



**BOREHOLE COMPENSATED
SONIC LOG**

Company MURFIN DRILLING COMPANY, INC
 Well CWA 'E' #1-17
 Field WILDCAT
 County RAWLINS
 State KANSAS

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 County RAWLINS State KANSAS

Location: API #: 15-153-21200-00-00
 1100' FNL & 330' FWL
 SEC 17 TWP 3S RGE 35W
 Permanent Datum GROUND LEVEL Elevation 3253'
 Log Measured From KELLY BUSHING
 Drilling Measured From KELLY BUSHING
 Other Services
 CNL/CDL
 DIL/MEL
 Elevation
 K.B. 3258'
 D.F. N/A
 G.L. 3253'

Date	9/20/2017						
Run Number	TWO						
Type Log	BHGS						
Depth Driller	4900'						
Depth Logger	4902'						
Bottom Logged Interval	4890'						
Top Logged Interval	300'						
Type Fluid In Hole	CHEMICAL						
Salinity, PPM CL	3400						
Density	9.2						
Level	FULL						
Max. Rec. Temp. F	125						
Operating Rig Time	5 HOURS						
Equipment -- Location	91 HAYS						
Recorded By	D. SCHMIDT						
Witnessed By	PAUL GUNZELMAN						
Borehole Record							
Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	0'	345'	8.625"	23#	0'	345'
TWO	7.875"	345'		TD			
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.

ATWOOD,
 WEST TO 8 RD, 3/4 NORTH,
 EAST 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: D. SCHMIDT	Primary Witness: PAUL GUNZELMAN
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

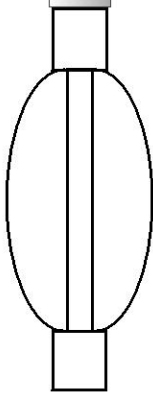
Log Variables

DatabaseC:\ProgramData\Warrior\Data\murfin_cwa_e 1-17.db
 Dataset field/well/stkml/pass4.1/_vars_

Top - Bottom

M	A	SPSHIFT mV	SNDERRM mmho/m	SNDERR mmho/m	SZCOR	NPORSEL	FLUIDDEN g/cc
2	1	140	0	0	Off	Limestone	1
MATRXDEN g/cc	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
2.71	80	0	5.5	0	4902	125	7.875

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			CENT-PENGO (3-PENGO)	5.50	3.00	70.00
WVF4 WVF1	13.50 13.50		SLT-PENGO (0001)	16.00	3.50	300.00
WVF3 WVF2	11.50 11.50					



CENT-PENGO (4-PENGO)

5.50

3.00

70.00

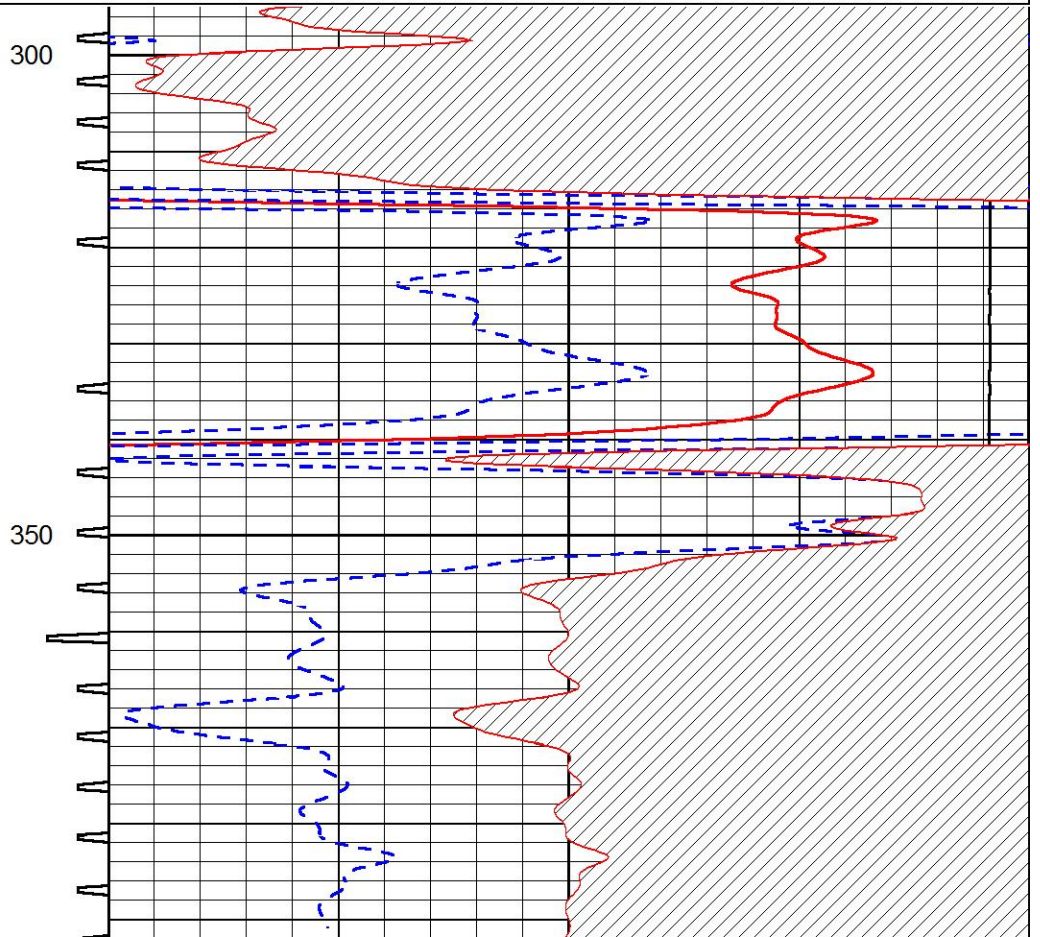
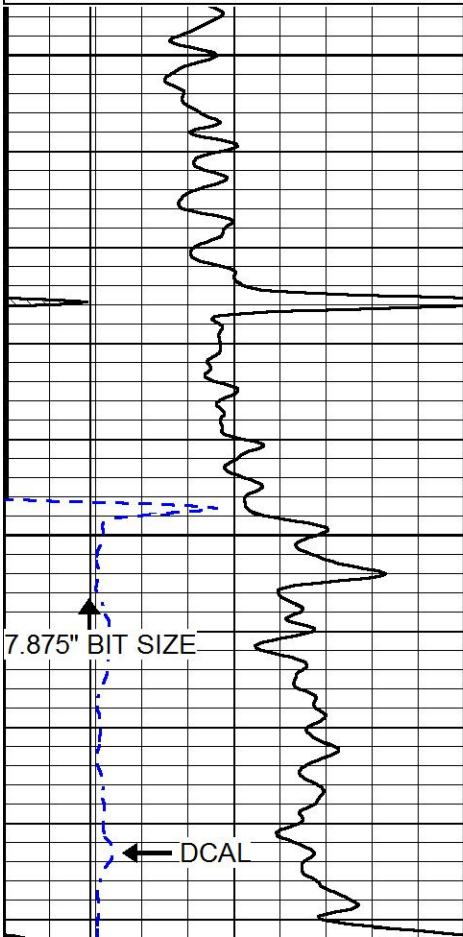
Dataset: murfin_cwa_e 1-17.db: field/well/SON/pass2
 Total length: 27.00 ft
 Total weight: 440.00 lb
 O.D.: 3.50 in

