

HALLIBURTON

CEMENT BOND LOG

CompanyTRUE OIL, LLC		WellTHUNDER 5-64 15-16-1CHZ		FieldWILDCAT		CountyARAPAHOEStateCO	
Permanent DatumGROUND LEVEL		Elevation5934'		Other Services			
Log Measured FromKB		27' Ft. above perm. datum		K.B. 5961' D.F. 5961' G.L. 5934'		Elevation	
Drilling Measured FromKB							
Date @ Time Logged11/08/2018 @ 16:00		Type Fluid in Hole		FRESH WATER			
Run No. ONE		Density of Fluid		8.4#			
Depth - Driller17991'		Fluid Level		SURFACE			
Depth - Logger7937'		Cement Top Est. Logged		SURFACE			
Bottom - Logged Interval7926'		Equipment / Location		11875120 / BRIGHTON			
Top - Log IntervalSURFACE		Recorded by		J. SCHMIDT			
Max. Recorded Temp.232 F		Witnessed by		D. MATA			
CEMENTING DATA		Surface String		Protection String		Production String	
Date / Time Cemented							
Primary / Squeeze							
Expected Compressive Strength		psi@ hrs		psi@ hrs		psi@ hrs	
Cement Volume							
Cement Type / Weight		/		/		/	
Formulation							
Mud Type / Mud Wgt.		/		/		/	
Run Number		Borehole Record		Casing & Tubing Record			
Bit		From		To		Size	
						Weight	
						From	
						To	

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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

LOG RECORDED IN 5.5" 20# CASING.

LOG RECORDED WITH 1000 PSI WHP.

LOG CORRELATED TO SHORT JOINT AT 7112'.

THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES

Service Ticket No.	905058216	API No.	05005073400000	PGM Ver	WARRIOR 8.0
The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client					
EQUIPMENT DATA					
GAMMA/CCL		CBL			
Run No.	ONE	Run No.	ONE	Run No.	
Serial No.	061016	Serial No.	6710	Serial No.	
Model No.	PROBE GR/CCL	Model No.	PROBE CBL	Model No.	
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.	7926'	10	Pressure	1000 PSI	100 PPM		
ONE		SURFACE					
	GAMMA		AMPLITUDE				
Pass	Scale		Scale		Scale		Scale
No.	L	R	L	R	L	R	L
	0	200	0	100			
DIRECTIONAL INFORMATION							
Maximum Deviation			deg. @		KOP		

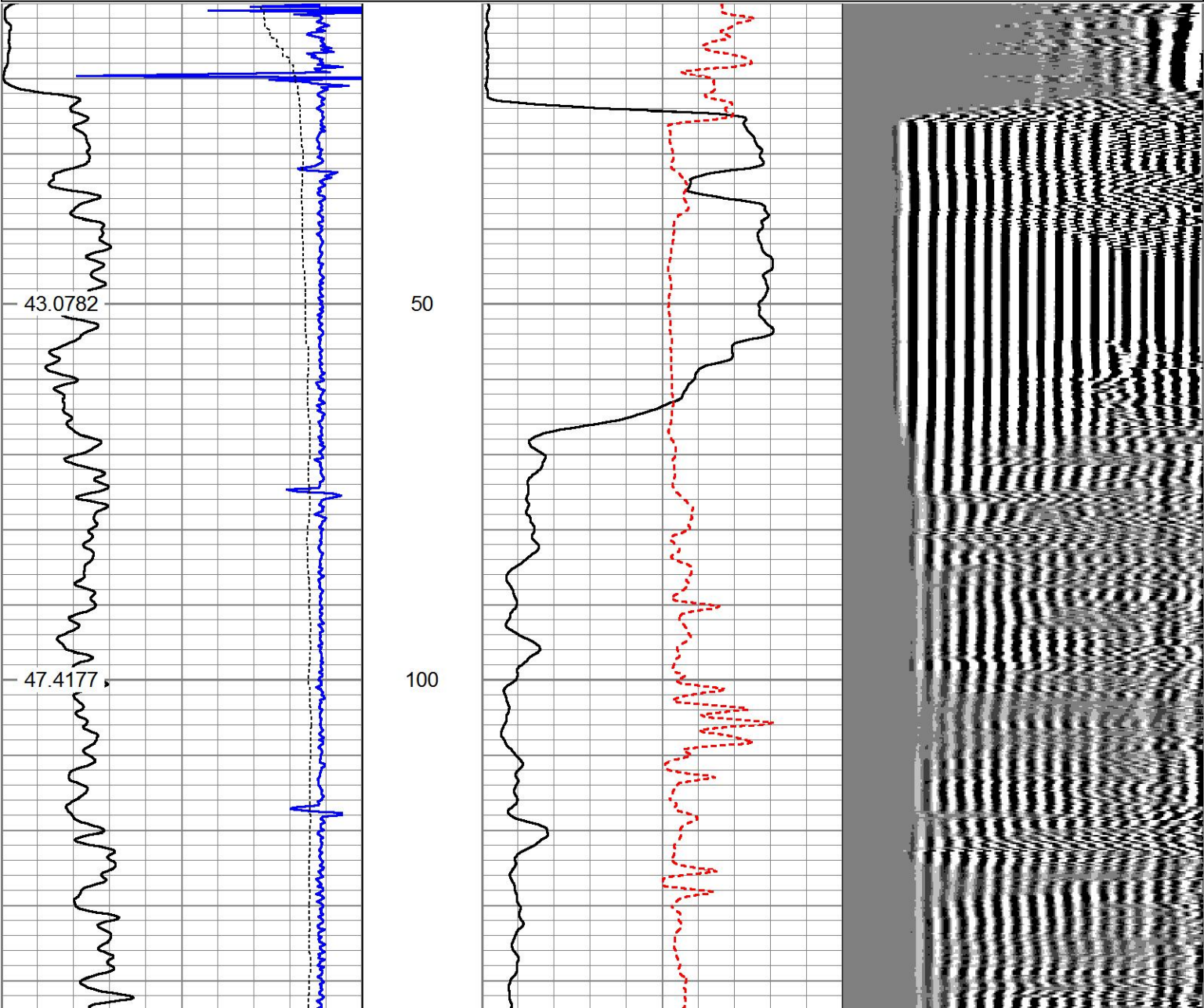
MAIN PASS

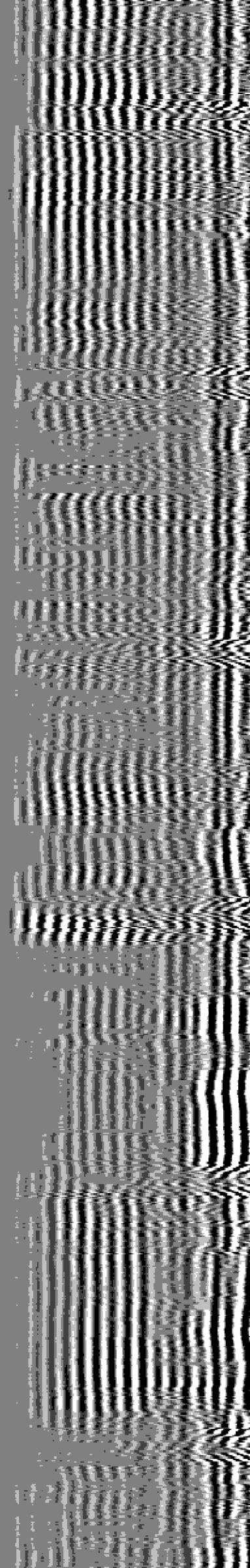
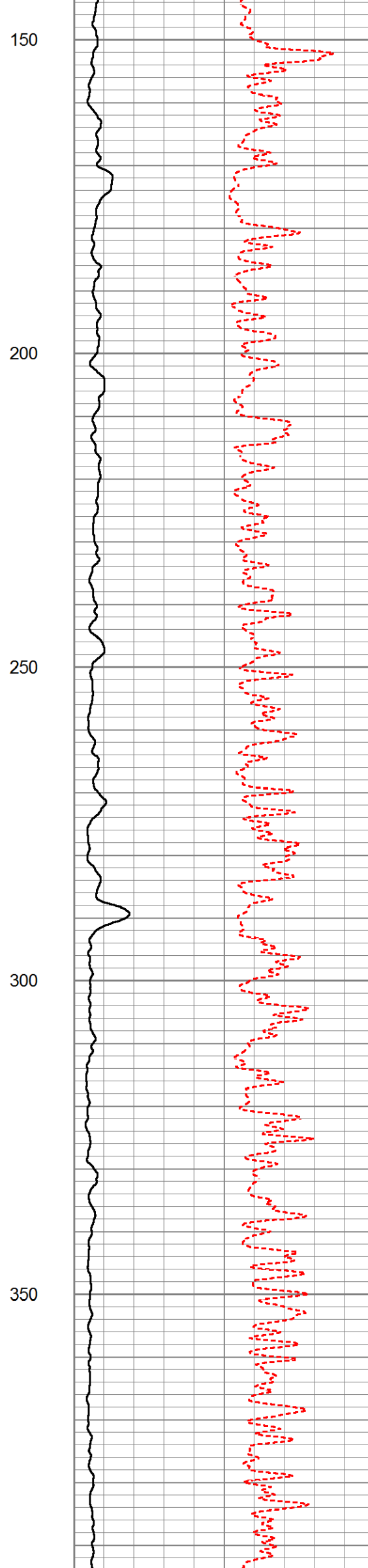
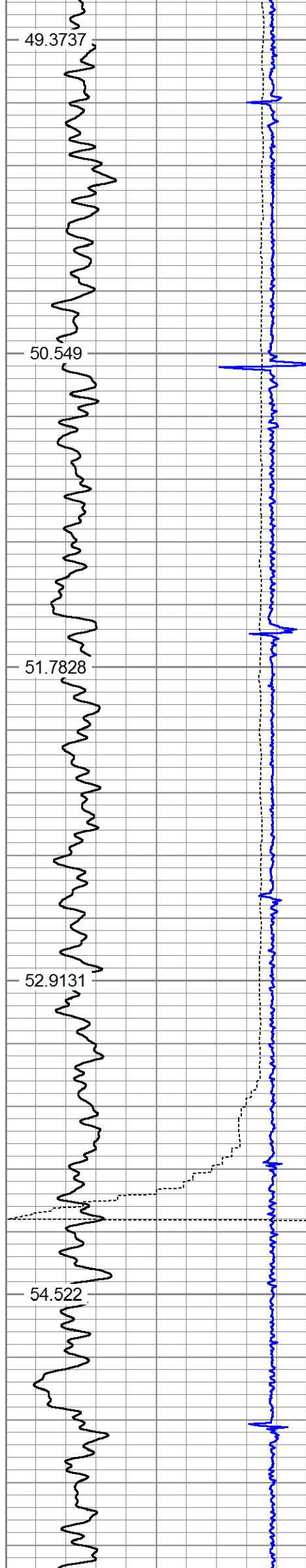
HALLIBURTON

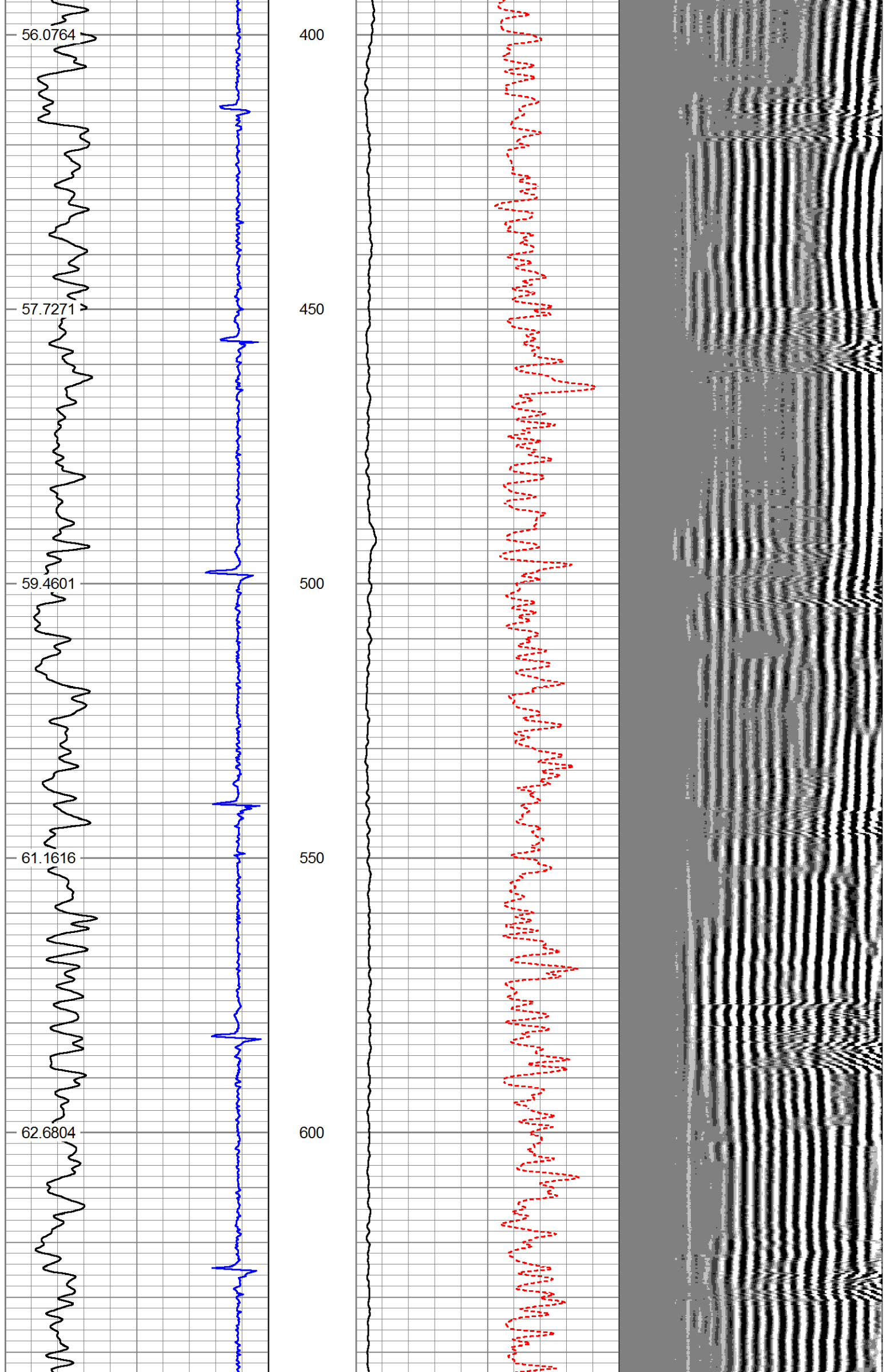
5" = 100'

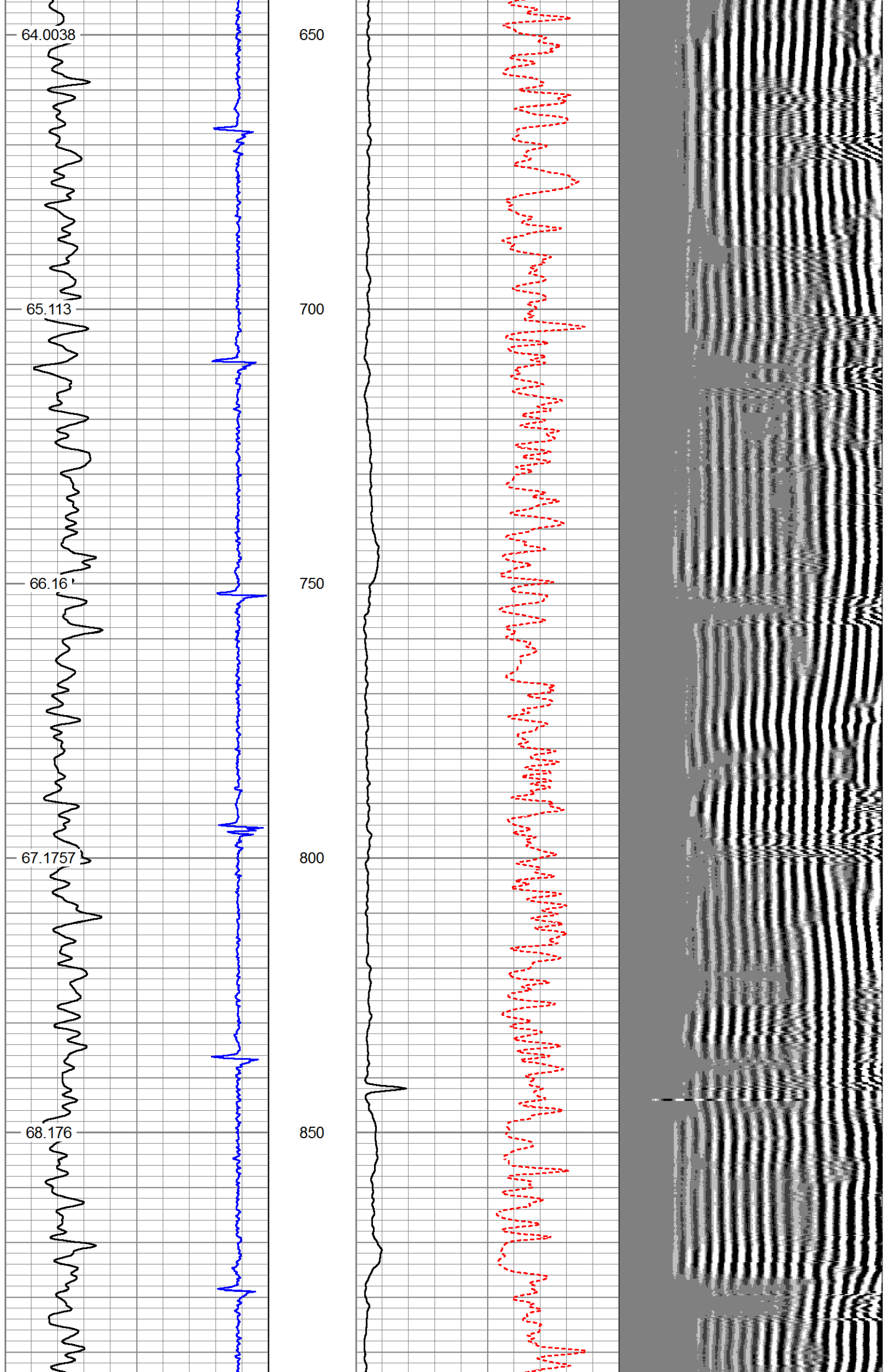
Database File true_thunder_cbl.db
Dataset Pathname MAIN_PASS
Presentation Format cbl_dr
Dataset Creation Thu Nov 08 16:10:39 2018
Charted by Depth in Feet scaled 1:240

