



**CEMENT BOND LOG**  
**GAMMA RAY/ CCL**

Company		Verdad Resources	
Well		Wuertz 1201-16H	
Field		Wattenberg	
County		Weld	
State		CO	
Location:		API #: 05-123-49741	
Permanent Datum		Surface: 281' FSL & 2291 FWL	
Log Measured From		Ground Level	
Drilling Measured From		G.L.	
SEC 12		TWP T1N RGE R65W	
Elevation		4981'	
K.B. ---		D.F. ---	
G.L. 4981'			
Date		07/23/21	
Run Number		ONE	
Depth Driller		17157'	
Present Depth Driller		N/A	
Depth Logger		7730'	
Bottom Logged Interval		7730'	
Top Log Interval		Surface	
Fluid Level		Surface	
Type Fluid		Water	
Max. Recorded Temp.		230	
Estimated Cement Top		1660'	
Equipment Number		223	
Location		Johnstown, Co	
Recorded By		Noah Wells	
Witnessed By		Jason Turner	
Borehole Record		Casing Record	
Run Number		Bit	
From		To	
Size		Weight	
9 5/8"		36#	
5 1/2"		17#	
Surface		Surface	
17157'			

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

WARRIOR 7.0 SOFTWARE - Comments

LOG WAS CORRELATED TO SURFACE

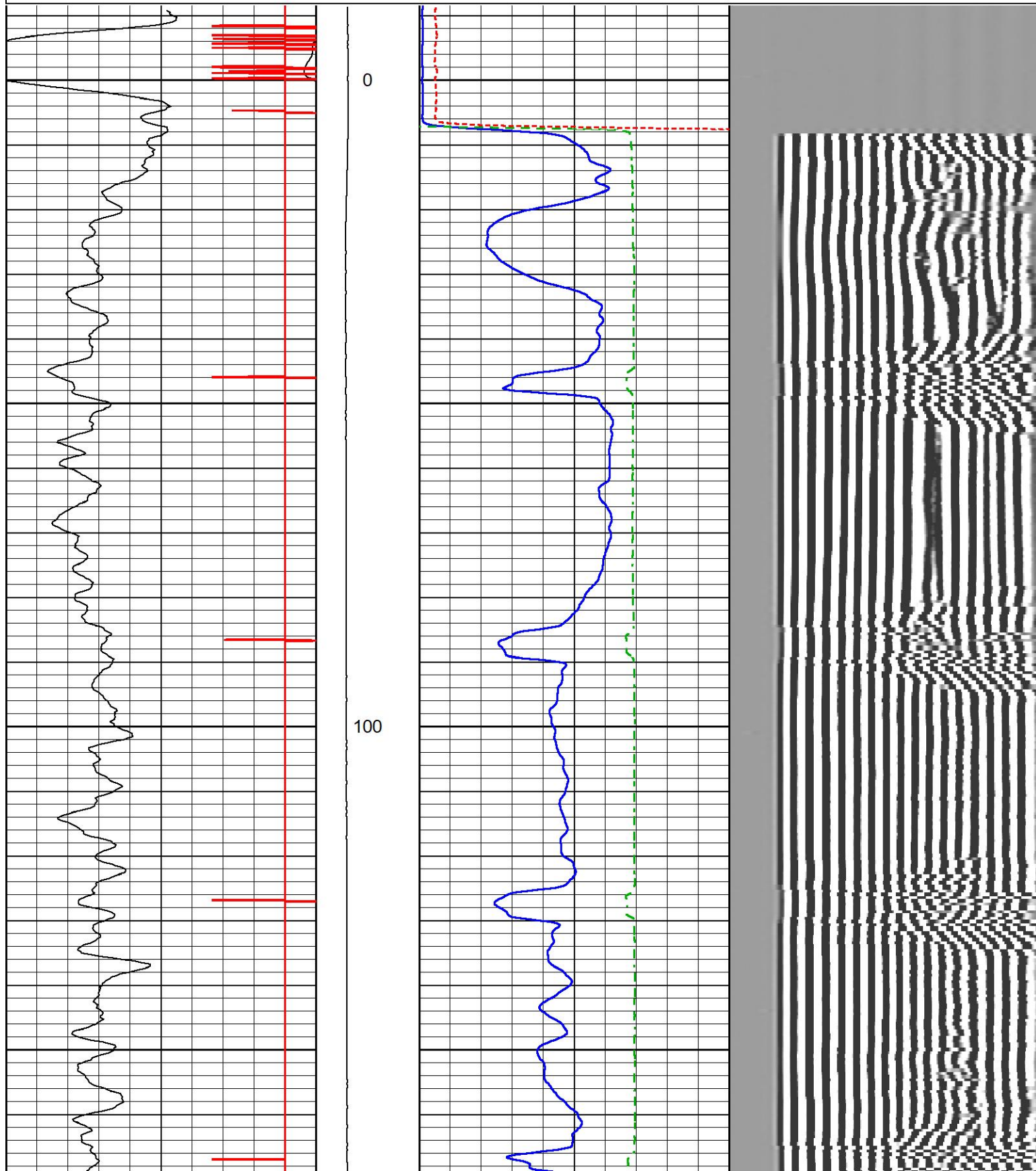
MAIN PASS SCALE 5"=100'

CSG PSI= STATIC MAIN PASS

CSG PSI= STATIC REPEAT PASS

Database File wuertz\_1201-16h.db  
 Dataset Pathname Wattenberg/Wuertz\_1201-16H/Log1/pass4.1  
 Presentation Format rmws\_dsc  
 Dataset Creation Sat Jul 24 11:16:10 2021  
 Charted by Depth in Feet scaled 1:240

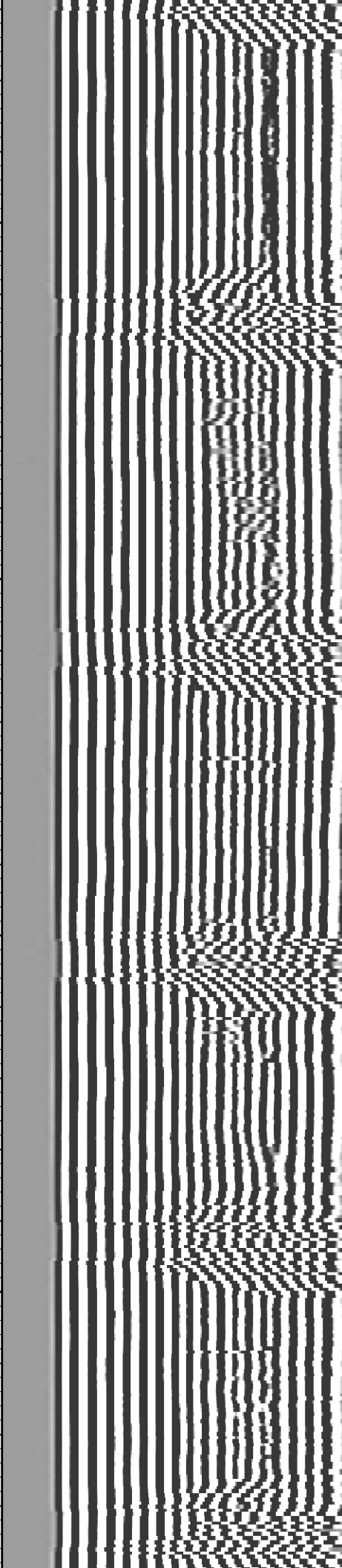
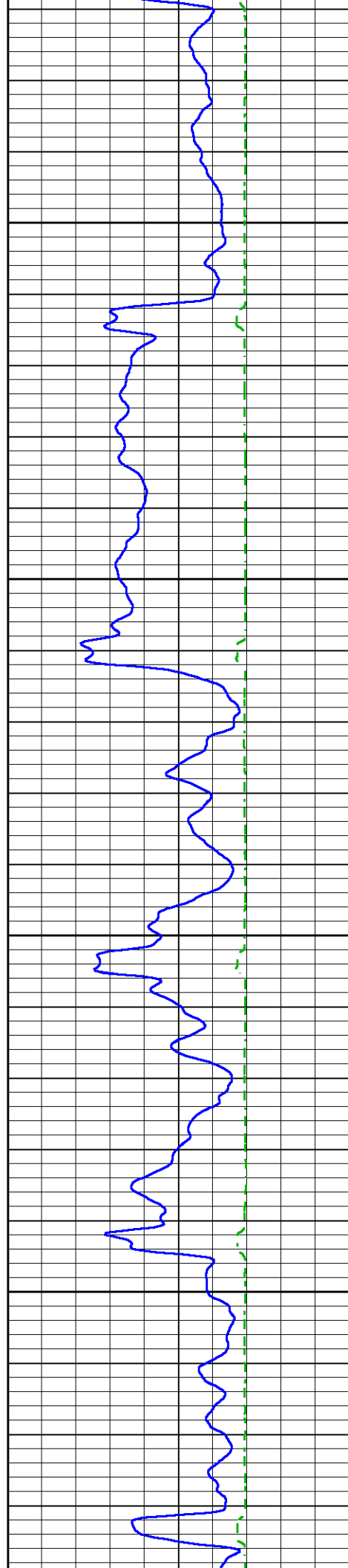
0	GR	150	LTEN	0	AMPx5 (mV)	20	200	VDL (usec)	1200
-27	CCL	3	0 (lb 1500)	0	AMP (mV)	100			
				380	TT (usec)	180			

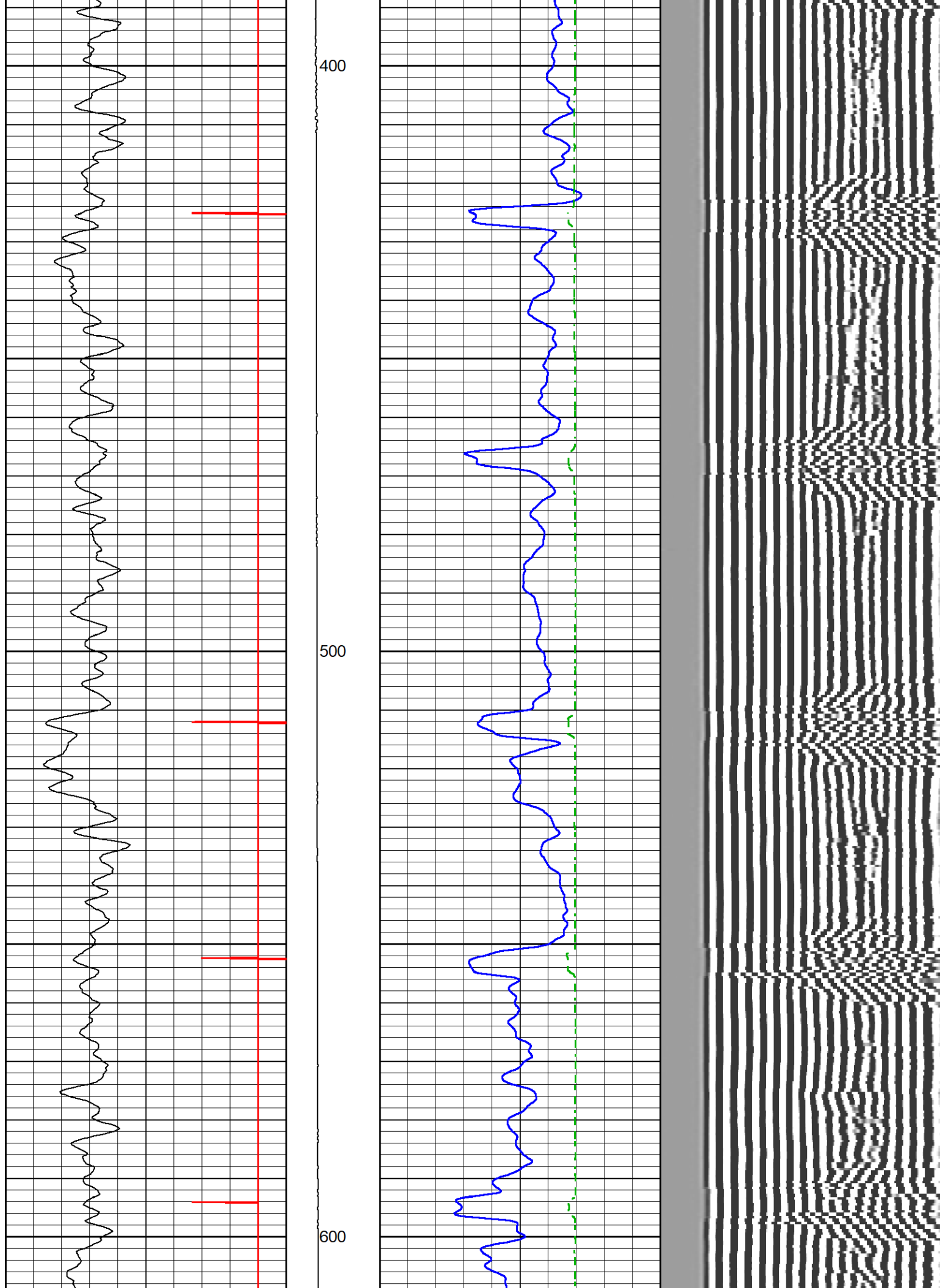


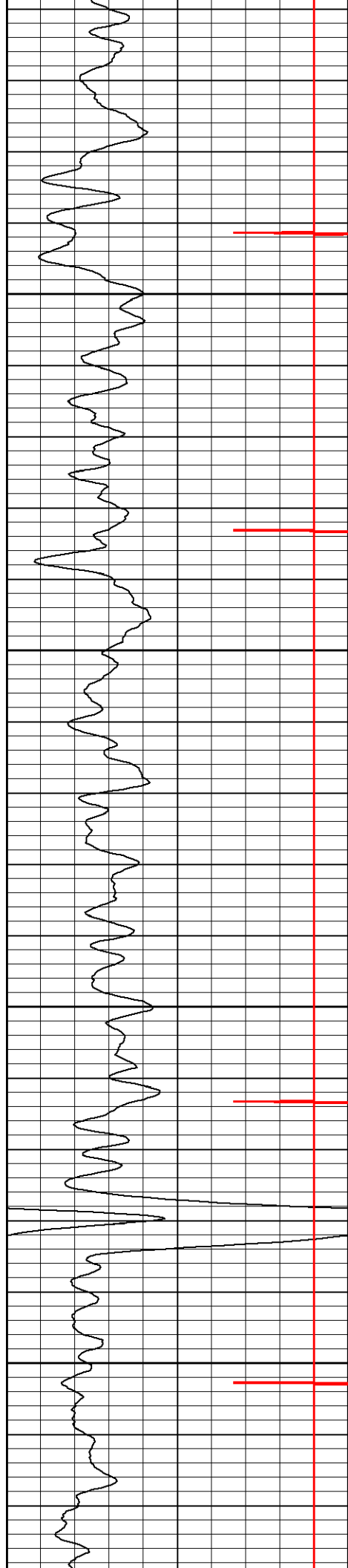


200

300

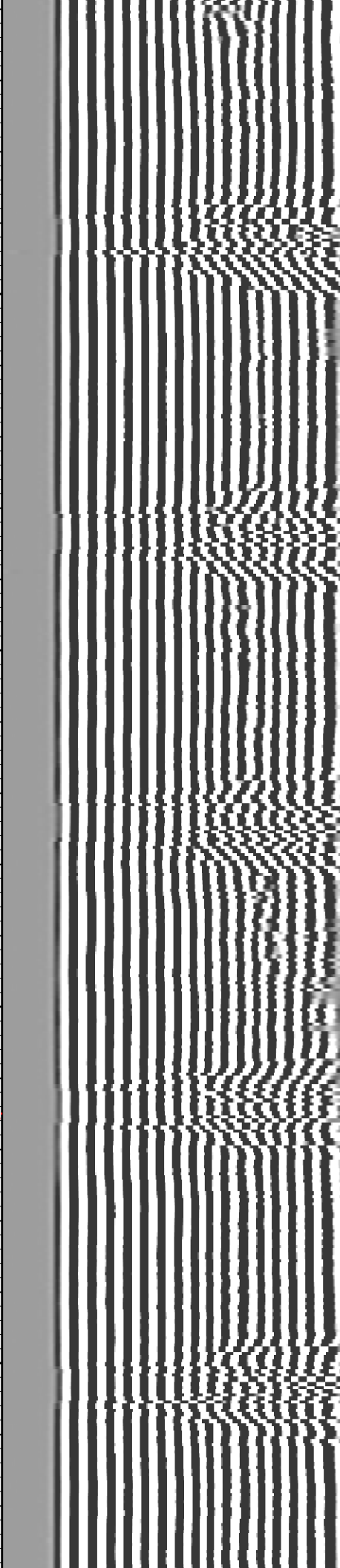
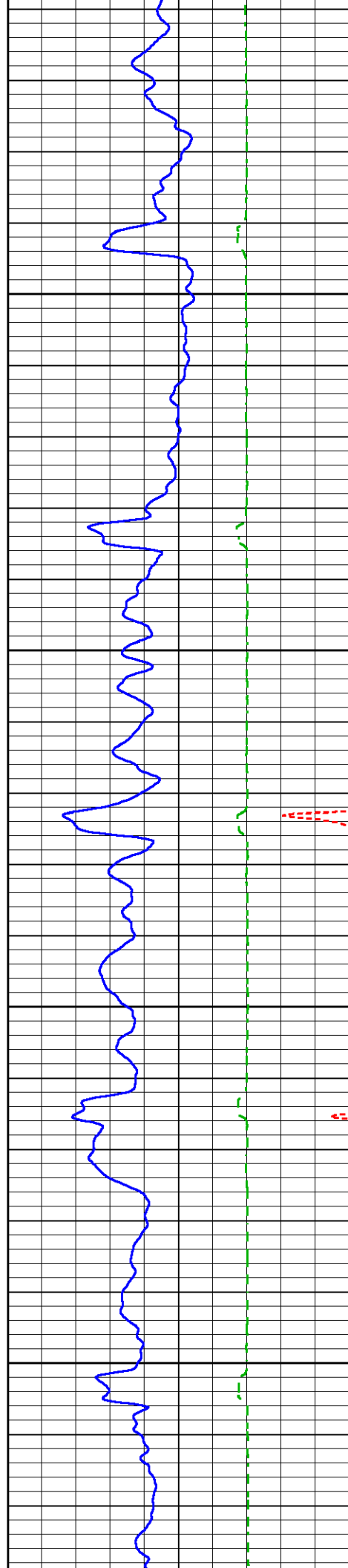




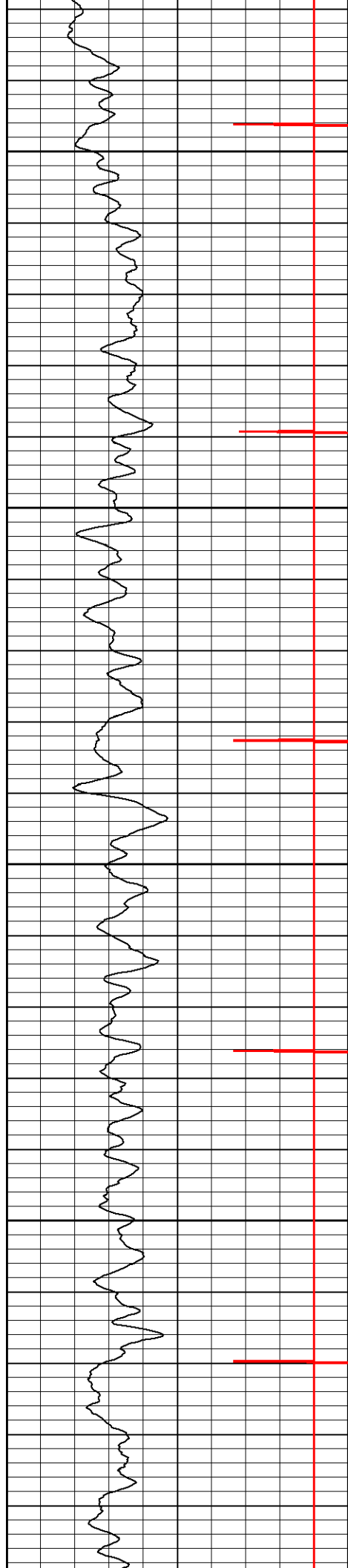


700

800

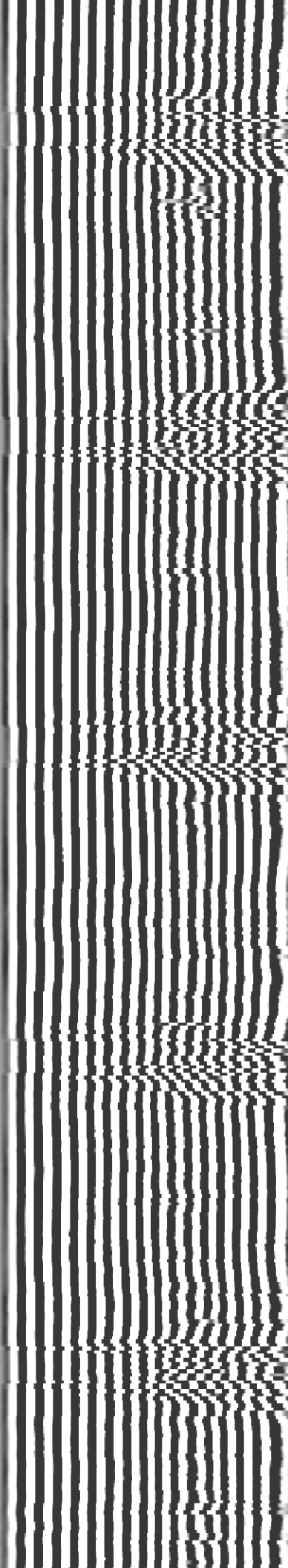
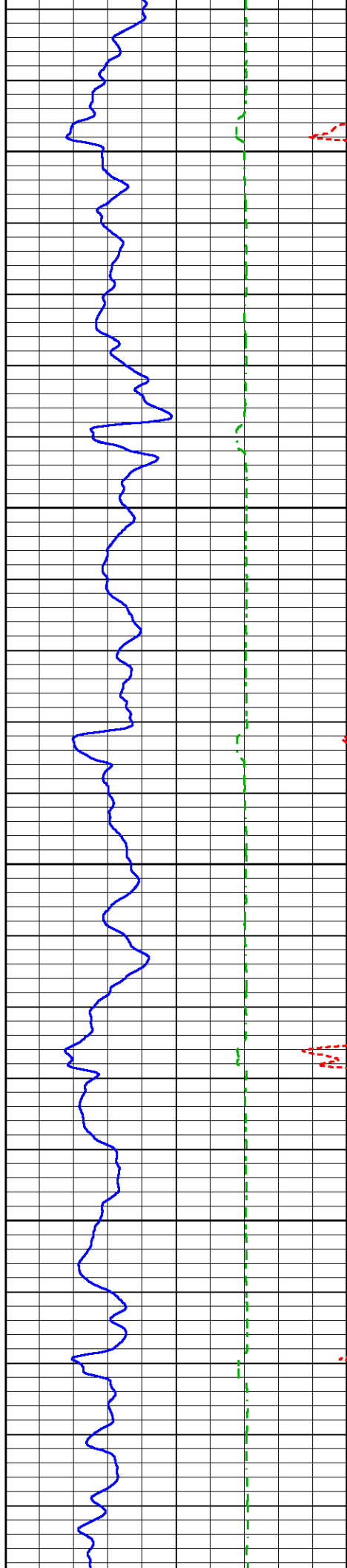