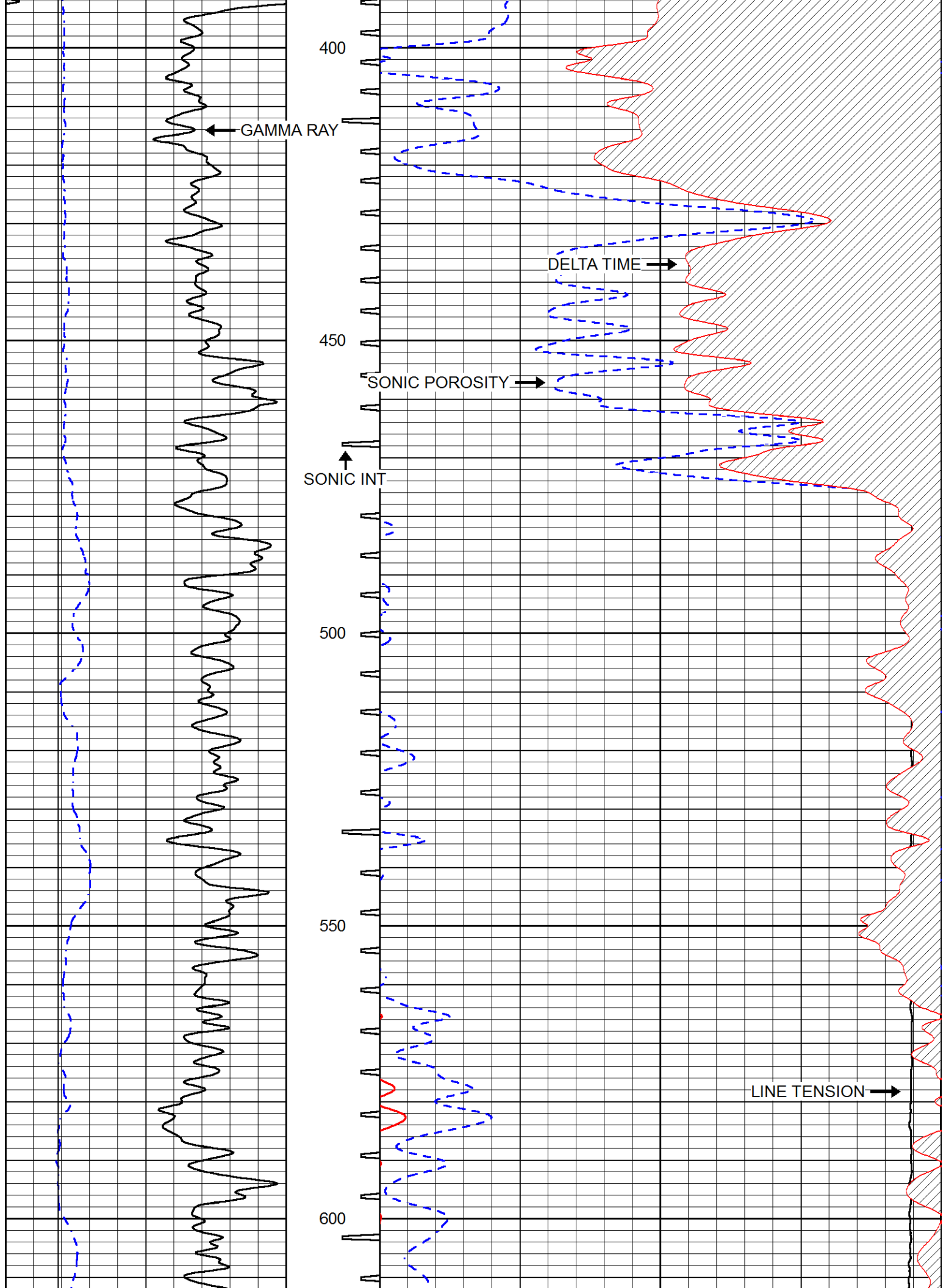


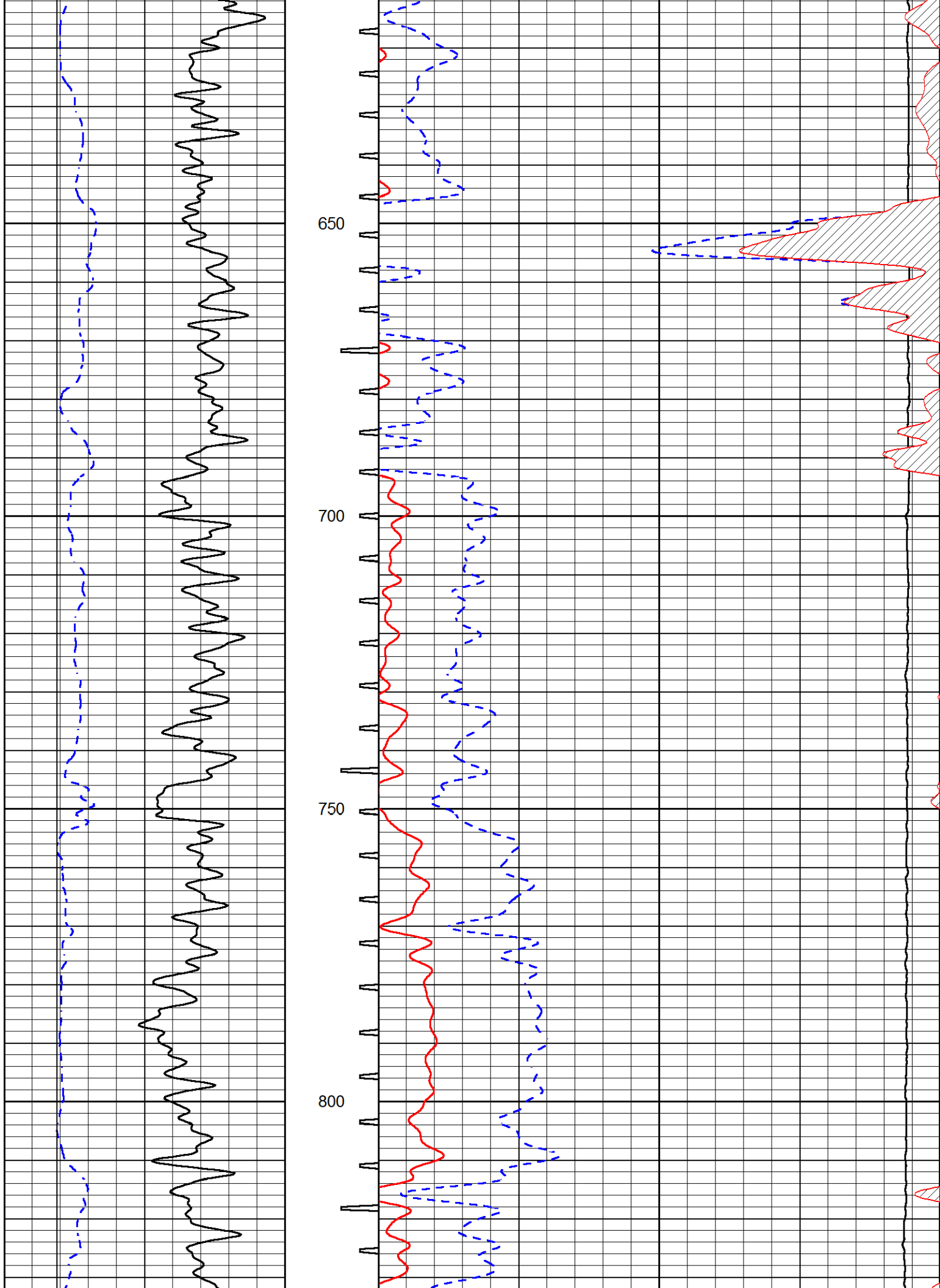
MAIN PASS

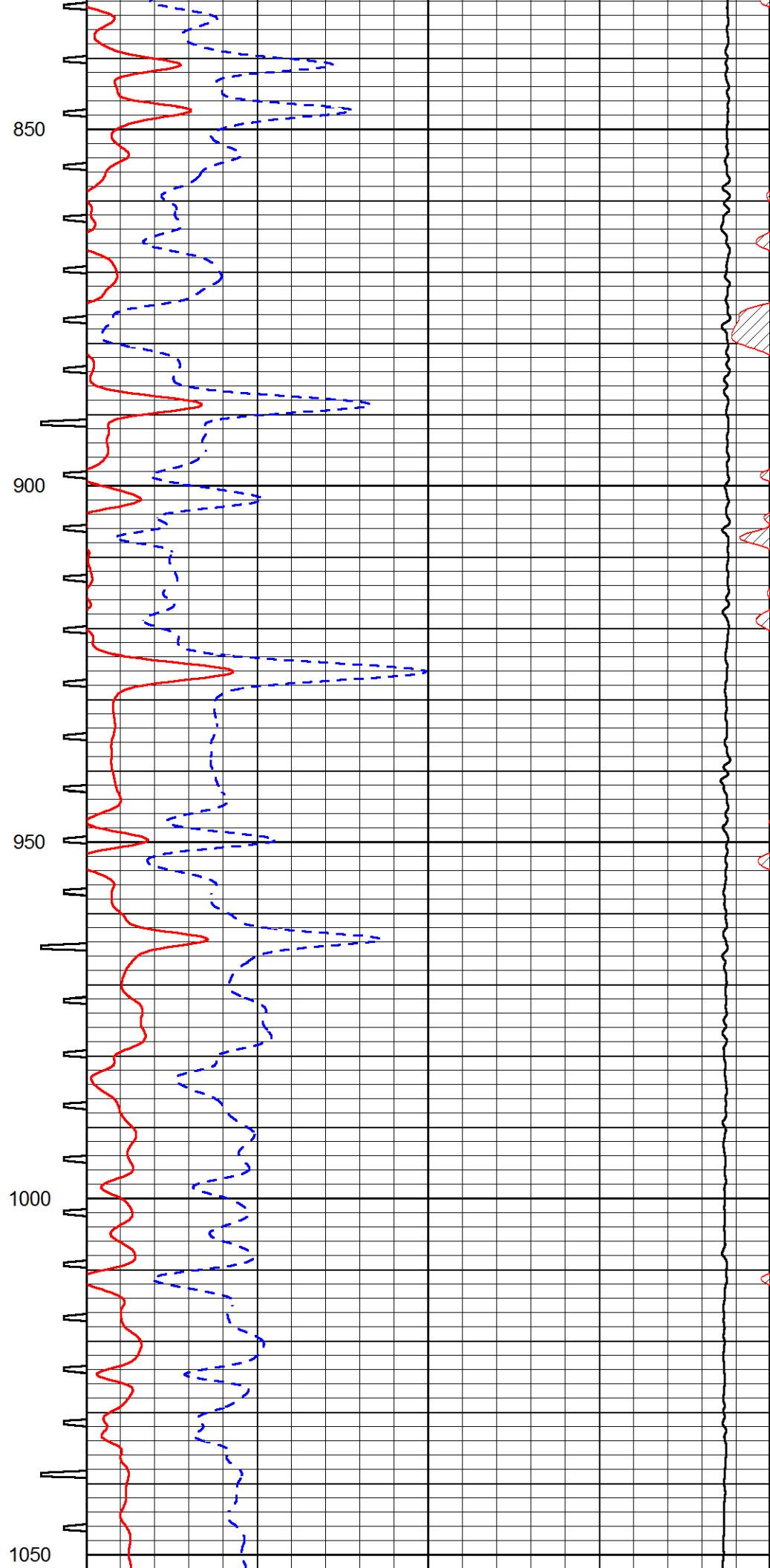
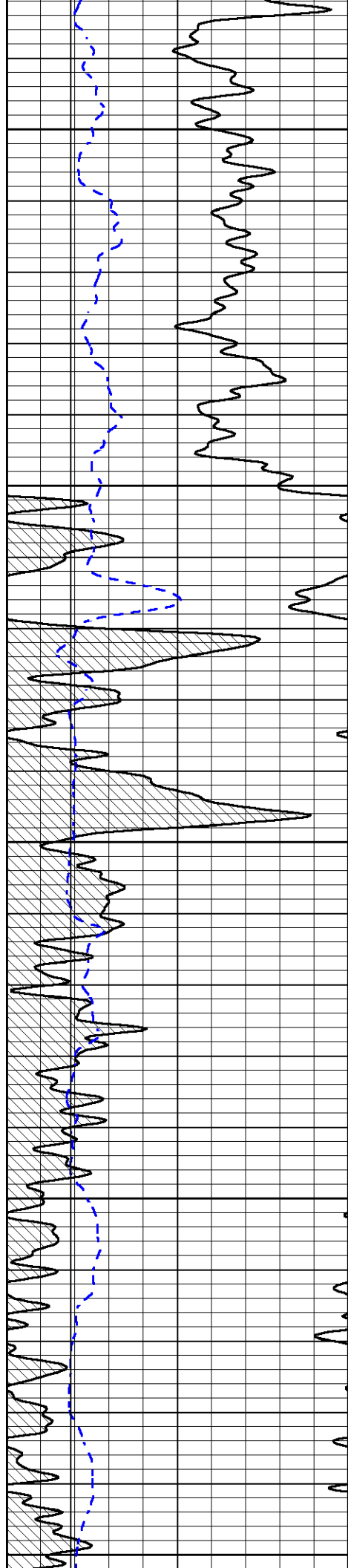
Database File murfin_cwa_e 1-17.db
 Dataset Pathname stkml/pass6.1
 Presentation Format sonic
 Dataset Creation Wed Sep 20 19:06:53 2017
 Charted by Depth in Feet scaled 1:240

