

HALLIBURTON										ACOUSTIC CEMENT BOND LOG									
Company CAERUS PICEANCE, LLC. Well ISLAND RANCH 21A-24 Field PARACHUTE County GARFIELD State CO					Company CAERUS PICEANCE, LLC. Well ISLAND RANCH 21A-24 Field PARACHUTE County GARFIELD State CO														
Permanent Datum GROUND LEVEL Elevation 5056'					Location: SURFACE HOLE LOCATION: 1302' FSL & 1060' FWL BOTTOM HOLE LOCATION: 0157' FNL & 1980' FWL RMT														
Log Measured From KB, 24 Ft. above perm. datum					Other Services														
Drilling Measured From KB																			
Date @ Time Logged 20 JULY 2014					Type Fluid in Hole WATER														
Run No. ONE					Density of Fluid 8.4#														
Depth - Driller 6225'					Fluid Level 65'														
Depth - Logger 5972'					Cement Top Est. Logged SEE LOG														
Bottom - Logged Interval 5972'					Equipment / Location 10971668 / G.J.														
Top - Log Interval SURFACE					Recorded by BURSON / SOLIS														
Max. Recorded Temp. N/A					Witnessed by B. STEWART														
CEMENTING DATA					Protection String														
Date / Time Cemented					String														
Primary / Squeeze					N/A														
Expected Compressive Strength					psi@ hrs														
Cement Volume					psi@ hrs														
Cement Type / Weight					psi@ hrs														
Formulation					psi@ hrs														
Mud Type / Mud Wgt.					psi@ hrs														
Run Number					Borehole Record														
ONE					Casing & Tubing Record														
TWO					From To Size Weight From To														
8.75" 934' 6225' 4.5" 11.6# SURFACE 934' 6225'																			

Service Ticket No.		901505958		API No.		05-045-22397-0000		PGM Ver		14.05.12001	
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.	11224503		Serial No.	11817843		Serial No.	12210614		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	5972'	SURFACE	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	410	210	0	100	200	1060
DIRECTIONAL INFORMATION								
Maximum Deviation		N/A	deg. @	N/A	KOP	N/A		

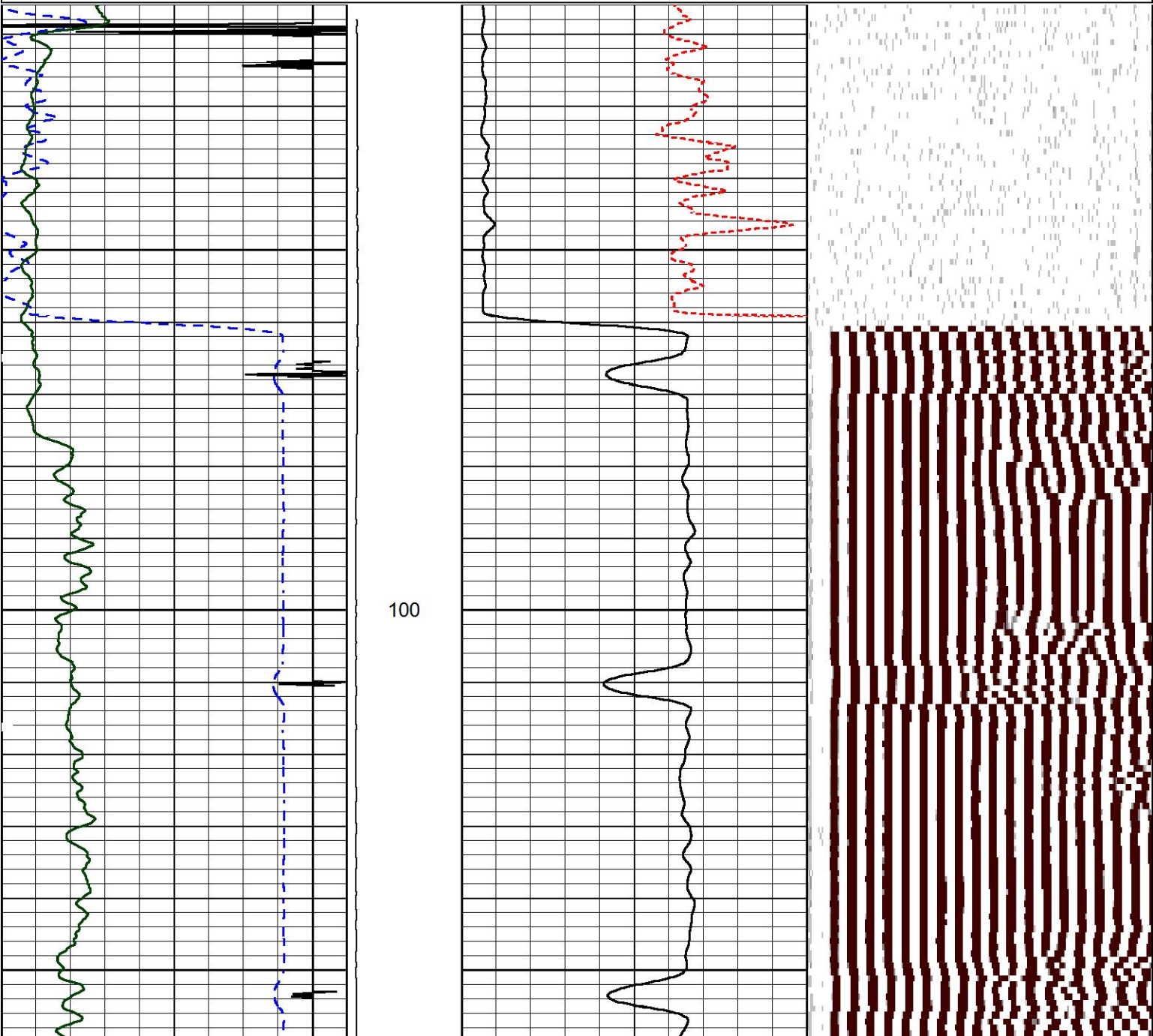
HALLIBURTON

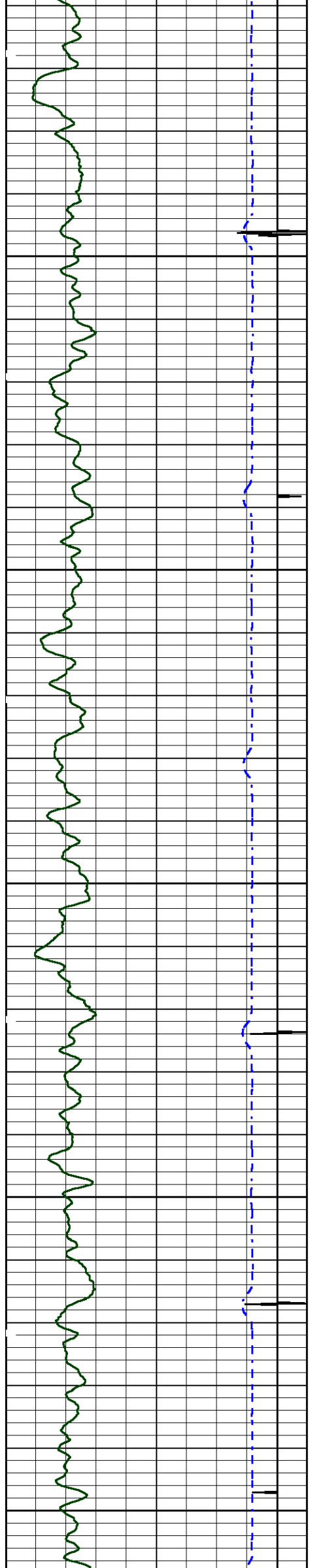
MAIN LOG SECTION

5"=100'

Database File	ir_21a_24_cmb.db
Dataset Pathname	FINAL
Presentation Format	hcbl
Dataset Creation	Sun Jul 20 12:23:38 2014
Charted by	Depth in Feet scaled 1:240

410	3' Travel Time (usec)	210	LTEN	0	3' Amplitude (mV)	100	200	MSG	1060
-1660	CCL	180	0	(lb,4000	0	Amplified Amplitude (mV)	10		
0	Gamma Ray (GAPI)	200							

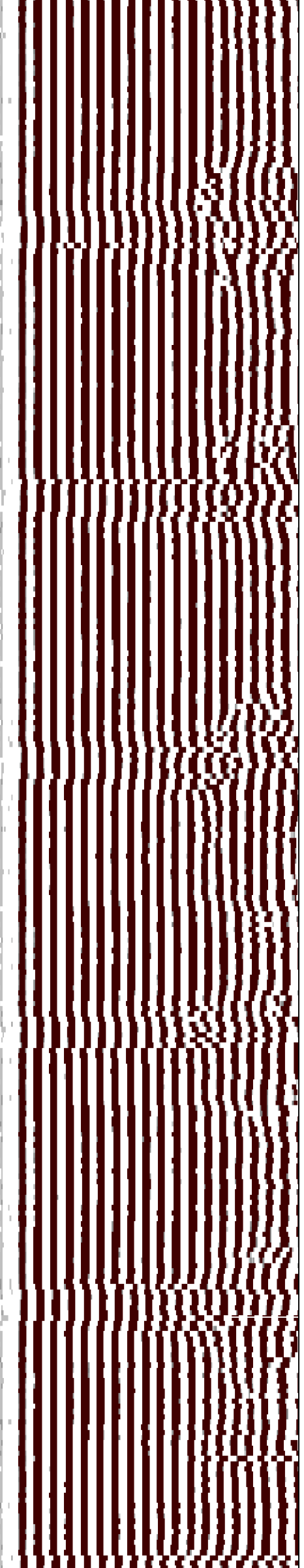
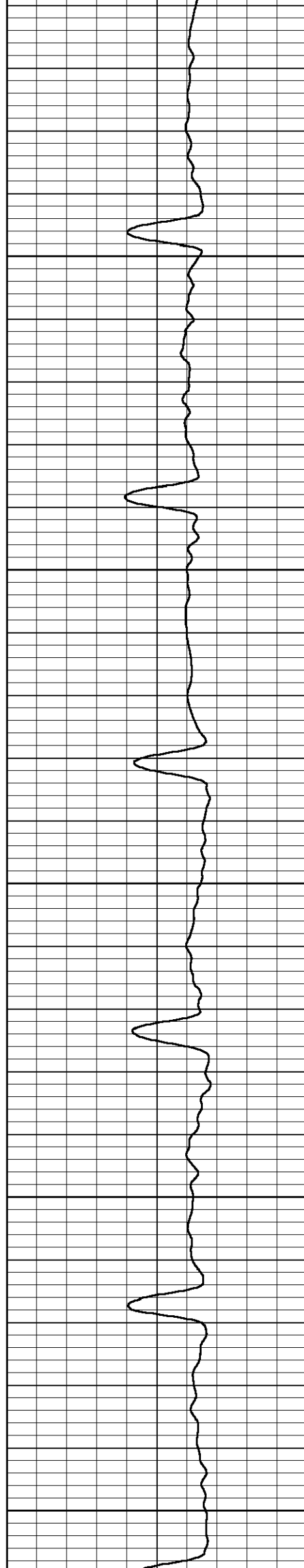


