

Company: Whiting Oil & Gas Corp

Well: Razor 21B-909A

Field: Wildcat

County: Weld State: Colorado

Correlation Log
with Compensated Neutron
CCL-GR-CNL

County: Weld
Field: Wildcat
Location: NWNE Sec. 21, T10N, R58W
Well: Razor 21B-909A
Company: Whiting Oil & Gas Corp

Location:			Elev.:		K.B.		G.L.		D.F.	
NWNE Sec. 21, T10N, R58W					4853.80 ft		4837.00 ft		4852.80 ft	
SHL: 327' FNL & 2161' FEL										
Lat/Long: 40.830200/-103.86886										
Permanent Datum:			Ground Level		Elev.:		16.80 ft		above Perm.Datum	
Log Measured From:			Kelly Bushing							
Drilling Measured From:			Kelly Bushing							
API Serial No.			Section:		Township:		Range:			
05-123-39529-0000			21		10N		58W			

Logging Date	06-Nov-2014		06-Nov-2014	
Run Number	ONE		ONE	
Depth Driller	13915.00 ft		13915.00 ft	
Schlumberger Depth	13915.00 ft		13915.00 ft	
Bottom Log Interval	4965.00 ft		4965.00 ft	
Top Log Interval	0.00 ft		0.00 ft	
Casing Fluid Type	2% KCL		2% KCL	
Salinity				
Density	8.7 lbm/gal		8.4 lbm/gal	
Fluid Level	0.00 ft		8.00 ft	
BIT/CASING/TUBING STRING				
Bit Size	6.00 in		6.00 in	
From	6152.00 ft		6152.00 ft	
To	13915.00 ft		13915.00 ft	
Casing/Tubing Size	4.5 in		4.5 in	
Weight	11.6 lbm/ft		11.6 lbm/ft	
Grade	P110		P110	
From	4973.60 ft		4973.60 ft	
To	13909.00 ft		13909.00 ft	
Max Recorded Temperatures	185 degF			
Logger on Bottom	Time		06-Nov-2014 12:15:00	
Unit Number	Location:		3022 Fort Morgan, CO 3022 Nolan Welsh Fort Morgan, CO	
Recorded By	Nolan Welsh		Nolan Welsh	
Witnessed By	Tom Flynn		Tom Flynn	

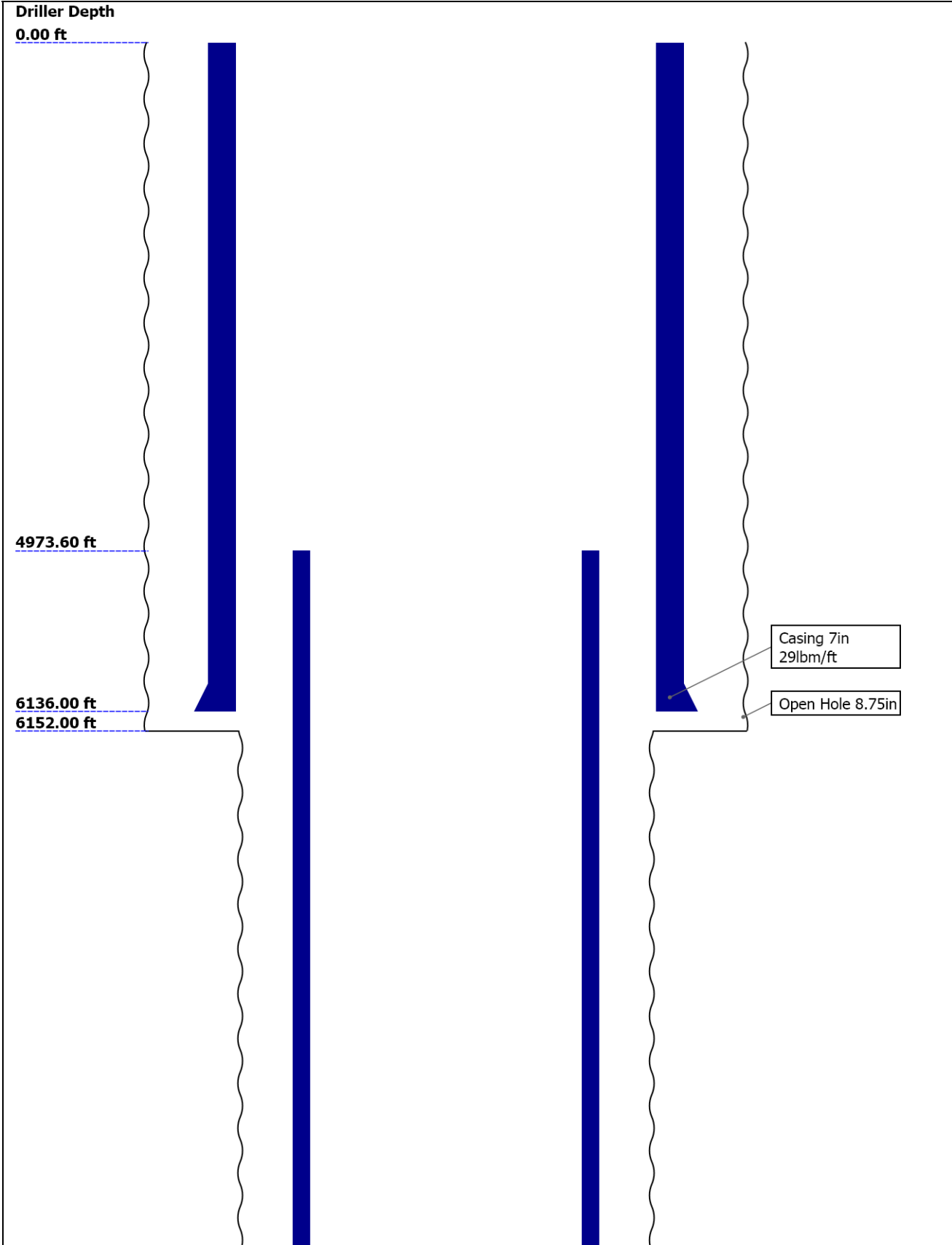
Disclaimer

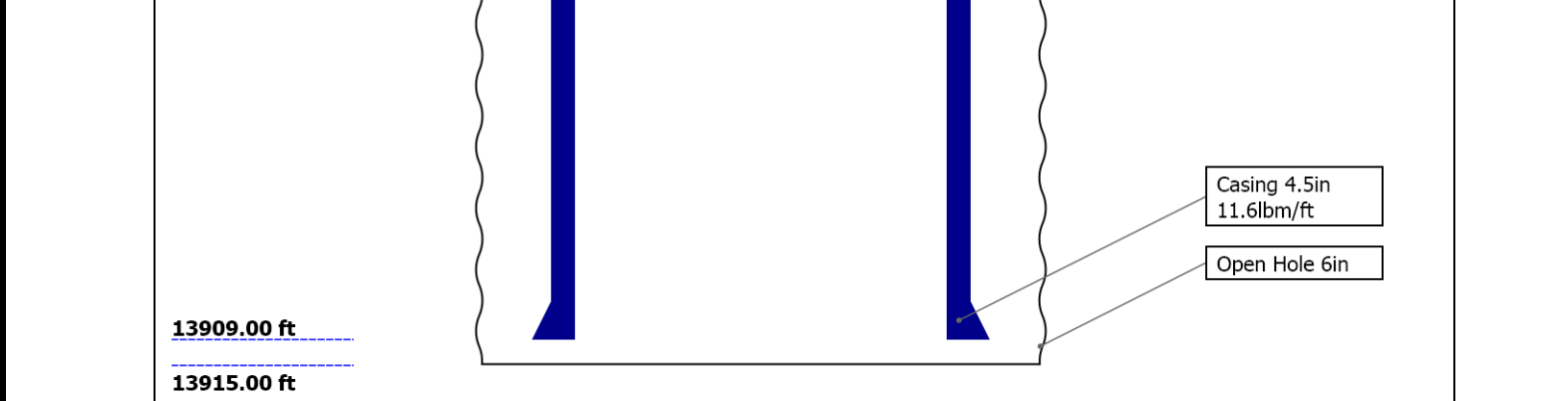
THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE 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.

Contents

1. Header
2. Disclaimer
3. Contents
4. Well Sketch
5. Borehole Size/Casing/Tubing Record
6. Operational Run Summary
7. Remarks and Equipment Summary
8. Depth Summary
9. Main 5" Correlation Log Main
 - 9.1 Integration Summary
 - 9.2 Log (Correlation with CNL 5 Inch)
10. Repeat 5" Correlation Log Repeat
 - 10.1 Integration Summary
 - 10.2 Log (Correlation with CNL 5 Inch)
11. Tail

Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	8.75	6				
Top Driller (ft)	0	6152				
Top Logger (ft)	0	6152				
Bottom Driller (ft)	6152	13915				
Bottom Logger (ft)	6152	13915				
Casing						
Size (in)	7	4.5				
Weight (lbm/ft)	29	11.6				
Inner Diameter (in)	6.184	4				
Grade	P110	P110				
Top Driller (ft)	0	4973.6				
Top Logger (ft)	0	4973.6				
Bottom Driller (ft)	6136	13909				
Bottom Logger (ft)	6136	13909				

Operational Run Summary

Parameter (unit)	ONE	ONE				
Date Log Started	06-Nov-2014	06-Nov-2014				
Time Log Started	09:32:10	09:32:10				
Date Log Finished	06-Nov-2014	06-Nov-2014				
Time Log Finished	12:56:48	12:56:48				
Top Log Interval (ft)	0.00	0.00				
Bottom Log Interval (ft)	4965.00	4965.00				
Total Depth (ft)	4965.00	4965.00				
Max Hole Deviation (deg)	0.00	0.00				
Azimuth of Max Deviation (deg)	0.00	0.00				
Bit Size (in)	6.000	6.000				
Logging Unit Number	2275	2275				
Logging Unit Location	Fort Morgan, CO	Fort Morgan, CO				
Recorded By	Nolan Welsh	Nolan Welsh				
Witnessed By	Tom Flynn	Tom Flynn				
Service Order Number	CYBX 00052	CYBX 00052				

Remarks and Equipment Summary

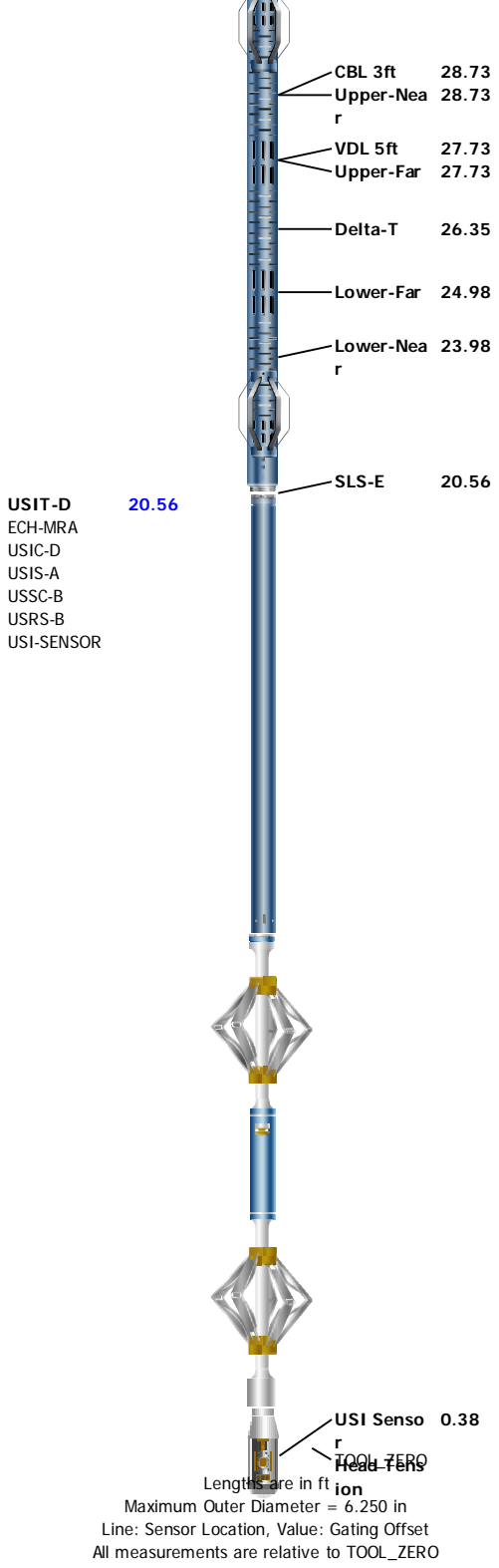
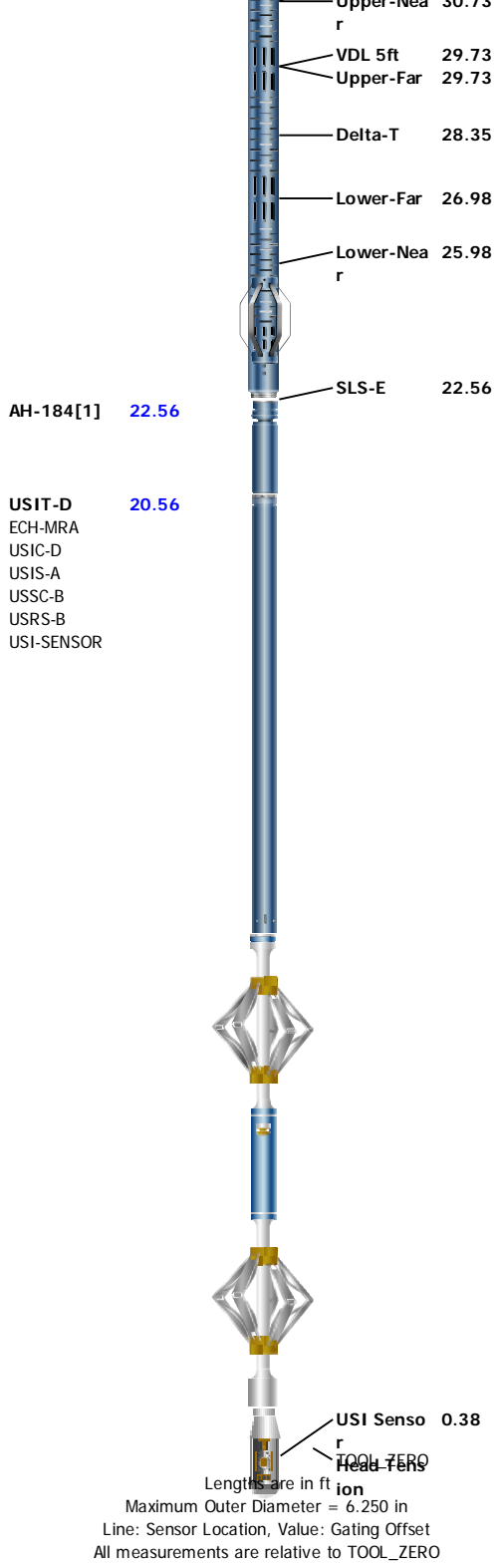
Toolstring as per tool sketch.	
0 psi Repeat Pass	
1500 psi Main Pass.	
Top of Cement: 110 Feet.	
Primary Cement: 14.5 lb/gal Class G.	
Crew: Ian Derry, Troy Oconus, Mike Sullivan	
ONE: Remarks	ONE: Remarks

ONE: Toolstring

Equip name	Length	MP name	Offset
LEH-QT	67.52		
LEH-QT			
EDTC-B	64.61		
EDTH-B			
EDTG-A			
EDTC-B			
		CTEM	61.11
		ACCZ	0.00
		HV	0.00
		Gamma Ra	59.24
		y	
		TelStatus	58.11
		Temperatu	58.08
		re	
HGNS-H	58.11		
HGNH			
NSR-F:5069			
NPV-N			
HMCA-H			
HACCZ-H:6305			
HGNS-H			
		GR	57.36
		CNL Poros	51.03
		ity	
		HGNS	48.7
		HMCA	48.7
		Accelerom	0.00
		eter	
AH-184[2]	48.7		
CAL-YB	46.7		
CAL-YB			
		CCL	45.91
DSLT-H	43.2		
ECH-KH			
DSLCH-H			
SLS-E			
		CBL 3ft	30.73
		Upper No	30.73

ONE: Toolstring

Equip name	Length	MP name	Offset
LEH-QT	67.52		
LEH-QT			
EDTC-B	64.61		
EDTH-B			
EDTG-A			
EDTC-B			
		CTEM	61.11
		ACCZ	0.00
		HV	0.00
		Gamma Ra	59.24
		y	
		TelStatus	58.11
		Temperatu	58.08
		re	
HGNS-H	58.11		
HGNH			
NSR-F:5069			
NPV-N			
HGNS-H			
HMCA-H			
HACCZ-H:6305			
		GR	57.36
		CNL Poros	51.03
		ity	
		HMCA	48.7
		HGNS	48.7
		Accelerom	0.00
		eter	
AH-184[2]	48.7		
CAL-YB	46.7		
CAL-YB			
		CCL	45.91
AH-184[1]	43.2		
DSLT-H	41.2		
ECH-KH			
DSLCH-H			
SLS-E			



Depth Summary

	ONE	ONE	
Depth Measuring Device			
Type	IDW-B	IDW-B	
Serial Number			
Calibration Date			
Calibrator Serial Number			
Calibration Cable Type			
Wheel Correction 1	0	0	
Wheel Correction 2	0	0	
Tension Device			
Type	CMTD-B/A	CMTD-B/A	
Serial Number			

Calibration Date			
Calibrator Serial Number			
Number of Calibration Points	0	0	

Logging Cable

Type	7-46NT-XS	7-46NT-XS	
Serial Number			
Length	24000.00 ft	24000.00 ft	
Conveyance Type	Wireline	Wireline	
Rig Type			

ONE:Depth Control Parameters	Depth Control Remarks
------------------------------	-----------------------

Log Sequence	First Log In the Well	All Schlumberger depth procedures followed.
Rig Up Length At Surface		IDW used as primary depth control.
Rig Up Length At Bottom		Z-Chart used as secondary depth control.
Rig Up Length Correction		
Stretch Correction		
Tool Zero Check At Surface		

