



# RADIAL ANALYSIS BOND LOG

## Baker Atlas

File No:	Company	WILLIAMS PRODUCTION COMPANY	
1370	Well	RWF 312-19	
API No:	Field	RULISON	
05-045-178090000	County	State	COLORADO
Location		Other Services	
19, 6S, 94W RWF 12-19 PAD CYCLONE 14		TEMP	
SHL: 2603' FSL & 140' FWL BHL: 1573' FNL & 251' FWL			
SEC 19 TWP 6S RGE 94W			
Permanent Datum	G.L.	Elevation	5823 ft
Log Measured From	K.B.	22.5 ft	Above P. D.
Drill Measured From	KELLY BUSHING		KB 5845.5 ft DF 5844.5 ft GL 5823 ft

Date	8-OCT-2009	
Run	ONE	
Service Order	576473	
Depth Driller	8581 ft	
Depth Logger	8566 ft	
Bottom Logged Interval	8566 ft	
Top Logged Interval	18 ft	
Time Started	12:00	
Time Finished	15:00	
Operator Rig Time	3 HRS.	
Type of Fluid in Hole	WATER	
Fluid Density	N/A	
Salinity	N/A	
Fluid Level	FULL	
Logged Cement Top	N/A	
Wellhead Pressure	0 psi	
Maximum Hole Deviation	N/A	
Nominal Logging Speed	45 fpm	
Maximum Recorded Temperature	229 degF	
Reference Log	BAKER ATLAS TRIPLE COMBO	
Reference Log Date	4-SEP-2009	
Equipment No.	4214	VERNAL, UT
Recorded By	J. SOENEN	
Witnessed By	MR. ALEX YATER	

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In making interpretations of logs, our employees will give the customer the benefit of their best judgement. But since all interpretations are opinions based on inferences from electrical or other measurements, we cannot, and we do not guarantee the accuracy or correctness of any interpretation. We shall not be liable or responsible for any loss, cost, damages, or expenses whatsoever incurred or sustained by the customer resulting from any interpretation made by any of our employees.

Borehole Record		
Bit Size	From	To
7.875 In	SURFACE	8581 ft

Casing Record				
Size	Weight	Grade	From	To
4.5 In	11.6 lbm/ft	P-110	SURFACE	8581 ft

Remarks
THIS LOG WAS TIED INTO BAKER ATLAS TRIPLE COMBO
WELL WAS LOGGED WITH 0 PSI
*SHORT JOINT LOCATED AT: 5276' - 5298'
*BHT: 229 DEGREES/F*

Equipment Data					
Run	Trip	Tool	Series Number	Serial Number	Position
1	1	WDV	1426YA	028	CENTRALIZED

1	1	GR/CCL	2459XA	503	CENTRALIZED
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# ***MAIN SECTION*** ***PRIMARY PRESENTATION***

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	316.900	usec	21.313	8579.978
RAL	Amp Gate Start Near	200.391	usec	21.313	8579.978
RAL	Amp Gate Start Radial	200.391	usec	21.313	8579.978
RAL	Amp Gate Width Far	25.000	usec	21.313	8579.978
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RAL	casing od	4.500	inches	21.313	8579.978
RAL	casing wt	11.600	lbm/ft	21.313	8579.978
RAL	FB Start Far	291.900	usec	21.313	8579.978
RAL	FB Start Near	175.391	usec	21.313	8579.978
RAL	FB Start Radial	175.391	usec	21.313	8579.978
RAL	FB Thresh Far	10.000	mv	21.313	8579.978
RAL	FB Thresh Near	4.000	mv	21.313	8579.978
RAL	FB Thresh Radial	4.000	mv	21.313	8579.978
RAL	Fluid Travel Time	200.000	usec/ft	21.313	8580.777

## **DEPTH OFFSETS** **(for Acquired Curves)**

SERIES	DEPTH OFFSET	ACQUIRED CURVES					
1426XA	-15.360	ACAL	ANR	AR1	AR2	AR3	AR4
		AR5	AR6	AR7	AR8	CHV	FPR2
		FPR3	FPR5	TT3	TTR1	TTR2	TTR3
		TTR4	TTR5	TTR6	TTR7	TTR8	XAMP
1426XA	-14.360	AFAR	SIG	TT5			
1426XA	-7.250	CCL					
1426XA	-5.390	GR					
1426XA	0.000	NEU					

Created by : RAL, v4.8.007

Plotted by : PlotMgr, v5.4.504

Company : WILLIAMS PRODUCTION COMPANY

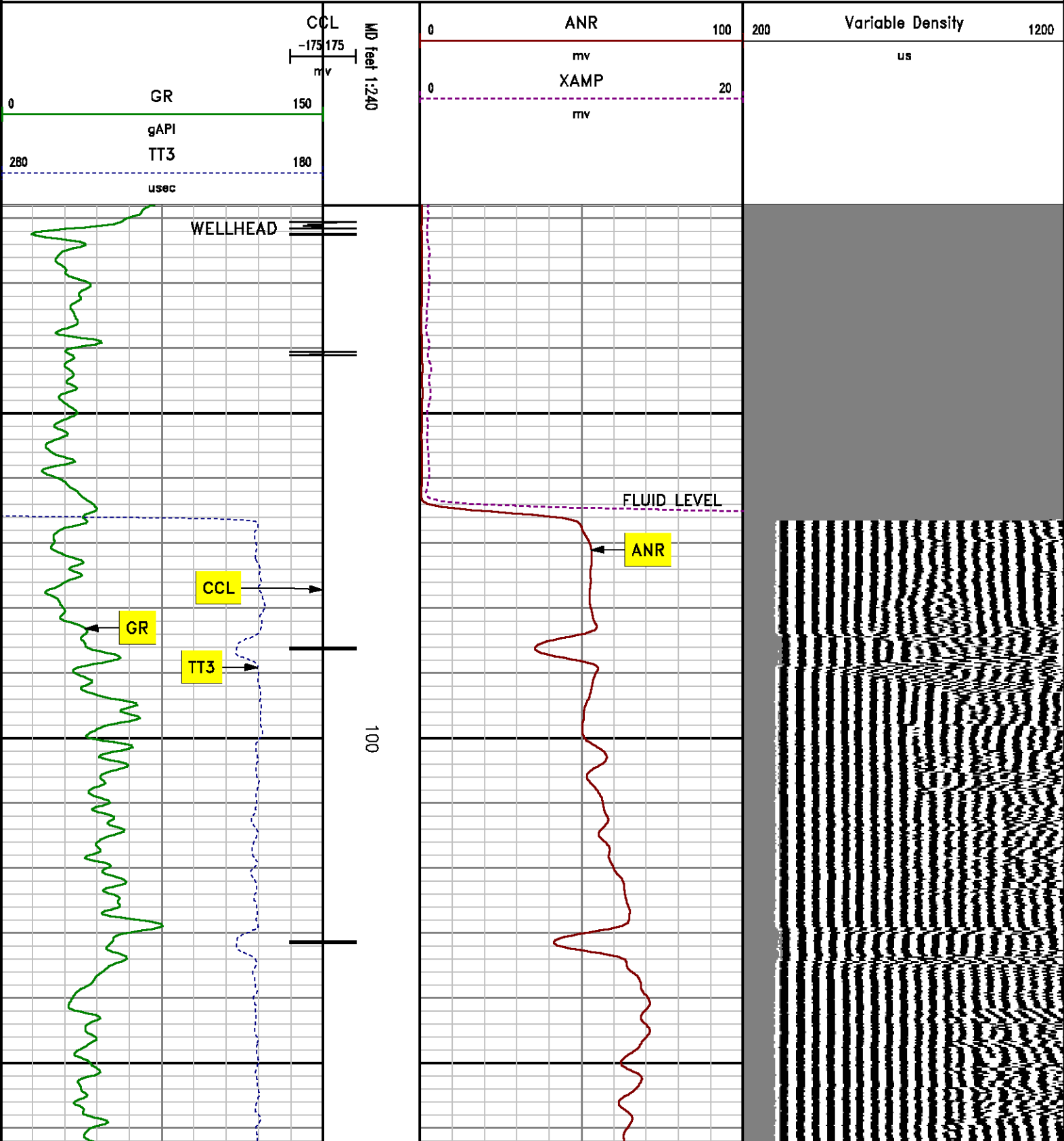
Well : RWF 312-19

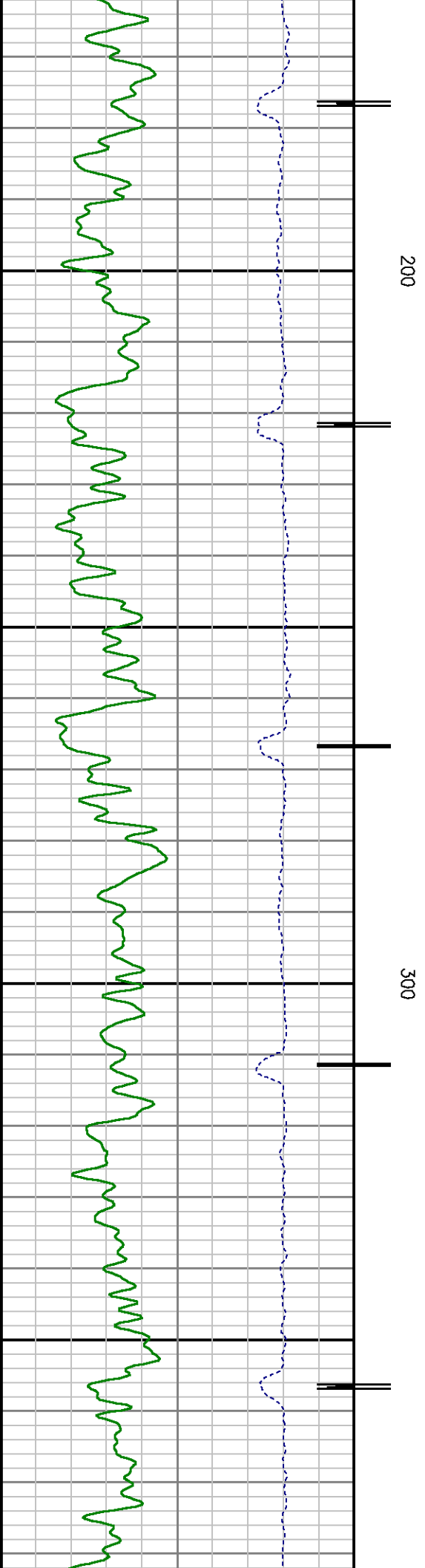
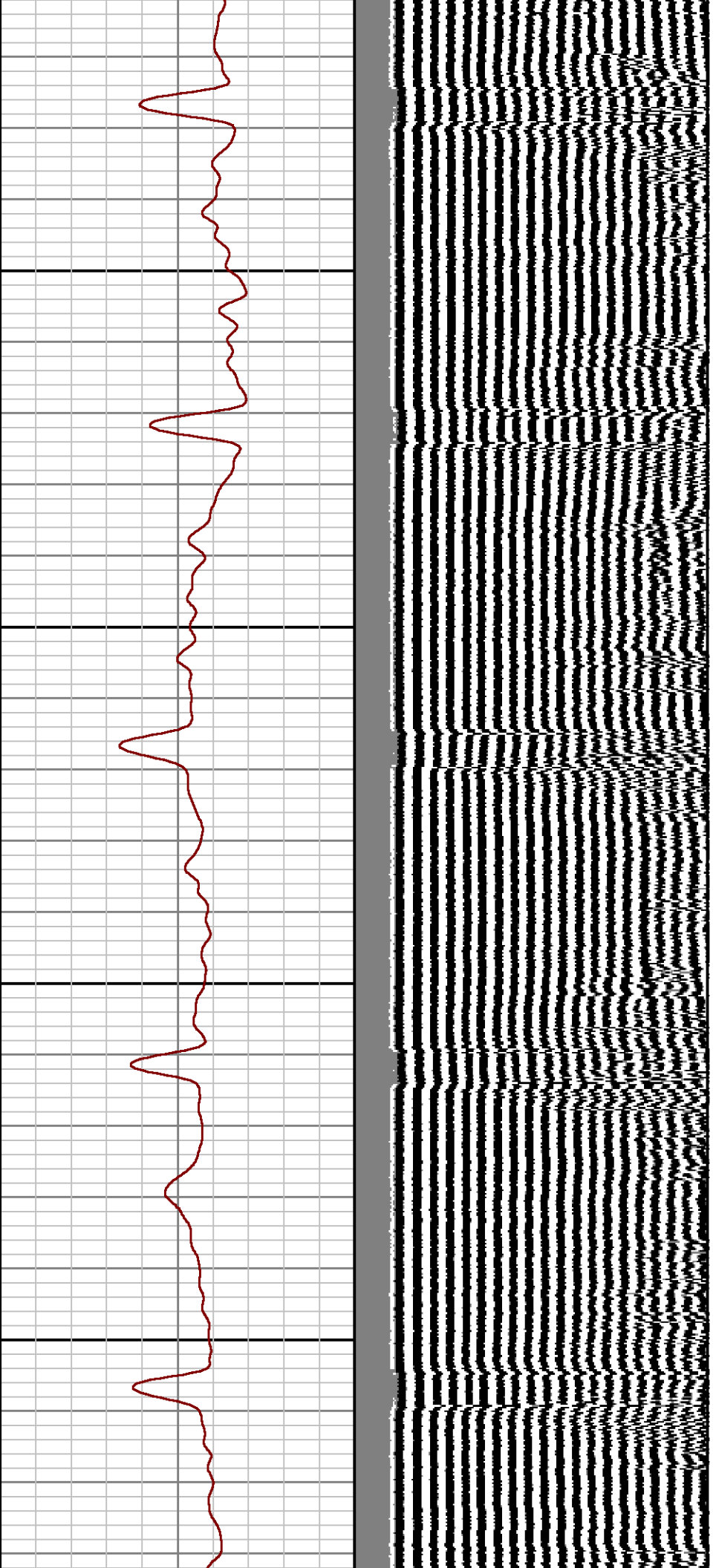
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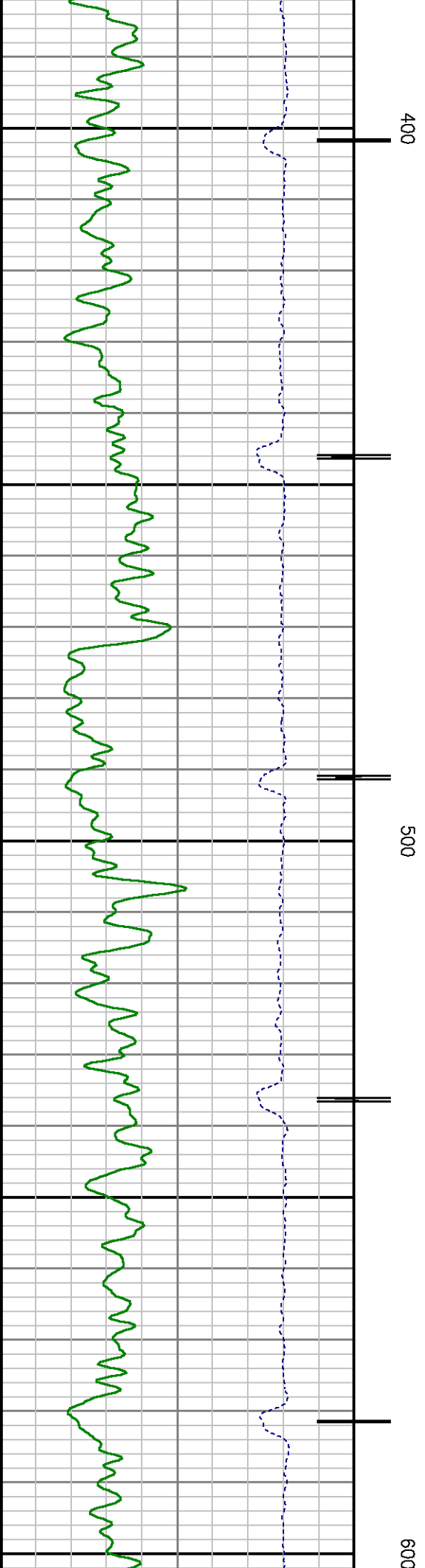
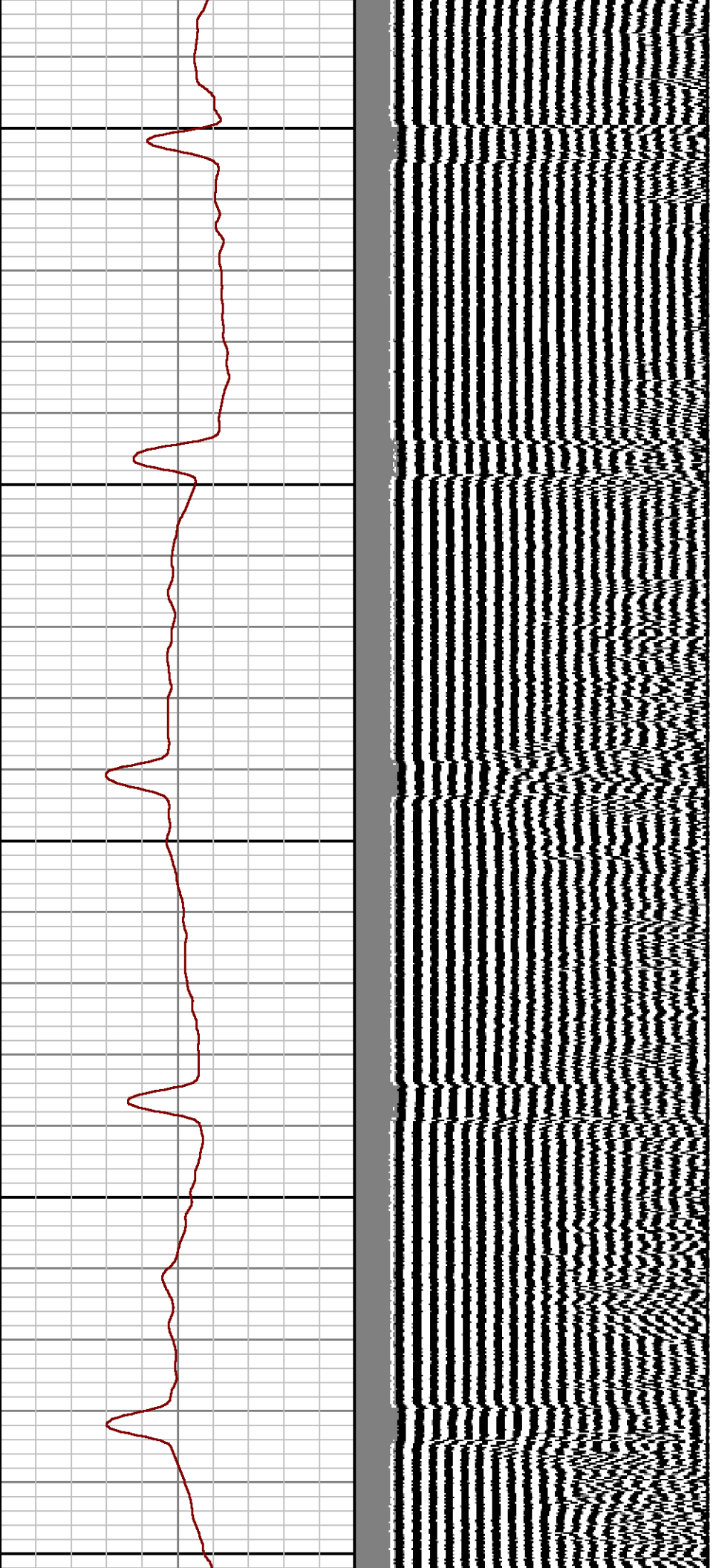
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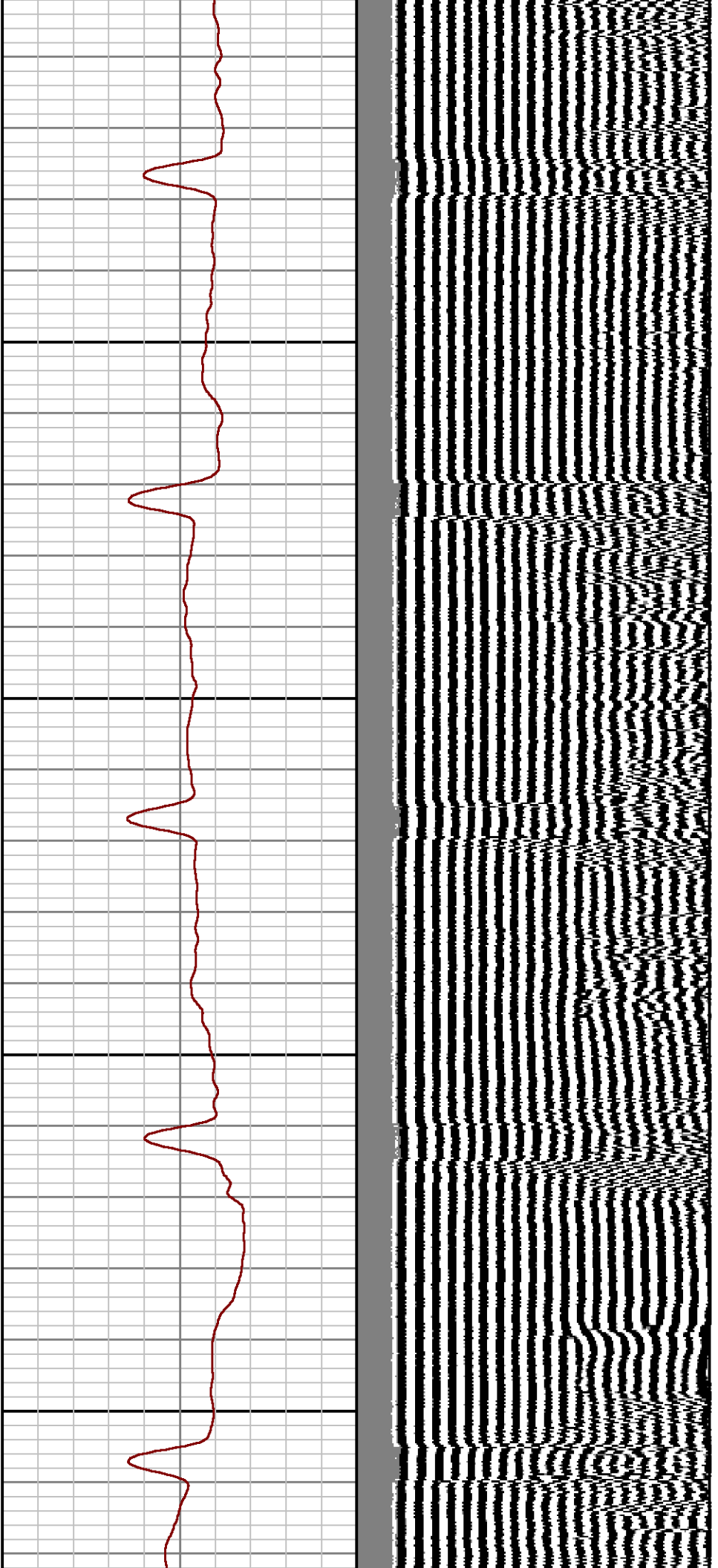
Interval : 18.00 - 8570.00 feet UP

Created : 10/8/2009 12:41:29 PM



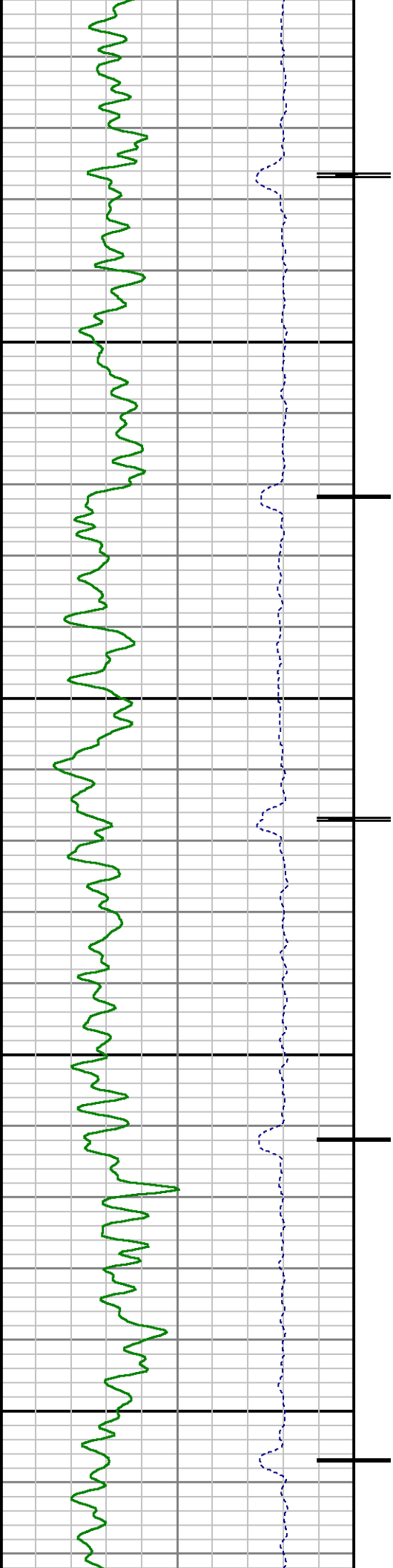


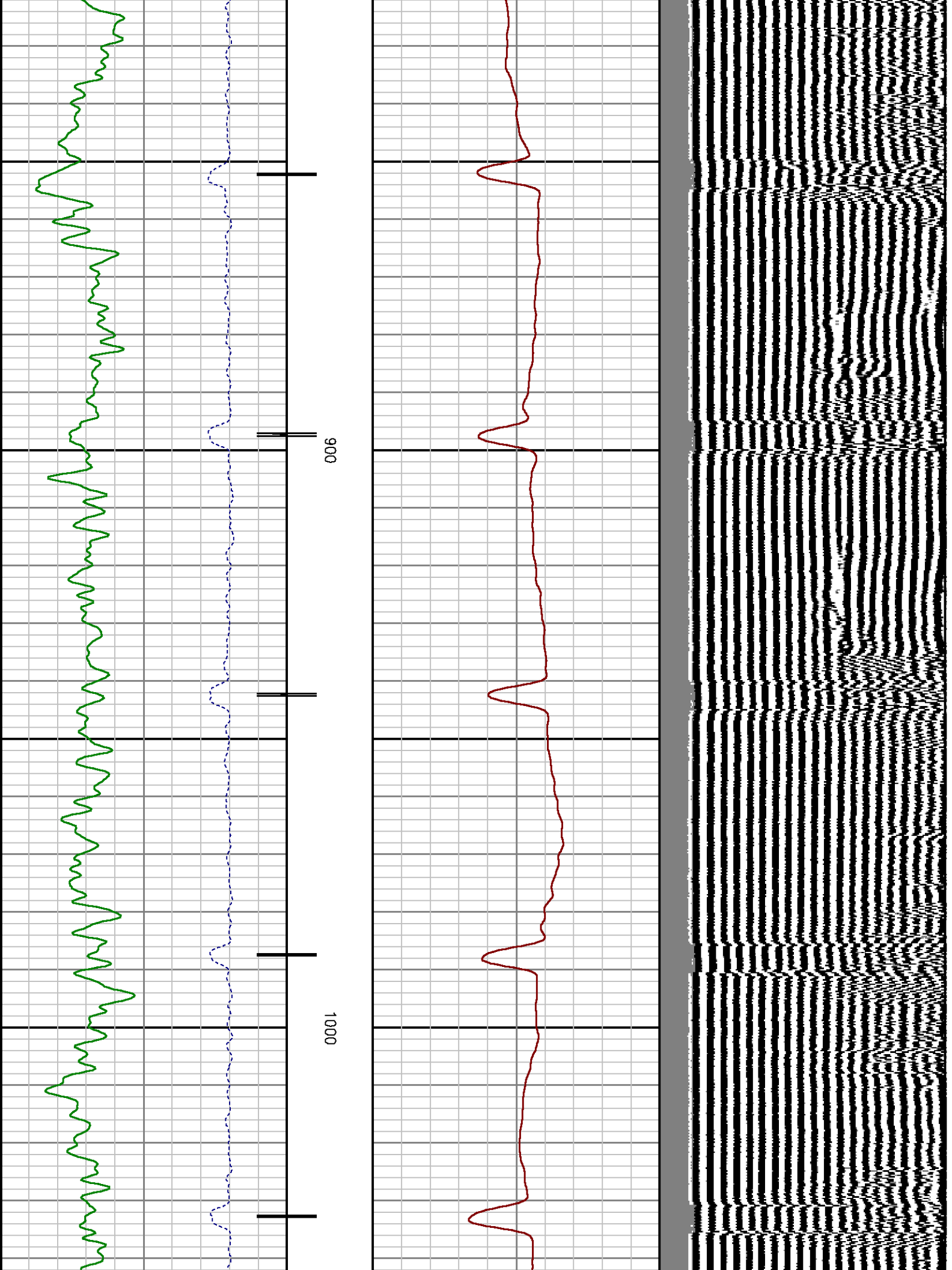




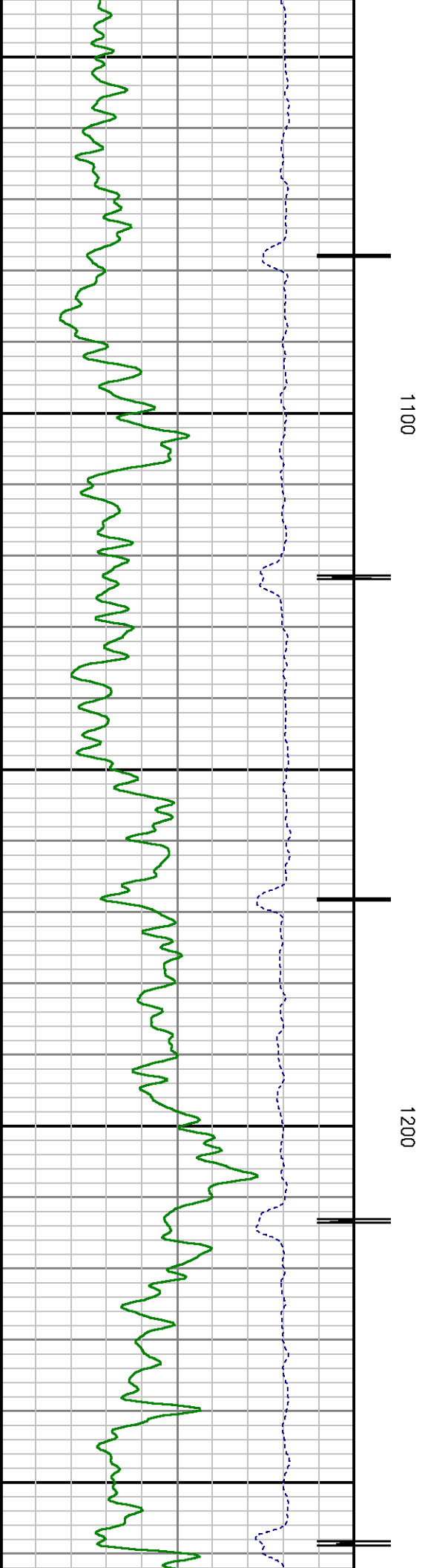
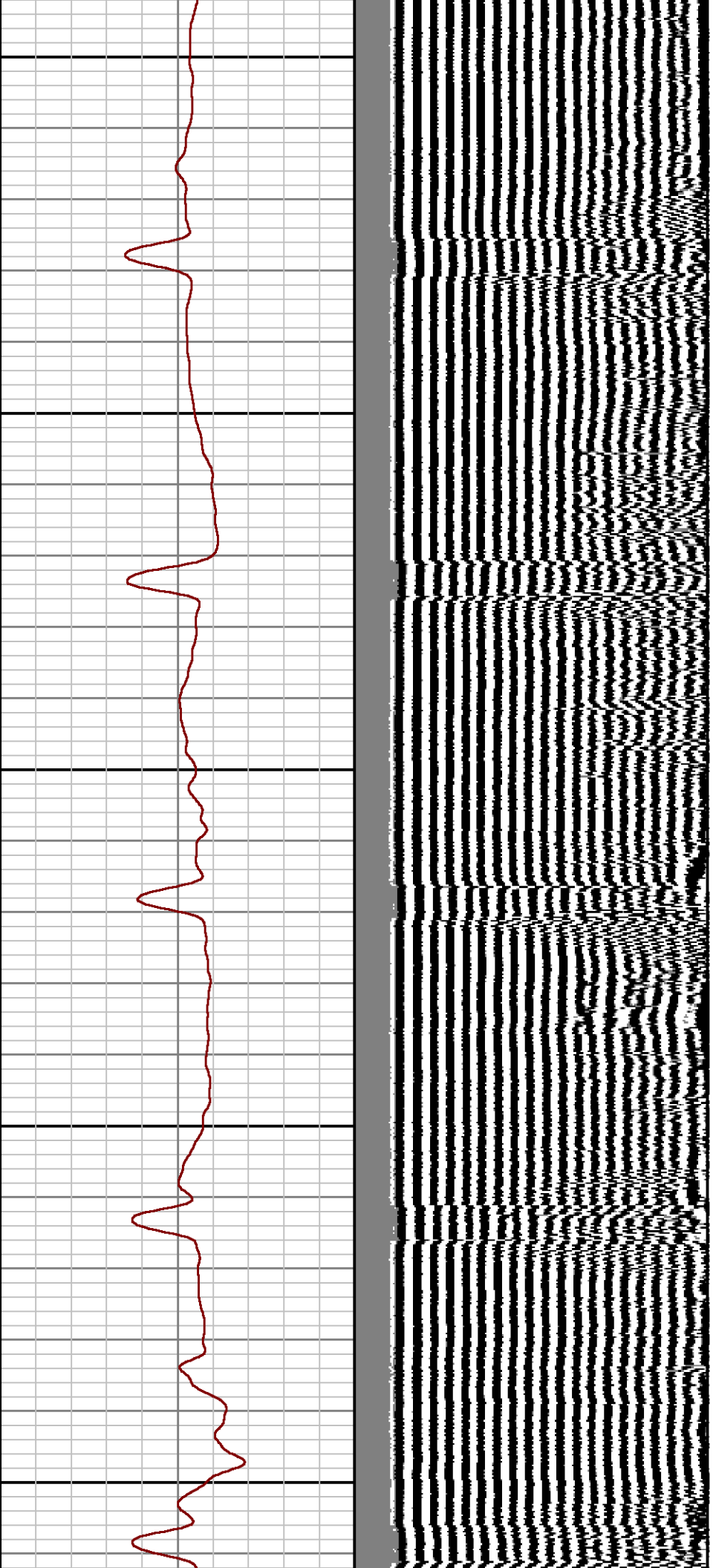
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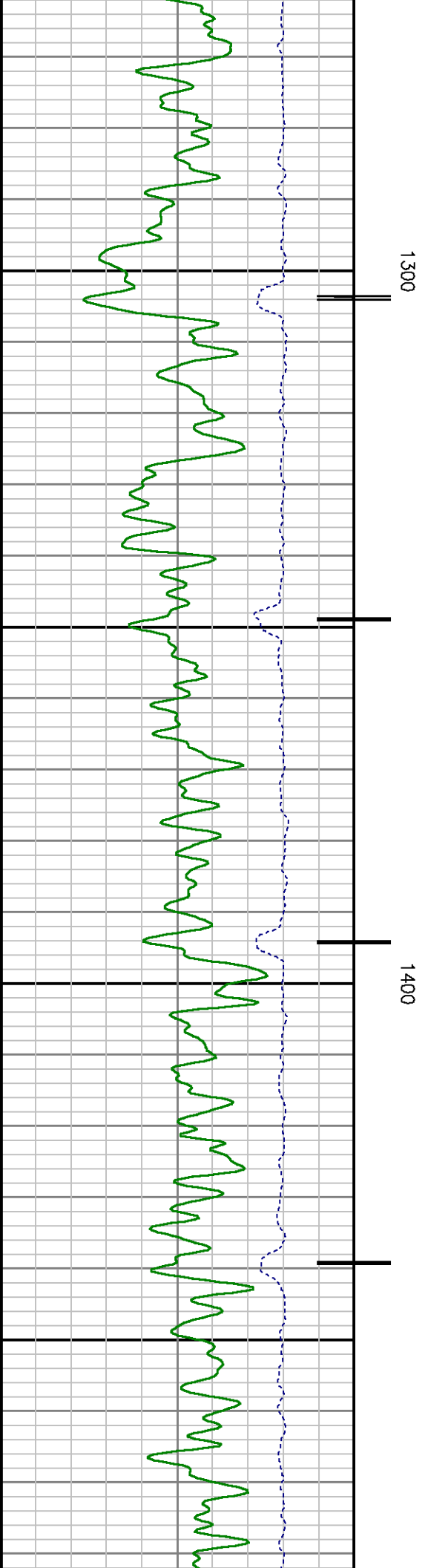
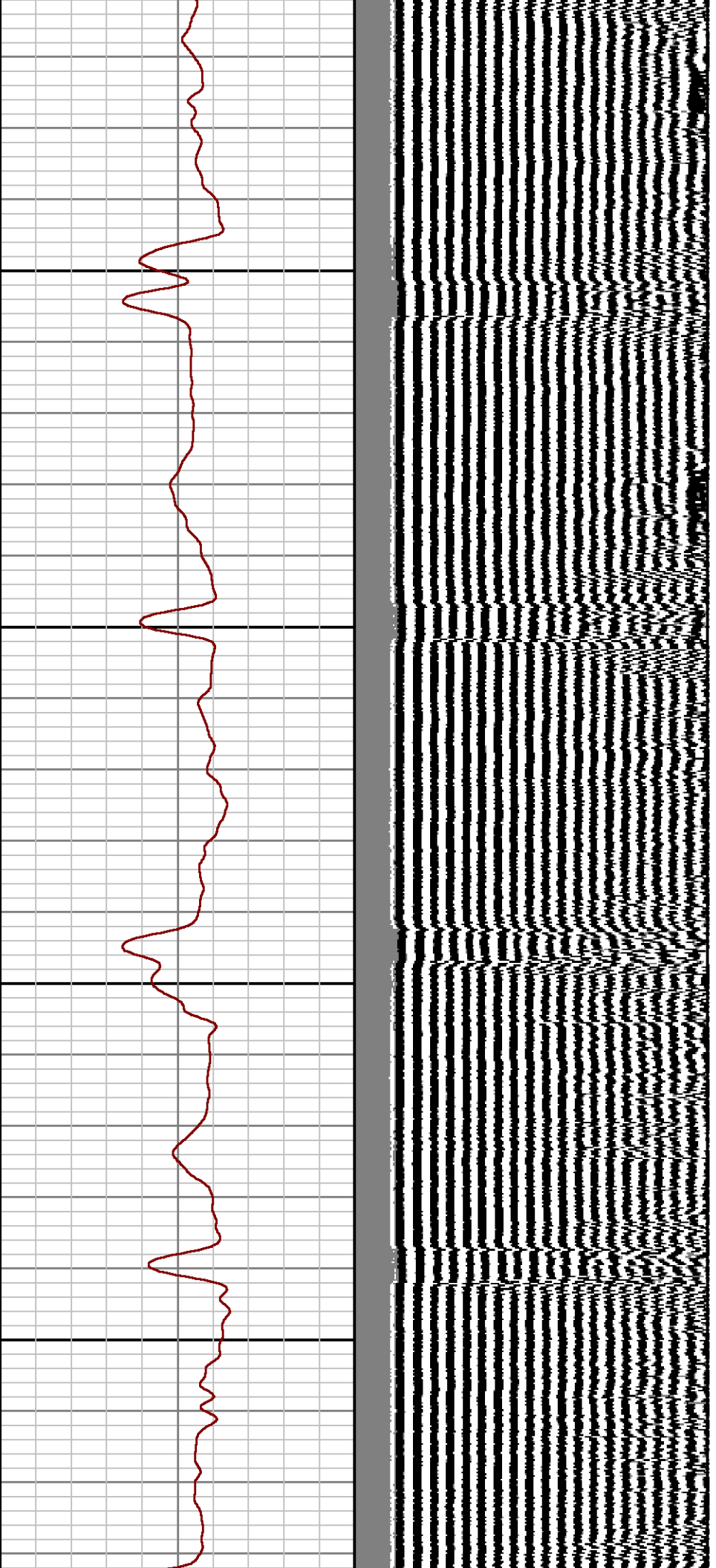


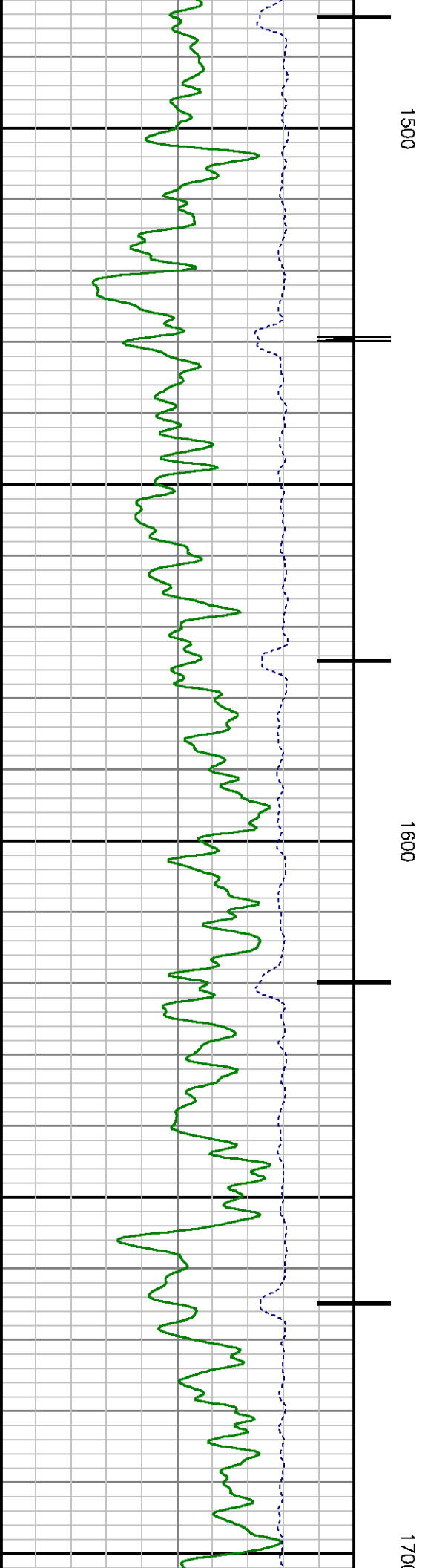
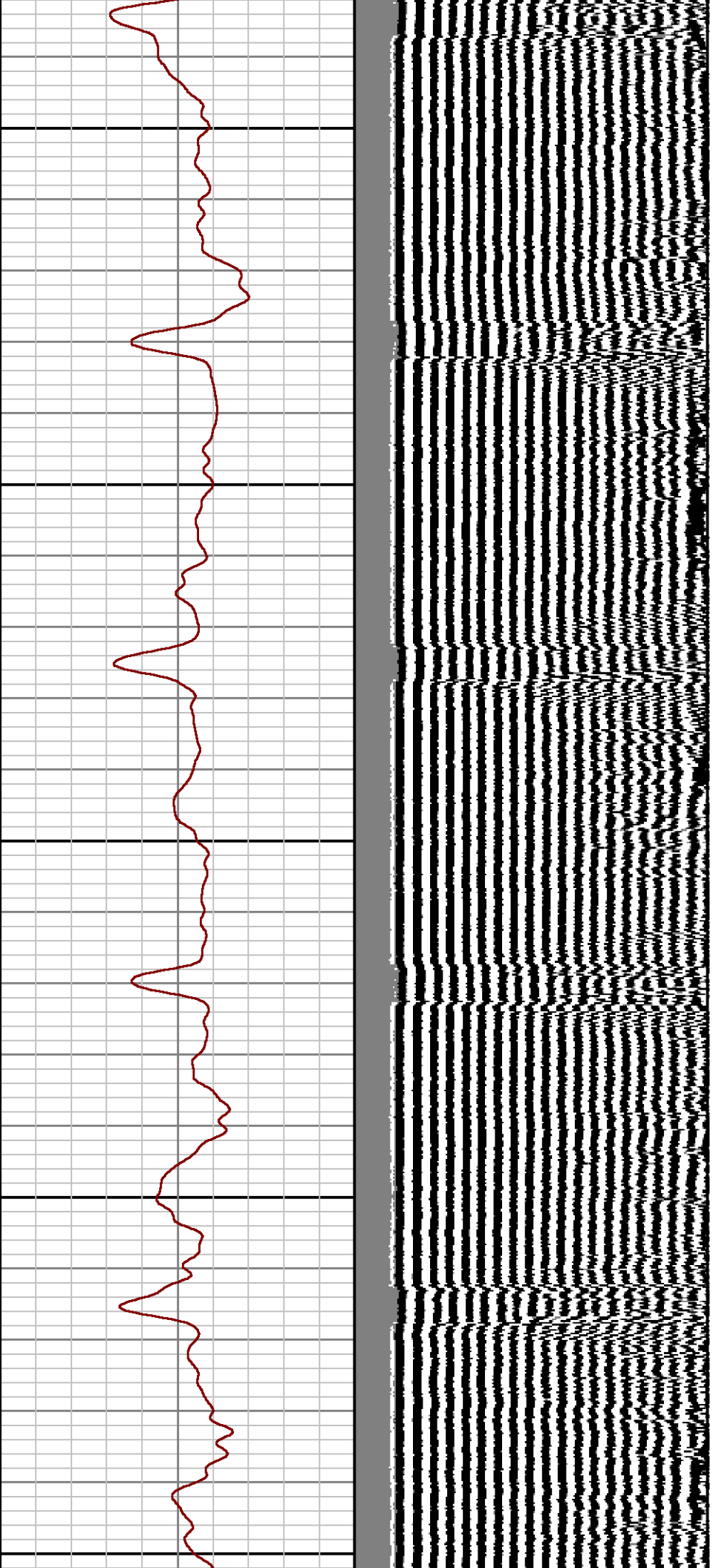


