

HALLIBURTON

CEMENT
BOND LOG

Company		URSA OPERATING COMPANY	
Well	B&V 23B-07-07-95		
Field	WILDCAT		
County	GARFIELD	State	CO

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Well	B&V 23B-07-07-95		
Field	WILDCAT		
County	GARFIELD	State	CO

API No.:	05045227080000	Serv #:	903920060	Other Services
Location:	SHL: 1934' FSL & 591' FWL BHL: 2063' FSL & 1900' FWL			

Permanent Datum		Elevation 5084'		Elevation
Log Measured From	KB	17	Ft. above perm. datum	KB. 5101' D.F. 5101' G.L. 5084'
Drilling Measured From	KB			

Date @ Time Logged	3/27/2017 @ 22:00	Type Fluid in Hole	FRESH WATER
Run No.	ONE	Density of Fluid	8.4#
Depth - Driller	6374'	Fluid Level	SURFACE
Depth - Logger	6449'	Cement Top Est. Logged	1793'
Bottom - Logged Interval	6414'	Equipment / Location	11703208 / BRIGHTON
Top - Log Interval	1773'	Recorded by	J.SCHMIDT
Max. Recorded Temp.	198 F	Witnessed by	L. GEIGER

CEMENTING DATA		Surface String	Protection String	Production String	Liner
Date / Time Cemented					
Primary / Squeeze					
Expected Compressive Strength	psi@ hrs	psi@ hrs	psi@ hrs	psi@ hrs	psi@ hrs
Cement Volume					
Cement Type / Weight	/	/	/	/	/
Formulation					
Mud Type / Mud Wgt.	/	/	/	/	/

Borehole Record		Casing & Tubing Record					
Run Number	Bit	From	To	Size	Weight	From	To

<<< 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

TOOLS WERE RAN IN 4.5" 11.6# CASING.

RMT RAN IN SIGMA MODE WITH A GENERATOR VOLTAGE OF 86V.

THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES

Service Ticket No.	903920060	API No.	05045227080000	PGM Ver	WARRIOR 8.0
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The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client

EQUIPMENT DATA							
GAMMA		CBL		RMT			
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	
Serial No.	12159411	Serial No.	11836468	Serial No.	12376244	Serial No.	
Model No.	TTTCU-002	Model No.	CBL-M	Model No.	RMTi	Model No.	
Diameter	1.69"	Diameter	2.75"	Diameter	2.75"	Diameter	

LOGGING DATA

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

NO.	TD	SURFACE CSG	14.7 PSI	20			
ONE							
	GAMMA		CBL		RMTI		
Pass	Scale		Scale		Scale		Scale
No.	L	R	L	R	L	R	L L
ONE	0	150	0	100	60	0	
DIRECTIONAL INFORMATION							
Maximum Deviation			deg. @		KOP		

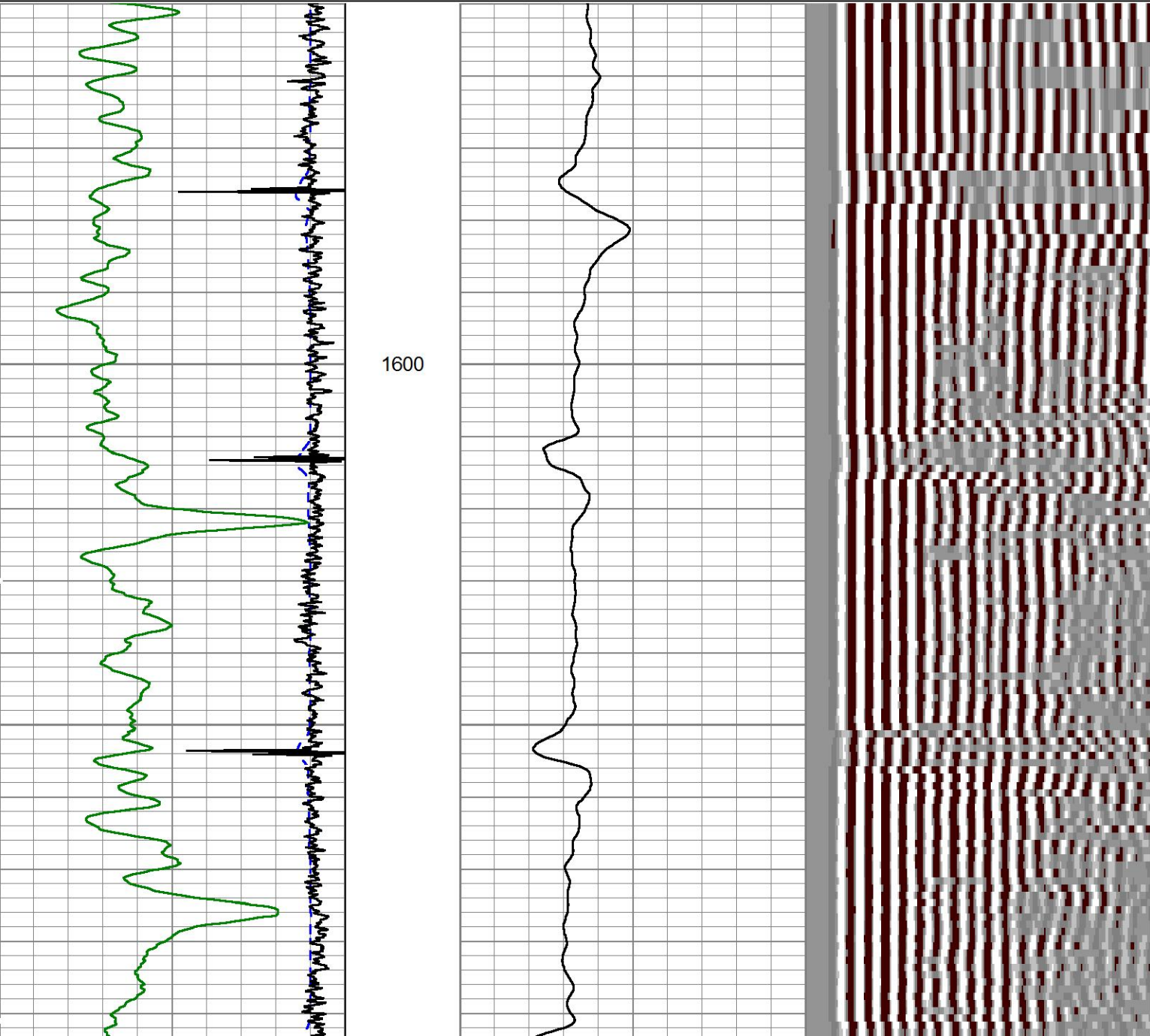
MAIN PASS

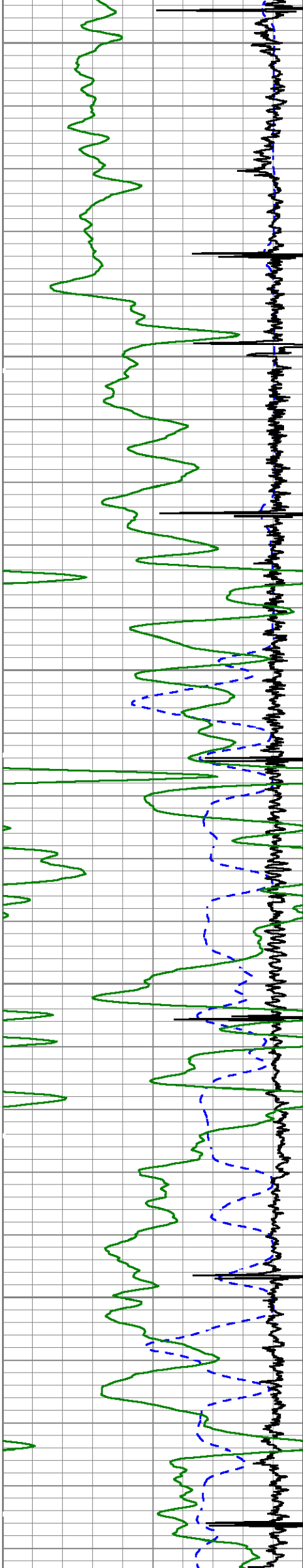
HALLIBURTON

5" = 100'

Database File f:\ursa\b&v 23b-07-07-95\23b.db
Dataset Pathname MAIN
Presentation Format ICBL_M~1
Dataset Creation Tue Mar 28 02:12:29 2017
Charted by Depth in Feet scaled 1:240

420	TRAVEL TIME (usec)	220	LTEN	0	AMP AMPLITUDE (mV)	10	200	MSG	1060
-3500	Collar Locator	350	0	(lb)3000	0	AMPLITUDE (mV)	100		
0	Gamma Ray (GAPI)	150							

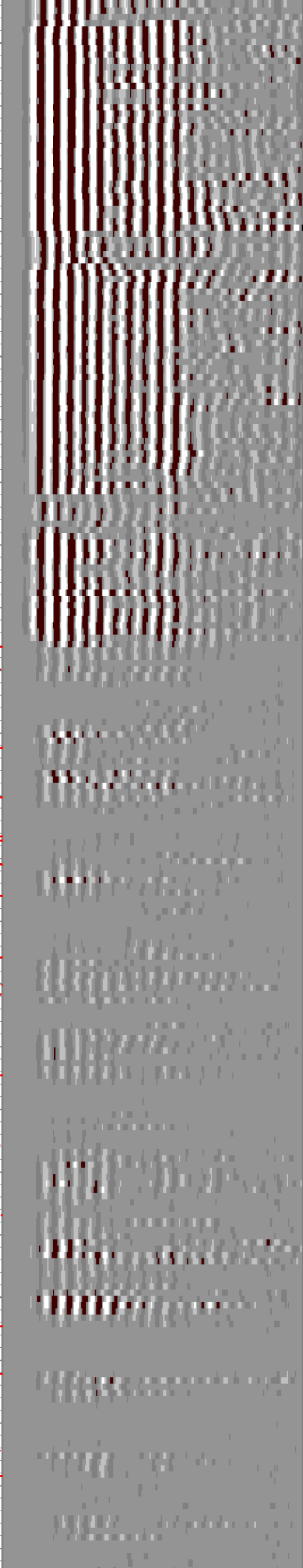
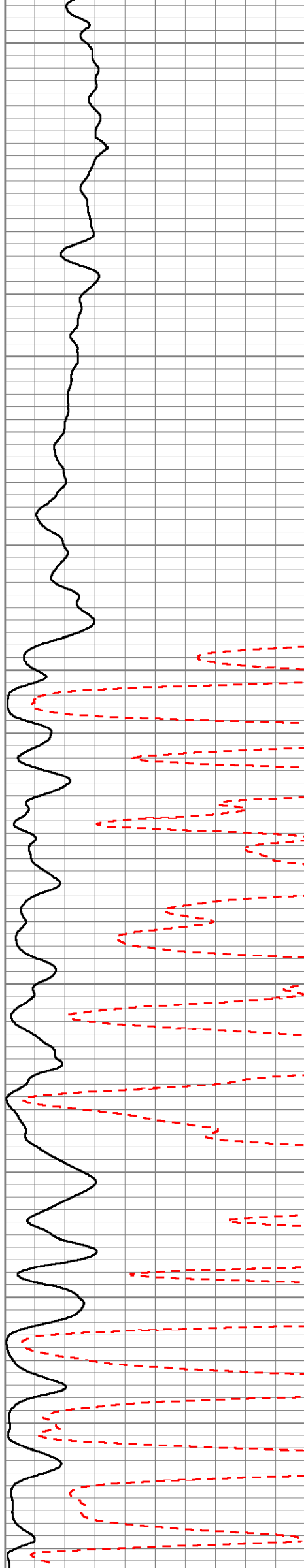


