

# ACOUSTIC CEMENT BOND LOG

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

Service Ticket No.	902452568	API No.	05-045-22807-0000	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
Serial No.	10000028	Serial No.	12082235	Serial No.	11680606
Model No.	TTTC-U-002	Model No.	RBT-004	Model No.	RMTI-A
Diameter	1.688"	Diameter	3.125"	Diameter	2.125"
LOGGING DATA					
General Data					
Pass	Depths		Well Head	Speed	Logging Run Comments
No	From	To	Pressure	Ft/Min	

No.	6754'	1500'	0	60	MAIN LOG SECTION			
	GAMMA RAY		NEAR BORE SI (SGBN)		RATIO (RNF)		SGIN	
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
ONE	0	200	200	0	2	0.5	60	0
DIRECTIONAL INFORMATION								
Maximum Deviation			deg. @		KOP			

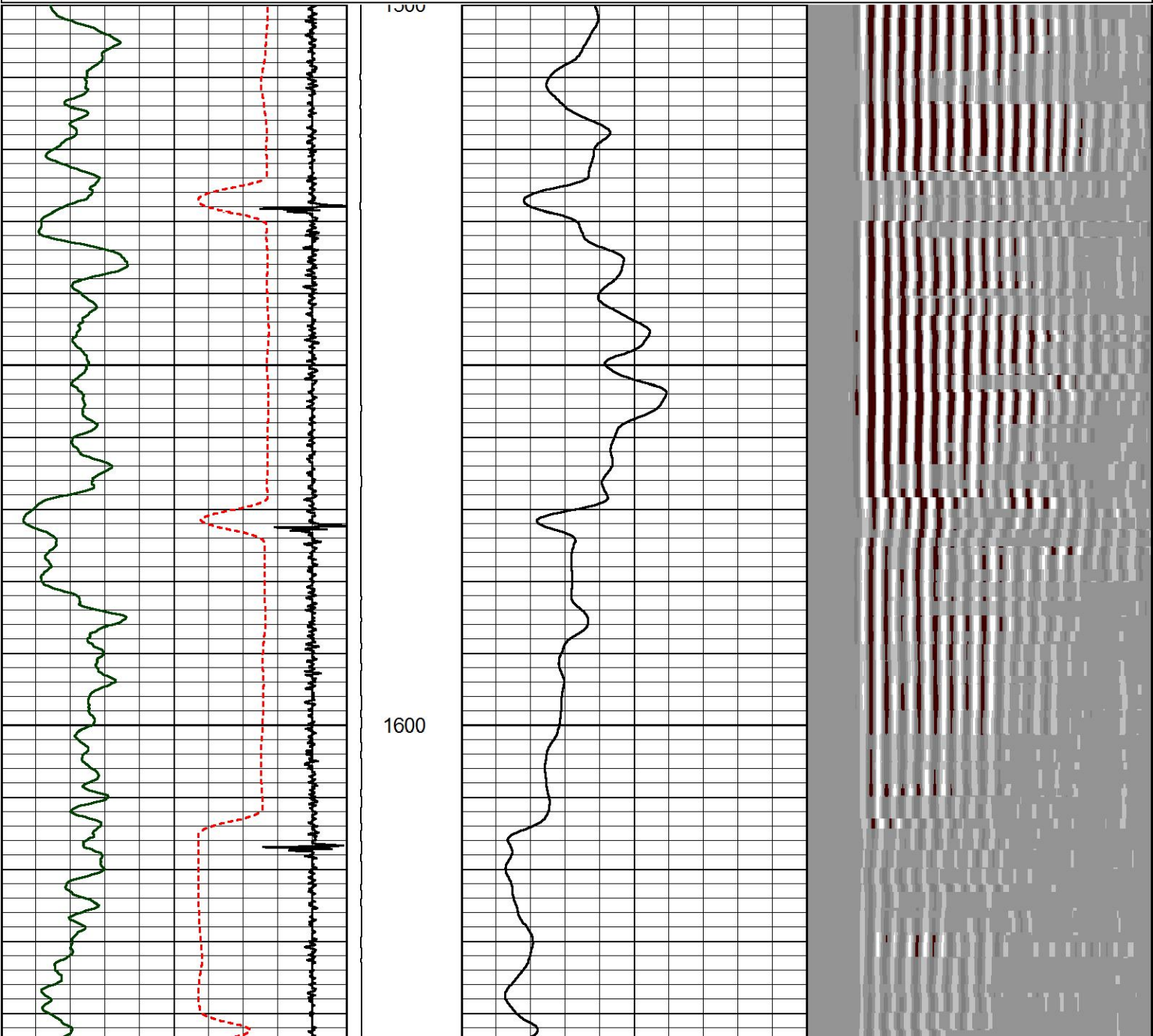
HALLIBURTON

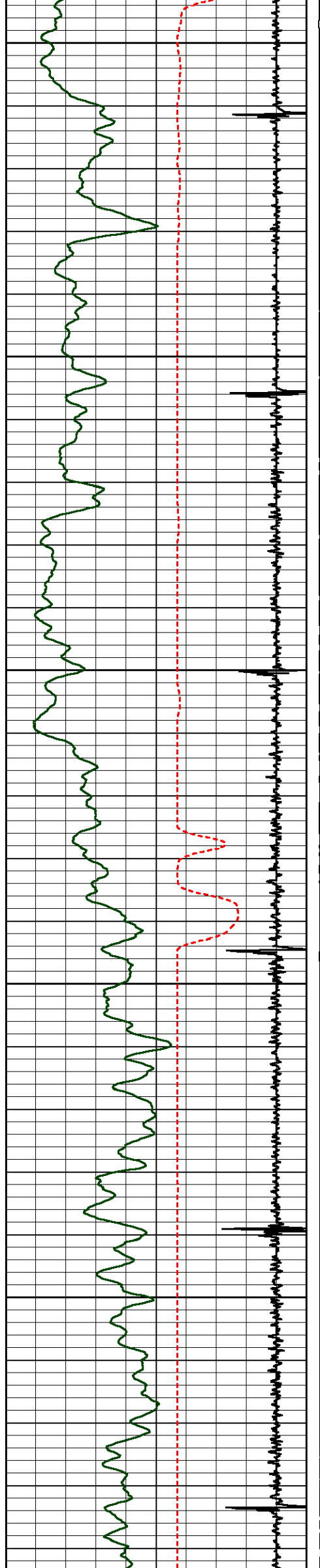
MAIN LOG SECTION

5" = 100'

Database File	watson_b_34a_combo.db
Dataset Pathname	SPLICE2
Presentation Format	hcbl
Dataset Creation	Thu Jun 04 10:41:24 2015
Charted by	Depth in Feet scaled 1:240

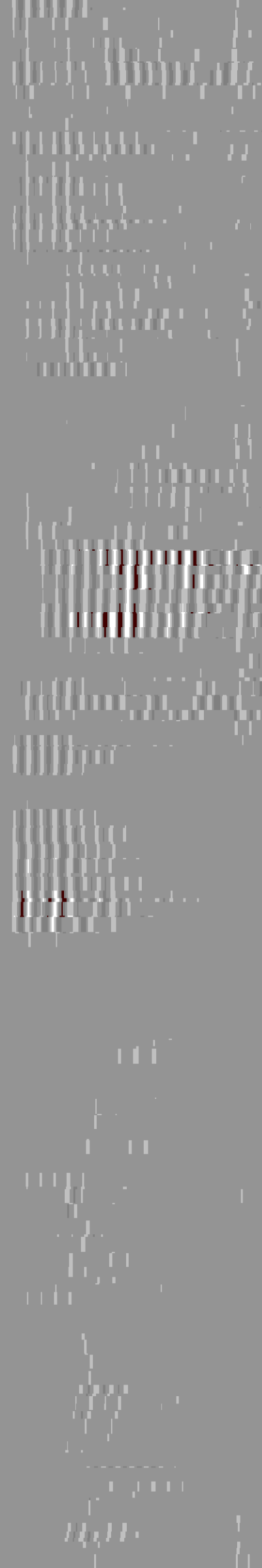
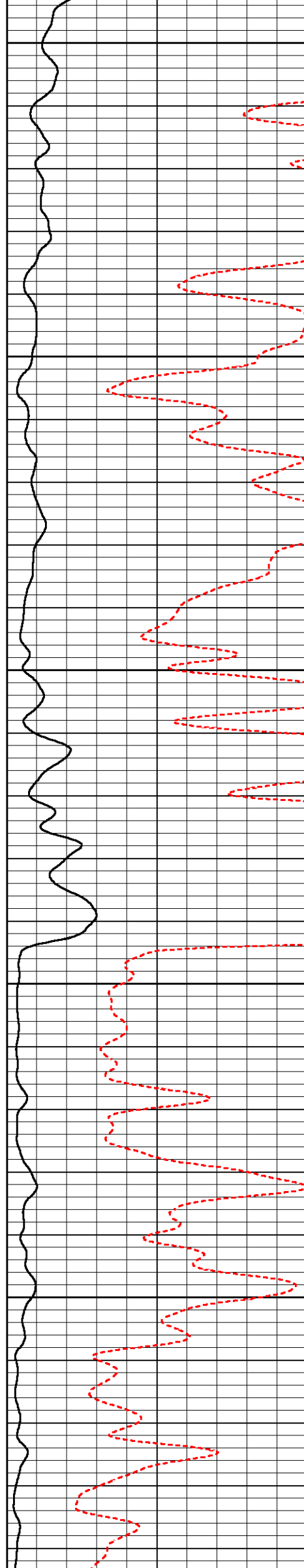
370	3' Travel Time (usec)	170	LTEN	0	AMPLITUDE (mV) (mV)	100	200	MSG	1200
-5400	CCL	600	0	(lb,4000	0	Amplified Amplitude (mV)	10		
0	Gamma Ray (GAPI)	200							



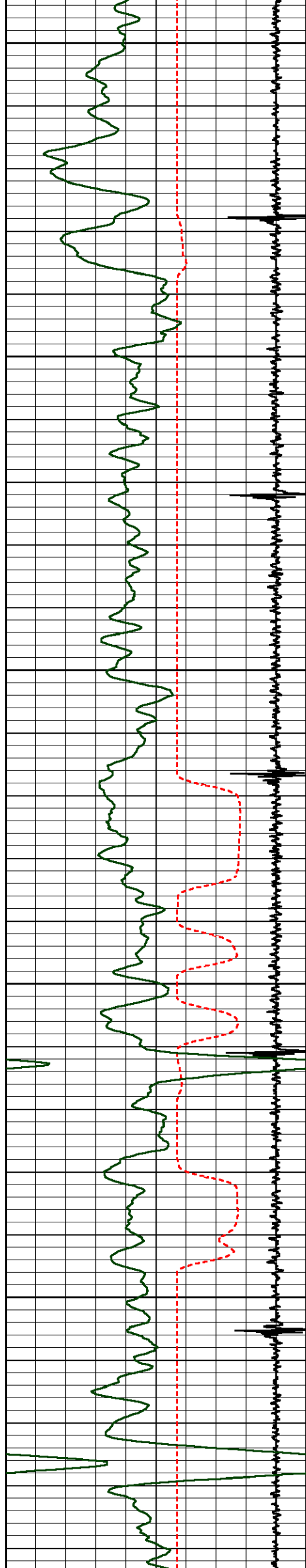


1700

1800



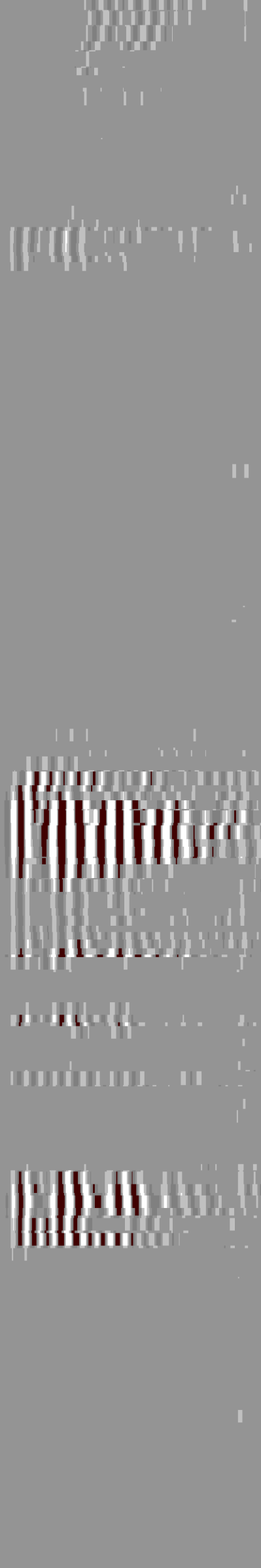
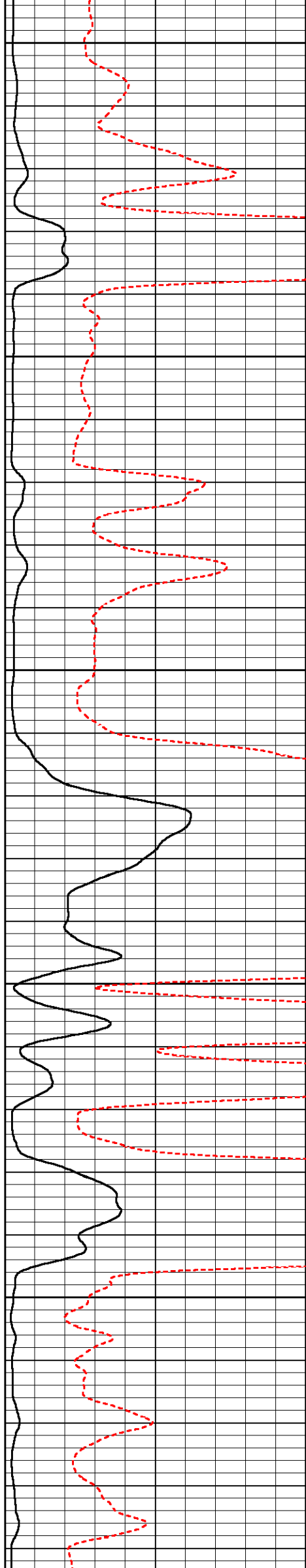


