



CEMENT BOND  
GAMMA RAY  
CCL LOG

Company	GREAT WESTERN OIL AND GAS			Country	USA
Well	SCHAEFER LD 13-032HN				
Field	WATTENBERG				
County	ADAMS				
State	COLORADO				
Company GREAT WESTERN OIL AND GAS				Country	USA
Well SCHAEFER LD 13-032HN					
Field WATTENBERG					
County ADAMS					
State COLORADO					
Location:				API # : 05-001-10255	Other Services
SEC 24 TWP 1S RGE 67W					
Permanent Datum G.L.				Elevation	5021'
Log Measured From K.B., 20'					
Drilling Measured From K.B.					
				Elevation	K.B. 5041' D.F. 5042' G.L. 5021'
Date	MAR 8 2019				
Run Number	ONE				
Depth Driller	NA				
Depth Logger	7880'				
Bottom Logged Interval	7880'				
Top Log Interval	SURFACE				
Open Hole Size	8.5"				
Type Fluid	H2O				
Density / Viscosity	8.4				
Max. Recorded Temp.	232 DEG F				
Estimated Cement Top	LOGGED				
Time Well Ready	07:30				
Time Logger on Bottom	08:10				
Equipment Number	79				
Location	PLATTEVILLE CO				
Recorded By	EMMERLING				
Witnessed By	LINDSEY				
Borehole Record					
Run Number	Bit	From	To	Size	Tubing Record
					Weight
					From
					To
Casing Record	Size			Wgt/Ft	Top
Surface String	9.625"			35#	SURFACE
Prot. String					
Production String	5.5"			17#	SURFACE
Liner					Bottom

<<< 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.

Comments

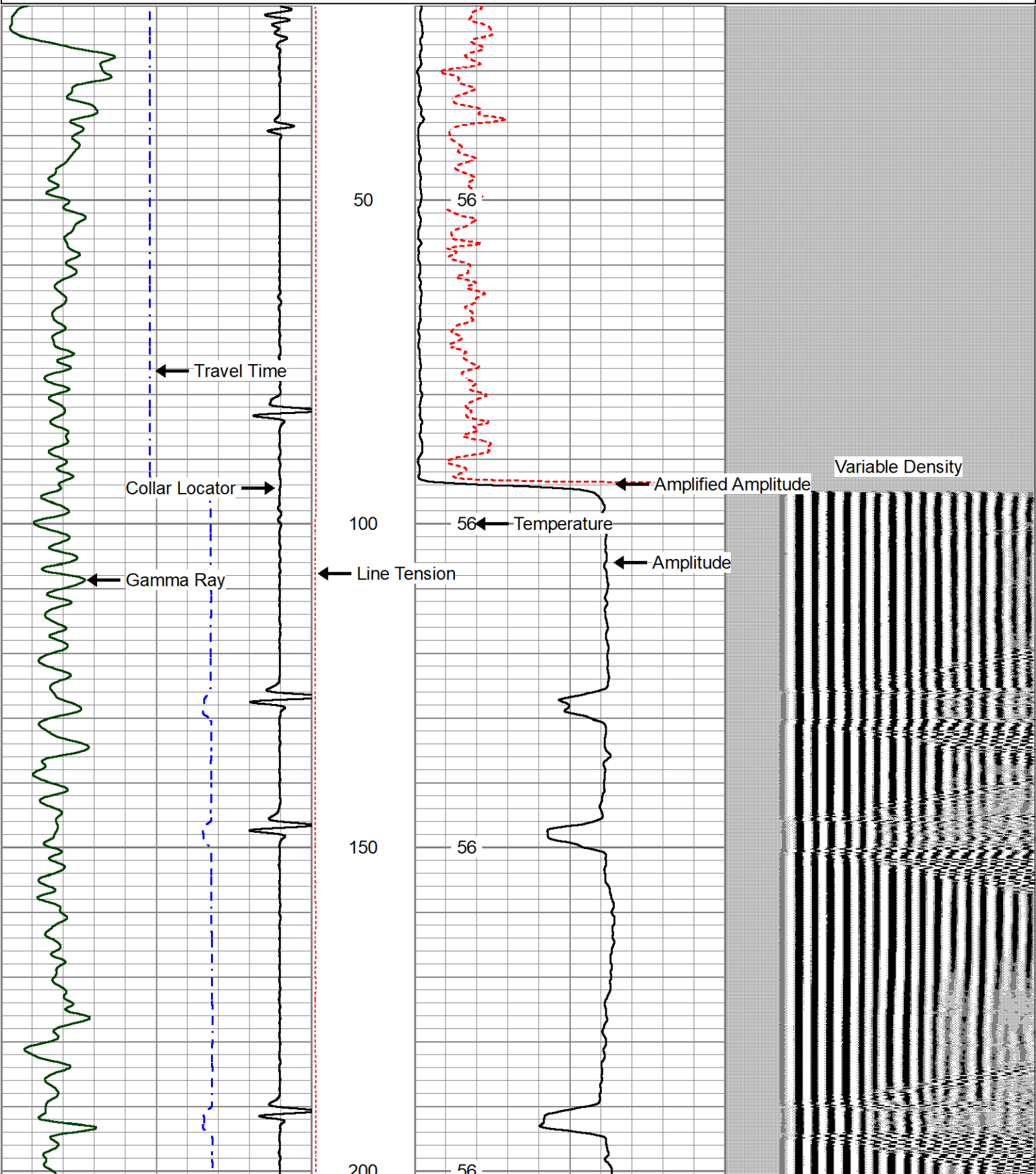
LOG CORRELATED TO CASING REPORT 2/16/19  
SHORT JOINT 6681.0'-6691.9'  
4.5" GAUGE RING RUN TO 7900'  
LOGGED FROM 6500' TO 3500' AT 3000 PSI

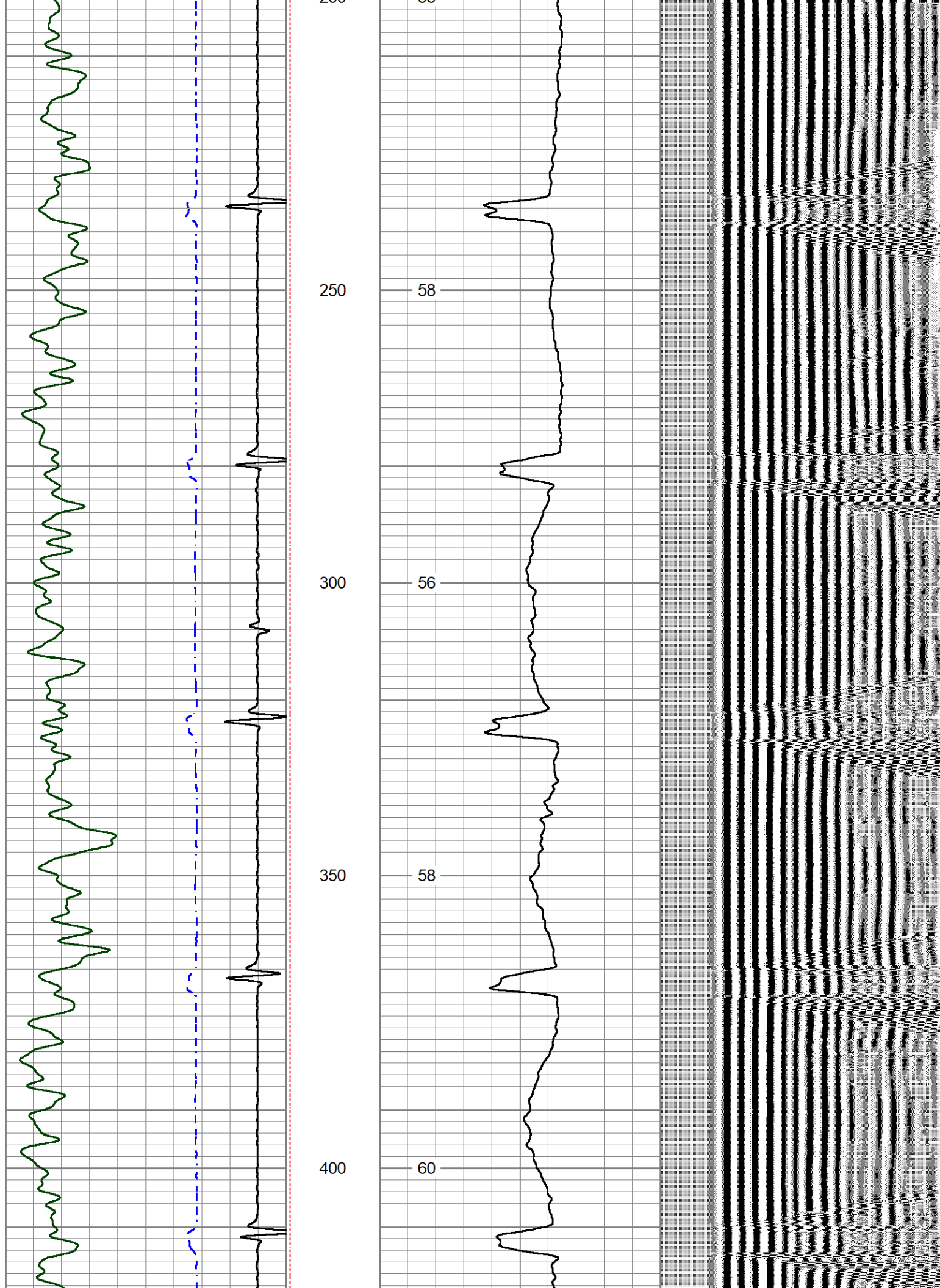


MAIN PASS 0 PSI

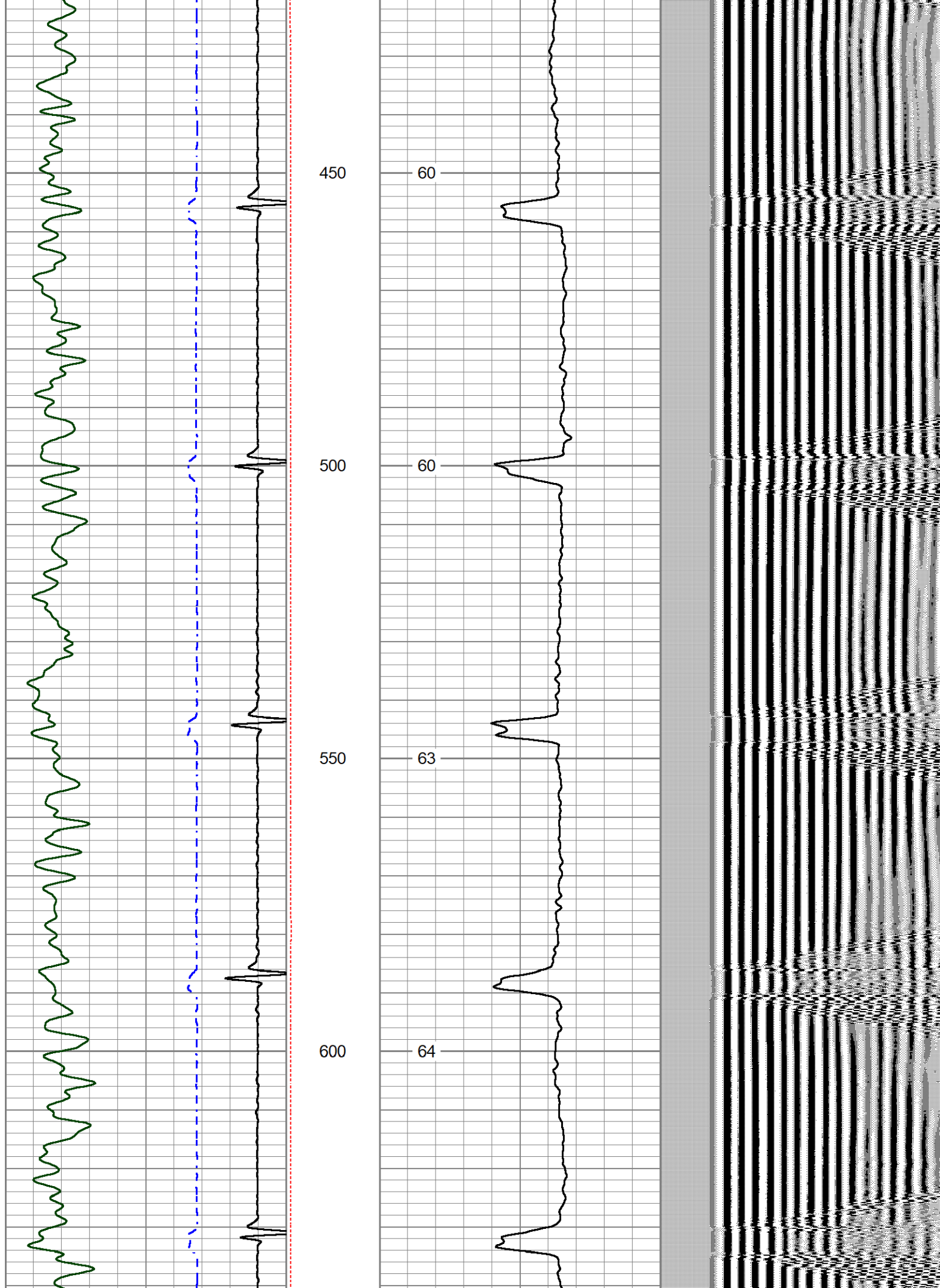
Database File	gw_schaefer_032hn_cbl.db
Dataset Pathname	pass7.4
Presentation Format	cblww
Dataset Creation	Fri Mar 08 10:00:34 2019
Charted by	Depth in Feet scaled 1:240

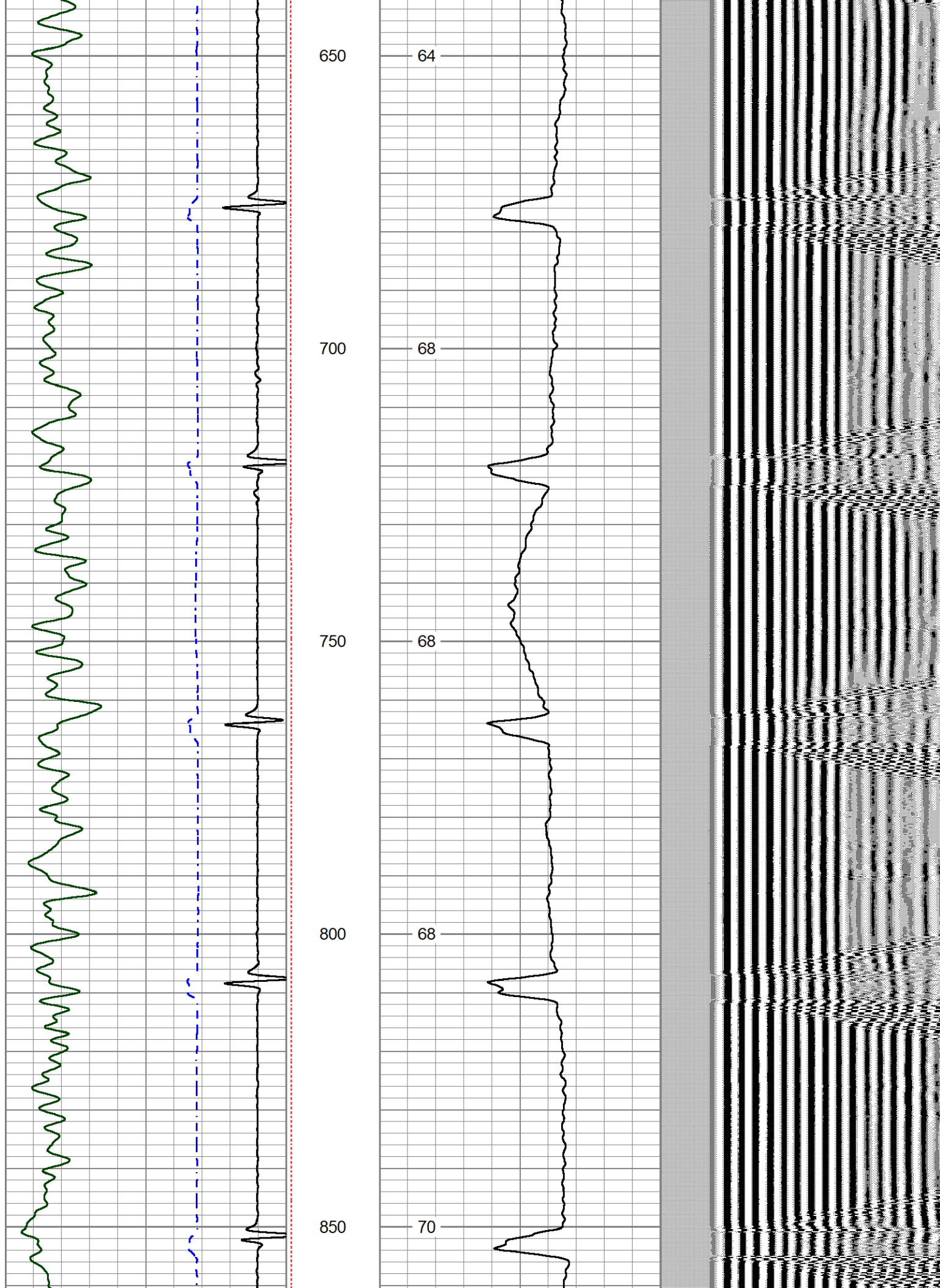
400	Travel Time (usec)	200	LTEN	0	Amplified Amplitude (mV)	10	200	Variable Density (usec)	1200
9	Collar Locator	-1	0	(lb 5000	0	Amplitude (mV)	100		
0	Gamma Ray (GAPI)	200			TEMP				
					(degF)				



