

CEMENT BOND LOG

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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	
GR-CBL-CAST RAN IN COMBINATION	
LOGS CORRELATED TO J-W CBL DATED 12/09/2010	
TOOLS RAN IN 5.5" 15.5 LB CASING	
CAST CONFIG: 3 5/8" HEAD, BLACK 450KHz TRANSDUCER, CIM, 72 SHOTS, 12 SPF	
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES	

Service Ticket No.	903829094	API No.	05075071820000	PGM Ver	WARRIOR 8.0
The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client					
EQUIPMENT DATA					
GAMMA		CBL		CAST	
Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	12105786	Serial No.	12091451	Serial No.	12158270
Model No.	TTTCU-002	Model No.	CBL-M	Model No.	CAST-M
Diameter	1.69"	Diameter	2.75"	Diameter	3.125"
LOGGING DATA					
General Data					
Pass	Depths		Well Head	Speed	Logging Run Comments
No	From	To	Pressure	Ft/Min	


No.	FROM	TO	Pressure	THICKNESS				
ONE	5100'	SURFACE	0	15				
	GAMMA		THICKNESS		AMP			
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
ONE	0	150	0.225	0.325	0	100		
DIRECTIONAL INFORMATION								
Maximum Deviation			deg. @		KOP			

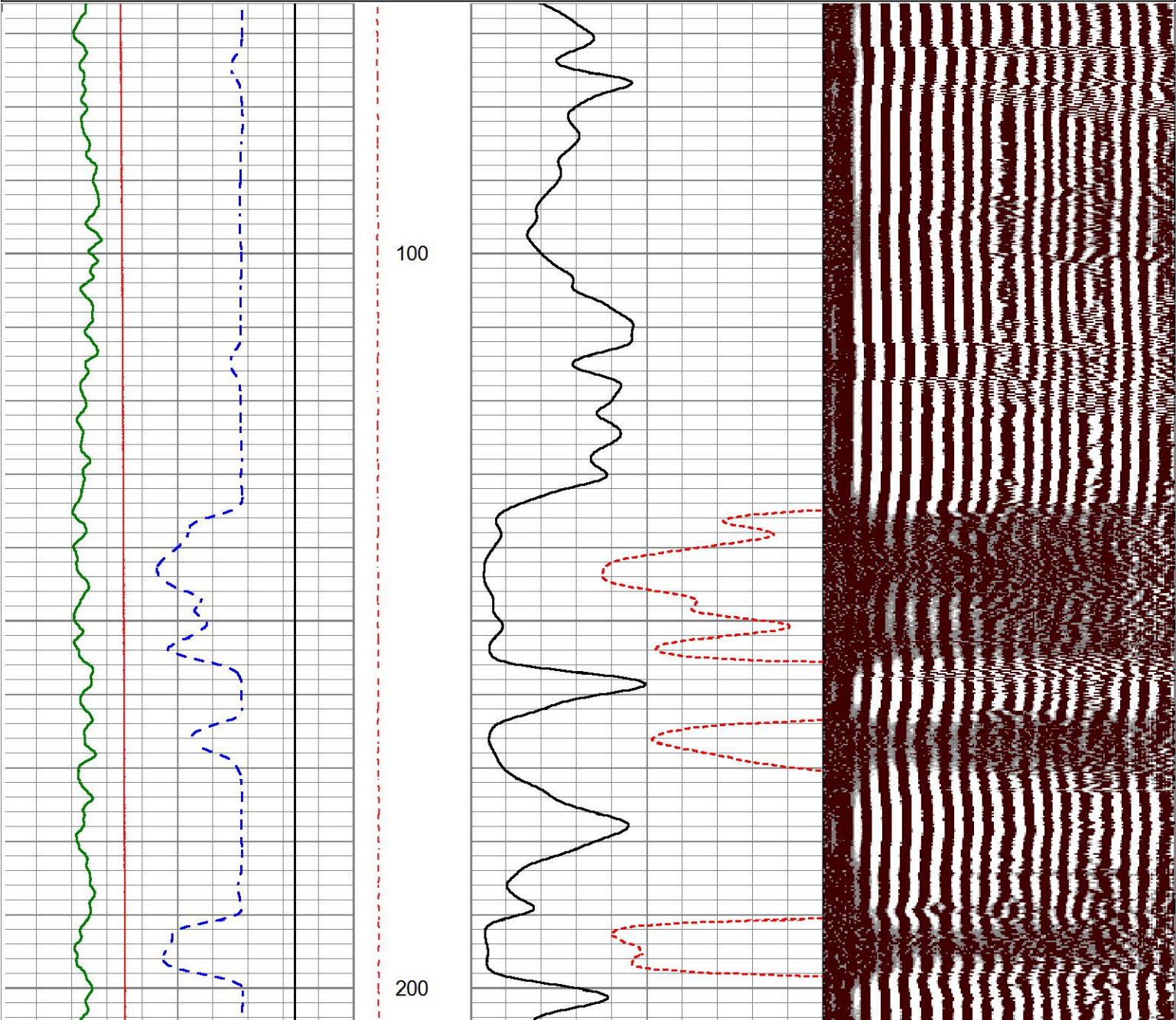
HALLIBURTON

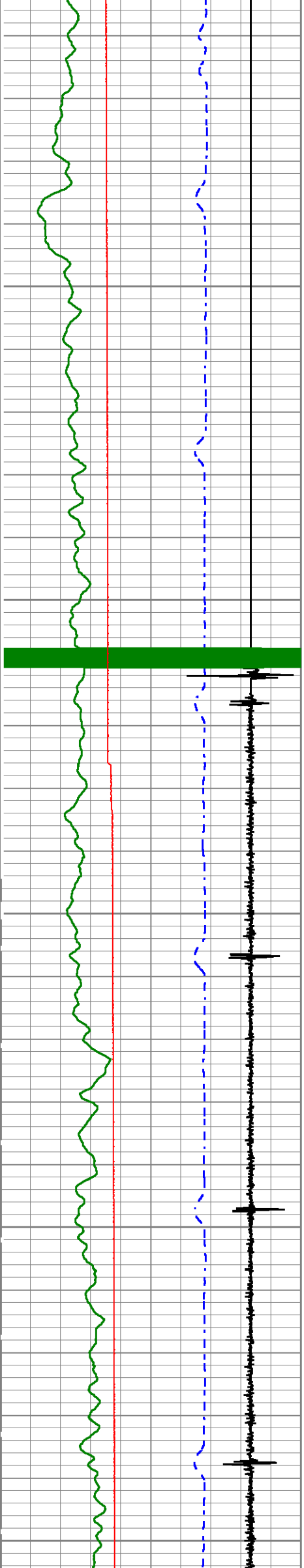
MAIN PASS

5" = 100'

Database File	ecgs_gillham_6.db									
Dataset Pathname	MAIN_CAST									
Presentation Format	!CBL_M~1									
Dataset Creation	Wed Feb 08 11:56:45 2017									
Charted by	Depth in Feet scaled 1:240									

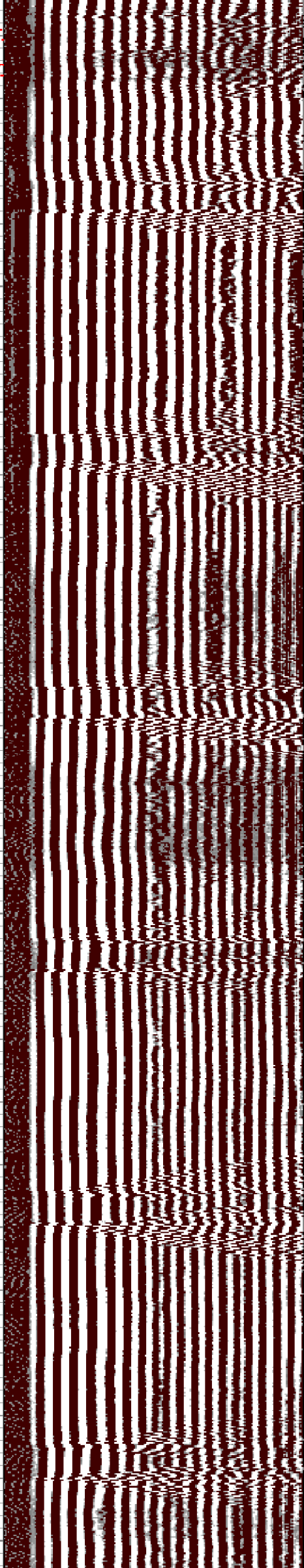
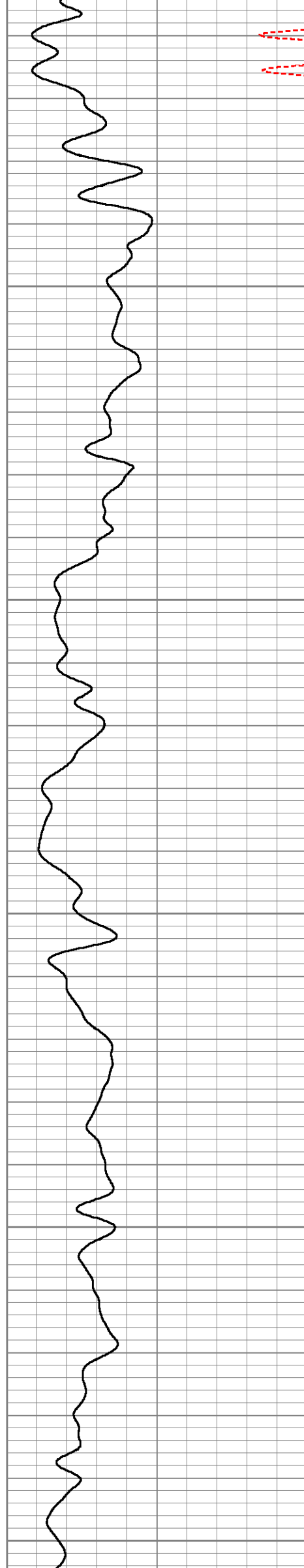
400	TRAVEL TIME (usec)	200	LTEN	0	AMP AMPLITUDE (mV)	10	200	MSG	1060
500	Collar Locator	-100	0	(lb2000	0	AMPLITUDE (mV)	100	10	110
0	Gamma Ray (GAPI)	150							
0	CbllTemp (degF)	250							

