



# GAMMA RAY NEUTRON LOG

**PIONEER**  
Pioneer Energy Services

Company **BISON OIL & GAS II LLC**  
Well **STATE 16-7-60 #1H**  
Field **DJ HORIZONTAL NIOBRARA**  
County **WELD** State **CO**

Location: API # : 05-123-37069

Other Services

SEC 16 TWP 7N RGE 60W

CCL

Comp. BISON OIL & GAS II LLC  
Well STATE 16-7-60 #1H  
Field DJ HORIZONTAL NIOBRARA  
Co. WELD  
State CO

Permanent Datum GL  
Log Measured From KB 18' Elevation 4886'  
Drilling Measured From KB Above Perm. Datum

K.B. 4904'  
D.F. NA  
G.L. 4886'

Date of Service 31-JAN-2022

Run Number ONE

Depth Driller or PBTD 10632'

Depth Logger NA

Bottom Log Interval 5613'

Top Log Interval SURFACE

Open Hole Size 6.125"

Type Fluid FRESH WATER

Fluid Level SURFACE

Fluid Density NA

Max. Recorded Temperature NA

Max. Wellhead Pressure ZERO

Wellhead Connection NONE

Estimated Cement Top 1200'

Unit Number P-133

Wireline Size 9/32"

Location FORT MORGAN

Recorded By J.PARRISH

Witnessed By MR.SCHNEIDER

Size

Wt/Ft

Top

Bottom

9.625"

36#

7"

26#

4.5"

11.6#

6405'

10632'

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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 CBL LOG DATED 6/27/2013

THANK YOU FOR USING PIONEER ENERGY SERVICES!

Your Pioneer Energy Services Crew

Engineer: J.PARRISH  
Operator: E.HESSLER  
Operator: T.UNDERWOOD  
Operator:

Tool Data - Services

CNT  
GR CCL

Serial Number

FW1703-020  
FW1404-109


Top - Bottom


BOREID in 7.875	BOTTEMP degF 100	CASED?  Yes	CASEOD in 7	CASETHCK in 0	CMNTTHCK in 0	CMTTKCOR  Off	CSTKCOR  Off
NPORSEL  Limestone	PERFS  No	SRFTEMP degF 0	SZCOR  Off	TDEPTH ft 0			

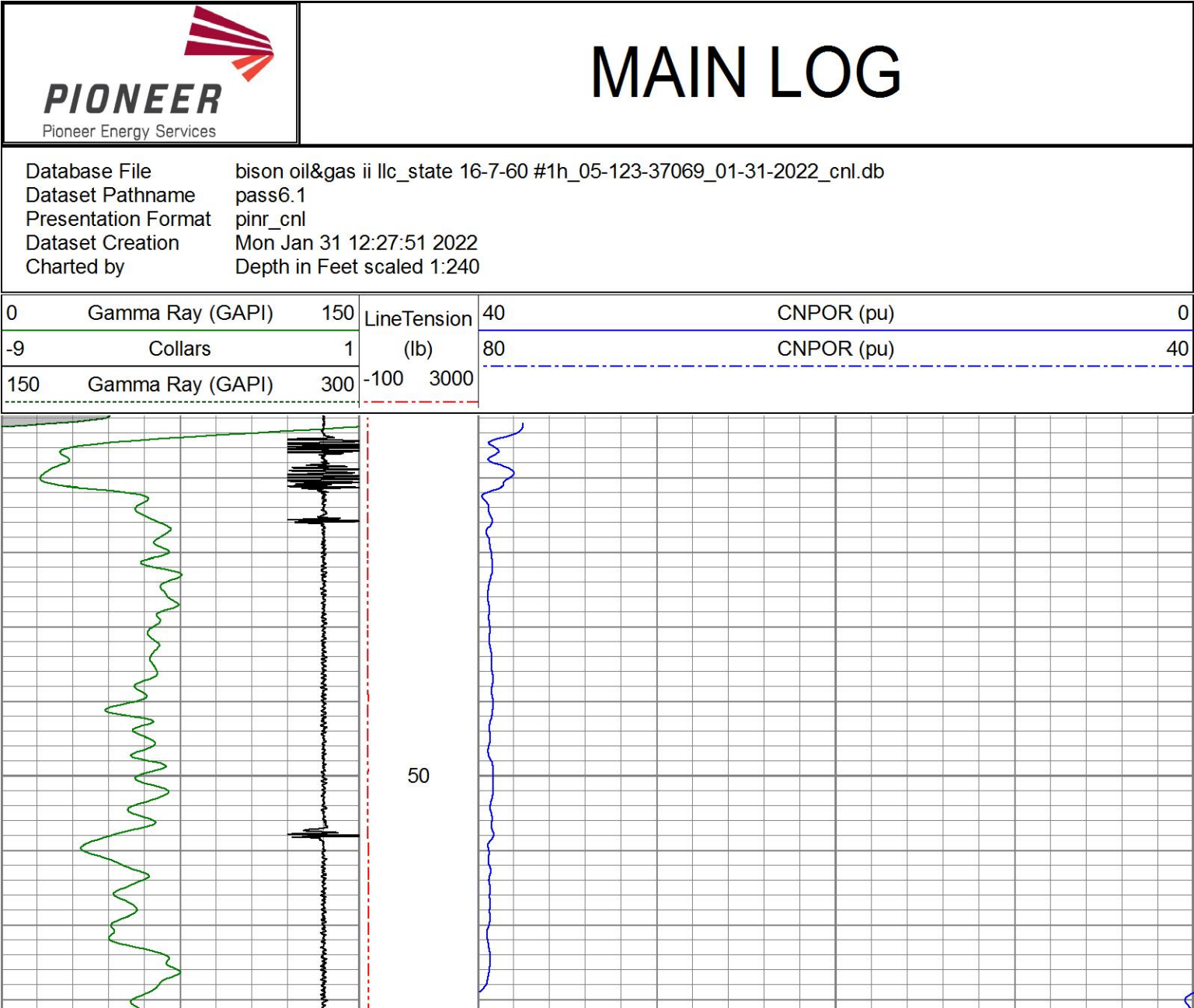
Variable Description

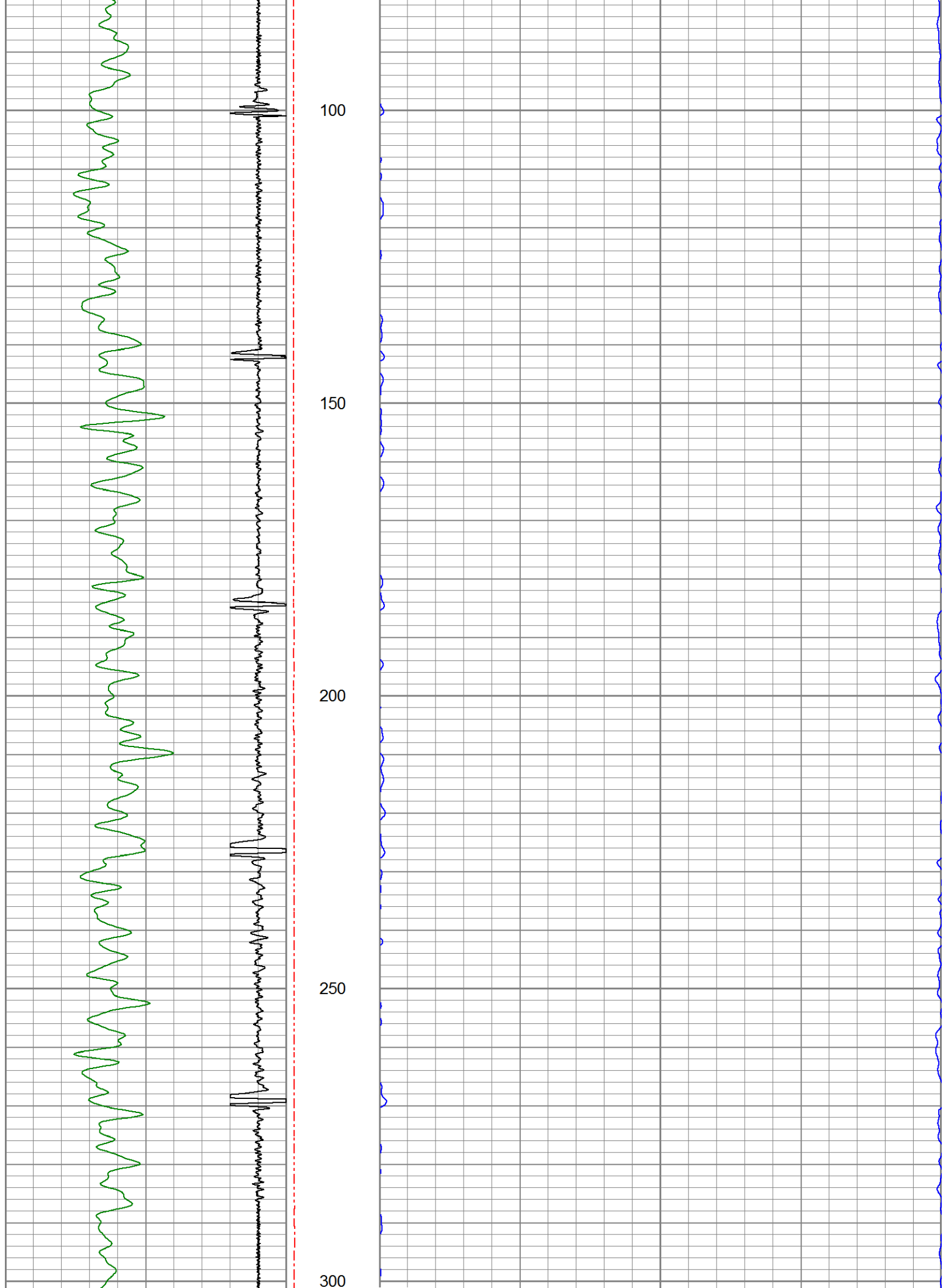
BOREID : Borehole I.D.  
BOTTEMP : Bottom Hole Temperature  
CASED? : Cased hole ?  
CASEOD : Casing O.D.  
CASETHCK : Casing Thickness  
CMNTTHCK : Cement Thickness  
CMTTKCOR : CN CemThk. Cor. ?

CSTKCOR : CN CasThk. Cor. ?  
NPORSEL : Neutron Porosity Curve Select  
PERFS : Perforation Flag  
SRFTEMP : Surface Temperature  
SZCOR : CN Size Cor. ?  
TDEPTH : Total Depth

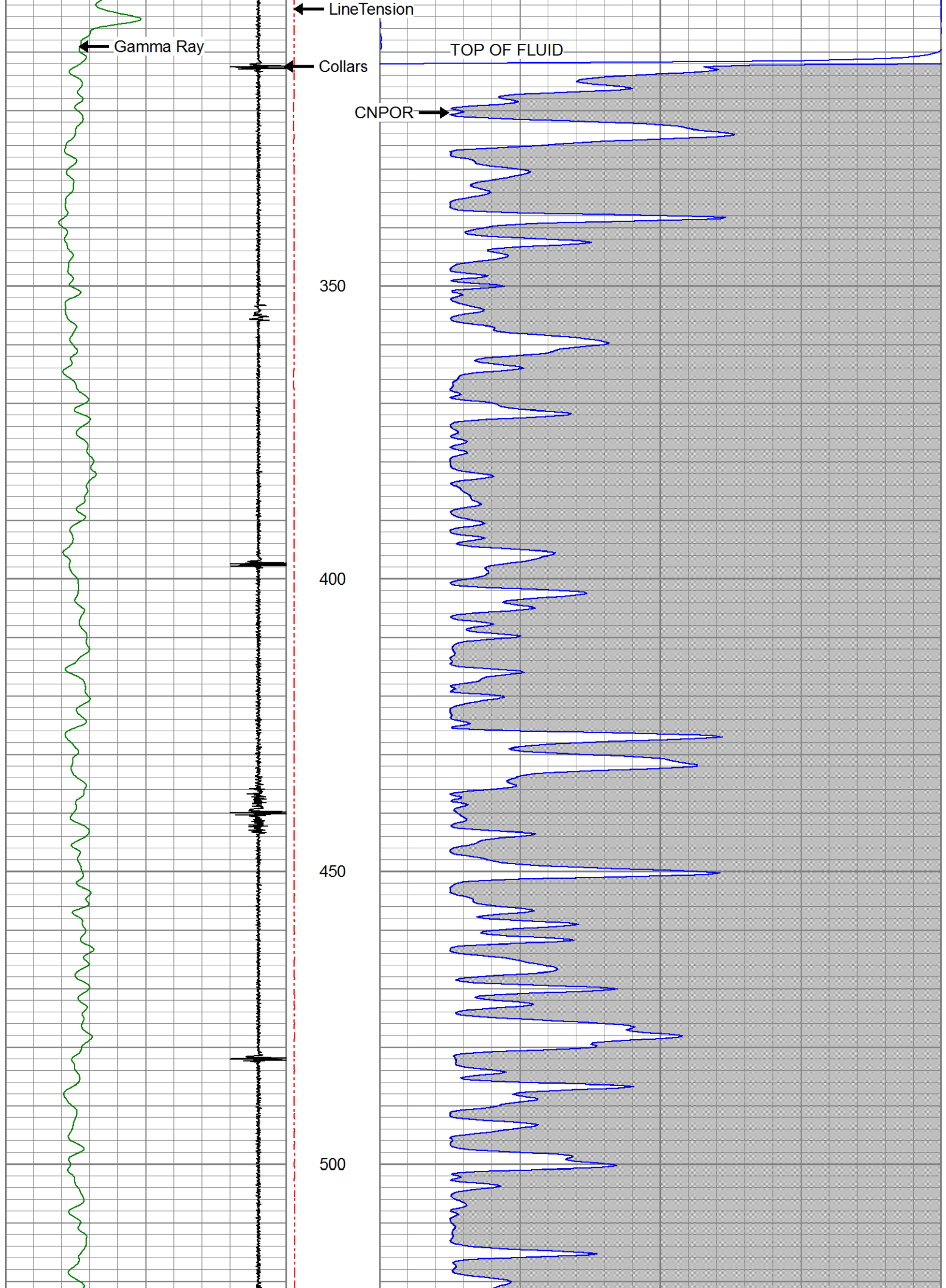
Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
CCL	8.83		Cable Head-Titan_144 1 7/16" Titan Cable Head	1.03	1.44	2.00
GR	7.50		PROBE-GR/CCL-DIGITAL-275_6-PIN (FW1404 109) Probe 2 3/4" Gamma CCL 6-pin Bottom for CNT	4.83	2.75	50.00

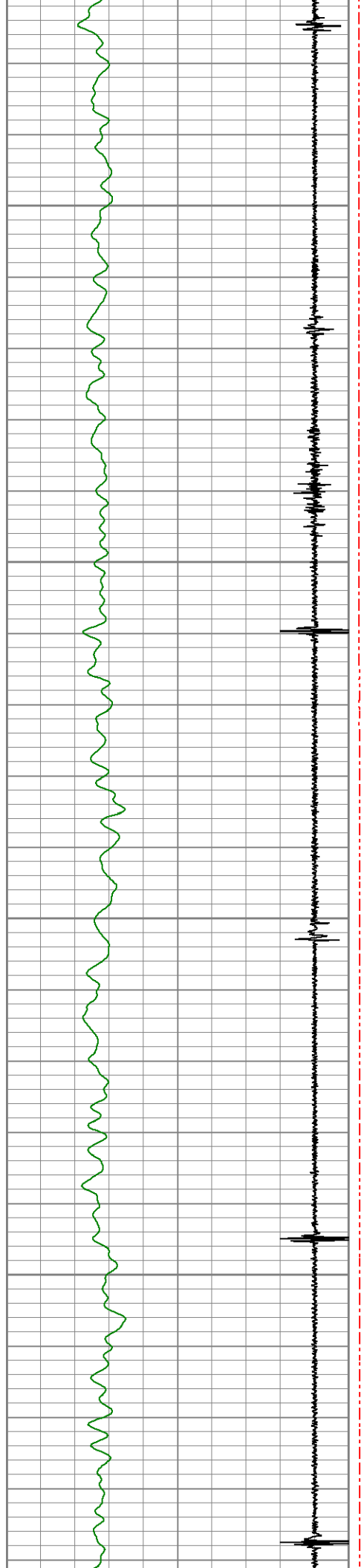
CNLSC	2.11		CNT-PRB_DIG (FW1703-020) PRB_DIG (Probe 2.75 Digital CNT)	4.58	2.75	69.00
CNSSC	1.70		Bullnose-PROBE Probe Go Pin Pressure Cap	0.33	1.38	1.00
Dataset: bison oil&gas ii llc_state 16-7-60 #1h_05-123-37069_01-31-2022_cnl.db: field/well/run1/pass6.1 Total length: 10.78 ft Total weight: 122.00 lb O.D.: 2.75 in						









