



Baker Atlas

# RADIAL ANALYSIS BOND LOG

File No:	CH084614	Company	WPX ENERGY
API No:	05045217860000	Well	FEDERAL NER 514-32
		Field	RULISON
		County	GARFIELD
		State	COLORADO

32 6S 93W	Location	SHL: 192' FWL x 2599' FWL SEC 5 7S 93W	Other Services	RPM
RU 23-5 PAD		BHL: 169' FSL x 673' FWL SEC 32 6S 93W		
NABORS 576				
	SEC 32	TWP 6S	RGE 93W	

Permanent Datum	GL	Elevation	7603 ft
Log Measured From	KB	26 ft	Above P. D.
Drill Measured From	KELLY BUSHING		
	KB	7629 ft	
	DF		
	GL	7603 ft	

Date	03/APR/14
Run	ONE
Service Order	US625372
Depth Driller	10232 ft
Depth Logger	10203 ft
Bottom Logged Interval	10193 ft
Top Logged Interval	26 ft
Time Started	0830
Time Finished	1330
Operator Rig Time	5 HRS
Type of Fluid in Hole	WATER
Fluid Density	NA
Salinity	NA
Fluid Level	90 ft
Logged Cement Top	NA
Wellhead Pressure	0 psi
Maximum Hole Deviation	NA
Nominal Logging Speed	65 fpm
Maximum Recorded Temperature	242 degF
Reference Log	NONE
Reference Log Date	NE
Equipment No.	4271
Recorded By	FLYOND RENEAU
Witnessed By	JEFF DUCY

- FOLD HERE

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
13.5 in	26 ft	1126 ft
8.75 in	1126 ft	10232 ft

Casing Record				
Size	Weight	Grade	From	To
9.625 in			26 ft	1126 ft
4.5 in	11.6 lbm/ft	P-110	26 ft	10232 ft

**Remarks**

All data on this log is shifted using the CCL curve to put the wellhead (top CCL mark) on depth with ground level elevation at the client's request.

The amount of linear shift is 15 feet.

Logged with zero PSI at wellhead.

BHT = 242°F

SJ = 6981'-7003'

**Equipment Data**

Run	Trip	Tool	Series Number	Serial Number	Position
1	1	VDL	1426XA	10218496	CENT
1	1	GR/CCL	2459XA	10417456	CENT

**PRIMARY PRESENTATION**  
**0 PSI**

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	305.000	usec	35.872	10211.000
RAL	Amp Gate Start Near	195.000	usec	35.872	10211.000
RAL	Amp Gate Start Radial	195.000	usec	35.872	10211.000
RAL	Amp Gate Width Far	25.000	usec	35.872	10211.000
RAL	Amp Gate Width Near	25.000	usec	35.872	10211.000
RAL	Amp Gate Width Radial	25.000	usec	35.872	10211.000
RAL	casing od	4.500	inches	35.872	10211.000
RAL	casing wt	11.600	lbm/ft	35.872	10211.000
RAL	FB Start Far	291.900	usec	35.872	10211.000
RAL	FB Start Near	180.000	usec	35.872	10211.000
RAL	FB Start Radial	180.000	usec	35.872	10211.000
RAL	FB Thresh Far	10.000	mv	35.872	10211.000
RAL	FB Thresh Near	4.000	mv	35.872	10211.000
RAL	FB Thresh Radial	4.000	mv	35.872	10211.000
RAL	Fluid Travel Time	200.000	usec/ft	35.872	10211.872

**DEPTH OFFSETS**

(for Acquired Curves)

SERIES	DEPTH OFFSET	ACQUIRED CURVES											
1426XA	-16.750	ACAL	ANR	AR1	AR2	AR3	AR4	AR5	AR6	AR7	AR8	CHV	FPR2

1426XA -15.750  
 2459XA -11.340  
 2459XA -9.490  
 2459XA -4.090

FPR3 FPR5 TT3 TTR1 TTR2 TTR3  
 TTR4 TTR5 TTR6 TTR7 TTR8 XAMP  
 AFAR SIG TT5  
 CCL  
 GR  
 NEU

Created by : RAL, v4.8.008

Plotted by : PlotMgr, v5.4.504

Company : WPX ENERGY

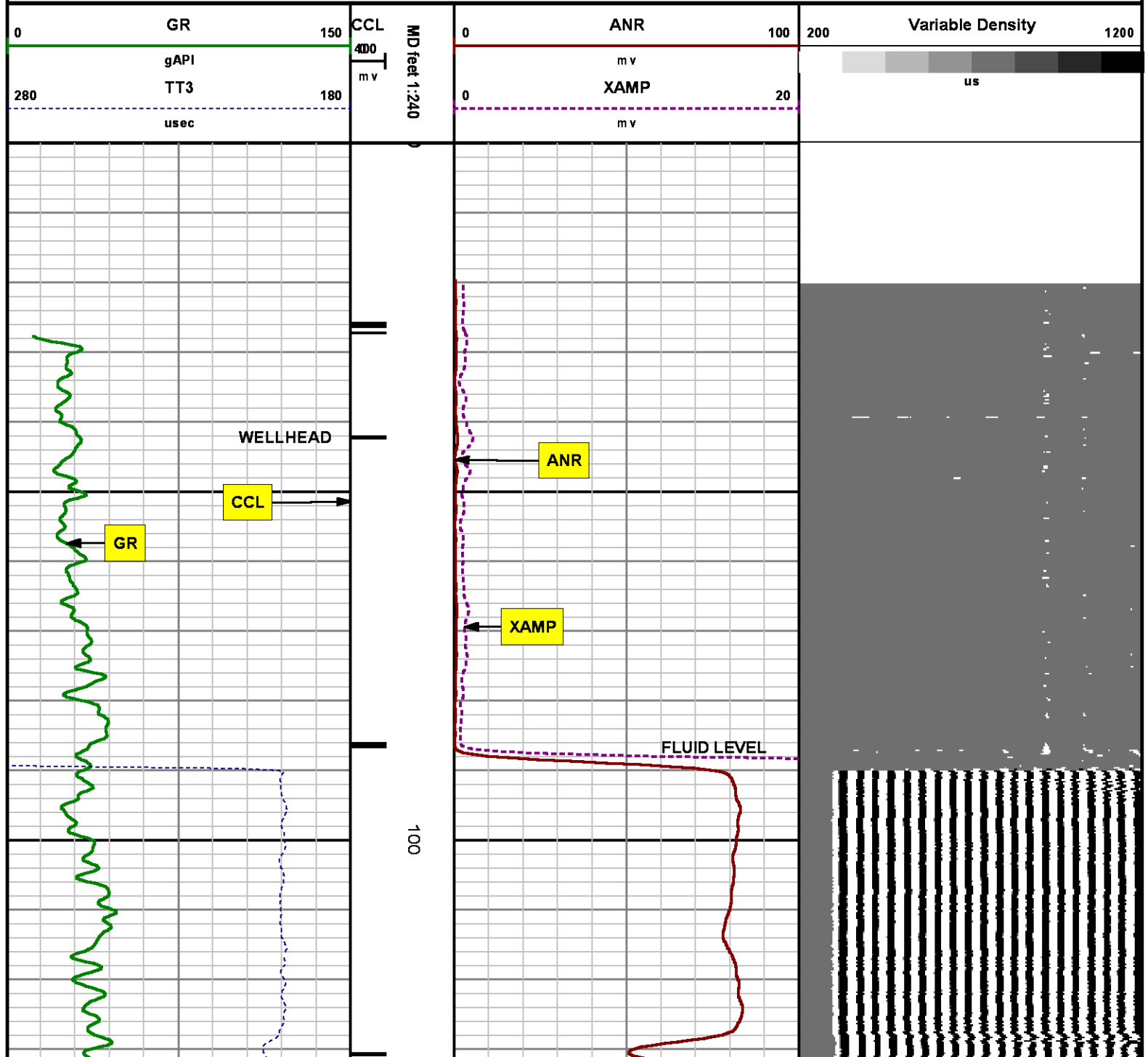
Well : FEDERAL NER 514-32

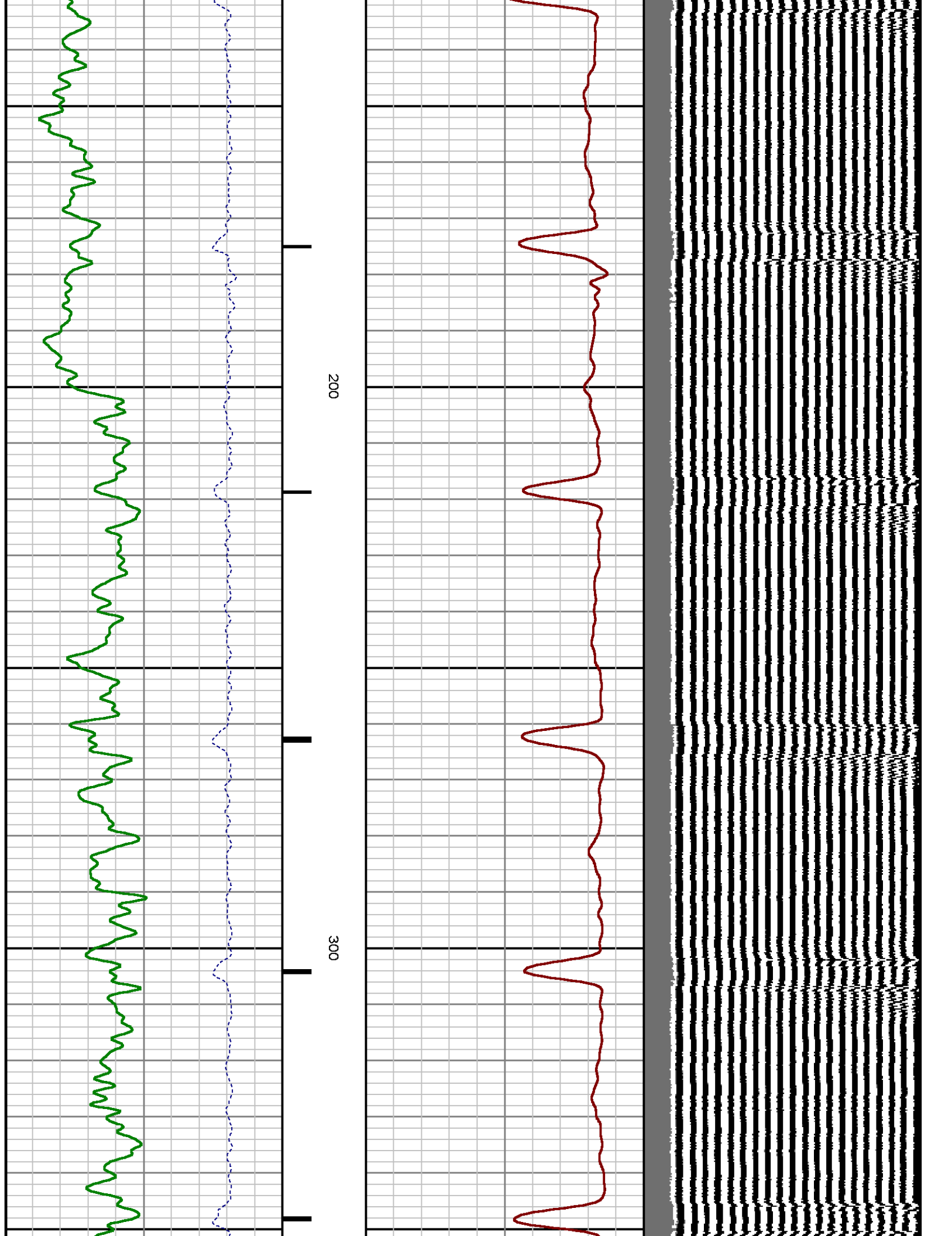
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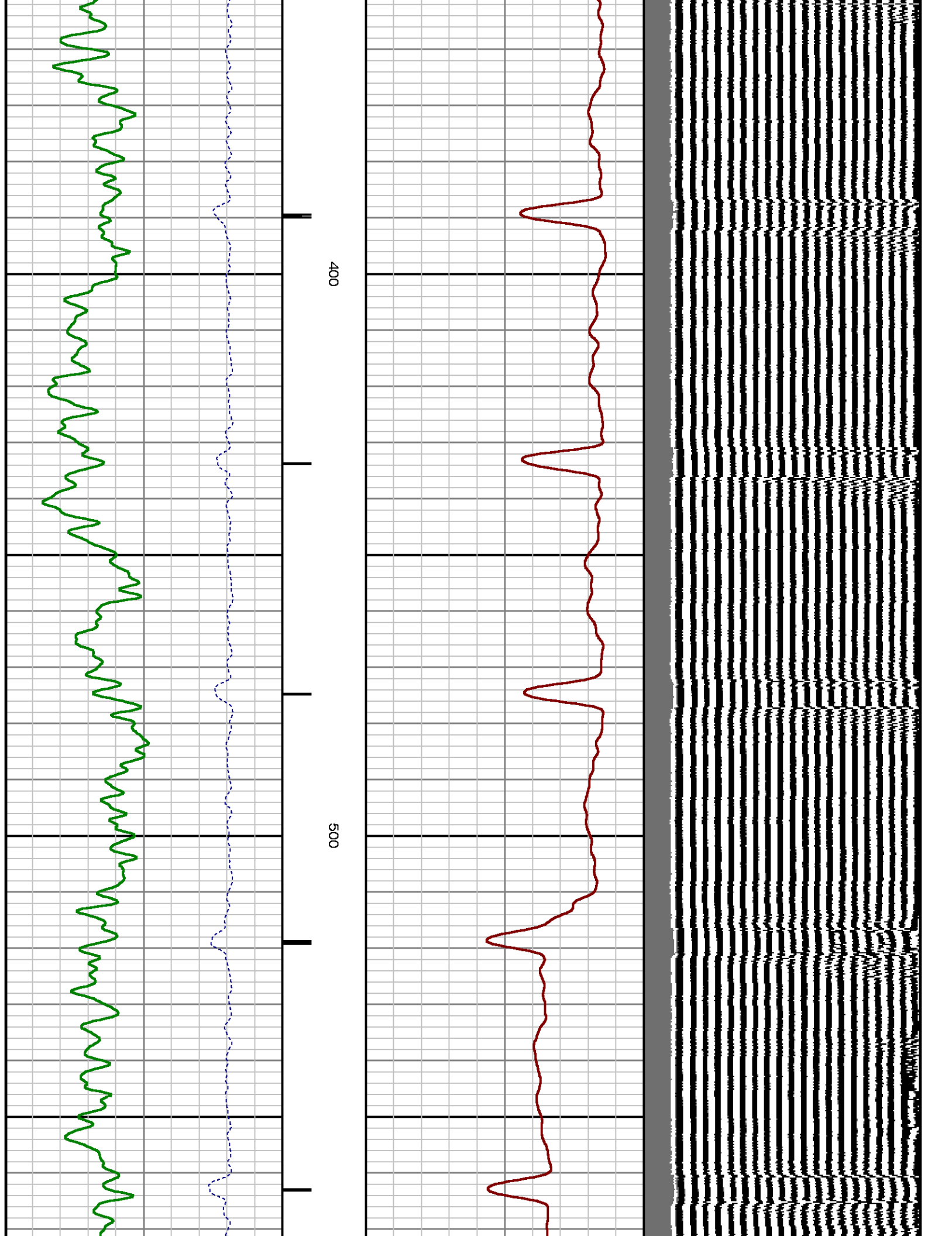
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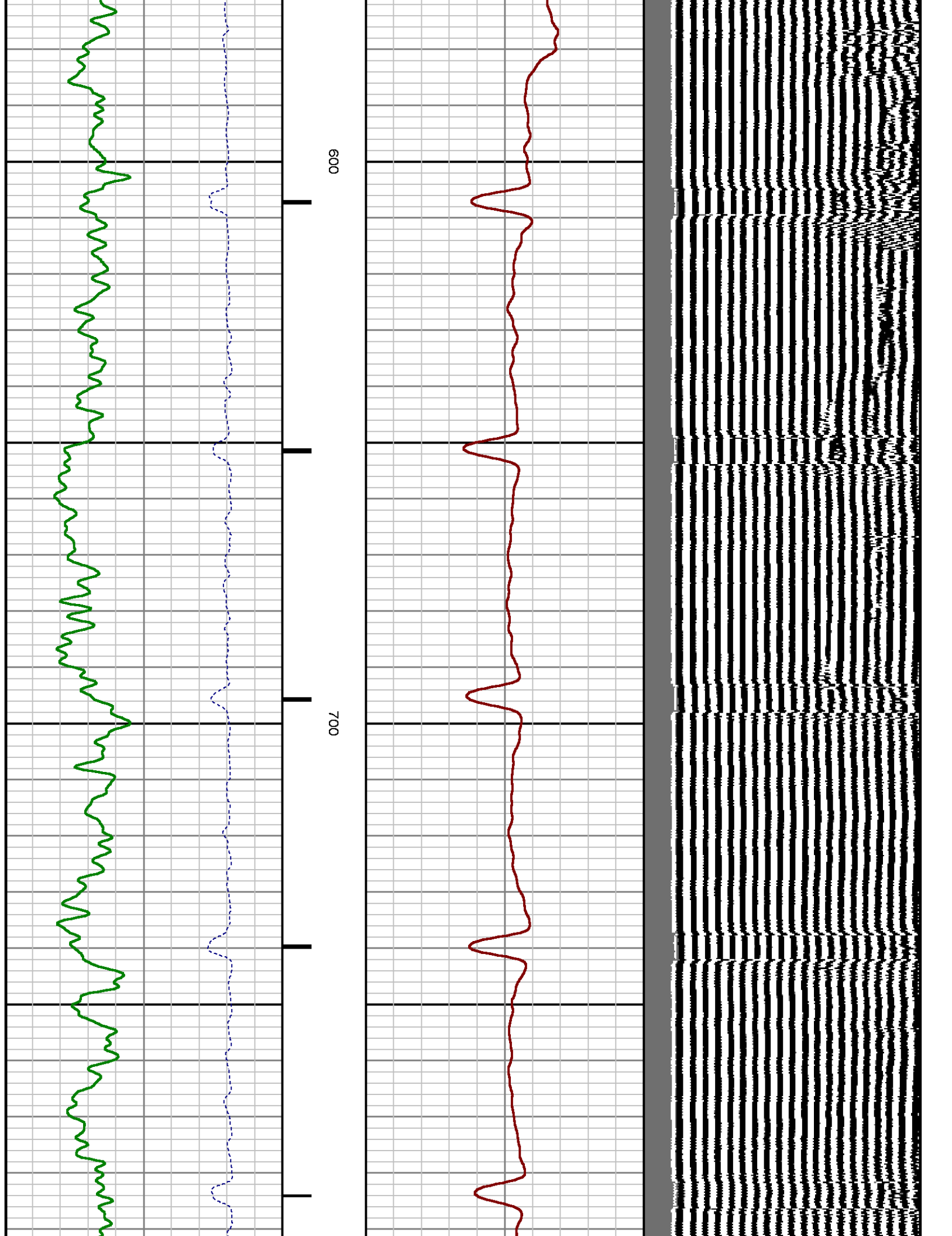
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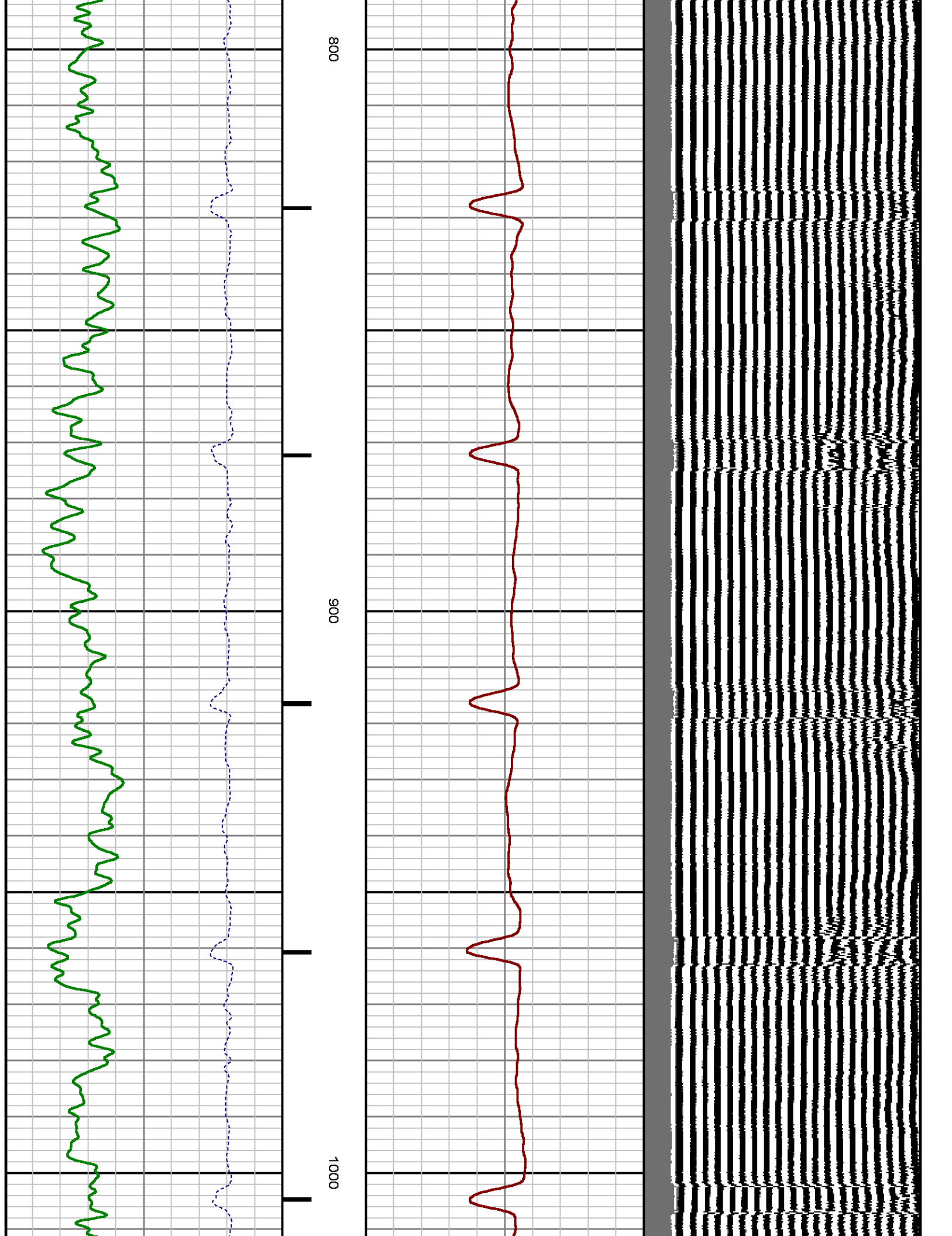
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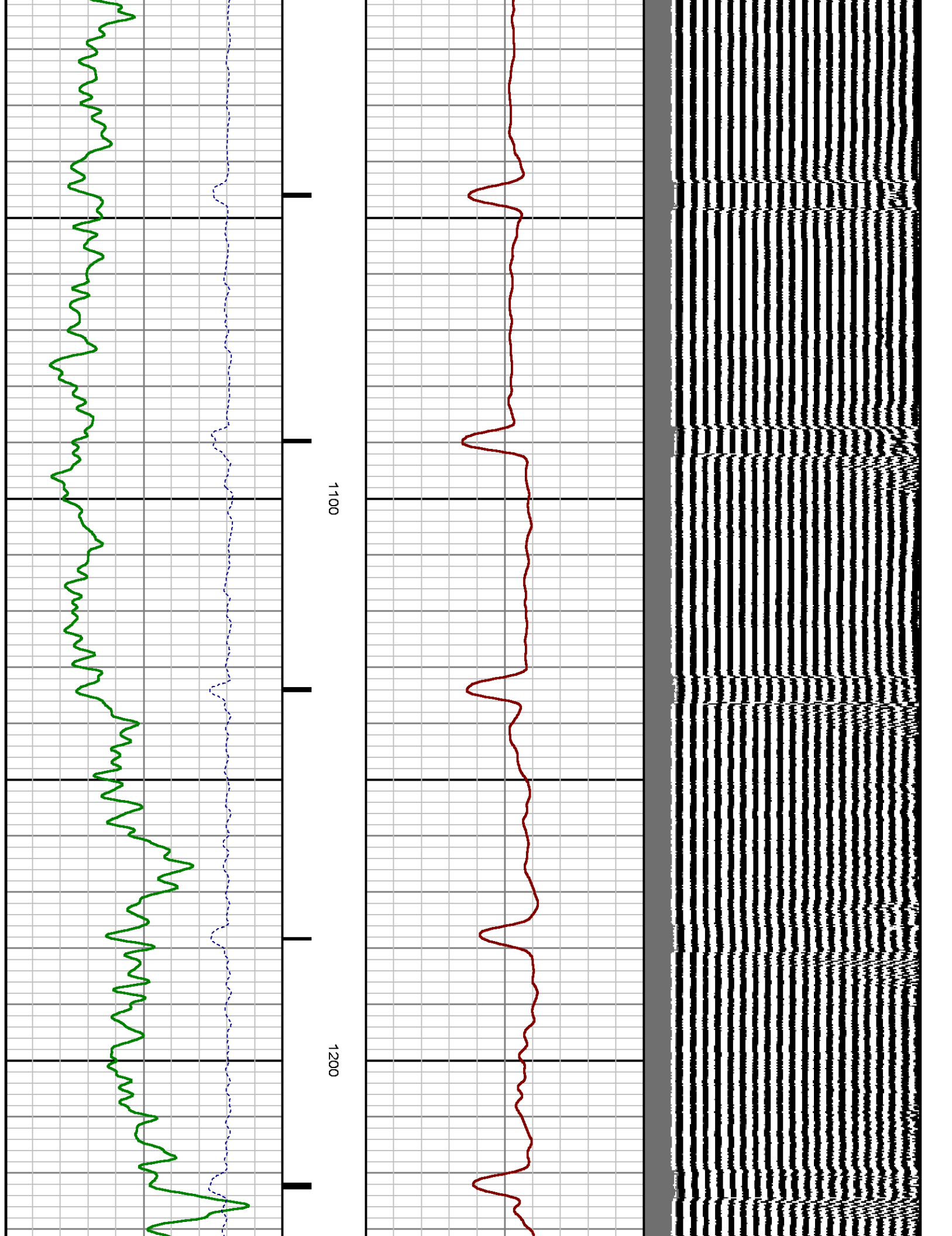