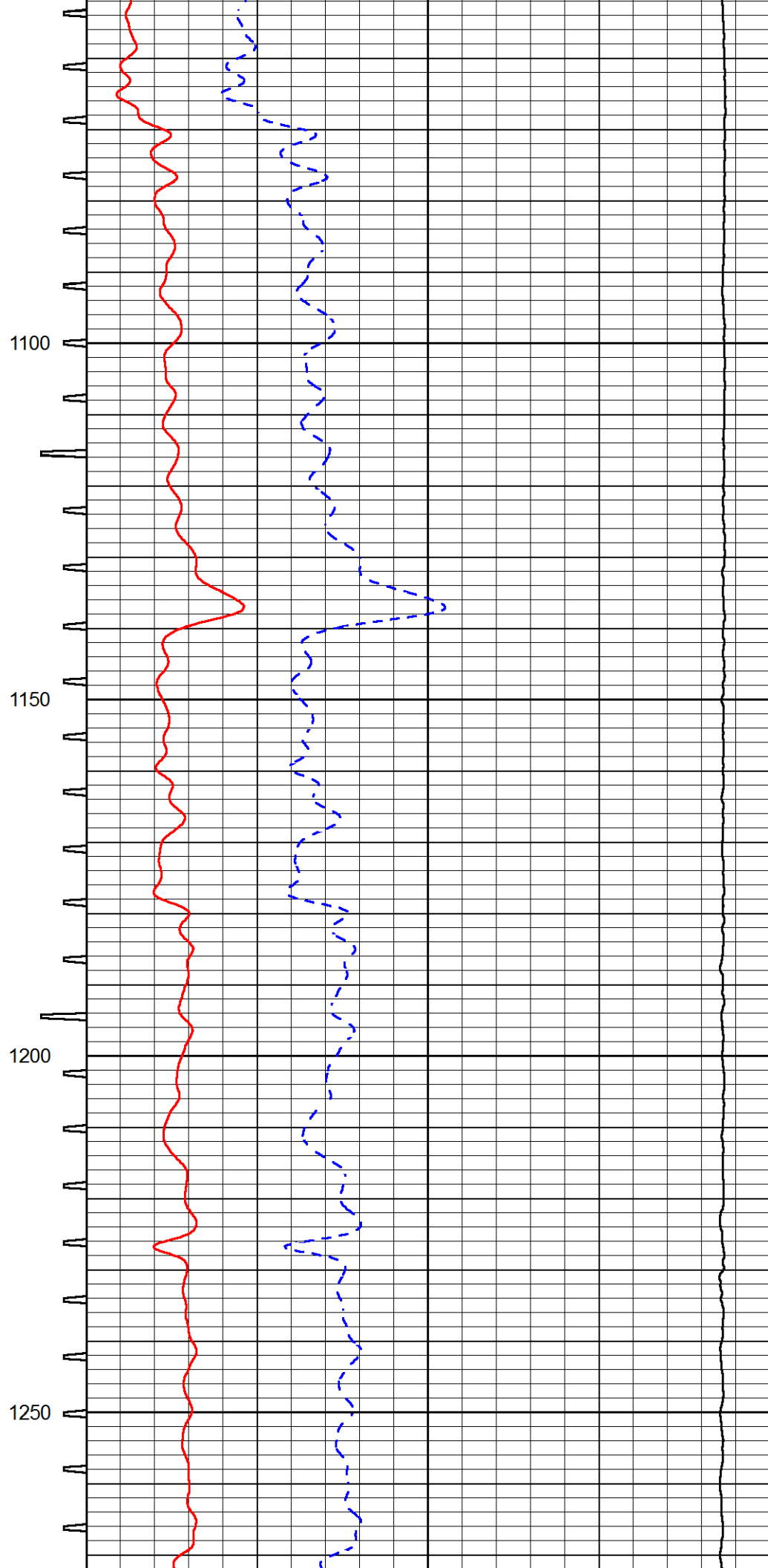
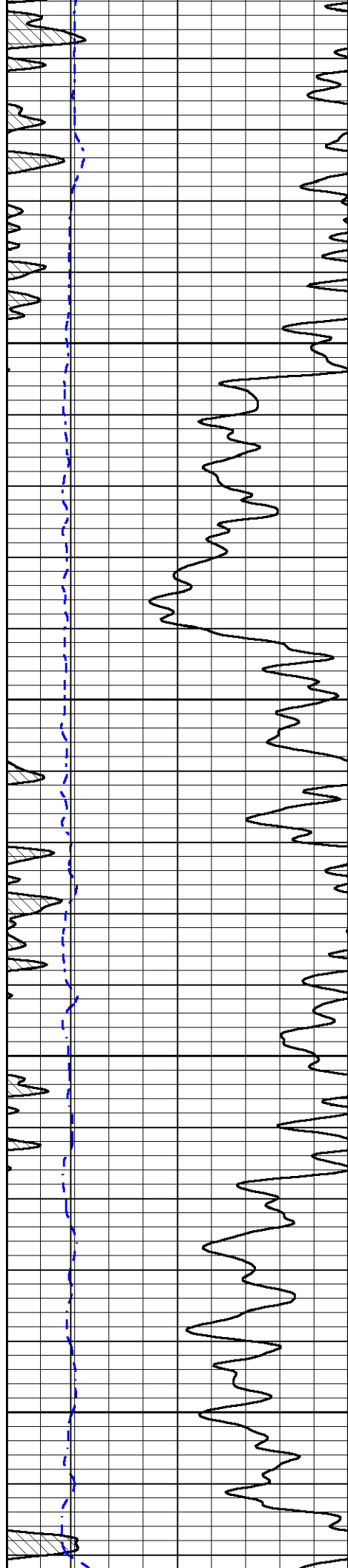
0	Gamma Ray (GAPI)	150	Sonic Int	140	Delta Time (usec/ft) (usec/ft)	40
150	GR (GAPI)	300	5 (msec) 0	30	Sonic Porosity (pu)	-10
6	DCAL (in)	16		15000	LTEN (lb) (lb)	0

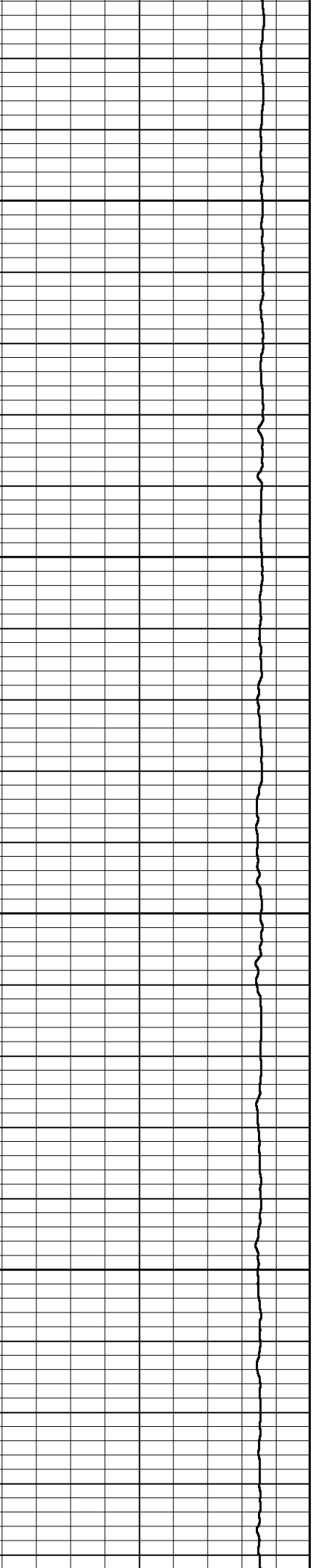
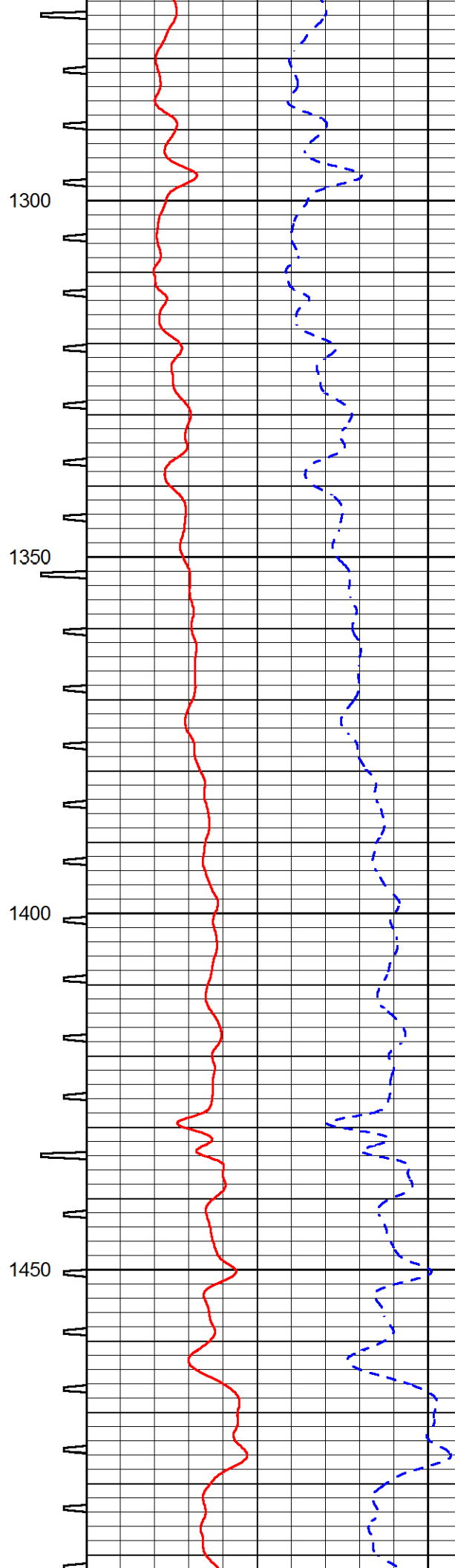
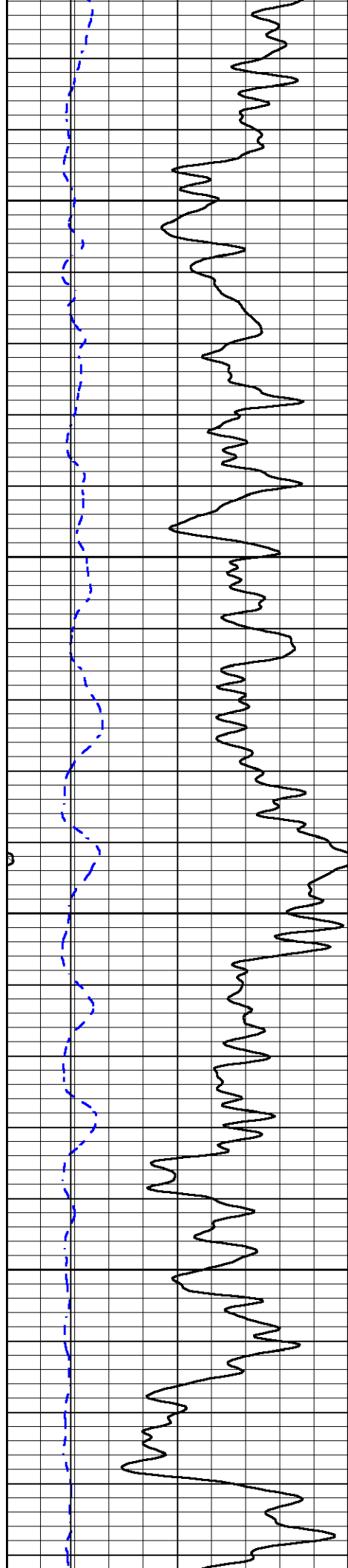