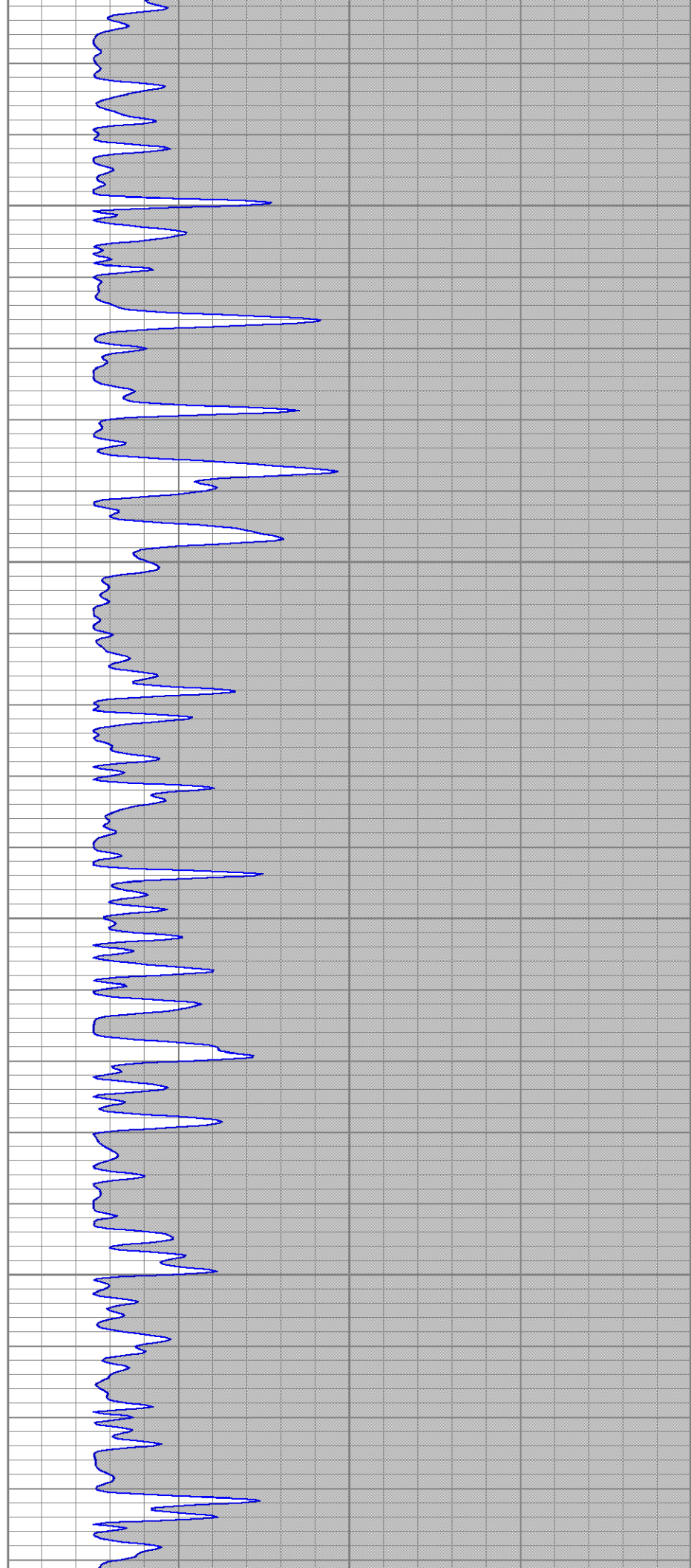


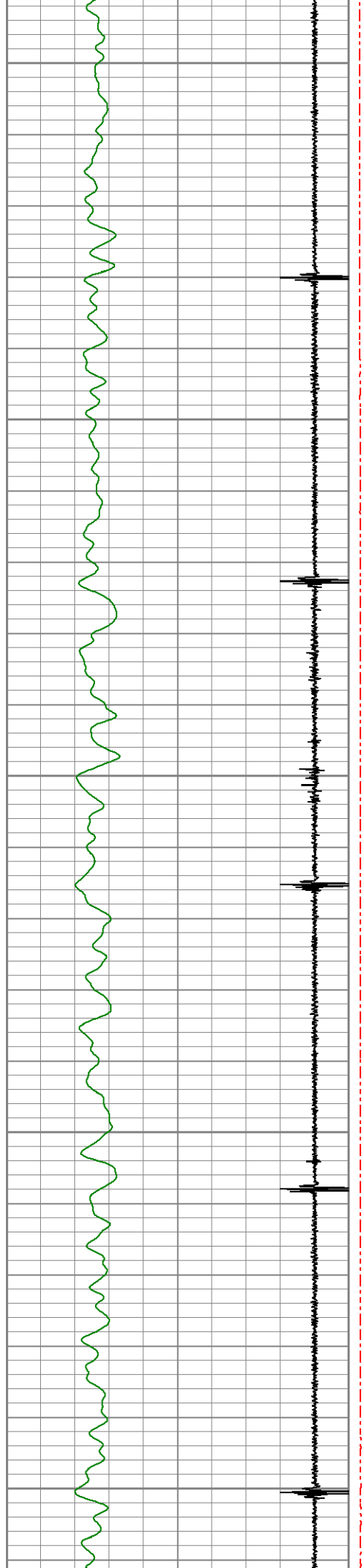
550

600

650

700





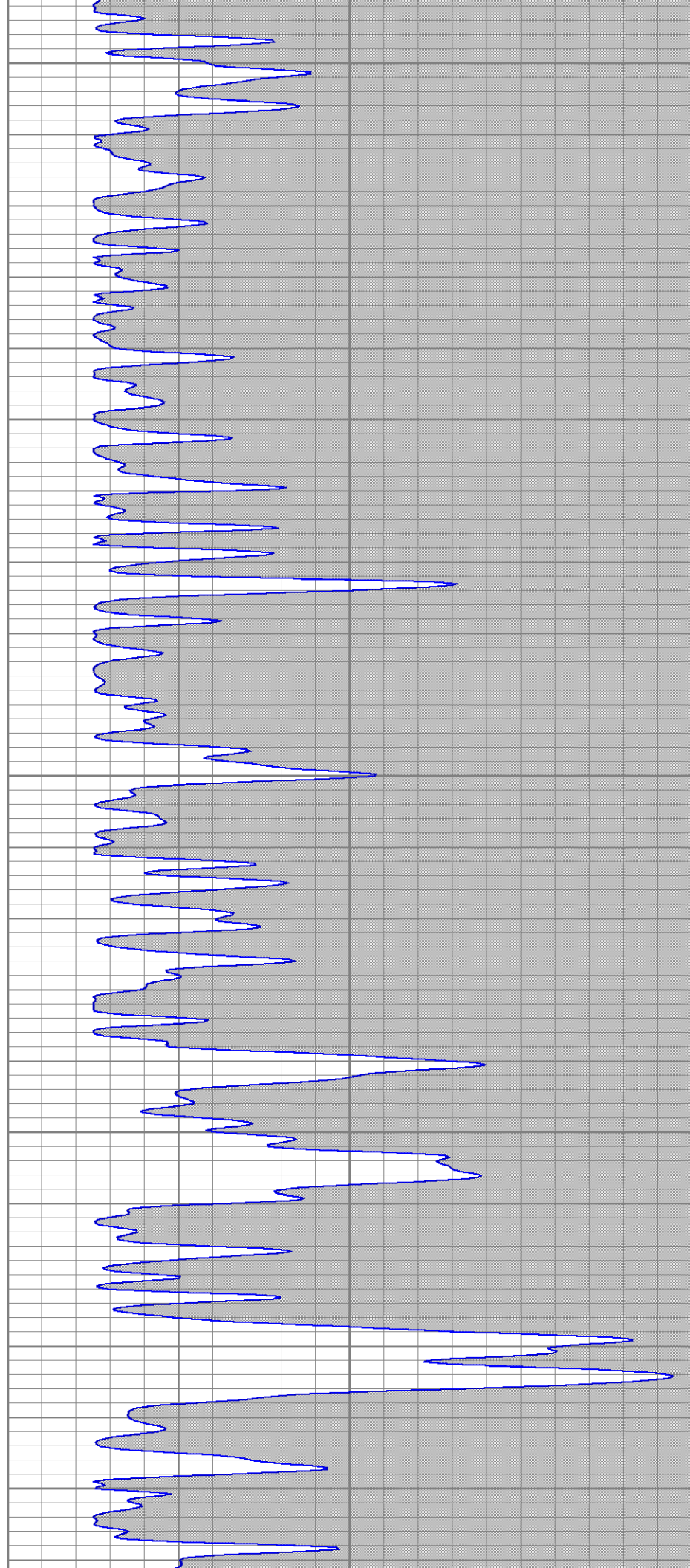
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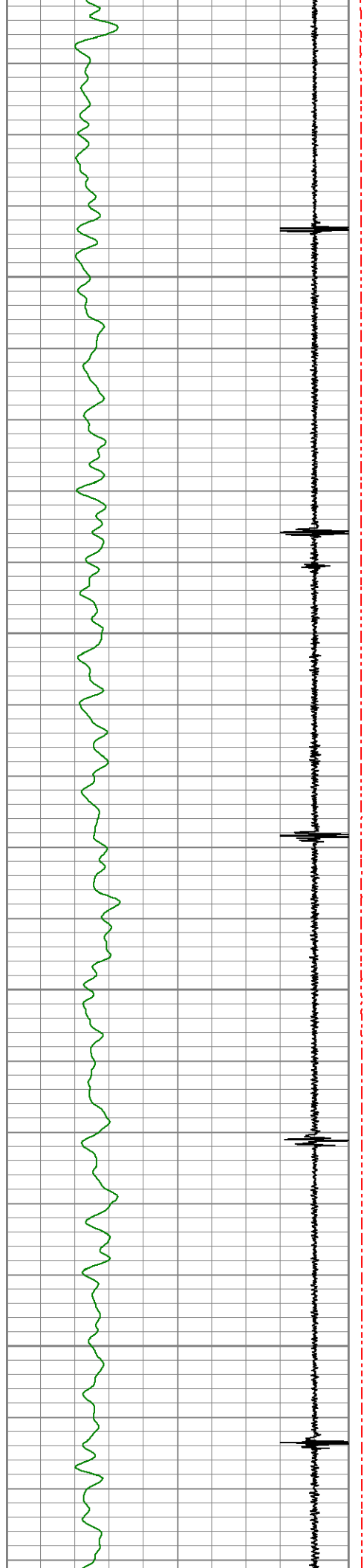
800