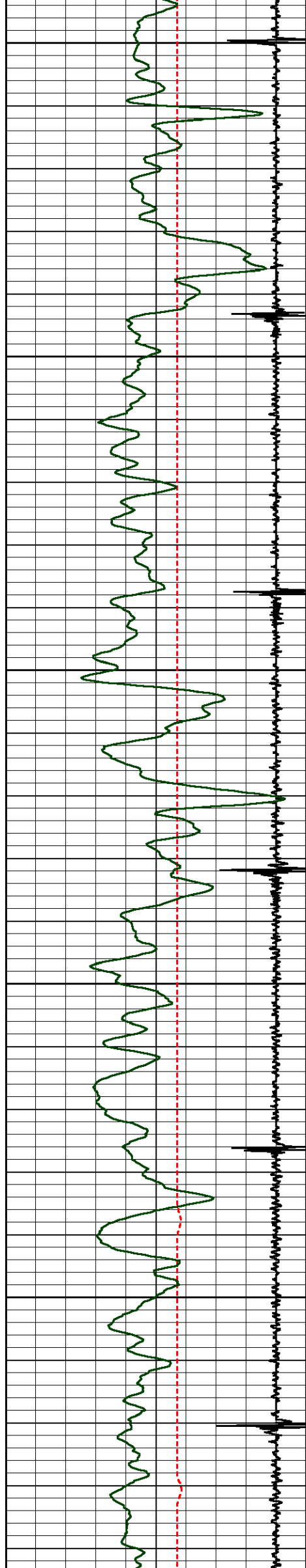


1900

2000

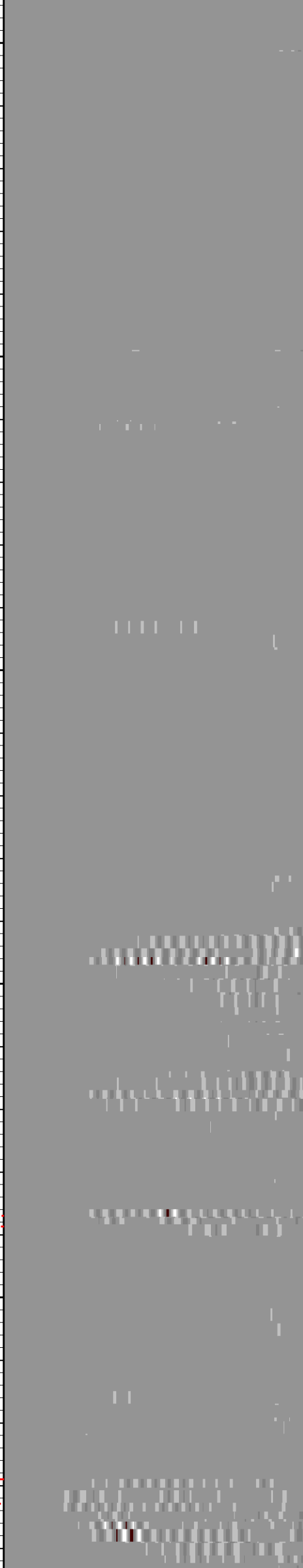
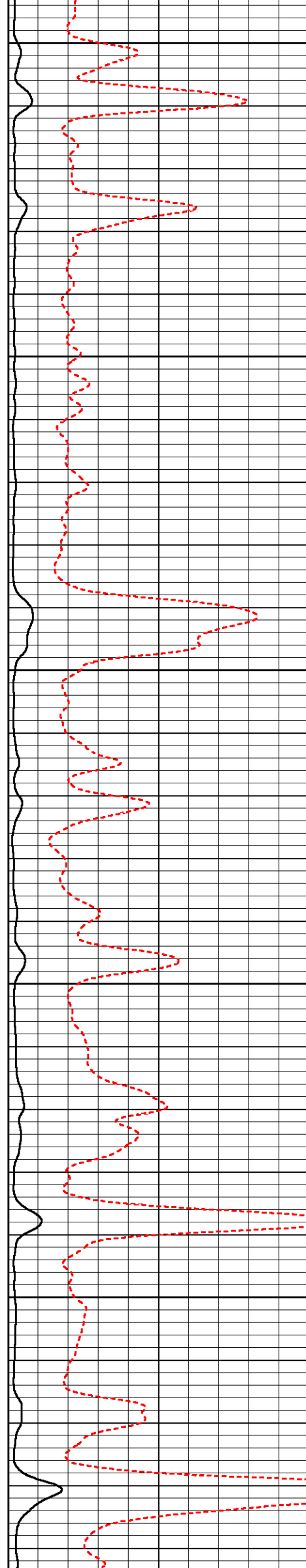
2100

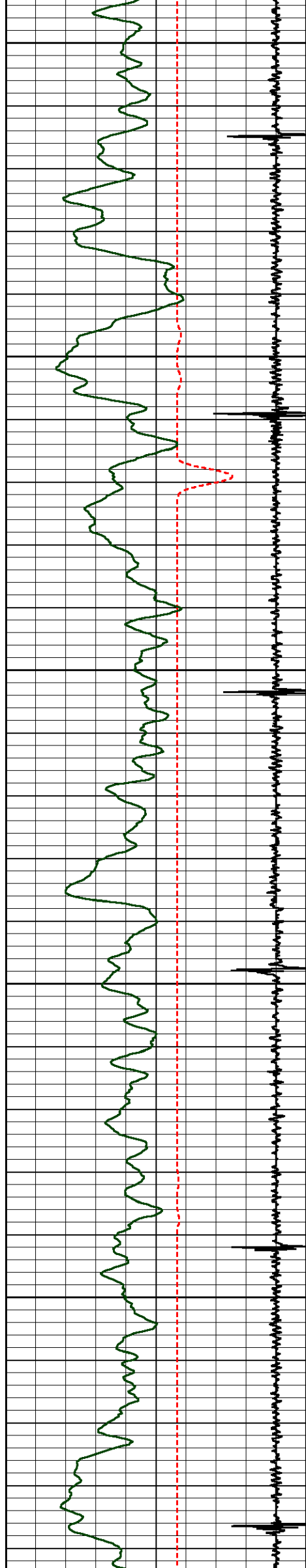




2200

2300

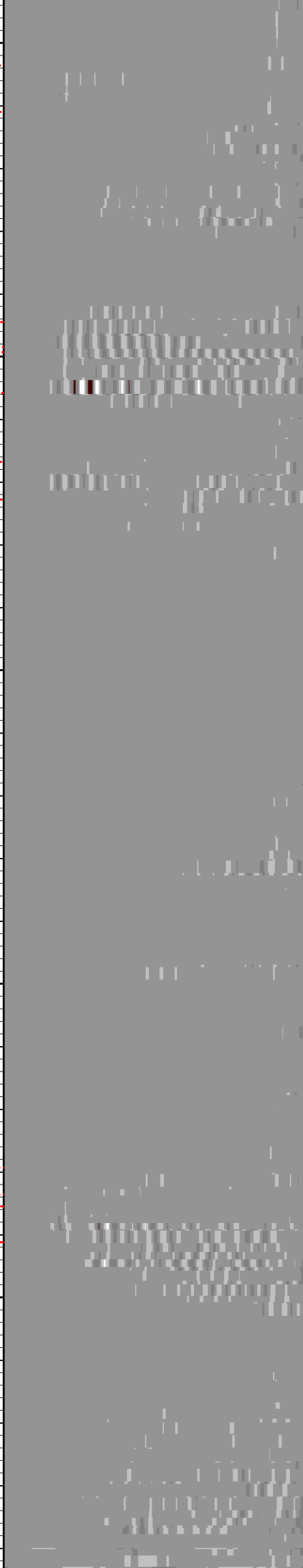
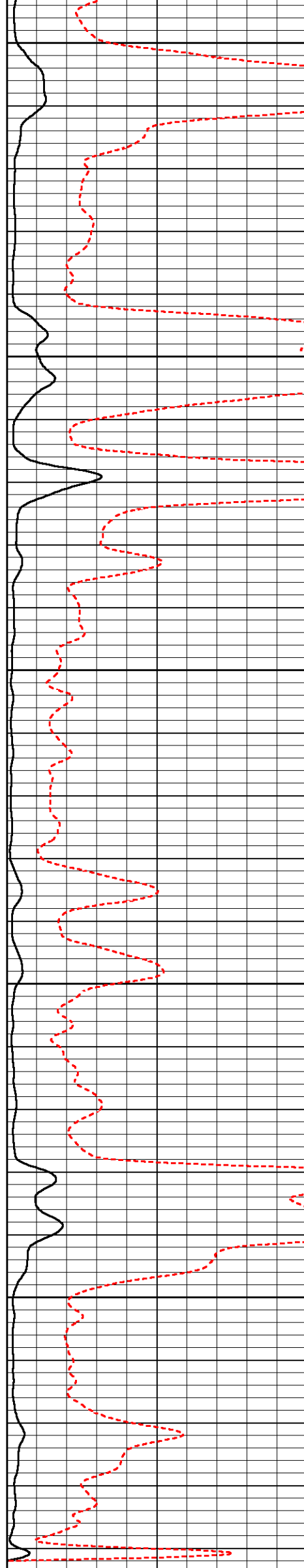


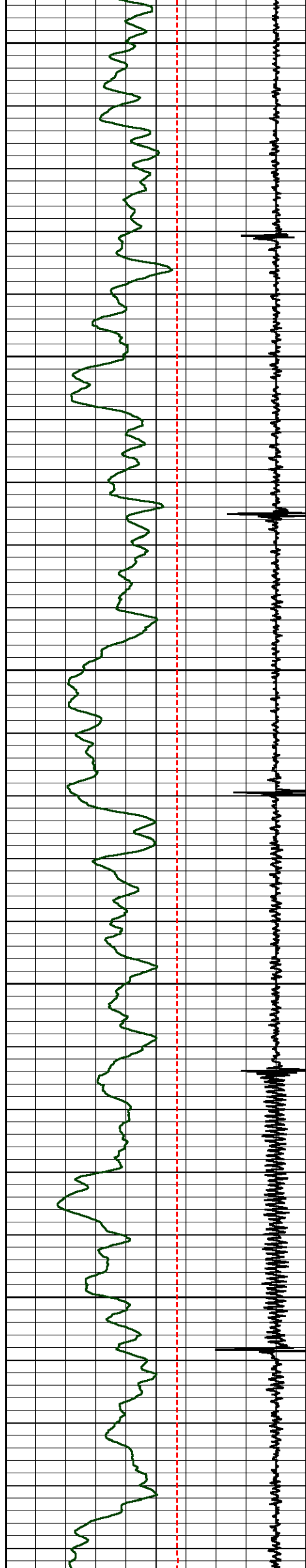


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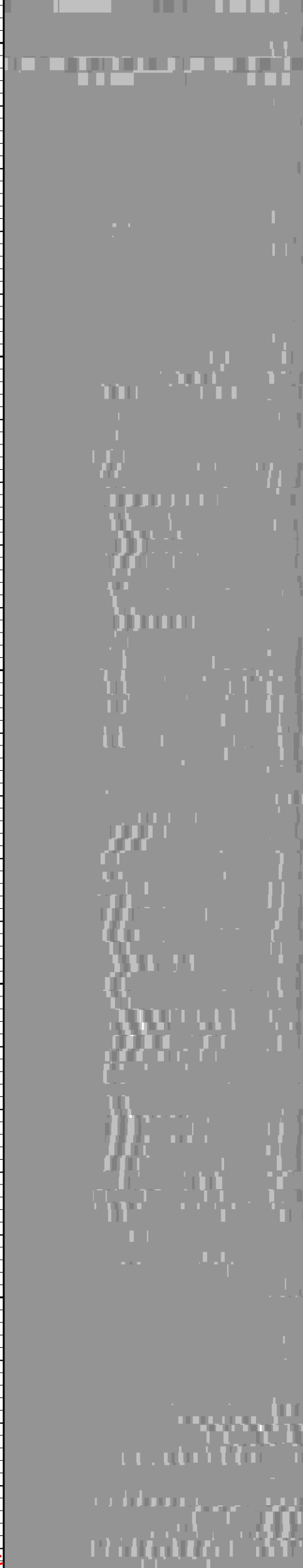
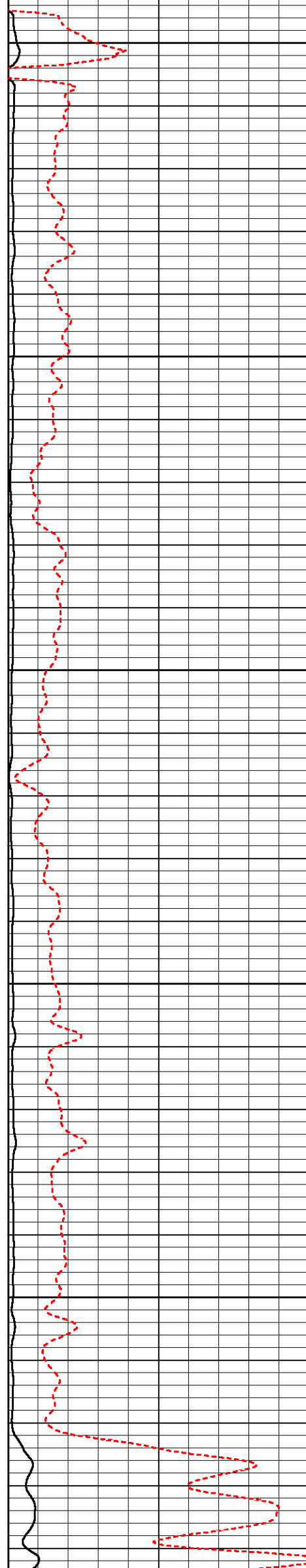
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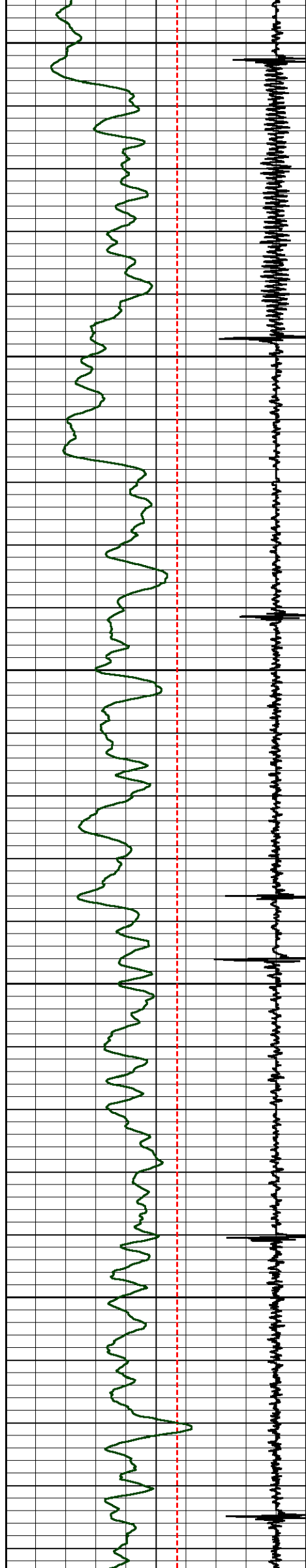




