



# RADIAL ANALYSIS BOND LOG

**Baker Atlas**

File No: **WPX ENERGY**

GH074099 **Well WPX ENERGY RMV 78-34**

API No: **Field RULISON**

08048174720000 **County GARFIELD State COLORADO**

**Location**

SHL: 1451' FNL X 1071' FEL

BHL: 1058' FNL X 896' FNL (NWNW SEC 34)

SEC 34 TWP 6S RGE 94W

**Other Services**

NONE

KB 5329 ft

DF

GL 5329 ft

Permanent Datum **OL** Elevation **5329 ft**

Log Measured From **KB** 26 ft **Above P. D.**

Drill Measured From **KELLY BUSHING**

Date **12/JUL/13**

Run **ONE**

Service Order **624443**

Depth Driller **7983 ft**

Depth Logger **7937 ft**

Bottom Logged Interval **7927 ft**

Top Logged Interval **26 ft**

Time Started **0700**

Time Finished **1030**

Operator Rig Time **3.5 HRS**

Type of Fluid in Hole **WATER**

Fluid Density **NA**

Salinity **NA**

Fluid Level **67 ft**

Logged Cement Top **NA**

Wellhead Pressure **0 psi**

Maximum Hole Deviation **NA**

Nominal Logging Speed **65 fpm**

Maximum Recorded Temperature **227 degF**

Reference Log **BAKER HUGHES HDIL/ZDL/CN/GR**

Reference Log Date **17/JUN/13**

Equipment No. **4271** Location **GRAND JCT**

Recorded By **FLOYD RENEAU**

Witnessed By **ORAN JACOBS**

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	0 ft	1805 ft
7.875 in	1805 ft	7983 ft

**Casing Record**

Size	Weight	Grade	From	To
9.625 in			0 ft	1805 ft
4.5 in	11.6 lbm/ft	I-80	0 ft	7983 ft

**Remarks**

All data on this log is shifted and depth matched using the Gamma Ray curve to the Baker Hughes HDIL/ZDL/CN/GR open hole log dated 6/17/2013 at the clients request. The amount of linear shift is 7 feet. Logged with zero PSI at wellhead. The depth matching process creates potential for collar lengths to vary from those recorded on other cased hole wireline units without a Gamma Ray reference.

- FOLD HERE

BHT = 227°F

SJ = 4941' - 4965'

Equipment Data

Run	Trip	Tool	Series Number	Serial Number	Position
1	1	VDL	1426XA	10404539	CENT
1	1	GRICCL	2459XA	10417457	CENT

*PRIMARY PRESENTATION*  
*0 PSI*

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	305.000	usec	35.218	7959.000
RAL	Amp Gate Start Near	195.000	usec	35.218	7959.000
RAL	Amp Gate Start Radial	195.000	usec	35.218	7959.000
RAL	Amp Gate Width Far	25.000	usec	35.218	7959.000
RAL	Amp Gate Width Near	25.000	usec	35.218	7959.000
RAL	Amp Gate Width Radial	25.000	usec	35.218	7959.000
RAL	casing od	4.500	inches	35.218	7959.000
RAL	casing wt	11.600	lbm/ft	35.218	7959.000
RAL	FB Start Far	291.900	usec	35.218	7959.000
RAL	FB Start Near	180.000	usec	35.218	7959.000
RAL	FB Start Radial	180.000	usec	35.218	7959.000
RAL	FB Thresh Far	10.000	mv	35.218	7959.000
RAL	FB Thresh Near	4.000	mv	35.218	7959.000
RAL	FB Thresh Radial	4.000	mv	35.218	7959.000
RAL	Fluid Travel Time	200.000	usec/ft	35.218	7958.843

**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

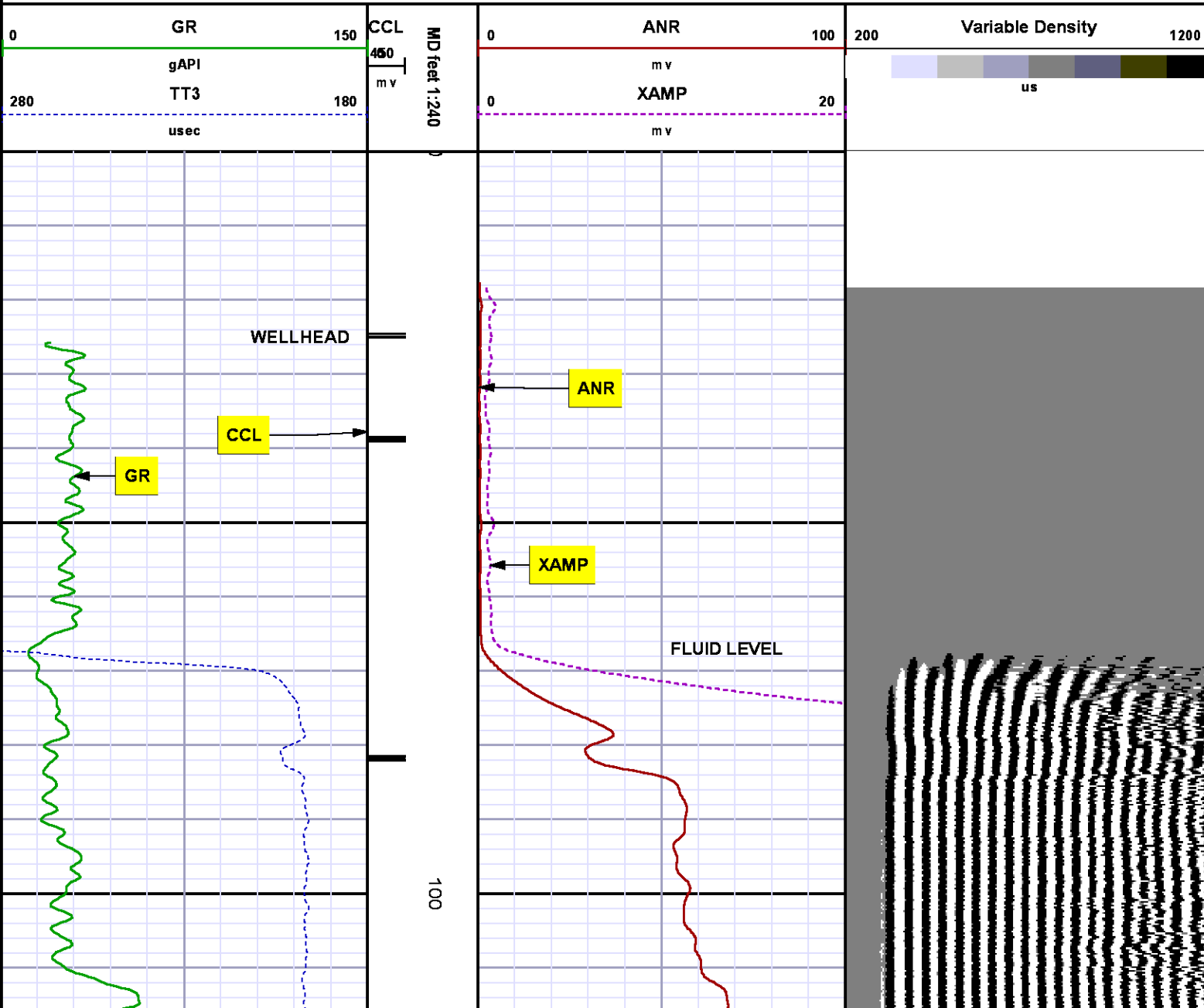
Well : WILLIAMS RMV 78-34

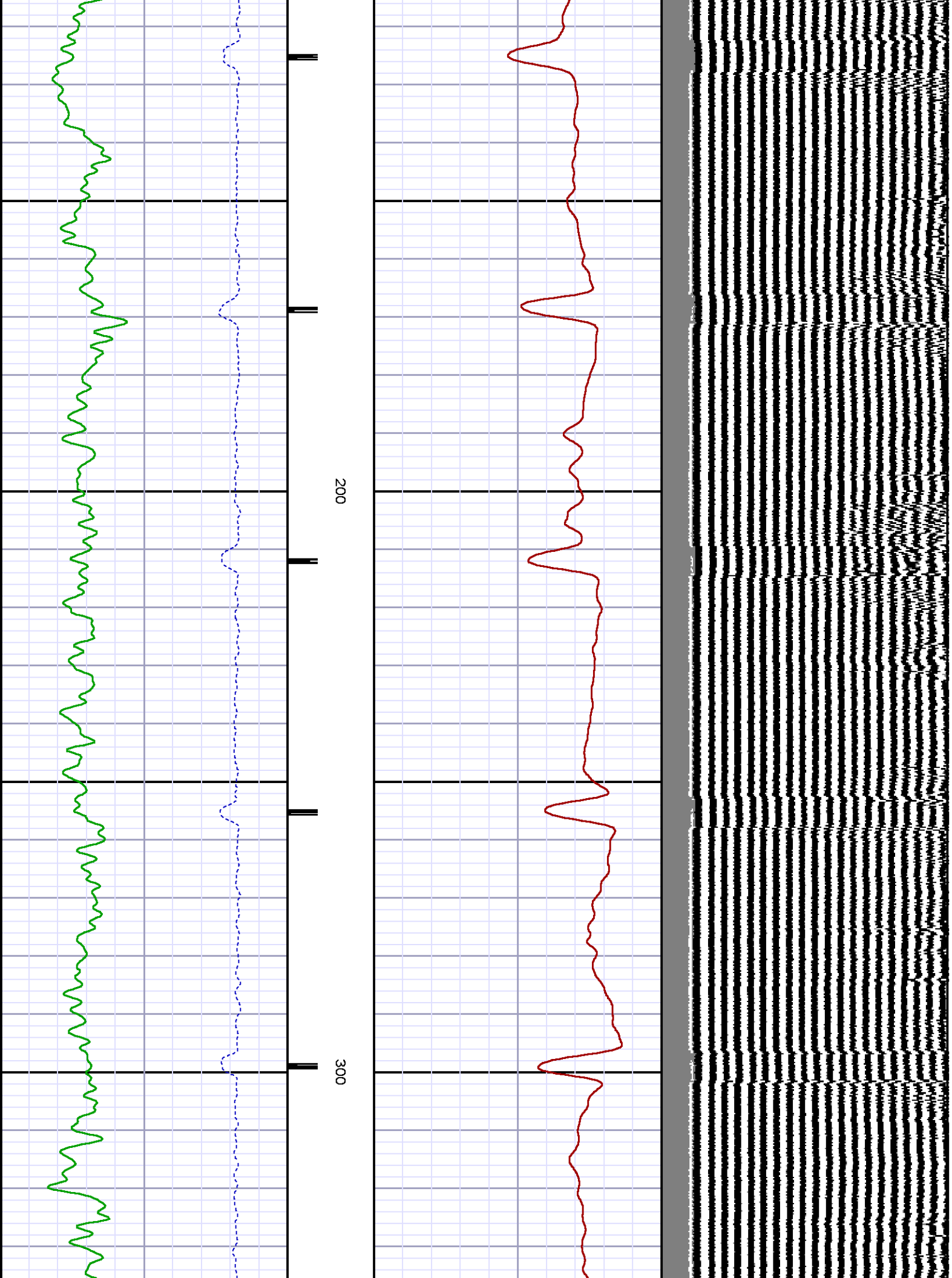
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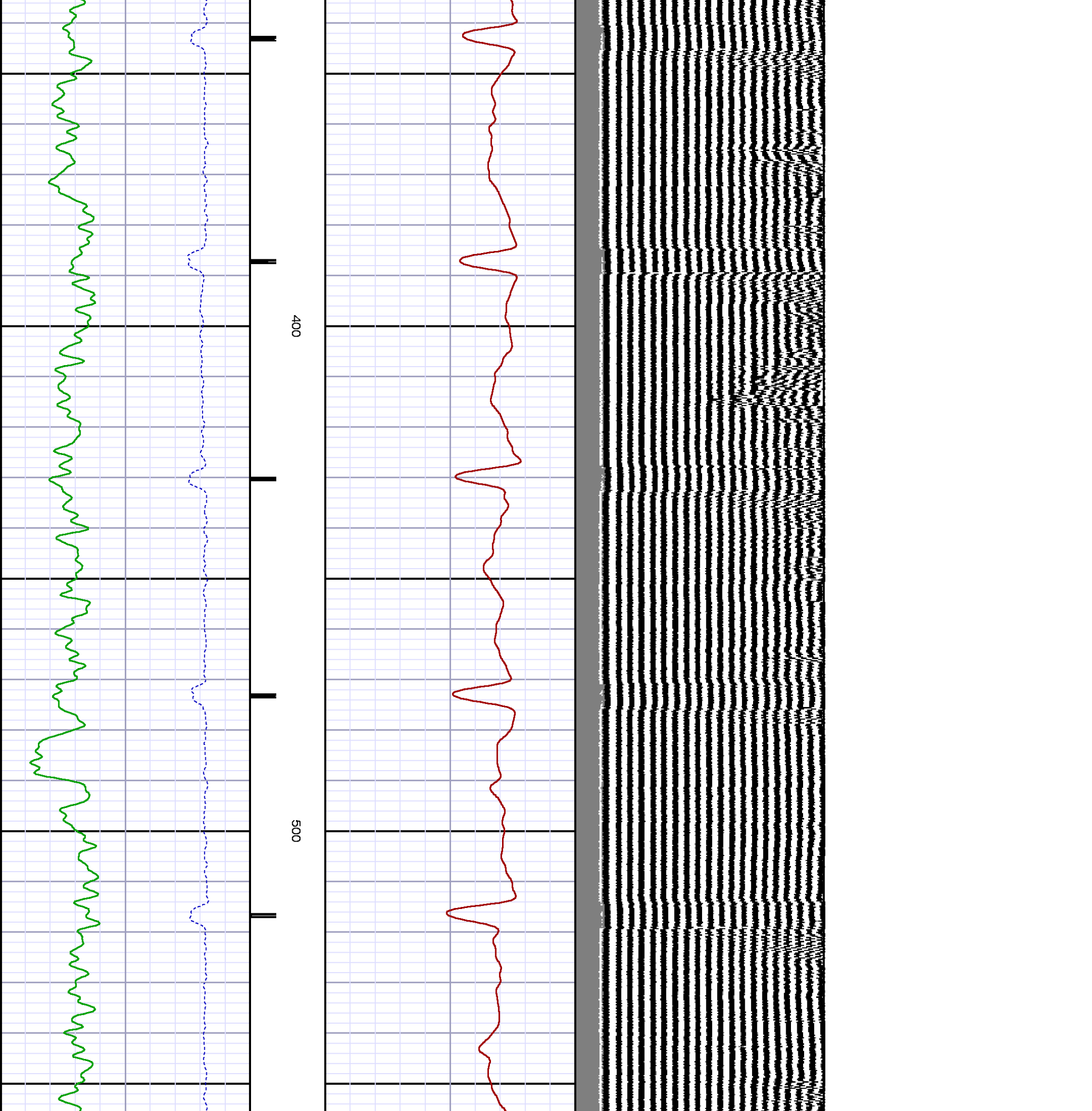
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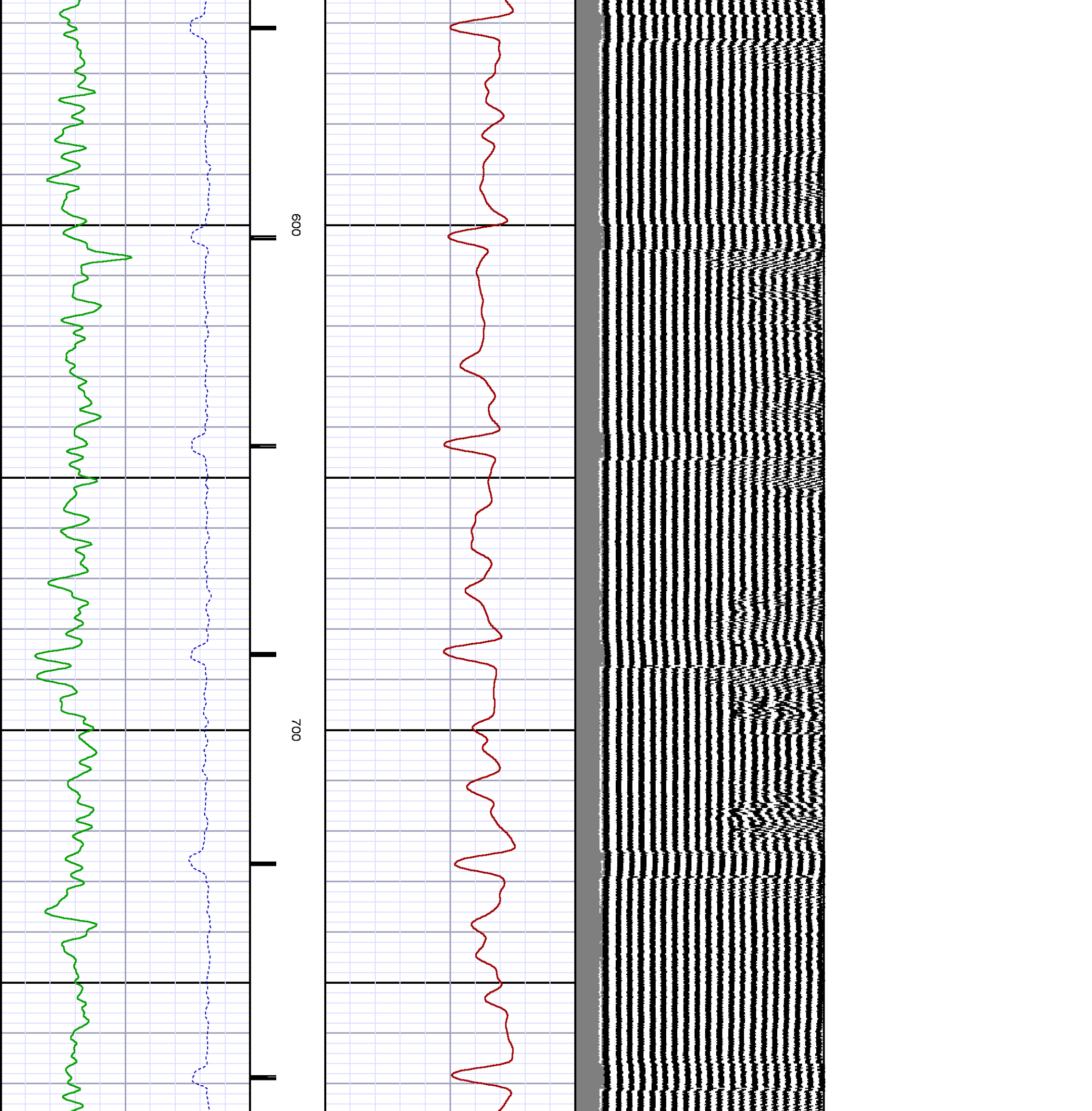
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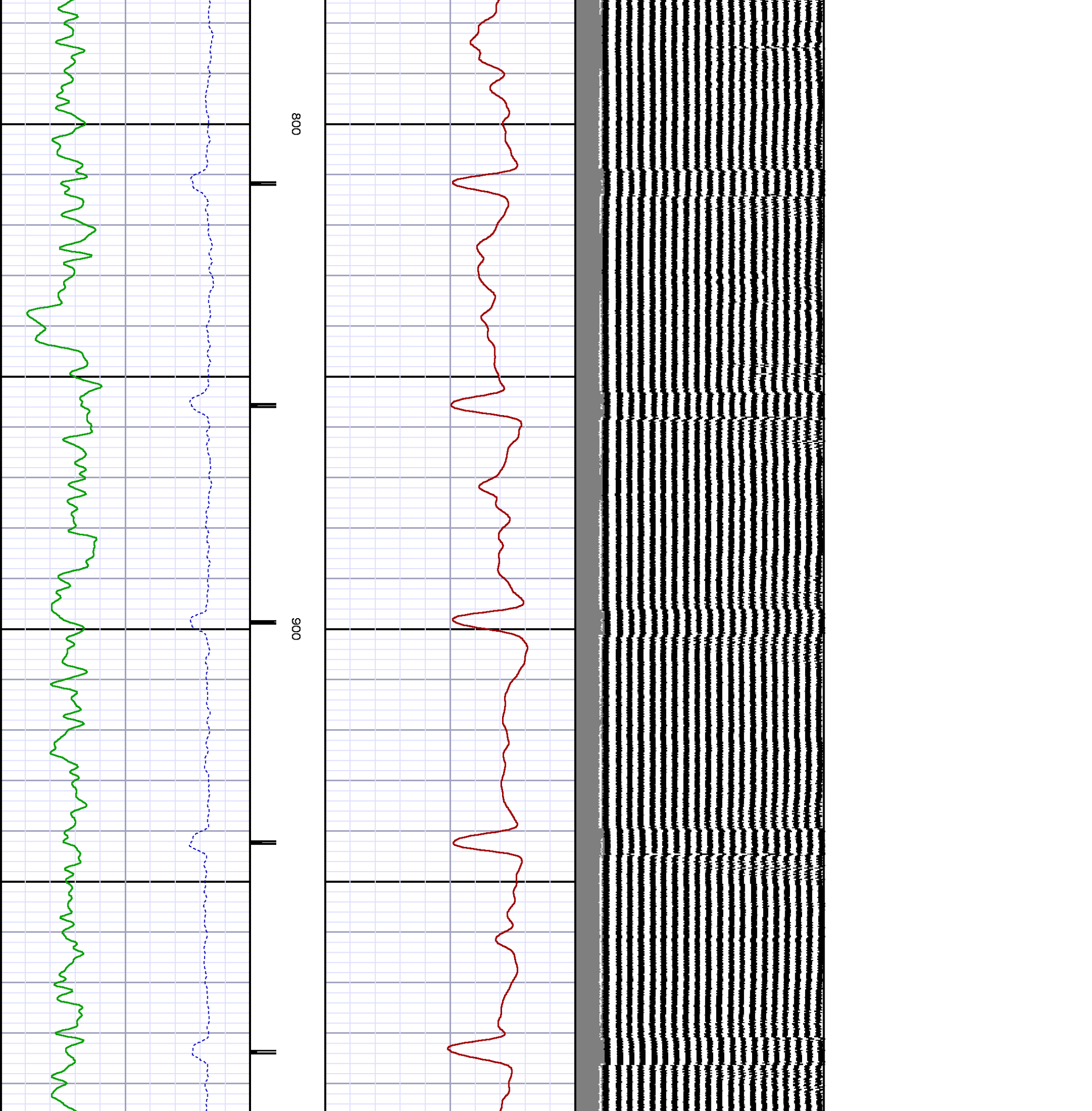
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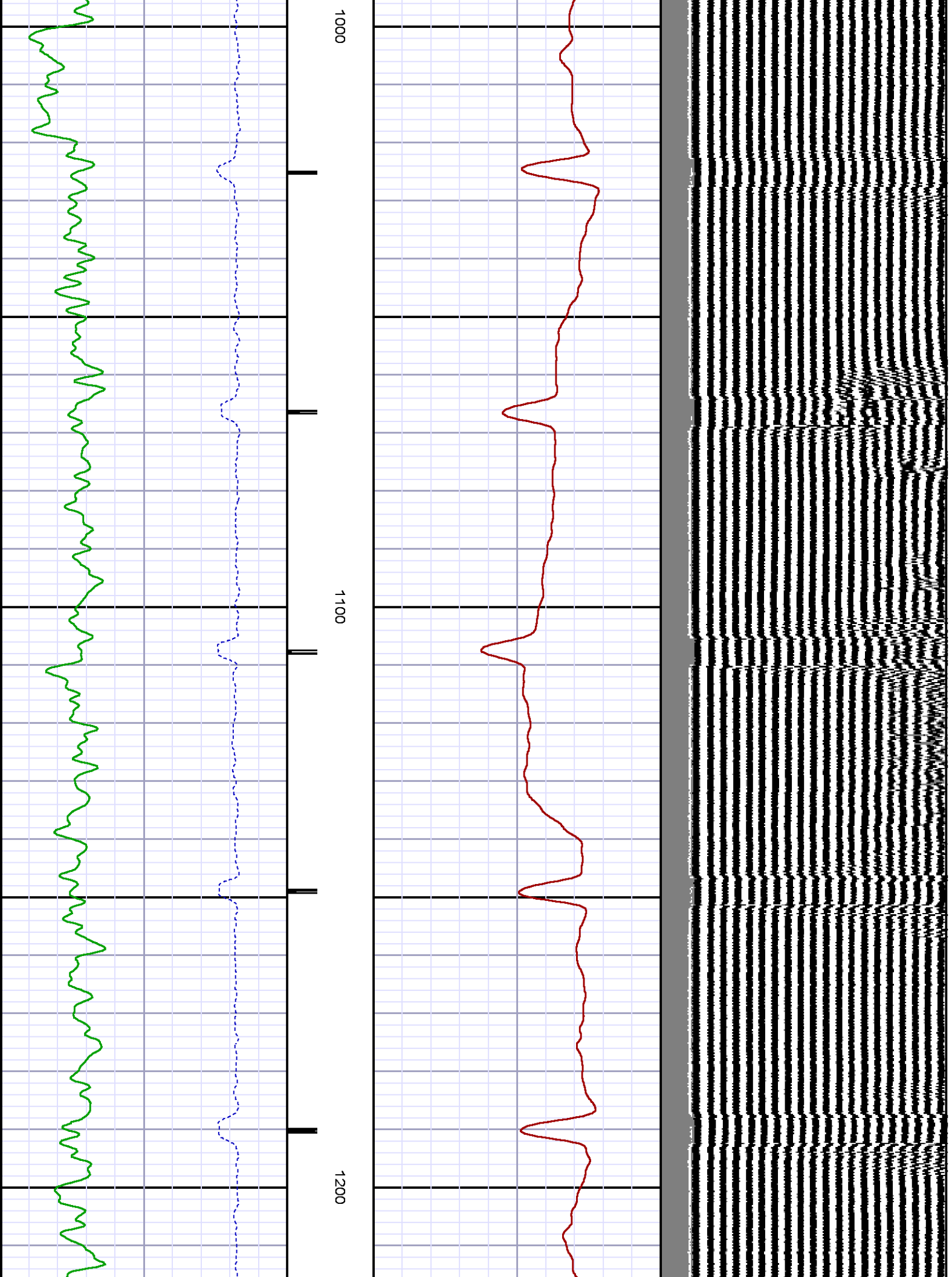


