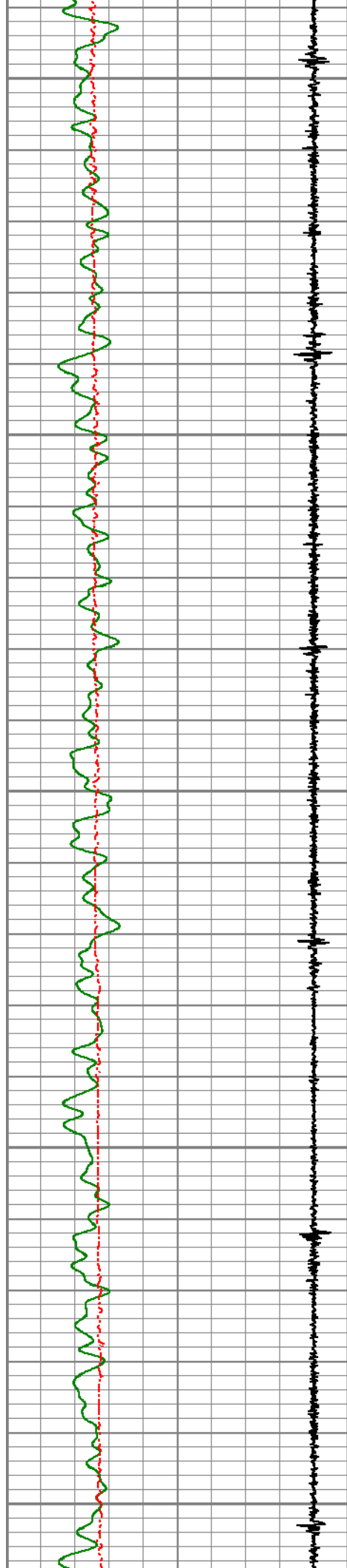
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800

850

900





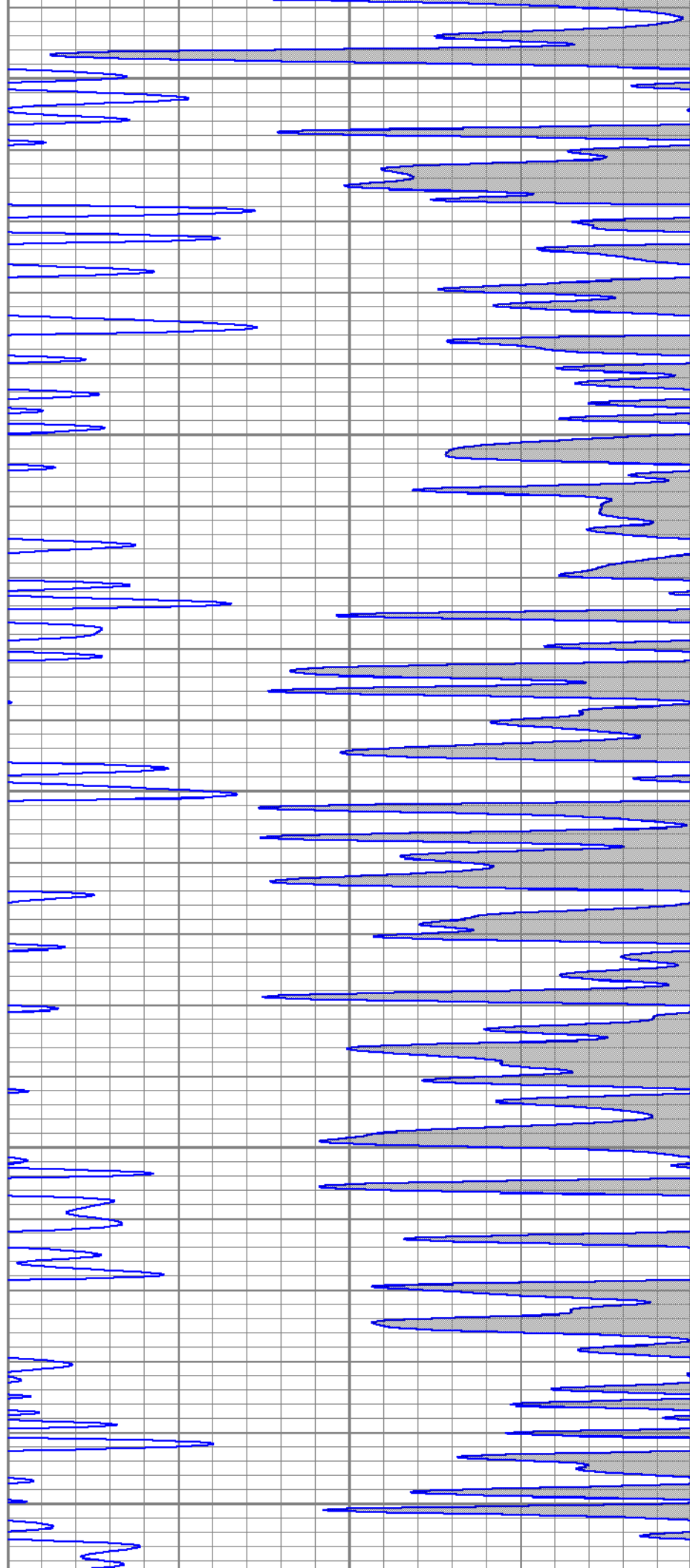
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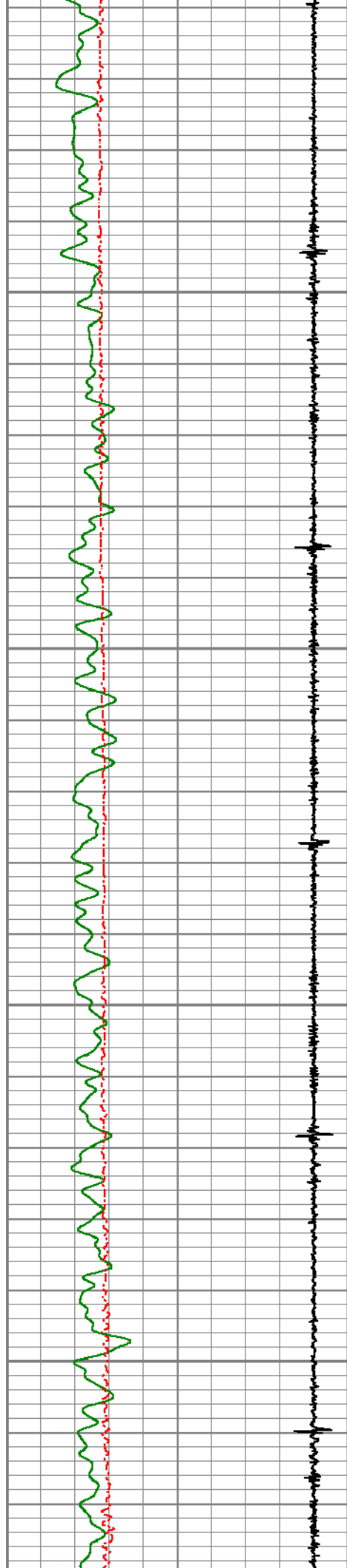
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1050

1100

1150



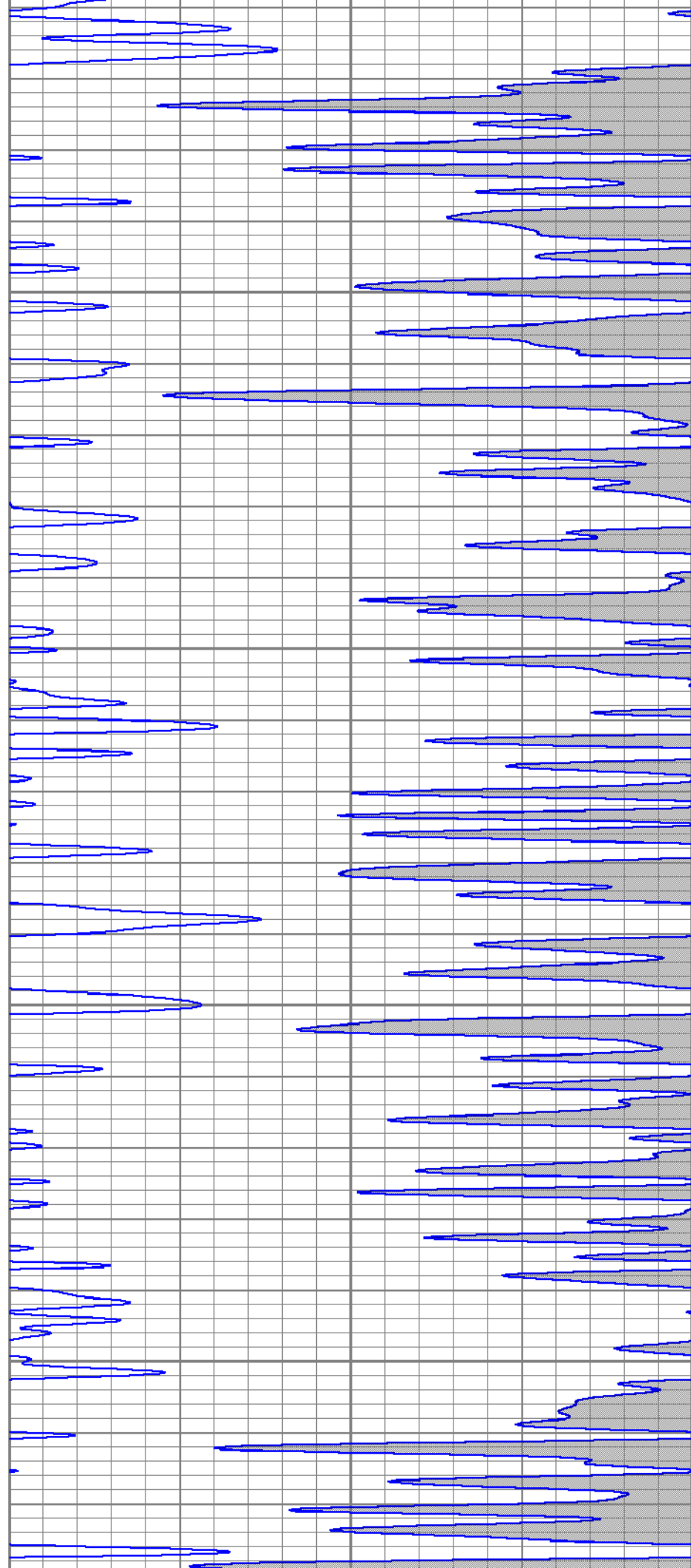


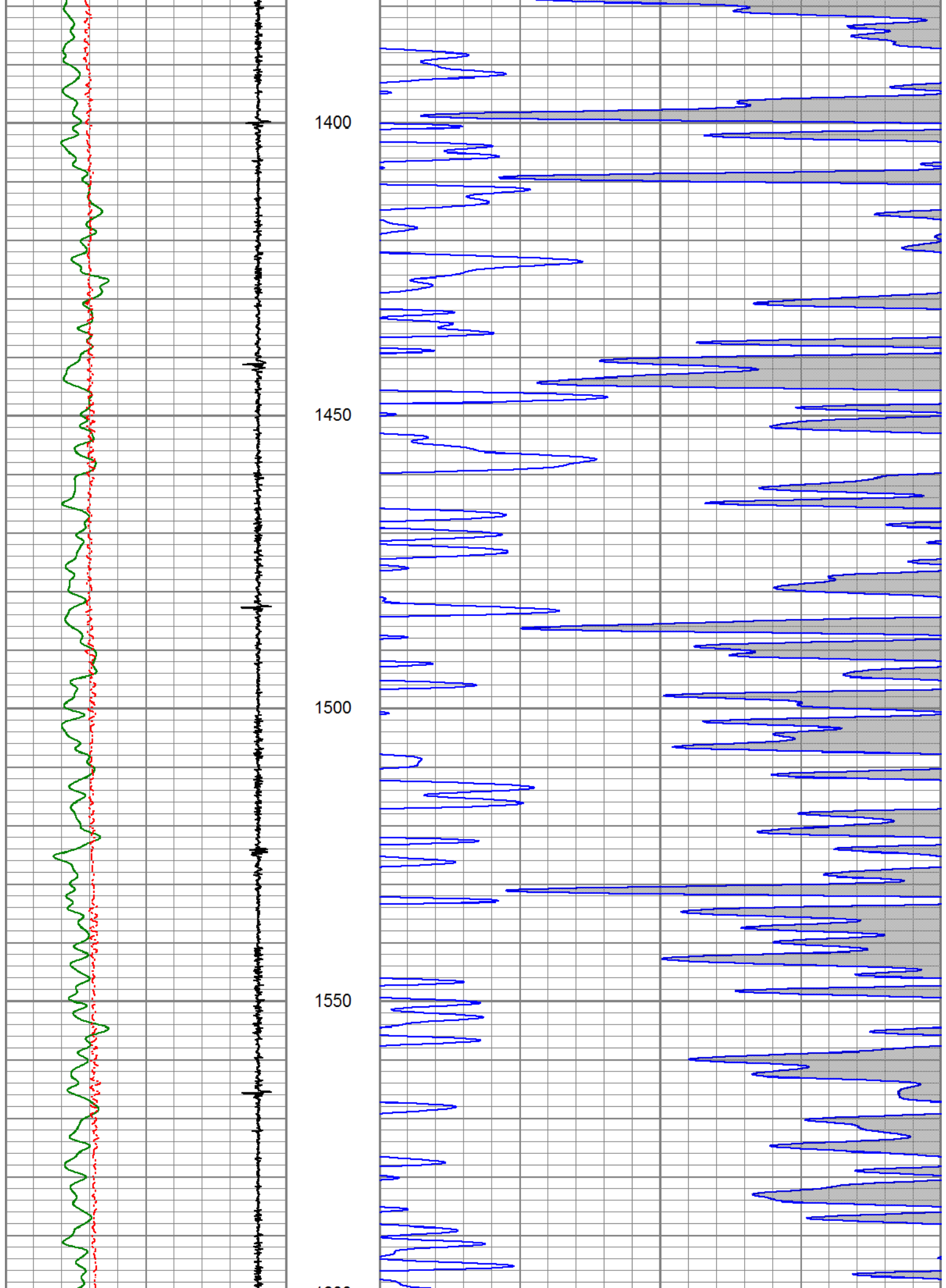
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1250