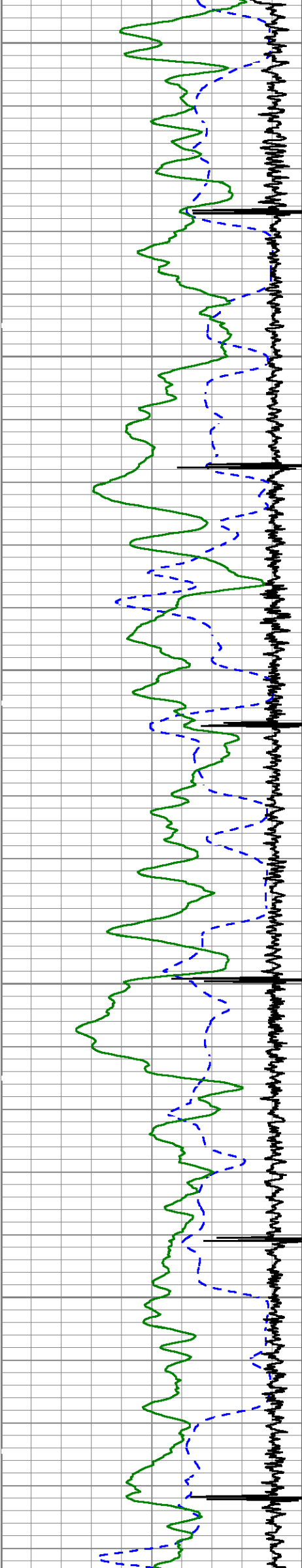


1700

1800

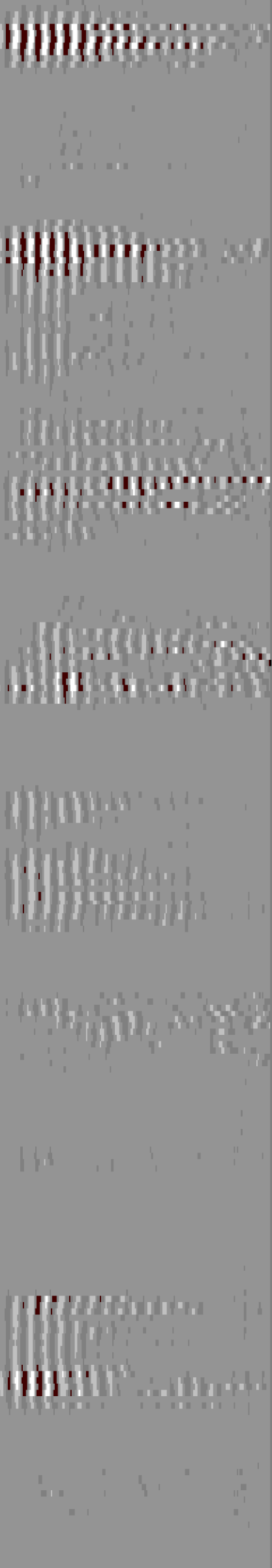
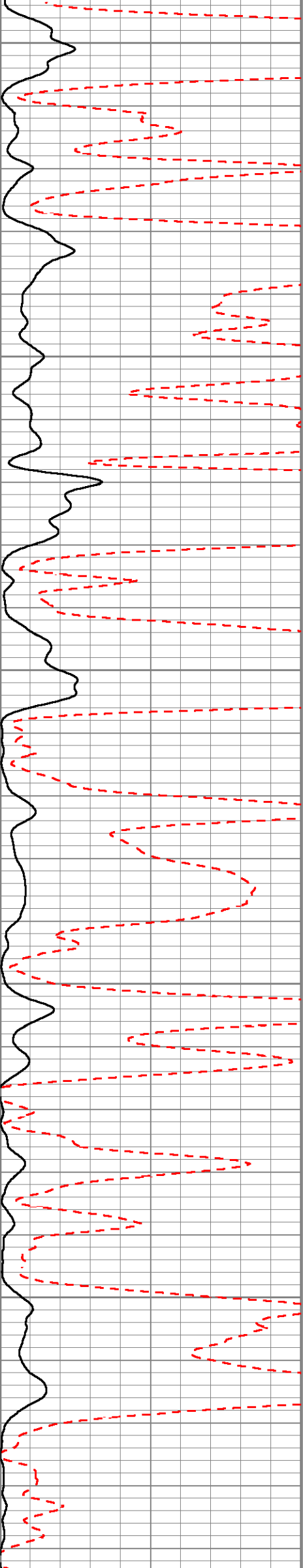
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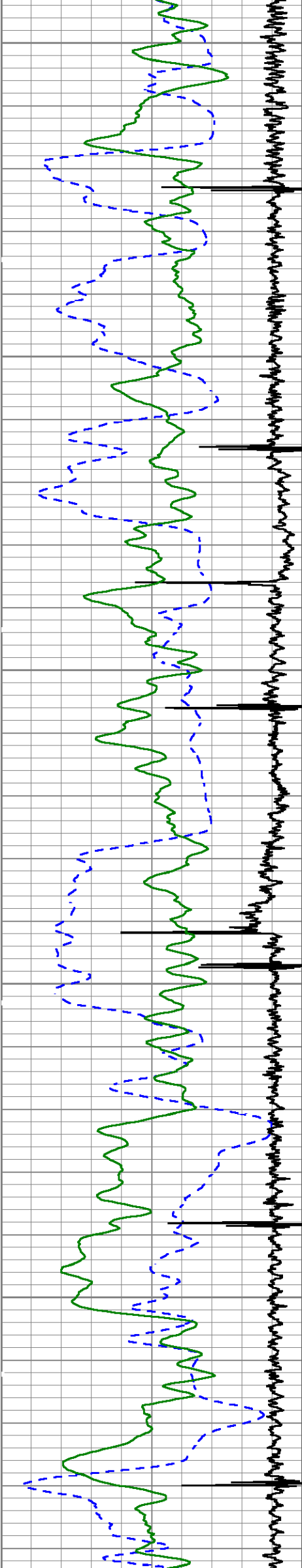




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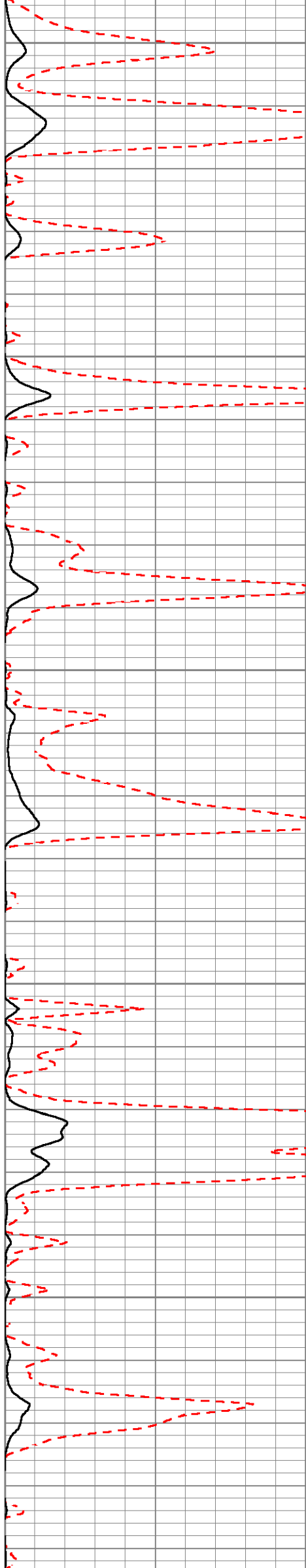


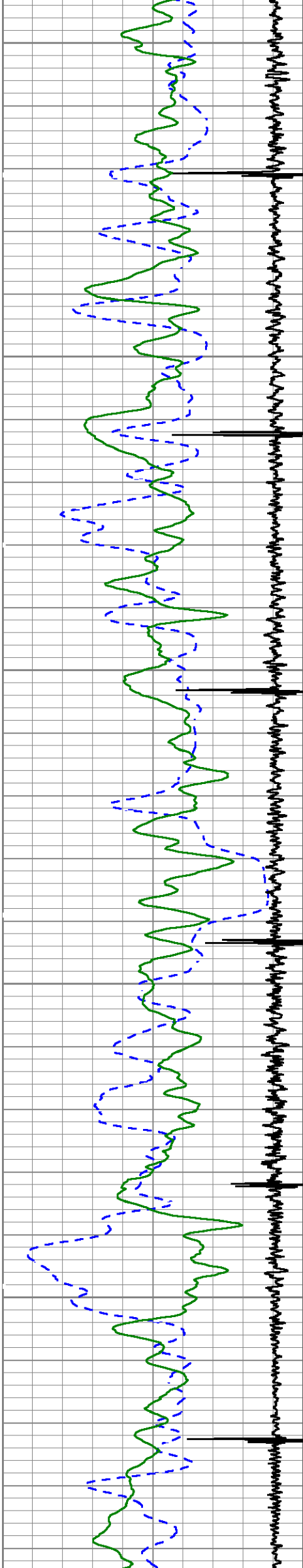


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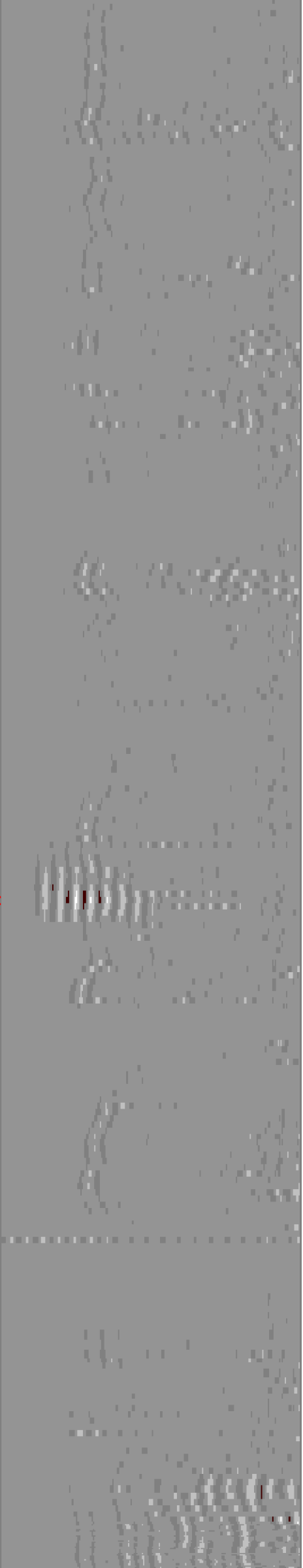
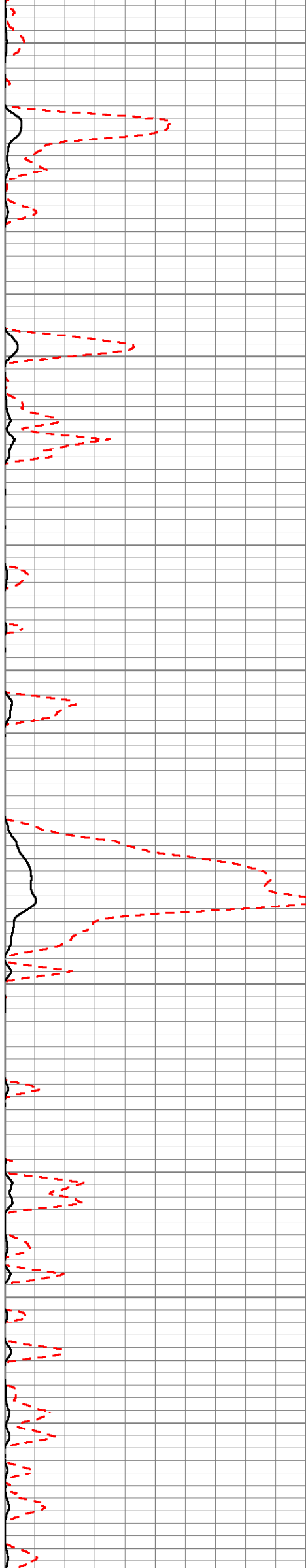
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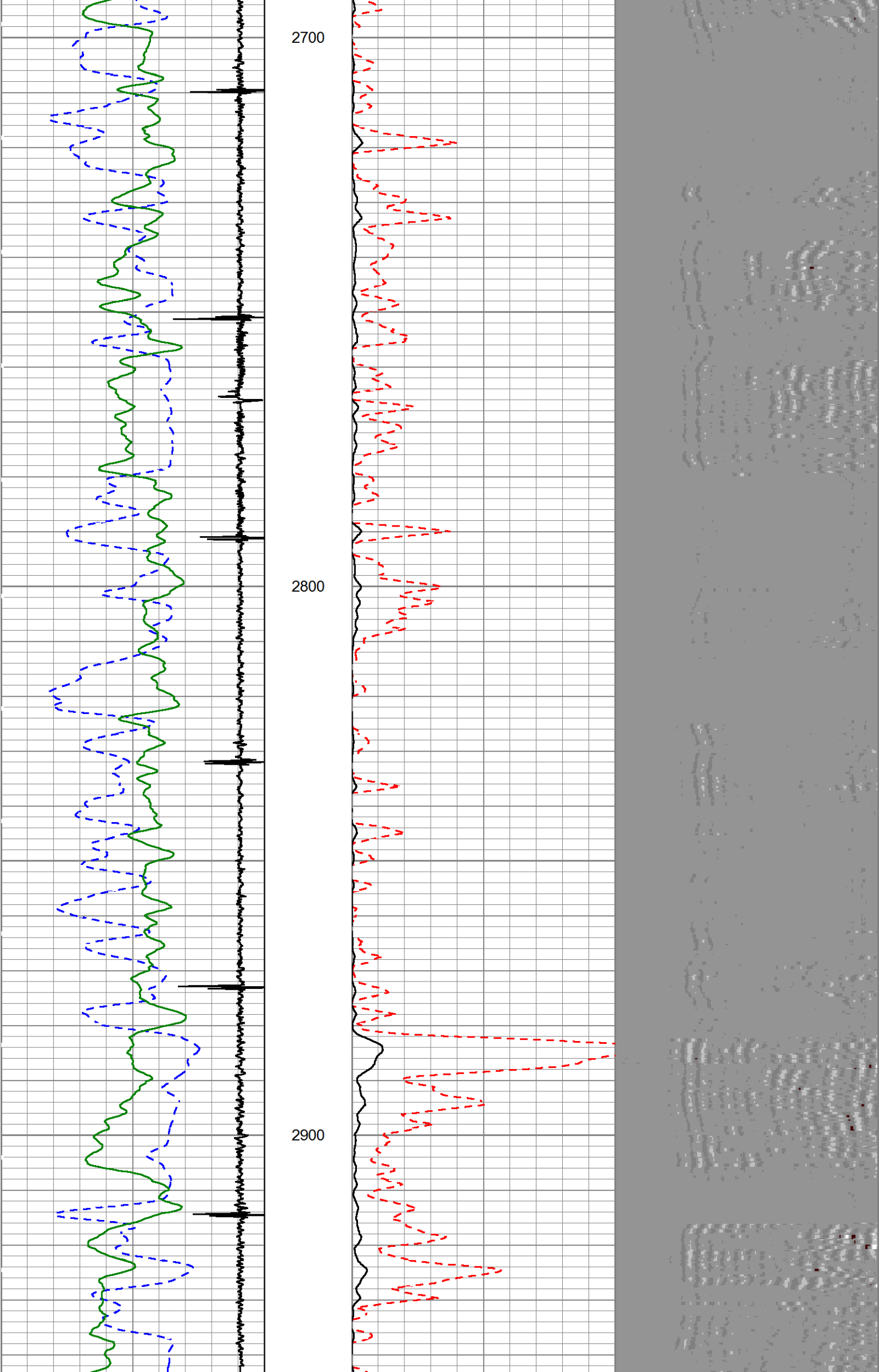


