

HALLIBURTON

ACOUSTIC CEMENT  
BOND LOG

Company		URSA OPERATING CO., LLC.	
Well	BAT 24D-18-07-95		
Field	PARACHUTE		
County	GARFIELD	State	CO

Company

URSA OPERATING CO., LLC.

Well

BAT 24D-18-07-95

Field

PARACHUTE

County

GARFIELD

State

CO

API No.:

05-045-22838-0000

Serv #:

902509004

Other Services

Location:

SURFACE HOLE LOCATION:  
0236' FSL & 0824' FEL

BOTTOM HOLE LOCATION:  
0215' FSL & 1952' FWL

RMT  
GAUGE RING

Sec: 18

Twp: 07S

Rge: 95W

Permanent Datum

GROUND LEVEL

Elevation

5441'

Log Measured From

KB

17

Ft. above perm. datum

K.B. 5458'  
D.F. 5457'  
G.L. 5441'

Drilling Measured From

KB

Date @ Time Logged

19 JUNE 2015

Type Fluid in Hole

WATER

Run No.

ONE

Density of Fluid

8.4#

Depth - Driller

7104'

Fluid Level

FULL

Depth - Logger

6866'

Cement Top Est. Logged

SEE LOG

Bottom - Logged Interval

6866'

Equipment / Location

10971668 / G.J.

Top - Log Interval

1500'

Recorded by

D. SOLIS

Max. Recorded Temp.

226 DEG F

Witnessed by

UNATTENDED

CEMENTING DATA

Surface

Protection

String

Liner

Date / Time Cemented

N/A

String

N/A

Primary / Squeeze

N/A

Production

String

Expected Compressive Strength

psi@ hrs

psi@ hrs

psi@ hrs

Cement Volume

psi@ hrs

psi@ hrs

psi@ hrs

Cement Type / Weight

/

/

/

Formulation

/

/

/

Mud Type / Mud Wgt.

/

/

/

Borehole Record

From

To

Size

Weight

From

To

Run Number

ONE

12.25"

SURFACE

1879'

8.625"

32.0#

SURFACE

1879'

TWO

7.8758"

1879'

7104'

4.5"

11.6#

SURFACE

7104'

<<< Fold Here >>>

HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

Comments

HALLIBURTON CBL LOG DATED: 19 JUNE 2015 IS THE PRIMARY DEPTH REFERENCE FOR THIS WELL.

GR-CBL-RMT RAN IN COMBINATION.

LOG INTERVALS PER CUSTOMER REQUEST.

SHORT JOINTS @: 2998' - 3008', 5489' - 5499', AND 6387' - 6397'.

NO TRUE FREE PIPE FOUND TO LOG A FREE PIPE PASS.

\*\*\*THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES.\*\*\*

Service Ticket No.	902509004	API No.	05-045-22838-0000	PGM Ver	14.11.12001
--------------------	-----------	---------	-------------------	---------	-------------

The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client

EQUIPMENT DATA							
TELEMETRY		CEMENT BOND TOOL		RESERVOIR MONITOR TOOL			
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	
Serial No.	11495480	Serial No.	11817843	Serial No.	12095949	Serial No.	
Model No.	TTTC-U-002	Model No.	CBL-M	Model No.	RMTI-A	Model No.	
Diameter	1.688"	Diameter	2.75"	Diameter	2.125"	Diameter	

LOGGING DATA						
General Data						
Pass	Depths		Well Head	Speed	Logging Run Comments	
No	From	To	Pressure	Ft/Min		

ONE	6866'	1500'	0	REC	MAIN LOG SECTION			
	GAMMA RAY		TRAVEL TIME		AMPLITUDE		MSG	
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
ONE	0	200	405	205	0	100	200	1060
DIRECTIONAL INFORMATION								
Maximum Deviation		N/A	deg. @	N/A	KOP	N/A		

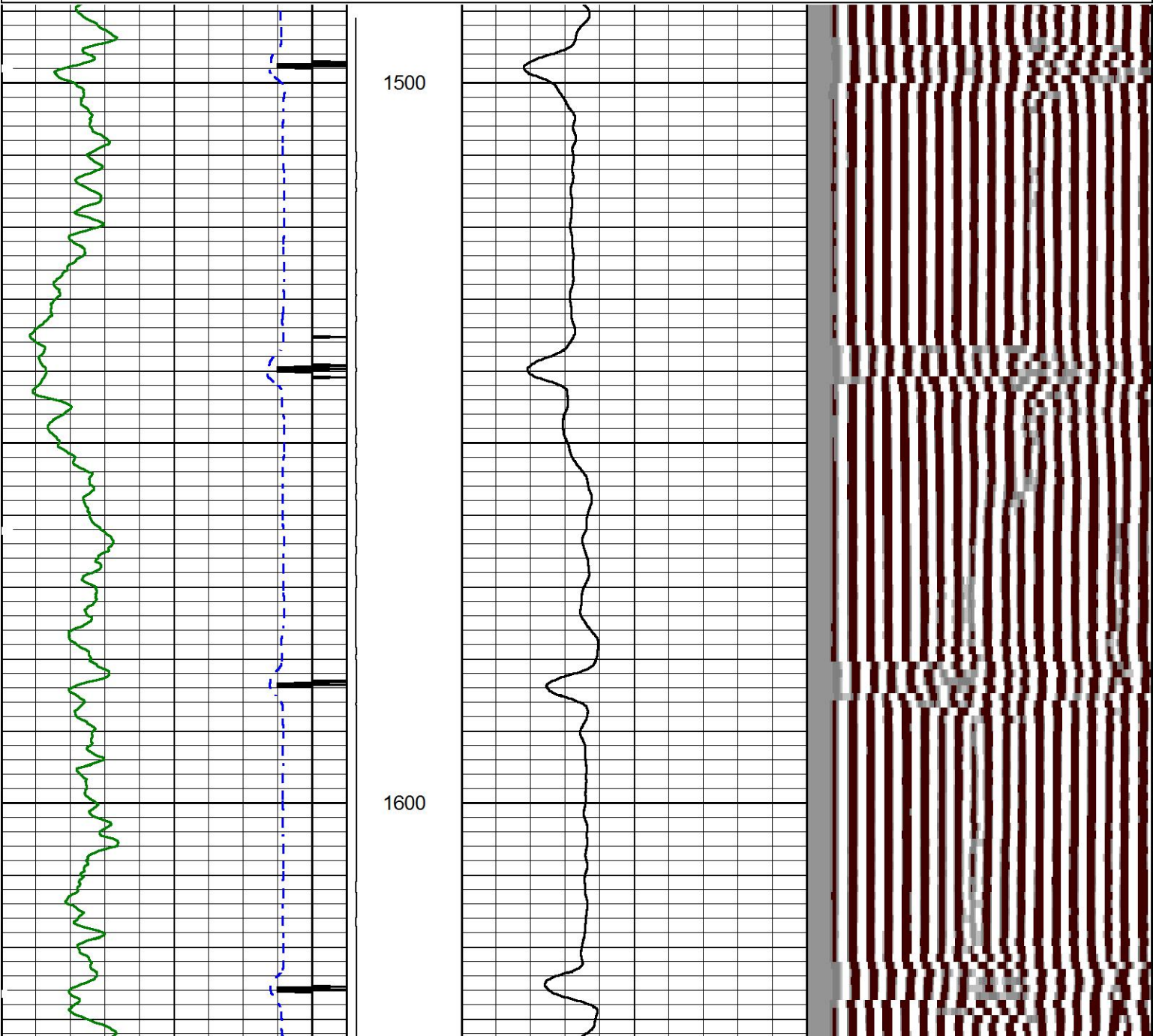
HALLIBURTON

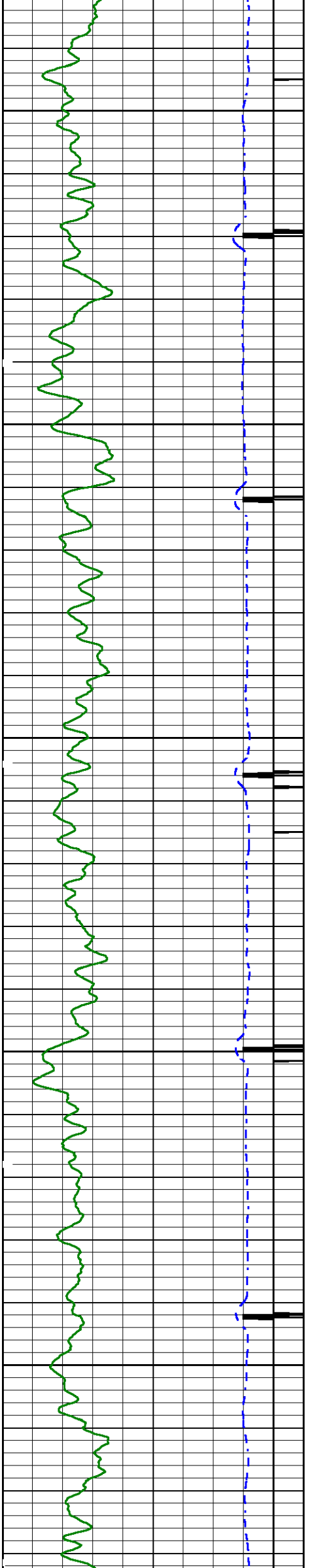
MAIN LOG SECTION

5" = 100'

Database File	bat_24d_cmb.db
Dataset Pathname	MAIN1
Presentation Format	hcb1g
Dataset Creation	Fri Jun 19 10:33:43 2015
Charted by	Depth in Feet scaled 1:240

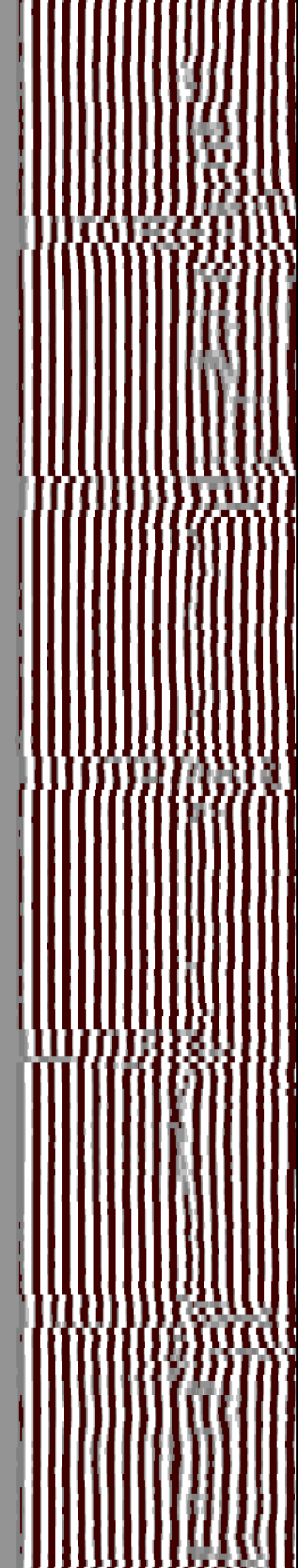
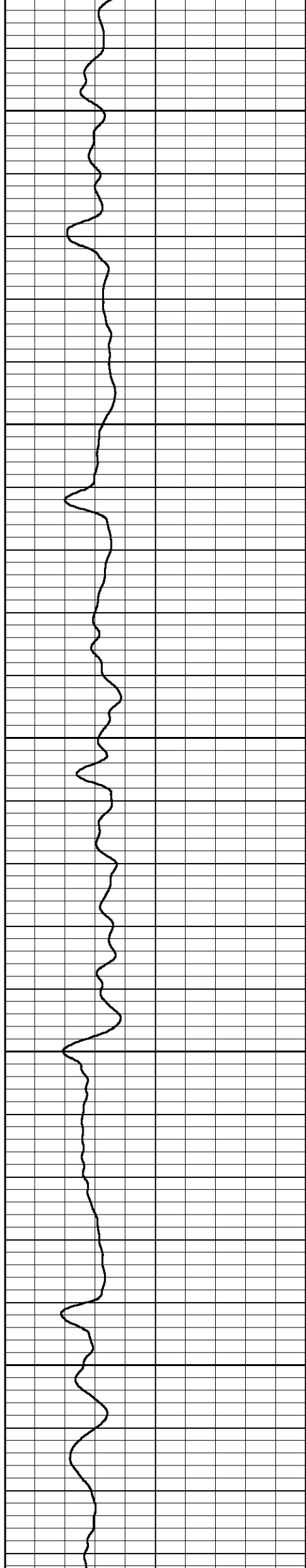
405	3' Travel Time (usec)	205	LTEN	0	3' Amplitude (mV)	100	200	MSG	1060
-540	CCL	60	0 (lb6000	0	3' Amplitude X5 (mV)	10	<div><div></div><div></div><div></div><div></div></div>		
0	GR (GAPI)	200							



