



**PIONEER**  
Pioneer Energy Services

**CEMENT BOND LOG  
WITH GAMMA RAY  
NEUTRON**

Company **WHITING OIL & GAS CORP.**  
Well **HORSETAIL 07F-1839**  
Field **WILDCAT**  
County **WELD** State **CO.**

Comp. **WHITING OIL & GAS CORP.**  
Well **HORSETAIL 07F-1839**  
Field **WILDCAT**  
Co. **WELD**  
State **CO.**

Location: API #: 0512341771 Other Services  
SHL: 2547' FNL & 2239' FWL  
SENVW  
SEC 7 TWP 10N RGE 57W  
Permanent Datum GL Elevation 4899'  
Log Measured From KB 21 Above Perm. Datum  
Drilling Measured From KB G.L. 4899'

Date of Service APRIL 20, 2016

Run Number 1

Depth Driller or PBTD 14119'

Depth Logger 6122'

Bottom Log Interval 6122'

Top Log Interval SURFACE

Open Hole Size 8.5"

Type Fluid WBM

Fluid Level SURFACE

Fluid Density N/A

Max. Recorded Temperature 201 F

Max. Wellhead Pressure 1500 PSI

Wellhead Connection 7-1/16" 10K

Estimated Cement Top SEE LOG

Unit Number P-01

Wireline Size 9/32"

Location FT. MORGAN

Recorded By SHAUN STUMP

Witnessed By ED MOORE

Size Wt/Ft Top Bottom

Tubing Record

Surface Casing 9.625" 36# 0' 2026'

Production Casing 5.5" 20# 0' 14119'

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.

1500 PSI ON WELL WHILE LOGGING

\*PLEASE NOTE\* ONCE INSIDE SURFACE CASING NUETRON NOT CORRECT  
DEPTH CORRELATED TO MARKER JOINT -8'

S.O. 290169

THANK YOU FOR USING PIONEER ENERGY SERVICES!

Your Pioneer Energy Services Crew

Engineer: SHAUN STUMP  
Operator: CORY BURNS  
Operator: SHAUN SCHUMAN  
Operator:

Tool Data - Services

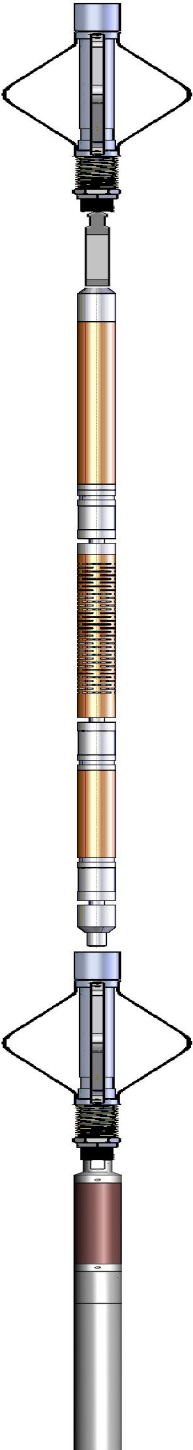
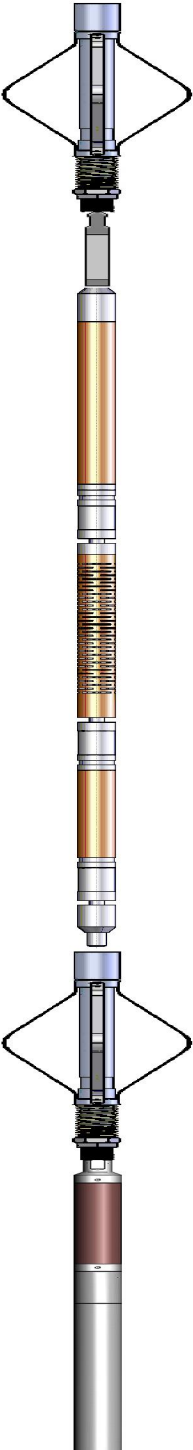
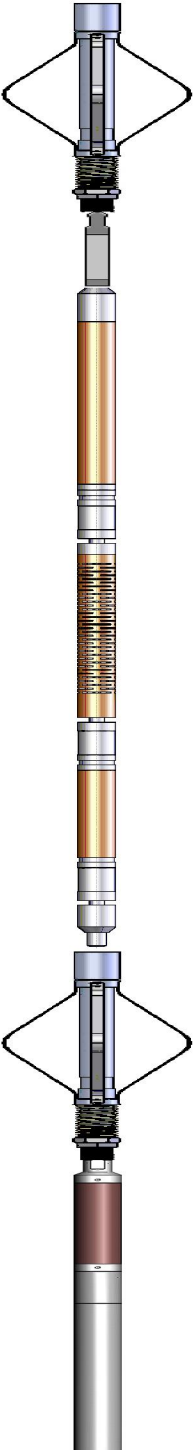
RBL  
GR/CCL


Serial Number


141166  
111211

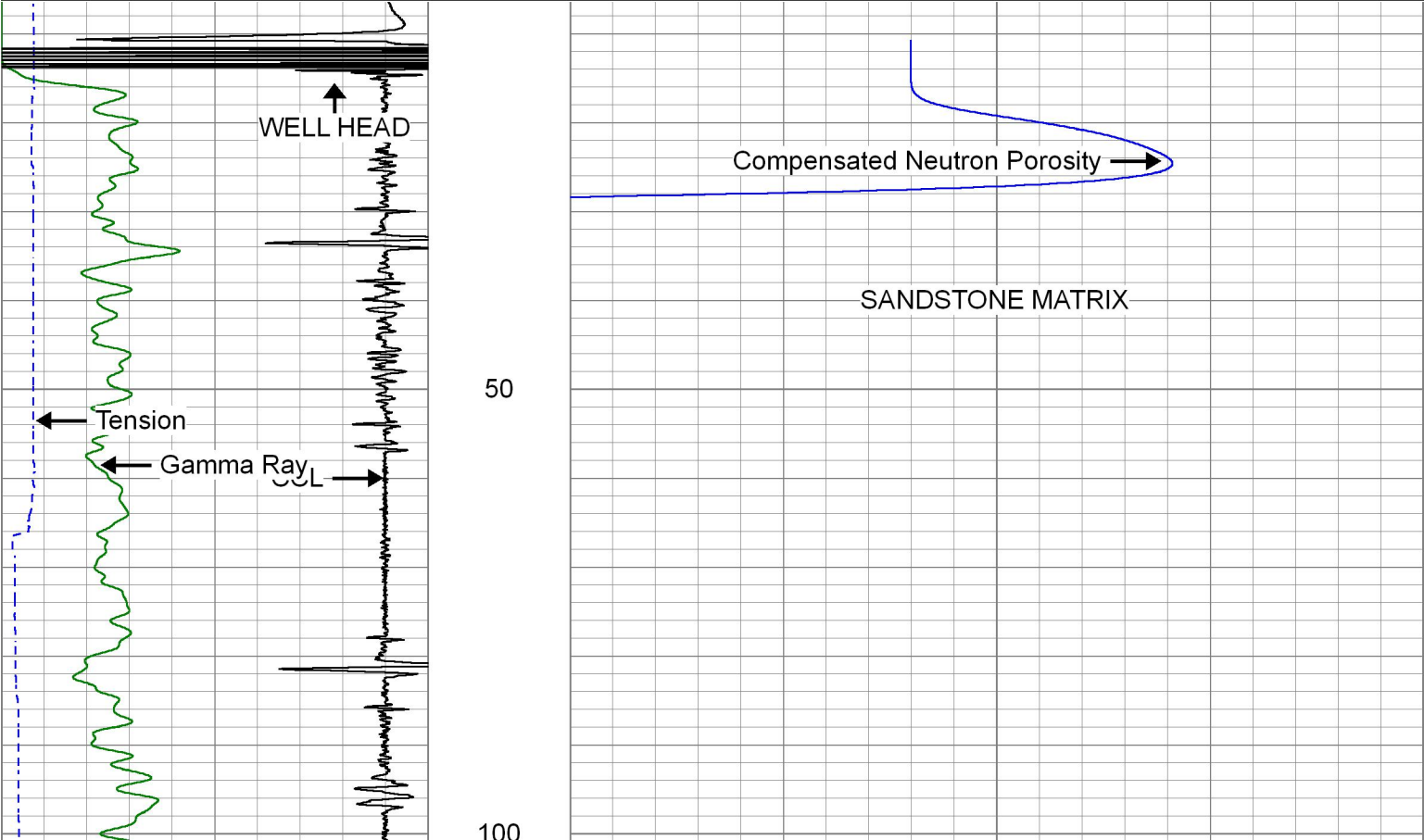
Top - Bottom

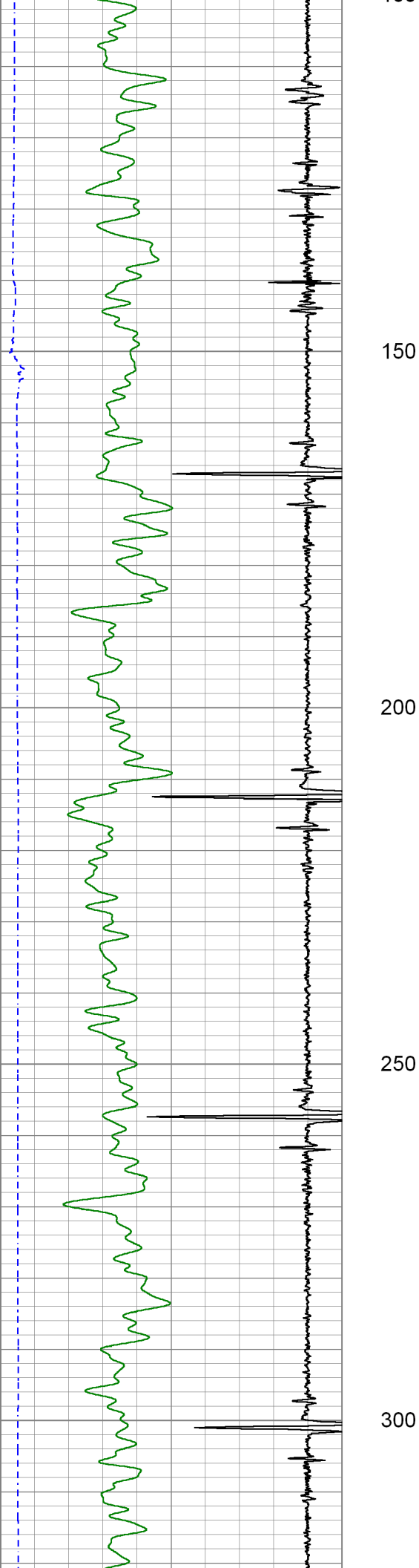
BHTEMP_Src	CMTTKCOR	CSTKCOR	SZCOR	CASED?	NPORSEL	CMNTTHCK in
TEMP	On	On	On	Yes	Sandstone	0
PPT usec	CASEWGHT lb/ft	MAXAMPL mV	MINAMPL mV	MINATTN db/ft	SRFTEMP degF	CASETHCK in
0	20	0	2.2	0.08	0	0
CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in		
5.5	0	0	198	8.5		

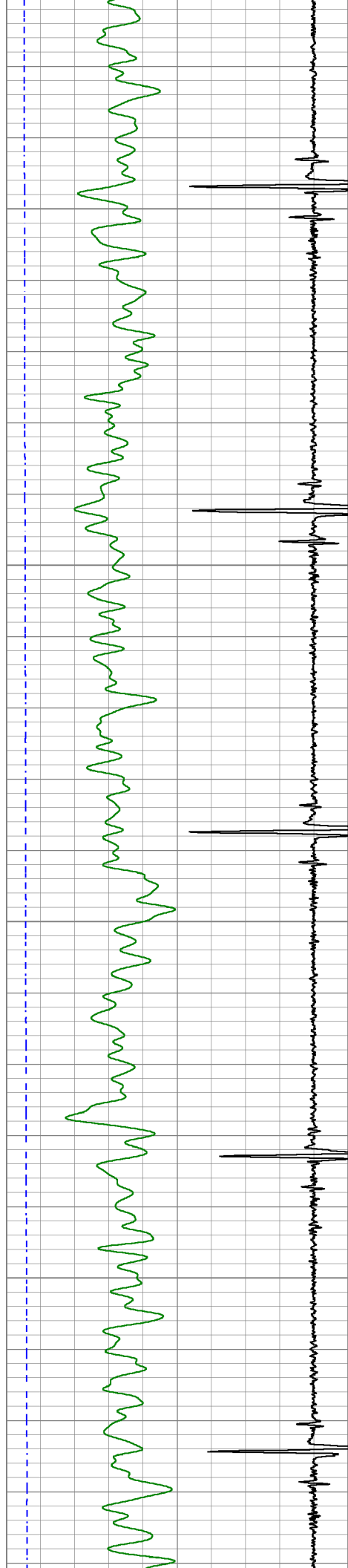
Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
TEMP	19.45		Centralizer-275 Probe 2 3/4" Probe Adjustable Spring Centralizer	2.88	2.75	15.00
			Cable Head-Titan 143 1 7/16" Titan Cable Head	1.03	1.43	2.00
			SCBL-275 Probe w Temp New Mod (14119.17) Probe Radii Bond Tool with Temperature	119.17	2.75	95.00
WVFS8	17.21					
WVFS7	17.21					
WVFS6	17.21					
WVFS5	17.21					
WVFS4	17.21					
WVFS3	17.21					
WVFS2	17.21					
WVFS1	17.21					
WVFCAL	17.21					
WVF3FT	17.21					
WVF5FT	16.21					
CCL\$2 CCL\$1	9.19 9.19		Centralizer-275 Probe 2 3/4" Probe Adjustable Spring Centralizer	2.88	2.75	15.00
GR	7.85		GR-GC_6PIN (FW1404-112) Probe 6 Pin GR275-0001 rev.1	4.82	2.75	