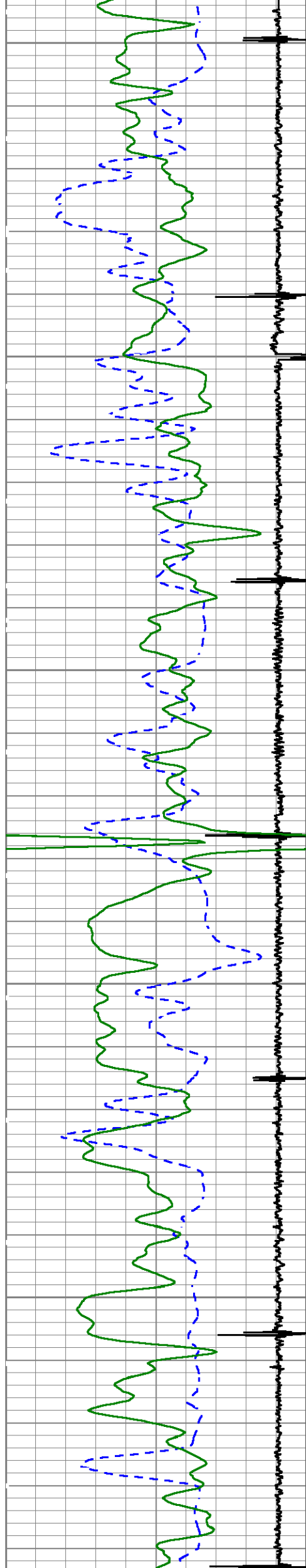


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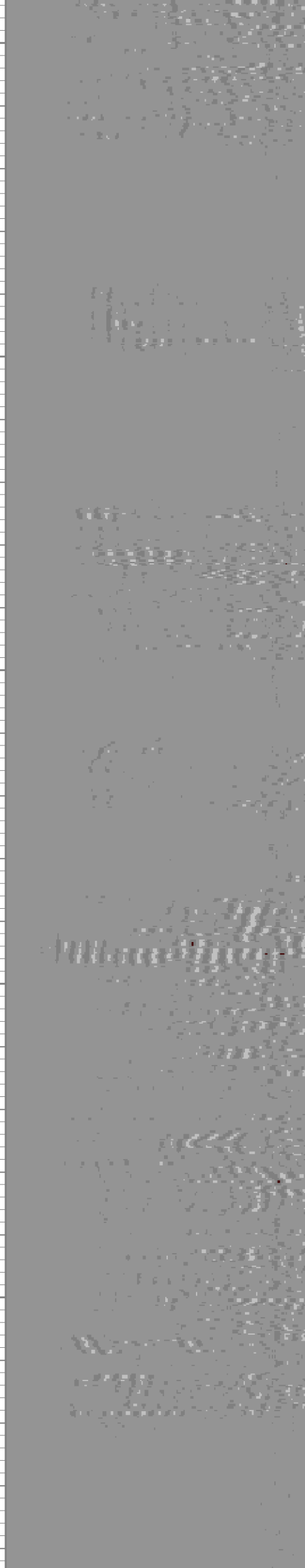
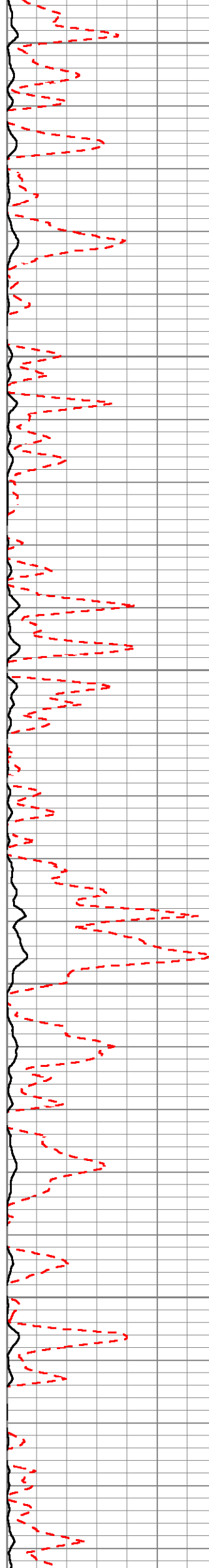


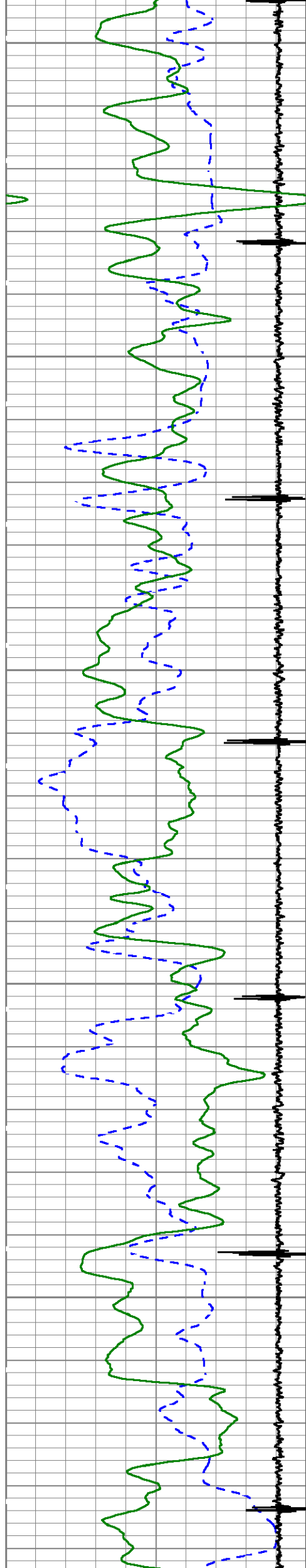




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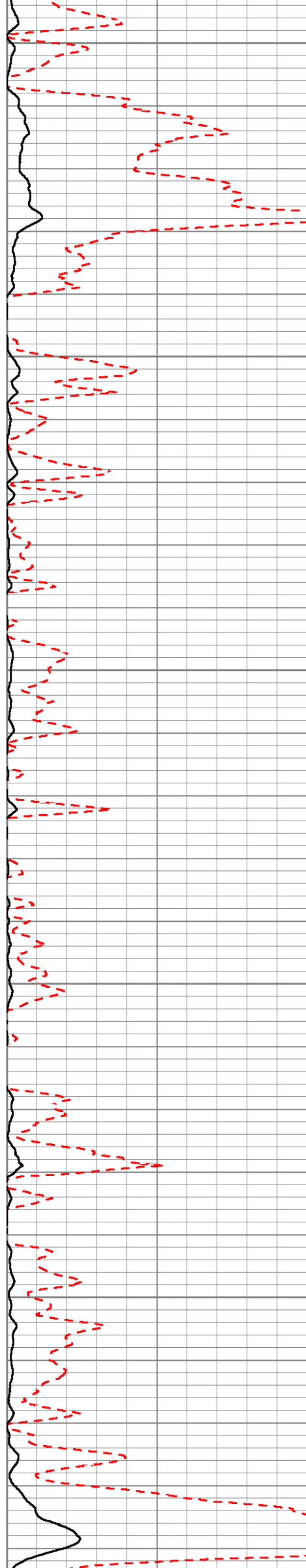


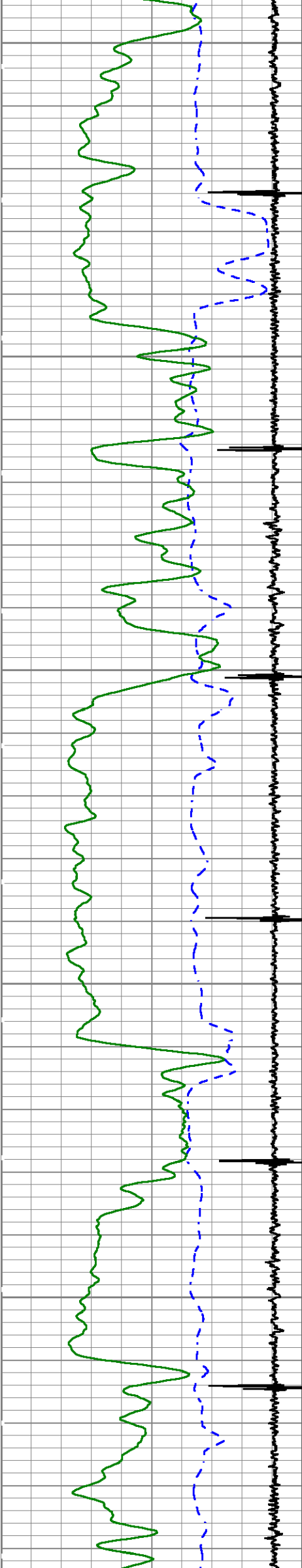


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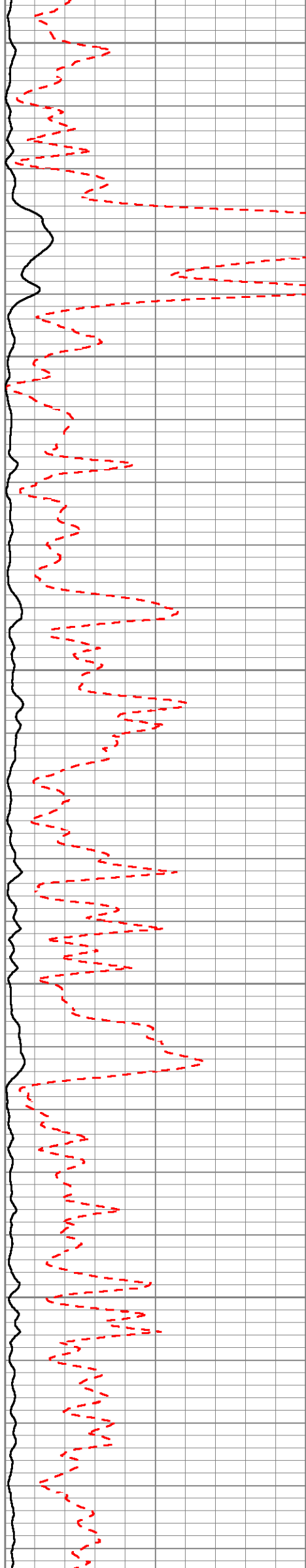
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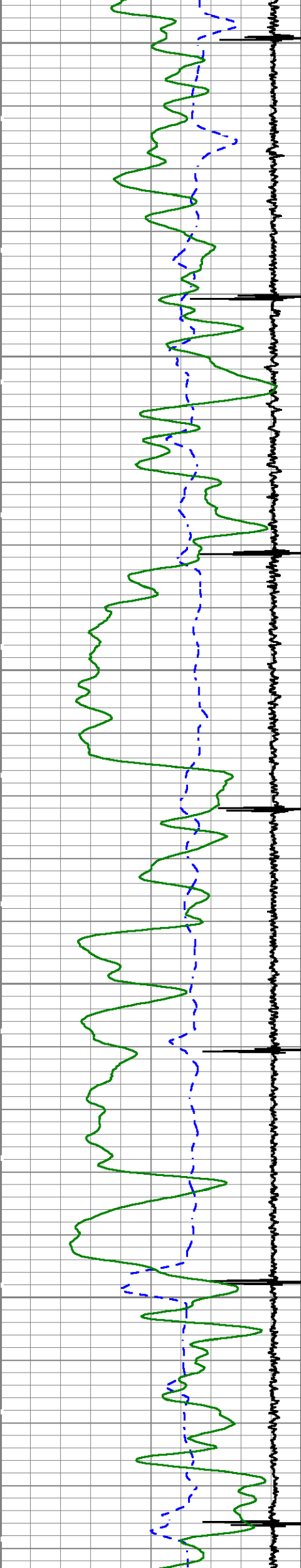