850

900

950



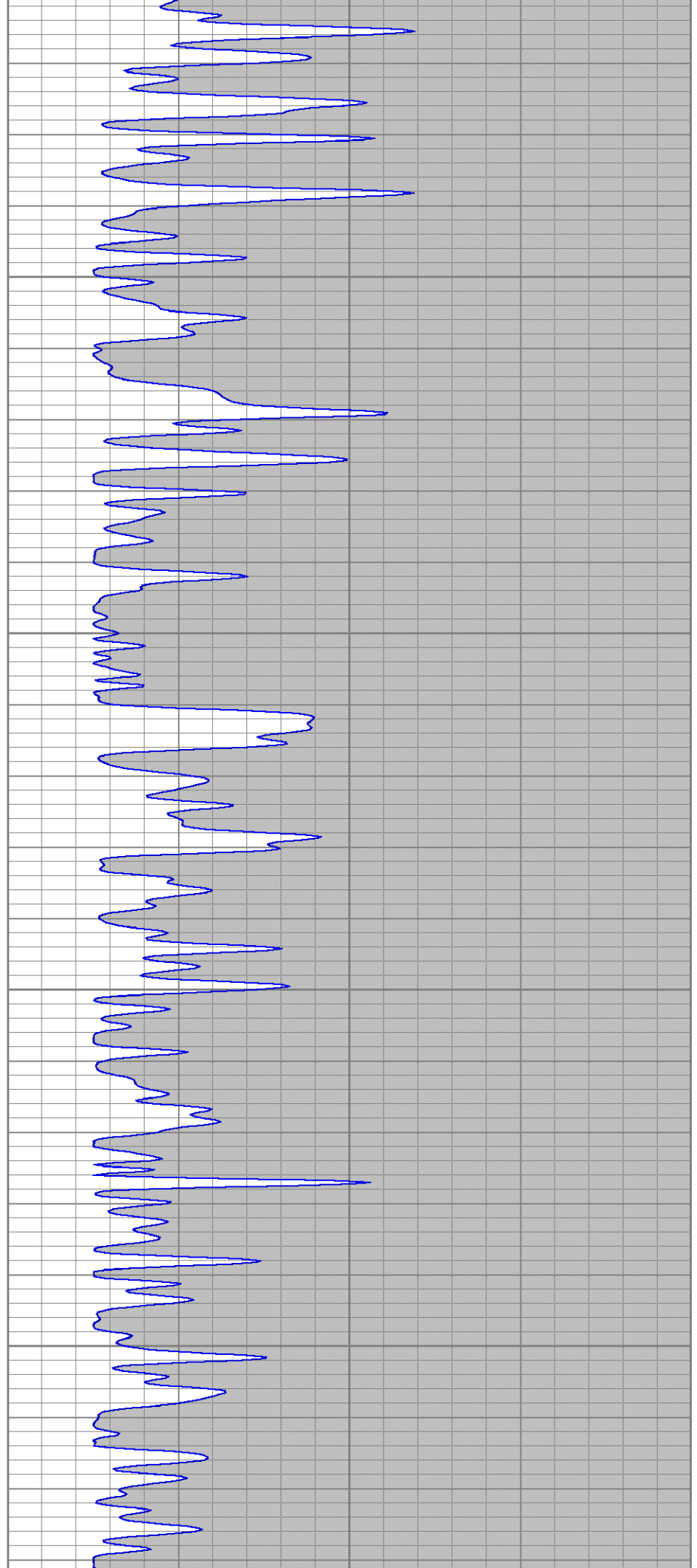


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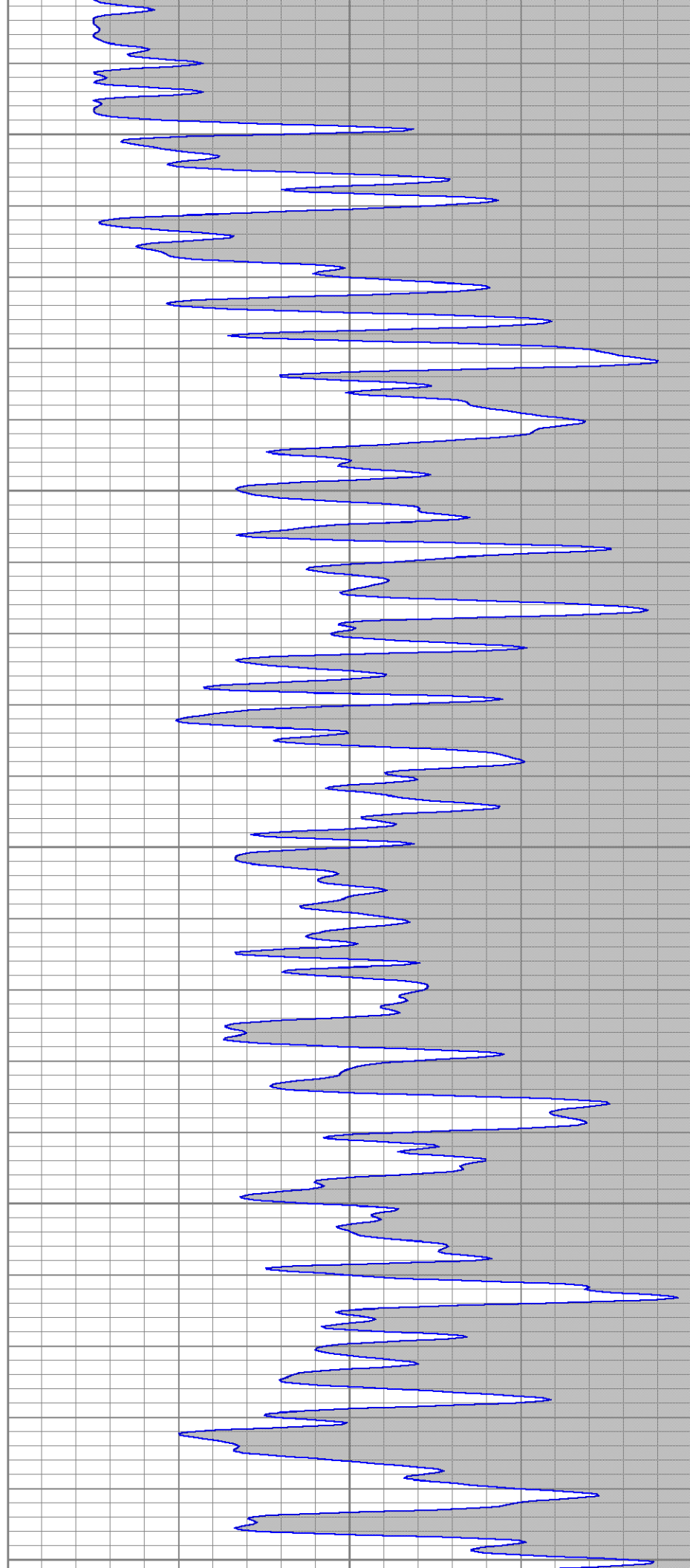
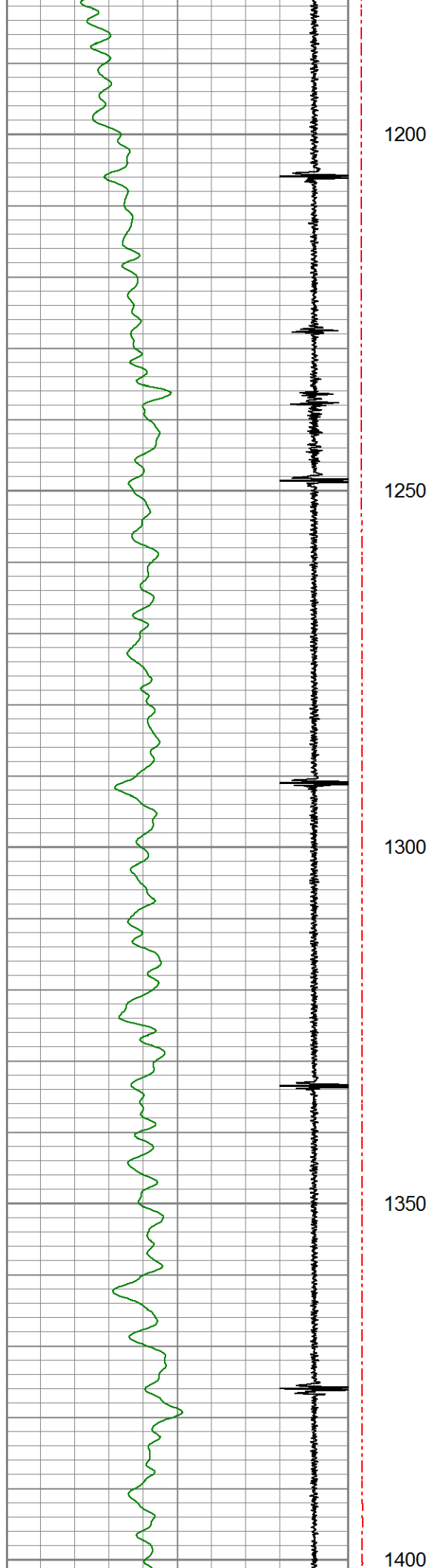
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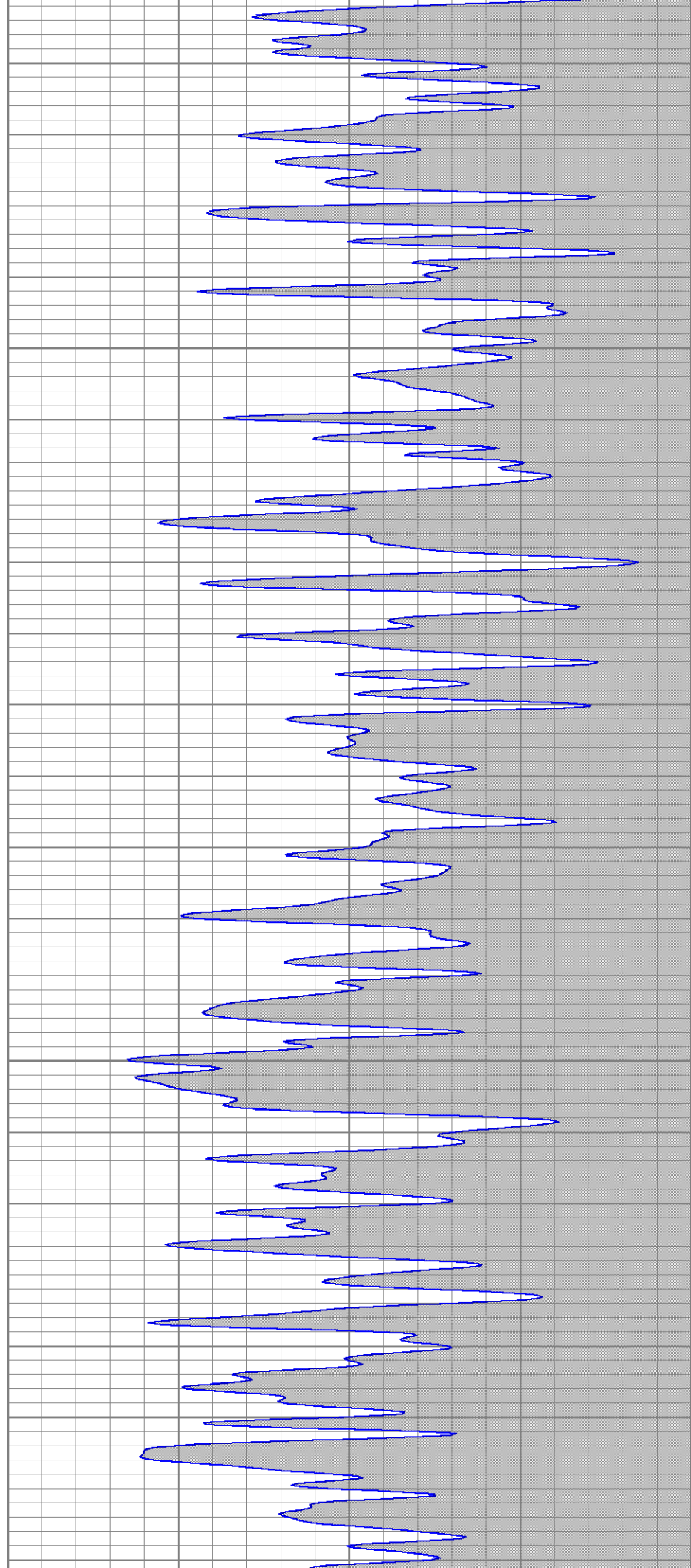
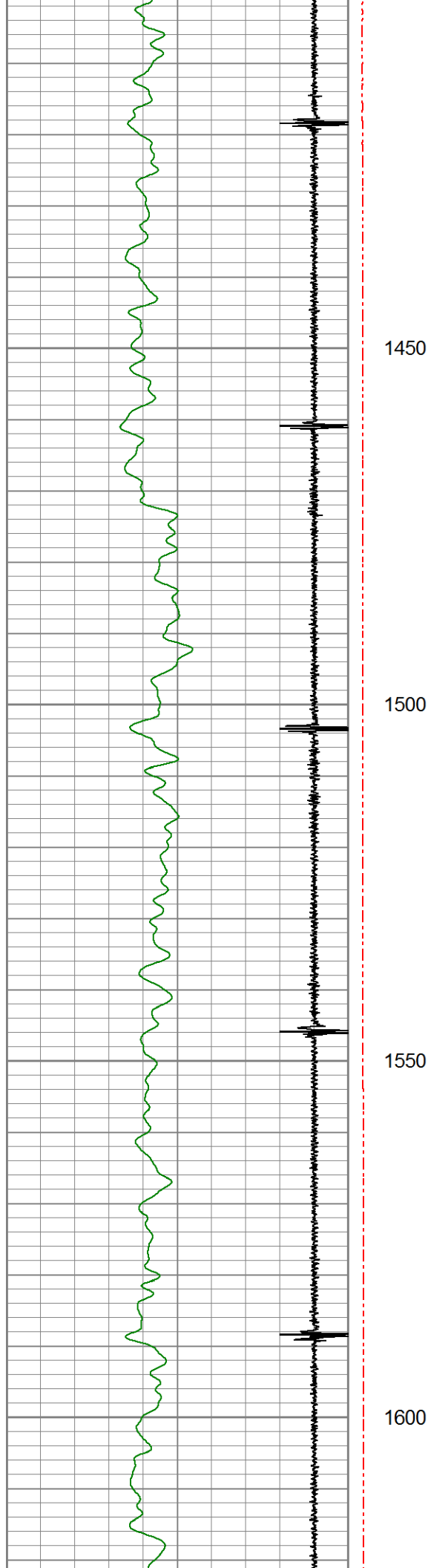
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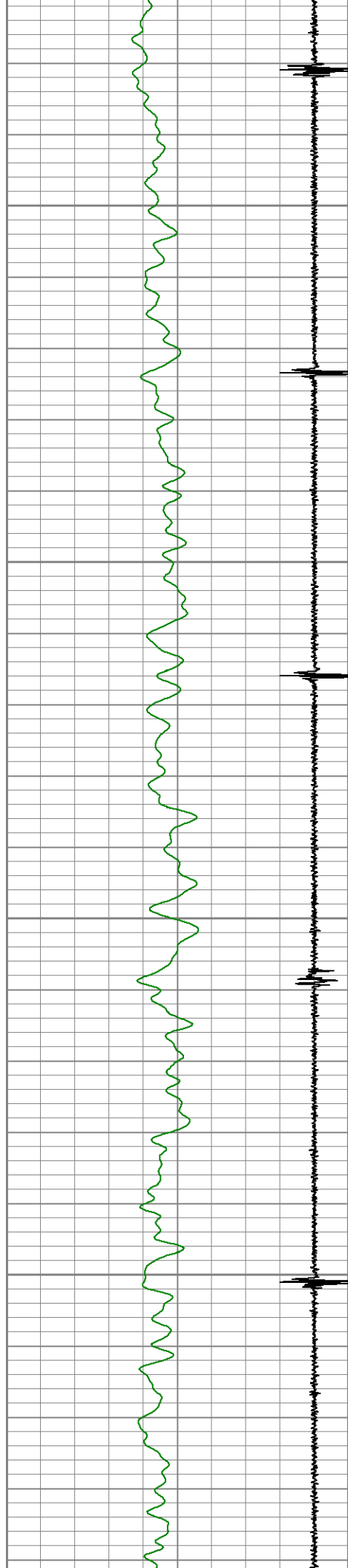
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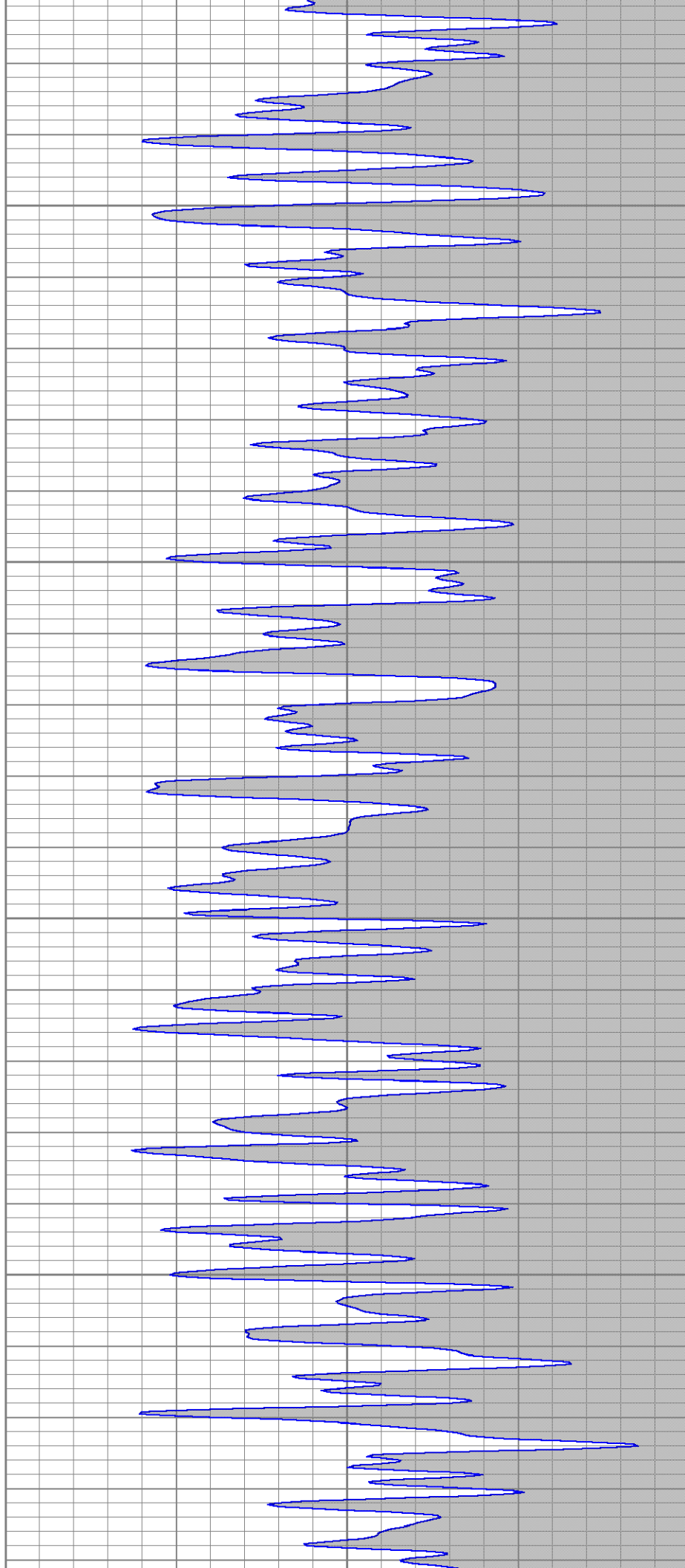