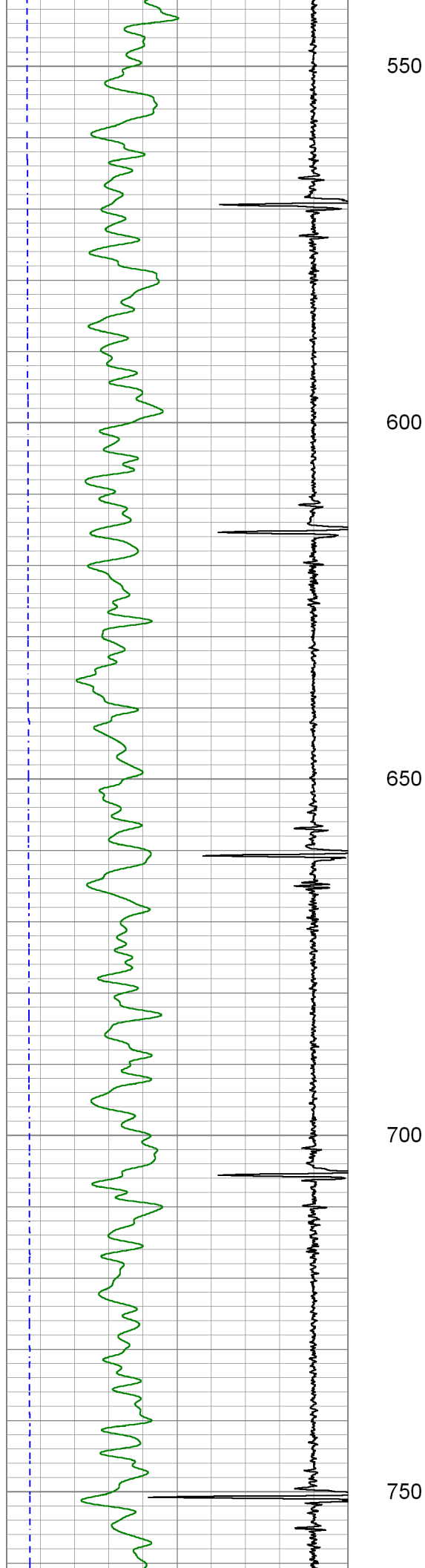
CNLSC CNSSC	2.05		CNT-275BL (120508) Probe 2.75 Digital CNT	5.00	2.75	76.00
	1.64					
Dataset: 290169.db: field/well/run1/NEUFINAL Total length: 26.04 ft Total weight: 204.00 lb O.D.: 2.75 in						

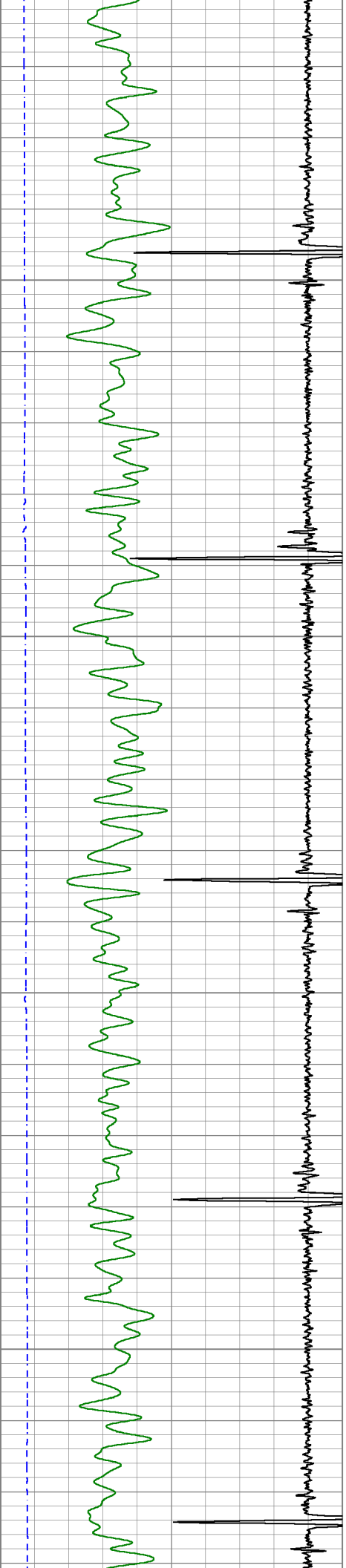
		MAIN PASS  1500 PSI ON WELL WHILE LOGGING			
Database File	290169.db				
Dataset Pathname	NEUFINAL				
Presentation Format	pinr_cnl-ft morgan				
Dataset Creation	Wed Apr 20 16:08:58 2016				
Charted by	Depth in Feet scaled 1:240				
0	Gamma Ray (GAPI)	200	40	Compensated Neutron Porosity (pu)	0
0	Tension (lb)	3000			
-9	CCL\$1	1			











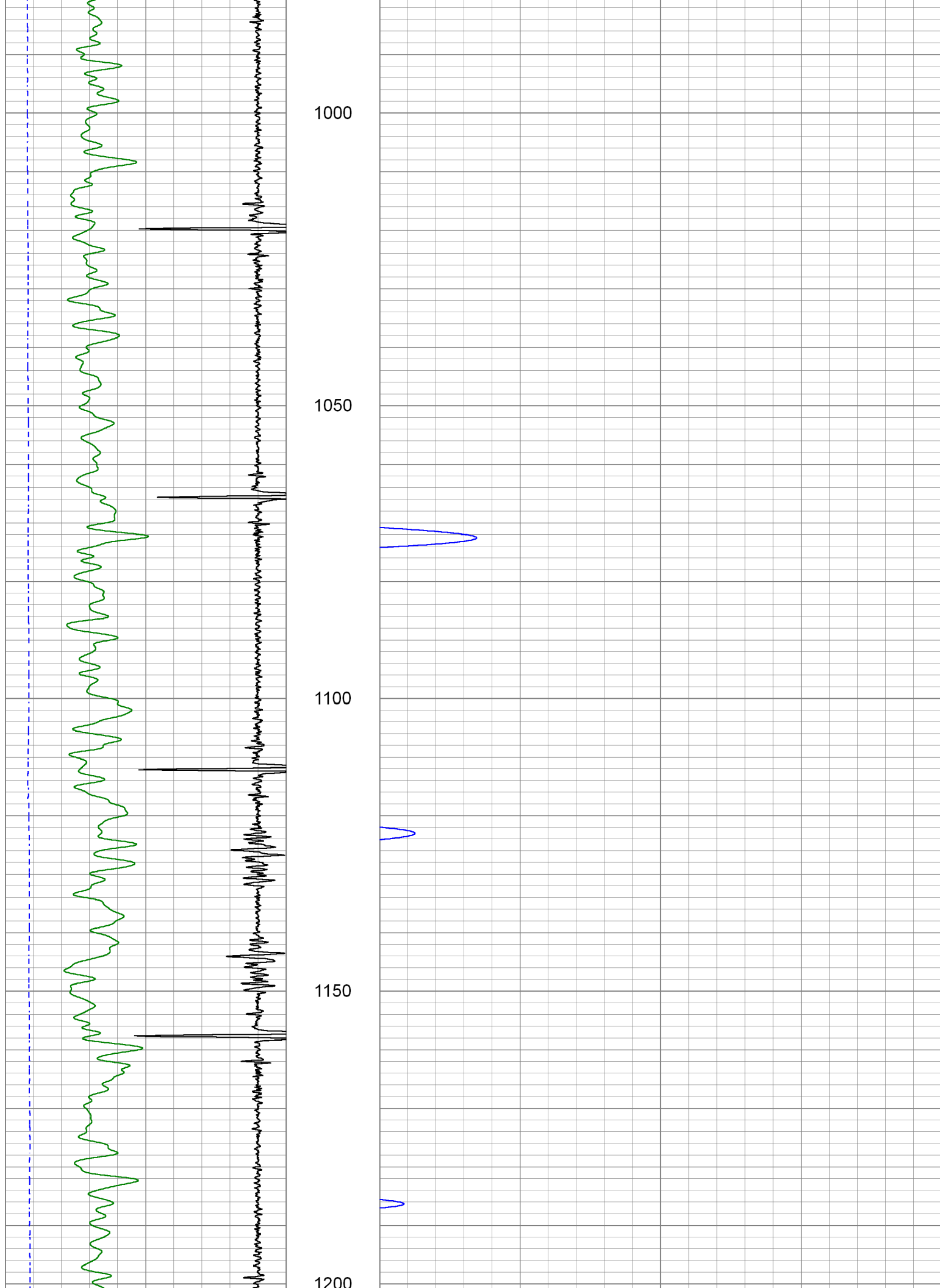
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850

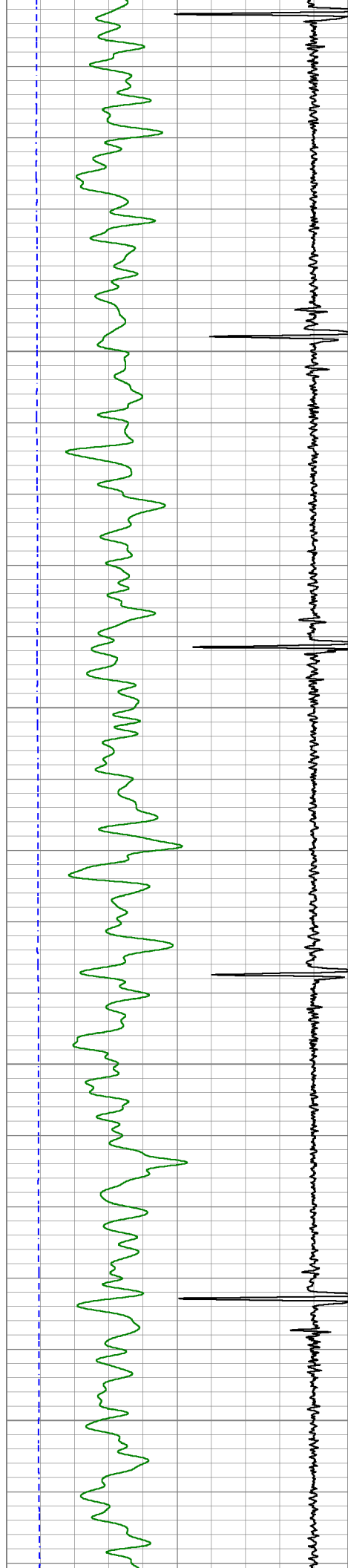
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950