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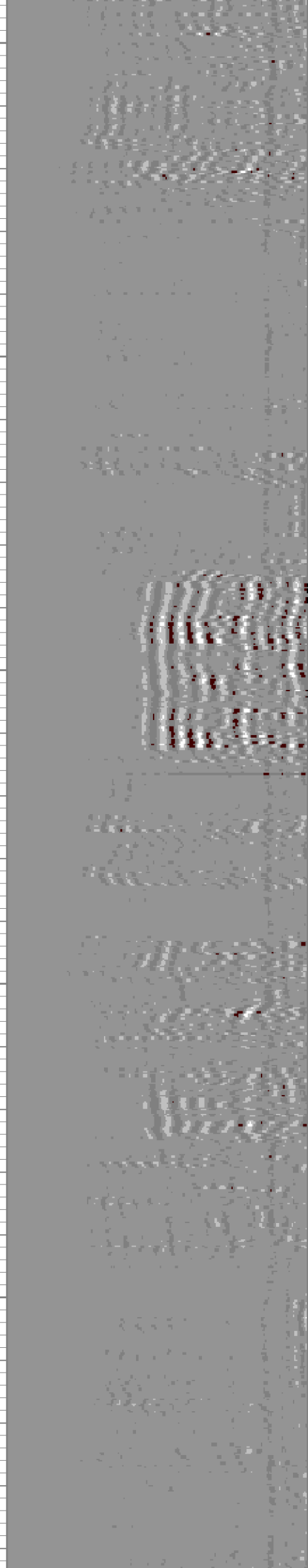
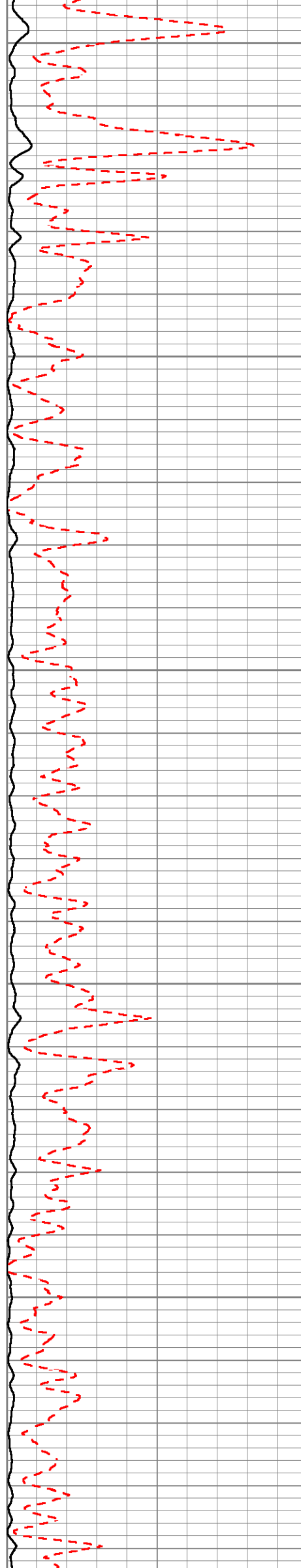


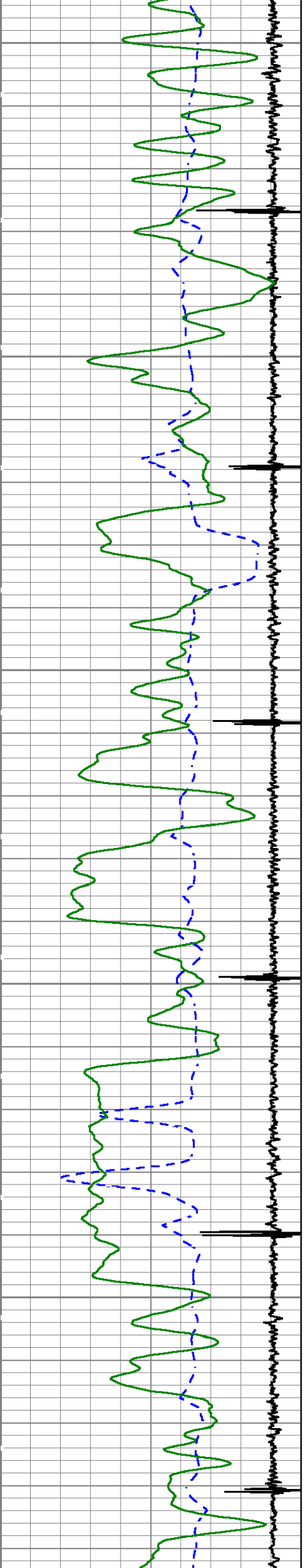


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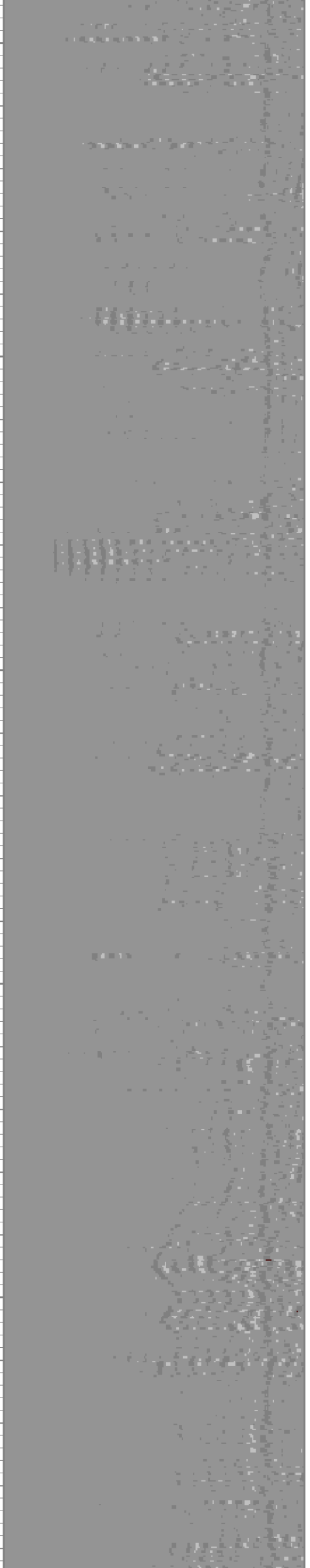
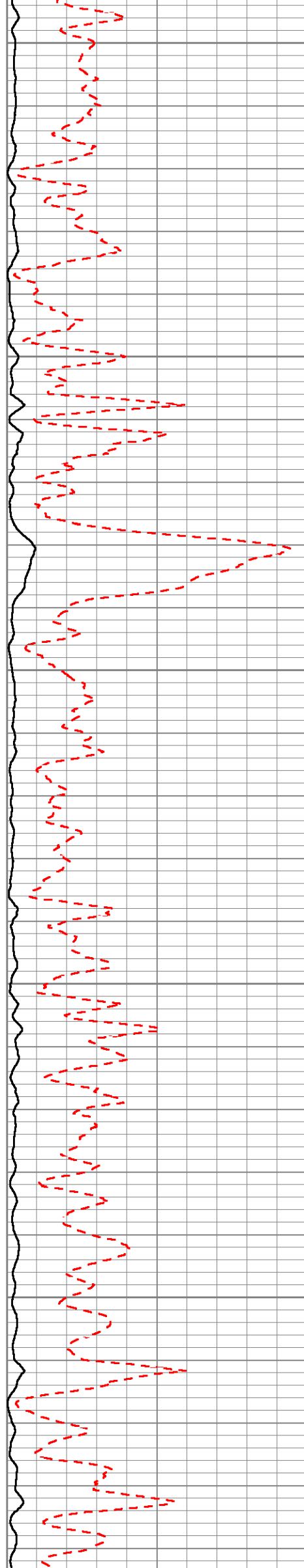
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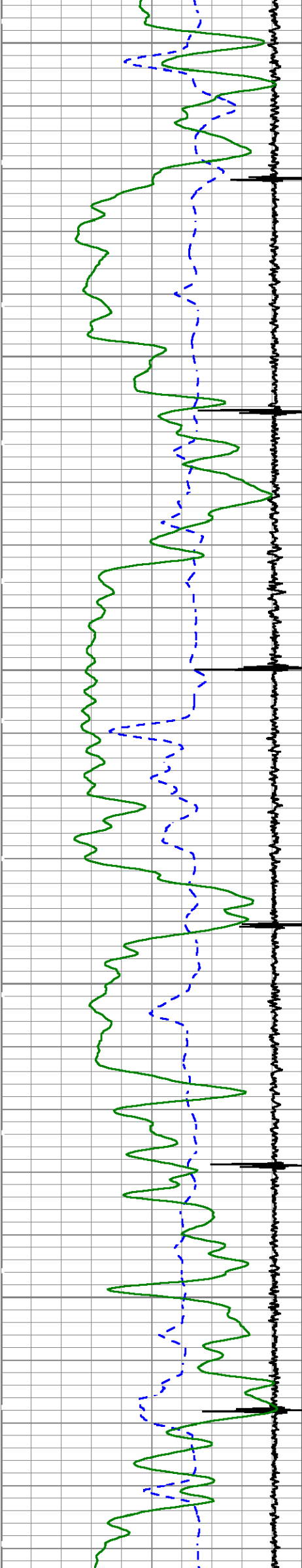




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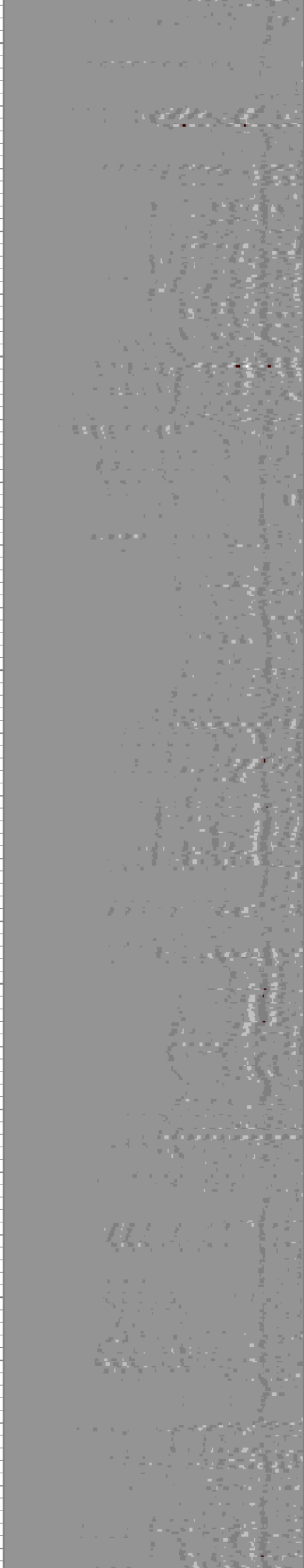
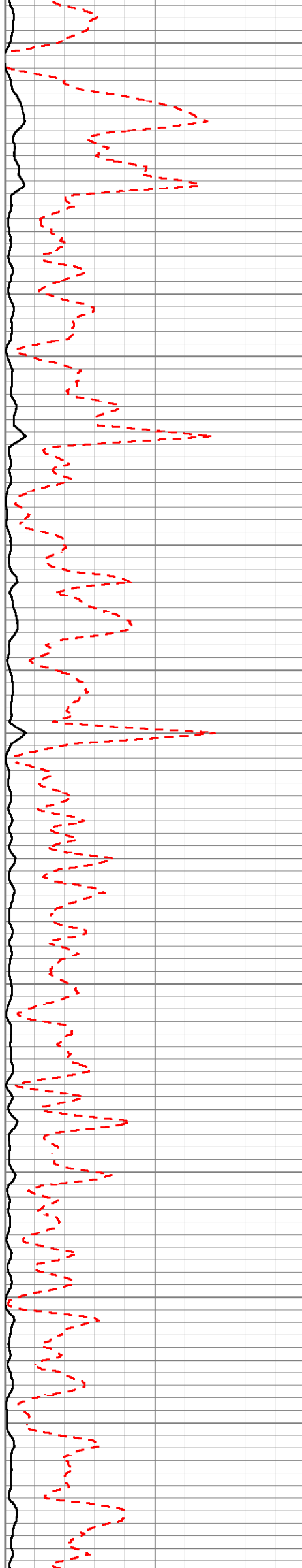