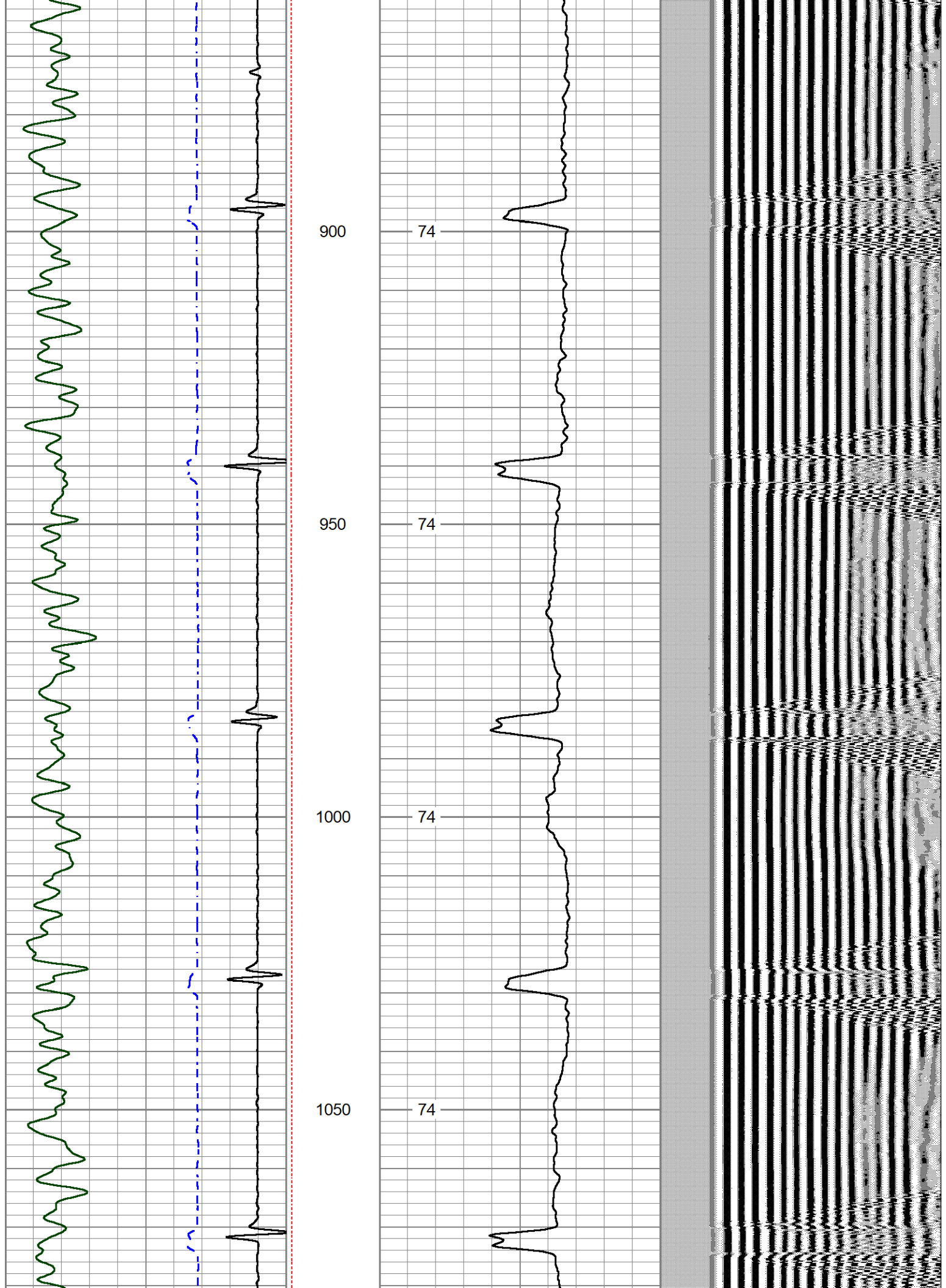


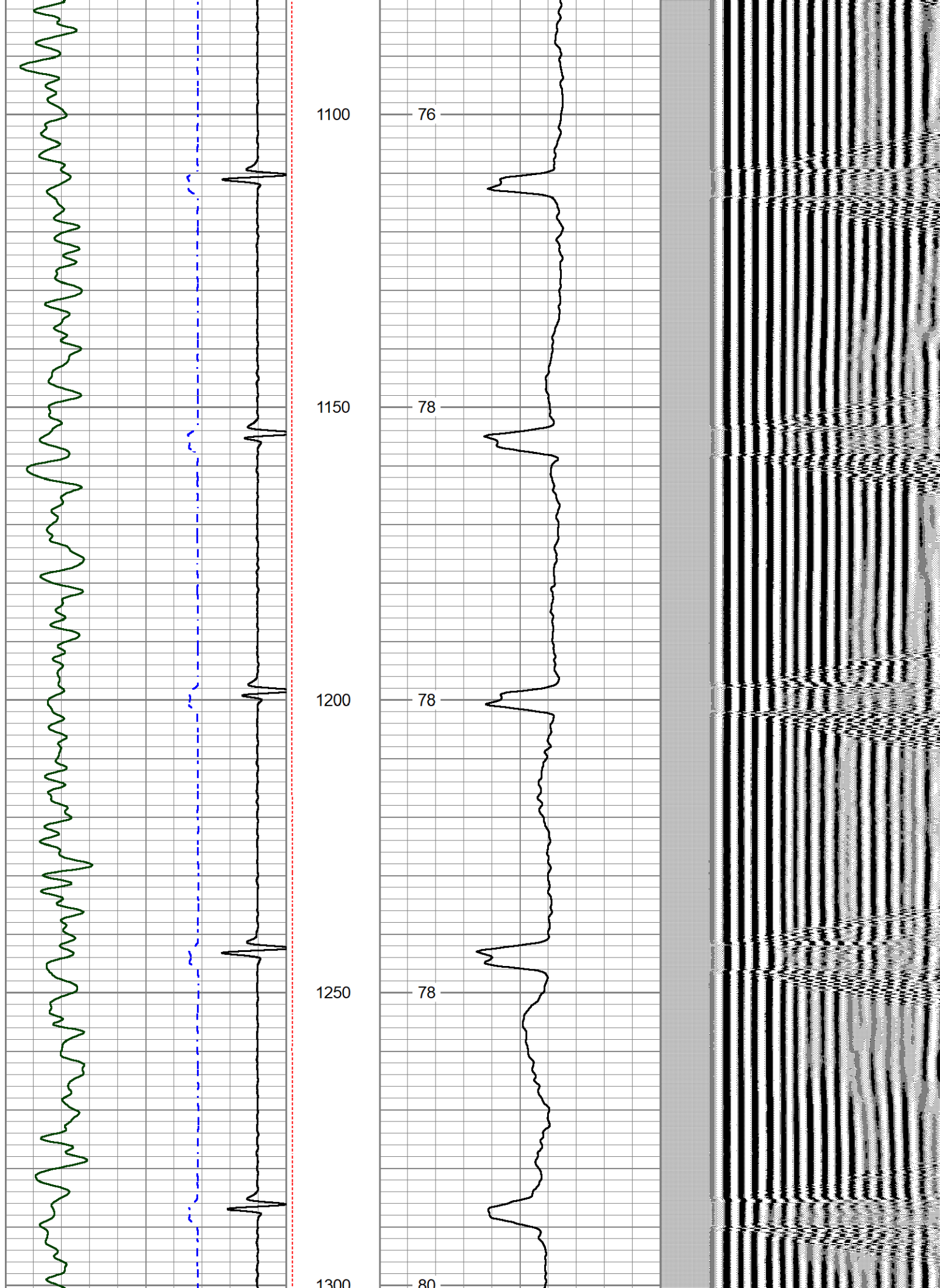




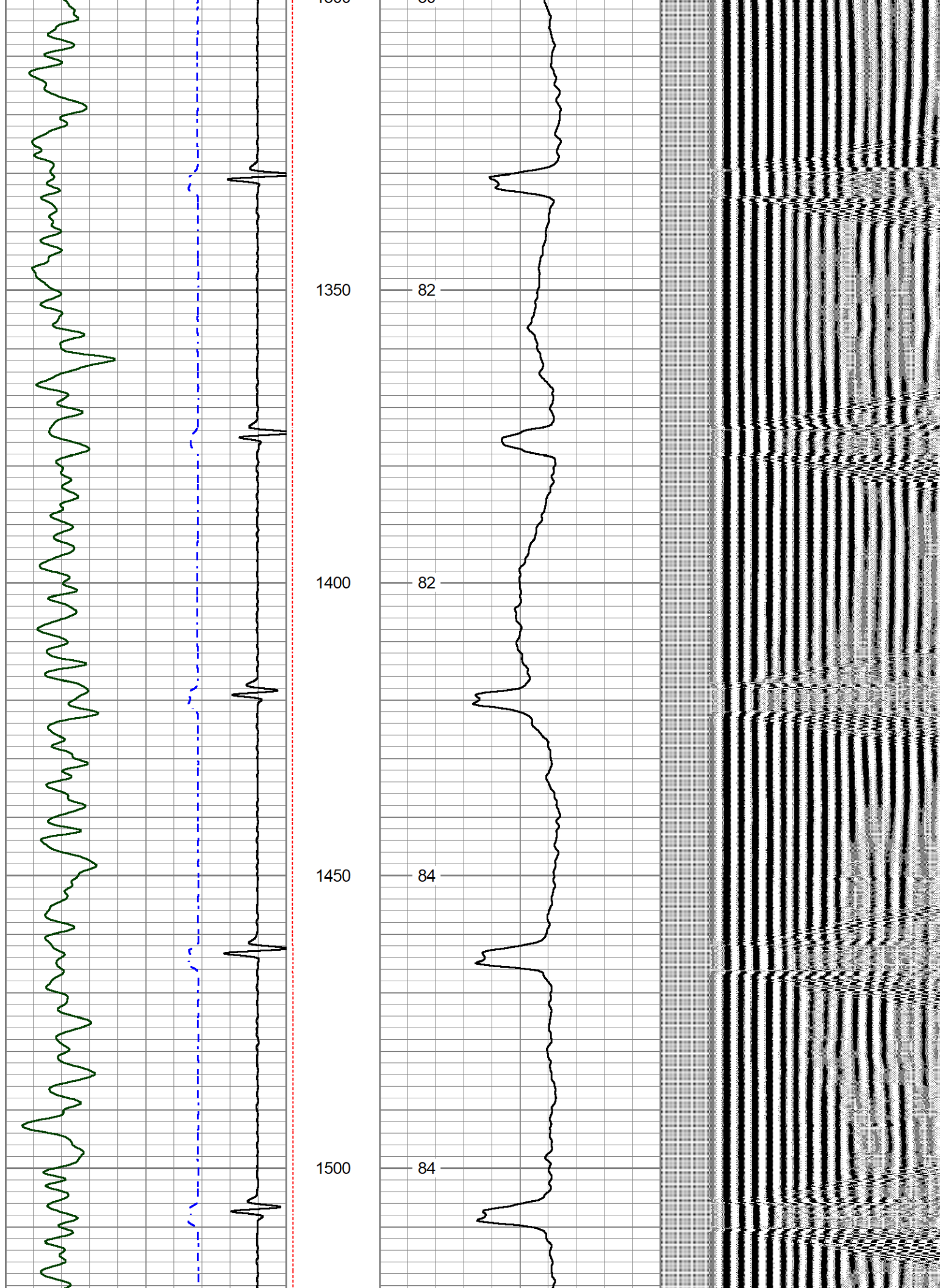




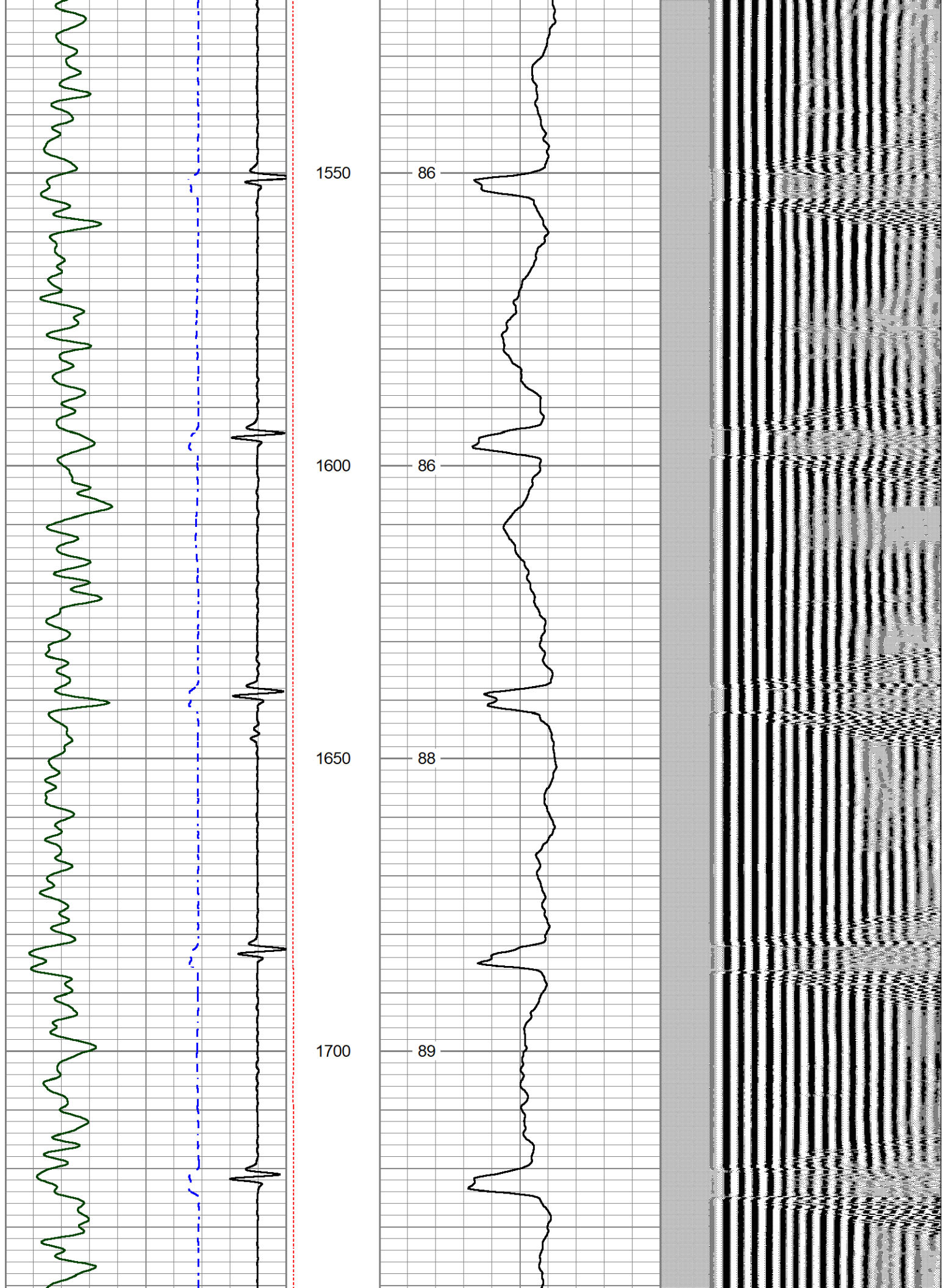


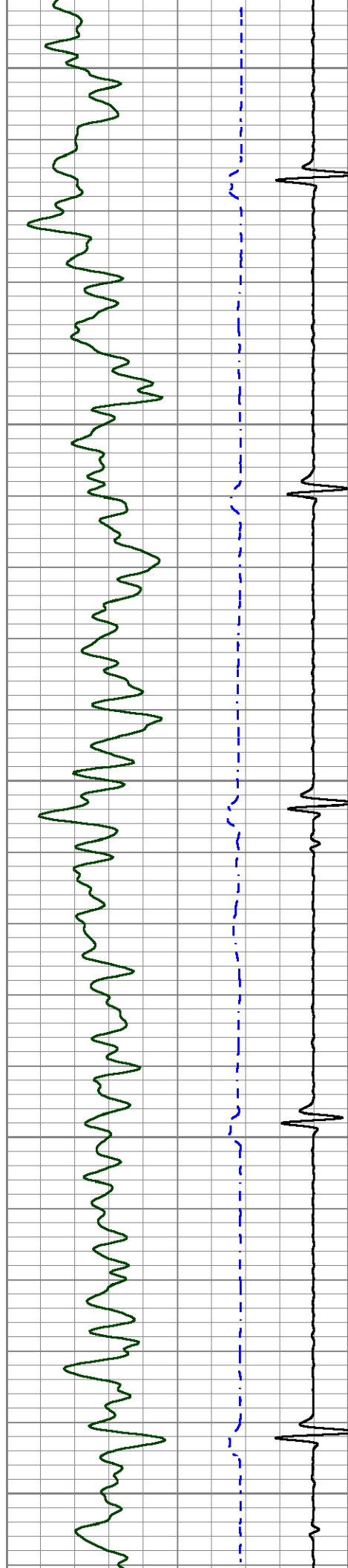












1750

1800

1850

1900

1950

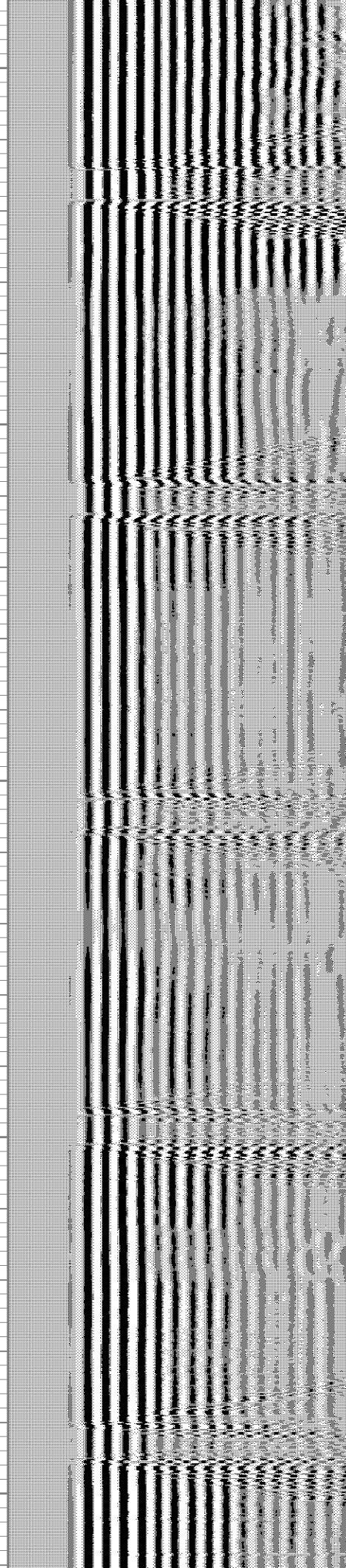
90

92

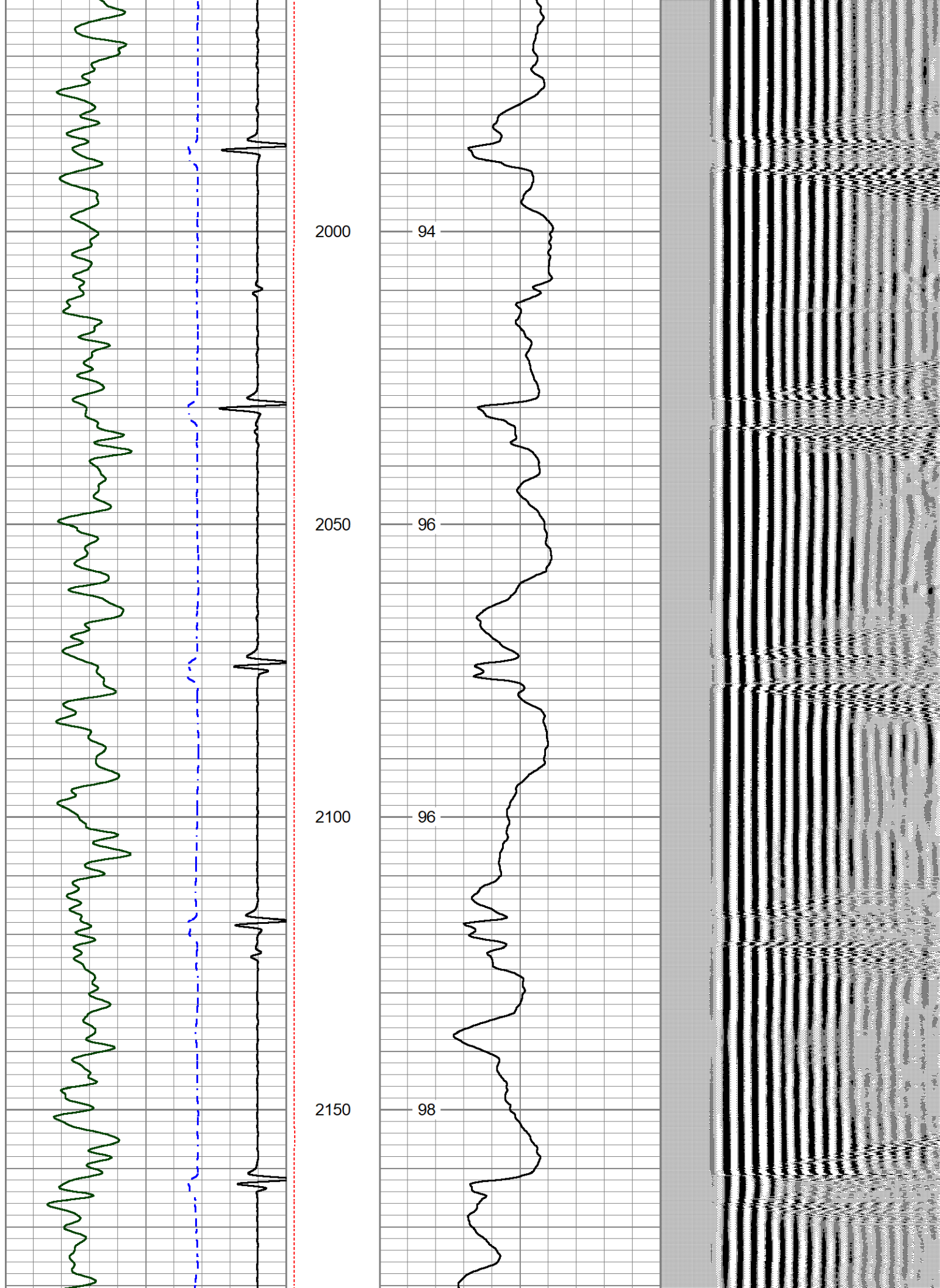
92

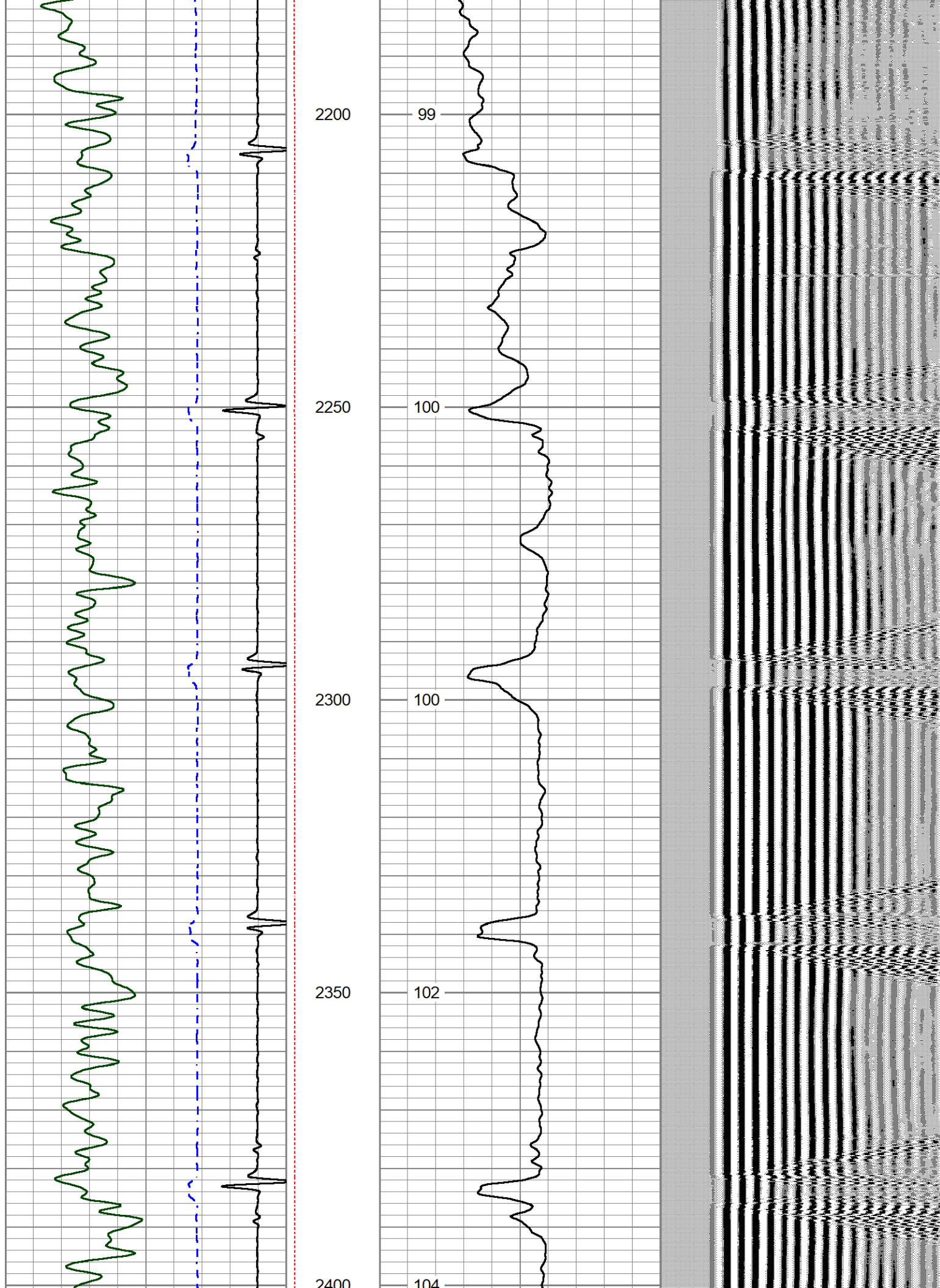
92

94

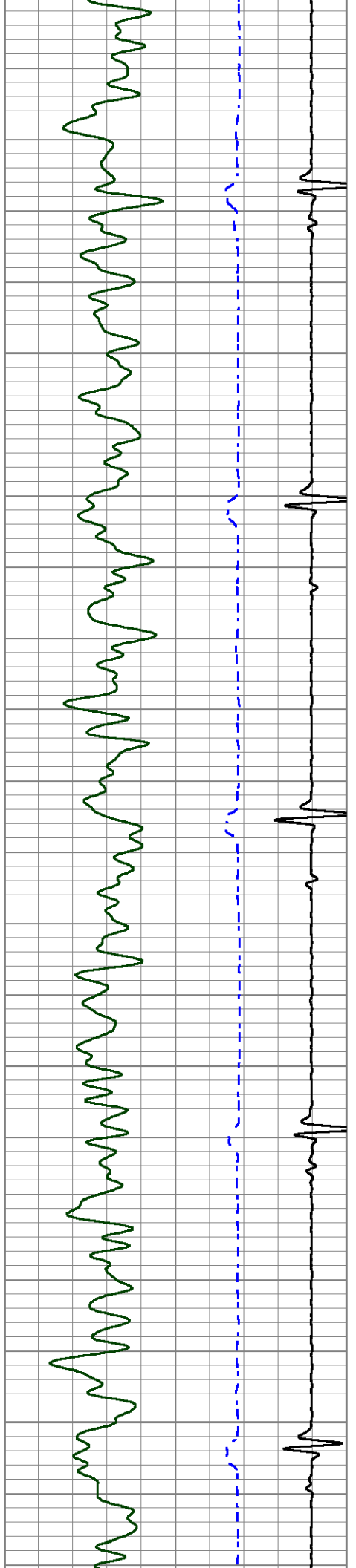










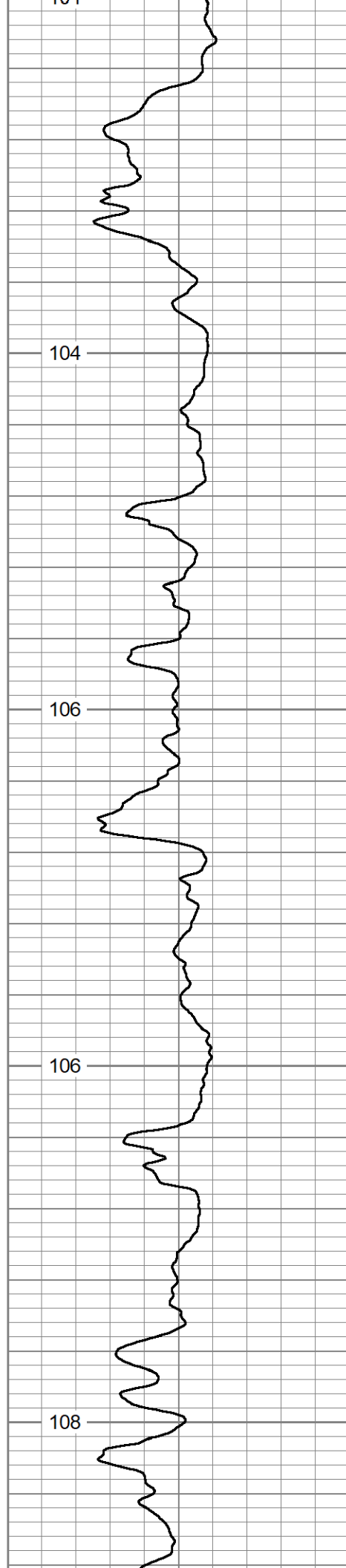


2450

2500

2550

2600

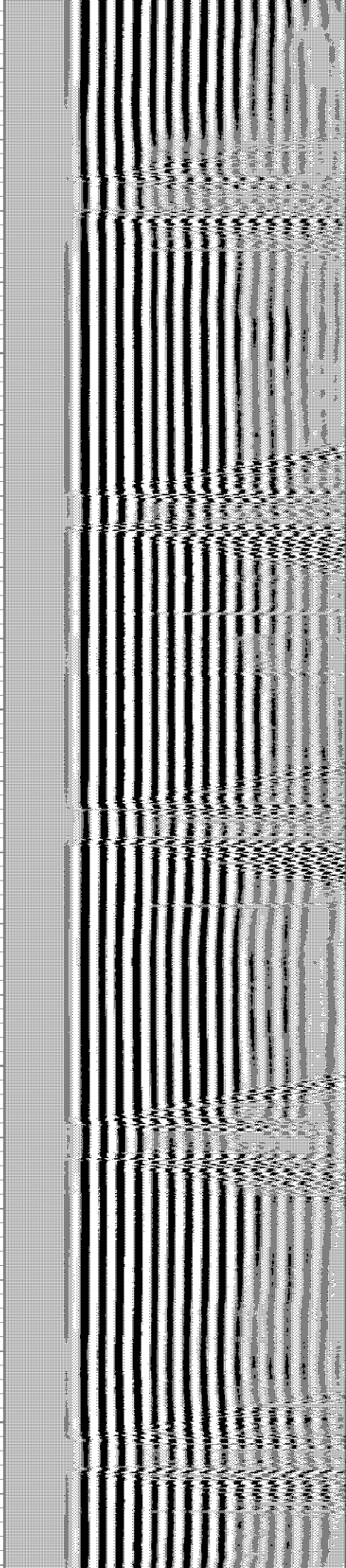


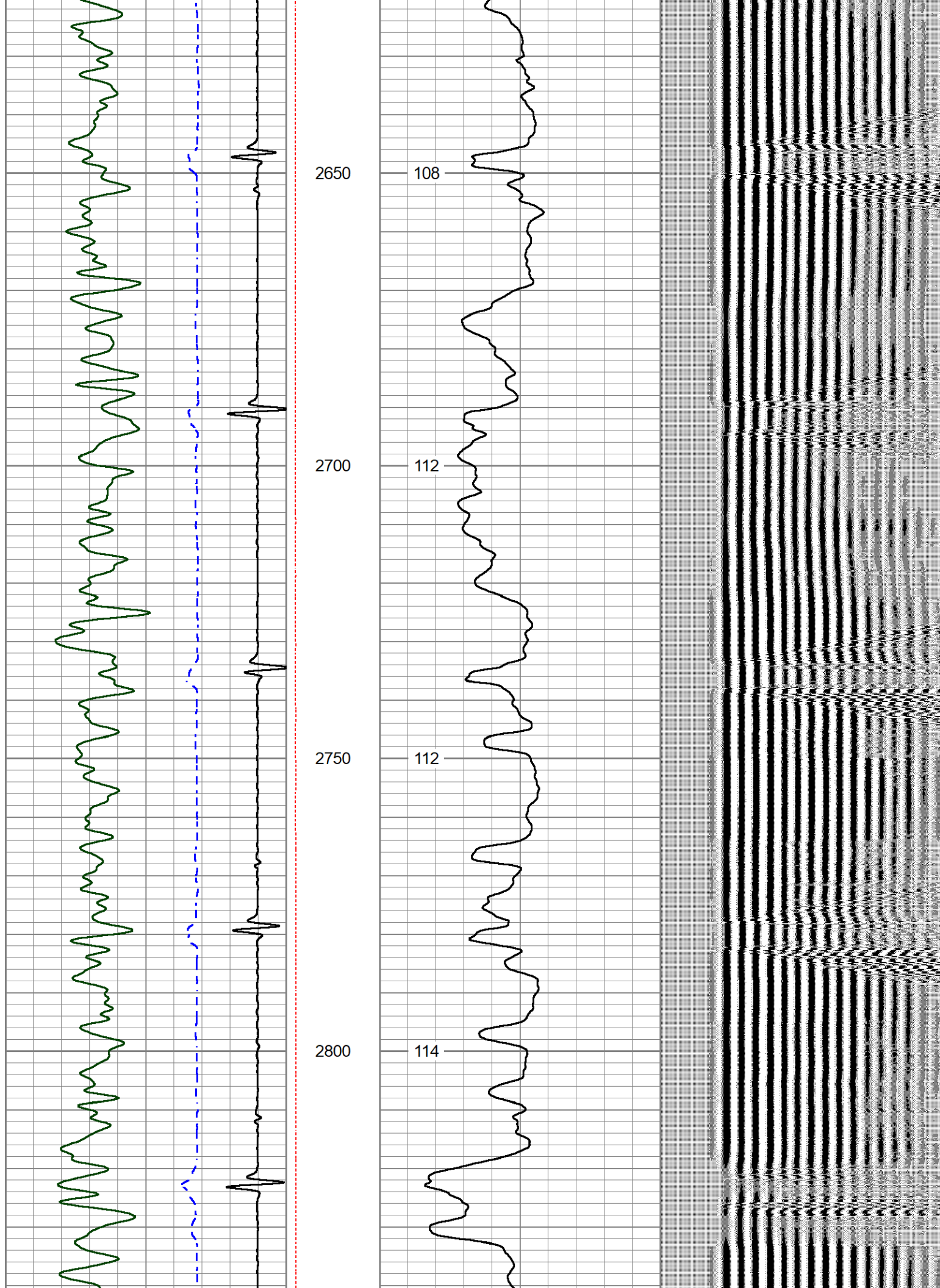
104

106

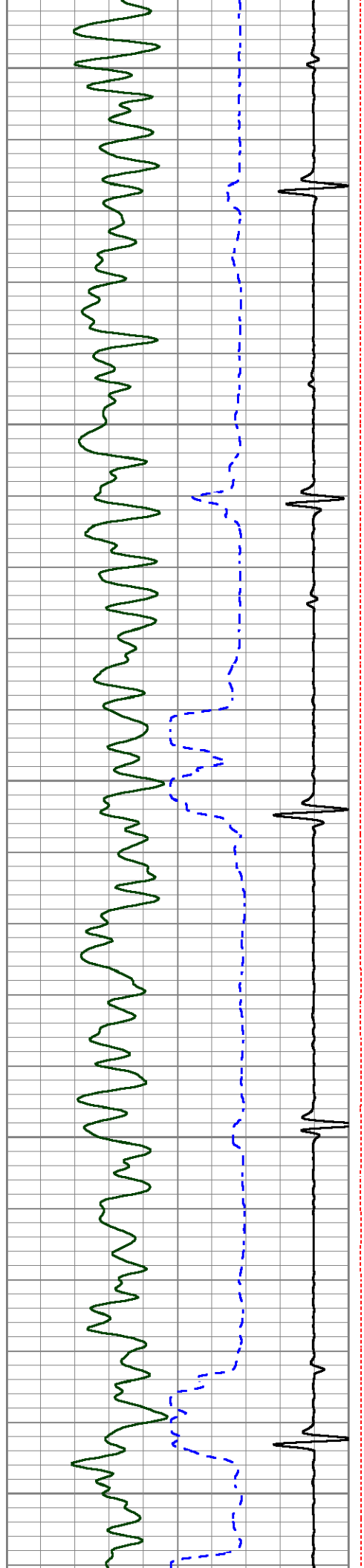
106

108









2850

2900

2950

3000

3050

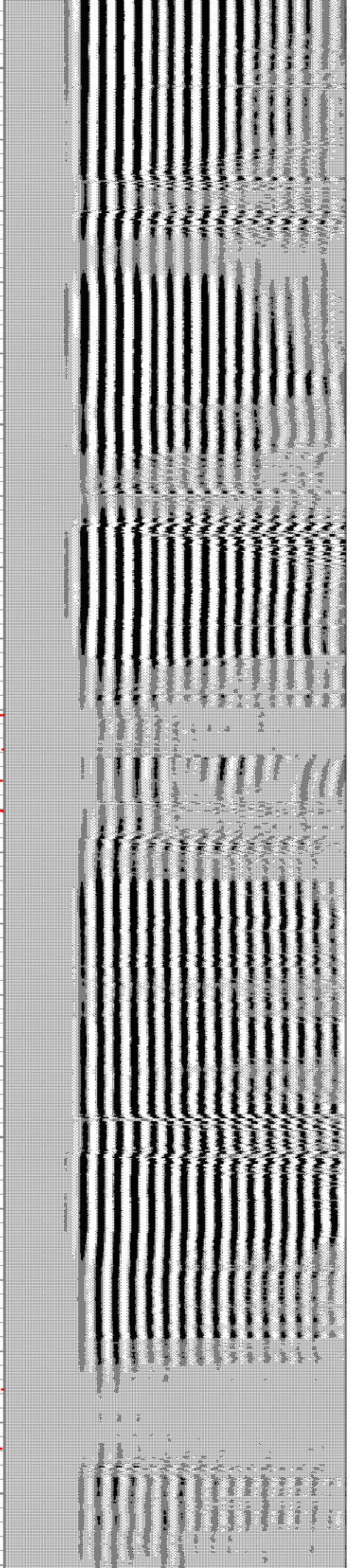
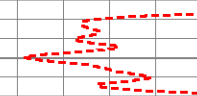
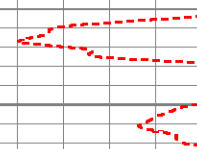
114