ONE:Depth Control Parameters	Depth Control Remarks
------------------------------	-----------------------

Log Sequence	First Log In the Well	
Rig Up Length At Surface		
Rig Up Length At Bottom		
Rig Up Length Correction		
Stretch Correction		
Tool Zero Check At Surface		

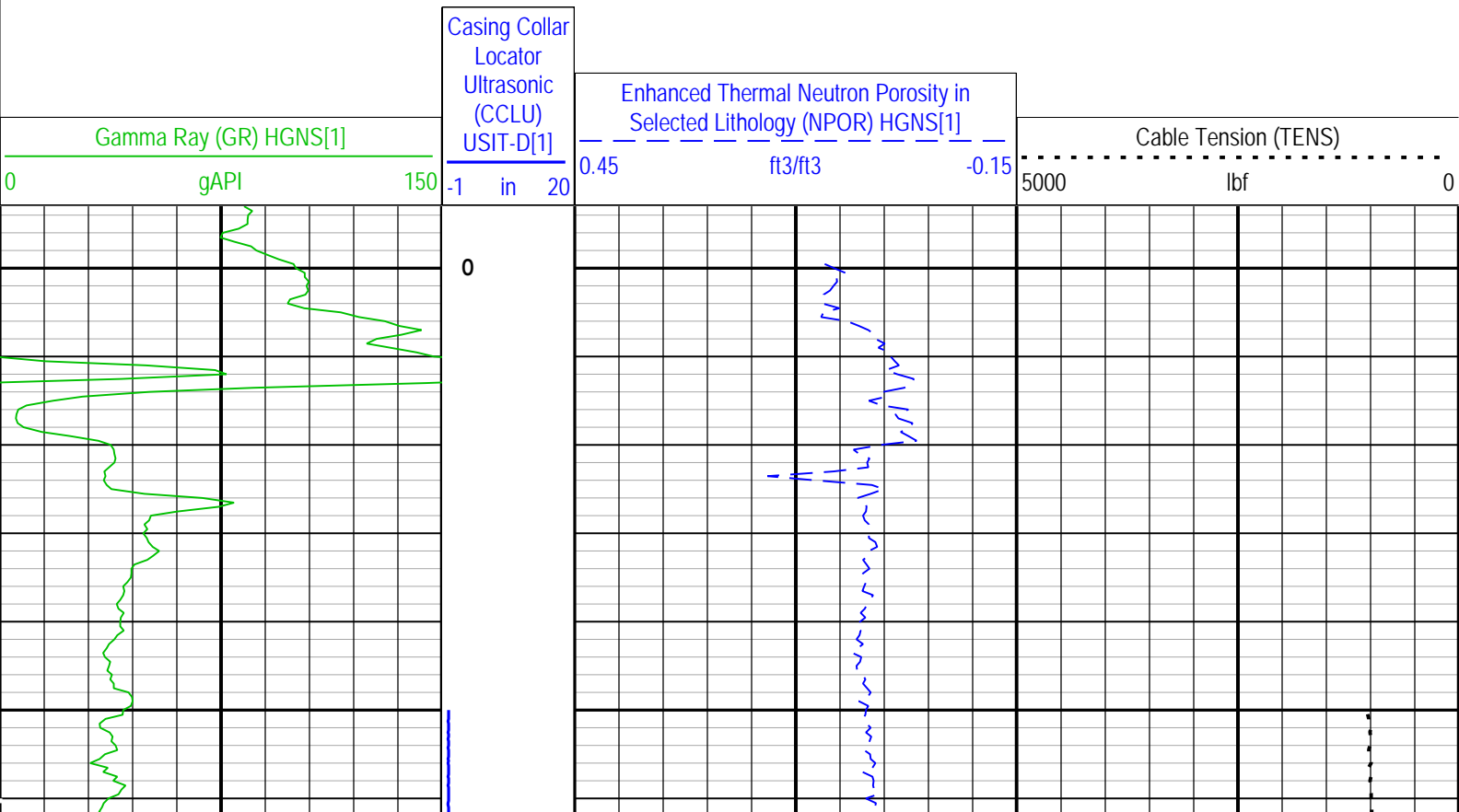
Main

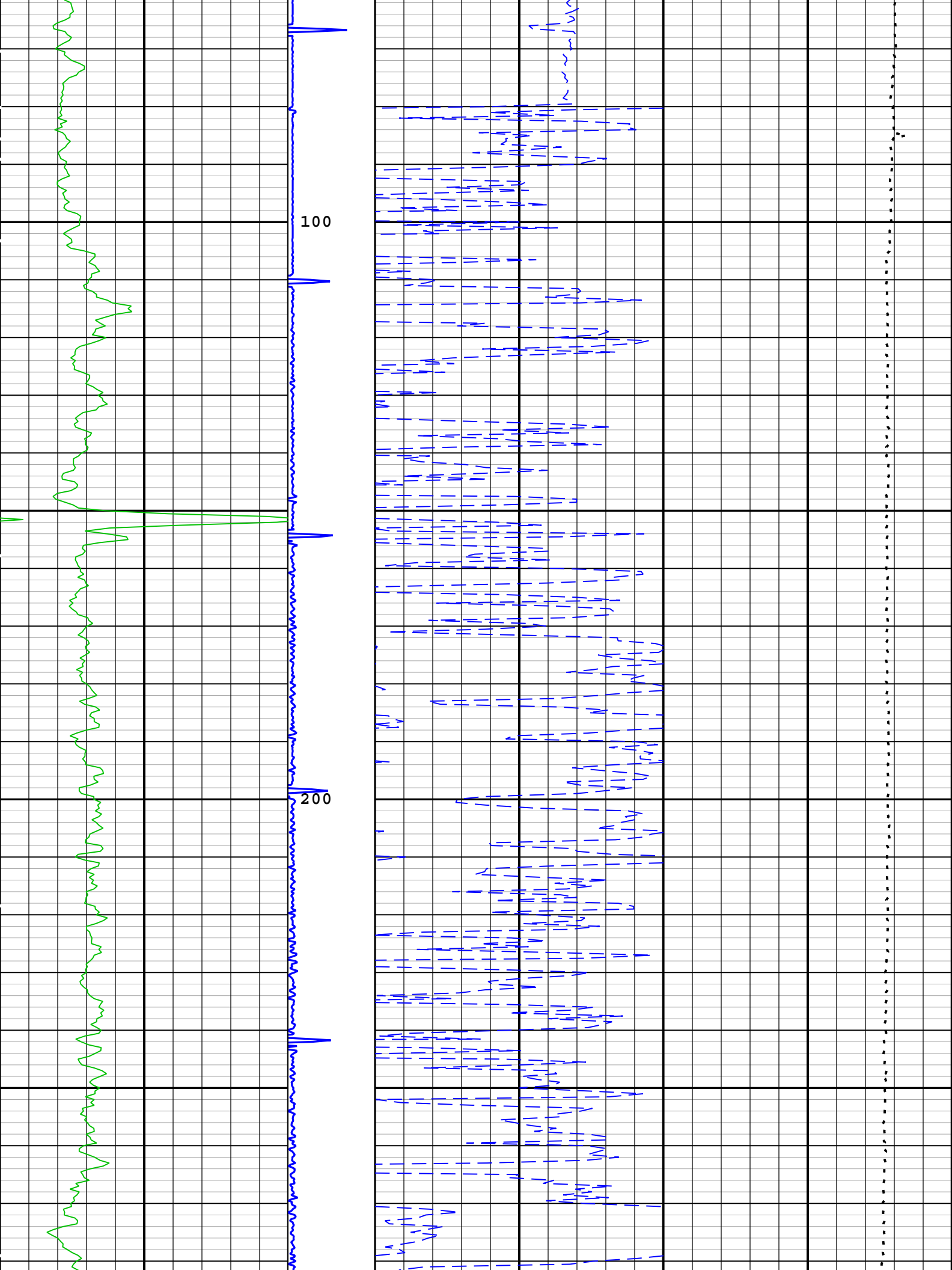
5" Correlation Log Main

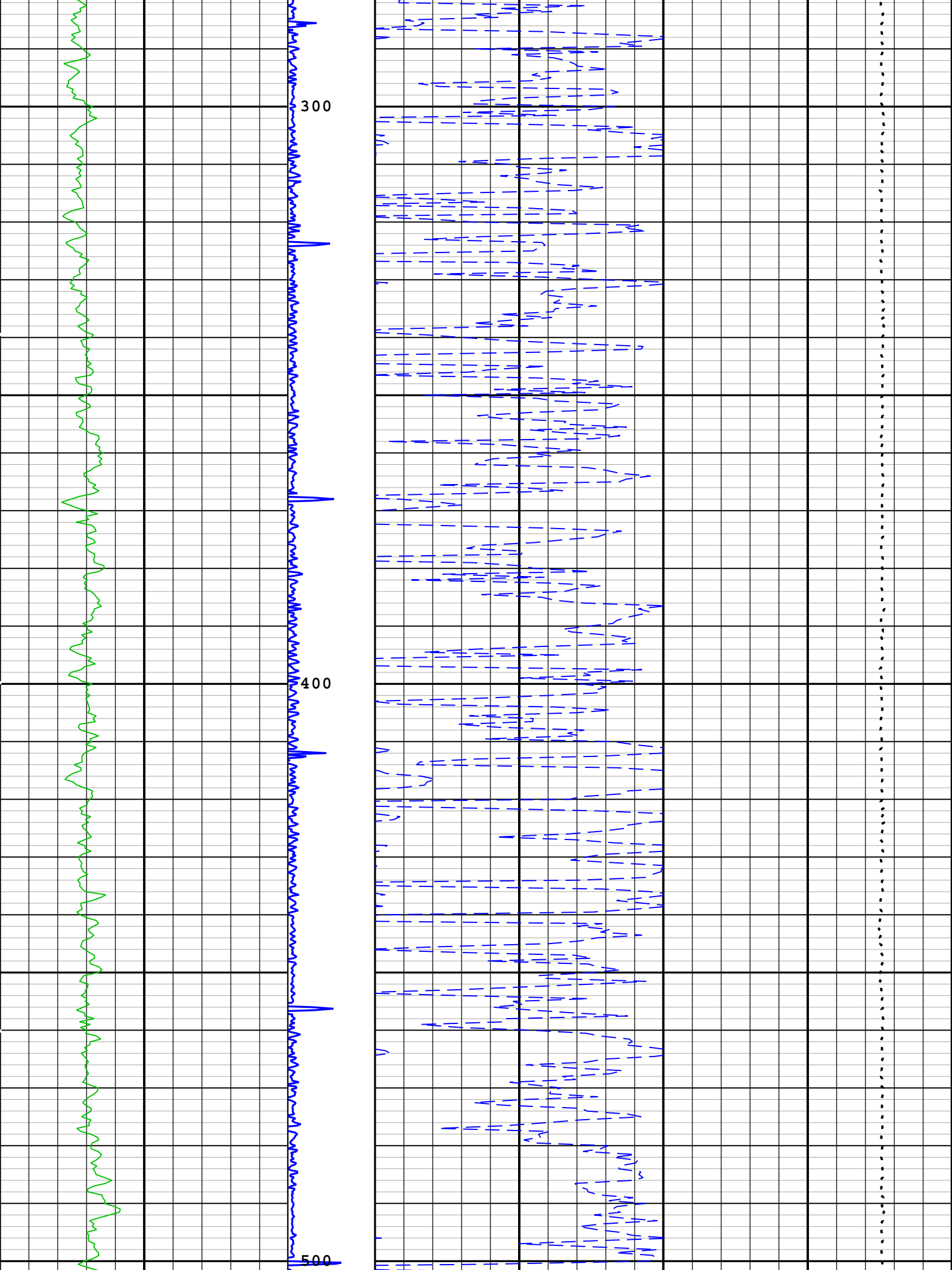
Log	Company:Denbury Onshore, LLC	Well:Riley Ridge 24-16
		Main:S069

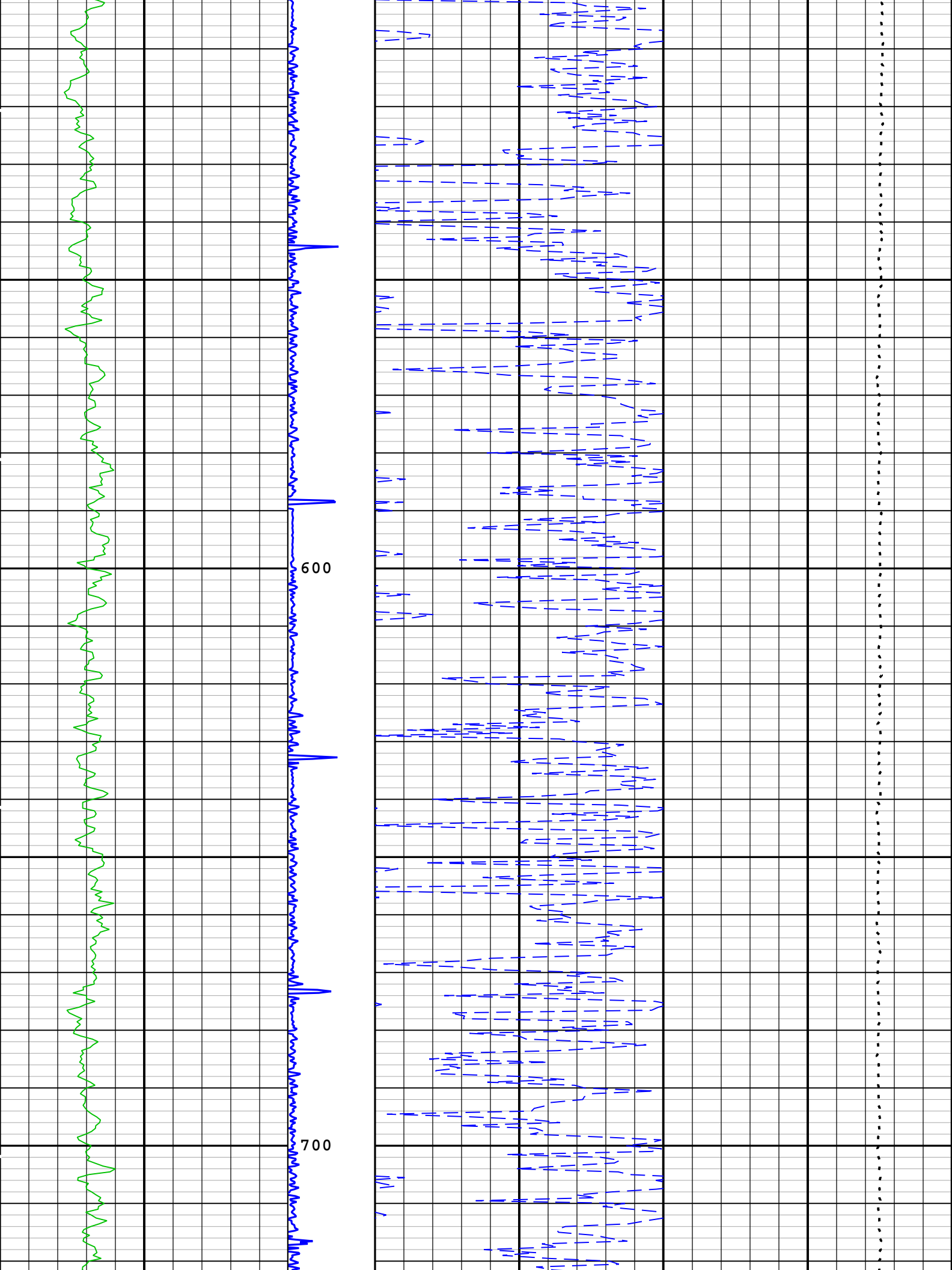
Description: DEPTH Domain Log for EDTCB GR channels Format: Log (Correlation with CNL 5 Inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 13-Nov-2014 12:27:02

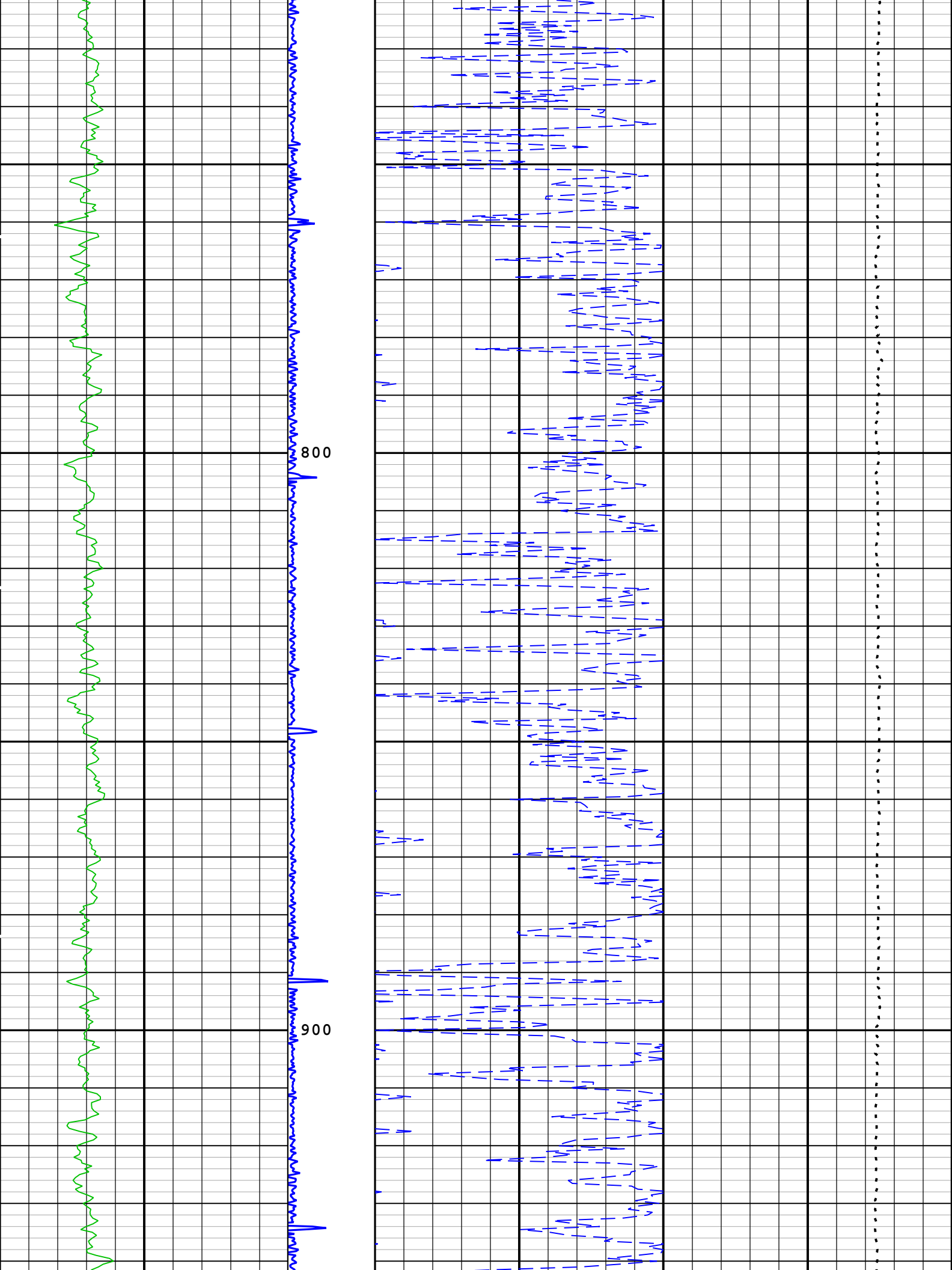
TIME_1900 - Time Marked every 60.00 (s)