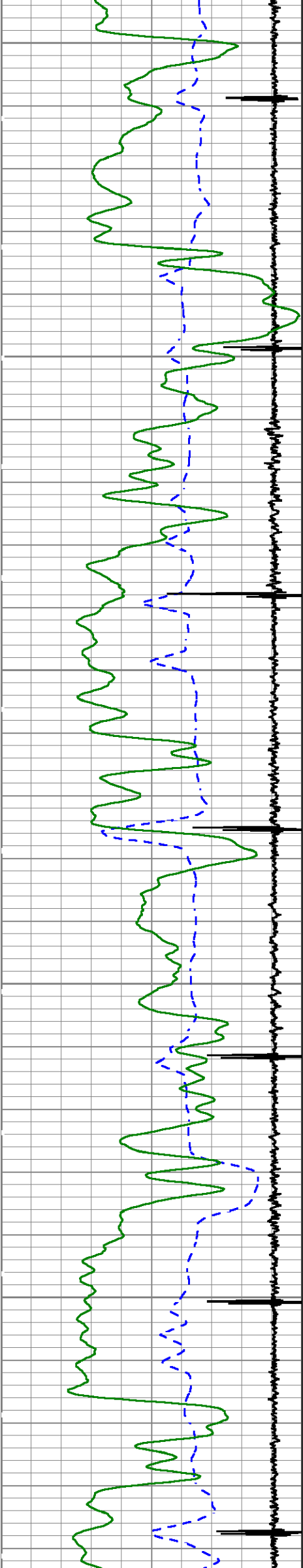


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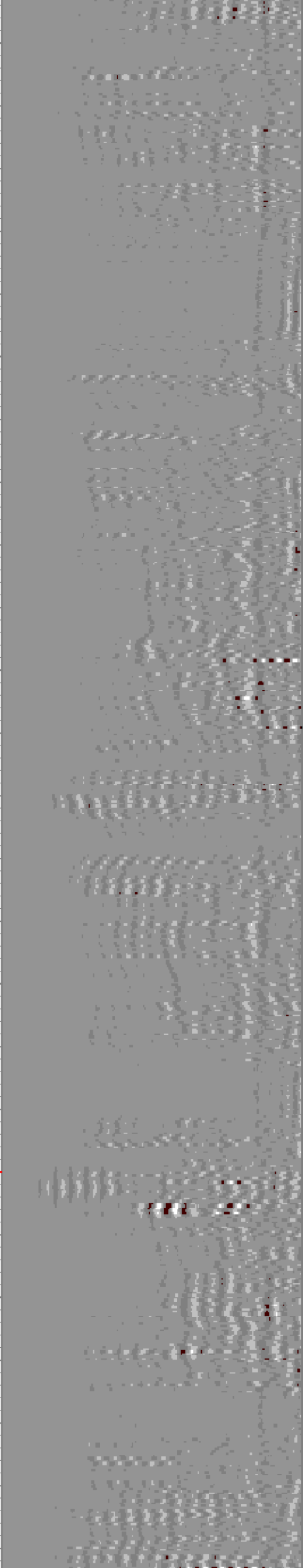
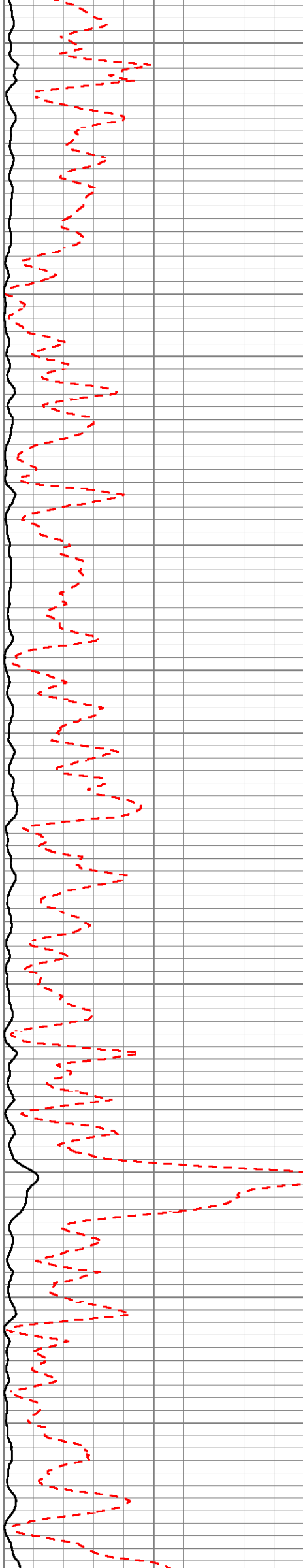
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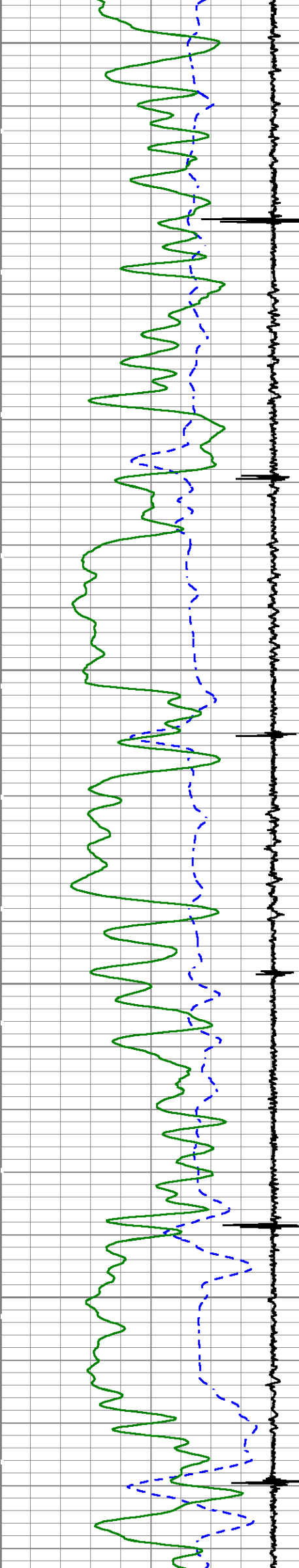




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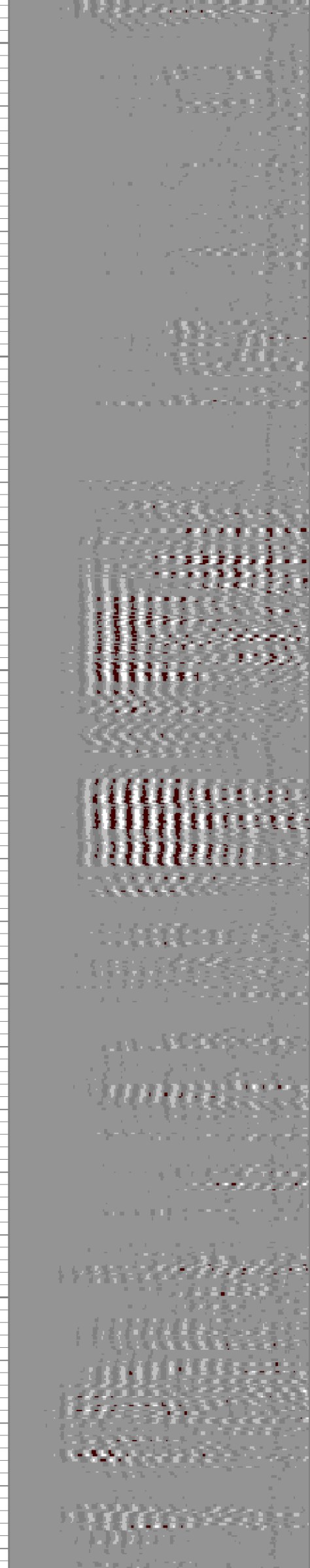
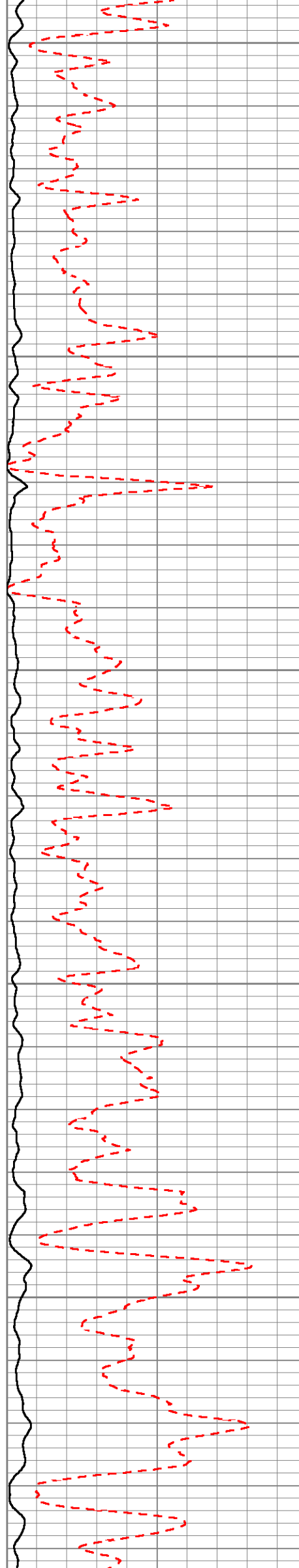


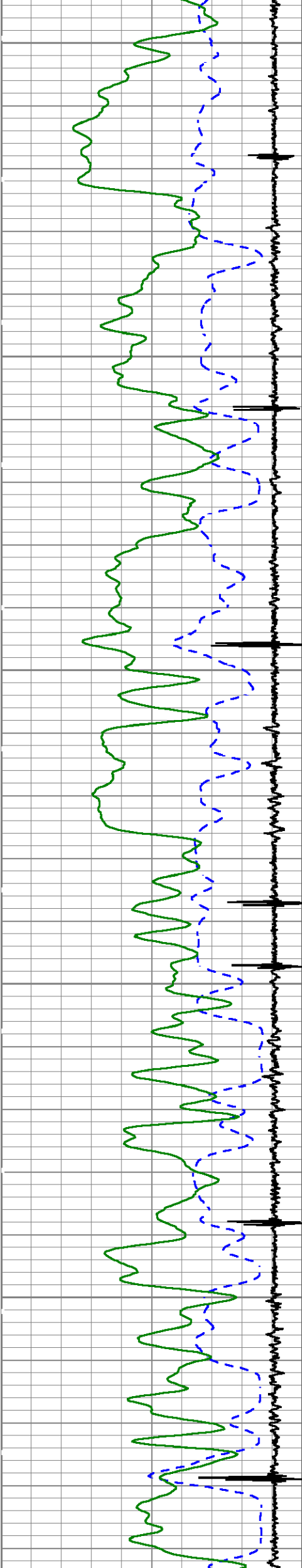


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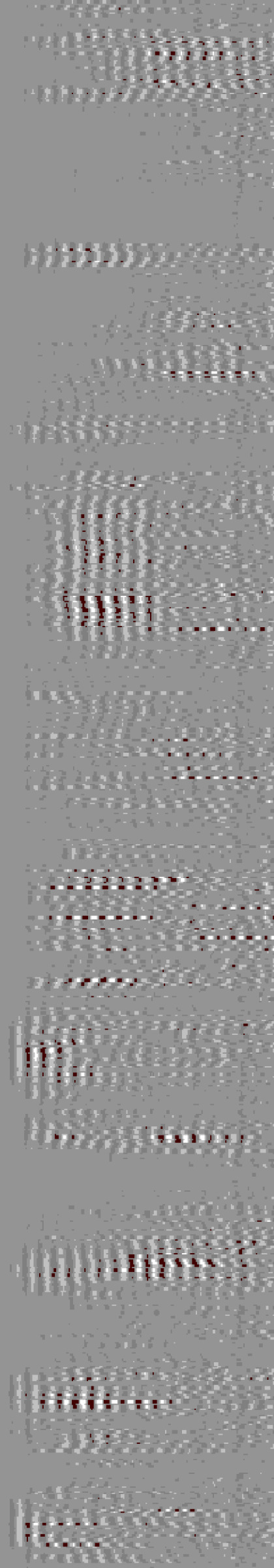
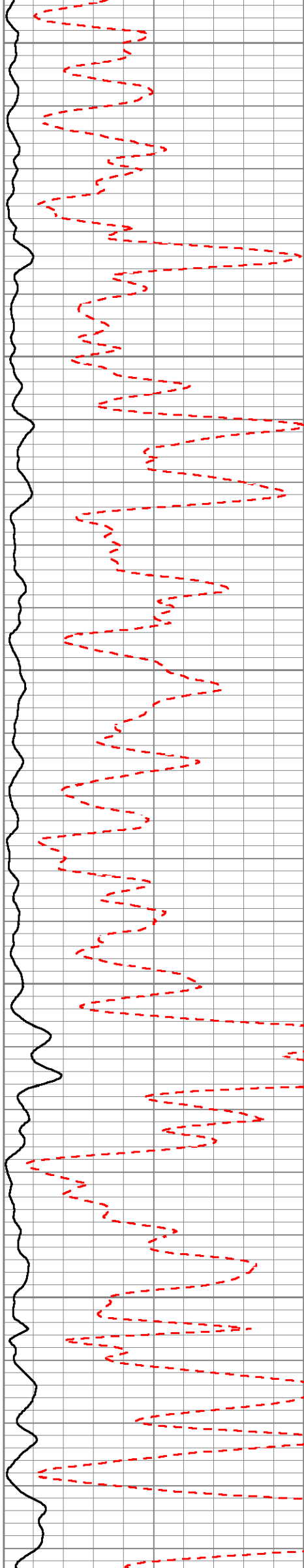
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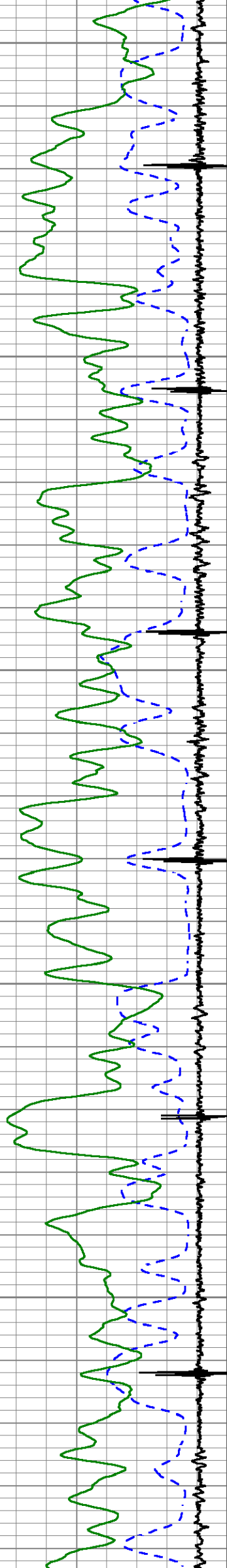