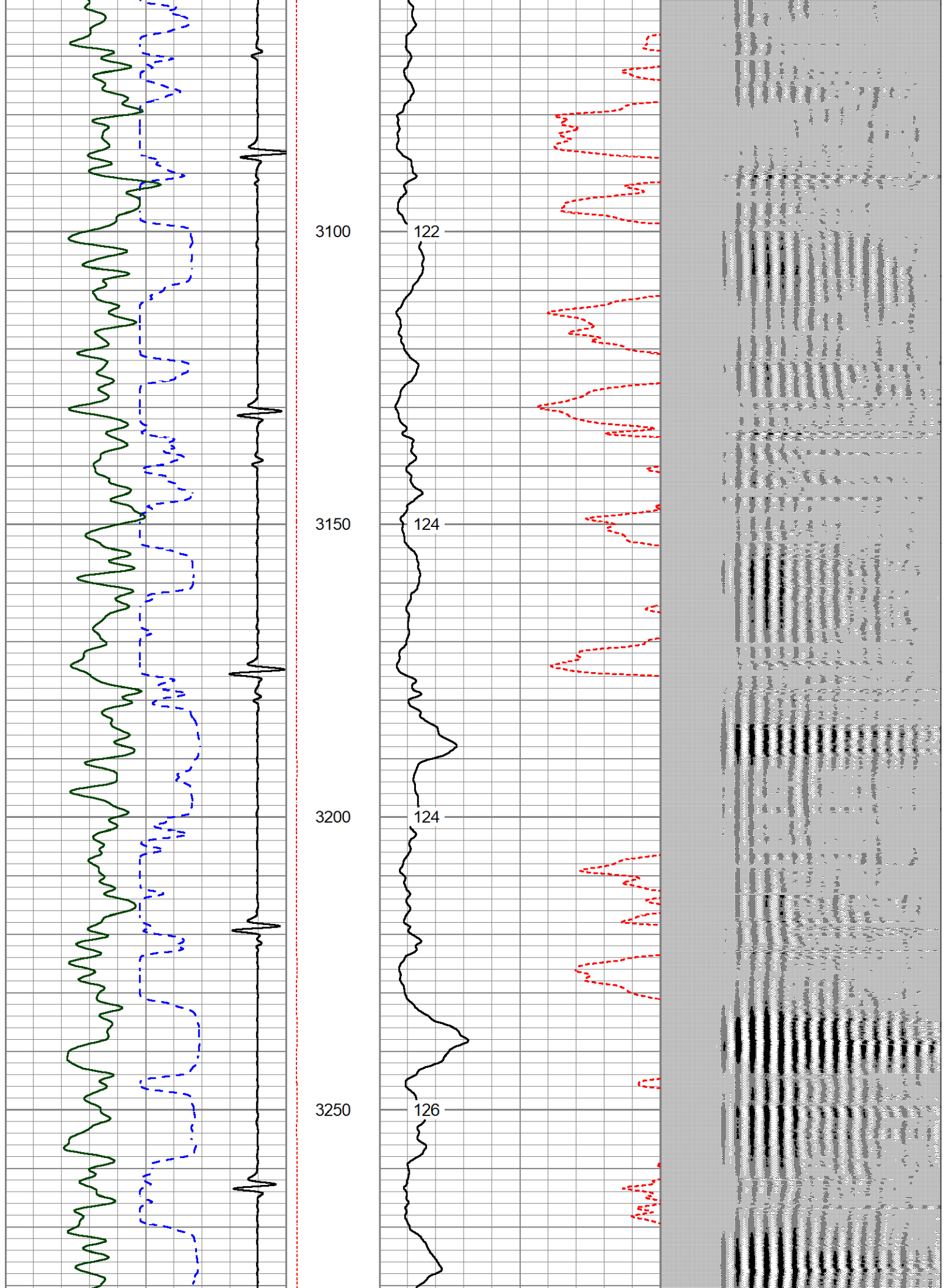
116

118

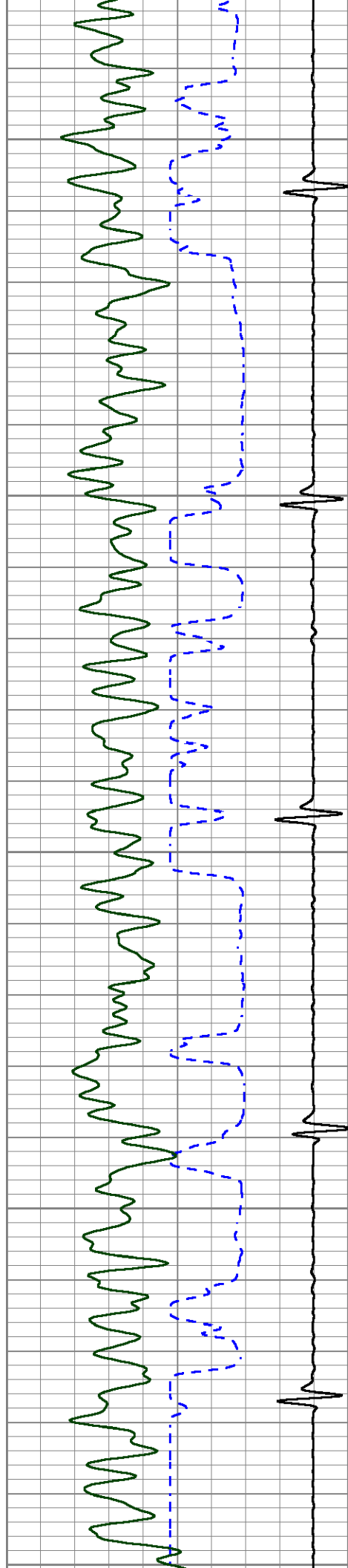
118

121









3300

127

3350

128

3400

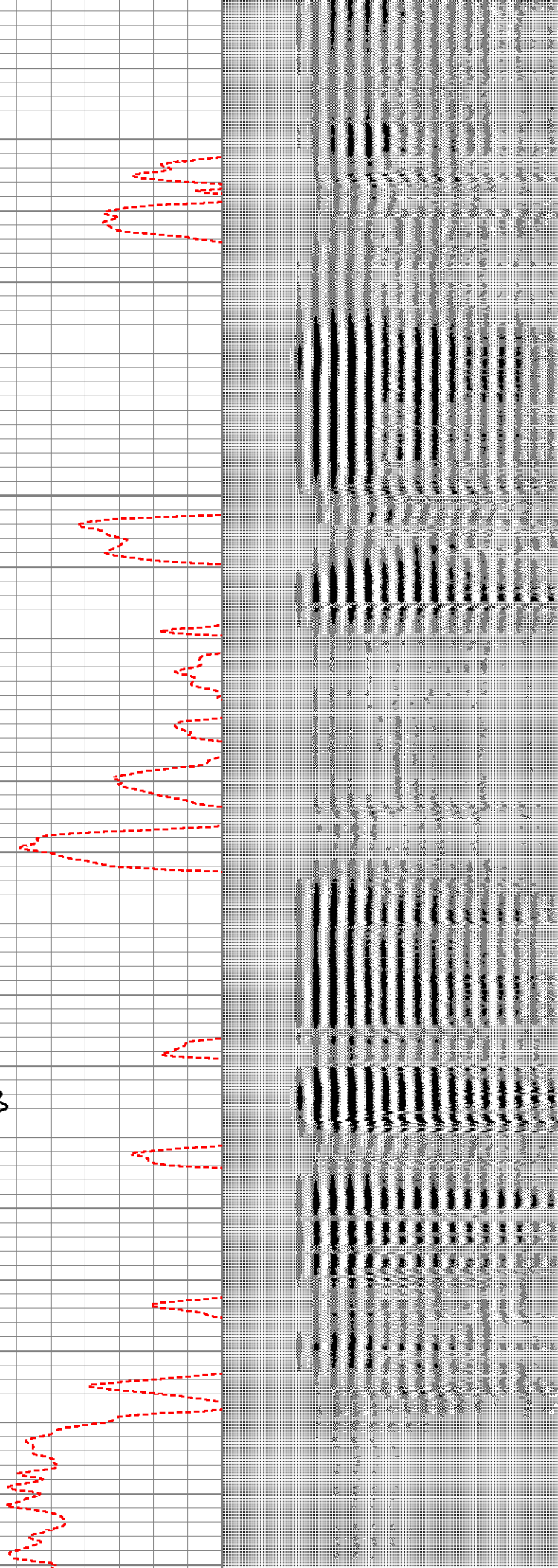
128

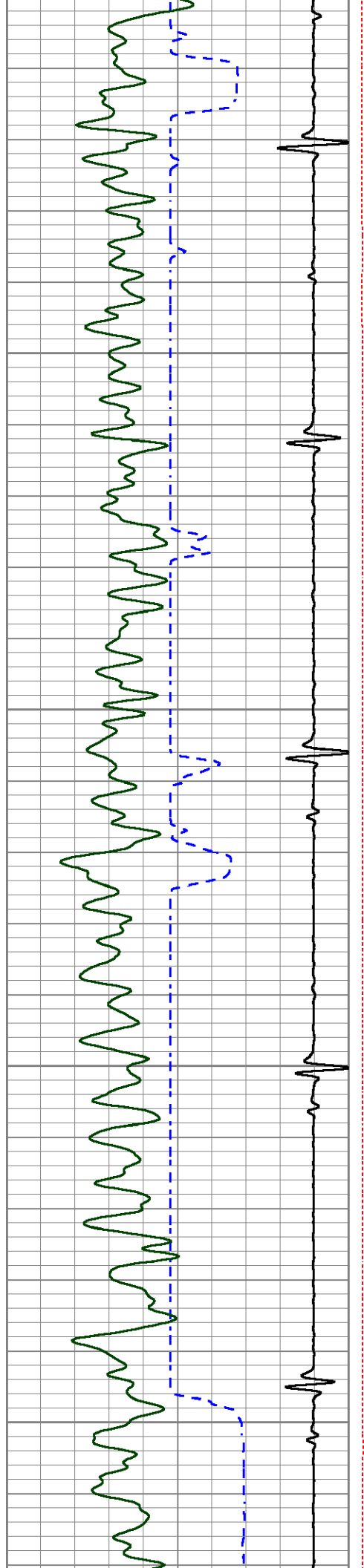
3450

130

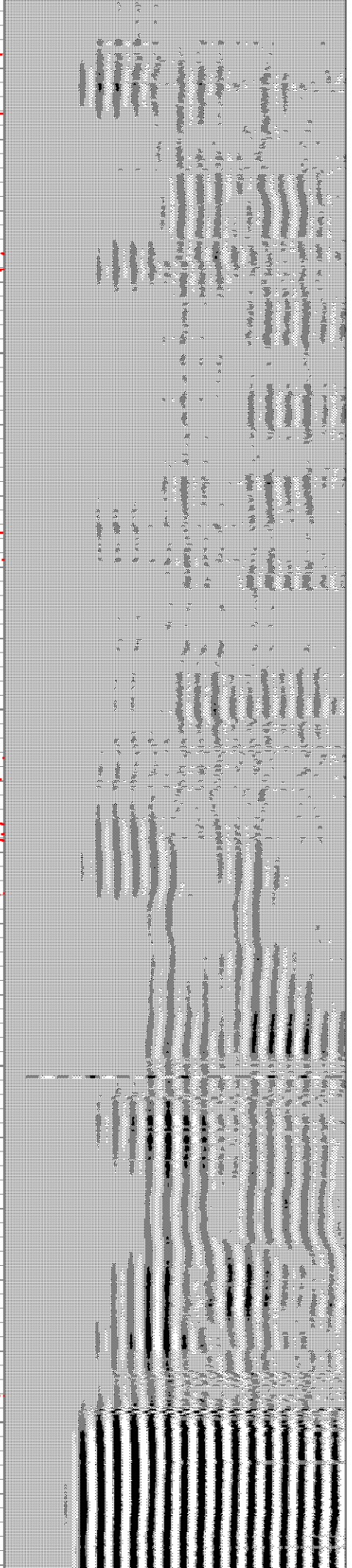
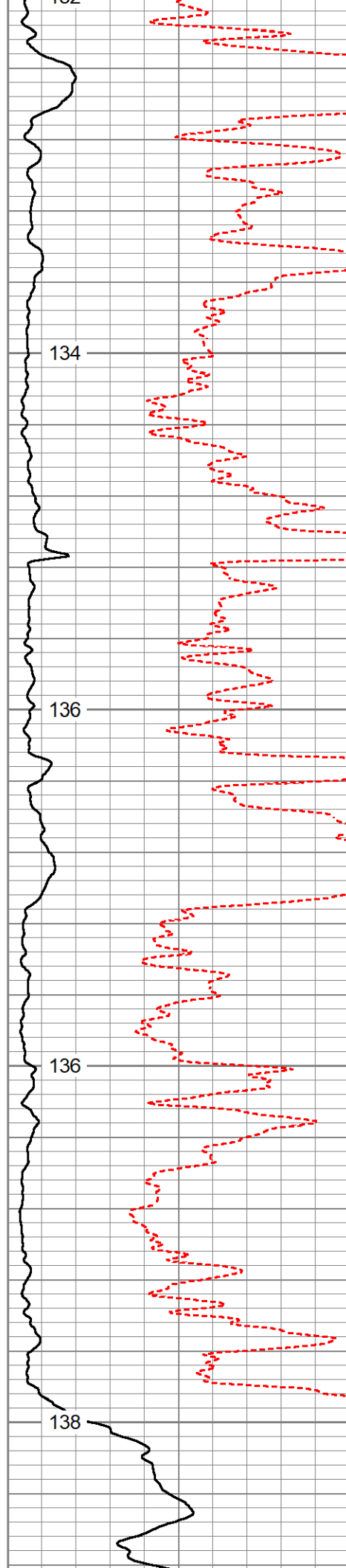
3500

132

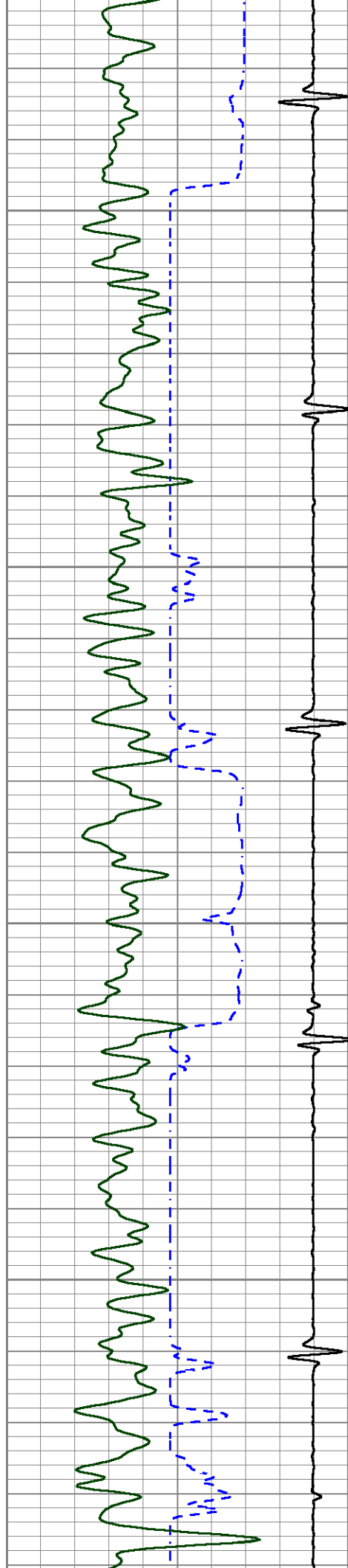




3530  
3550  
3600  
3650  
3700







3750

138

3800

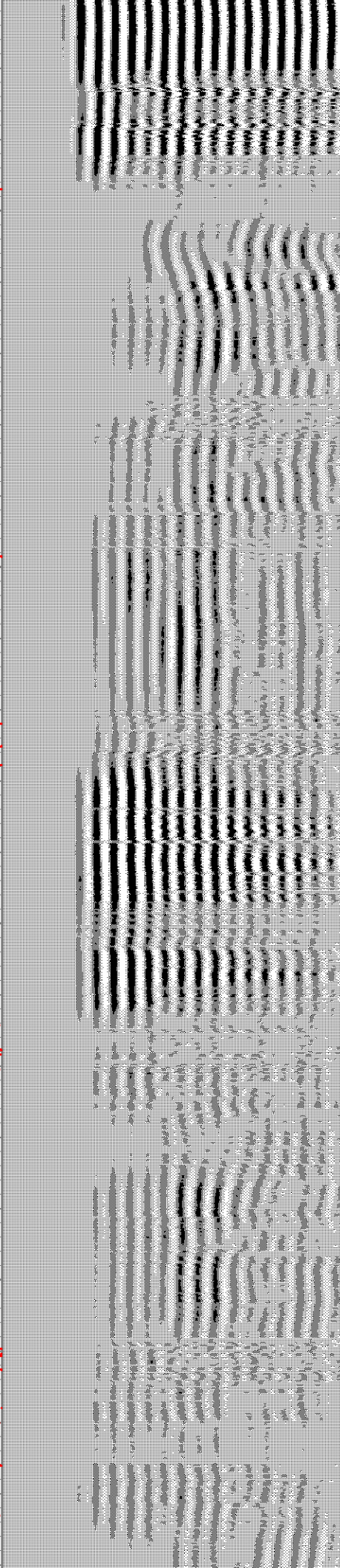
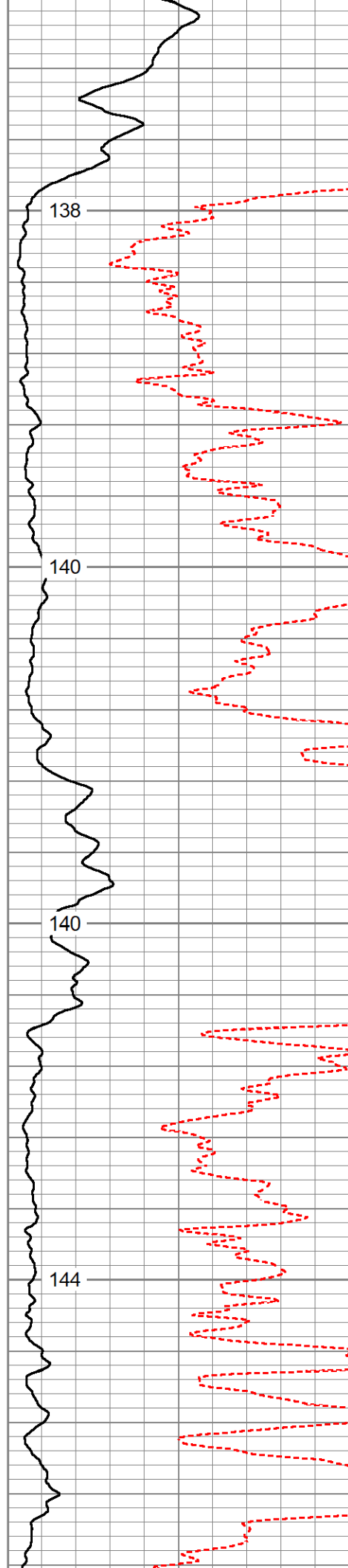
140

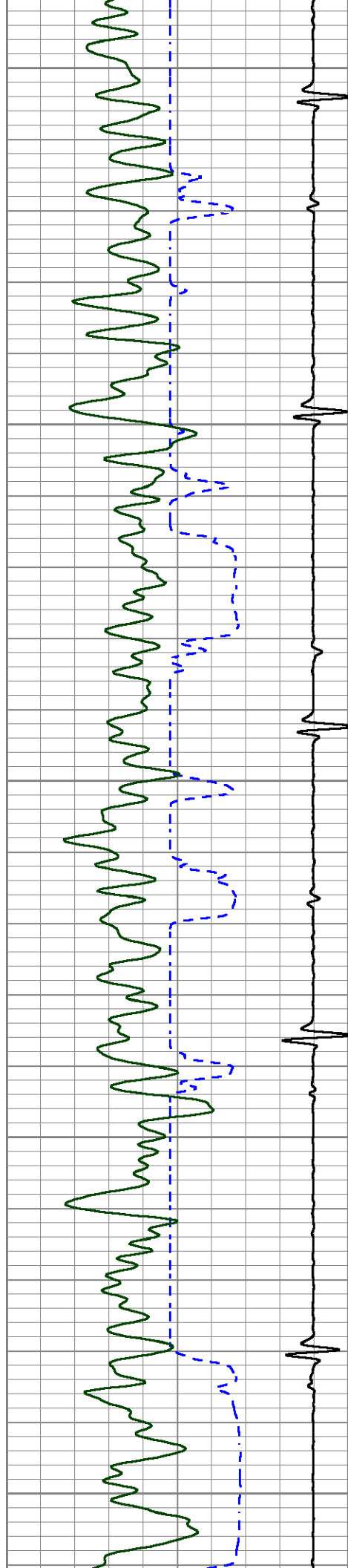
3850

140

3900

144





3950

4000

4050

4100

4150

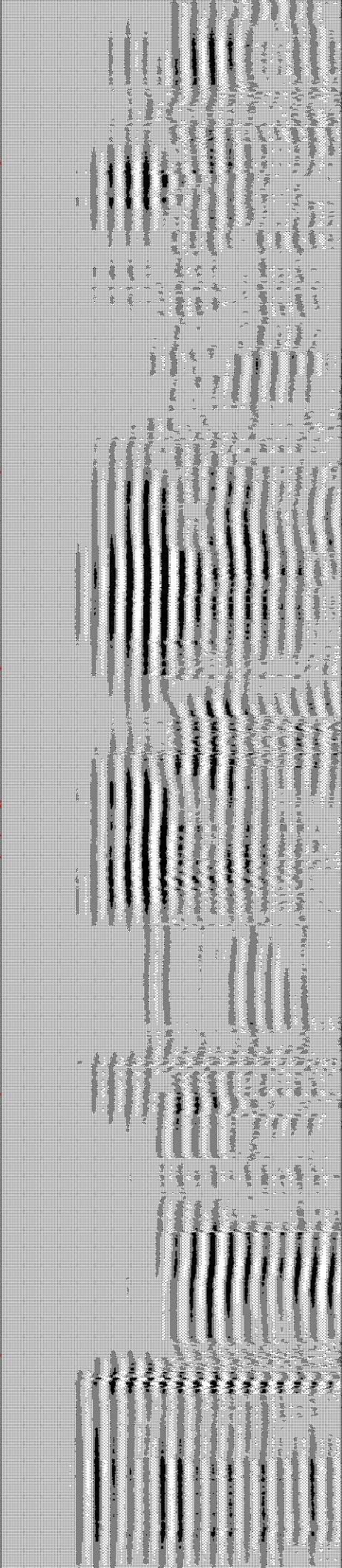
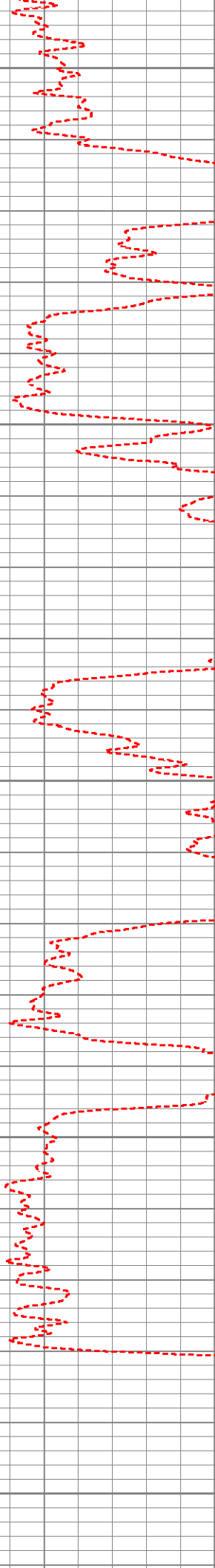
146