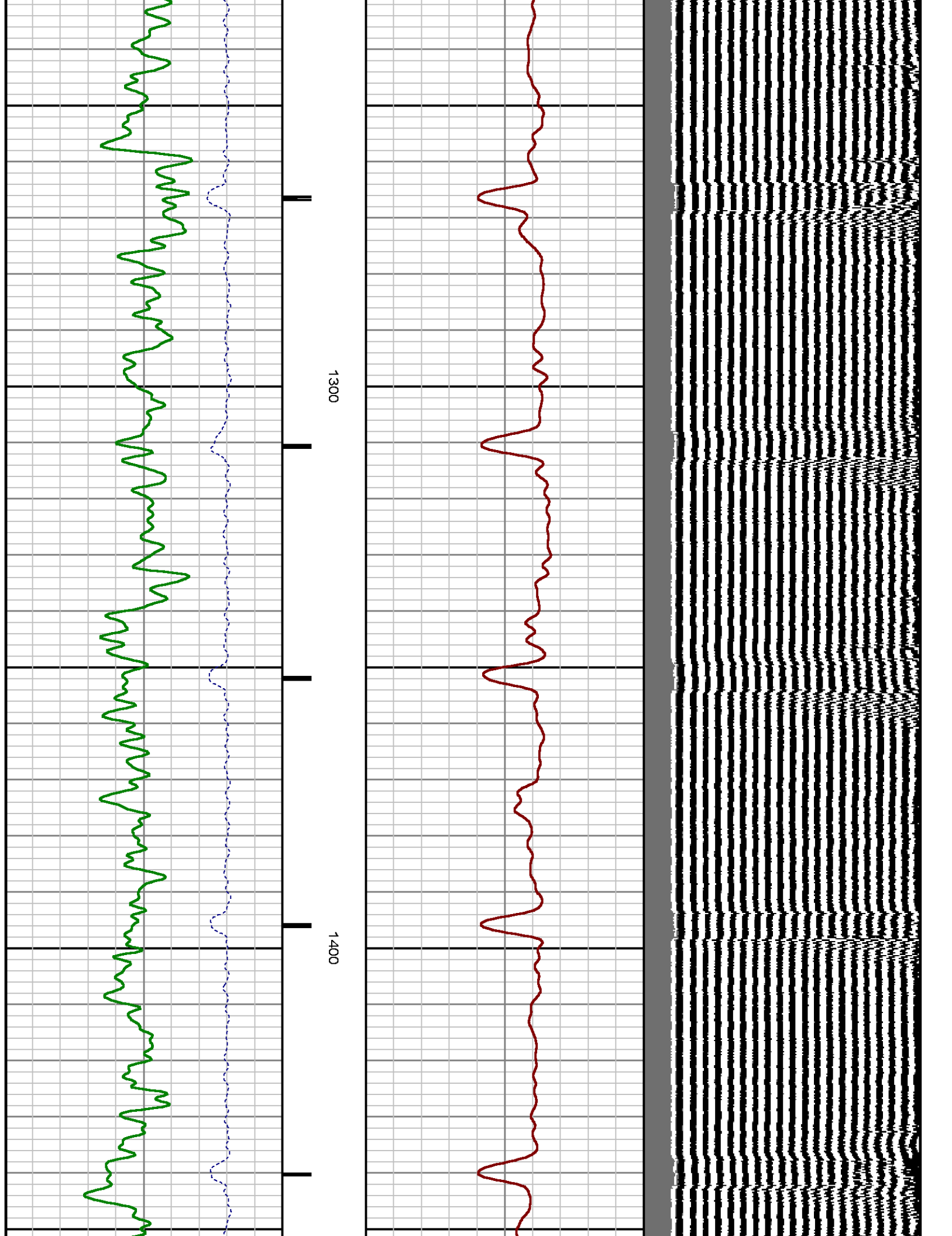


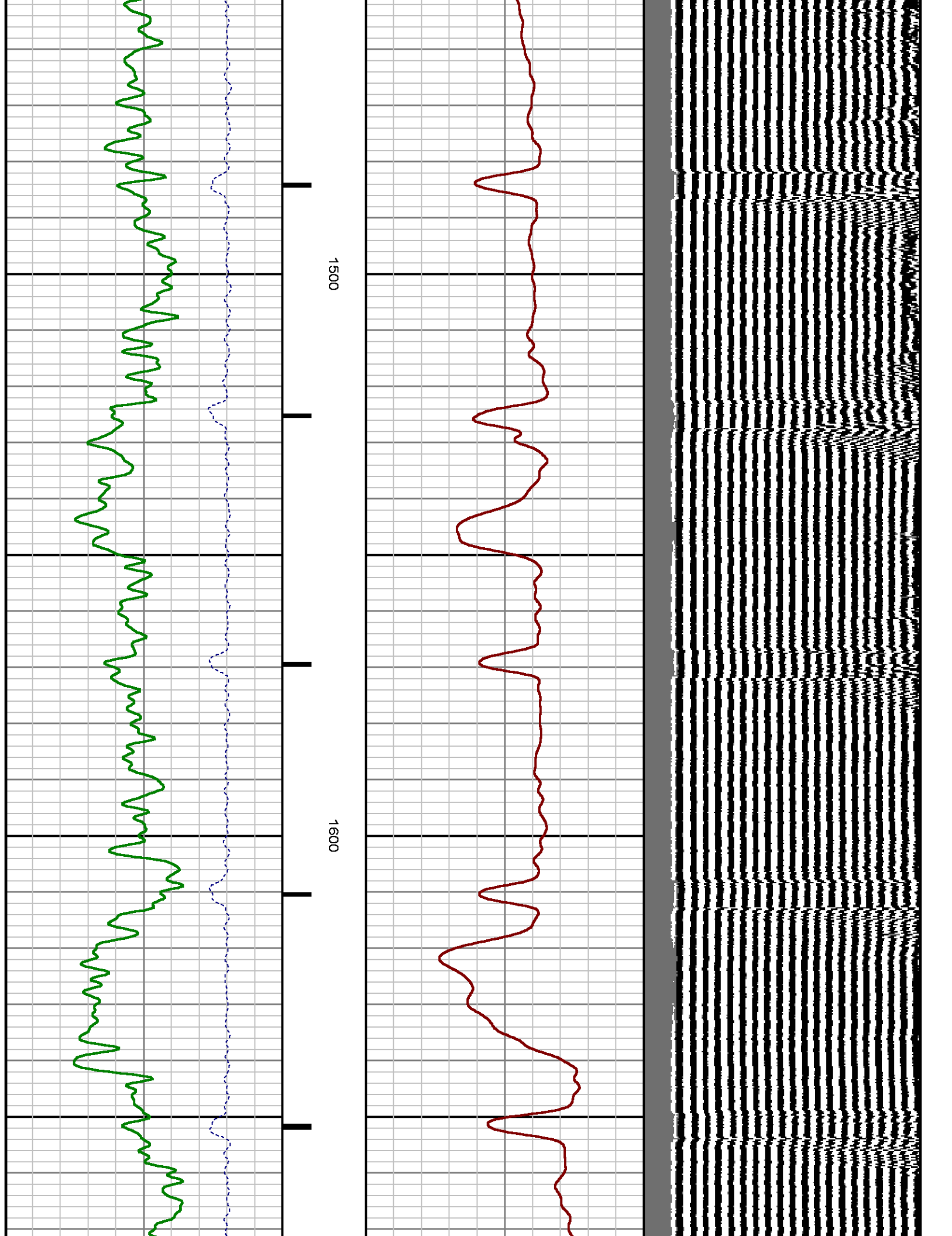


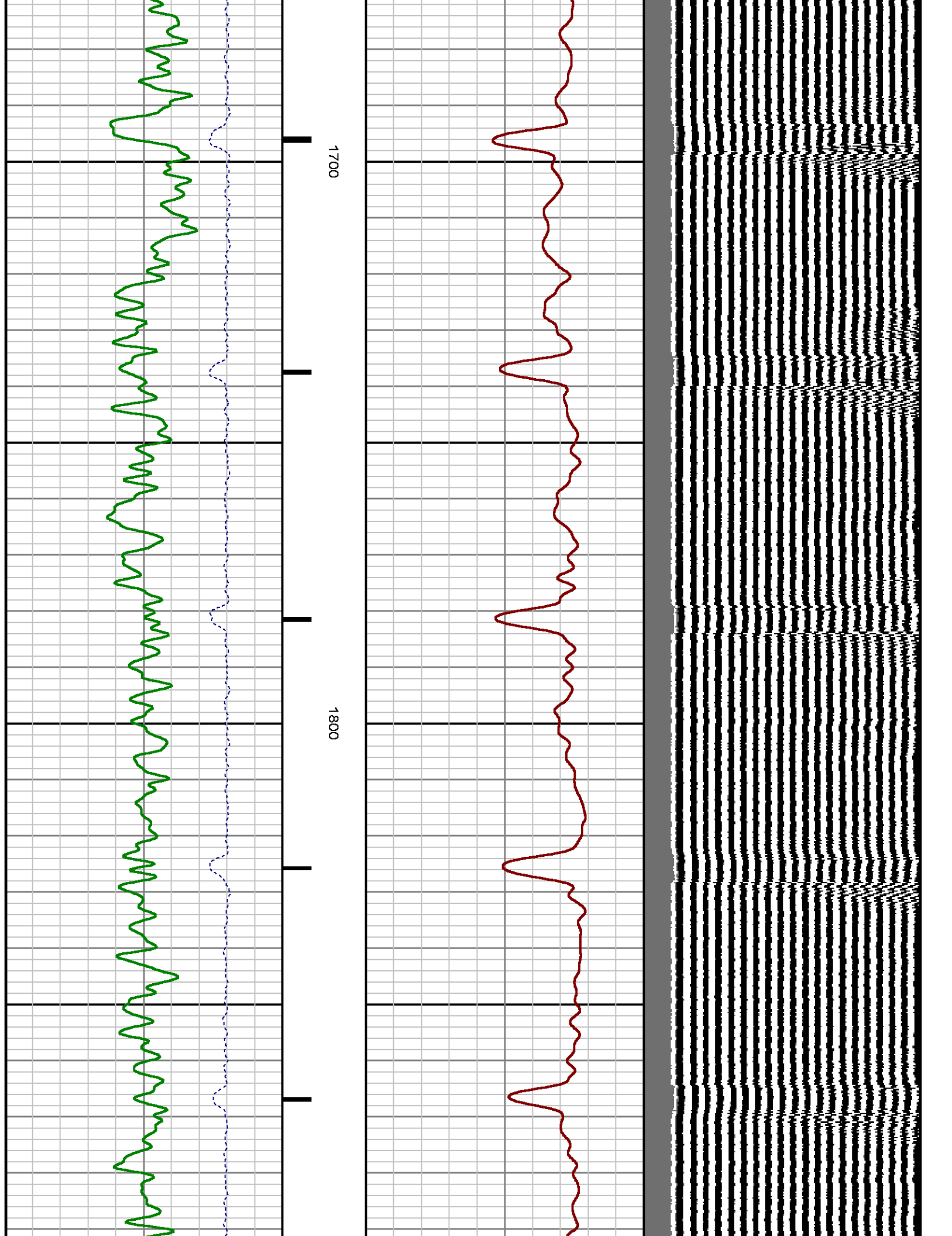


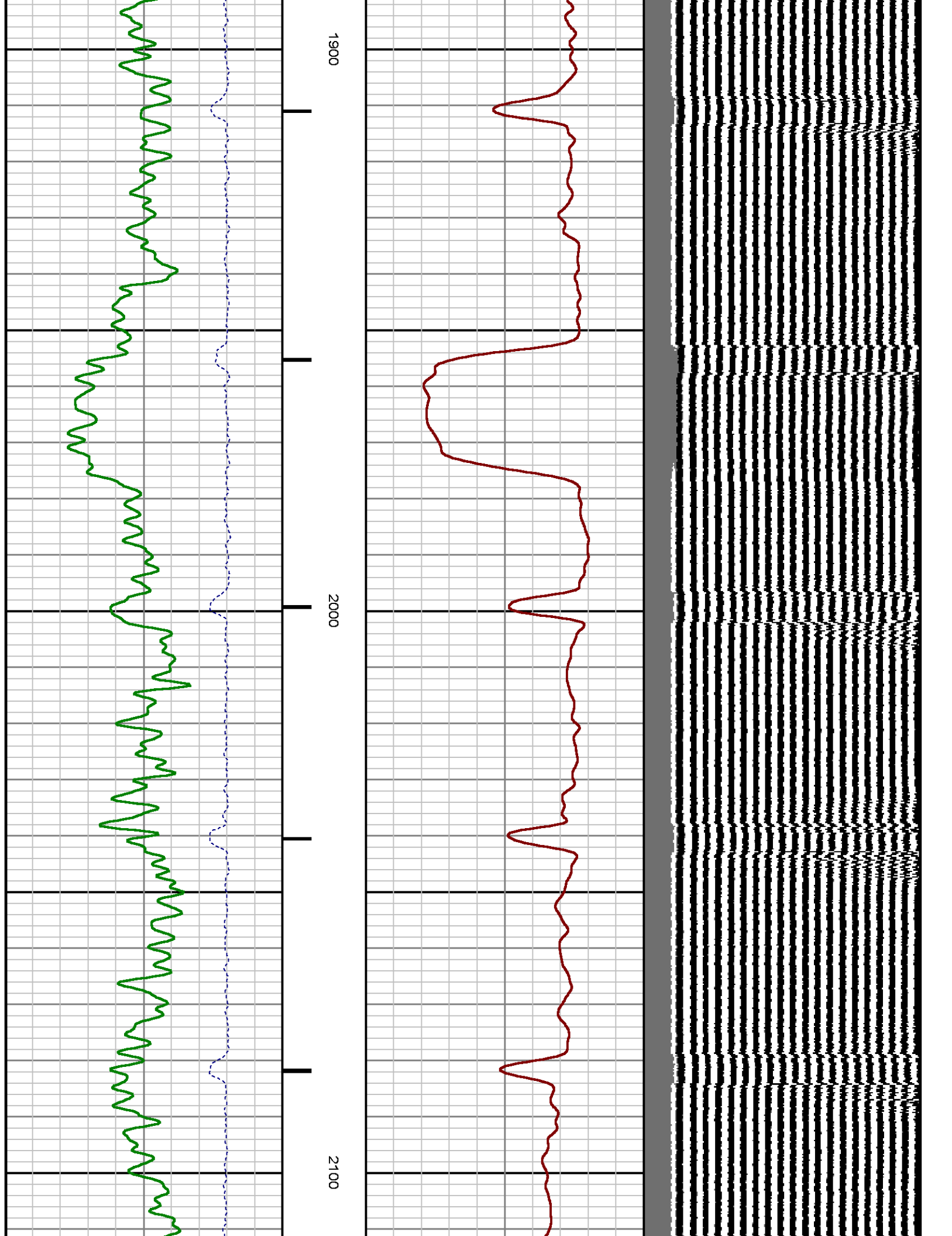


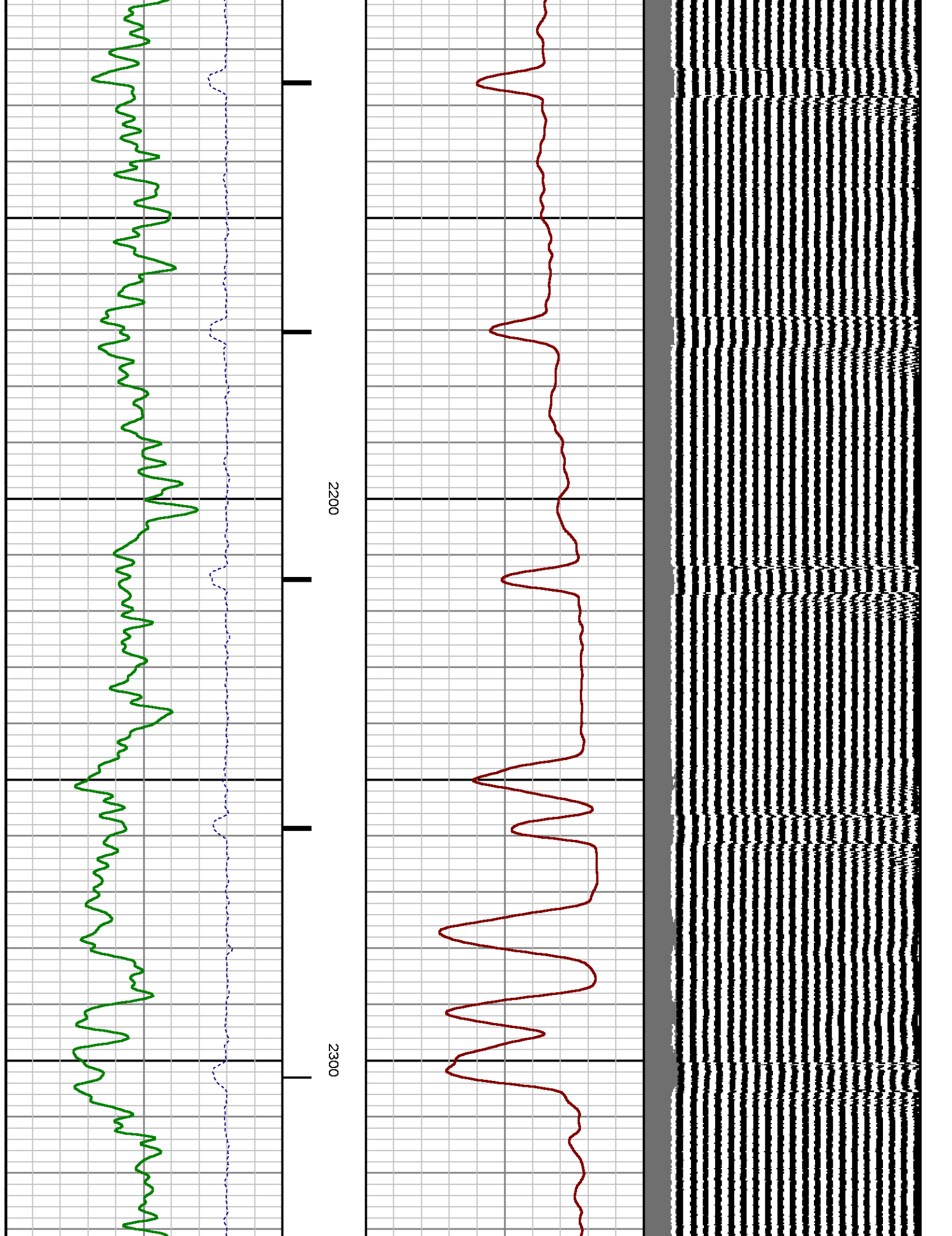


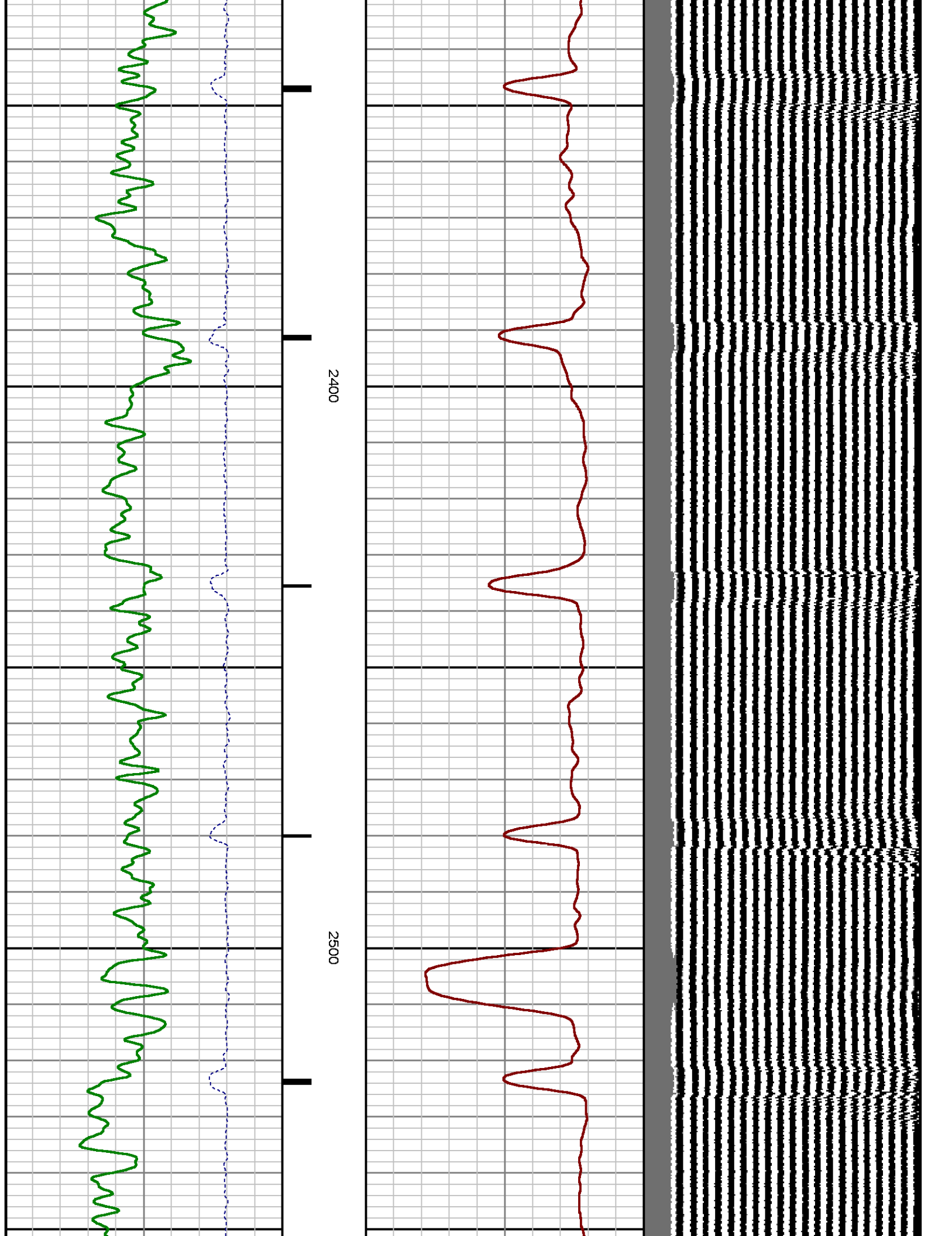


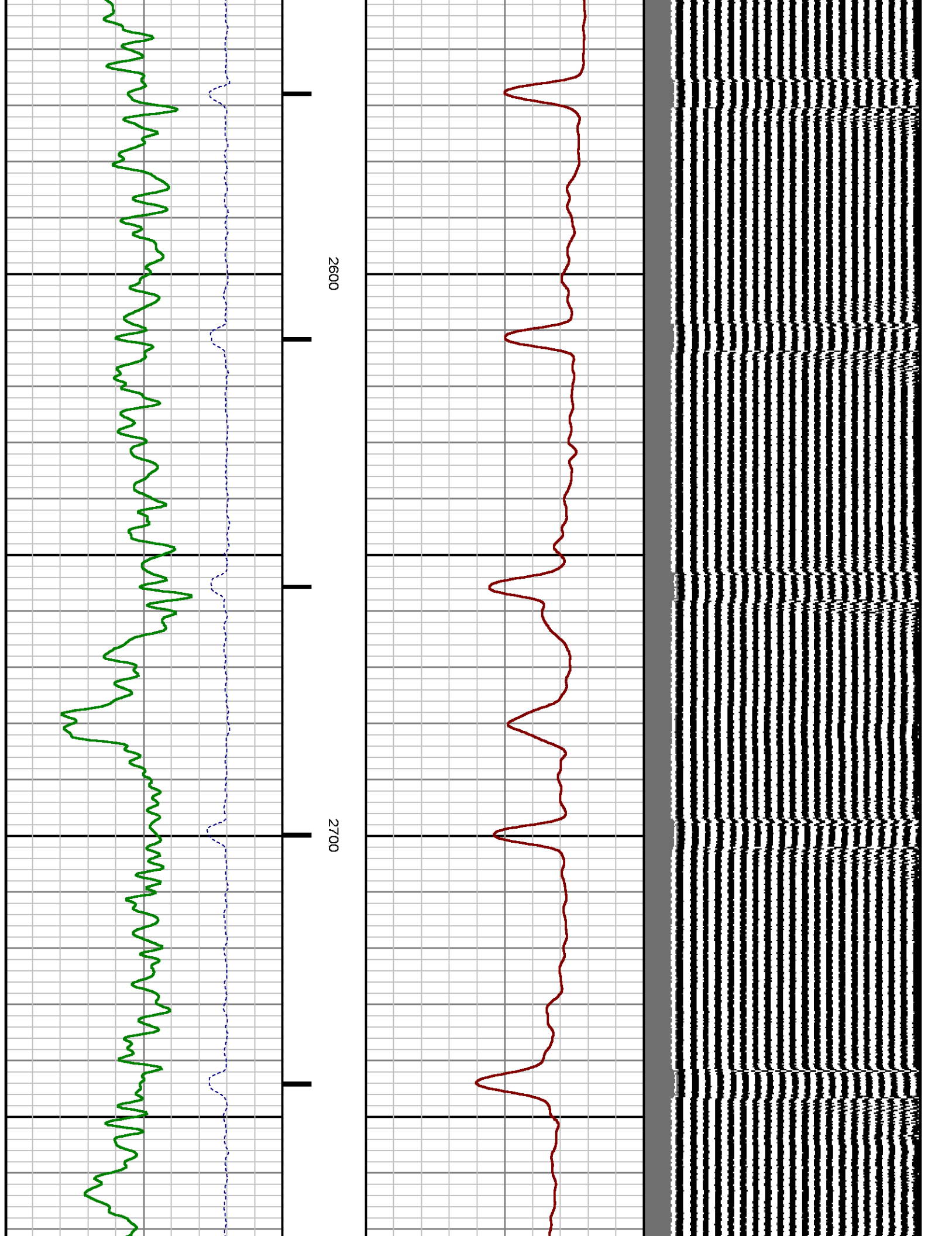


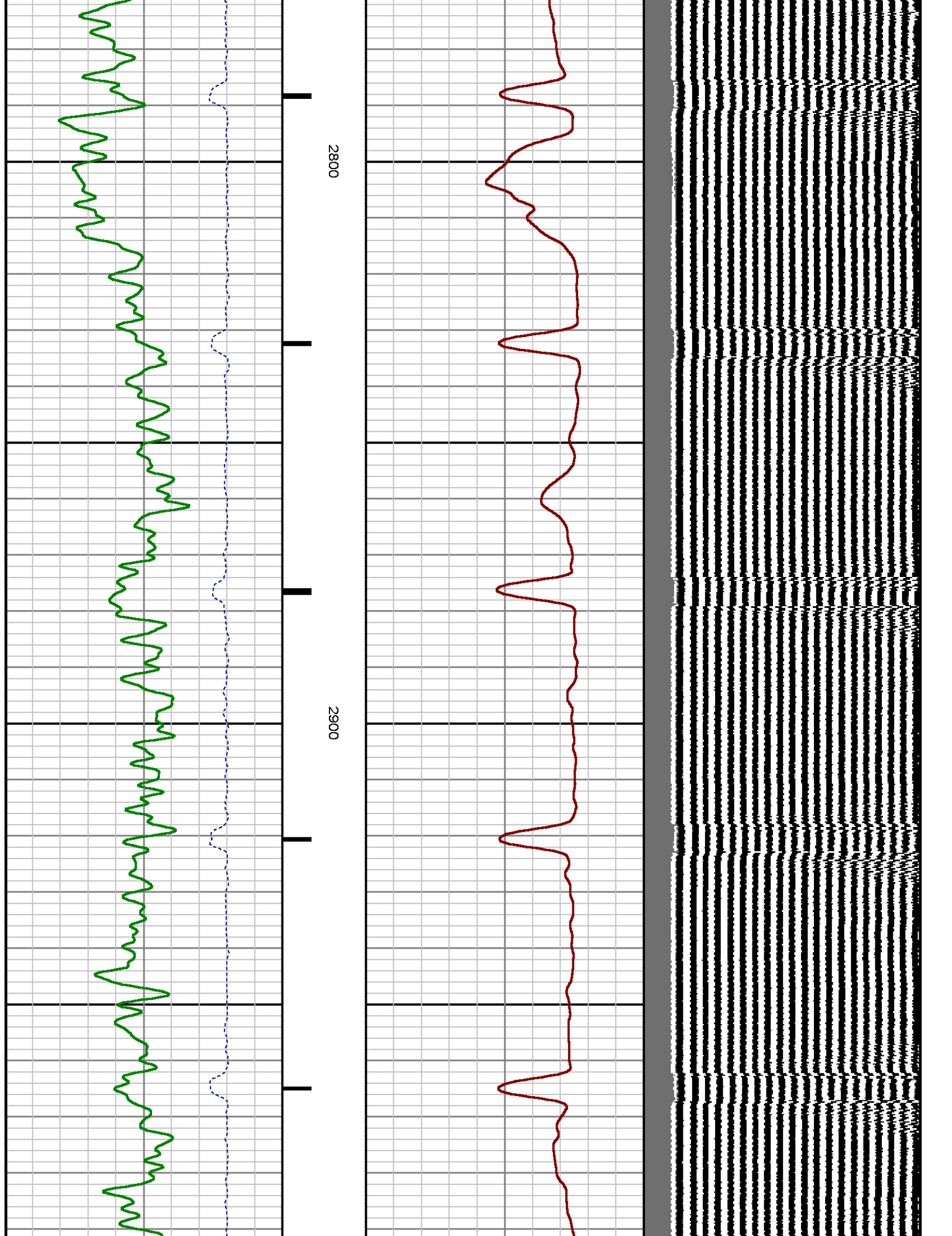


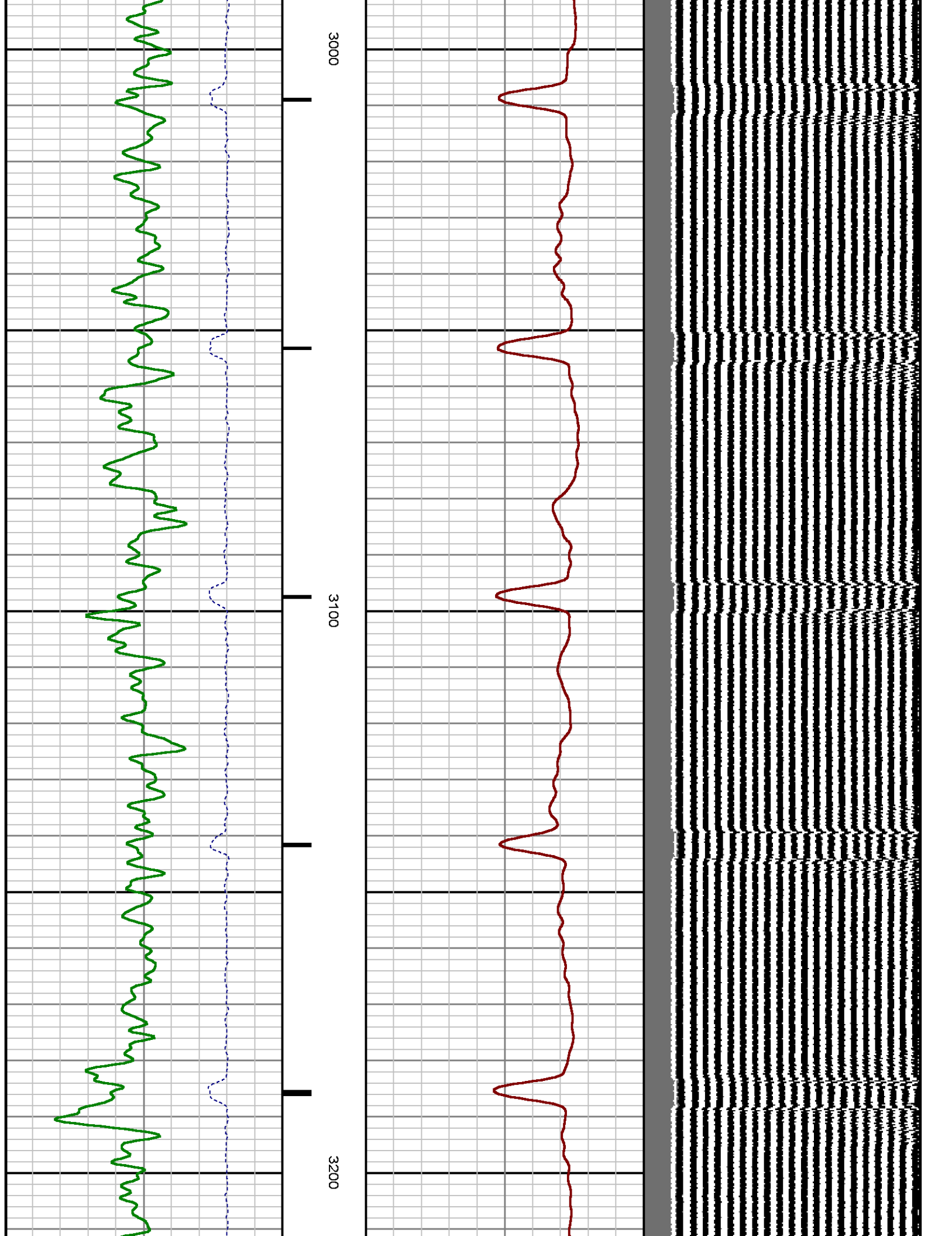


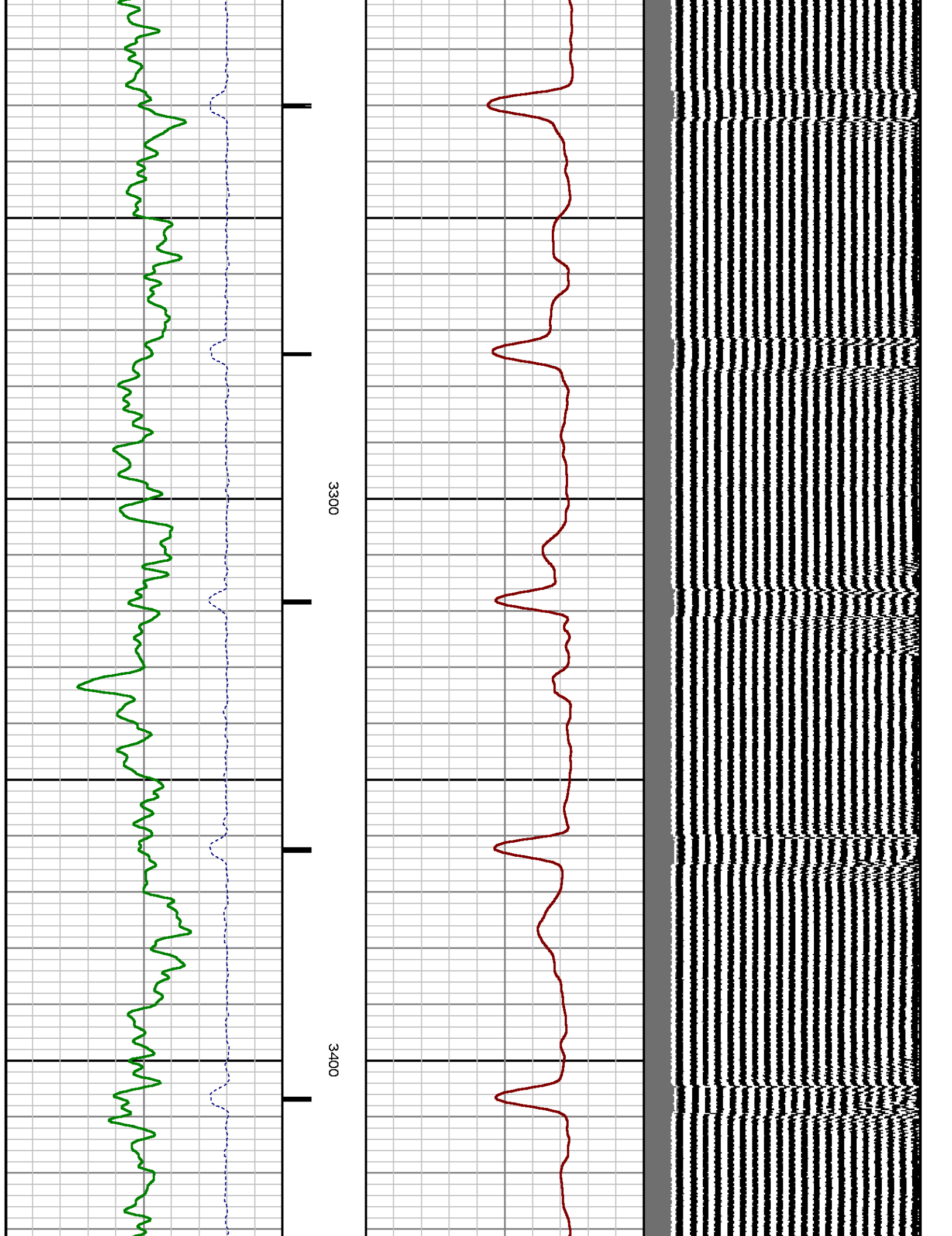


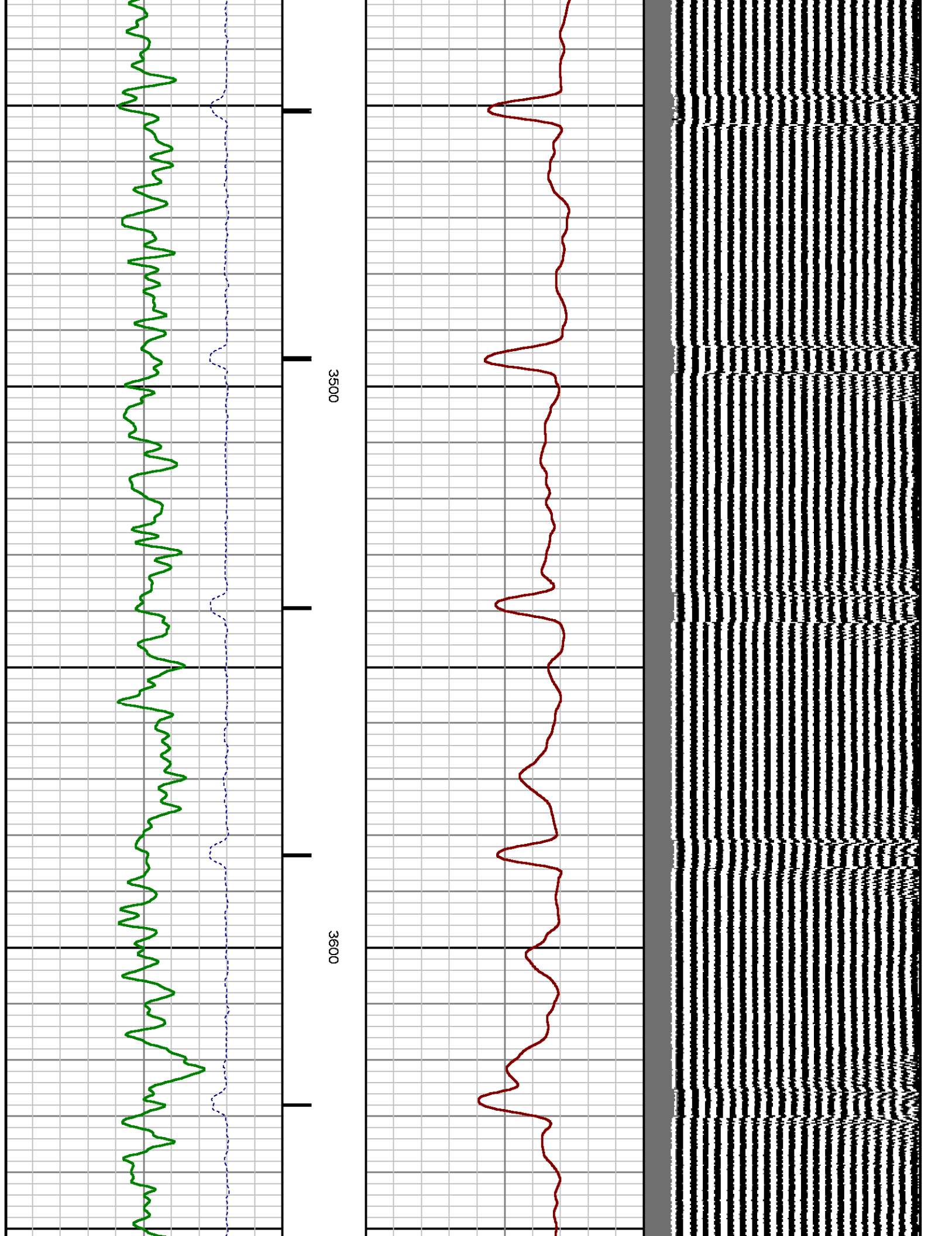


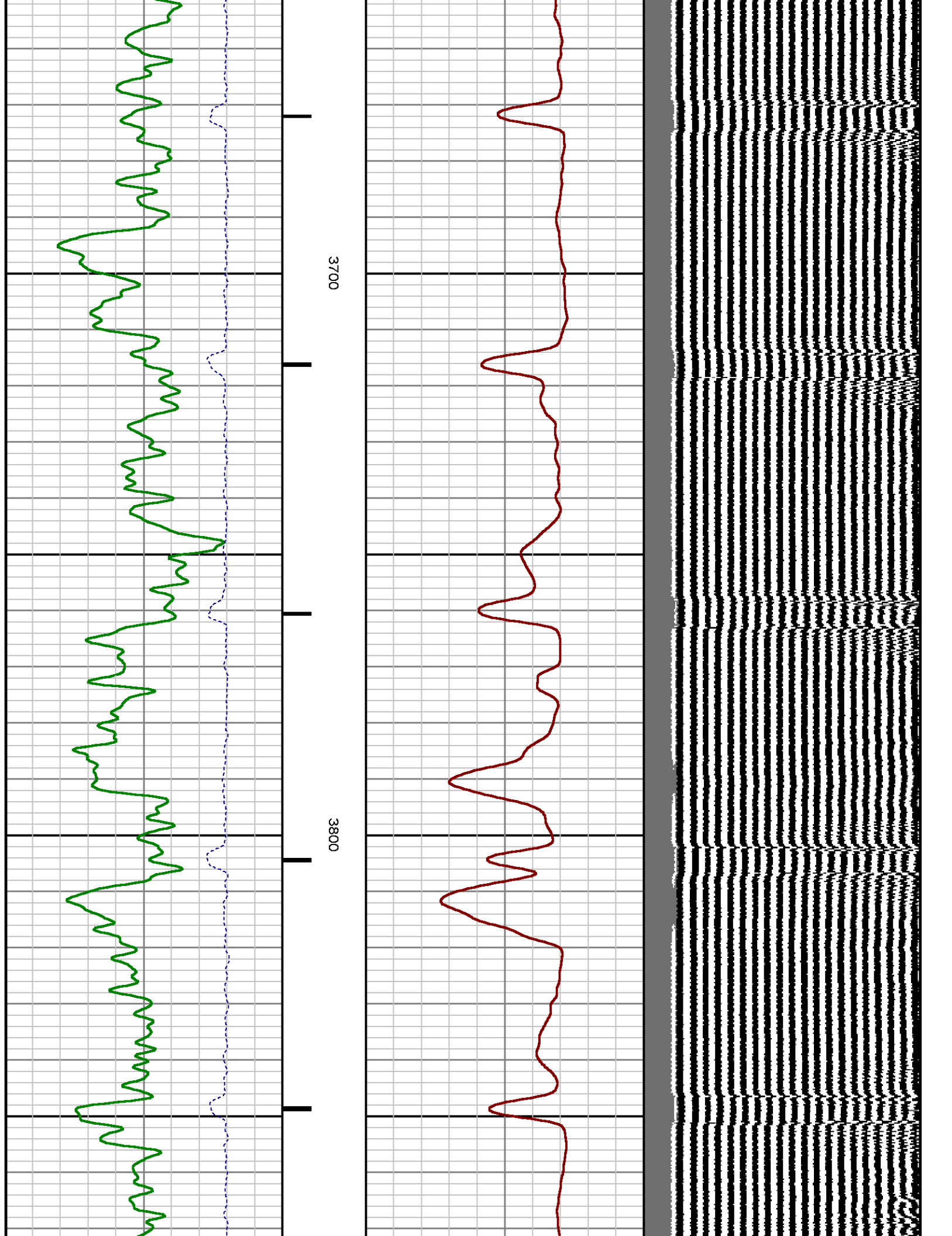


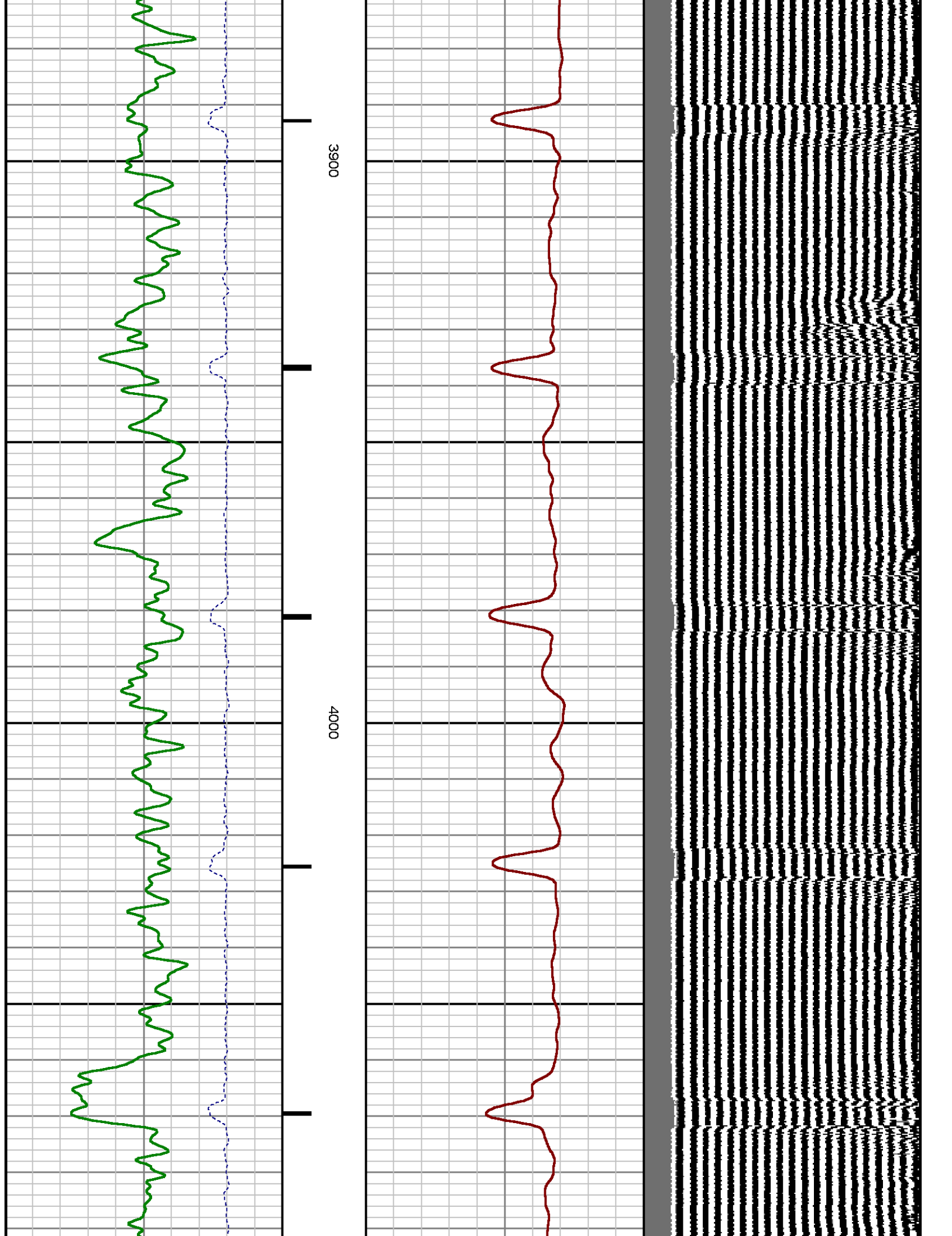


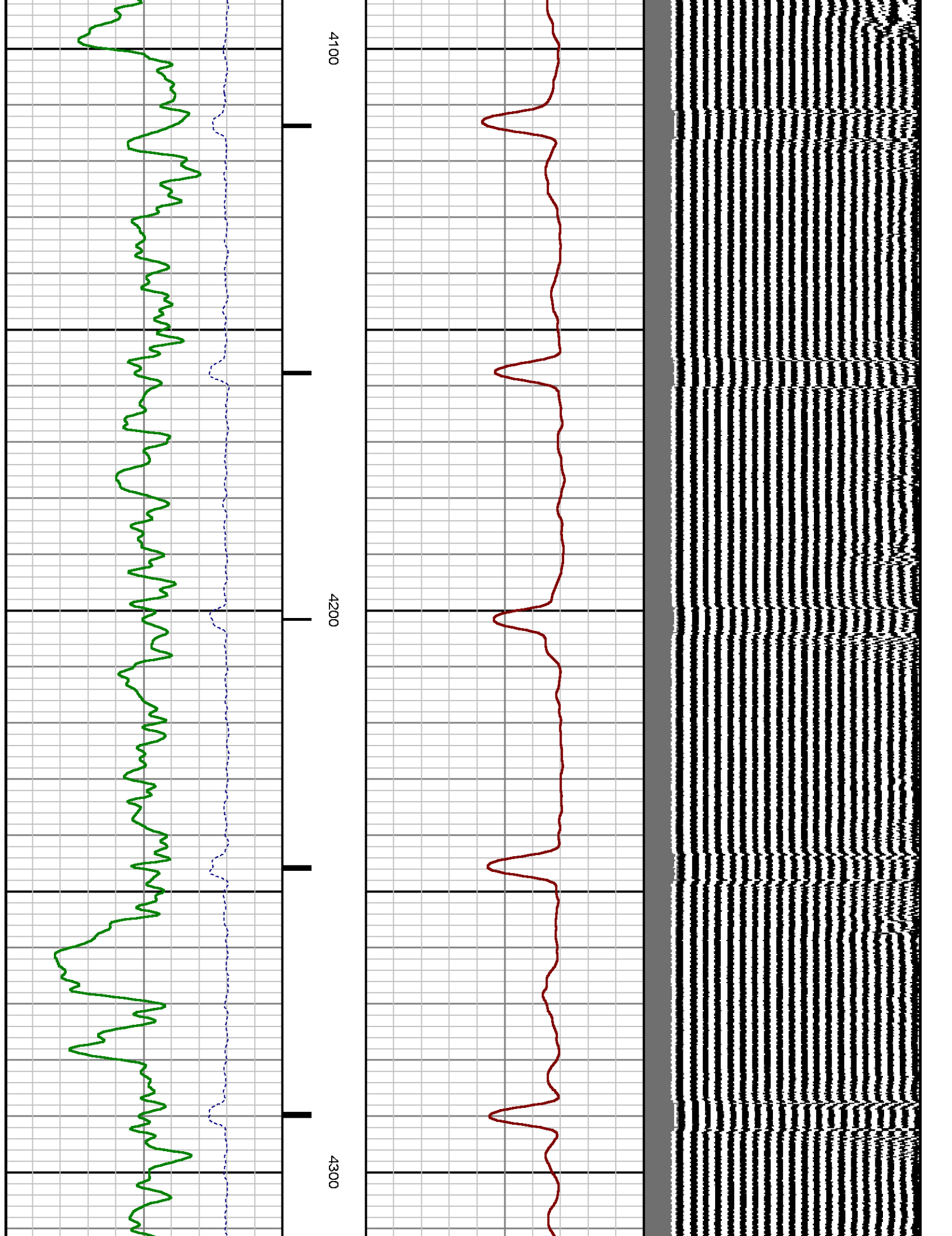


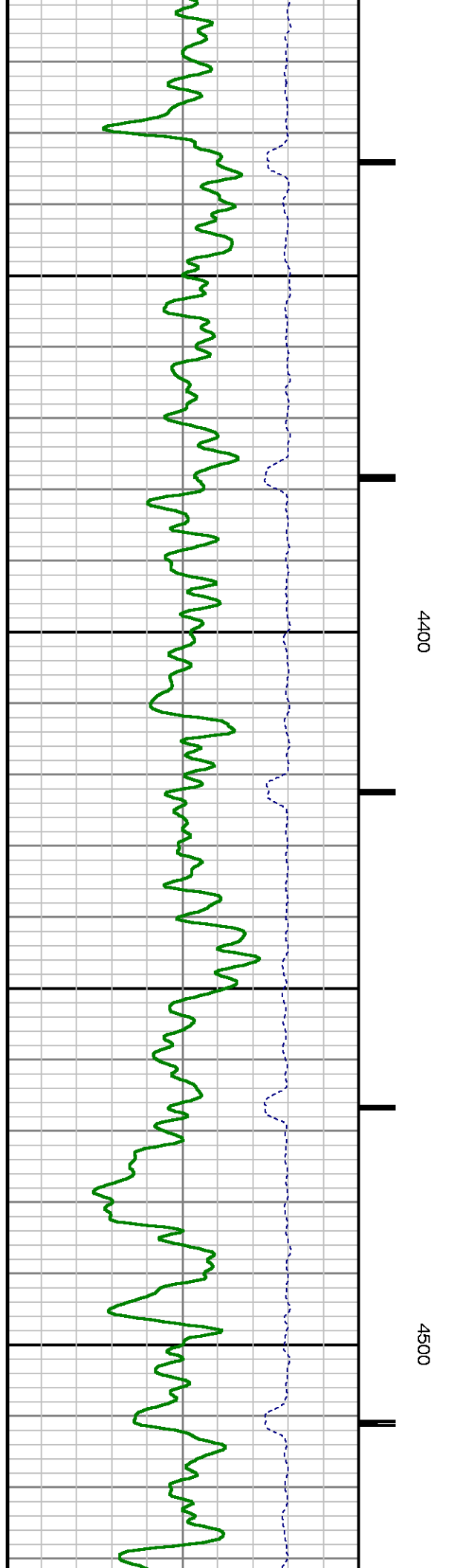
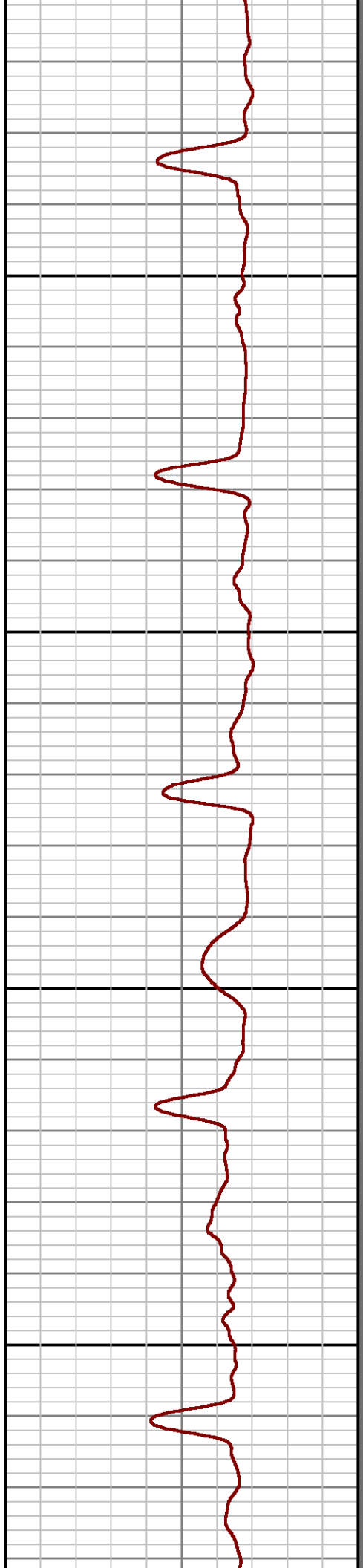
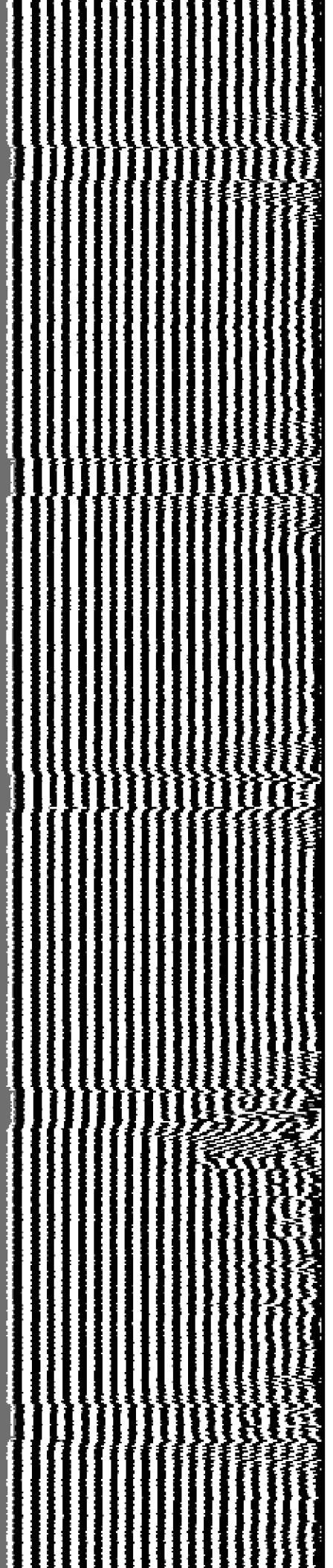


