



# RADIAL ANALYSIS BOND LOG

## Baker Atlas

File No:	Company			WILLIAMS PRODUCTION COMPANY
1323	Well			RMF 441-17
API No:	Field			RULISON
05045156770000	County			GARFIELD
	State			COLORADO
Location		Other Services		
17 6S 94W RMF SS-17 PAD CYCLOME 14		NONE		
SEC 17 TWP 9S RGE 94W				
Permanent Datum	G.L.	Elevation	5817 ft	
Log Measured From	K.B.	22.5 ft	Above P. D.	
Drill Measured From	KELLY BUSHING		Elevations KB 5839.5 ft DF 5838.5 ft GL 5817 ft	

Date	8 SEP 2008	
Run	ONE	
Service Order	547064	
Depth Driller	9022 ft	
Depth Logger	8883 ft	
Bottom Logged Interval	8883 ft	
Top Logged Interval	0 ft	
Time Started	08:30	
Time Finished	15:00	
Operator Rig Time	5.5 hrs	
Type of Fluid in Hole	WATER	
Fluid Density	N/A	
Salinity	N/A	
Fluid Level	FULL	
Logged Cement Top	N/A	
Wellhead Pressure	1500 psi	
Maximum Hole Deviation	N/A	
Nominal Logging Speed	45 fpm	
Maximum Recorded Temperature	242 degF	
Reference Log	BAKER ATLAS BOND LOG	
Reference Log Date	27 AUG 2008	
Equipment No.	4214	VERNAL, UT.
Recorded By	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
7.875 in	SURFACE	9022 ft

Casing Record				
Size	Weight	Grade	From	To
4.5 in	11.6 lbm/ft	P-110	SURFACE	9022 ft

Remarks
LOG TIED INTO BAKER ATLAS BOND LOG
WELL HEAD PRESSURE = 1,500 PSI
BHT = 242° F
SHORT JOINT @ 5476' TO 5505'

Equipment Data					
Run	Trip	Tool	Series Number	Serial Number	Position
1	1	RADIAL ANAL	142854	9999	CENTRAL UT

		1426XA	2458XA	120	CENTRALIZED
1	1	GR/CCL/NEU	2458XA	120	CENTRALIZED

# *MAIN SECTION* *PRIMARY PRESENTATION*

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	316.900	usec	13.687	8908.000
RAL	Amp Gate Start Near	200.391	usec	13.687	8908.000
RAL	Amp Gate Start Radial	200.391	usec	13.687	8908.000
RAL	Amp Gate Width Far	25.000	usec	13.687	8908.000
RAL	Amp Gate Width Near	25.000	usec	13.687	8908.000
RAL	Amp Gate Width Radial	25.000	usec	13.687	8908.000
RAL	casing od	4.500	inches	13.687	8908.000
RAL	casing wt	11.600	lbm/ft	13.687	8908.000
RAL	FB Start Far	291.900	usec	13.687	8908.000
RAL	FB Start Near	175.391	usec	13.687	8908.000
RAL	FB Start Radial	175.391	usec	13.687	8908.000
RAL	FB Thresh Far	10.000	mv	13.687	8908.000
RAL	FB Thresh Near	4.000	mv	13.687	8908.000
RAL	FB Thresh Radial	4.000	mv	13.687	8908.000
RAL	Fluid Travel Time	200.000	usec/ft	13.687	8908.780

## DEPTH OFFSETS (for Acquired Curves)

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

Created by : RAL, v4.8.007

Plotted by : PlotMgr, v5.4.504

Company : WILLIAMS PRODUCTION COMPANY

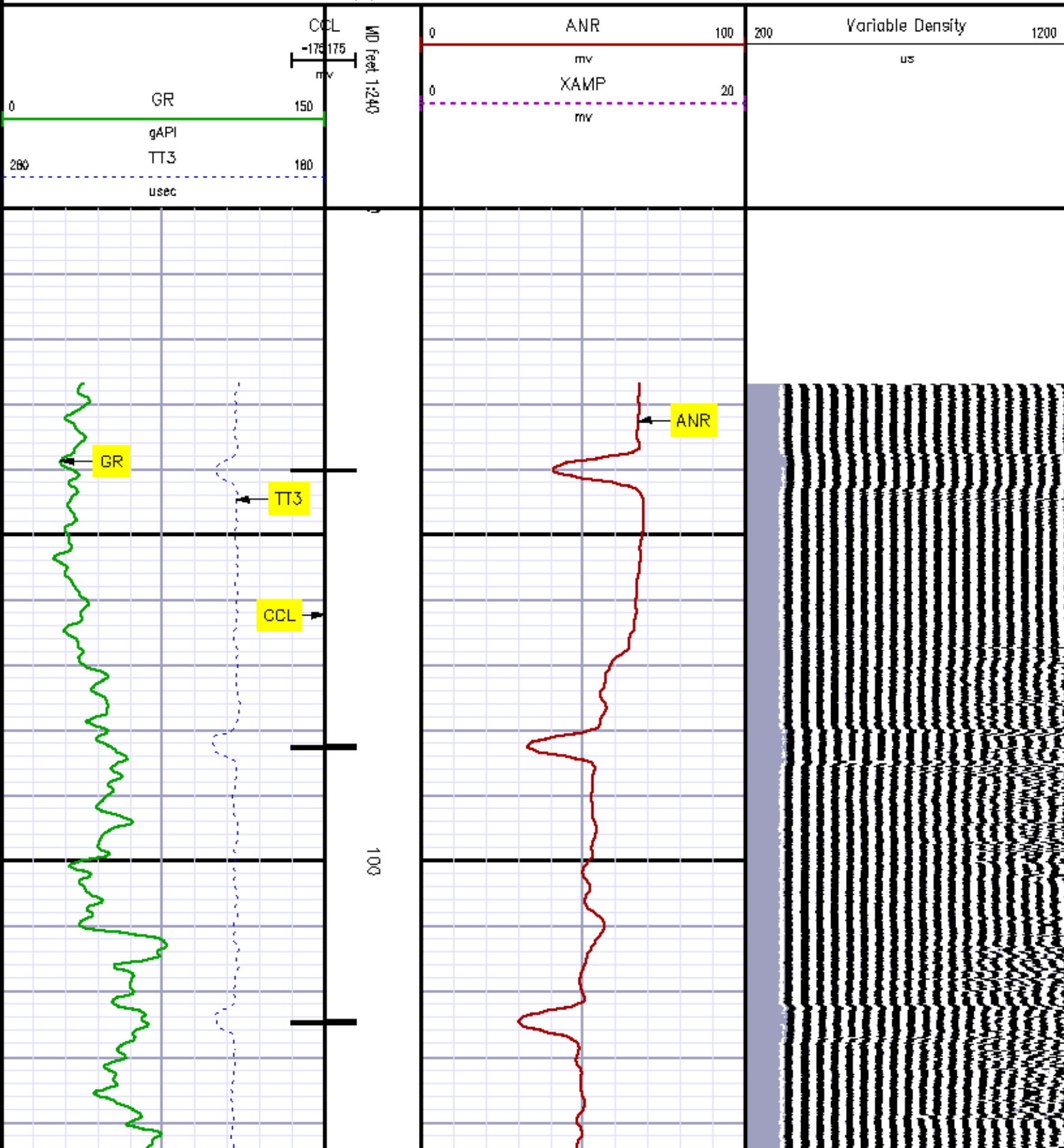
Well : RMF 441-17

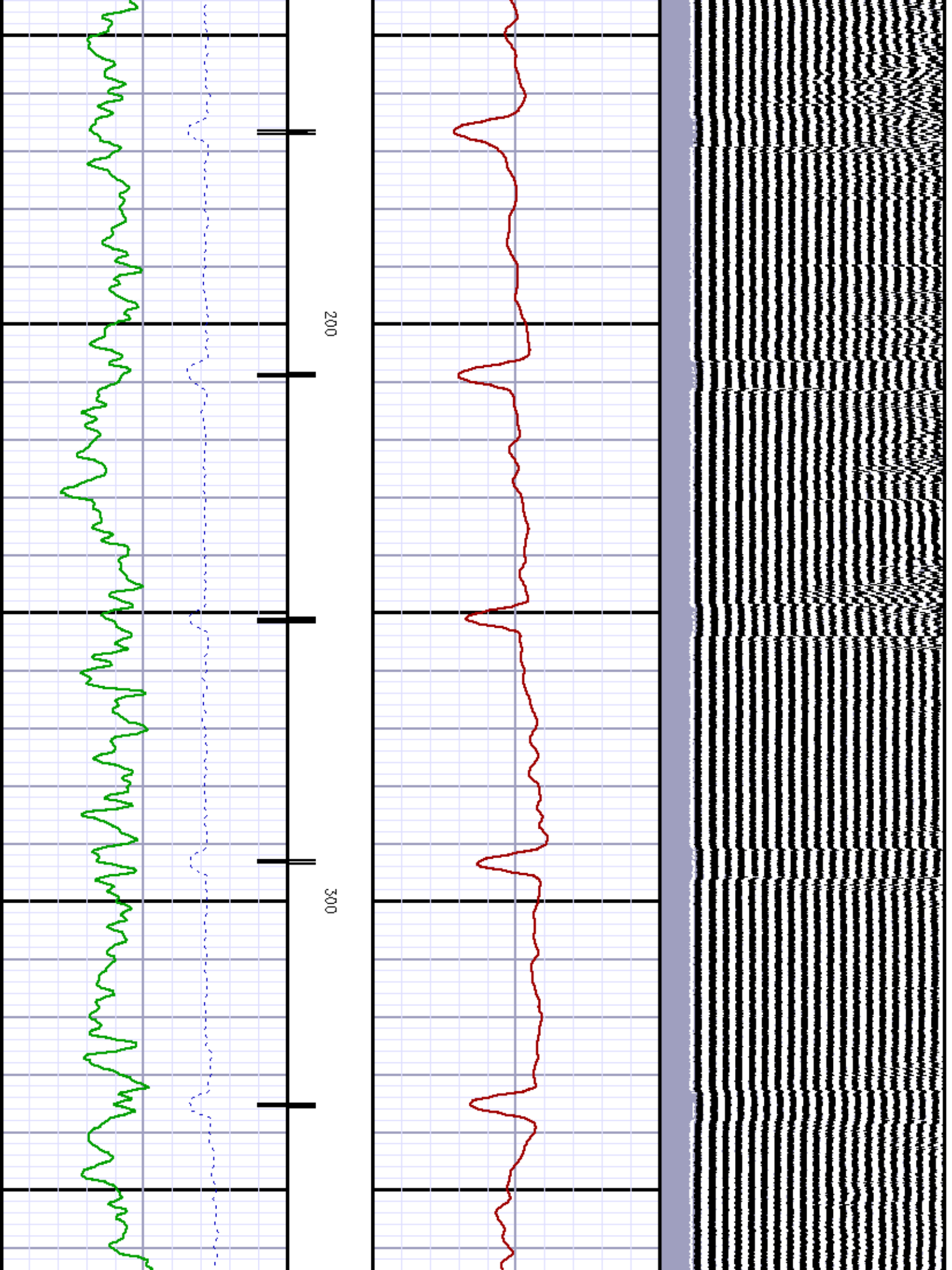
File Name : d:\well\data\441rad\mainrdrn.xtf