2700

2800

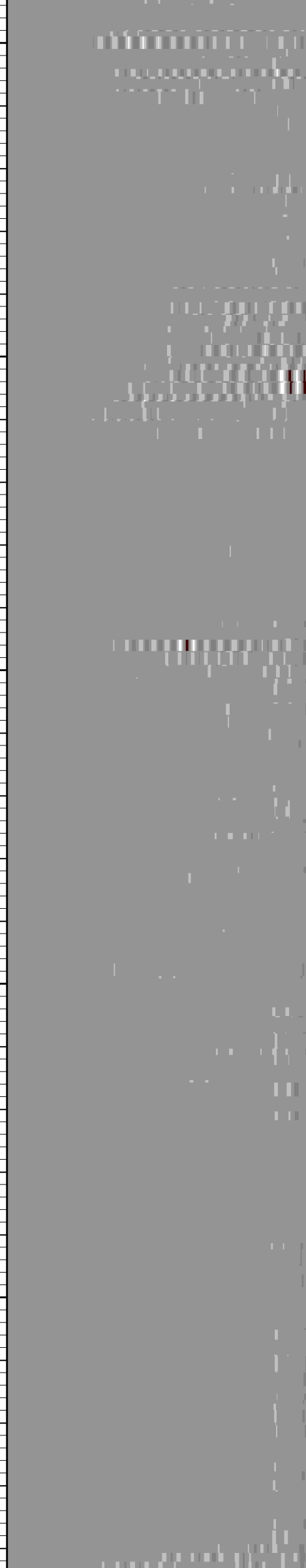
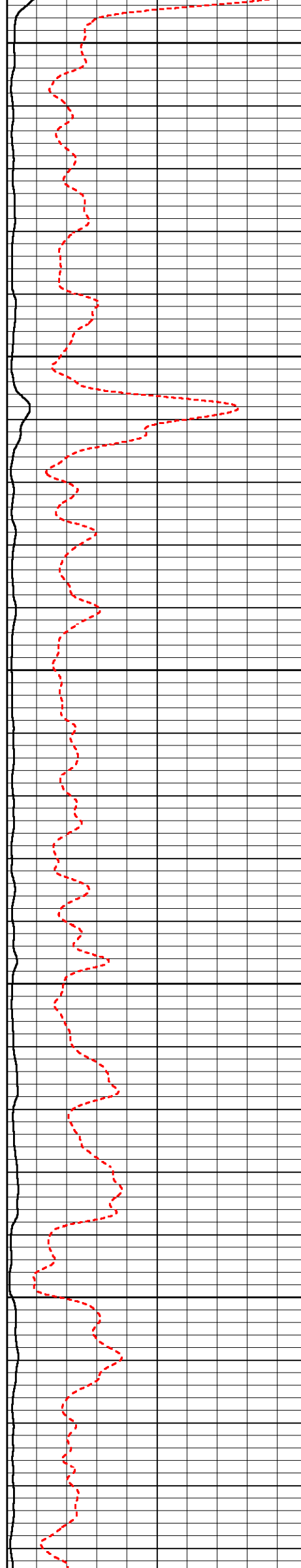




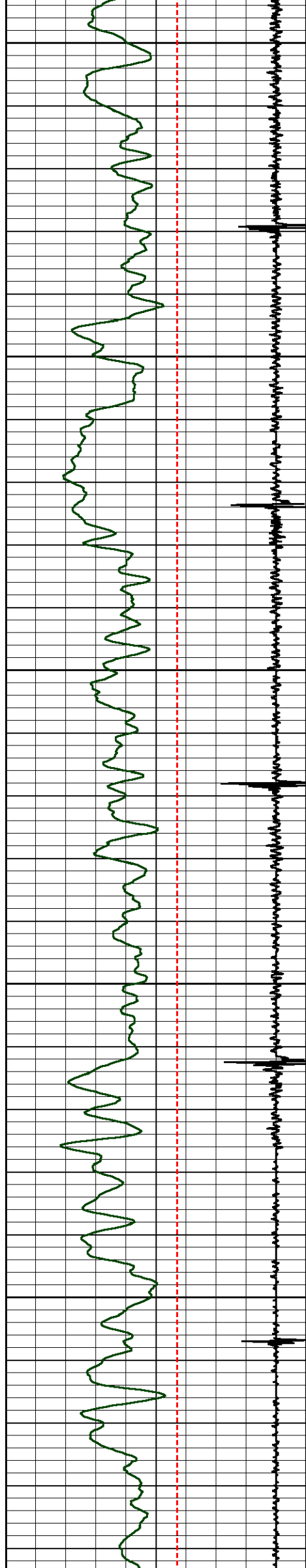
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3000

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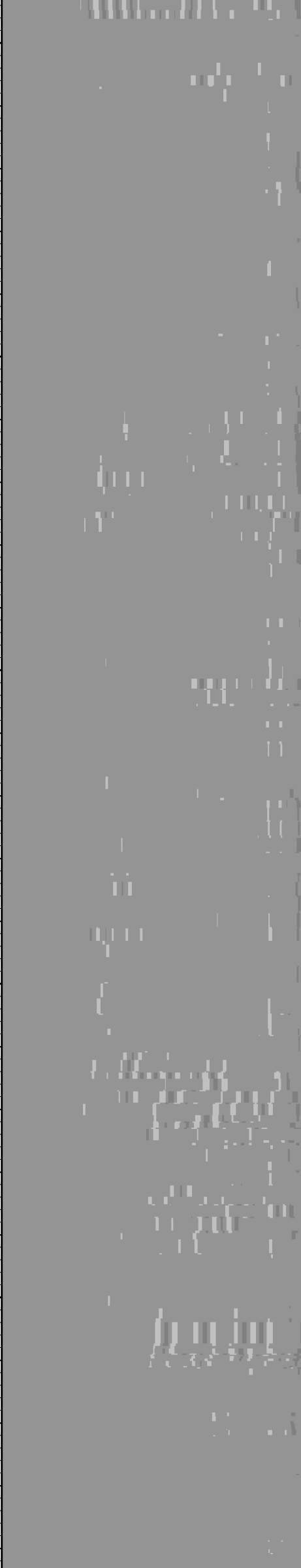
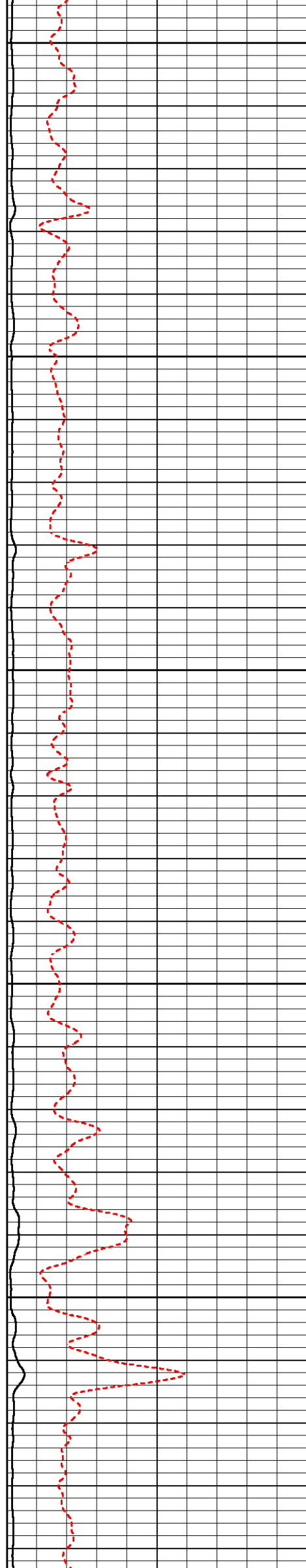


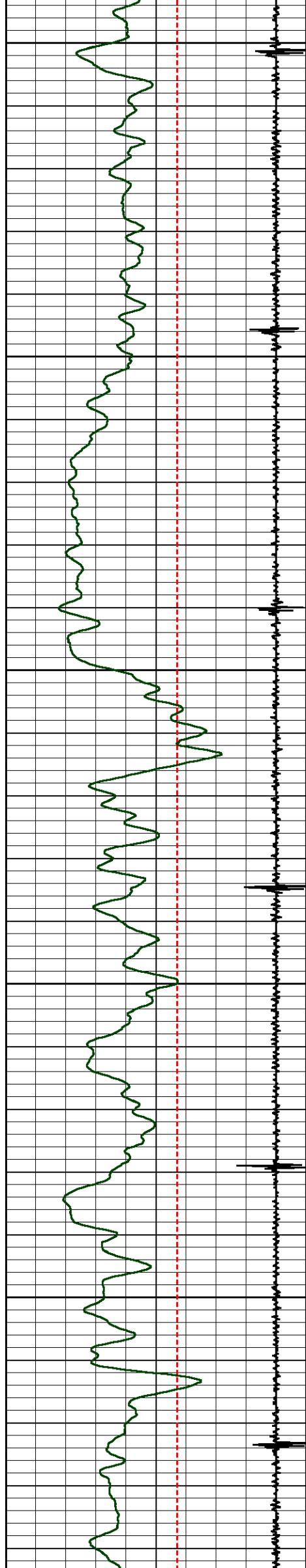




3200

3300

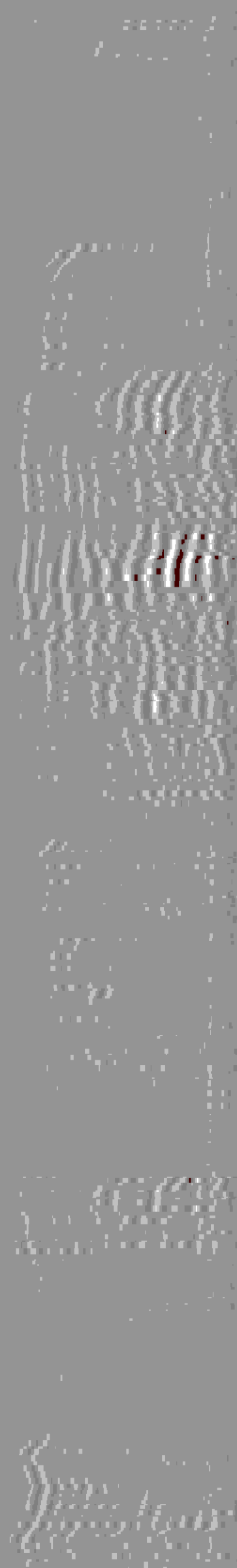


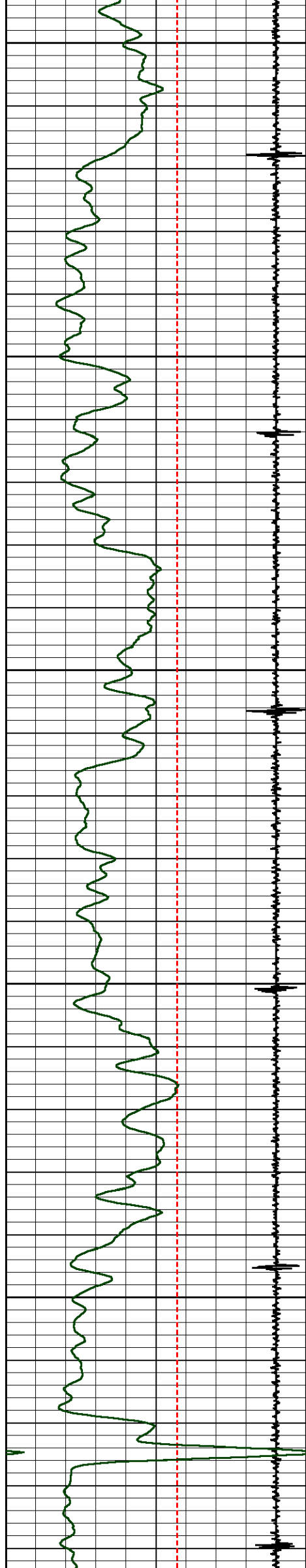


3400

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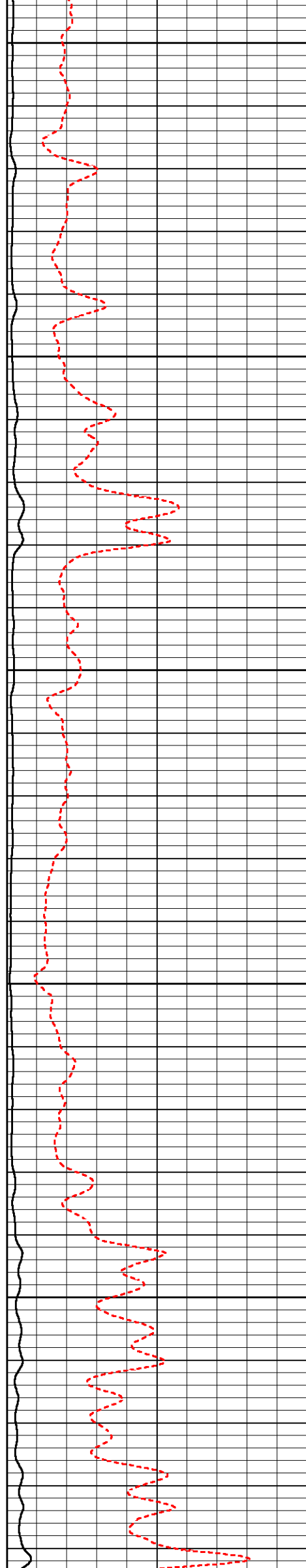
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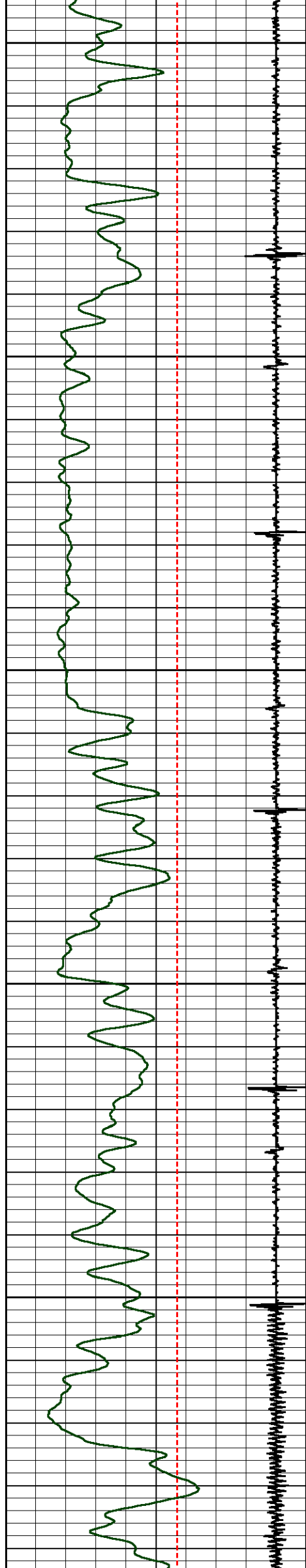