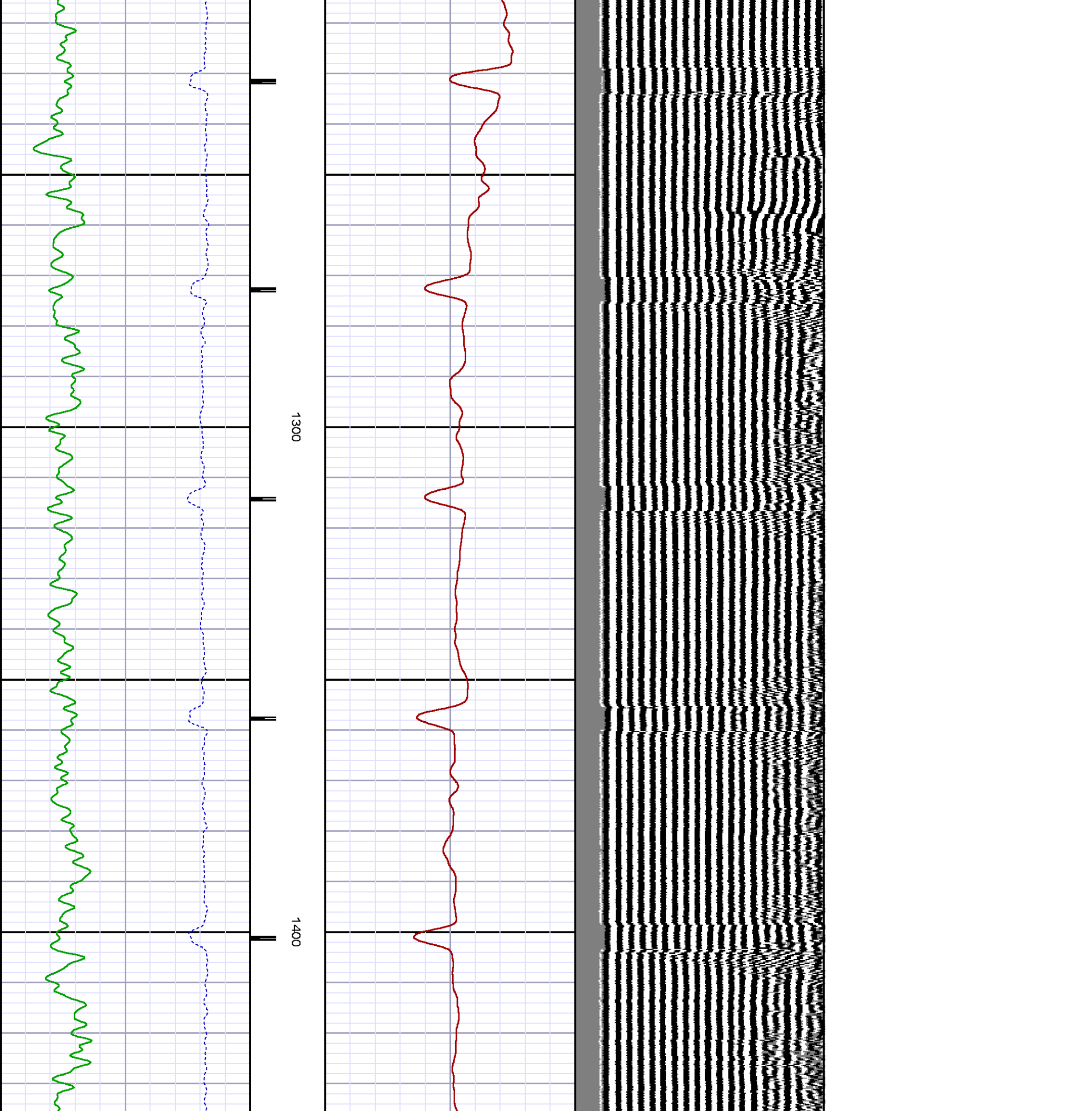


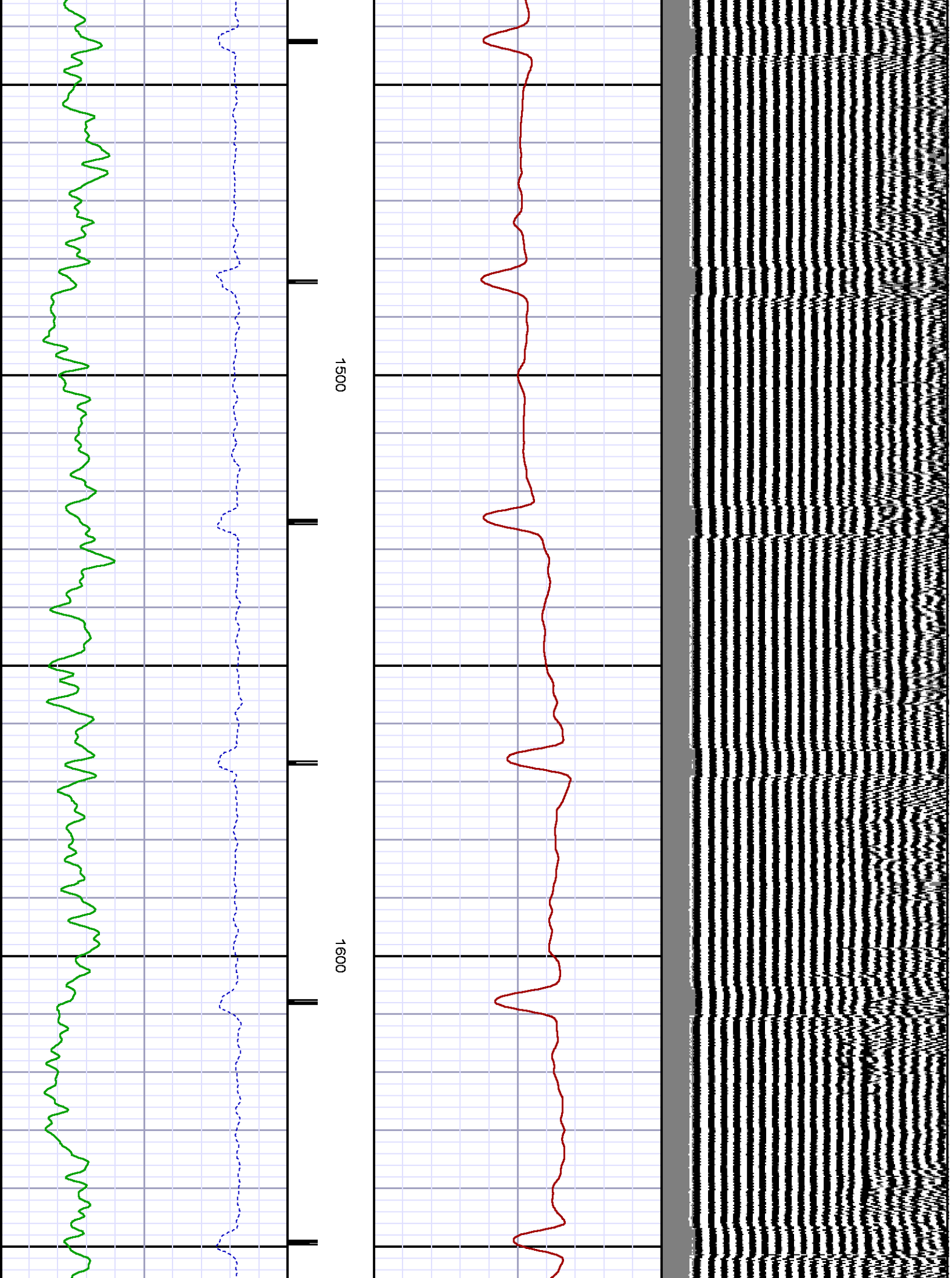


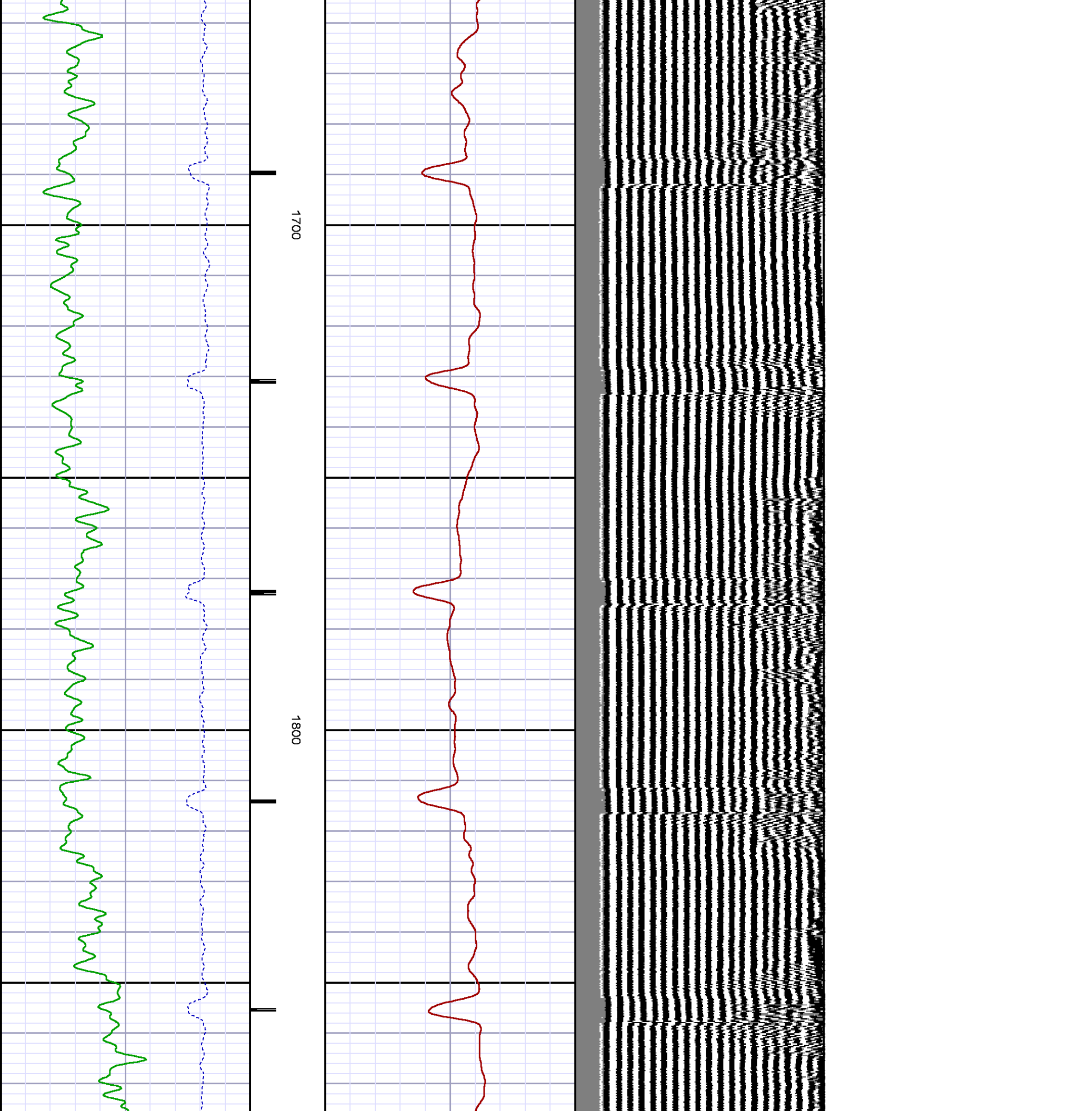


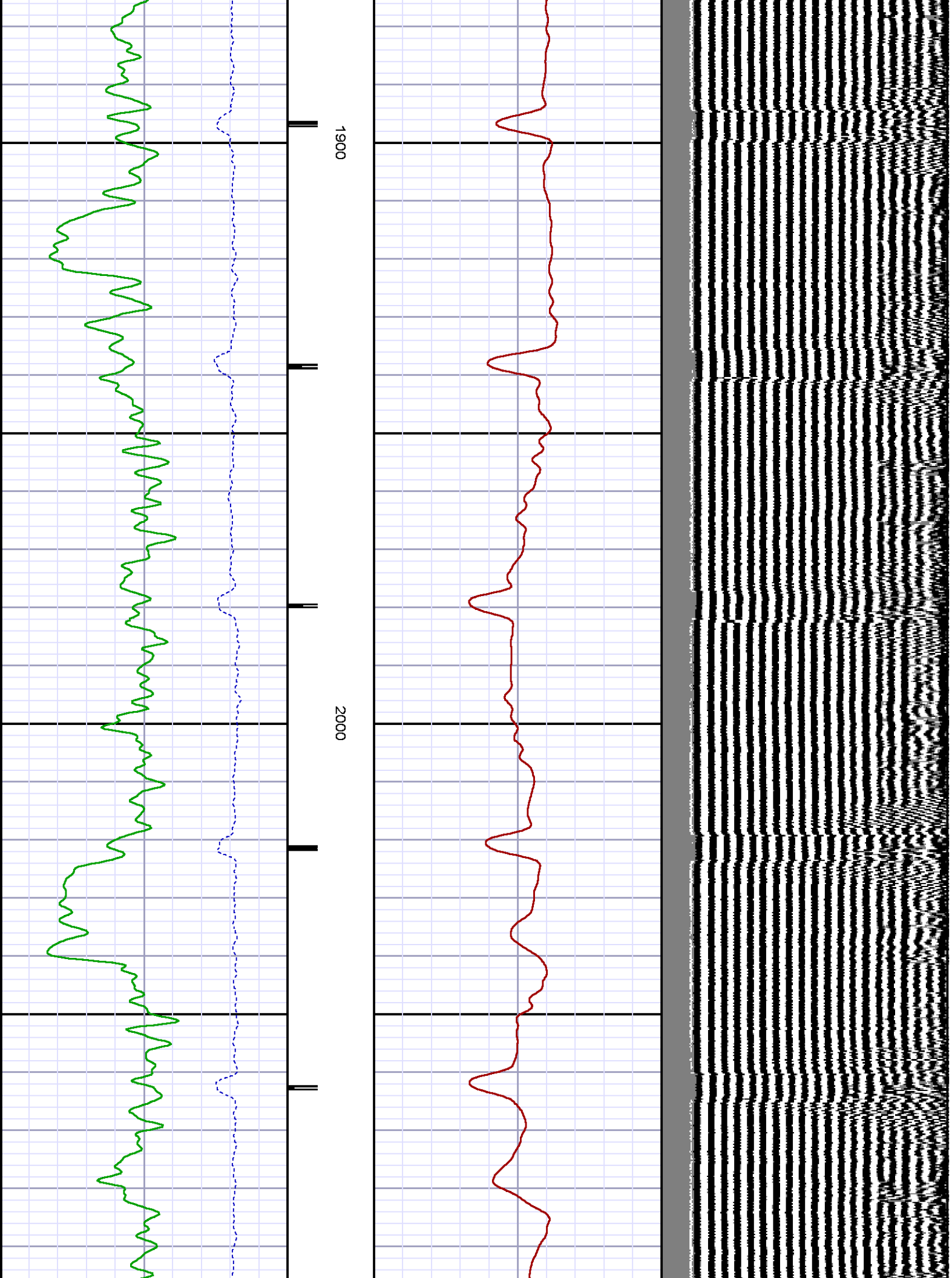


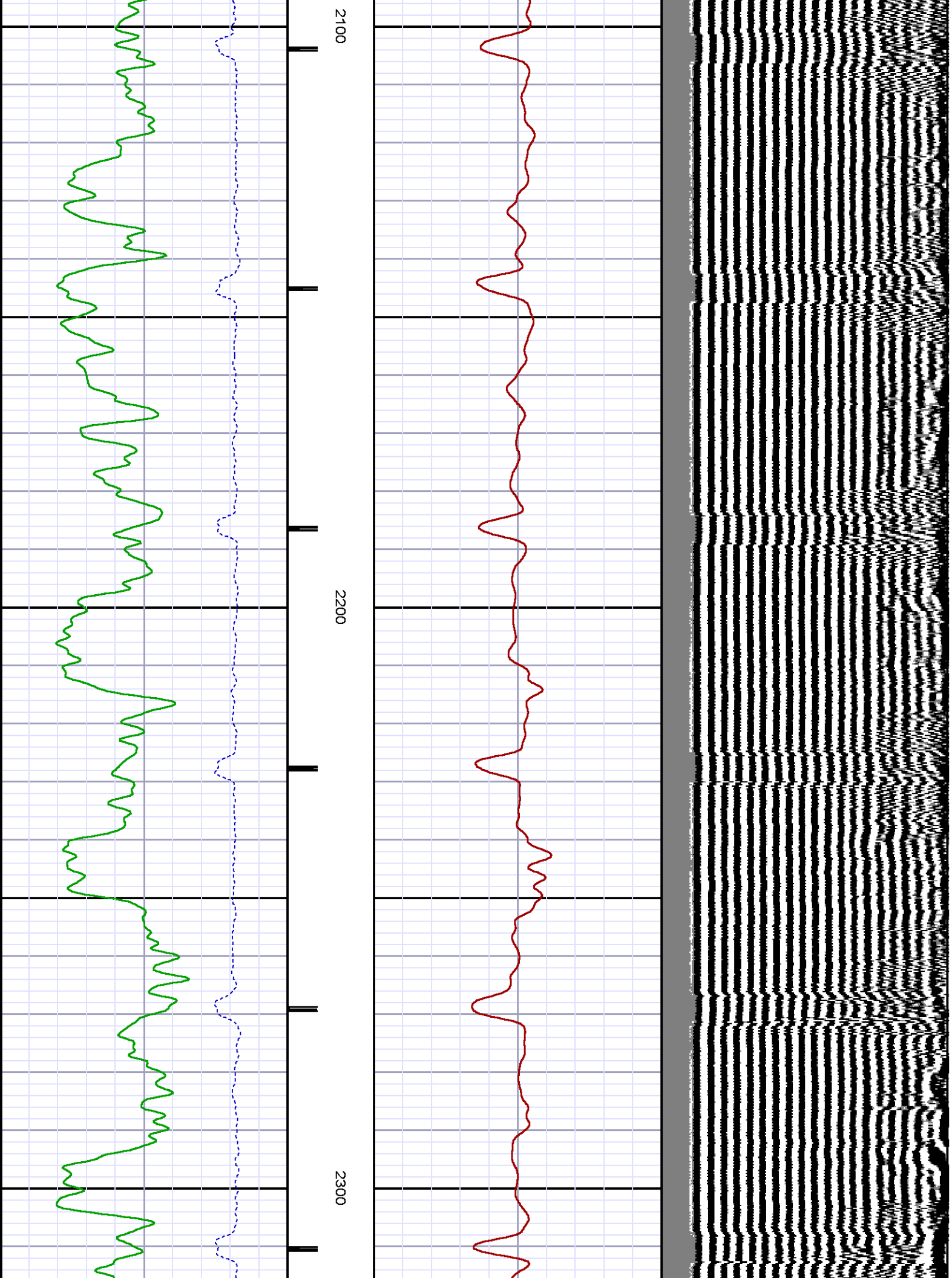


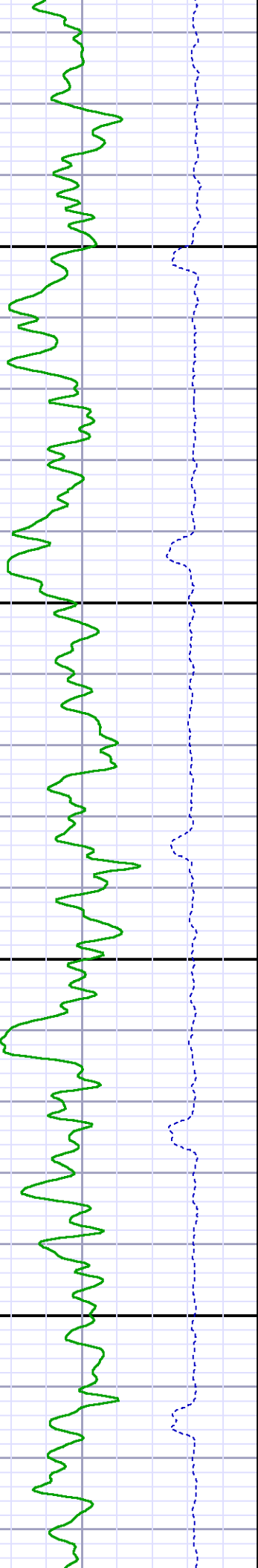
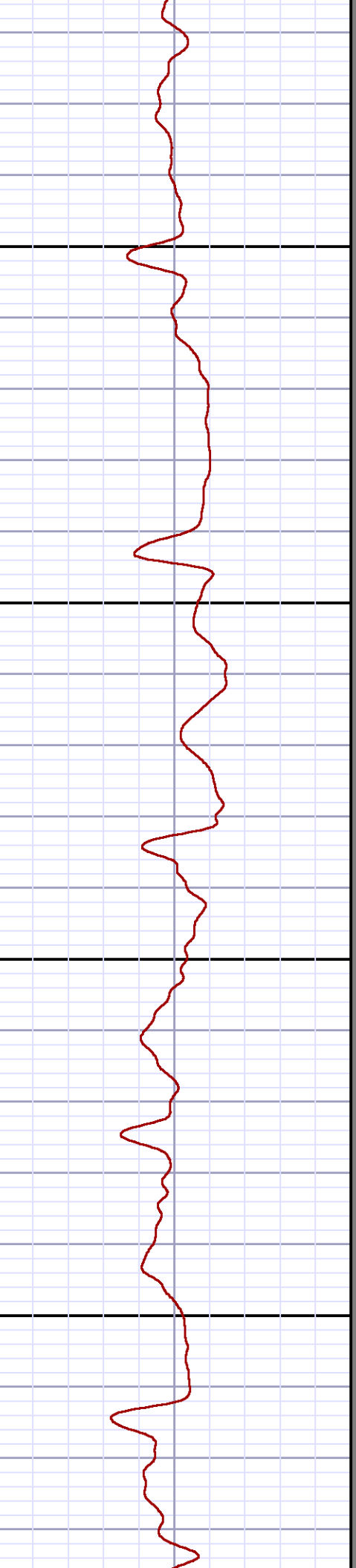
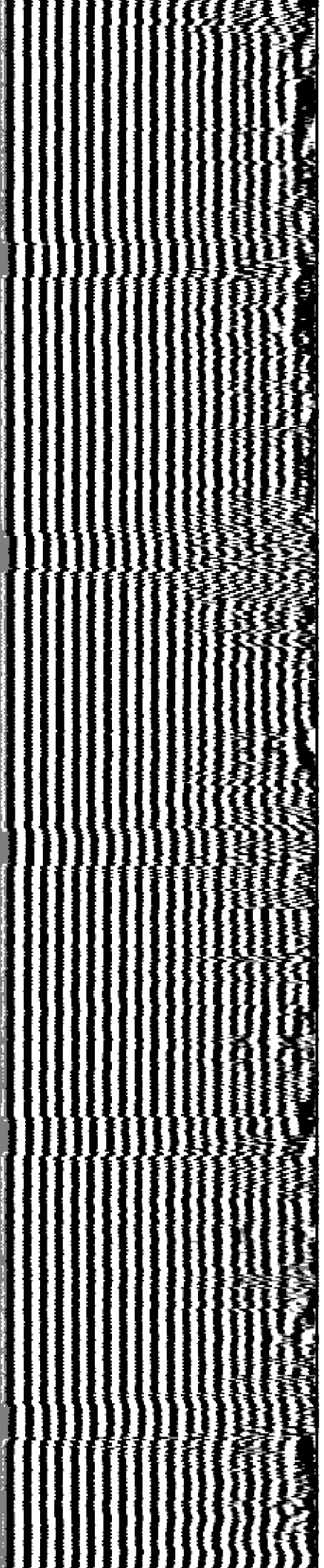


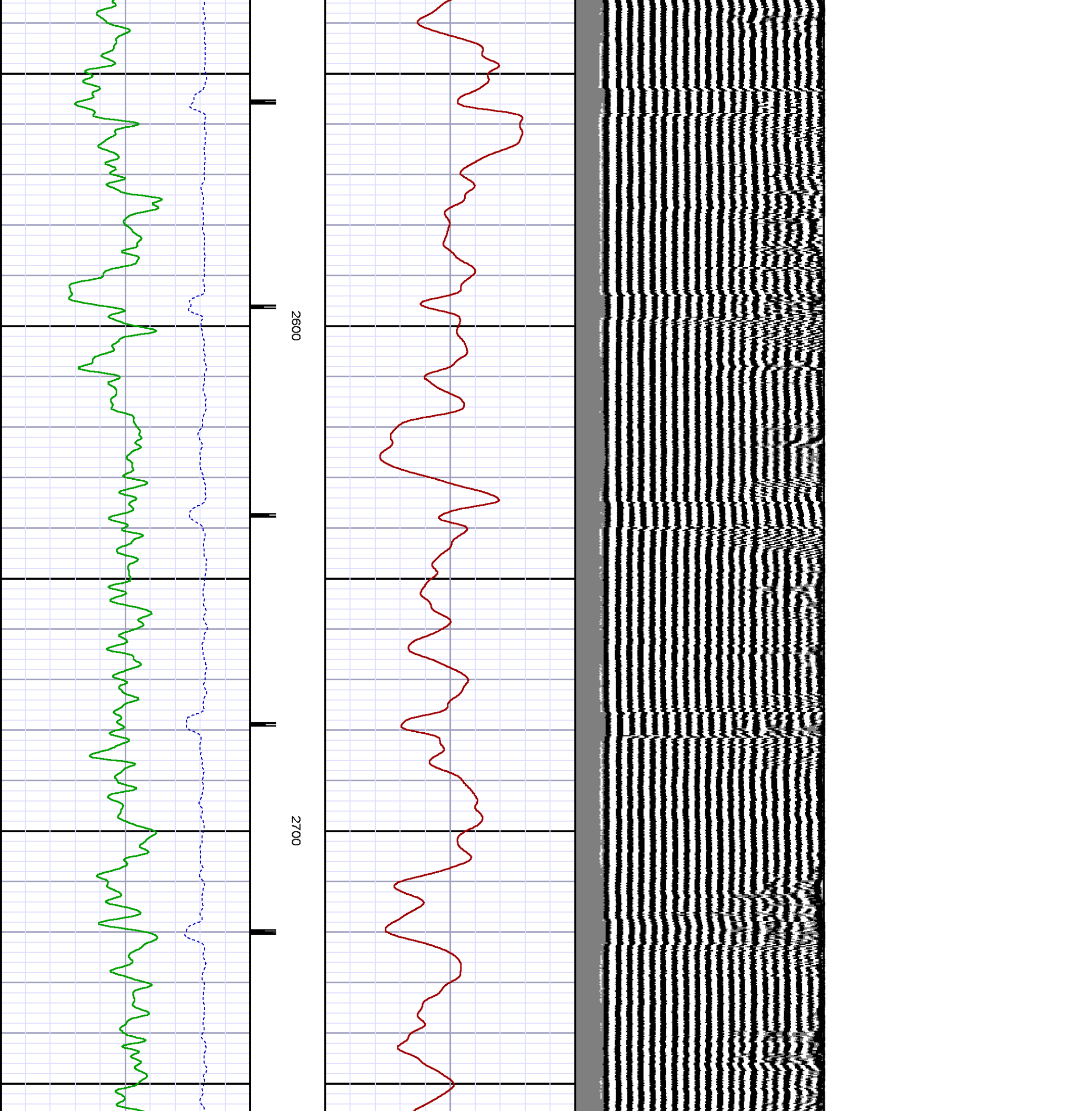


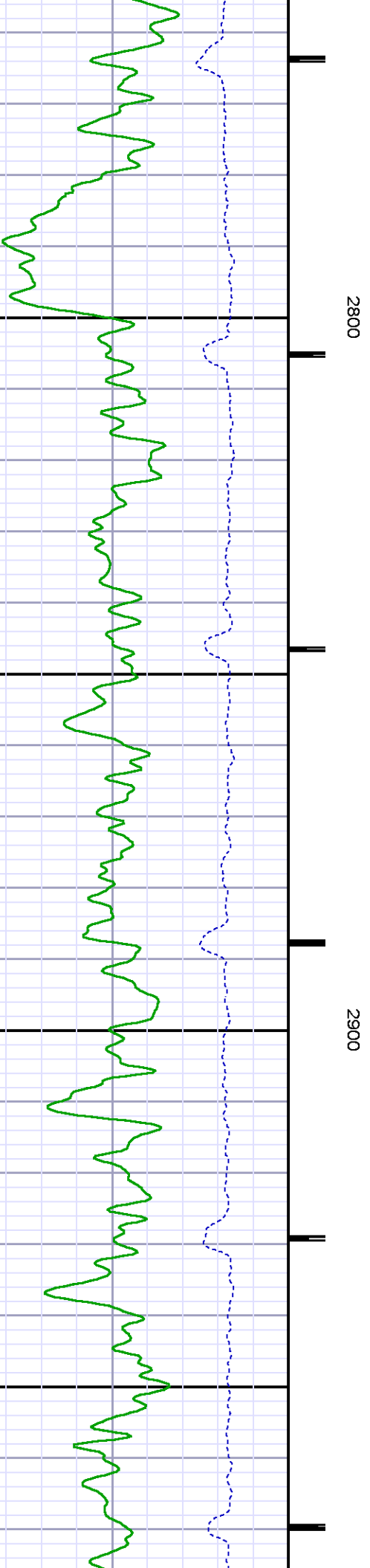
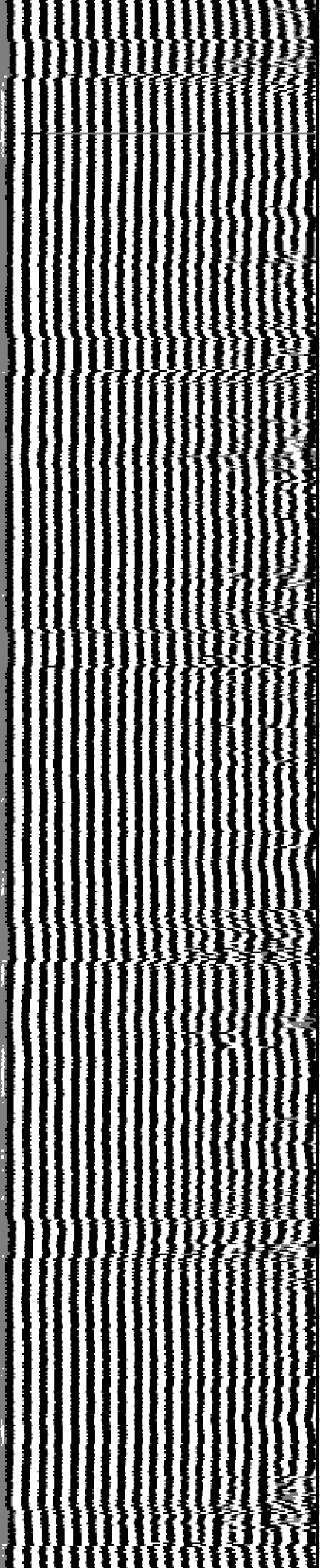


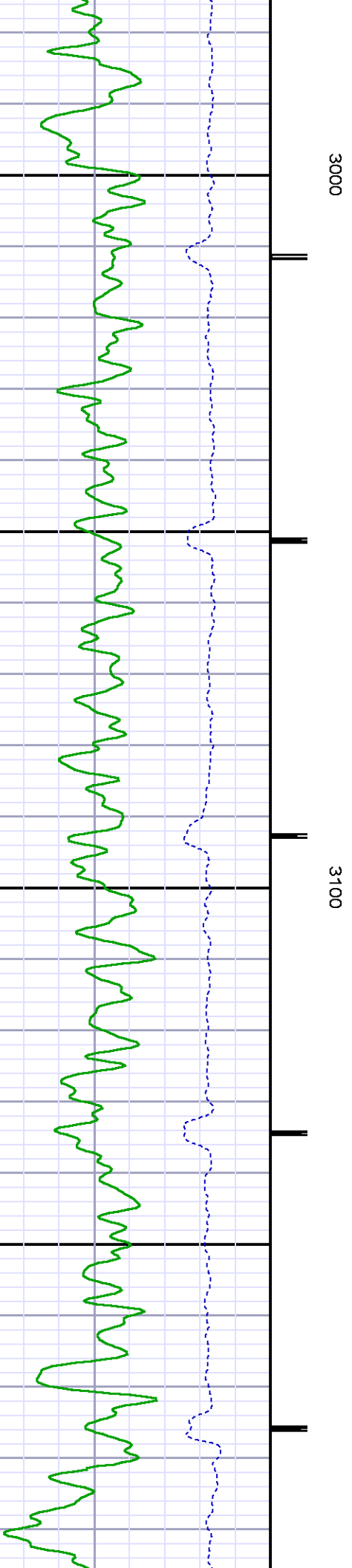
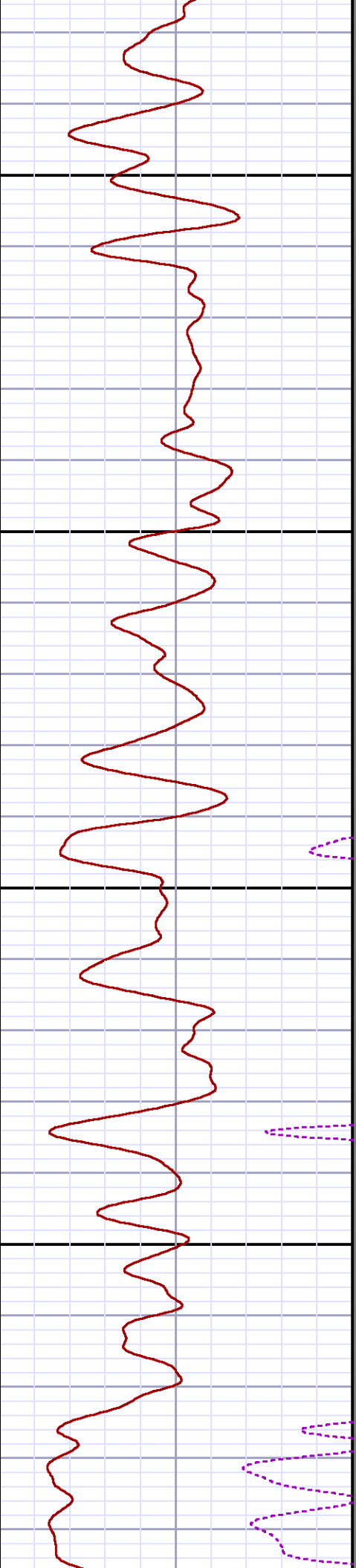
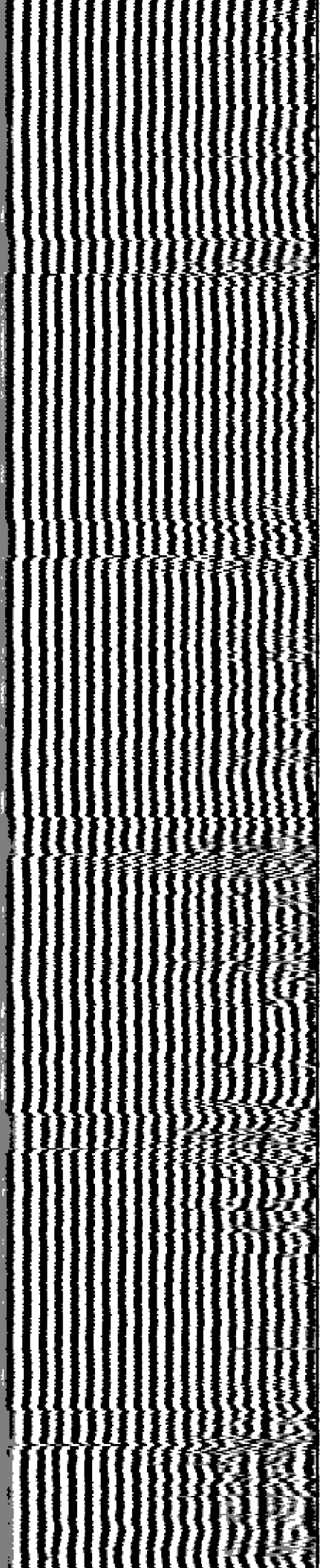


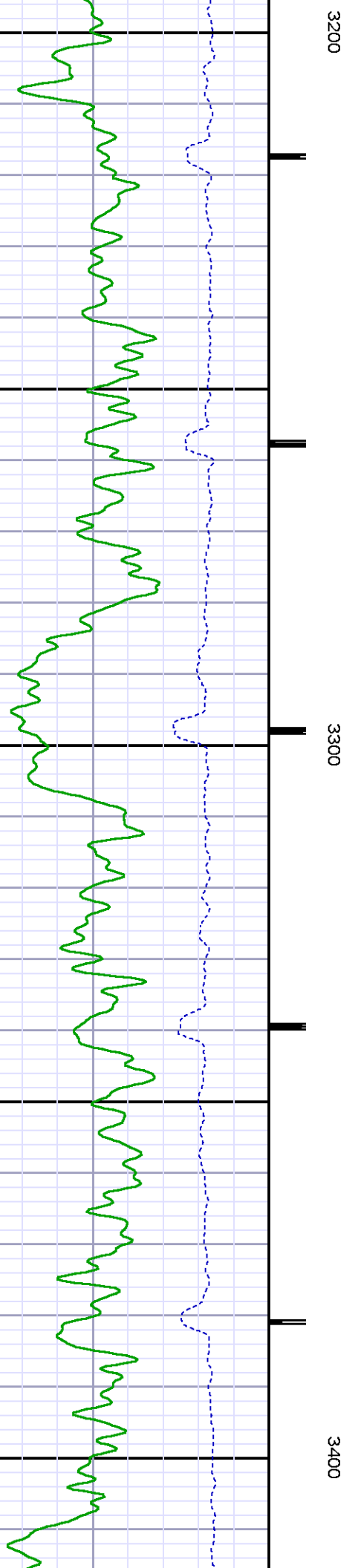
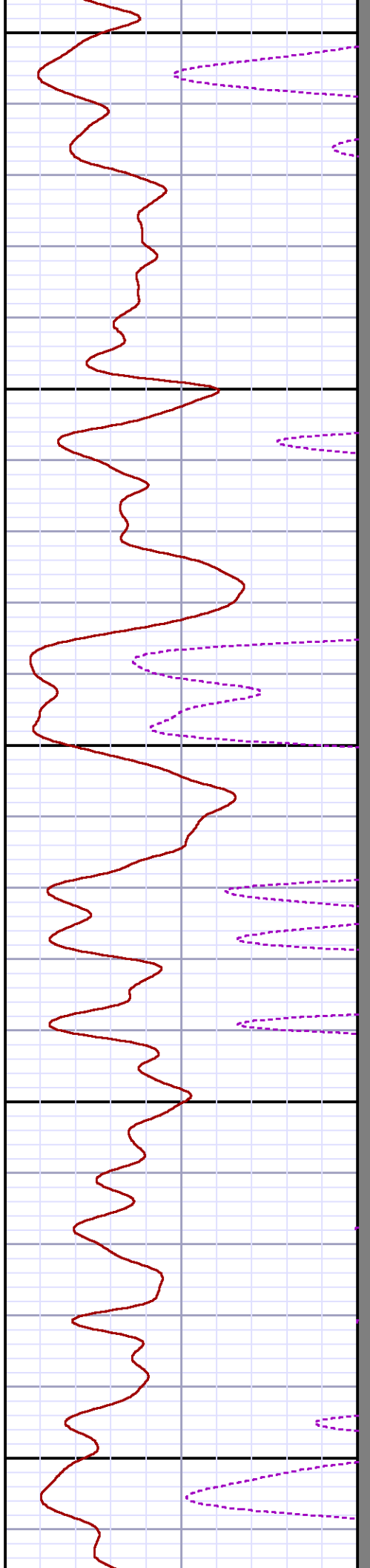
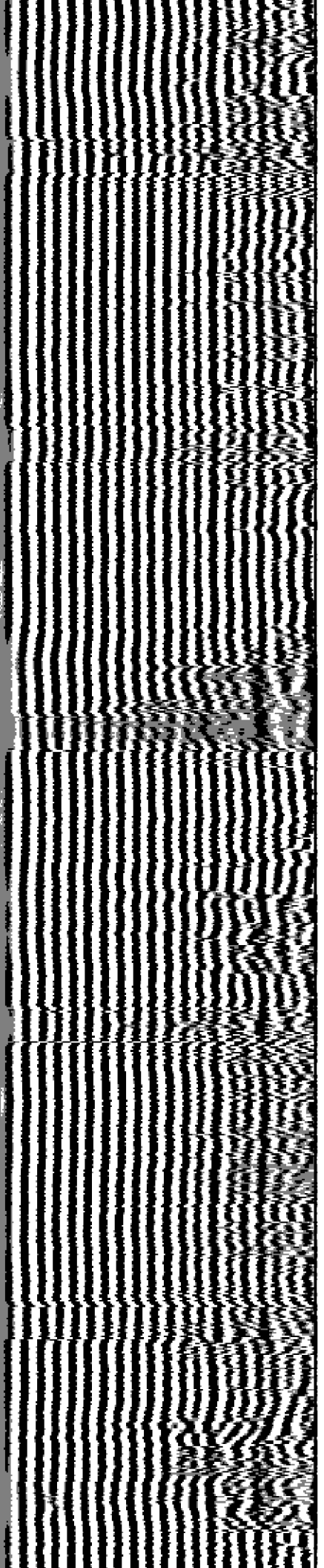