144

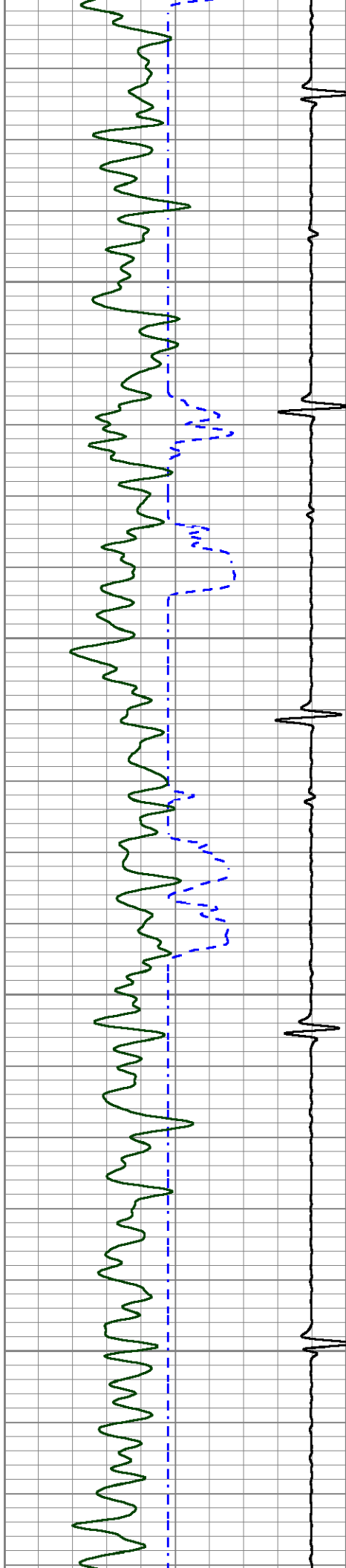
146

148

149







4200

148

4250

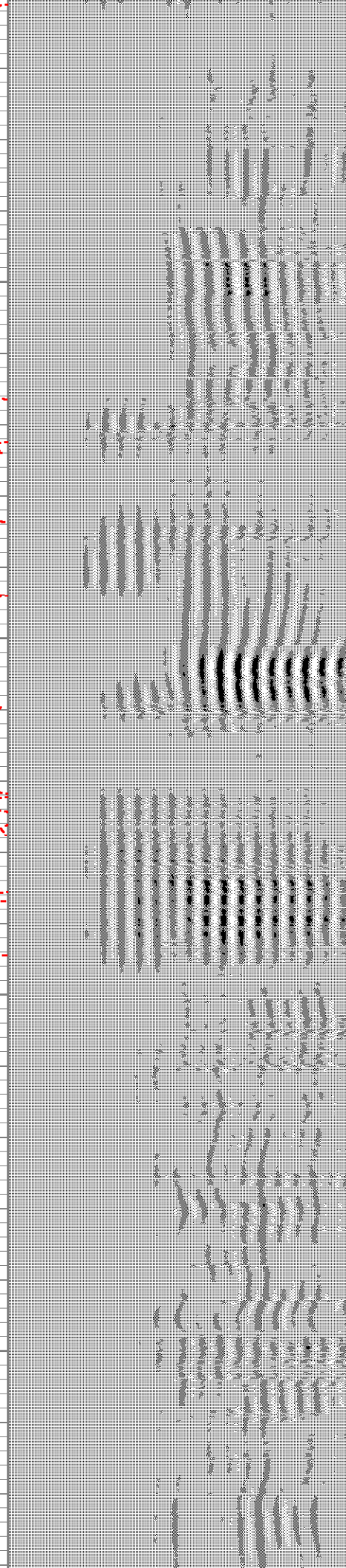
153

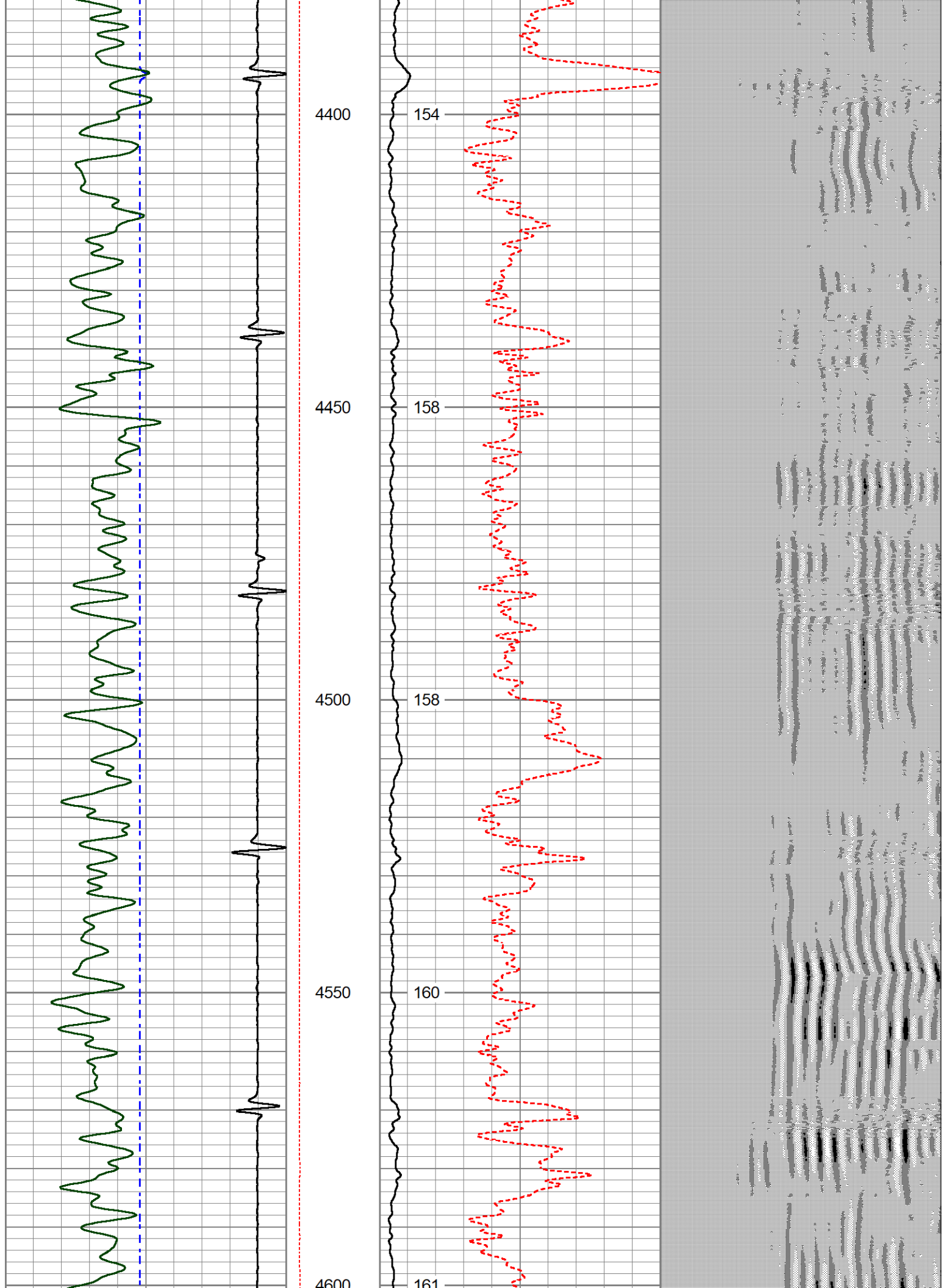
4300

156

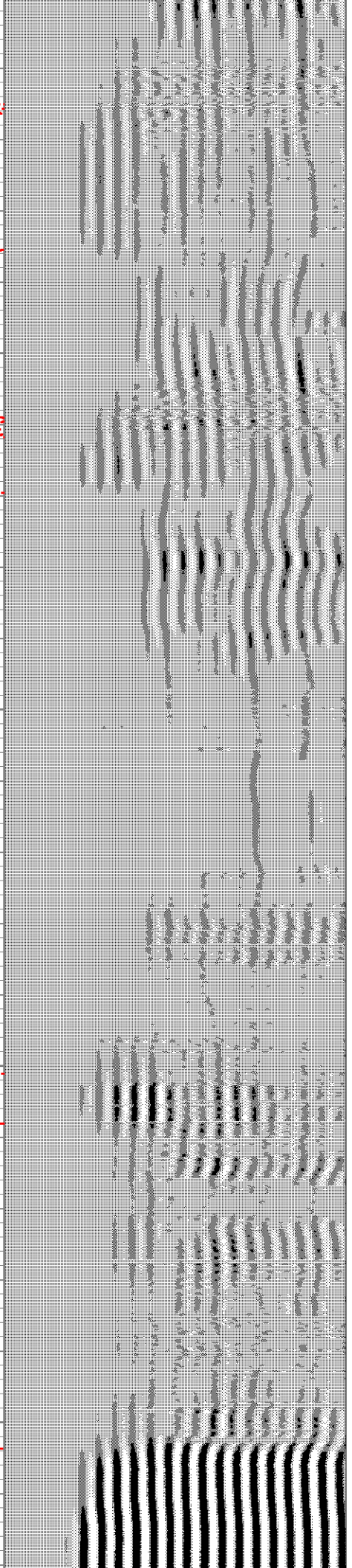
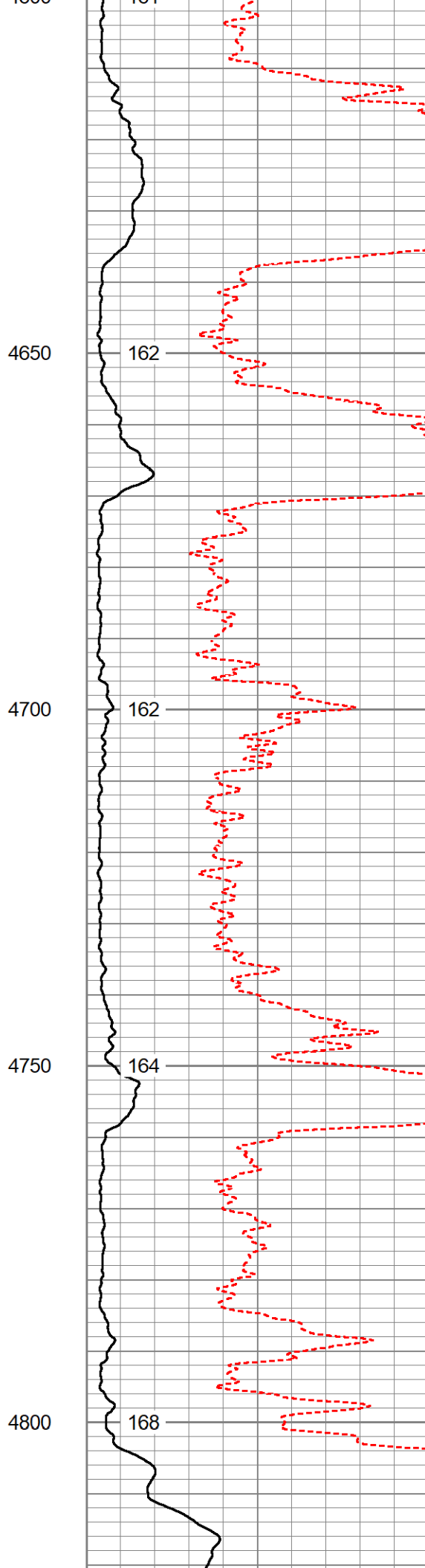
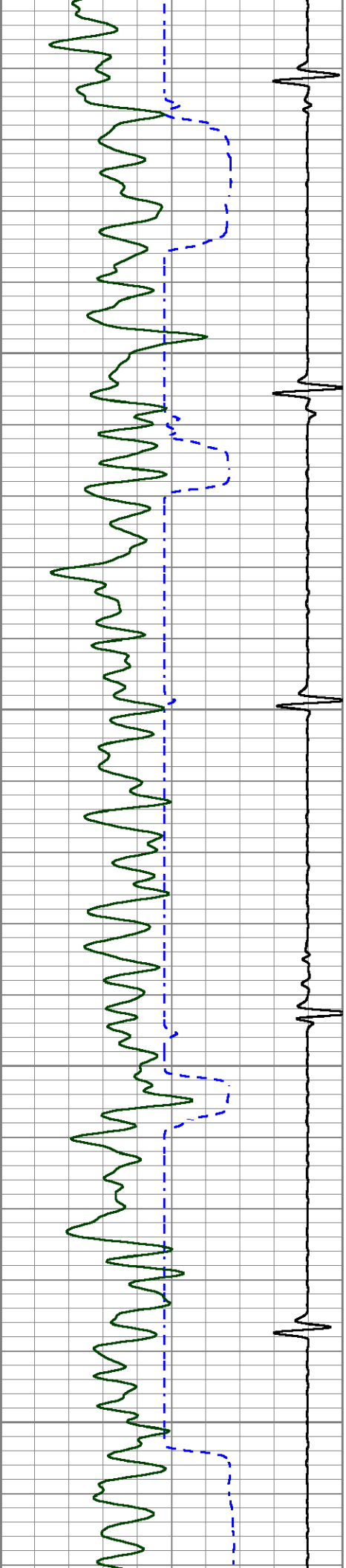
4350

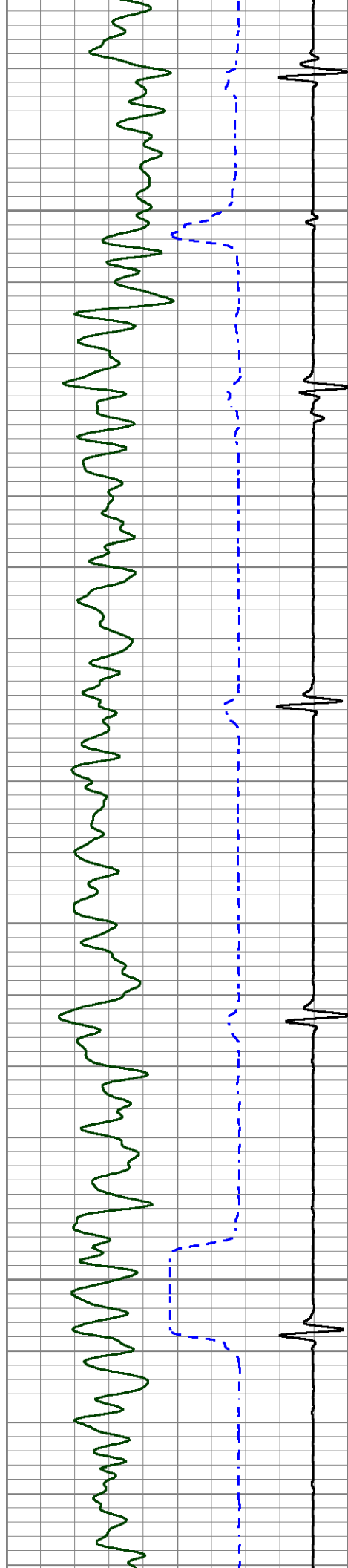
156











4850

4900

4950

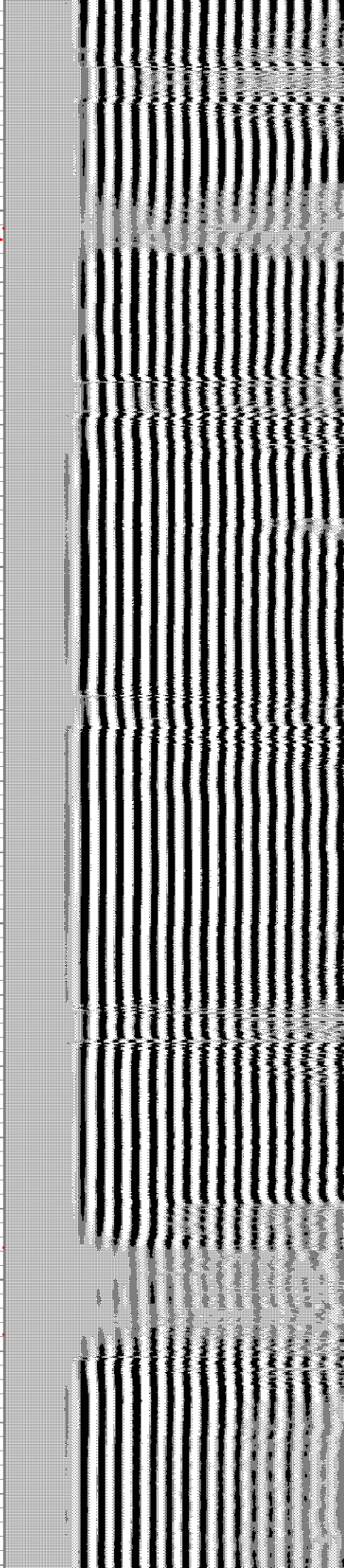
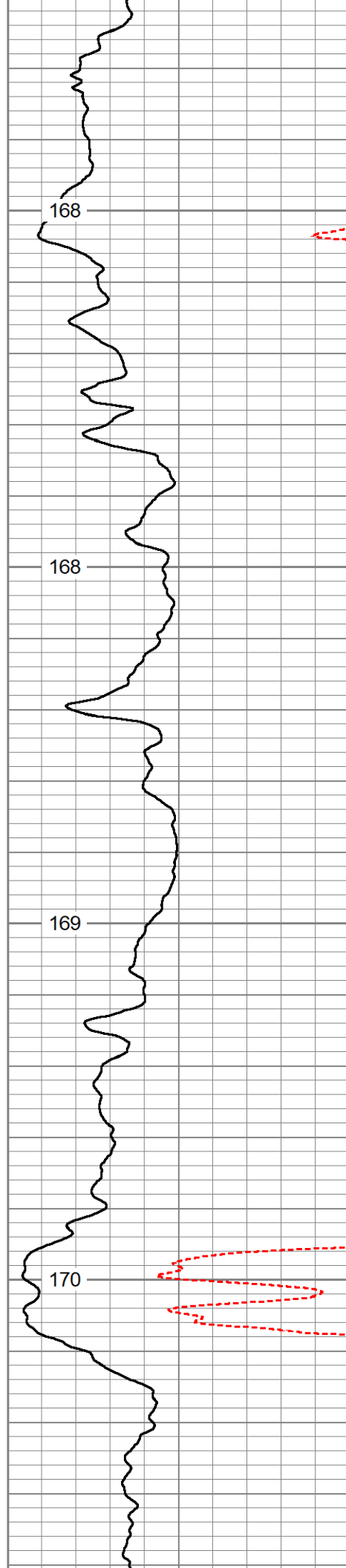
5000

168

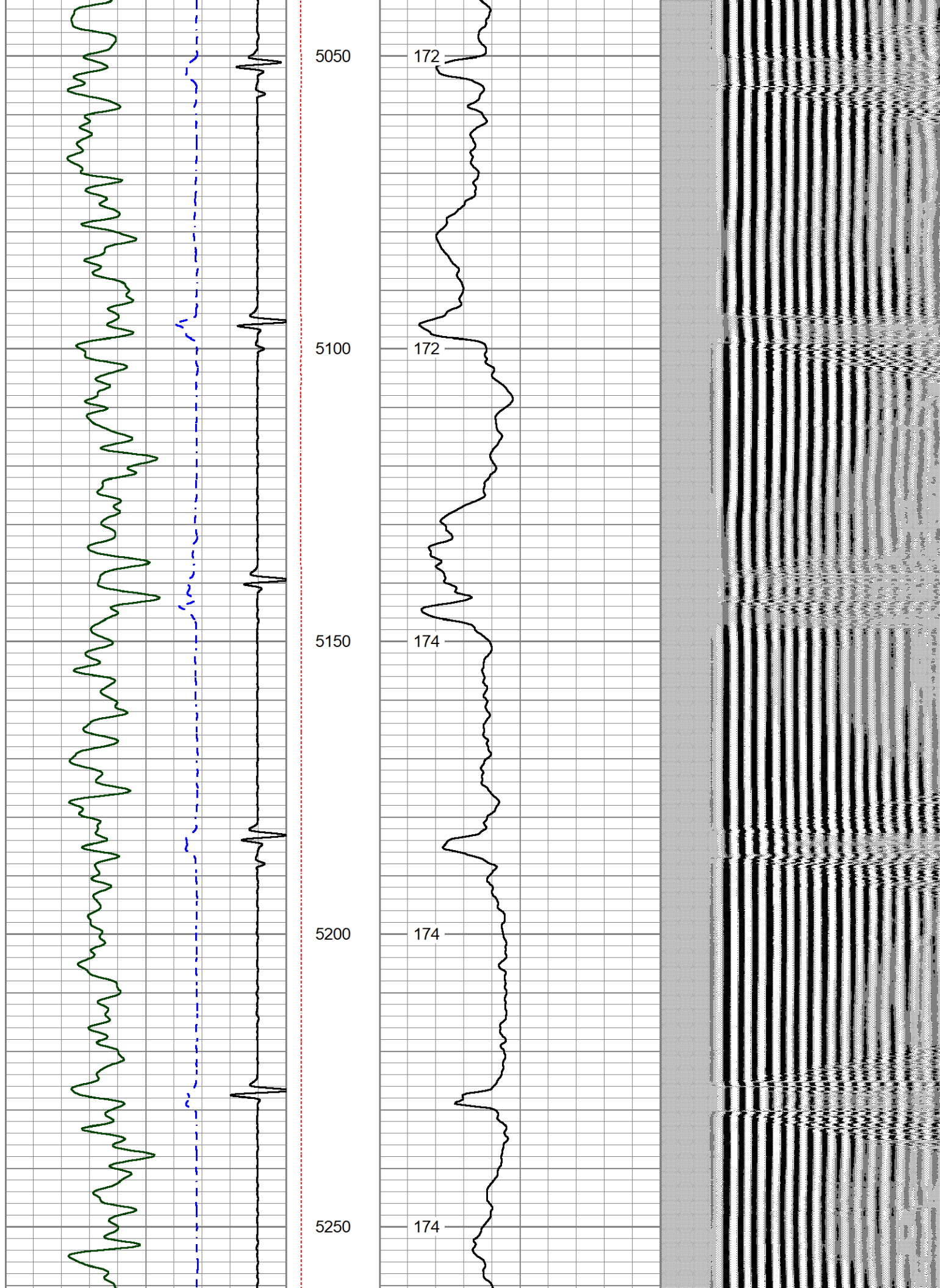
168

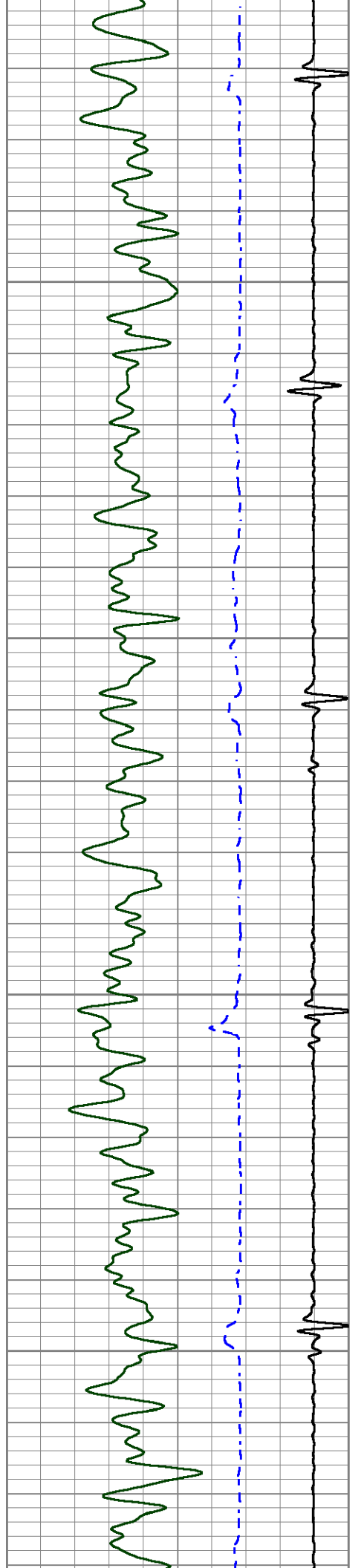
169

170









5300

5350

5400

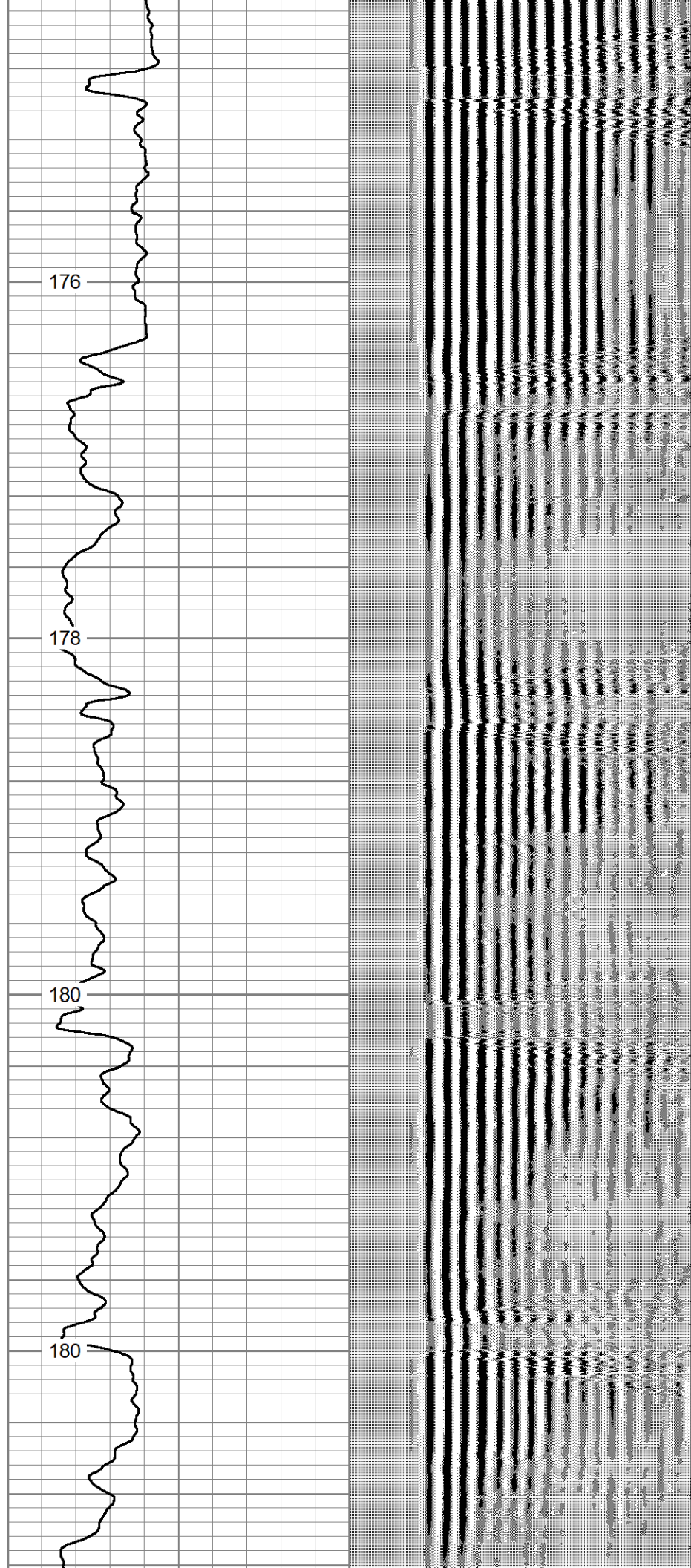
5450

176

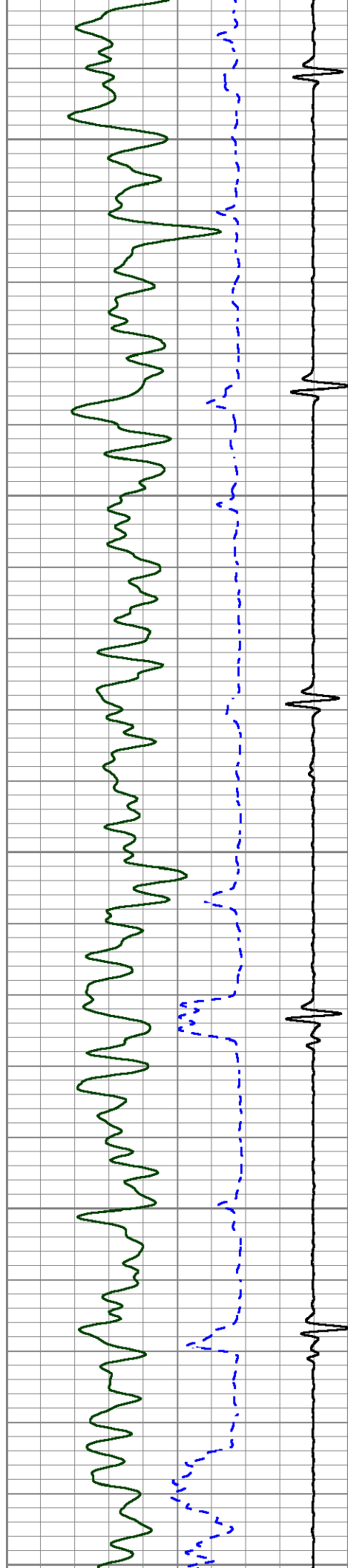
178

180

180







5500

5550

5600

5650

5700

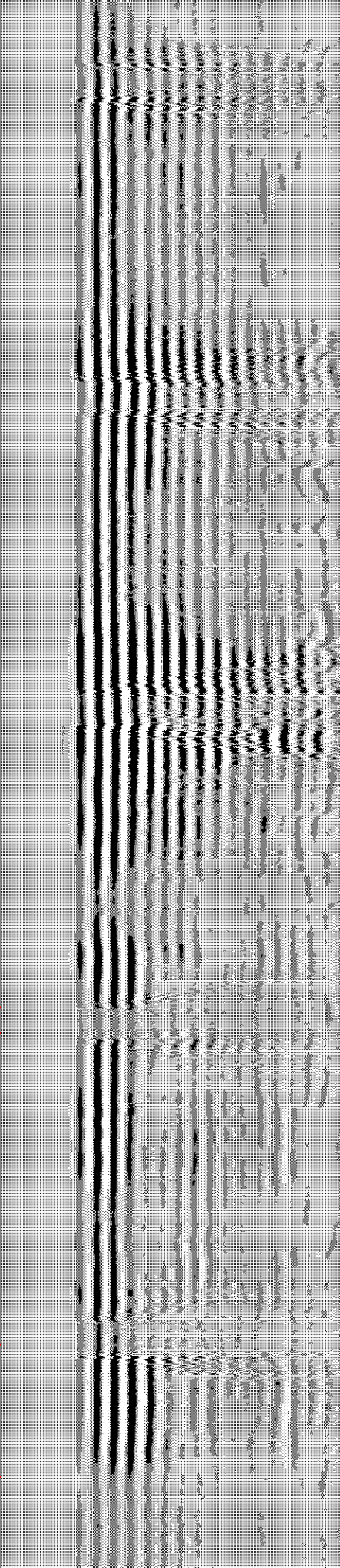
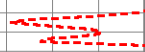
180

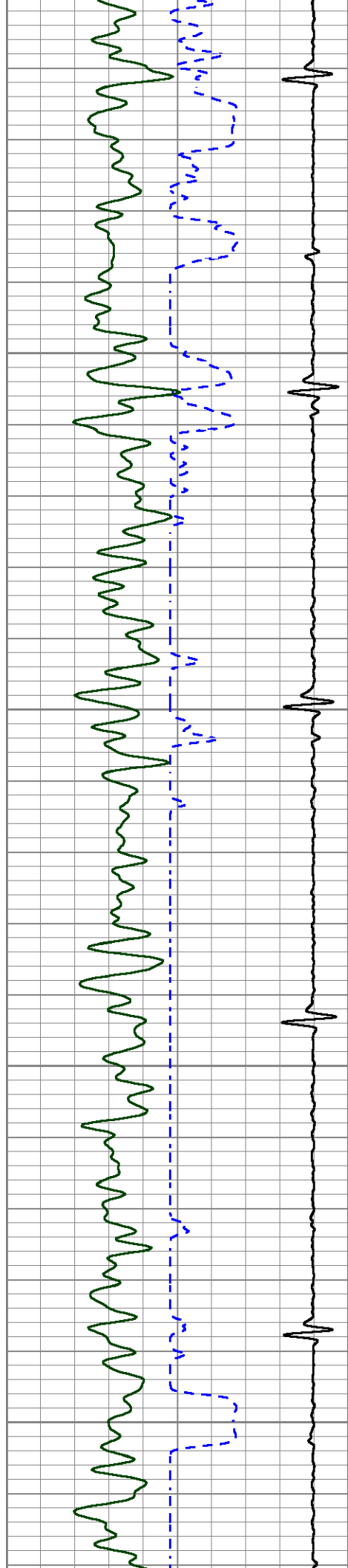
181

182

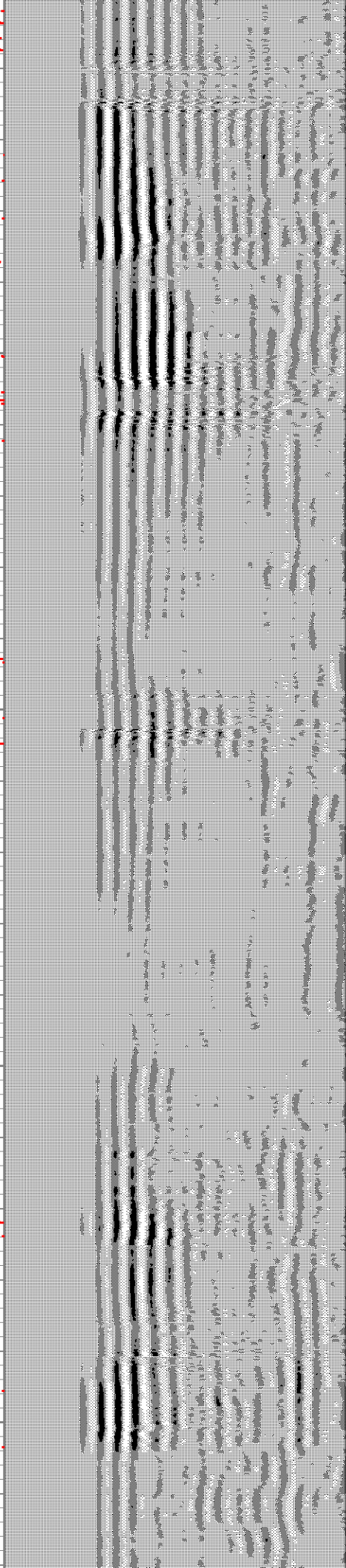
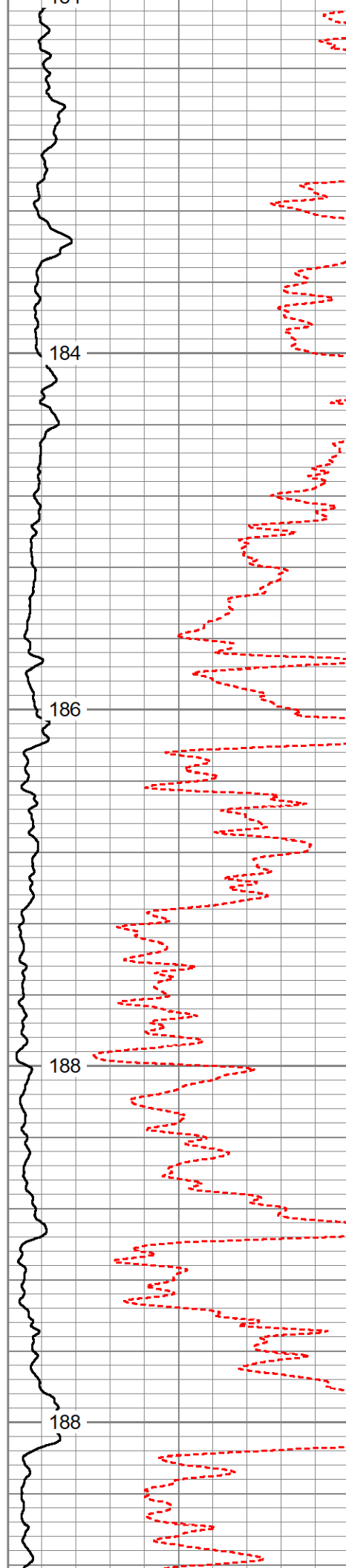
184