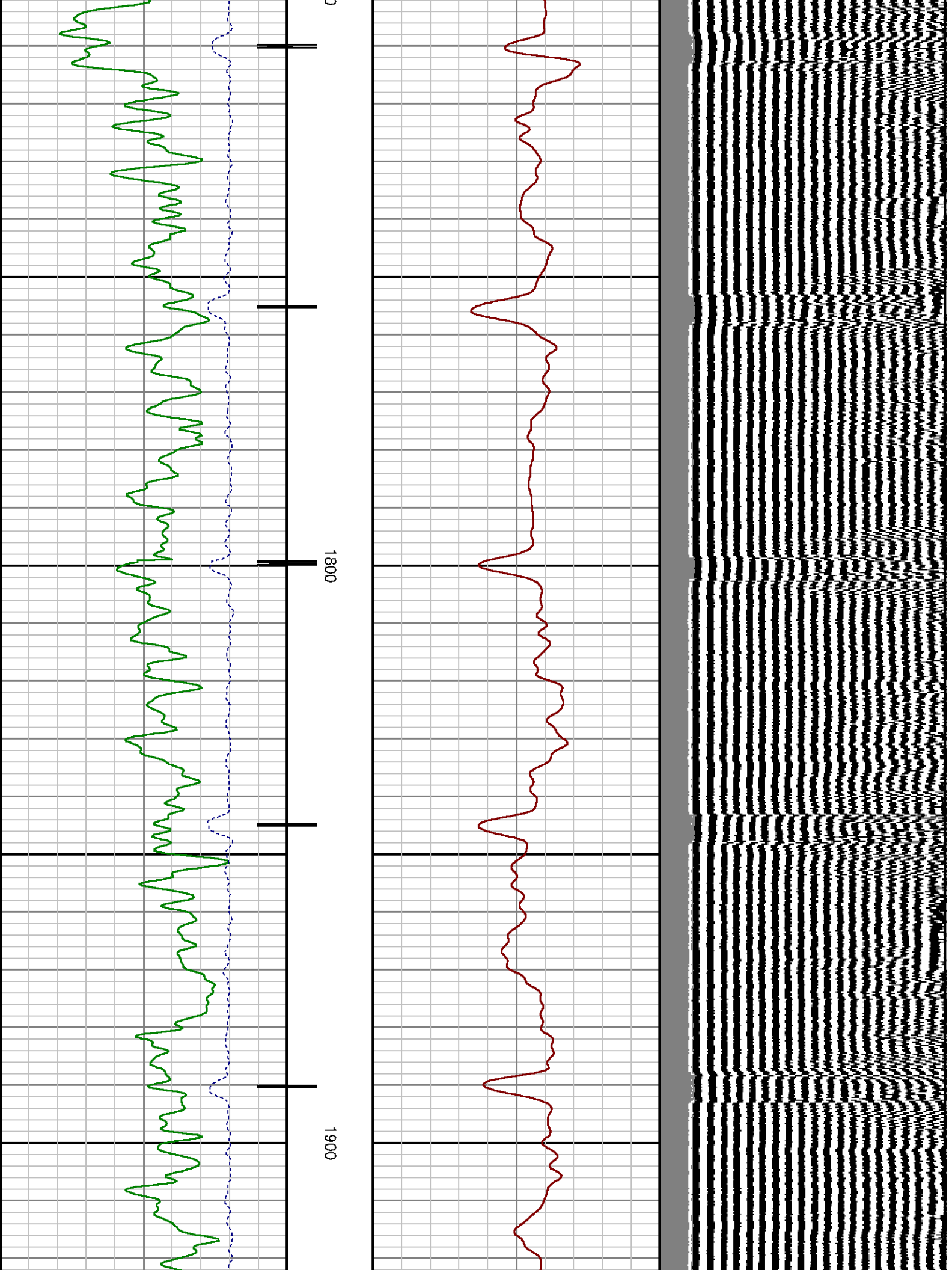


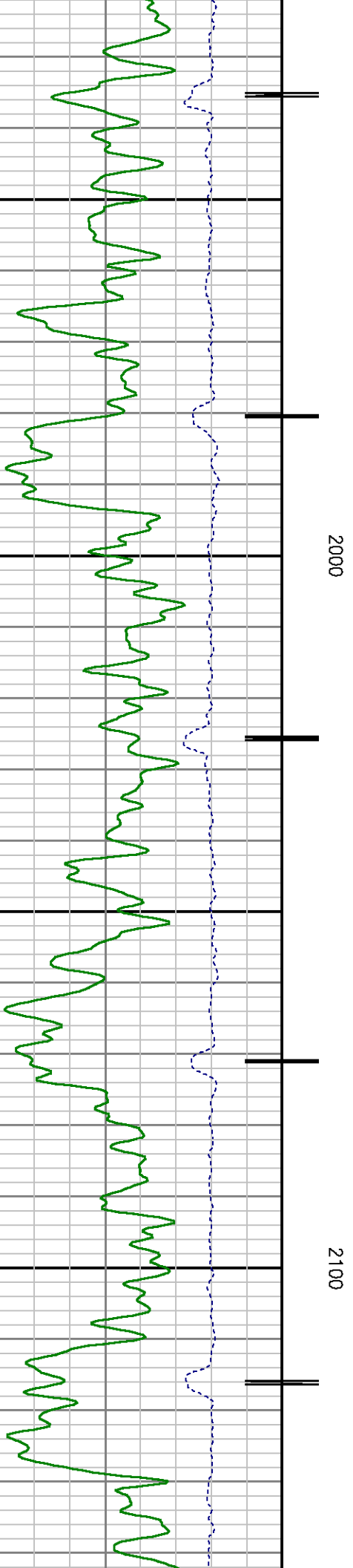
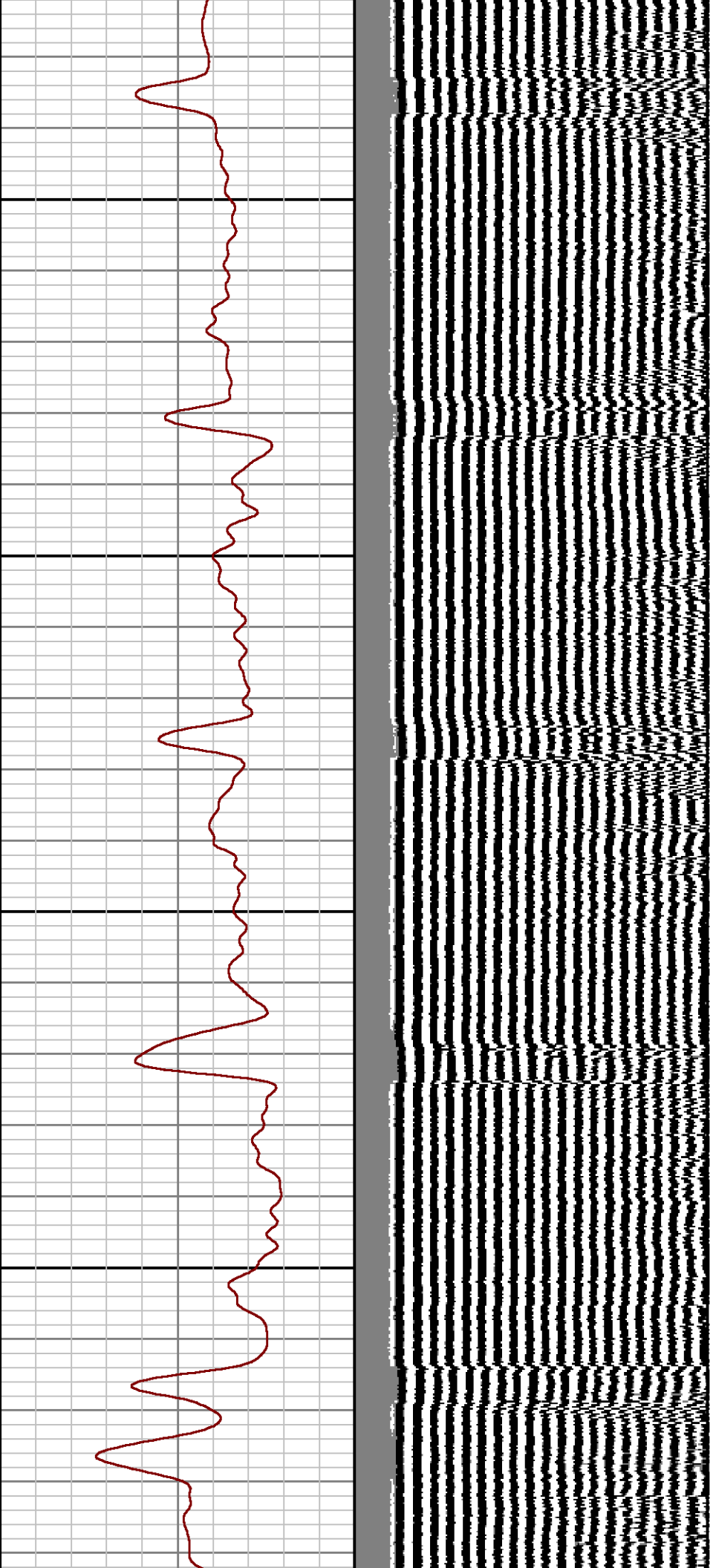


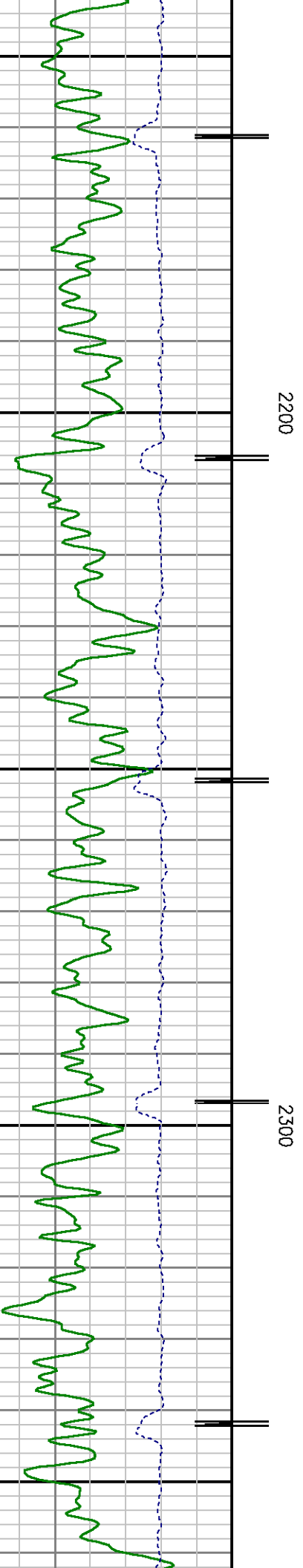
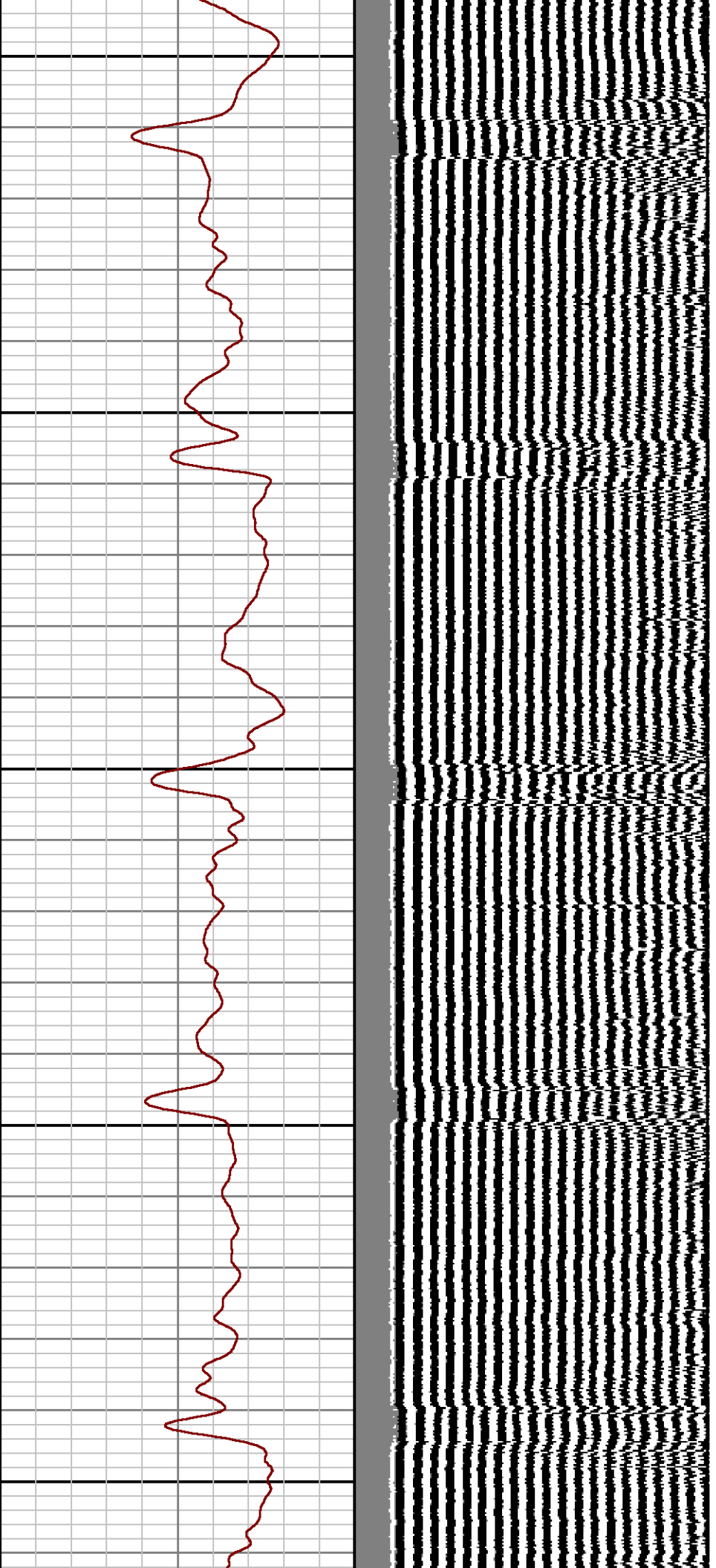


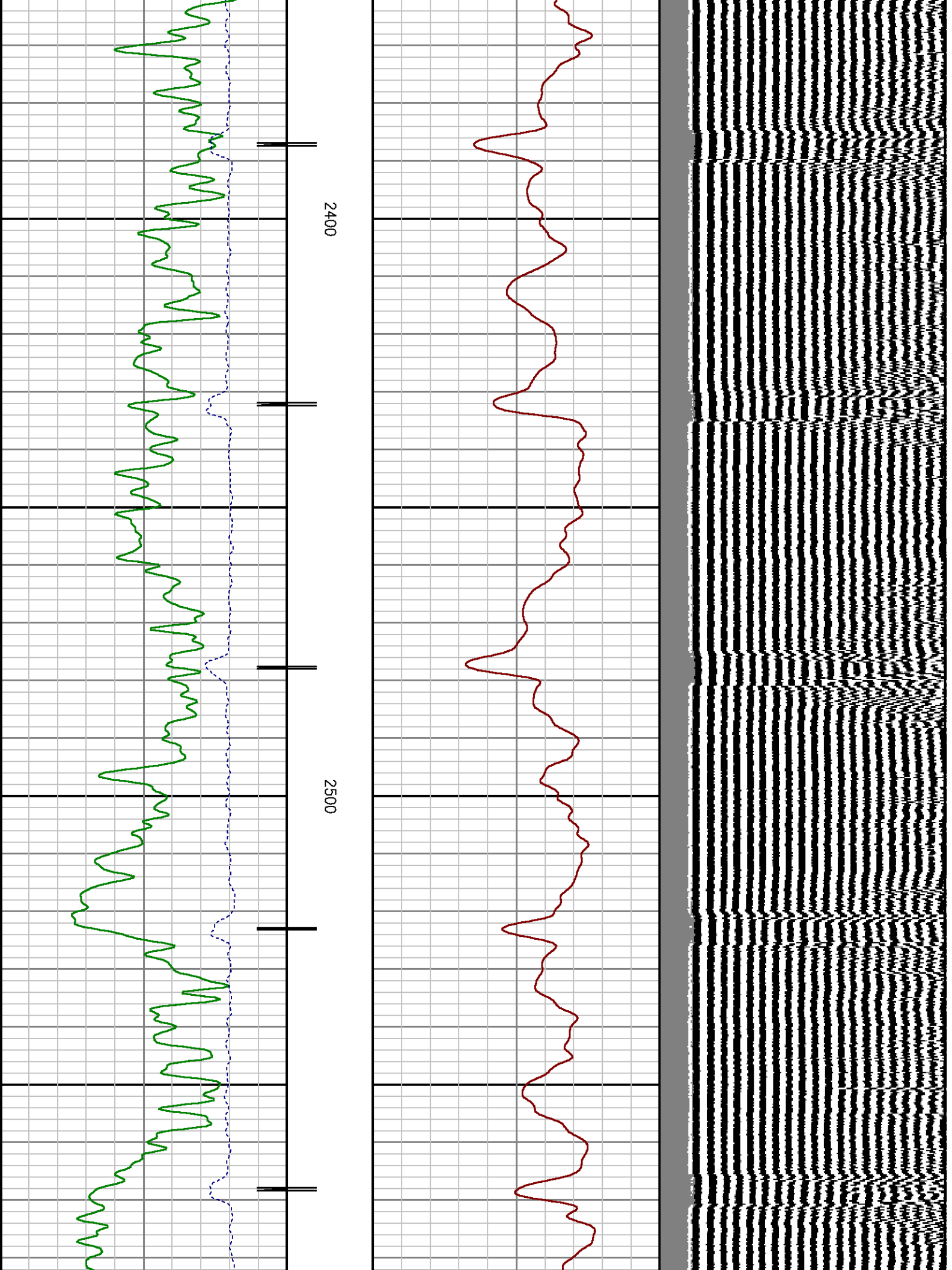




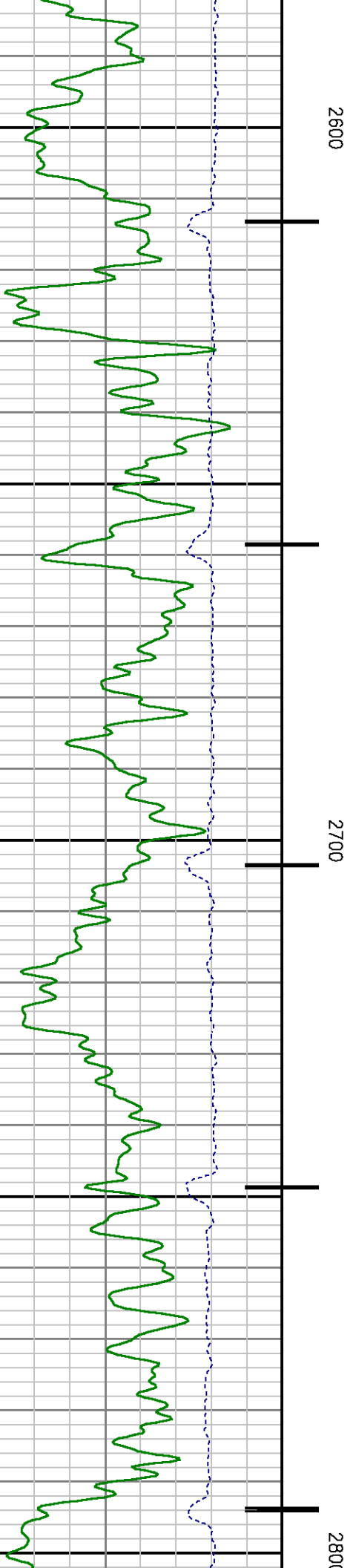
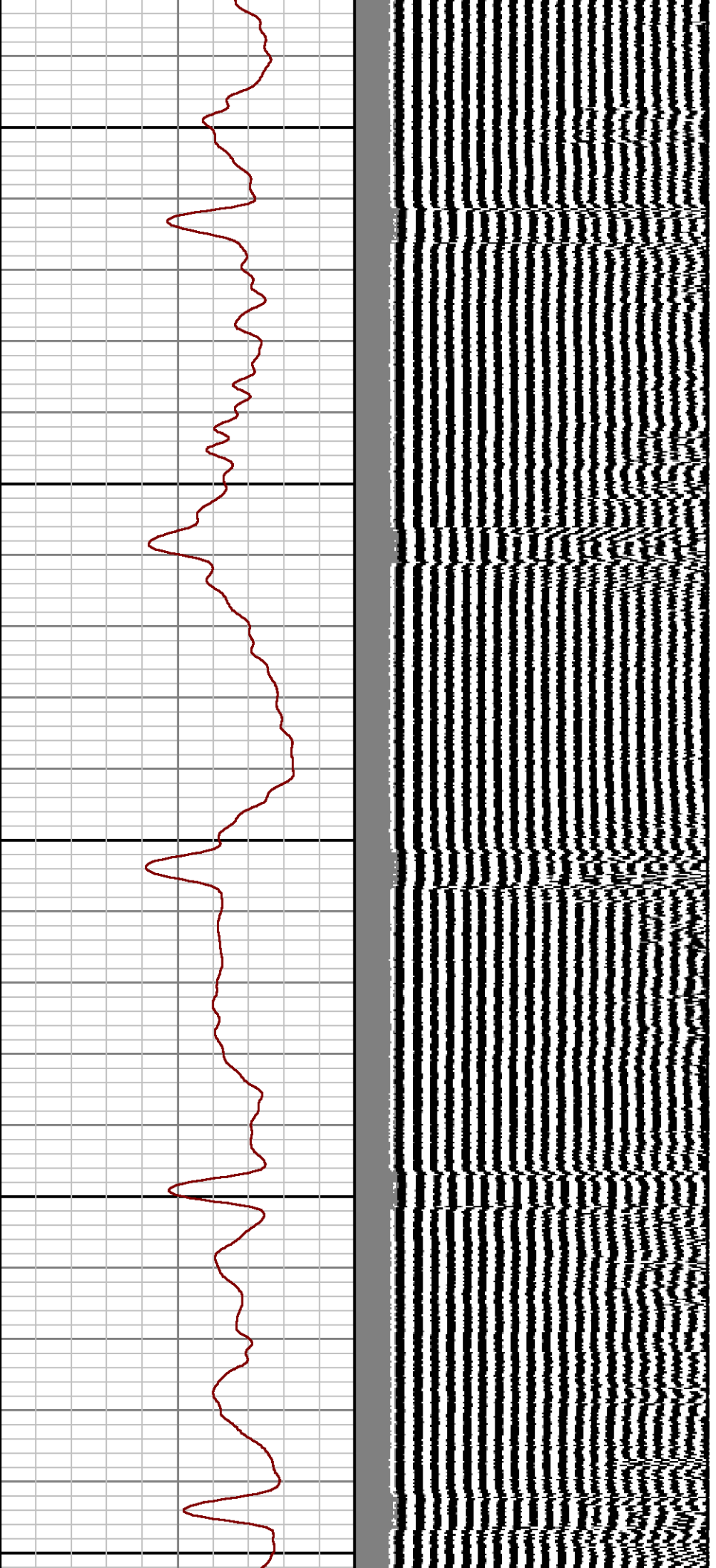




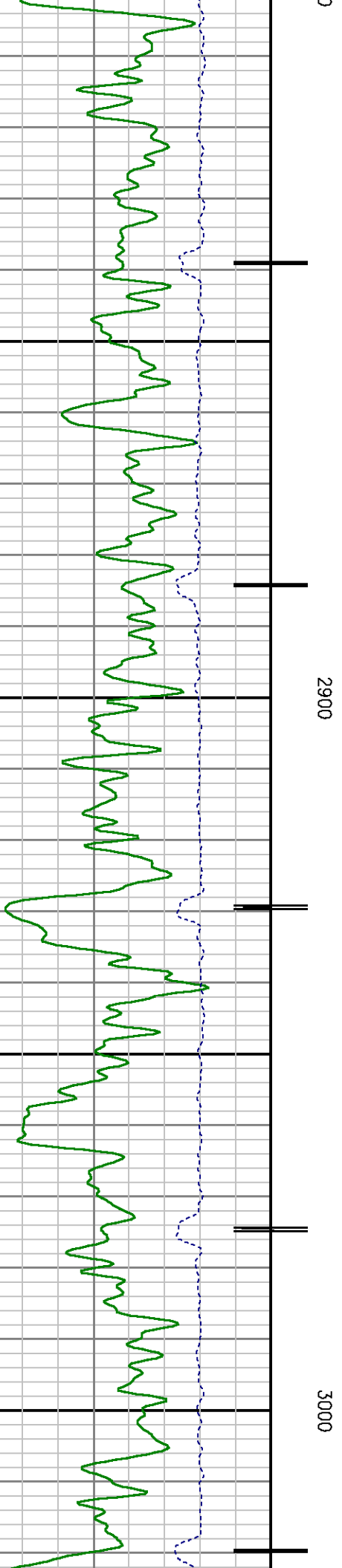
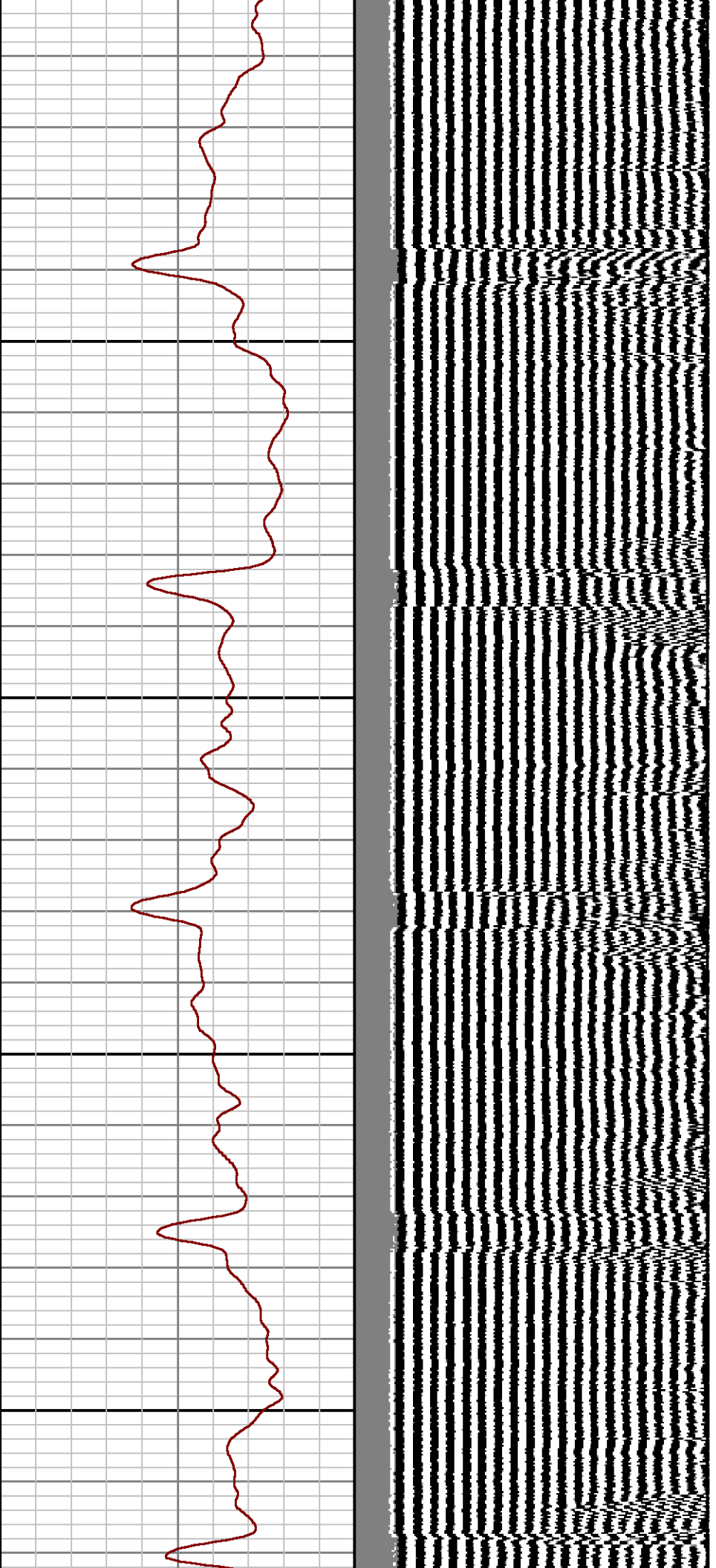


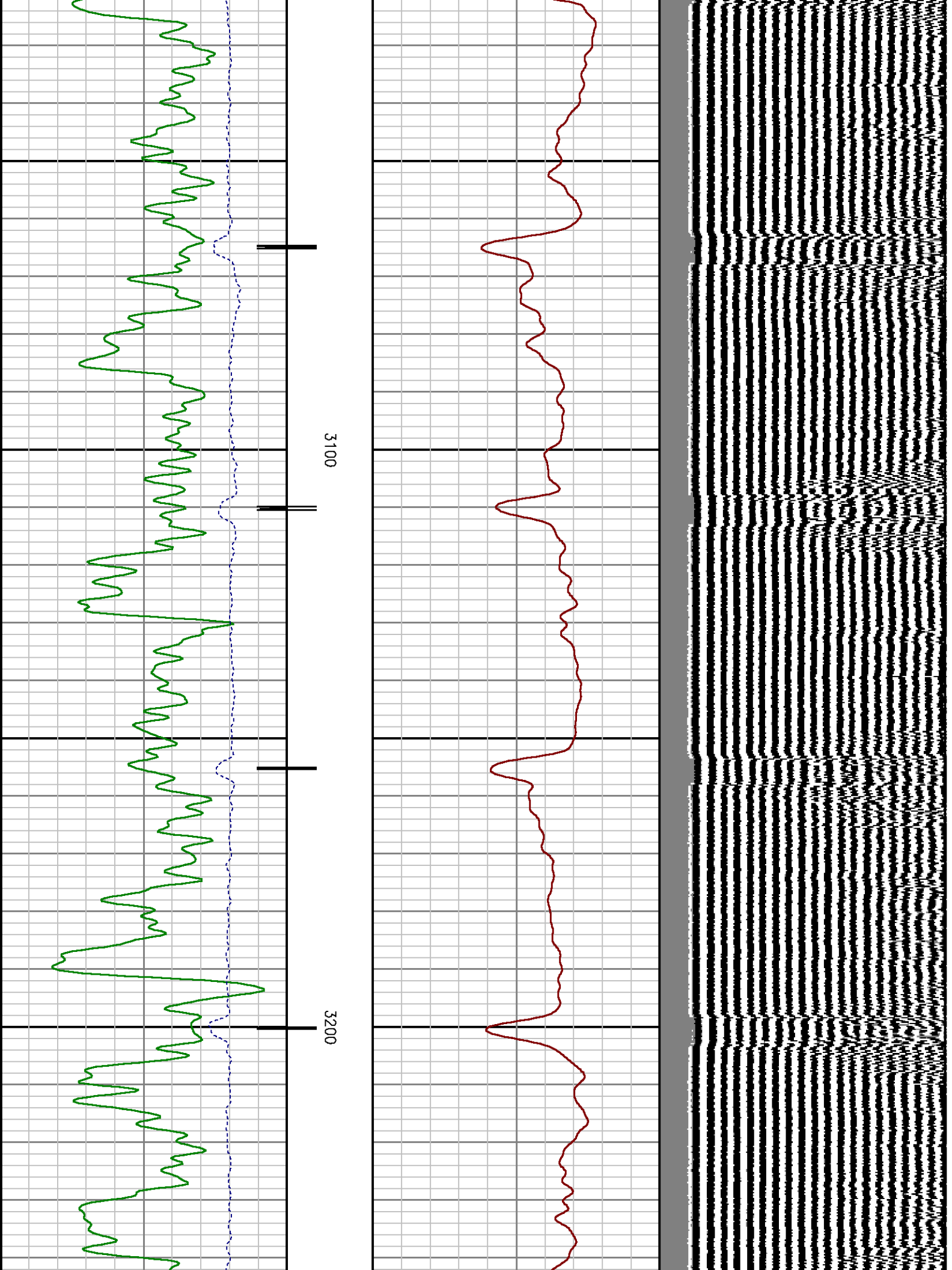


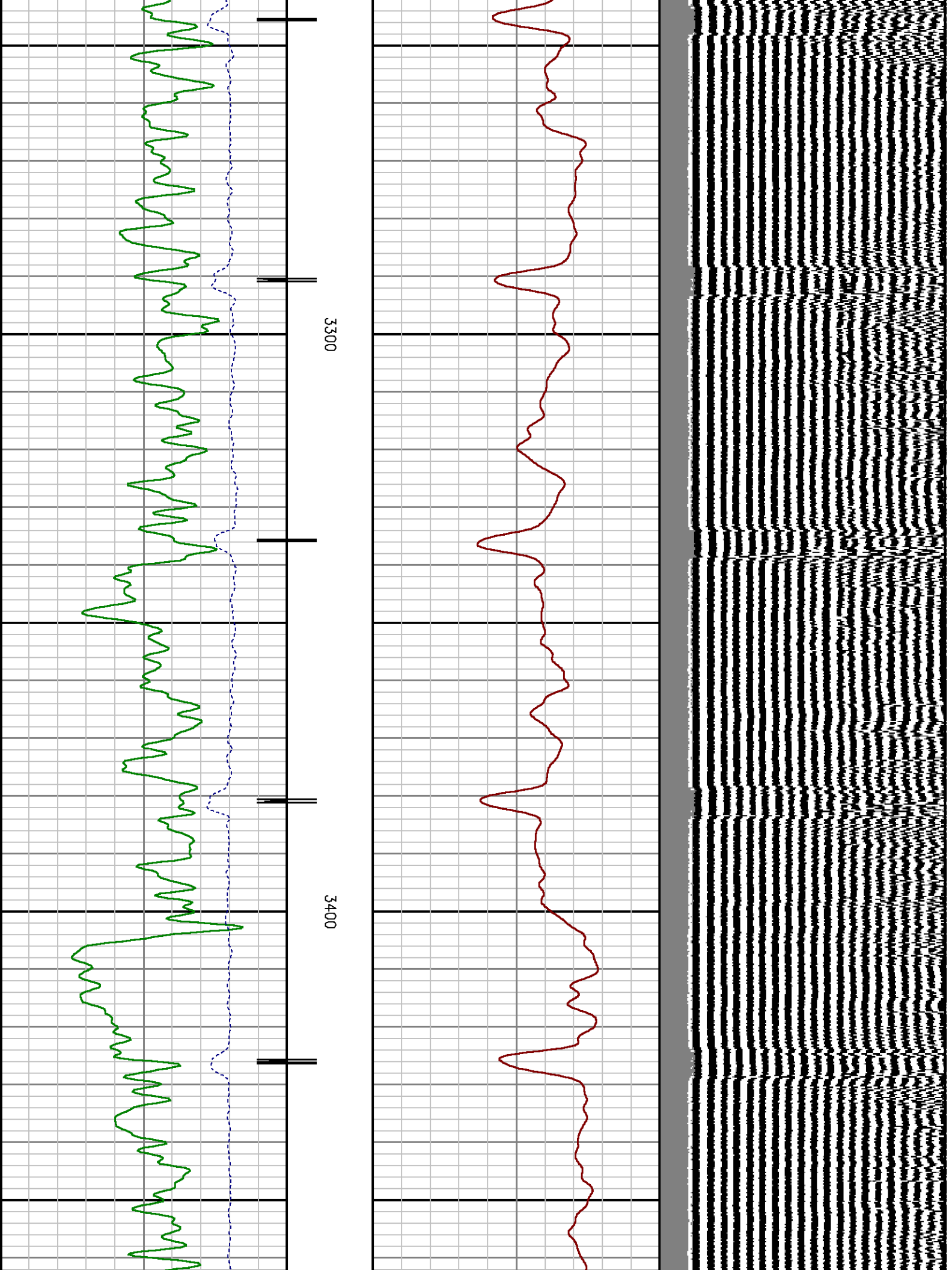


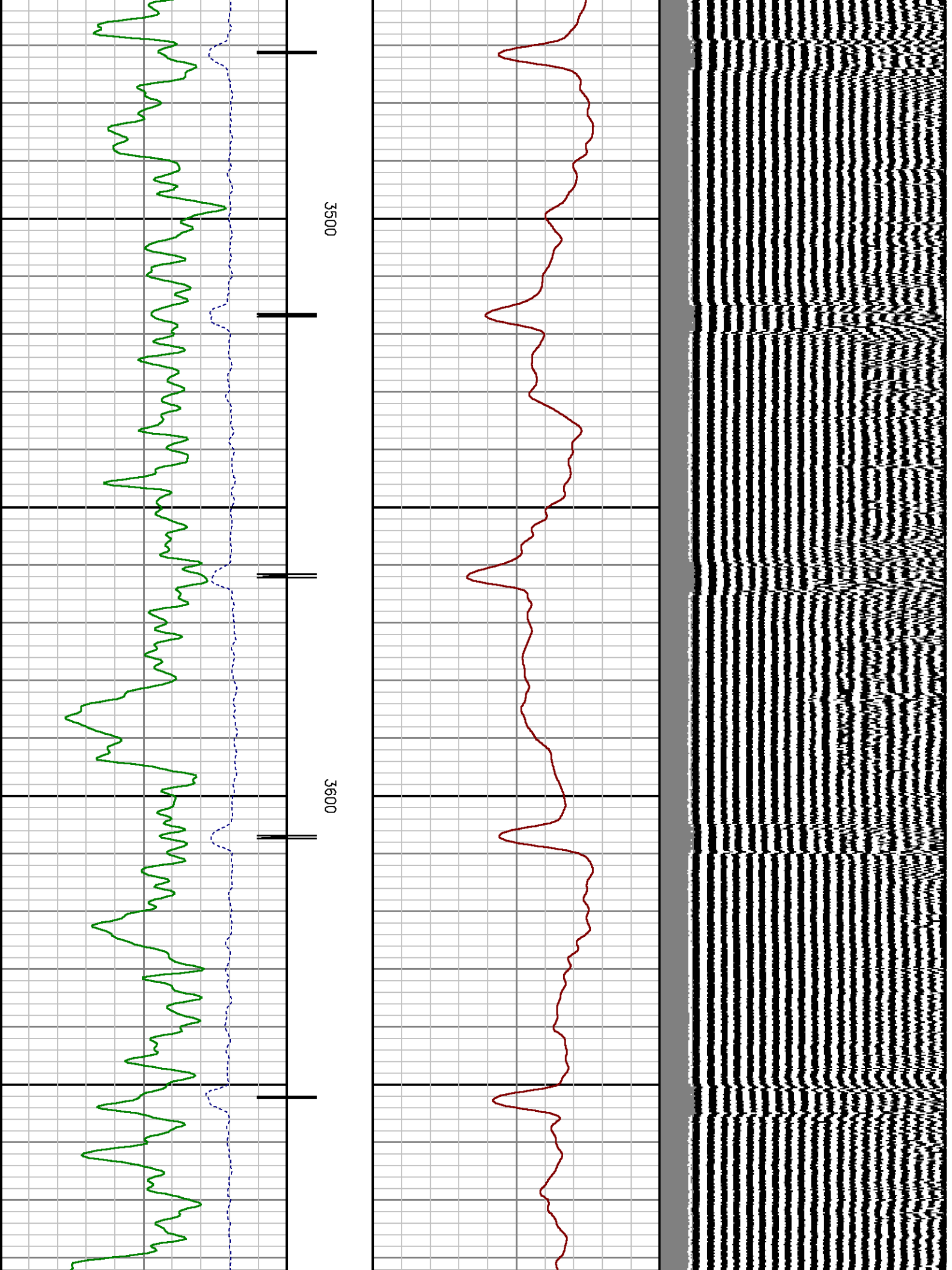


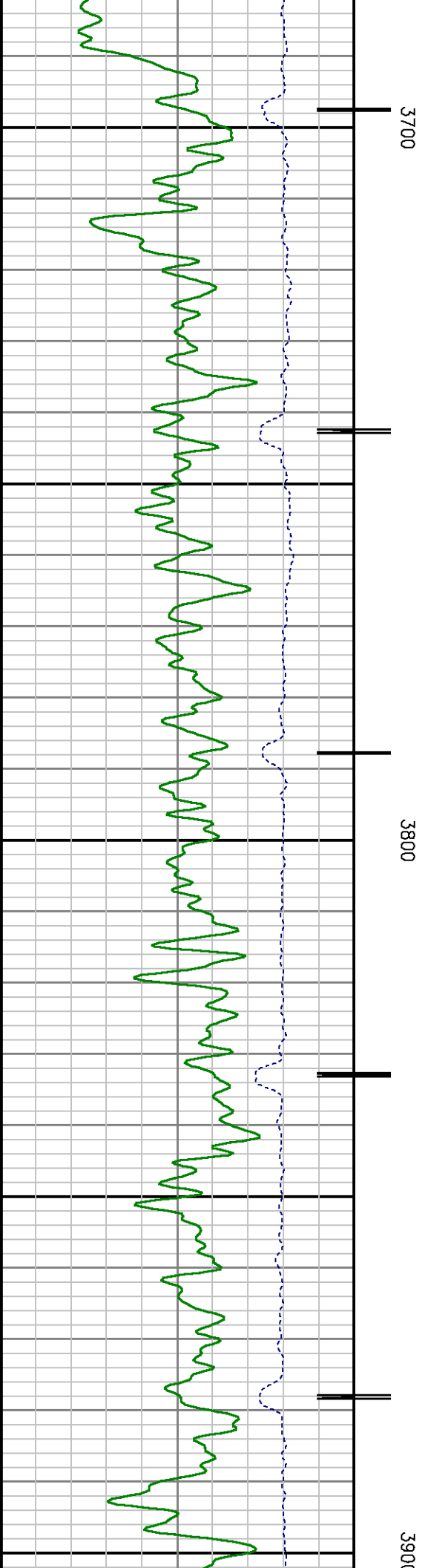
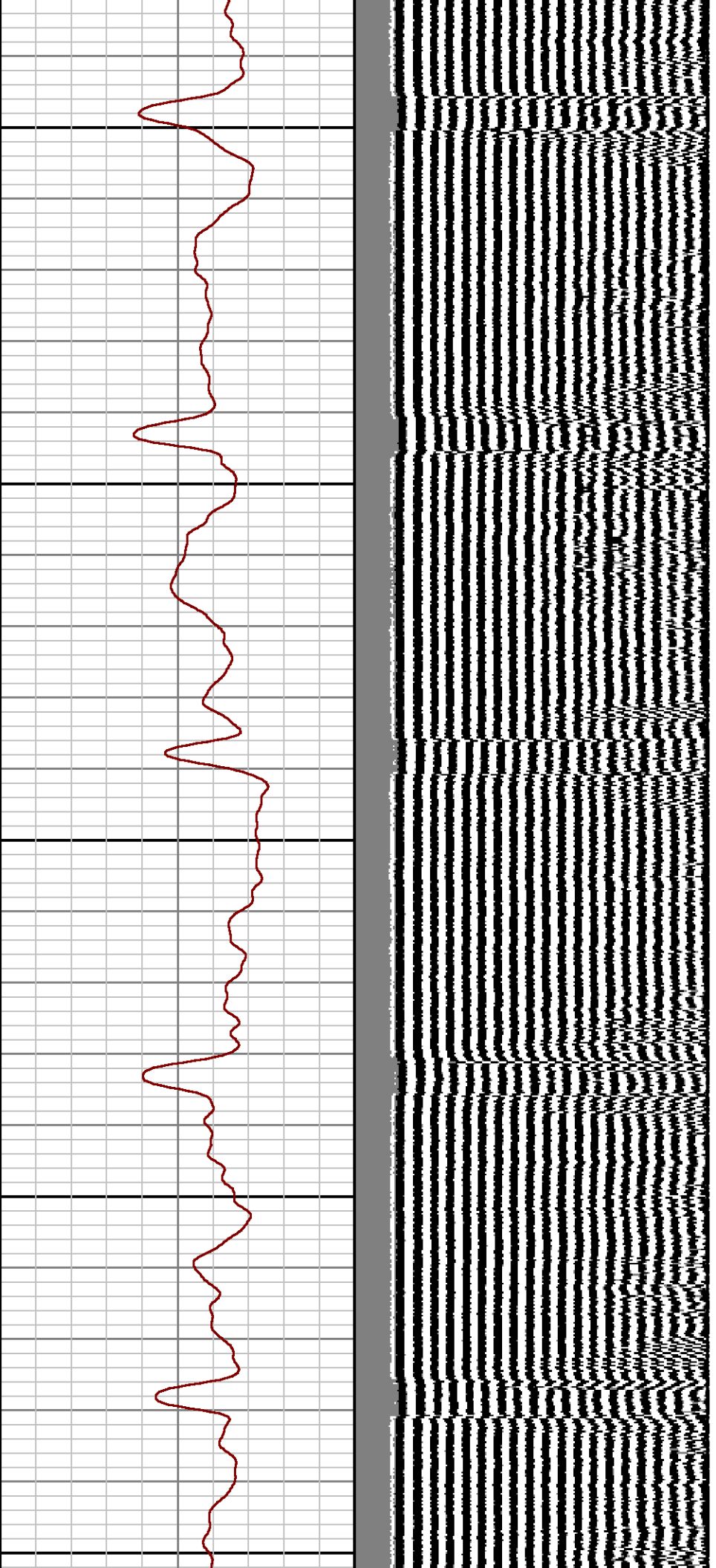


