



**PIONEER**

Pioneer Energy Services

**BOREHOLE COMPENSATED  
SONIC LOG**

Company MURFIN DRILLING COMPANY, INC.  
Well MCCLURG #2-12  
Field BRUMM WEST  
County CHEYENNE  
State KANSAS

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County CHEYENNE State KANSAS

Location: API #: 15-023-21501-00-00  
1860' FSL & 1320' FEL  
SEC 12 TWP 2S RGE 37W  
Permanent Datum GROUND LEVEL Elevation 3375'  
Log Measured From KELLY BUSHING  
Drilling Measured From KELLY BUSHING  
Other Services  
DIL/MEL  
CNL/CDL  
Elevation  
K.B. 3380'  
D.F. N/A  
G.L. 3375'

Date	12/16/2018						
Run Number	TWO						
Type Log	BHCS						
Depth Driller	4900'						
Depth Logger	4900'						
Bottom Logged Interval	4889'						
Top Logged Interval	300'						
Type Fluid In Hole	CHEMICAL						
Salinity, PPM CL	800						
Density	9.1						
Level	FULL						
Max. Rec. Temp. F	124 DEG/F						
Operating Rig Time	4 HOURS						
Equipment -- Location	108 HAYS						
Recorded By	J. HENRICKSON						
Witnessed By	ROBERT HENDRICKS						
Borehole Record							
Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	0	337'	8.625"	23#	0	337'
TWO	7.875"	337'					
Casing Record							

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All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, LLC will not be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees.

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

MCDONALD KANSAS  
8 NORTH, 2 WEST, 1/2 NORTH, WEST INTO

Log Measured From: KELLY BUSHING 5 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES  
www.pioneerenergy.com 785-625-3858

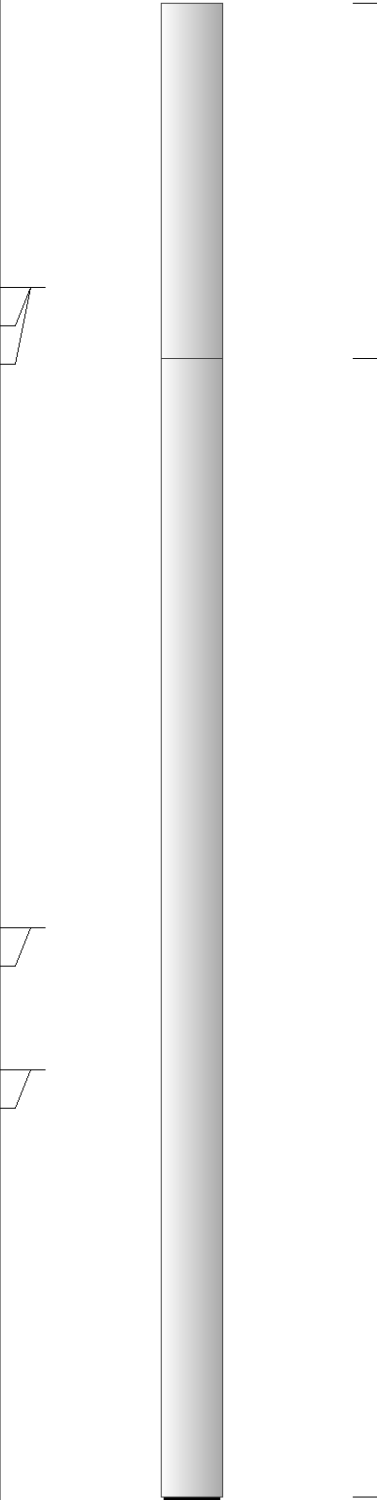
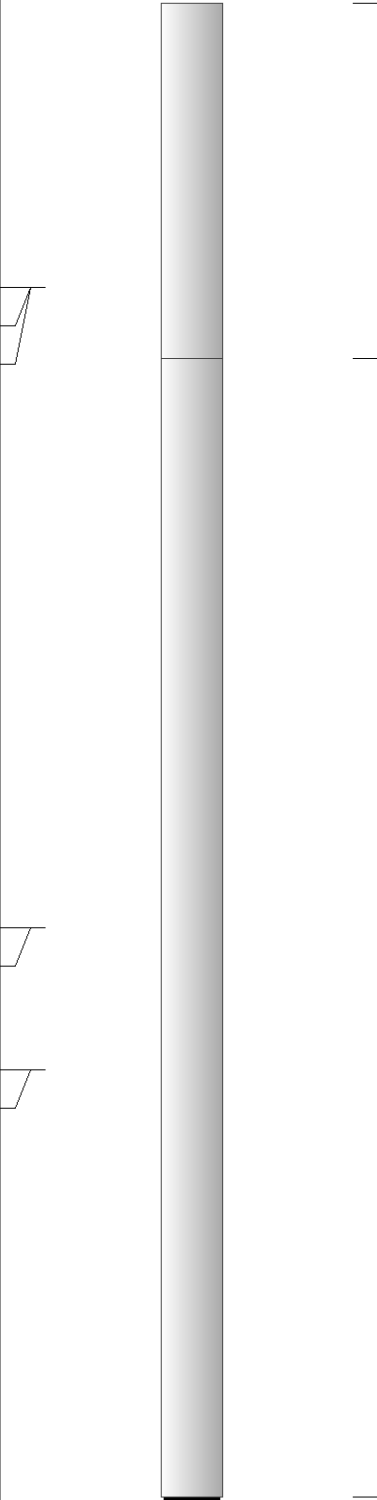
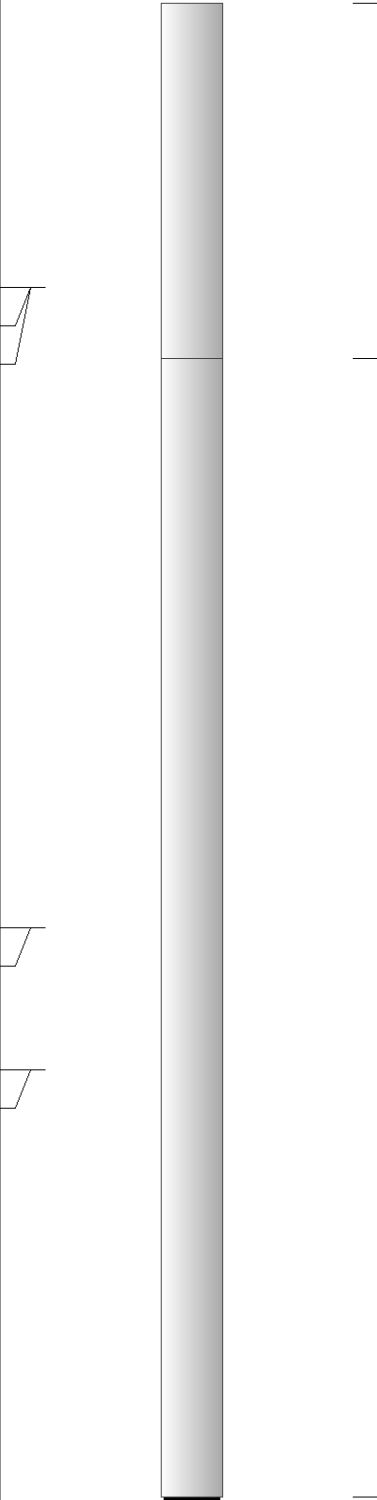
Your Pioneer Energy Services Crew	This Log Record Was Witnessed By
Engineer: J. HENRICKSON	Primary Witness: ROBERT HENDRICKS
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

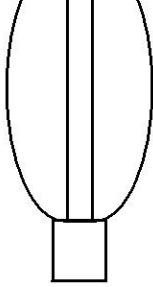
# Log Variables

DatabaseC:\ProgramData\Warrior\Data\murfin\_mcclurg\_2\_12.db  
 Dataset field/well/stack/pass4.1/\_vars\_

## Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	124	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	0	0	-15	31	Off	4900

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
MCAL MI MN	22.50 22.50 22.50		ML-Armadillo (Armadillo-1) Pengo micro log tool mandrel with Armadillo Electronics	5.00	3.50	100.00
WVF4 WVF1	13.50 13.50		SLT-PENGO (0001)	16.00	3.50	300.00
WVF3 WVF2	11.50 11.50					



CENT-PENGO

5.50

3.00

70.00

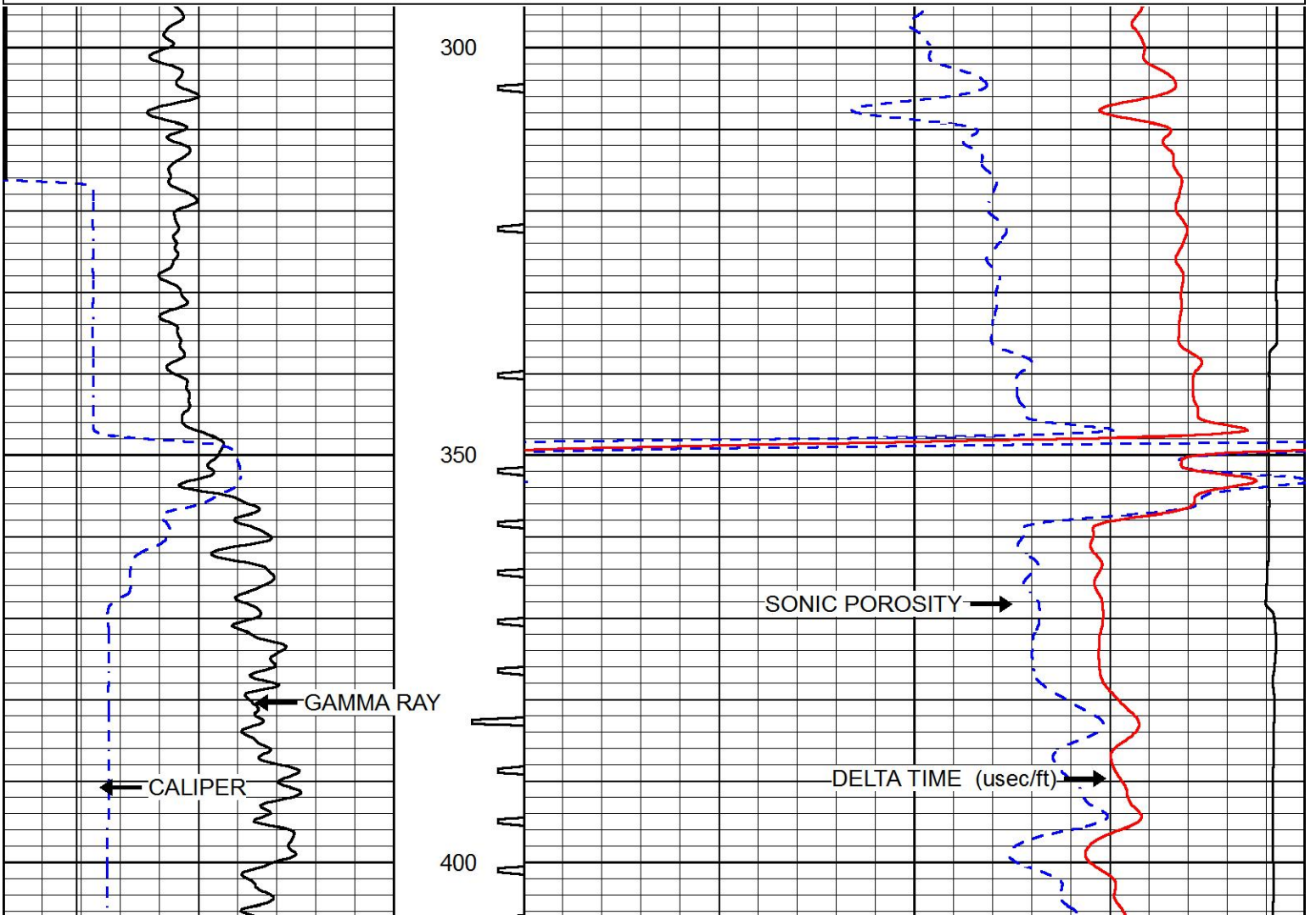
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 Total length: 26.50 ft  
 Total weight: 470.00 lb  
 O.D.: 3.50 in