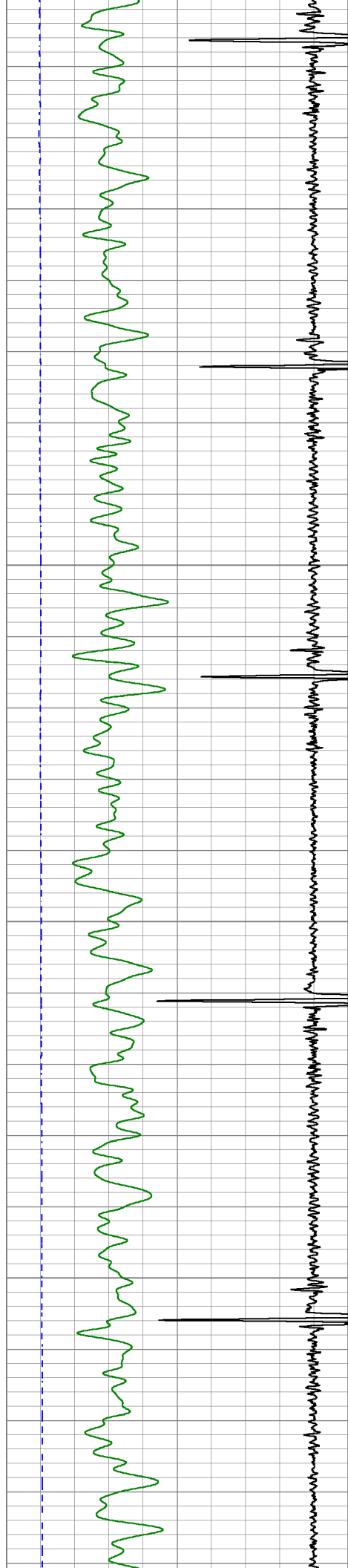


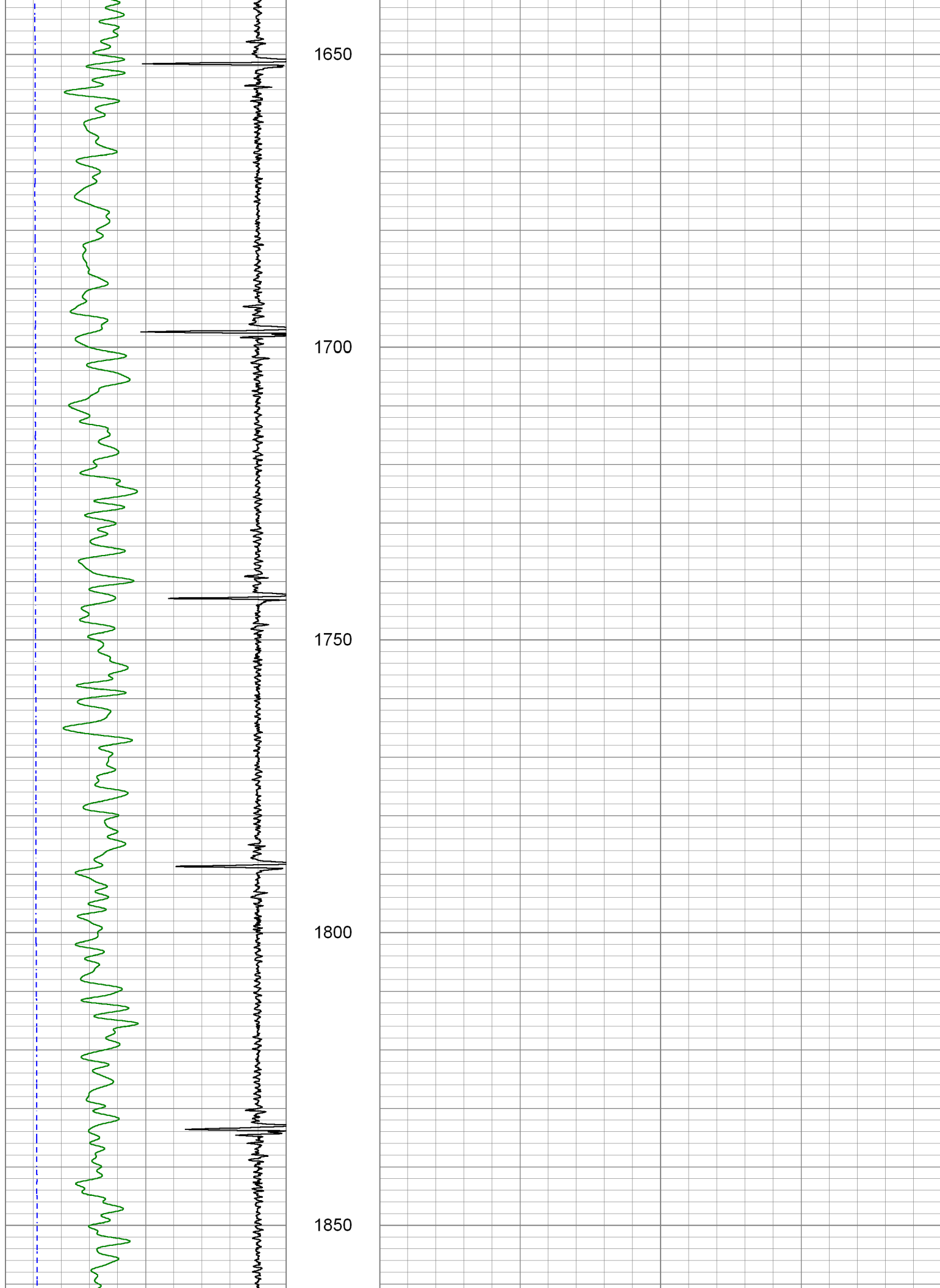
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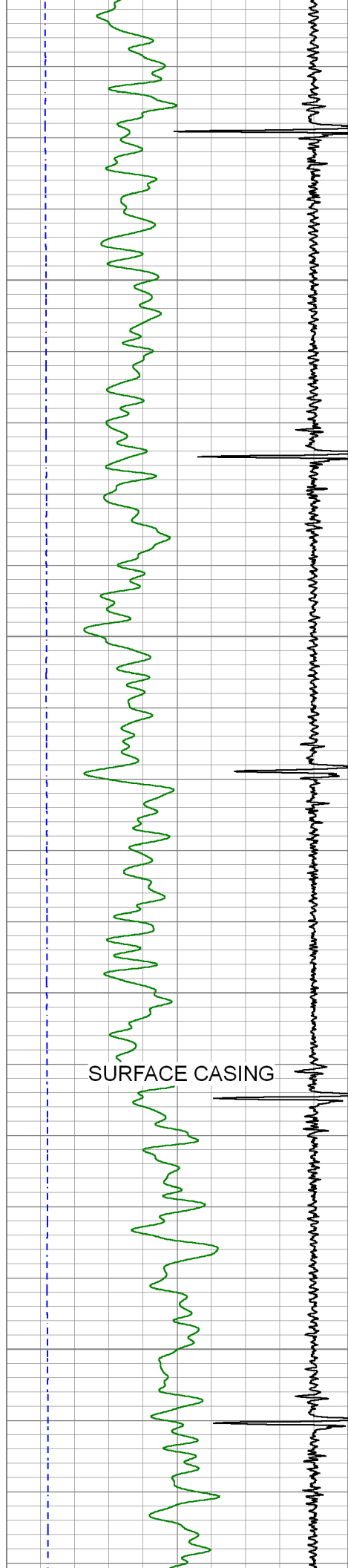
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1350

1400







1900

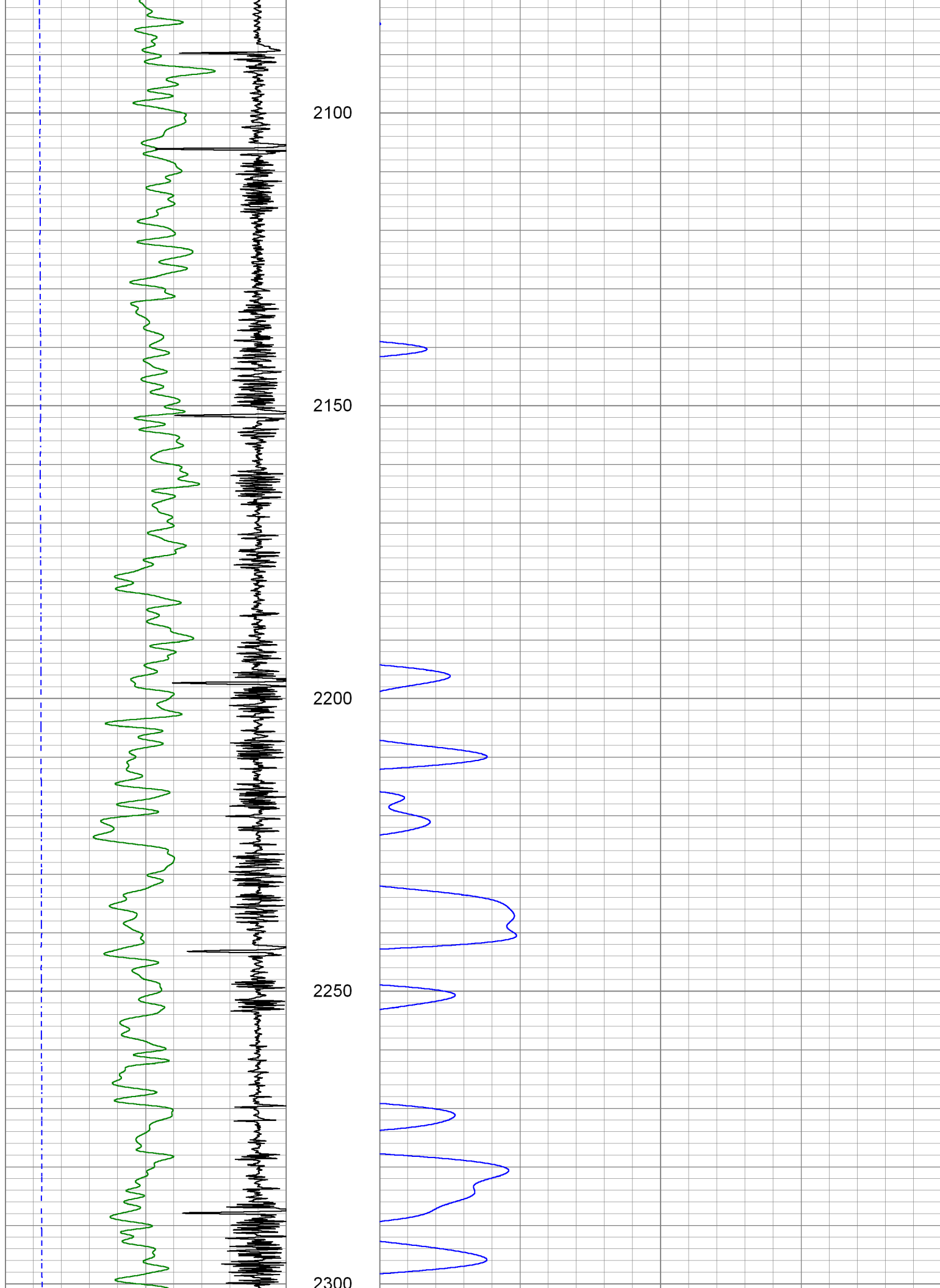
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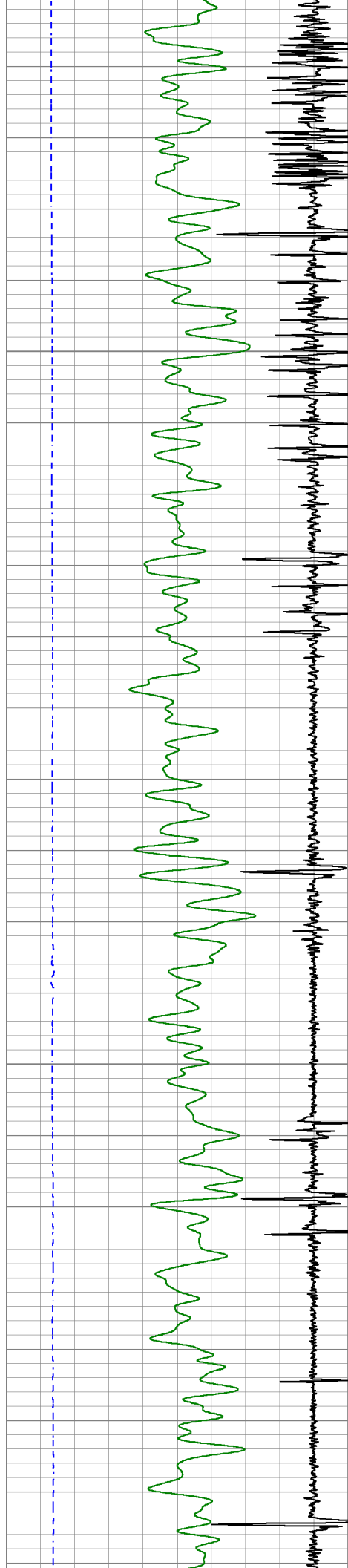
2000