184

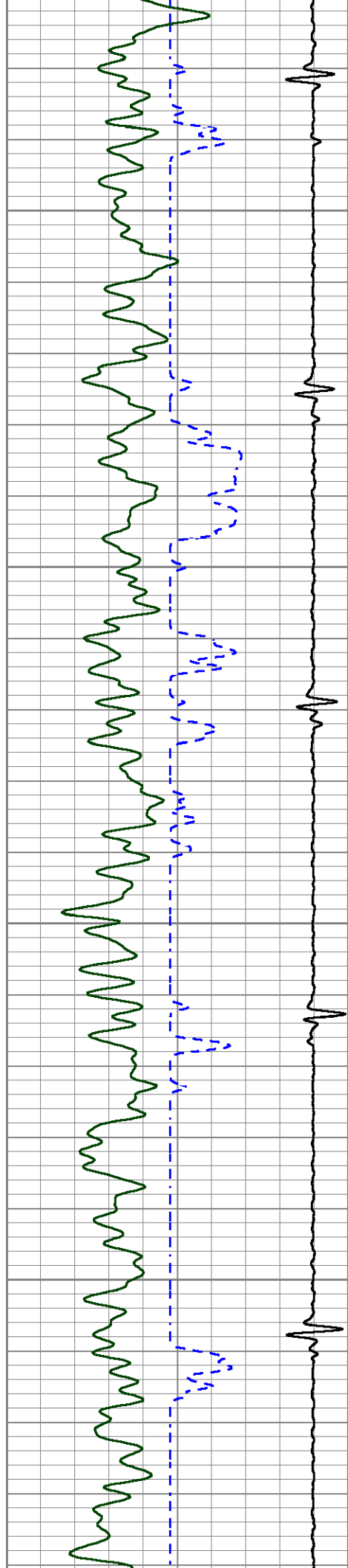




5700  
5750  
5800  
5850  
5900







5950

6000

6050

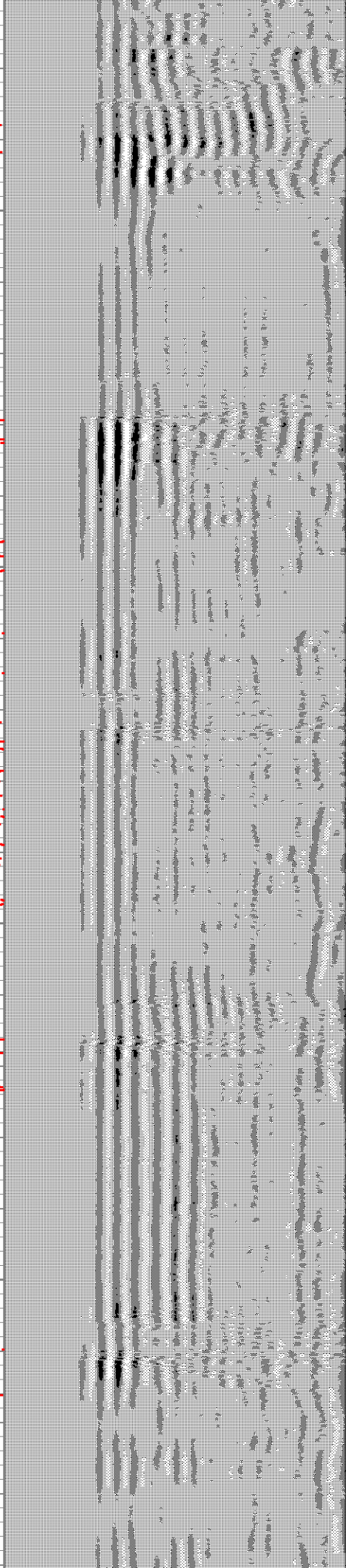
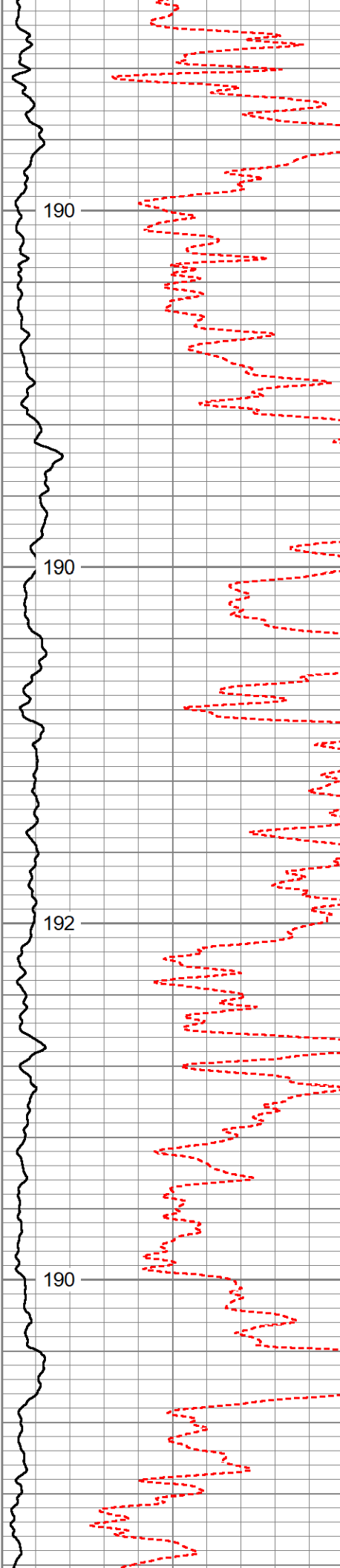
6100

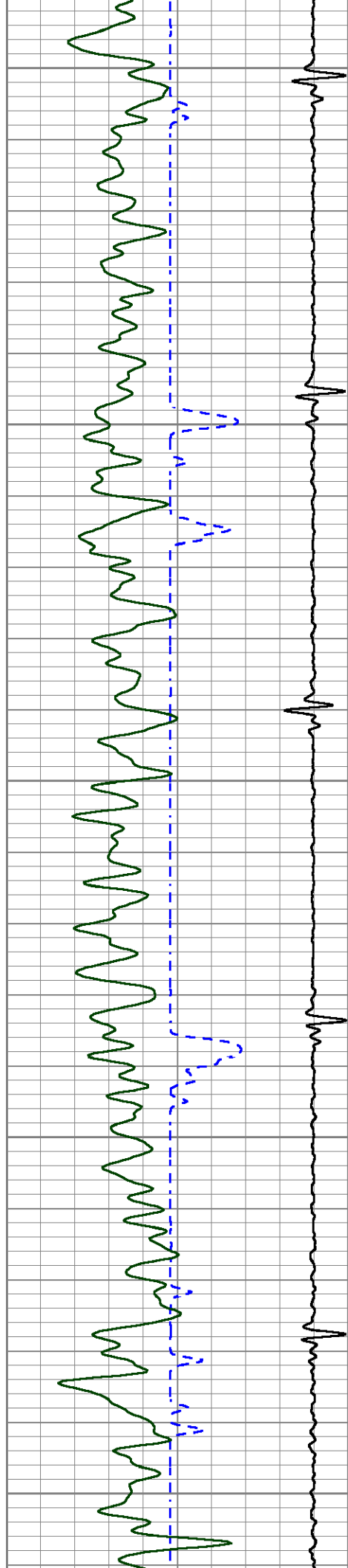
190

190

192

190





6150

194

6200

196

6250

196

6300

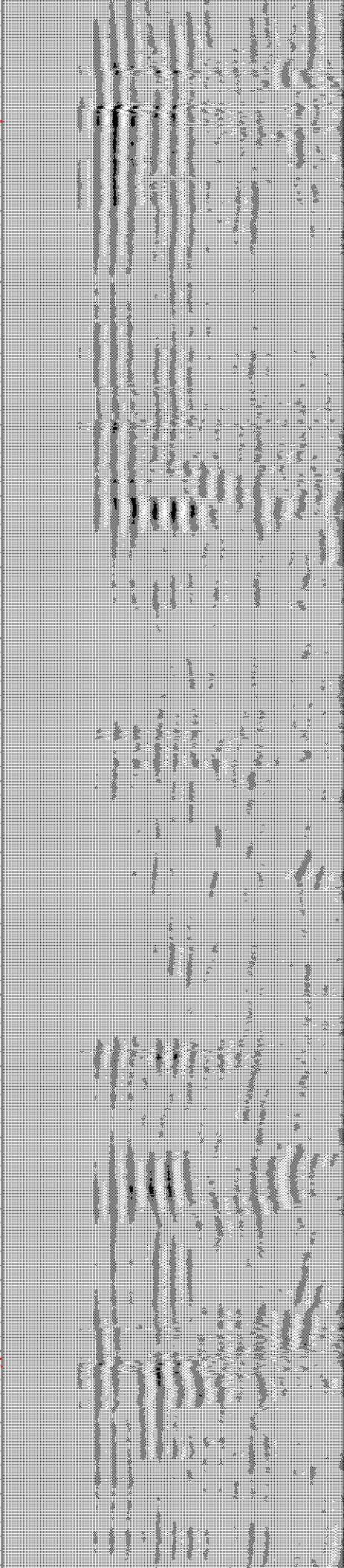
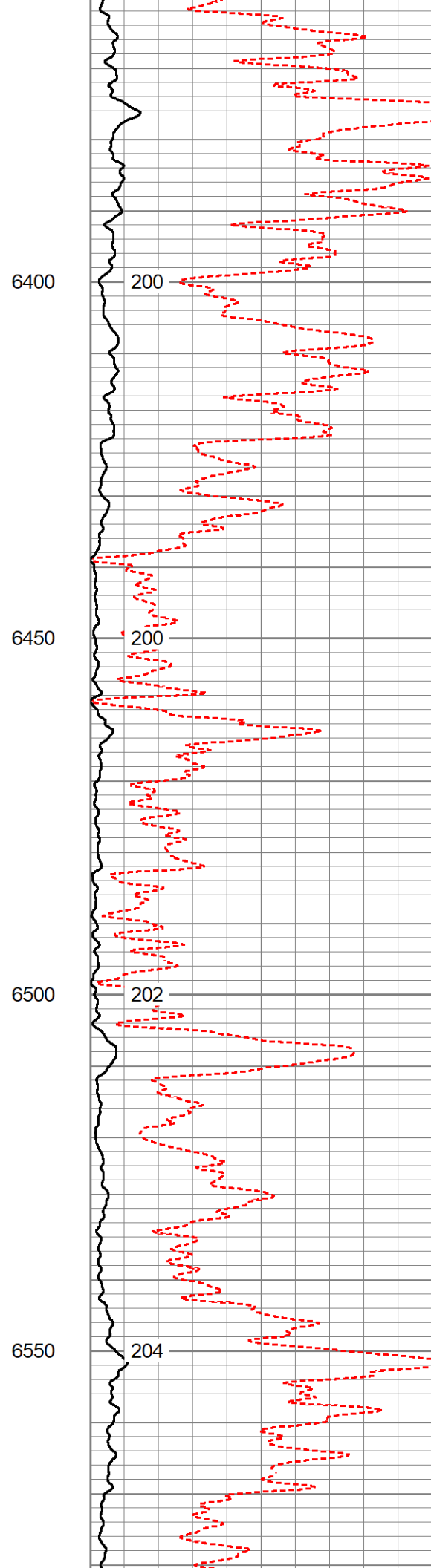
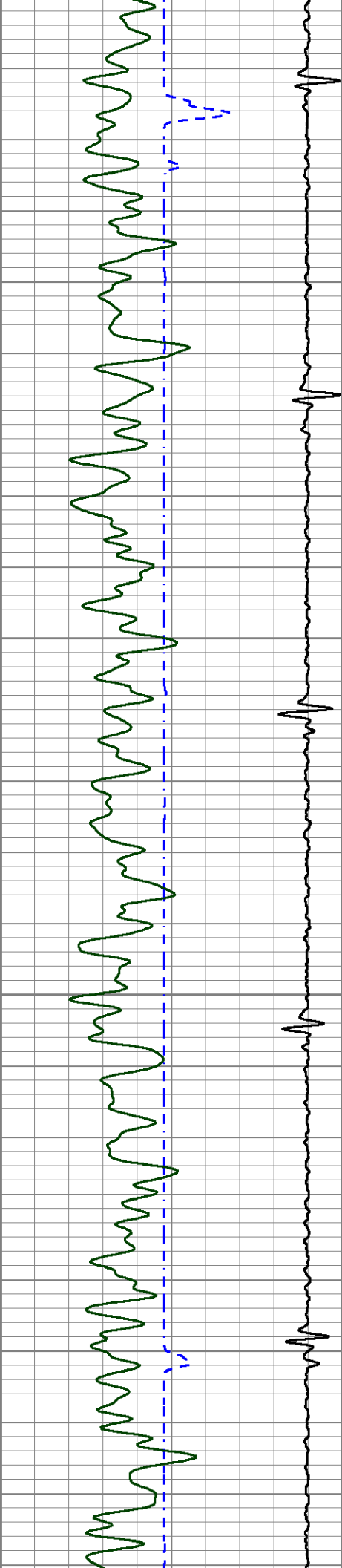
198

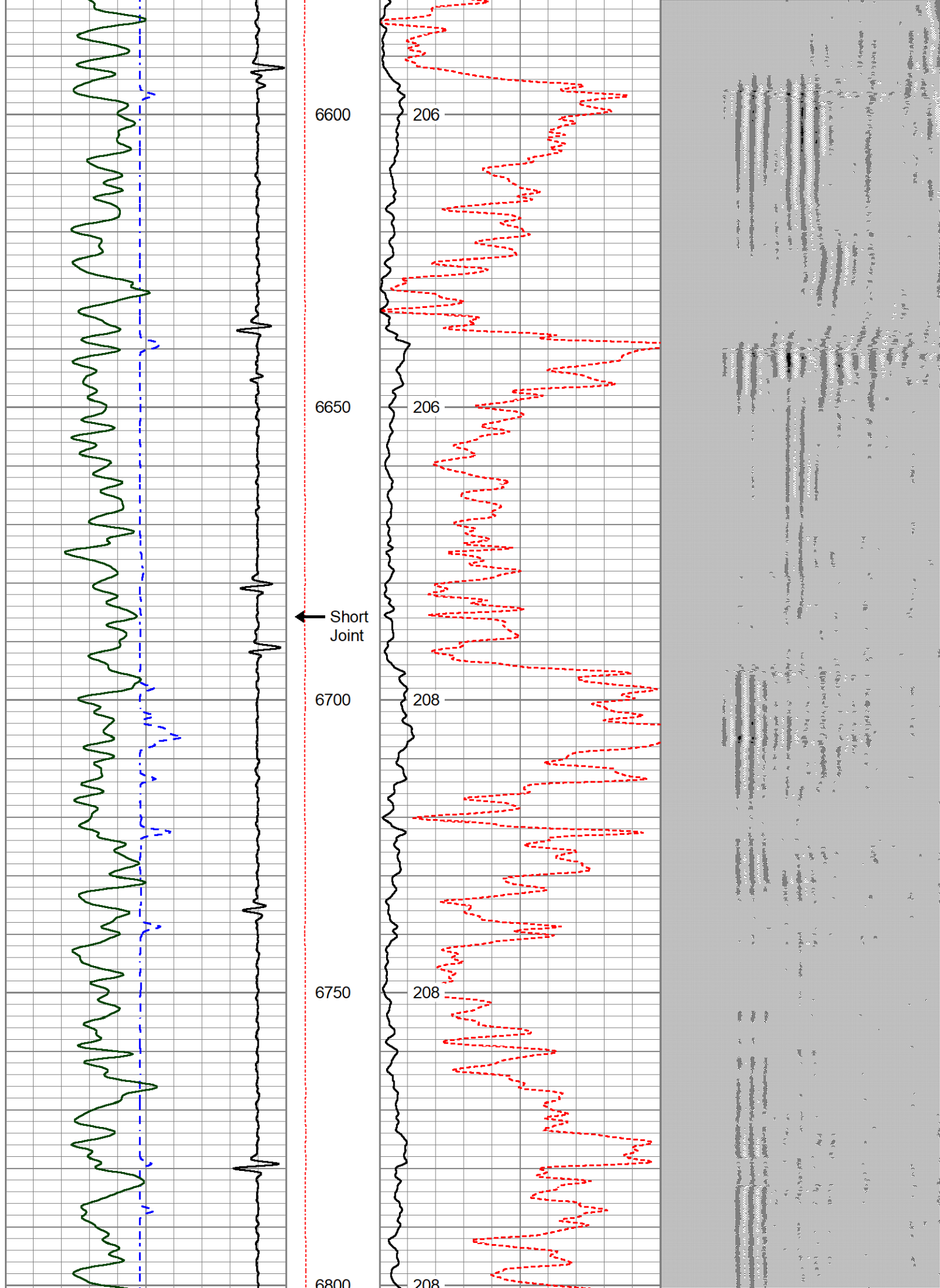
6350

198

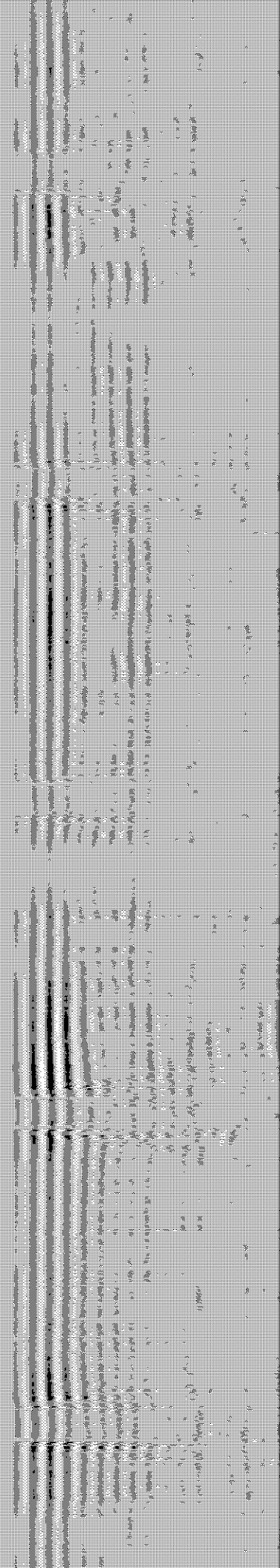
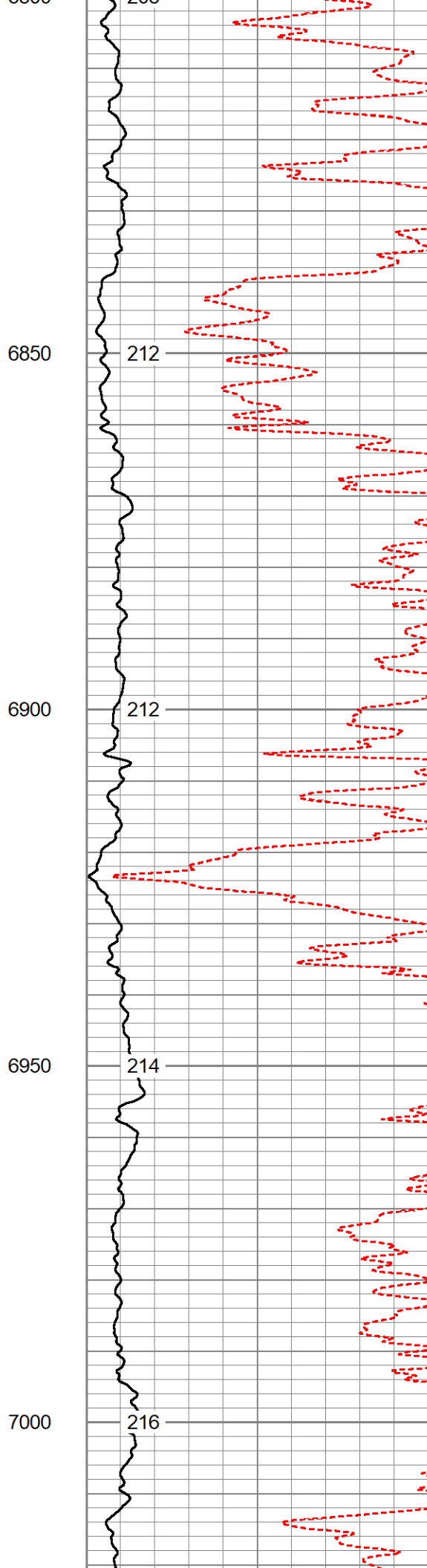
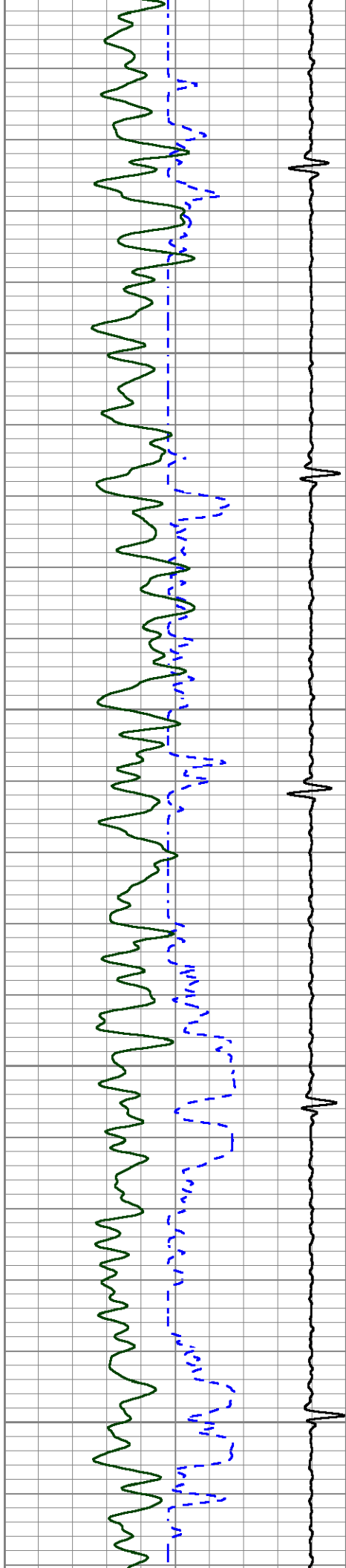