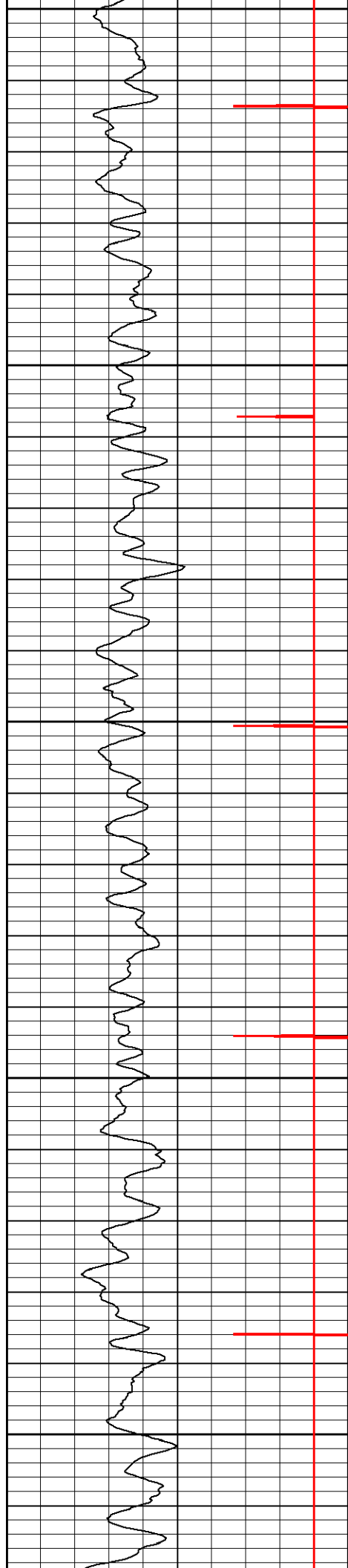




900

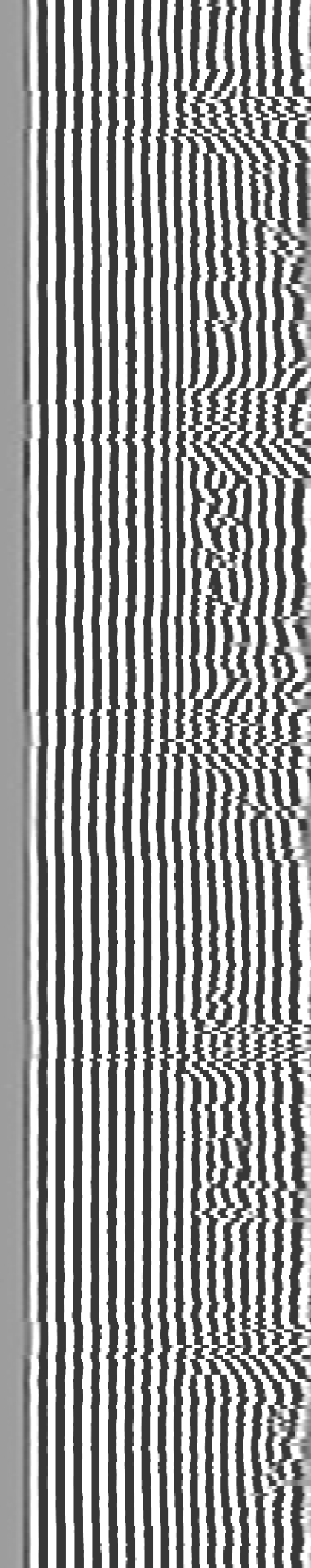
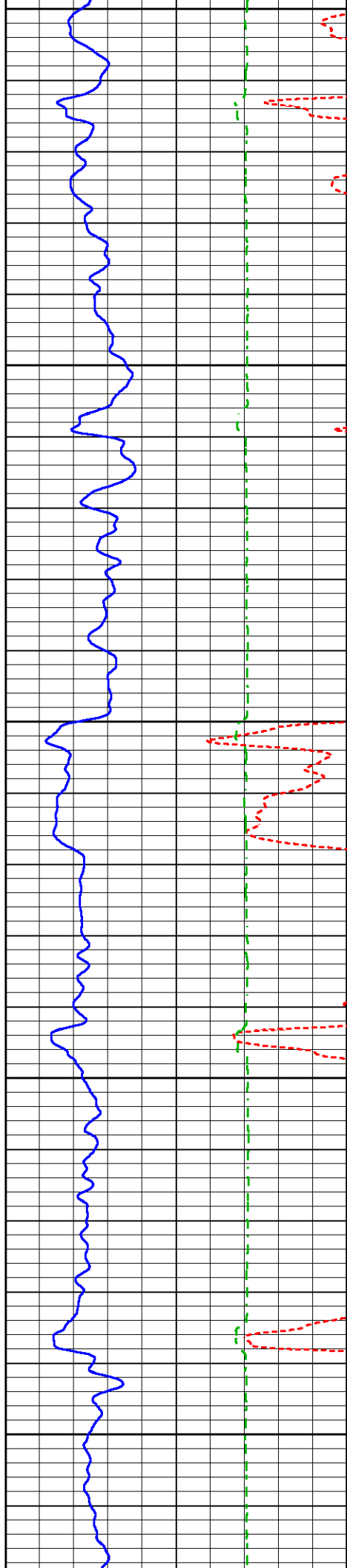
1000

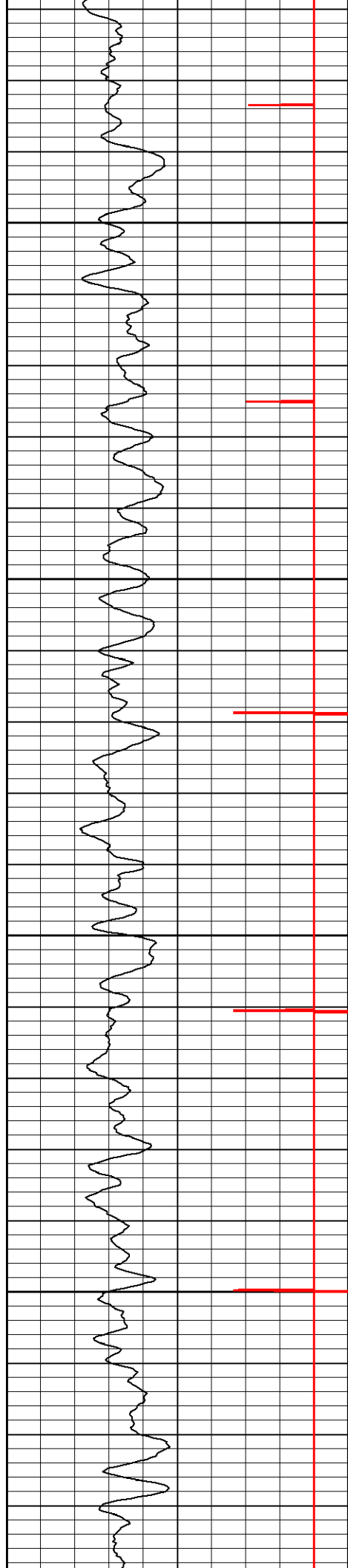




1100

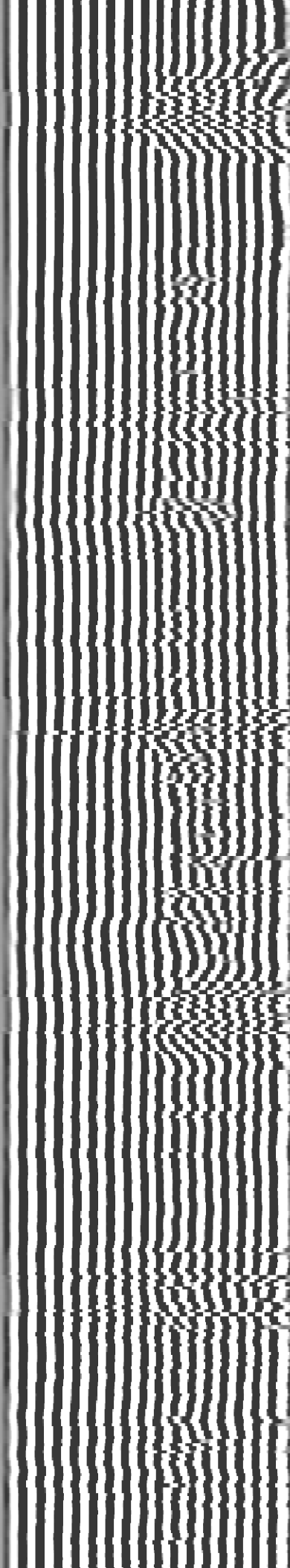
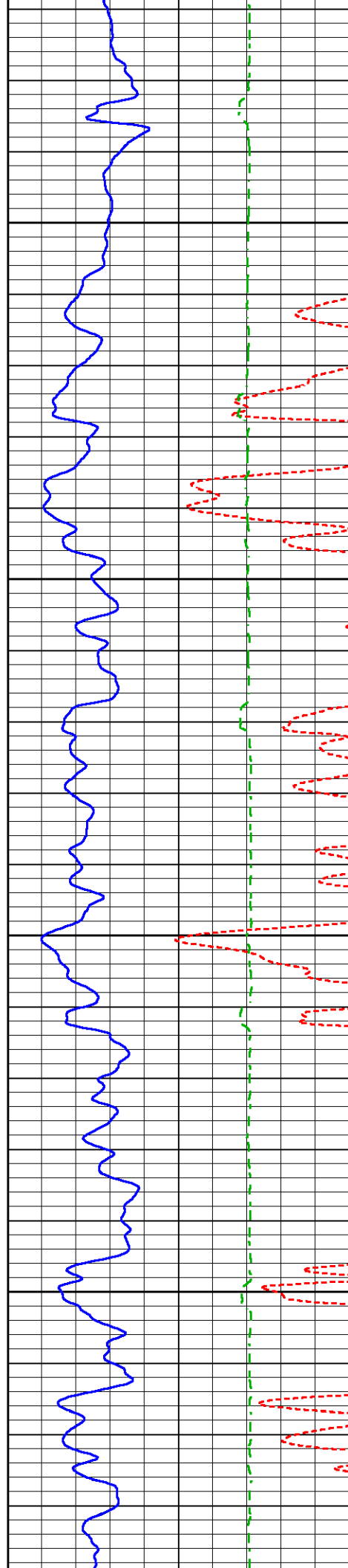
1200



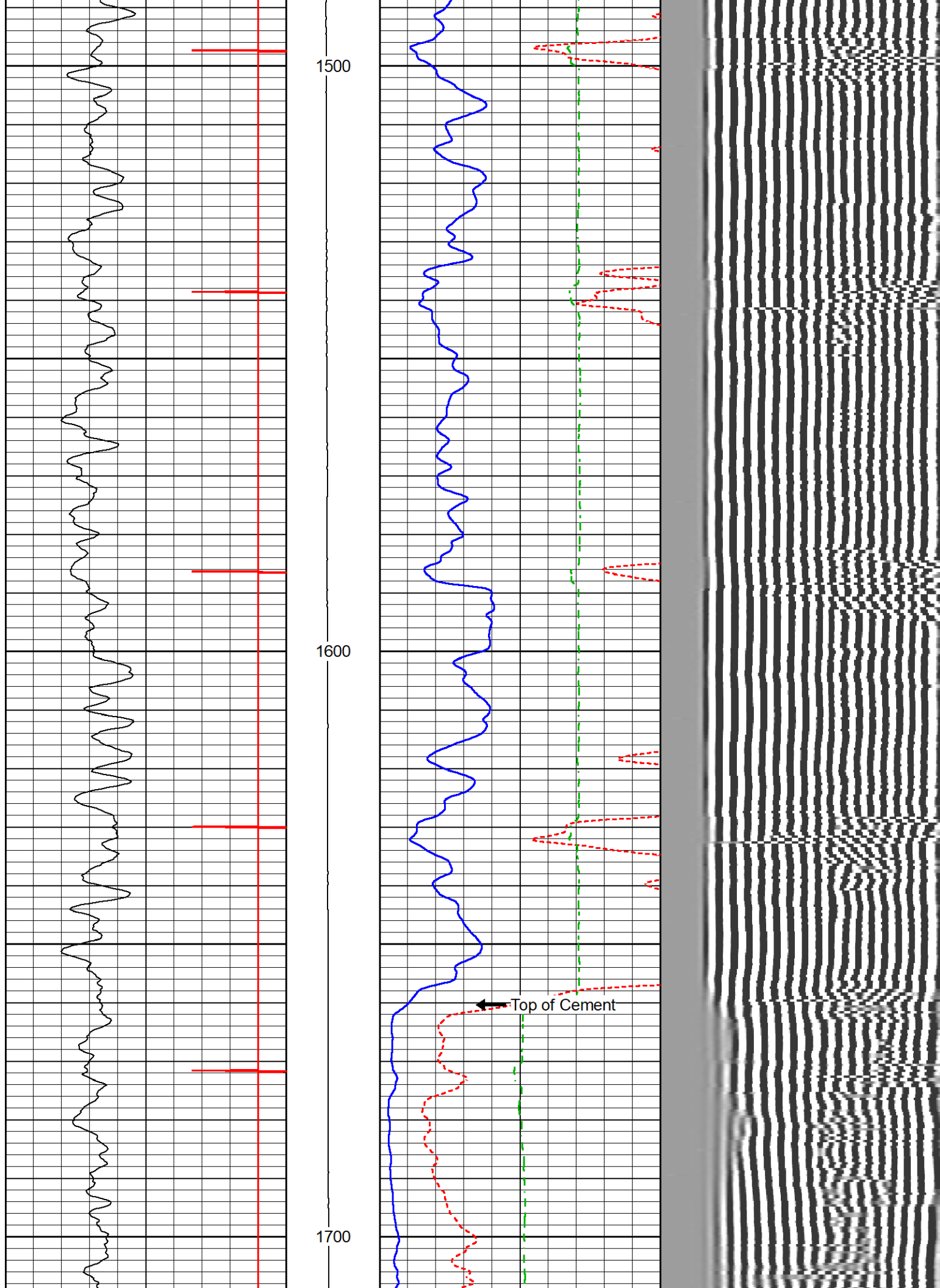


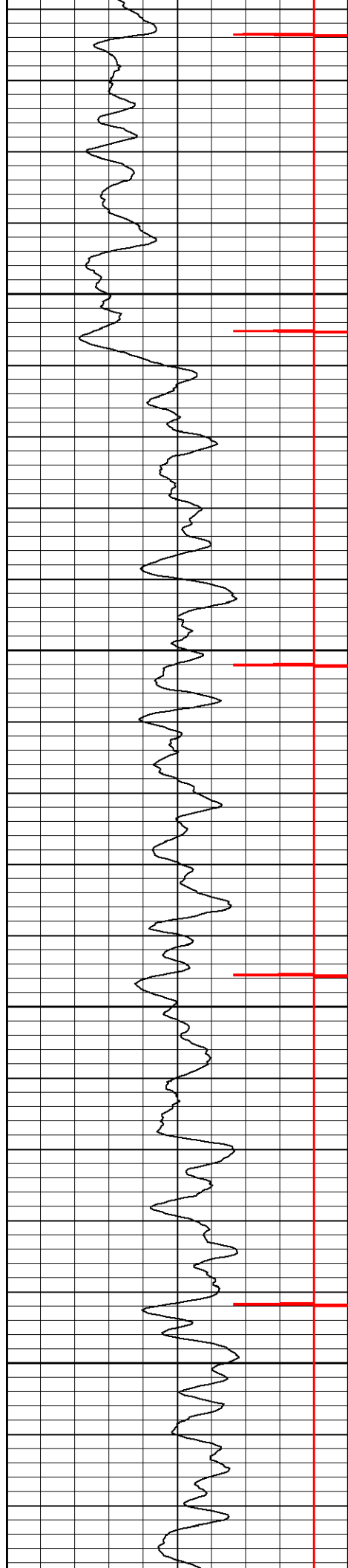
1300

1400



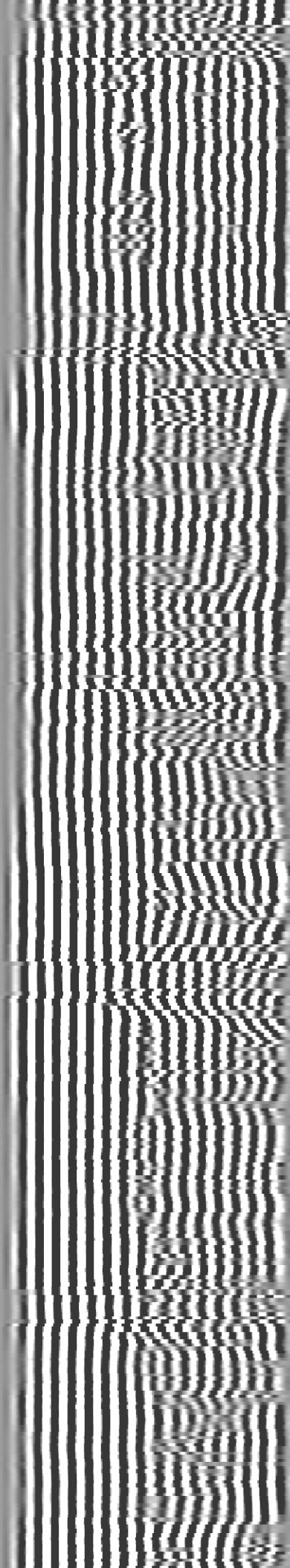
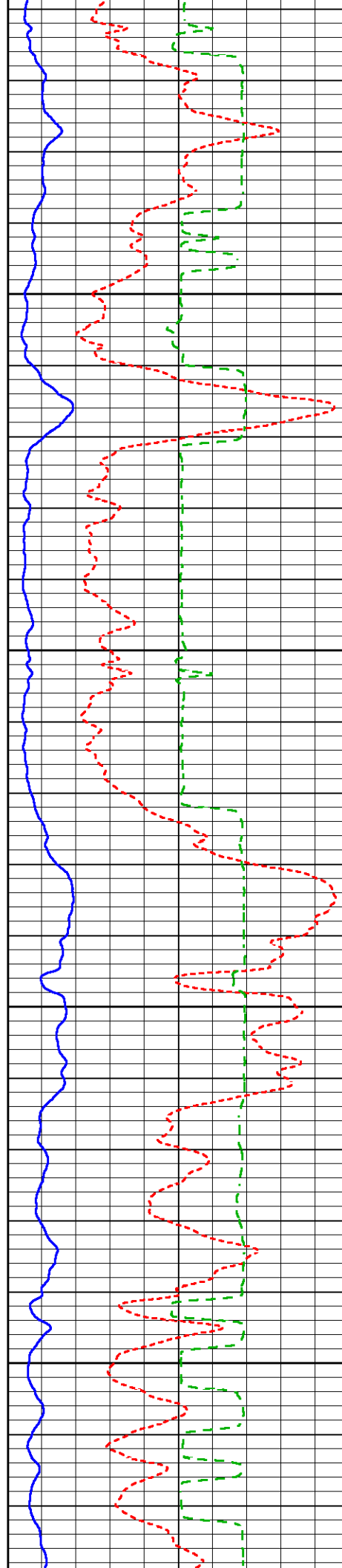


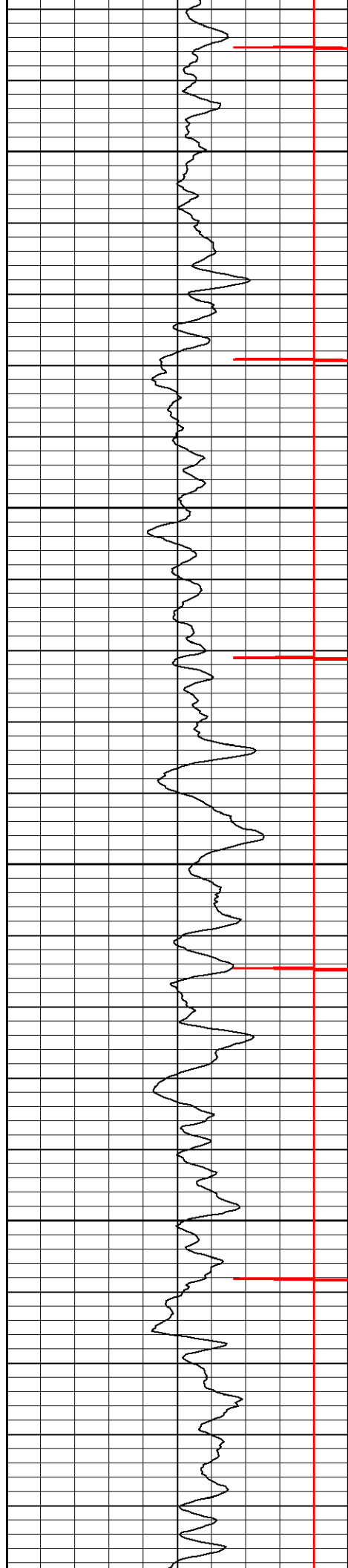




1800

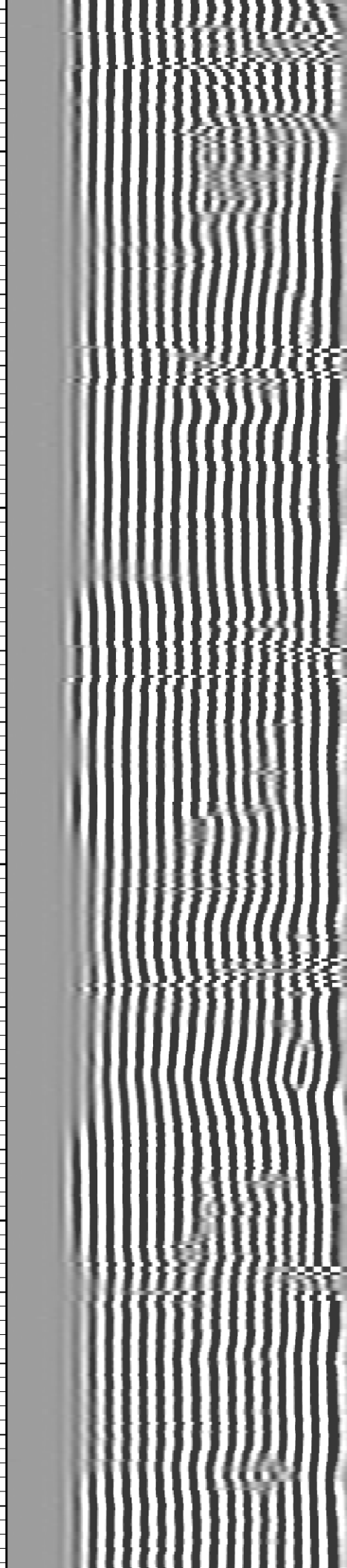
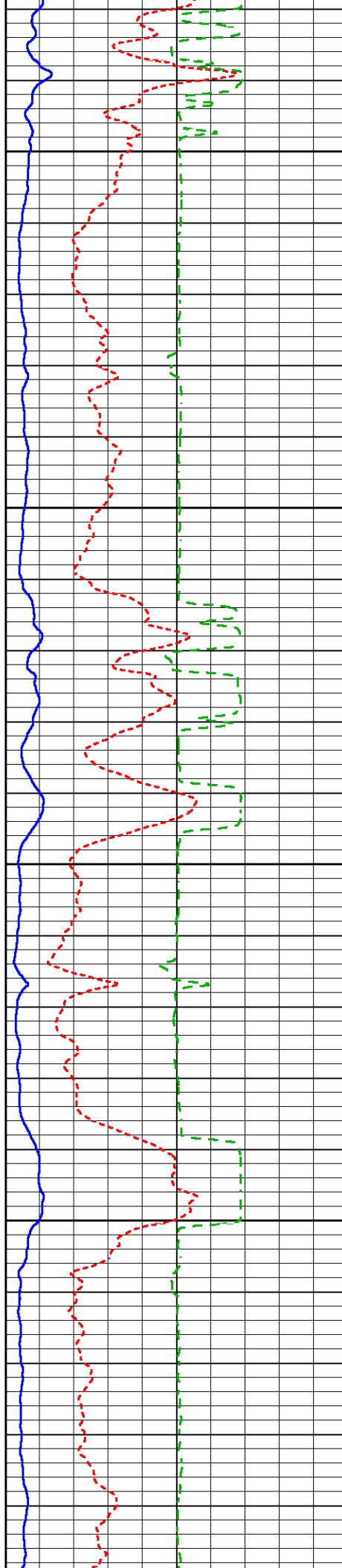
1900