3700

3800

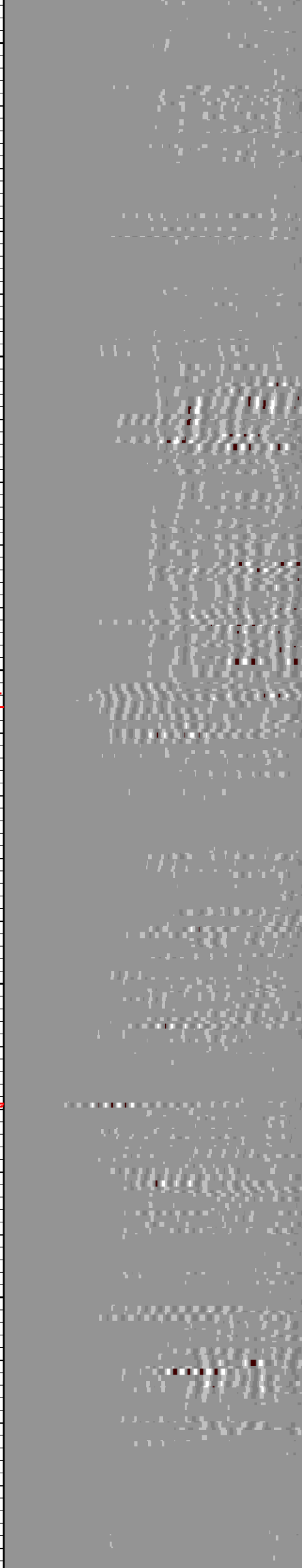
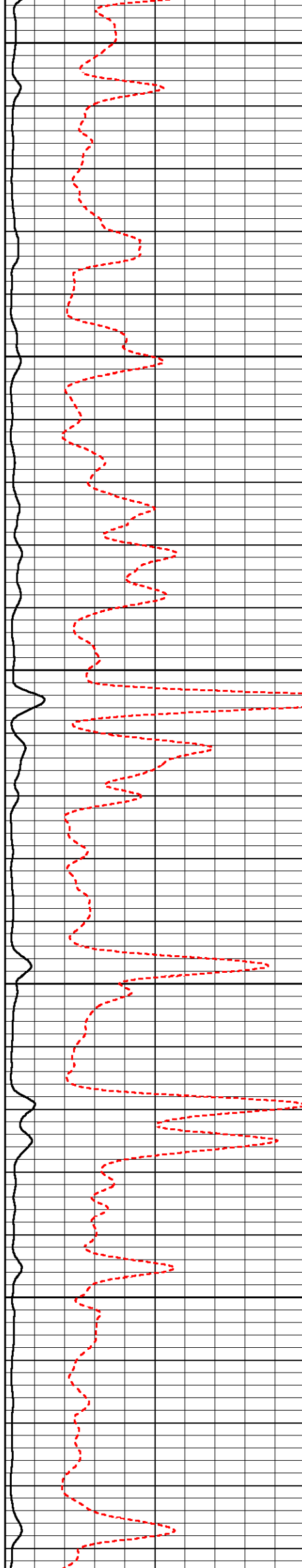


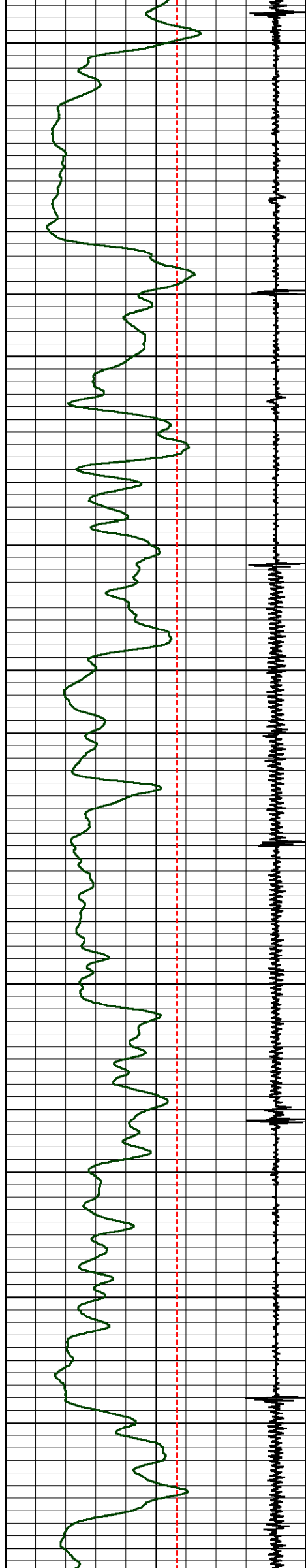


3900

4000

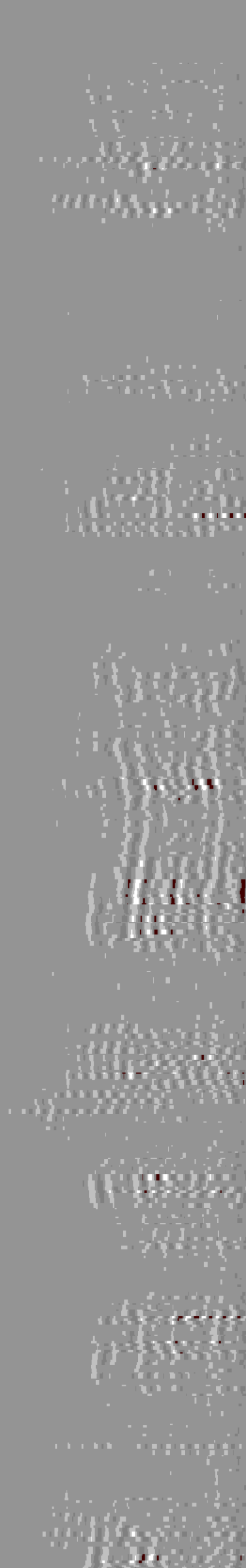
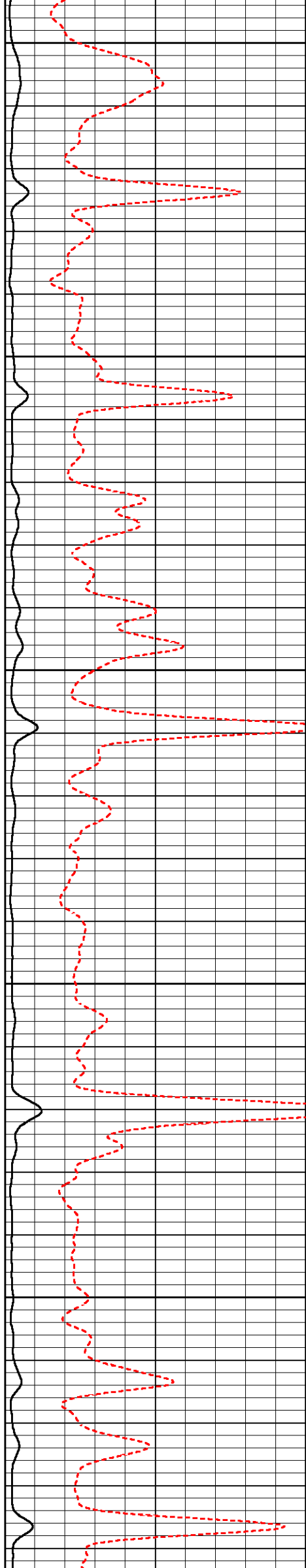
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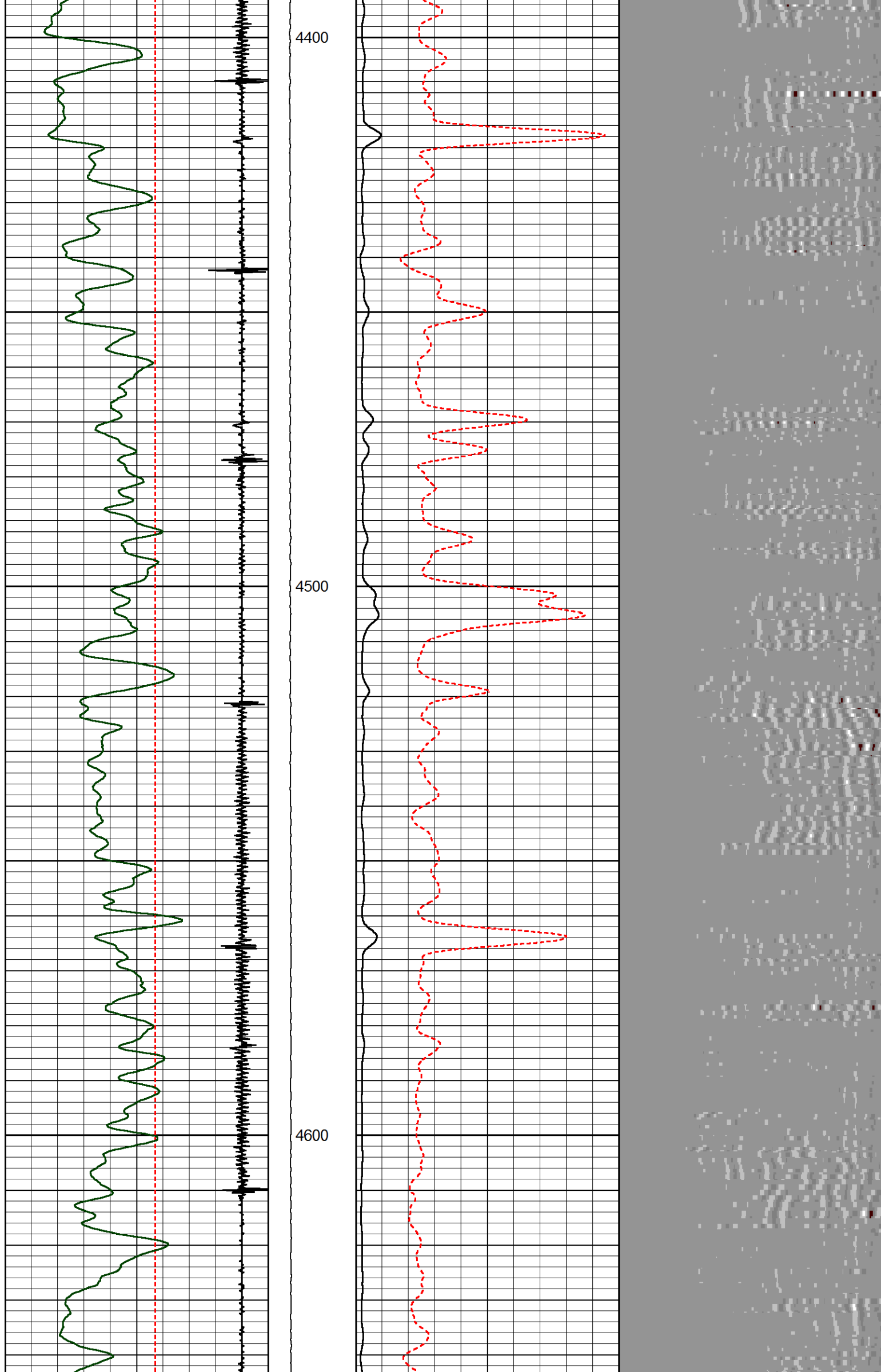




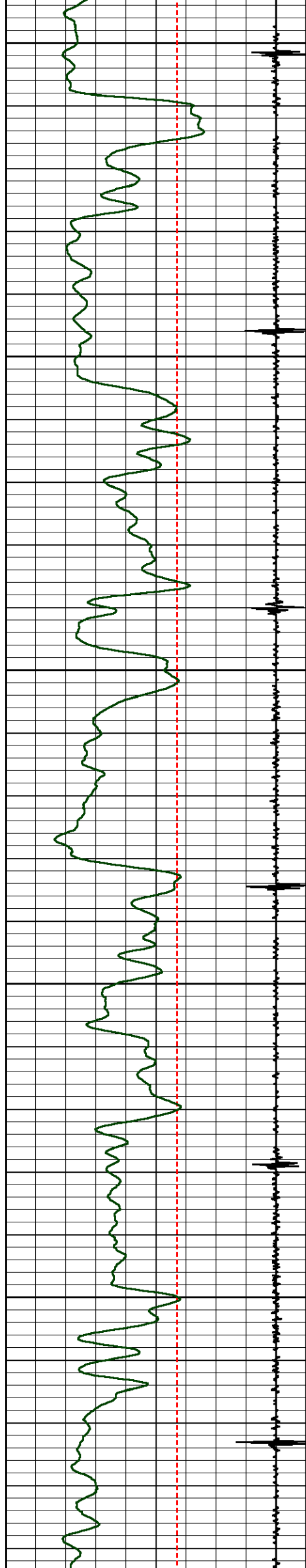
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4300



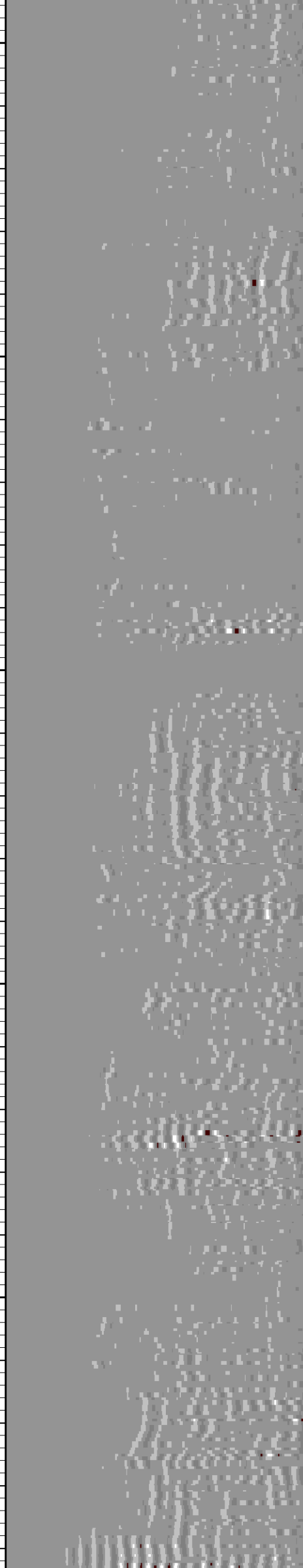
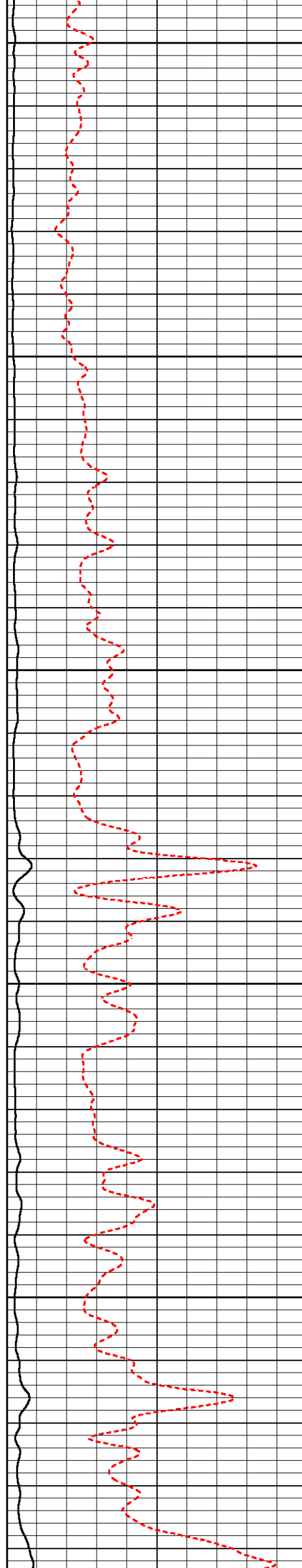