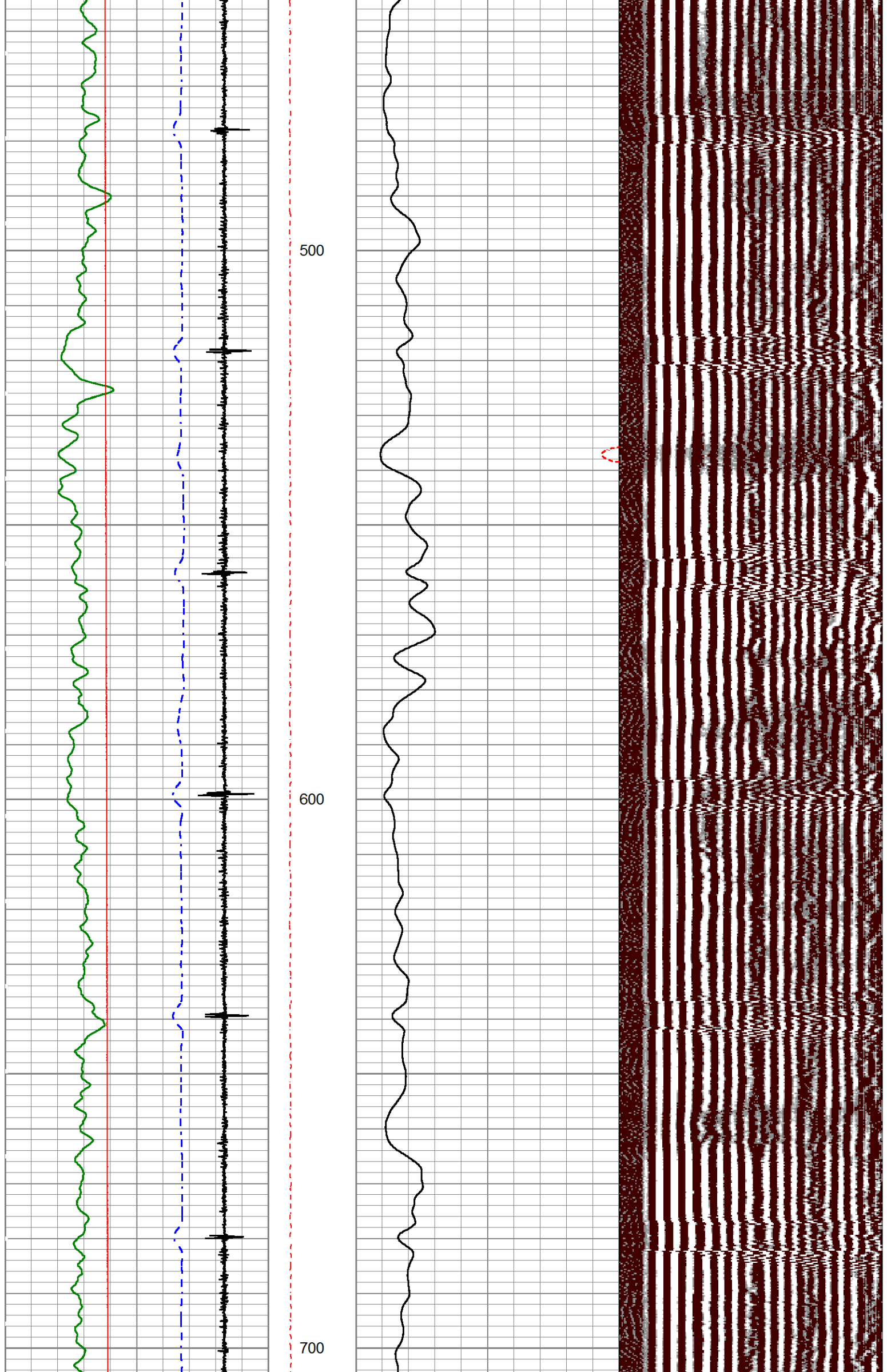


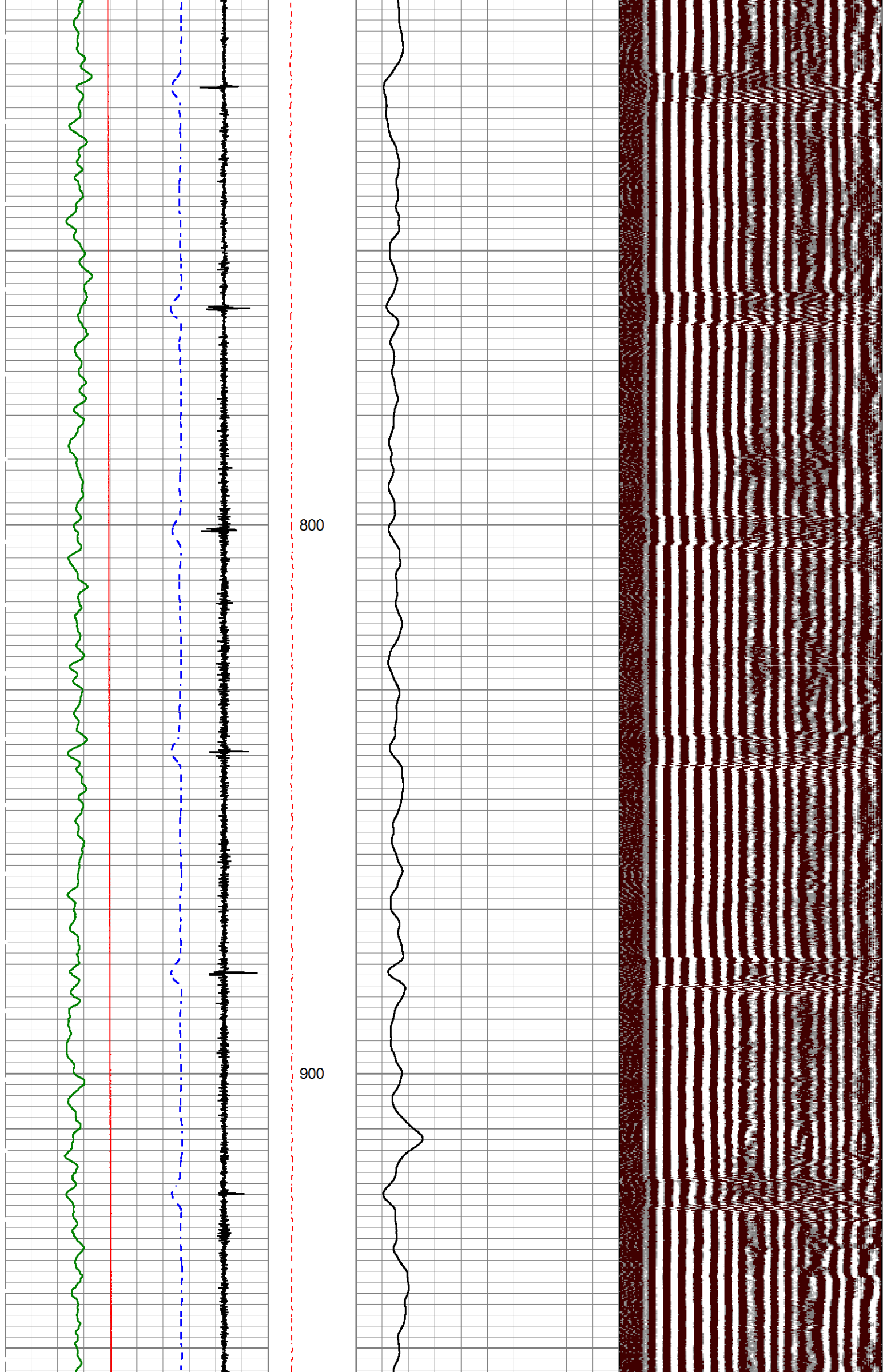


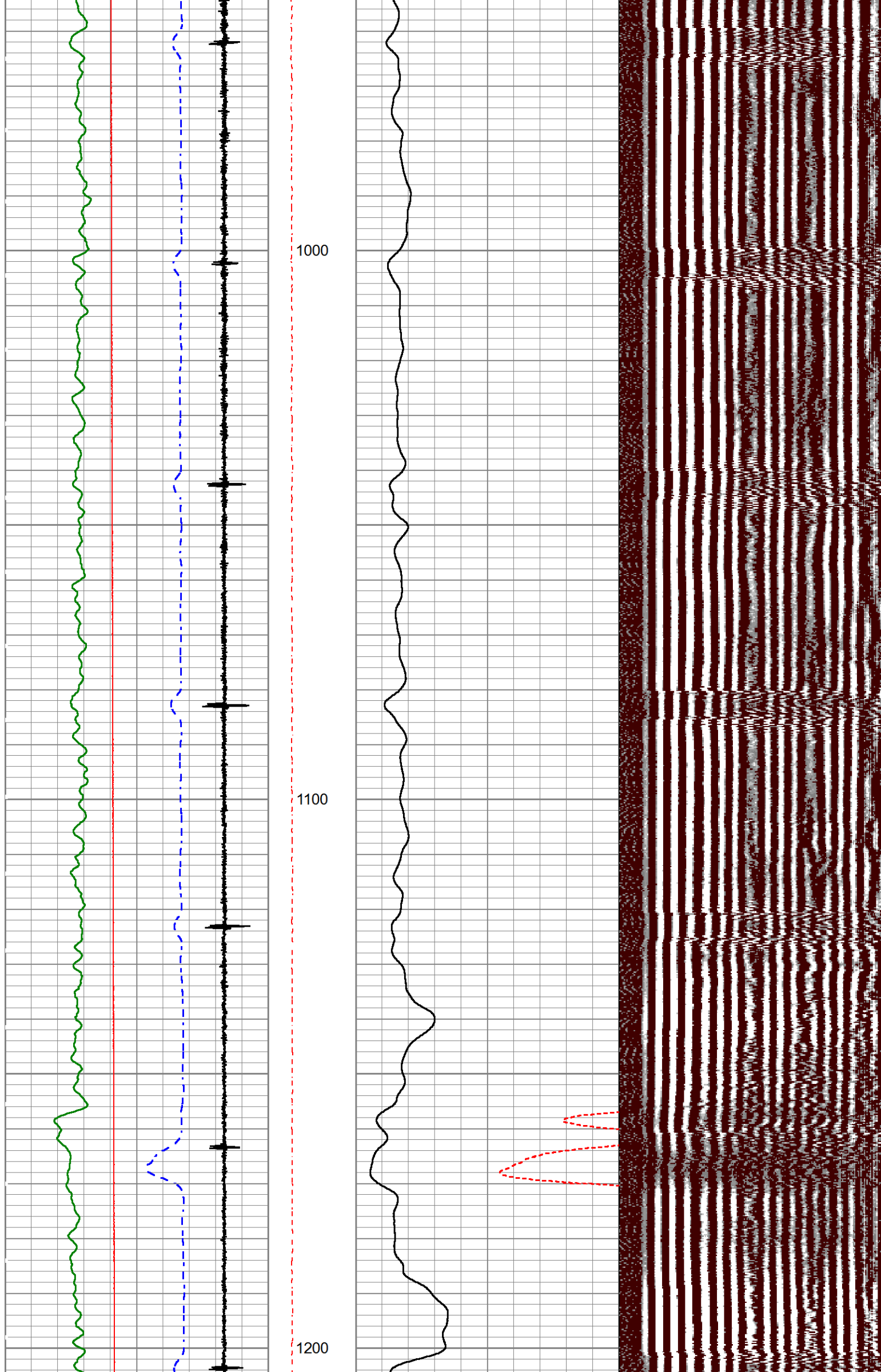
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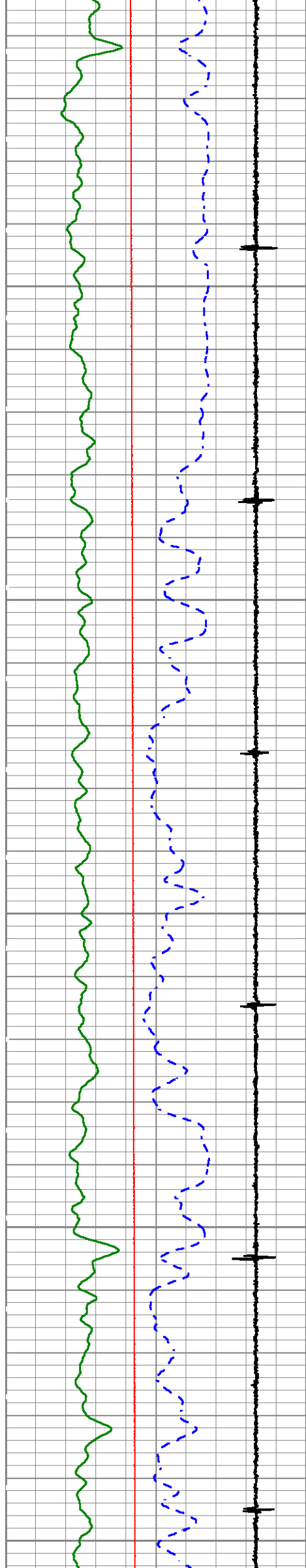
400





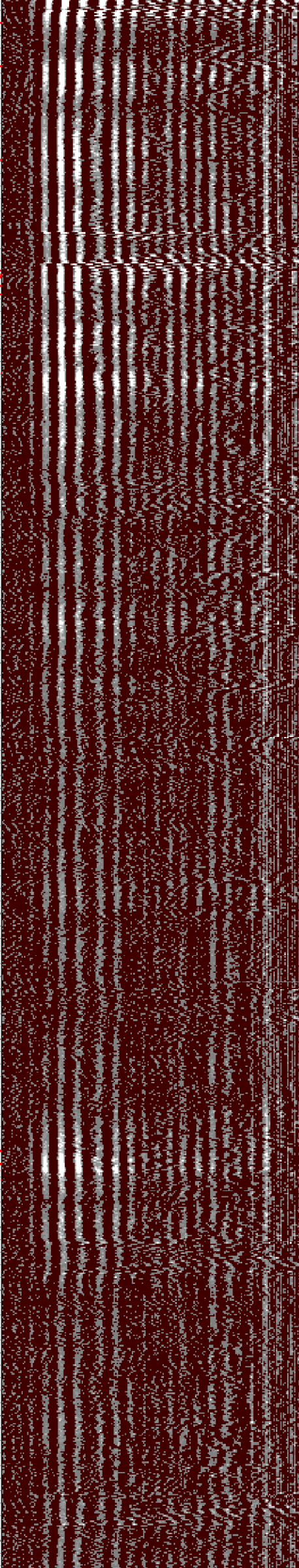
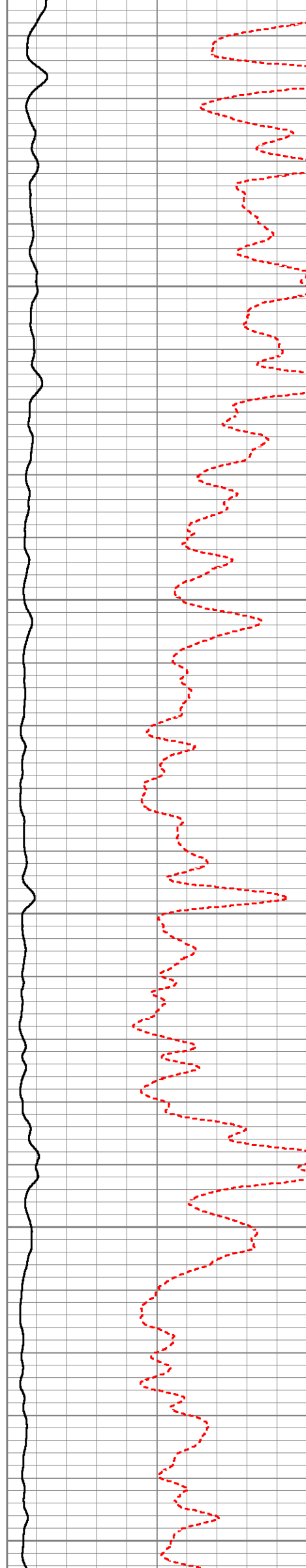