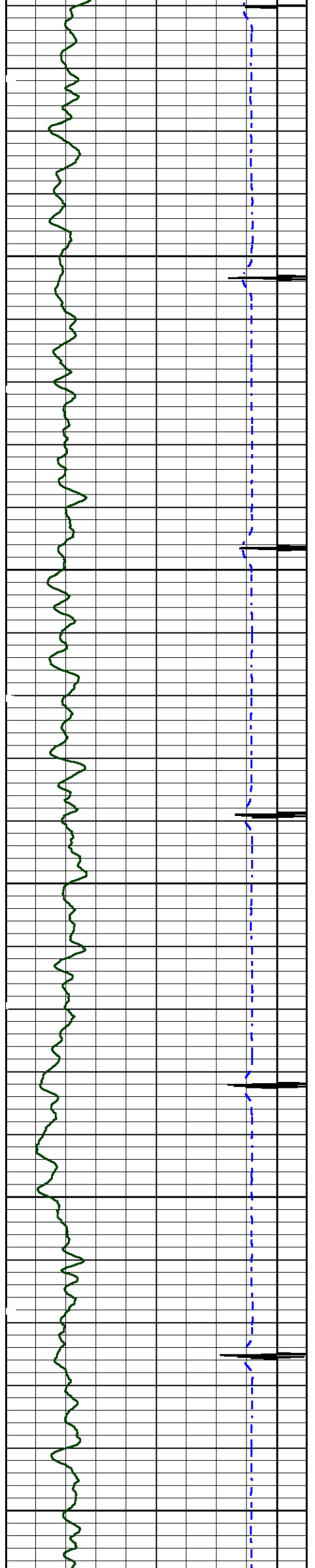


200

300

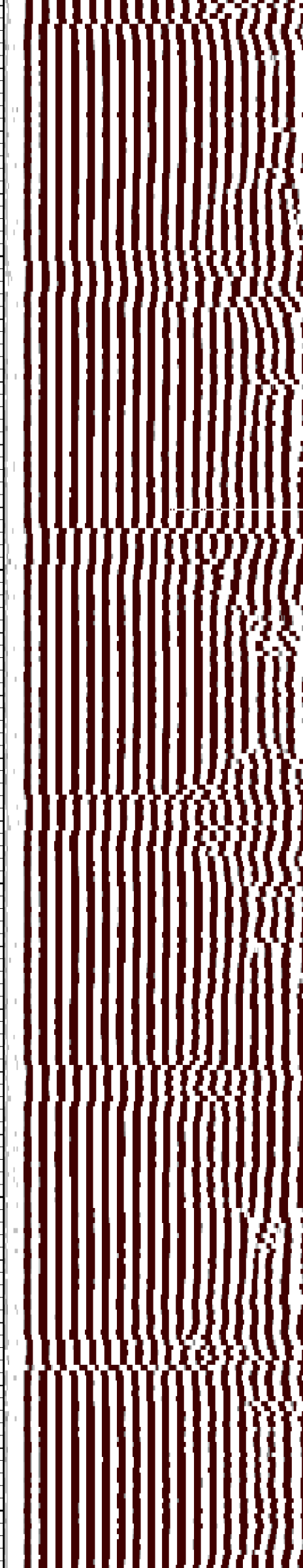
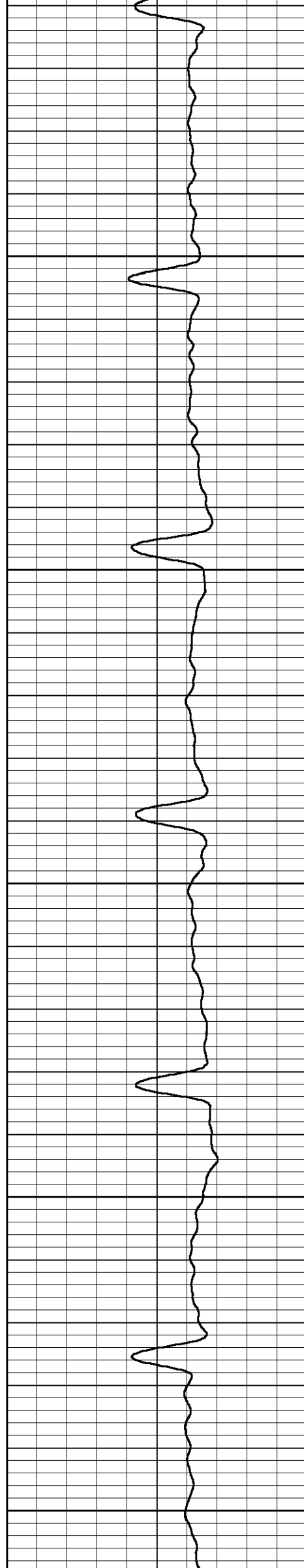
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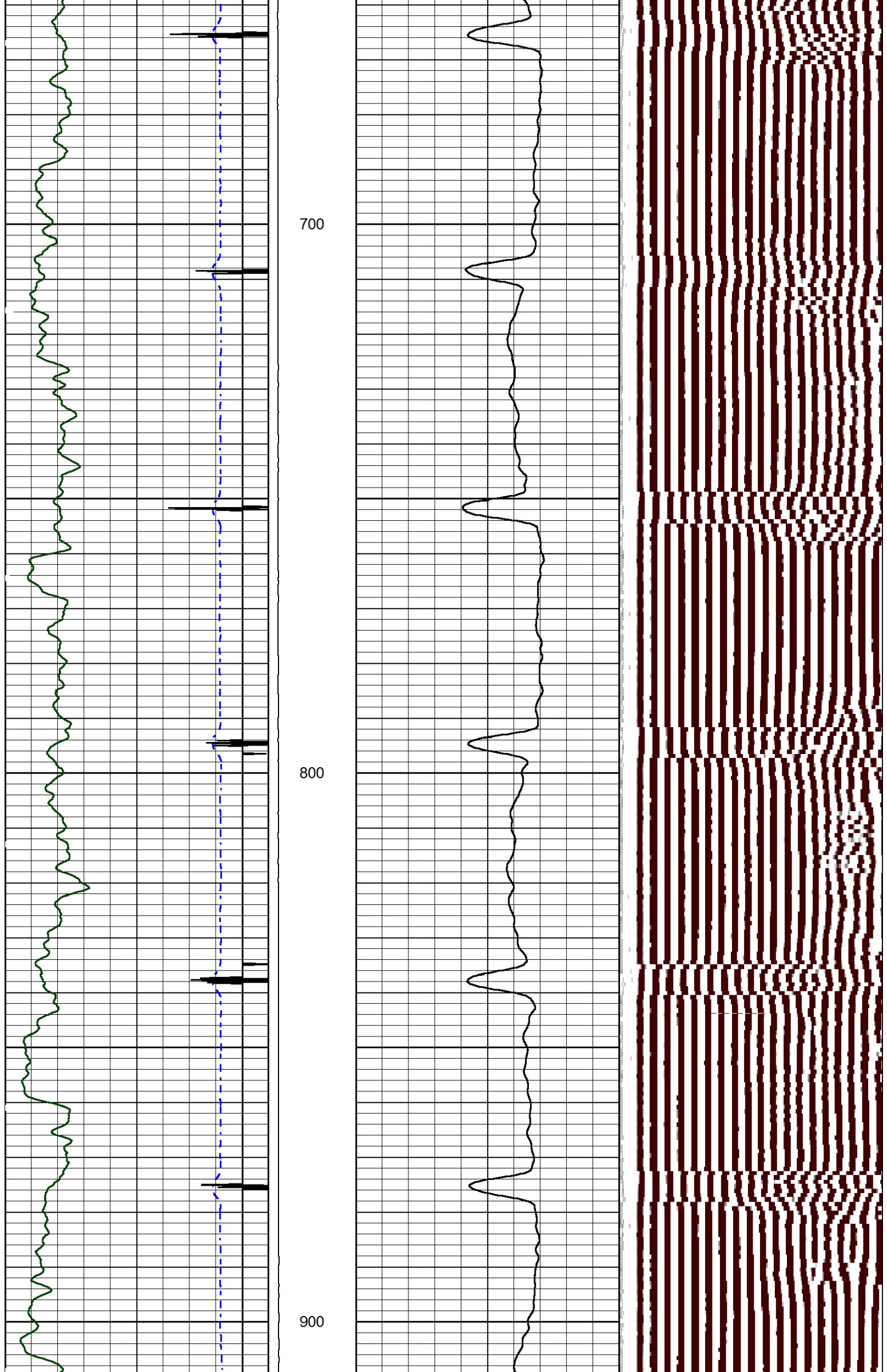


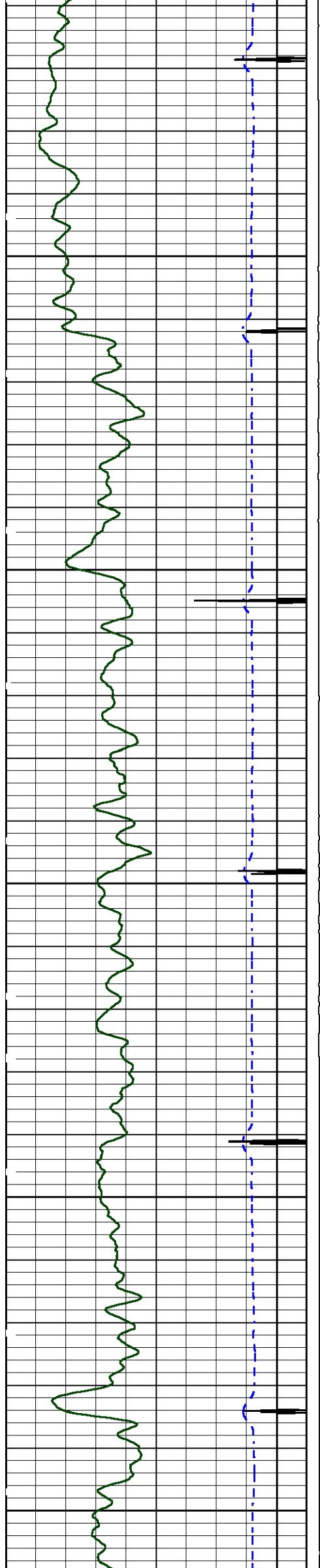


500

600

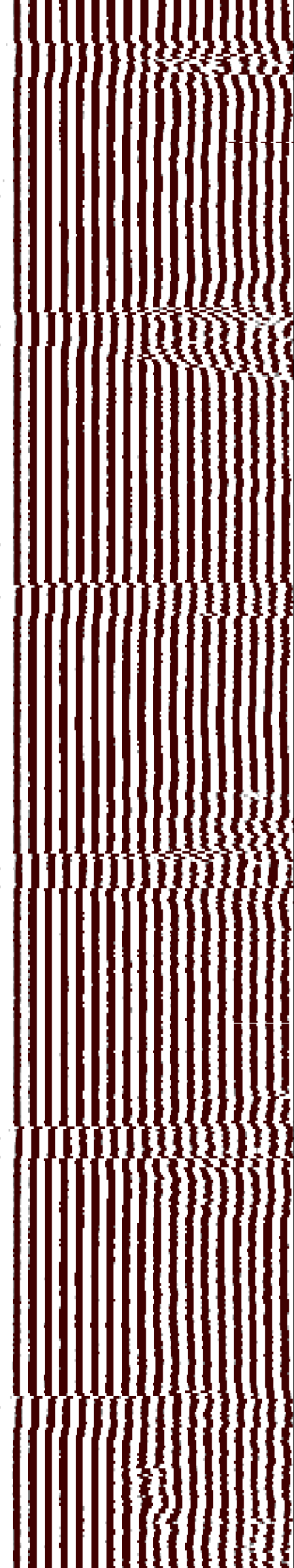
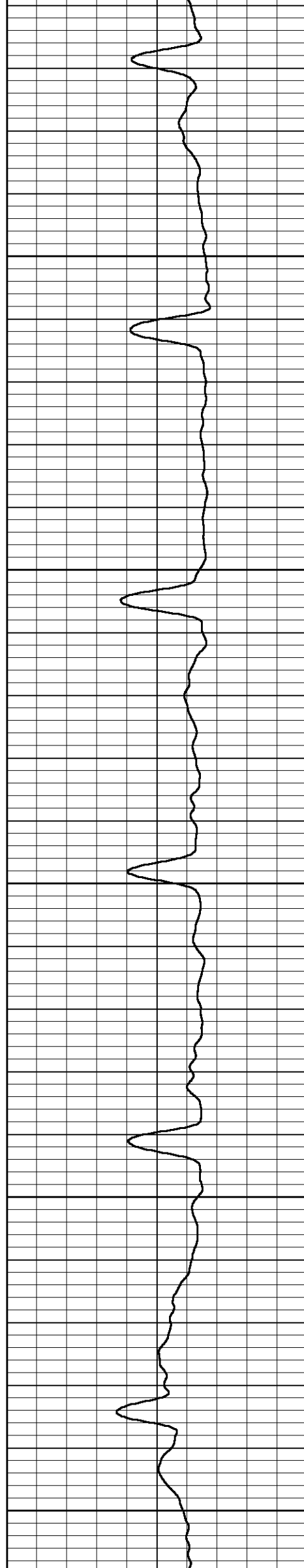


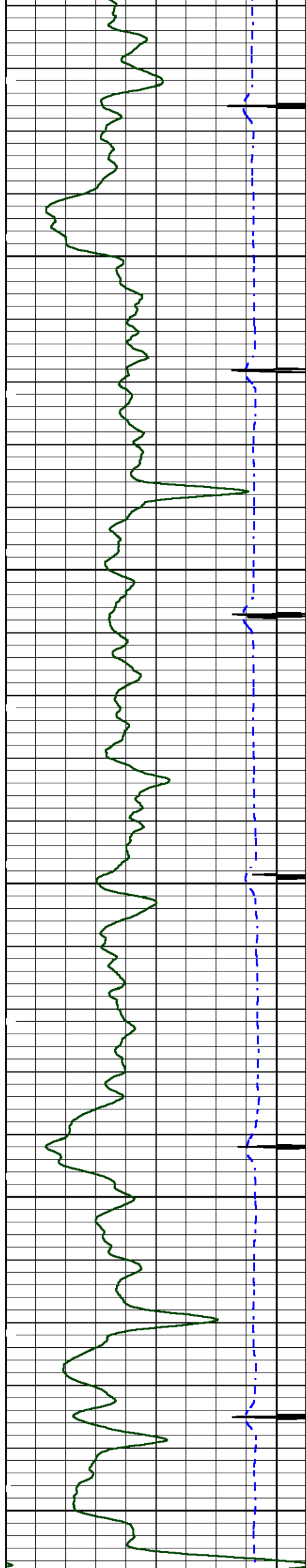




1000

1100

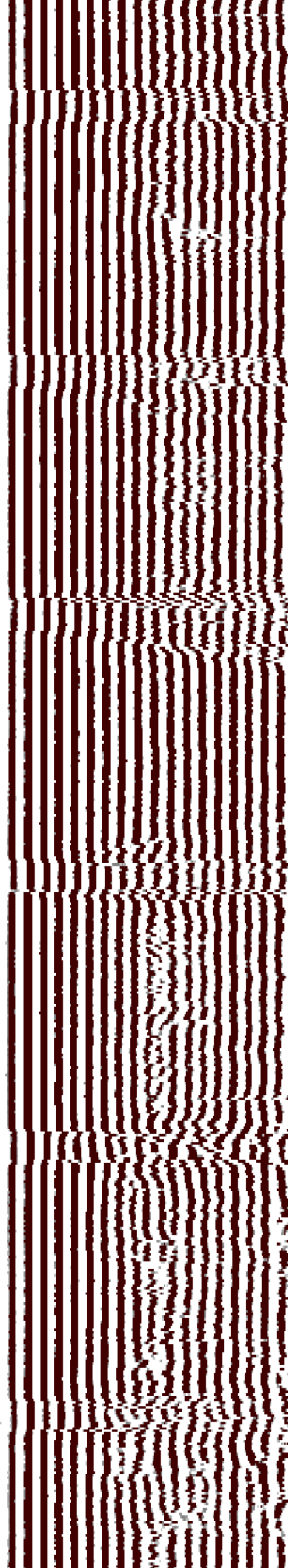
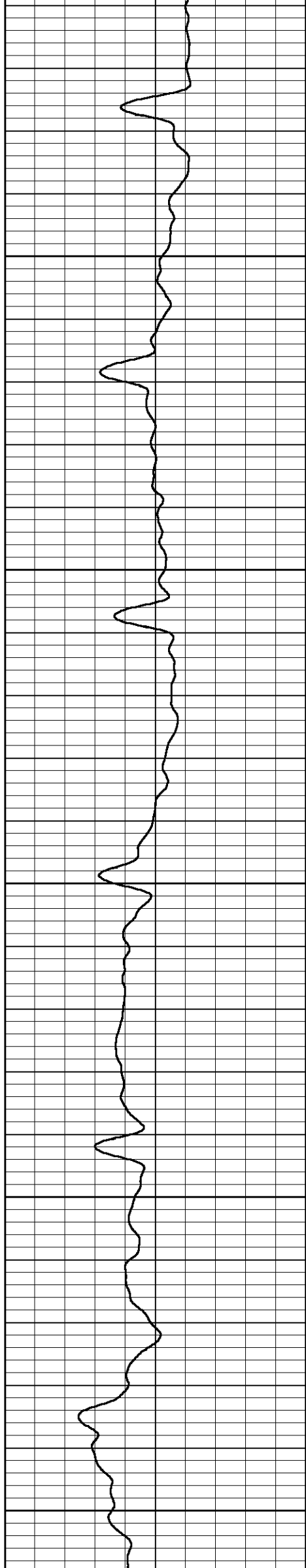