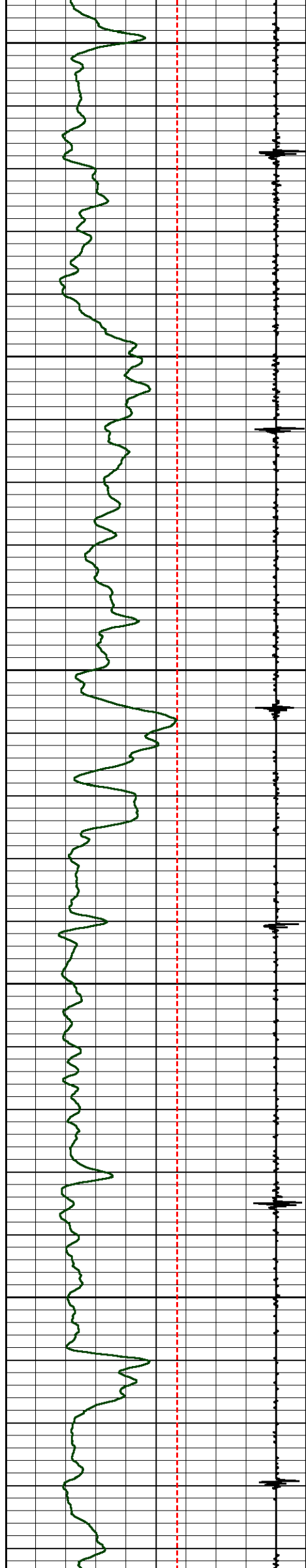




4700

4800

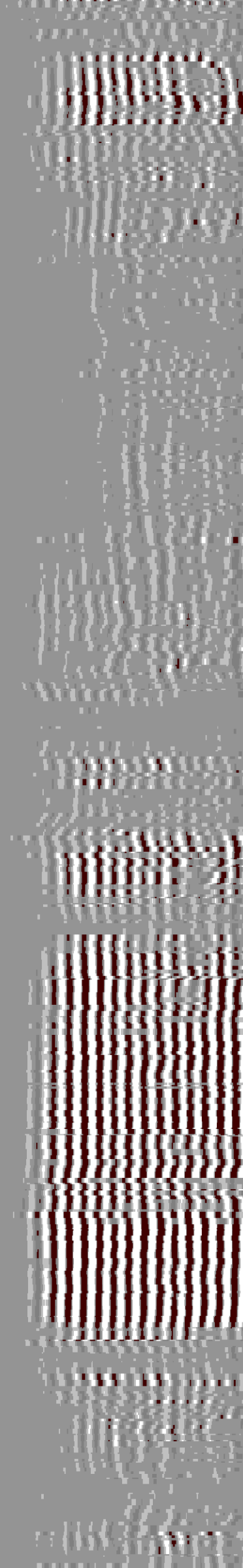
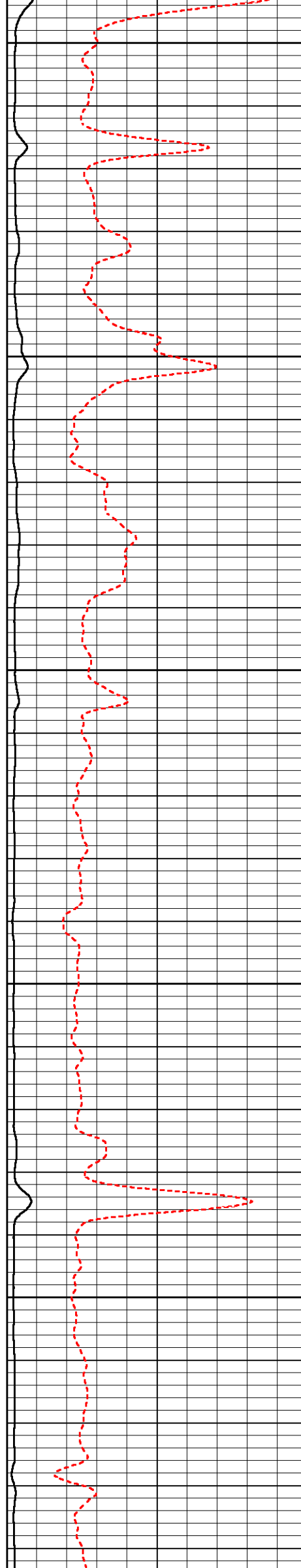


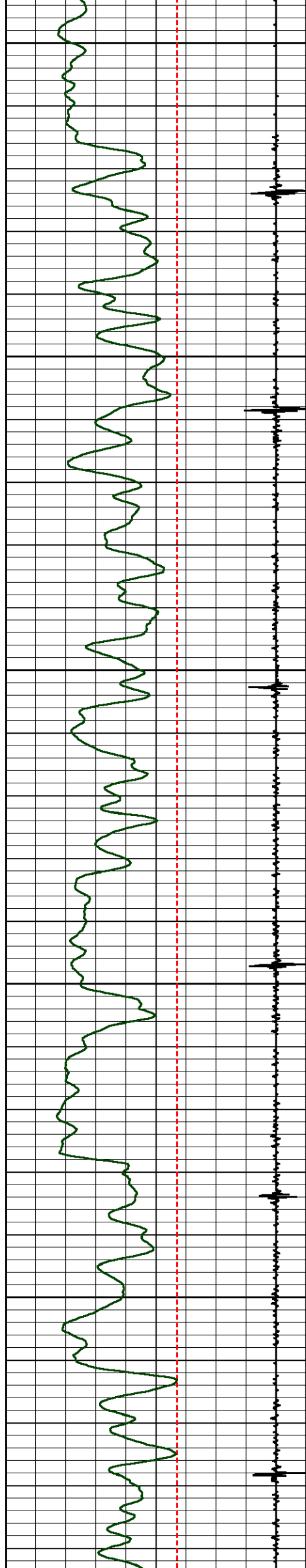


4900

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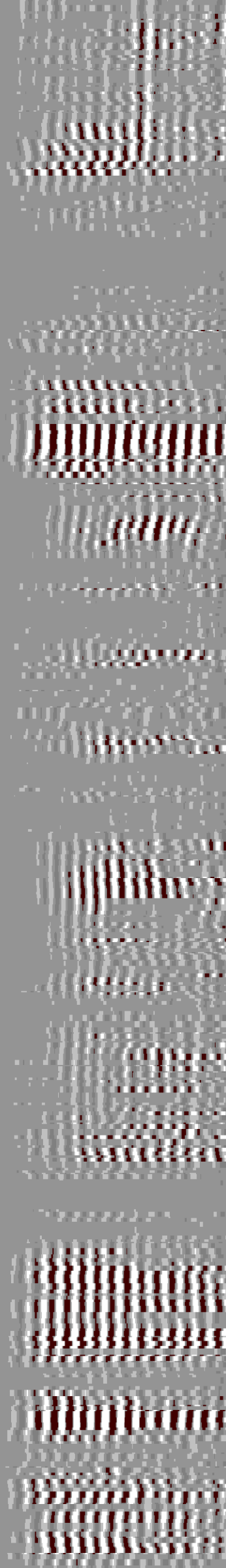
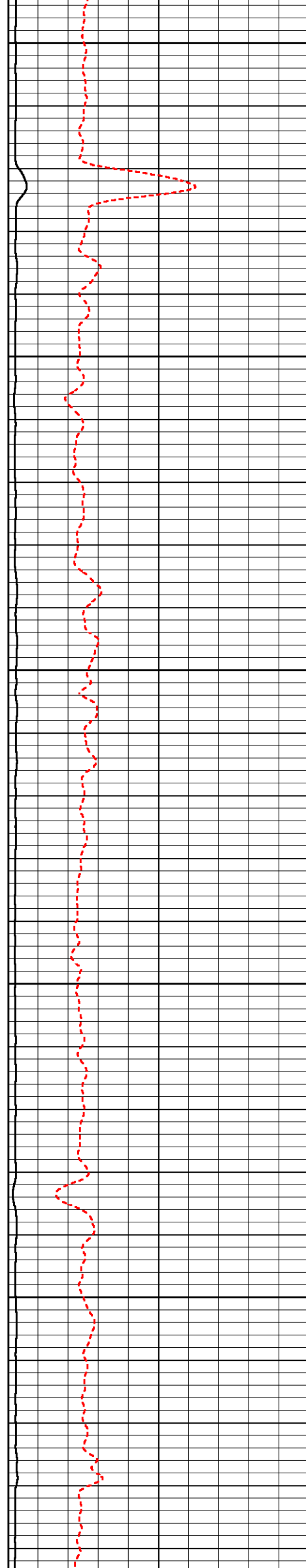
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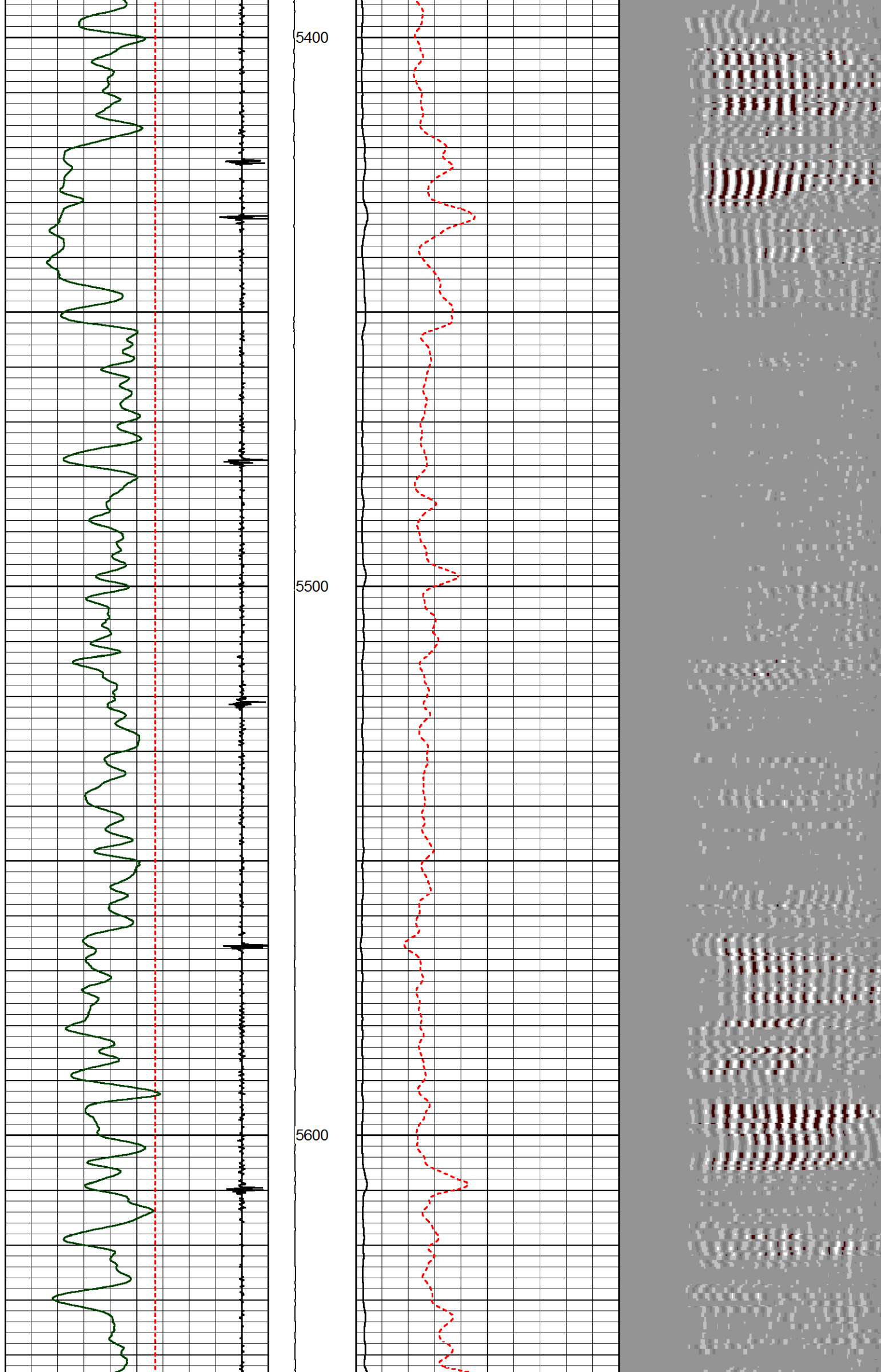