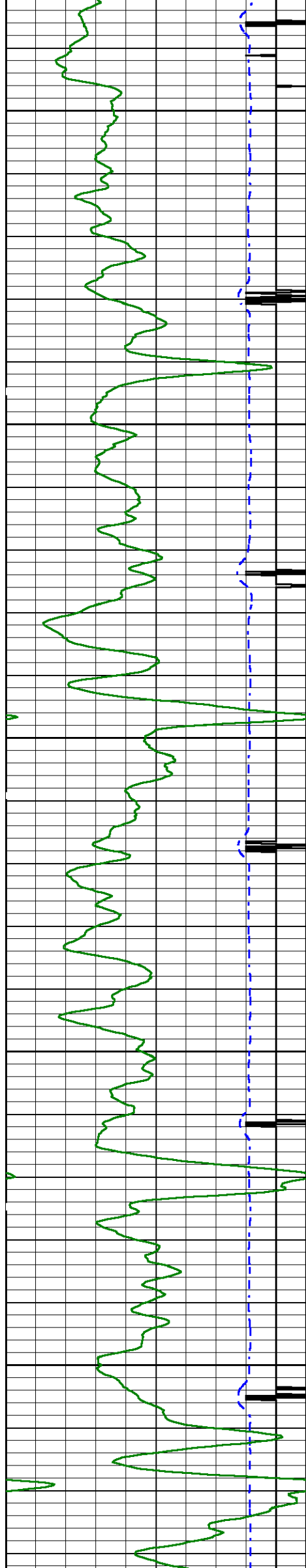


1700

1800



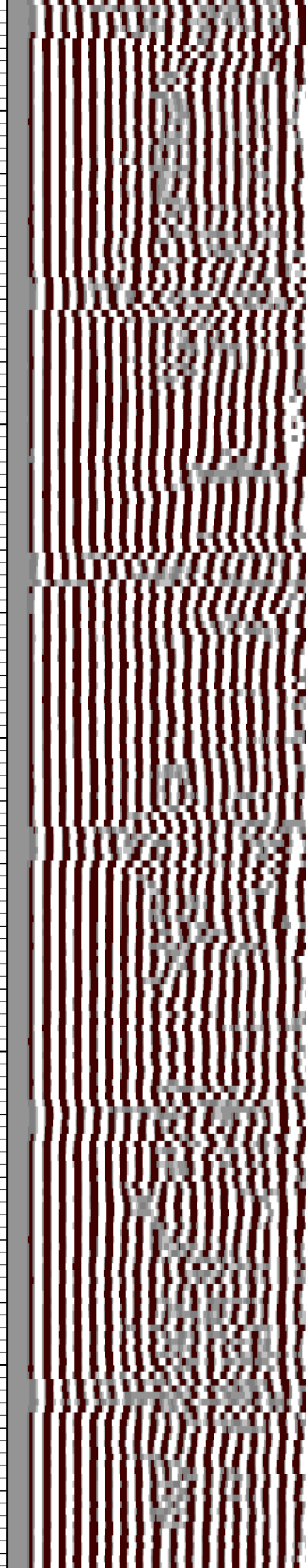
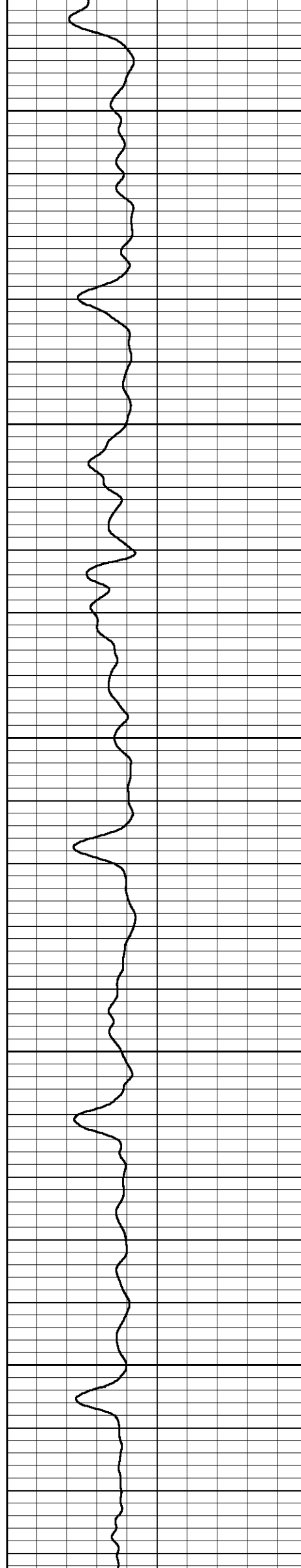


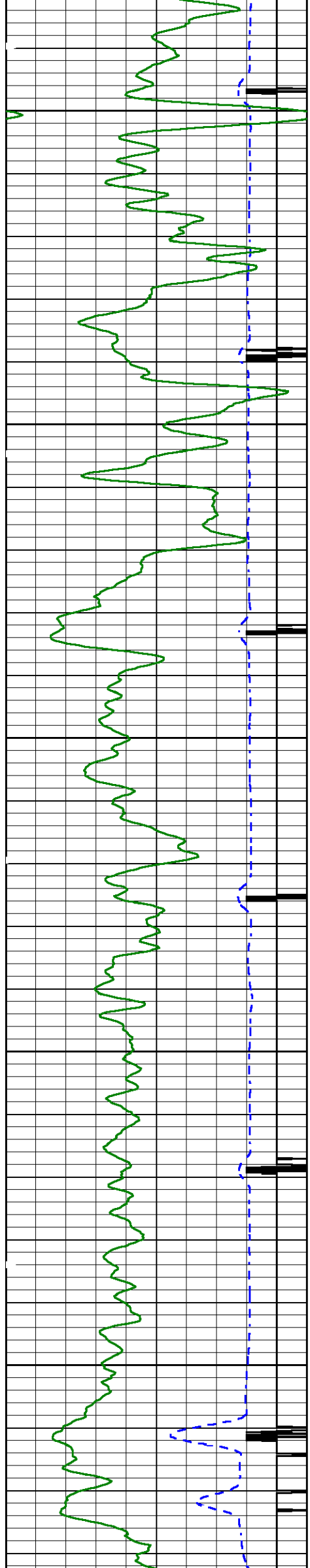


1900

2000

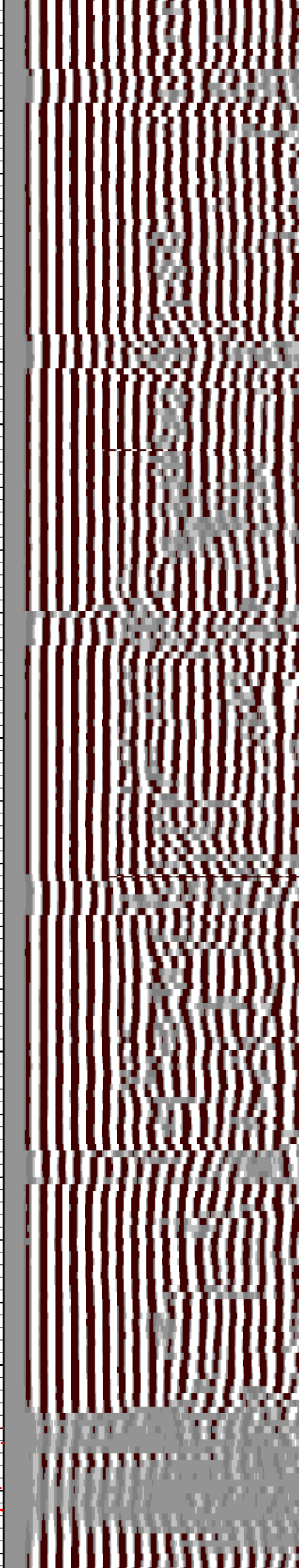
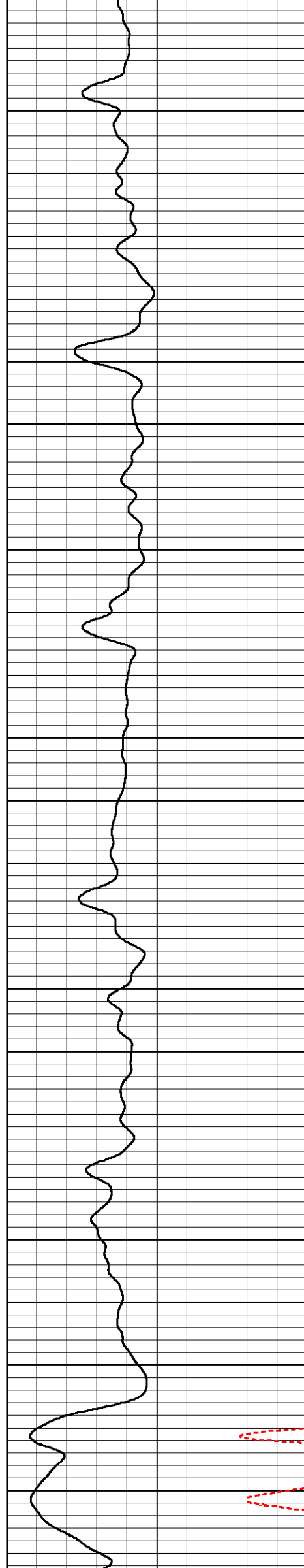
2100

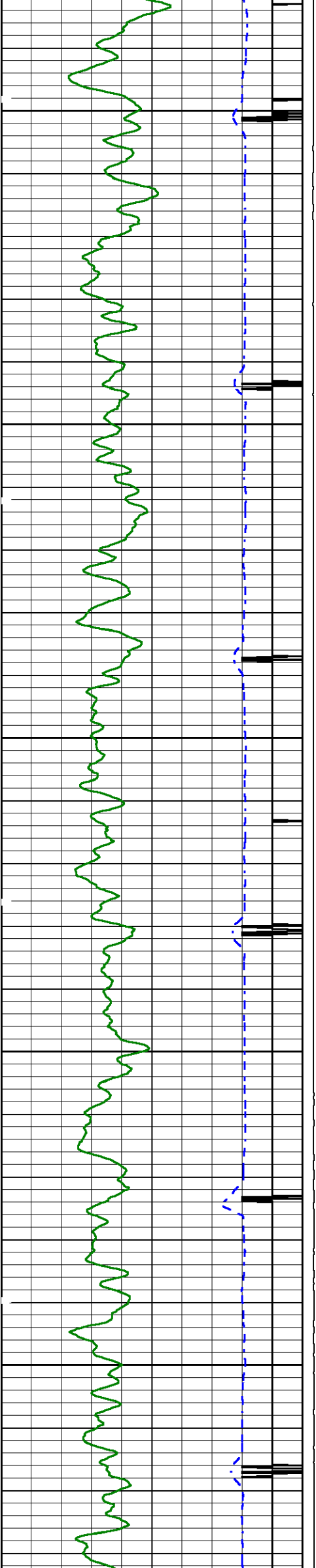




2200

2300

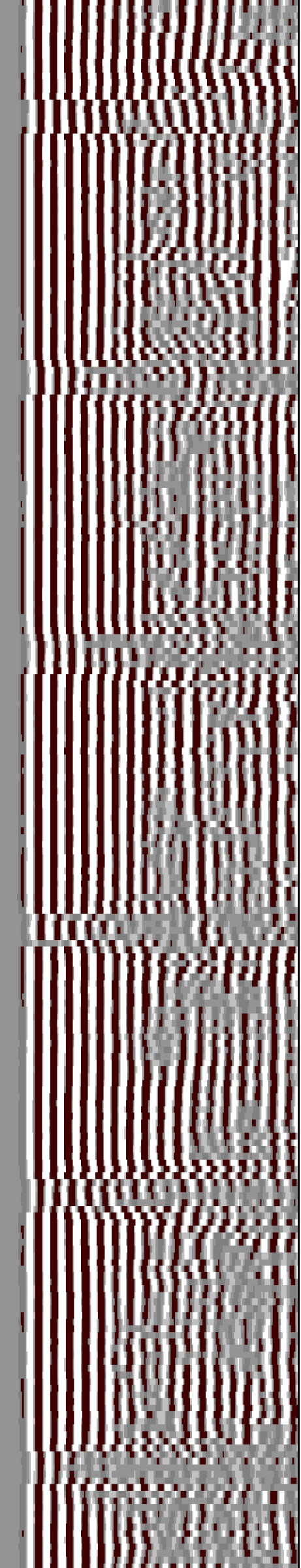
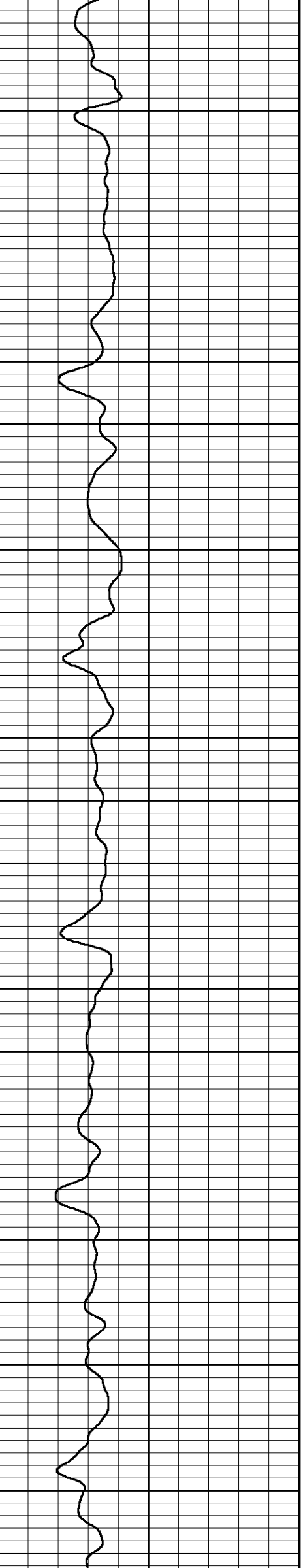