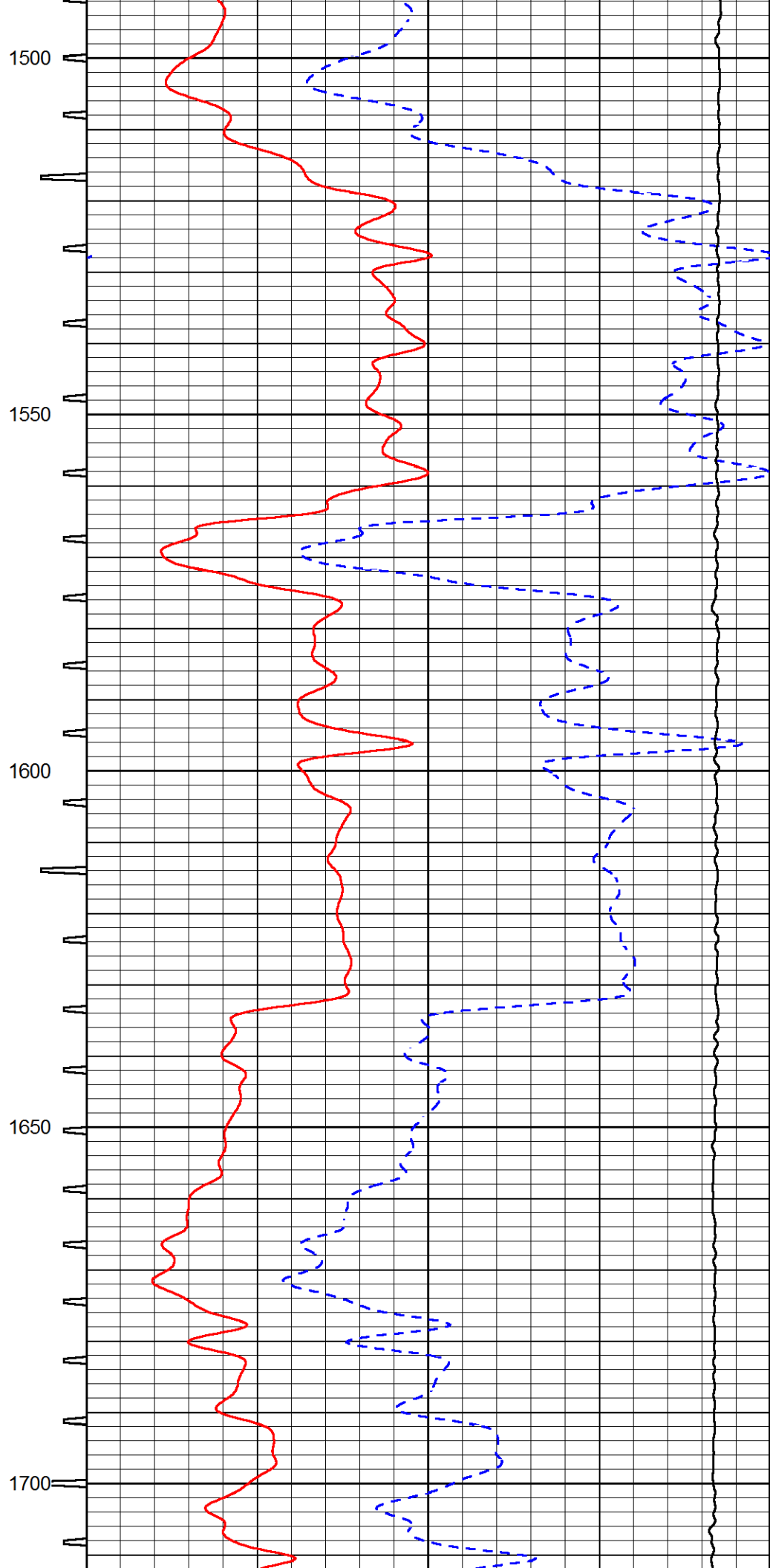
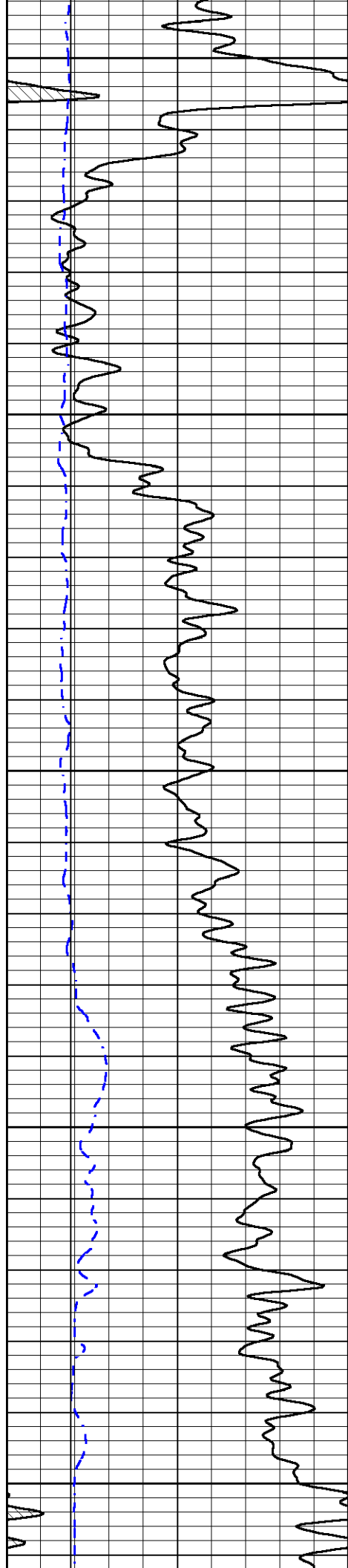


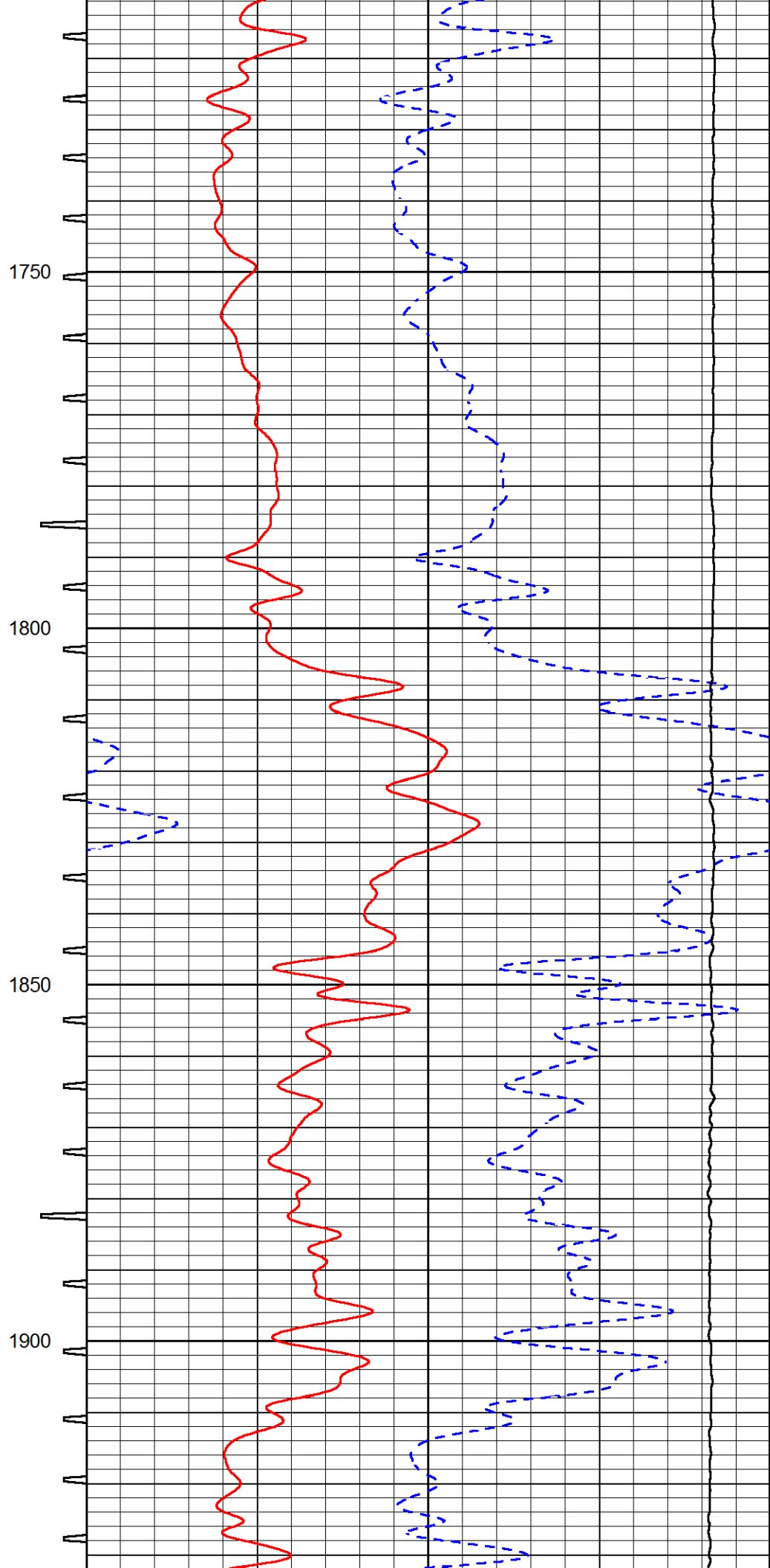
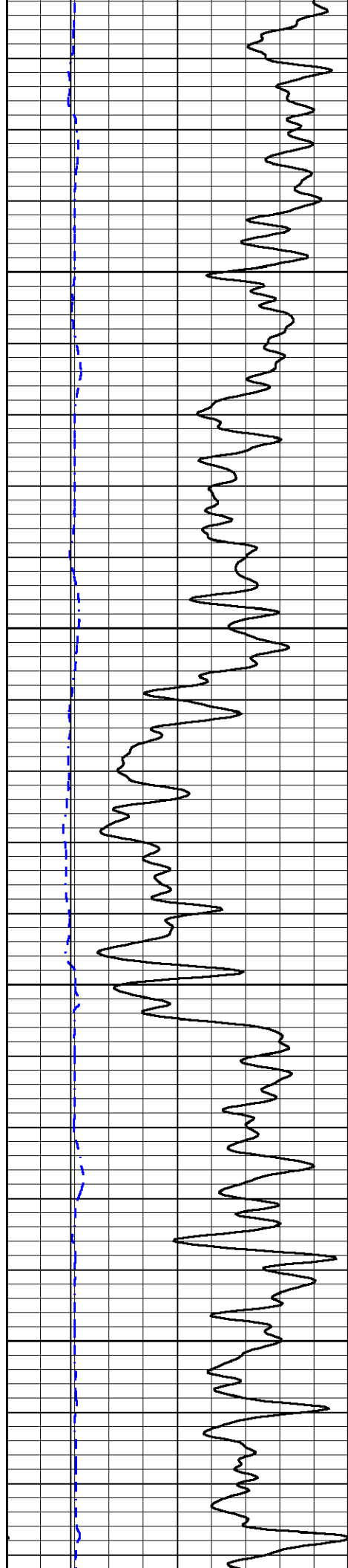


