



# RADIAL ANALYSIS BOND LOG

## Baker Atlas

File No:	Company	WILLIAMS PRODUCTION COMPANY	
	Well	PA 31-20	
API No:	Field	PARACHUTE	
05045181070000	County	GARFIELD	State
		COLORADO	
Location		Other Services	
20 GS 95W DOE 2-W-20 PAD SSD 577		RPM TEMP	
SEC 20 TWP 6S RGE 9SW			
Permanent Datum	GL	Elevation	6426 ft
Log Measured From	KB	26 ft	Above P. D.
Drill Measured From	KELLY BUSHING		
		KB	6452 ft
		DF	6451 ft
		GL	6426 ft

Date	17 AUG 2010	
Run	ONE	
Service Order	575233	
Depth Driller	9247 ft	
Depth Logger	9151 ft	
Bottom Logged Interval	9151 ft	
Top Logged Interval	20 ft	
Time Started	17:00	
Time Finished	22:00	
Operator Rig Time	5 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	250 degF	
Reference Log	BAKER ATLAS TRIPLE COMBO	
Reference Log Date	5 JULY 2010	
Equipment No.	4214	G.J., COLORADO
Recorded By	J. OSTLER	
Witnessed By	MR. TED VONFELDT	

- 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	SURFACE	1060 ft
7.875 In	SURFACE	9247 ft

Casing Record				
Size	Weight	Grade	From	To
9.625 In			SURFACE	1060 ft
4.5 In	11.6 lbm/ft	P-110	SURFACE	9247 ft

Remarks
LOG WAS TIED INTO A BAKER ATLAS TRIPLE COMBO LOG
WELL WAS LOGGED WITH 0 PSI AT THE WELL HEAD
BHT = 250°F
SHORT JOINT AT 5859' TO 5880'

Equipment Data

Run	Trip	Tool	Series Number	Serial Number	Position
1	1	VDL	1426XA	10154957	CENTRALIZED
1	1	GR/CCL/NEU	2459XA	10404544	CENTRALIZED

***MAIN SECTION  
PRIMARY PRESENTATION  
0 PSI***

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	316.900	usec	19.155	9205.000
RAL	Amp Gate Start Near	200.391	usec	19.155	9205.000
RAL	Amp Gate Start Radial	200.391	usec	19.155	9205.000
RAL	Amp Gate Width Far	30.000	usec	19.155	9205.000
RAL	Amp Gate Width Near	30.000	usec	19.155	9205.000
RAL	Amp Gate Width Radial	30.000	usec	19.155	9205.000
RAL	casing od	4.500	inches	19.155	9205.000
RAL	casing wt	11.600	lbm/ft	19.155	9205.000
RAL	FB Start Far	291.900	usec	19.155	9205.000
RAL	FB Start Near	175.391	usec	19.155	9205.000
RAL	FB Start Radial	175.391	usec	19.155	9205.000
RAL	FB Thresh Far	10.000	mv	19.155	9205.000
RAL	FB Thresh Near	4.000	mv	19.155	9205.000
RAL	FB Thresh Radial	4.000	mv	19.155	9205.000
RAL	Fluid Travel Time	200.000	usec/ft	19.155	9204.718

**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
2459XA	-7.250	CCL		
2459XA	-5.390	GR		
2459XA	0.000	NEU		

Created by : RAL, v4.8.008

Plotted by : PlotMgr, v5.4.504

Company : WILLIAMS PRODUCTION COMPANY

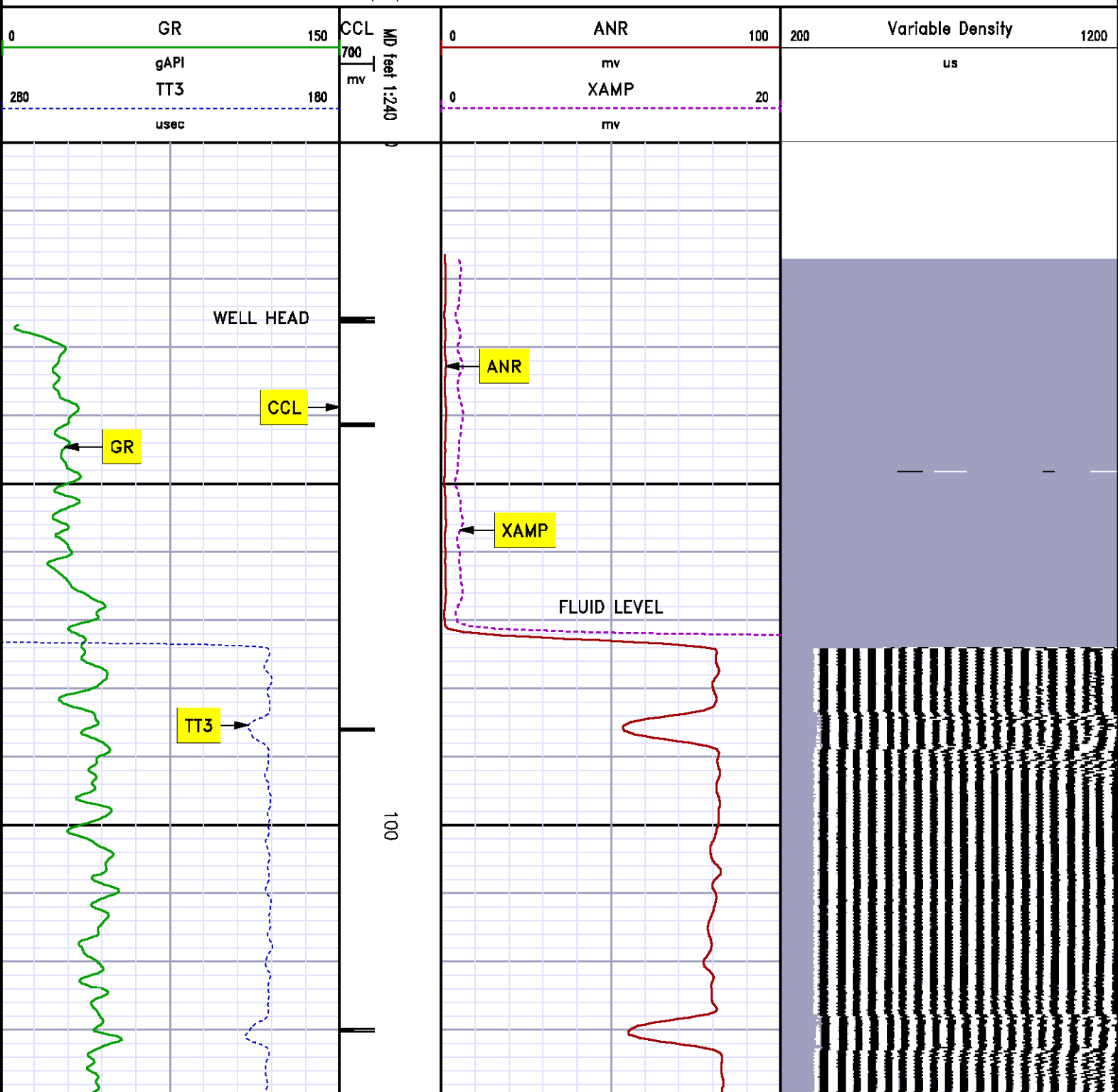
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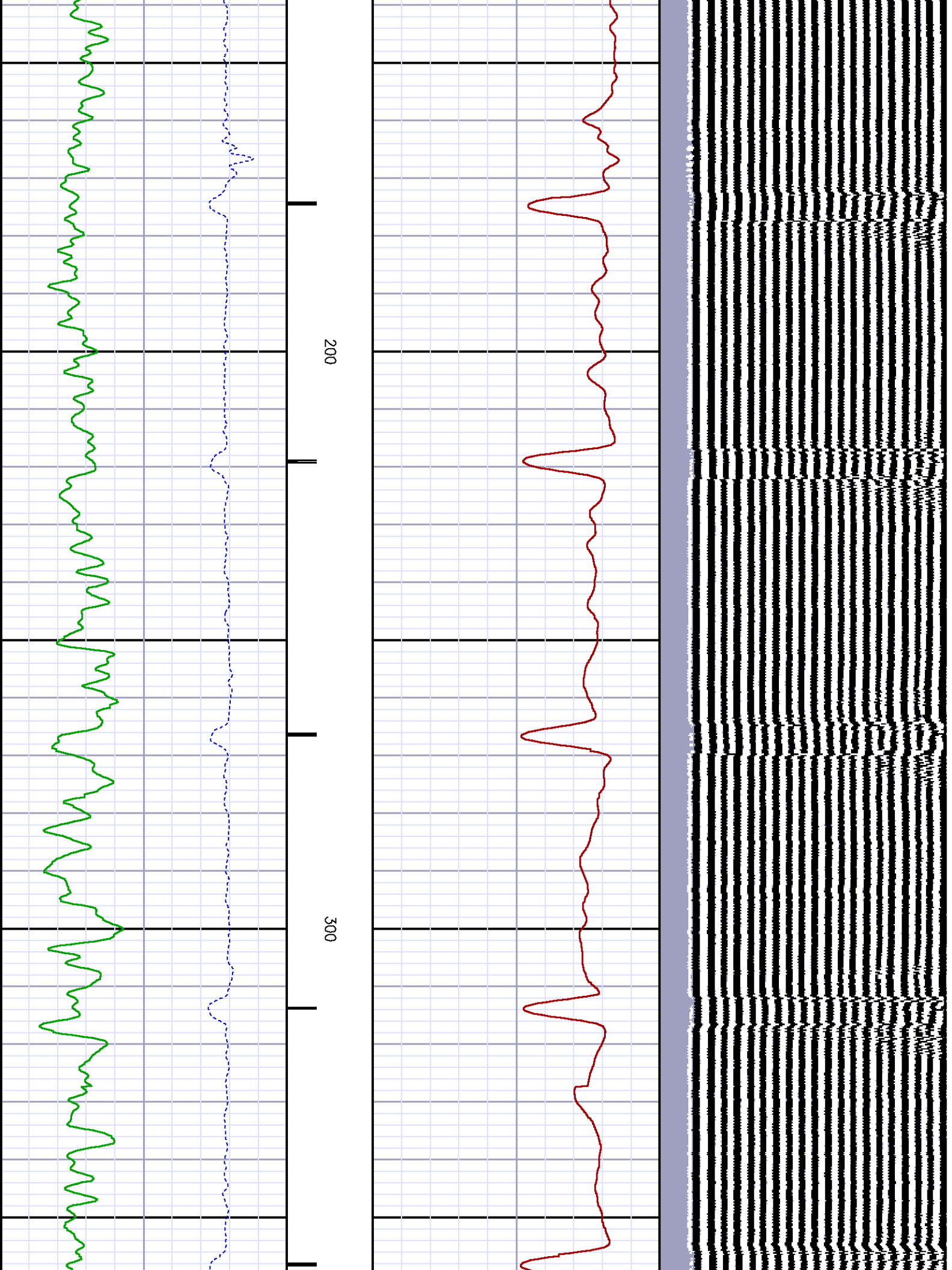
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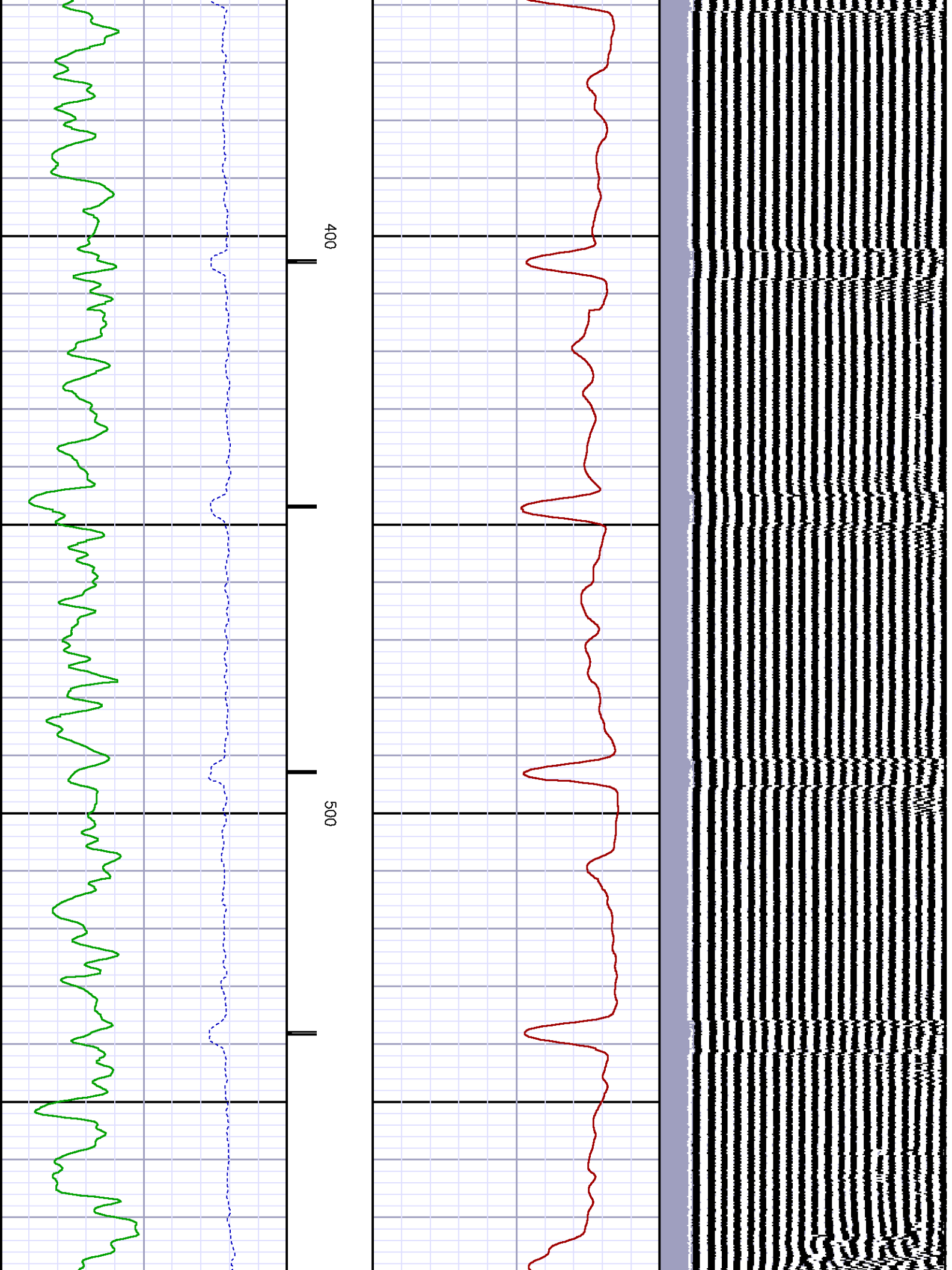
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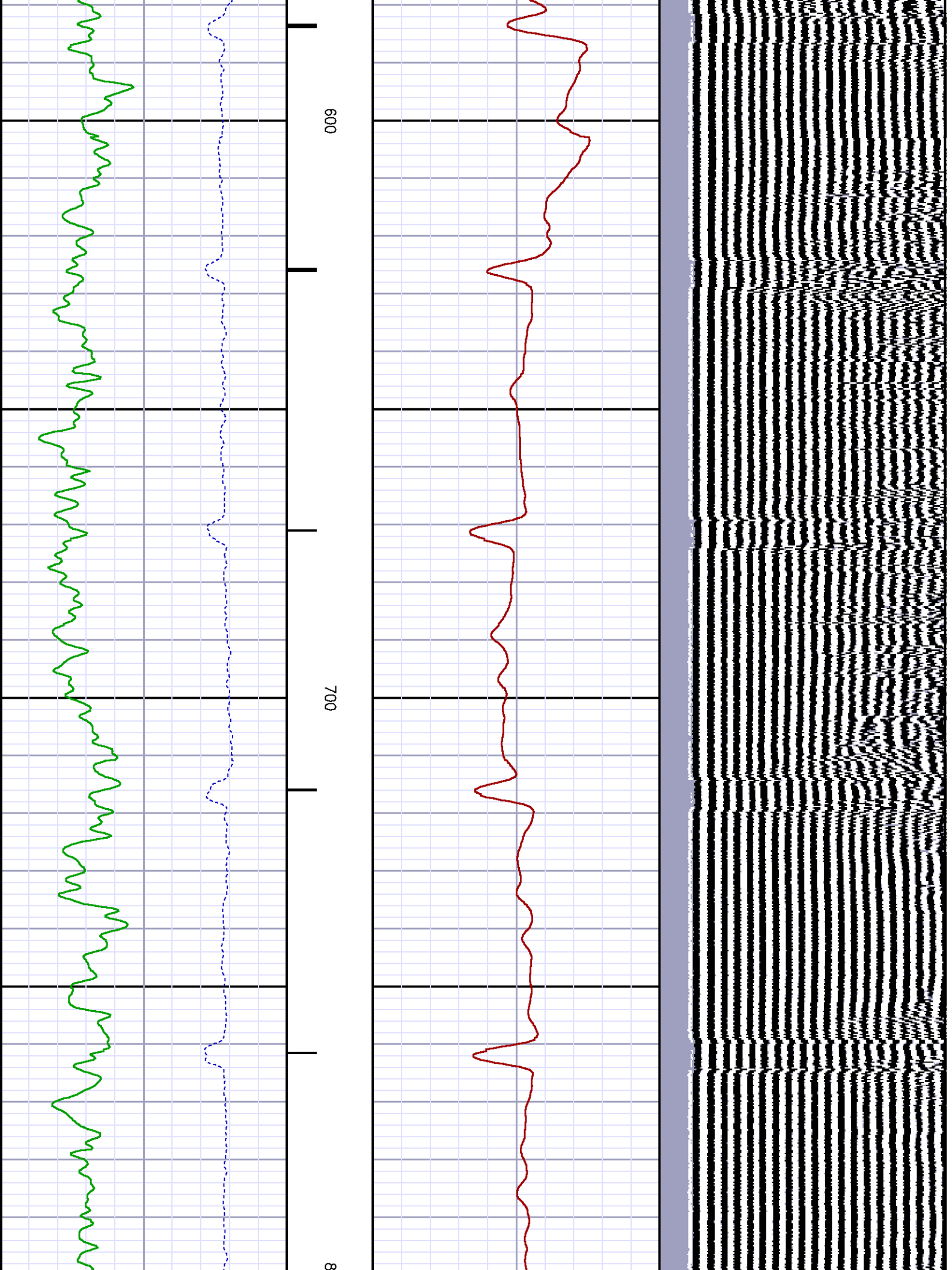
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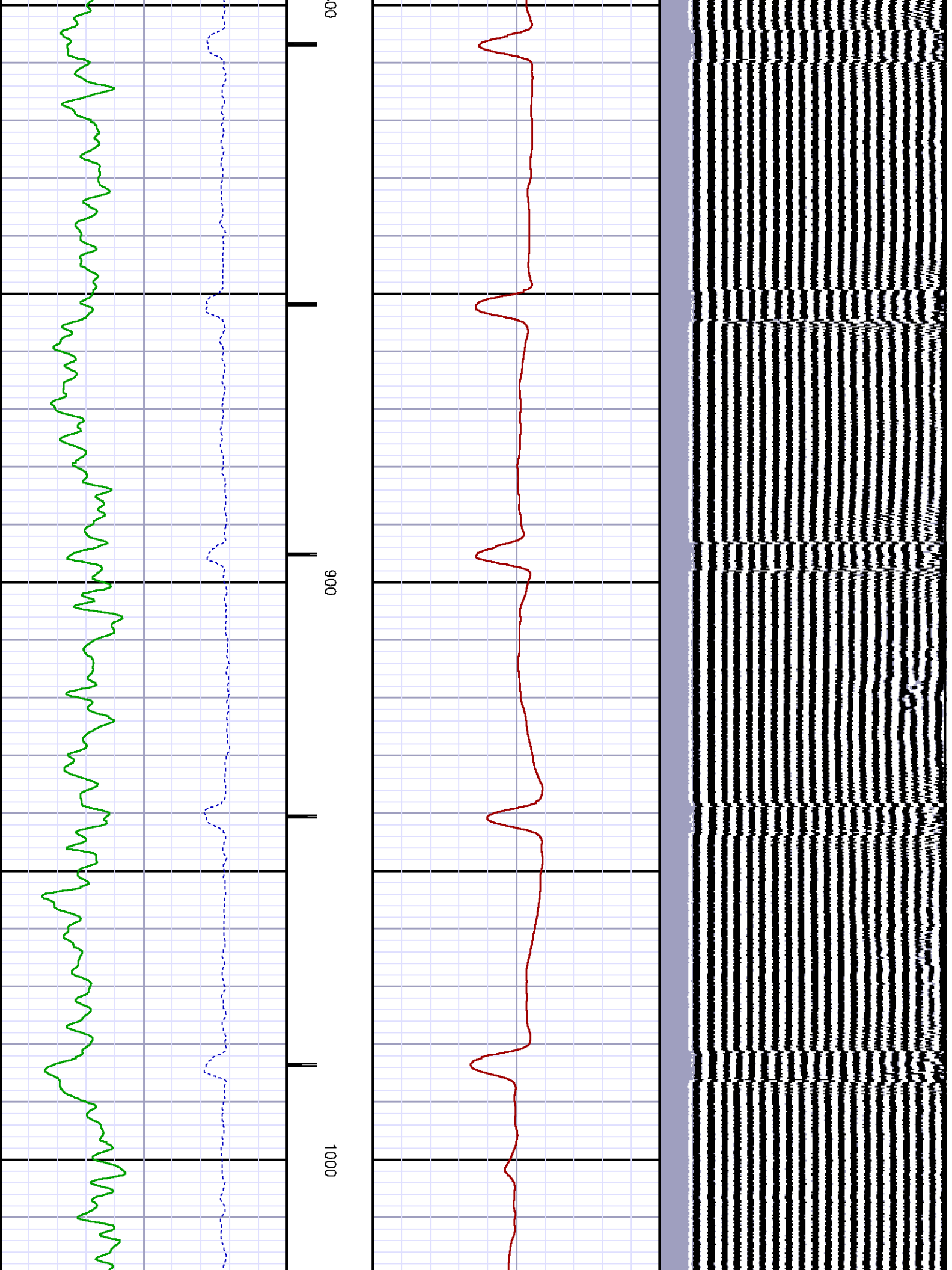