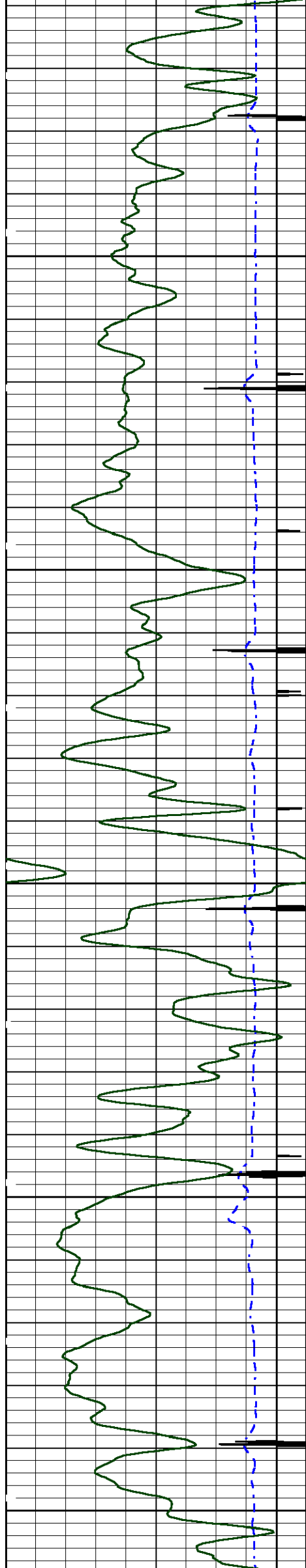


1200

1300

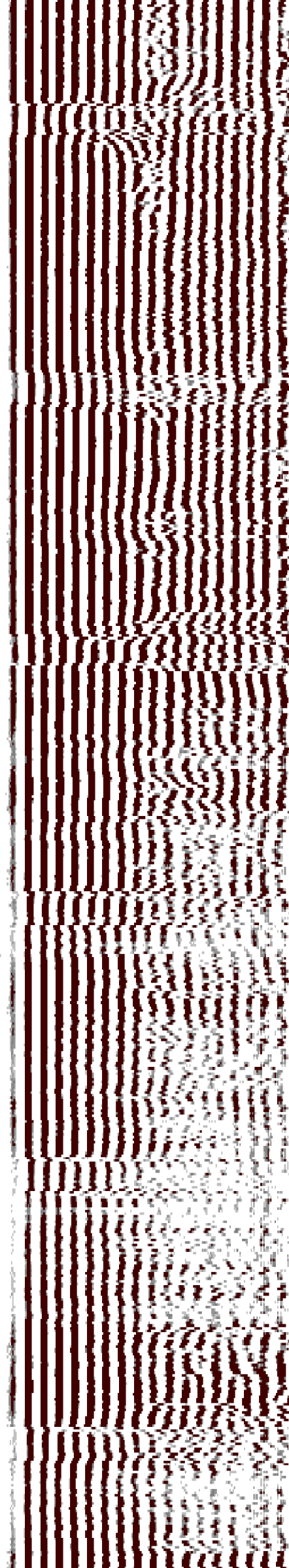
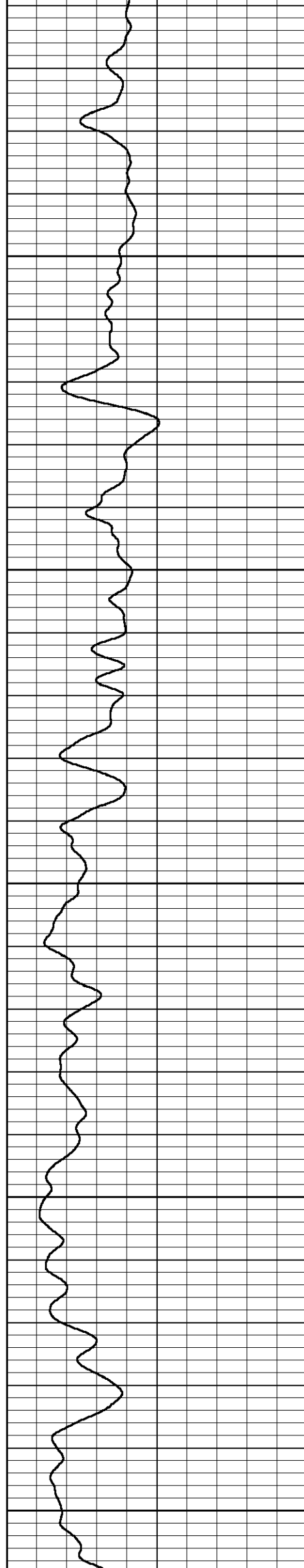
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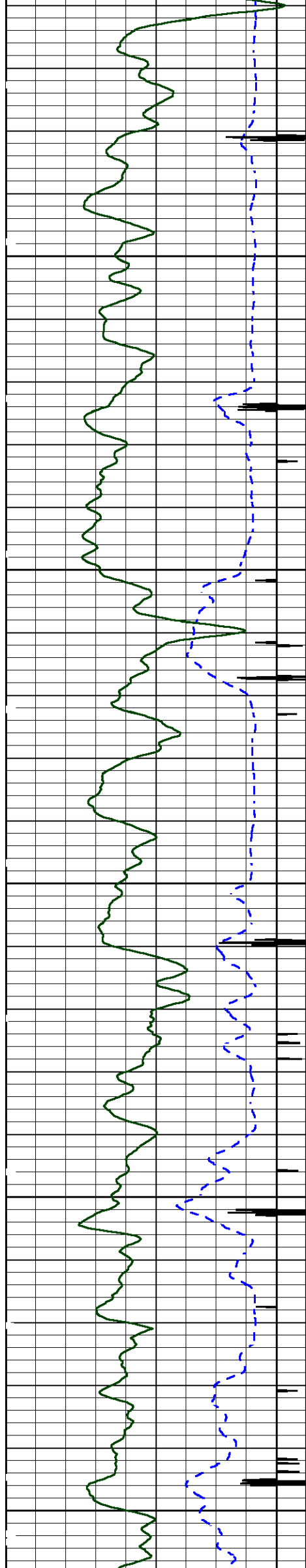




1500

1600

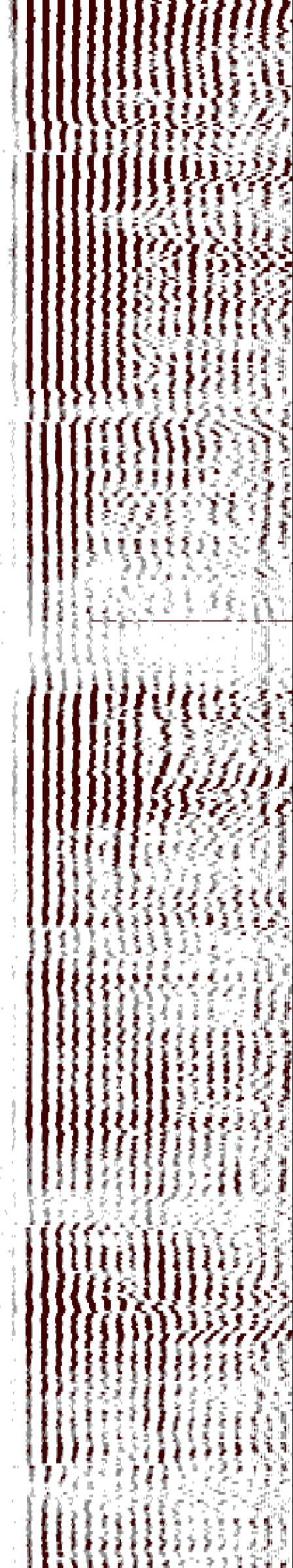
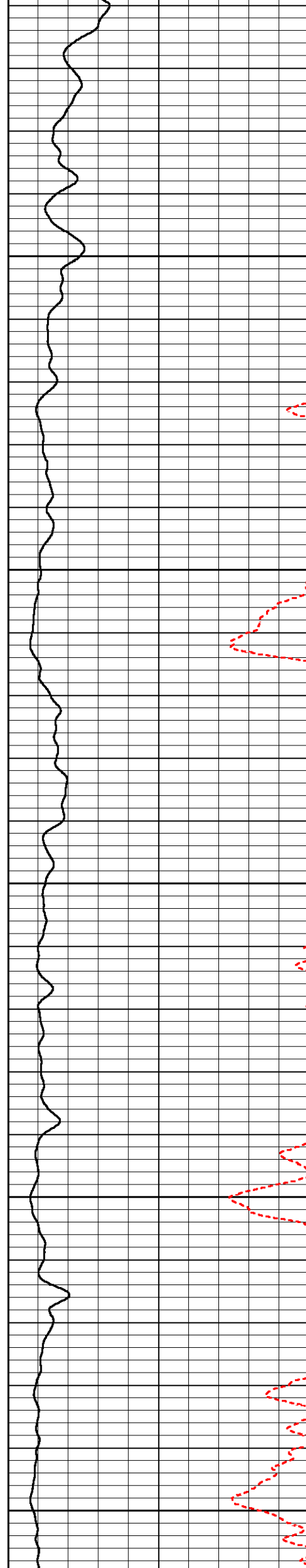


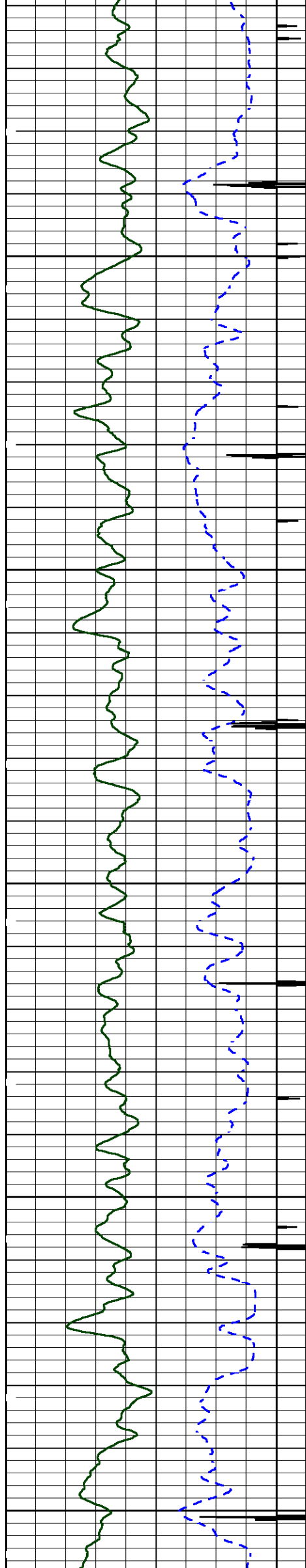


1700

1800

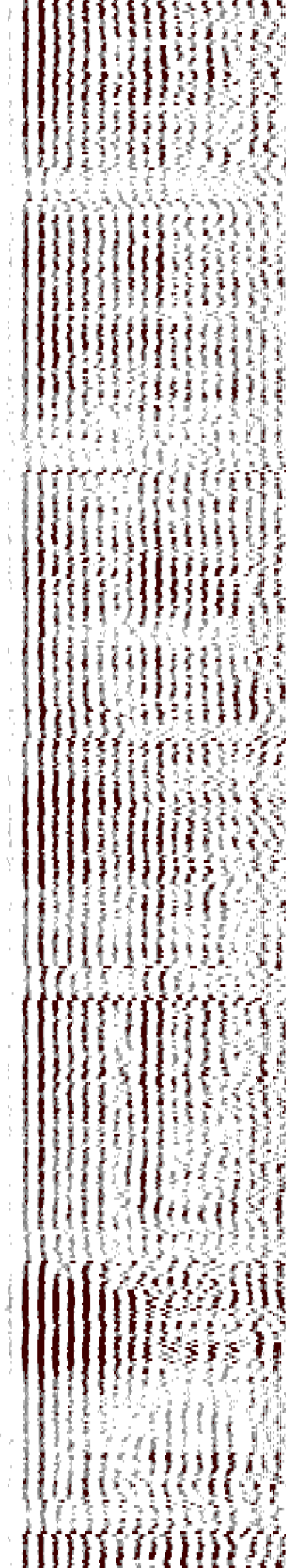
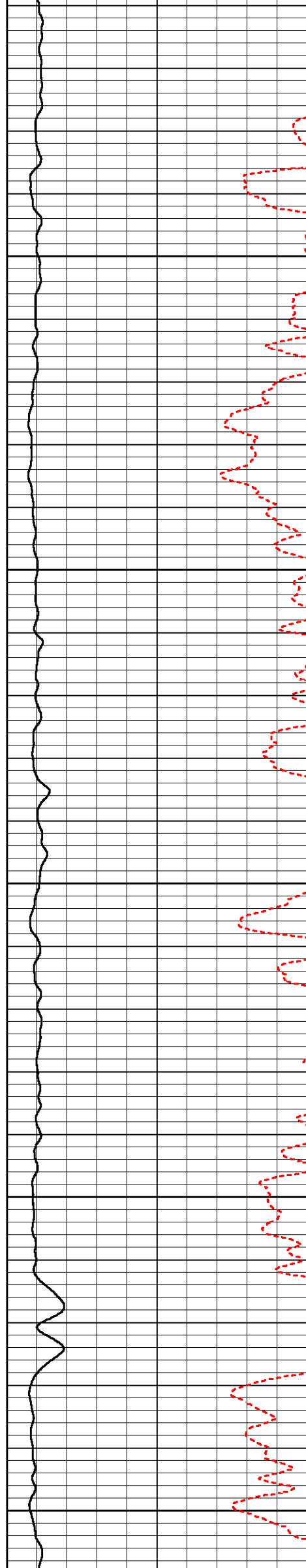
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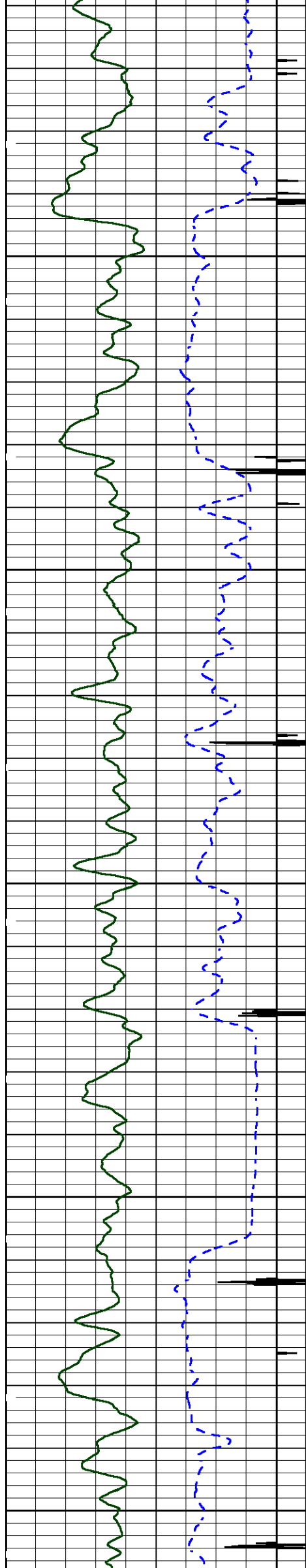




2000

2100

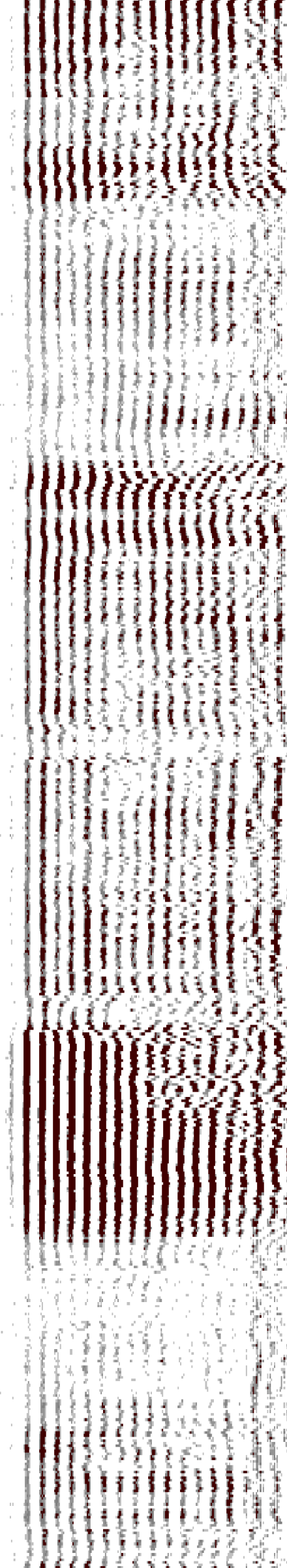
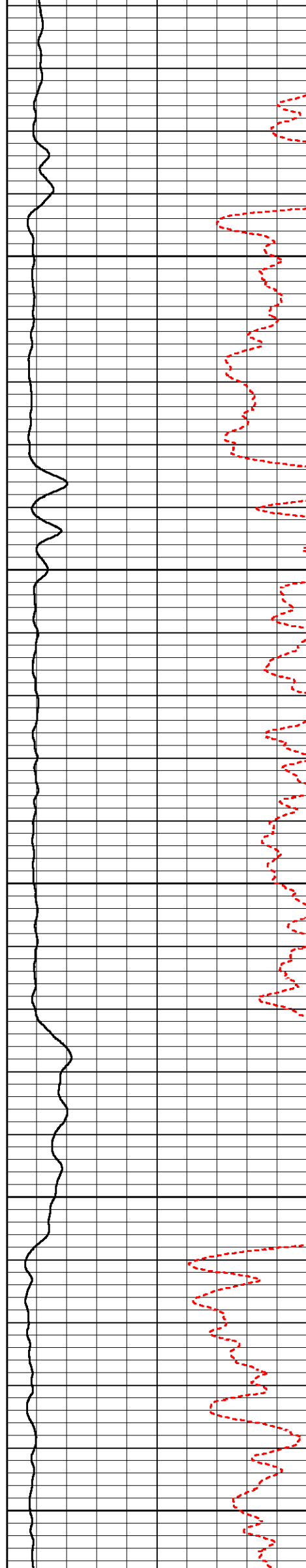