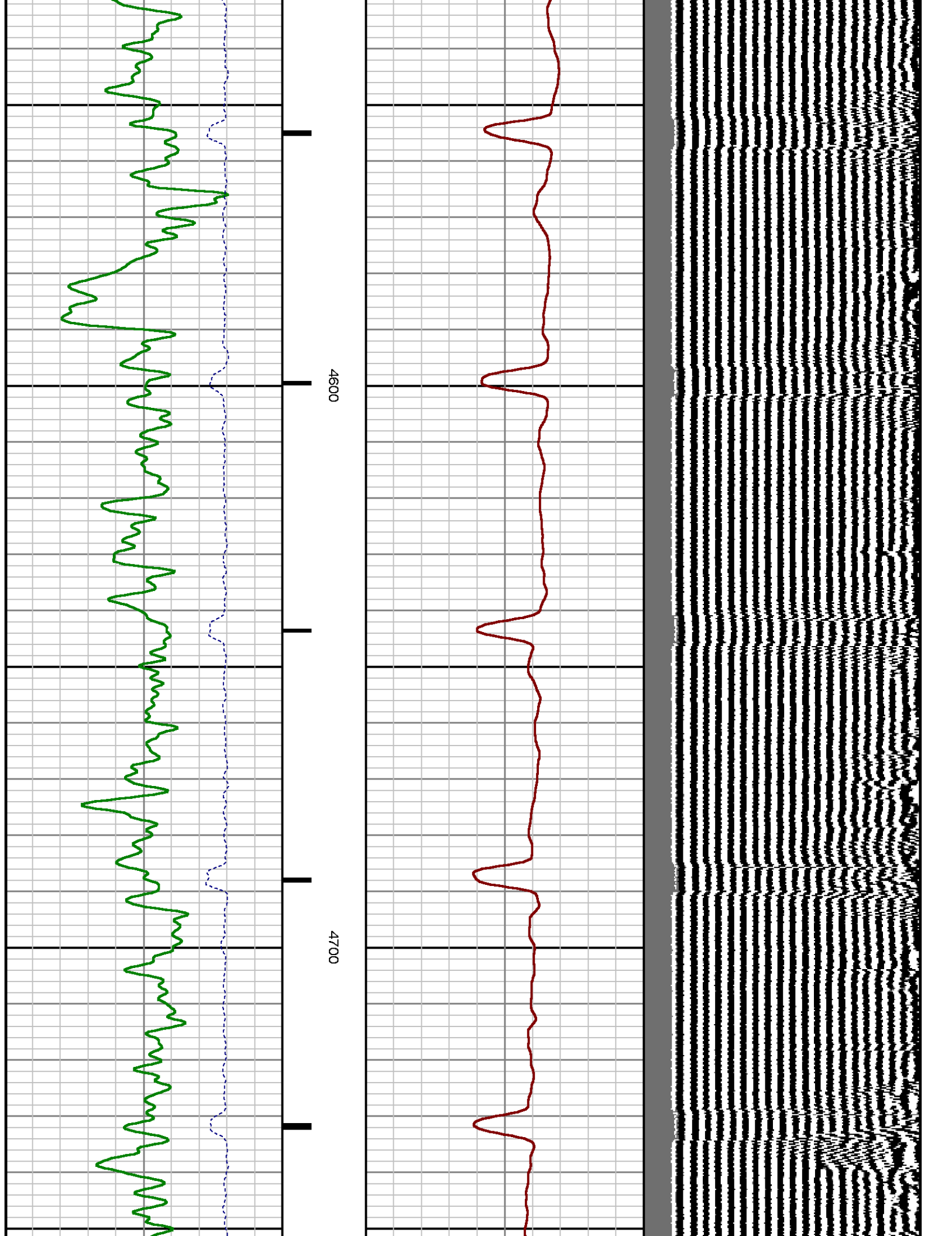


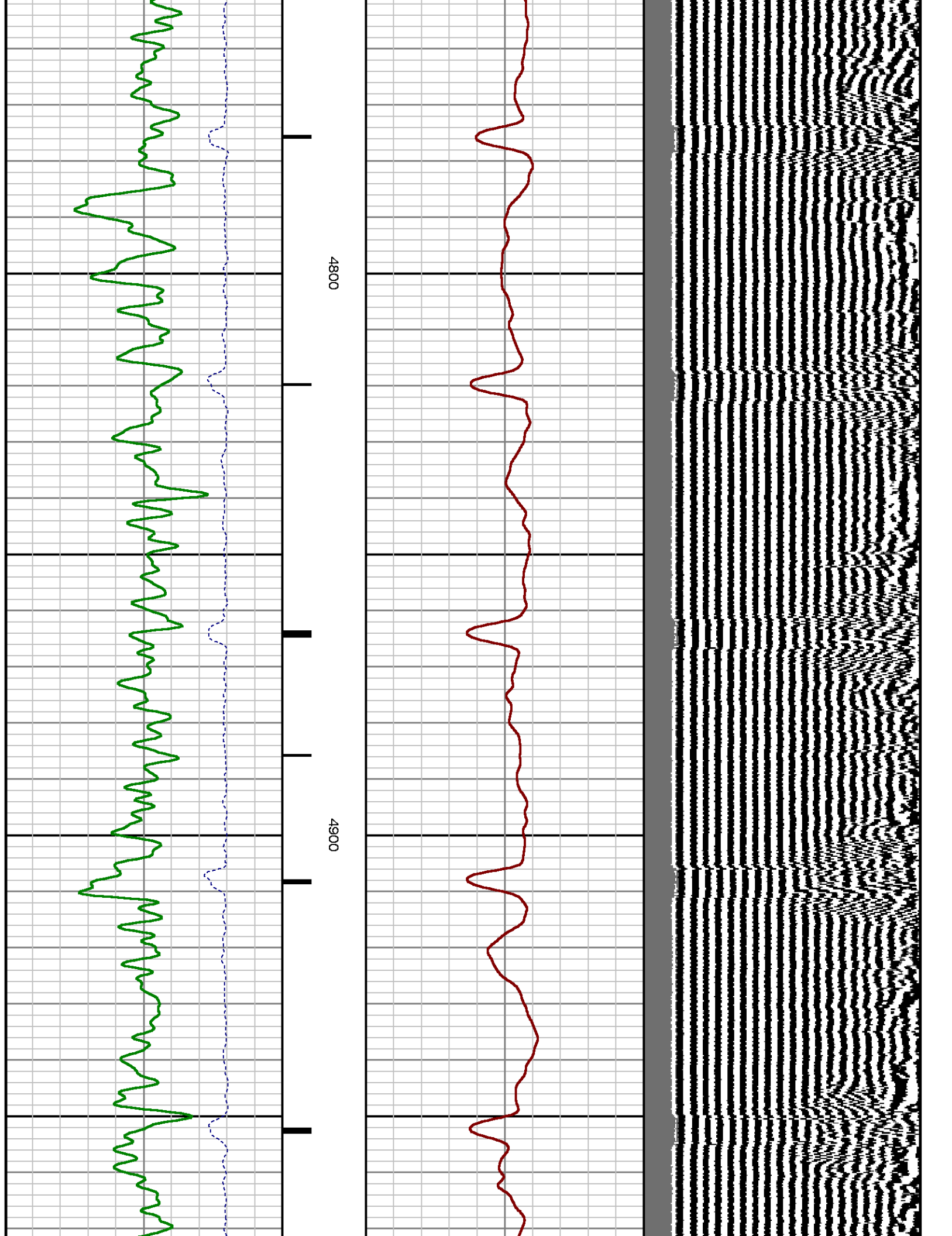


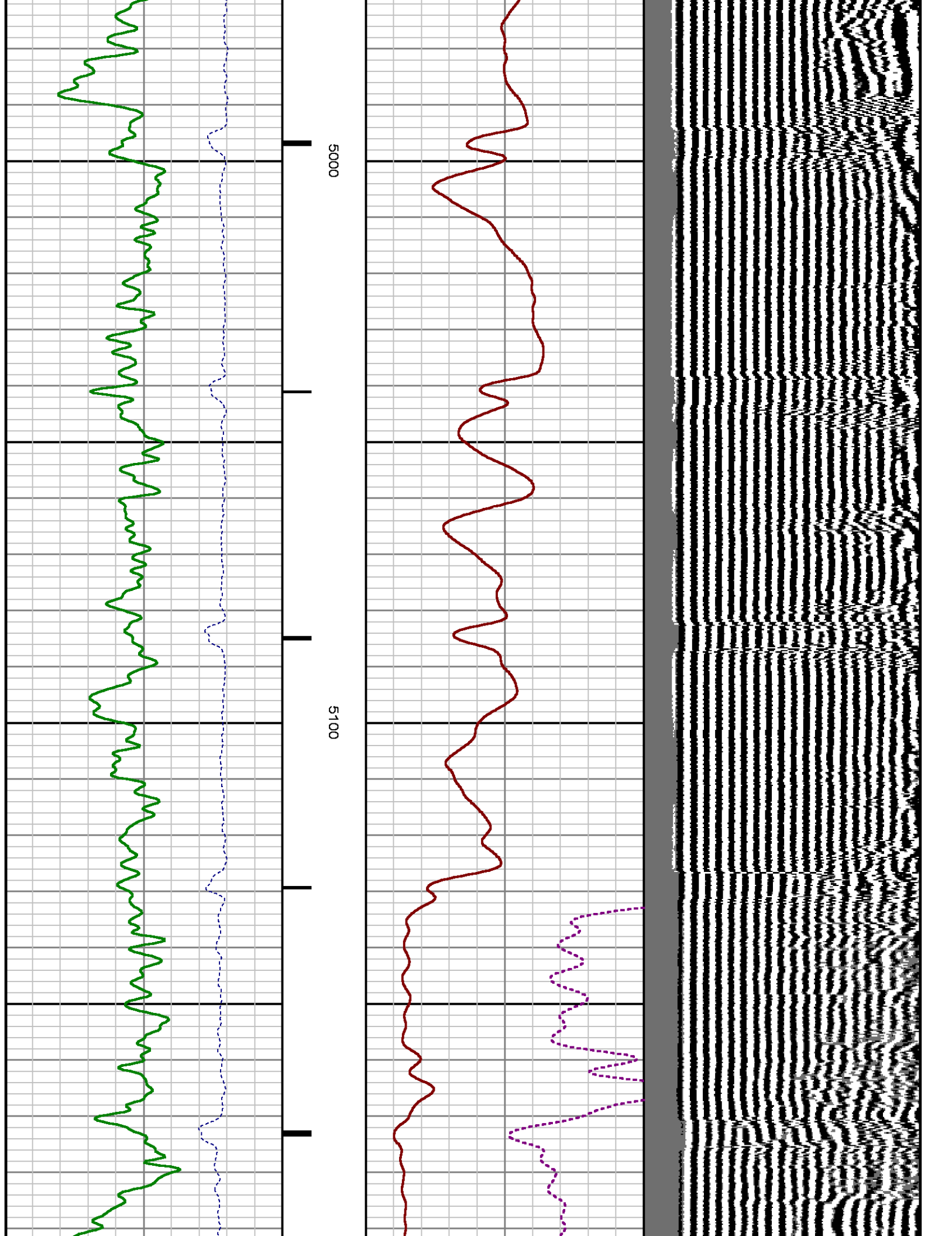


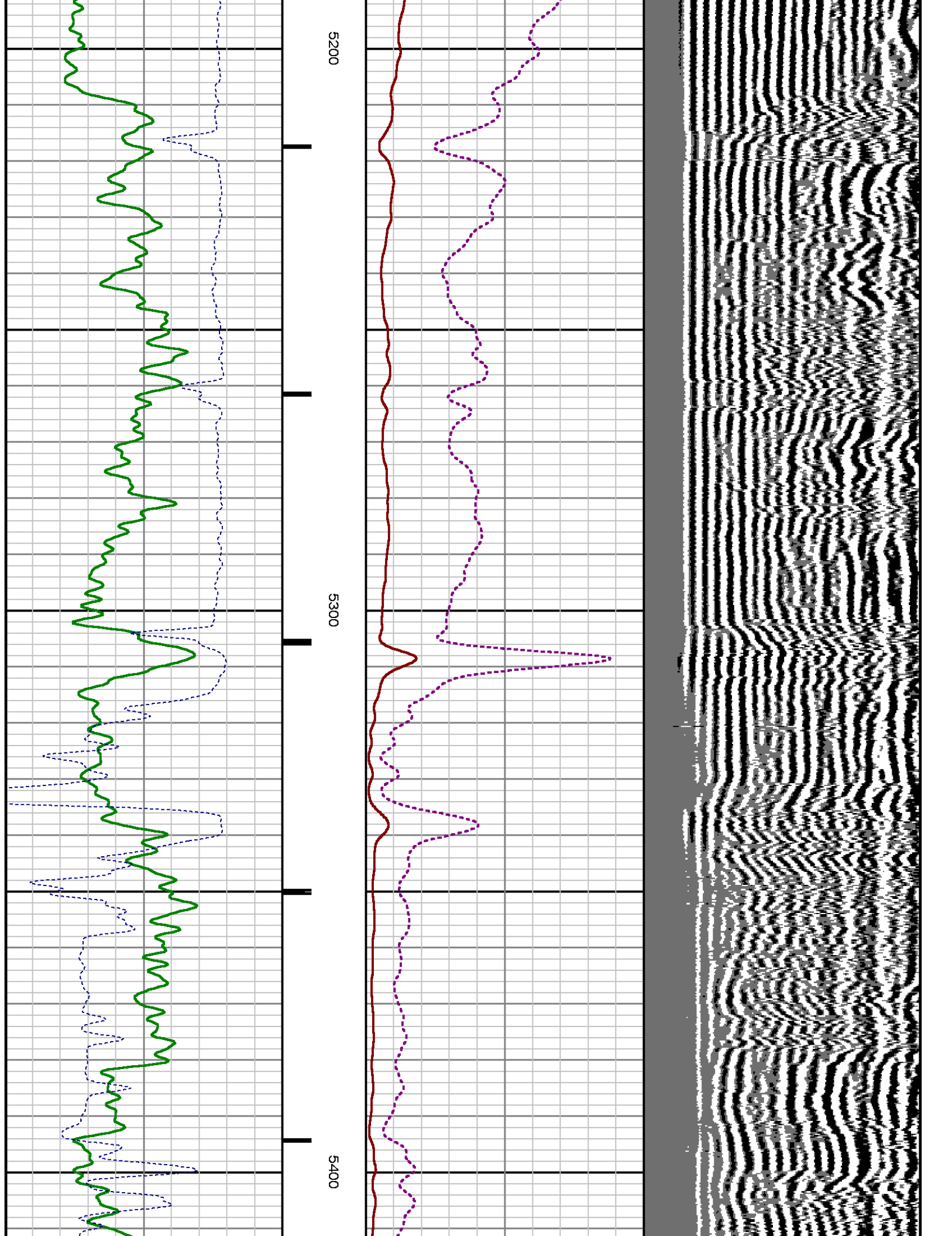


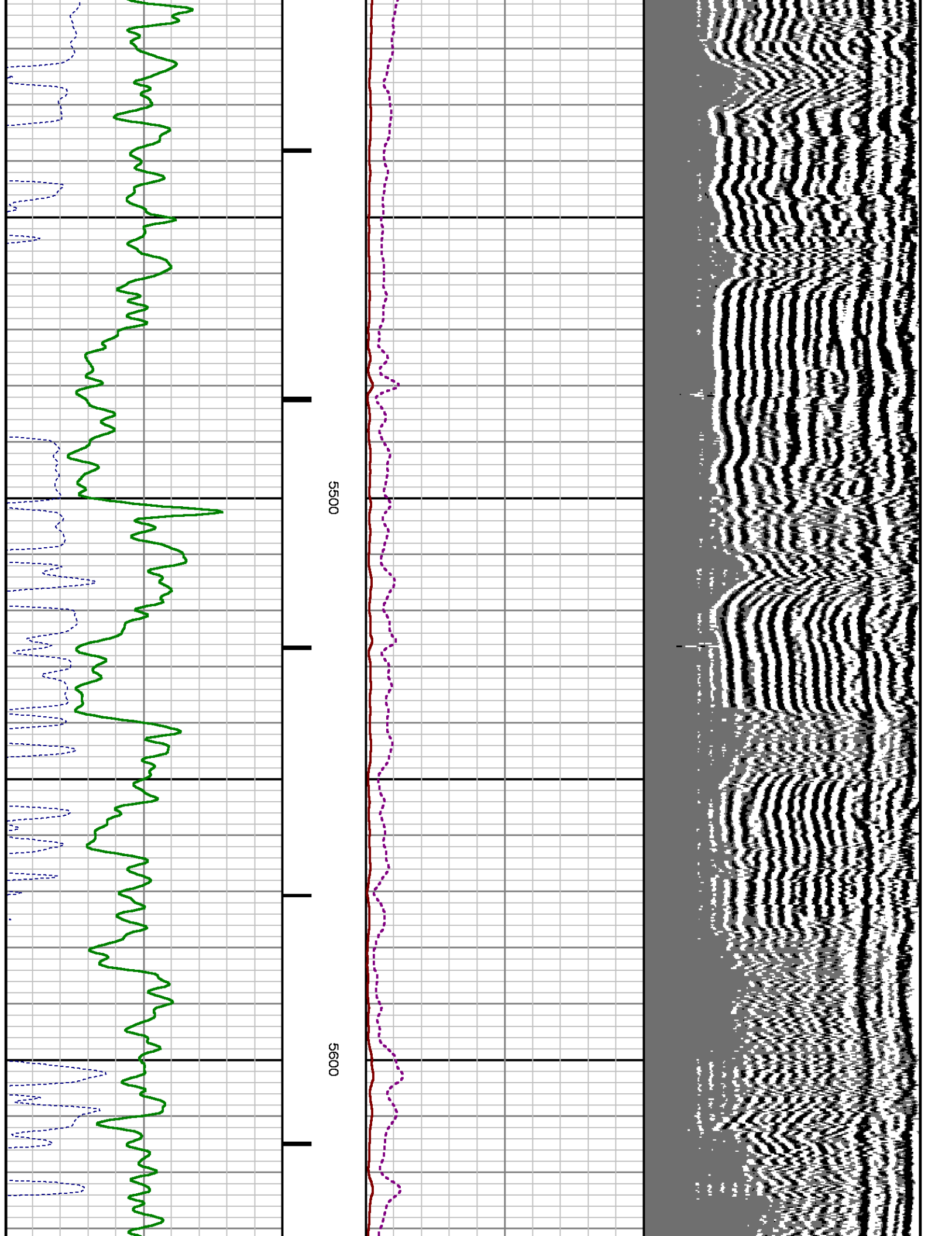


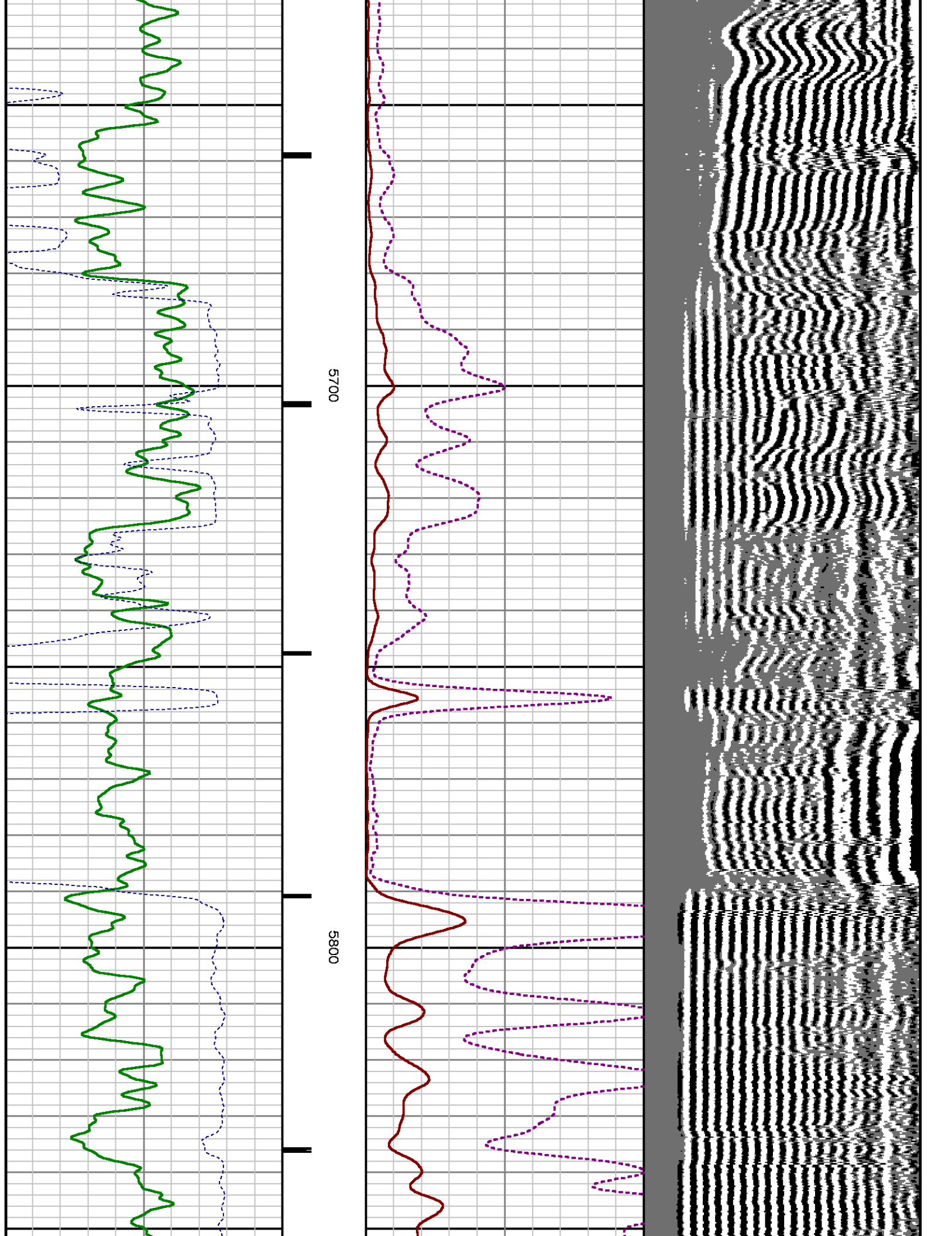


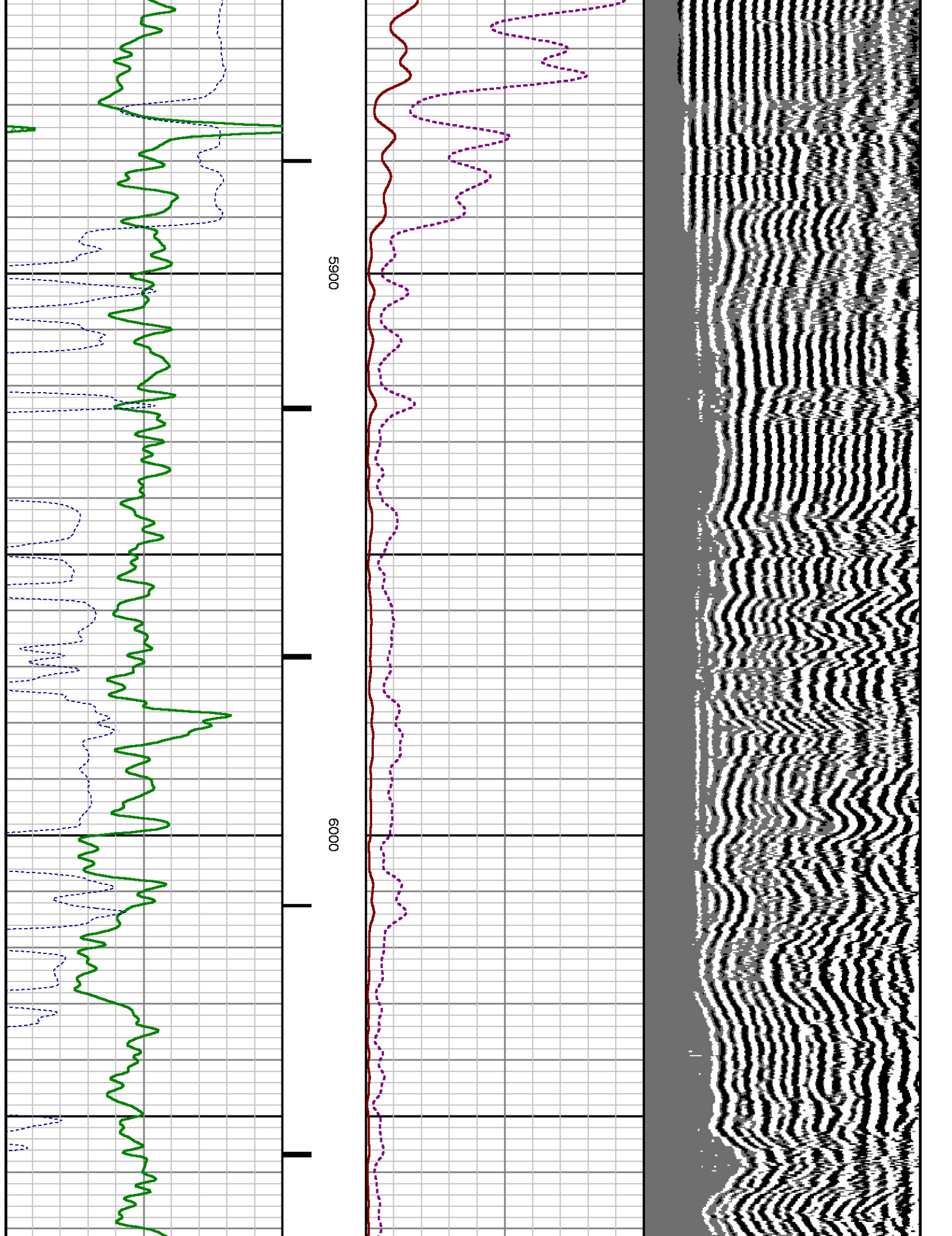


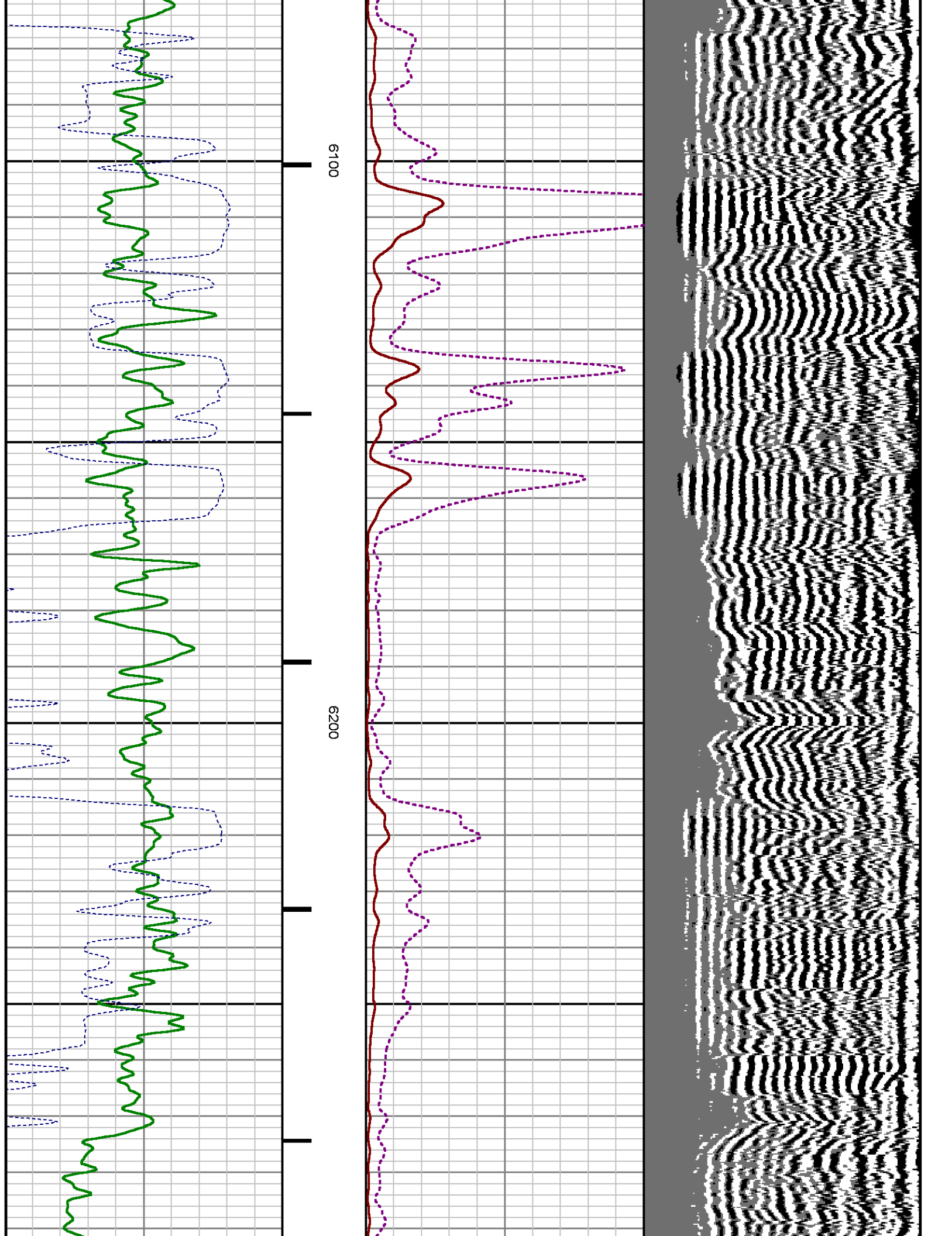


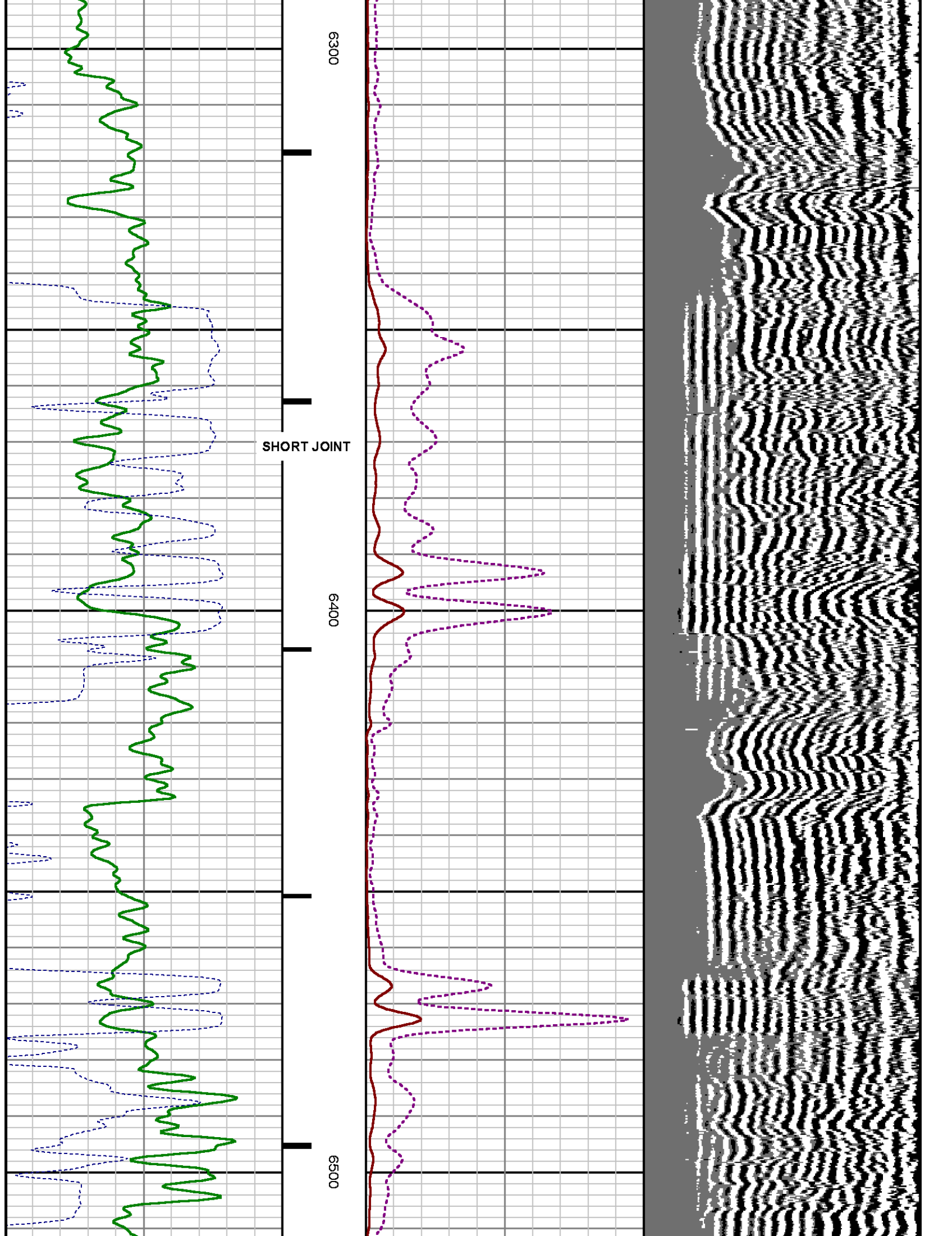


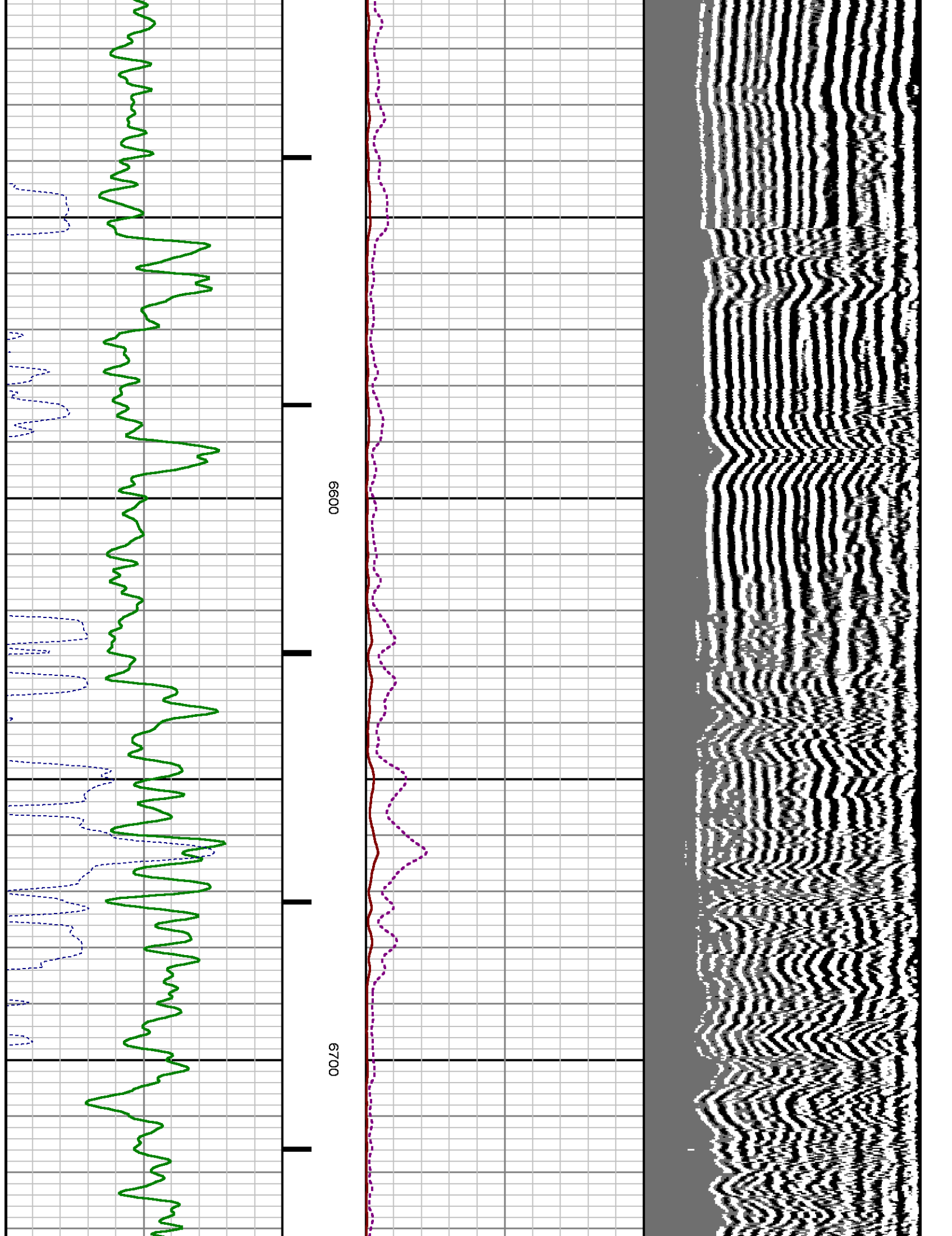


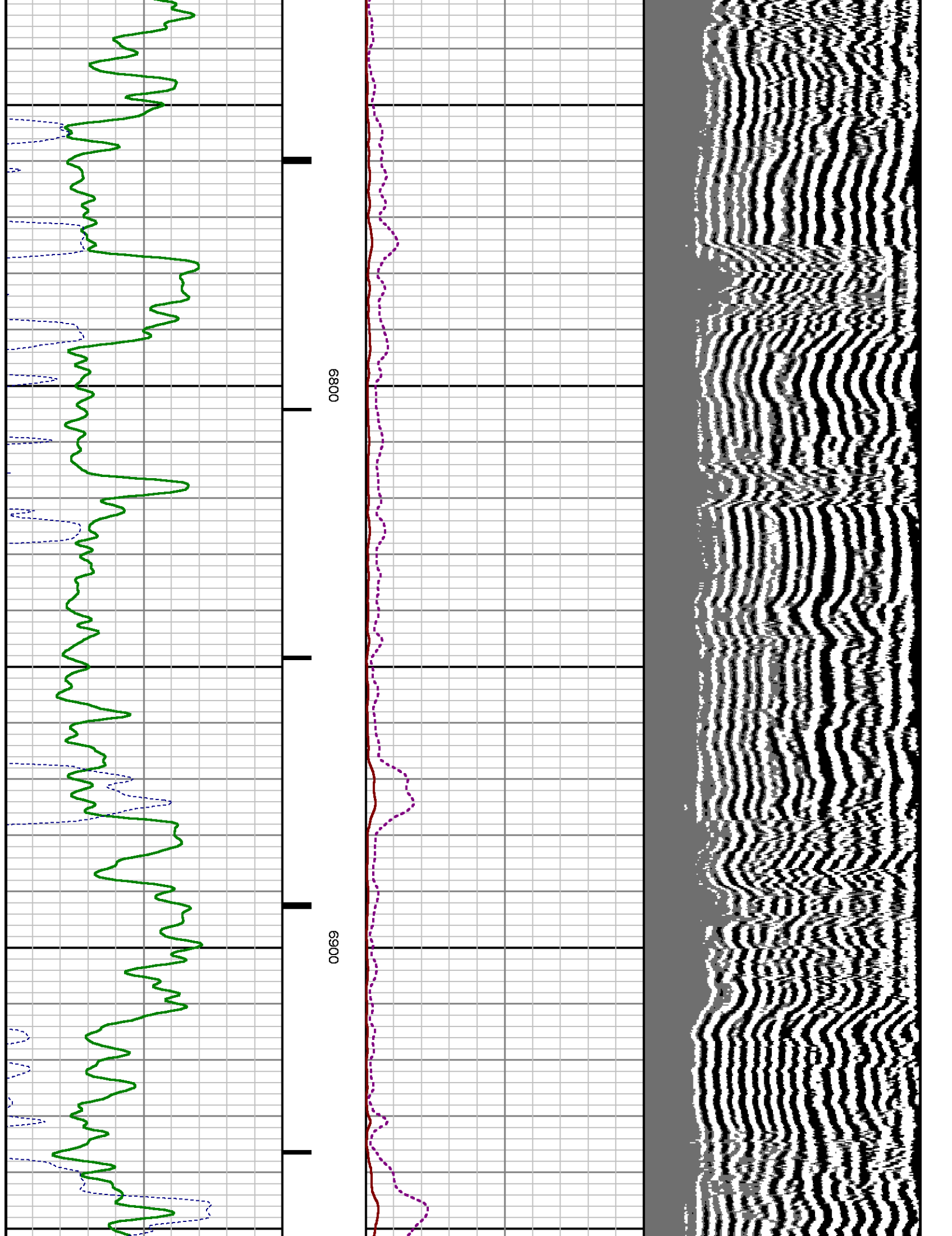


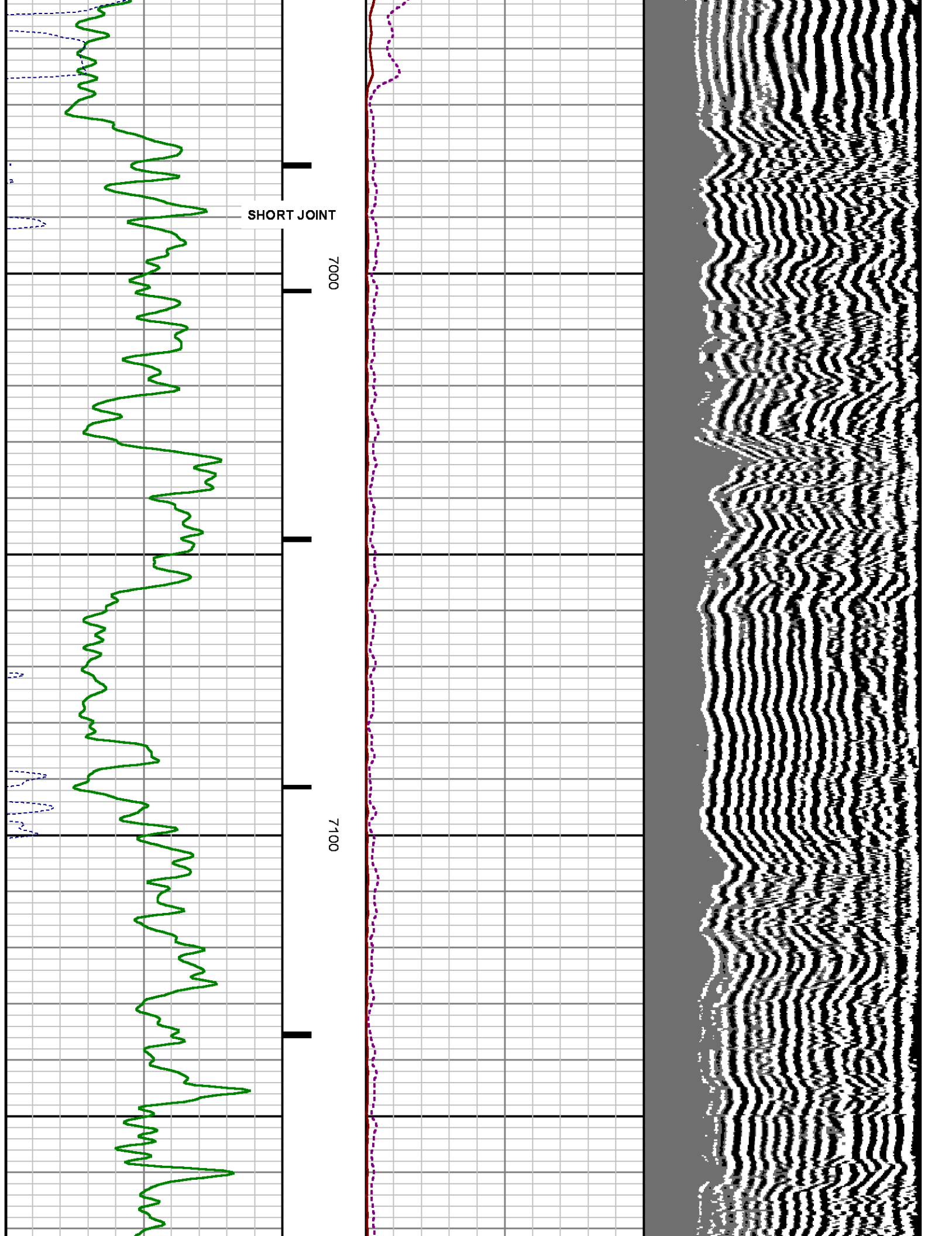


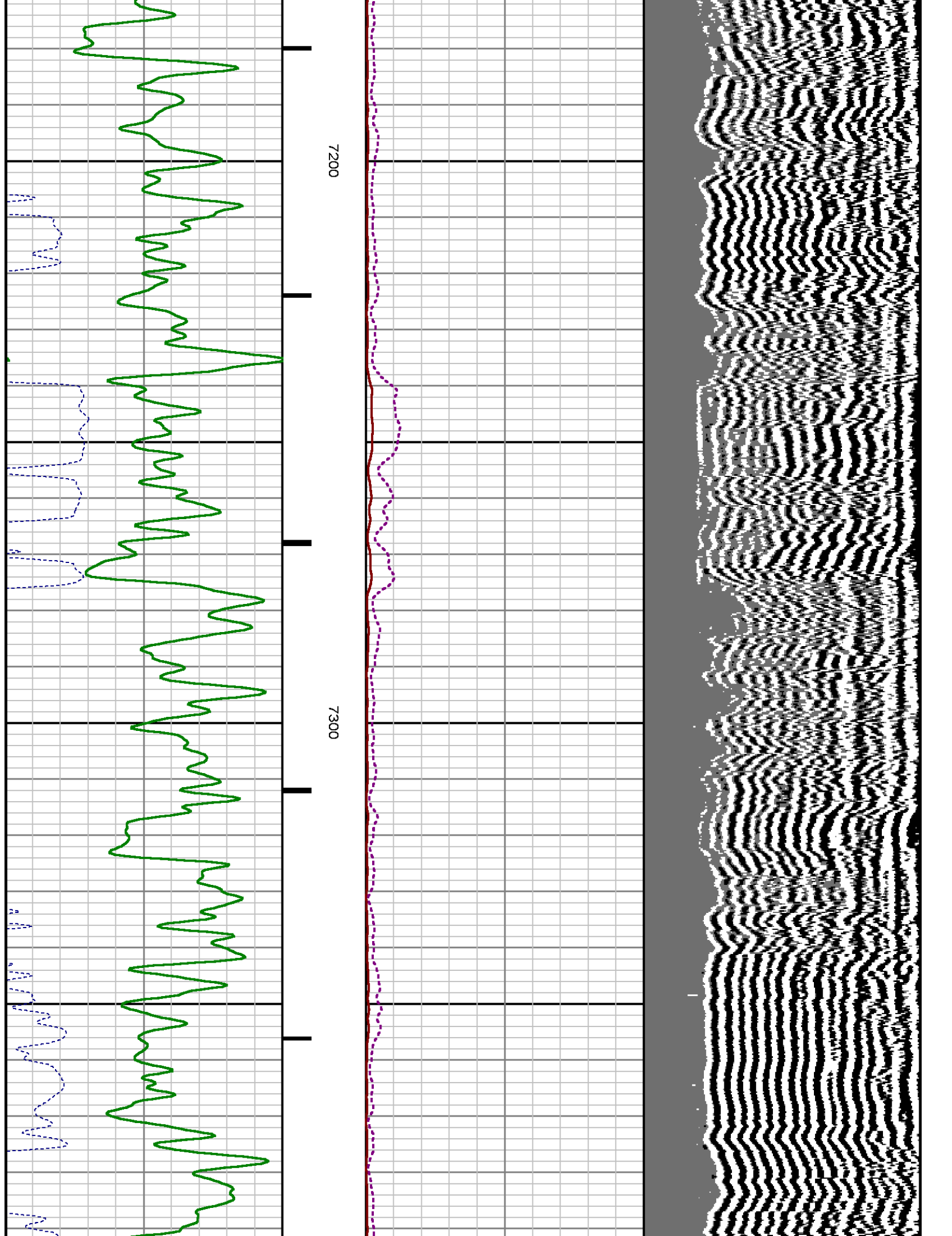


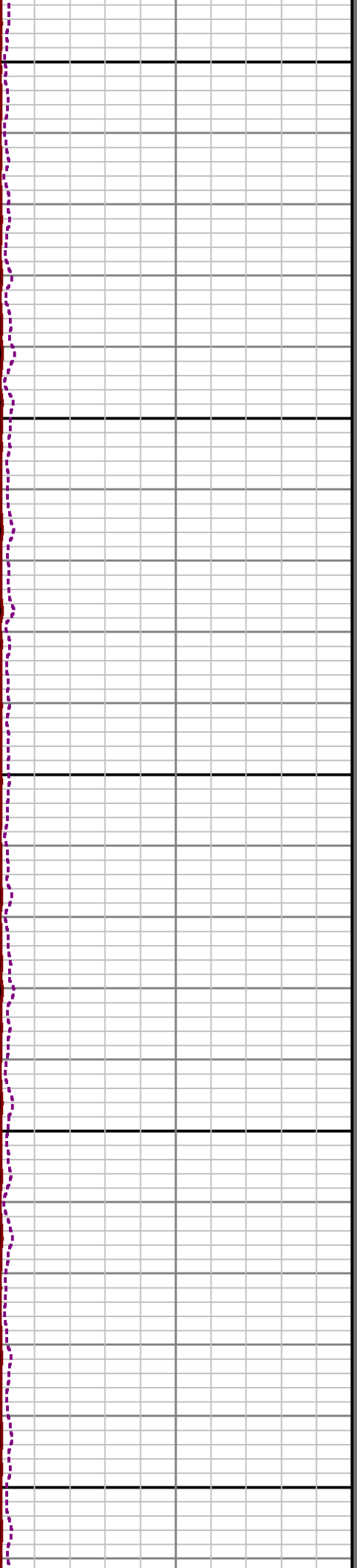
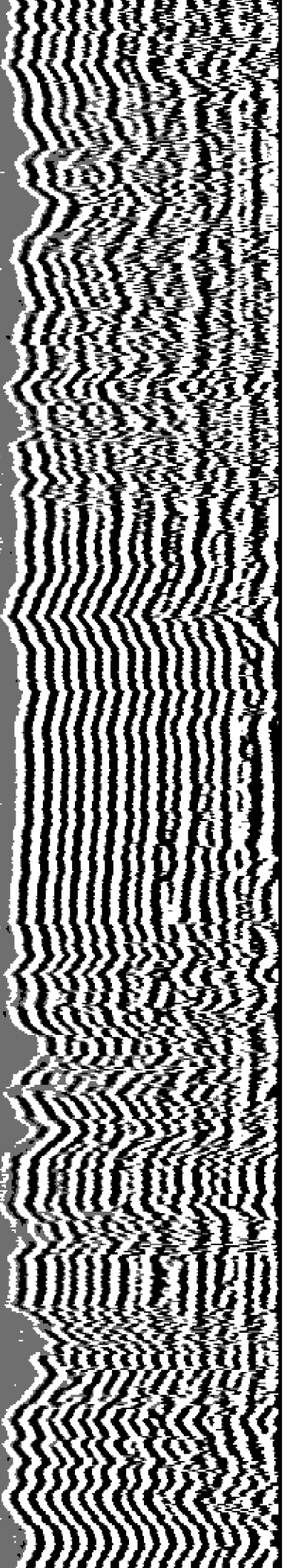