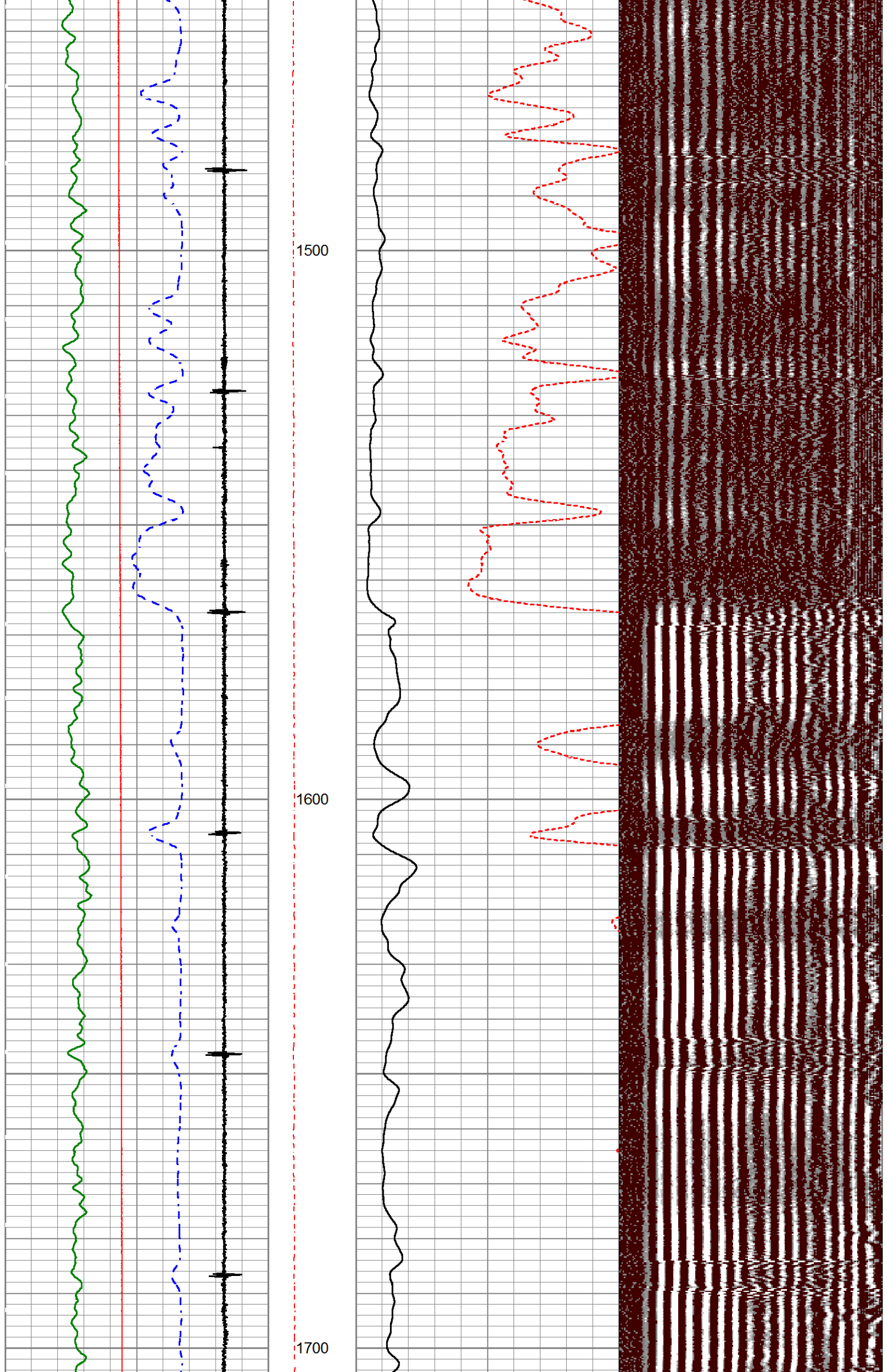


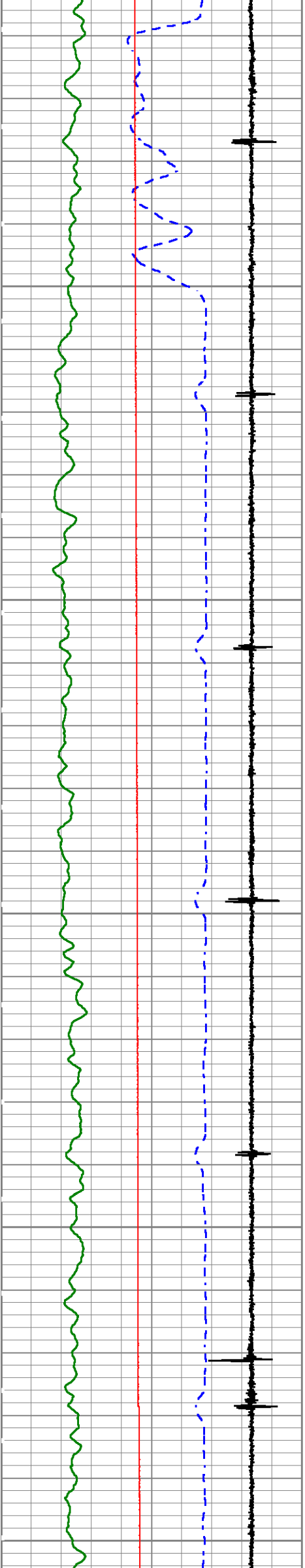


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1400

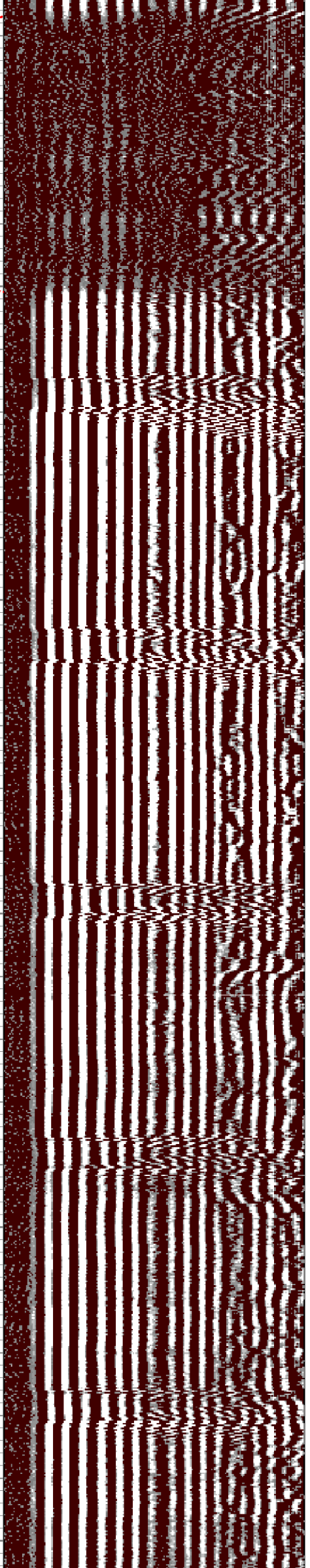
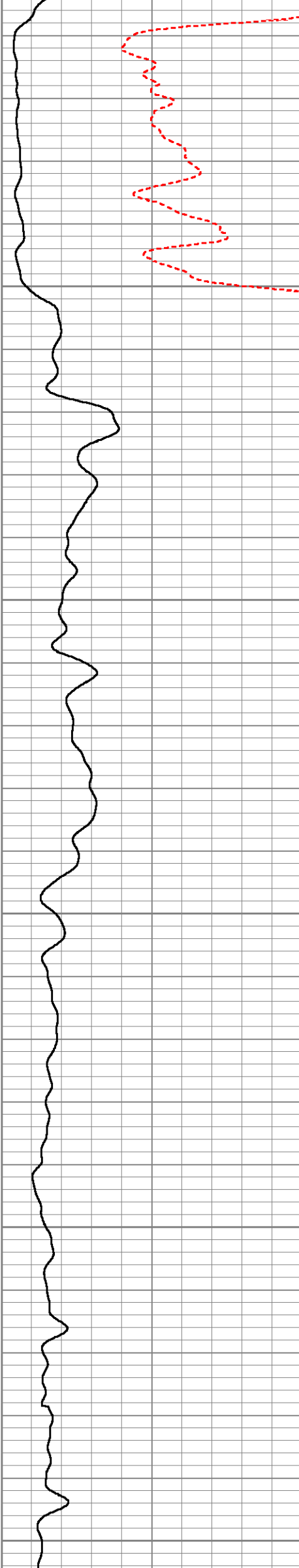