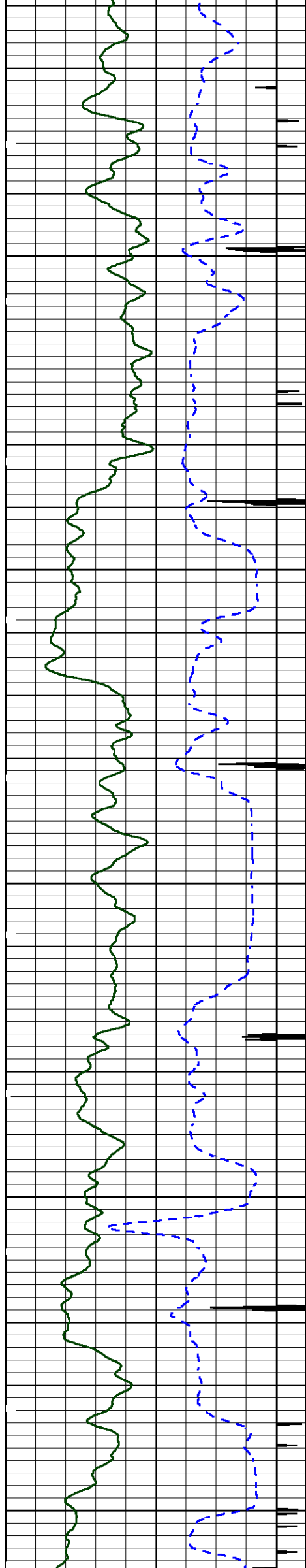


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2300

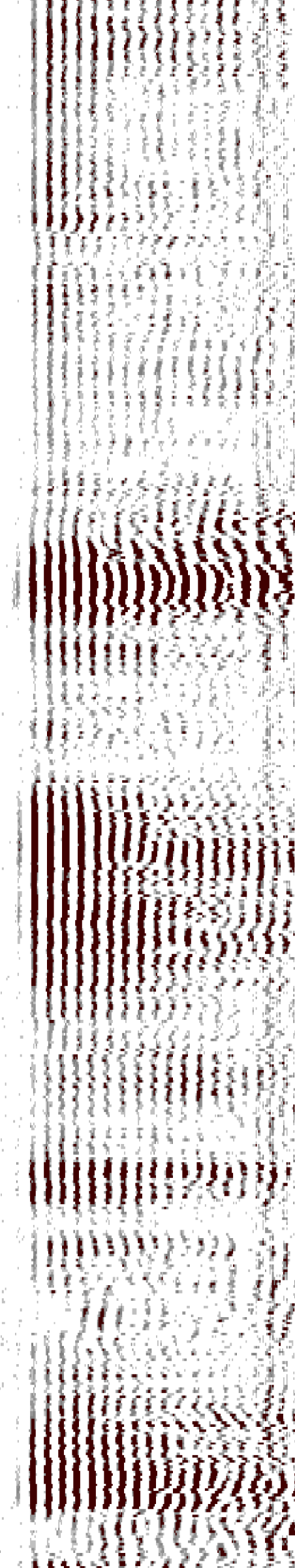
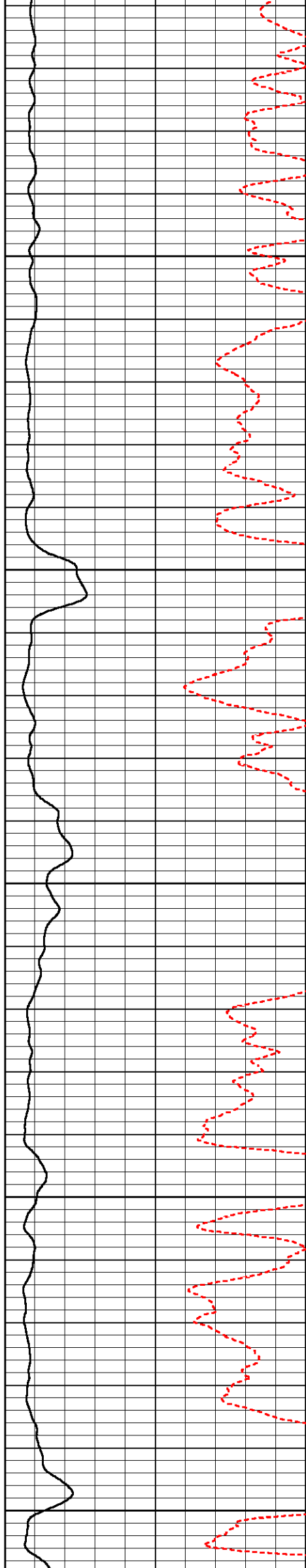
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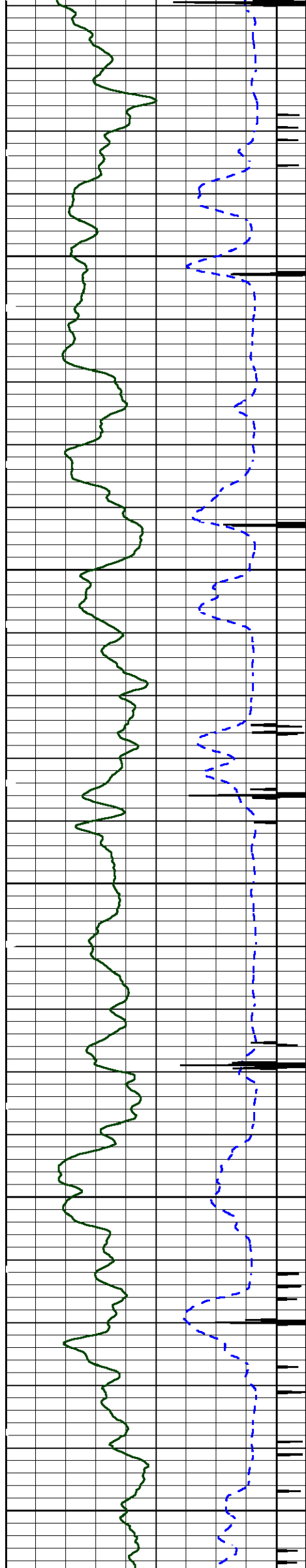




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2600

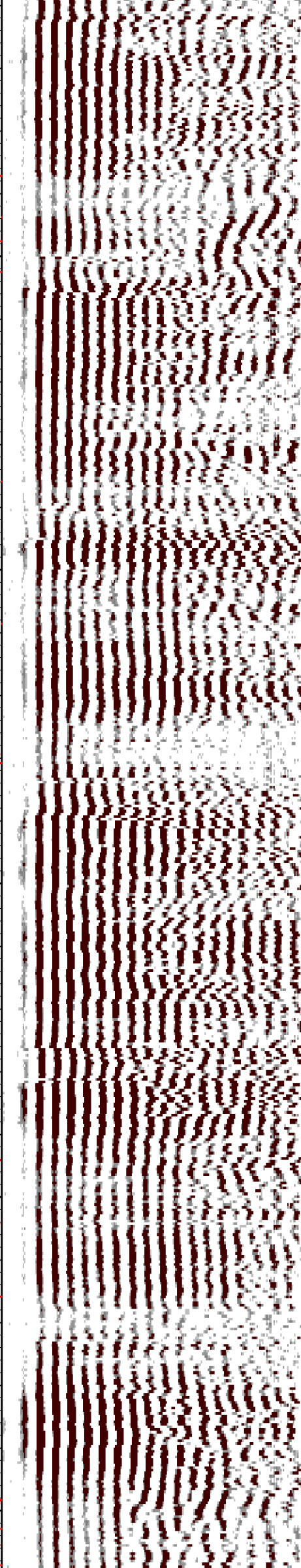
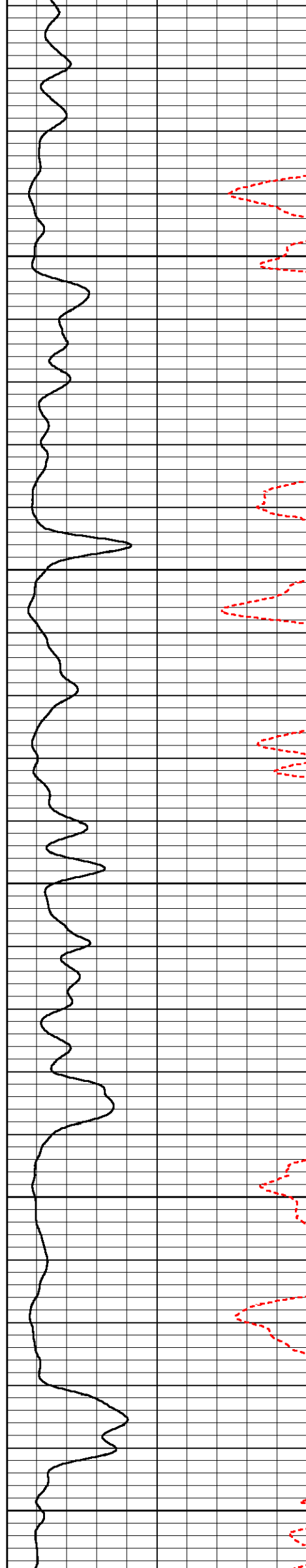


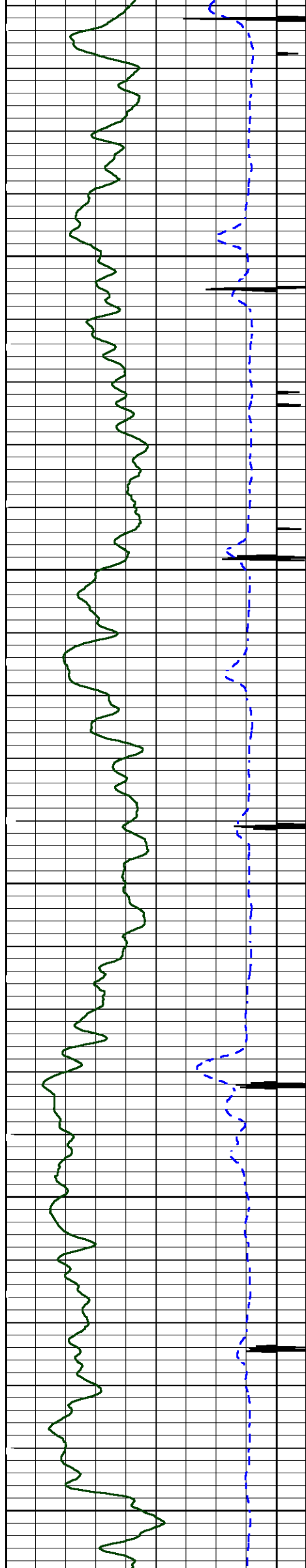


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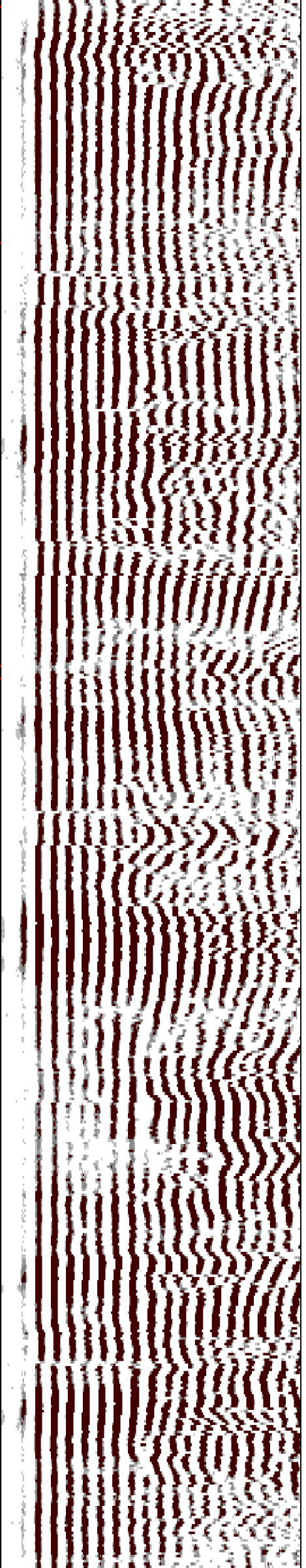
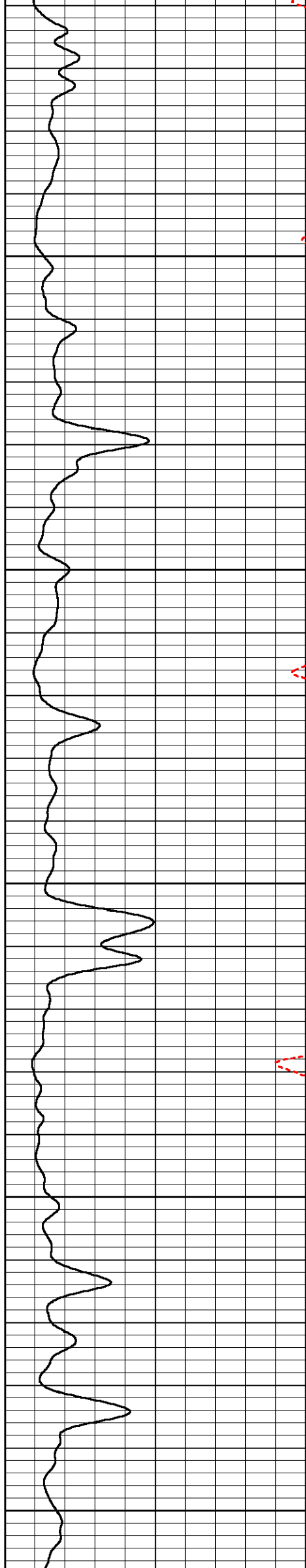
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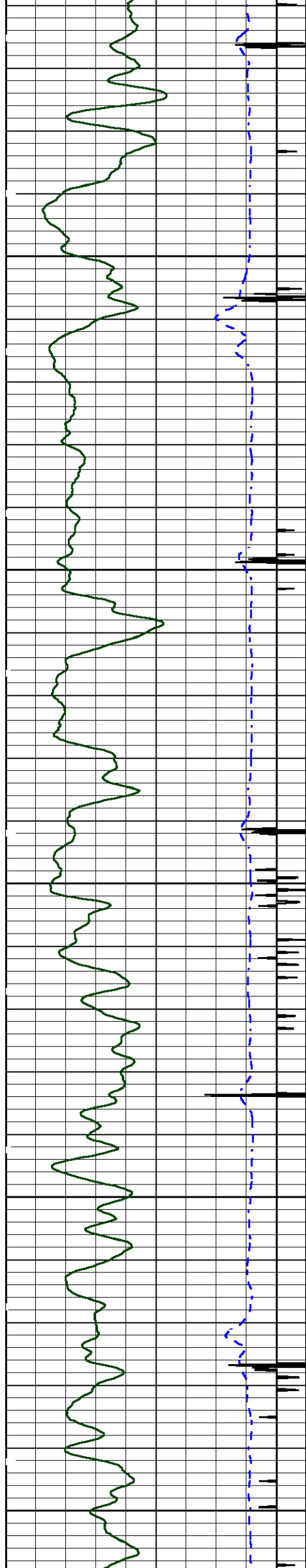