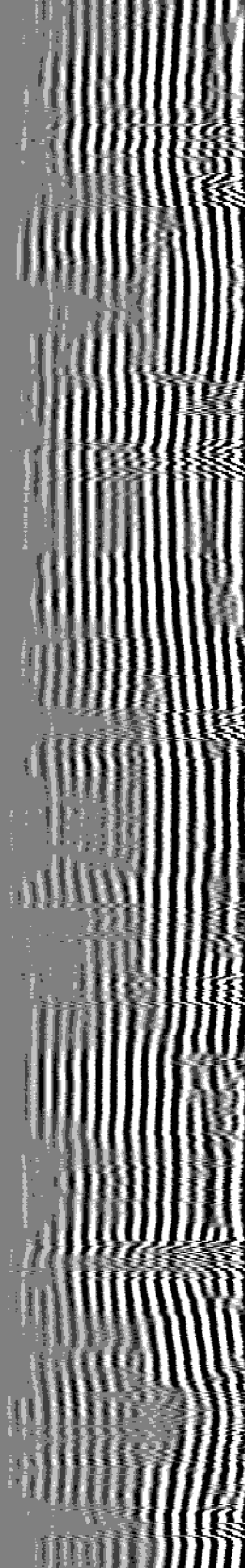
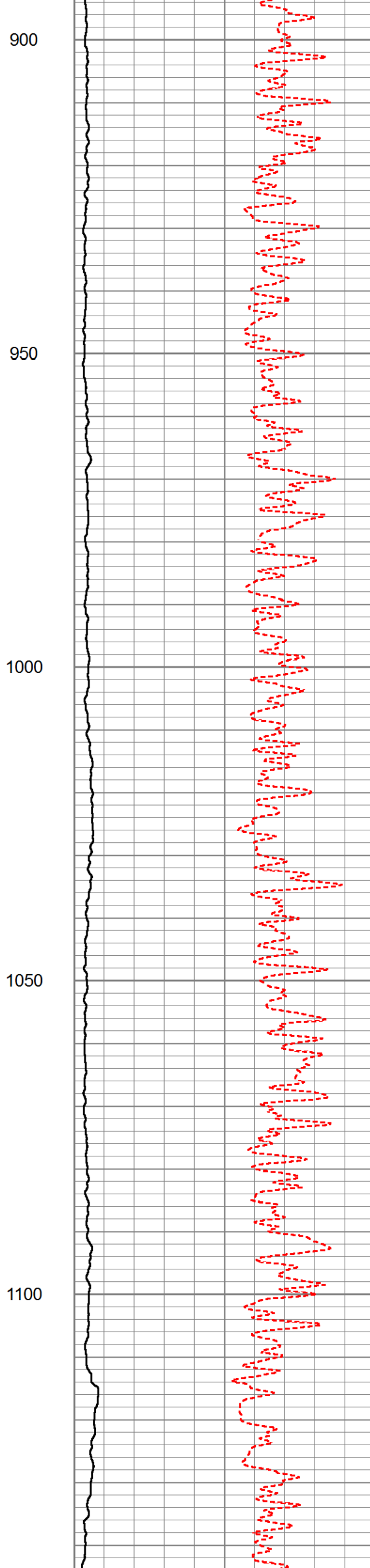
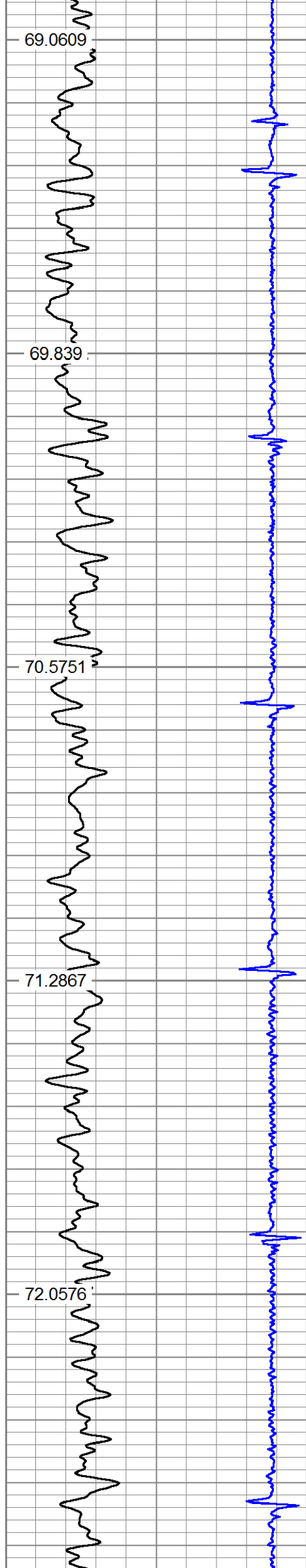
18000	Collar Locator (mV)	-2000	0	AMP3FT (mV)	100	200	WVF5FT (usec)	1200
0	Gamma Ray (GAPI)	200	300	Travel Time (usec)	400			
0	Line Speed (ft/min)	100						
TEMP								
(degF)								

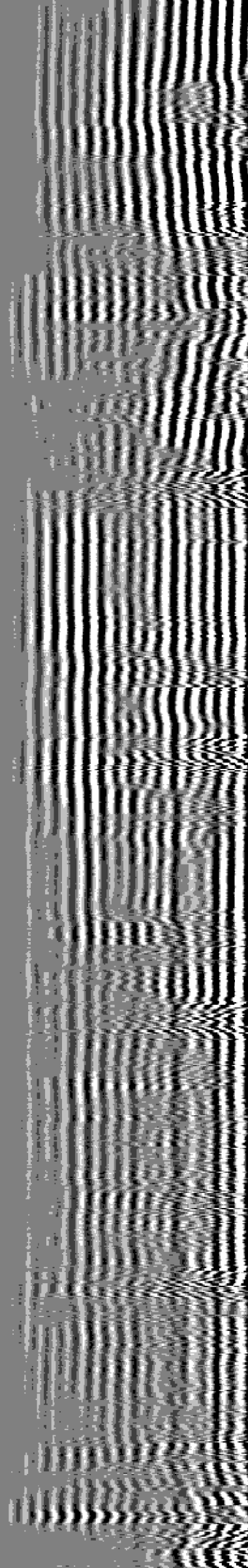
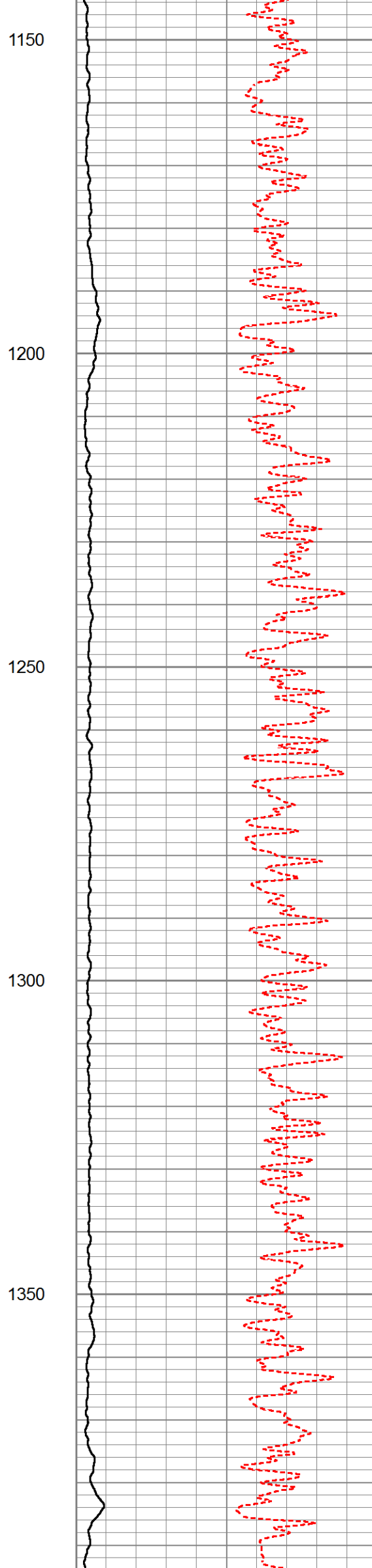
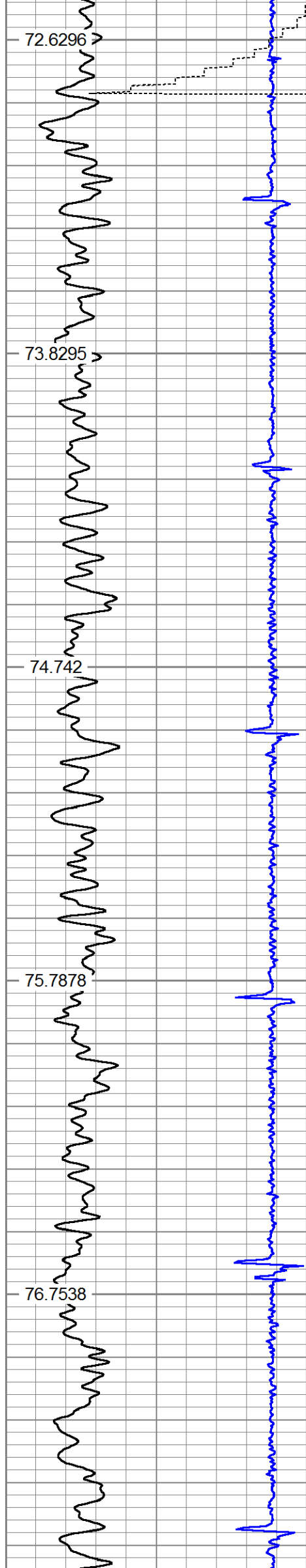


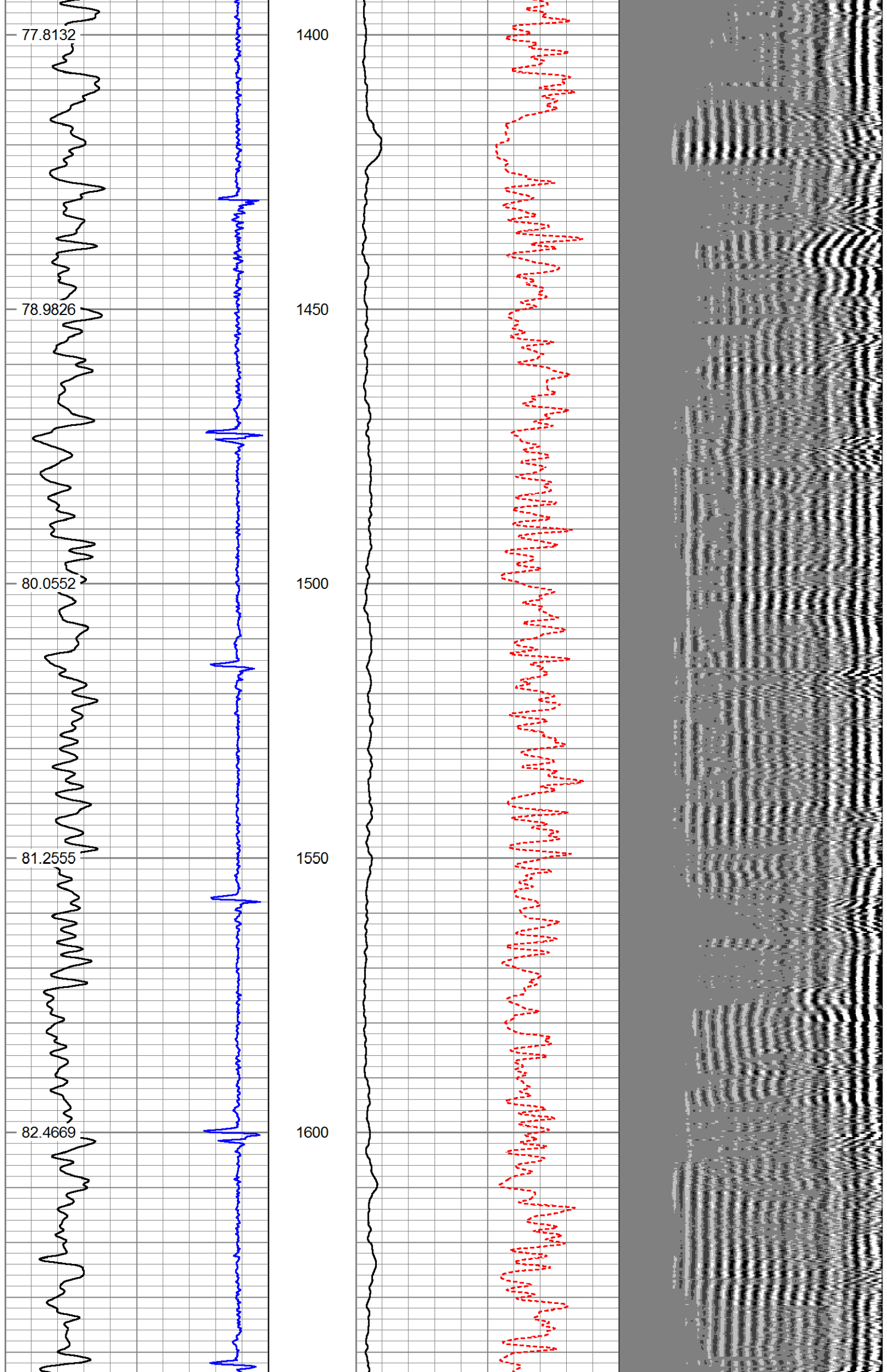


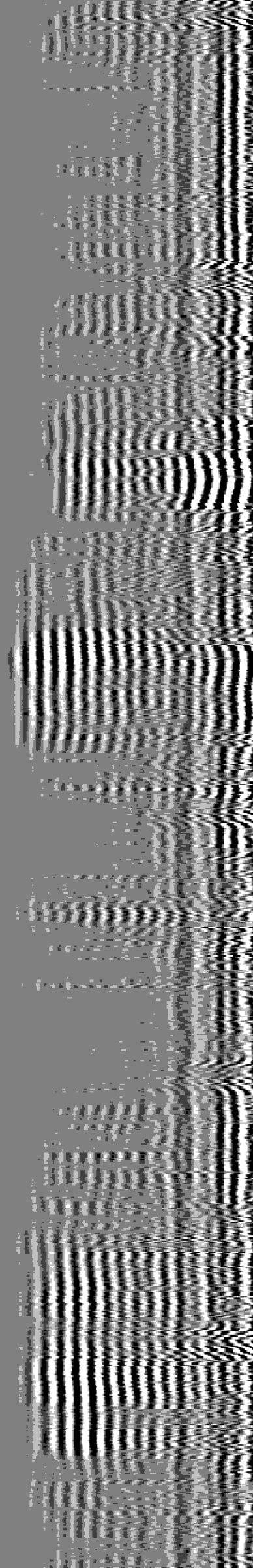
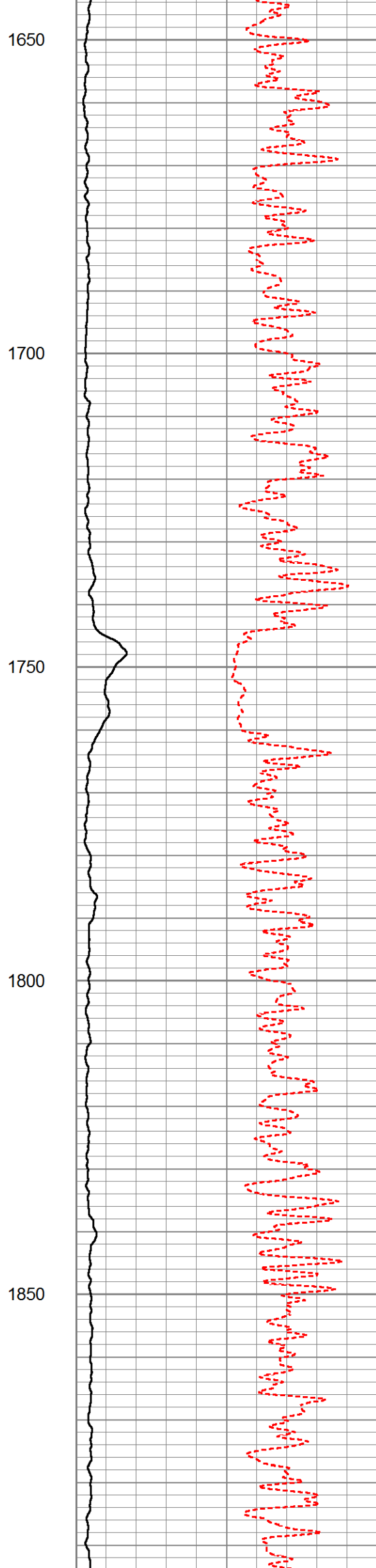
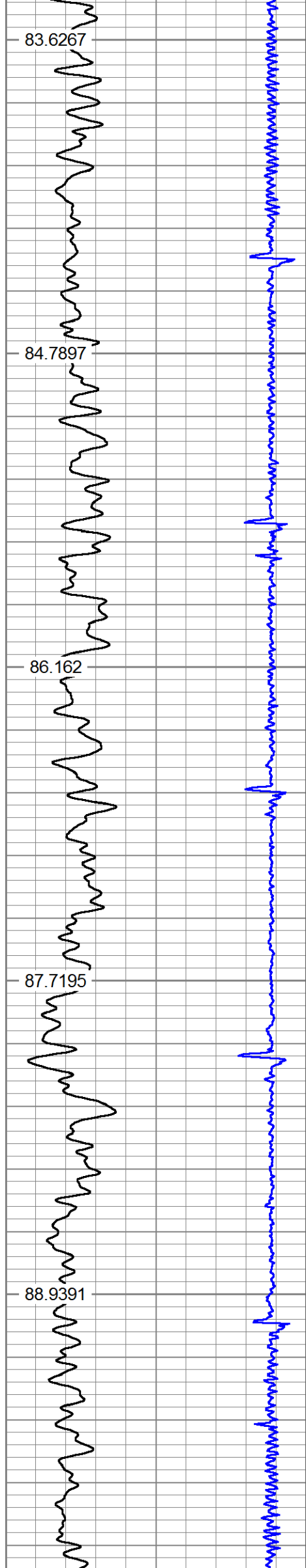


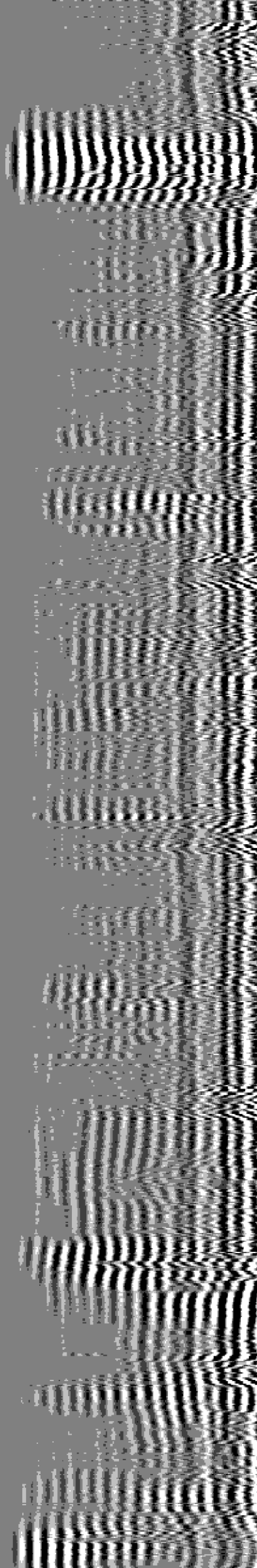
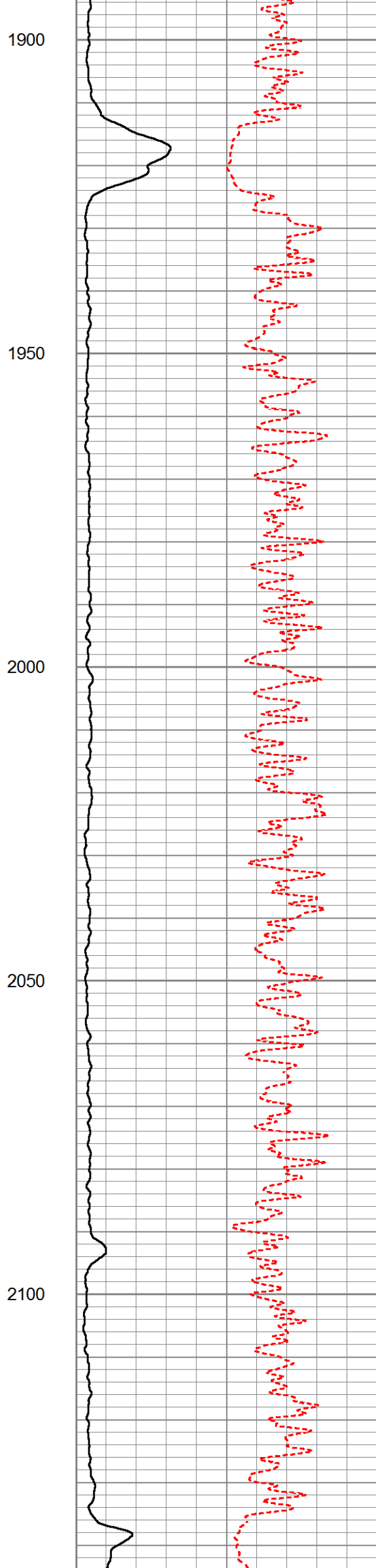
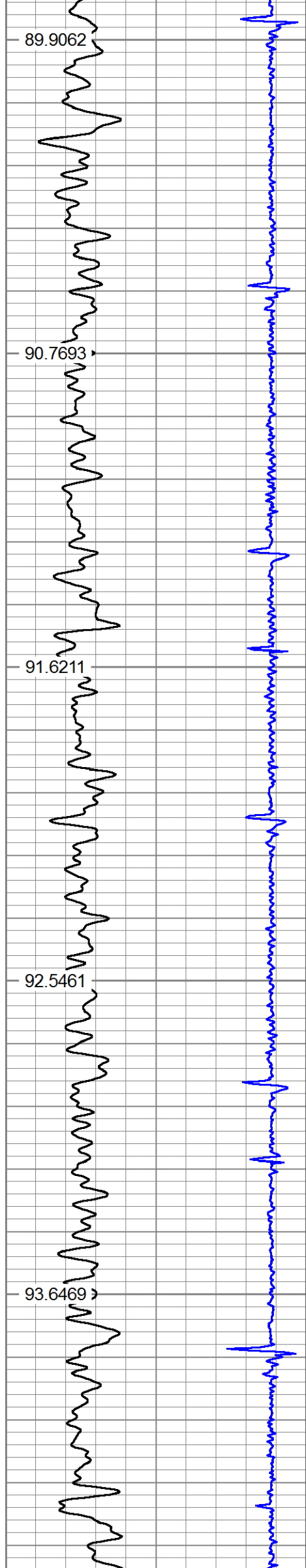