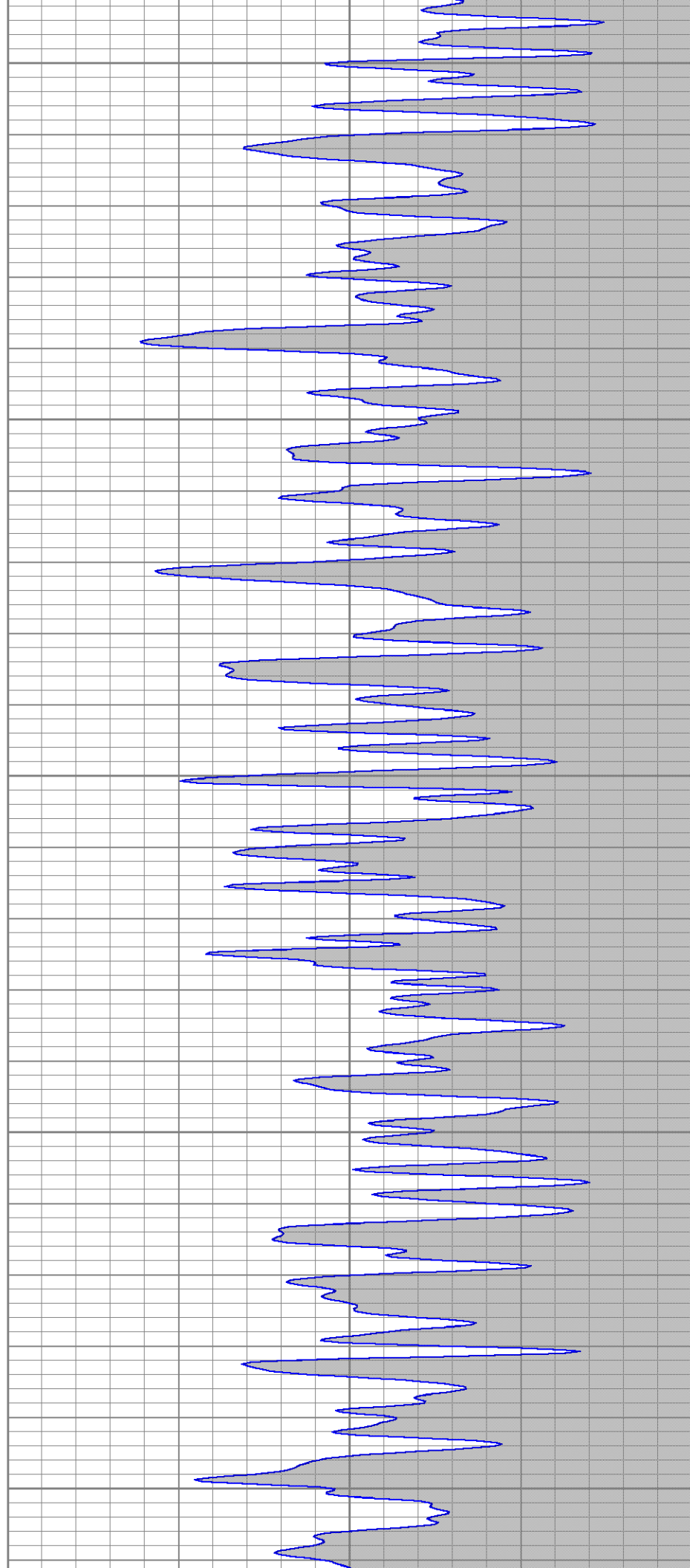
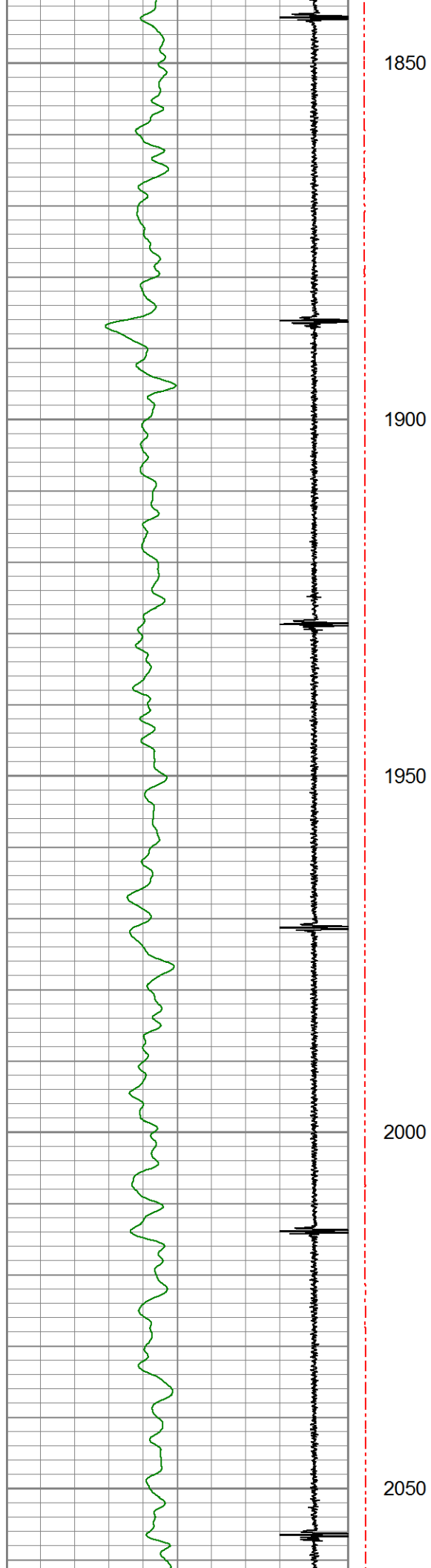
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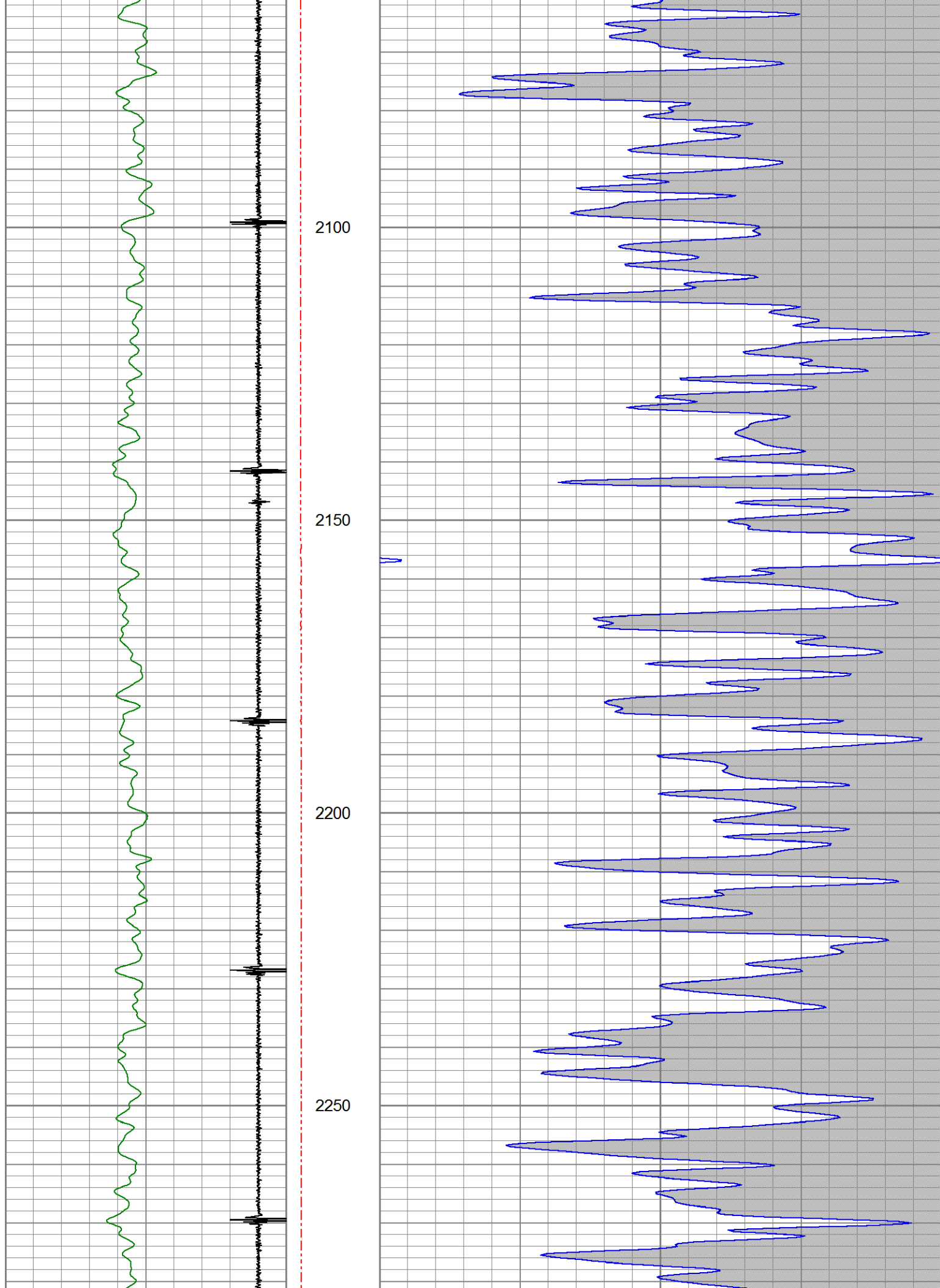
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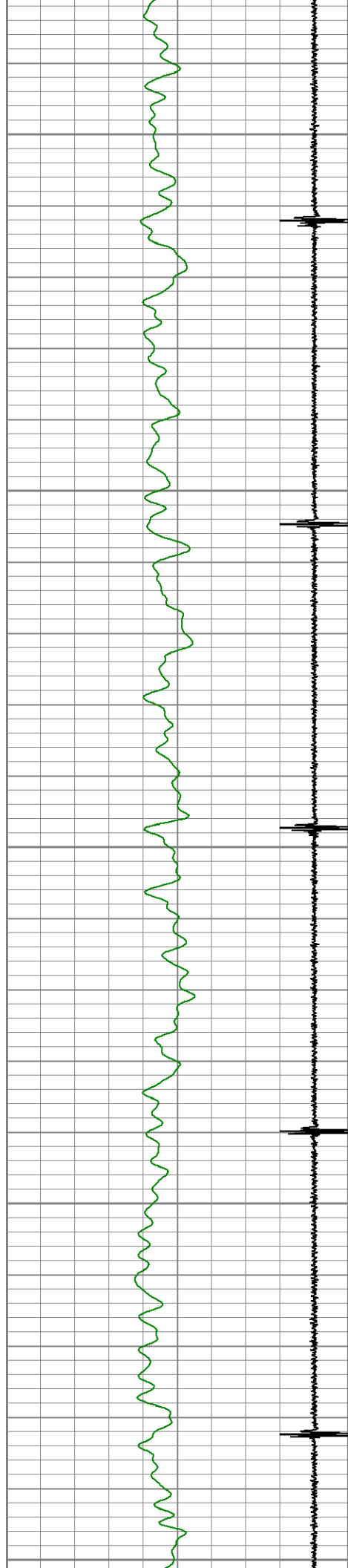
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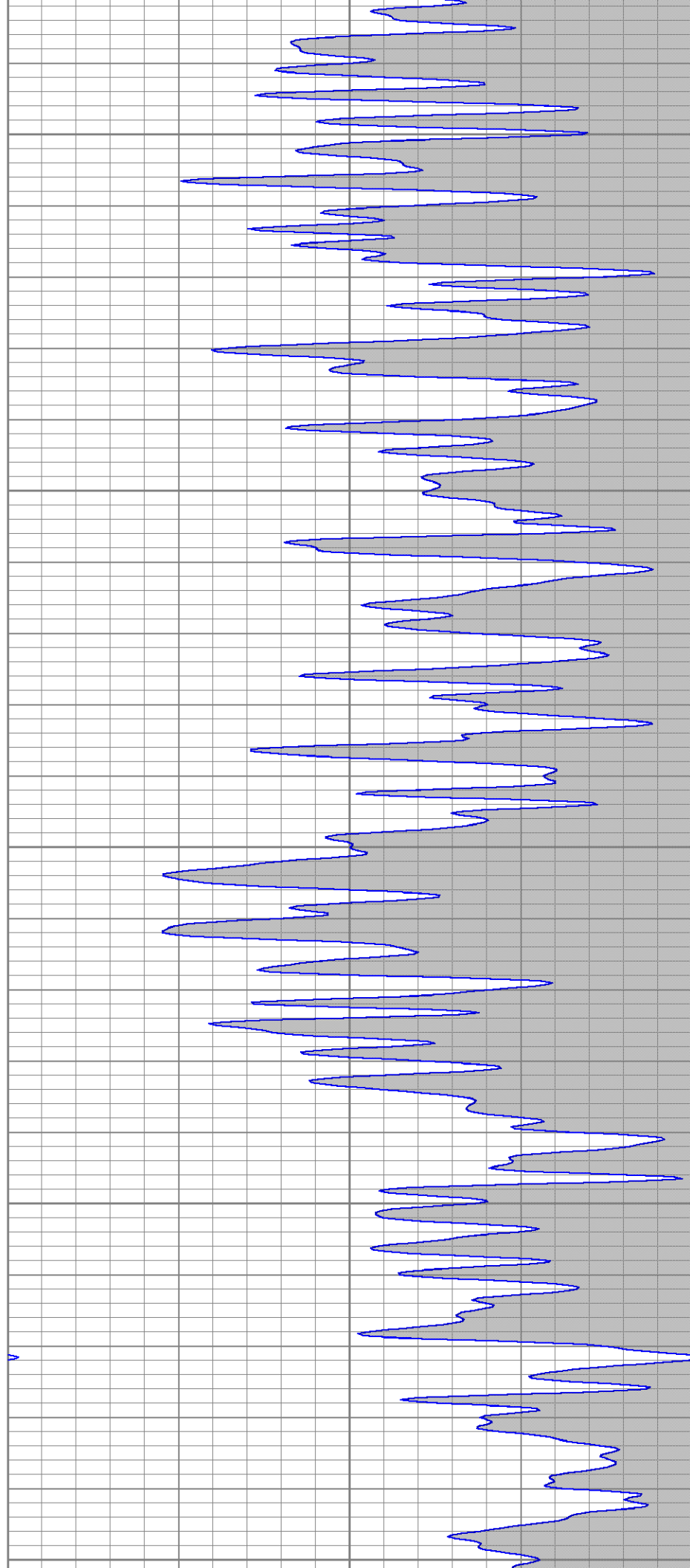
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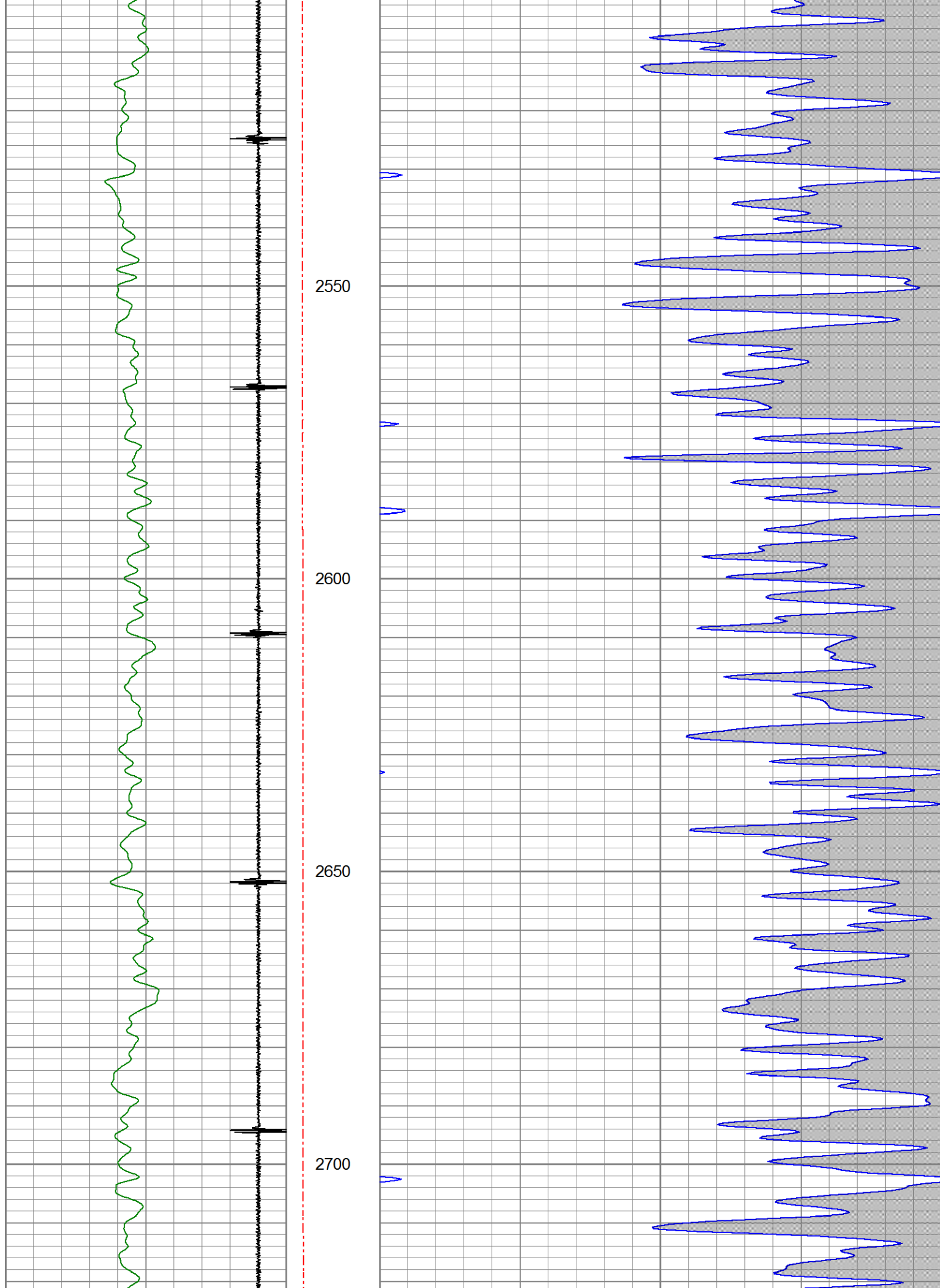
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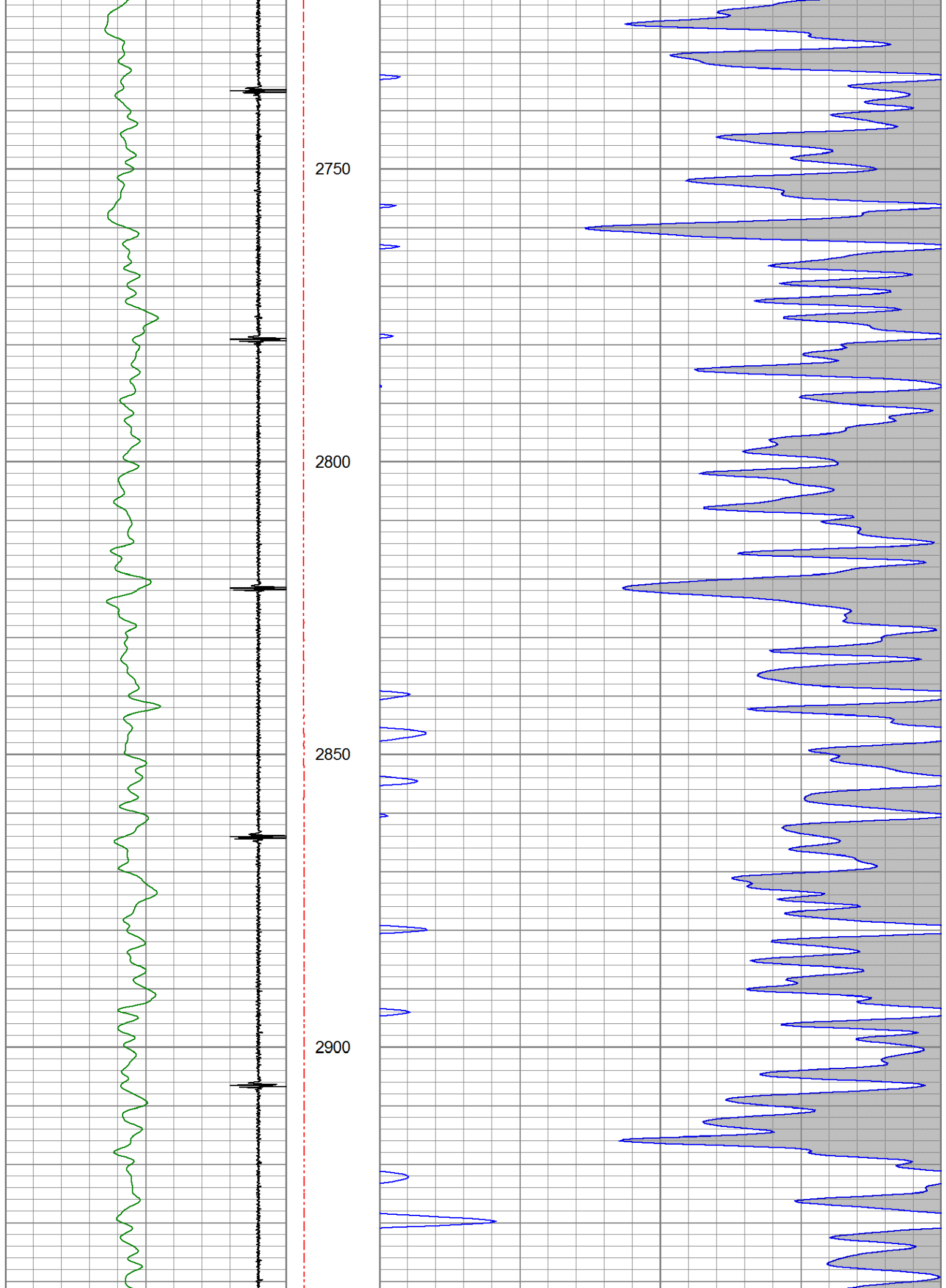
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2450