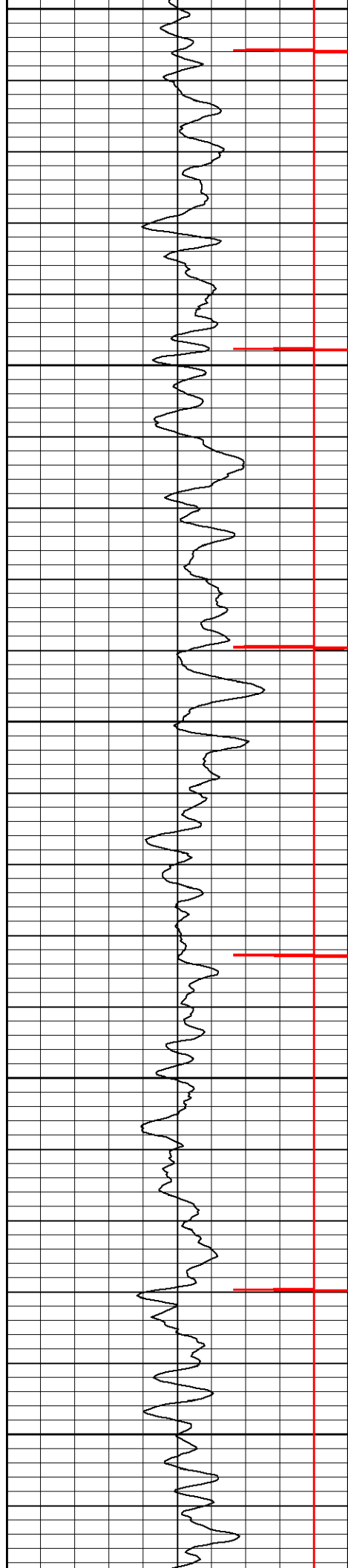




2000

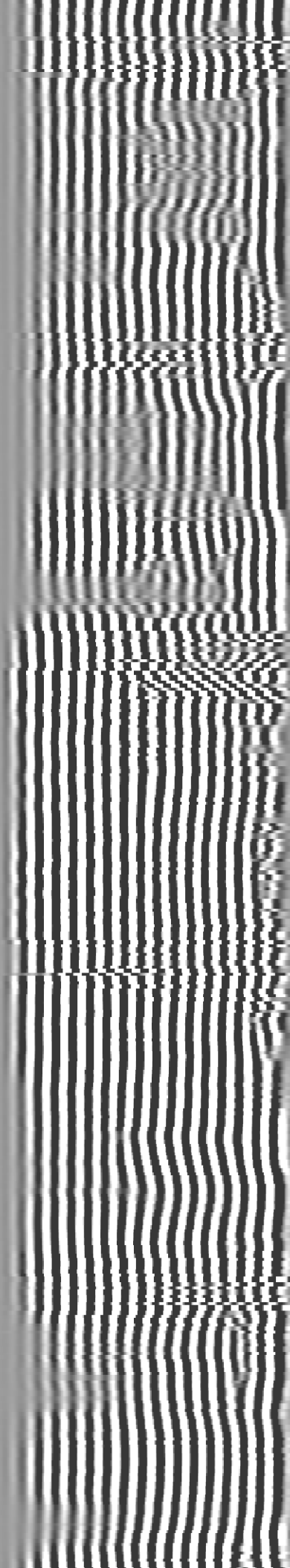
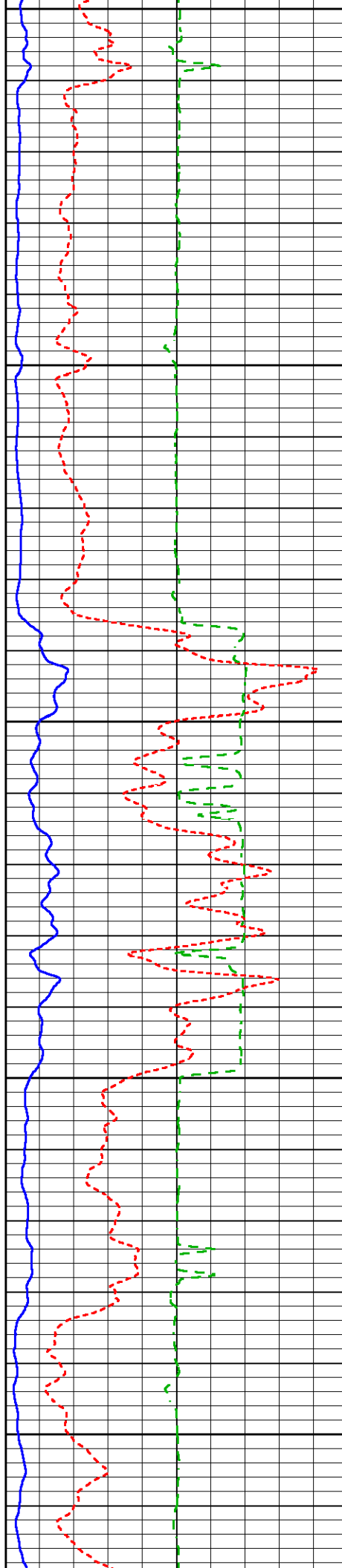
2100

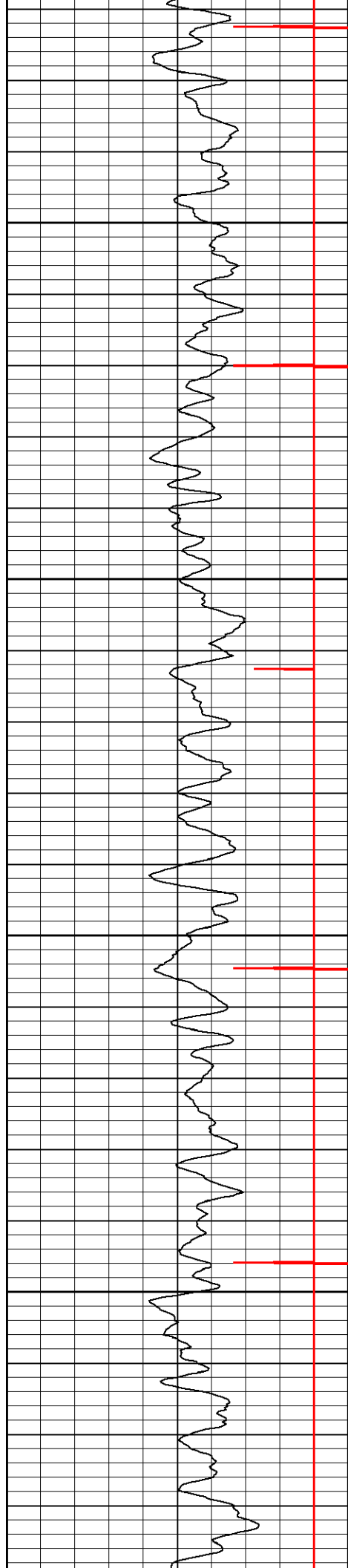




2200

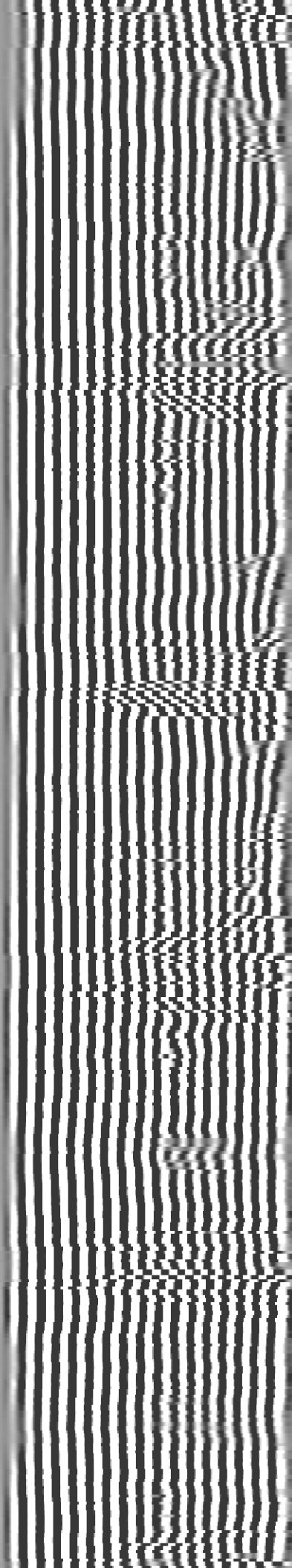
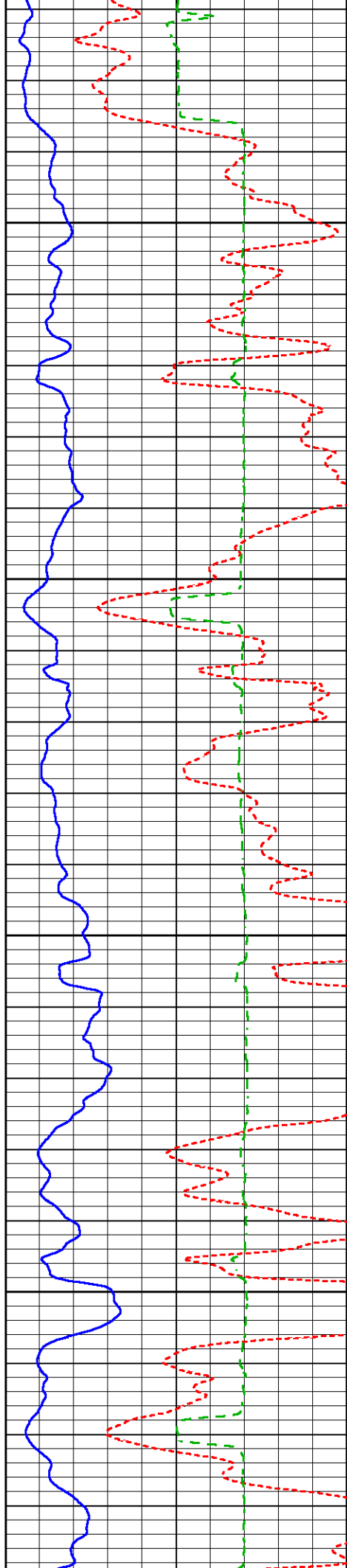
2300

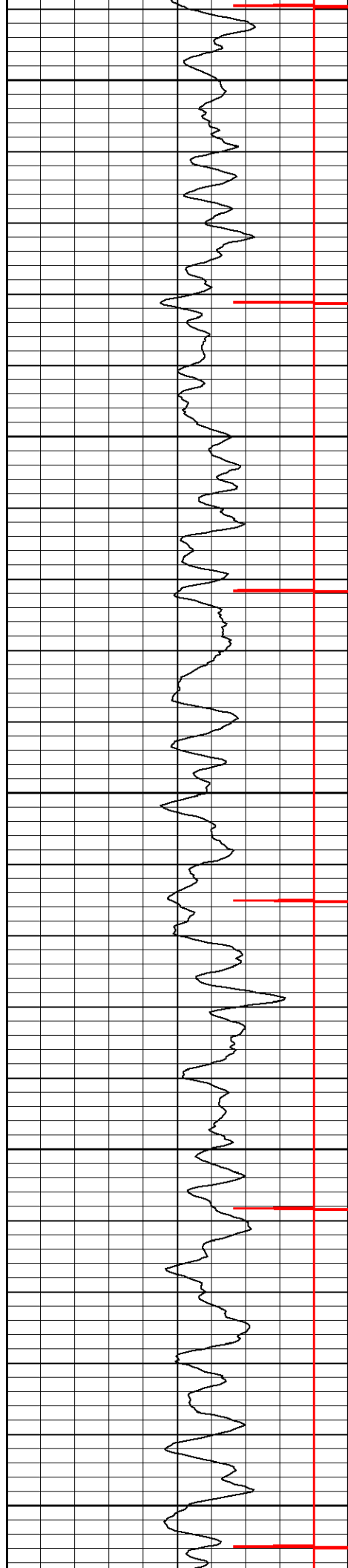




2400

2500

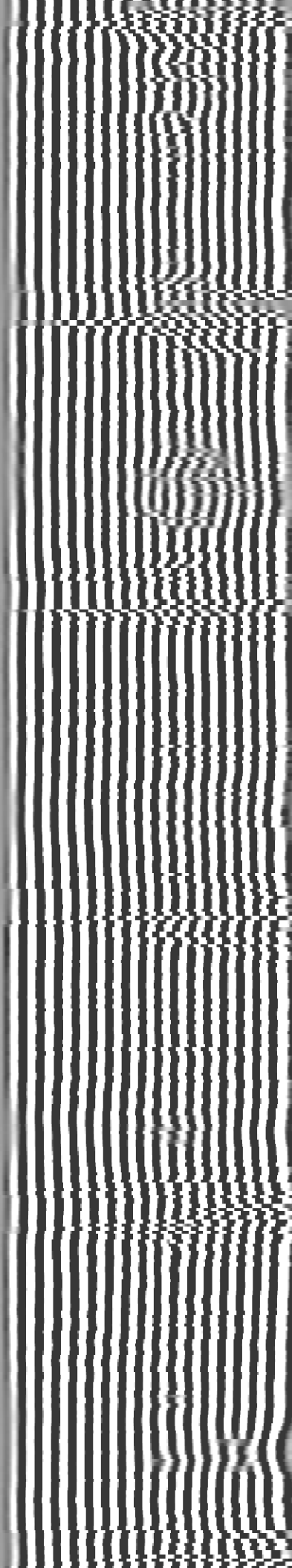
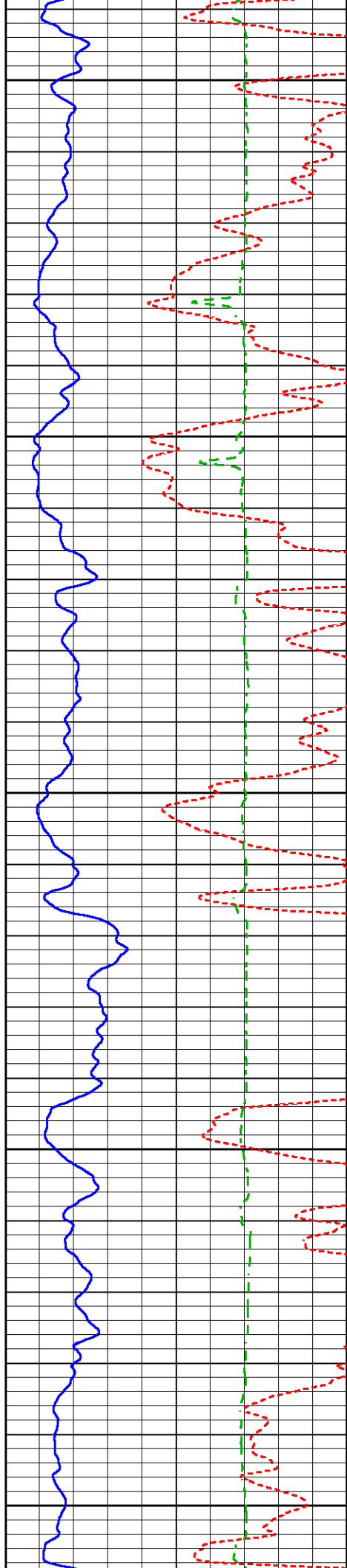




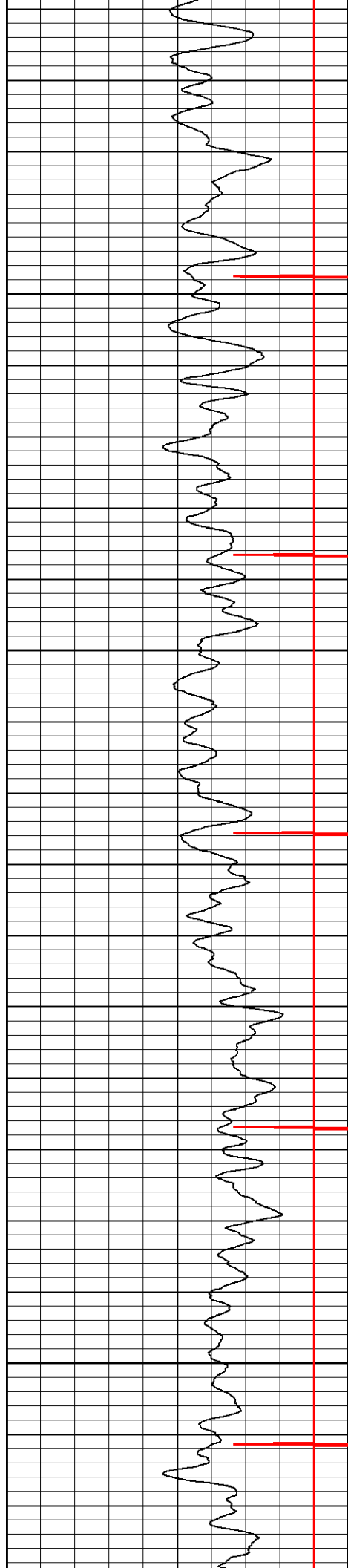
2600

2700

2800

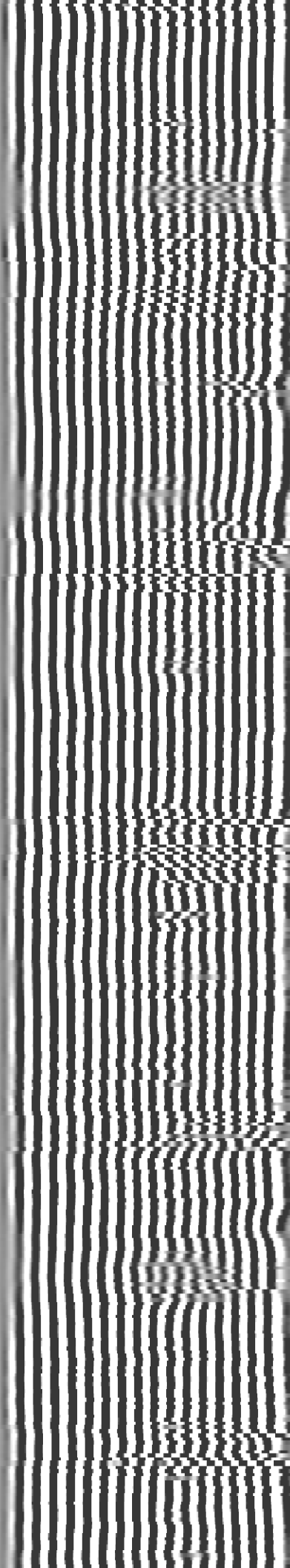
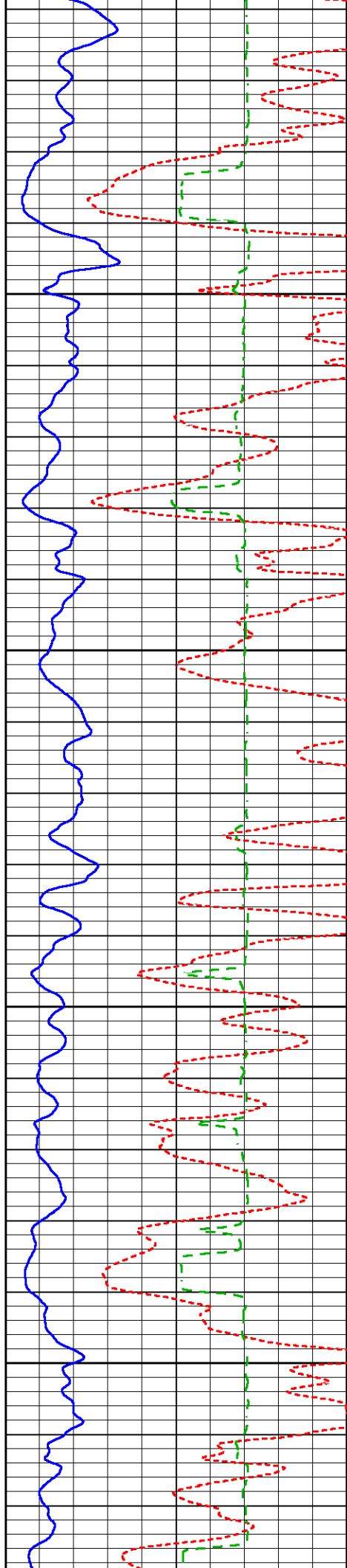


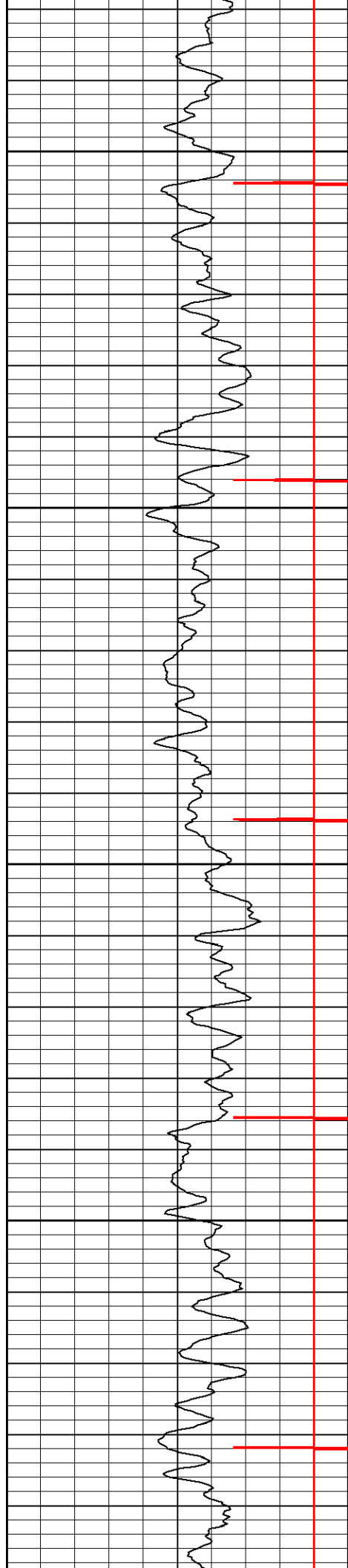




2900

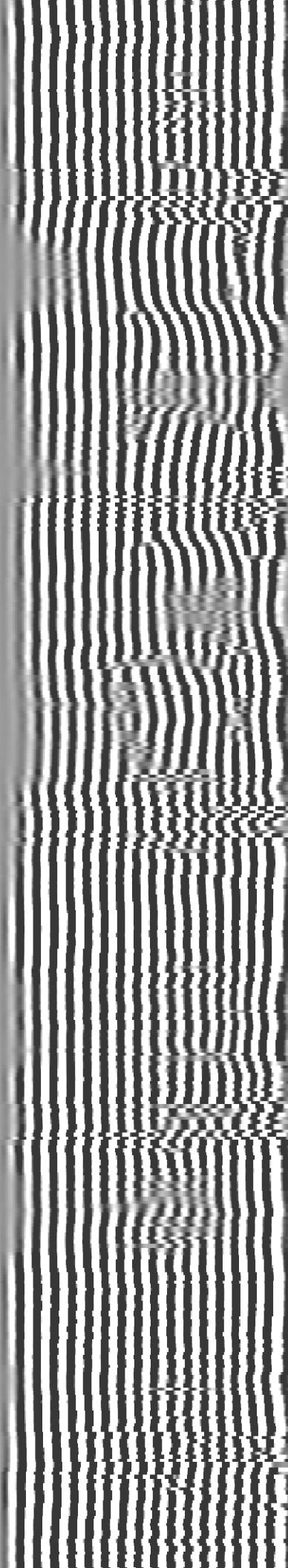
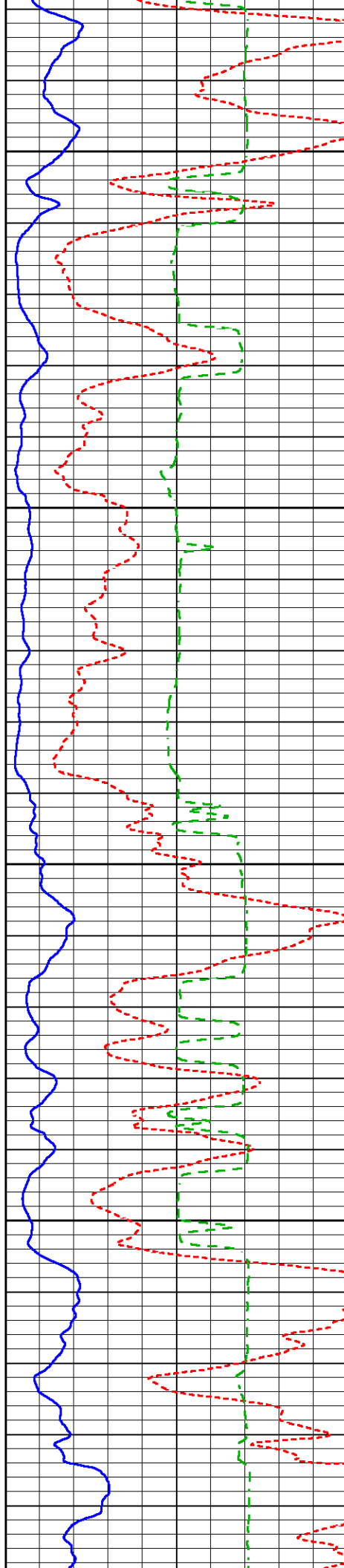
3000