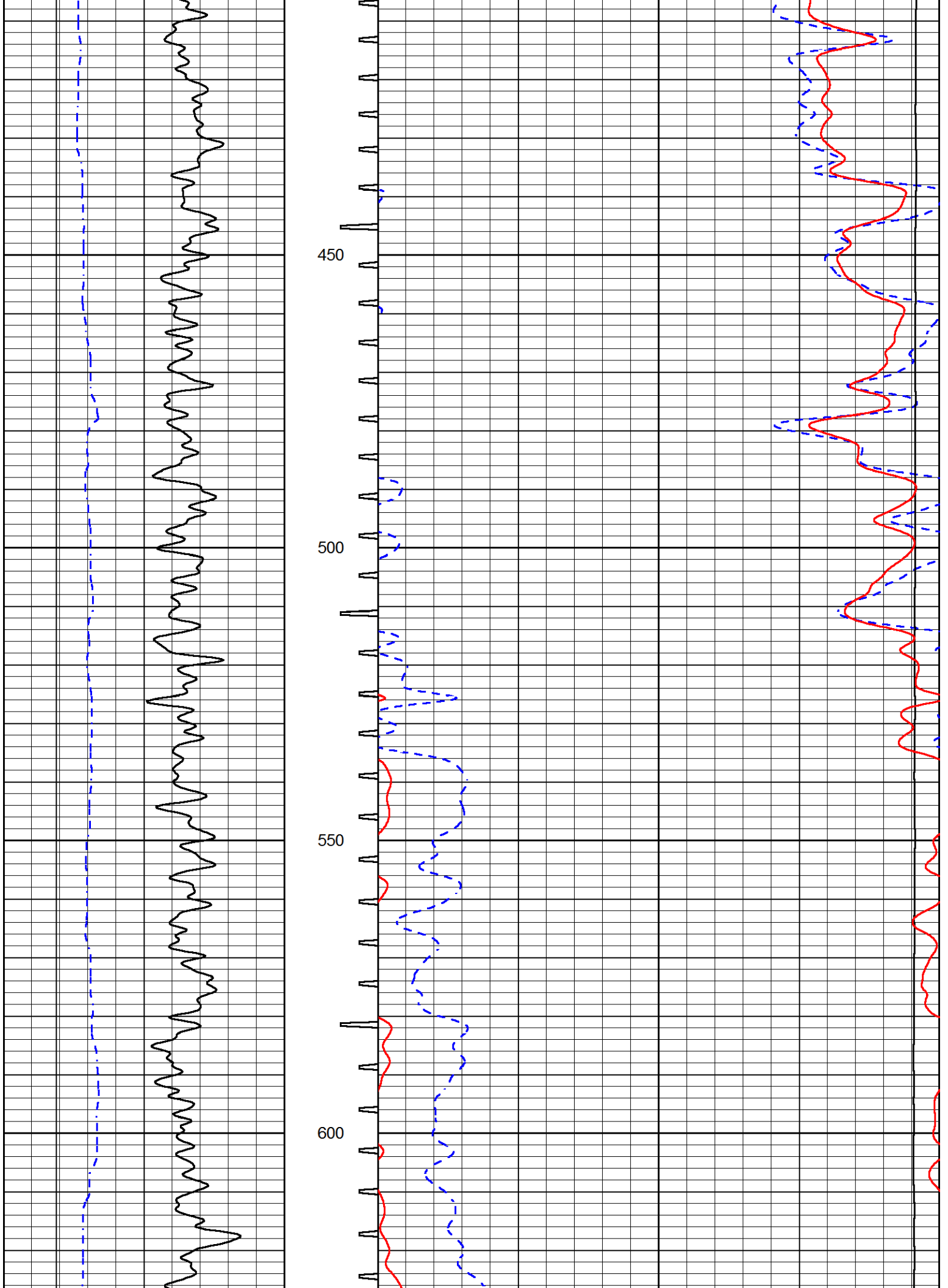


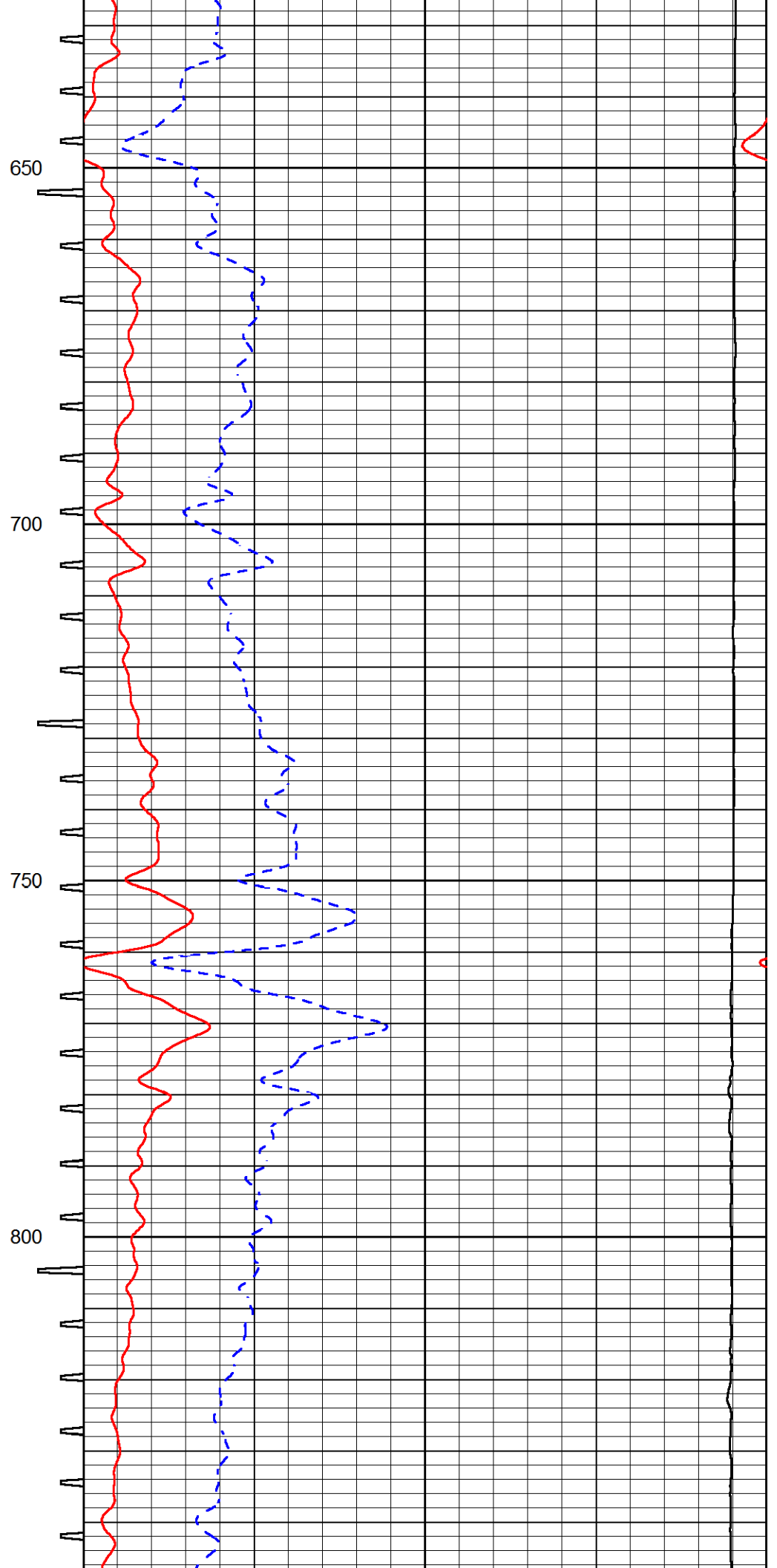
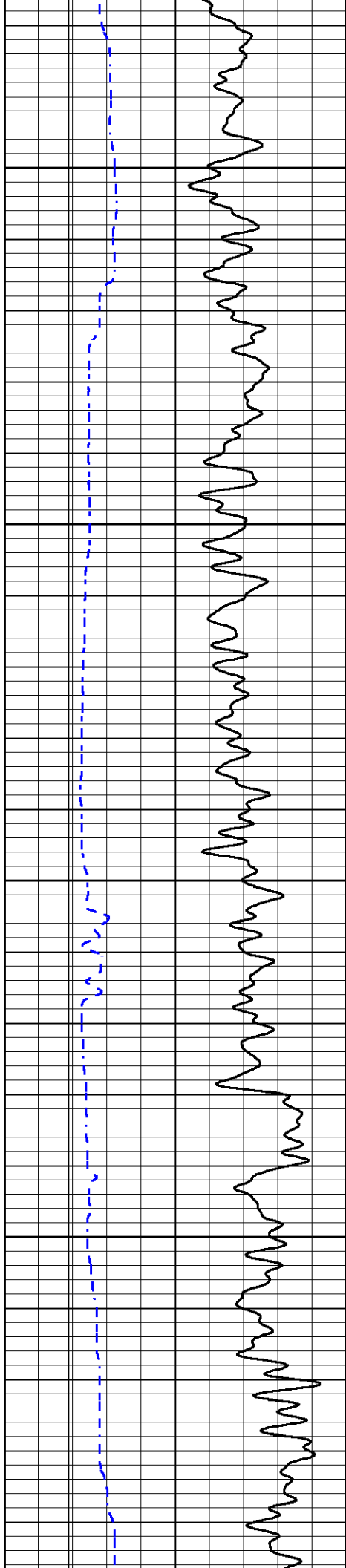
# MAIN PASS

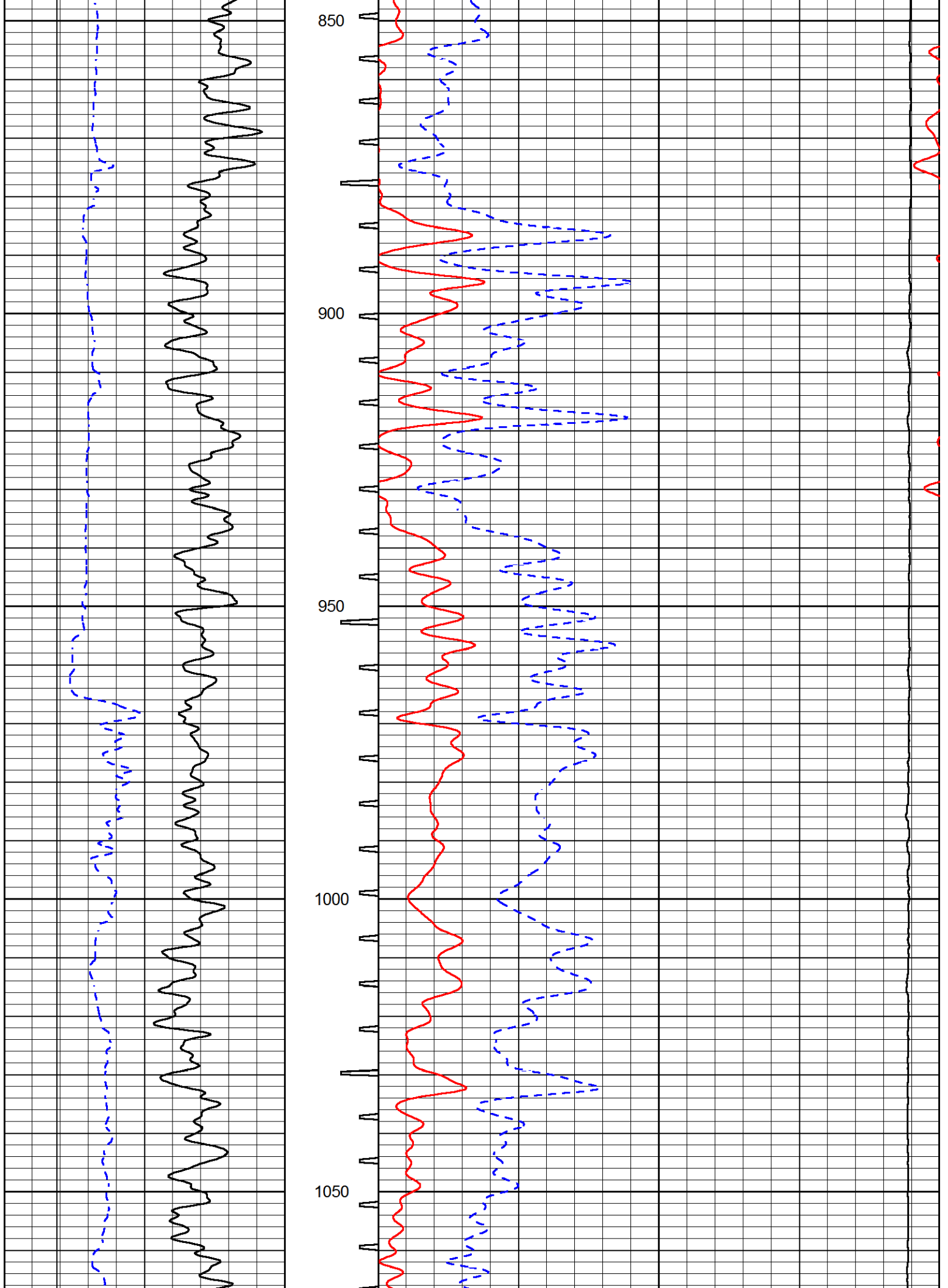
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 Dataset Pathname: stack/pass4.1  
 Presentation Format: sonic  
 Dataset Creation: Mon Dec 17 00:40:53 2018  
 Charted by: Depth in Feet scaled 1:240

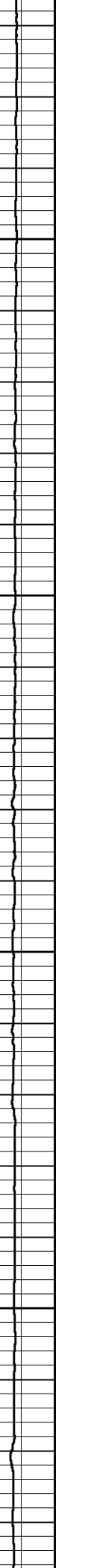
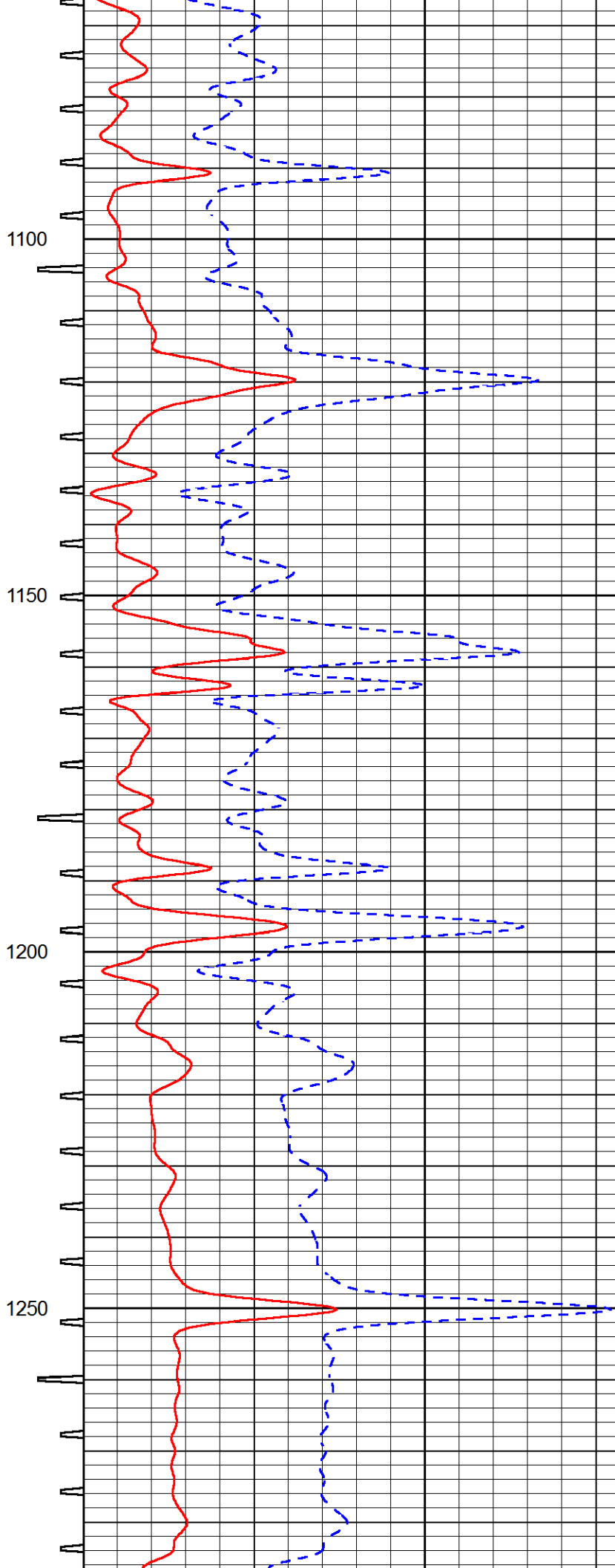
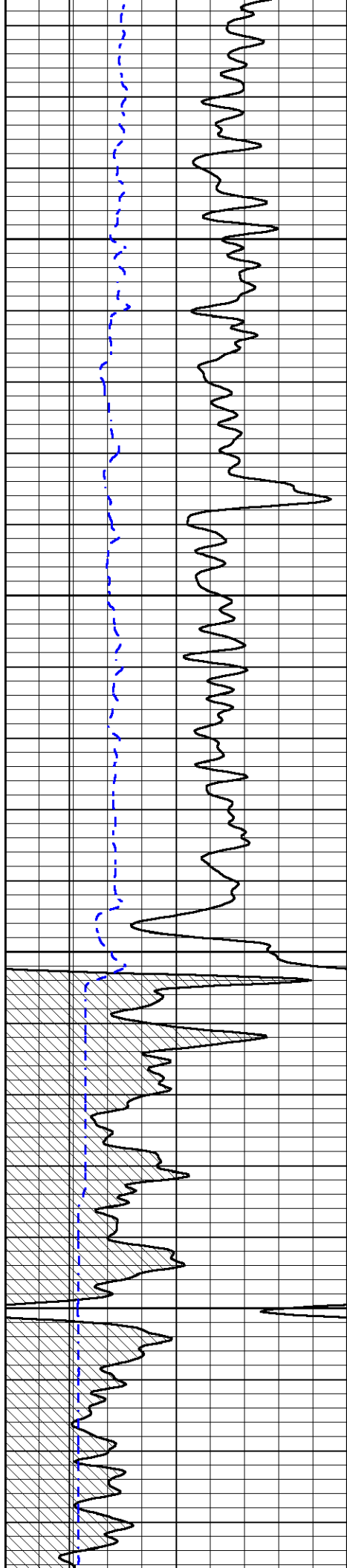
0	GAMMA RAY (GAPI)	150	SONIC INT	140	DELTA TIME (usec/ft) (usec/ft)	40
6	CALIPER (in)	16	TRAVEL TIME	30	SONIC POROSITY (pu)	-10
6	BIT SIZE	16	(msec)	15000	LINE TENSION (lb)	0