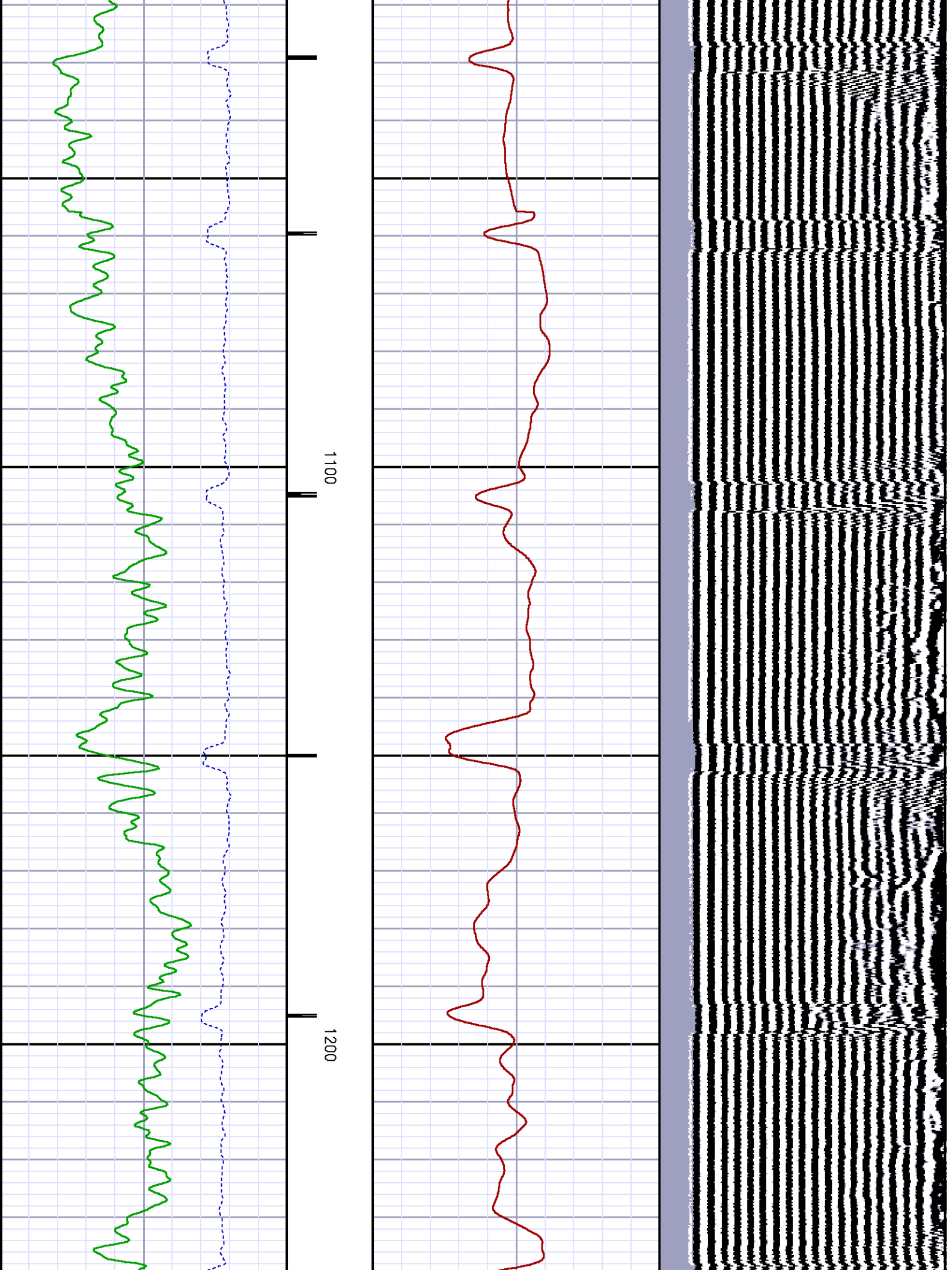


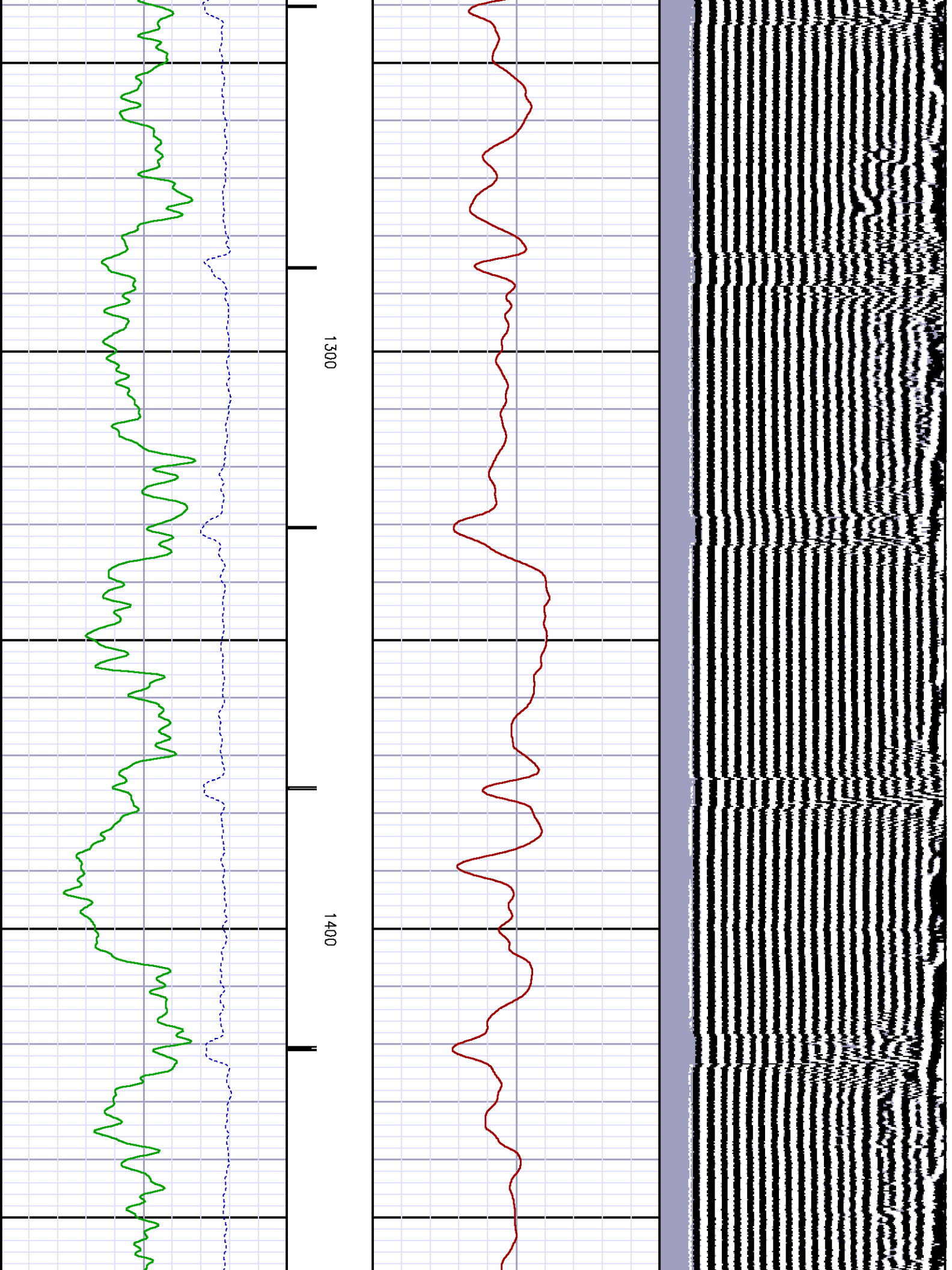


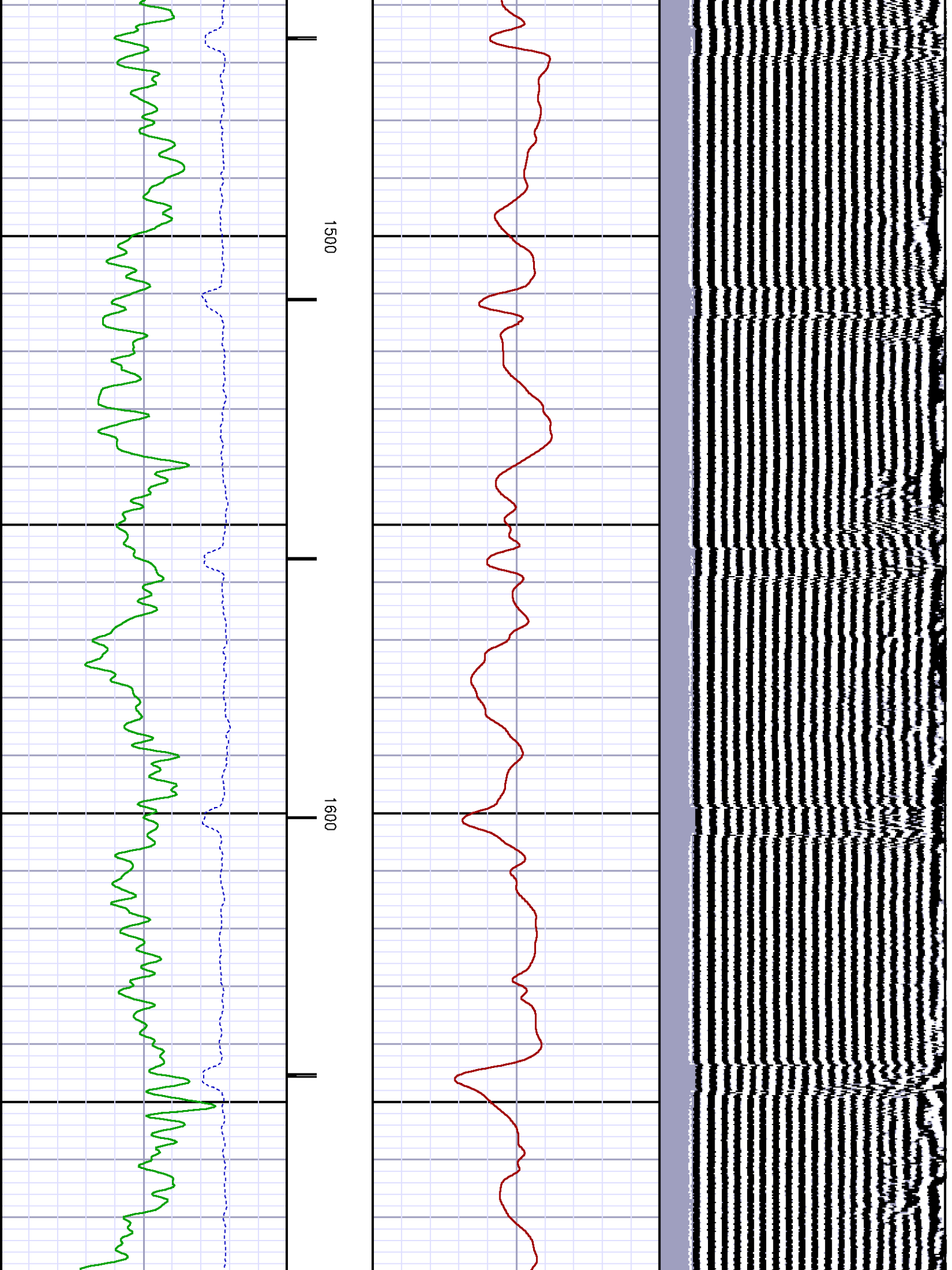




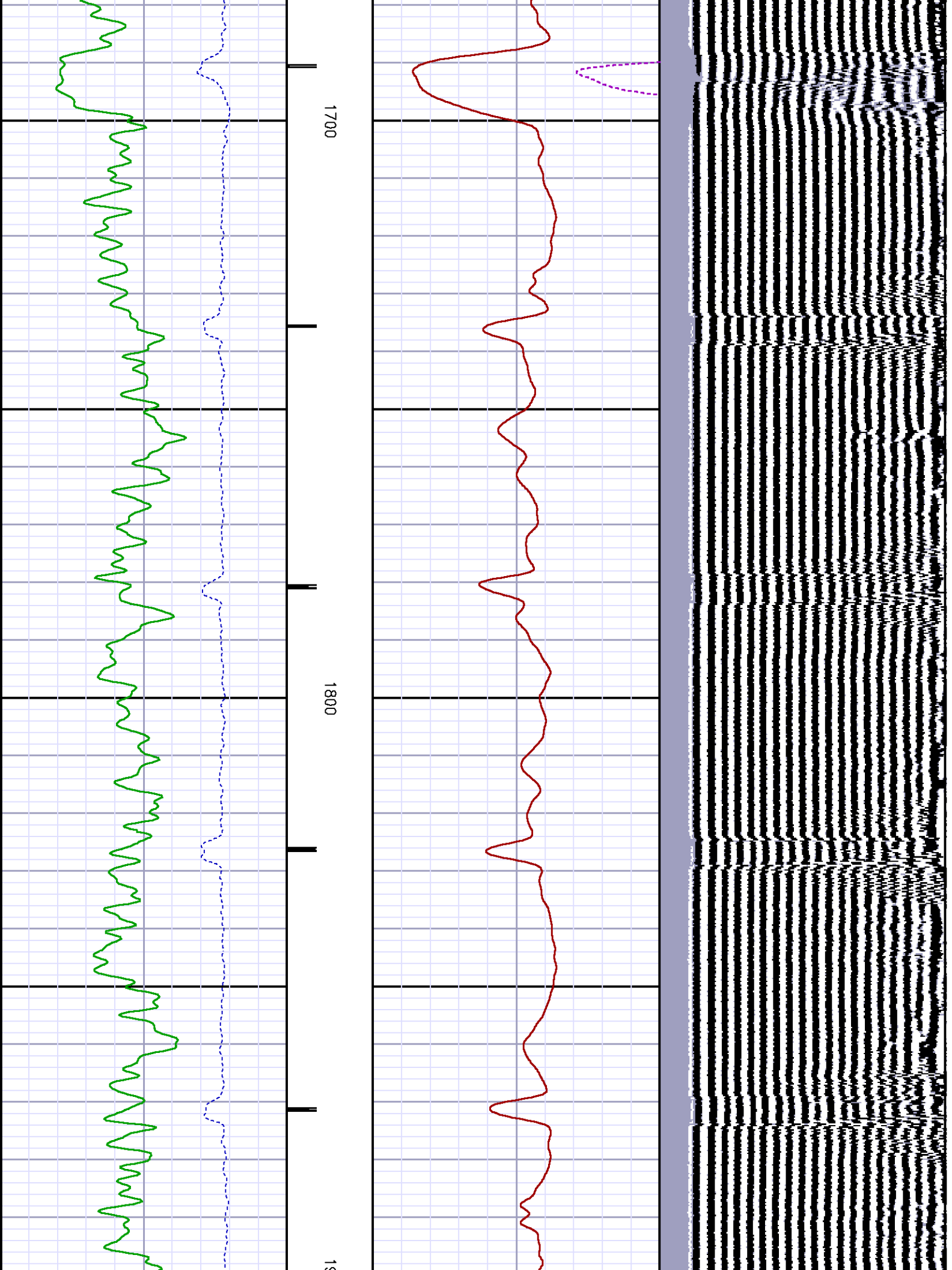


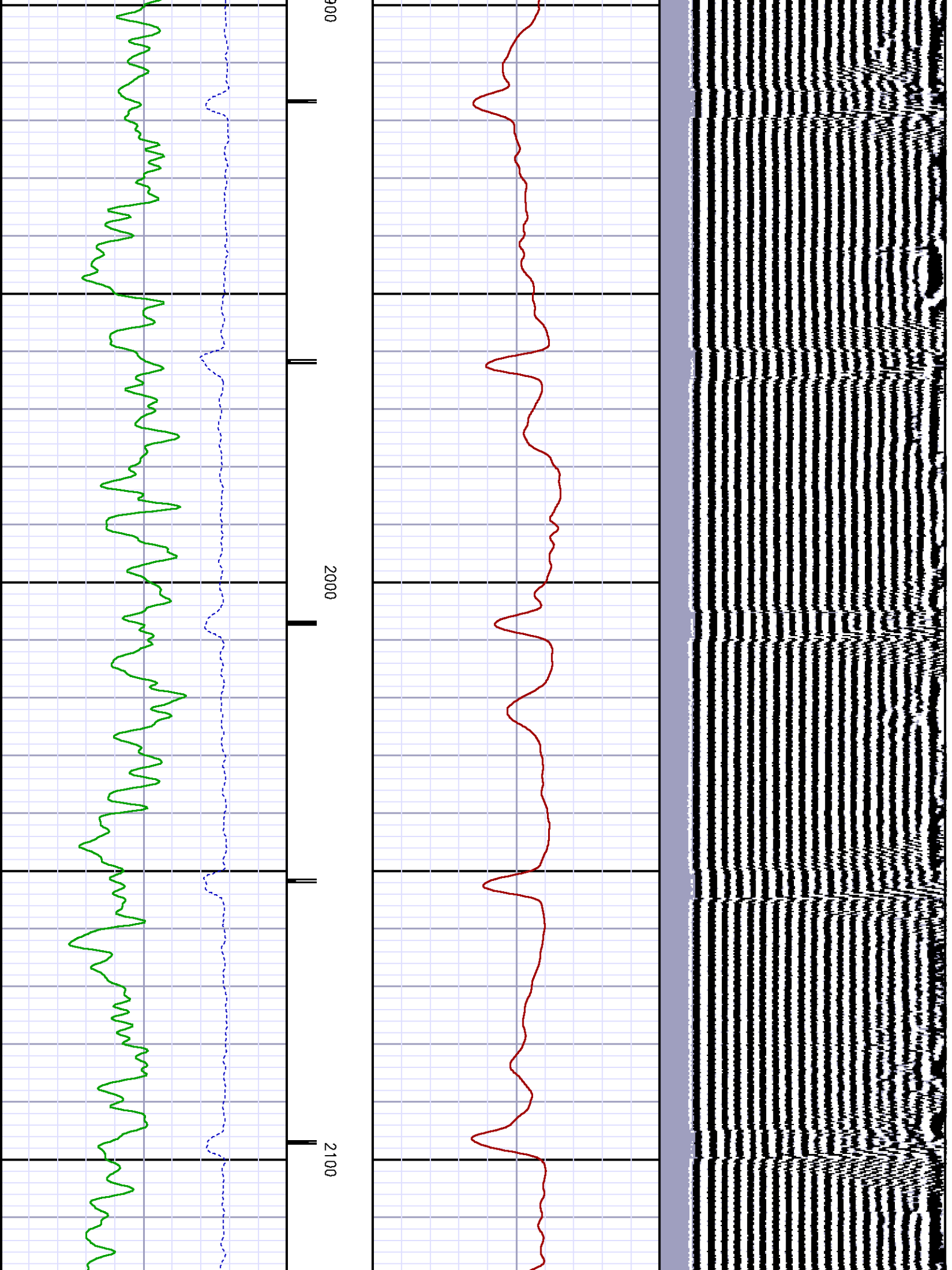




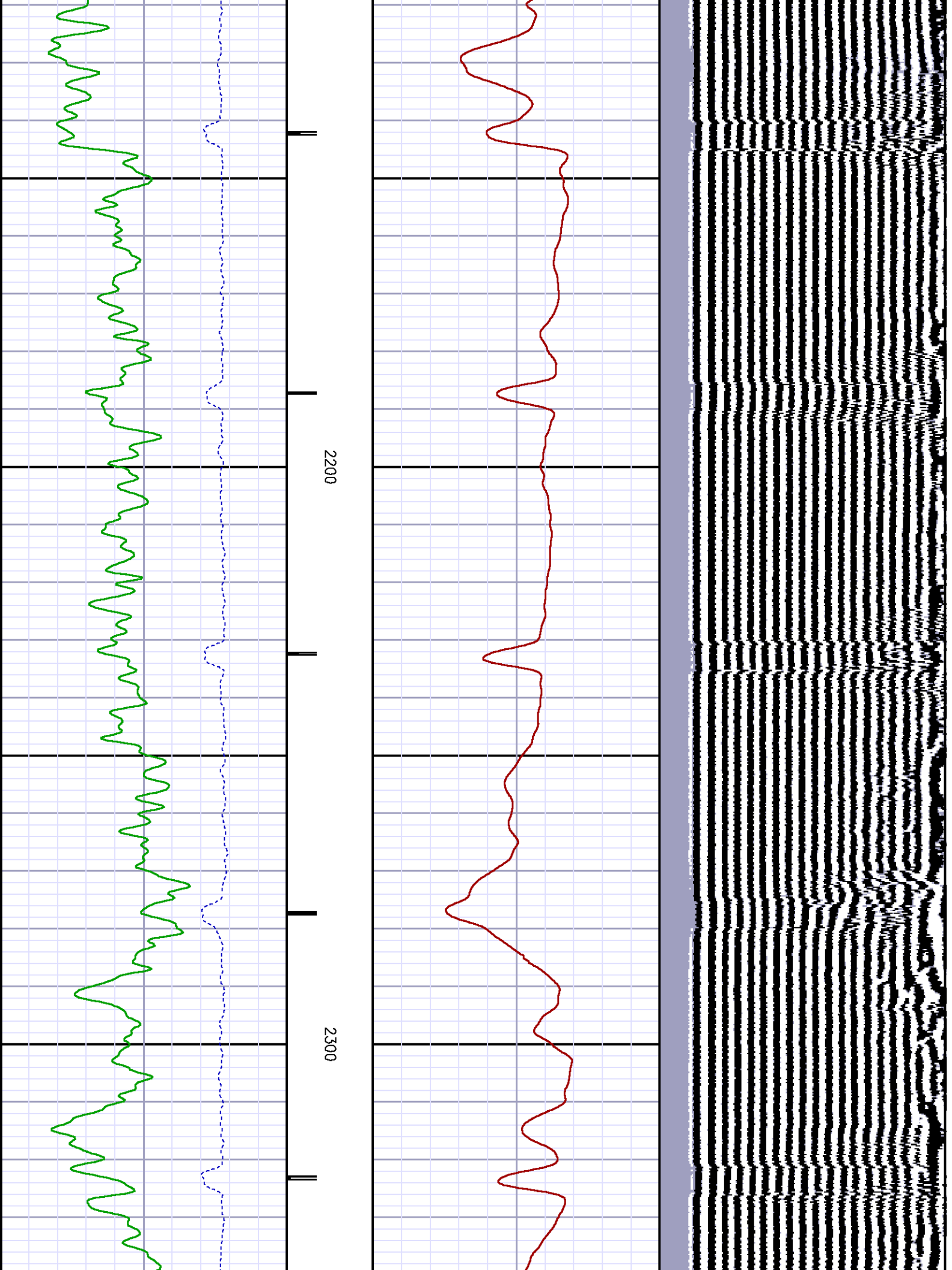


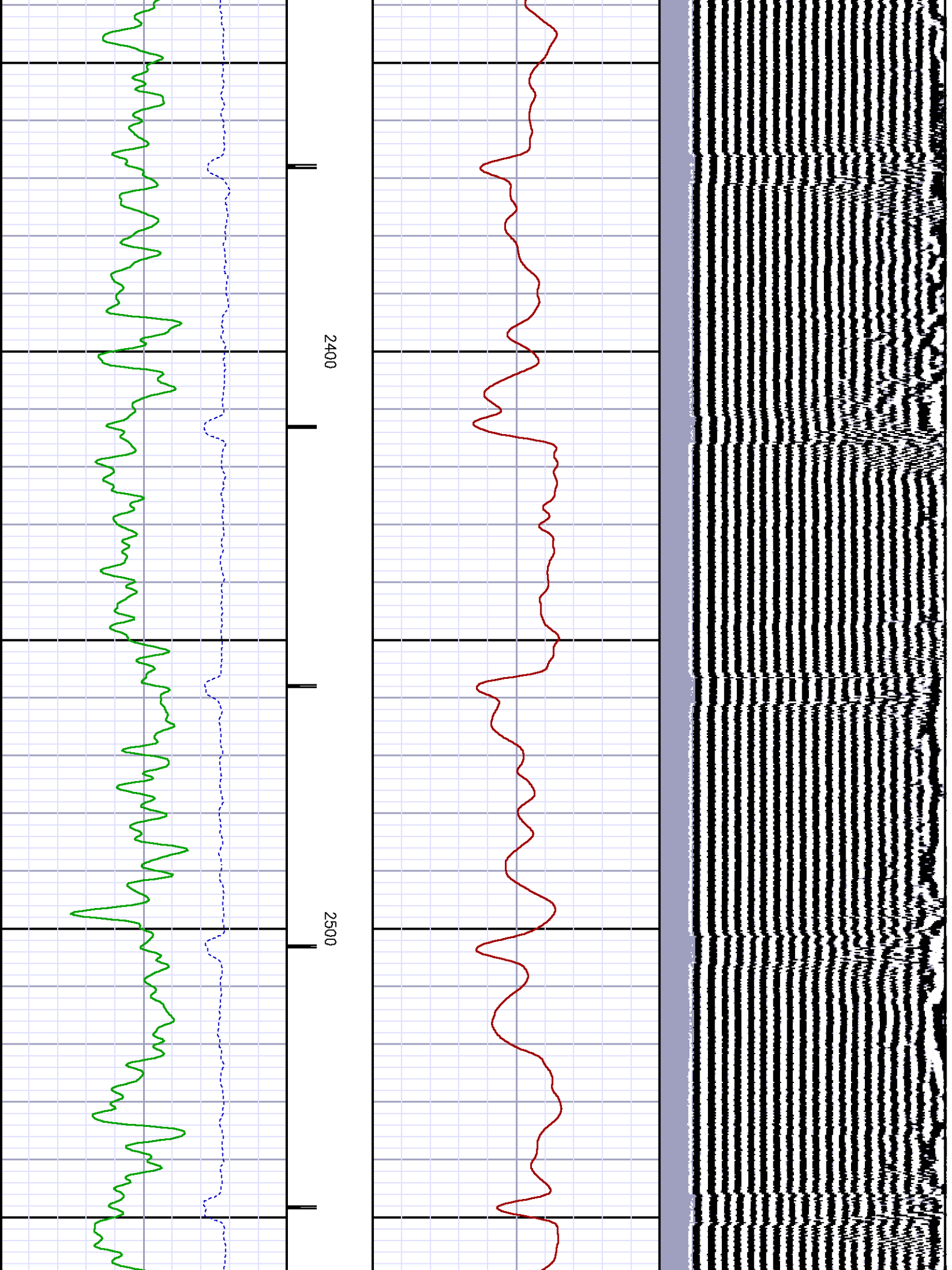


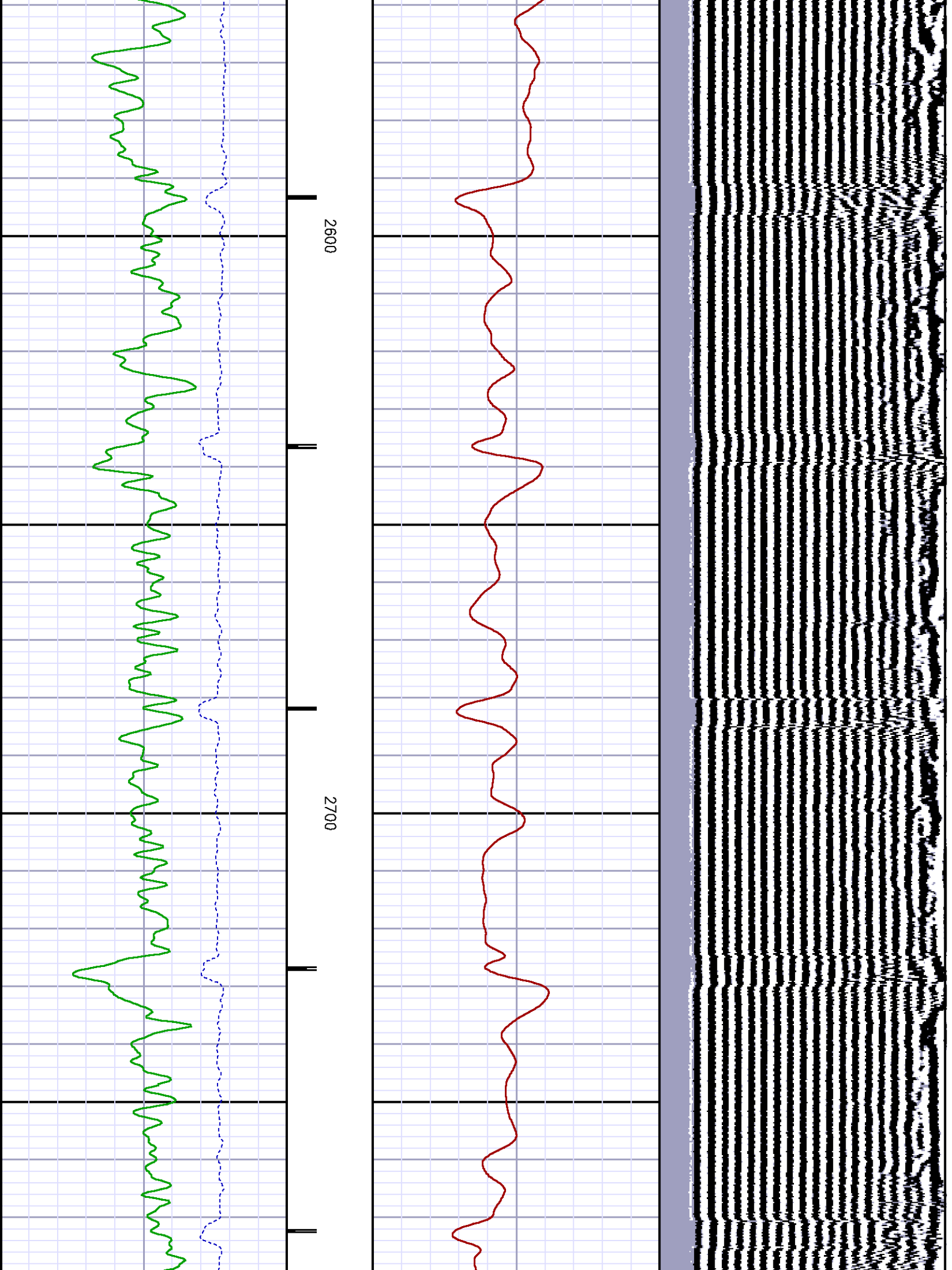


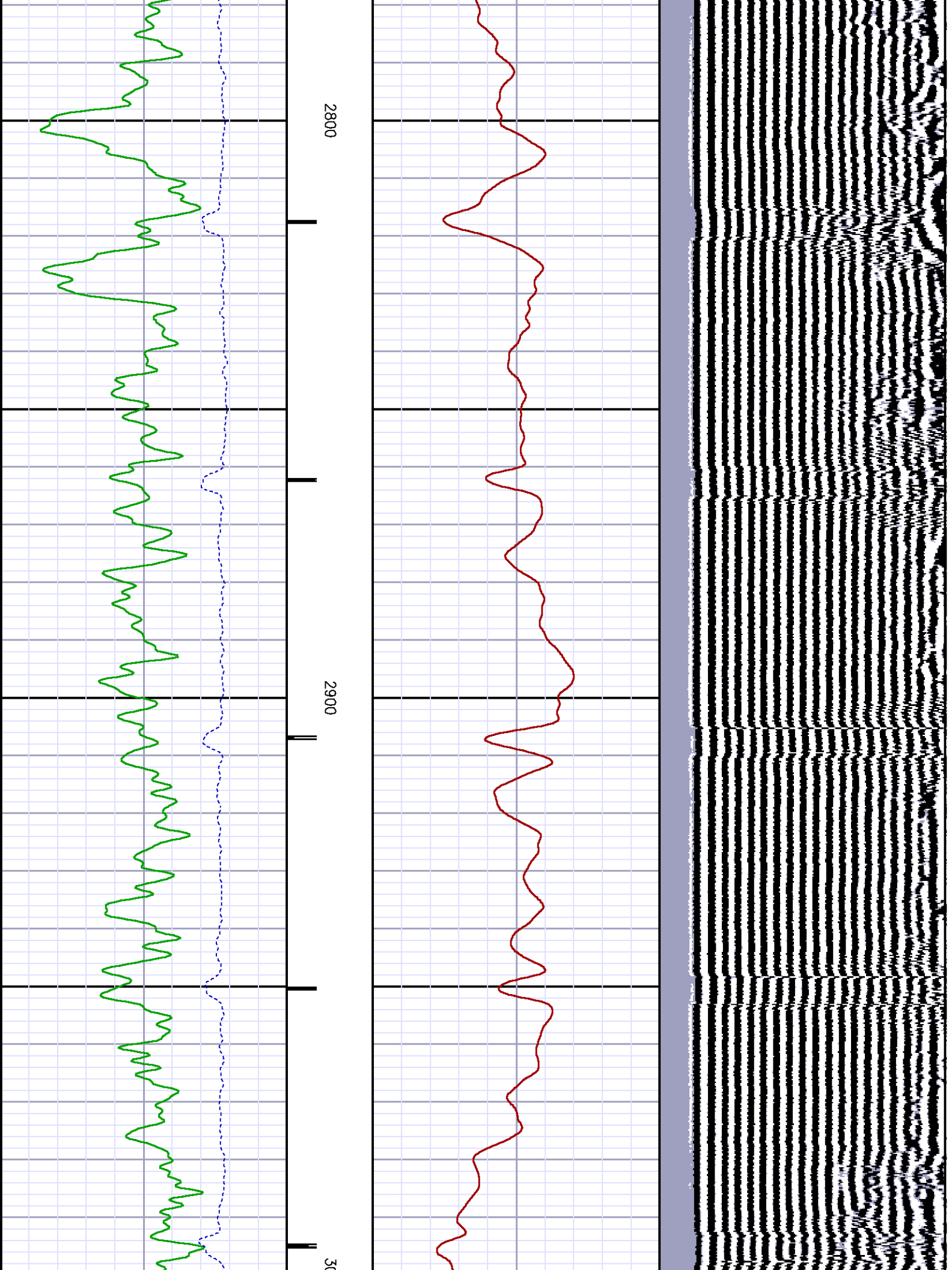


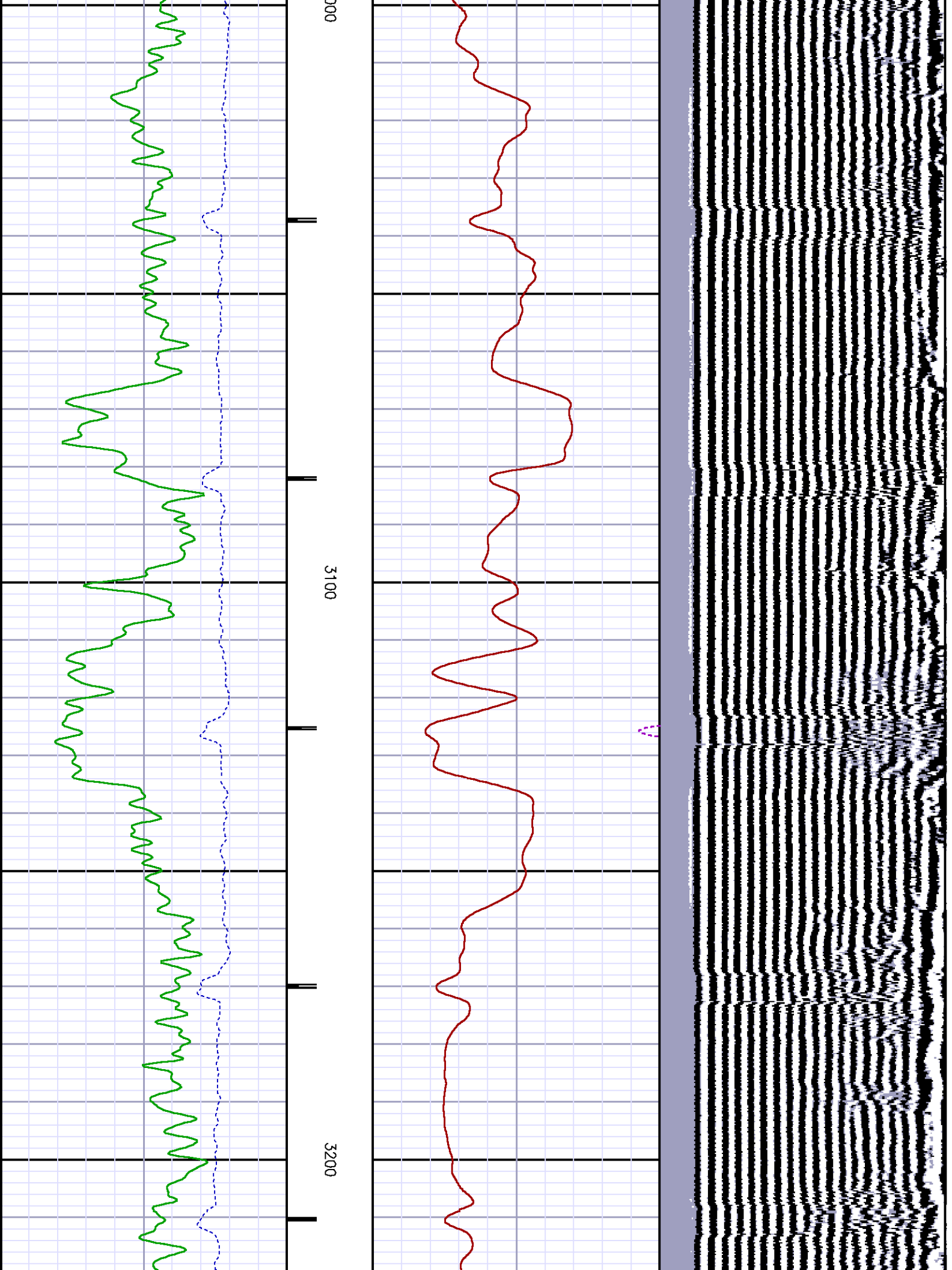




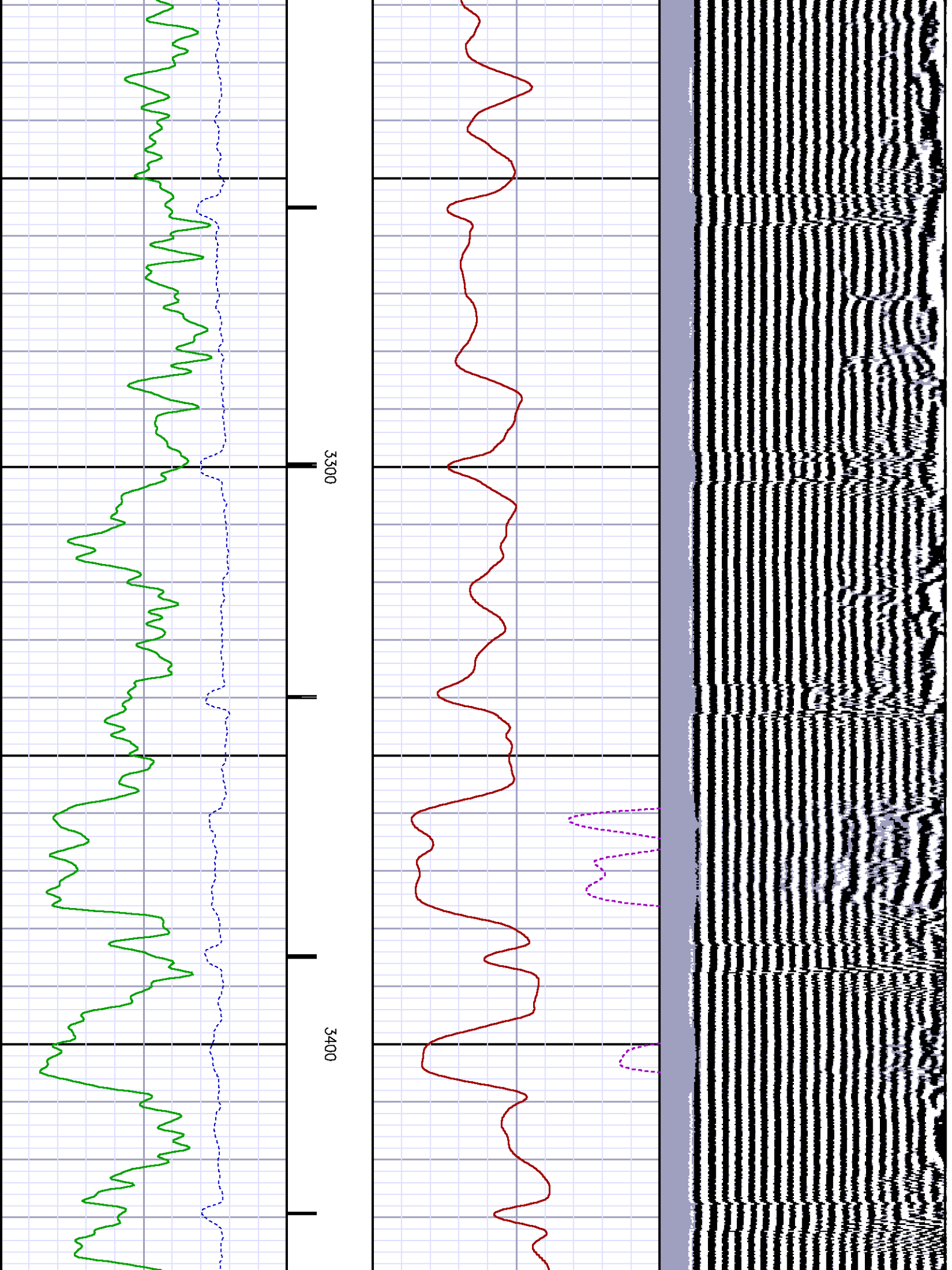


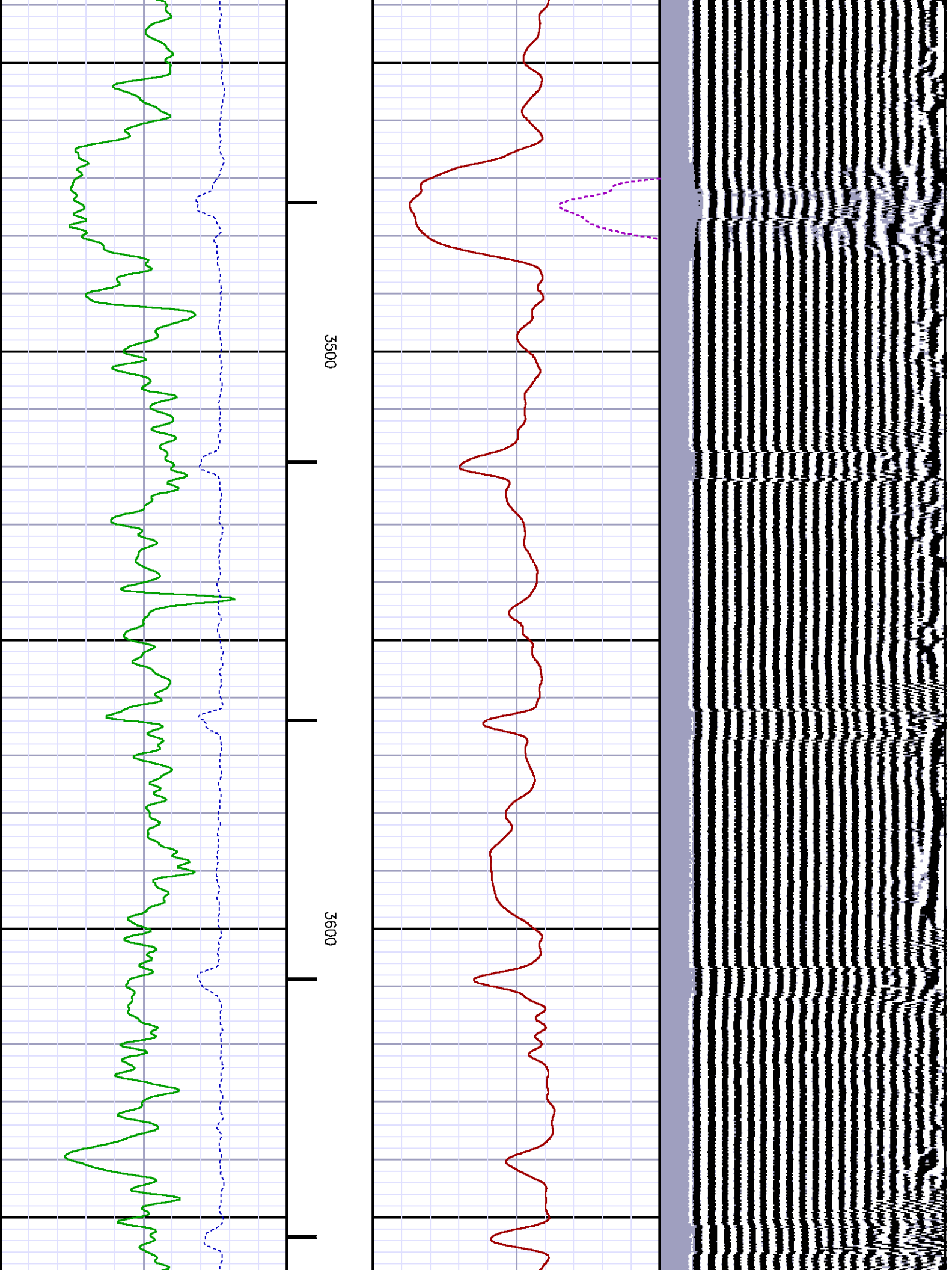


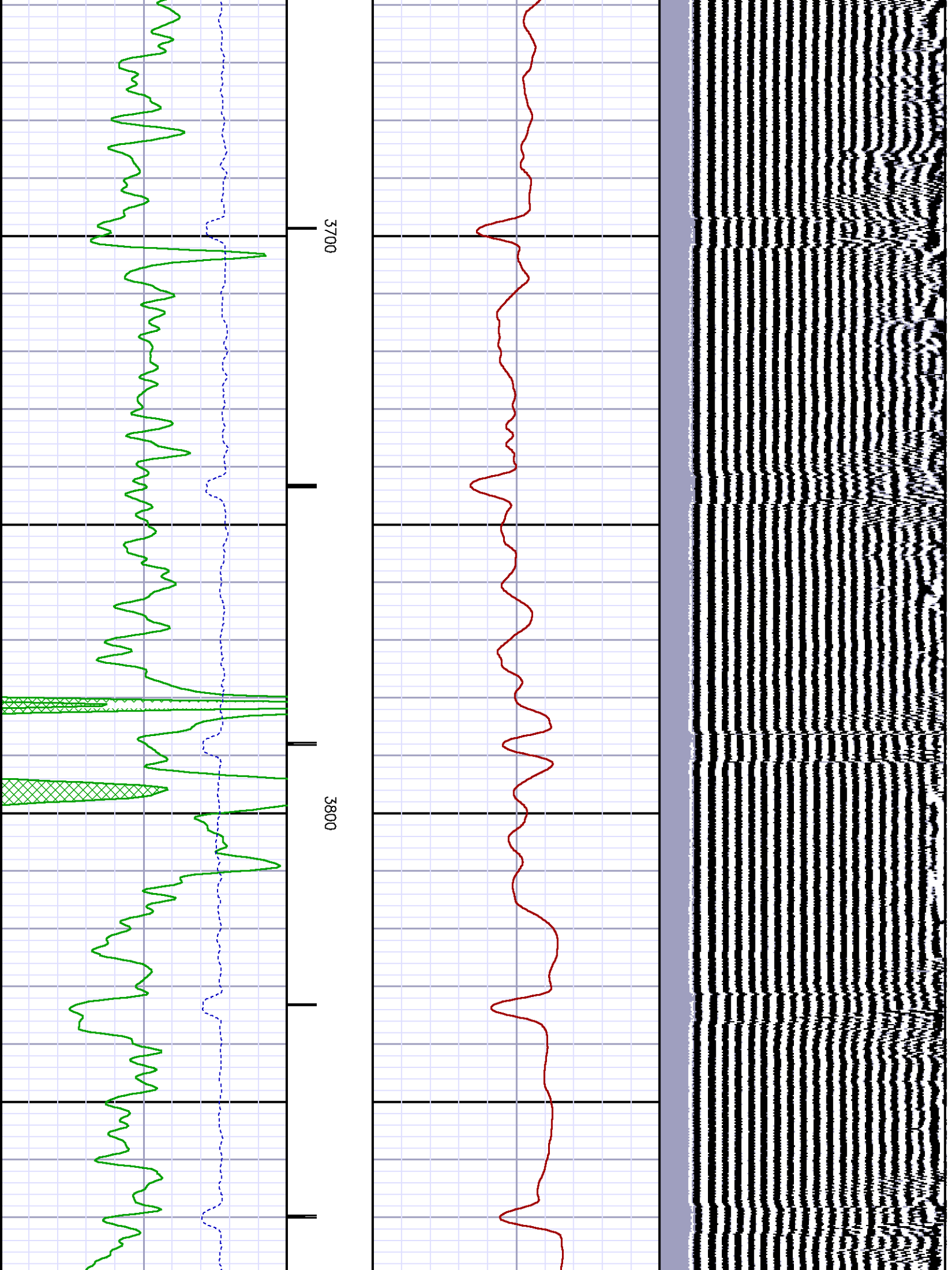




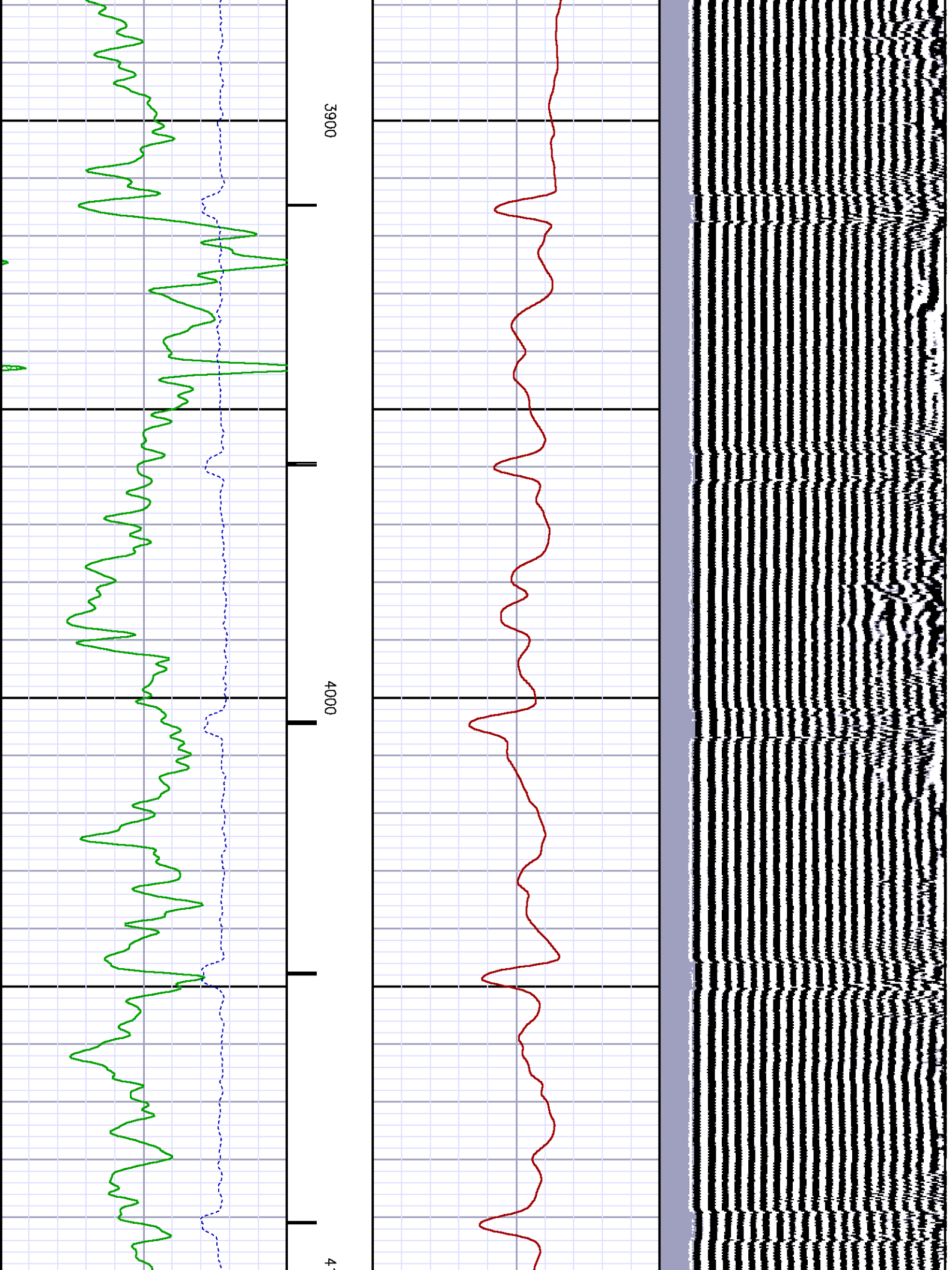


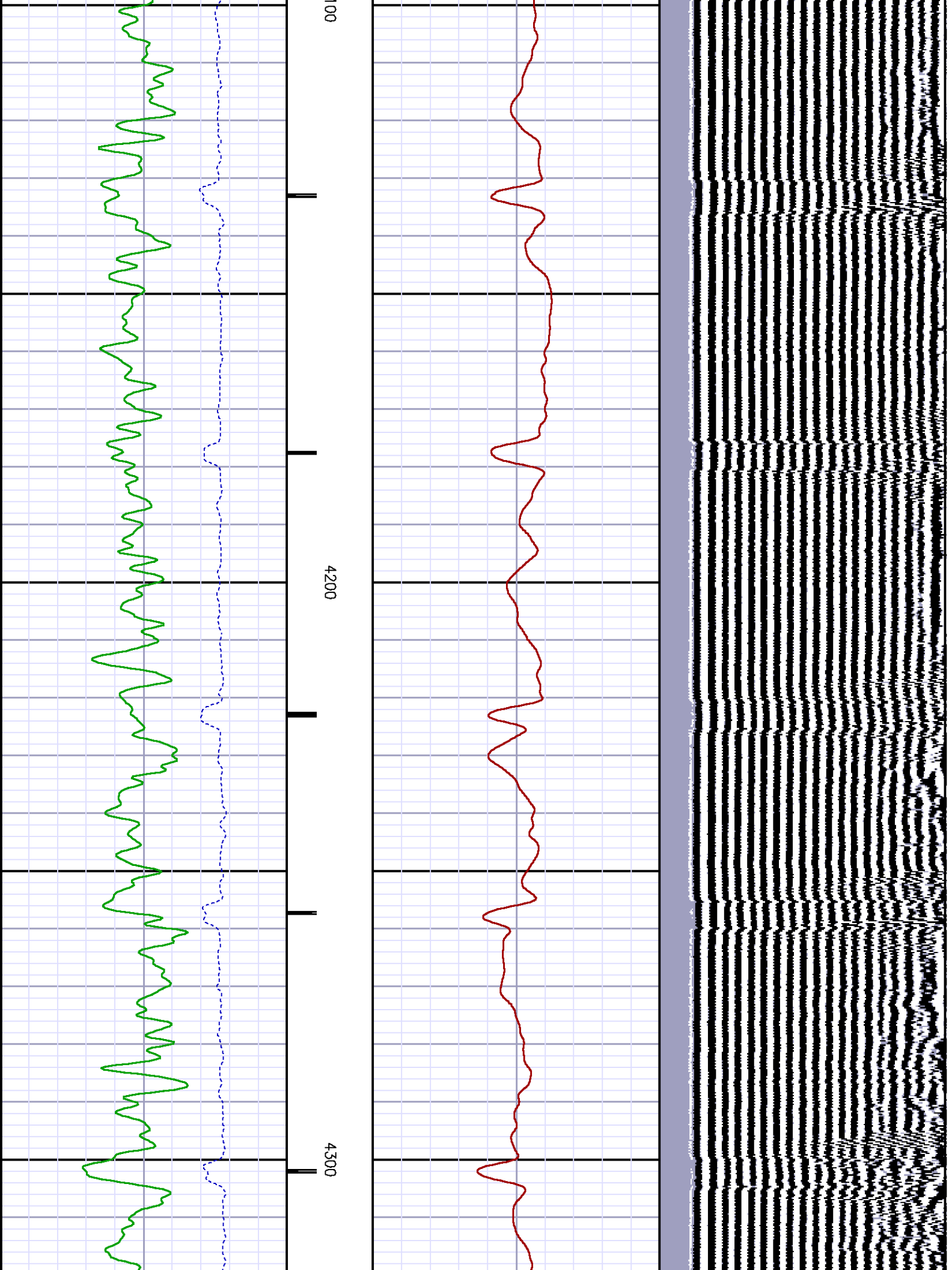


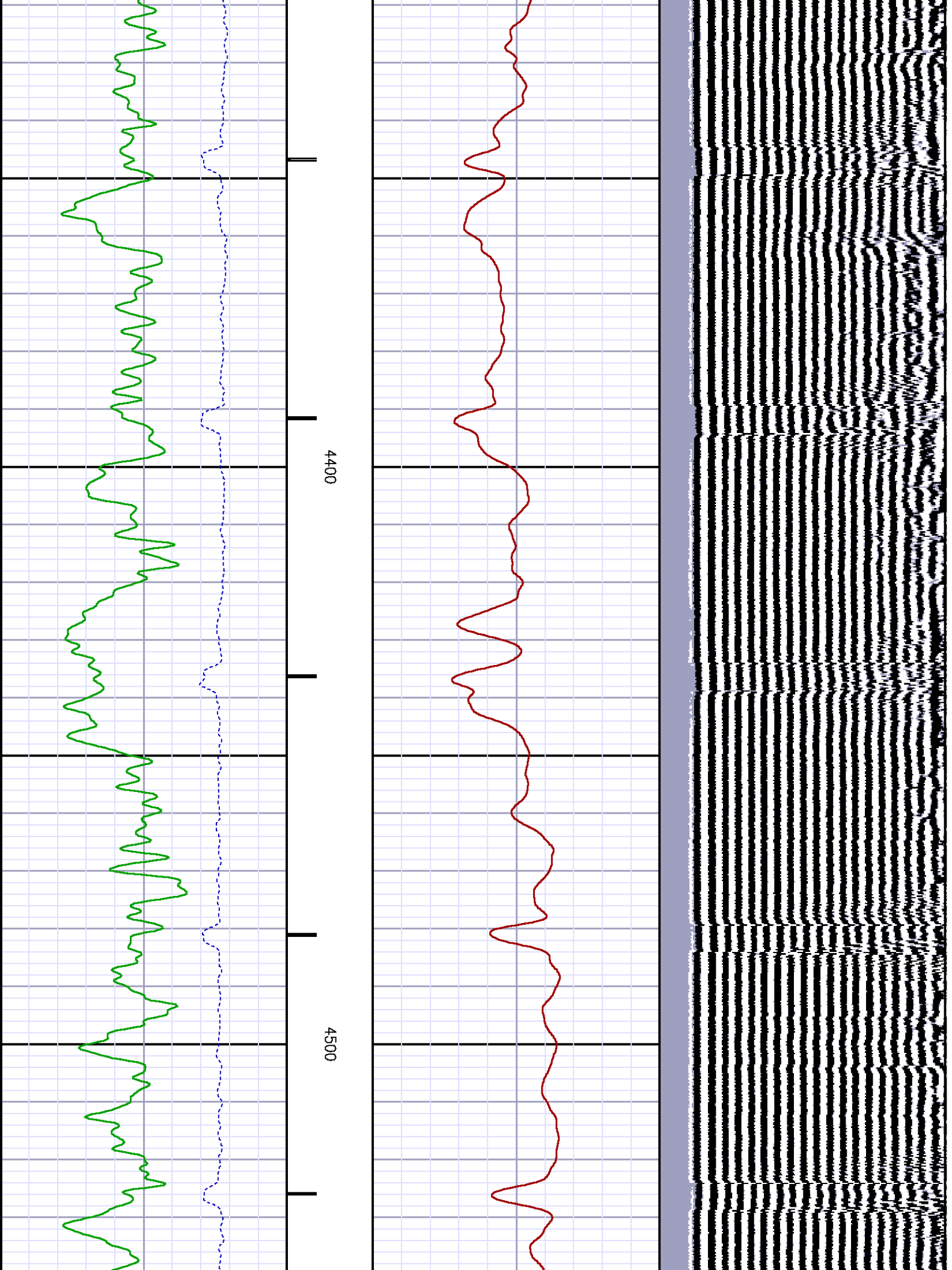


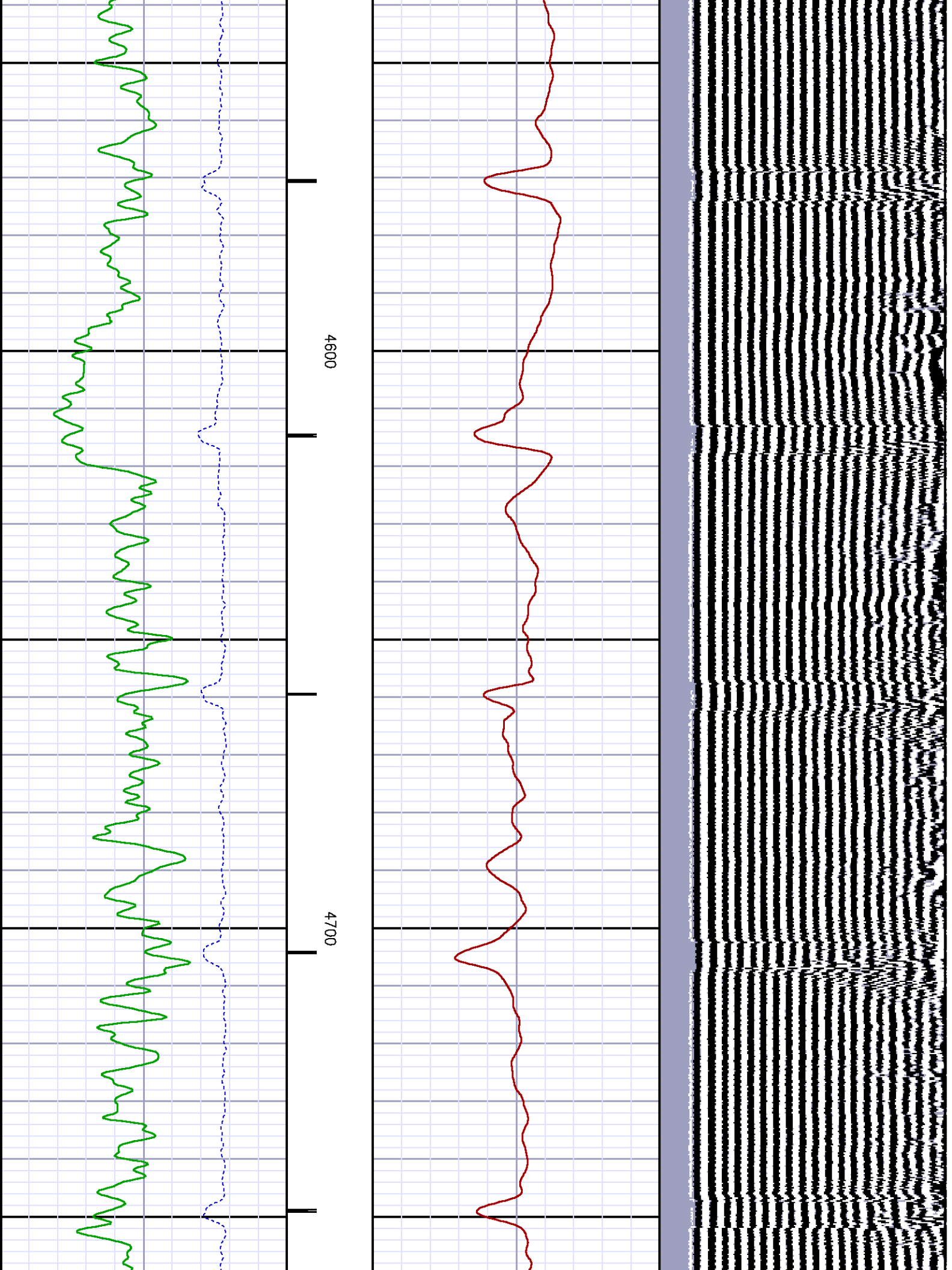


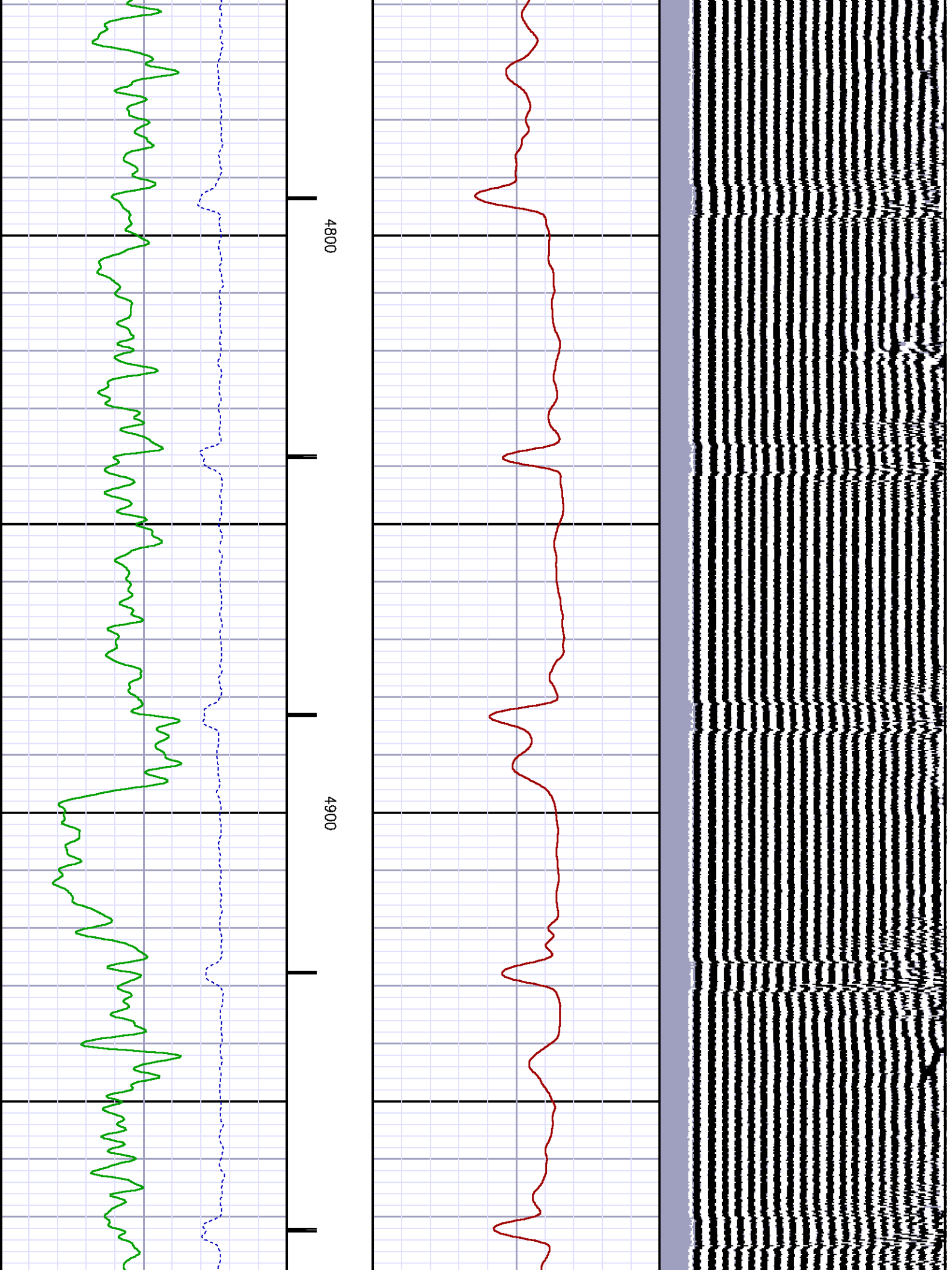


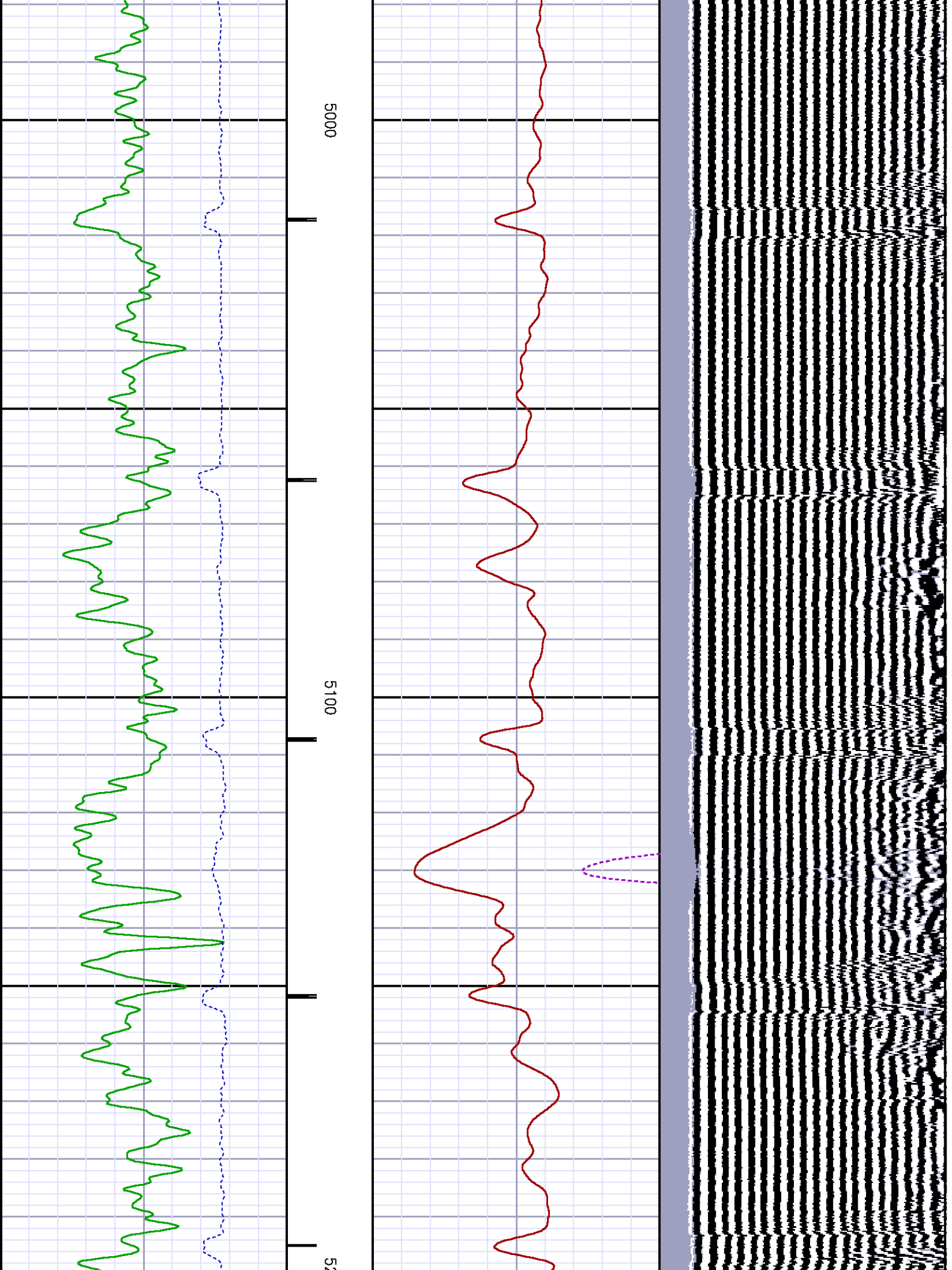