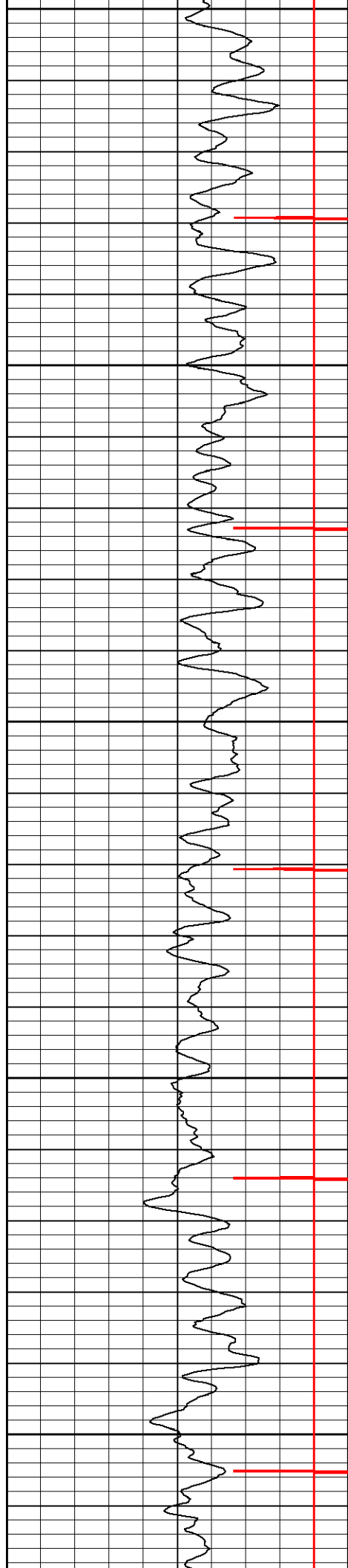




3100

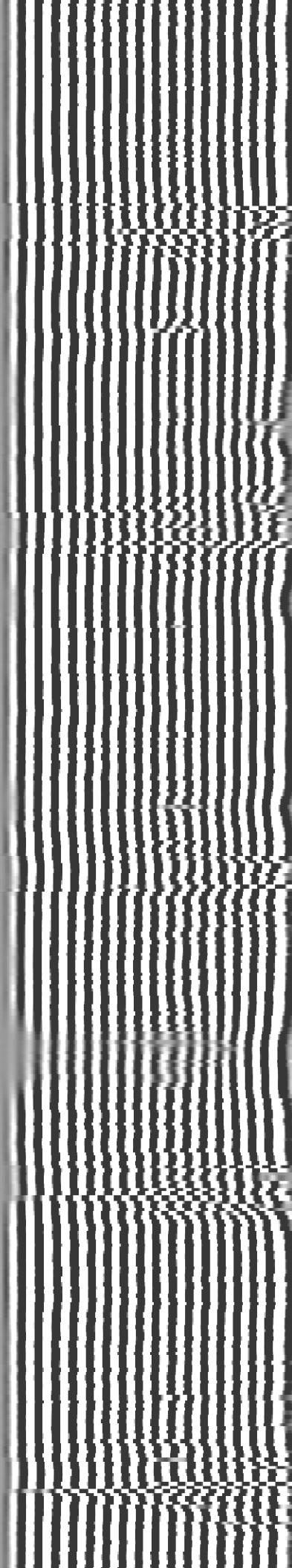
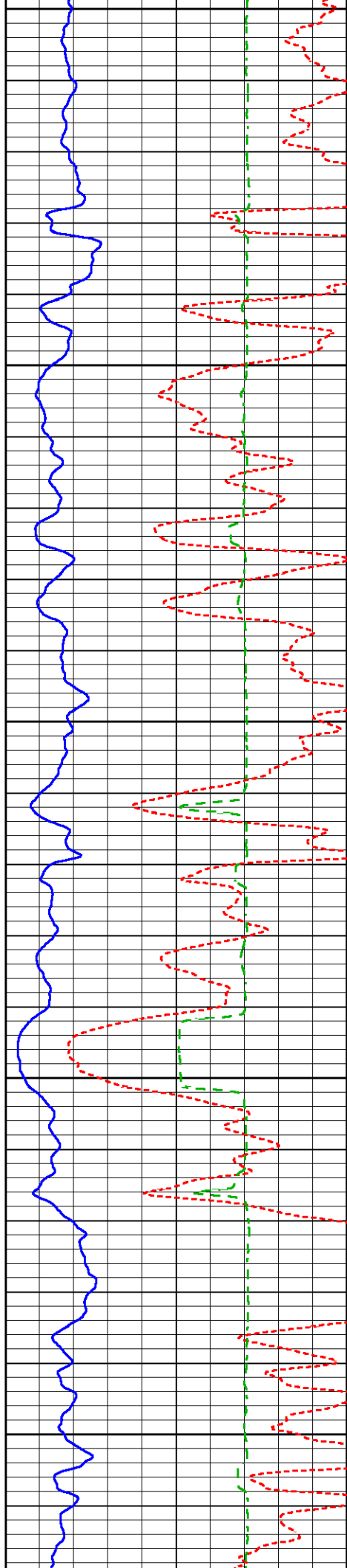
3200

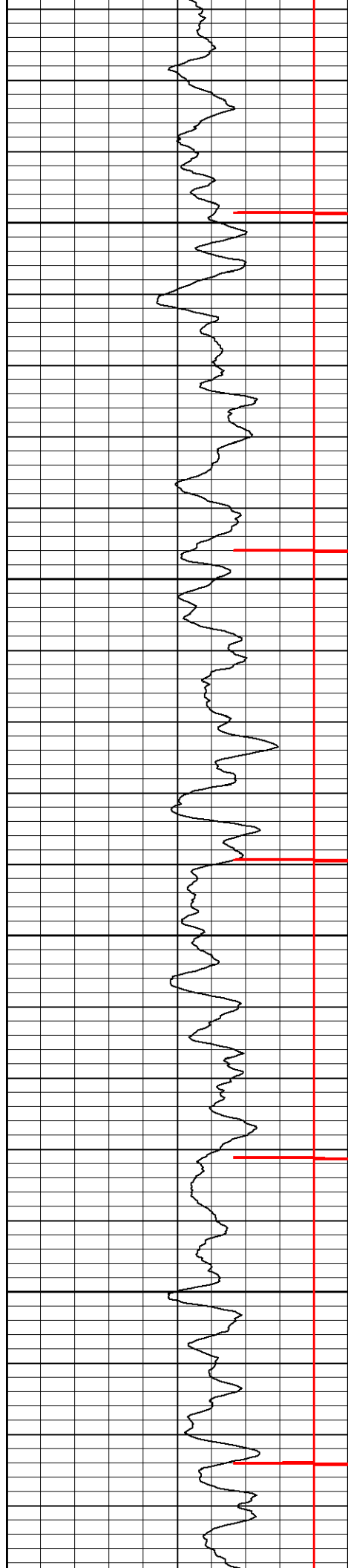




3300

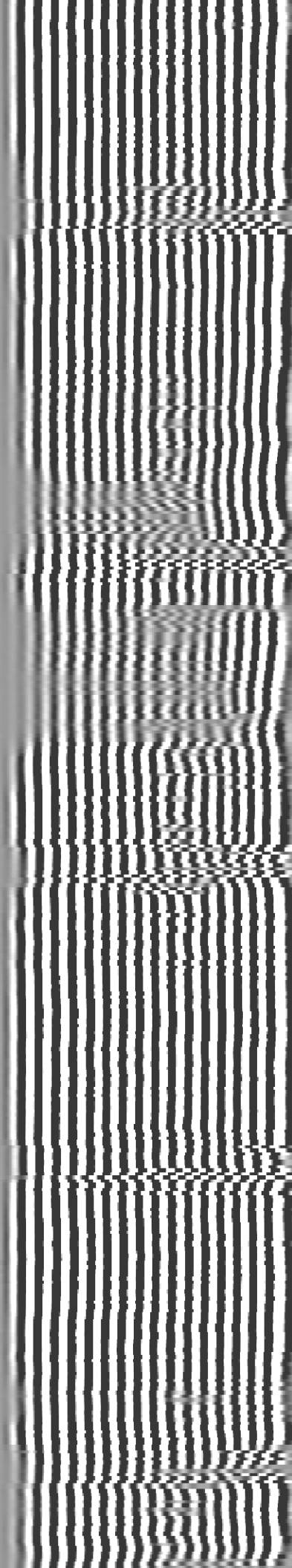
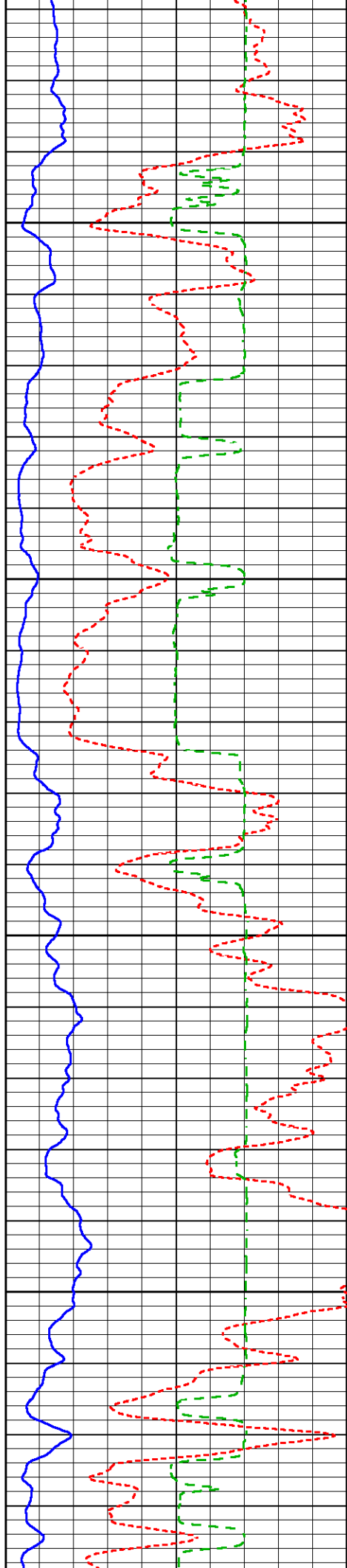
3400

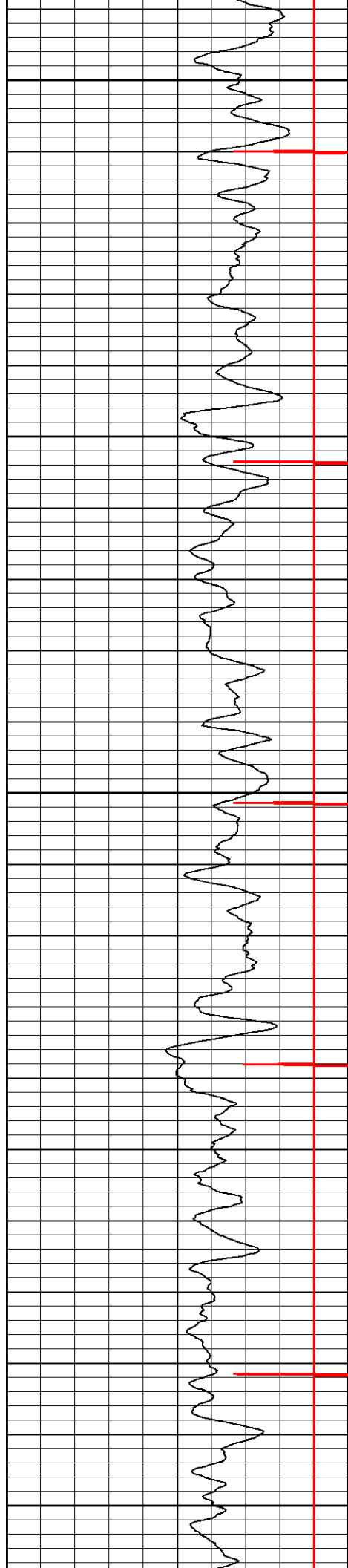




3500

3600

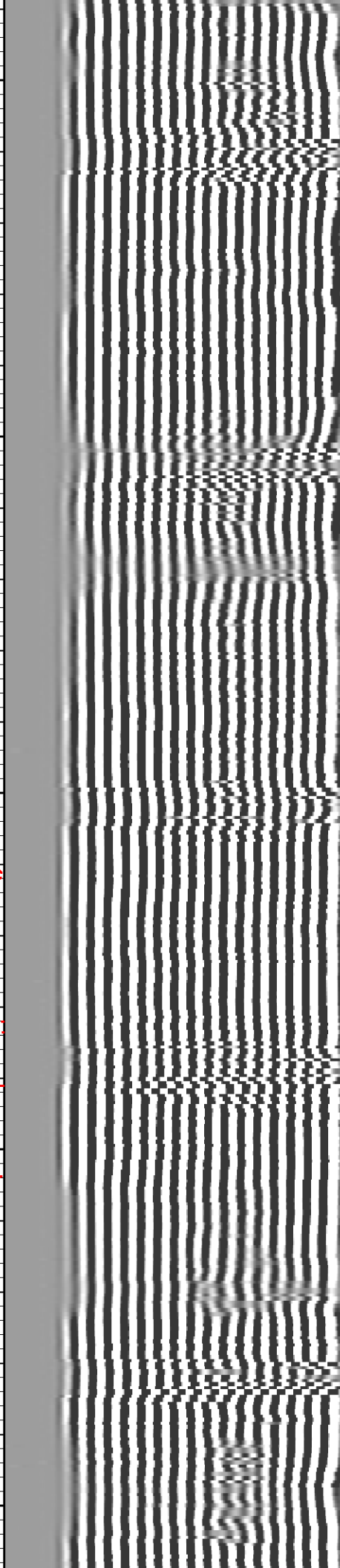
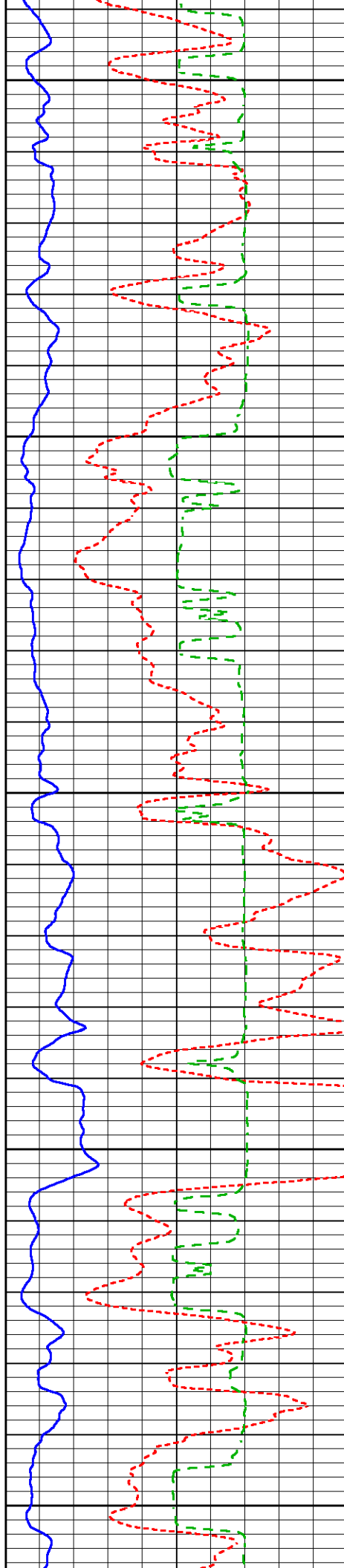




3700

3800

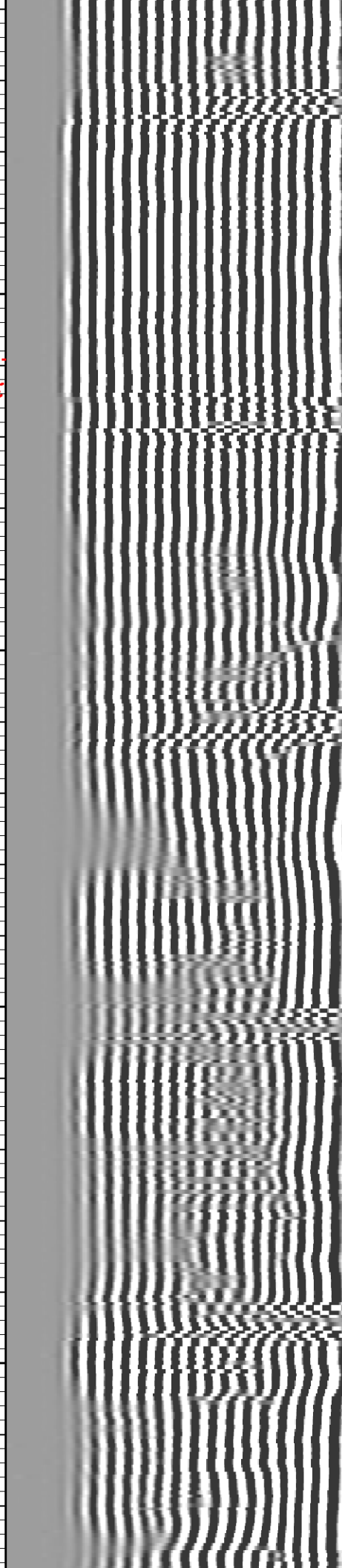
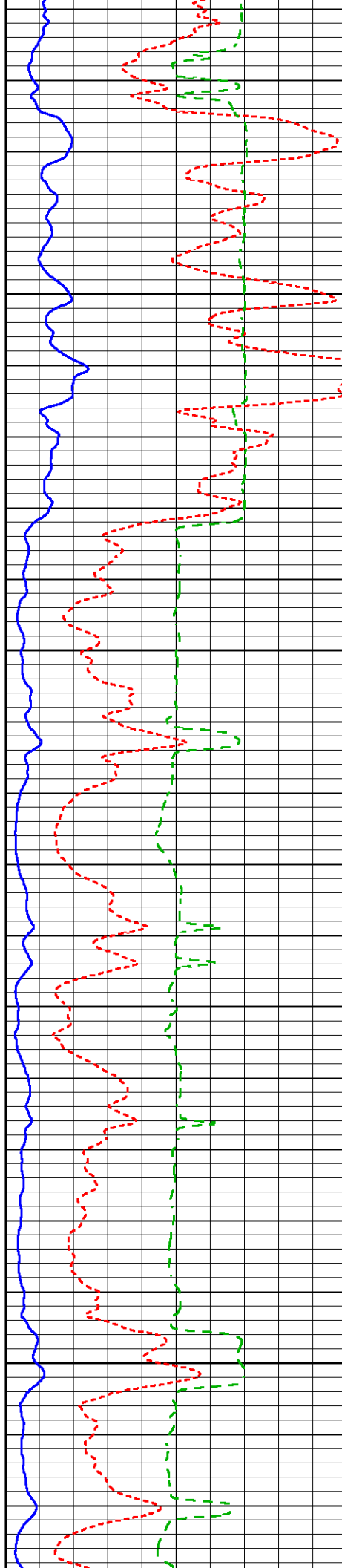
3900



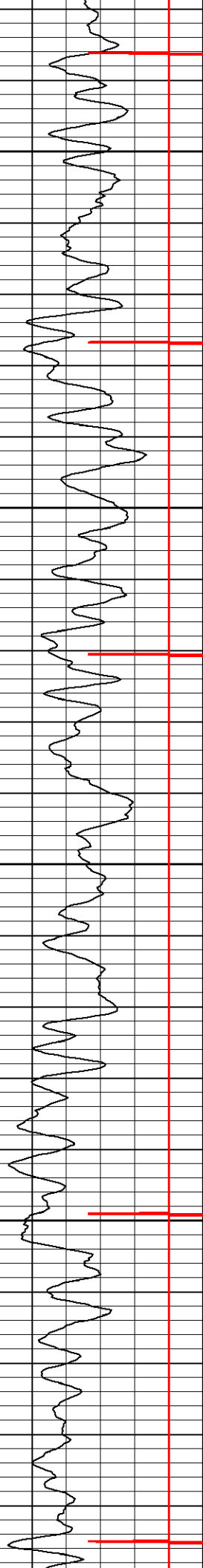


4000

4100

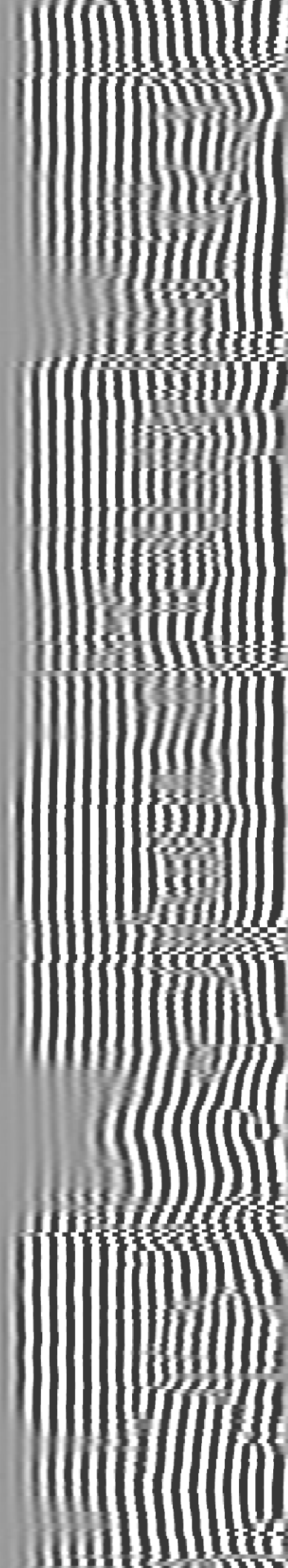
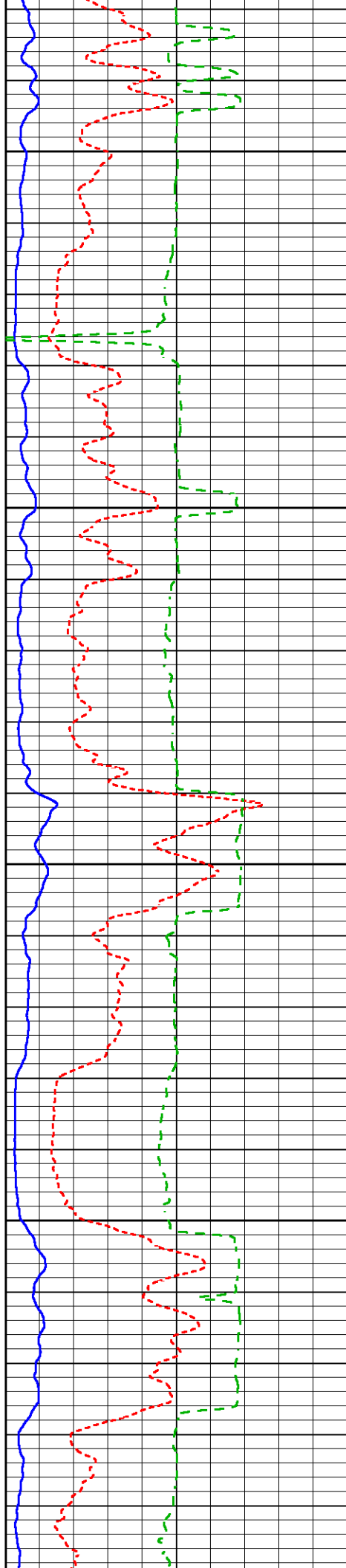