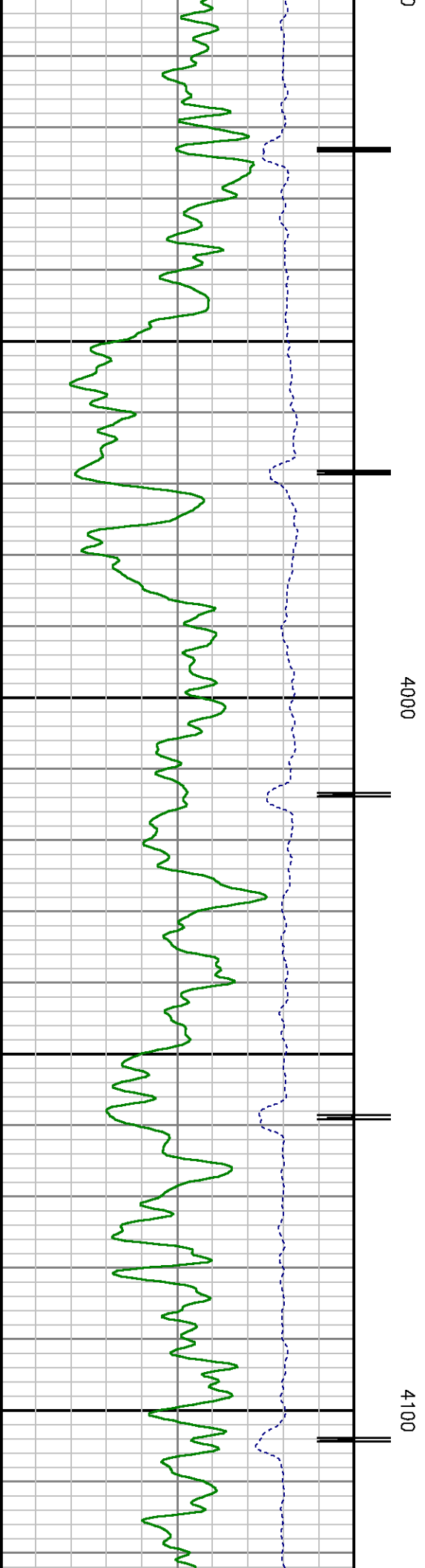
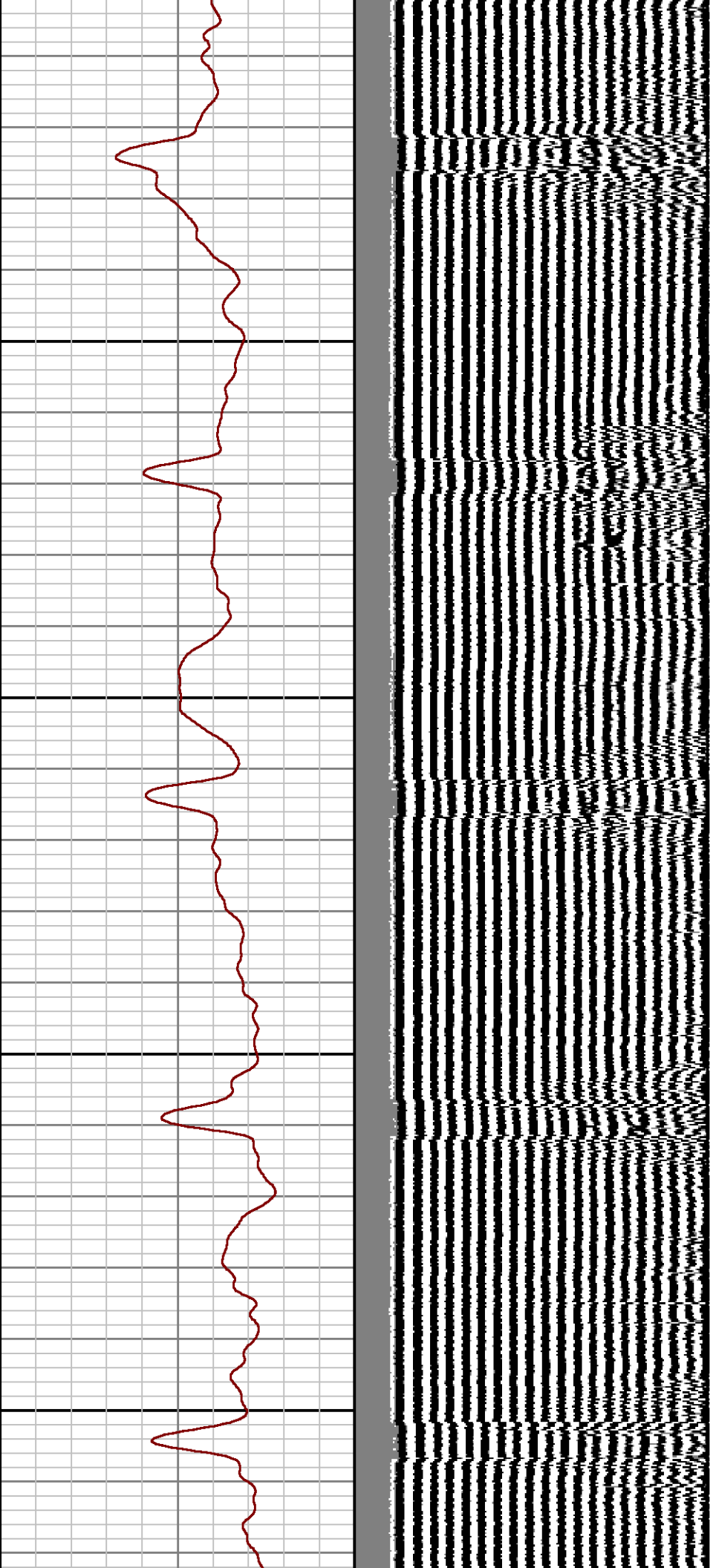




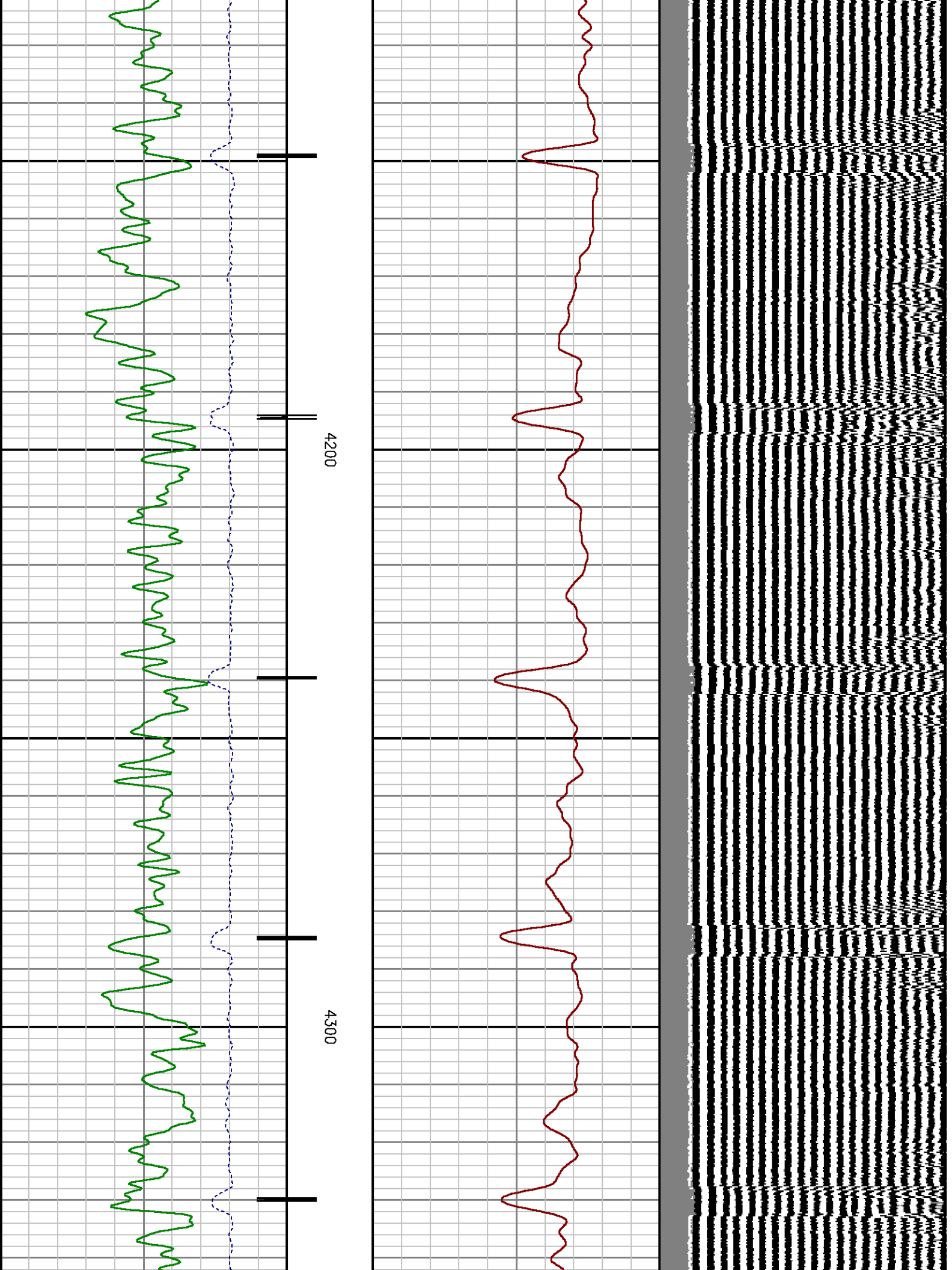




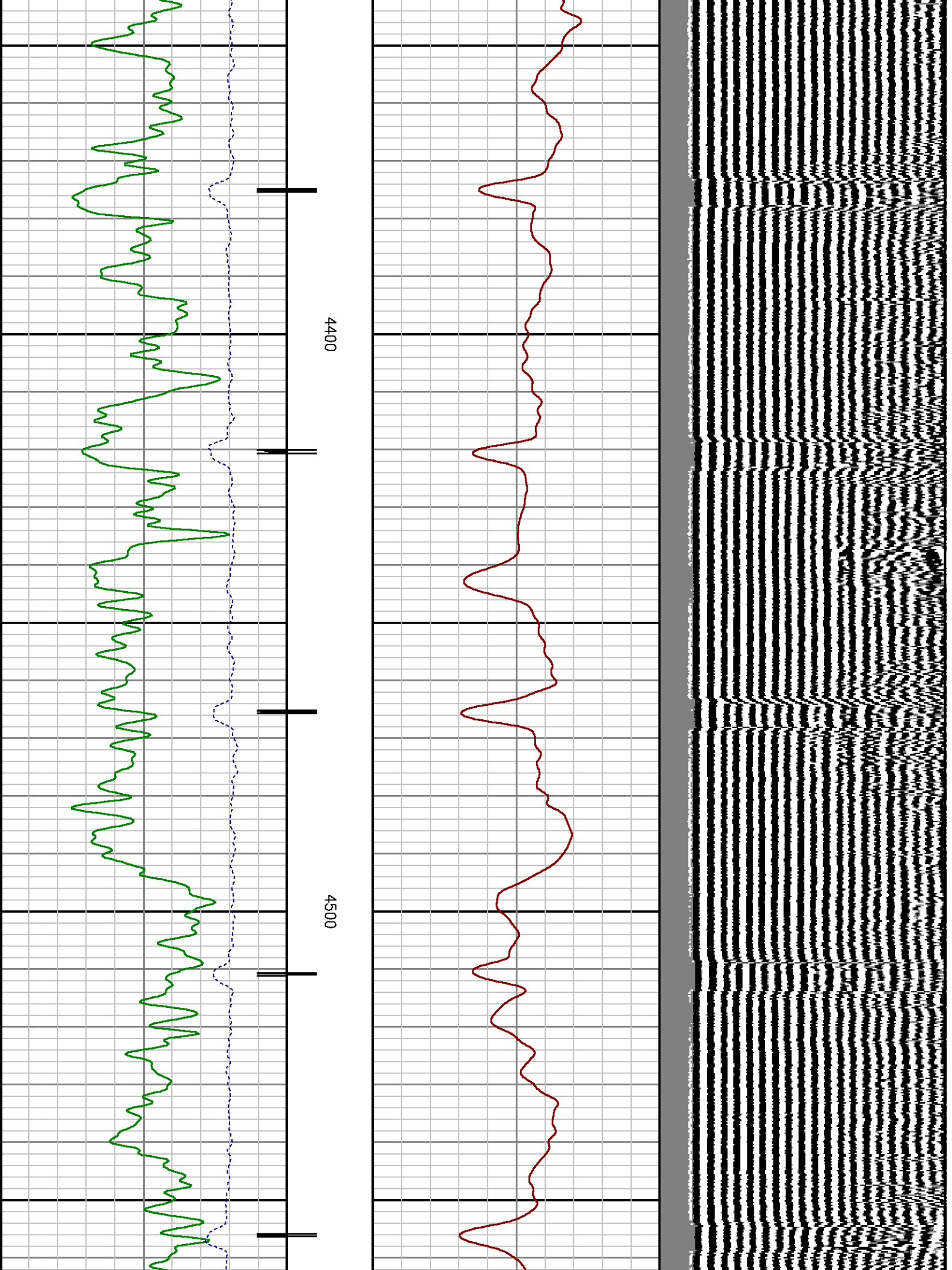


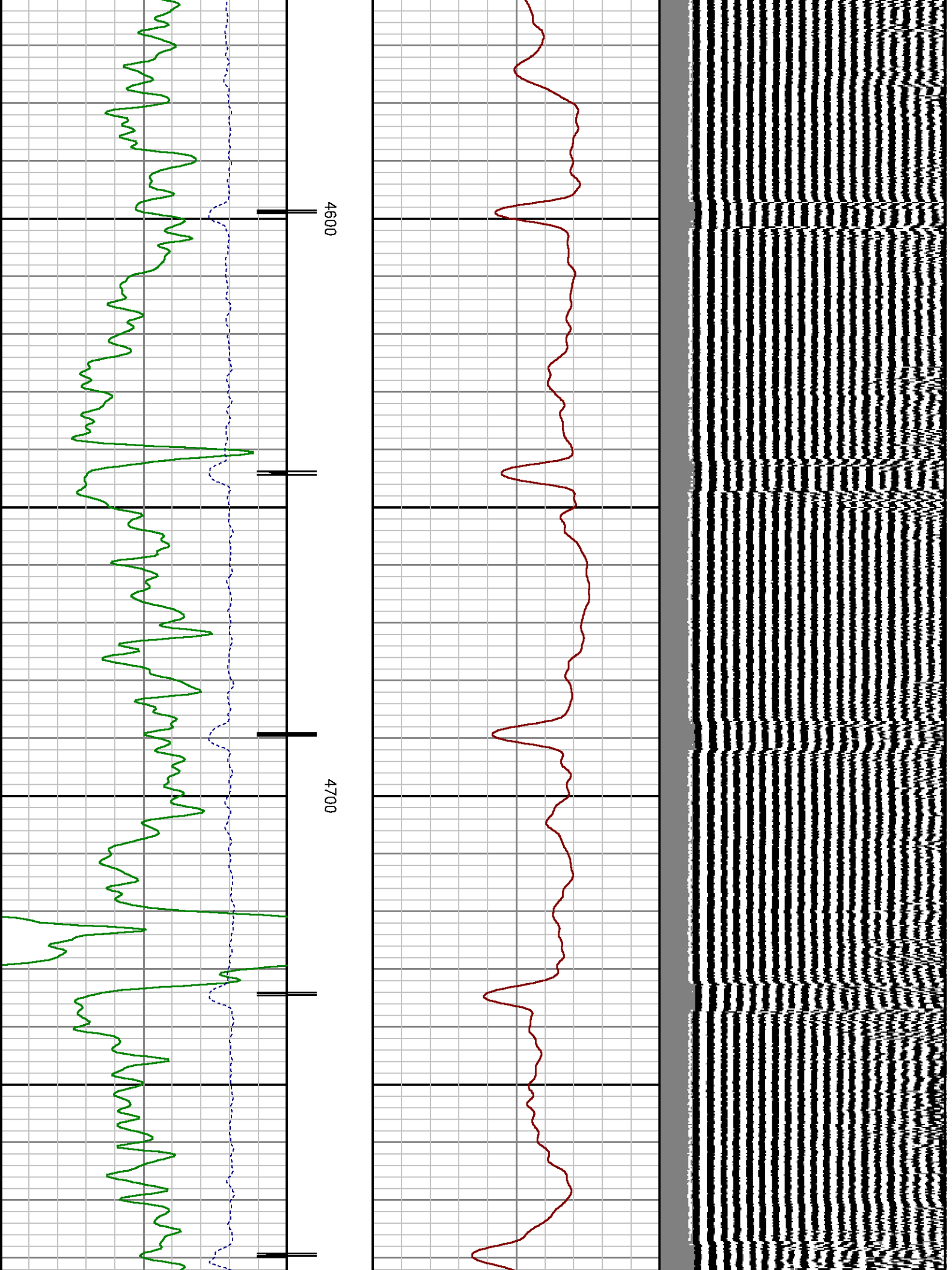


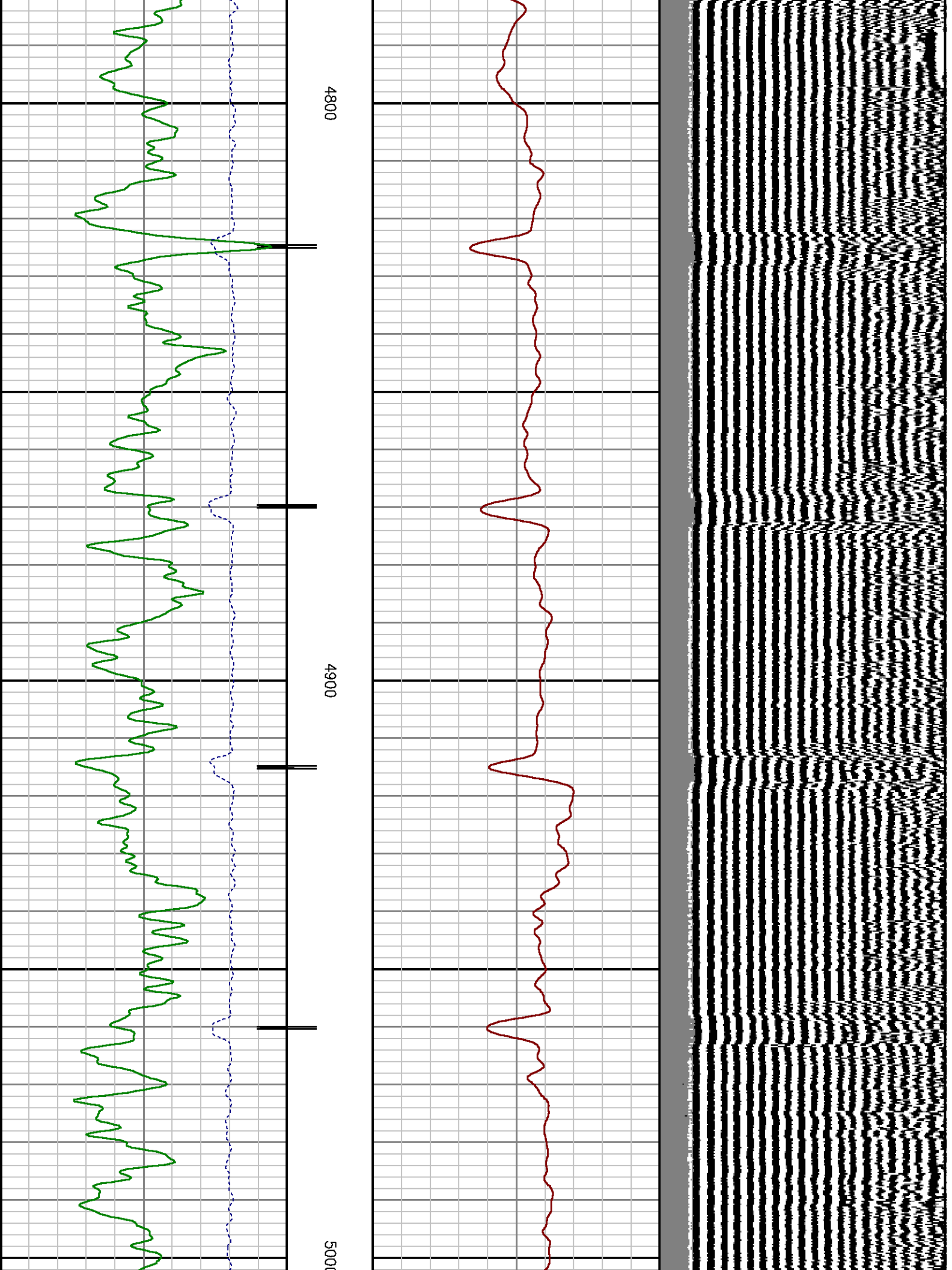


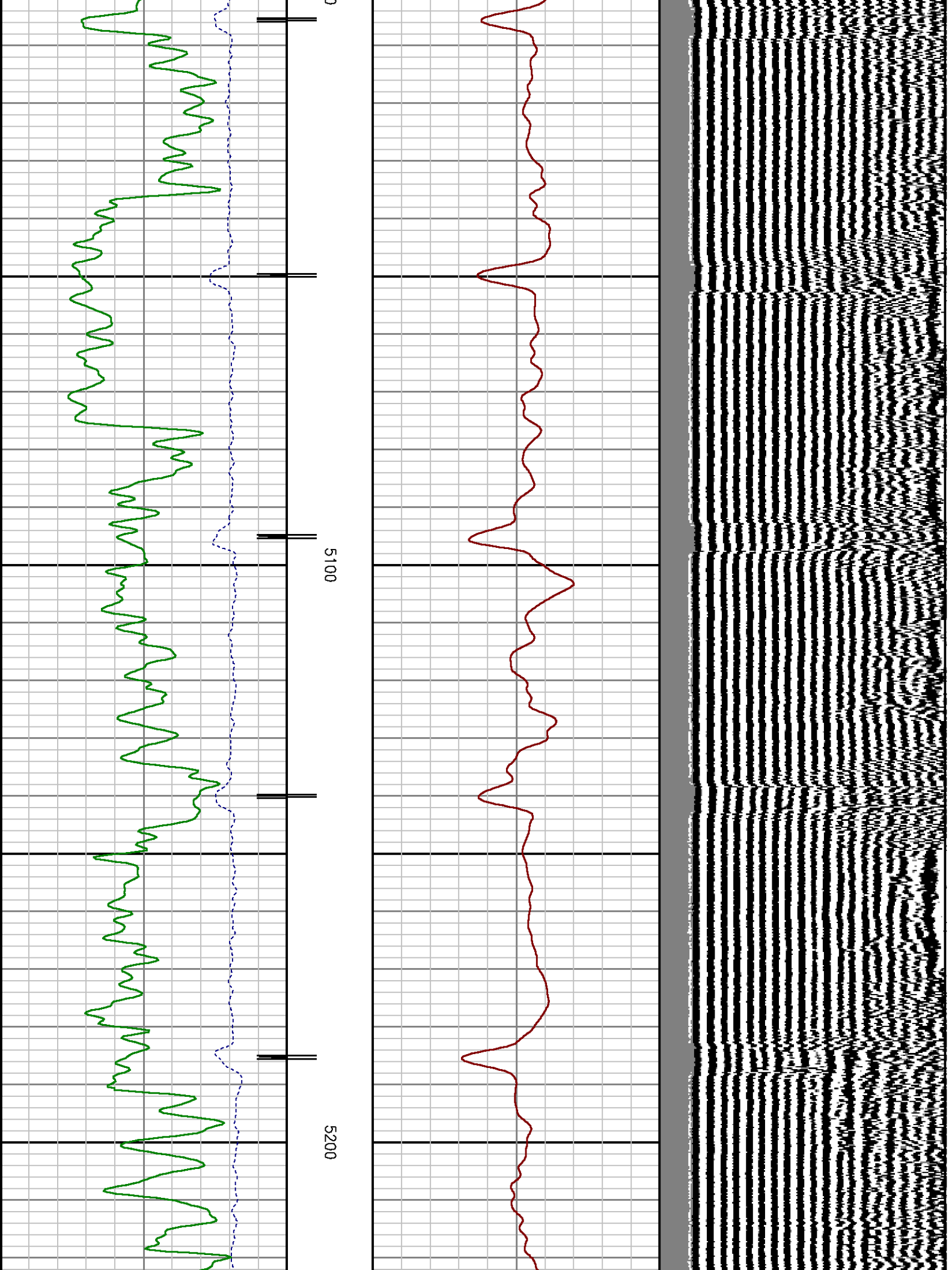


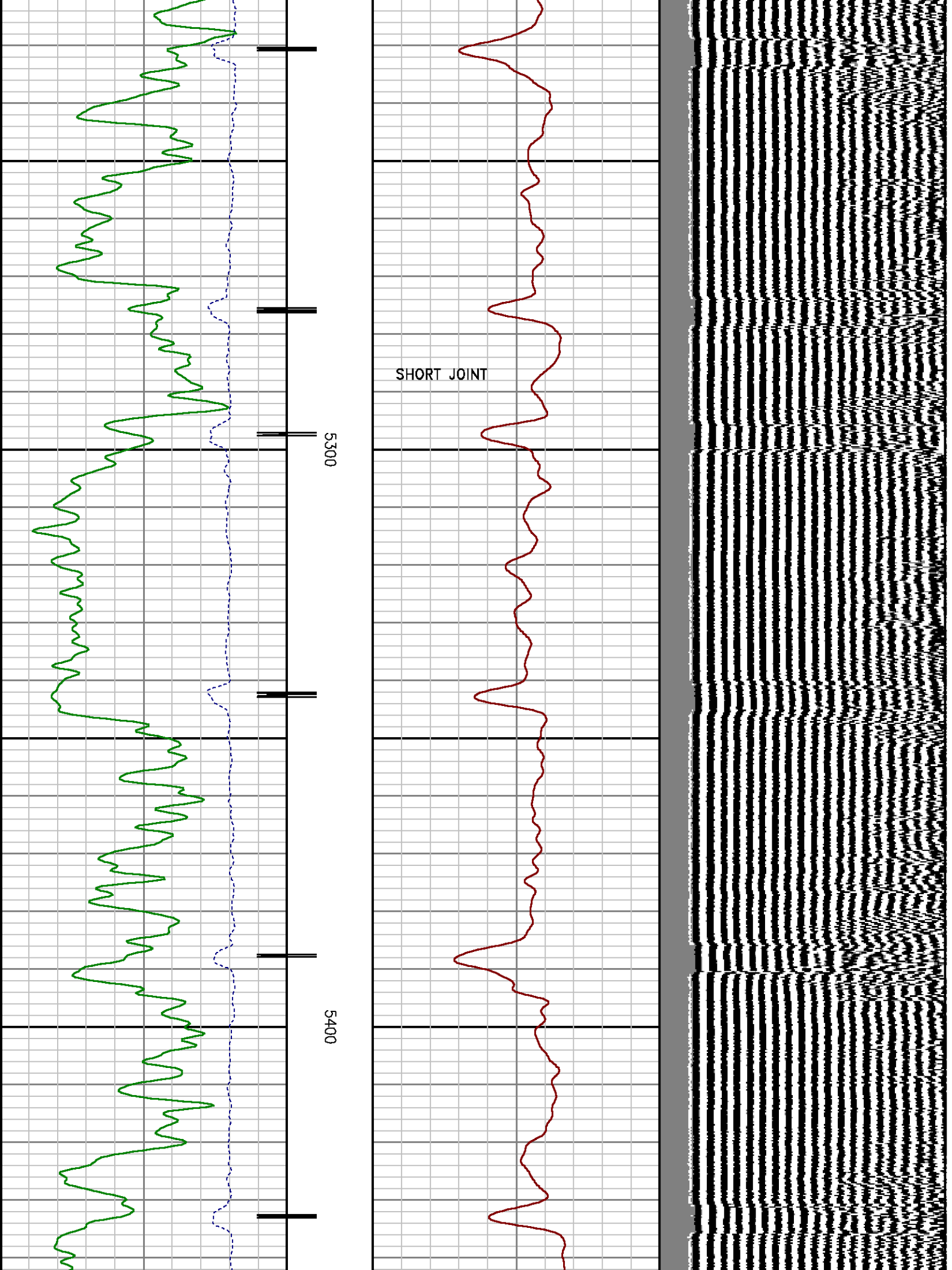




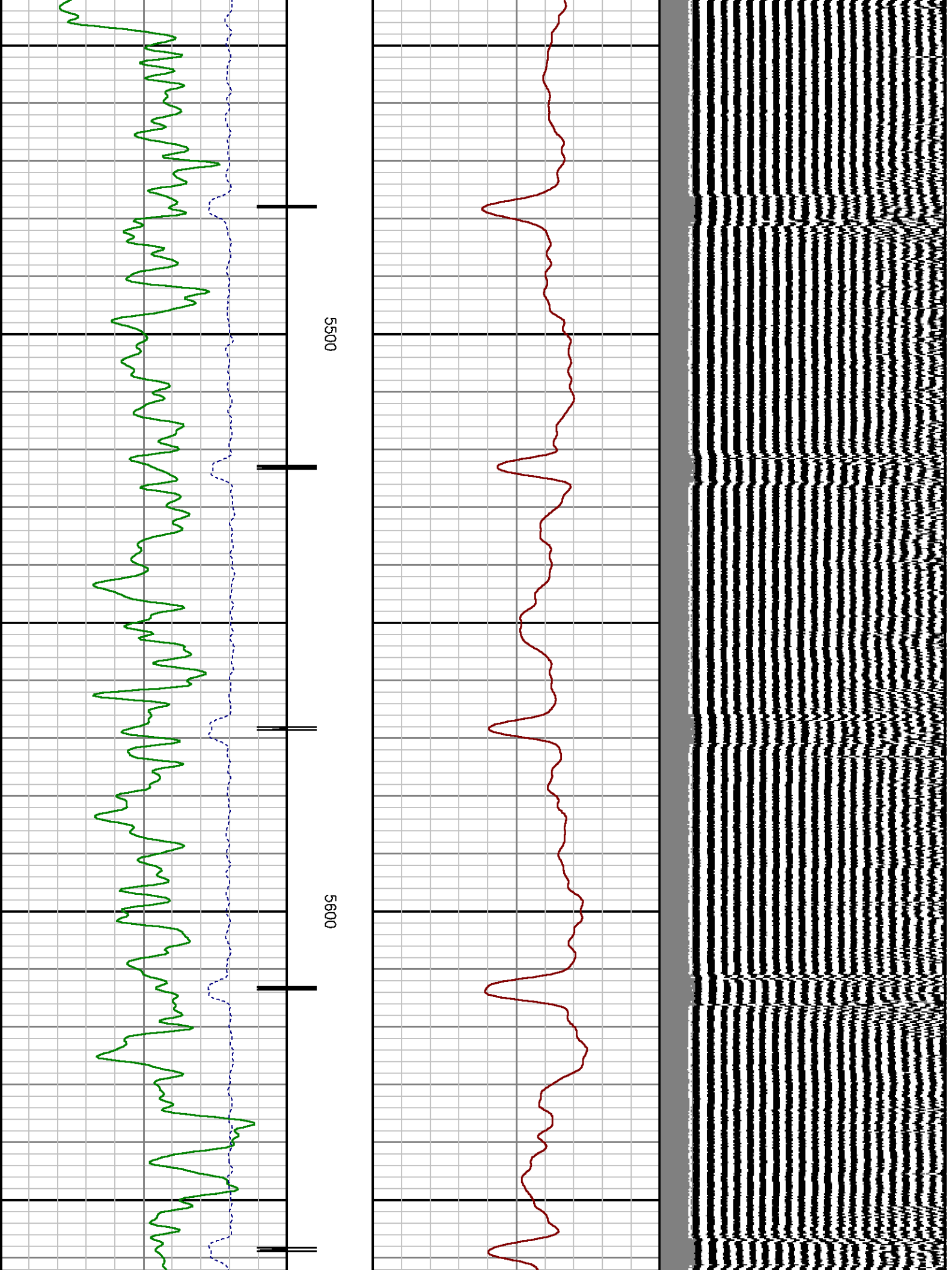


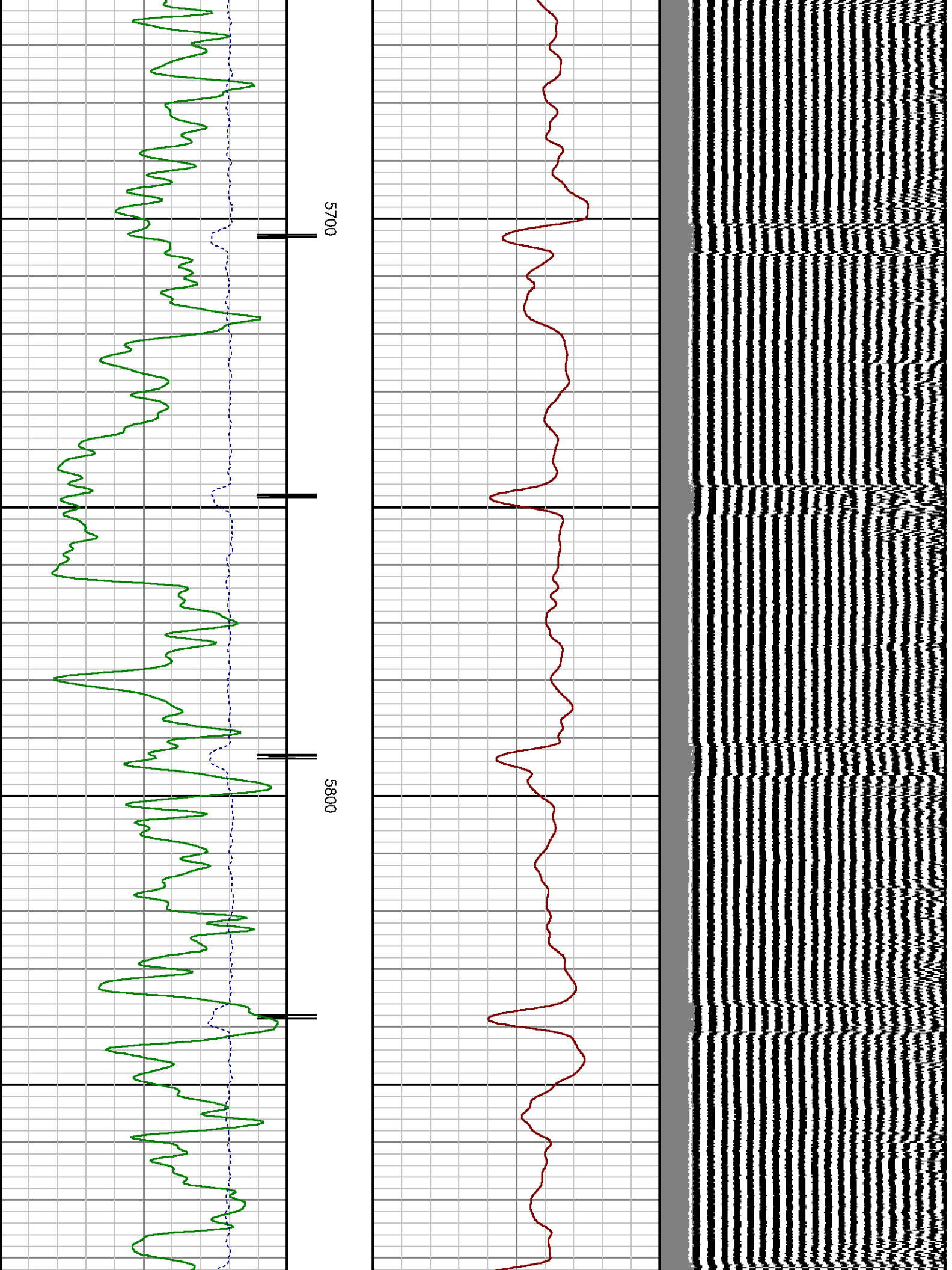




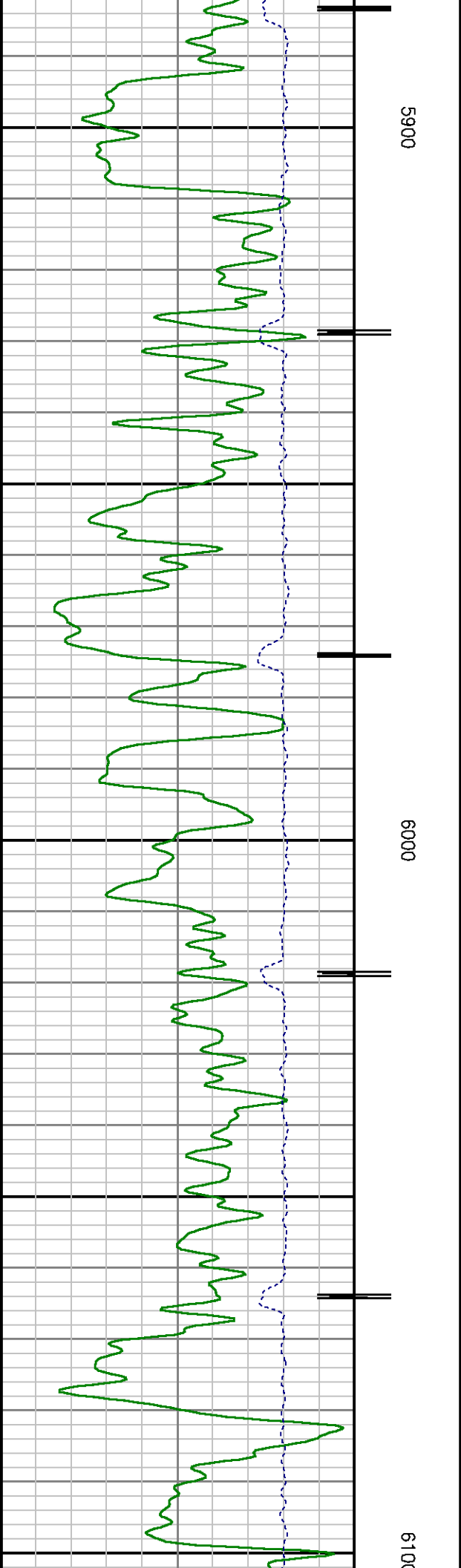
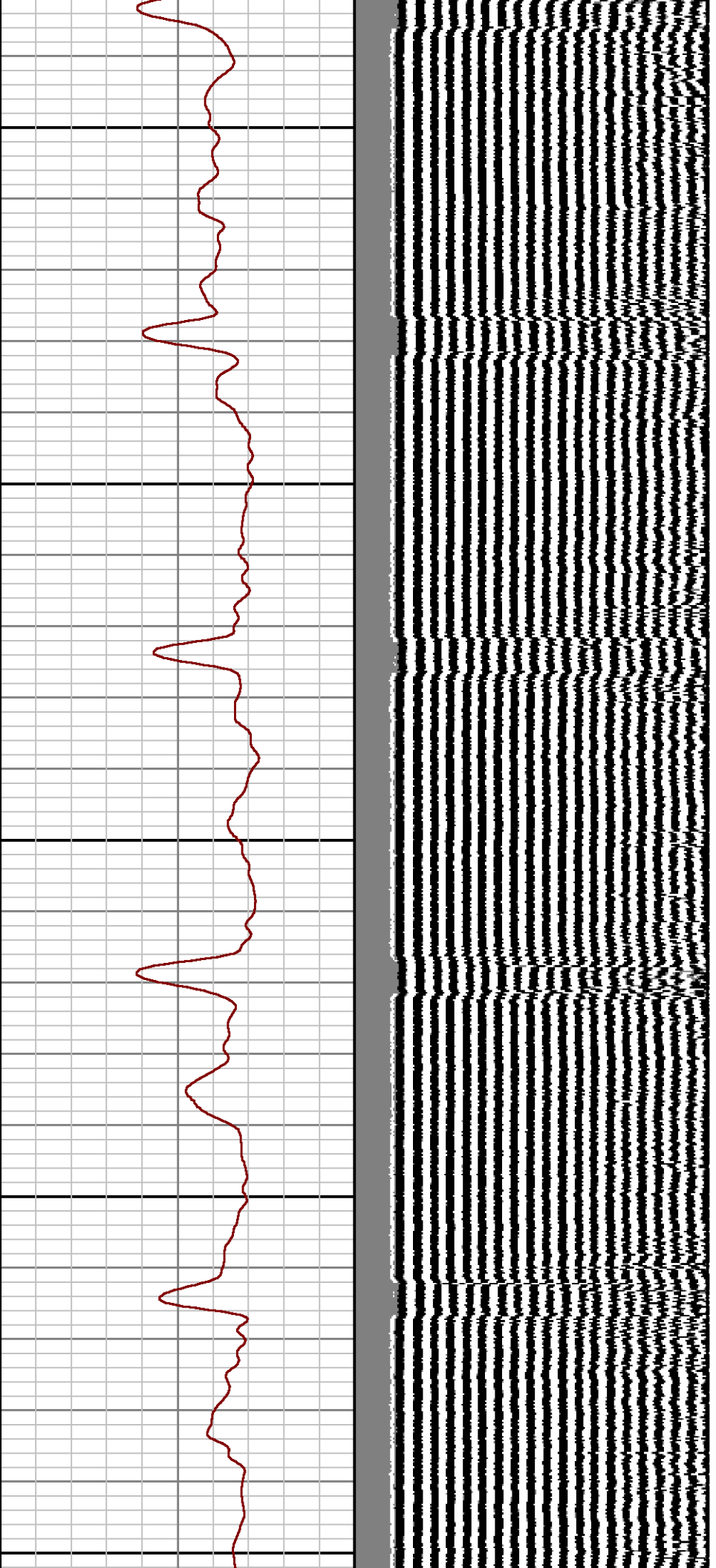