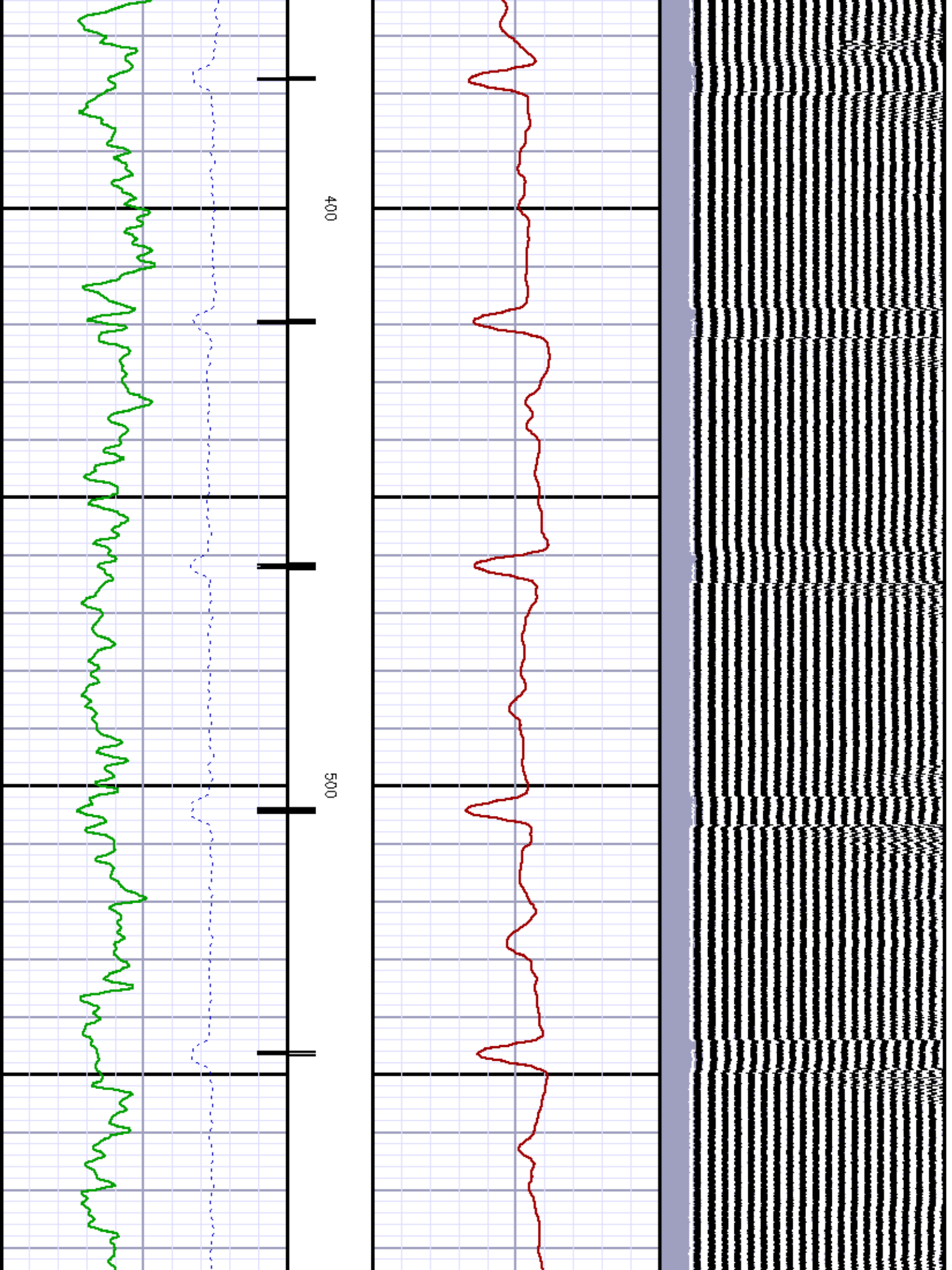
Mode : PlotMgr 5.4.504

Interval : 0.00 - 6000.00 feet UP

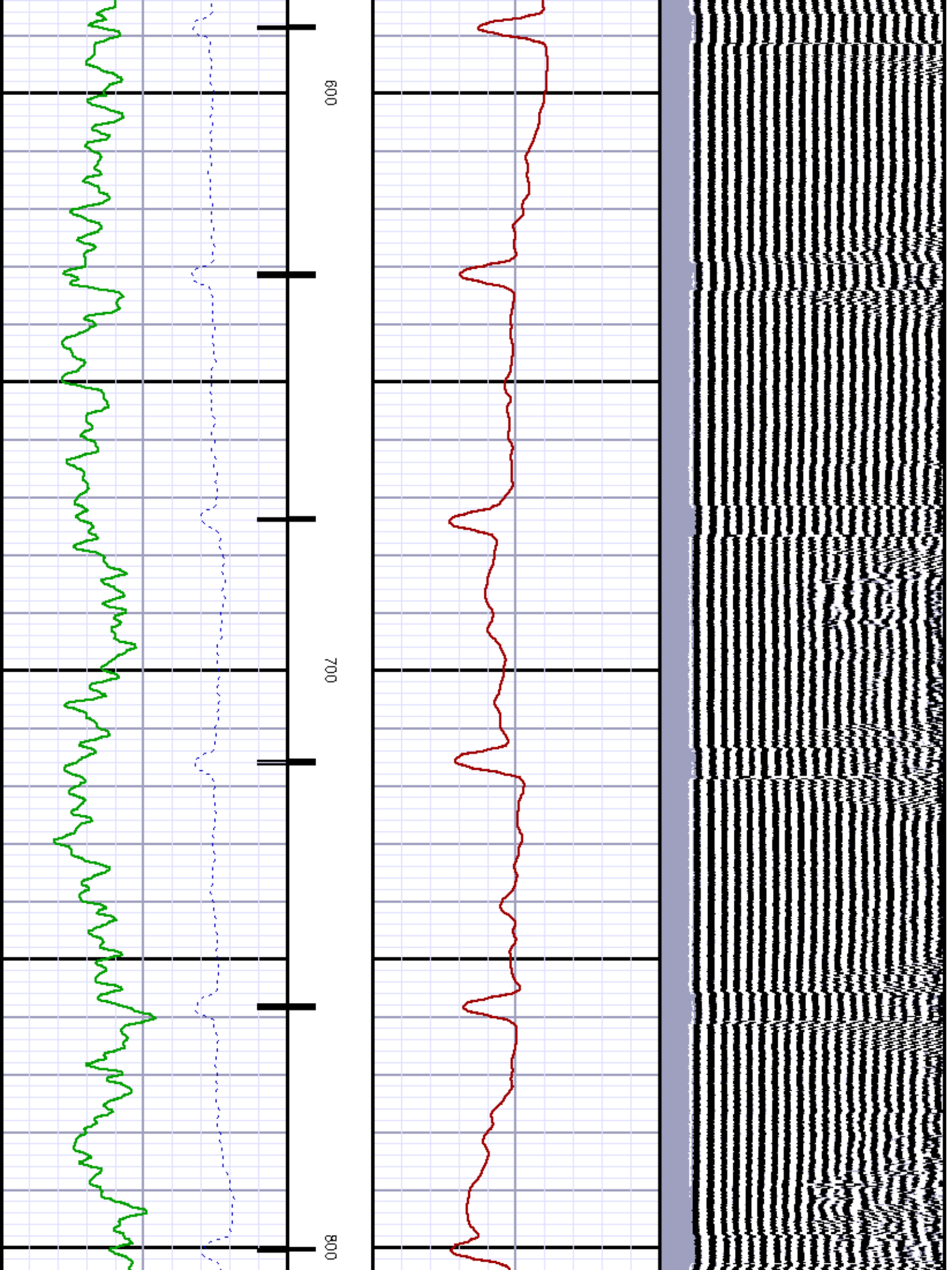
Created : 9/8/2009 4:05:15 PM

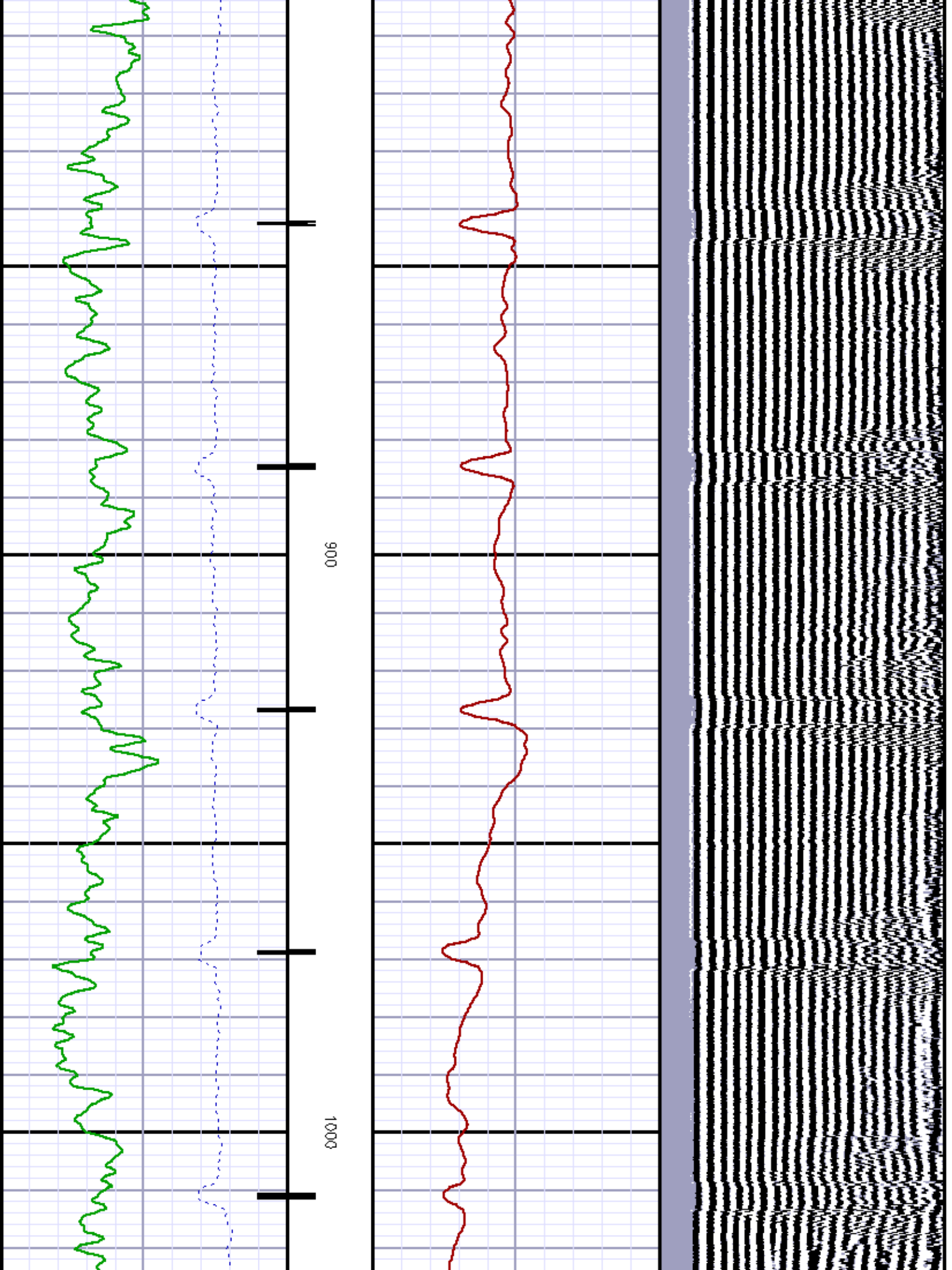


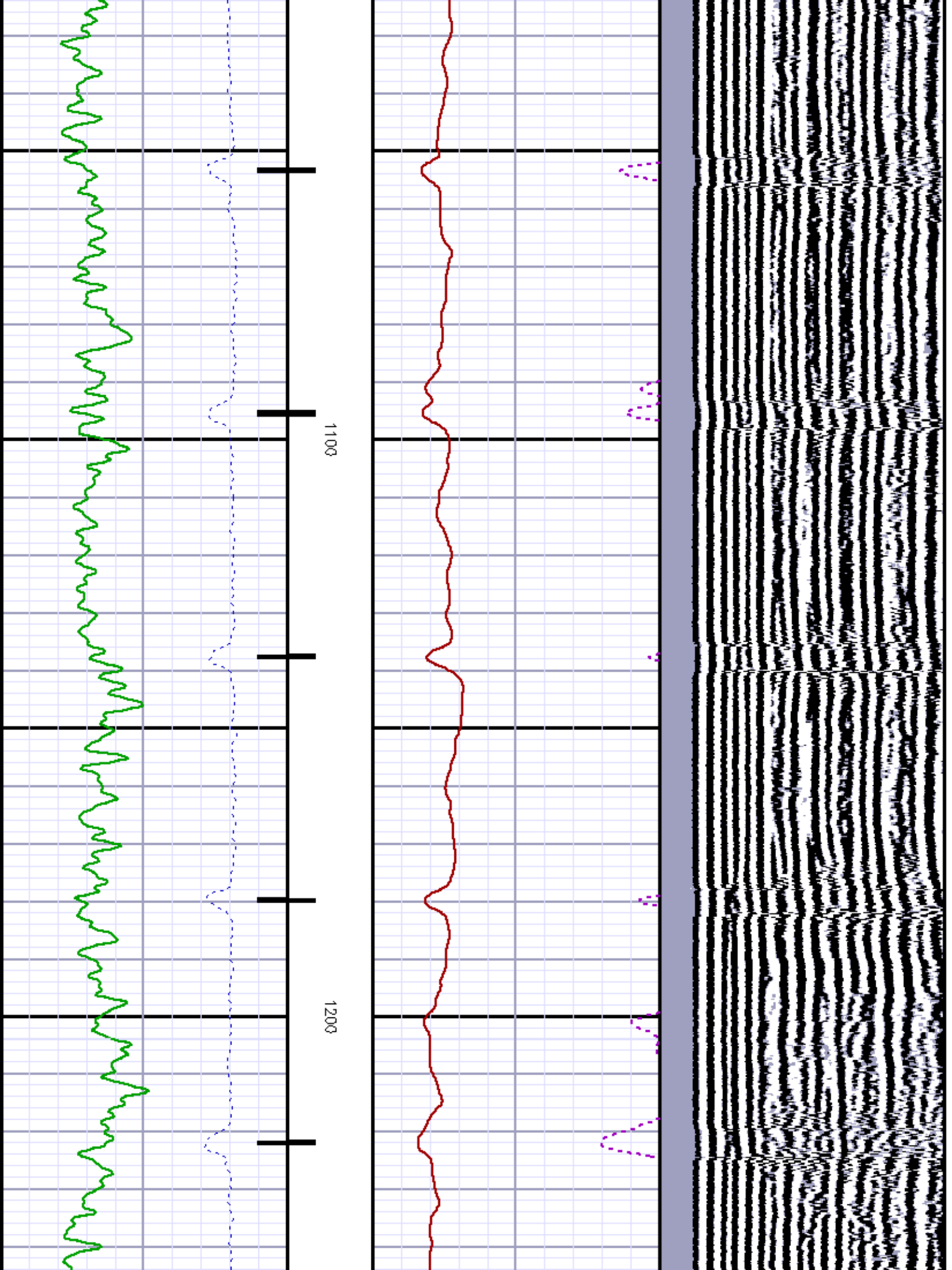




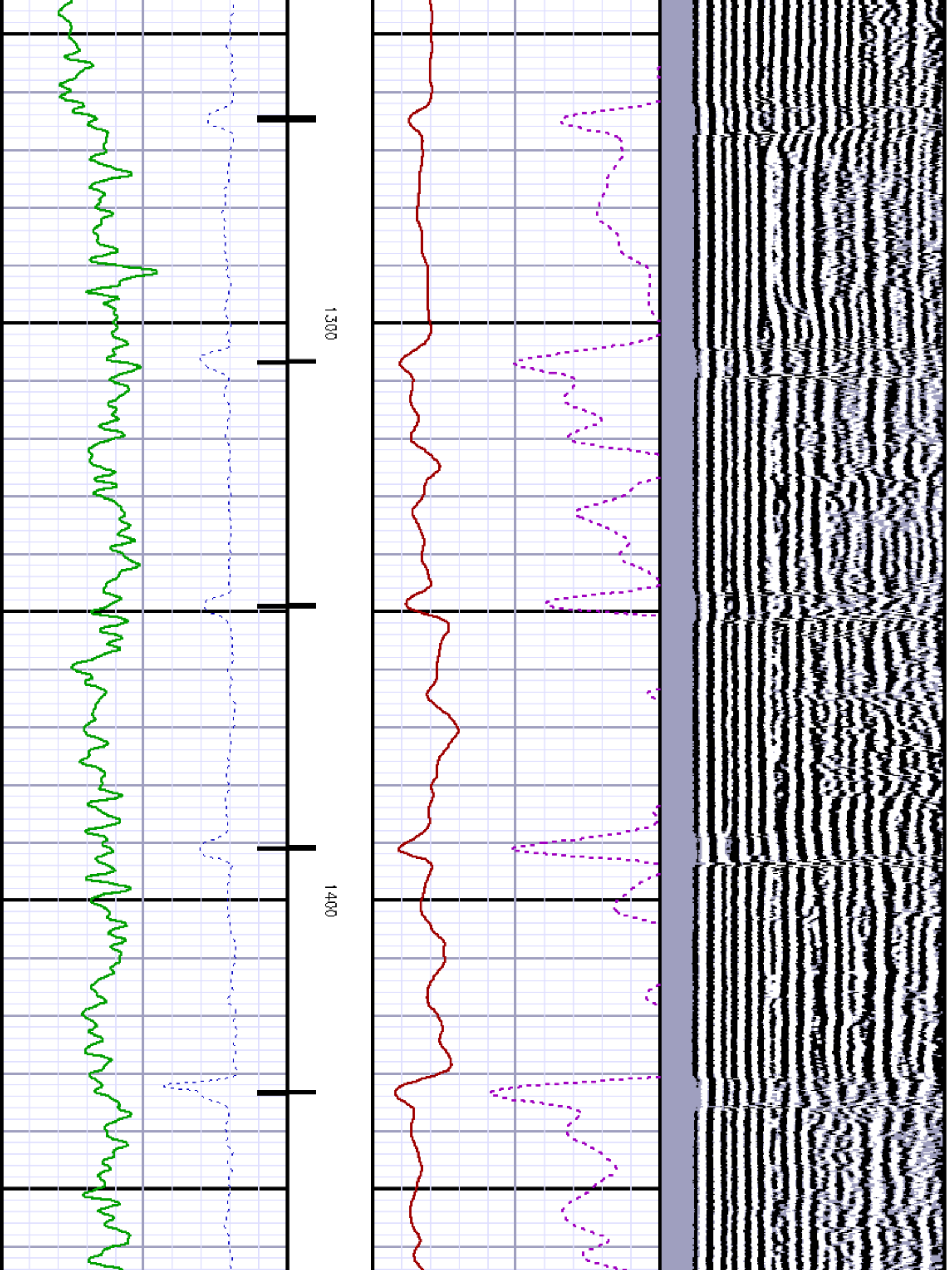


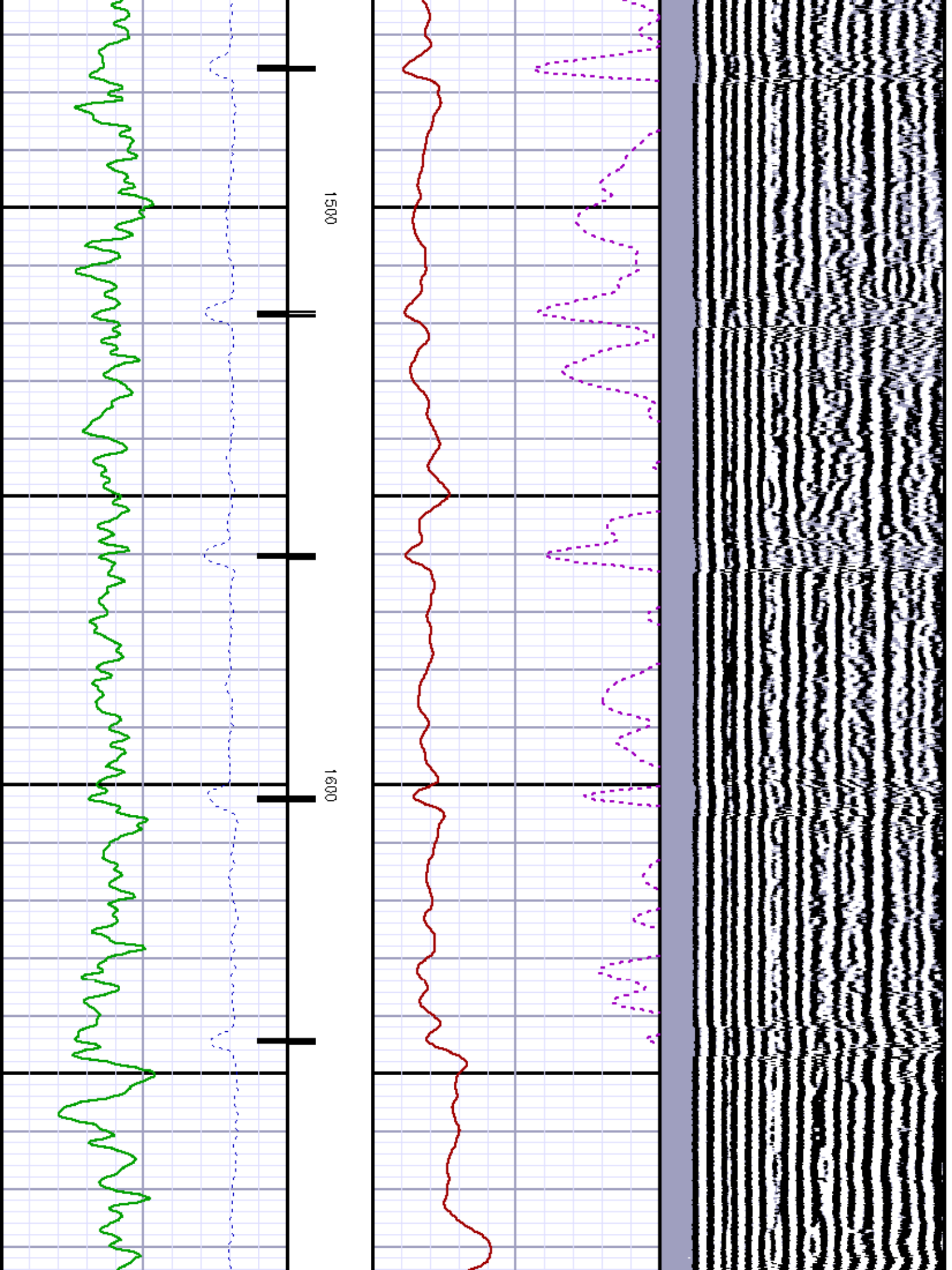


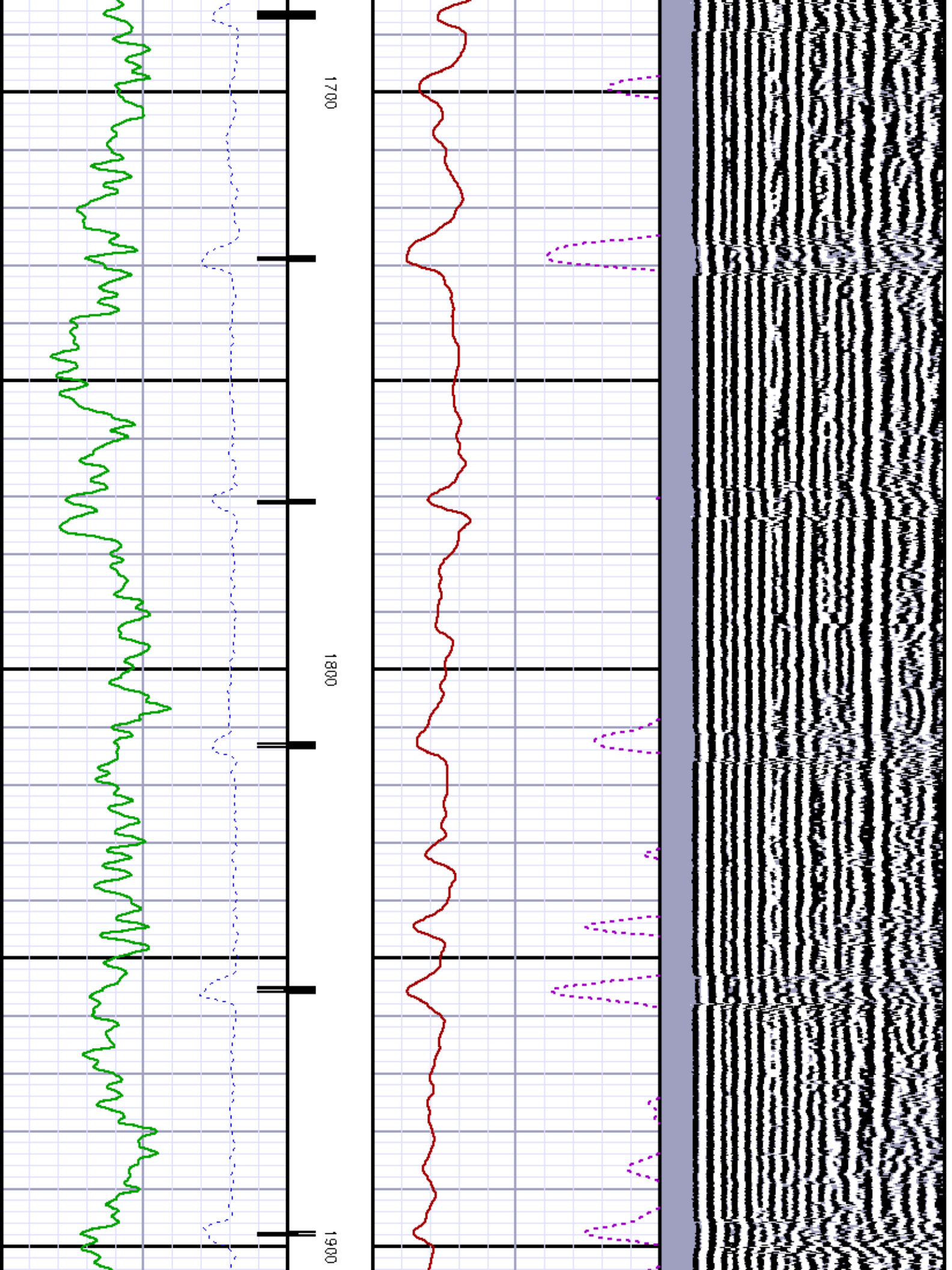




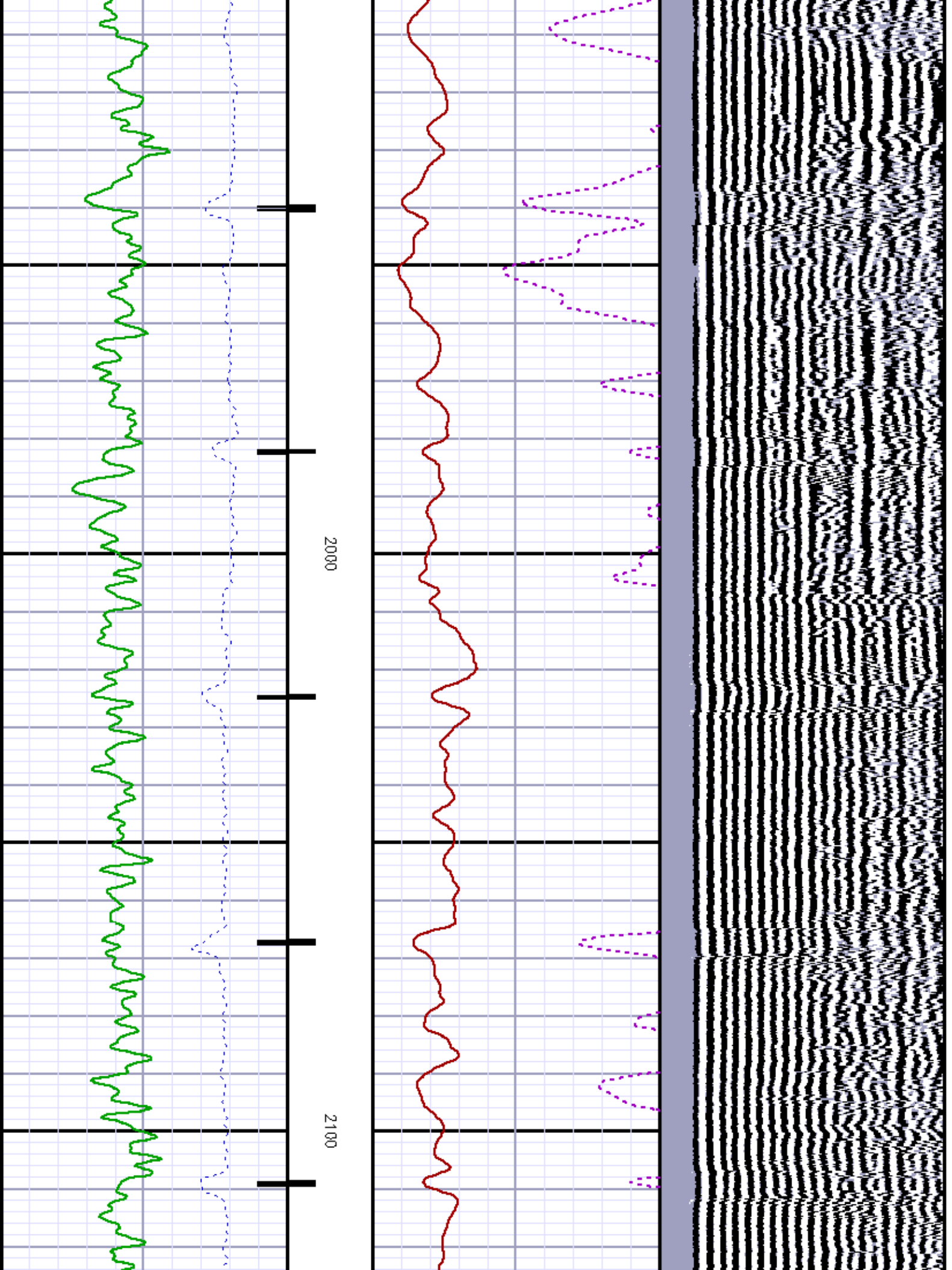


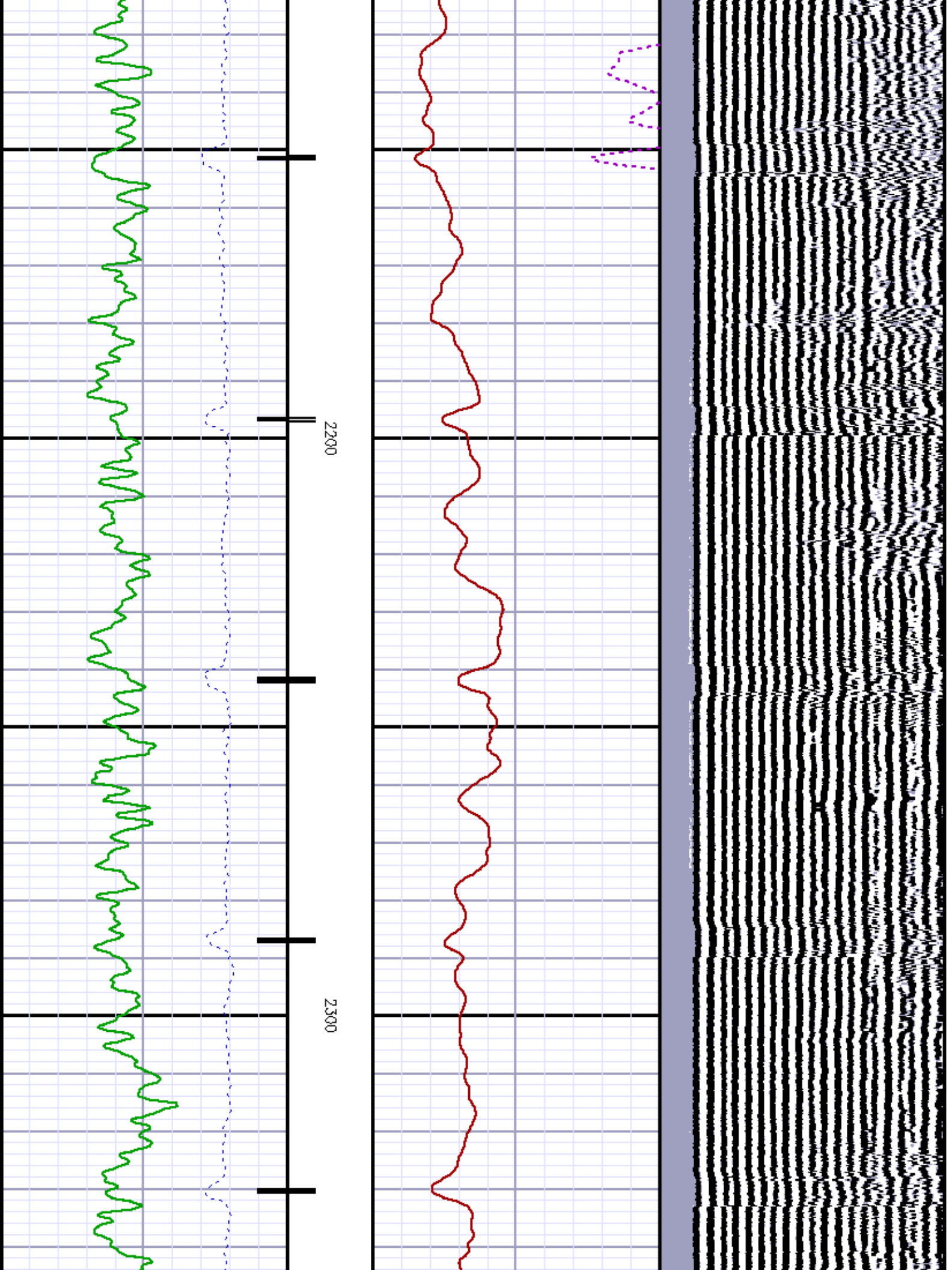




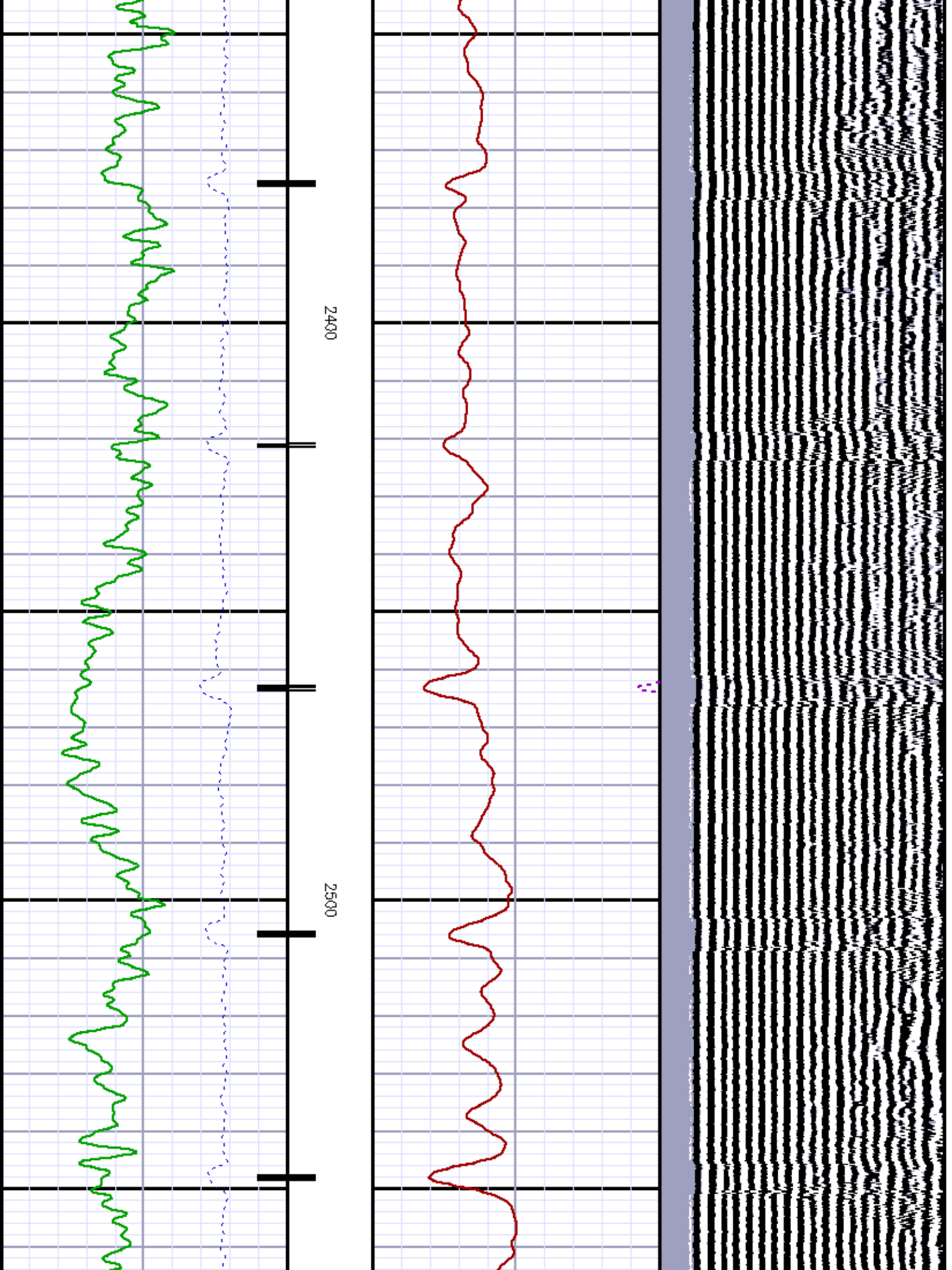


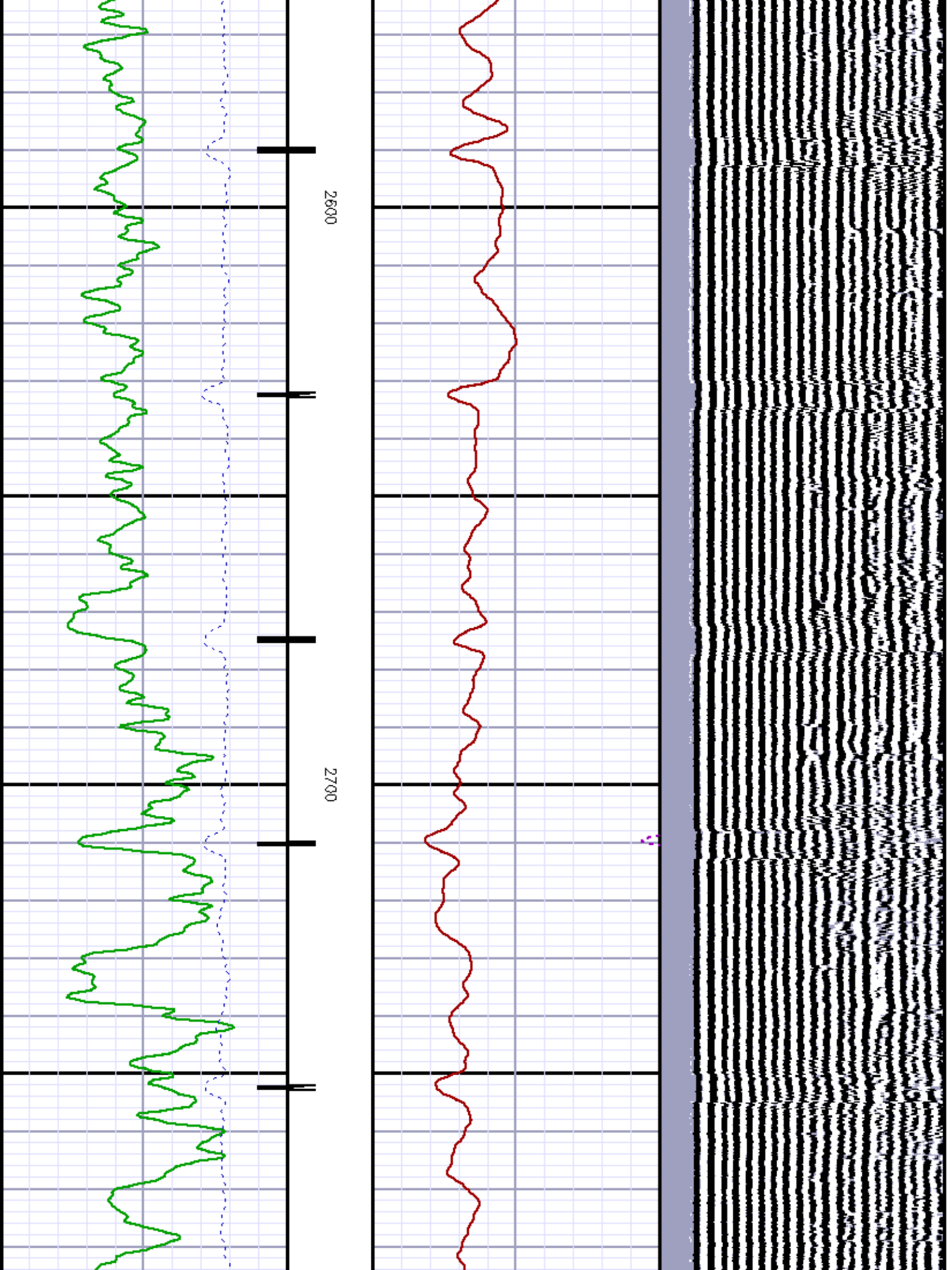


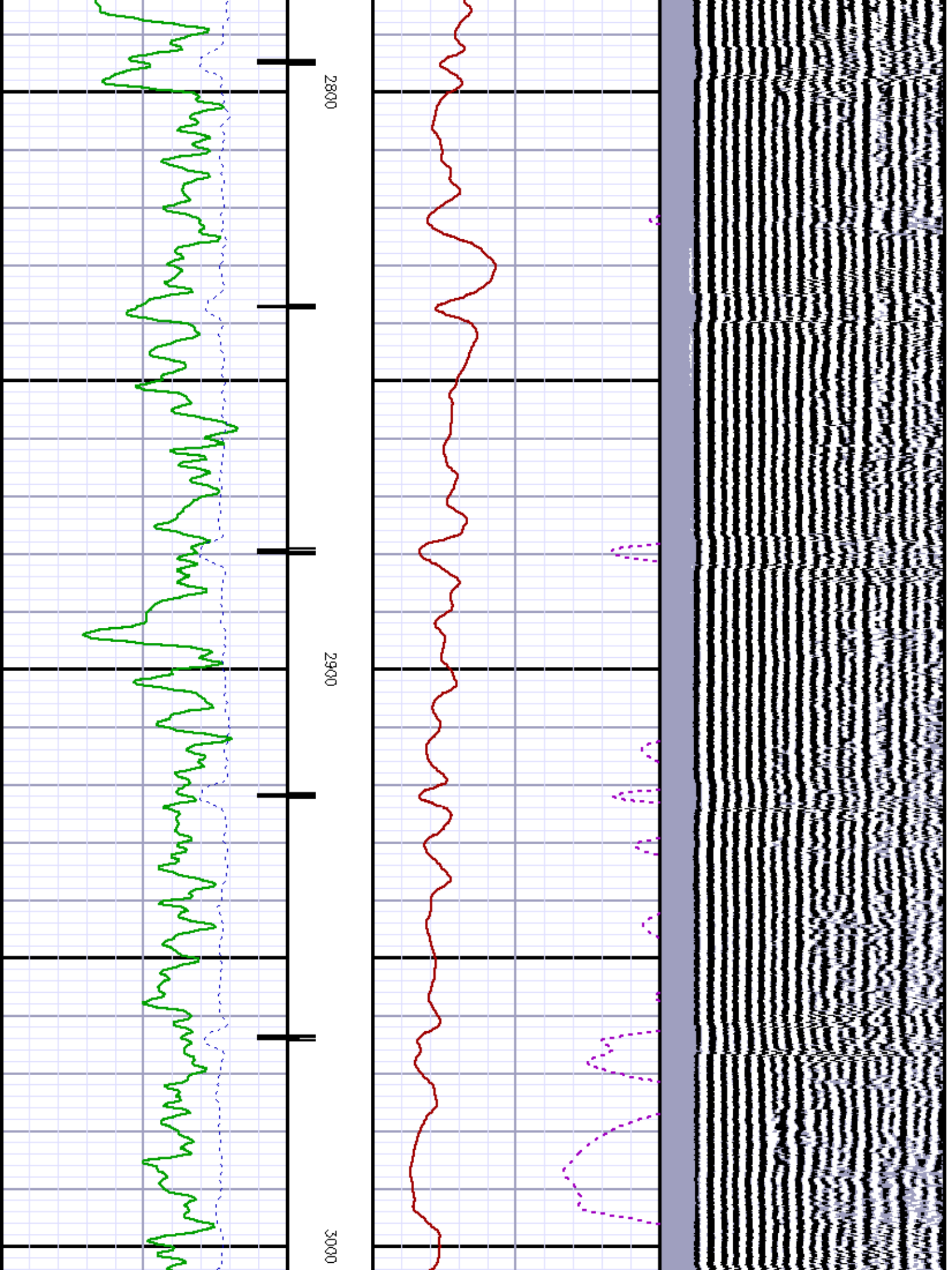




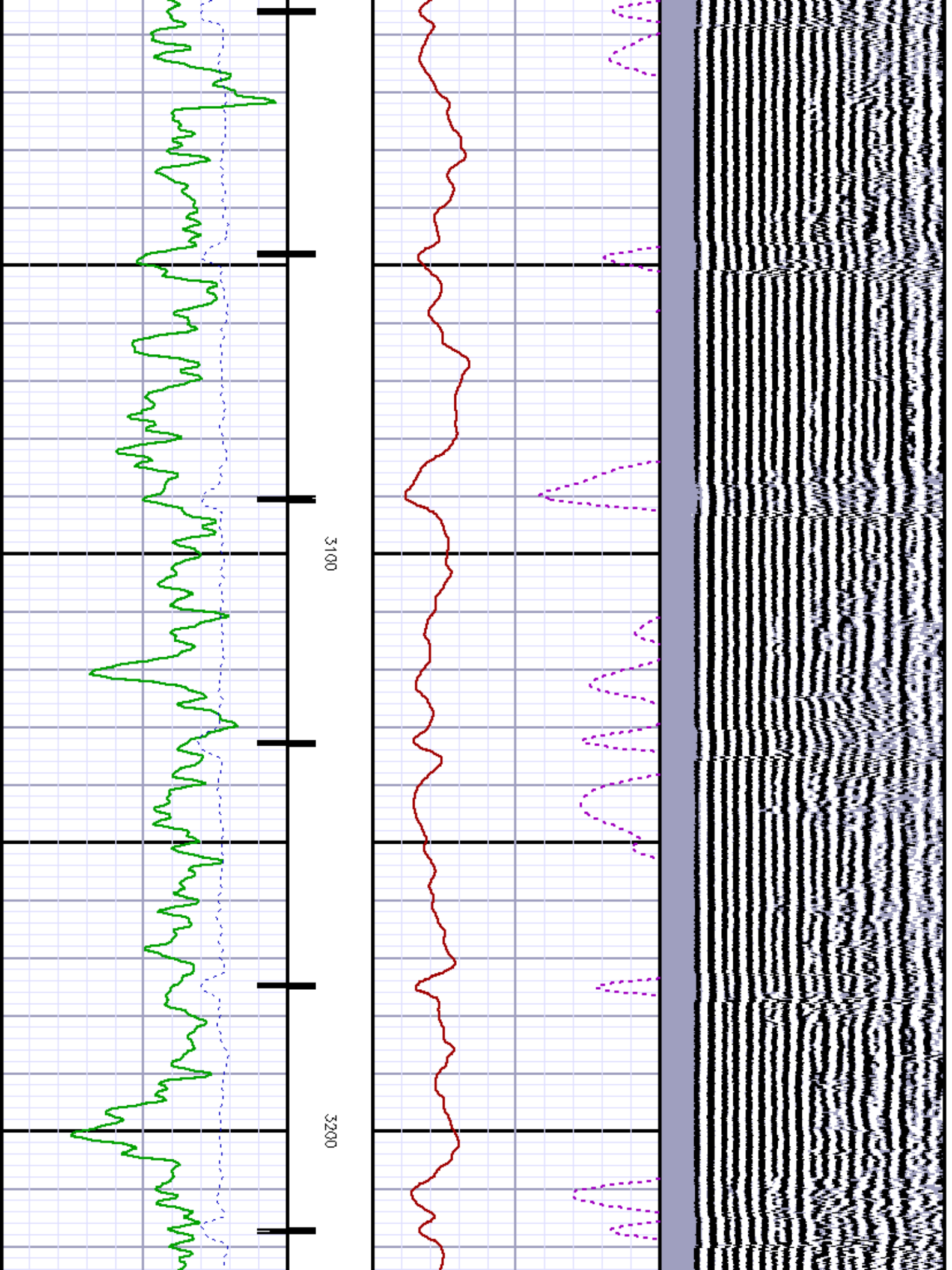


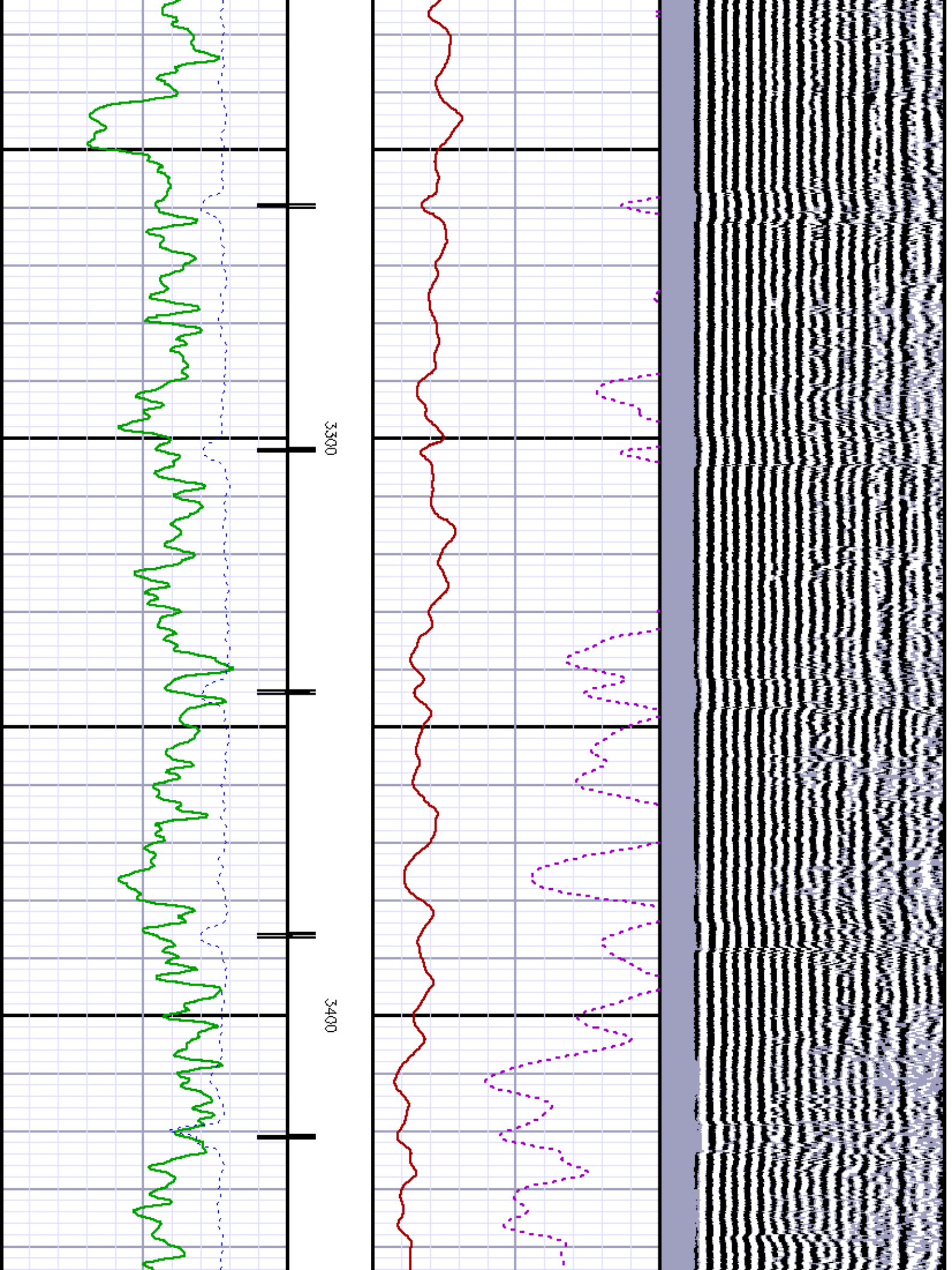




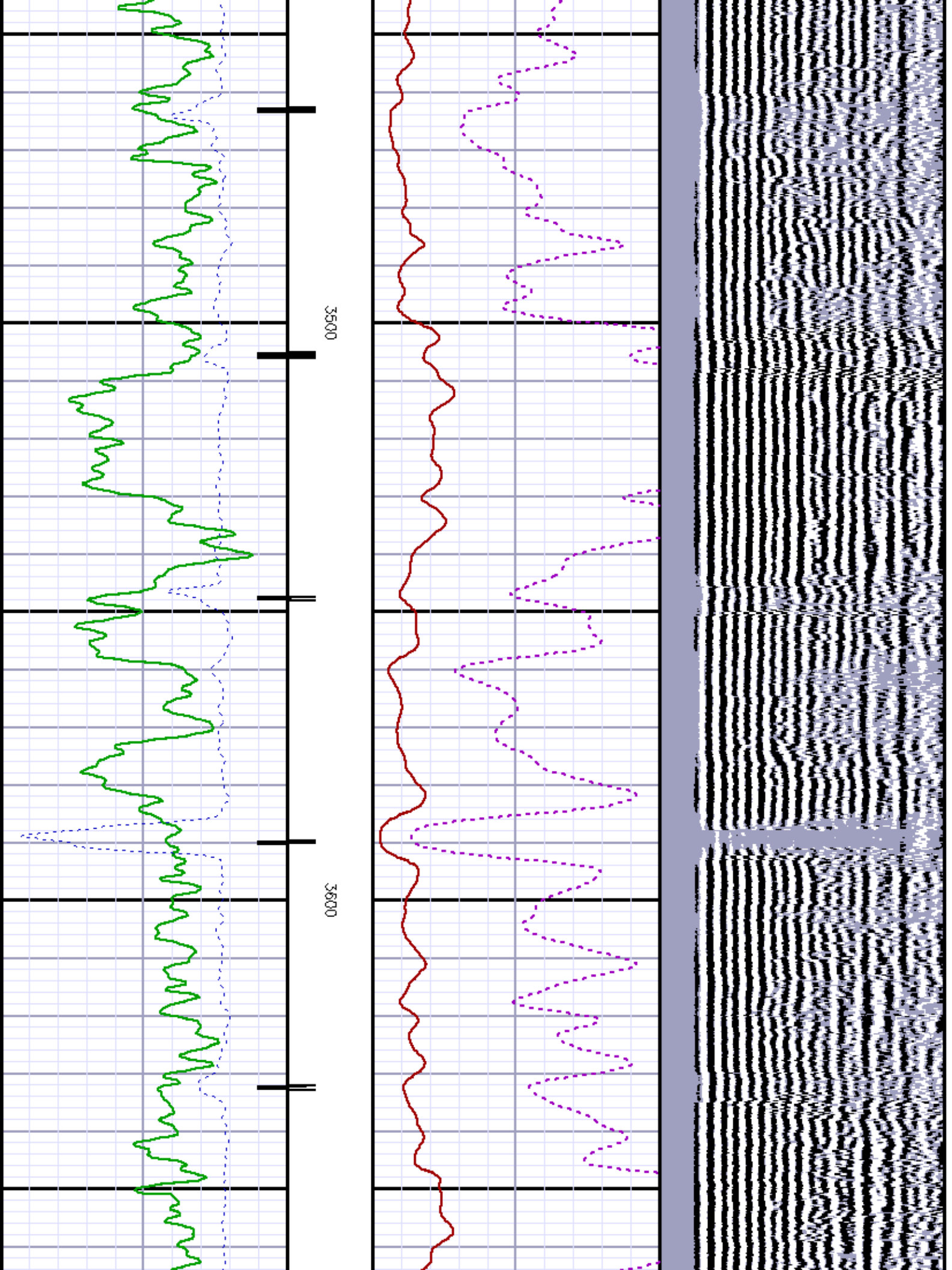