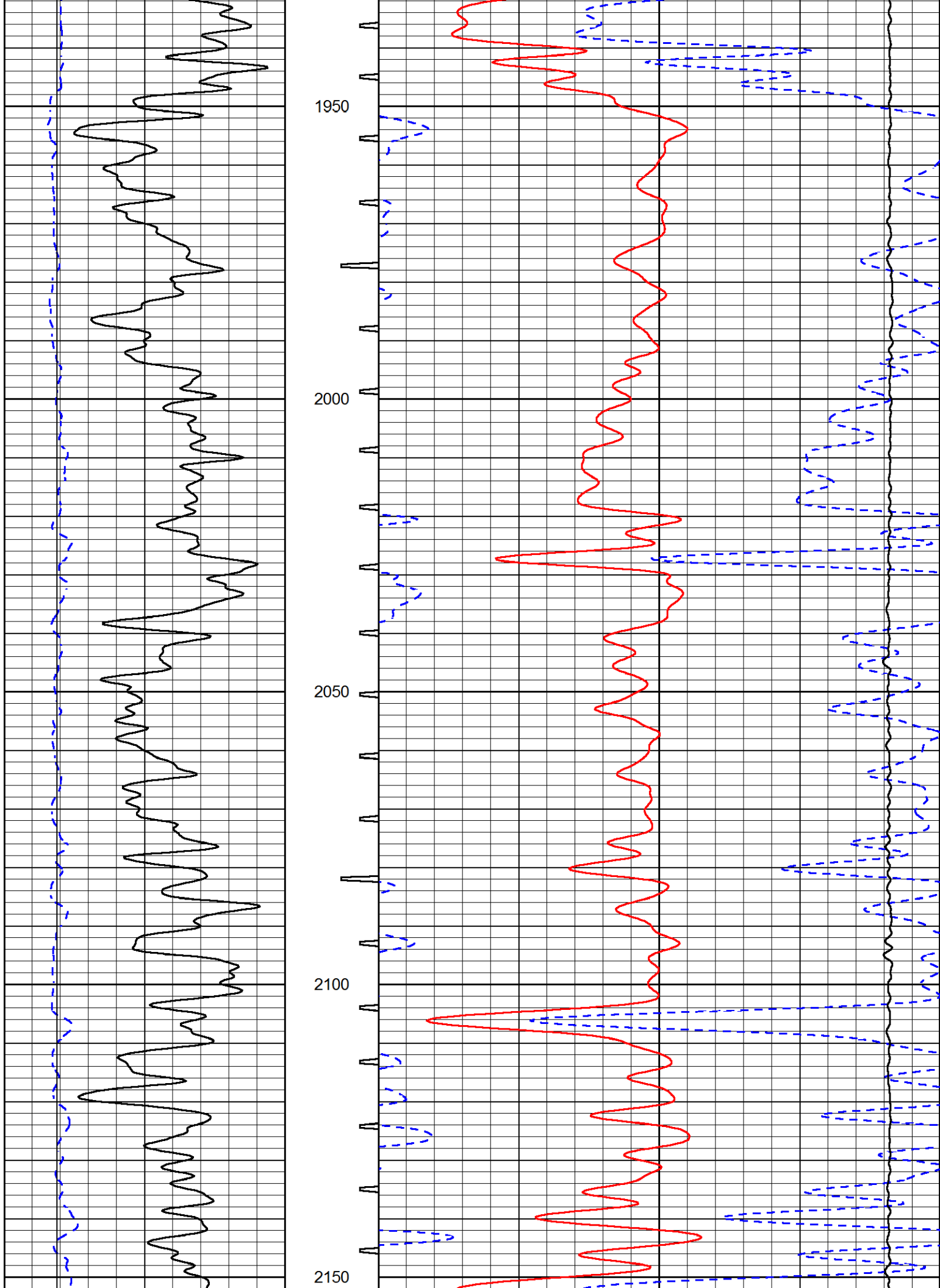


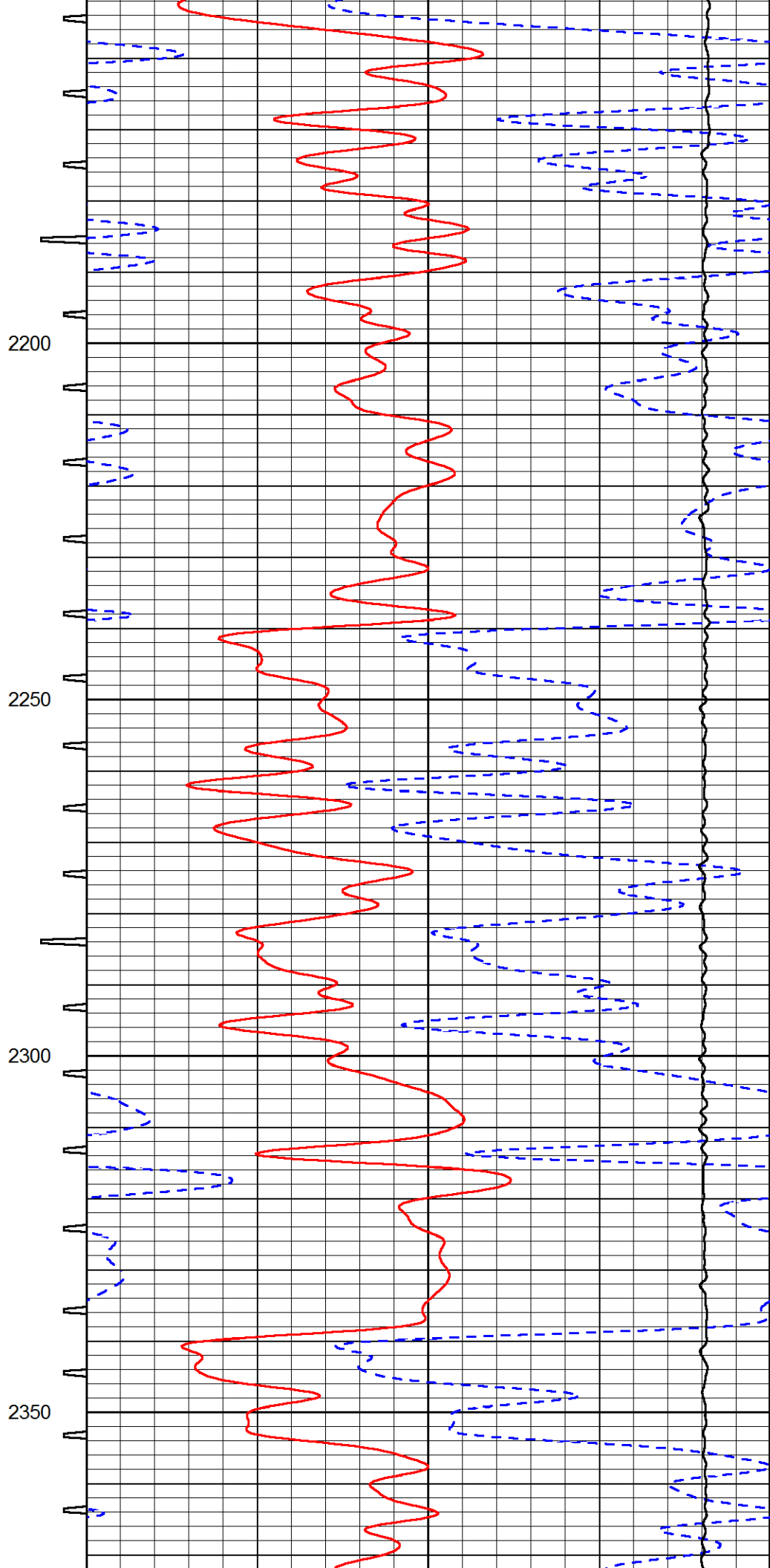
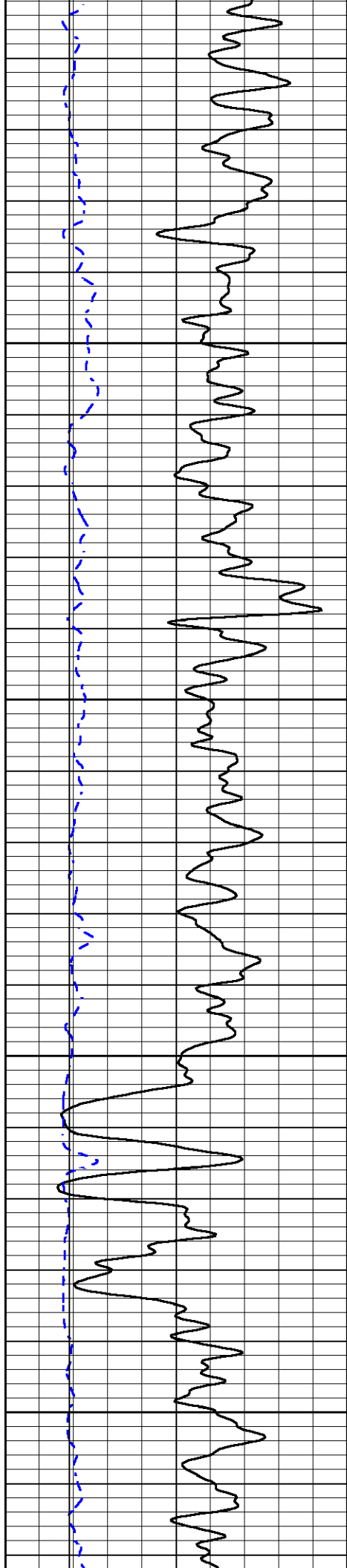


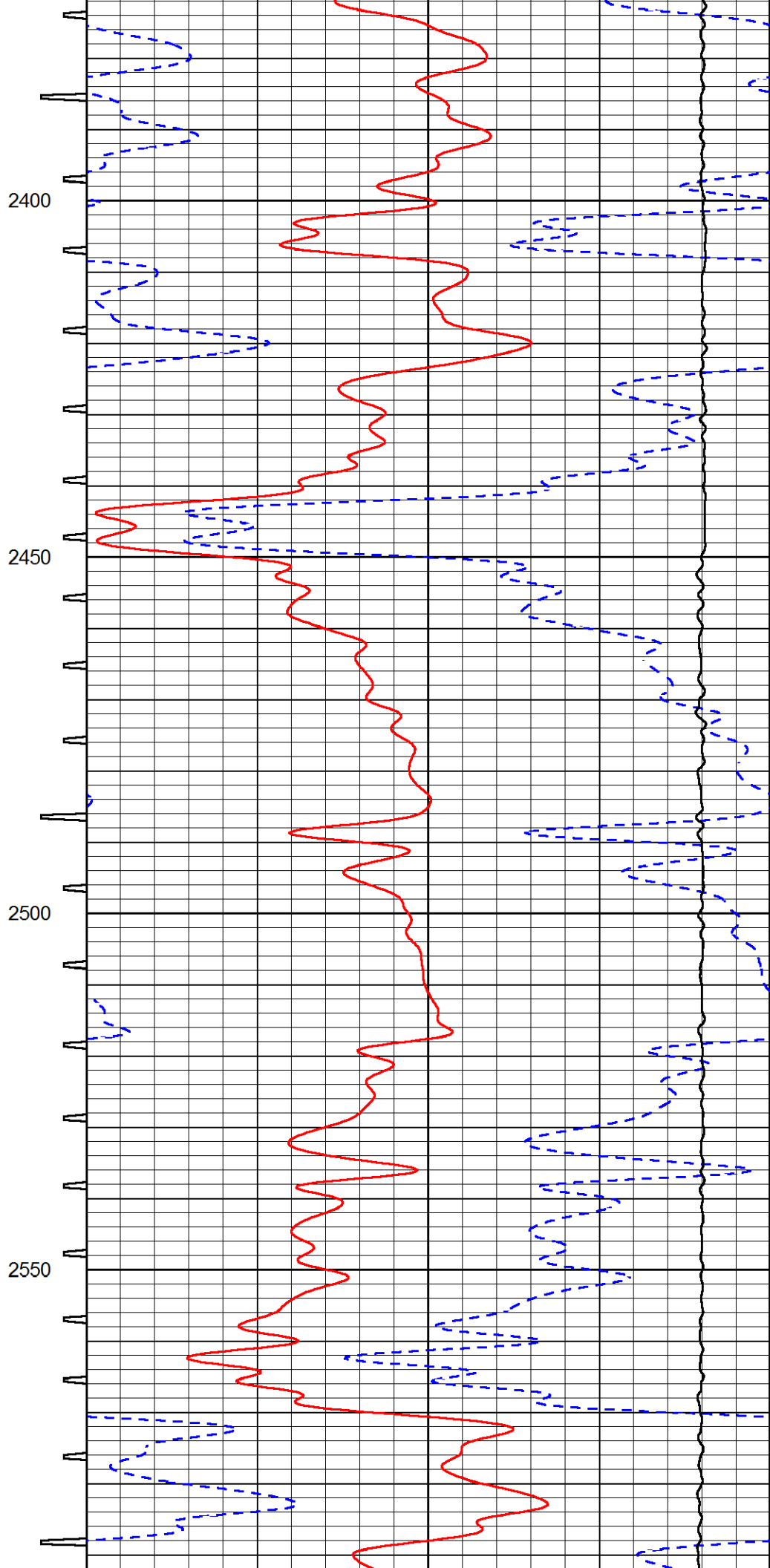
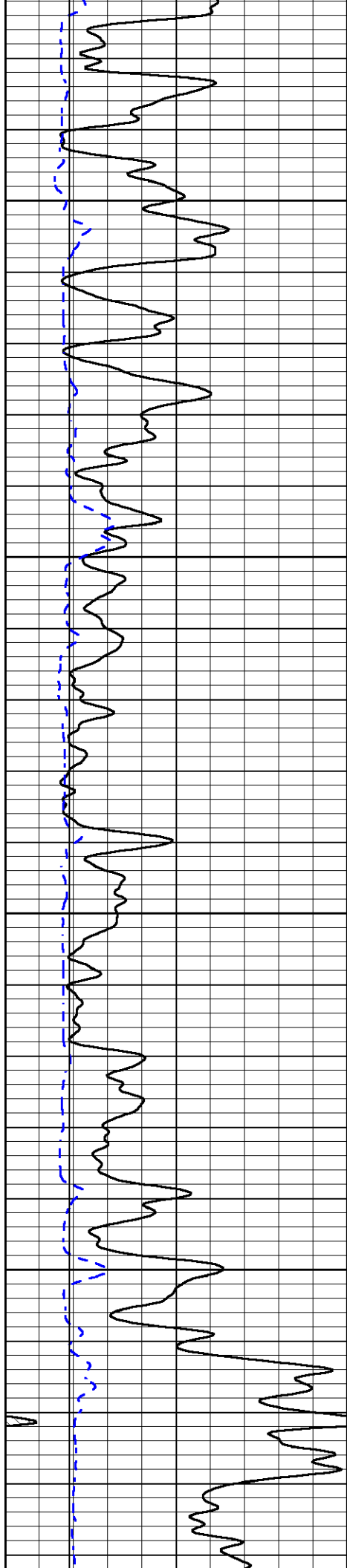