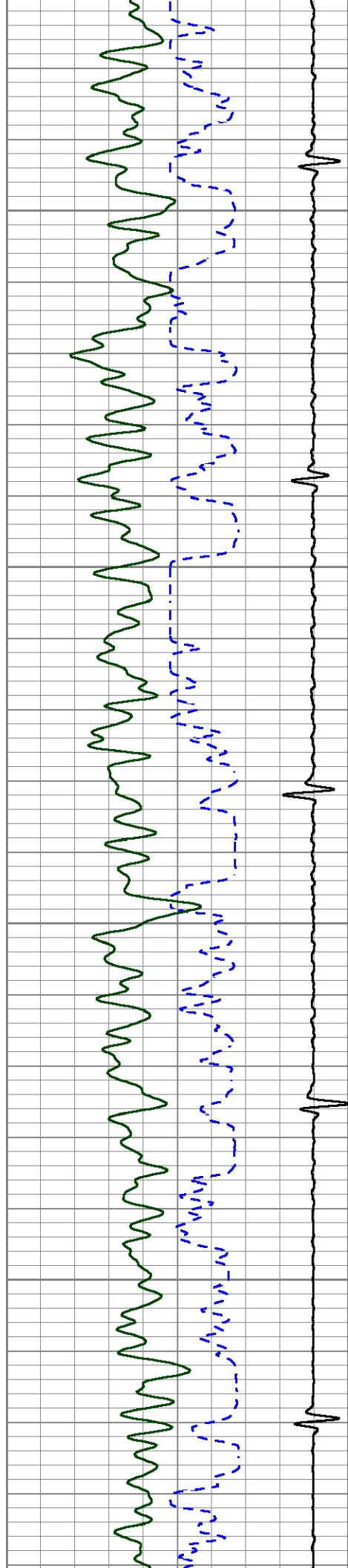










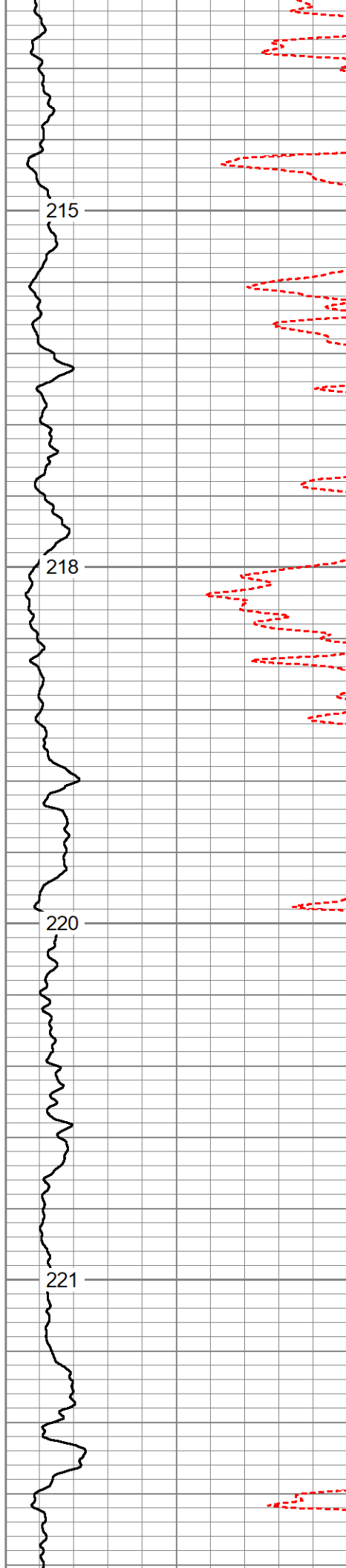


7050

7100

7150

7200

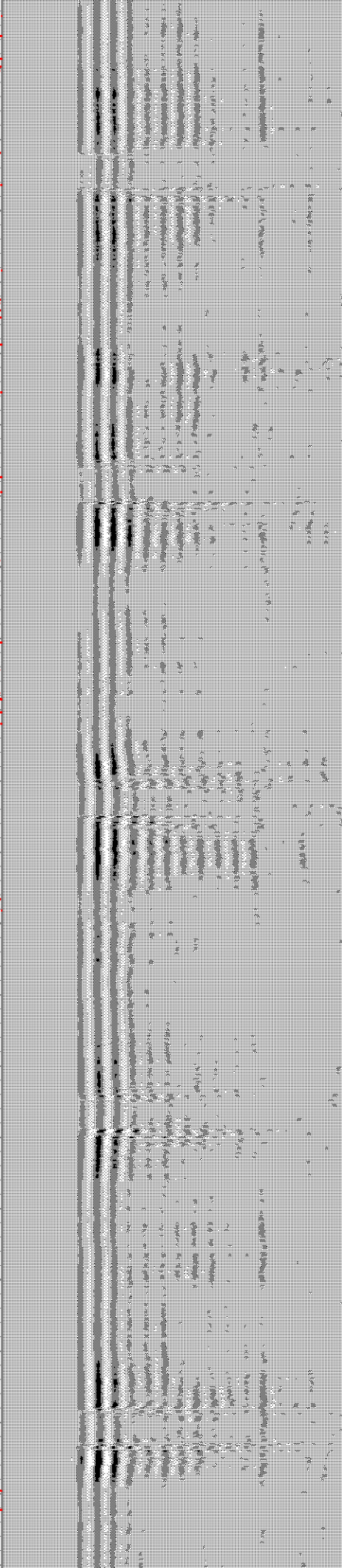


215

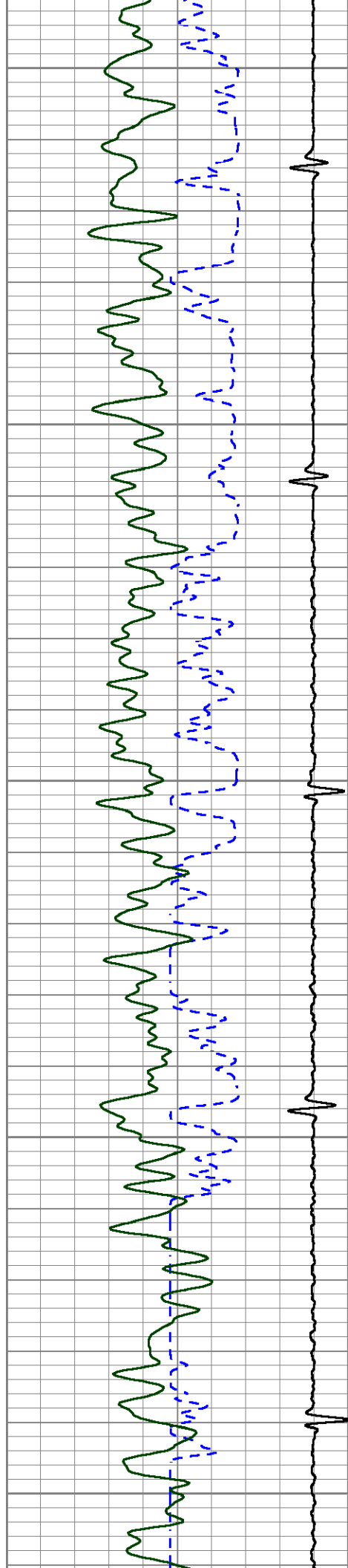
218

220

221







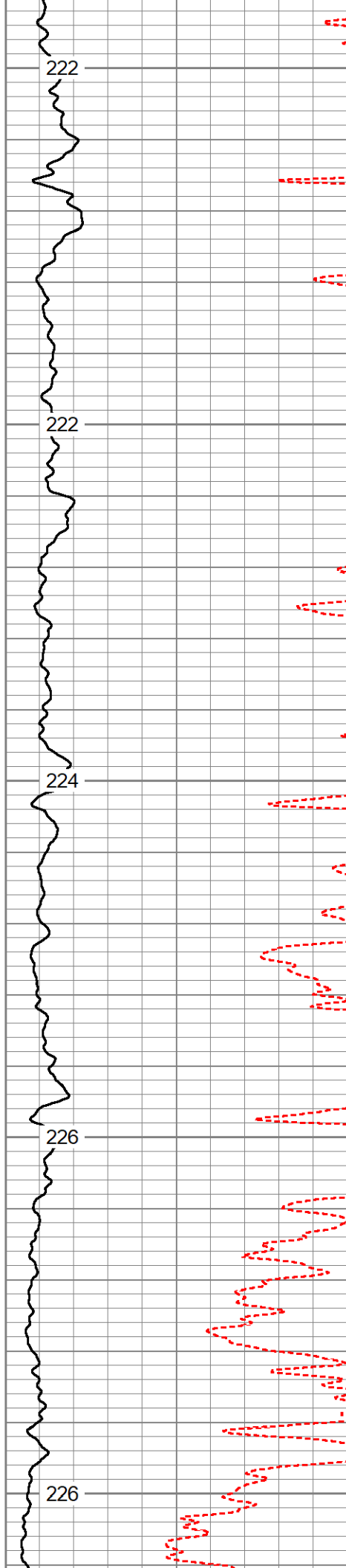
7250

7300

7350

7400

7450



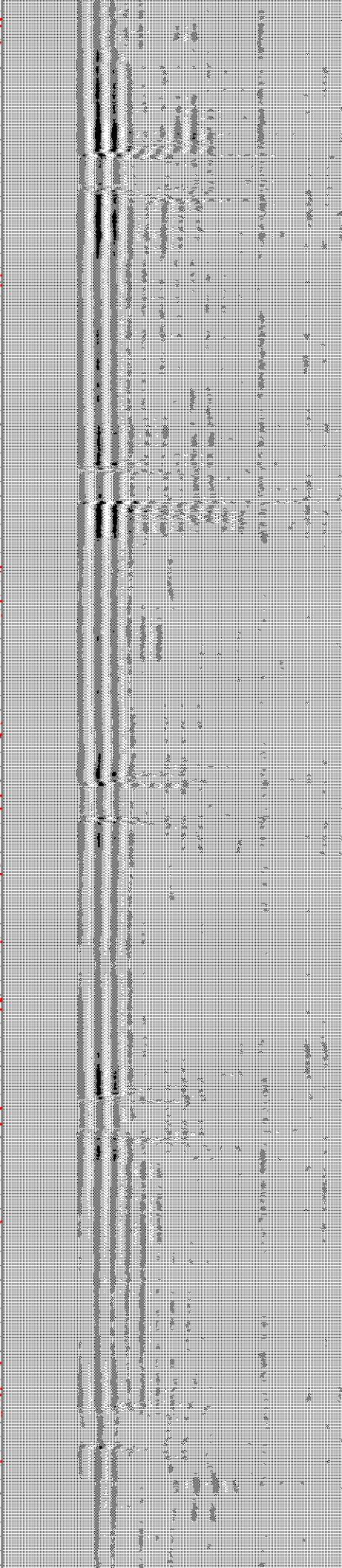
222

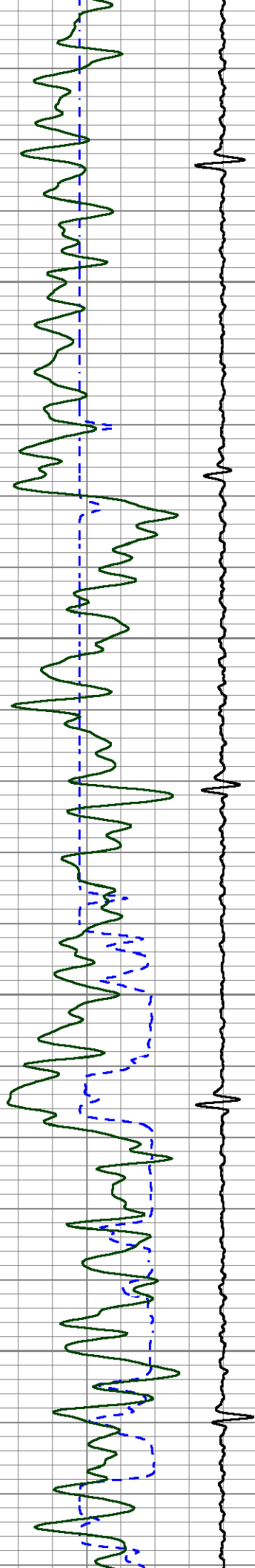
222

224

226

226





7500

228

7550

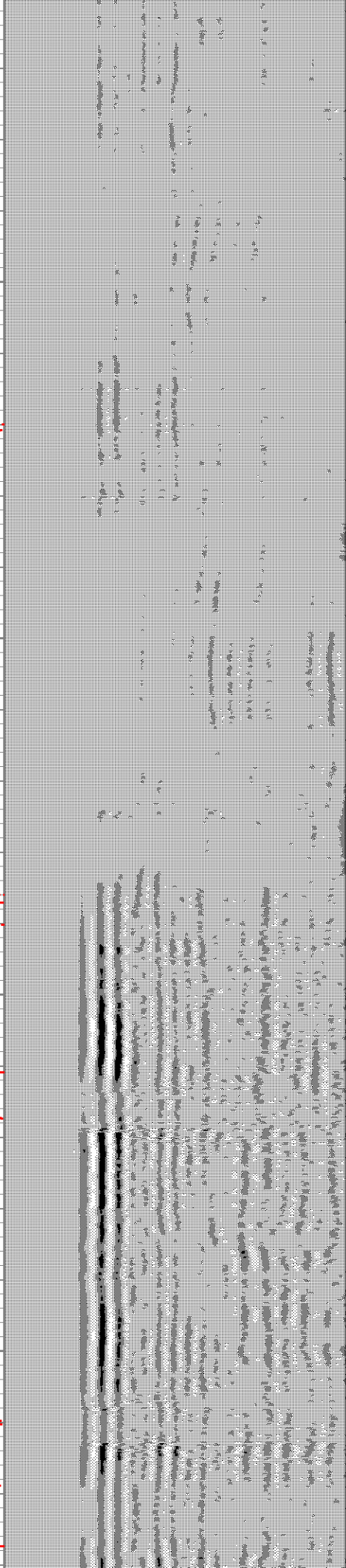
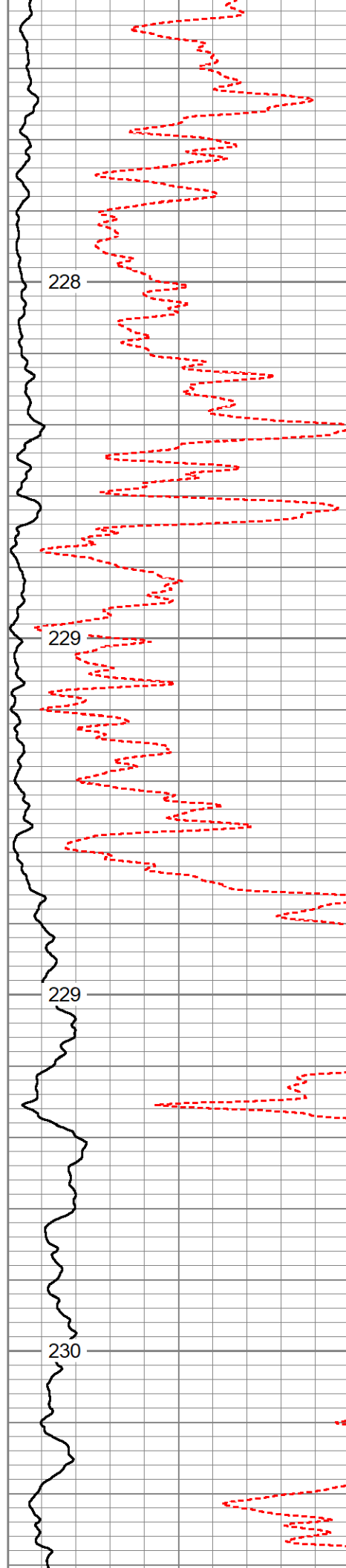
229

7600

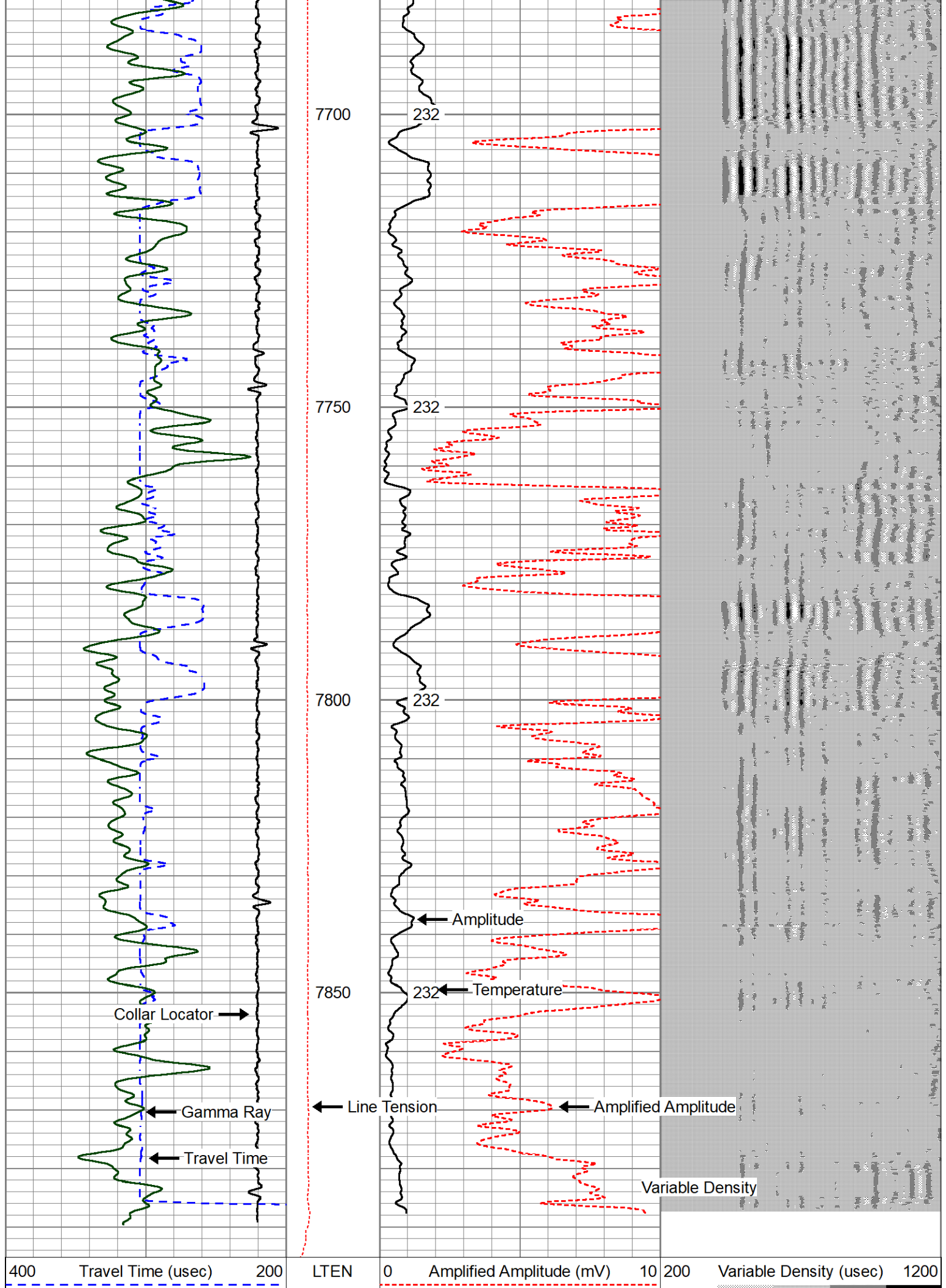
229

7650

230







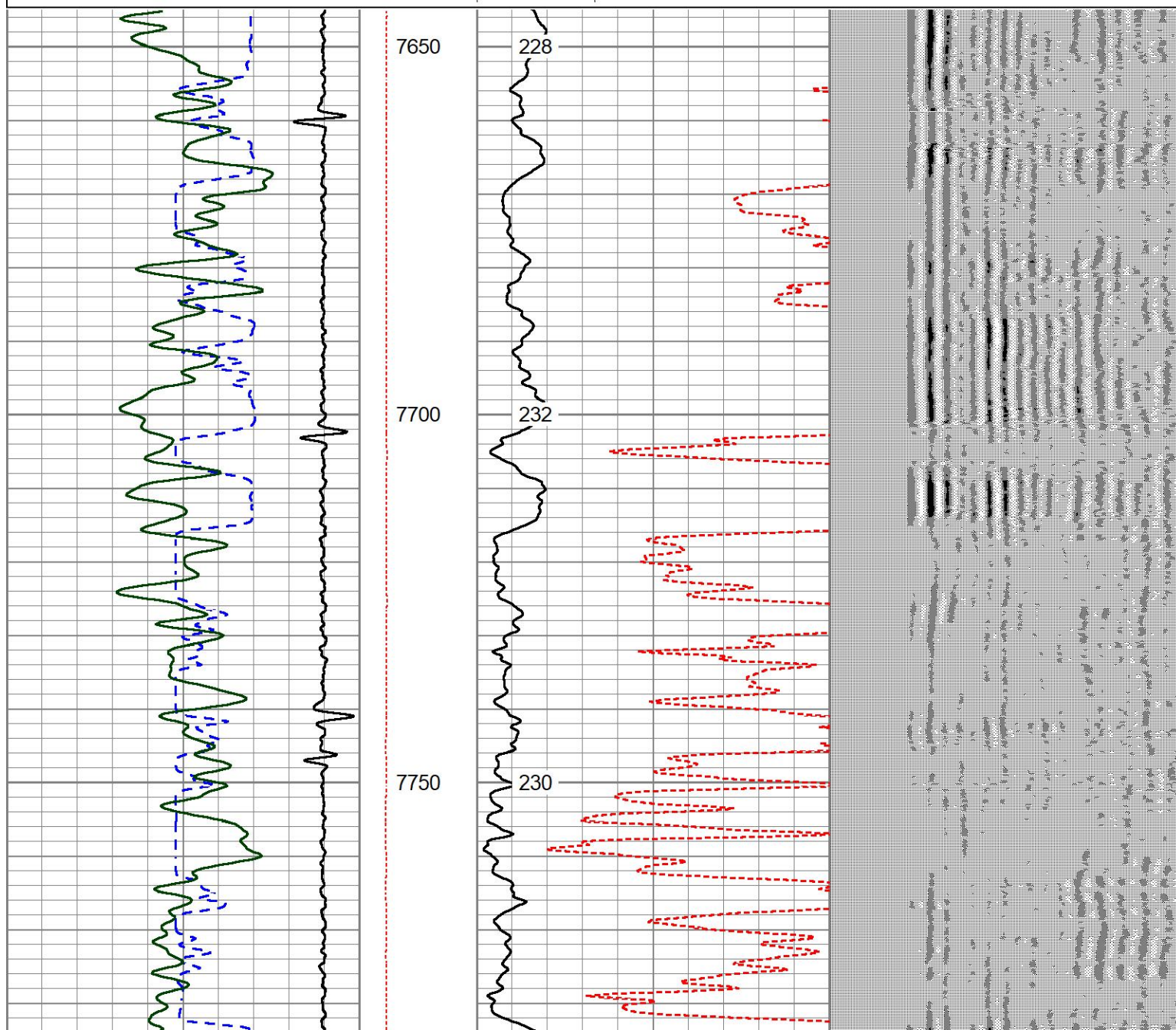
9	Collar Locator	-1	0	(lb 5000	0	Amplitude (mV)	100
0	Gamma Ray (GAPI)	200				TEMP (degF)	



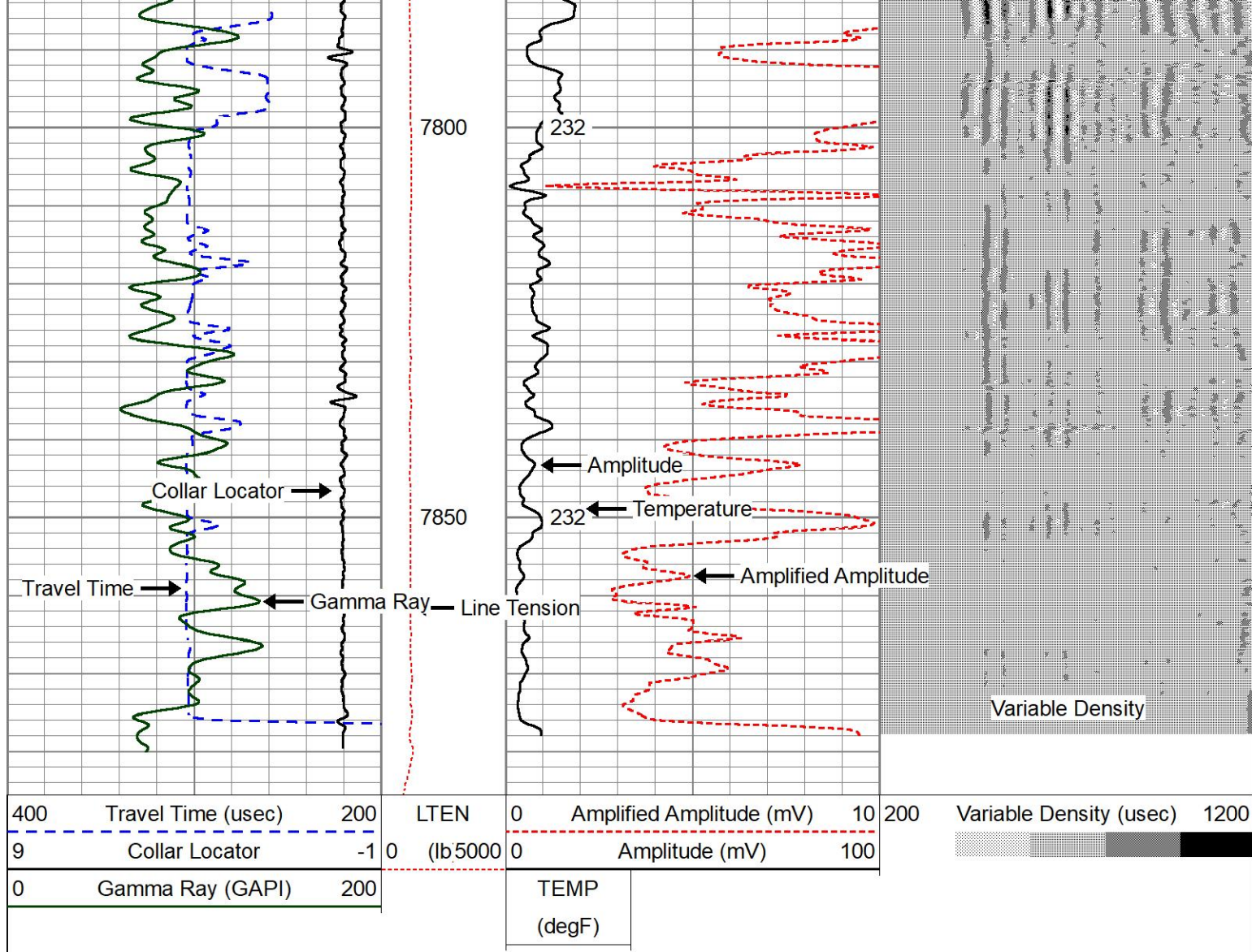
# REPEAT PASS 0 PSI

Database File gw\_schaefer\_032hn\_cbl.db  
 Dataset Pathname pass5.1  
 Presentation Format cblww  
 Dataset Creation Fri Mar 08 10:02:34 2019  
 Charted by Depth in Feet scaled 1:240

400	Travel Time (usec)	200	LTEN	0	Amplified Amplitude (mV)	10	200	Variable Density (usec)	1200
9	Collar Locator	-1	0	(lb 5000	0	Amplitude (mV)	100		
0	Gamma Ray (GAPI)	200				TEMP (degF)			

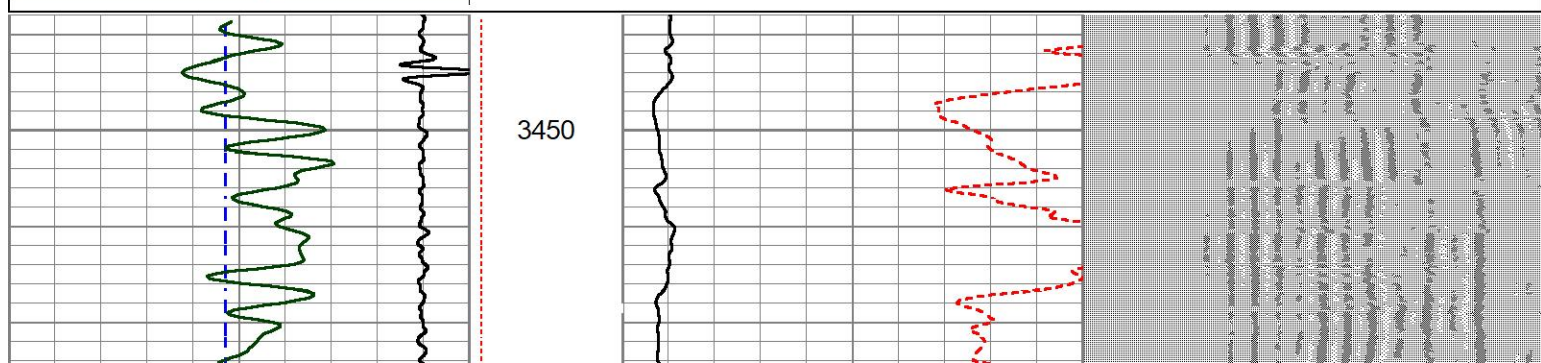
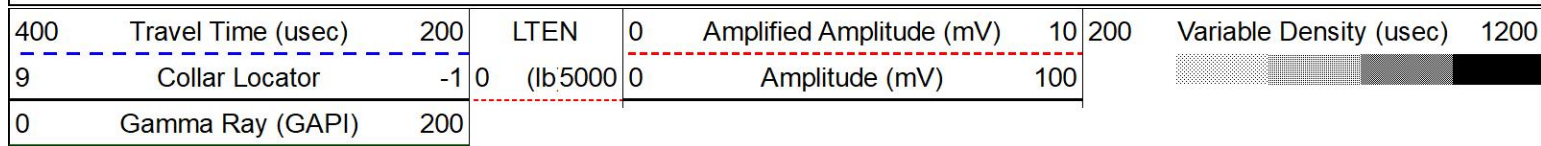


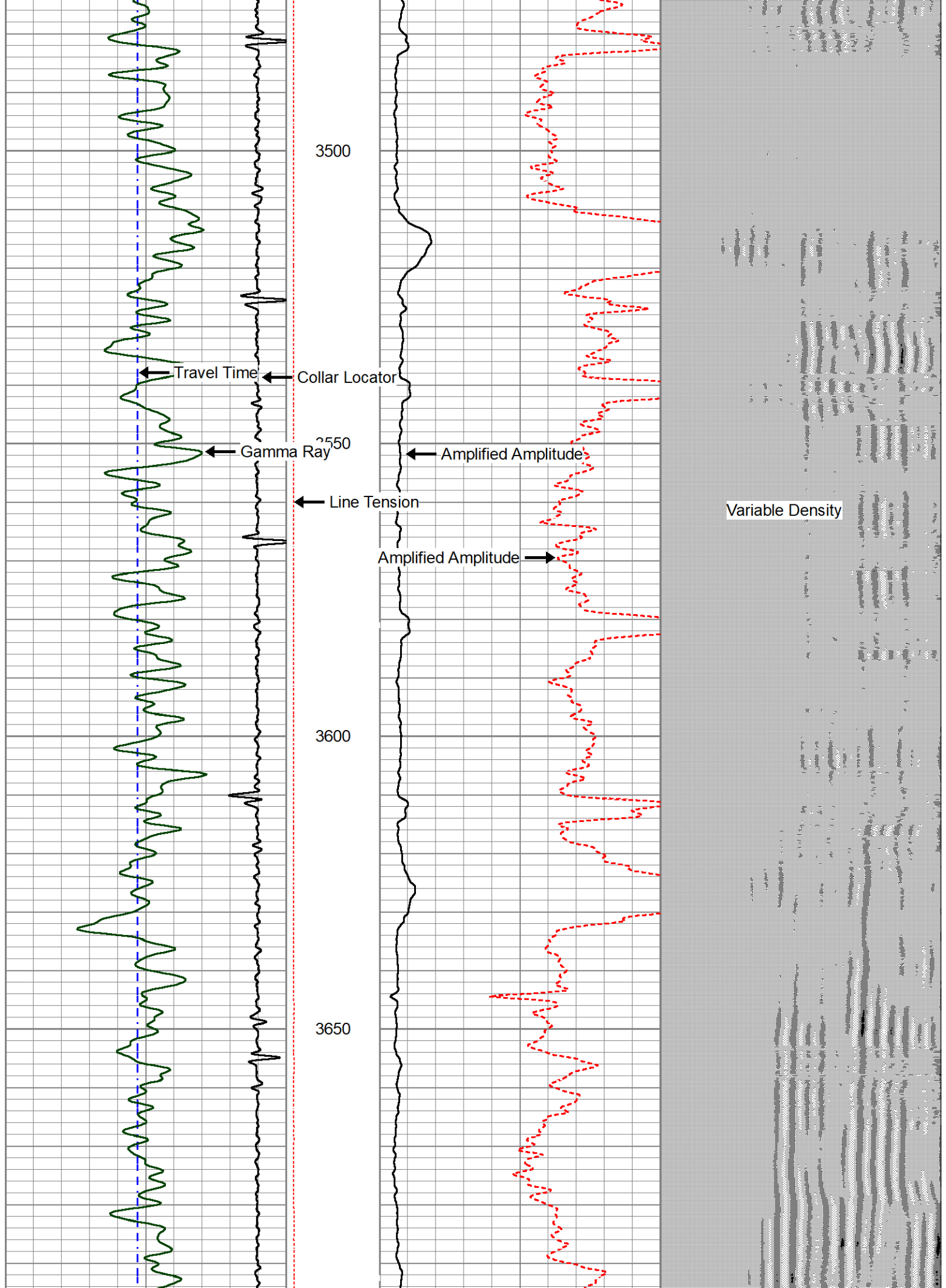




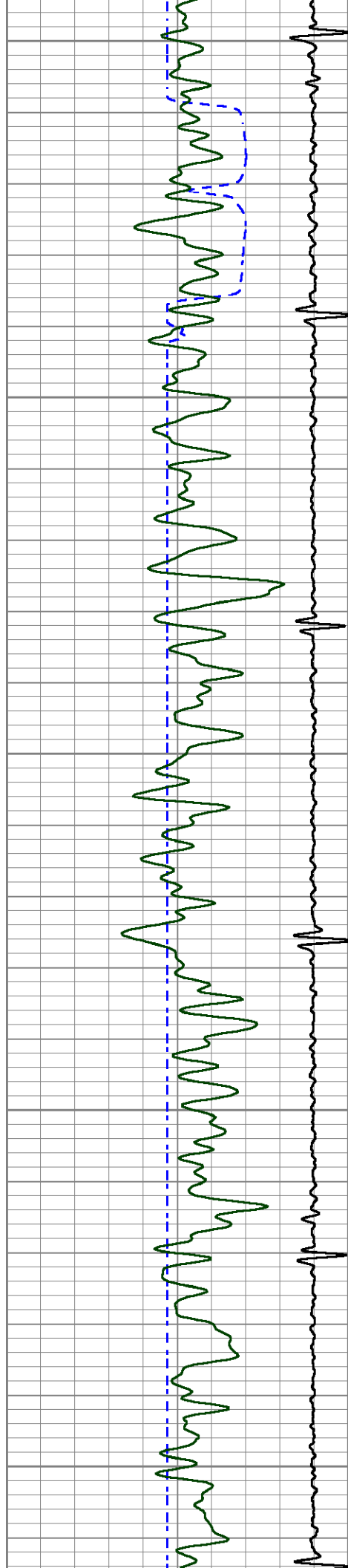
# MAIN PASS 3000 PSI

Database File gw\_schaefer\_032hn\_cbl.db  
 Dataset Pathname pass5.10  
 Presentation Format cblww  
 Dataset Creation Sat Mar 09 08:59:52 2019  
 Charted by Depth in Feet scaled 1:240