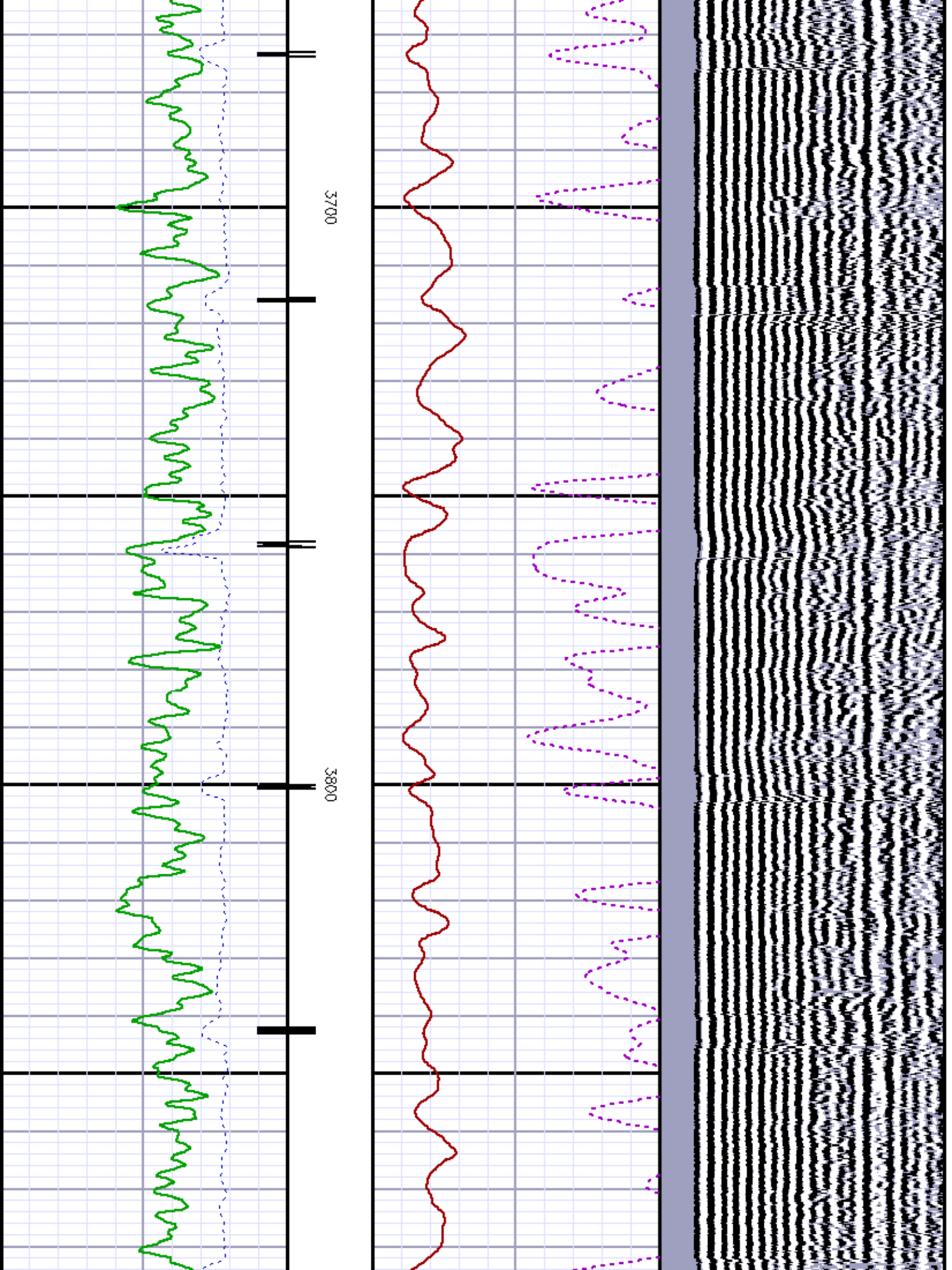


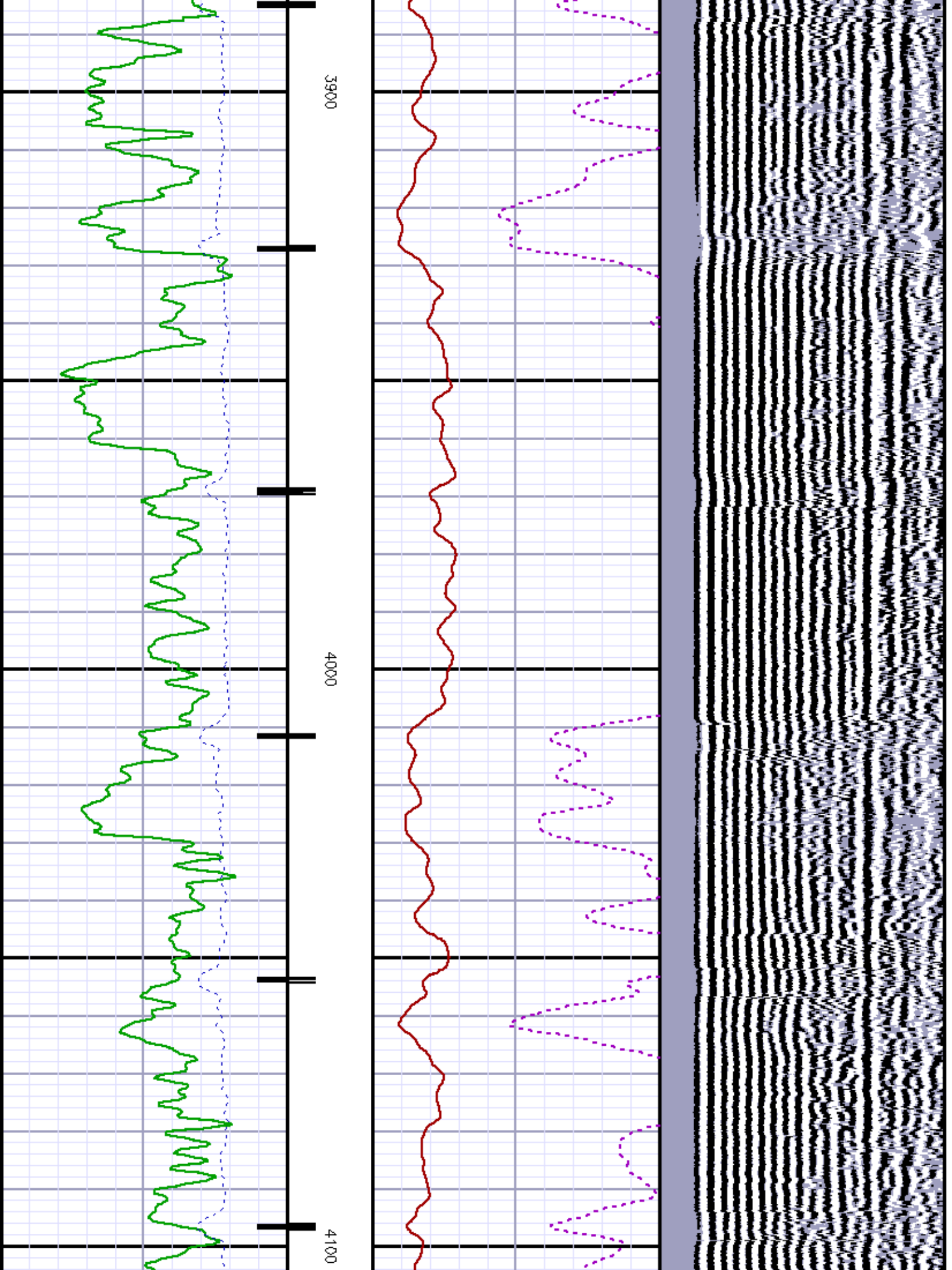




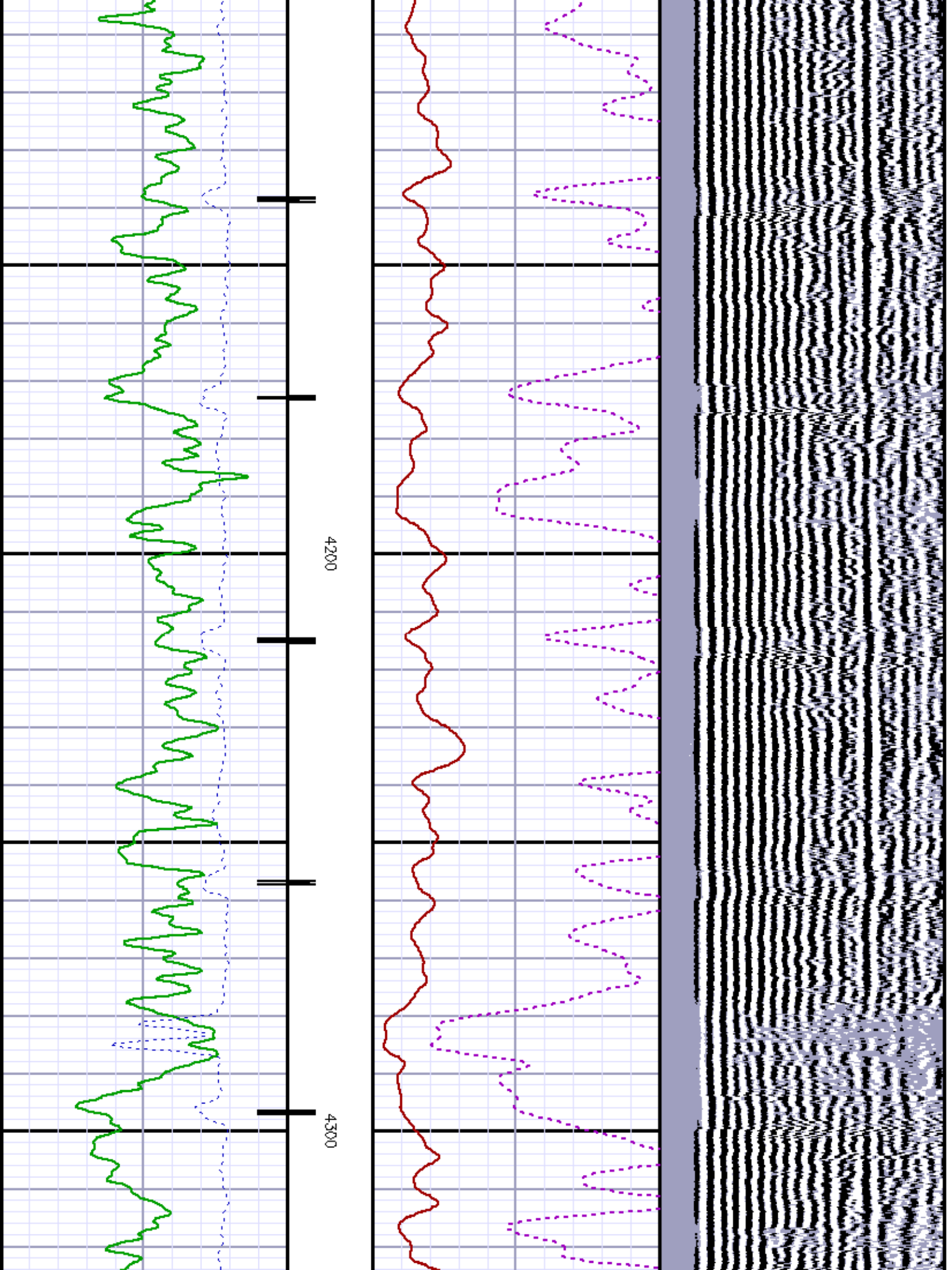


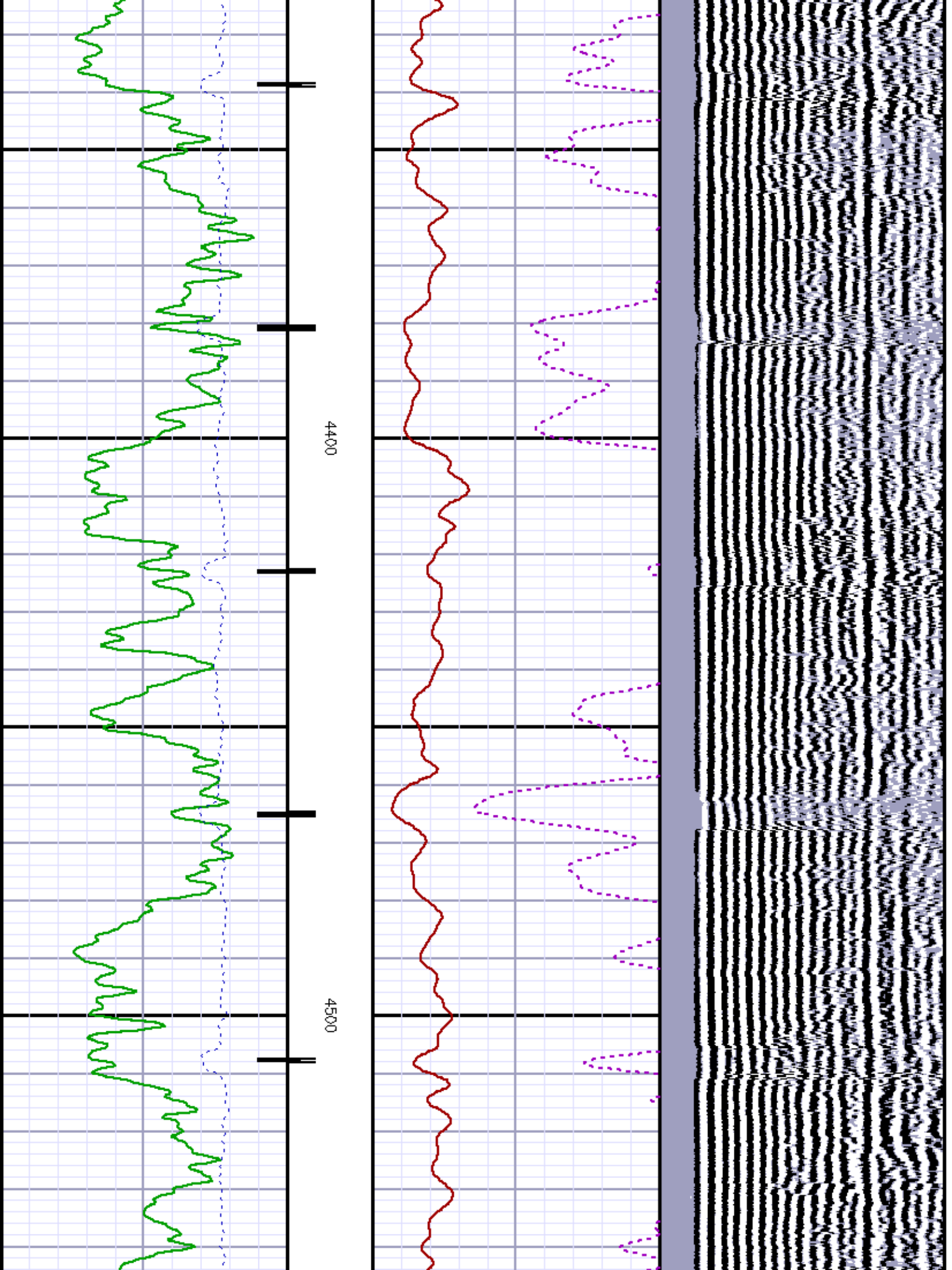




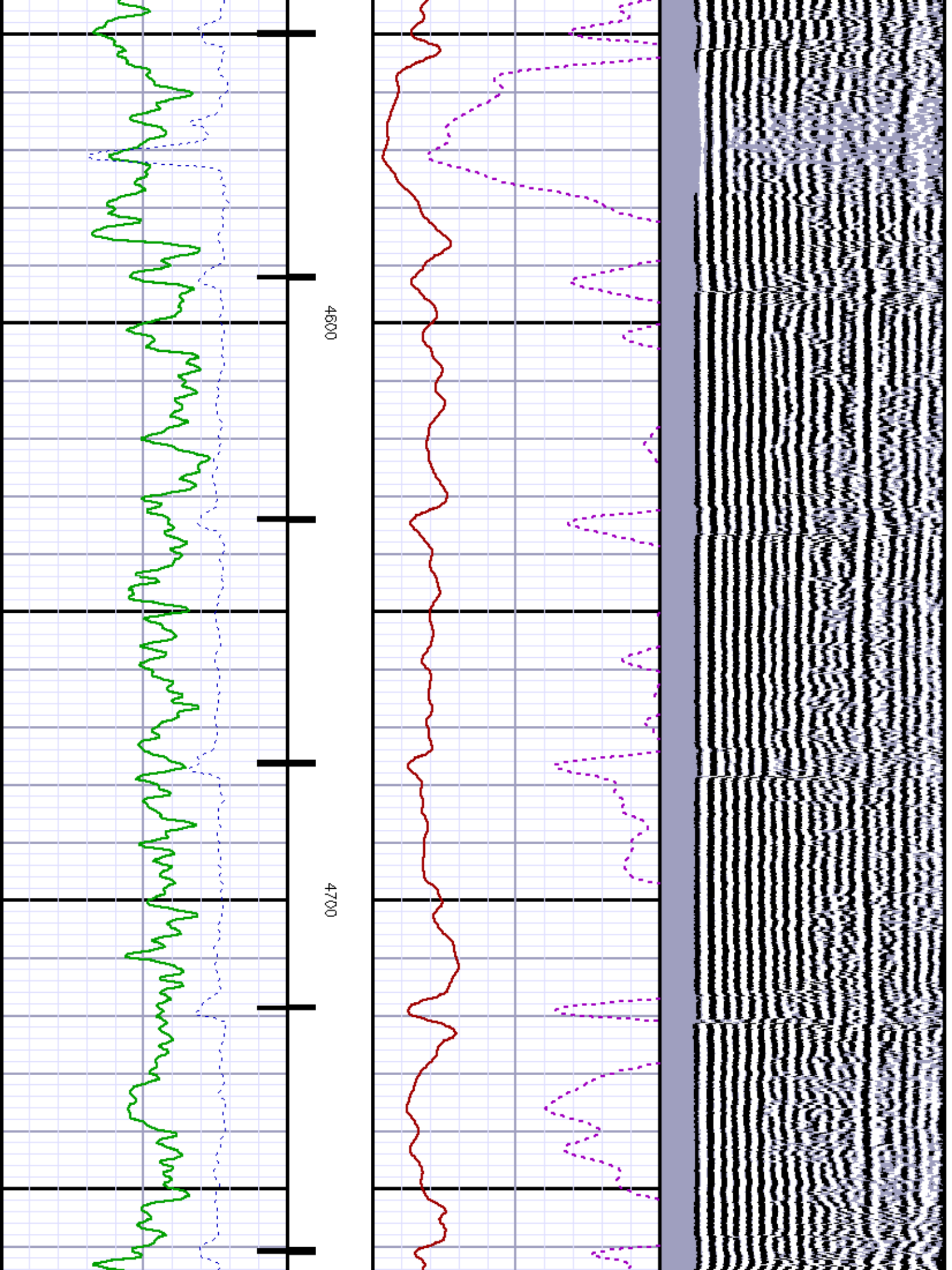


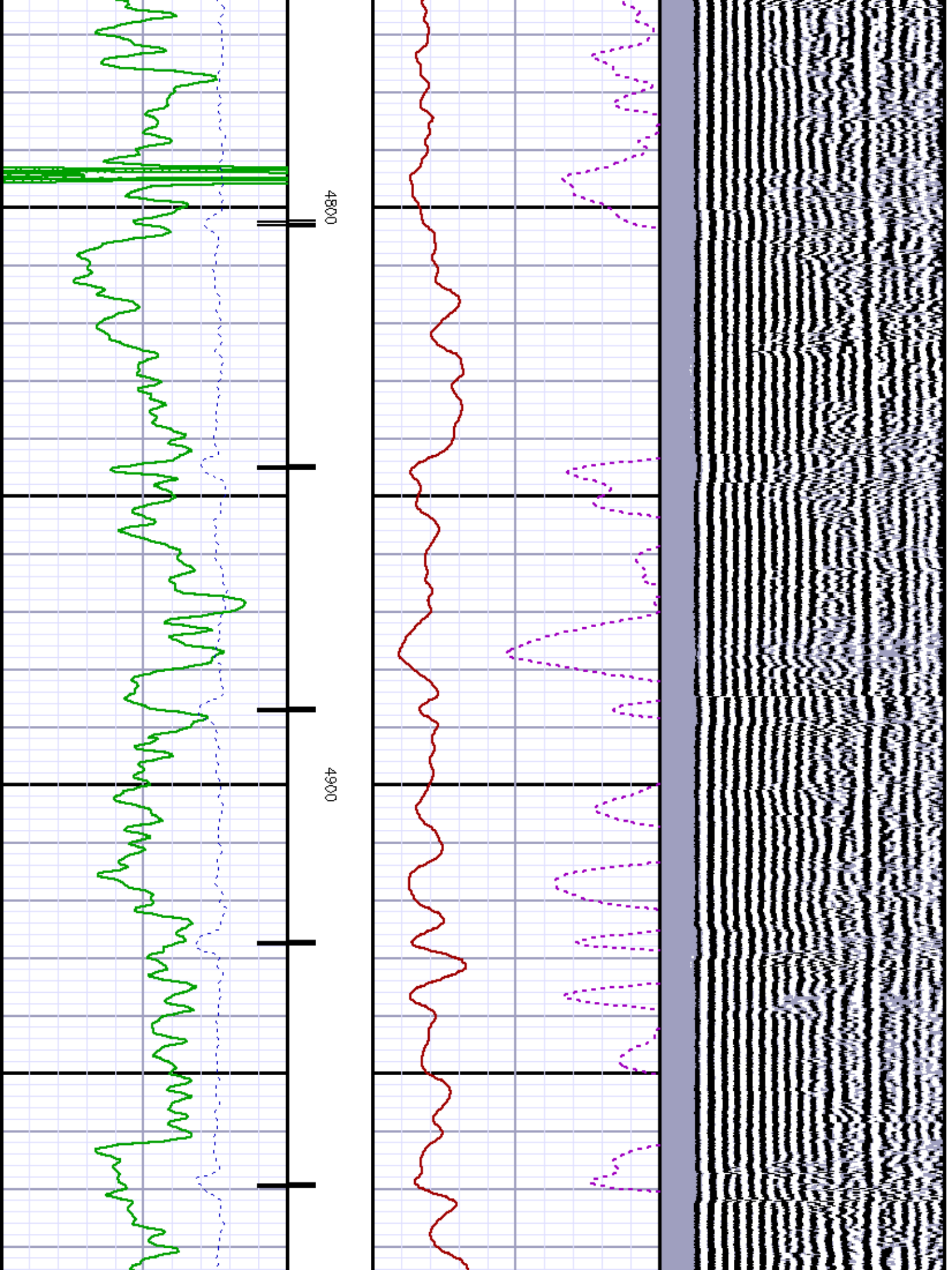


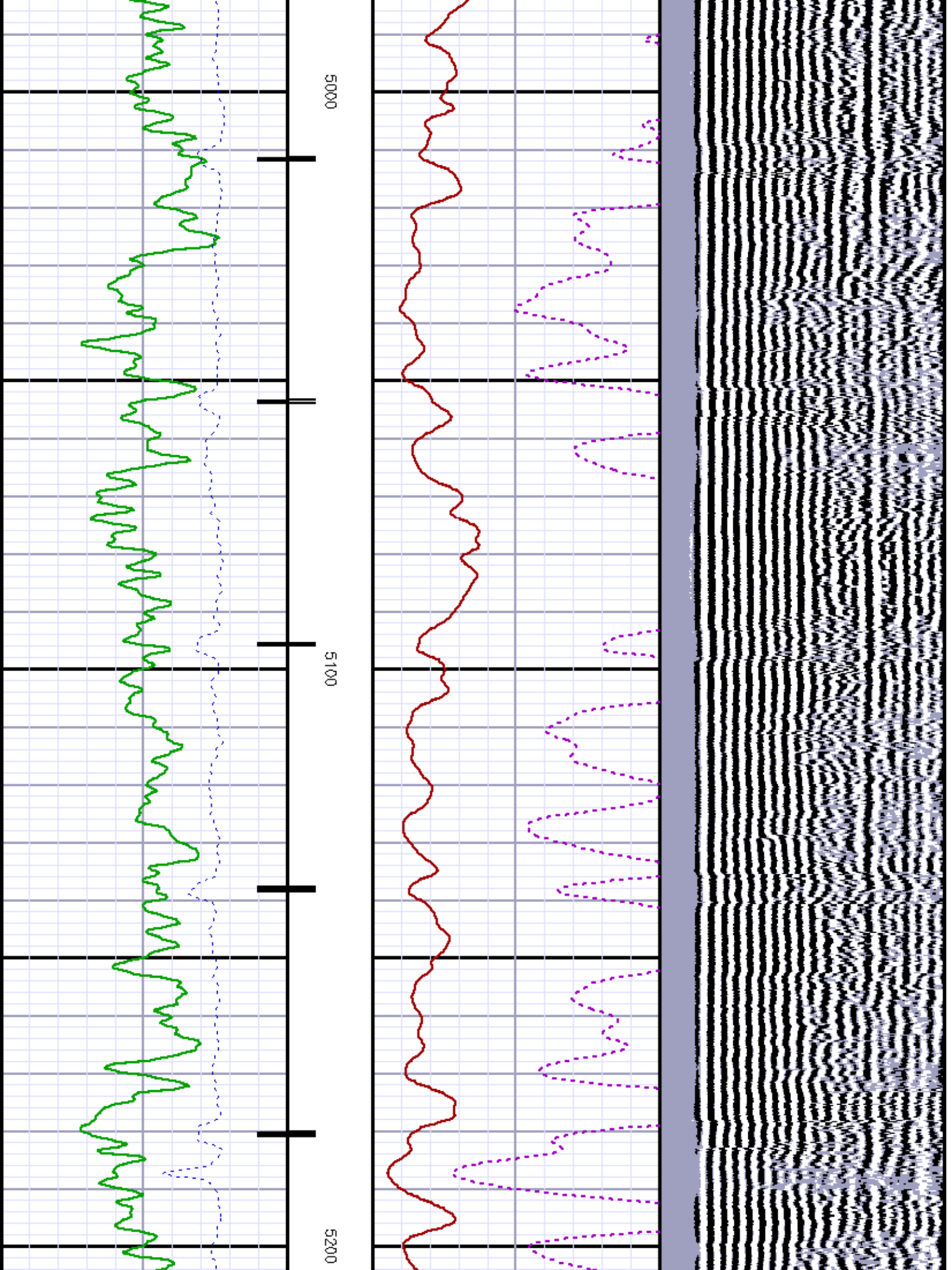




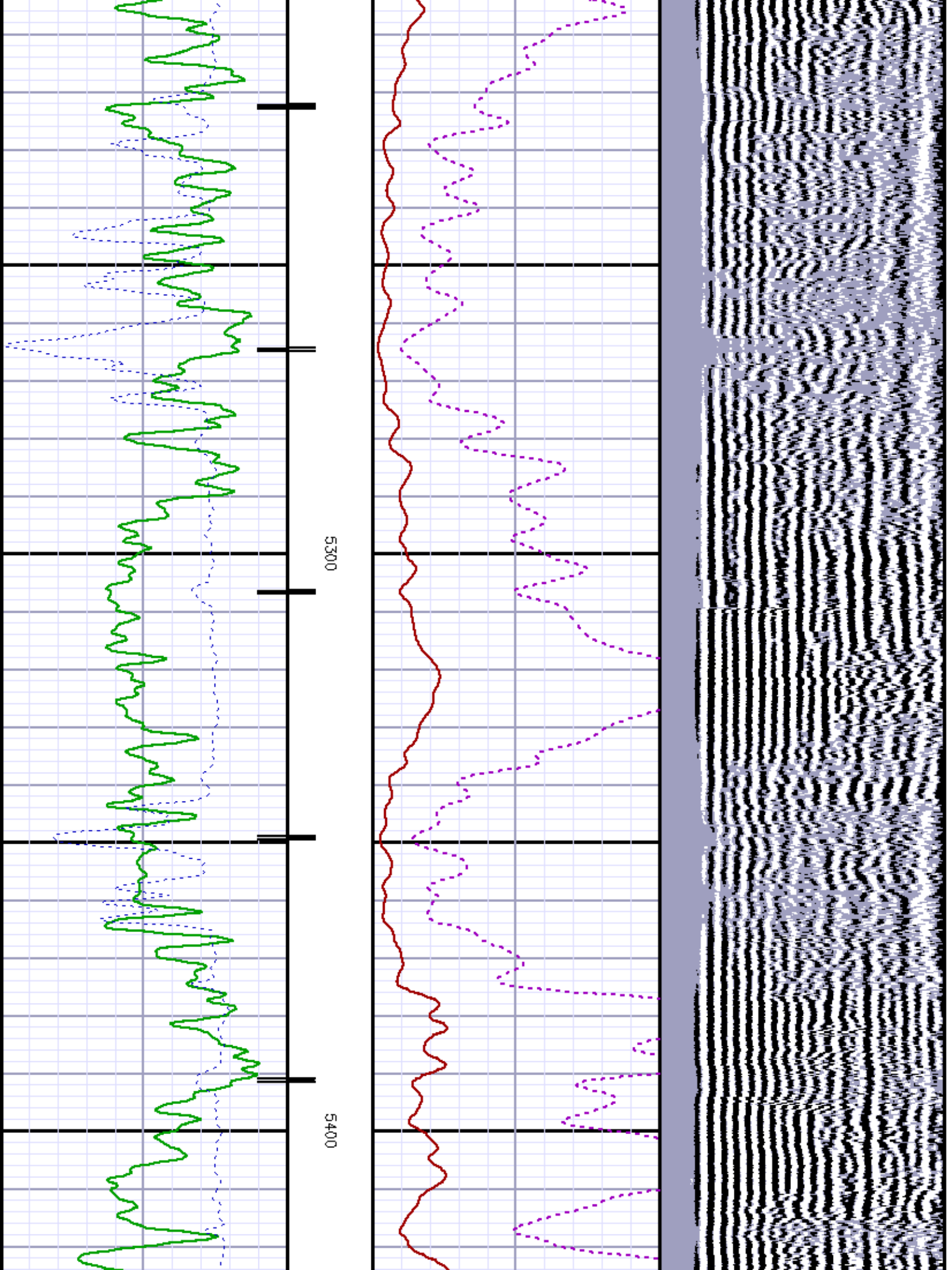


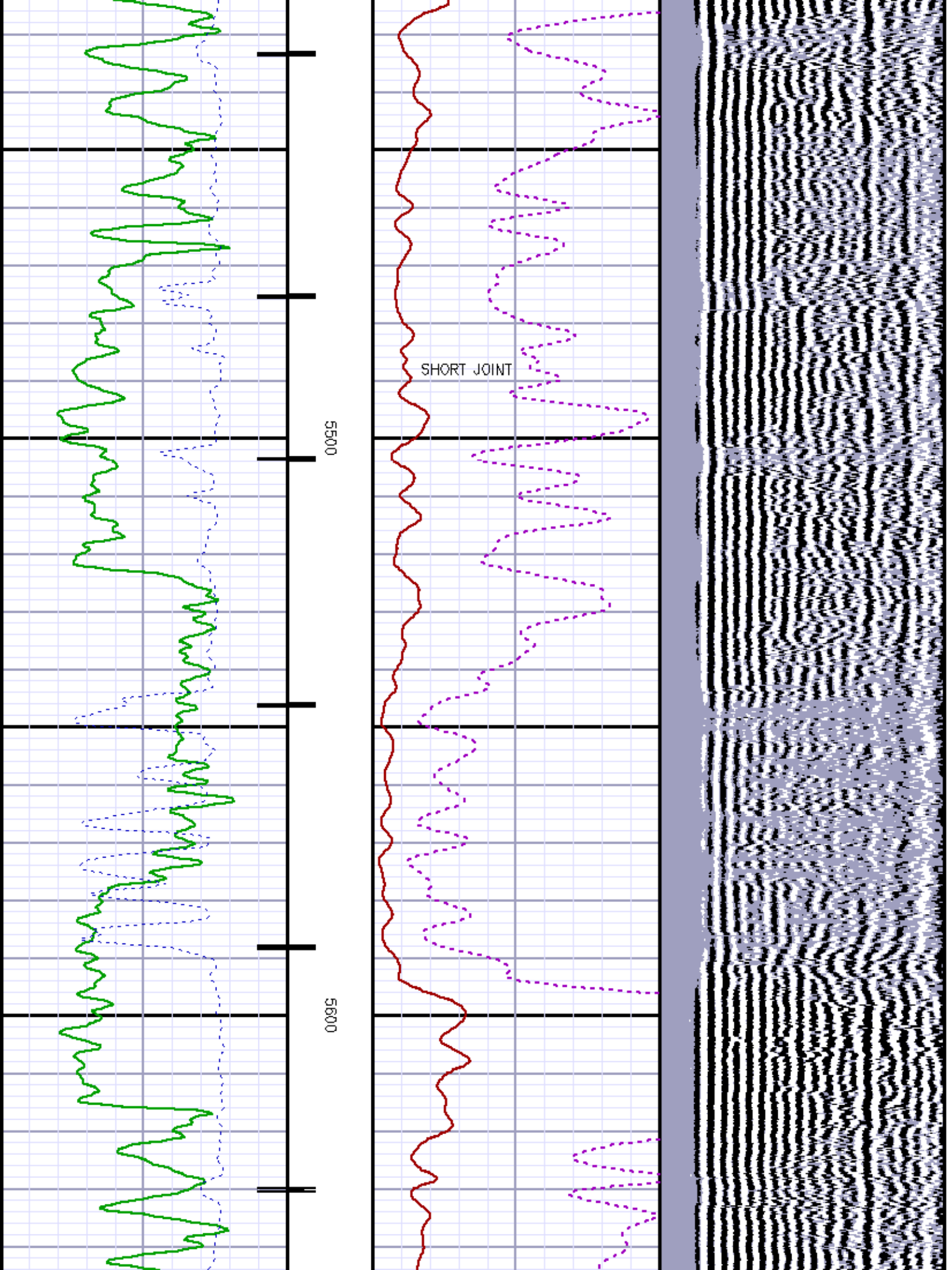




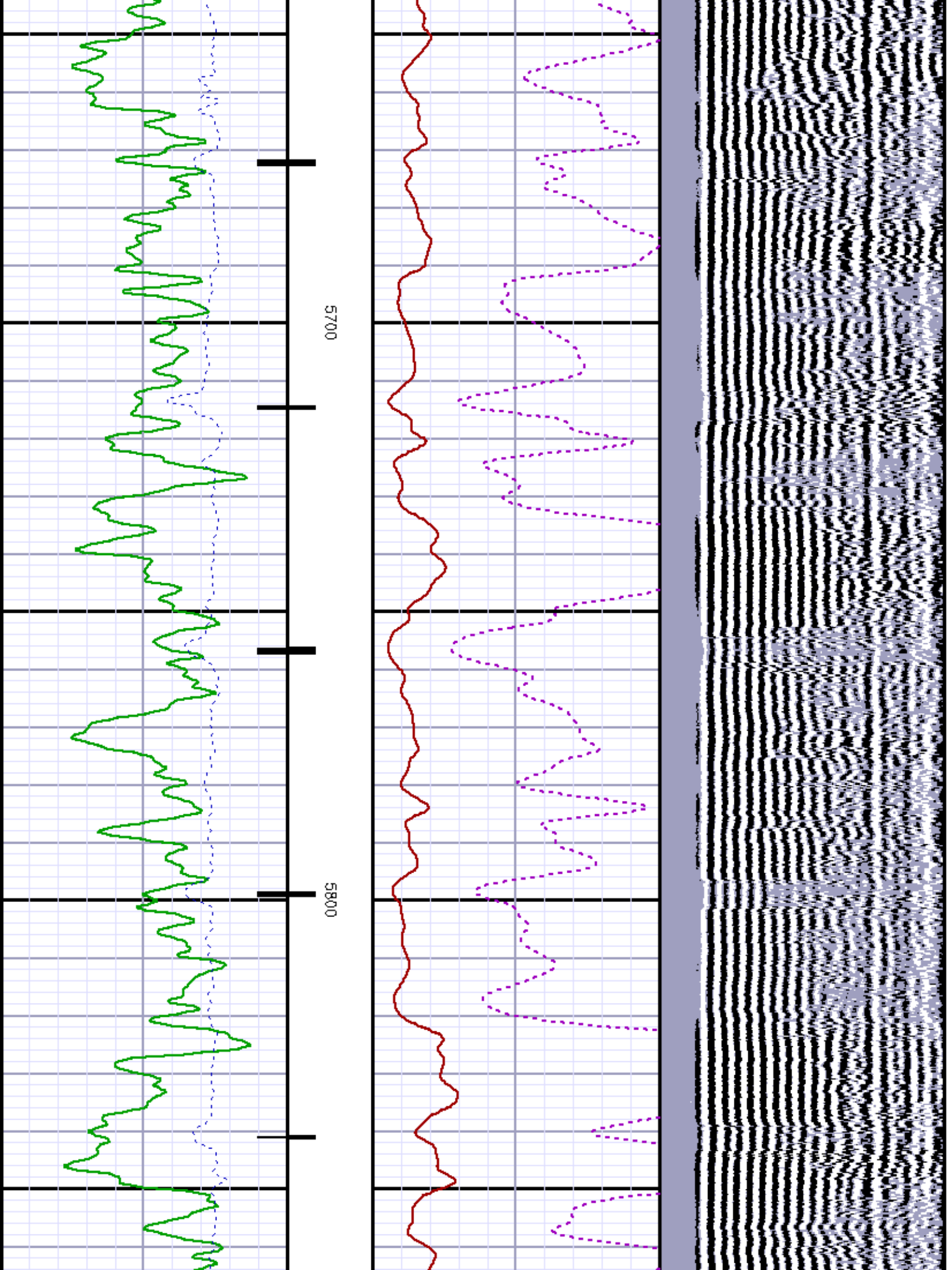


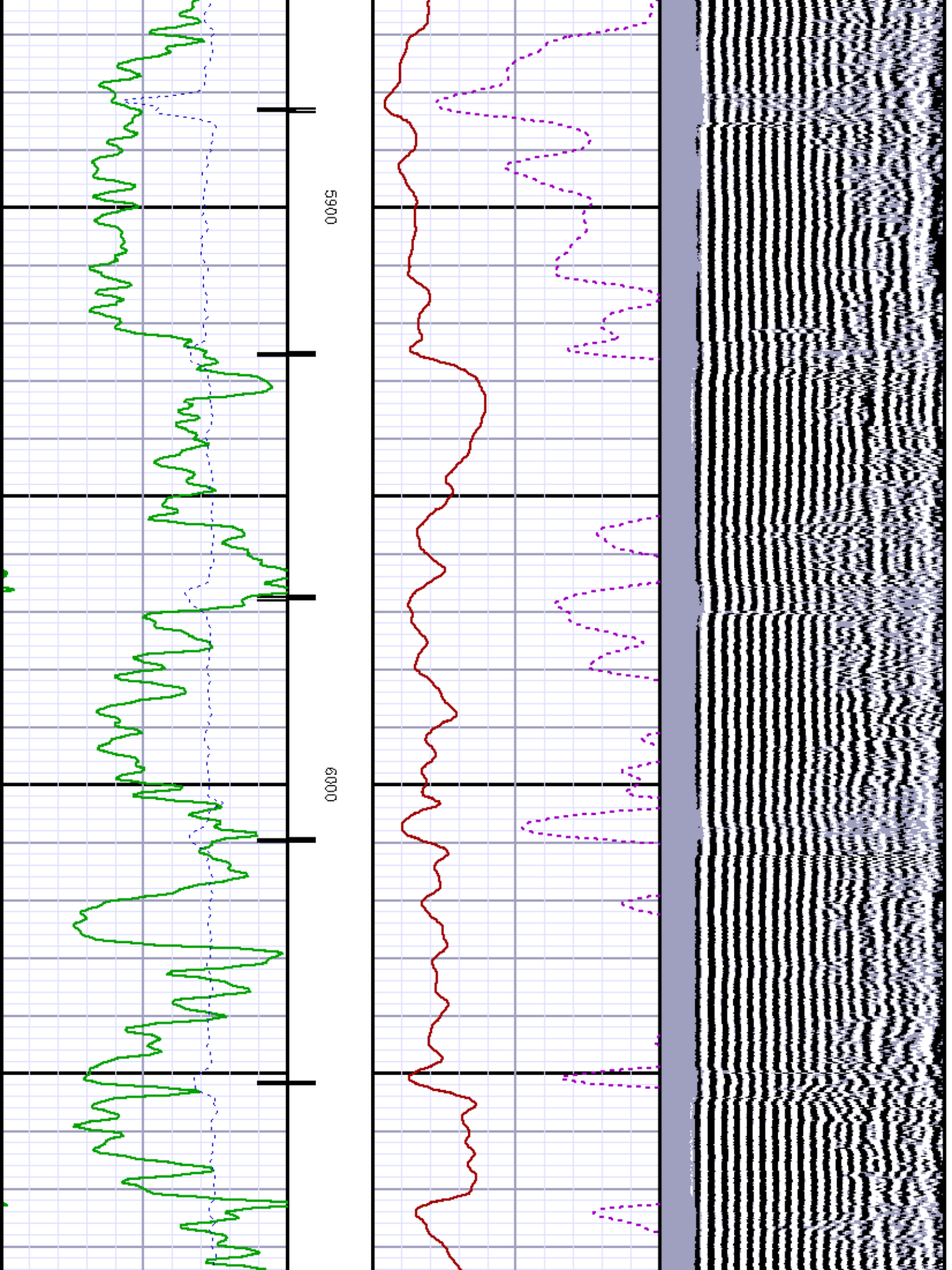


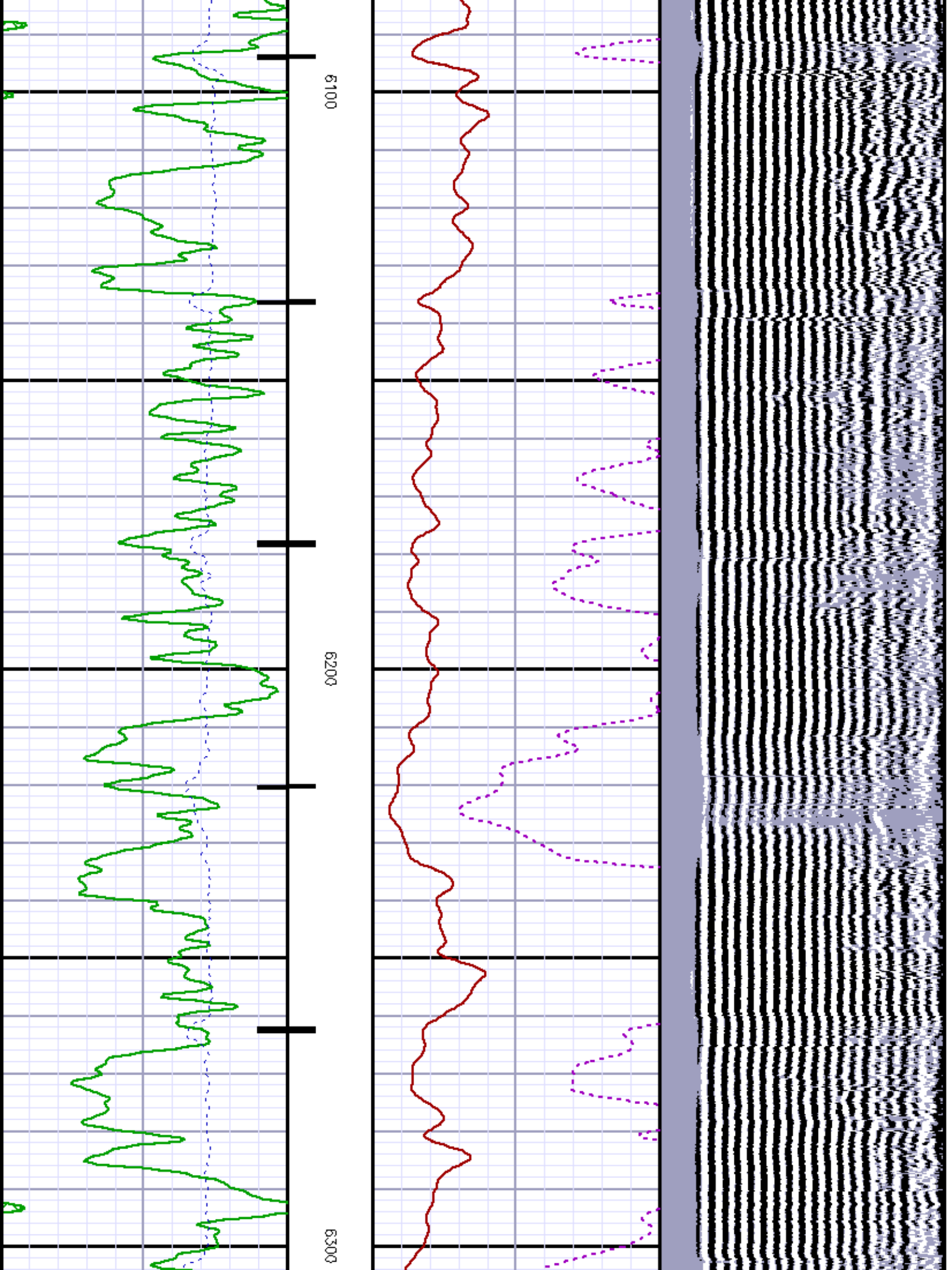




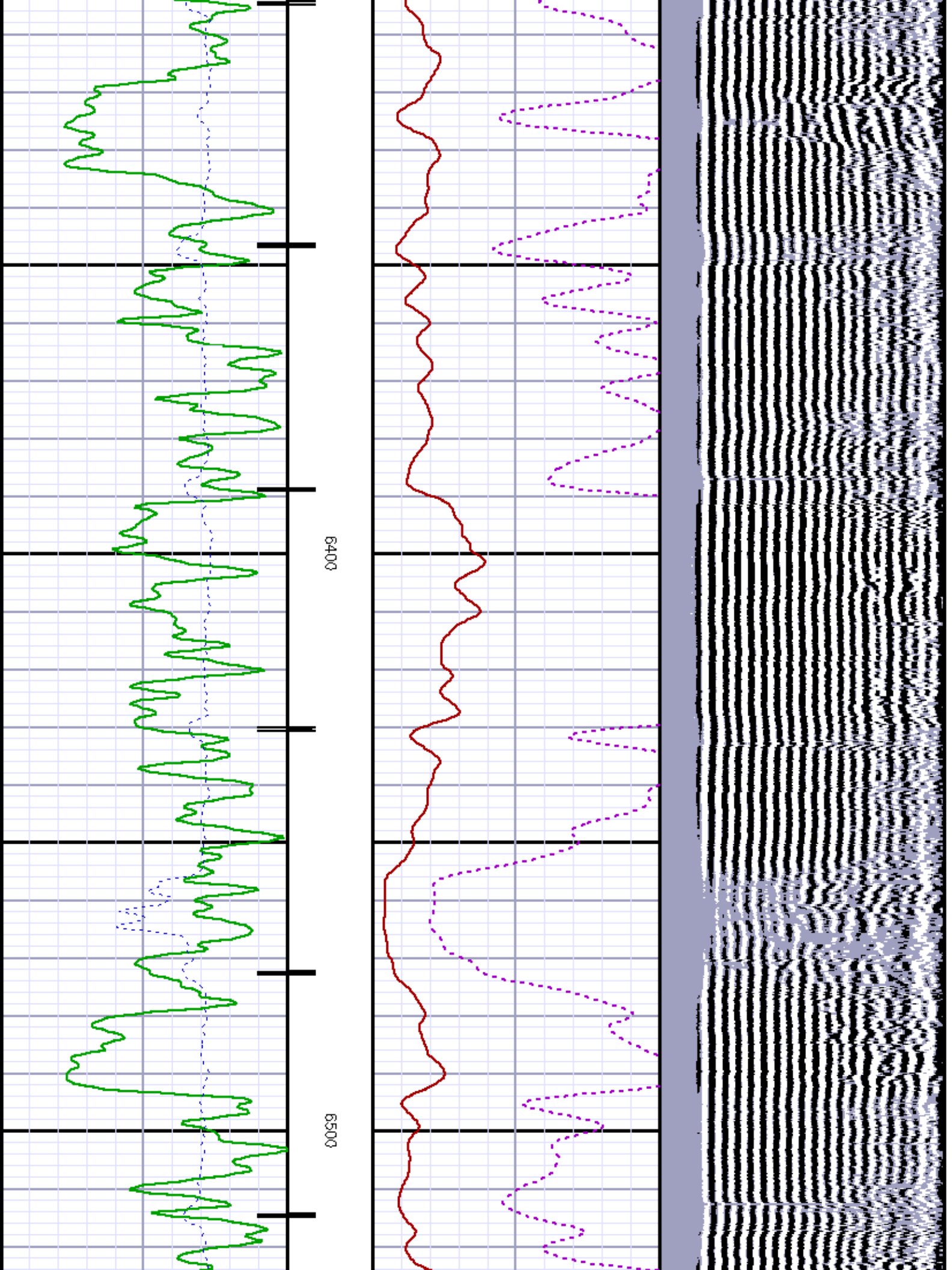




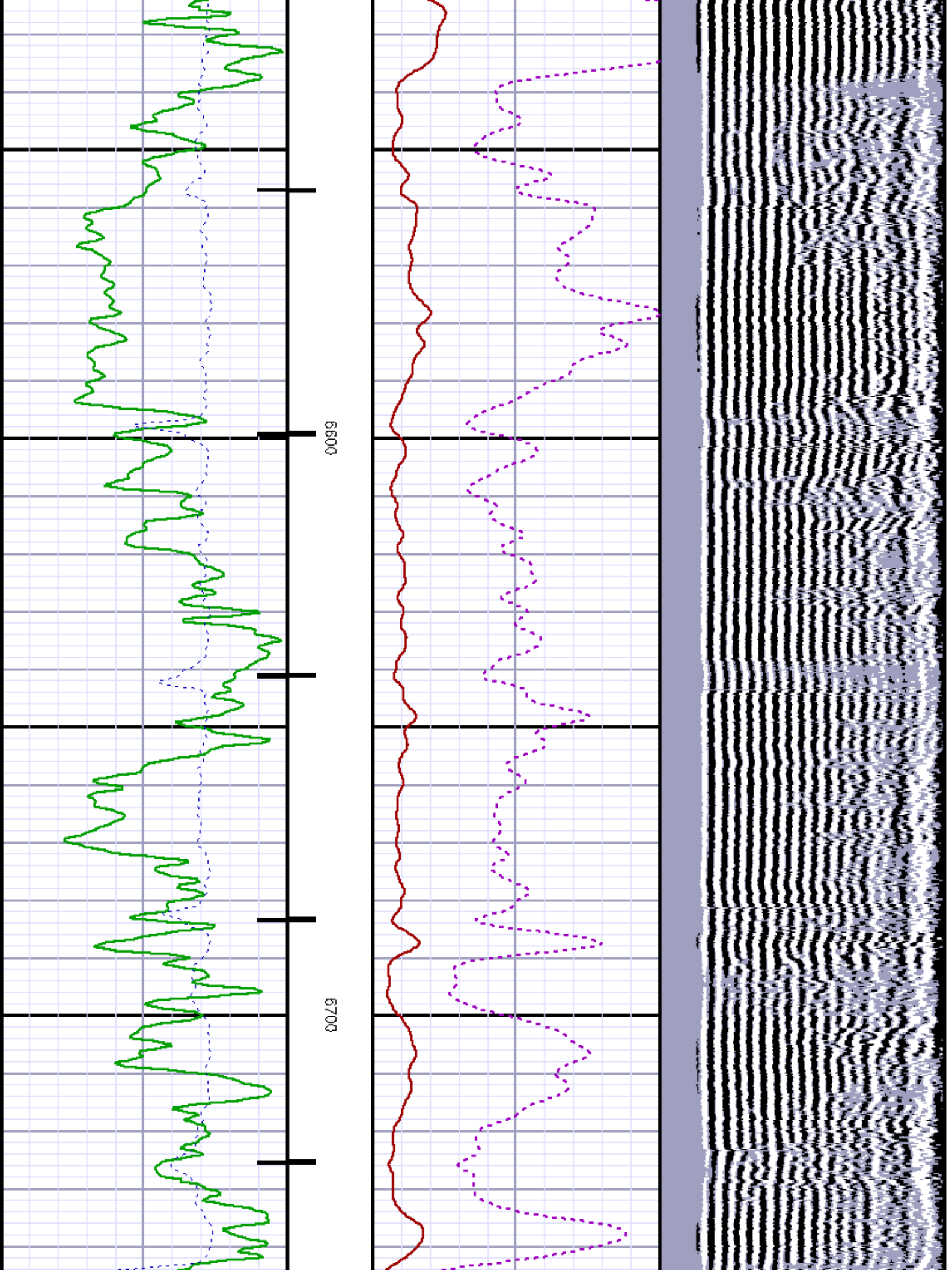


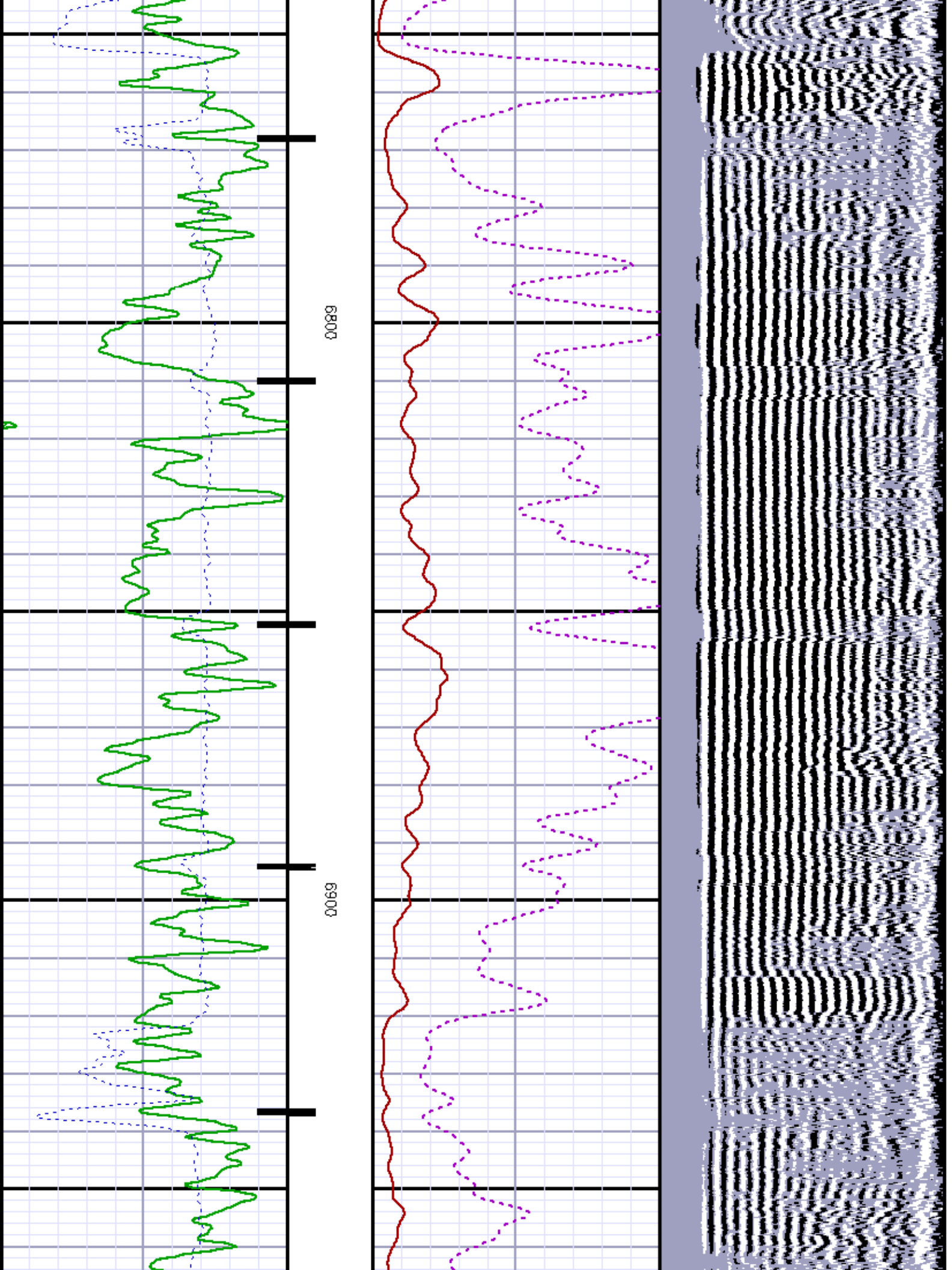


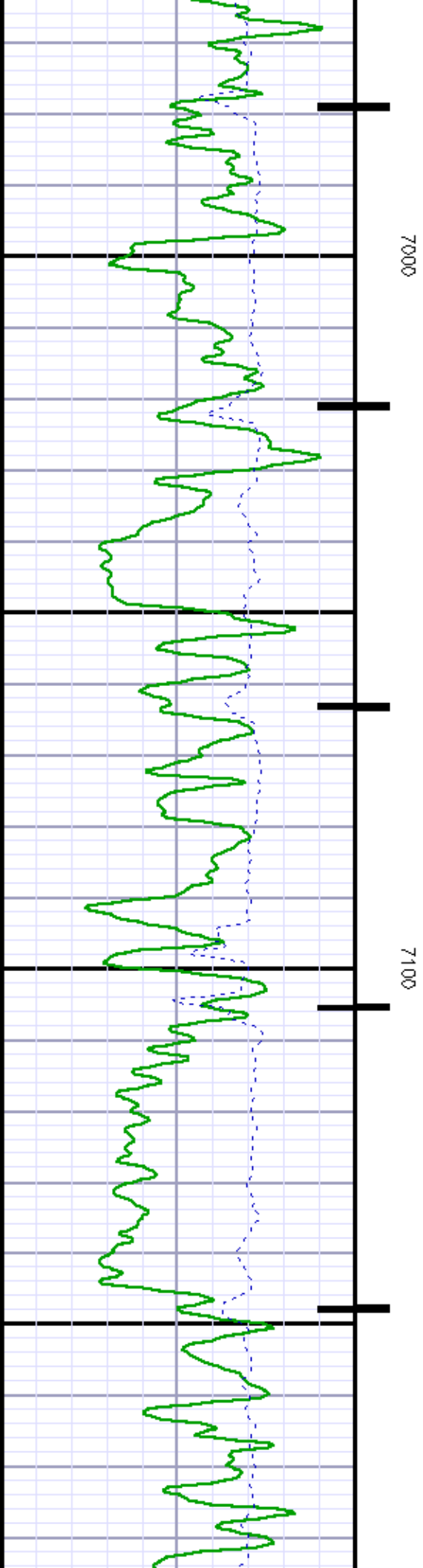
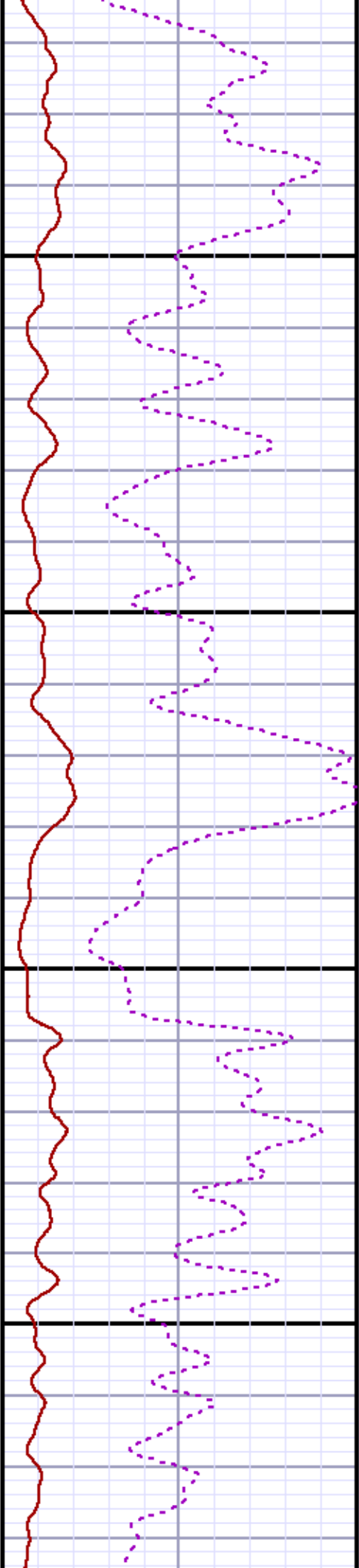
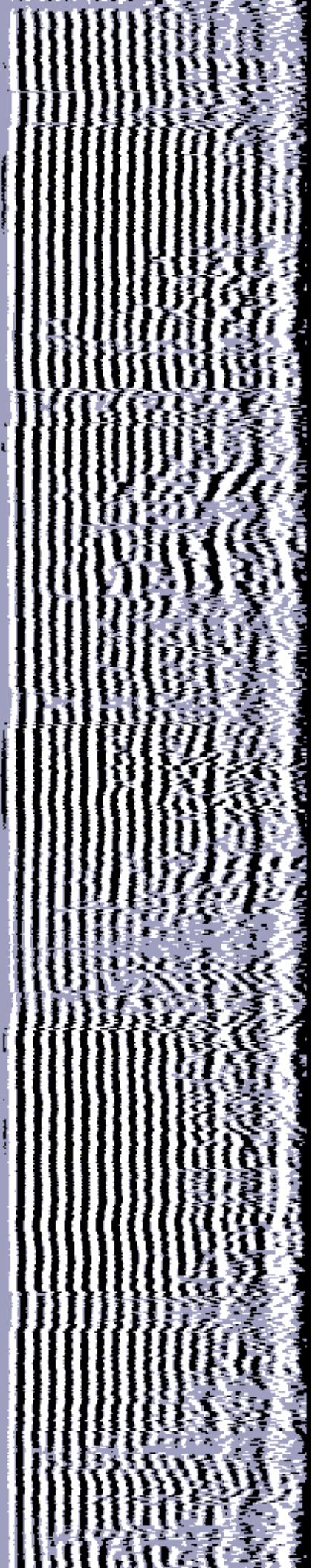