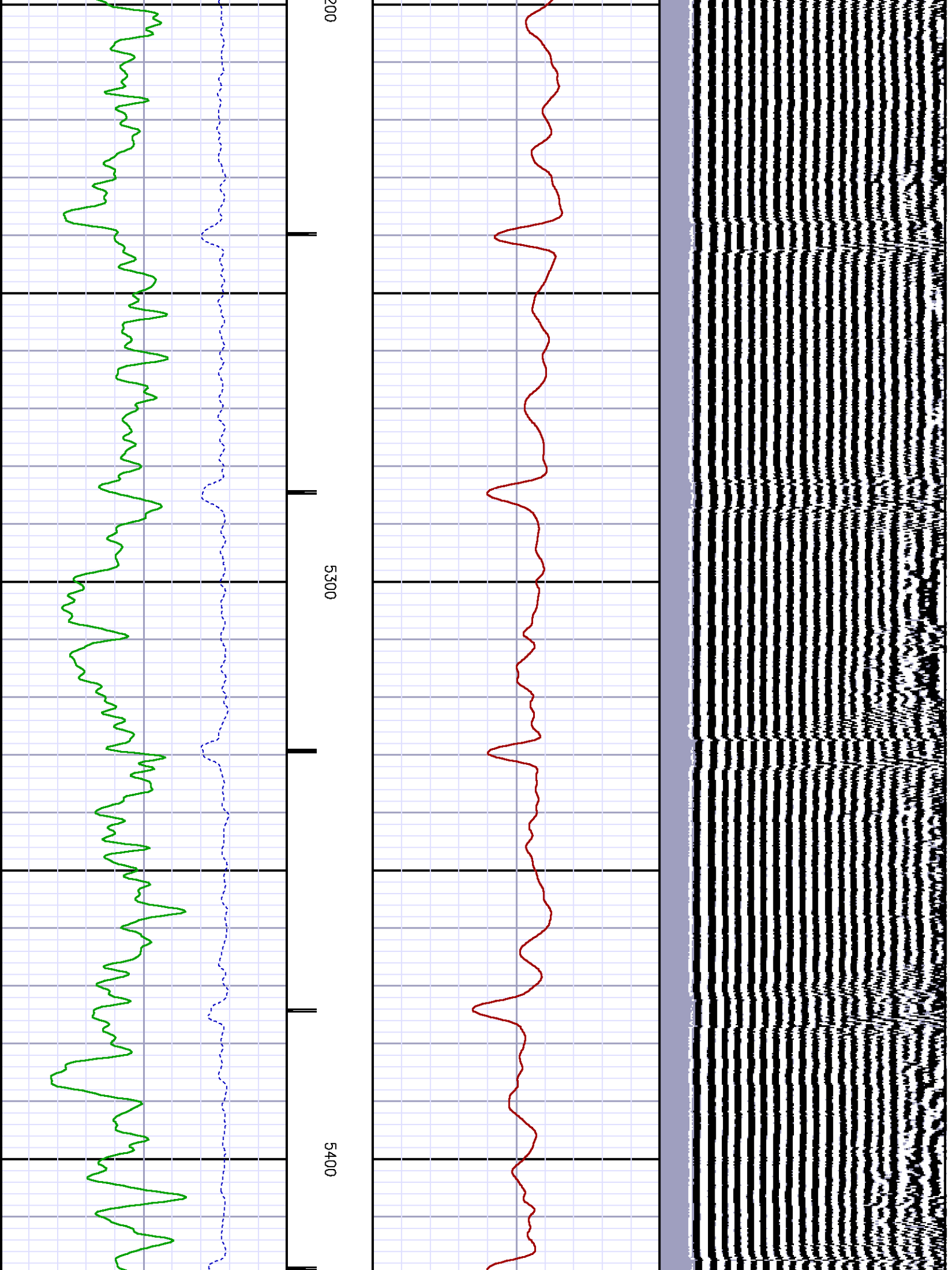


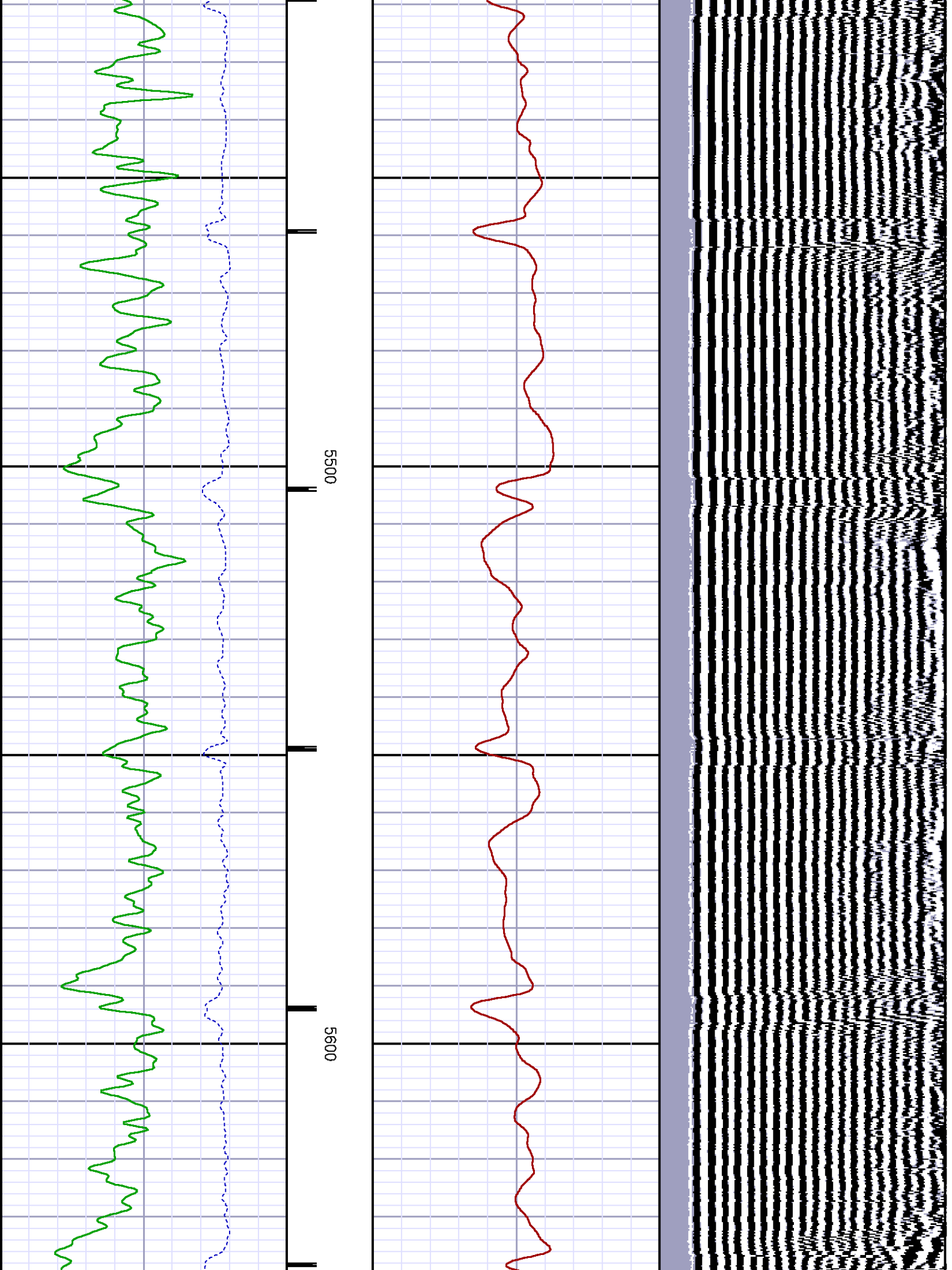




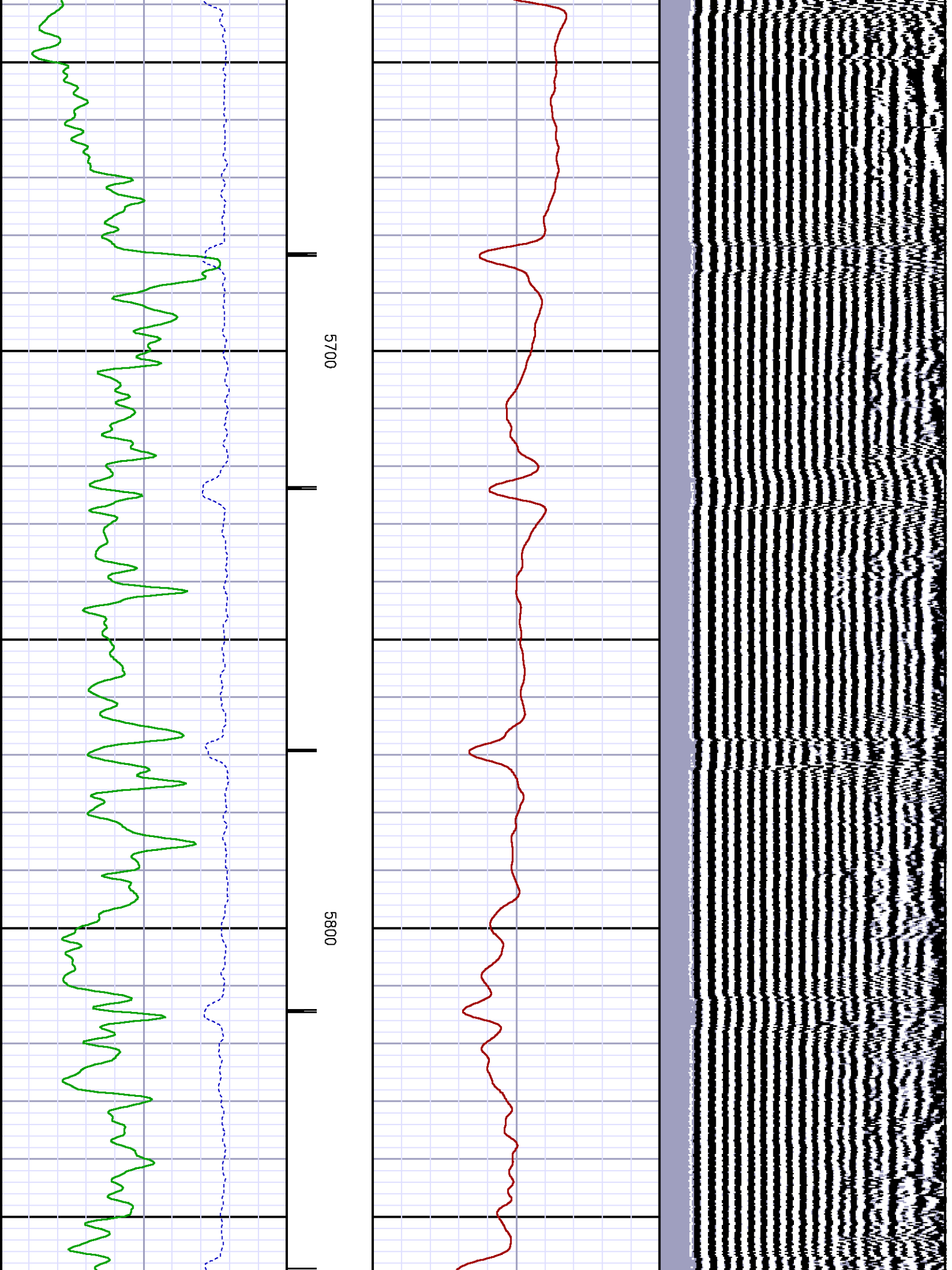


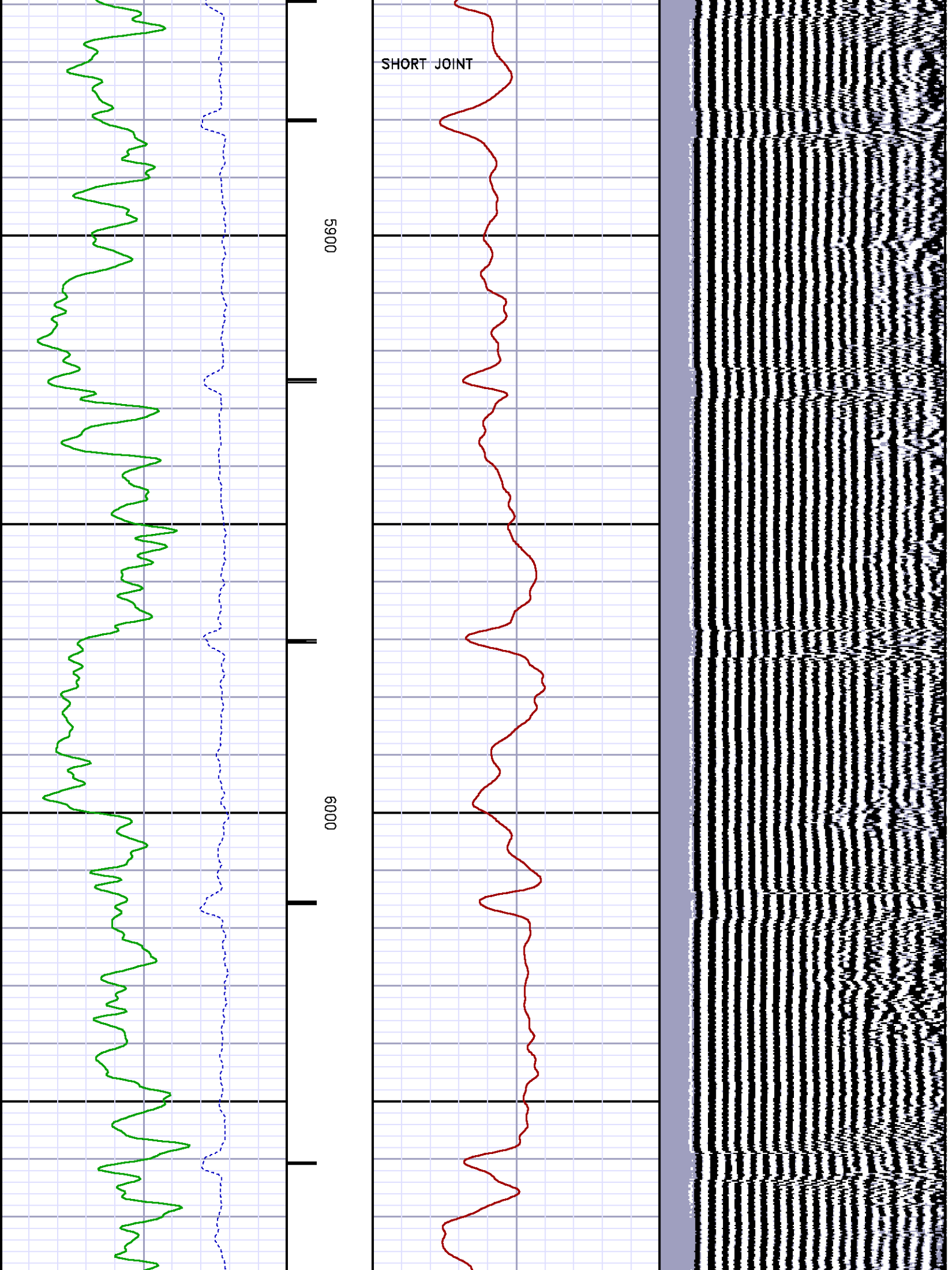


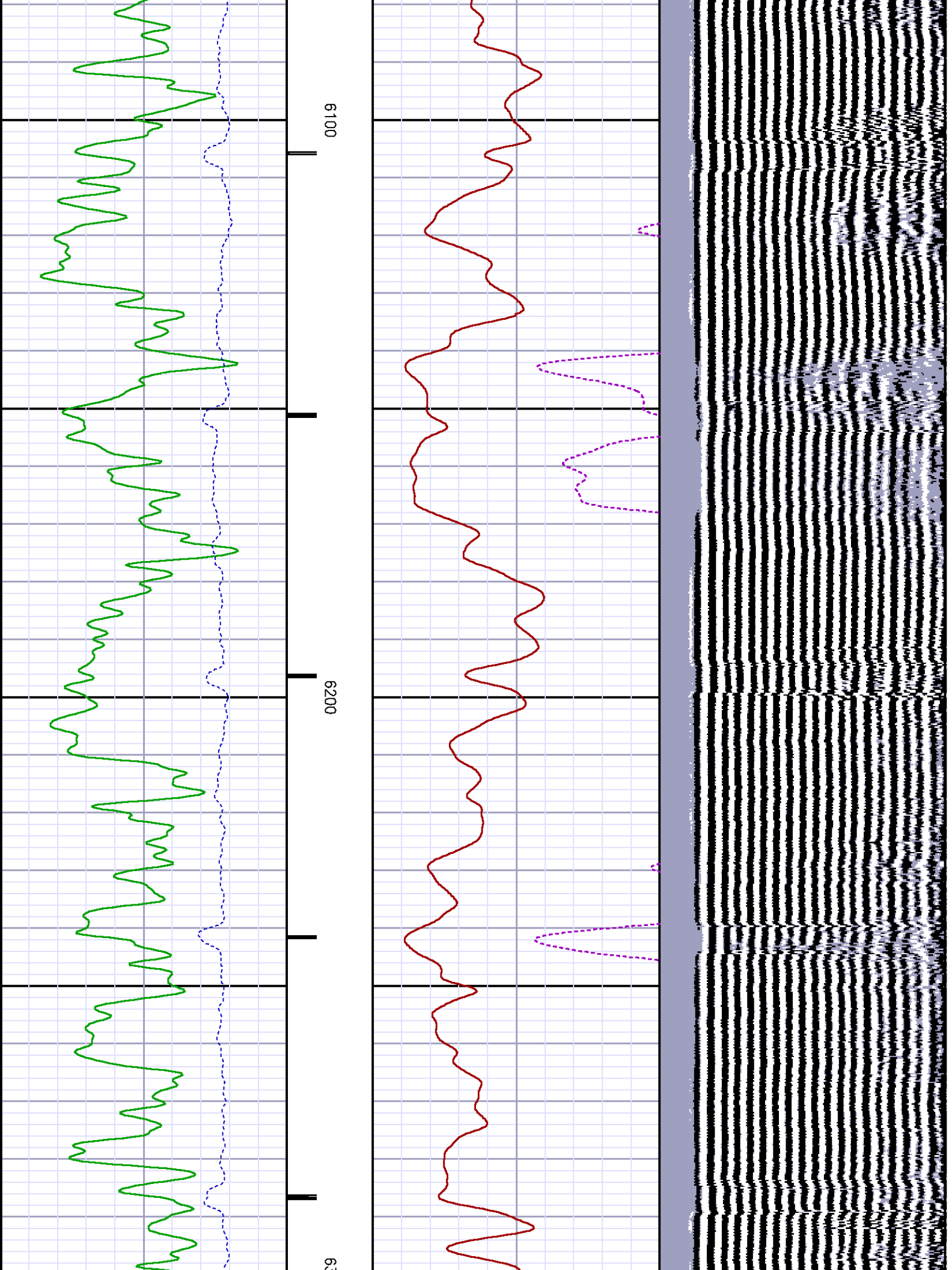


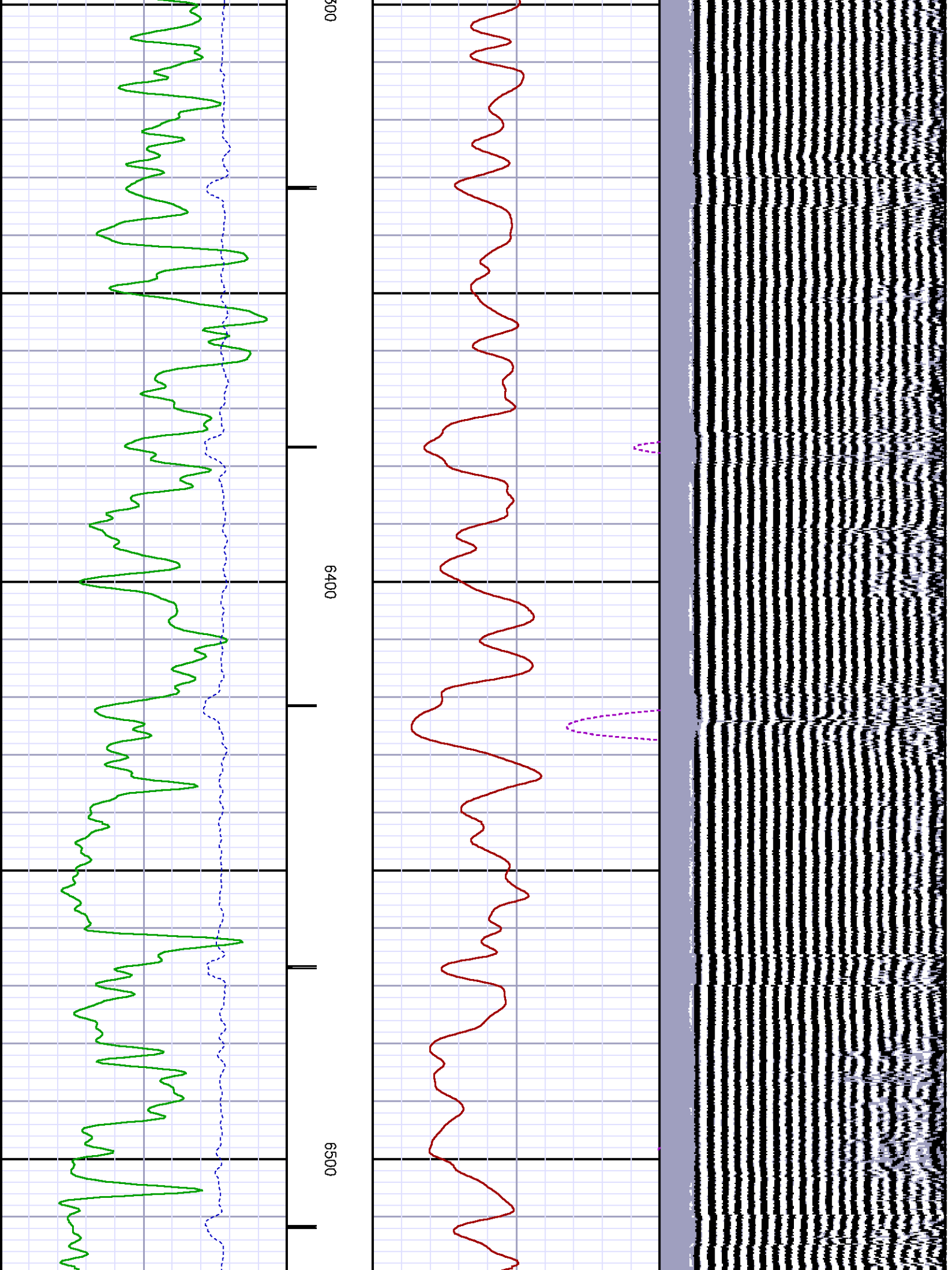


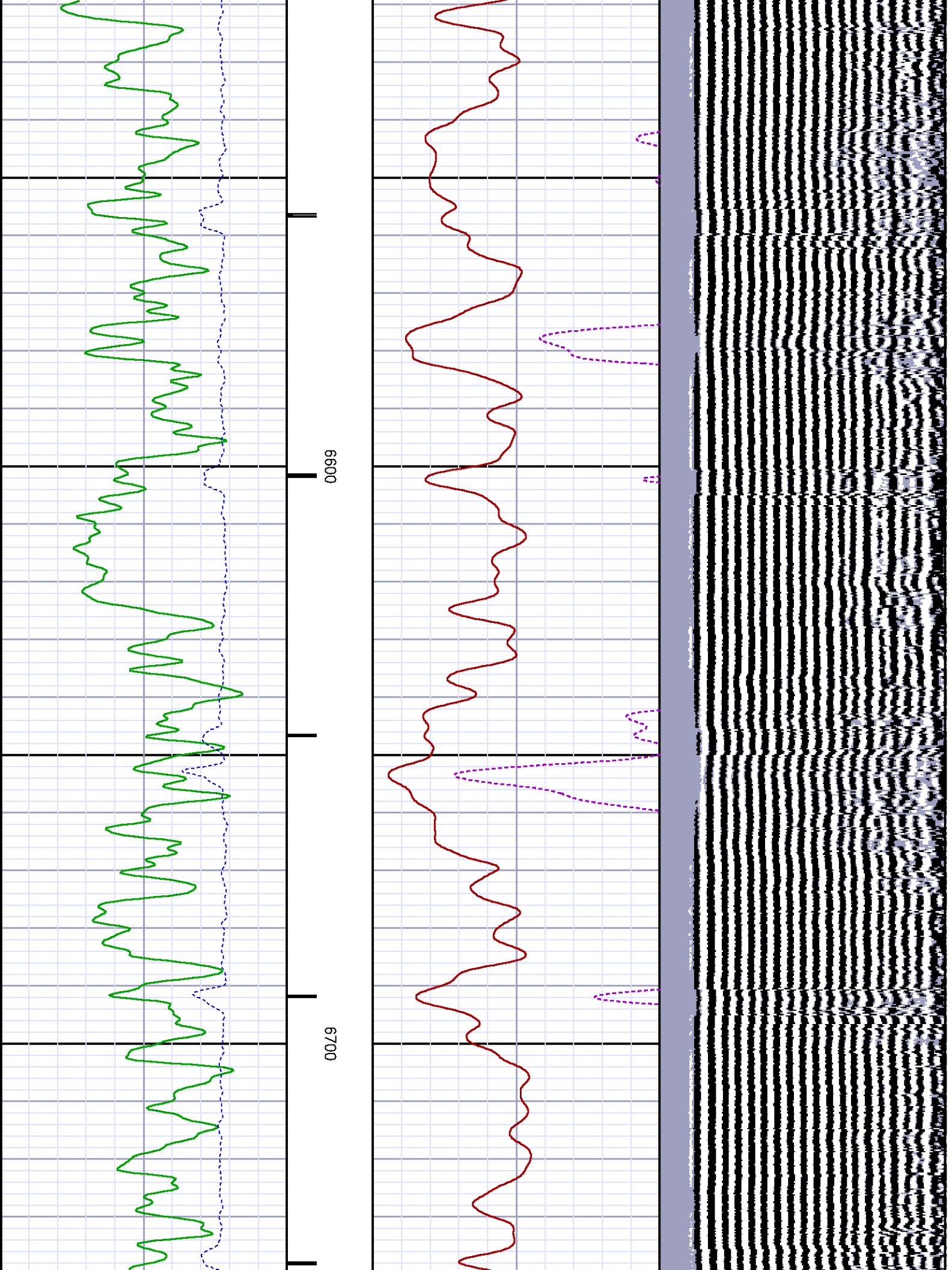




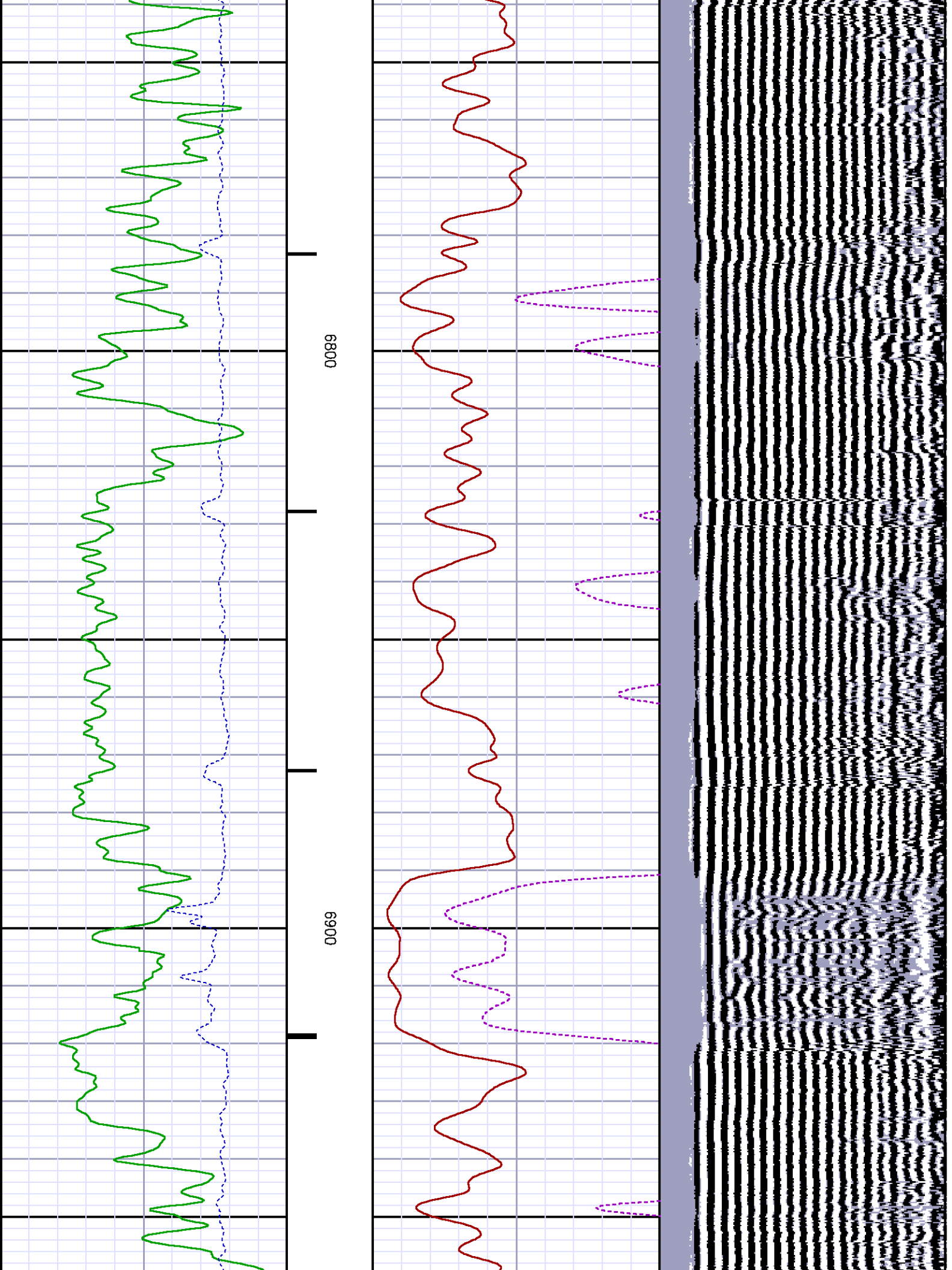


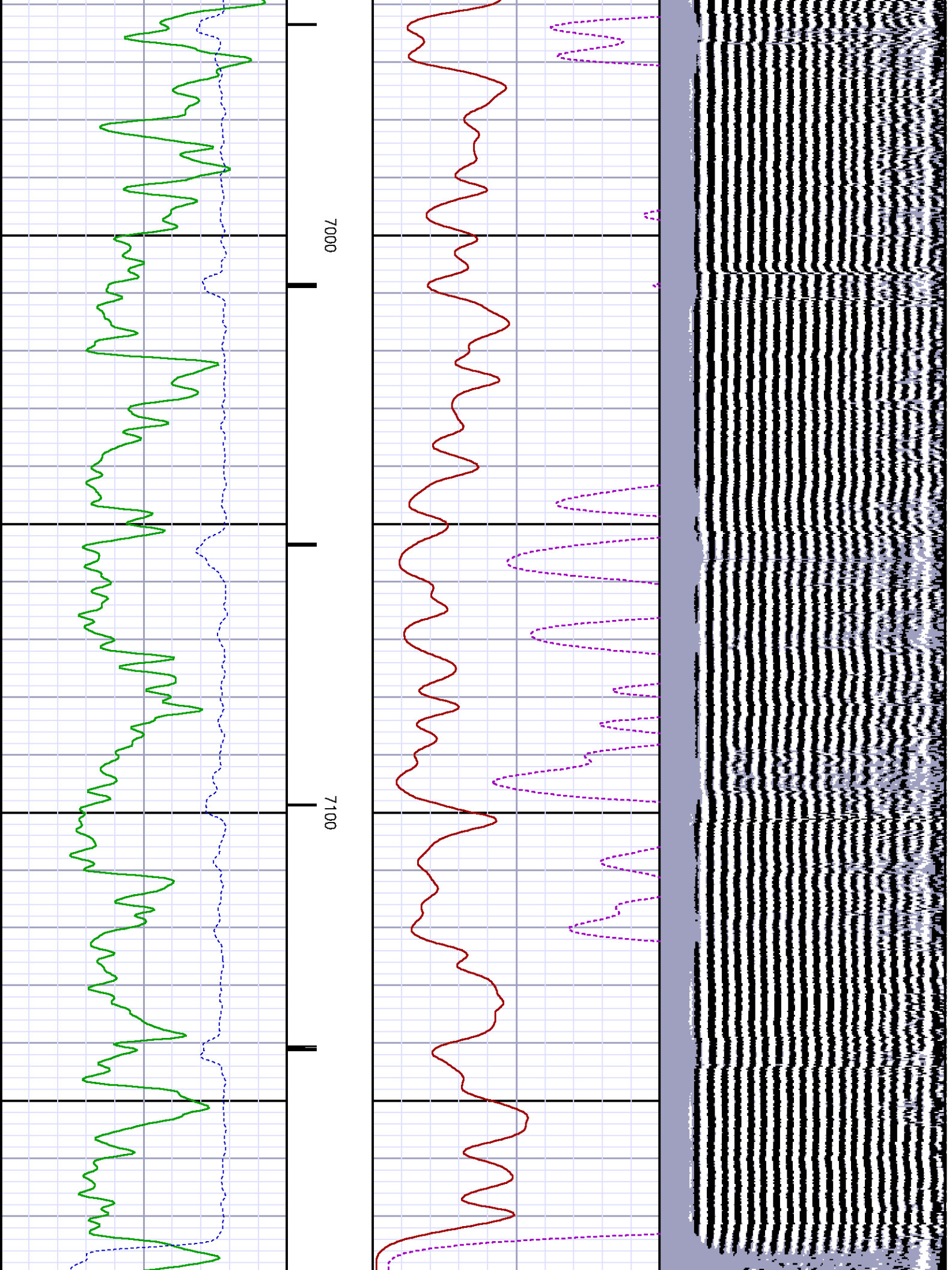


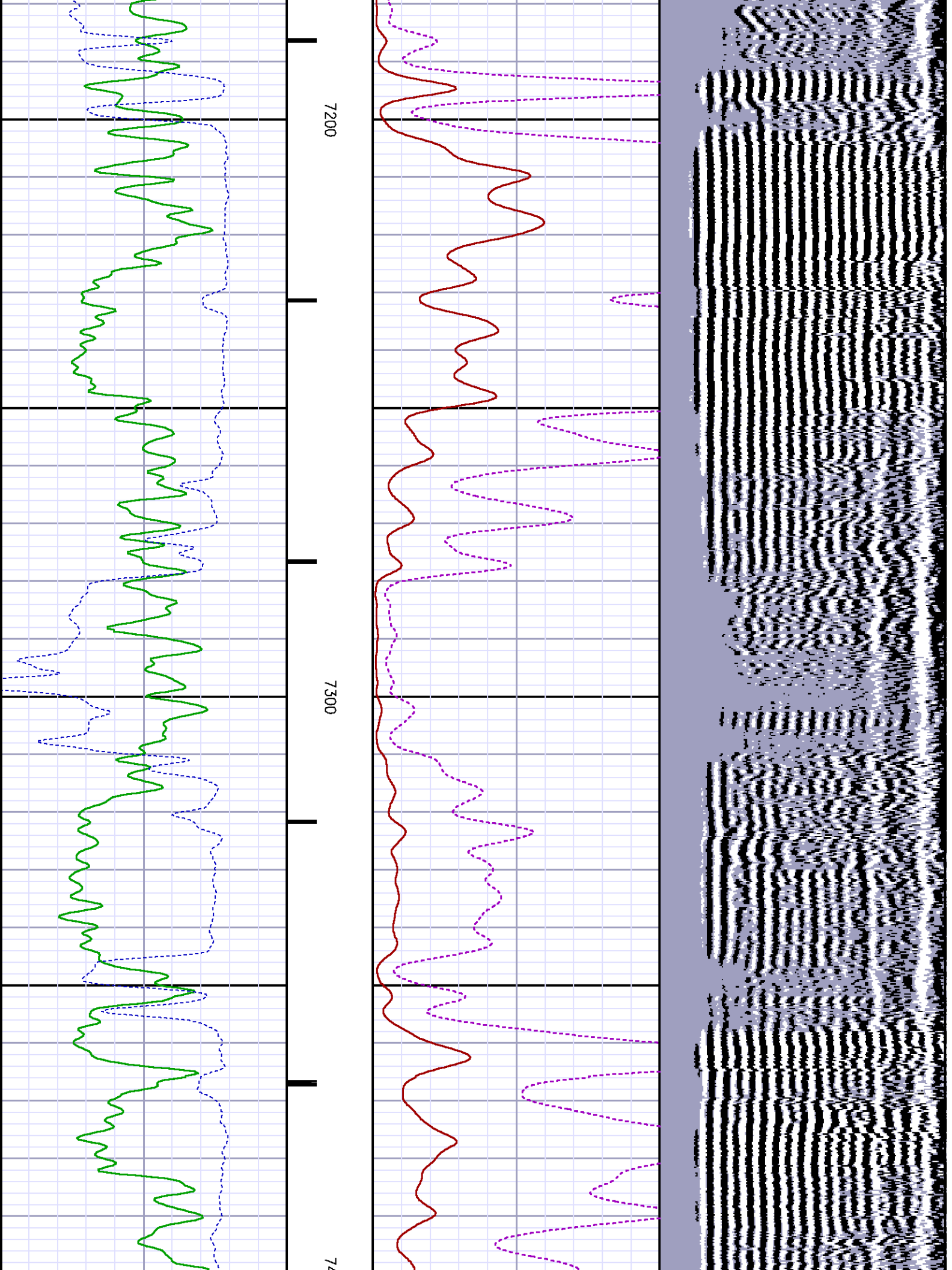




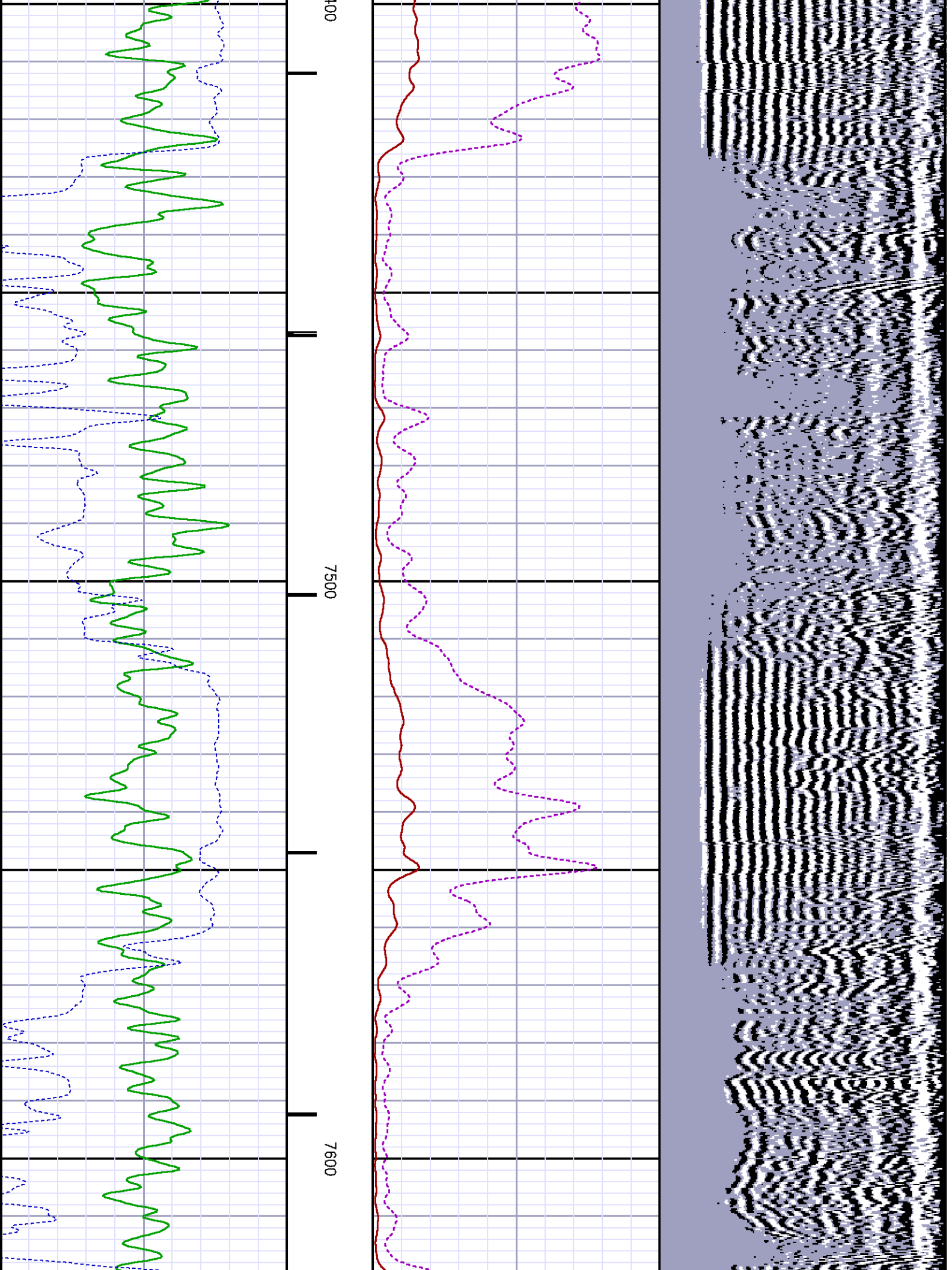


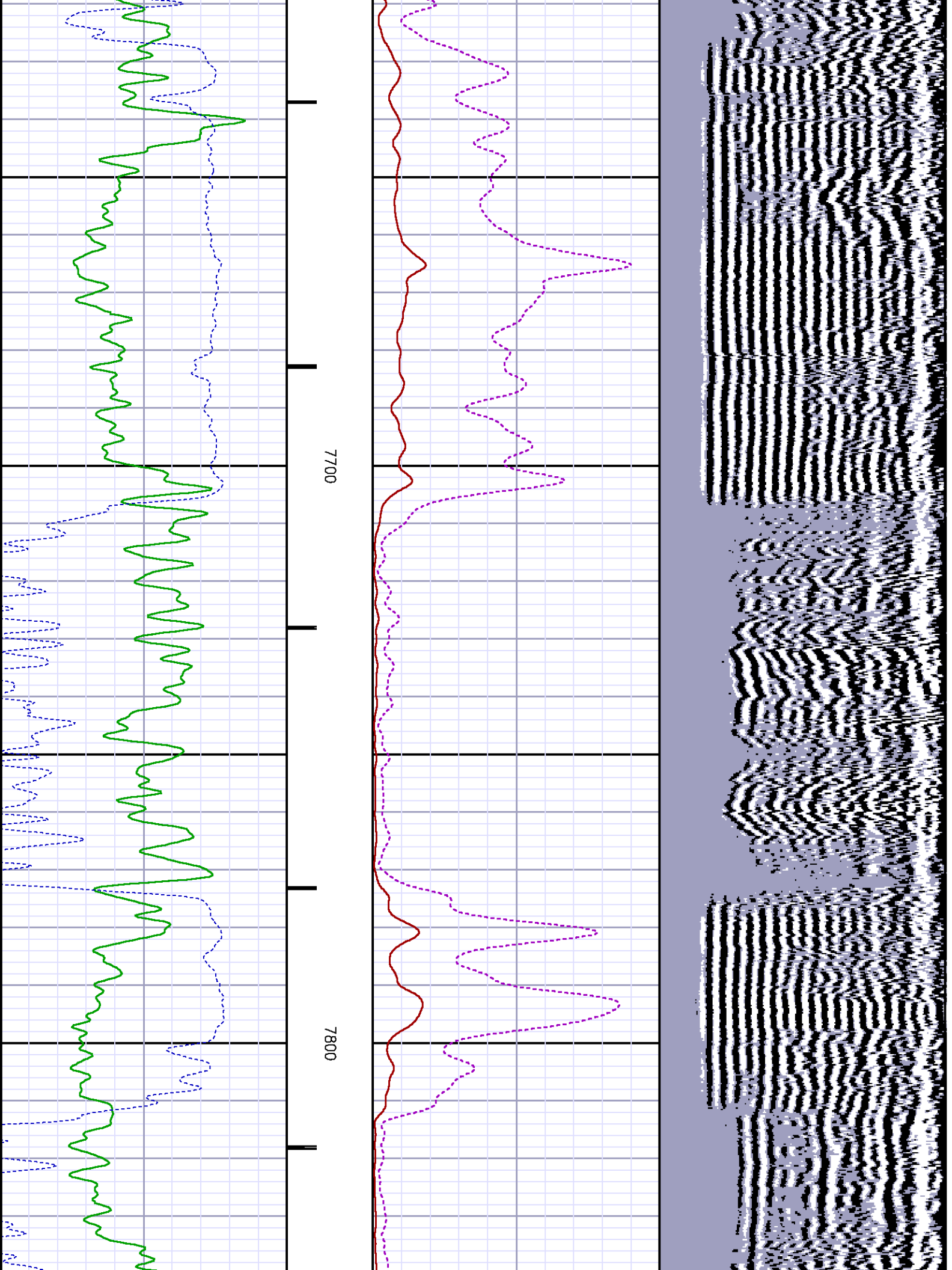


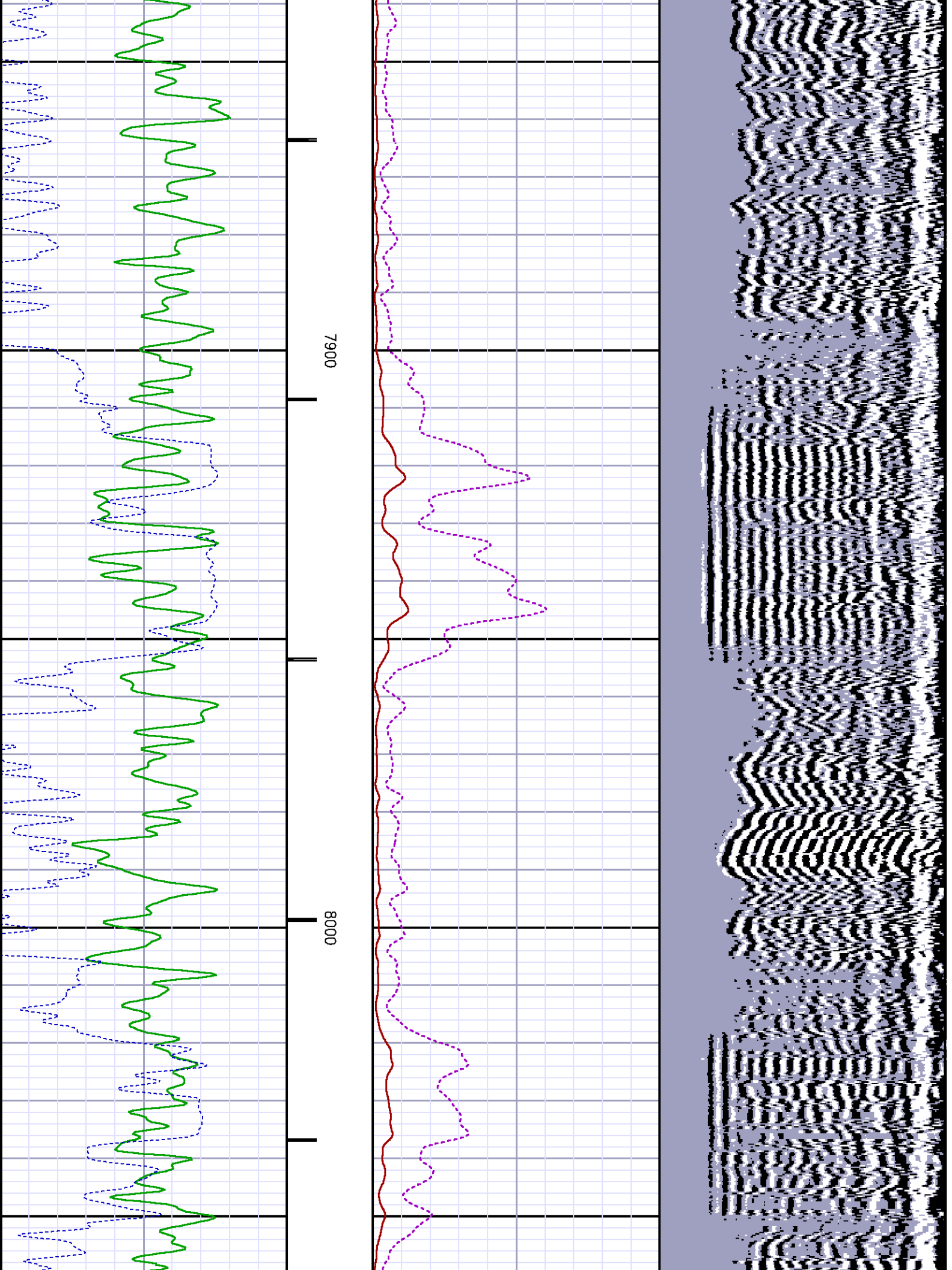


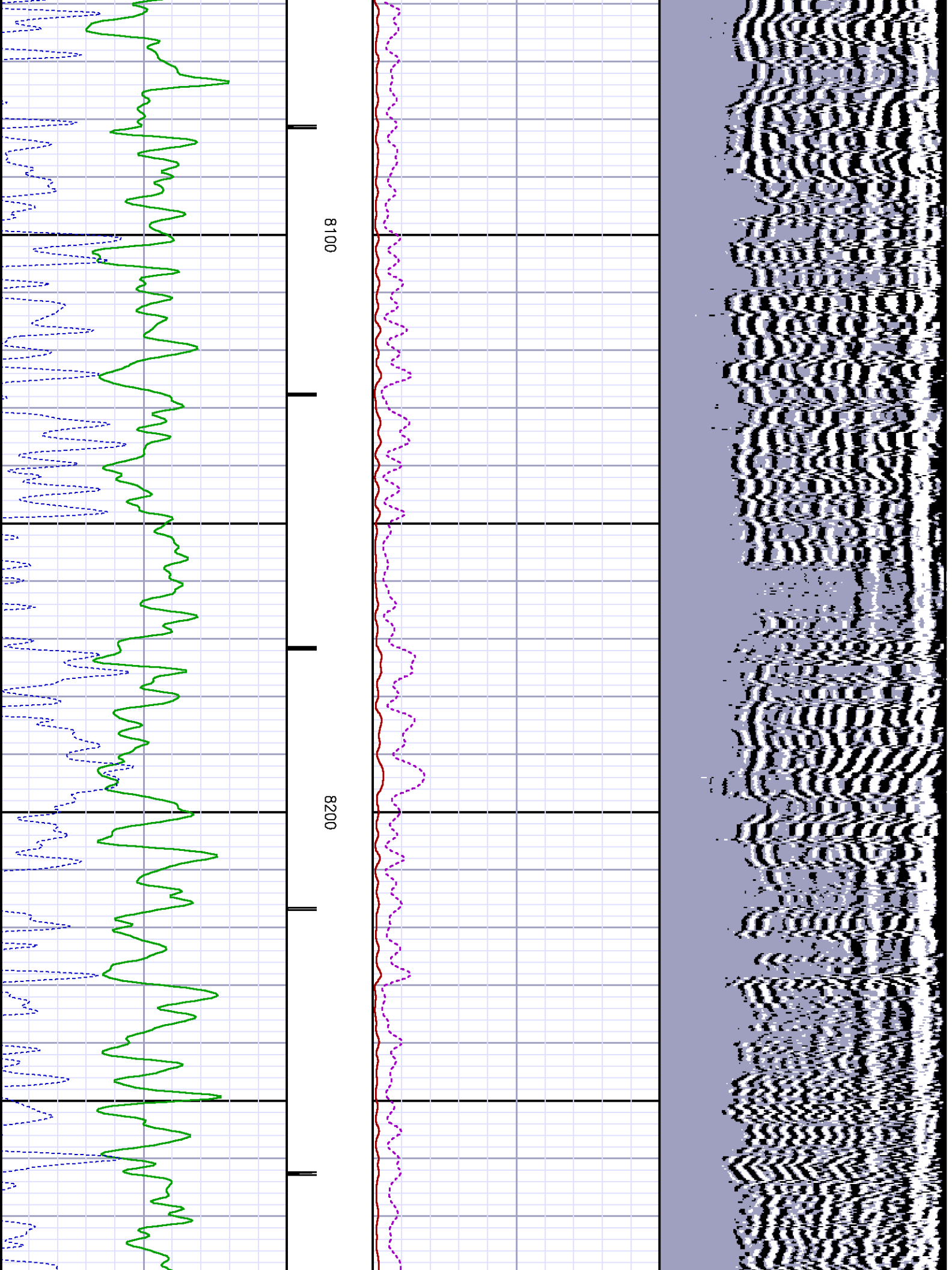


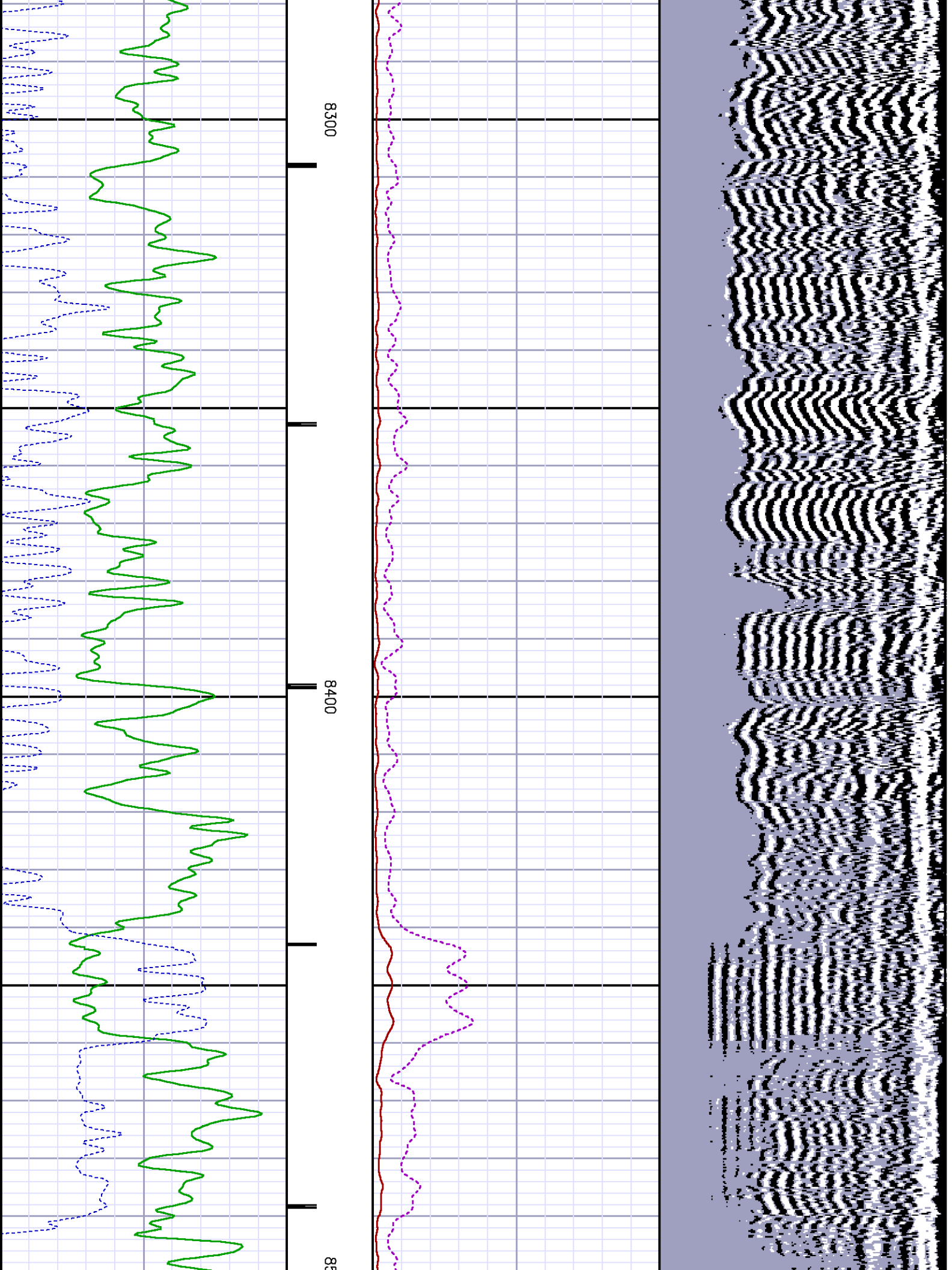




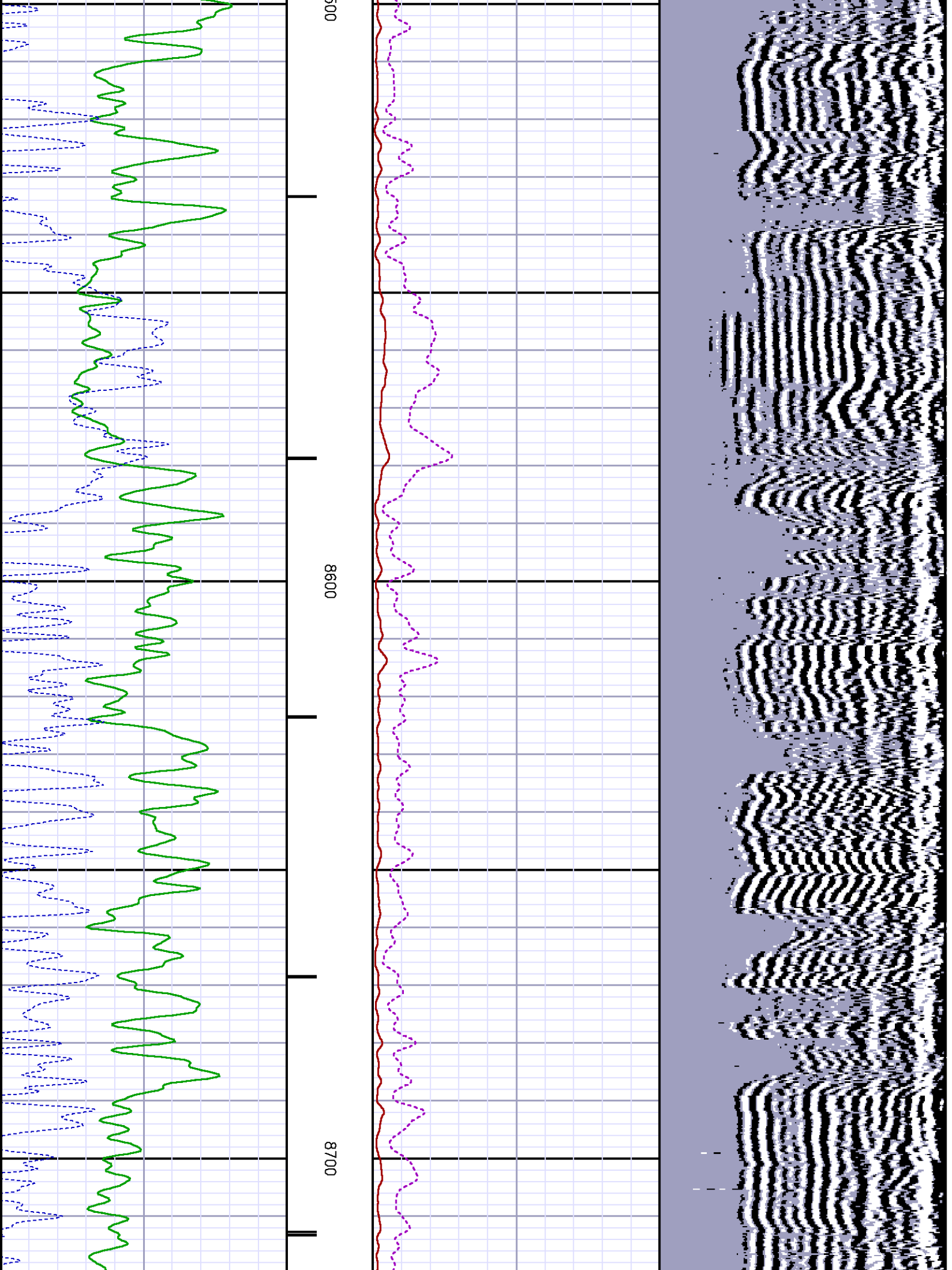




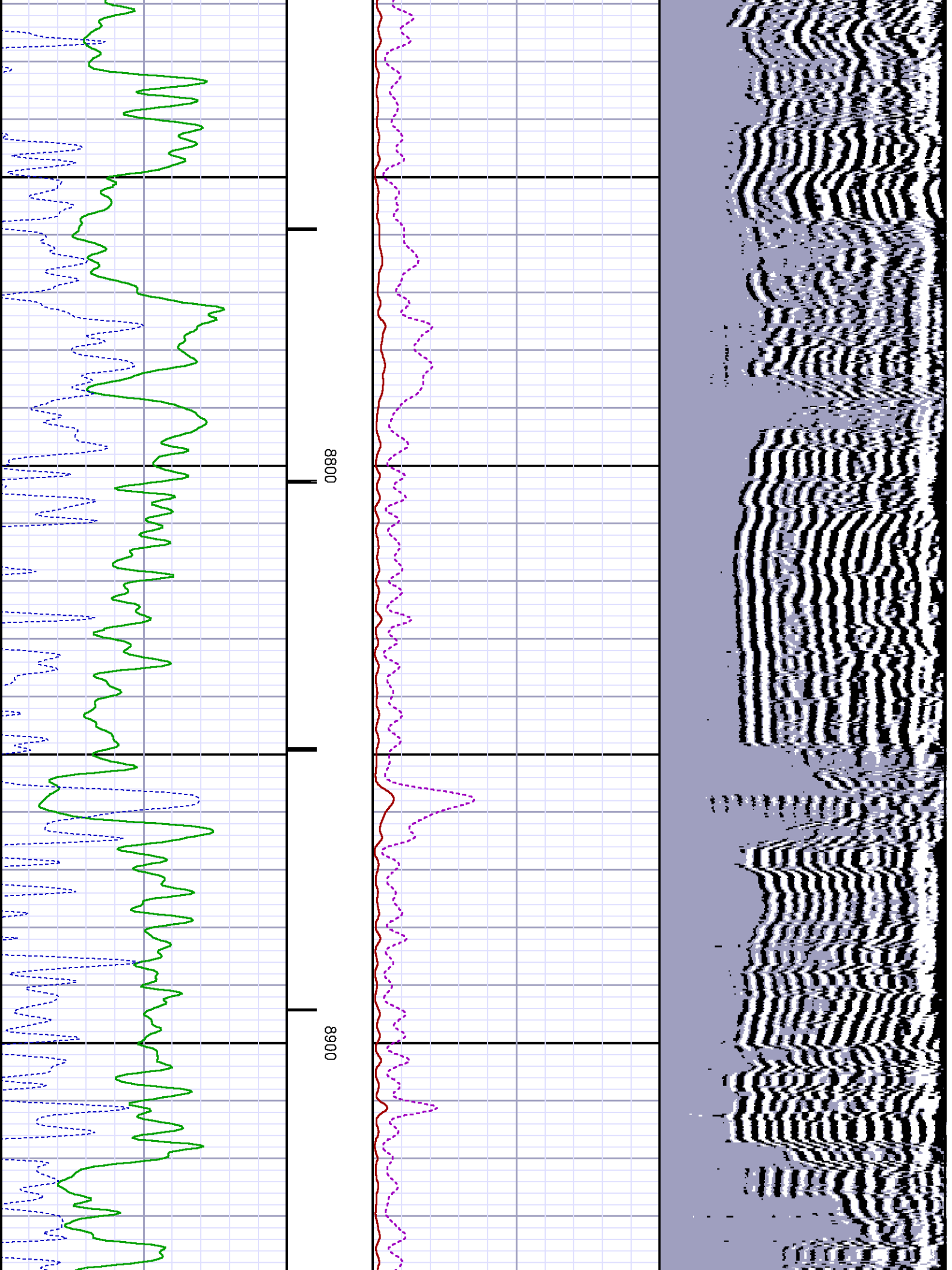


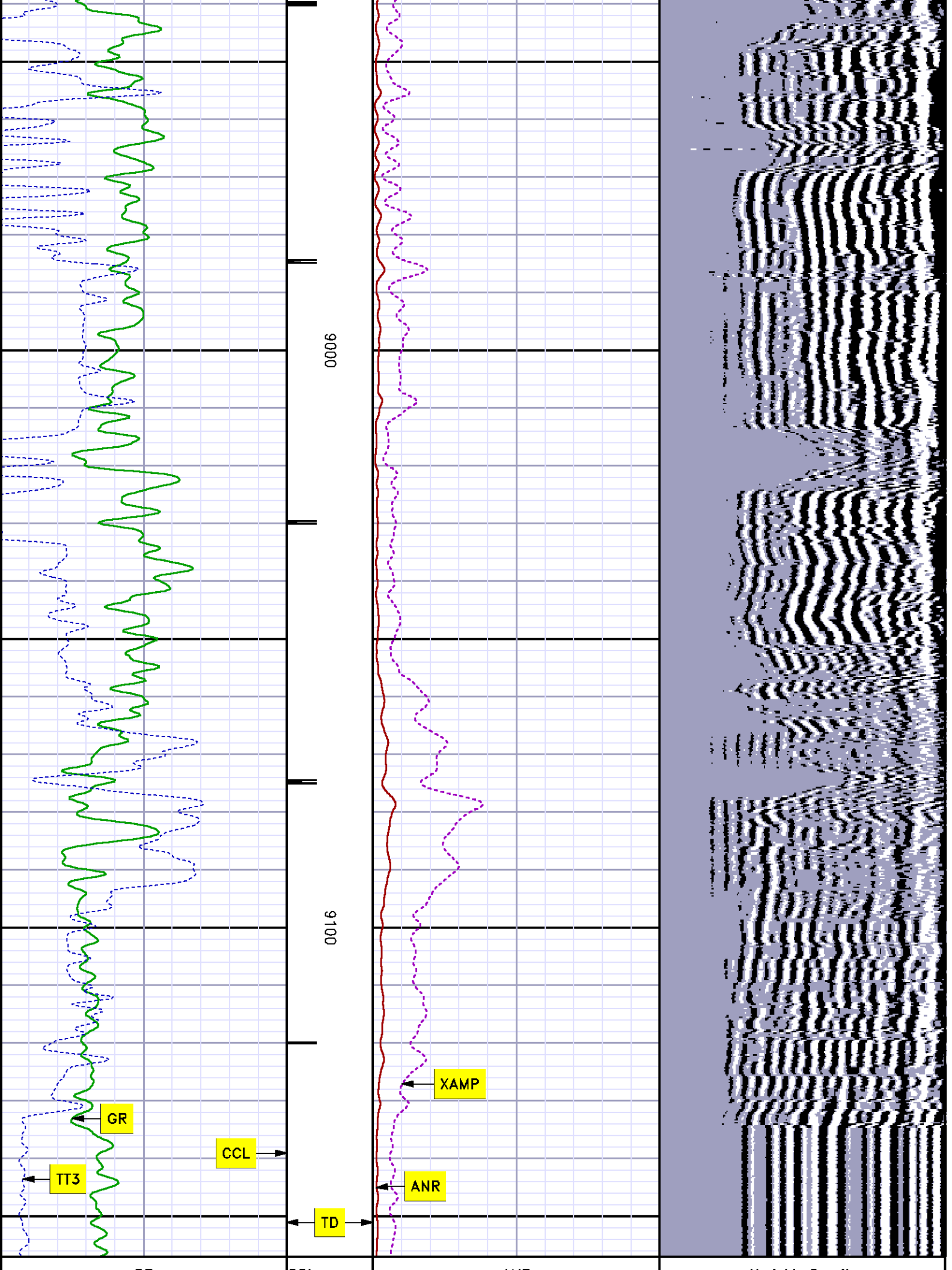