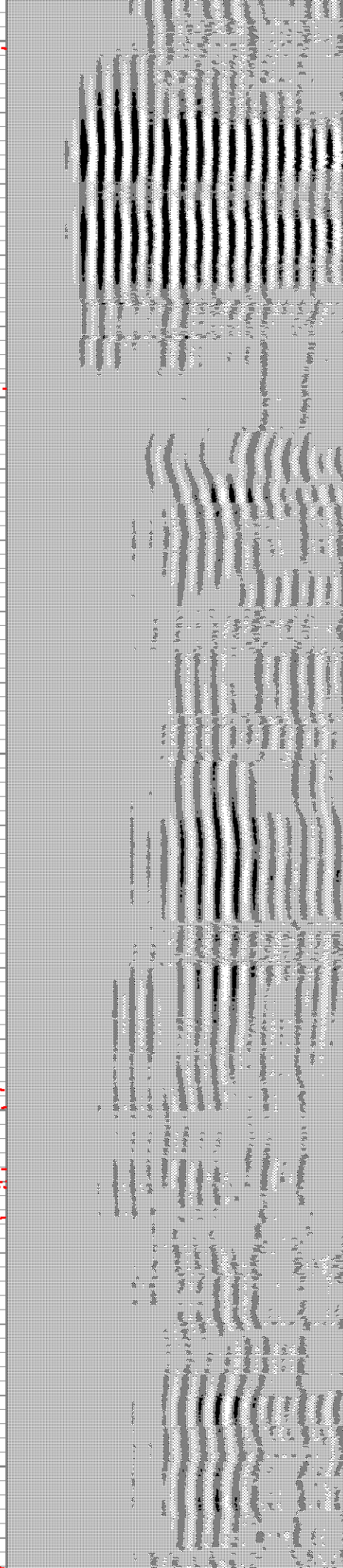
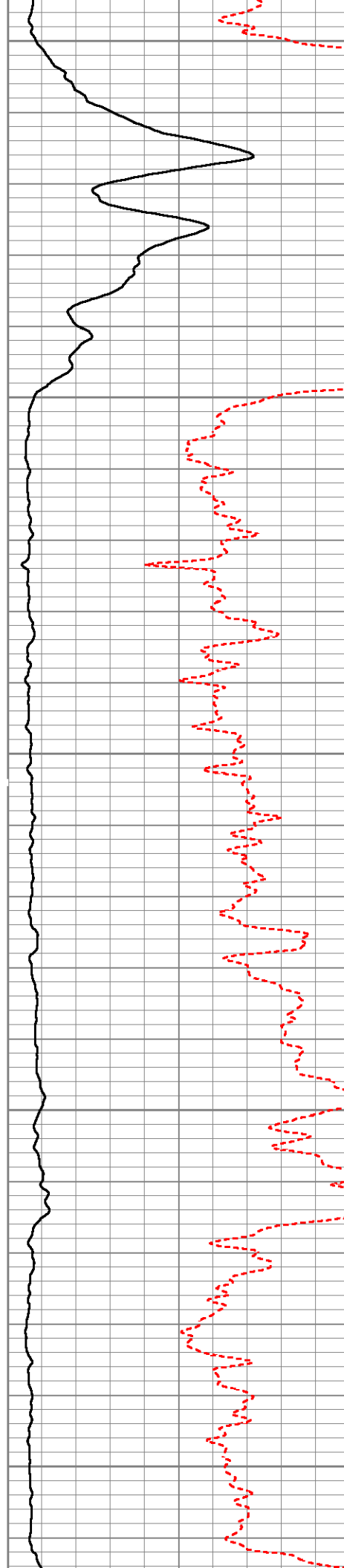
3700

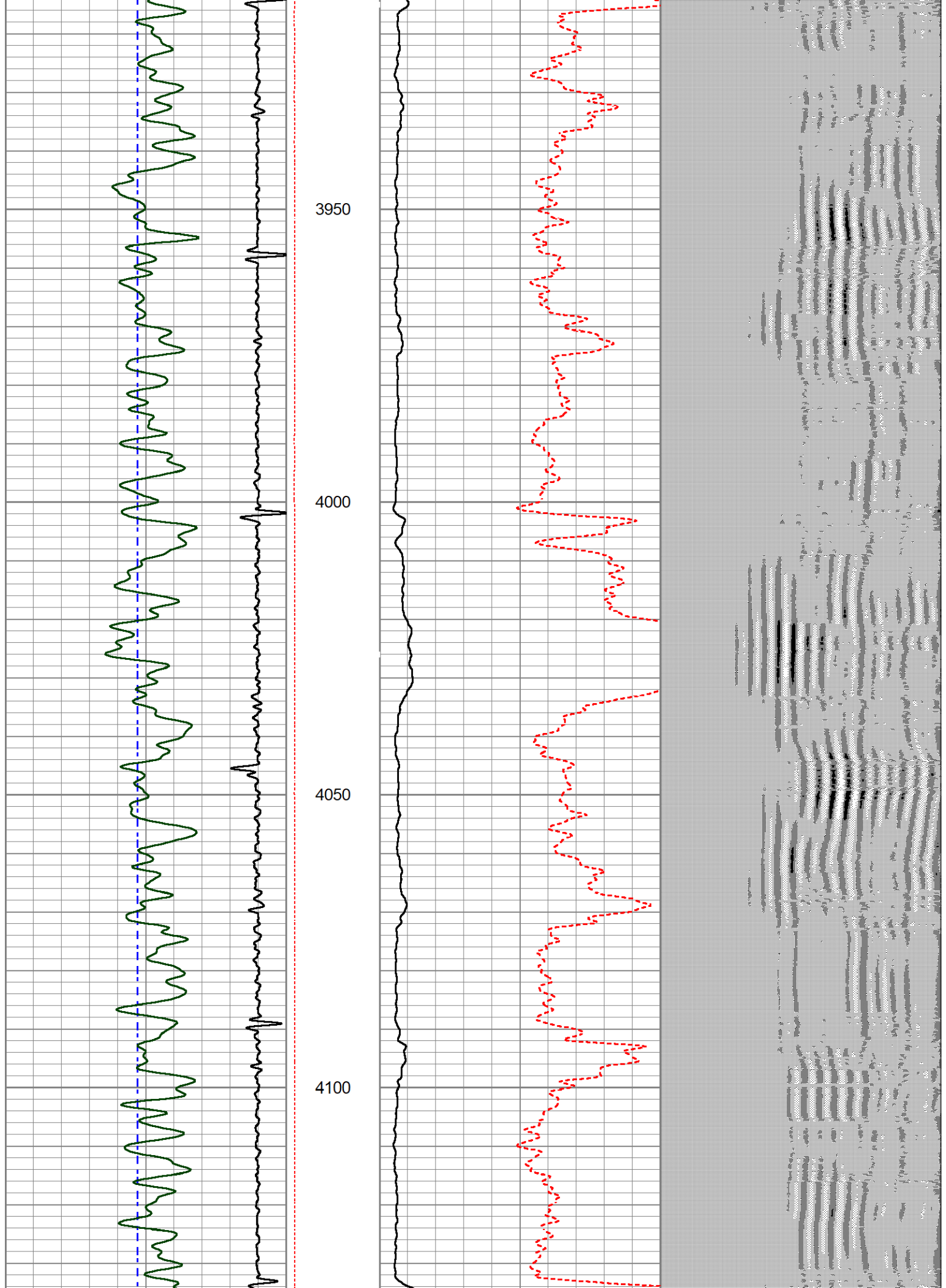
3750

3800

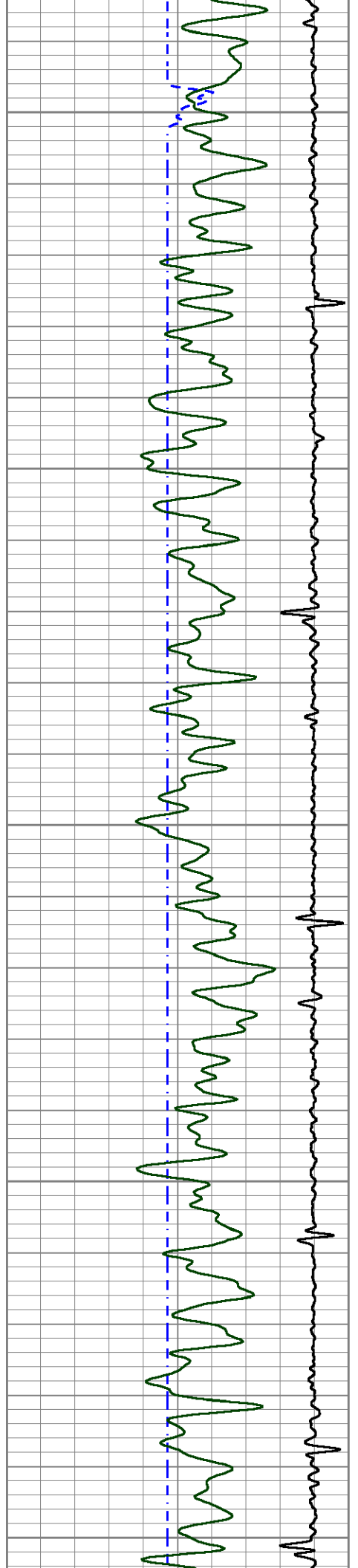
3850

3900









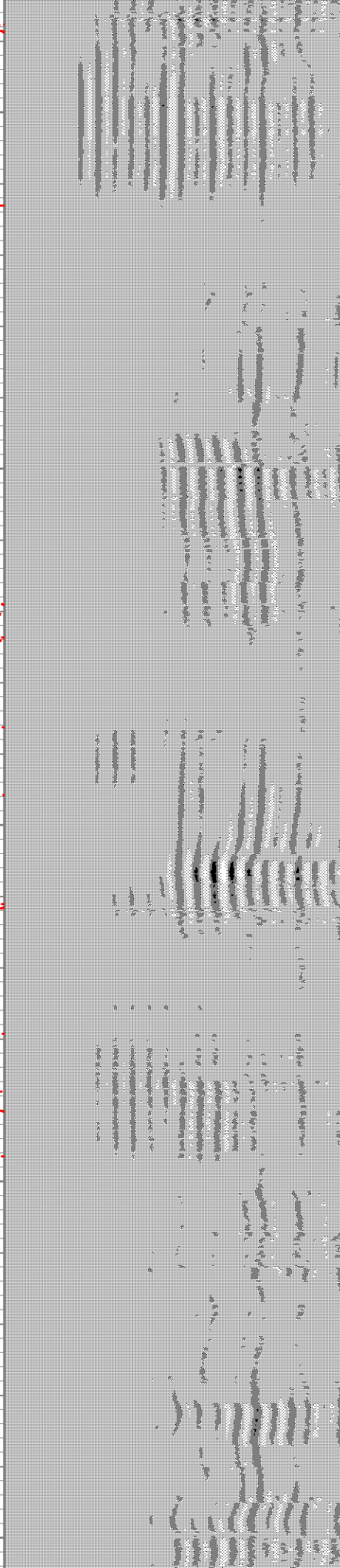
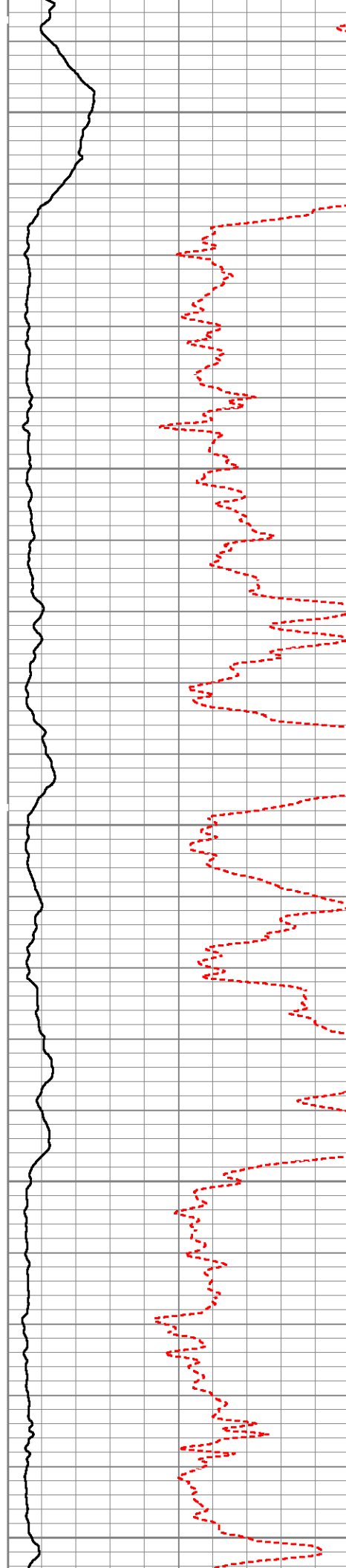
4150

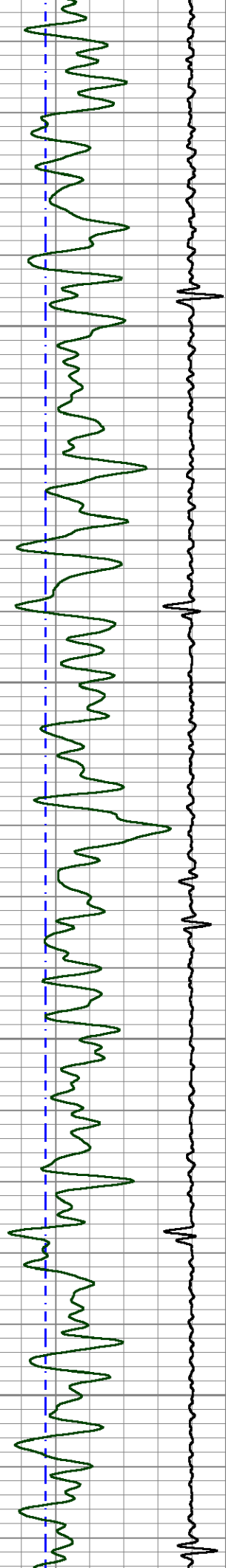
4200

4250

4300

4350



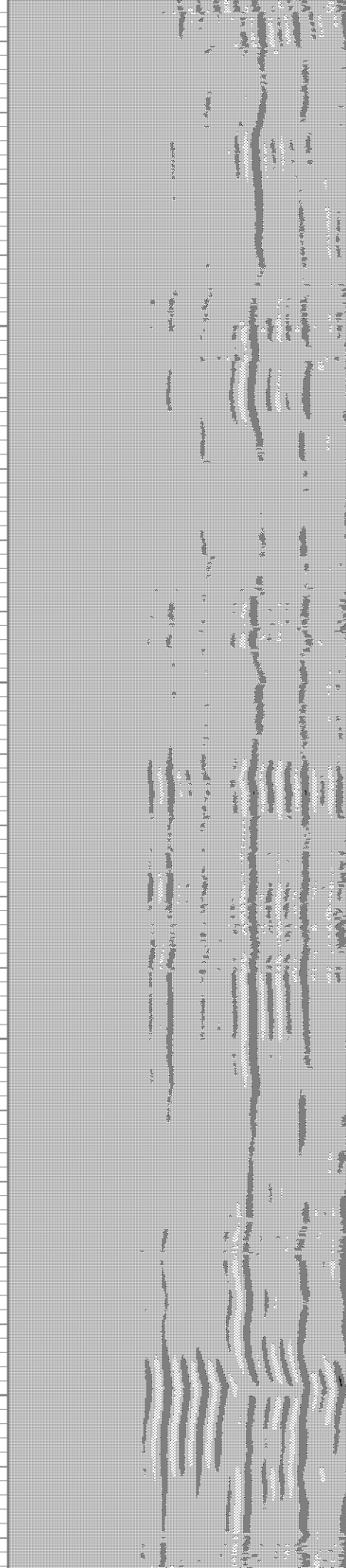
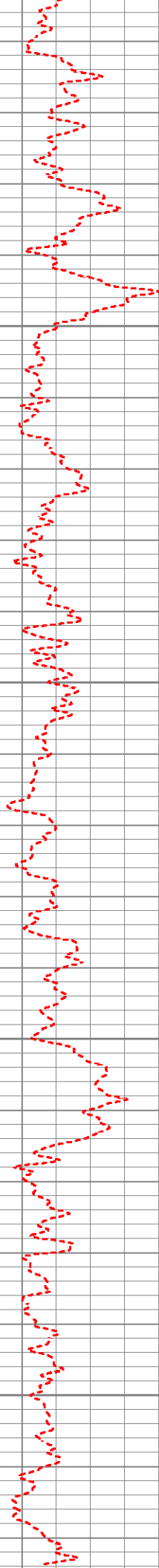


4400

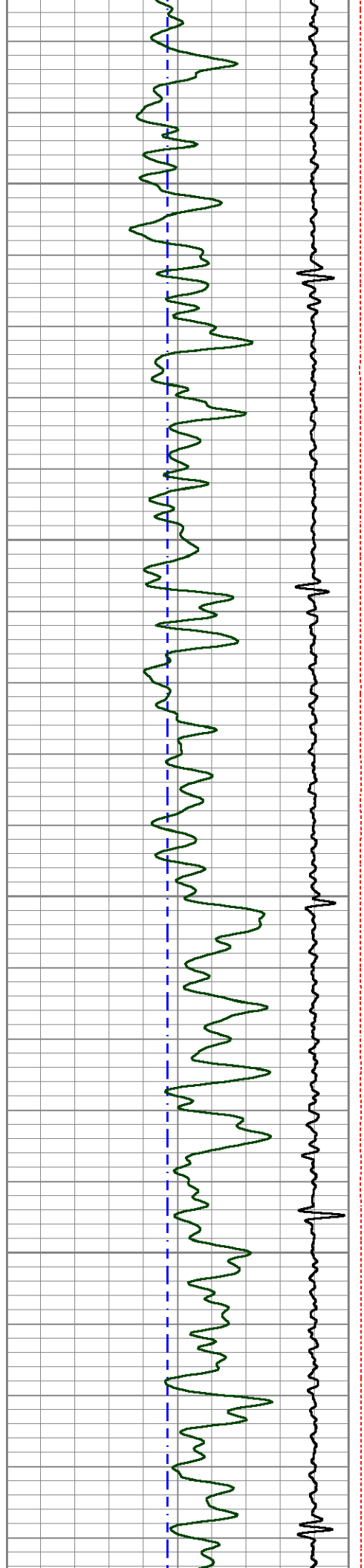
4450

4500

4550





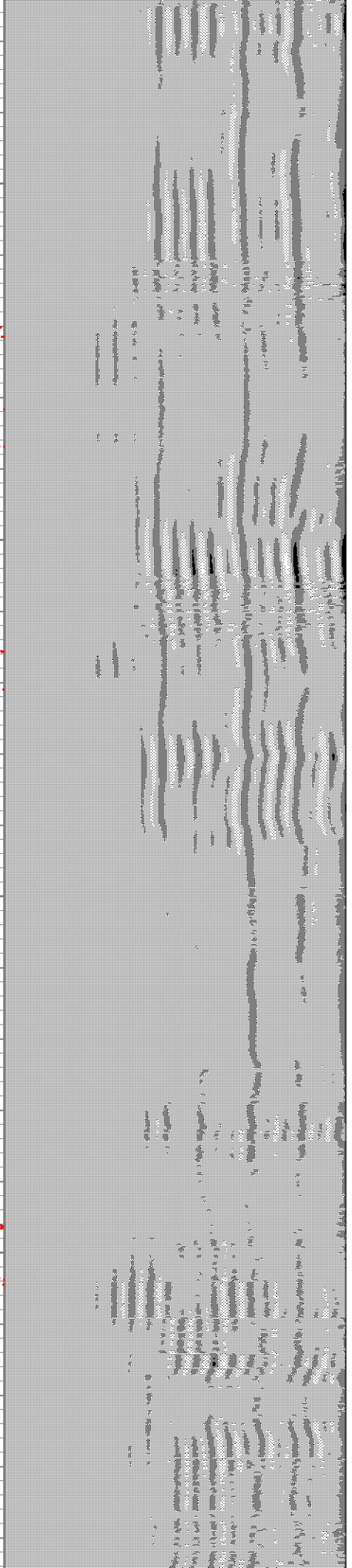
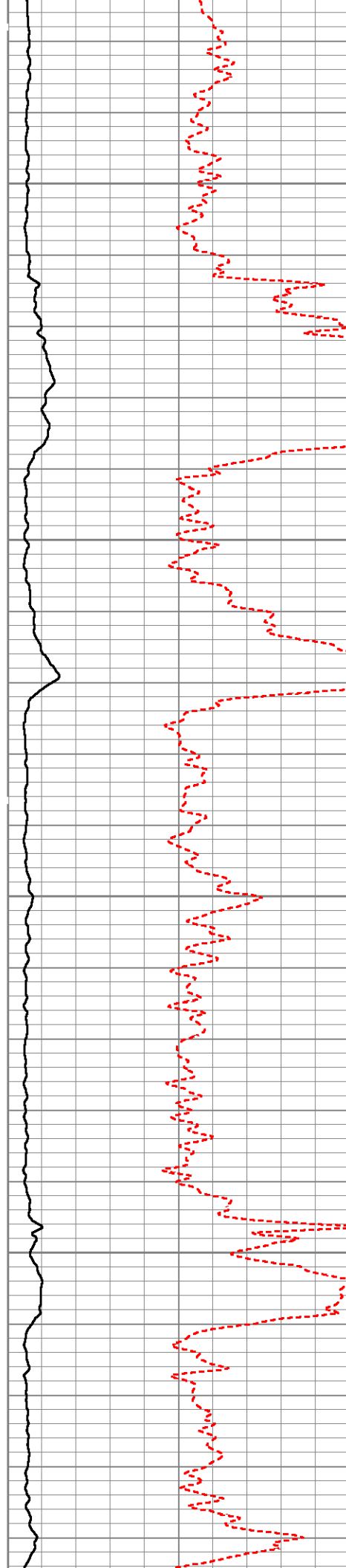