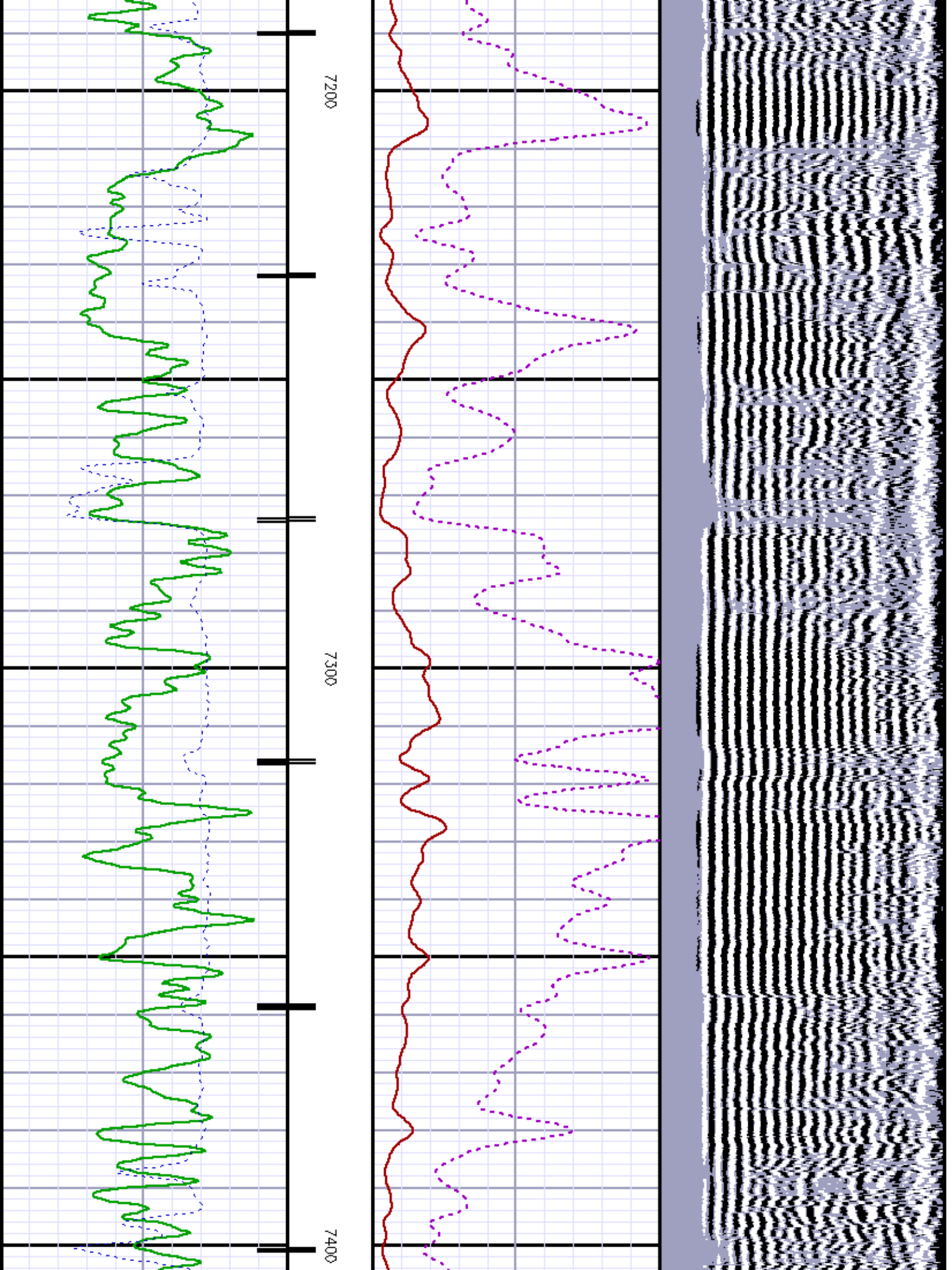




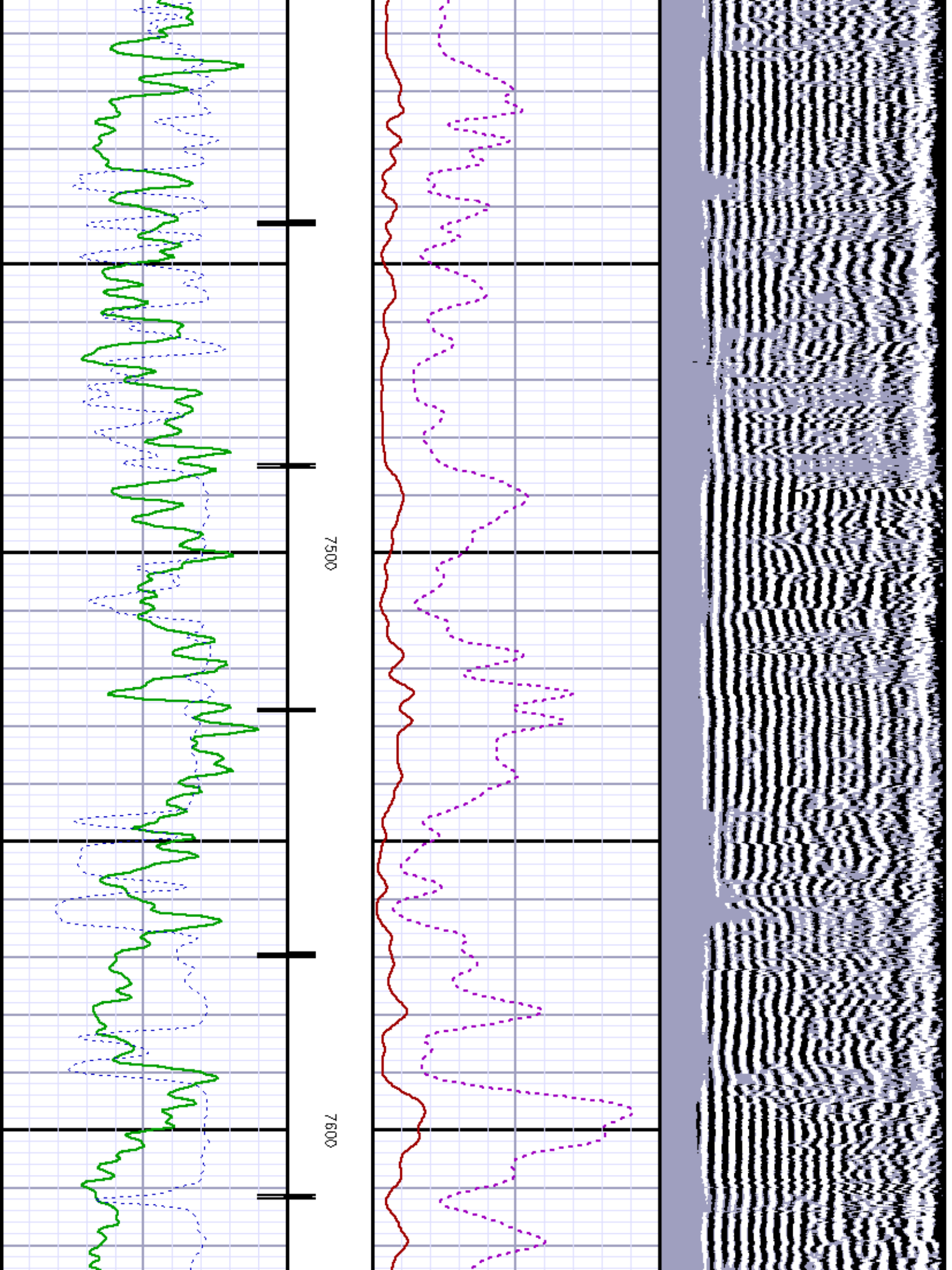


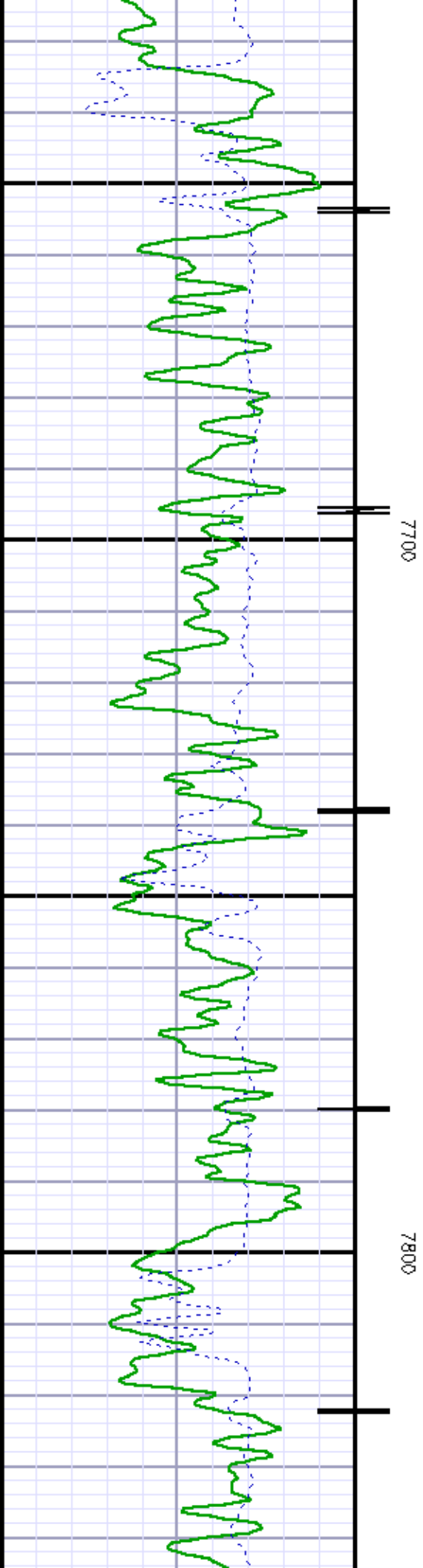
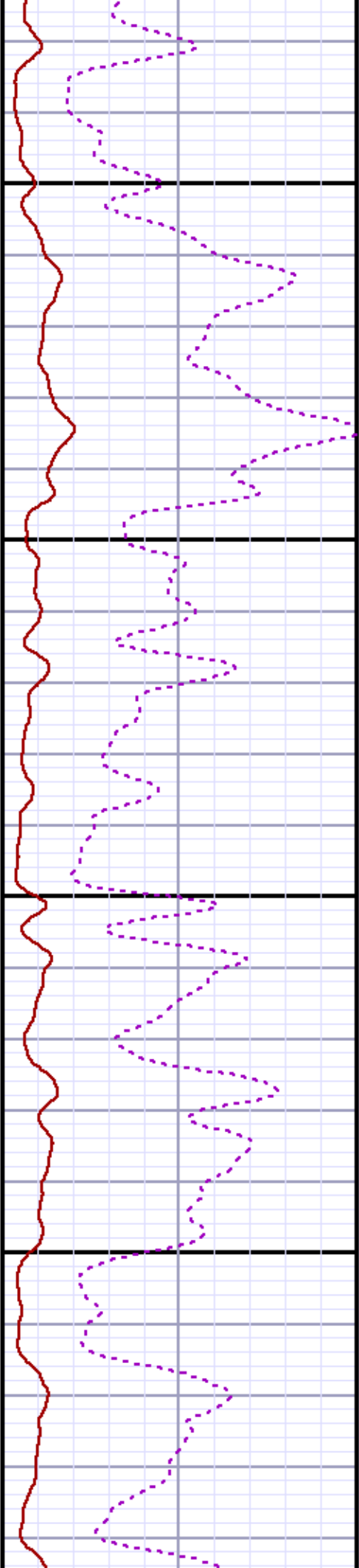
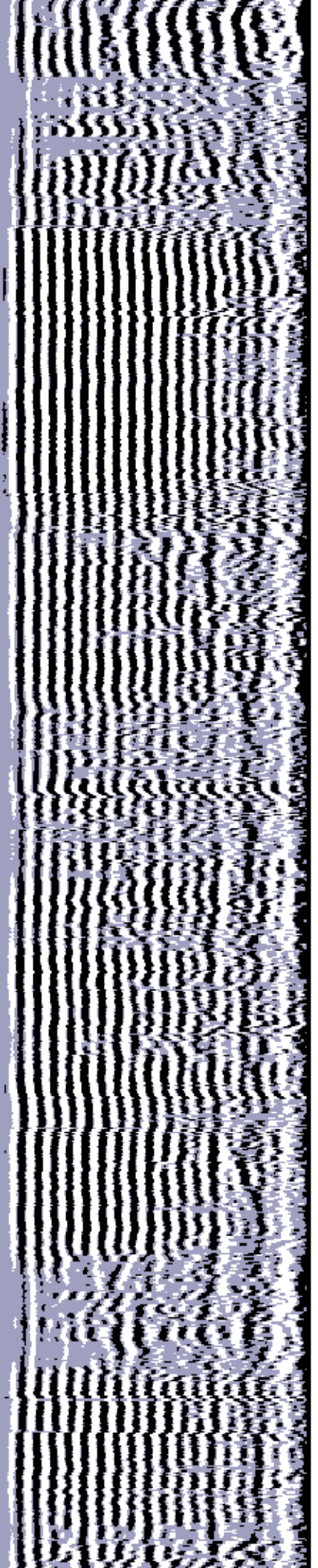


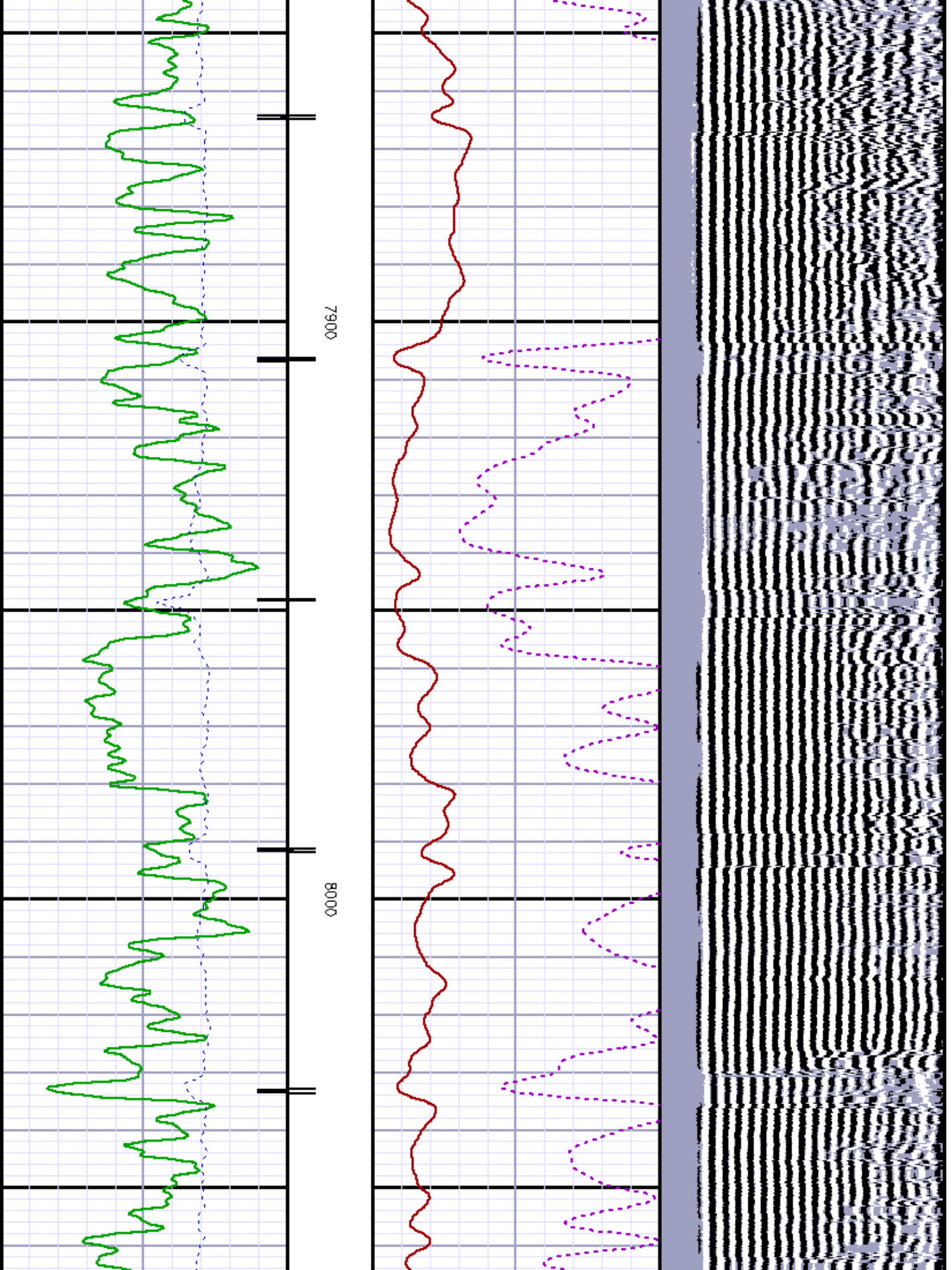




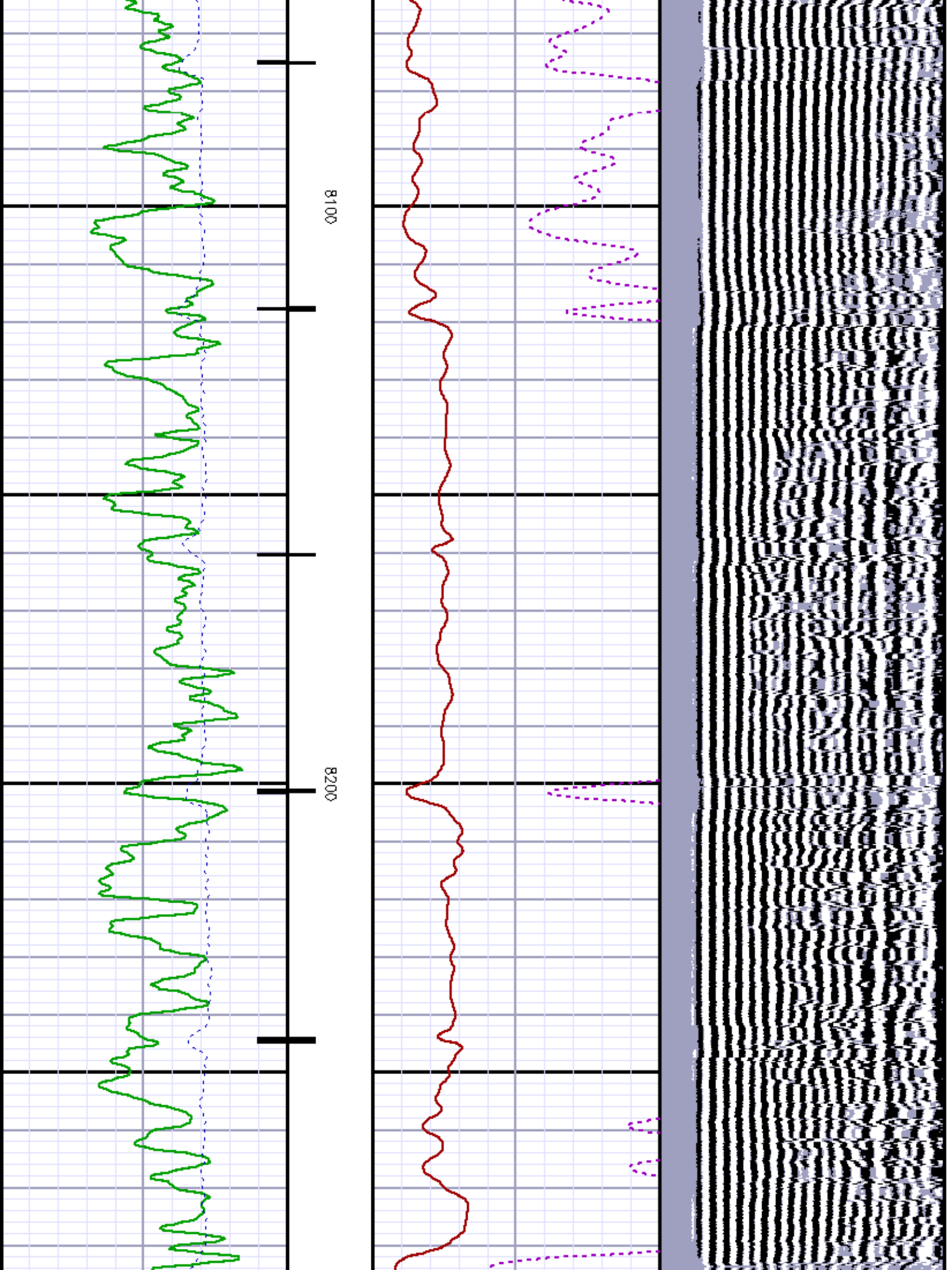


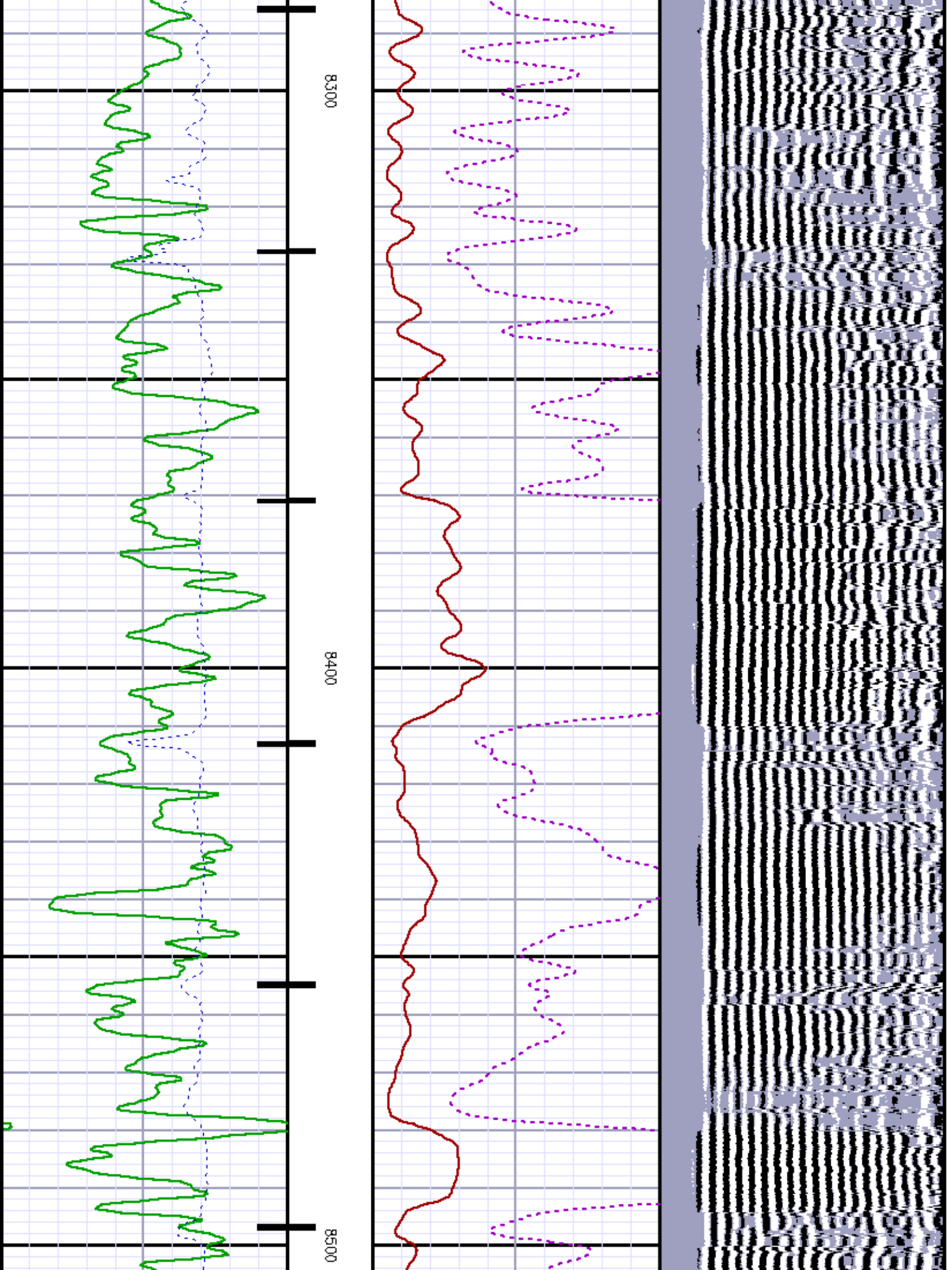


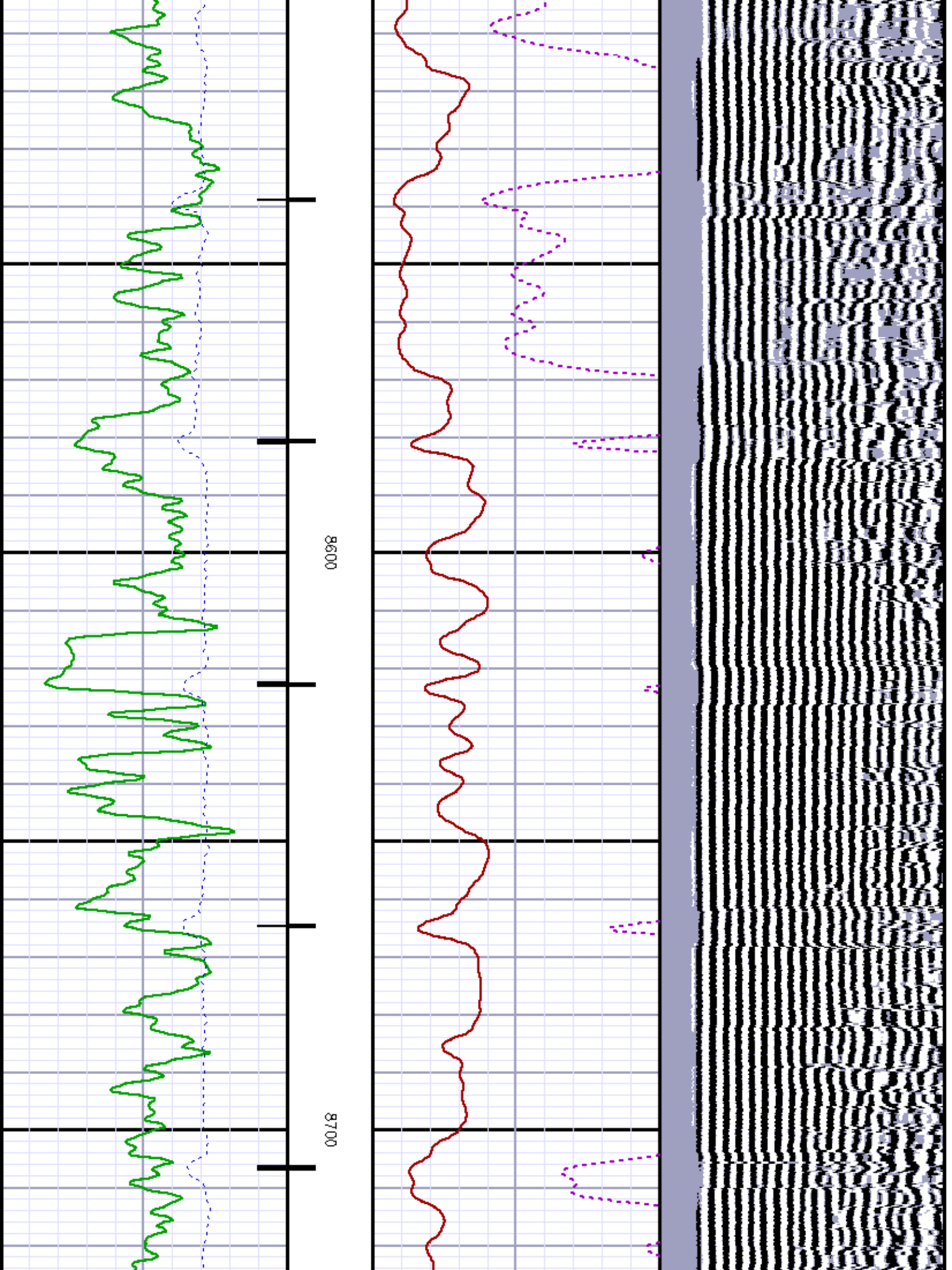




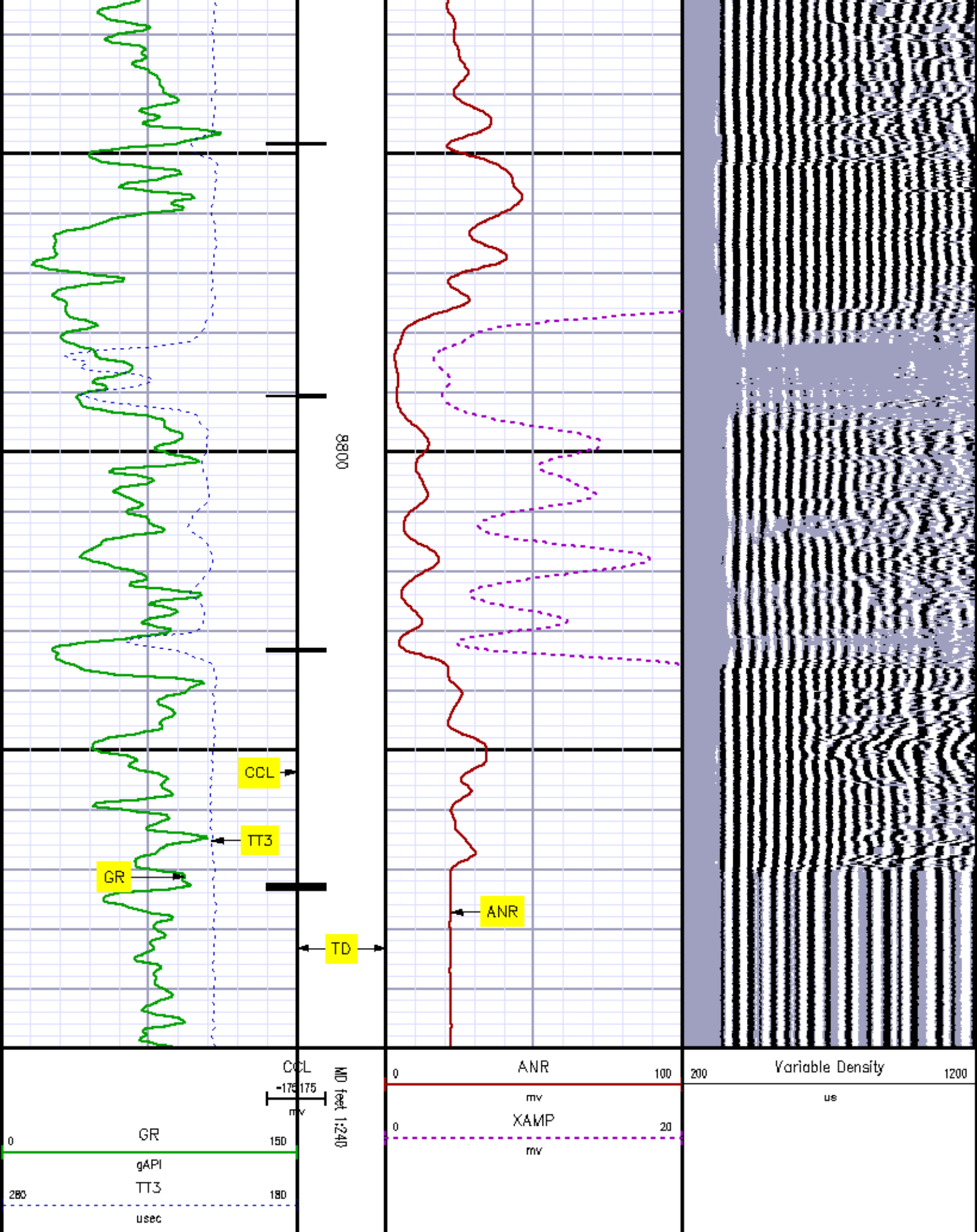












# MAIN SECTION

## SECONDARY PRESENTATION

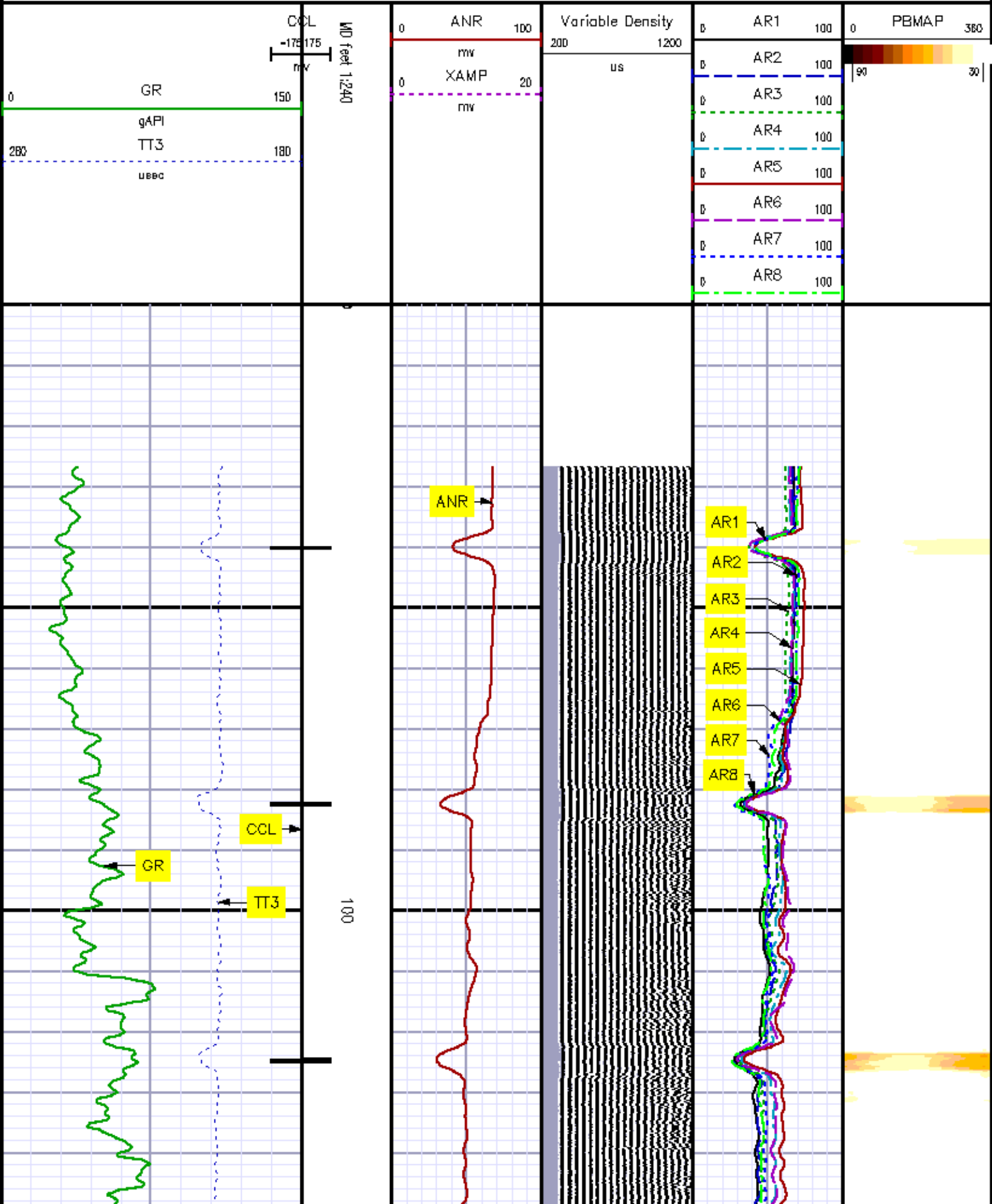
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	316.900	usec	13.687	8908.000
RAL	Amp Gate Start Near	200.391	usec	13.687	8908.000
RAL	Amp Gate Start Radial	200.391	usec	13.687	8908.000
RAL	Amp Gate Width Far	25.000	usec	13.687	8908.000
RAL	Amp Gate Width Near	25.000	usec	13.687	8908.000
RAL	Amp Gate Width Radial	25.000	usec	13.687	8908.000
RAL	casing od	4.500	inches	13.687	8908.000
RAL	casing wt	11.600	lbm/ft	13.687	8908.000
RAL	FB Start Far	291.900	usec	13.687	8908.000
RAL	FB Start Near	175.391	usec	13.687	8908.000
RAL	FB Start Radial	175.391	usec	13.687	8908.000
RAL	FB Thresh Far	10.000	mv	13.687	8908.000
RAL	FB Thresh Near	4.000	mv	13.687	8908.000
RAL	FB Thresh Radial	4.000	mv	13.687	8908.000
RAL	Fluid Travel Time	200.000	usec/ft	13.687	8908.780

### DEPTH OFFSETS

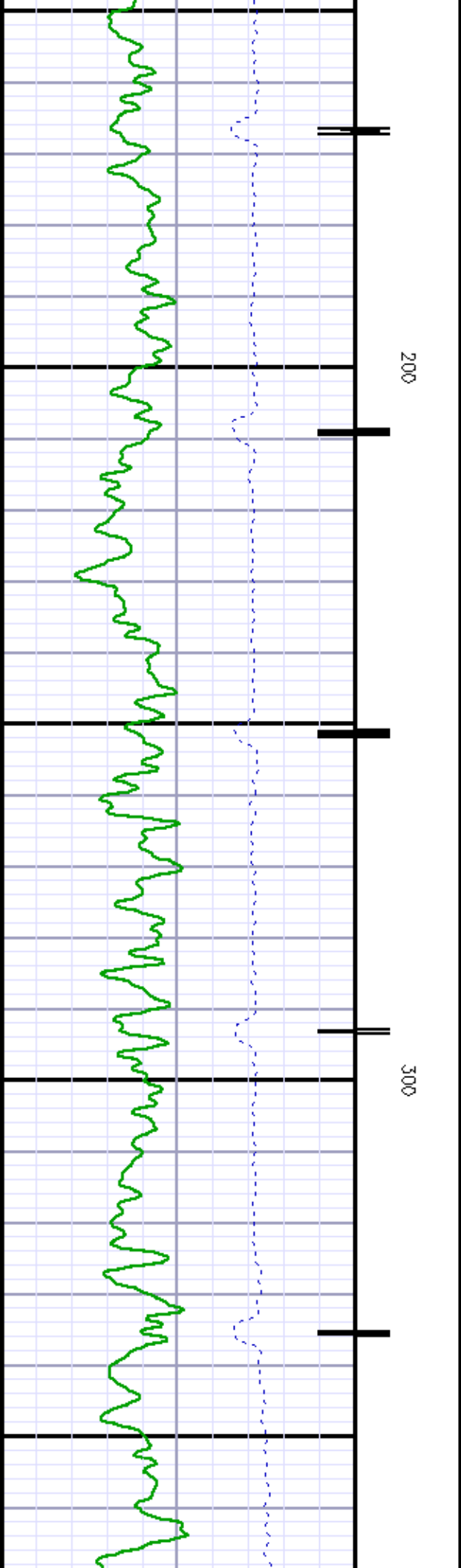
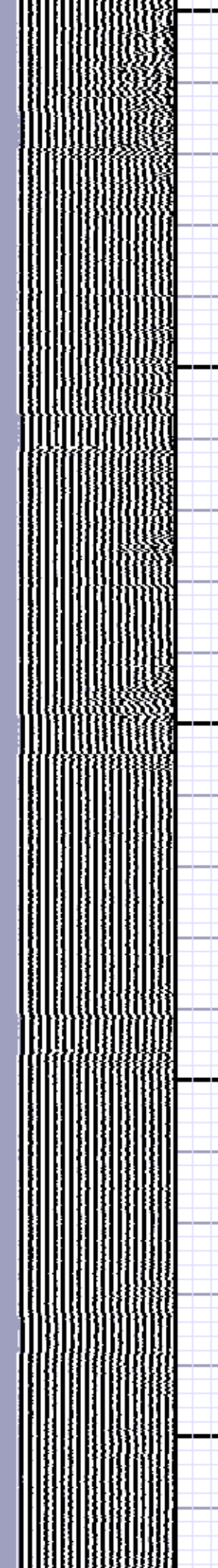
(for Acquired Curves)

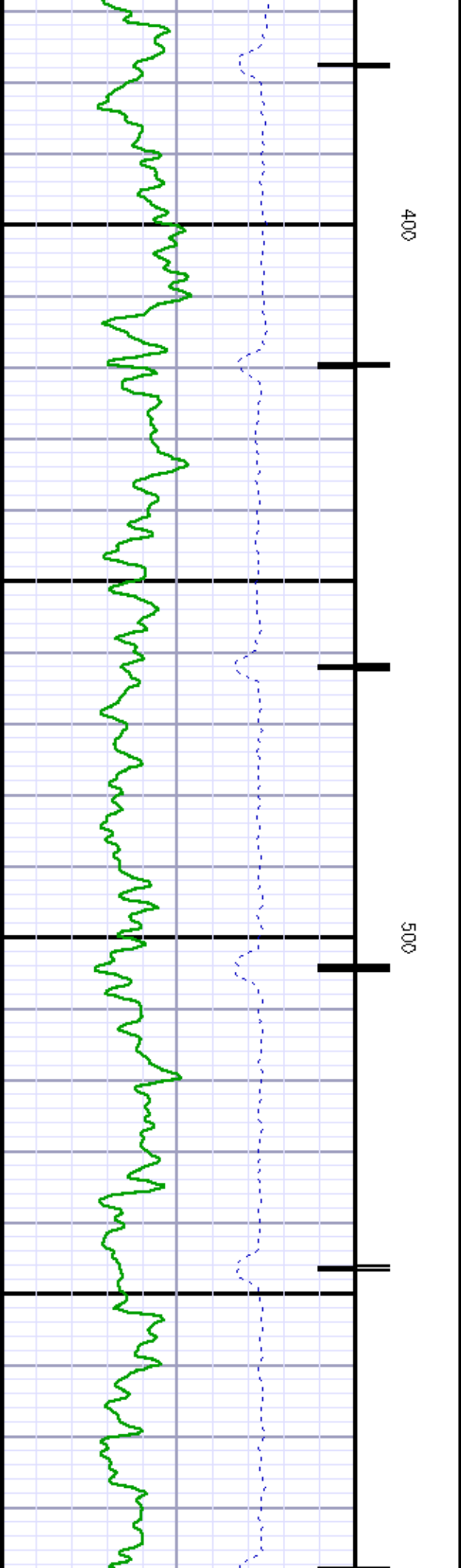
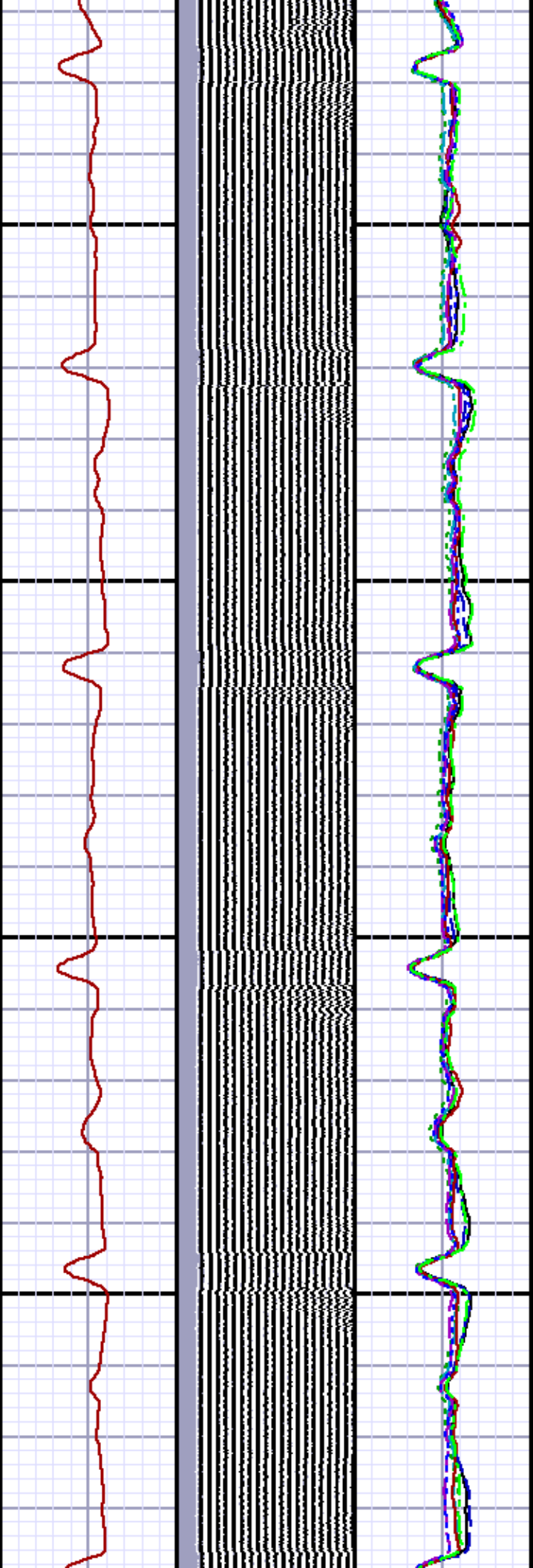
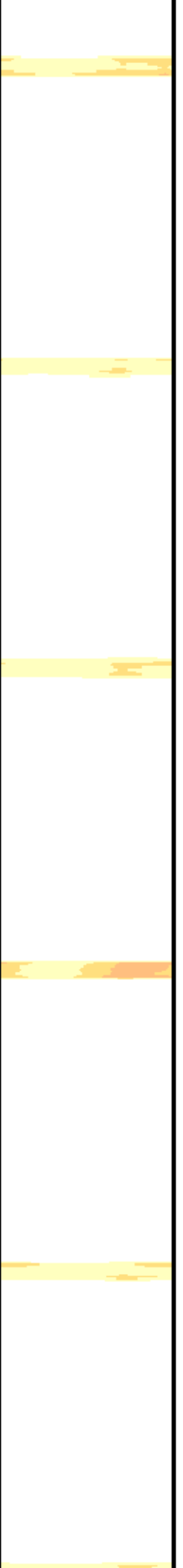
SERIES	DEPTH OFFSET	ACQUIRED CURVES					
1426XA	-15.360	ACAL	ANR	AR1	AR2	AR3	AR4
		AR5	AR6	AR7	ARB	CHV	FPR2
		FPR3	FPR5	TT3	TTR1	TTR2	TTR3
		TTR4	TTR5	TTR6	TTR7	TTR8	XAMP
1426XA	-14.360	AFAR	SIG	TT5			
1426XA	-7.250	OCL					
1426XA	-5.390	GR					
1426XA	0.000	NEU					