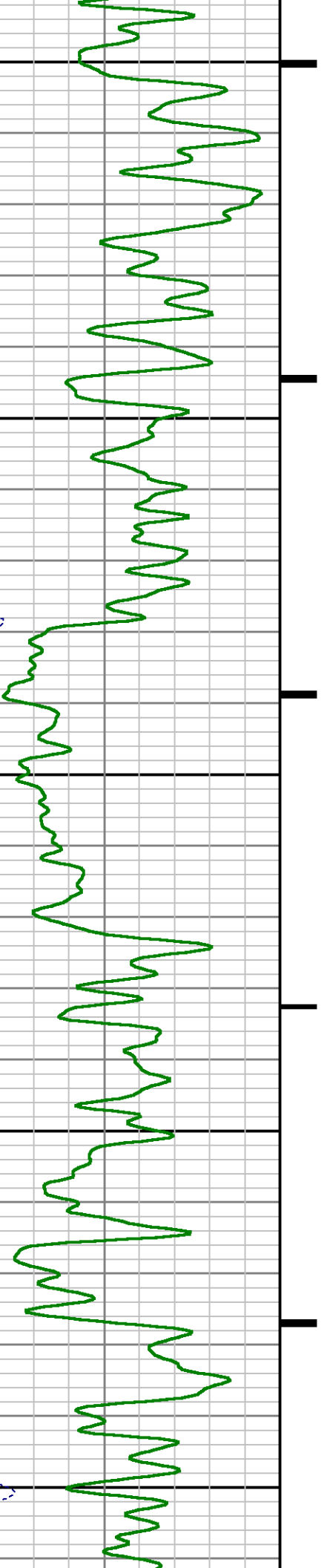


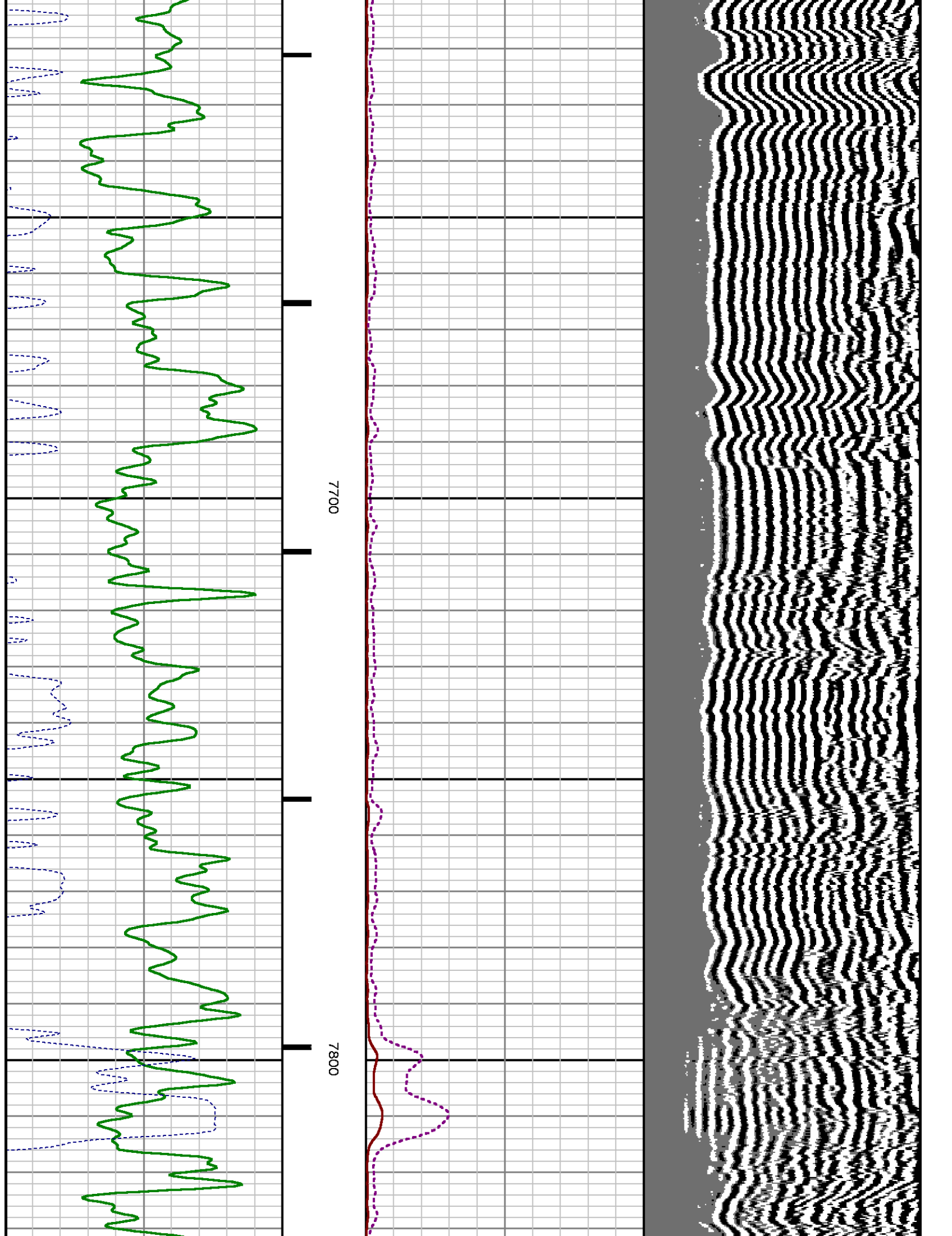


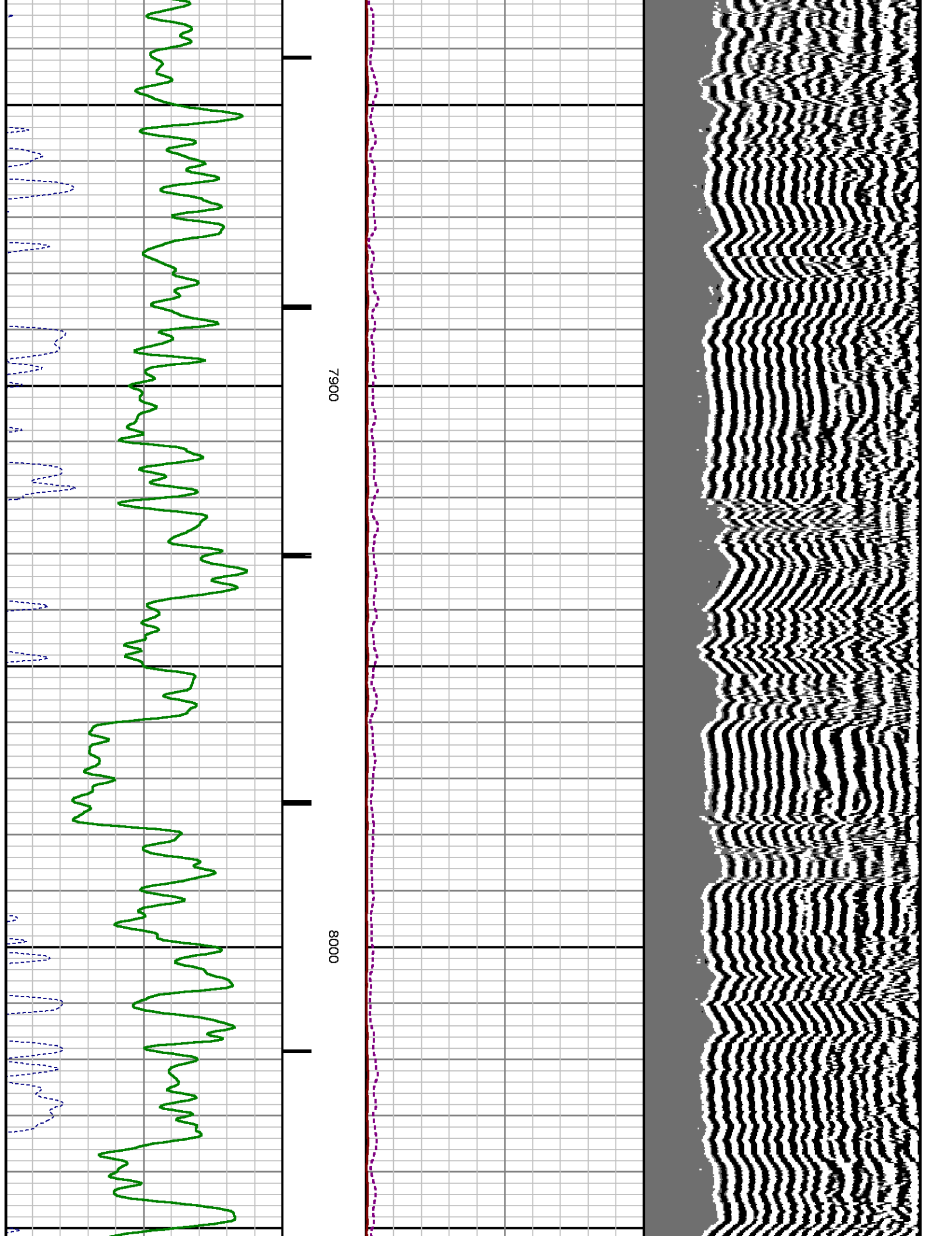
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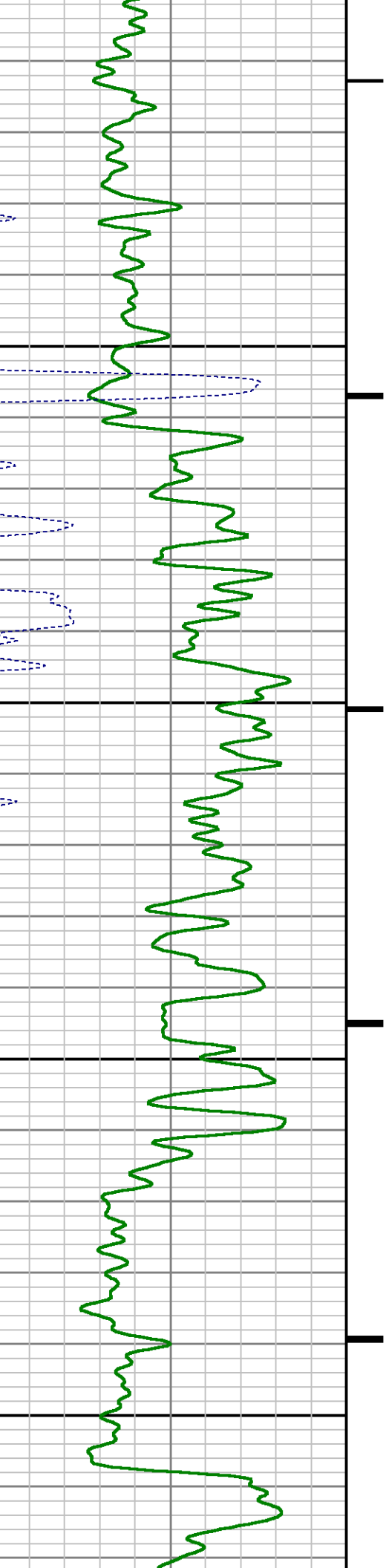
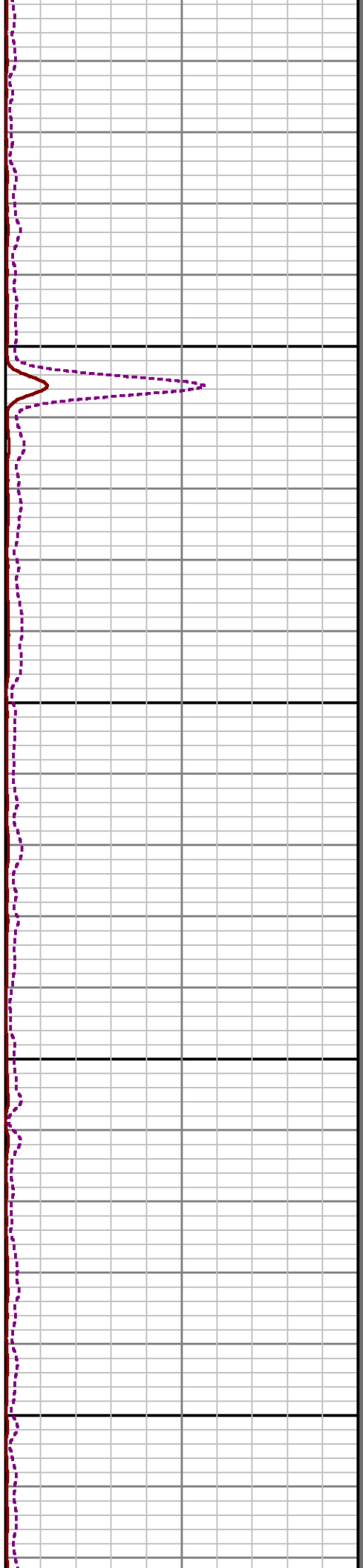
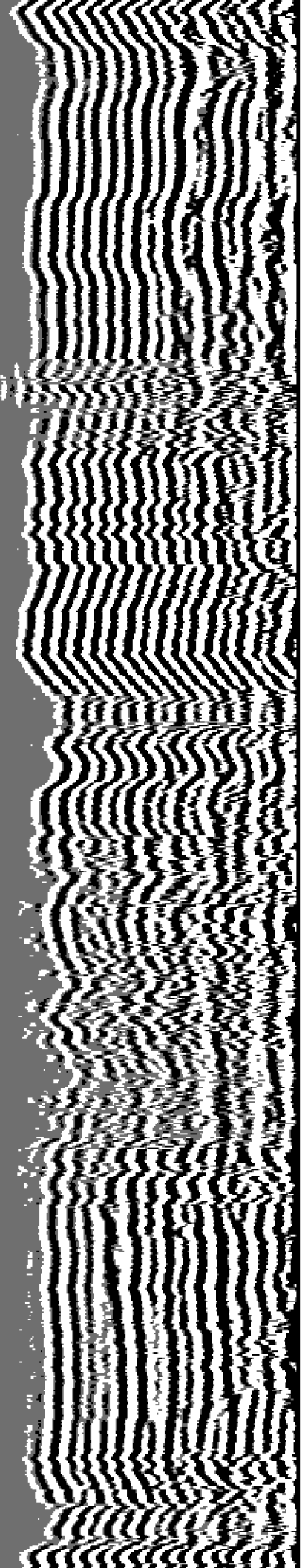
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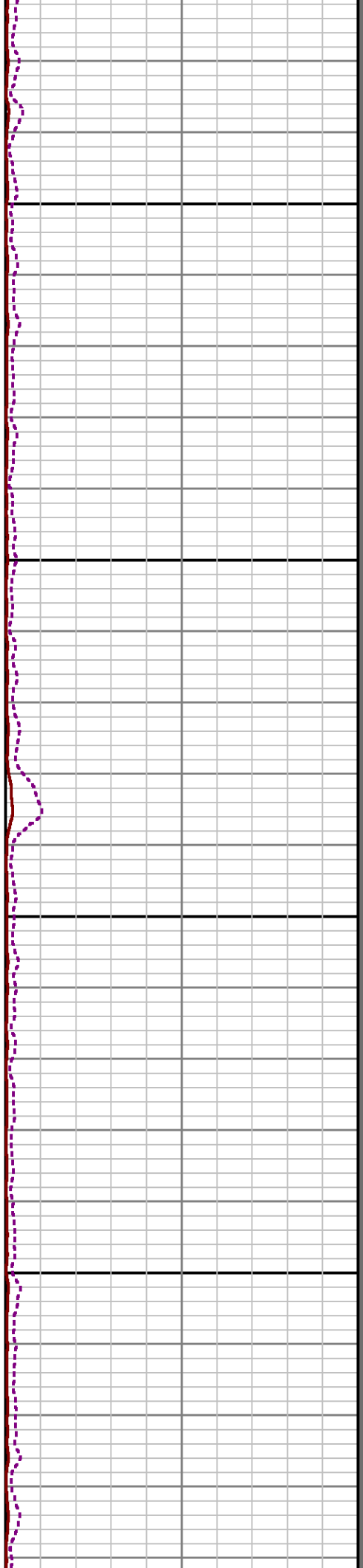
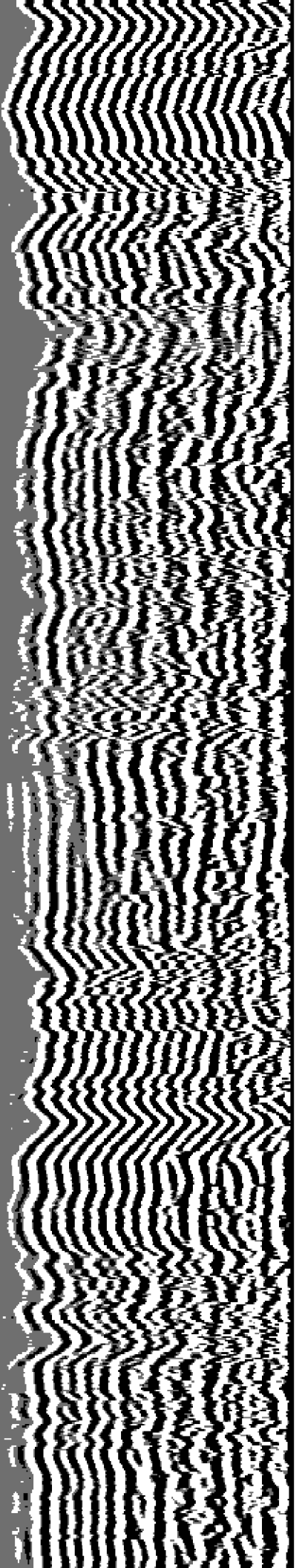
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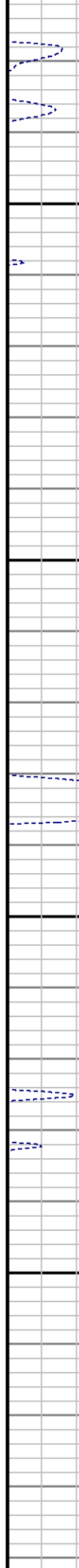
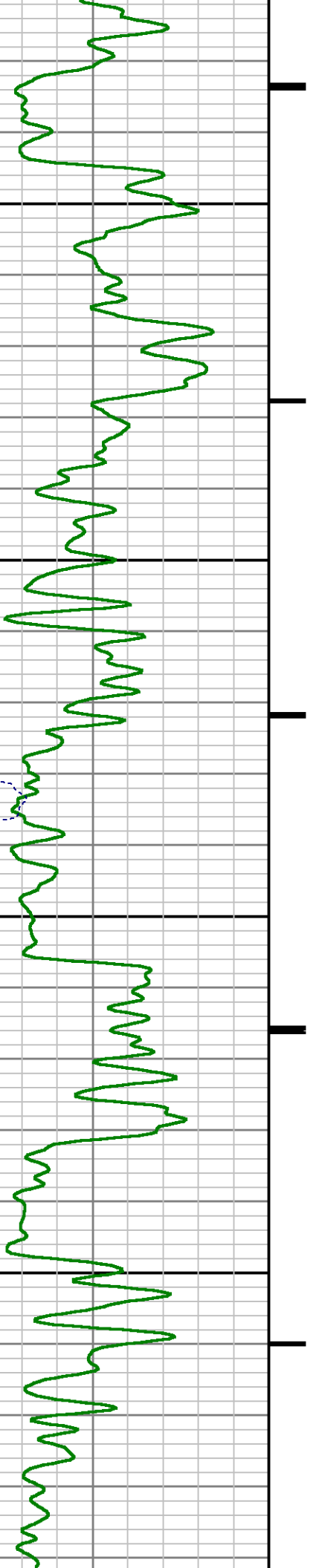




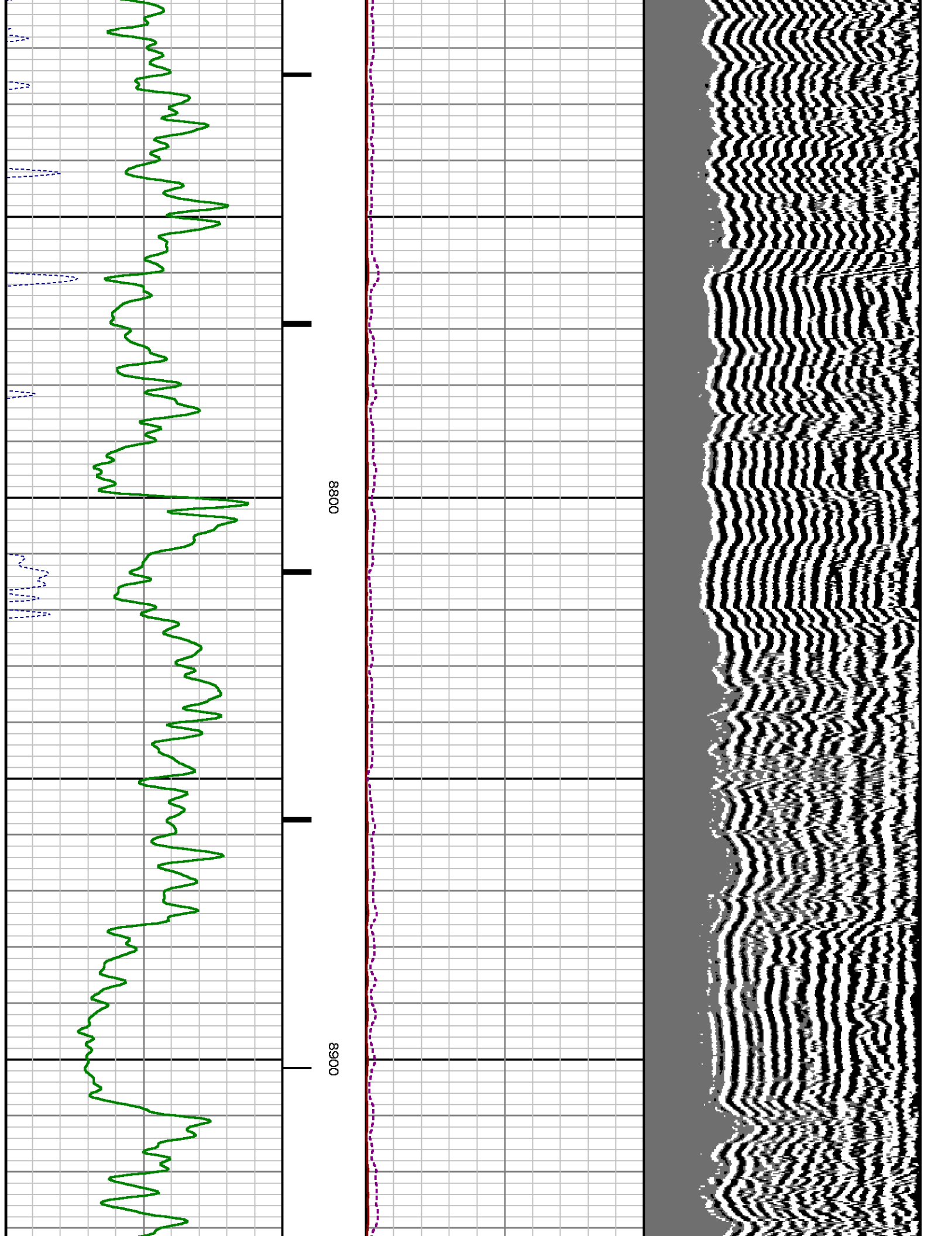


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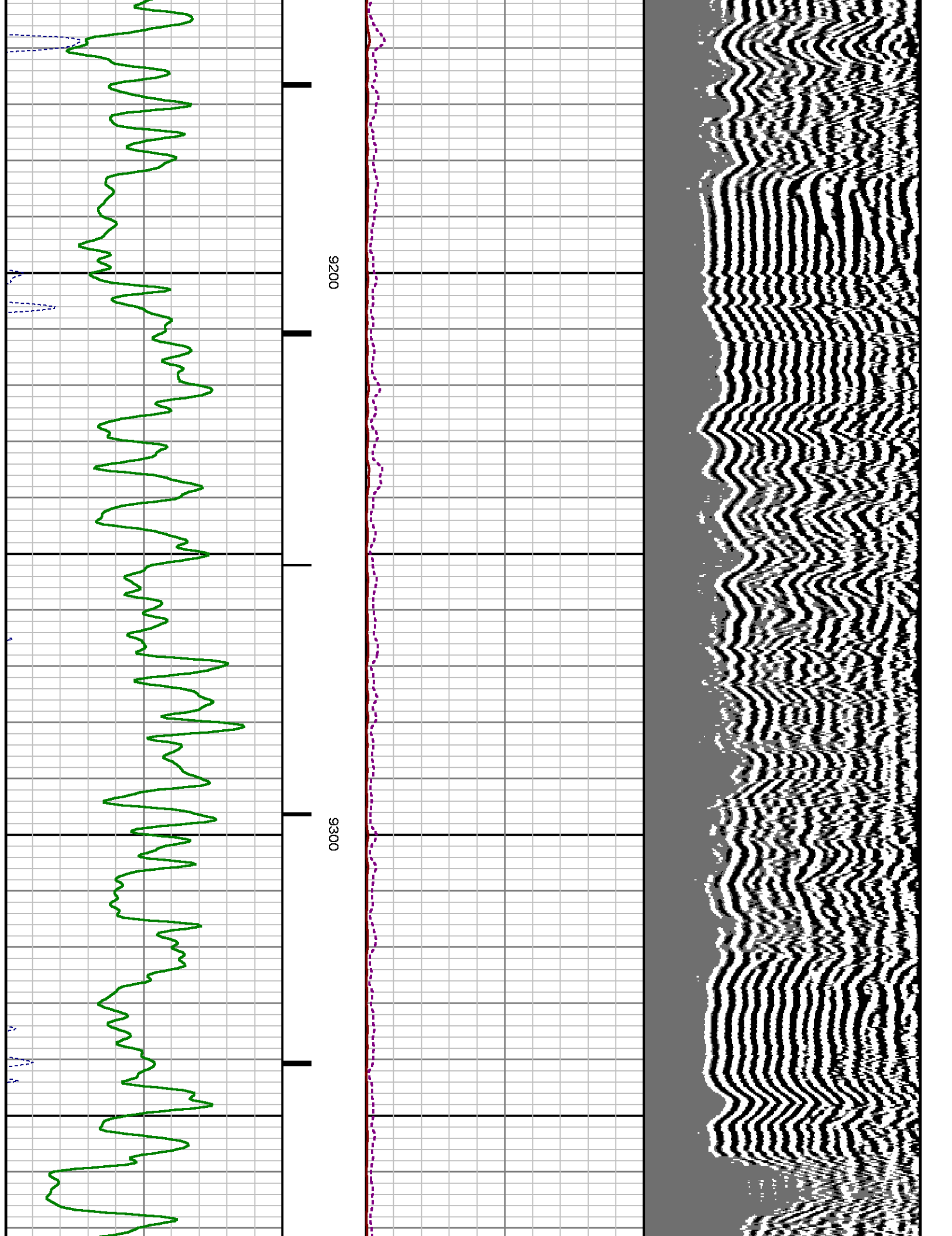
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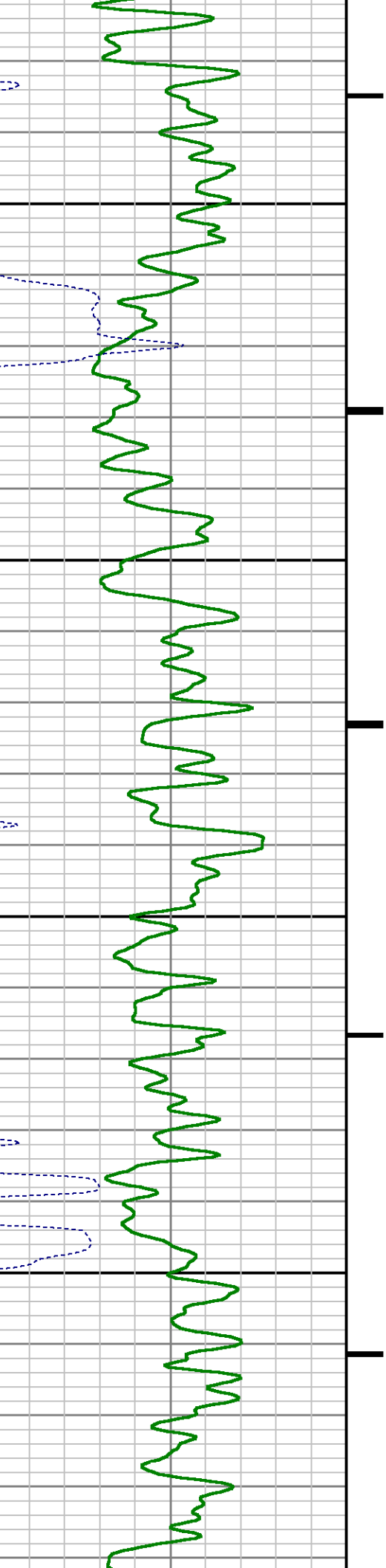
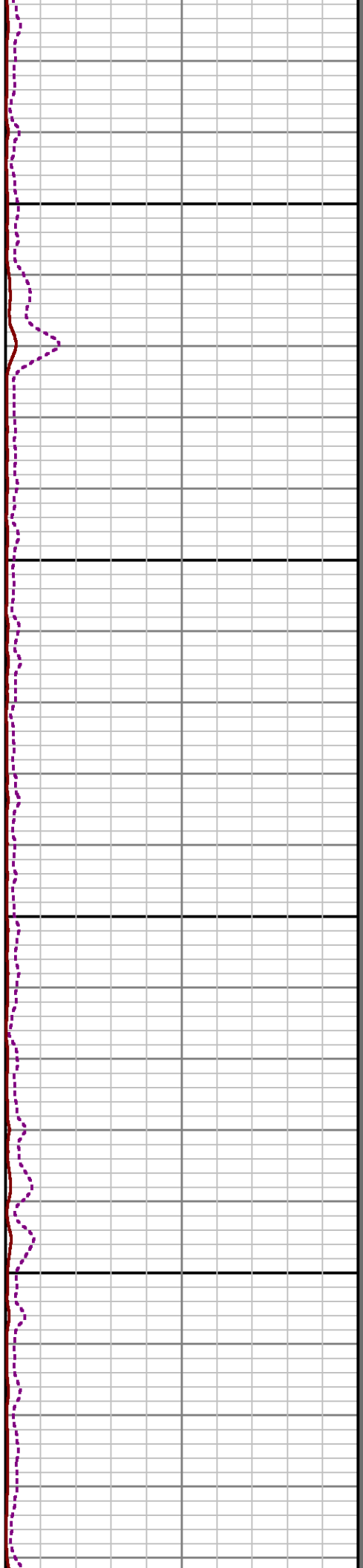
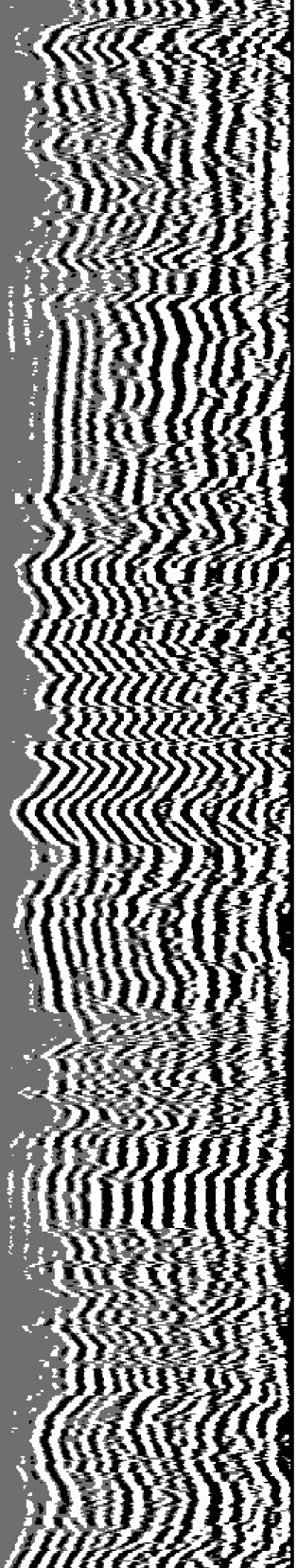


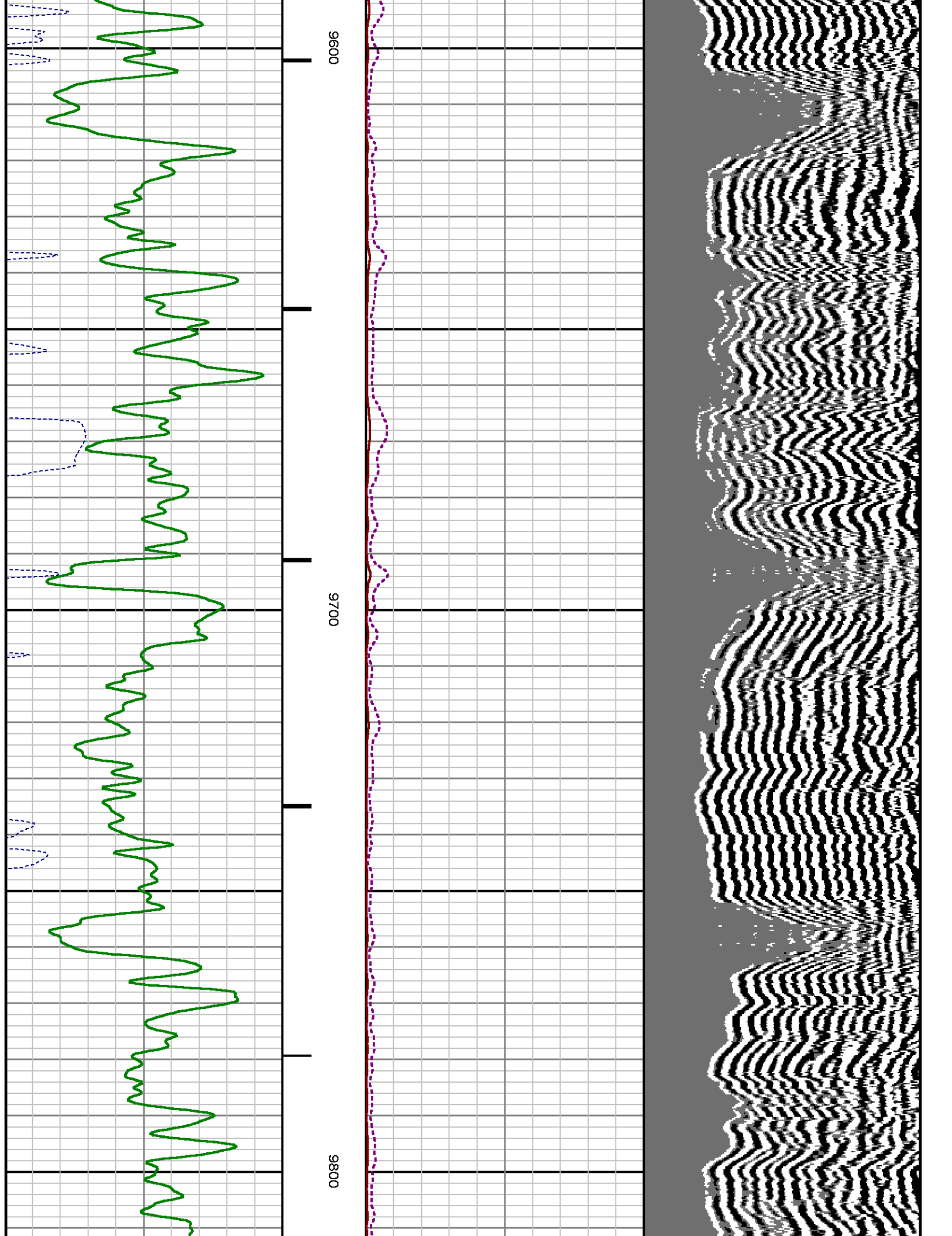


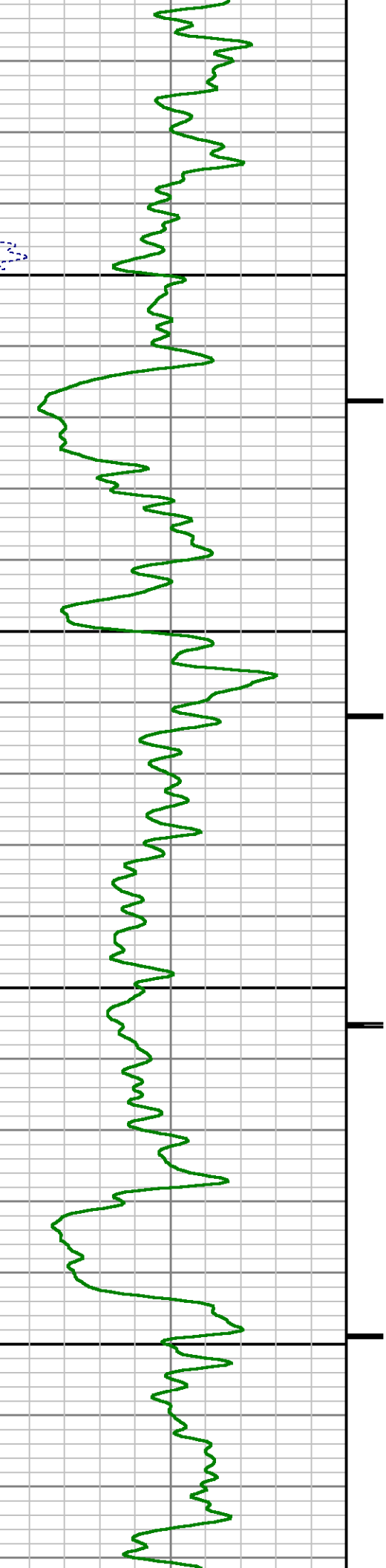
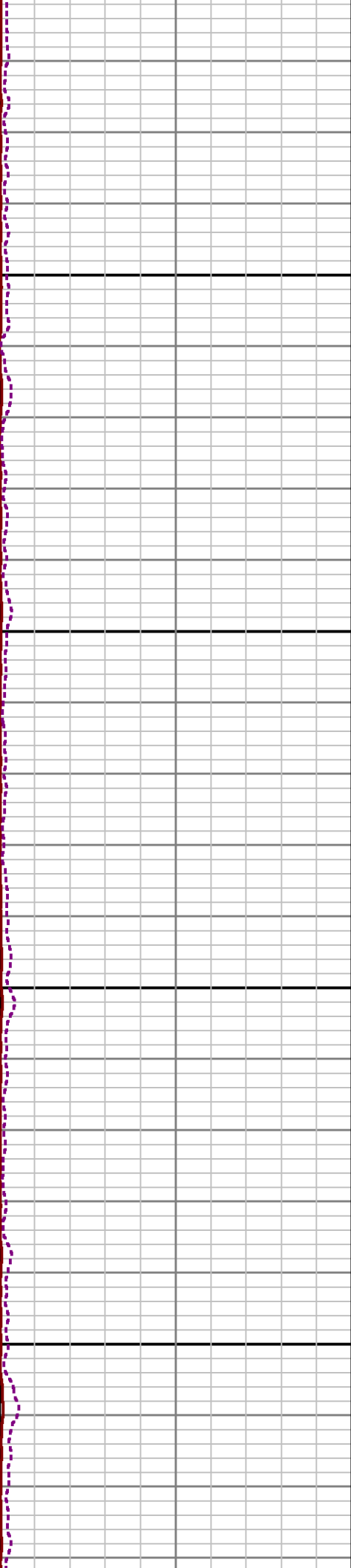
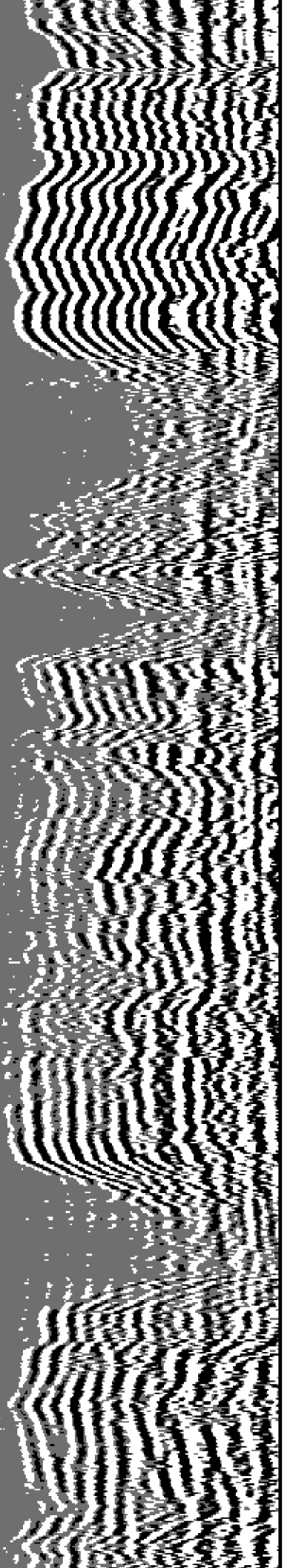


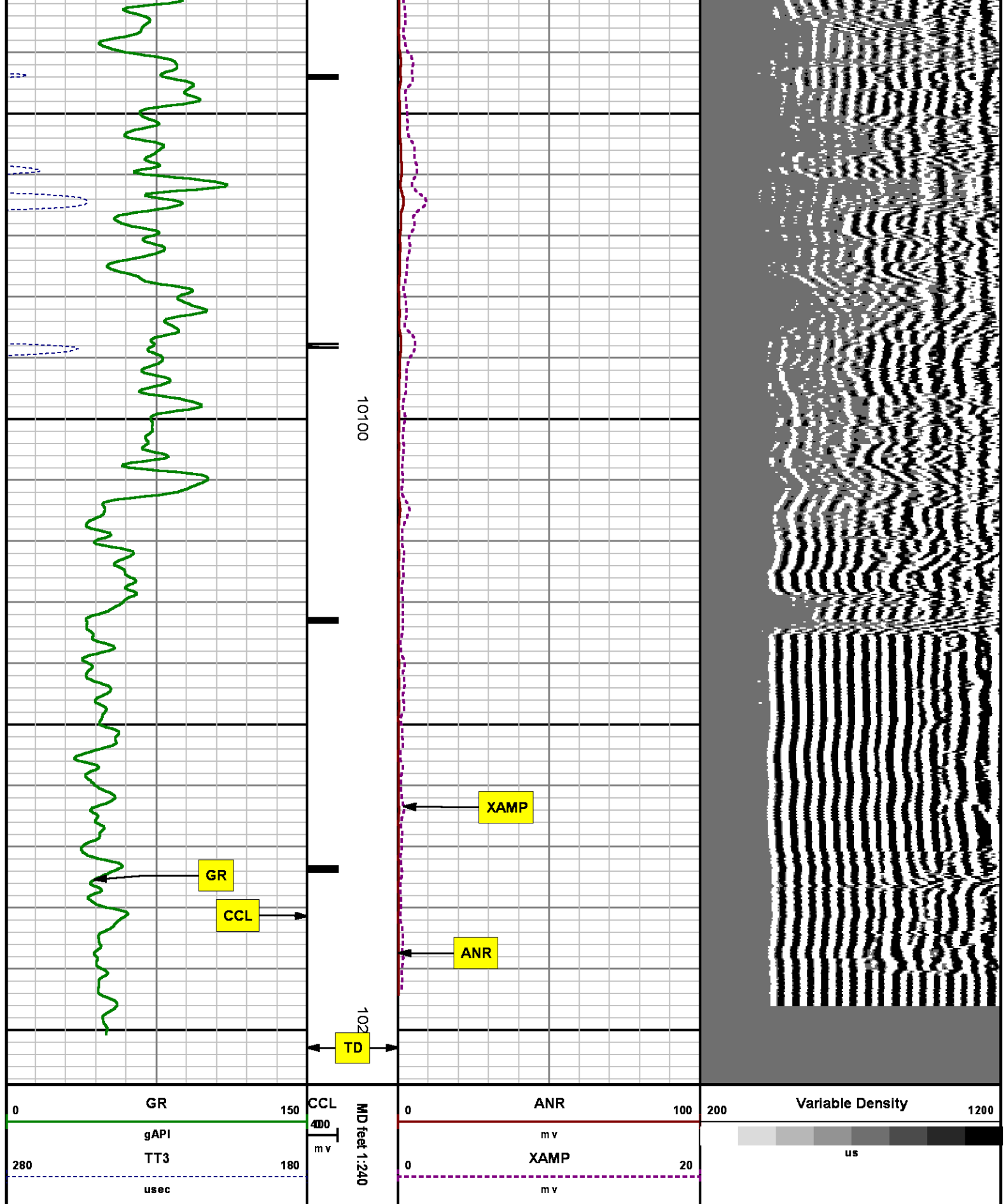












SECONDARY PRESENTATION

# SECONDARY PRESENTATION O PSI

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	305.000	usec	35.872	10211.000
RAL	Amp Gate Start Near	195.000	usec	35.872	10211.000
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RAL	Amp Gate Width Far	25.000	usec	35.872	10211.000
RAL	Amp Gate Width Near	25.000	usec	35.872	10211.000
RAL	Amp Gate Width Radial	25.000	usec	35.872	10211.000
RAL	casing od	4.500	inches	35.872	10211.000
RAL	casing wt	11.600	lbm/ft	35.872	10211.000
RAL	FB Start Far	291.900	usec	35.872	10211.000
RAL	FB Start Near	180.000	usec	35.872	10211.000
RAL	FB Start Radial	180.000	usec	35.872	10211.000
RAL	FB Thresh Far	10.000	mv	35.872	10211.000
RAL	FB Thresh Near	4.000	mv	35.872	10211.000
RAL	FB Thresh Radial	4.000	mv	35.872	10211.000
RAL	Fluid Travel Time	200.000	usec/ft	35.872	10211.872

## DEPTH OFFSETS (for Acquired Curves)

SERIES	DEPTH OFFSET	ACQUIRED CURVES
1426XA	-16.750	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	-15.750	AFAR SIG TT5
2459XA	-11.340	CCL
2459XA	-9.490	GR
2459XA	-4.090	NEU

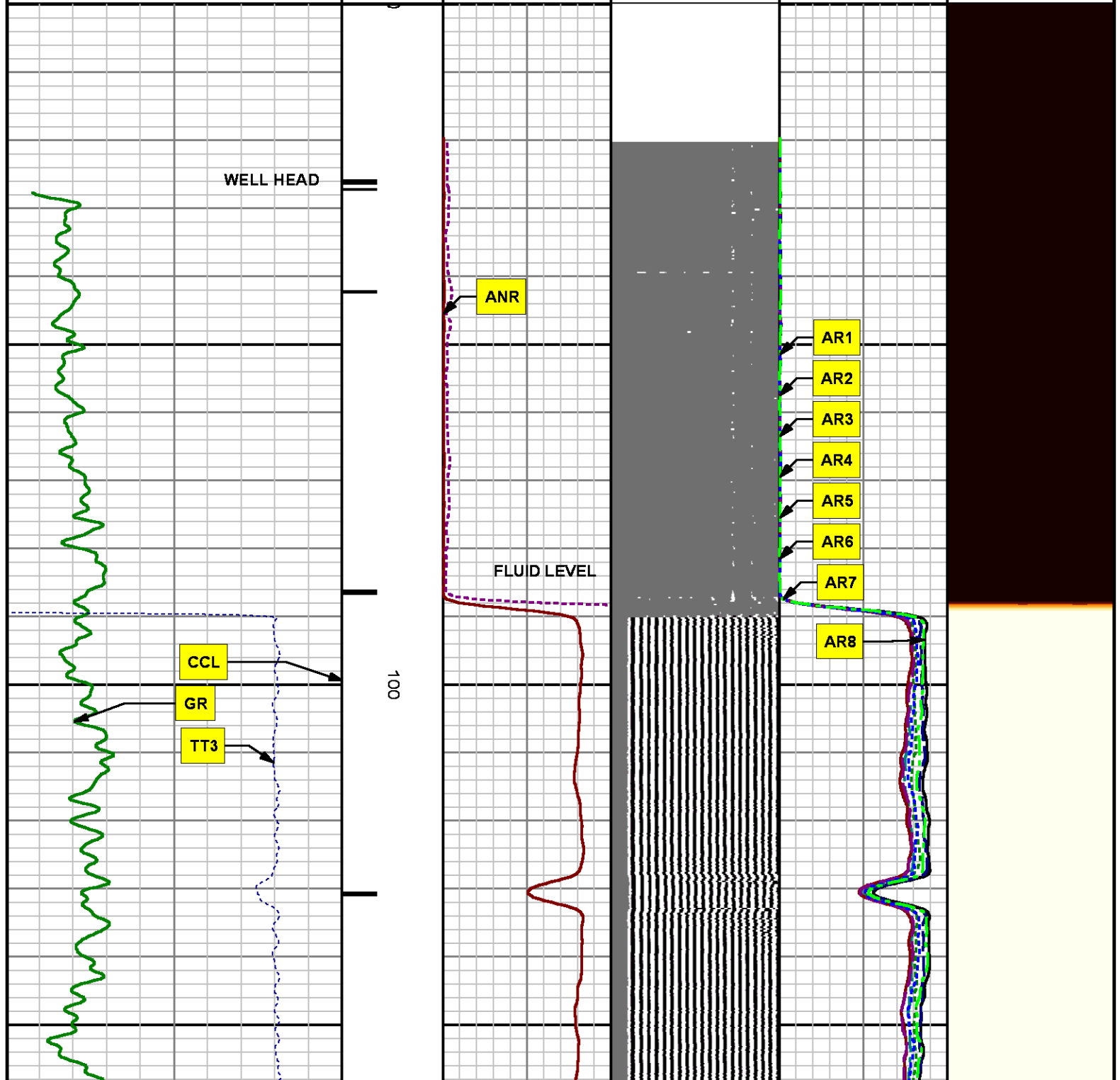
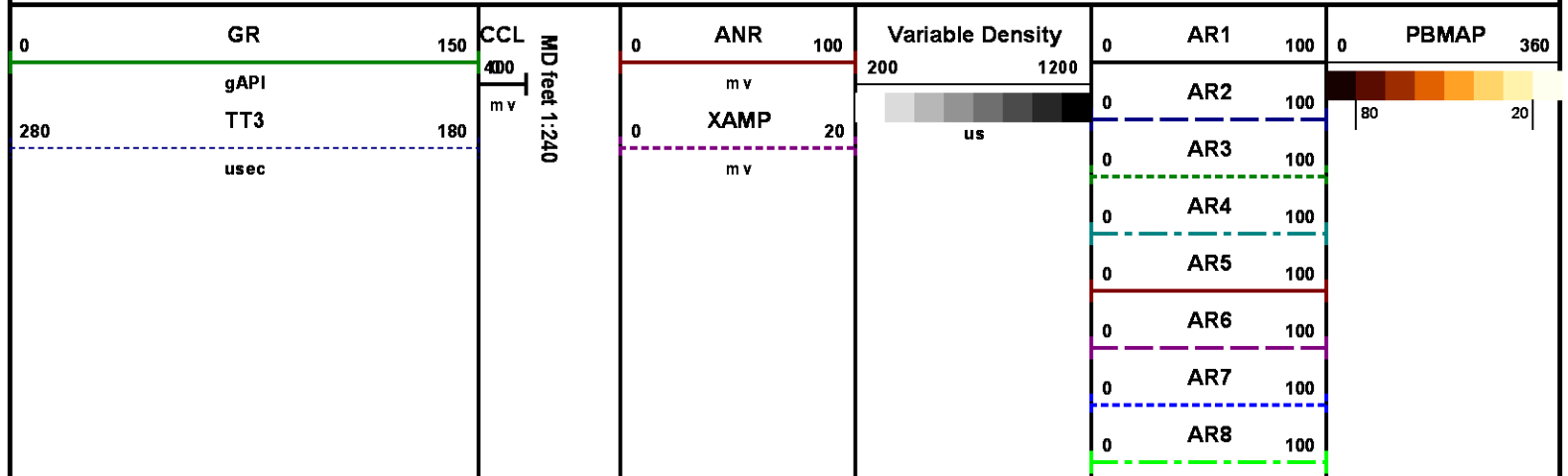
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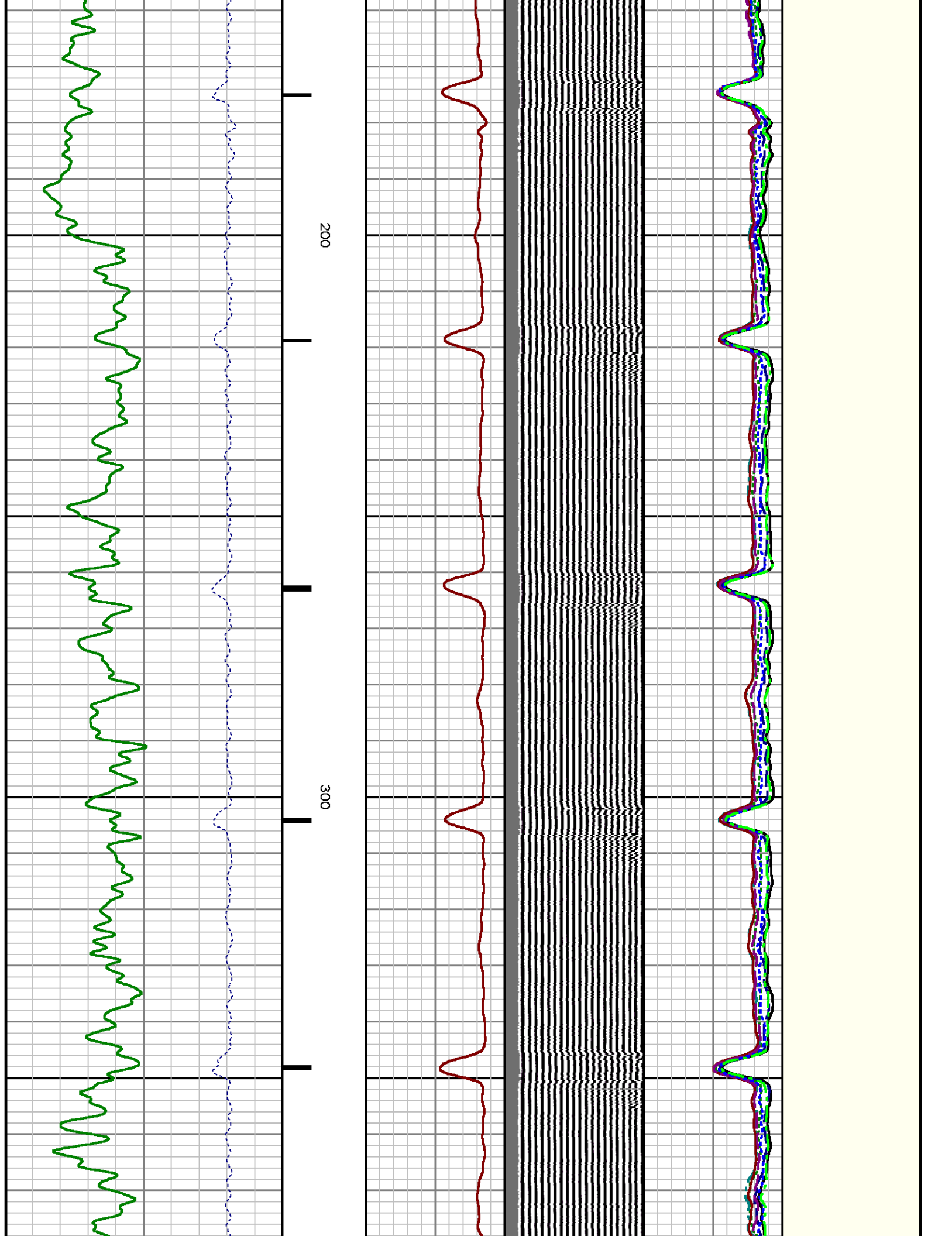
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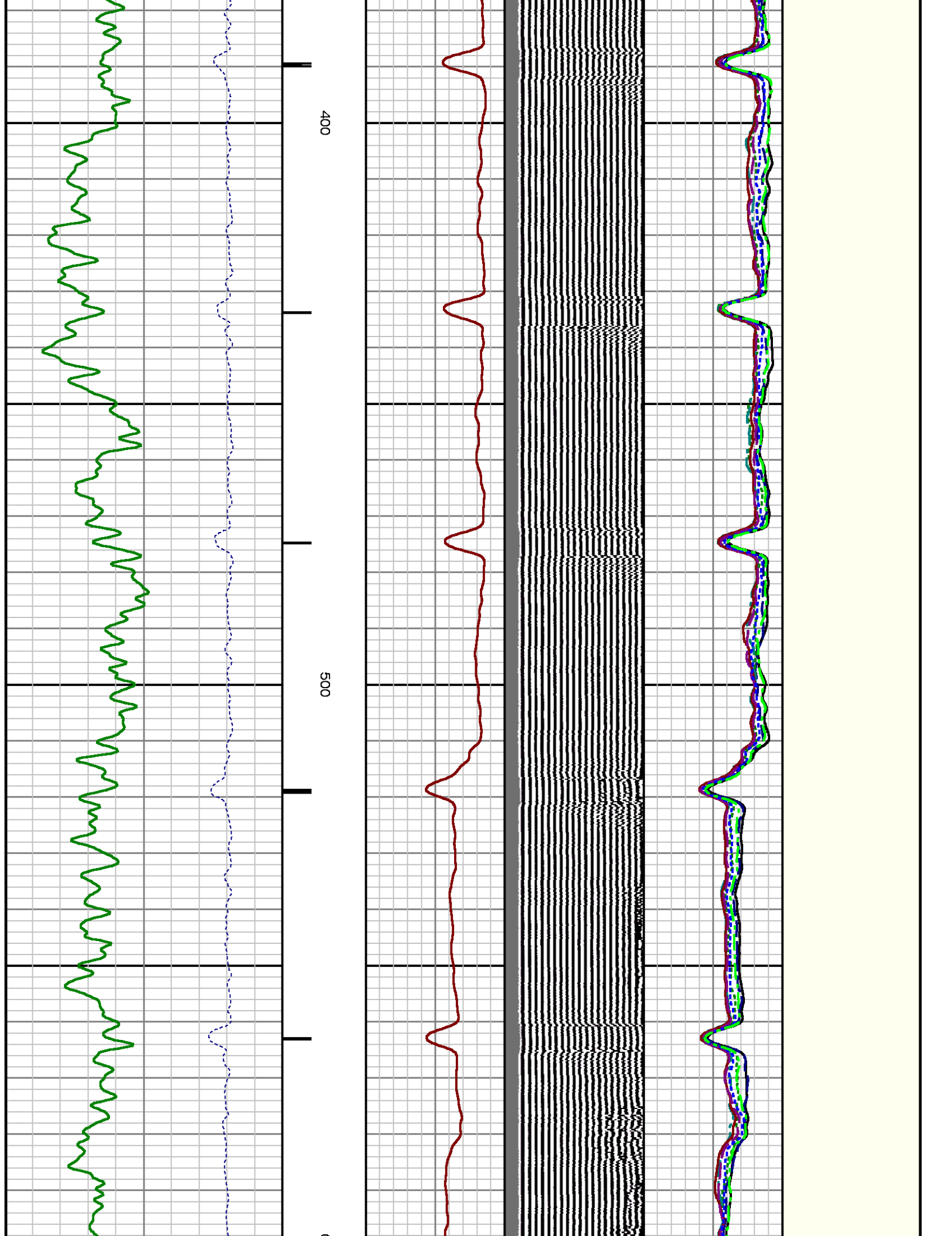
Company : WPX ENERGY