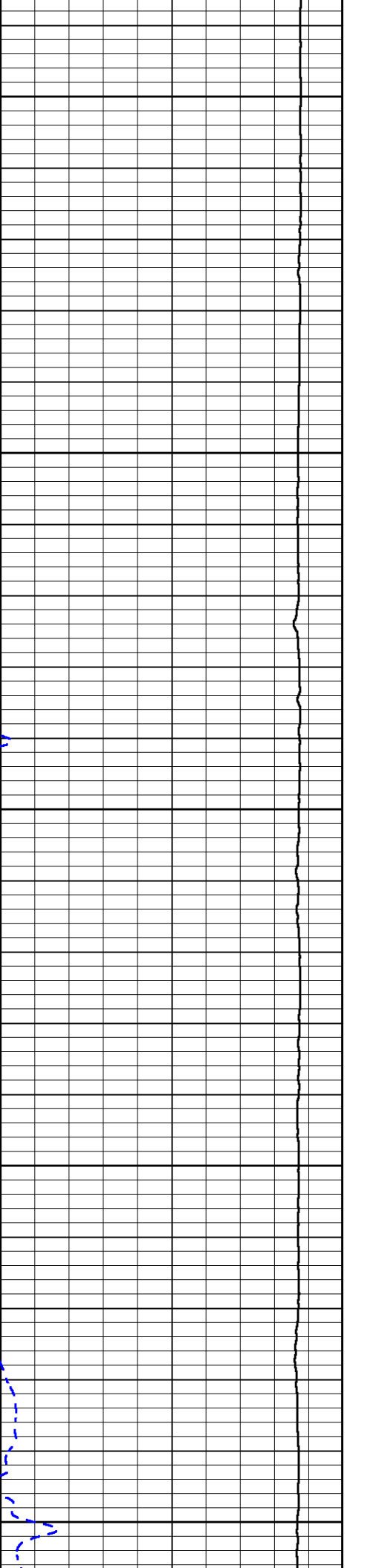
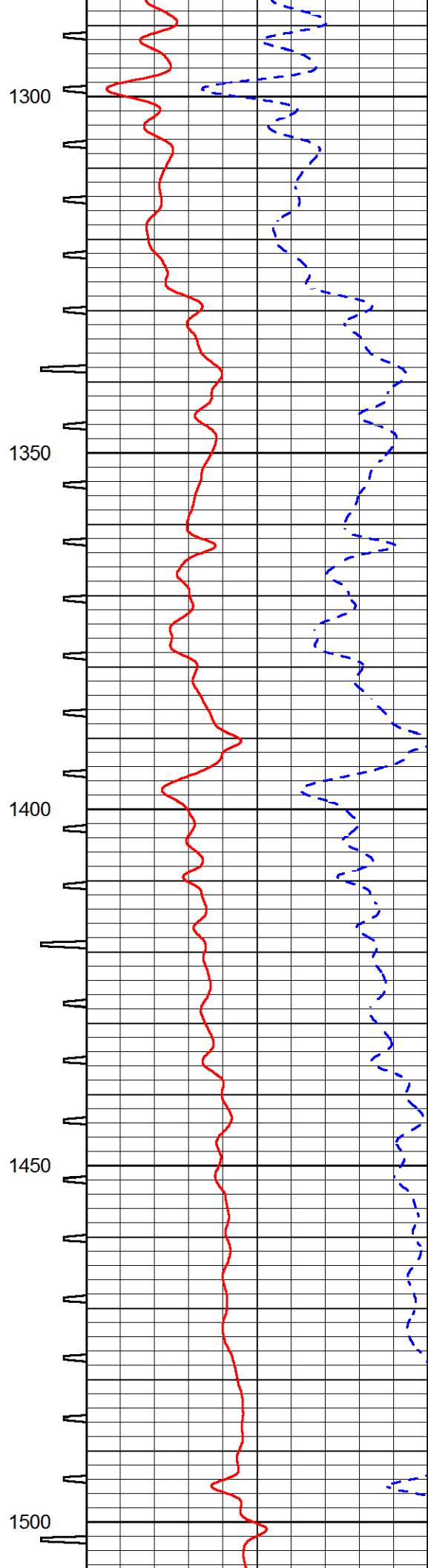
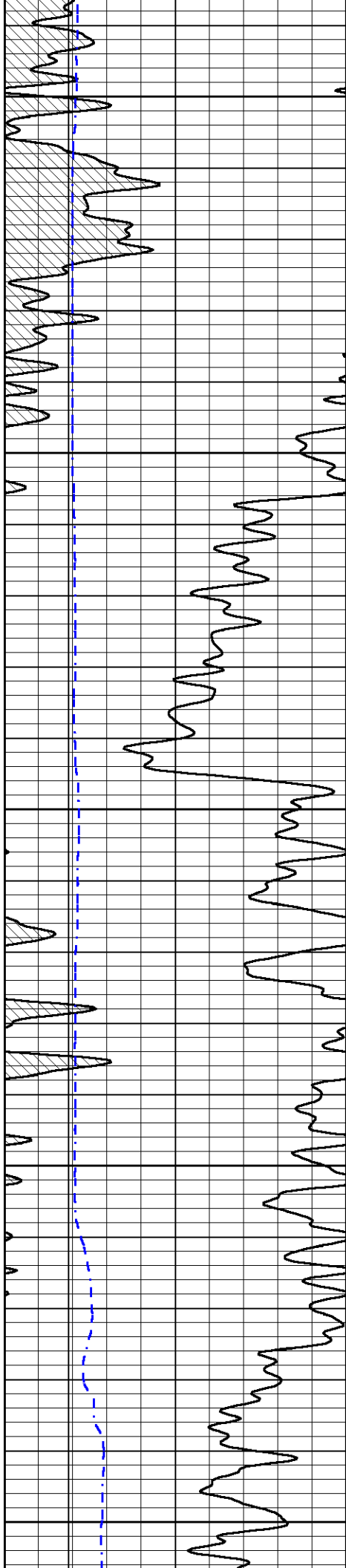