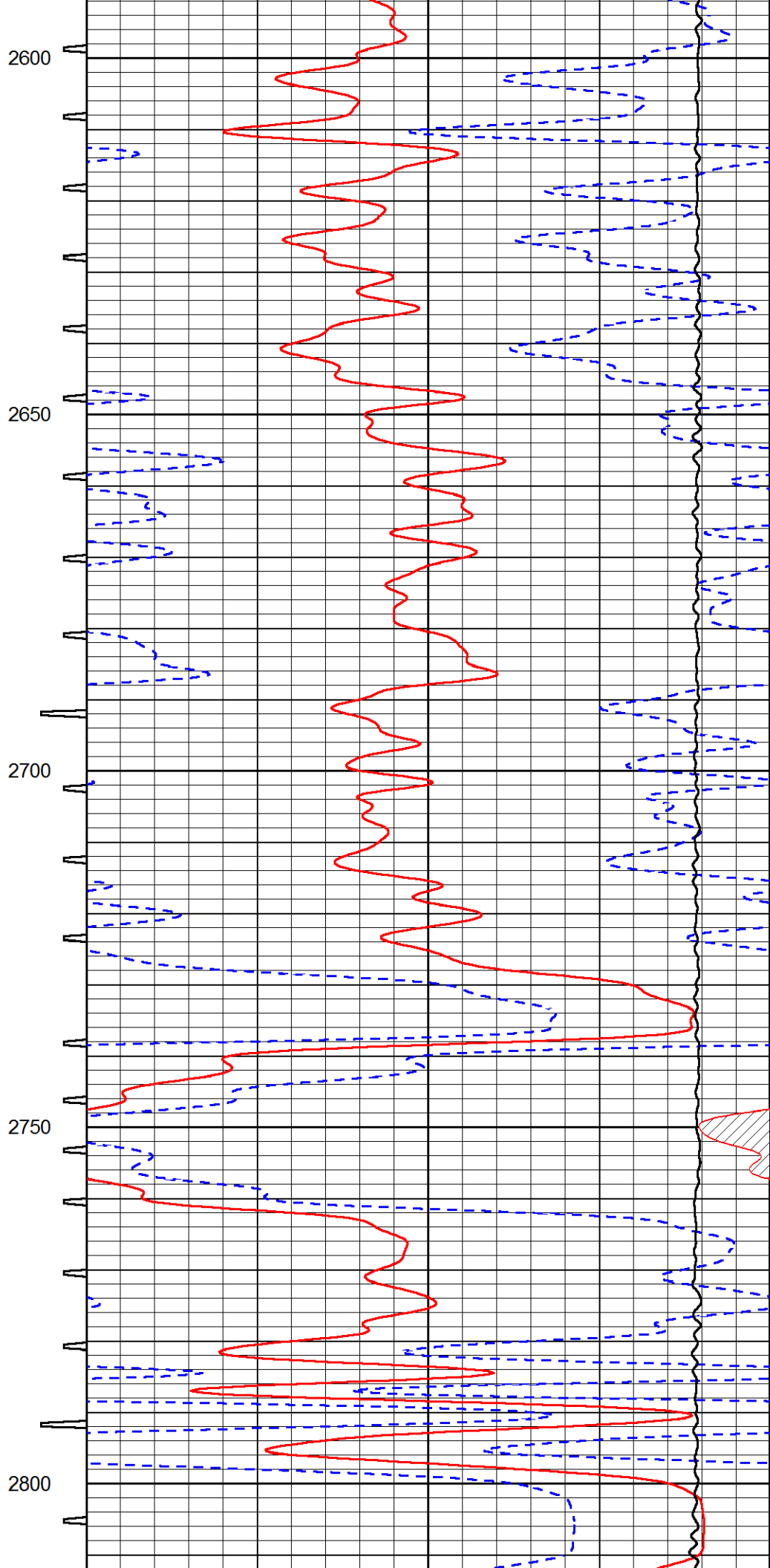
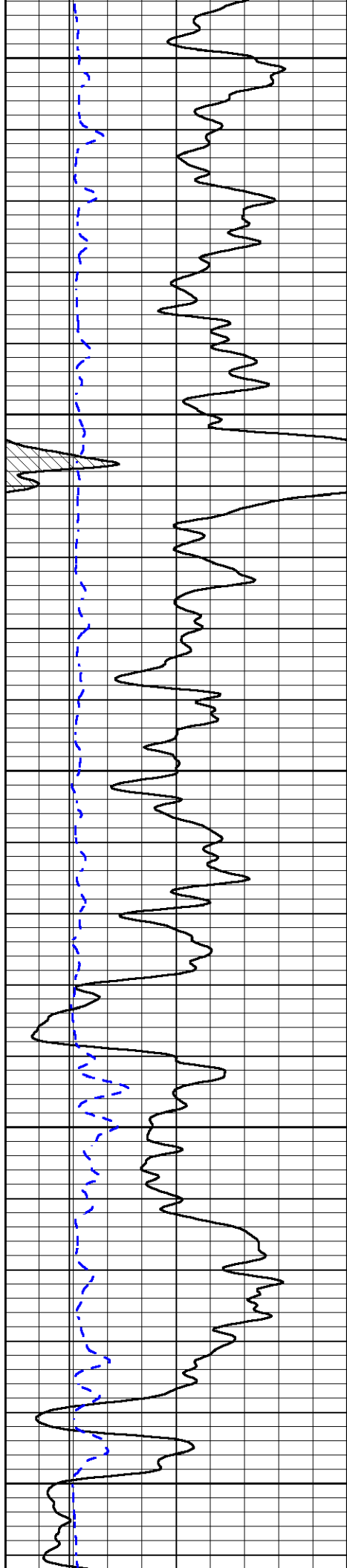


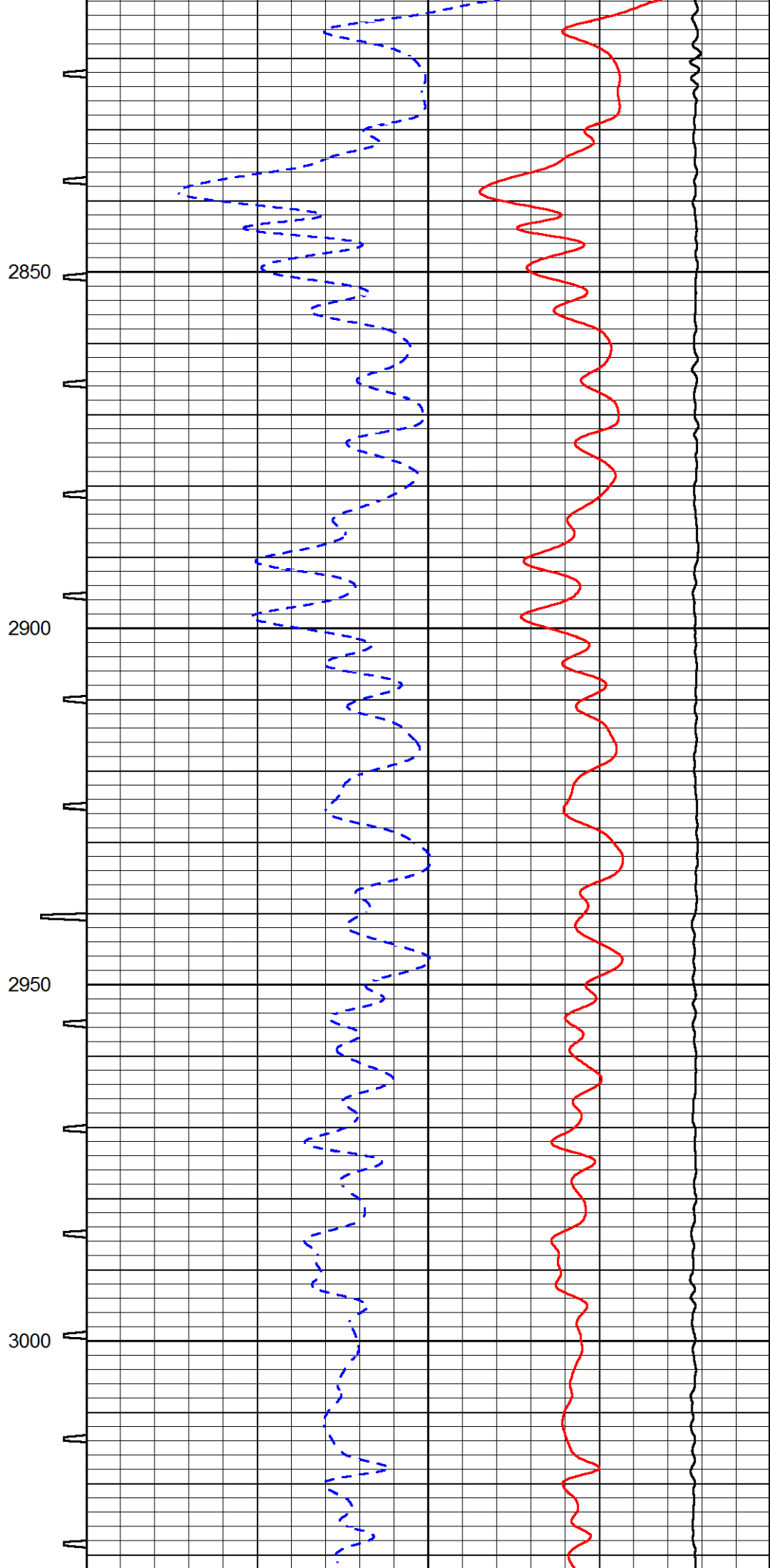
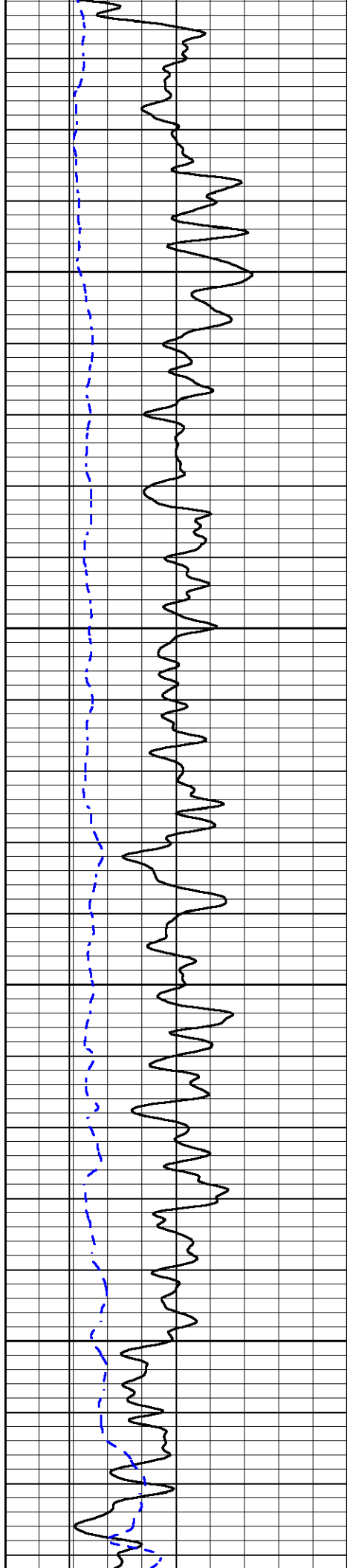