2050

SURFACE CASING





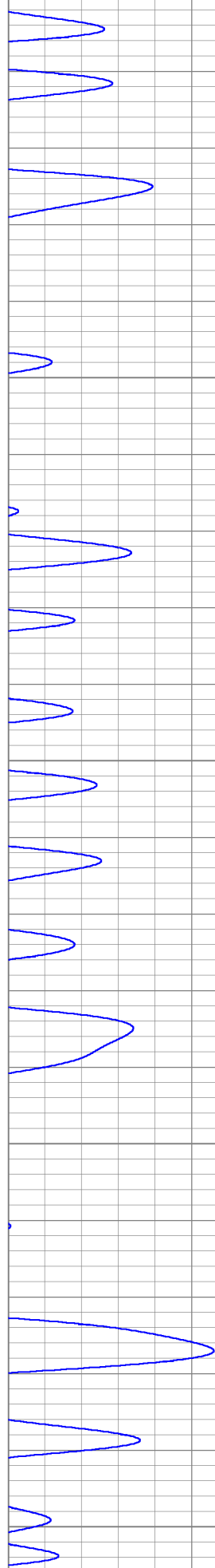


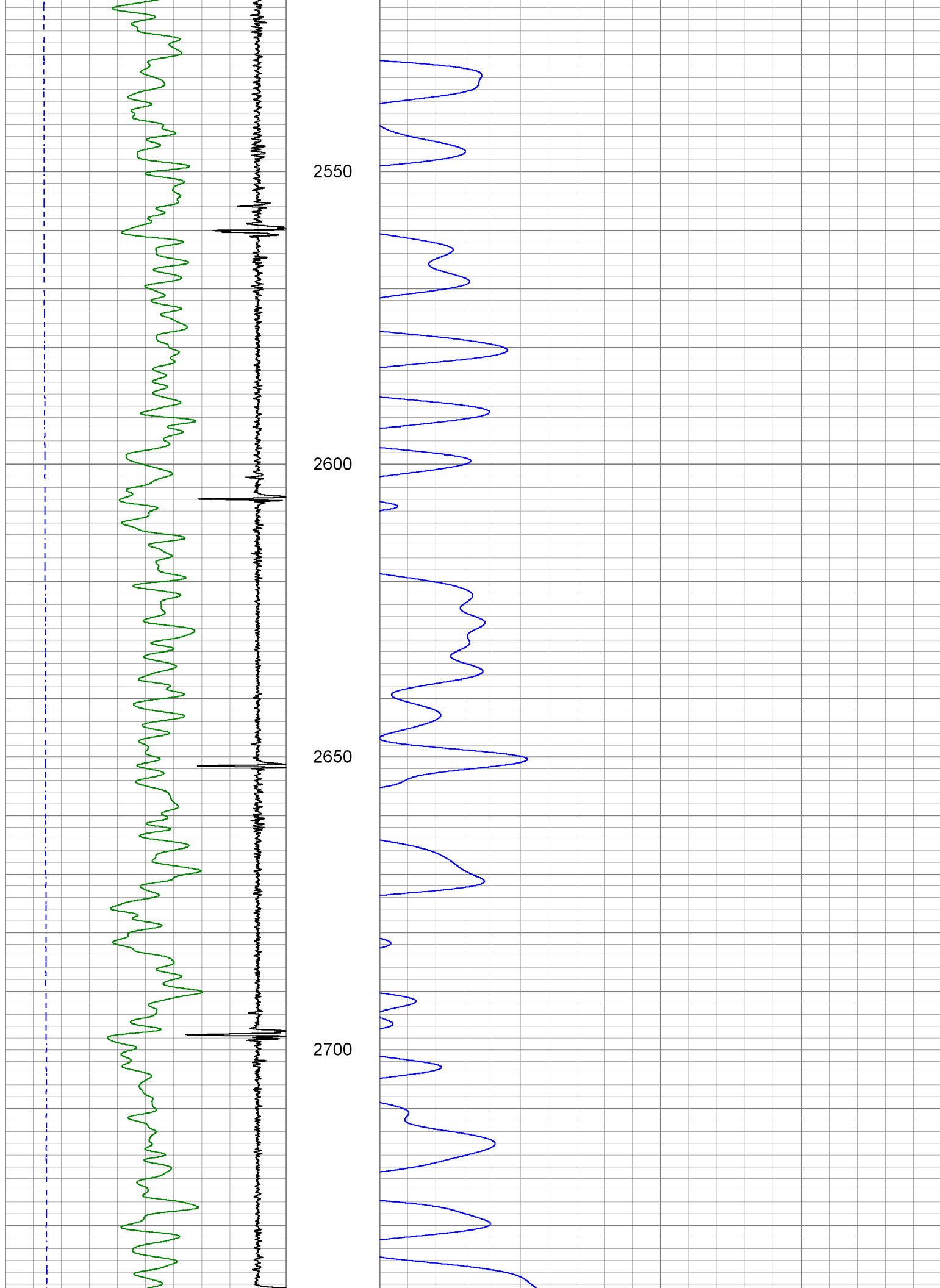
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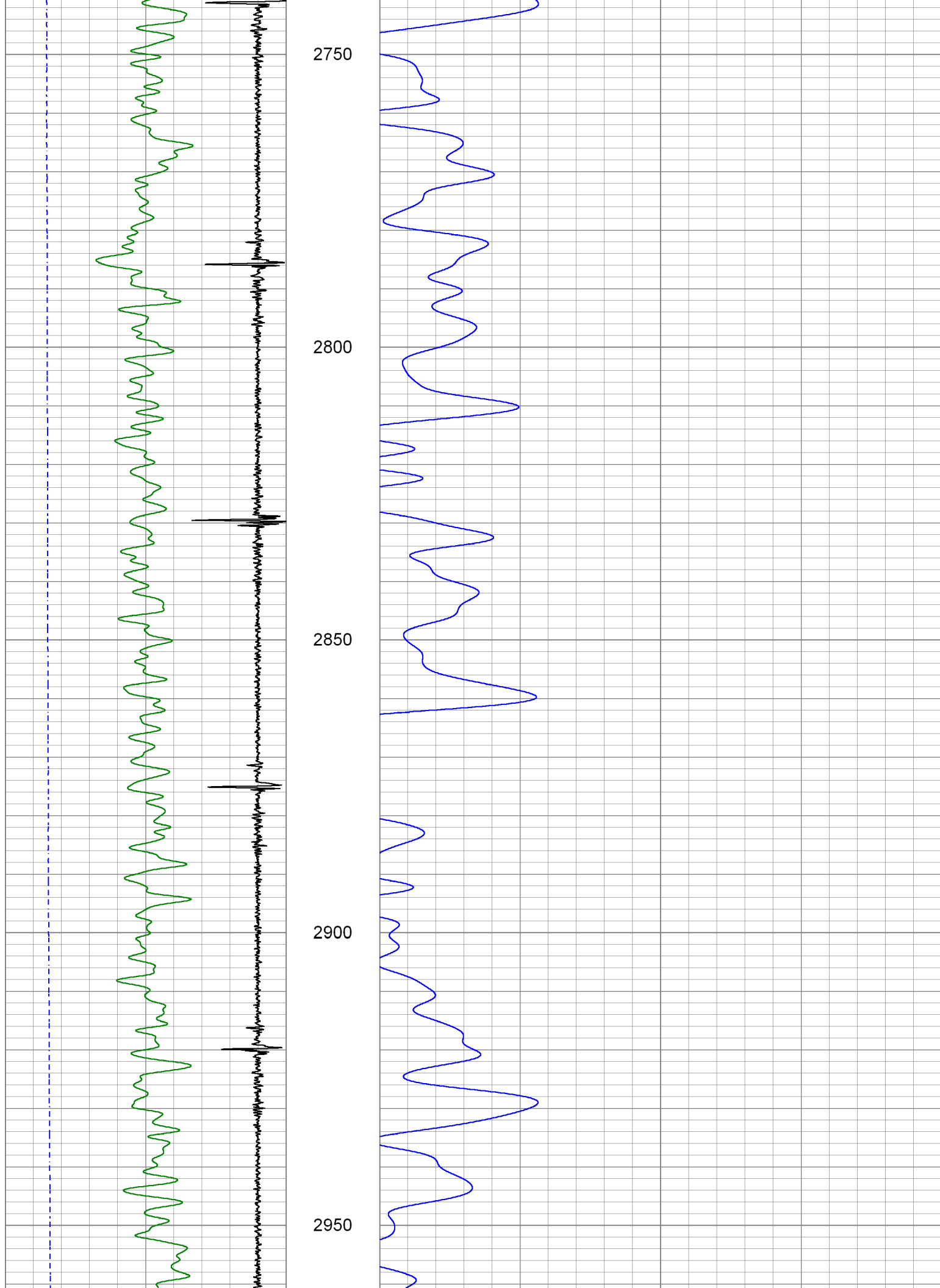
2400

2450

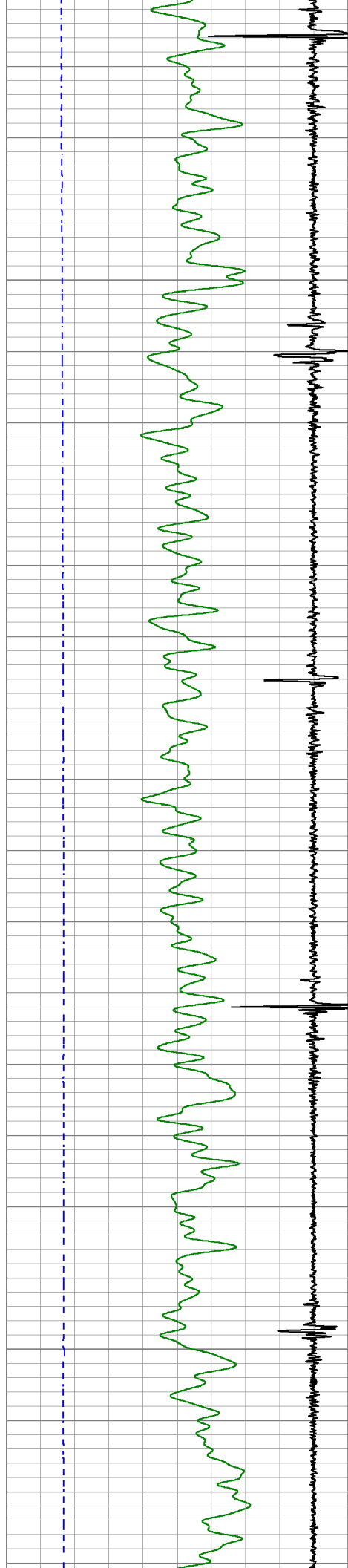
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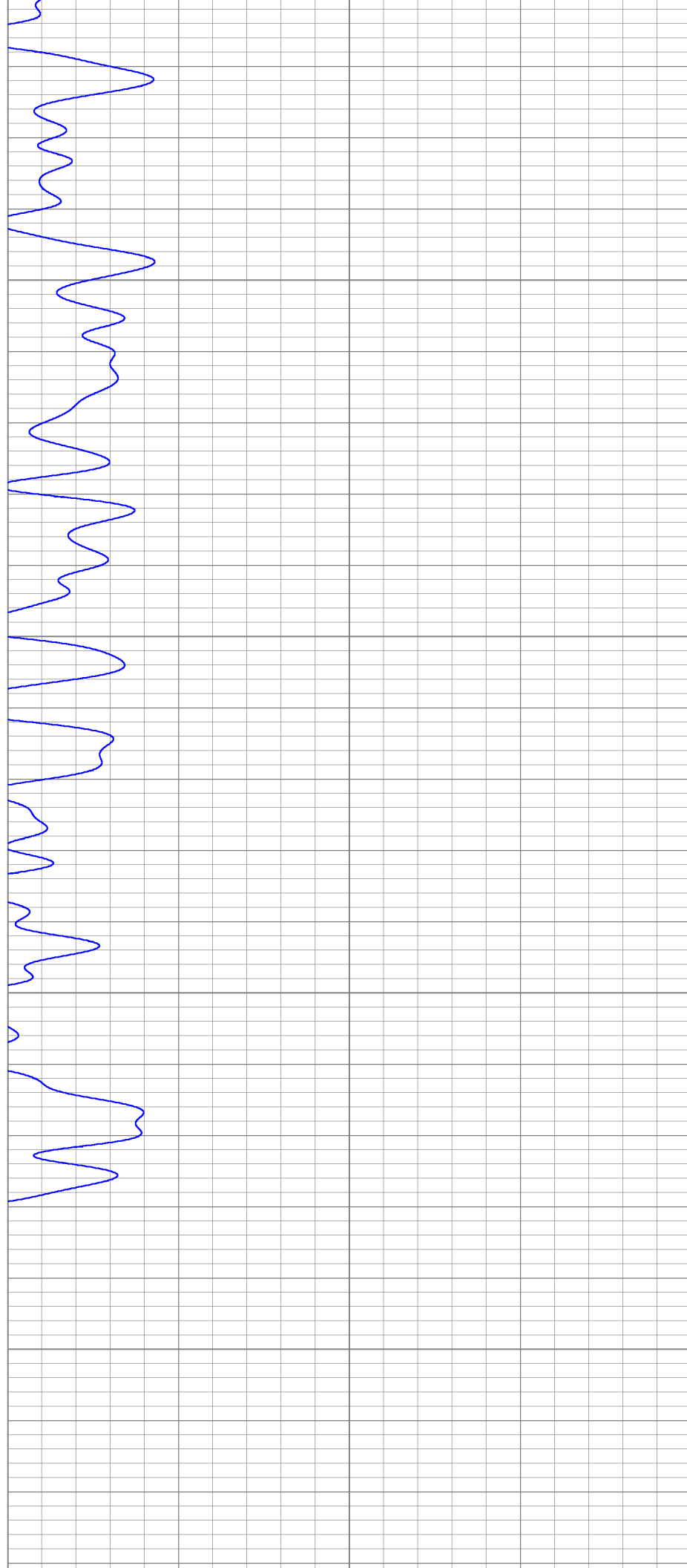


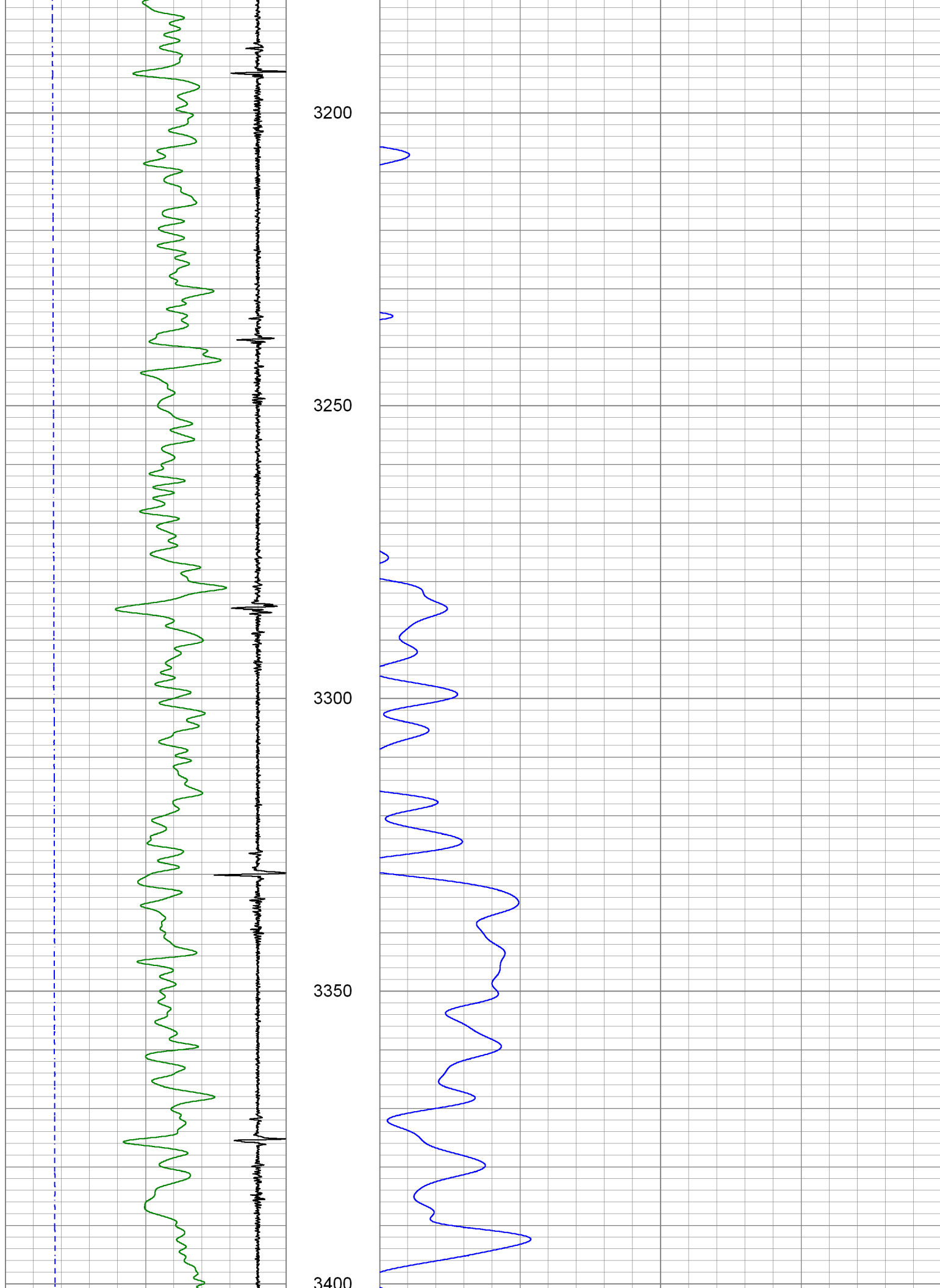
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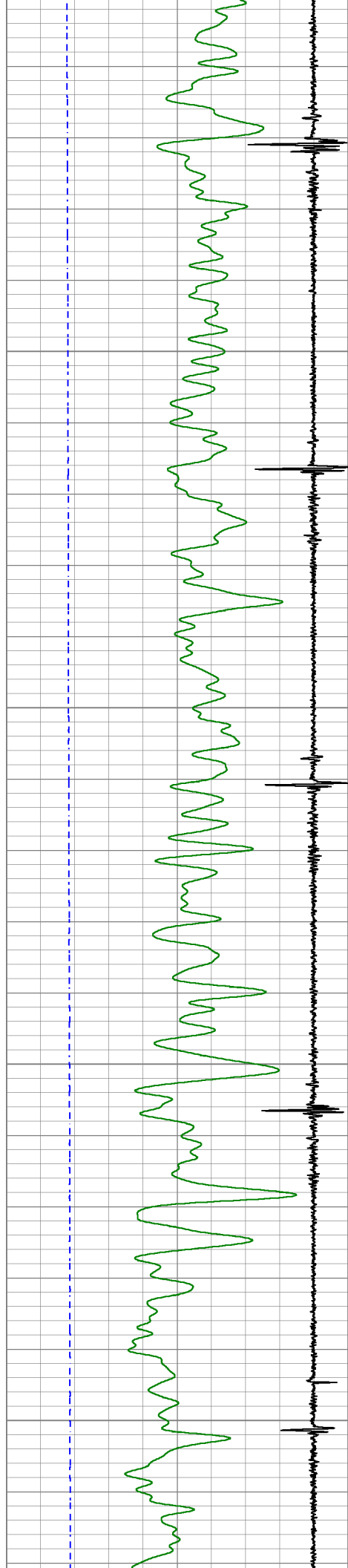
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3100