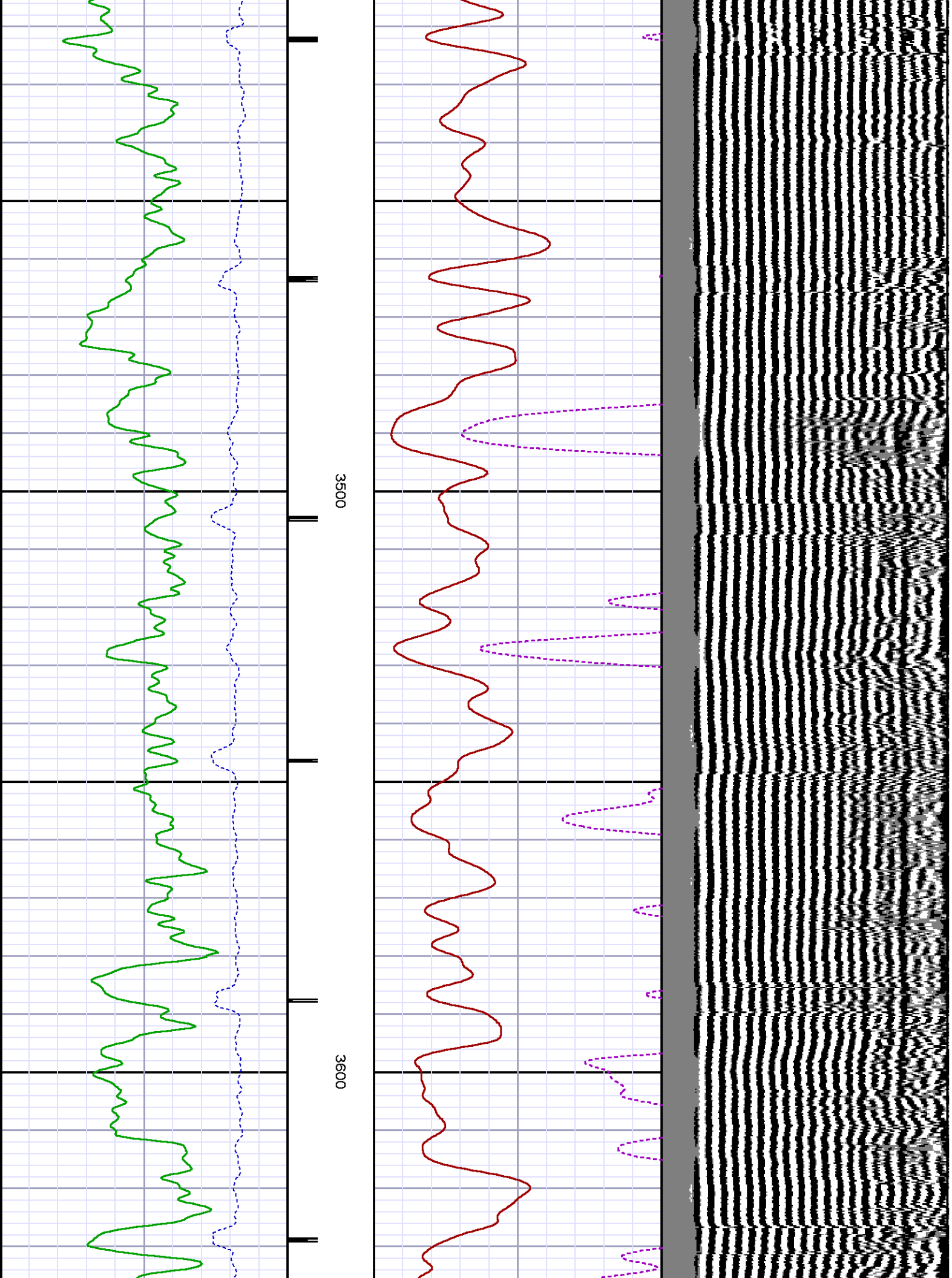


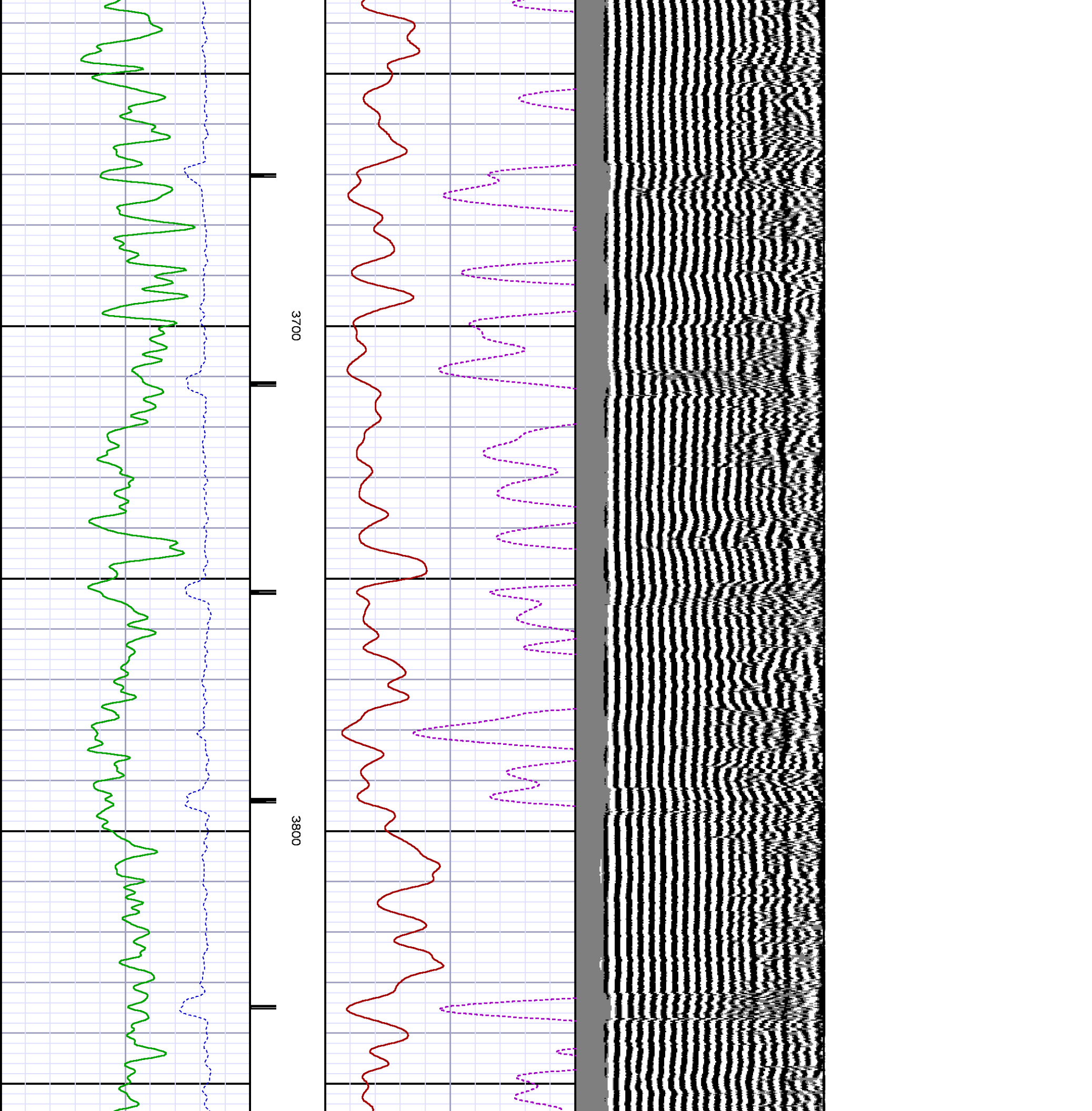


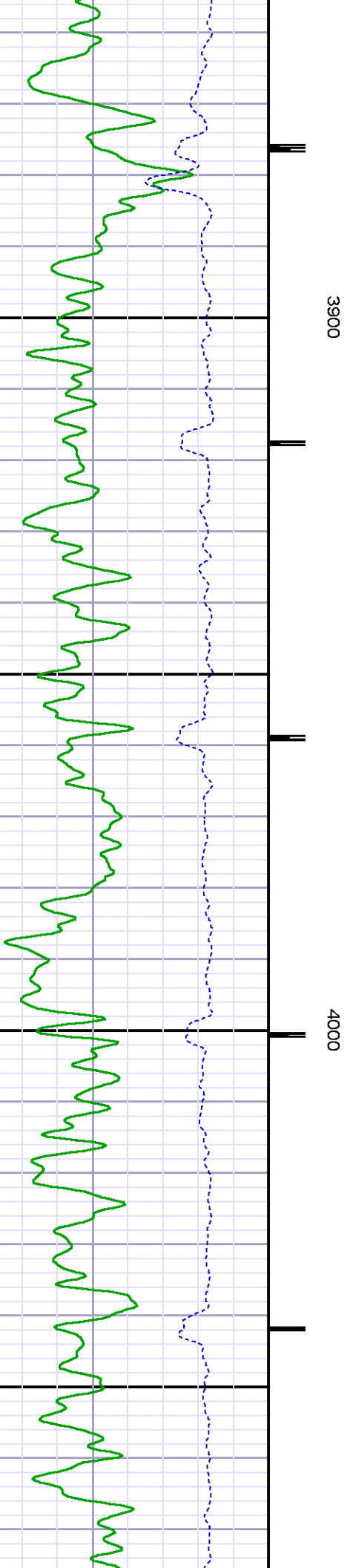
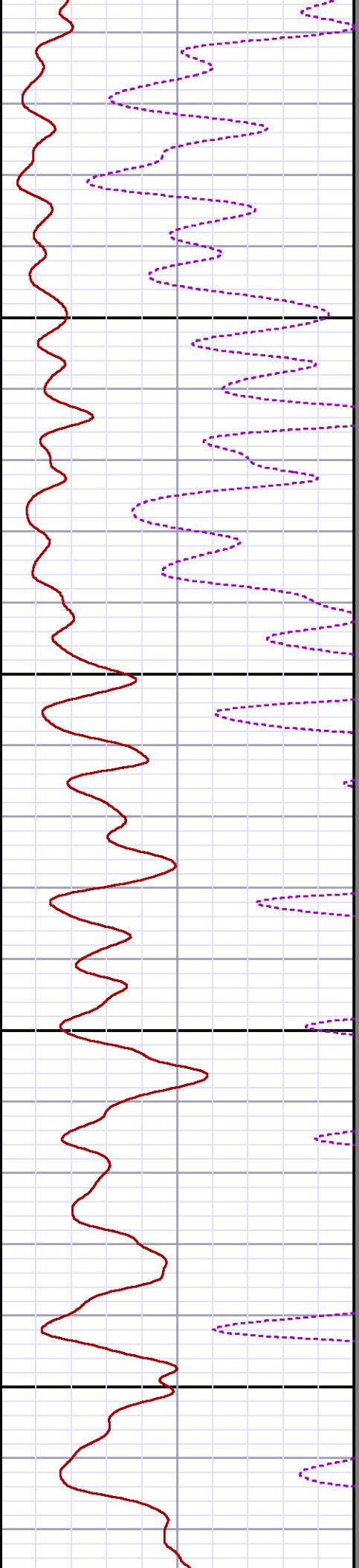
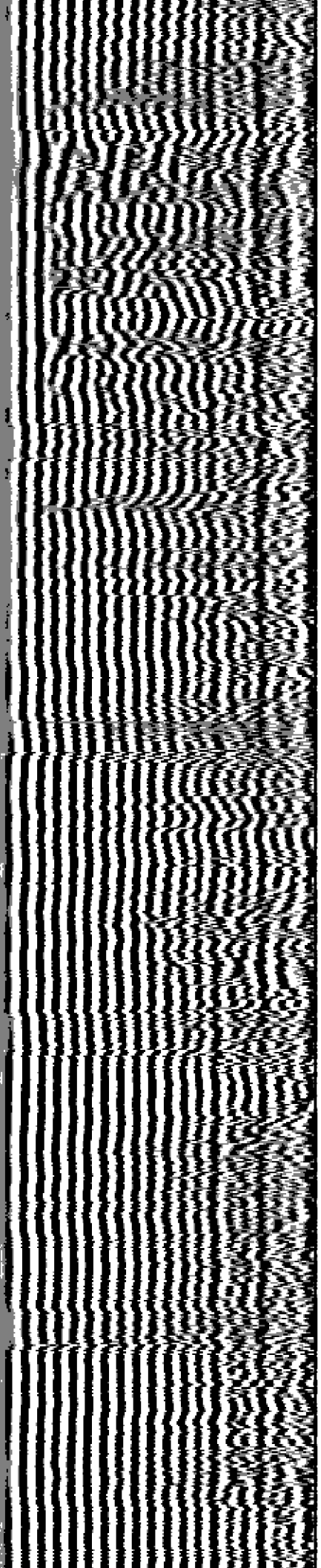
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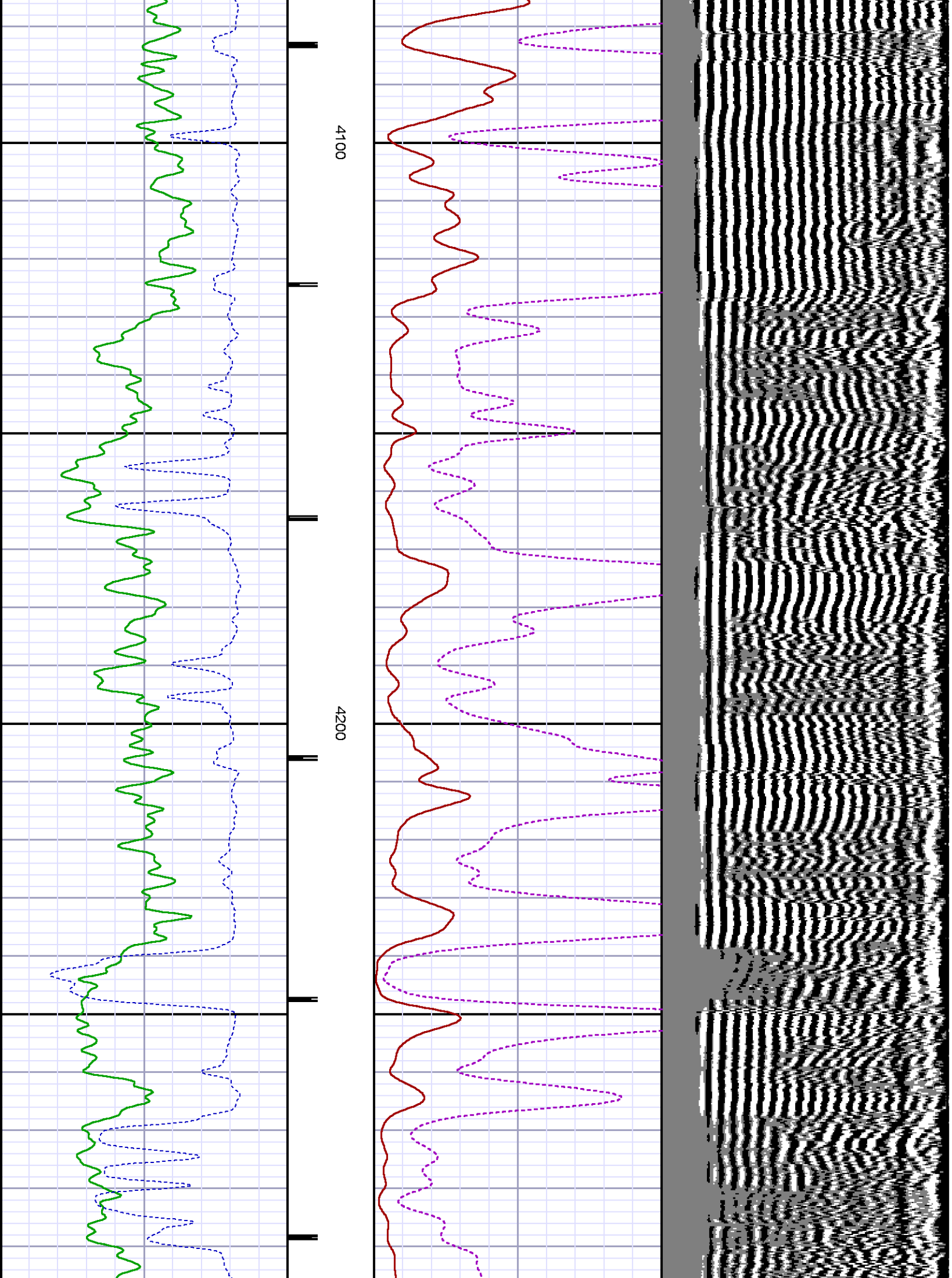


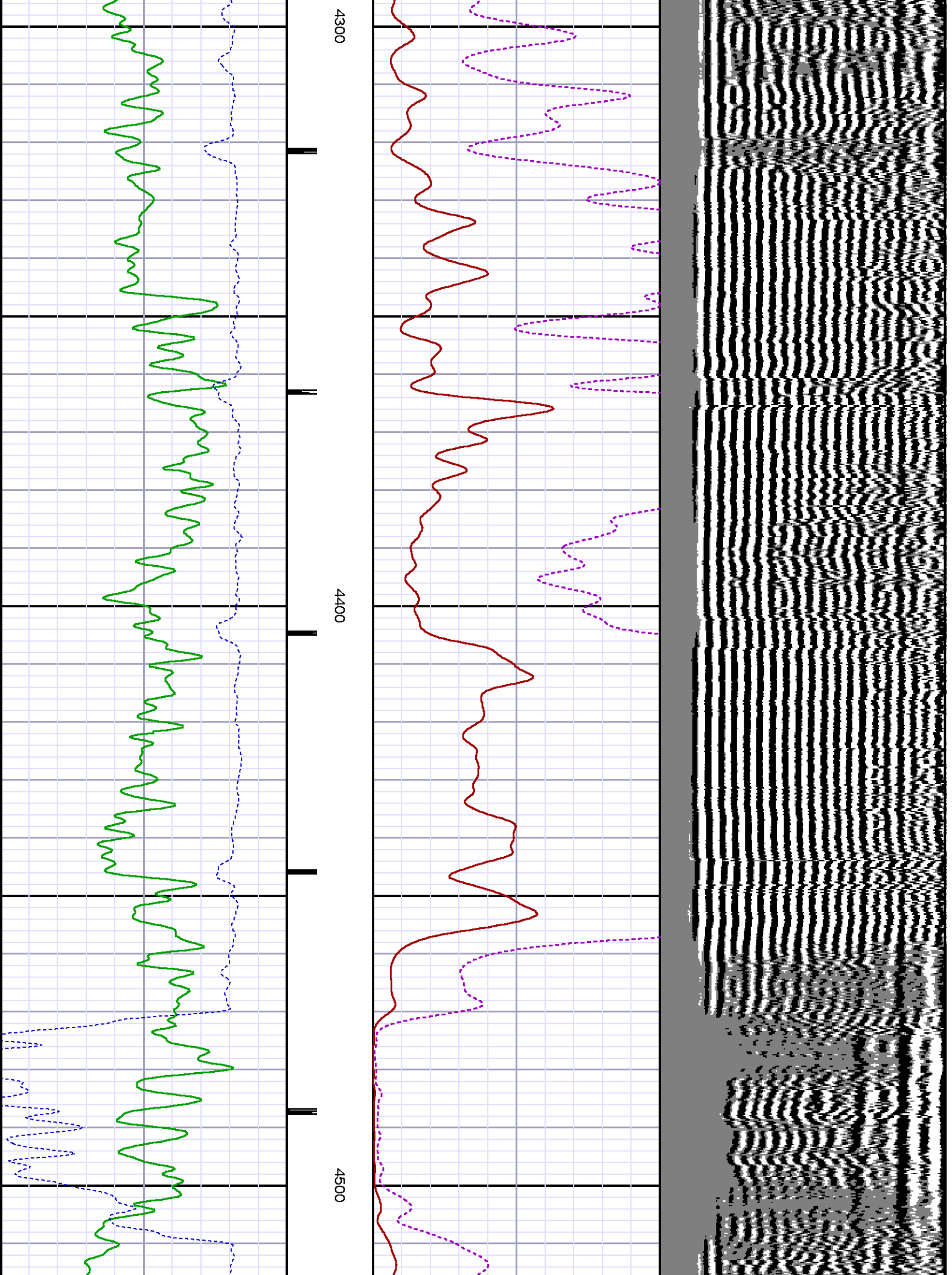


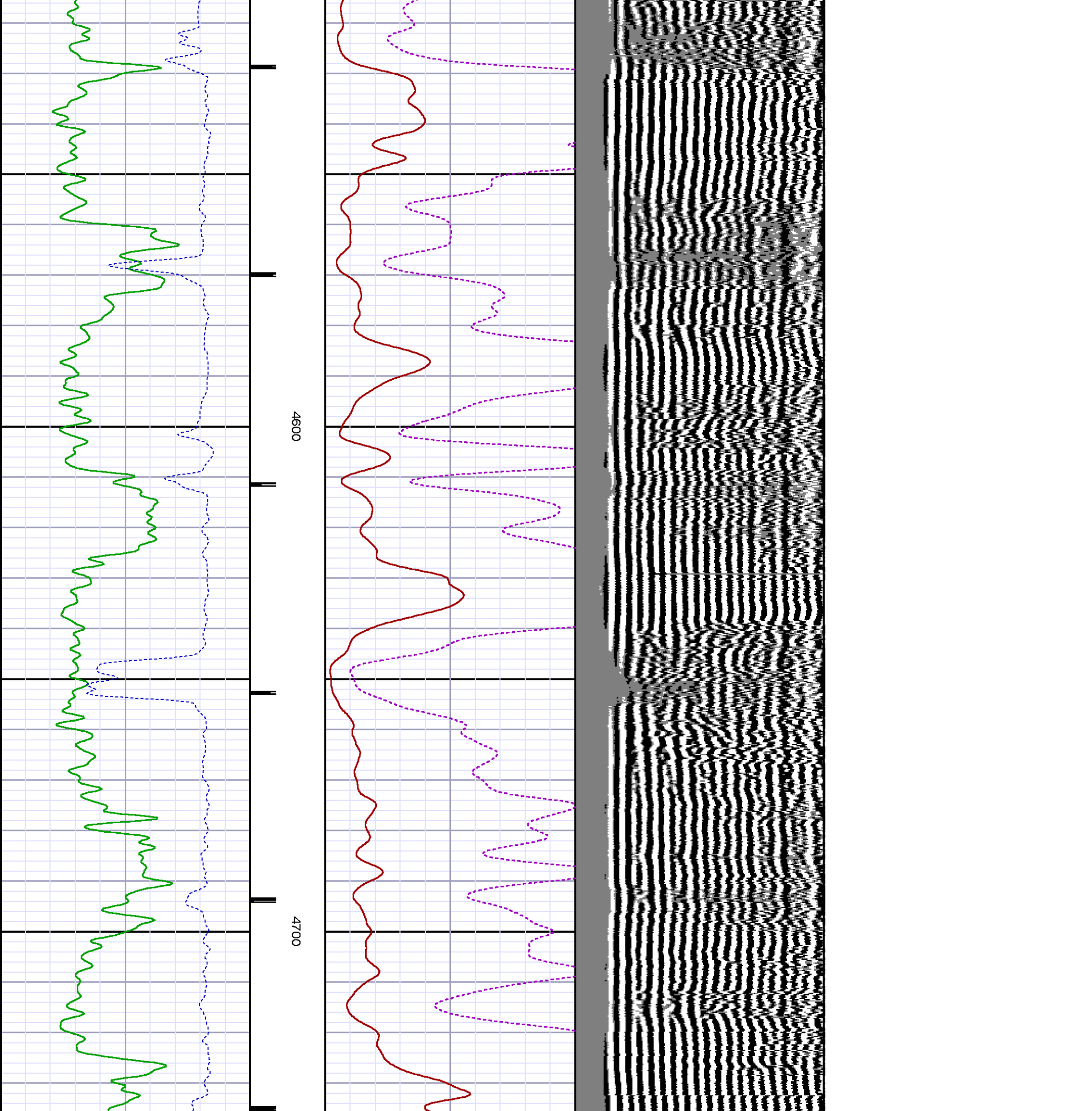


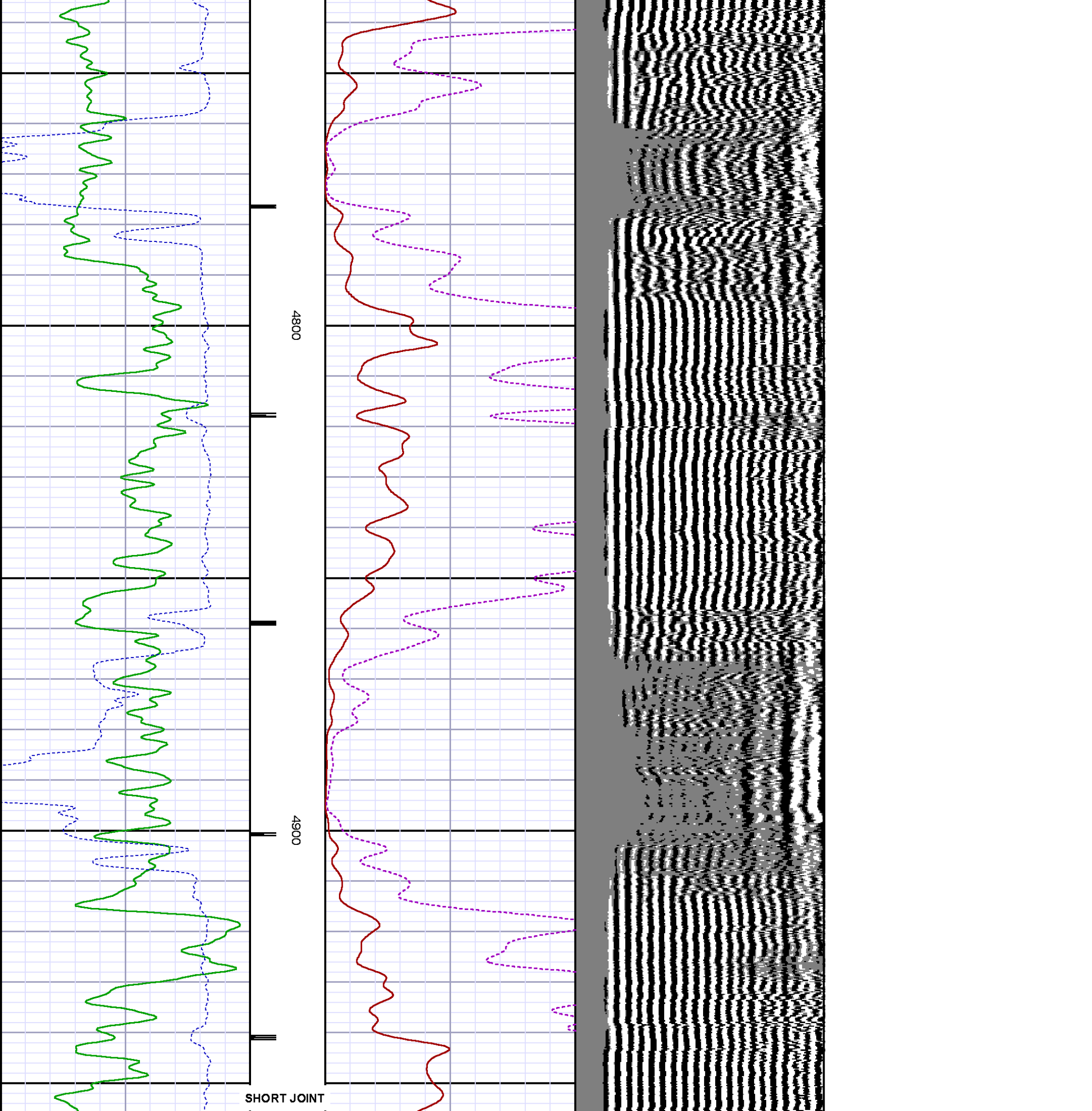
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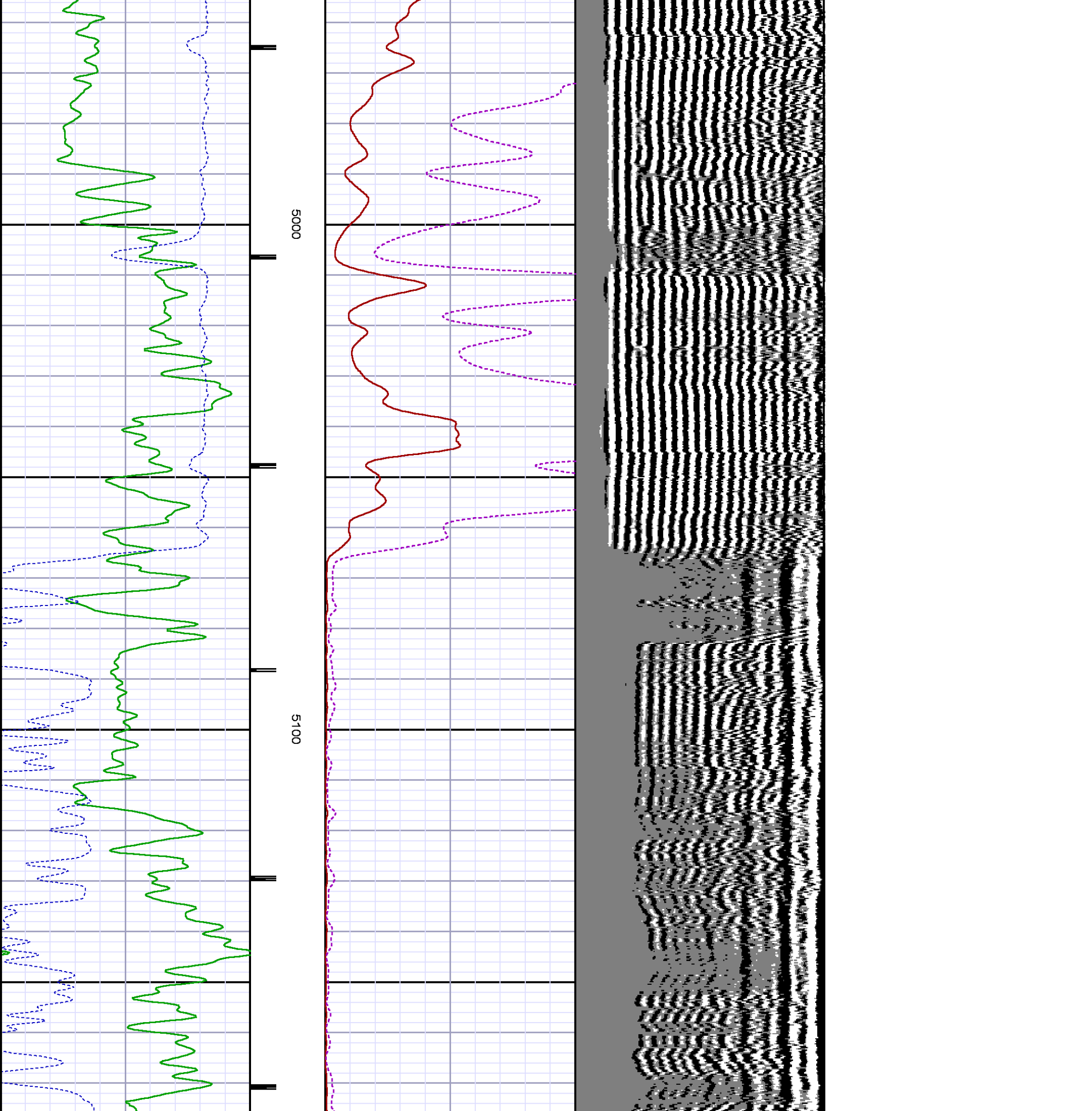
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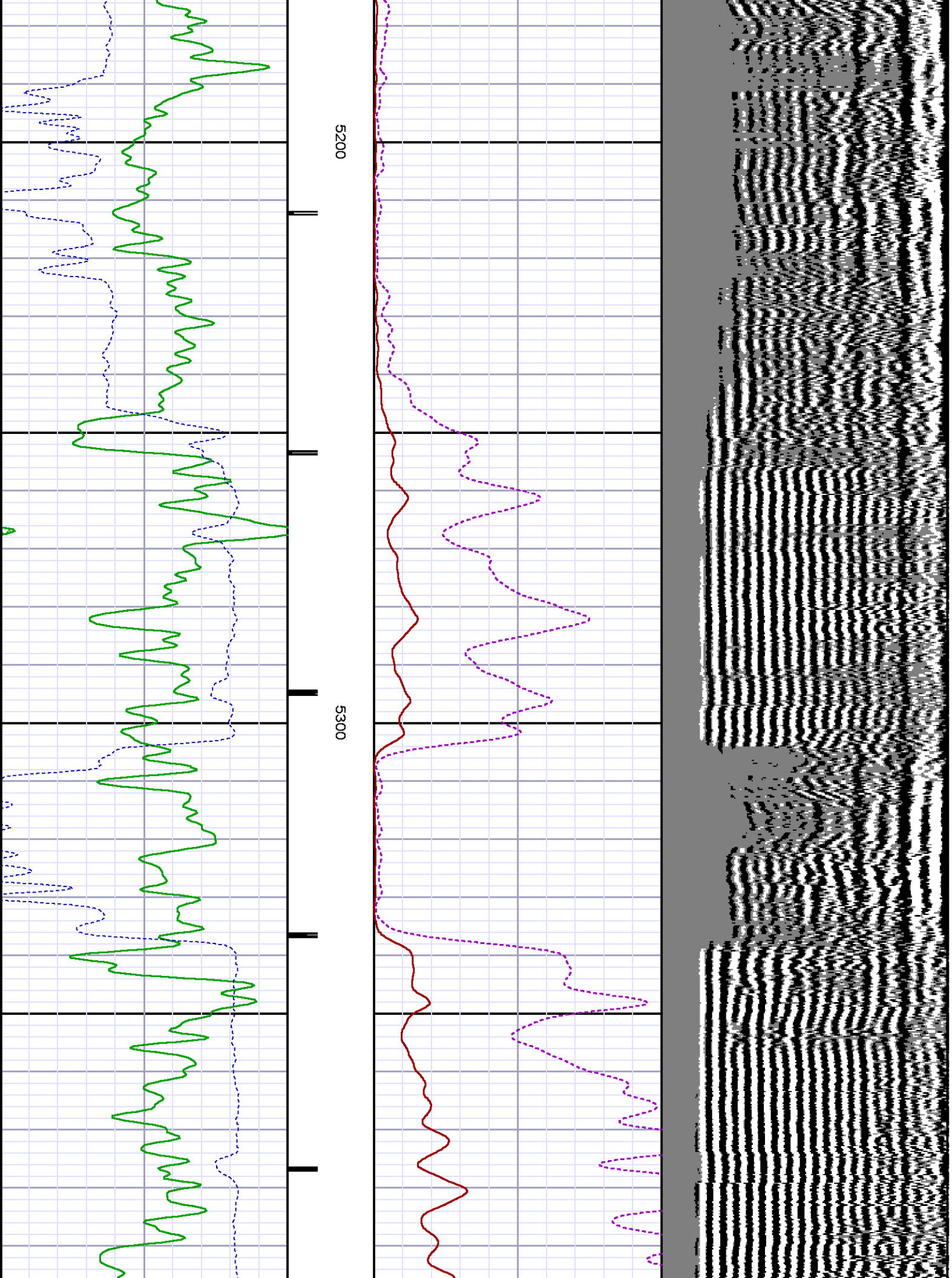


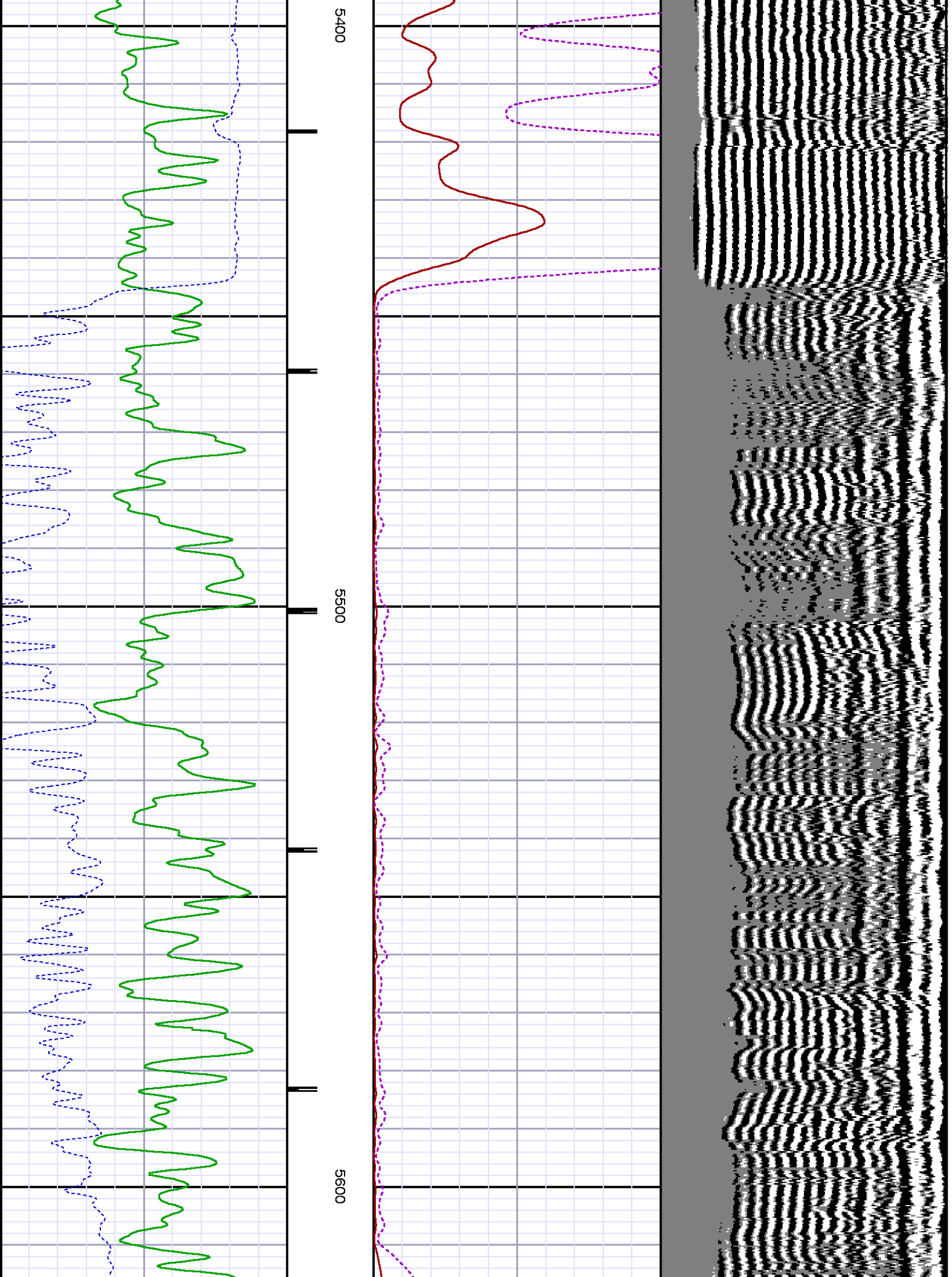


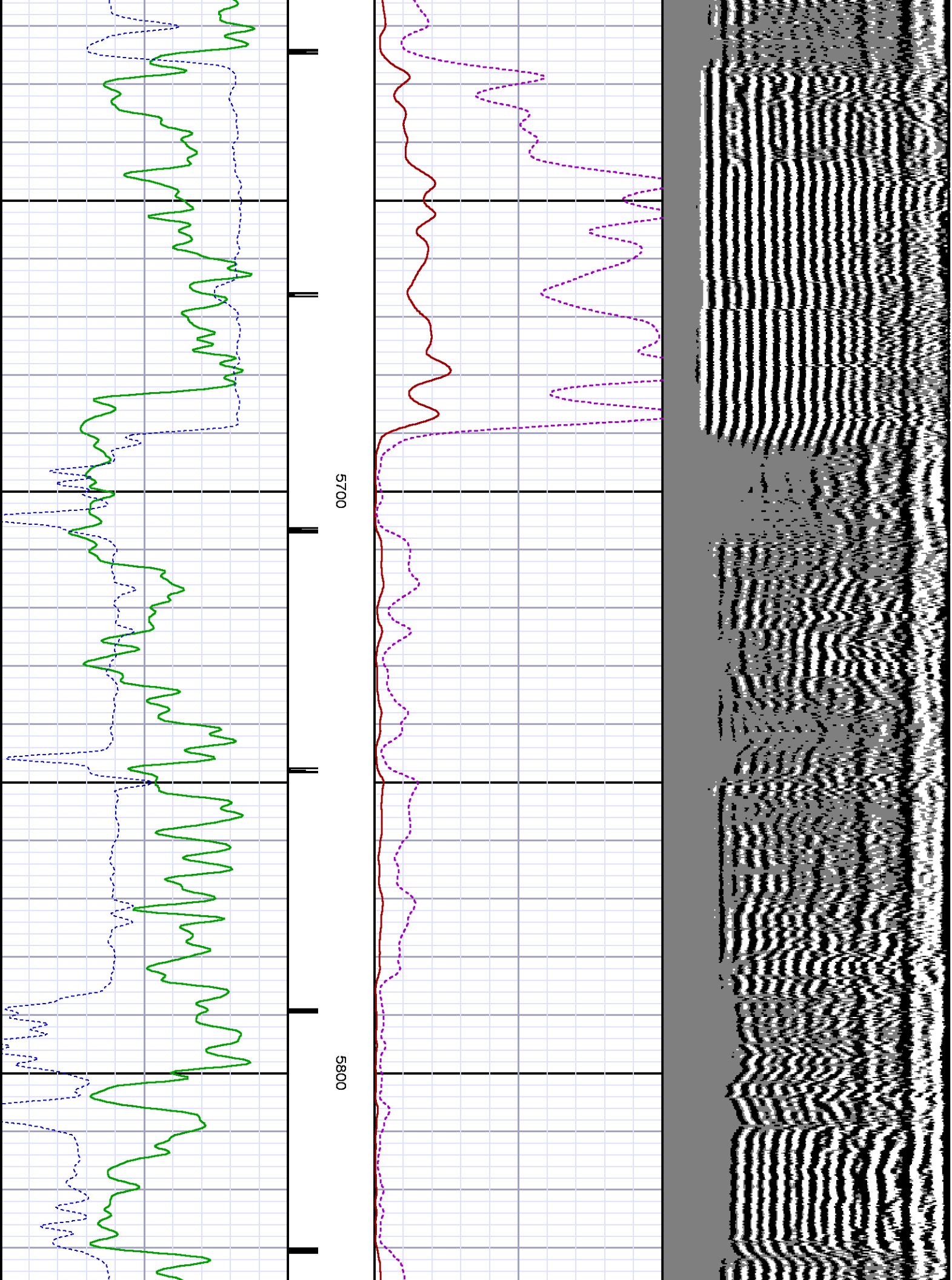


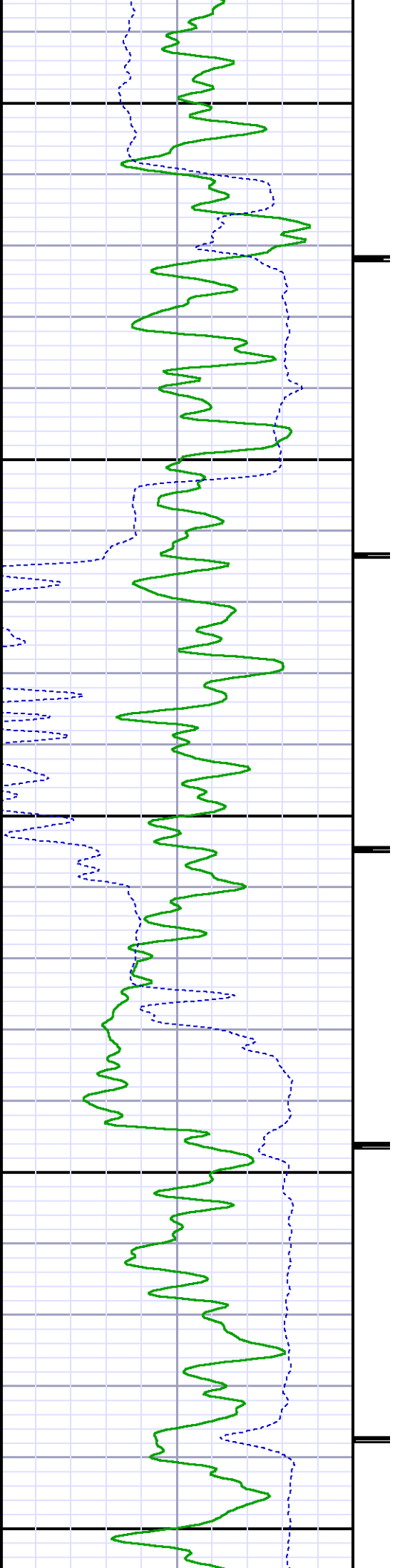






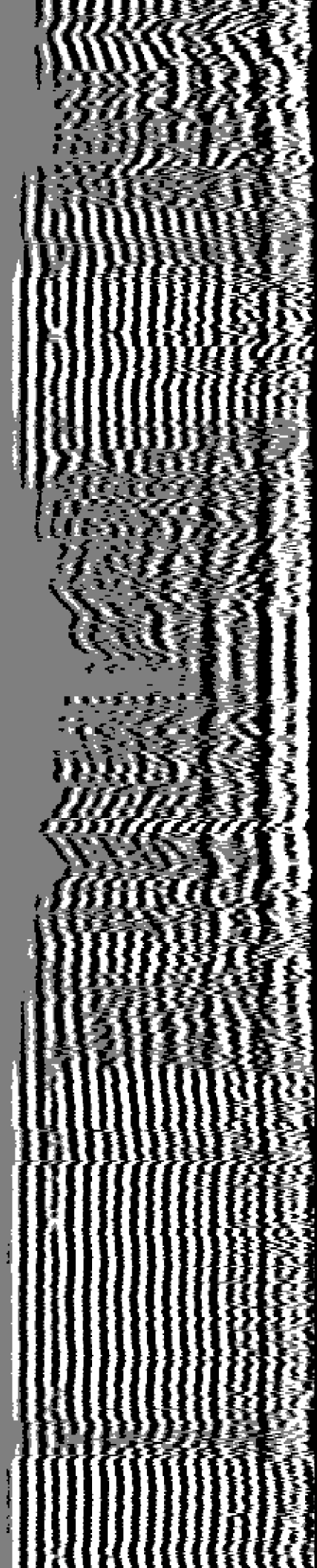
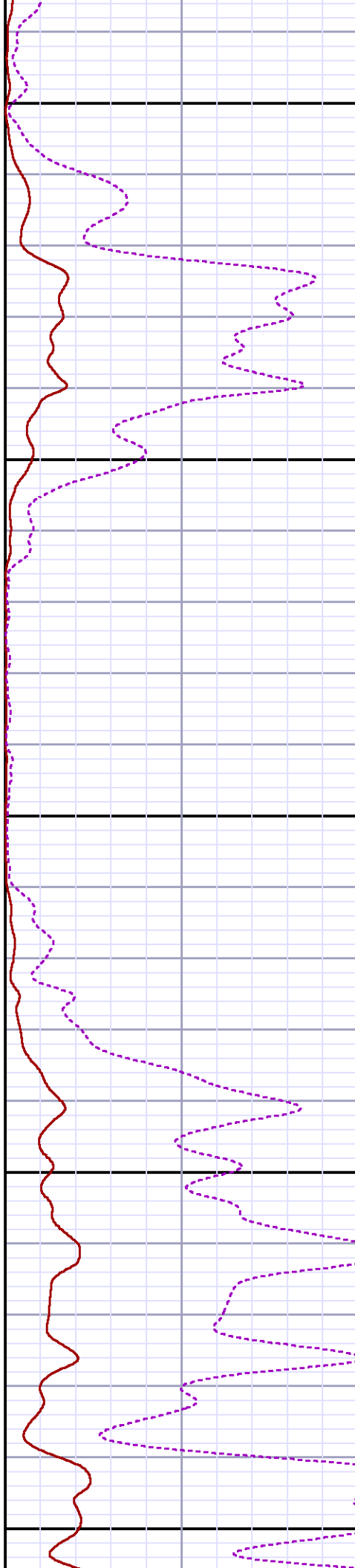