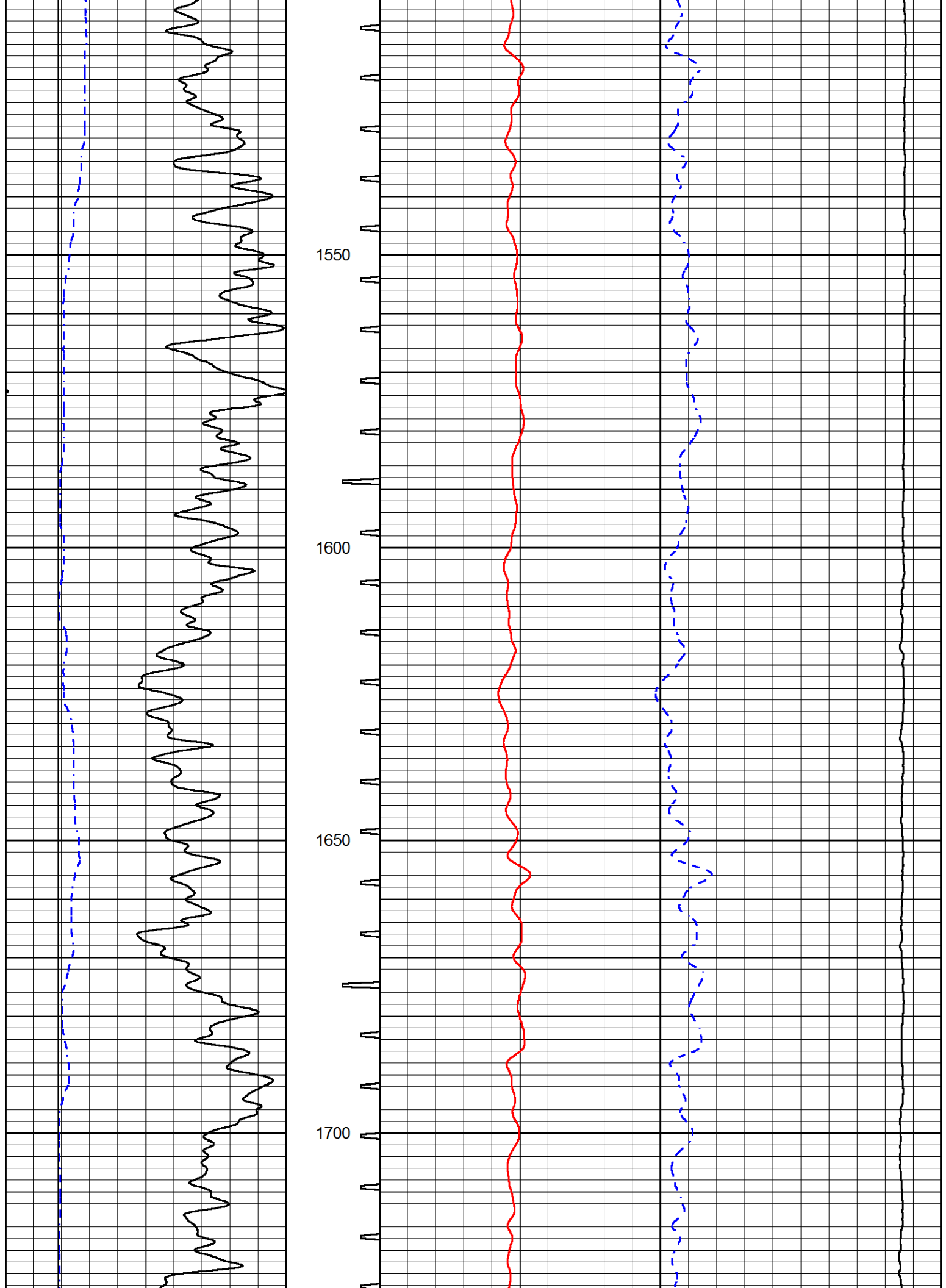


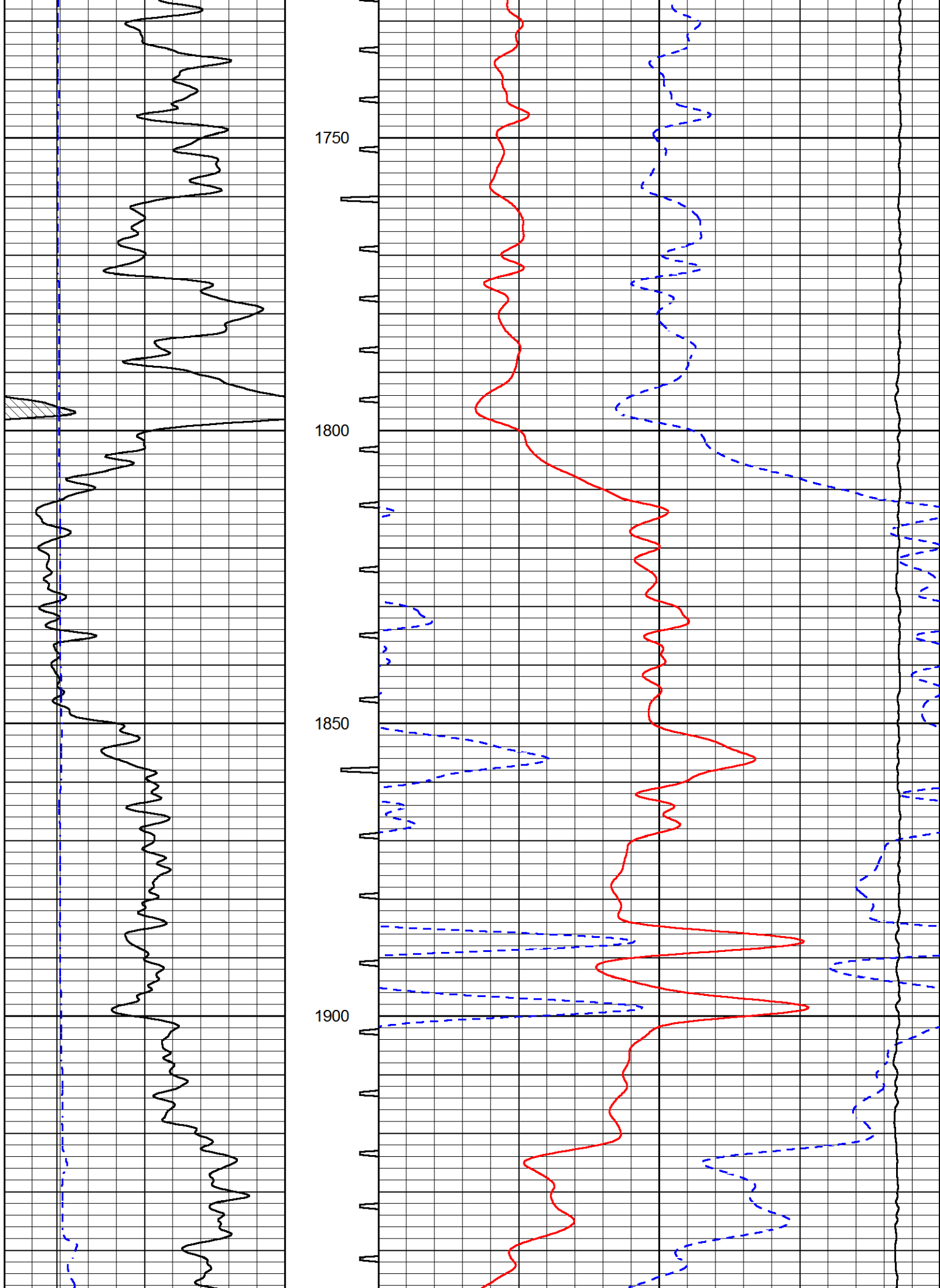


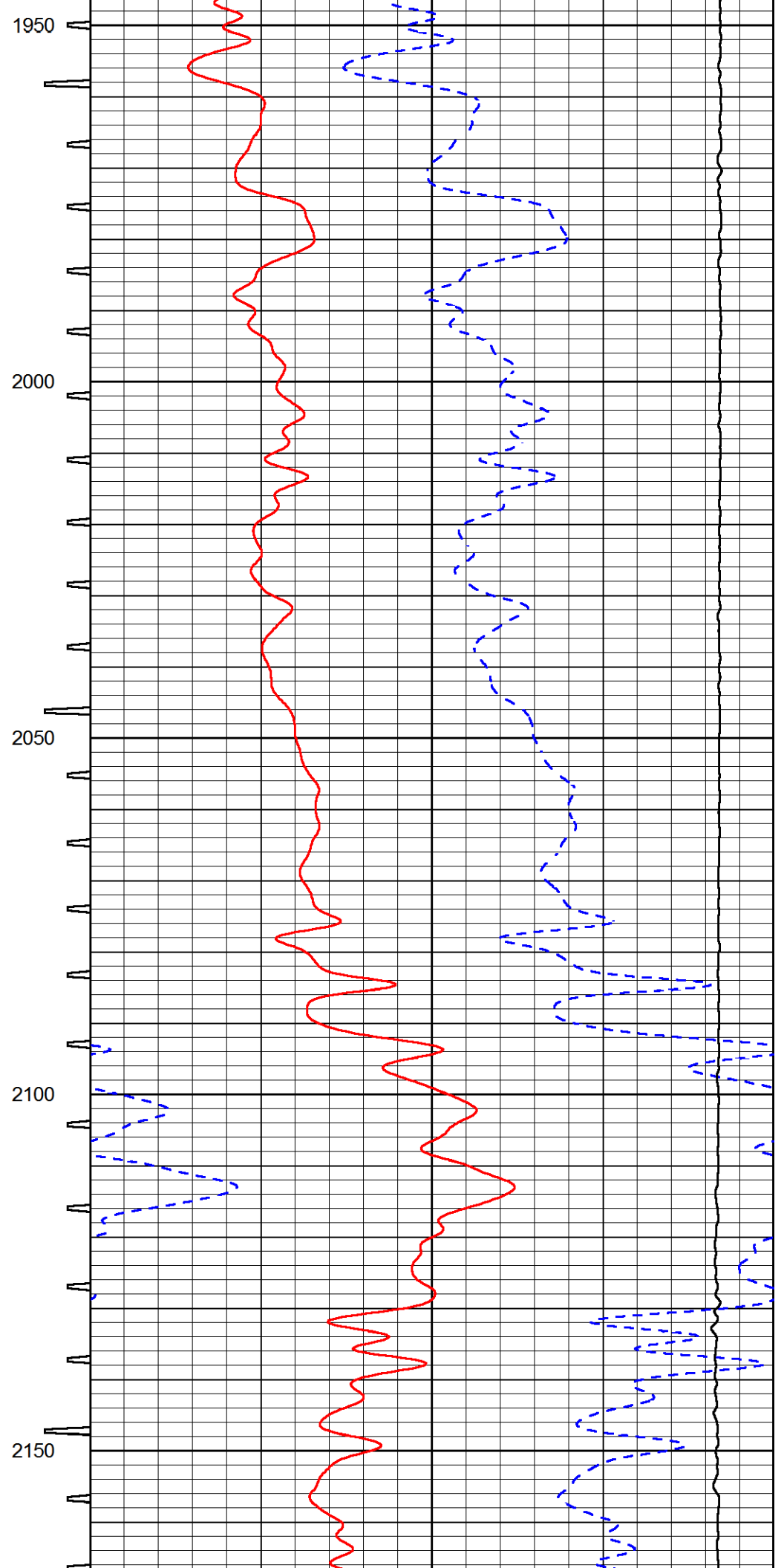
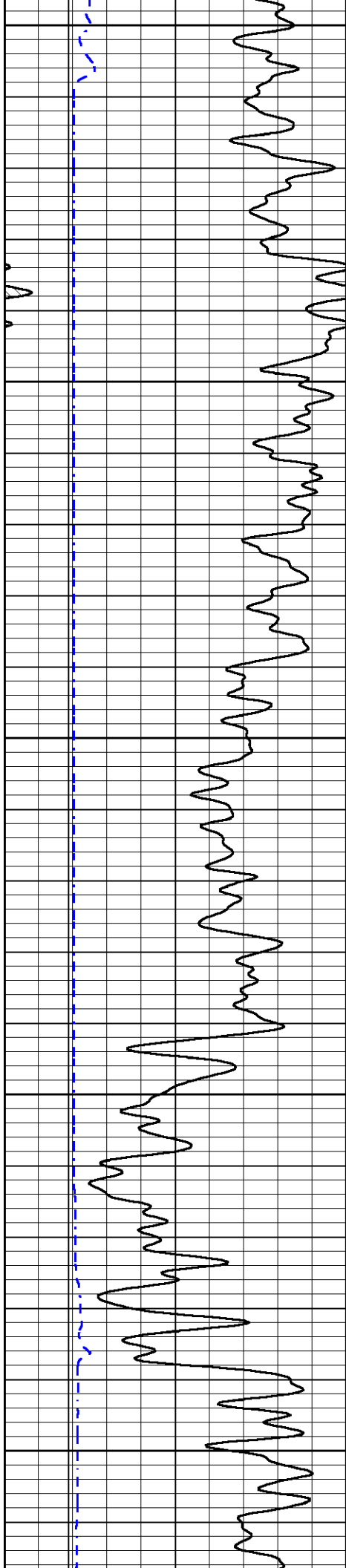


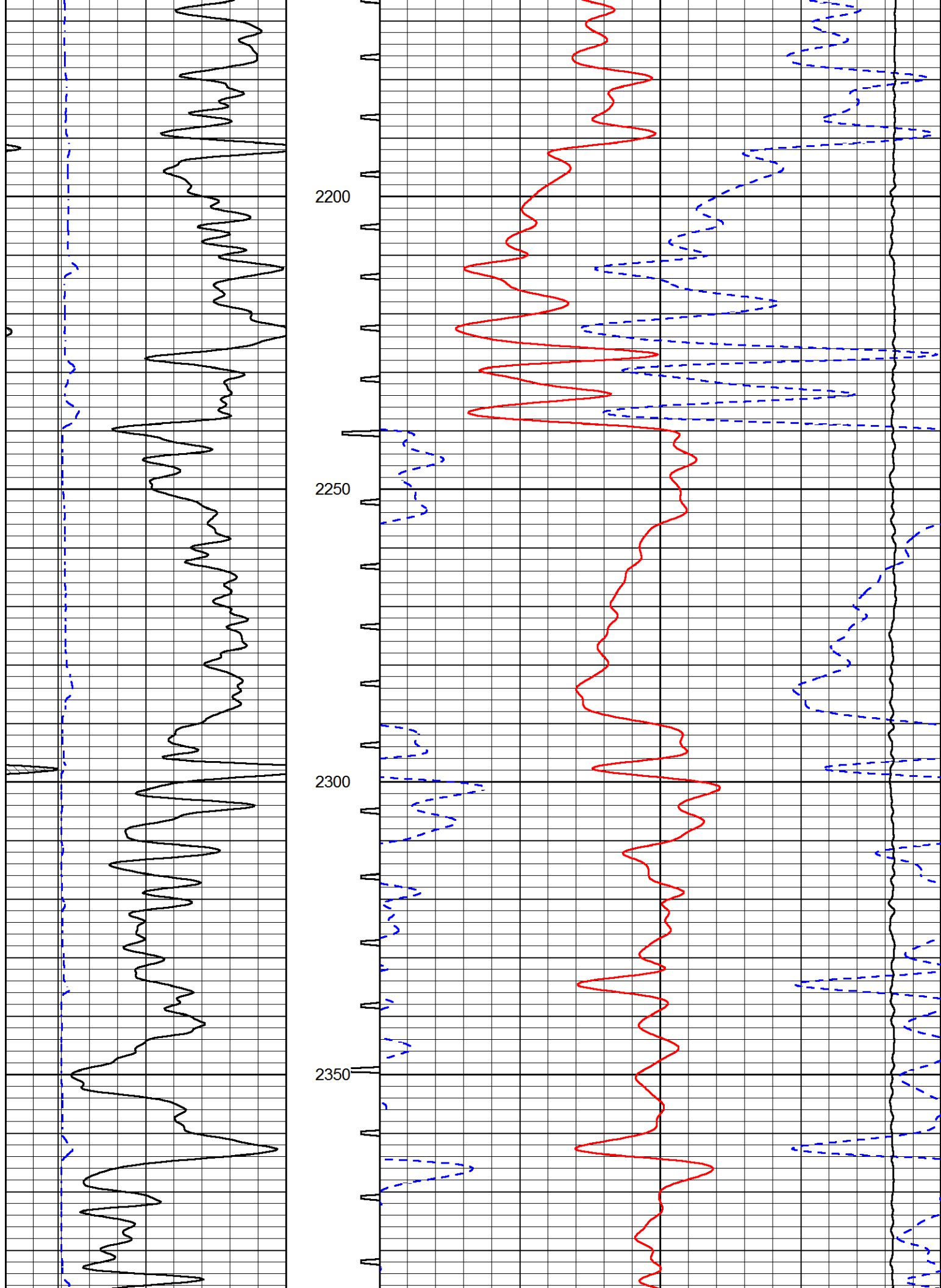


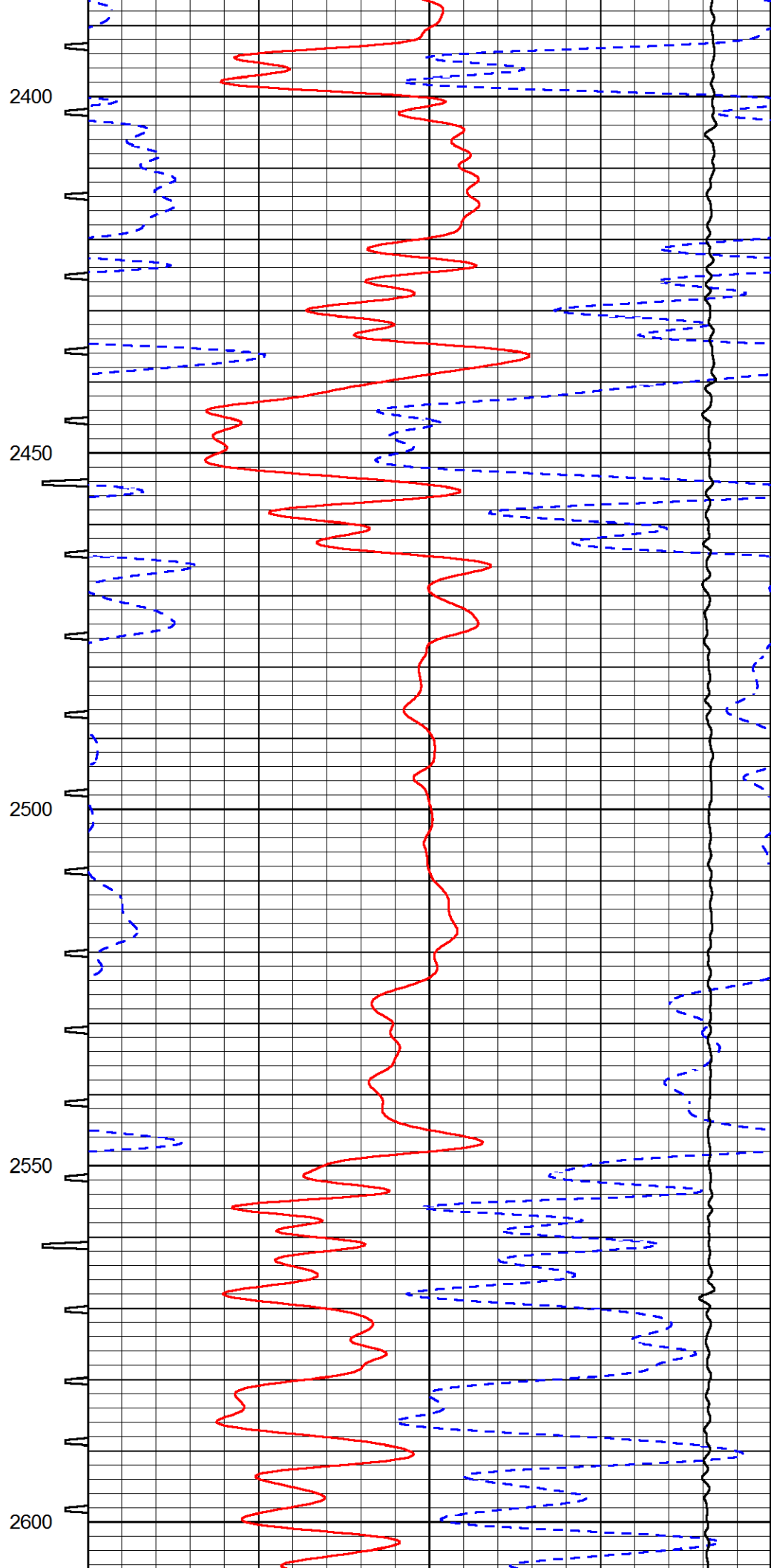
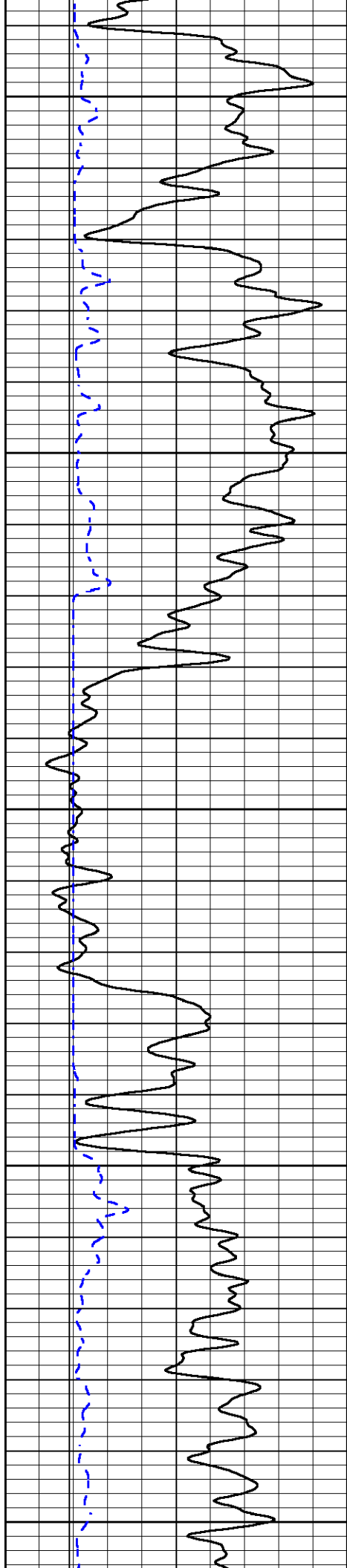


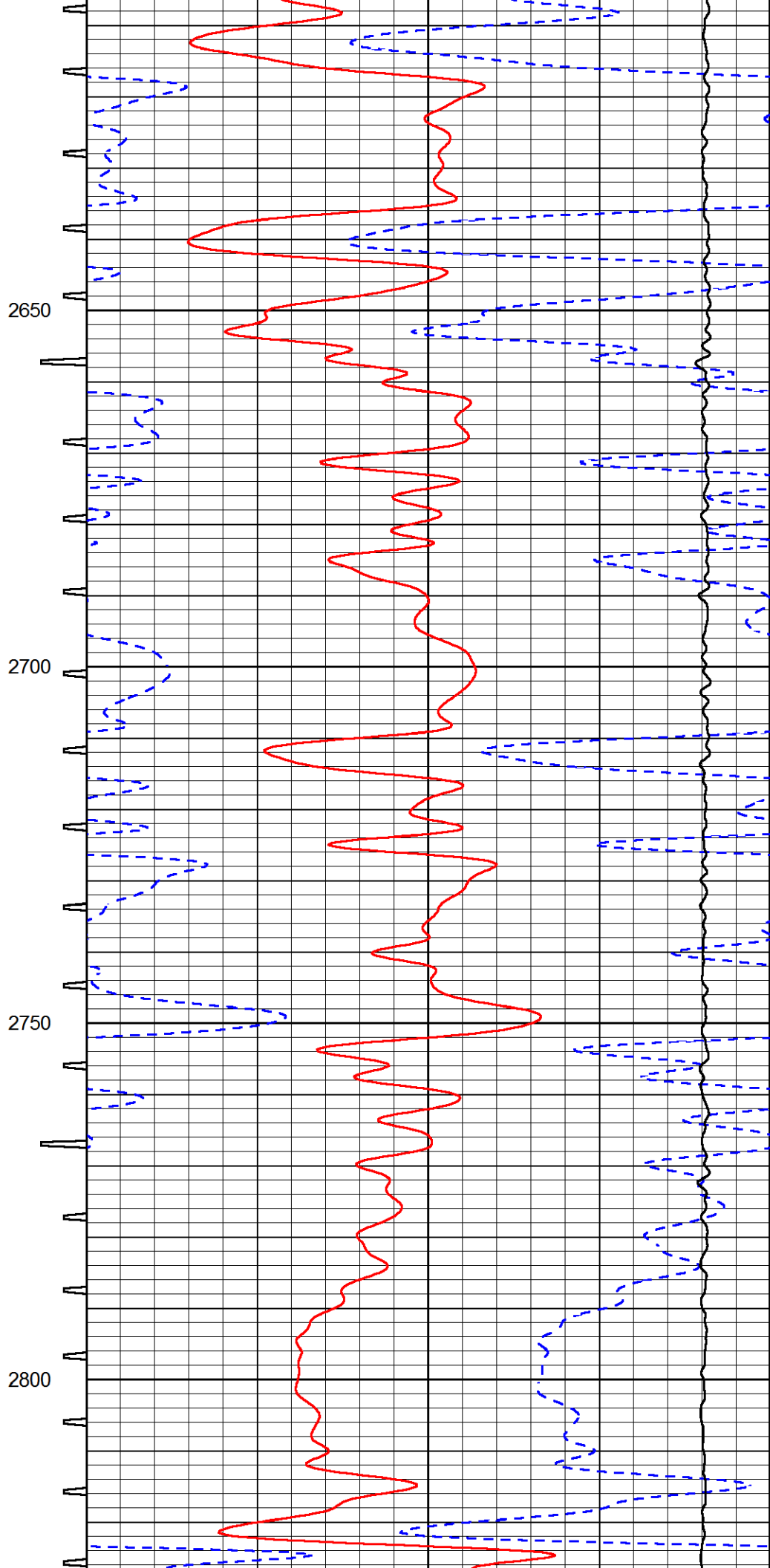
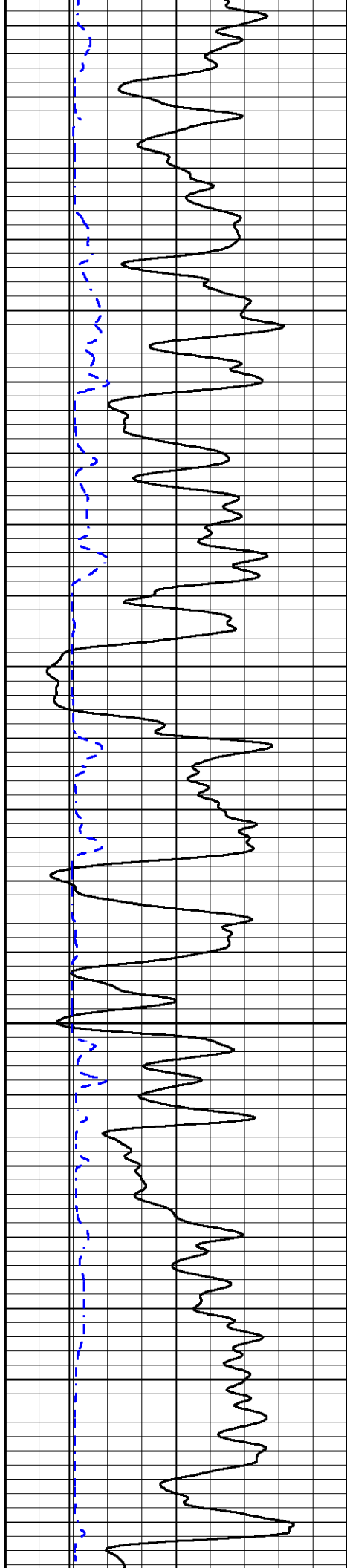