3150





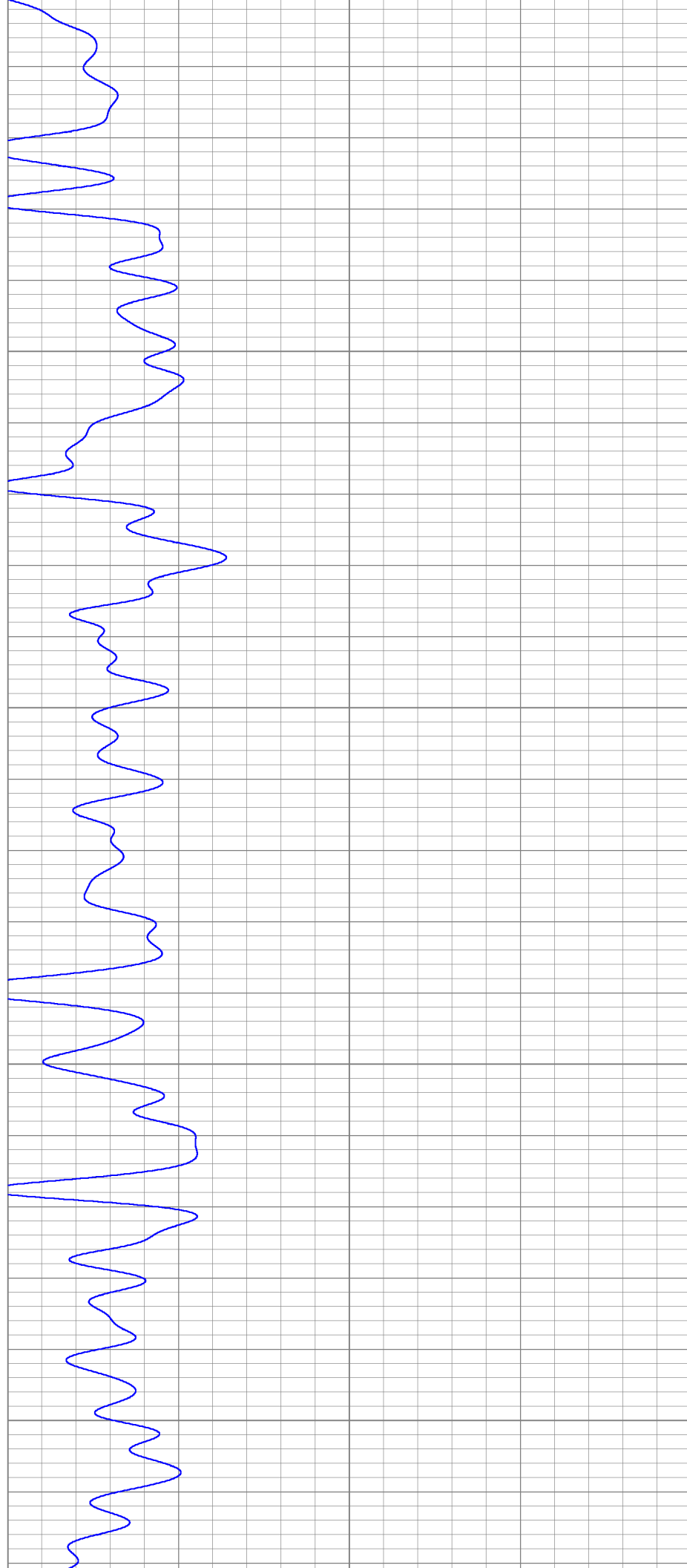


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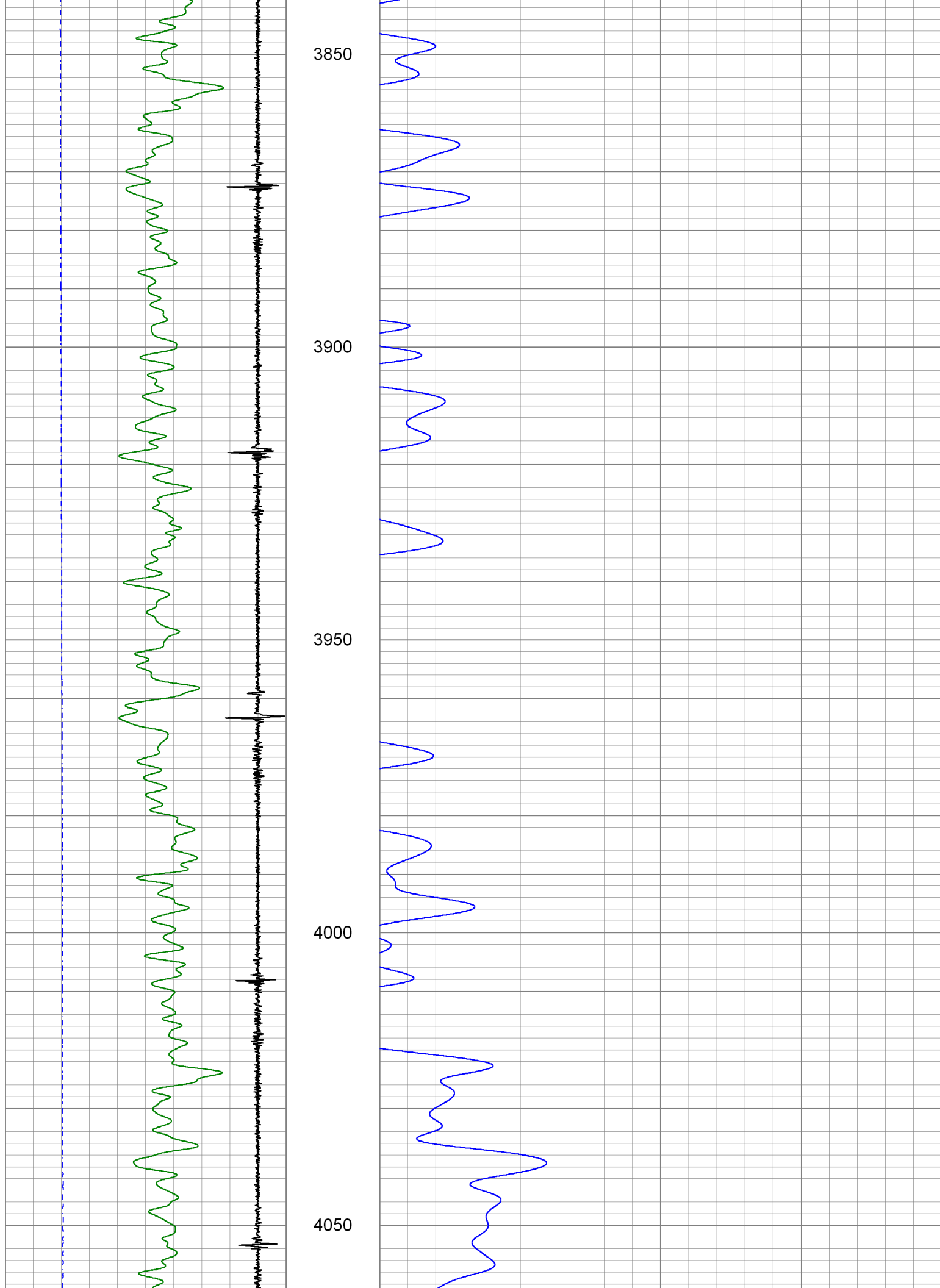
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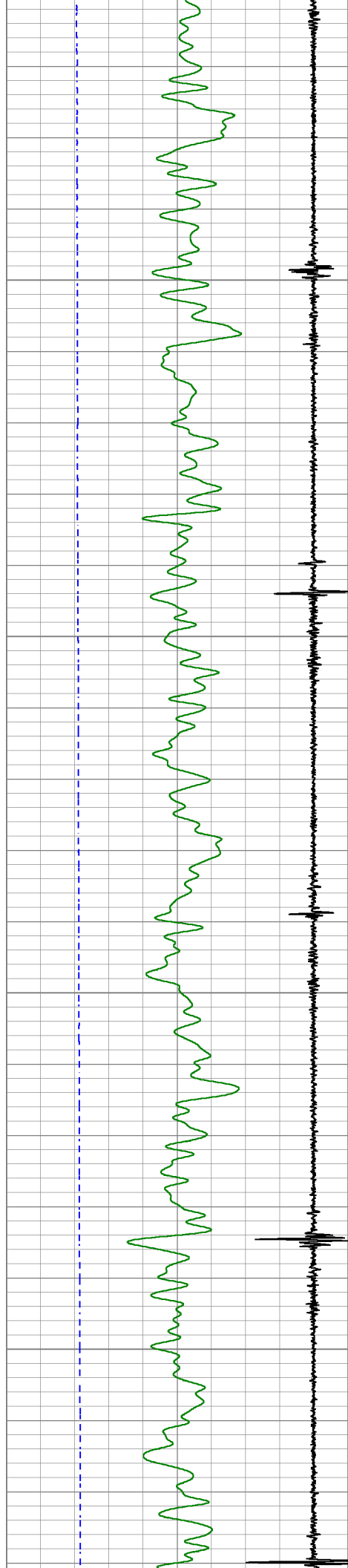
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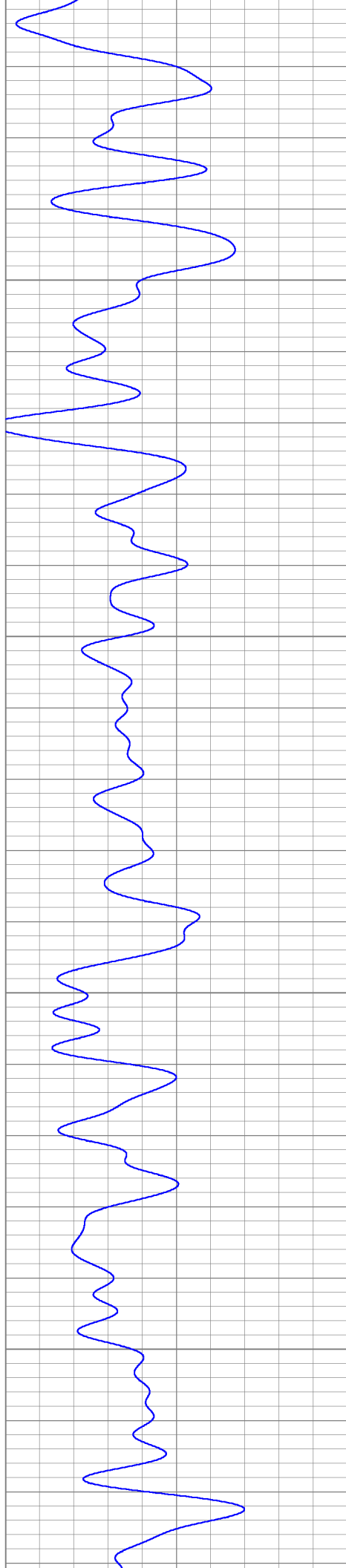