0	GR	150	CCL	0	ANR	100	200	Variable Density	1200
	gAPI		700		mv				
280	TT3	180	mv	0	XAMP	20			
	usec		MD feet 1:240		mv				

***MAIN SECTION***  
***SECONDARY PRESENTATION***  
***0 PSI***

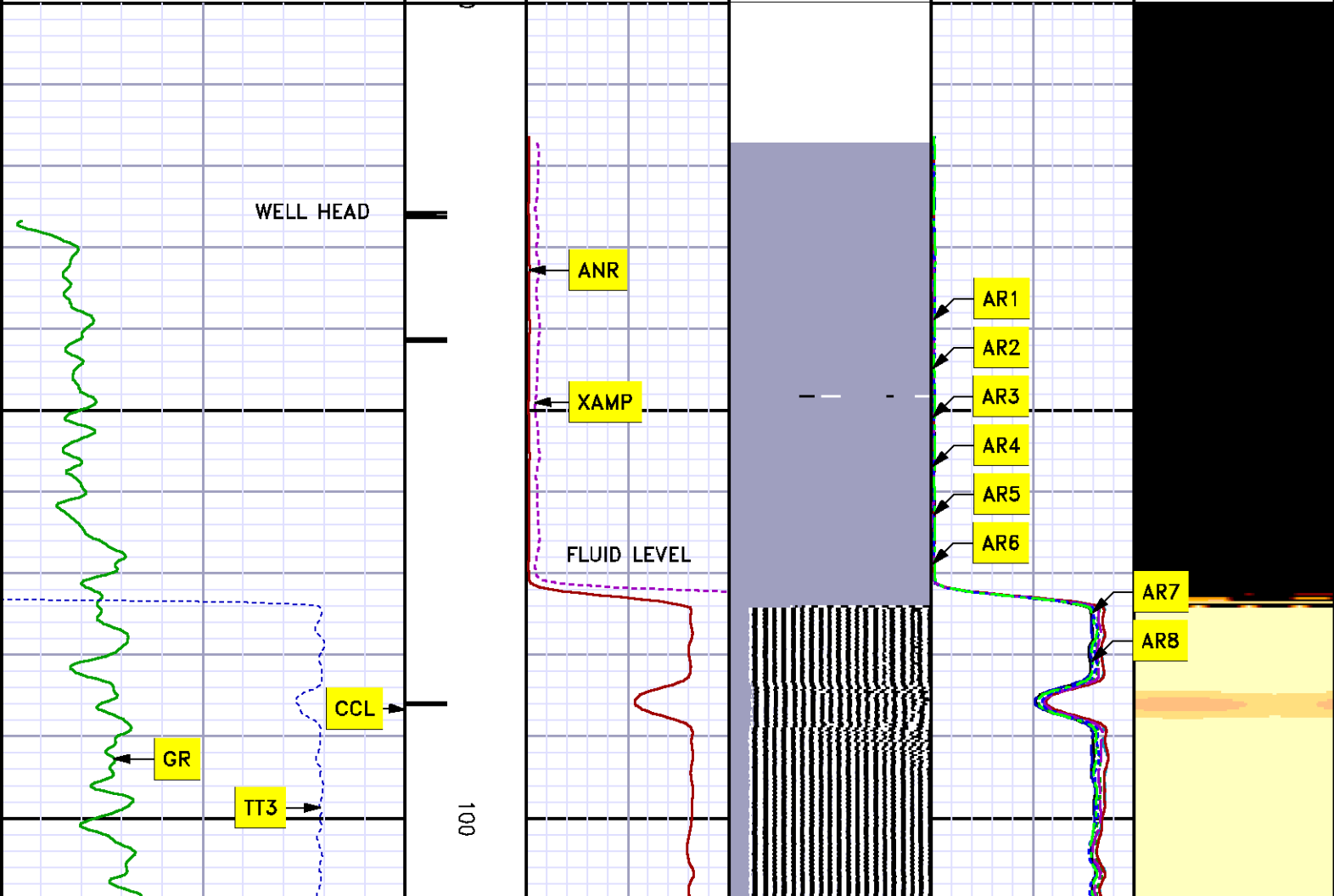
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
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RAL	Fluid Travel Time	200.000	usec/ft	19.155	9204.718

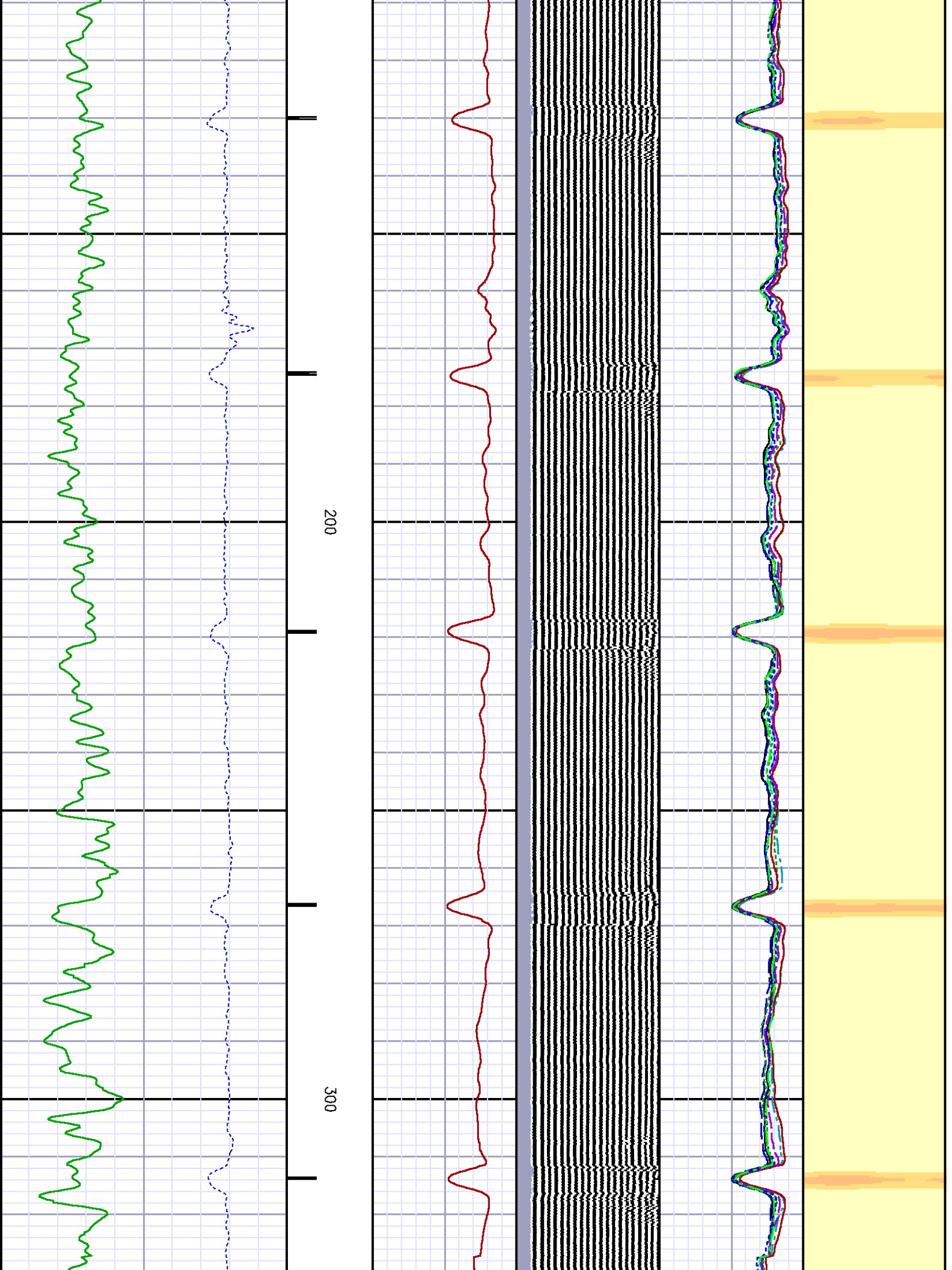
**DEPTH OFFSETS**  
(for Acquired Curves)

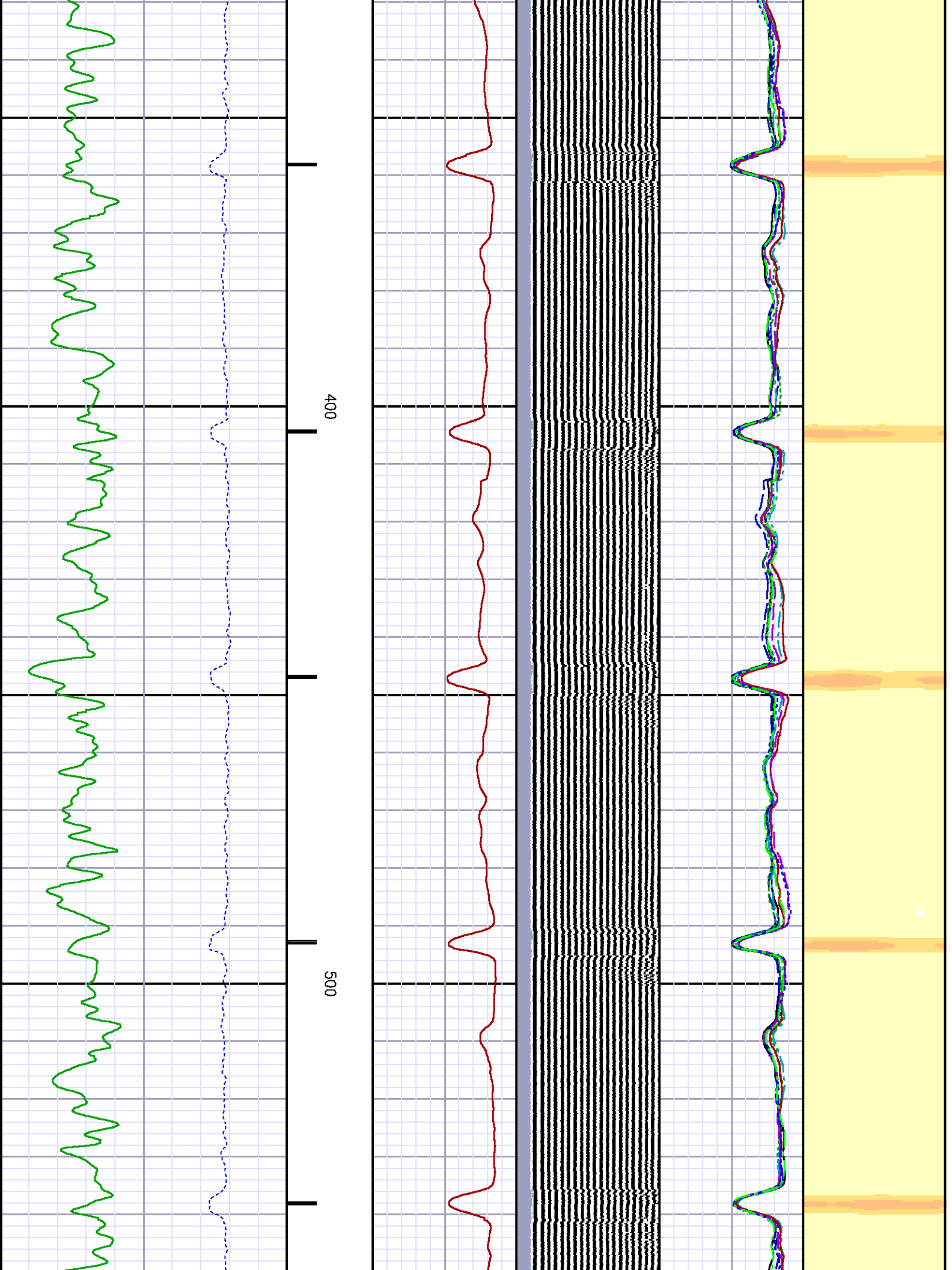
SERIES	DEPTH OFFSET	ACQUIRED CURVES					
1426XA	-15.360	ACAL	ANR	AR1	AR2	AR3	AR4
		AR5	AR6	AR7	AR8	CHV	FPR2
		FPR3	FPR5	TT3	TTR1	TTR2	TTR3
		TTR4	TTR5	TTR6	TTR7	TTR8	XAMP
1426XA	-15.360	ACAL	ANR	AR1	AR2	AR3	AR4
		AR5	AR6	AR7	AR8	CHV	FPR2
		FPR3	FPR5	TT3	TTR1	TTR2	TTR3
		TTR4	TTR5	TTR6	TTR7	TTR8	XAMP