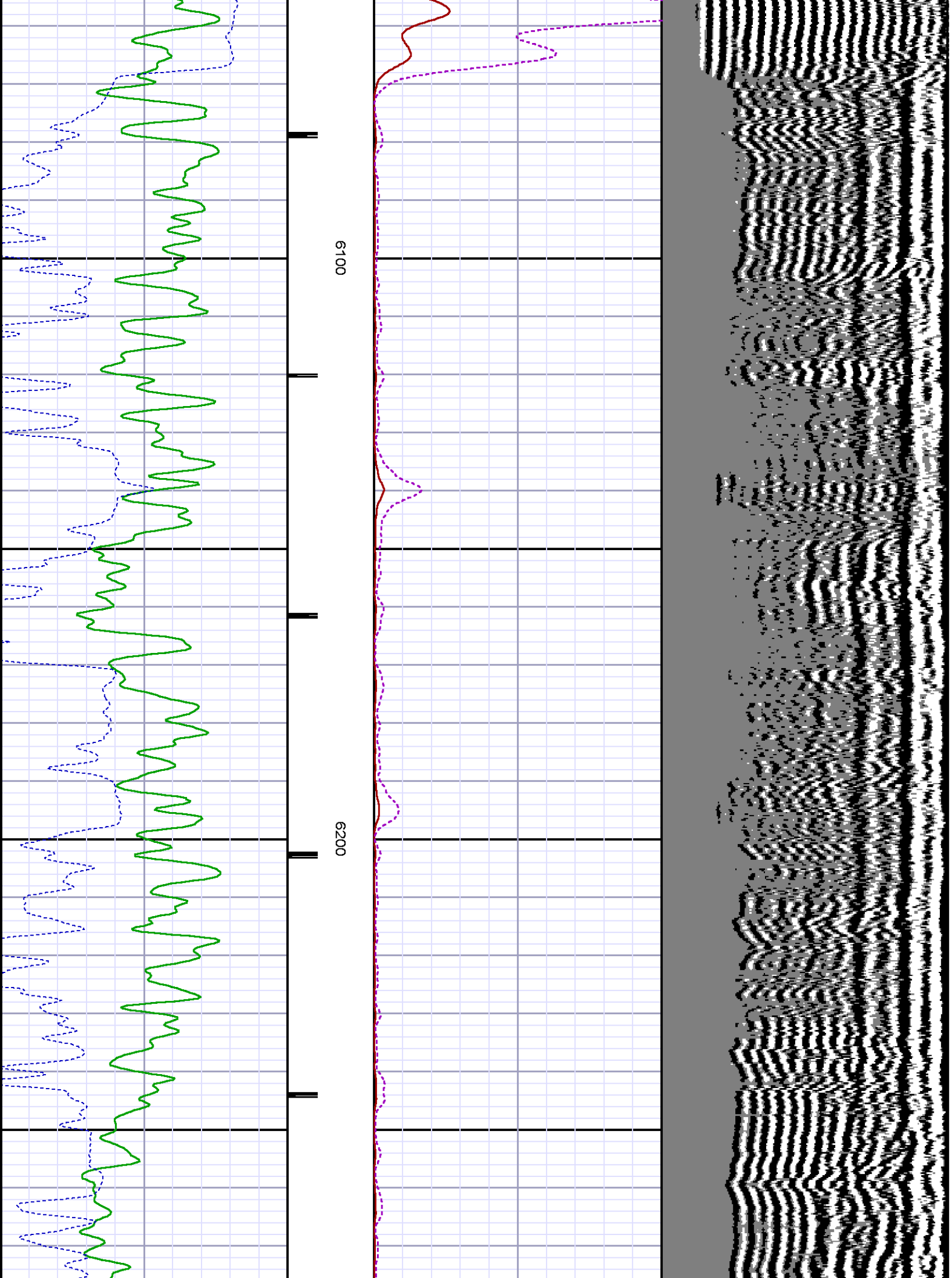


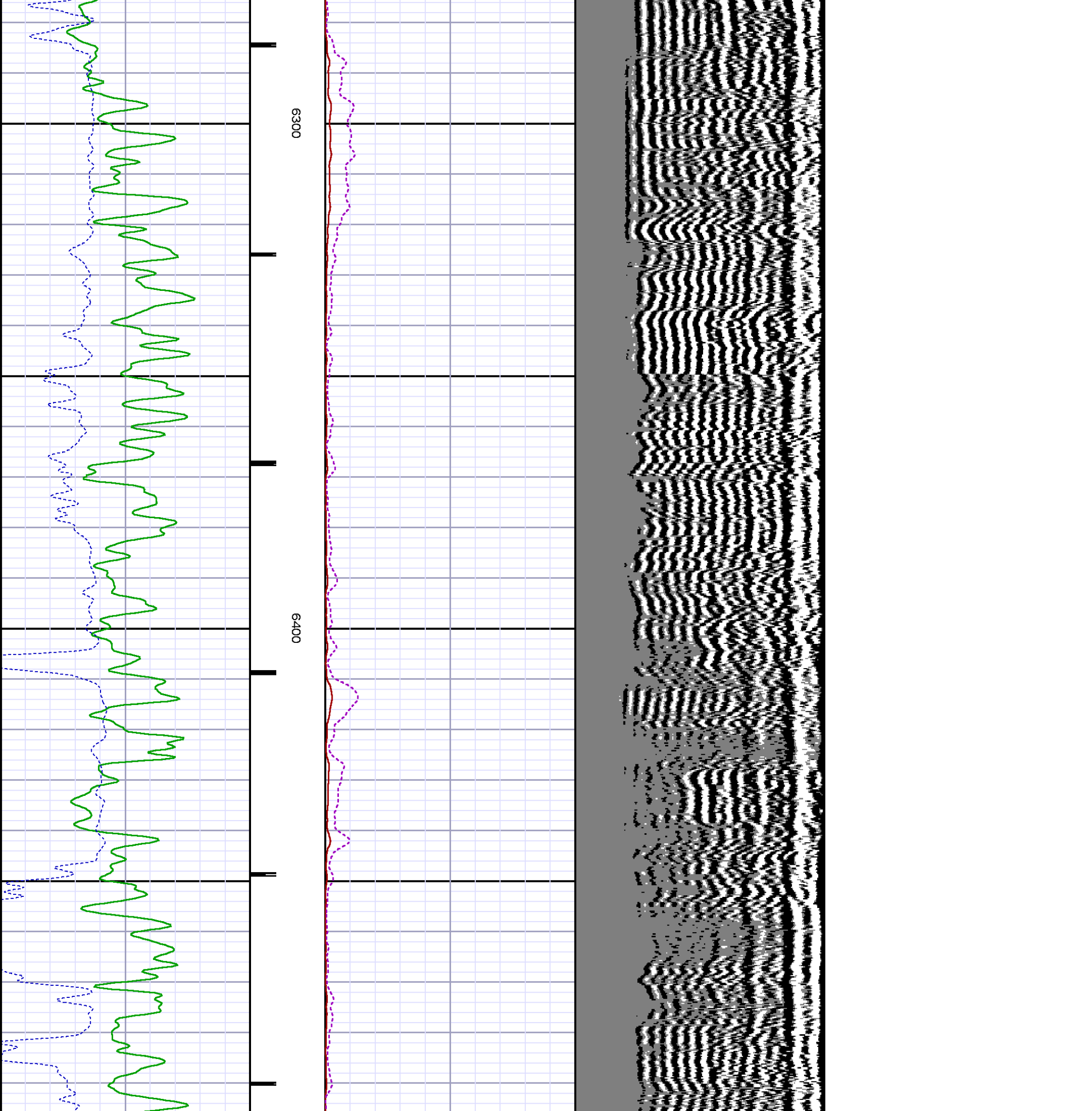


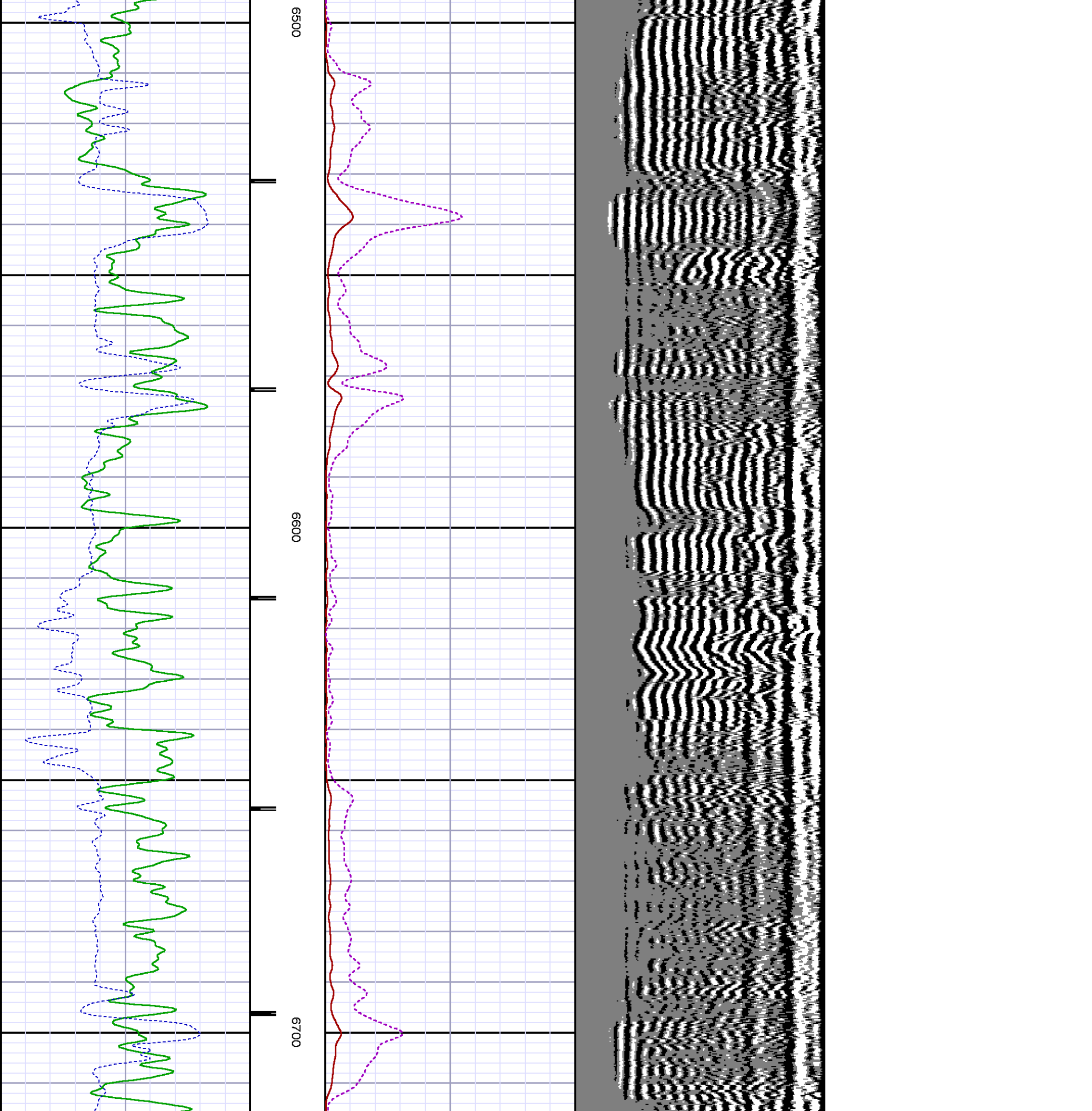
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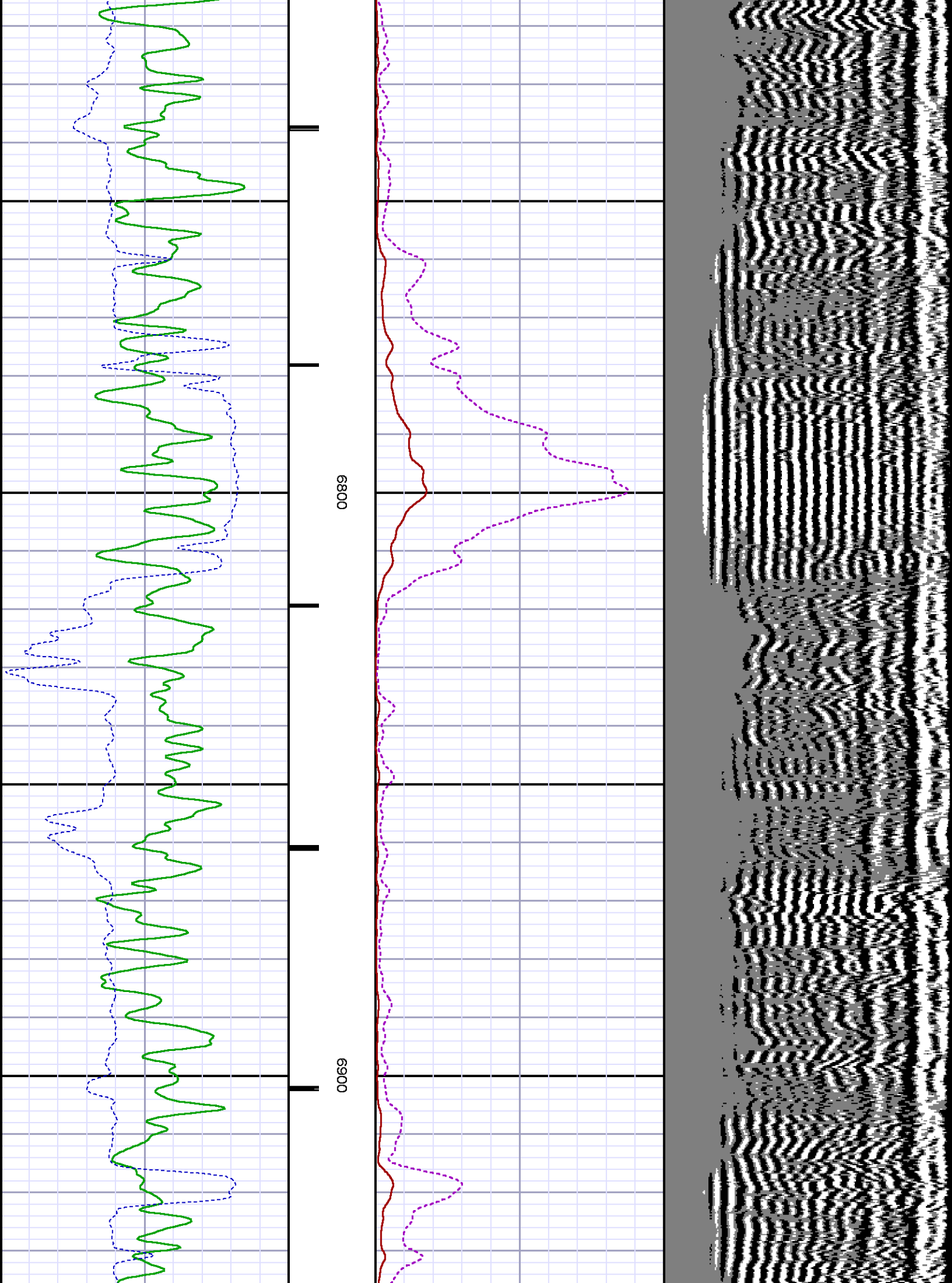
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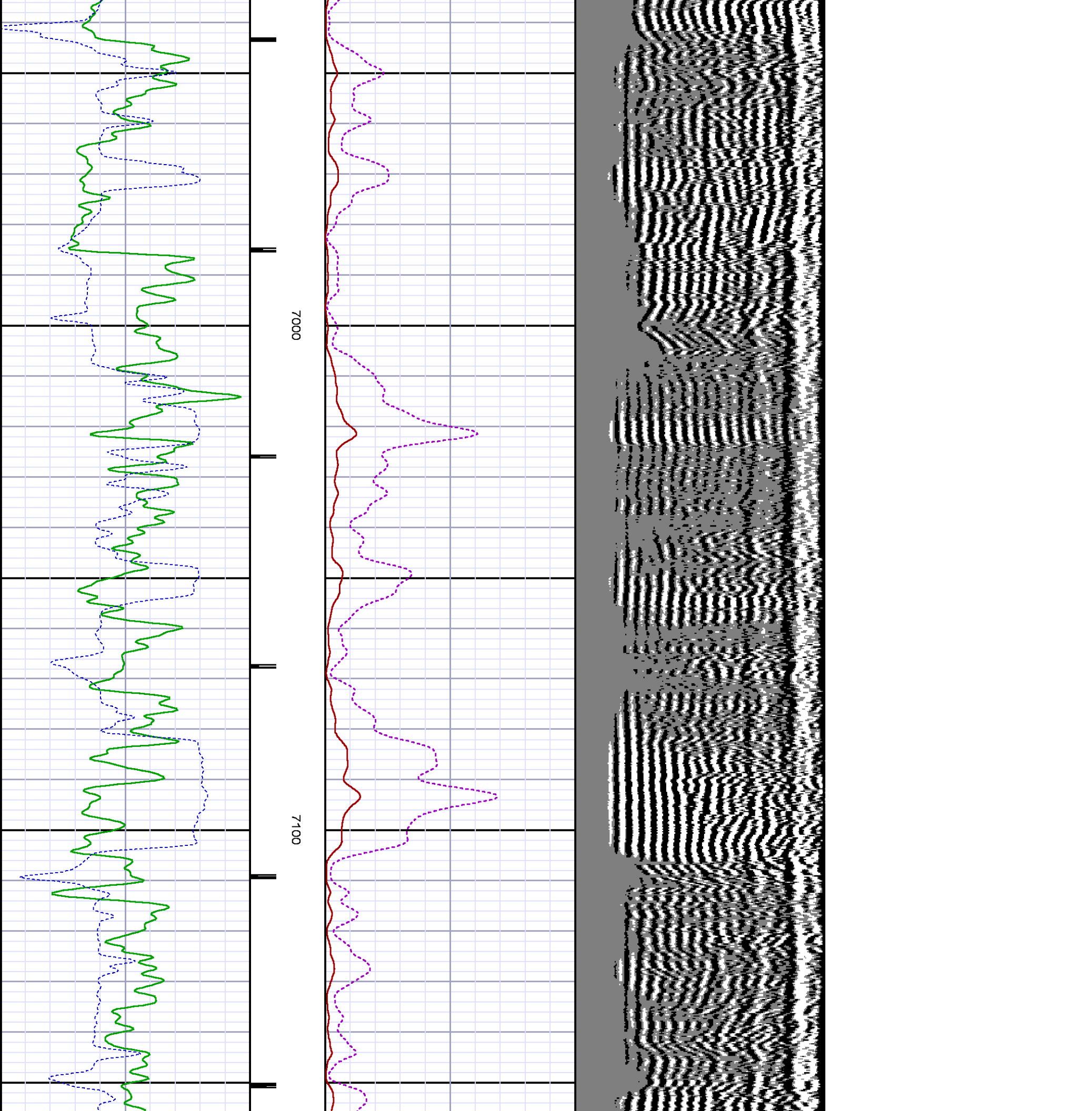


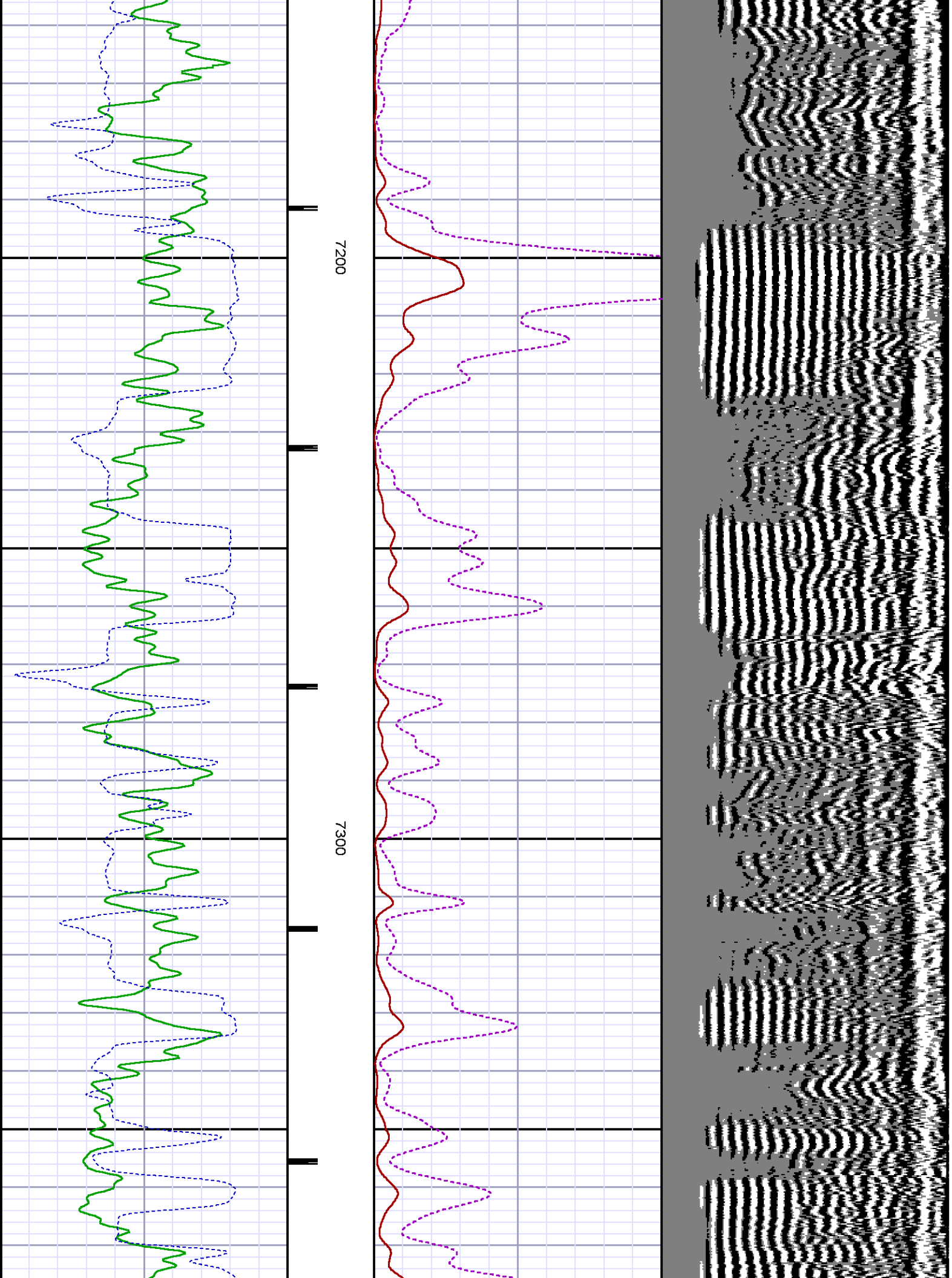


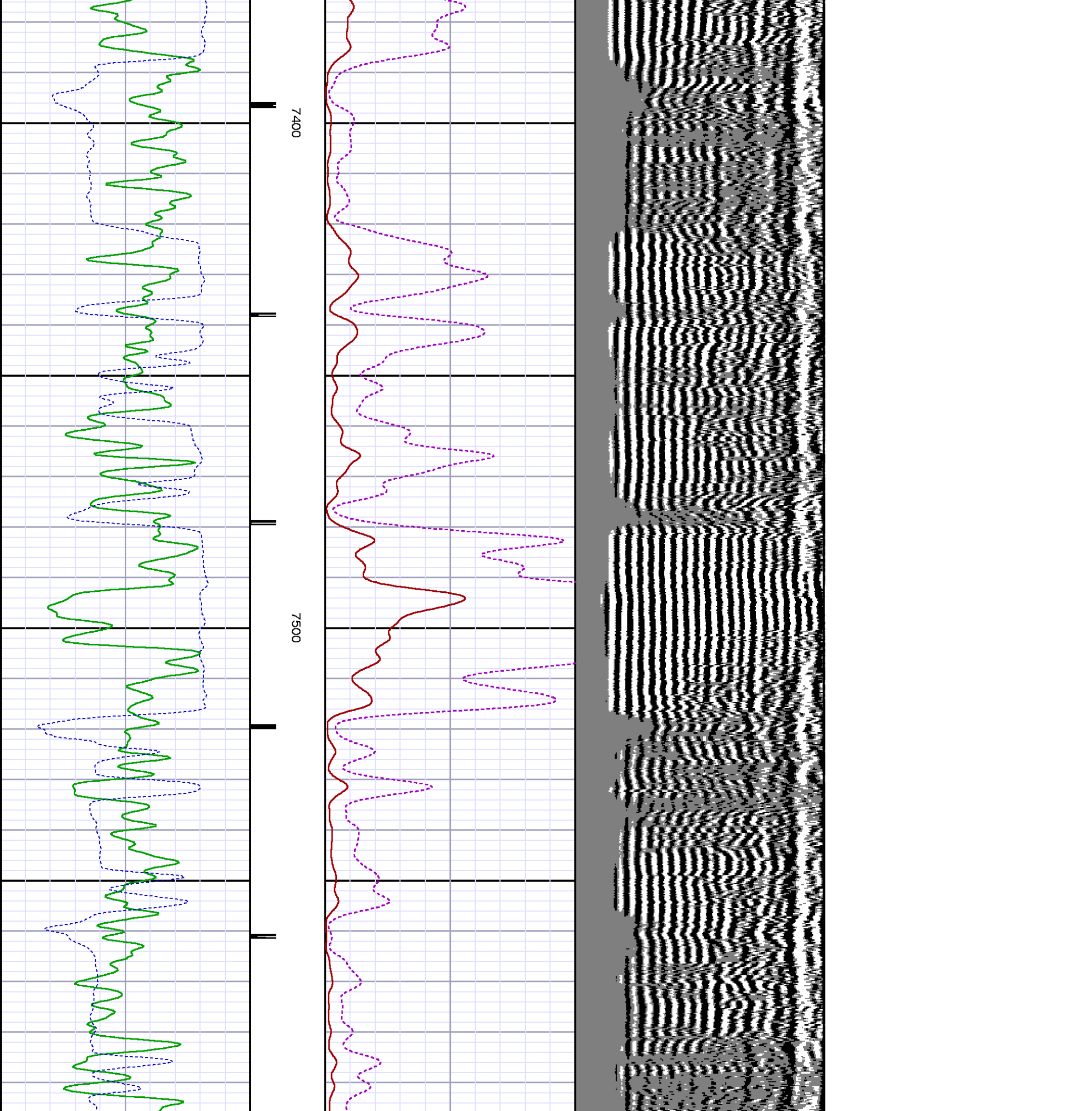


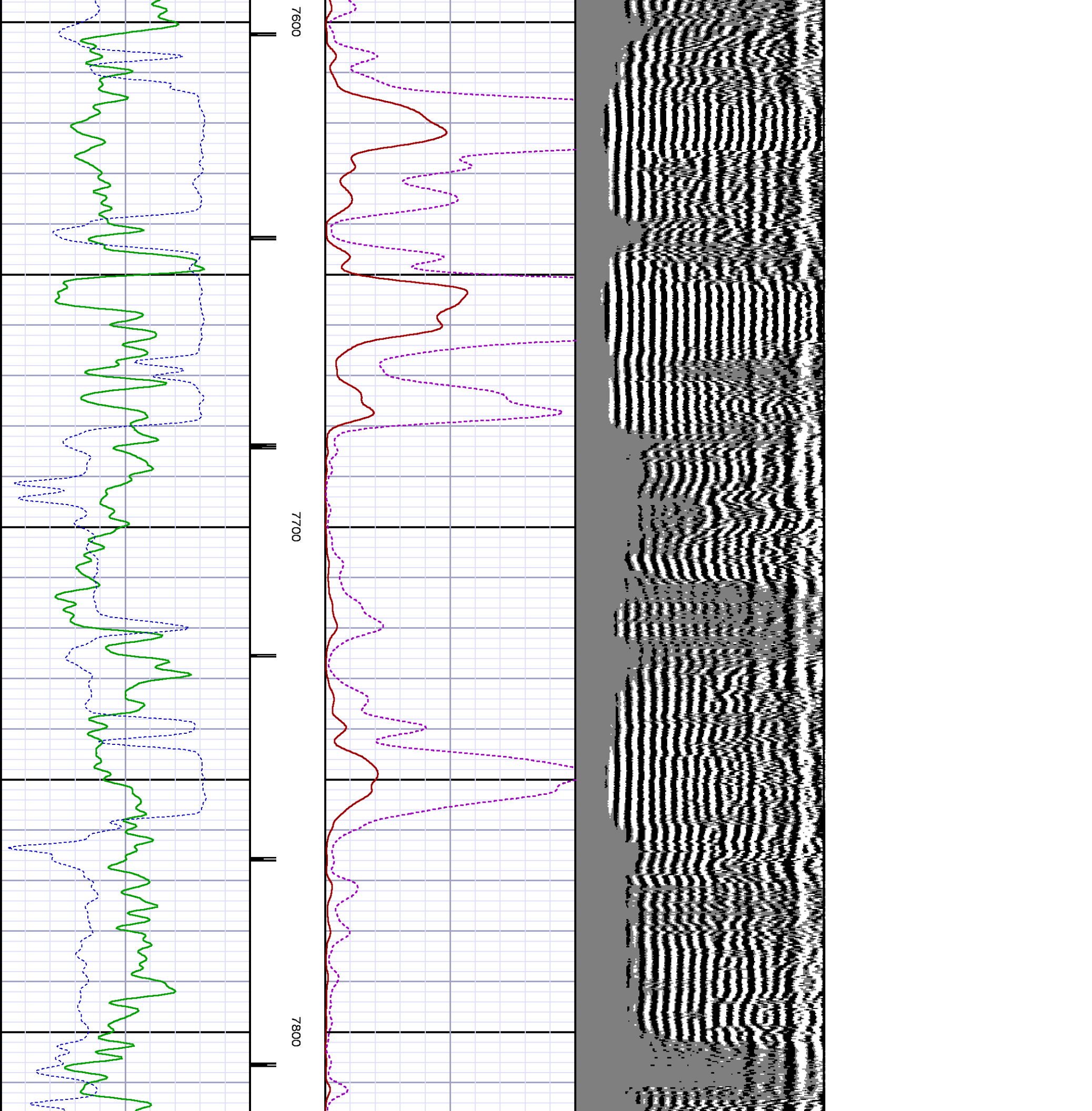


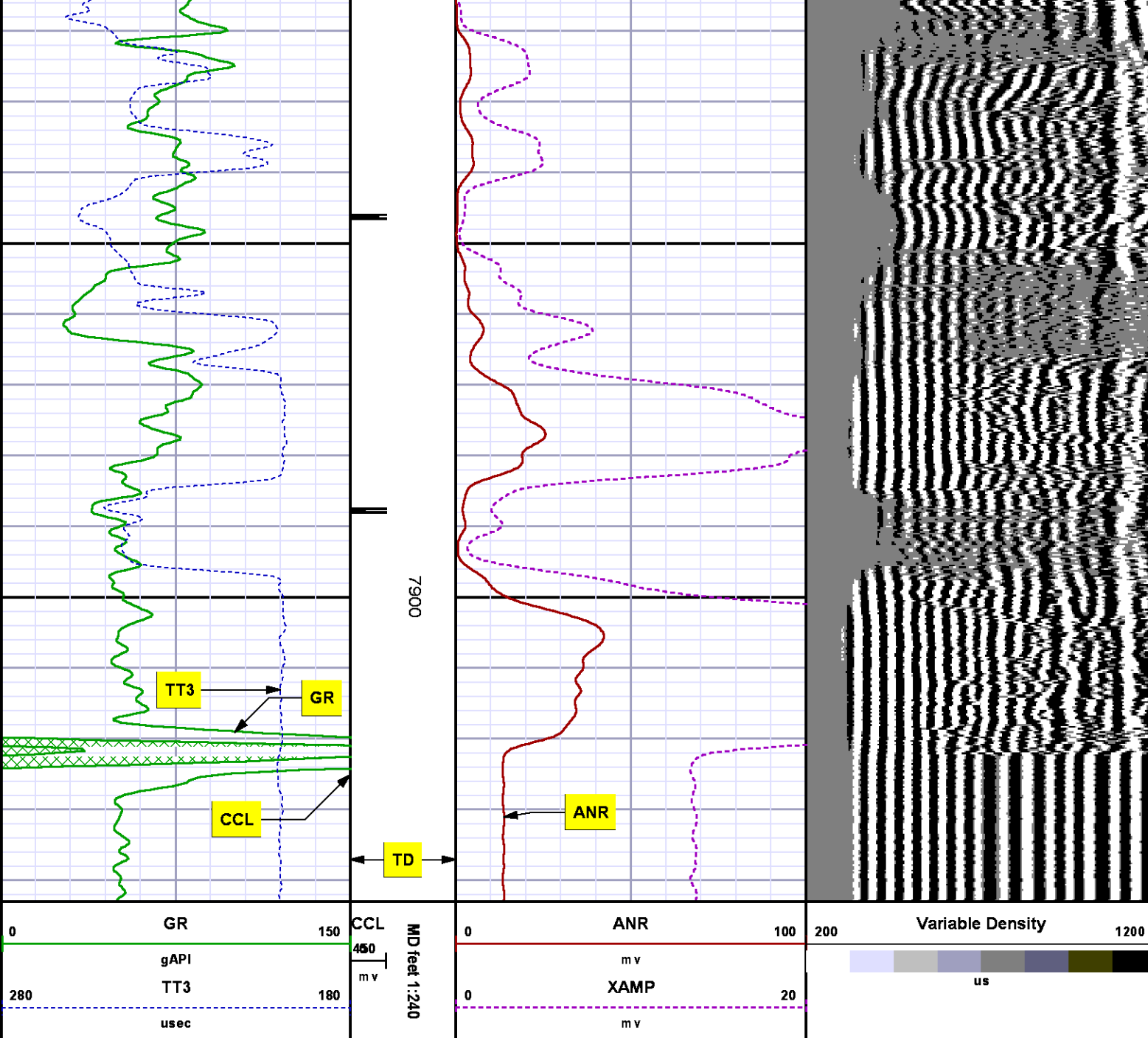












SECONDARY PRESENTATION  
0 PSI

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	305.000	usec	35.218	7959.000
RAL	Amp Gate Start Near	195.000	usec	35.218	7959.000
RAL	Amp Gate Start Radial	195.000	usec	35.218	7959.000
RAL	Amp Gate Width Far	25.000	usec	35.218	7959.000
RAL	Amp Gate Width Near	25.000	usec	35.218	7959.000
RAL	Amp Gate Width Radial	25.000	usec	35.218	7959.000
RAL	casing od	4.500	inches	35.218	7959.000
RAL	casing wt	11.600	lbm/ft	35.218	7959.000
RAL	FB Start Far	291.900	usec	35.218	7959.000
RAL	FB Start Near	180.000	usec	35.218	7959.000
RAL	FB Start Radial	180.000	usec	35.218	7959.000
RAL	FB Thresh Far	10.000	mv	35.218	7959.000
RAL	FB Thresh Near	4.000	mv	35.218	7959.000
RAL	FB Thresh Radial	4.000	mv	35.218	7959.000
RAL	Fluid Travel Time	200.000	usec/ft	35.218	7958.843

### 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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Plotted by : PlotMgr, v5.4.504