1300

1350





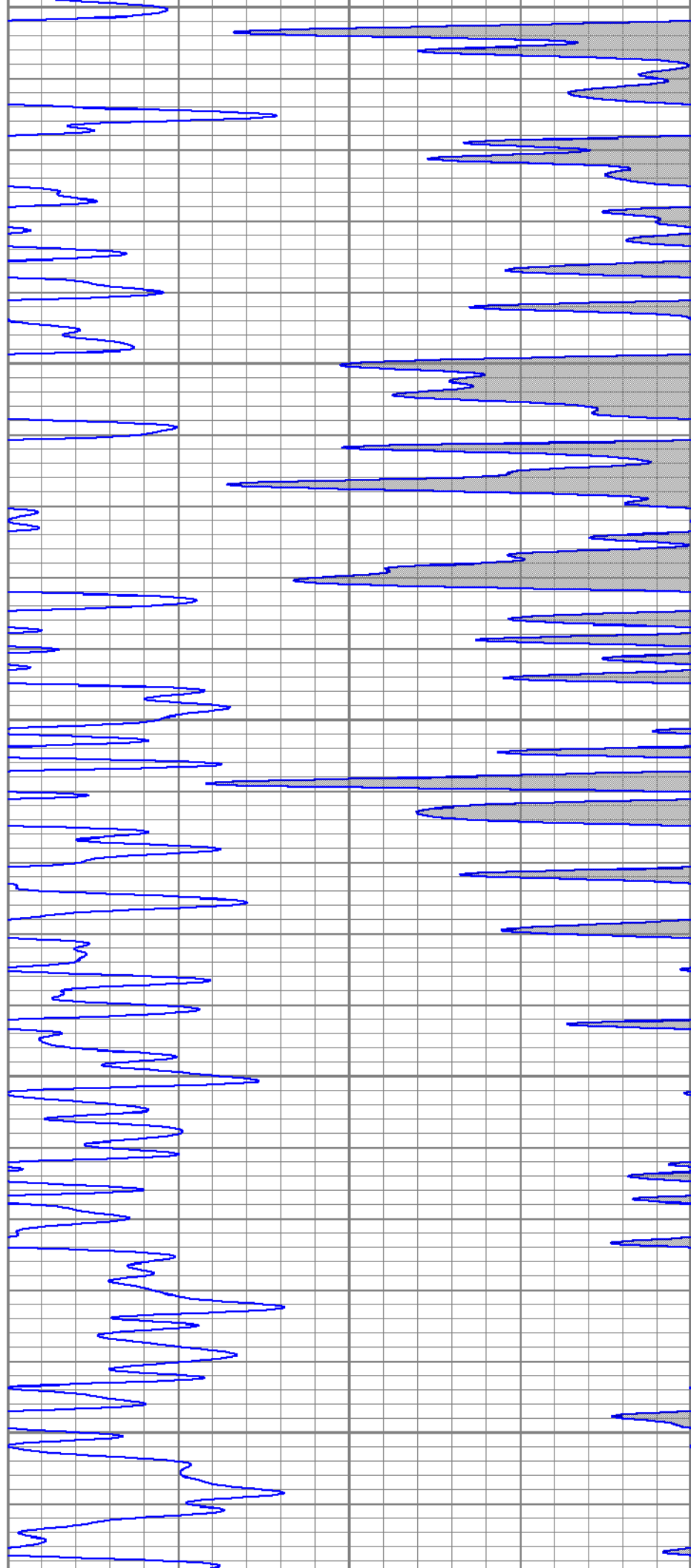
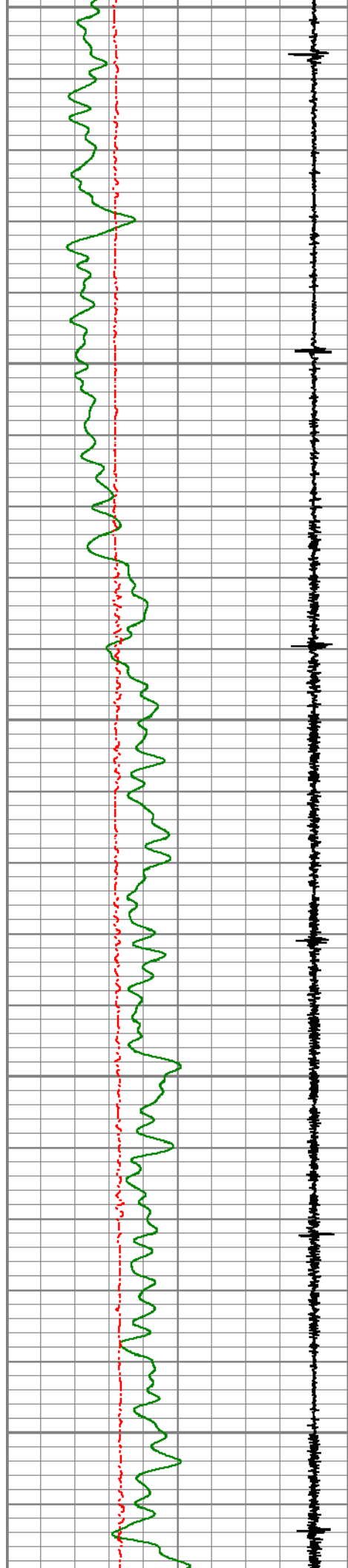
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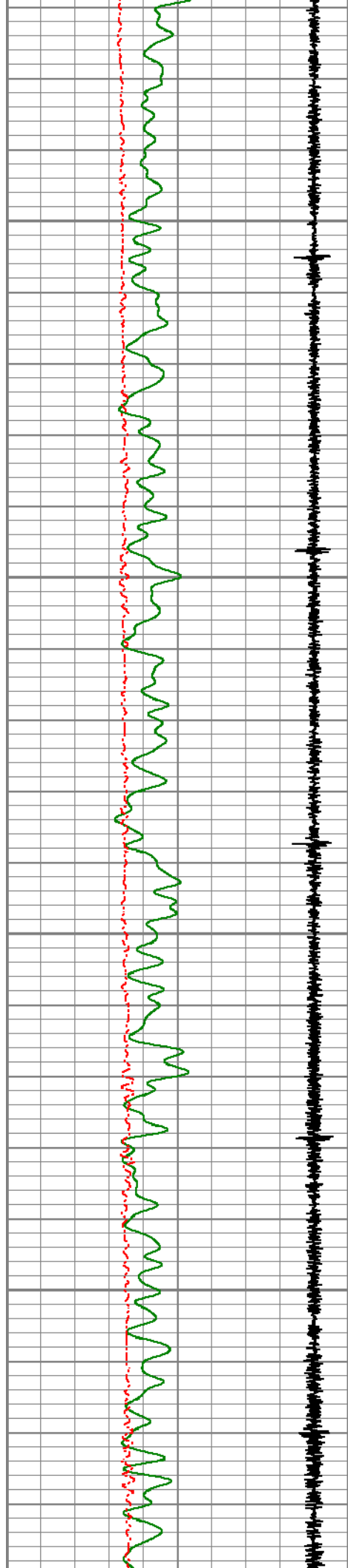
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1750

1800



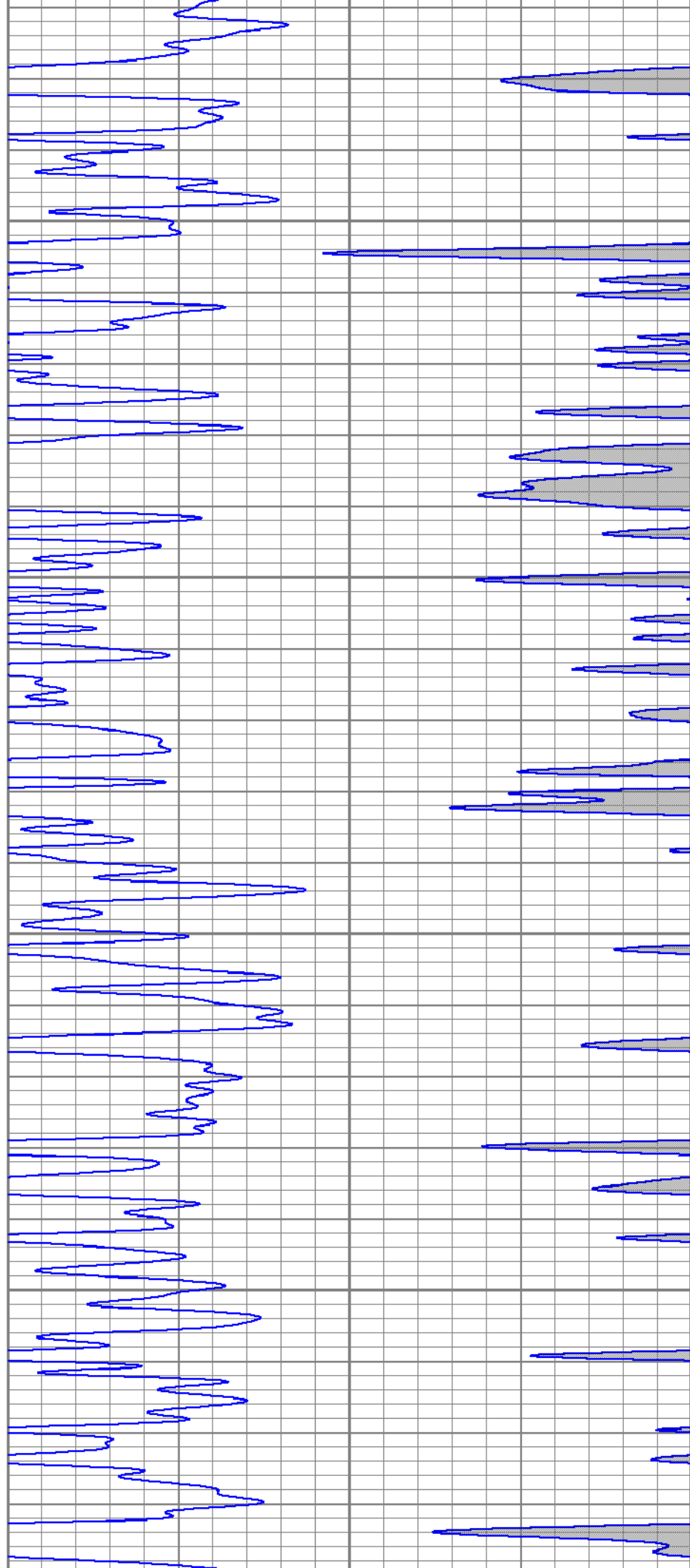


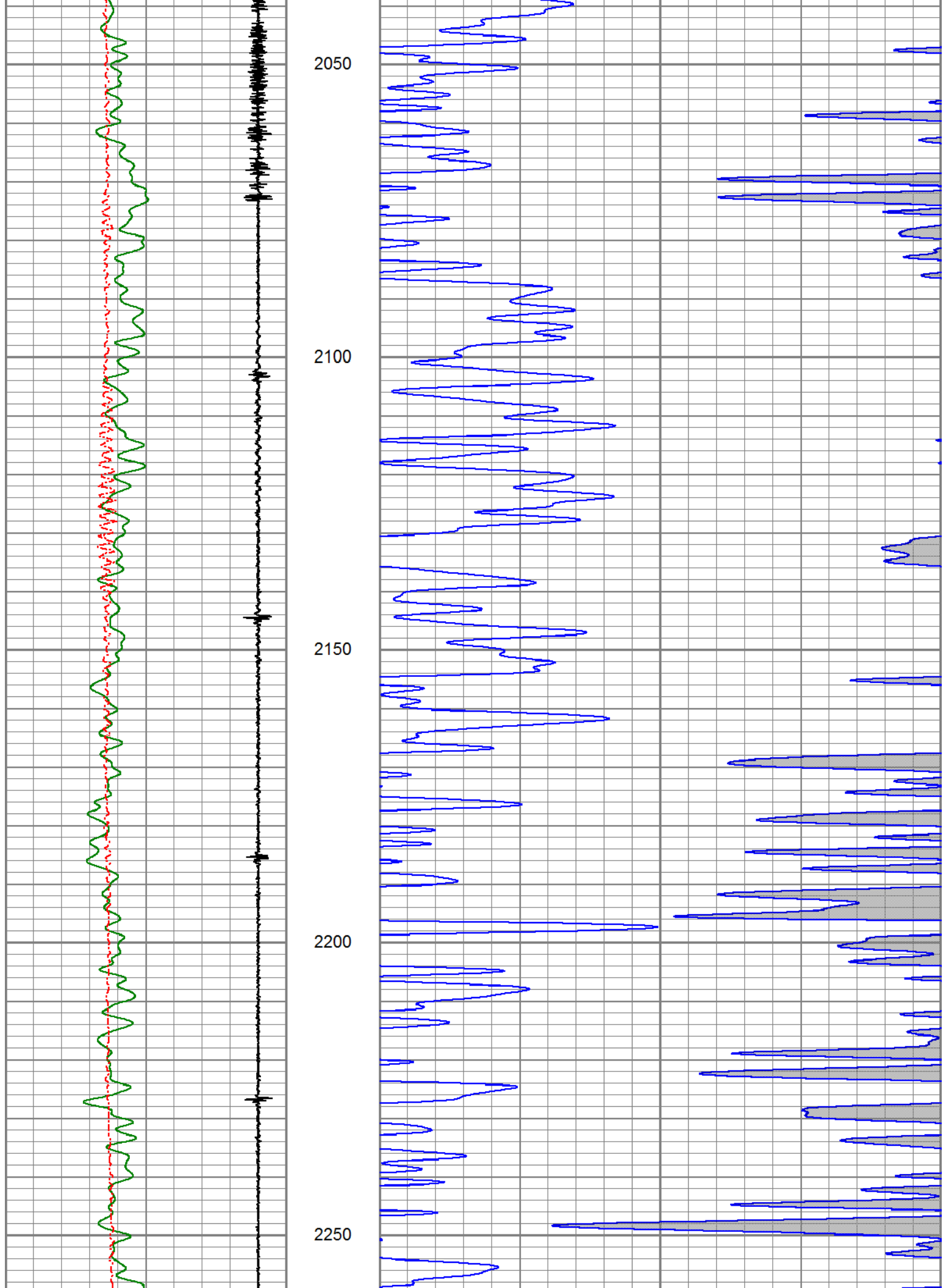
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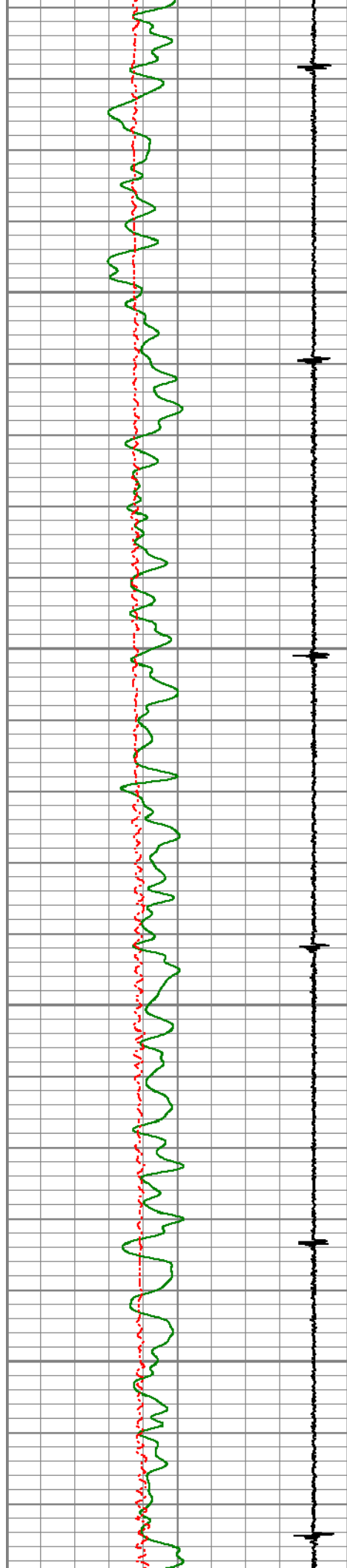
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2000