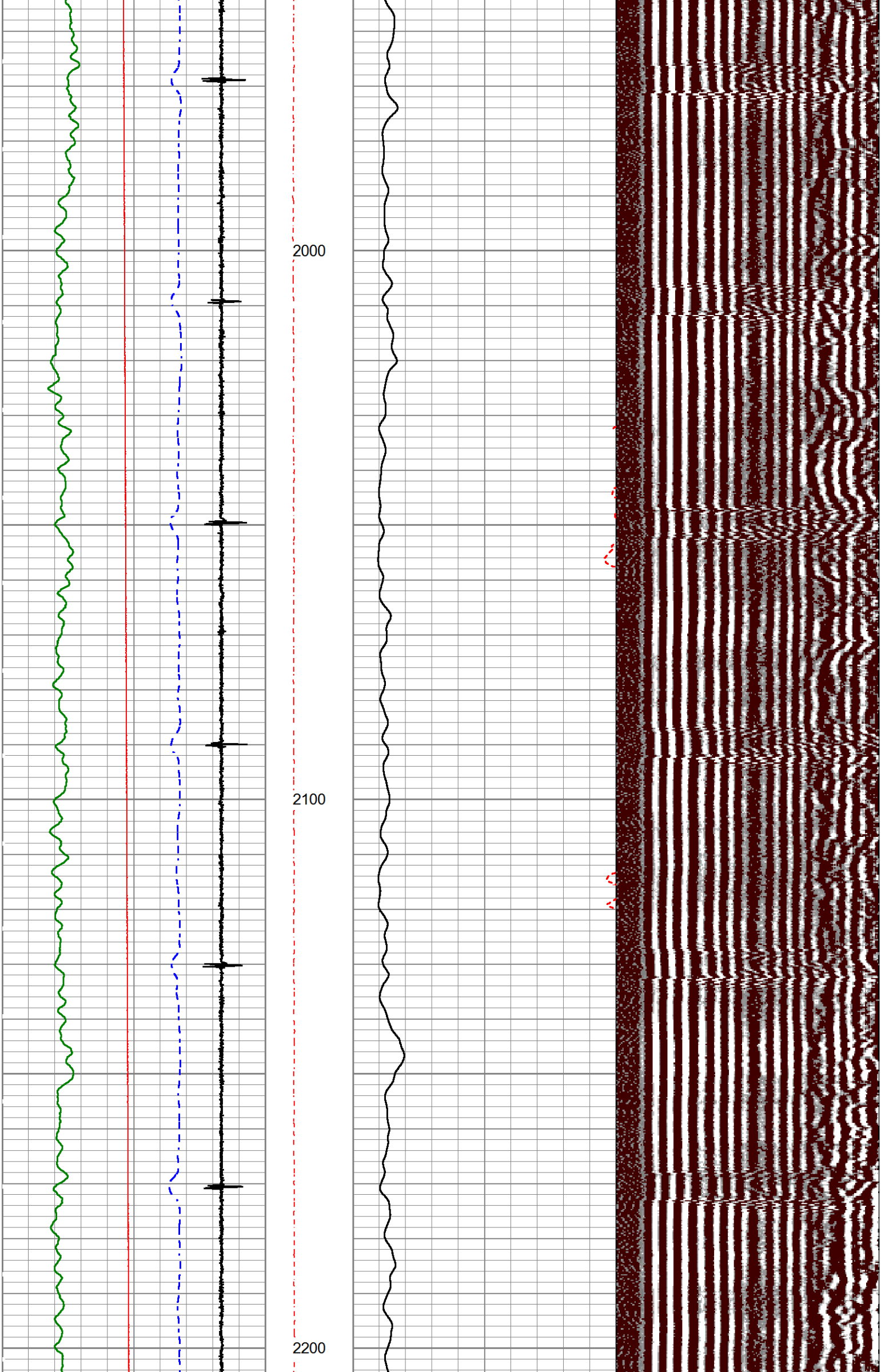


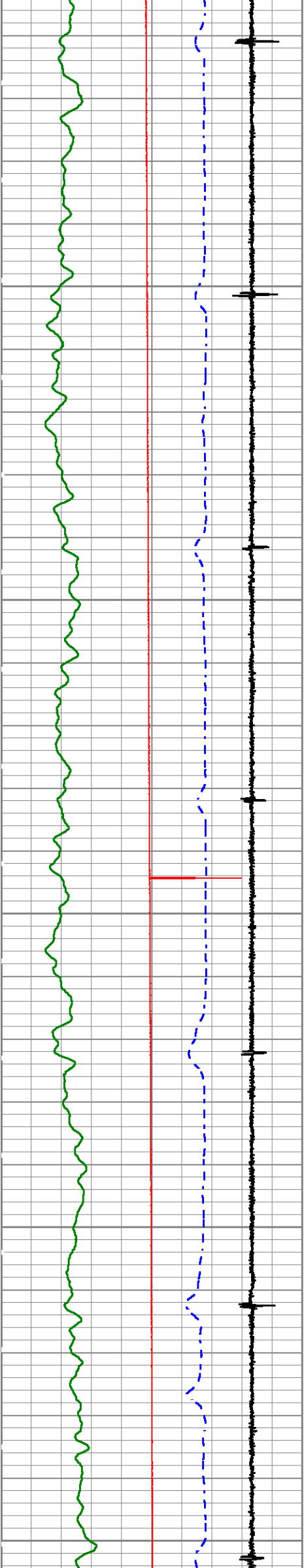


1800

1900

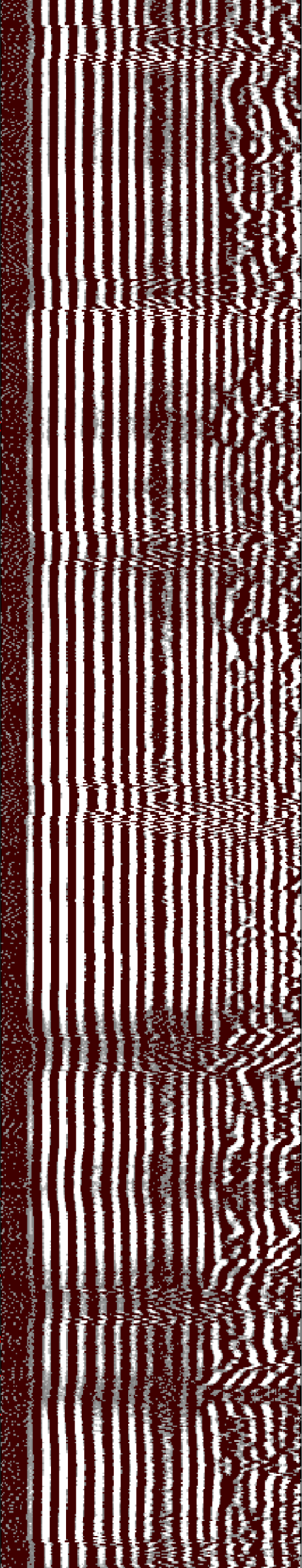
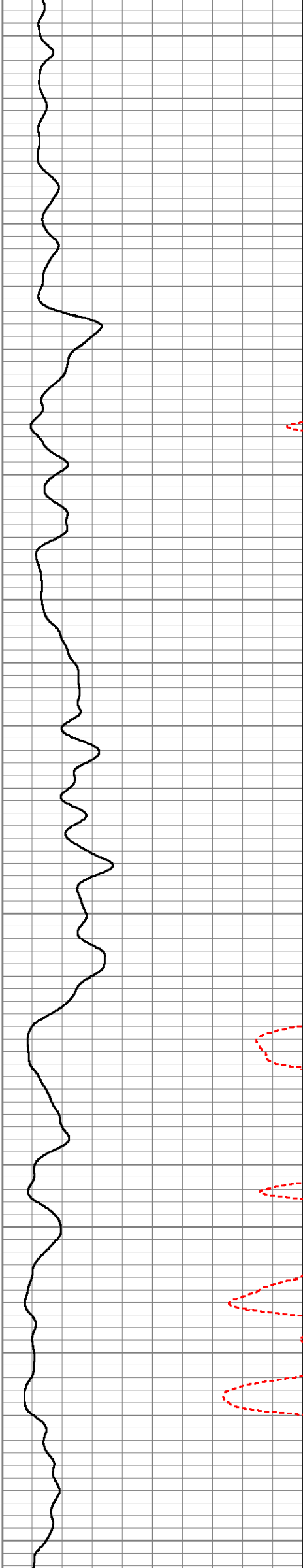


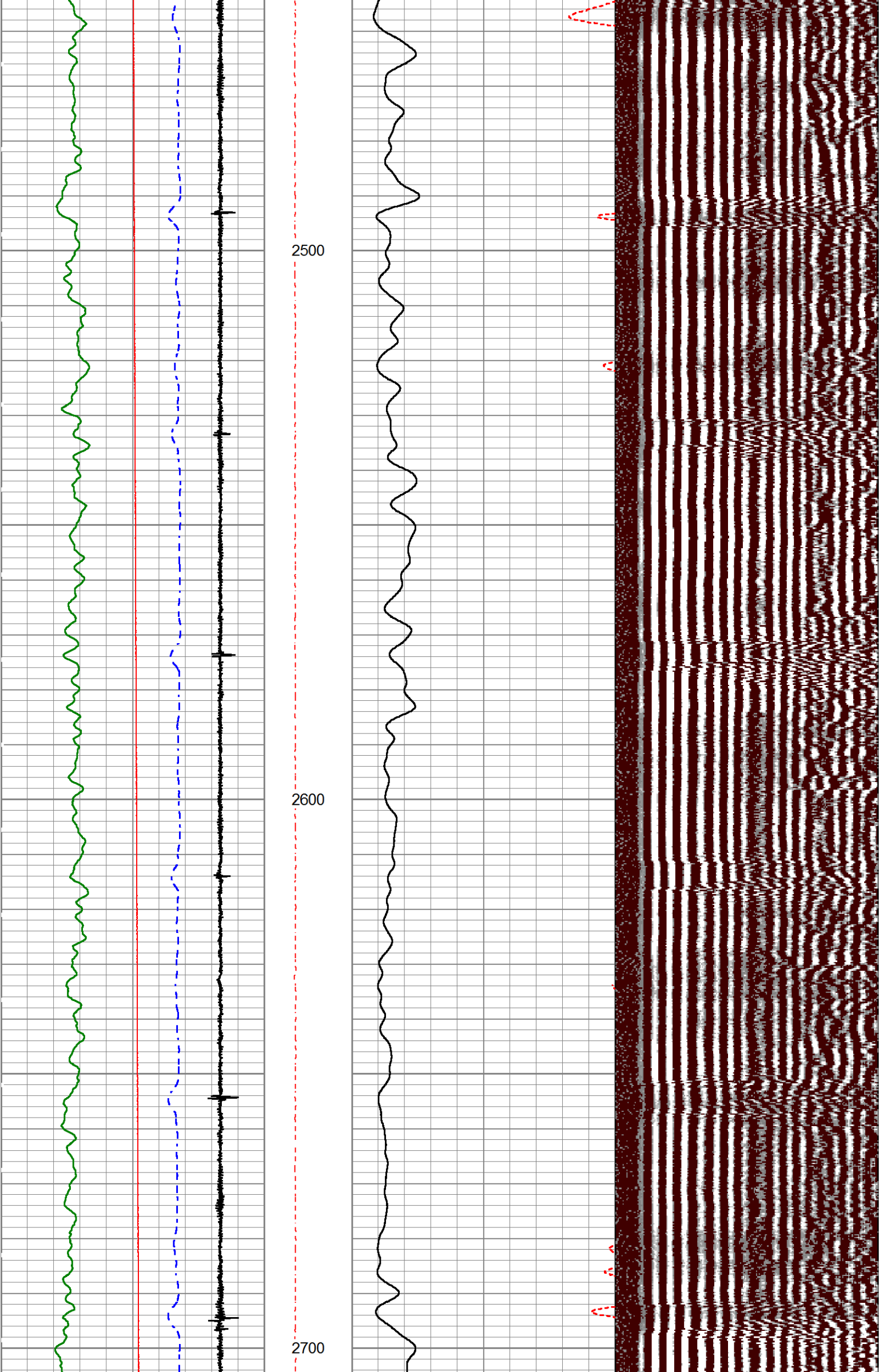


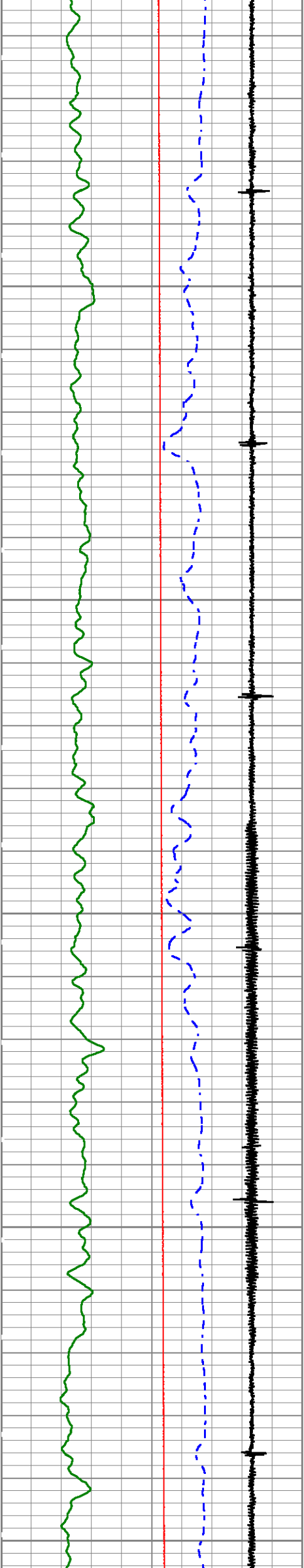


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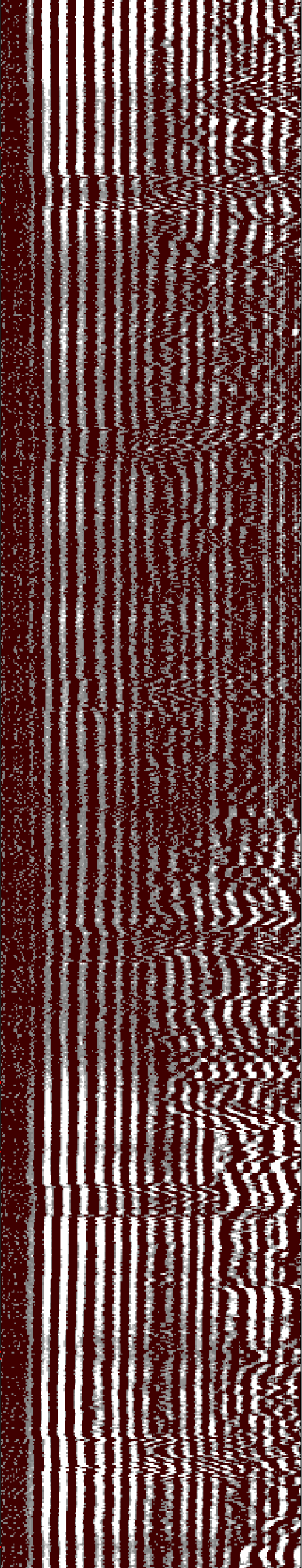
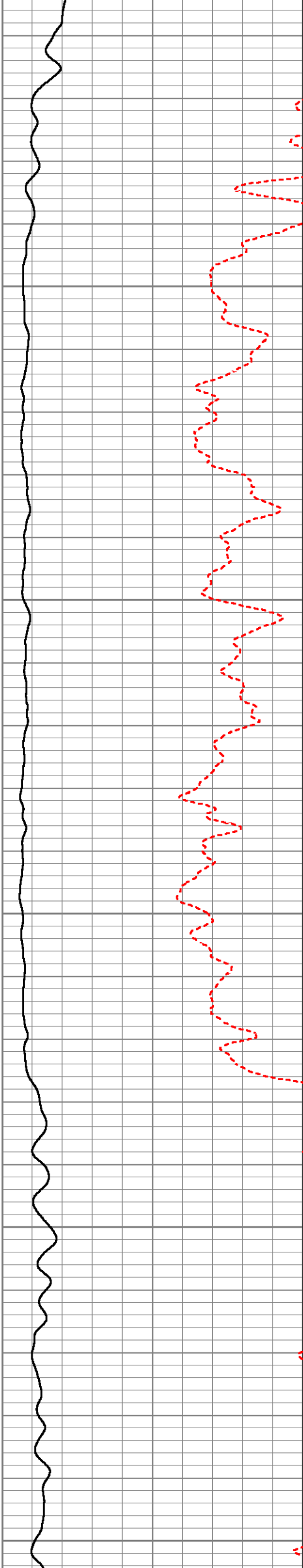