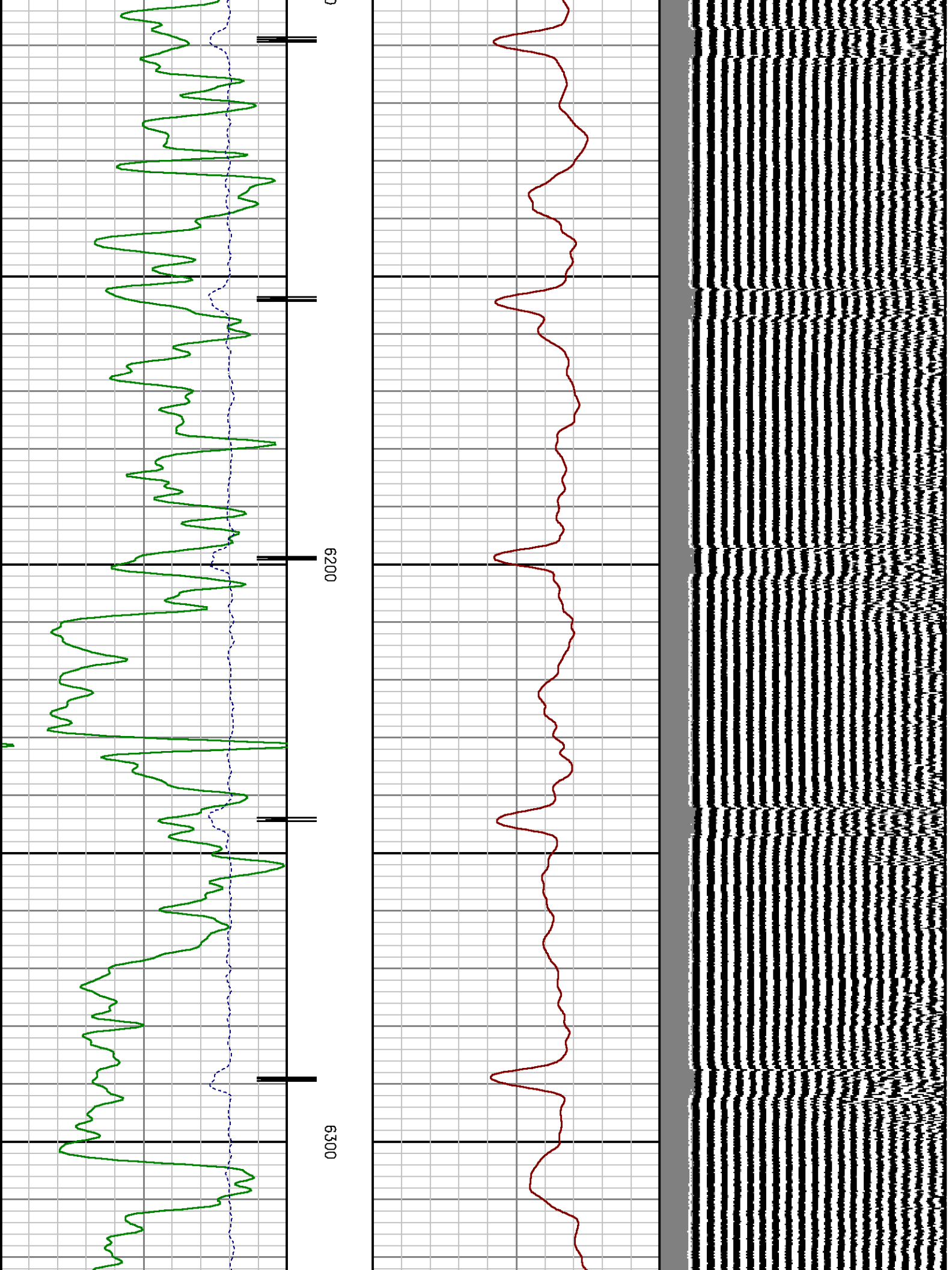


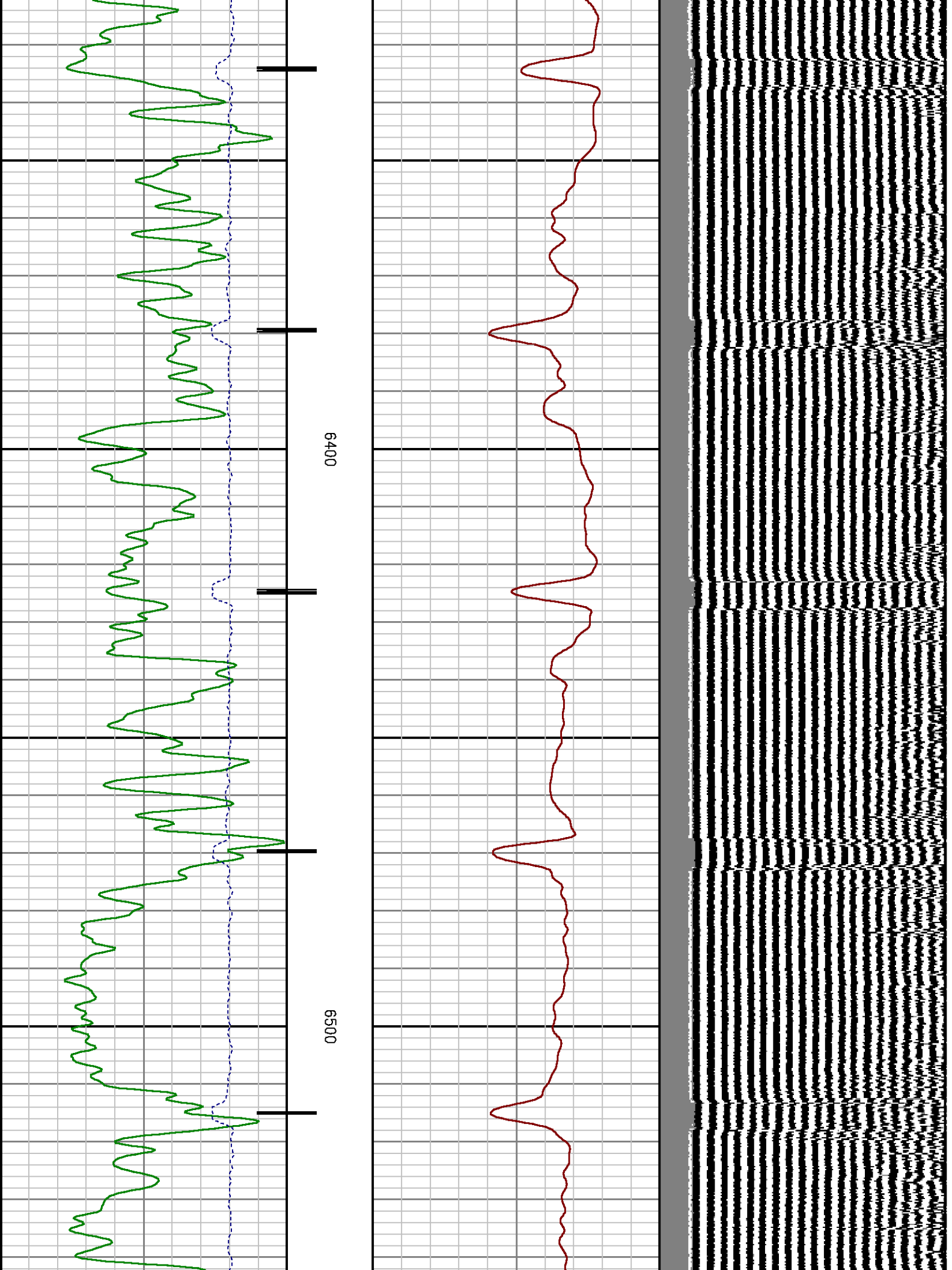


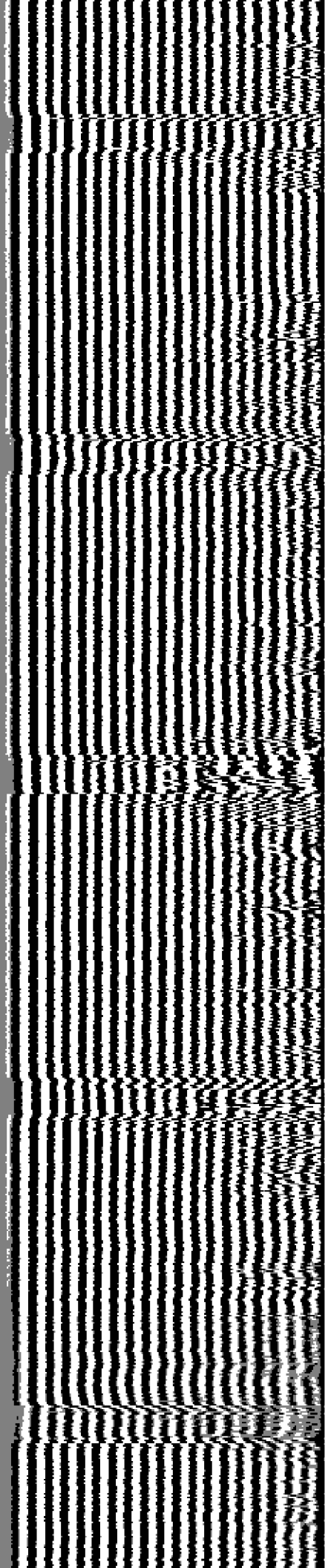
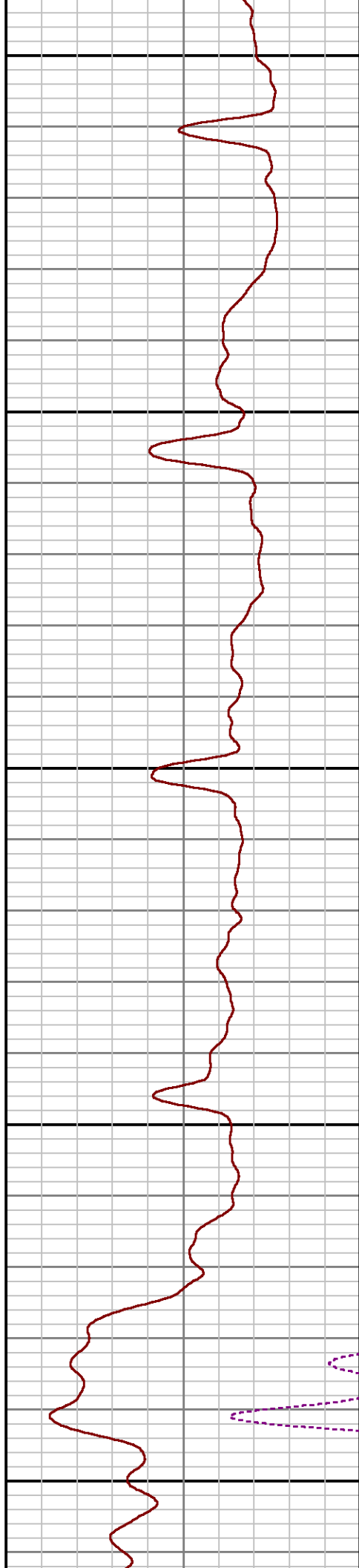
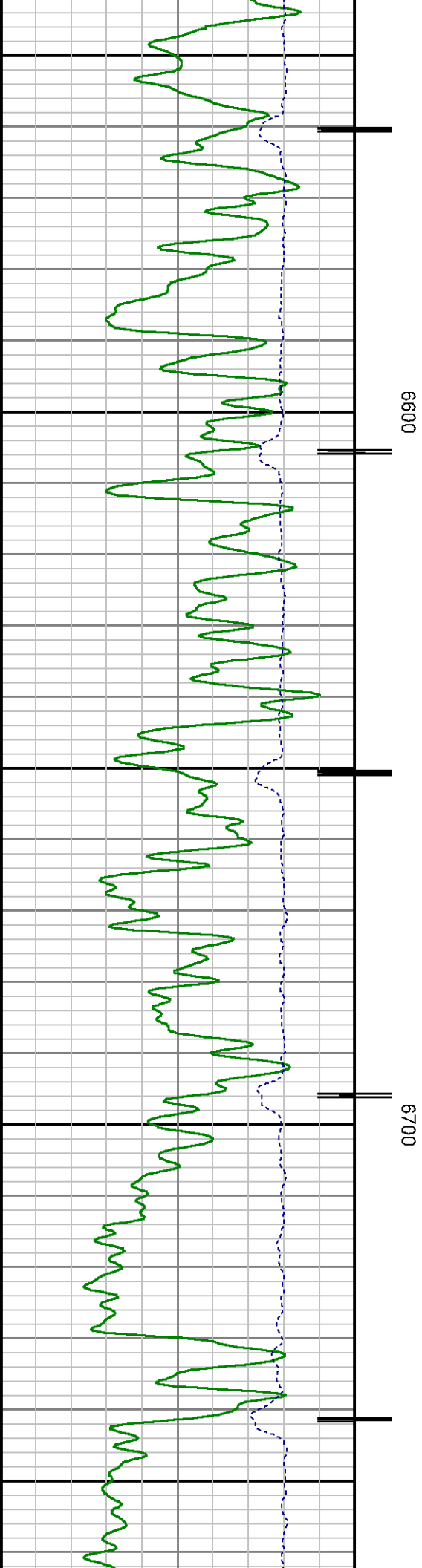


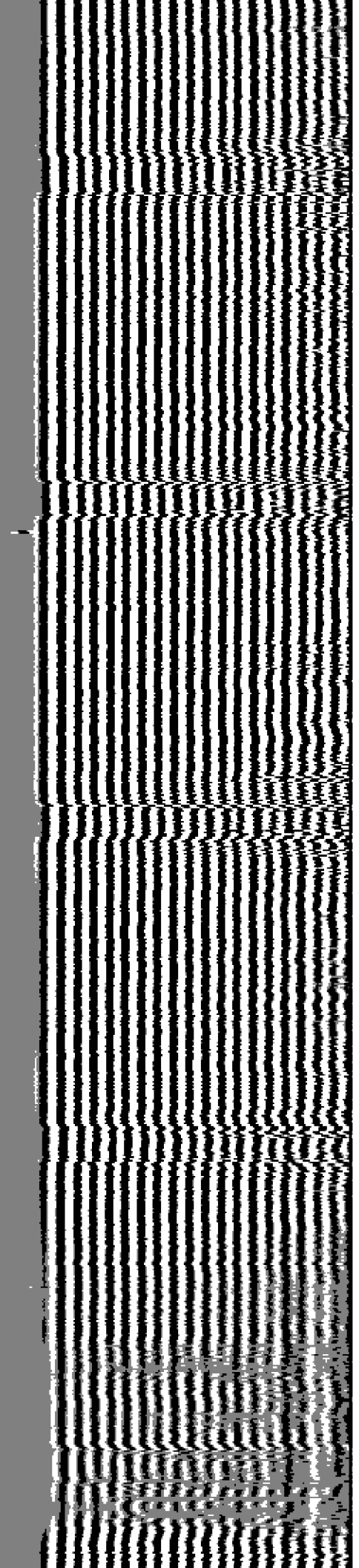
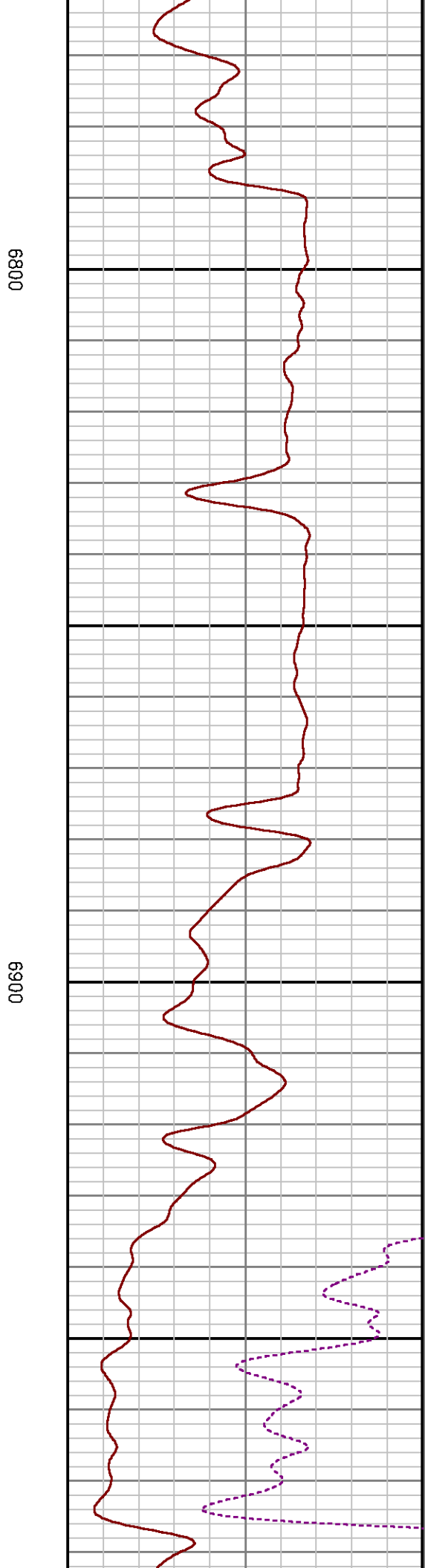
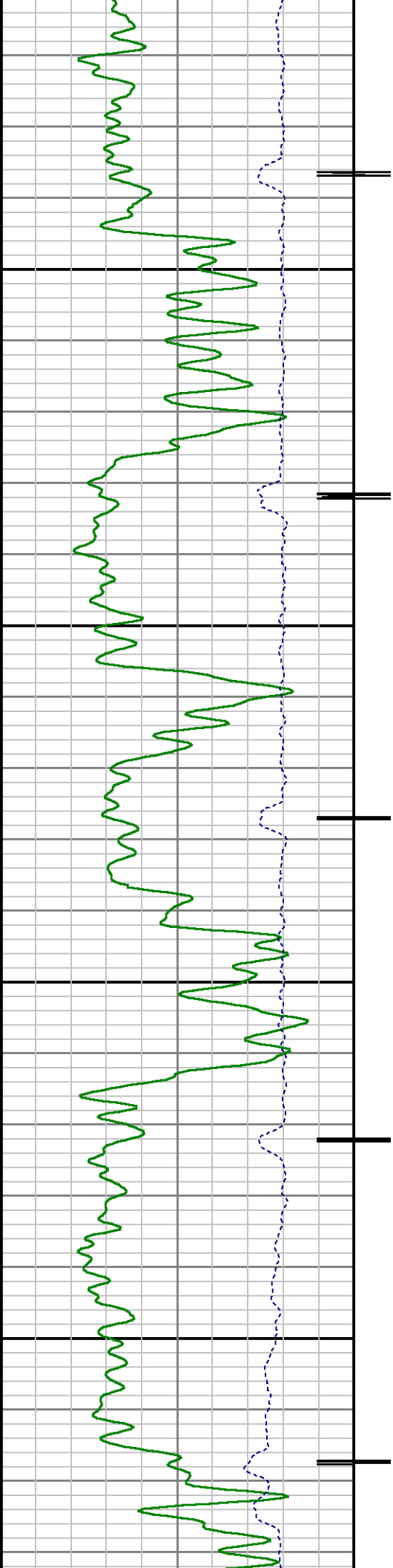


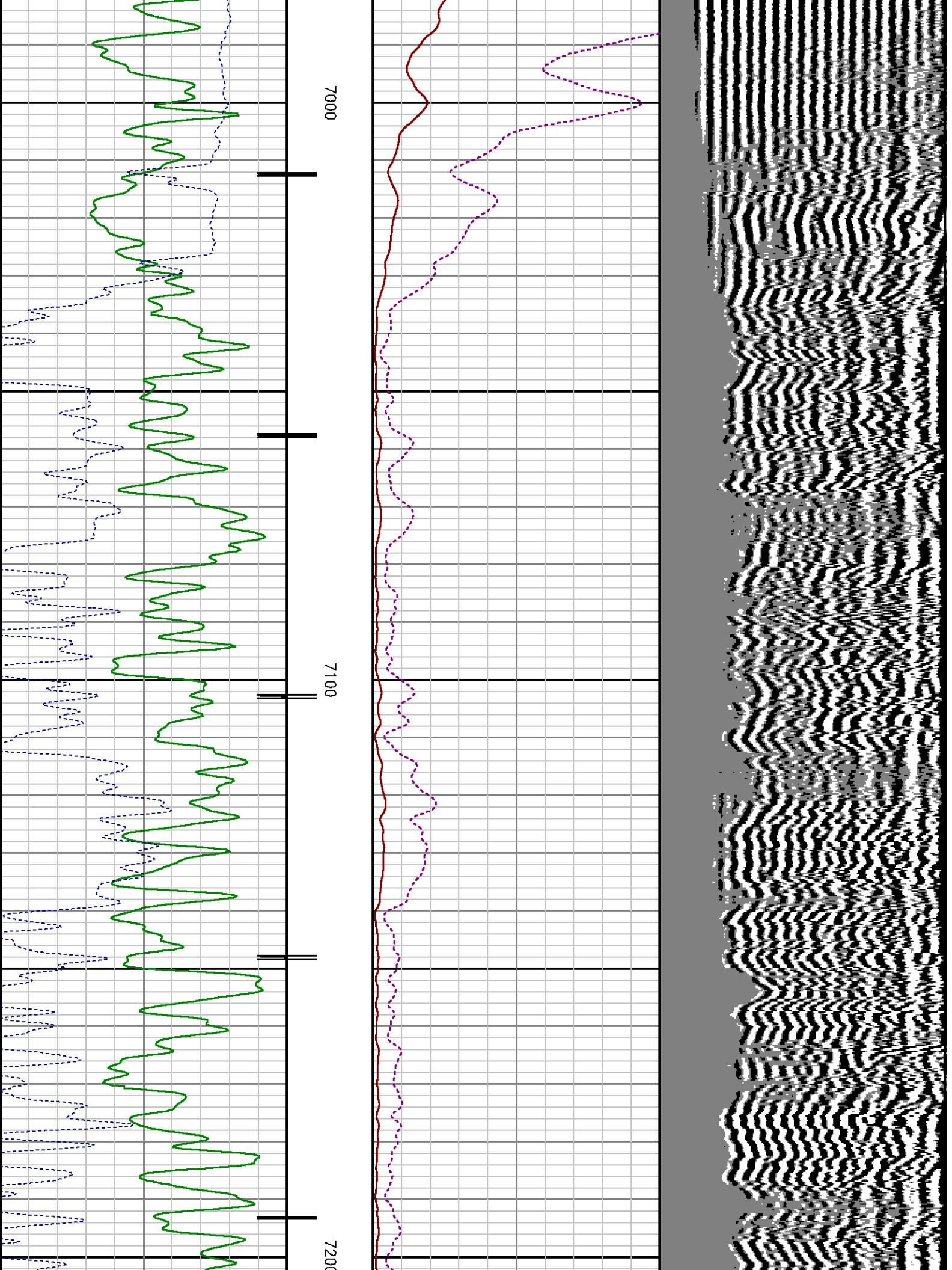




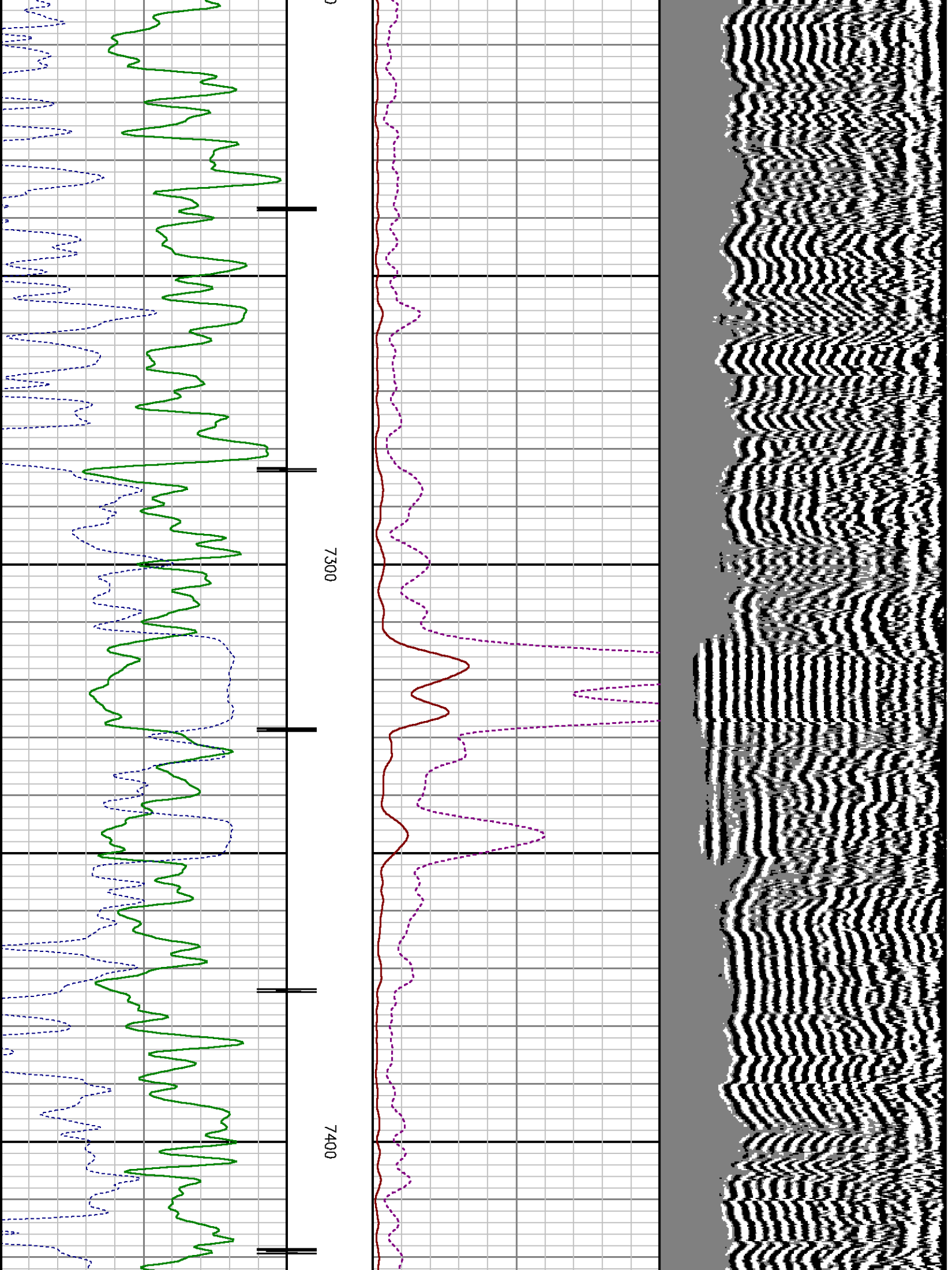




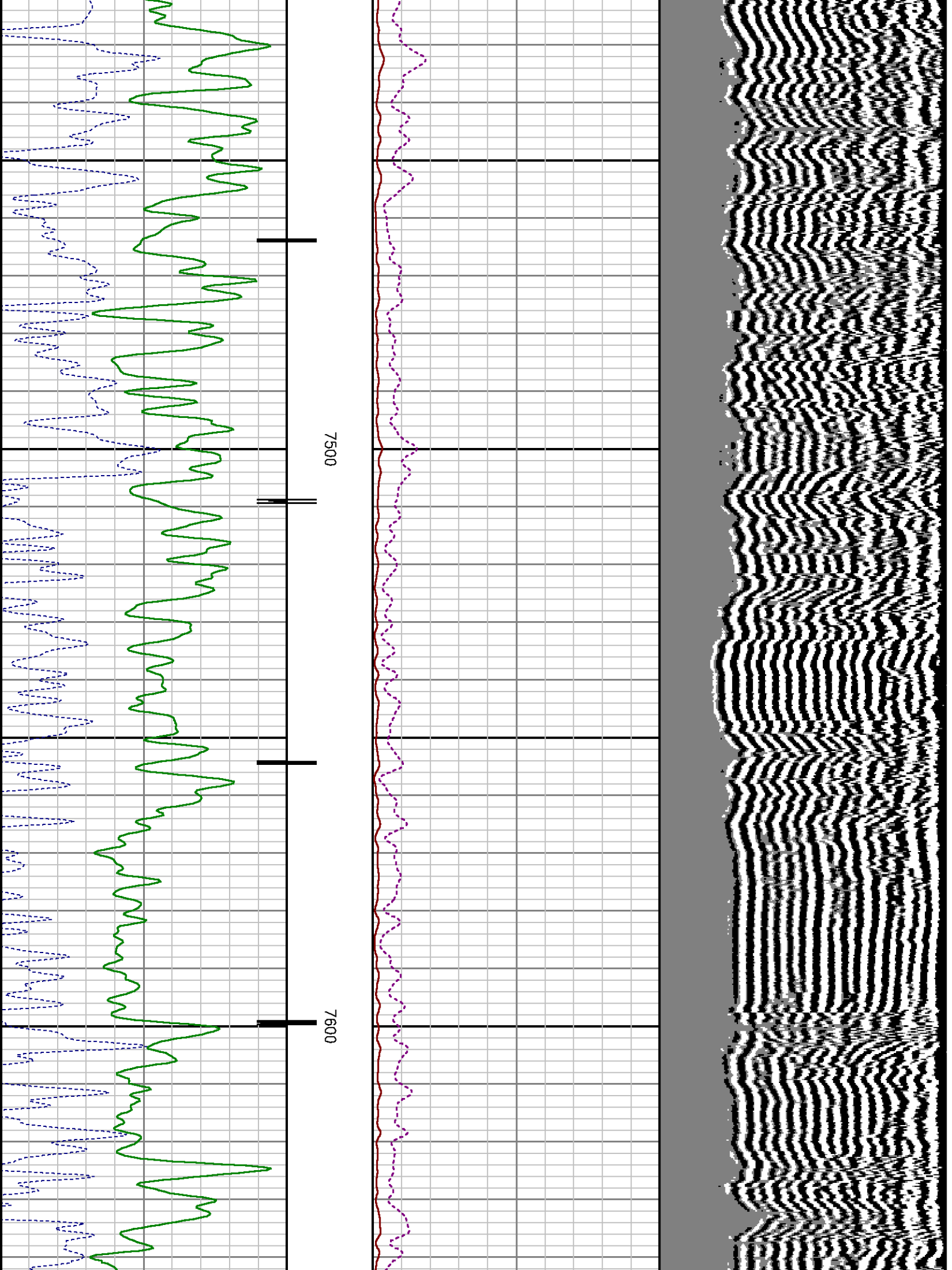


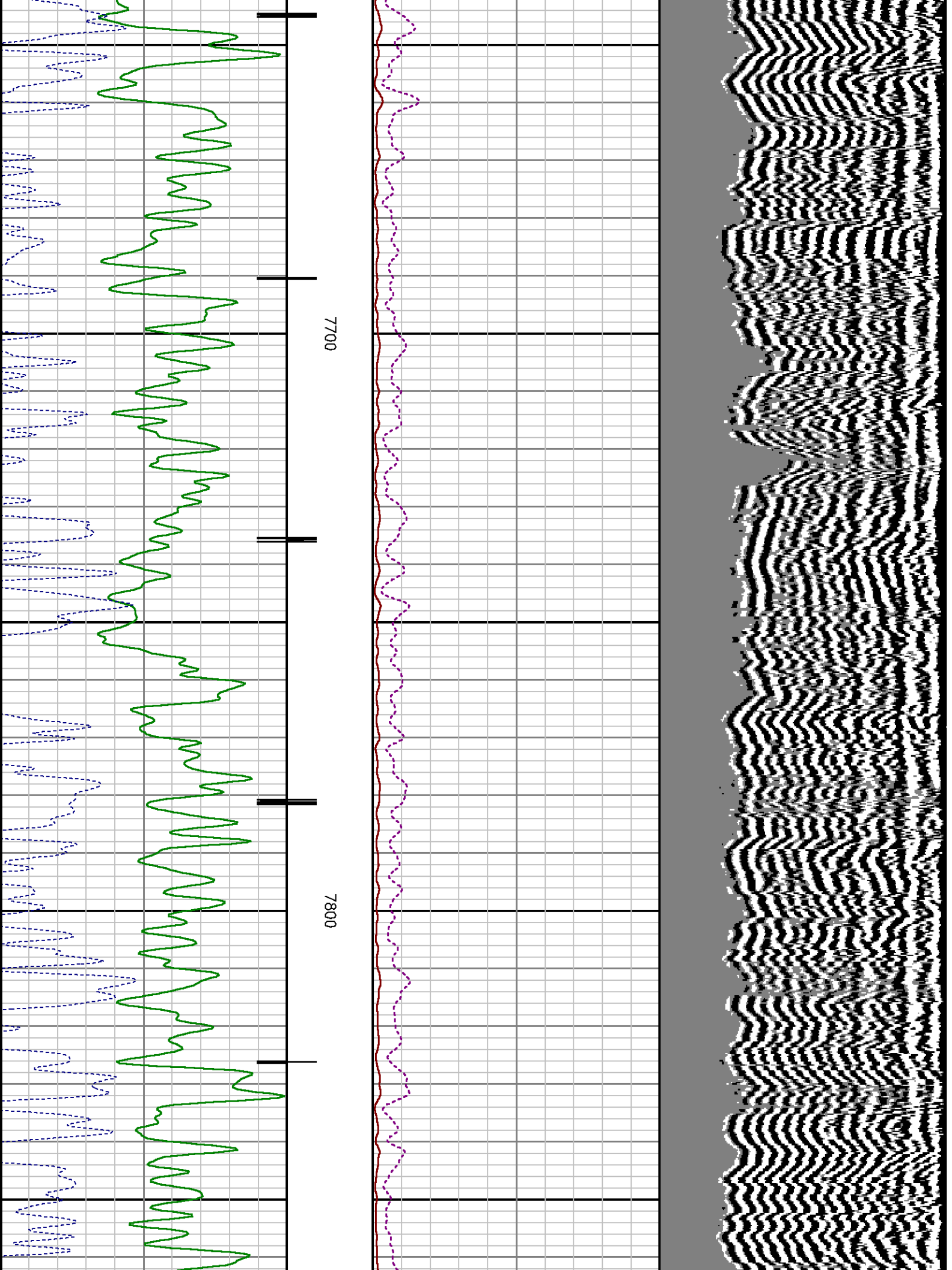


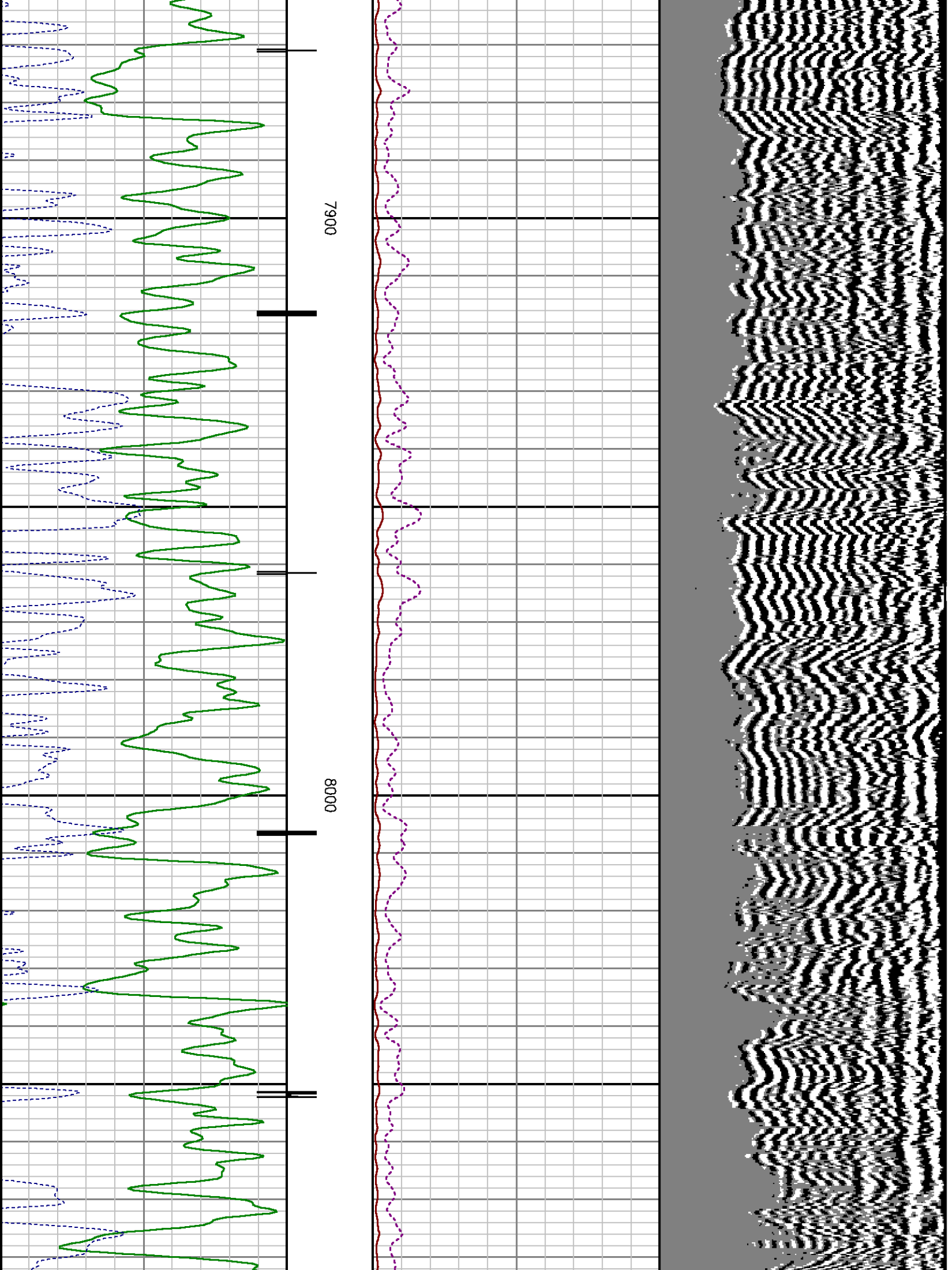


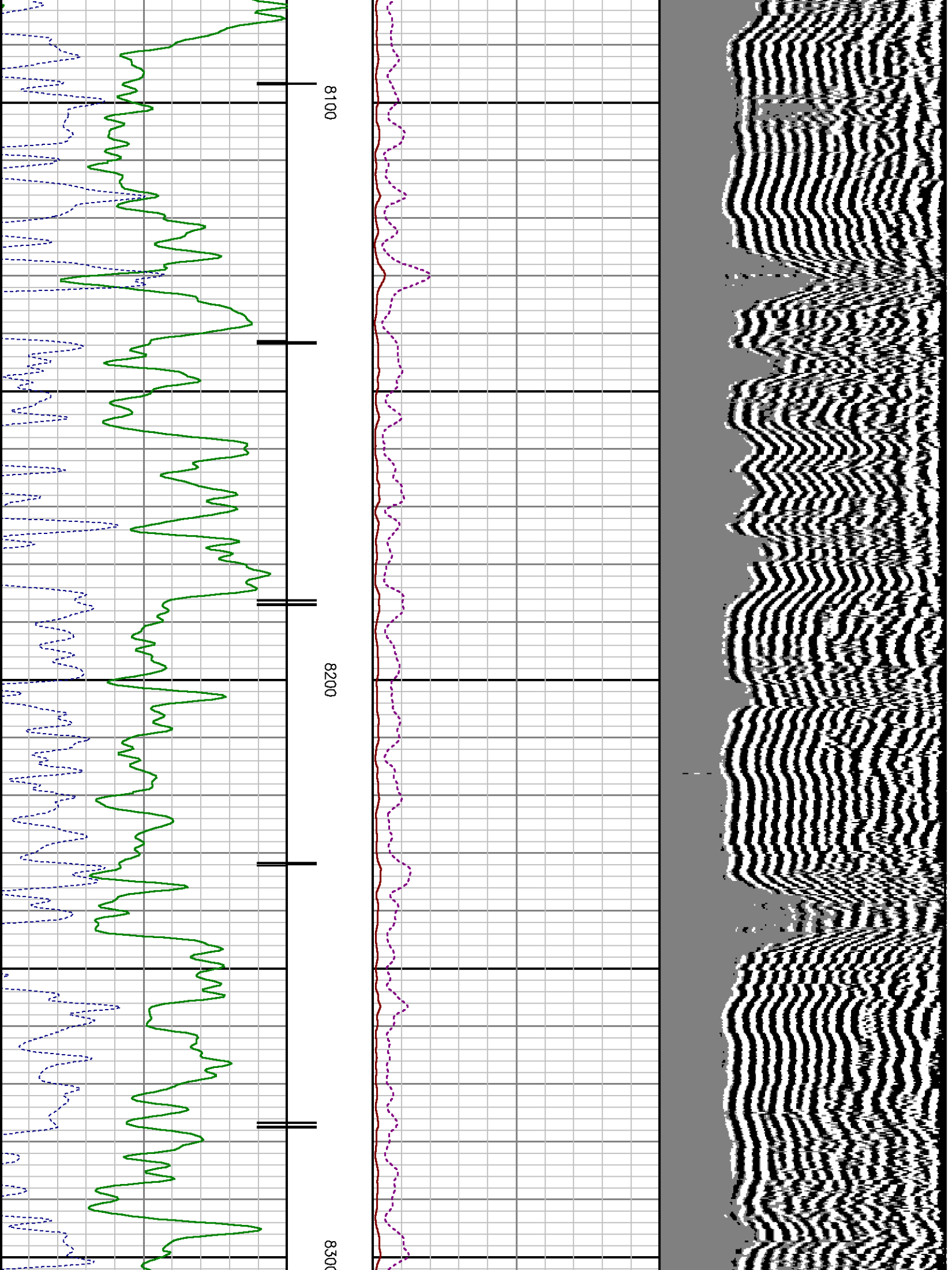


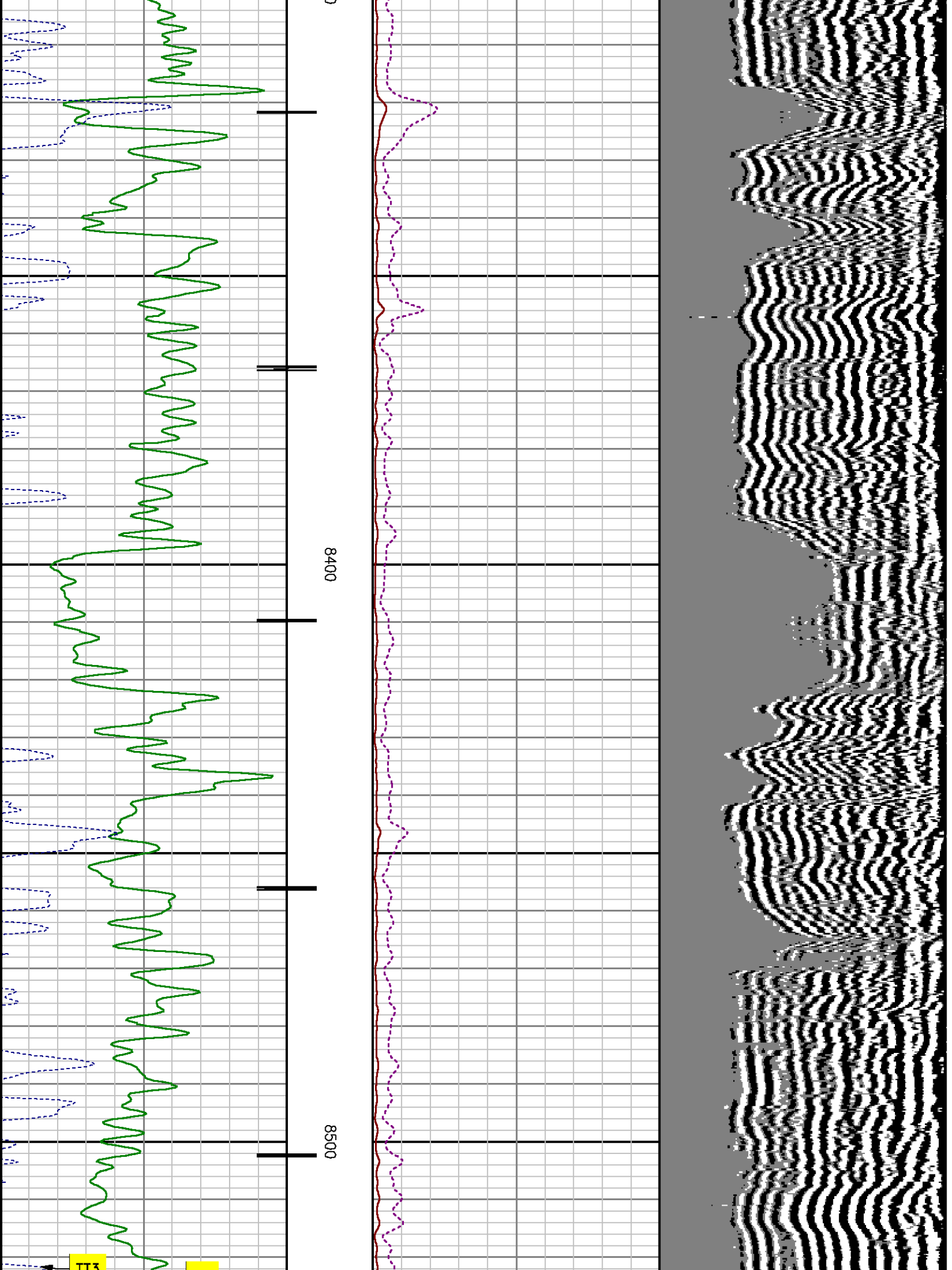


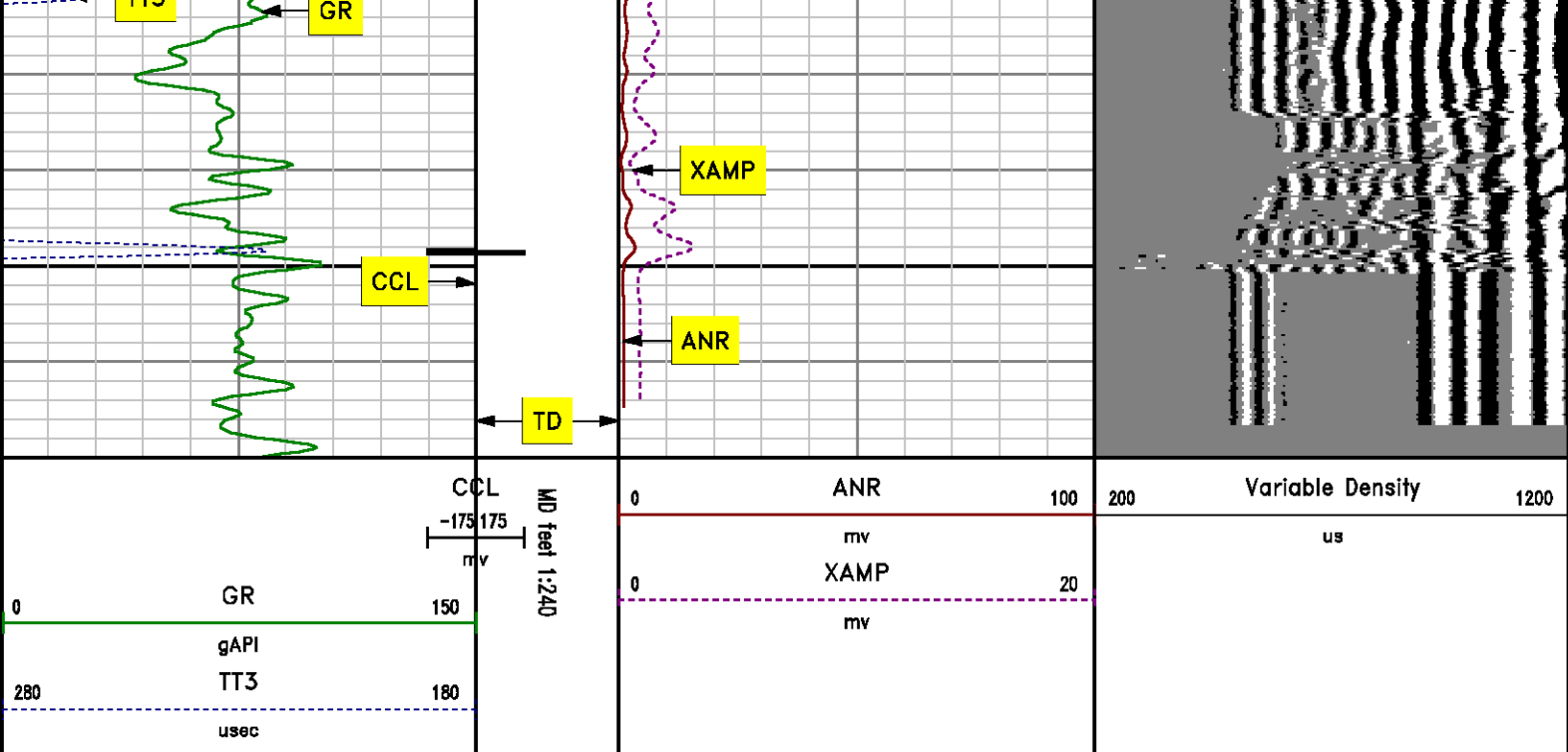












## MAIN SECTION SECONDARY PRESENTATION

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# DEPTH OFFSETS

(for Acquired Curves)