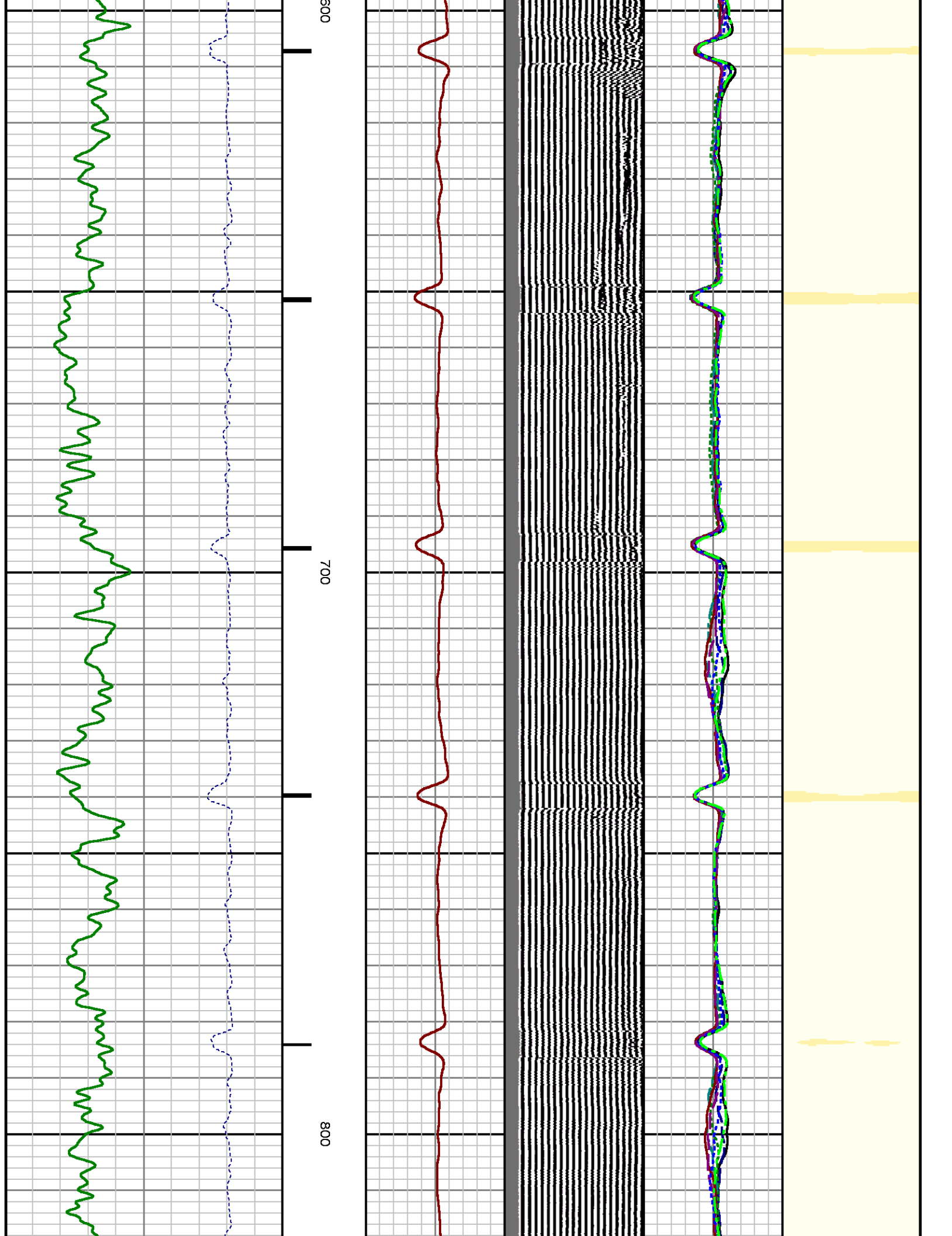
Well : FEDERAL NER 514-32

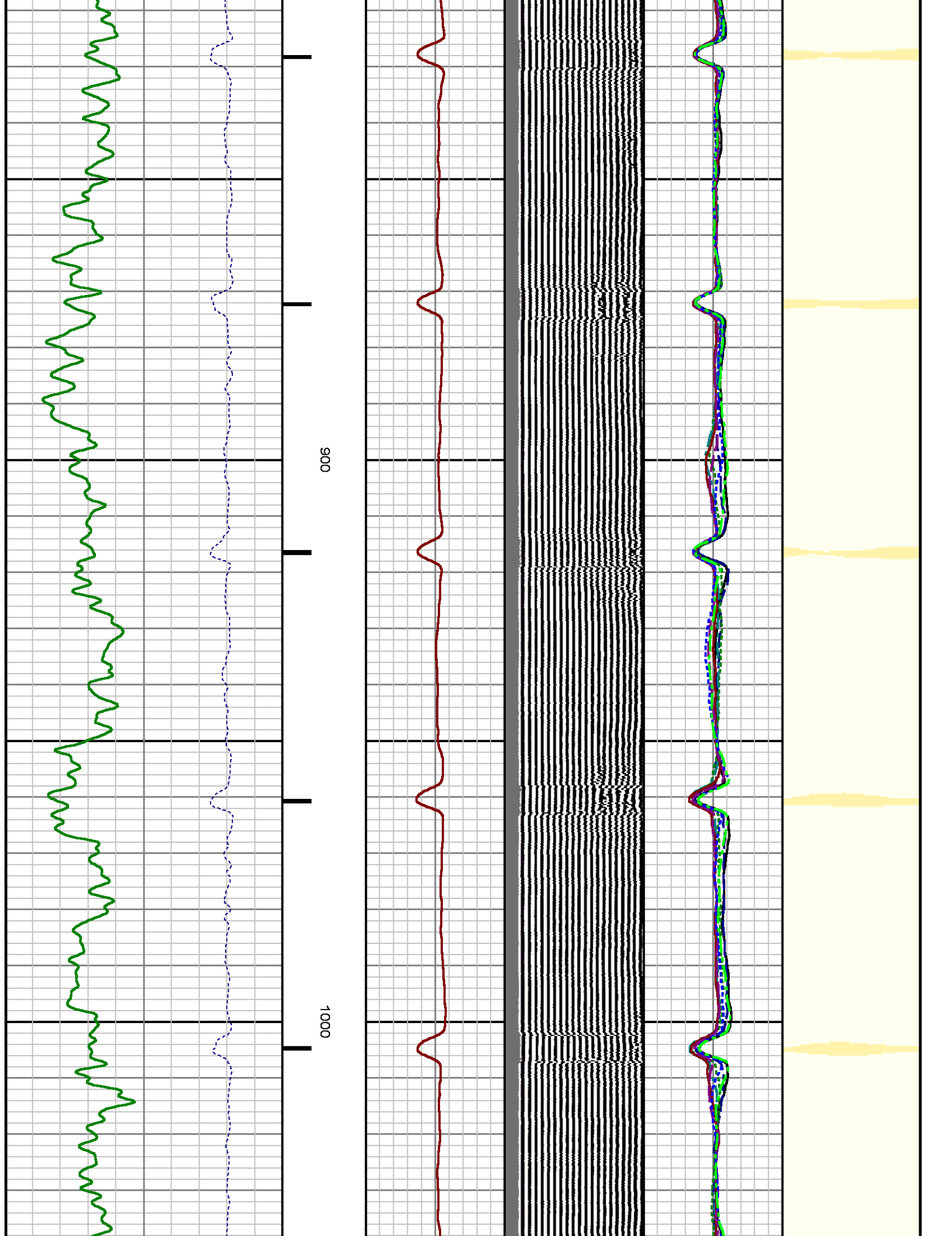
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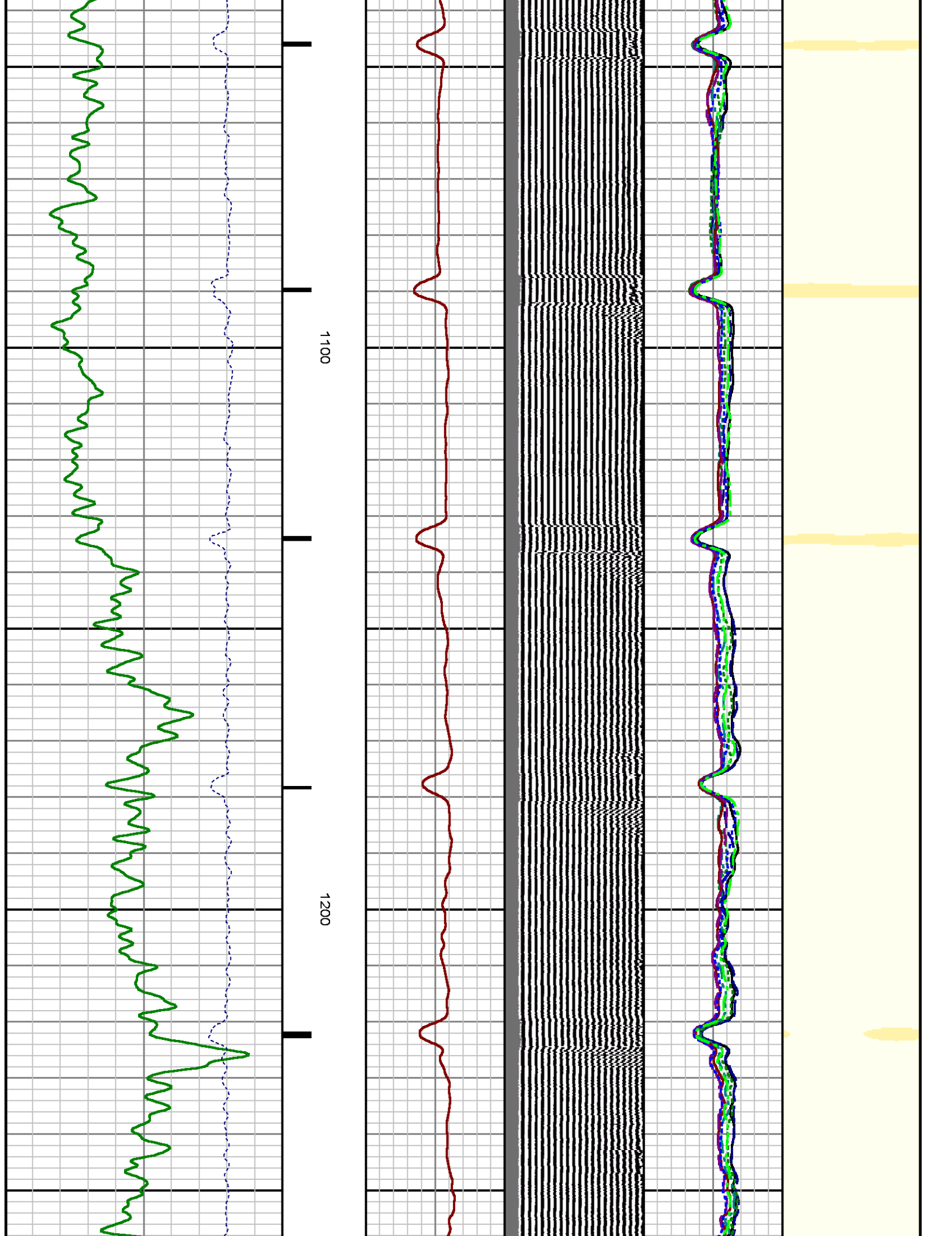