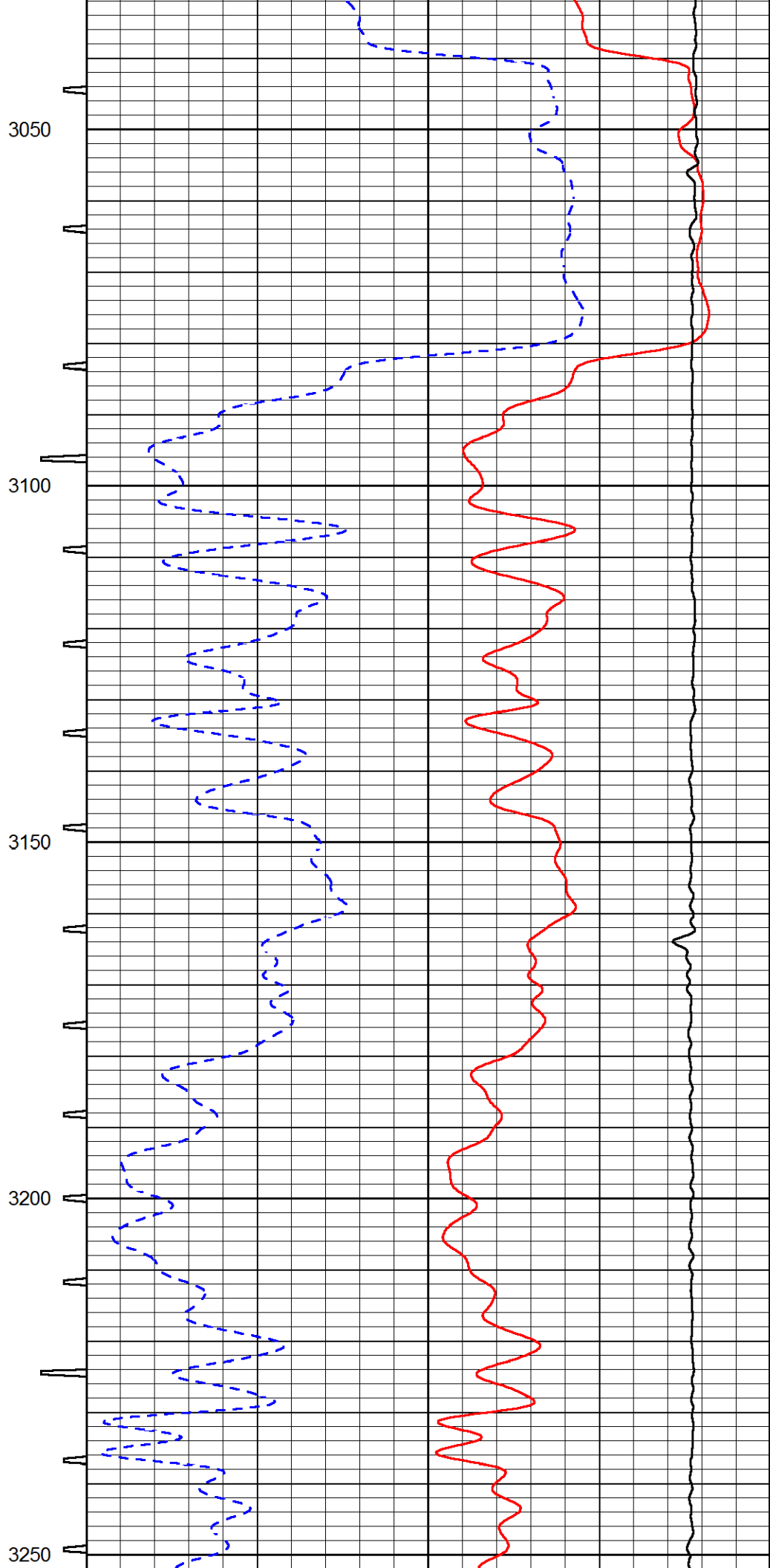
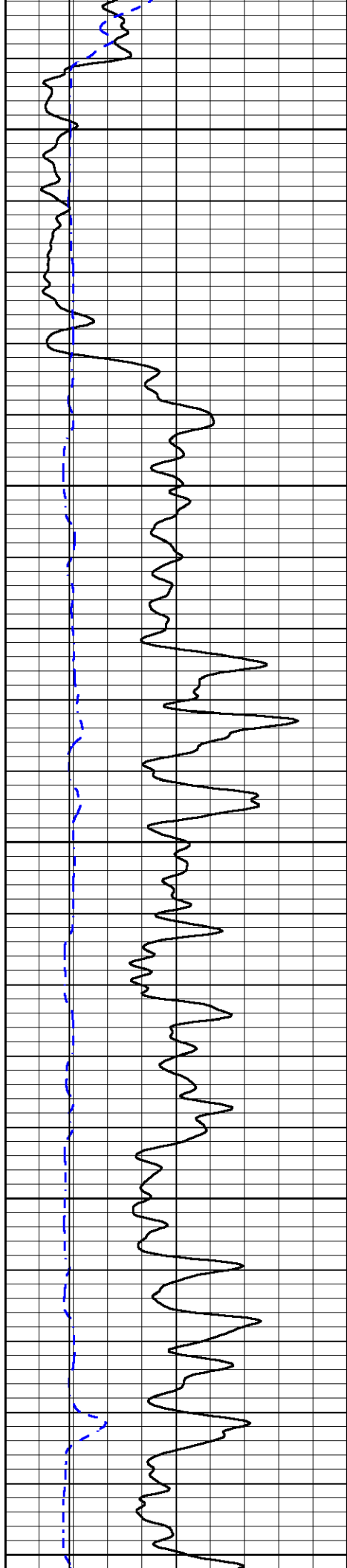