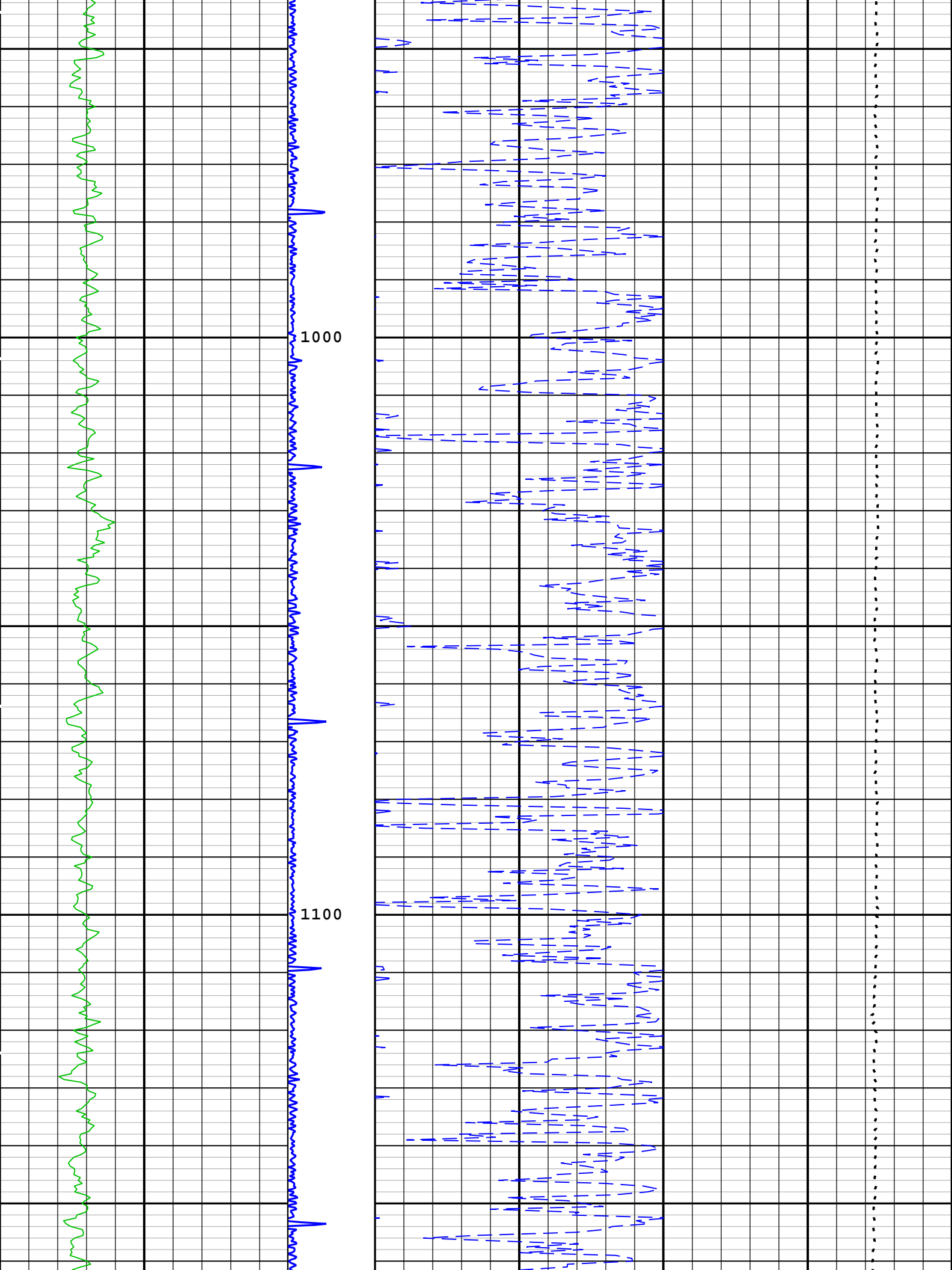


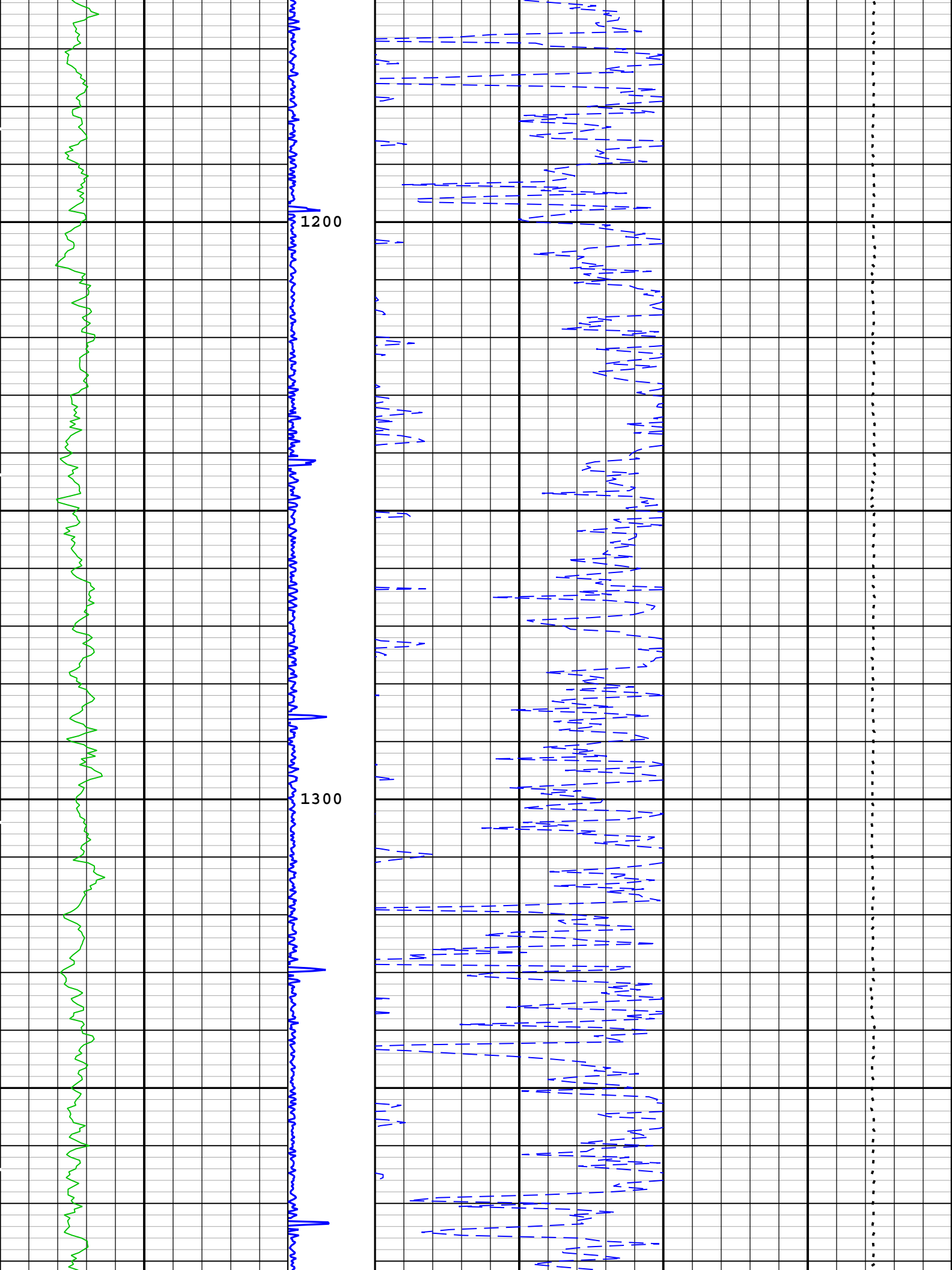


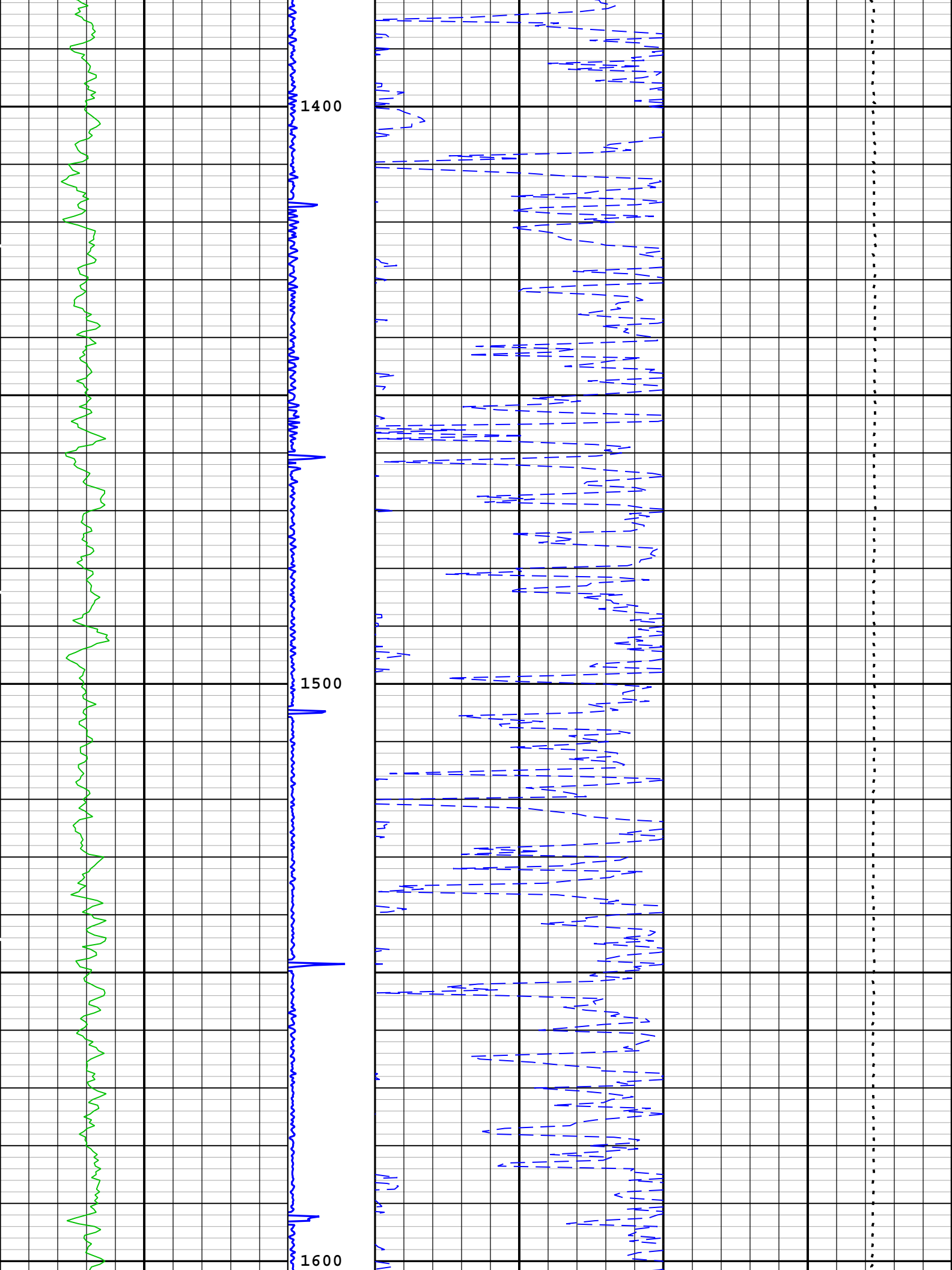


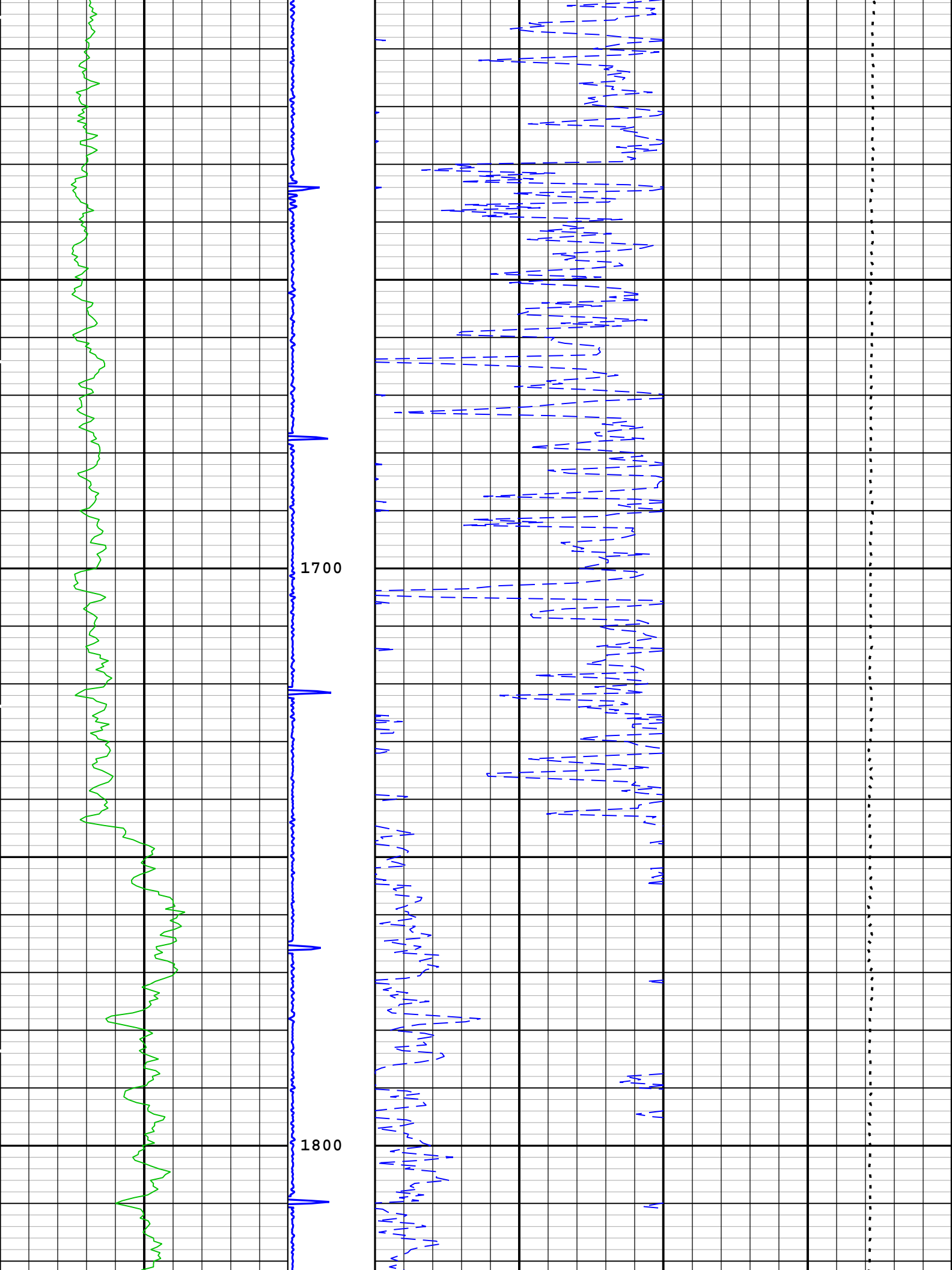


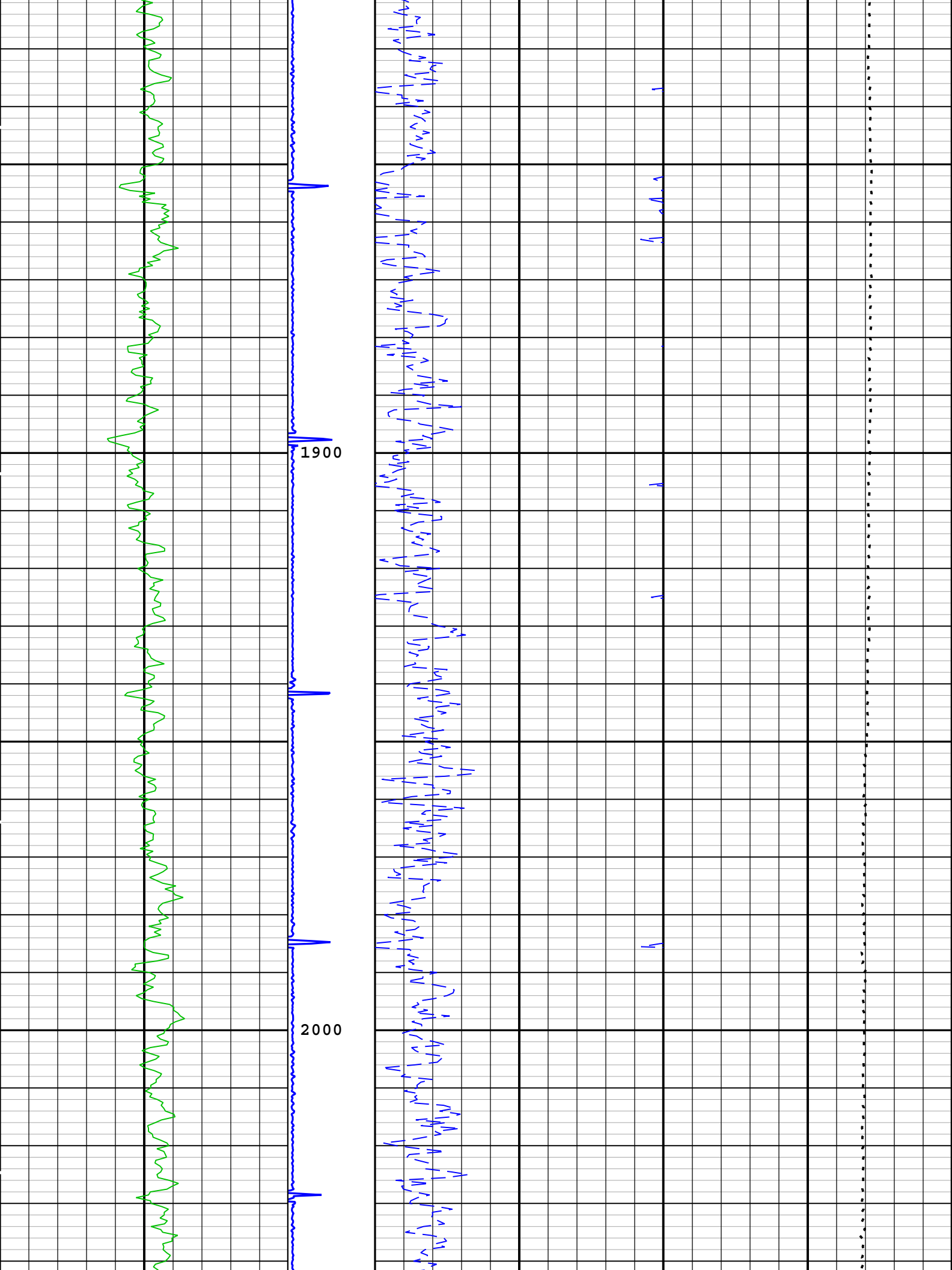