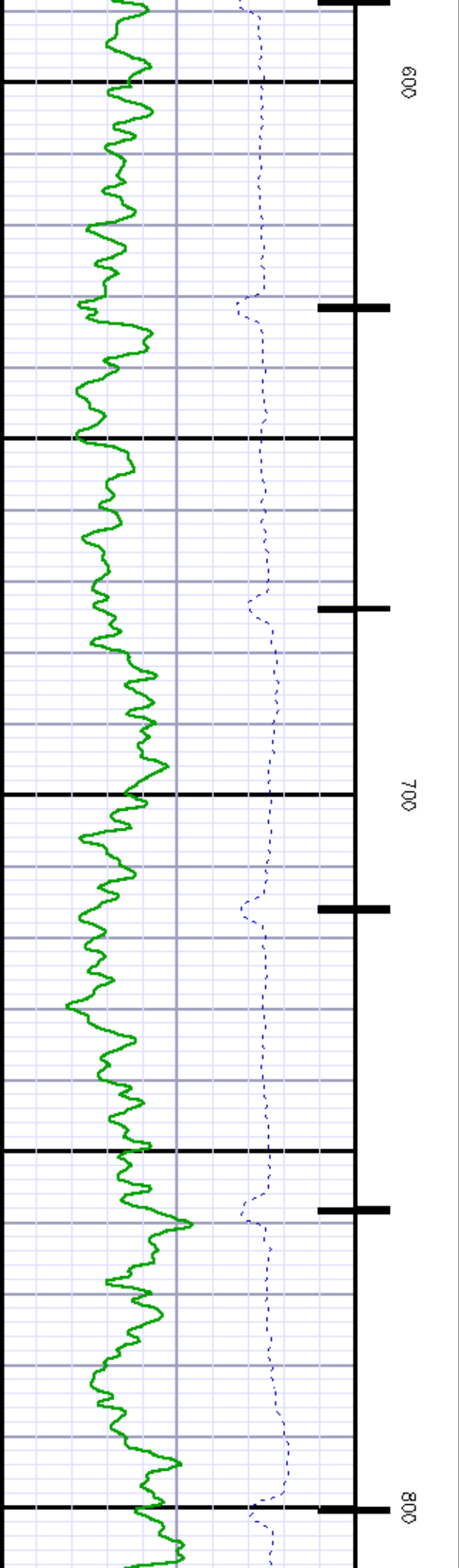
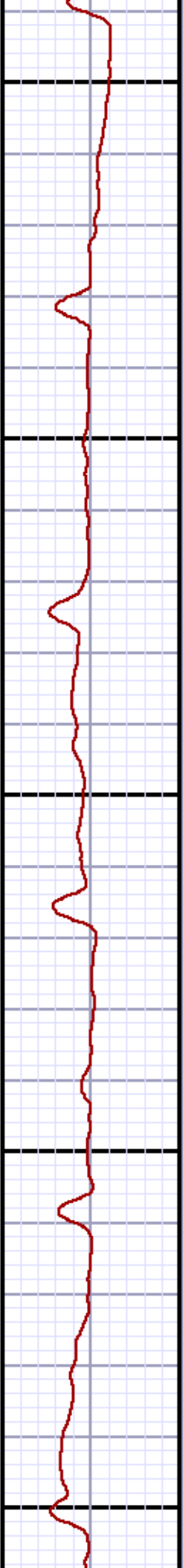
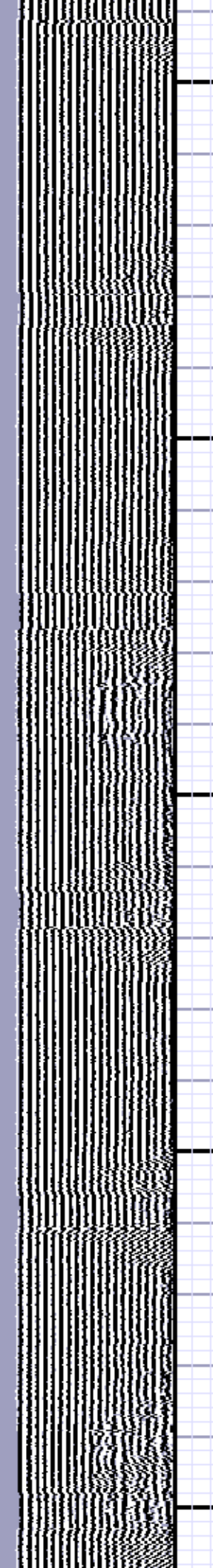
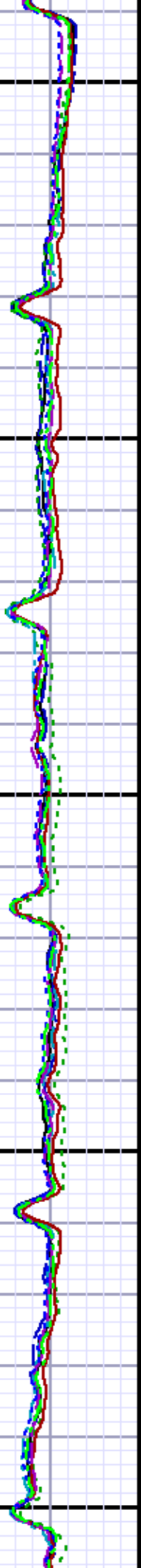
Company : WHEELAB PRODUCTION COMPANY  
 Well : RMF 441-17  
 File Name : d:\welldata\441rad\mainrdrn.xtf  
 Mode : PlotMgr 5.4.504  
 Interval : 0.00 - 5590.00 feet UP  
 Created : 9/5/2009 4:05:15 PM



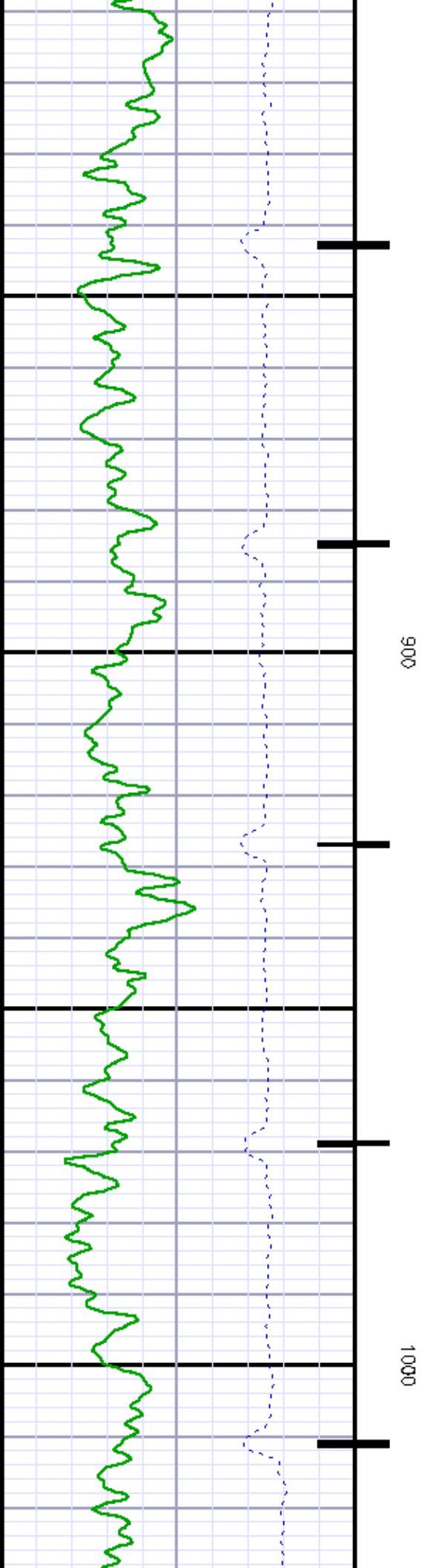
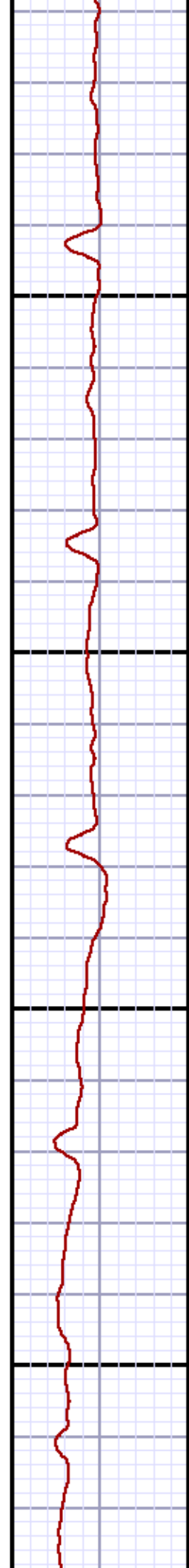
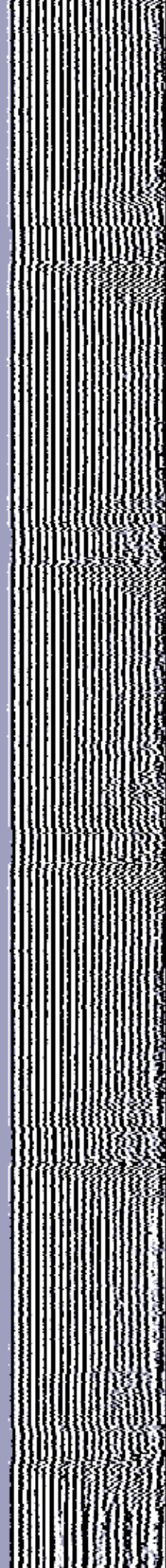
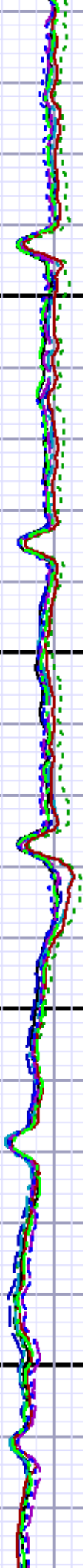


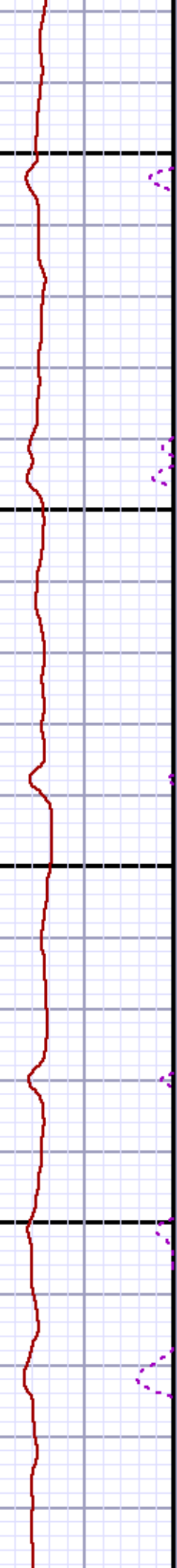
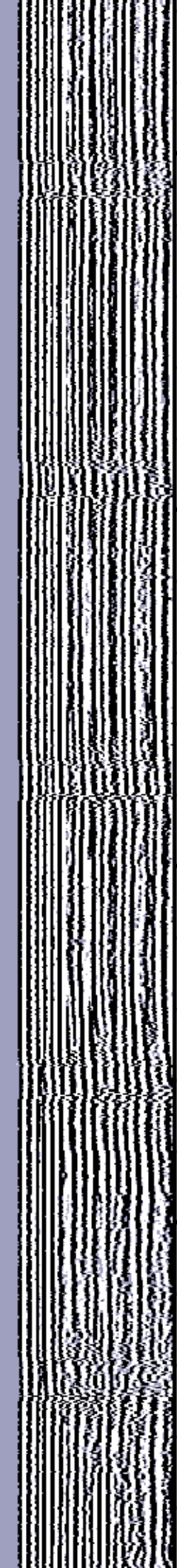
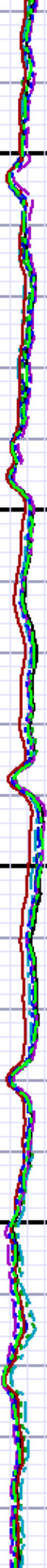






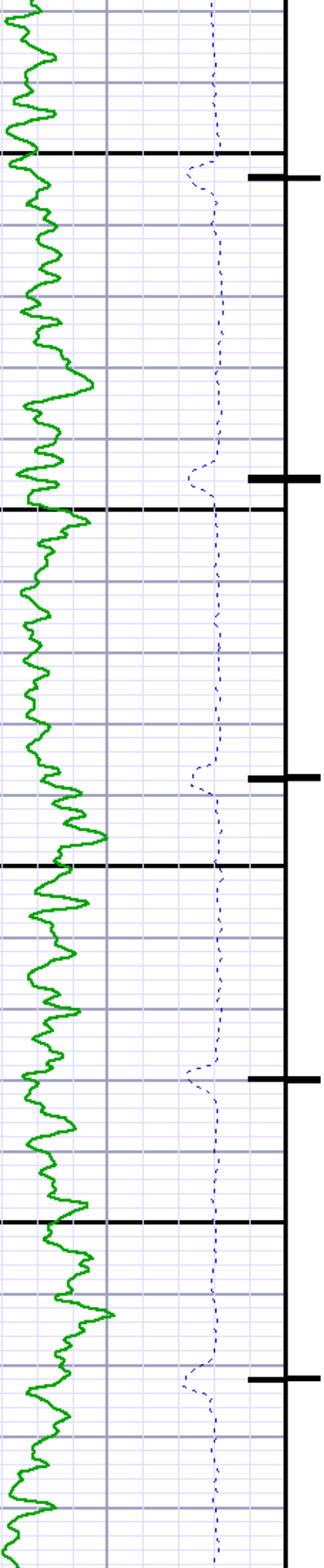


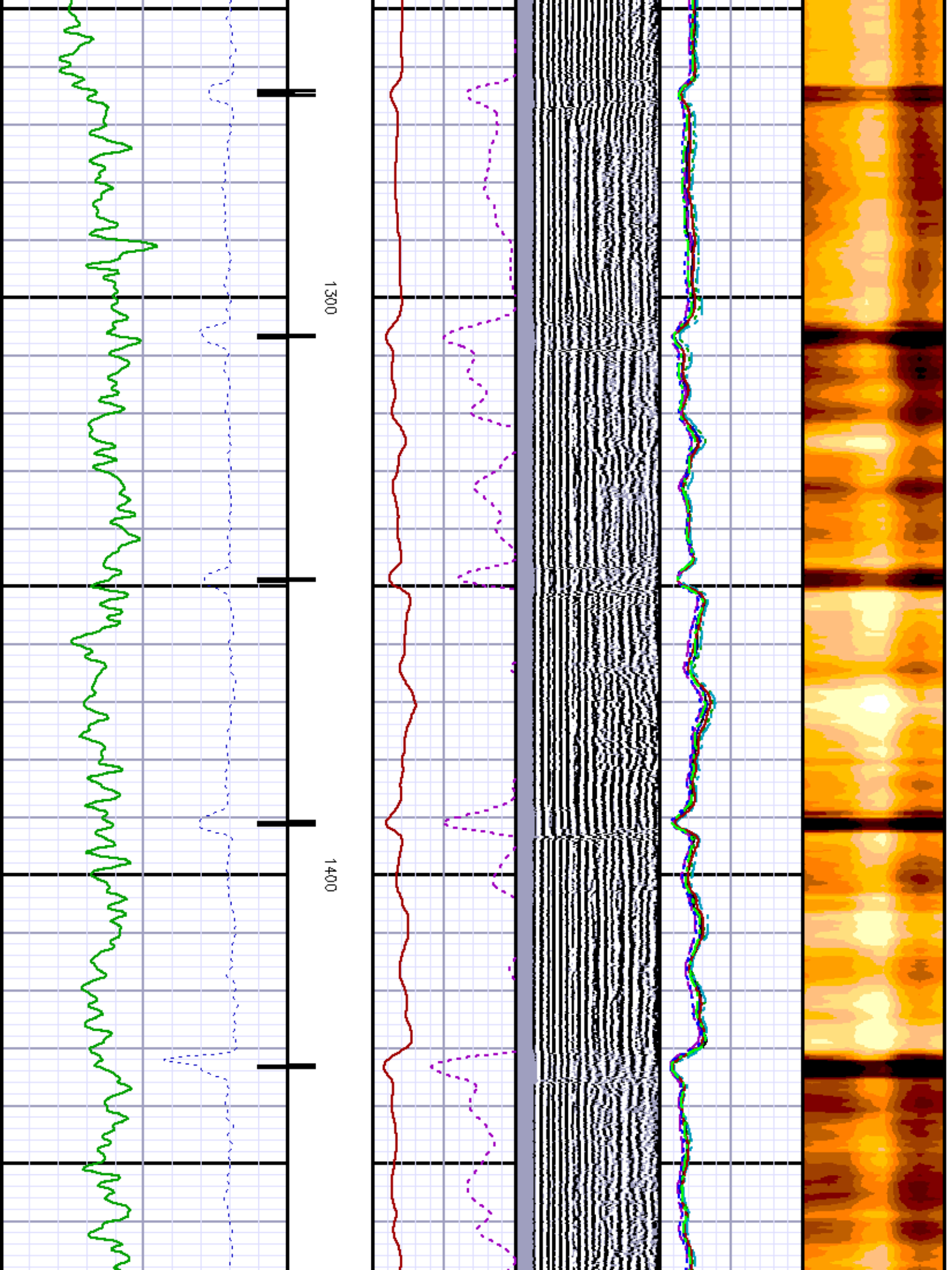




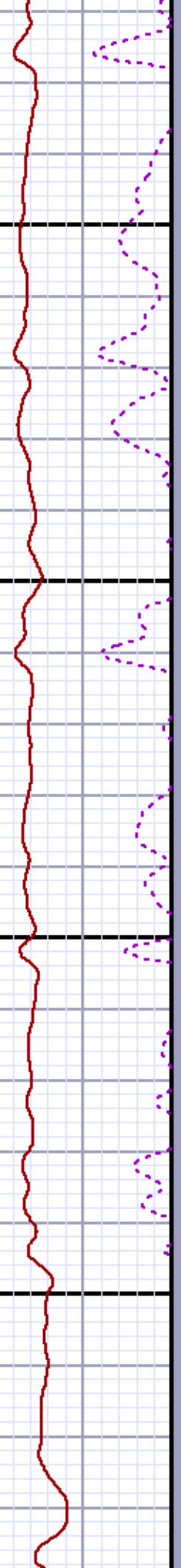
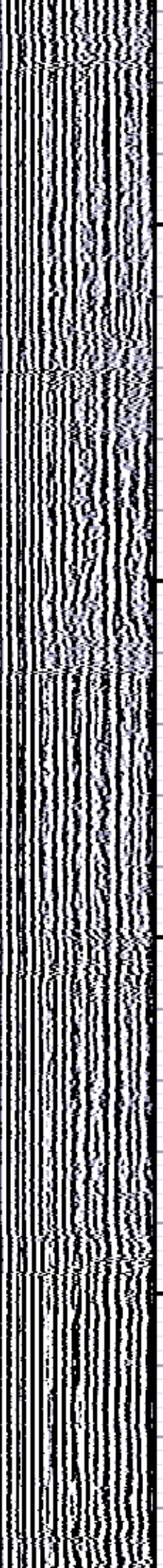
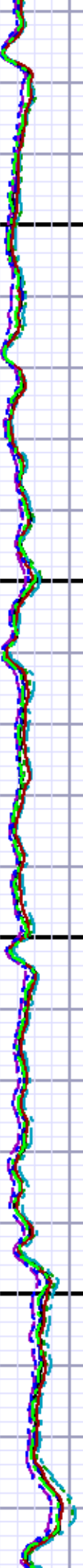
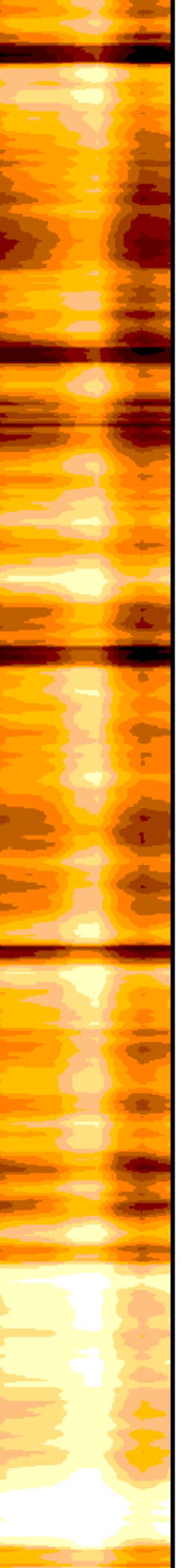
1100

1200



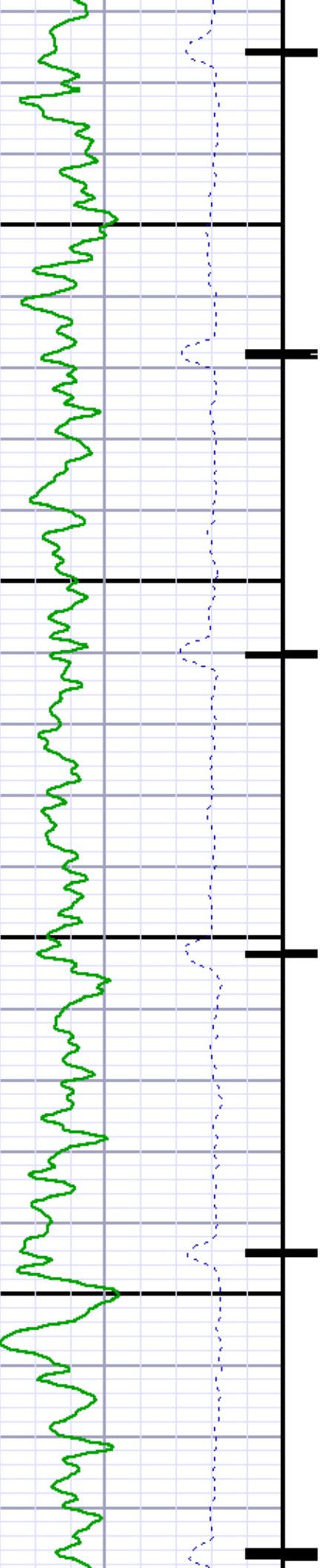


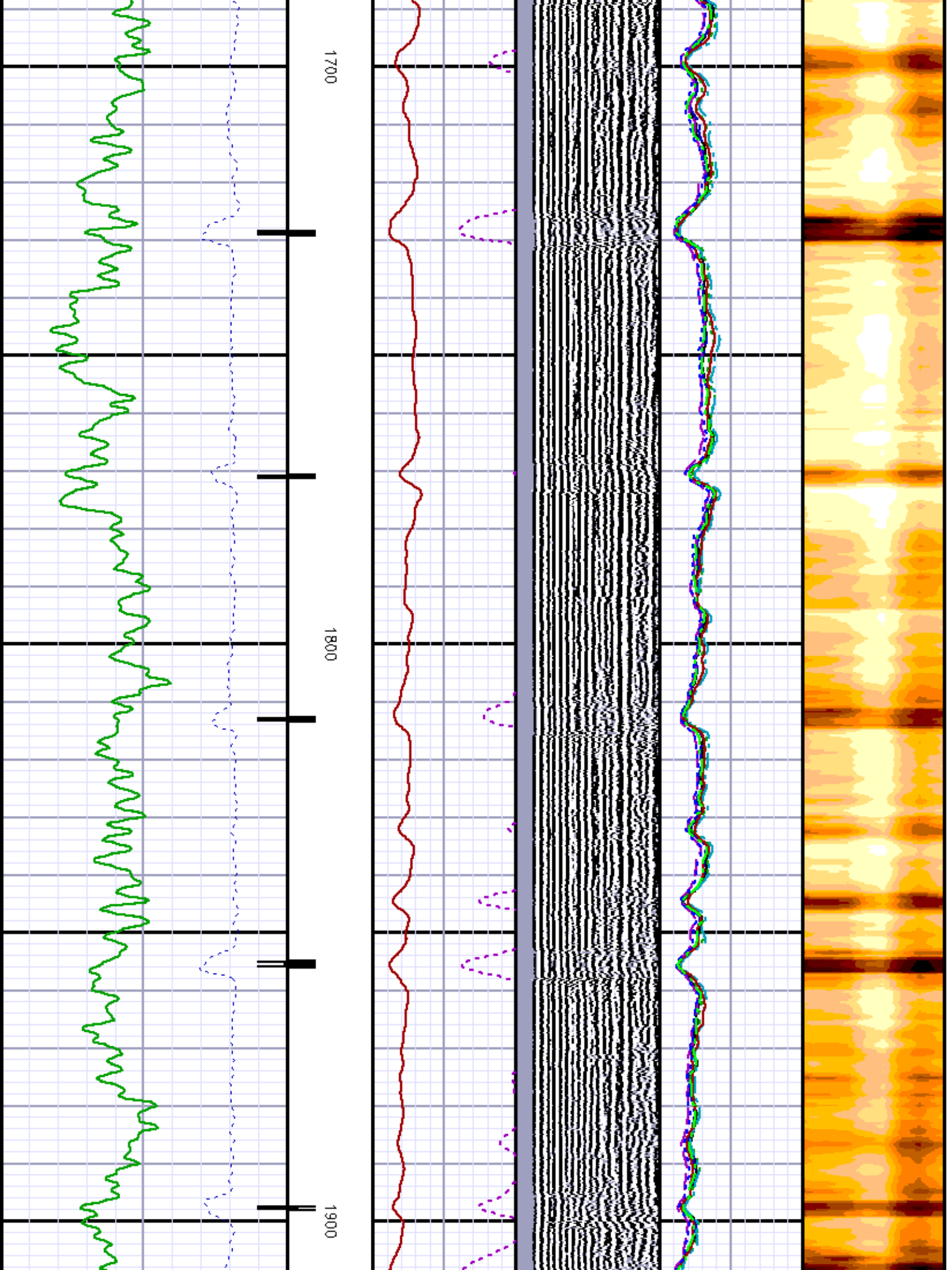


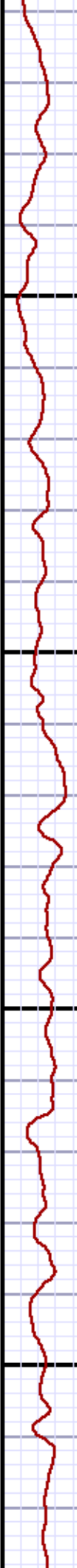
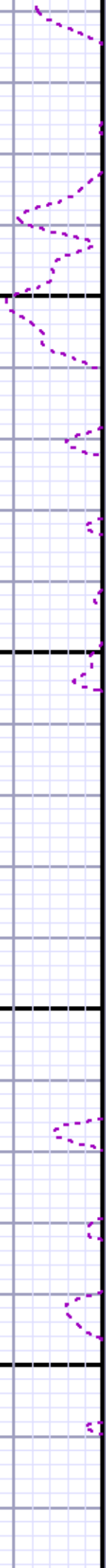
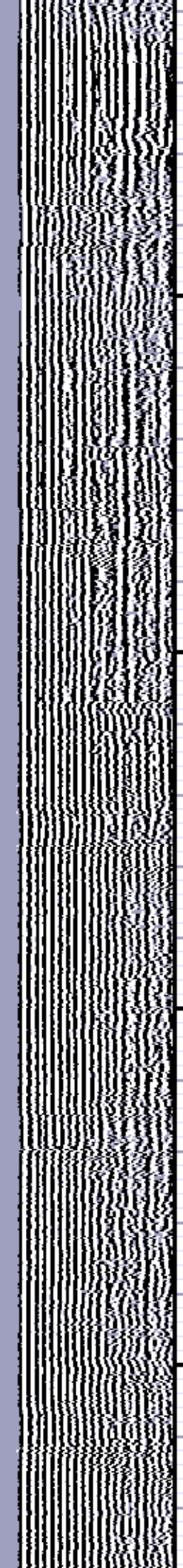
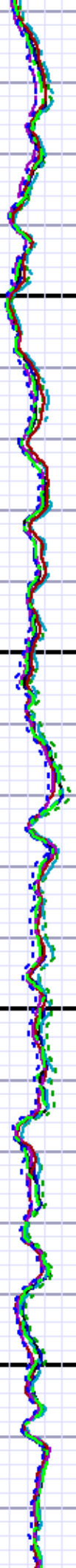


1500

1600

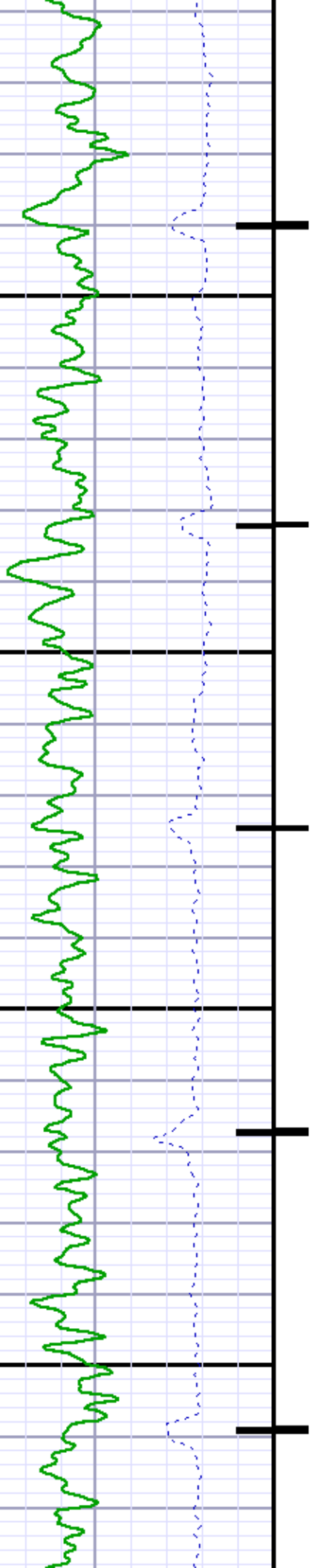




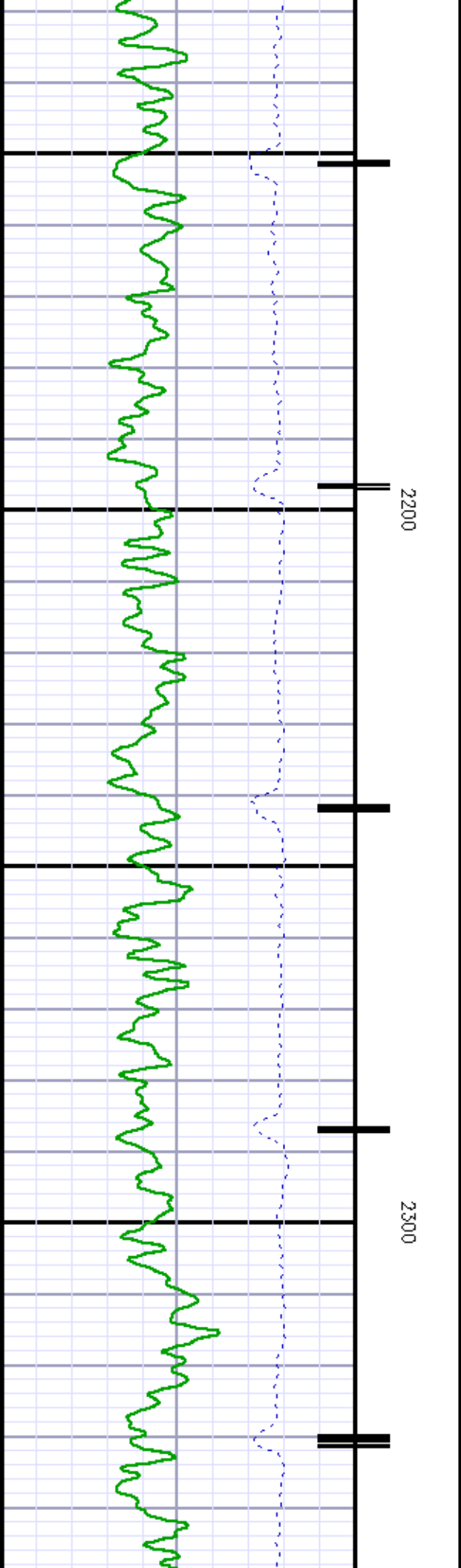
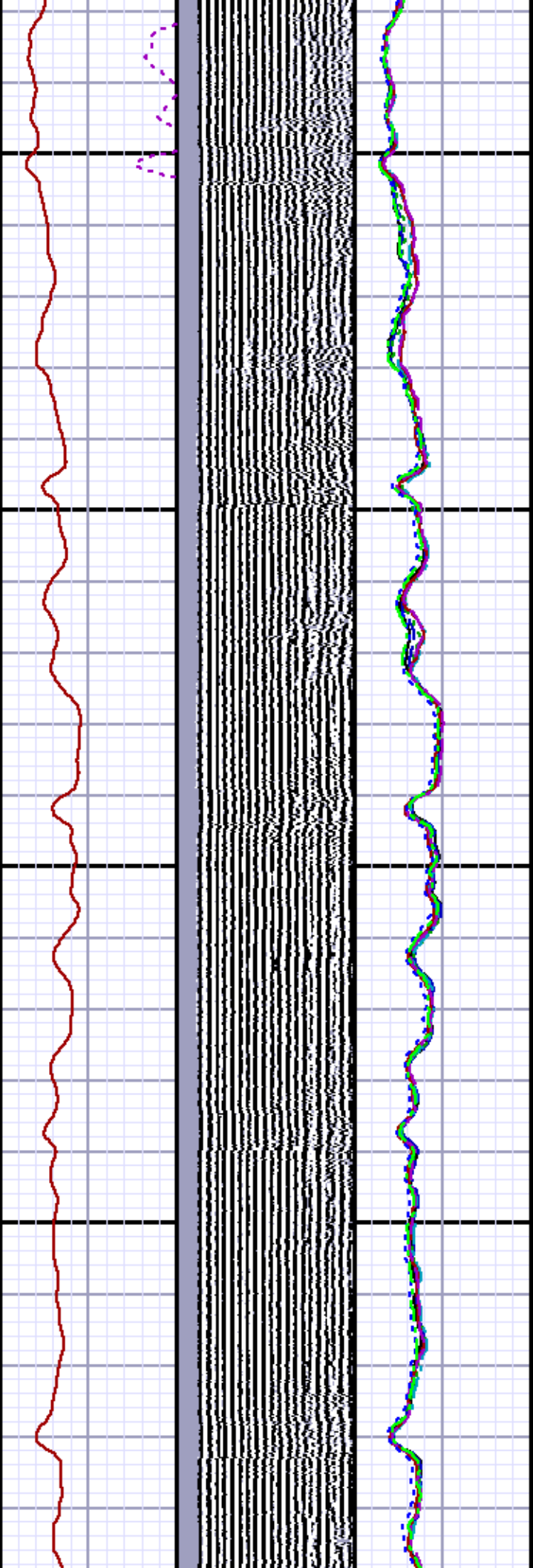


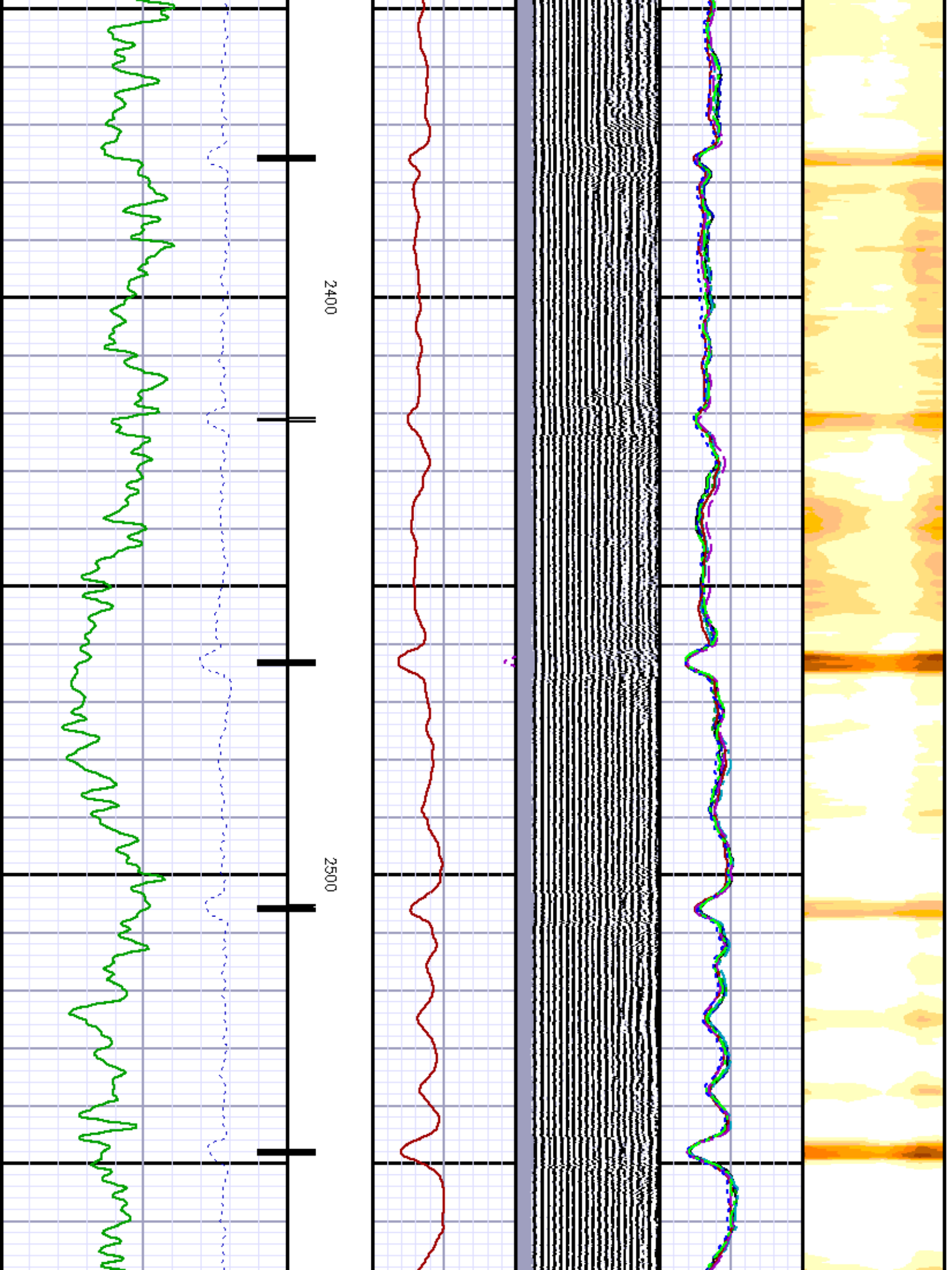
2000

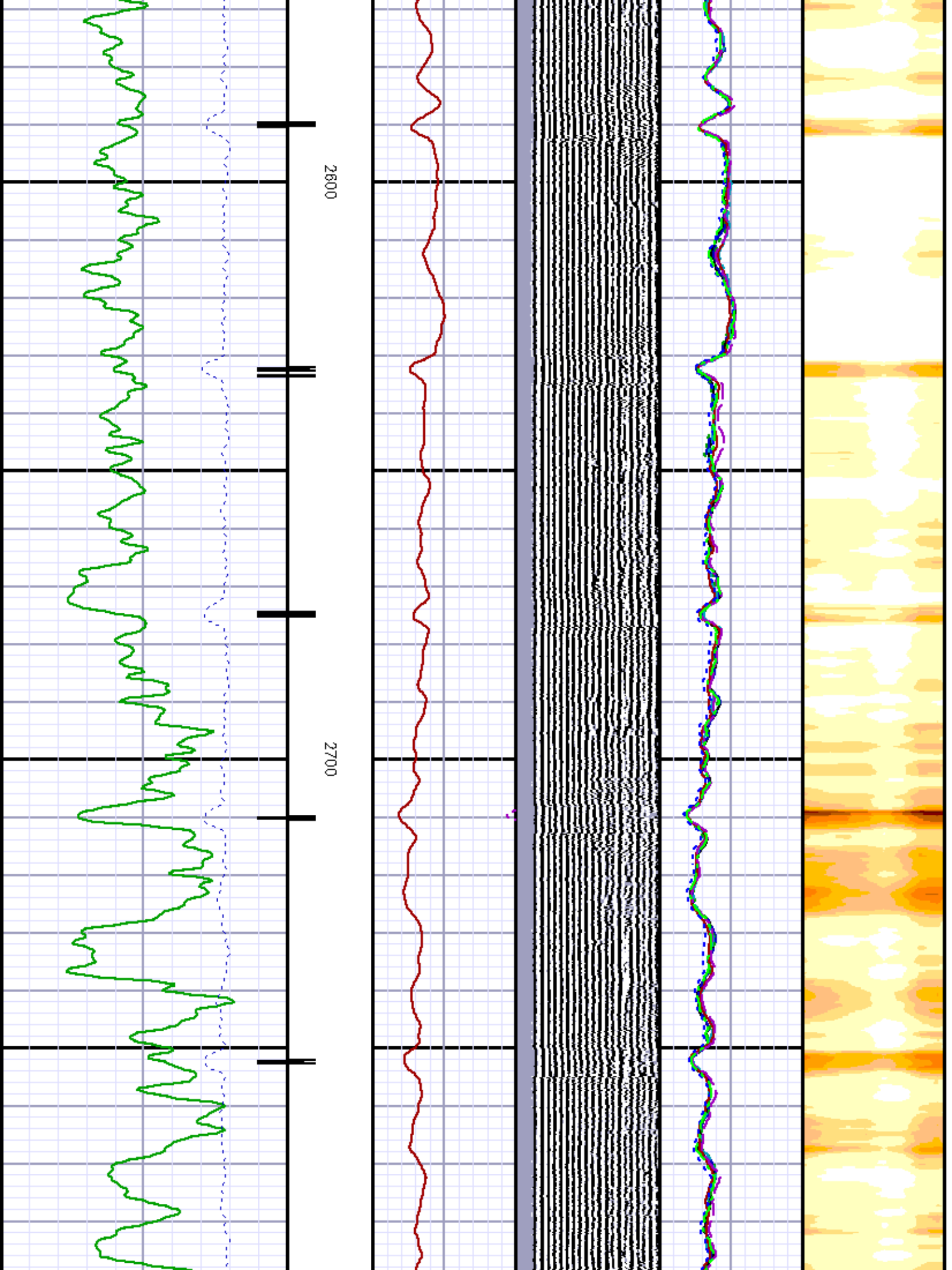
2100



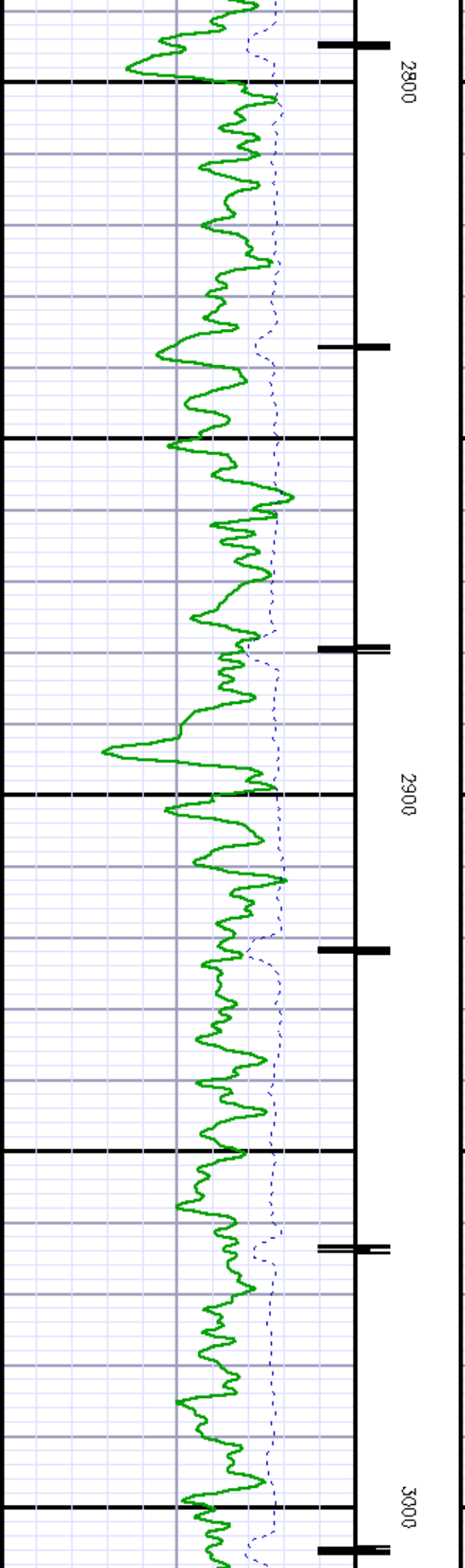
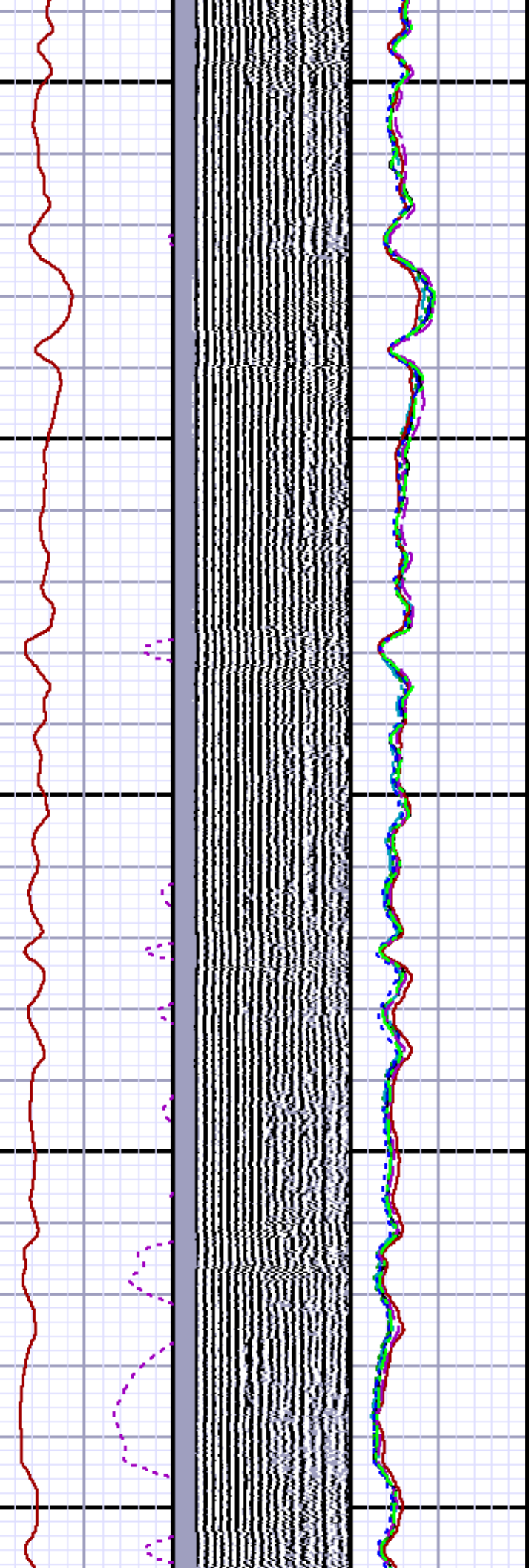
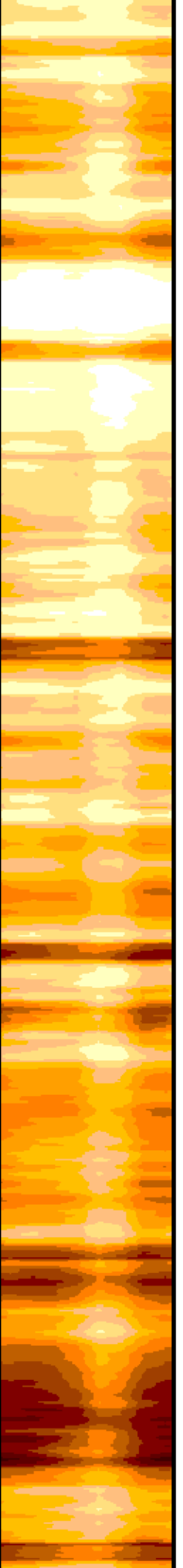