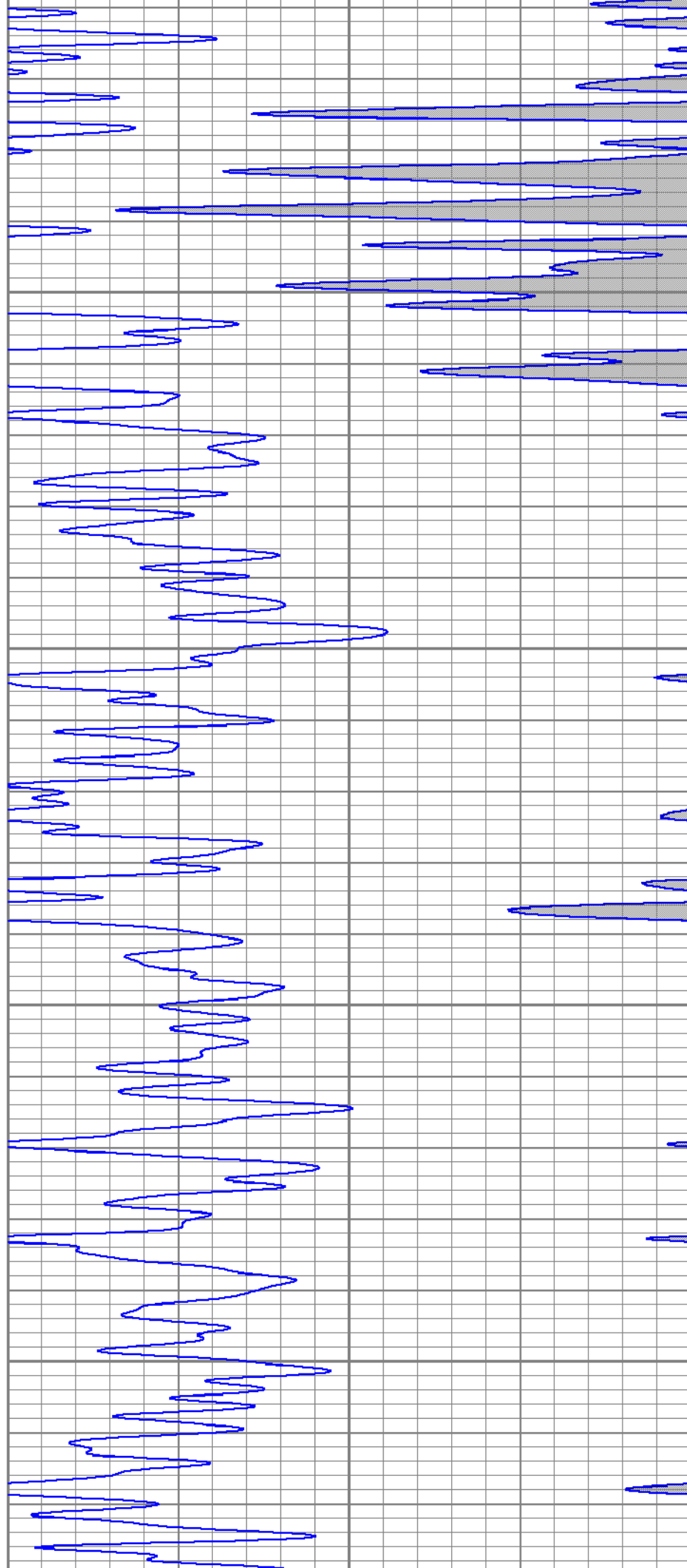


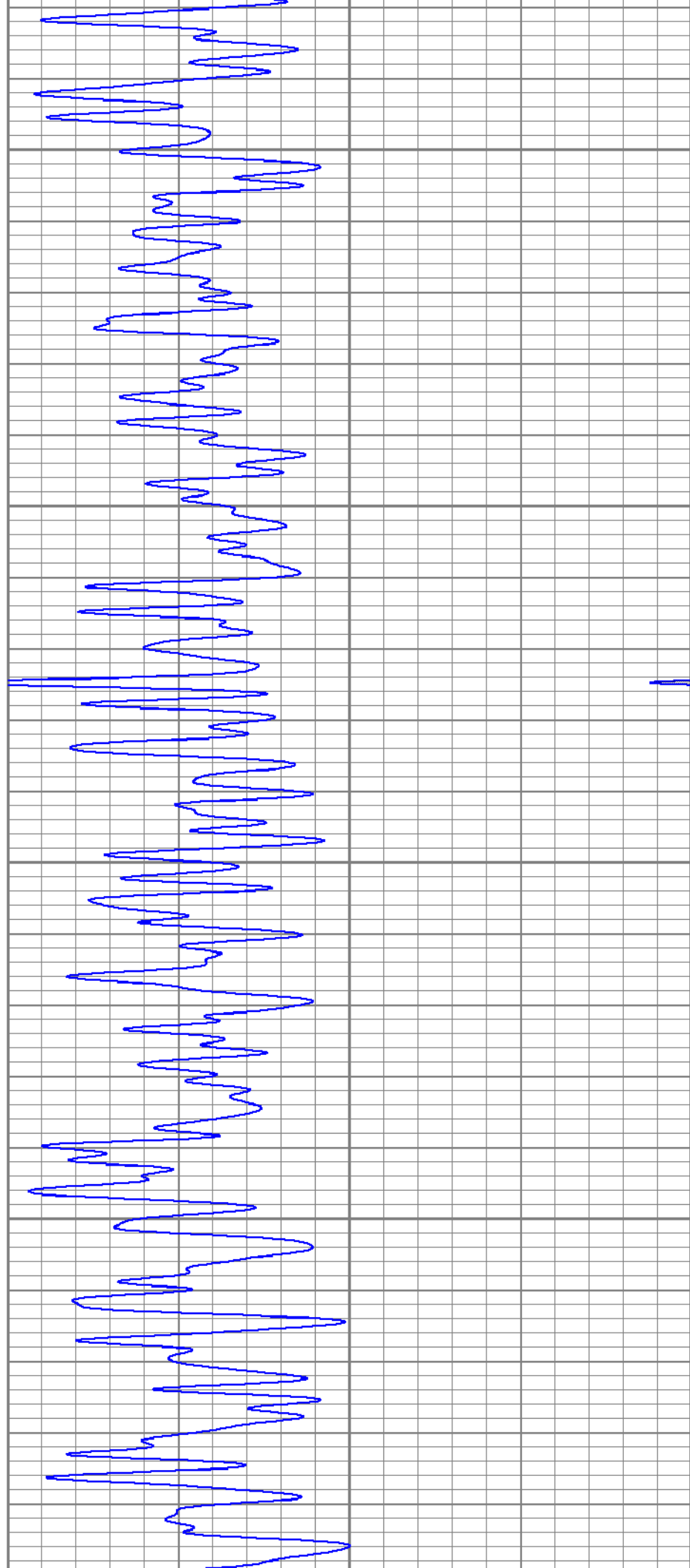
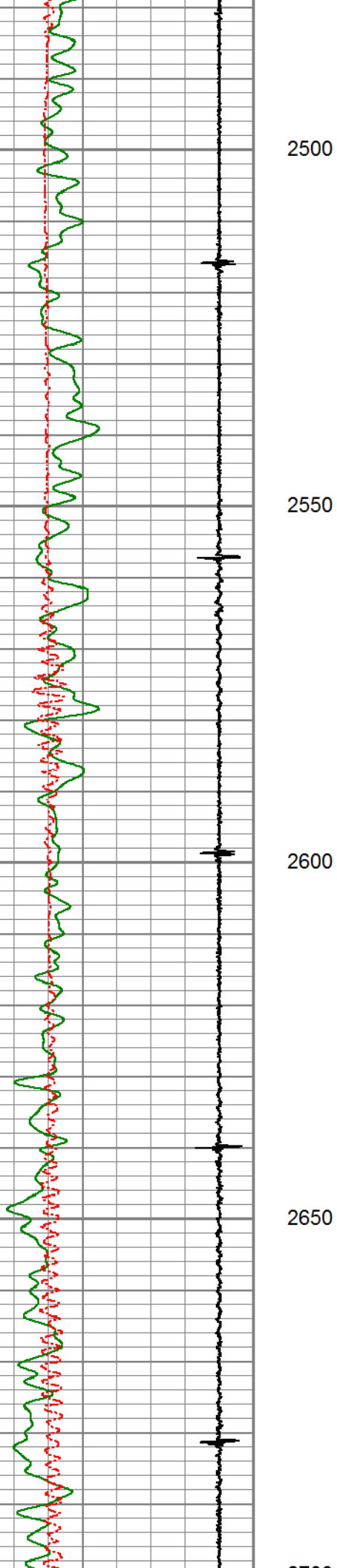
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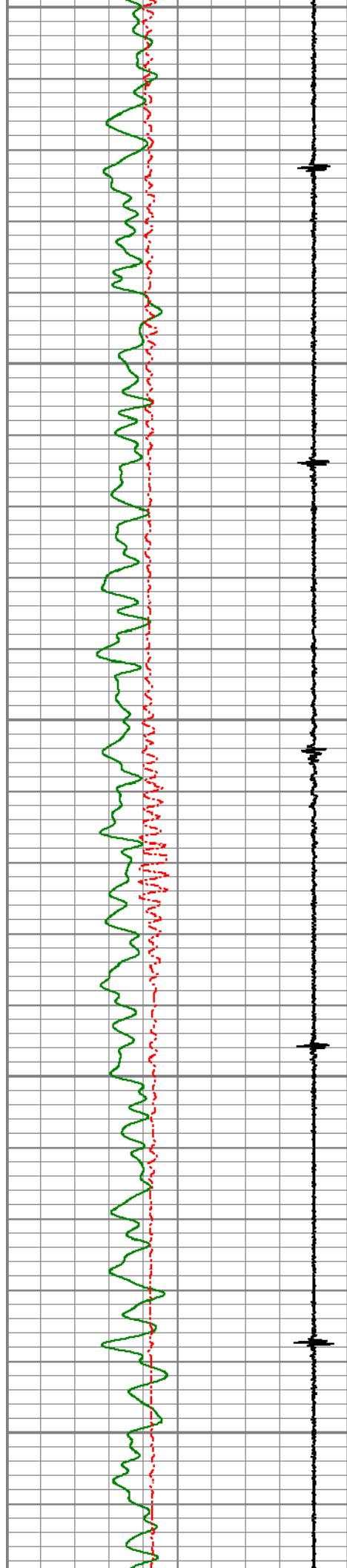
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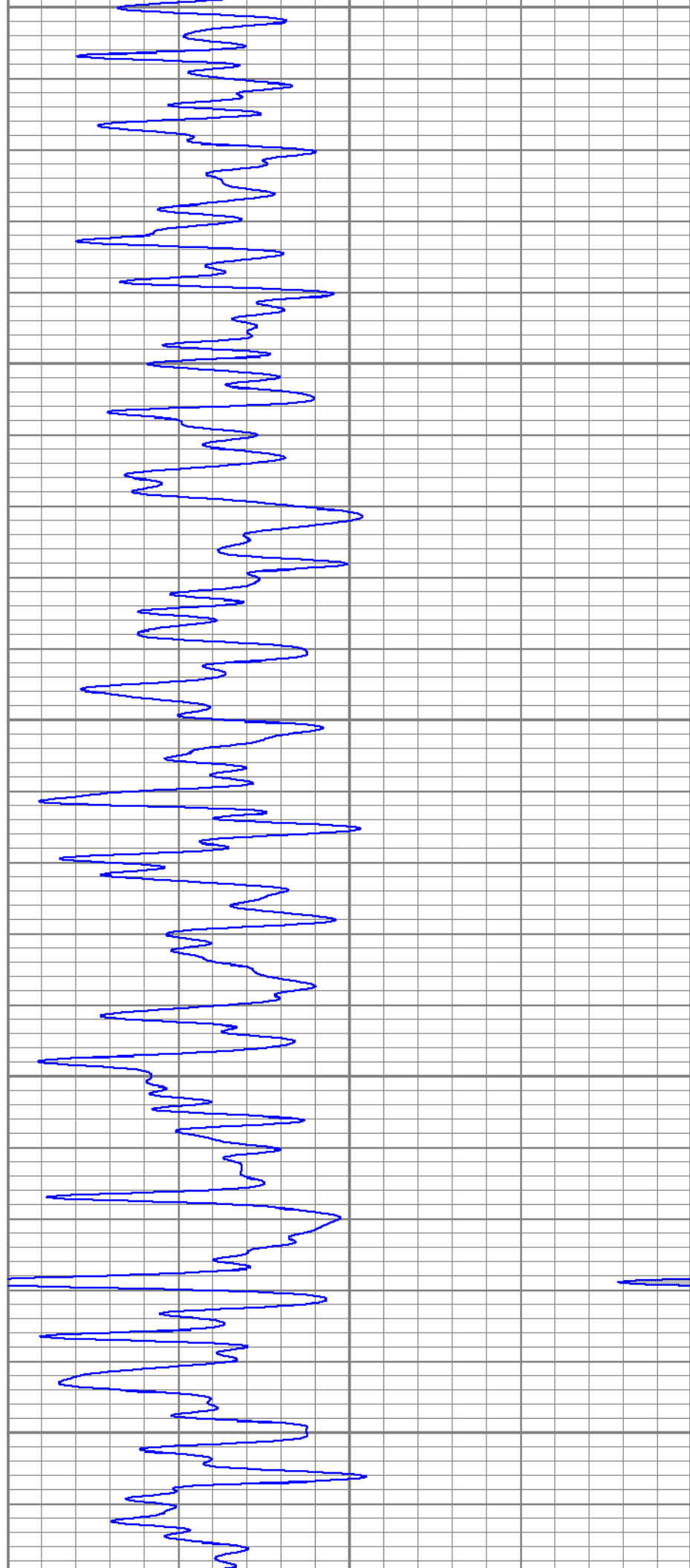
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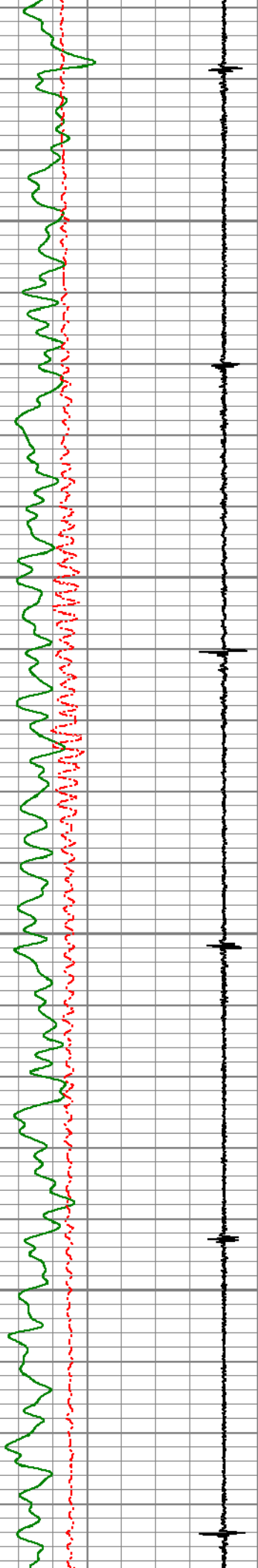
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2850

2900



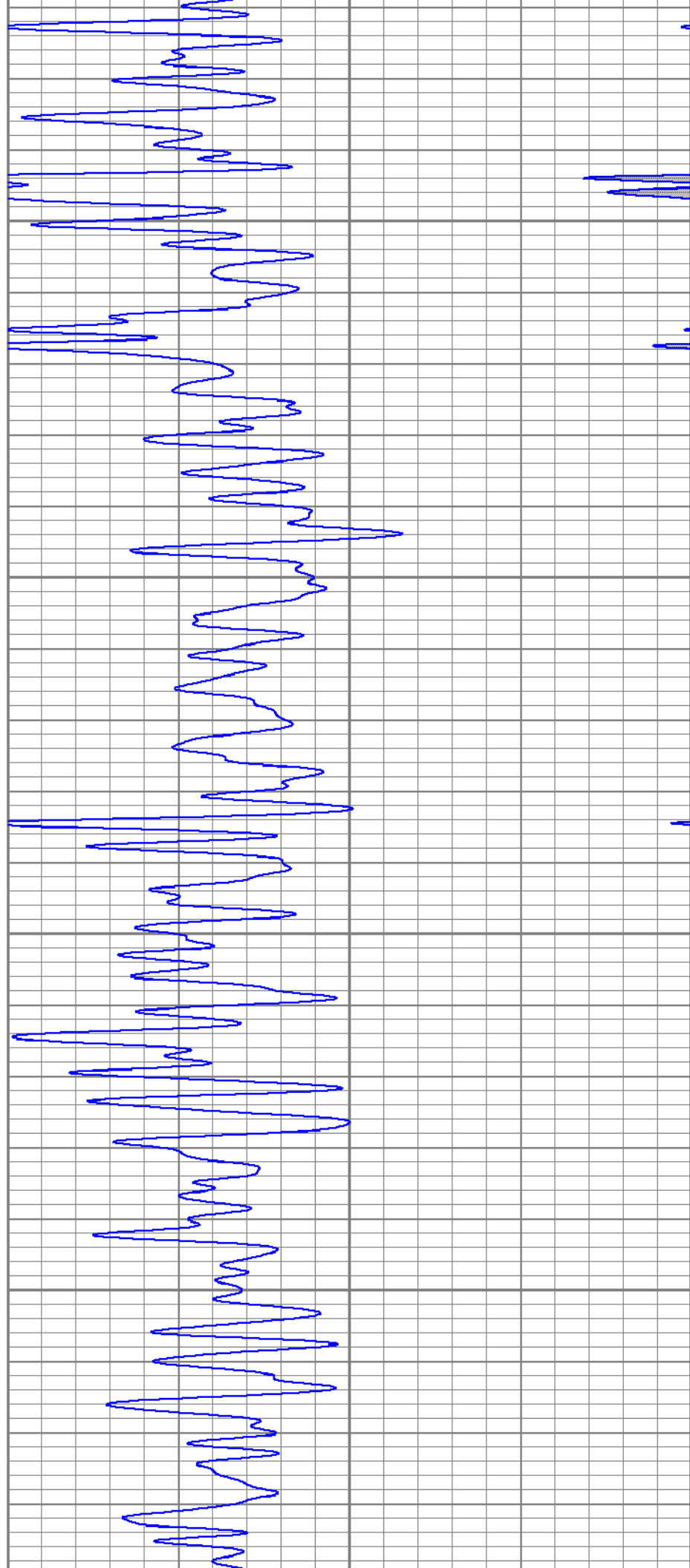


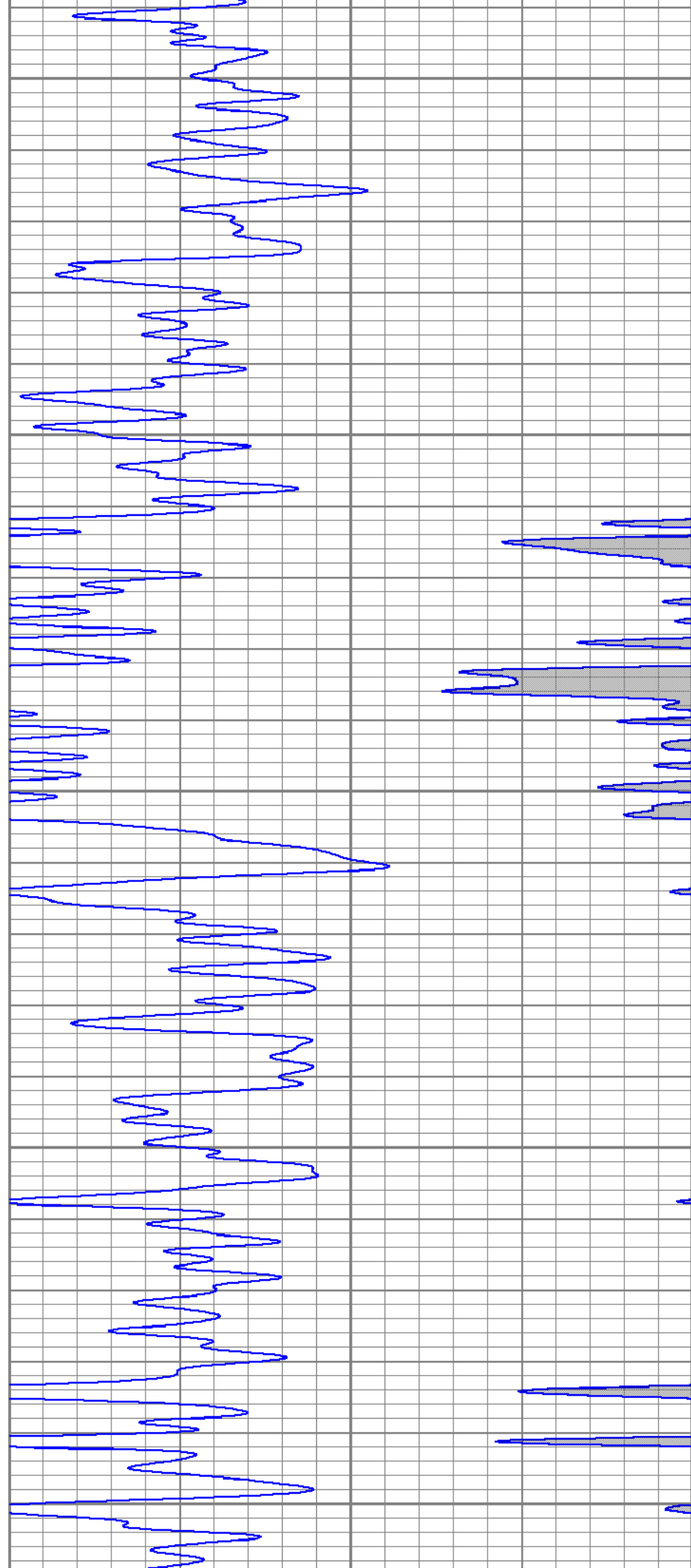
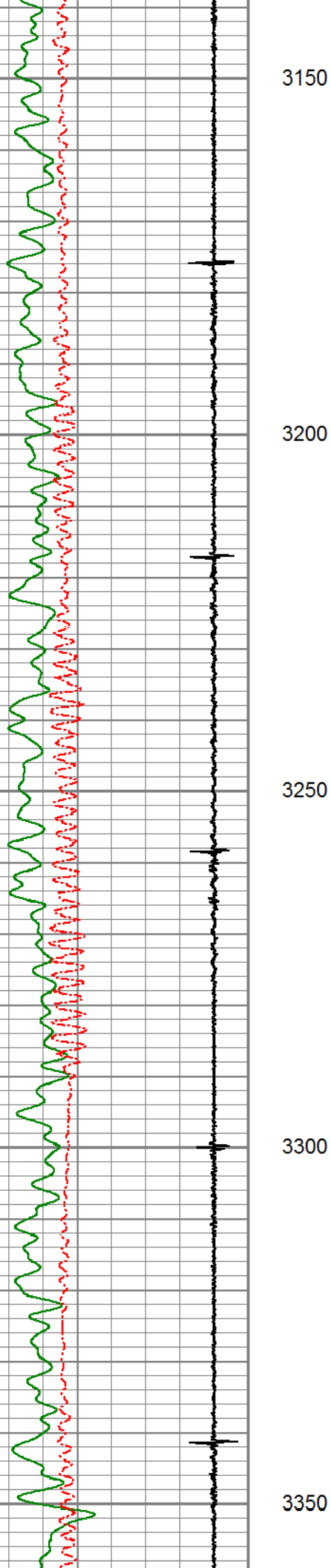
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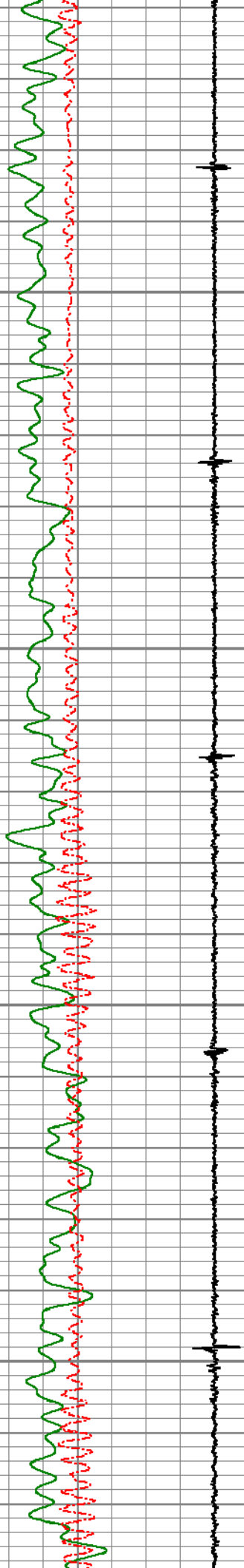
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3100