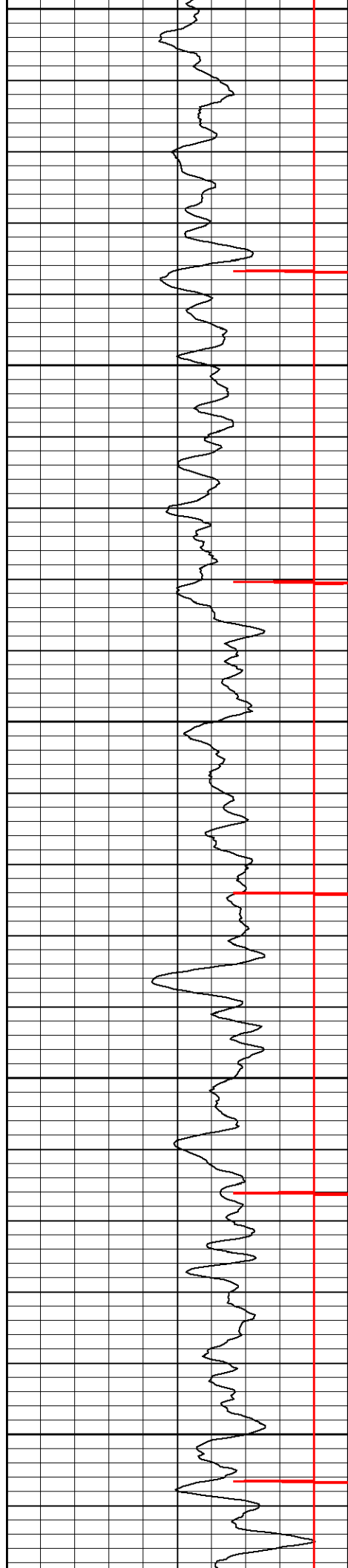




4200

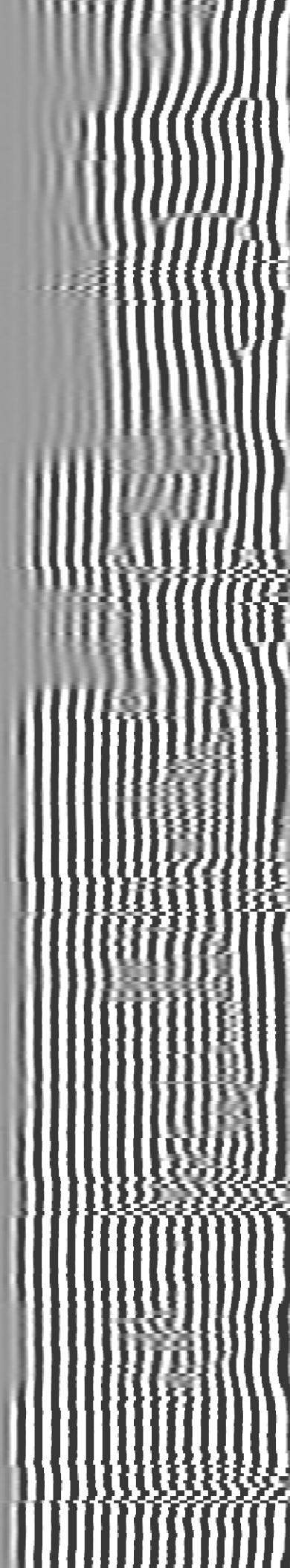
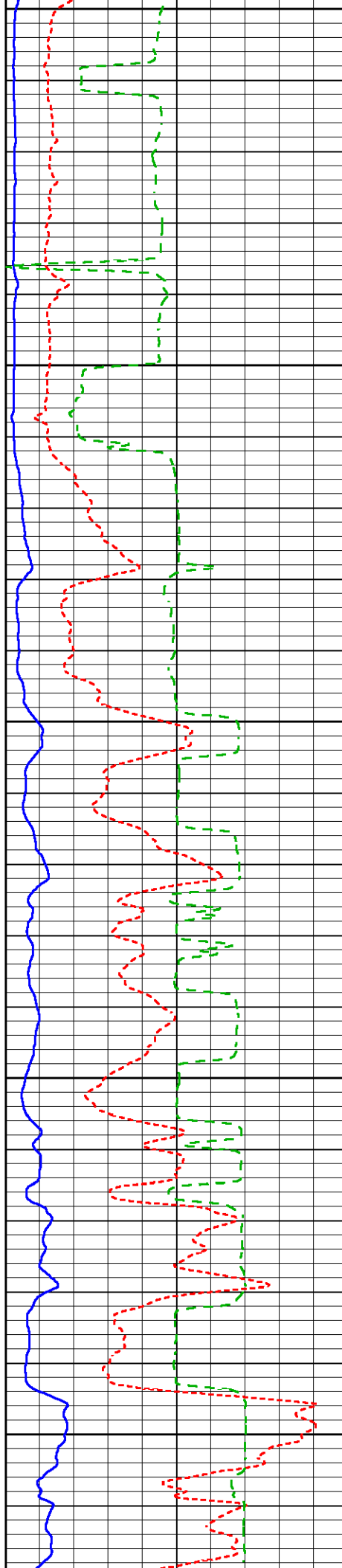
4300

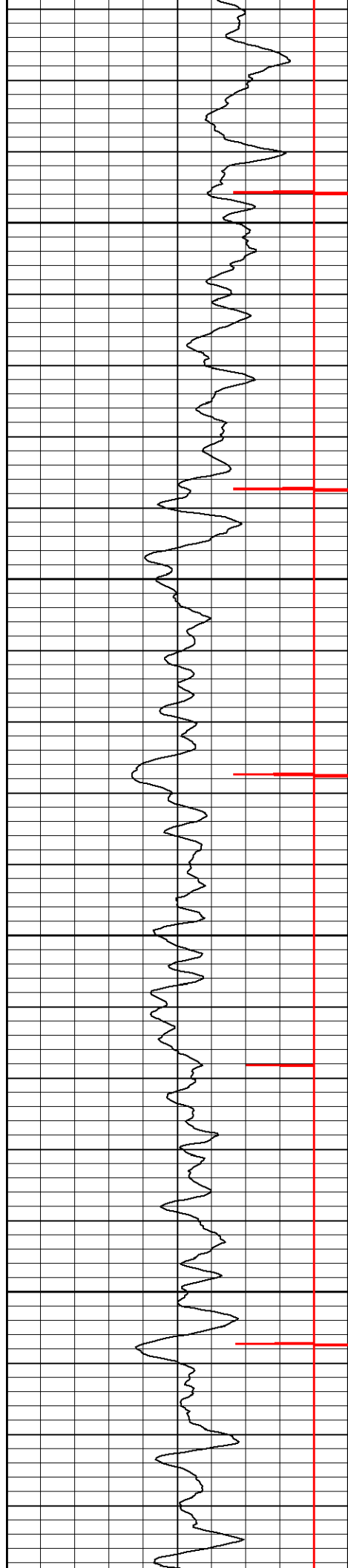




4400

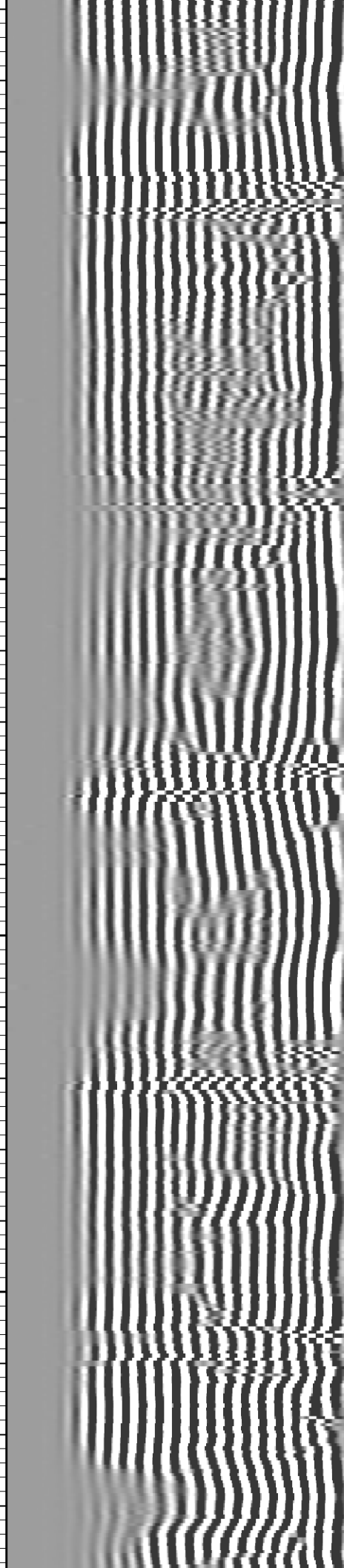
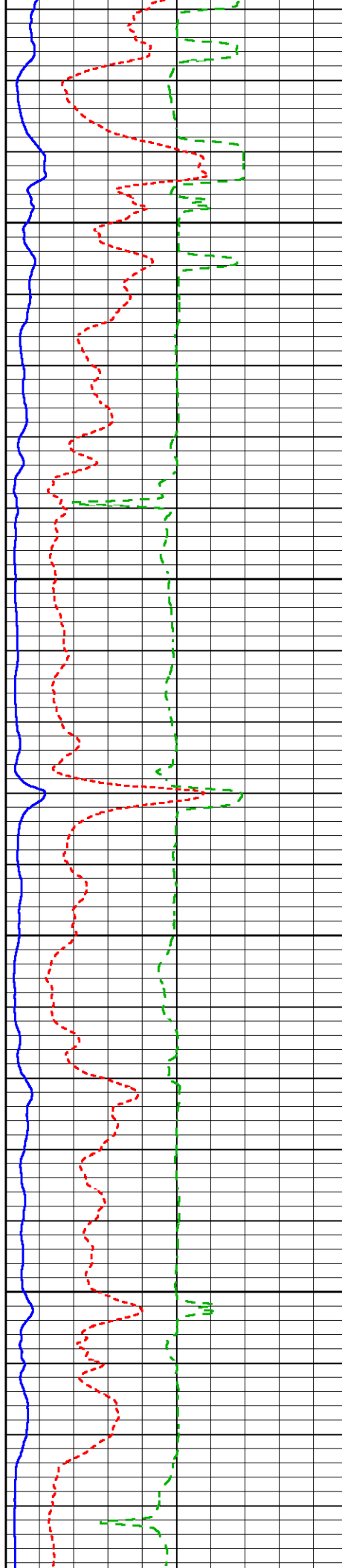
4500

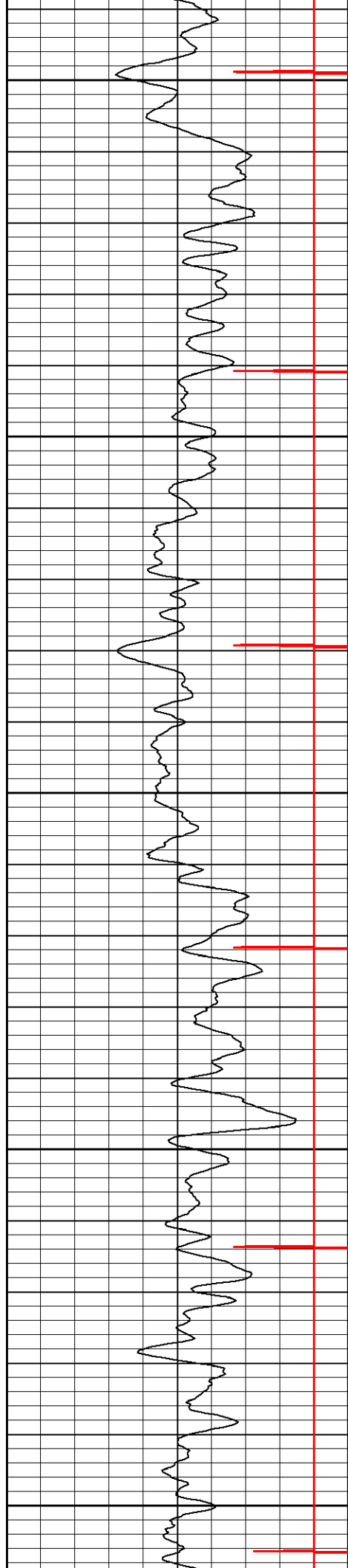




4600

4700

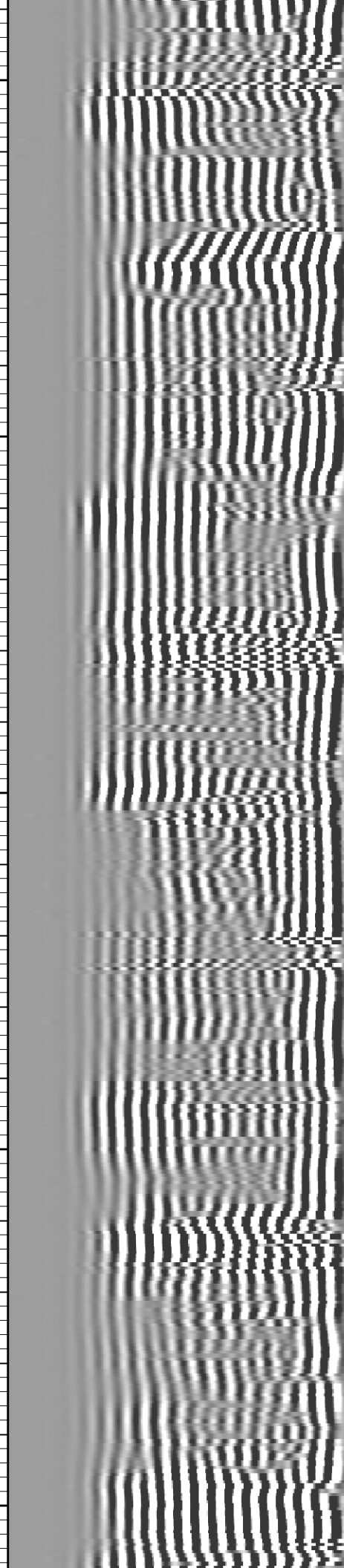
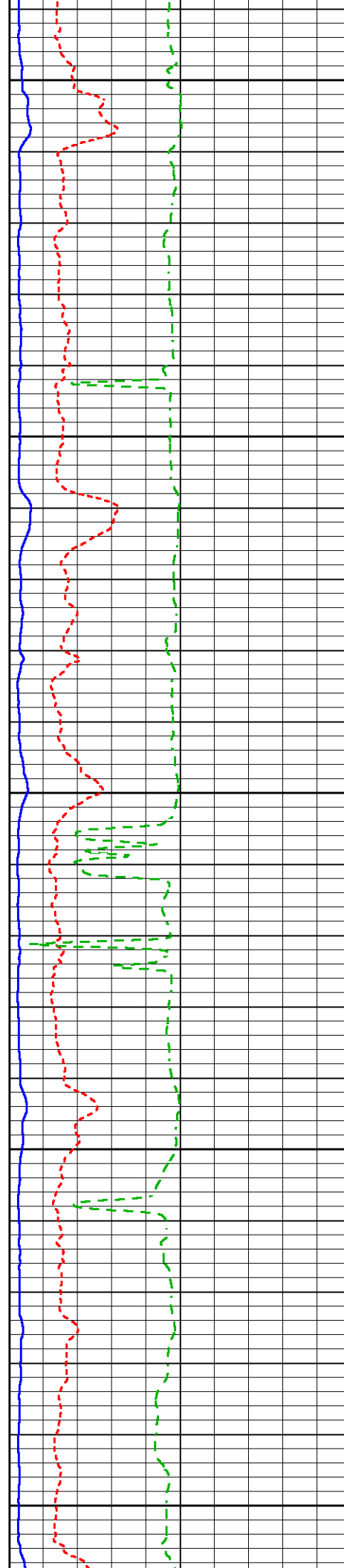


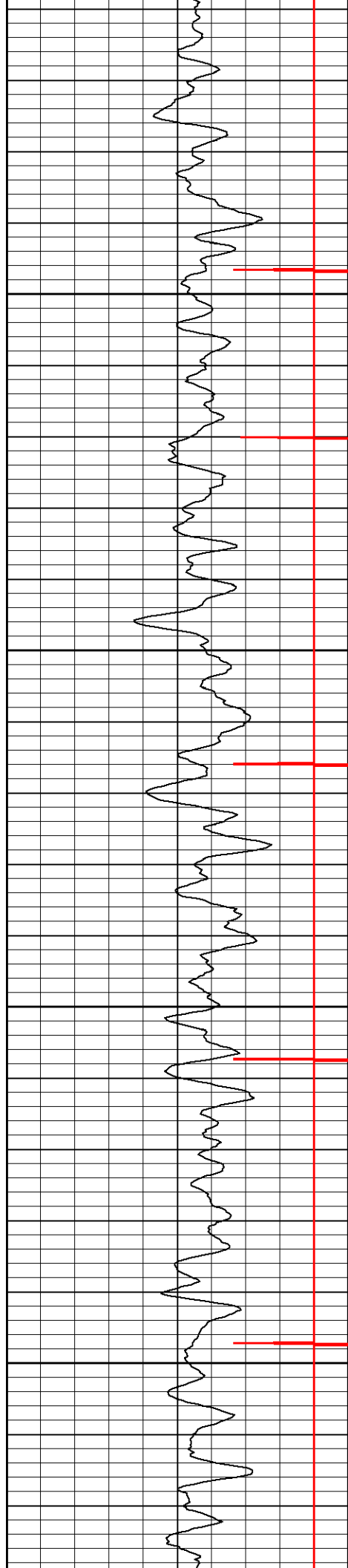


4800

4900

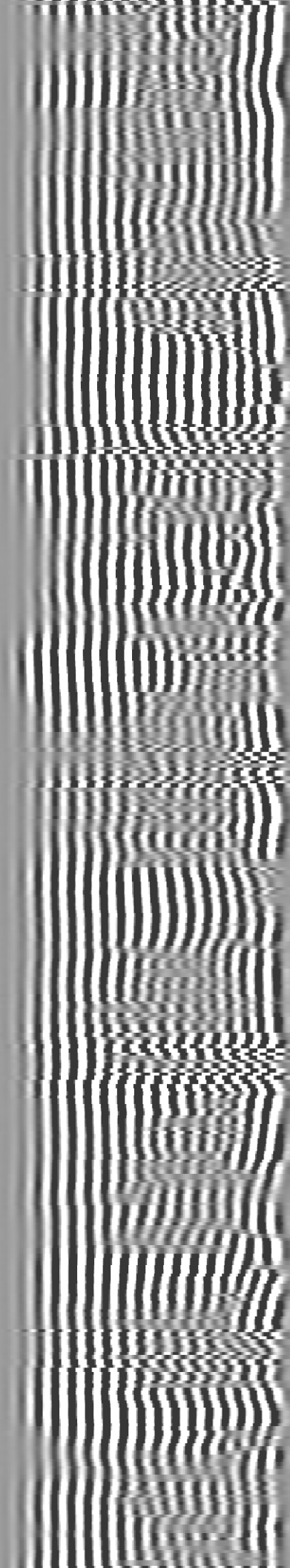
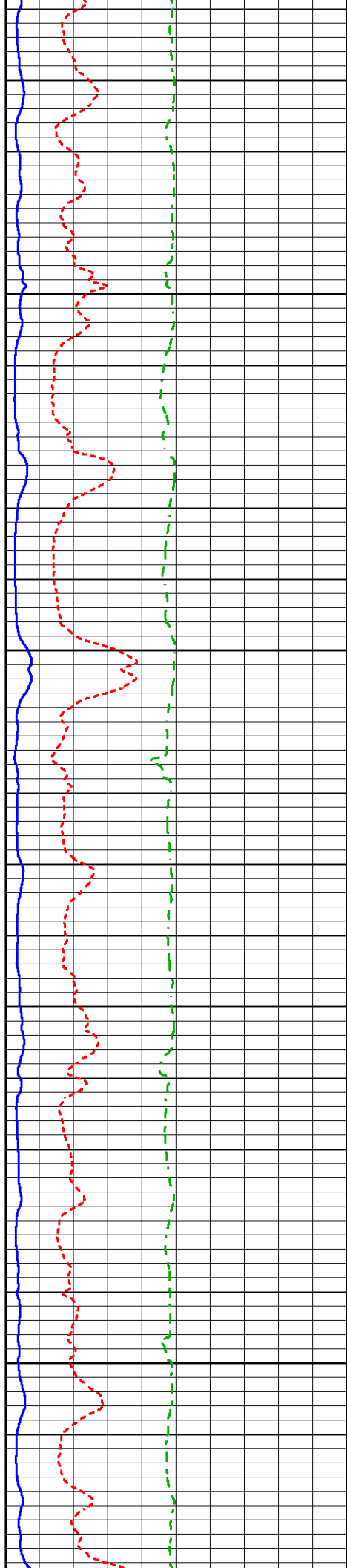
5000