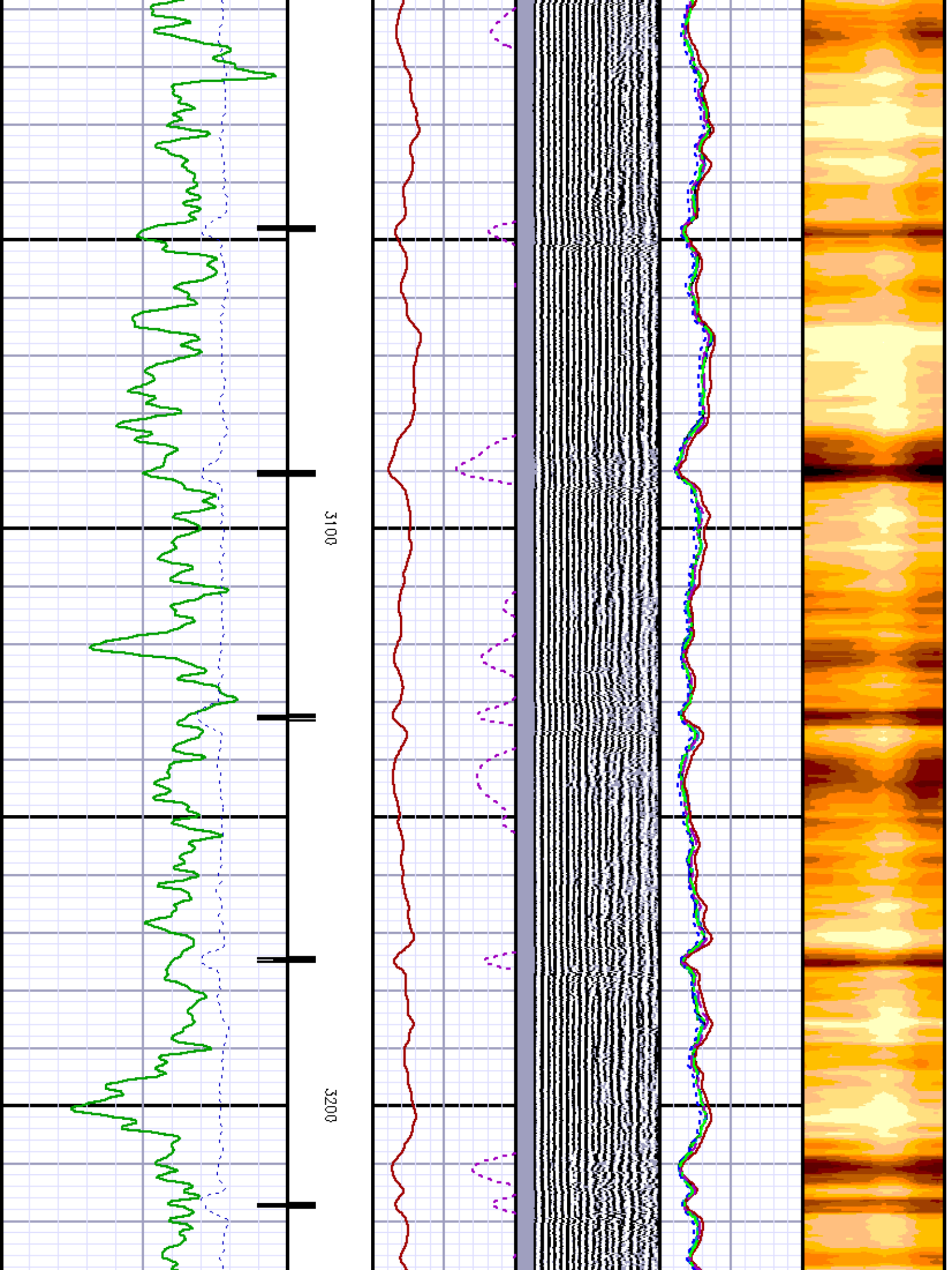


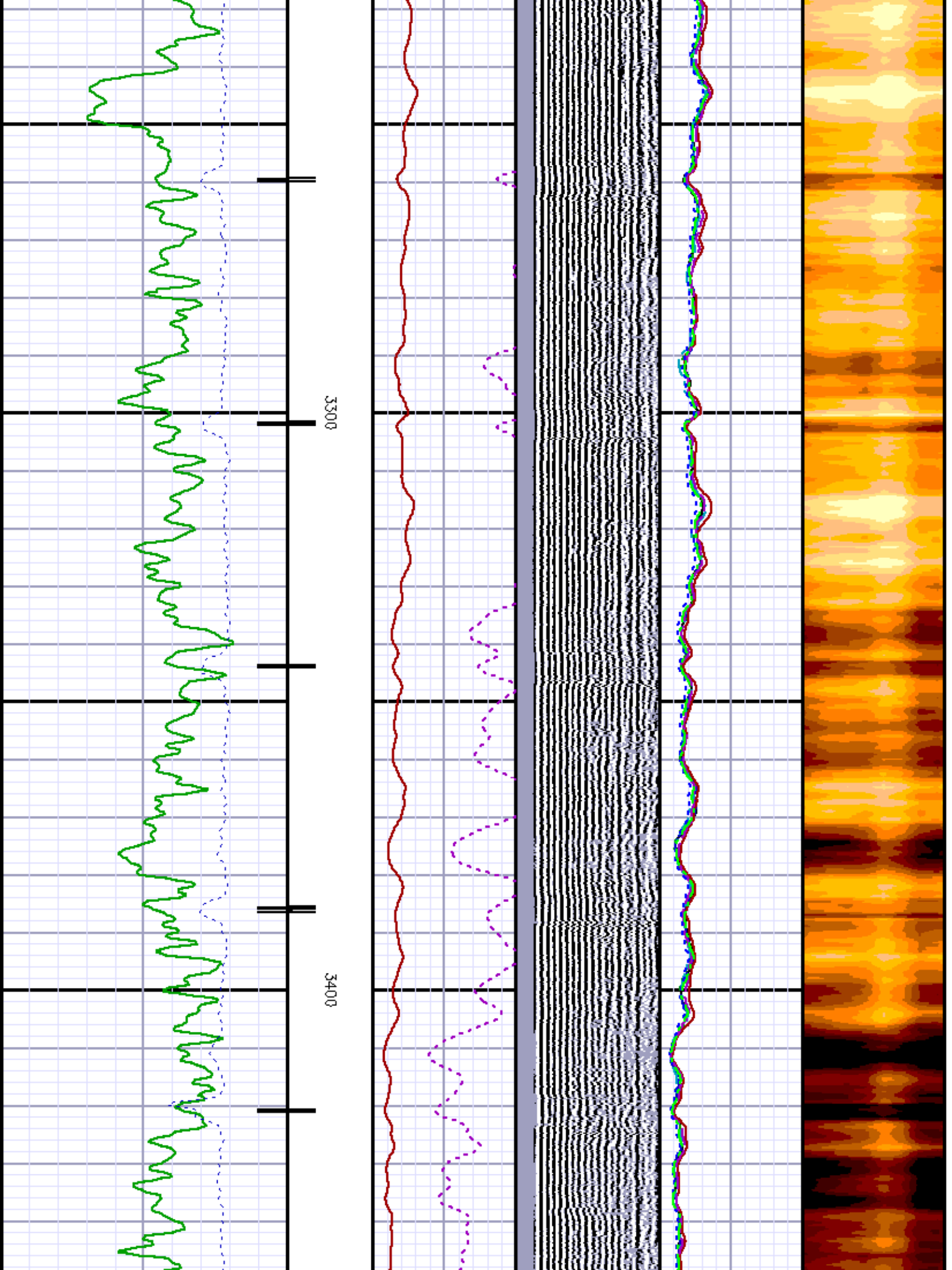




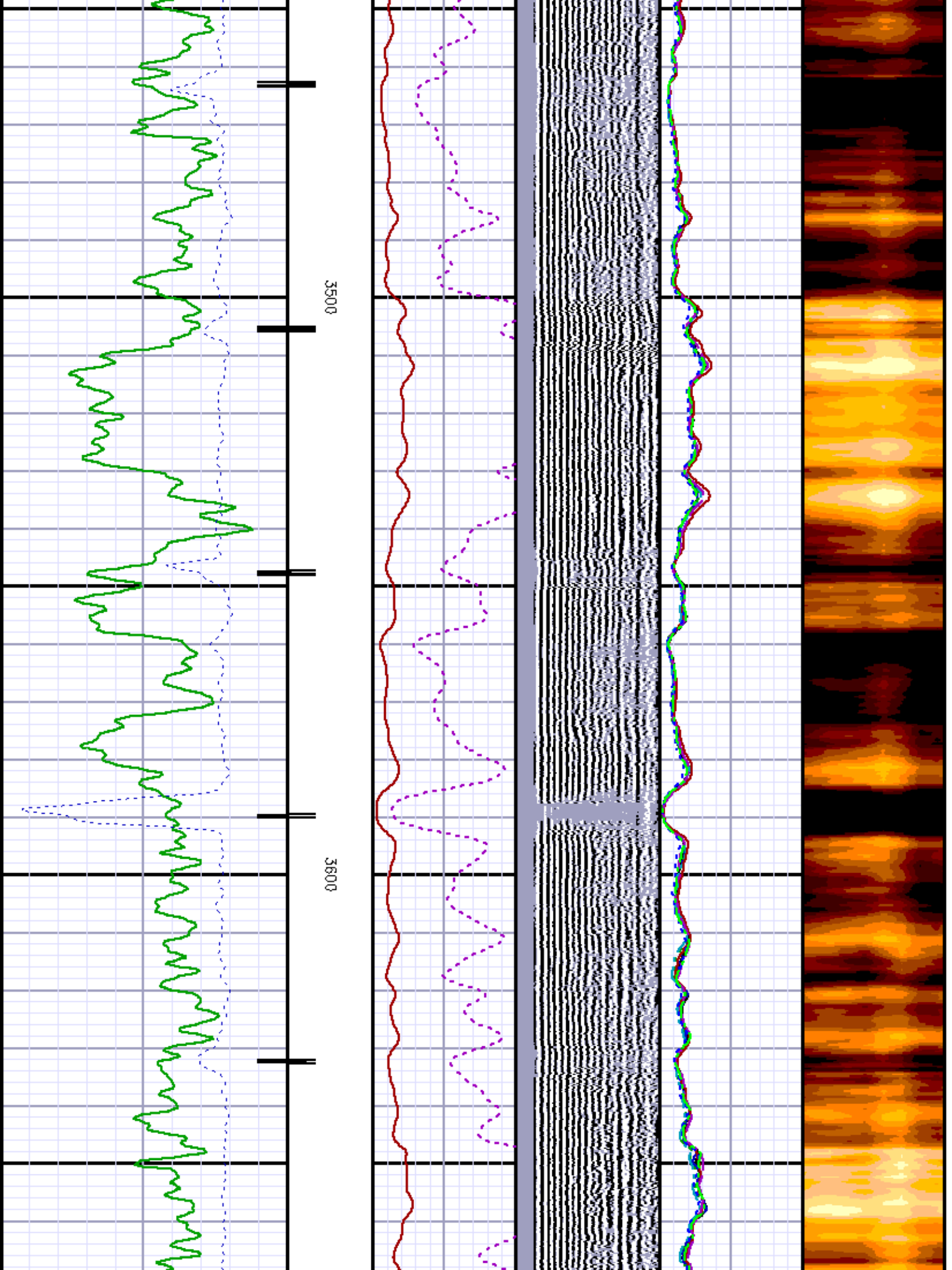


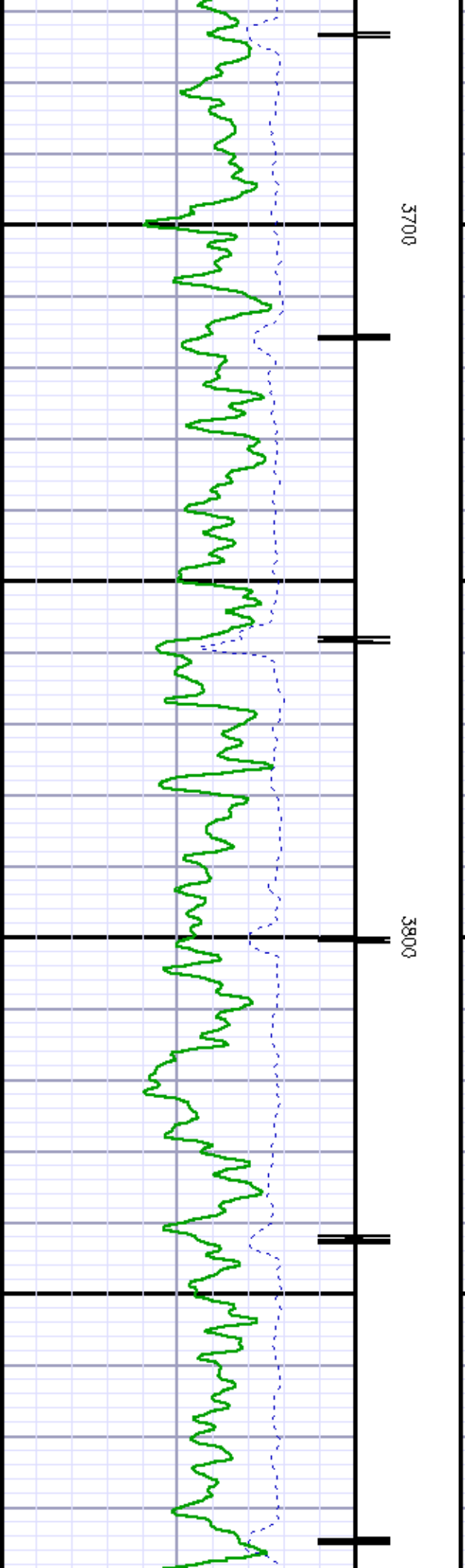
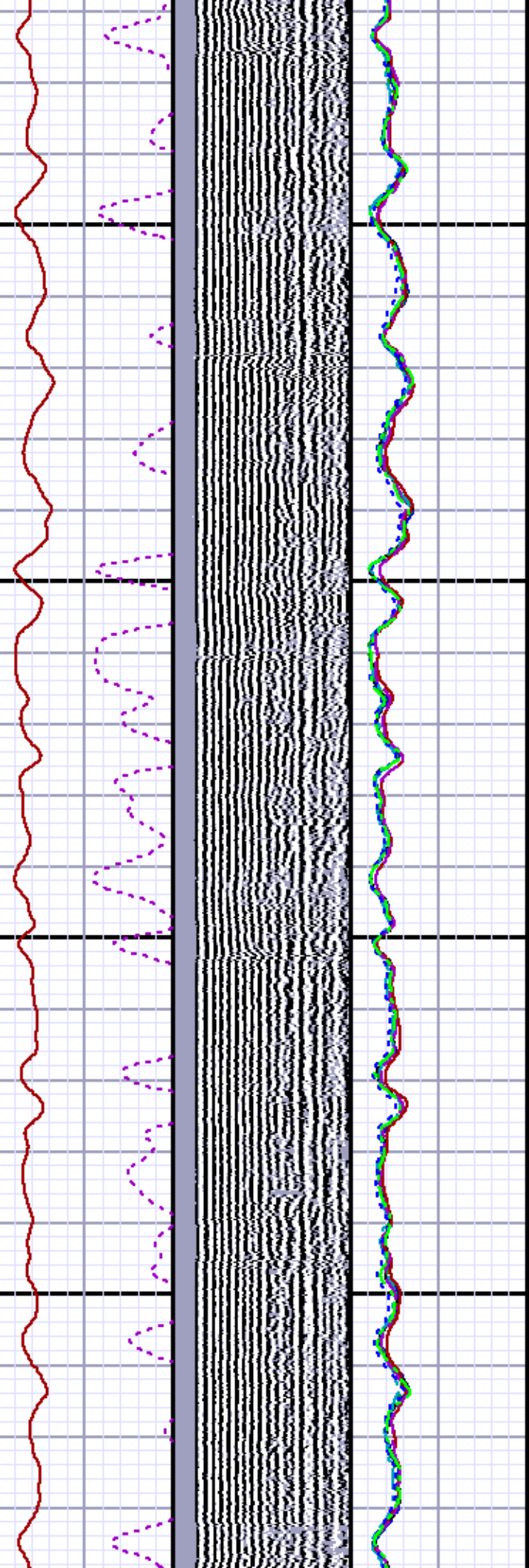
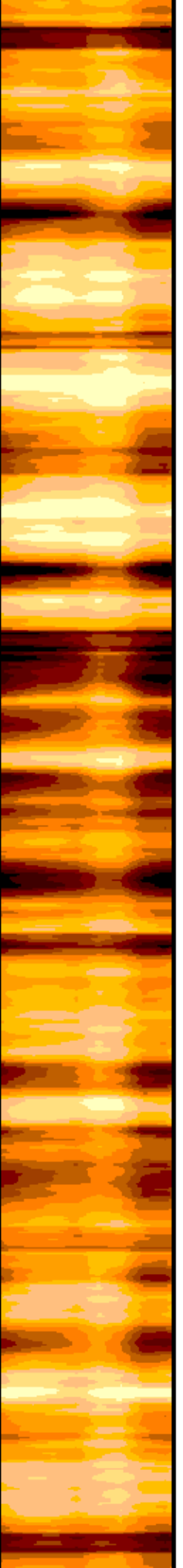


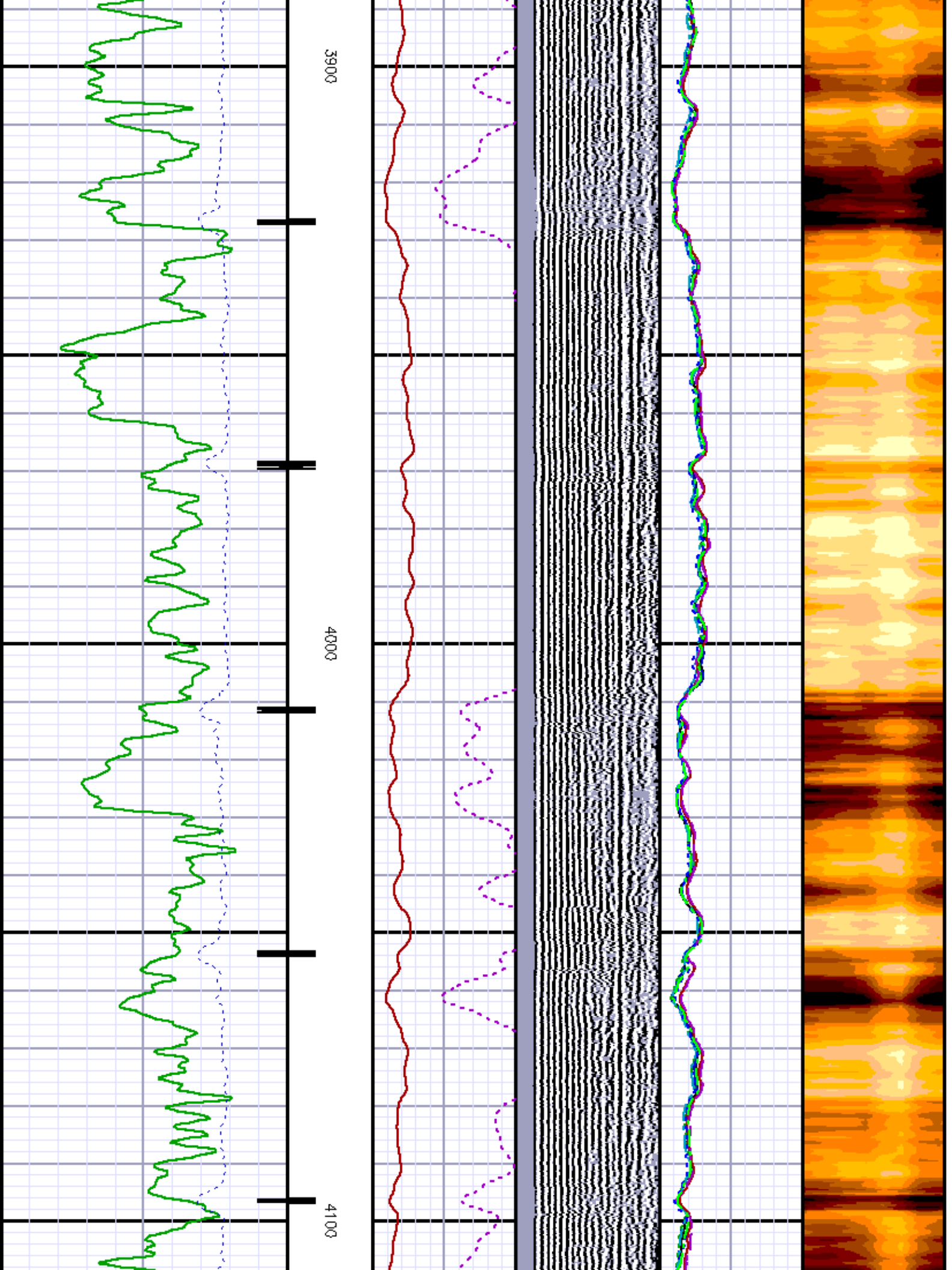




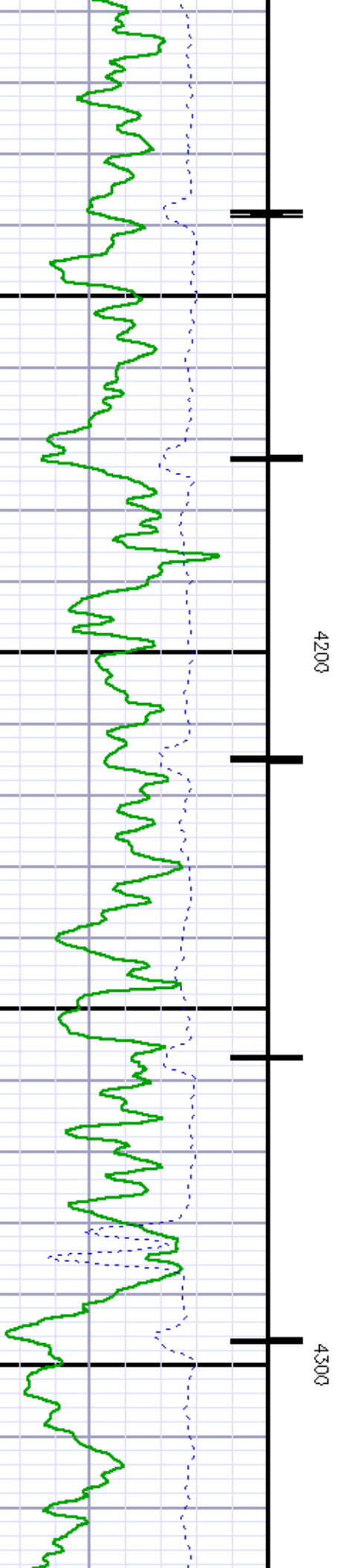
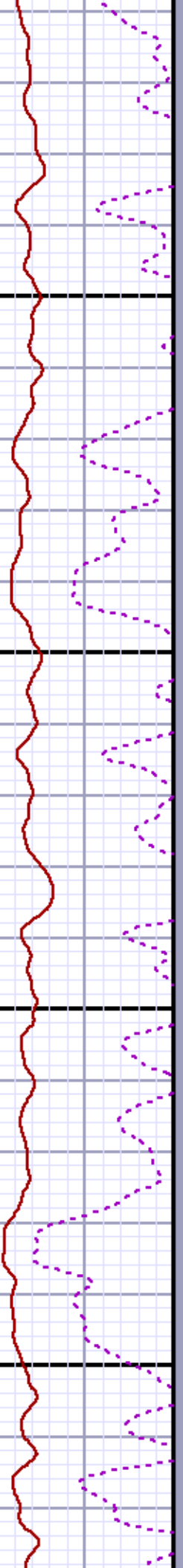
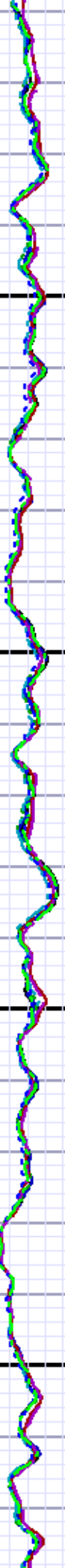
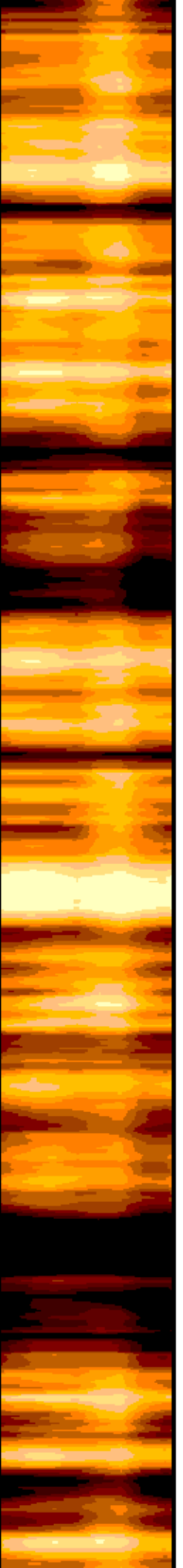


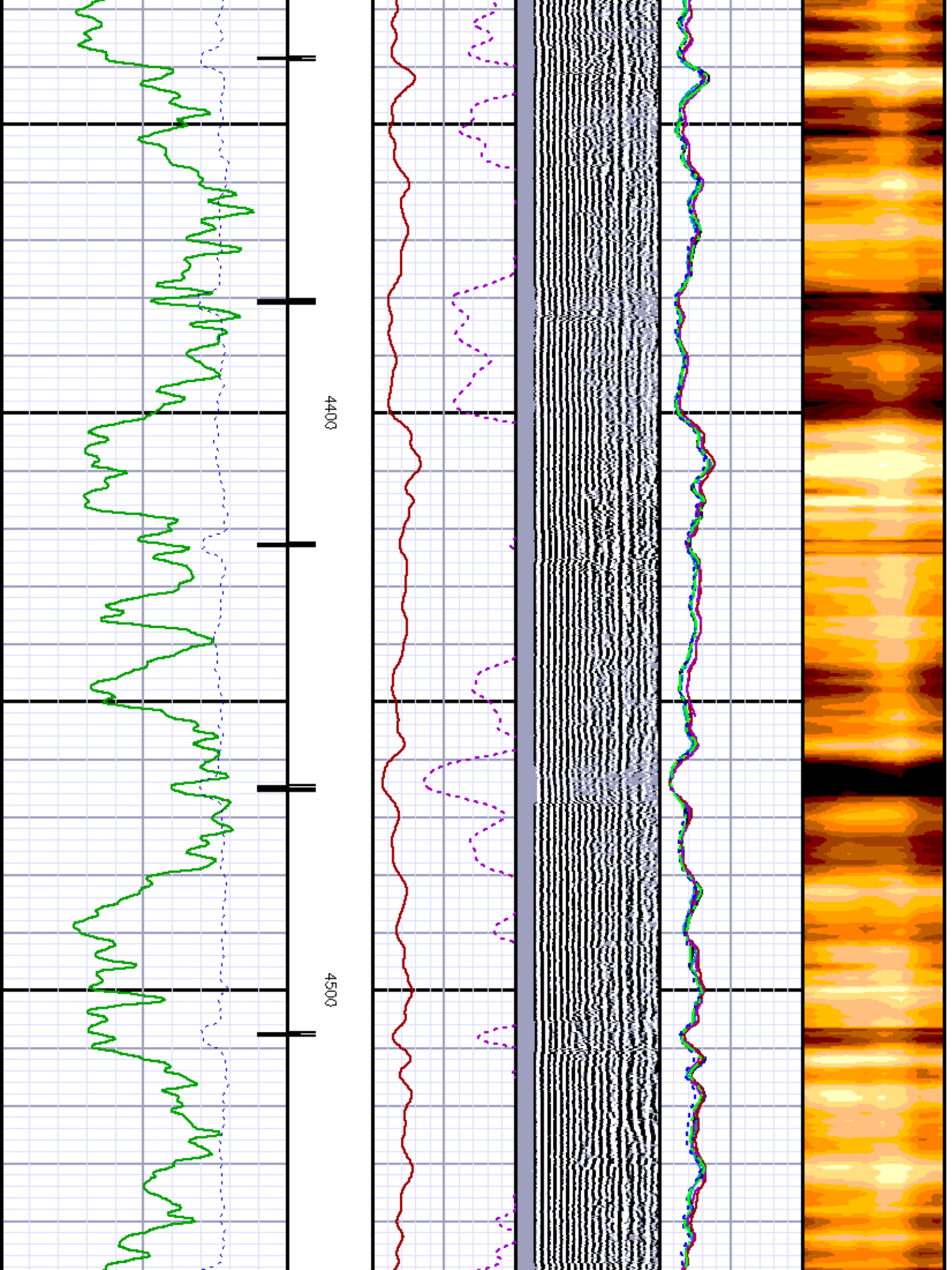


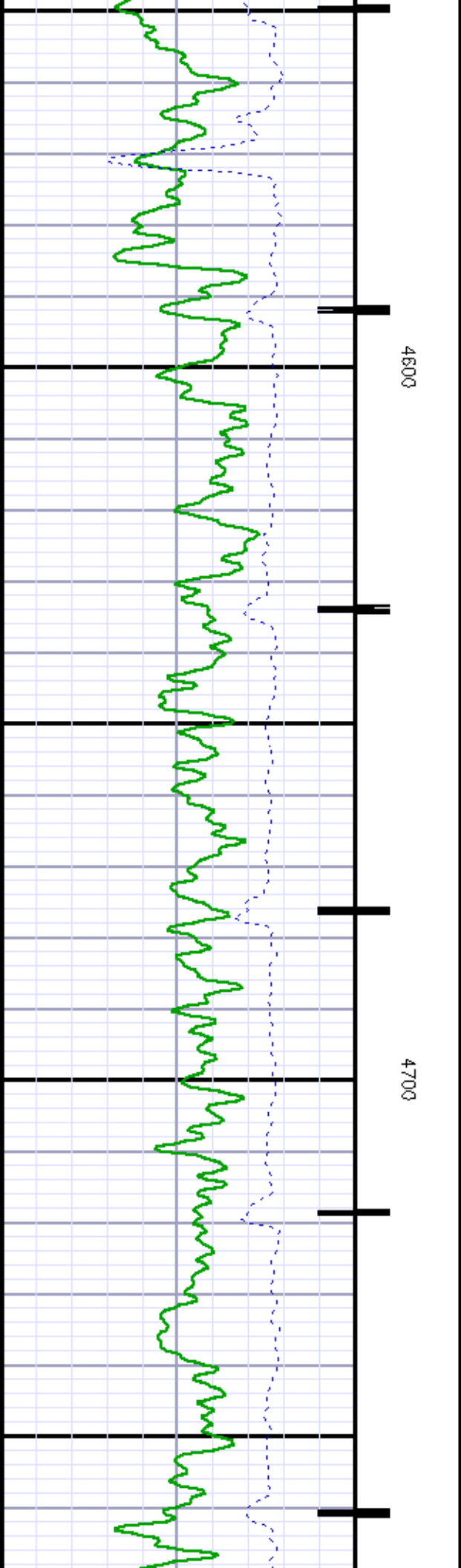
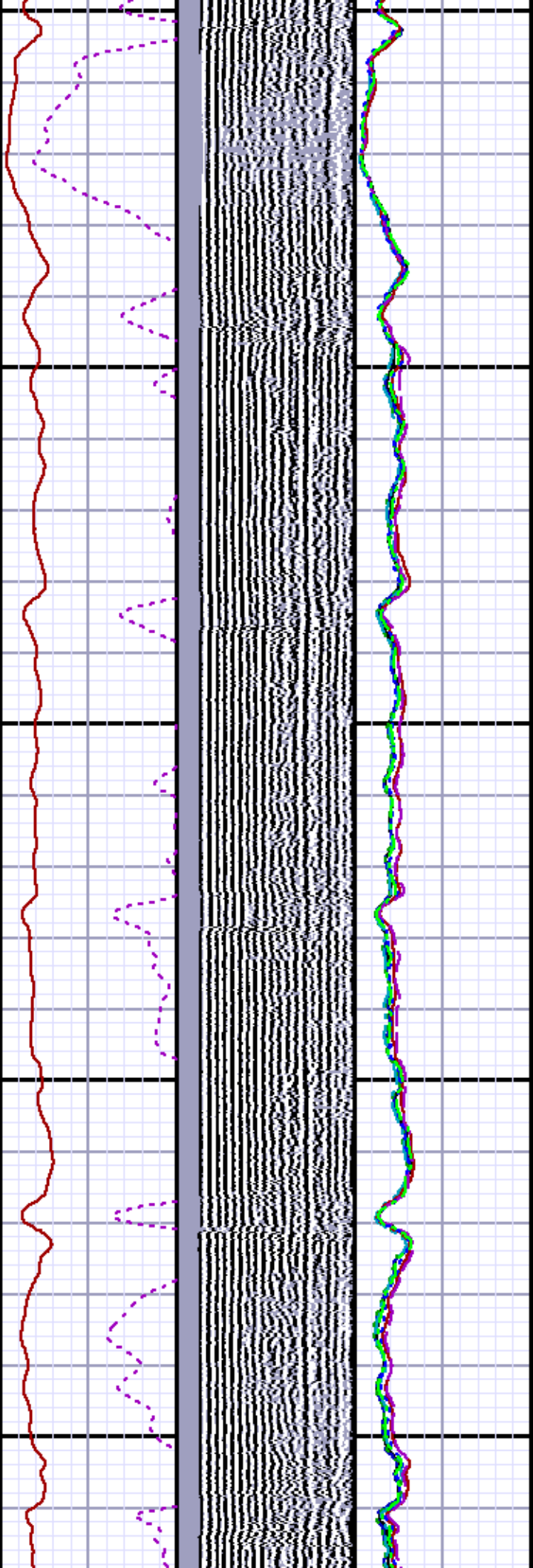




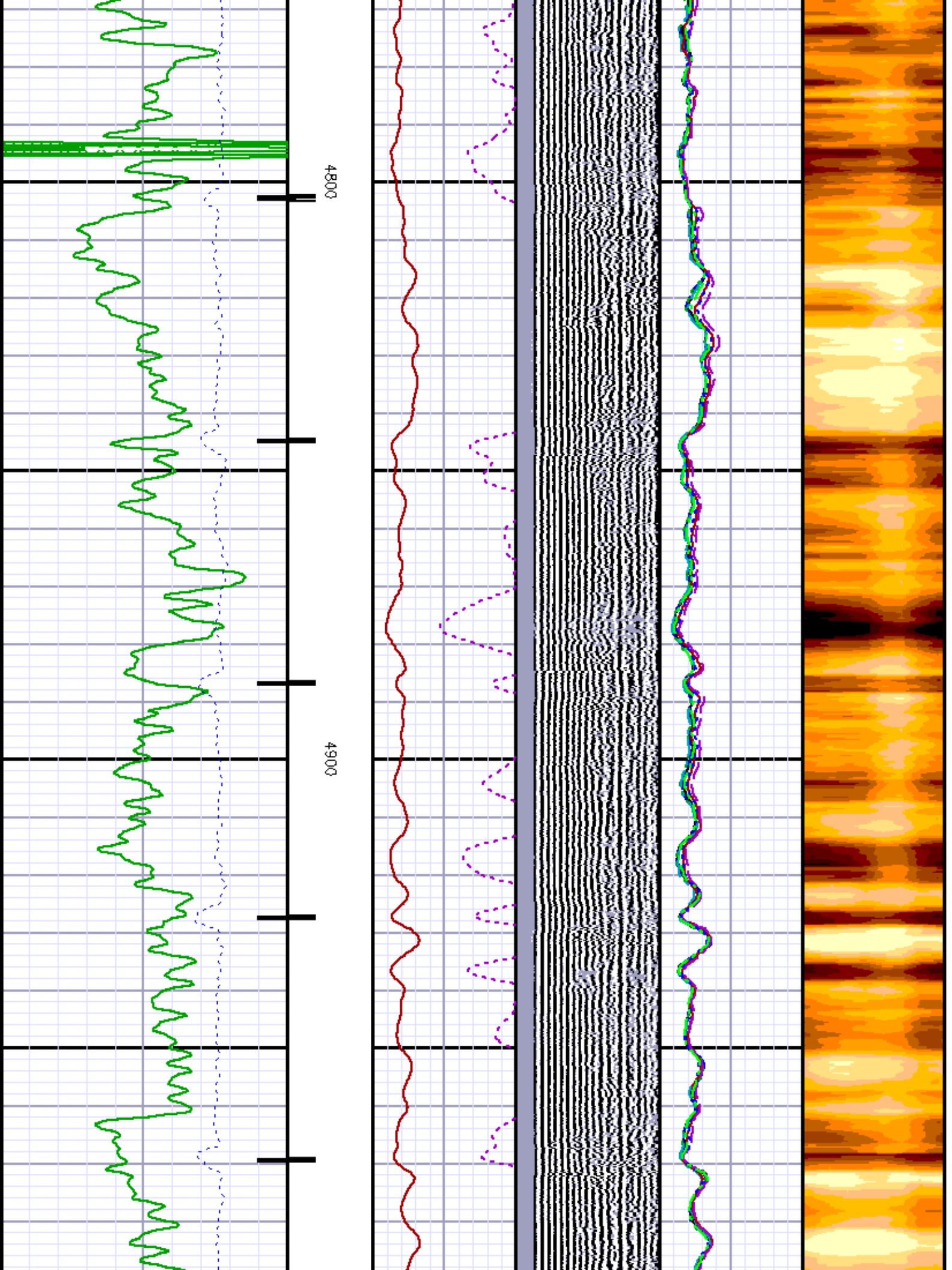


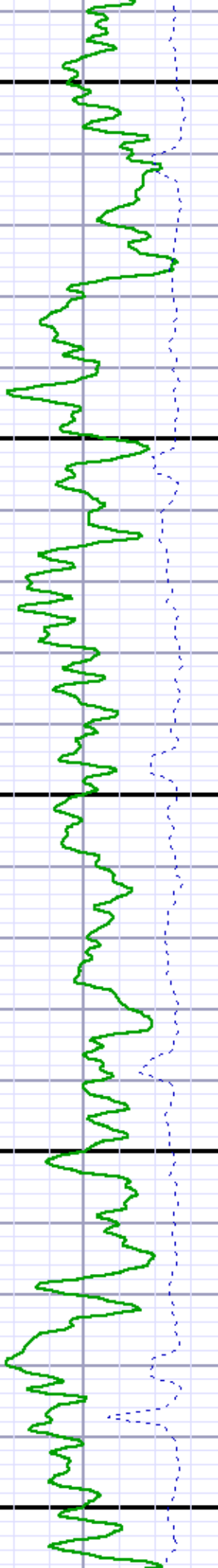
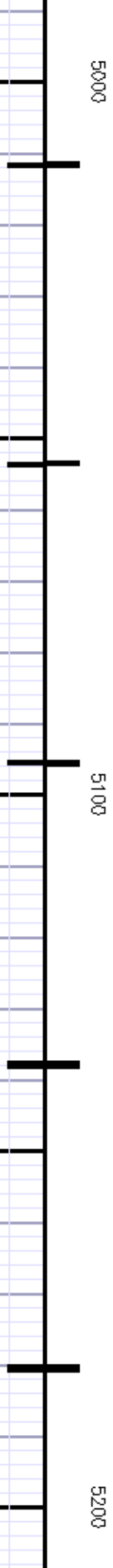
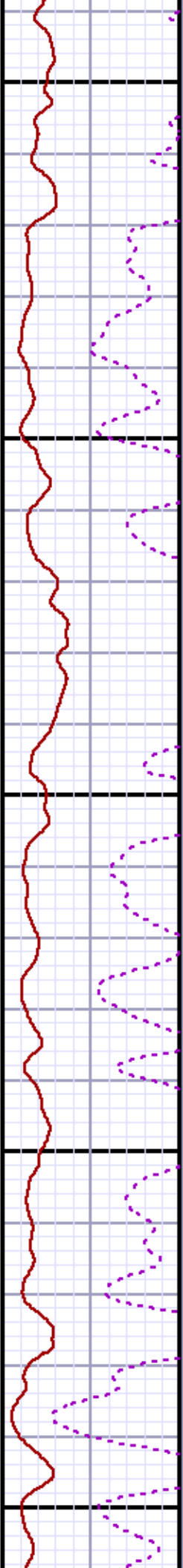
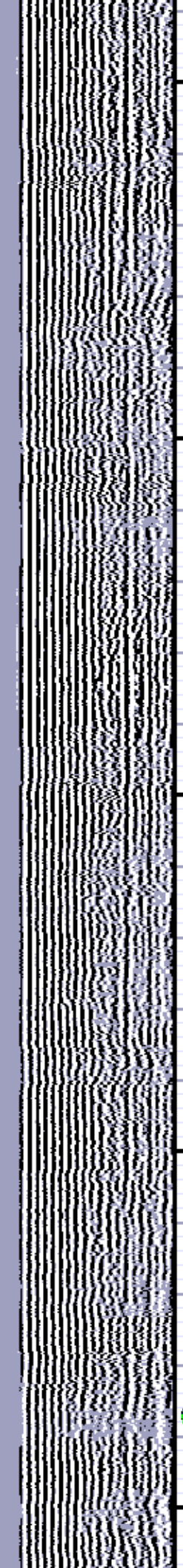