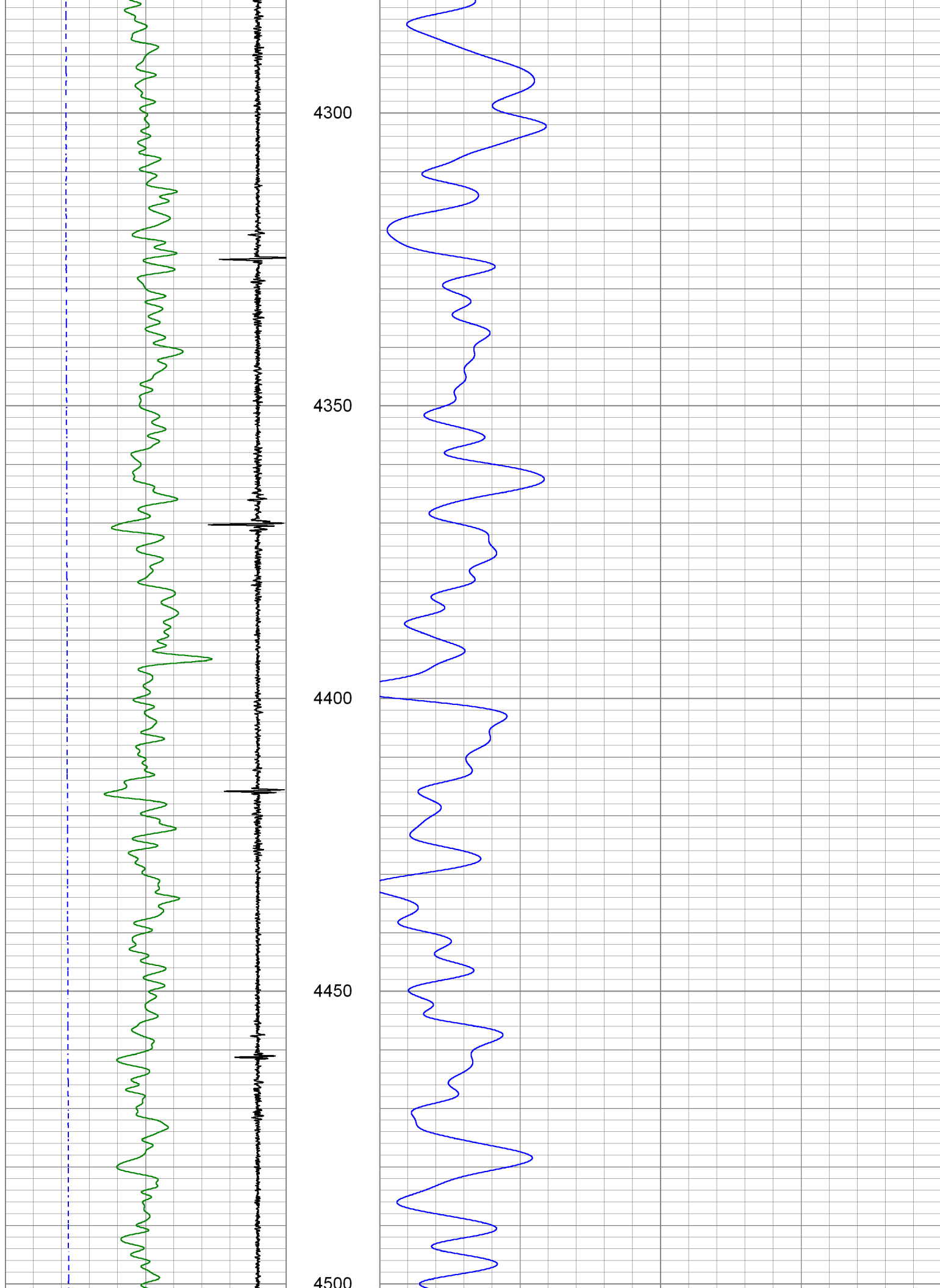
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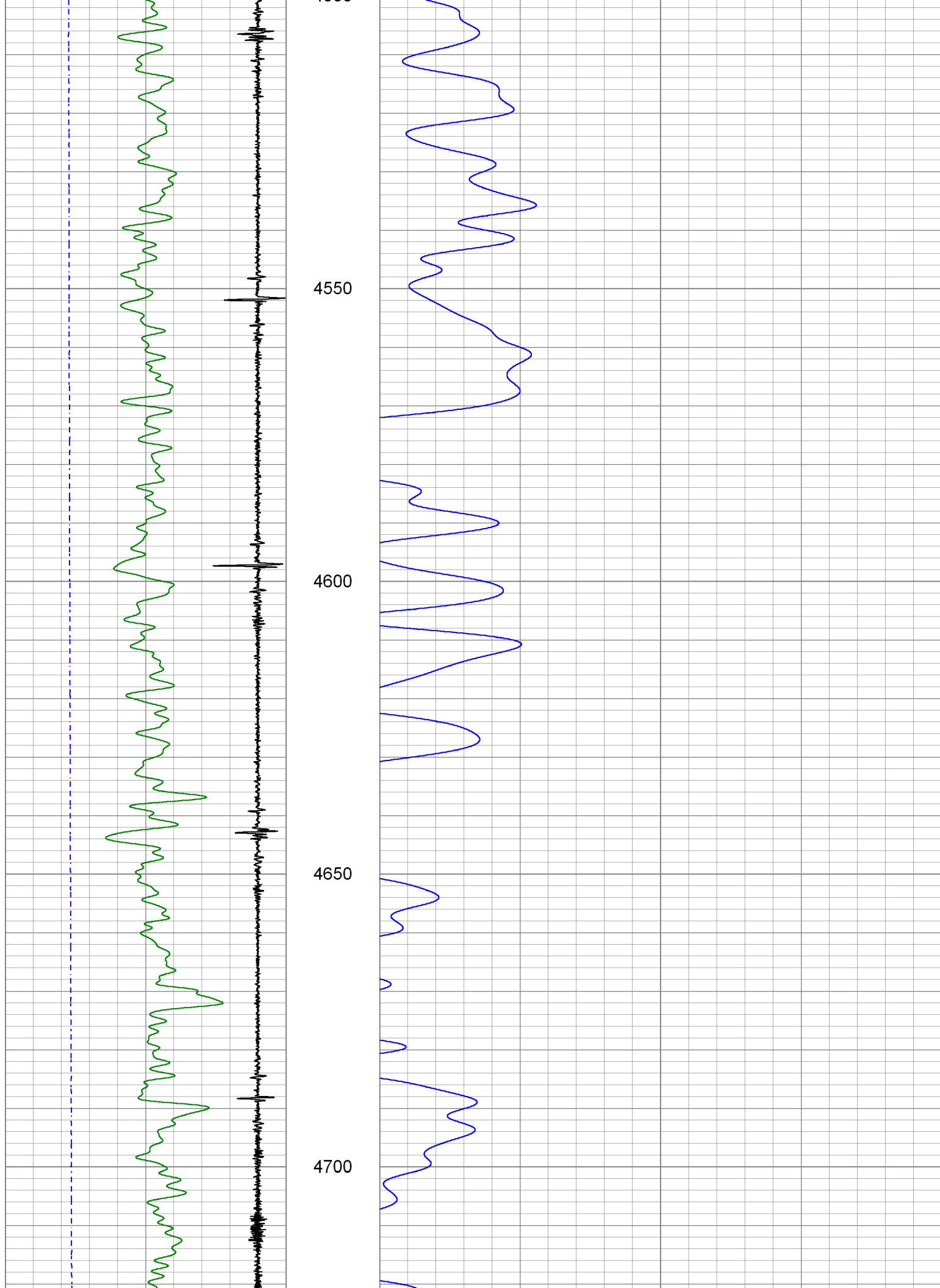
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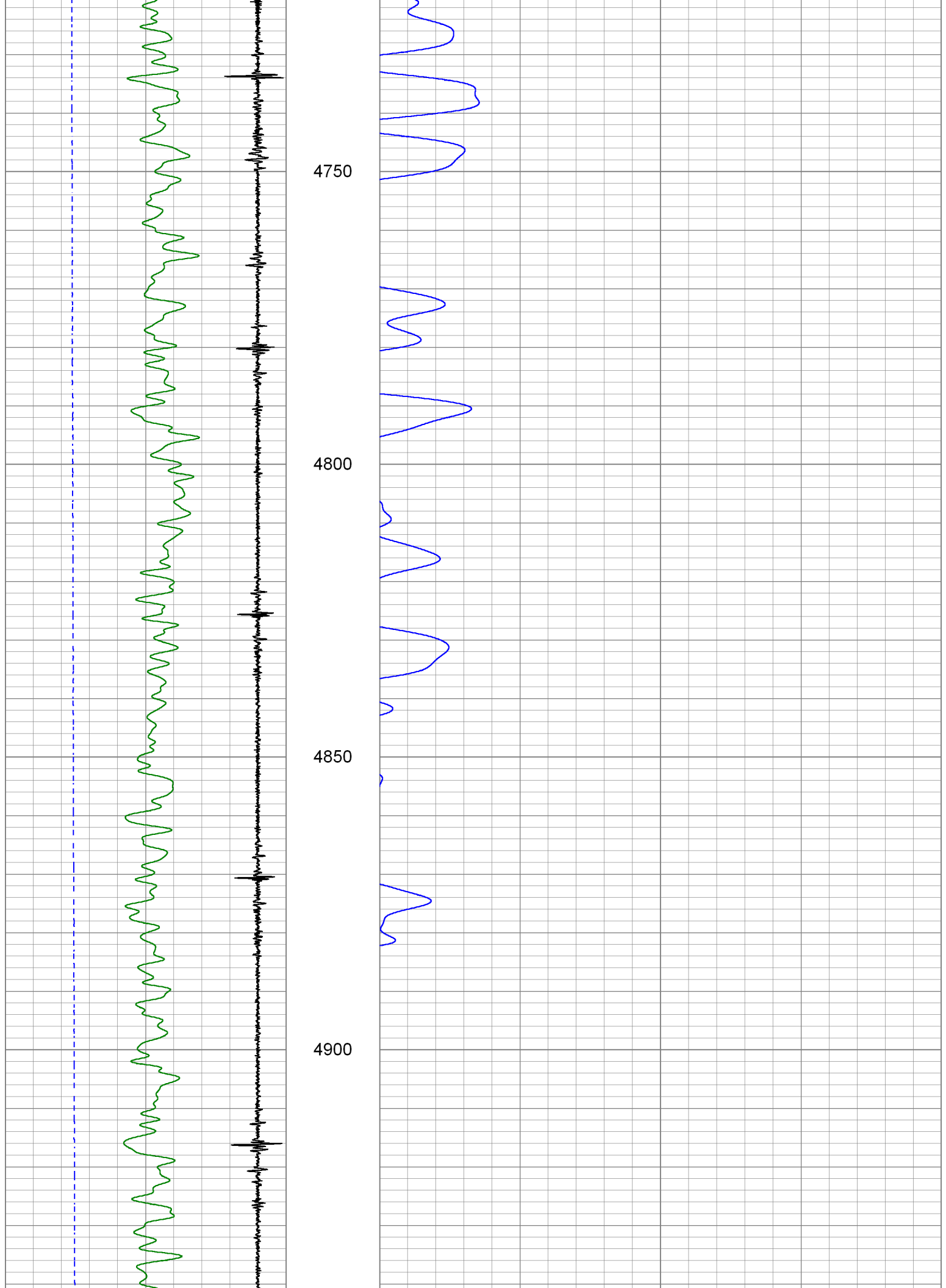
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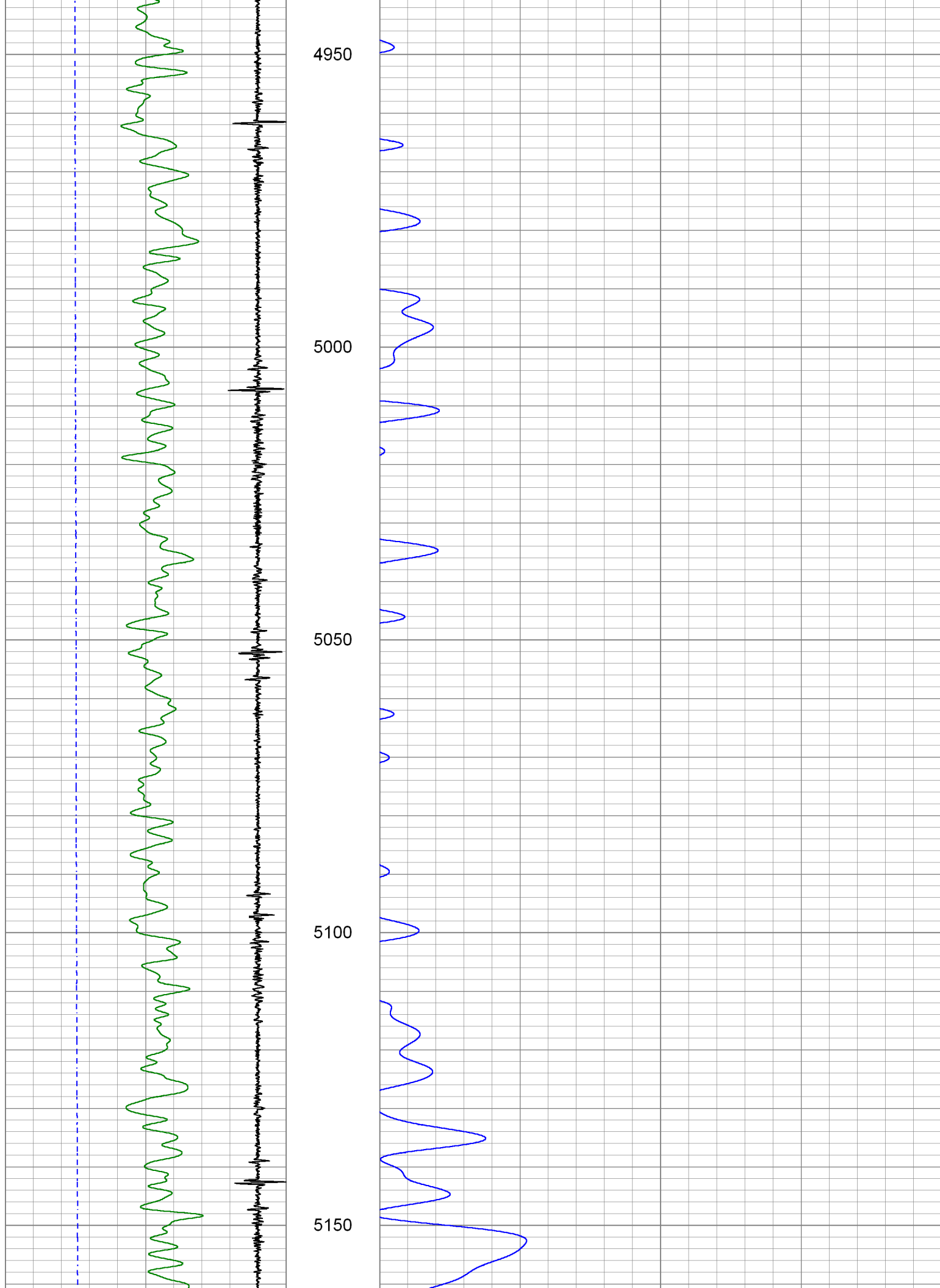