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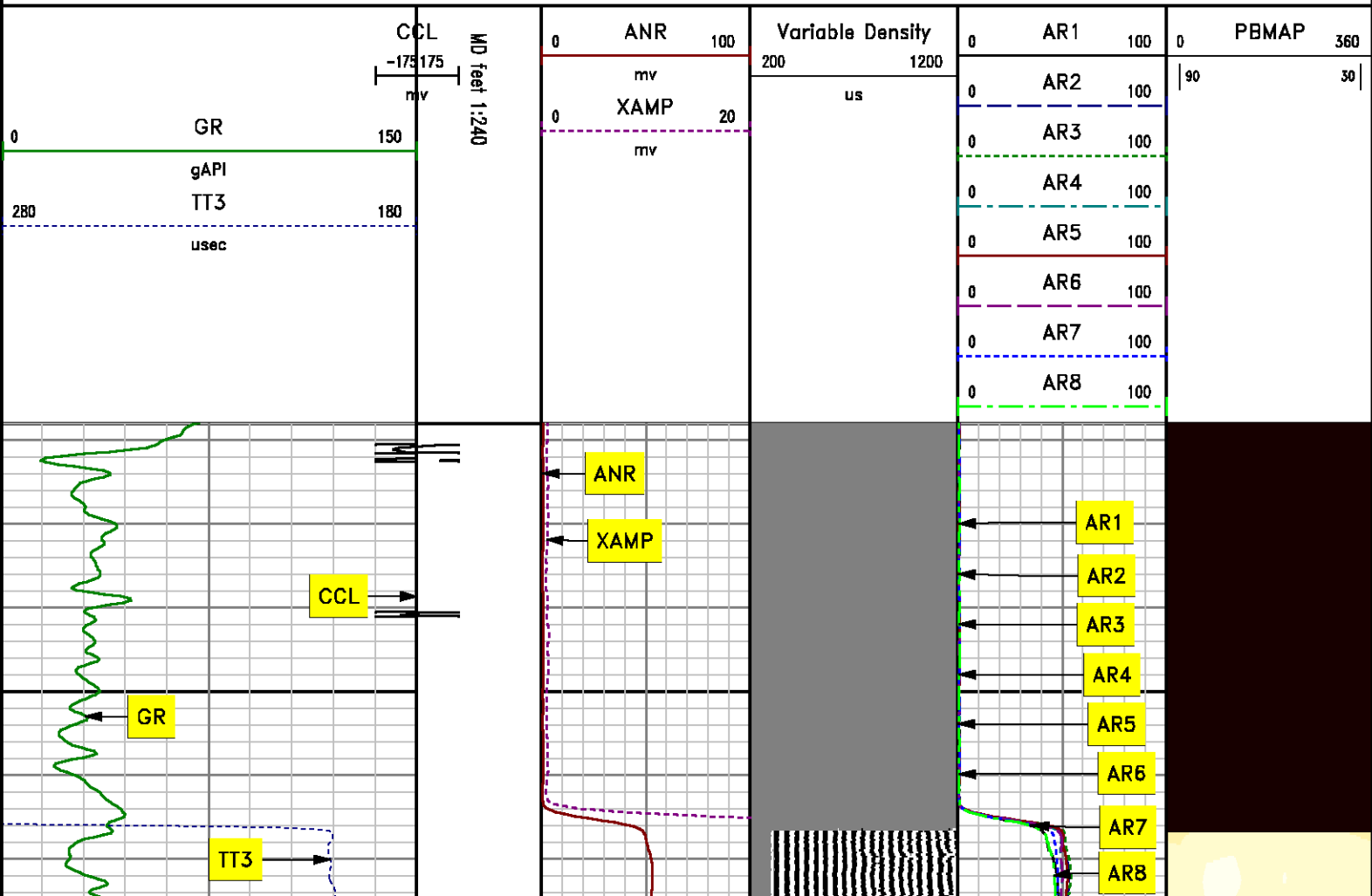
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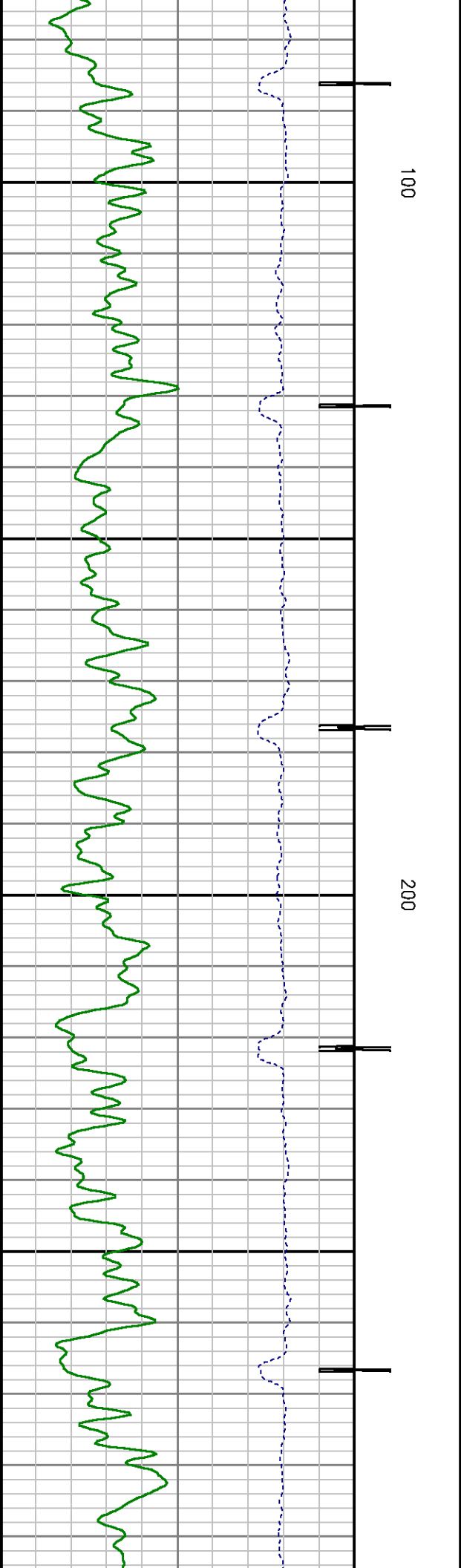
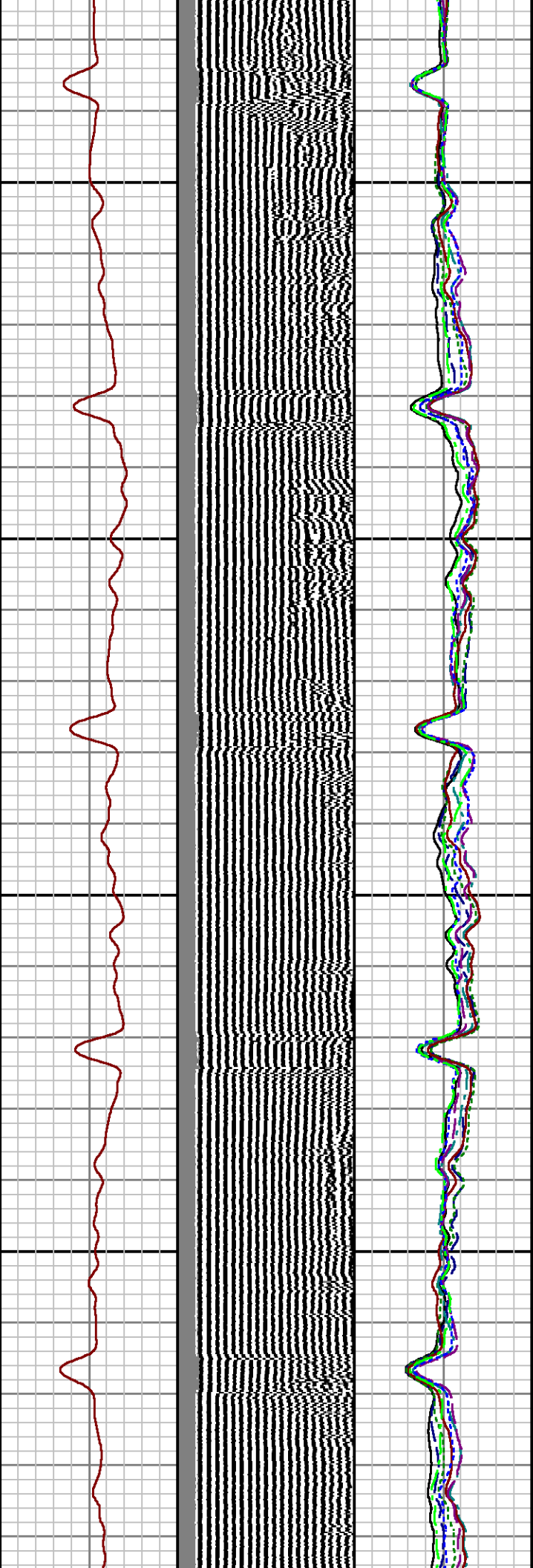
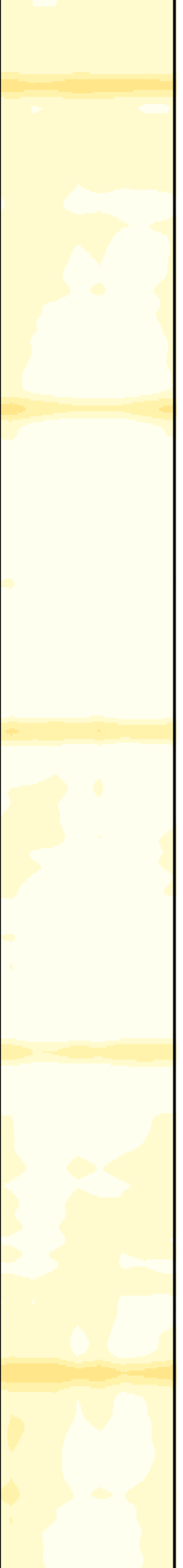
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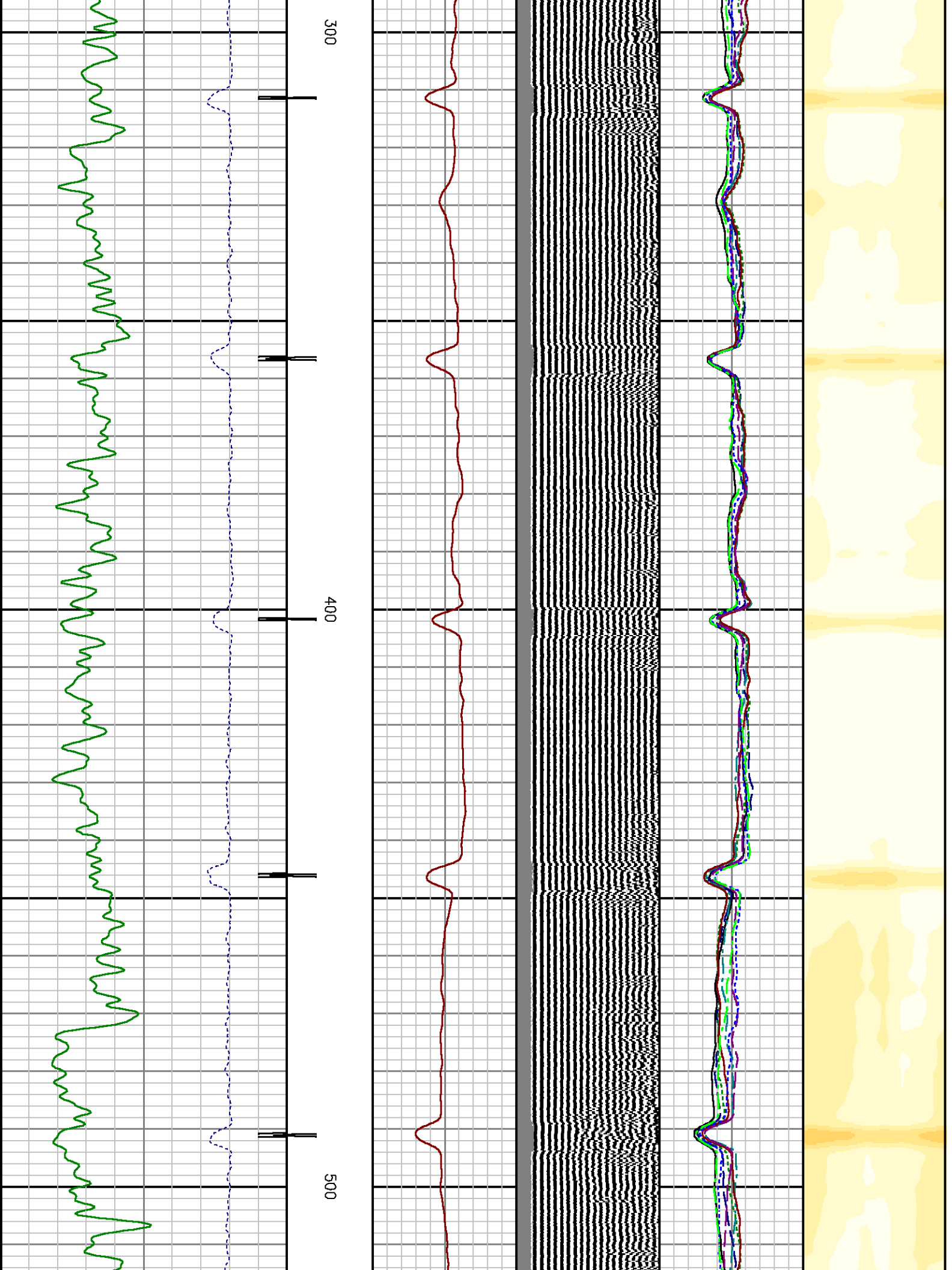
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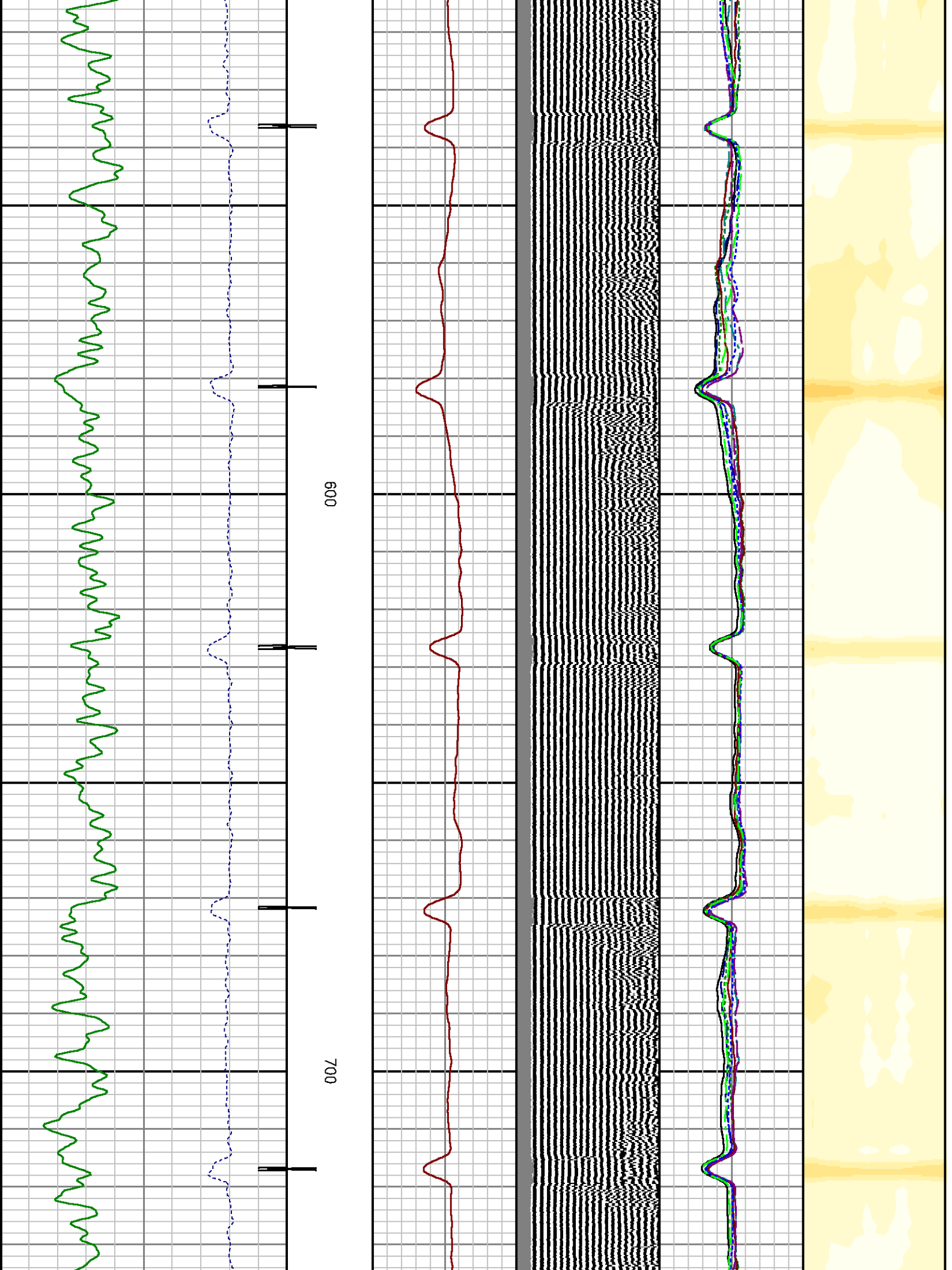
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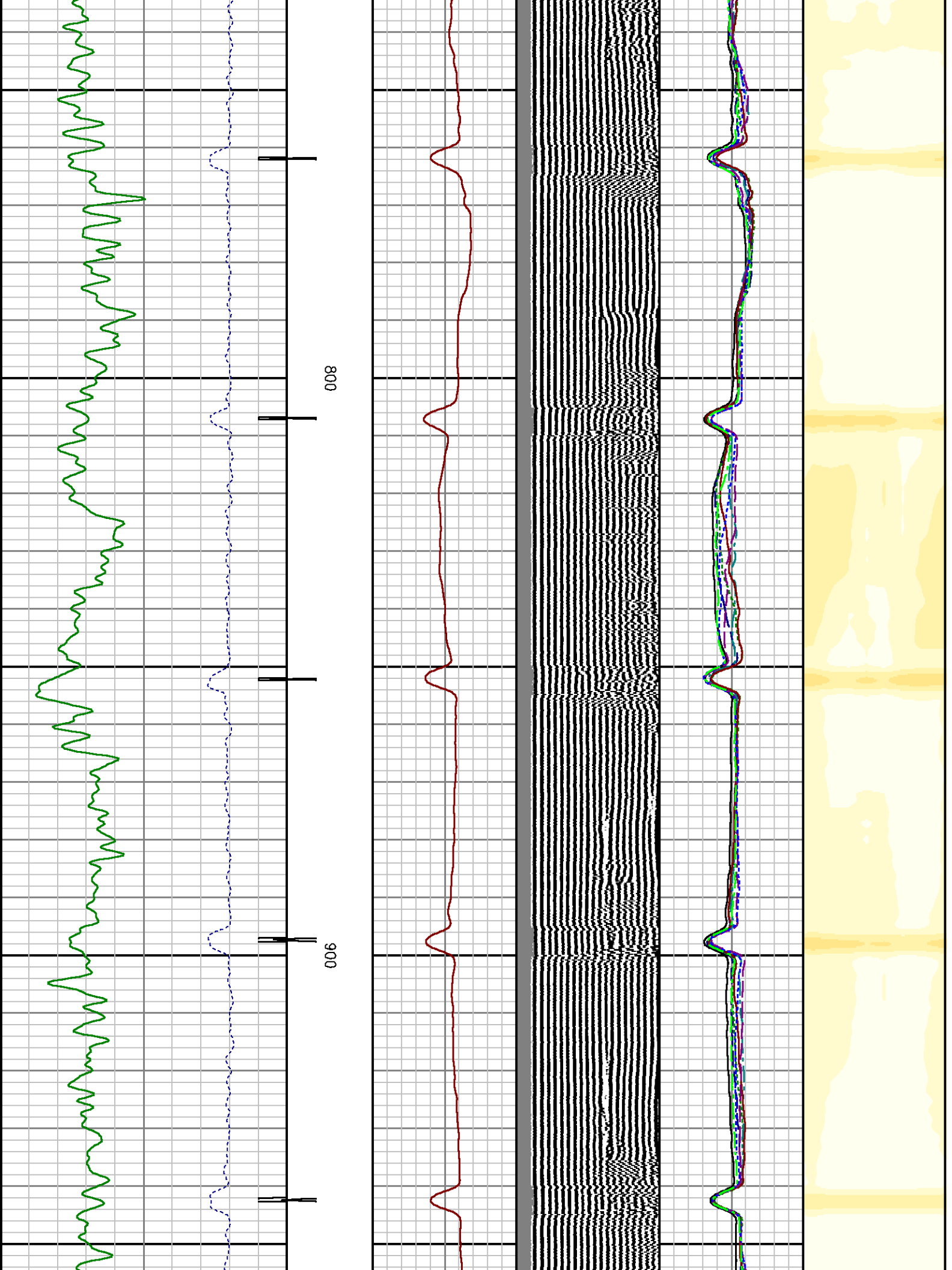
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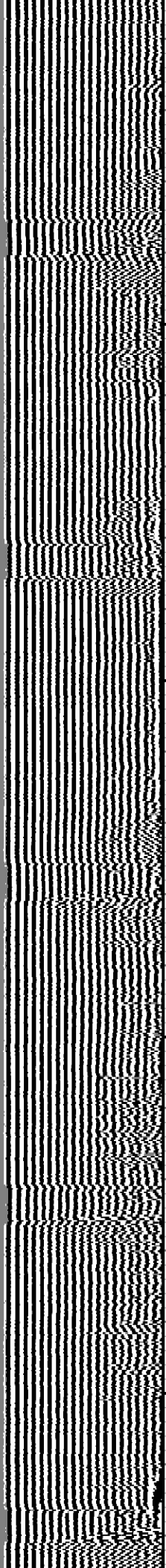
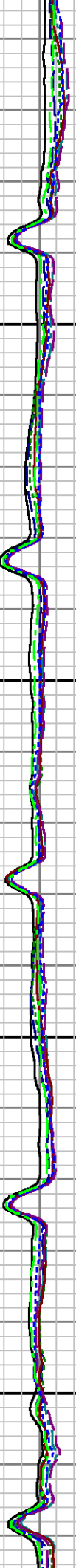






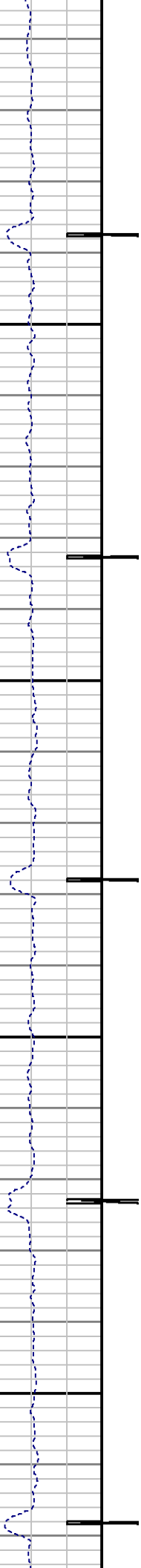




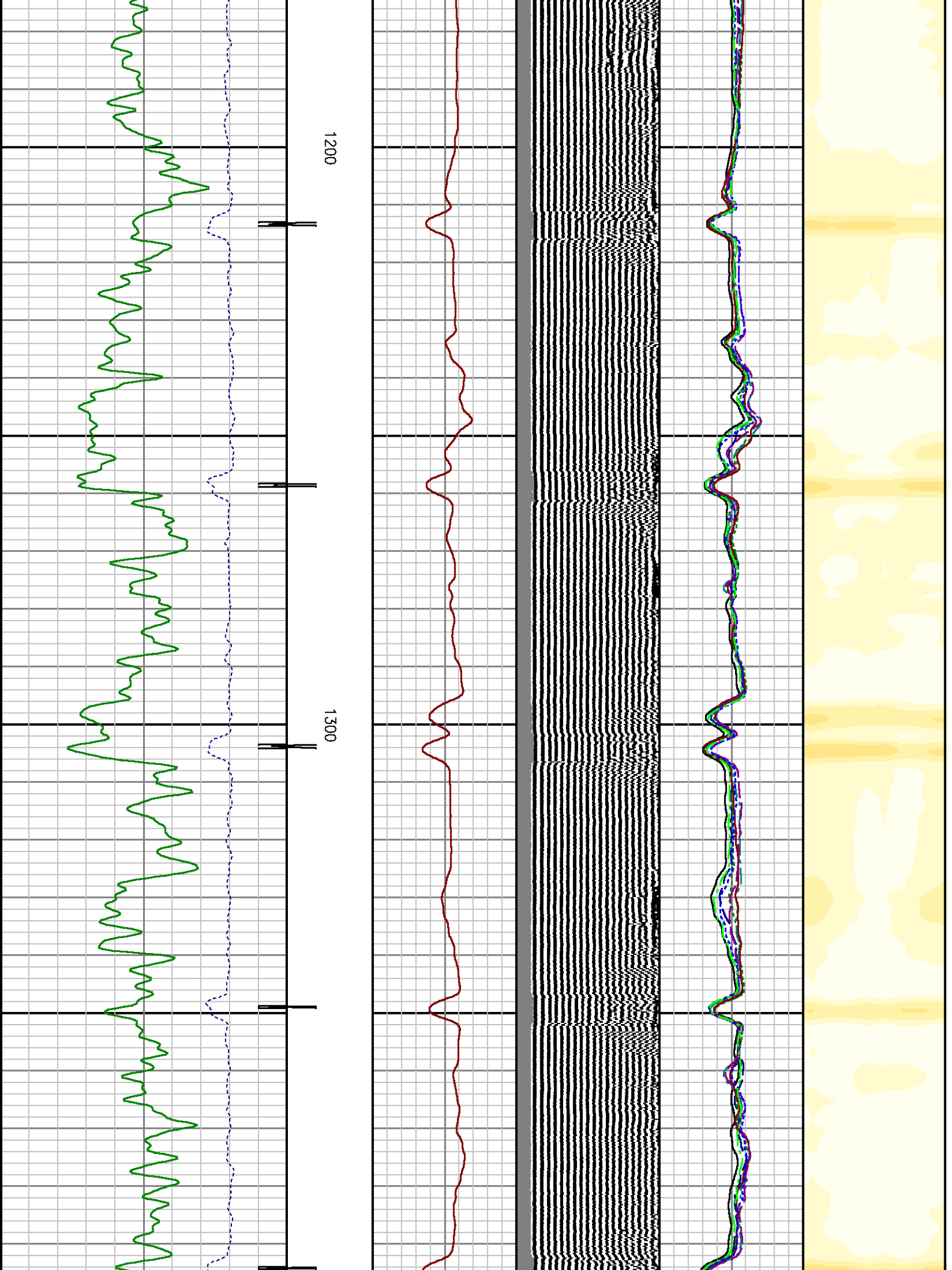


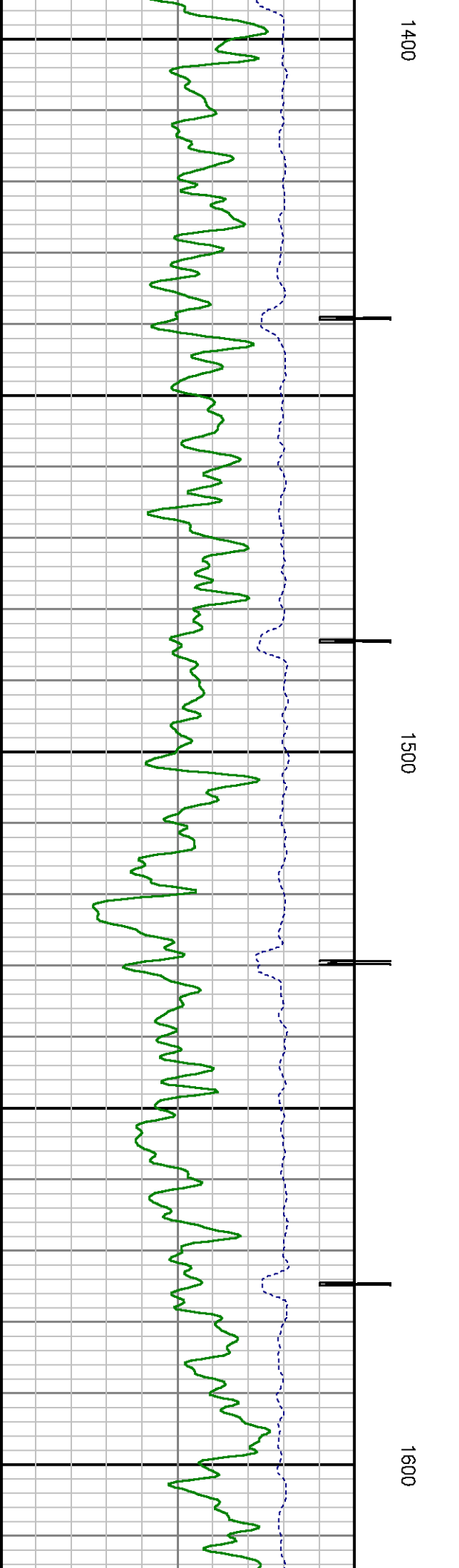
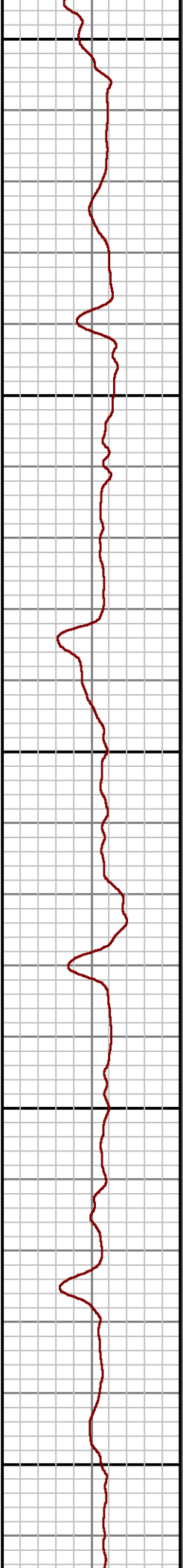
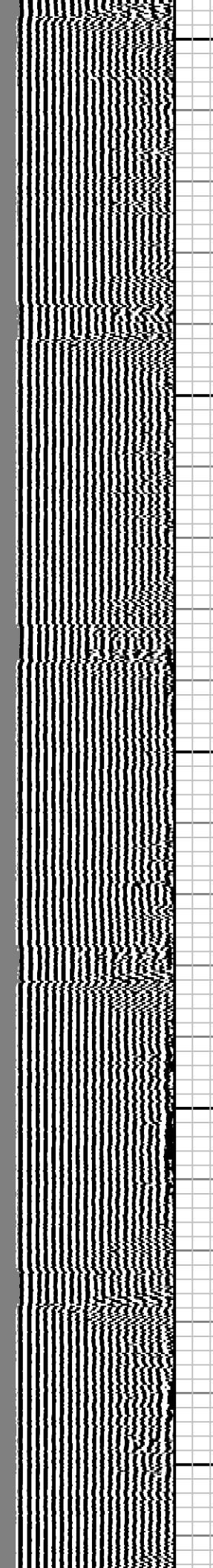
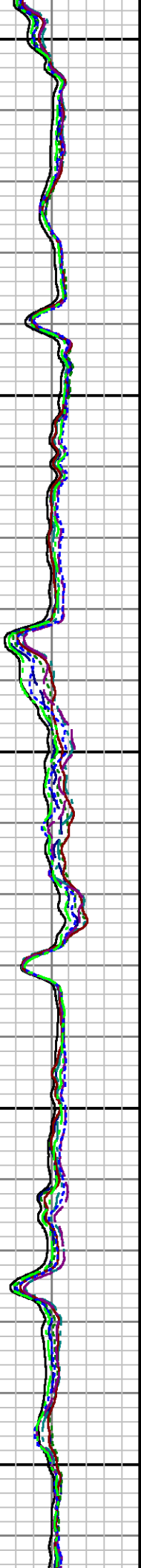
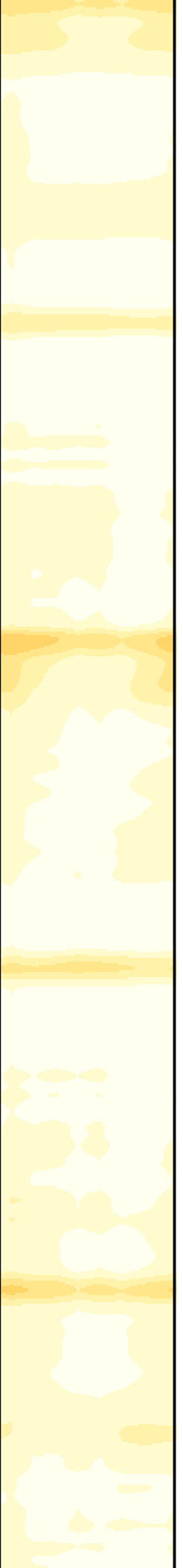
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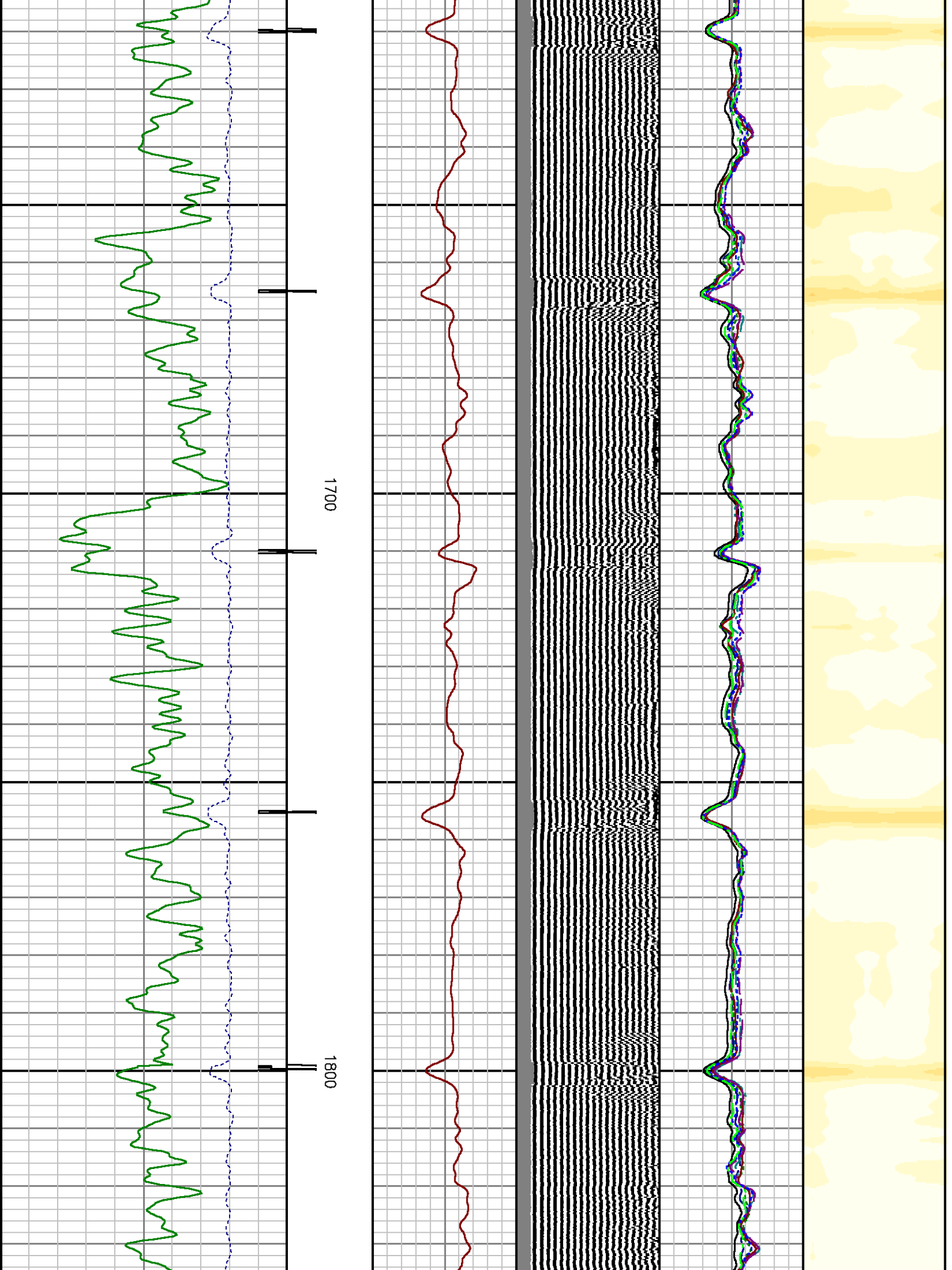
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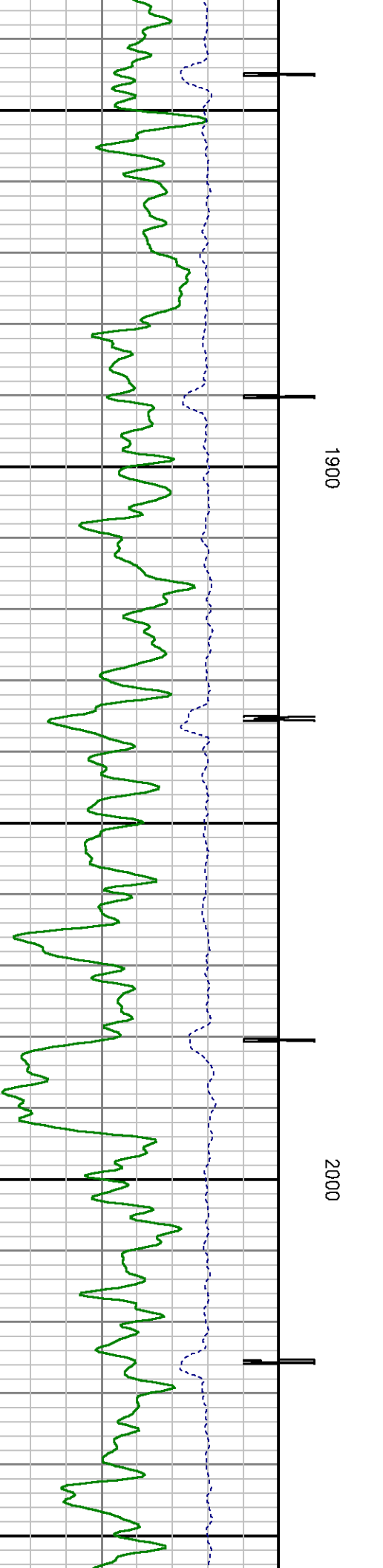
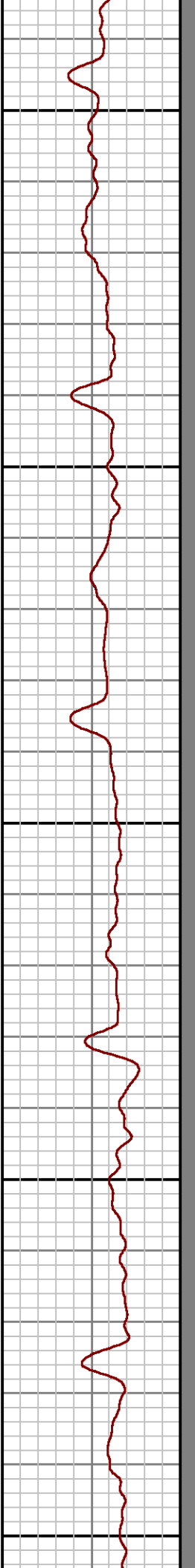
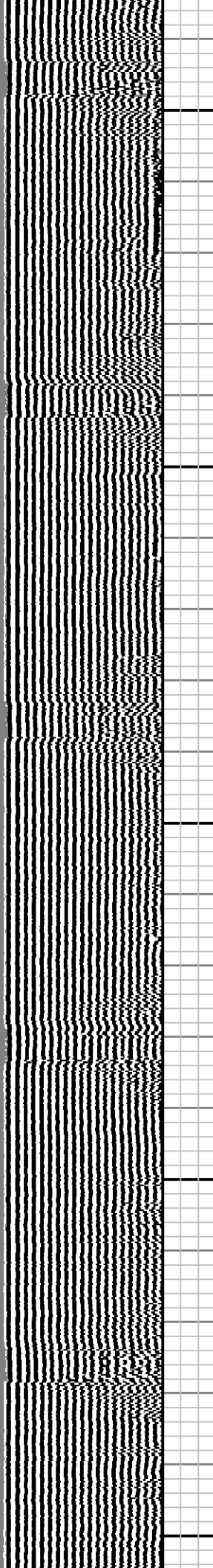
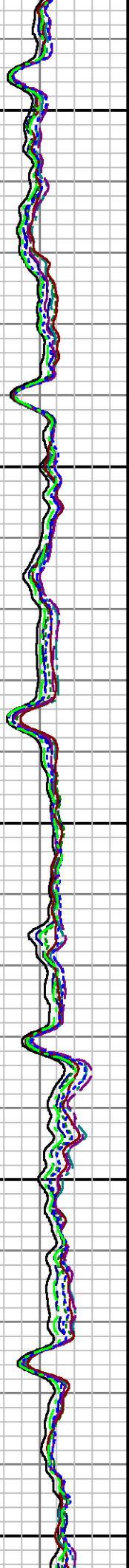
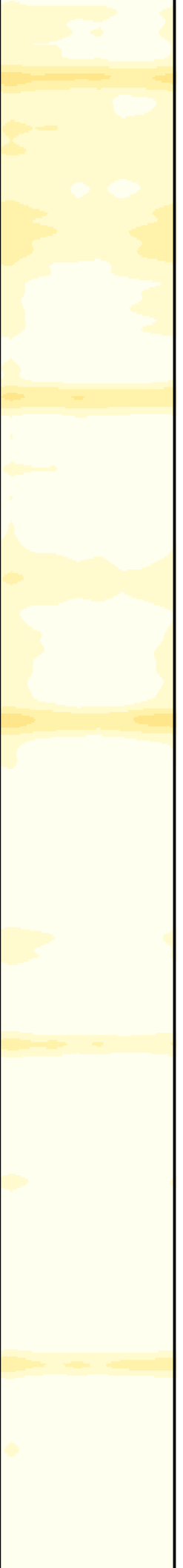