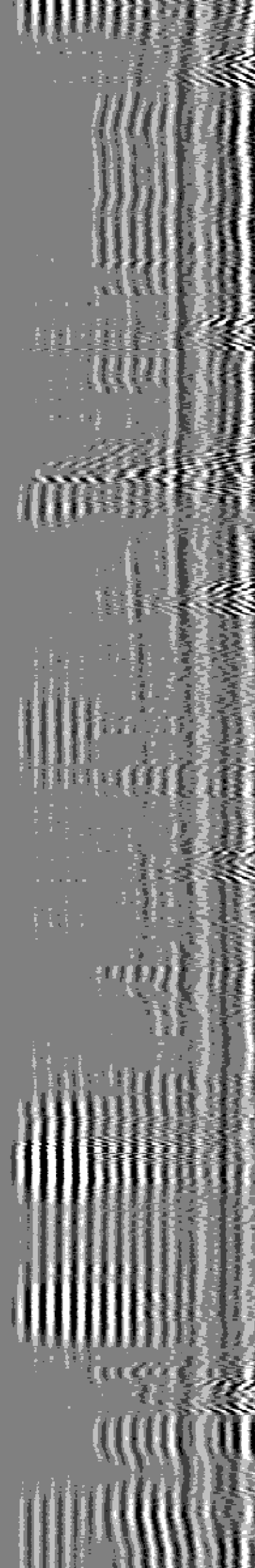
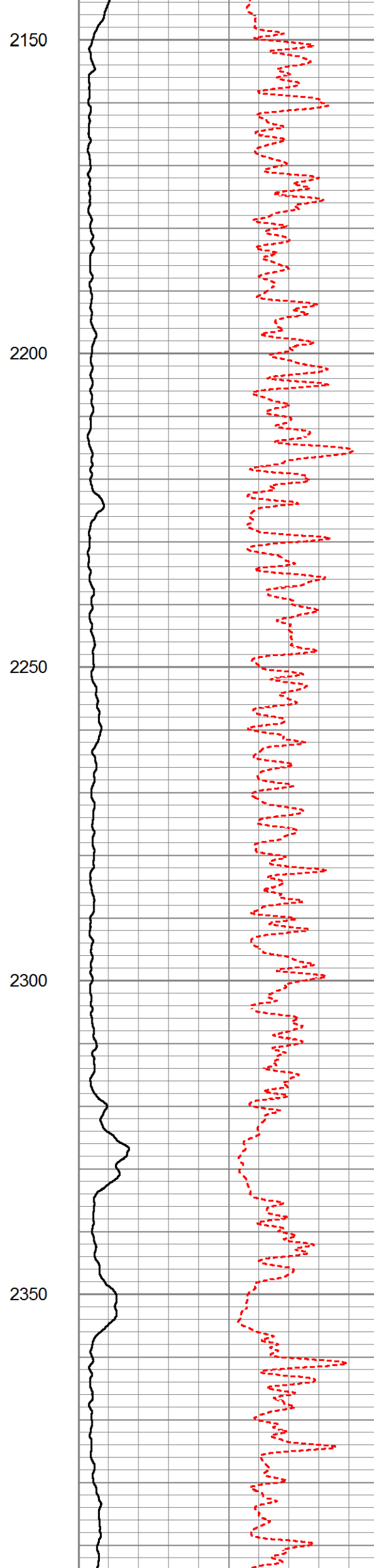
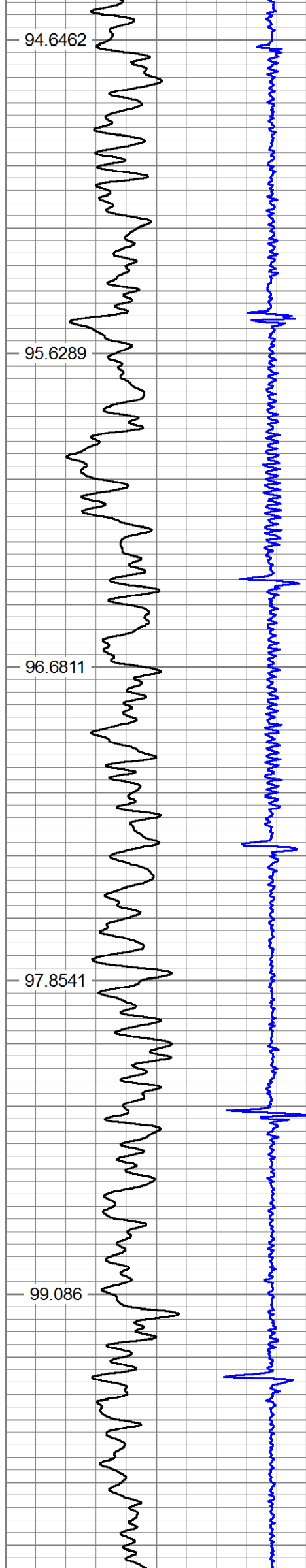


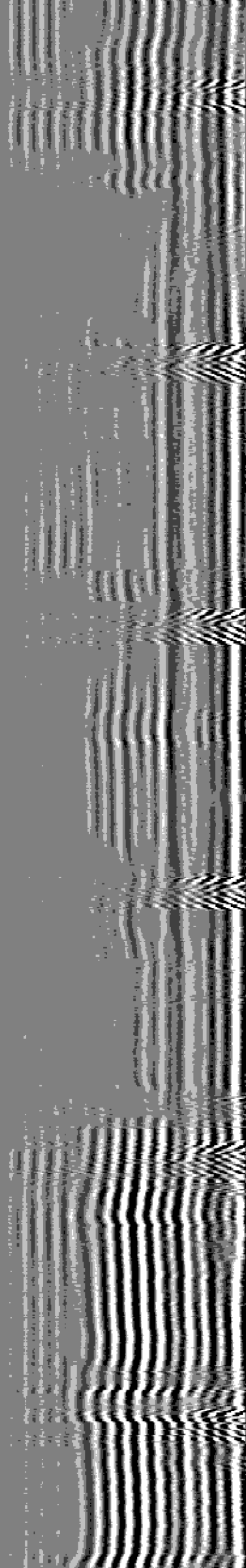
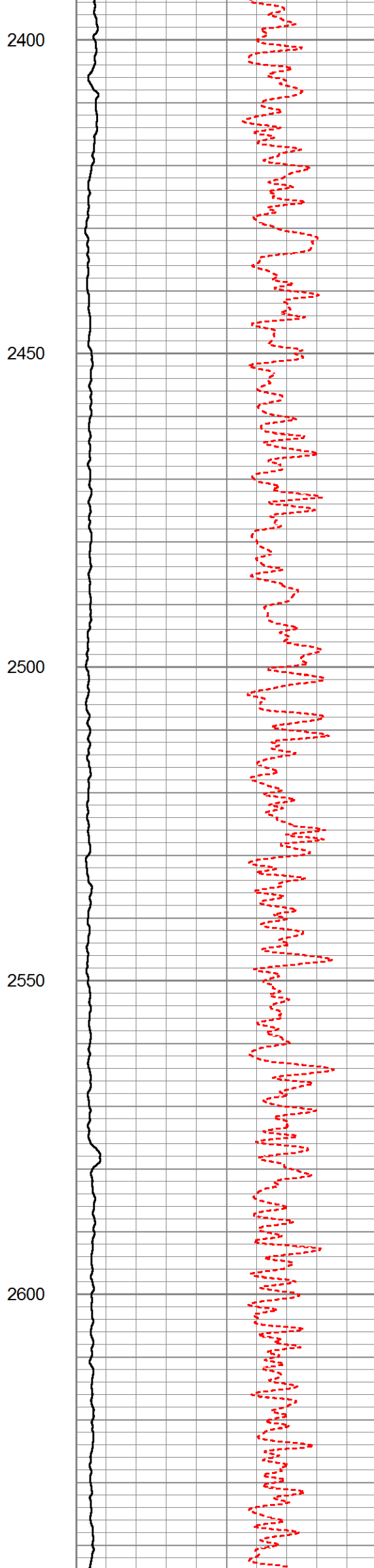
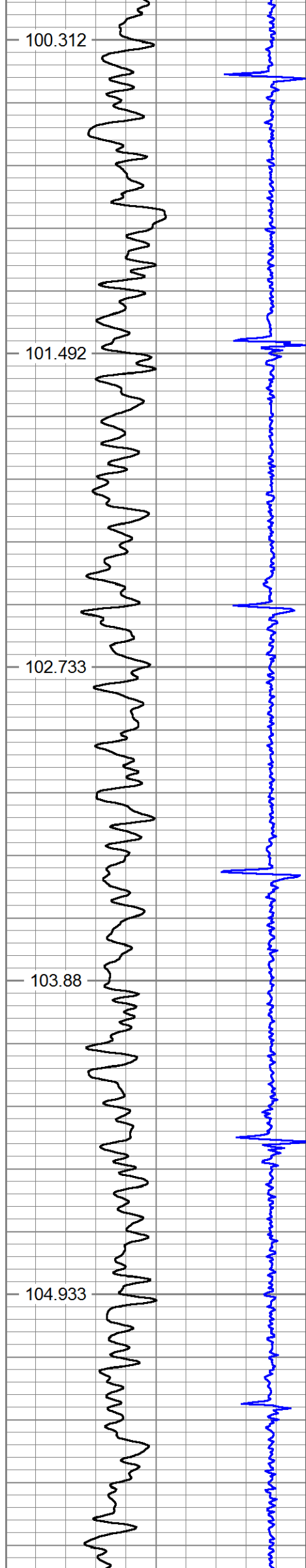


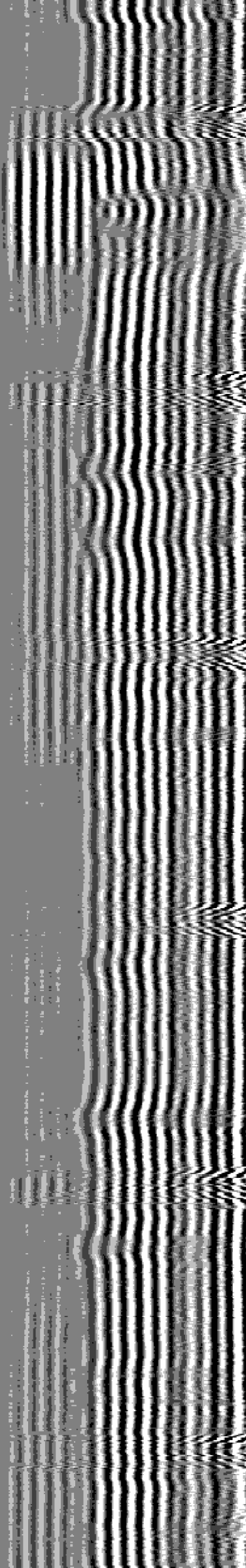
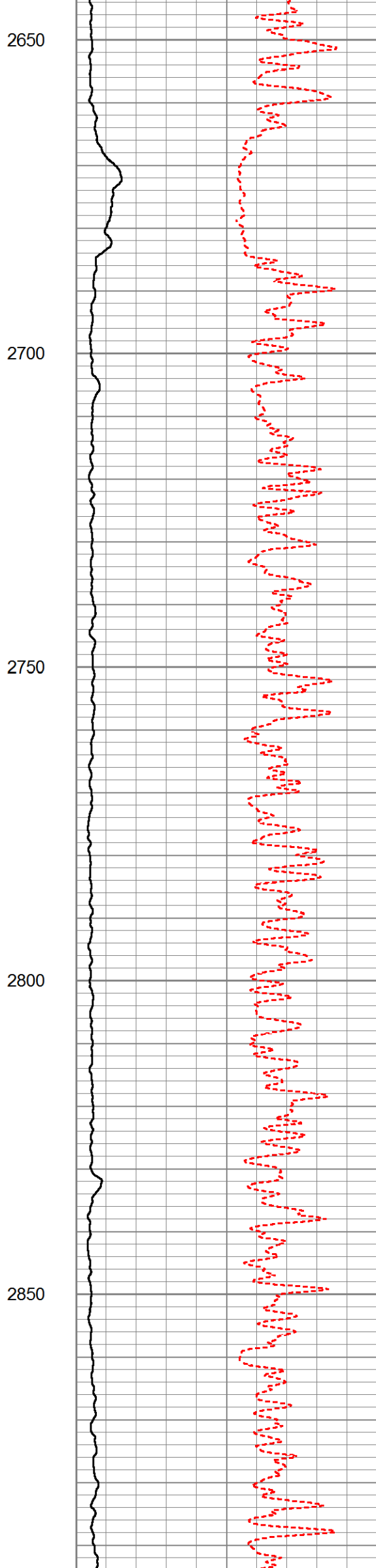
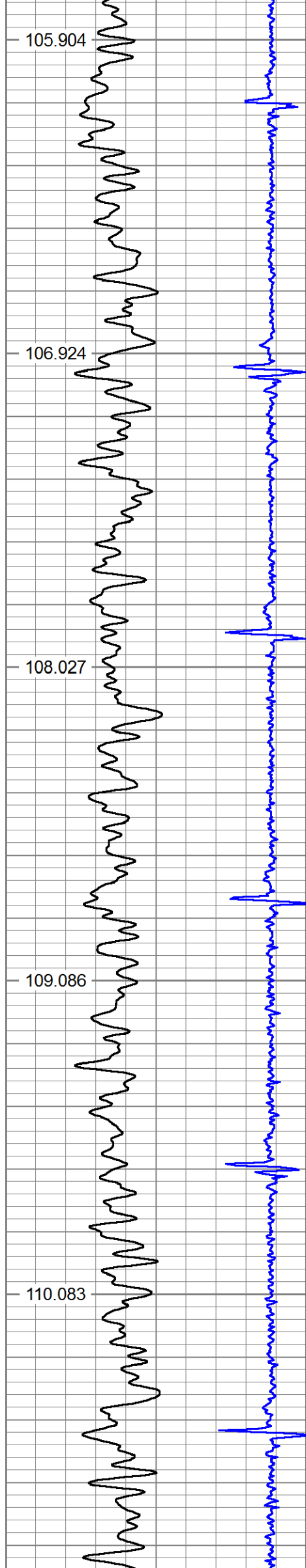