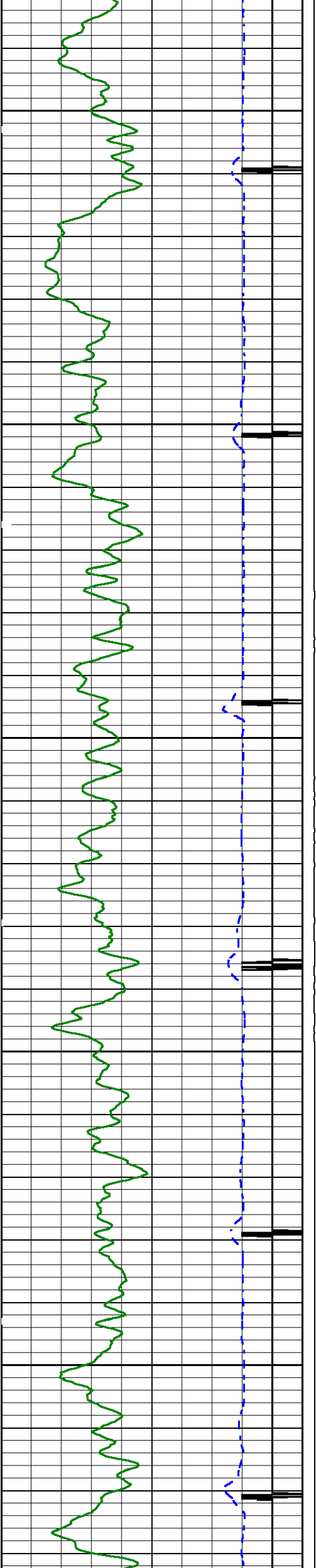


2400

2500

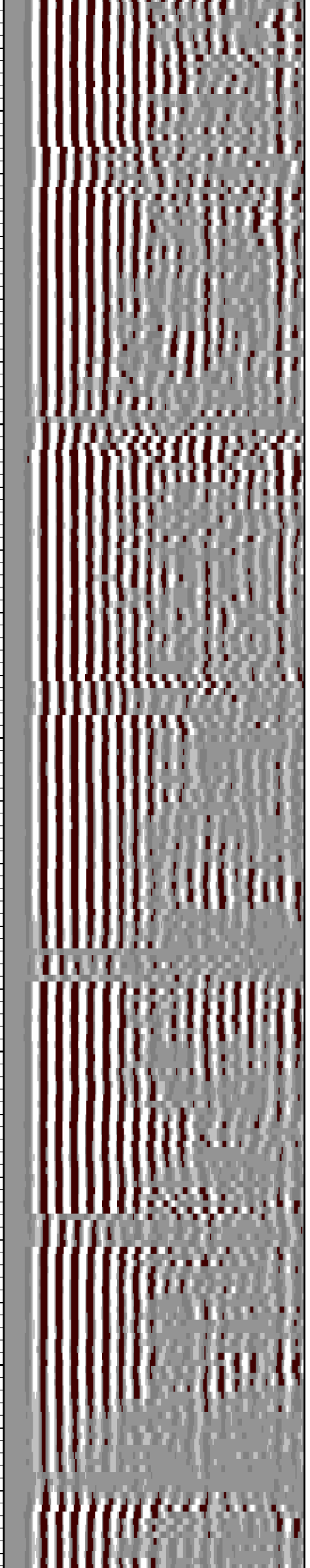
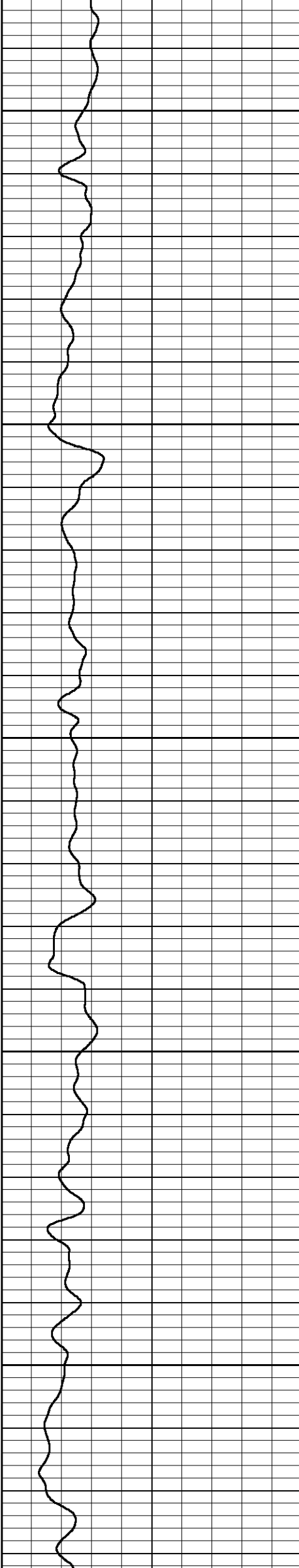
2600

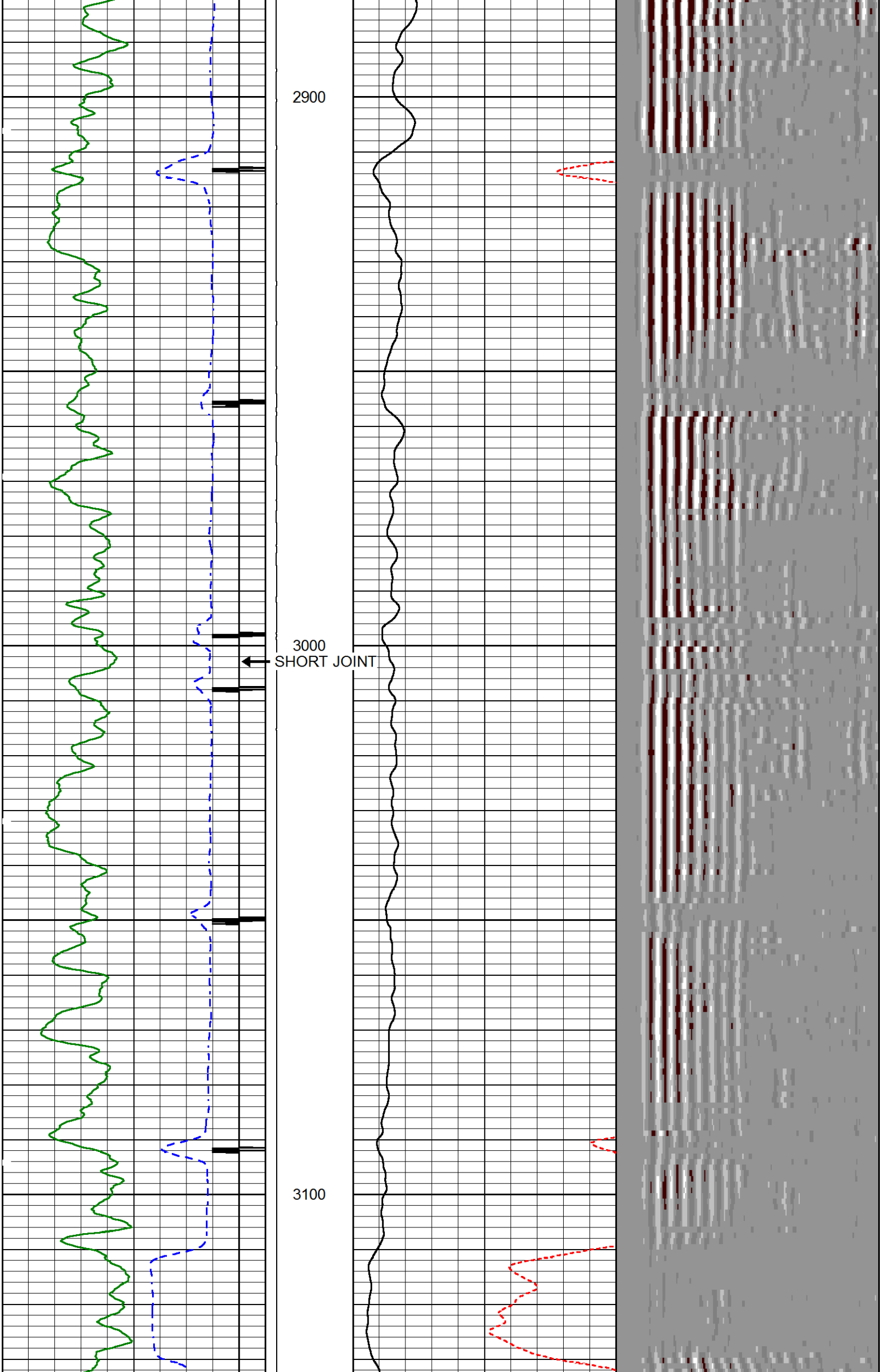




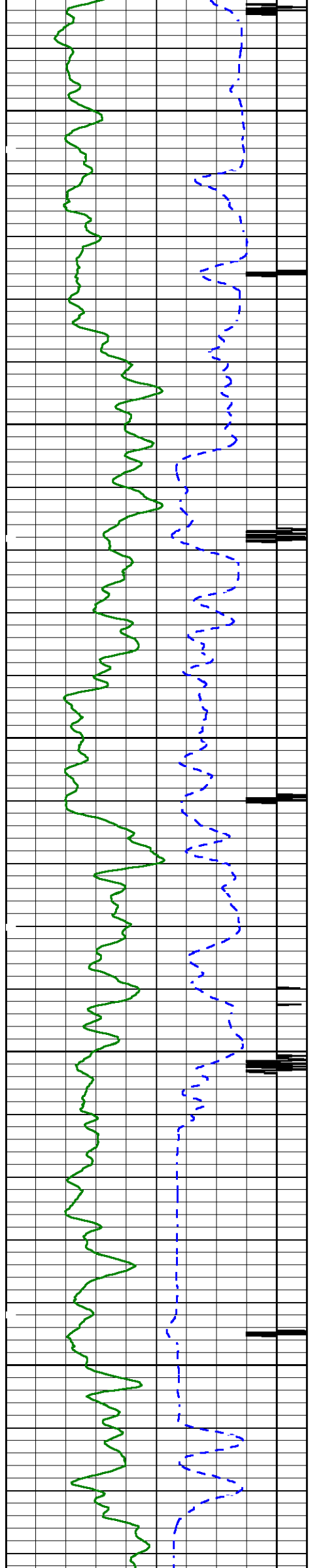
2700

2800



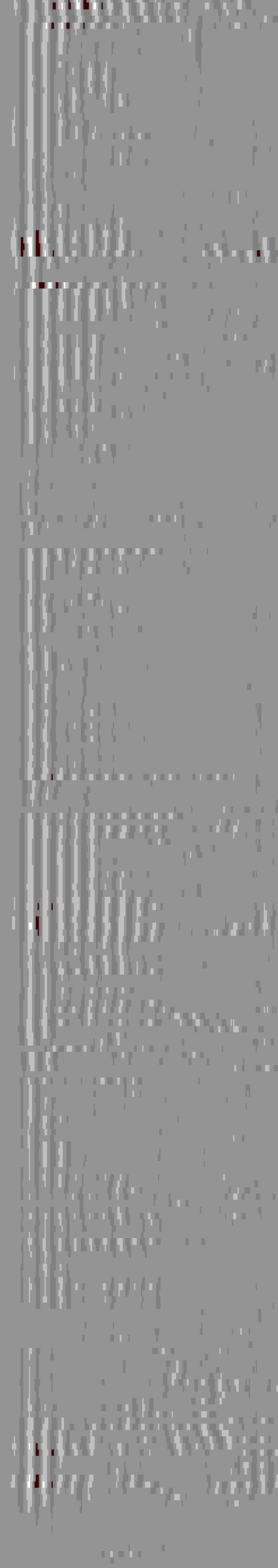
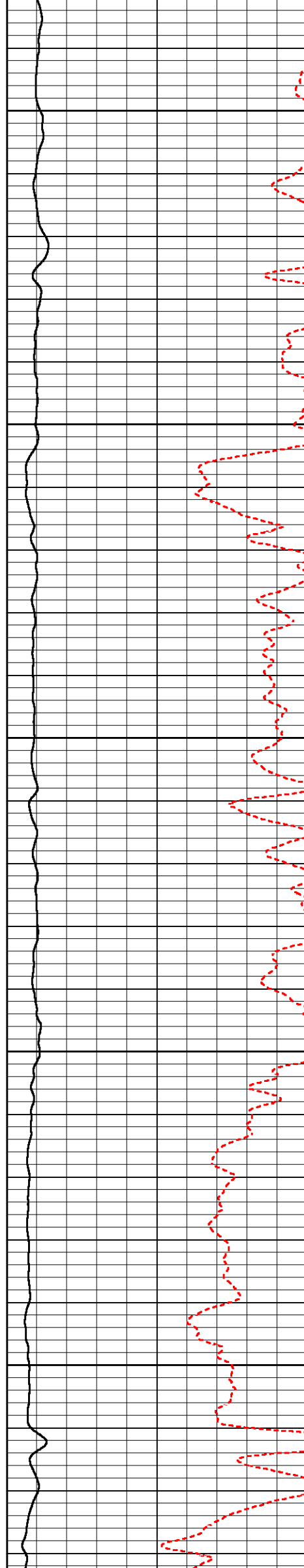


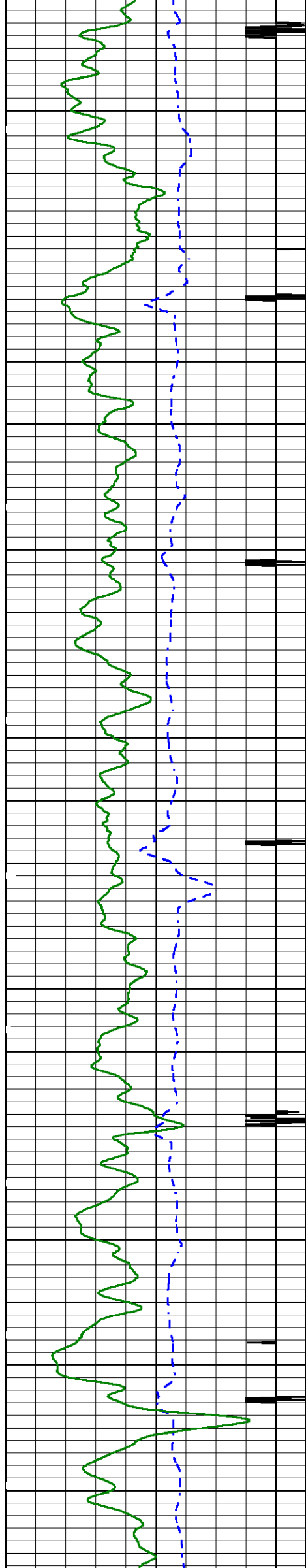




3200

3300

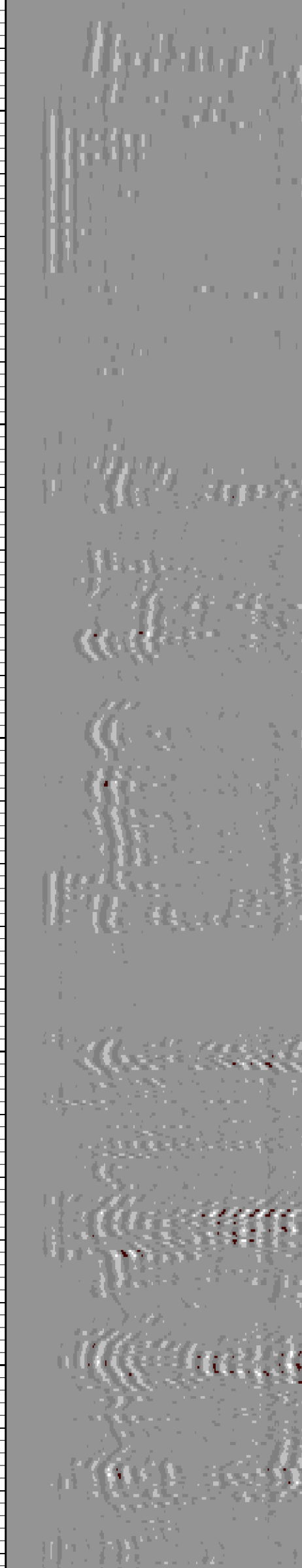
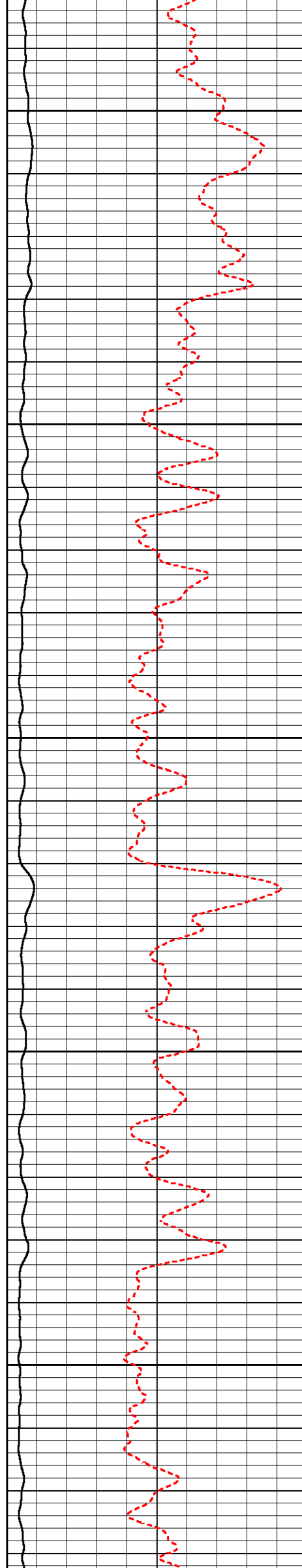