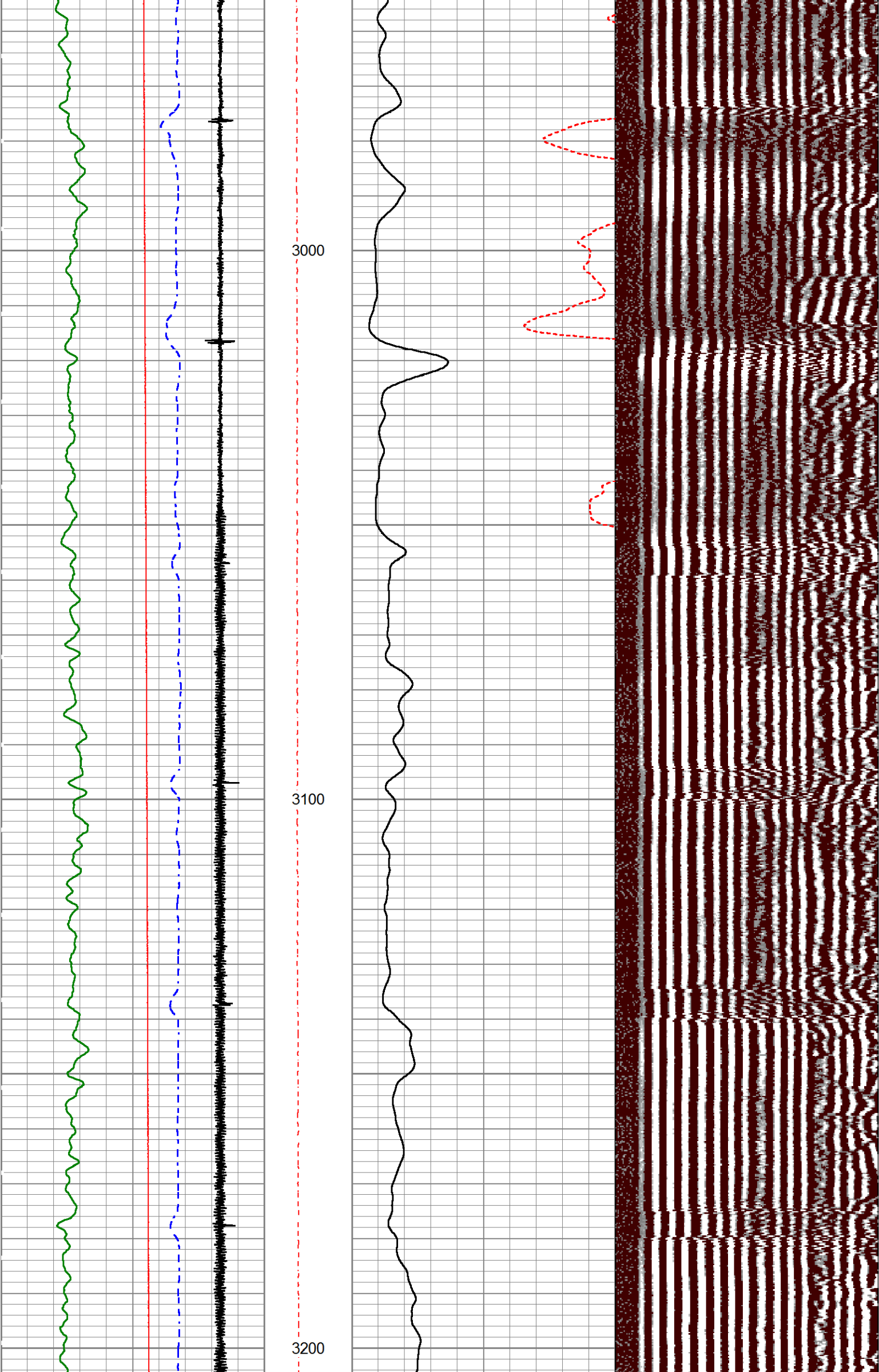


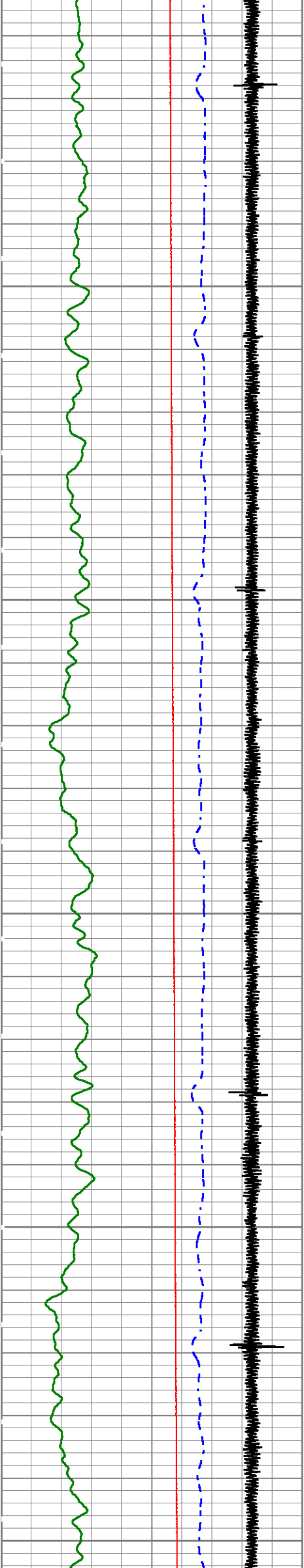


2800

2900

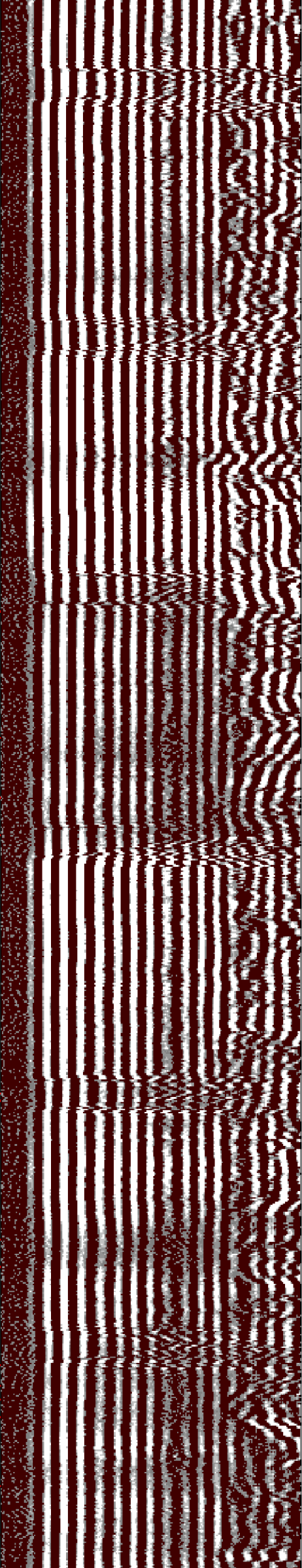
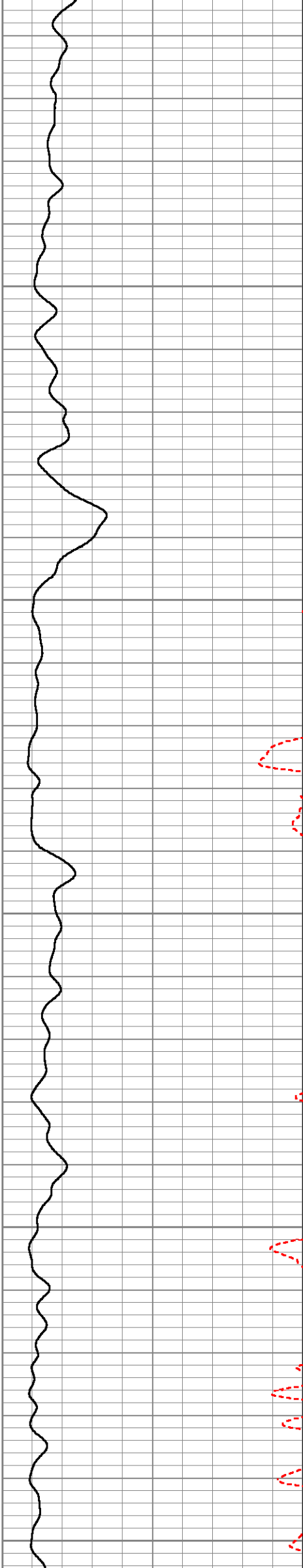


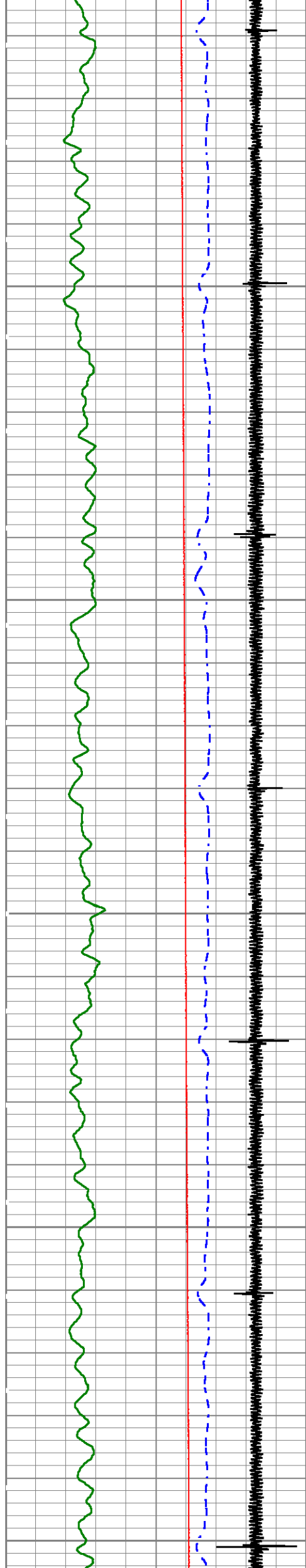




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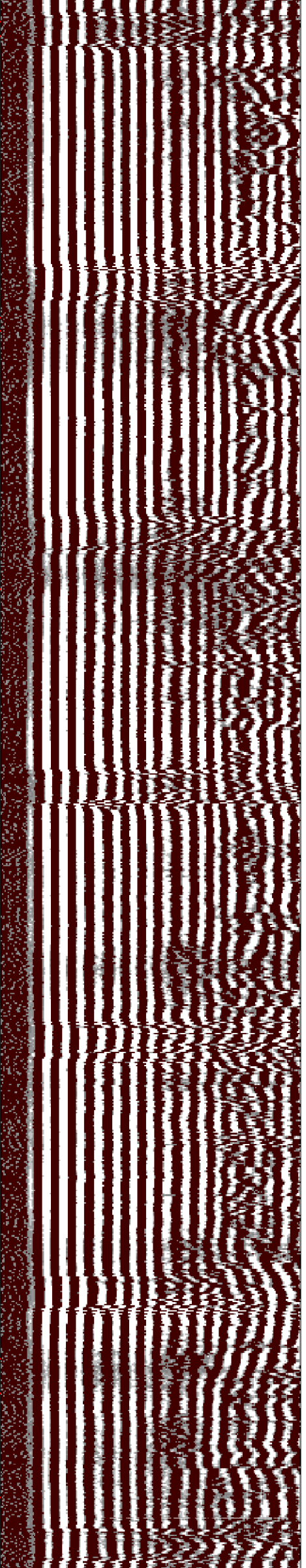
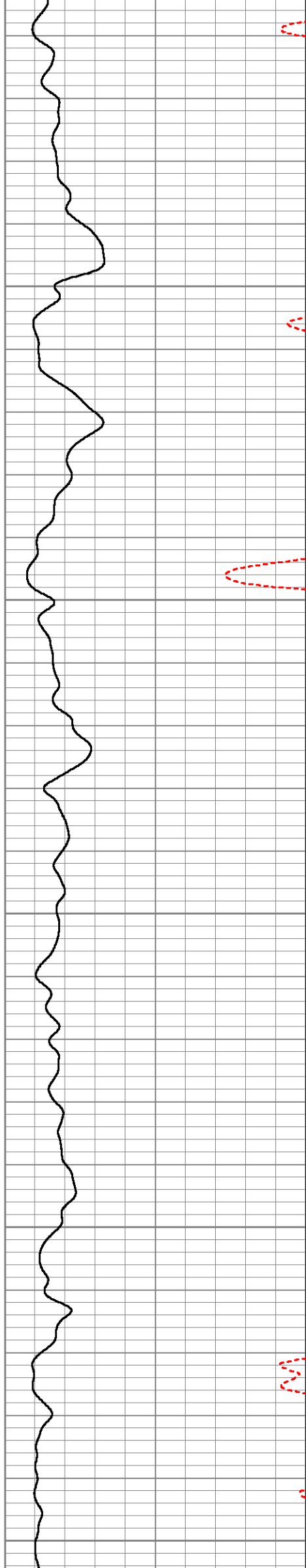