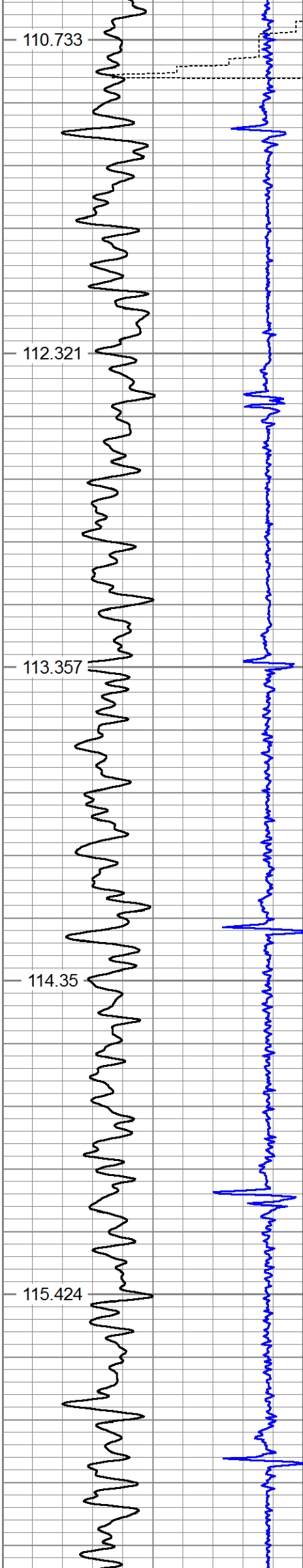












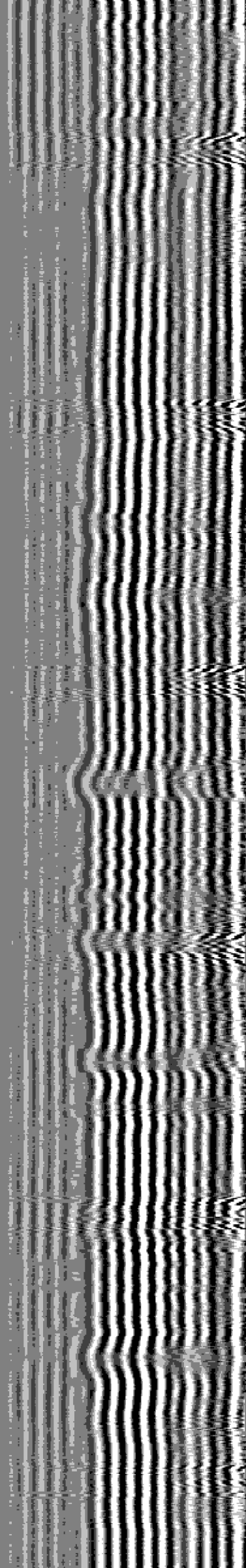
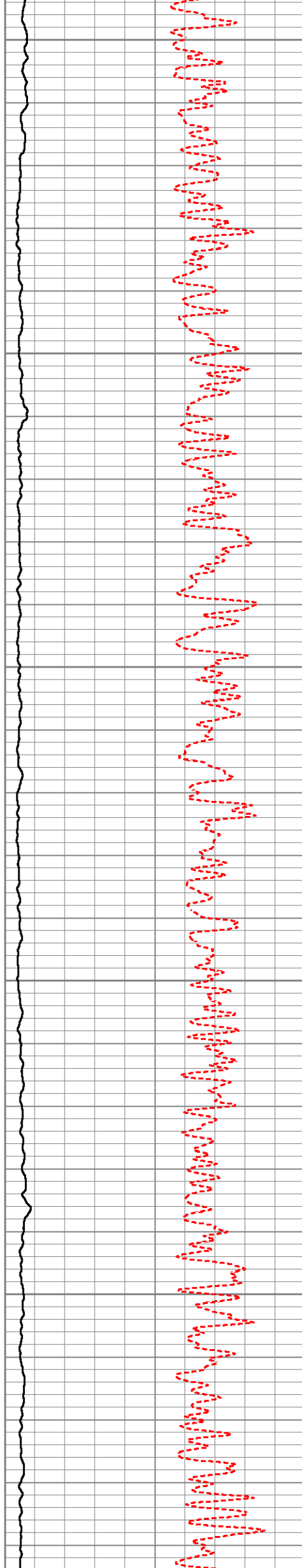
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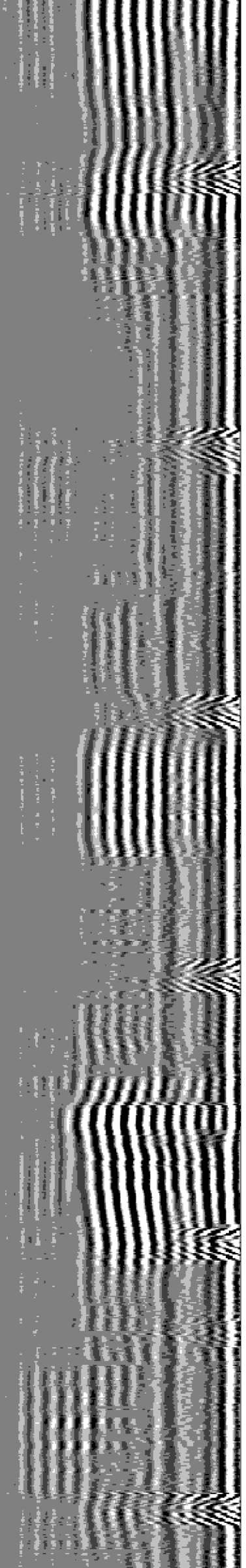
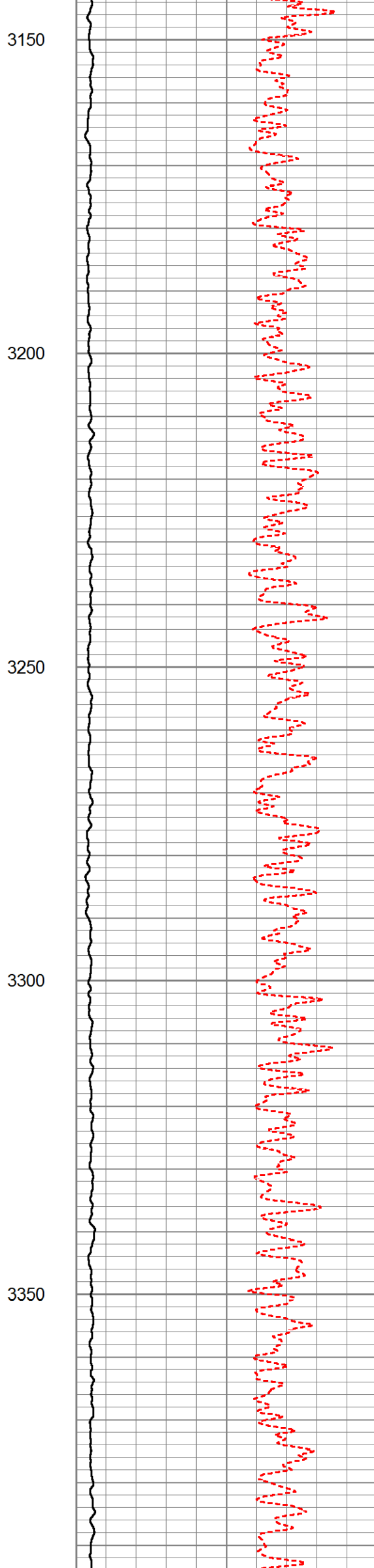
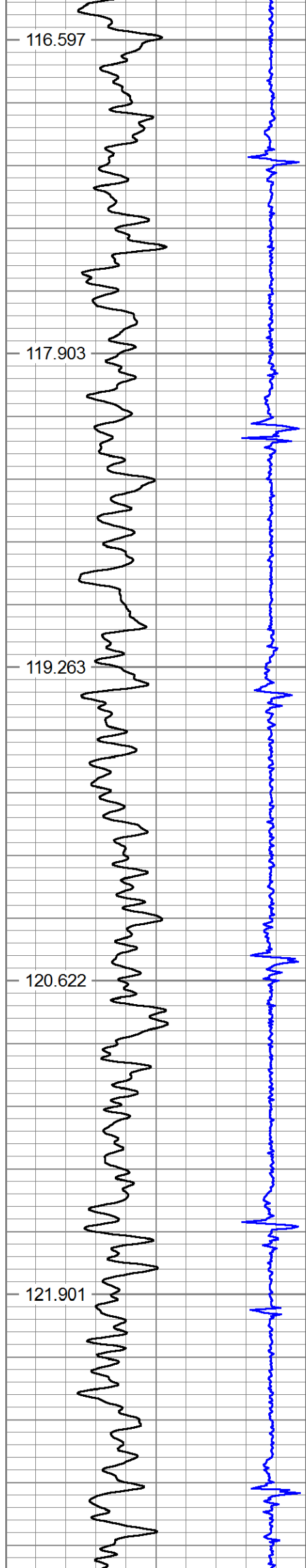
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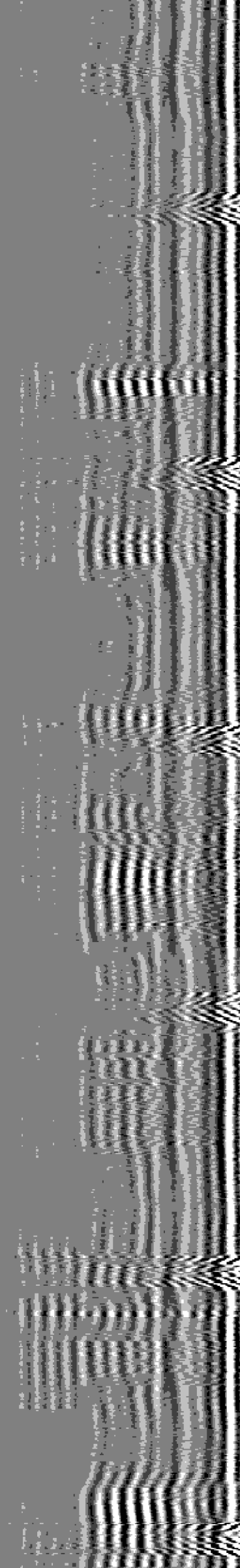
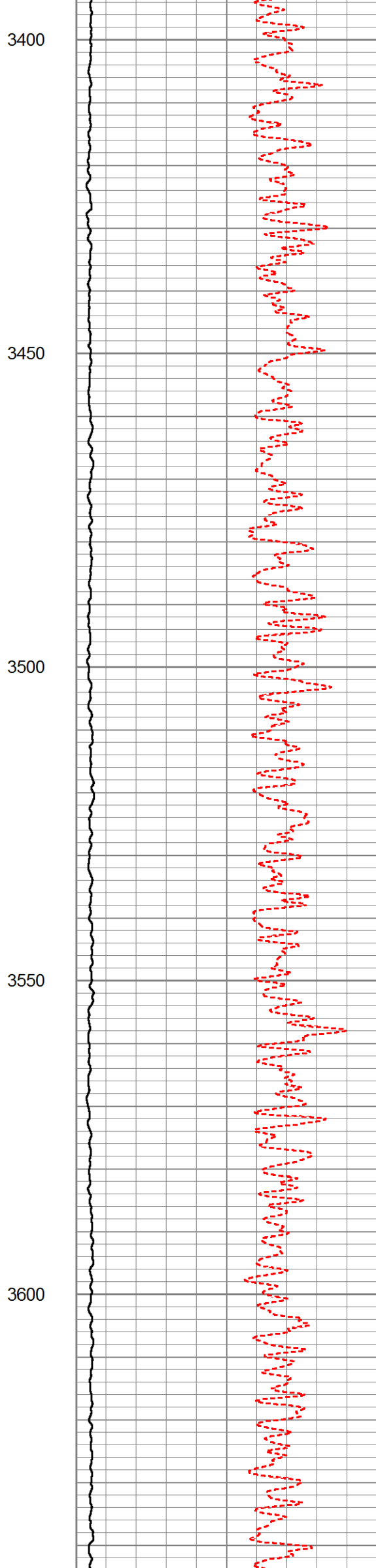
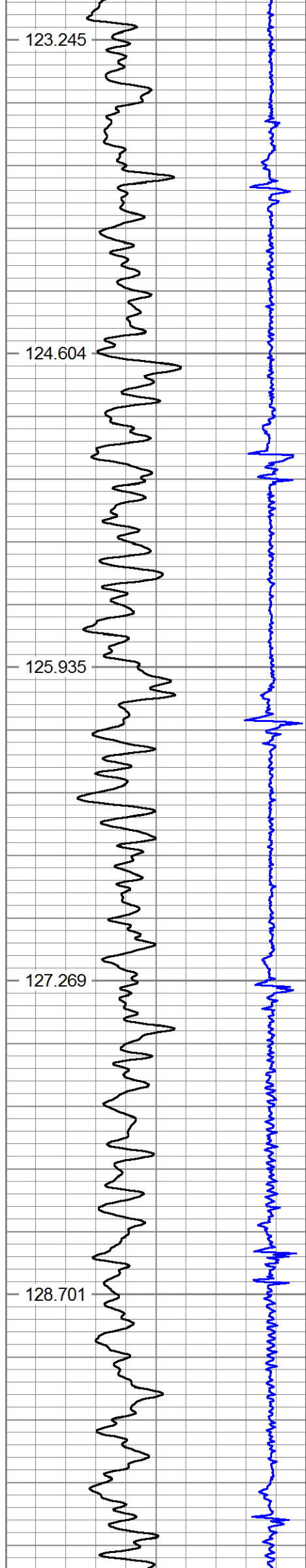
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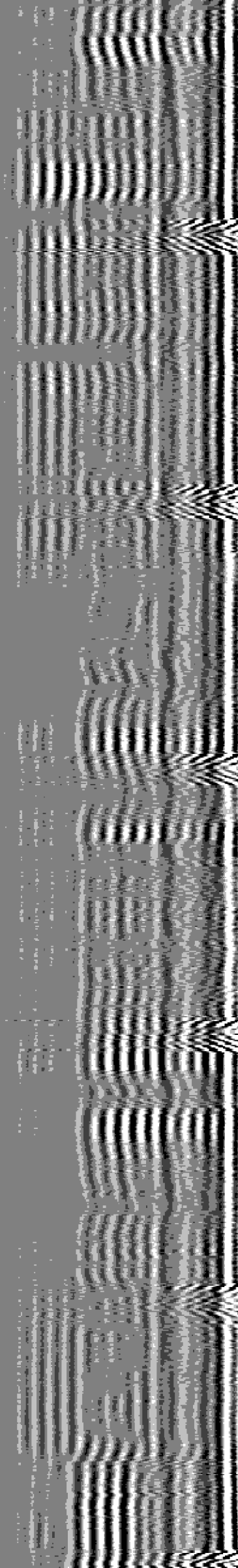
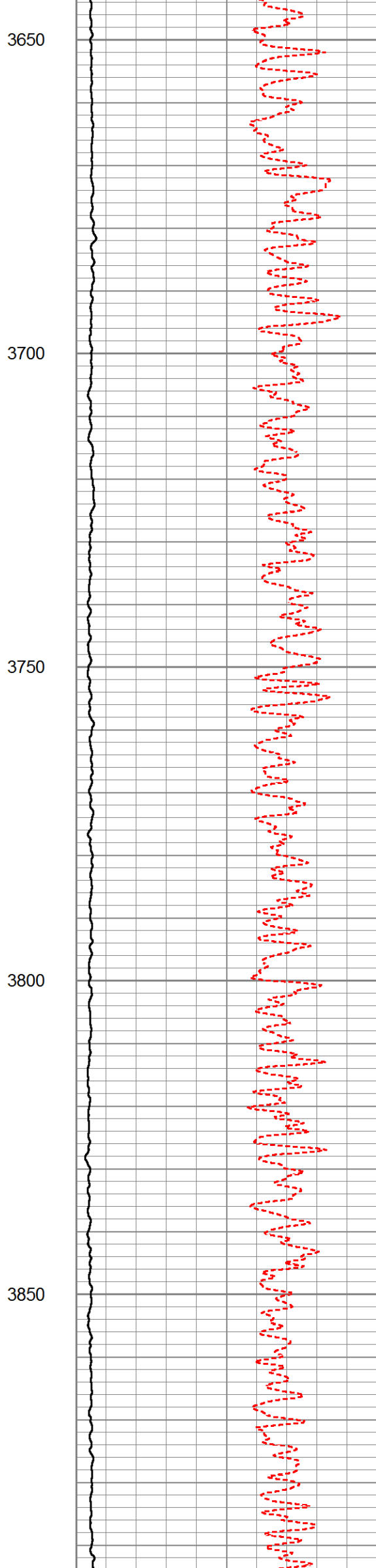
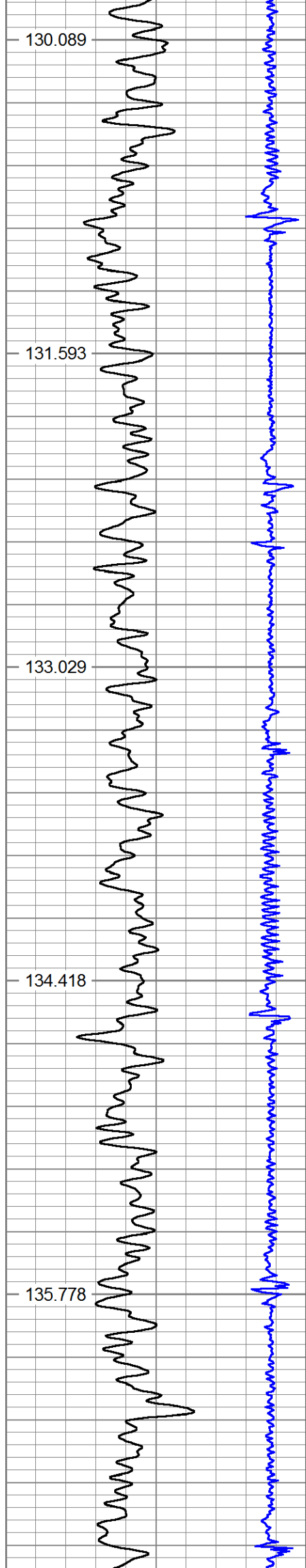
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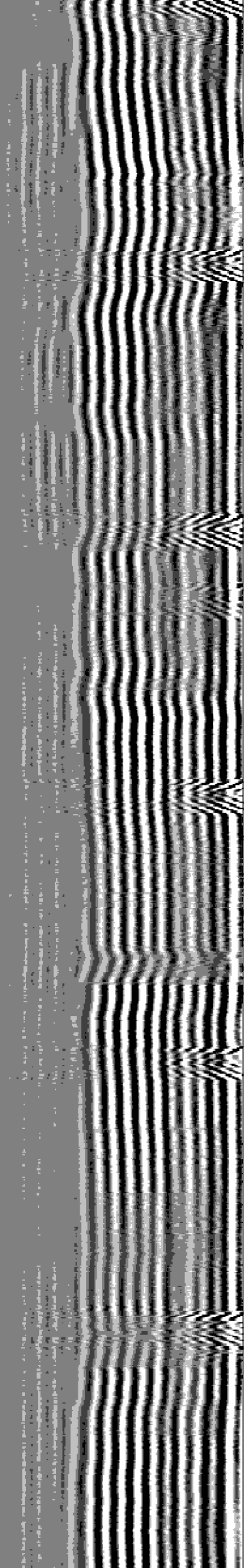
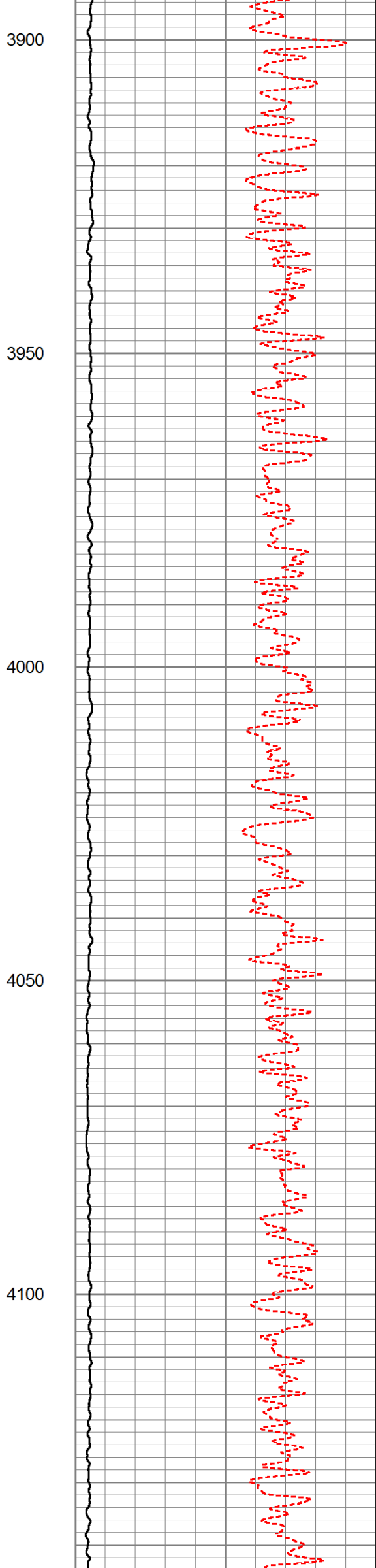
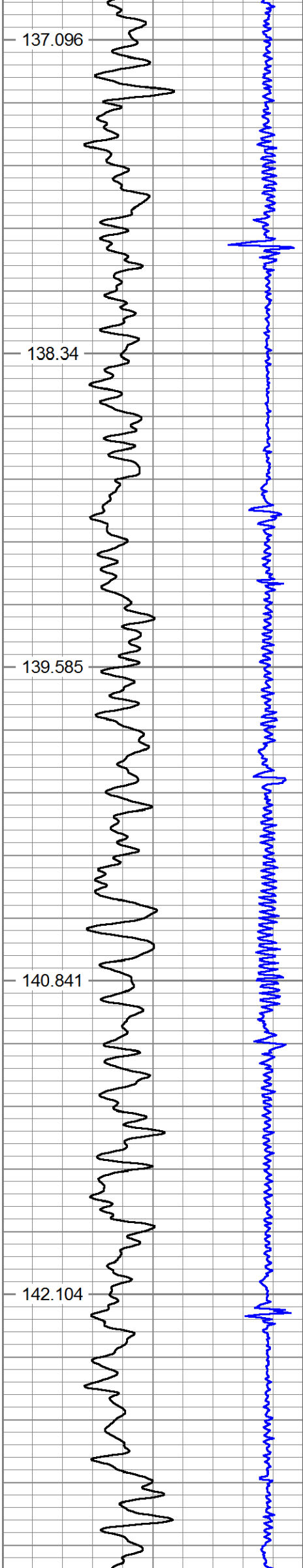
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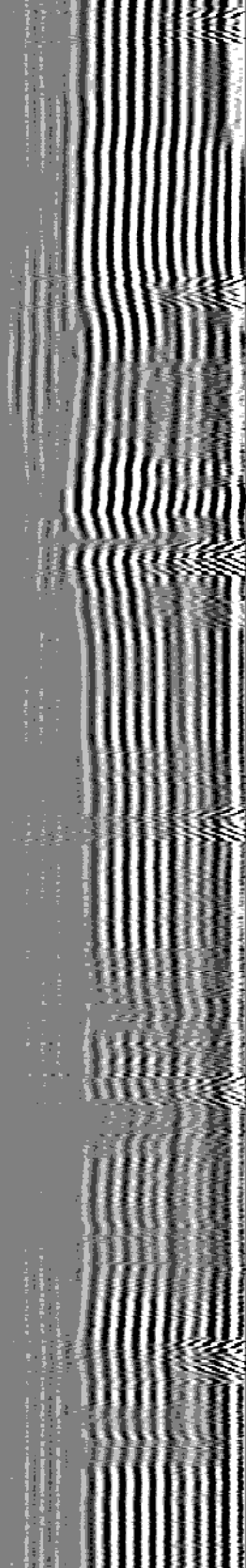
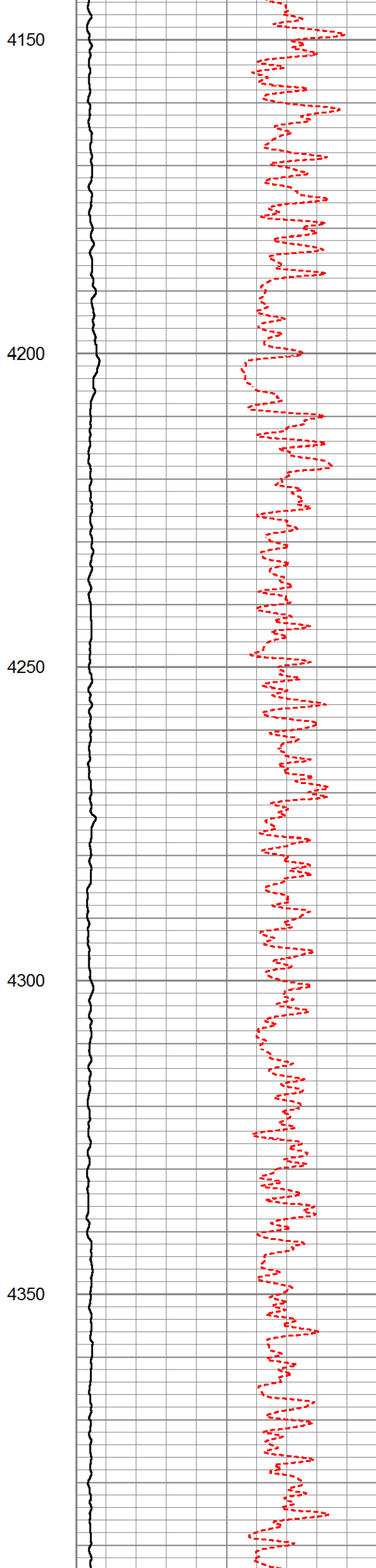
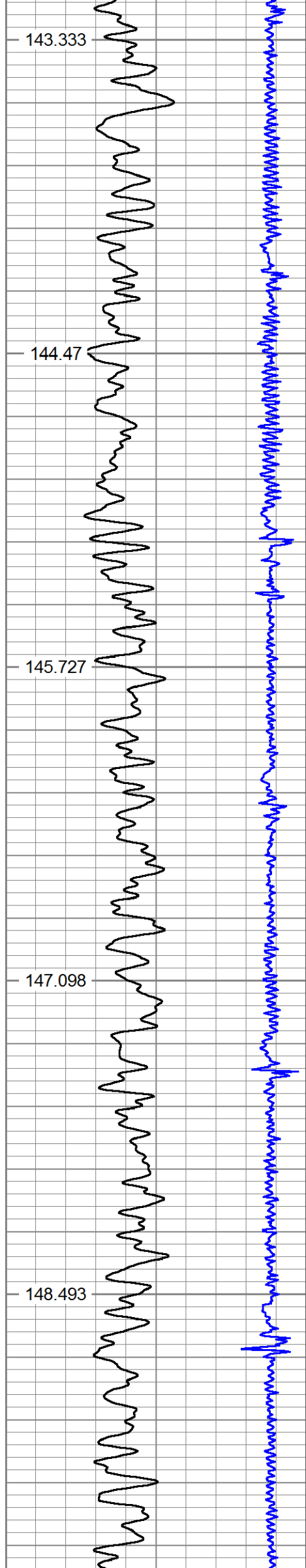