NEU

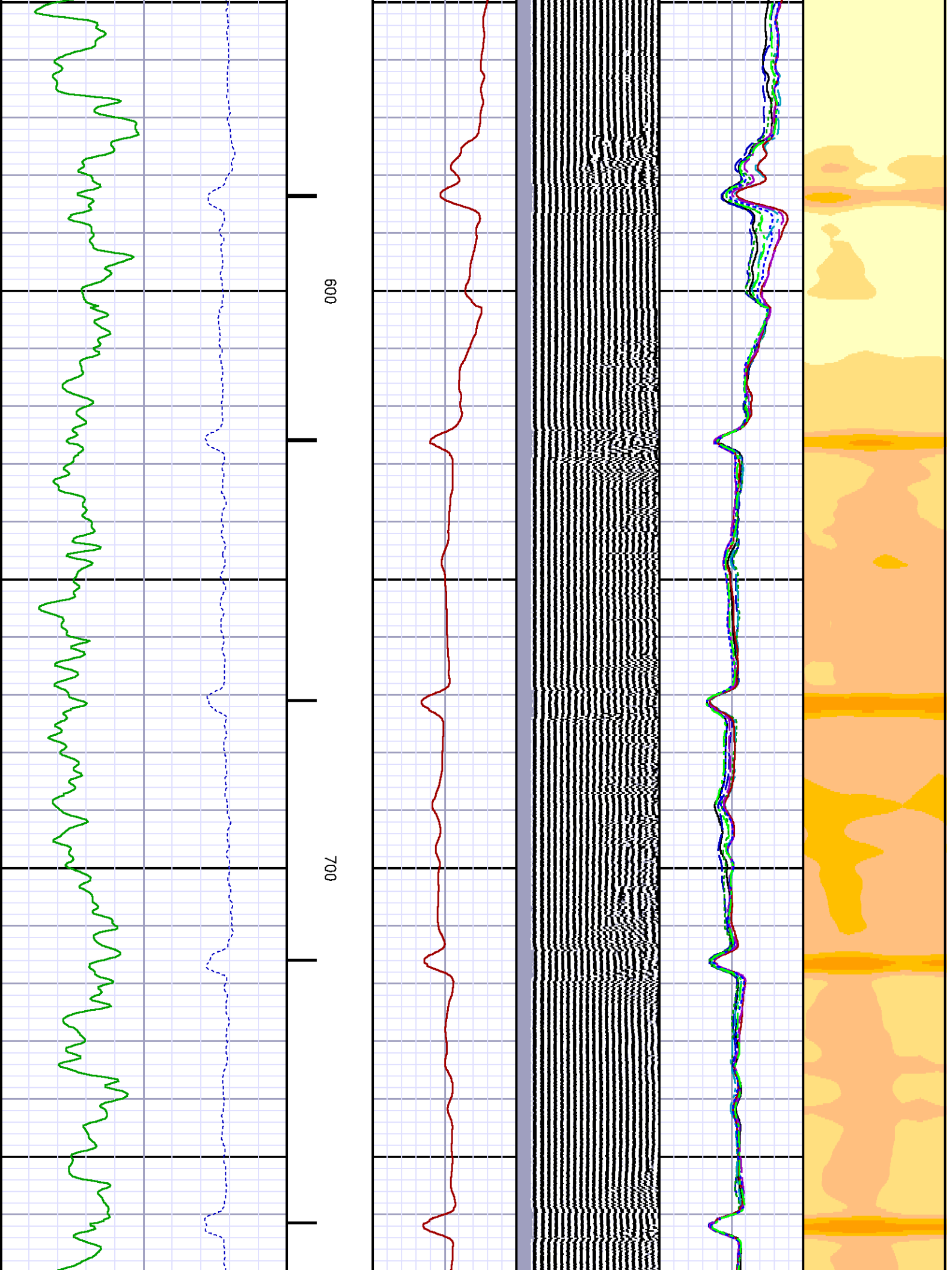
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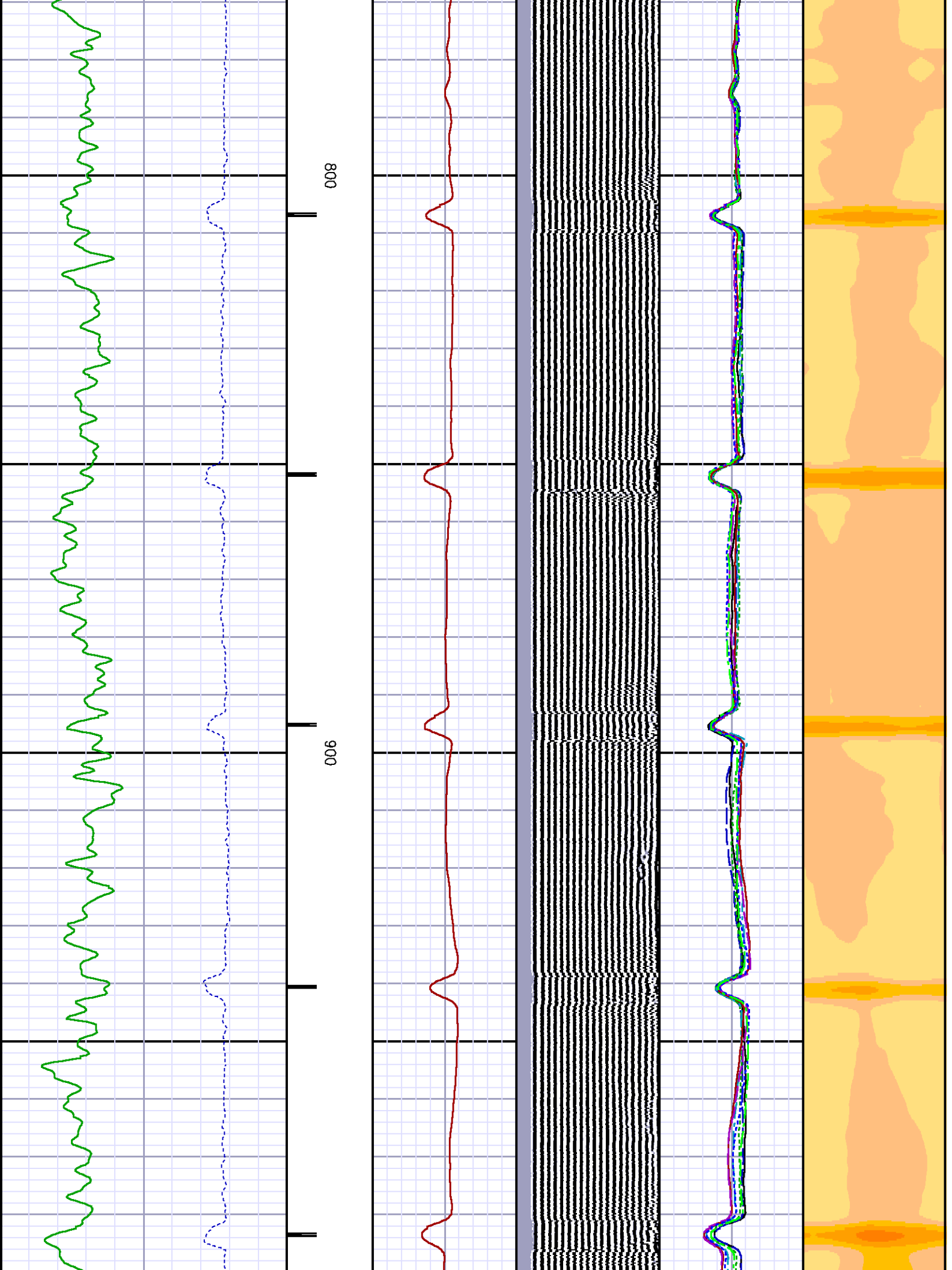


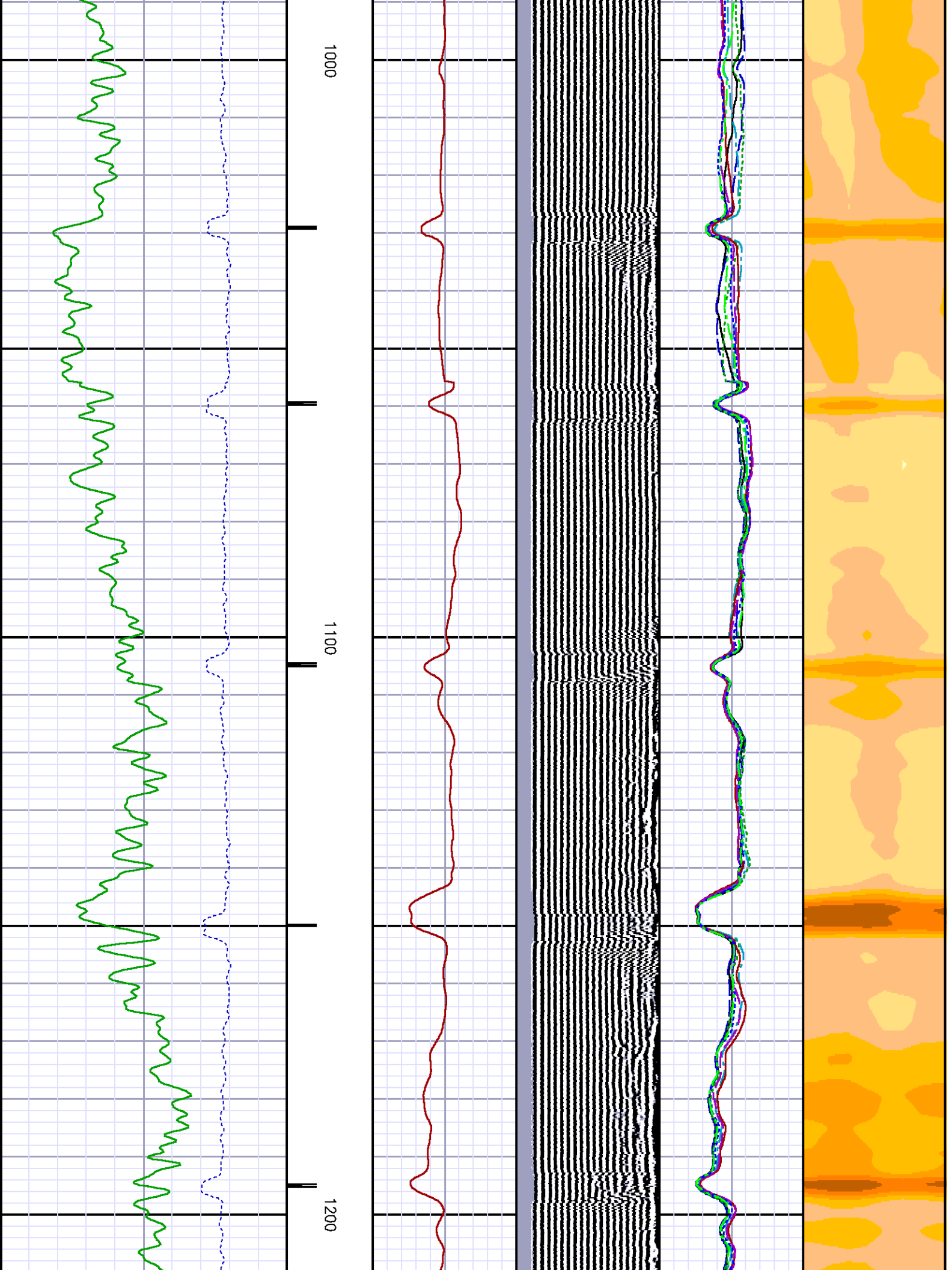


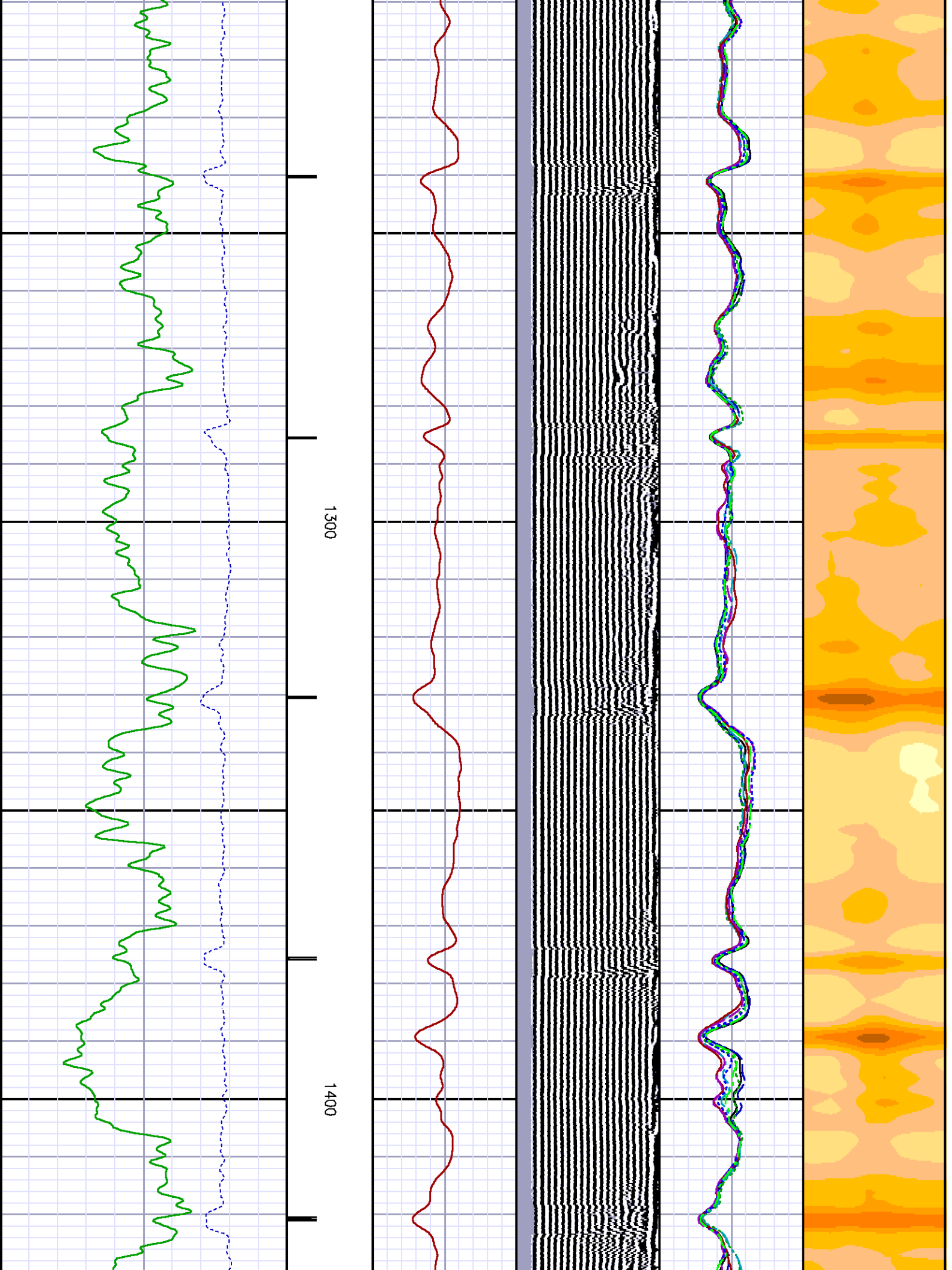


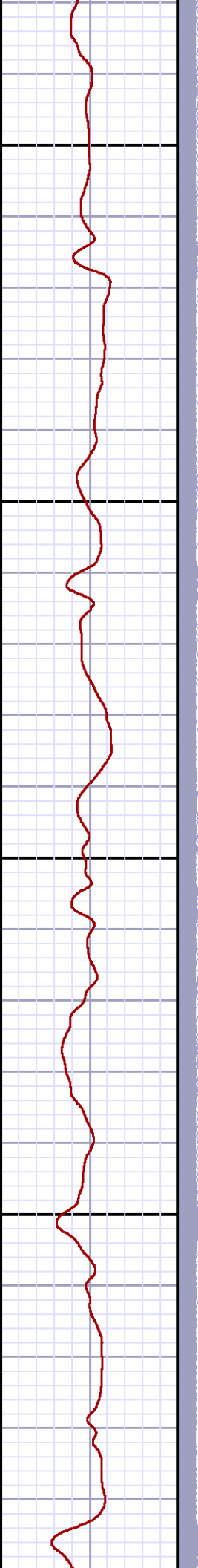
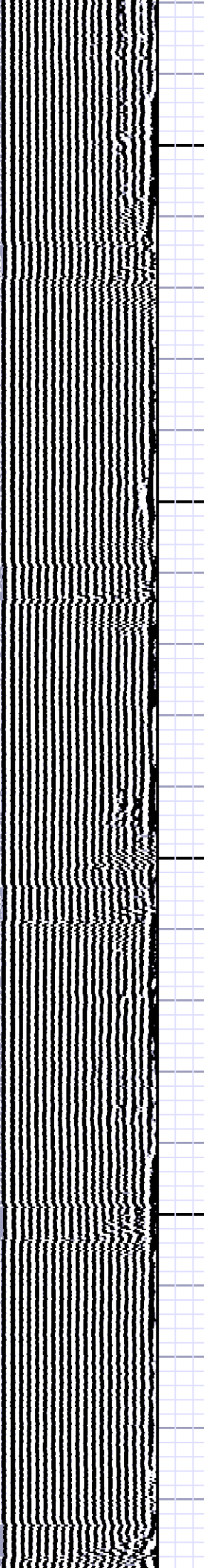
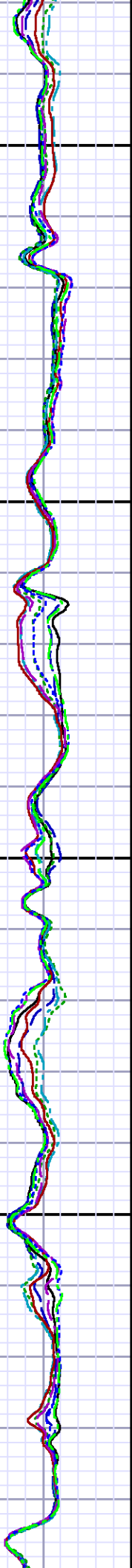
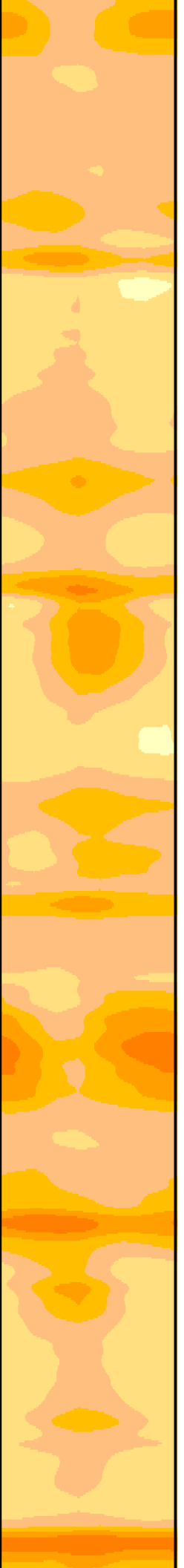






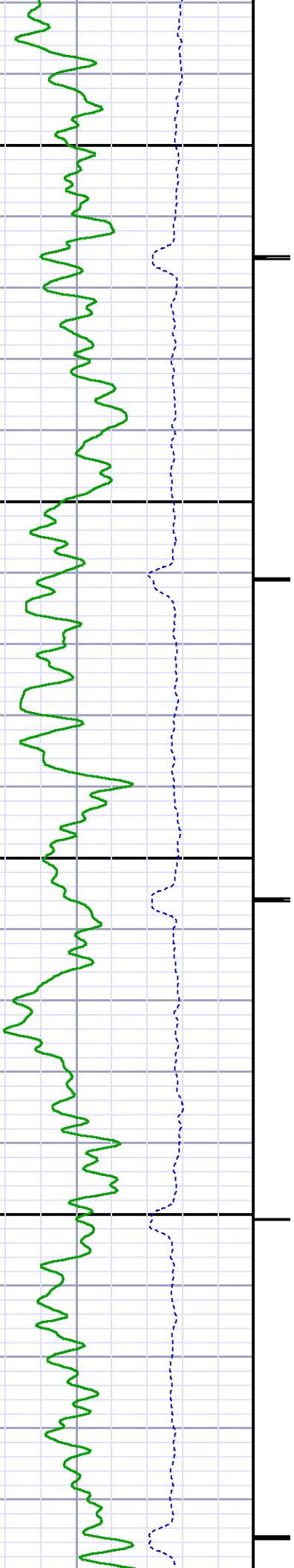


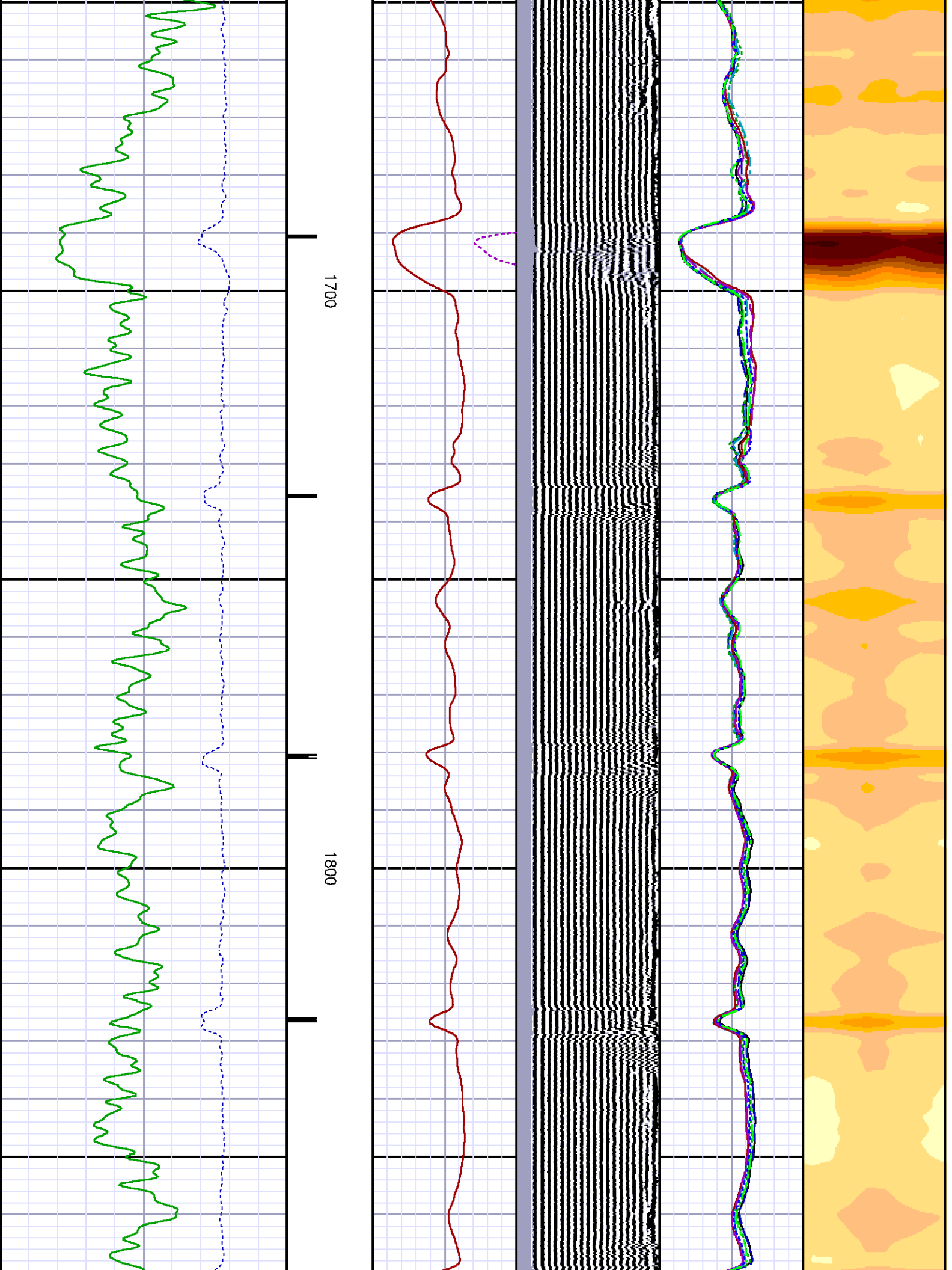




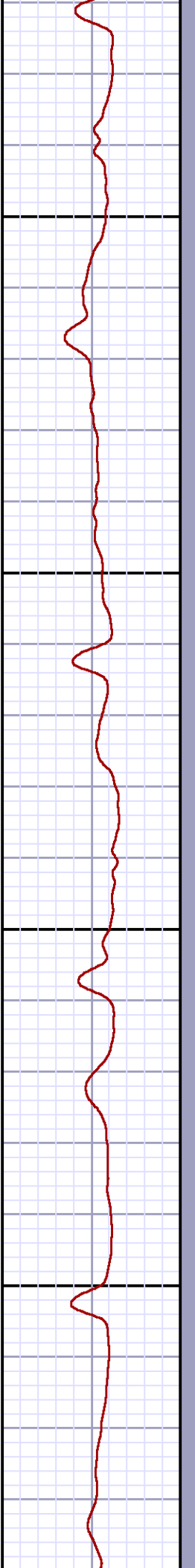
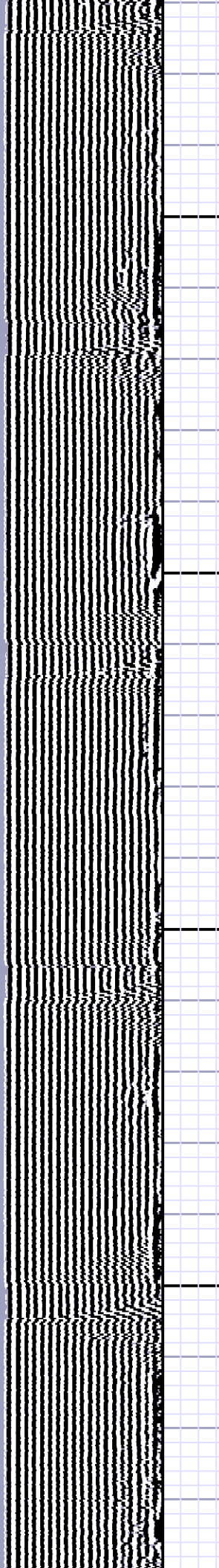
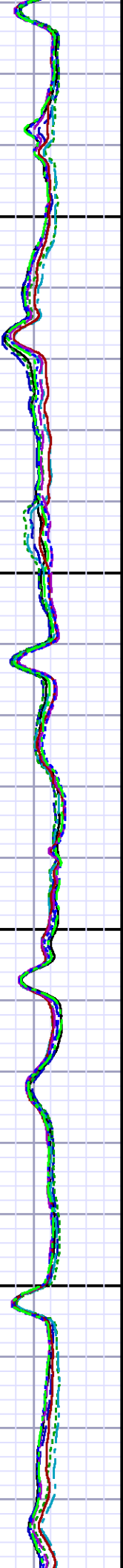
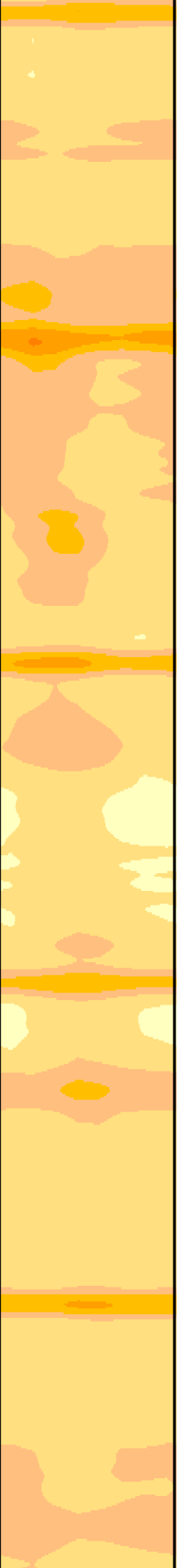
1500

1600



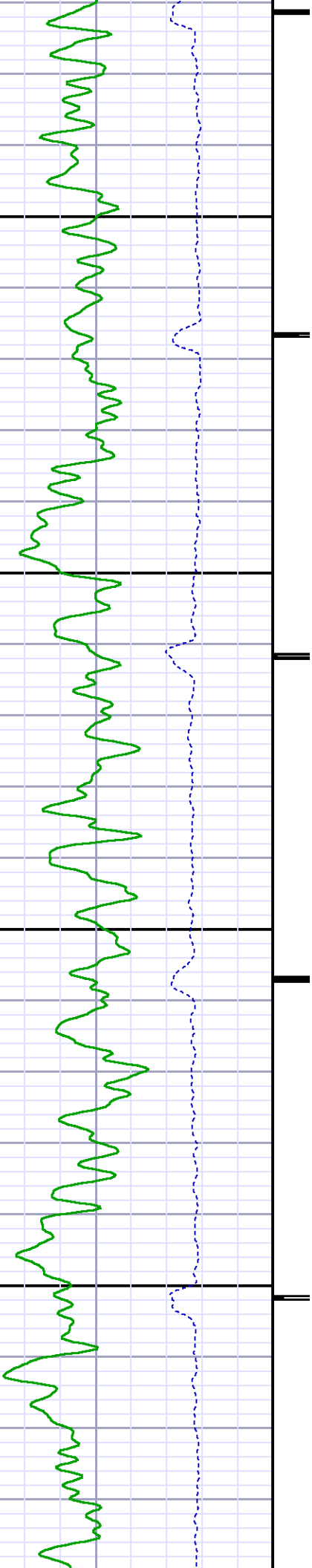


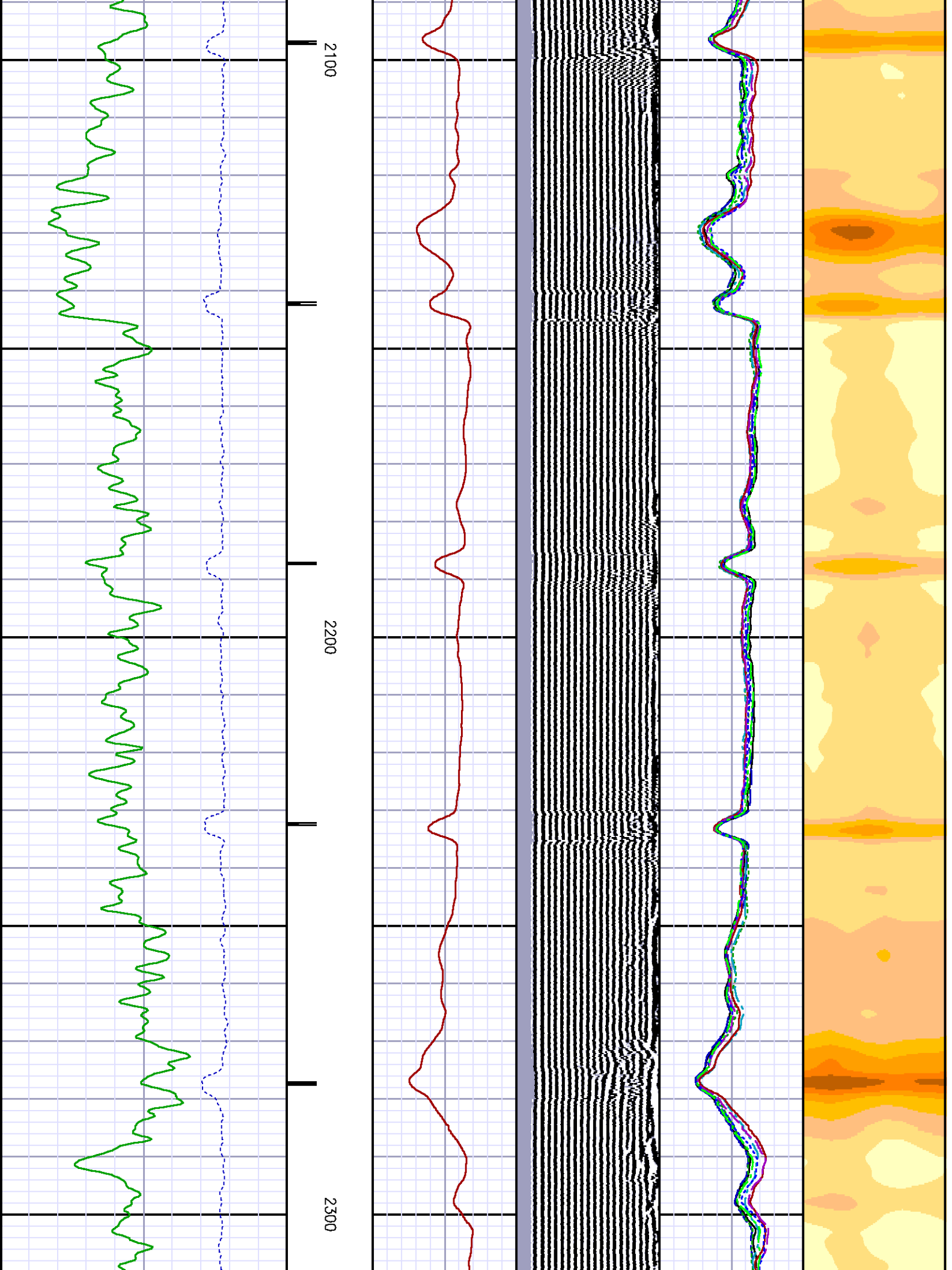


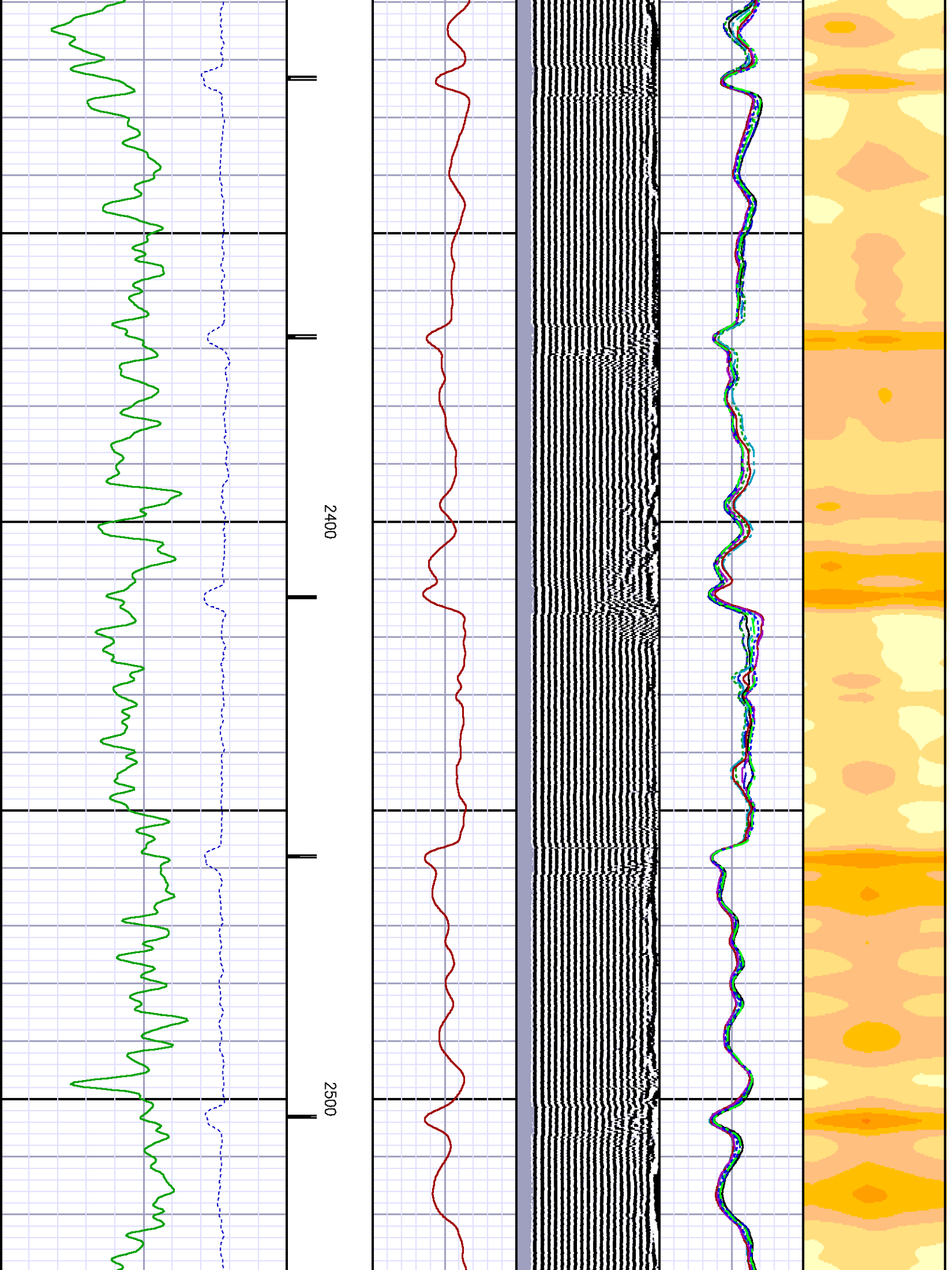


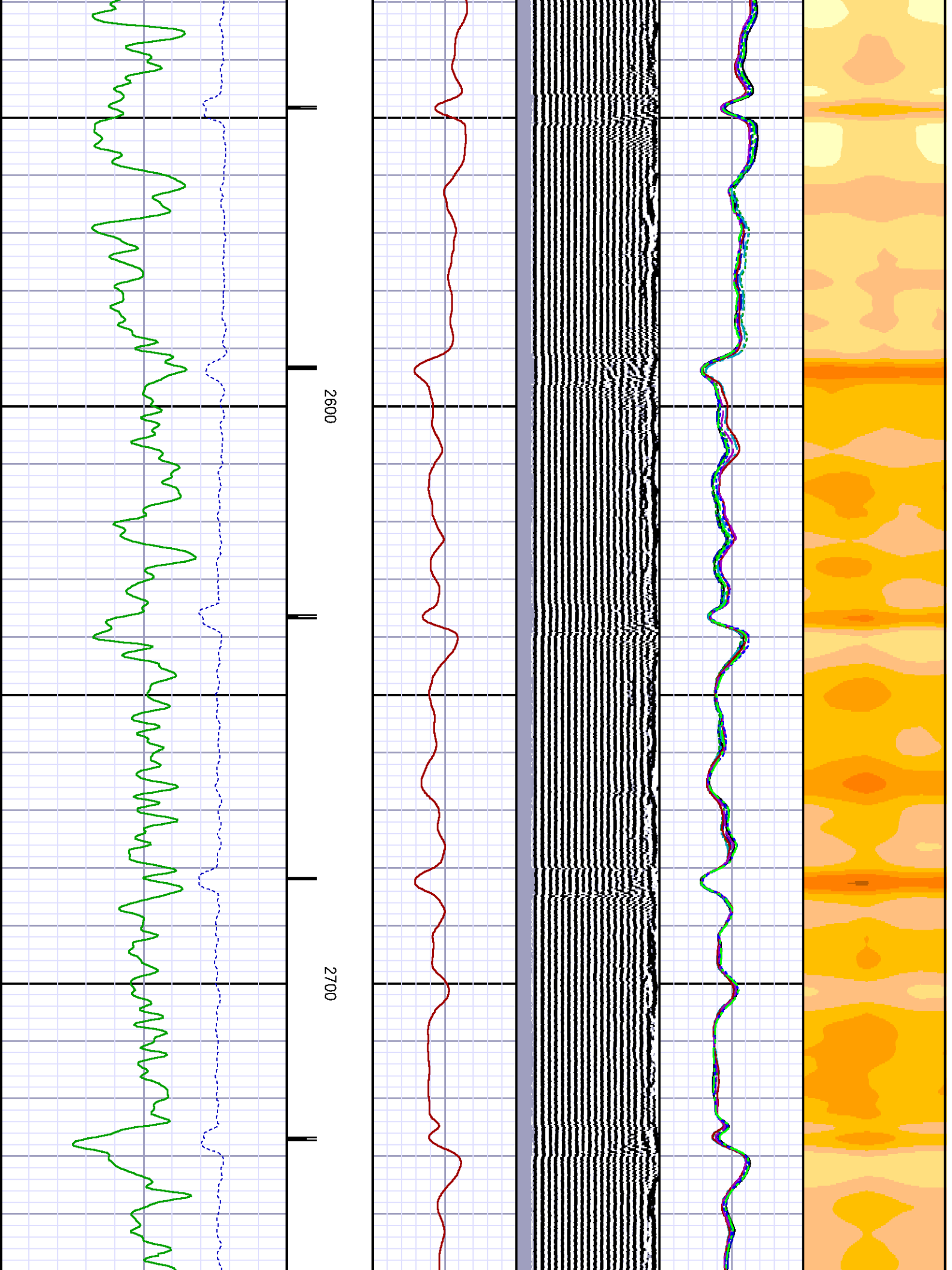
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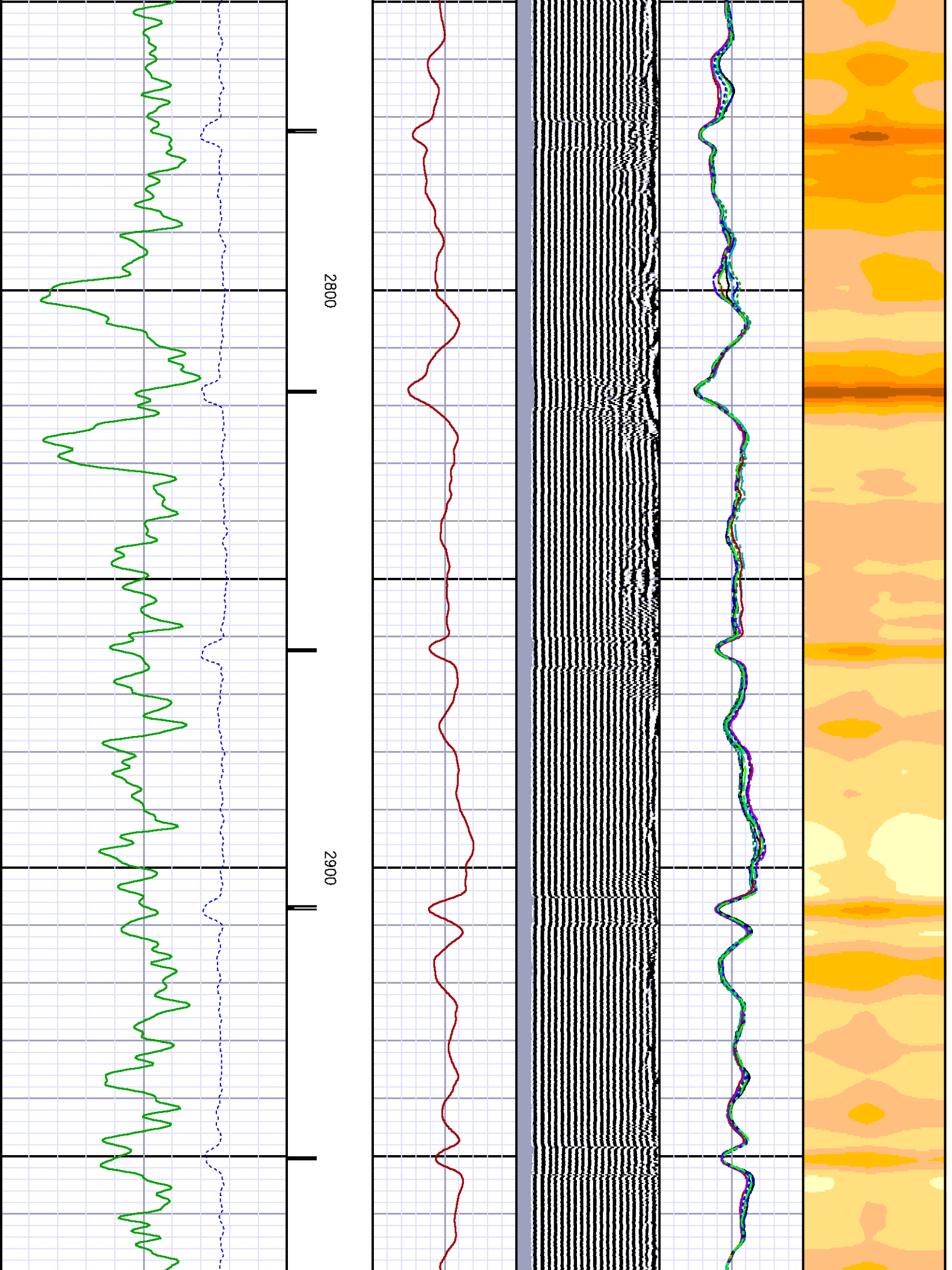
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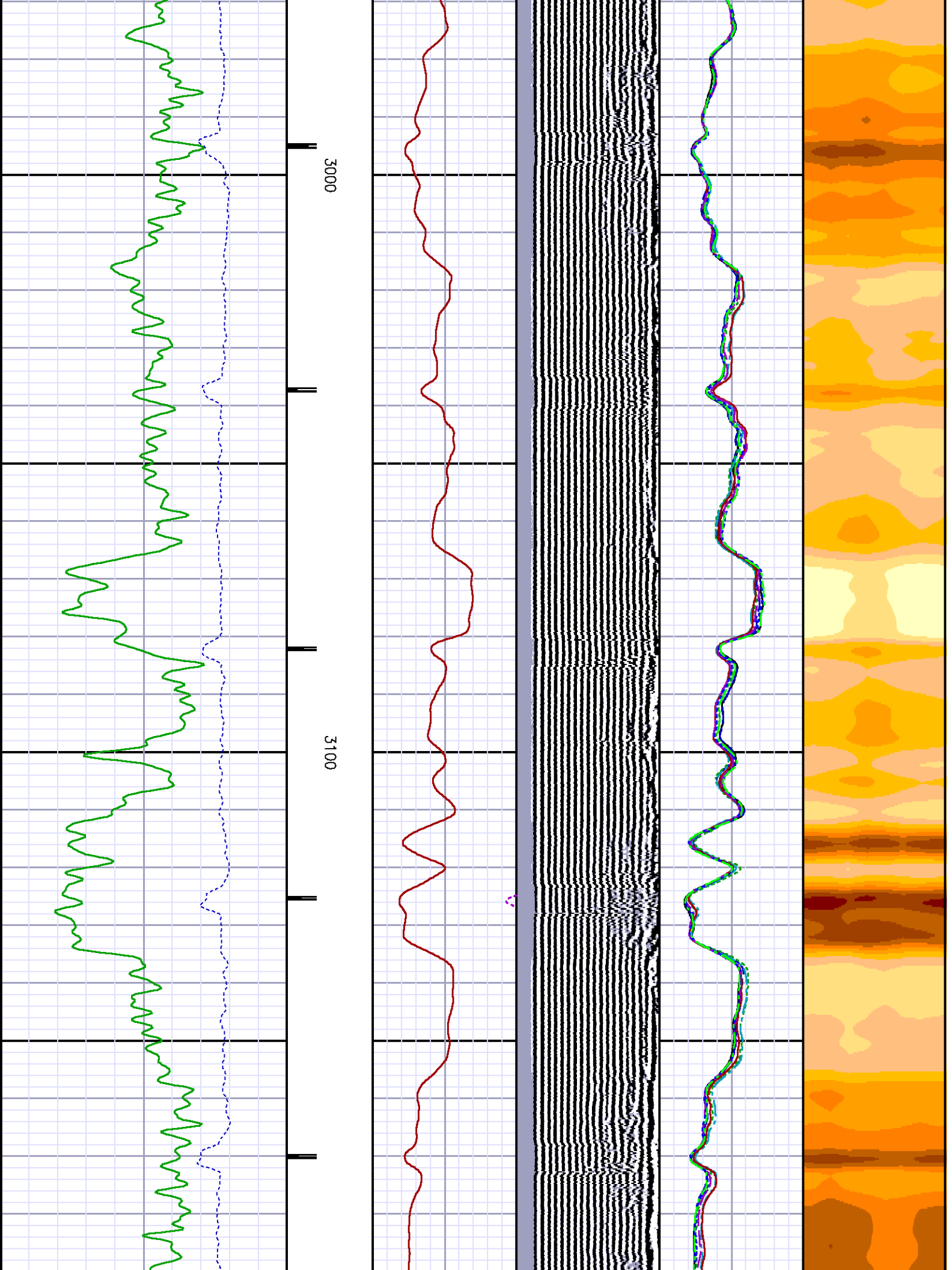