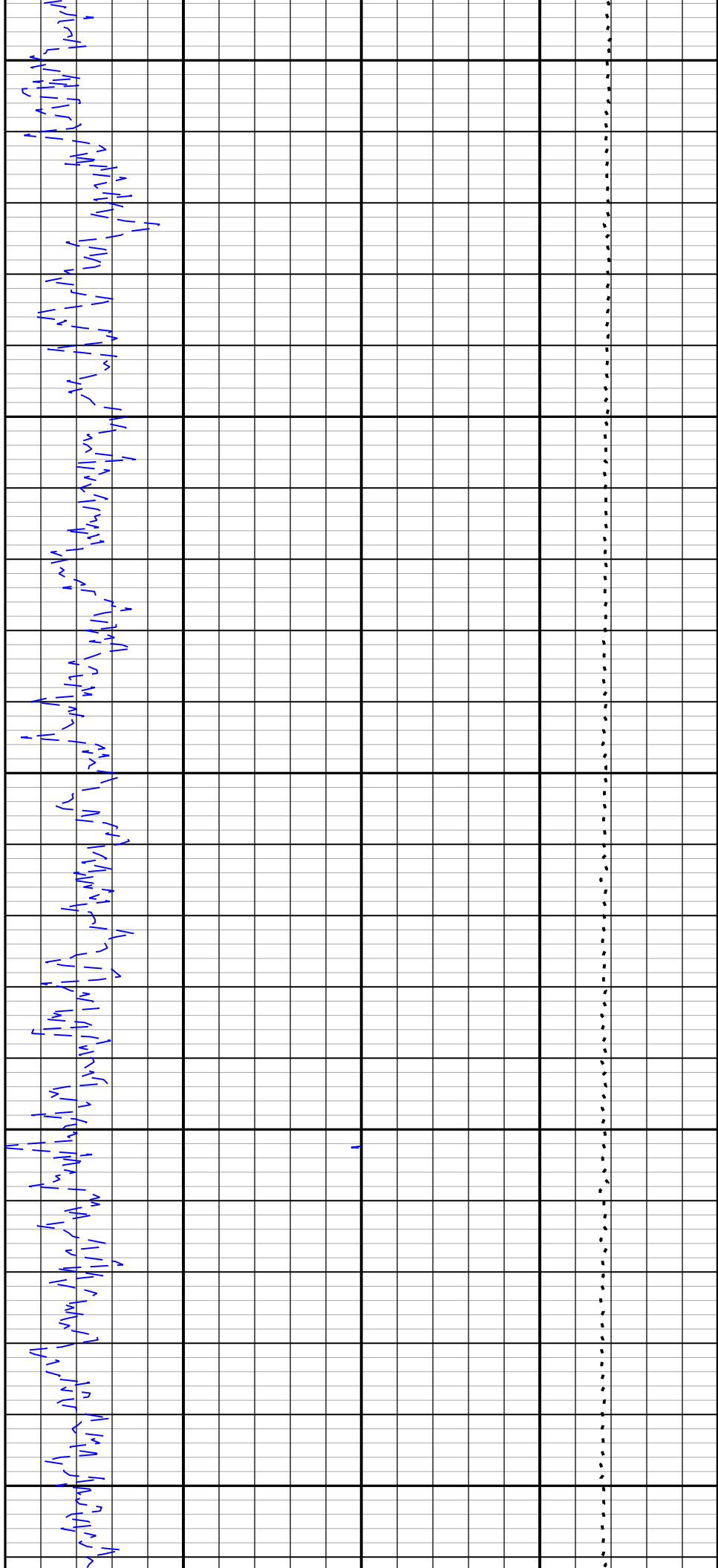
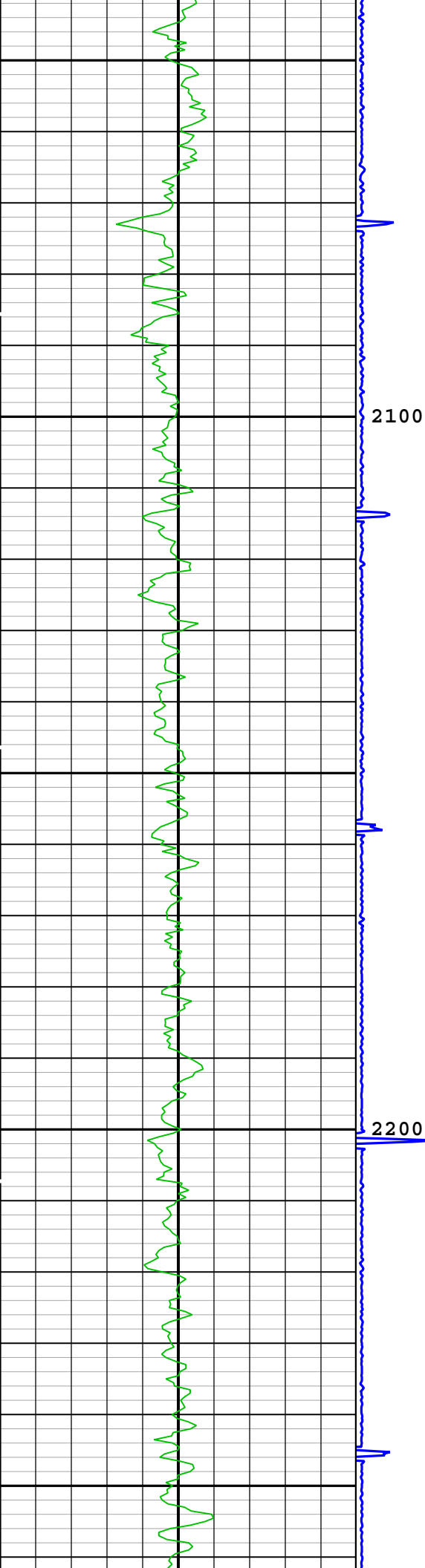


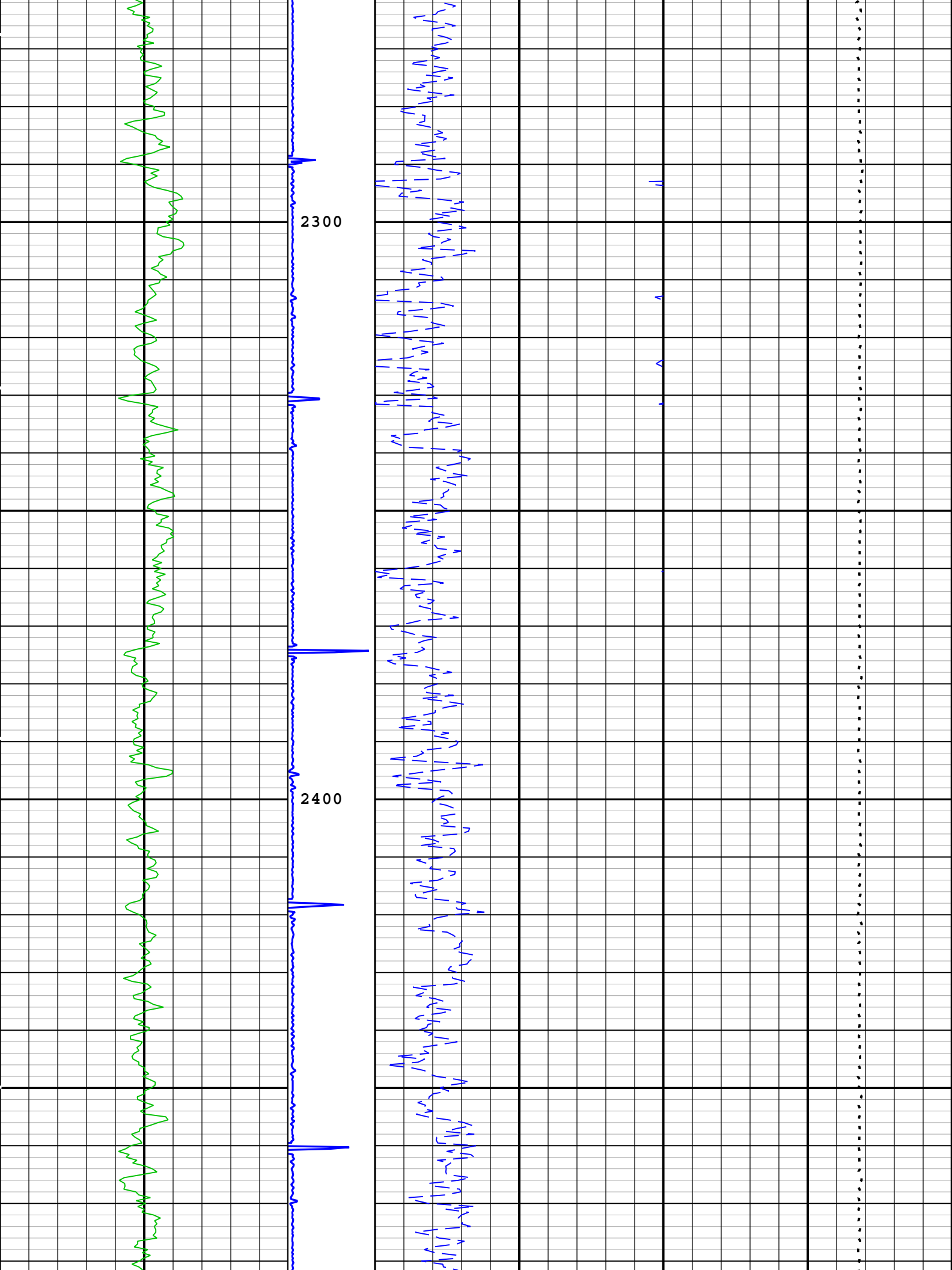


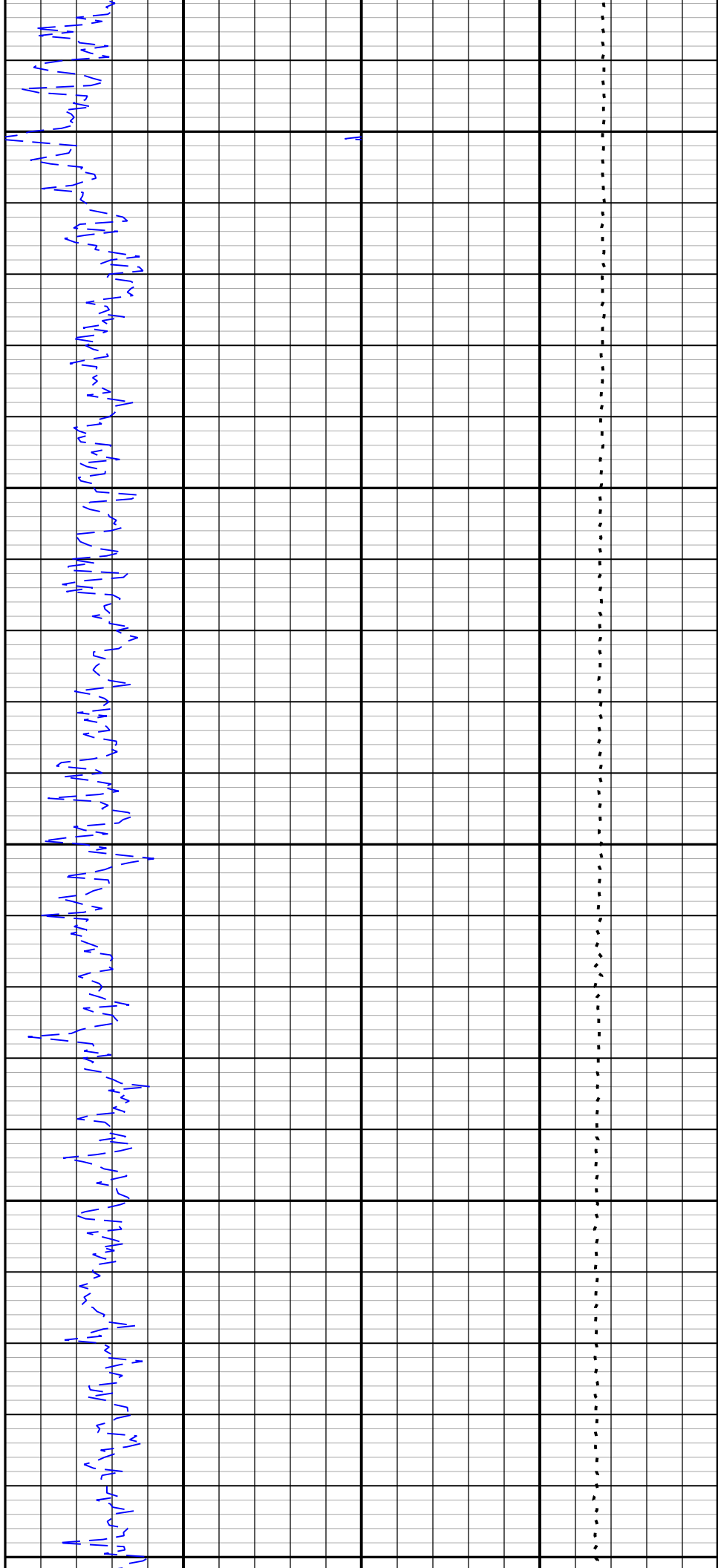
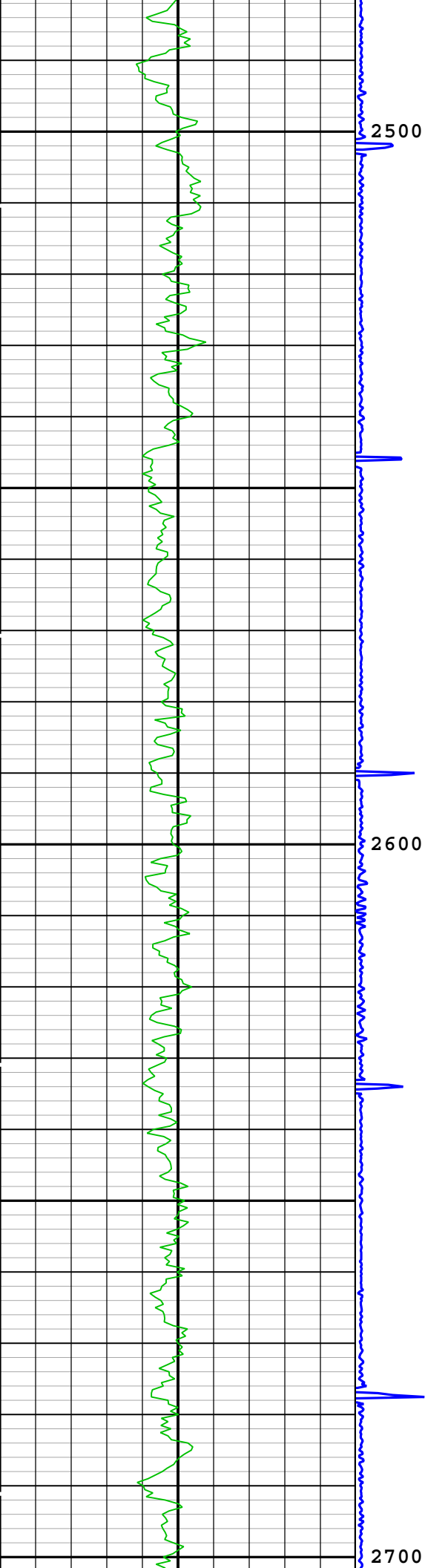