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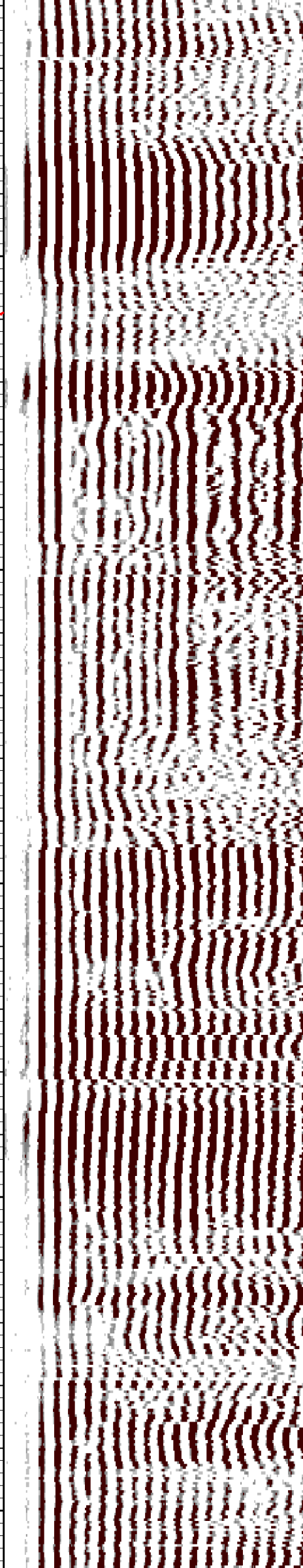
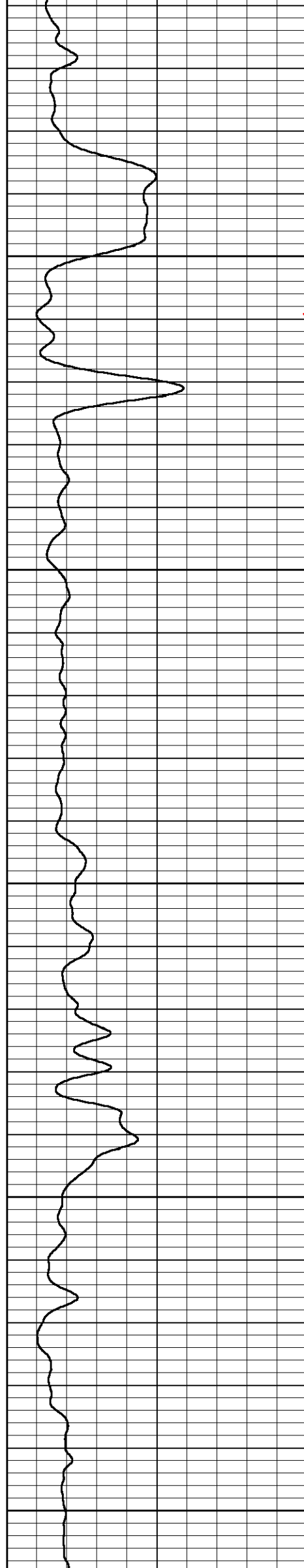


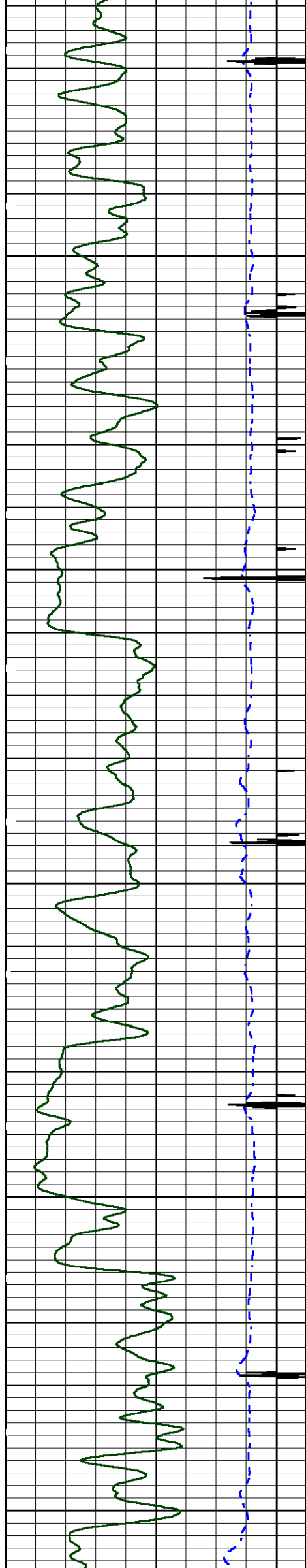


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3300

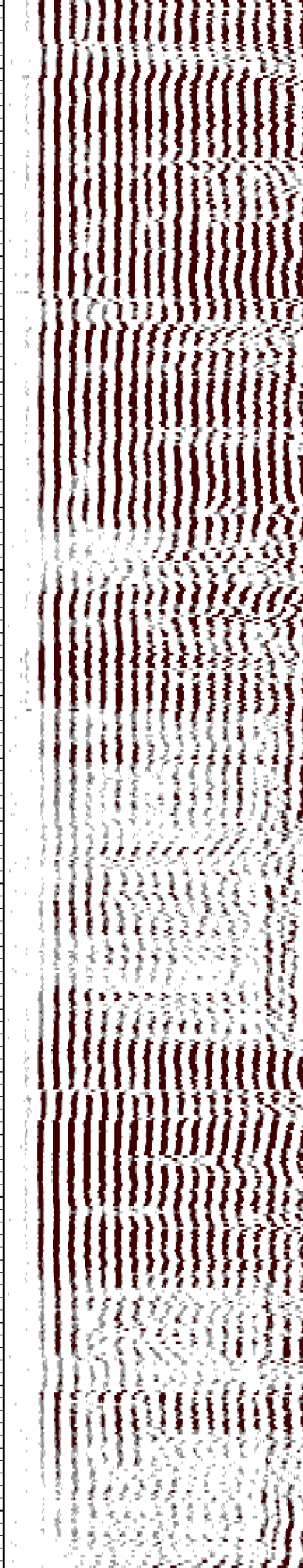
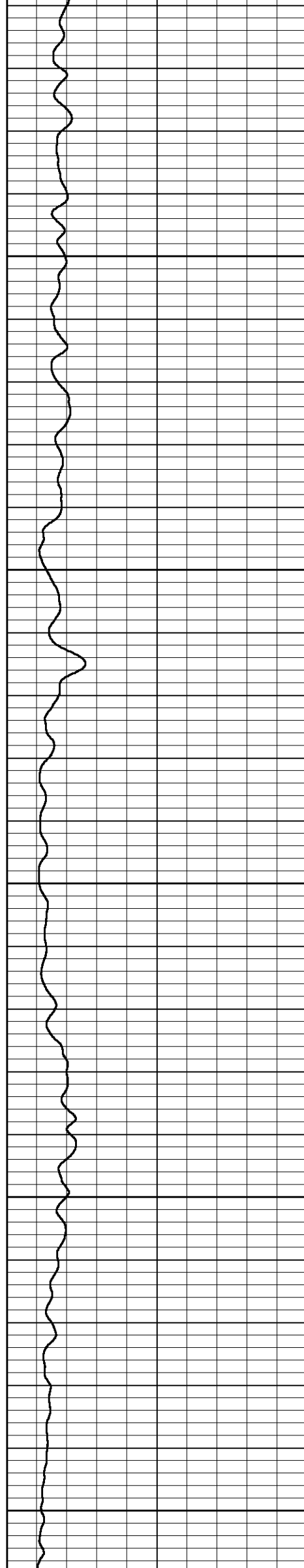
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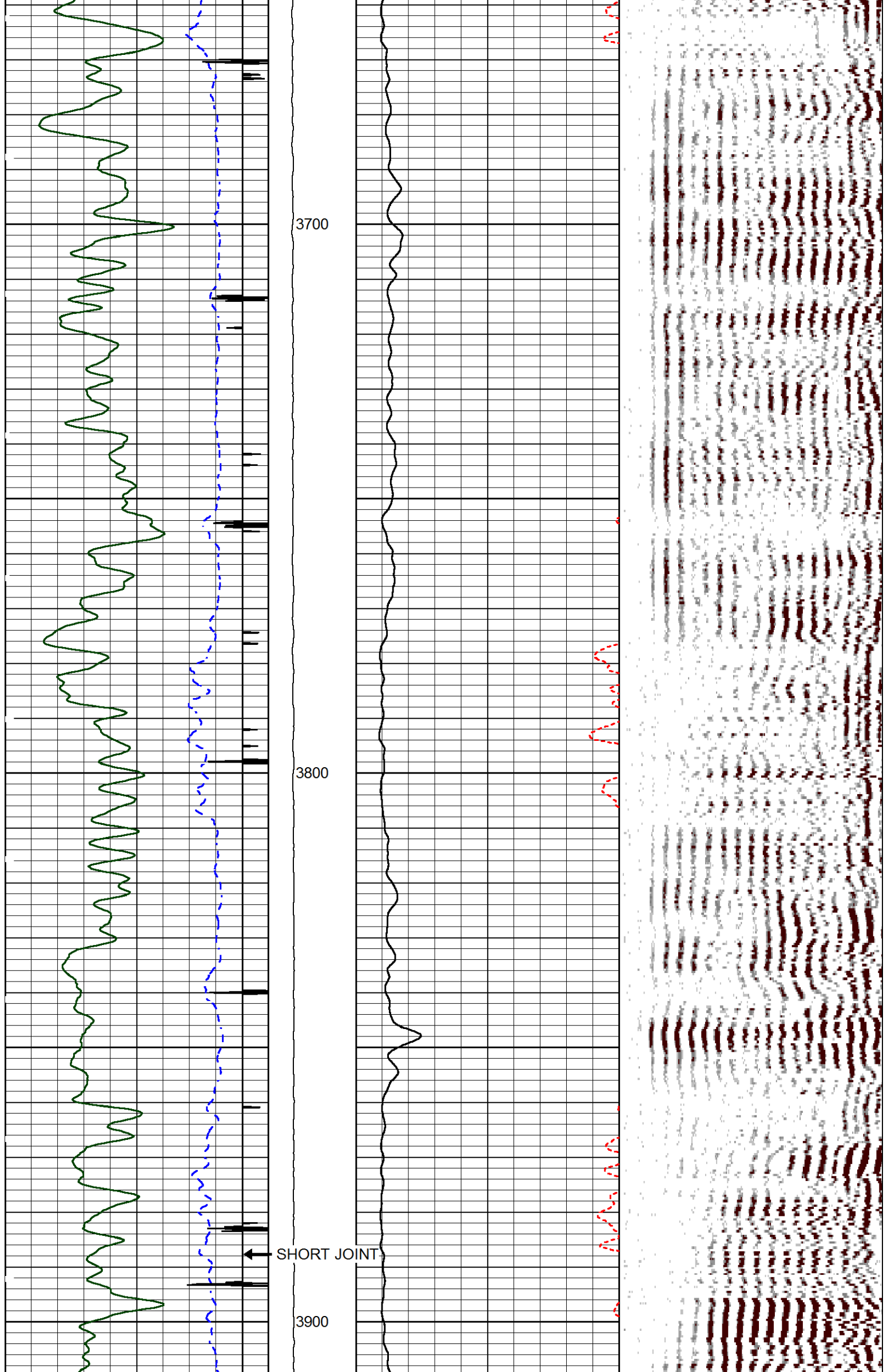