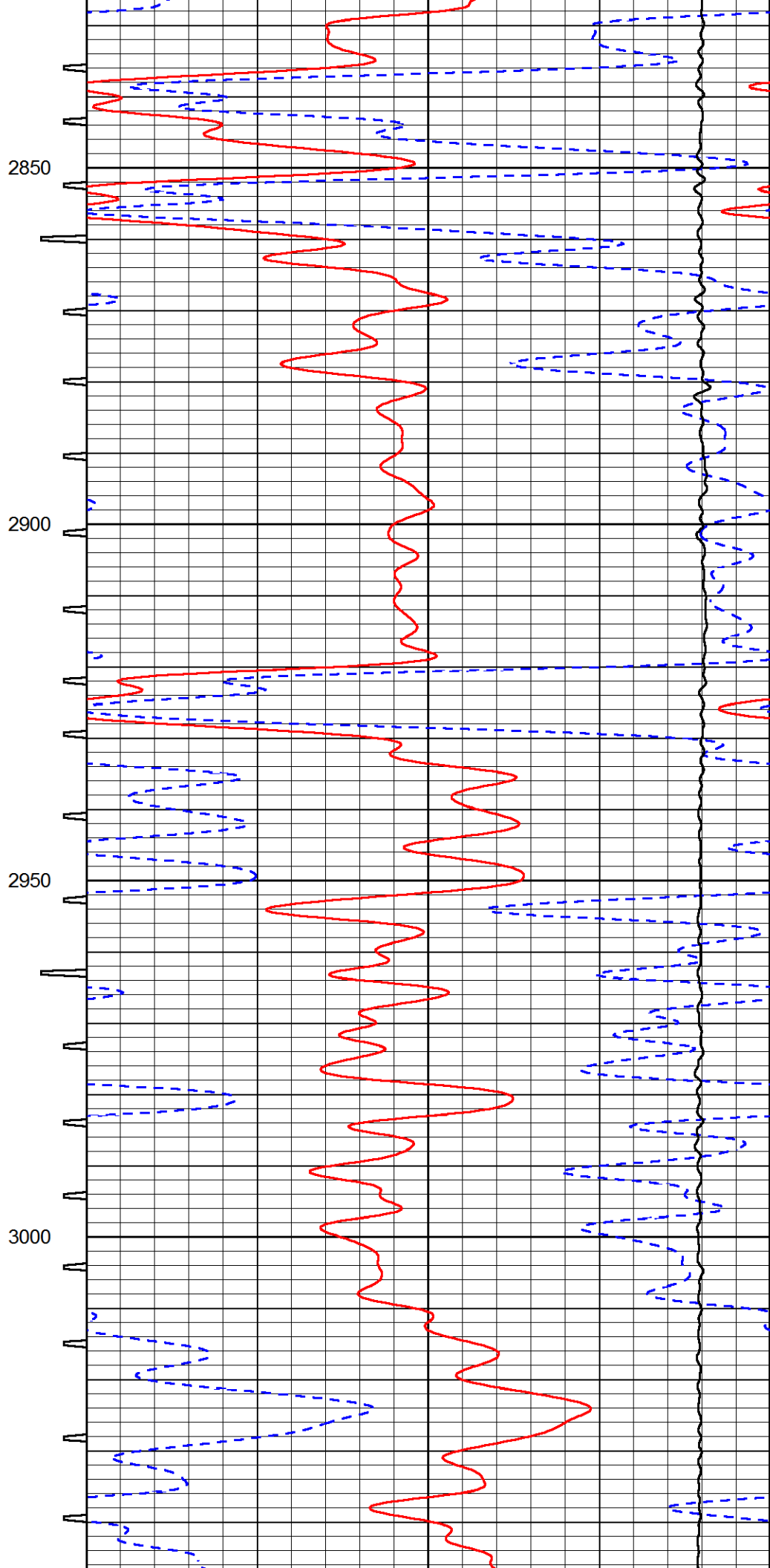
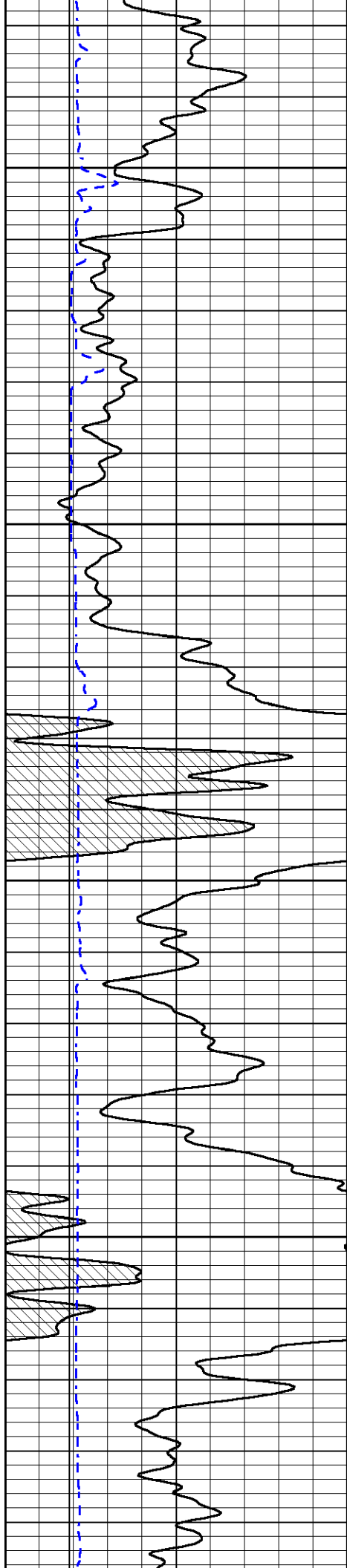


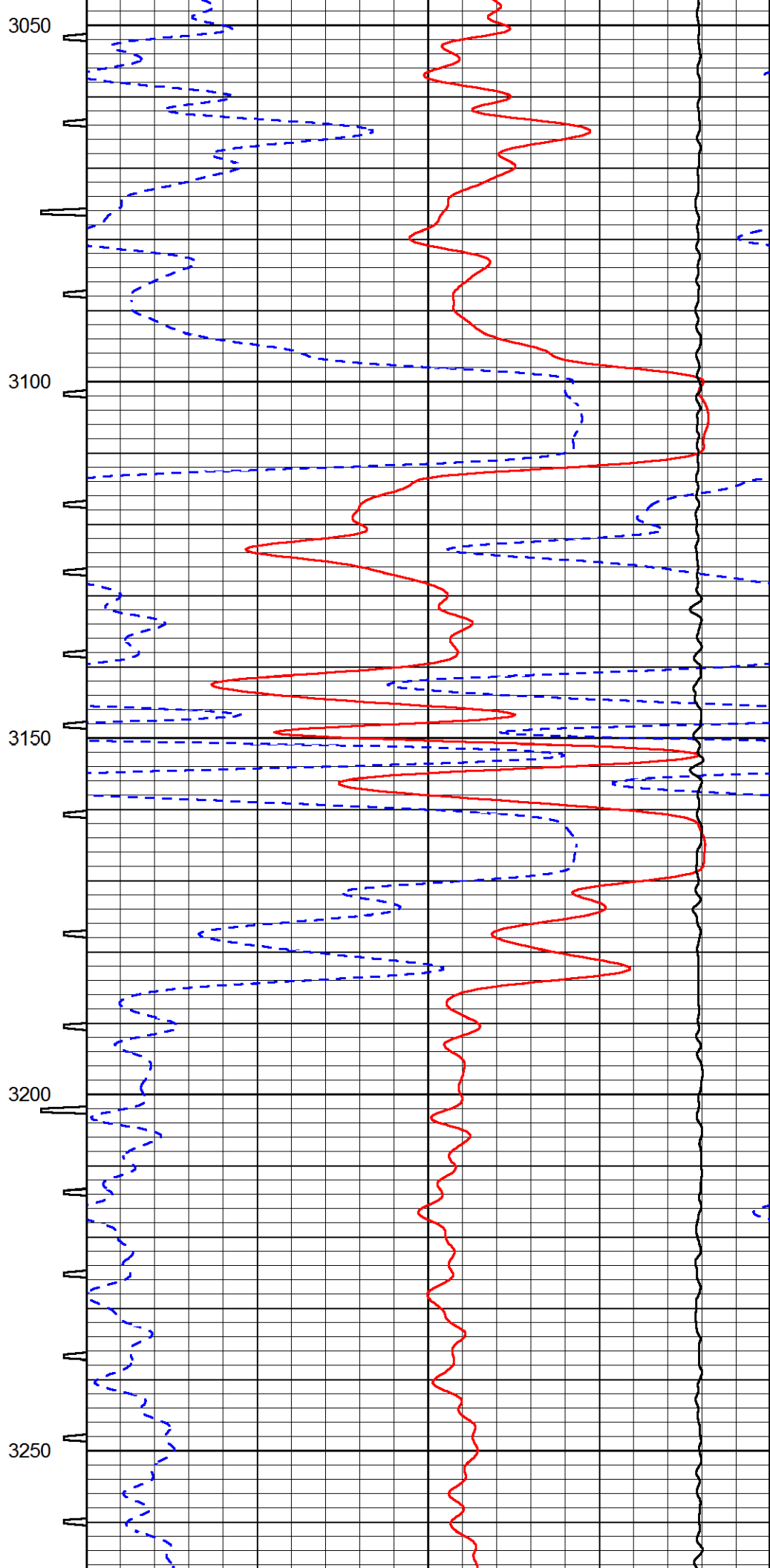
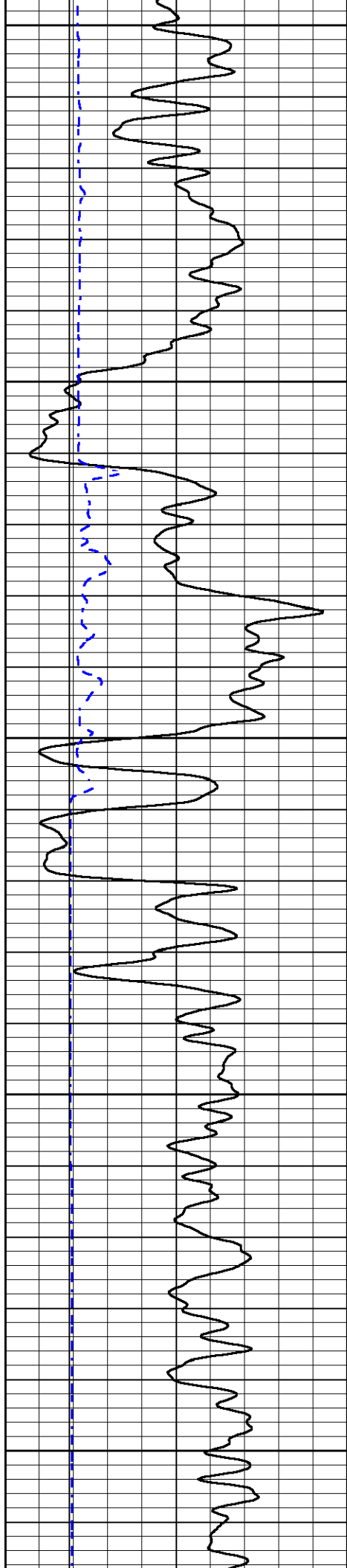