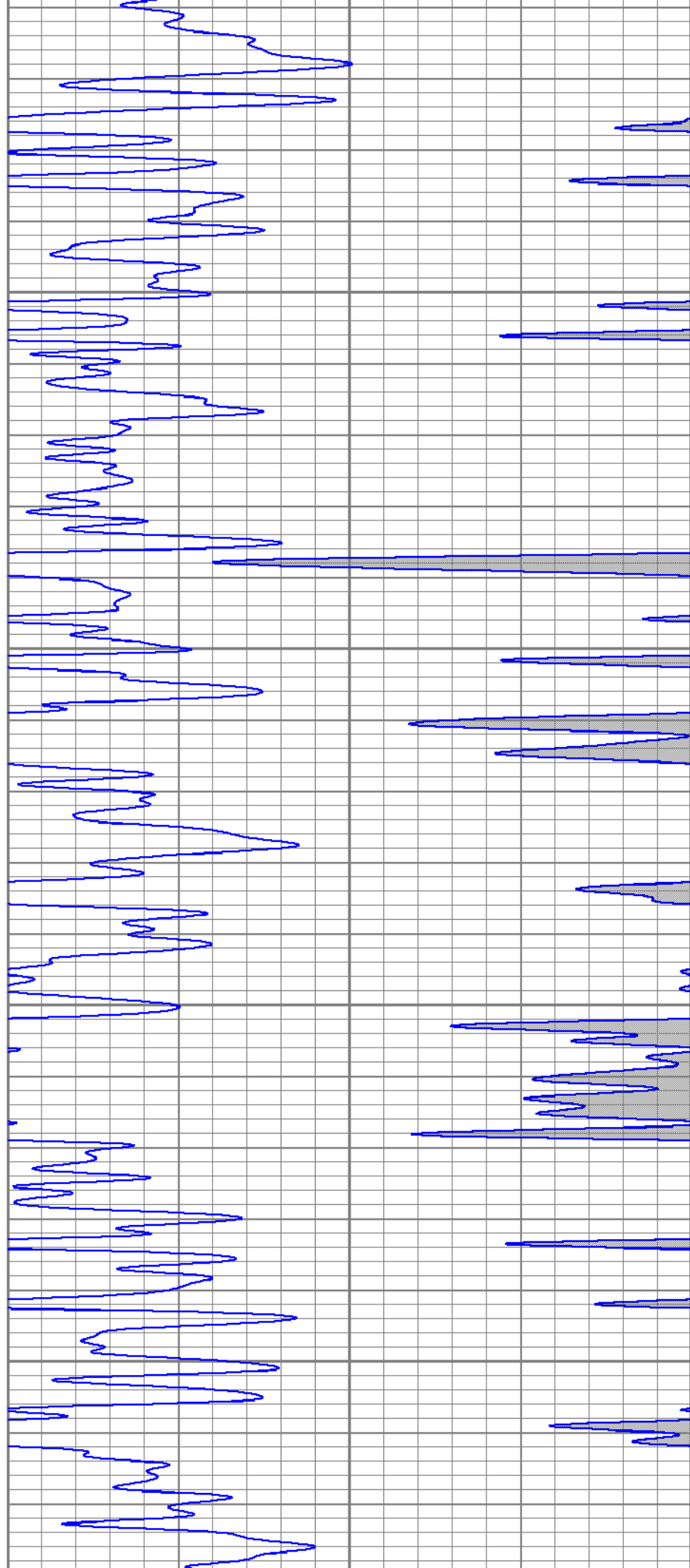


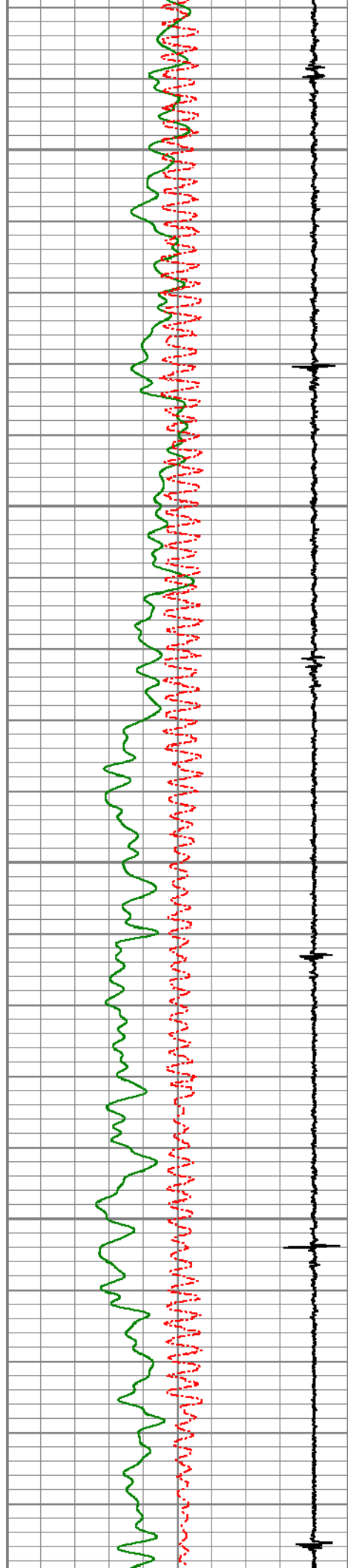
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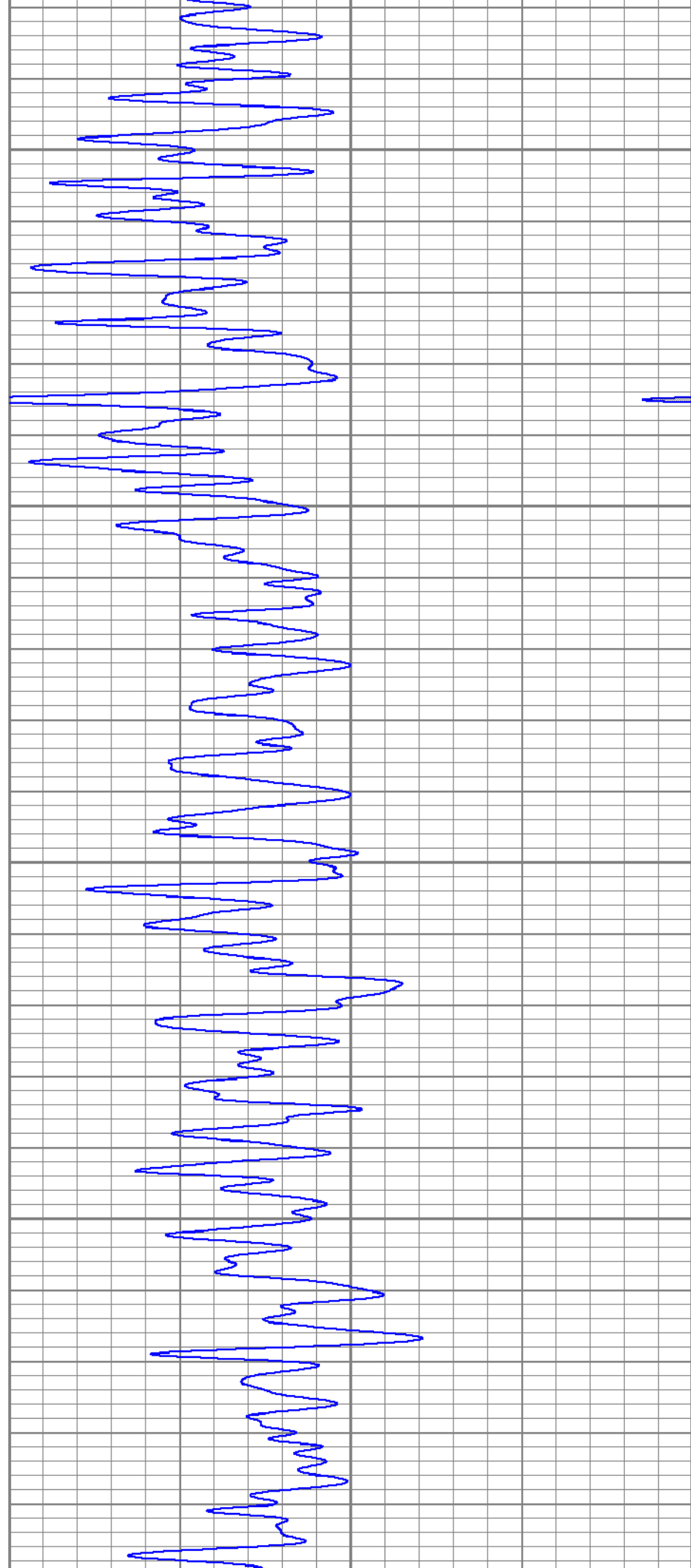
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3700