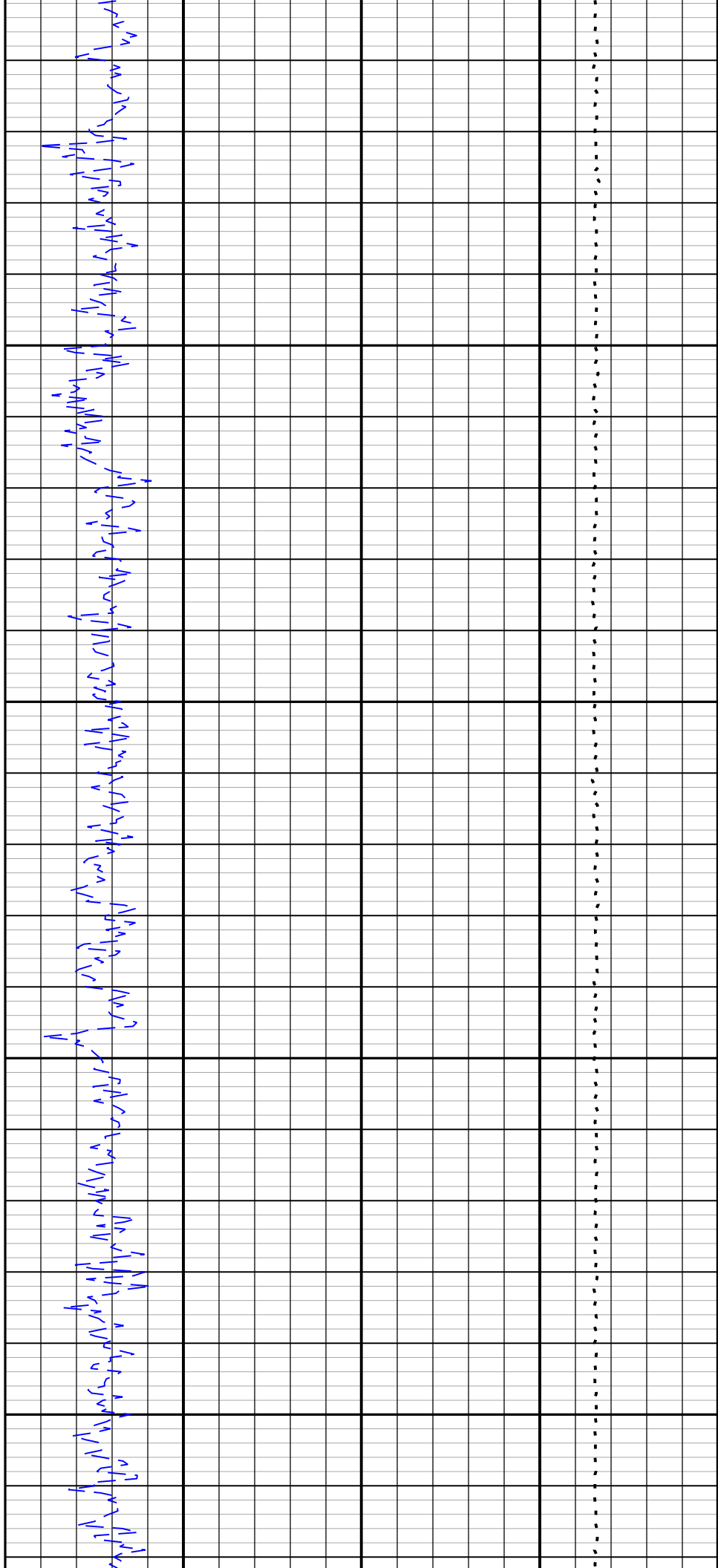
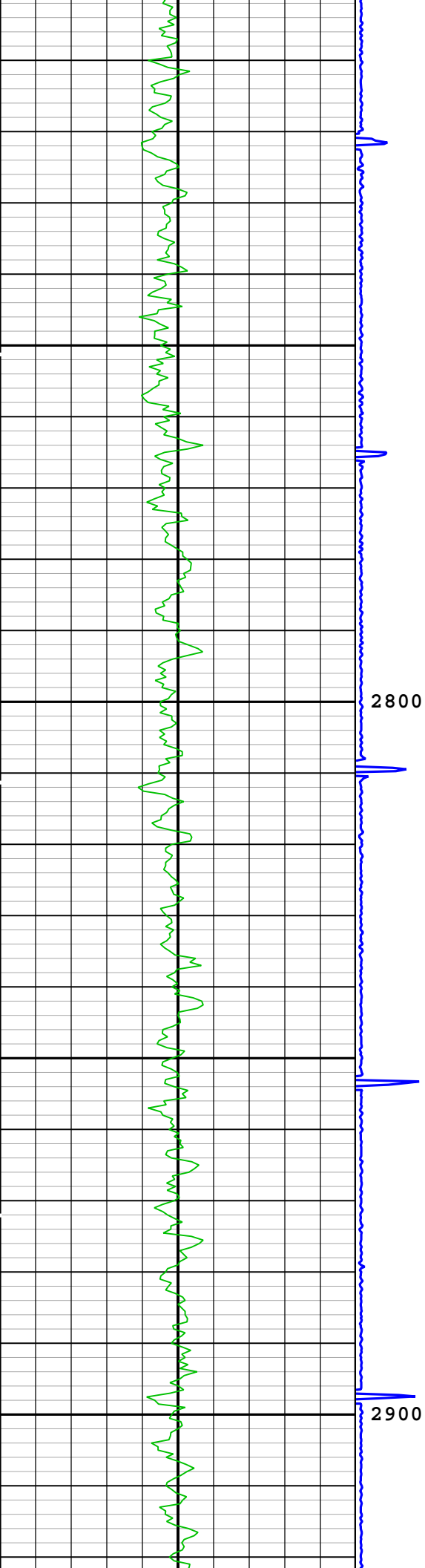


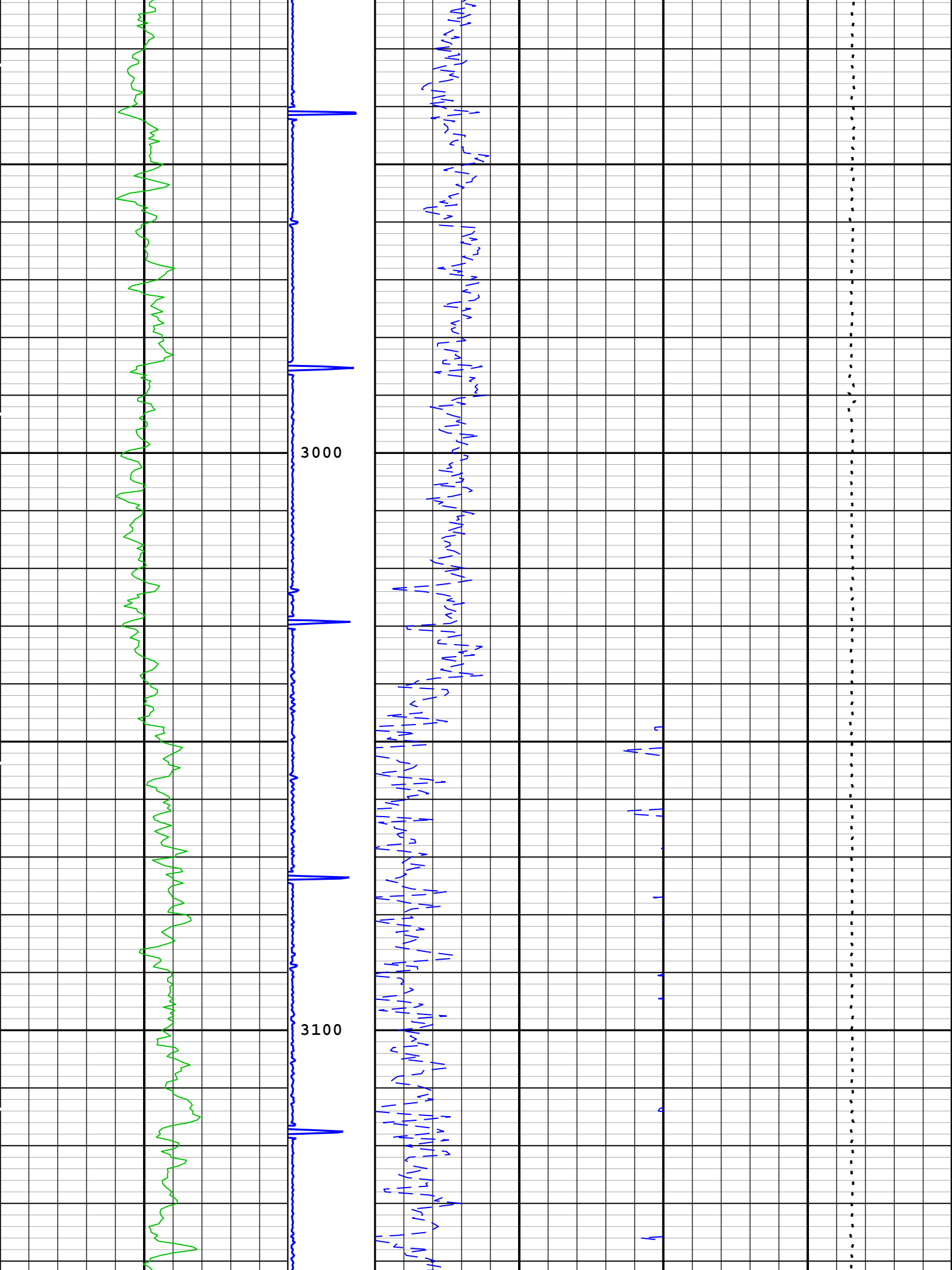


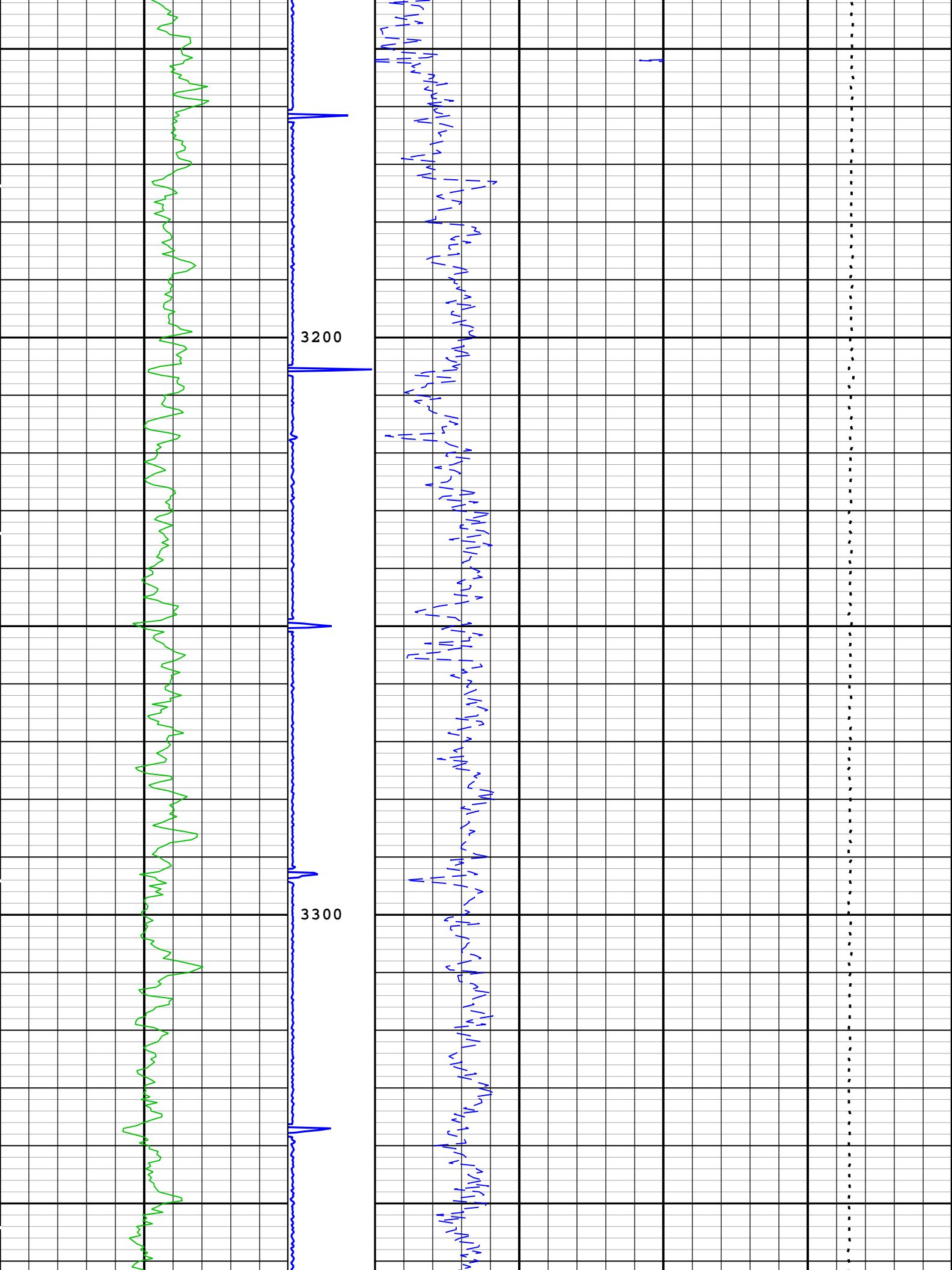


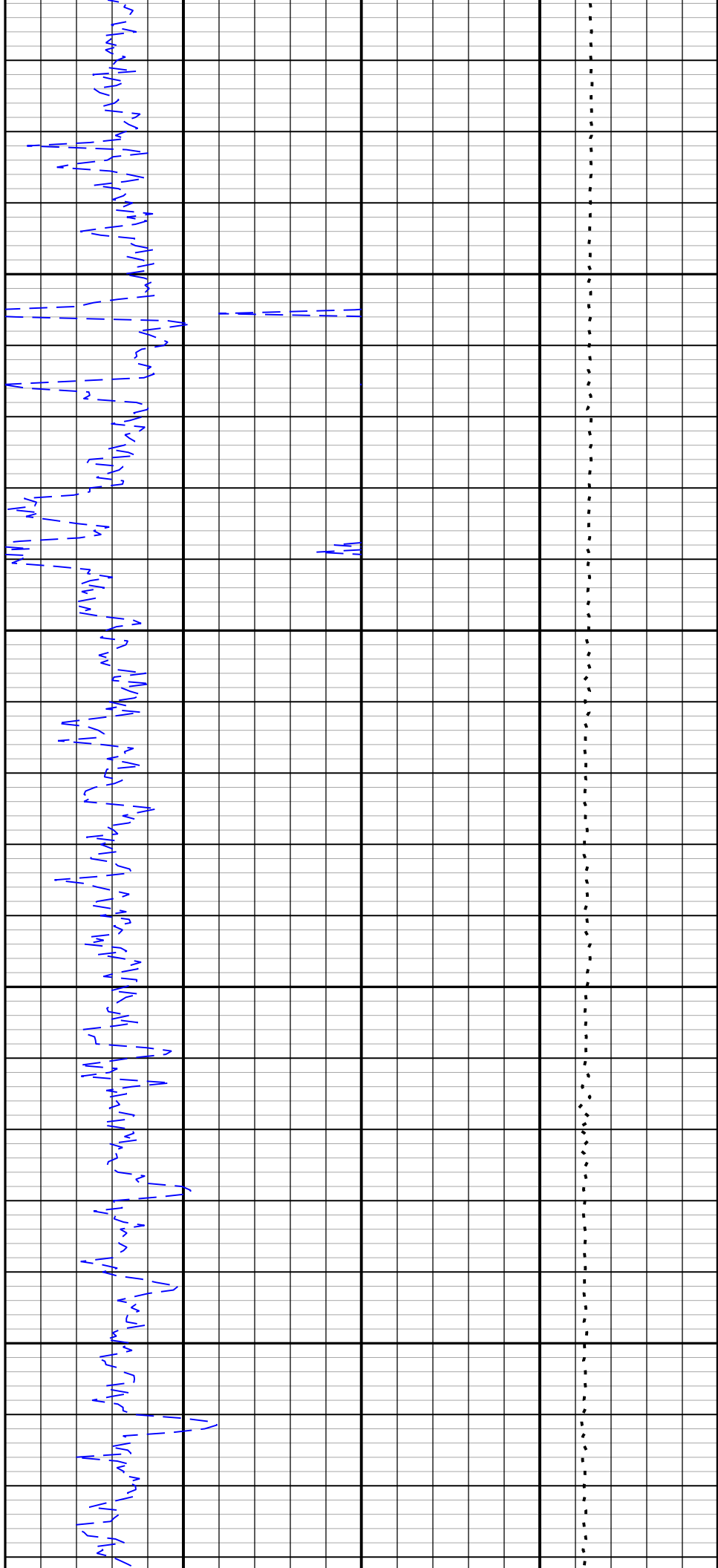
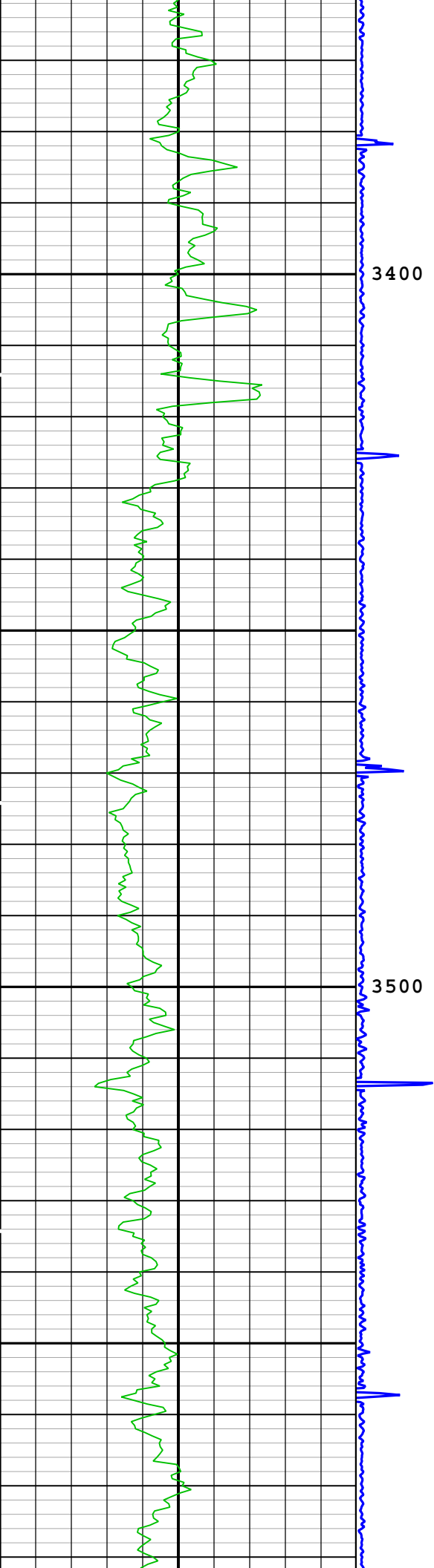