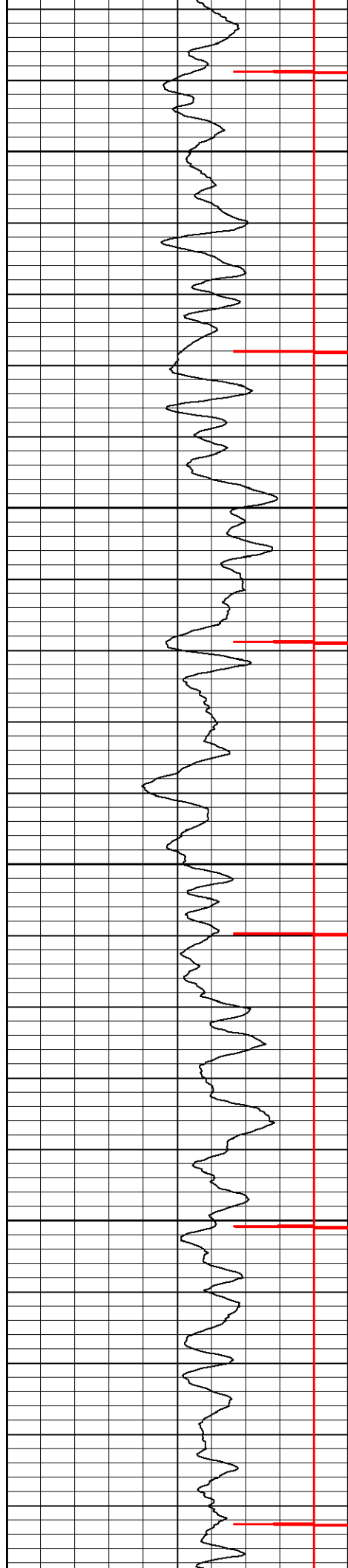




5100

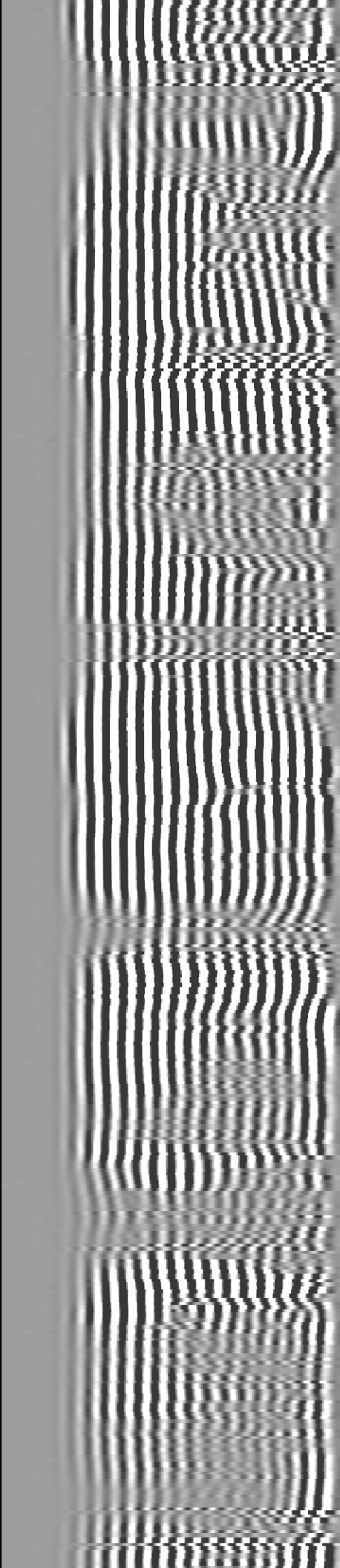
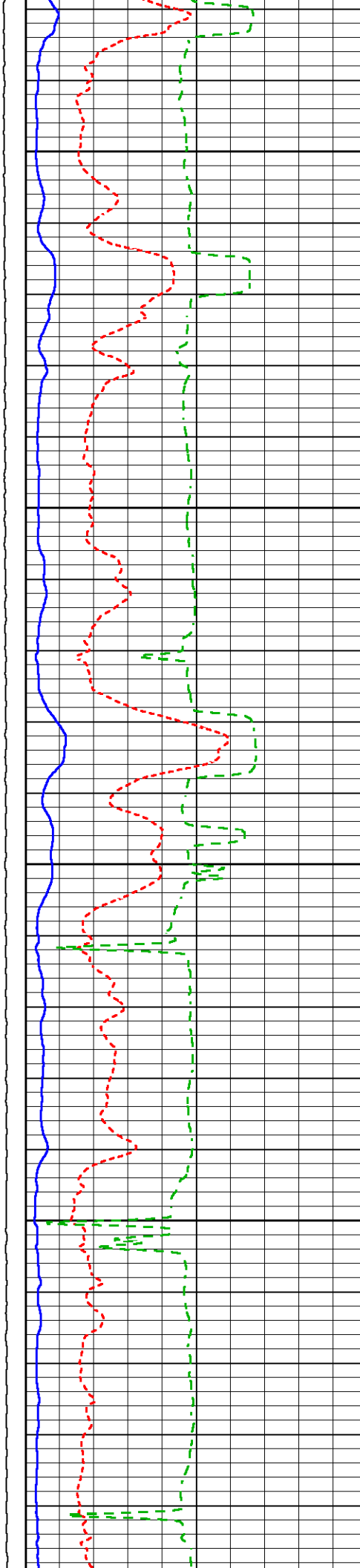
5200



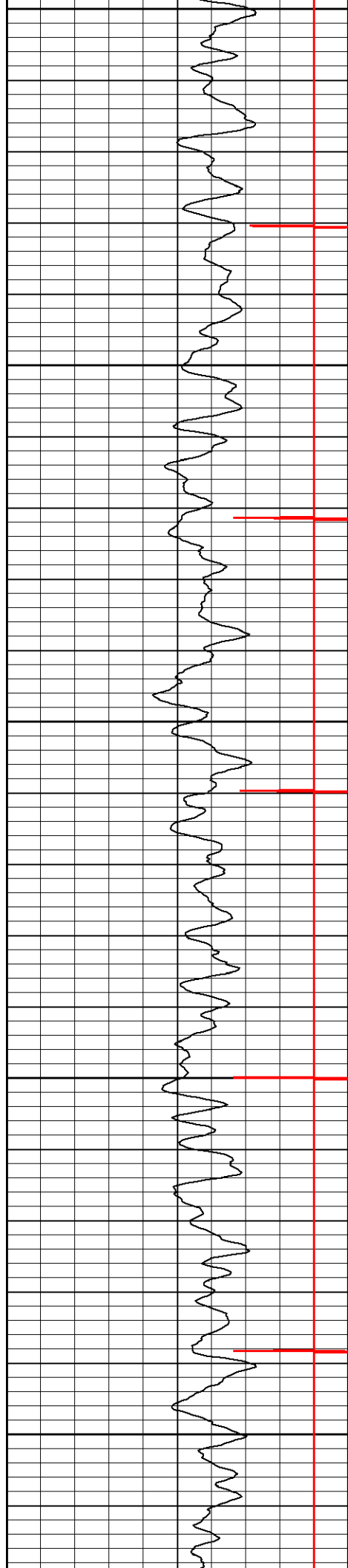


5300

5400

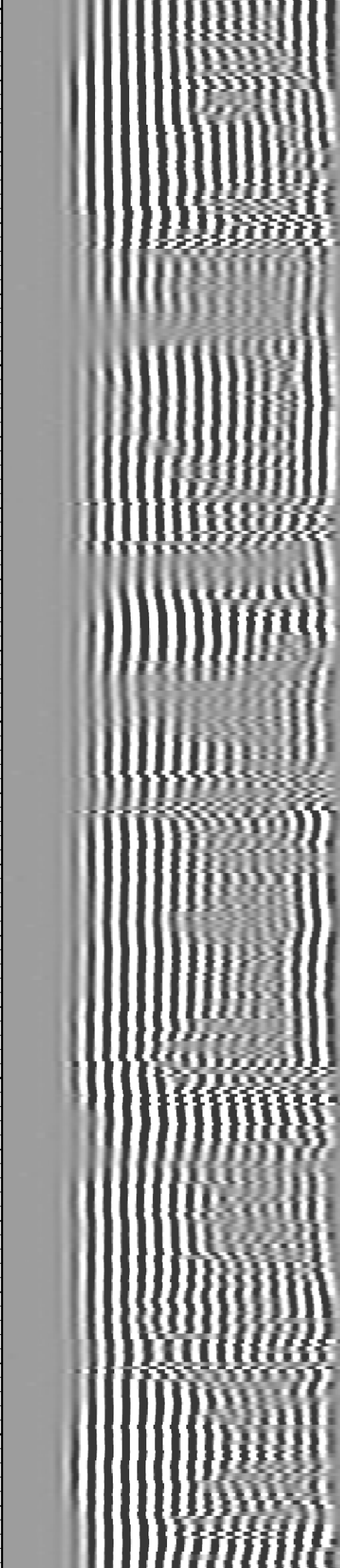
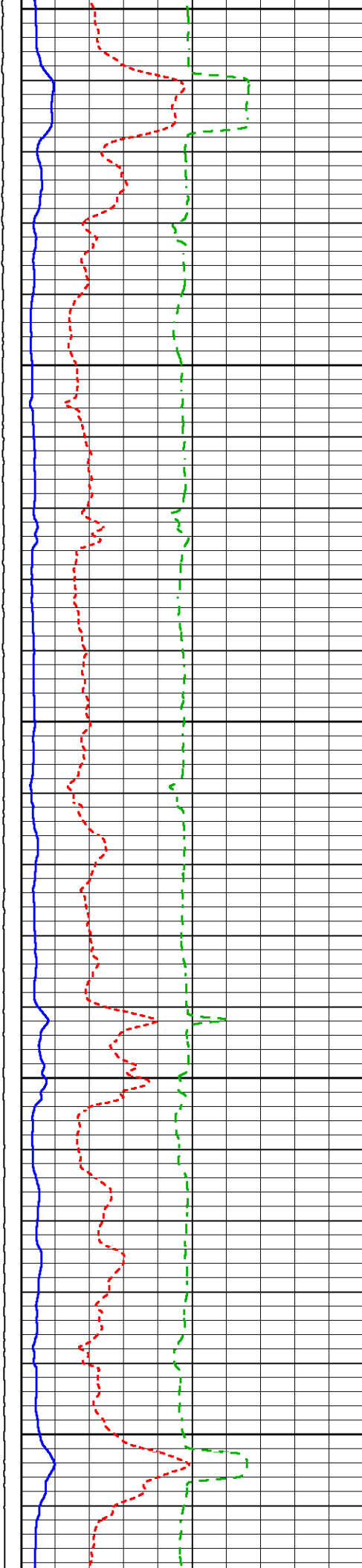


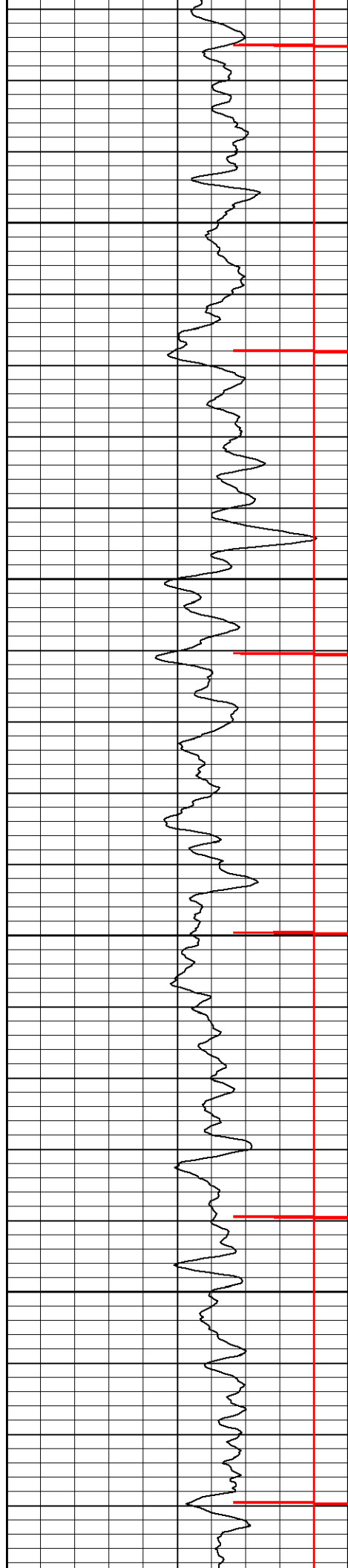




5500

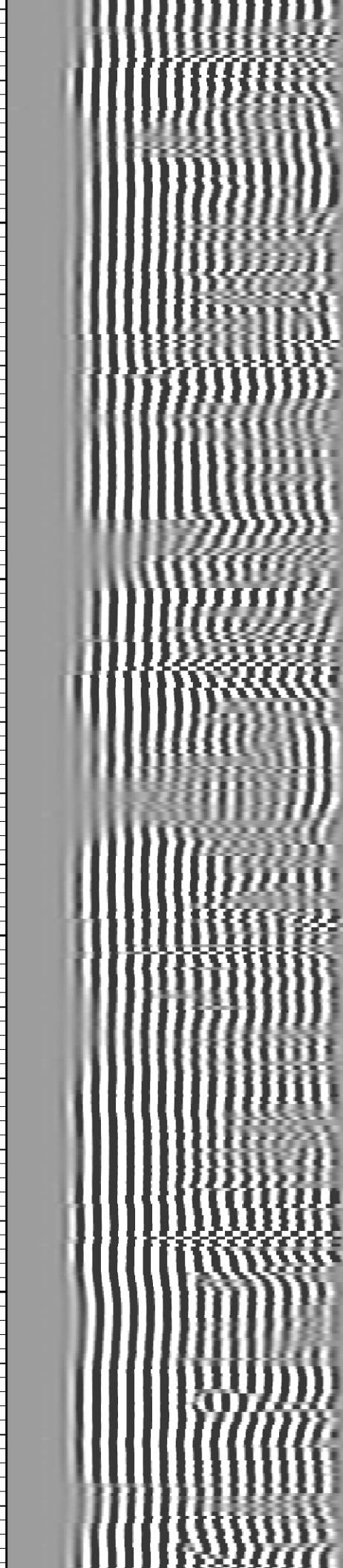
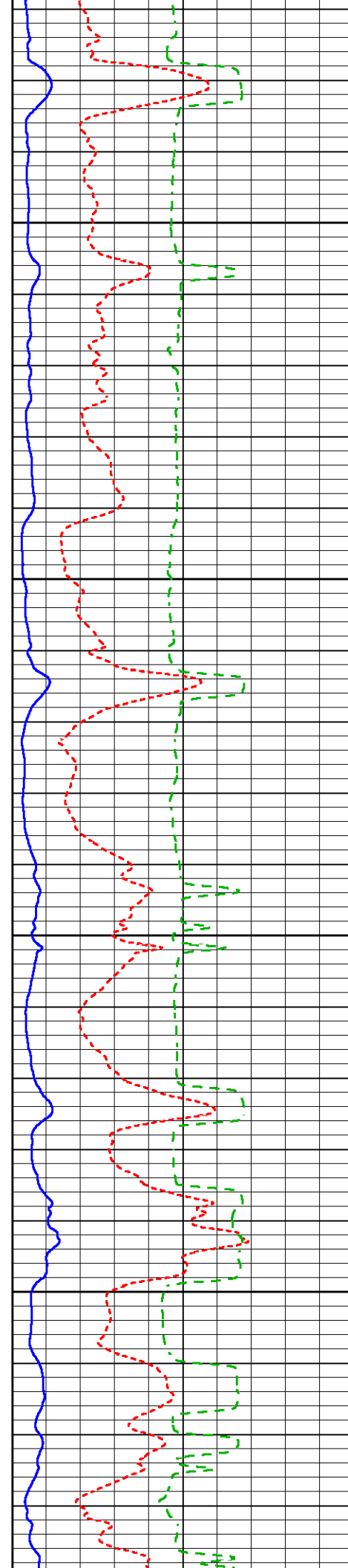
5600

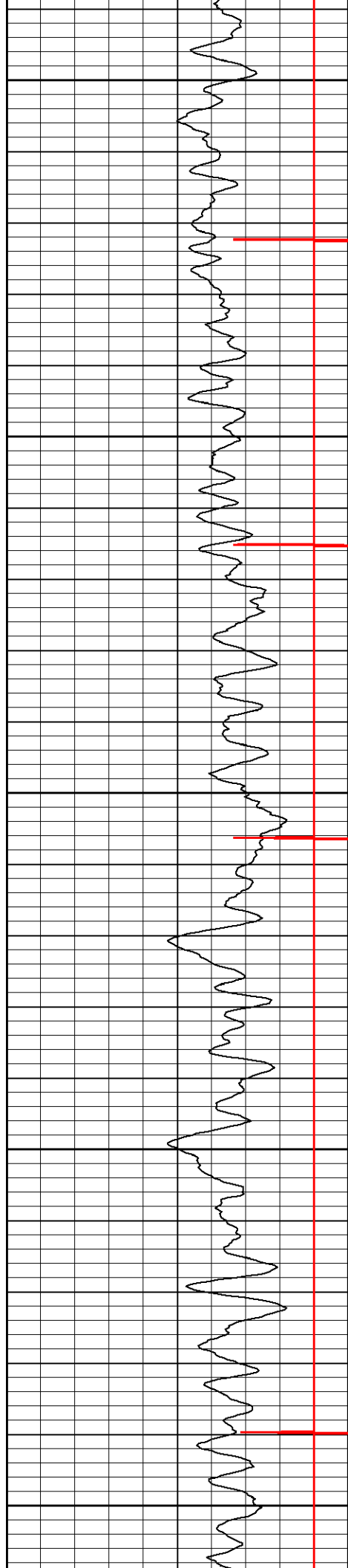




5700

5800

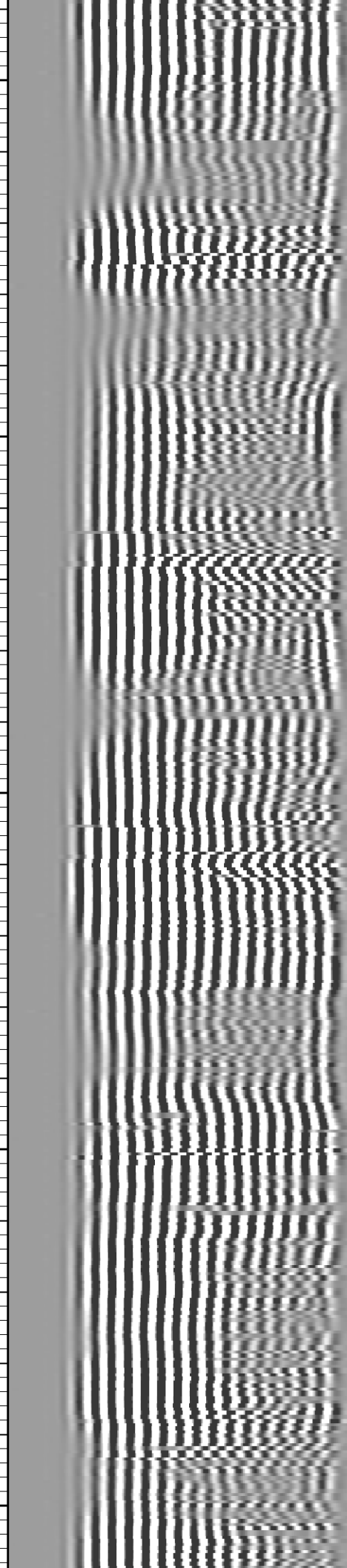
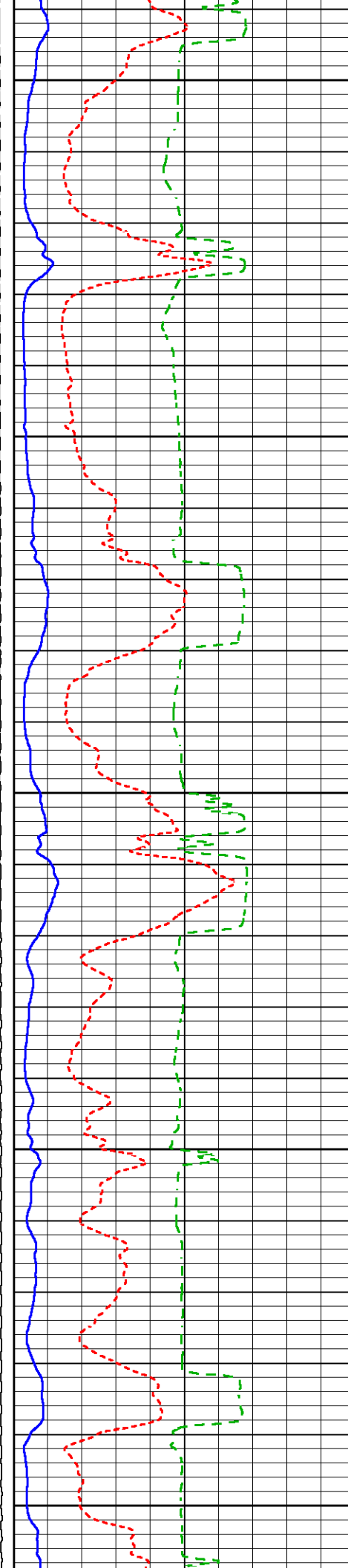


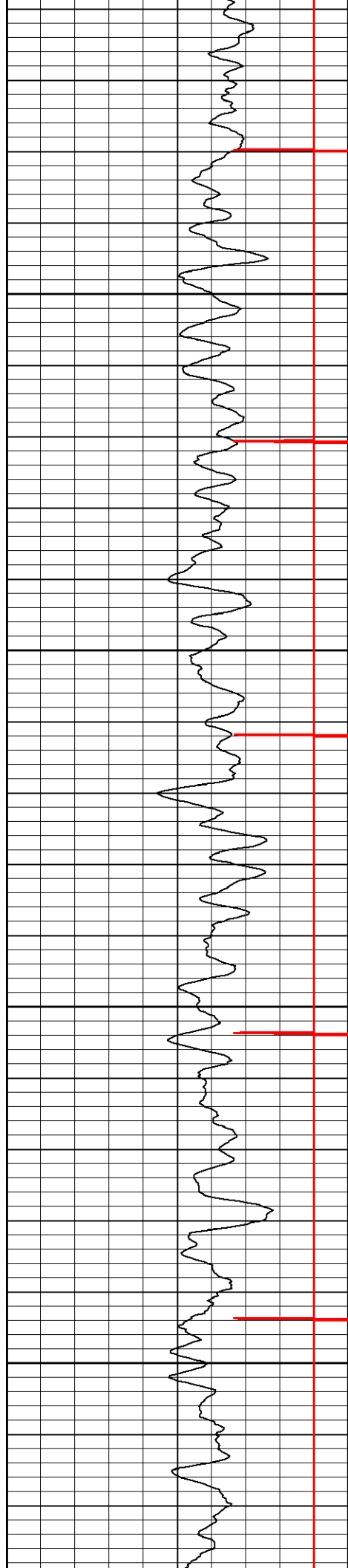


5900

6000

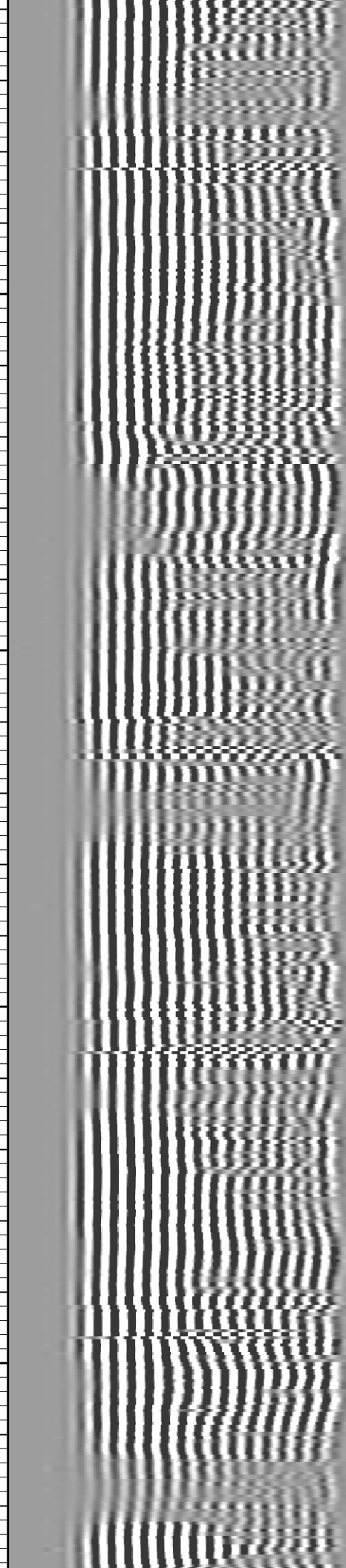
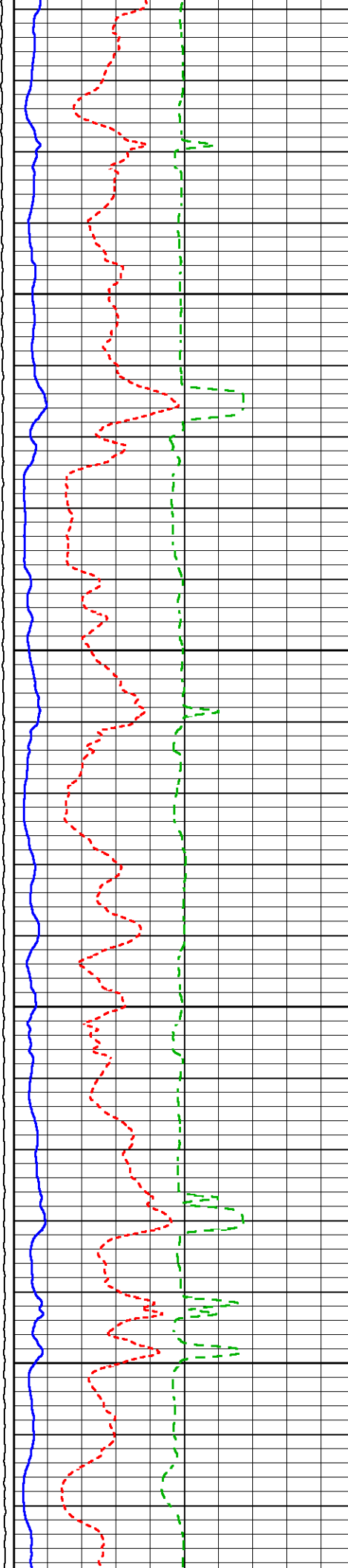
6100