3750

3800



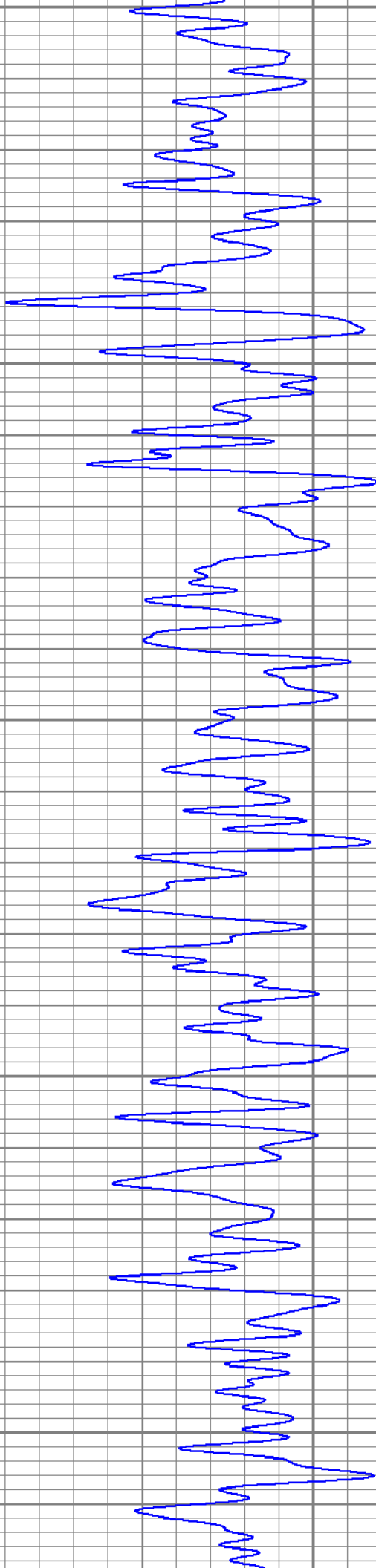
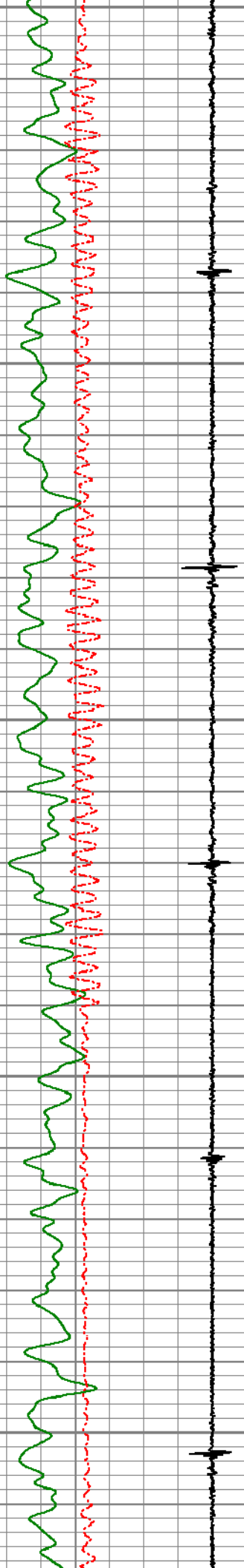
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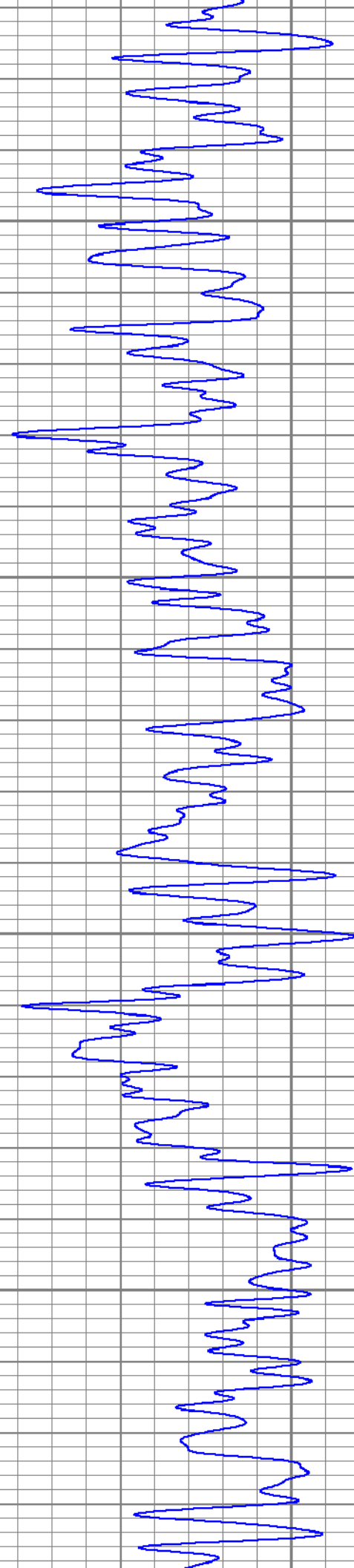
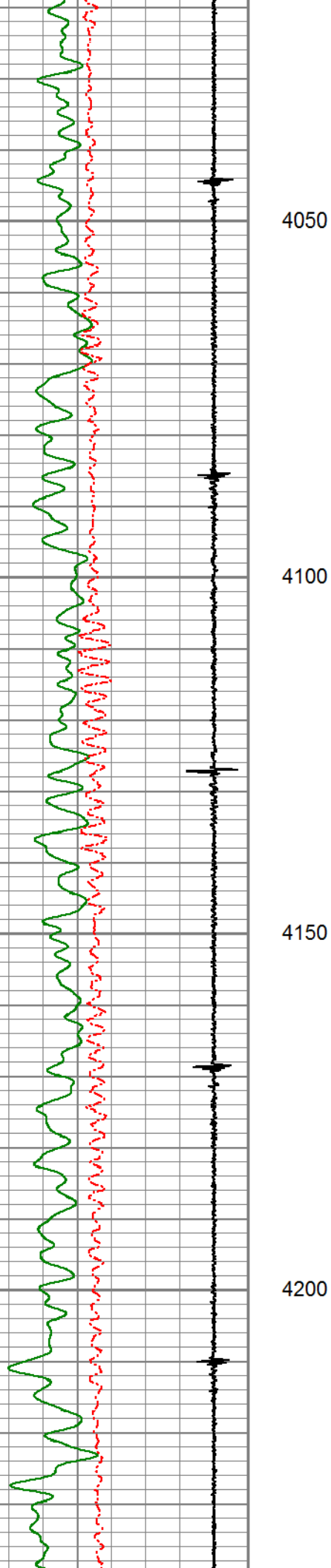
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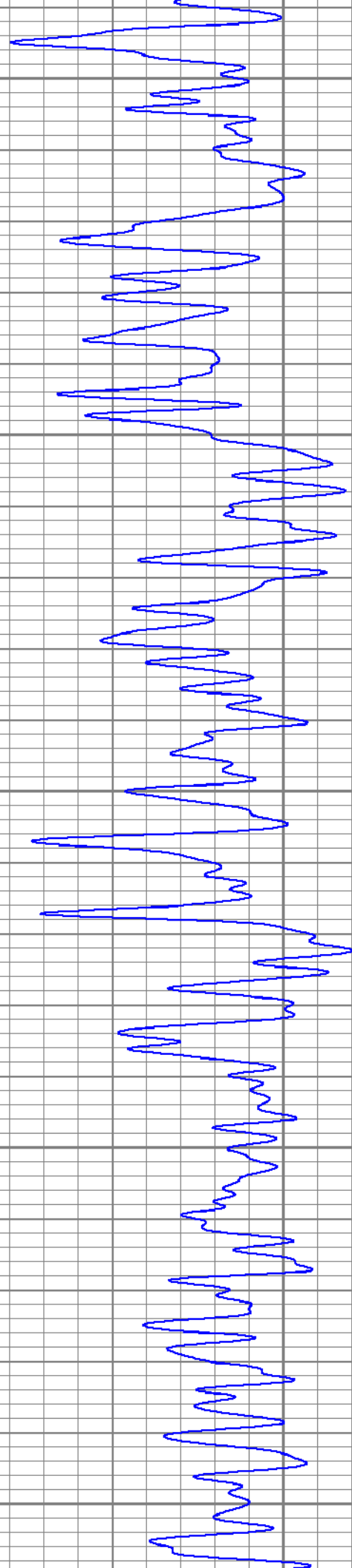
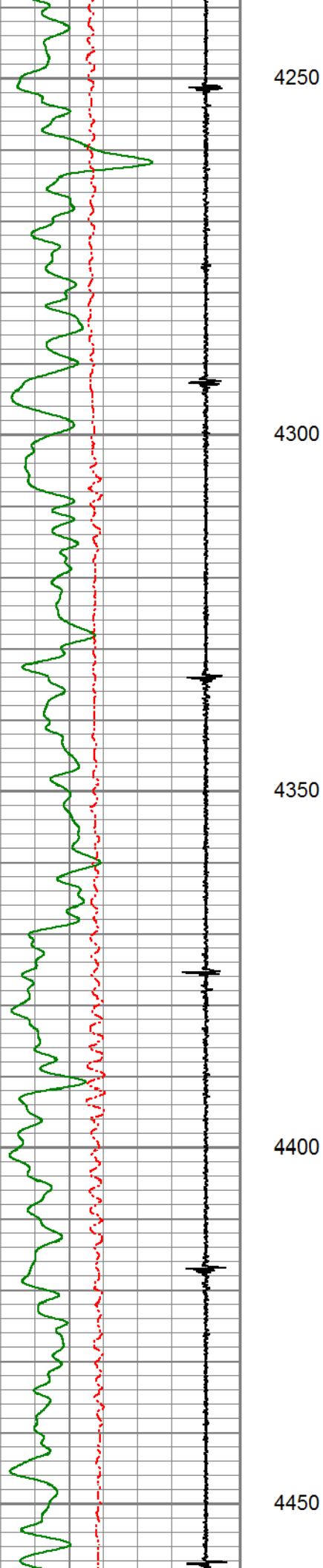
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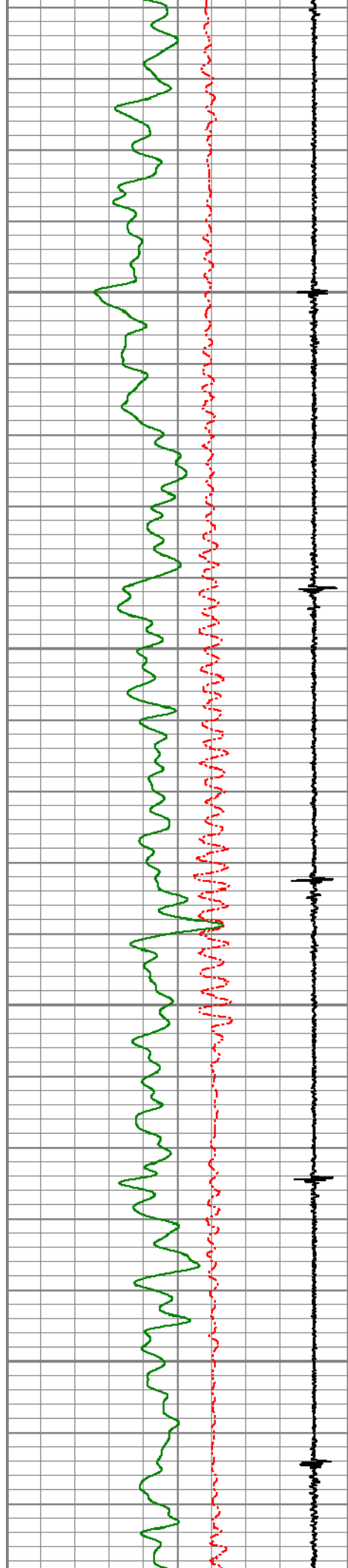
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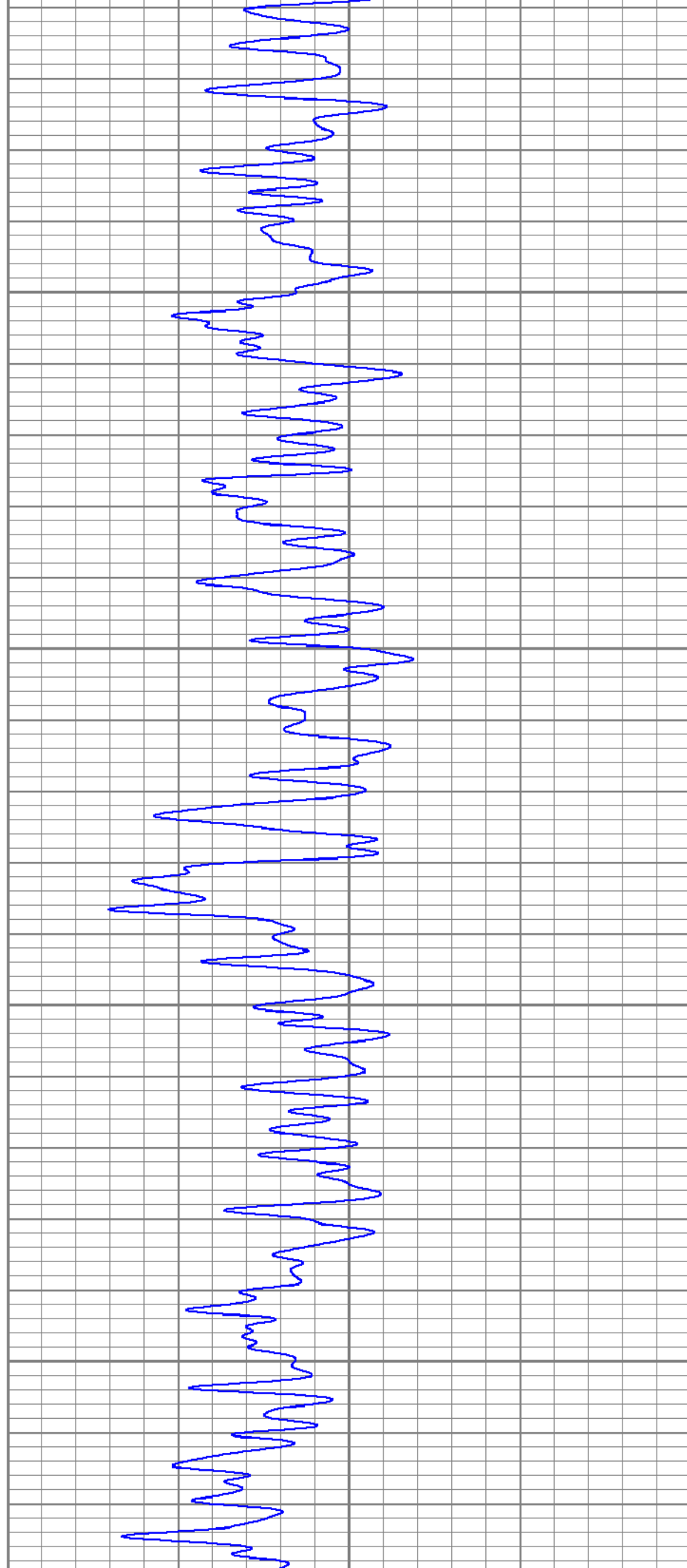


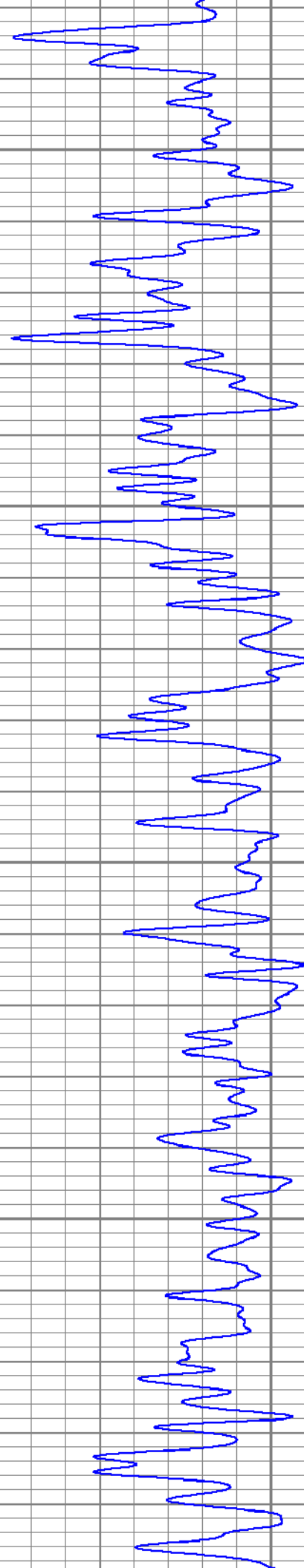
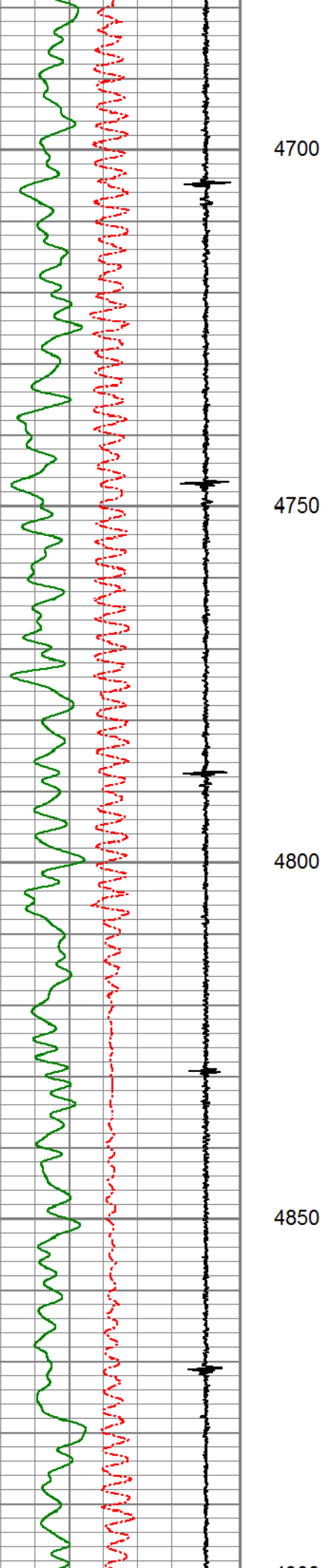
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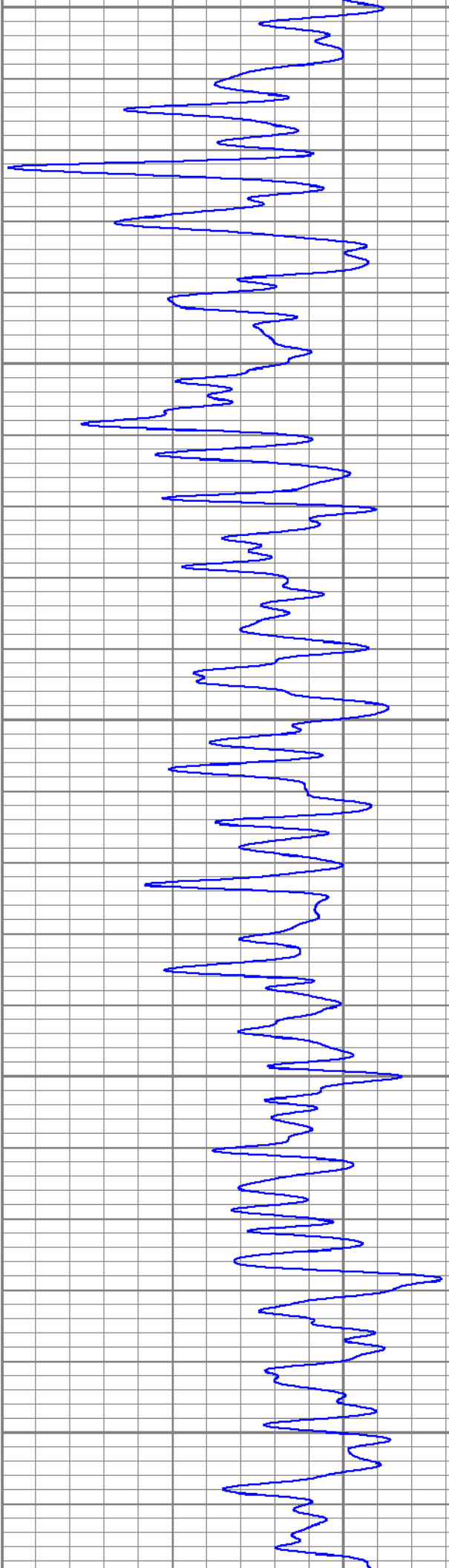
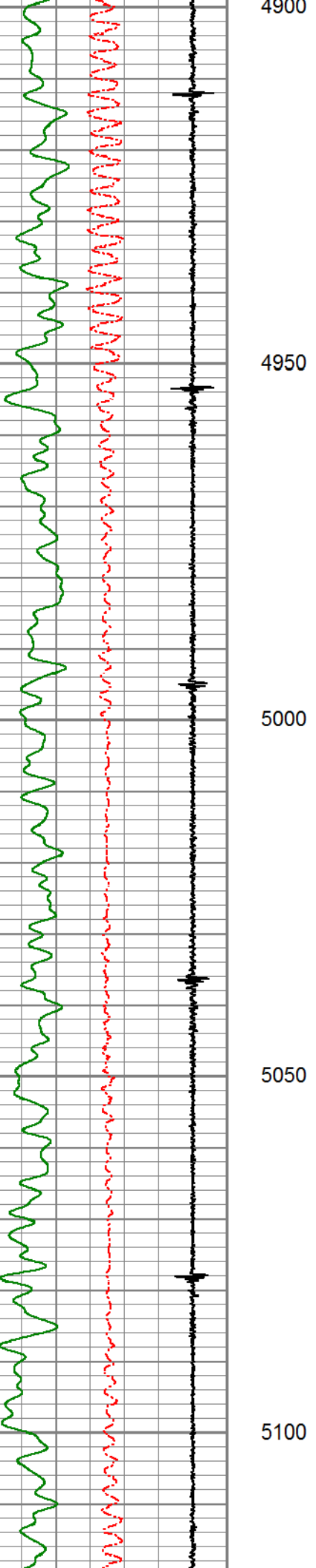
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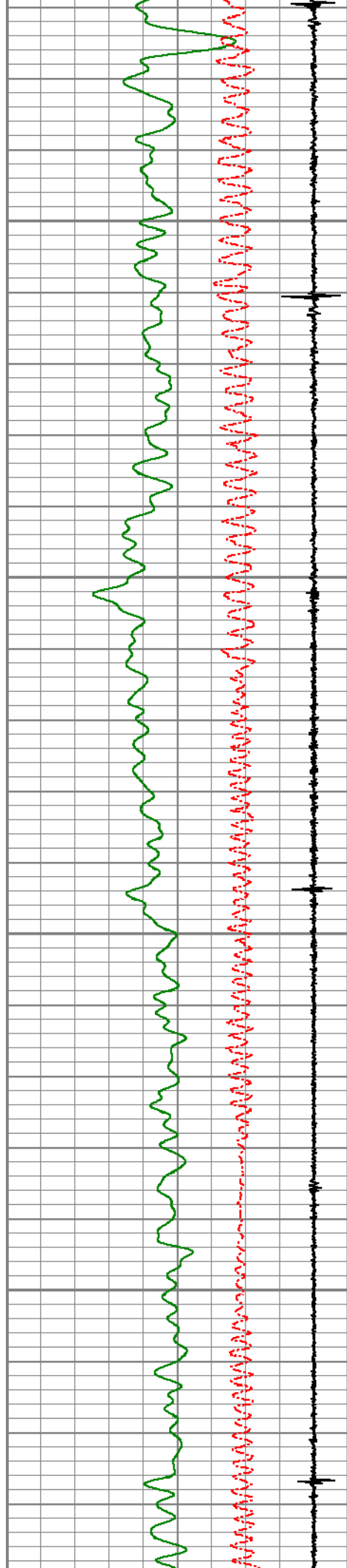
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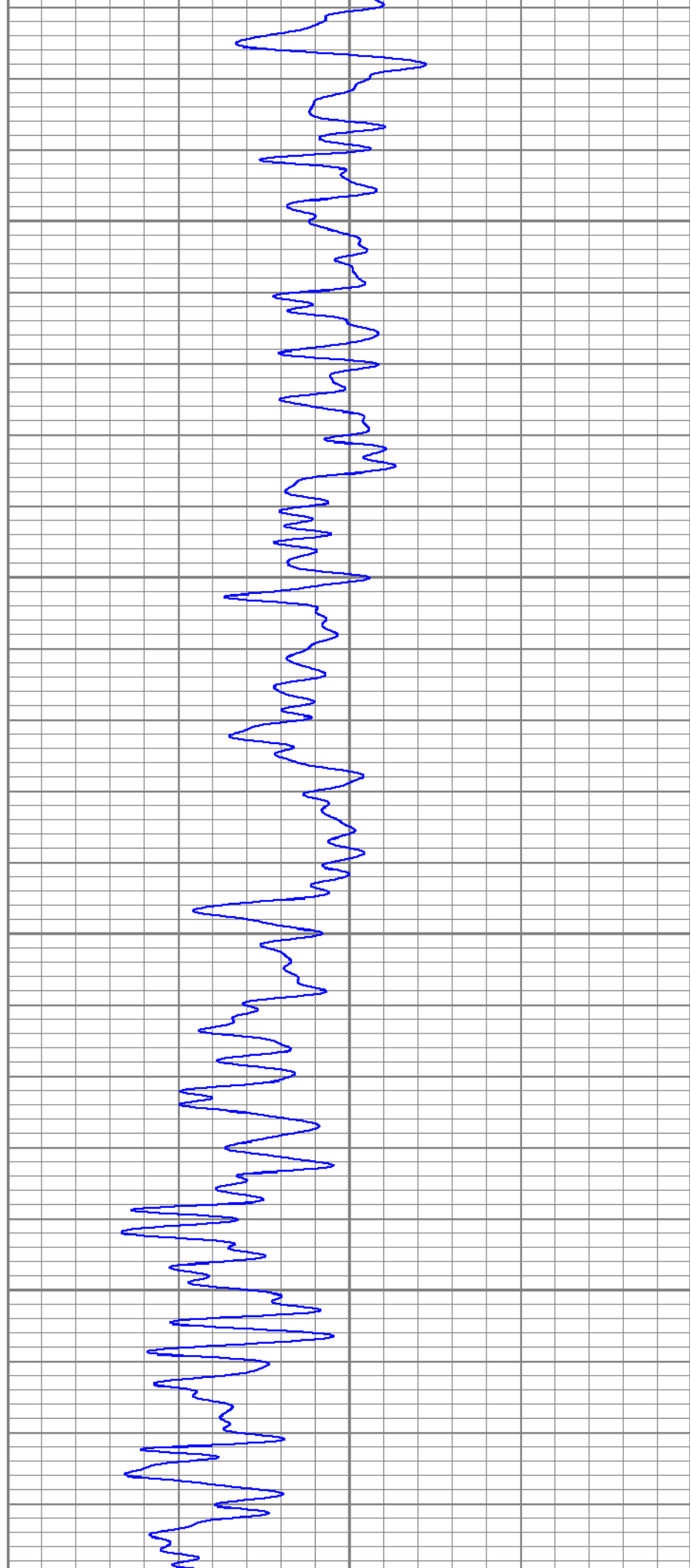