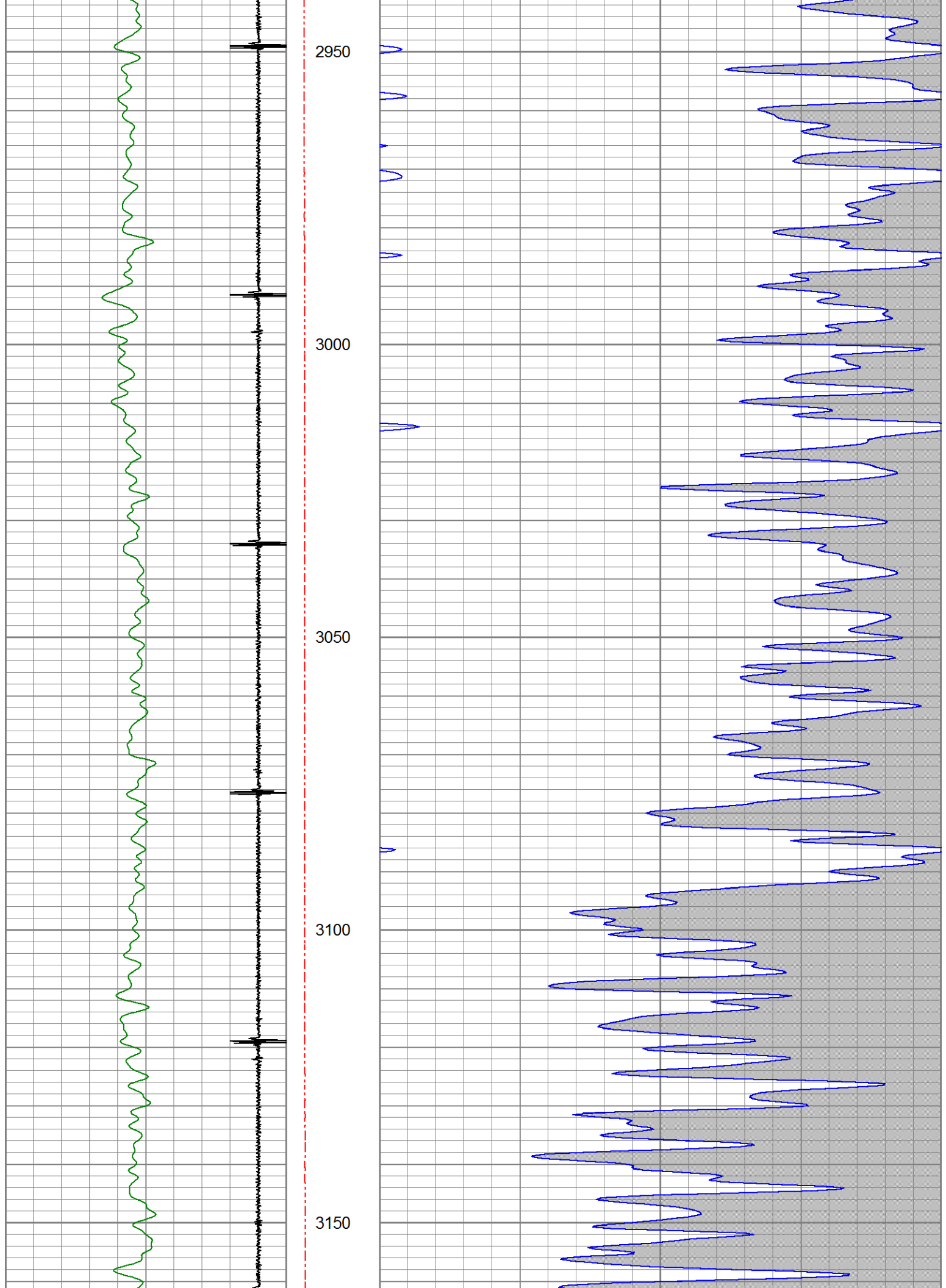
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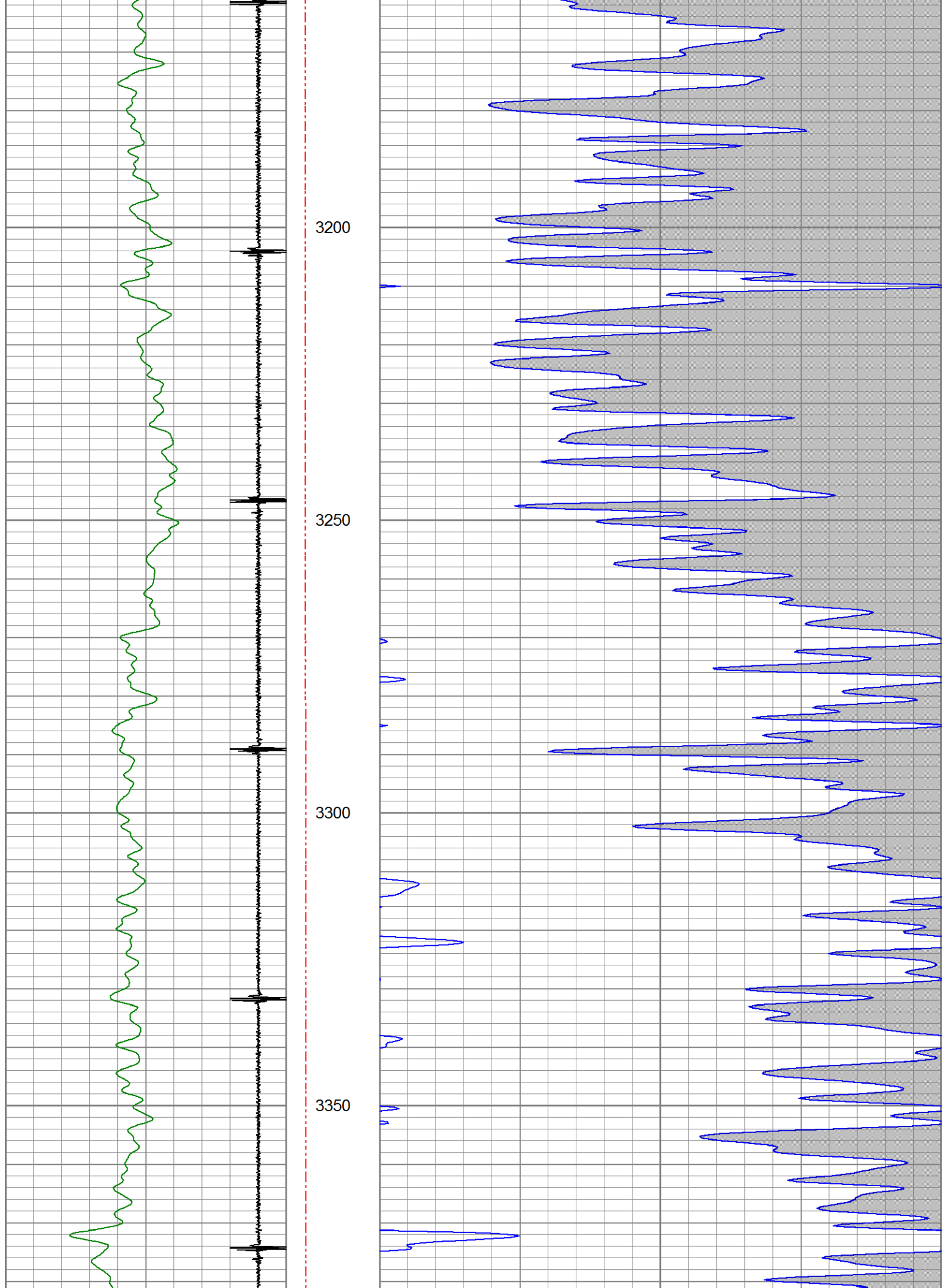