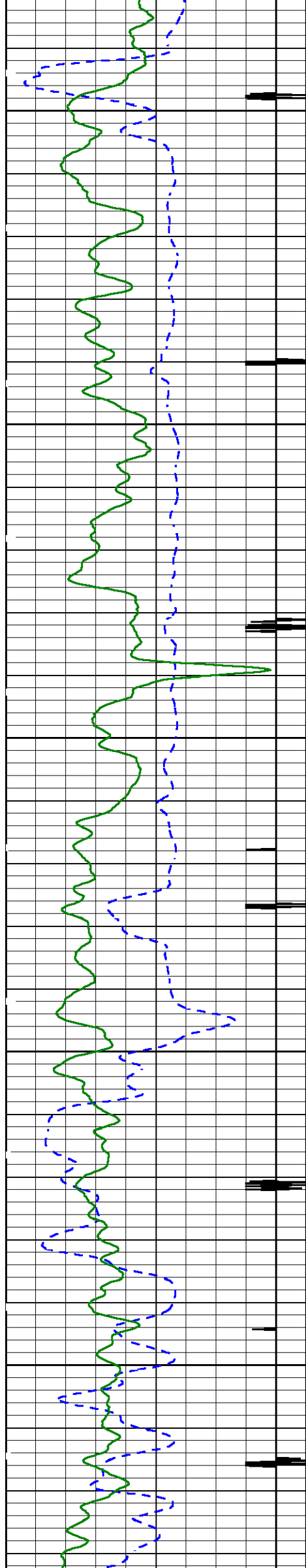


3400

3500

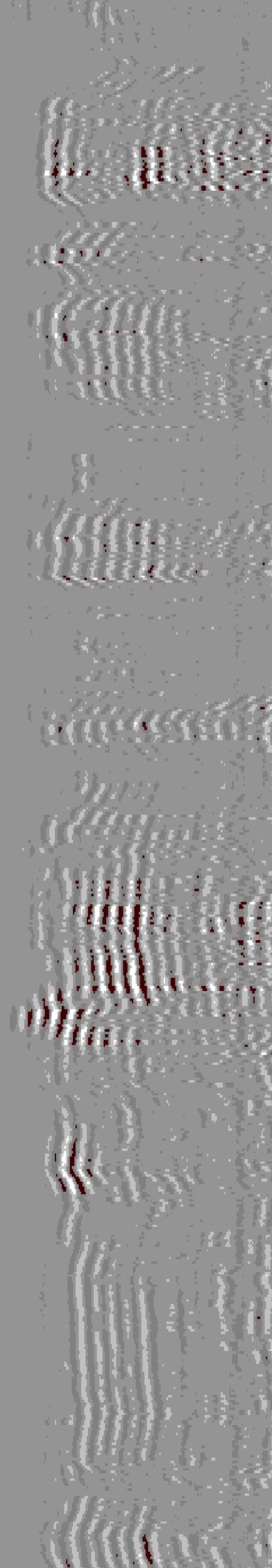
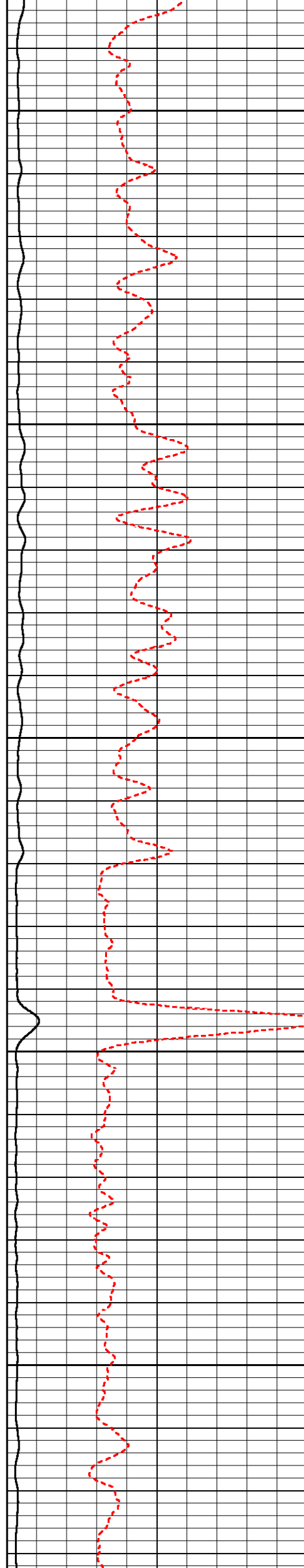
3600

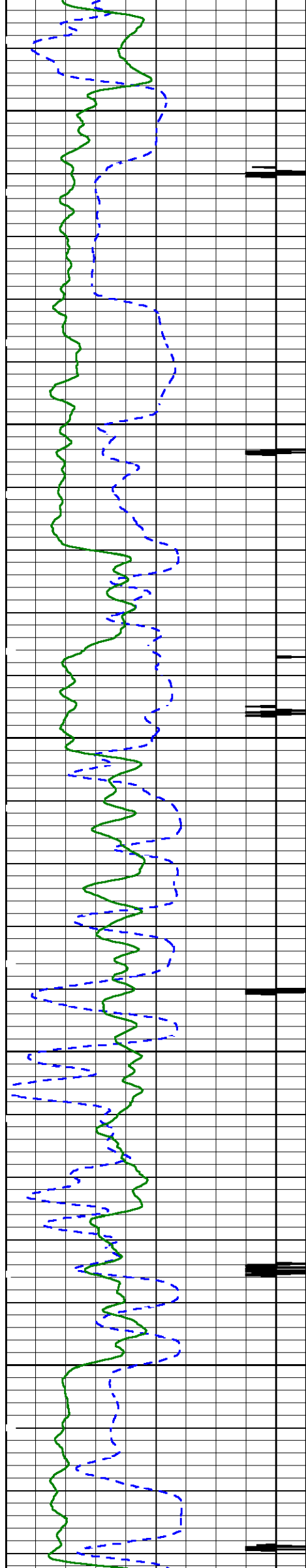




3700

3800

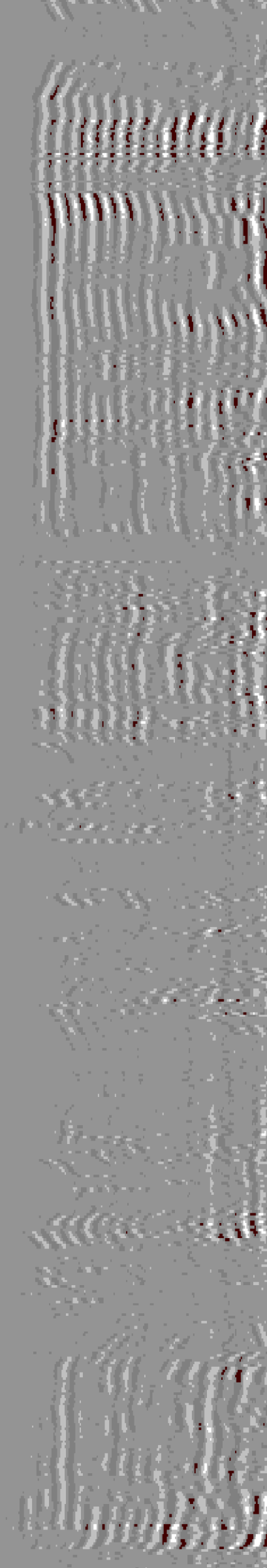
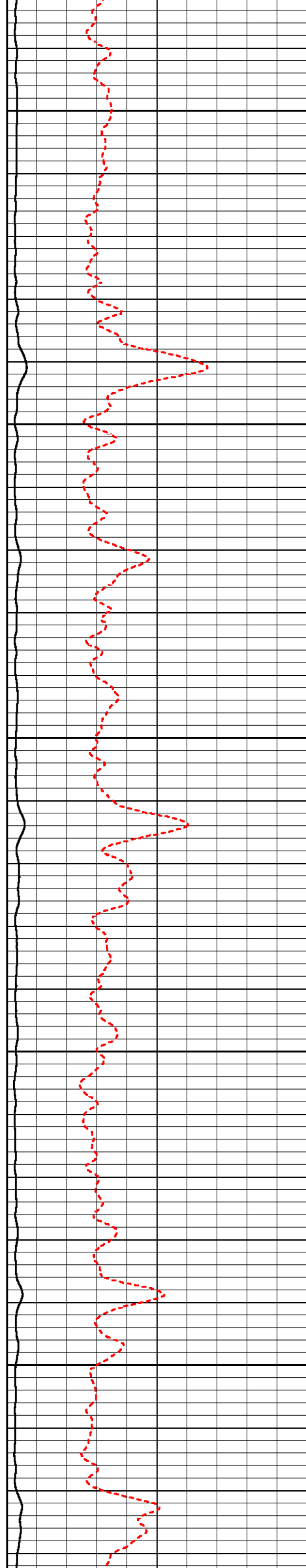


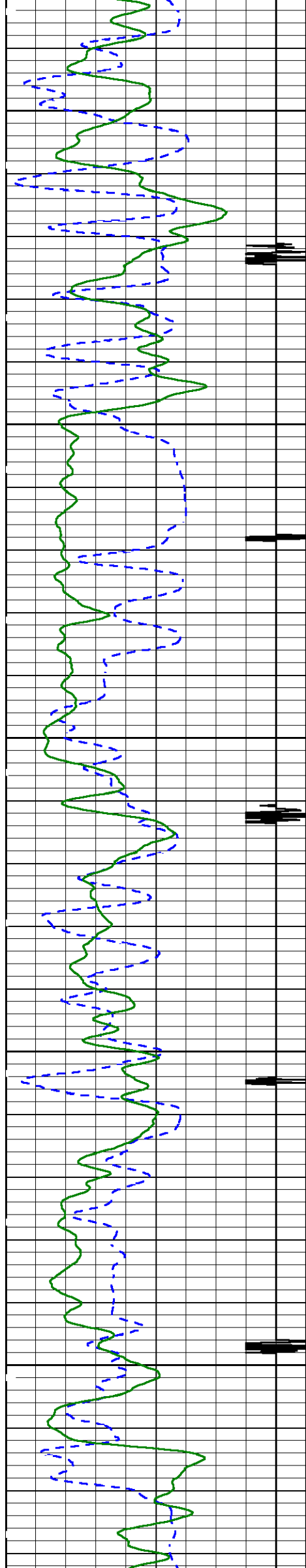


3900

4000

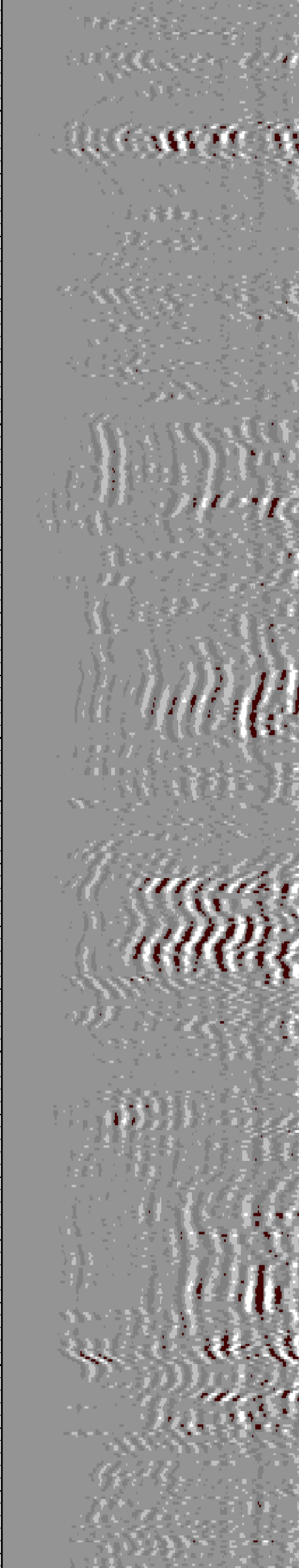
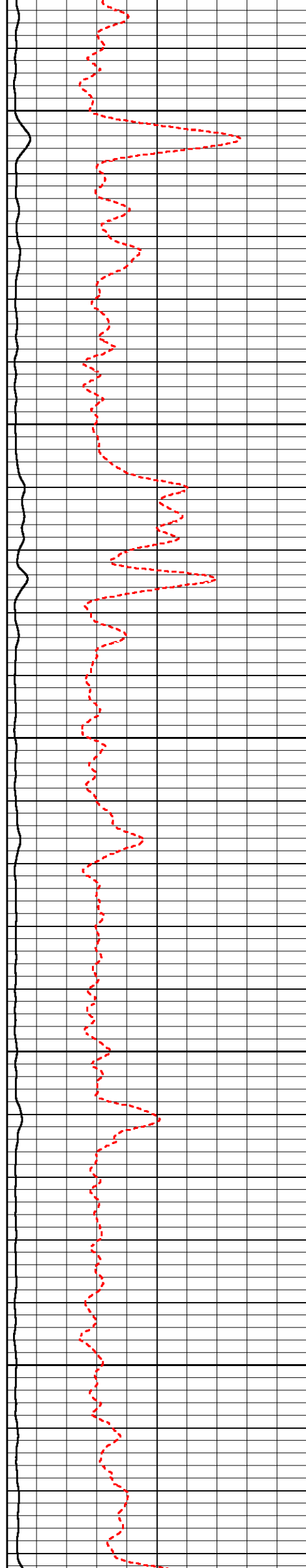
4100