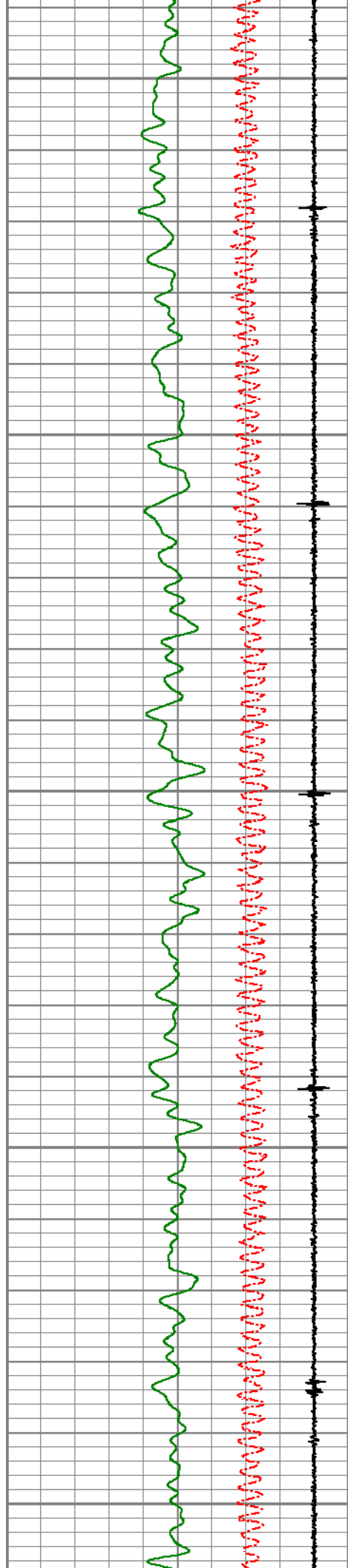
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5200

5250

5300





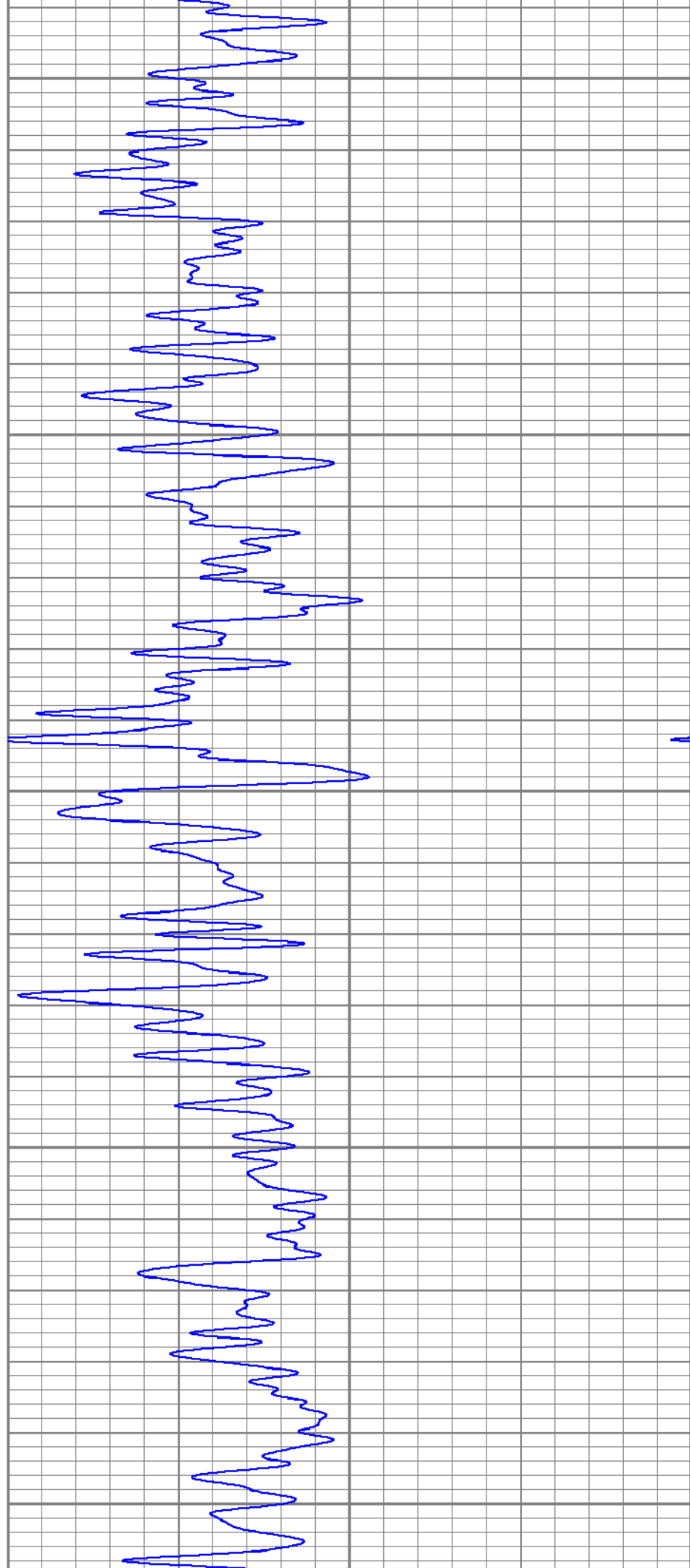
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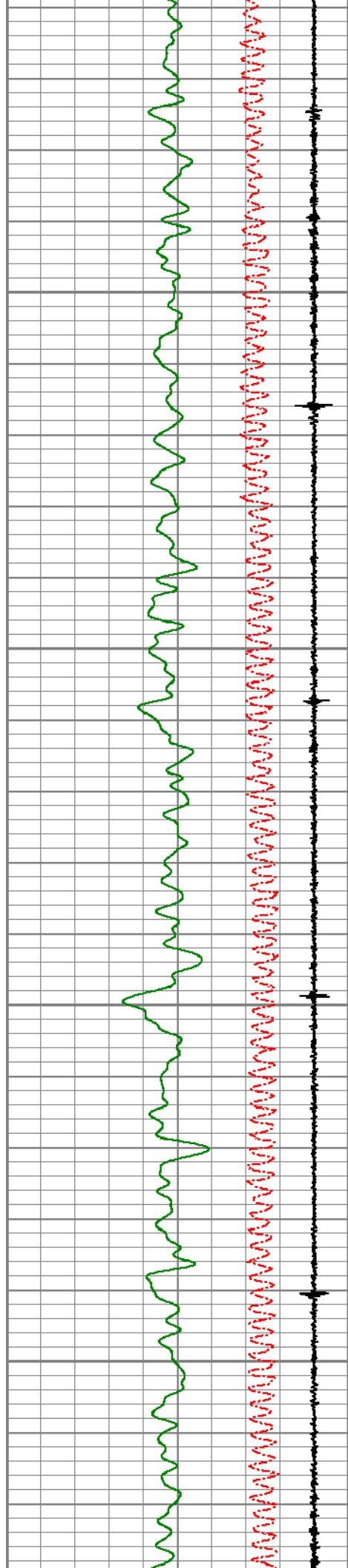
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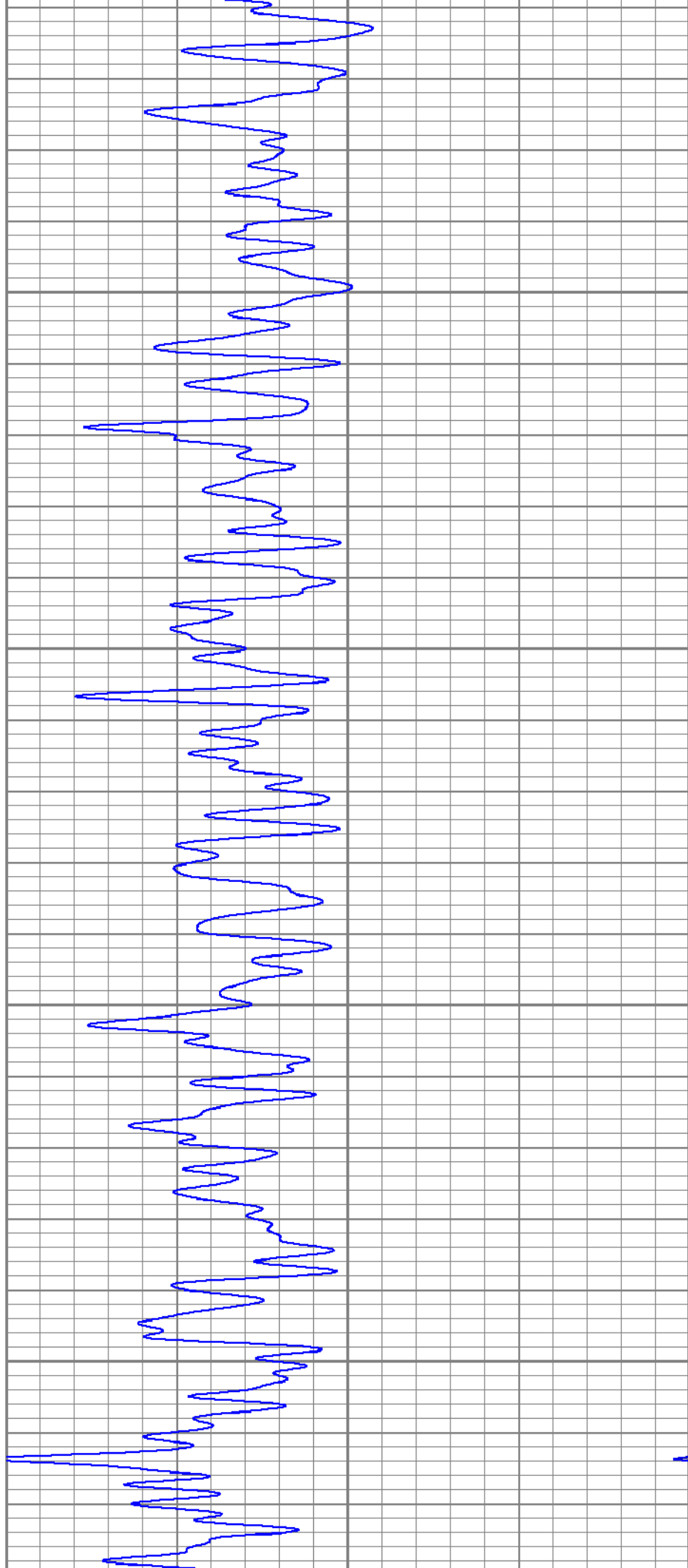