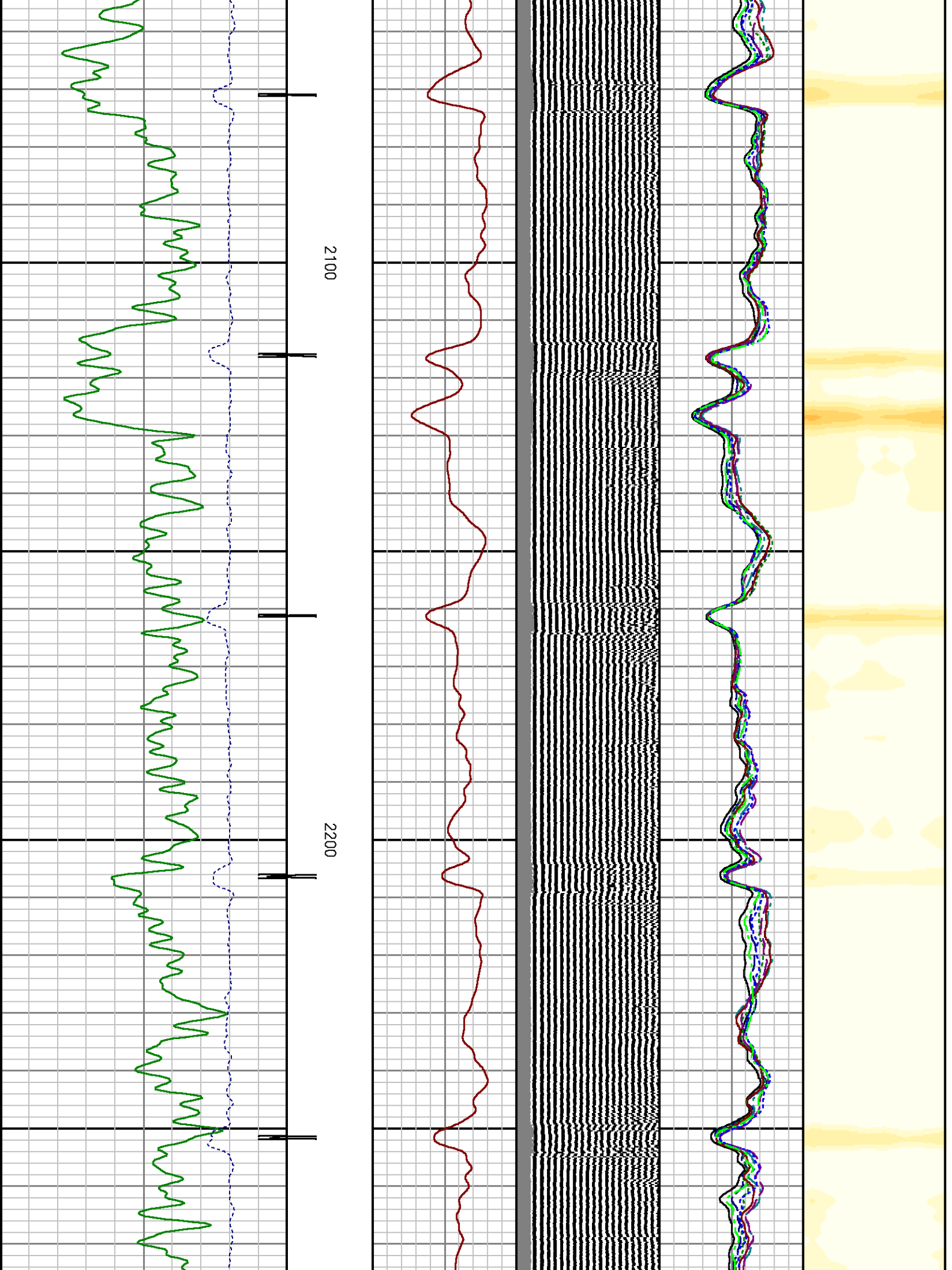


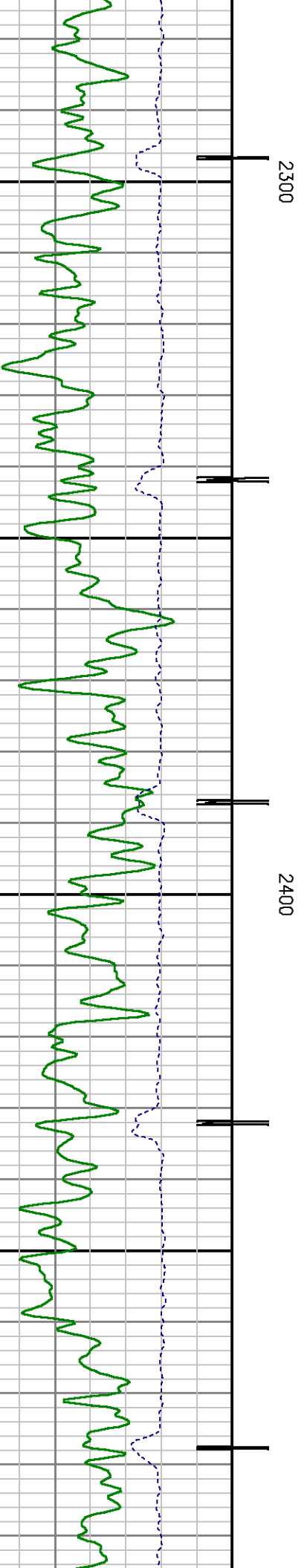
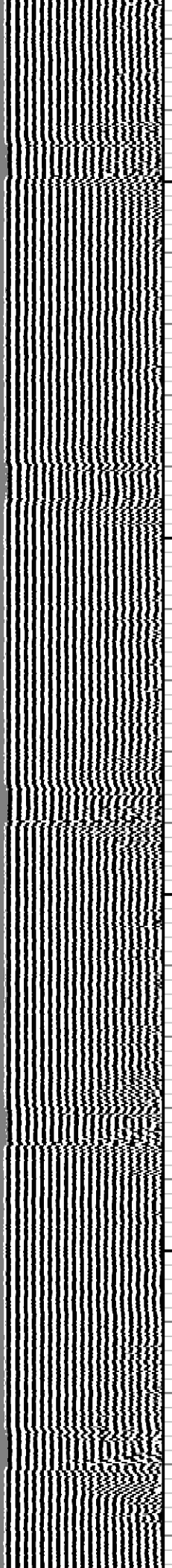
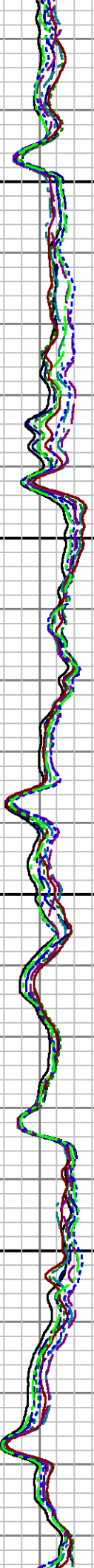
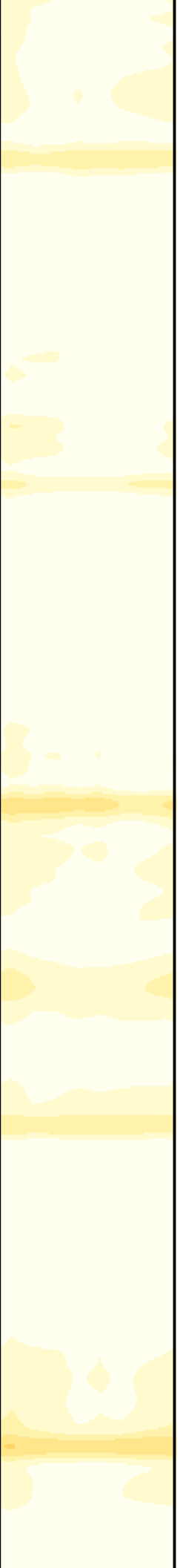








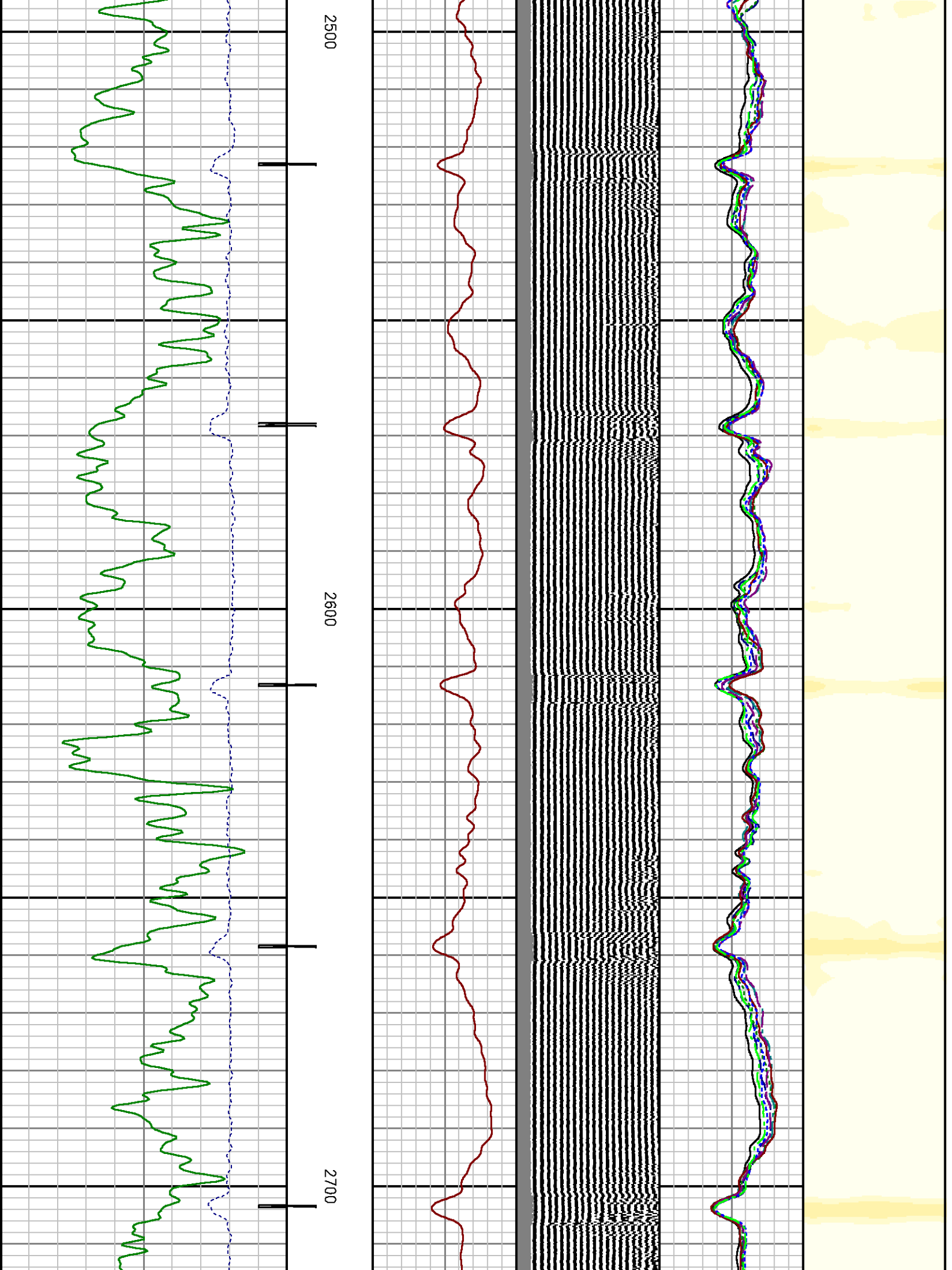


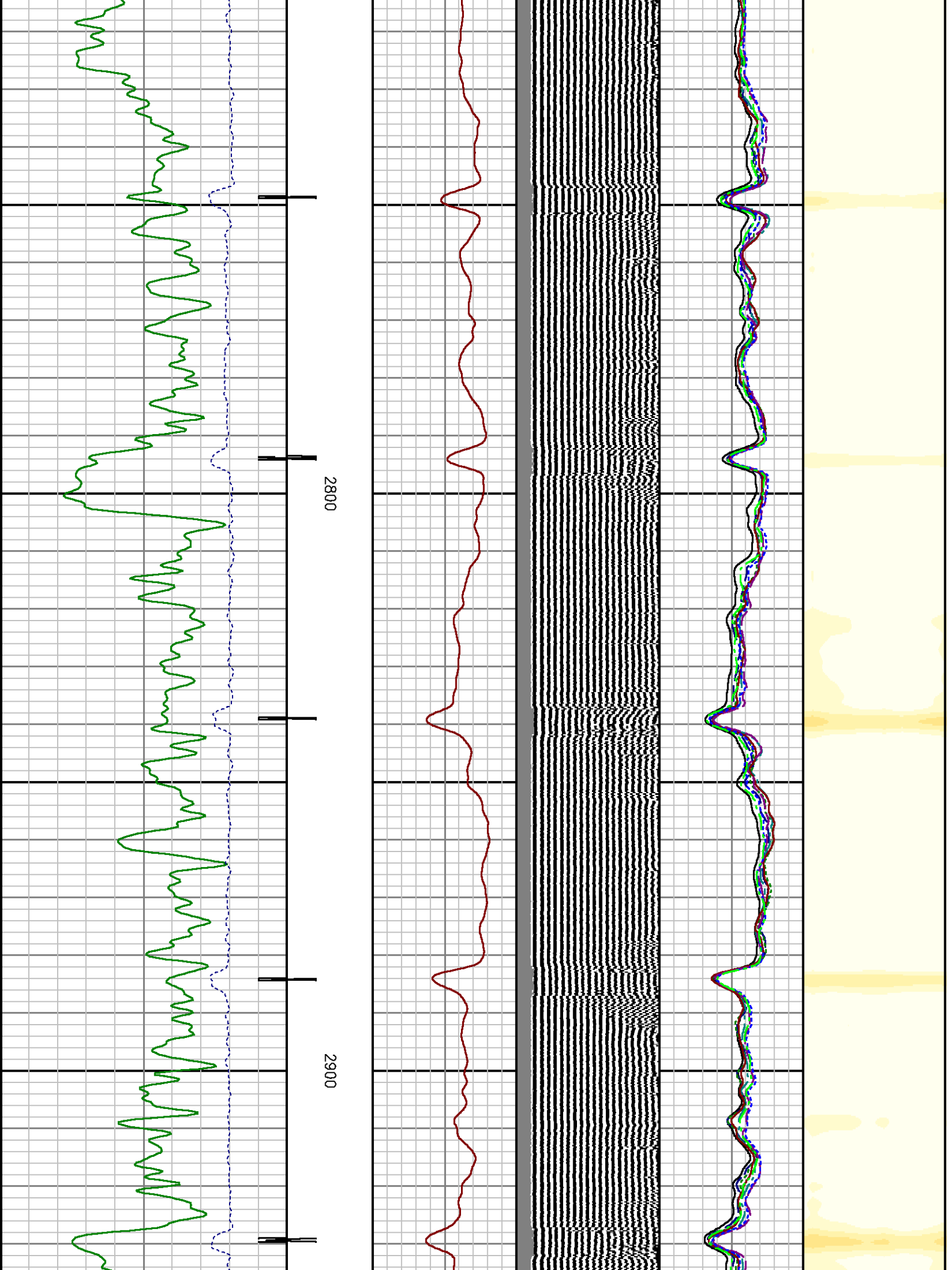


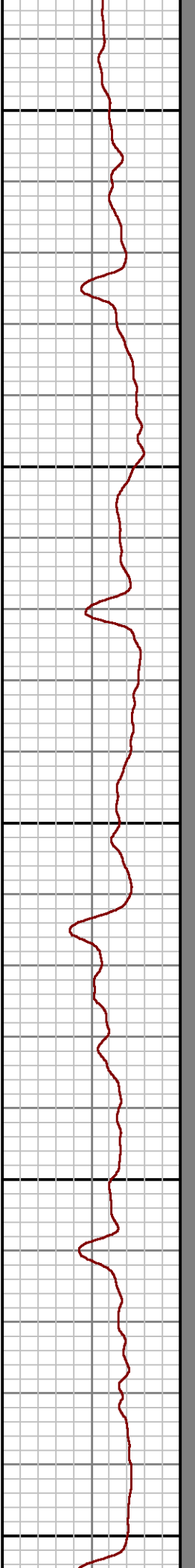
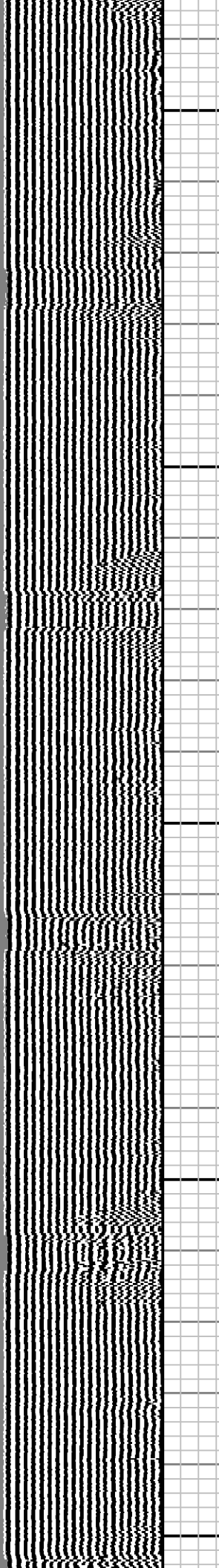
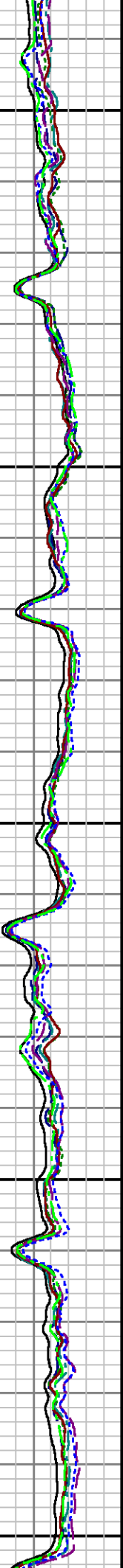
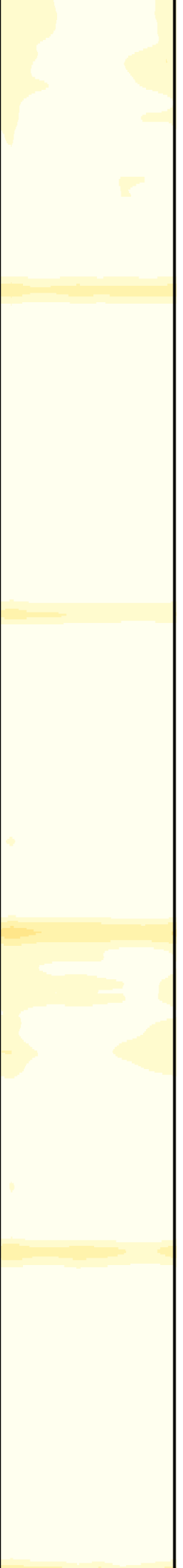
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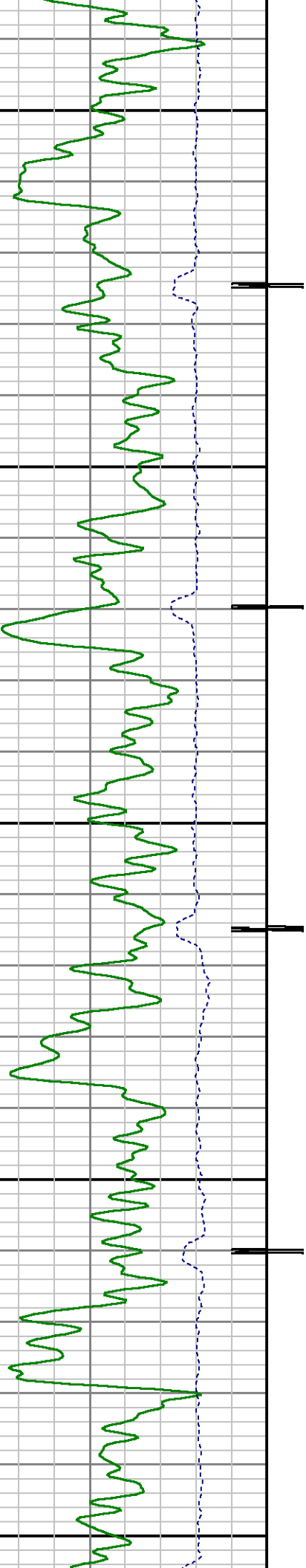


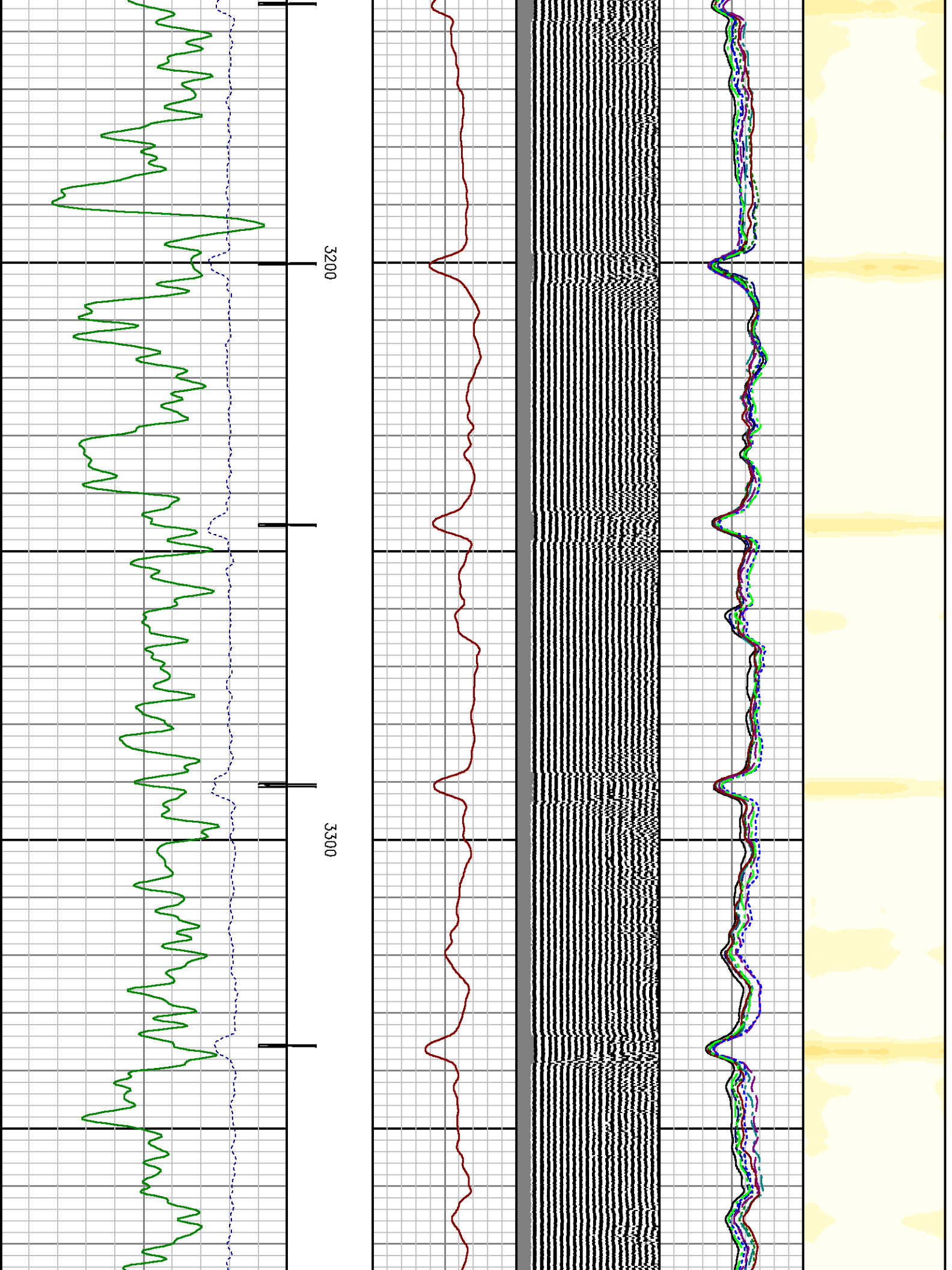


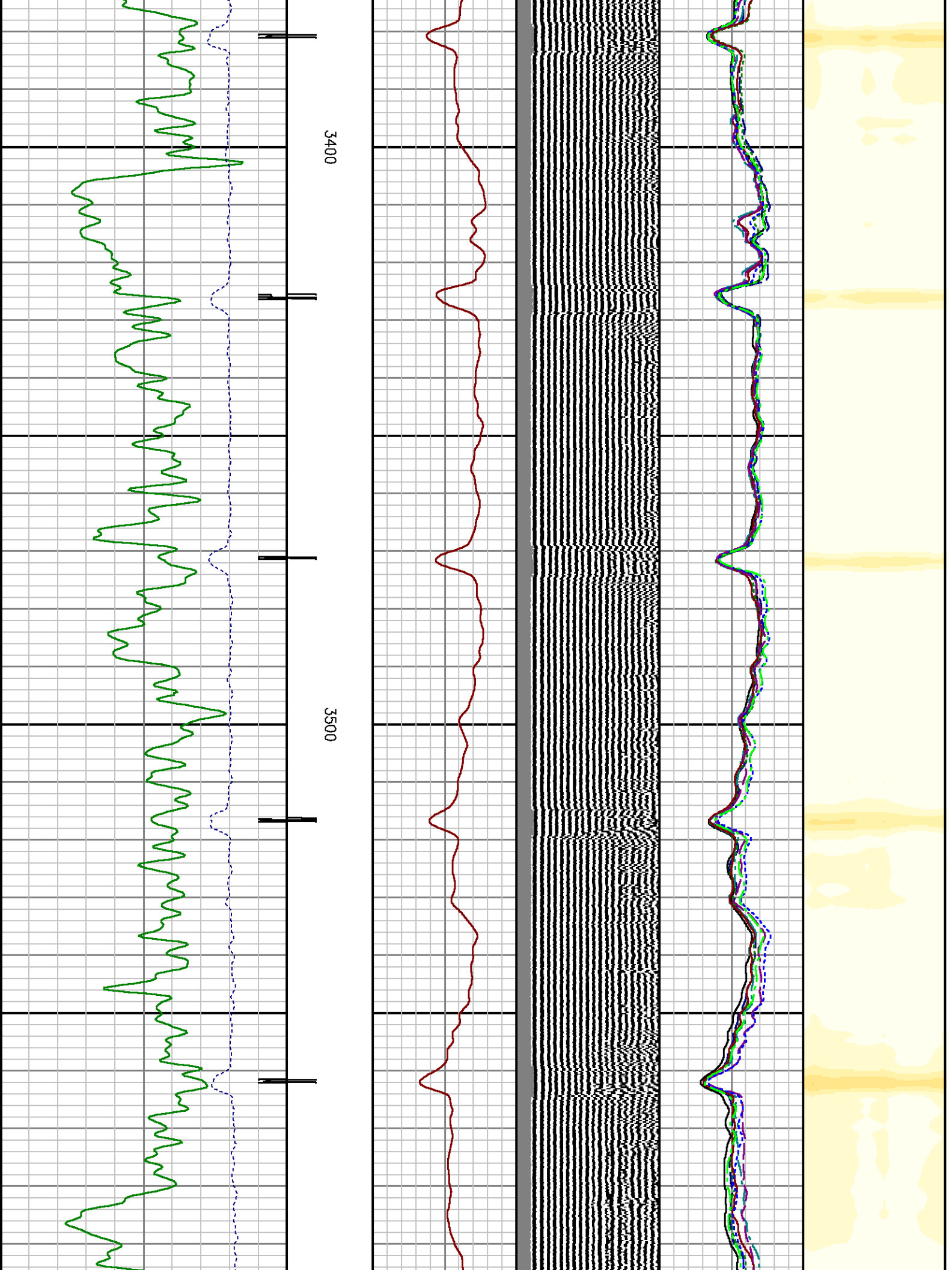


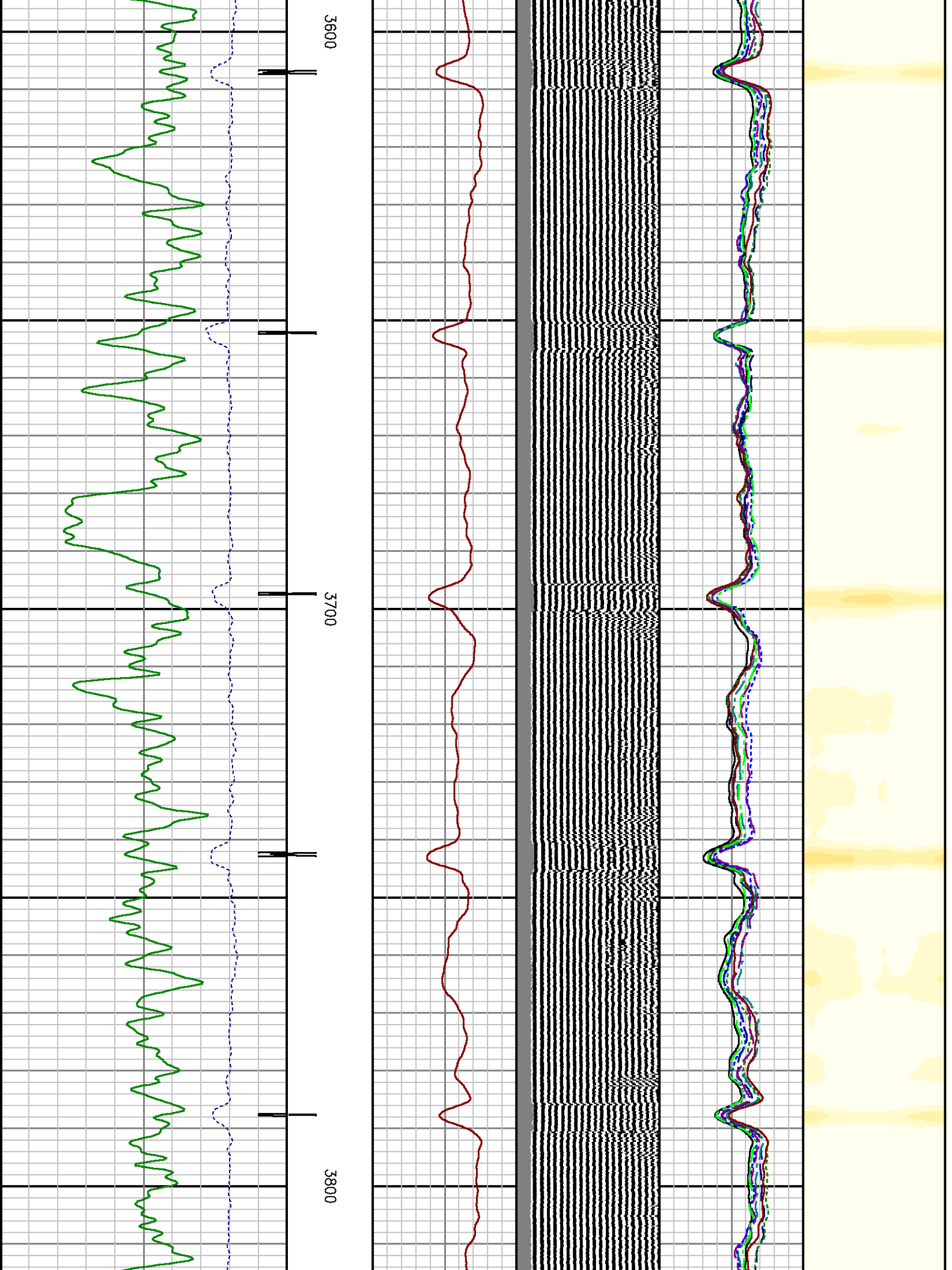
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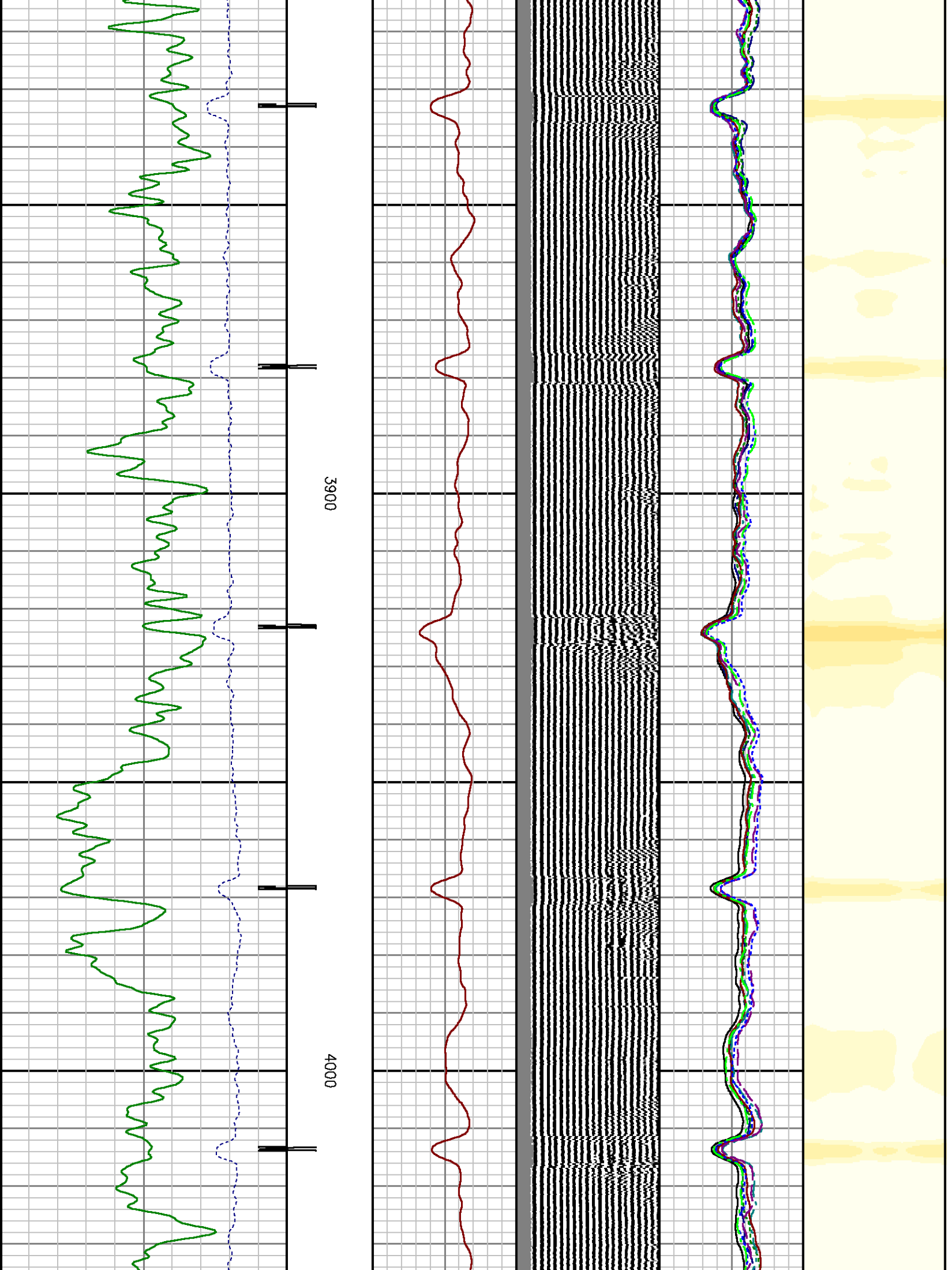


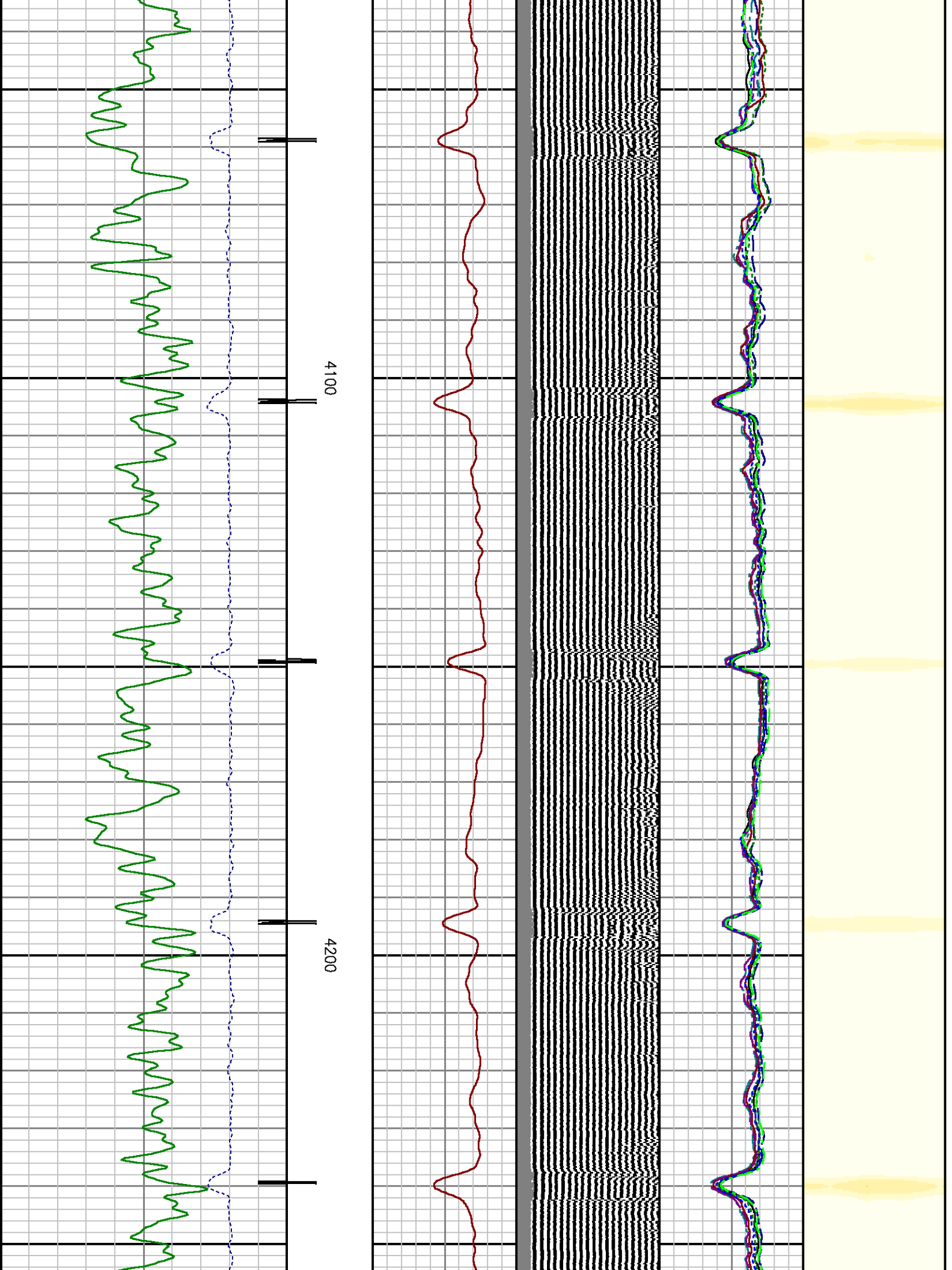


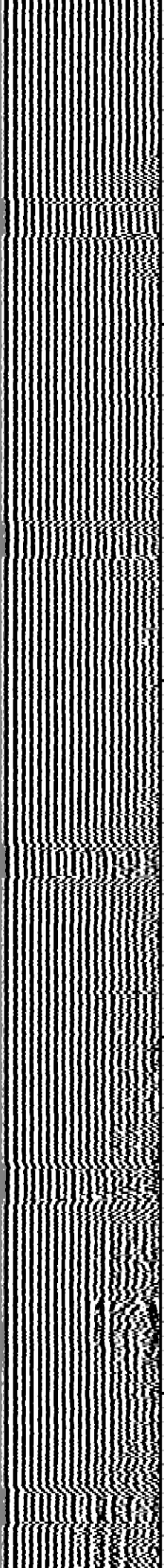
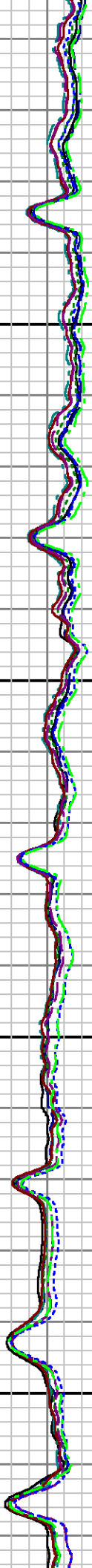
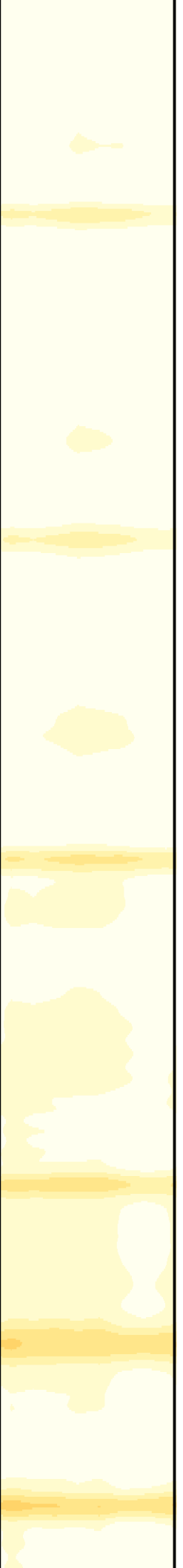