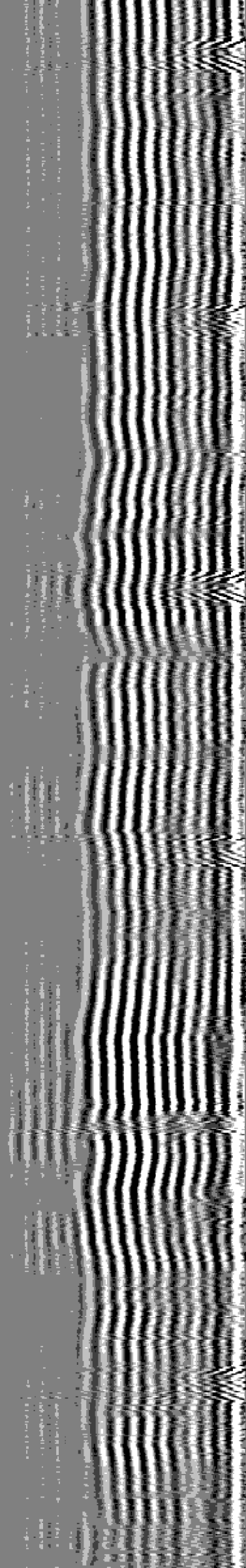
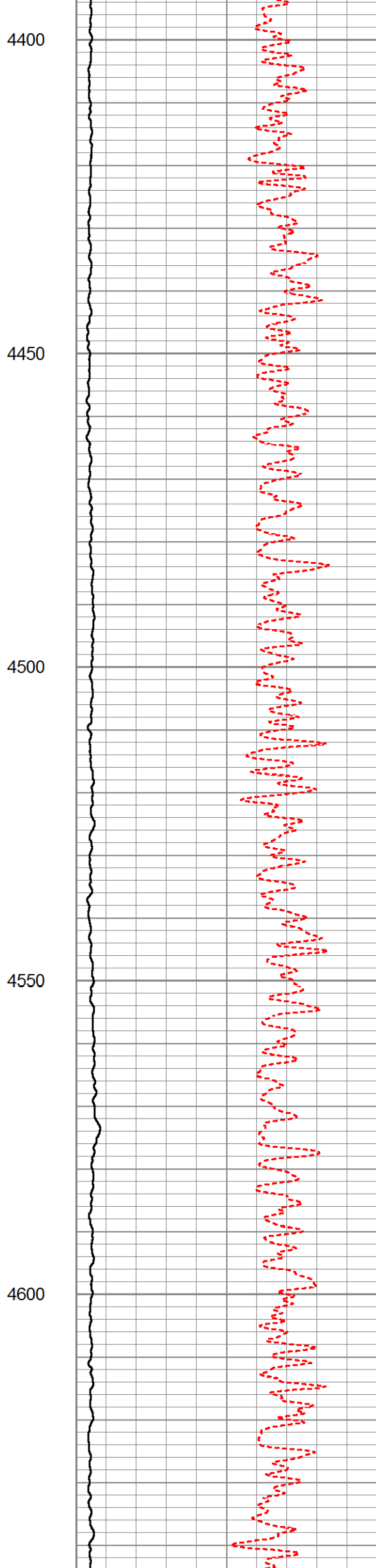
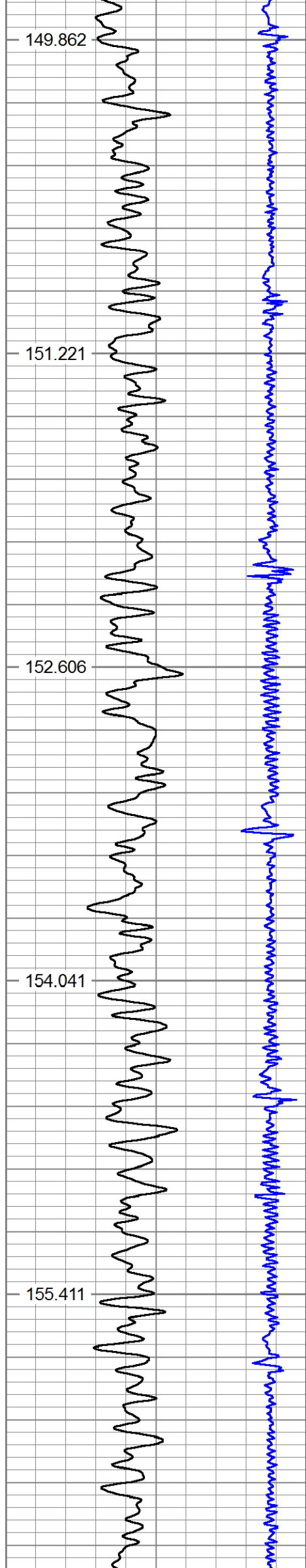


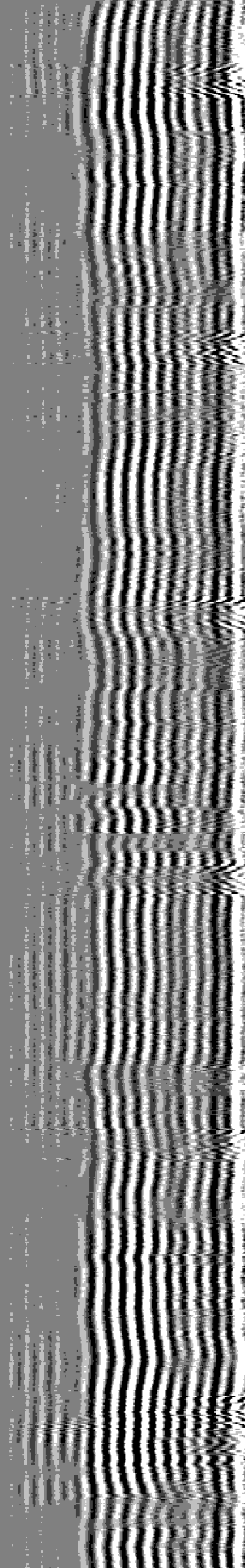
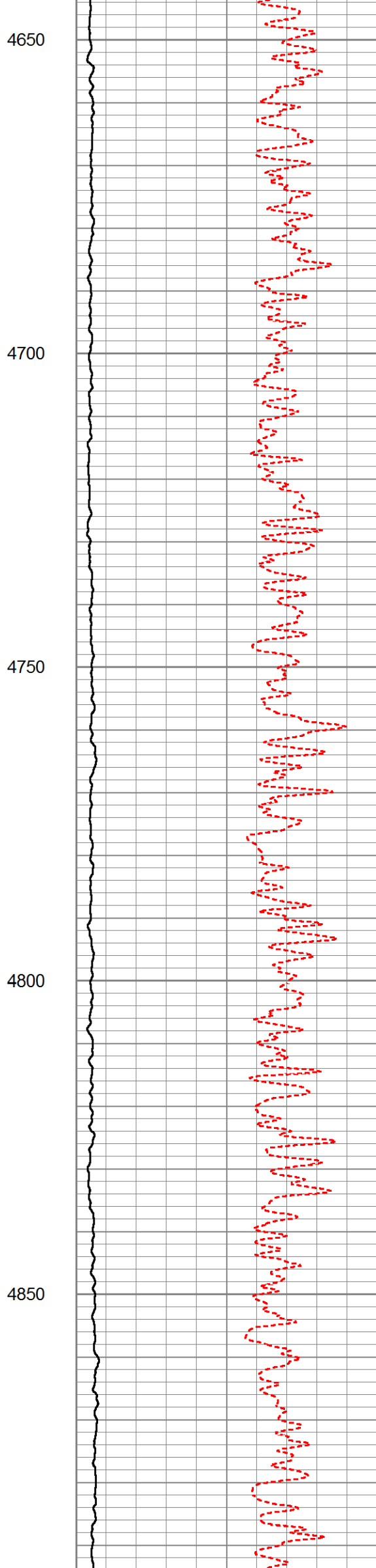
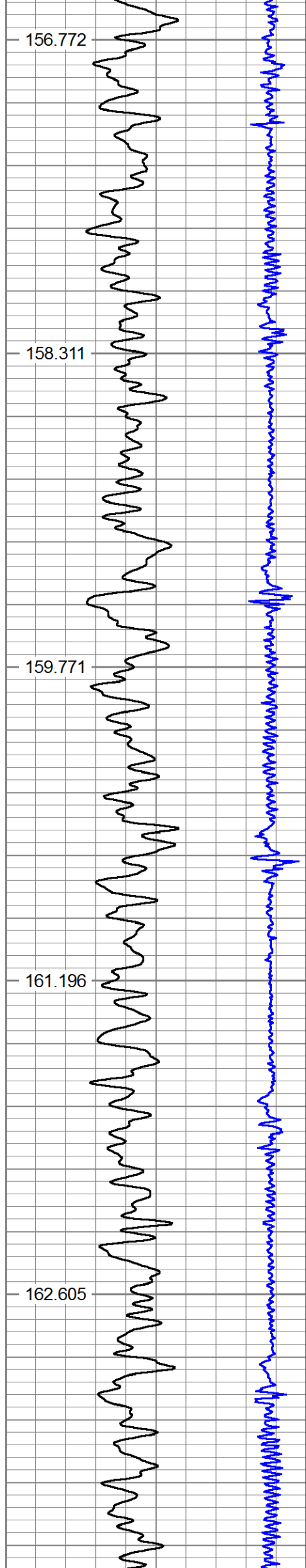


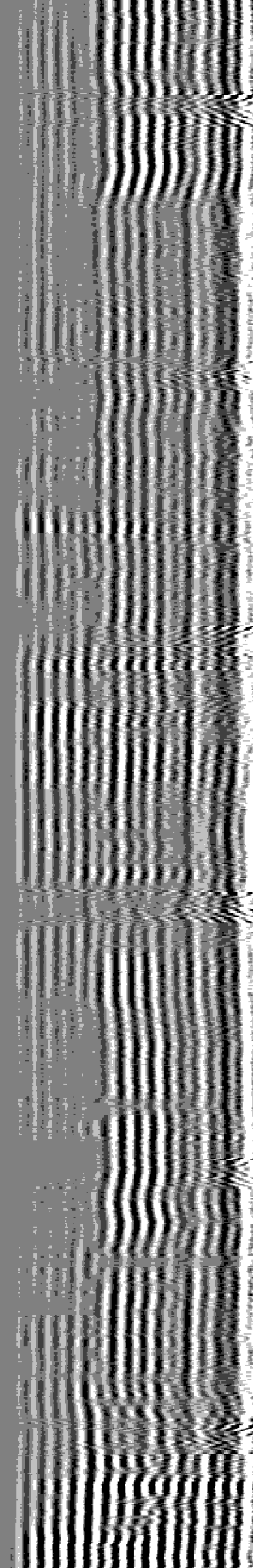
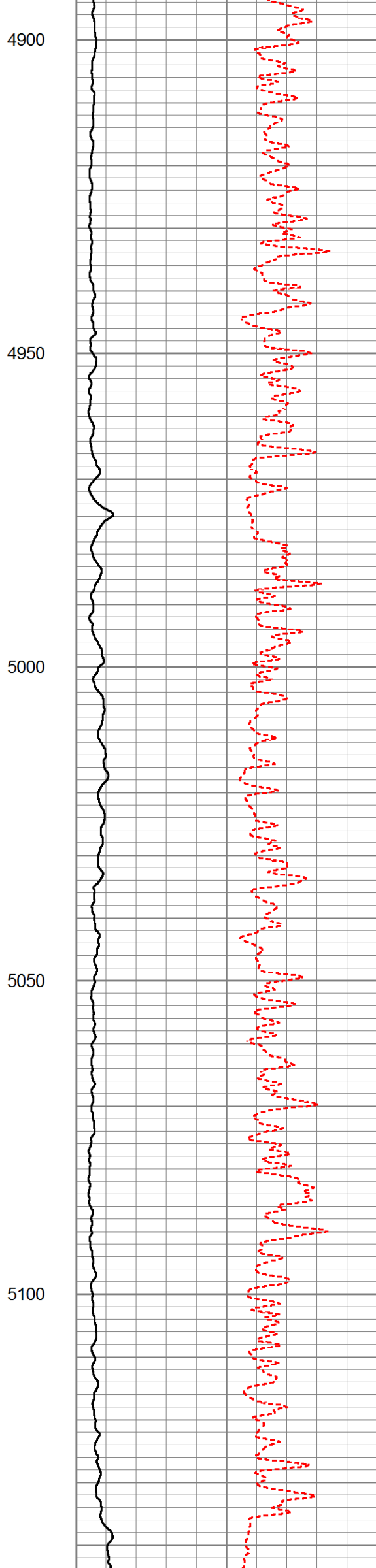
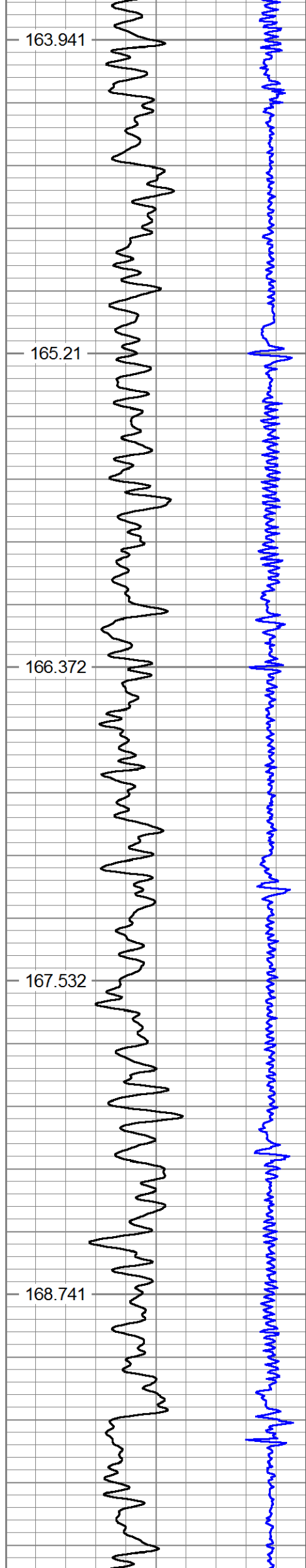


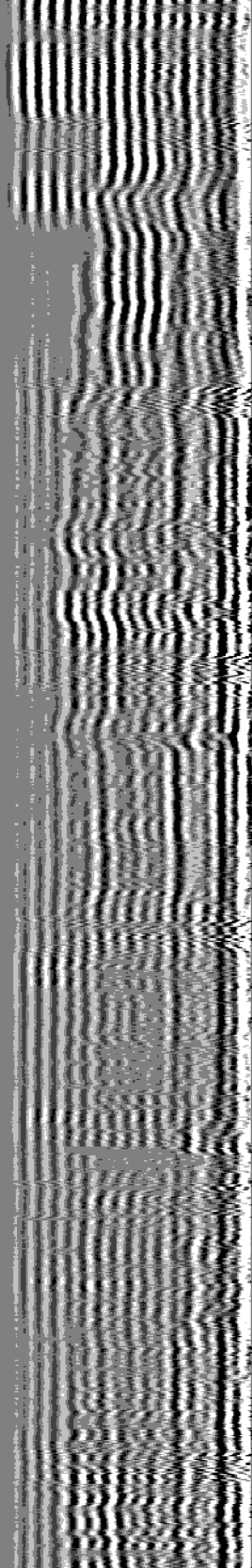
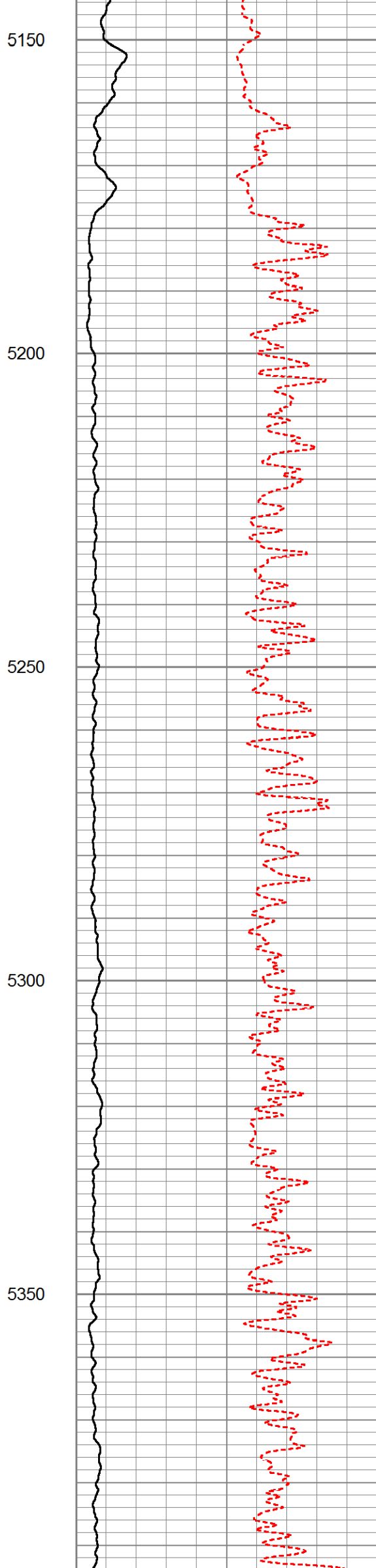
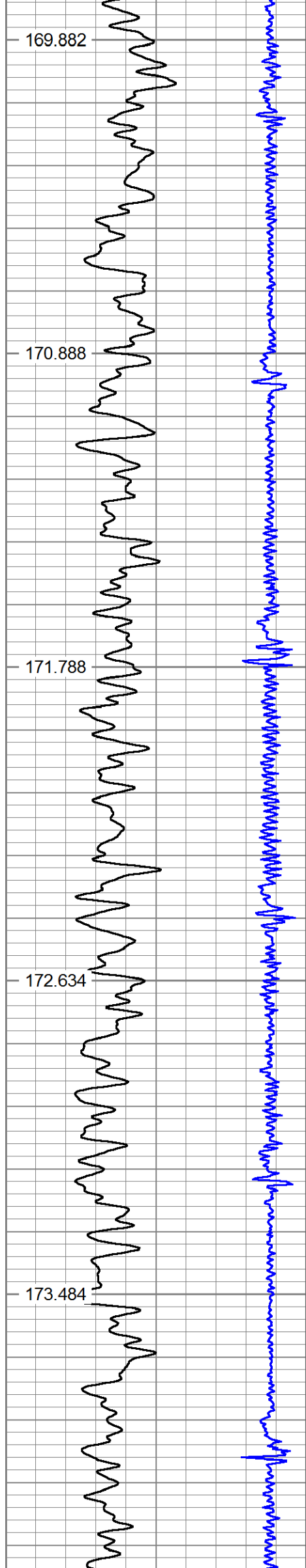