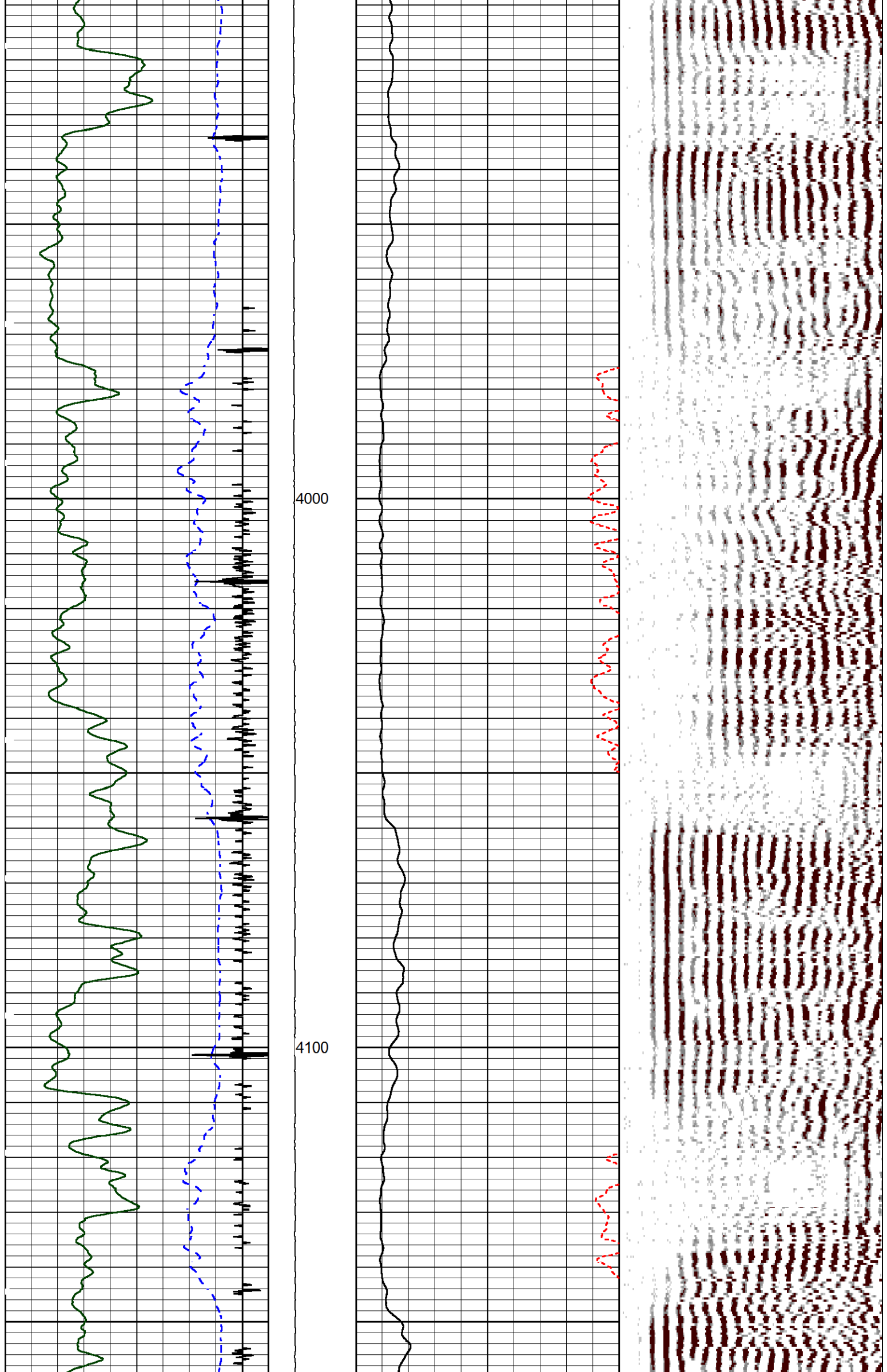


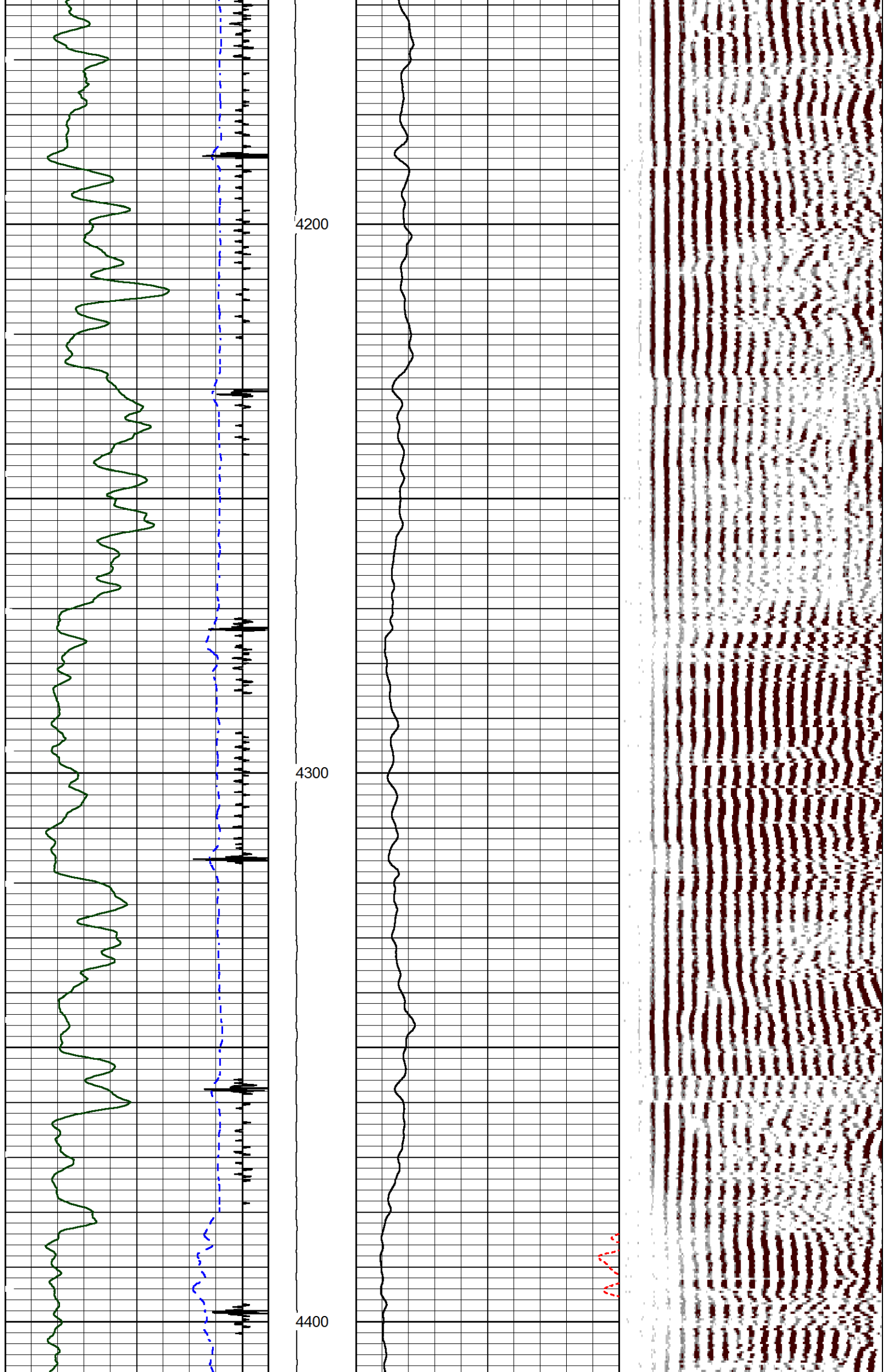
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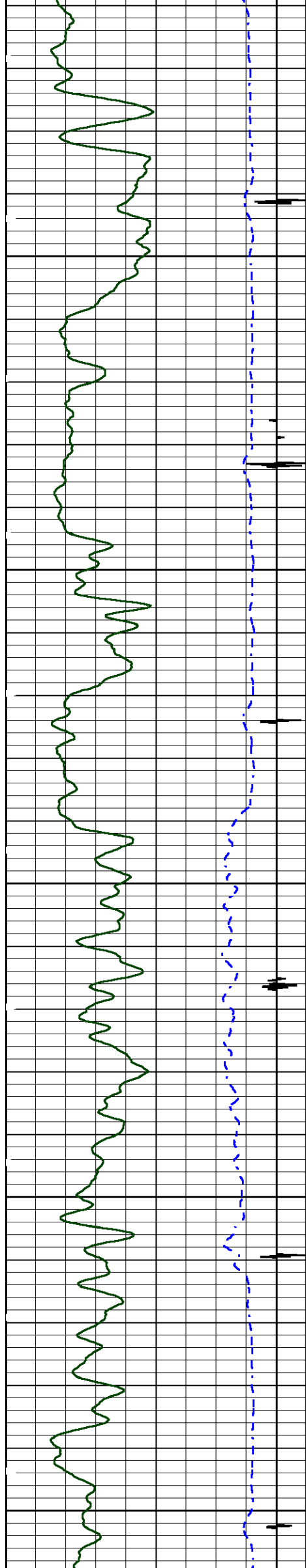
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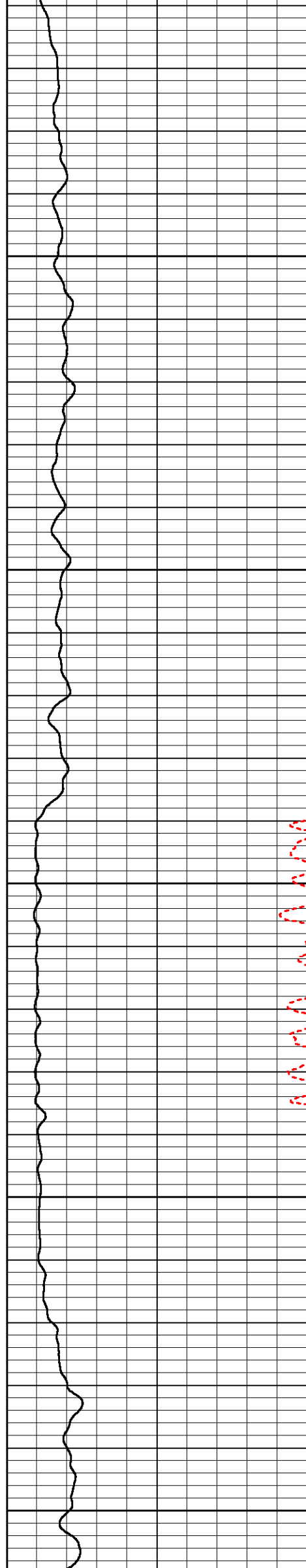




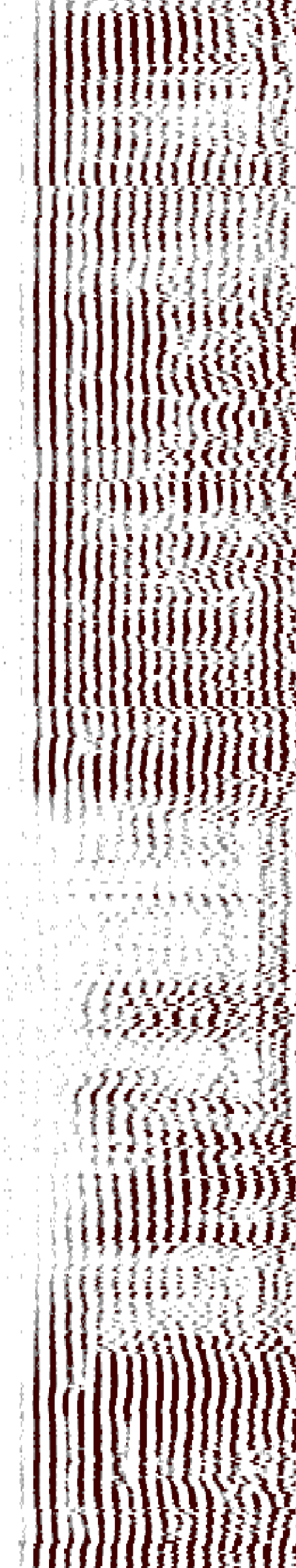


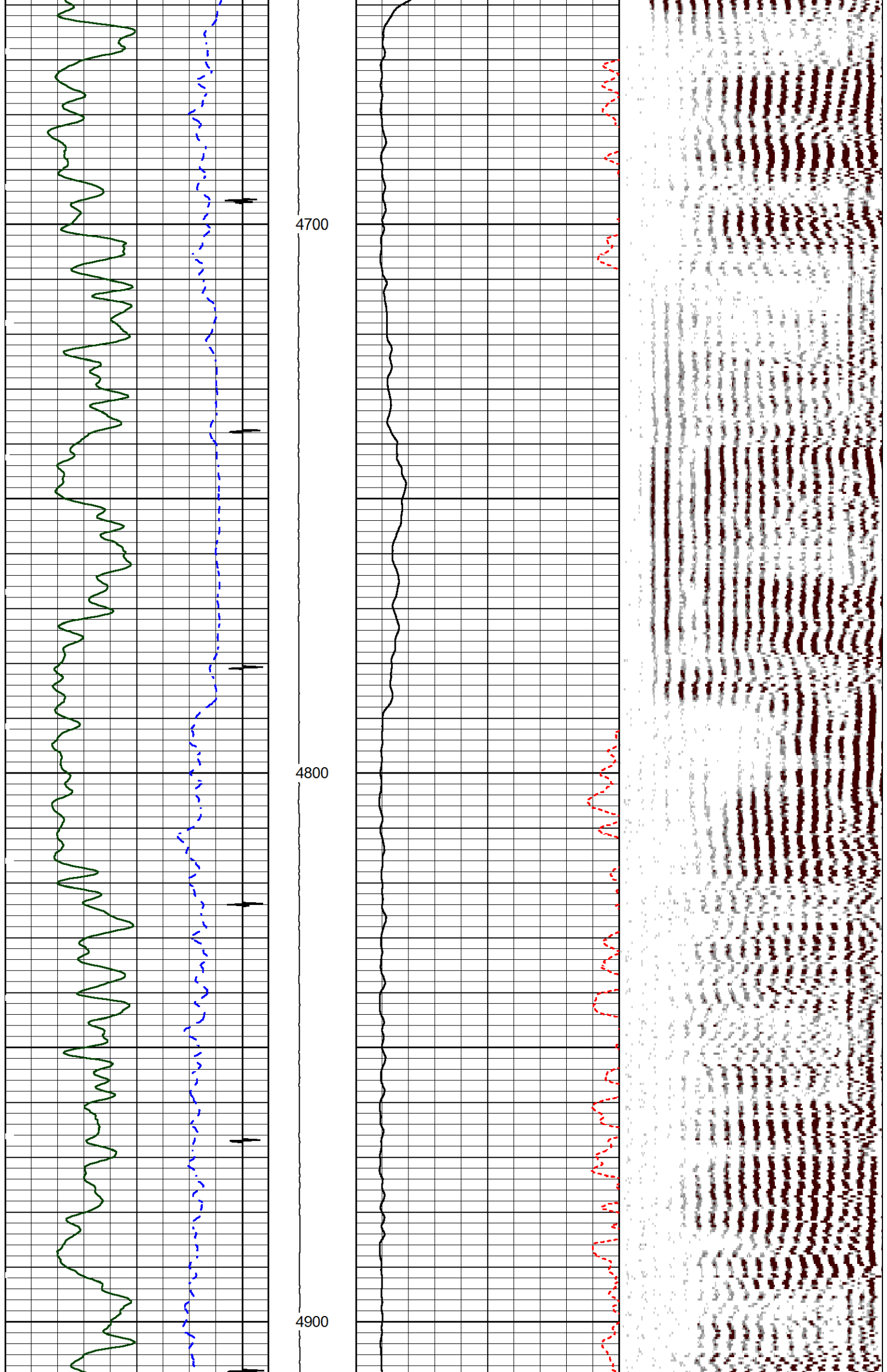
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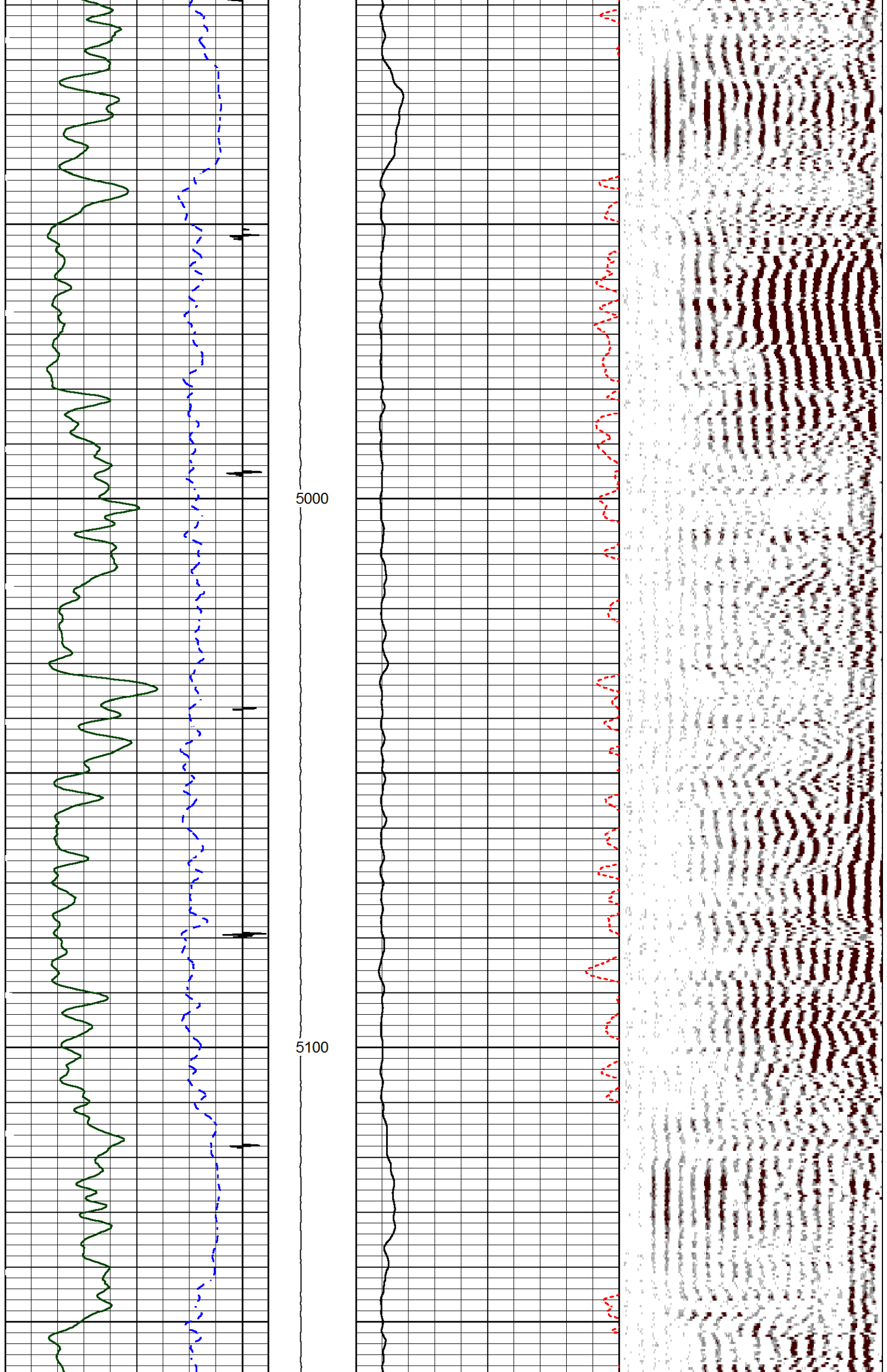
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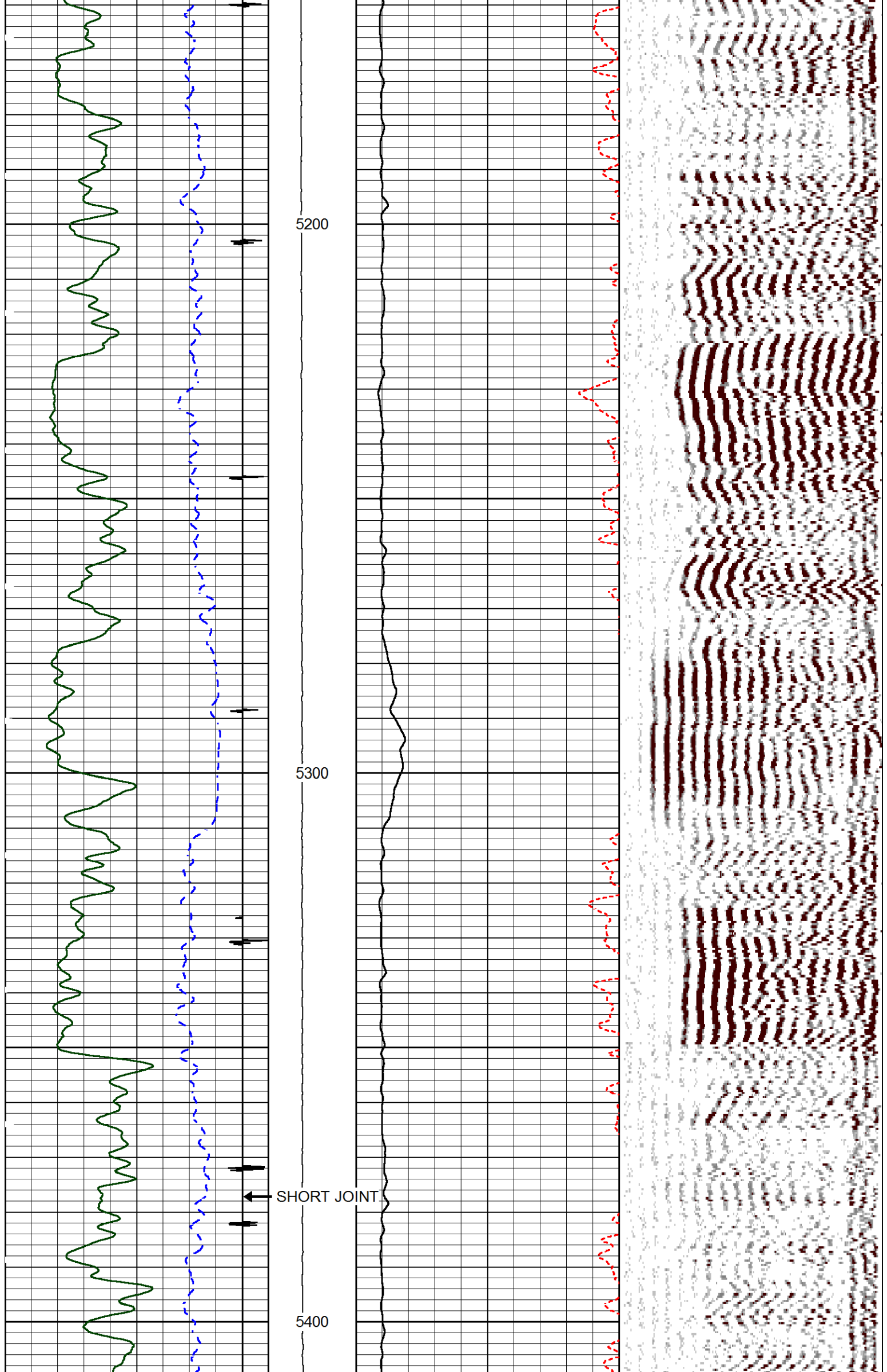