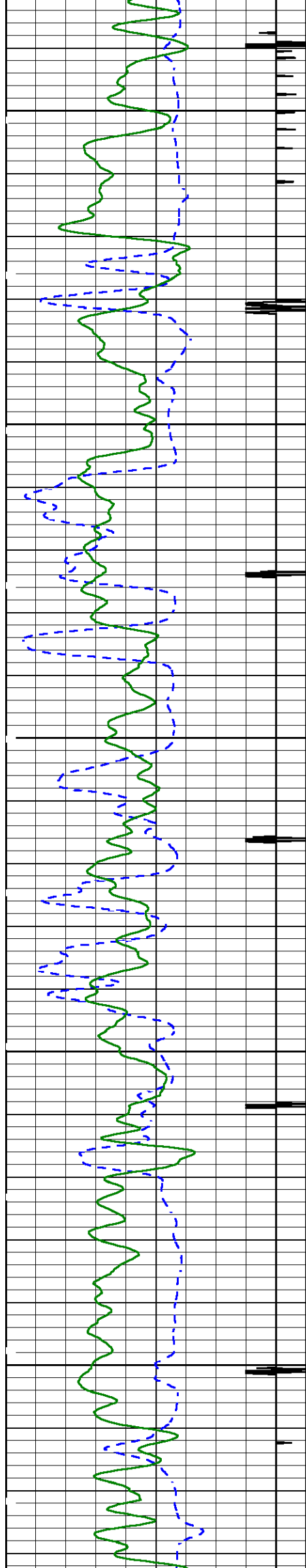


4200

4300



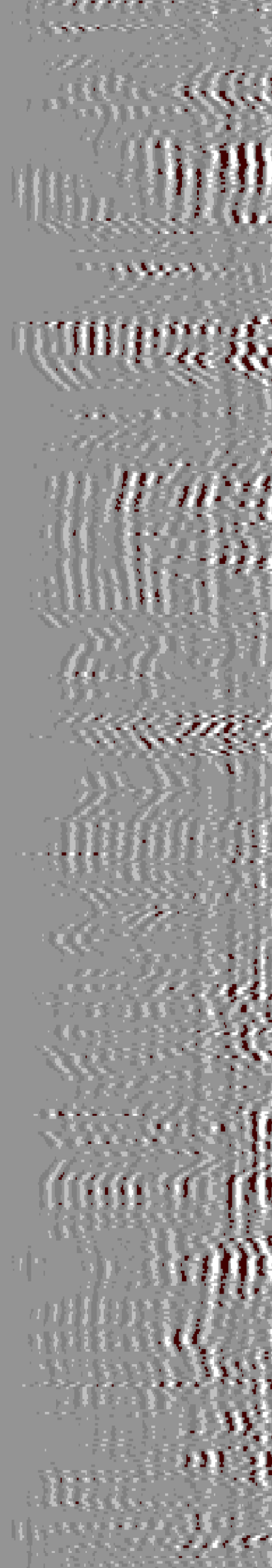
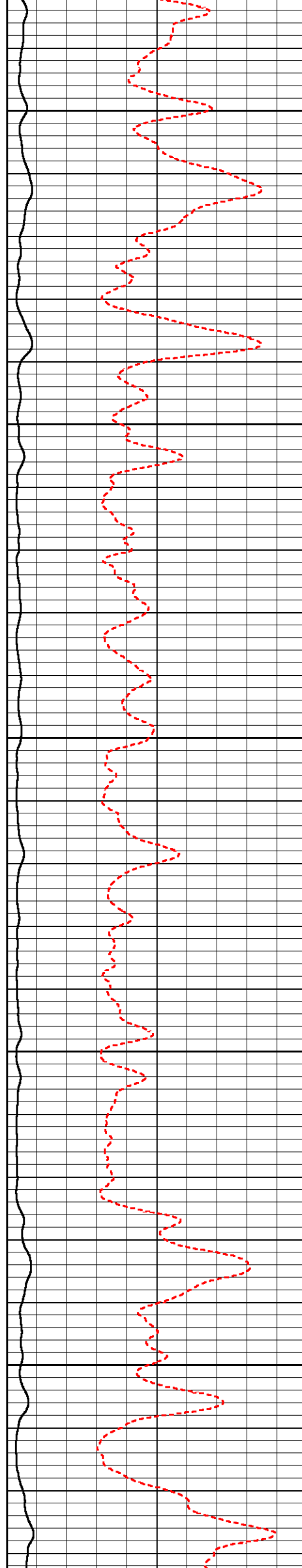


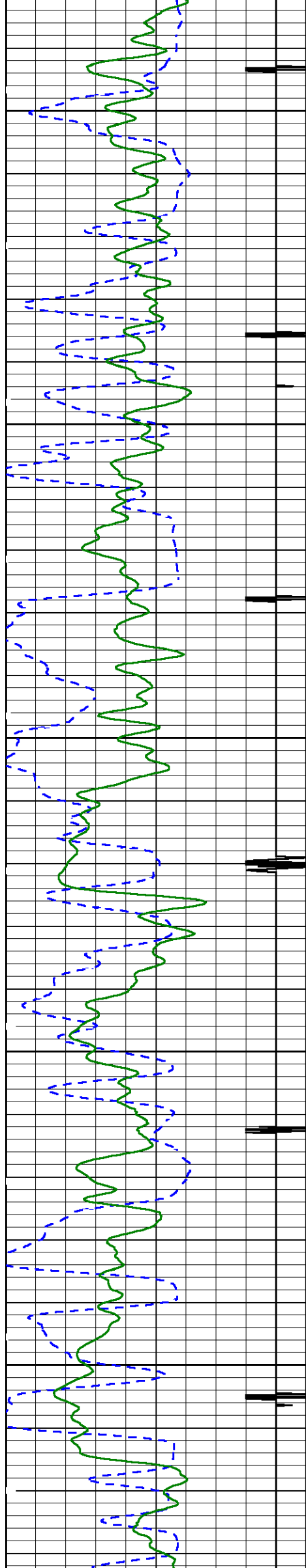


4400

4500

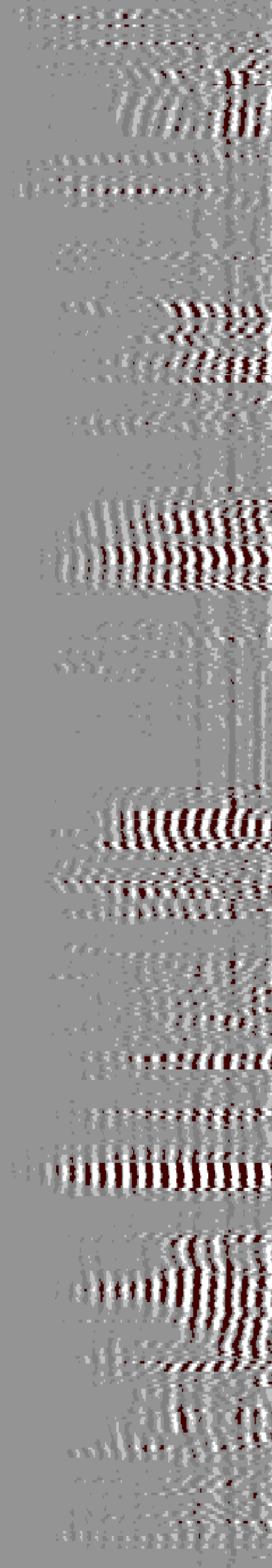
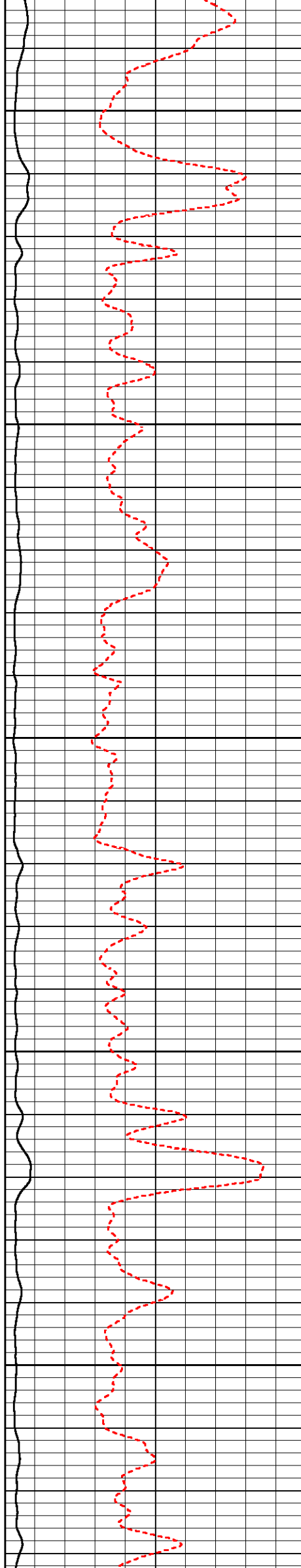
4600

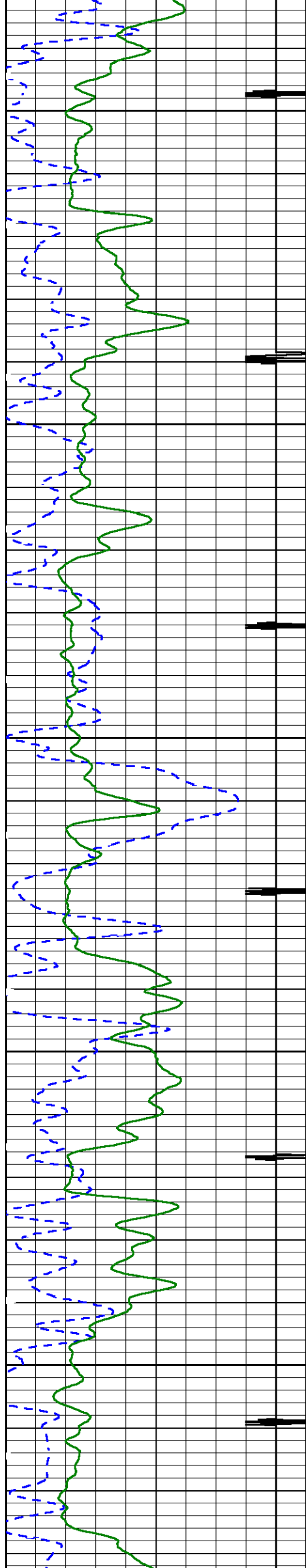




4700

4800

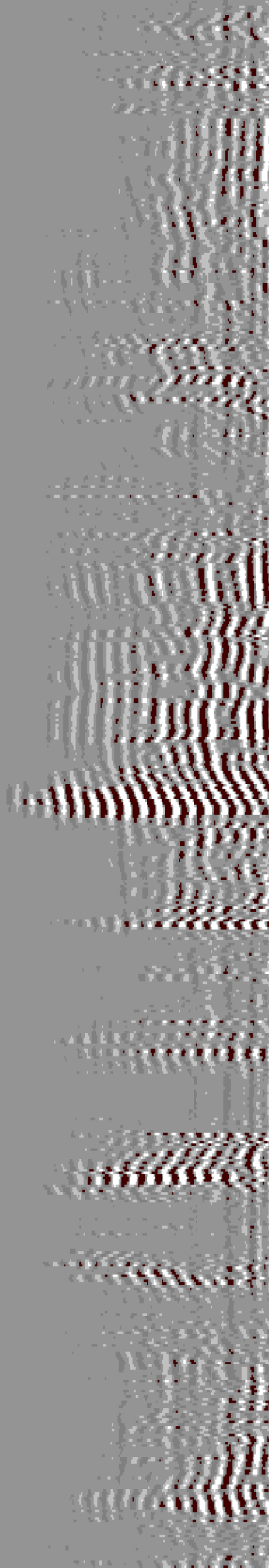
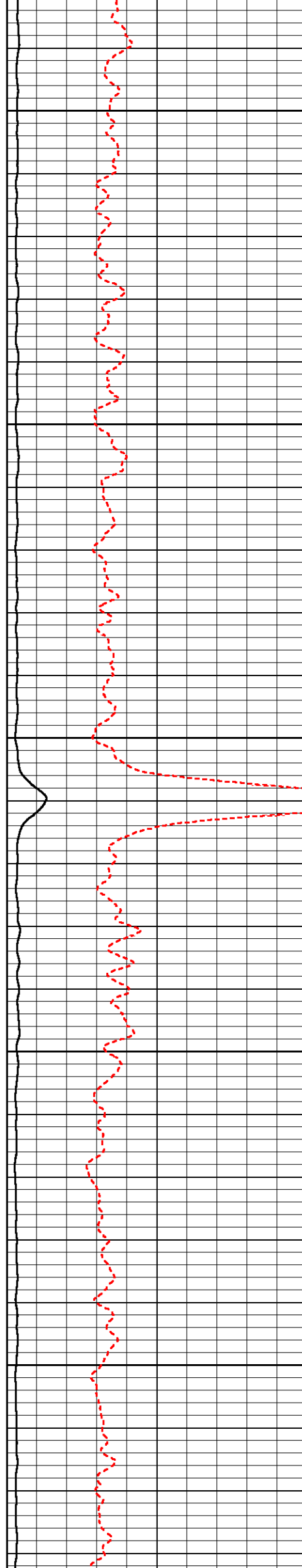