Company : WPX ENERGY

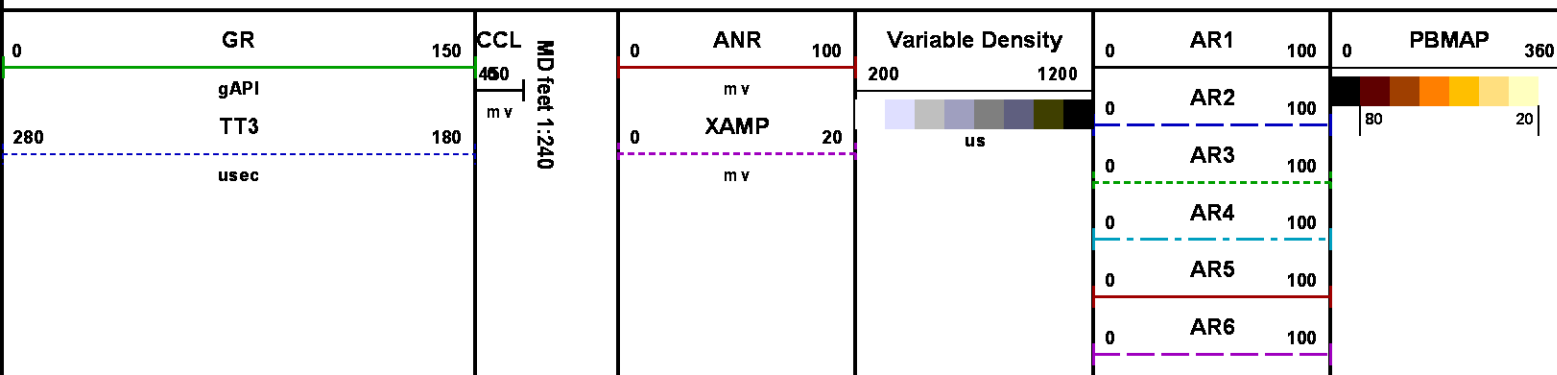
Well : WILLIAMS RMV 78-34

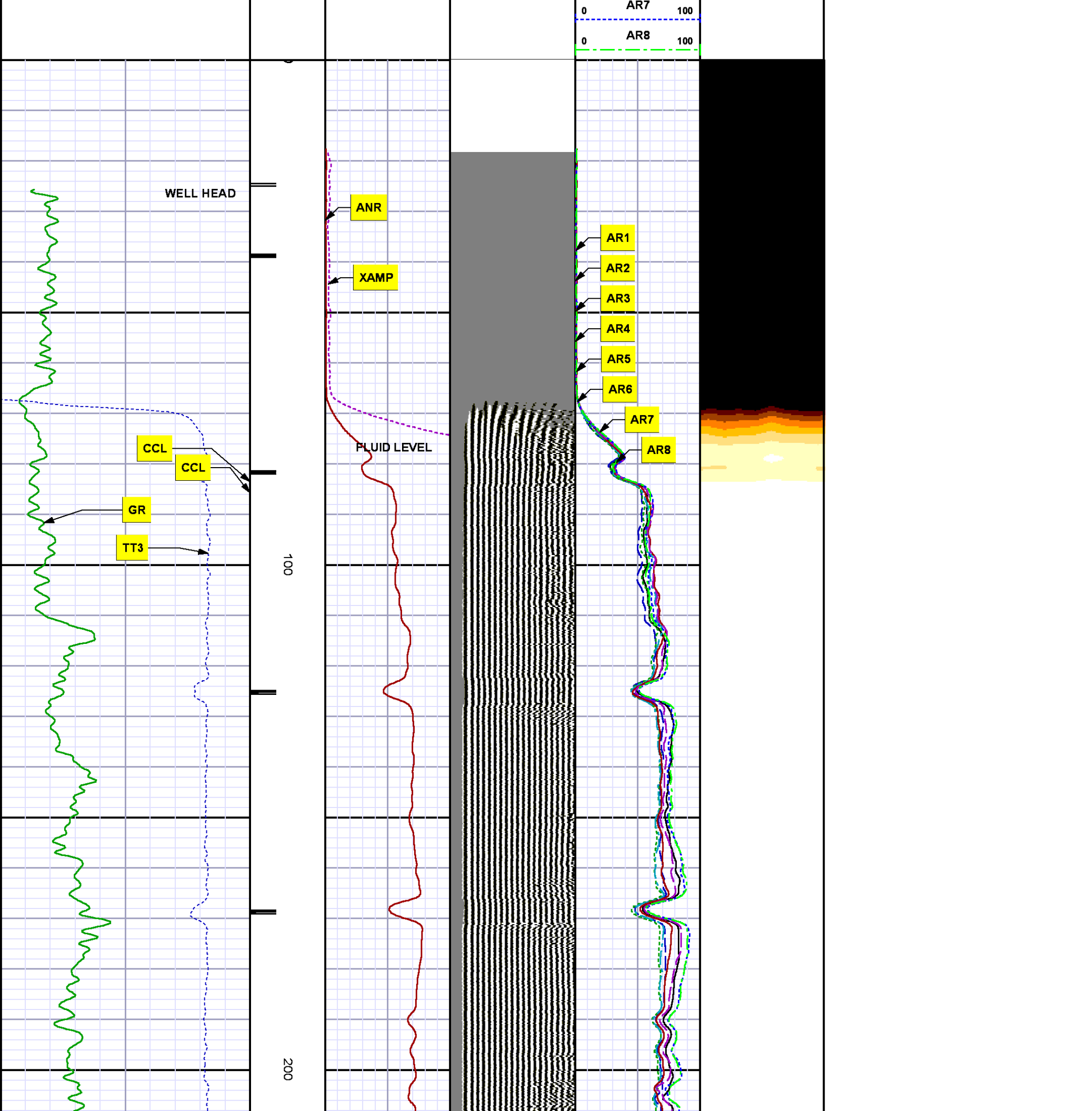
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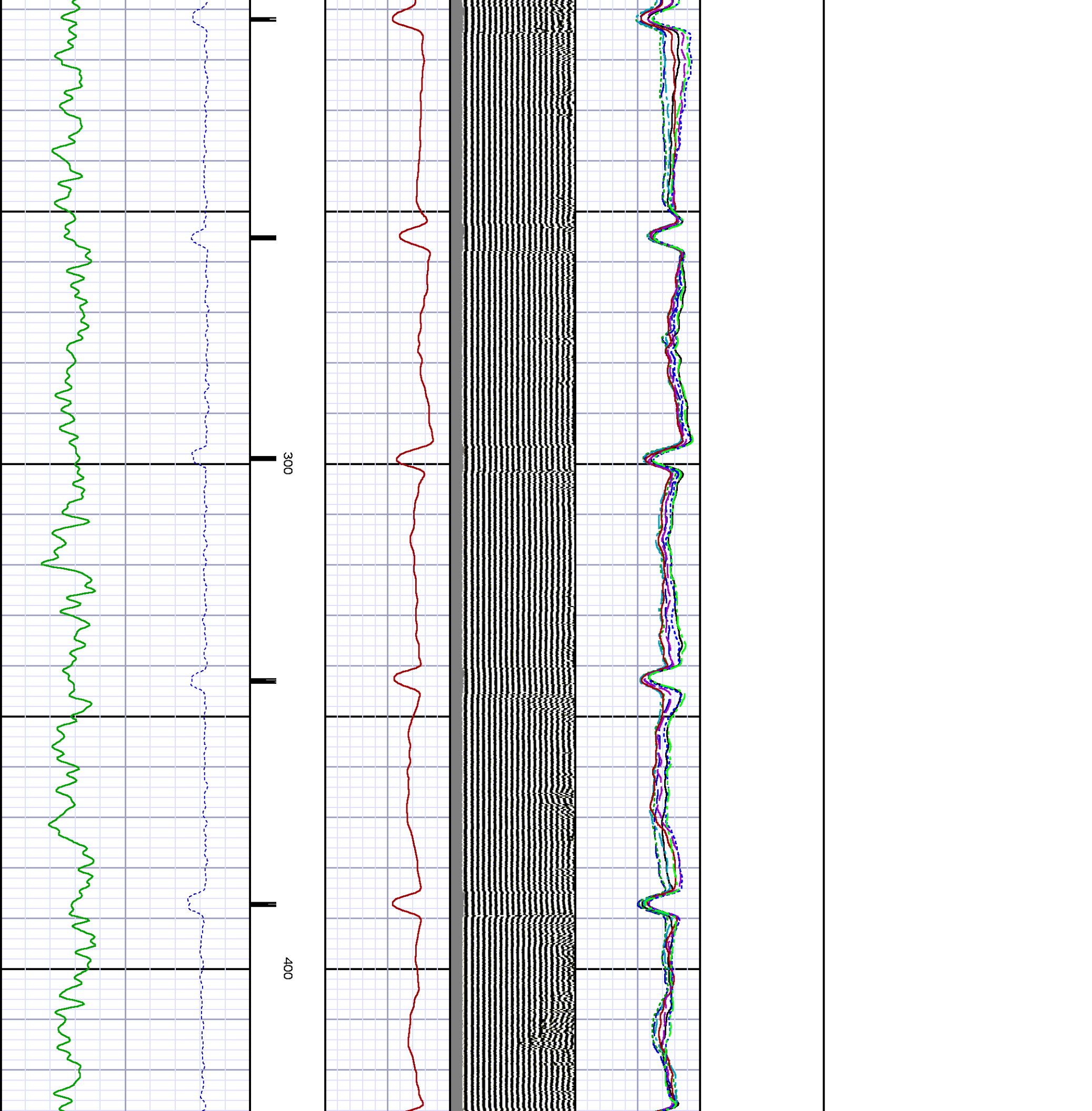
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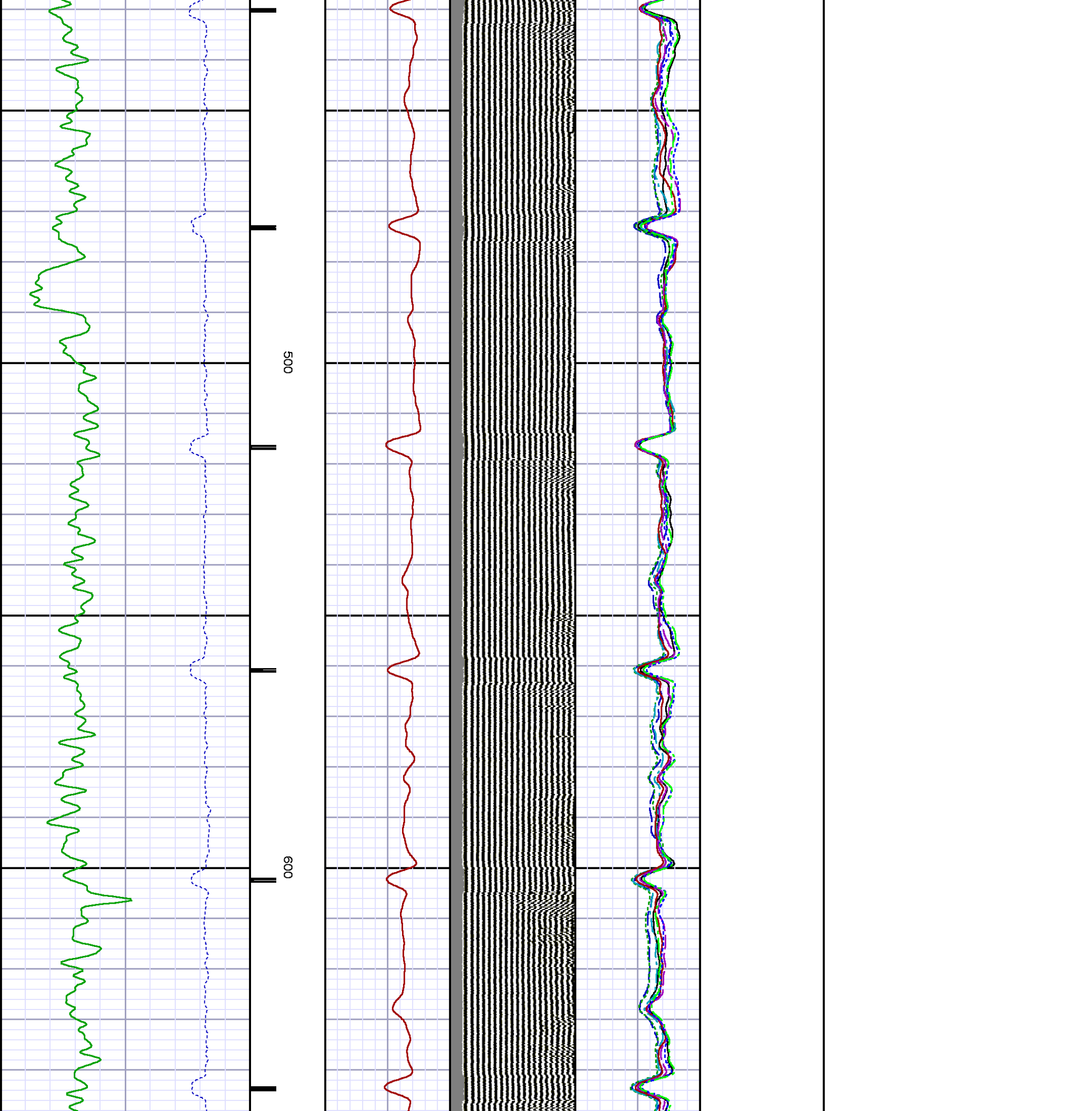
Interval : 0.00 - 7943.00 feet UP

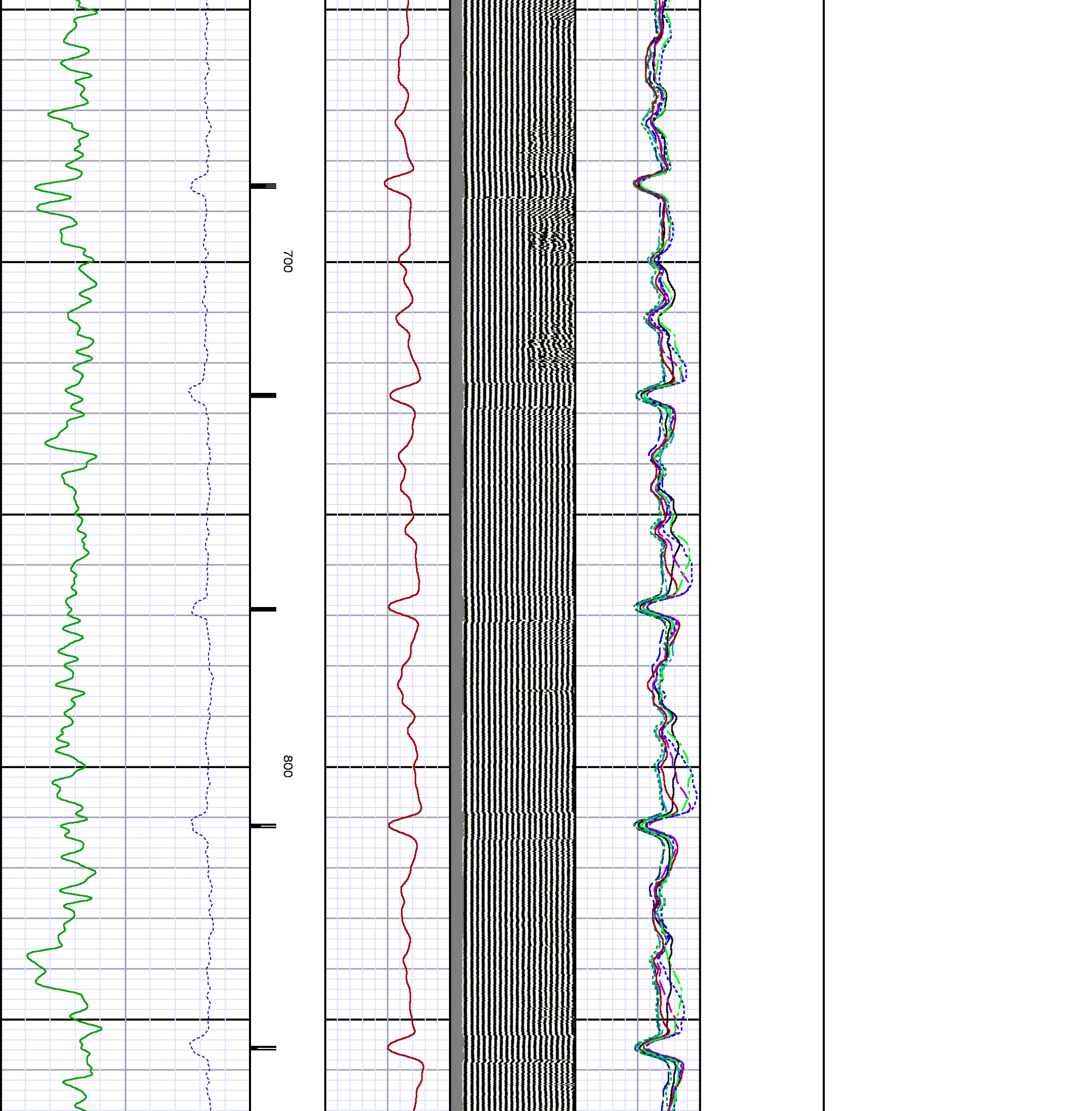
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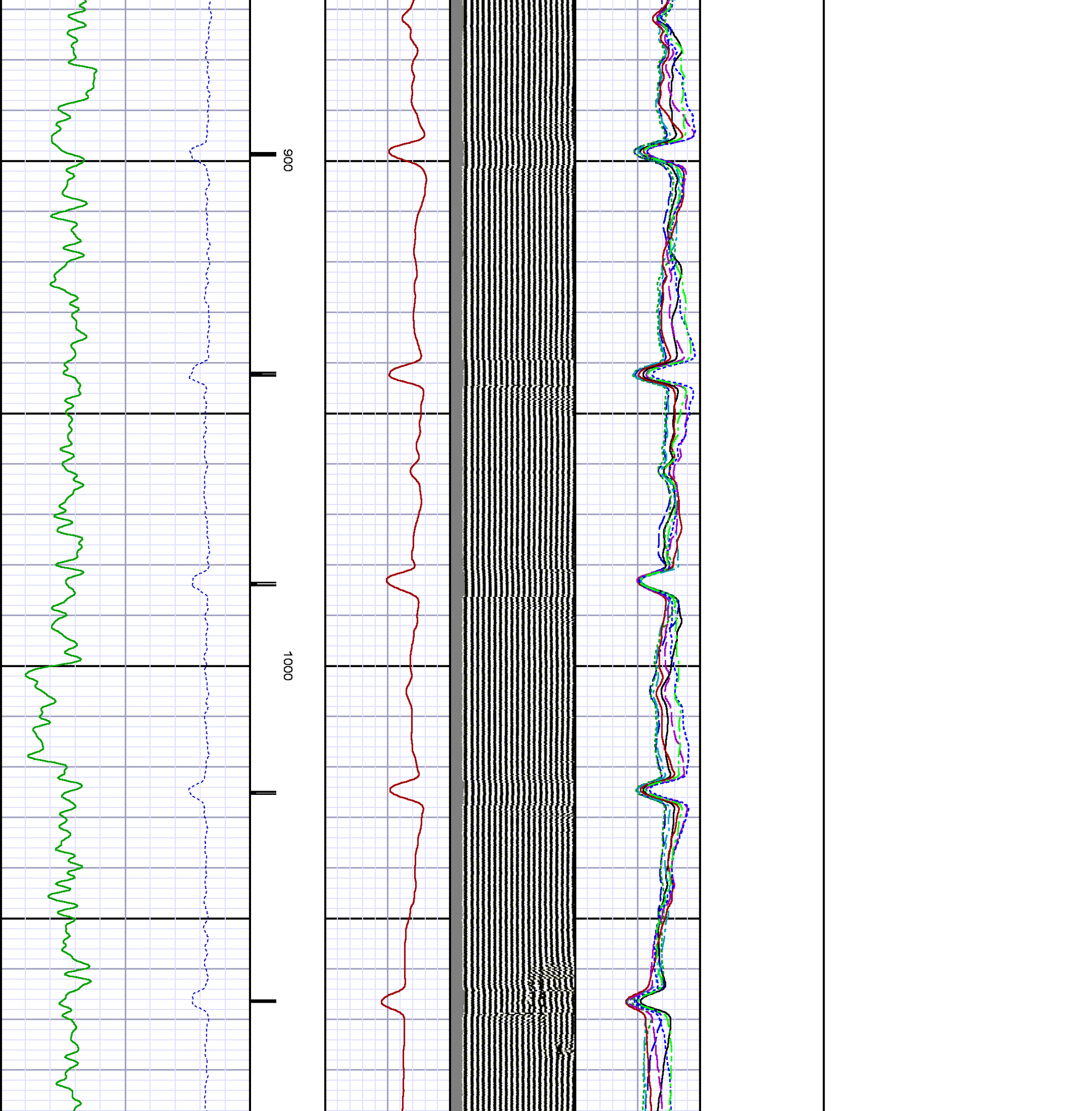