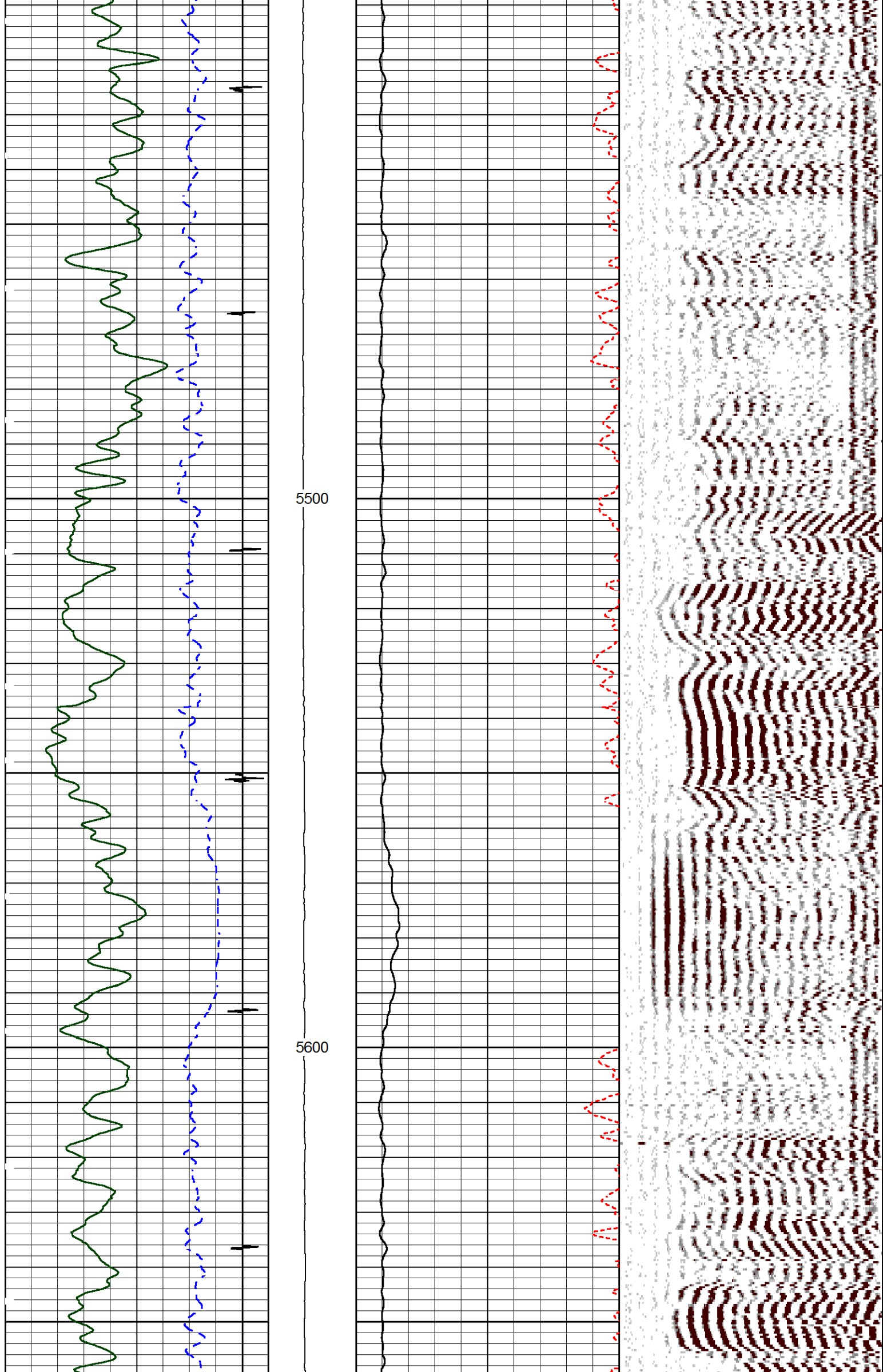
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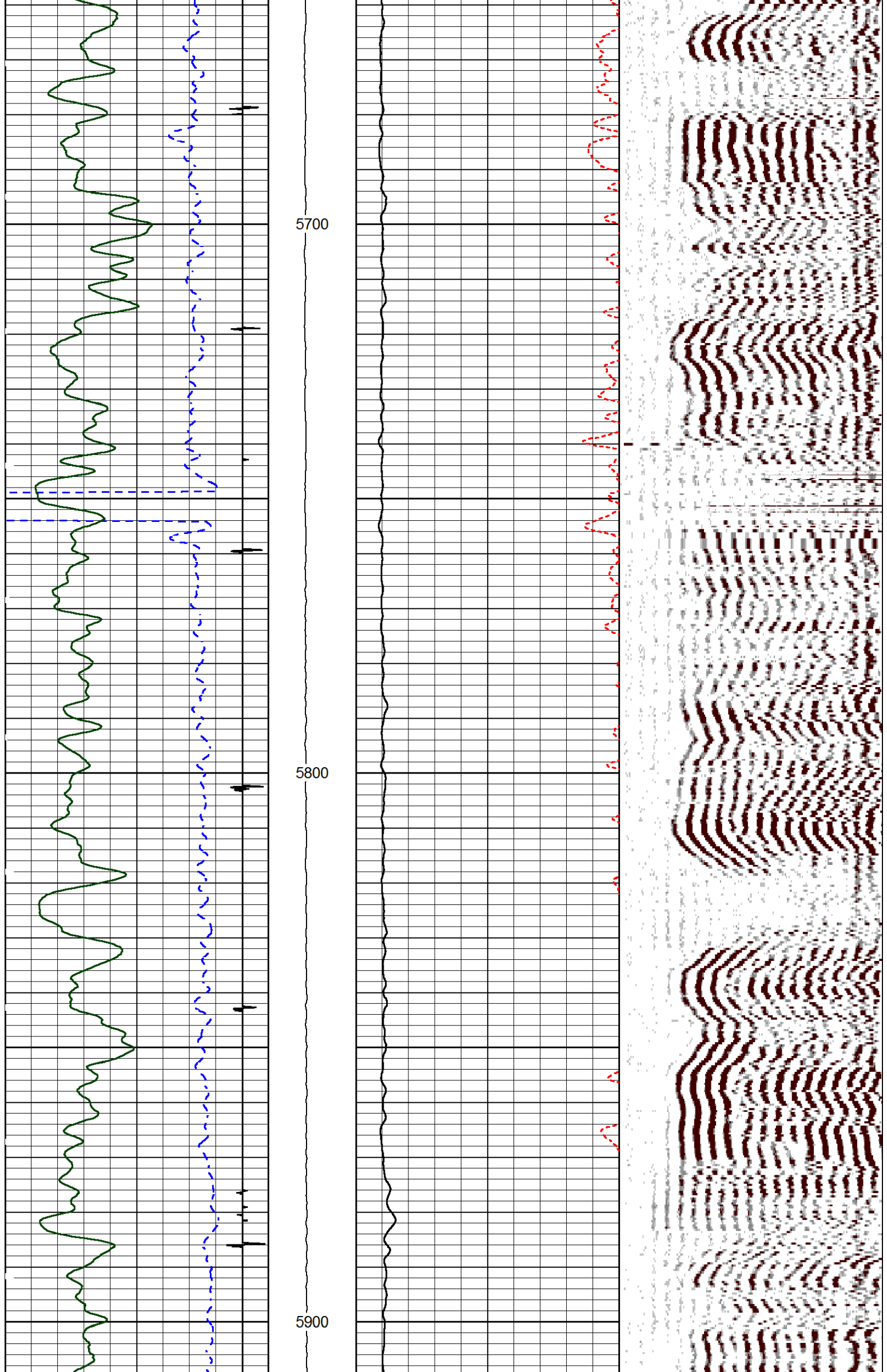