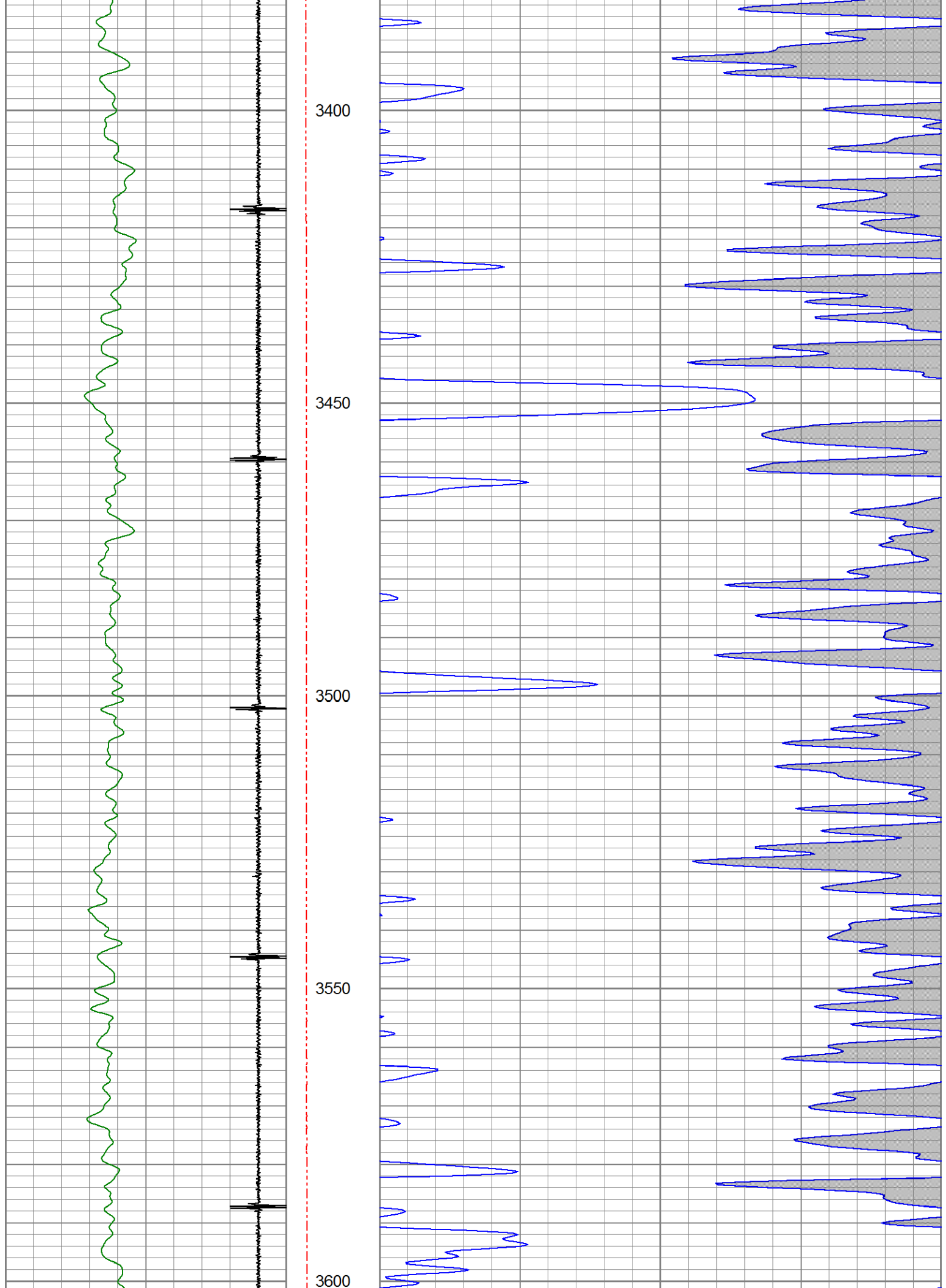


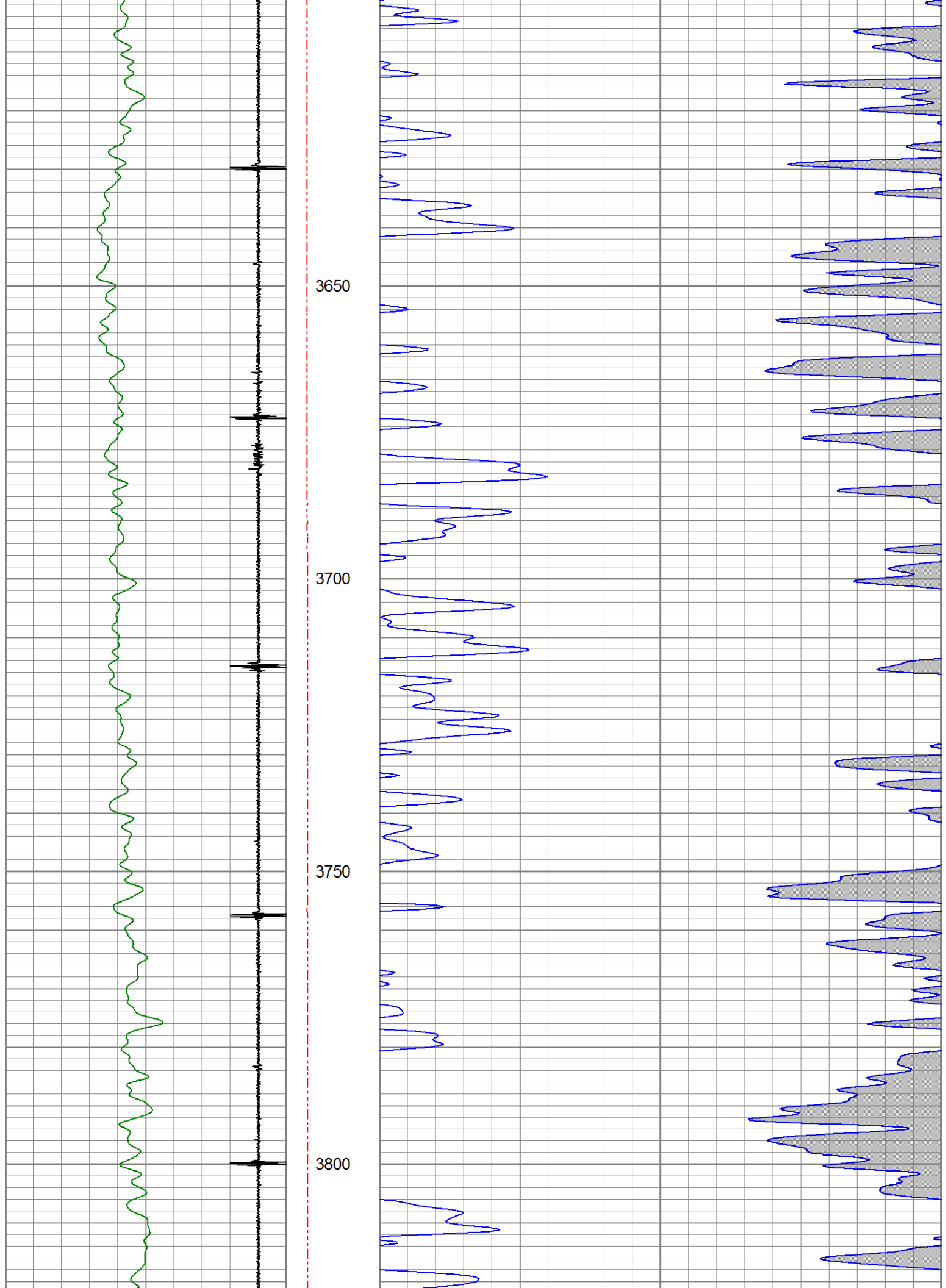




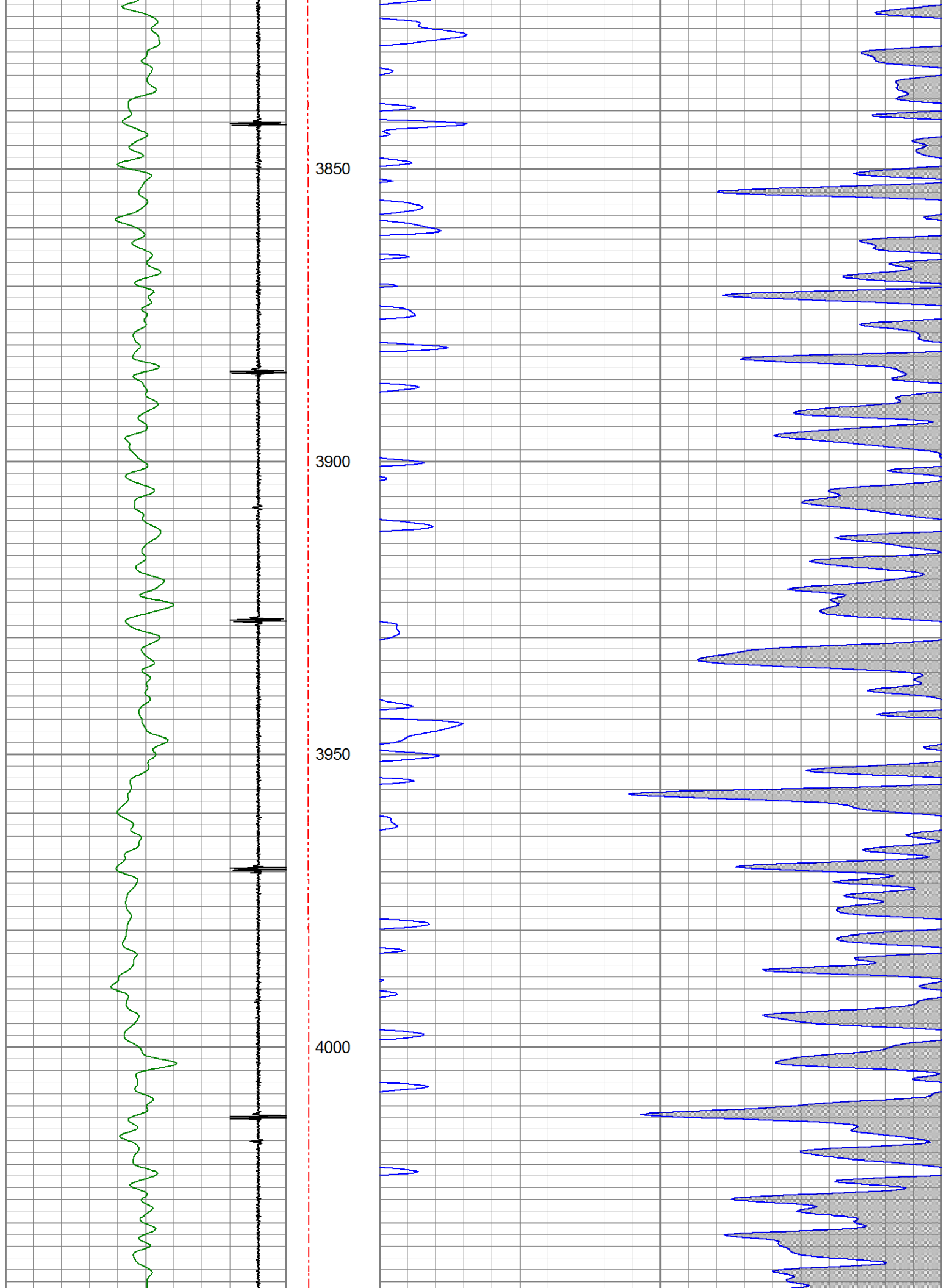


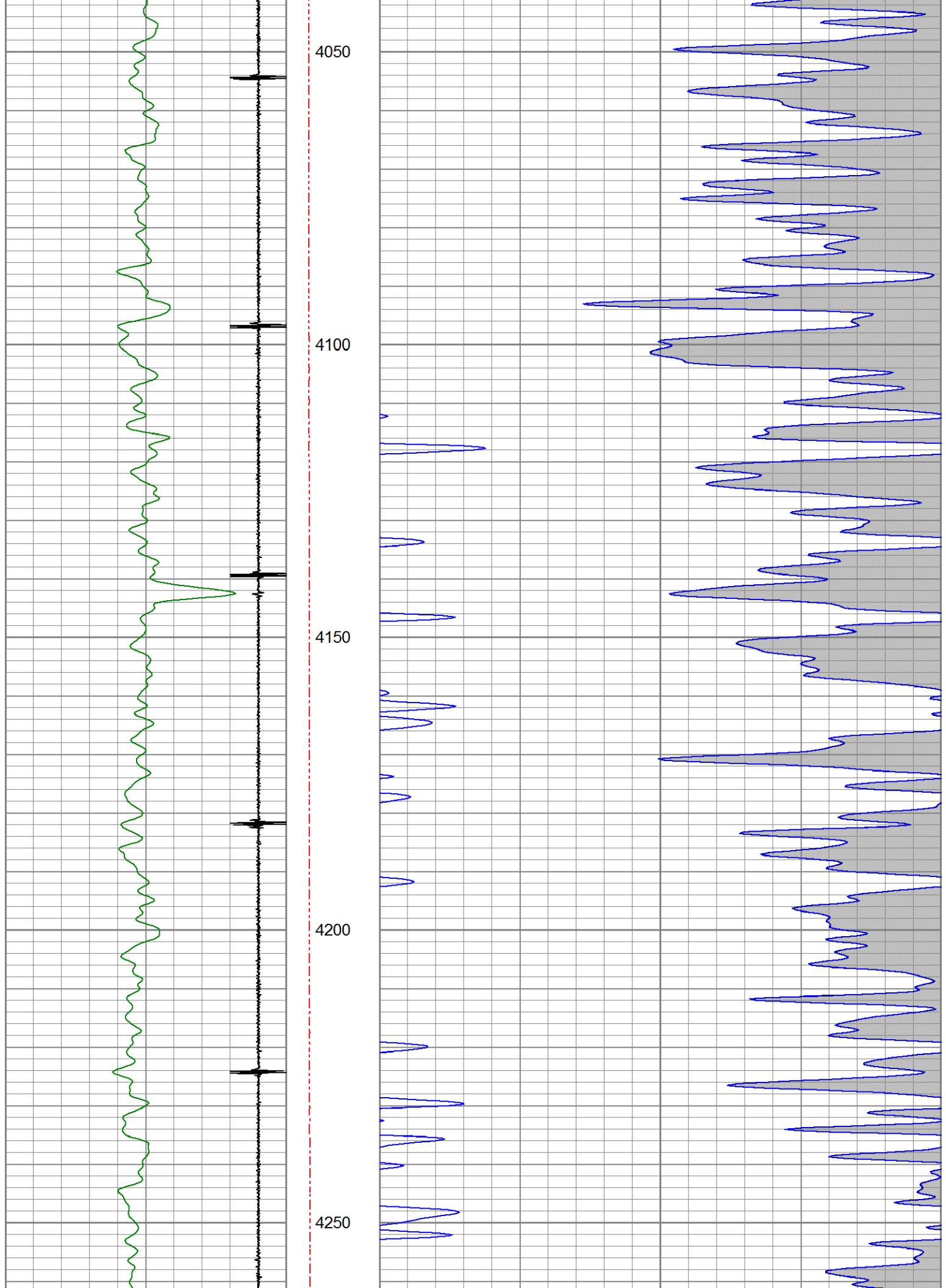


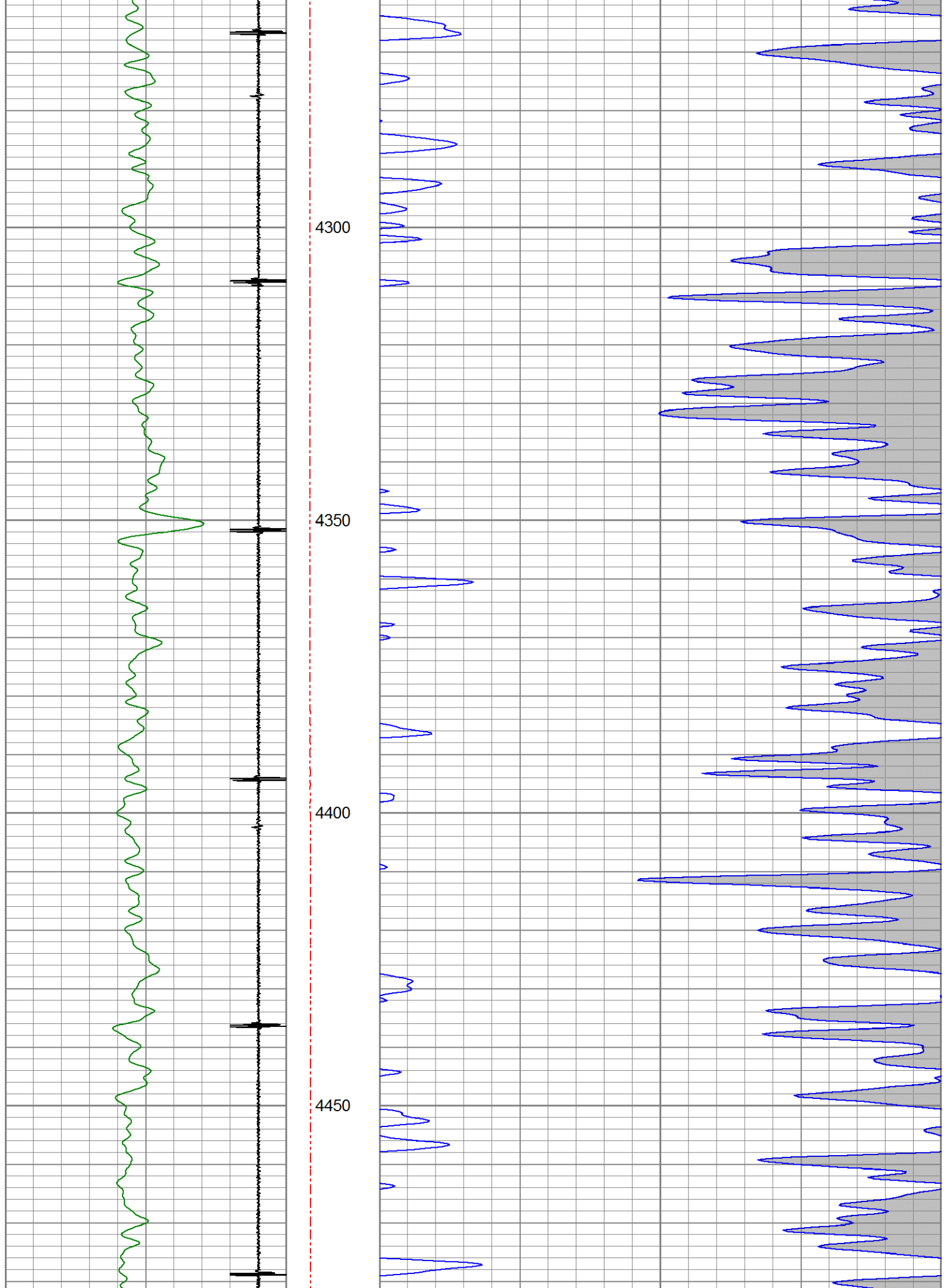


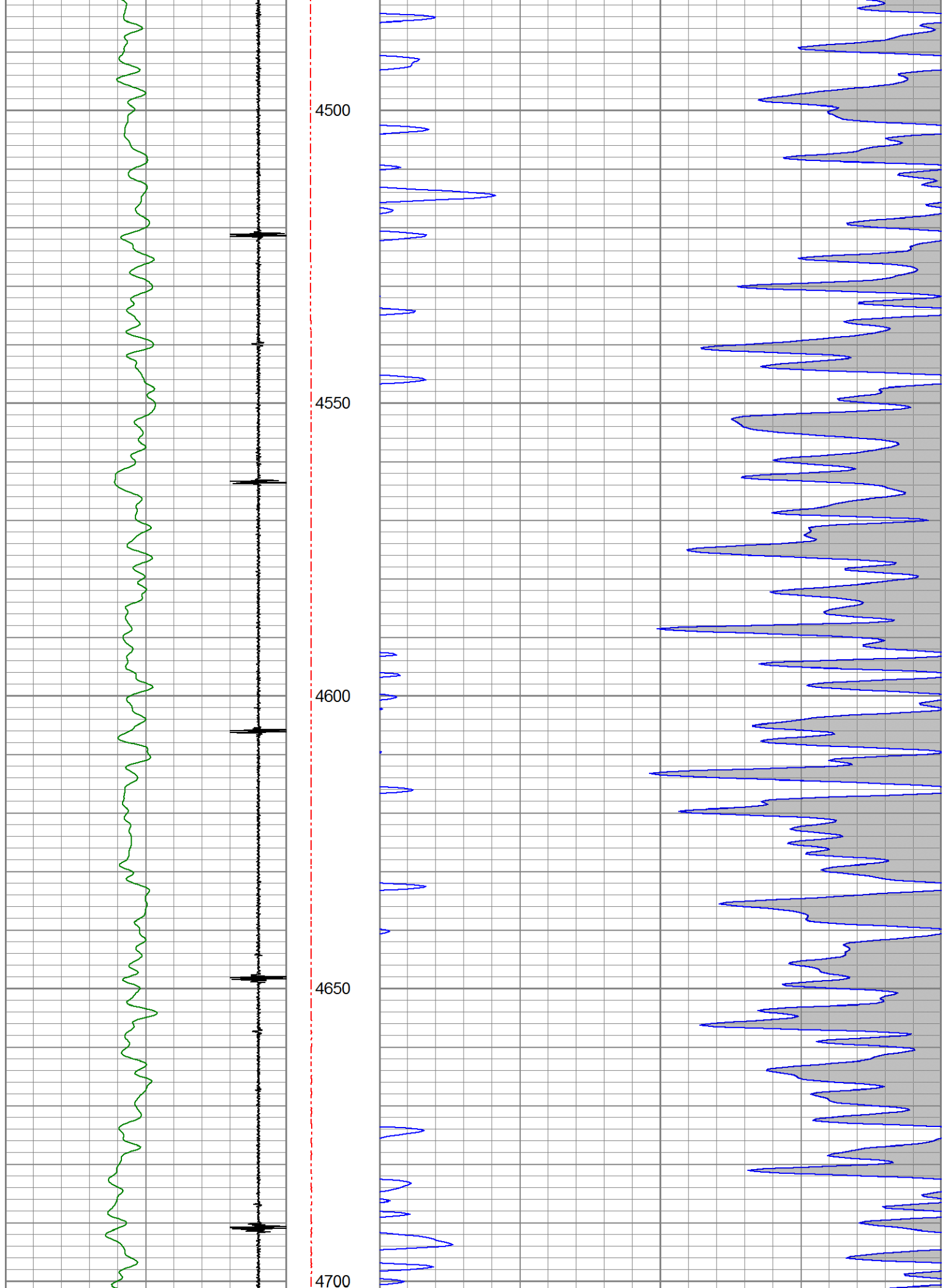




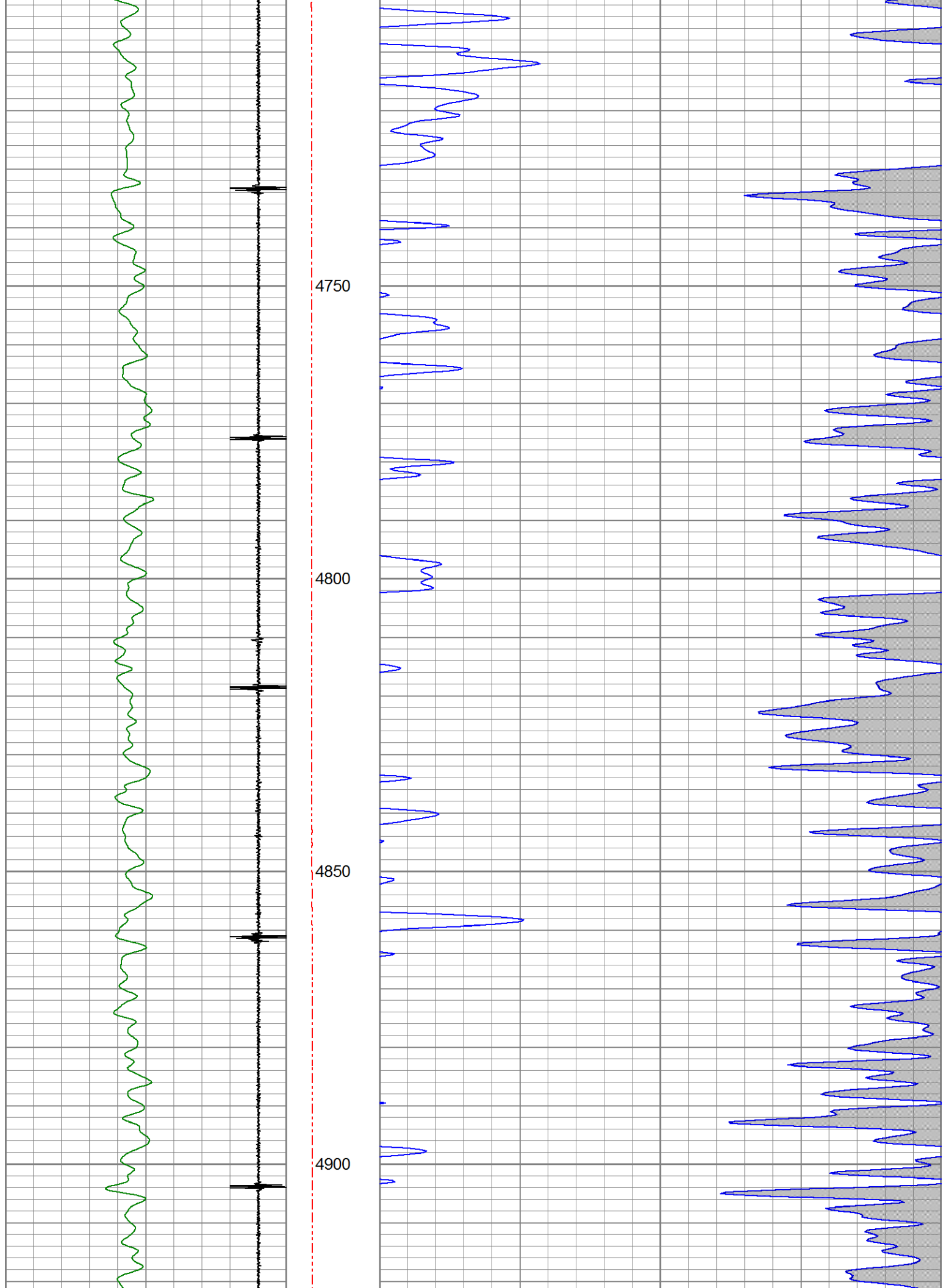


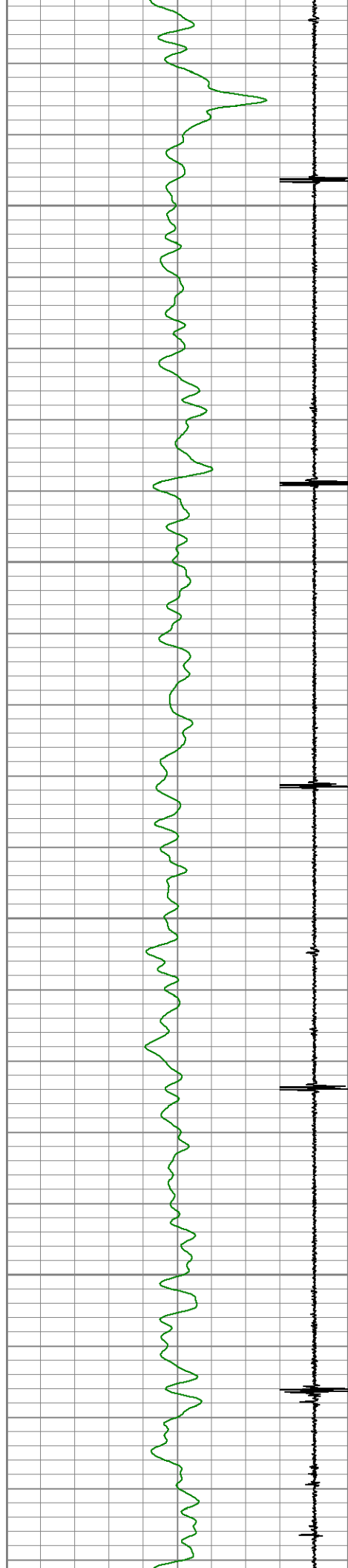










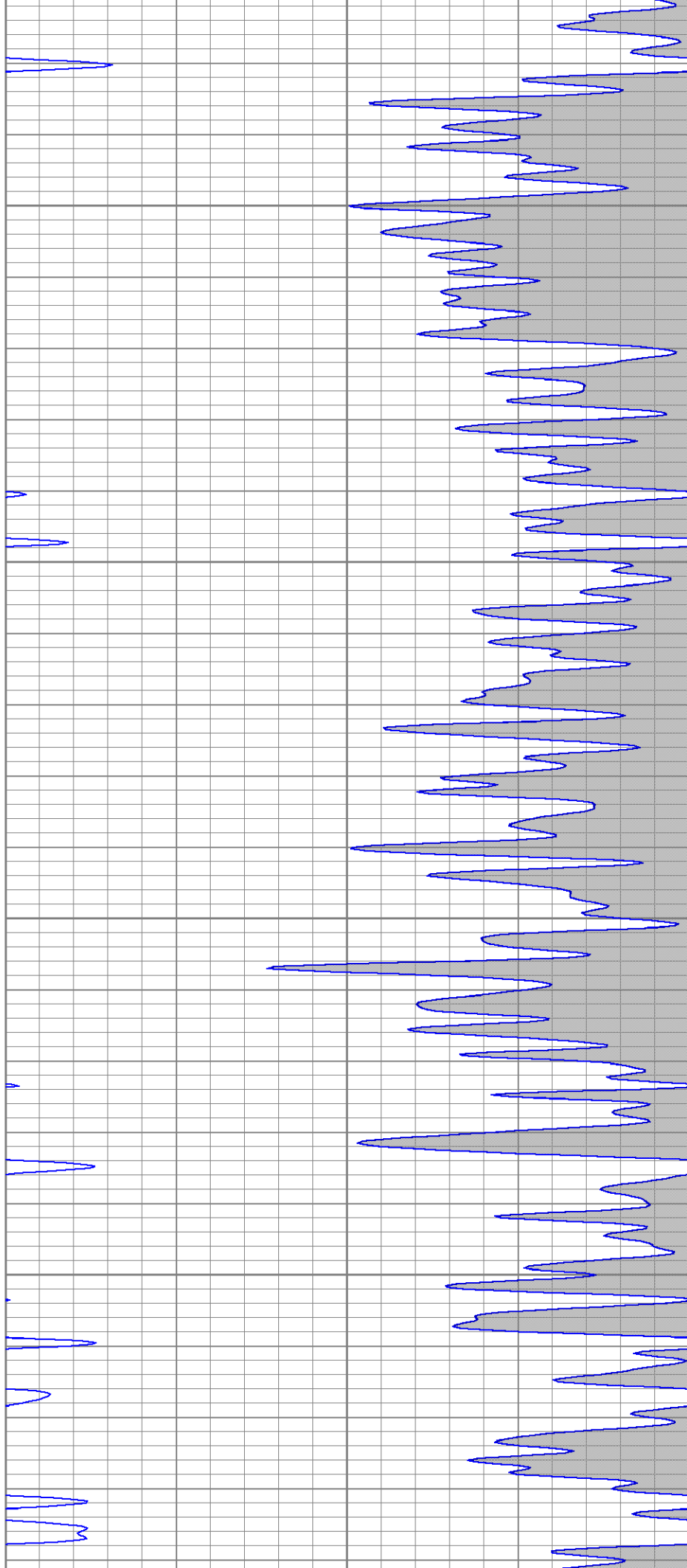


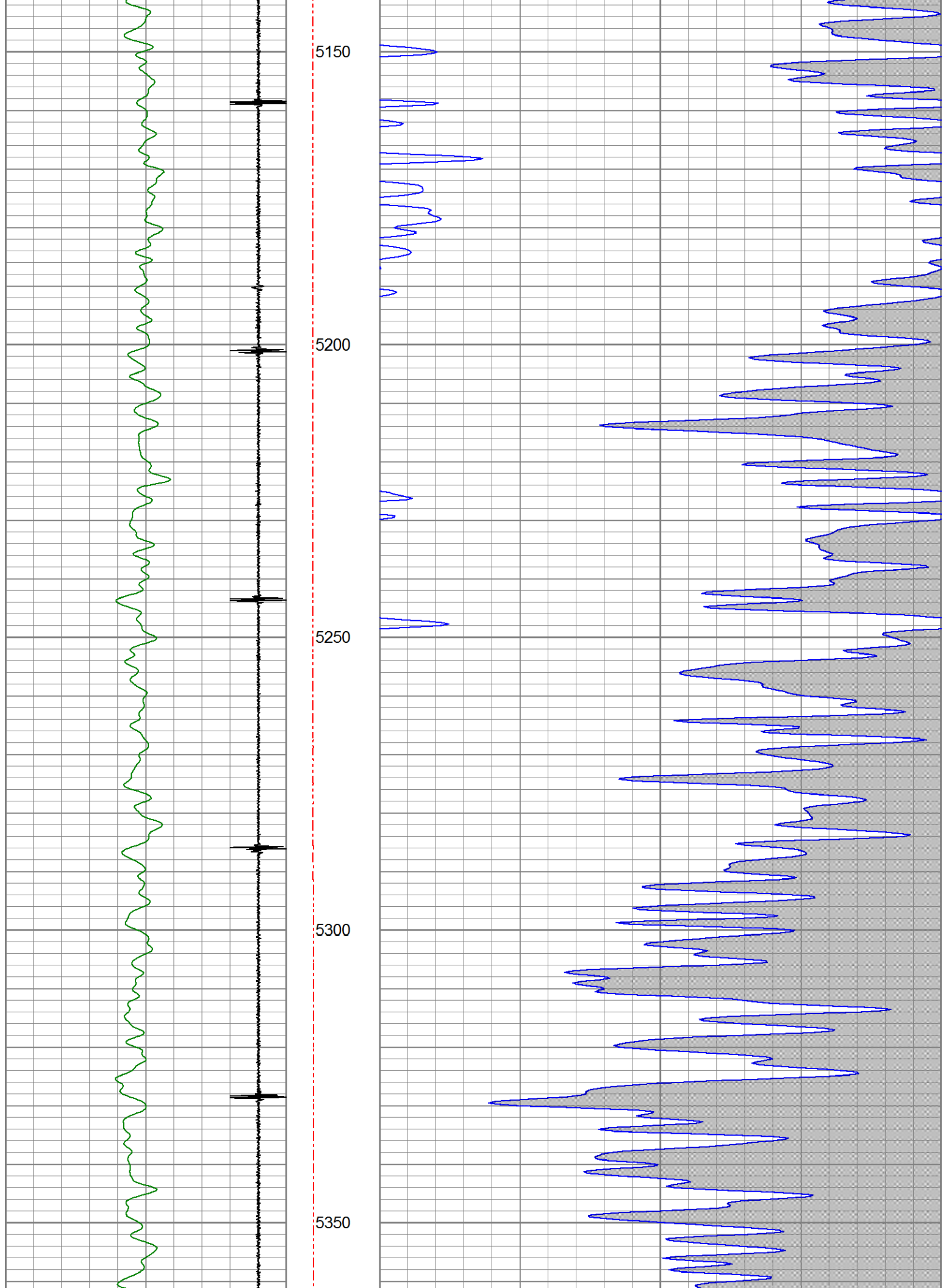
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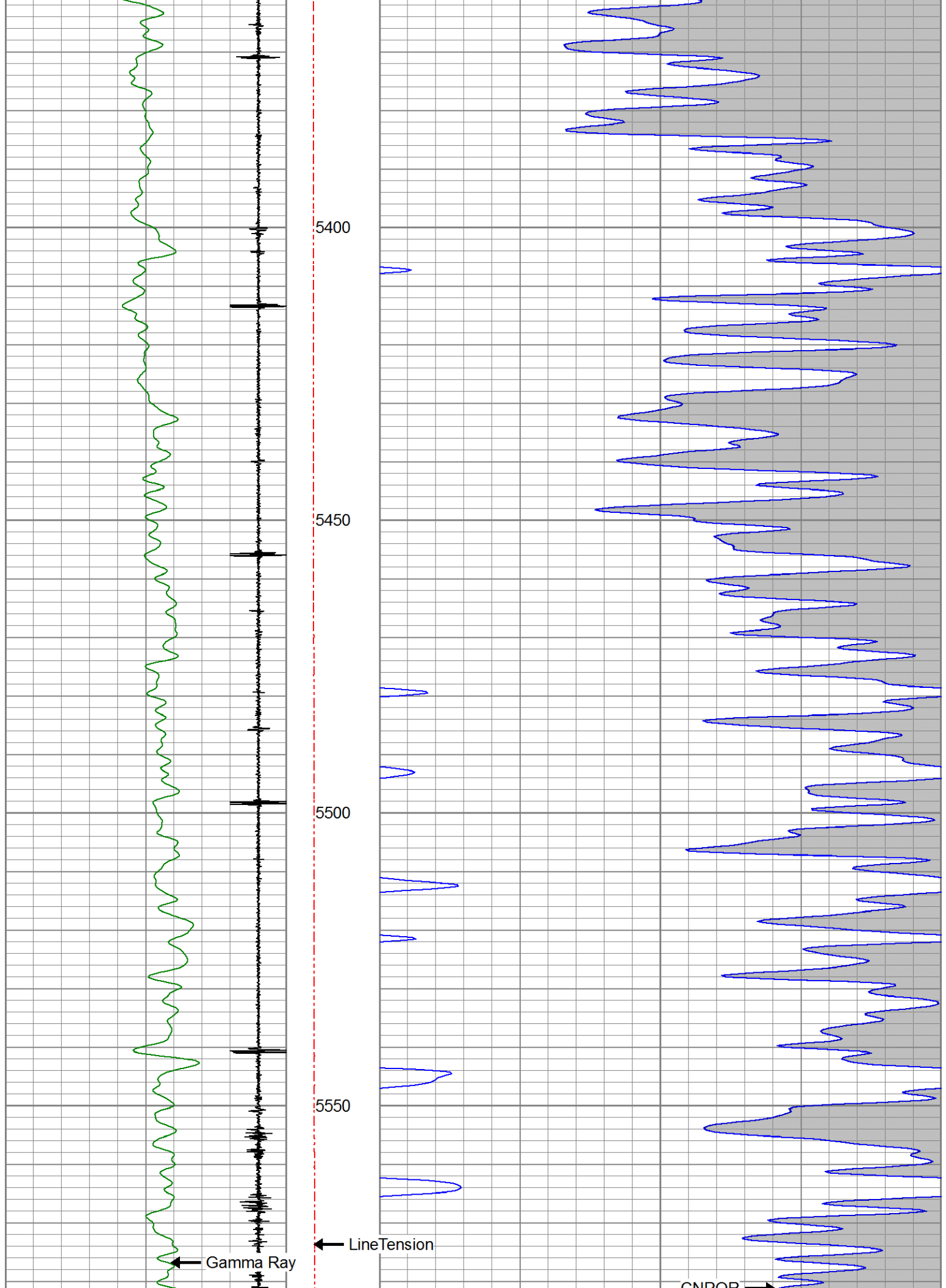
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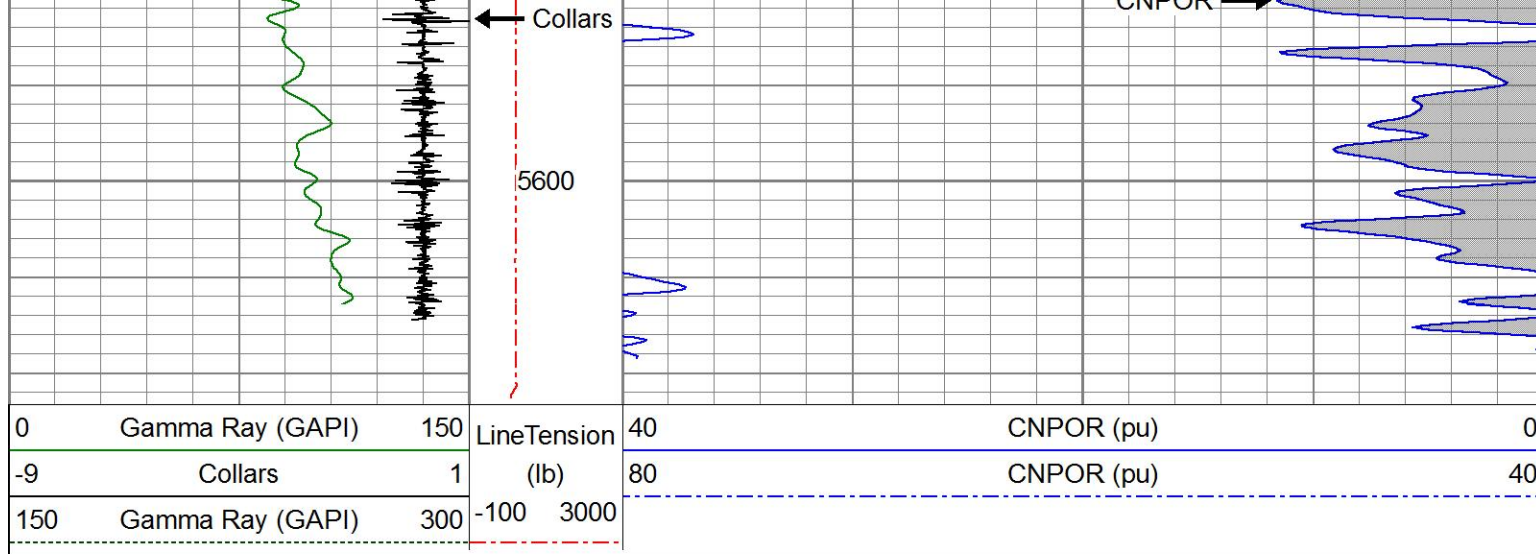
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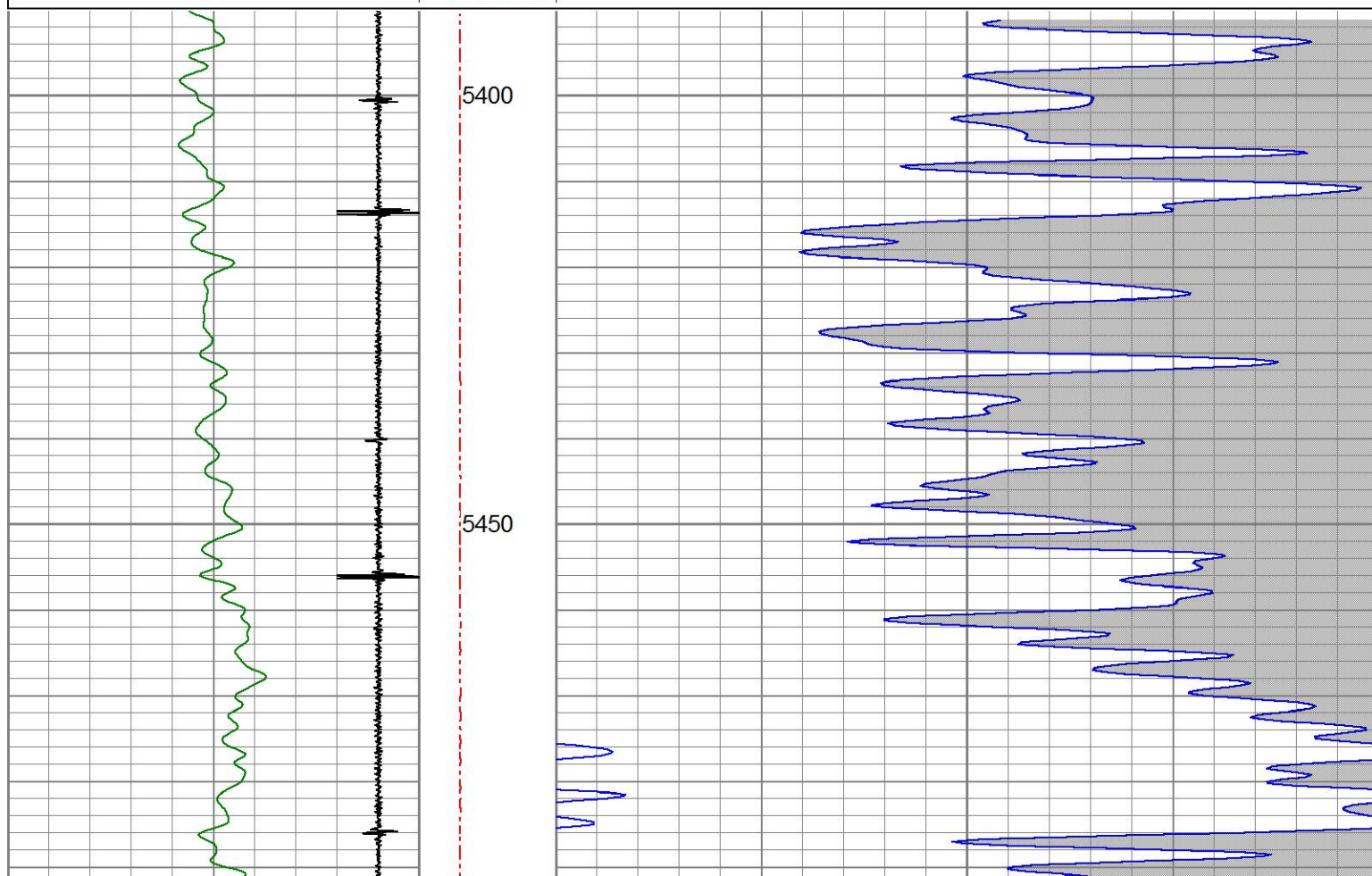
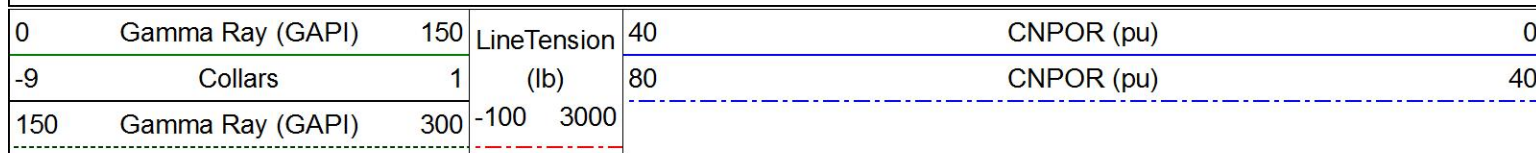




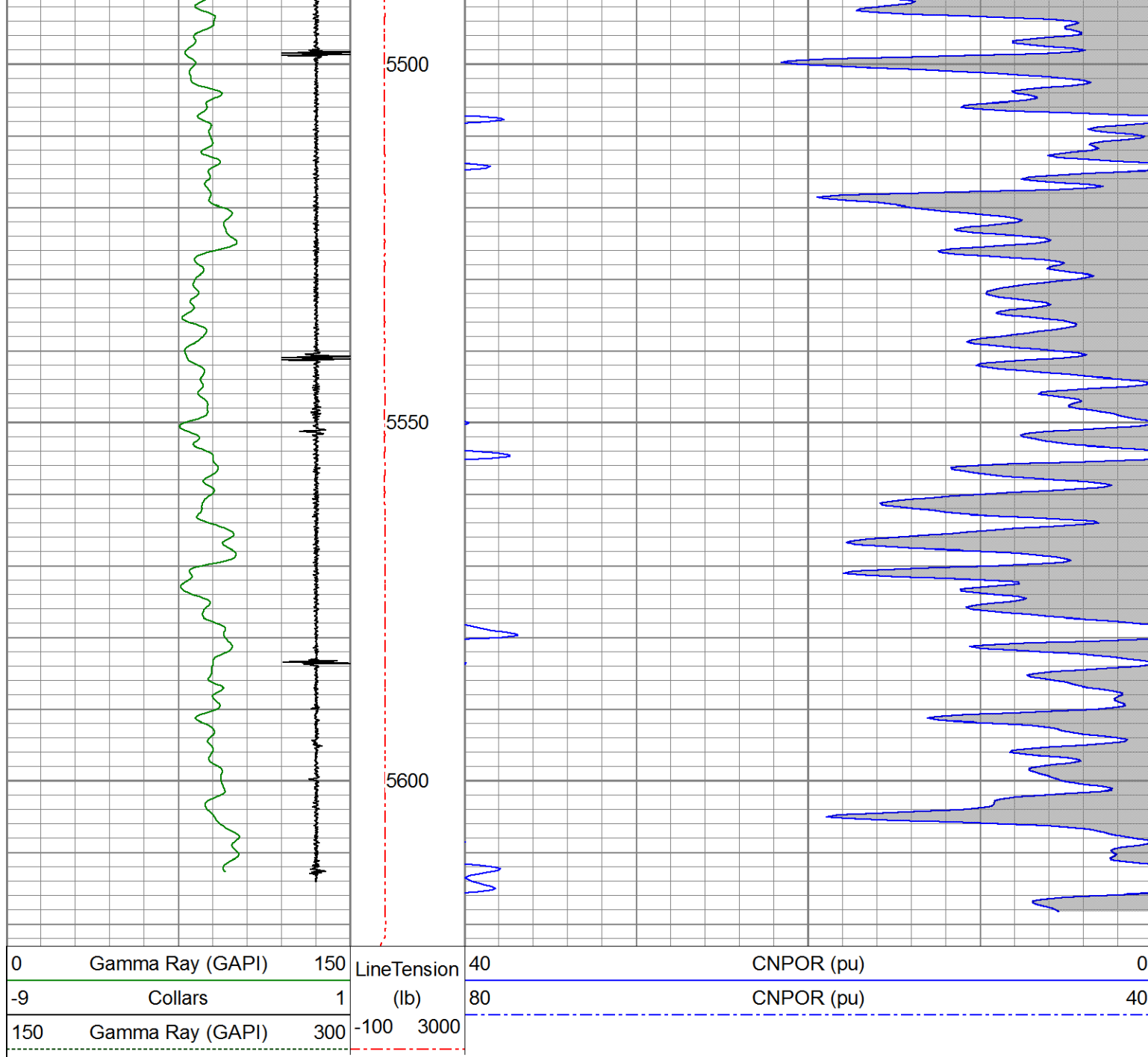