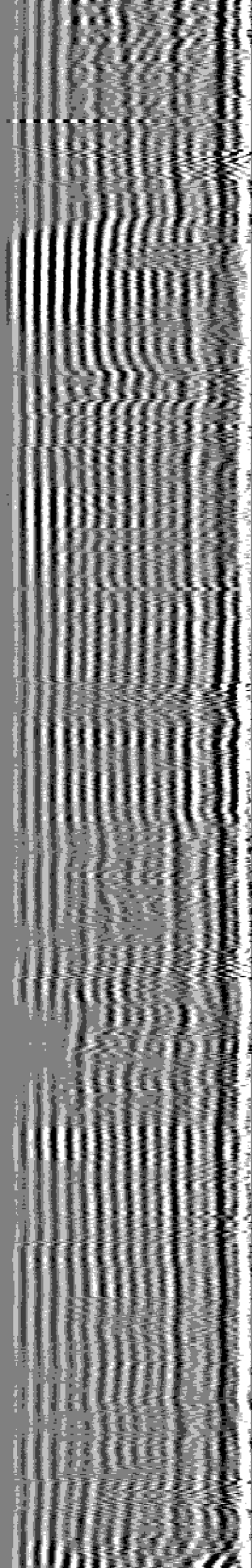
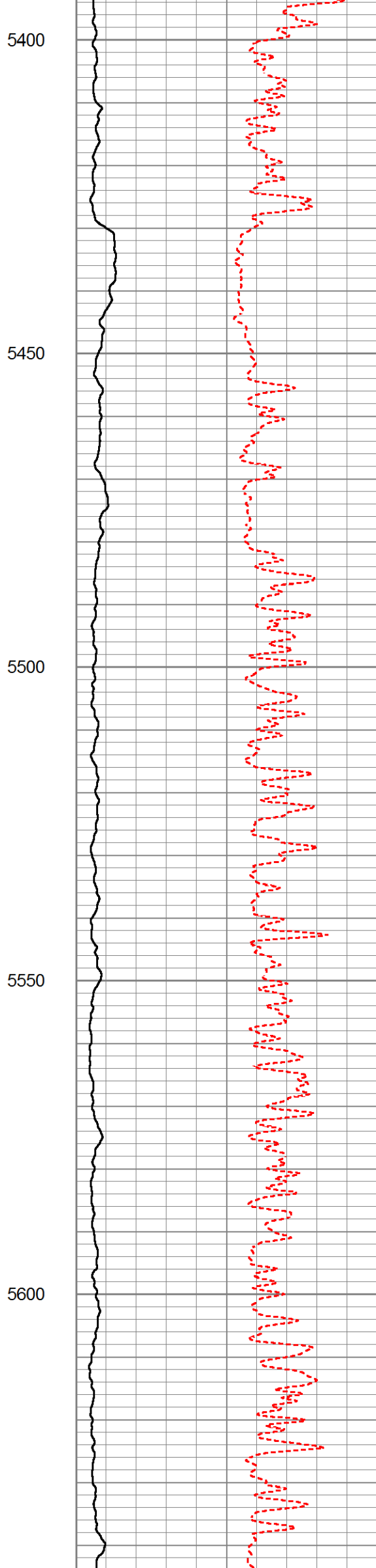
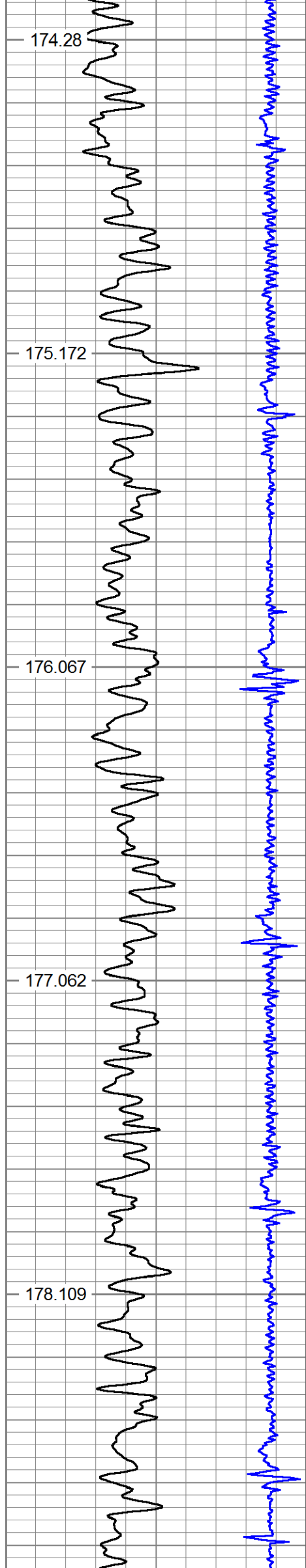


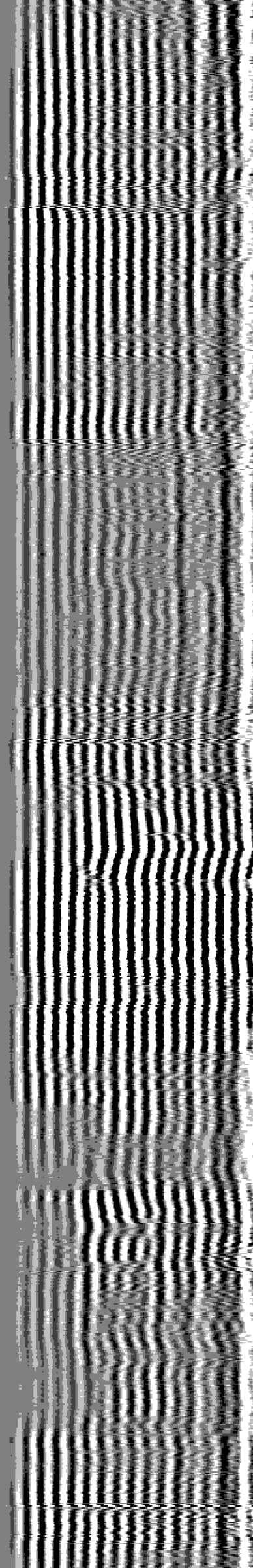
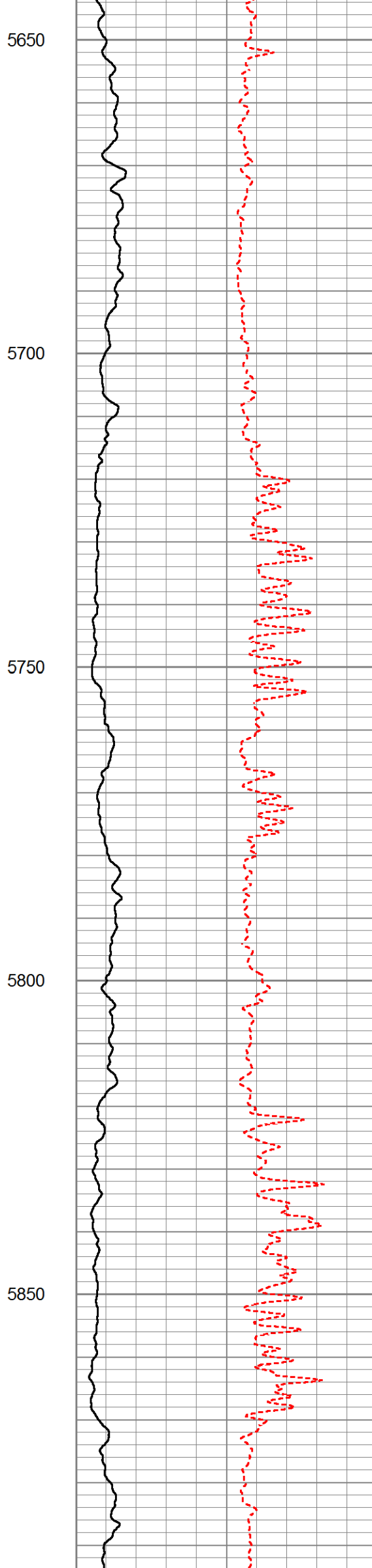
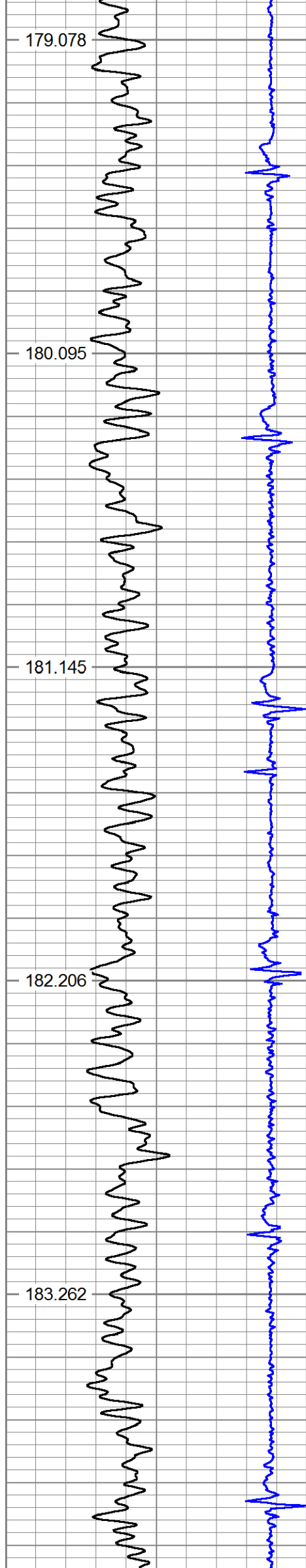


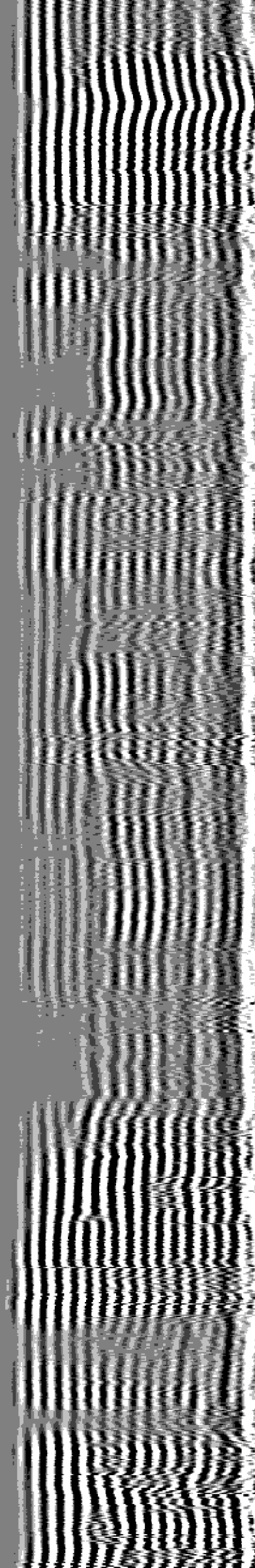
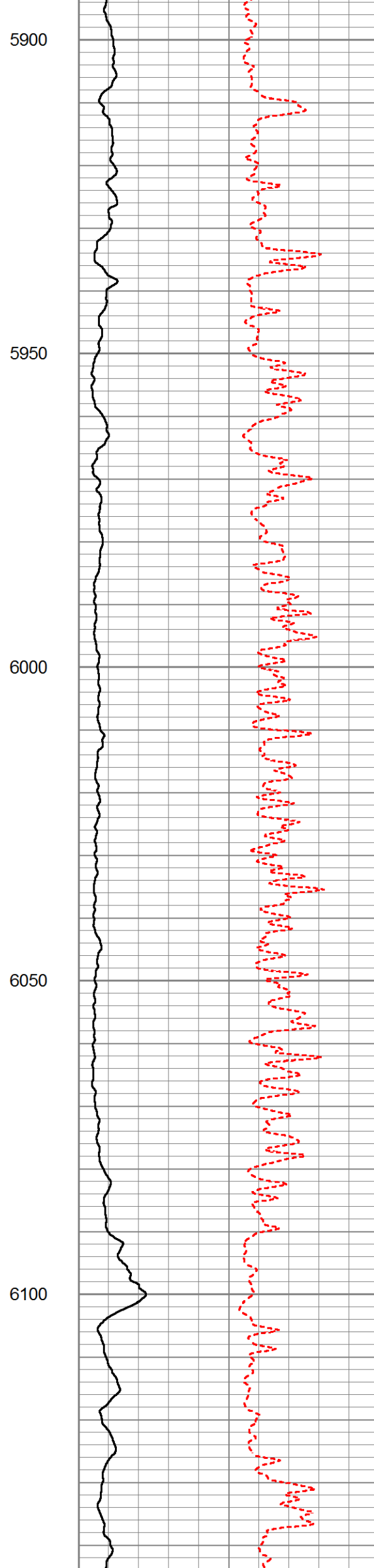
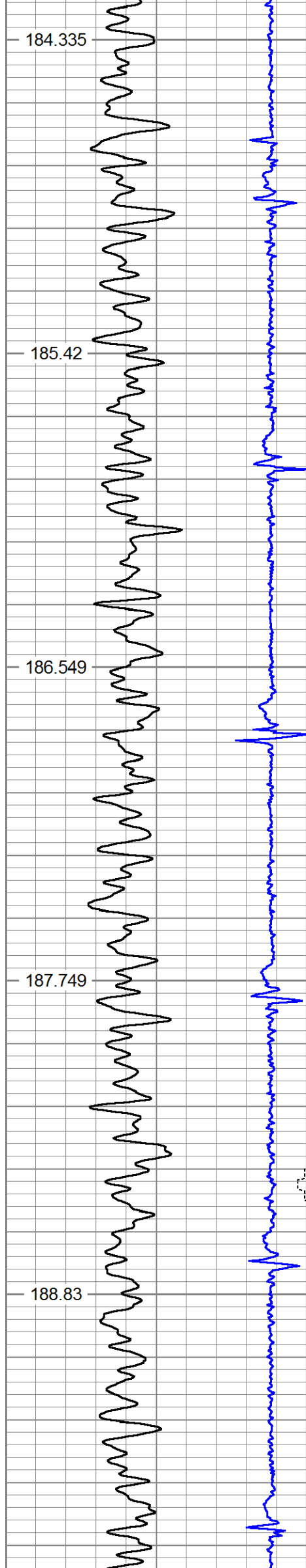


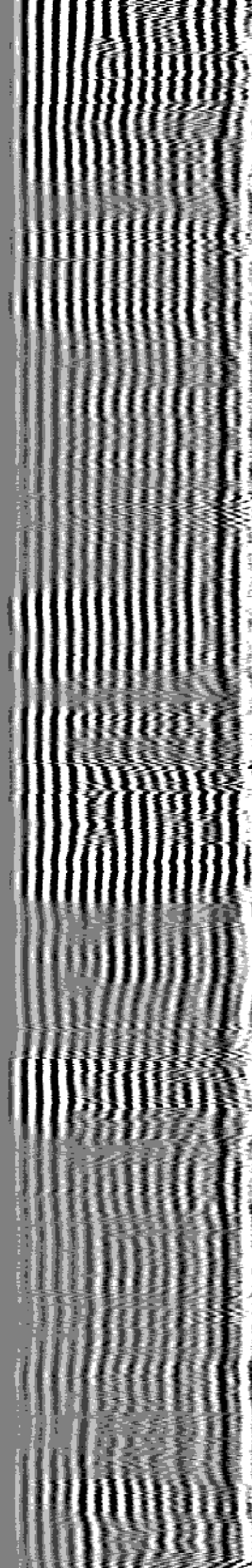
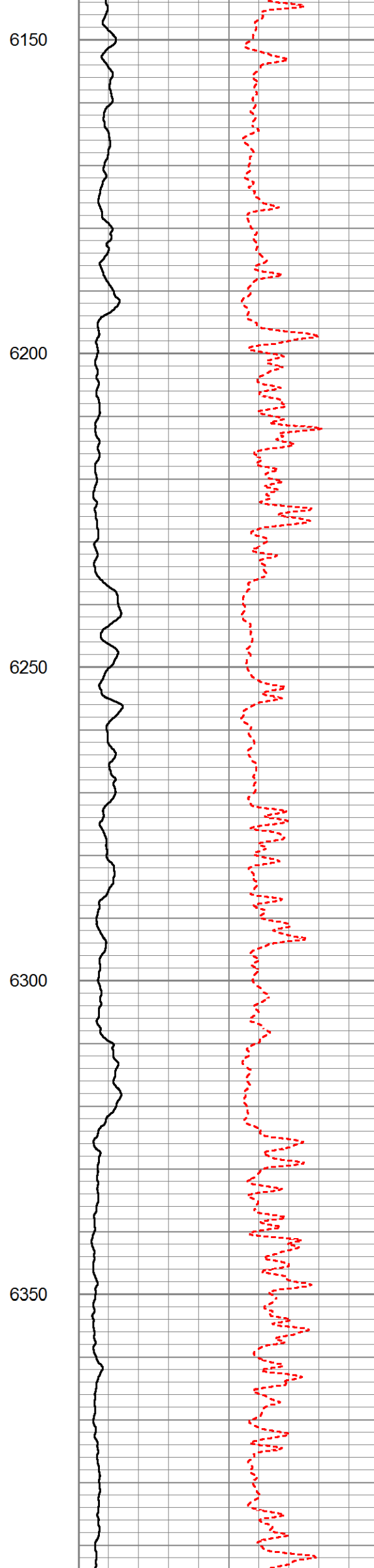
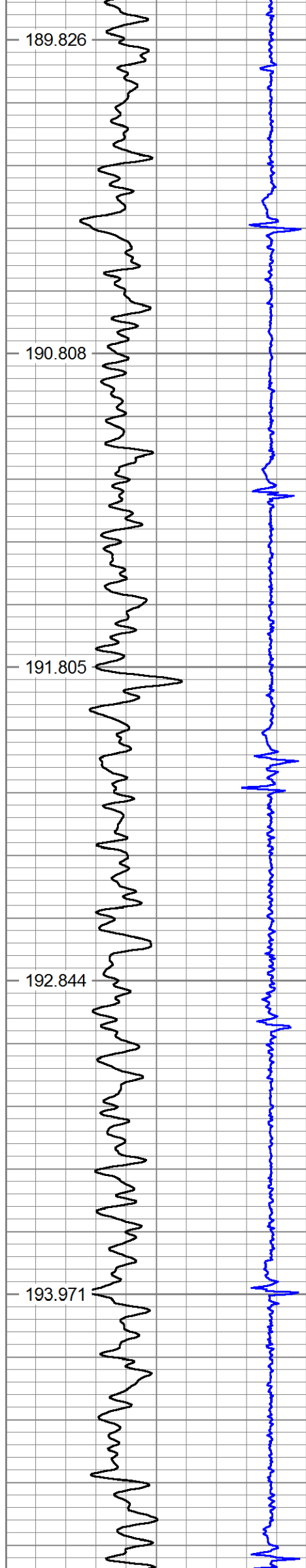