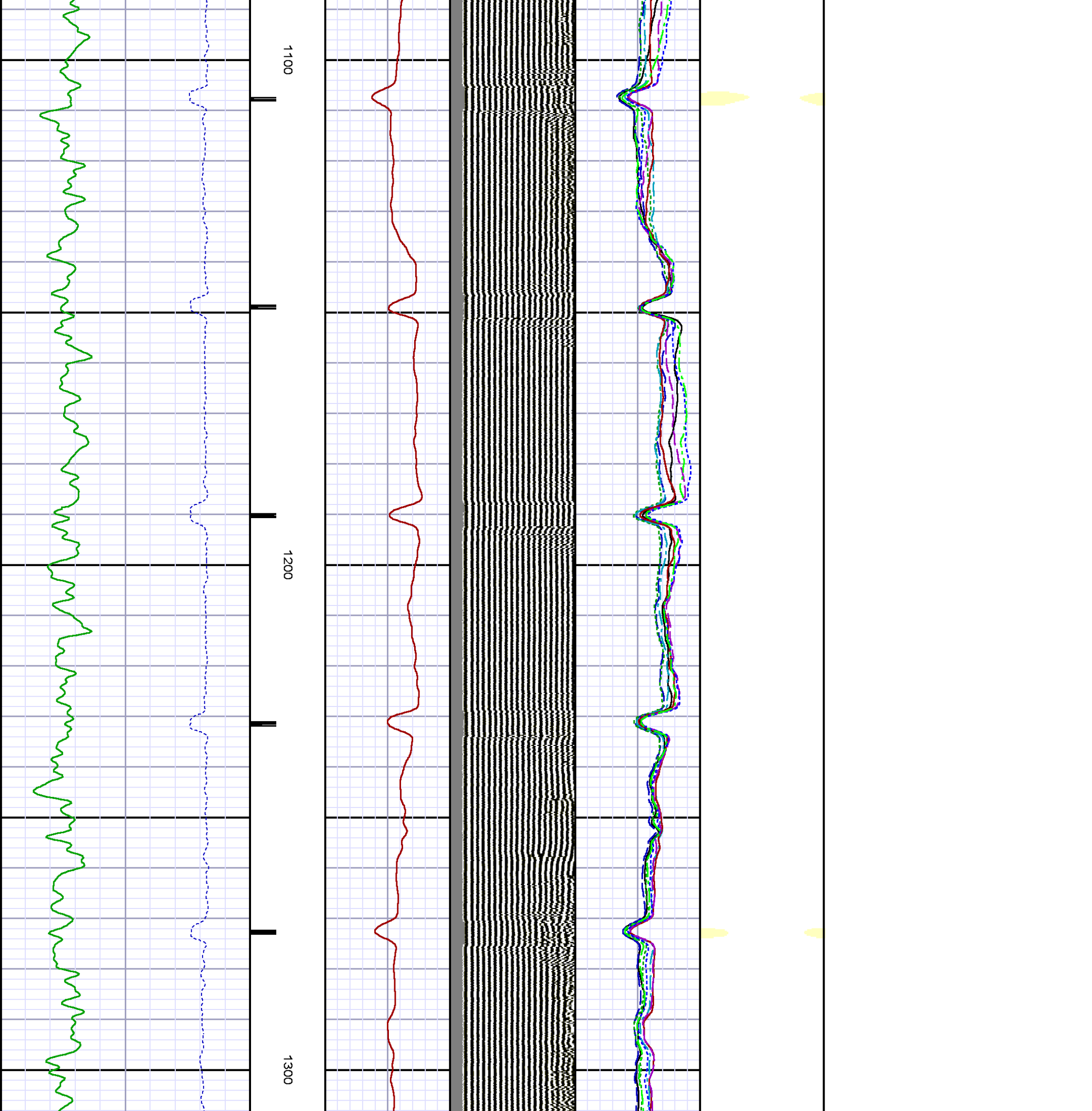


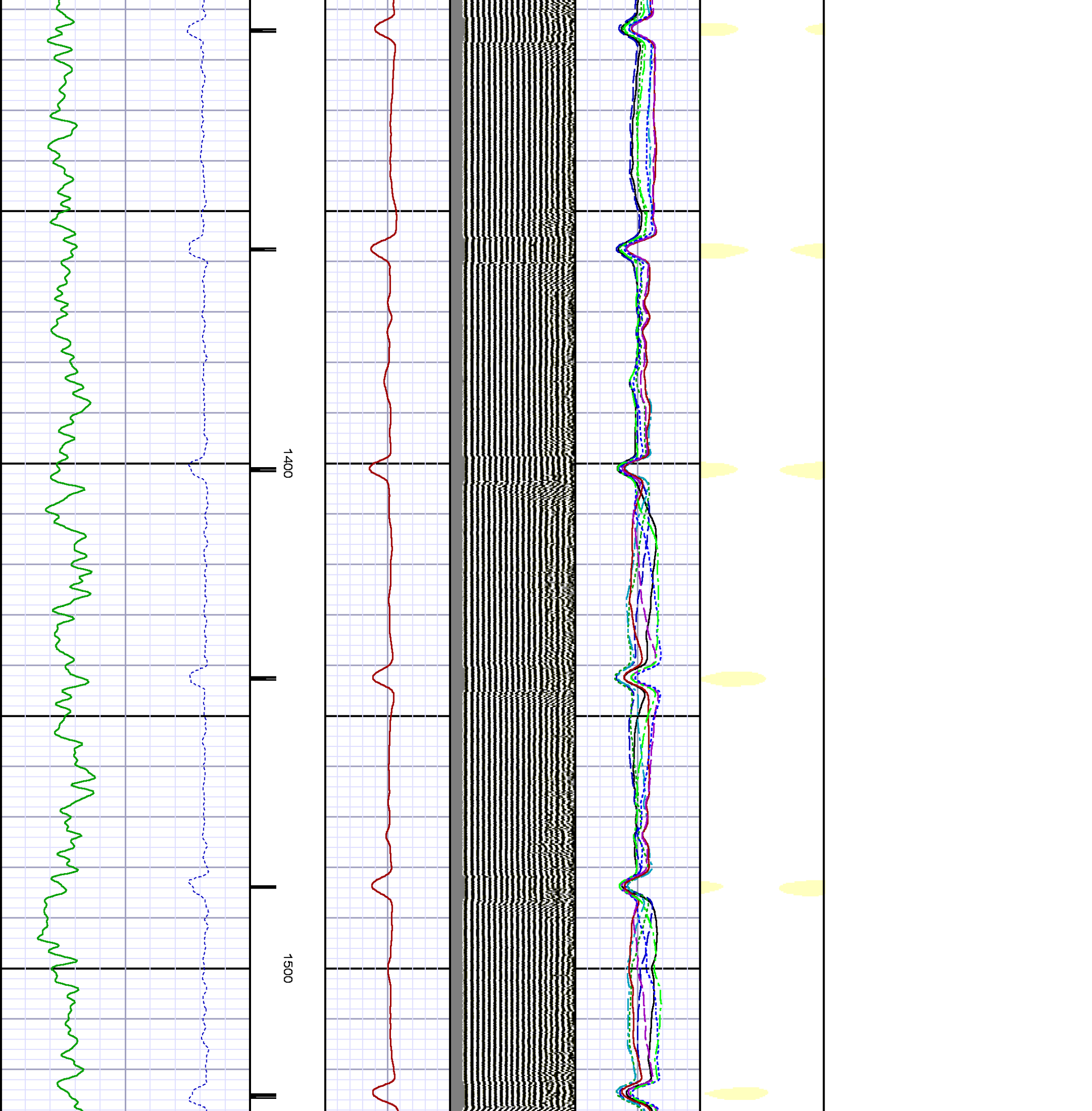


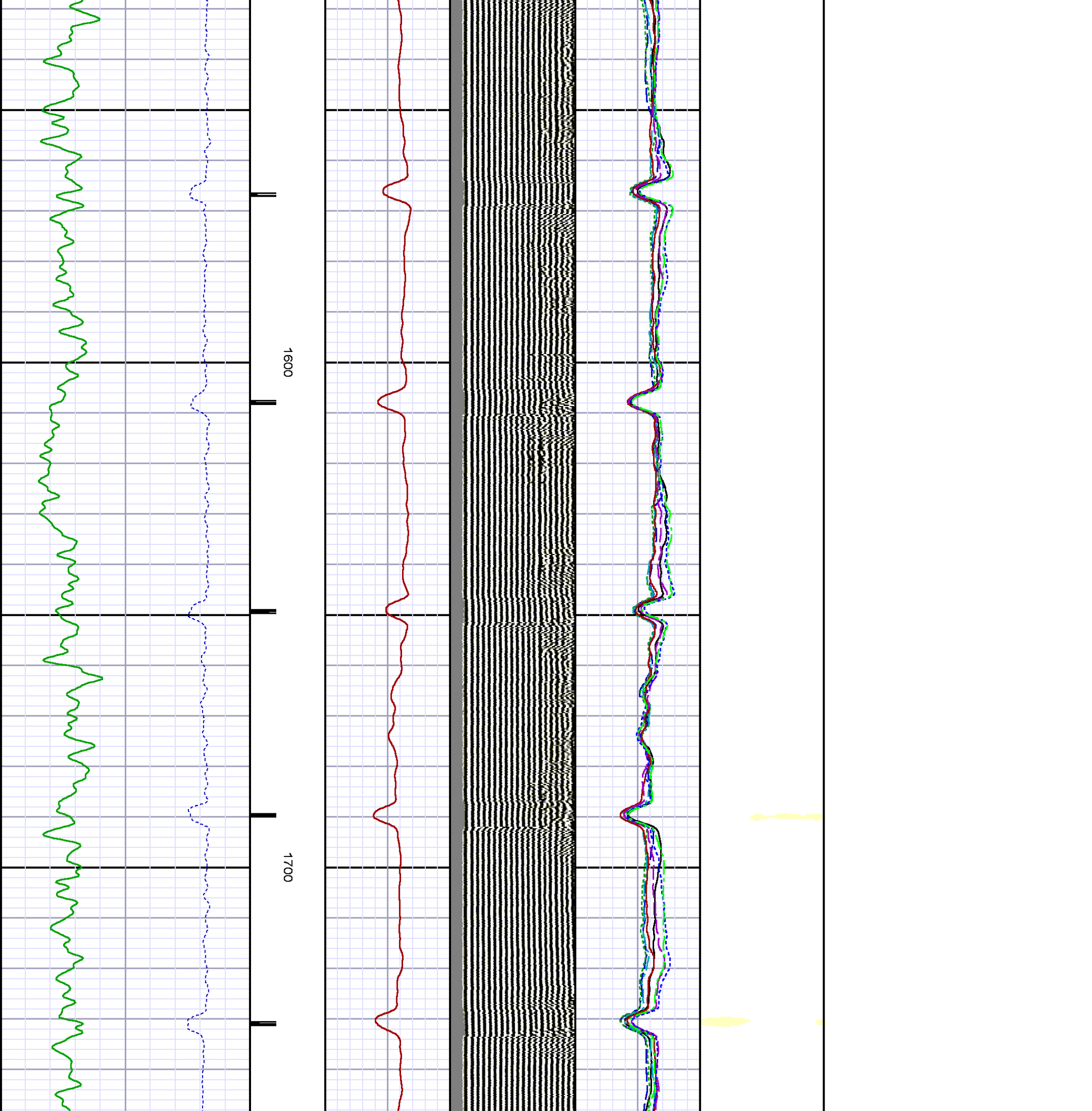


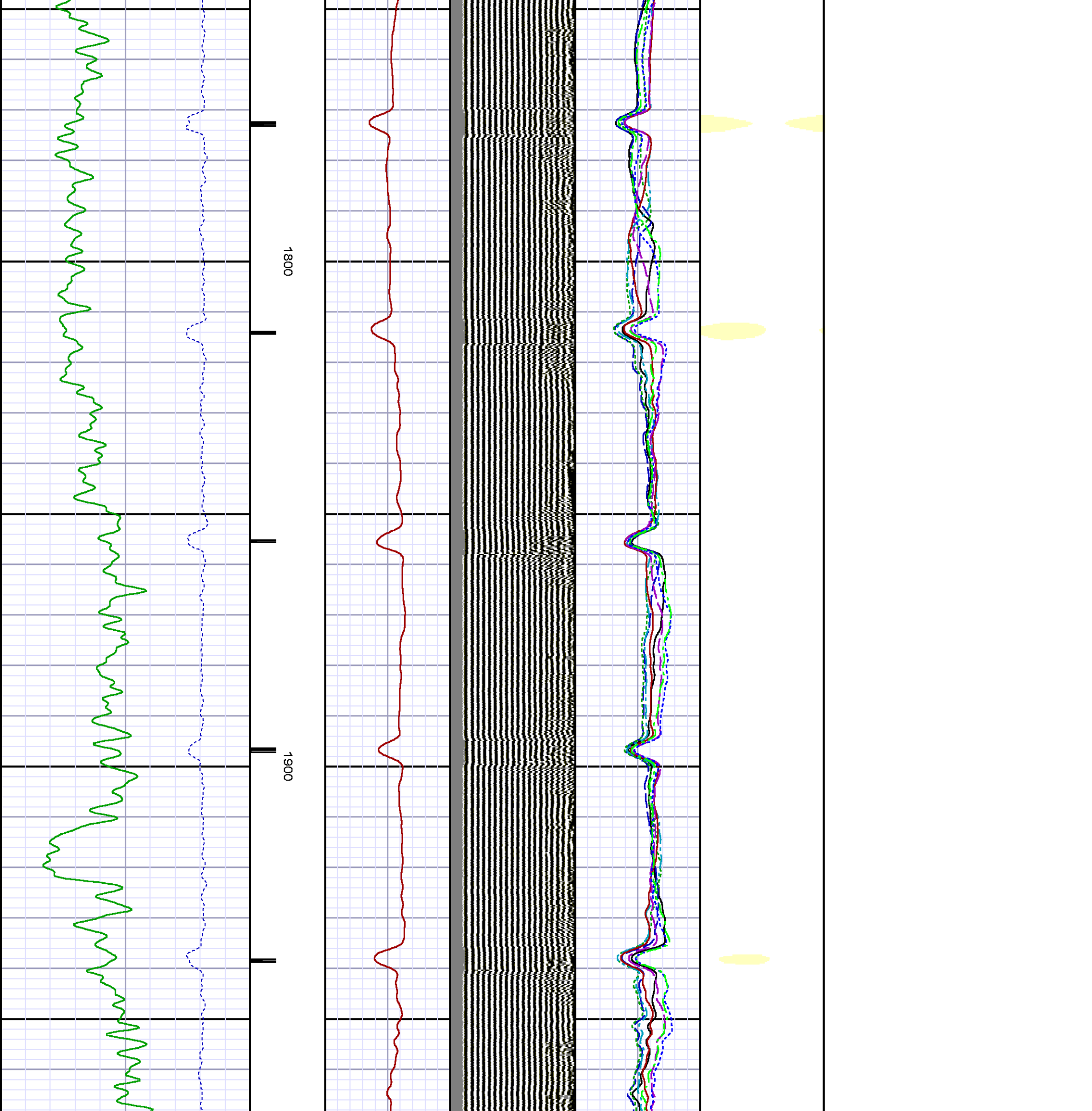


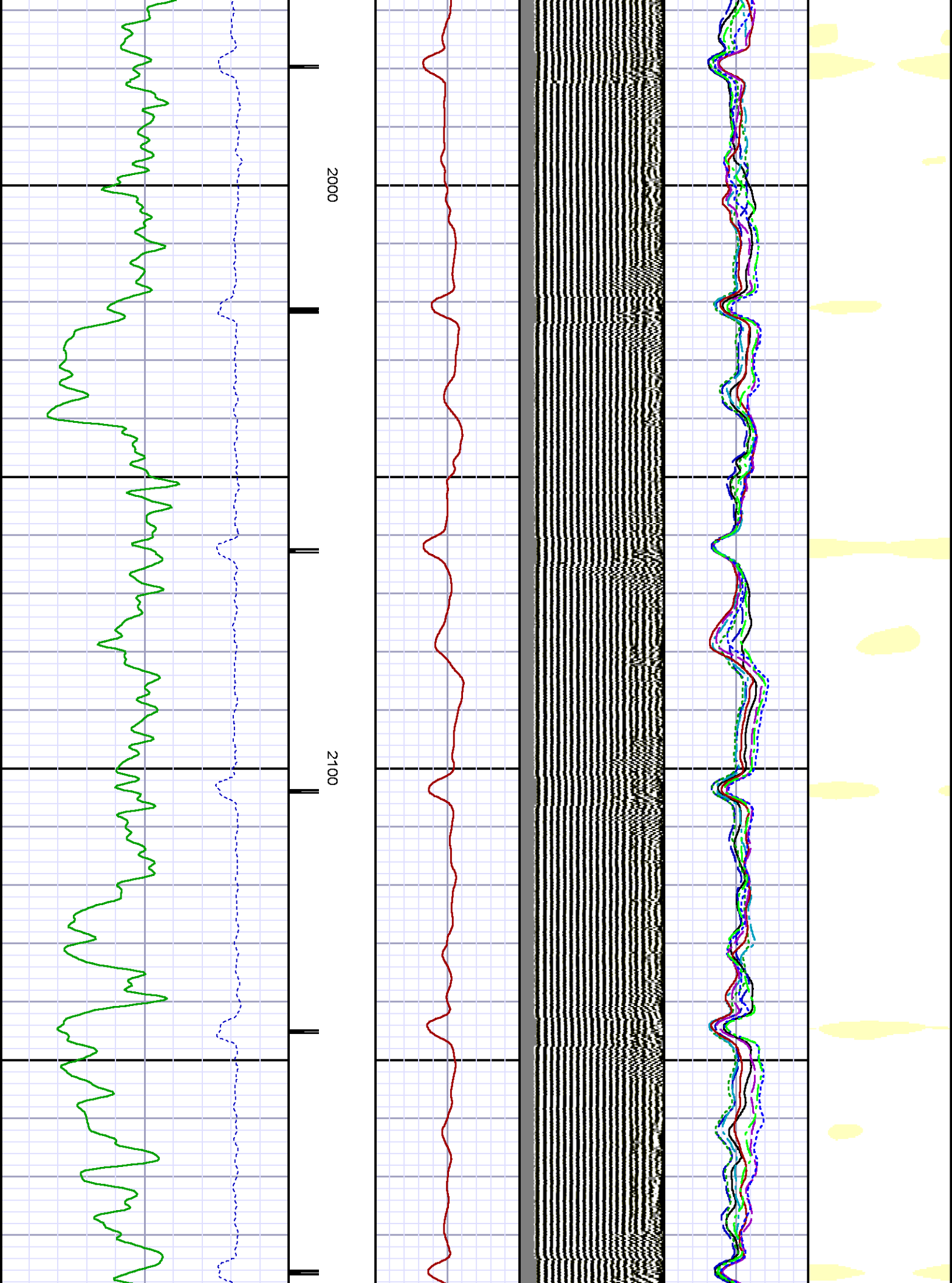


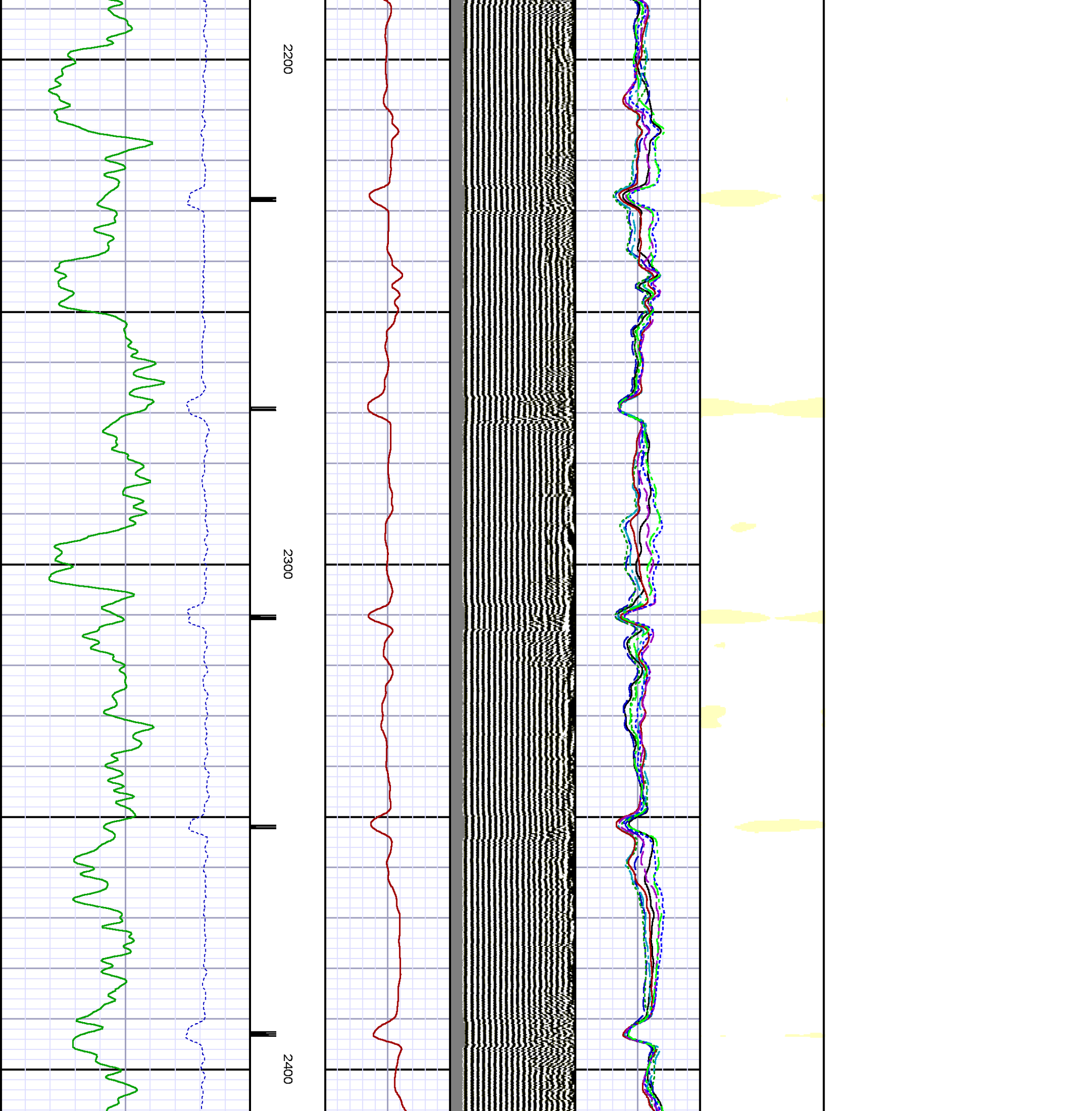


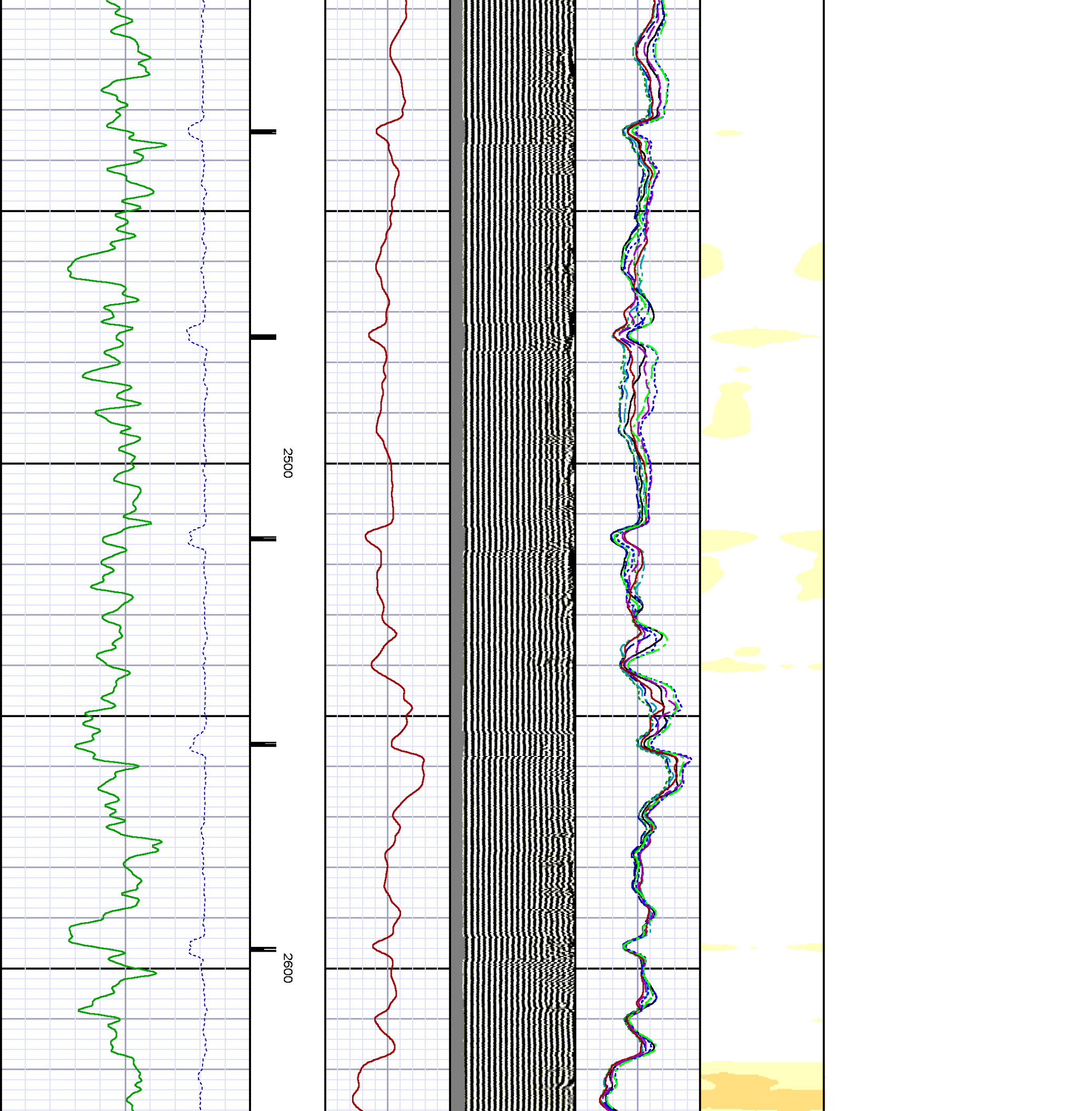


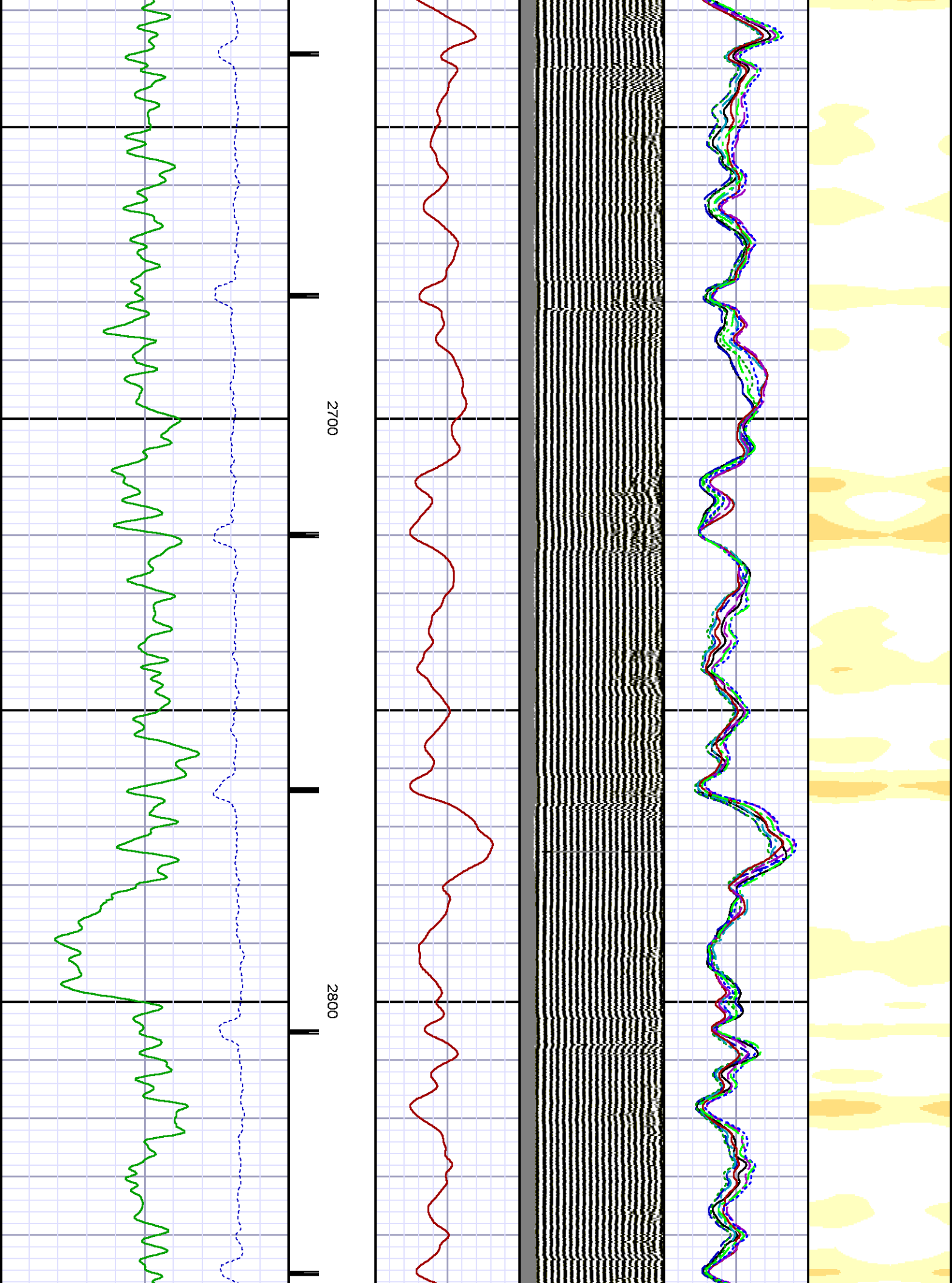


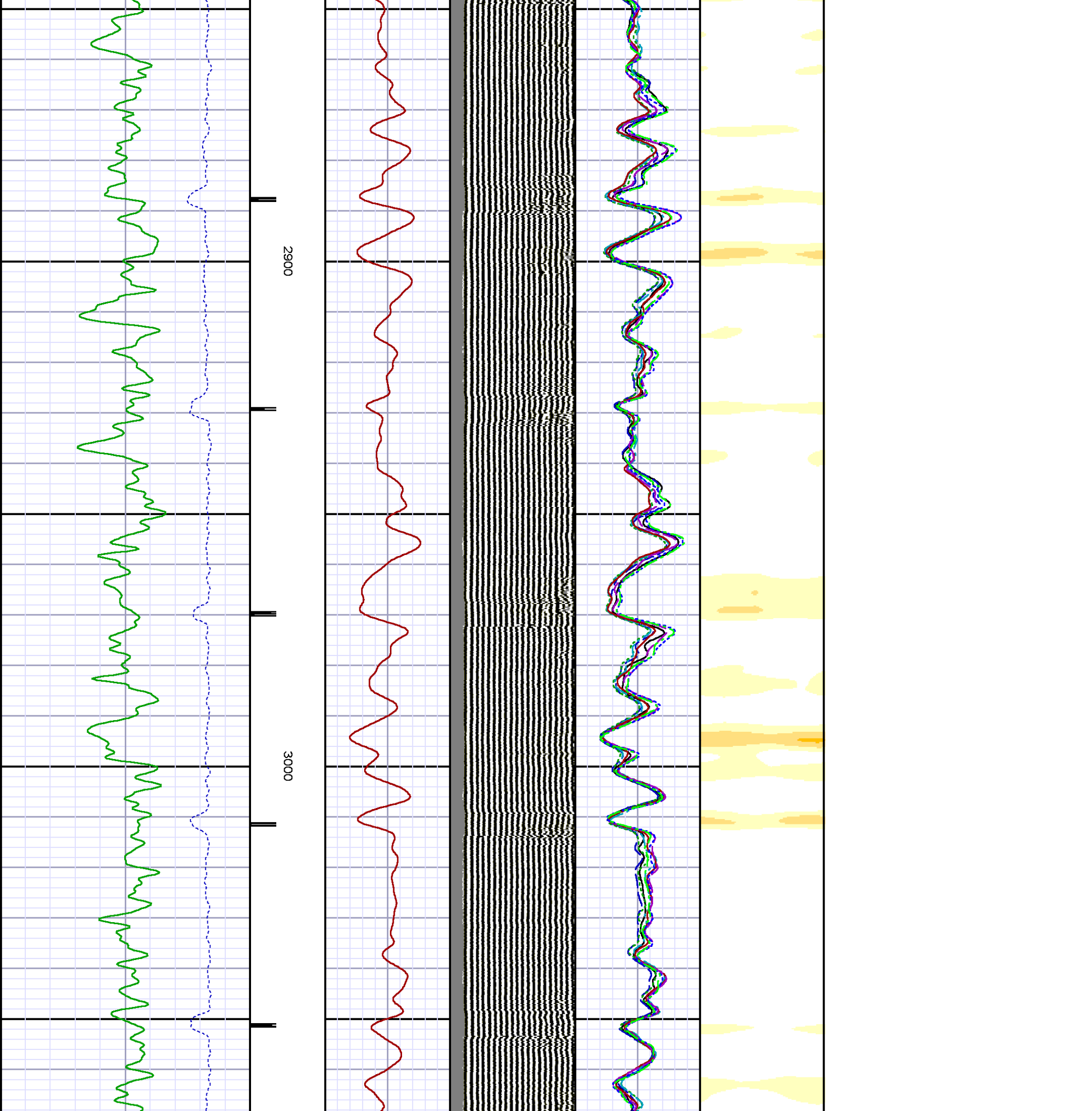


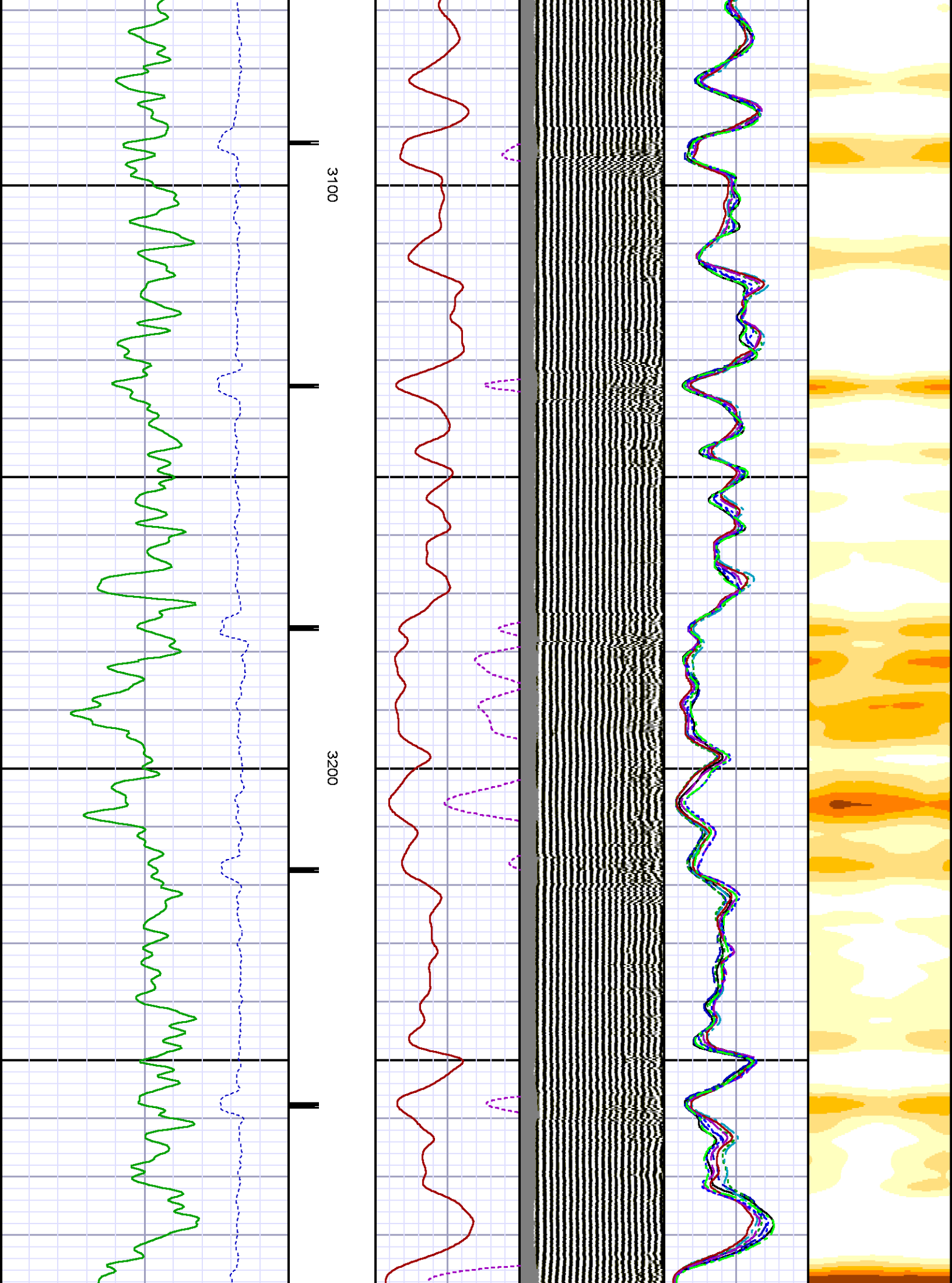


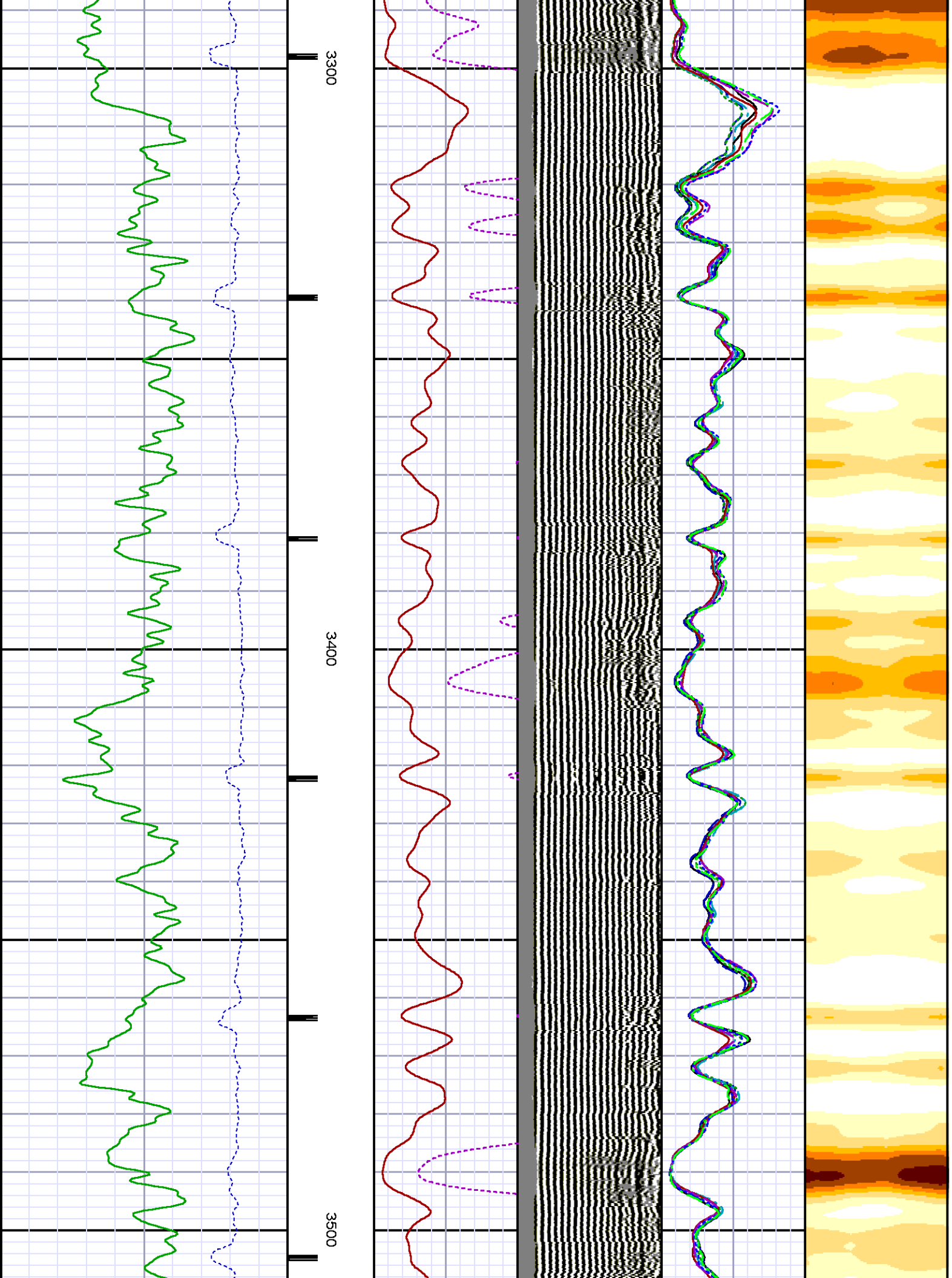


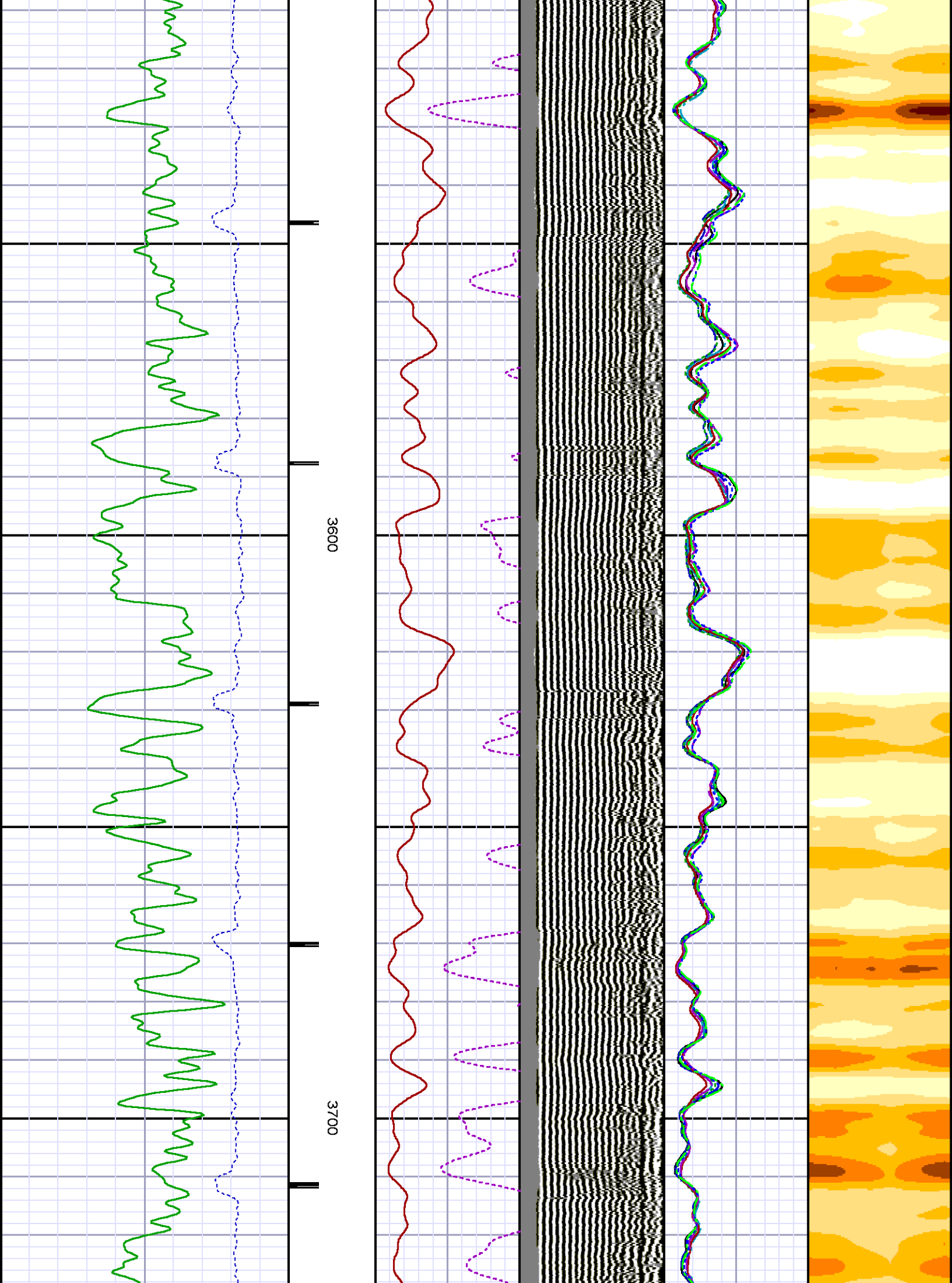


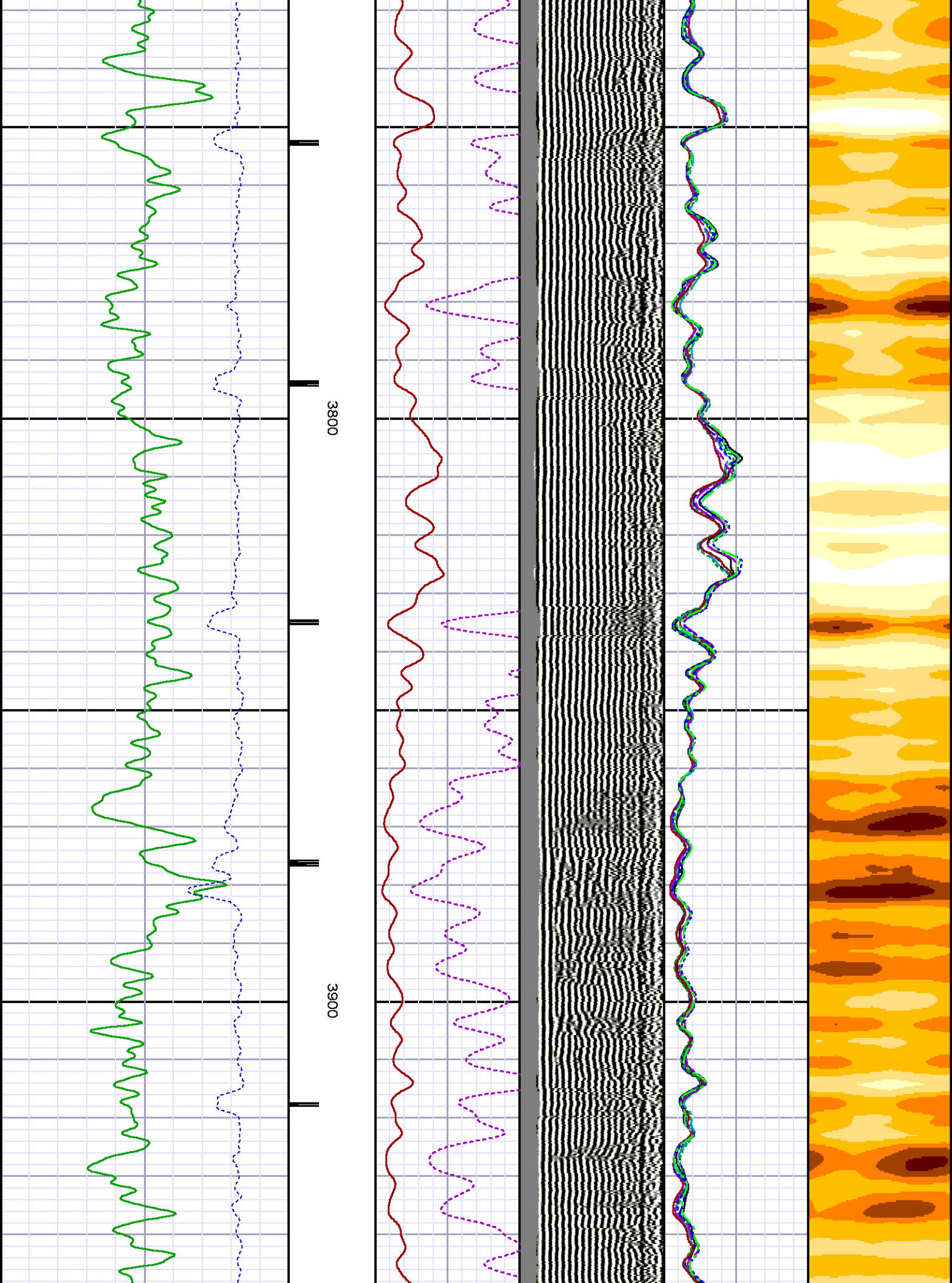


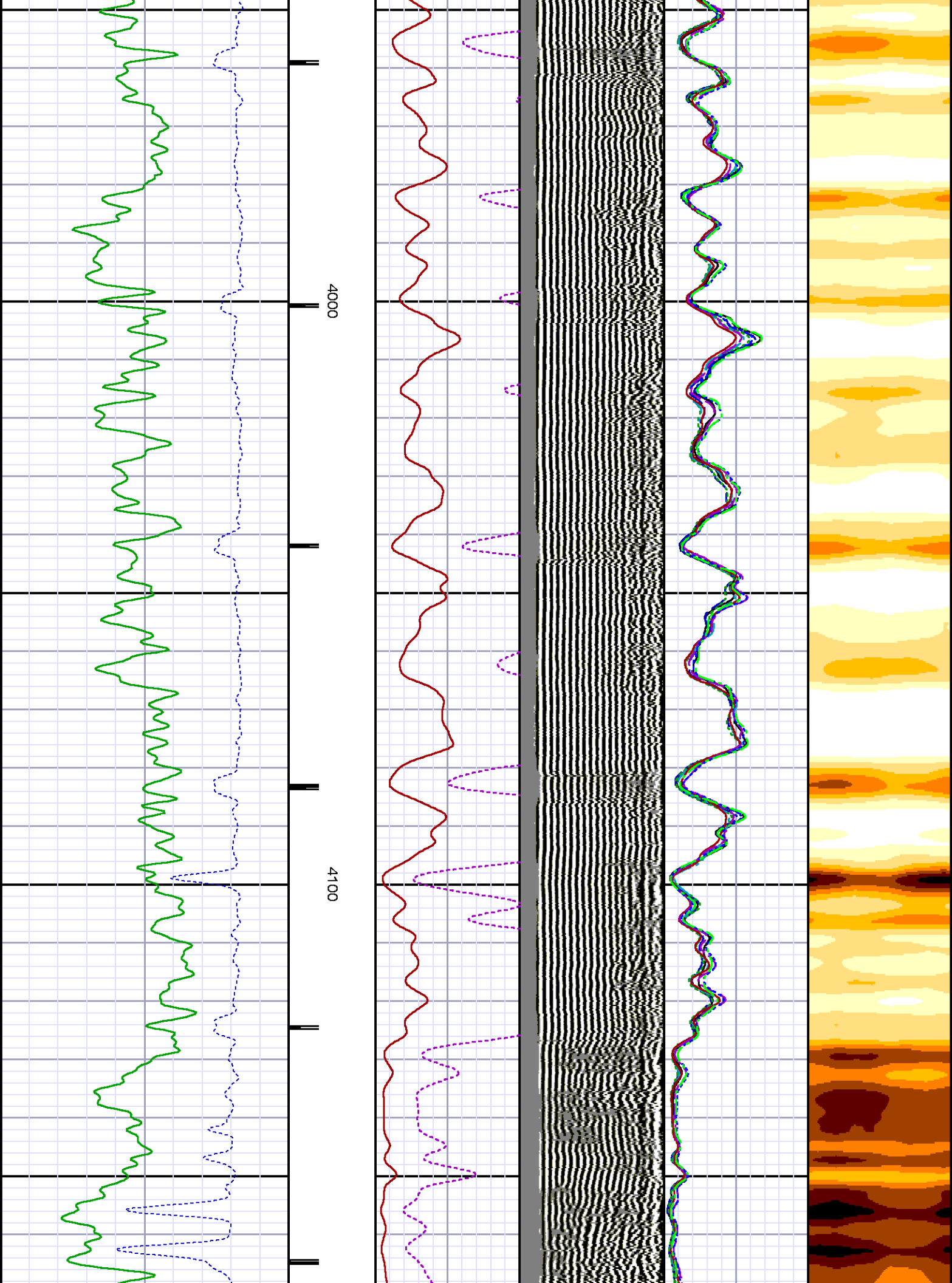


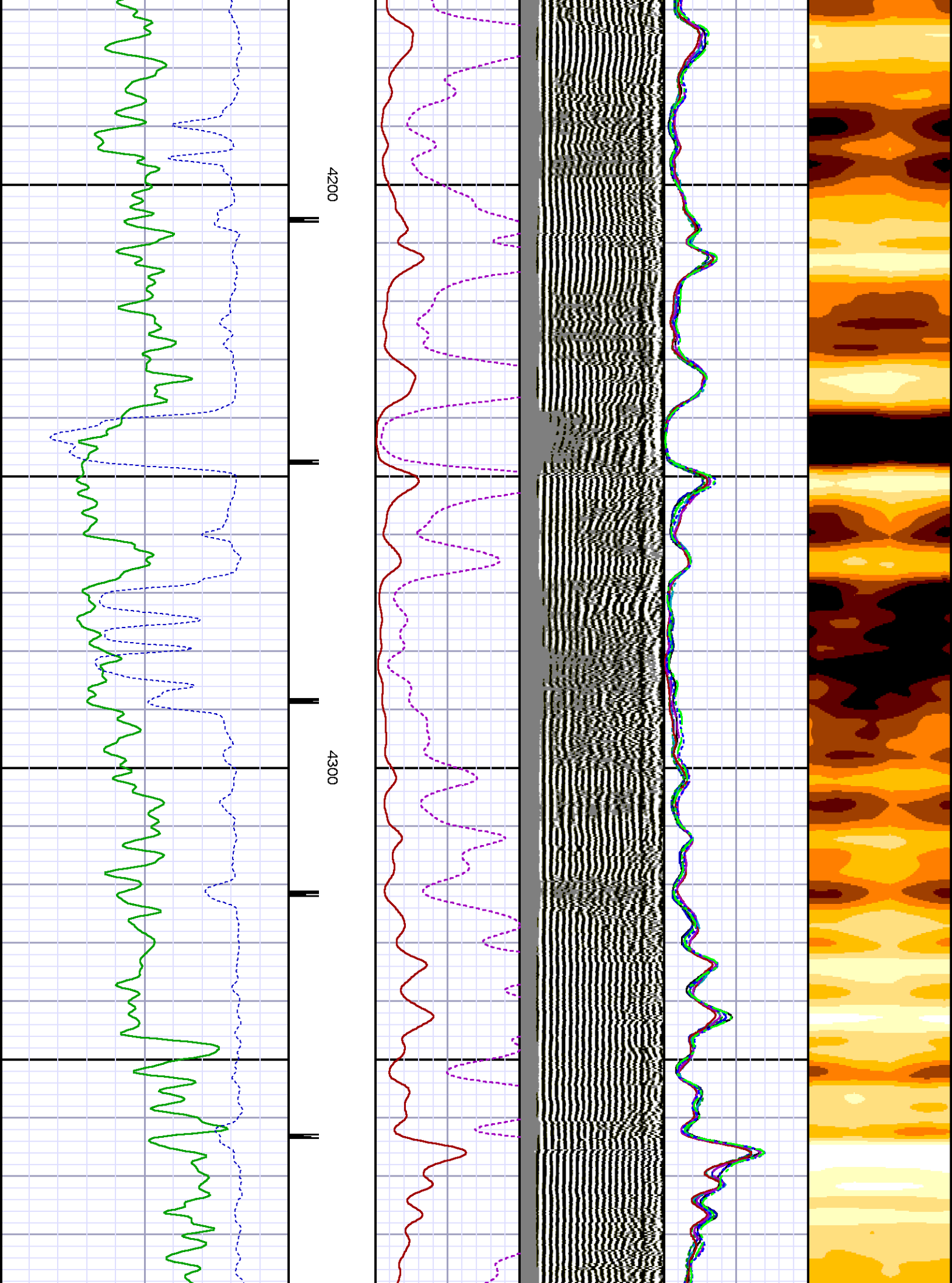


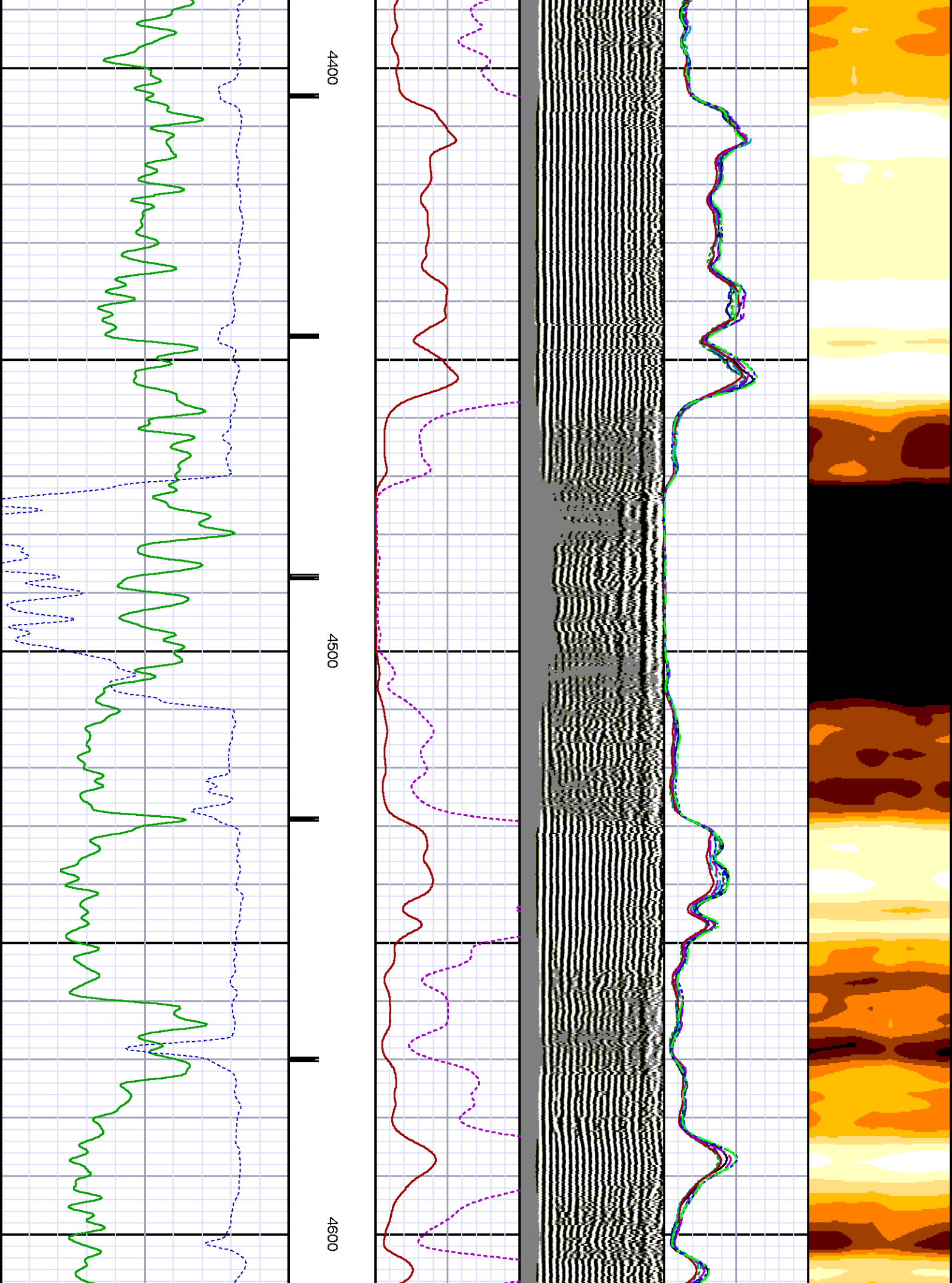


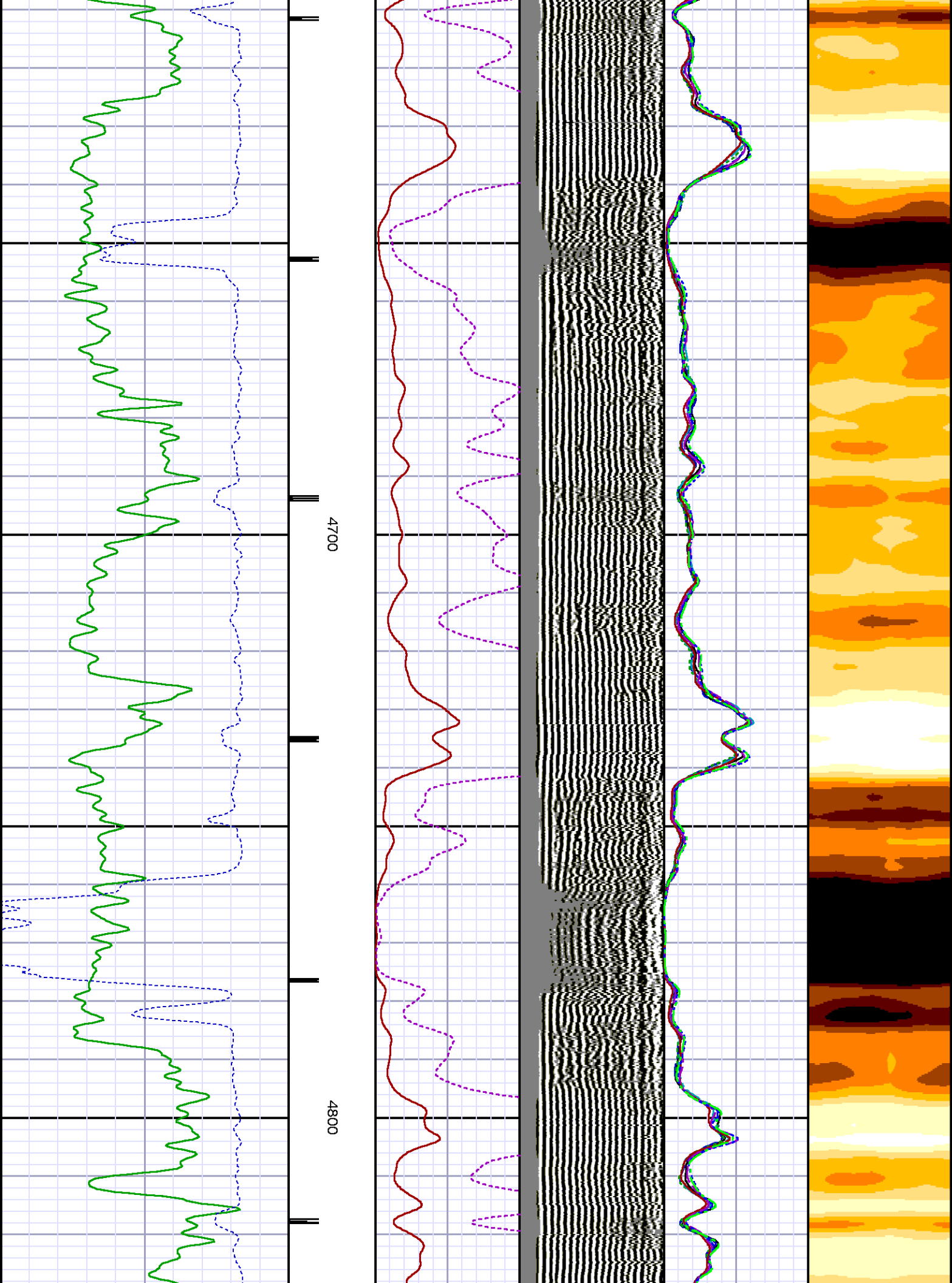


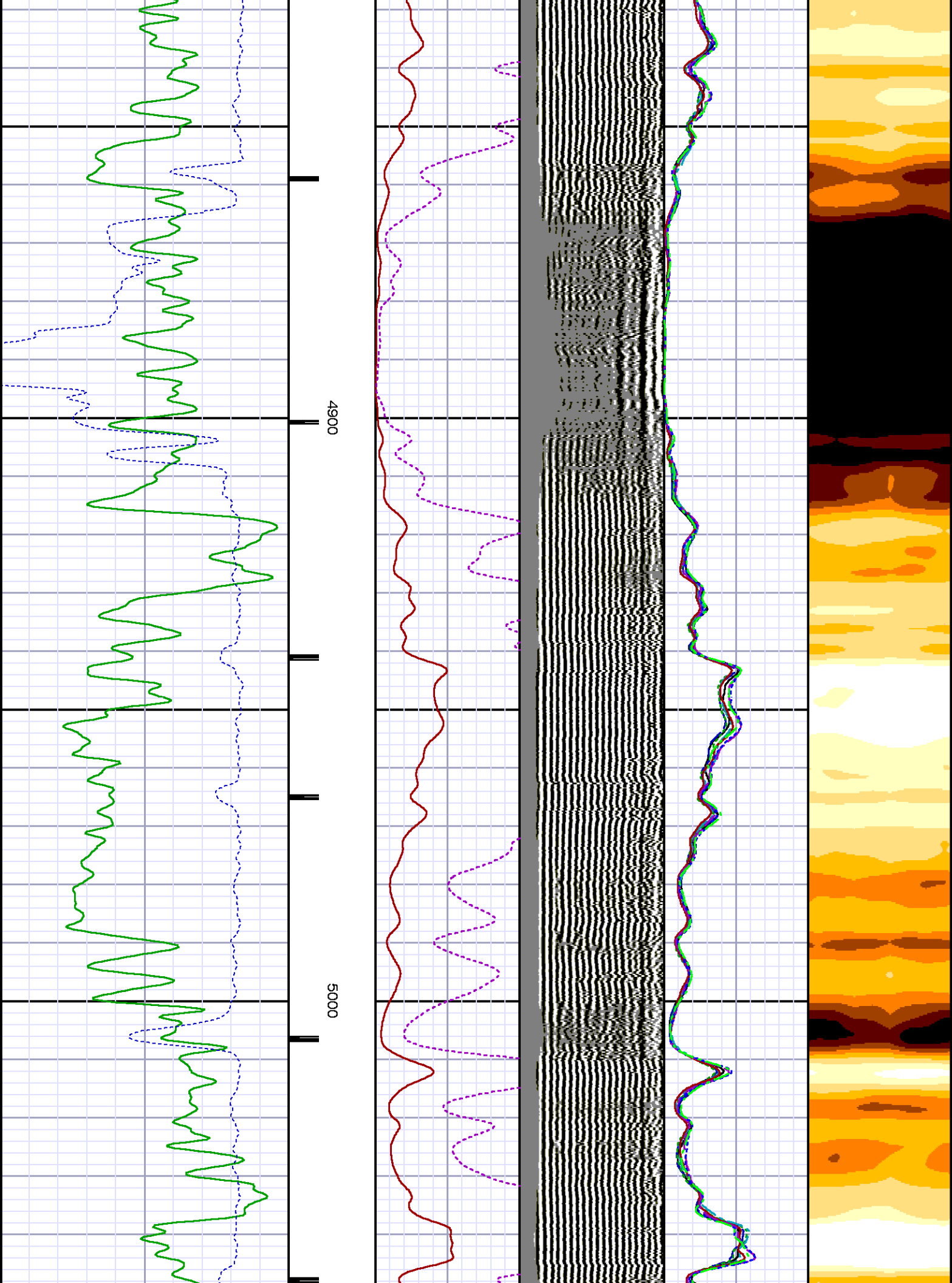


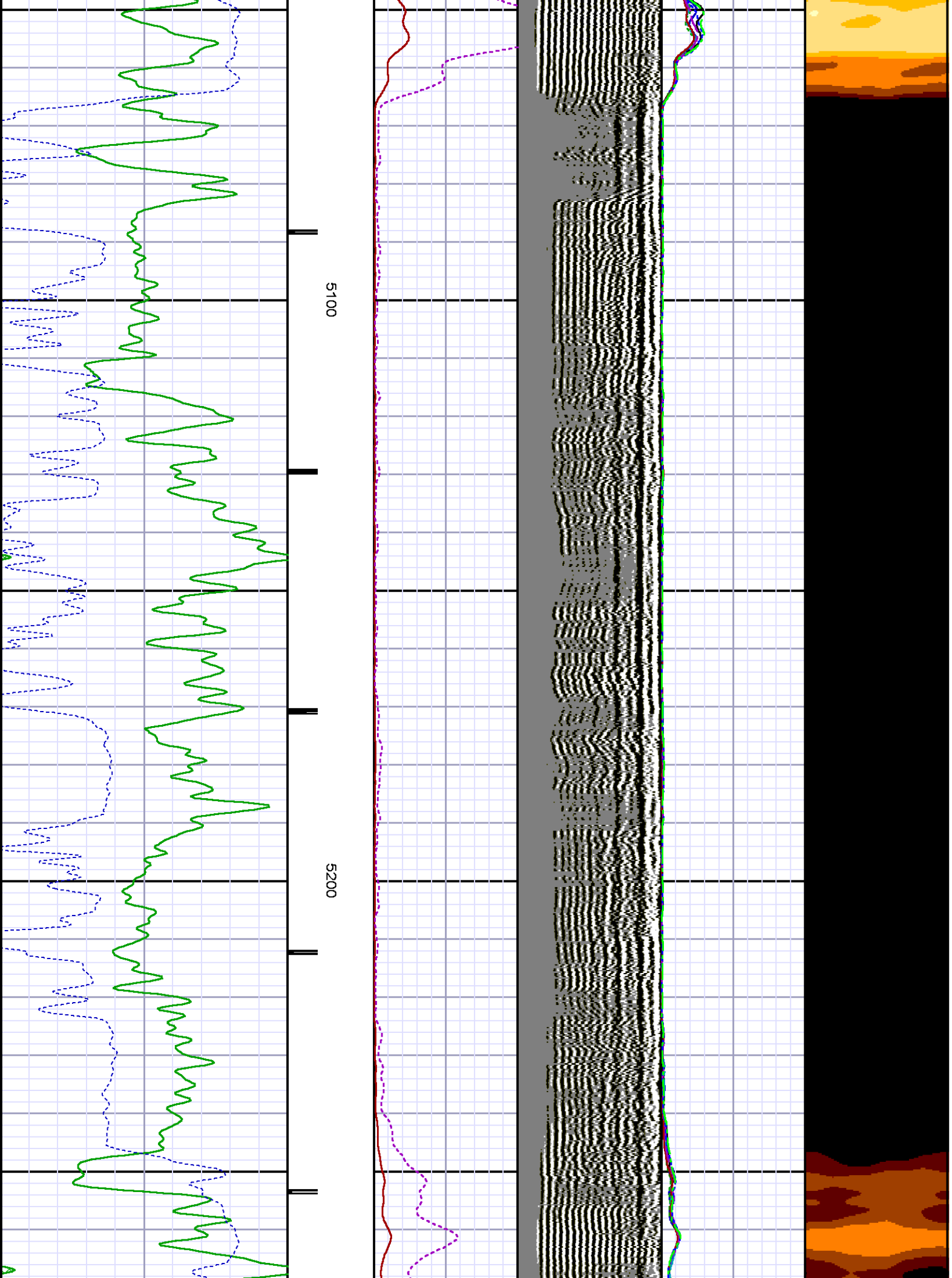


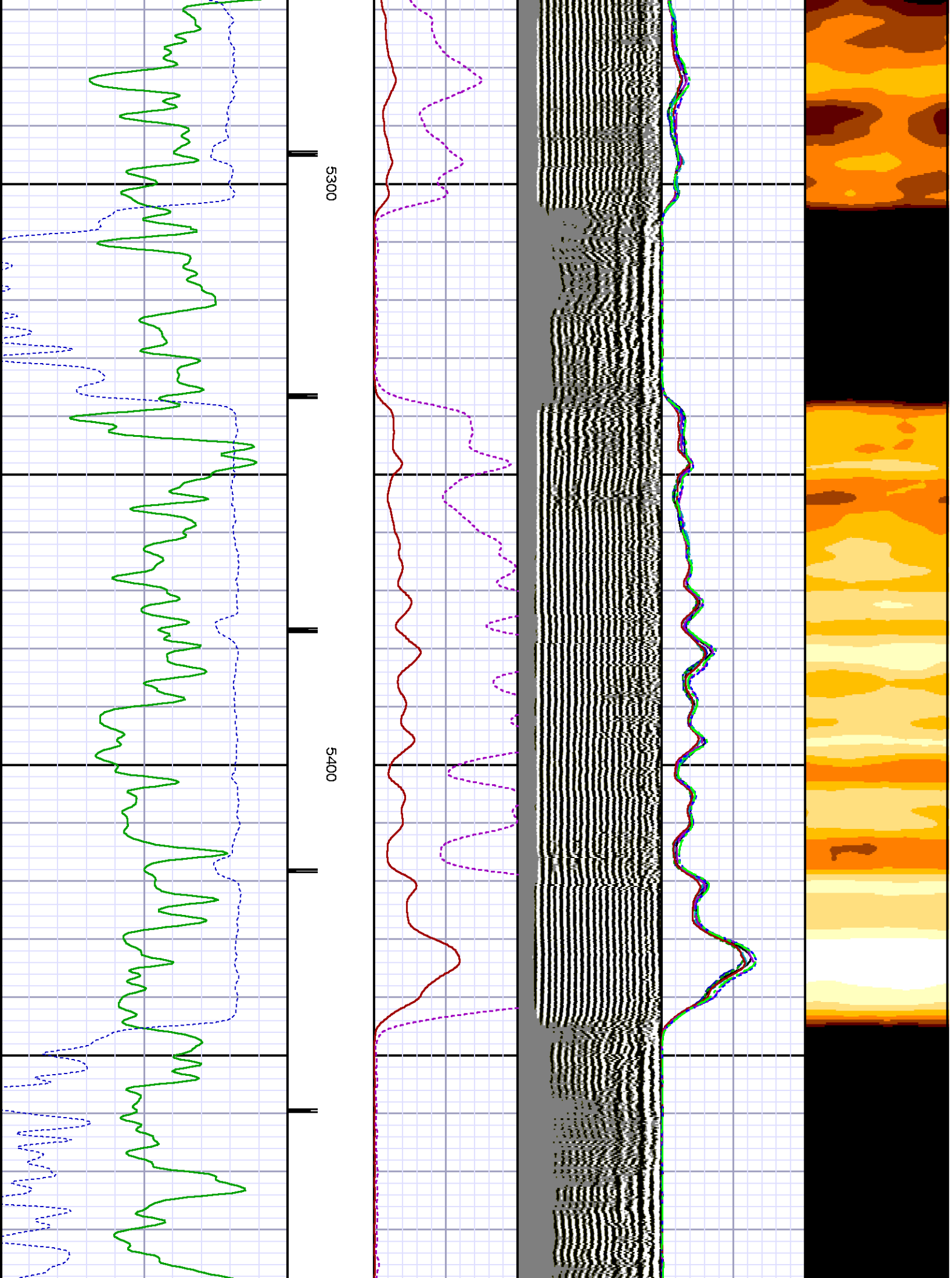


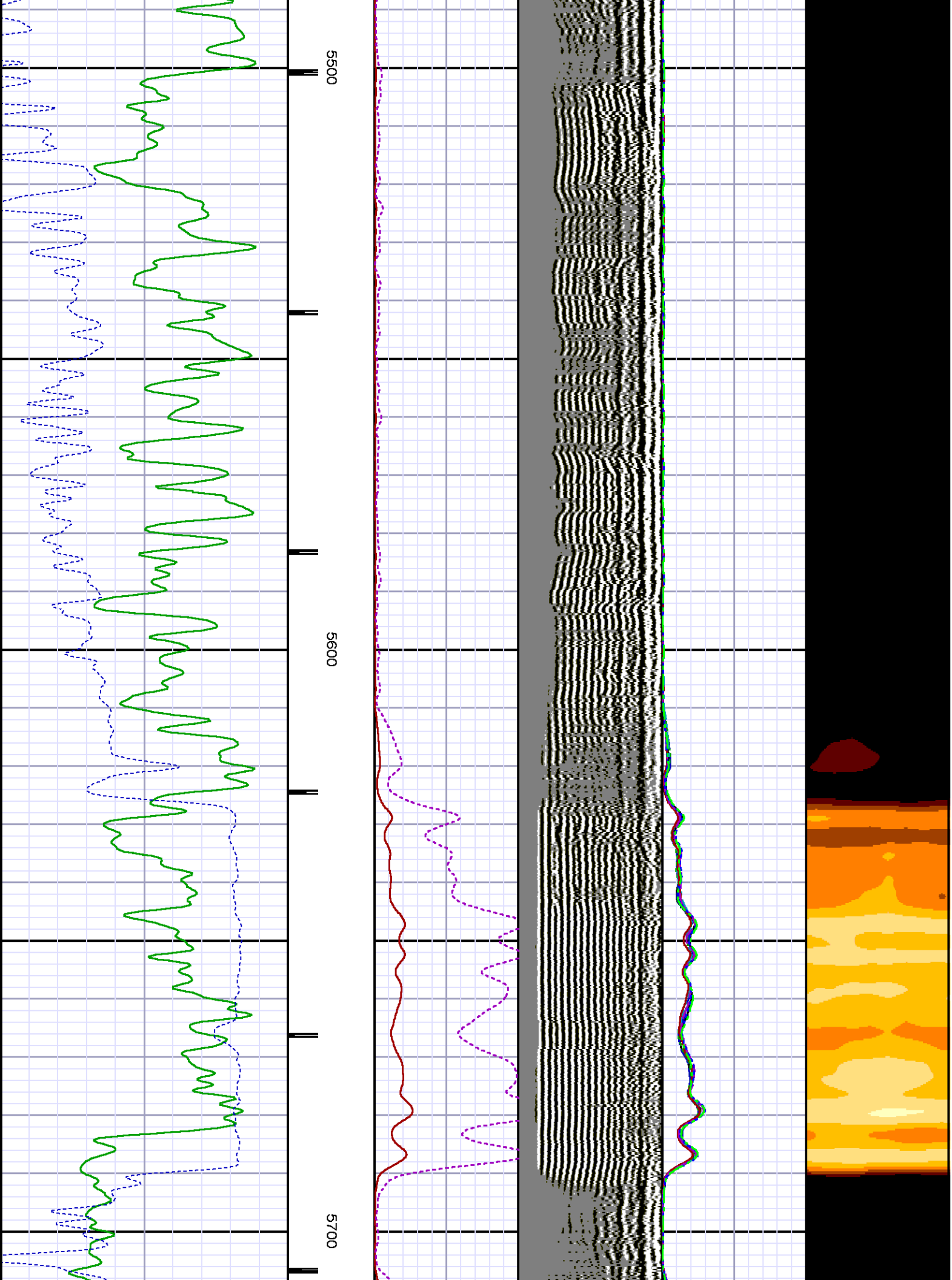


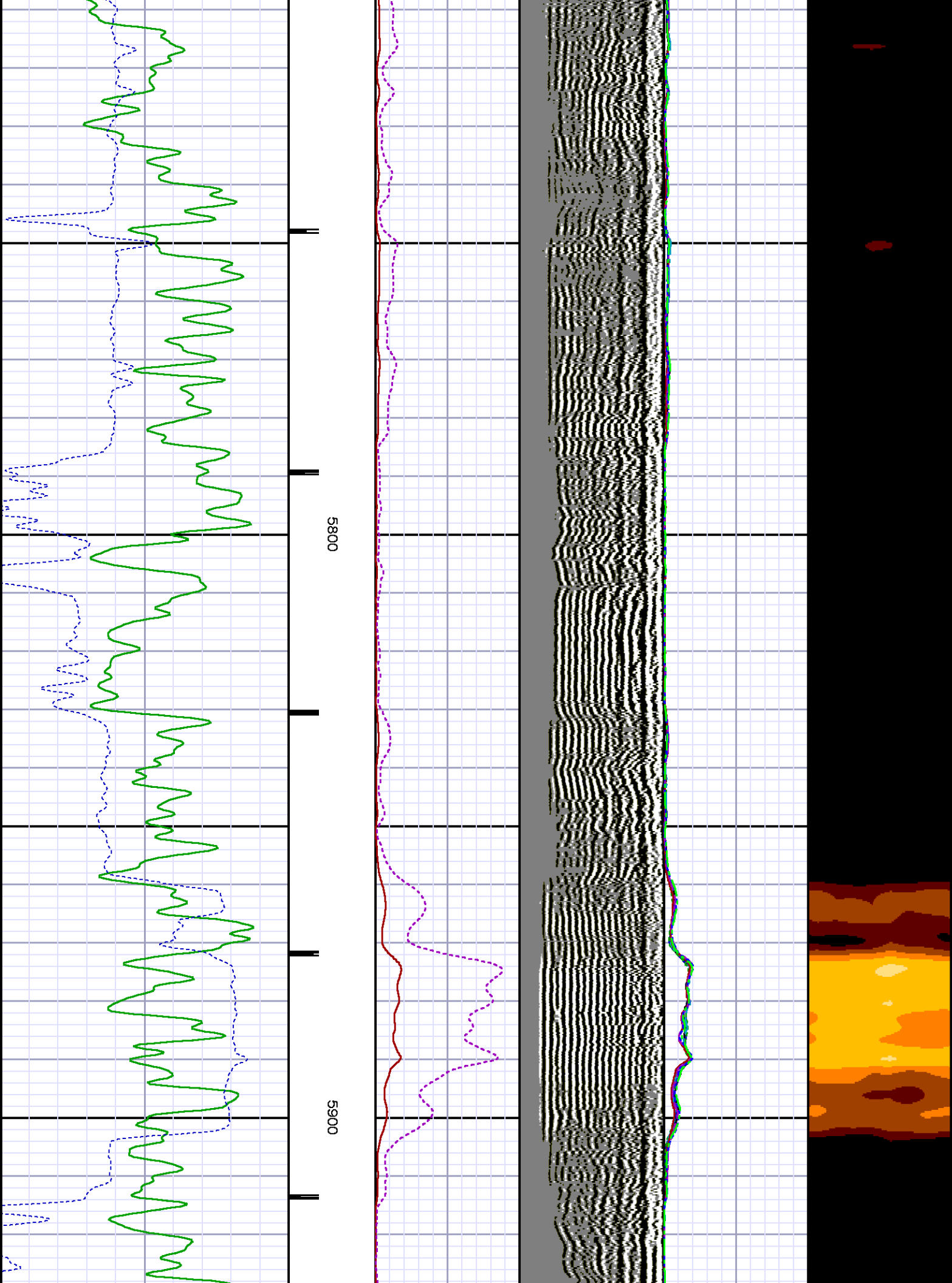


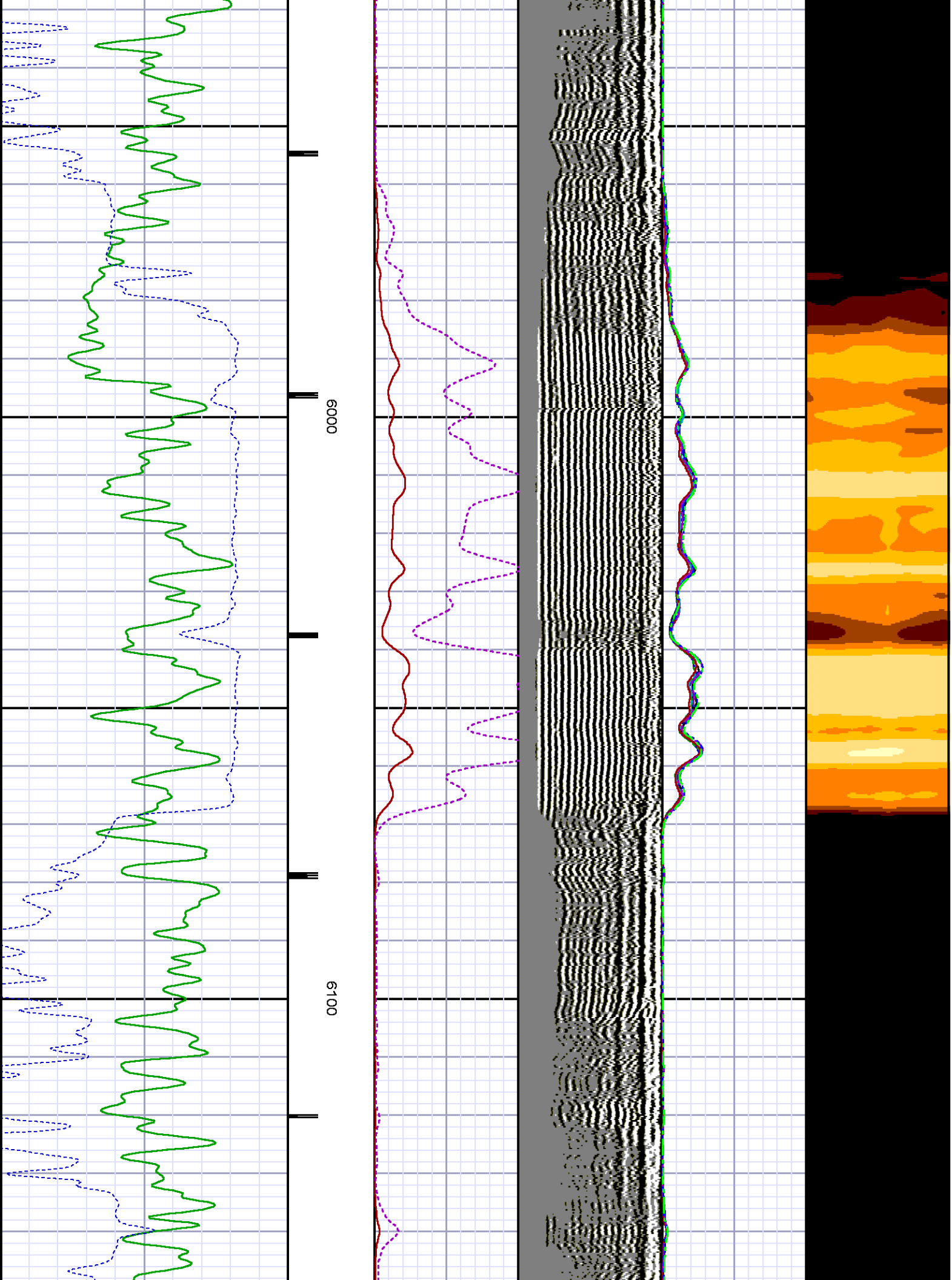


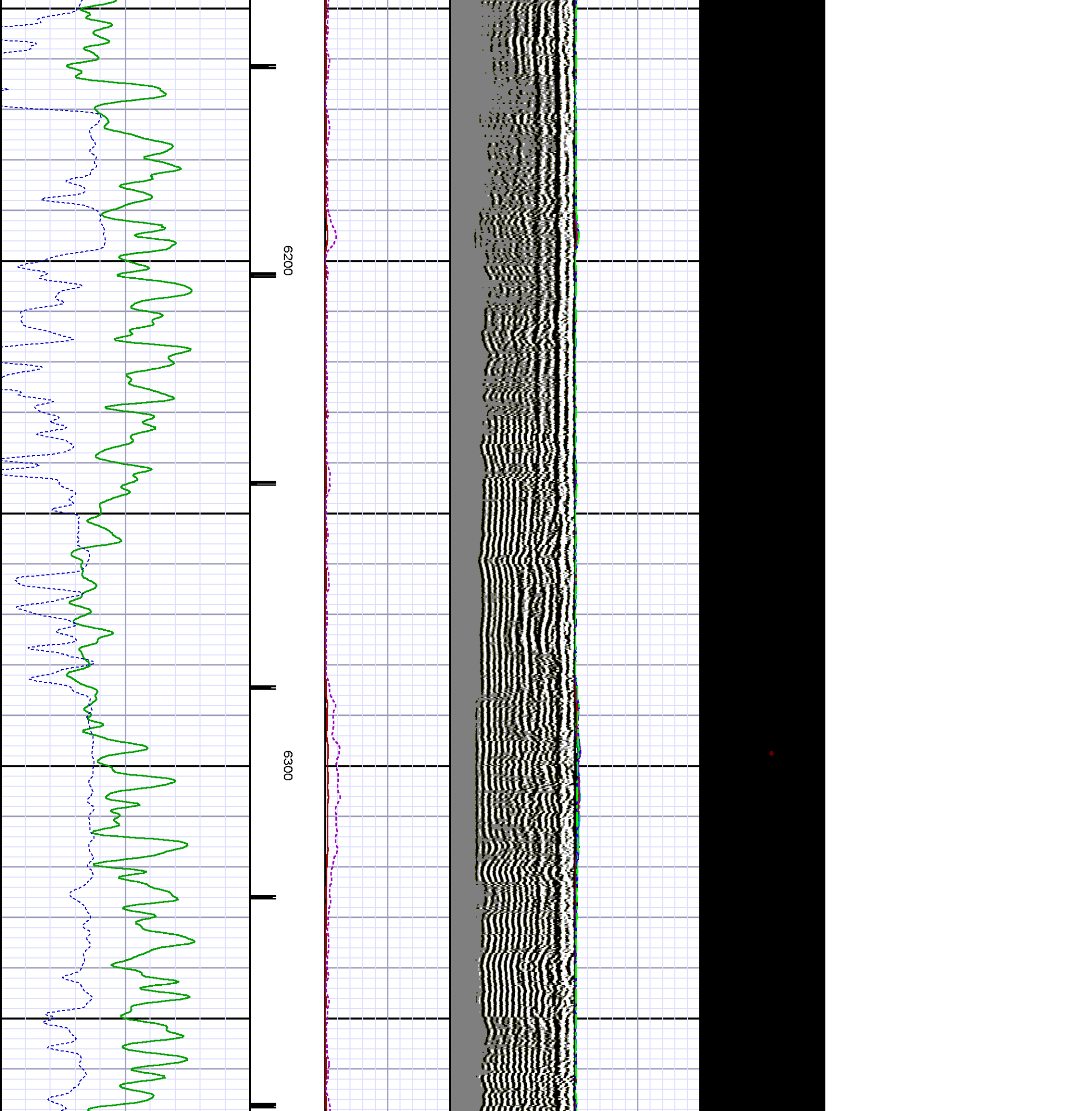


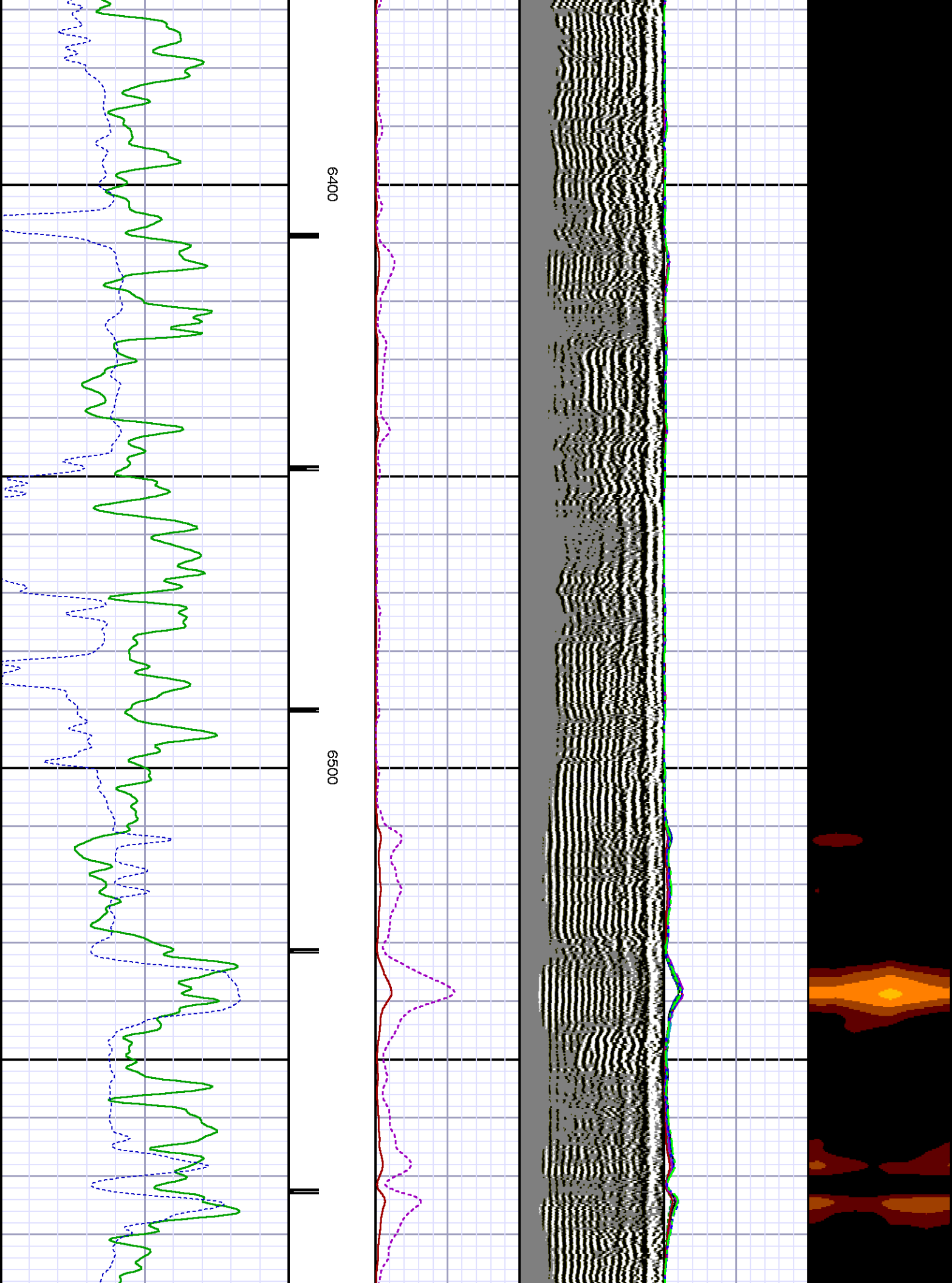


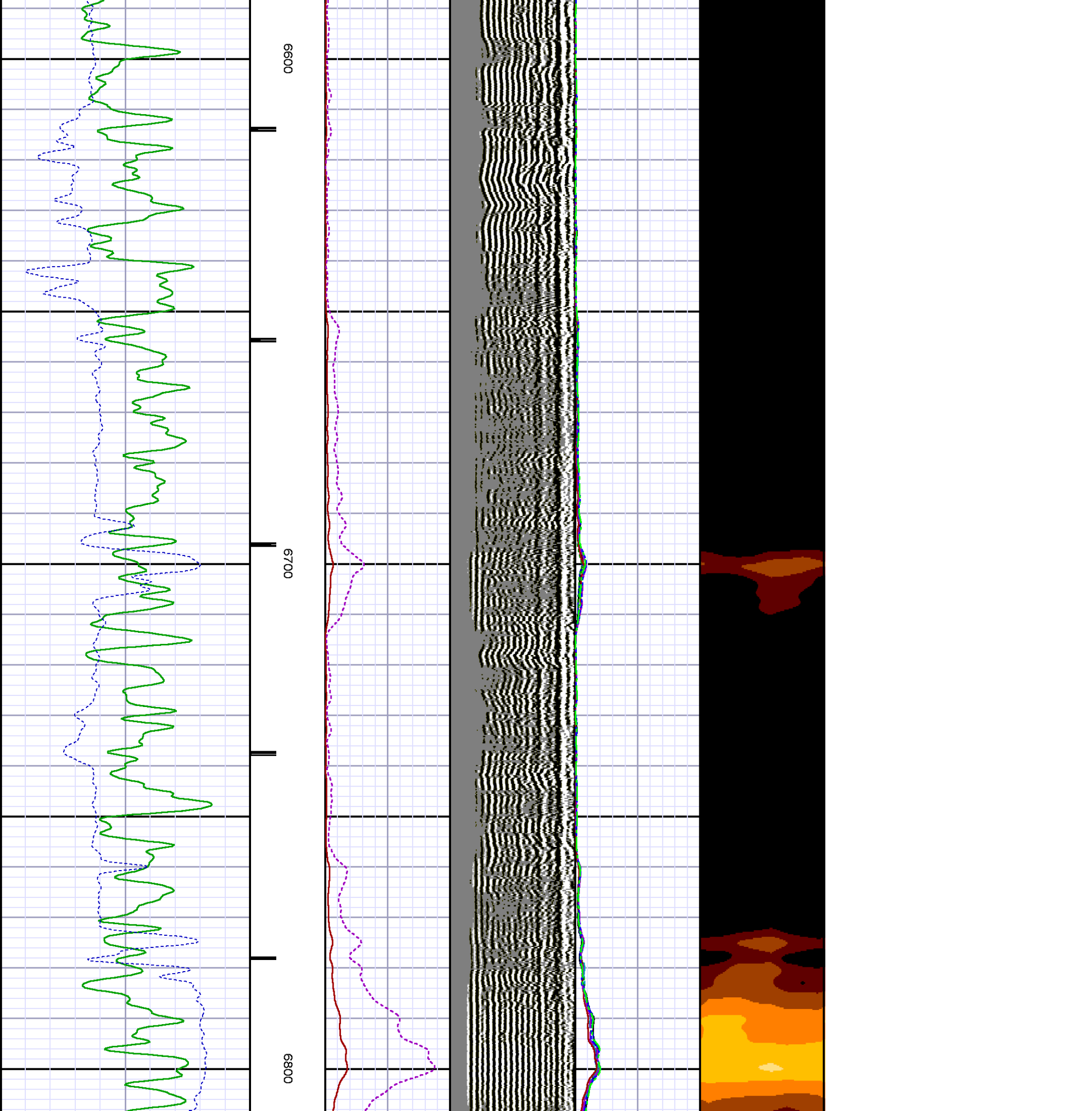


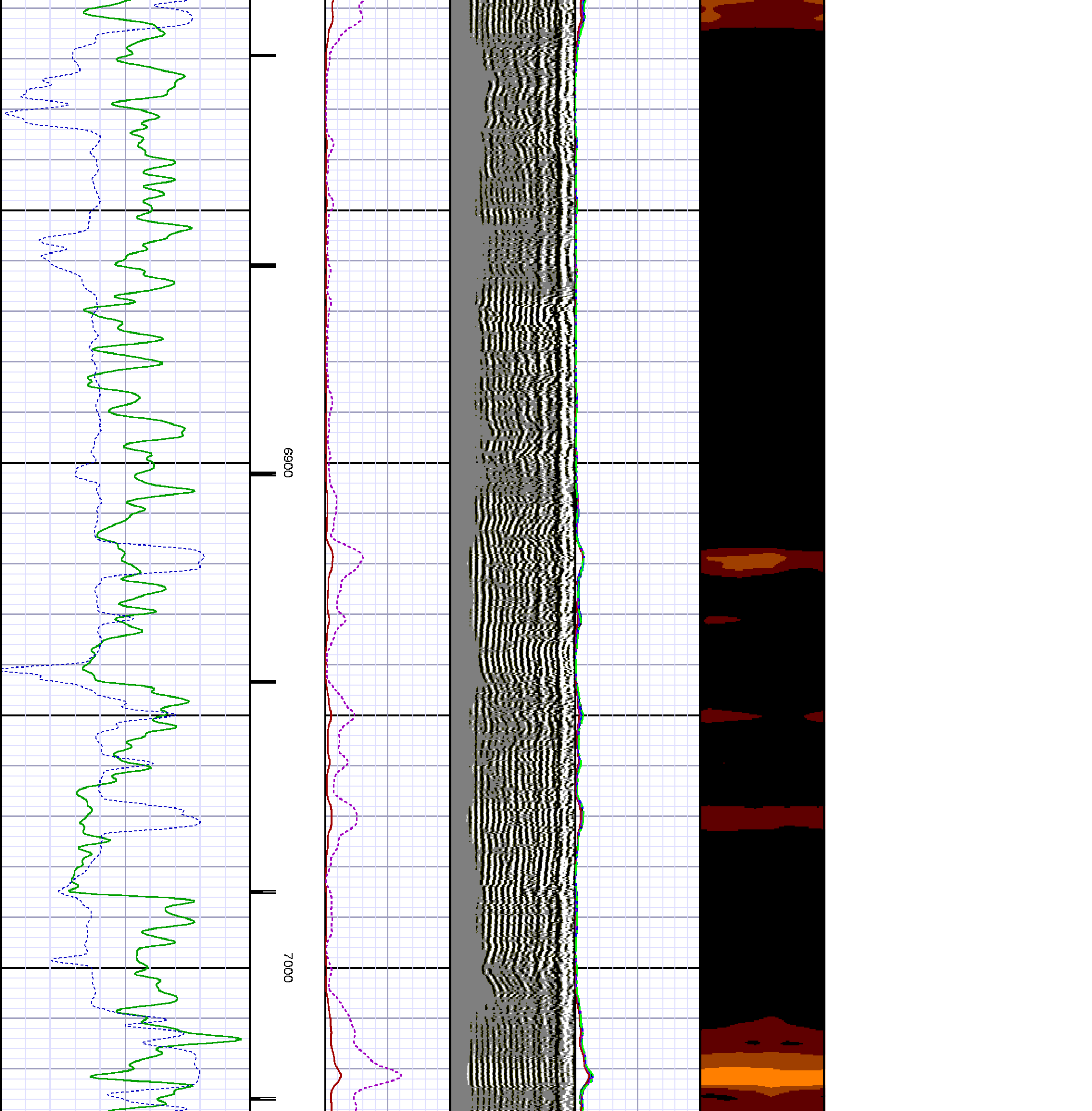


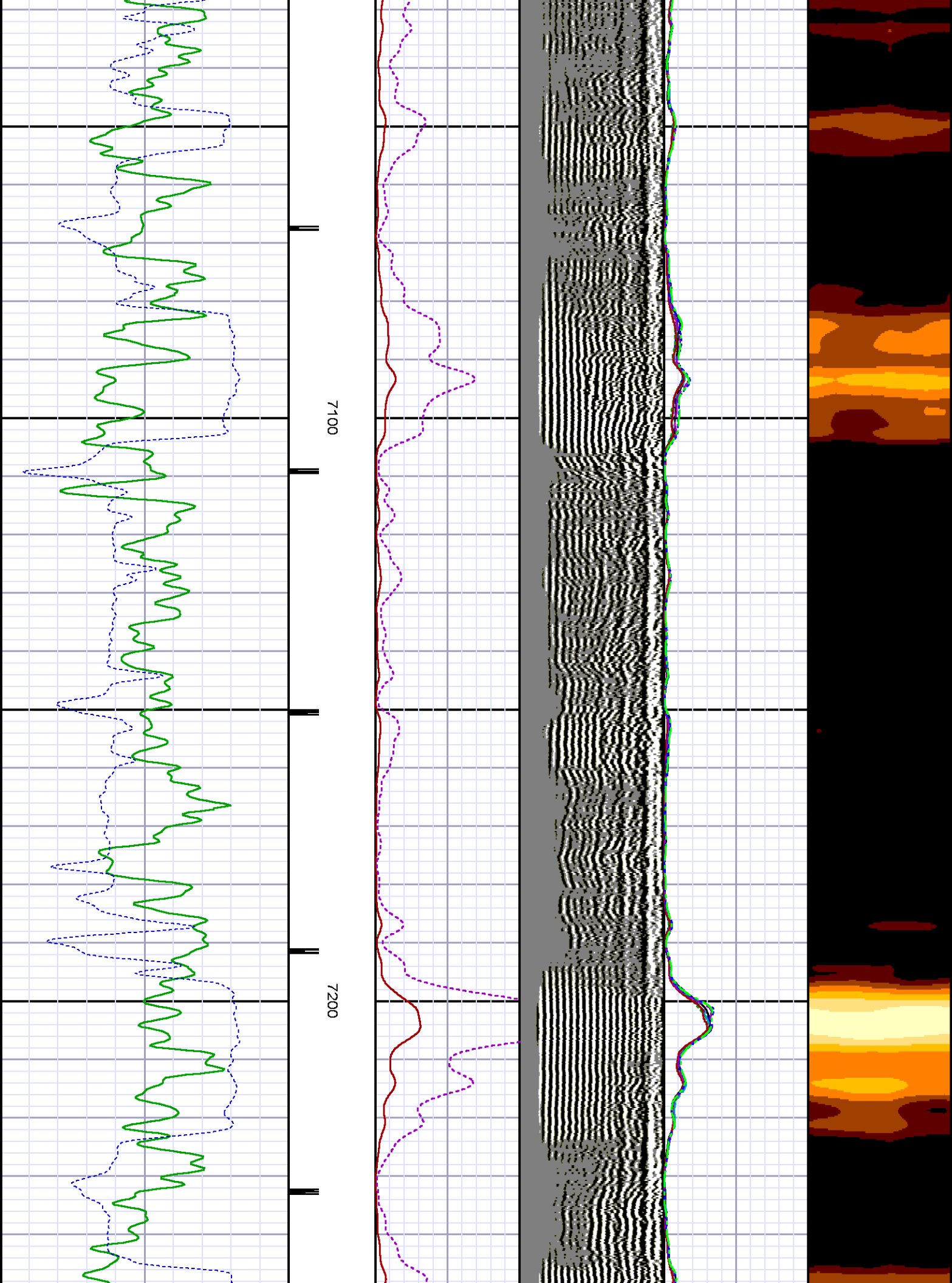


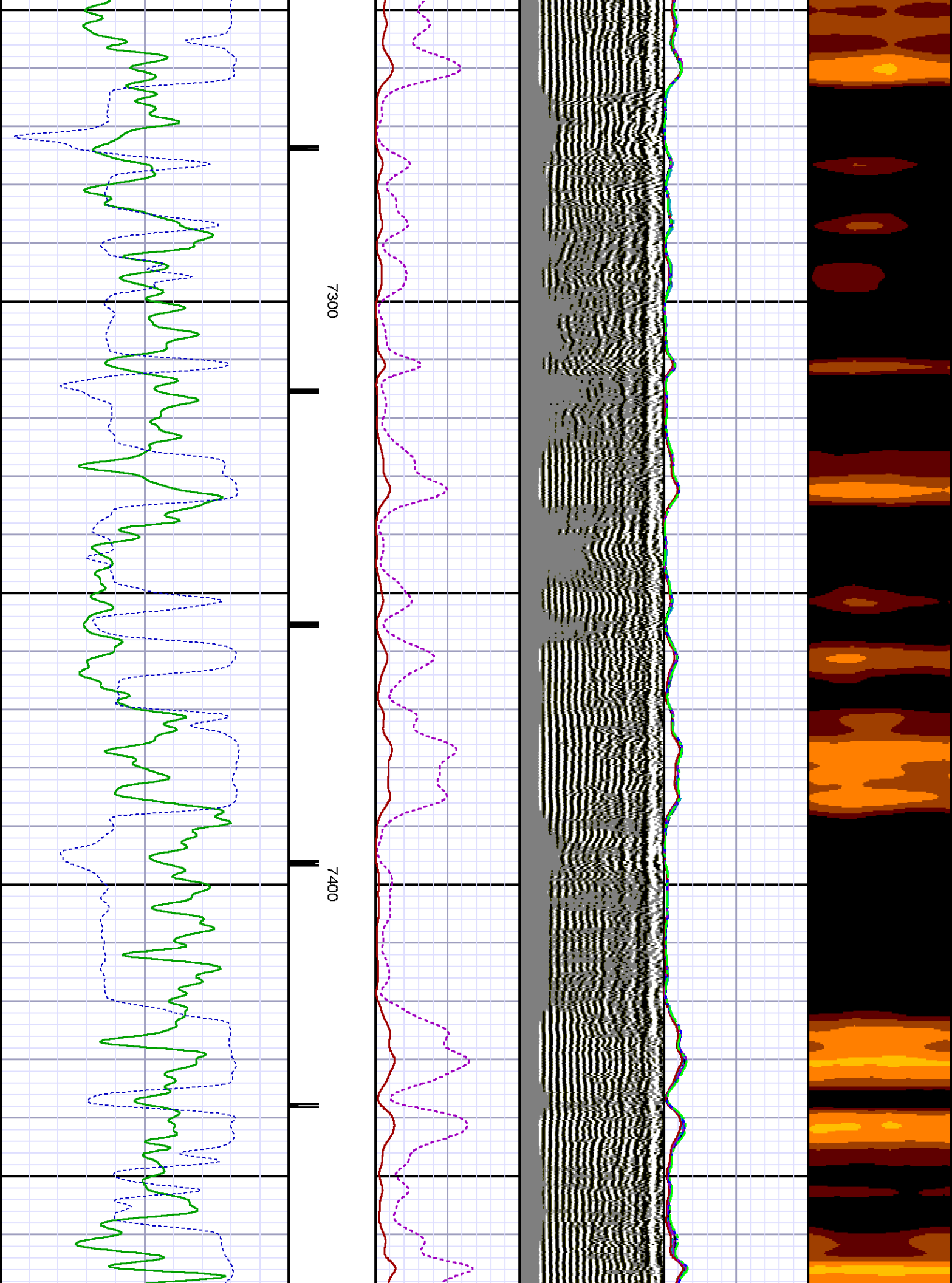


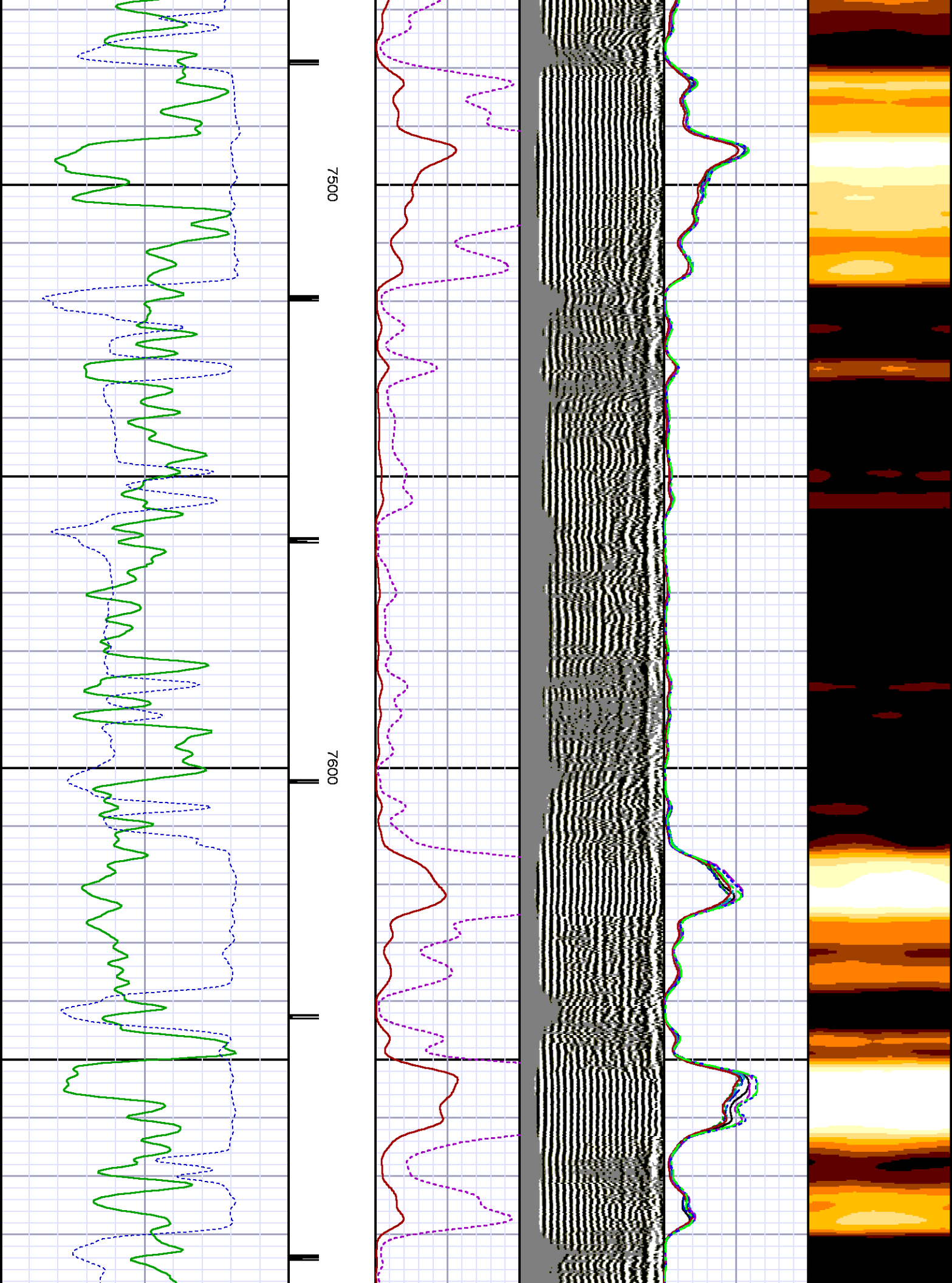


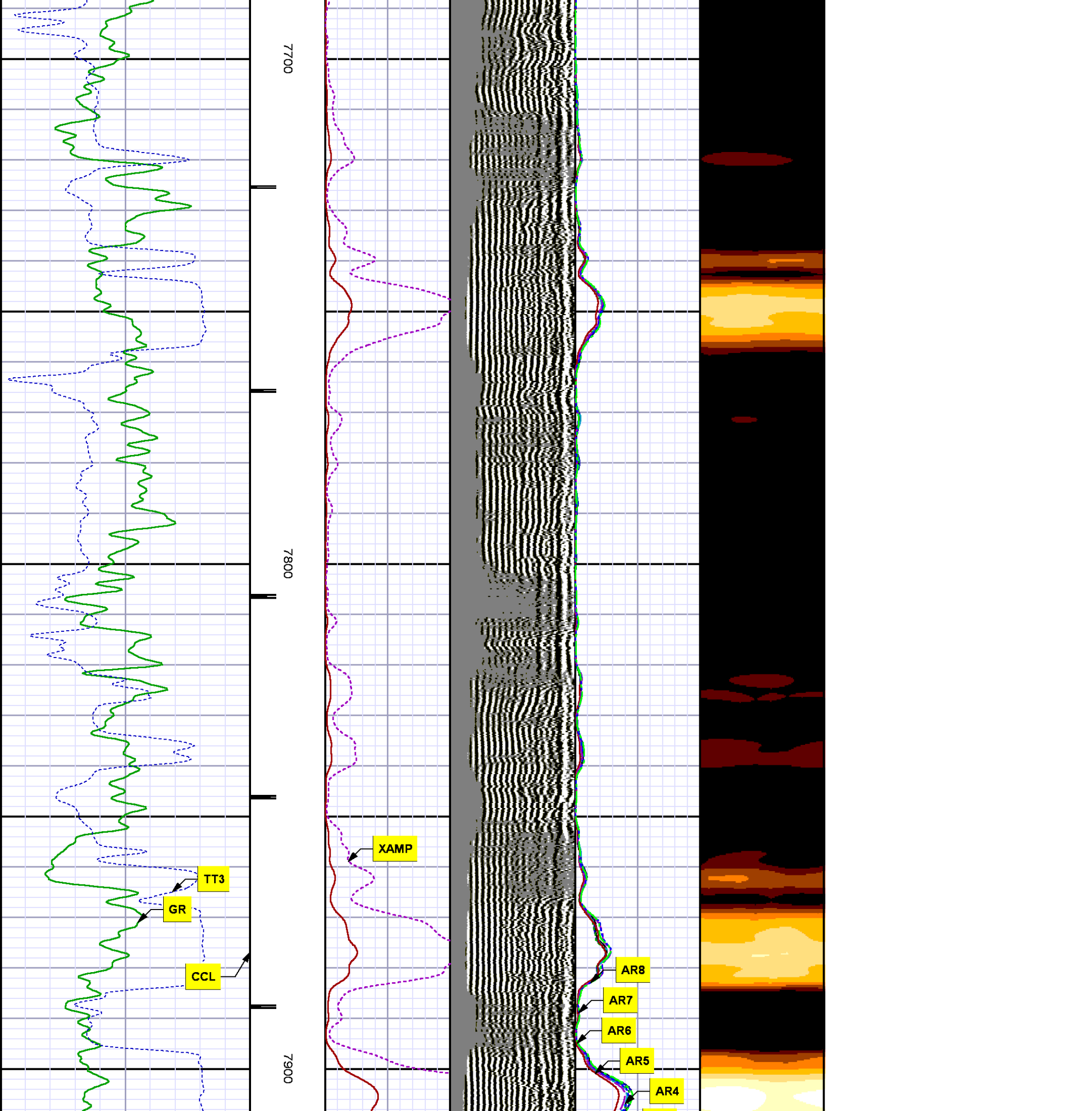


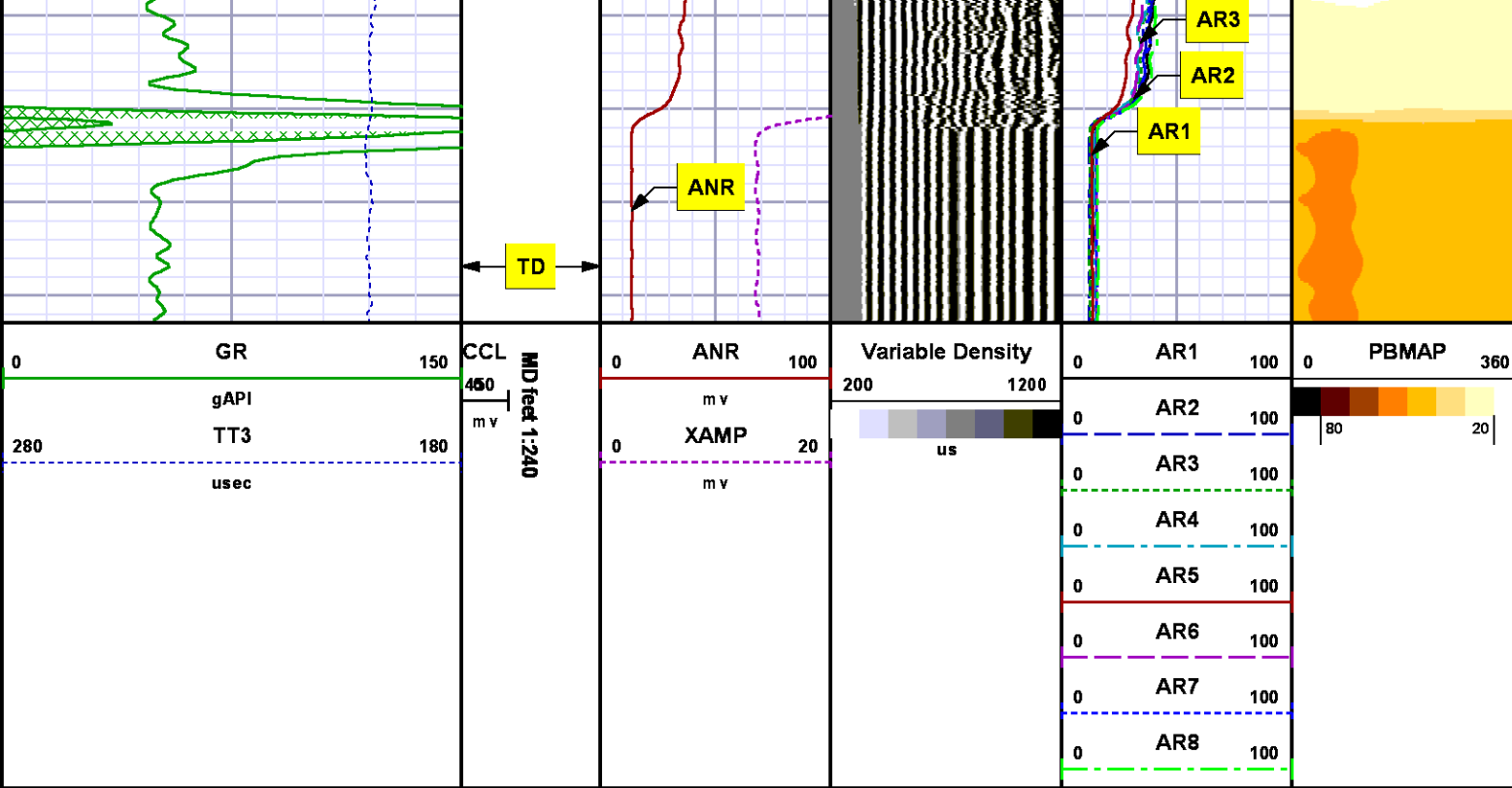












*REPEAT SECTION  
0 PSI*

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	305.000	u sec	7638.460	7963.710
RAL	Amp Gate Start Near	195.000	u sec	7638.460	7963.710
RAL	Amp Gate Start Radial	195.000	u sec	7638.460	7963.710
RAL	Amp Gate Width Far	25.000	u sec	7638.460	7963.710
RAL	Amp Gate Width Near	25.000	u sec	7638.460	7963.710
RAL	Amp Gate Width Radial	25.000	u sec	7638.460	7963.710
RAL	casing od	4.500	inches	7638.460	7963.710
RAL	casing wt	11.600	lbm/ft	7638.460	7963.710
RAL	FB Start Far	291.900	u sec	7638.460	7963.710
RAL	FB Start Near	180.000	u sec	7638.460	7963.710
RAL	FB Start Radial	180.000	u sec	7638.460	7963.710
RAL	FB Thresh Far	10.000	mv	7638.460	7963.710