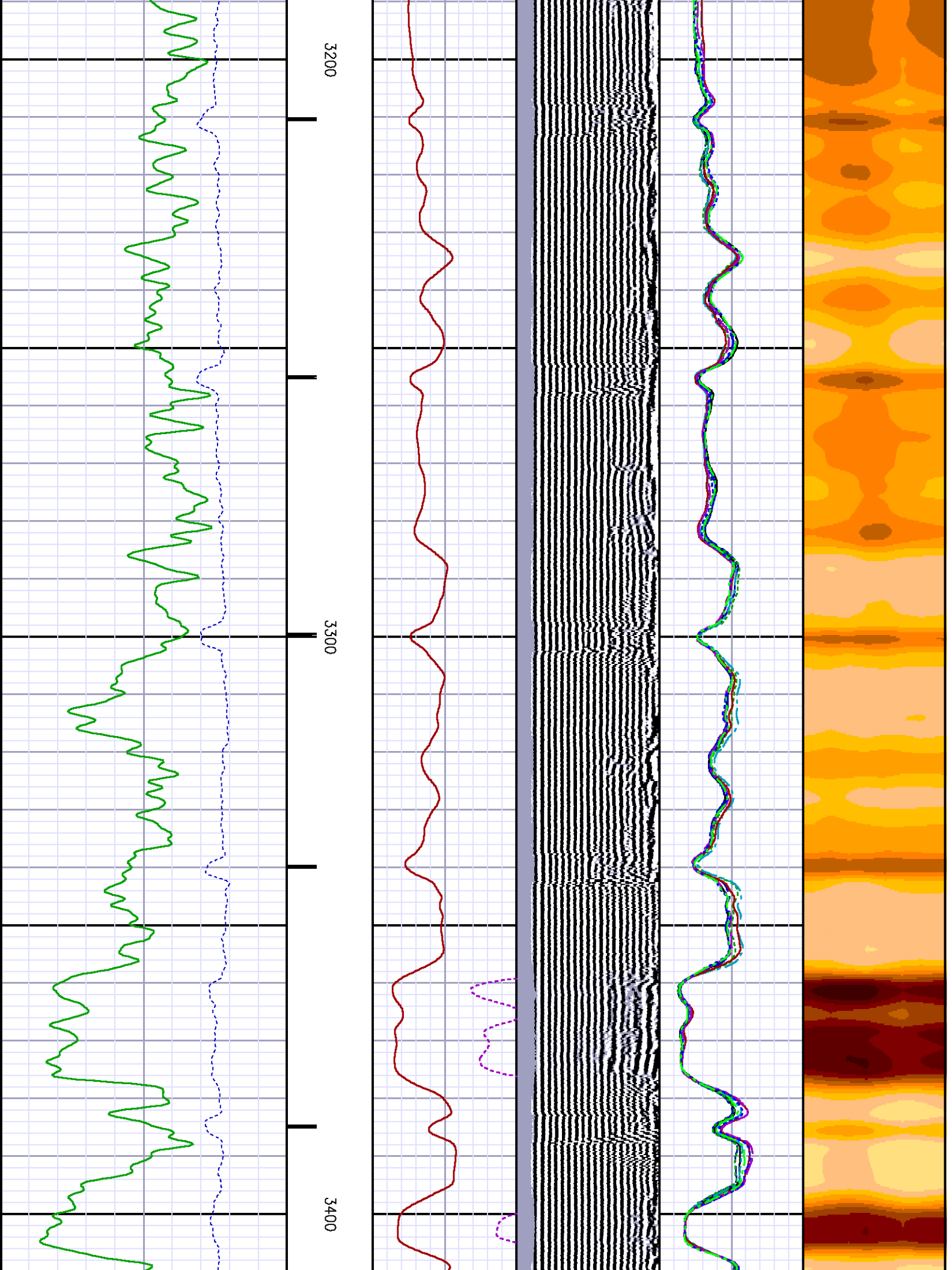


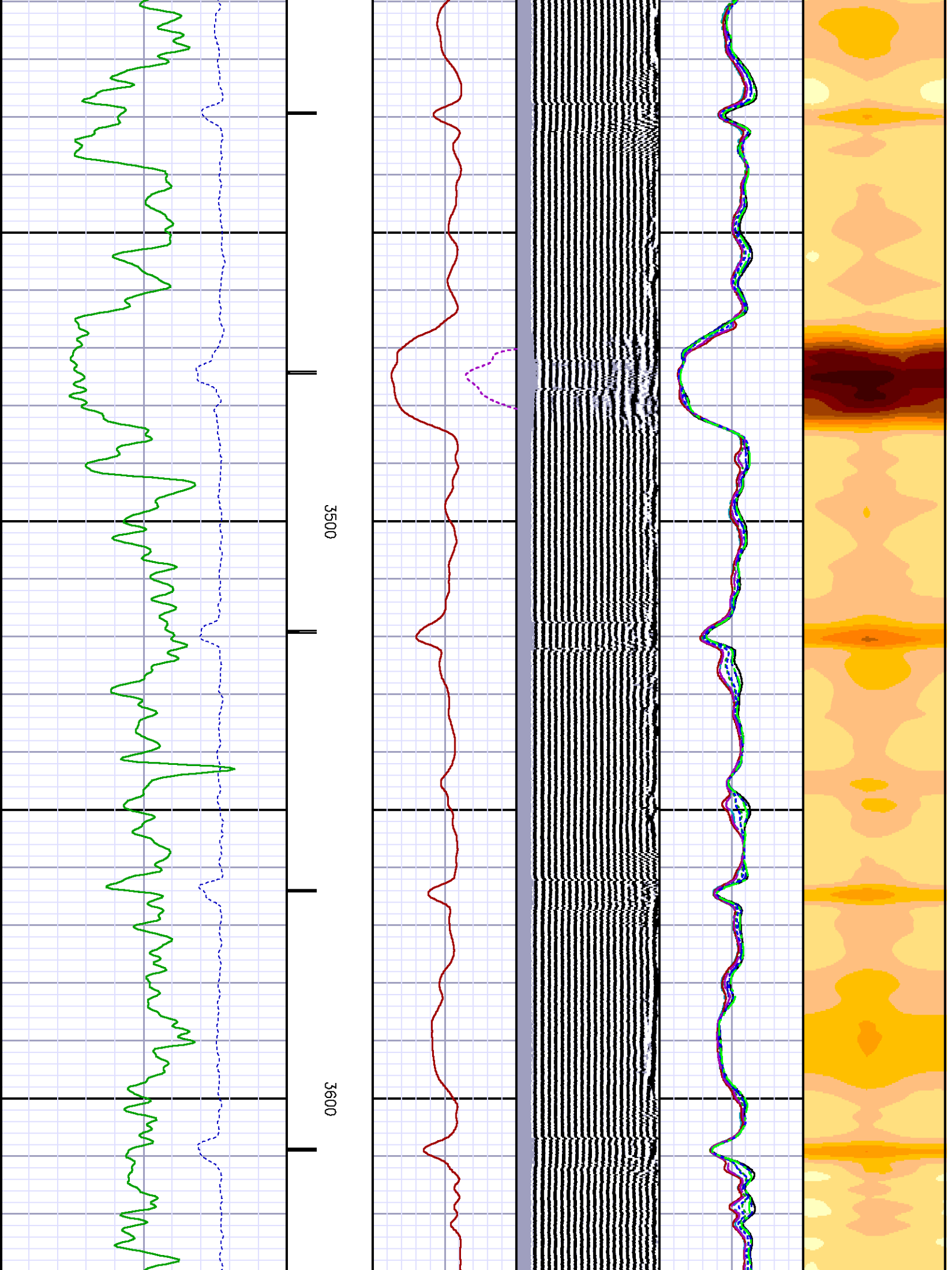


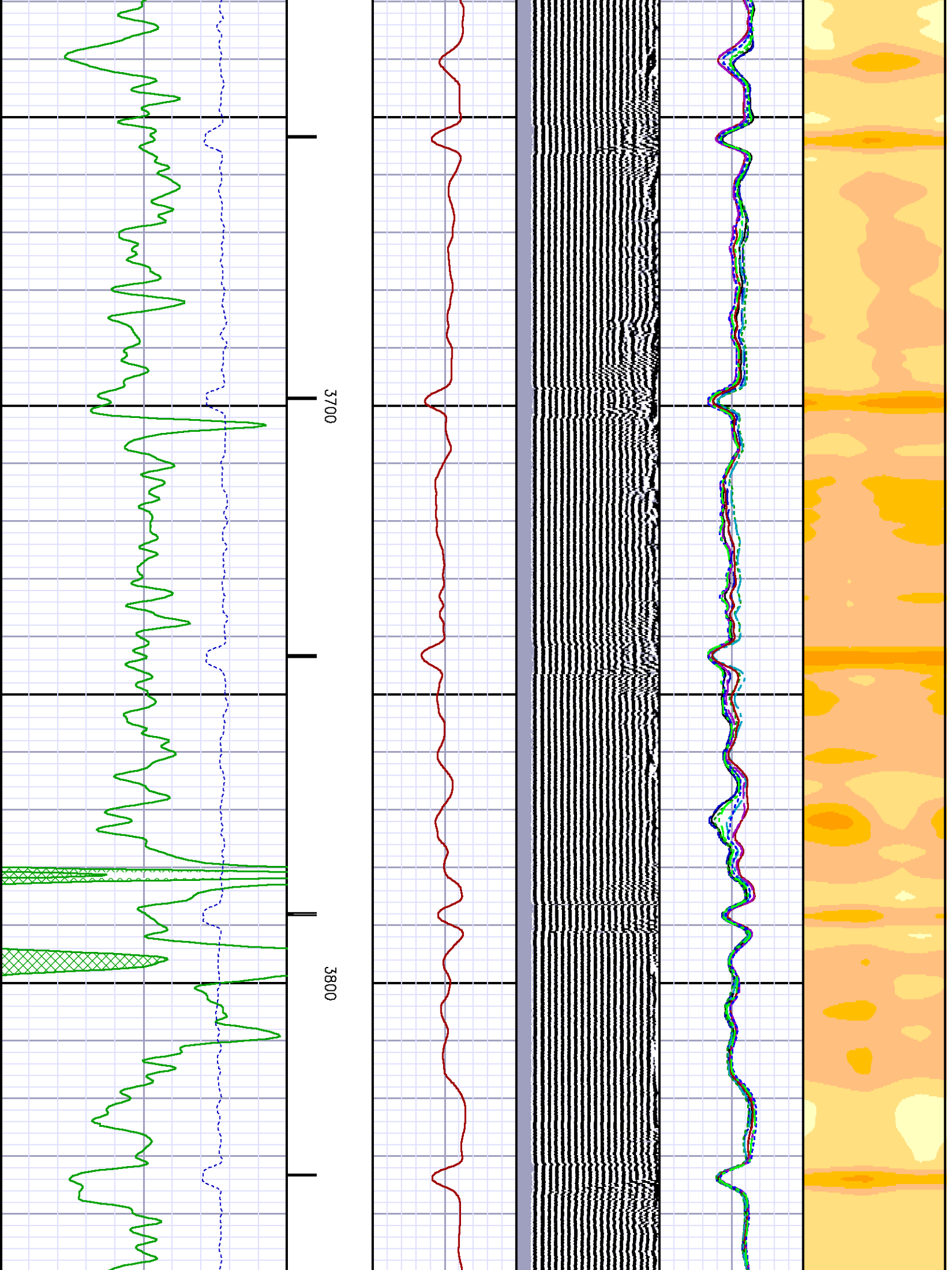


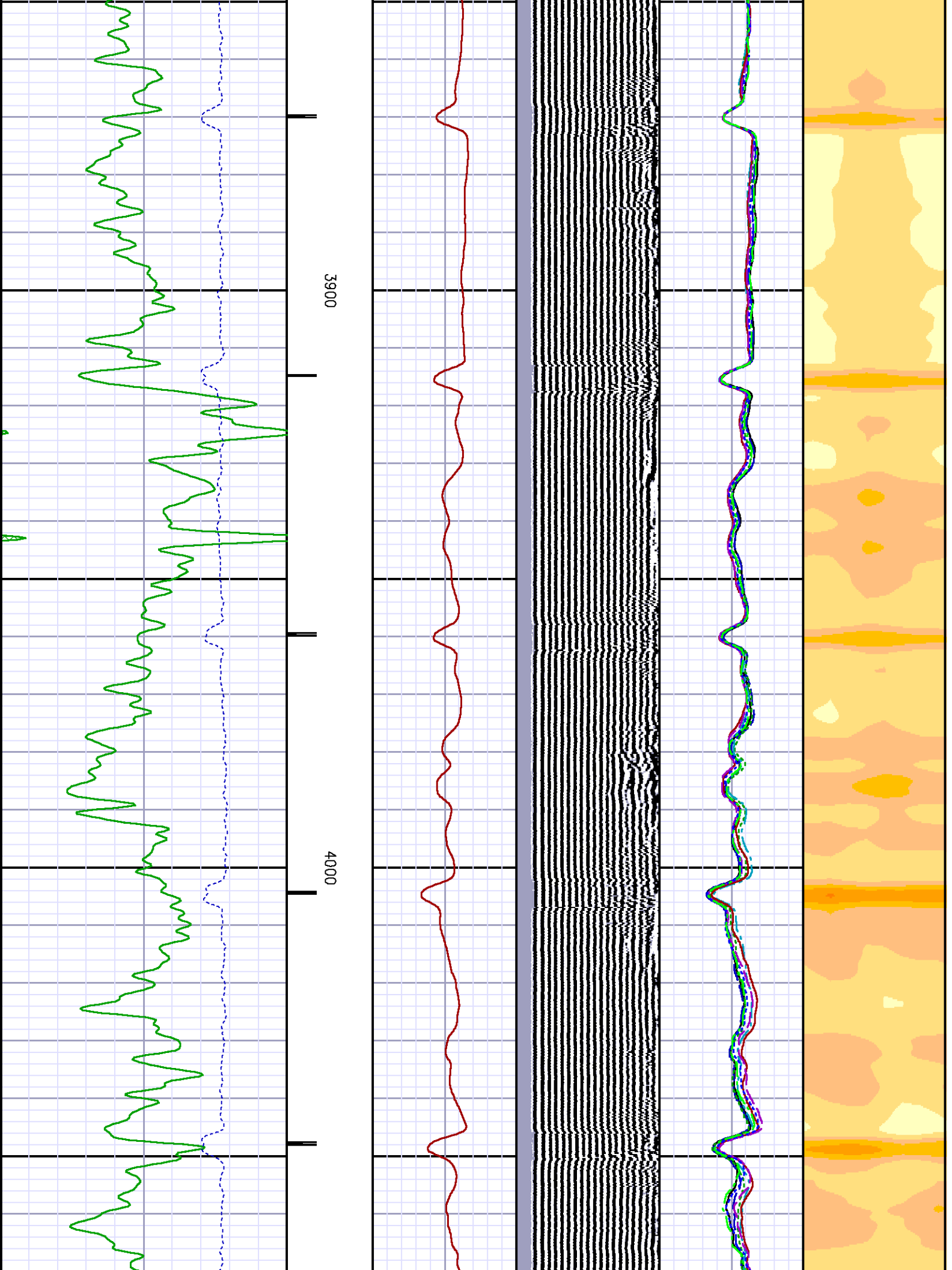


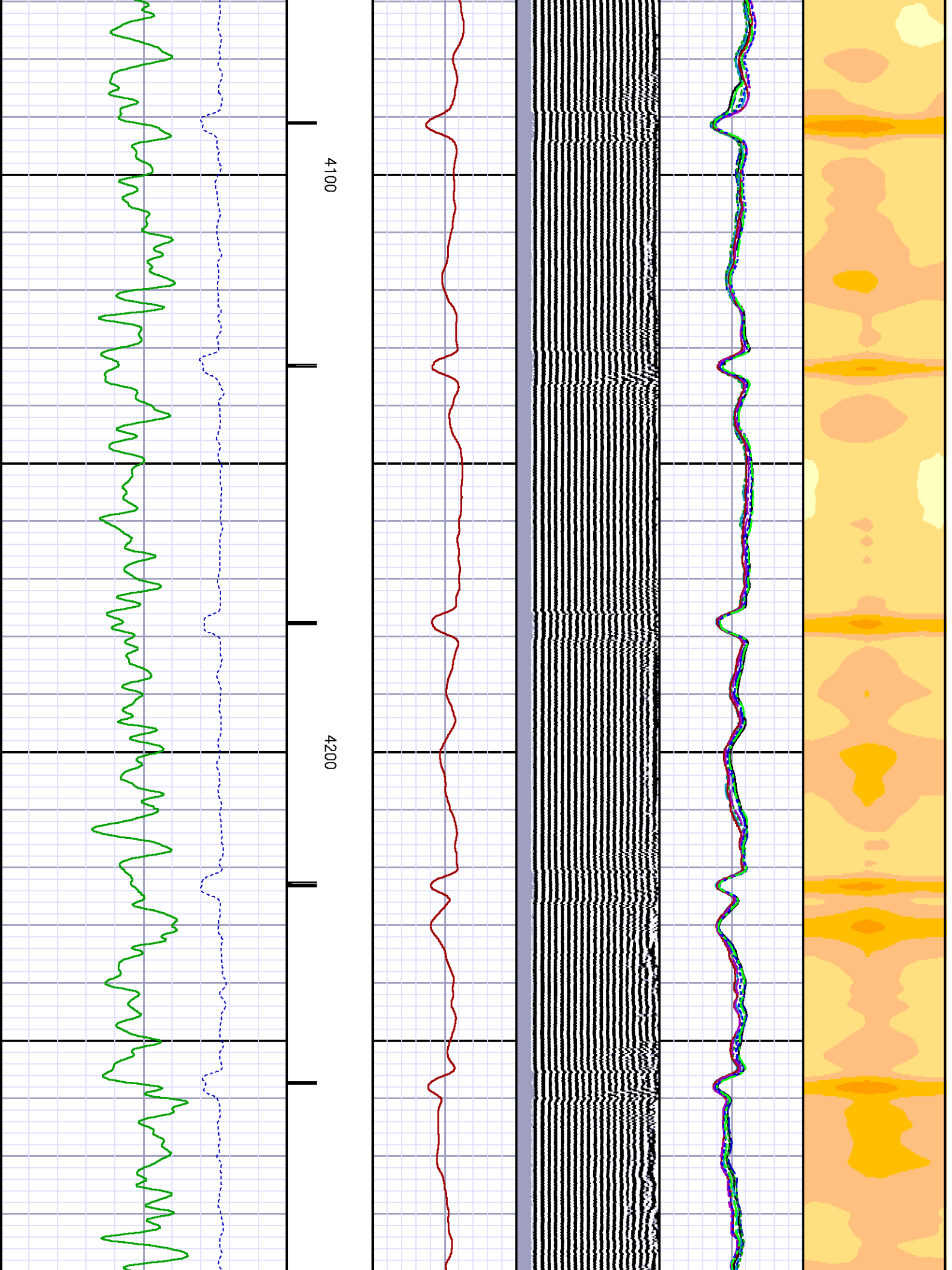


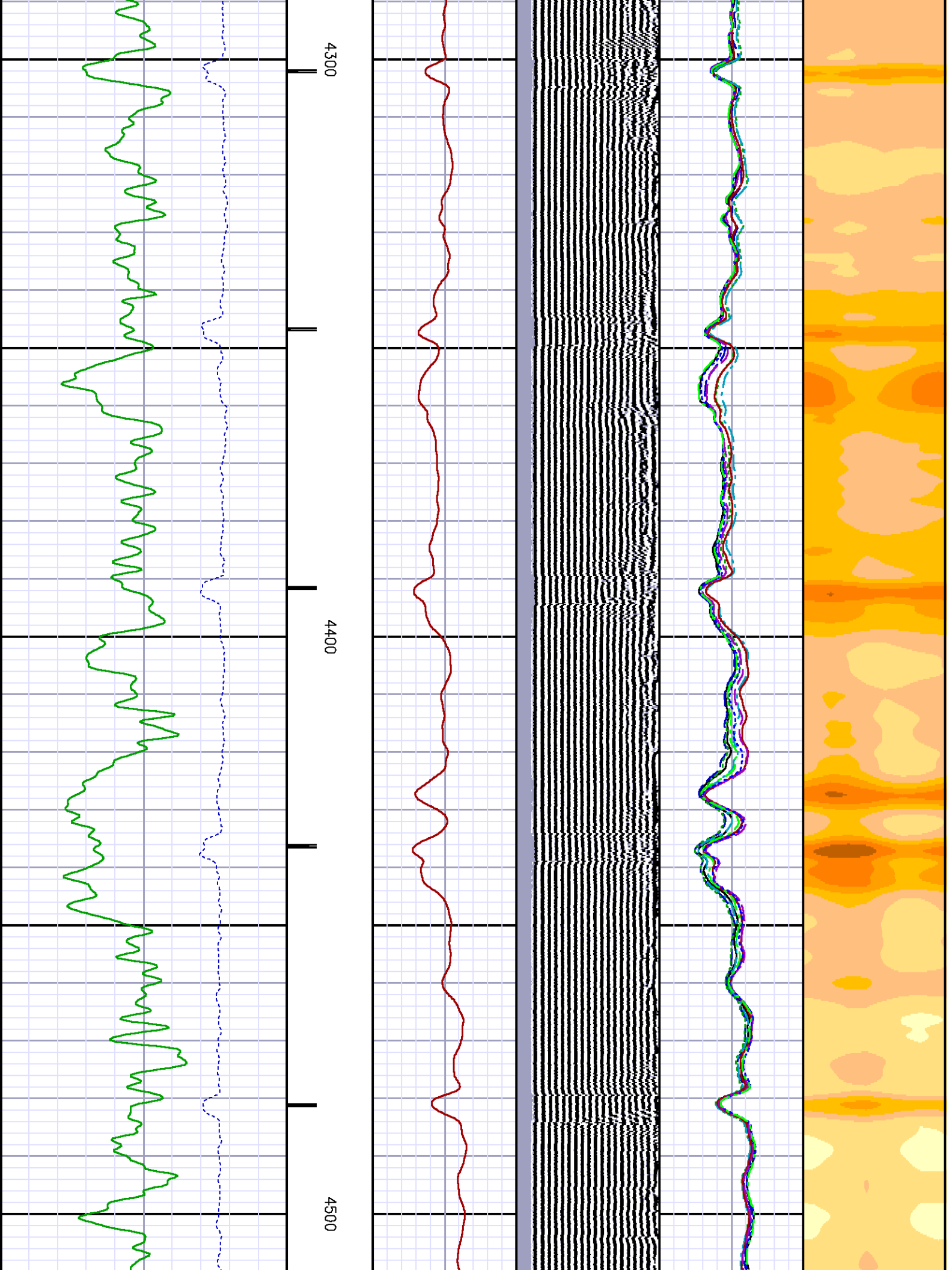




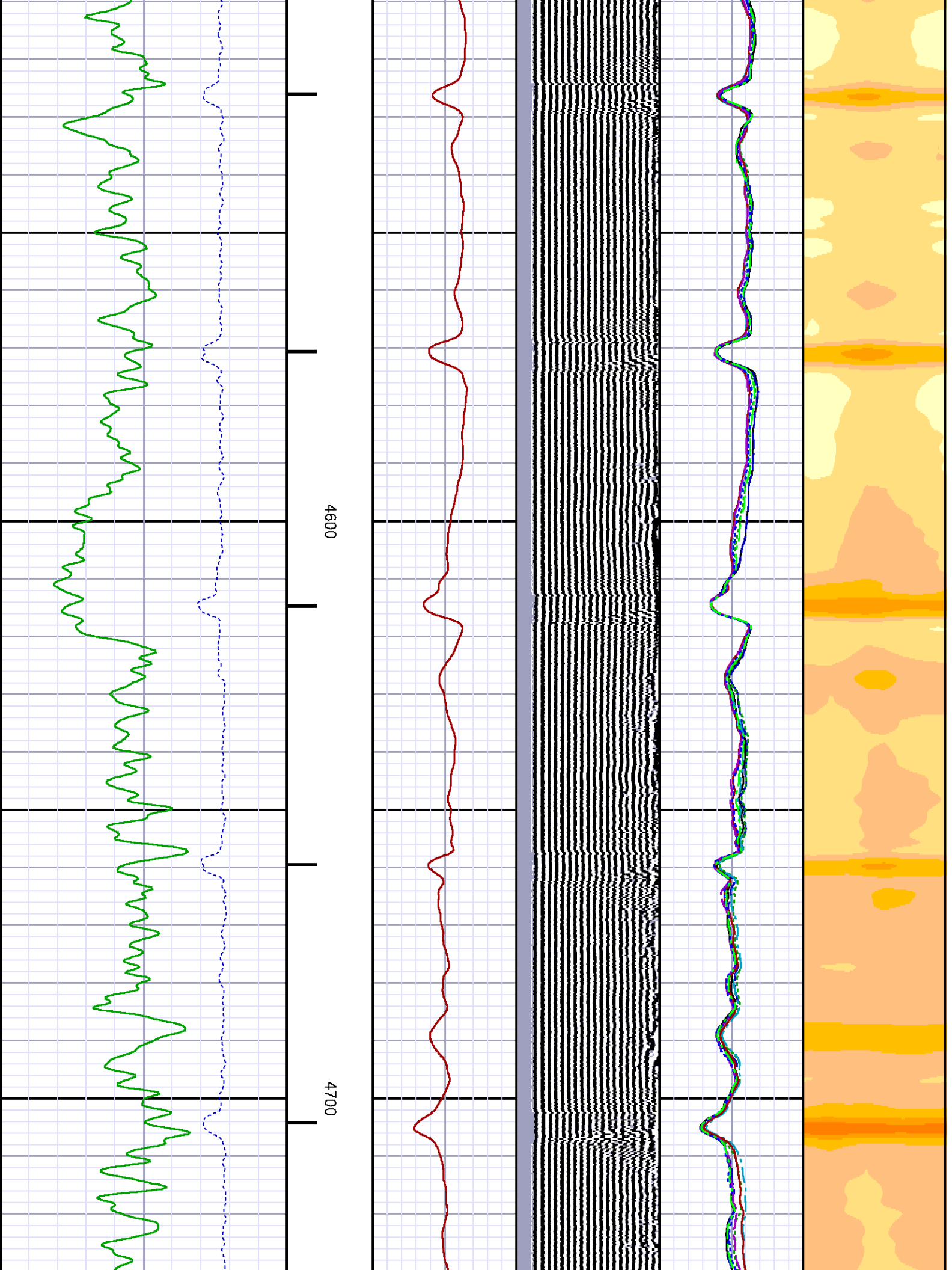


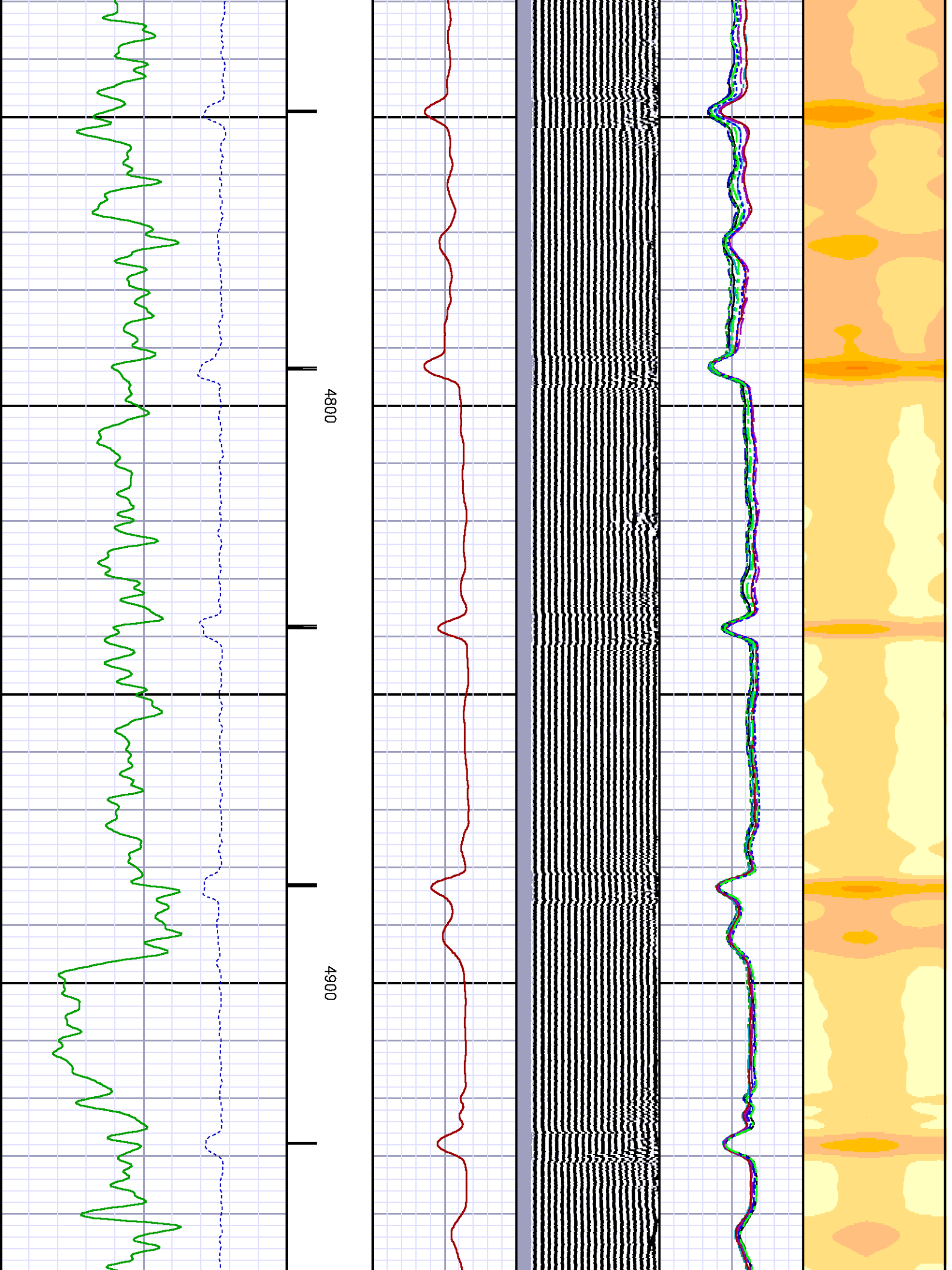


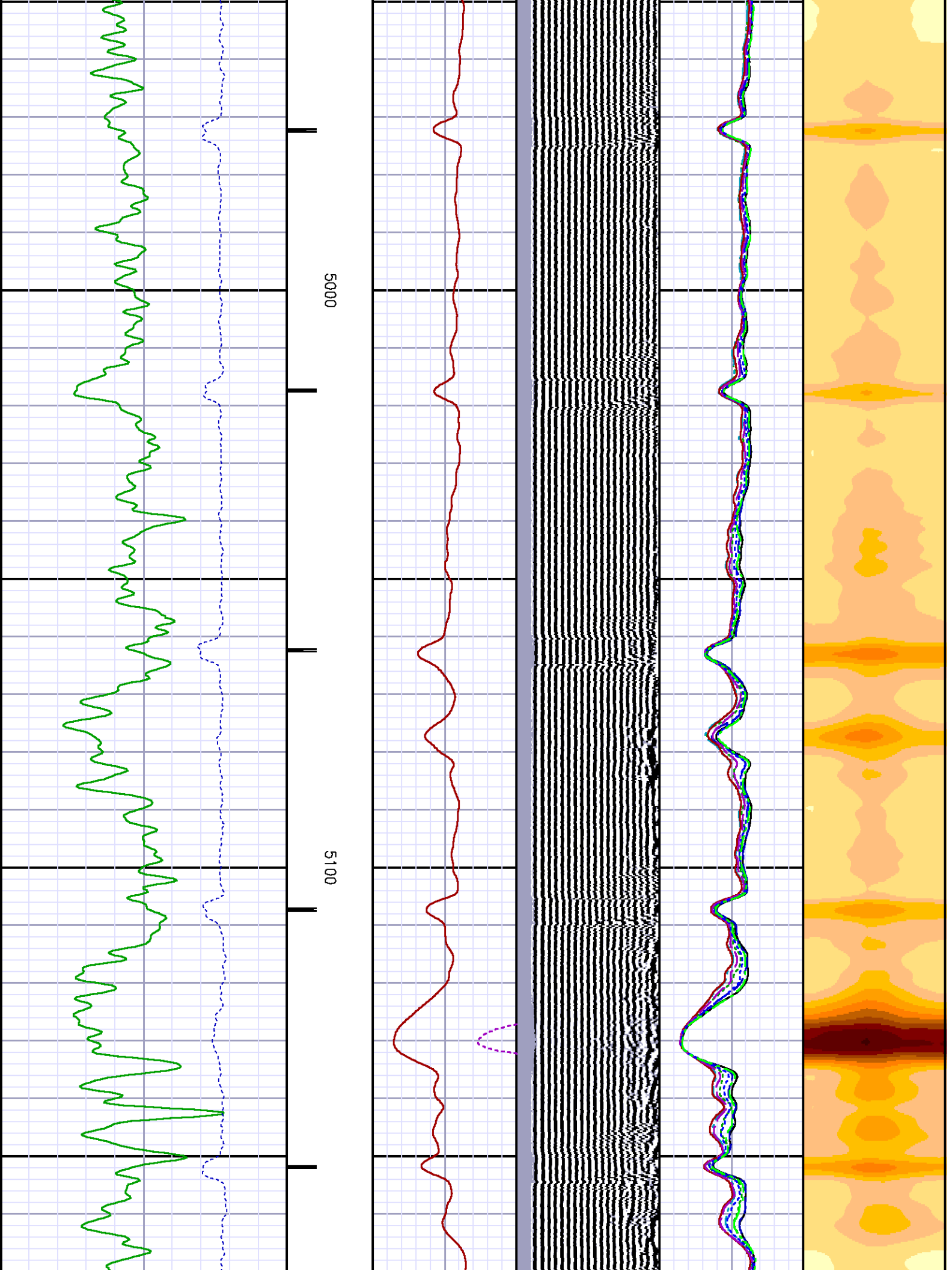


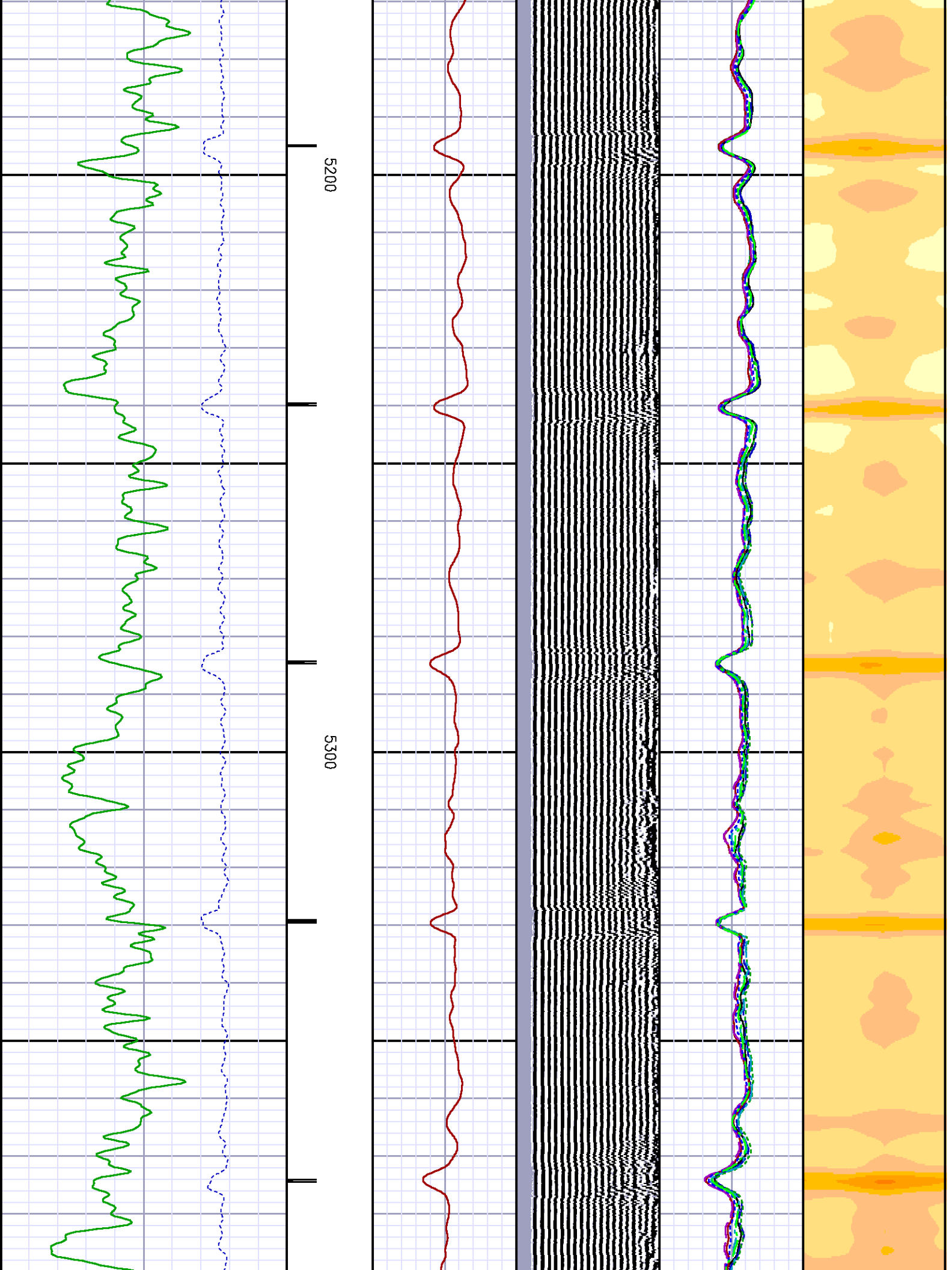


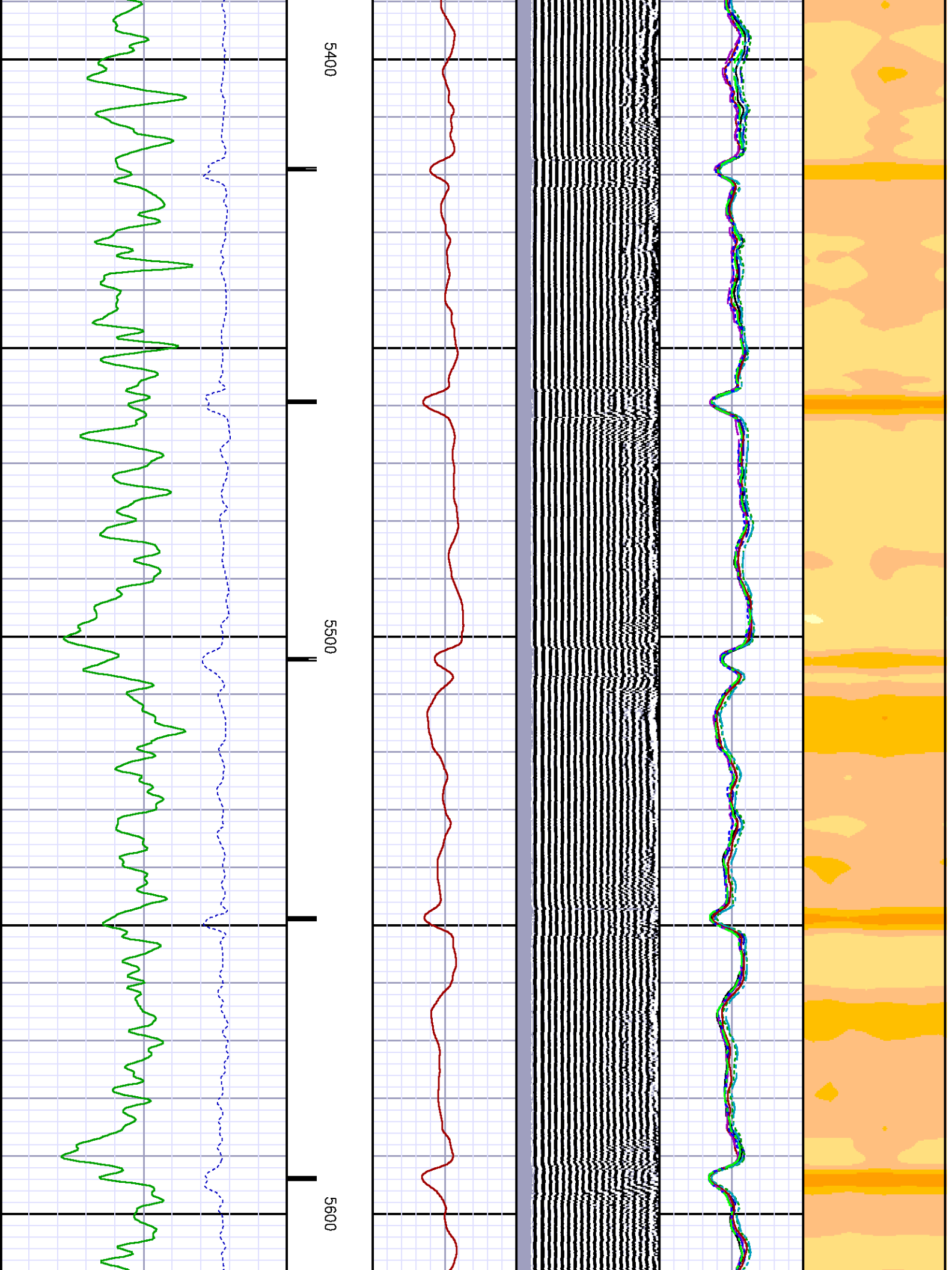


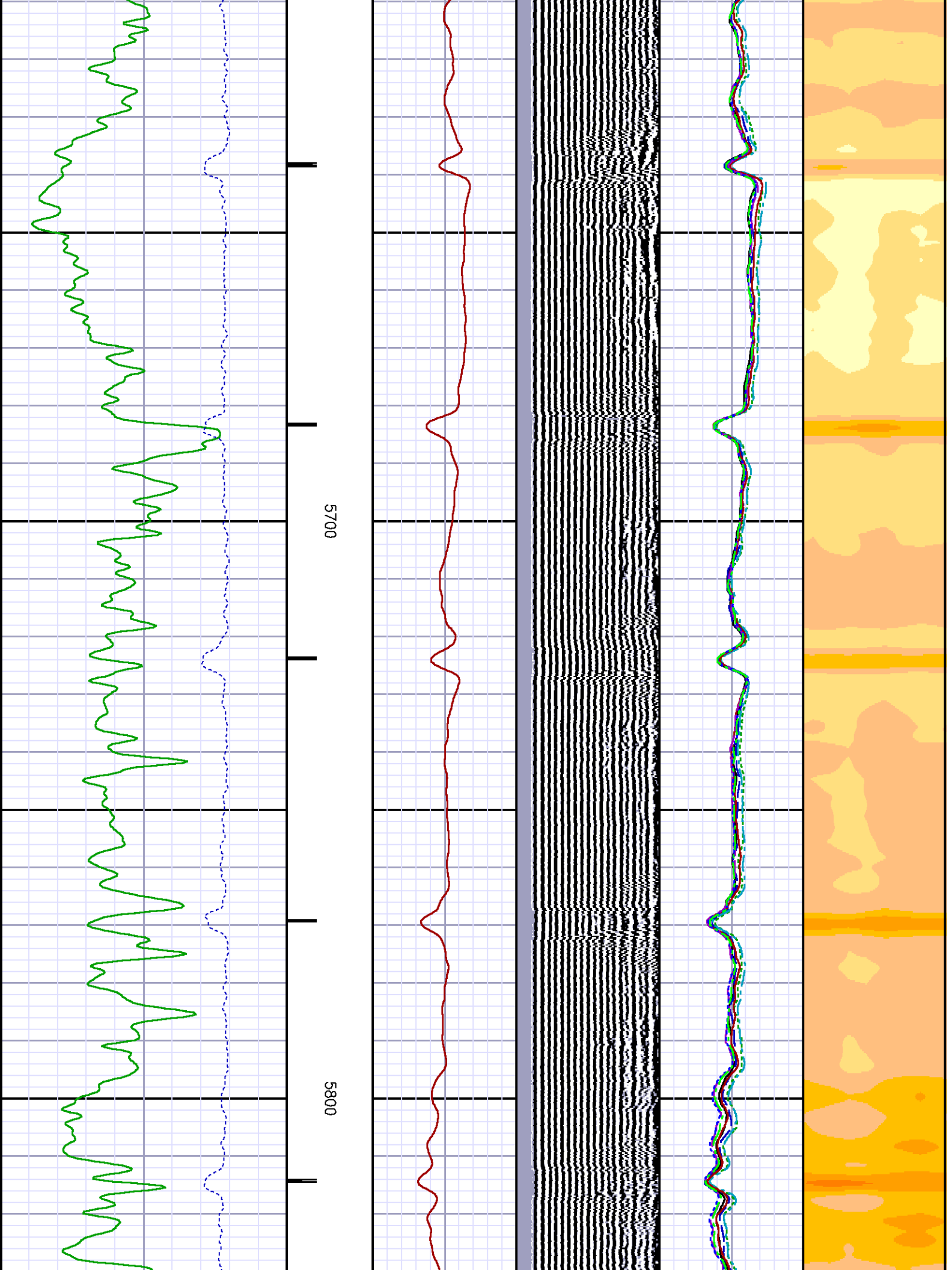




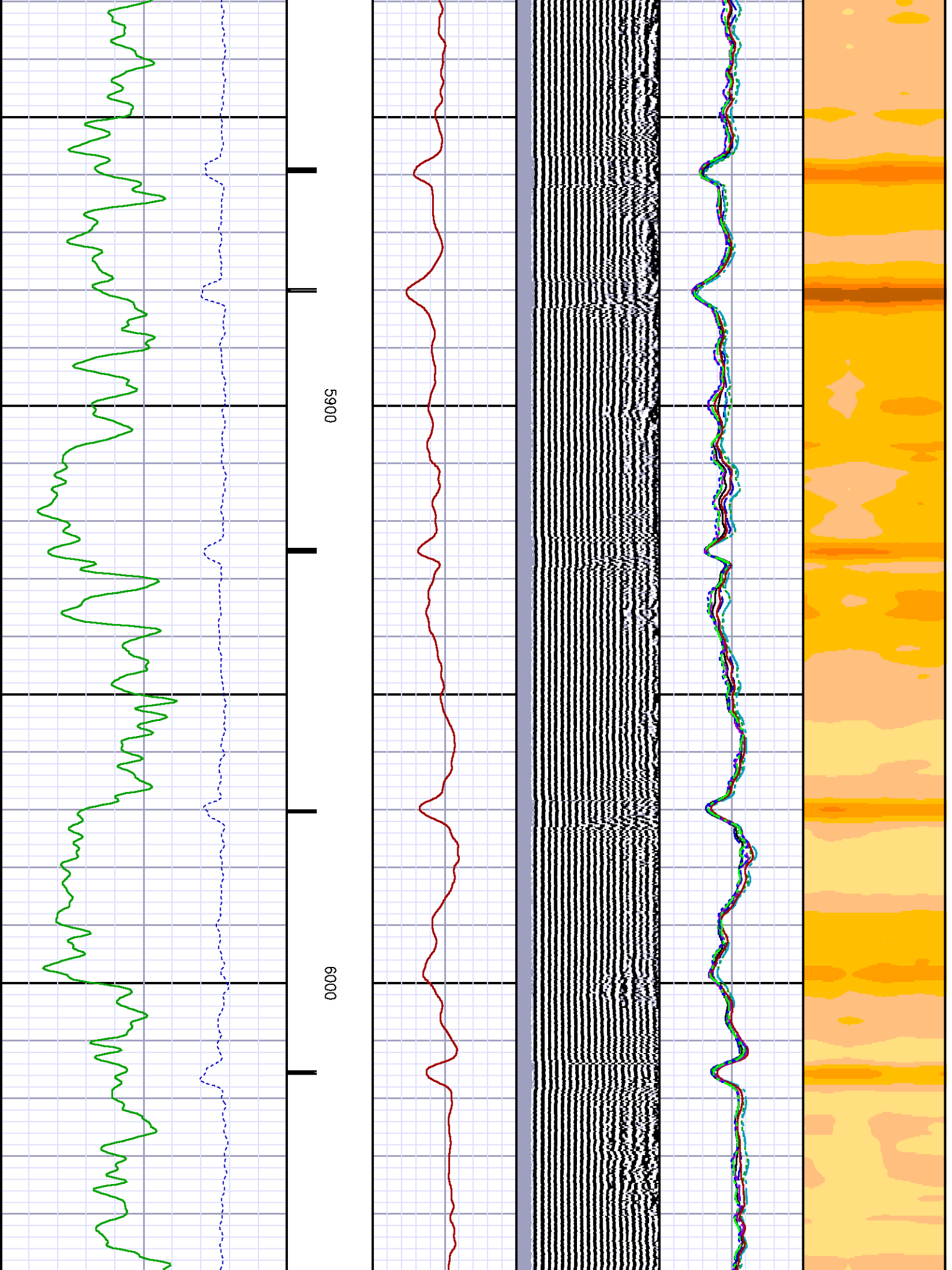


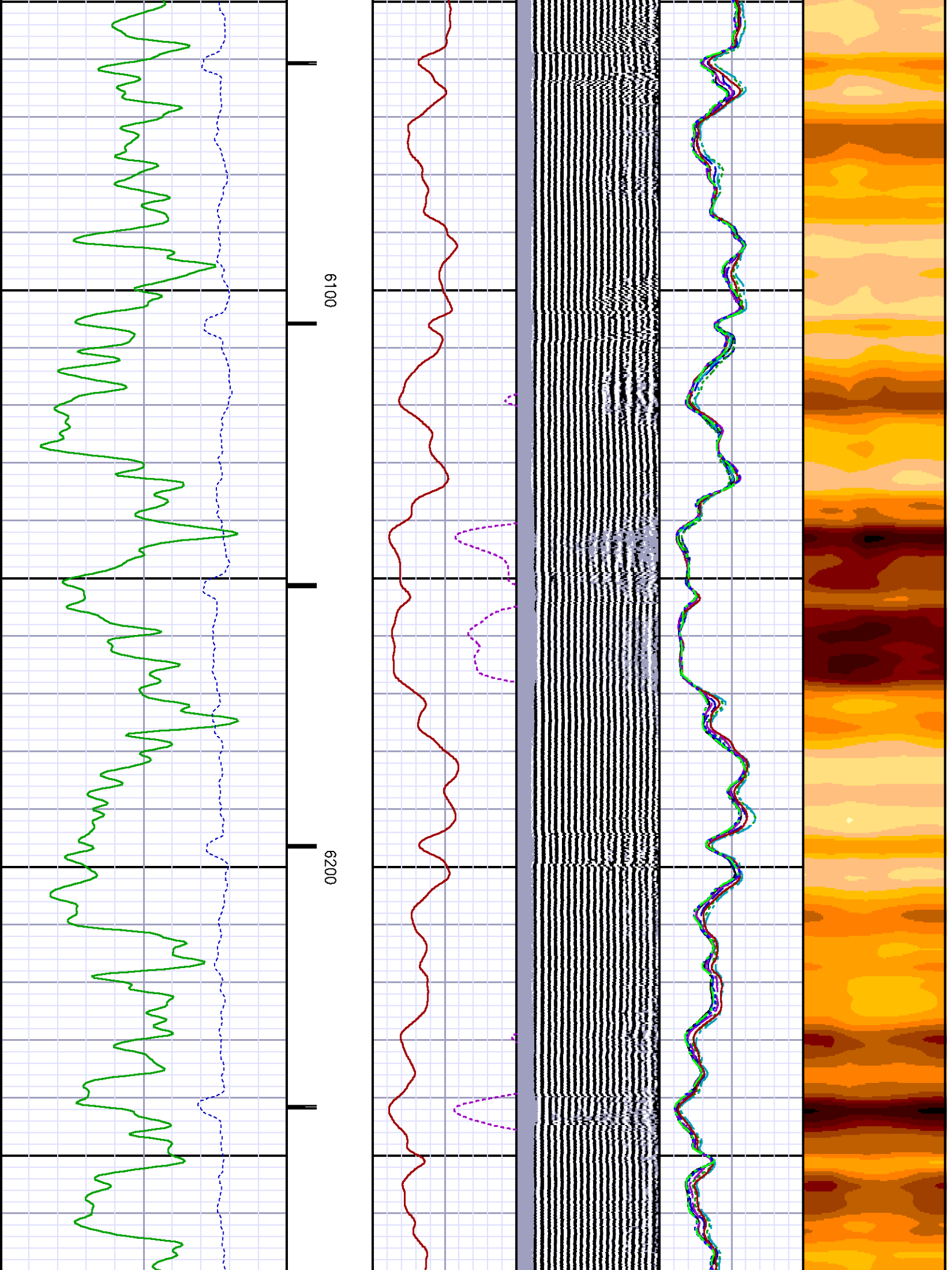


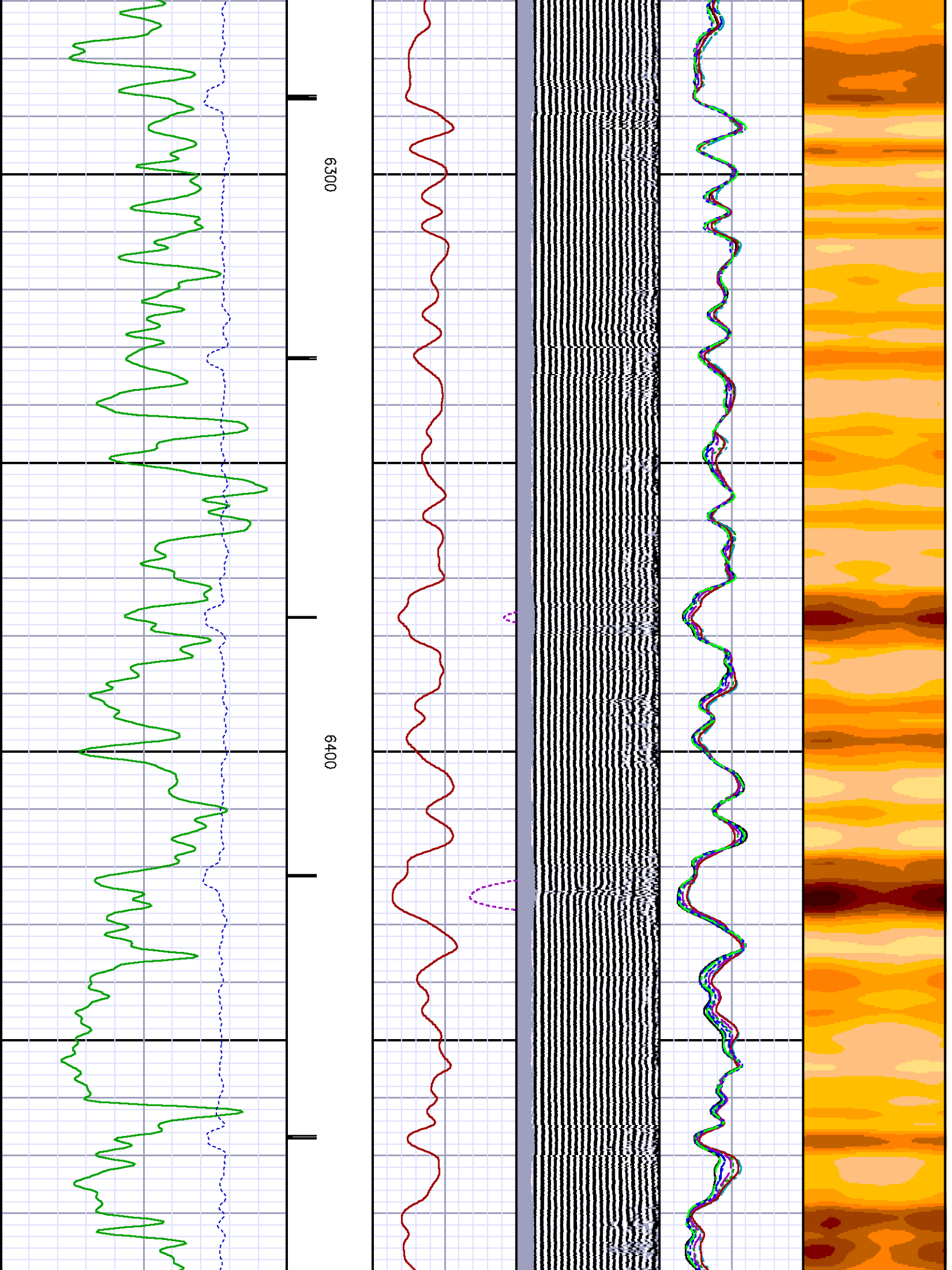


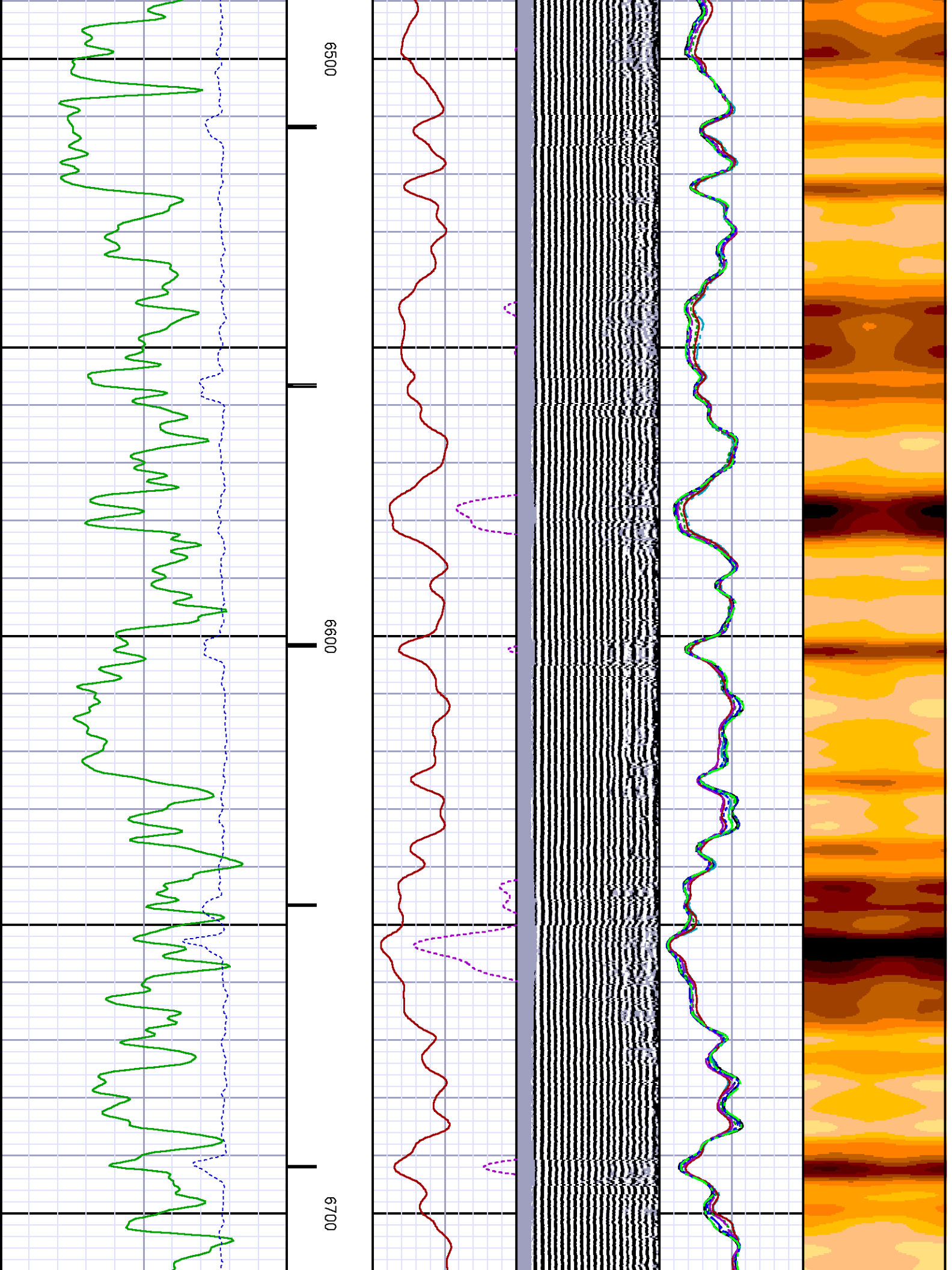


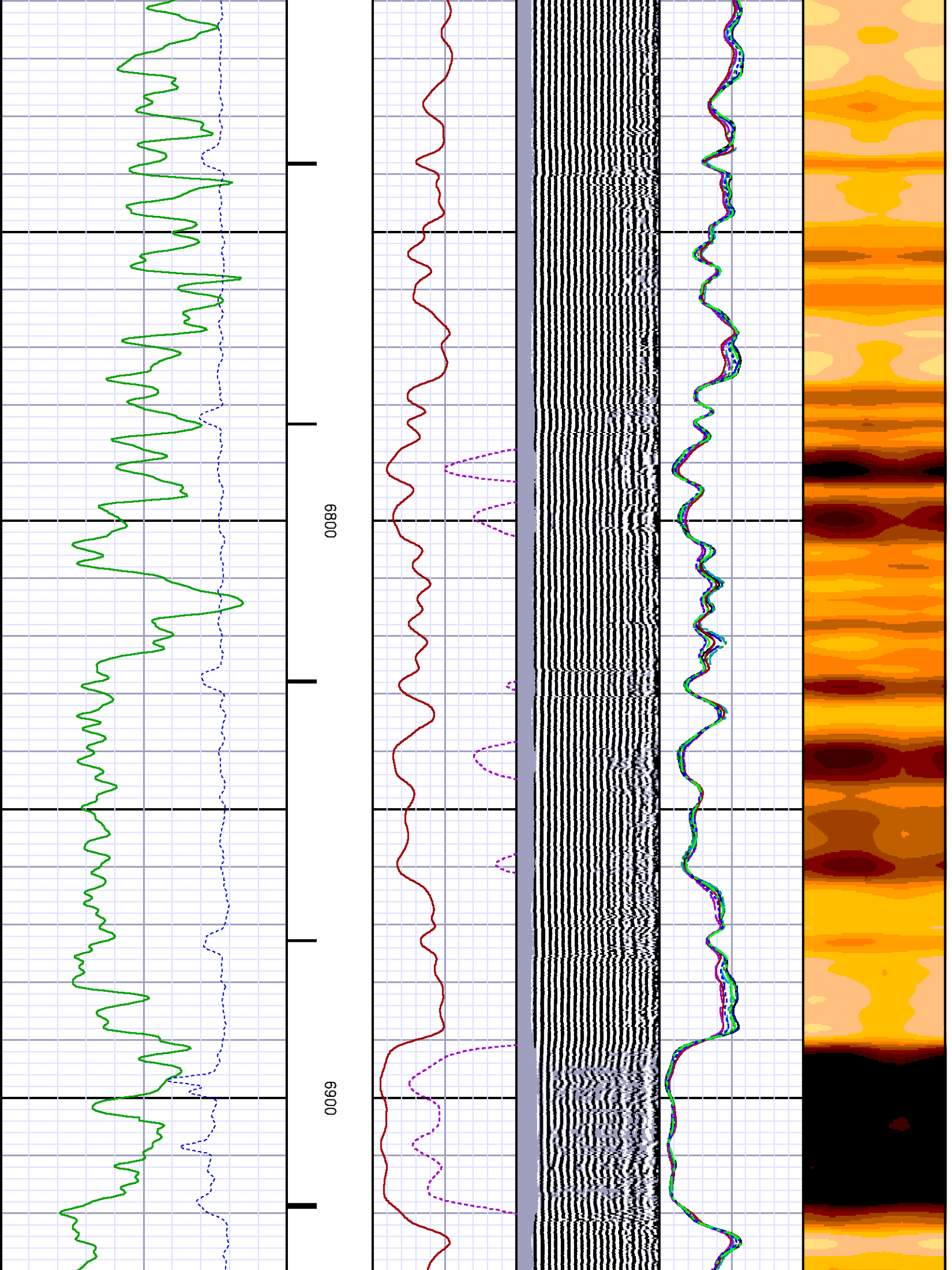




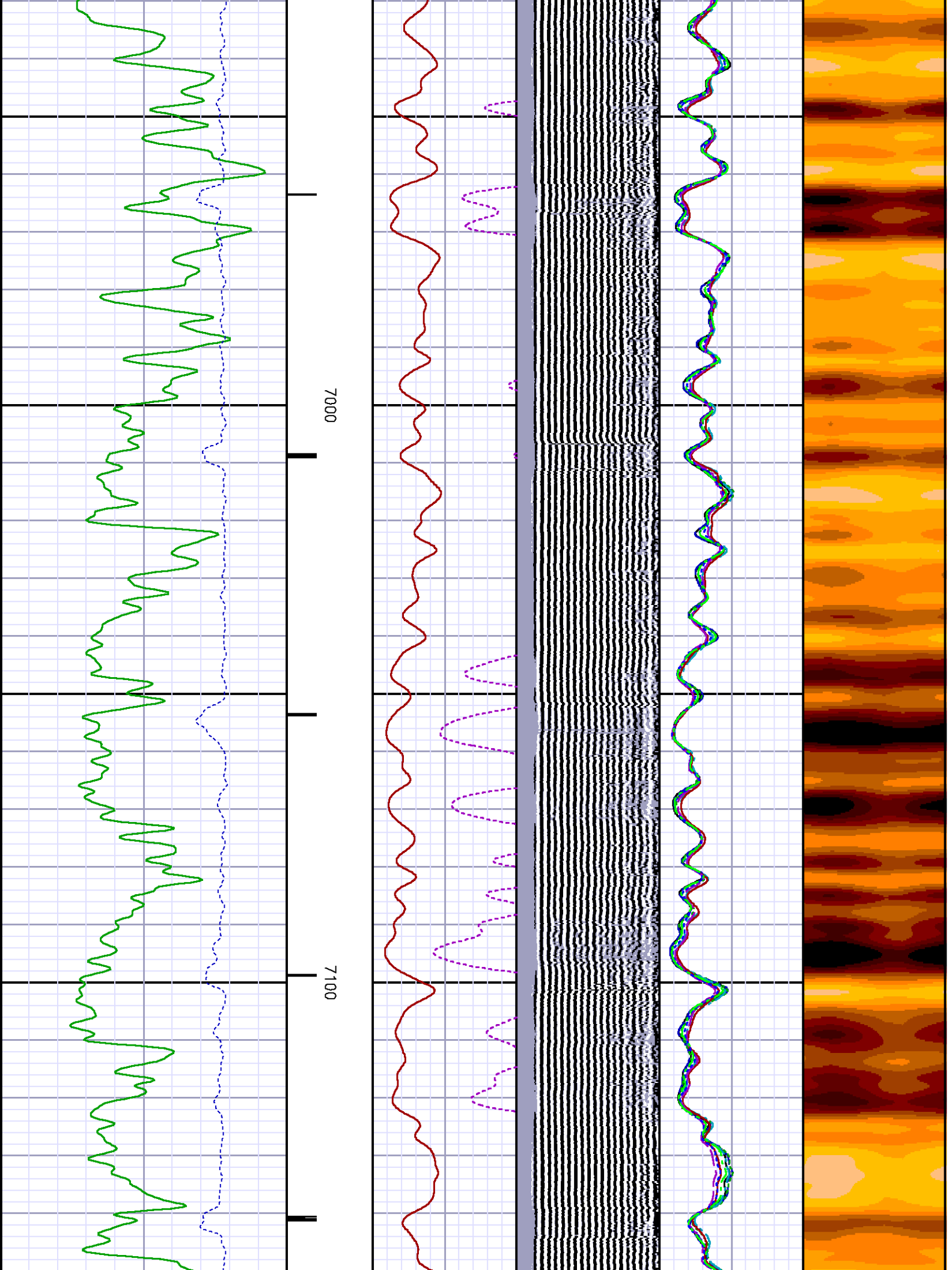




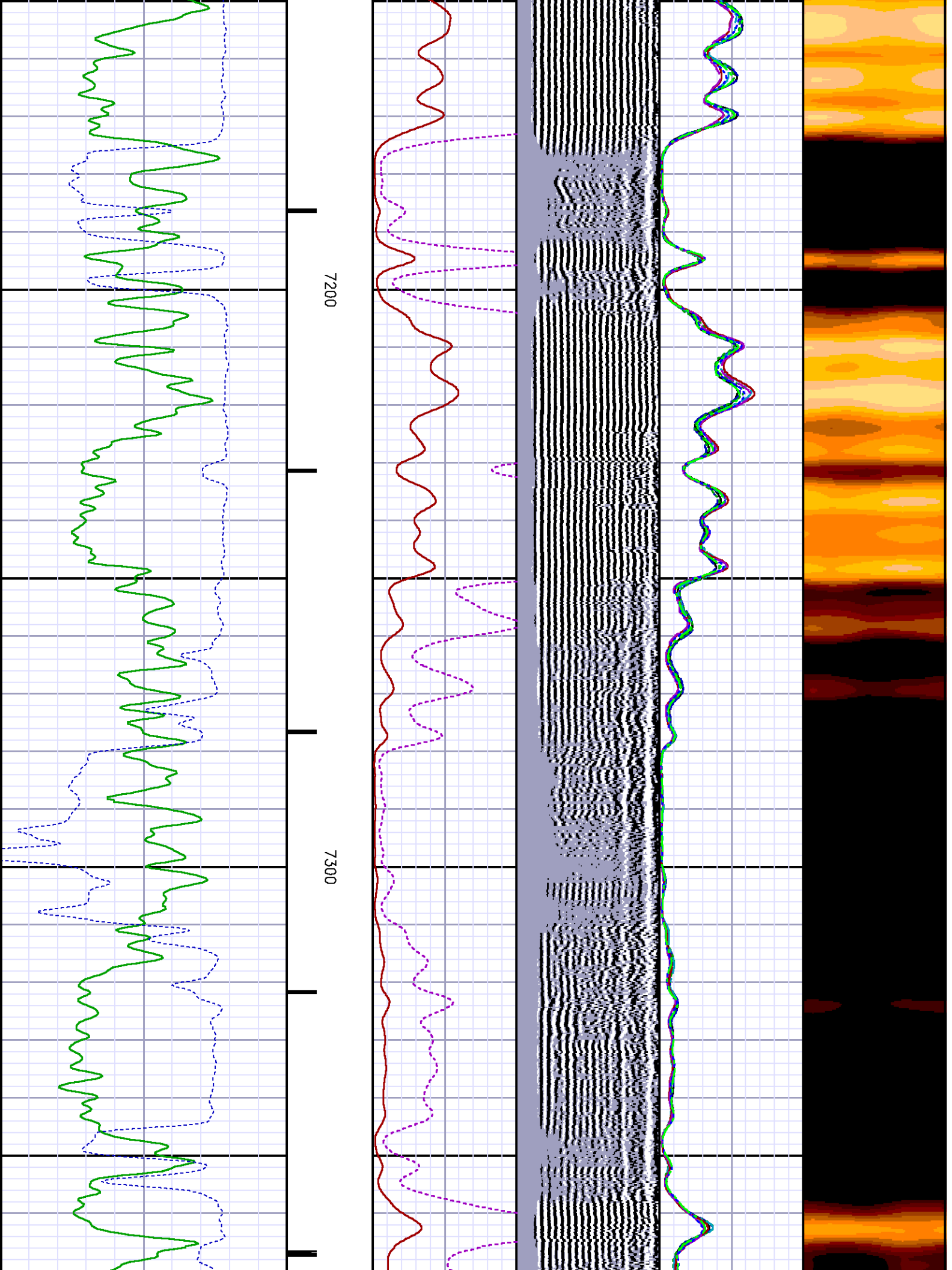


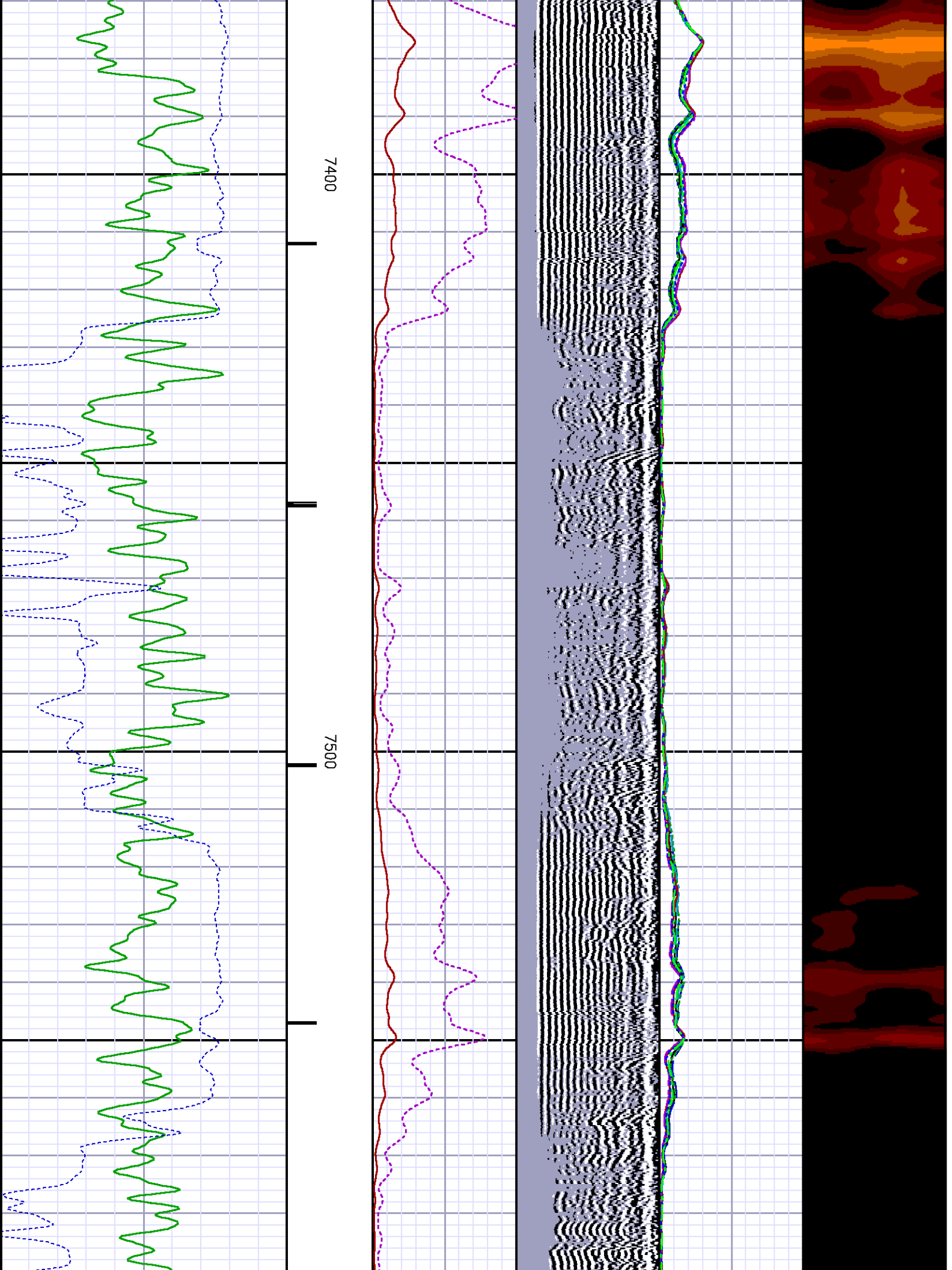


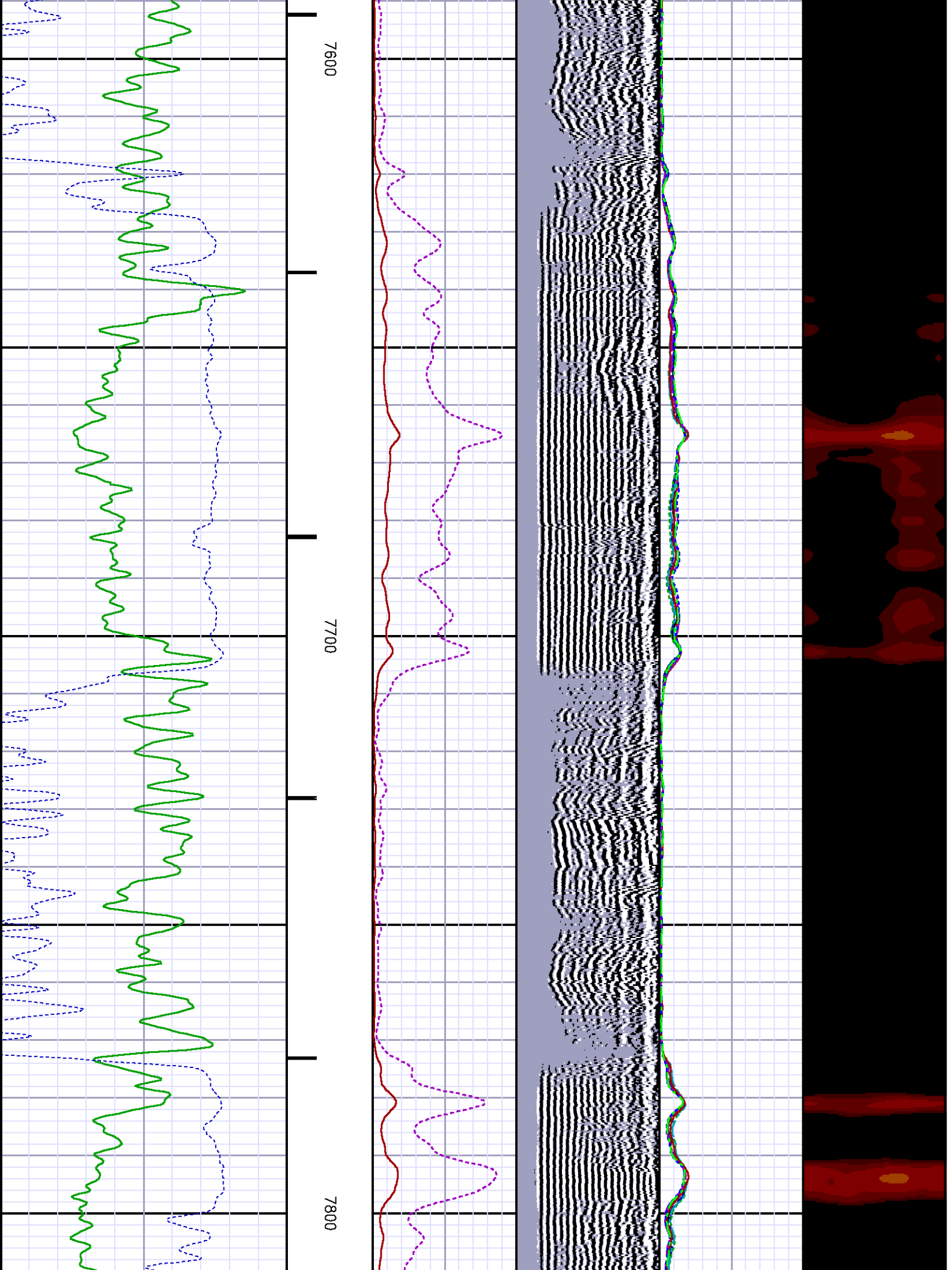


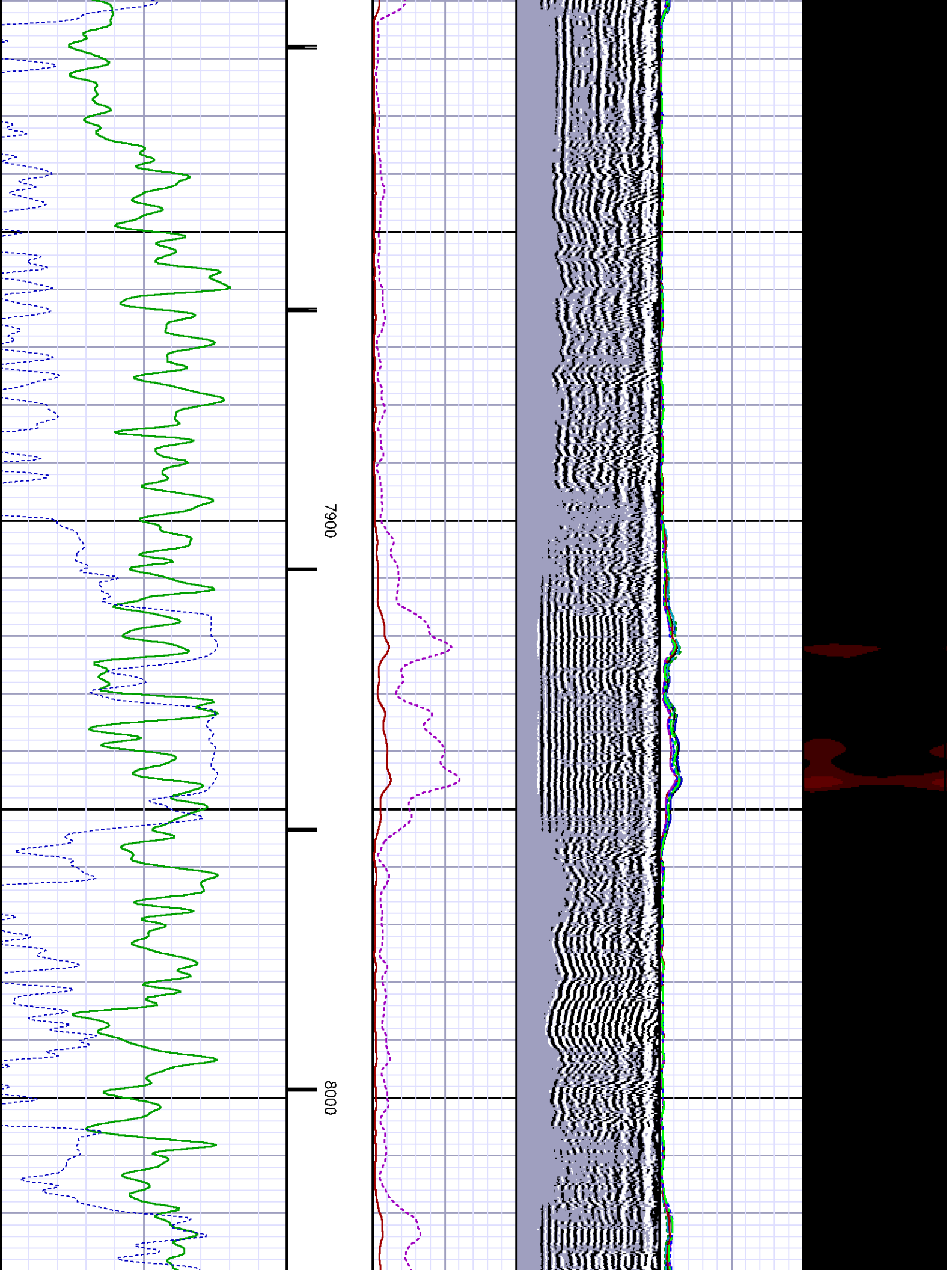


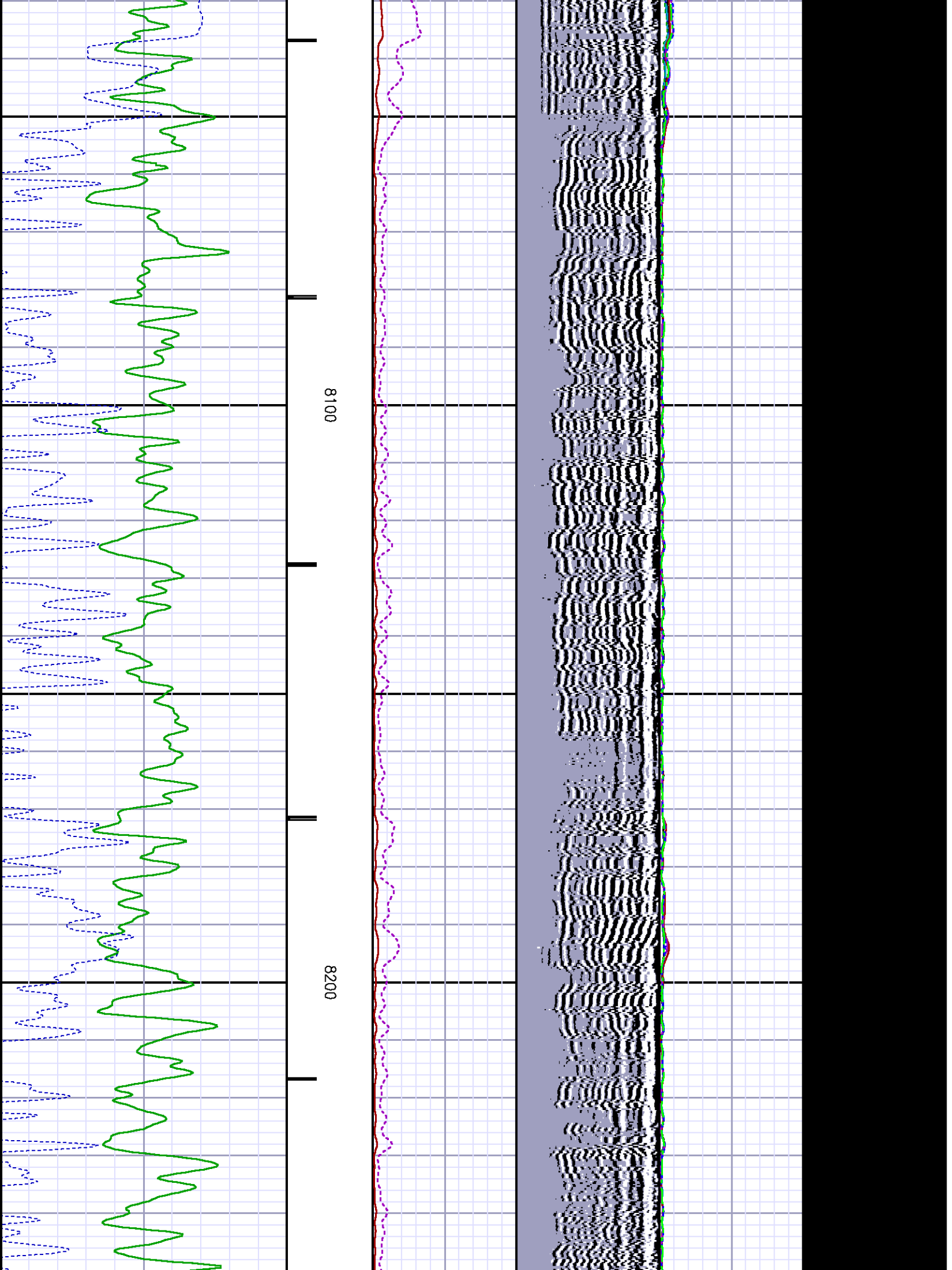




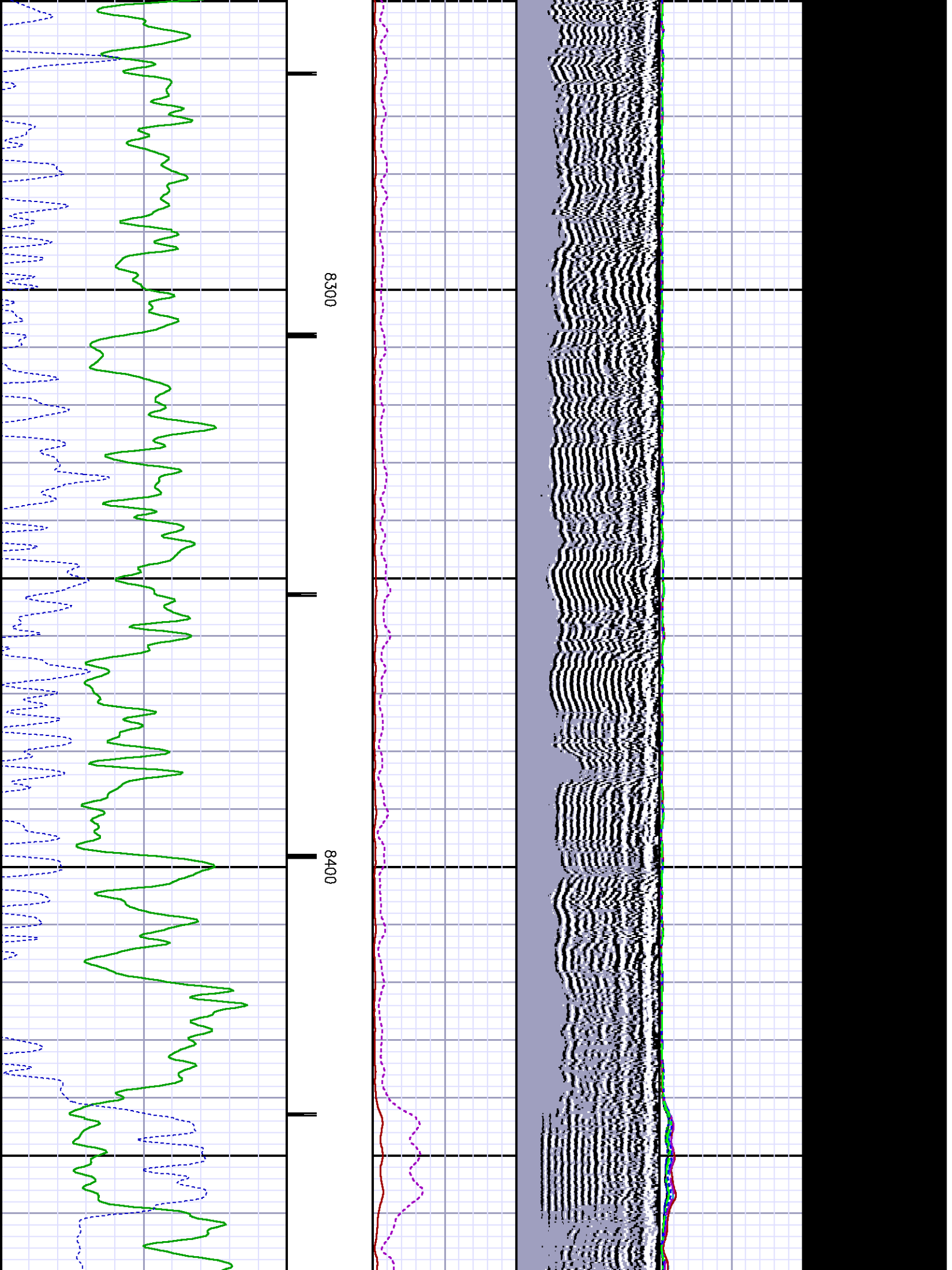




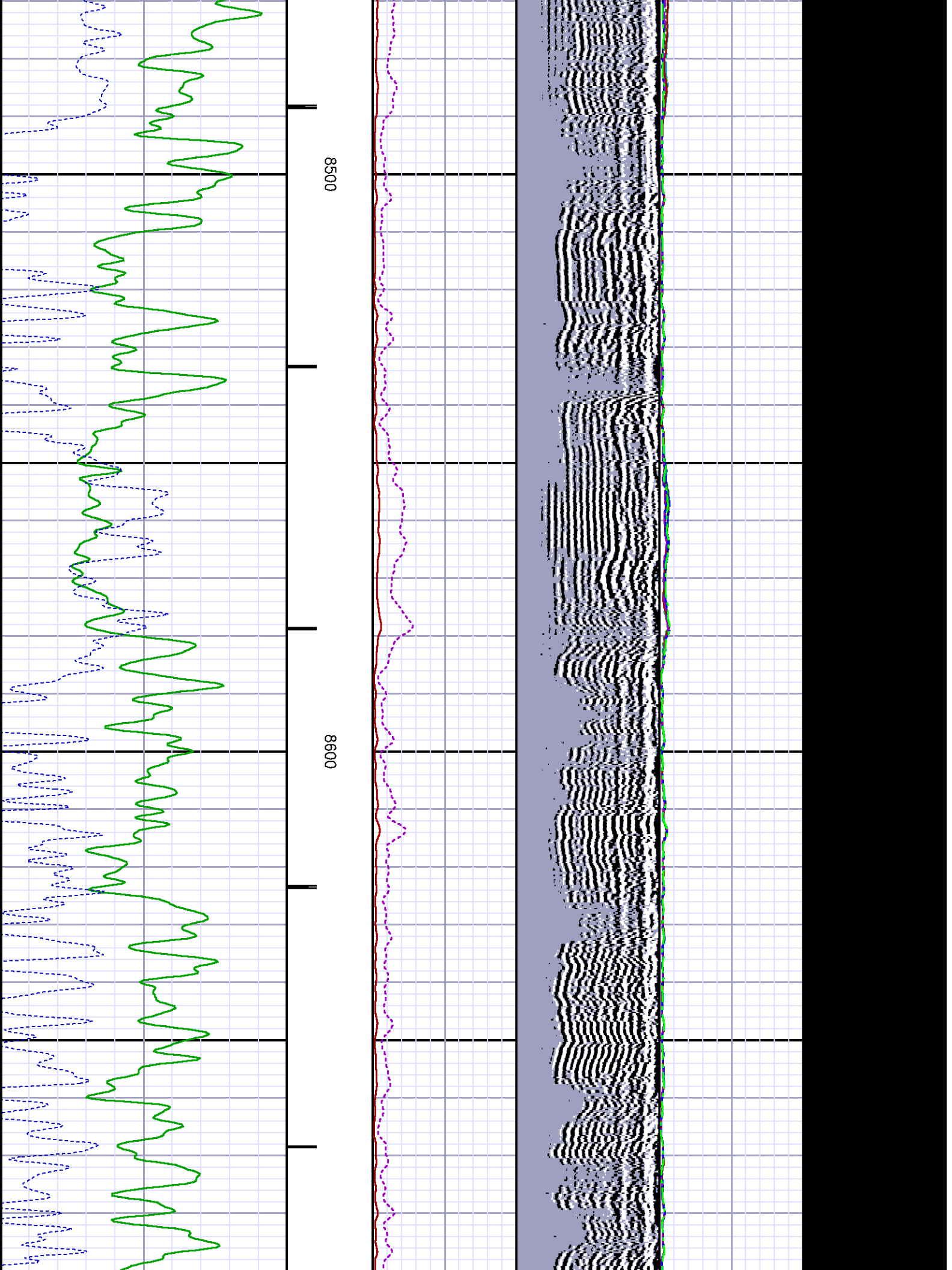


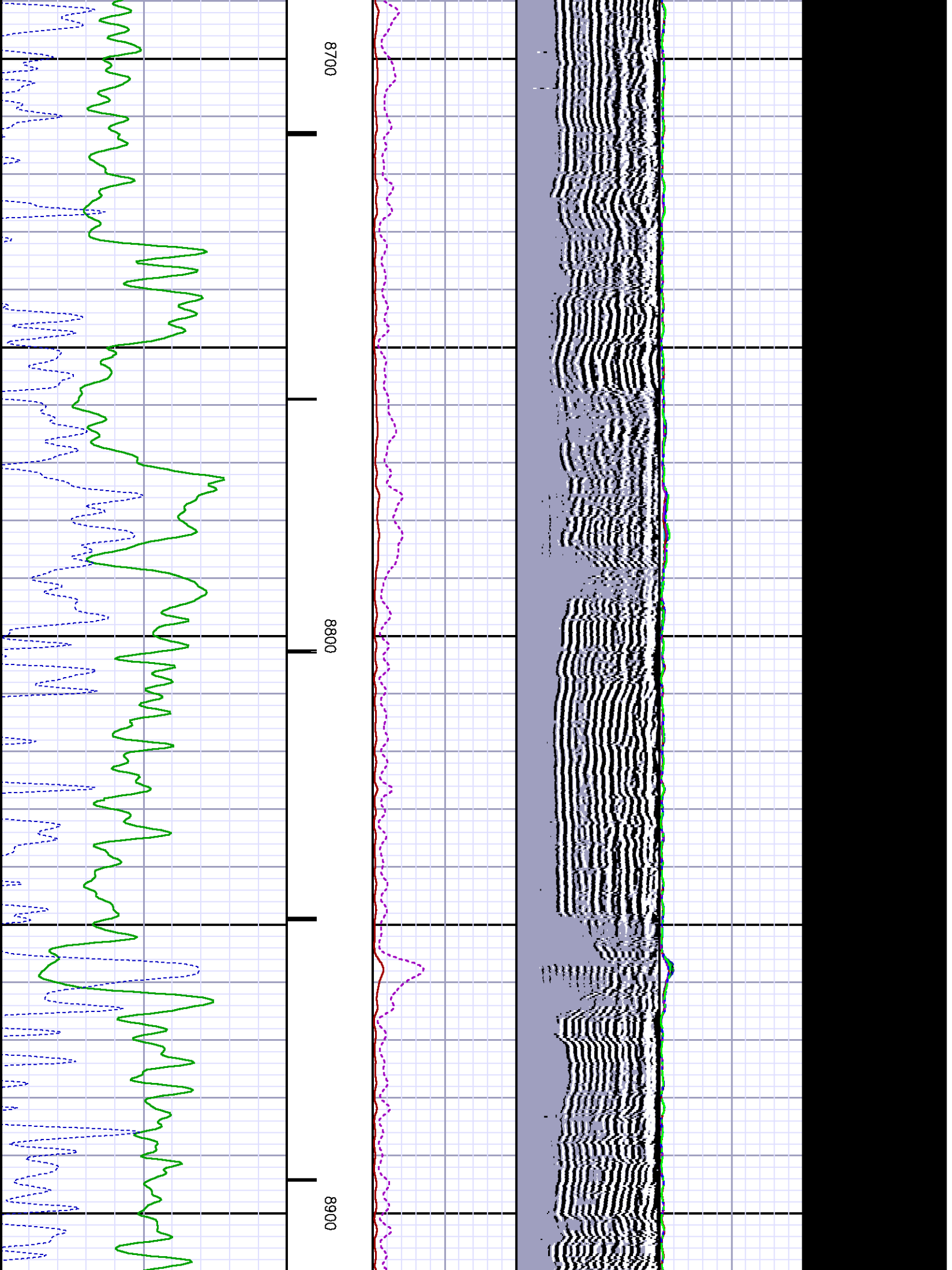


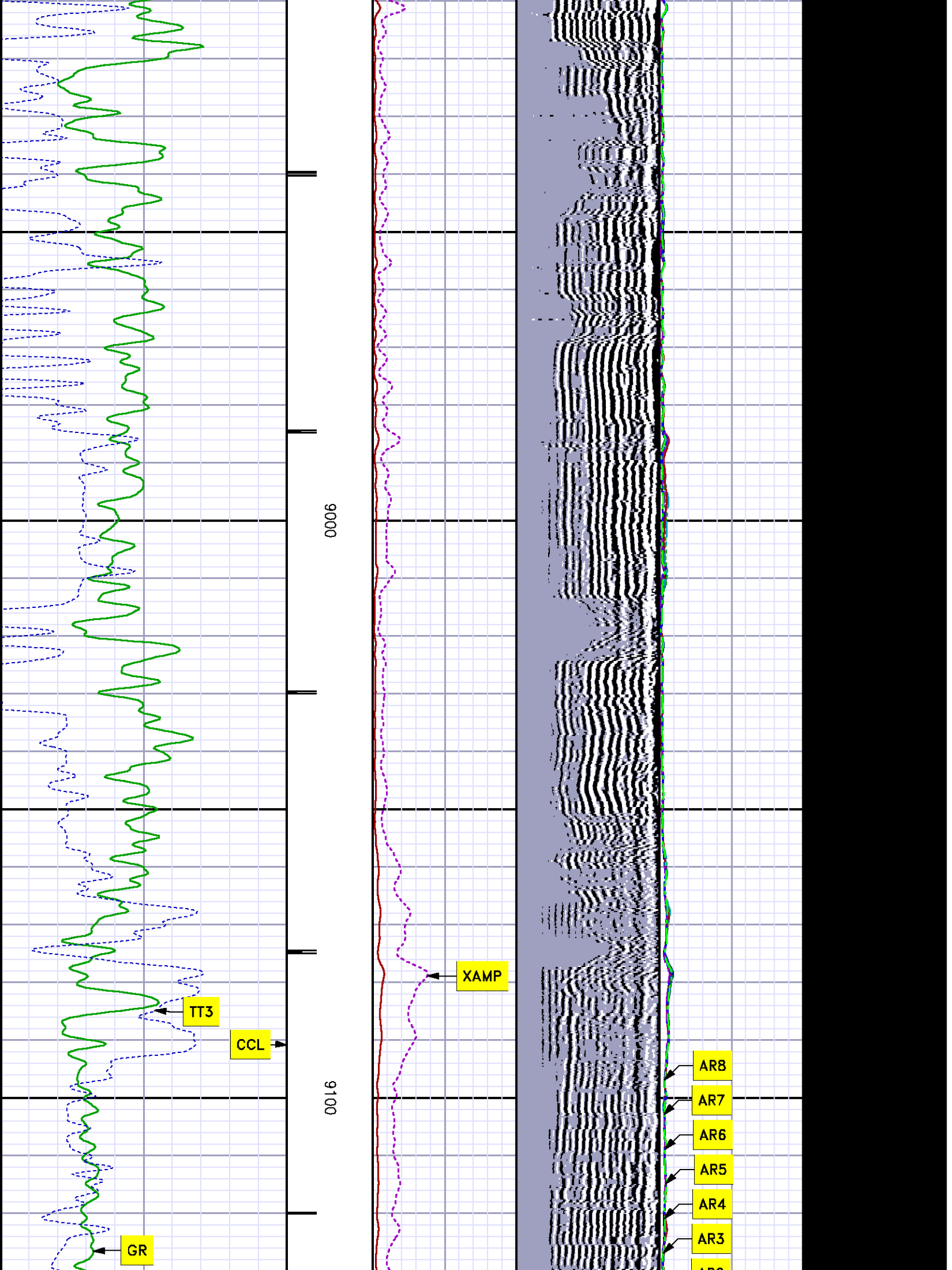


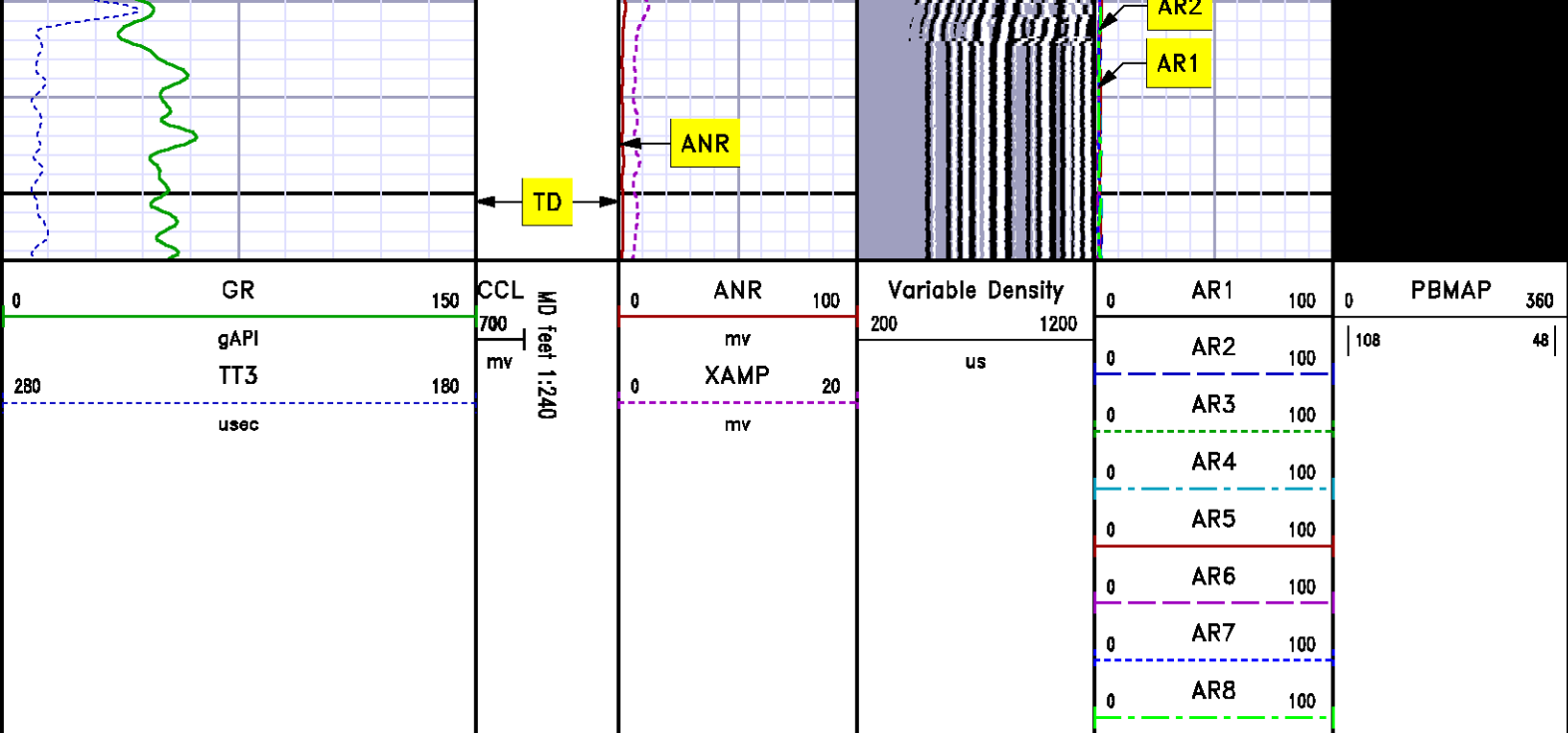












***REPEAT SECTION  
0 PSI***

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	316.900	u sec	8799.843	9197.000
RAL	Amp Gate Start Near	200.391	u sec	8799.843	9197.000
RAL	Amp Gate Start Radial	200.391	u sec	8799.843	9197.000
RAL	Amp Gate Width Far	30.000	u sec	8799.843	9197.000
RAL	Amp Gate Width Near	30.000	u sec	8799.843	9197.000
RAL	Amp Gate Width Radial	30.000	u sec	8799.843	9197.000
RAL	casing od	4.500	inches	8799.843	9197.000
RAL	casing wt	11.600	lbm/ft	8799.843	9197.000
RAL	FB Start Far	291.900	u sec	8799.843	9197.000
RAL	FB Start Near	175.391	u sec	8799.843	9197.000
RAL	FB Start Radial	175.391	u sec	8799.843	9197.000