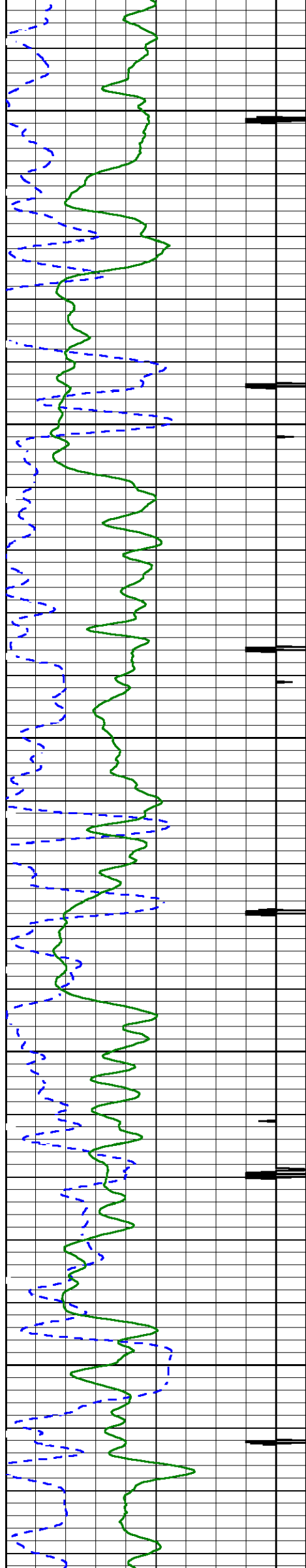


4900

5000

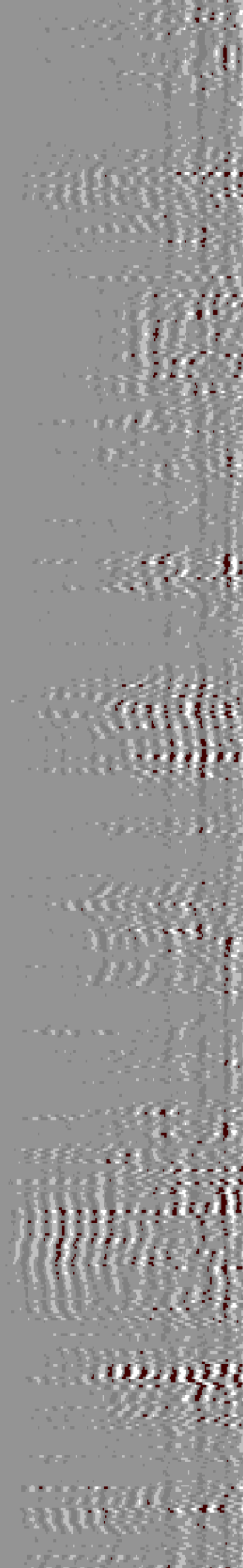
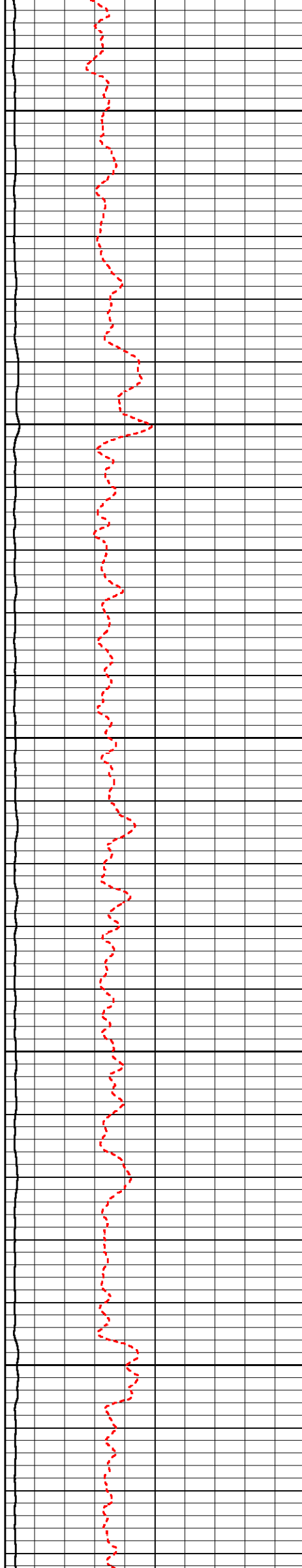
5100

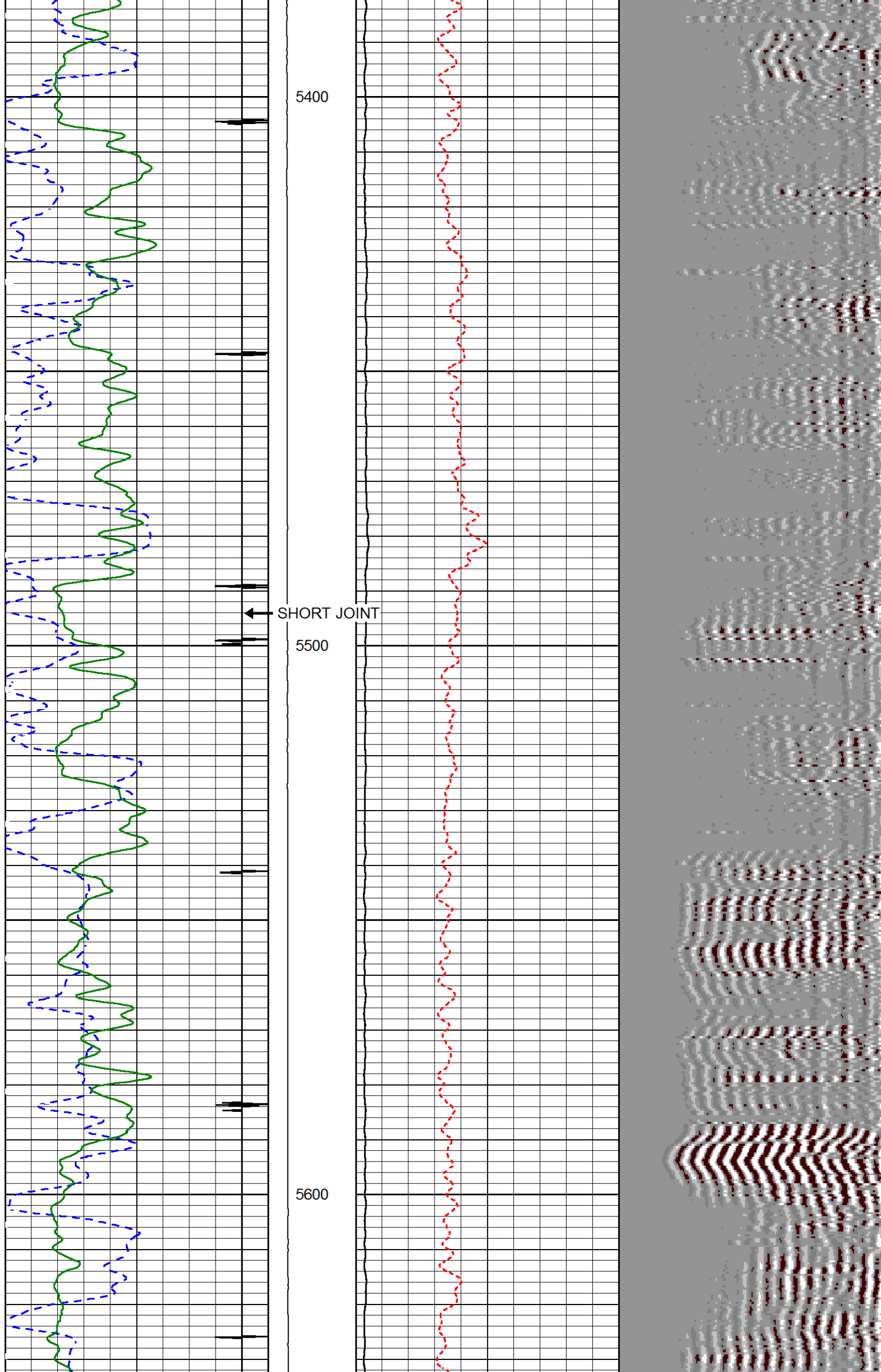




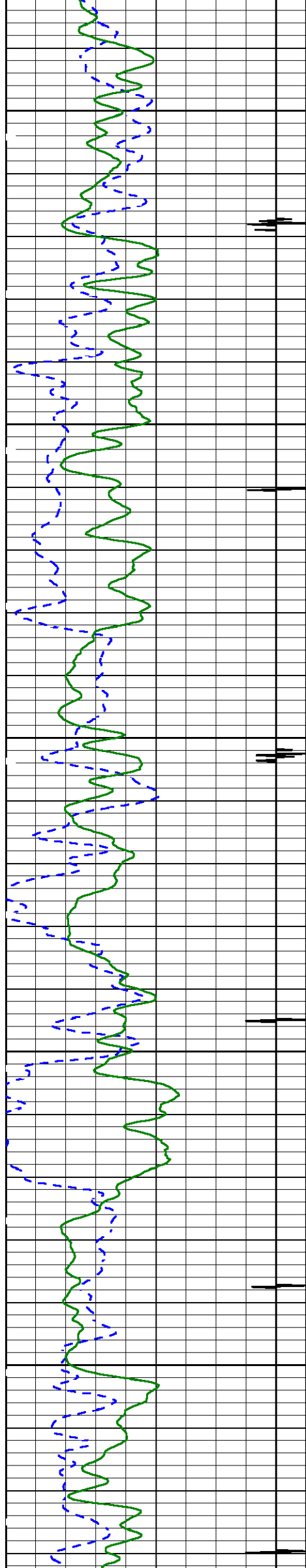
5200

5300



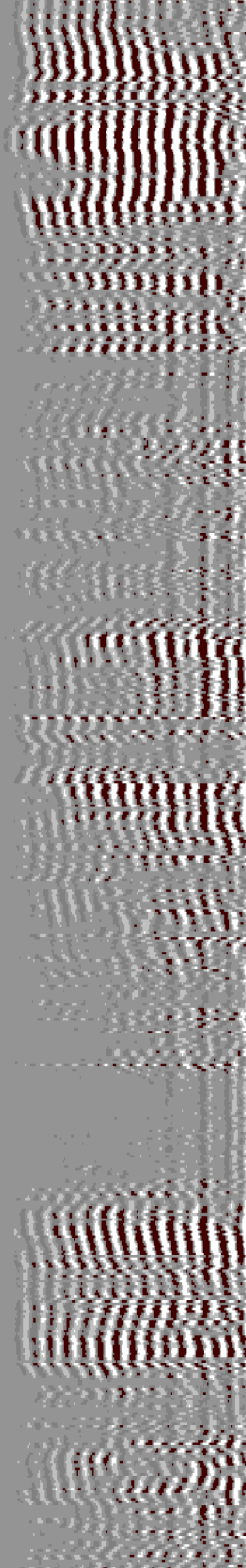
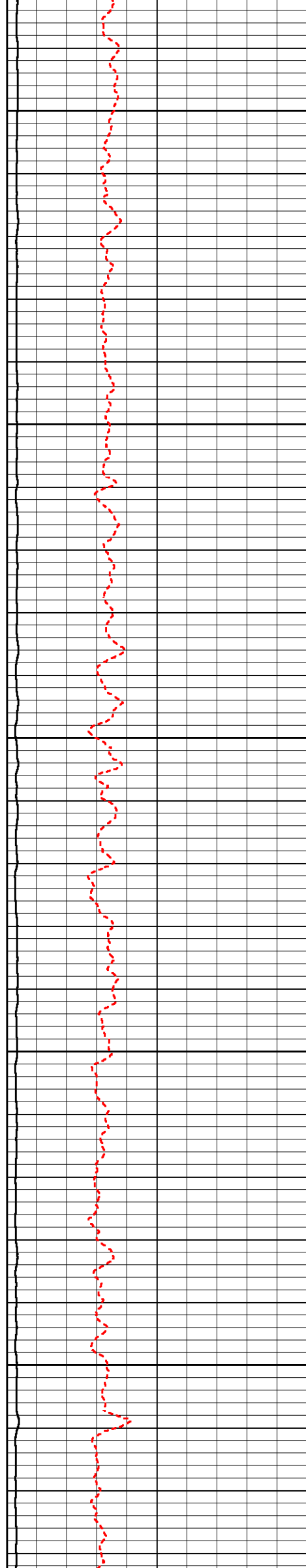