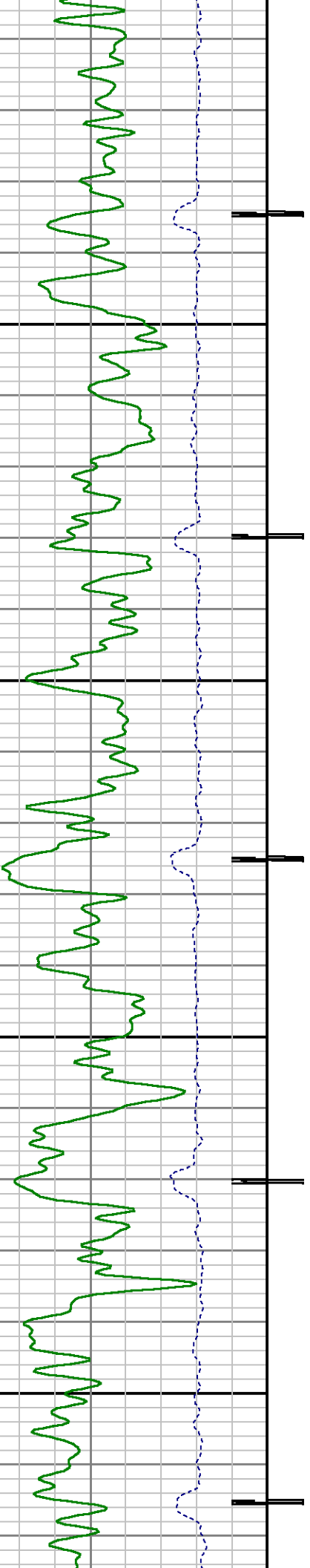


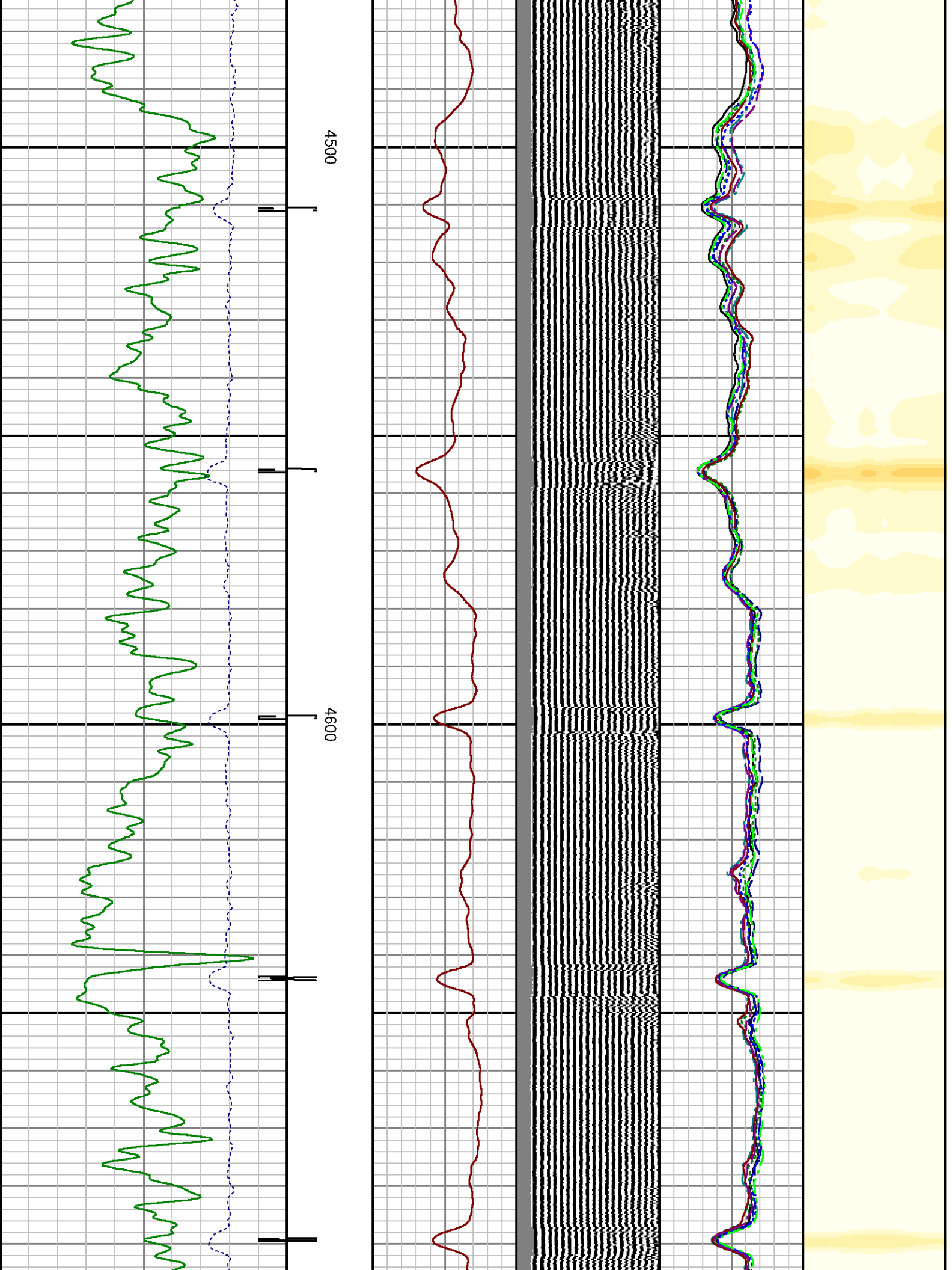


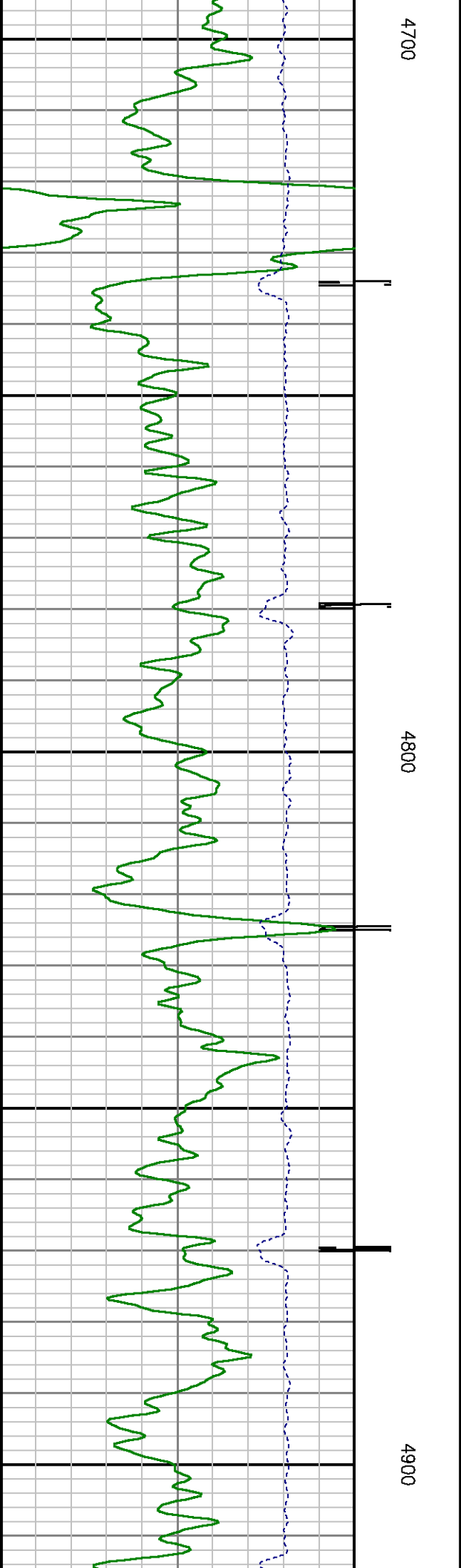
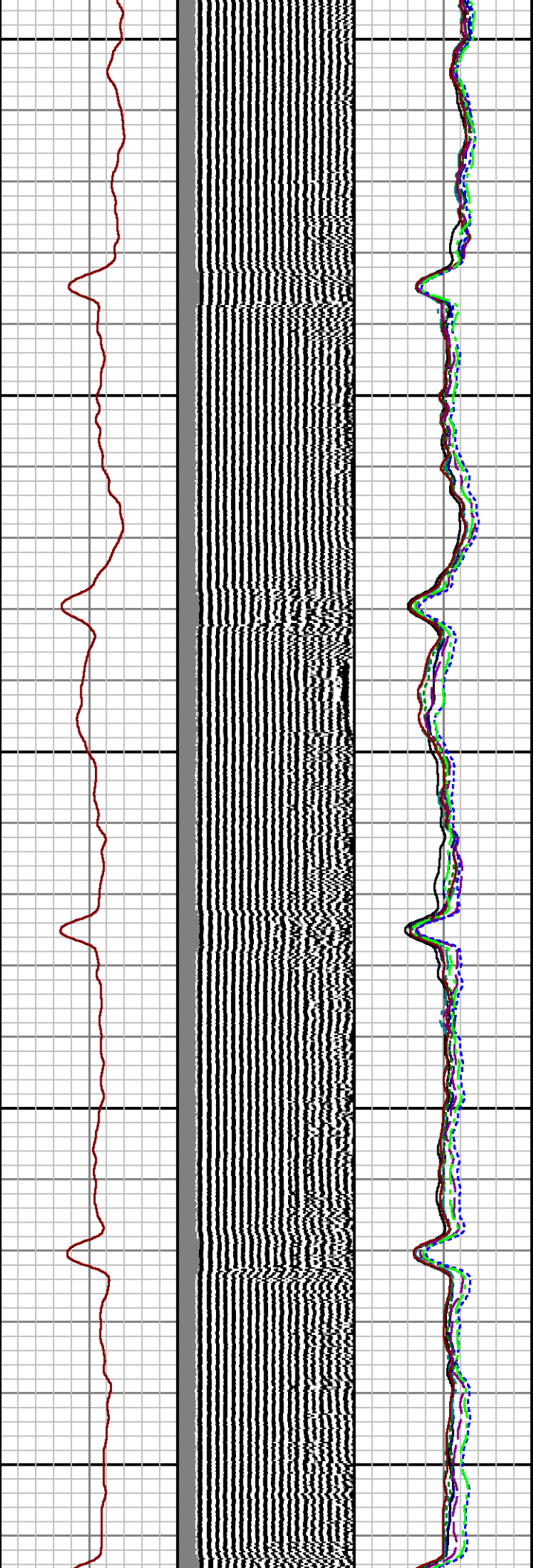
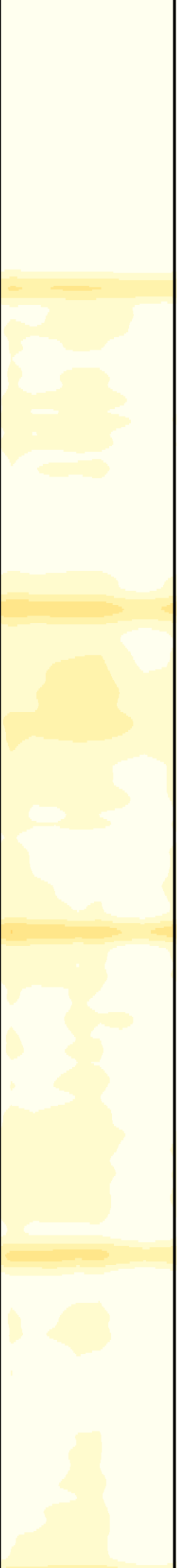


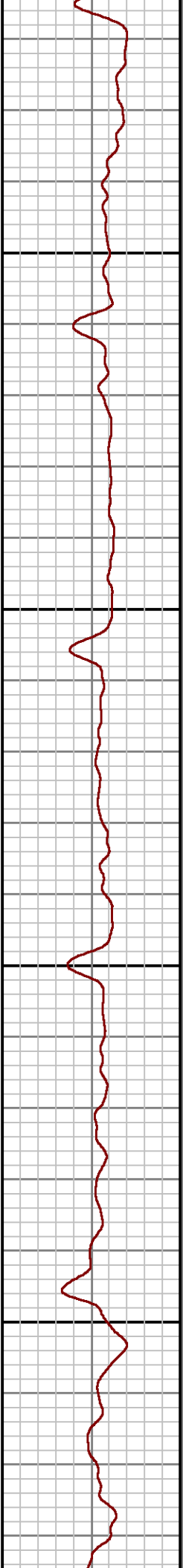
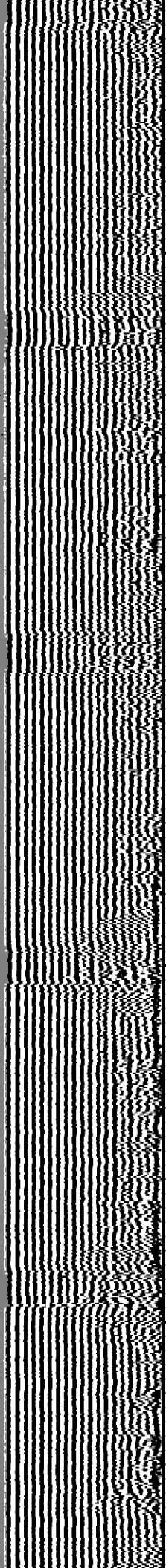
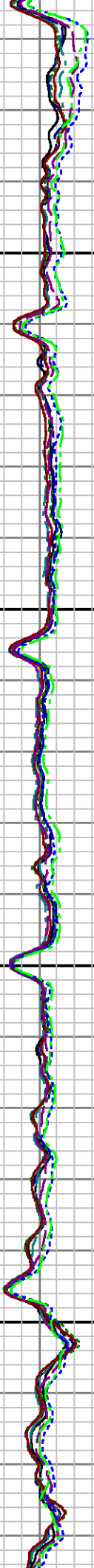
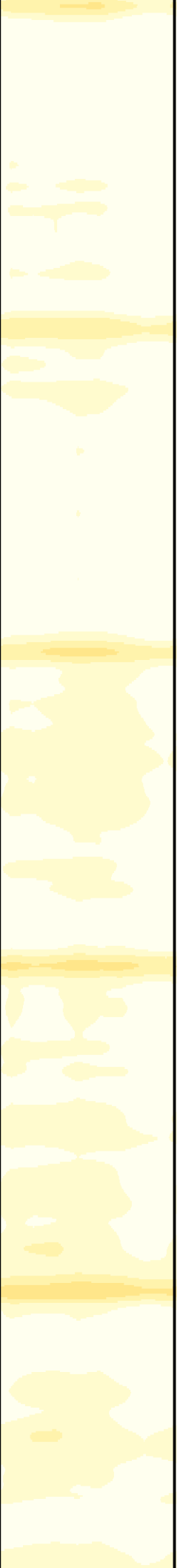
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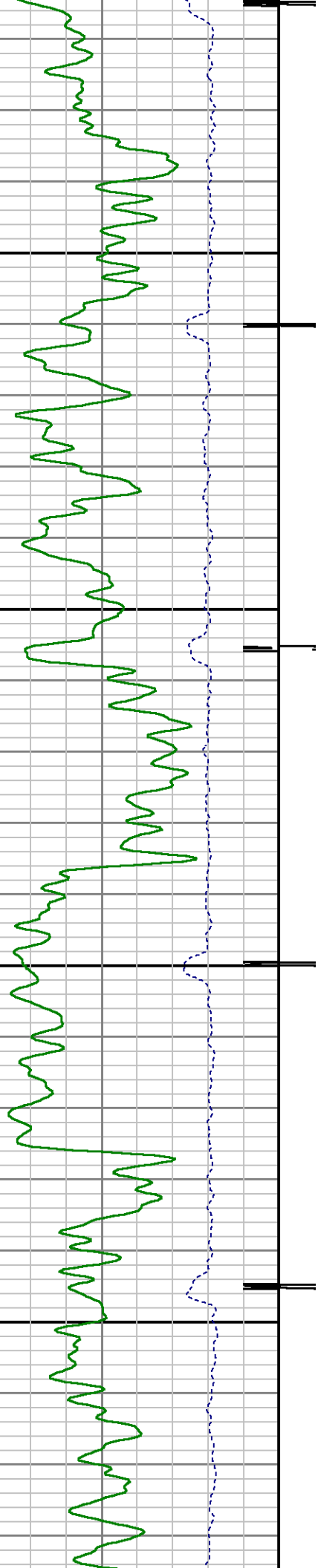




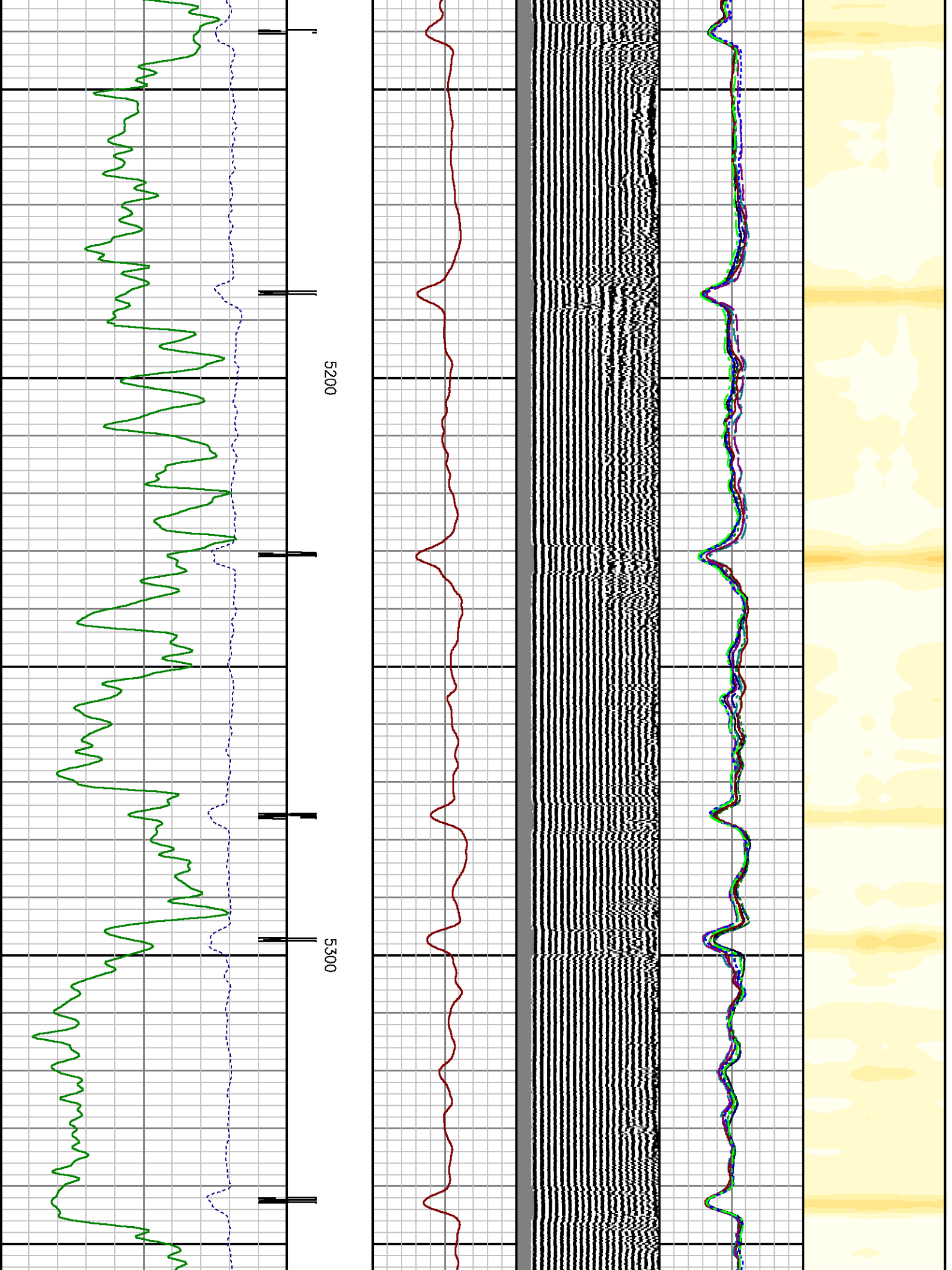


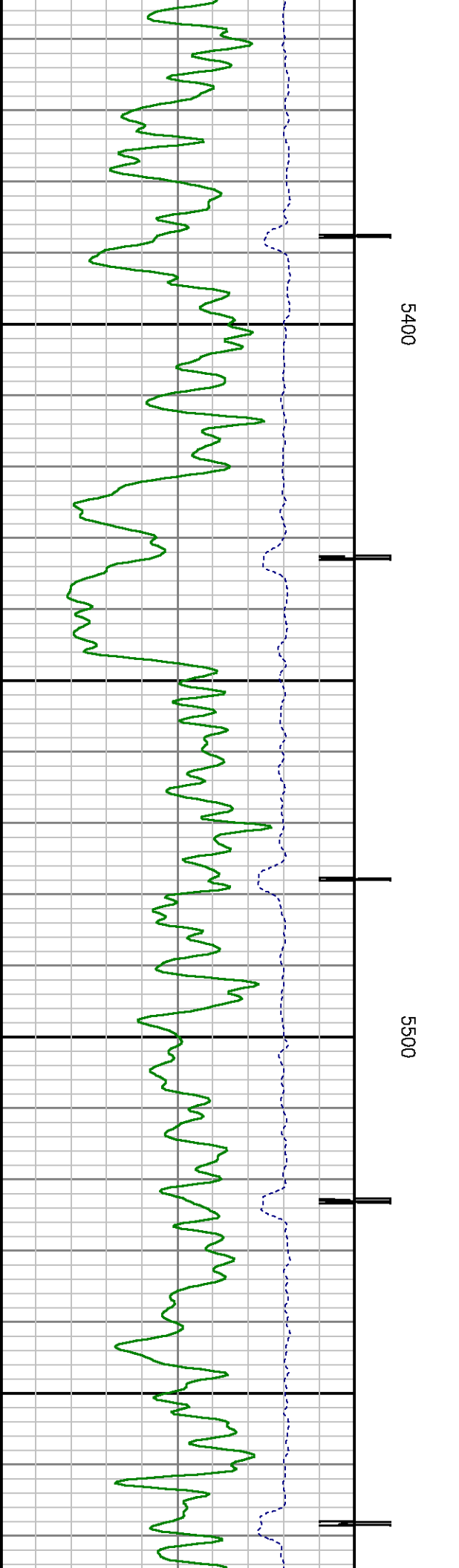
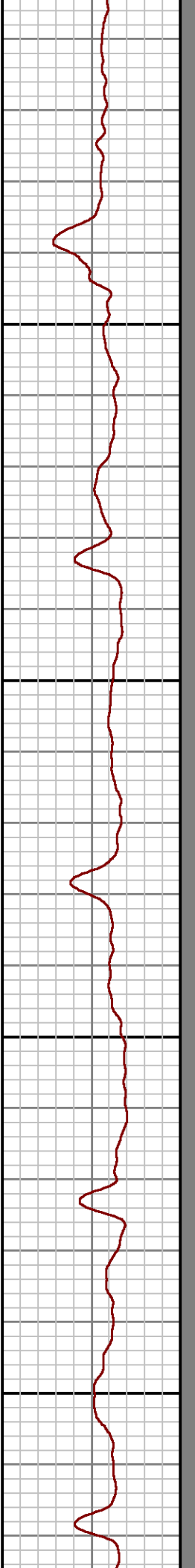
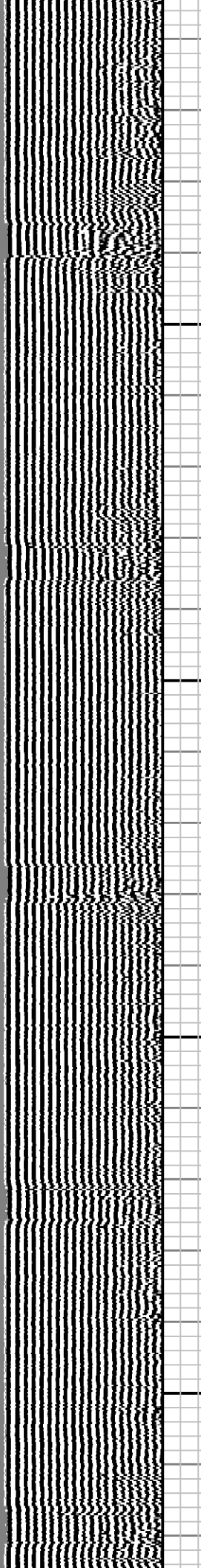
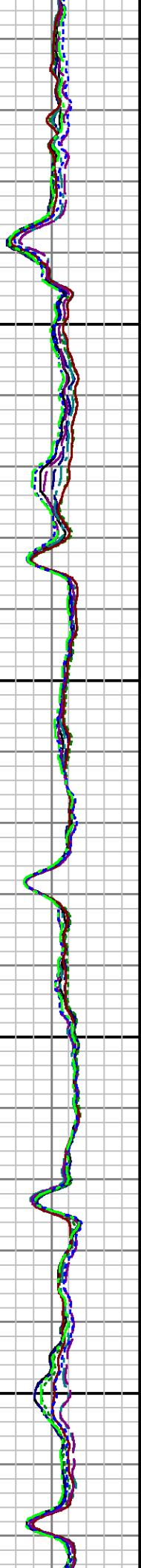
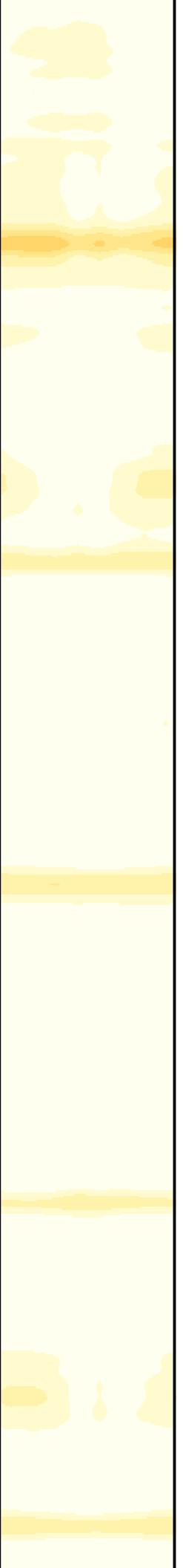
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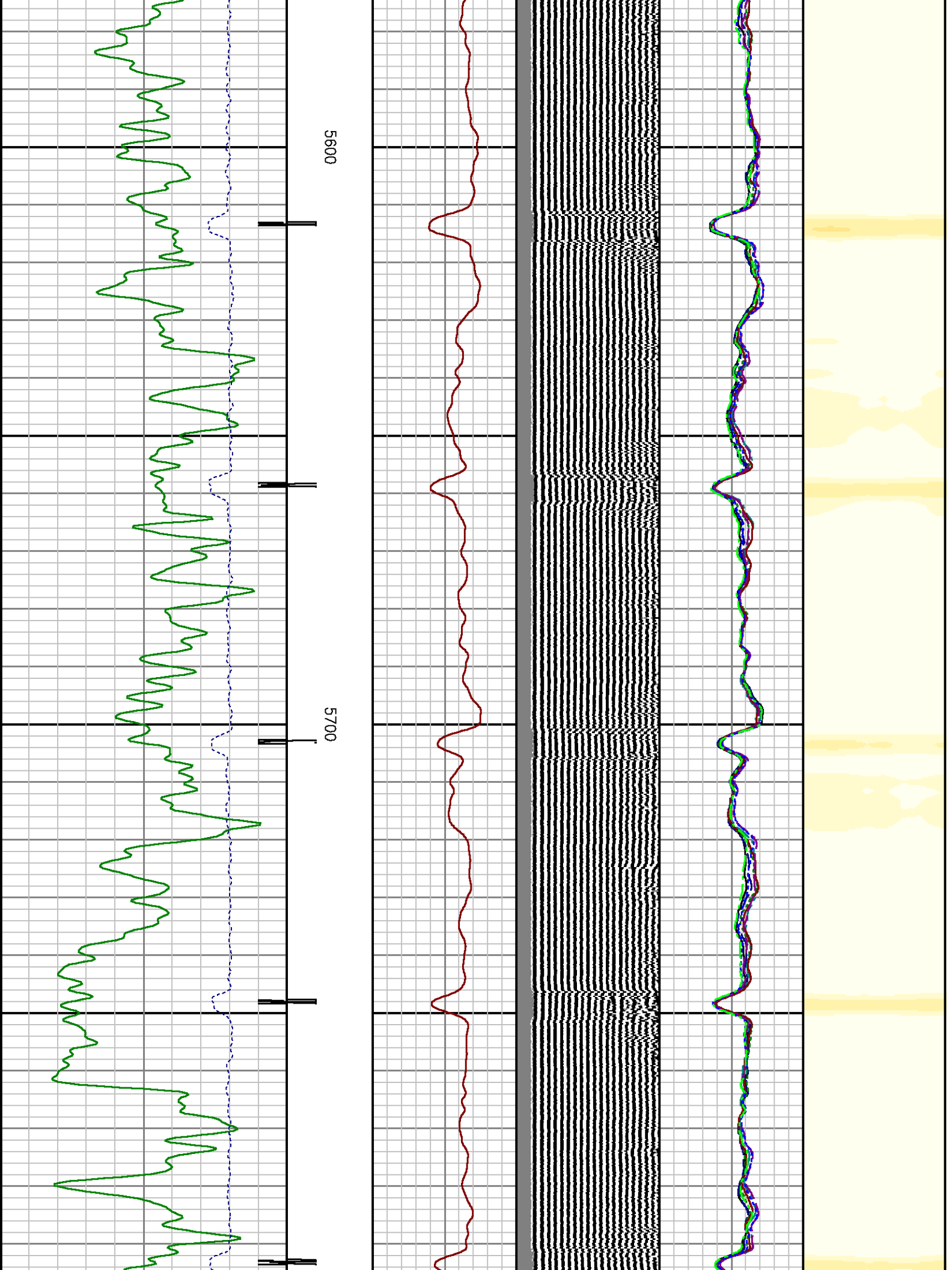
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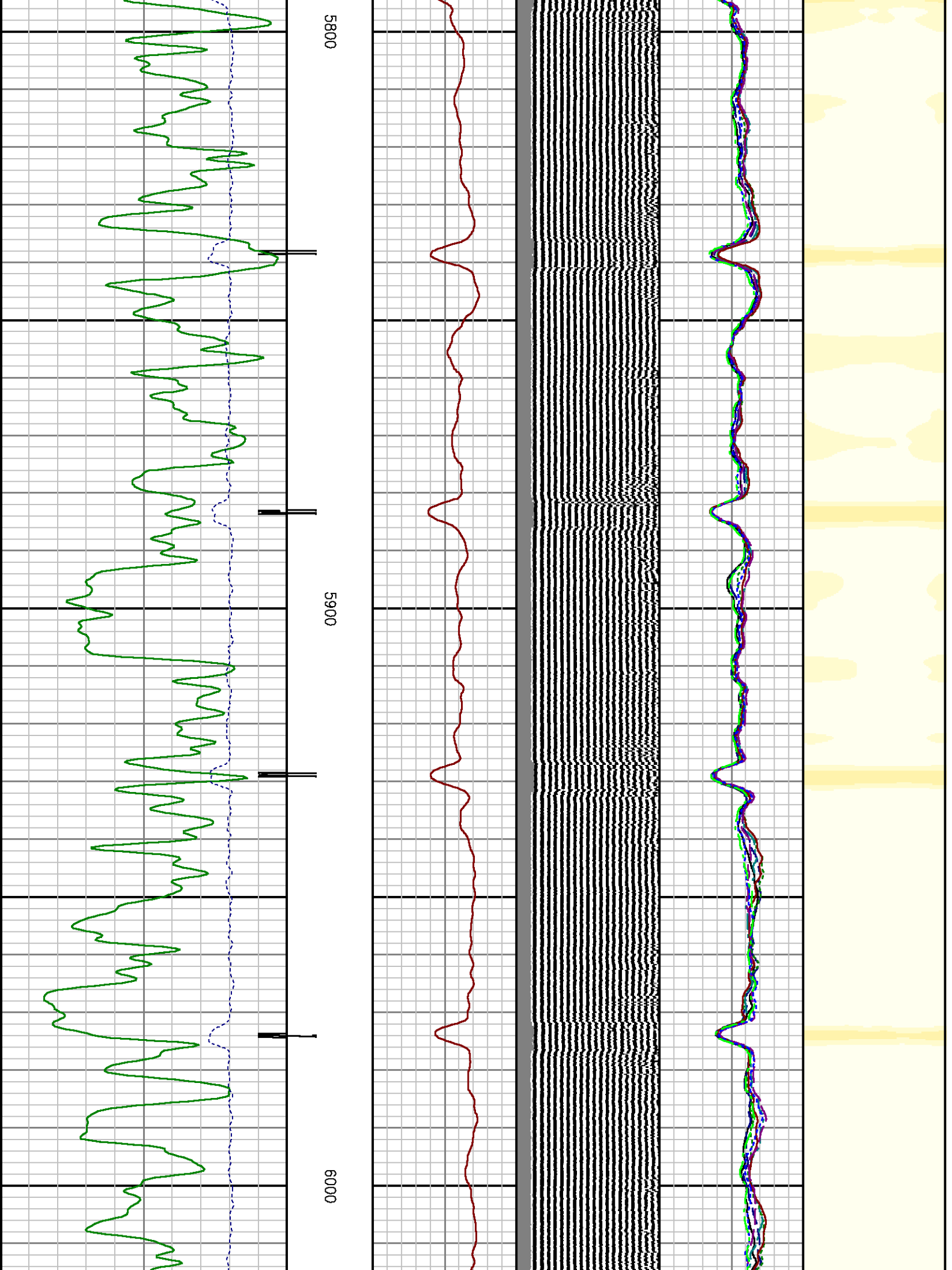