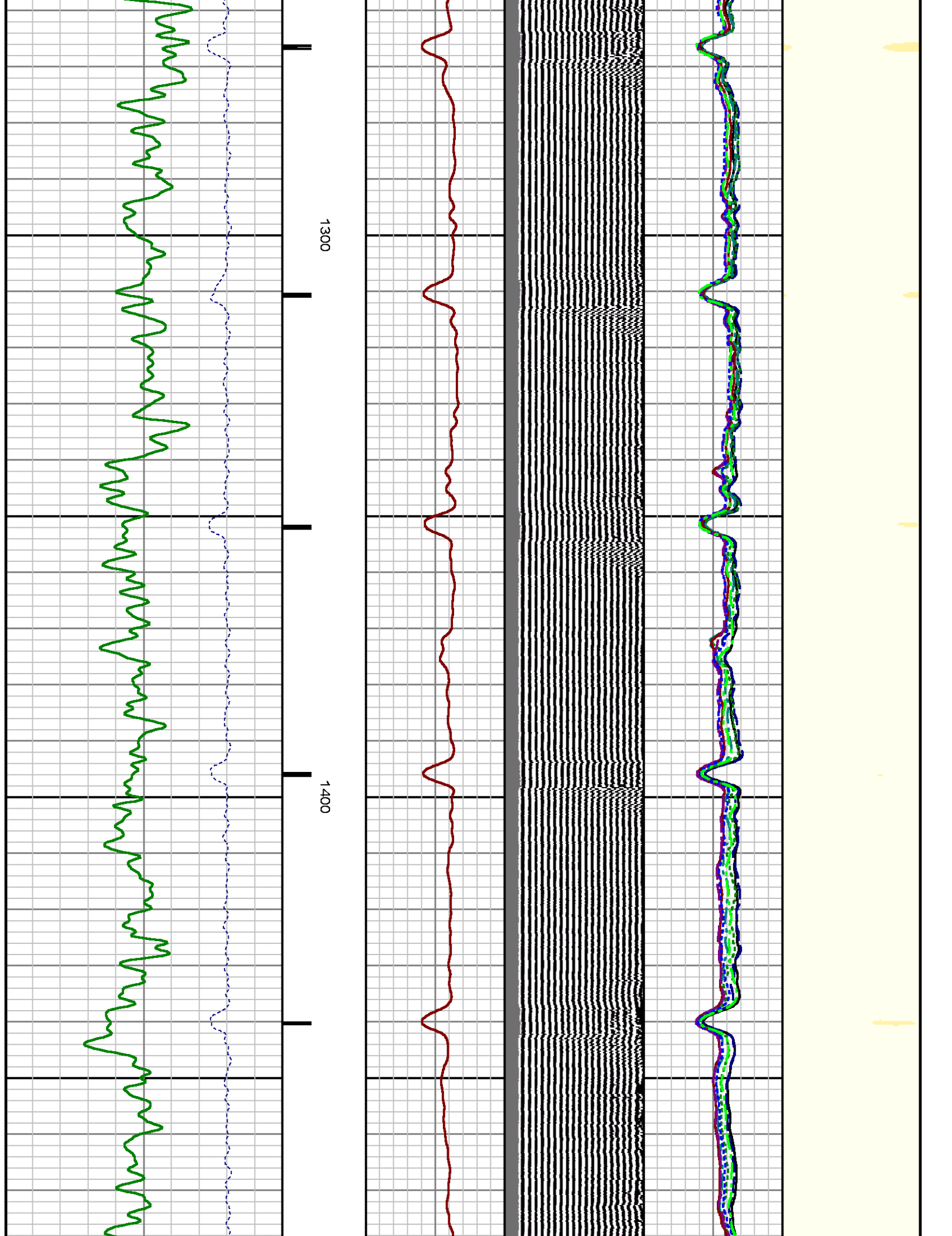


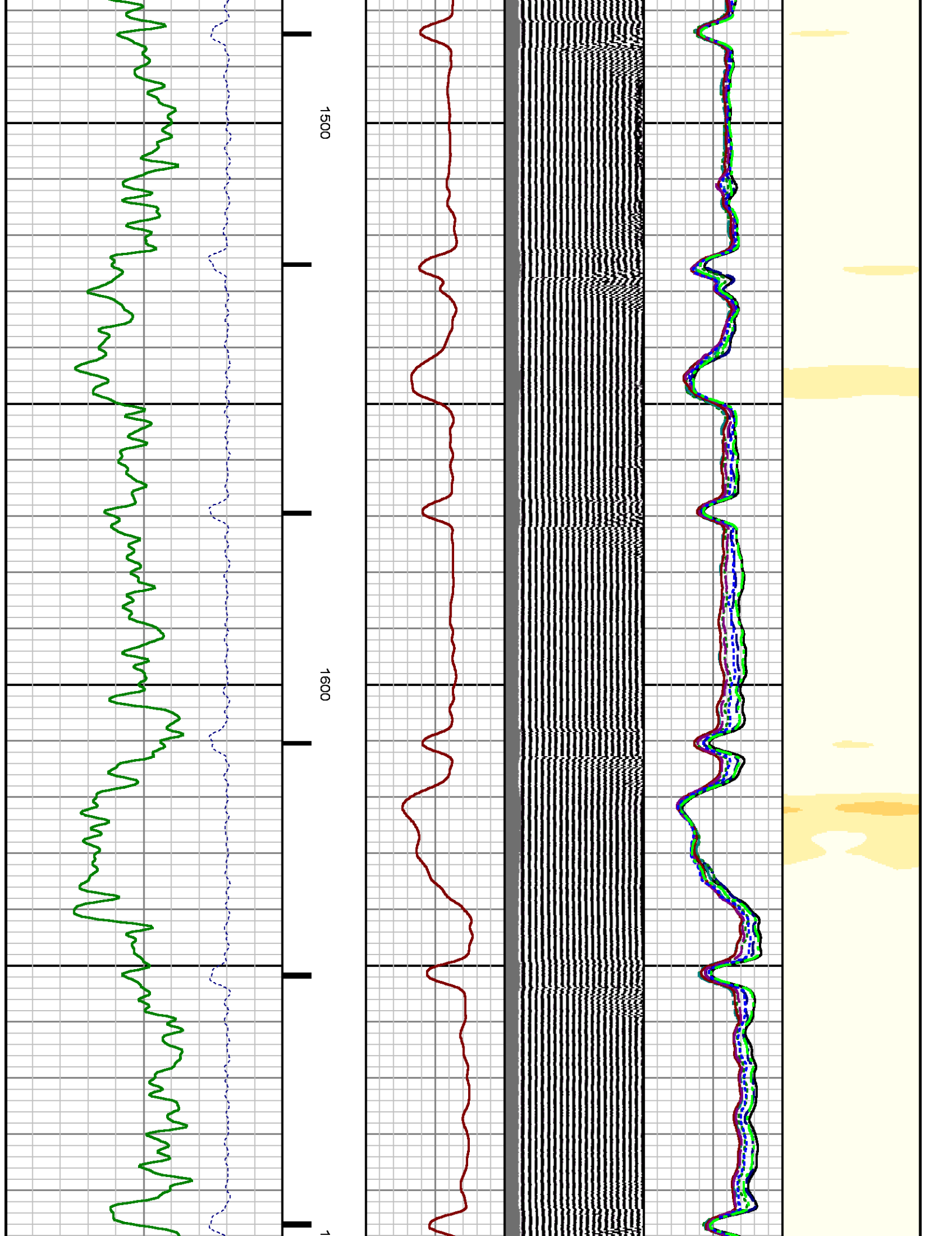


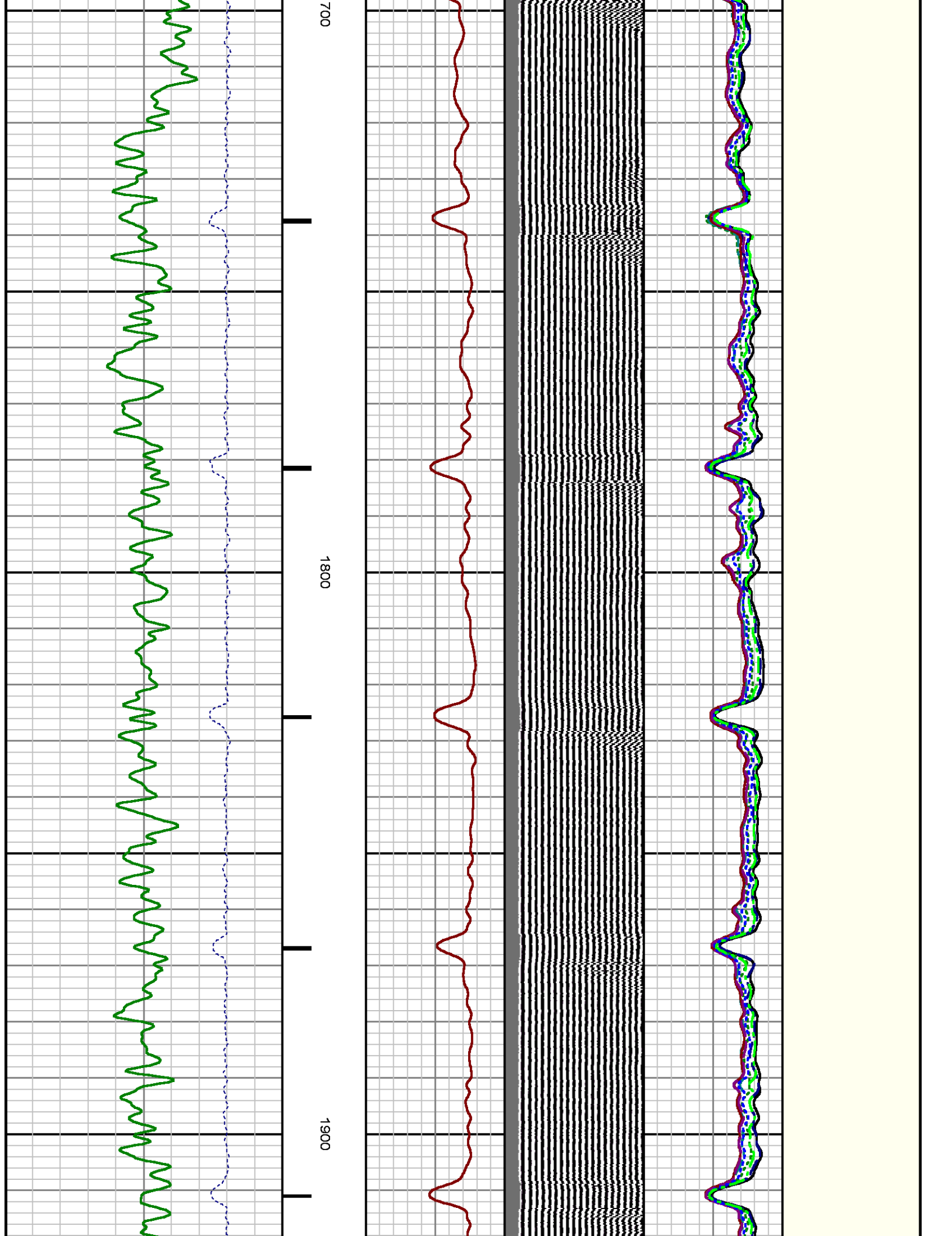


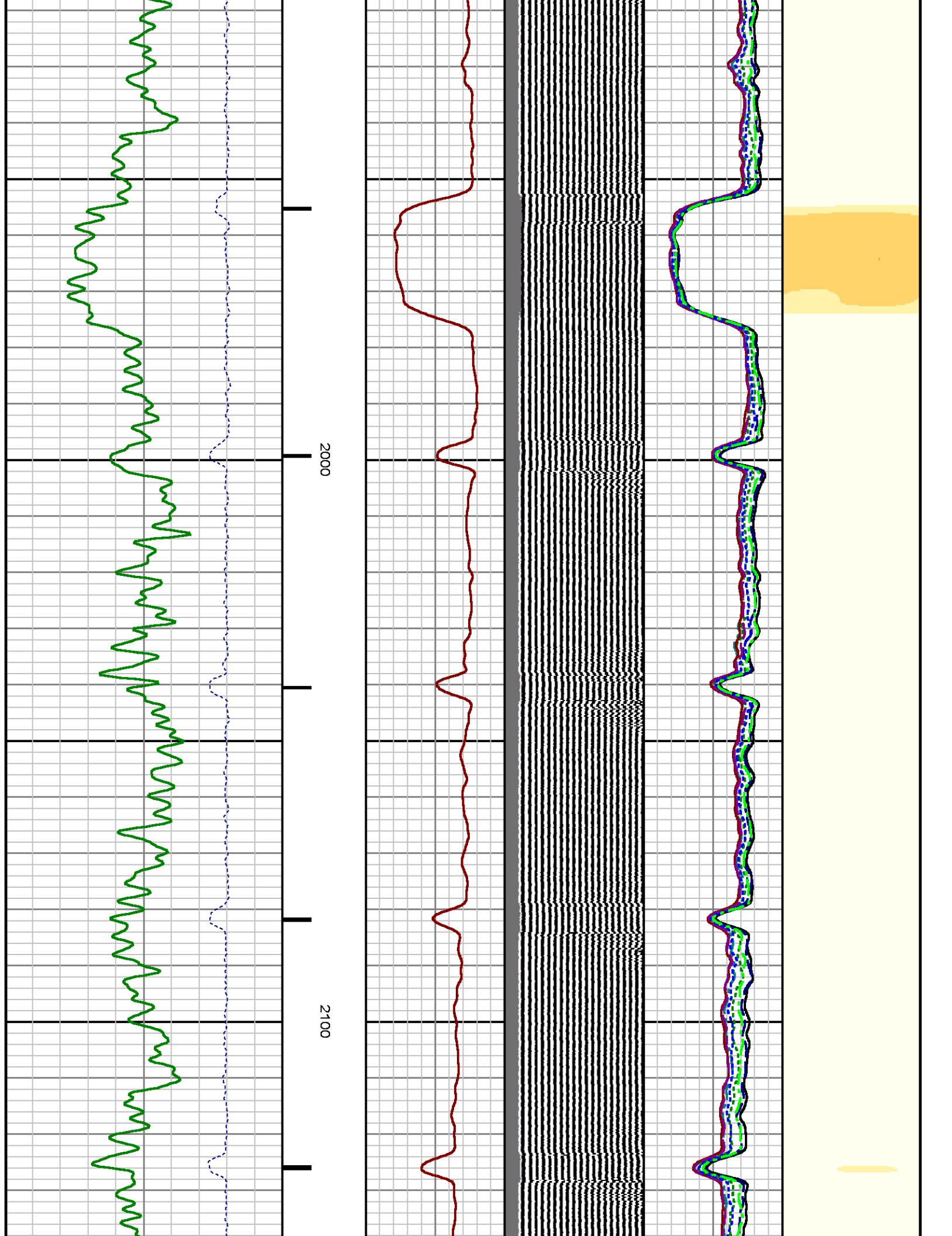


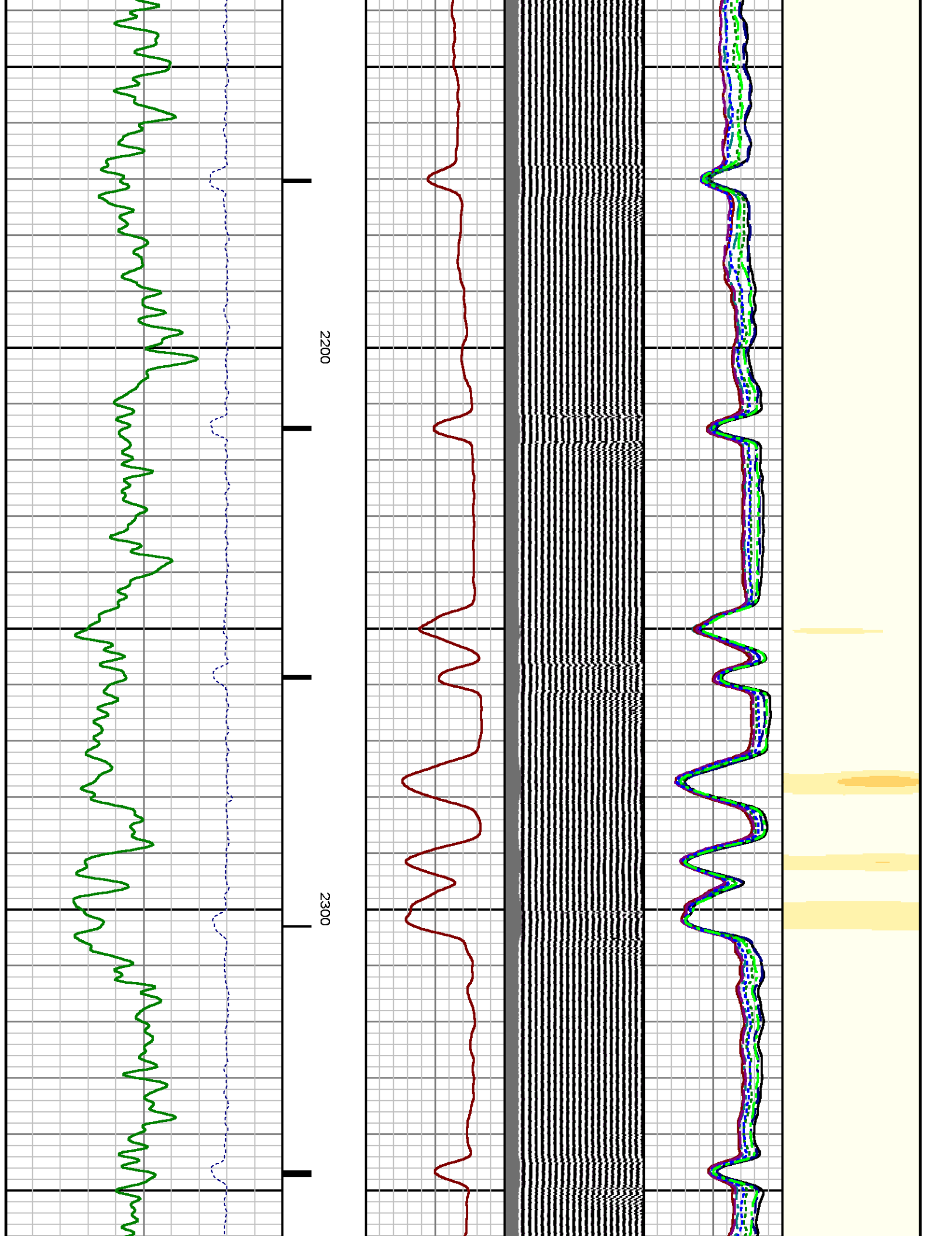


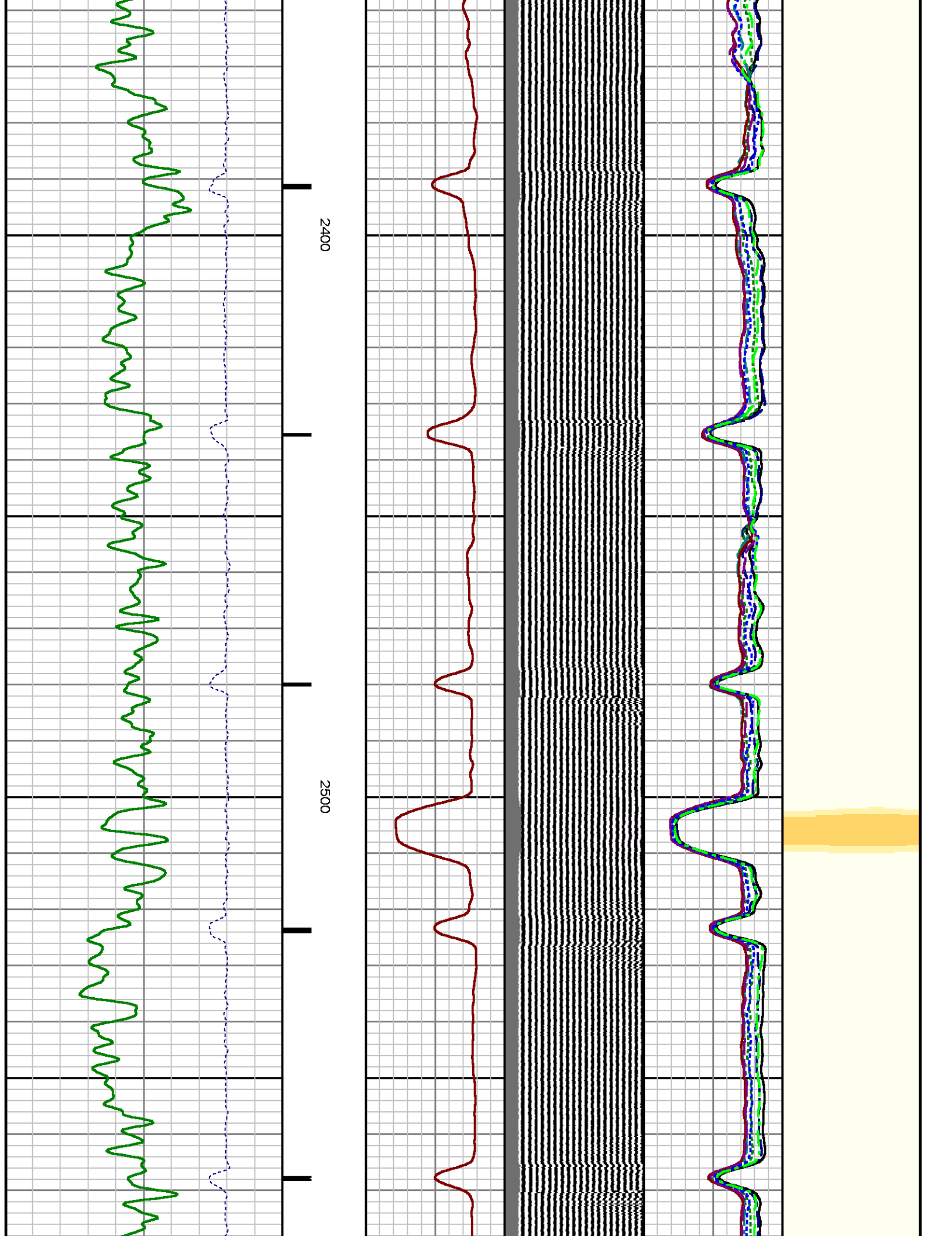


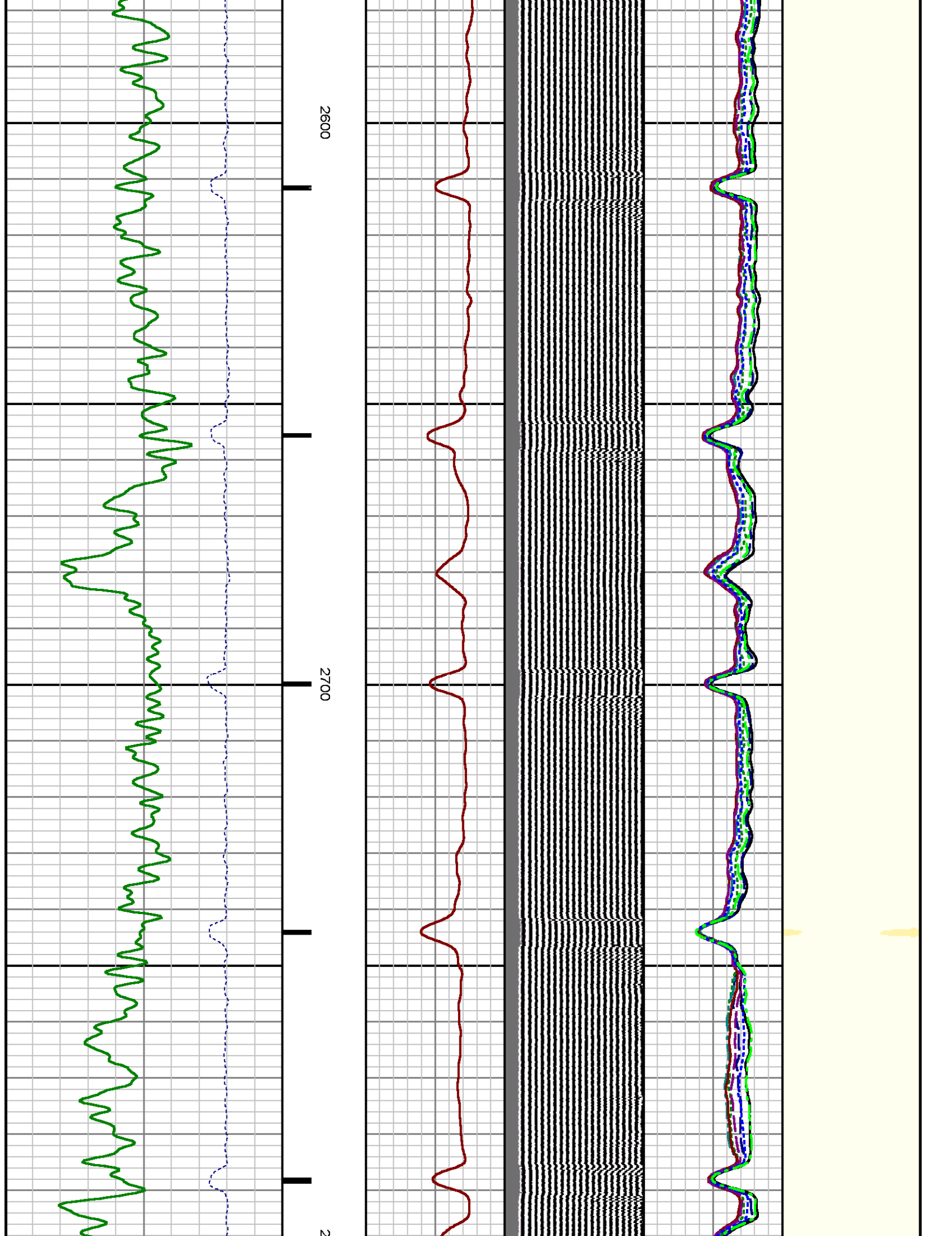


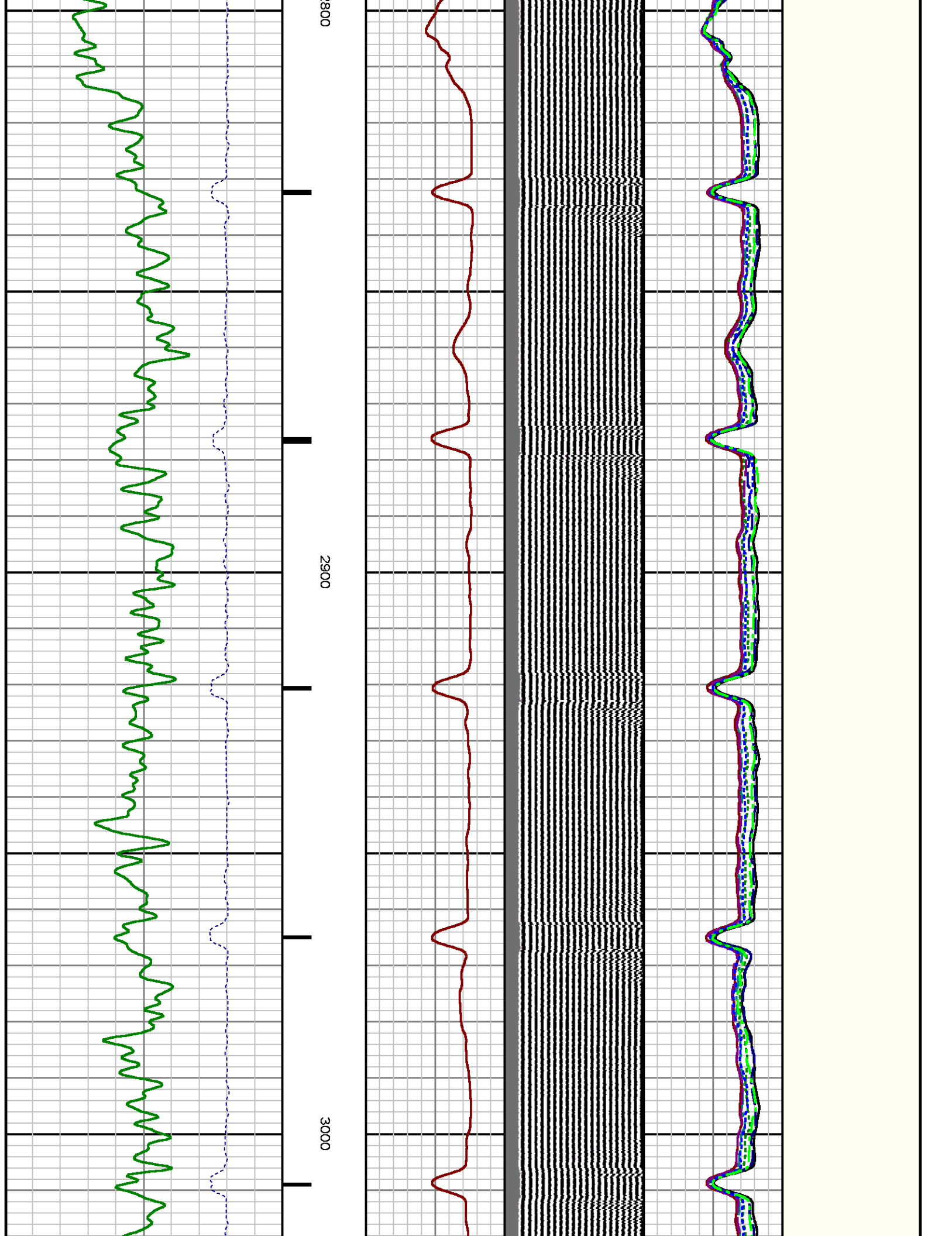


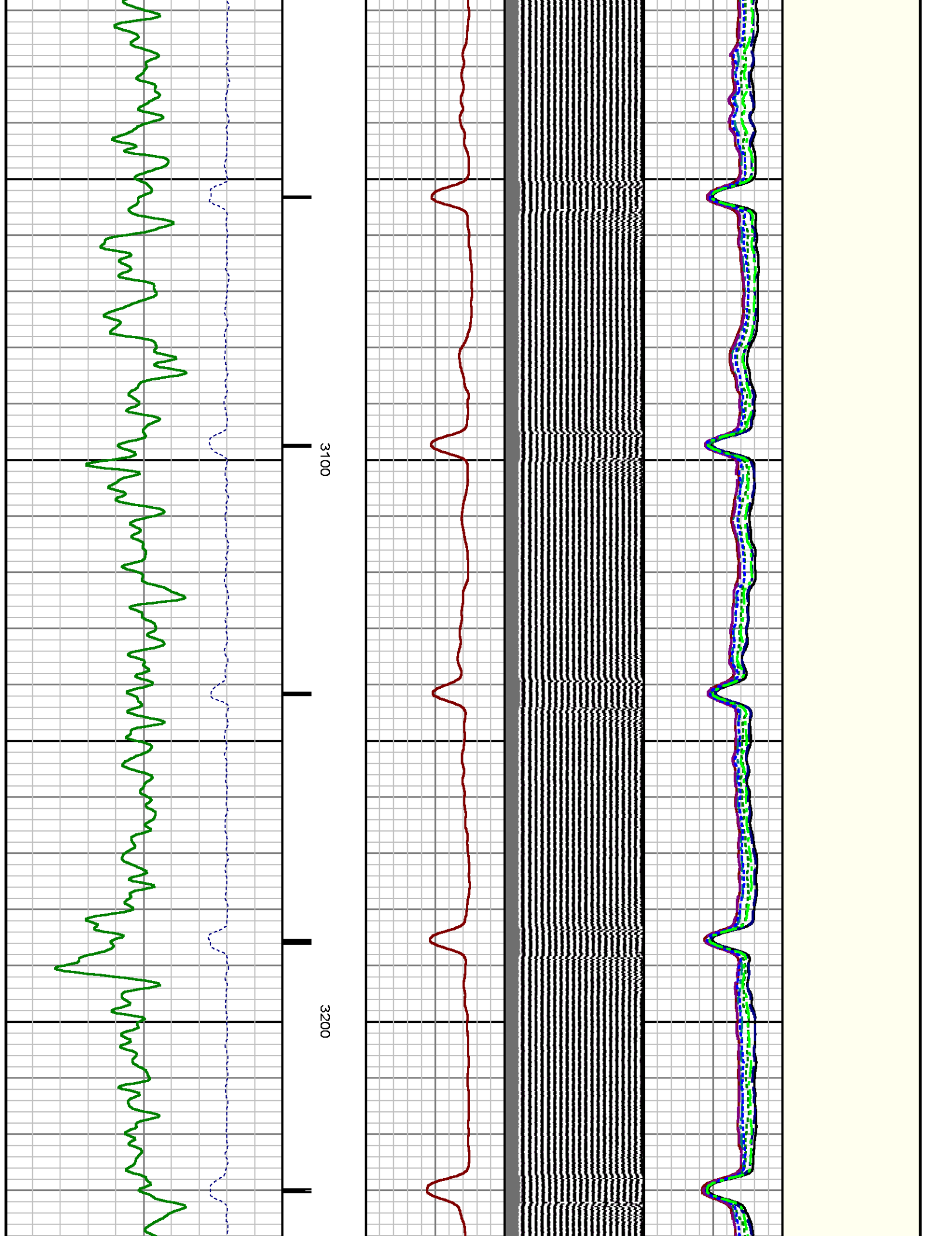


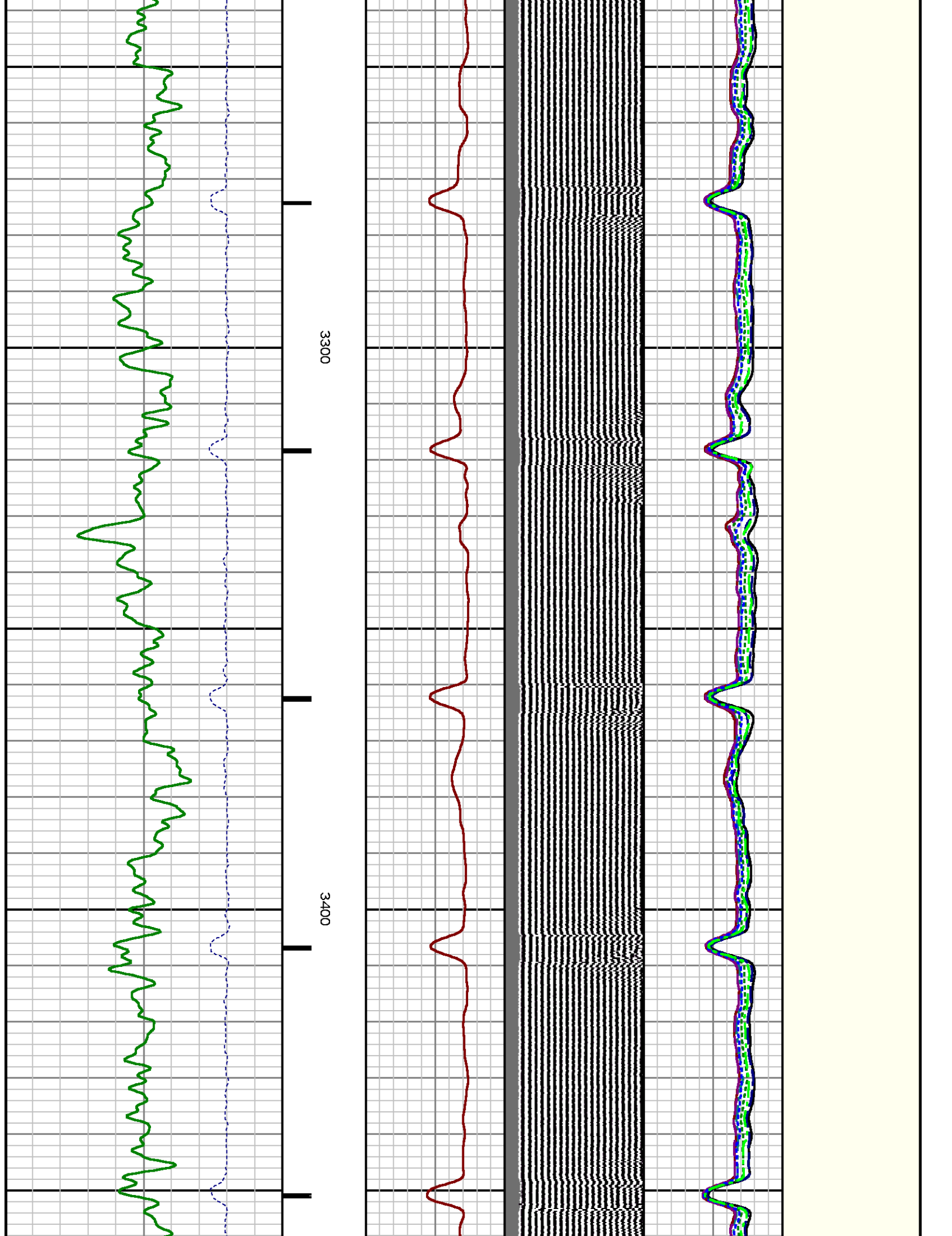


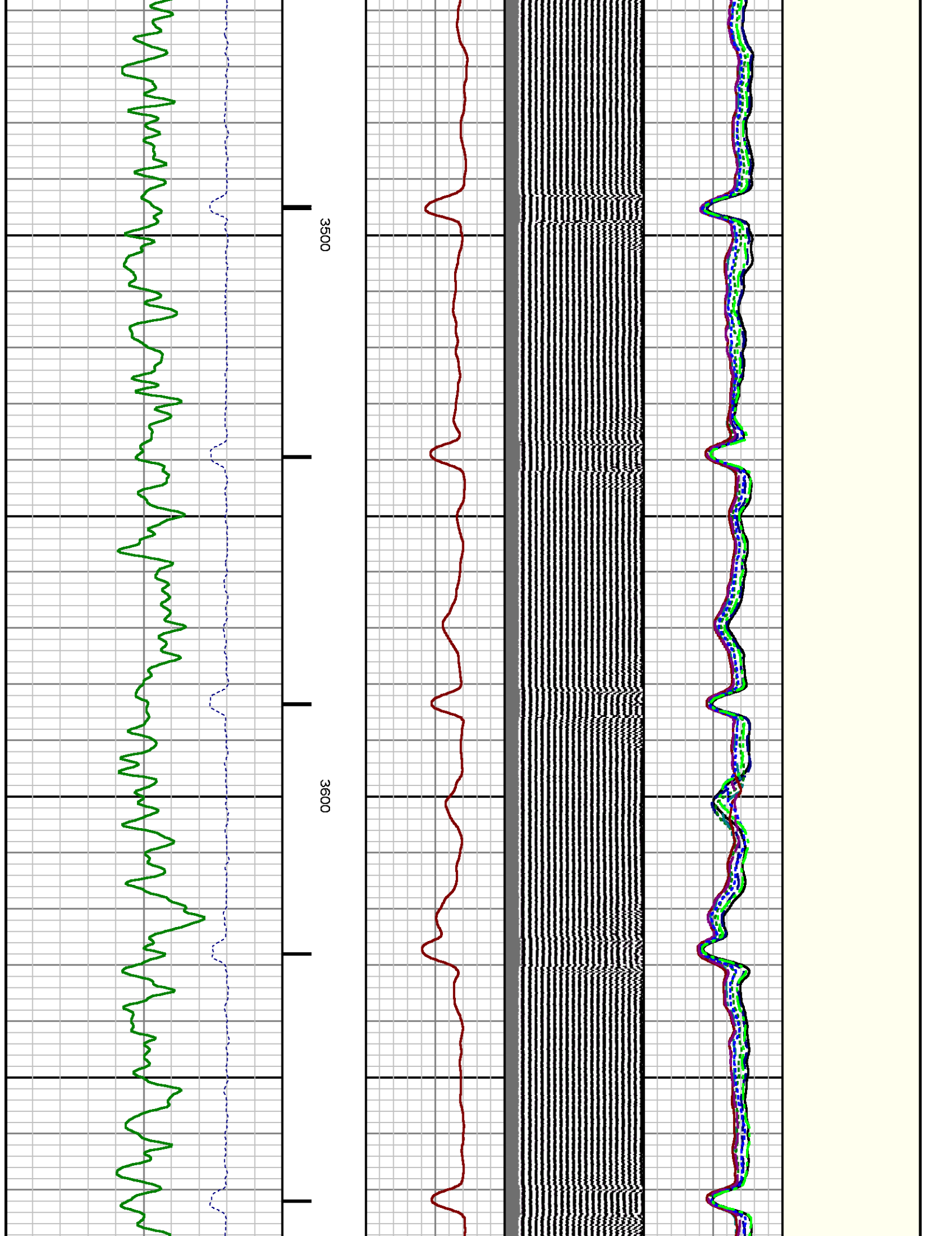


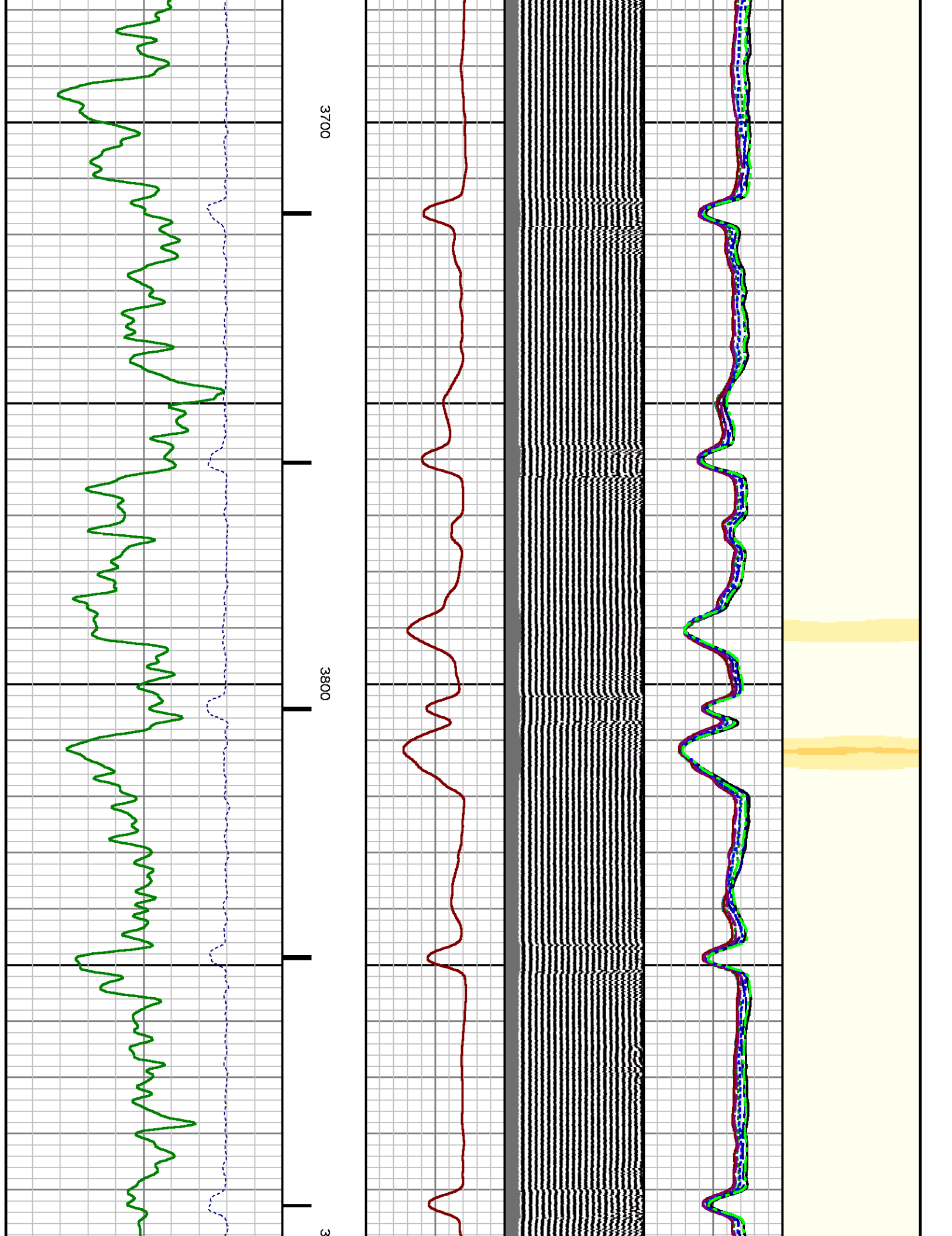


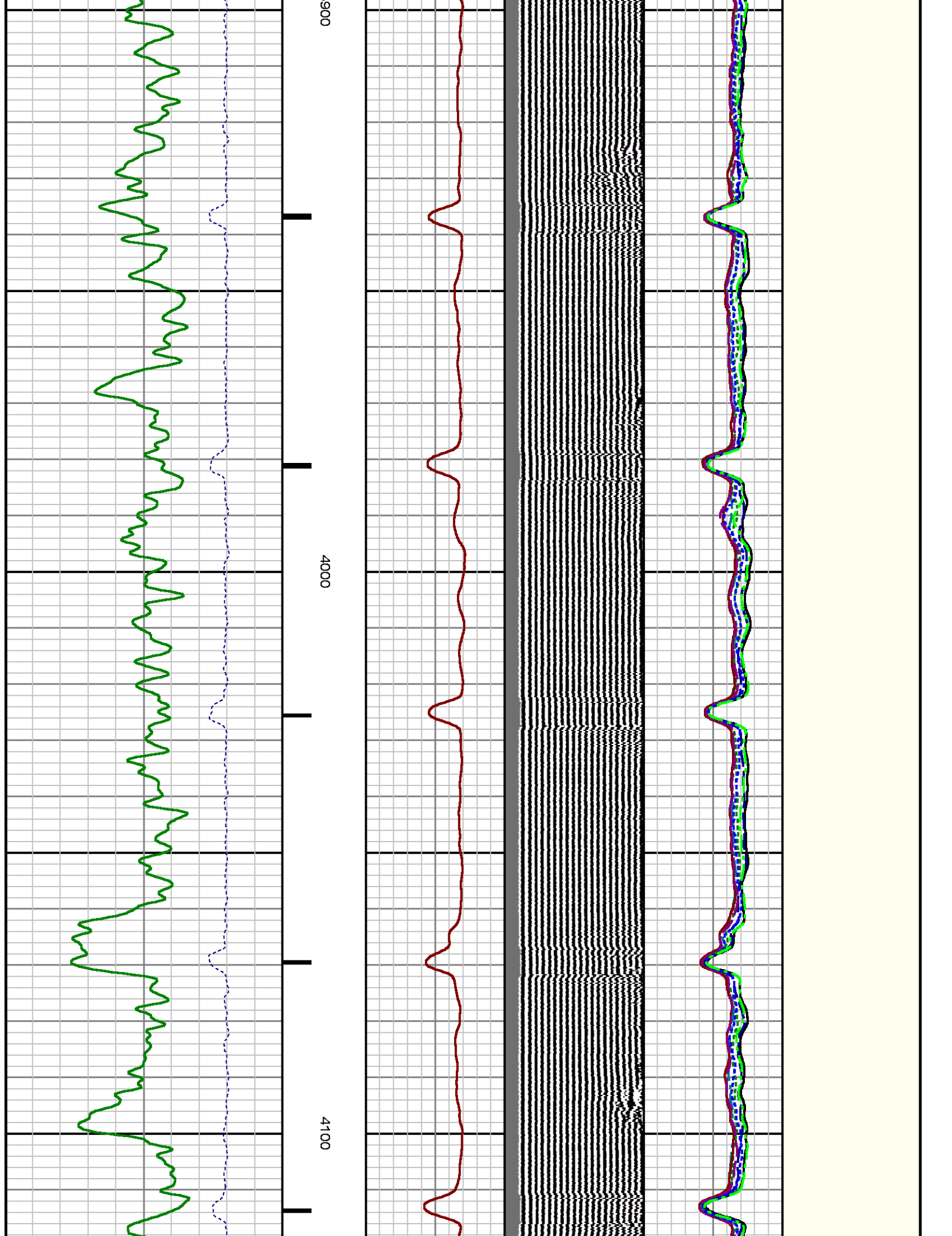


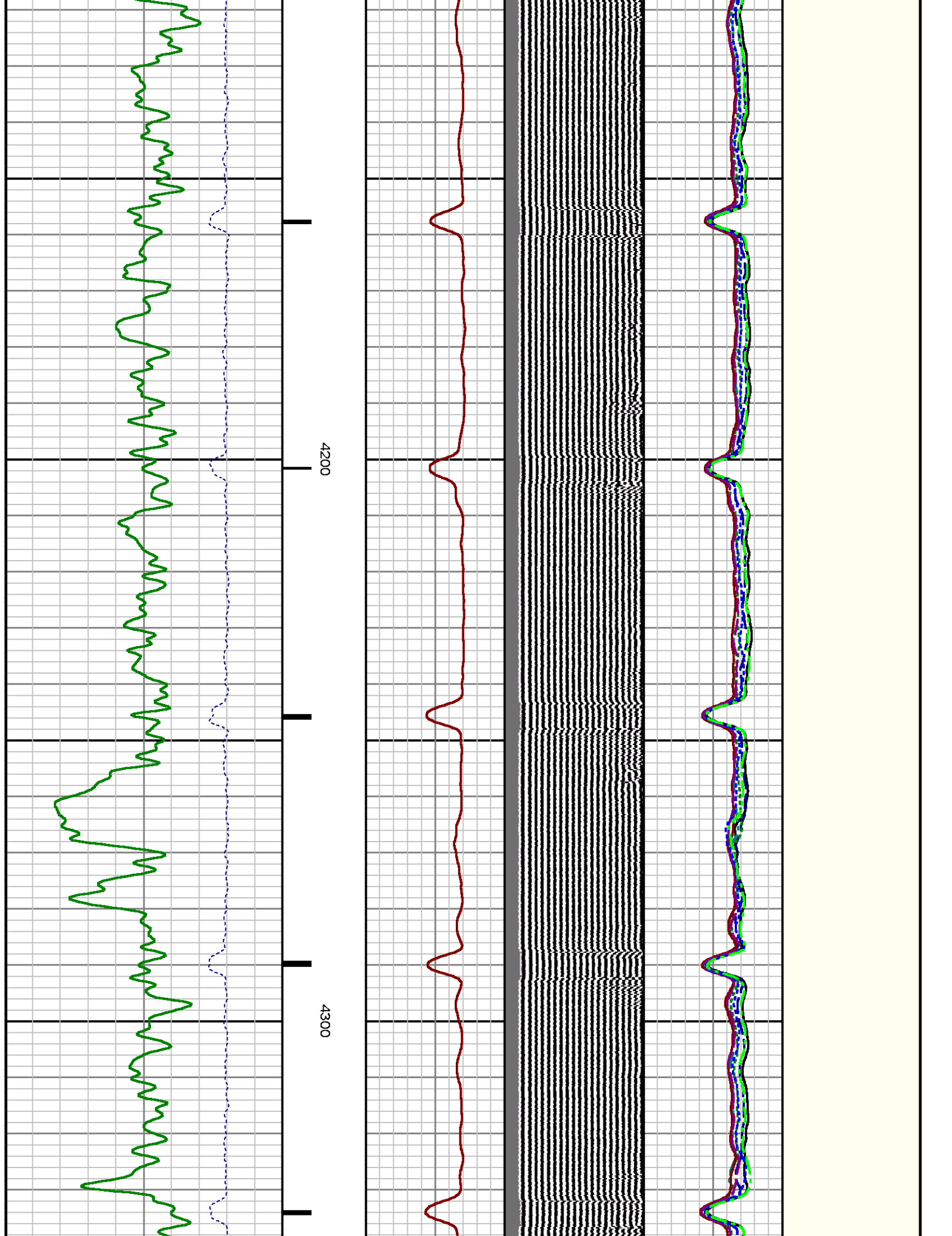


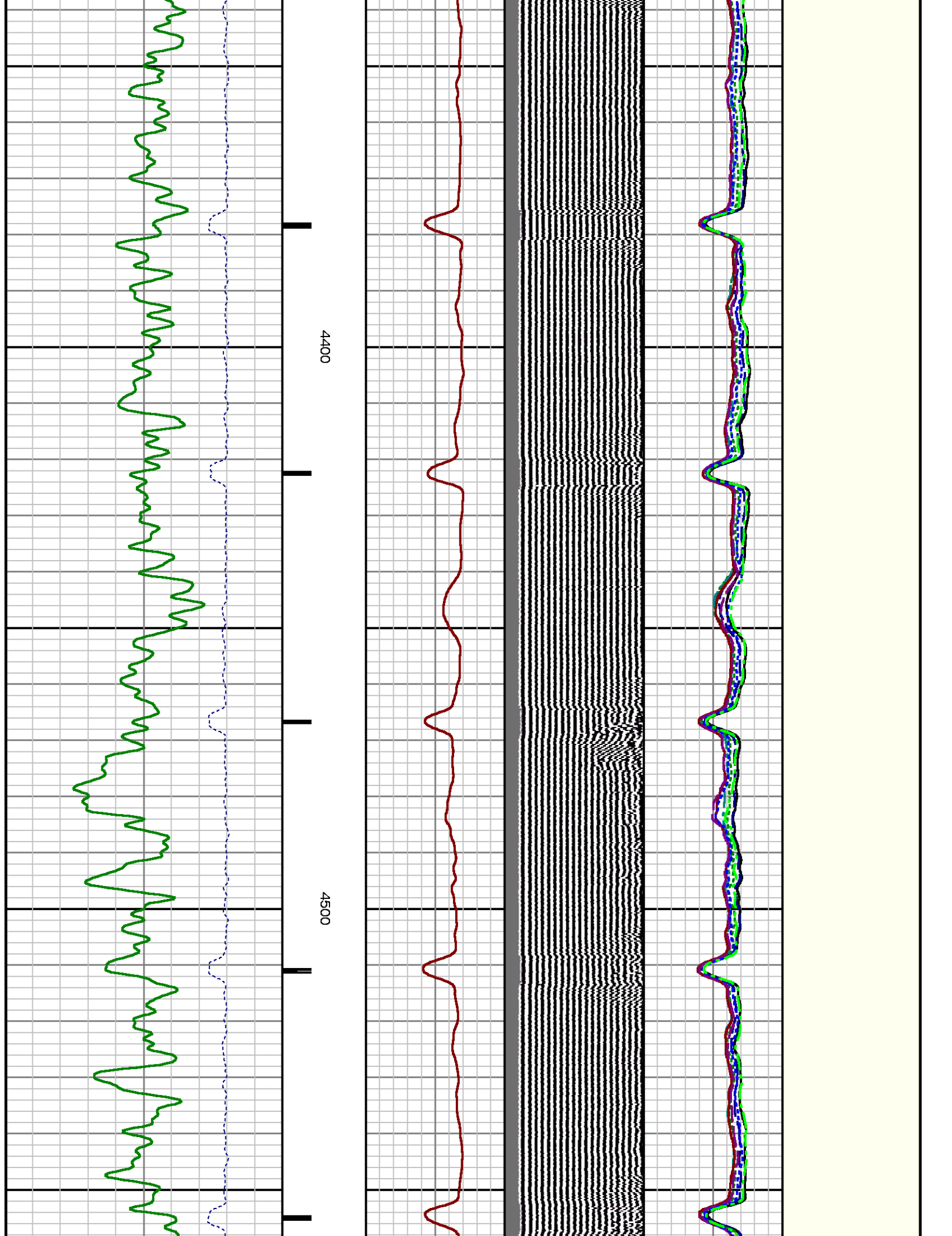


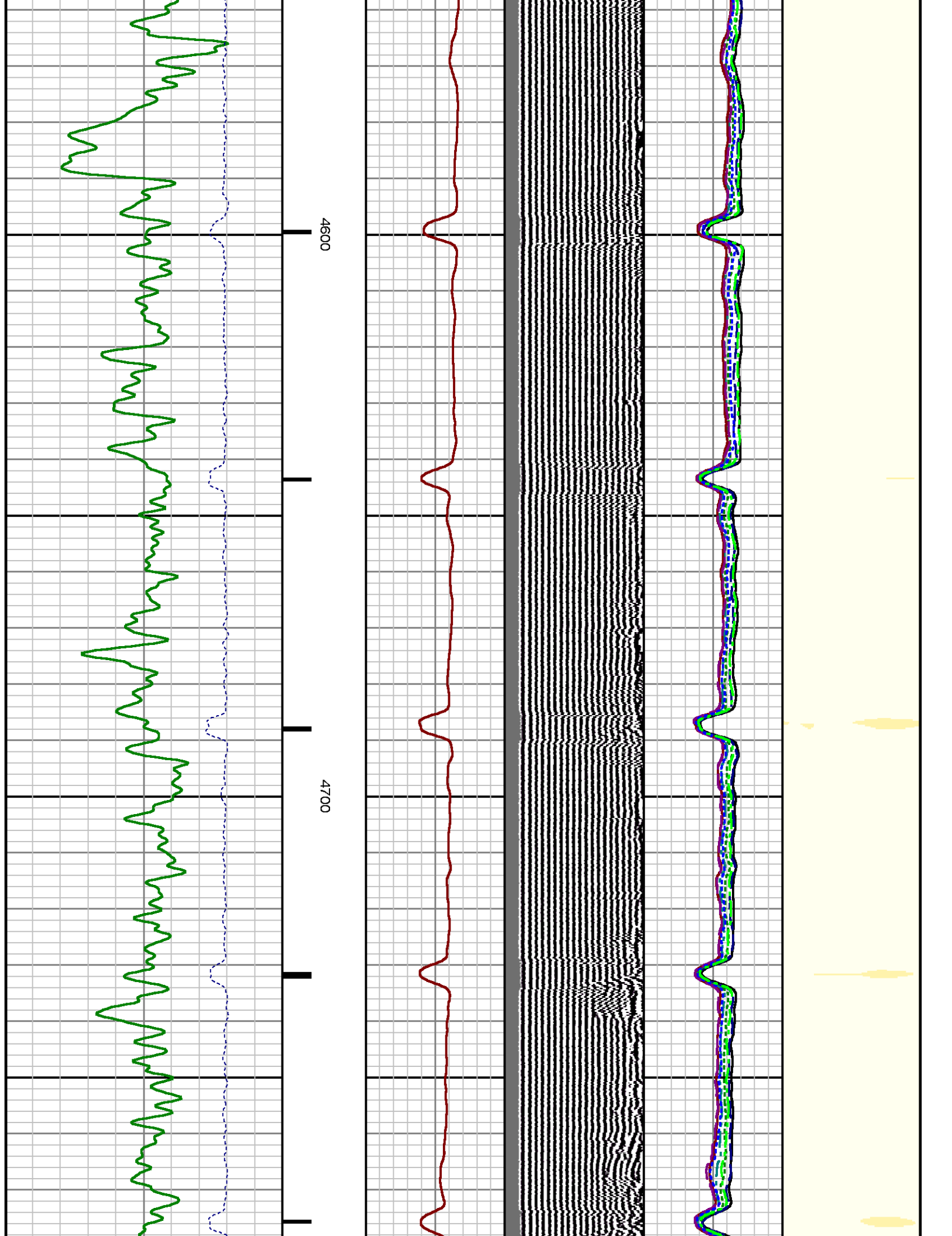


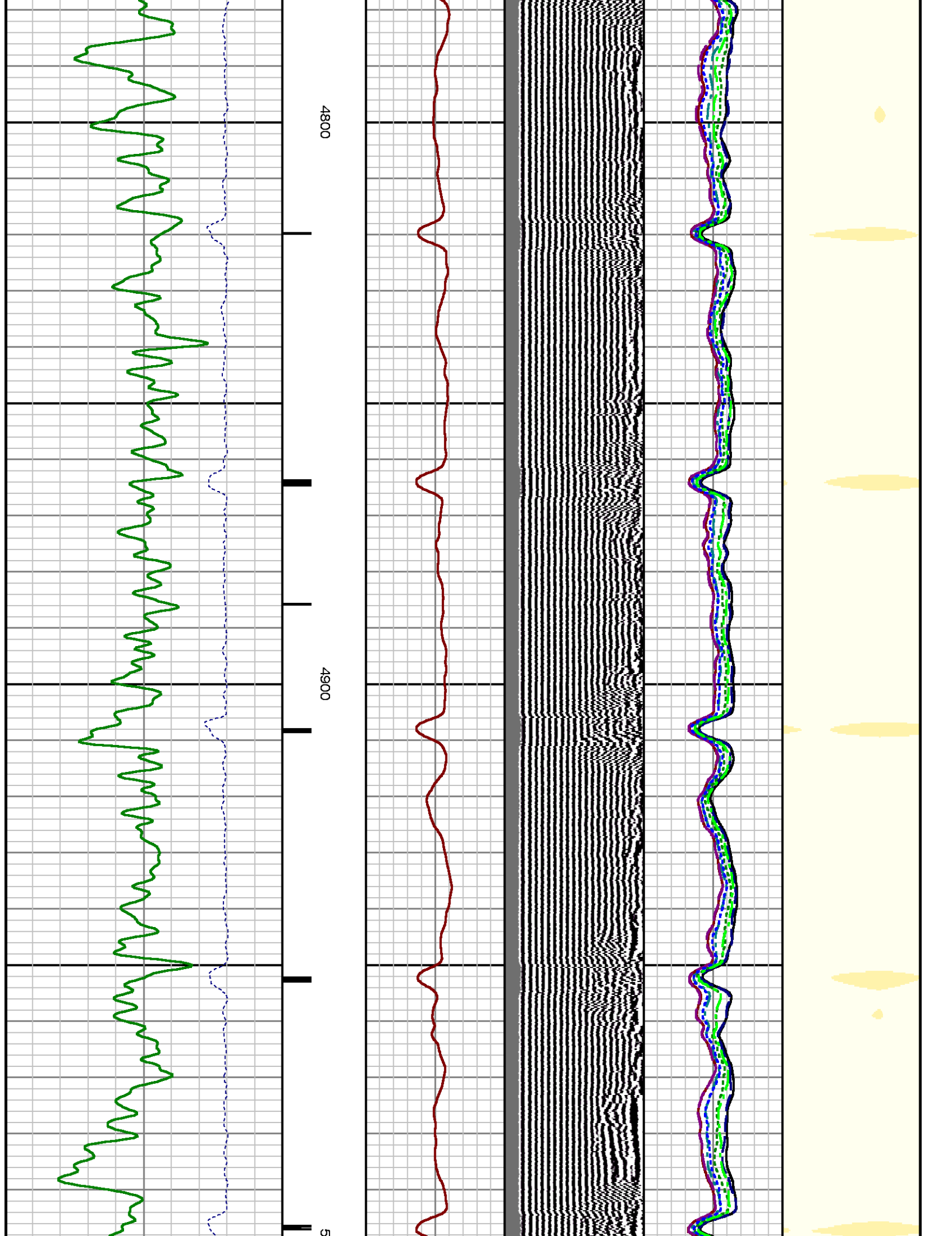


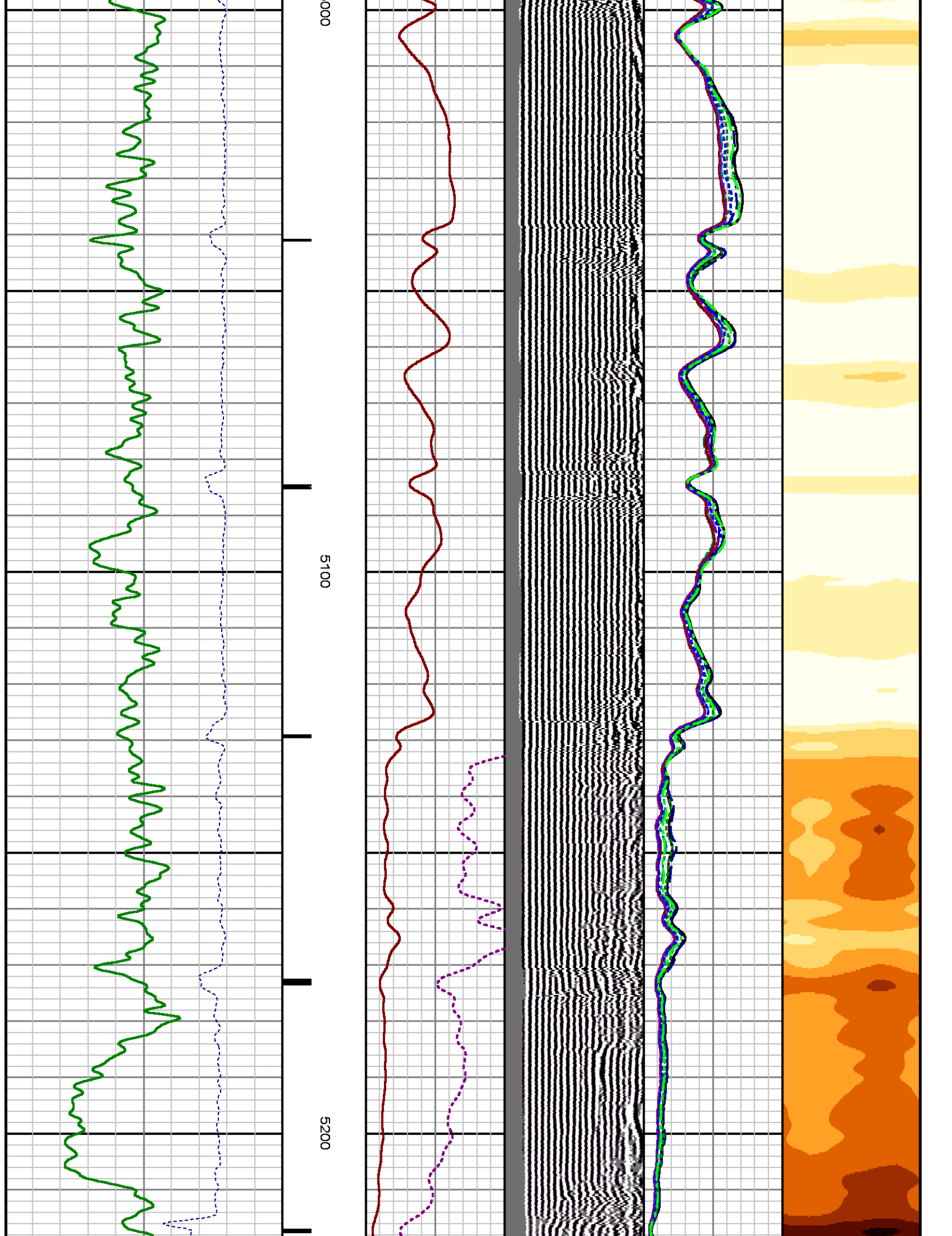


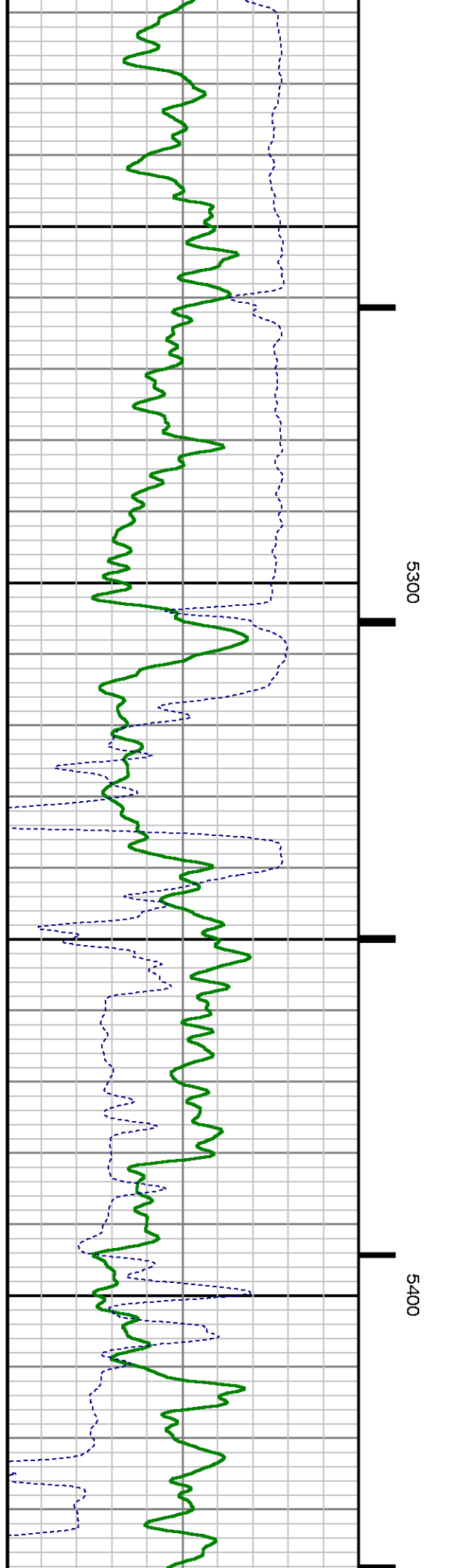
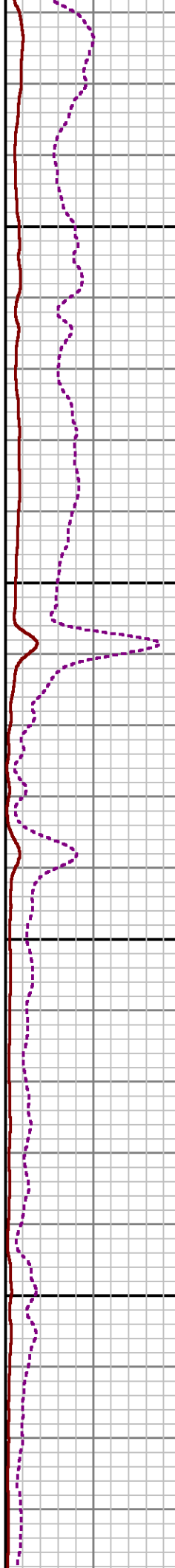
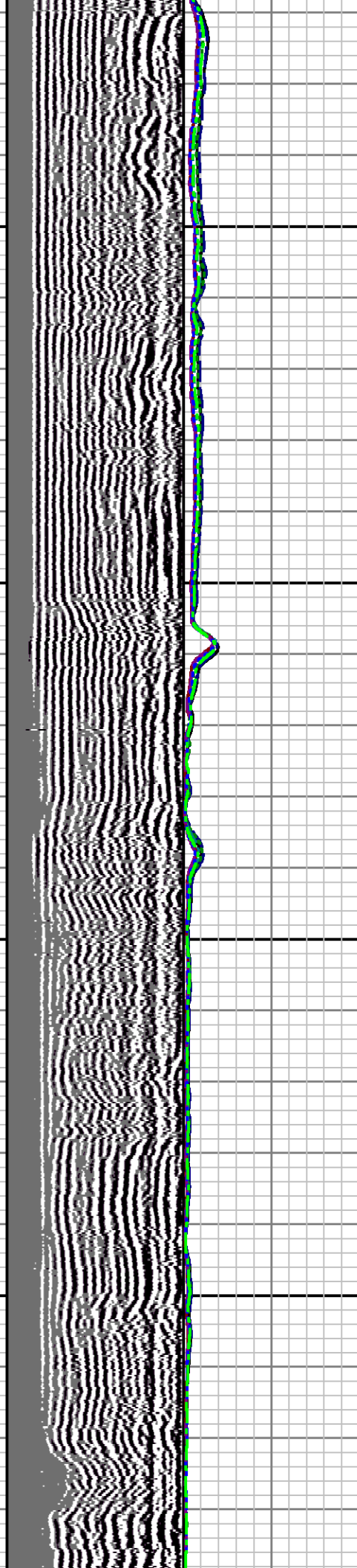