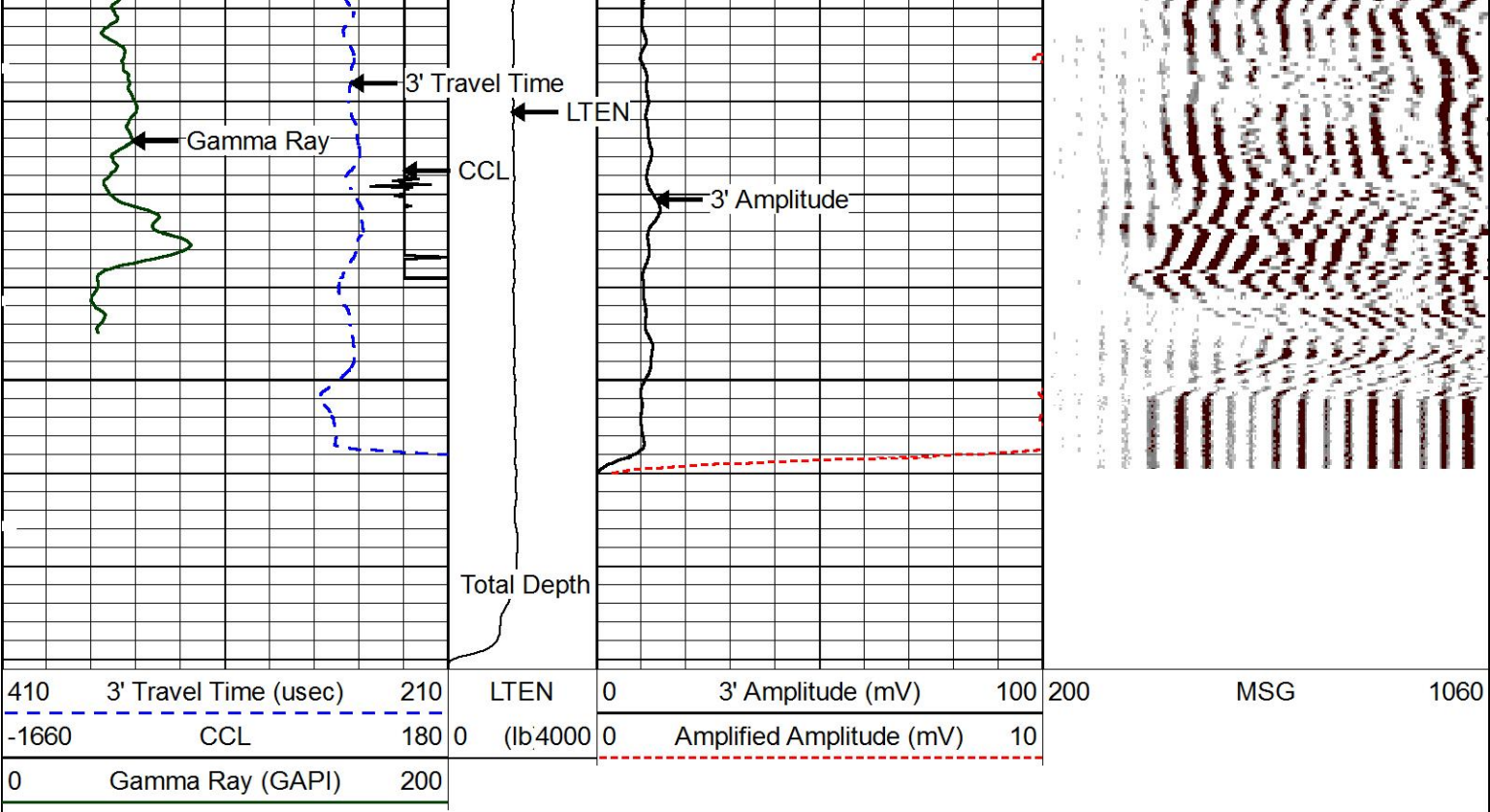






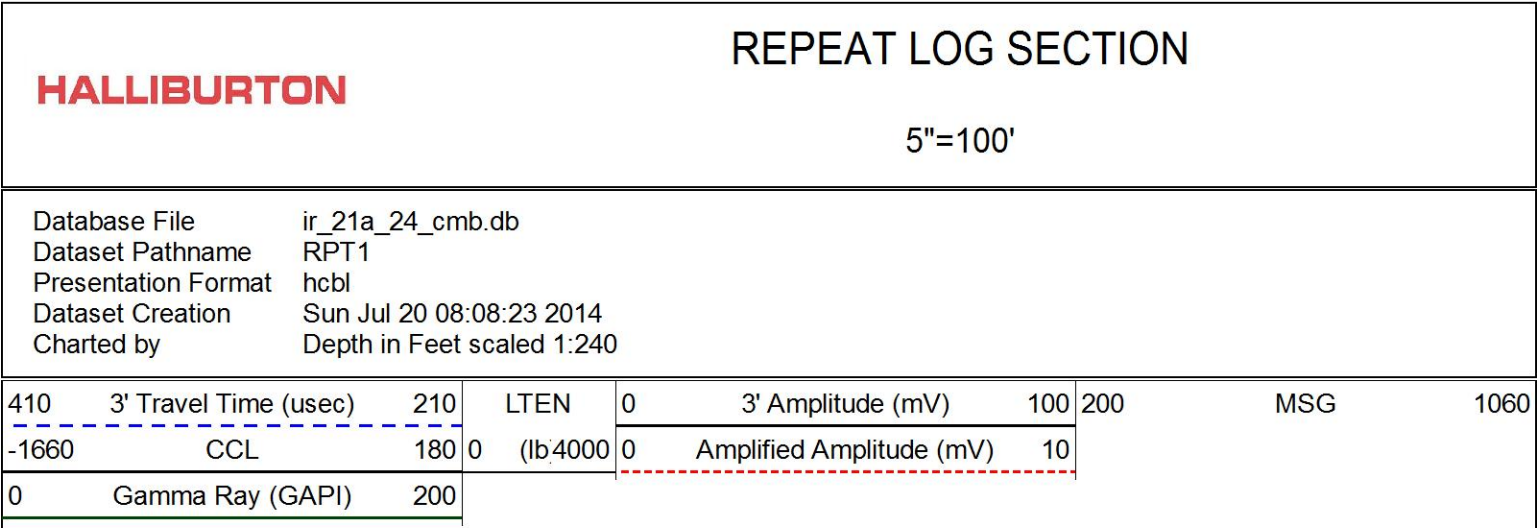






MAIN LOG SECTION

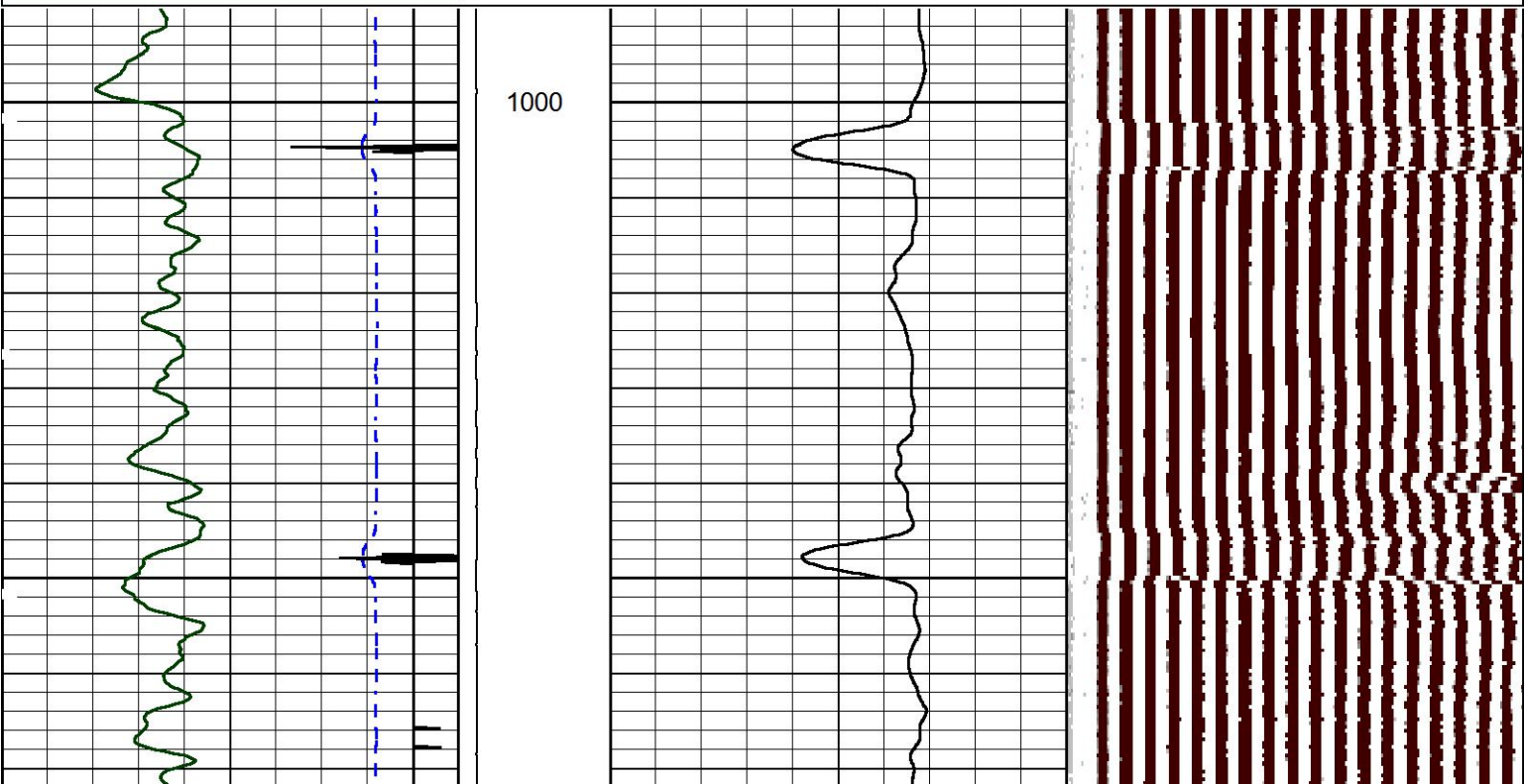
5"=100'

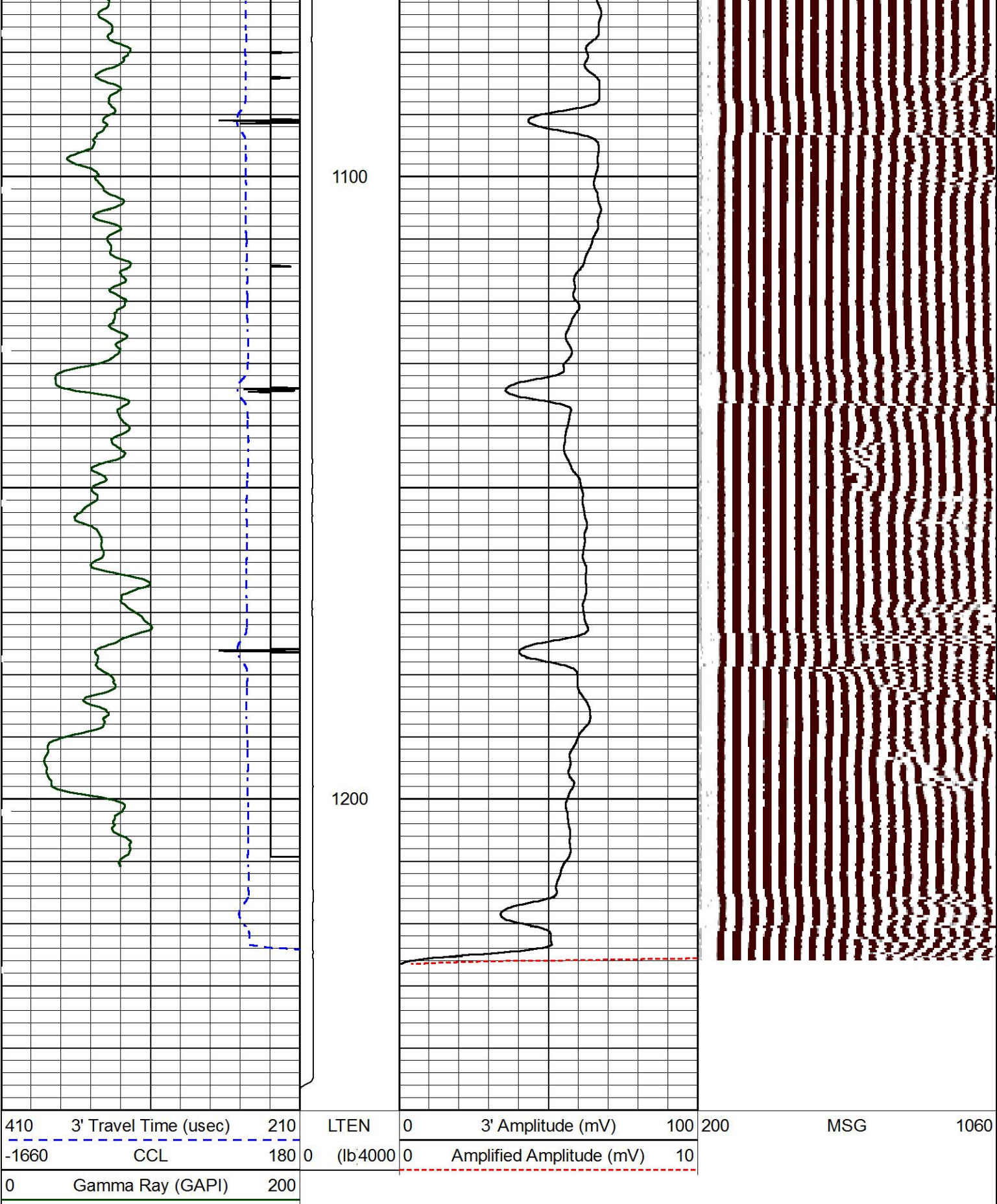


REPEAT LOG SECTION

5"=100'

Database File ir_21a_24_cmb.db
Dataset Pathname RPT1
Presentation Format hcbl
Dataset Creation Sun Jul 20 08:08:23 2014
Charted by Depth in Feet scaled 1:240





REPEAT LOG SECTION

HALLIBURTON

5"=100'

Log Variables DatabaseD:\Warrior_data\vir_21a_24_cmb.db
Dataset field/well/run1/MAIN2

Top - Bottom

BHTEMP_Src	BHSAL2	BHSAL1	POROS2	POROS1	LTH	UHSGC	RHO�F
1	0	1	0	1	Sandstone	NONE	0.25
0	0	0	0	0	0	0	0

SO in 0	BORSAL kppm 150	CASED? Yes	MSGGN 1	USERFT usec/ft 0	ZREF MRayl 1.7	CASEWGH lb/ft 11.6	SRFTMP degF 0
MudWgt lb/gal 8.4	CASETHCK in 0.25	CASEOD in 4.5	PERFS 0	TDEPTH ft 0	BOTTEMP degF 100	BITSIZE in 10	

Calibration Report	
Database File	ir_21a_24_cmb.db
Dataset Pathname	MAIN2
Dataset Creation	Sun Jul 20 08:44:54 2014
Reservoir Monitor Tool I Calibration Report	
Serial-Model:	12210614-A
Shop Calibration Performed:	Wed Jul 09 16:17:58 2014

Carbon/Oxygen Mode					
Stabilization					
Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	81.00	80.00	1.00	+/-15.00	V
ITCR2	3199	3250	-51	+/-250	cps
Near Detector					
H	Channel	Expected Value	Amplitude	FWHM	Tol.
Fe	60	60 +/-2	0.0266	5.36	<6.00
NGAIN = 0.996	206	206 +/-2	0.0969	-----	-----
NZOFF = 0.5					
Far Detector					
H	Channel	Expected Value	Amplitude	FWHM	Tol.
Fe	60	60 +/-2	0.0359	5.69	<6.50
FGAIN = 0.993	209	208 +/-2	0.0915	-----	-----
FZOFF = 0.2					
Flask Temperature	62.3 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	5003	5000	3	+/-1000	cps
ITCR2	3160	3200	-40	+/-250	cps

Sigma Mode					
Stabilization					
Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	81.00	80.00	1.00	+/-15.00	V
FCAP	9882	10000	-118	+/-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	1.06	1.07	-0.01	+/-0.12	
RINC	1.64	1.64	0.00	+/-0.18	
SGFN	24.08	24.00	0.08	+/-0.50	cu


SGFF	22.87	22.85	0.02	+/-0.50	cu
FSIN	23851	24000	-149	+/-2000	cps
FCAP	10021	10000	21	+/-1000	cps
NFTR	0.80			<5.00	
FFTR	0.92			<5.00	
NBKG	179			<500	cps
FBKG	92			<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	2014.5.9.1				
Log Data Acquisition Software Modules					
HRMTI Module	2013.11.14.0				
RMTI Module	2014.5.9.1				

Cement Bond Log Shop Calibration Report					
Serial-Model:		11817843-A			
Calibration Performed:		Sat Jul 19 08:32:51 2014			

Free Pipe Calibration		
	Measured	Units
TT	246.0	usec
Amplitude	772.6	mV
Log Base Line	-2.5	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	0.105	

Gamma Ray Calibration Report					
Type / Serial:		002 / 11214503			
SHOP CALIBRATION		Sun Jul 20 07:37:40 2014			
	Counts/Sec.	Gain	Offset	Jig	Units
Background	44.5				cps
Calibrator	346.2				cps
		1.3524			GAPI/cps
PRIMARY VERIFICATION		Sun Jul 20 07:39:45 2014			
Background	60.3				cps
Calibrator	468.0				cps
Difference				407.7	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		STANDARD CCL	1.50	1.44	1.00

Company	CAERUS PICEANCE, LLC.		
Well	ISLAND RANCH 21A-24		
Field	PARACHUTE		
County	GARFIELD	State	CO
HALLIBURTON	ACOUSTIC CEMENT BOND LOG		