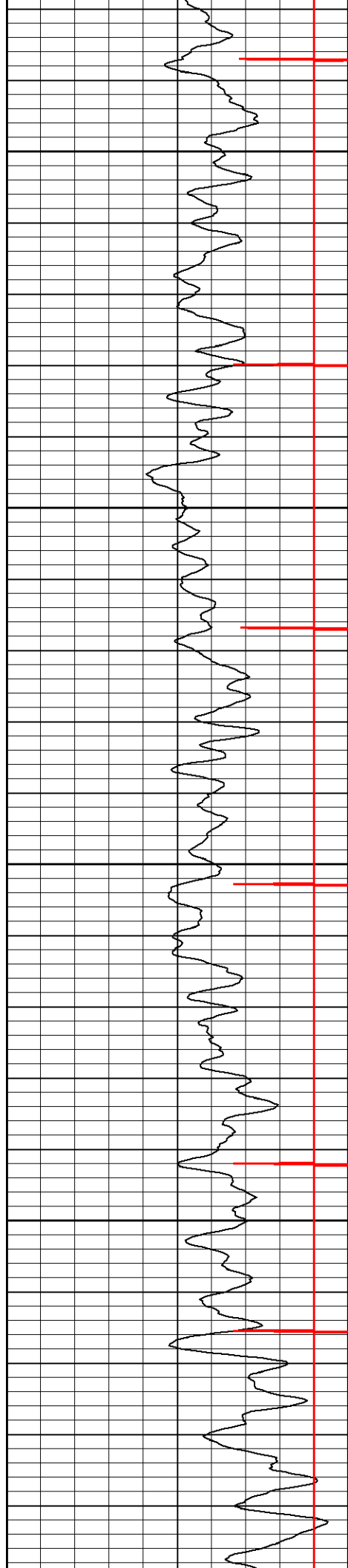




6200

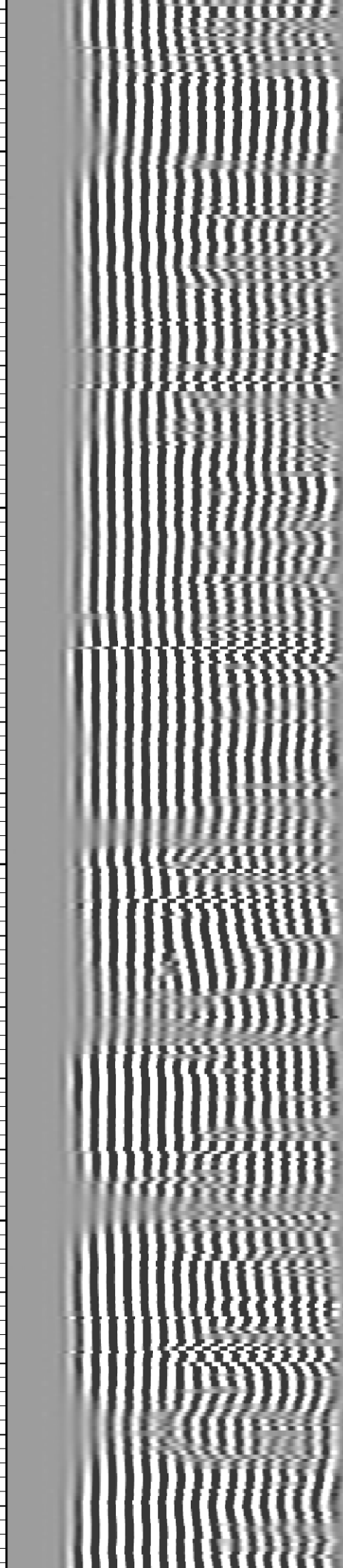
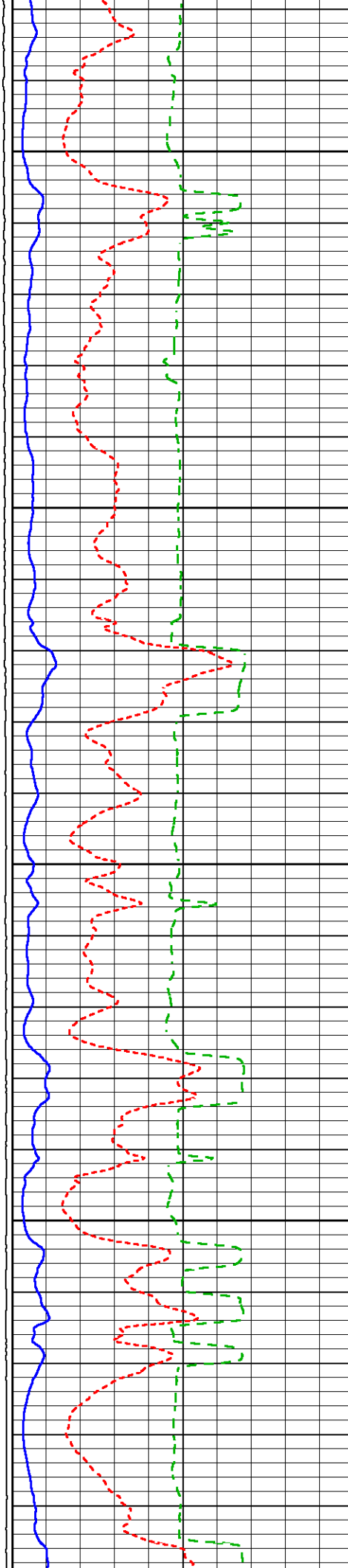
6300

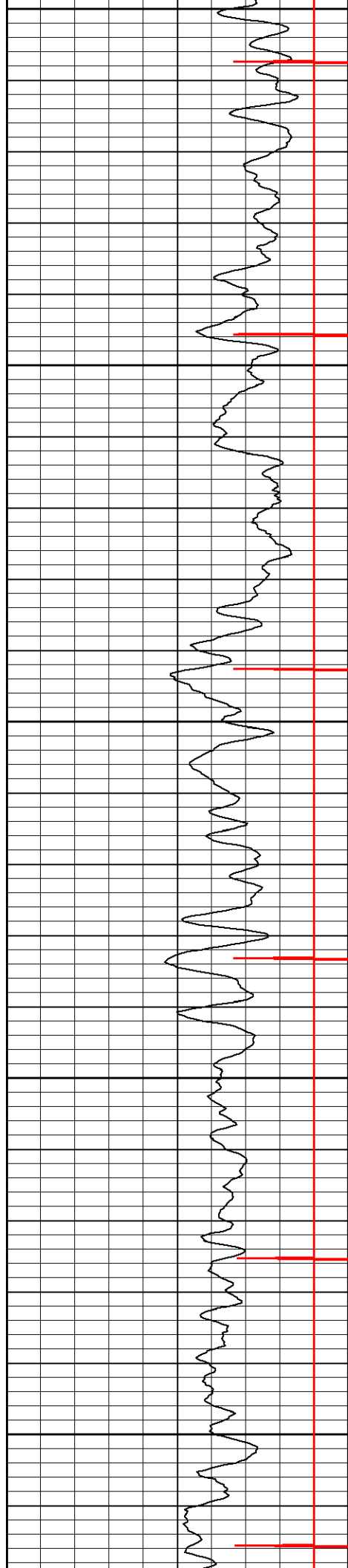




6400

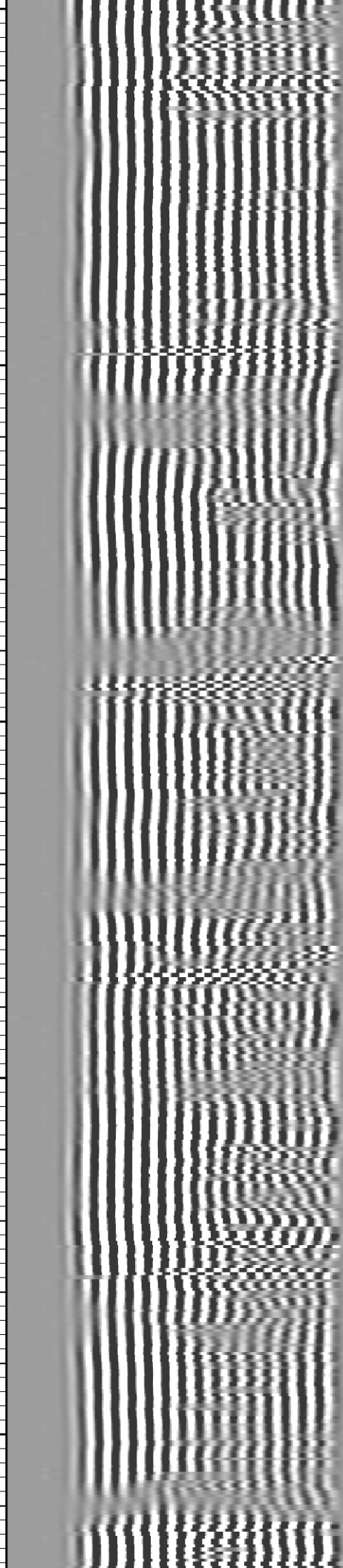
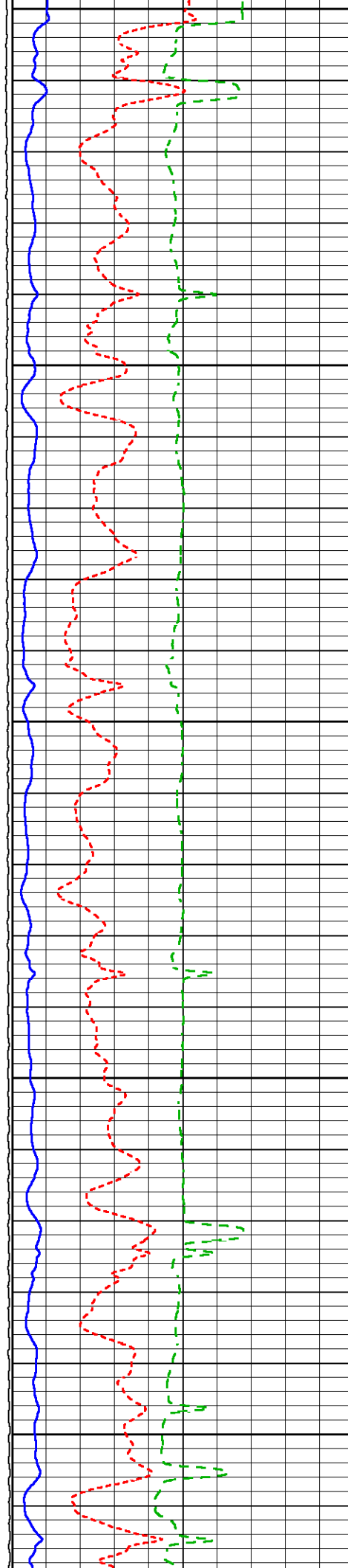
6500



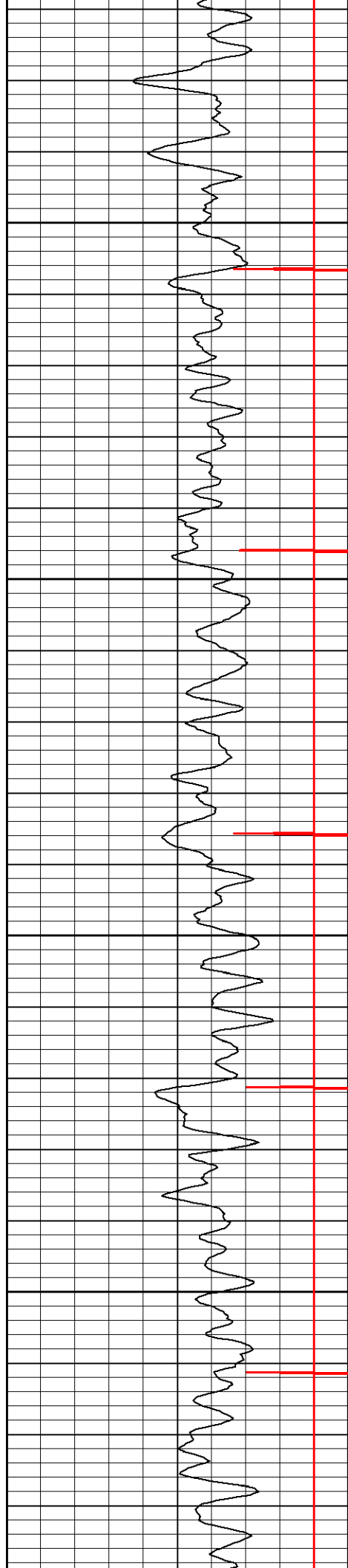


6600

6700

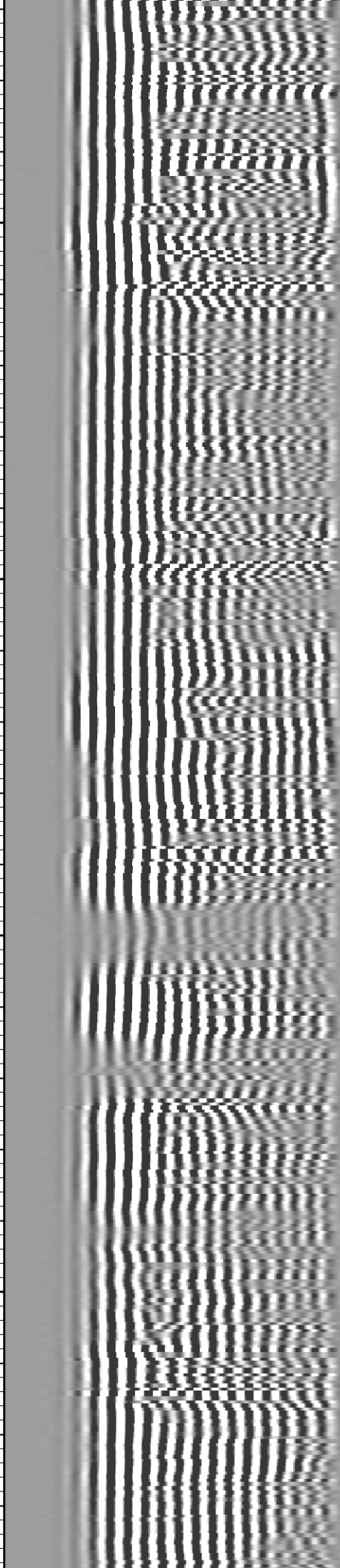
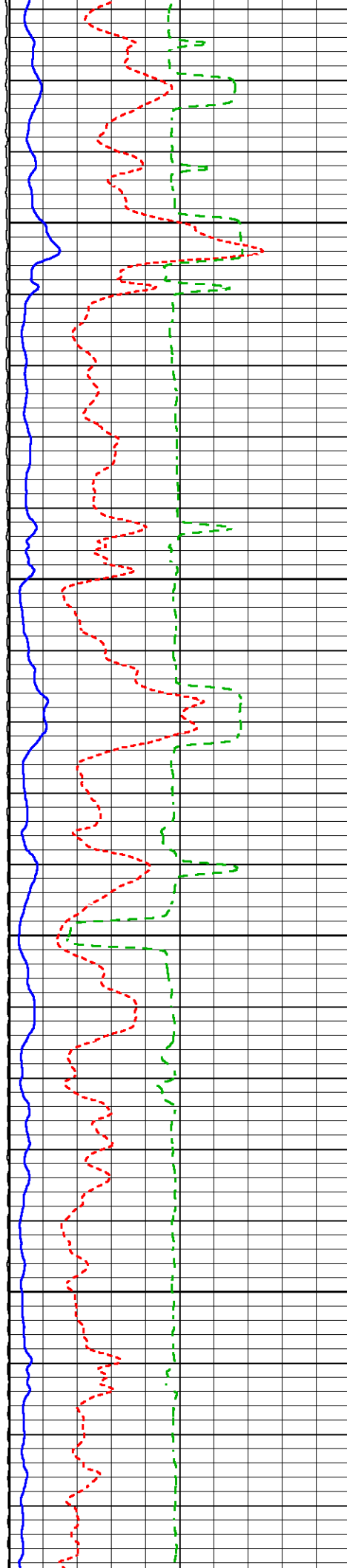






6800

6900

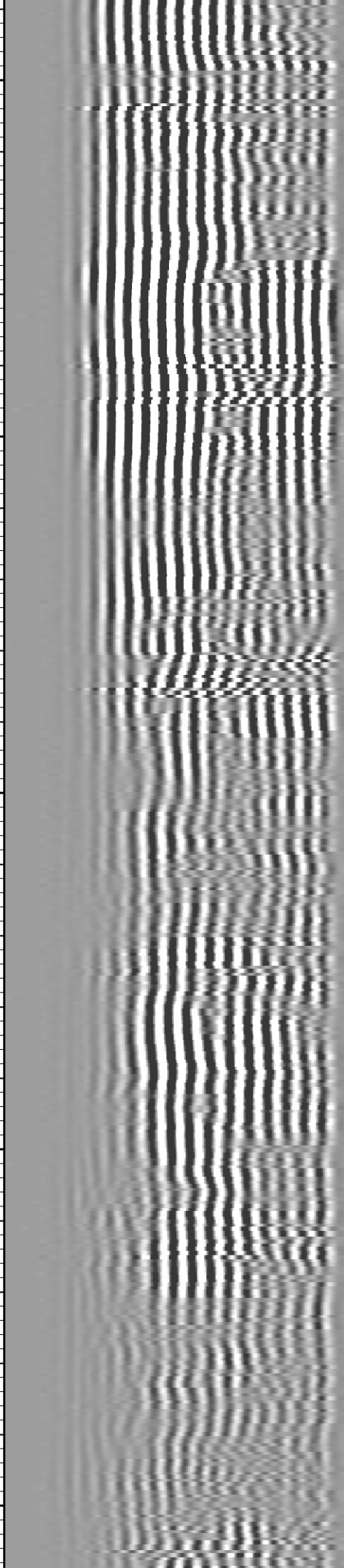
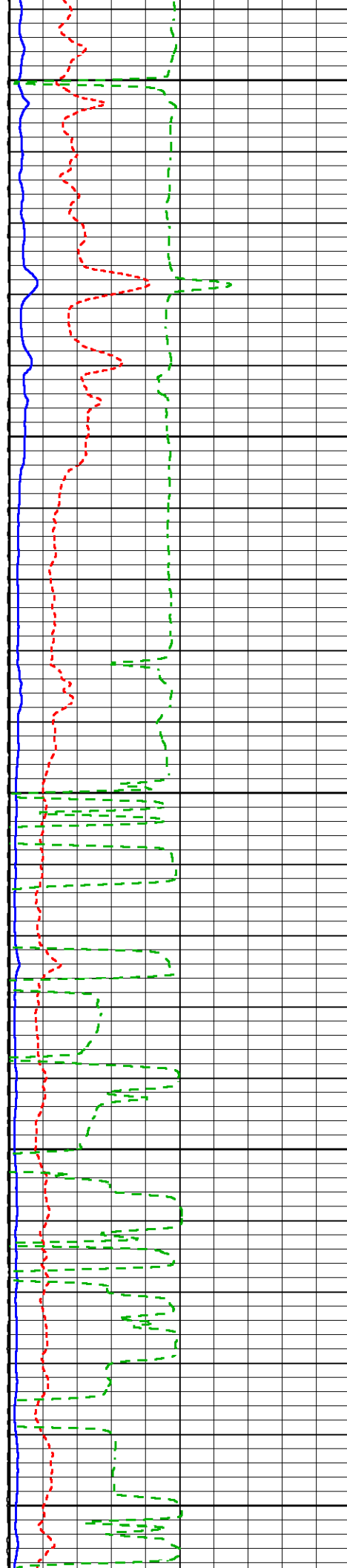




7000

7100

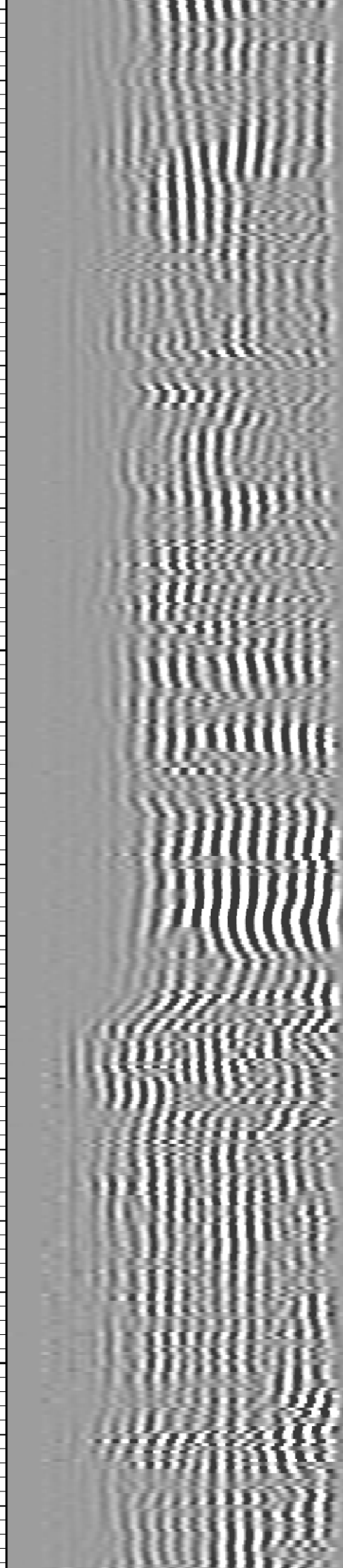
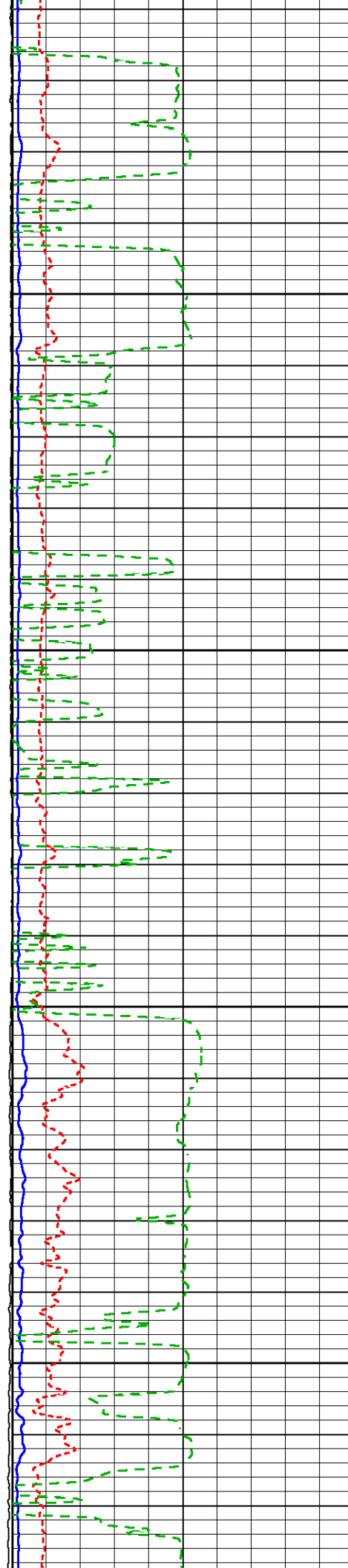
7200