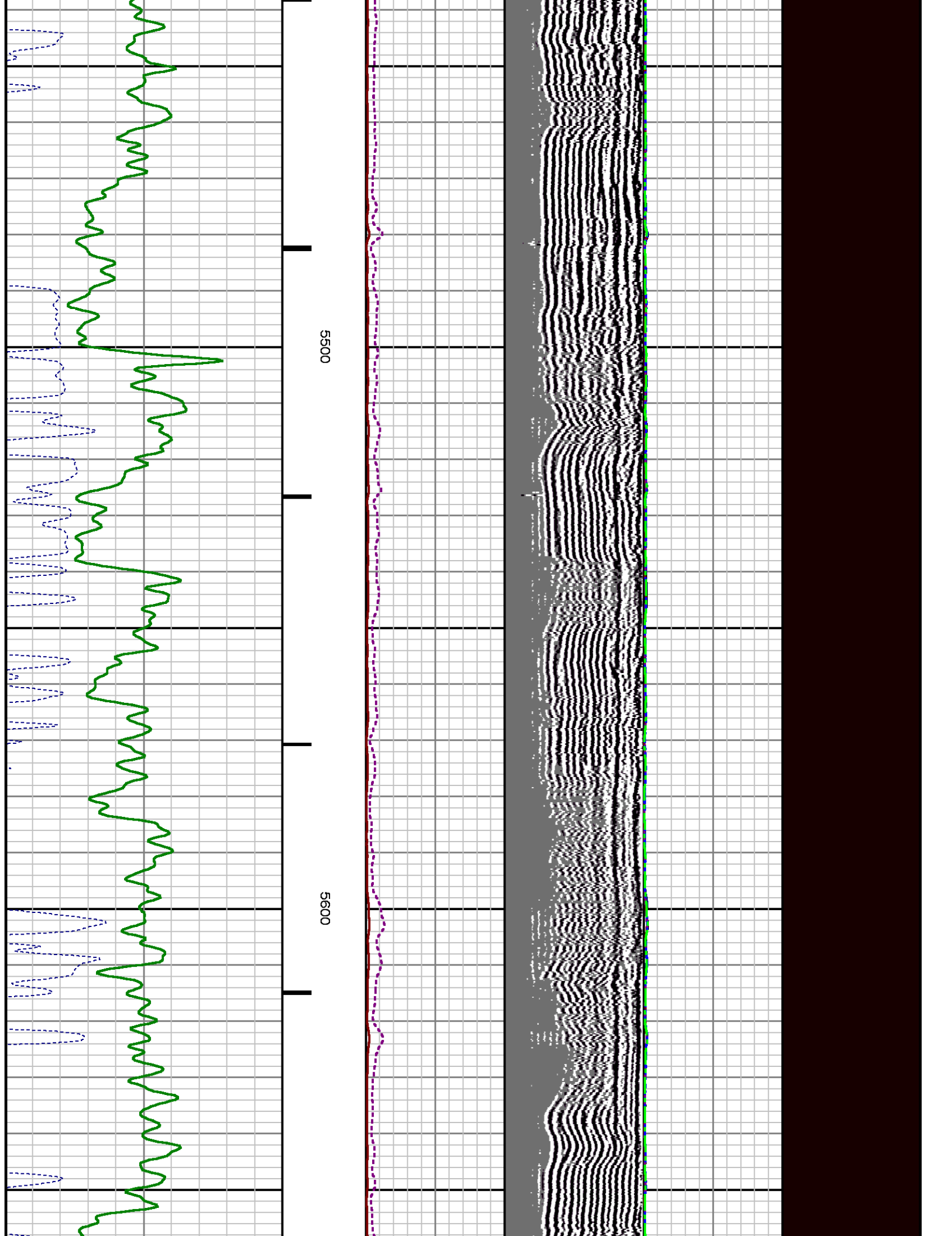


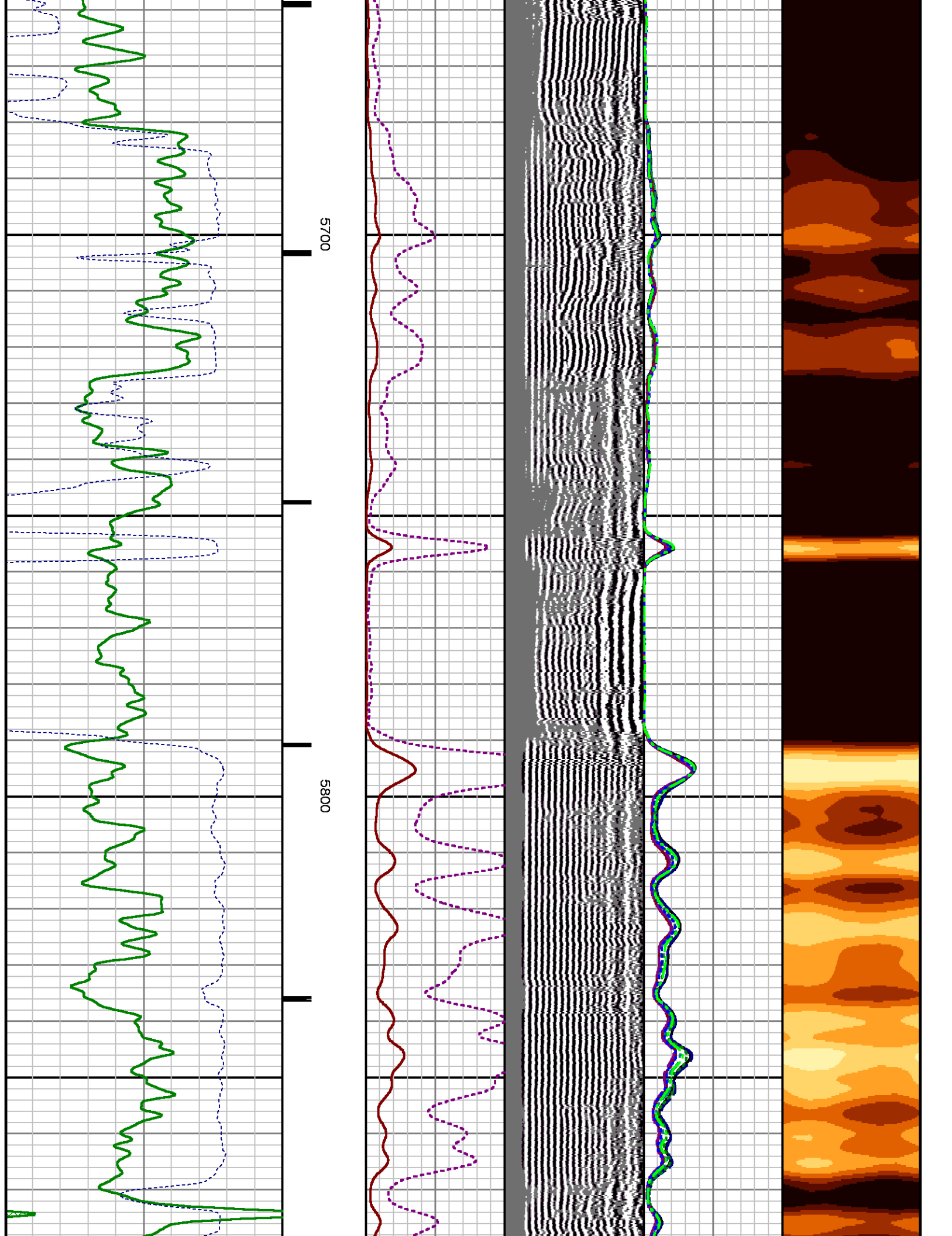


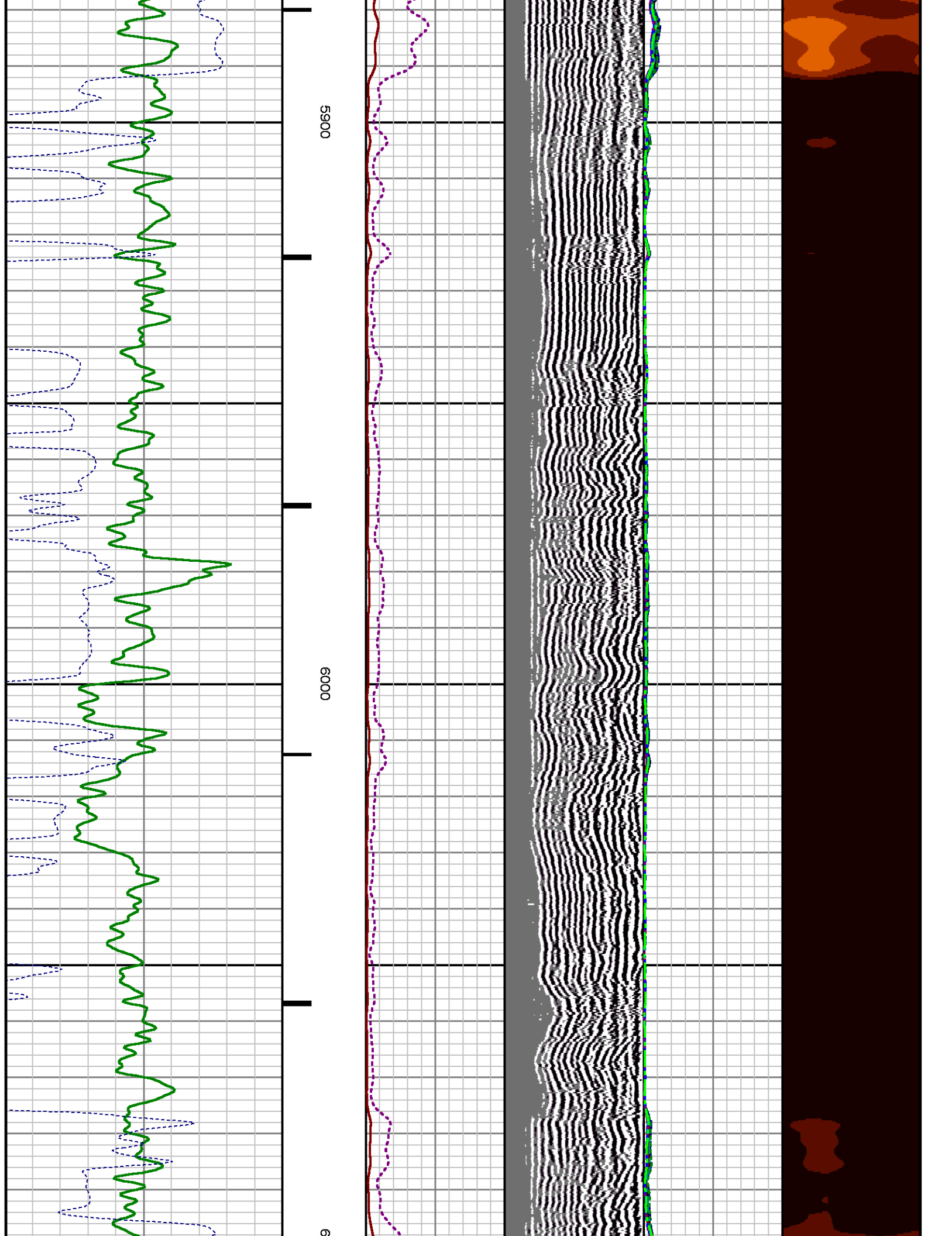


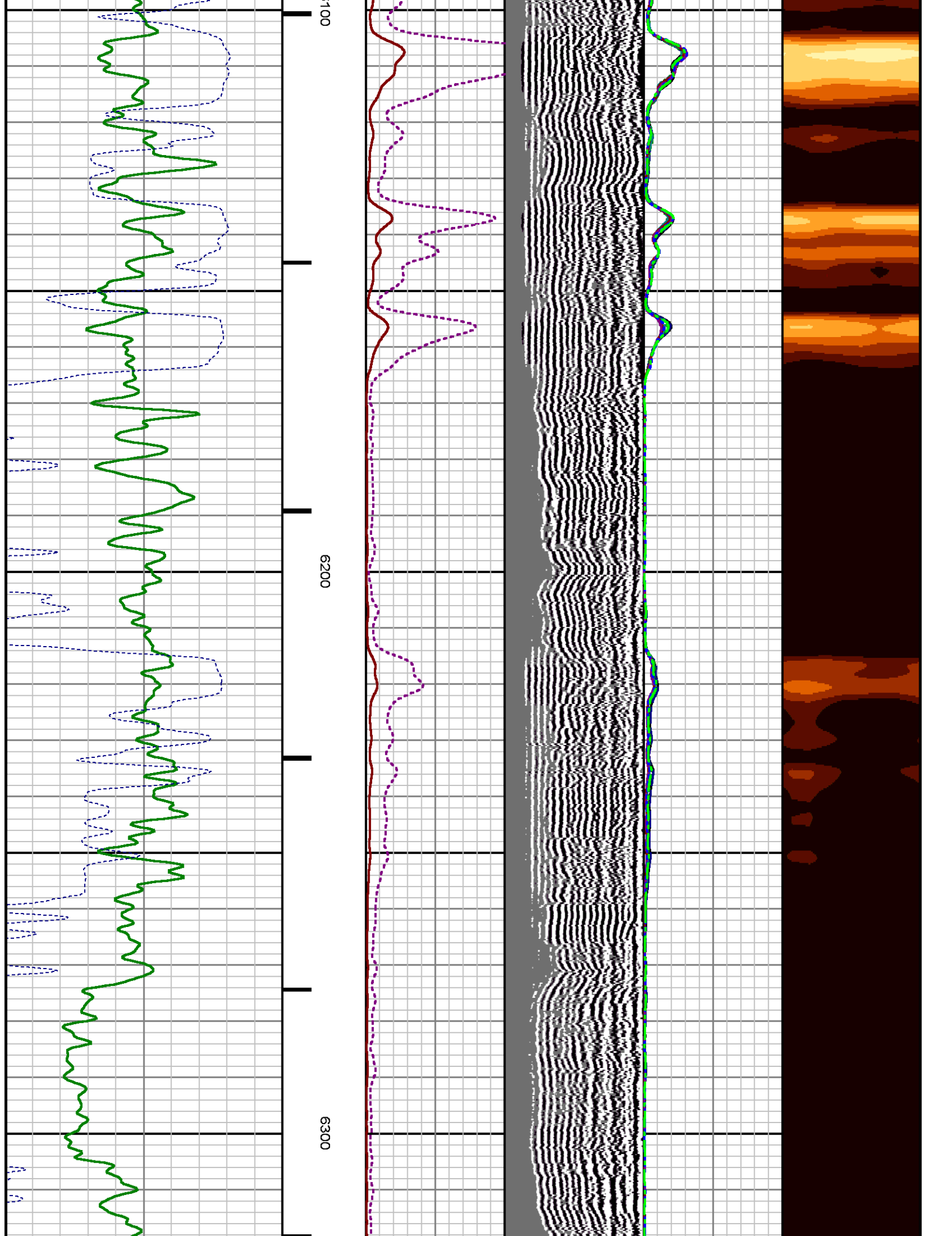
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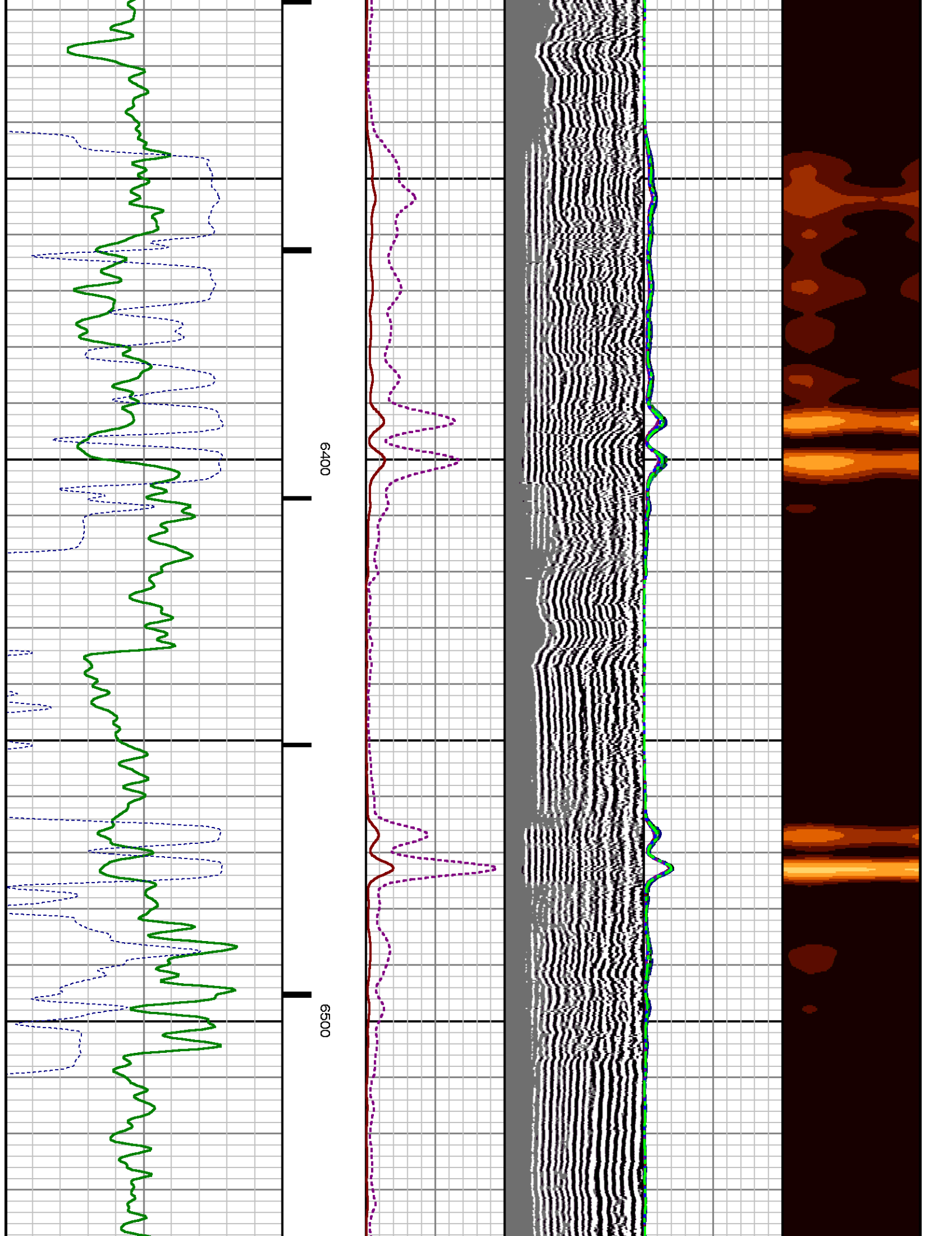
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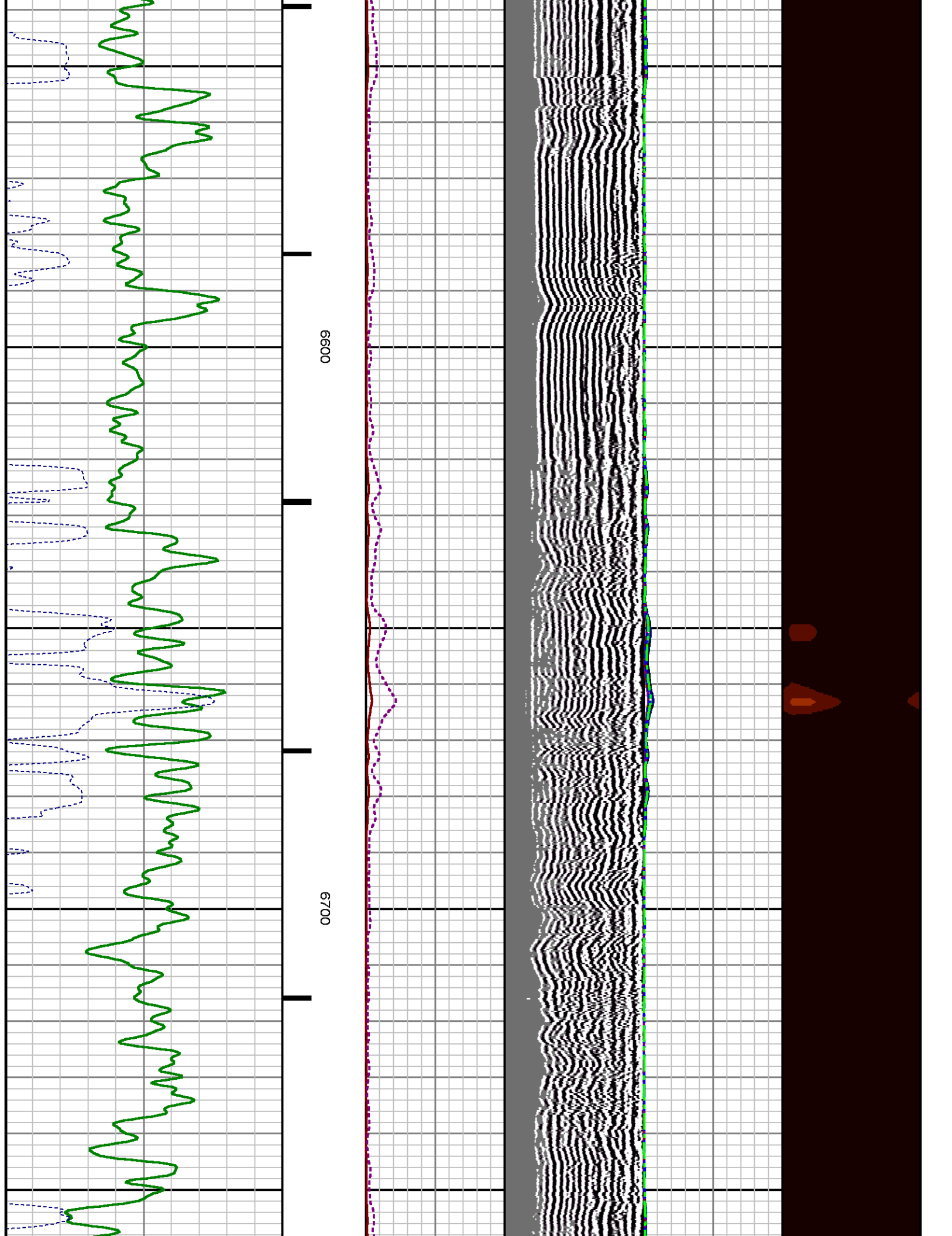