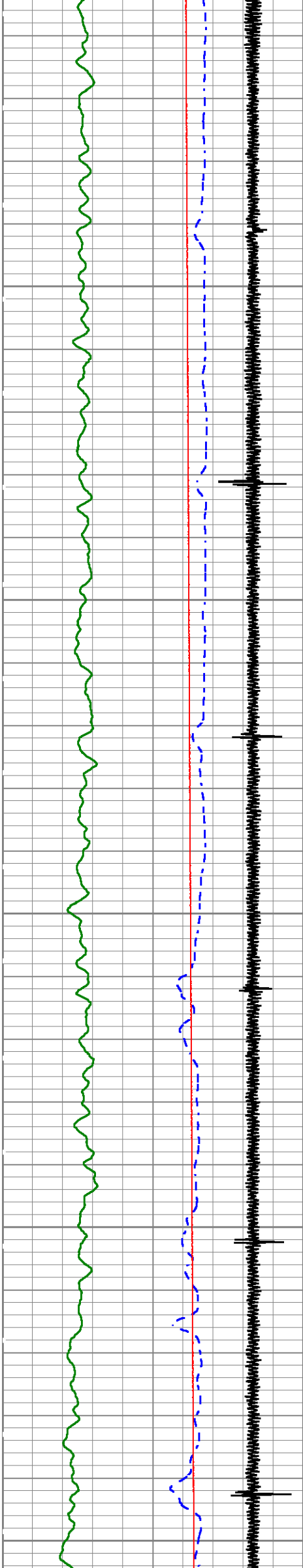


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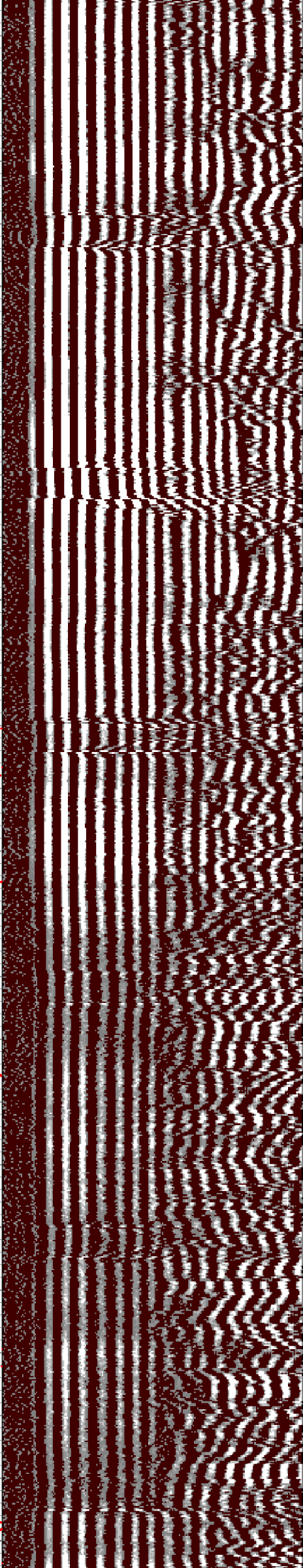
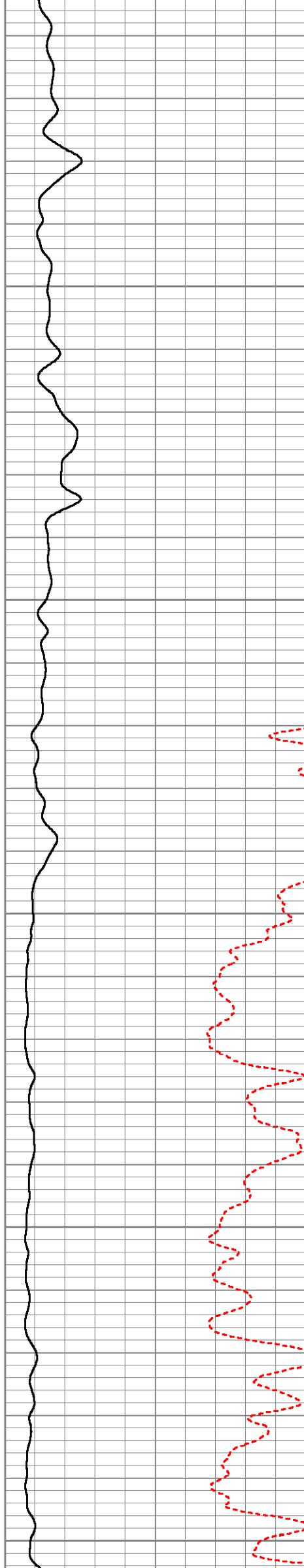
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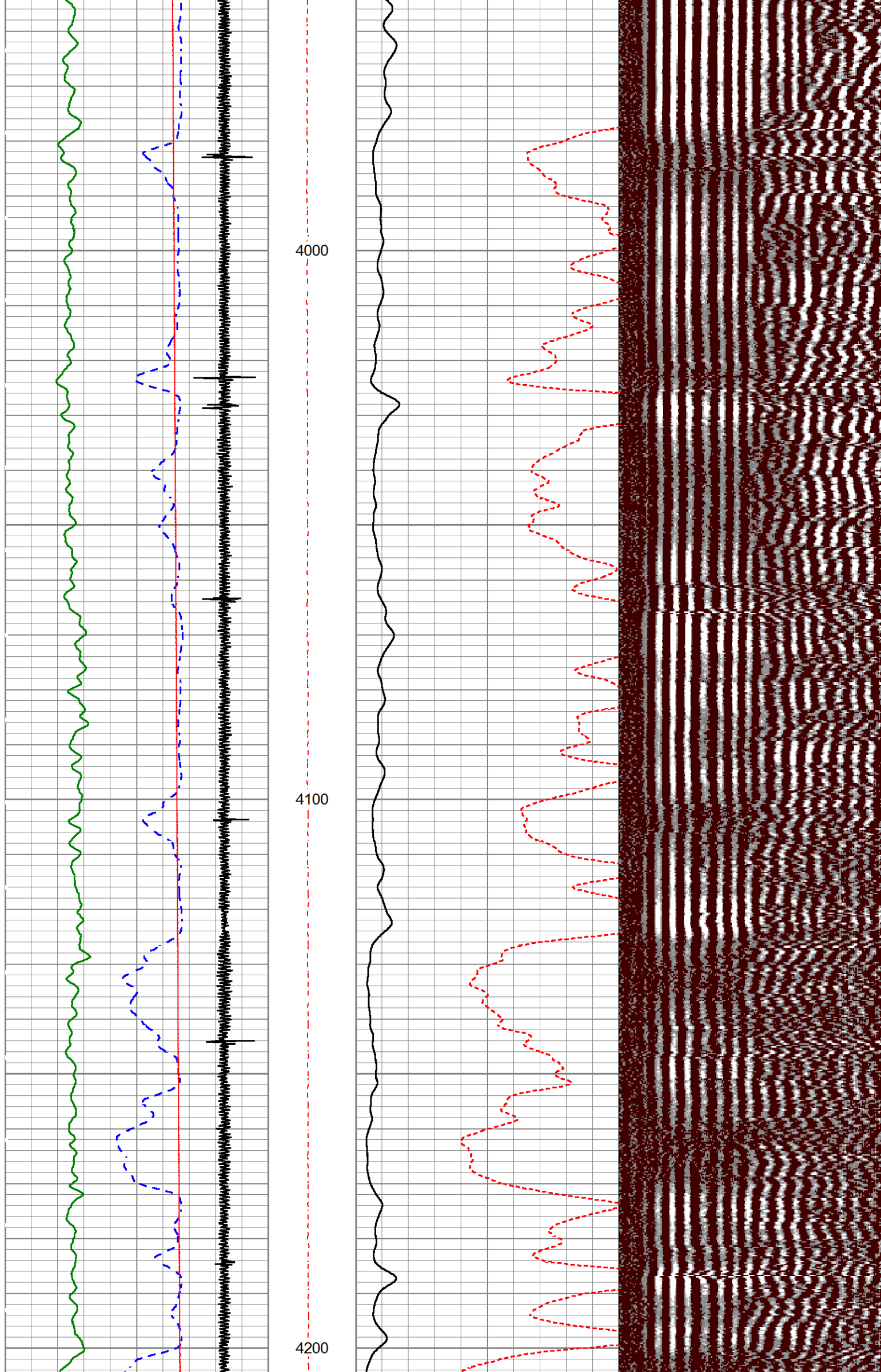