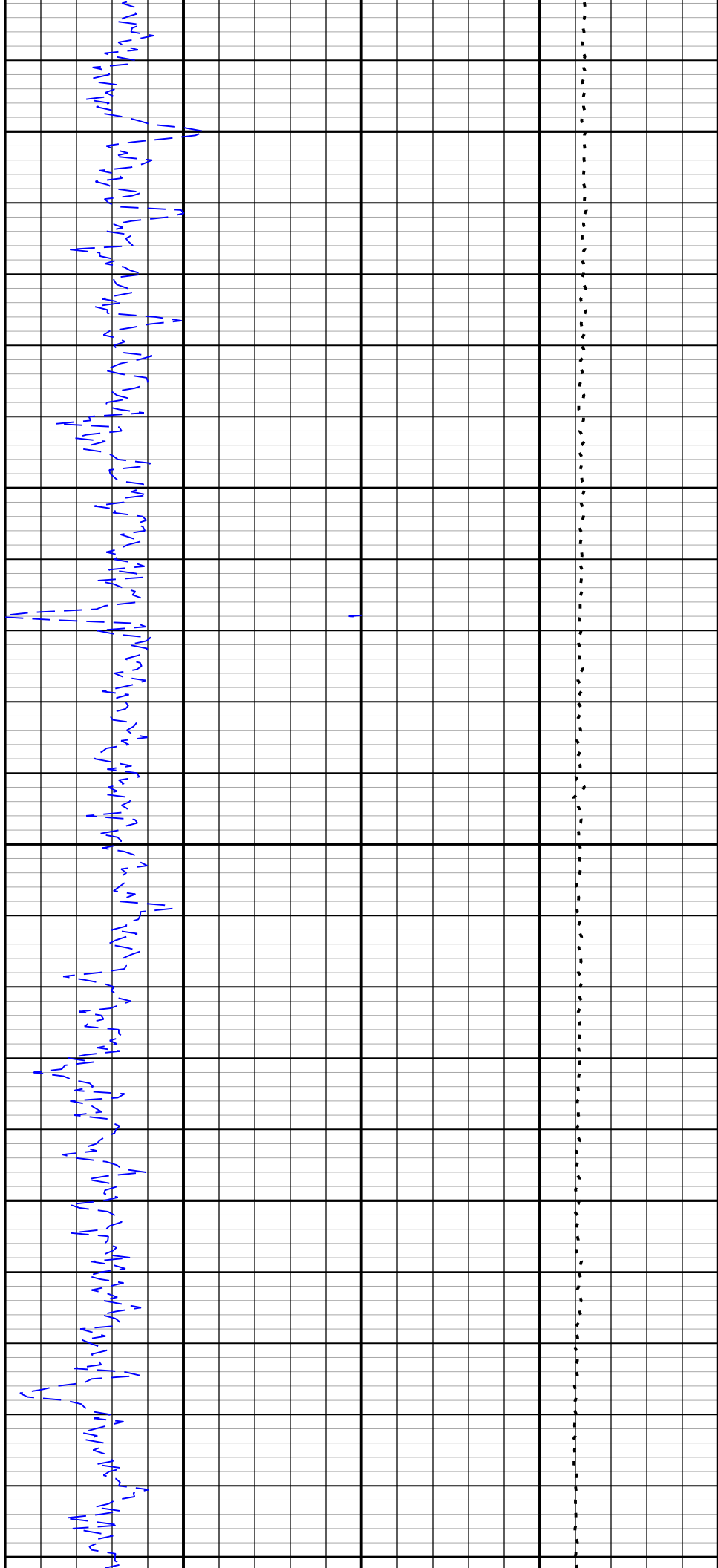
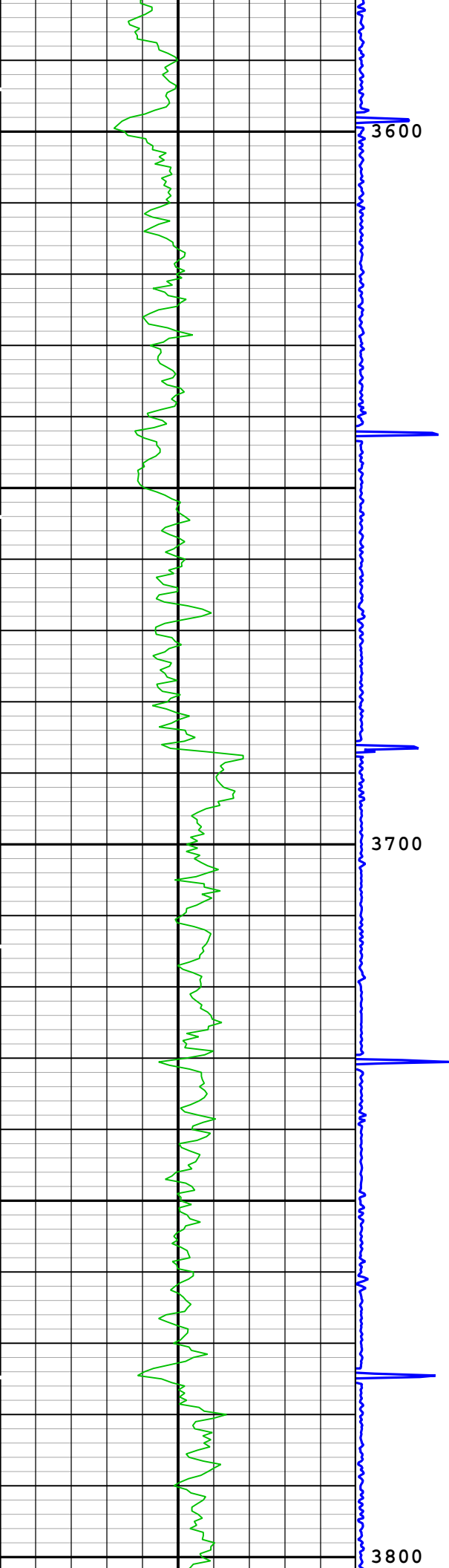


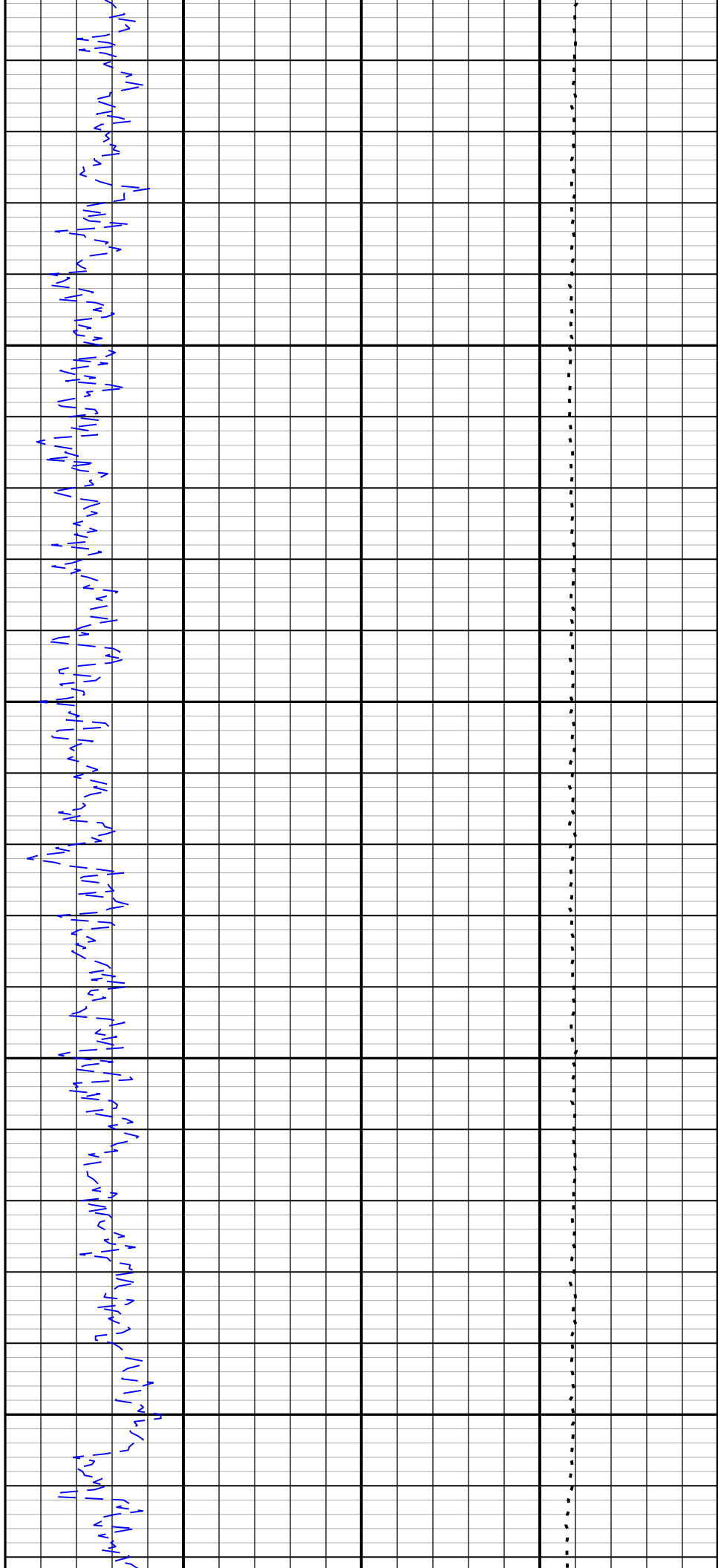
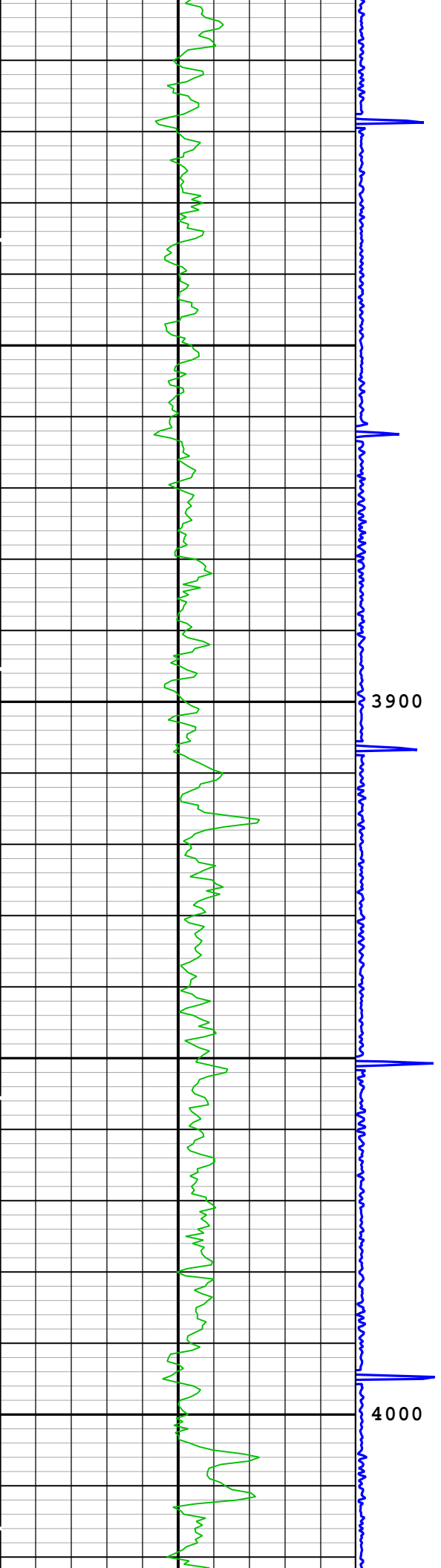


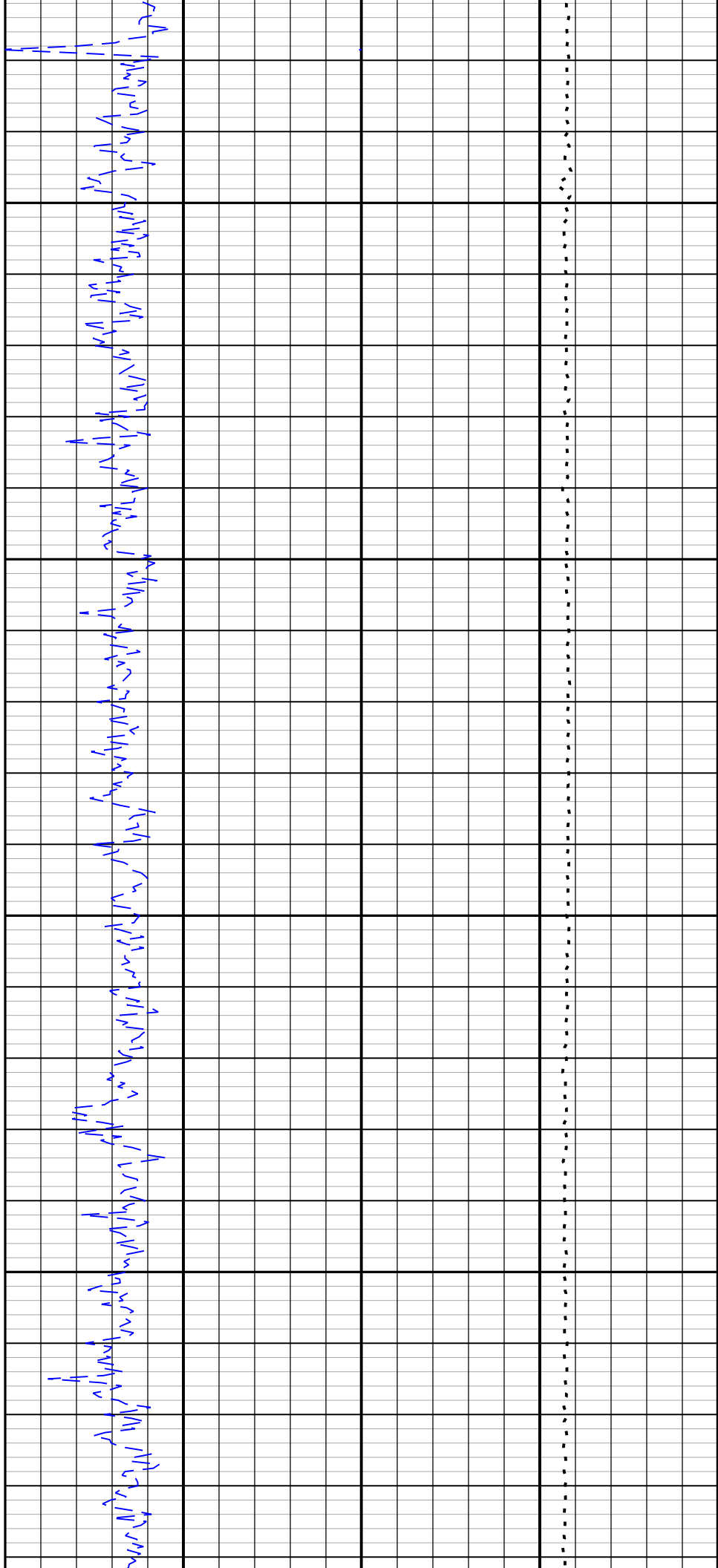
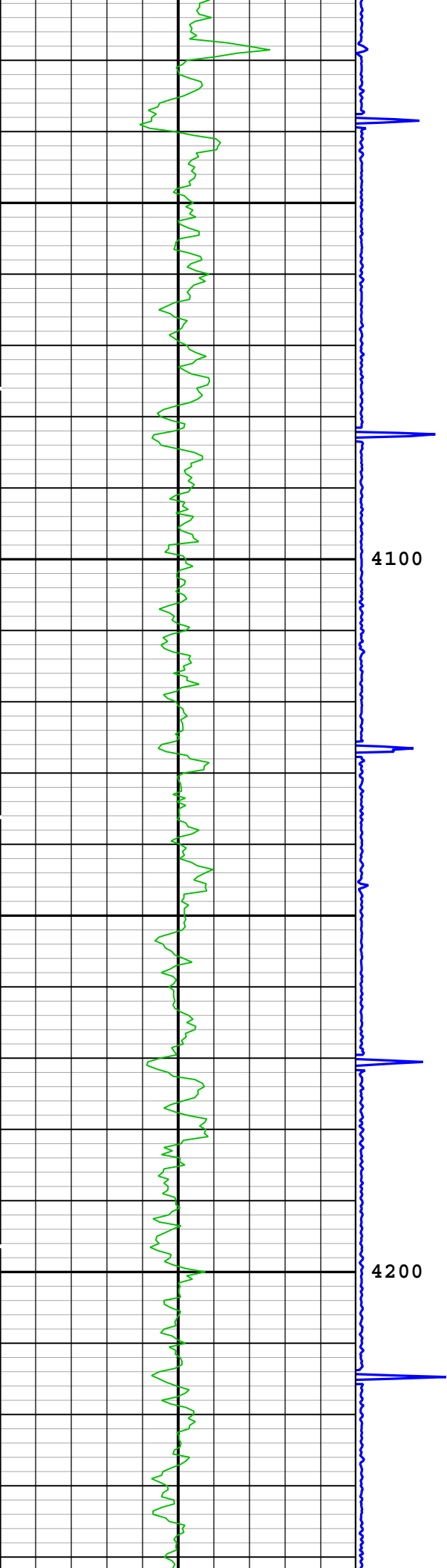