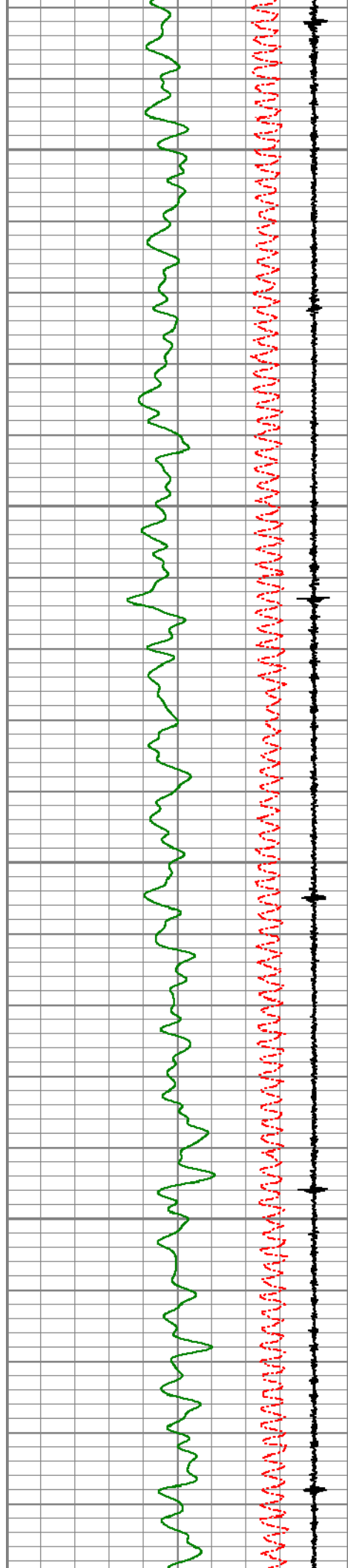
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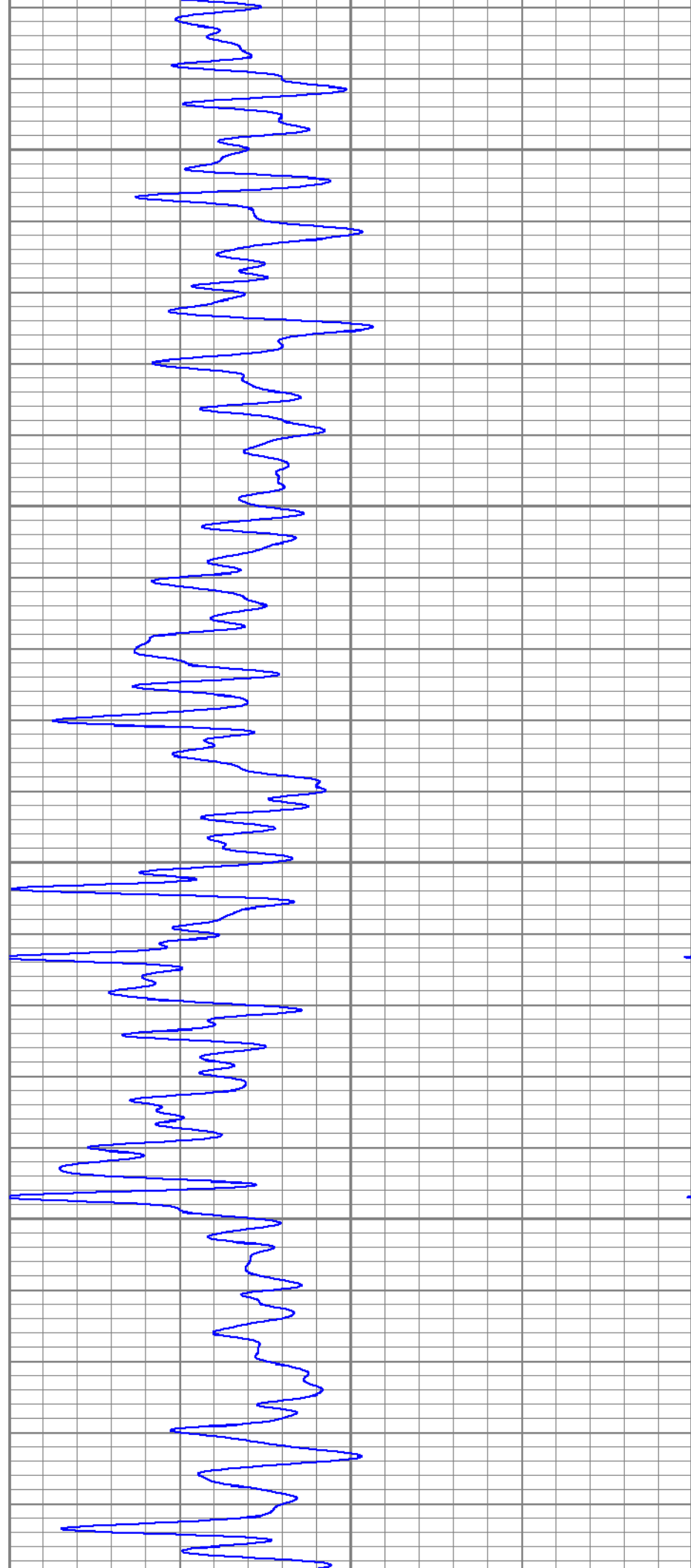
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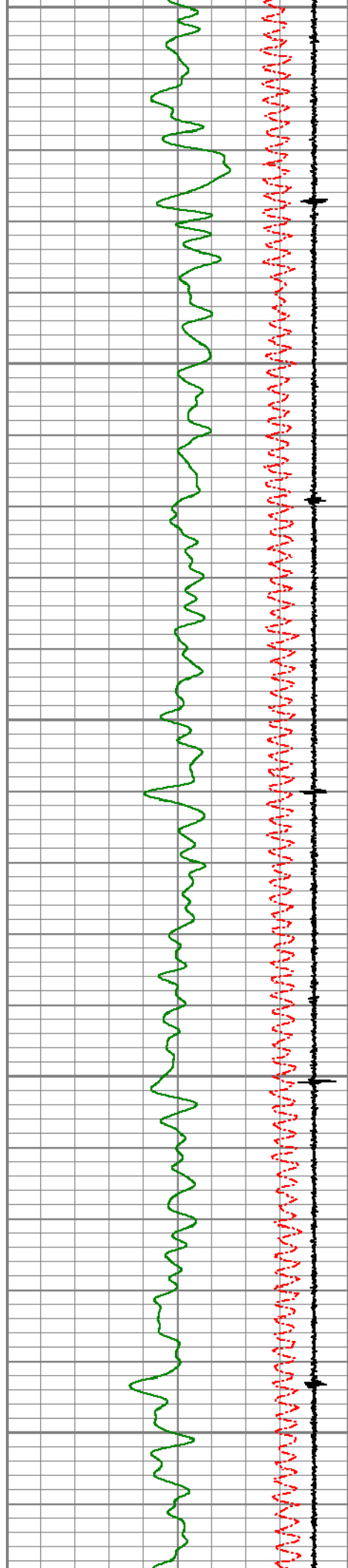
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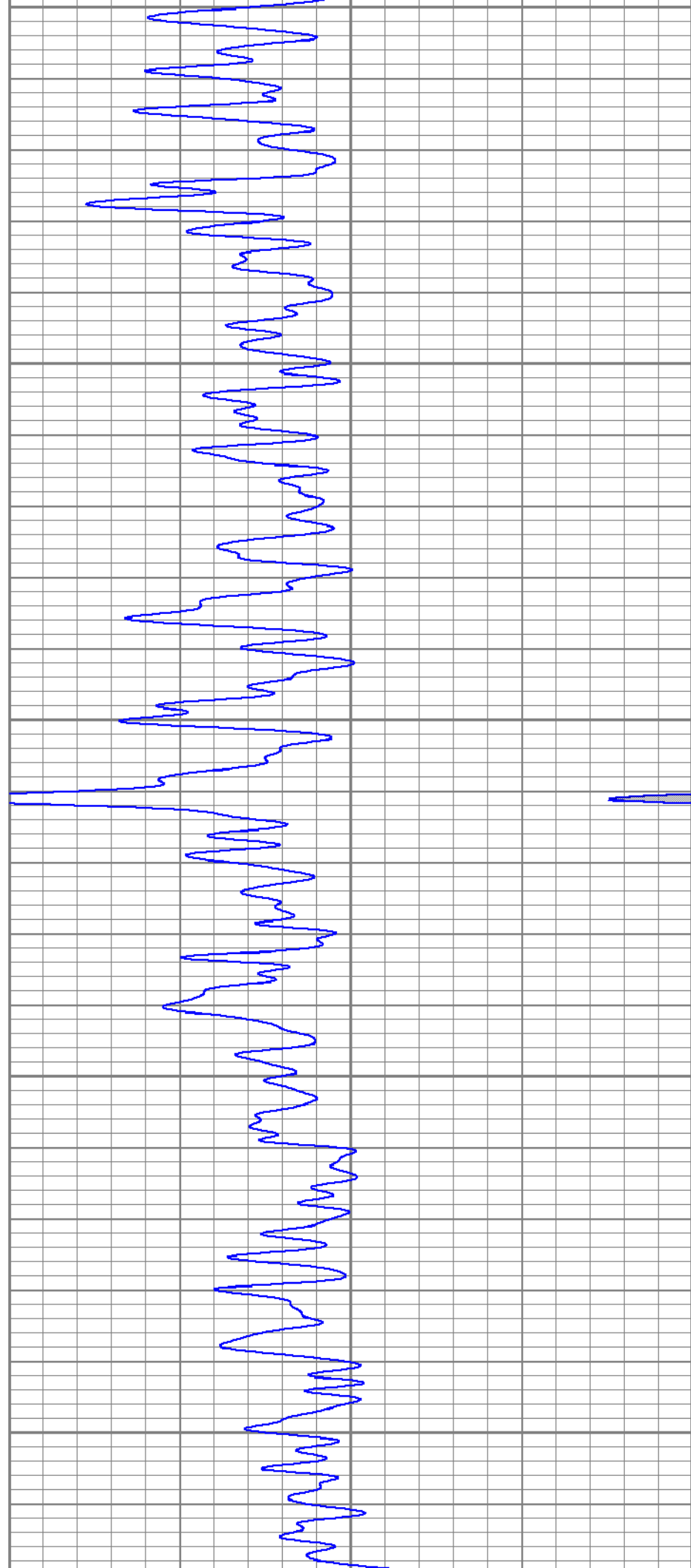
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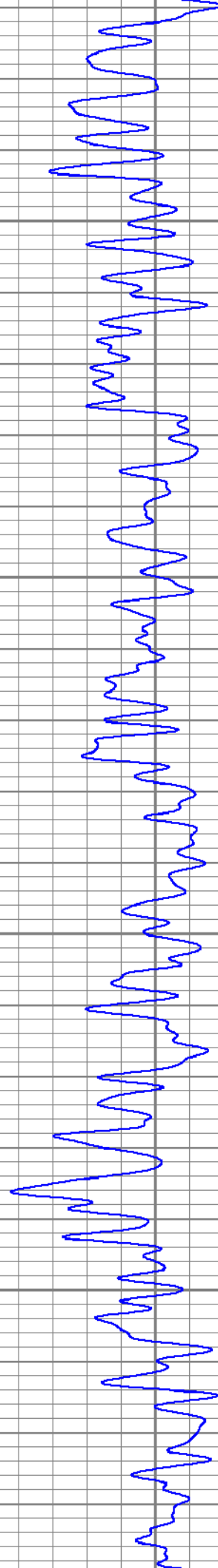
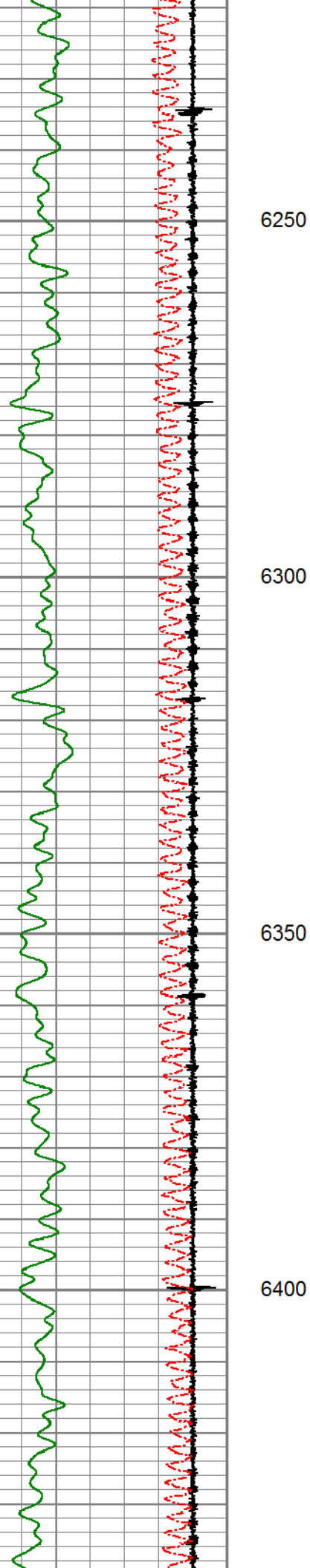
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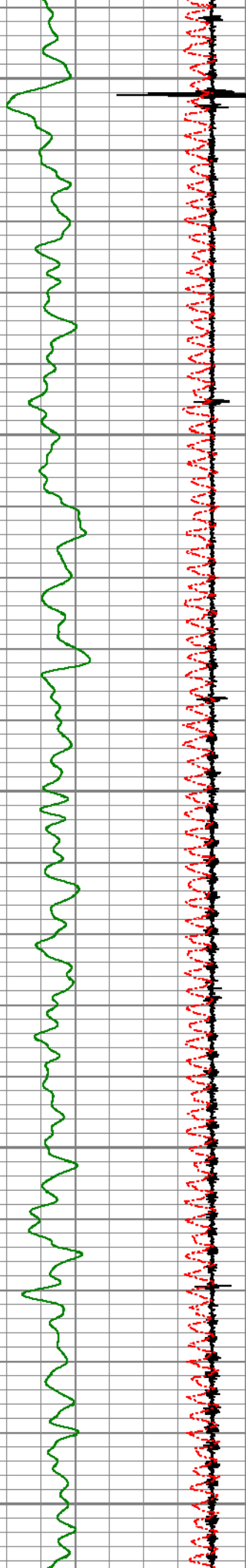




6000
6050
6100
6150
6200







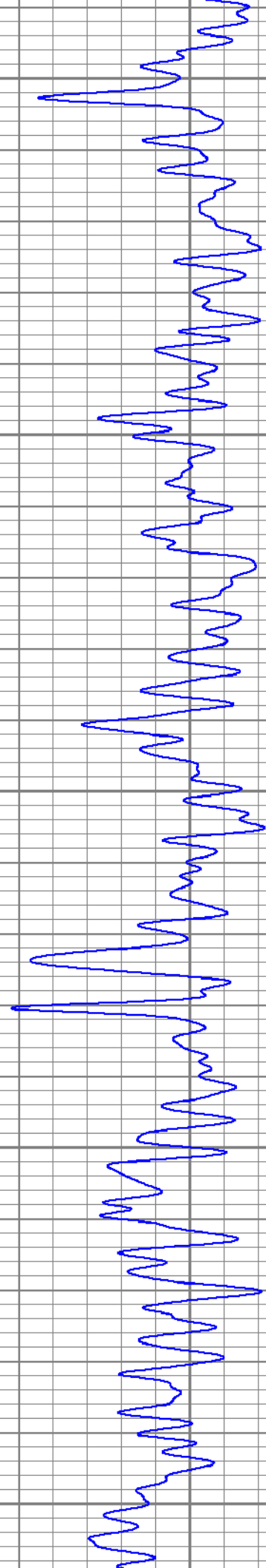
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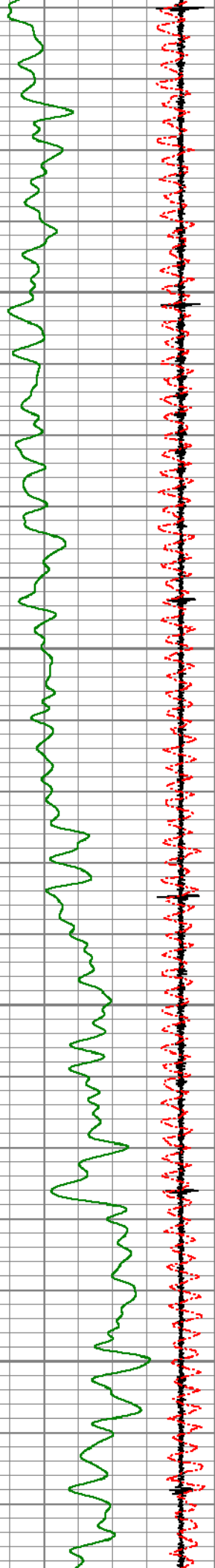
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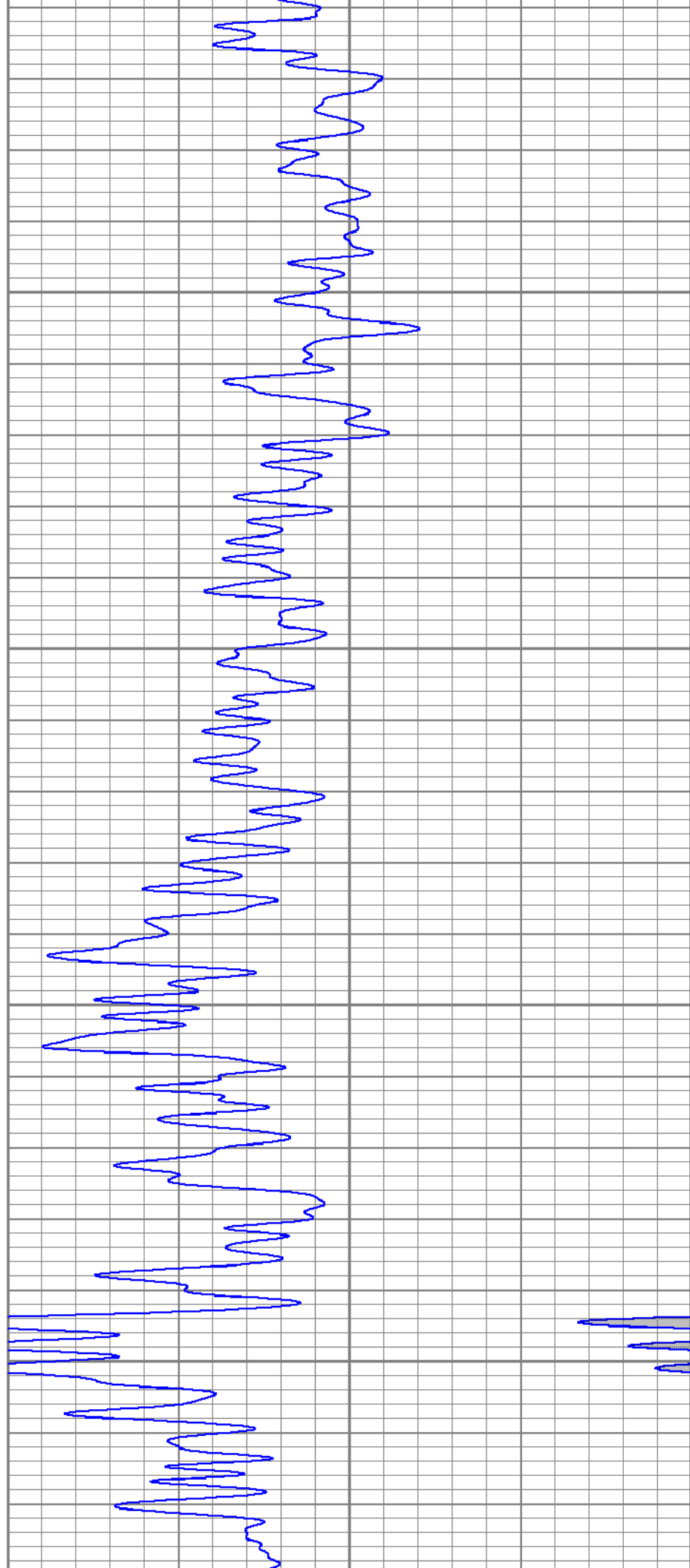