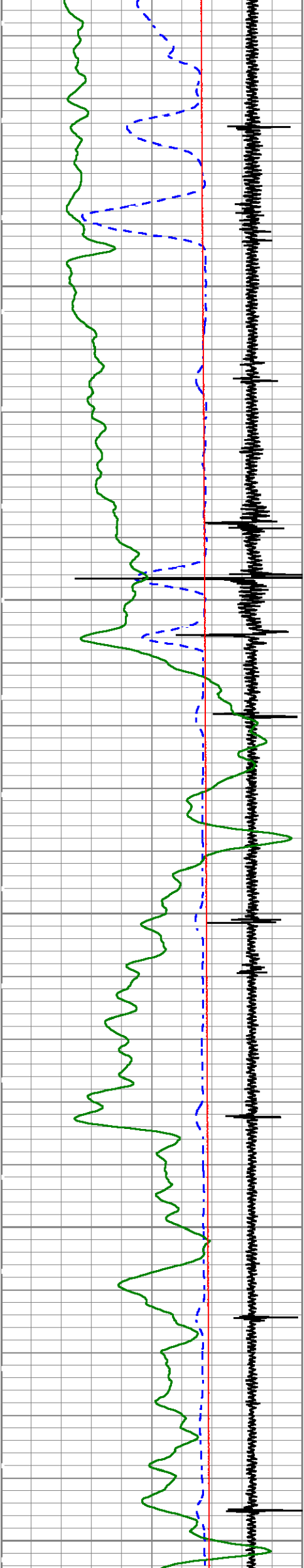


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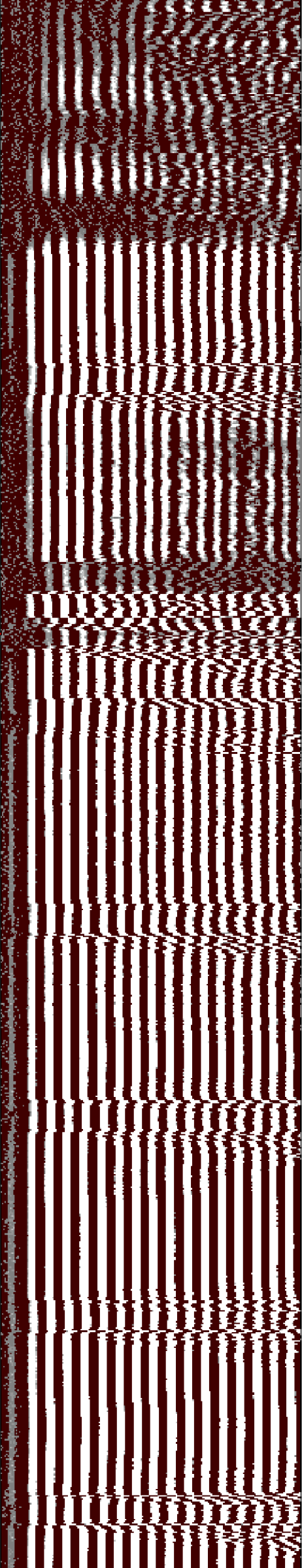
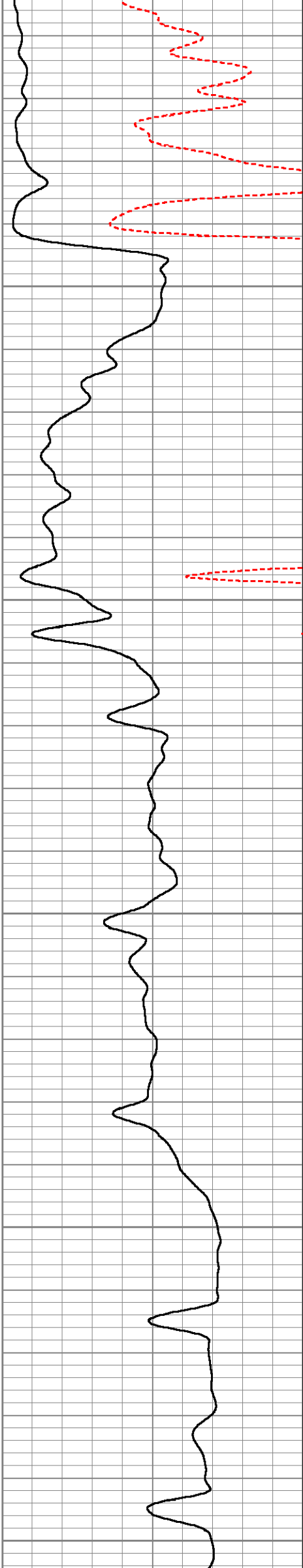


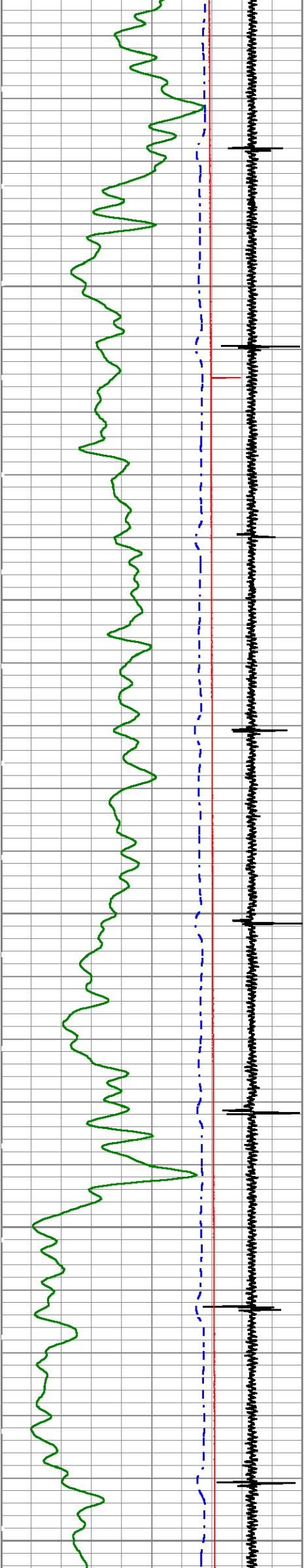




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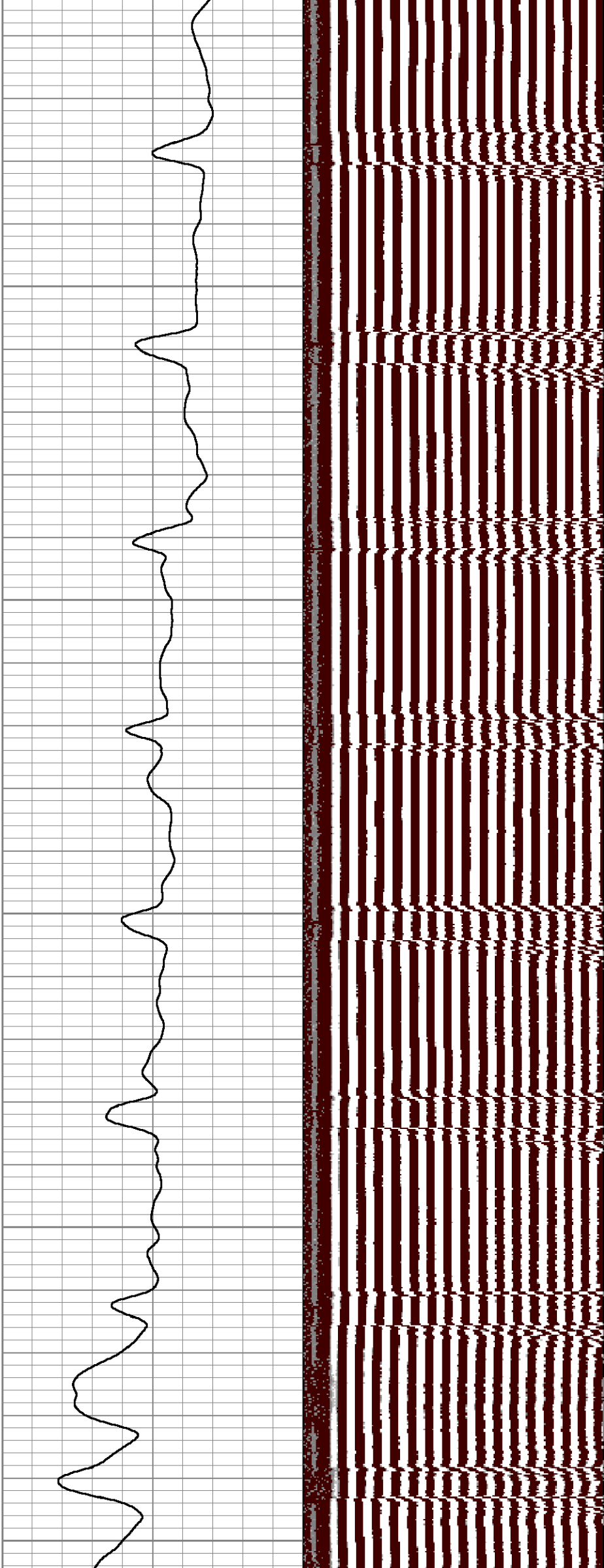