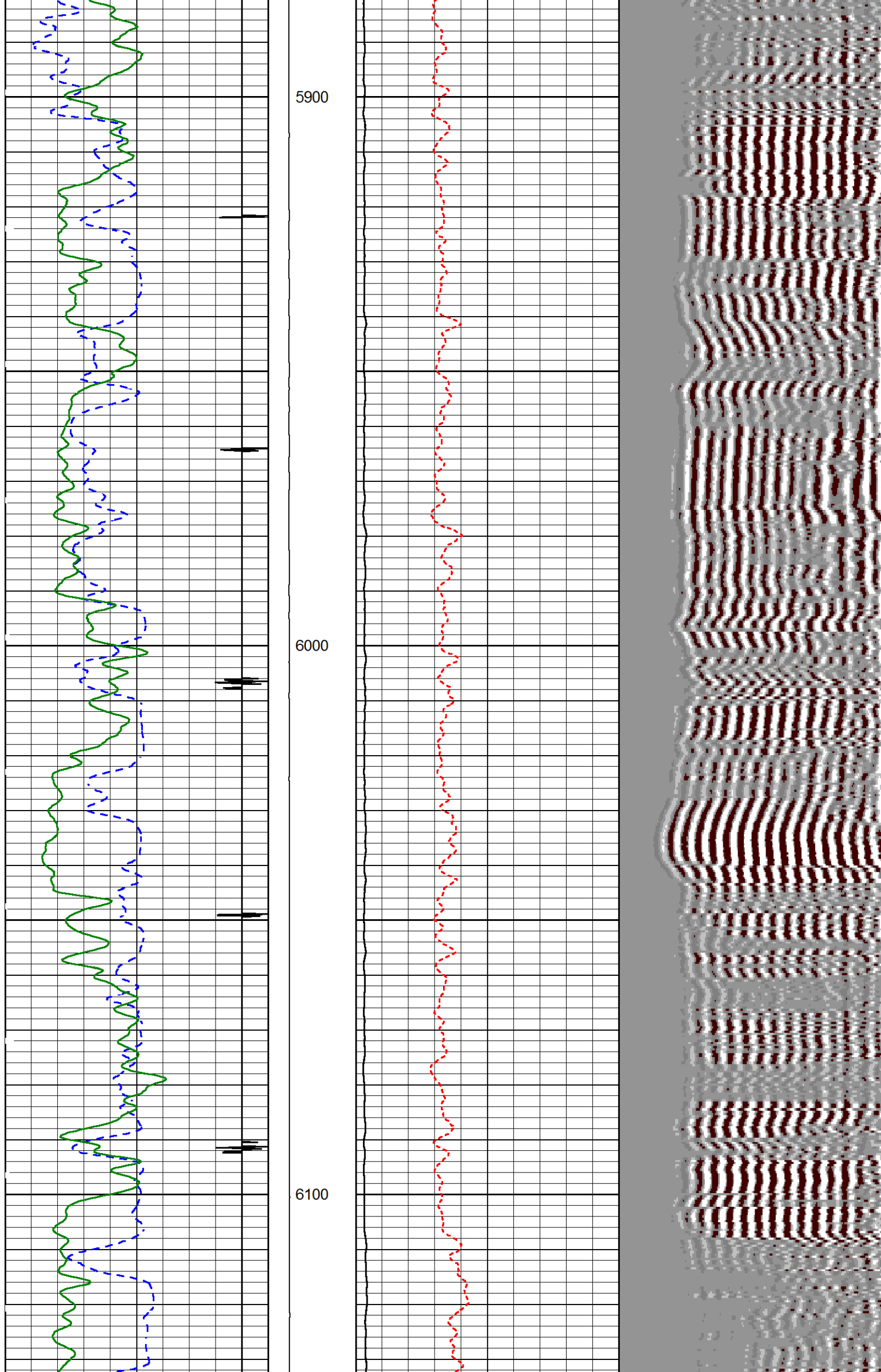


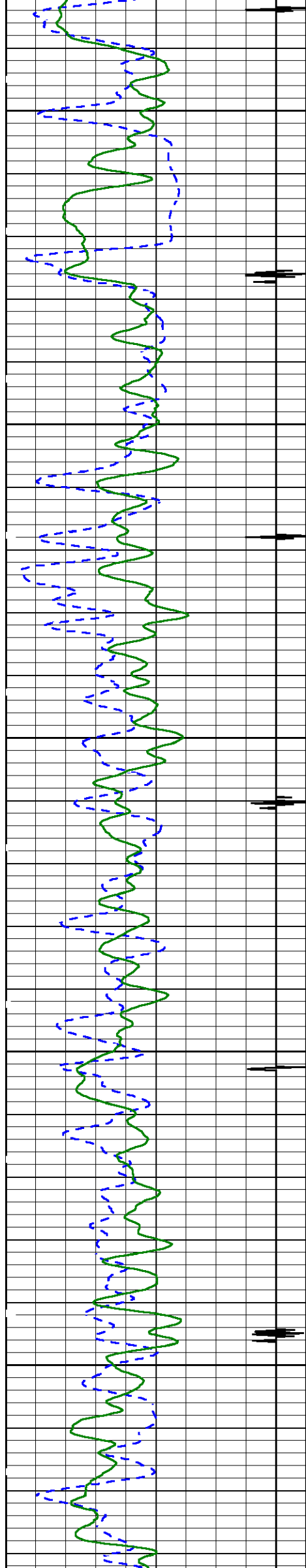


5700

5800

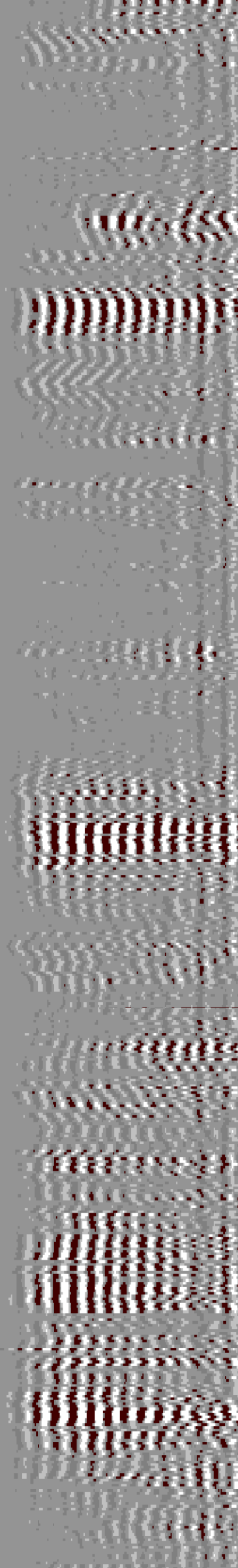
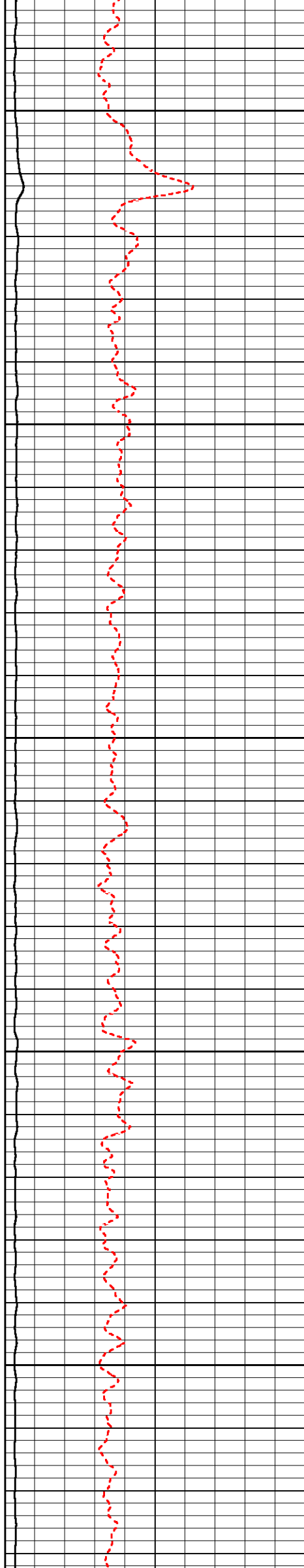


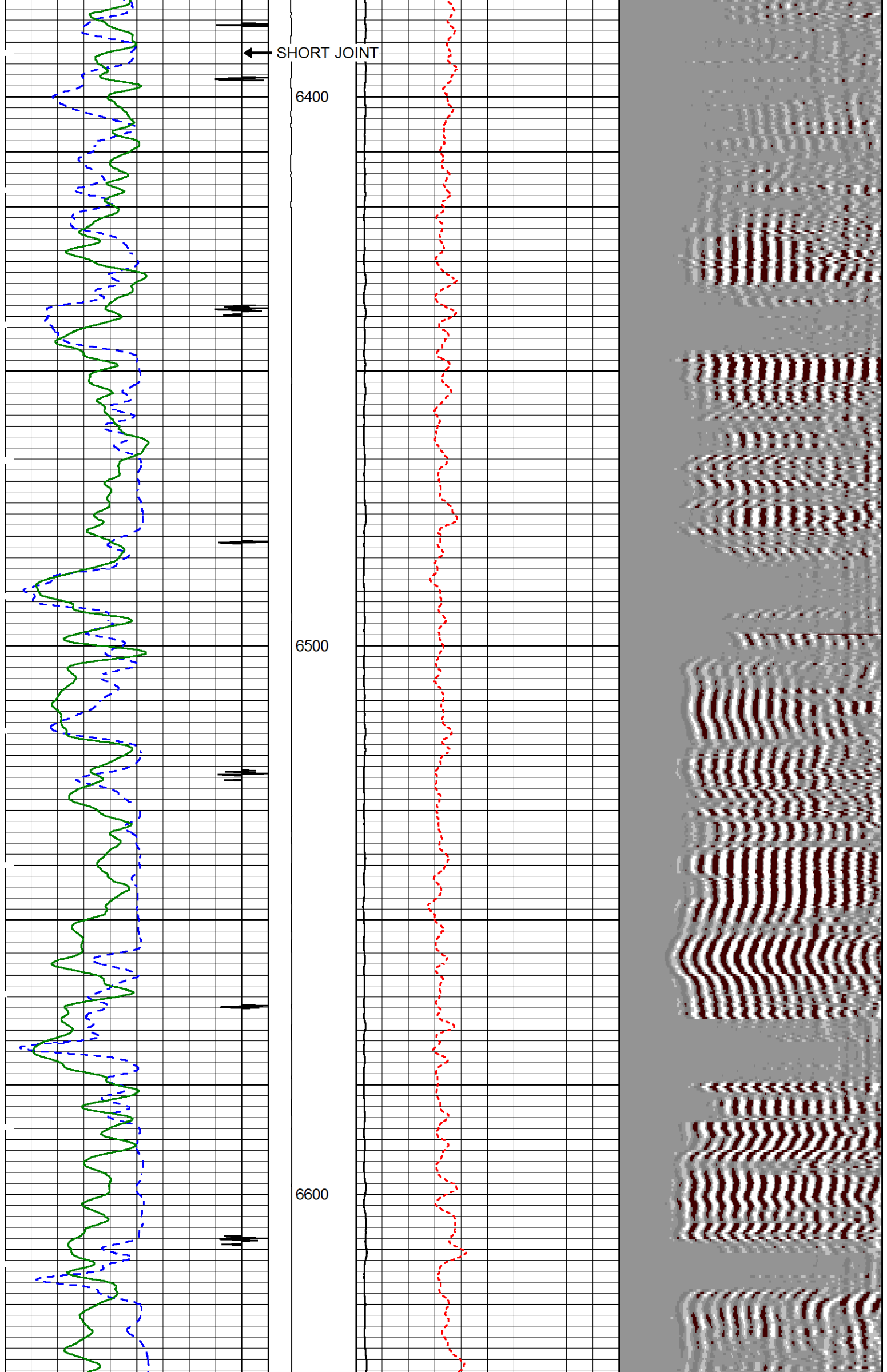


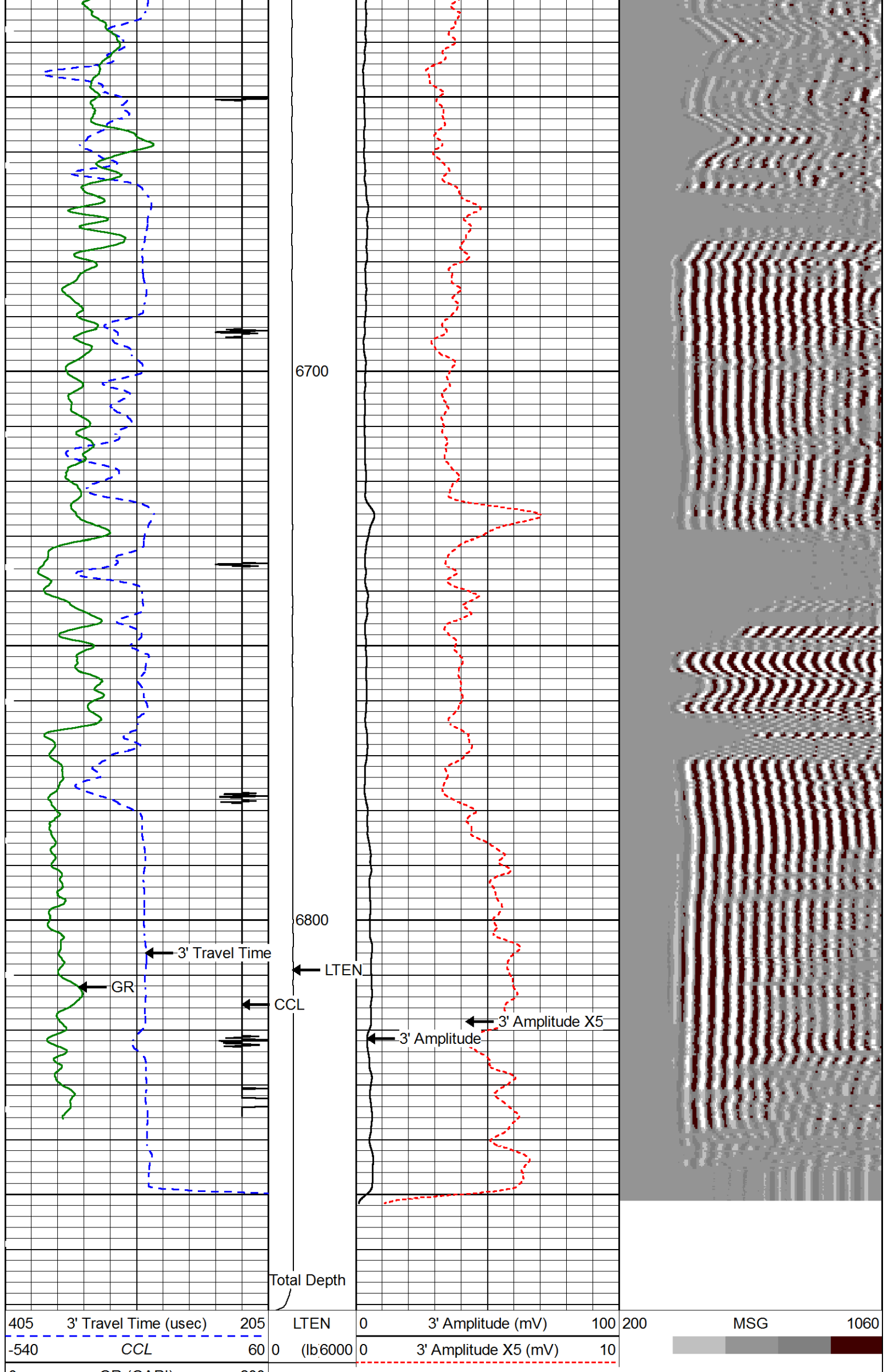


6200

6300









MAIN LOG SECTION

HALLIBURTON

5" = 100'