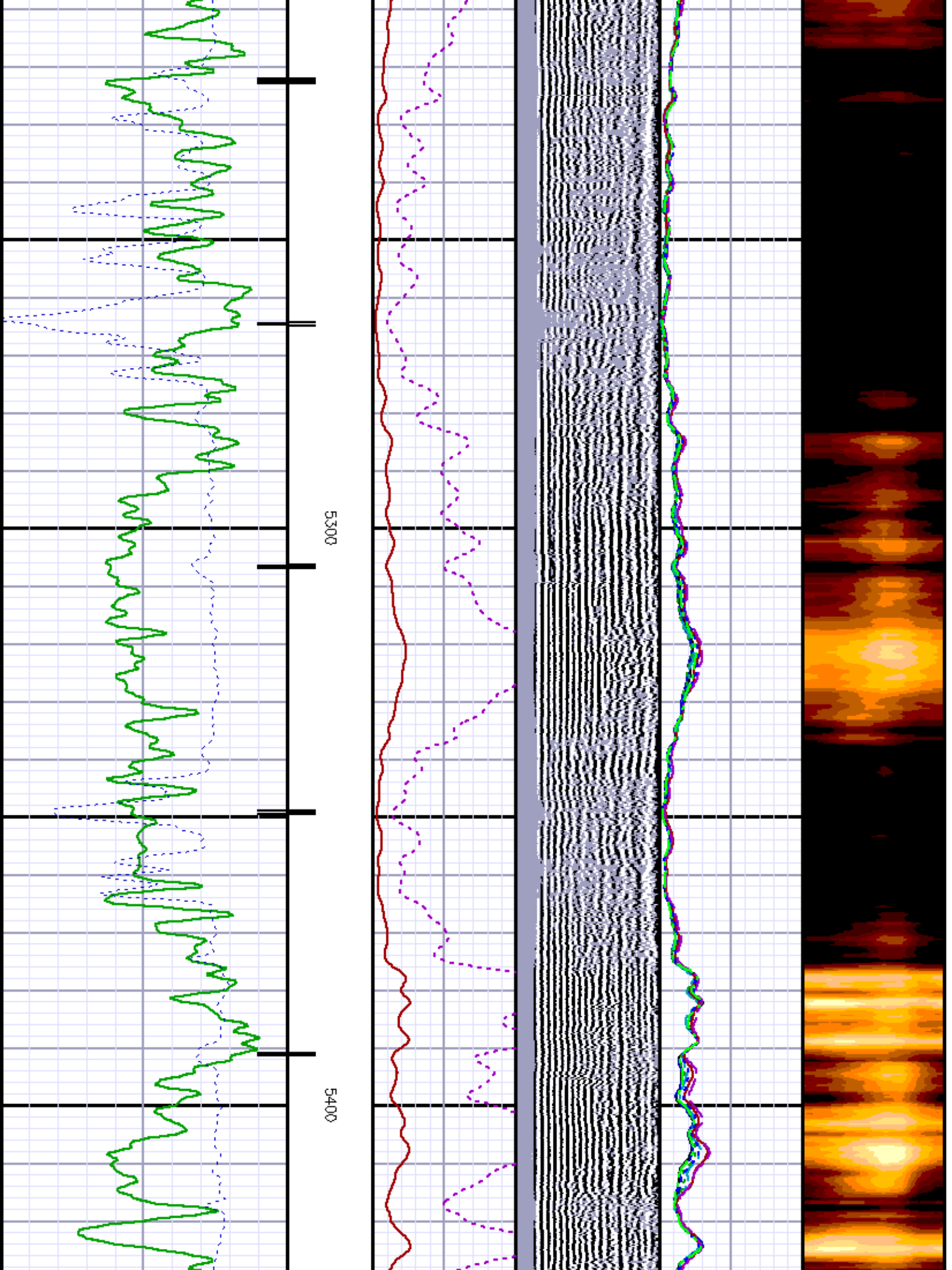




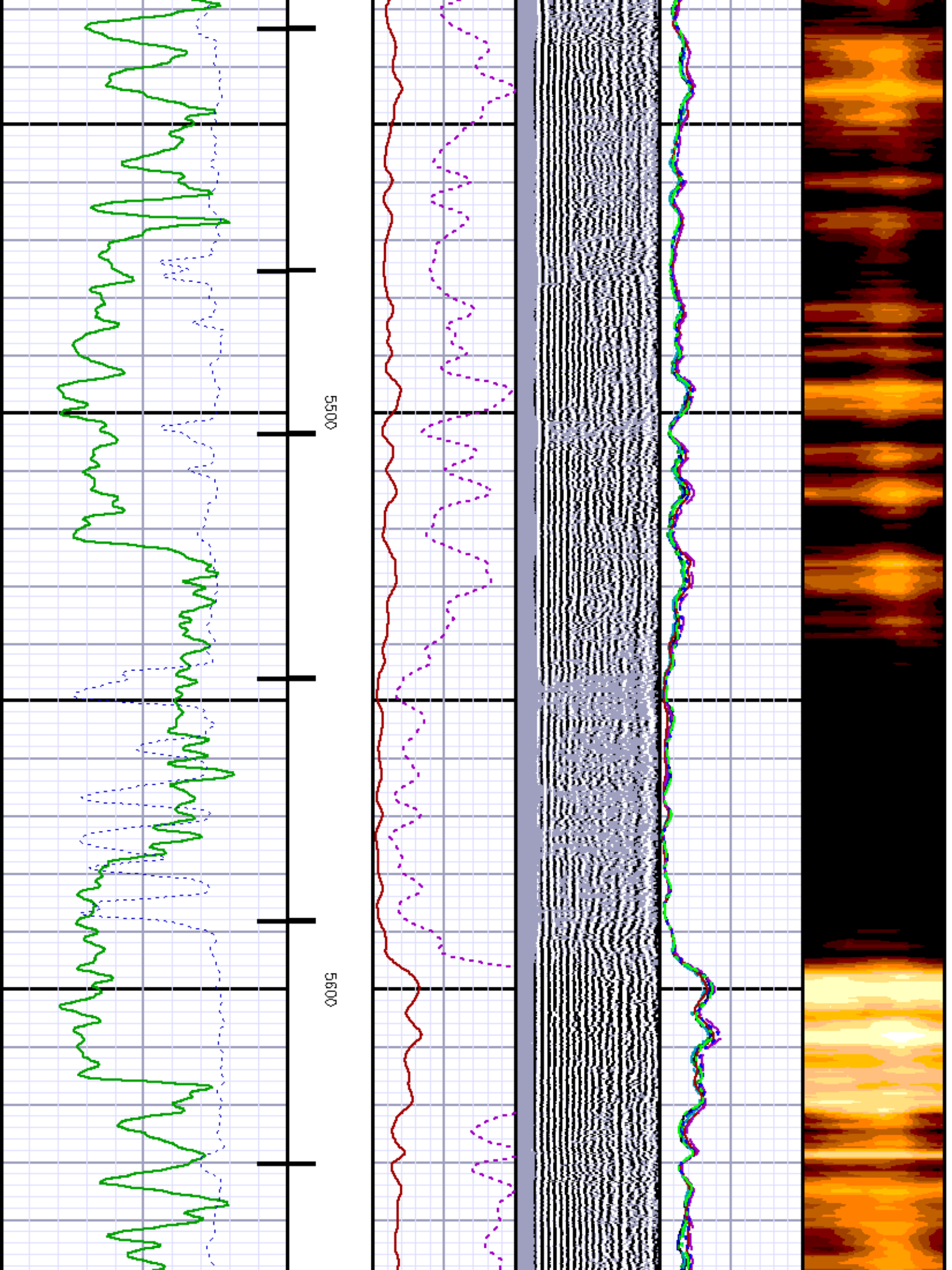
5000

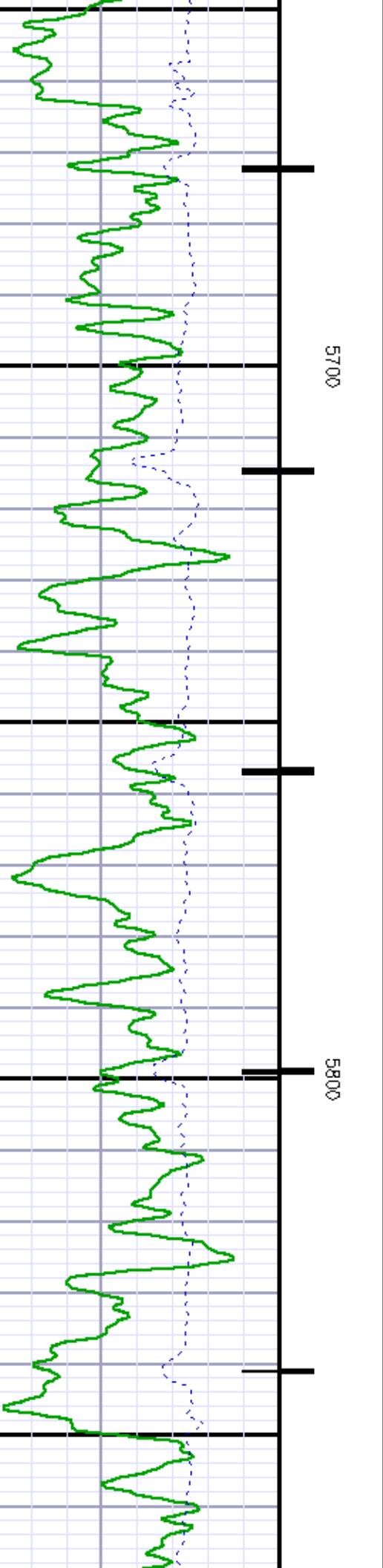
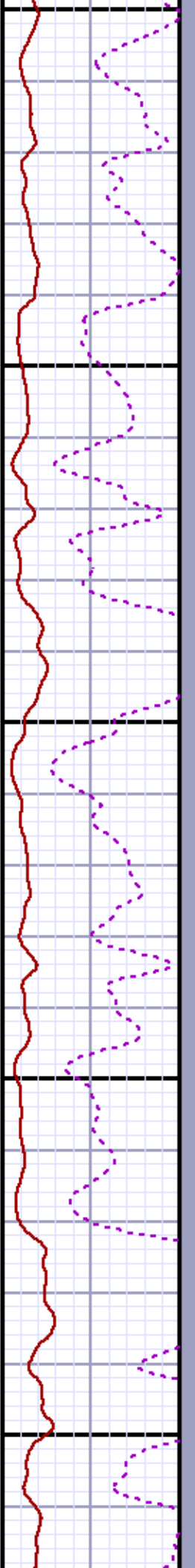
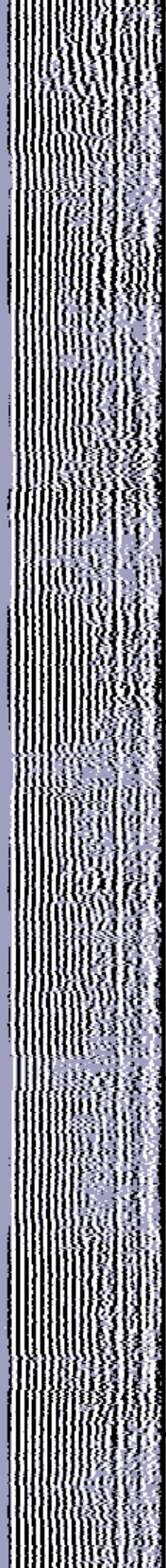
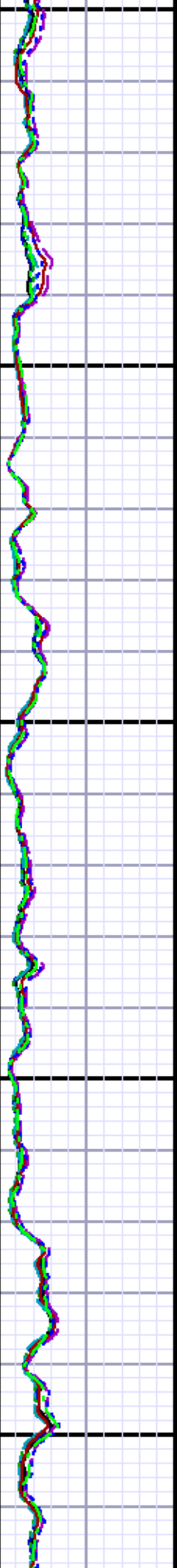
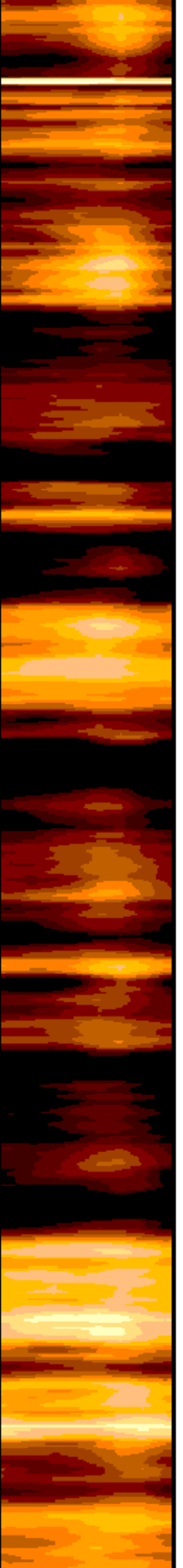
5100

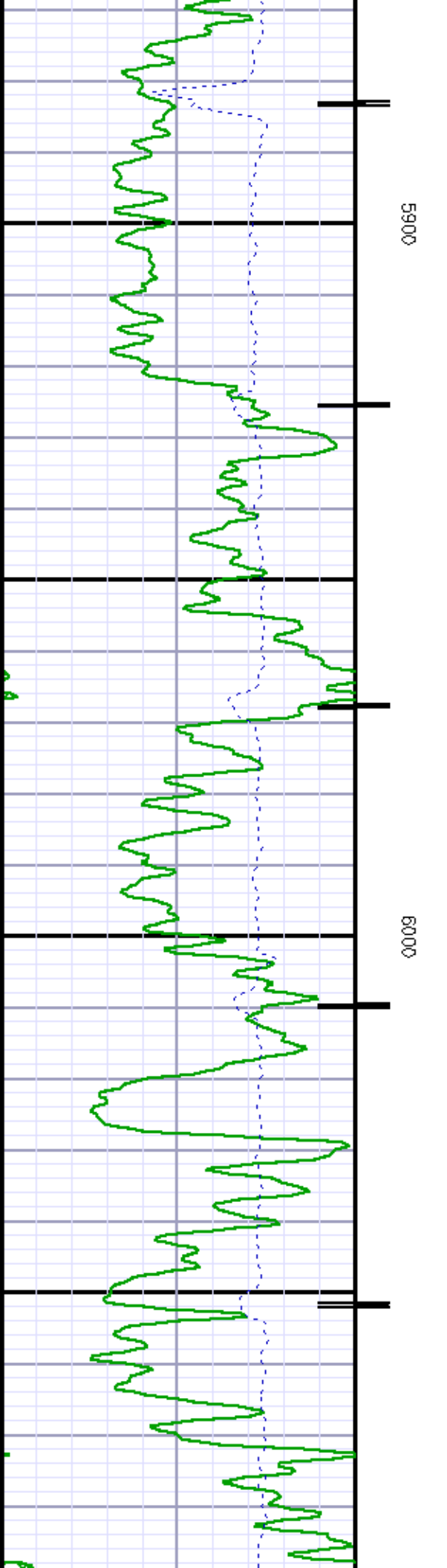
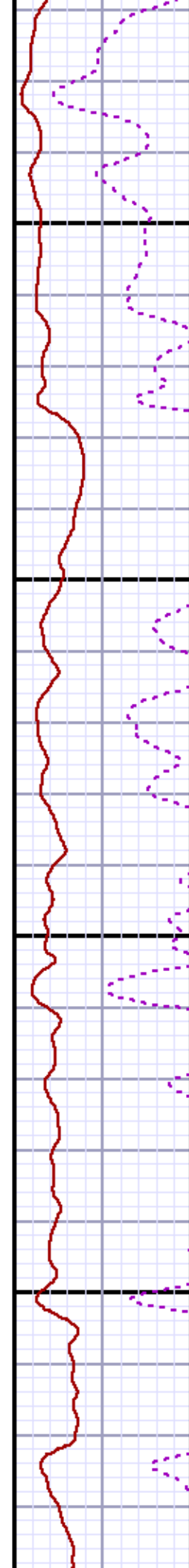
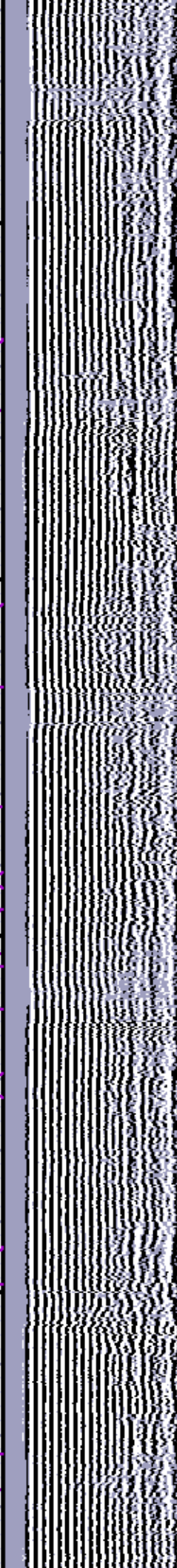
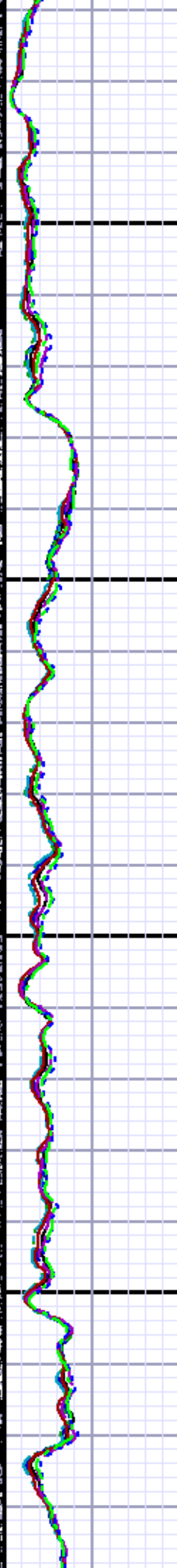
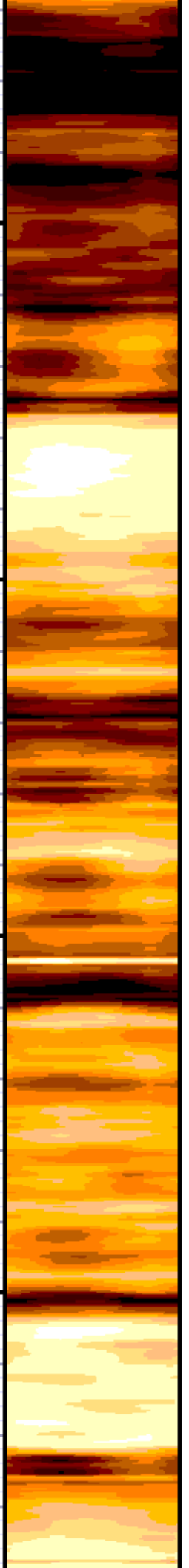
5200



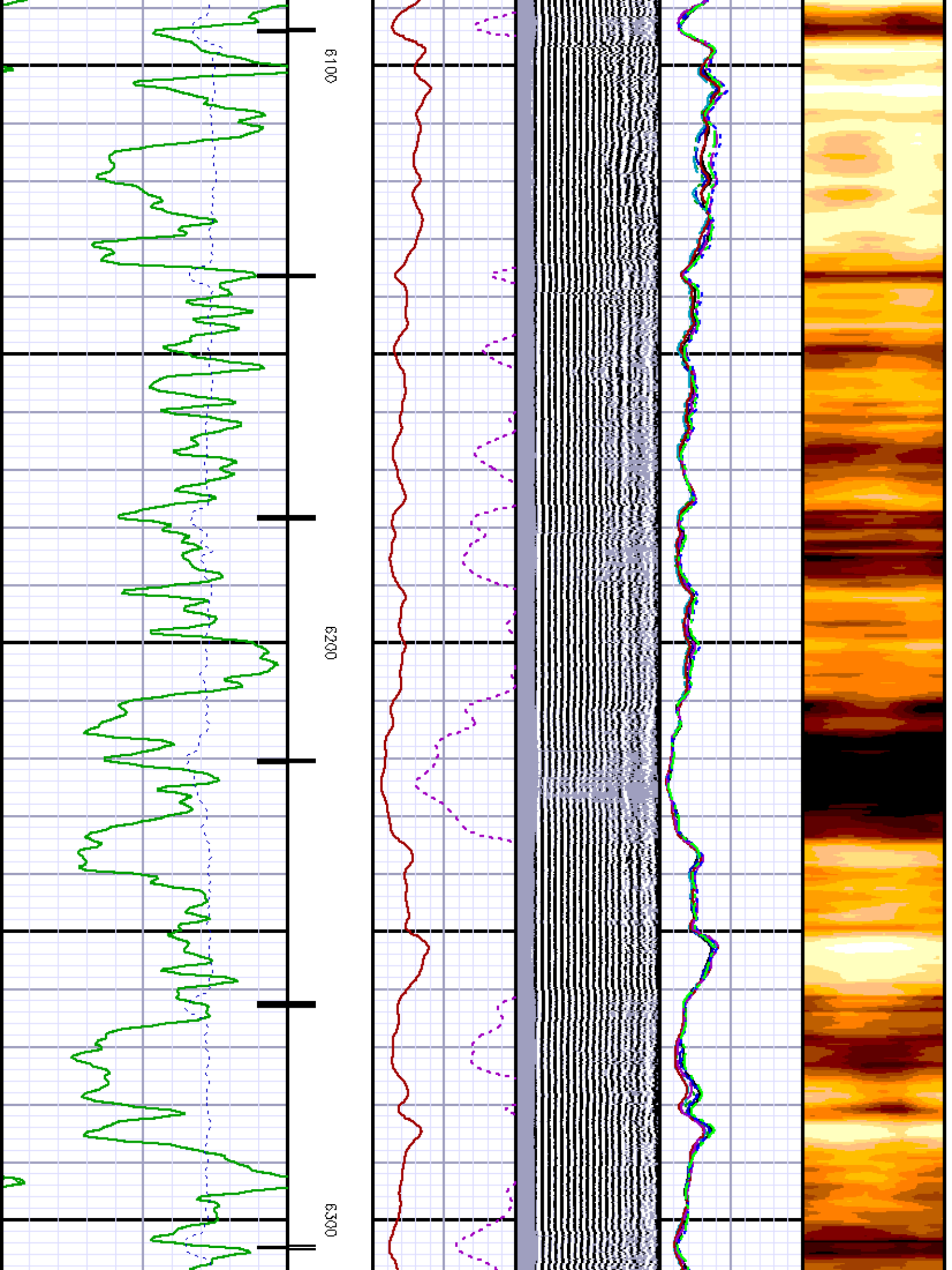


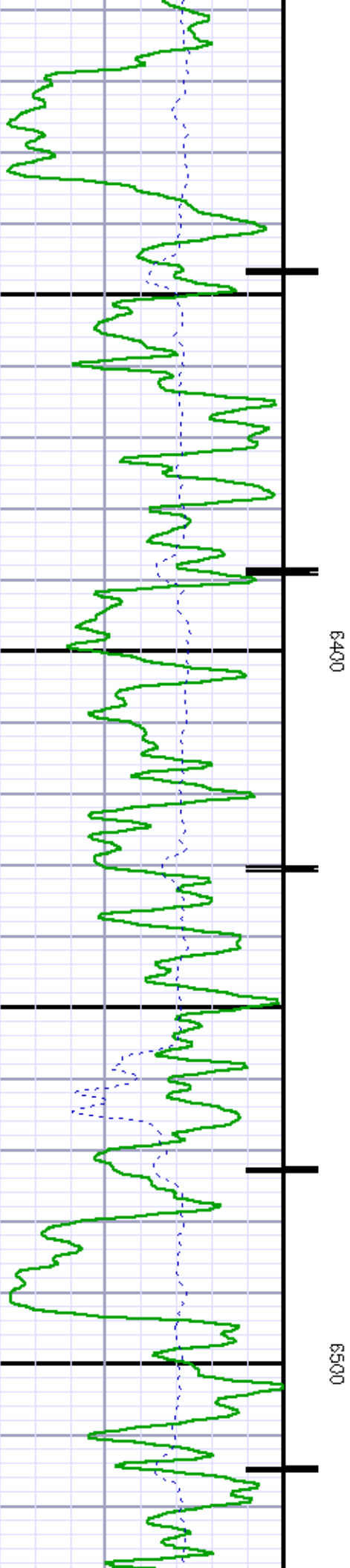
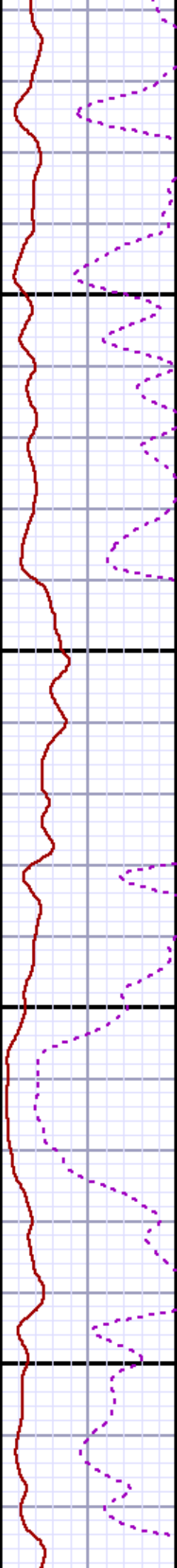
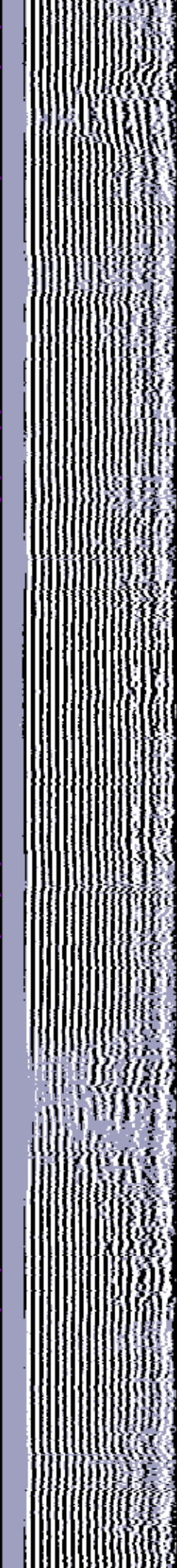
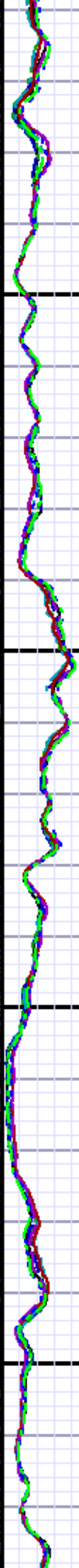


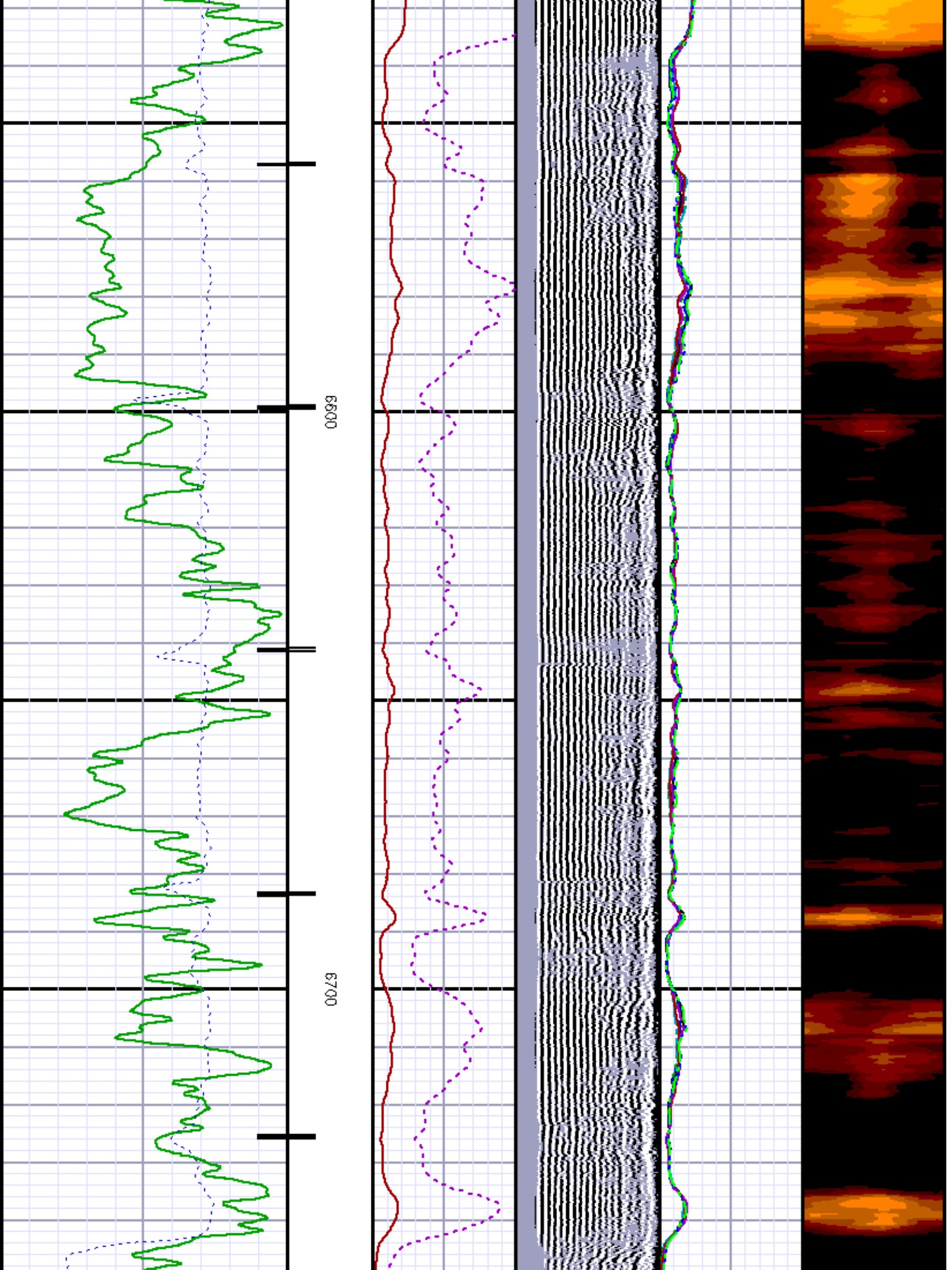




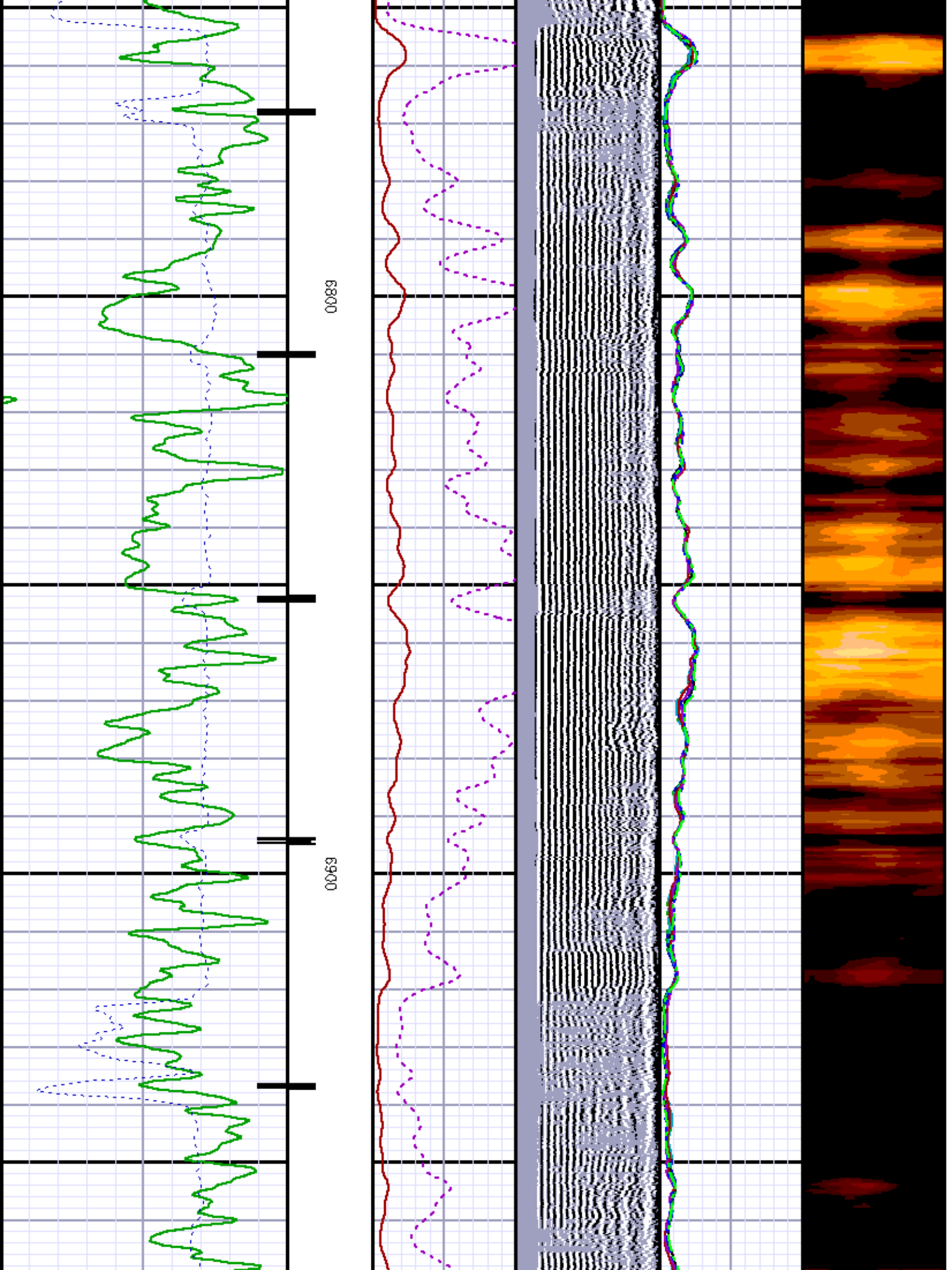


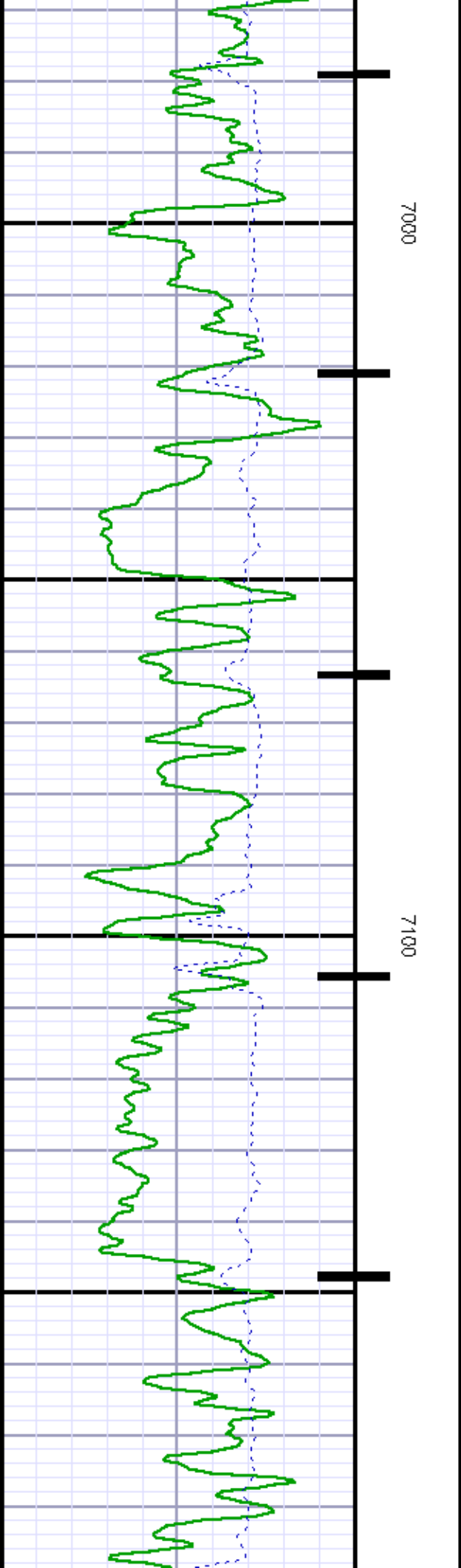
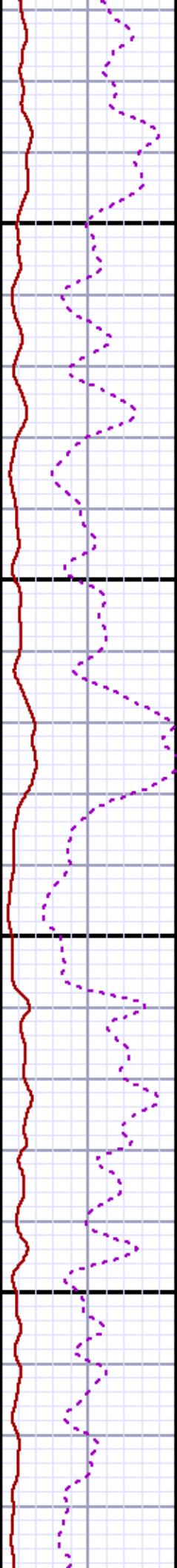
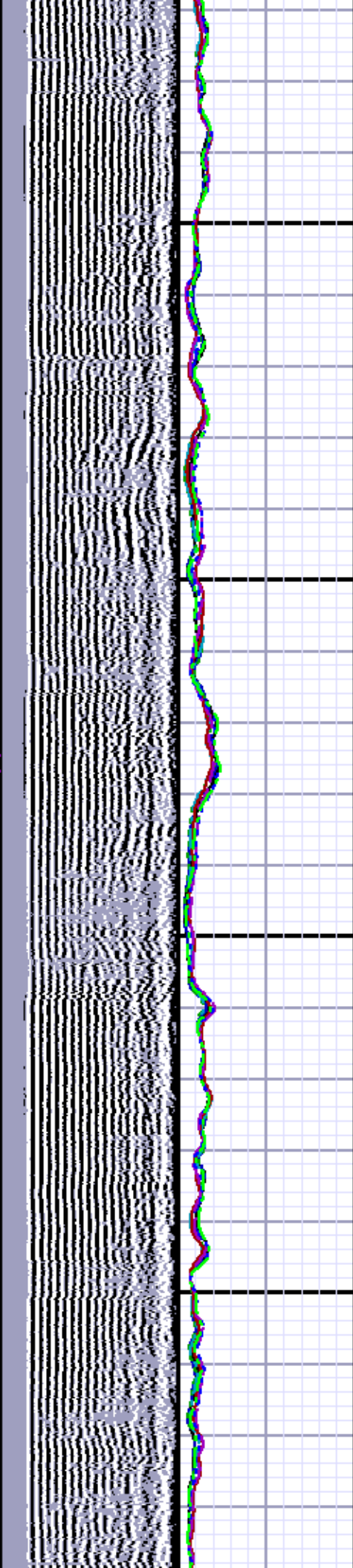


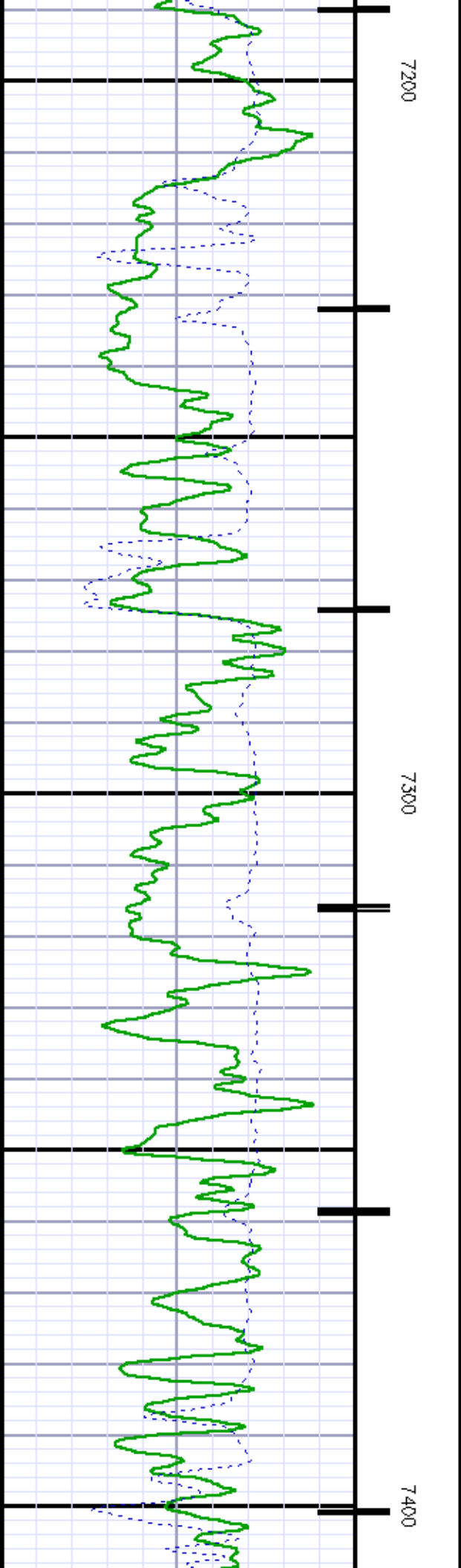
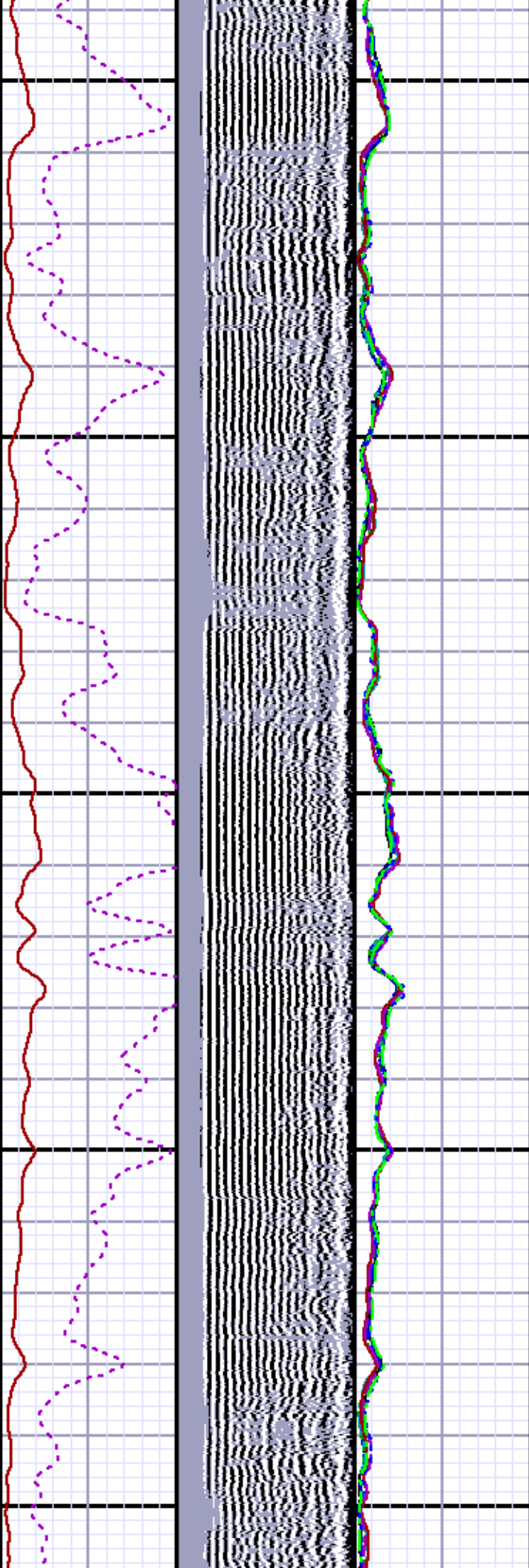