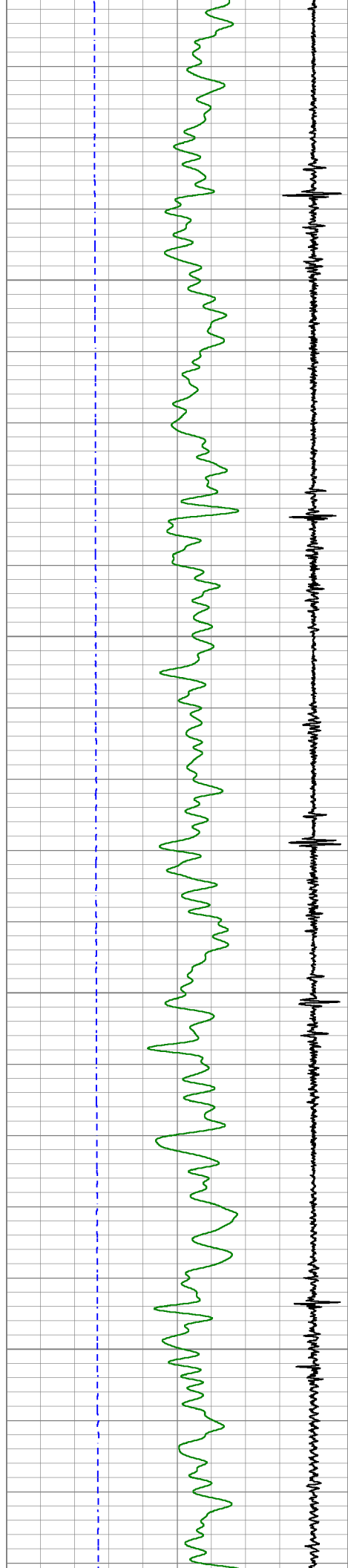










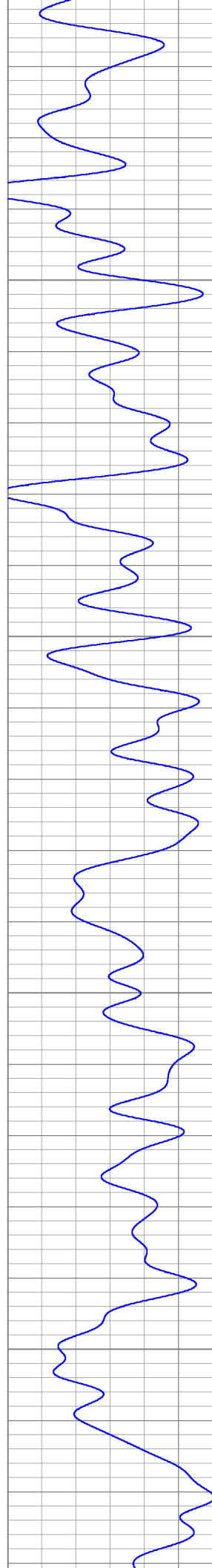


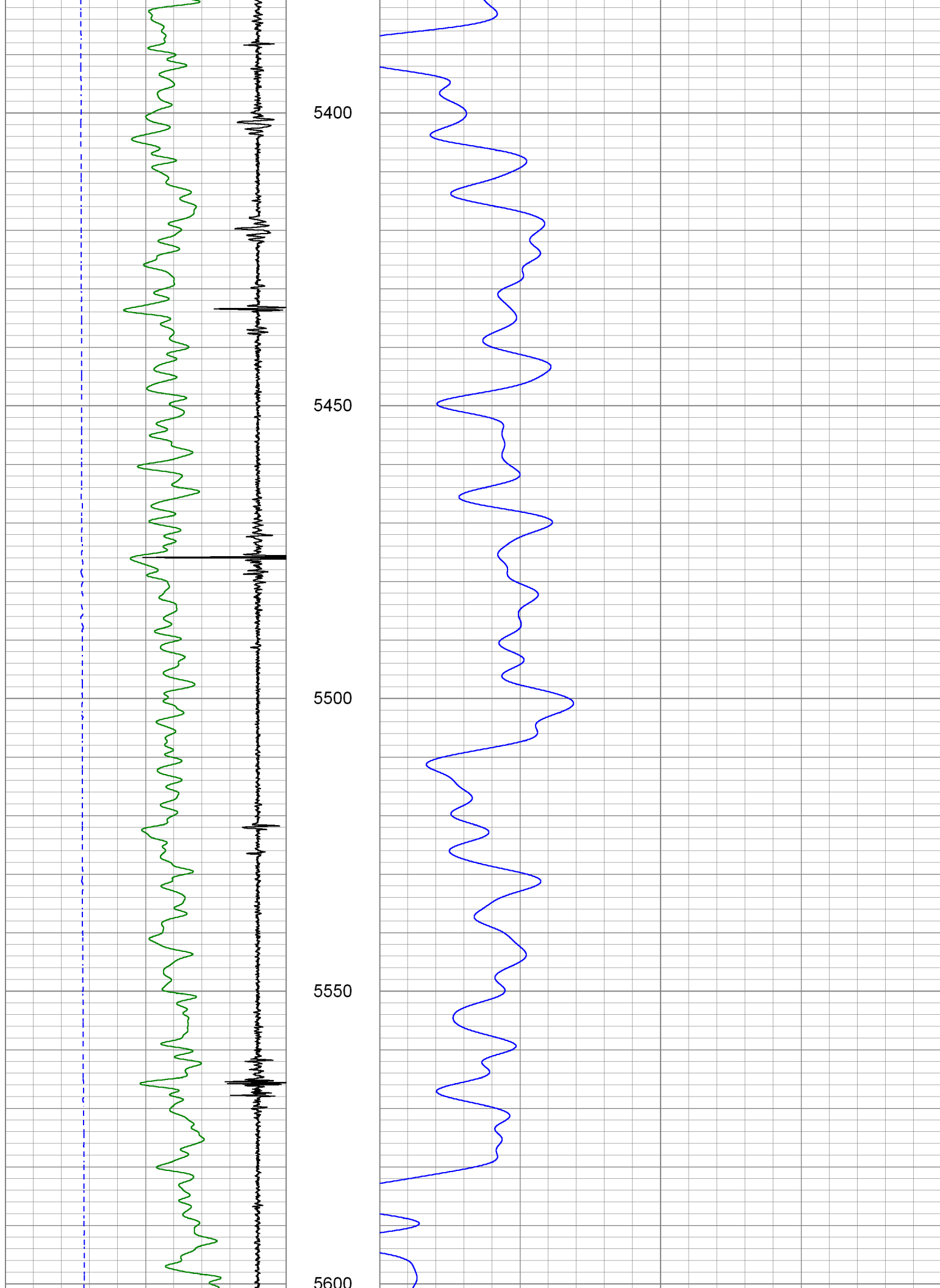
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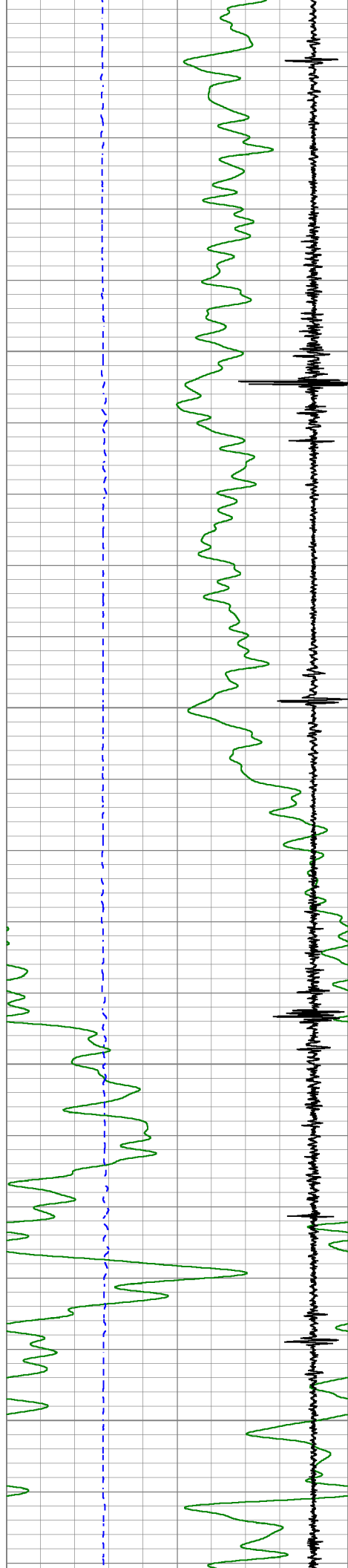
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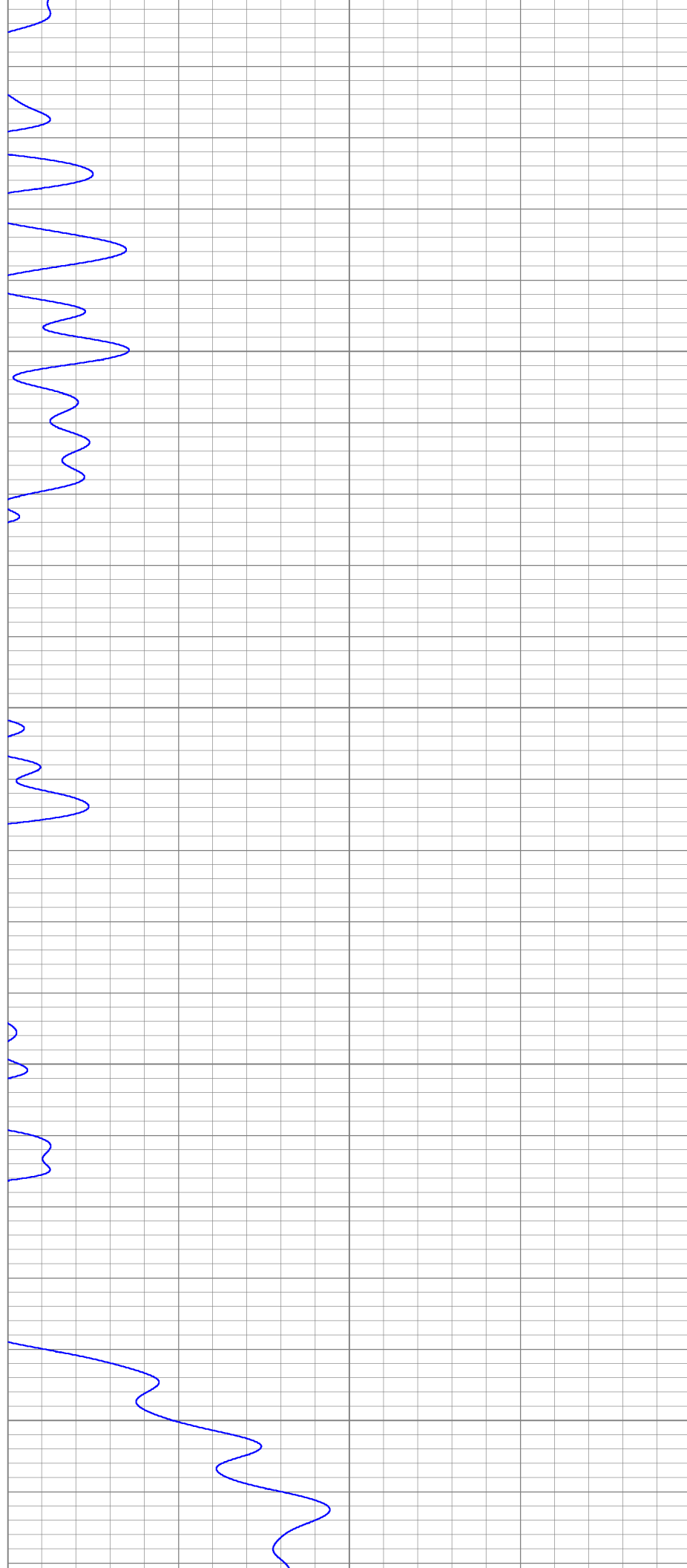
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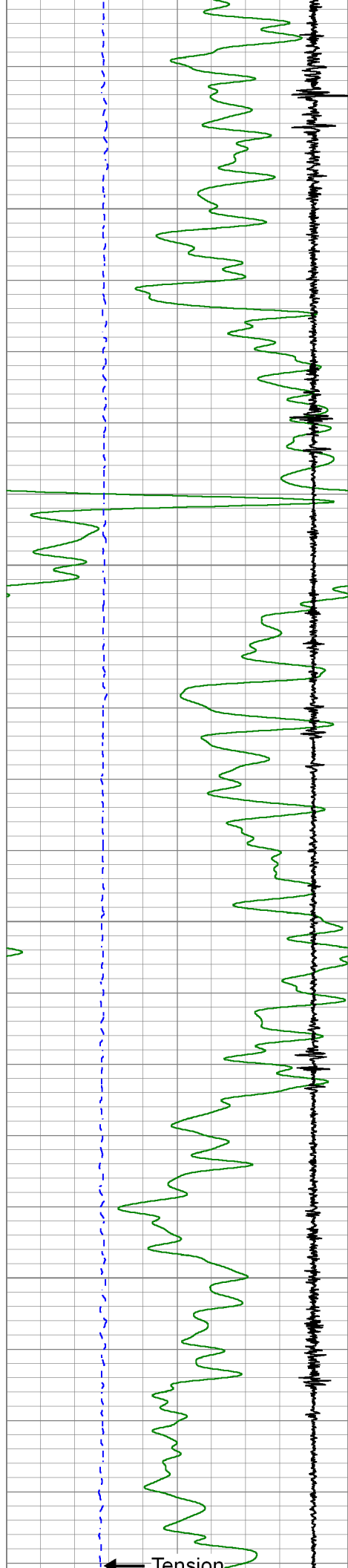