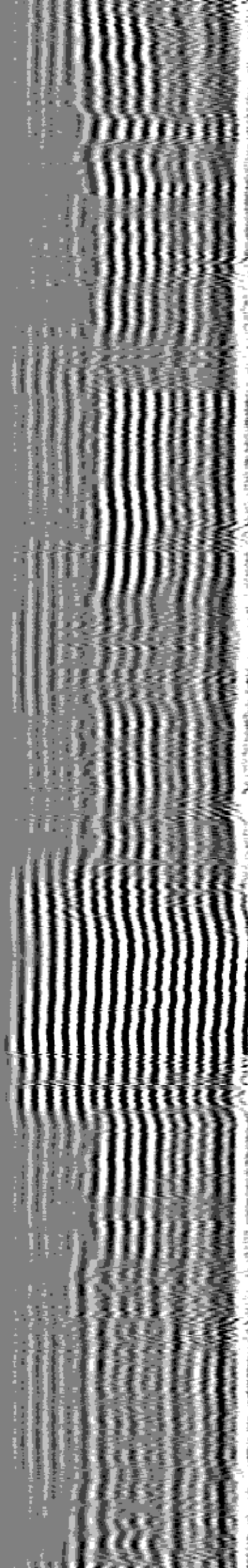
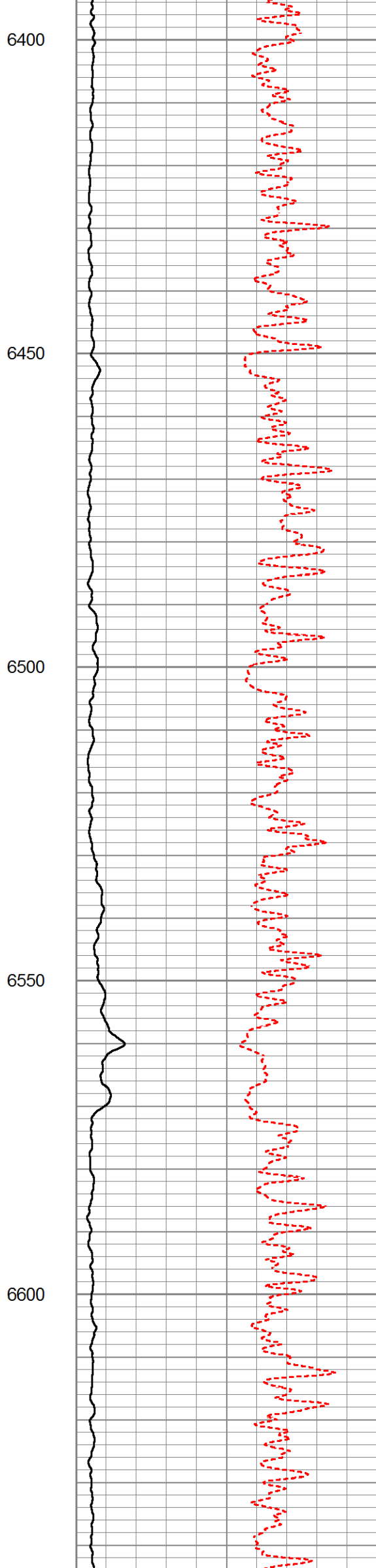
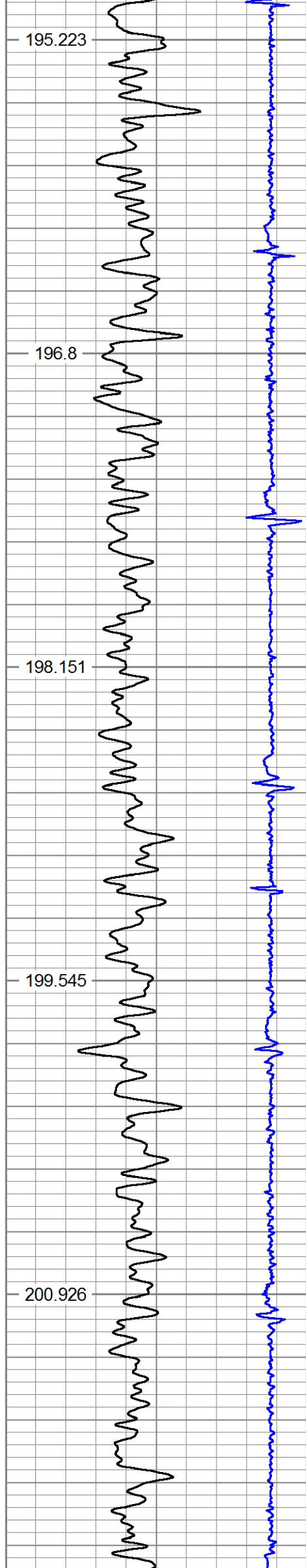


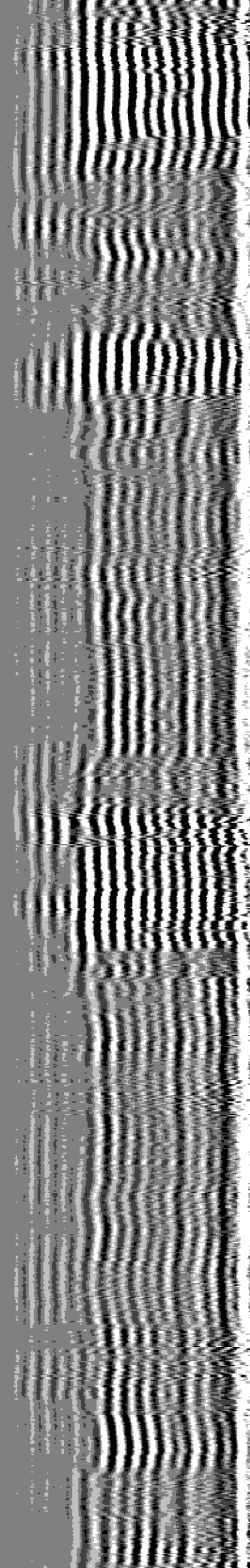
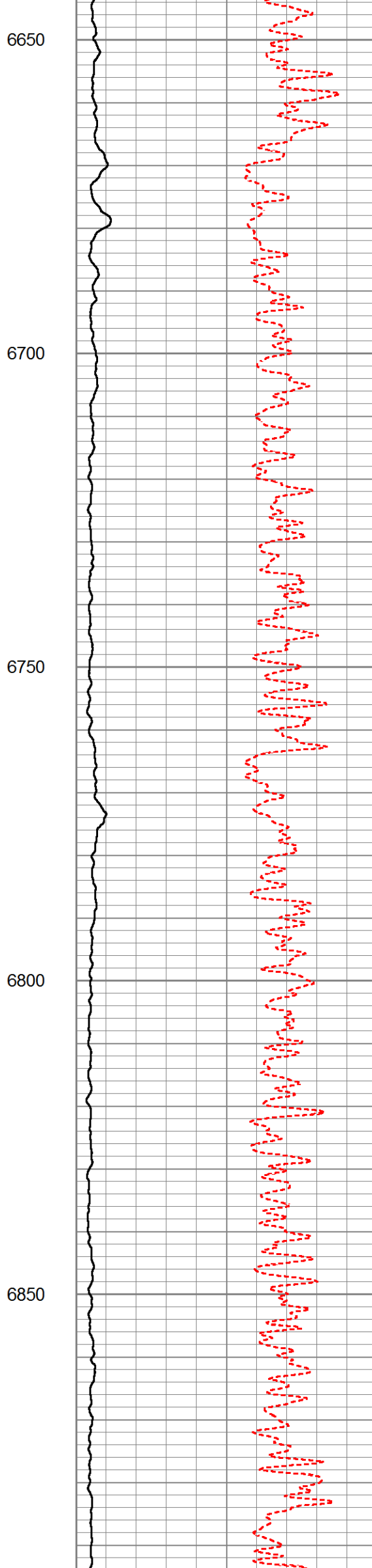
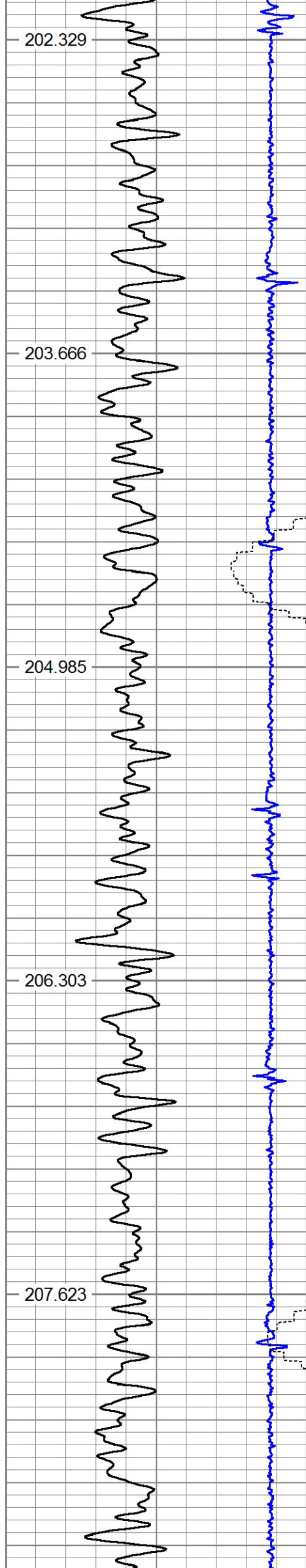


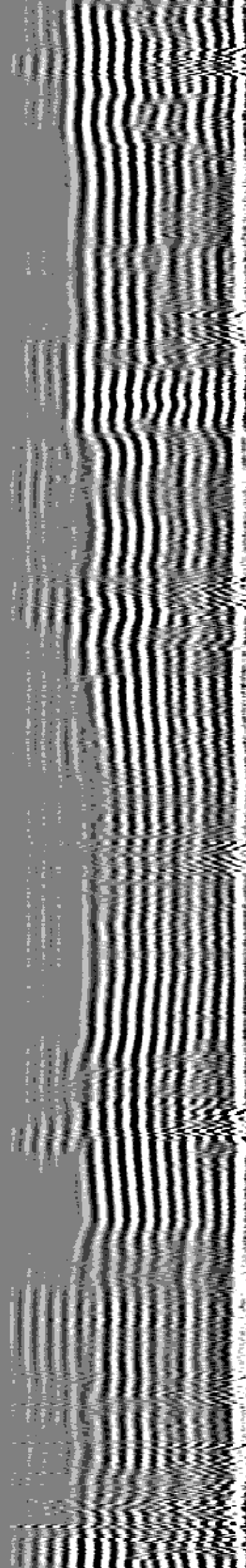
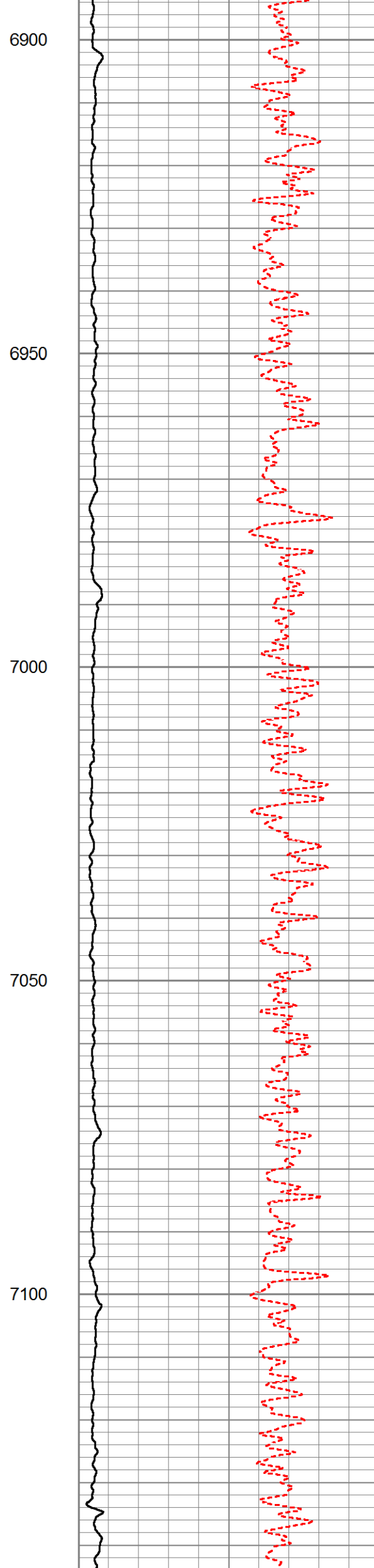
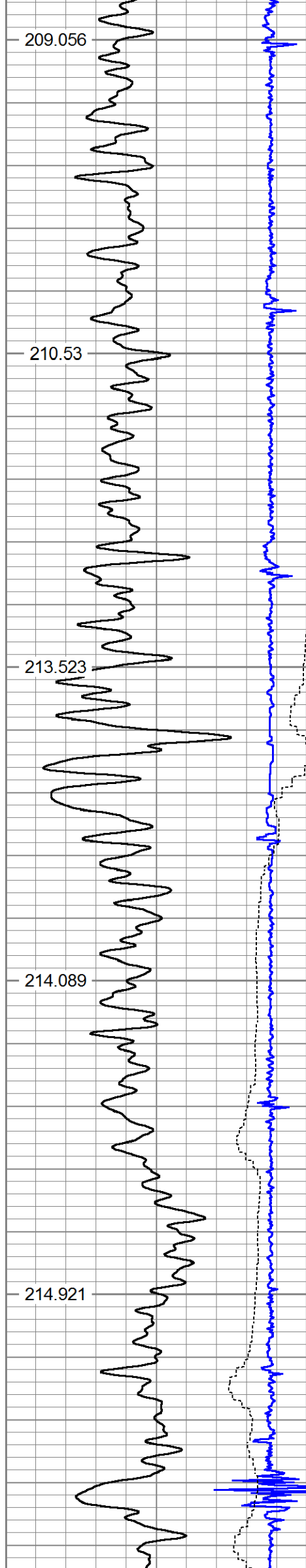


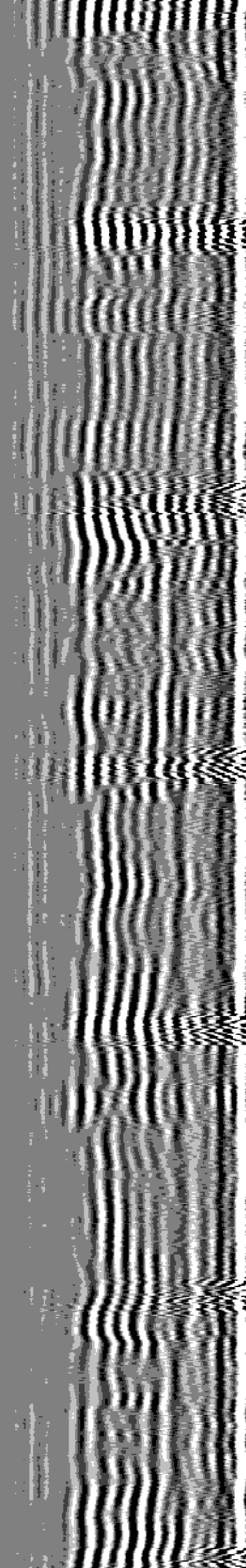
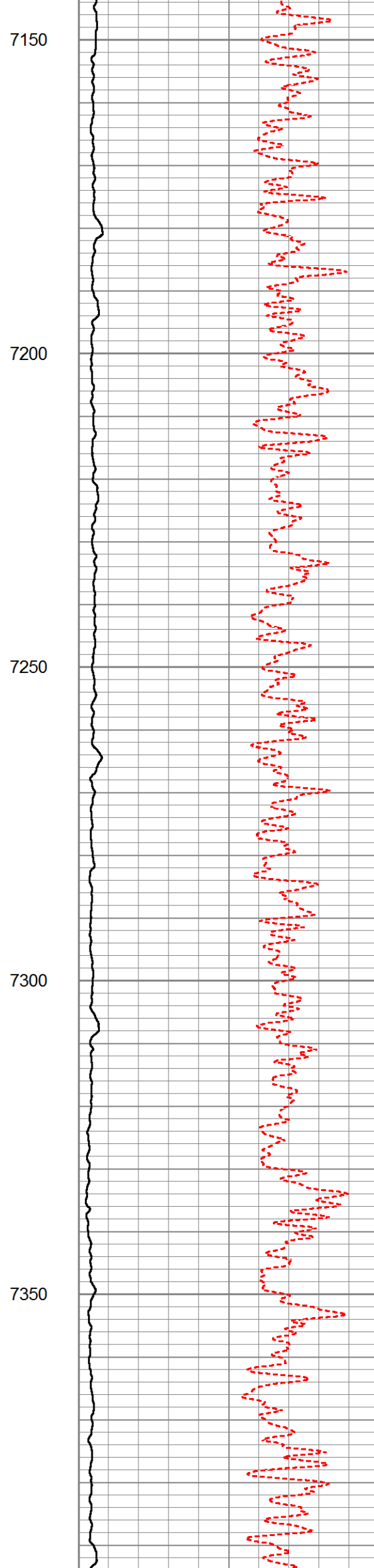
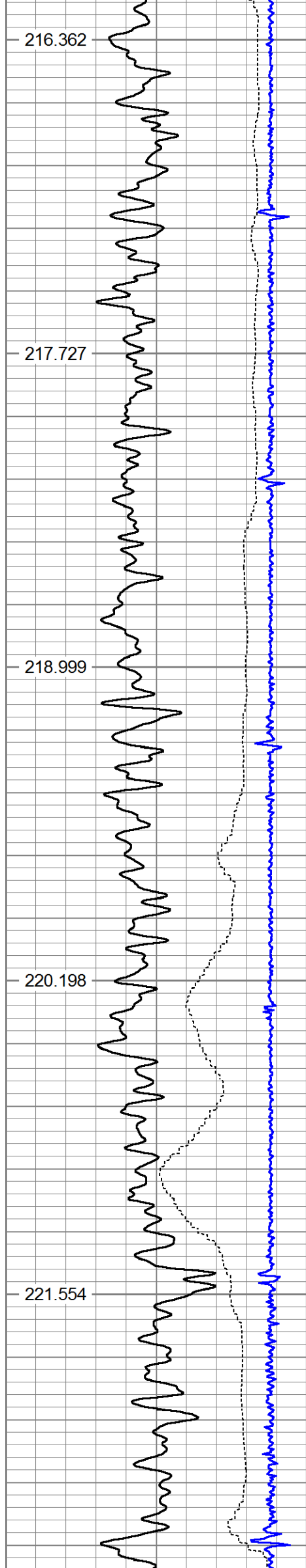


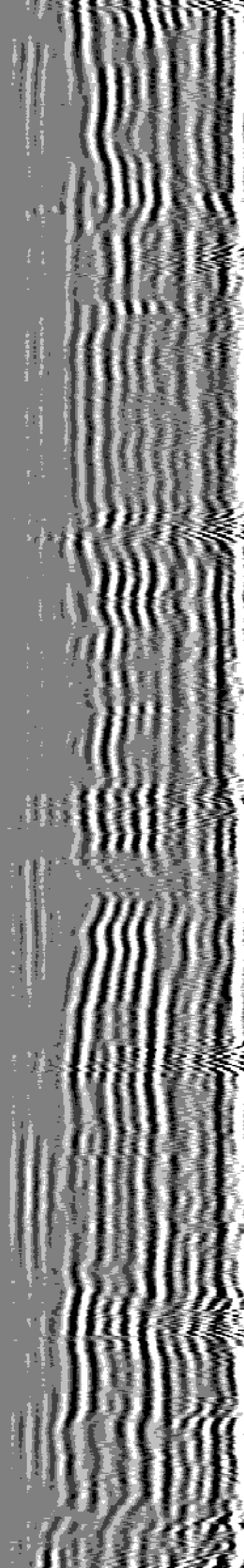
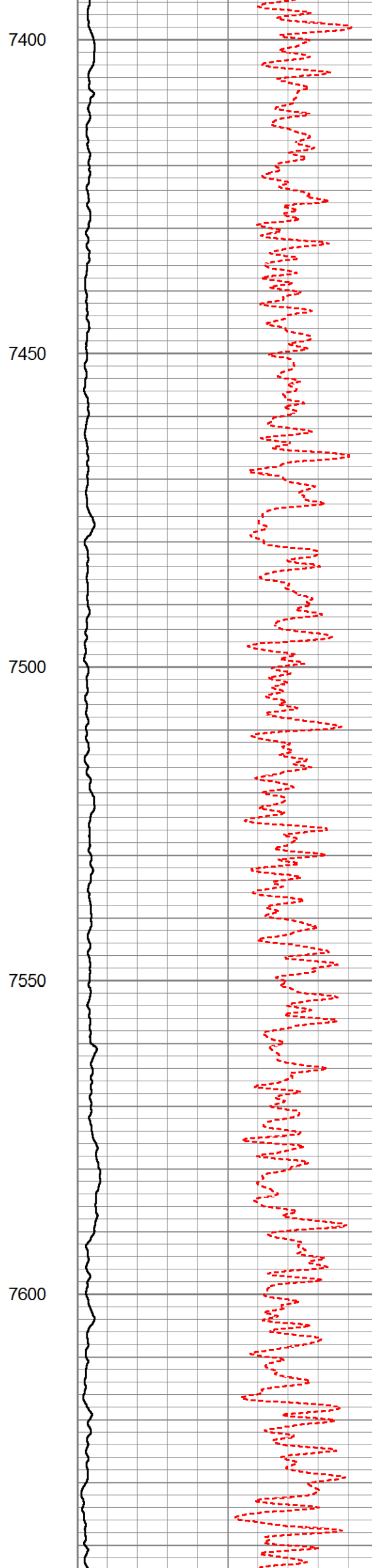
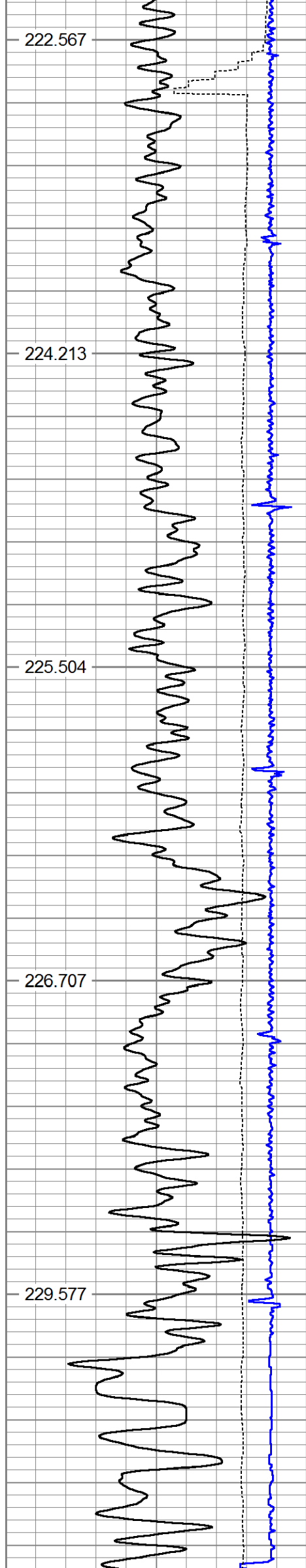