RAL	FB Thresh Near	4.000	mv	7638.460	7963.710
RAL	FB Thresh Radial	4.000	mv	7638.460	7963.710
RAL	Fluid Travel Time	200.000	u sec/ft	7638.460	7963.710

**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

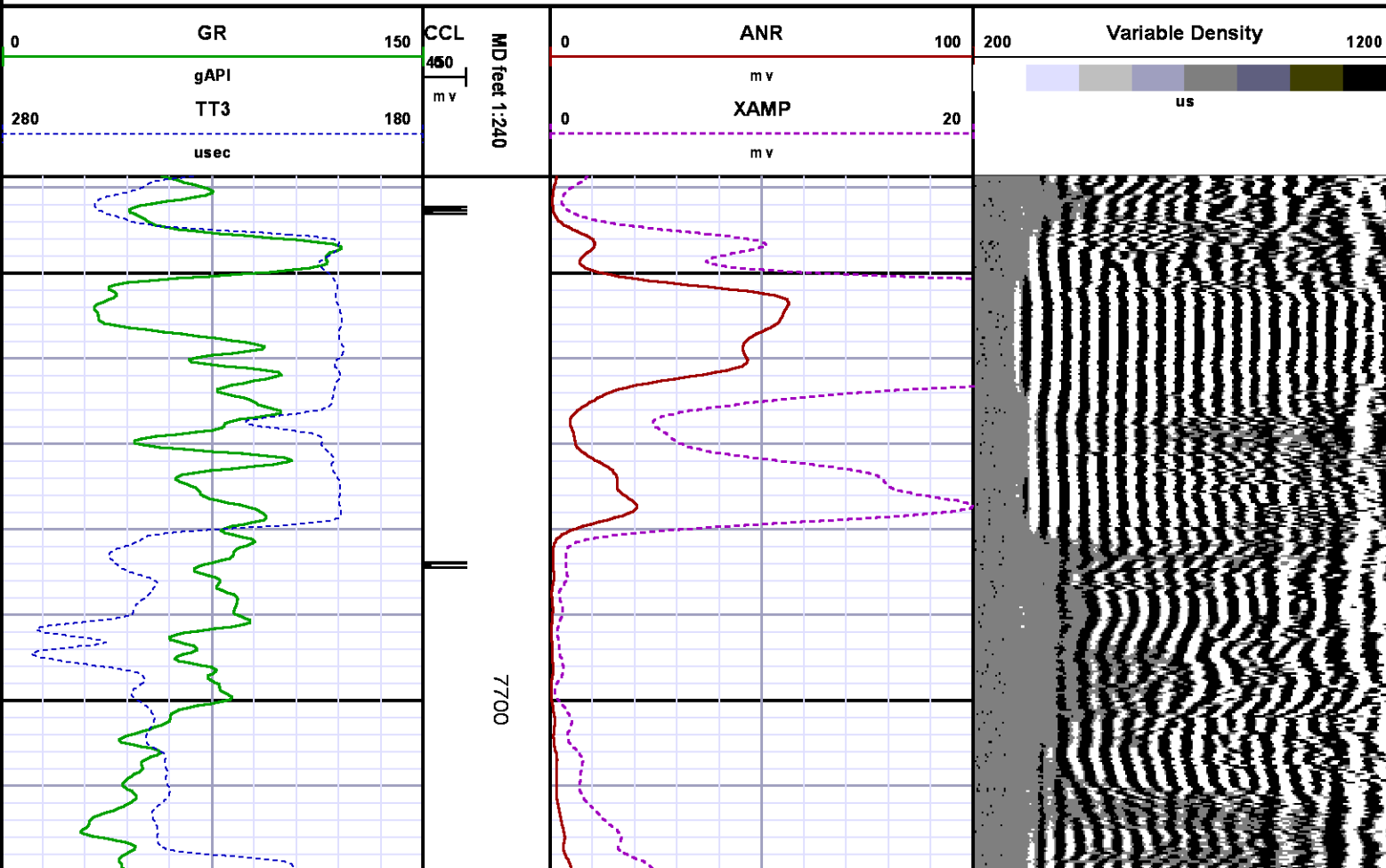
Well : WILLIAMS RMV 78-34

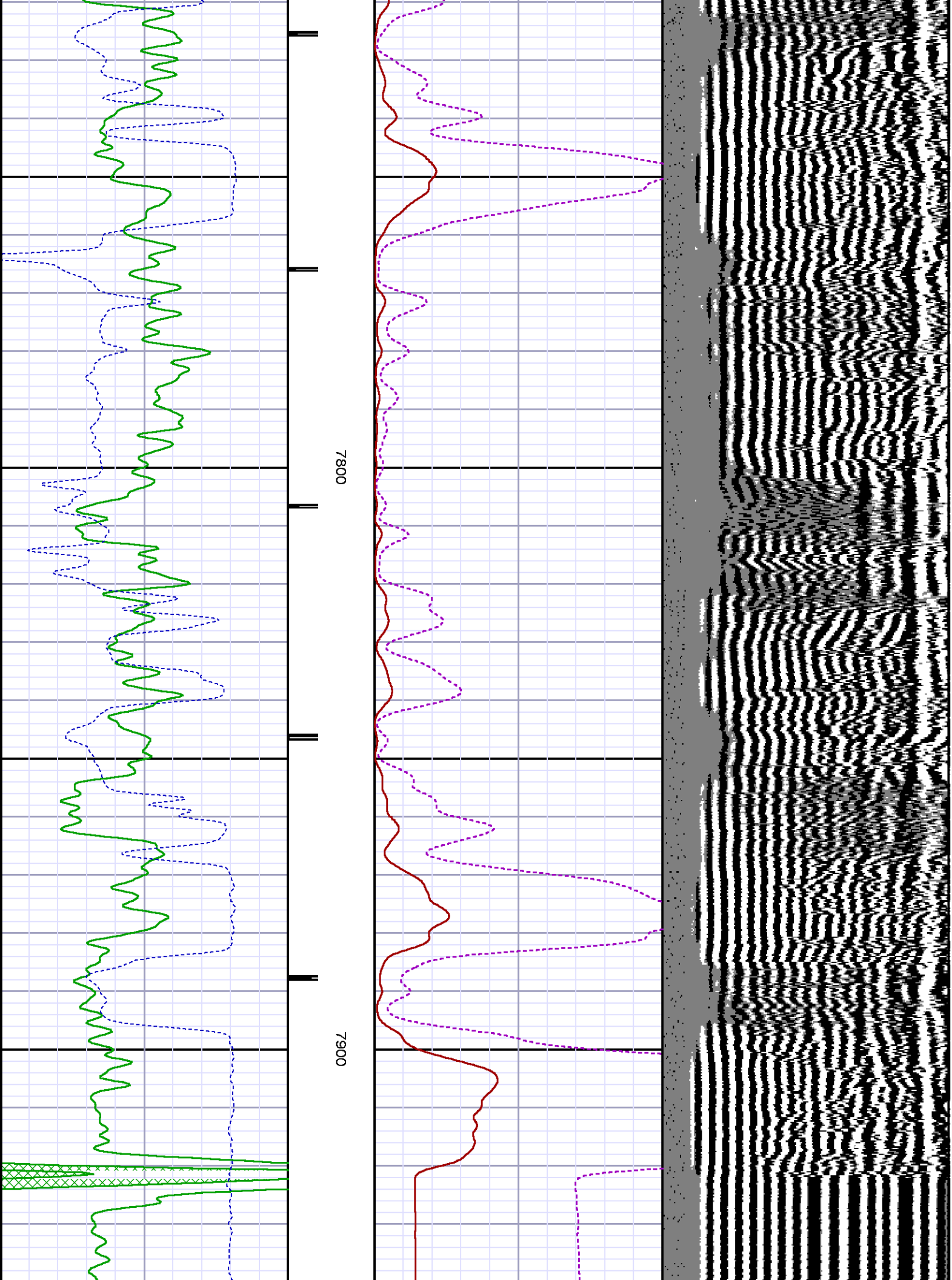
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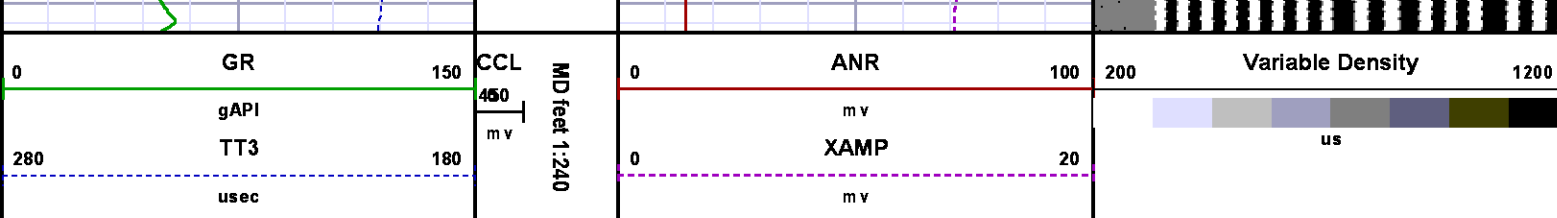
Mode : PlotMgr 5.4.504

Interval : 7638.71 - 7943.00 feet UP

Created : 7/12/2013 8:08:57 AM







## CALIBRATION SUMMARY

## GAMMA RAY

Calibration File: C:\case\calver\GRV457JL.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

Shop Calibration: C:\case\calver\RALSHP\539JUL12\_shp.cal

### SHOP CALIBRATION SUMMARY

DATE/TIME PERFORMED: Fri Jul 12 07:31:55 2013 TOOL SERIES: 1426XA ASSET: 539 SEQ: JUL12

Tool Delay [uSec]	-63.00	Tank OD in	5.50	Tank Wt lbm/ft	15.50	Tank ID in	4.95
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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	218	216	30	166	25	0.127	100.00	0.17
3 Ft. Receiver	217	216	30	166	25	-6.422	100.00	0.17
5 Ft. Receiver	324	324	30	192	25	0.438	150.00	0.19

Radial #1	217	216	30	139	25	1.920	100.00	0.17
Radial #2	217	216	30	139	25	0.842	100.00	0.17
Radial #3	217	216	30	139	25	0.681	100.00	0.17
Radial #4	217	216	30	139	25	0.086	100.00	0.17
Radial #5	217	216	30	139	25	-0.180	100.00	0.17
Radial #6	216	216	30	139	25	0.129	100.00	0.17
Radial #7	215	216	30	139	25	0.136	100.00	0.17
Radial #8	217	216	30	139	25	0.060	100.00	0.17

## RALFLD

Wellsite Calibration: C:\case\calver\RALFLD\539JUL12 fld.cal

### WELLSITE CALIBRATION SUMMARY

DATE/TIME PERFORMED: Fri Jul 12 07:33:56 2013      TOOL SERIES: 1426XA      ASSET: 539      SEQ: JUL12

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="-0.098"/>	<input type="text" value="0.000"/>	<input type="text" value="1.00"/>	<input type="text" value="100.000"/>
3 Ft. Receiver	<input type="text" value="195"/>	<input type="text" value="25"/>	<input type="text" value="-2.813"/>			