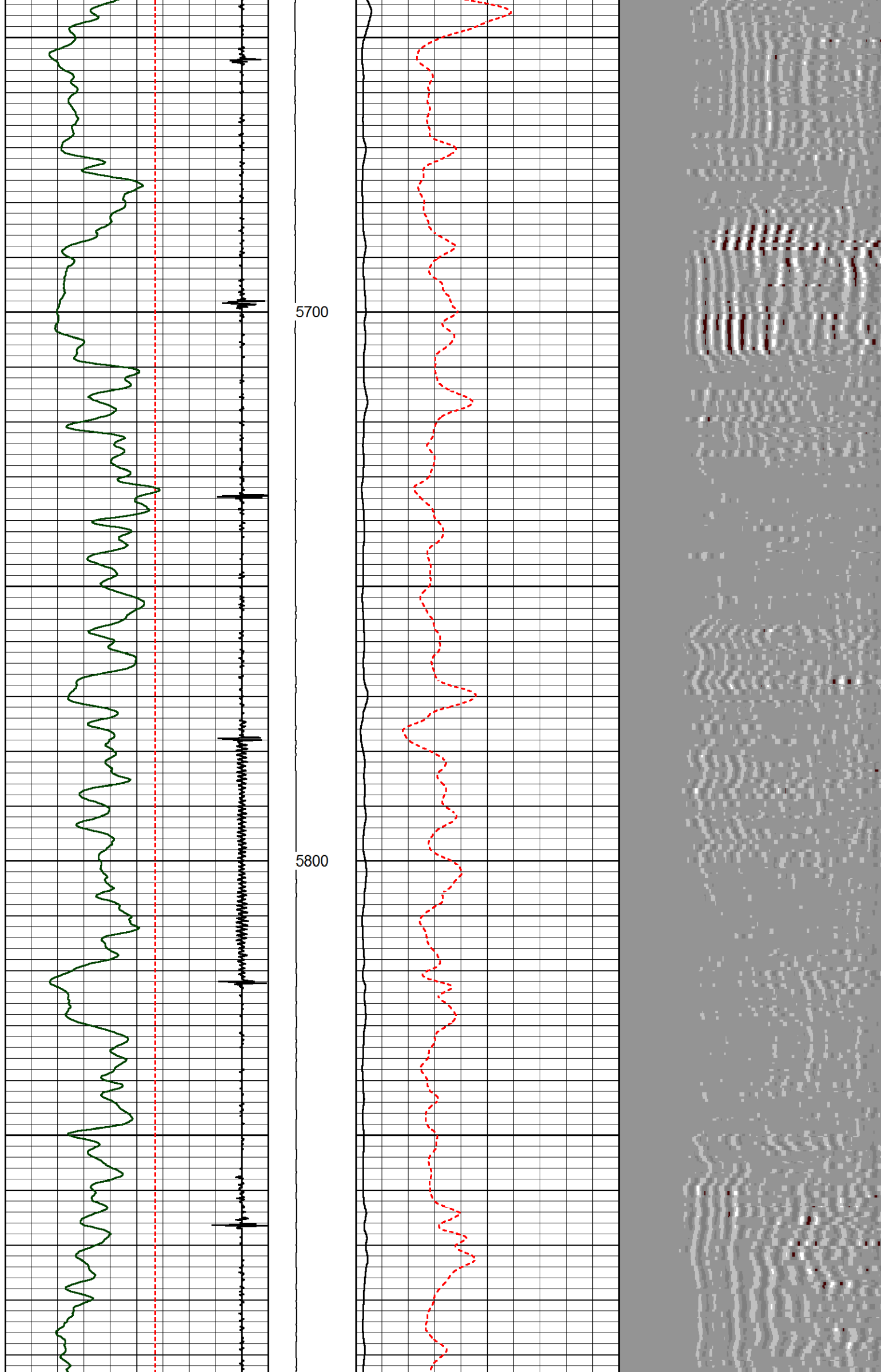


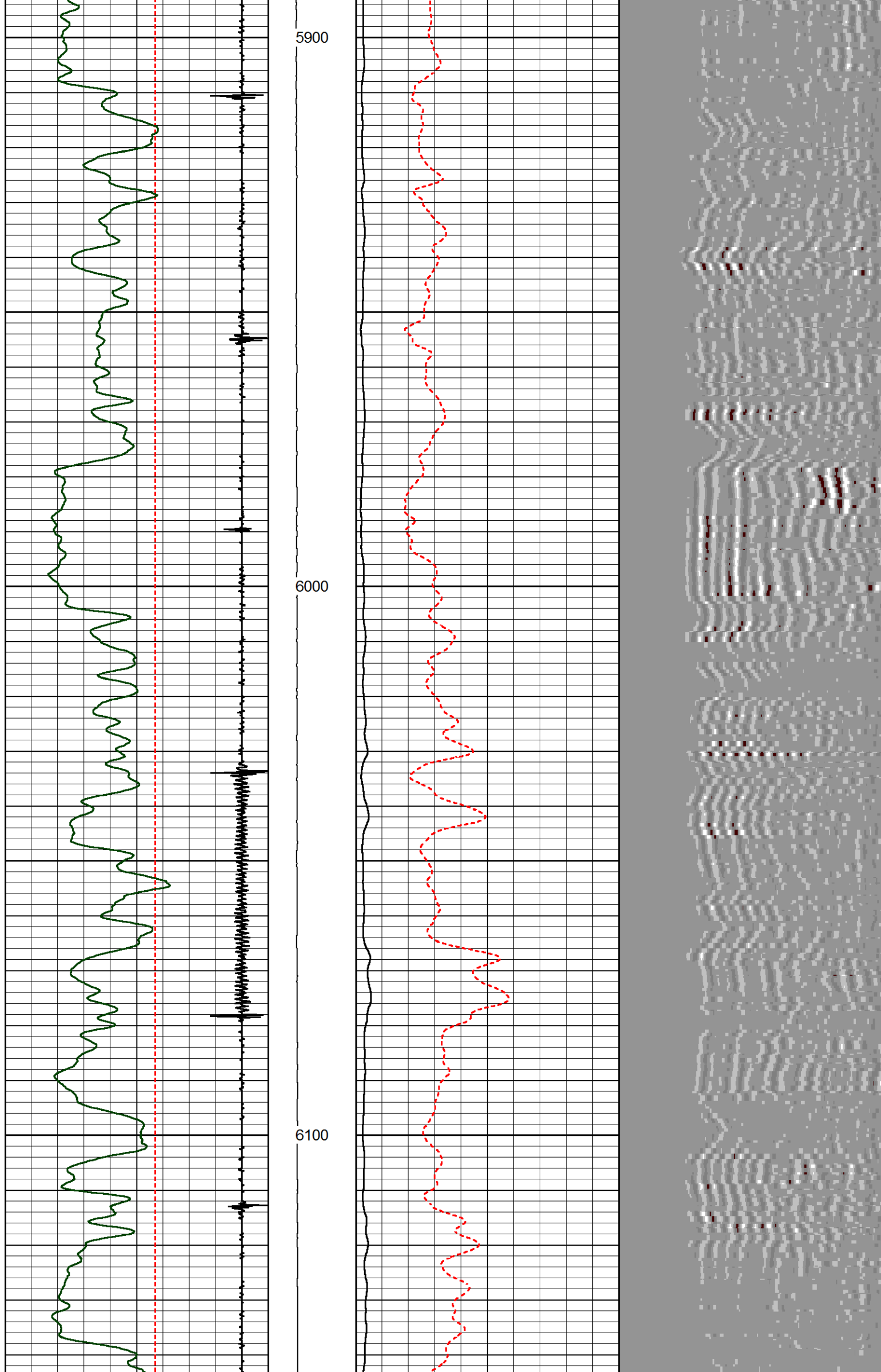
5200

5300

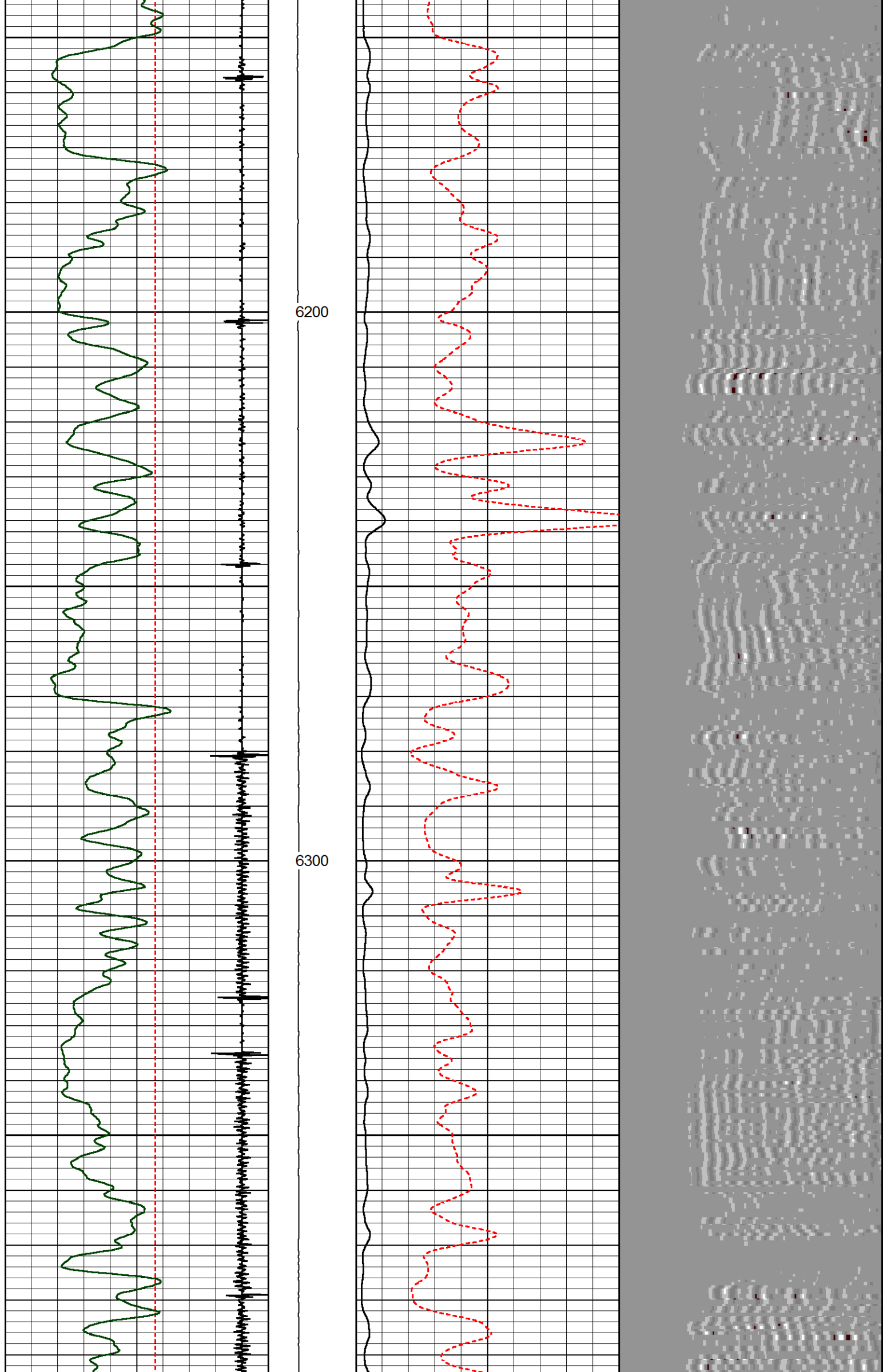


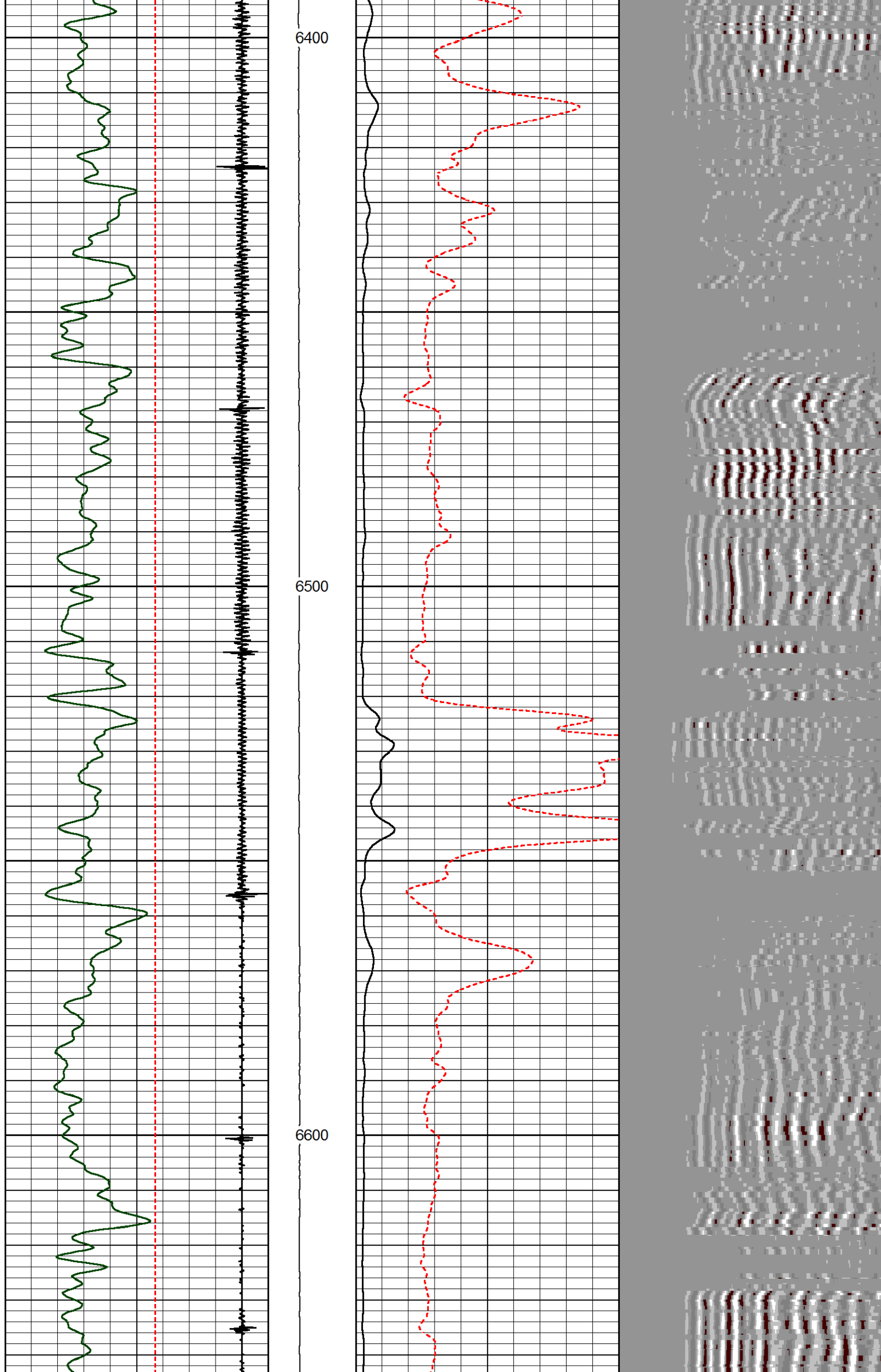


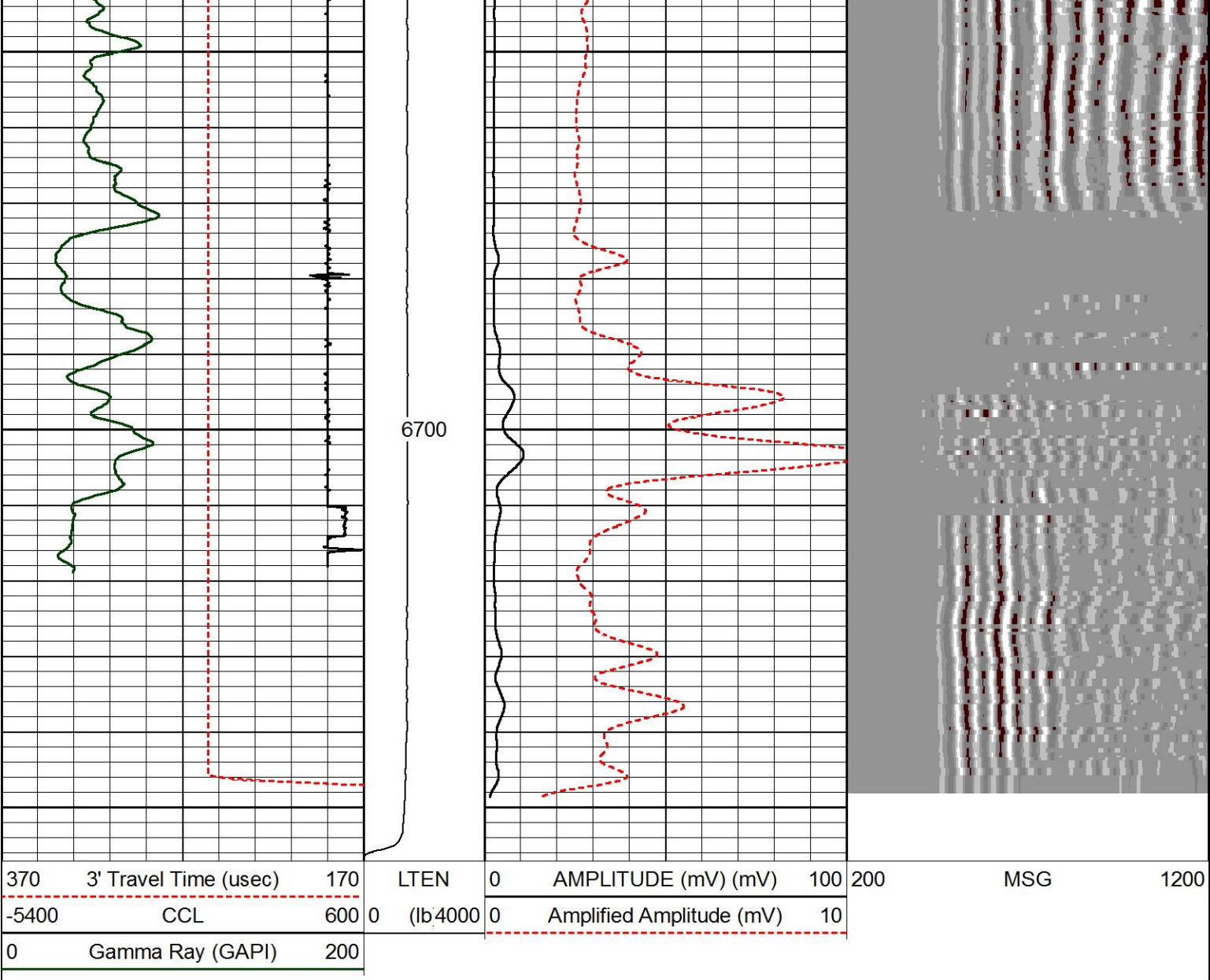