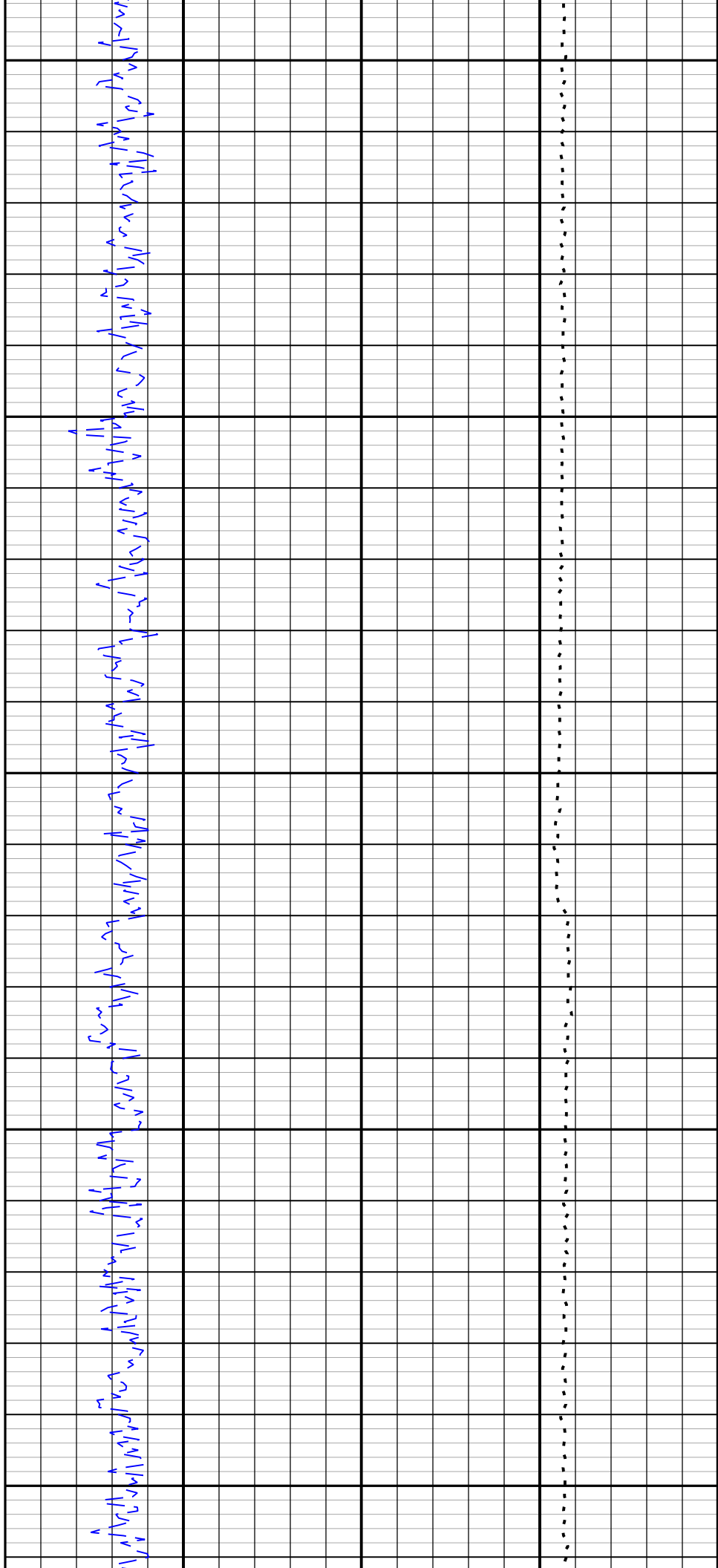
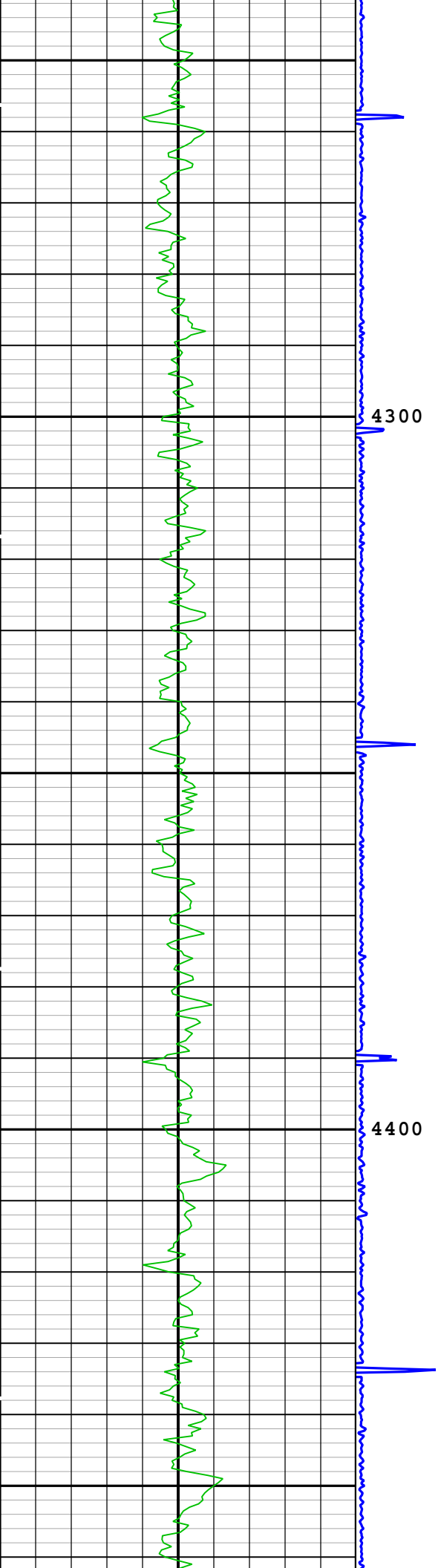


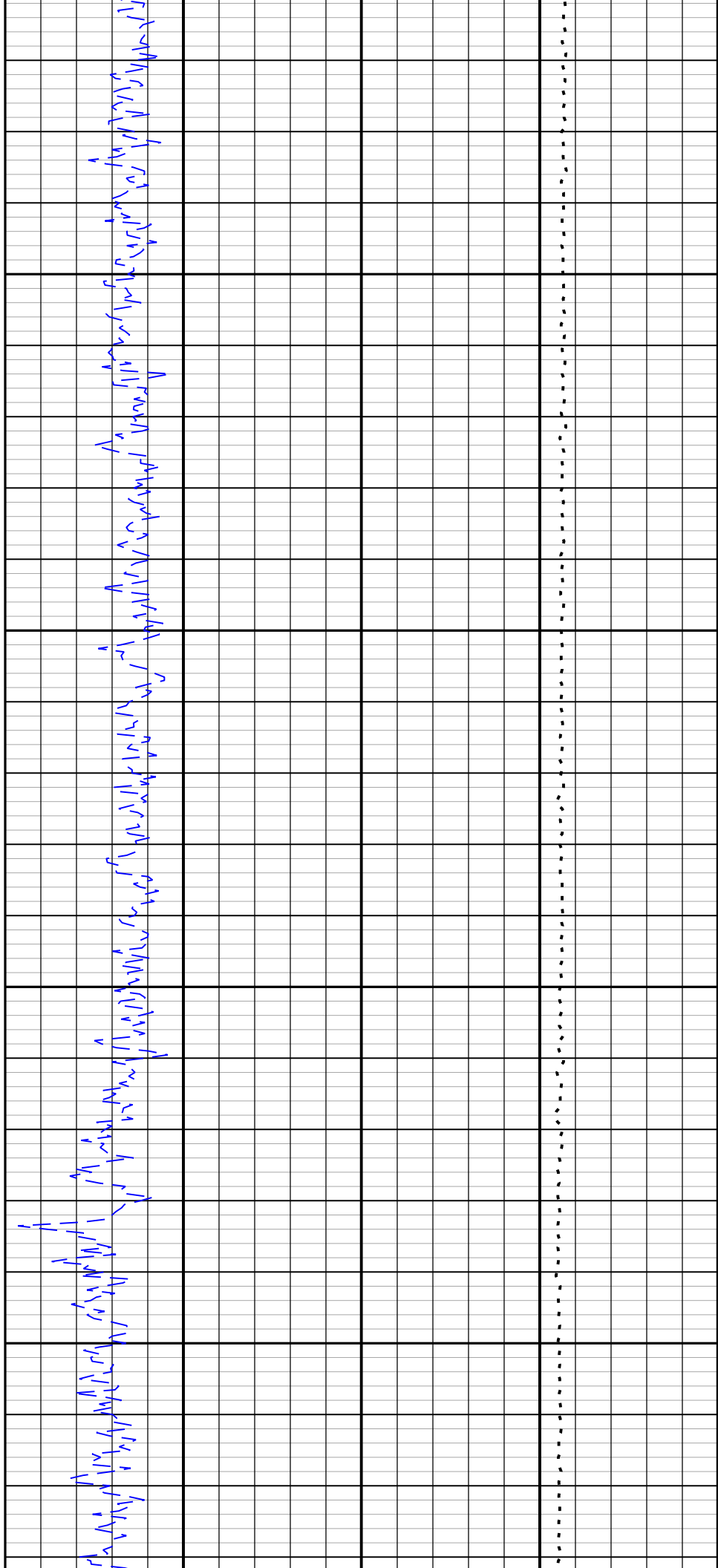
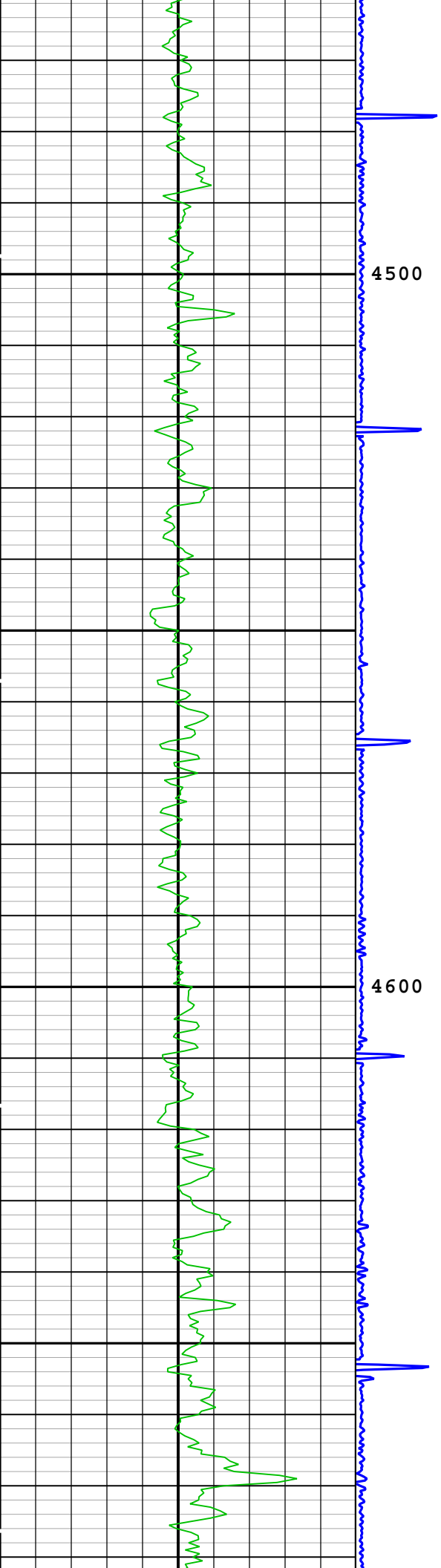


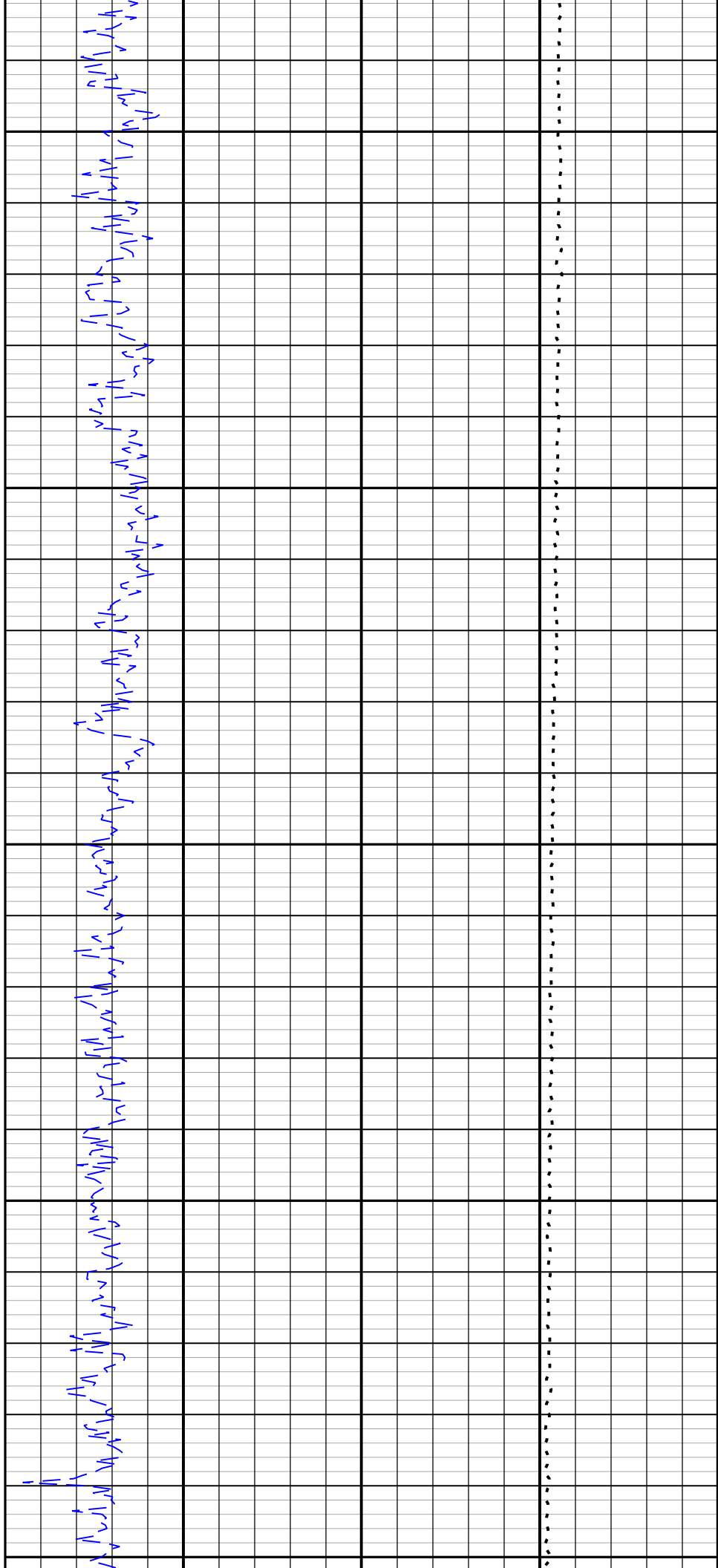
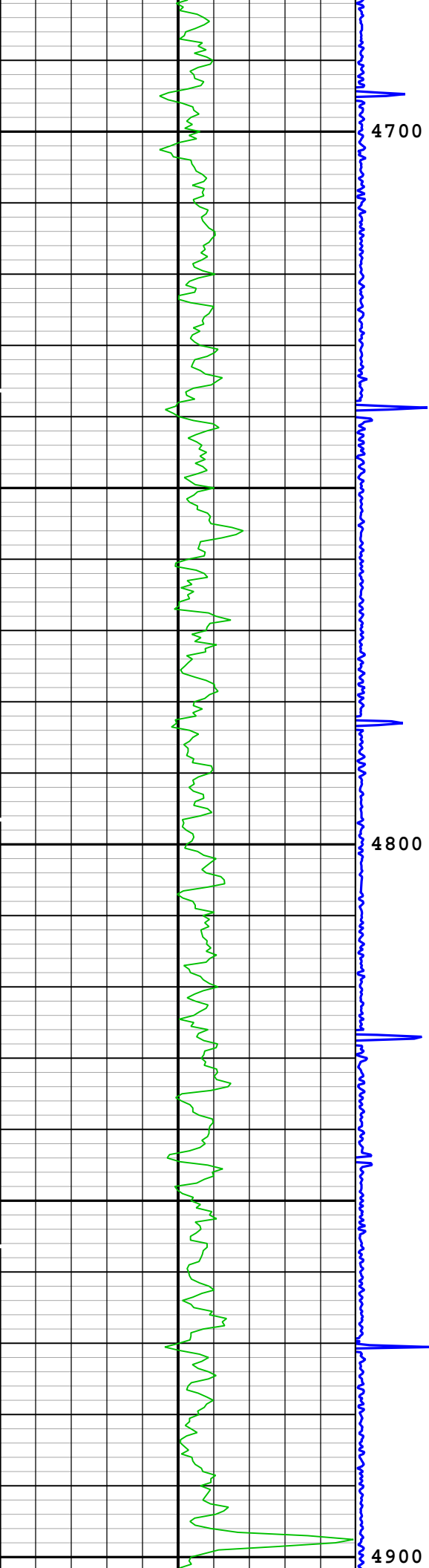