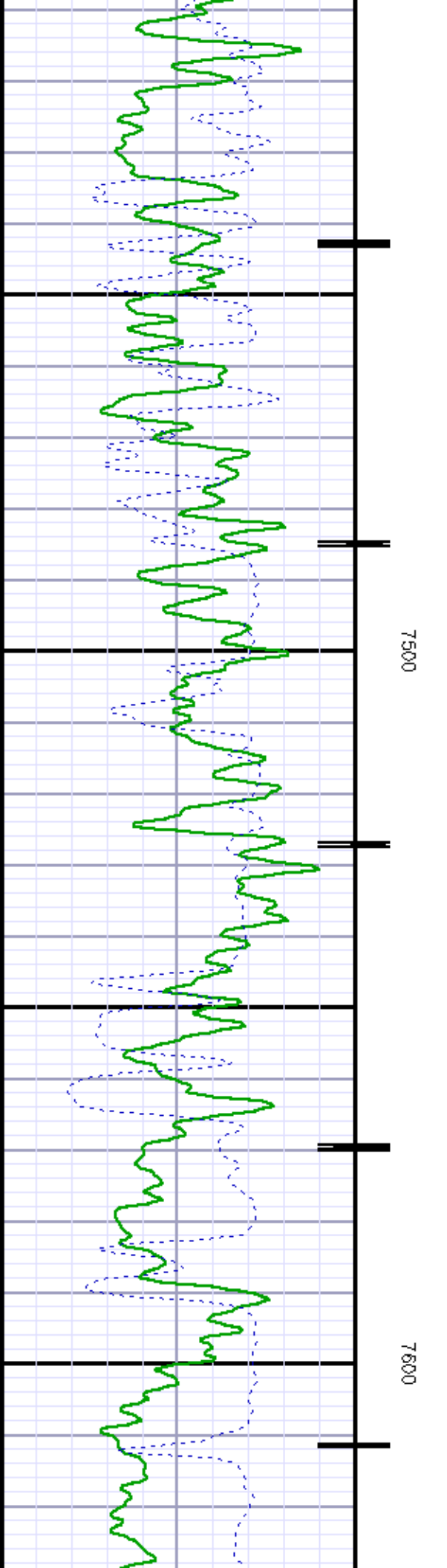
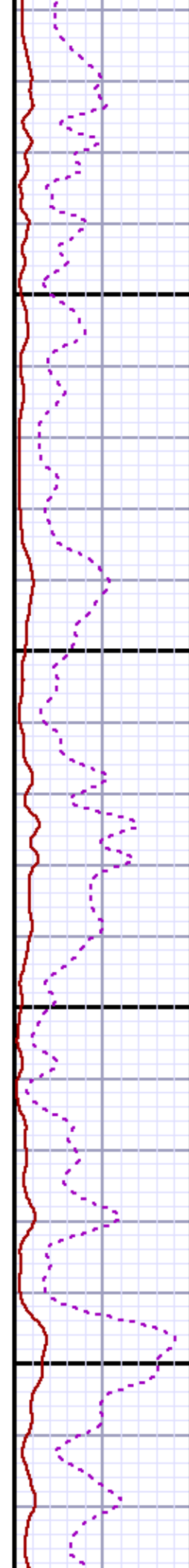
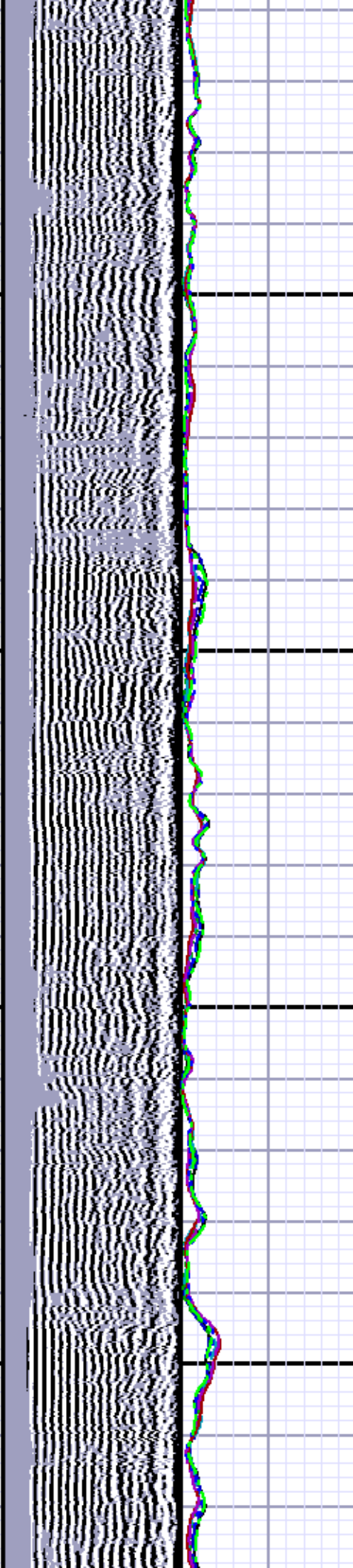
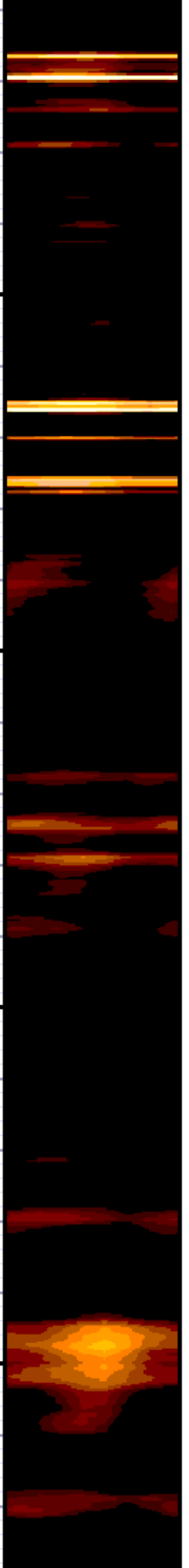


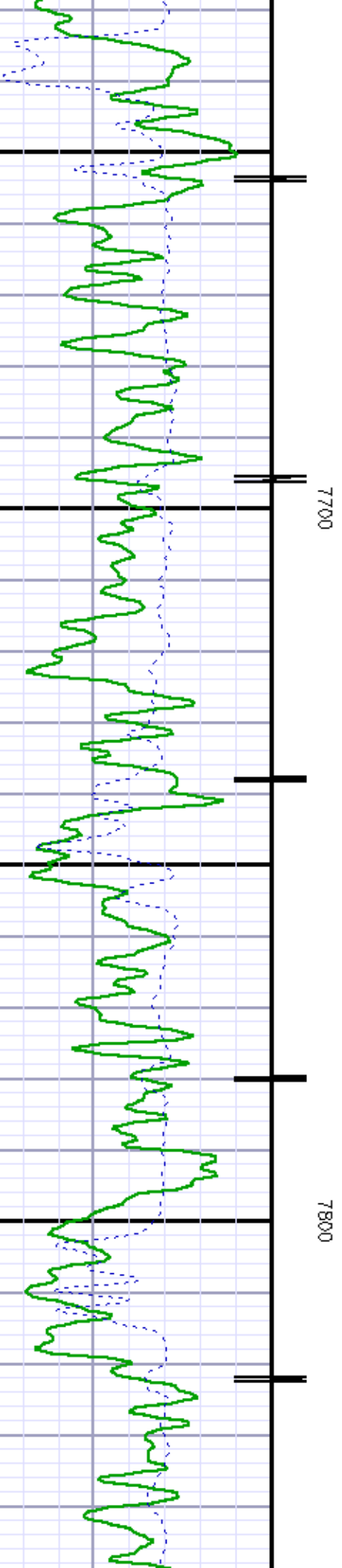
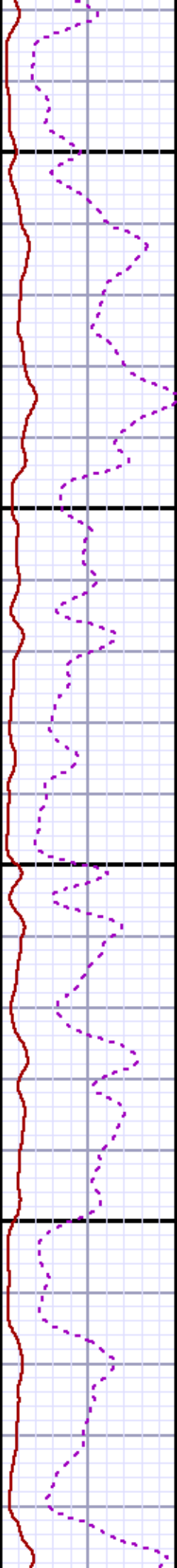
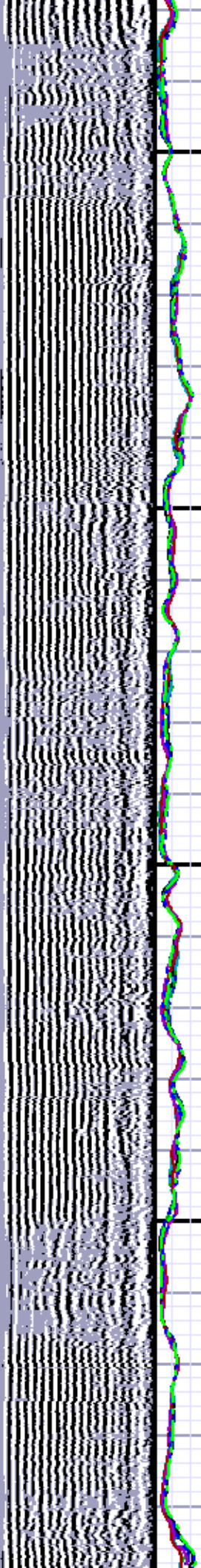
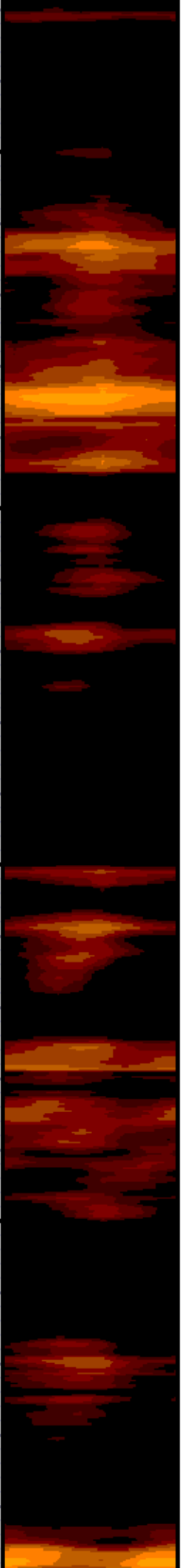


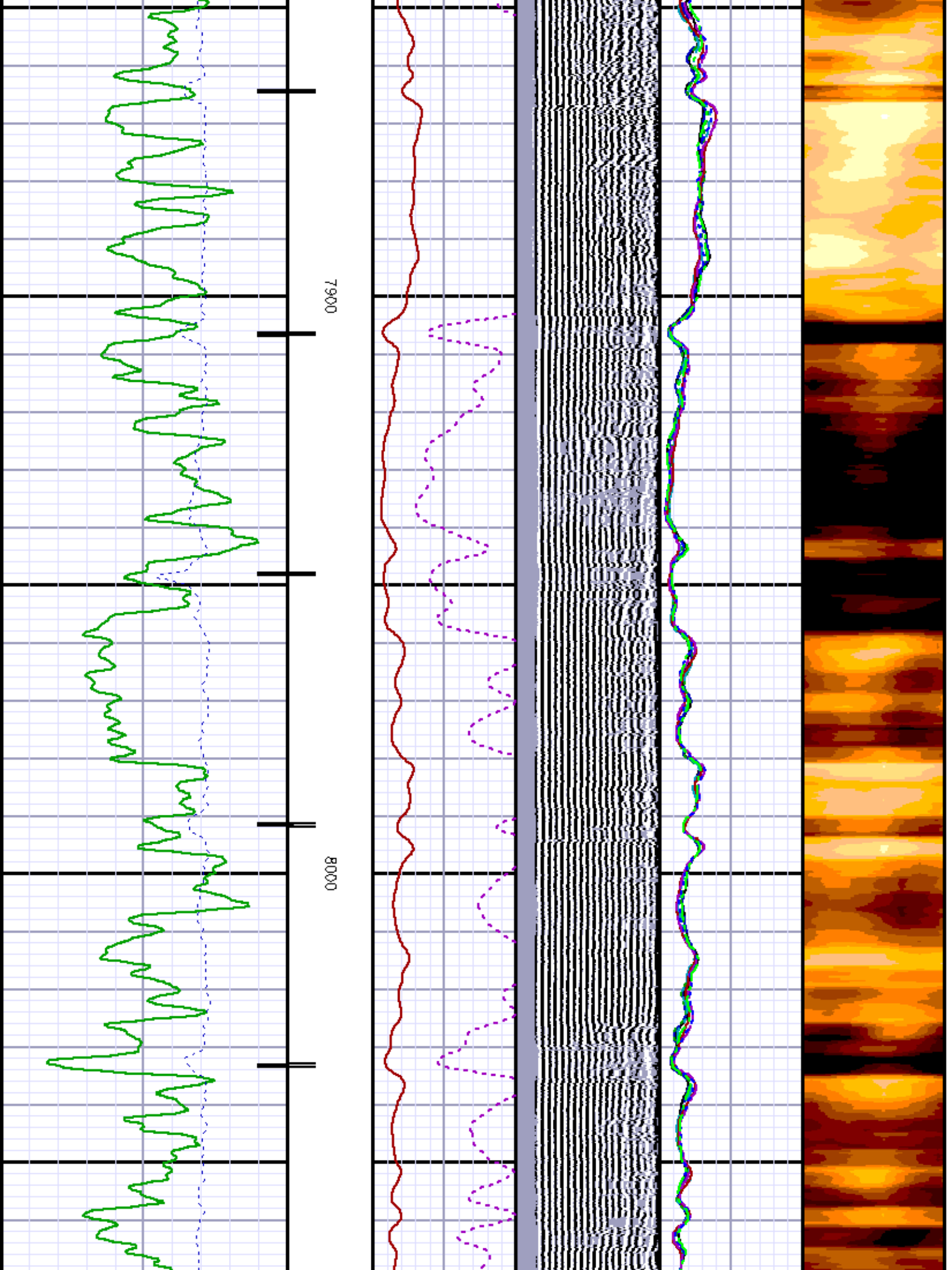




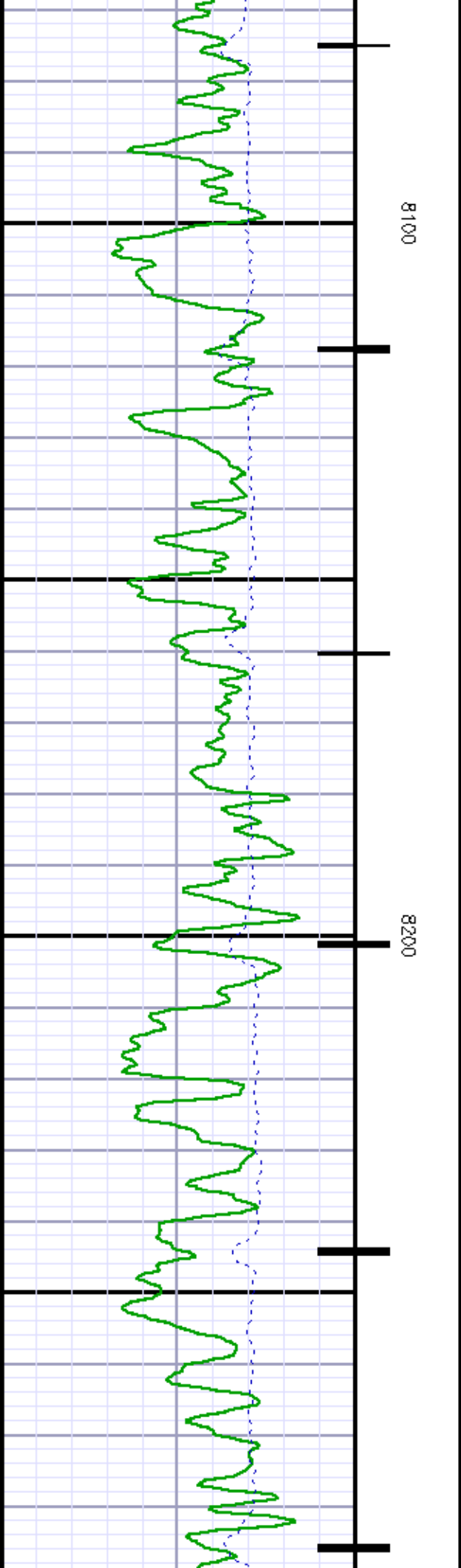
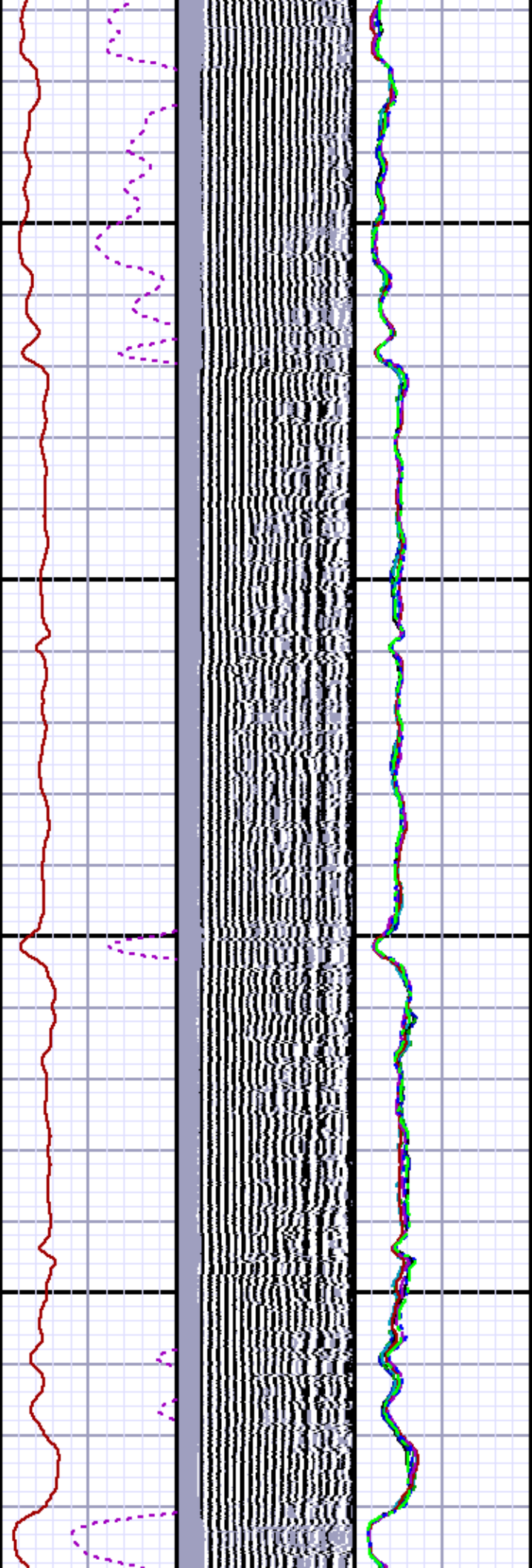


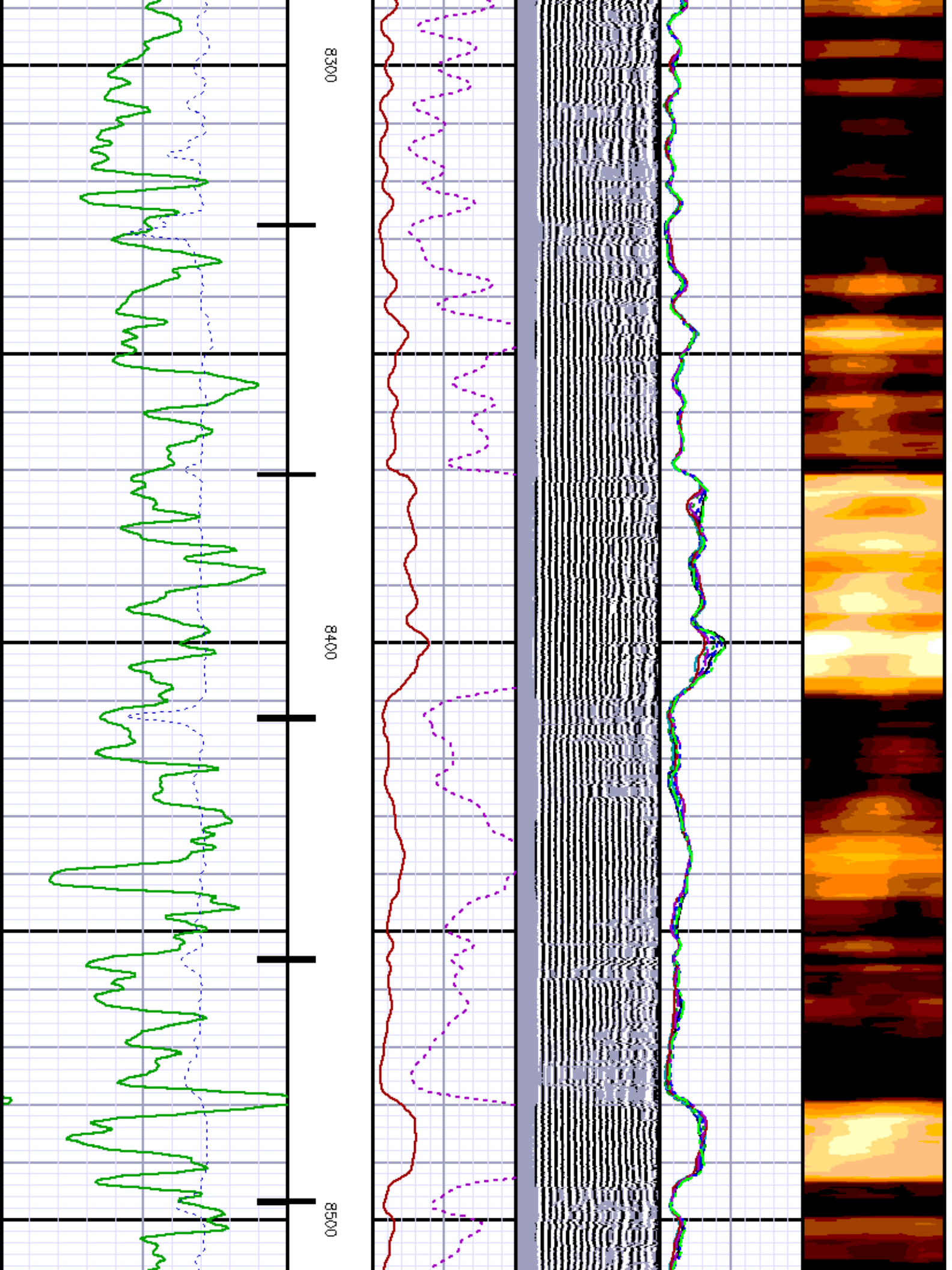


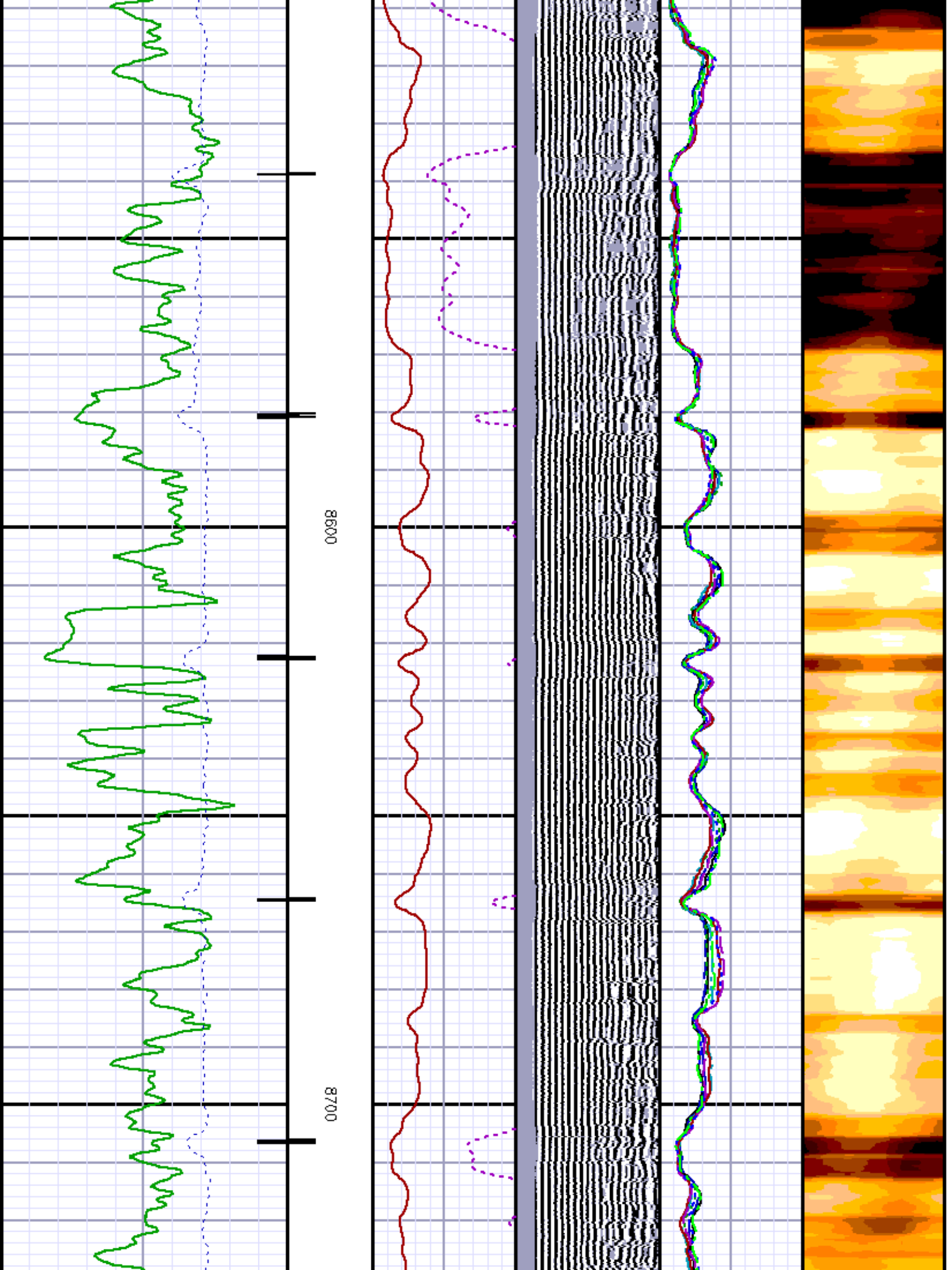




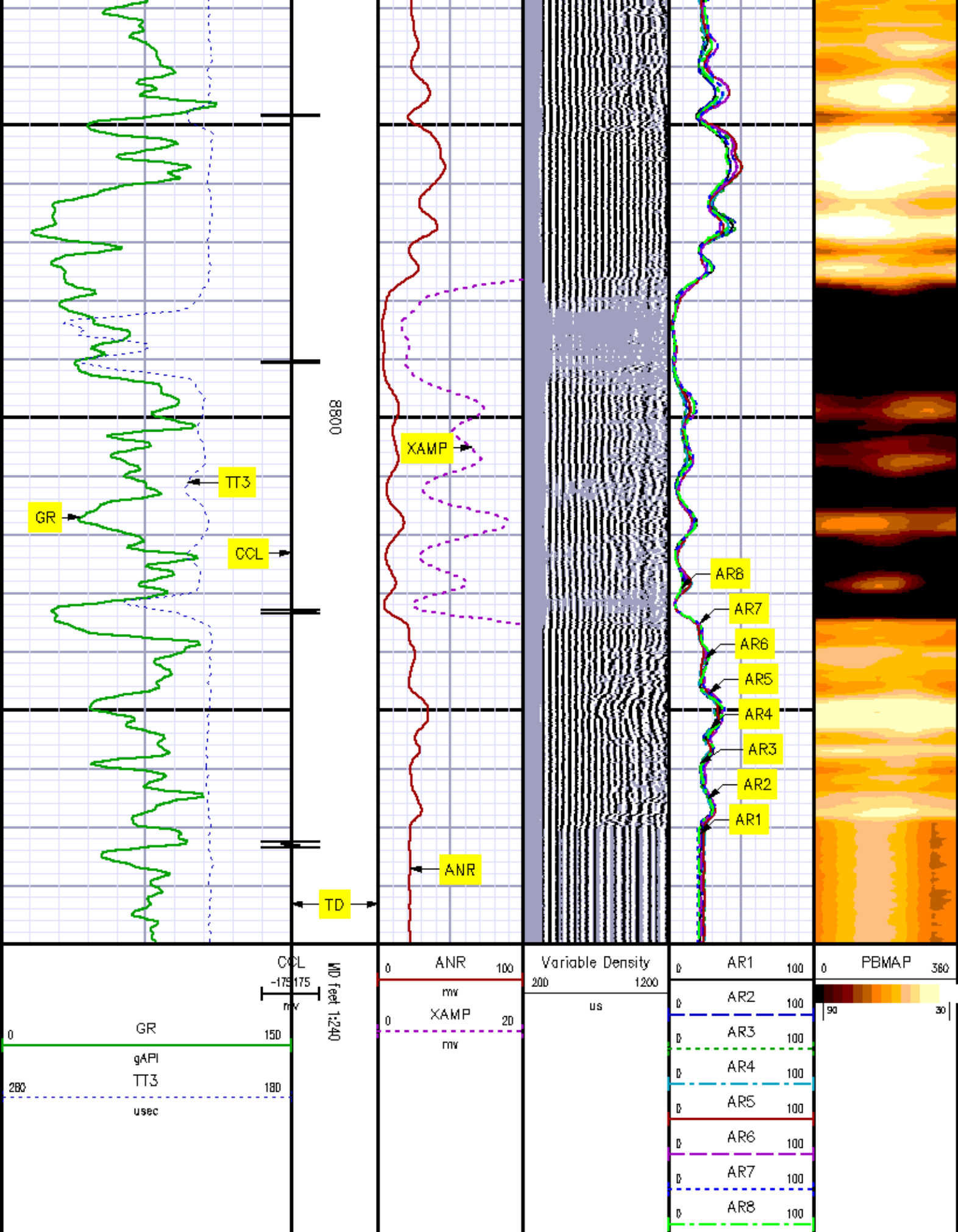












# REPEAT PASS

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	316.900	usec	8552.750	8959.000
RAL	Amp Gate Start Near	200.391	usec	8552.750	8959.000
RAL	Amp Gate Start Radial	200.391	usec	8552.750	8959.000
RAL	Amp Gate Width Far	25.000	usec	8552.750	8959.000
RAL	Amp Gate Width Near	25.000	usec	8552.750	8959.000
RAL	Amp Gate Width Radial	25.000	usec	8552.750	8959.000
RAL	casing od	4.500	inches	8552.750	8959.000
RAL	casing wt	11.600	lbm/ft	8552.750	8959.000
RAL	FB Start Far	291.900	usec	8552.750	8959.000
RAL	FB Start Near	175.391	usec	8552.750	8959.000
RAL	FB Start Radial	175.391	usec	8552.750	8959.000
RAL	FB Thresh Far	10.000	mv	8552.750	8959.000
RAL	FB Thresh Near	4.000	mv	8552.750	8959.000
RAL	FB Thresh Radial	4.000	mv	8552.750	8959.000
RAL	Fluid Travel Time	200.000	usec/ft	8552.750	8958.562

## DEPTH OFFSETS (for Acquired Curves)

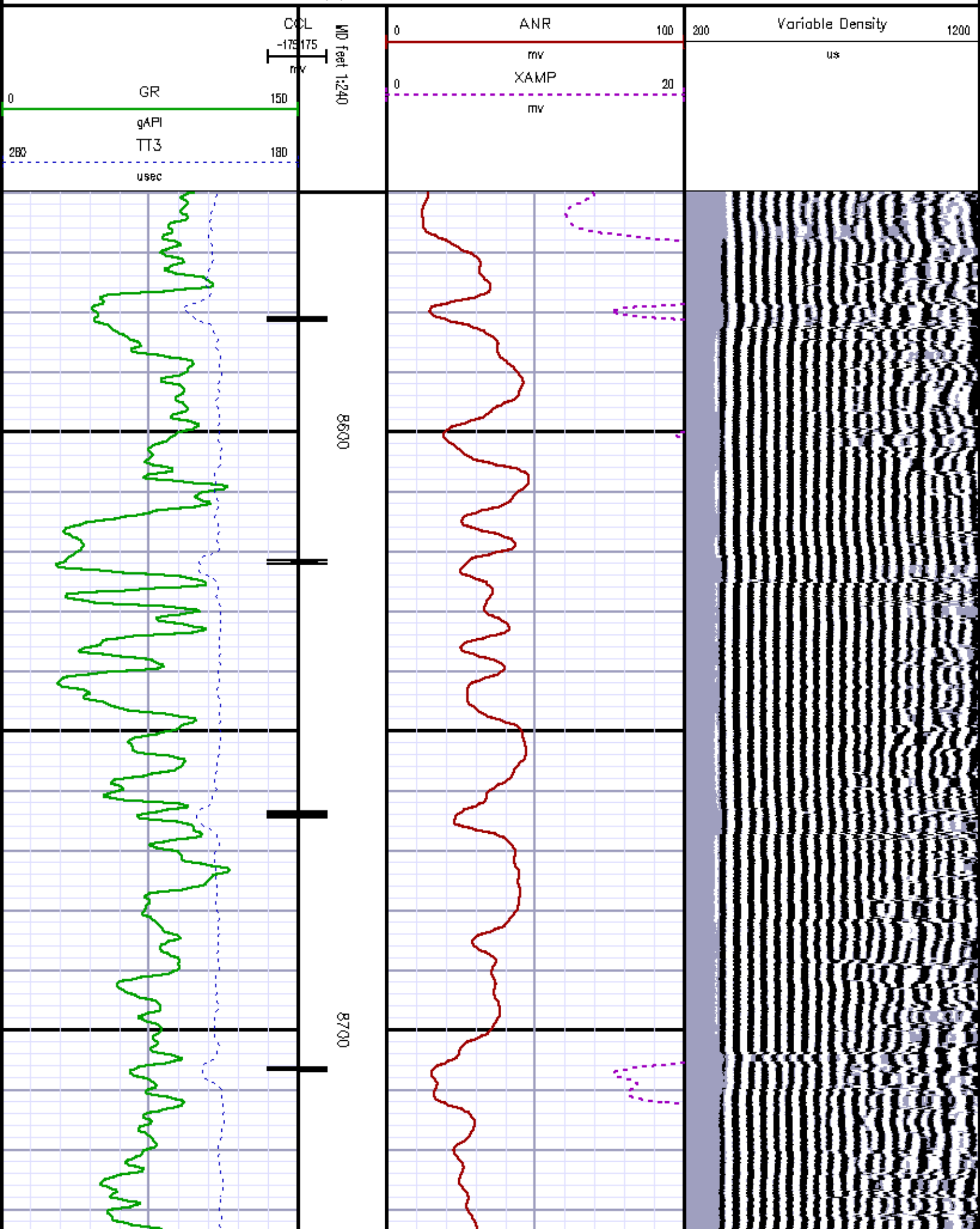
SERIES	DEPTH OFFSET	ACQUIRED CURVES					
1426XA	-15.360	ACAL	ANR	AR1	AR2	AR3	AR4
		AR5	AR6	AR7	ARB	CHV	FPR2
		FPR3	FPR5	TT3	TTR1	TTR2	TTR3
		TTR4	TTR5	TTR6	TTR7	TTR8	XAMP
1426XA	-14.360	AFAR	SIG	TT5			
1426XA	-7.250	OCL					
1426XA	-5.390	GR					
1426XA	0.000	NEU					

Created by : RAL, v4.6.007

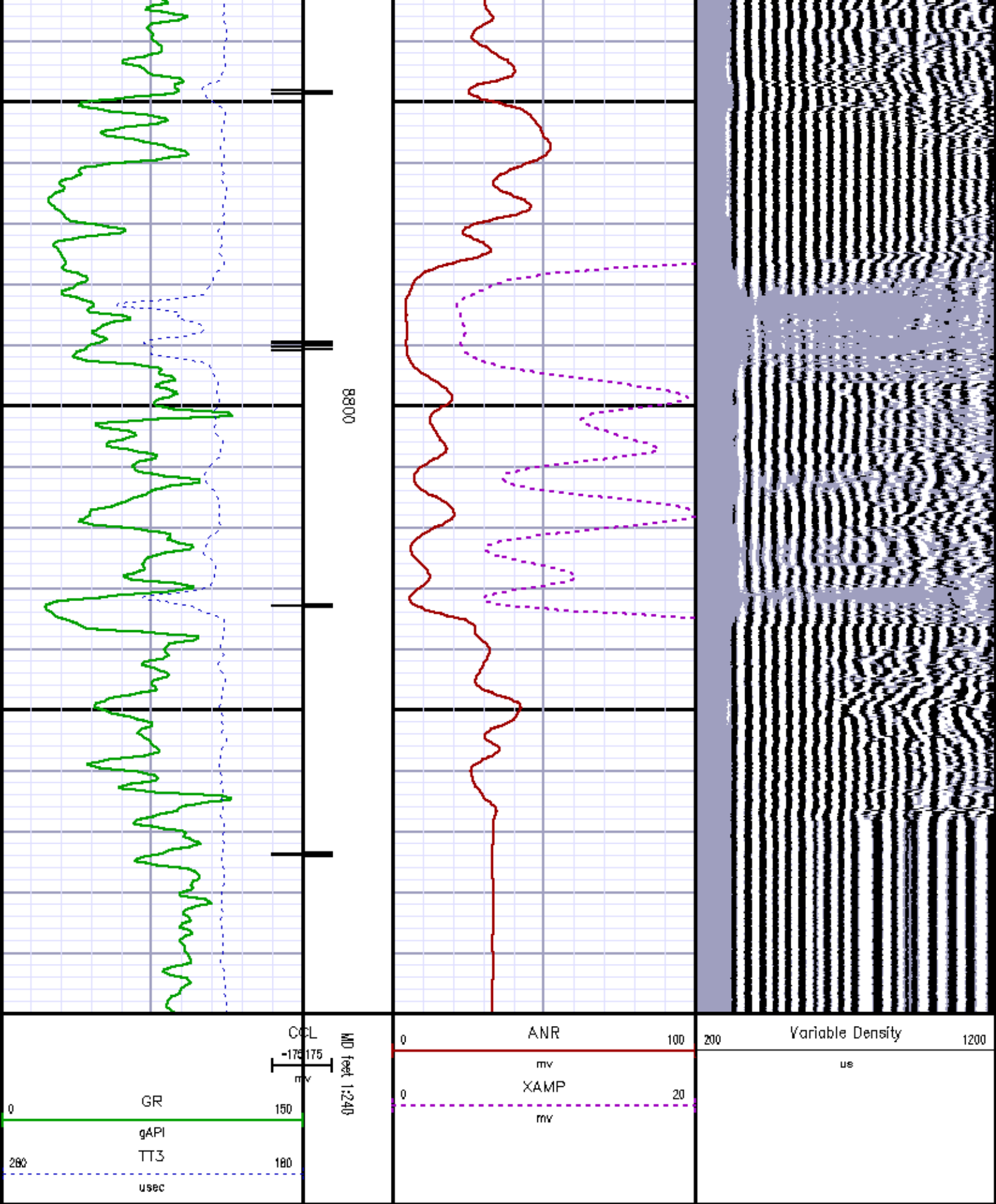
Plotted by : PlotMgr, v5.4.504

Company : WILLIAMS PRODUCTION COMPANY

Well : RWF 441-17







# CALIBRATION SUMMARY

## GAMMA RAY

Calibration File: C:\cass\calver\GR\120AU.cal

### CALIBRATION SUMMARY

DATE/TIME PERFORMED: Wed Aug 19 15:34:30 2009 TOOL SERIES: 1426XA ASSET: 120 SEQ: AU

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
BA 857	46.09	255.11	0.885	40.79	225.79	185.00

Verification File: C:\cass\calver\GR\120AU.VP

### PRIMARY LOG VERIFICATION

DATE/TIME PERFORMED: Wed Aug 19 15:35:58 2009 TOOL SERIES: 1426XA ASSET: 120 SEQ: AU

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
BA 857	45.16	254.98	0.885	39.97	225.67	185.71

## RALSHP

Shop Calibration: C:\cass\calver\RALSHP\9999SP8.shp.cal

### SHOP CALIBRATION SUMMARY

DATE/TIME PERFORMED: Tue Sep 08 10:55:19 2009 TOOL SERIES: 1426XA ASSET: 9999 SEQ: SP8

Tool Delay [usec]	Tank OD in	Tank Wt lbm/ft	Tank ID in
-61.00	5.50	15.50	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	216	216	25	166	25	-0.300	100.00	0.16
3 Ft. Receiver	218	216	30	158	25	-0.228	100.00	0.15
5 Ft. Receiver	326	325	30	267	25	1.492	150.00	0.17
Radial #1	218	215	30	158	25	-0.333	100.00	0.15
Radial #2	217	215	30	158	25	0.167	100.00	0.15
Radial #3	217	215	30	158	25	-0.464	100.00	0.15
Radial #4	218	215	30	158	25	-0.214	100.00	0.15
Radial #5	218	215	30	158	25	-0.208	100.00	0.15
Radial #6	218	215	30	158	25	0.003	100.00	0.15
Radial #7	218	215	30	158	25	0.058	100.00	0.16
Radial #8	218	215	30	158	25	-0.103	100.00	0.16

# RALFLD

Wellsite Calibration: C:\case\calver\RALFLD\9999SP8 fld.cal

## WELLSITE CALIBRATION SUMMARY

DATE/TIME PERFORMED: Tue Sep 08 11:29:42 2009 TOOL SERIES: 1426XA ASSET: 9999 SEQ: SP8

Tool Delay [usec] -81.00 Casing OD In 4.50 Casing Wt lbm/ft 11.80 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	166	25	0.014	0.000	1.01	100,000
3 Ft. Receiver	200	25	-0.121			
5 Ft. Receiver	317	25	1.007			
Radial #1	200	25	-0.210			
Radial #2	200	25	-0.153			
Radial #3	200	25	-0.227			
Radial #4	200	25	-0.243			
Radial #5	200	25	-0.167			
Radial #6	200	25	-0.159			
Radial #7	200	25	-0.217			
Radial #8	200	25	-0.155			

## TOOL DIAGRAM

### CENTRALIZER

Series RALCENT  
Mnemonic CENT  
Diameter 3.12"  
Weight 20.00 lb

### 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



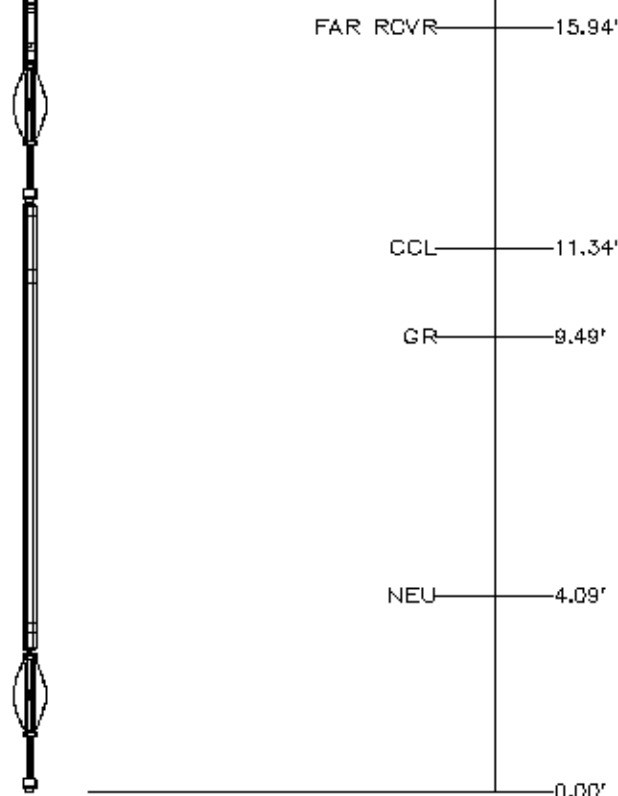
29.24'  
XMIT 20.94'  
NEAR RCVR 17.85'

<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	8.48' CCL

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

Total Length: 29.24'  
Total Weight: Not Available  
Max Diameter: 0' 3.12"



 <b>Baker Atlas</b> 	<b>Company</b> WILLIAMS PRODUCTION COMPANY		<b>File No:</b> 1323
	<b>Well</b> RWF 441-17		
	<b>Field</b> RULISON		<b>API No:</b> 05045158770000
	<b>County</b> GARFIELD	<b>State</b> COLORADO	
<b>Location</b>		<b>Elevations</b>	
SHL: 2229' FNL & 485' FEL		KB 5839.5 ft	17 GS 94W
BHL: 237' FNL & 847' FEL		DF 5835.5 ft	RW 53-17 PAD
		GL 5817 ft	CYCLONE 14
SEC 17 TWP 6S RGE 94W			