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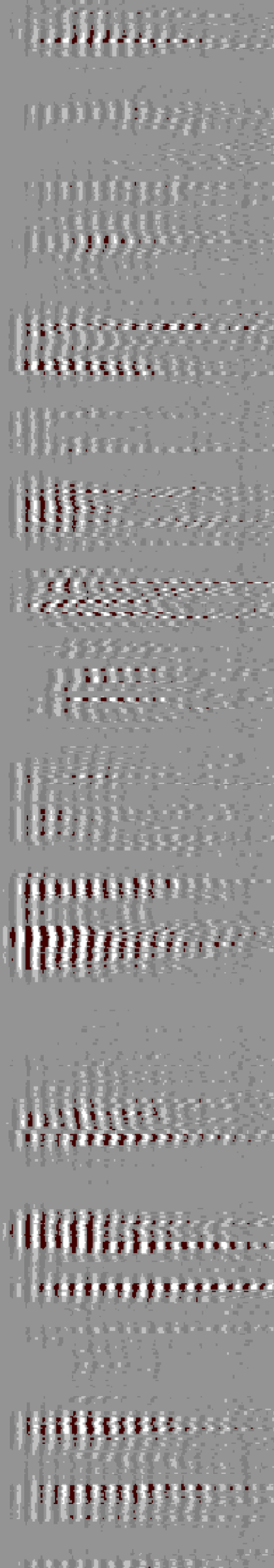
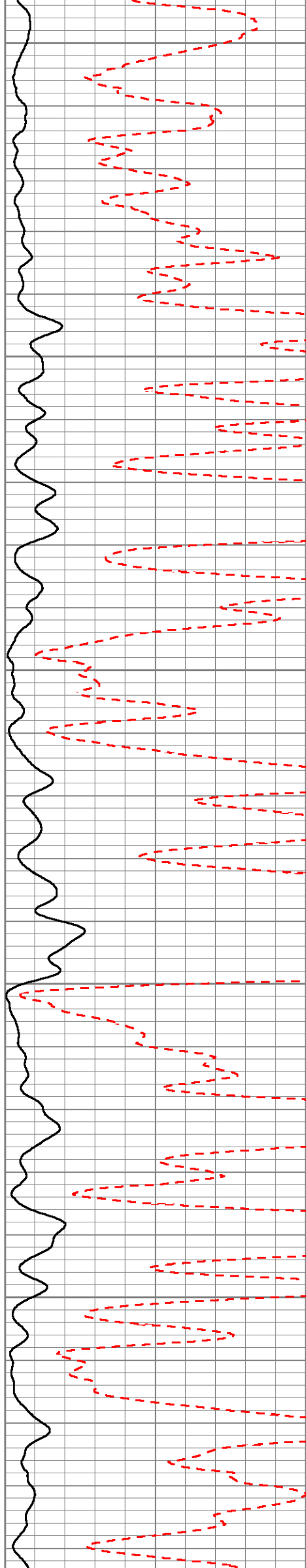


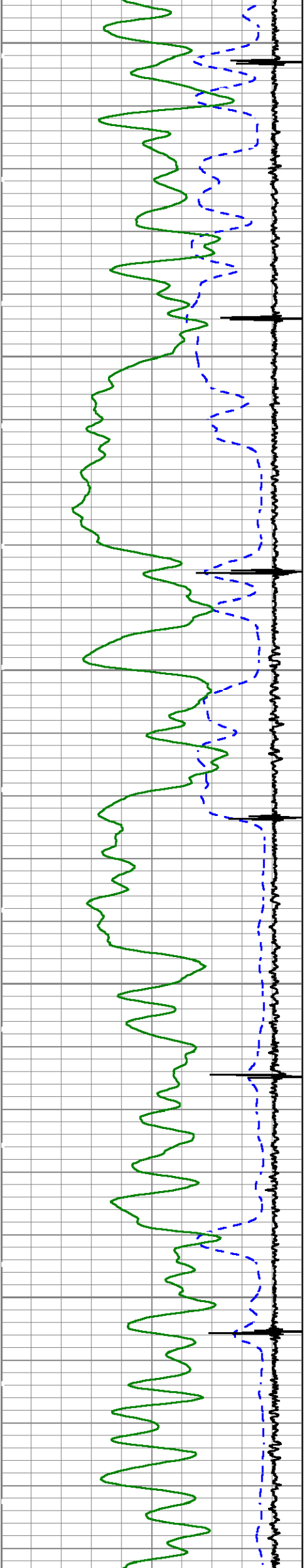


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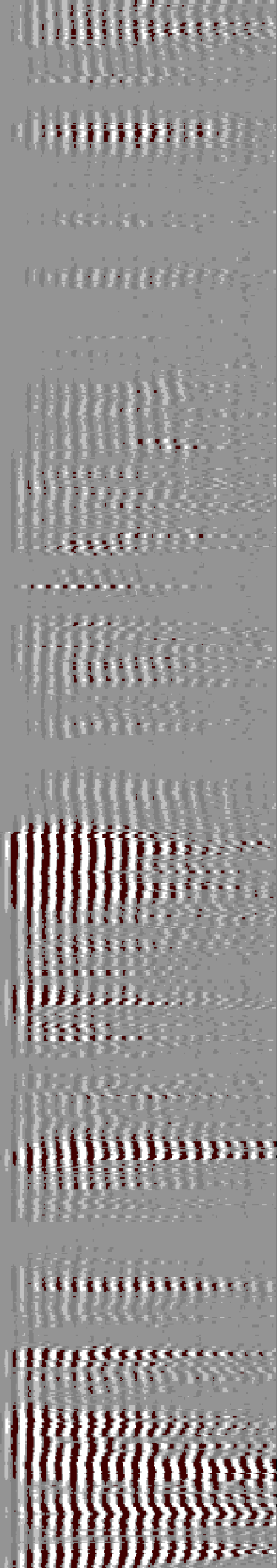
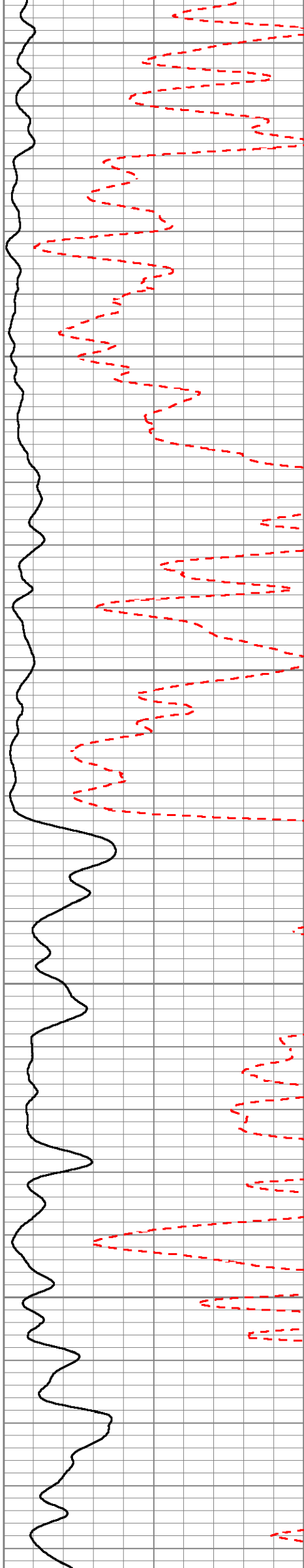
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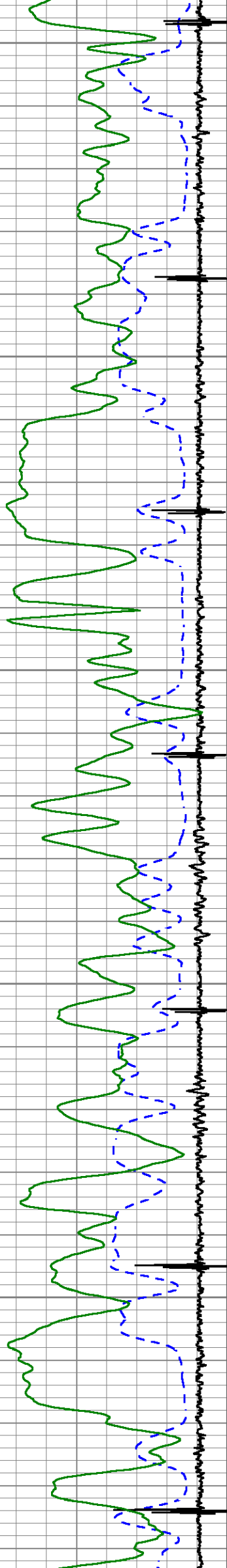




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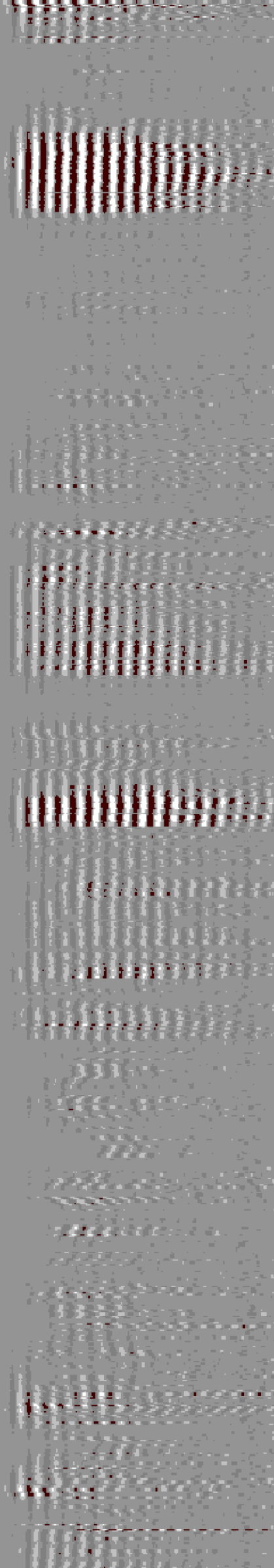
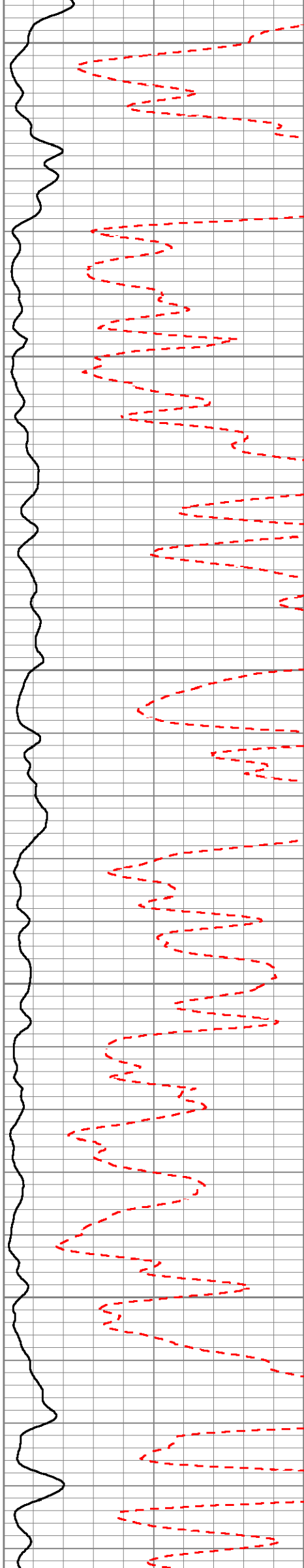