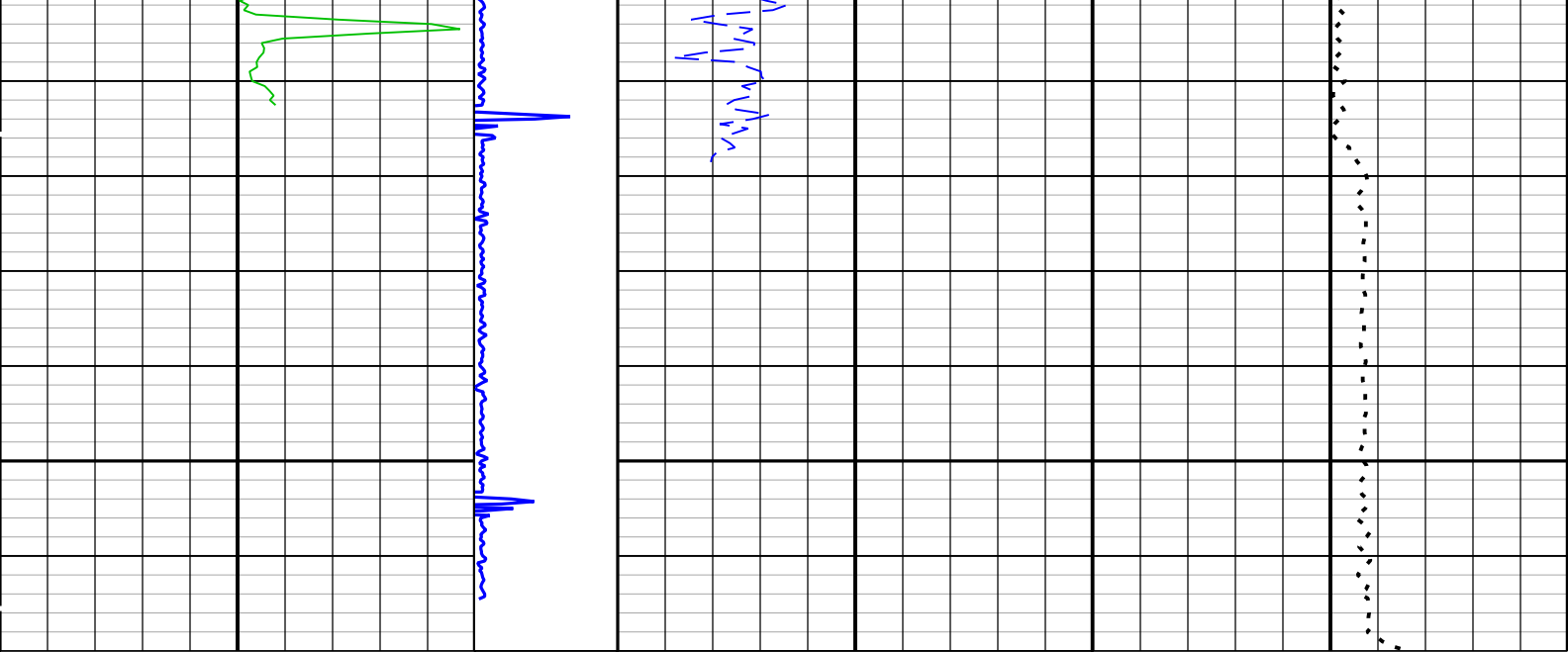












Gamma Ray (GR) HGNS[1]	Casing Collar Locator Ultrasonic (CCLU) USIT-D[1]	Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS[1]	Cable Tension (TENS)
0 gAPI 150	-1 in 20	0.45 ft3/ft3 -0.15	5000 lbf 0

TIME_1900 - Time Marked every 60.00 (s)

Description: DEPTH Domain Log for EDTCB GR channels Format: Log (Correlation with CNL 5 Inch) Index Scale: 5 in per 100 ft Index Unit: ft Index
Type: Measured Depth Creation Date: 13-Nov-2014 12:27:02

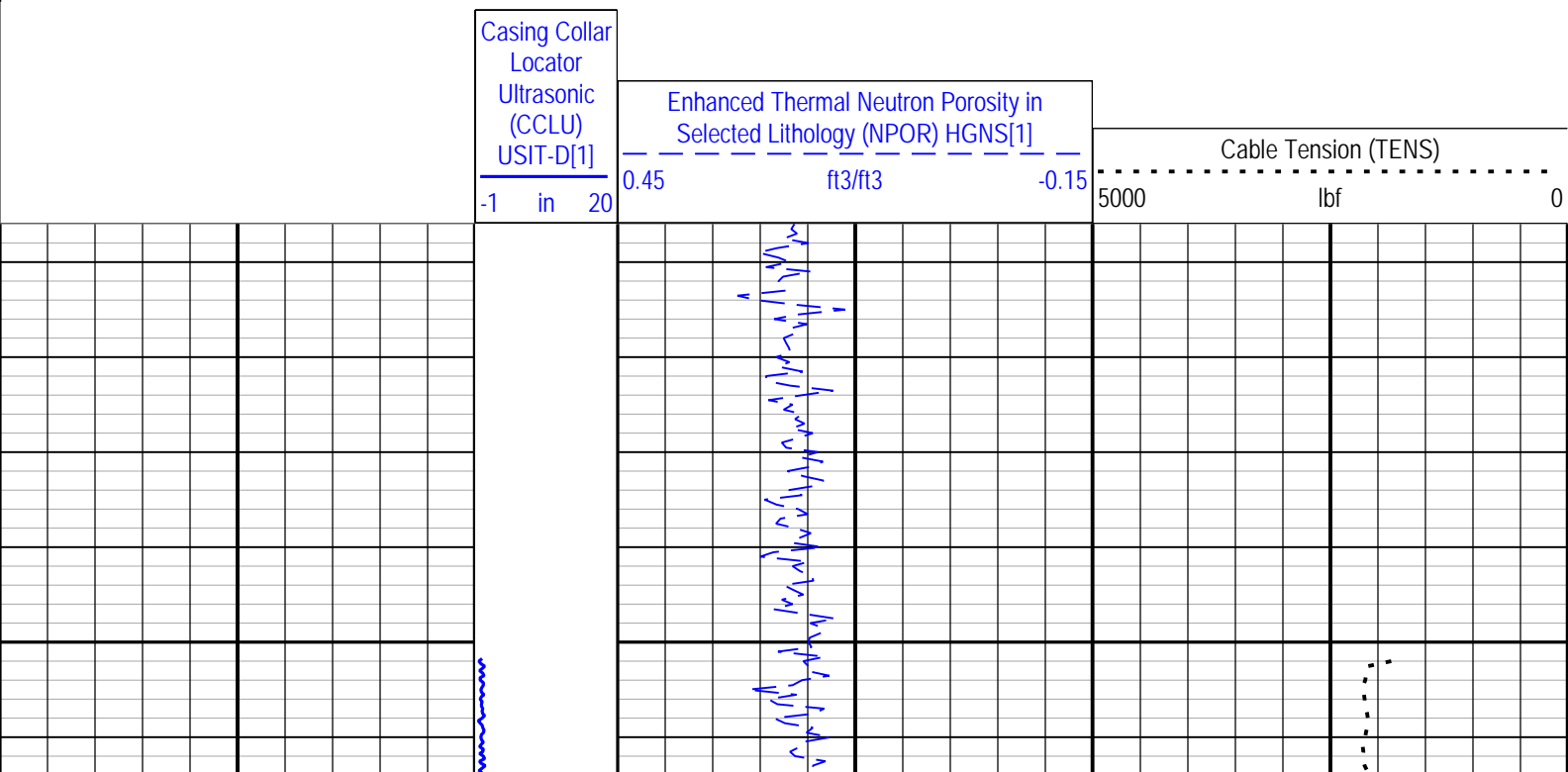
Repeat

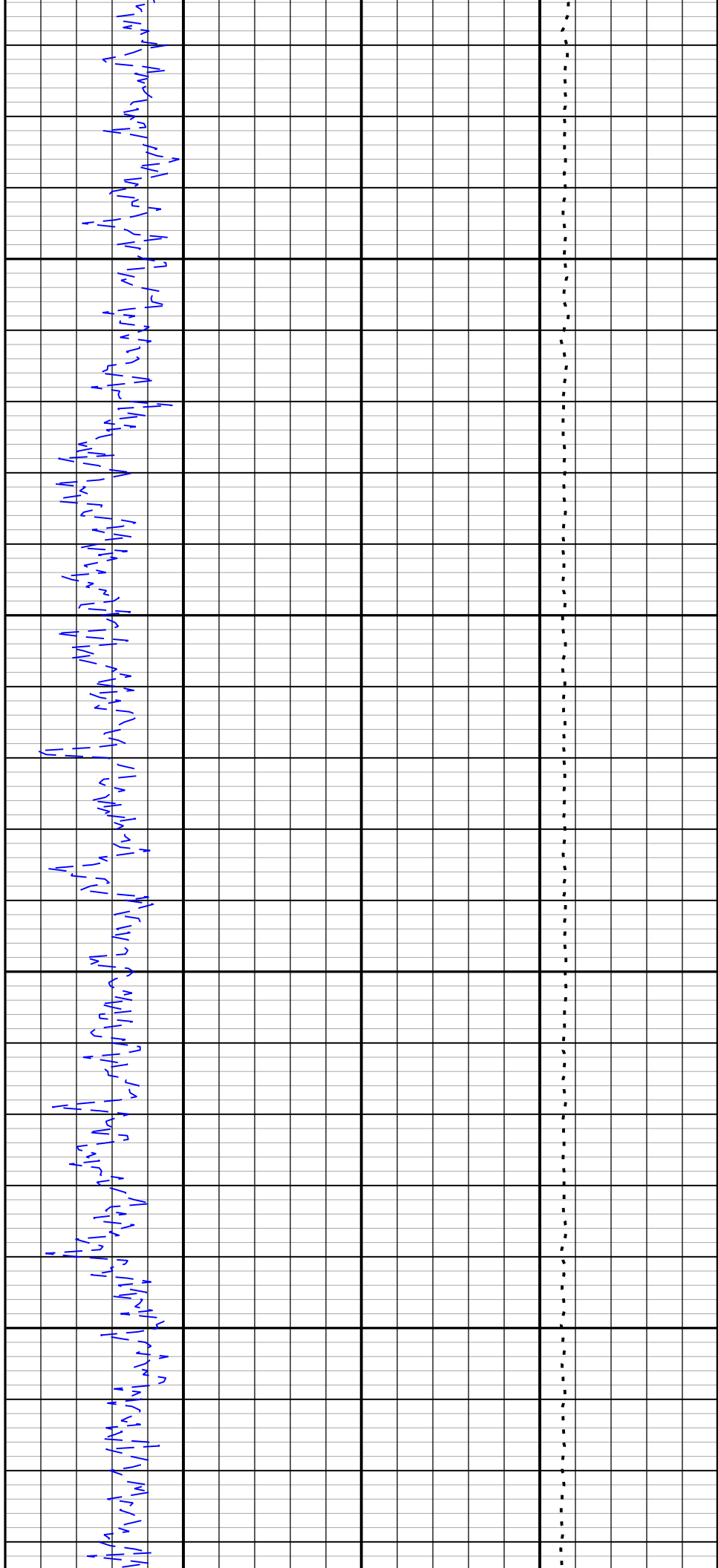
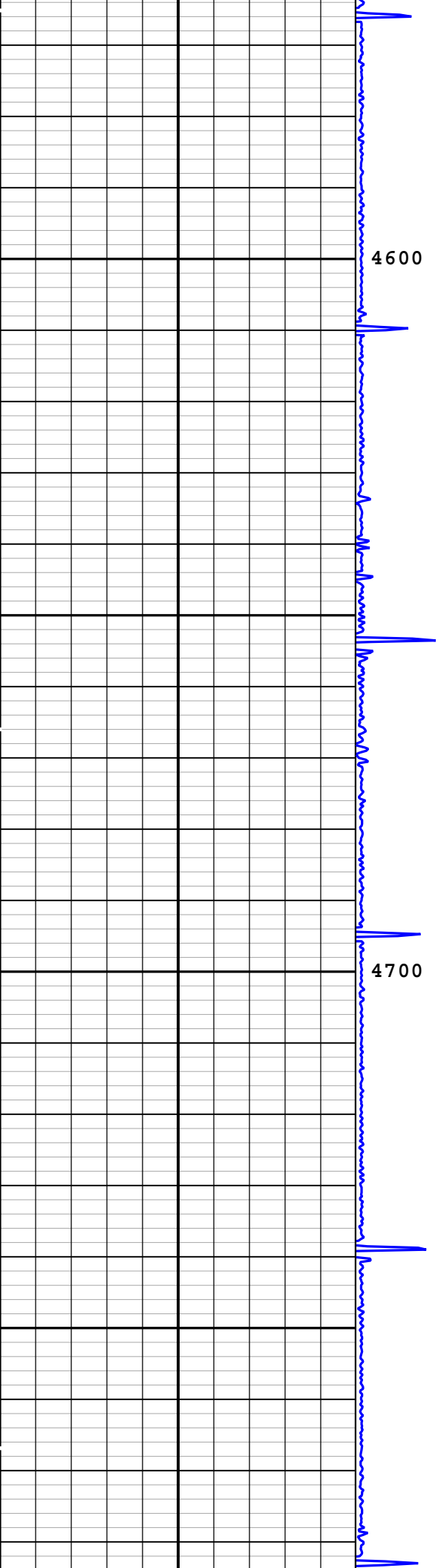
5" Correlation Log Repeat

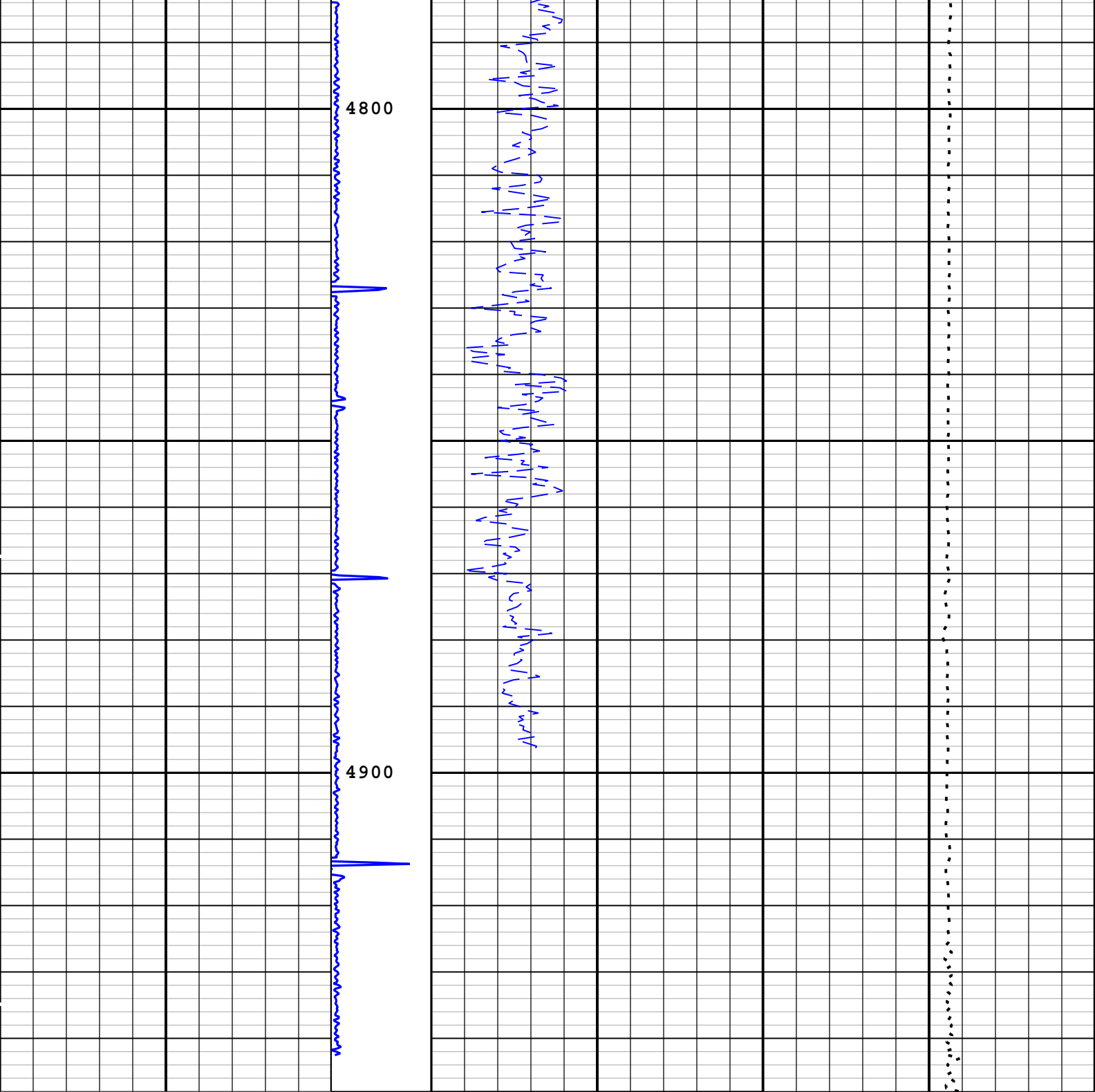
Log	Company:Denbury Onshore, LLC	Well:Riley Ridge 24-16
		Repeat:S069

Description: DEPTH Domain Log for EDTCB GR channels Format: Log (Correlation with CNL 5 Inch) Index Scale: 5 in per 100 ft Index Unit: ft Index
Type: Measured Depth Creation Date: 13-Nov-2014 12:27:04

TIME_1900 - Time Marked every 60.00 (s)







Casing Collar
Locator
Ultrasonic
(CCLU)
USIT-D[1]
-1 in 20

Enhanced Thermal Neutron Porosity in
Selected Lithology (NPOR) HGNS[1]
0.45 ft3/ft3 -0.15

Cable Tension (TENS)
5000 lbf 0

TIME_1900 - Time Marked every 60.00 (s)

Company:	Whiting Oil & Gas Corp	Schlumberger
Well:	Razor 21B-909A	
Field:	Wildcat	
County:	Weld	
State:	Colorado	
Correlation Log with Compensated Neutron CCL-GR-CNL		