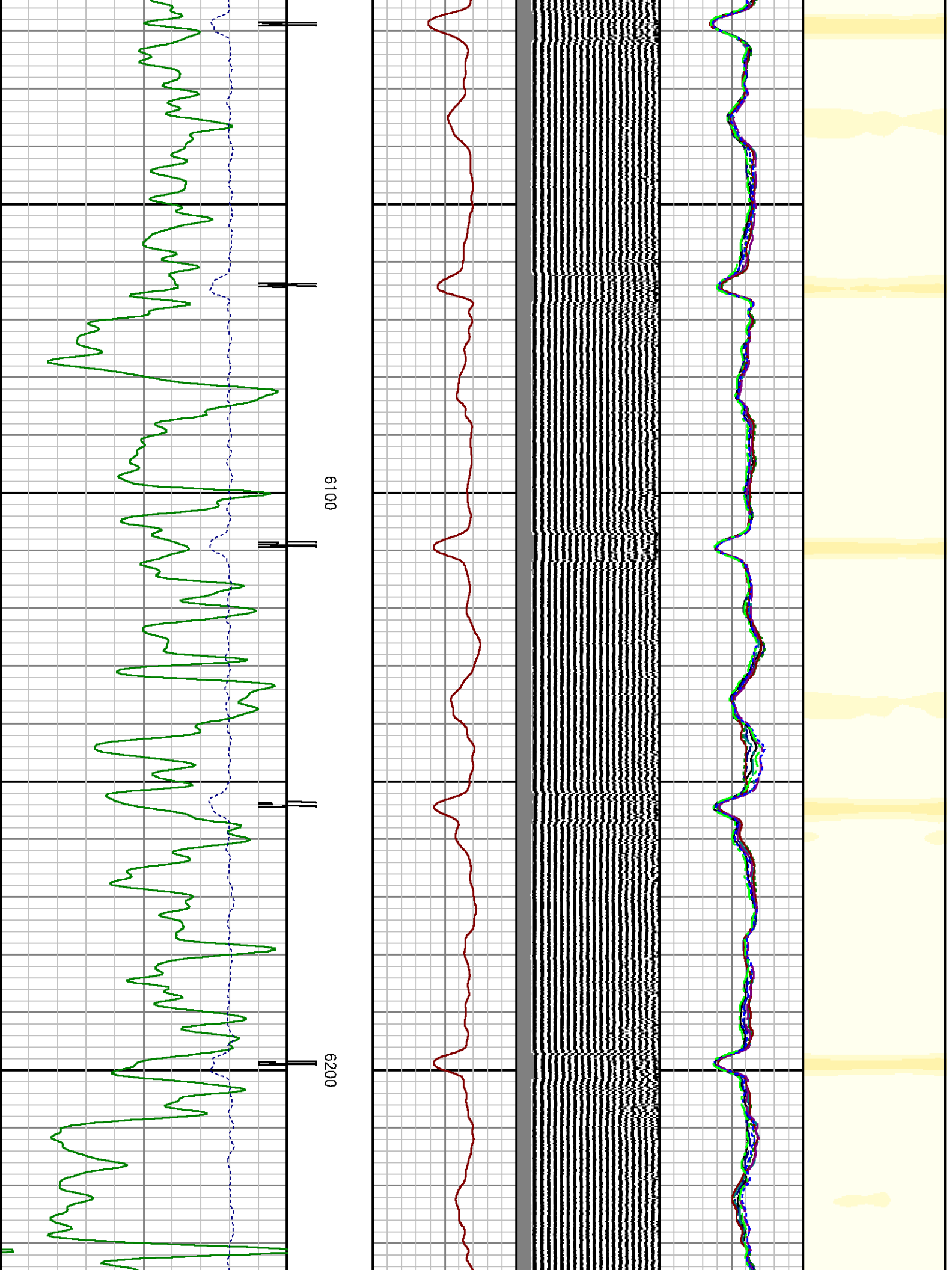


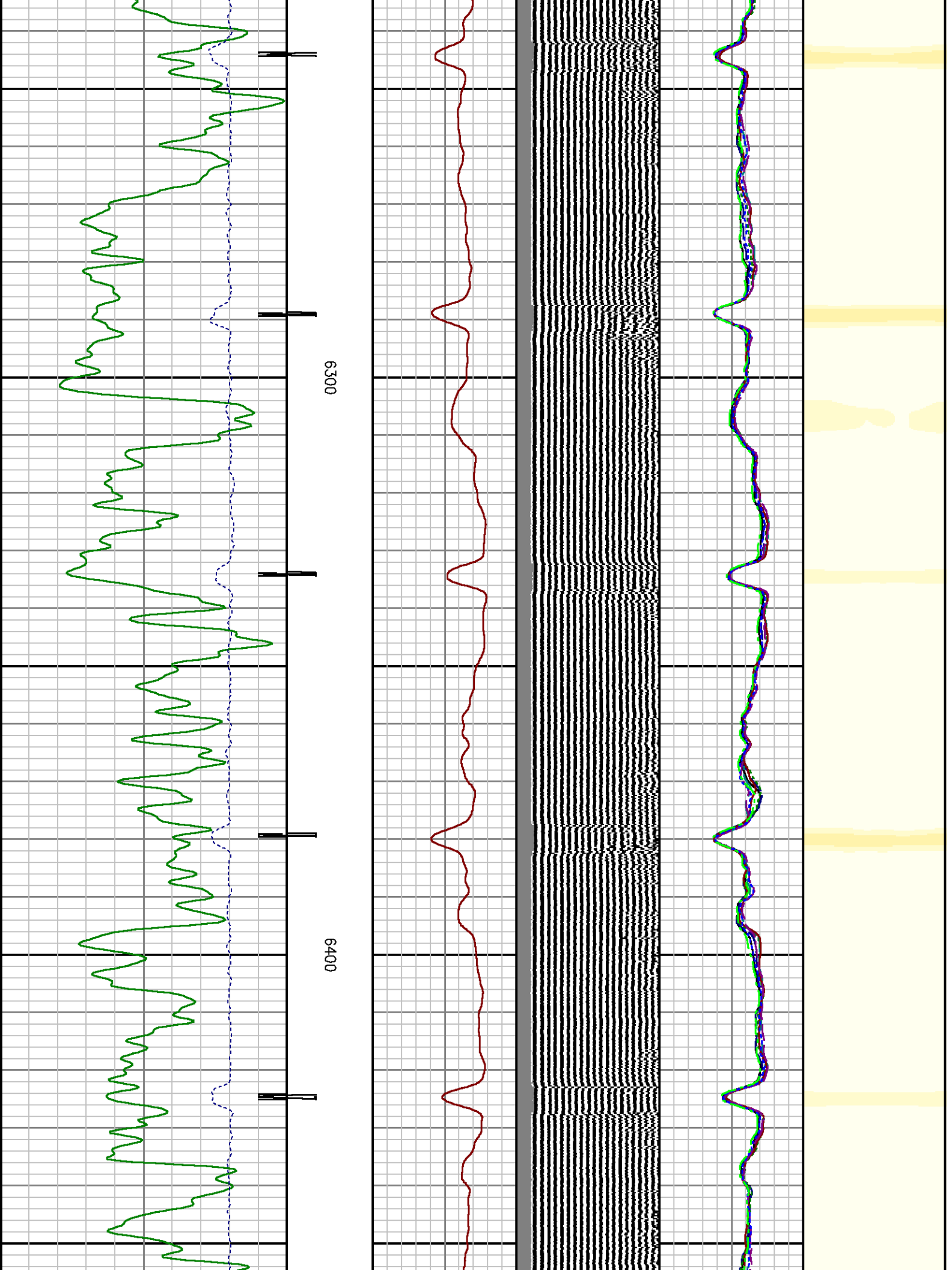




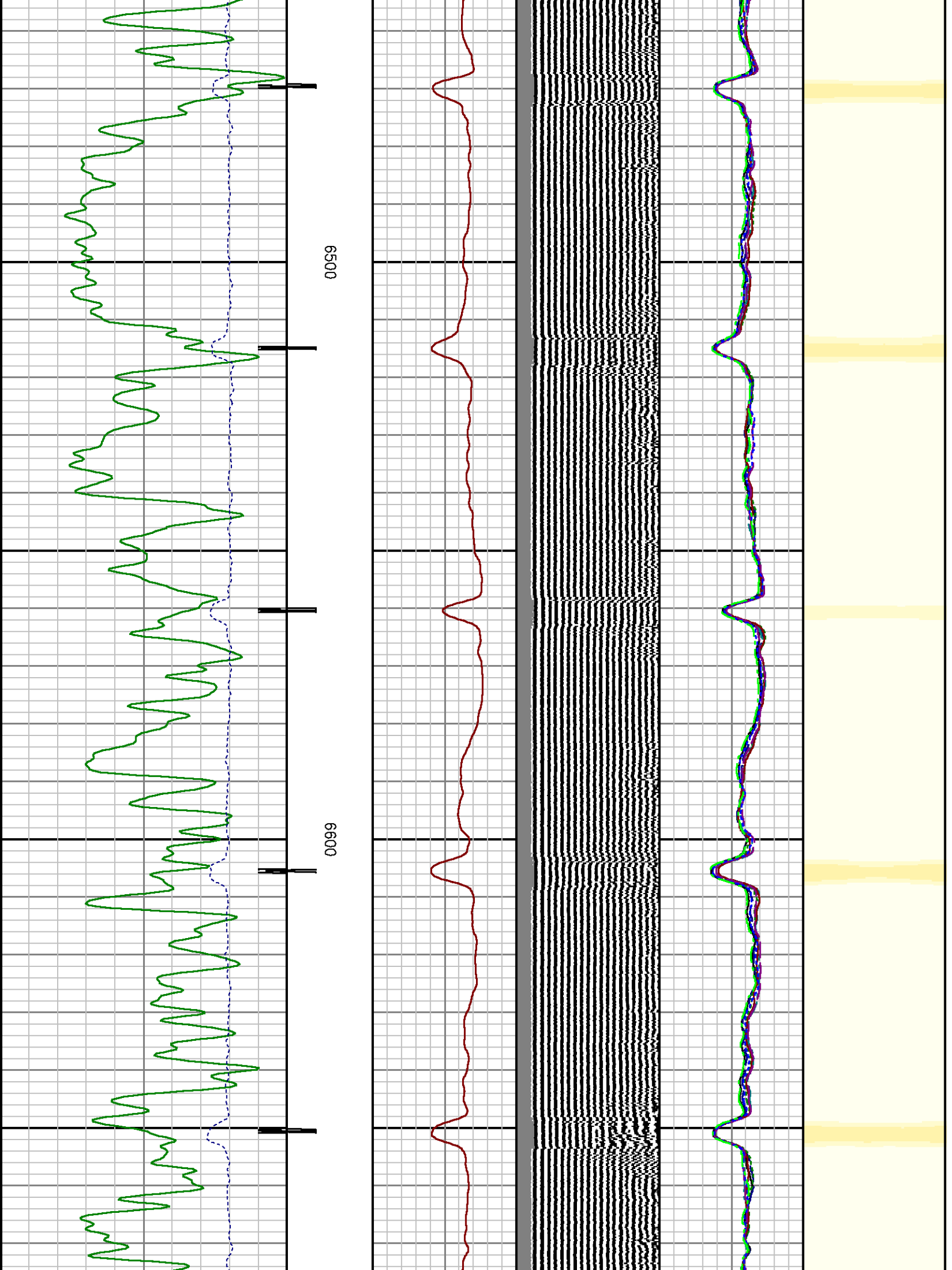


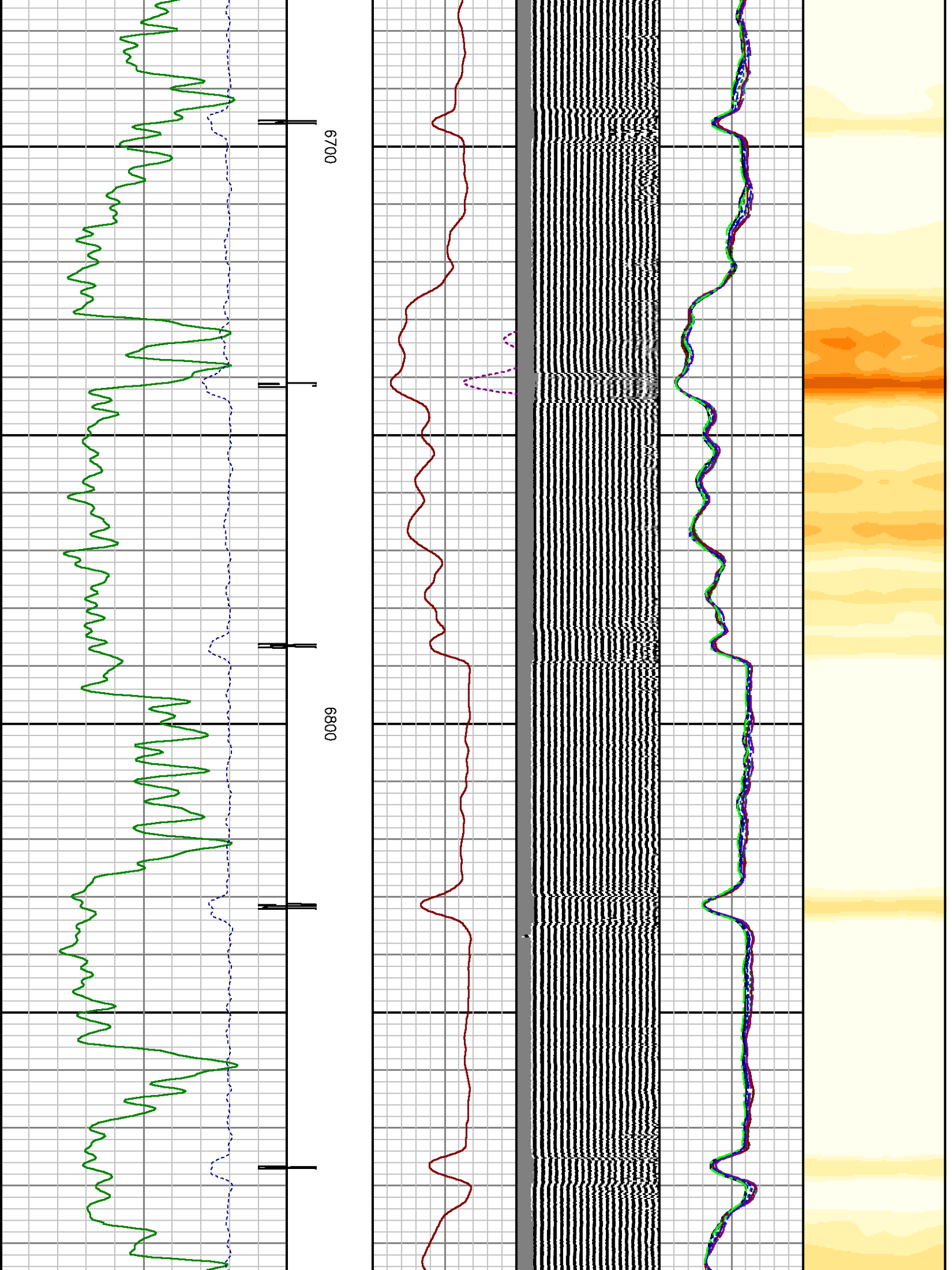


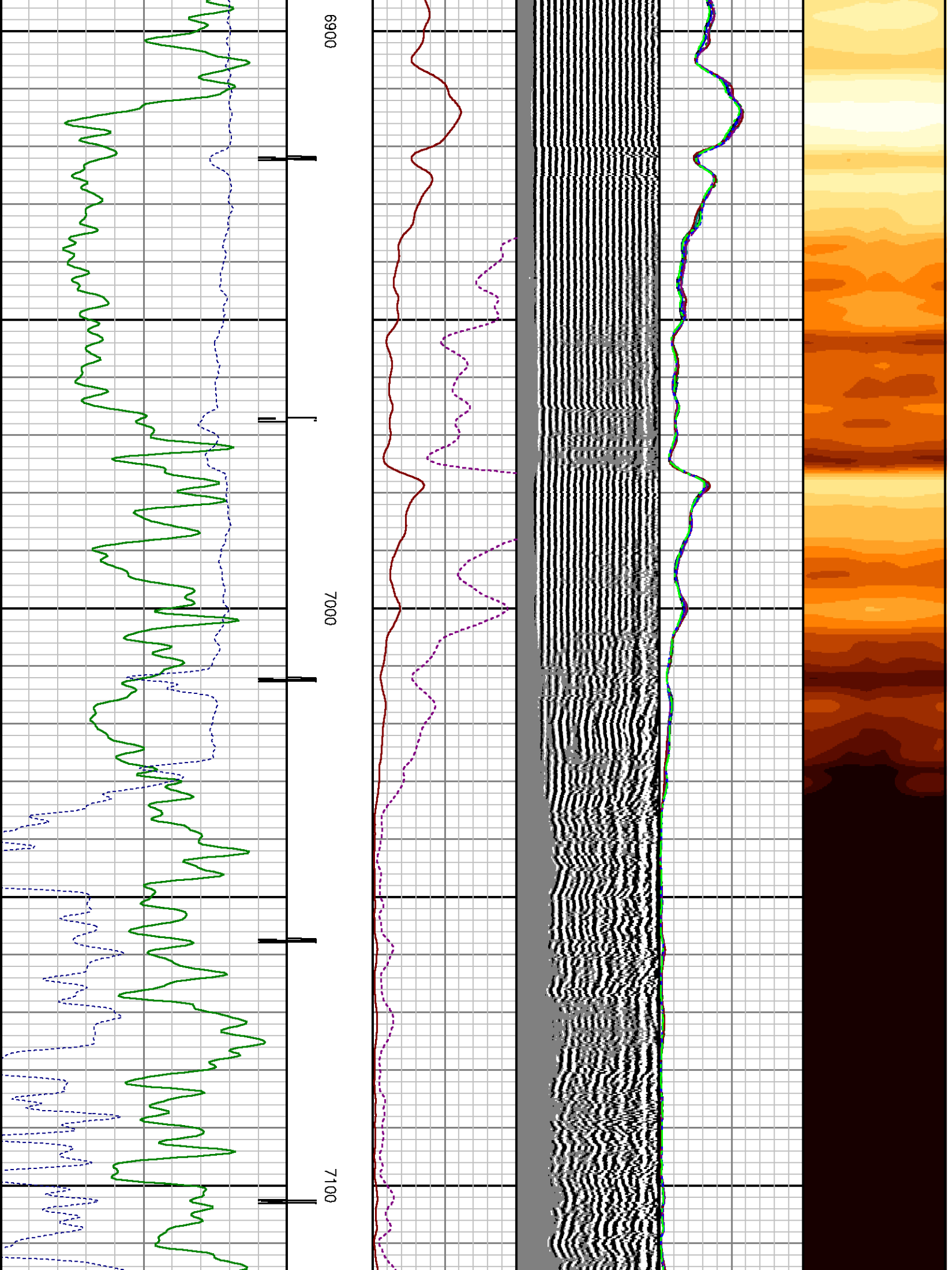


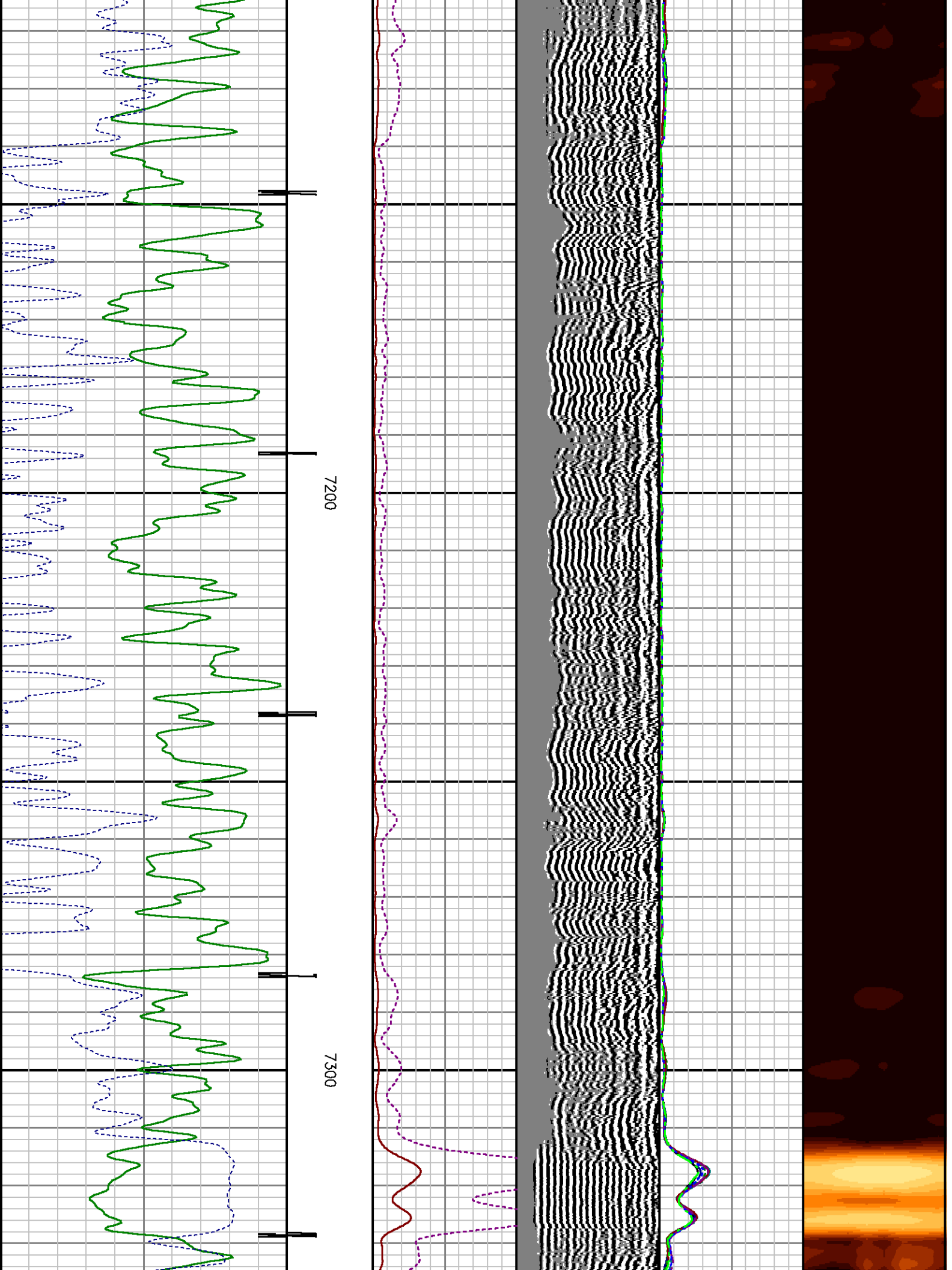


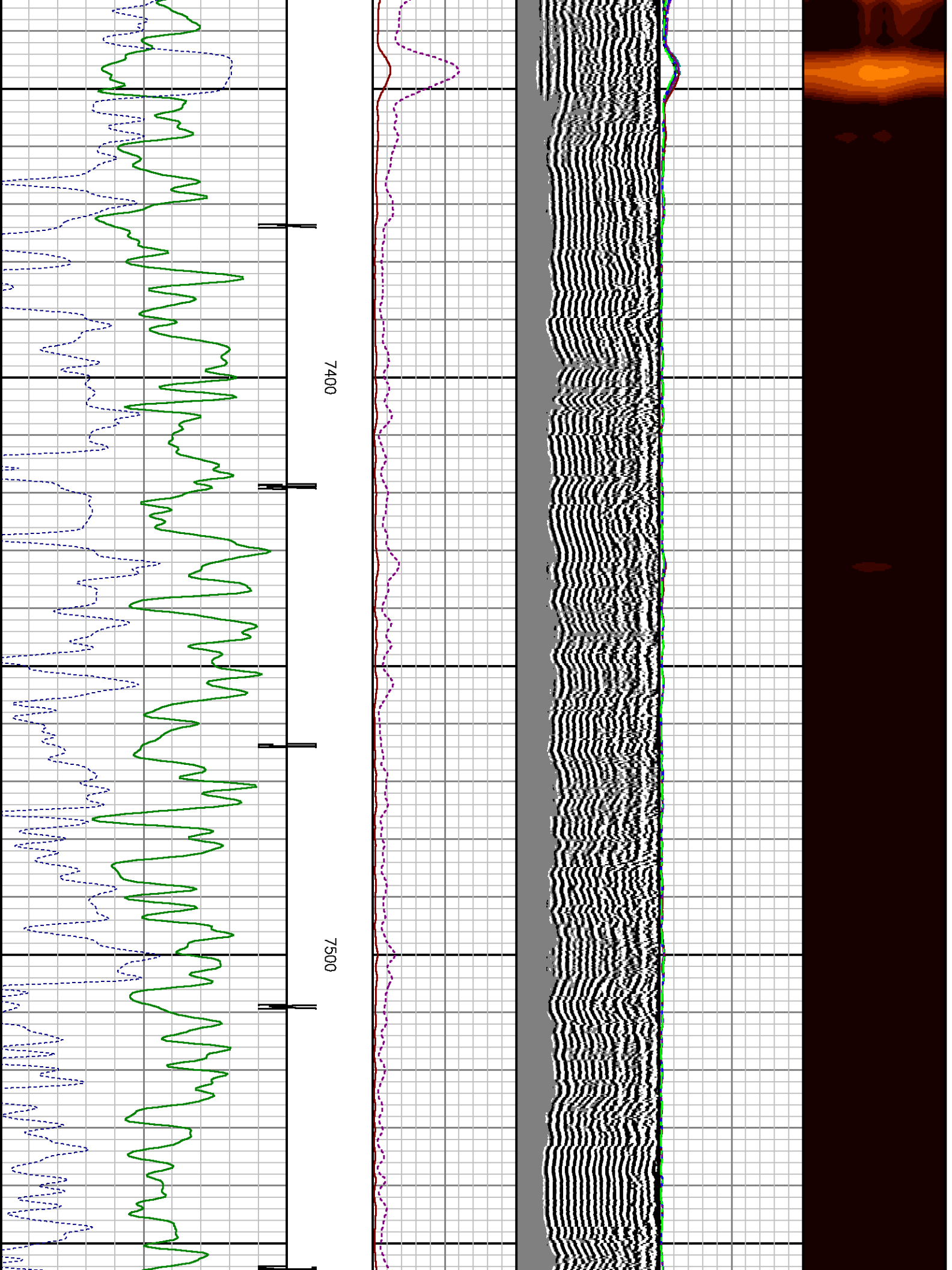


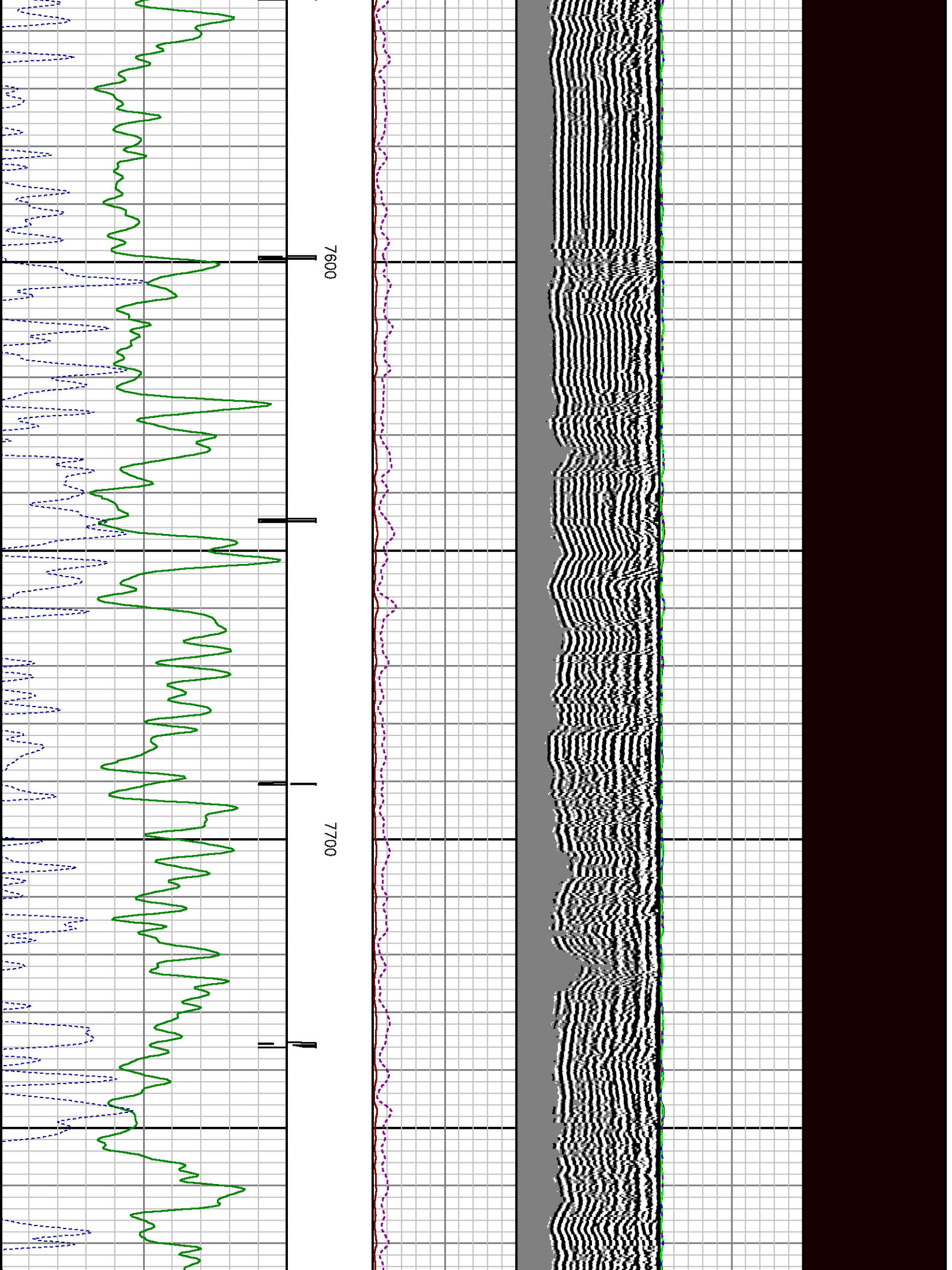




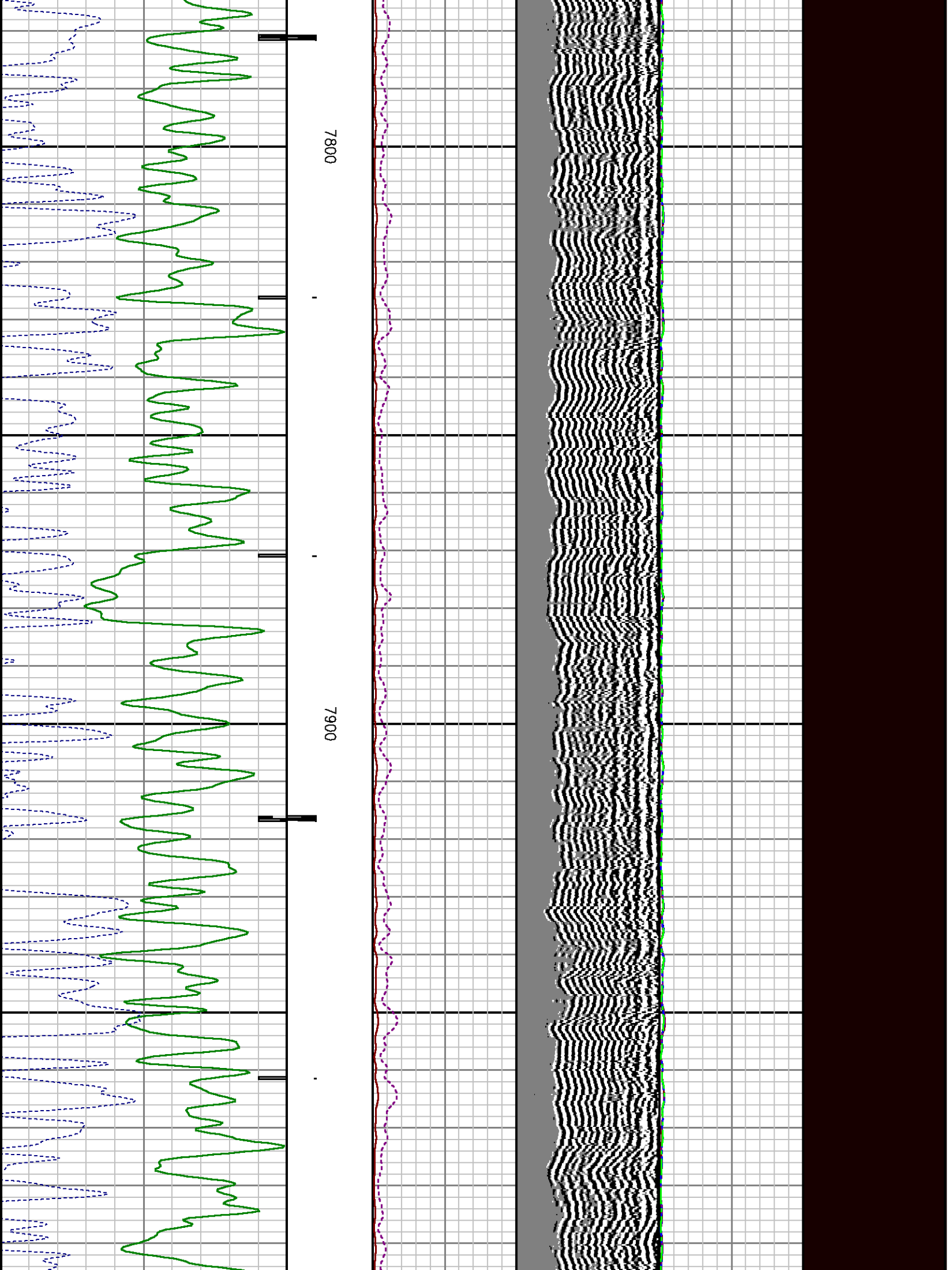


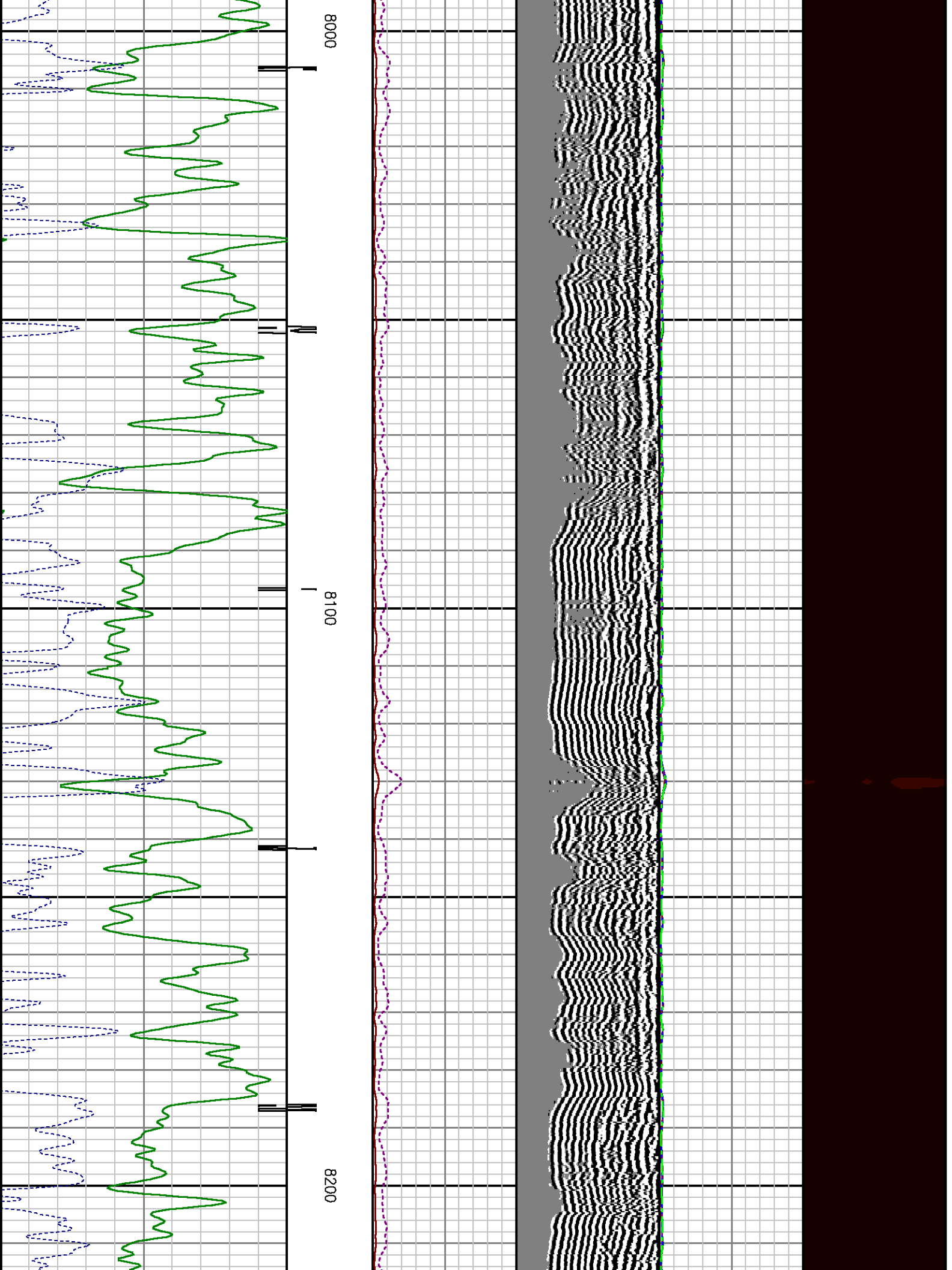


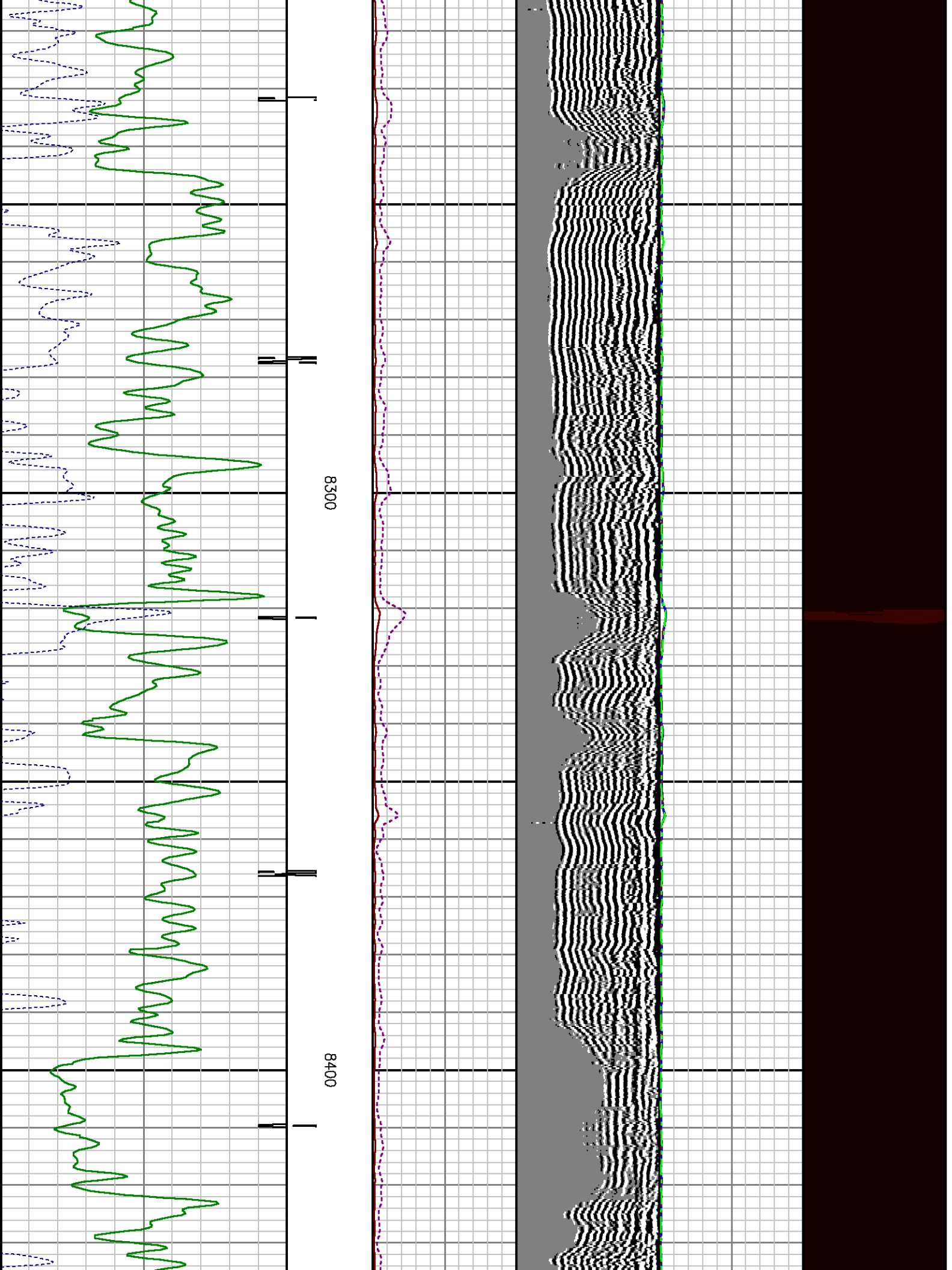


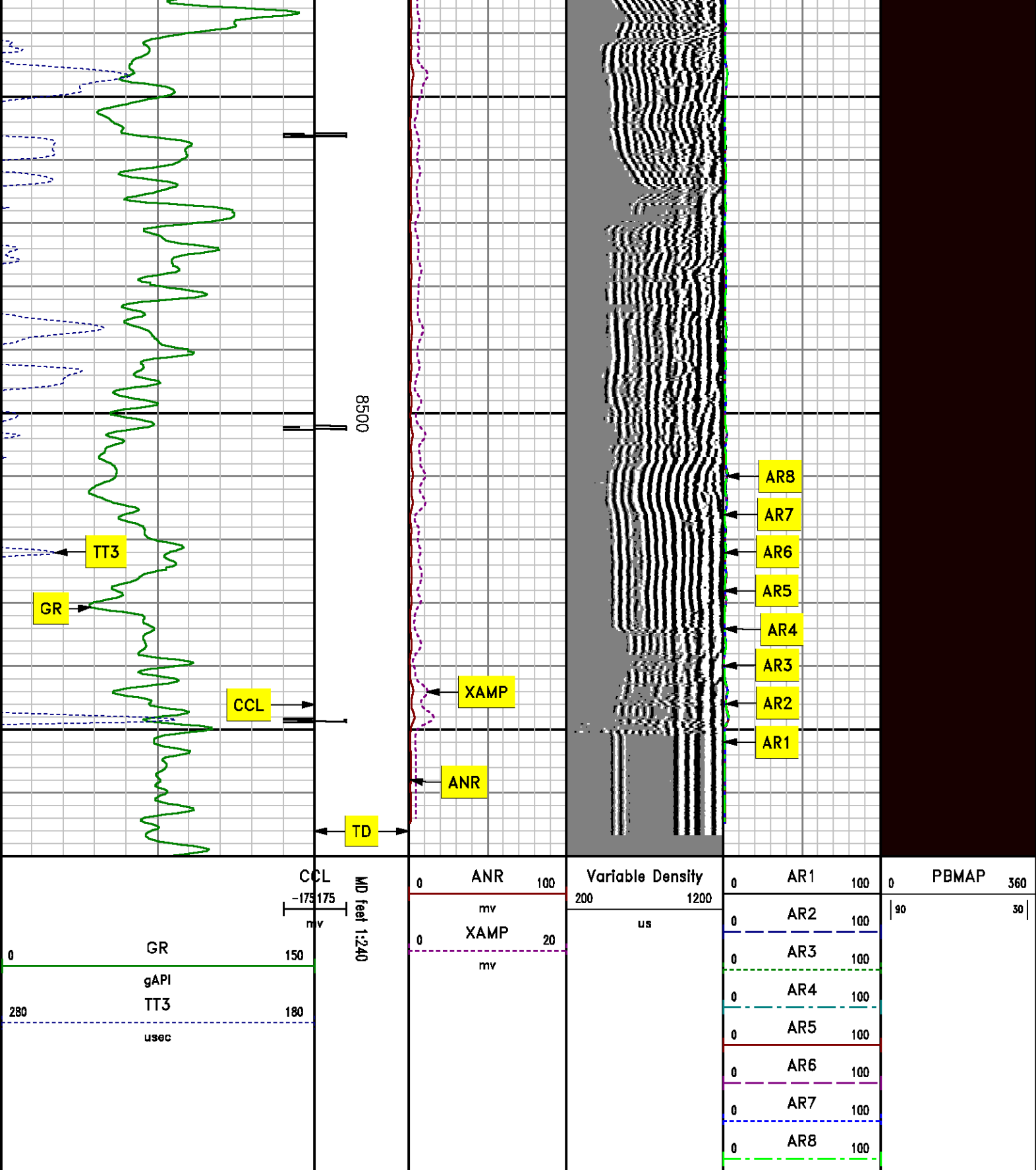












**REPEAT SECTION**

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	316.900	usec	8349.750	8578.000
RAL	Amp Gate Start Near	200.391	usec	8349.750	8578.000
RAL	Amp Gate Start Radial	200.391	usec	8349.750	8578.000
RAL	Amp Gate Width Far	25.000	usec	8349.750	8578.000
RAL	Amp Gate Width Near	25.000	usec	8349.750	8578.000
RAL	Amp Gate Width Radial	25.000	usec	8349.750	8578.000
RAL	casing od	4.500	inches	8349.750	8578.000
RAL	casing wt	11.600	lbm/ft	8349.750	8578.000
RAL	FB Start Far	291.900	usec	8349.750	8578.000
RAL	FB Start Near	175.391	usec	8349.750	8578.000
RAL	FB Start Radial	175.391	usec	8349.750	8578.000
RAL	FB Thresh Far	10.000	mv	8349.750	8578.000
RAL	FB Thresh Near	4.000	mv	8349.750	8578.000
RAL	FB Thresh Radial	4.000	mv	8349.750	8578.000
RAL	Fluid Travel Time	200.000	usec/ft	8349.750	8578.000

### DEPTH OFFSETS

(for Acquired Curves)

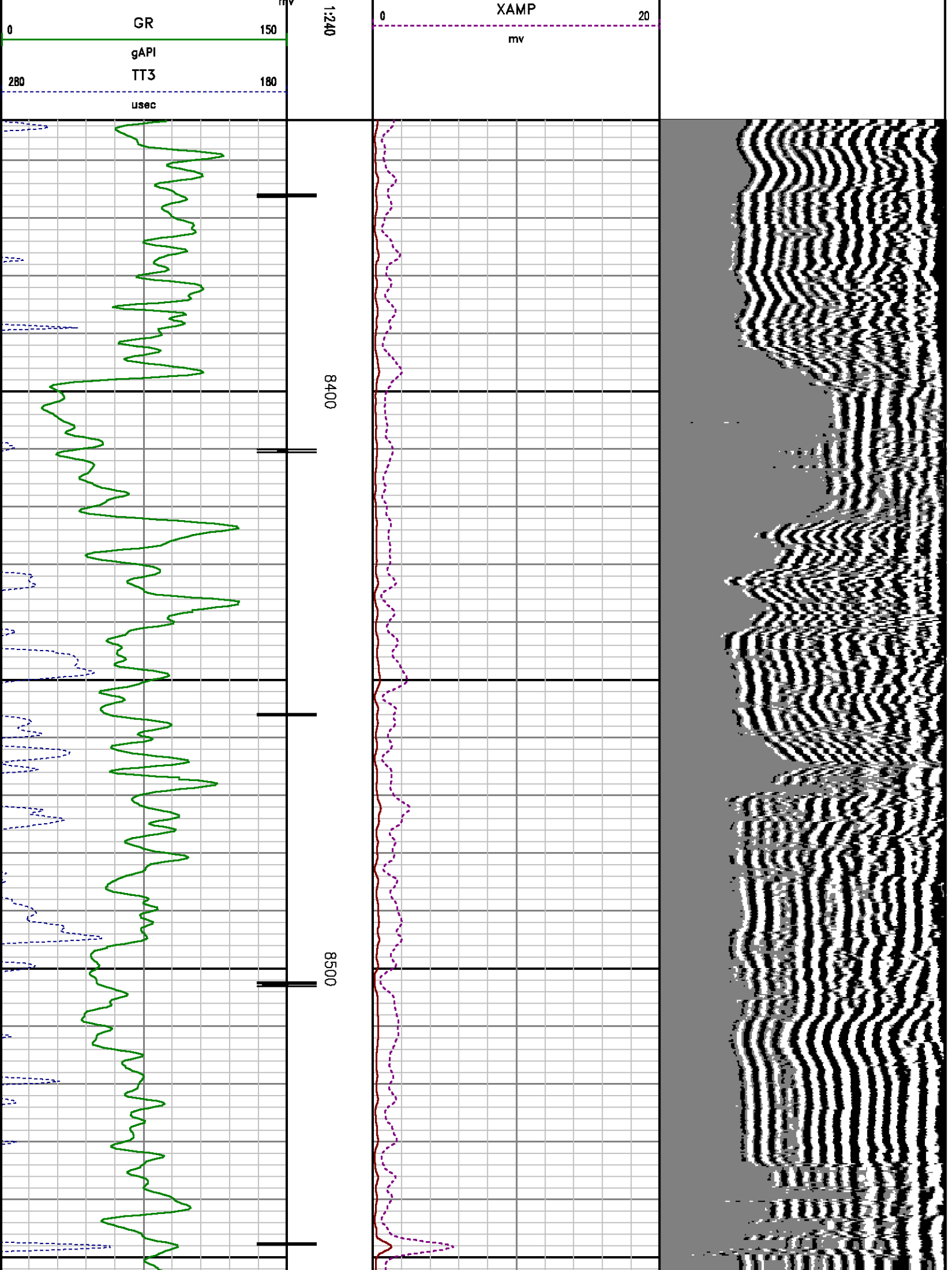
SERIES	DEPTH OFFSET	ACQUIRED CURVES					
1426XA	-15.360	ACAL	ANR	AR1	AR2	AR3	AR4
		AR5	AR6	AR7	AR8	CHV	FPR2
		FPR3	FPR5	TT3	TTR1	TTR2	TTR3
		TTR4	TTR5	TTR6	TTR7	TTR8	XAMP
1426XA	-14.360	AFAR	SIG	TT5			
1426XA	-7.250	CCL					
1426XA	-5.390	GR					
1426XA	0.000	NEU					

Created by : RAL, v4.8.007  
Plotted by : PlotMgr, v5.4.504

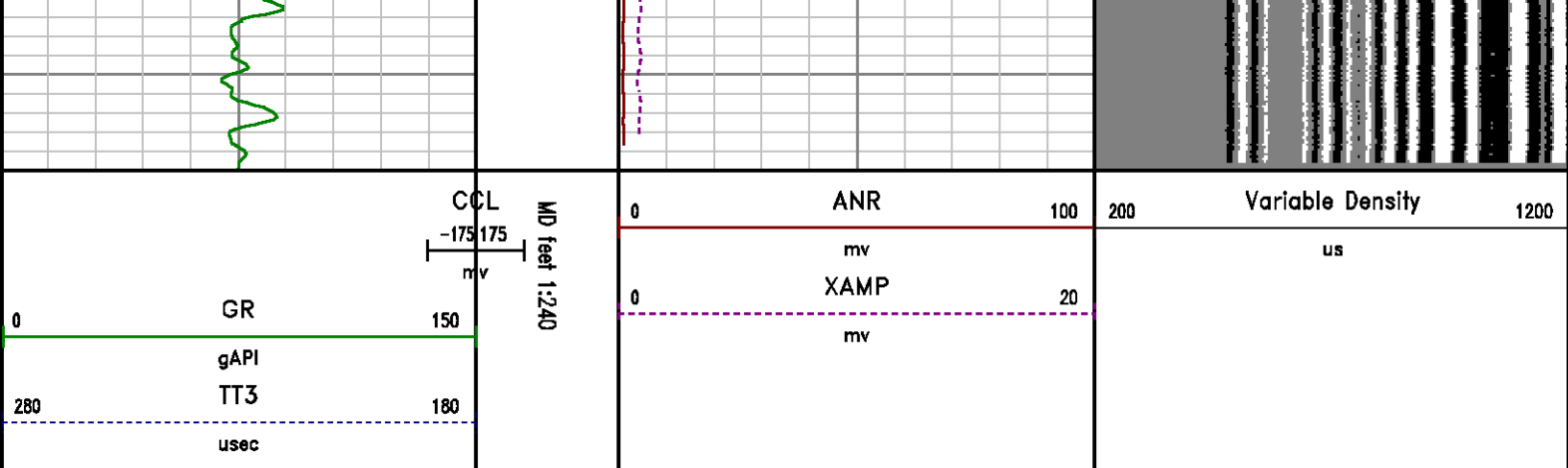
Company : WILLIAMS PRODUCTION COMPANY  
Well : RWF 312-19  
File Name : d:\welldata\rad312\repeat.xtf  
Mode : PlotMgr 5.4.504  
Interval : 8353.00 - 8570.00 feet UP  
Created : 10/8/2009 12:34:50 PM

CCL  
-175 175  
MD Feet

0	ANR	100	200	Variable Density	1200
	mv			us	







## CALIBRATION SUMMARY

**RALSHP**

Shop Calibration: C:\case\calver\RALSHP\028OCT2 shp.cal

### SHOP CALIBRATION SUMMARY

DATE/TIME PERFORMED: Thu Oct 08 07:58:21 2009 TOOL SERIES: 1426XA ASSET: 028 SEQ: OCT2

Tool Delay [usec] -56.00 Tank OD In 5.50 Tank Wt lbm/ft 15.50 Tank ID In 4.95

RECEIVER	Travel Time [usec]	Amp. Gate Start [usec]	Amp. Gate Width [usec]	Zero Gate Start [usec]	Zero Gate Width [usec]	Zero Amp. [mV]	Amp Ref. [mV]	Shop Factor
CAL Pulse	220	216	30	135	25	0.058	100.00	0.15
3 Ft. Receiver	220	216	30	137	25	-2.531	100.00	0.14
5 Ft. Receiver	328	324	30	173	25	0.131	150.00	0.16
Radial #1	220	216	30	93	25	0.000	100.00	0.14
Radial #2	221	216	30	93	25	0.000	100.00	0.14
Radial #3	220	216	30	93	25	0.000	100.00	0.14
Radial #4	220	216	30	93	25	0.000	100.00	0.14
Radial #5	220	216	30	93	25	0.000	100.00	0.14
Radial #6	220	216	30	93	25	0.000	100.00	0.14
Radial #7	219	216	30	93	25	0.000	100.00	0.14
Radial #8	220	216	30	93	25	0.000	100.00	0.15

**RALFLD**

## WELLSITE CALIBRATION SUMMARY

DATE/TIME PERFORMED: Thu Oct 08 08:06:03 2009 TOOL SERIES: 1426XA ASSET: 028 SEQ: OCT1

Tool Delay [usec]	-56.00	Casing OD In	4.50	Casing Wt lbm/ft	11.60	Casing ID In	4.00
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RECEIVER	Zero Gate Start [usec]	Zero Gate Width [usec]	Zero Amp. [mV]	Full Amp. [mV]	Wellsite Factor	Amp. Ref [mV]
CAL Pulse	135	25	0.011	0.000	0.99	100.000
3 Ft. Receiver	200	25	0.120			
5 Ft. Receiver	317	25	-0.292			
Radial #1	200	25	0.108			
Radial #2	200	25	0.169			
Radial #3	200	25	0.140			
Radial #4	200	25	0.108			
Radial #5	200	25	0.137			
Radial #6	200	25	0.096			
Radial #7	200	25	0.099			
Radial #8	200	25	0.145			

**GAMMA RAY**

Calibration File: C:\case\calver\GR\5030C.ca\

## CALIBRATION SUMMARY

DATE/TIME PERFORMED: Wed Oct 07 09:02:18 2009 TOOL SERIES: 2459XA ASSET: 503 SEQ: 0C

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
BA 905	76.04	238.04	1.142	86.84	271.84	185.00

Verification File: C:\case\calver\GR\5030C.VP

## PRIMARY LOG VERIFICATION

DATE/TIME PERFORMED: Wed Oct 07 09:03:56 2009 TOOL SERIES: 2459XA ASSET: 503 SEQ: 0C

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
BA 905	77.51	243.91	1.142	88.52	278.54	190.02

**TOOL DIAGRAM**

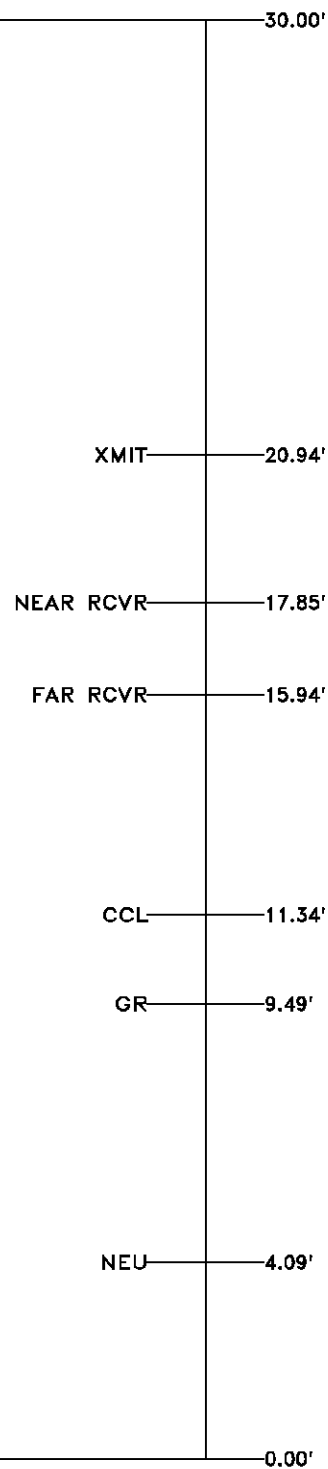
<b>OTA SHORT CABLE HEAD</b>	
<b>CENTRALIZER</b>	
Series	RALCENT
Mnemonic	CENT
Diameter	3.12"
Weight	20.00 lb

**PROBE 2 3/4 DUAL RECEIVER RADII (1426XA)**

<b>CENTRALIZER</b>	
Series	RALCENT
Mnemonic	CENT
Diameter	3.12"
Weight	20.00 lb

**Probe GR/CCL/NEU (2459XA)**

<b>CENTRALIZER</b>	
Series	RALCENT
Mnemonic	CENT
Diameter	3.12"
Weight	20.00 lb



Total Length: 30.00'  
Total Weight: Not Available  
Max Diameter: 0' 3.12"



Baker Atlas

Company  
Well  
Field  
County

WILLIAMS PRODUCTION COMPANY  
RWF 312-19  
RULISON  
GARFIELD State COLORADO

File No:  
1370  
API No:  
05-045-178060000

Location

SHL: 2803' FSL & 140' FWL  
BHL: 1573' FNL & 251' FWL

Elevations

KB 5845.5 ft  
DF 5844.5 ft

19, 6S, 94W  
RWF 12-19 PAD

	SEC 19 TWP 6S RGE 94W	GL 5823 ft	CYCLONE 14
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