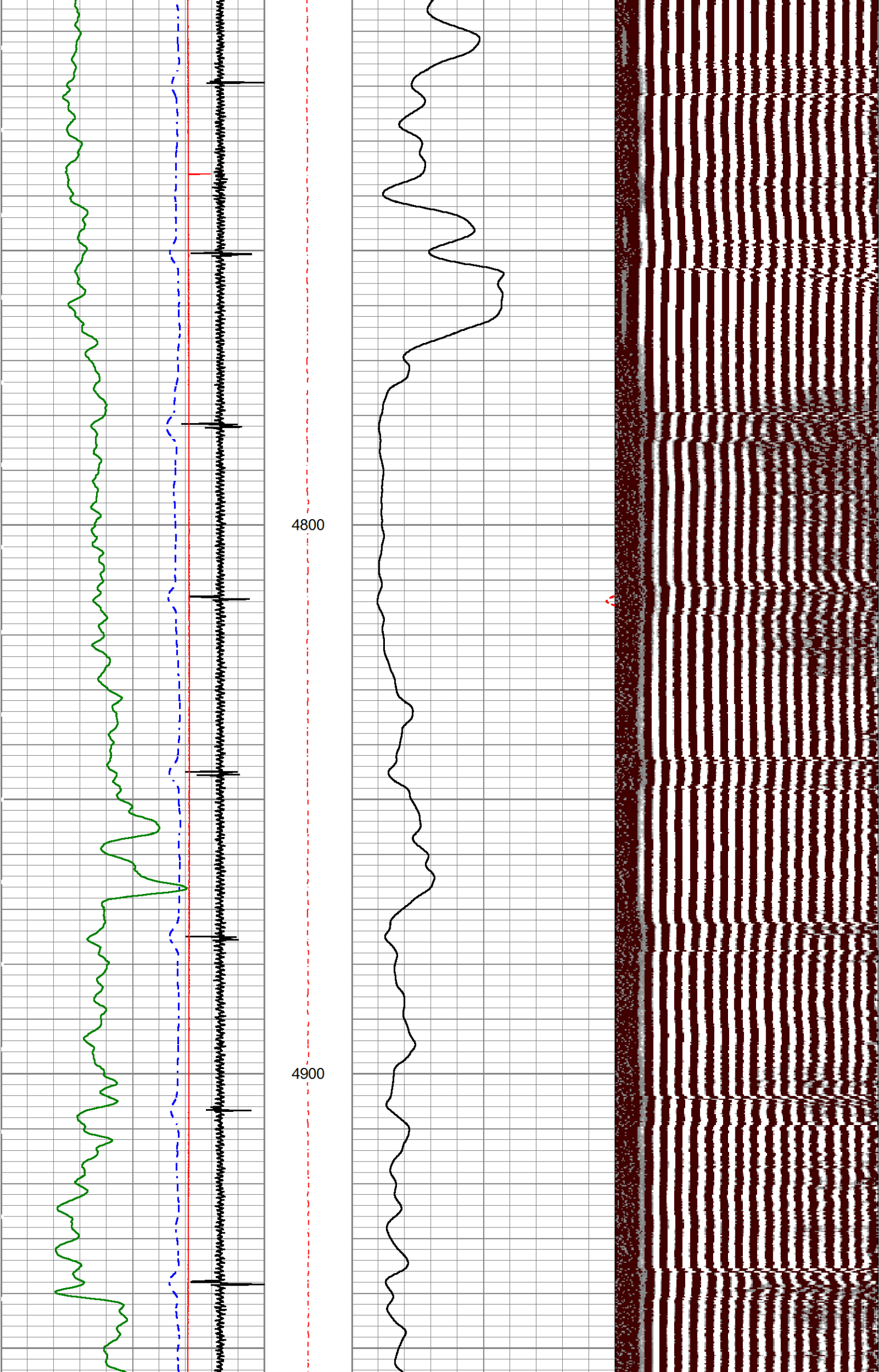


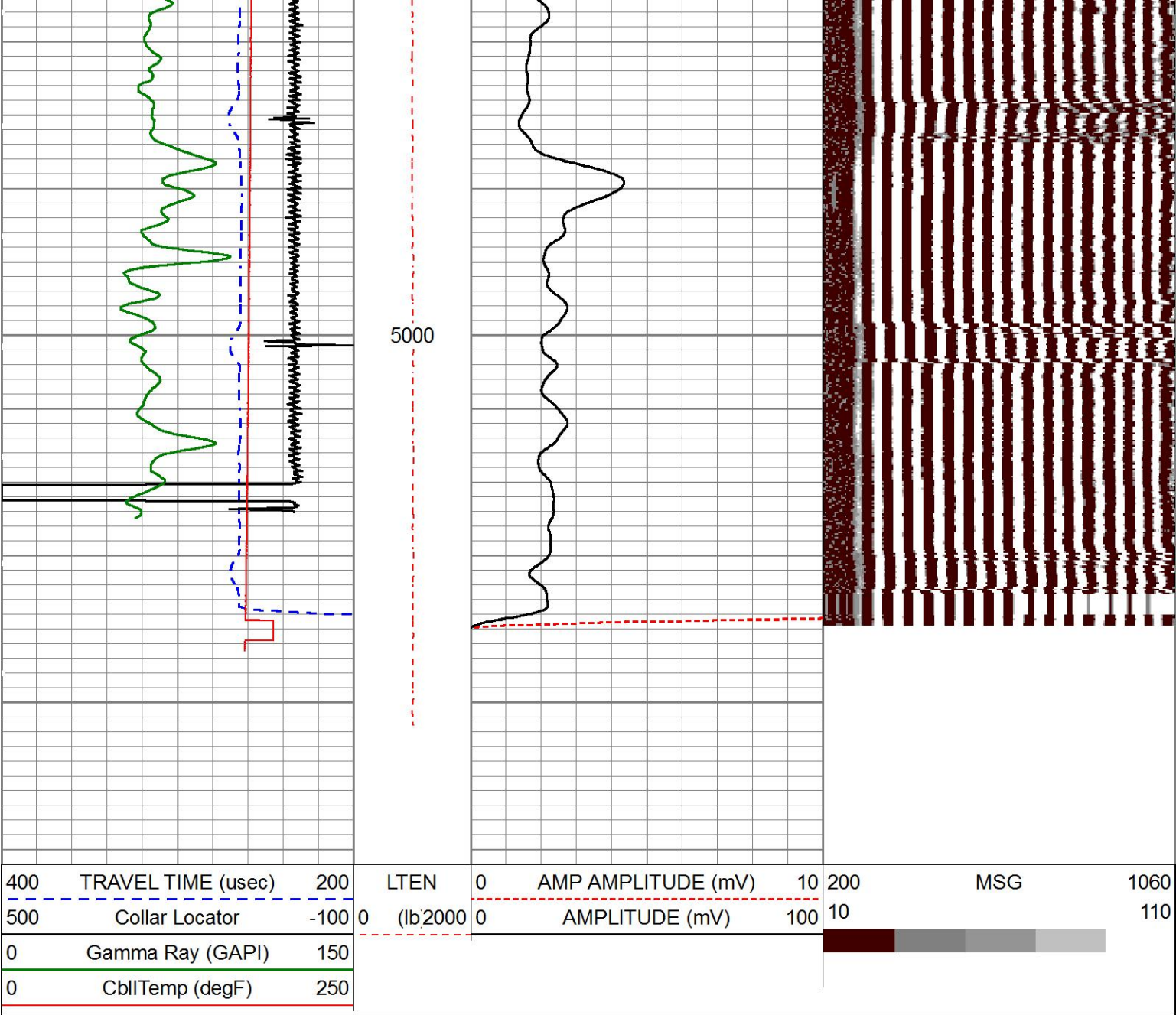
4500

4600

4700







HALLIBURTON

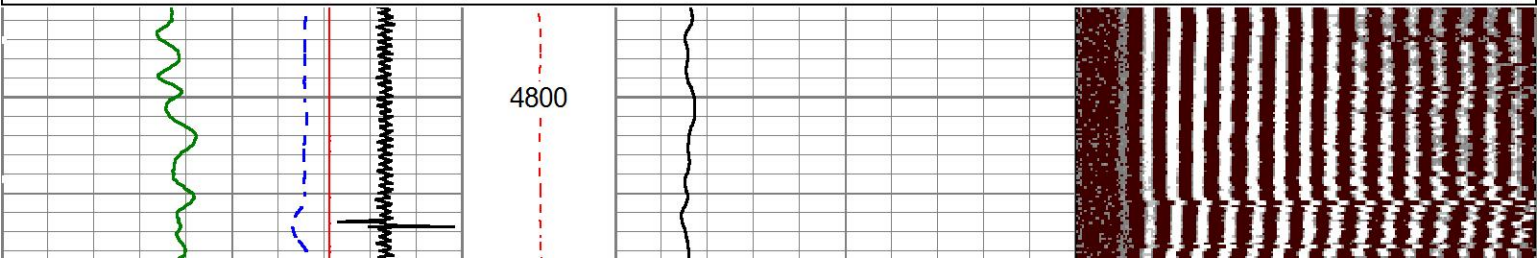
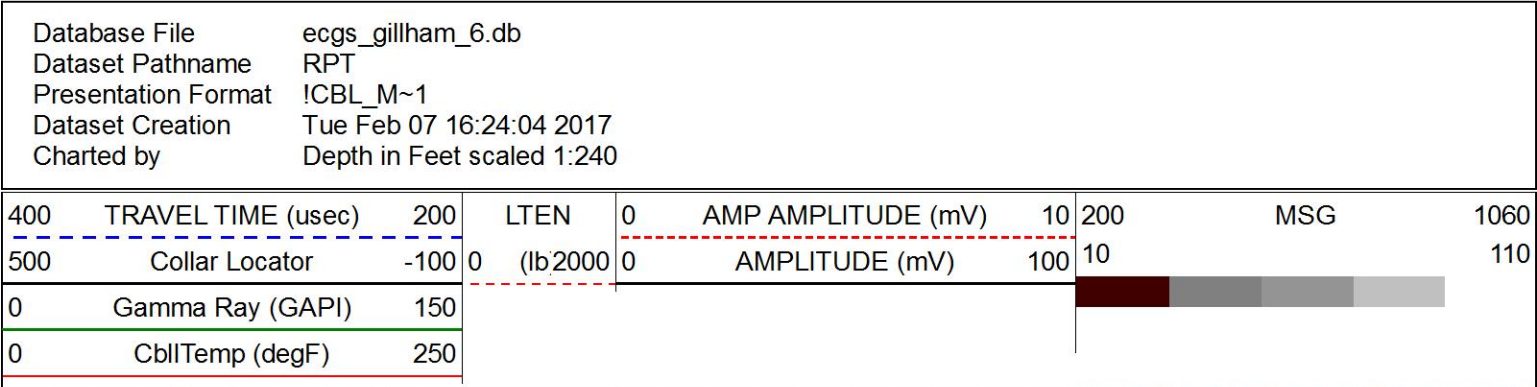
MAIN PASS

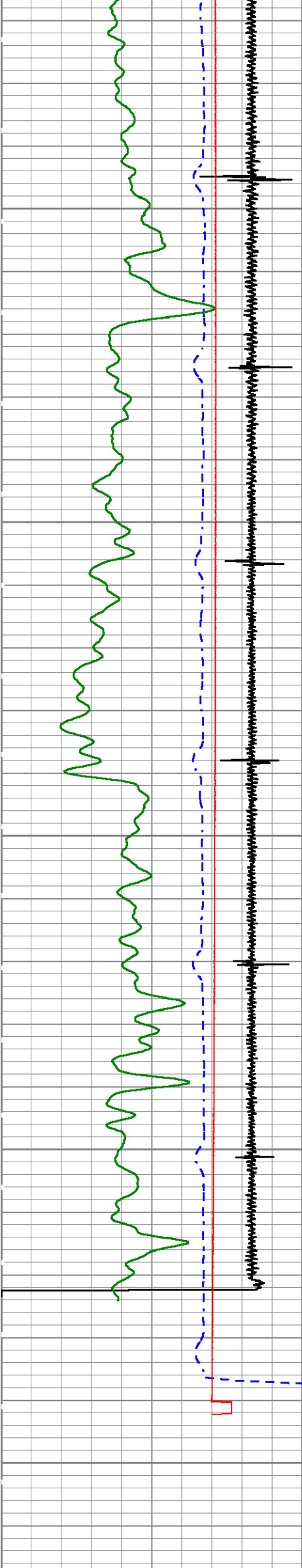
5" = 100'

HALLIBURTON

REPEAT PASS

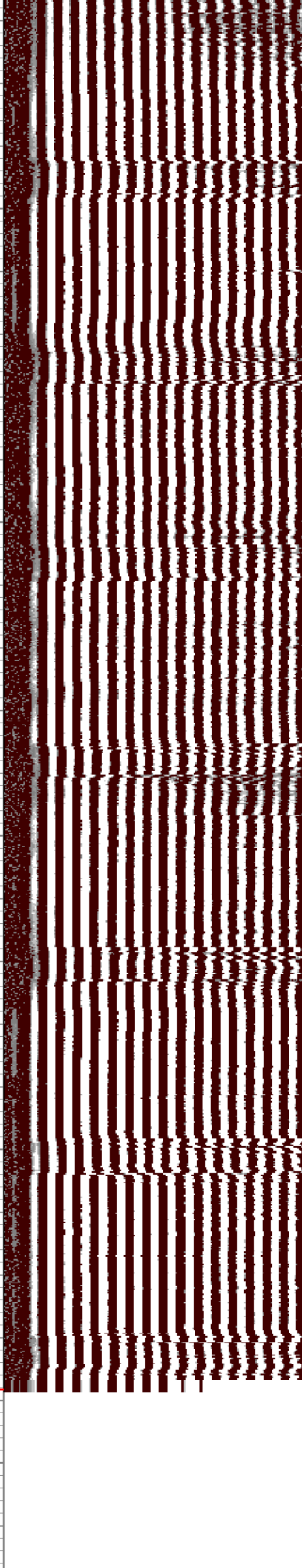
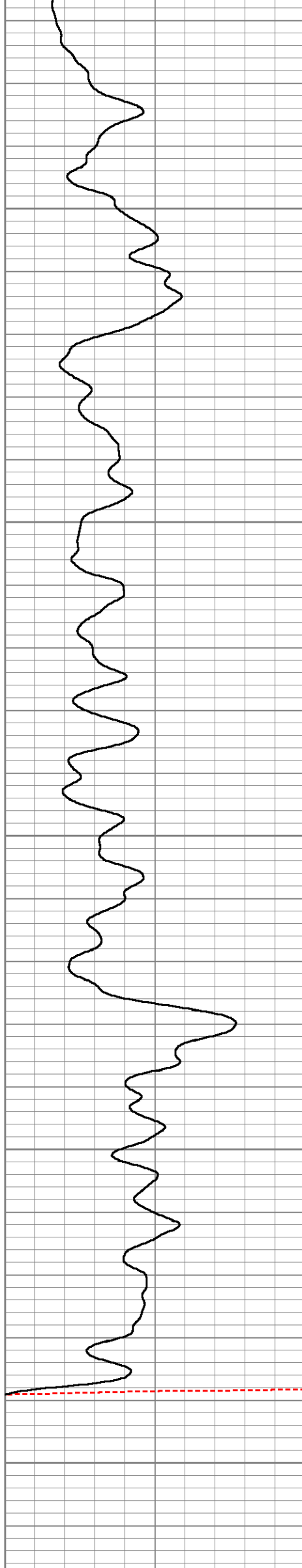
5" = 100'





4900

5000




HALLIBURTON REPEAT PASS
5" = 100'


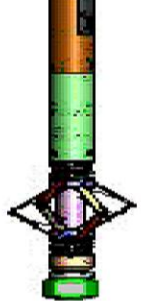
Database File		ecgs_gillham_6.db				
Dataset Pathname		RPT				
Dataset Creation		Tue Feb 07 16:24:04 2017				
Circumferential Acoustic Scanning Tool Shop Calibration Report						
Serial-Model:		12158270-3 5/8 EXT SCAN				
Calibration Performed:		Mon Feb 06 17:50:26 2017				
		Mudcell Transducer		Main Transducer		
		Measured	Expected	Measured	Expected	Units
W/O Calibrator		47.80	44.00	N/A	N/A	usec
W Calibrator		39.62	35.00	54.80	50.00	usec
Calibrated Offsets						
	Name	Value	Units			
	TCAL	4.8000	usec			
	MCAL	6.8881	usec			

Cement Bond Log Shop Calibration Report	
Serial-Model:	12091451-A
Calibration Performed:	Thu Dec 01 13:19:47 2016

Free Pipe Calibration		
TT	Measured	Units
Amplitude	244.6	usec
Log Base Line	552.0	mV
	5.9	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	0.149	

Gamma Ray Calibration Report						
Type / Serial:			002 / 12105786			
SHOP CALIBRATION		Mon Feb 06 14:47:35 2017				
	Counts/Sec.	Gain	Offset	Jig	Units	
Background	43.5				cps	
Calibrator	203.8				cps	
		0.9981			GAPI/cps	
PRIMARY VERIFICATION						
Background	42.6				cps	
Calibrator	206.2				cps	
Difference				163.6	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	35.10		STNDCH-1_11_16_CH 1.6875 IN CABLE HEAD	1.50	1.44	1.00	
			TTTCU-002 (12105786) Through Tubing Telemetry Cartridge - Ultrawire	7.65	1.69	100.00	
GR	32.84		XHU-003 (000001) 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	23.12						

TT3FT	20.87		HCBLM-A (12091451) Halliburton HCBLM Tool	9.38	2.75	116.00
AMP3FT	20.87					
WVF5FT	19.91					
WVF3FT	16.39		CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
			HAL-CAST-M-ELECT-CAST-M-Elect (11527.572) CAST M ELECTRONIC		2.75	30.00
AccY2	0.00		HAL-CAST-M-3 5/8 EXT SCAN (121582706.65) 3 5/8 EXT SCAN CASTM		3.13	276.00
AccX2	0.00					
AccY1	0.00					
AccX1	0.00					
SCAN	0.00					
LOCTIM	0.00					
UTCTIM	0.00					
LLMTEN	0.00					

Dataset: ecgs_gillham_6.db: field/well/run1/MAIN

Total length: 38.67 ft

Total weight: 580.00 lb

O.D.: 3.13 in

Company	EAST CHEYENNE GAS STORAGE LLC			
Well	GILLHAM 6			
Field	PEETZ WEST			
County	LOGAN	State	CO	
HALLIBURTON	CEMENT BOND LOG			