MAIN LOG SECTION

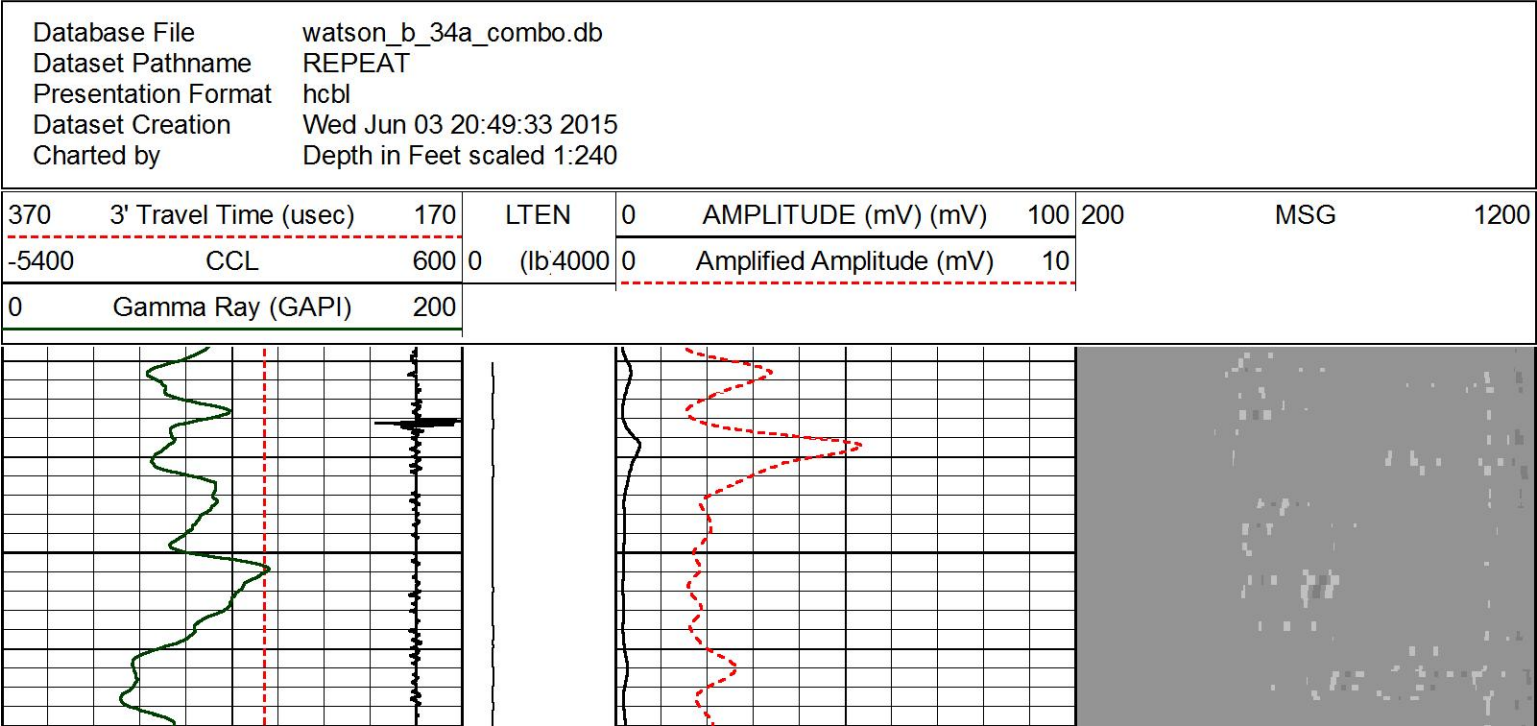
HALLIBURTON

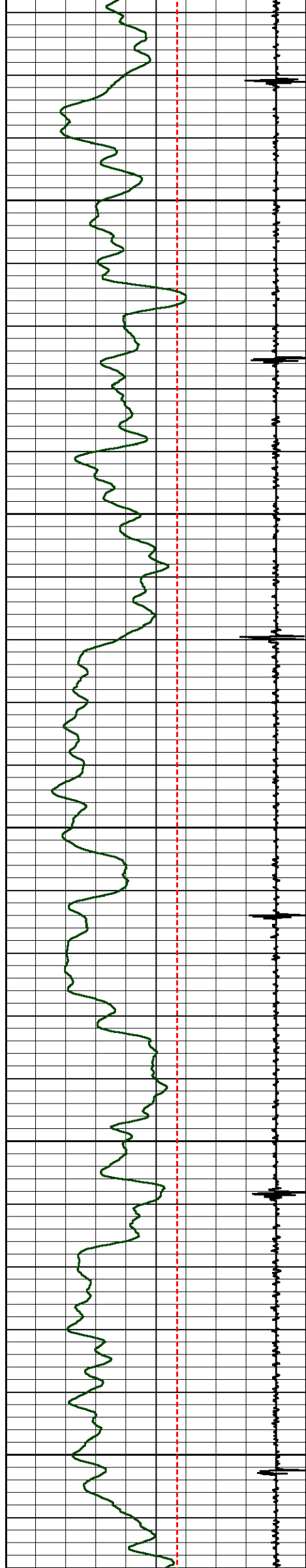
5" = 100'

REPEAT LOG SECTION

HALLIBURTON

5" = 100'

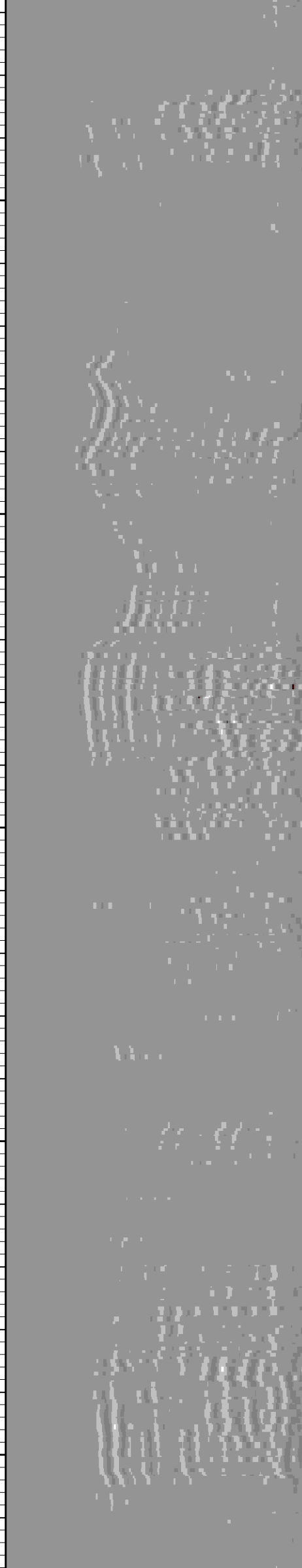
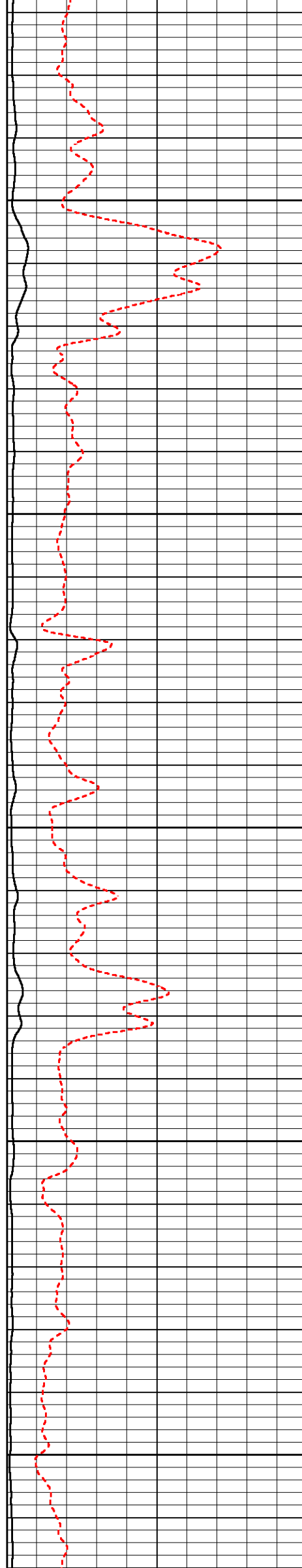