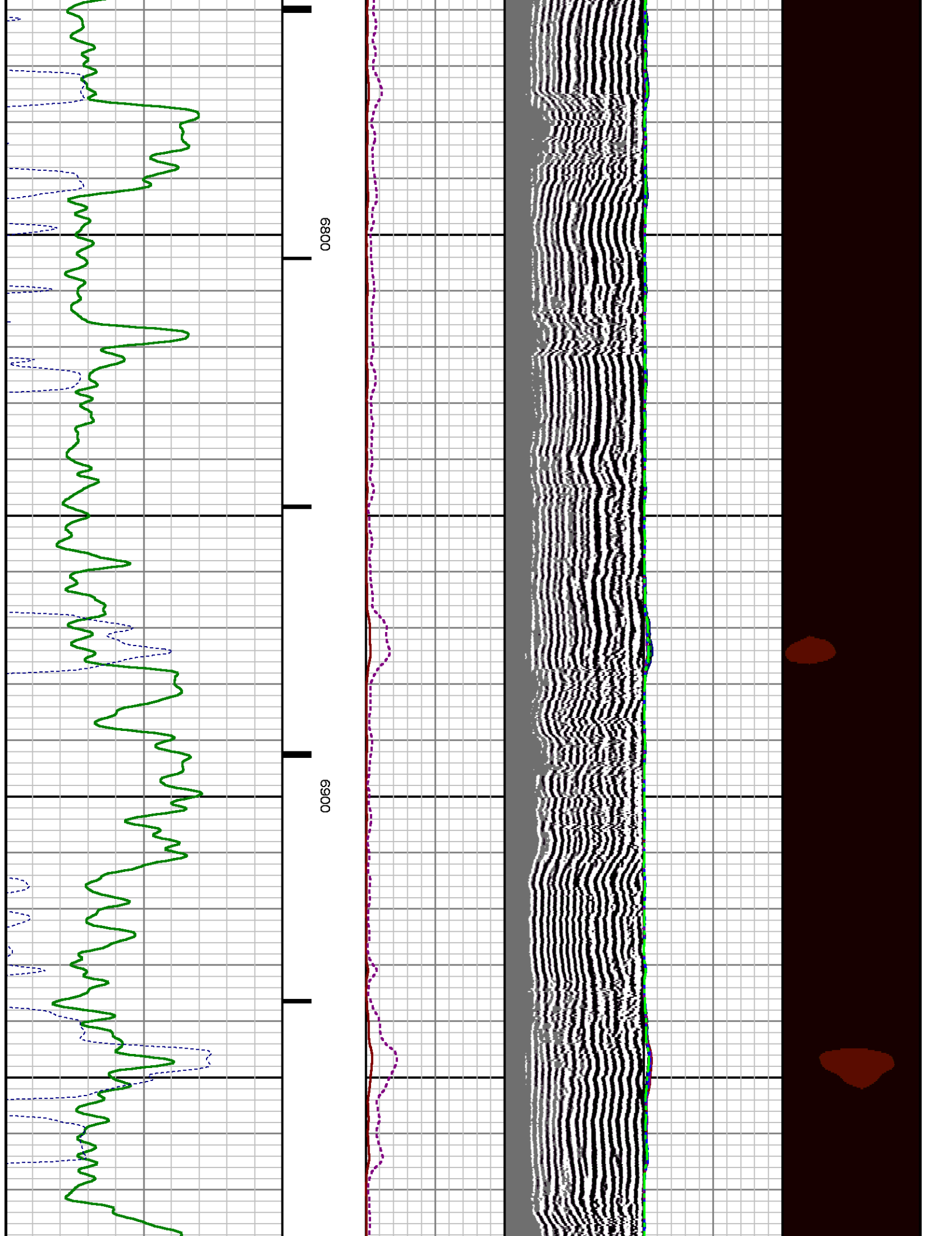


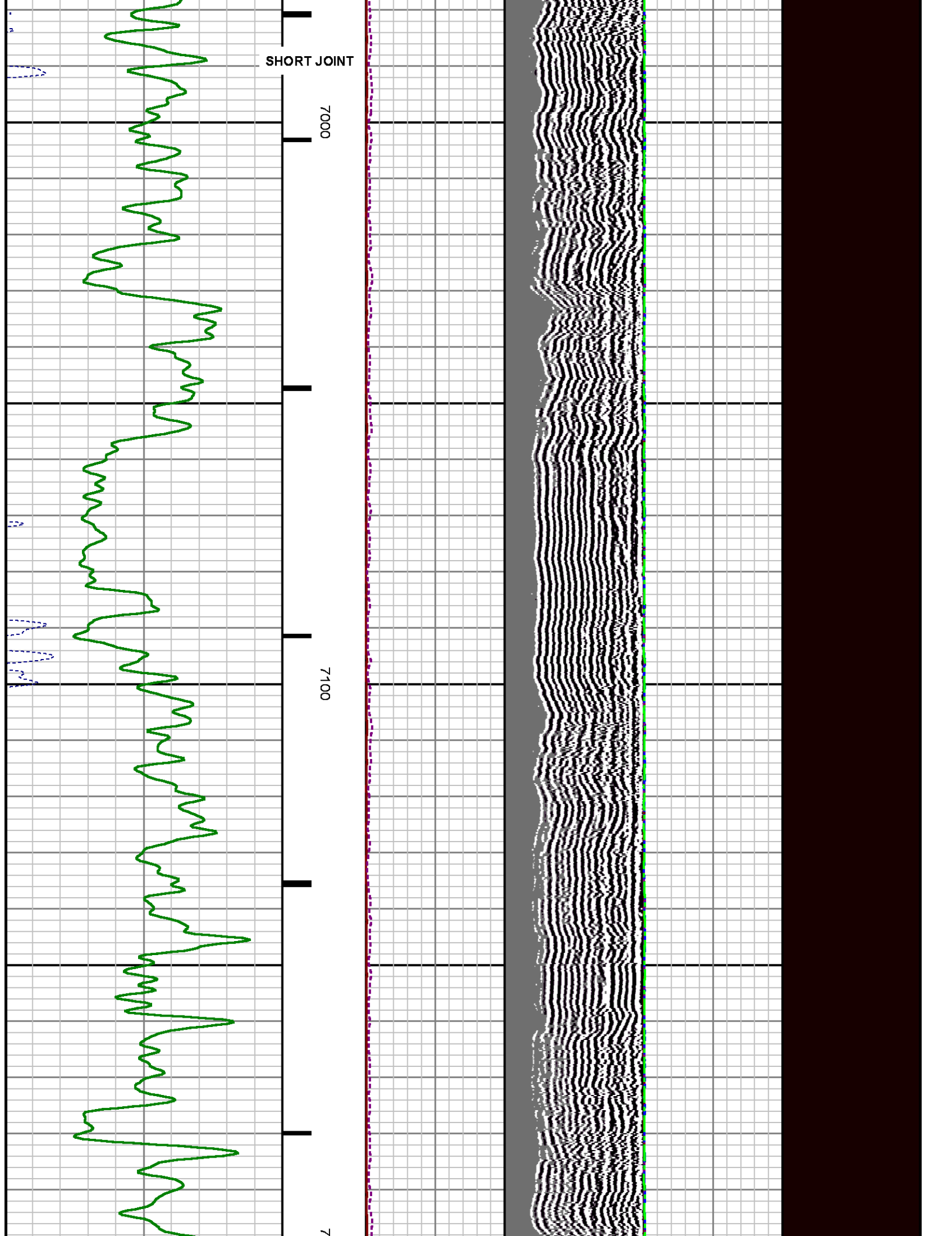


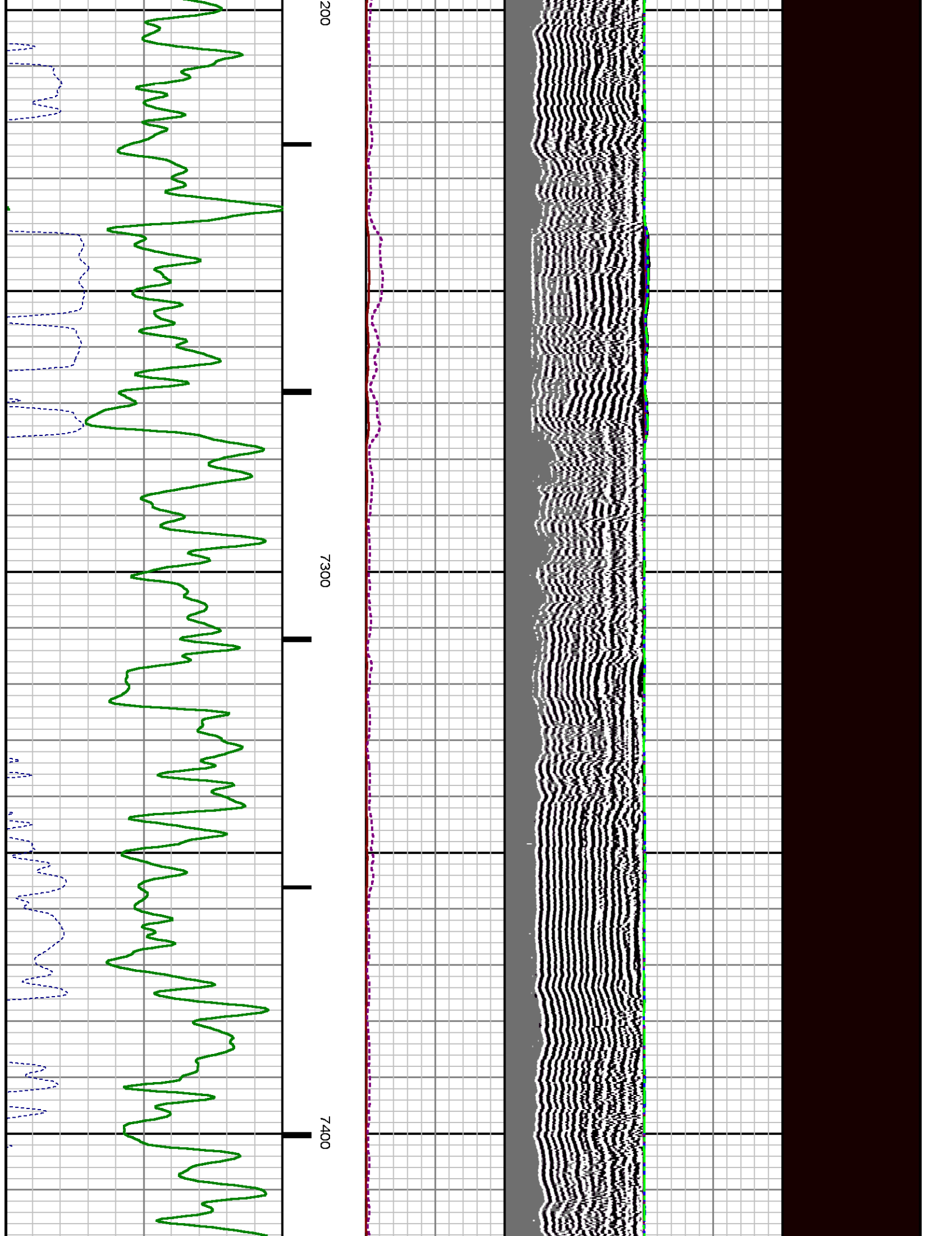


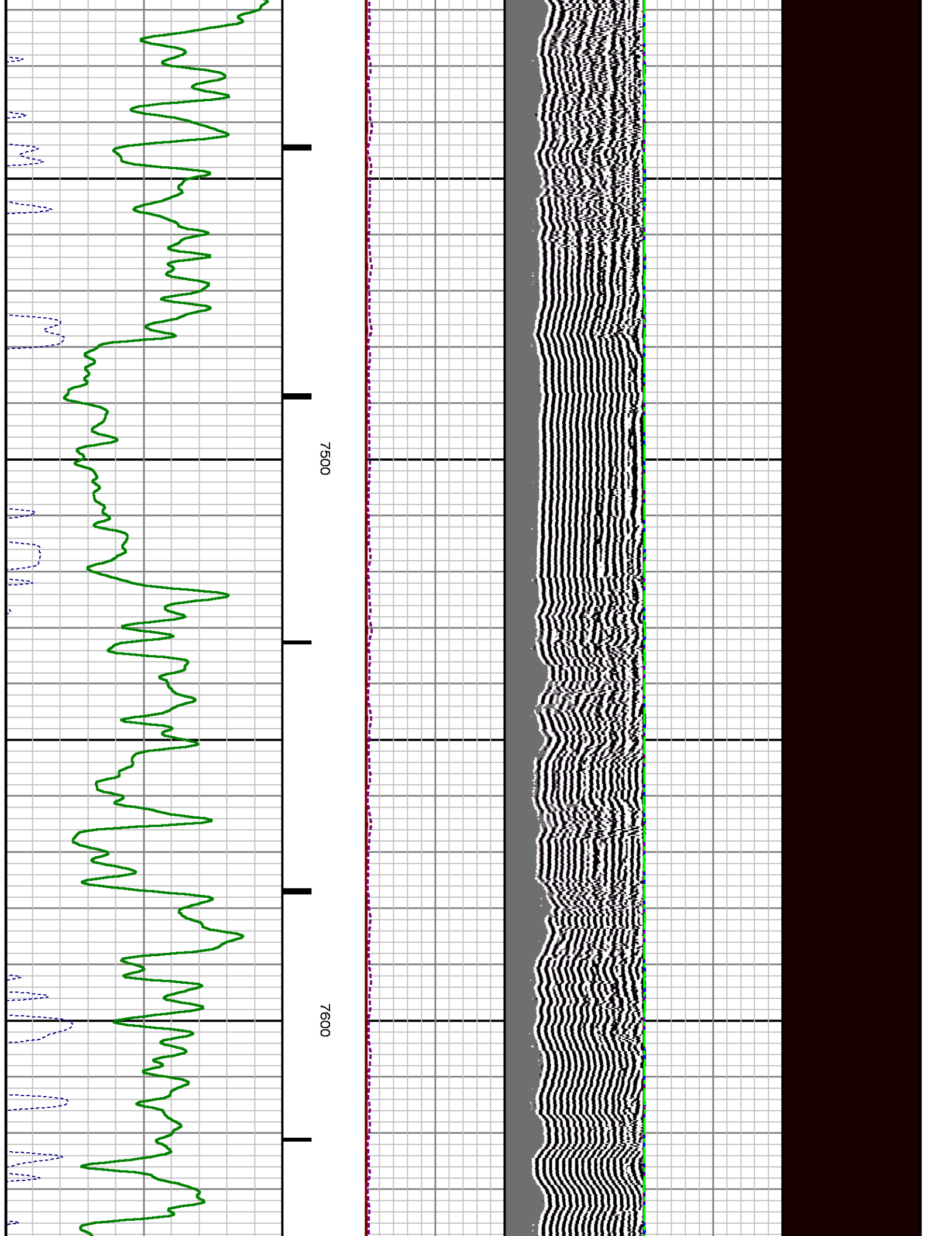


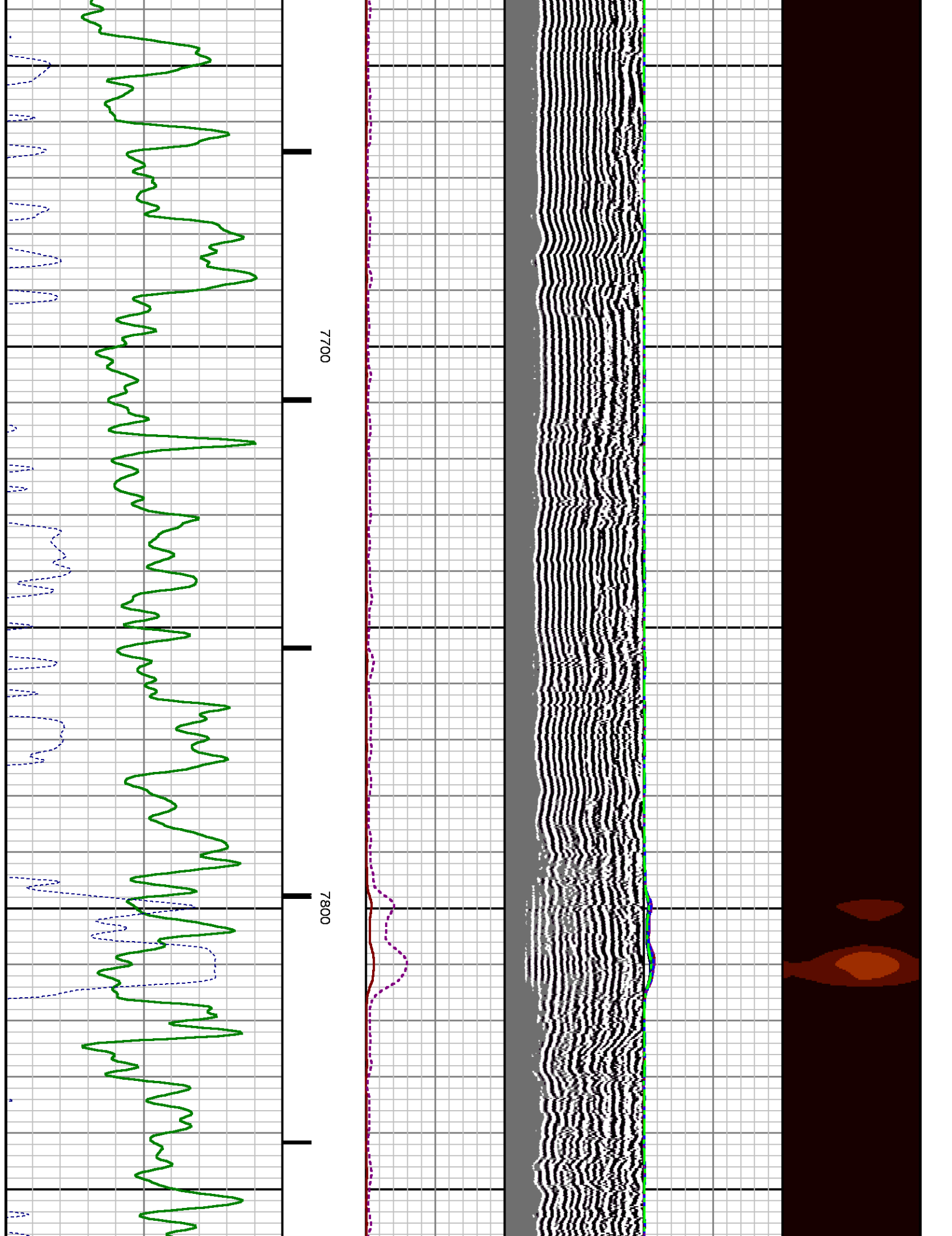


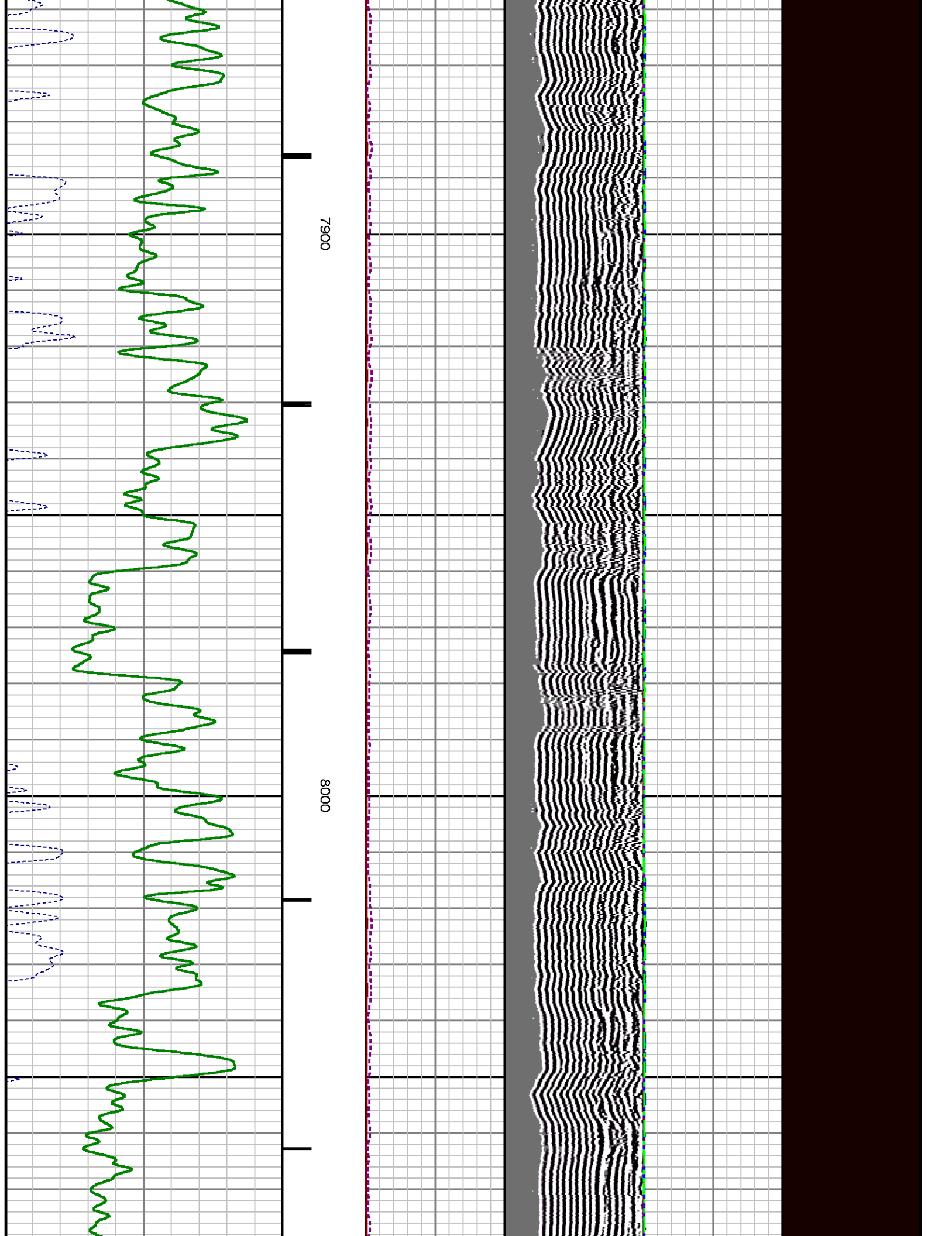


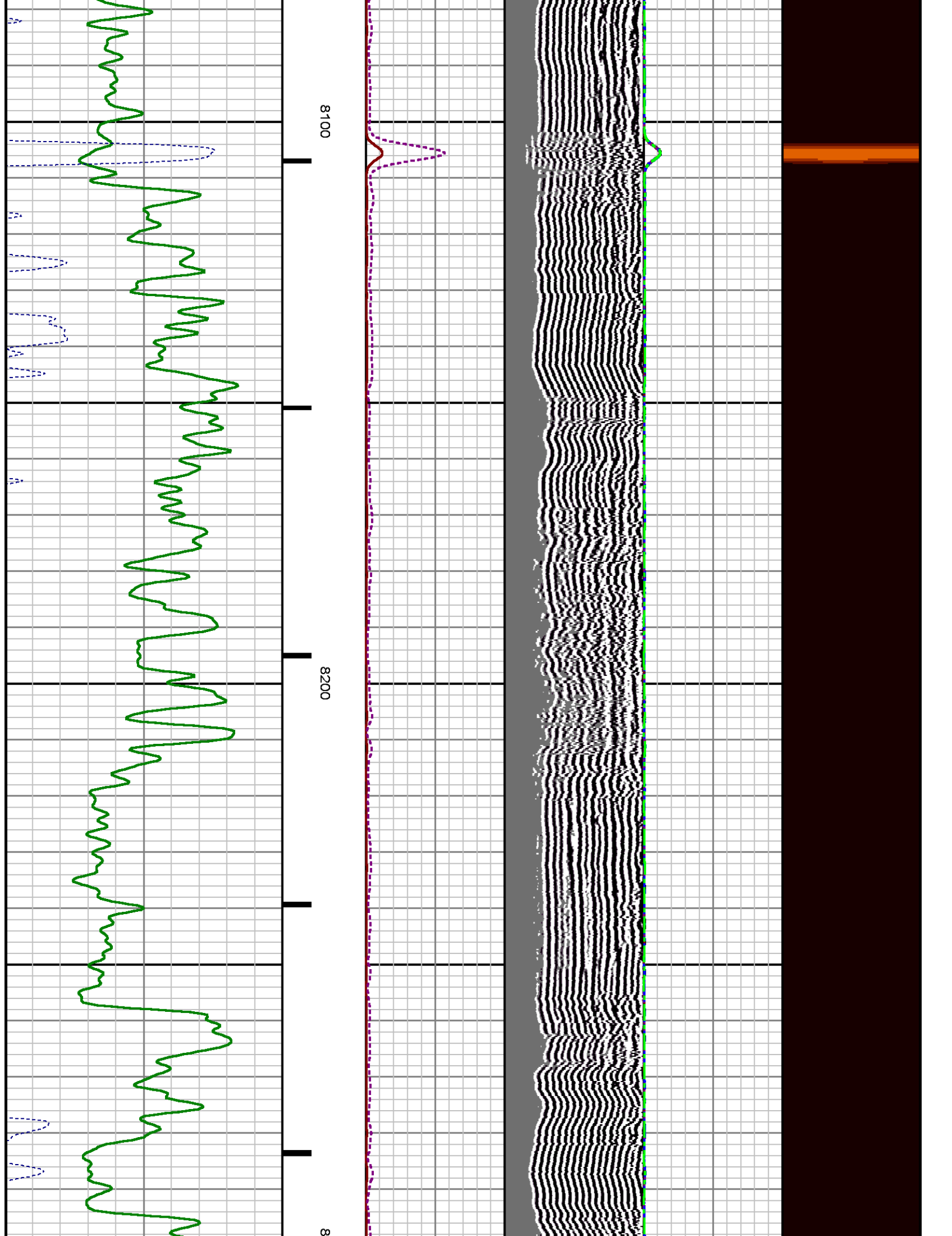


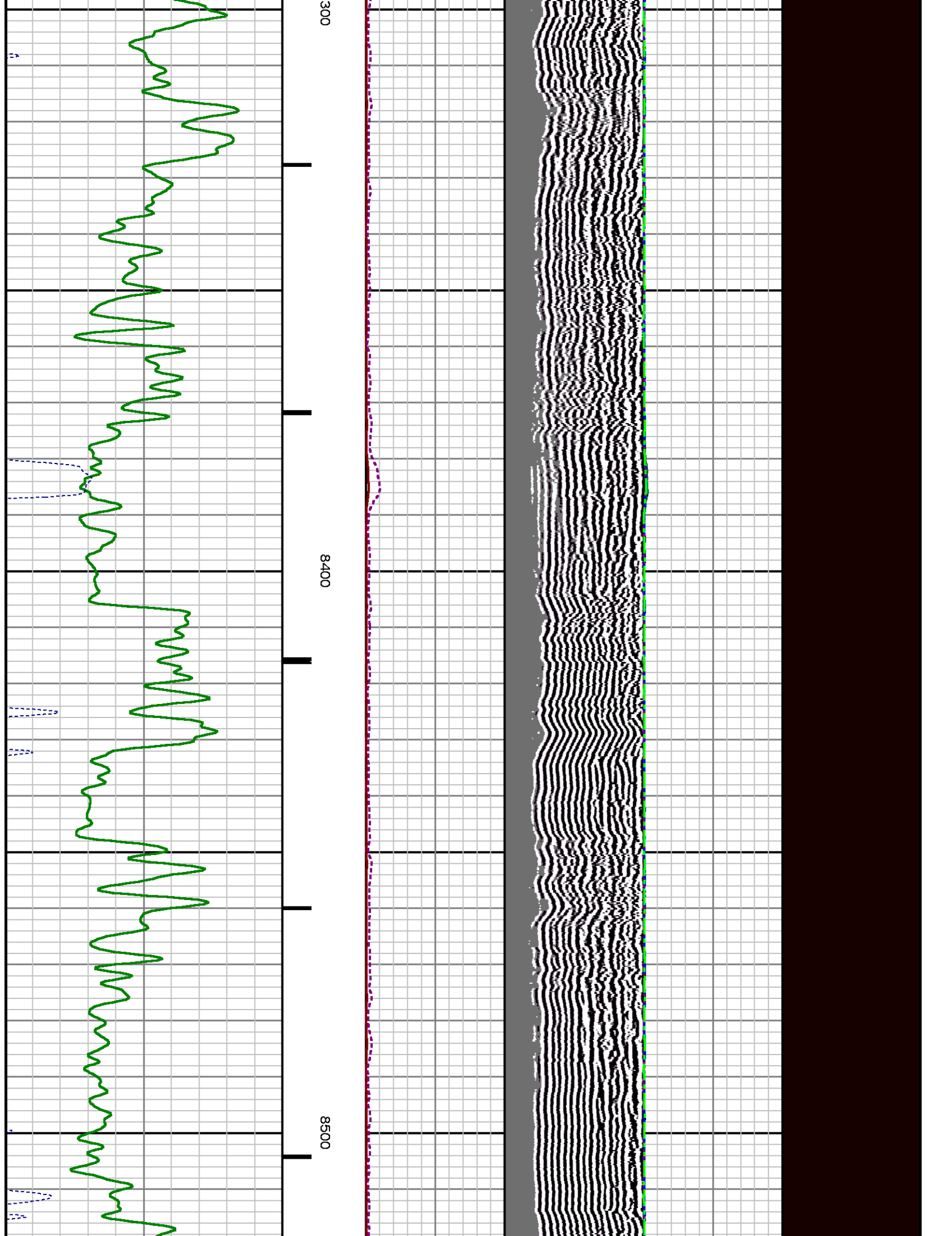


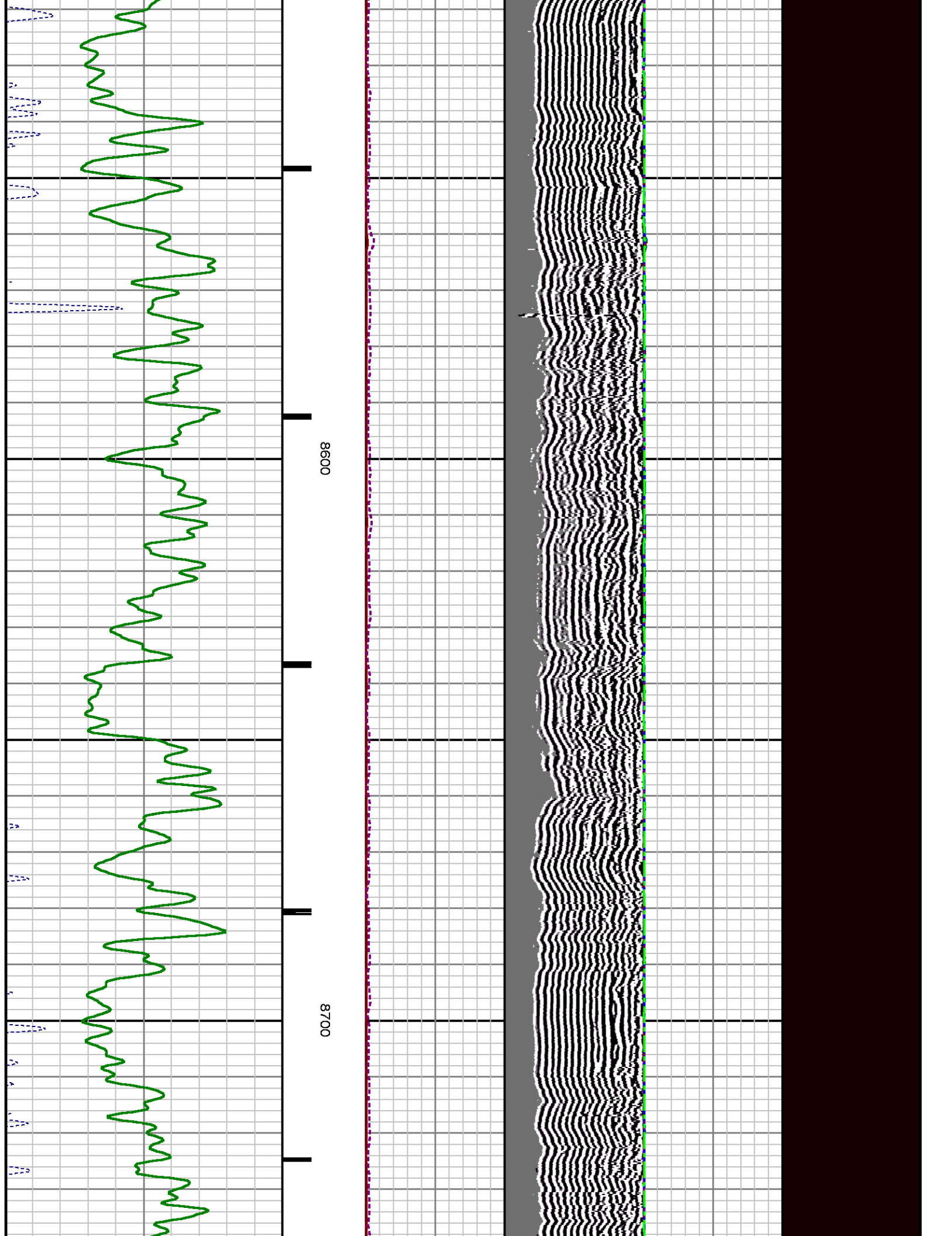


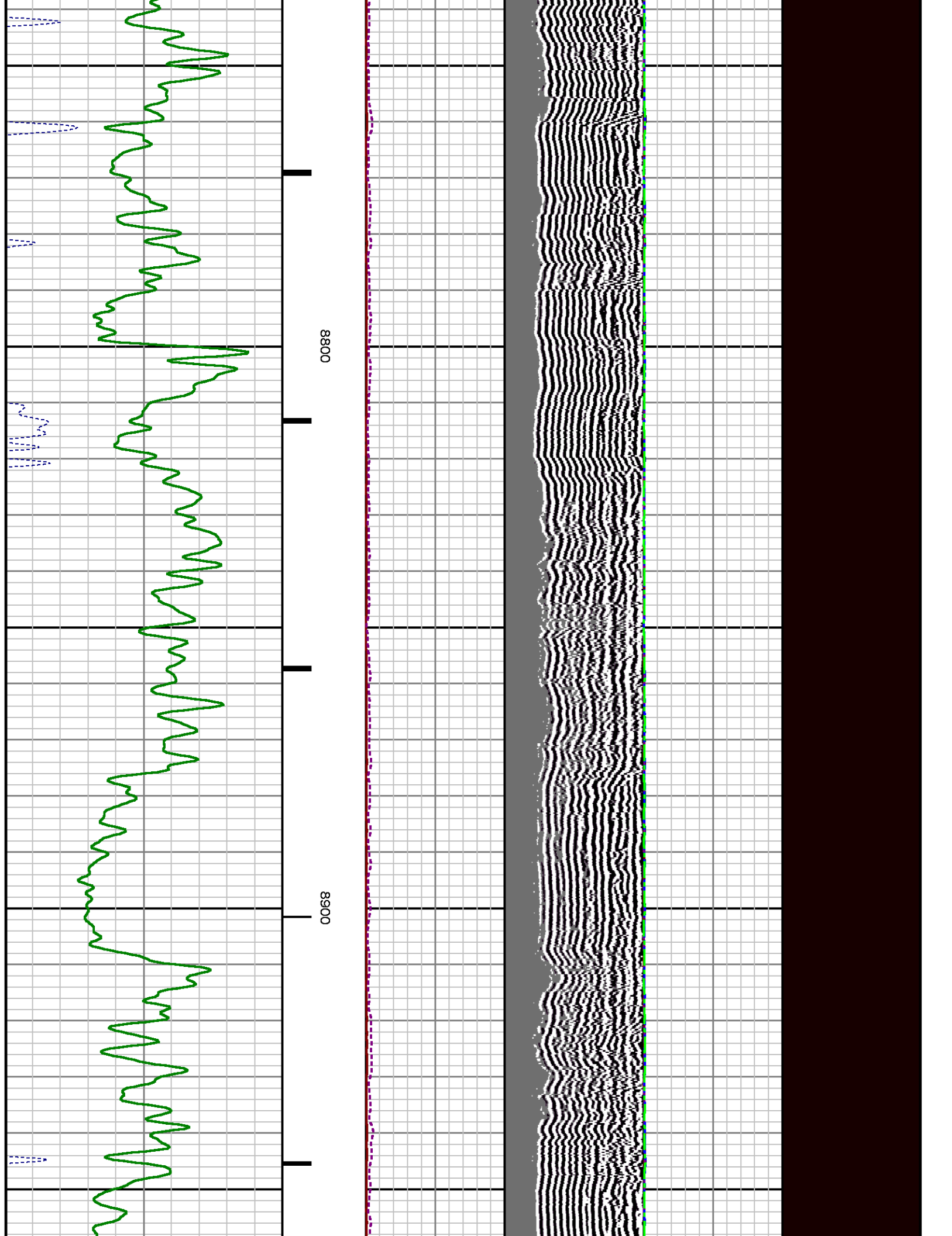


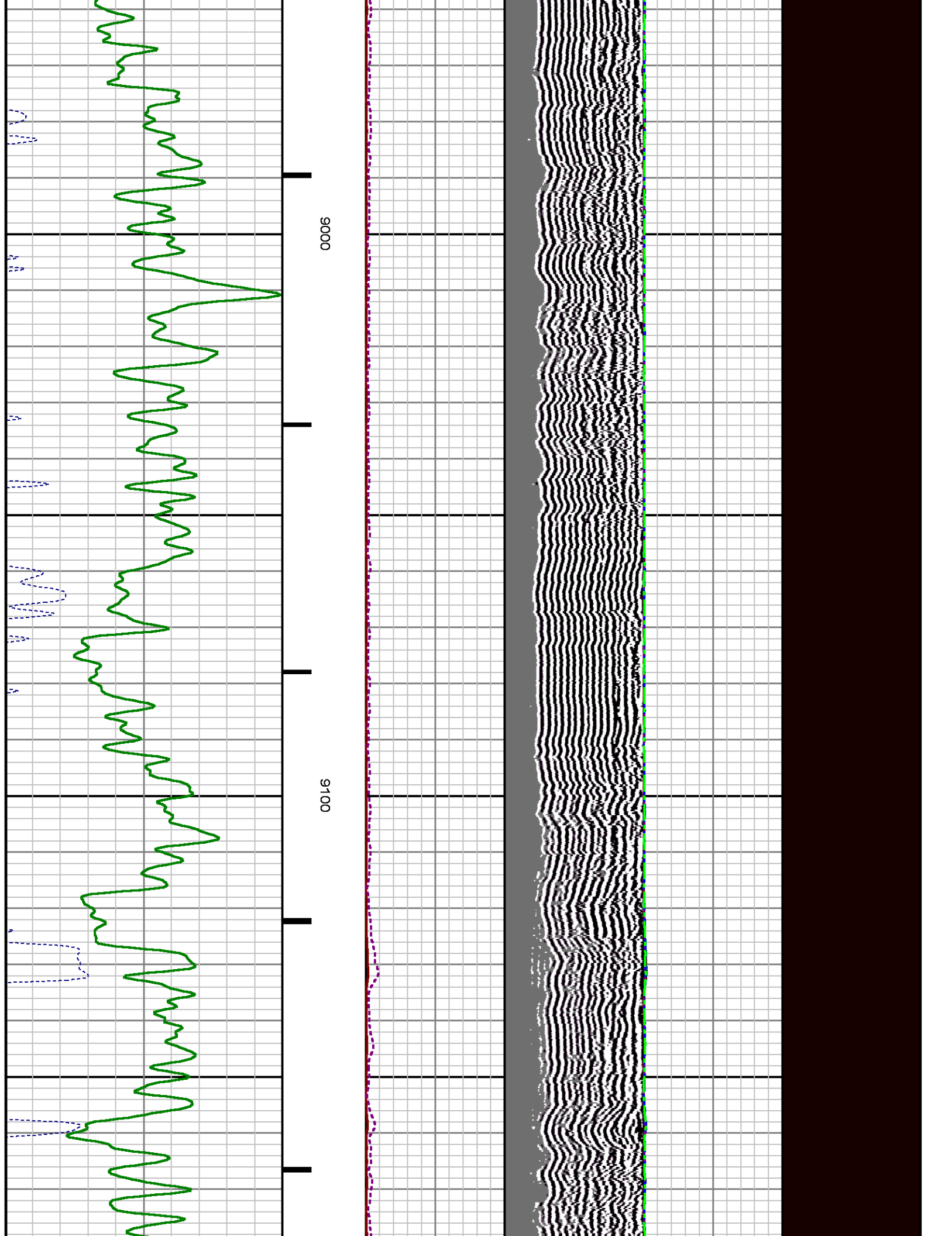


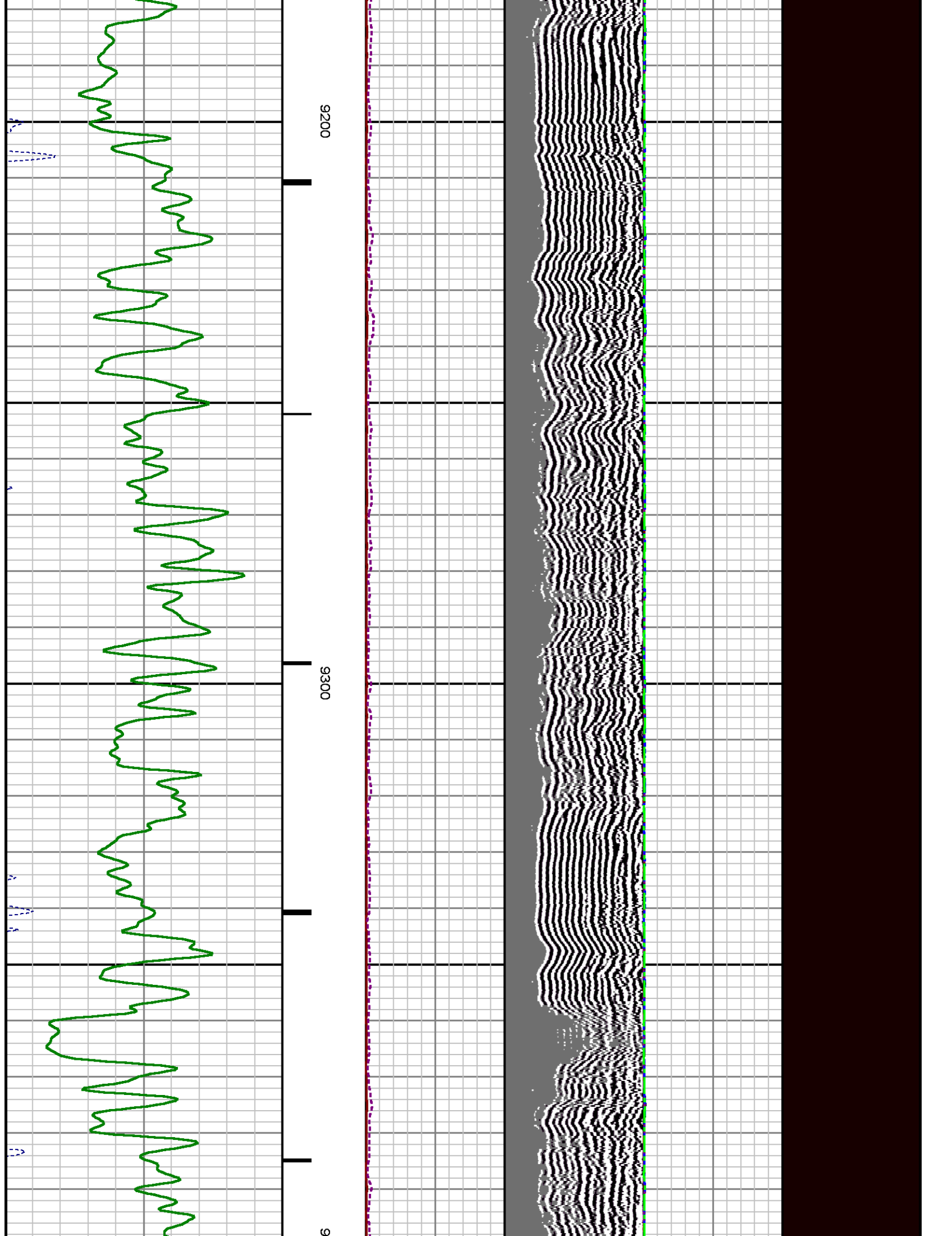


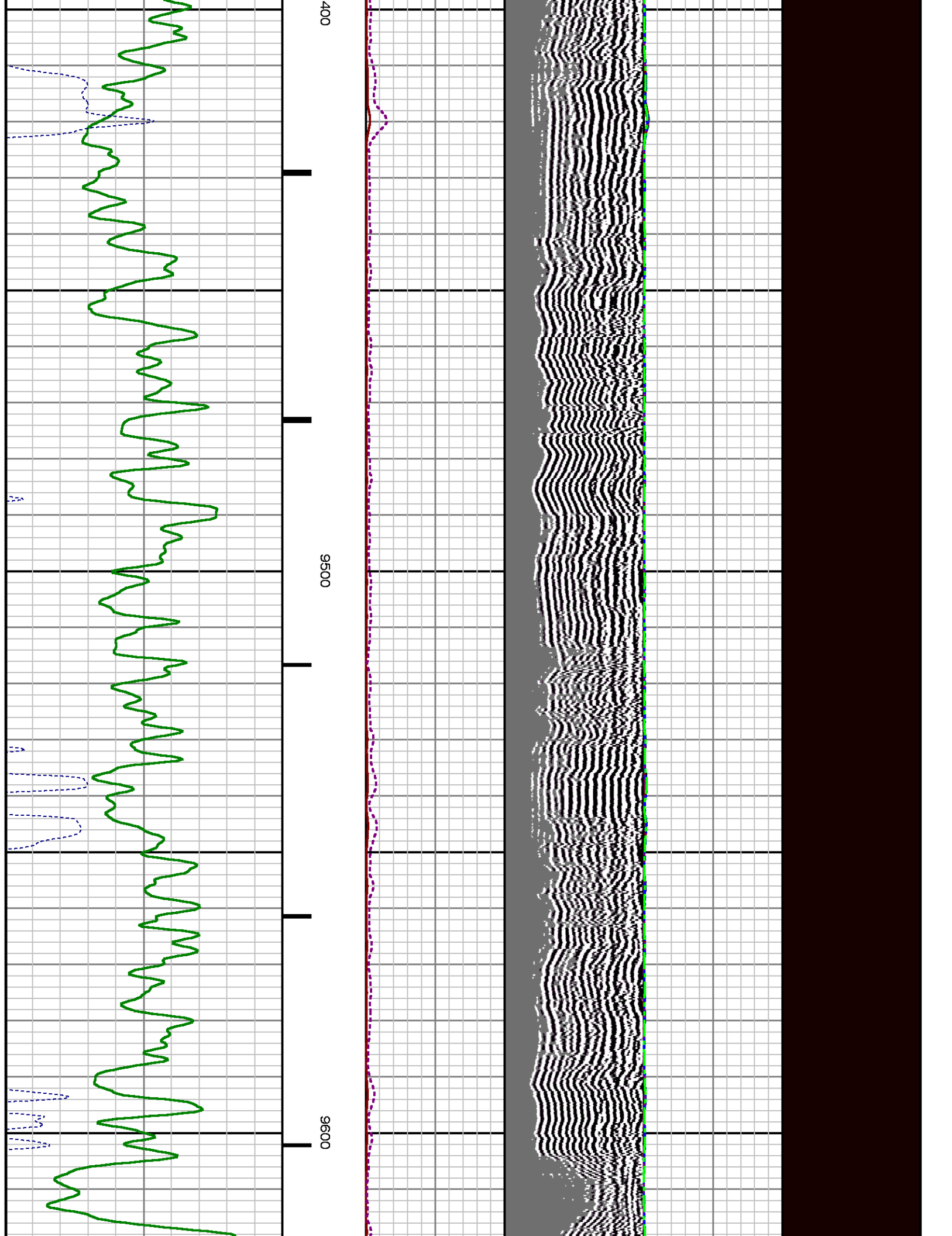


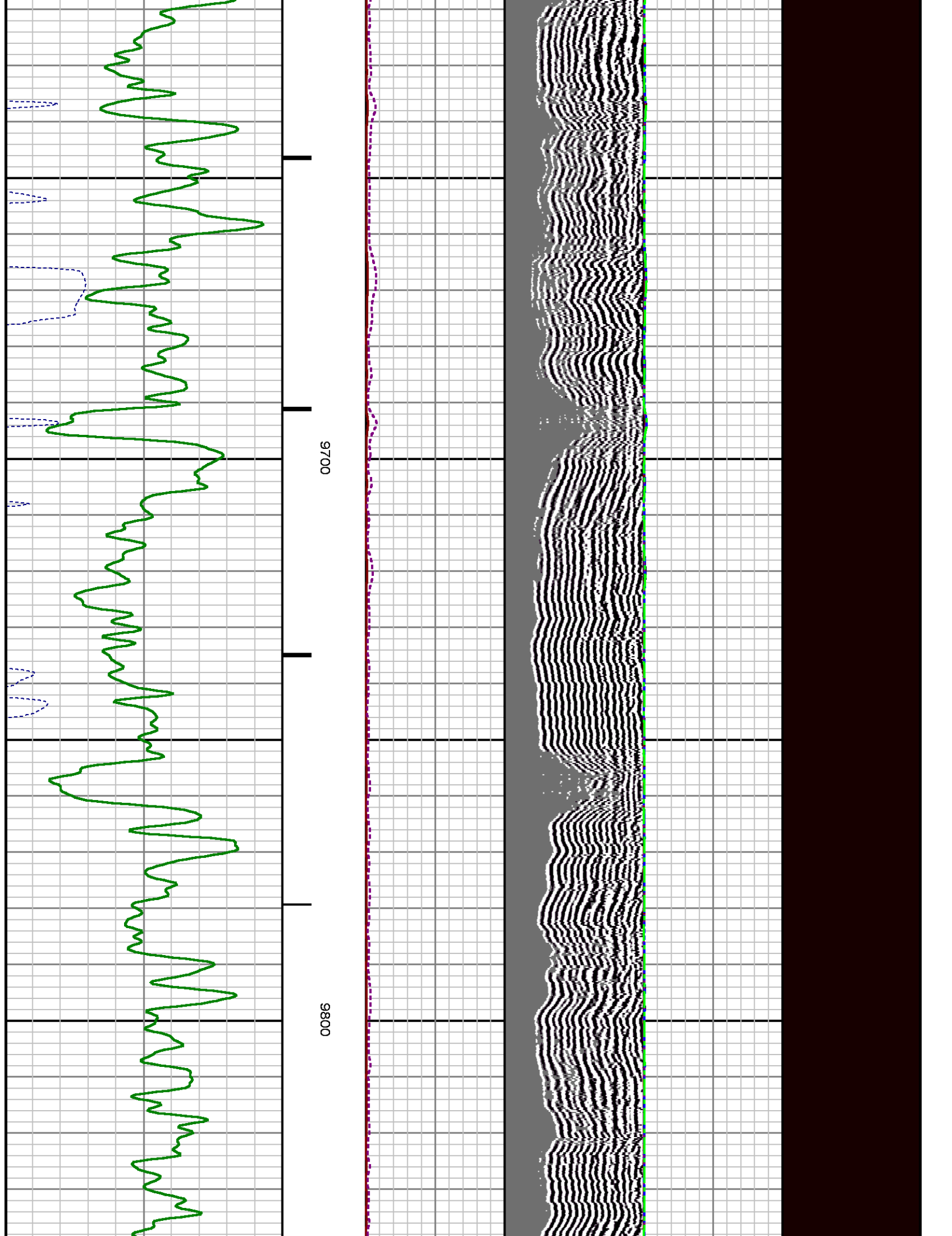


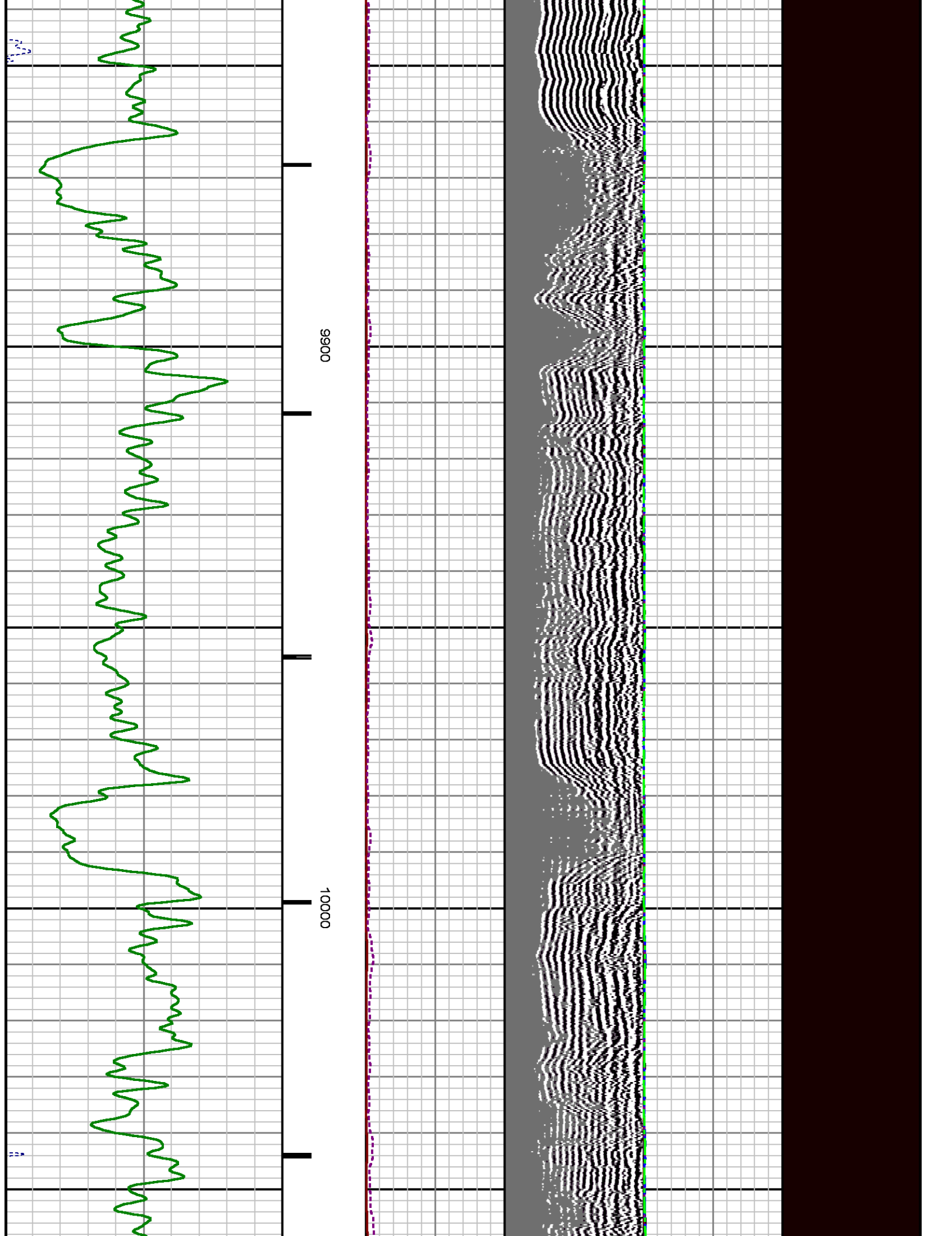














# REPEAT SECTION

## 0 PSI

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	305.000	usec	9894.200	10214.200
RAL	Amp Gate Start Near	195.000	usec	9894.200	10214.200
RAL	Amp Gate Start Radial	195.000	usec	9894.200	10214.200
RAL	Amp Gate Width Far	25.000	usec	9894.200	10214.200
RAL	Amp Gate Width Near	25.000	usec	9894.200	10214.200
RAL	Amp Gate Width Radial	25.000	usec	9894.200	10214.200
RAL	casing od	4.500	inches	9894.200	10214.200
RAL	casing wt	11.600	lbm/ft	9894.200	10214.200
RAL	FB Start Far	291.900	usec	9894.200	10214.200
RAL	FB Start Near	180.000	usec	9894.200	10214.200
RAL	FB Start Radial	180.000	usec	9894.200	10214.200
RAL	FB Thresh Far	10.000	mv	9894.200	10214.200
RAL	FB Thresh Near	4.000	mv	9894.200	10214.200
RAL	FB Thresh Radial	4.000	mv	9894.200	10214.200
RAL	Fluid Travel Time	200.000	usec/ft	9894.200	10215.166

### DEPTH OFFSETS

(for Acquired Curves)

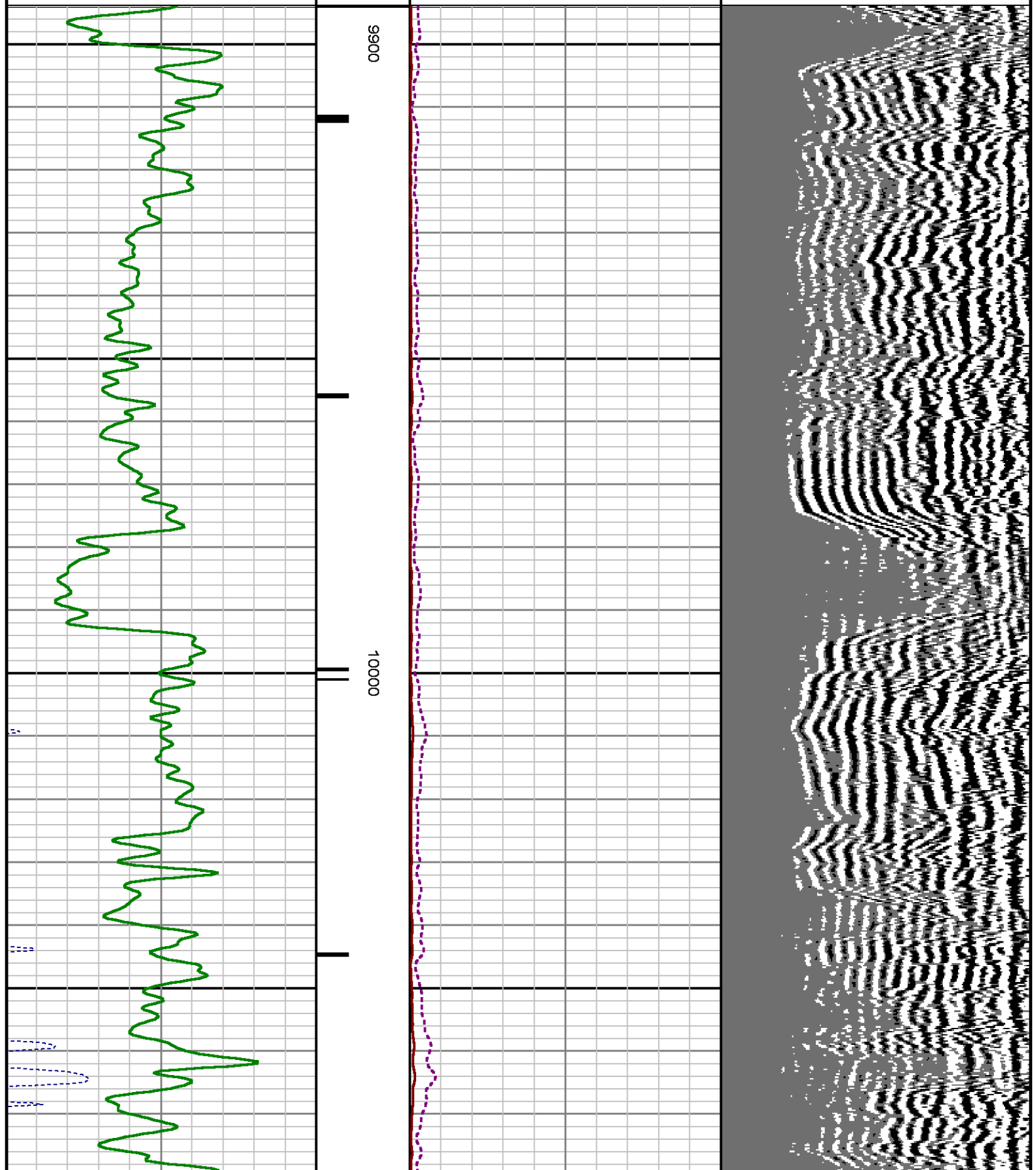
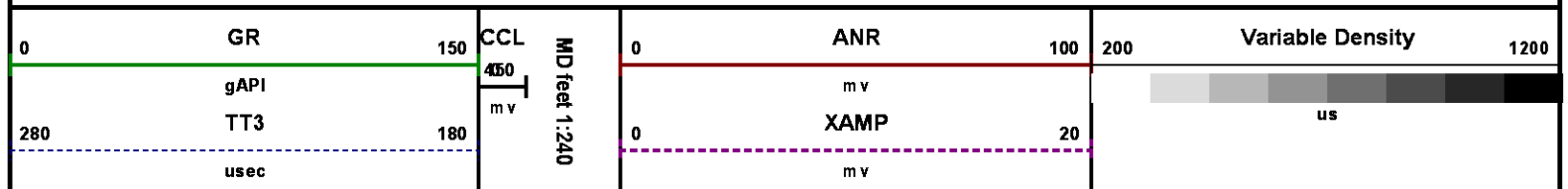
SERIES	DEPTH OFFSET	ACQUIRED CURVES
1426XA	-16.750	ACAL ANR AR1 AR2 AR3 AR4 AR5 AR6 AR7 AR8 CHV FPR2 FPR3 FPR5 TT3 TTR1 TTR2 TTR3 TTR4 TTR5 TTR6 TTR7 TTR8 XAMP
1426XA	-15.750	AFAR SIG TT5
2459XA	-11.340	CCL
2459XA	-9.490	GR
2459XA	-4.090	NEU

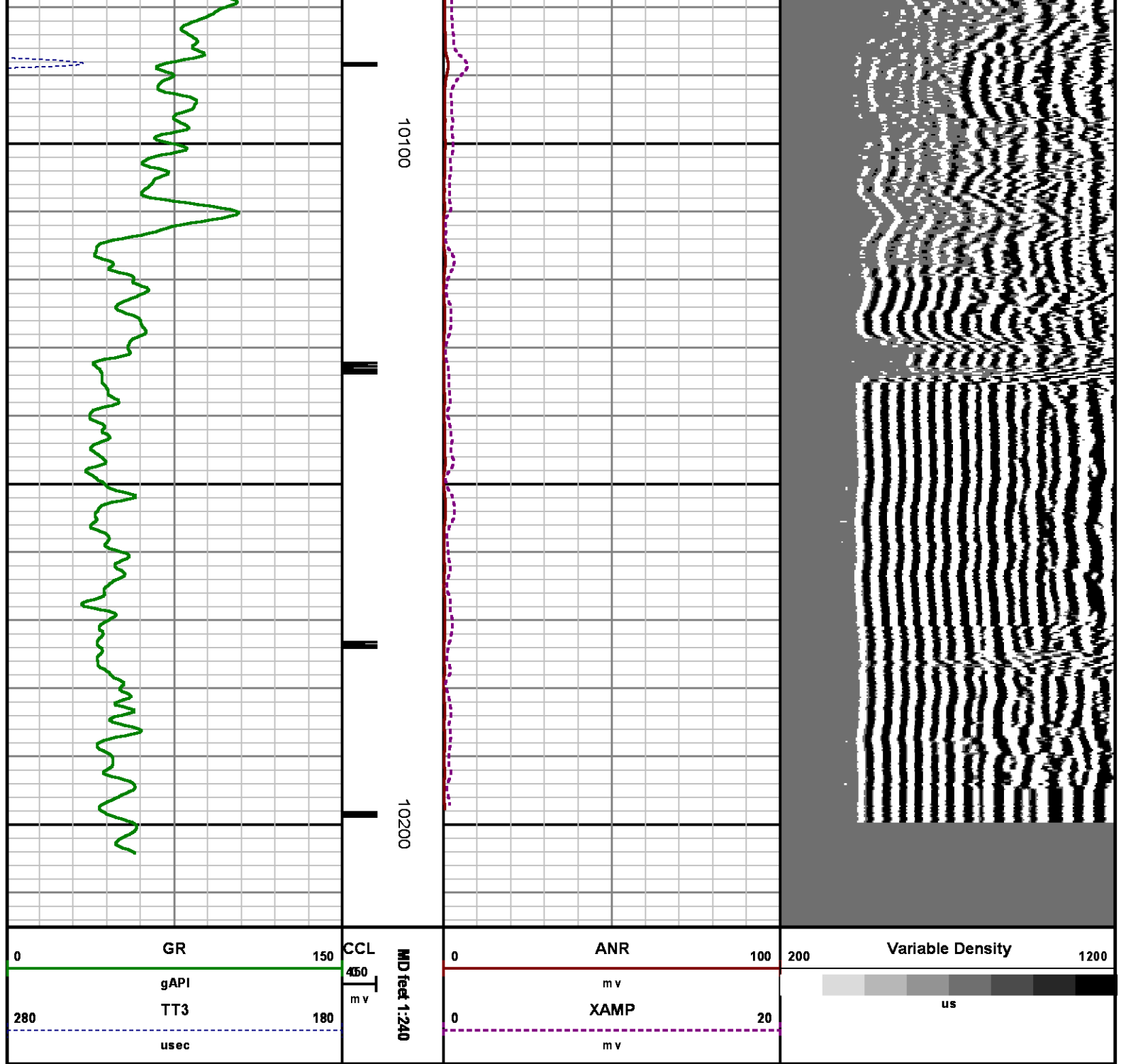
Created by : RAL, v4.8.008

Plotted by : PlotMgr, v5.4.504

Company : WPX ENERGY

Well : FEDERAL NER 514-32





## CALIBRATION SUMMARY

RALSHP

DATE/TIME PERFORMED: Mon Mar 31 10:15:28 2014 TOOL SERIES: 1426XA ASSET: 496 SEQ: 031

Tool Delay [usec]  Tank OD  in Tank Wt  lbm/ft Tank ID  in

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	<input type="text" value="218"/>	<input type="text" value="216"/>	<input type="text" value="30"/>	<input type="text" value="166"/>	<input type="text" value="25"/>	<input type="text" value="0.259"/>	<input type="text" value="100.00"/>	<input type="text" value="0.16"/>
3 Ft. Receiver	<input type="text" value="218"/>	<input type="text" value="216"/>	<input type="text" value="30"/>	<input type="text" value="166"/>	<input type="text" value="25"/>	<input type="text" value="2.369"/>	<input type="text" value="100.00"/>	<input type="text" value="0.16"/>
5 Ft. Receiver	<input type="text" value="326"/>	<input type="text" value="325"/>	<input type="text" value="30"/>	<input type="text" value="269"/>	<input type="text" value="25"/>	<input type="text" value="2.260"/>	<input type="text" value="150.00"/>	<input type="text" value="0.17"/>
Radial #1	<input type="text" value="218"/>	<input type="text" value="216"/>	<input type="text" value="30"/>	<input type="text" value="166"/>	<input type="text" value="25"/>	<input type="text" value="2.007"/>	<input type="text" value="100.00"/>	<input type="text" value="0.16"/>
Radial #2	<input type="text" value="218"/>	<input type="text" value="216"/>	<input type="text" value="30"/>	<input type="text" value="166"/>	<input type="text" value="25"/>	<input type="text" value="1.357"/>	<input type="text" value="100.00"/>	<input type="text" value="0.16"/>
Radial #3	<input type="text" value="218"/>	<input type="text" value="216"/>	<input type="text" value="30"/>	<input type="text" value="166"/>	<input type="text" value="25"/>	<input type="text" value="1.433"/>	<input type="text" value="100.00"/>	<input type="text" value="0.16"/>
Radial #4	<input type="text" value="218"/>	<input type="text" value="216"/>	<input type="text" value="30"/>	<input type="text" value="166"/>	<input type="text" value="25"/>	<input type="text" value="1.793"/>	<input type="text" value="100.00"/>	<input type="text" value="0.16"/>
Radial #5	<input type="text" value="218"/>	<input type="text" value="216"/>	<input type="text" value="30"/>	<input type="text" value="166"/>	<input type="text" value="25"/>	<input type="text" value="2.234"/>	<input type="text" value="100.00"/>	<input type="text" value="0.16"/>
Radial #6	<input type="text" value="218"/>	<input type="text" value="216"/>	<input type="text" value="30"/>	<input type="text" value="166"/>	<input type="text" value="25"/>	<input type="text" value="2.249"/>	<input type="text" value="100.00"/>	<input type="text" value="0.16"/>
Radial #7	<input type="text" value="216"/>	<input type="text" value="216"/>	<input type="text" value="30"/>	<input type="text" value="166"/>	<input type="text" value="25"/>	<input type="text" value="1.180"/>	<input type="text" value="100.00"/>	<input type="text" value="0.16"/>
Radial #8	<input type="text" value="218"/>	<input type="text" value="216"/>	<input type="text" value="30"/>	<input type="text" value="166"/>	<input type="text" value="25"/>	<input type="text" value="1.785"/>	<input type="text" value="100.00"/>	<input type="text" value="0.15"/>

**RALFLD**

Wellsite Calibration: C:\case\calve\RALFLD\496031\_fid.cal

DATE/TIME PERFORMED: Mon Mar 31 12:28:50 2014 TOOL SERIES: 1426XA ASSET: 496 SEQ: 031

Tool Delay [usec]  Casing OD  in Casing Wt  lbm/ft Casing ID  in

RECEIVER	Zero Gate Start [usec]	Zero Gate Width [usec]	Zero Amp. [mV]	Full Amp. [mV]	Wellsite Factor	Amp. Ref [mV]
CAL Pulse	<input type="text" value="166"/>	<input type="text" value="25"/>	<input type="text" value="0.055"/>	<input type="text" value="0.000"/>	<input type="text" value="0.99"/>	<input type="text" value="100.000"/>
3 Ft. Receiver	<input type="text" value="195"/>	<input type="text" value="25"/>	<input type="text" value="1.772"/>			
5 Ft. Receiver	<input type="text" value="305"/>	<input type="text" value="25"/>	<input type="text" value="2.058"/>			
Radial #1	<input type="text" value="195"/>	<input type="text" value="25"/>	<input type="text" value="1.142"/>			
Radial #2	<input type="text" value="195"/>	<input type="text" value="25"/>	<input type="text" value="1.171"/>			
Radial #3	<input type="text" value="195"/>	<input type="text" value="25"/>	<input type="text" value="1.351"/>			
Radial #4	<input type="text" value="195"/>	<input type="text" value="25"/>	<input type="text" value="1.335"/>			
Radial #5	<input type="text" value="195"/>	<input type="text" value="25"/>	<input type="text" value="1.556"/>			
Radial #6	<input type="text" value="195"/>	<input type="text" value="25"/>	<input type="text" value="1.639"/>			
Radial #7	<input type="text" value="195"/>	<input type="text" value="25"/>	<input type="text" value="1.374"/>			
Radial #8	<input type="text" value="195"/>	<input type="text" value="25"/>	<input type="text" value="1.270"/>			

**GAMMA RAY**

Wellsite Calibration: C:\case\calve\GRV157\_11.cal

CALIBRATION SUMMARY

DATE/TIME PERFORMED: Fri Jul 12 07:18:45 2013 TOOL SERIES: 2459XA ASSET: 457 SEQ: JL

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
S2K WA612	43.69	319.64	0.670	29.29	214.29	185.00

Verification File: C:\case\calver\GRV457JL.VP

PRIMARY LOG VERIFICATION

DATE/TIME PERFORMED: Fri Jul 12 07:20:02 2013 TOOL SERIES: 2459XA ASSET: 457 SEQ: JL

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
S2K WA612	48.98	316.40	0.670	32.83	212.11	179.28

## RALSHP #2

Shop Calibration: C:\case\calver\RALSHP\456A3\_shp.cal

SHOP CALIBRATION SUMMARY

DATE/TIME PERFORMED: Thu Apr 03 13:31:13 2014 TOOL SERIES: 1426XA ASSET: 456 SEQ: A3

Tool Delay [usec]	-54.00	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	217	216	30	166	25	-0.098	100.00	0.17
3 Ft. Receiver	217	216	30	166	25	2.268	100.00	0.16
5 Ft. Receiver	326	325	30	206	25	0.031	150.00	0.19
Radial #1	217	216	30	146	25	0.092	100.00	0.16
Radial #2	217	216	30	146	25	-0.488	100.00	0.16
Radial #3	217	216	30	146	25	-0.422	100.00	0.16
Radial #4	217	216	30	146	25	-0.177	100.00	0.16
Radial #5	217	216	30	146	25	-0.474	100.00	0.16
Radial #6	217	216	30	146	25	-0.240	100.00	0.16
Radial #7	215	216	30	146	25	0.045	100.00	0.16
Radial #8	217	216	30	146	25	-0.383	100.00	0.16

## RALFLD #2

Wellsite Calibration: C:\case\calver\RALFLD\456A3 fld.cal

WELLSITE CALIBRATION SUMMARY

DATE/TIME PERFORMED: Thu Apr 03 13:33:15 2014 TOOL SERIES: 1426XA ASSET: 456 SEQ: A3

Tool Delay	-54.00	Casing OD	4.50	Casing Wt	11.60	Casing ID	4.00
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[usec]

in

lbm/ft

in

RECEIVER	Zero Gate Start [usec]	Zero Gate Width [usec]	Zero Amp. [mV]	Full Amp. [mV]	Wellsite Factor	Amp. Ref [mV]
CAL Pulse	166	25	0.037	0.000	1.02	100.000
3 Ft. Receiver	195	25	2.775			
5 Ft. Receiver	305	25	3.651			
Radial #1	195	25	2.663			
Radial #2	195	25	2.686			
Radial #3	195	25	2.808			
Radial #4	195	25	2.787			
Radial #5	195	25	3.062			
Radial #6	195	25	3.235			
Radial #7	195	25	2.588			
Radial #8	195	25	2.654			

## GAMMA RAY #2

Calibration File: C:\case\calver\GR\456A3.cal

### CALIBRATION SUMMARY

DATE/TIME PERFORMED: Thu Apr 03 13:37:28 2014      TOOL SERIES: 2459XA    ASSET: 456    SEQ: A3

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
S2K WA612	76.84	356.71	0.661	50.80	235.80	185.00

Verification File: C:\case\calver\GR\456A3.VP

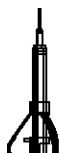
### PRIMARY LOG VERIFICATION

DATE/TIME PERFORMED: Thu Apr 03 13:38:35 2014      TOOL SERIES: 2459XA    ASSET: 456    SEQ: A3

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
S2K WA612	80.98	351.78	0.661	53.53	232.54	179.01

## TOOL DIAGRAM

OTA SHORT CABLE HEAD



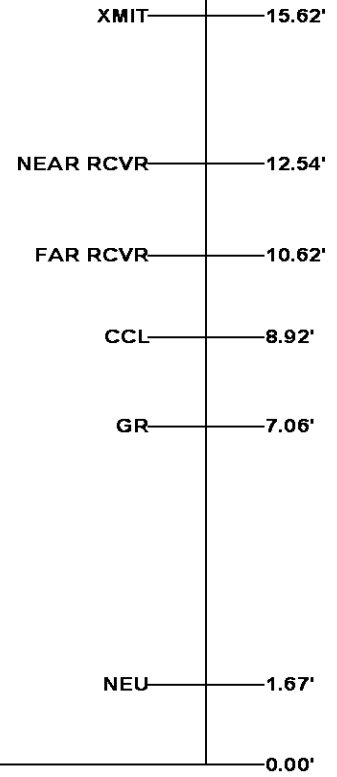
21.81'

**PROBE 2 3/4 DUAL RECEIVER RADII**



Series 1426XA  
 Mnemonic PROB  
 Diameter 2.75"  
 Length 11.17'  
 Measure Point 0.75' FAR RCVR  
 Measure Point 2.67' NEAR RCVR  
 Measure Point 5.75' XMIT  
 Temp Rating 350.00 °F  
 Press Rating 18000.00 PSI

**Probe GR/CCL/NEU**

Series 2459XA  
 Mnemonic PROB  
 Diameter 2.75"  
 Length 9.42'  
 Measure Point 1.21' NEU  
 Measure Point 6.60' GR  
 Measure Point 8.46' CCL



**Total Length: 21.81'**  
**Total Weight: Not Available**  
**Max Diameter: 0' 2.75"**

 Baker Atlas	<b>Company</b> WPX ENERGY	<b>File No:</b> CH084514
	<b>Well</b> FEDERAL NER 514-32	<b>API No:</b> 05045217860000
<b>Field</b> RULISON	<b>County</b> GARFIELD <b>State</b> COLORADO	<b>API No:</b> 05045217860000
	<b>Location</b> SHL: 192' FNL x 2595' FWL SEC 5 7S 93W BHL: 169' FSL x 673' FWL SEC 32 6S 93W	<b>Elevations</b> KB 7629 ft DF GL 7603 ft
	SEC 32 TWP 6S RGE 93W	32 6S 93W RU 23-5 PAD NABORS 576