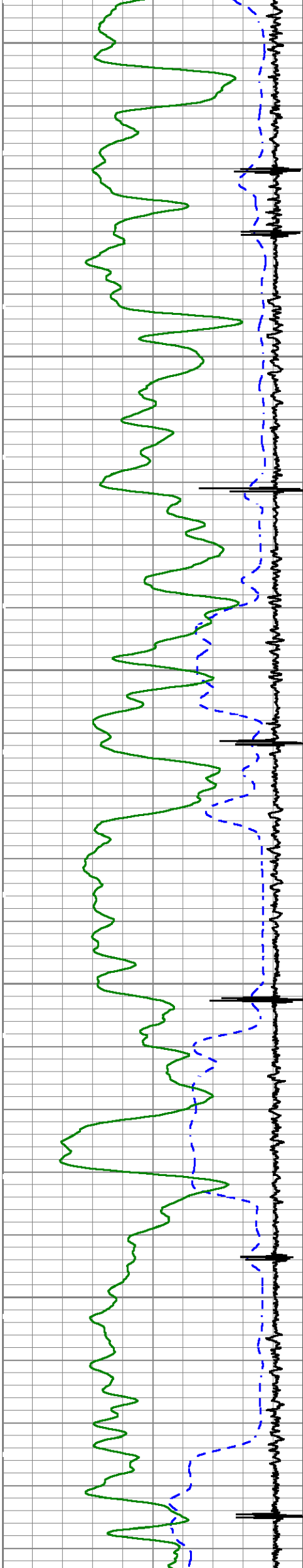


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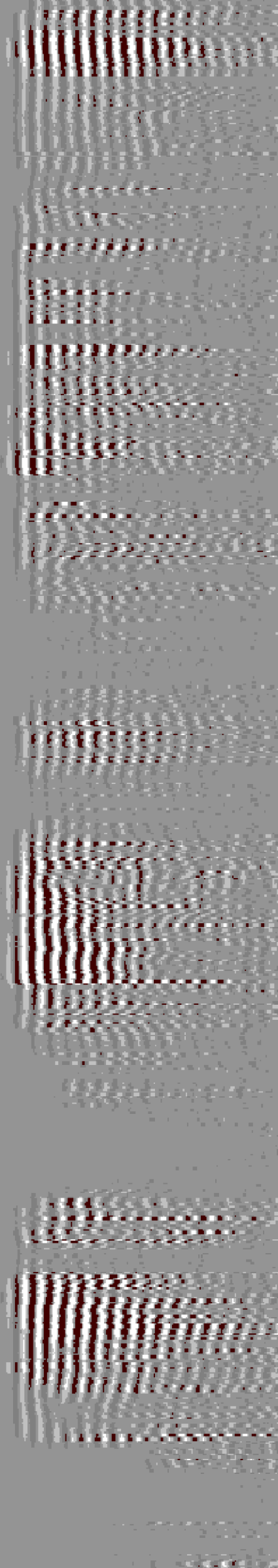
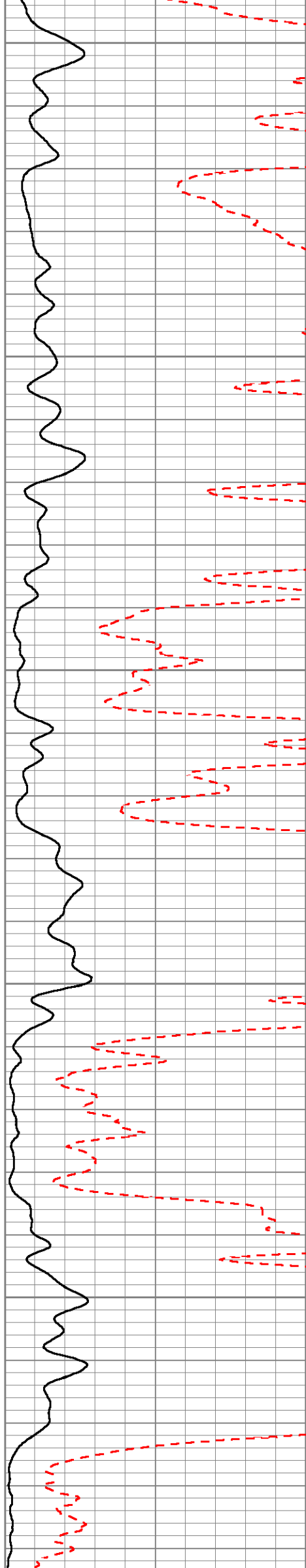
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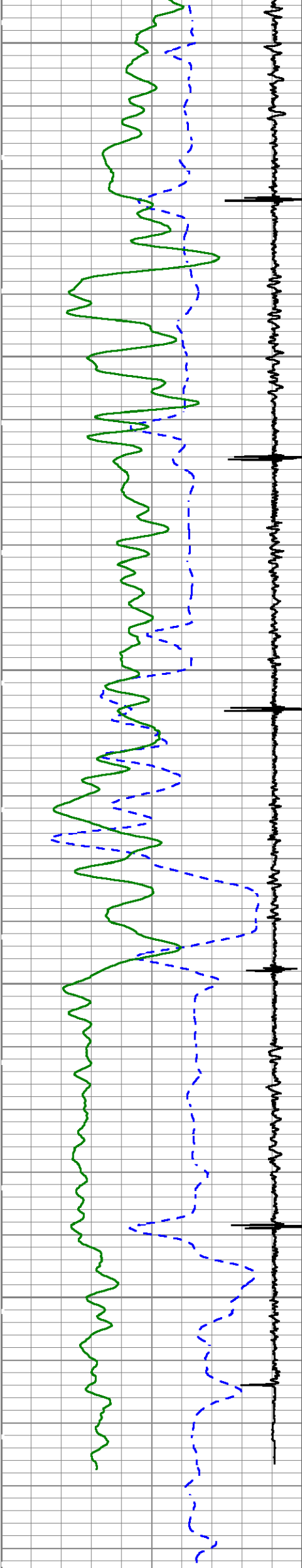




6000

6100

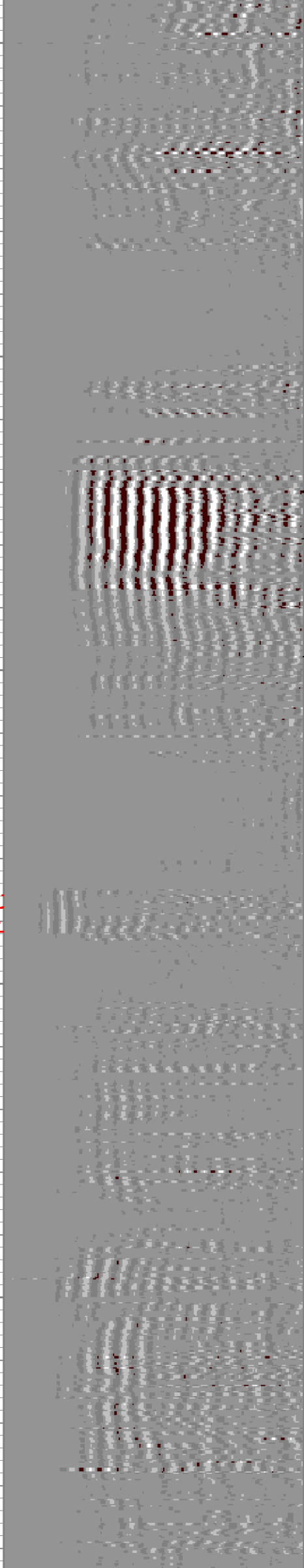
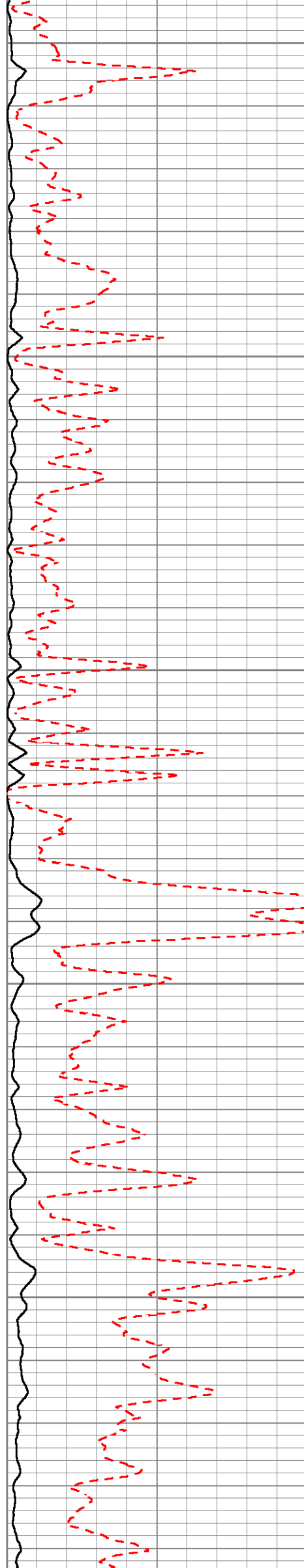