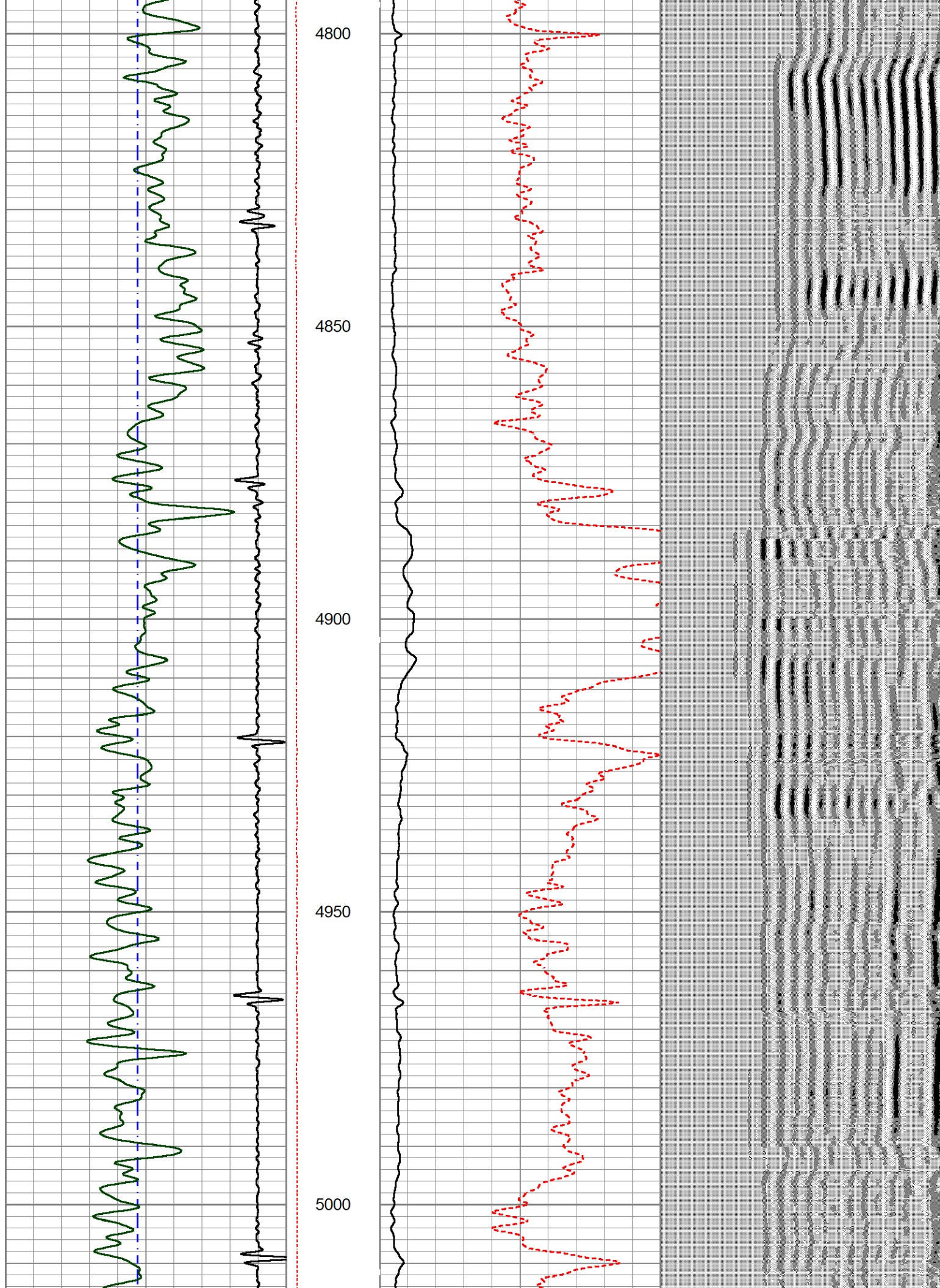
4600

4650

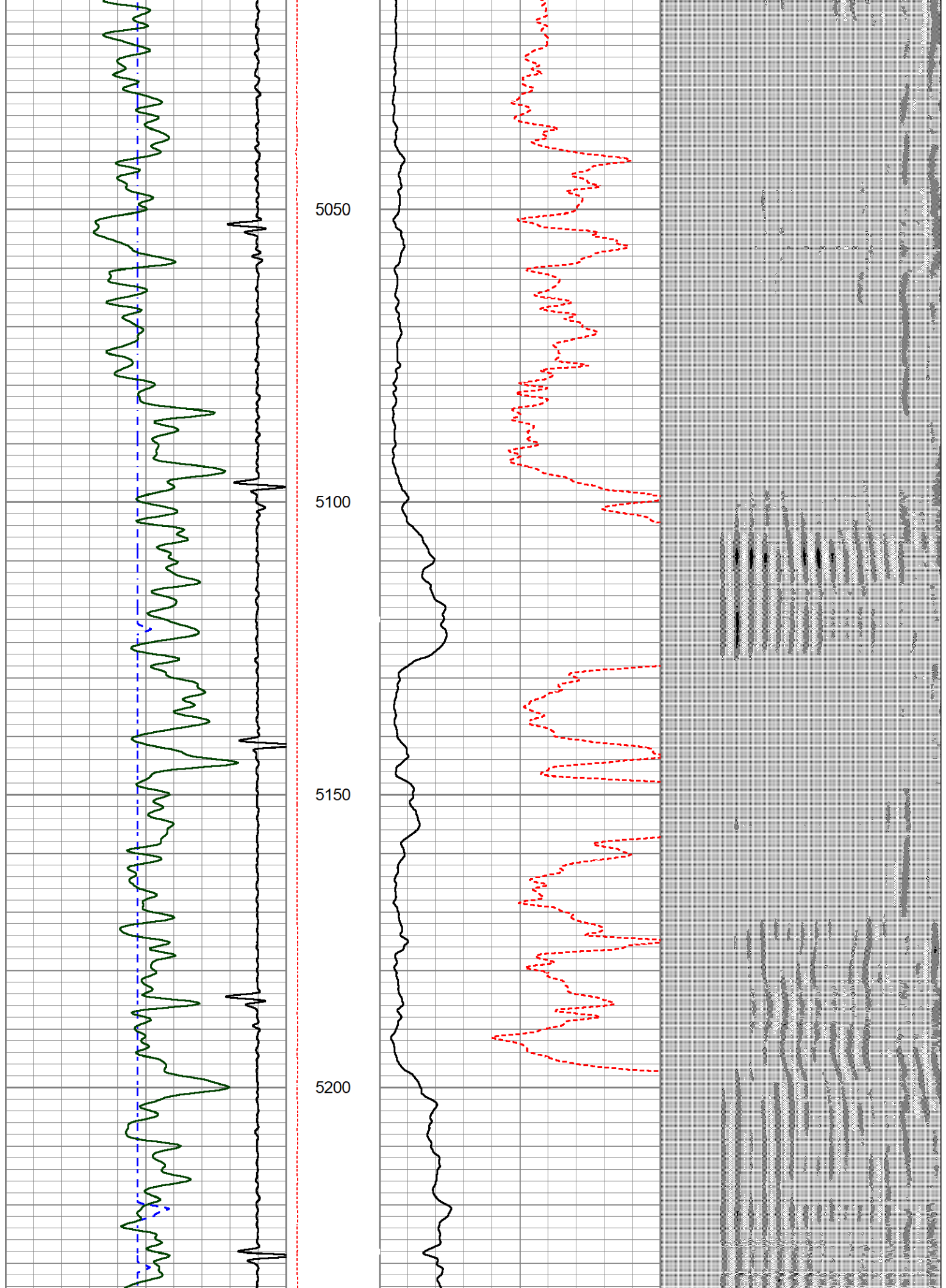
4700

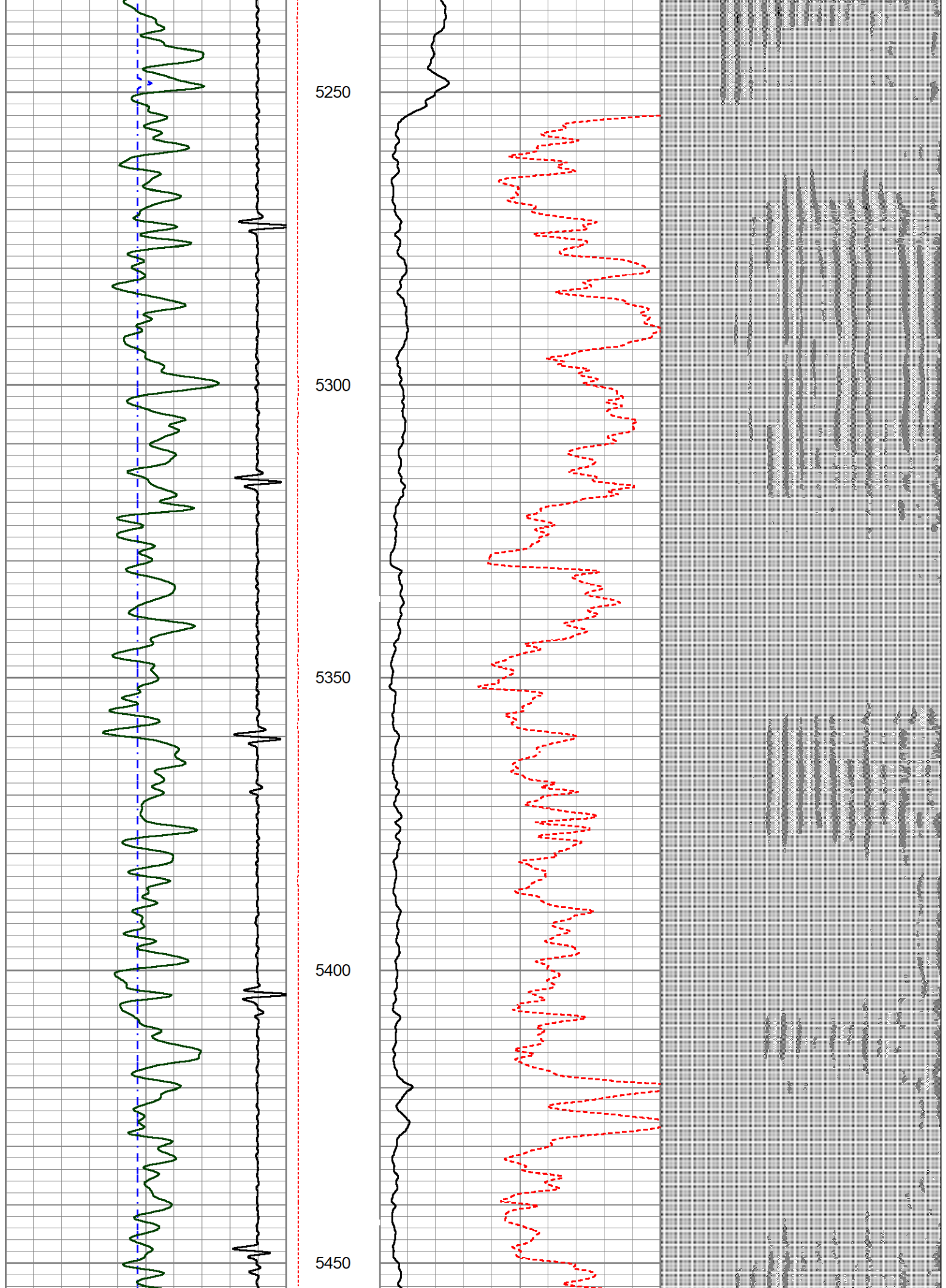
4750



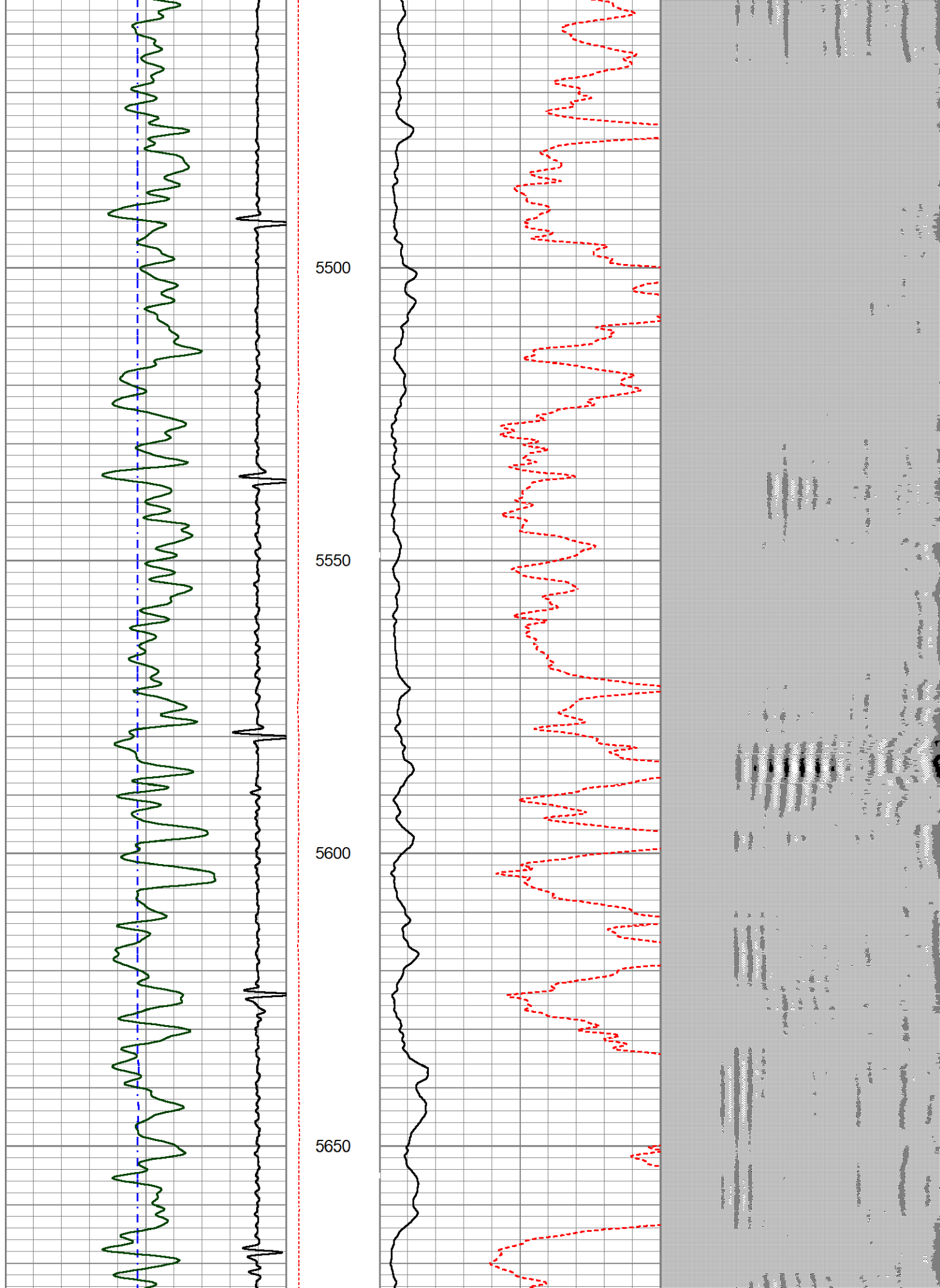


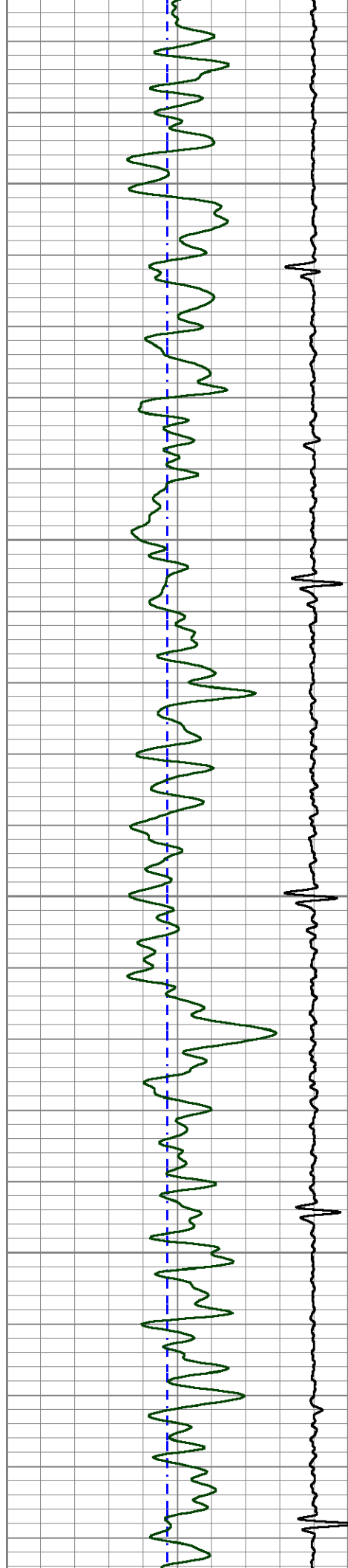










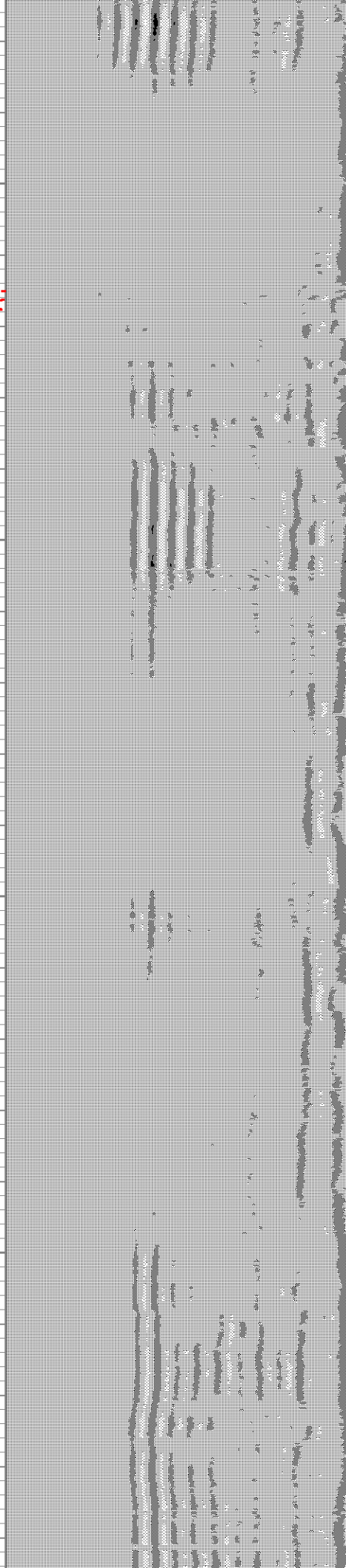
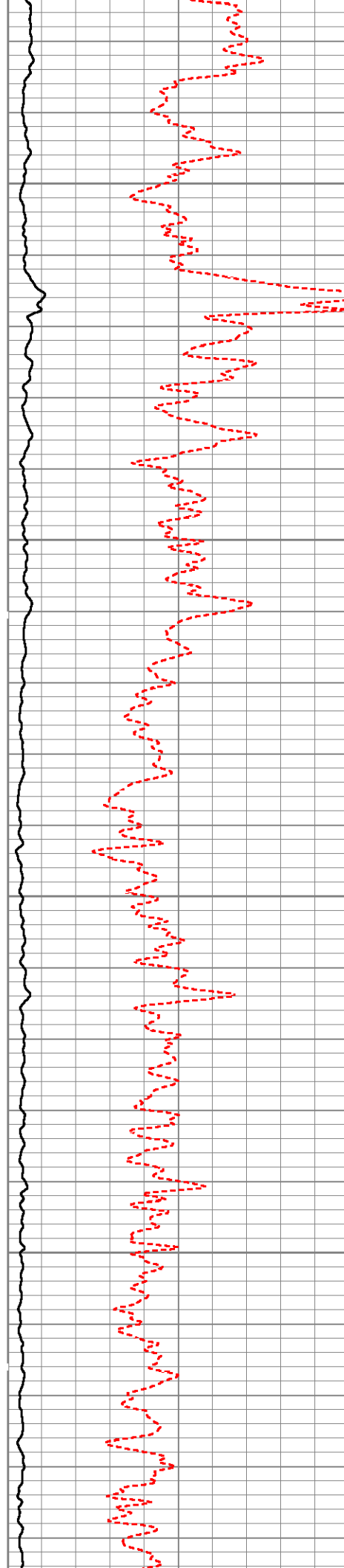


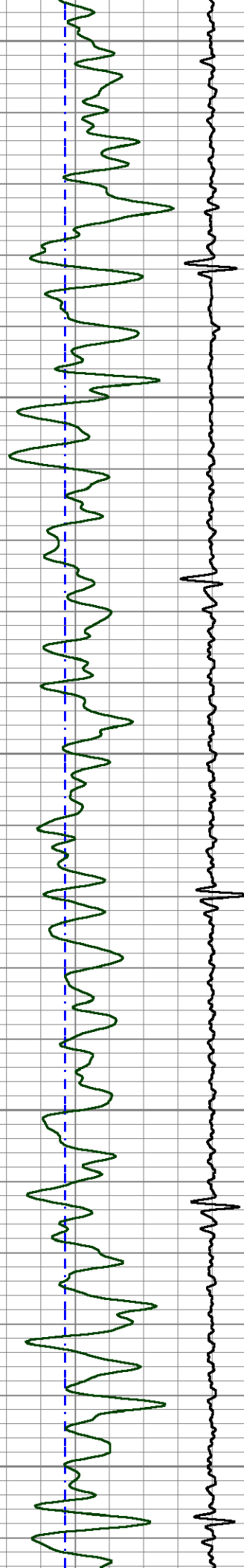
5700

5750

5800

5850





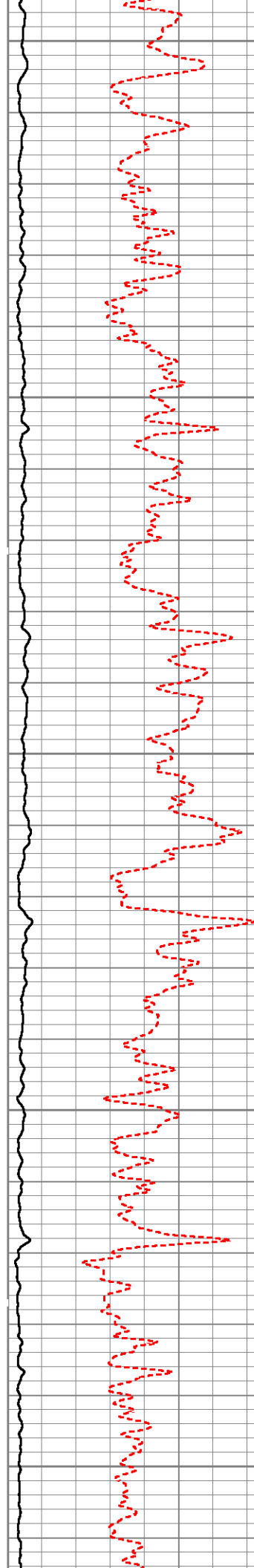
5900

5950

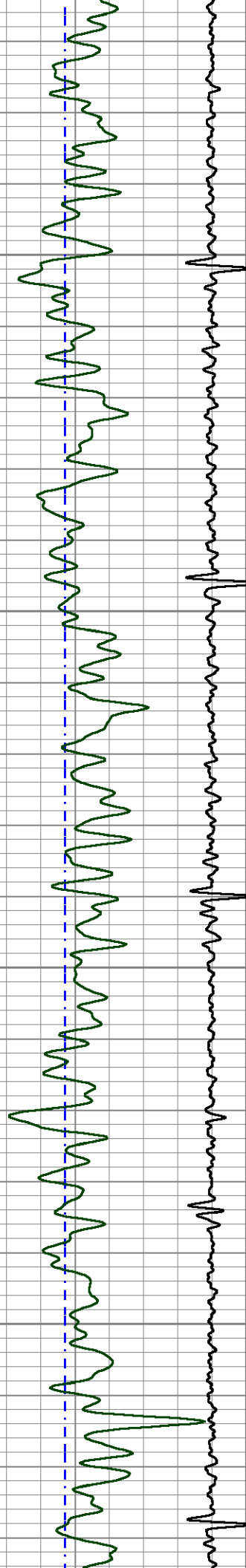
6000

6050

6100





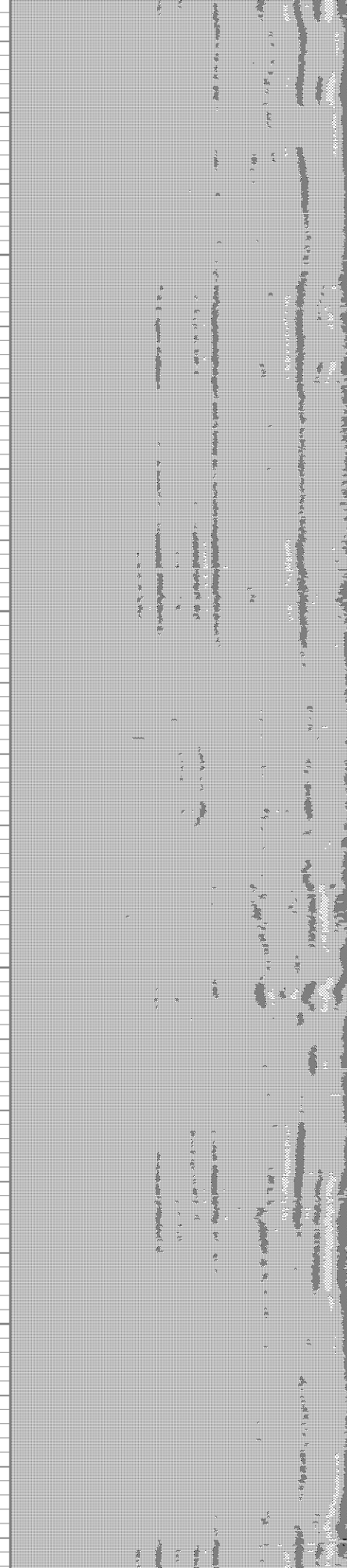
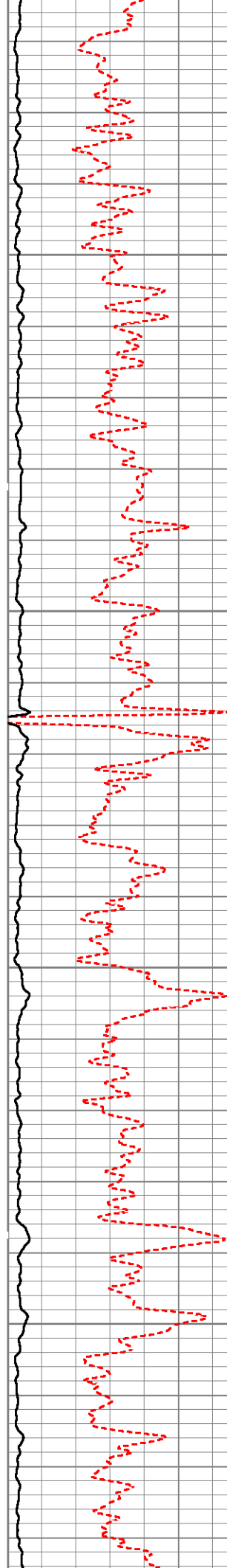


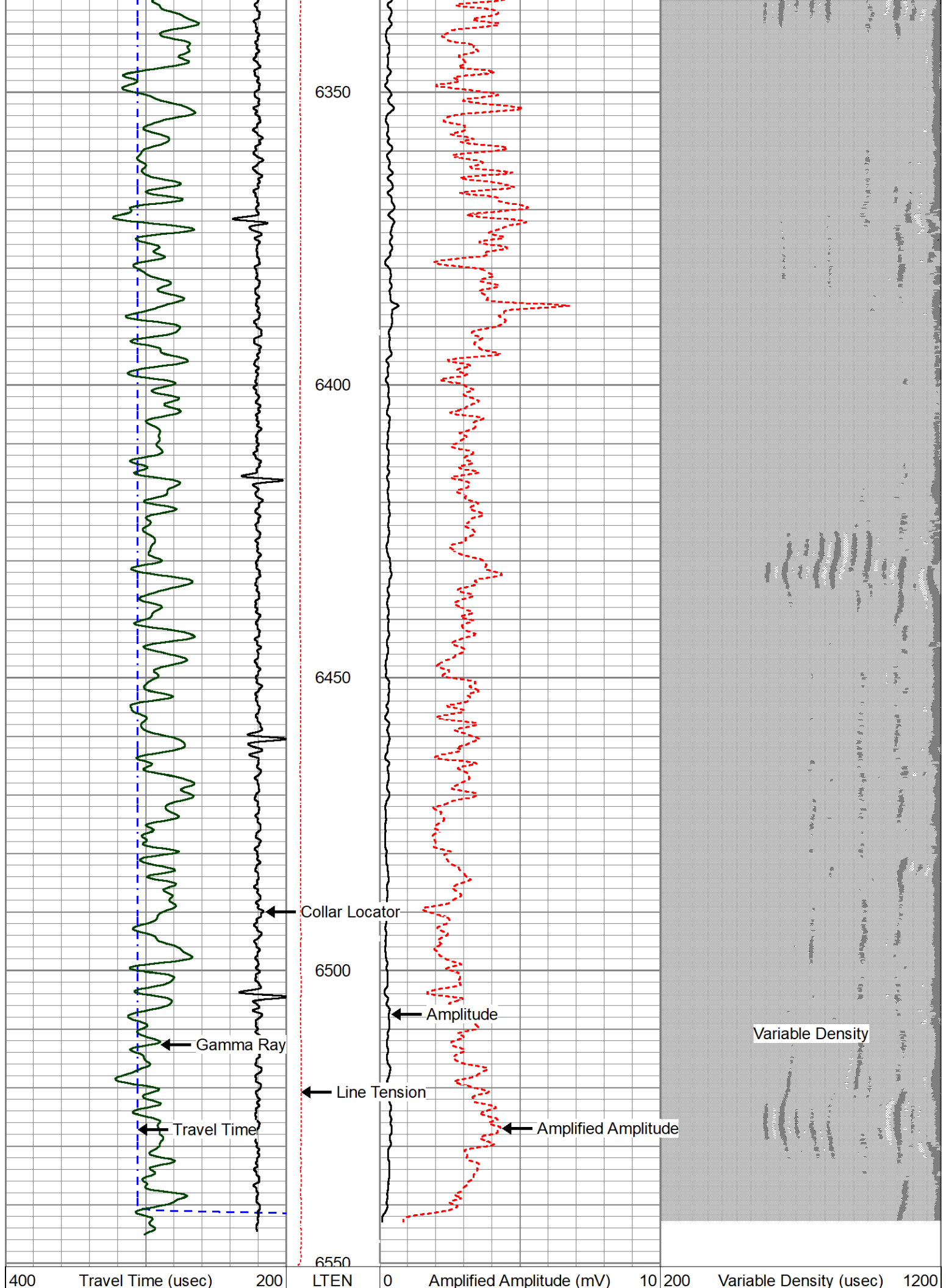
6150

6200

6250

6300





9	Collar Locator	-1	0	(lb/5000)	0	Amplitude (mV)	100
0	Gamma Ray (GAPI)	200					

## Calibration Report

Database File	gw_schaefer_032hn_cbl.db
Dataset Pathname	pass7.4
Dataset Creation	Fri Mar 08 10:00:34 2019

# Gamma Ray Calibration Report

Serial Number:	FW1808-013	
Tool Model:	2.75	
Performed:	(Not Performed)	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	1.0000	GAPI/cps

# Temperature Calibration Report

Serial Number: FW1808-013  
Tool Model: 2.75  
Performed: Fri Mar 08 07:27:21 2019

	Reference	Reading
Low Reference:	0.00 degF	0.00 cps
High Reference:	0.10 degF	1.00 cps

Gain:	0.10
Offset:	0.00
Delta Spacing	1

## Segmented Cement Bond Log Calibration Report

Serial Number:	1307-48	
Tool Model:	PROBE	
Calibration Casing Diameter:	5.500	in
Calibration Depth:	871.433	ft

Master Calibration, performed Fri Mar 08 08:09:01 2019:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.062	0.460	1.000	71.921	135.786	9.459
CAL	0.008	0.996				
5'	0.008	0.425	1.000	71.921	170.023	-0.388
SUM						
S1	0.029	0.516	0.000	100.000	205.360	-5.994
S2	-0.014	0.389	0.000	100.000	248.250	3.458
S3	0.004	0.393	0.000	100.000	256.939	-0.922
S4	0.006	0.393	0.000	100.000	258.065	-1.518
S5	0.000	0.405	0.000	100.000	246.911	-0.105
S6	0.001	0.395	0.000	100.000	253.583	-0.220
S7	0.000	0.434	0.000	100.000	230.637	-0.045
S8	0.004	0.391	0.000	100.000	258.227	-1.059

Internal Reference Calibration performed Wed Dec 05 12:55:41 2018:



Internal Reference Calibration, performed Wed Dec 03 12:55:41 2018.

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.008	0.996	1.000	0.000

Air Zero Calibration, performed Thu Mar 07 12:26:50 2019:

	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



Company	GREAT WESTERN OIL AND GAS		
Well	SCHAEFER LD 13-032HN		
Field	WATTENBERG		
County	ADAMS		
State	COLORADO	Country	USA