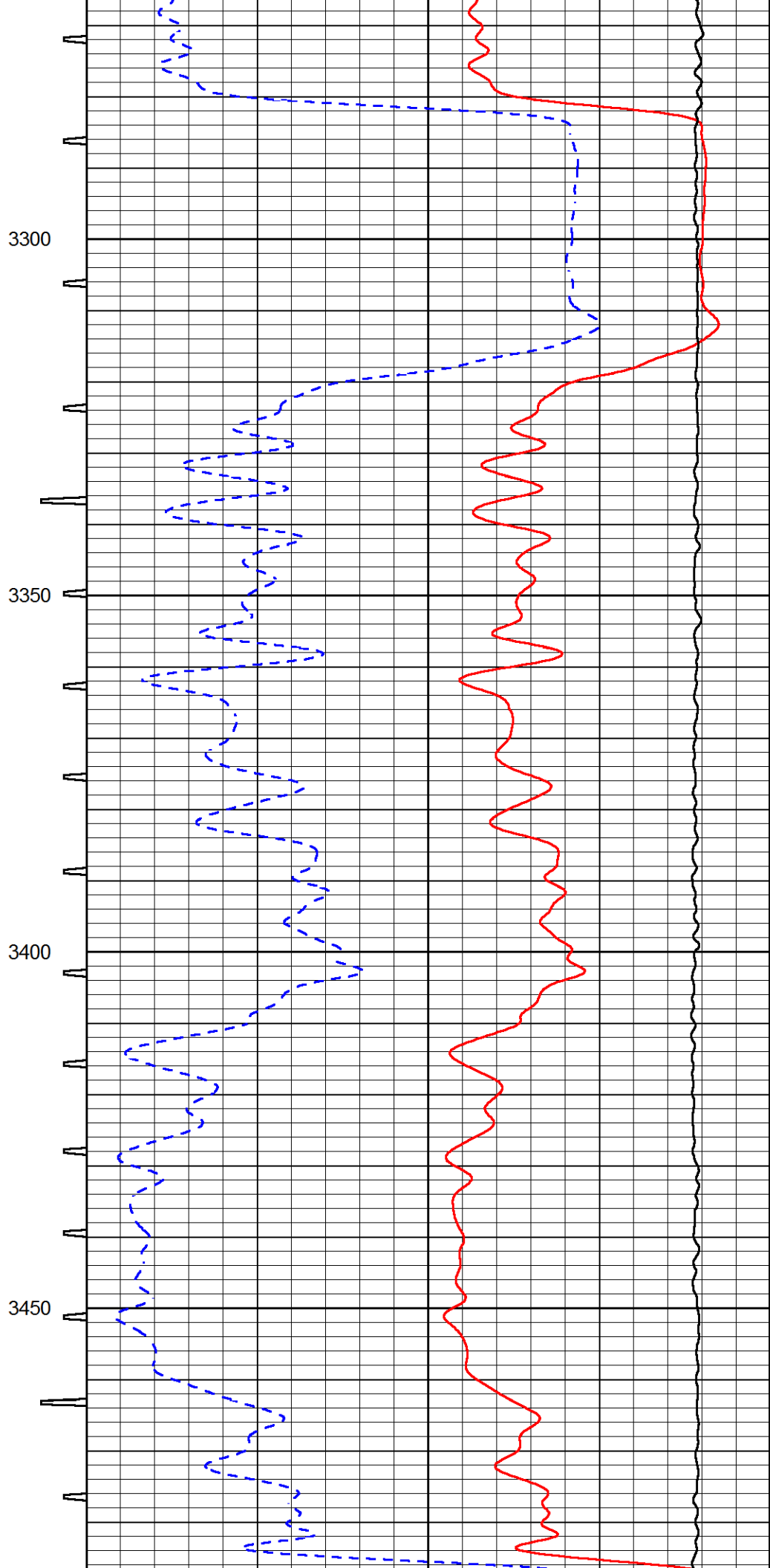
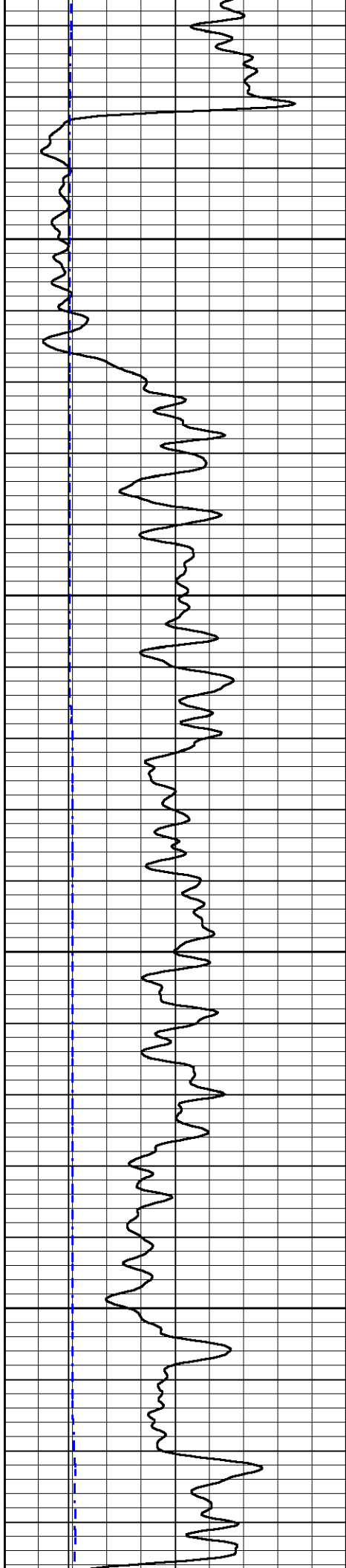


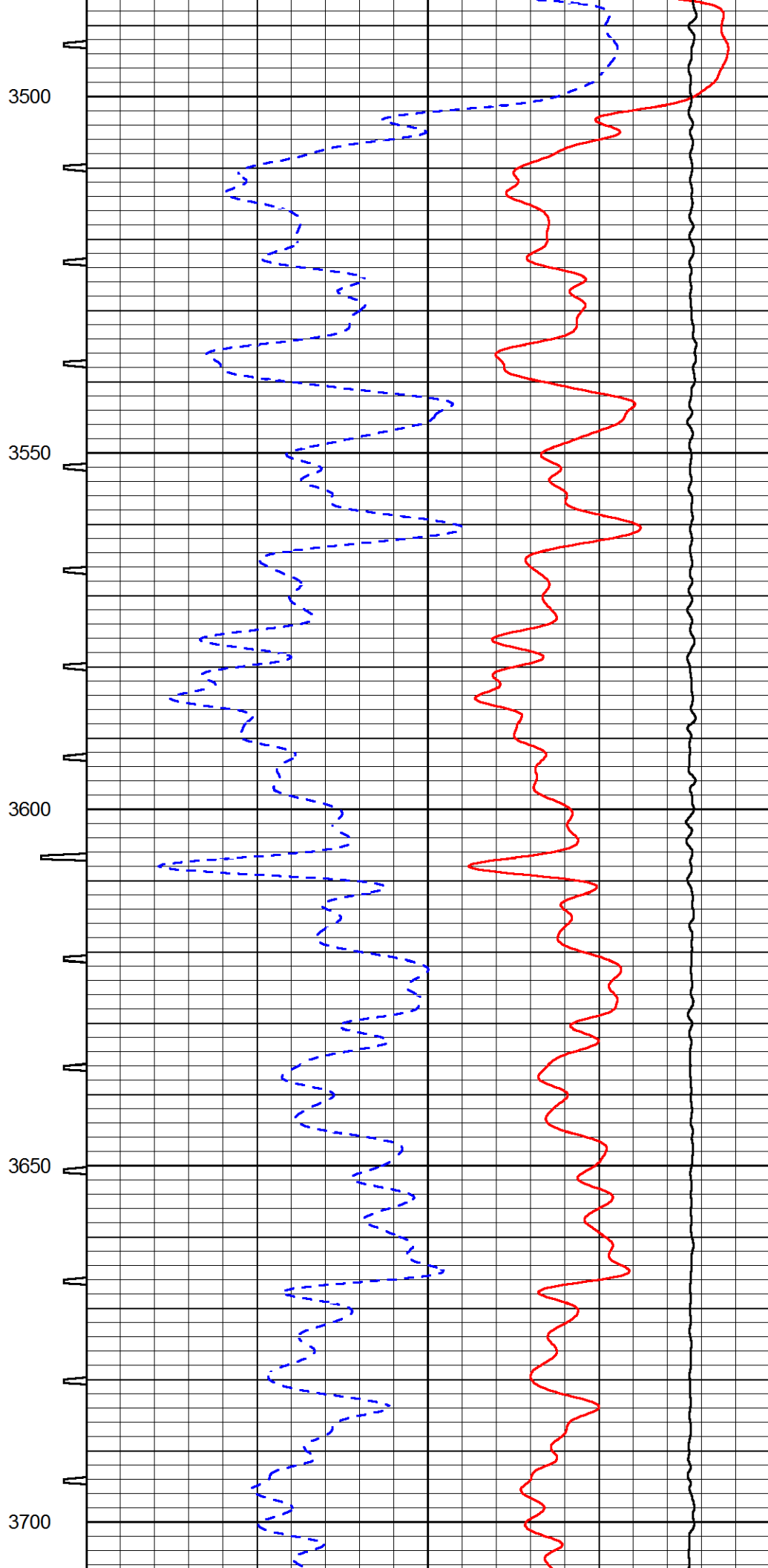
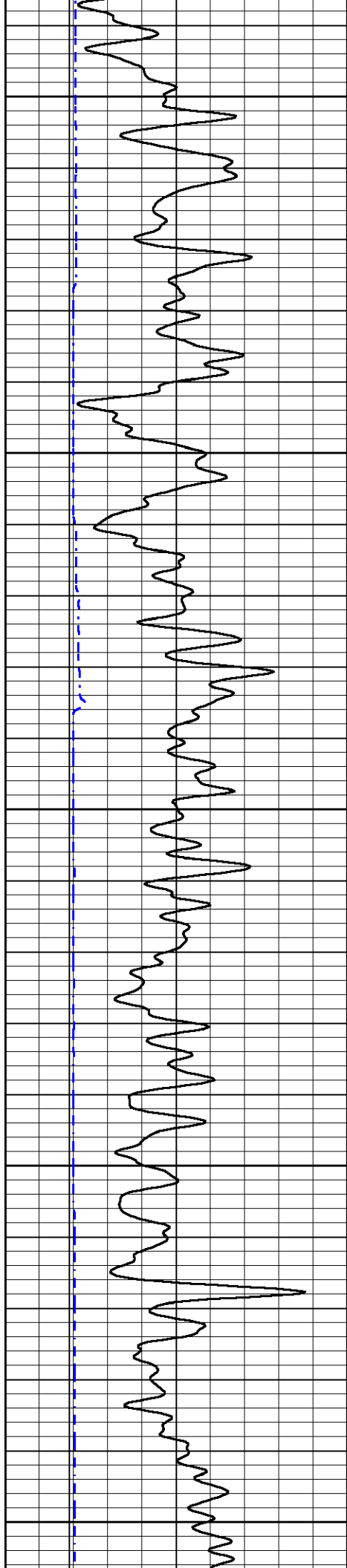


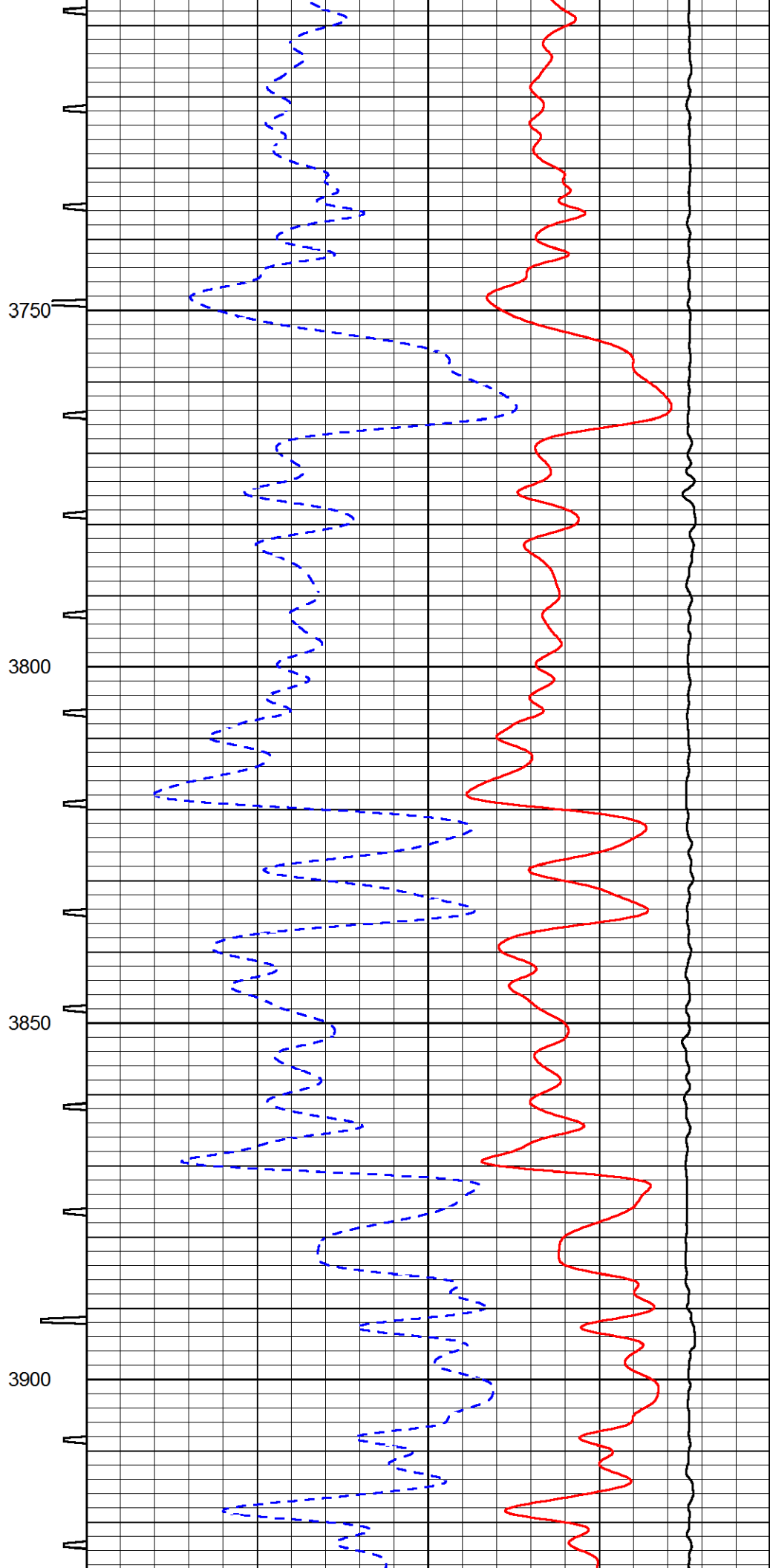
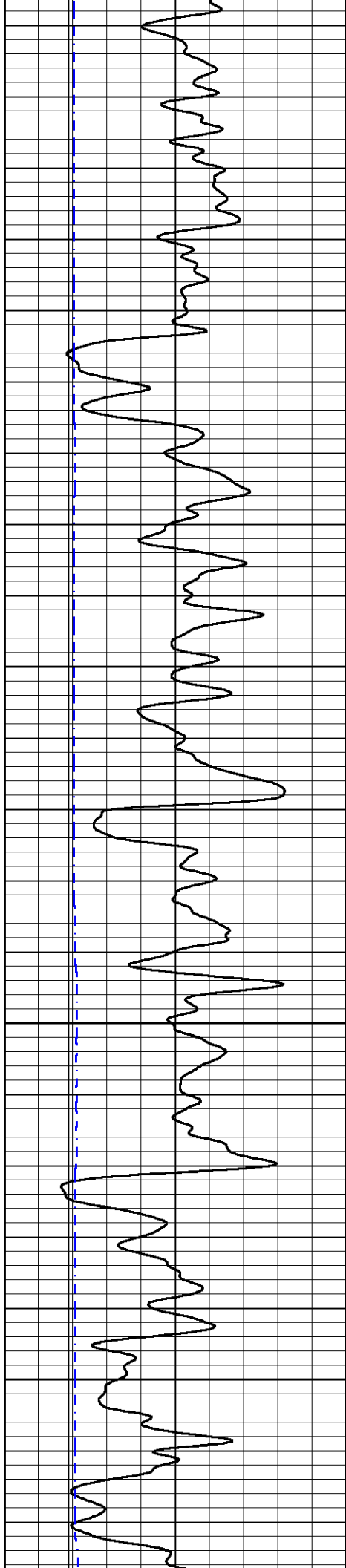