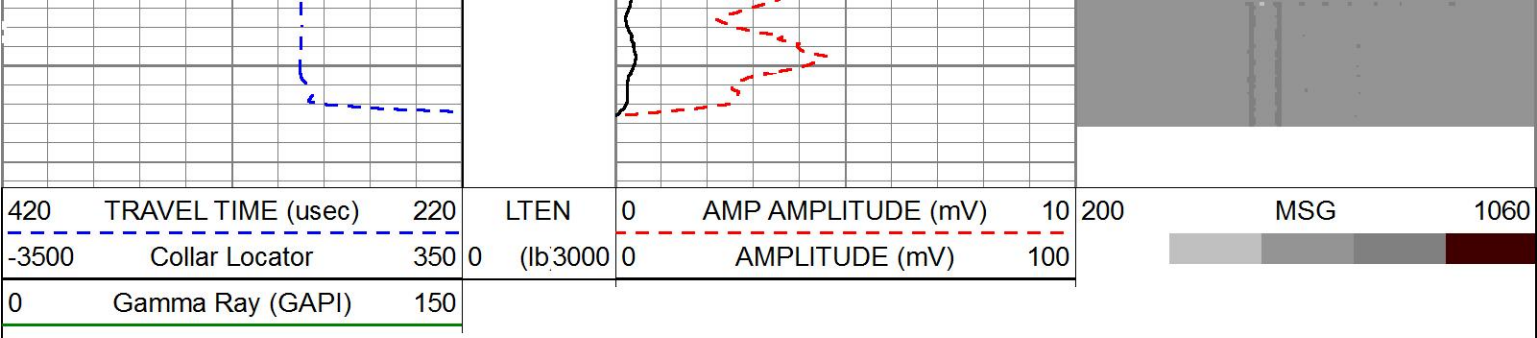


6200

6300

6400





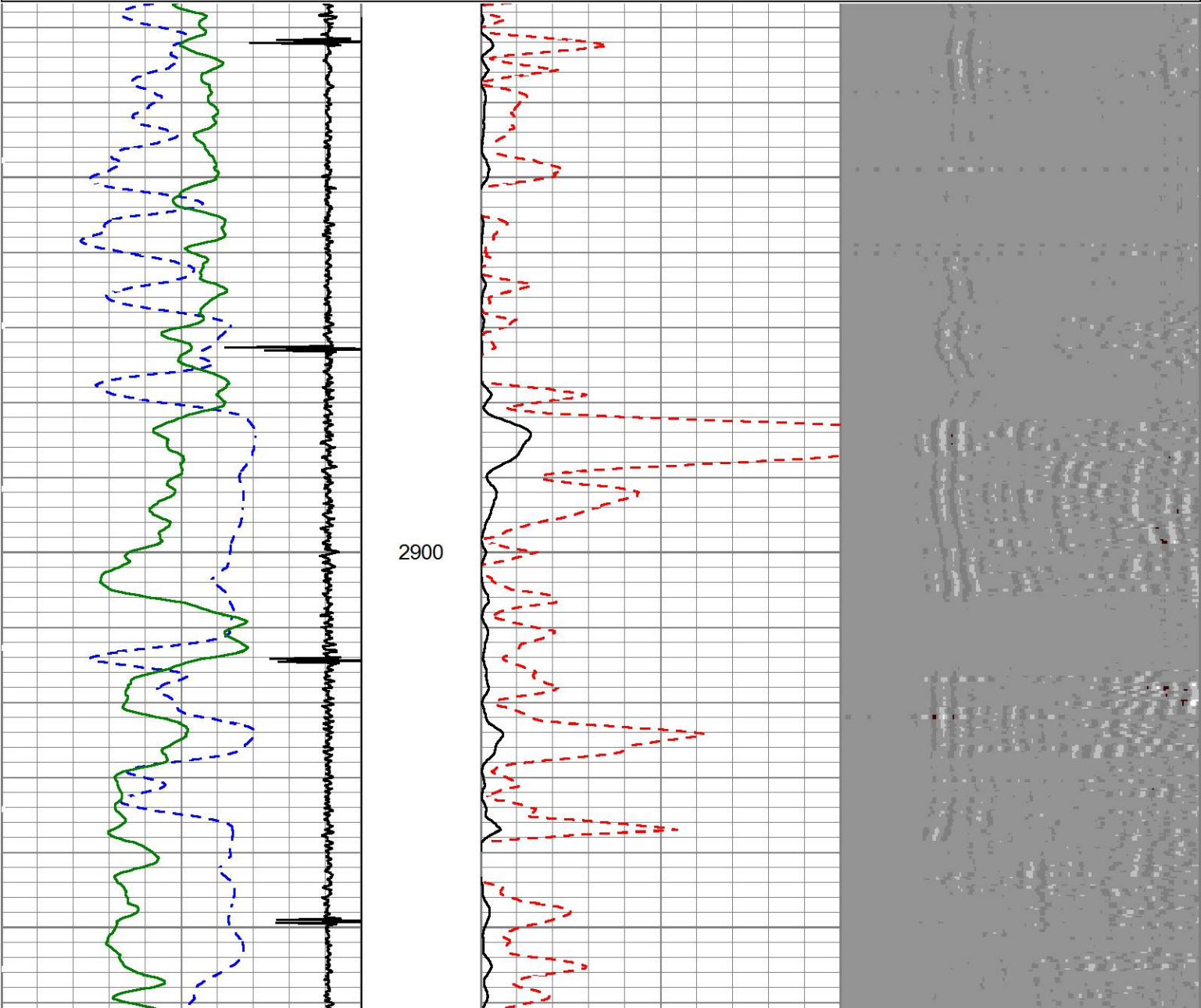
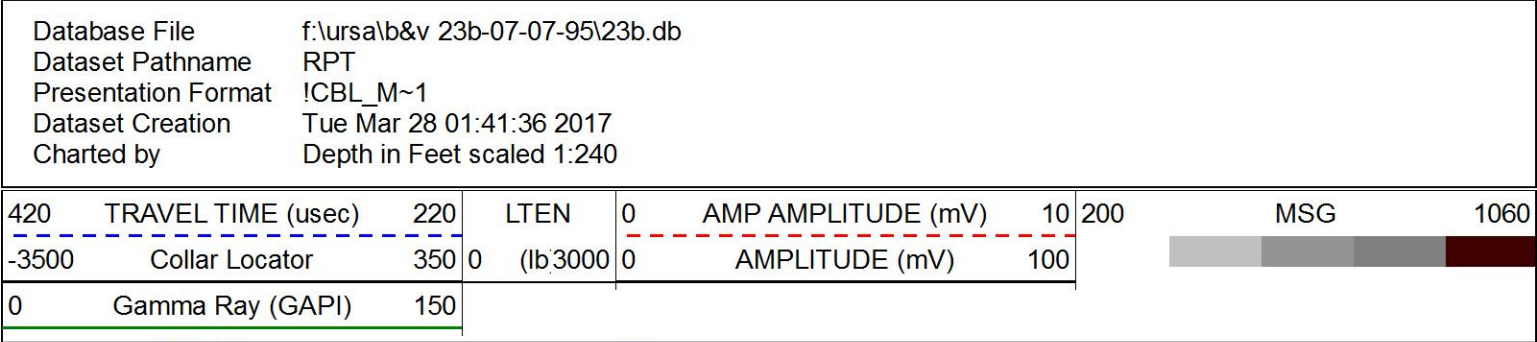
MAIN PASS

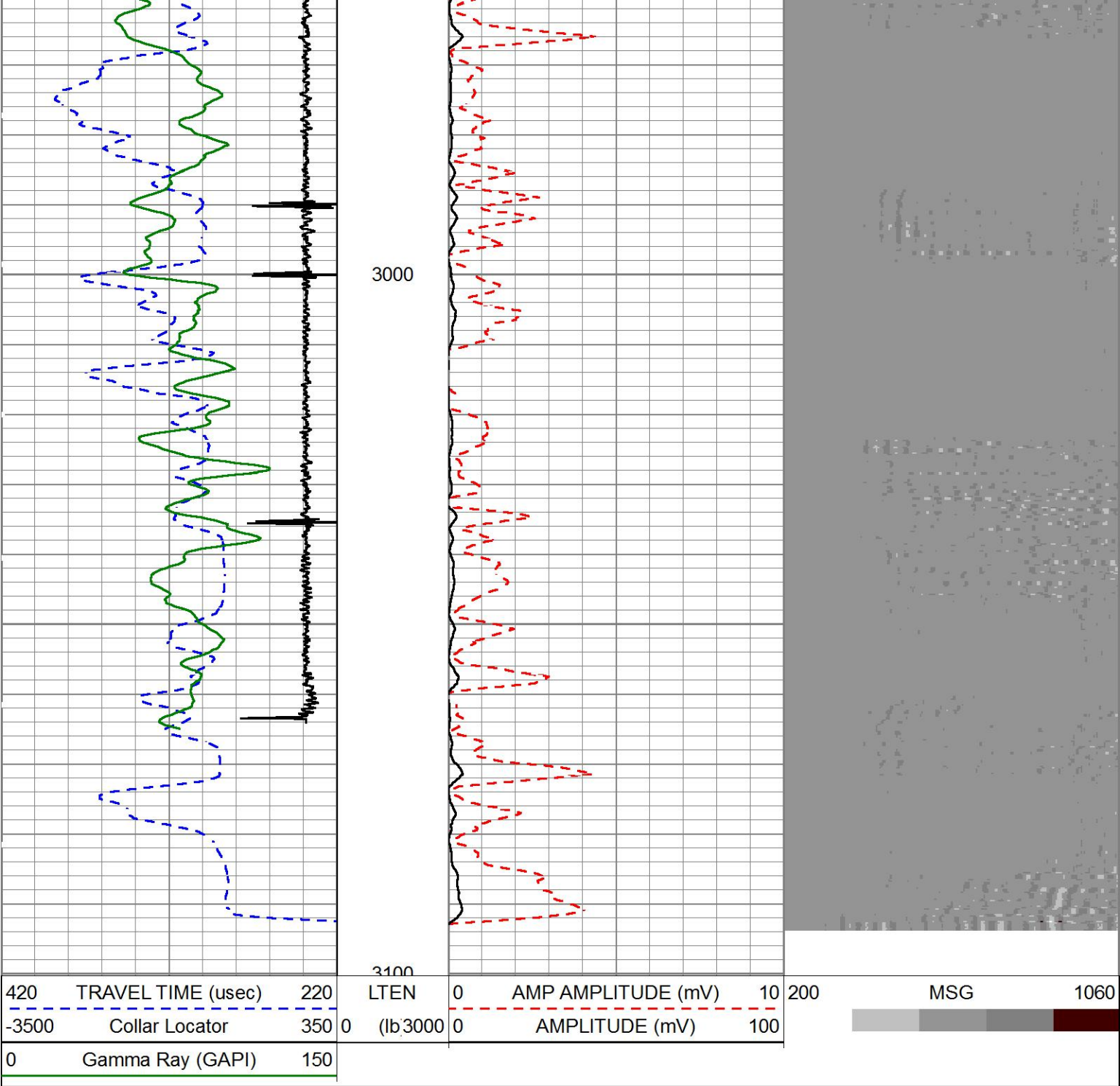
5" = 100'



REPEAT PASS

5" = 100'





REPEAT PASS

HALLIBURTON

5" = 100'

Log Variables

Database:\ursa\b&v 23b-07-07-95\23b.db
Dataset field/well/run1/MAIN/_vars_

Top - Bottom

BHSAL1	BHSAL2	BHTEMP_Src	BITSIZE	BORSAL	BOTTEMP	CASED?	CASEOD
1	0	TEMP	in 7.875	kppm 150	degF 200	Yes	in 4.5
CASETHCK	CASEWGHT	LIRISHFTF	LIRISHFTN	LTH	MAXAMPL	MINAMPL	MINATTN
in 0.25	lb/ft 11.6	0	0	Sandstone	mV 82	mV 1	db/ft 0.8
MSGGN	MudWgt	PERFS	POROS1	POROS2	PPT	RHO�F	SO
1	lb/gal 8.4	0	1	0	uSec 0	0.25	in 0
SRFTEMP	TDEPTH	UHSGC	USERFTT	ZREF			
degF 50	ft 6500	NONE	uSec/ft 0	MRayl 1.7			

Calibration Report					
Database File	f:\ursa\b&v 23b-07-07-95\23b.db				
Dataset Pathname	MAIN				
Dataset Creation	Tue Mar 28 02:12:29 2017				
Cement Bond Log Shop Calibration Report					
Serial-Model:		11836468-A			
Calibration Performed:		Tue Mar 28 05:28:13 2017			
Free Pipe Calibration					
TT	Measured	Units			
	245.9	usec			
Amplitude	368.1	mV			
Log Base Line	19.1	mV			
Calibration References and Gain					
Name	Value	Units			
Pipe O.D.	4.500	in			
Pipe Weight	11.6	lb/ft			
Pipe Ref. Amp.	82.0	mV			
Amp. Gain	0.231				
Reservoir Monitor Tool I Calibration Report					
Serial-Model:		12376244-A			
Shop Calibration Performed:		Thu Mar 23 21:07:10 2017			
Carbon/Oxygen Mode					
Stabilization					
Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	84.00	80.00	4.00	+/-15.00	V
ITCR2	3167	3250	-83	+/-250	cps
Near Detector					
	Channel	Expected Value	Amplitude	FWHM	Tol.
H	60	60 +/-2	0.0289	5.35	<6.00
Fe	206	206 +/-2	0.1001	-----	-----
NGAIN = 0.996	NZOFF = 0.7				
Far Detector					
	Channel	Expected Value	Amplitude	FWHM	Tol.
H	60	60 +/-2	0.0335	6.31	<6.50
Fe	210	208 +/-2	0.0901	-----	-----
FGAIN = 0.990	FZOFF = 0.5				
Flask Temperature	51.6 degF				
Result	Logged	Expected Value	Diff.	Tol.	Units
NFER	2.096	2.130	-0.034	+/-0.200	
FFER	1.820	1.970	-0.150	+/-0.300	
COIR2	0.44	0.45	-0.01	+/-0.02	
LIRI2	1.36	1.36	0.00	+/-0.05	
TCCR2	4904	4000	904	+/-1000	cps
ITCR2	3207	3200	7	+/-250	cps

Stabilization

Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	84.00	80.00	4.00	+/-15.00	V
FCAP	9784	10000	-216	+/-500	cps

Horizontal Water Tank

Result	Logged	Expected Value	Diff.	Tol.	Units
NFER	2.105	2.130	-0.025	+/-0.200	
FFER	1.910	1.970	-0.060	+/-0.300	
N/F Normalizer	0.950	0.950	-0.000		
N/F Inel Norm	0.611	0.610	0.001		
RNF	1.053	1.070	-0.017	+/-0.120	
RINC	1.636	1.640	-0.004	+/-0.180	
SGFN	24.07	24.00	0.07	+/-0.50	cu
SGFF	22.94	22.85	0.09	+/-0.50	cu
FSIN	23301	24000	-699	+/-2000	cps
FCAP	9838	10000	-162	+/-1000	cps
NFTR	0.90			<5.00	
FFTR	0.90			<5.00	
NBKG	166			<500	cps
FBKG	91			<500	cps
RTN	0.410	0.400	0.010	+/-0.100	usec
RTF	0.428	0.400	0.028	+/-0.100	usec

Calibration Software Modules

HRMTI Module	2015.5.4.0
RMTI Module	2015.10.16.1

Log Data Acquisition Software Modules

HRMTI Module	2016.6.8.0
RMTI Module	2016.6.8.1

Gamma Ray Calibration Report

Type / Serial: 002 / 12159411

SHOP CALIBRATION Mon Feb 20 15:54:04 2017

	Counts/Sec.	Gain	Offset	Jig	Units
Background	27.6				cps
Calibrator	317.4				cps
		1.4943			GAPI/cps

PRIMARY VERIFICATION


Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	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)
			STNDCH-STND_CH 1.4375 IN CABLE HEAD	1.50	1.44	1.00

CCL	35.86						
GR	33.60			TTTCU-002 (12159411) Through Tubing Telemetry Cartridge - Ultrawire	7.65	1.69	37.00
				XHU-003 (000001) Crossover Halliburton 1553 to Ultrawire	1.58	1.69	7.00
RmtTFGT RmtTNGT	22.95 22.45			RMTI-A (12376244) Halliburton RMTI Tool	14.00	2.13	77.00
RmtFP5V RmtNFwvMcsP RmtCommFWa	14.70 14.70 14.70			X-OVER-SondexxGo Sondex Box x Go Pin Cross Over	0.31	1.69	1.00
				CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
Temp	9.57						
TT3FT AMP3FT WVF5FT	7.32 7.32 6.36			HCBLM-A (11836468) Halliburton HCBLM Tool	9.38	2.75	116.00
WVF3FT	2.84			CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
				AUH-001 (11072111) Adaptor Ultrawire/Halliburton	0.38	1.69	3.00
LLMTEN	0.00			BUL-001 (000001) Bullnose	0.30	1.69	1.50
Dataset: 23b.db: field/well/run1/MAIN Total length: 39.43 ft Total weight: 293.50 lb O.D.: 3.13 in							

Well	B&V 23B-07-07-95		
Field	WILDCAT		
County	GARFIELD	State	CO
HALLIBURTON		CEMENT BOND LOG	