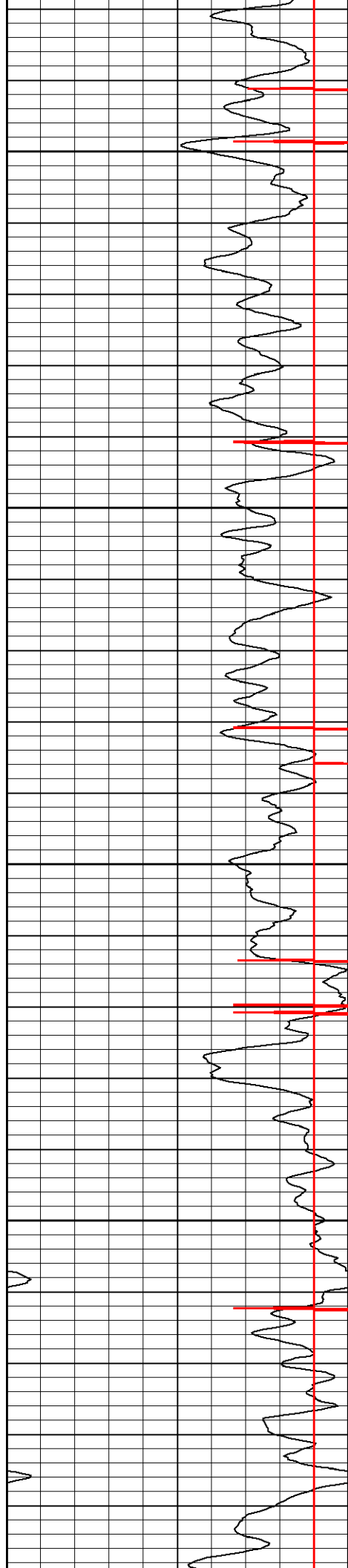




7300

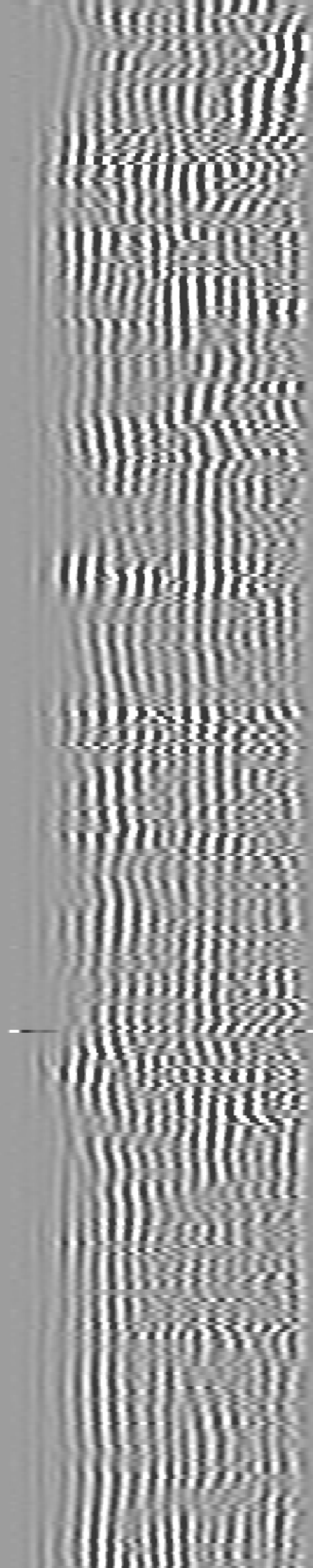
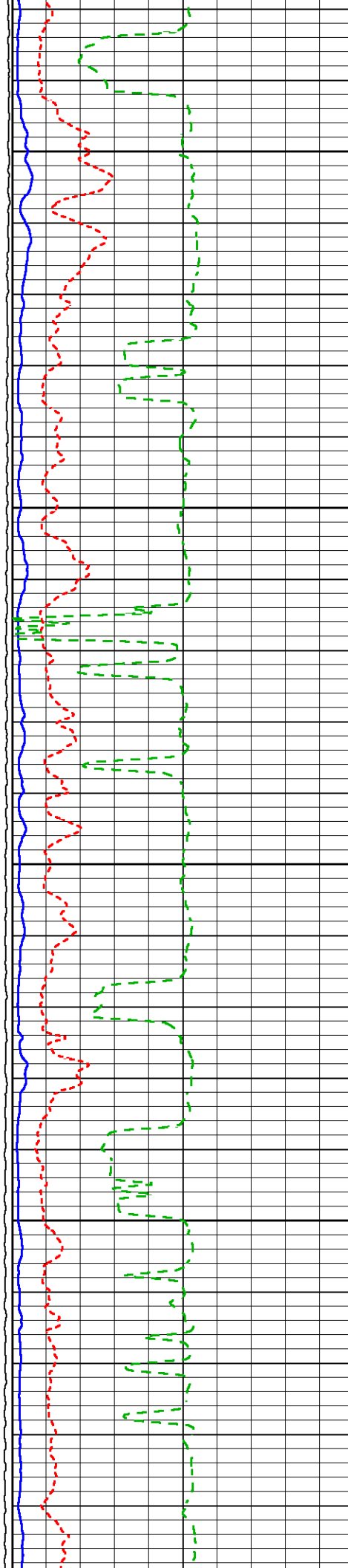
7400

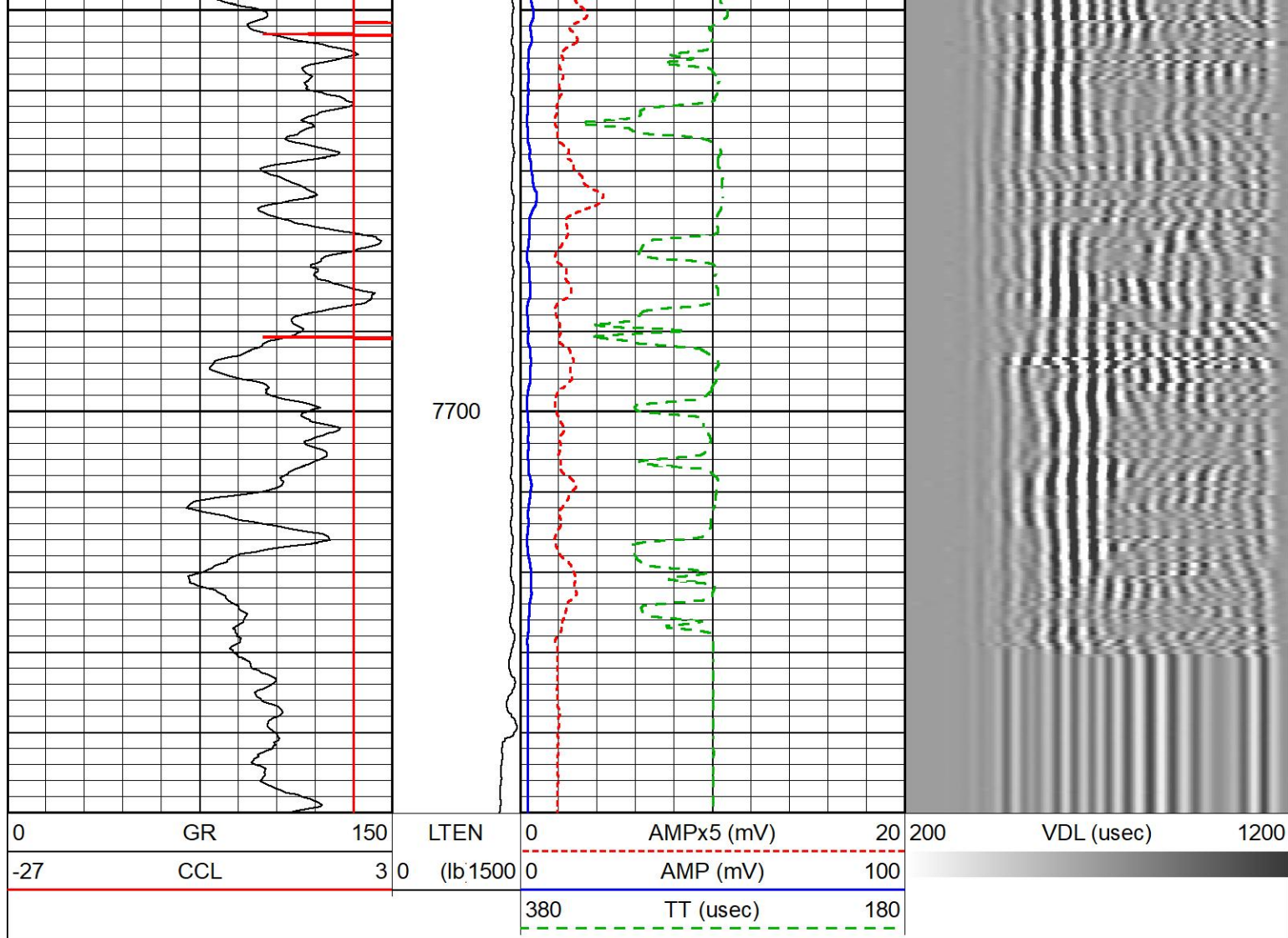




7500

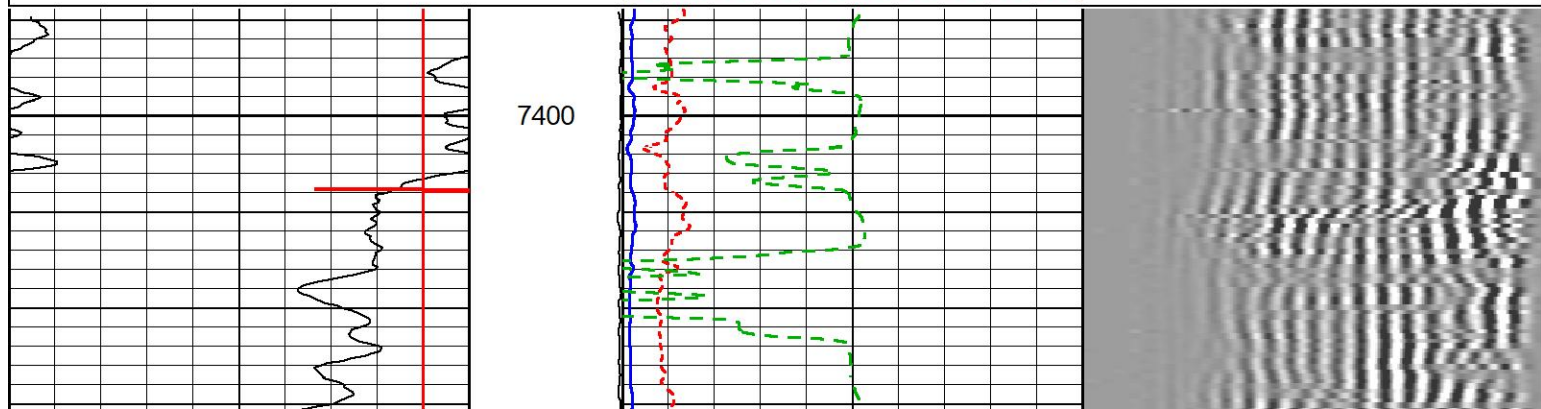
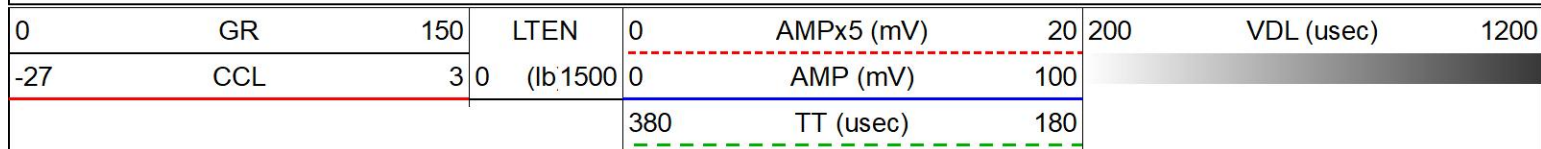
7600



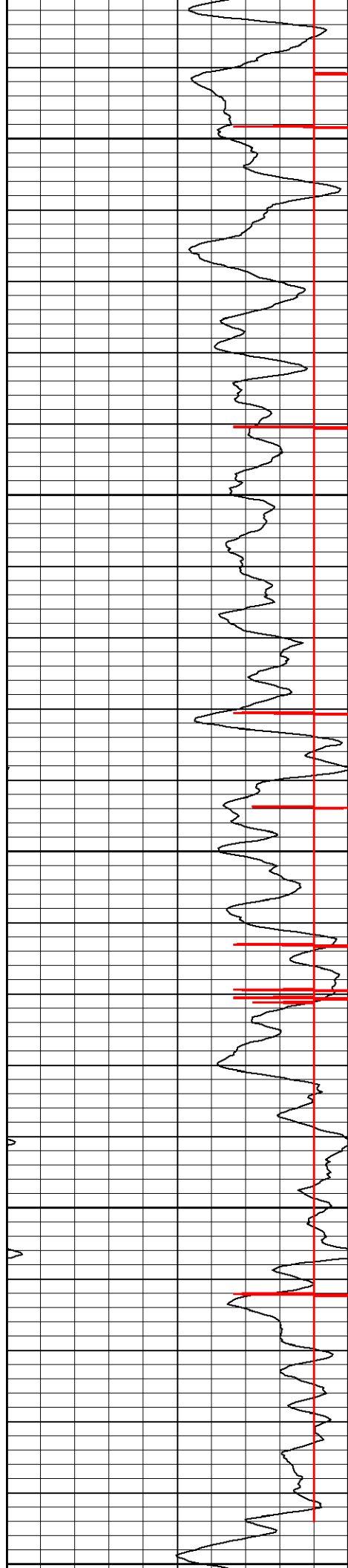


## Repeat Pass

Database File wuertz\_1201-16h.db  
 Dataset Pathname Wattenberg/Wuertz\_1201-16H/Log1/pass2.1  
 Presentation Format rmws\_dsc  
 Dataset Creation Sat Jul 24 11:18:29 2021  
 Charted by Depth in Feet scaled 1:240

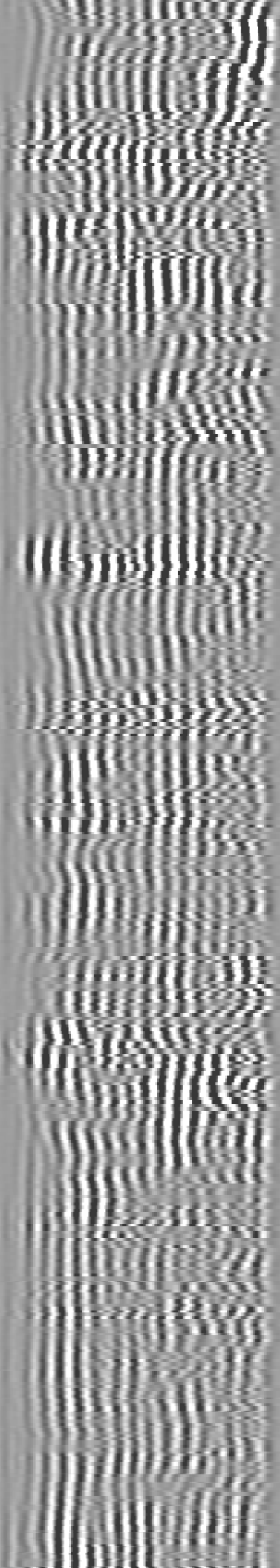
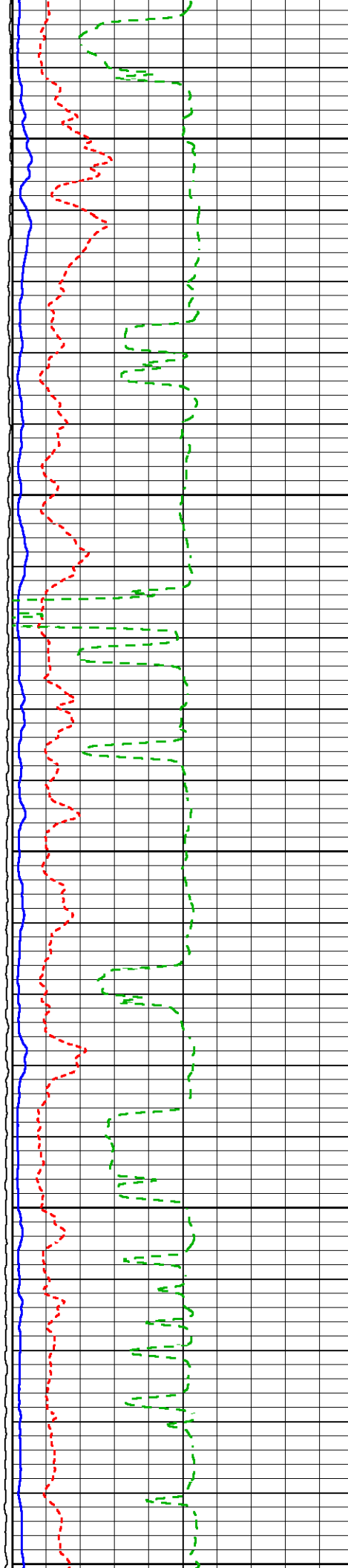






7500

7600



0	GR	150	LTEN	0	AMPx5 (mV)	20	200	VDL (usec)	1200
-27	CCL	3	0 (lb 1500)	0	AMP (mV)	100			
				380	TT (usec)	180			

## Log Variables

DatabaseC:\ProgramData\Warrior\Data\wuertz\_1201-16h.db  
Dataset Wattenberg/Wuertz\_1201-16H/Log1/pass4.1/\_vars\_

### Top - Bottom

BOREID in 7.875	BOTTEMP degF 230	CASEOD in 5.5	CASETHCK in 0	CASEWGHT lb/ft 17	MAXAMPL mV 71.9	MINAMPL mV 1	MINATTN db/ft 0.8
PERFS No	PPT usec 0	SRFTEMP degF 0	TDEPTH ft 7730				

### Variable Description

BOREID : Borehole I.D.	CASEWGHT : Casing Weight	PERFS : Perforation Flag
BOTTEMP : Bottom Hole Temperature	MAXAMPL : Maximum Amplitude	PPT : Predicted Pipe Time
CASEOD : Casing O.D.	MINAMPL : Minimum Amplitude	SRFTEMP : Surface Temperature
CASETHCK : Casing Thickness	MINATTN : Minimum Attenuation	TDEPTH : Total Depth

### Calibration Report

Database File wuertz\_1201-16h.db  
Dataset Pathname Wattenberg/Wuertz\_1201-16H/Log1/pass4.1  
Dataset Creation Sat Jul 24 11:16:10 2021

### Segmented Cement Bond Log Calibration Report

Serial Number: TEKCO234\_3025  
Tool Model: TEKCO

Calibration Casing Diameter: 4.500 in  
Calibration Depth: 89.842 ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.016	1.272	1.000	71.900	55.033	1.905
CAL	0.015	0.868				
5'	-0.034	1.815	1.000	71.900	38.338	2.316
SUM						
S1	-0.011	2.339	0.000	100.000	42.551	0.462
S2	-0.011	2.231	0.000	100.000	44.595	0.496
S3	-0.019	2.154	0.000	100.000	46.025	0.863
S4	-0.010	1.675	0.000	100.000	59.330	0.616
S5	-0.013	1.736	0.000	100.000	57.174	0.723
S6	-0.011	1.916	0.000	100.000	51.898	0.574
S7	-0.011	2.225	0.000	100.000	44.719	0.494
S8	-0.010	2.402	0.000	100.000	41.458	0.431

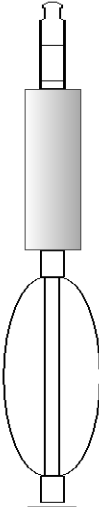



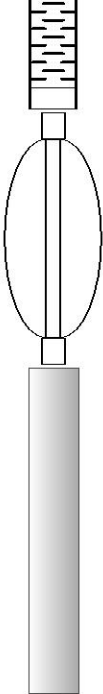
Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.015	0.868	1.000	0.000

Air Zero Calibration, performed Fri Apr 16 12:47:40 2010:

	Raw (v)		Calibrated (v)		Results	
	Zero		Zero		Offset	
3'	0.000		0.000		0.000	
5'	0.000		0.000		0.000	
SUM						
S1	0.000		0.000		0.000	
S2	0.000		0.000		0.000	
S3	0.000		0.000		0.000	
S4	0.000		0.000		0.000	
S5	0.000		0.000		0.000	
S6	0.000		0.000		0.000	
S7	0.000		0.000		0.000	
S8	0.000		0.000		0.000	

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
CCL	19.74		CHD-STNDRD Standard Cable Head	1.00	2.00	2.00
			CCL-312tekco (3.12TEKCO) 3 1/8 TEK CCL Earth Mag	1.82	3.12	25.00
			CENT-TITAN_234 TITAN 2 3/4" BOWSPRING CENT	2.92	2.75	25.00
WVFS8	11.60		SCBLTEKCO-TEKCO (TEKCO234_3025) Tekco 2 3/4" Radial Bond	9.08	2.75	50.00
WVFS7	11.60					
WVFS6	11.60					
WVFS5	11.60					
WVFS4	11.60					
WVFS3	11.60					
WVFS2	11.60					
WVFS1	11.60					
WVF3FT	10.85					

WVF5FT	9.85					
WVFSYNC	6.60					
WVFCAL	6.60					
			CENT-TITAN_234 TITAN 2 3/4" BOWSPRING CENT	2.92	2.75	25.00
			GR-TEKCO234 (TEKCO234_314) Tekco 2 3/4" Gamma Ray	3.69	2.75	20.00
GR	1.00					
Dataset: wuertz_1201-16h.db: Wattenberg/Wuertz_1201-16H/Log1/pass4.1 Total length: 21.42 ft Total weight: 147.00 lb O.D.: 3.12 in						

Company	Verdad Resources
Well	Wuertz 1201-16H
Field	Wattenberg
County	Weld
State	CO