5 Ft. Receiver	<input type="text" value="305"/>	<input type="text" value="25"/>	<input type="text" value="-4.103"/>			
Radial #1	<input type="text" value="195"/>	<input type="text" value="25"/>	<input type="text" value="-3.509"/>			
Radial #2	<input type="text" value="195"/>	<input type="text" value="25"/>	<input type="text" value="-3.294"/>			
Radial #3	<input type="text" value="195"/>	<input type="text" value="25"/>	<input type="text" value="-2.990"/>			
Radial #4	<input type="text" value="195"/>	<input type="text" value="25"/>	<input type="text" value="-3.366"/>			
Radial #5	<input type="text" value="195"/>	<input type="text" value="25"/>	<input type="text" value="-4.919"/>			
Radial #6	<input type="text" value="195"/>	<input type="text" value="25"/>	<input type="text" value="-3.696"/>			
Radial #7	<input type="text" value="195"/>	<input type="text" value="25"/>	<input type="text" value="-3.958"/>			
Radial #8	<input type="text" value="195"/>	<input type="text" value="25"/>	<input type="text" value="-3.990"/>			

## TOOL DIAGRAM

OTA SHORT CABLE HEAD



24.23'

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

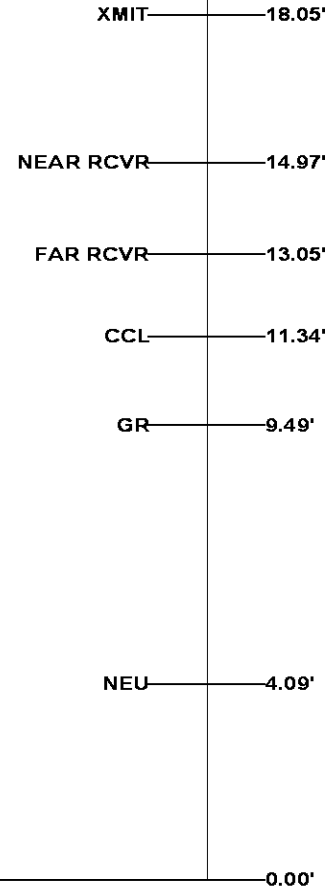
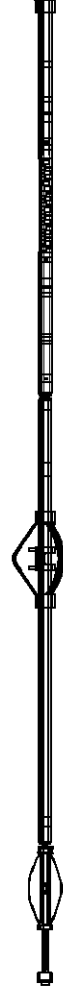
Series 1426XA  
 Mnemonic PROB  
 Diameter 2.75"  
 Length 11.17'  
 Measure Point 0.75' FAR RCVR  
 Measure Point 2.67' NEAR RCVR  
 Measure Point 5.75' XMIT  
 Temp Rating 350.00 °F  
 Press Rating 18000.00 PSI

**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

**CENTRALIZER**

Series RALCENT  
 Mnemonic CENT  
 Diameter 3.12"  
 Weight 20.00 lb



**Total Length: 24.23'**  
**Total Weight: Not Available**  
**Max Diameter: 0' 3.12"**



Baker Atlas

CASE

<b>Company</b>	WPX ENERGY		<b>File No:</b> CH074099
	<b>Well</b>	WPX ENERGY RMV 78-34	
<b>Field</b>	RULISON		<b>API No:</b> 05045174720000
<b>County</b>	GARFIELD	<b>State</b>	
<b>Location</b>	SHL: 1451' FNL X 1071' FEL BHL: 1058' FNL X 896' FWL (NWNW SEC 34)		34 6T 94W RWF 342-33 PAD NABORS 574
<b>SEC</b>	34	<b>TWP</b>	
		<b>RGE</b>	94W
		<b>Elevations</b>	
		KB	5355 ft
		DF	
		GL	5329 ft