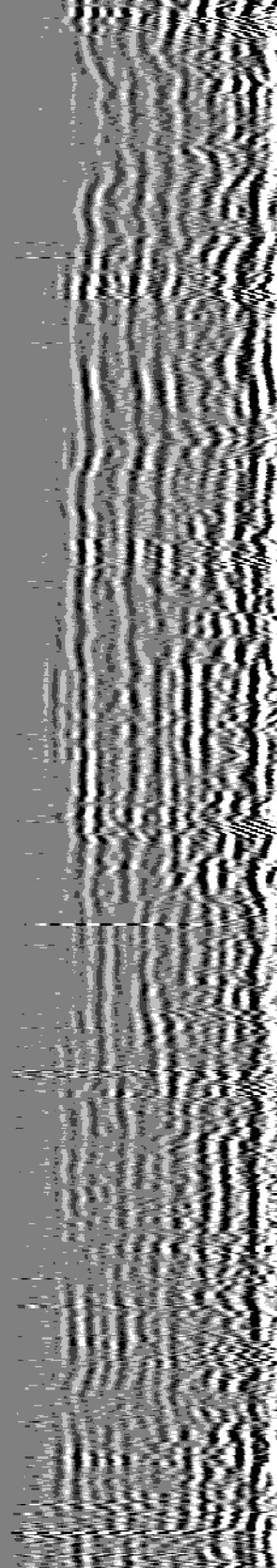
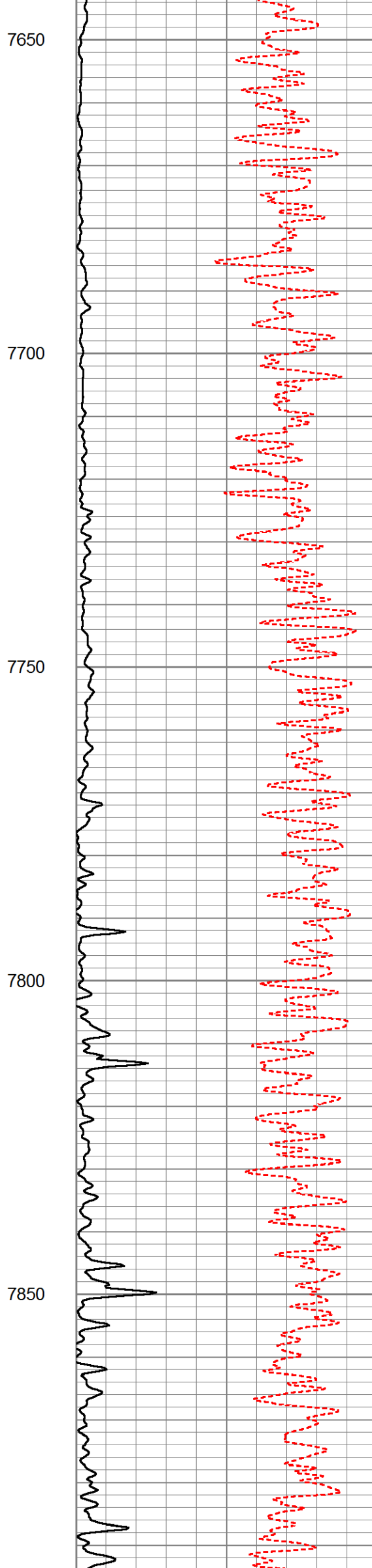
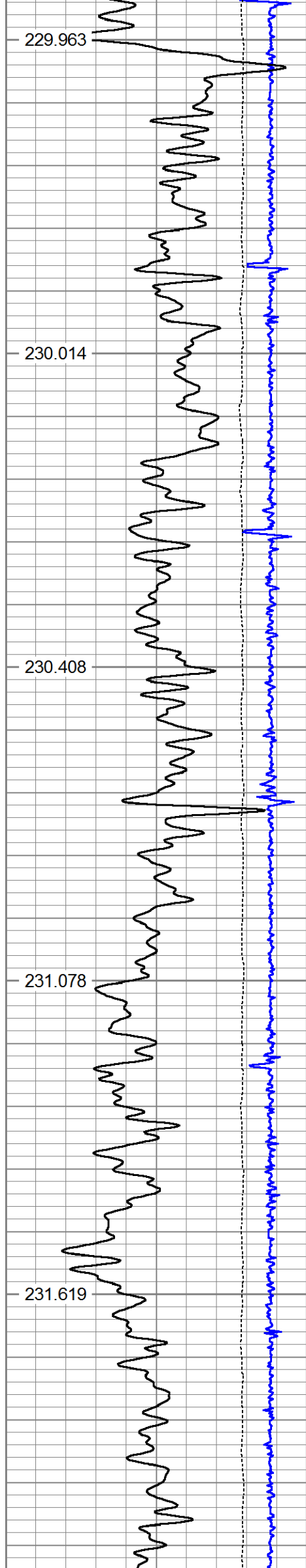


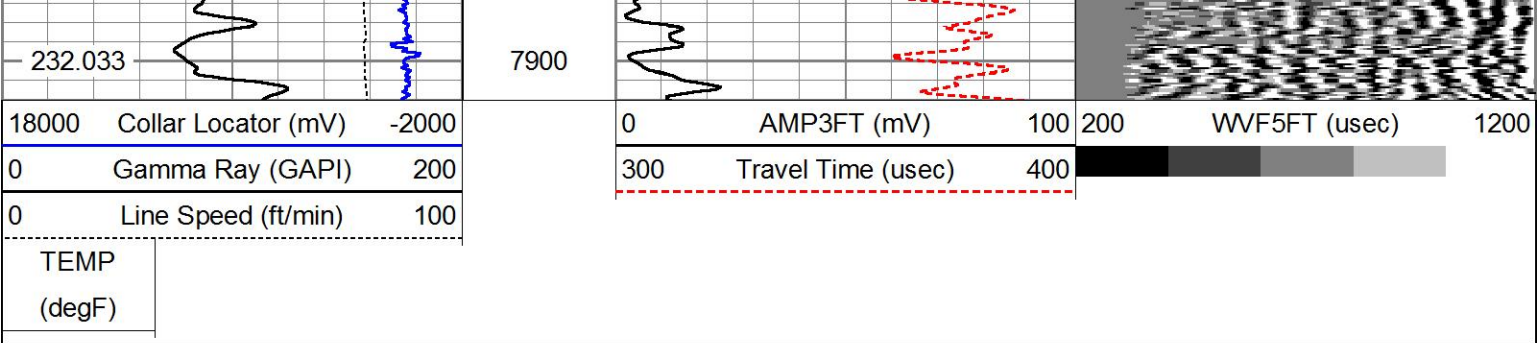












MAIN PASS

5" = 100'

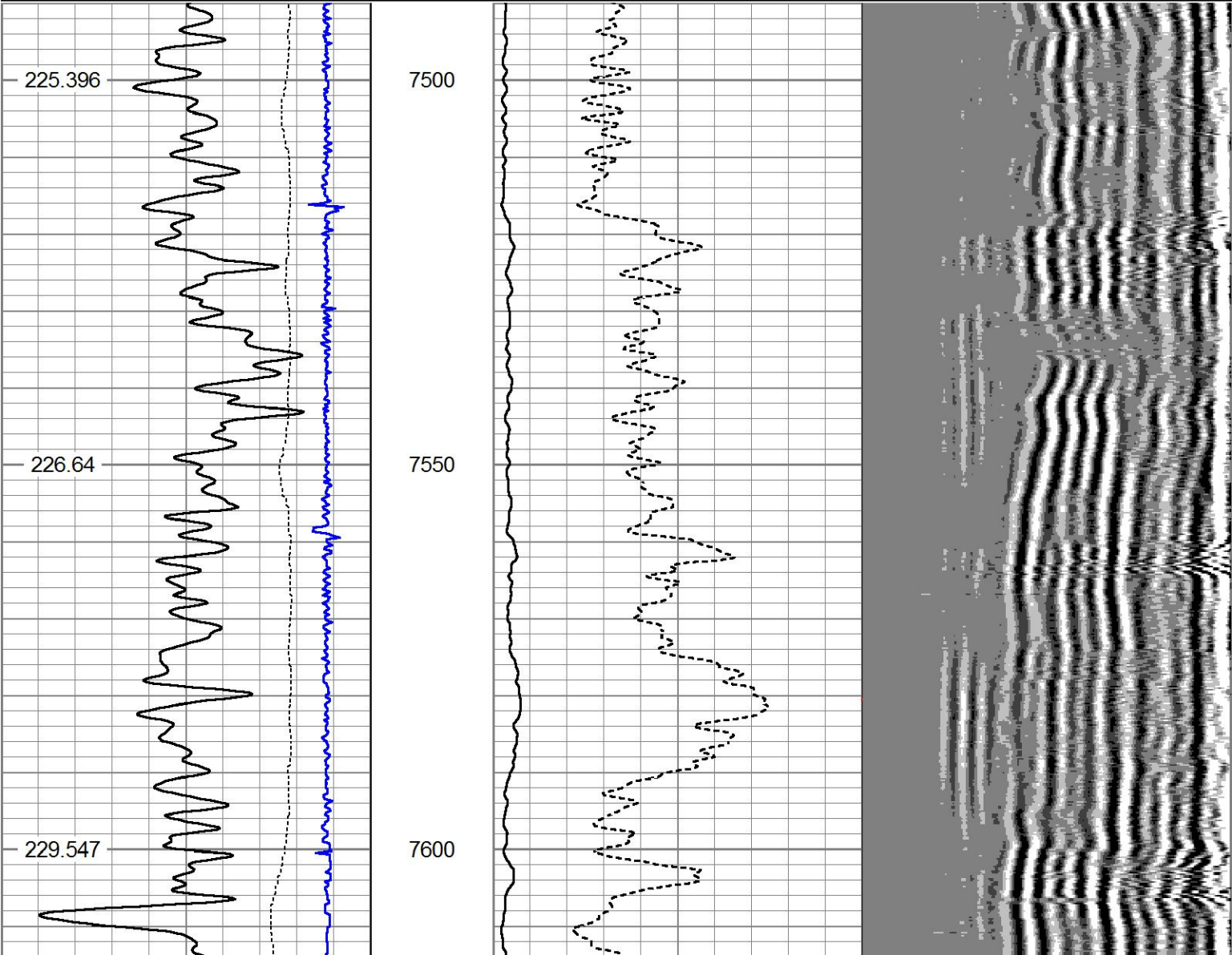
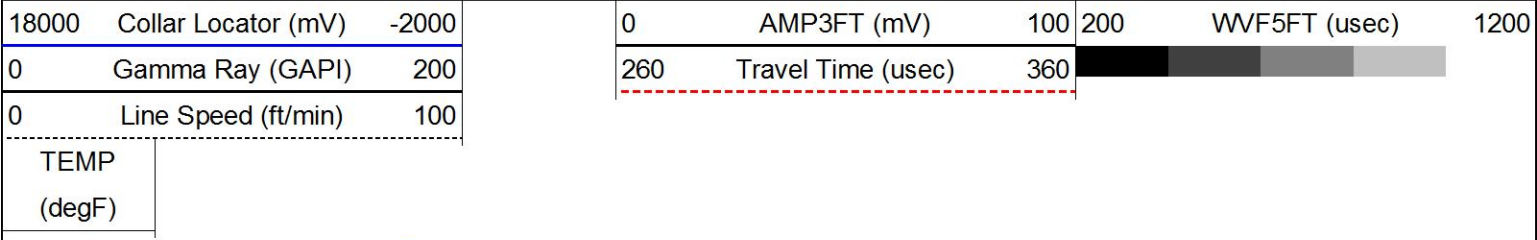
HALLIBURTON

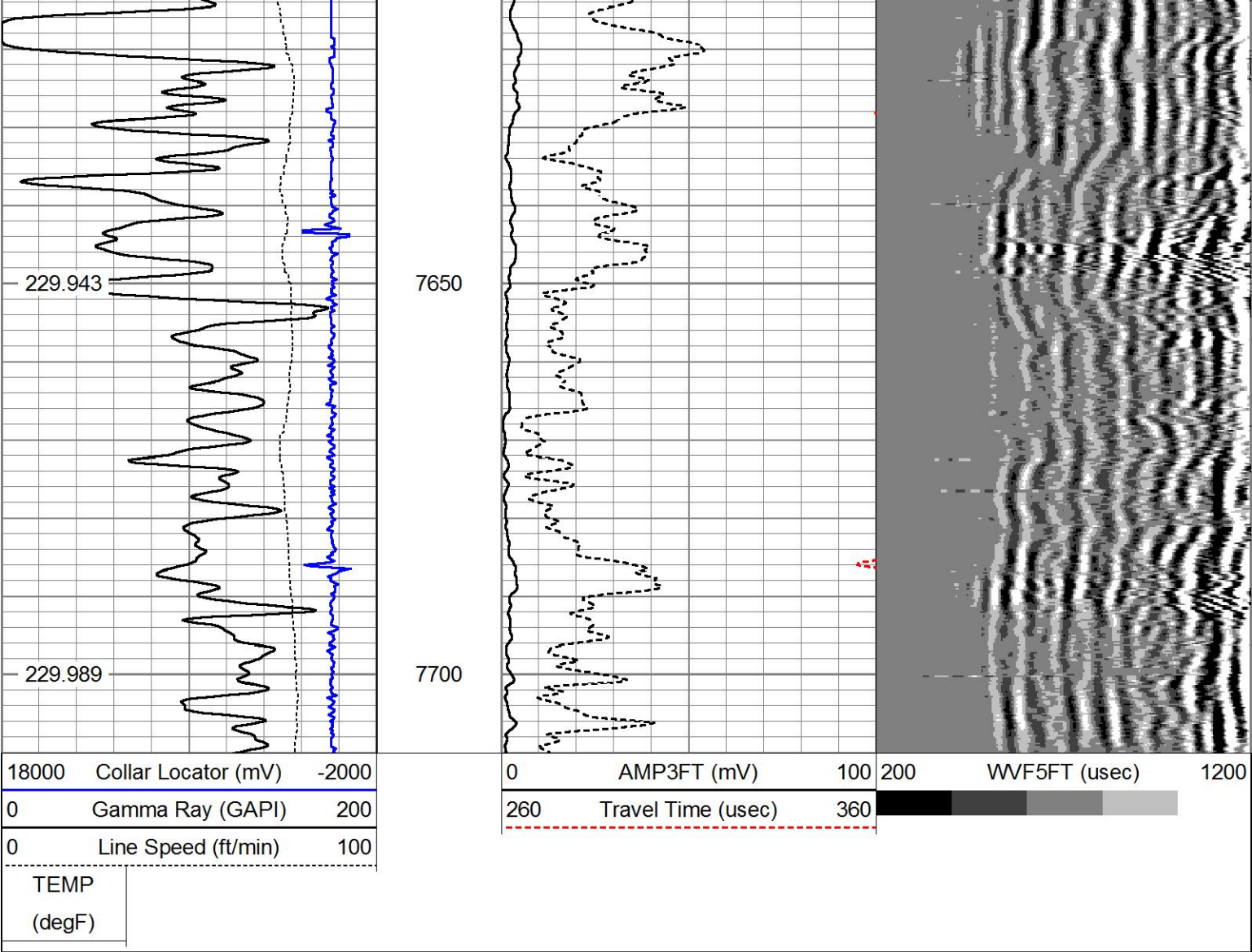
REPEAT PASS

5" = 100'

HALLIBURTON

Database File true_thunder_cbl.db
Dataset Pathname RPT
Presentation Format cbl_dr
Dataset Creation Thu Nov 08 15:58:35 2018
Charted by Depth in Feet scaled 1:240





REPEAT PASS

HALLIBURTON

5" = 100'

Log Variables

DatabaseC:\ProgramData\Warrior\Data>true_thunder_cbl.db
Dataset field/well/run1/MAIN_PASS/_vars_

Top - Bottom

BHTEMP_Src	BITSIZE	BOTTEMP	CASEOD	CASETHCK	CASEWGHT	MAXAMPL	MINAMPL
TEMP	in	degF	in	in	lb/ft	mV	mV
	7.875	100	5.5	0.361	20	72	1
MINATTN	MudWgt	PERFS	PPT	SRFTEMP	TDEPTH		
db/ft	lb/gal		usec	degF	ft		
0.8	8.33	0	0	0	0		

Calibration Report

Database File true_thunder_cbl.db
Dataset Pathname RPT
Dataset Creation Thu Nov 08 15:58:35 2018

Temperature Calibration Report

Serial Number: 0001
Tool Model: 1.375TEMP
Performed: Fri Jul 05 02:18:21 1996

	Reference	Reading
Low Reference:	0.00 degF	0.00 cps
High Reference:	1.00 degF	1.00 cps

Gain:	0.10
Offset:	0.00
Delta Spacing	1

Gamma Ray Calibration Report

Type / Serial:Probe / 275

SHOP CALIBRATION		Thu Aug 07 08:00:19 2008			
	Counts/Sec.	Gain	Offset	Jig	Units
Background	35.0				cps
Calibrator	160.0				cps
		1.0000			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

Segmented Cement Bond Log Calibration Report


Serial Number:	11506710		
Tool Model:	Probe		
Calibration Casing Diameter:	5.500	in	
Calibration Depth:	160.543	ft	

Master Calibration, performed Thu Nov 08 15:33:08 2018:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	0.946	0.000	72.000	76.124	0.000
CAL						
5'	0.000	0.924	0.000	72.000	77.938	0.000
SUM						
S1						
S2						
S3						
S4						
S5						
S6						
S7						
S8						

Internal Reference Calibration, performed (Not Performed):						
	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL						

Air Zero Calibration, performed Thu Nov 08 15:16:19 2018:						
	Raw (v)		Calibrated (v)		Results	
	Zero		Zero		Offset	
3'	0.000		0.000		0.000	

5'	SUM	0.000	0.000	0.000
	S1			
	S2			
	S3			
	S4			
	S5			
	S6			
	S7			
	S8			

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
WVF3FT	11.75		STNDCH-STND_CH 1.4375 IN CABLE HEAD	1.28	1.44	5.25
			CENT-Probe_275 Probe 2 3/4 Centralizer	2.88	2.75	20.00
			CBL-Probe (11506710) Probe 2.75" Dual Receiver Bond	8.75	2.75	60.00
			CENT-Probe_275 Probe 2 3/4 Centralizer	2.88	2.75	20.00
			GR-Probe (275) Probe 2.75" 4 Channel Pulse	4.33	2.75	30.00
WVF5FT	9.83					
CCL	6.08					
DCCL	5.51					
GR	3.75					

TEMP	0.58		TEMP-1.375TEMP (0001) Temperature Tool	1.88	1.38	30.00
Dataset: true_thunder_cbl.db: field/well/run1/MAIN_PASS Total length: 21.99 ft Total weight: 165.25 lb O.D.: 2.75 in						

Company	TRUE OIL, LLC				
Well	THUNDER 5-64 15-16-1CHZ				
Field	WILDCAT				
County	ARAPAHOE	State	CO		
HALLIBURTON	CEMENT BOND LOG				