RAL	FB Thresh Far	10.000	mv	8799.843	9197.000
RAL	FB Thresh Near	4.000	mv	8799.843	9197.000
RAL	FB Thresh Radial	4.000	mv	8799.843	9197.000
RAL	Fluid Travel Time	200.000	u sec/ft	8799.843	9196.999

# 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					
2459XA	-7.250	CCL							
2459XA	-5.390	GR							
2459XA	0.000	NEU							

Created by : RAL, v4.8.008

Plotted by : PlotMgr, v5.4.504

Company : WILLIAMS PRODUCTION COMPANY

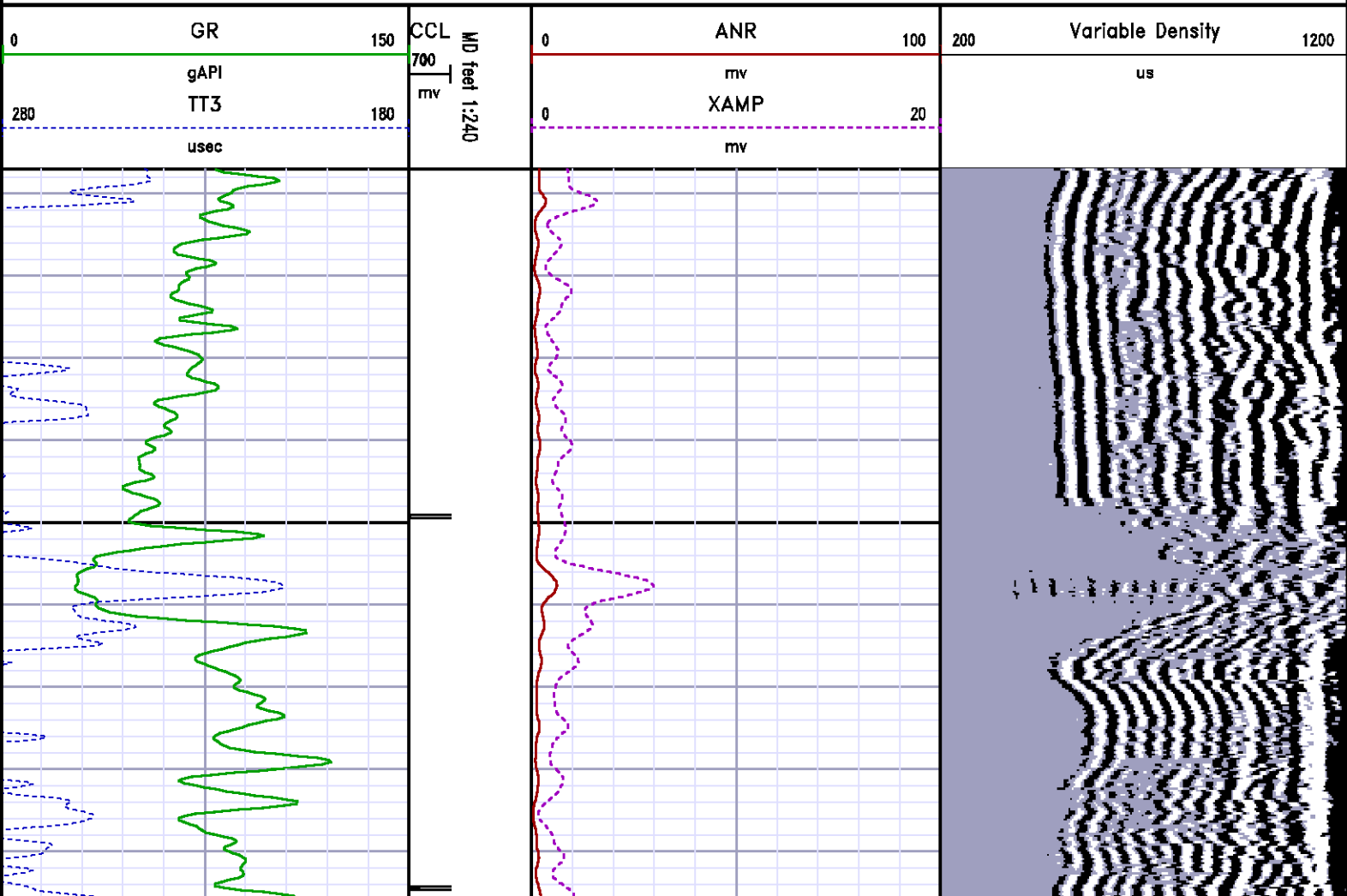
Well : PA 31-20

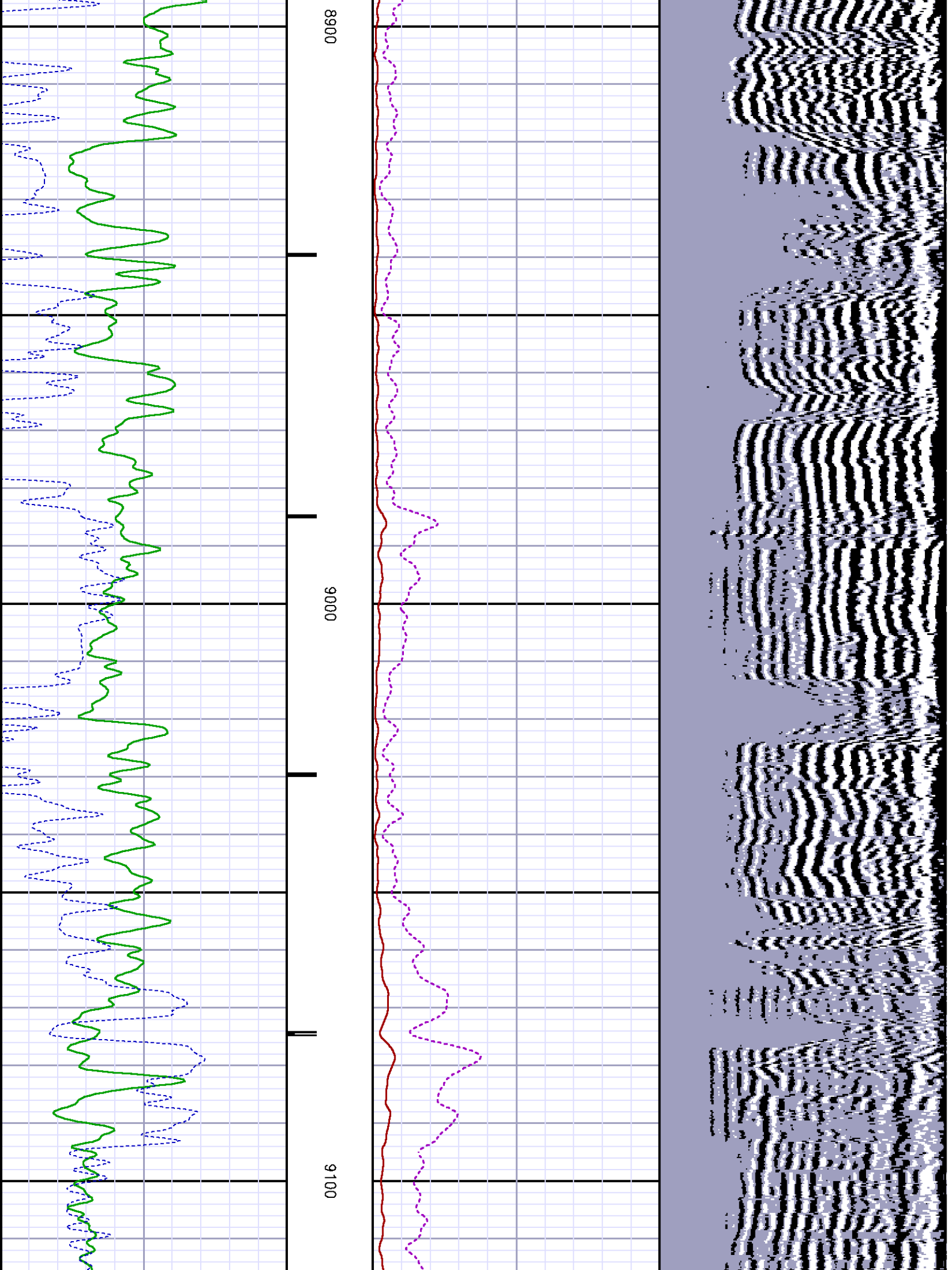
File Name : d:\welldata\rad31\repeat.xtf

Mode : PlotMgr 5.4.504

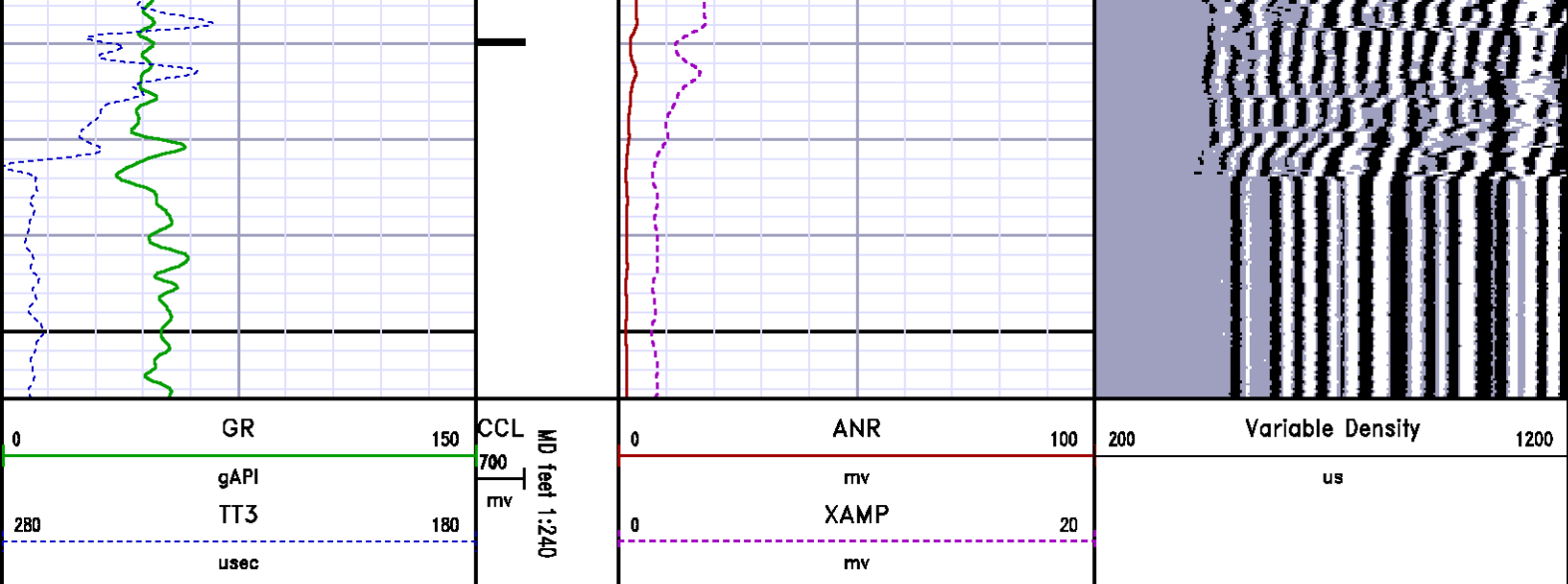
Interval : 8807.00 - 9157.00 feet UP

Created : 8/17/2010 6:24:29 PM









## CALIBRATION SUMMARY

## GAMMA RAY

Calibration File: C:\case\calver\GR\544A1.cal

### CALIBRATION SUMMARY

DATE/TIME PERFORMED: Sat Jul 31 15:18:42 2010 TOOL SERIES: 2459XA ASSET: 544 SEQ: A1

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
S2K WA612	76.80	273.73	0.939	72.15	257.15	185.00

Verification File: C:\case\calver\GR\544A1.VP

### PRIMARY LOG VERIFICATION

DATE/TIME PERFORMED: Sat Jul 31 15:20:33 2010 TOOL SERIES: 2459XA ASSET: 544 SEQ: A1

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
S2K WA612	76.36	282.40	0.939	71.73	265.29	193.56

## RALSHP

Shop Calibration: C:\case\calver\RALSHP\057AU17 shp.cal

### SHOP CALIBRATION SUMMARY

DATE/TIME PERFORMED:

Tue Aug 17 17:41:38 2010

TOOL SERIES:

1426XA

ASSET:

057

SEQ: AU17

Tool Delay  
[usec]

-52.00

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	219	30	100	84	0.187	100.00	0.32
3 Ft. Receiver	220	216	30	115	70	0.012	100.00	0.31
5 Ft. Receiver	327	323	30	209	82	-0.090	150.00	0.34
Radial #1	220	216	30	129	60	-0.243	100.00	0.31
Radial #2	220	216	30	129	60	-0.186	100.00	0.31
Radial #3	220	216	30	129	60	-0.342	100.00	0.31