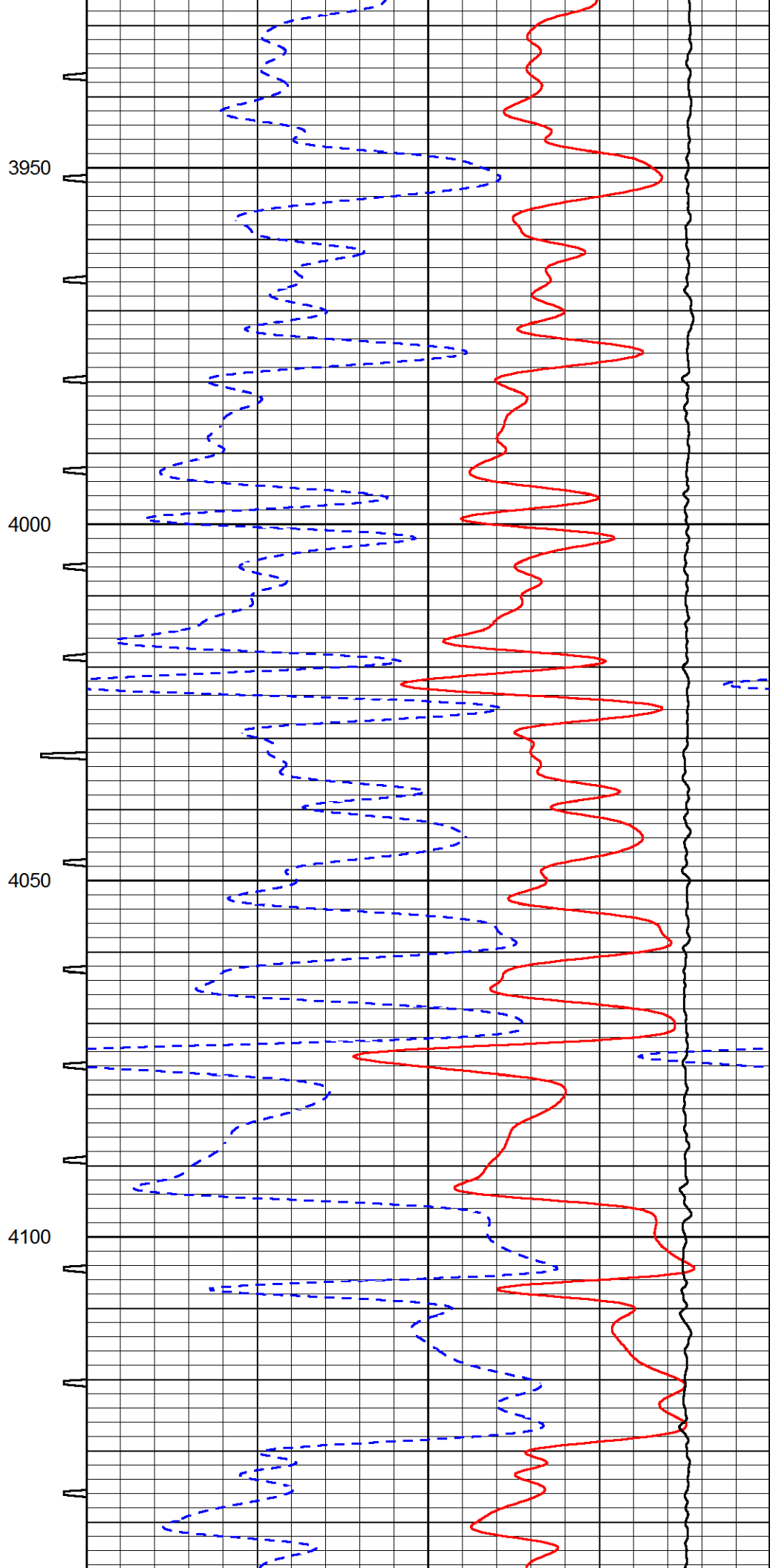
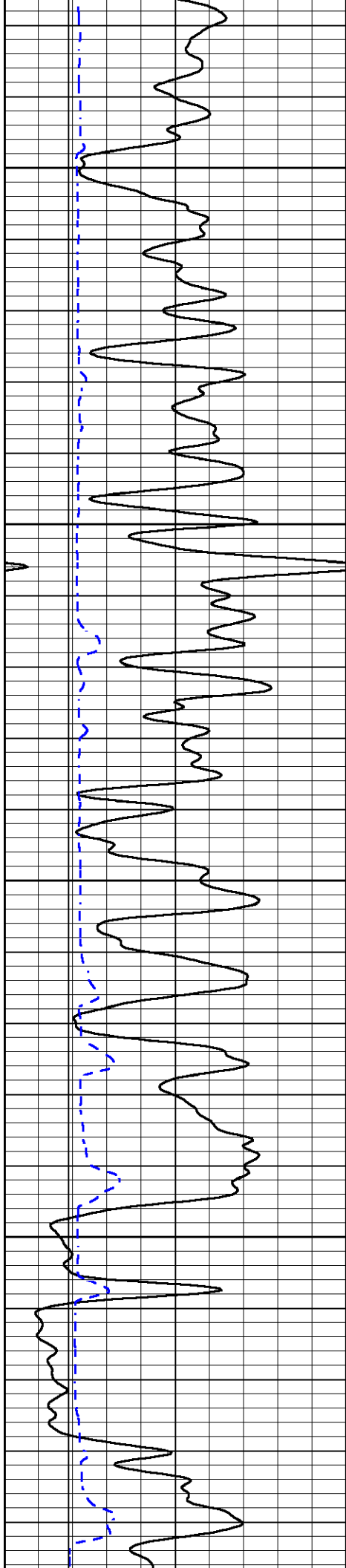


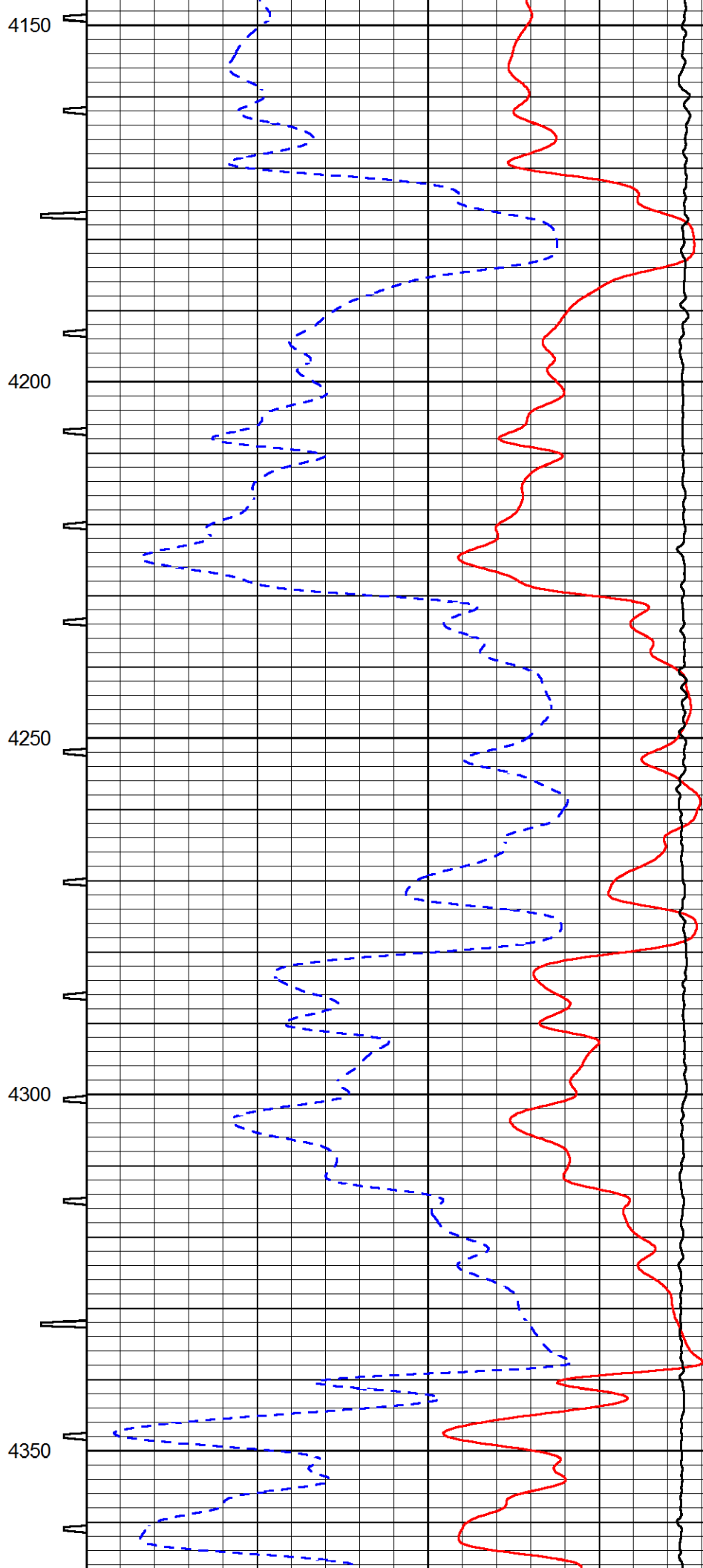
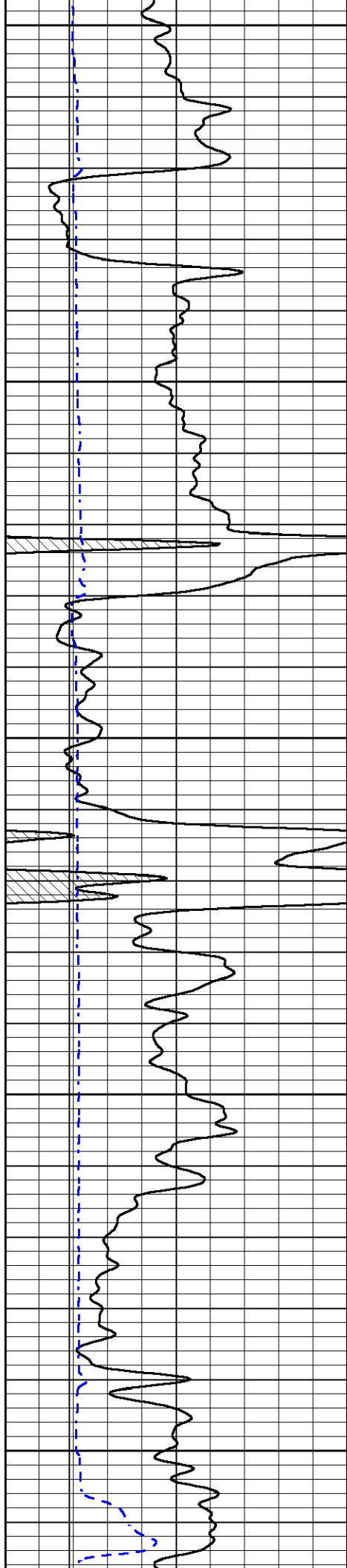


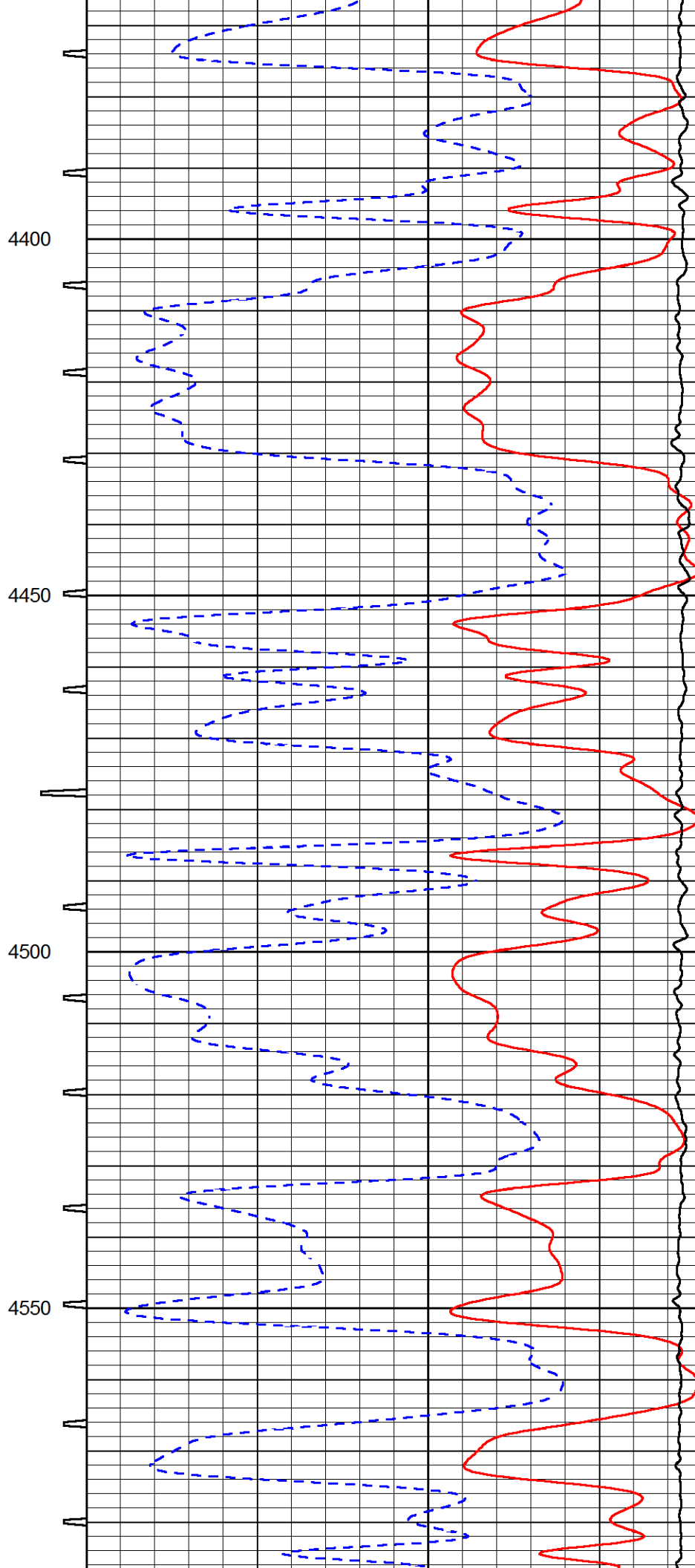
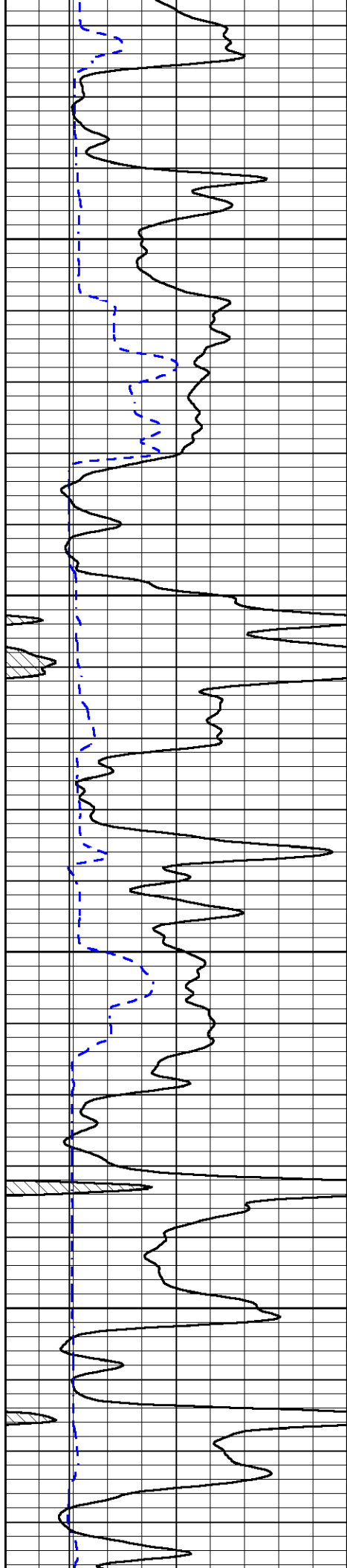