**PIONEER**  
Pioneer Energy Services

# REPEAT SECTION

Database File: bison oil&gas ii llc\_state 16-7-60 #1h\_05-123-37069\_01-31-2022\_cnl.db  
 Dataset Pathname: pass4.1  
 Presentation Format: pinr\_cnl  
 Dataset Creation: Mon Jan 31 12:29:15 2022  
 Charted by: Depth in Feet scaled 1:240







Calibration Report						
Database File	bison oil&gas ii llc_state 16-7-60 #1h_05-123-37069_01-31-2022_cnl.db					
Dataset Pathname	pass6.1					
Dataset Creation	Mon Jan 31 12:27:51 2022					
Compensated Neutron Calibration Report						
Serial Number:			FW1703-020			
Tool Model:			PRB_DIG			
CALIBRATION		Tue Nov 07 12:00:29 2017				
Detector	Readings		Target		Normalization	
Short Space	2706.54	cps	0.00	cps	1.0000	
Long Space	393.24	cps	0.00	cps	1.0000	
PRE-SURVEY VERIFICATION						
Detector	Readings		Measured		Target	


1)	Short Space	cps		
	Long Space	cps	pu	pu
2)	Short Space	cps		
	Long Space	cps	pu	
3)	Short Space	cps		
	Long Space	cps	pu	

#### POST-SURVEY VERIFICATION

	Detector	Readings	Measured	Target
1)	Short Space	cps		
	Long Space	cps	pu	pu
2)	Short Space	cps		
	Long Space	cps	pu	pu
3)	Short Space	cps		
	Long Space	cps	pu	pu

#### Gamma Ray Calibration Report

Serial Number: FW1404-109  
 Tool Model: 275\_6-PIN  
 Performed: Mon Feb 19 16:18:43 2018  
  
 Calibrator Value: 240.0 GAPI  
  
 Background Reading: 103.5 cps  
 Calibrator Reading: 4672.0 cps  
  
 Sensitivity: 0.6599 GAPI/cps

 <p><b>PIONEER</b> Pioneer Energy Services</p>	Company	BISON OIL & GAS II LLC
	Well	STATE 16-7-60 #1H
	Field	DJ HORIZONTAL NIOBRARA
	County	WELD
	State	CO