Radial #4	220	216	30	129	60	-0.258	100.00	0.31
Radial #5	219	216	30	129	60	-0.538	100.00	0.31
Radial #6	219	216	30	129	60	-0.110	100.00	0.32
Radial #7	219	216	30	129	60	0.045	100.00	0.32
Radial #8	220	216	30	129	60	-0.302	100.00	0.32

**RALFLD**

Wellsite Calibration: C:\case\calver\RALFLD\057AU17 fld.cal

## WELLSITE CALIBRATION SUMMARY

DATE/TIME PERFORMED:

Tue Aug 17 17:43:10 2010

TOOL SERIES:

1426XA

ASSET:

057

SEQ: AU17

Tool Delay  
[usec]

-52.00

Casing OD  
in

4.50

Casing Wt  
lbm/ft

11.60

Casing ID  
in

4.00

RECEIVER	Zero Gate Start [usec]	Zero Gate Width [usec]	Zero Amp. [mV]	Full Amp. [mV]	Wellsite Factor	Amp. Ref [mV]
CAL Pulse	100	84	0.006	0.000	1.00	100.000
3 Ft. Receiver	200	30	-1.185			
5 Ft. Receiver	317	30	-1.212			
Radial #1	200	30	-1.533			
Radial #2	200	30	-1.455			
Radial #3	200	30	-1.456			
Radial #4	200	30	-1.573			
Radial #5	200	30	-1.515			
Radial #6	200	30	-1.252			
Radial #7	200	30	-1.730			
Radial #8	200	30	-1.599			

**TOOL DIAGRAM**

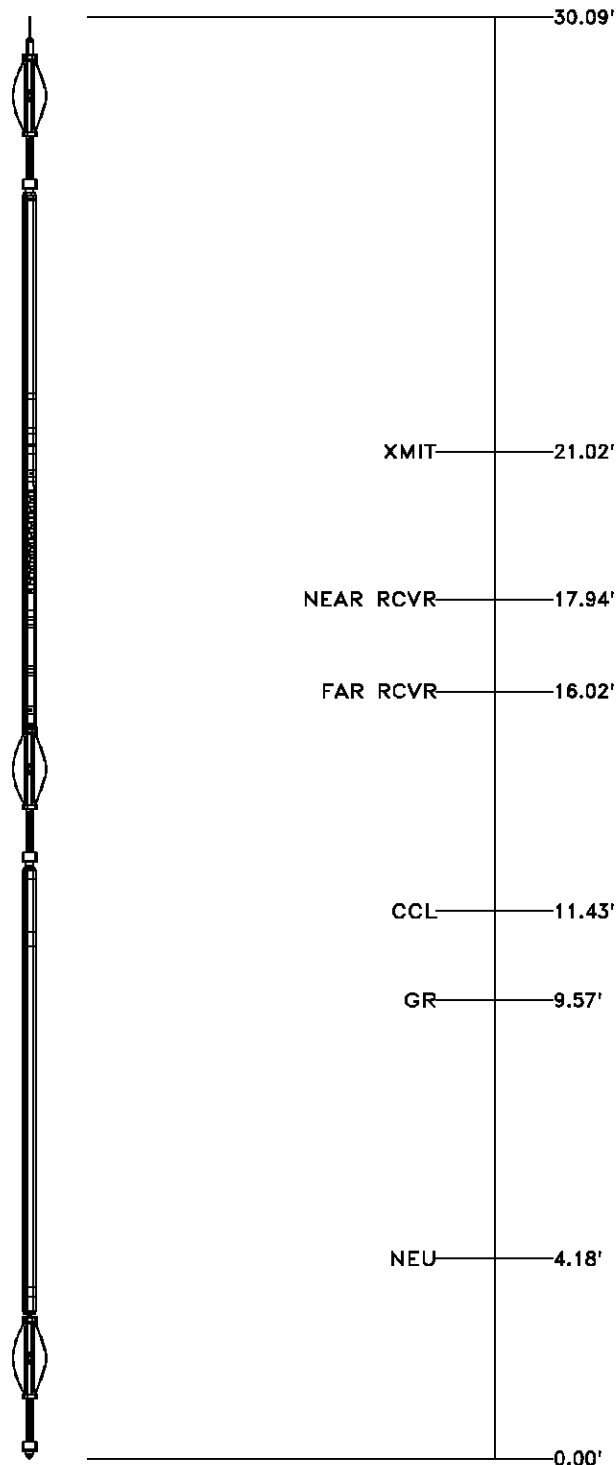
<b>OTA SHORT CABLE HEAD</b>	
<b>CENTRALIZER</b>	
Series	RALCENT
Mnemonic	CENT
Diameter	3.12"
Weight	20.00 lb

<b>PROBE 2 3/4 DUAL RECEIVER RADII</b>	
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

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

<b>Probe GR/CCL/NEU</b>	
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

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



Total Length: 30.09'  
Total Weight: Not Available  
Max Diameter: 0' 3.12"



Company  
Well  
Field  
County

WILLIAMS PRODUCTION COMPANY

PA 31-20

PARACHUTE

GARFIELD

State

COLORADO

File No:

API No:

05045181070000

Baker Atlas

<div>CASE</div>	Location				Elevations		
	SHL: 1272' FNL & 840' FEL				KB	6452 ft	20 6S 95W
	BHL: 159' FNL & 2008' FEL				DF	6451 ft	DOE 2-W-20 PAD
	SEC	20	TWP	6S	RGE	95W	SSD 577