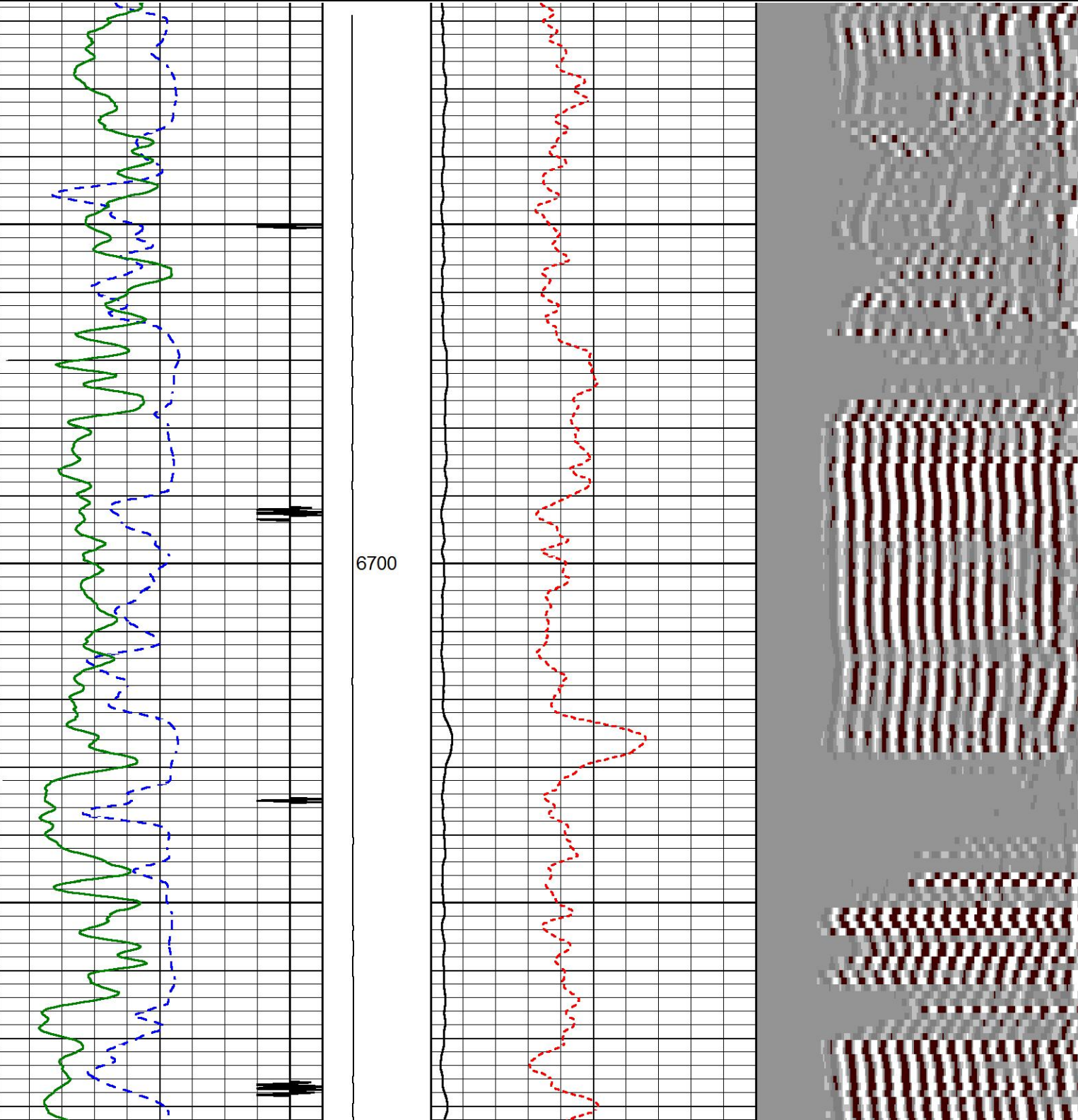
REPEAT LOG SECTION

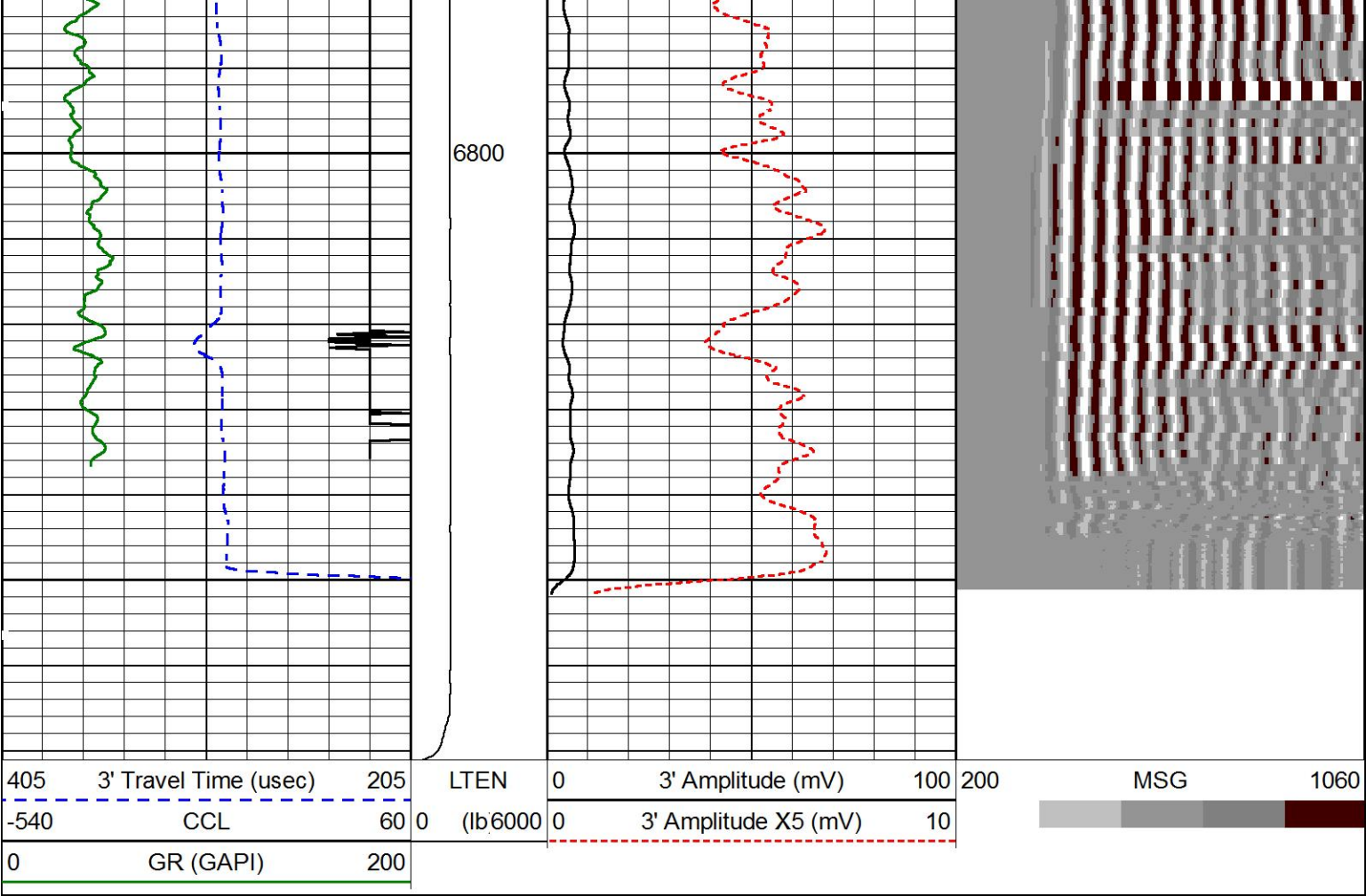
HALLIBURTON

5" = 100'

Database File bat\_24d\_cmb.db  
Dataset Pathname CBLRPT1  
Presentation Format hcbg  
Dataset Creation Fri Jun 19 10:23:41 2015  
Charted by Depth in Feet scaled 1:240

405	3' Travel Time (usec)	205	LTEN	0	3' Amplitude (mV)	100	200	MSG	1060
-540	CCL	60	0	(lb 6000)	0	3' Amplitude X5 (mV)	10		
0	GR (GAPI)	200							





REPEAT LOG SECTION

HALLIBURTON

5" = 100'

Log Variables

DatabaseD:\Warrior\_data\bat\_24d\_cmb.db  
Dataset field\well\run1\MAIN1\\_vars\_

Top - Bottom

BHTEMP_Src	BHSAL2	BHSAL1	POROS2	POROS1	LTH	UHSGC	RHO�F
TEMP	0	1	0	1	Sandstone	NONE	0.25
SO in 0	BORSAL kppm 150	CASED? Yes	MSGGN 1	USERFTT uSec/ft 0	ZREF MRayl 1.7	CASEWGHT lb/ft 11.6	SRFTEMP degF 0
MudWgt lb/gal 804	CASETHCK in 0.25	CASEOD in 4.5	PERFS 0	TDEPTH ft 0	BOTTEMP degF 100	BITSIZE in 7.875	

Calibration Report

Database File bat\_24d\_cmb.db  
Dataset Pathname MAIN1  
Dataset Creation Fri Jun 19 10:33:43 2015

Reservoir Monitor Tool I Calibration Report

Serial-Model: 12095949-A  
Shop Calibration Performed: Wed May 27 10:12:02 2015

Carbon/Oxygen Mode

Stabilization

Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	82.00	80.00	2.00	+/-15.00	V
ITCR2	3281	3250	31	+/-250	cps
Near Detector					
H	Channel	Expected Value	Amplitude	FWHM	Tol.
Fe	60	60 +/-2	0.0270	5.32	<6.00
NGAIN = 0.993	207	206 +/-2	0.0961	-----	-----
	NZOFF = 0.7				
Far Detector					
H	Channel	Expected Value	Amplitude	FWHM	Tol.
Fe	60	60 +/-2	0.0360	5.72	<6.50
FGAIN = 0.991	209	208 +/-2	0.0918	-----	-----
	FZOFF = 0.5				
Flask Temperature	63.5 degF				
Result	Logged	Expected Value	Diff.	Tol.	Units
COIR2	0.45	0.45	-0.00	+/-0.02	
LIRI2	1.65	1.64	0.01	+/-0.05	
TCCR2	5061	5000	61	+/-1000	cps
ITCR2	3240	3200	40	+/-250	cps

Sigma Mode					
Stabilization					
Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	82.00	80.00	2.00	+/-15.00	V
FCAP	10080	10000	80	+/-500	cps
Horizontal Water Tank					
Result	Logged	Expected Value	Diff.	Tol.	Units
N/F Normalizer	0.91	0.95	-0.04		
N/F Inel Norm	0.58	0.61	-0.03		
RNF	1.10	1.07	0.03	+/-0.12	
RINC	1.71	1.64	0.07	+/-0.18	
SGFN	24.09	24.00	0.09	+/-0.50	cu
SGFF	22.90	22.85	0.05	+/-0.50	cu
FSIN	24192	24000	192	+/-2000	cps
FCAP	10177	10000	177	+/-1000	cps
NFTR	0.84			<5.00	
FFTR	0.88			<5.00	
NBKG	179			<500	cps
FBKG	93			<500	cps
RTN	0.40	0.40	0.00	+/-0.10	usec
RTF	0.43	0.40	0.03	+/-0.10	usec

Calibration Software Modules	
HRMTI Module	2013.11.14.0
RMTI Module	2014.8.28.1
Log Data Acquisition Software Modules	
HRMTI Module	2013.11.14.0
RMTI Module	2014.8.28.1


Cement Bond Log Shop Calibration Report

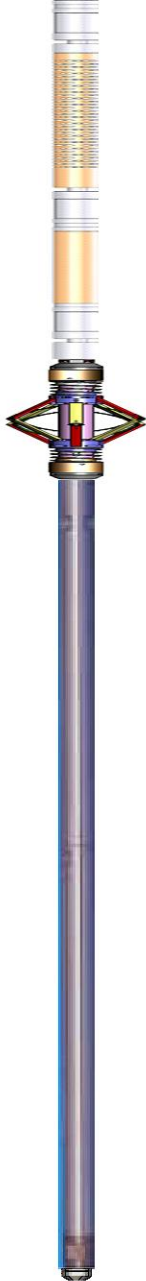
Serial-Model:	11817843-A
Calibration Performed:	Wed Jun 17 01:49:39 2015



Free Pipe Calibration		
TT	Measured	Units
Amplitude	246.9	usec
Log Base Line	574.2	mV
	-7.6	mV
Calibration References and Gain		
Name	Value	Units
Pipe O.D.	4.500	in
Pipe Weight	11.6	lb/ft
Pipe Ref. Amp.	81.2	mV
Amp. Gain	0.140	

Gamma Ray Calibration Report						
Type / Serial:			002 / 11495480			
SHOP CALIBRATION		Fri Jun 19 09:22:14 2015				
	Counts/Sec.	Gain	Offset	Jig	Units	
Background	38.3				cps	
Calibrator	331.7				cps	
		1.3904			GAPI/cps	
PRIMARY VERIFICATION		Fri Jun 19 09:24:24 2015				
Background	51.8				cps	
Calibrator	462.0				cps	
Difference				410.2	GAPI	
BEFORE SURVEY VERIFICATION						
Background	0.0				cps	
Calibrator	0.0				cps	
Difference				0.0	GAPI	
AFTER SURVEY VERIFICATION						
Background	0.0				cps	
Calibrator	0.0				cps	
Difference				0.0	GAPI	

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
CCL	35.09		STNDCH-STND_CH 1.4375 IN CABLE HEAD	1.50	1.44	1.00	
			TTTCU-002 (11495480) Through Tubing Telemetry Cartridge - Ultrawire	7.65	1.69	100.00	
GR	32.83		XHU-003 (12461939) Crossover Halliburton 1553 to Ultrawire	1.58	1.69	7.00	
			CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00	
Temp	23.11						

TT3FT AMP3FT	20.86 20.86		HCBLM-A (11817843) Halliburton HCBLM Tool	9.38	2.75	116.00
			CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
RmtTFGT RmtTNGT	8.47 7.97		RMTI-A (12095949) Halliburton RMTI Tool	14.00	2.13	77.00
RmtFP5V RmtCommFWar	0.22 0.22					
LOCTIM UTCTIM LLMTEN	0.00 0.00 0.00		BUL-006 (000002) Bullnose Terminator	0.22	1.69	1.20
Dataset: bat_24d_cmb.db: field/well/run1/MAIN1 Total length: 38.66 ft Total weight: 352.20 lb O.D.: 3.13 in						

Company	URSA OPERATING CO., LLC.				
Well	BAT 24D-18-07-95				
Field	PARACHUTE				
County	GARFIELD		State	CO	
HALLIBURTON	ACOUSTIC CEMENT BOND LOG				