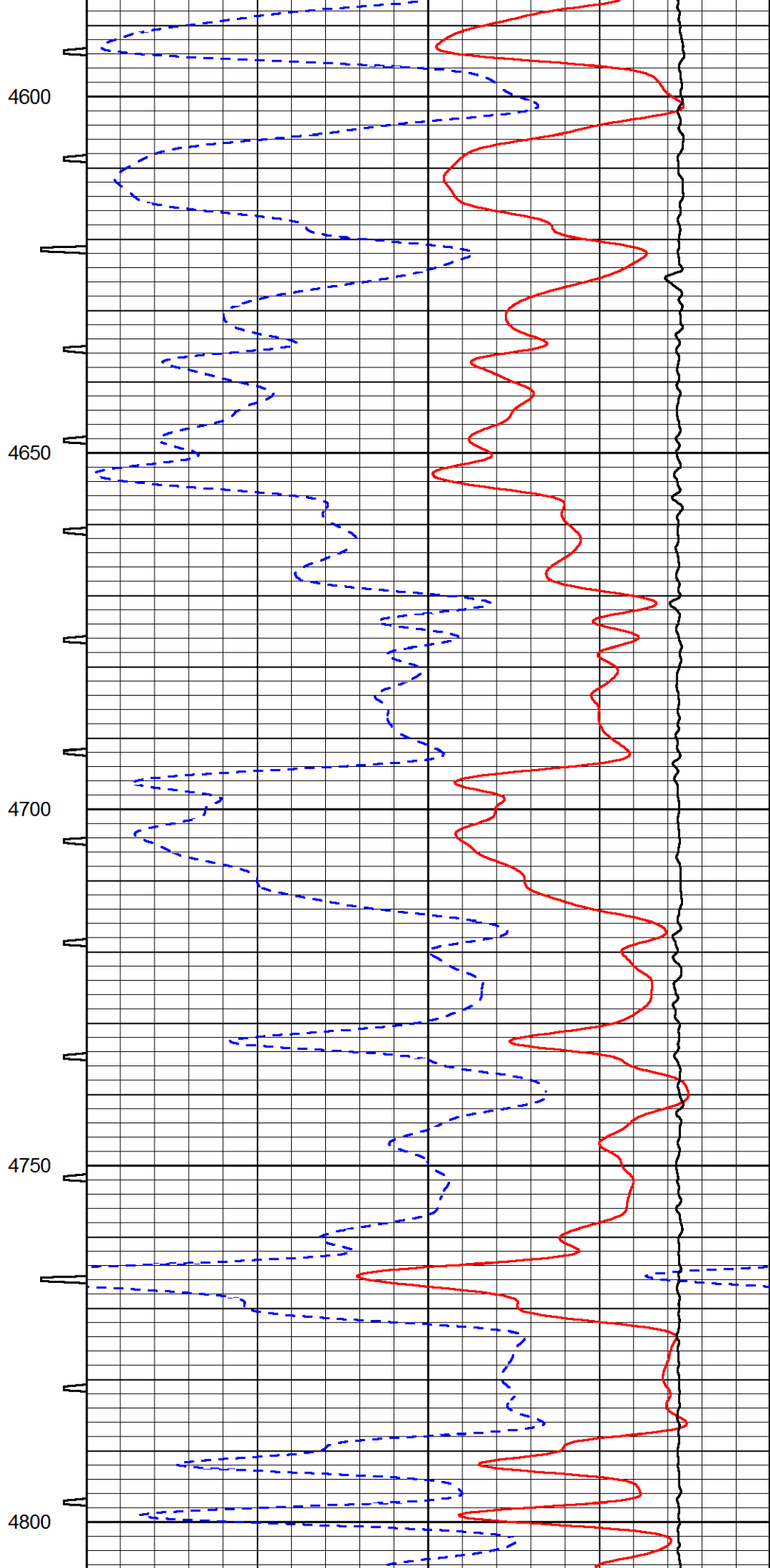
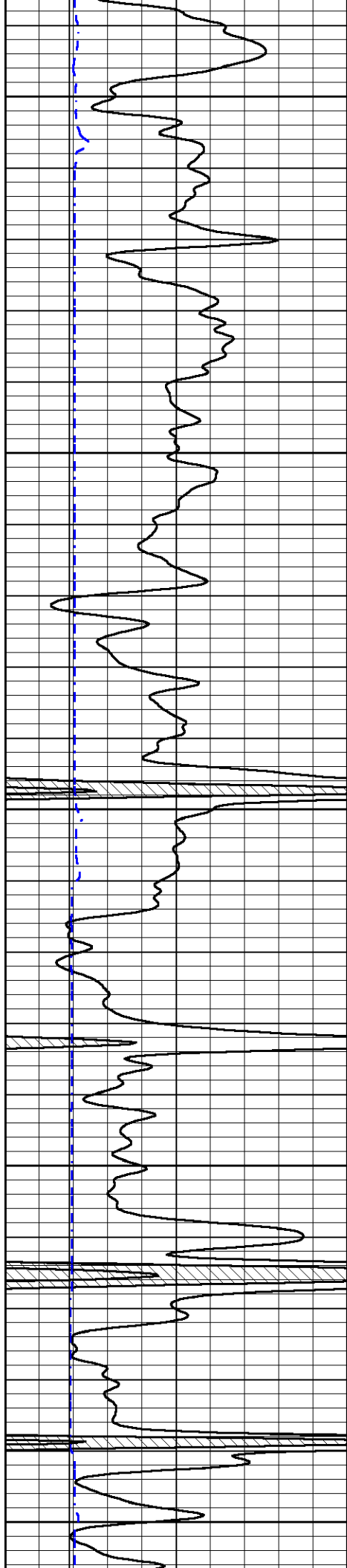


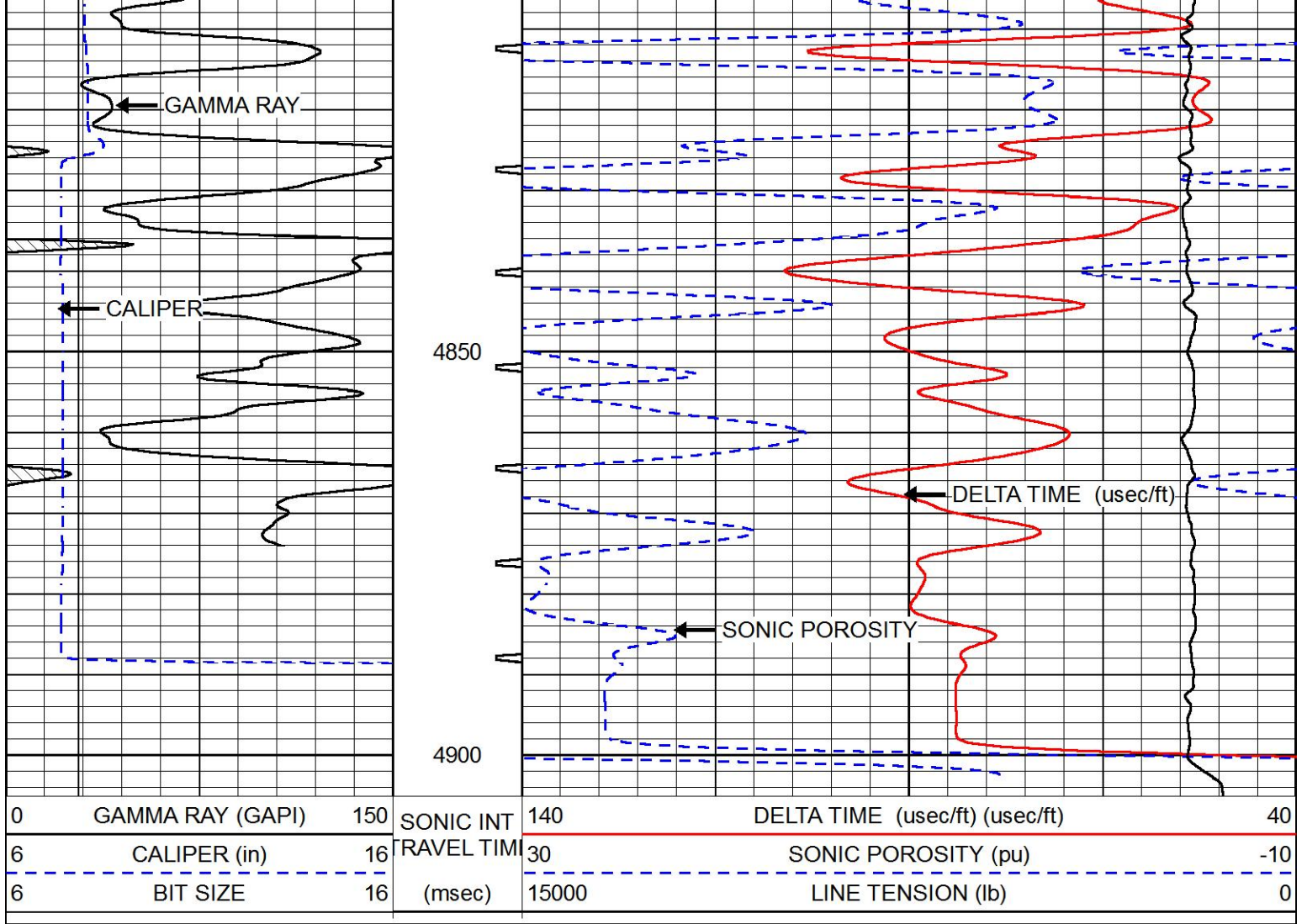








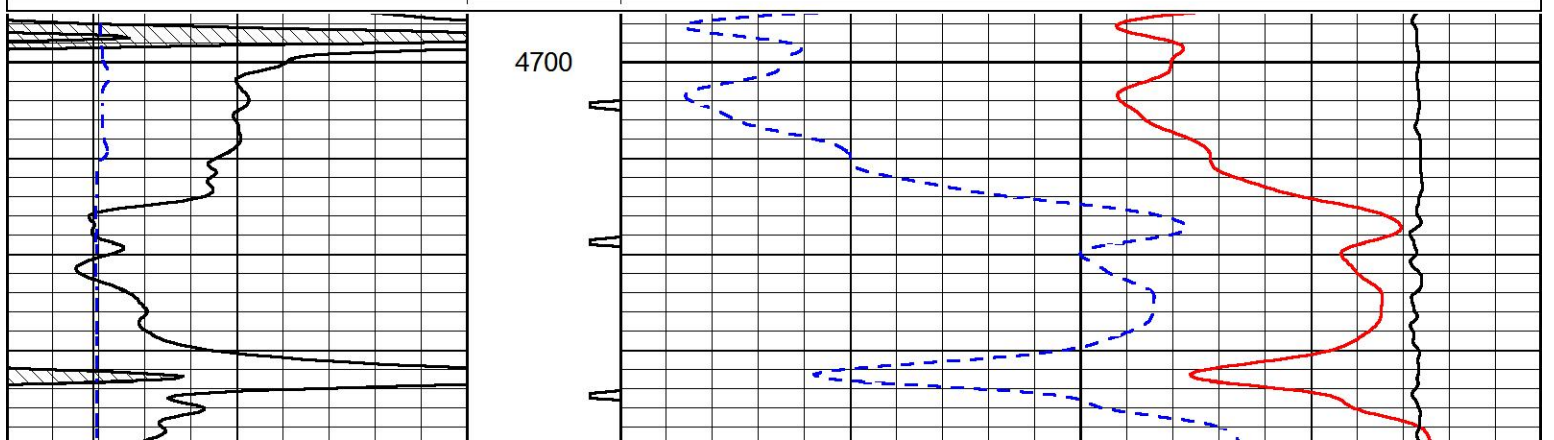


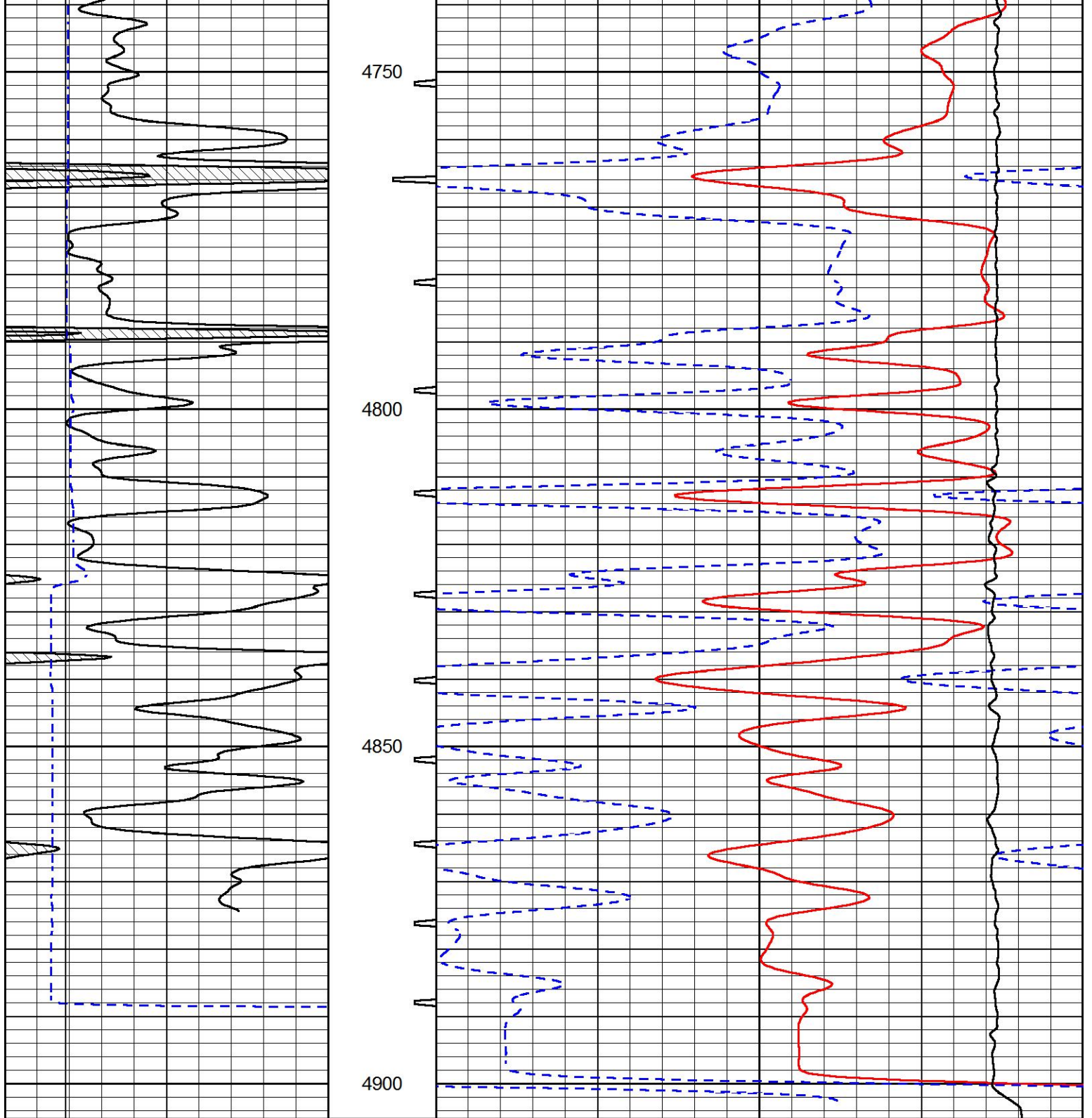


# REPEAT SECTION

Database File murfin\_mcclurg\_2\_12.db  
 Dataset Pathname stack/pass3.1  
 Presentation Format sonic  
 Dataset Creation Mon Dec 17 00:41:05 2018  
 Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	SONIC INT	140	DELTA TIME (usec/ft) (usec/ft)	40
6	CALIPER (in)	16	TRAVEL TIME (msec)	30	SONIC POROSITY (pu)	-10
6	BIT SIZE	16		15000	LINE TENSION (lb)	0





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