5600  
5650  
5700  
5750  
5800





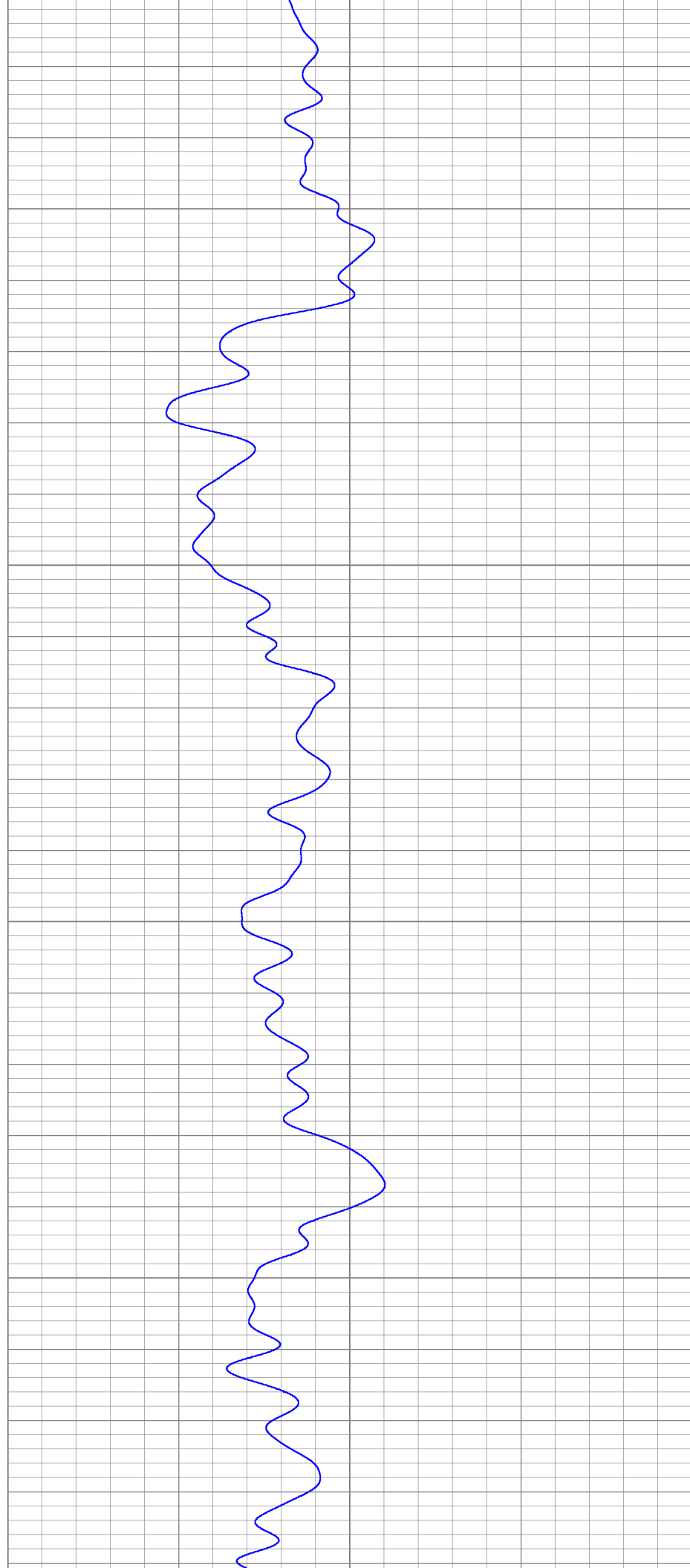
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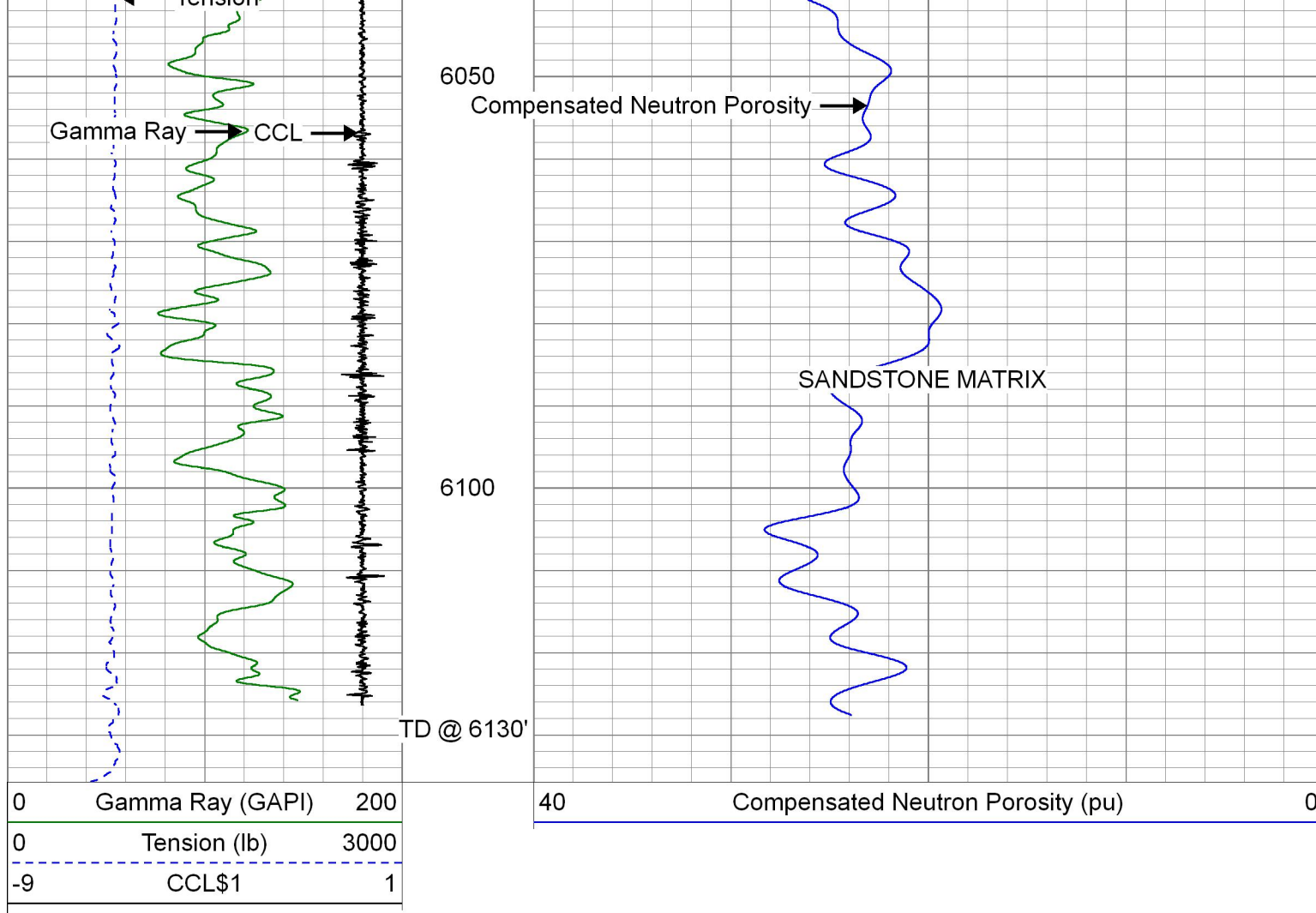
5900


5950

6000

← Tension







**PIONEER**  
Pioneer Energy Services

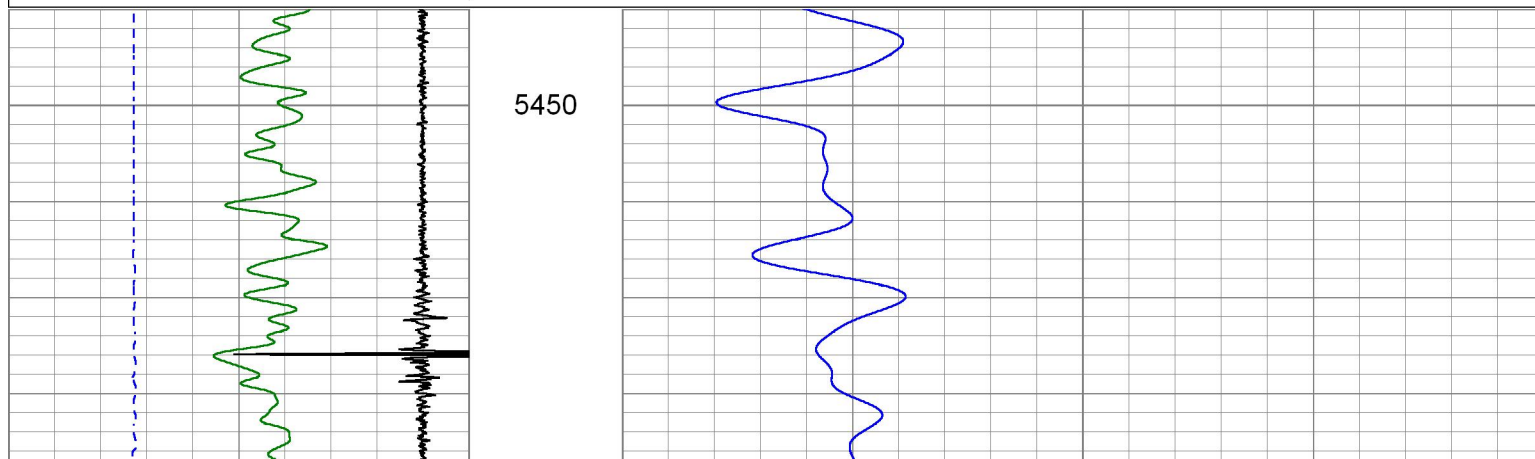
## REPEAT SECTION

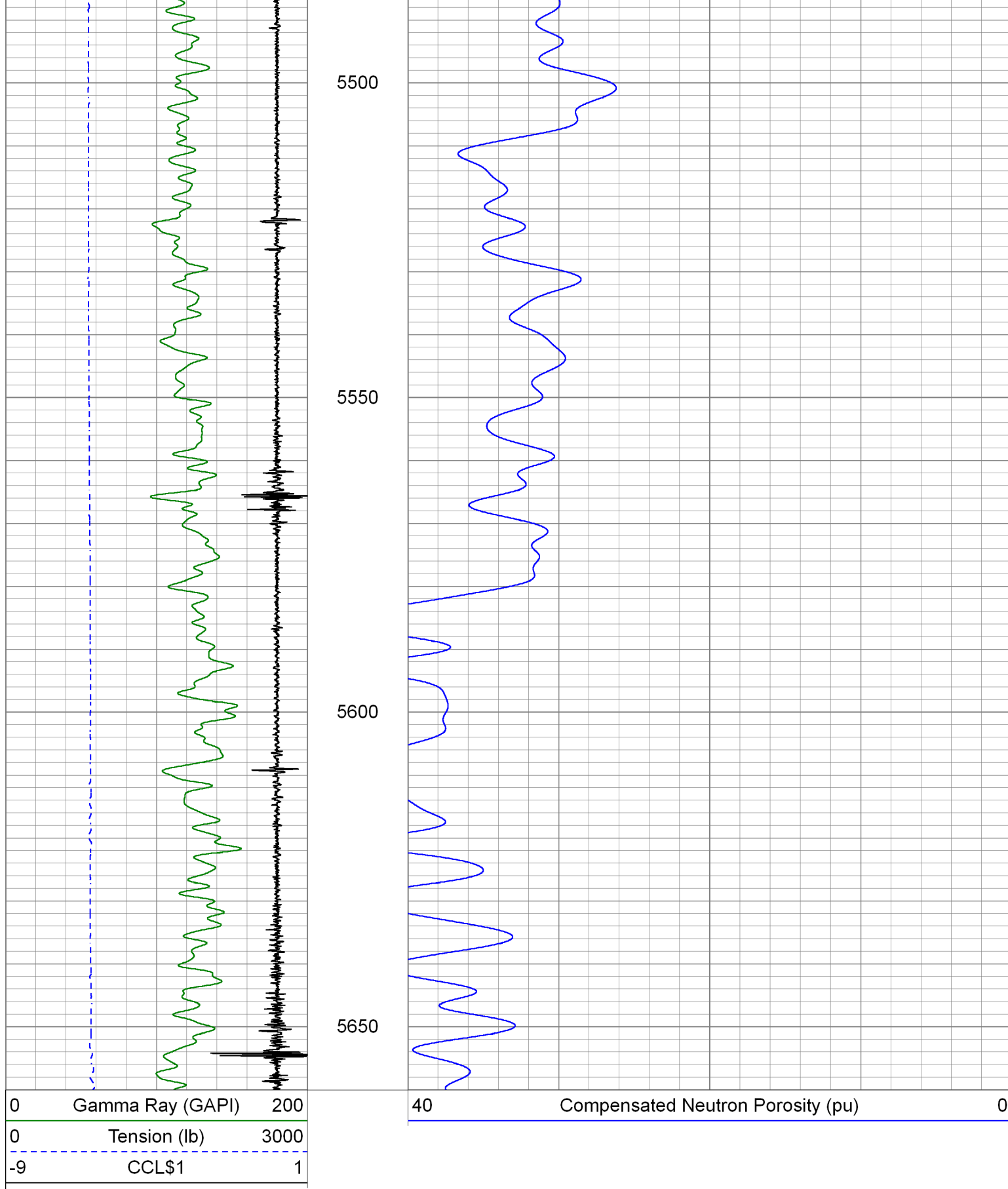
### 1500 PSI ON WELL WHILE LOGGING

Database File	290169.db
Dataset Pathname	REPEAT
Presentation Format	pinr_cnl-ft morgan
Dataset Creation	Wed Apr 20 16:15:06 2016
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	200
0	Tension (lb)	3000
-9	CCL\$1	1

40	Compensated Neutron Porosity (pu)	0
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### Calibration Report

Database File 290169.db  
Dataset Pathname RBLFINAL  
Dataset Creation Wed Apr 20 16:17:24 2016

### Compensated Neutron Calibration Report



		Serial Number: Tool Model:		120508 275BL	
CALIBRATION			Thu May 03 15:03:35 2012		
Detector		Readings		Target	
Short Space		4420.07 cps		0.00 cps	
Long Space		780.48 cps		0.00 cps	
				Normalization	
				1.0000	
				1.0000	
PRE-SURVEY VERIFICATION					
Detector		Readings		Measured	
				Target	
1)	Short Space	cps			
	Long Space	cps		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	
2)	Short Space	cps			
	Long Space	cps		pu	
3)	Short Space	cps			
	Long Space	cps		pu	
Gamma Ray Calibration Report					
Serial Number:		FW1404-112			
Tool Model:		GC_6PIN			
Performed:		(Not Performed)			
Calibrator Value:		1.0		GAPI	
Background Reading:		0.0		cps	
Calibrator Reading:		1.0		cps	
Sensitivity:		1.0000		GAPI/cps	
Segmented Cement Bond Log Calibration Report					
Serial Number:		141166			
Tool Model:		275 Probe w Temp New Mod			
Calibration Casing Diameter:		5.500		in	
Calibration Depth:		360.256		ft	
Master Calibration, performed (Derived):					
		Raw (v)		Calibrated (mv)	
				Results	

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Serial Number:	141166		
Tool Model:	275 Probe w Temp New Mod		
Performed:	Tue Apr 16 12:54:03 2016		
	Reference	Reading	
Low Reference:	35.00 degF	0.09	degF
High Reference:	212.00 degF	1.22	degF
Gain:	0.78		
Offset:	6.00		
Delta Spacing	1		