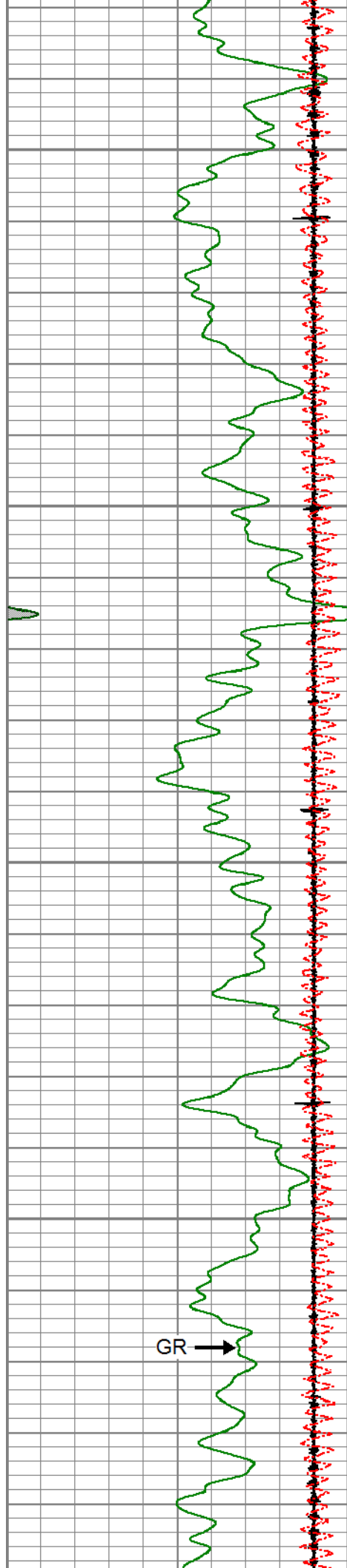
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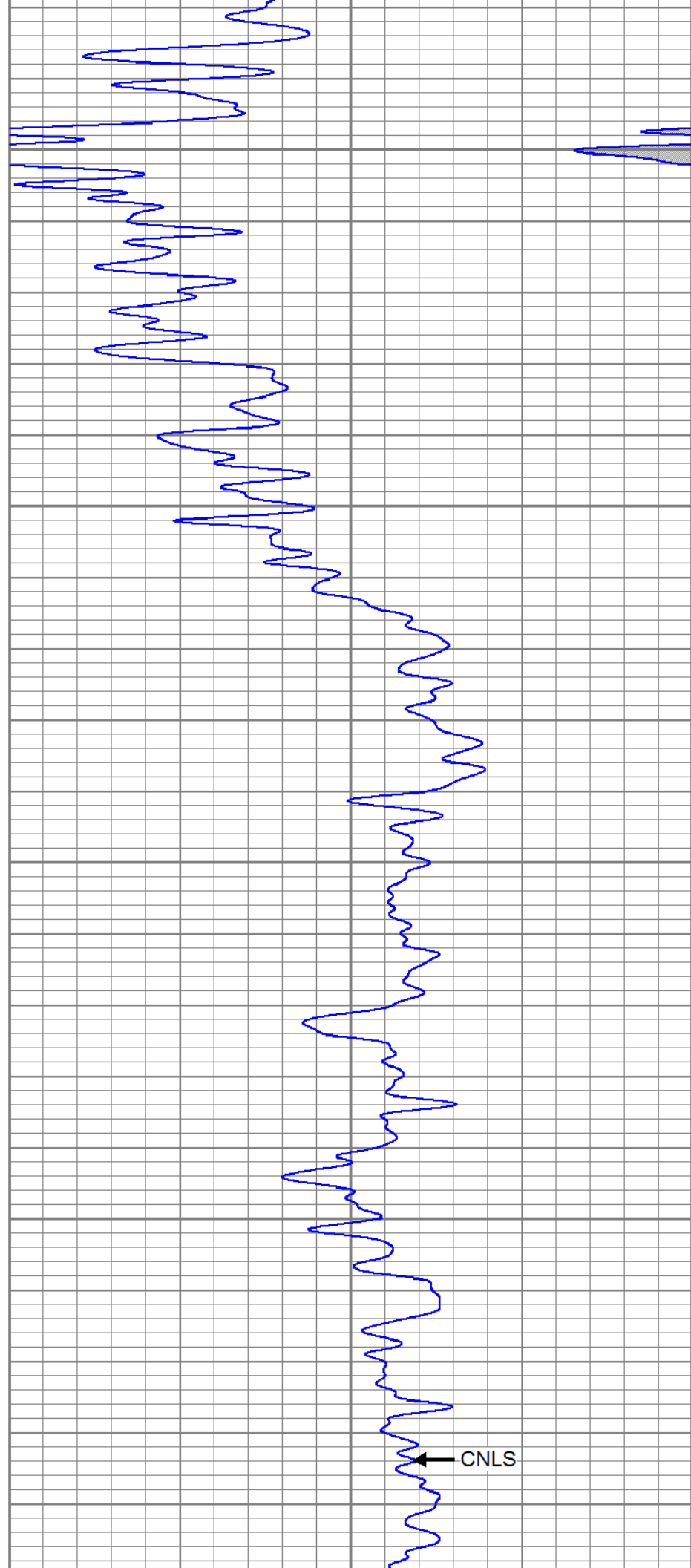
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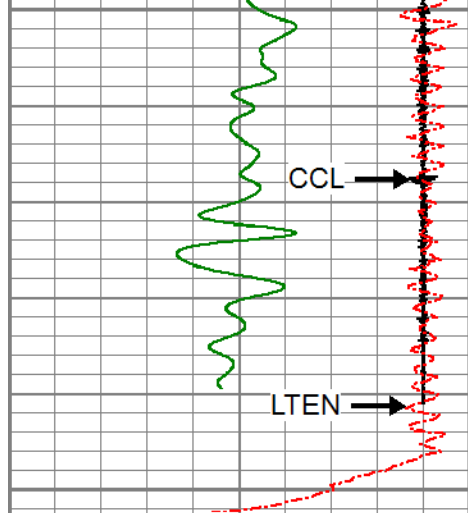
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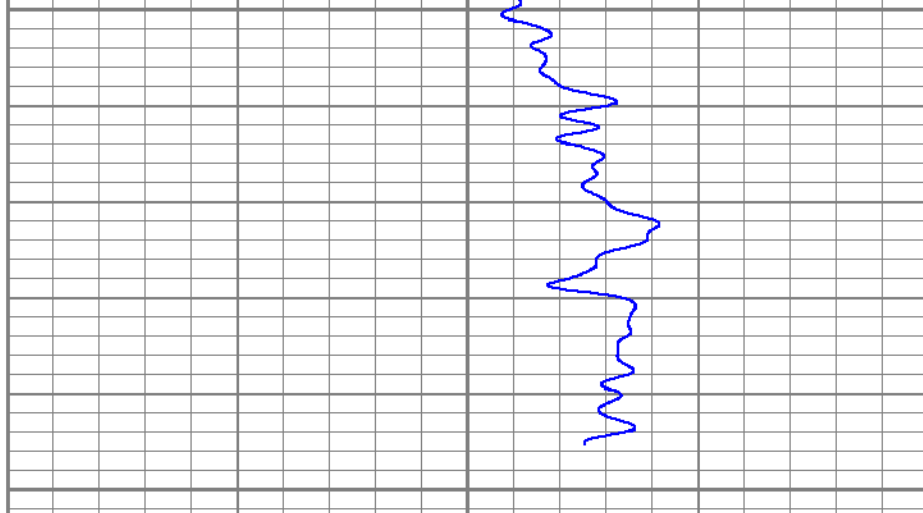
← CNLS



7100

7150

0	Gamma Ray (GAPI)	150
-9	Collars	1
150	Gamma Ray (GAPI)	300
0	LineTension (lb)	2000



40	CNPOR (pu)	0
80	CNPOR (pu)	40



MAIN LOG

ZERO PSI APPLIED AT SURFACE



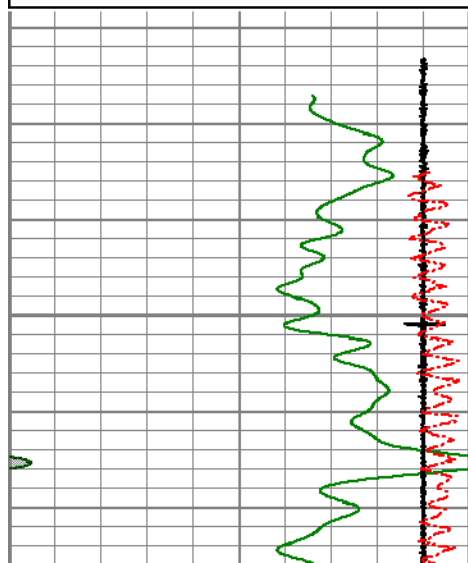
REPEAT SECTION

ZERO PSI APPLIED AT SURFACE

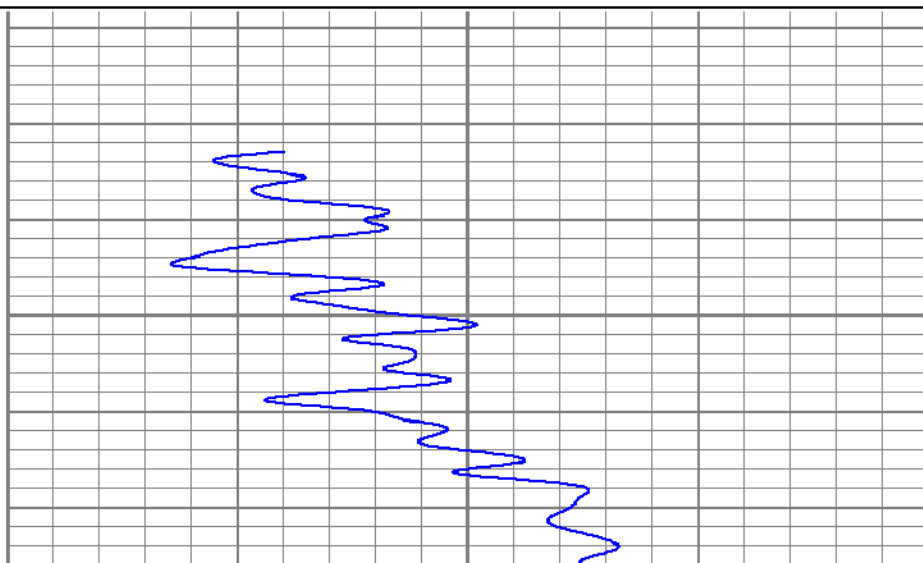
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 Dataset Pathname pass4
 Presentation Format pinr_cn1_co
 Dataset Creation Wed Aug 28 10:30:58 2019
 Charted by Depth in Feet scaled 1:240

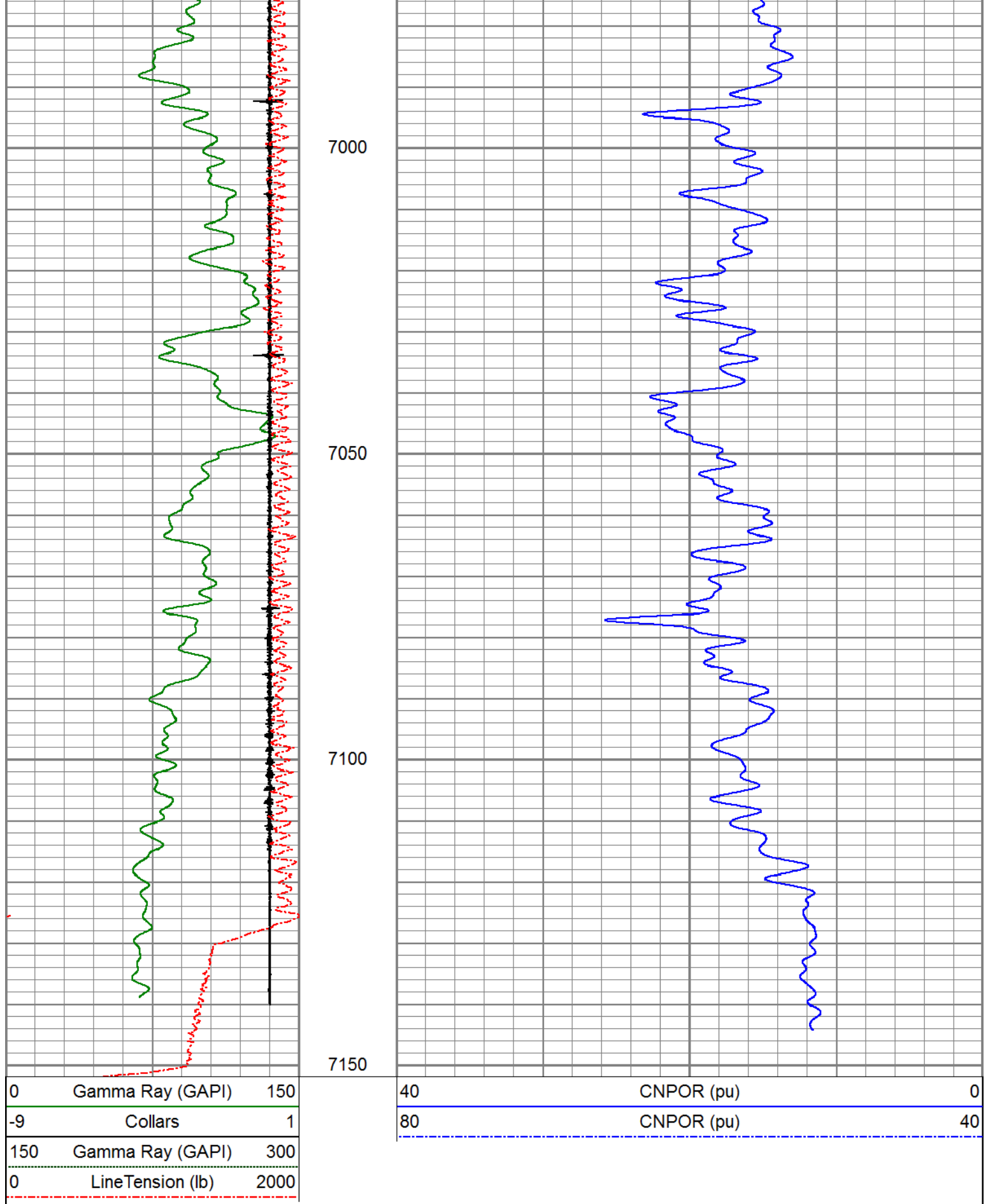
0	Gamma Ray (GAPI)	150
-9	Collars	1
150	Gamma Ray (GAPI)	300
0	LineTension (lb)	2000

40	CNPOR (pu)	0
80	CNPOR (pu)	40



6950





Calibration Report

Database File pdc_red cloud 0n_0512349445_20190828_scbl-cn1.db
Dataset Pathname pass4
Dataset Creation Wed Aug 28 10:30:58 2019

Compensated Neutron Calibration Report

Type / Serial: PRB_DIG / 120509
Source / Verifier: /
Temperature:

SHOP CALIBRATION

Tue Nov 20 10:02:13 2012

	Cal Tube	Units
Tank Ratio		SS/LS
Tank Porosity		pu
LS Detector		cps
SS Detector		cps
Tool Ratio		SS/LS
Tool Porosity		pu

Tool Constant =

Field Verifier	SS Detector	LS Detector	Ratio	Porosity
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PRE-SURVEY VERIFICATION

SS Detector	LS Detector	Ratio	Porosity
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POST-SURVEY VERIFICATION

SS Detector	LS Detector	Ratio	Porosity
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Gamma Ray Calibration Report

Serial Number: 111212
Tool Model: 275_6-PIN
Performed: Wed Aug 28 09:38:06 2019

Calibrator Value:	1.0	GAPI
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Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps

Sensitivity:	0.6800	GAPI/cps
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Segmented Cement Bond Log Calibration Report

Serial Number: FW1304-33-T
Tool Model: RBL-DC

Calibration Casing Diameter:	5.500	in
Calibration Depth:	2374.870	ft

Master Calibration, performed Wed Aug 28 10:11:54 2019:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.010	1.375	2.200	71.921	51.068	1.699
CAL	0.002	1.510				
5'	0.006	1.309	2.200	71.921	53.478	1.894
SUM						
S1	-0.005	1.295	0.000	100.000	76.879	0.421
S2	0.003	1.332	0.000	100.000	75.222	-0.203
S3	0.002	1.303	0.000	100.000	76.816	0.181

S3	0.002	1.303	0.000	100.000	78.918	-0.191
S4	0.002	1.342	0.000	100.000	74.600	-0.149
S5	0.002	1.377	0.000	100.000	72.743	-0.154
S6	0.003	1.453	0.000	100.000	68.938	-0.173
S7	0.002	1.389	0.000	100.000	72.134	-0.159
S8	0.002	1.402	0.000	100.000	71.469	-0.177

Air Zero Calibration, performed Wed Aug 28 09:36:39 2019:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	0.000	0.000	0.000
5'	0.000	0.000	0.000
SUM			
S1	0.000	0.000	0.000
S2	0.000	0.000	0.000
S3	0.000	0.000	0.000
S4	0.000	0.000	0.000
S5	0.000	0.000	0.000
S6	0.000	0.000	0.000
S7	0.000	0.000	0.000
S8	0.000	0.000	0.000



Company PDC ENERGY INC.
Well RED CLOUD 0N
Field WATTENBERG
County WELD
State COLORADO