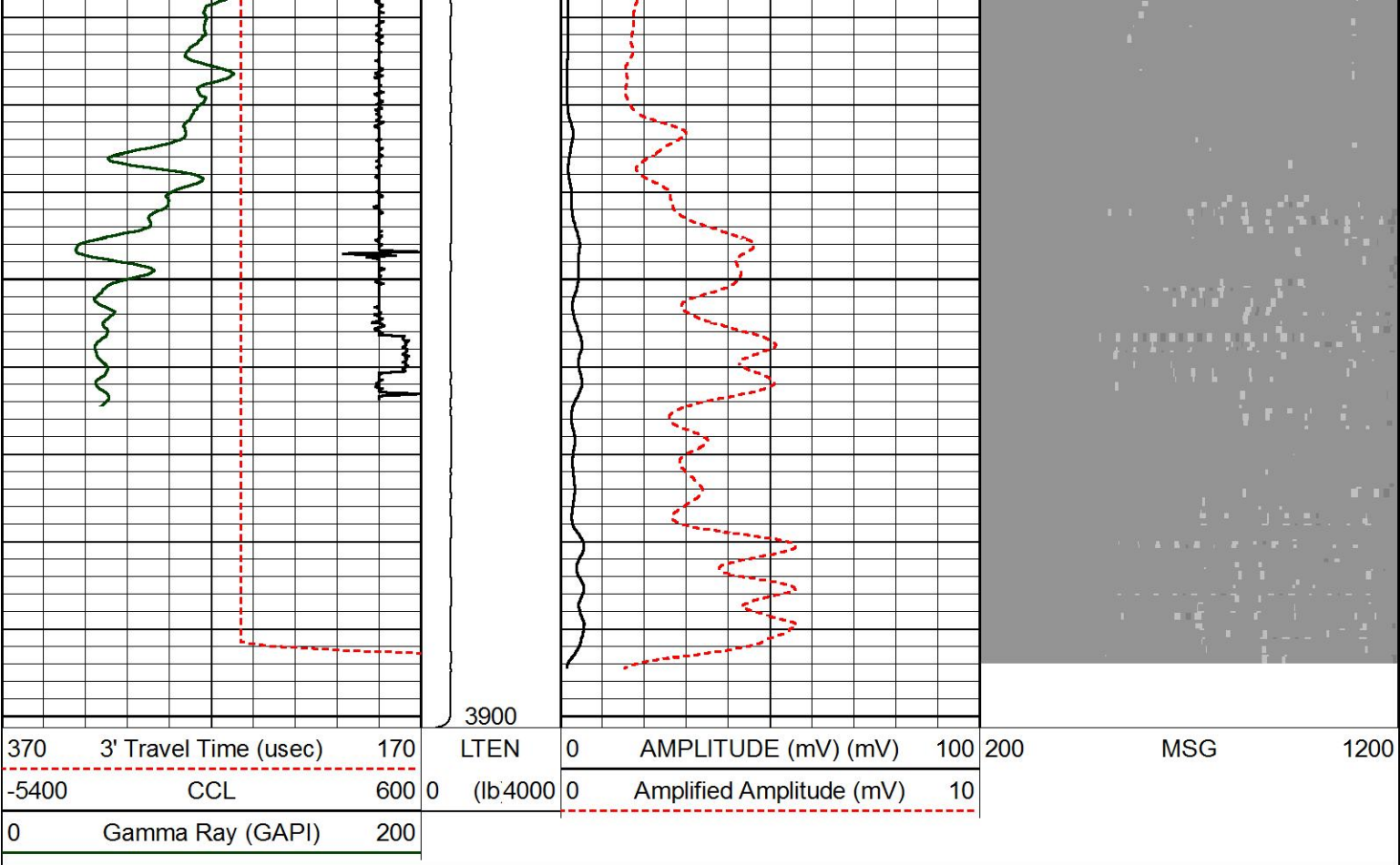


3600

3700

3800





REPEAT LOG SECTION

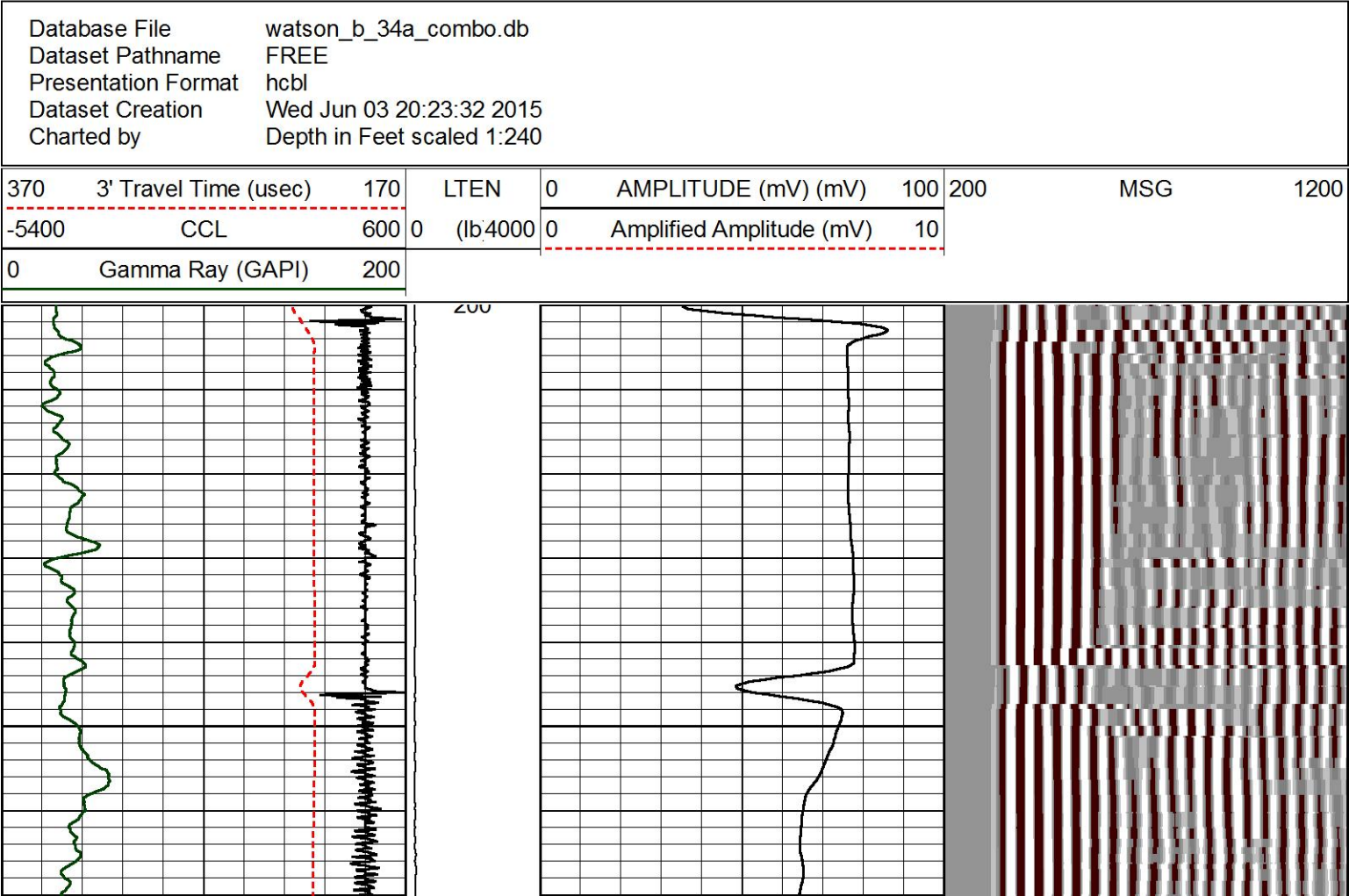
HALLIBURTON

5" = 100'

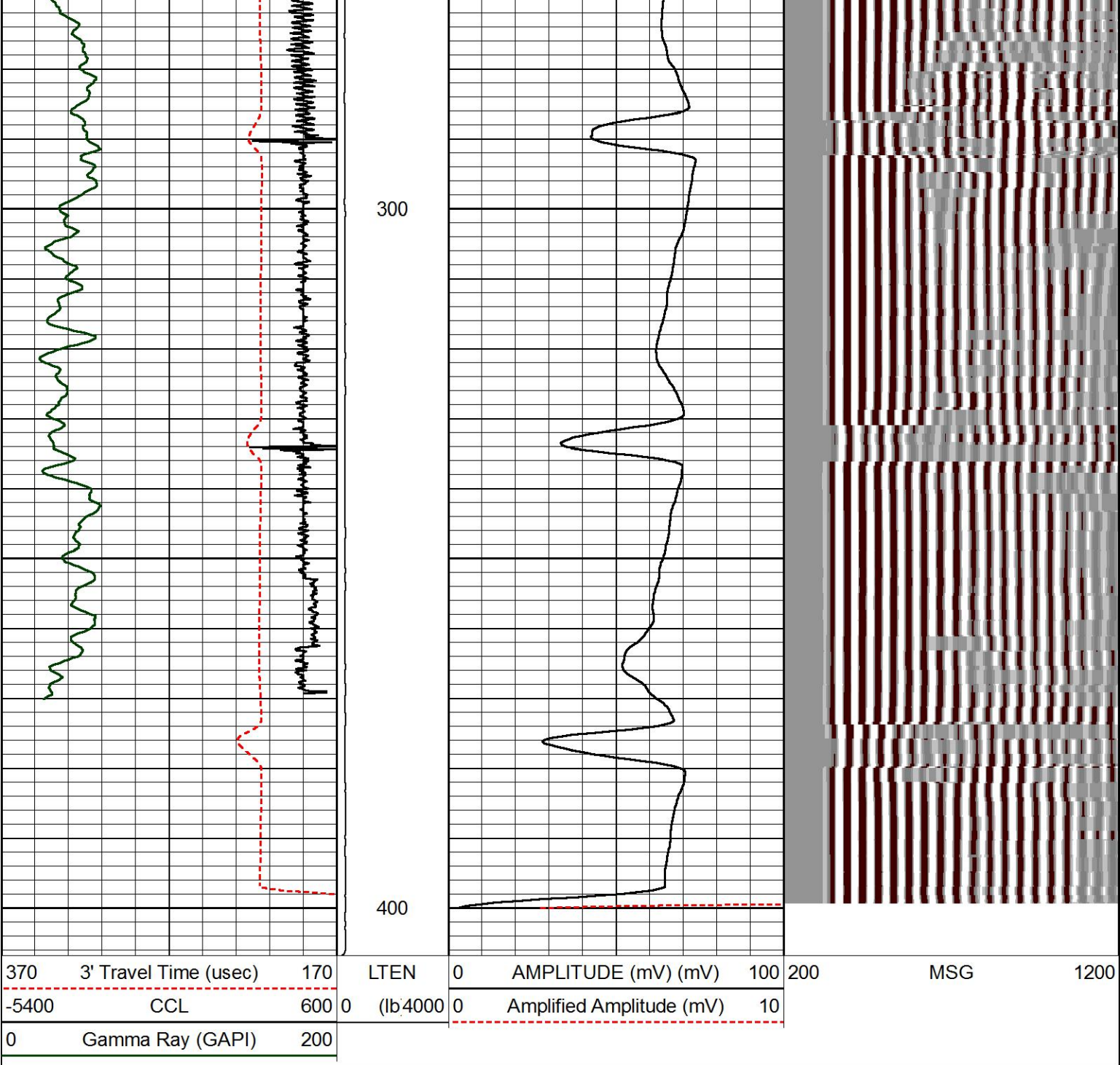
FREE PIPE SECTION

HALLIBURTON

5" = 100'







FREE PIPE SECTION

HALLIBURTON

5" = 100'

Log Variables DatabaseD:\Warrior\_data\watson\_b\_34a\_combo.db  
Dataset field/well/run1/MAIN/\_vars\_

Top - Bottom

MSGGN 1	USERFTT uSec/ft 0	ZREF MRayl 1.7	BHTEMP_Src ITEMPX	BHSAL2 0	BHSAL1 1	POROS2 0	POROS1 1
LTH Sandstone	UHSGC NONE	RHO�F 0.25	SO in 0	BORSAL kppm 150	CASED? Yes	PPT uSec 0	CASEWGHT lb/ft 11.6
MAXAMPL mV 0	MINAMPL mV 1	MINATTN db/ft 0.8	SRFTEMP degF 0	MudWgt lb/gal 8.4	CASETHCK in 0.25	CASEOD in 4.5	PERFS 0
TDEPTH ft 0	BOTTEMP degF 180	BITSIZE in 7.875					



Calibration Report						
Database File	watson_b_34a_combo.db					
Dataset Pathname	MAIN					
Dataset Creation	Wed Jun 03 21:27:25 2015					
Segmented Cement Bond Log Calibration Report						
Serial Number: 12082235						
Tool Model: 004						
Calibration Casing Diameter: 4.500 in						
Calibration Depth: 136.007 ft						
Master Calibration, performed Wed Jun 03 10:22:21 2015:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.013	0.728	0.000	82.000	110.637	1.453
5FT	-0.013	0.678	0.000	82.000	118.543	1.592
S1	-0.007	0.758	0.000	100.000	130.644	0.957
S2	-0.008	0.742	0.000	100.000	133.232	1.116
S3	-0.005	0.716	0.000	100.000	138.718	0.677
S4	-0.008	0.687	0.000	100.000	143.987	1.135
S5	-0.005	0.708	0.000	100.000	140.298	0.685
S6	-0.005	0.720	0.000	100.000	137.883	0.673
S7	-0.004	0.746	0.000	100.000	133.453	0.479
S8	-0.004	0.749	0.000	100.000	132.787	0.533
Calibration Report						
Serial Number: 12082235						
Tool Model: 004						
Performed:						
	Reference (degF)		Reading ( )			
Low:	0.000		0.000			
High:	1.000		1.000			
	Gain = 1.000		Offset = 0.000			
Reservoir Monitor Tool I Calibration Report						
Serial-Model: 11680606-A						
Shop Calibration Performed: Mon Jun 01 14:01:58 2015						

Carbon/Oxygen Mode					
Stabilization					
Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	75.00	80.00	-5.00	+/-15.00	V
ITCR2	3230	3250	-20	+/-250	cps
Near Detector					
	Channel	Expected Value	Amplitude	FWHM	Tol.
H	60	60 +/-2	0.0244	5.81	<6.00
Fe	206	206 +/-2	0.0944	-----	-----
NGAIN = 0.998	NZOFF = 0.2				
Far Detector					
	Channel	Expected Value	Amplitude	FWHM	Tol.
H	60	60 +/-2	0.0365	5.60	<6.50
Fe	209	208 +/-2	0.0910	-----	-----
FGAIN = 0.994	FZOFF = 0.2				
Flux to Temp	25.0 +/- 5				

Flask Temperature	65.6	degF				
Result	Logged	Expected Value	Diff.	Tol.	Units	
COIR2	0.45	0.45	-0.00	+/-0.02		
LIRI2	1.64	1.64	-0.00	+/-0.05		
TCCR2	5062	5000	62	+/-1000	cps	
ITCR2	3213	3200	13	+/-250	cps	

Sigma Mode						
Stabilization						
Result	Logged	Expected Value	Diff.	Tol.	Units	
GENV	76.00	80.00	-4.00	+/-15.00	V	
FCAP	10334	10000	334	+/-500	cps	
Horizontal Water Tank						
Result	Logged	Expected Value	Diff.	Tol.	Units	
N/F Normalizer	0.94	0.95	-0.01			
N/F Inel Norm	0.61	0.61	0.00			
RNF	1.07	1.07	-0.00	+/-0.12		
RINC	1.63	1.64	-0.01	+/-0.18		
SGFN	24.06	24.00	0.06	+/-0.50	cu	
SGFF	22.87	22.85	0.02	+/-0.50	cu	
FSIN	25058	24000	1058	+/-2000	cps	
FCAP	10528	10000	528	+/-1000	cps	
NFTR	0.86			<5.00		
FFTR	0.91			<5.00		
NBKG	133			<500	cps	
FBKG	102			<500	cps	
RTN	0.44	0.40	0.04	+/-0.10	usec	
RTF	0.47	0.40	0.07	+/-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					

Gamma Ray Calibration Report

Type / Serial:	002 / 10000028
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SHOP CALIBRATION		Wed Jun 03 00:21:49 2015				
Background	Counts/Sec.	Gain	Offset	Jig	Units	
Calibrator	39.9				cps	
	330.3				cps	
		1.4048			GAPI/cps	
PRIMARY VERIFICATION						
Background	55.8				cps	
Calibrator	458.8				cps	
Difference				403.0	GAPI	
BEFORE SURVEY VERIFICATION						
Background	0.0				cps	
Calibrator	0.0				cps	
Difference				0.0	GAPI	
AFTER SURVEY VERIFICATION						
Background	0.0				cps	

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
CCL	37.26		STNDCH-STND_CH 1.4375 IN CABLE HEAD	1.50	1.44	1.00	
			TTTCU-002 (10000028) Through Tubing Telemetry Cartridge - Ultrawire	7.65	1.69	100.00	
GR	35.00		XHU-003 (12218041) Crossover Halliburton 1553 to Ultrawire	1.58	1.69	7.00	
RmtTFGT RmtTNGT	24.35		RMTI-A (11680606) Halliburton RMTI Tool	14.00	2.13	77.00	
	23.85						
RmtFP5V	16.10		X-OVER-SondexxGo Sondex Box x Go Pin Cross Over	0.31	1.69	1.00	
RmtCommFWa	16.10		AUH-001 (000001) Adaptor Ultrawire/Halliburton	0.38	1.69	3.00	
CBLTEMP	8.31		CENT-CSSMid3.00Roller CSS 3.00" MIDDLE ROLLER CENTRALIZER	2.75	3.00	36.00	
			RBT-004 (12082235) Radial Bond Tool (UW 3 1/8) 20K Rated	9.48	3.13	140.00	
			CENT-Probe_275 Probe 2 3/4 Centralizer	2.88	2.75	20.00	
LLMTEN	0.00		BUL-001 (000001) Bullnose	0.30	1.69	1.50	

Dataset:	Watson_B_34a_Combo.ab: field/well/run/riv/riv
Total length:	40.83 ft
Total weight:	386.50 lb
O.D.:	3.13 in

Company	URSA OPERATING CO, LLC		
Well	WATSON RANCH B 34A-17-07-95		
Field	PARACHUTE		
County	GARFIELD	State	CO
<b>HALLIBURTON</b>	ACOUSTIC CEMENT BOND LOG		