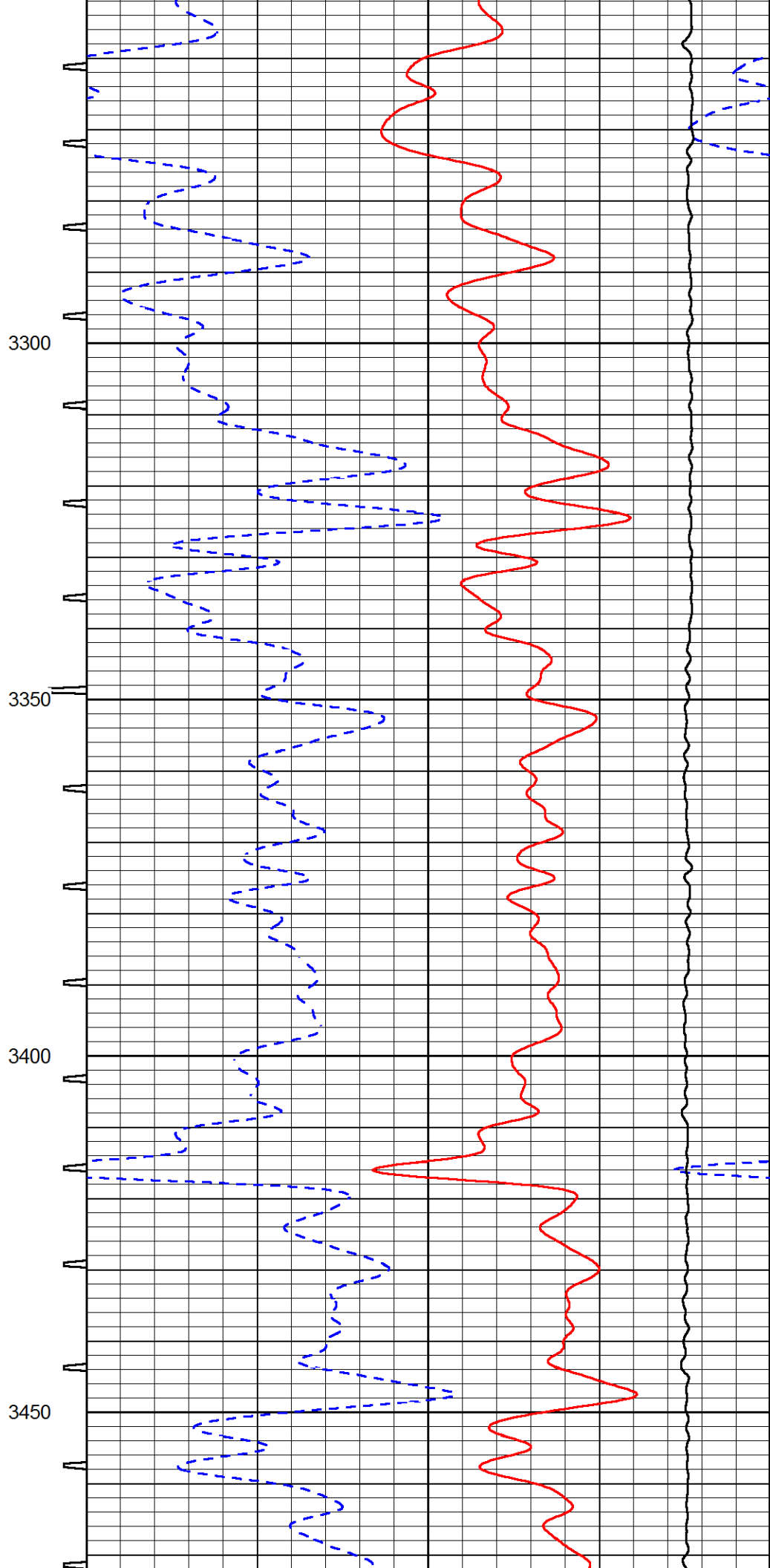
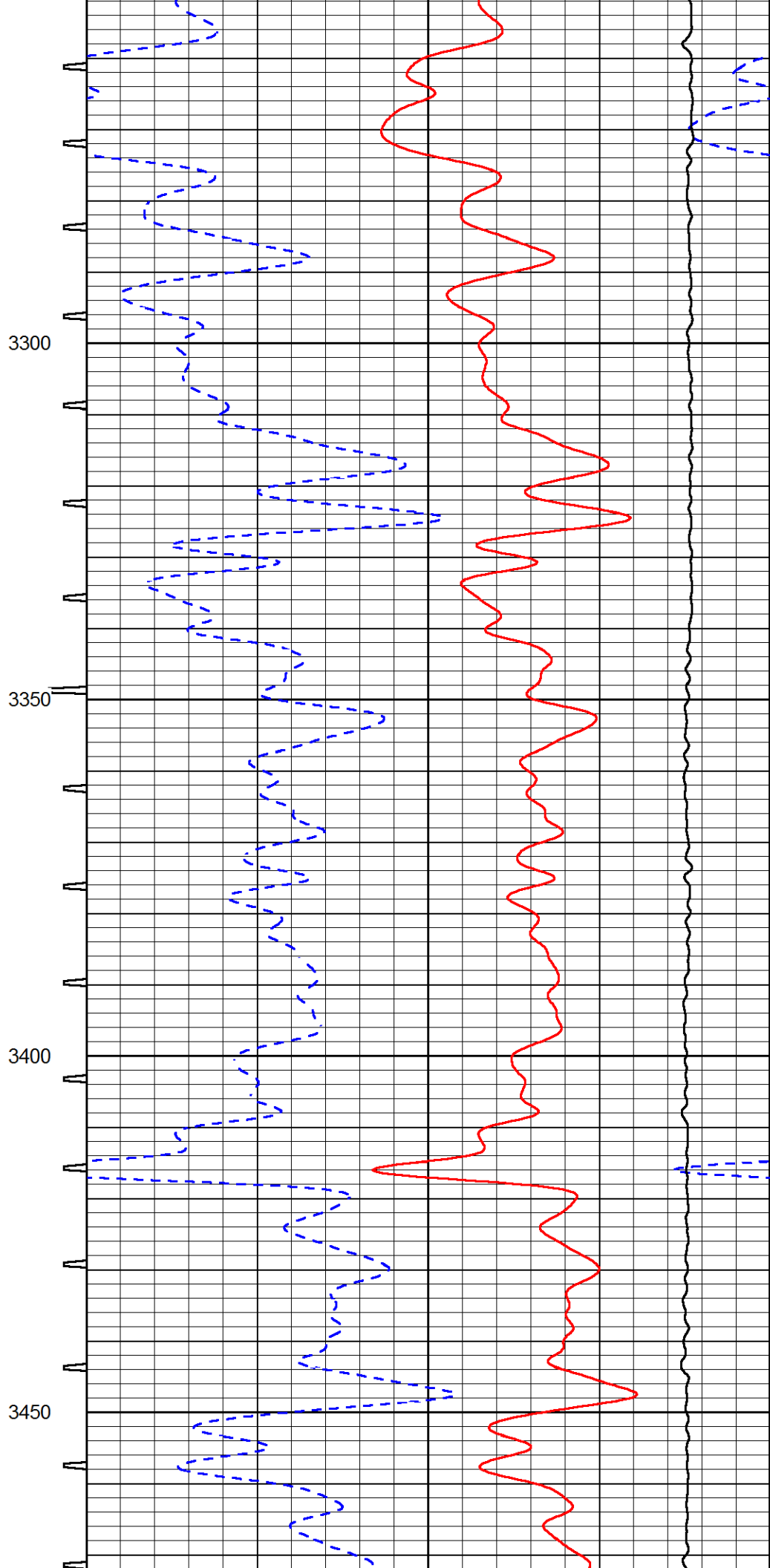
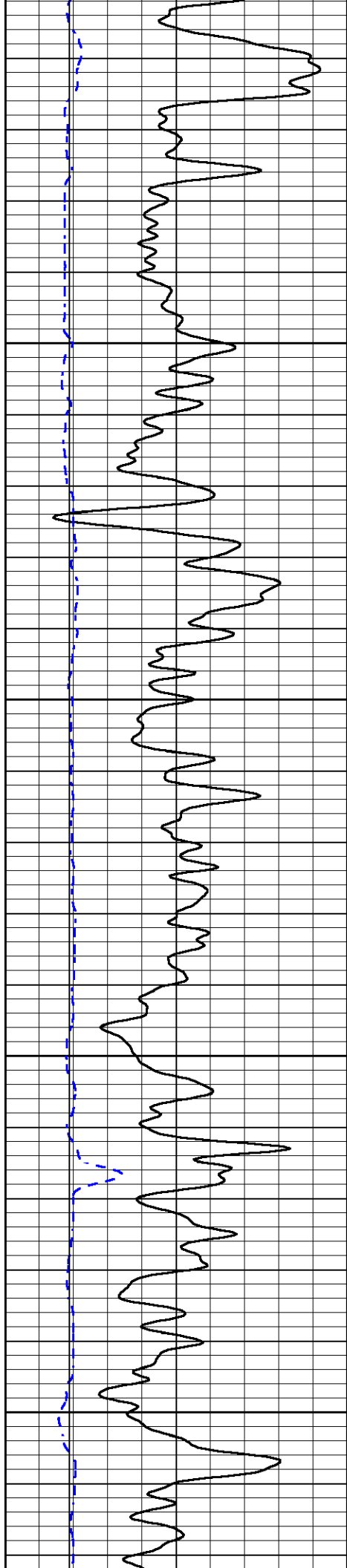


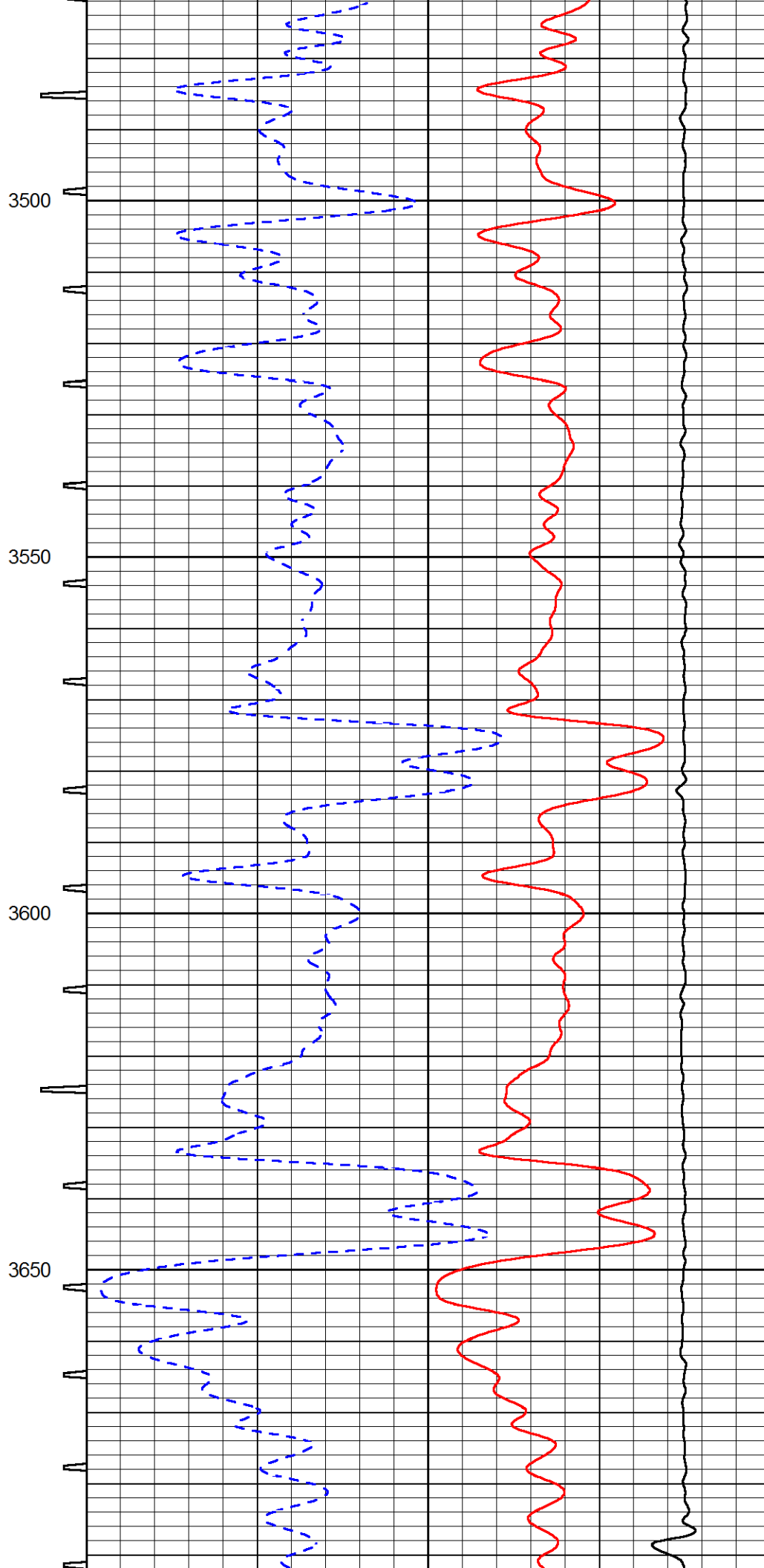
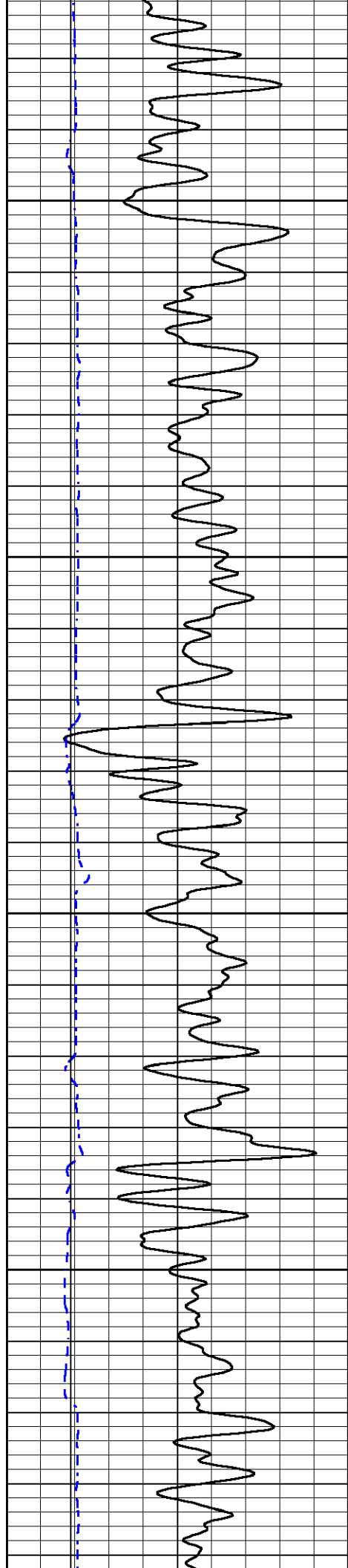


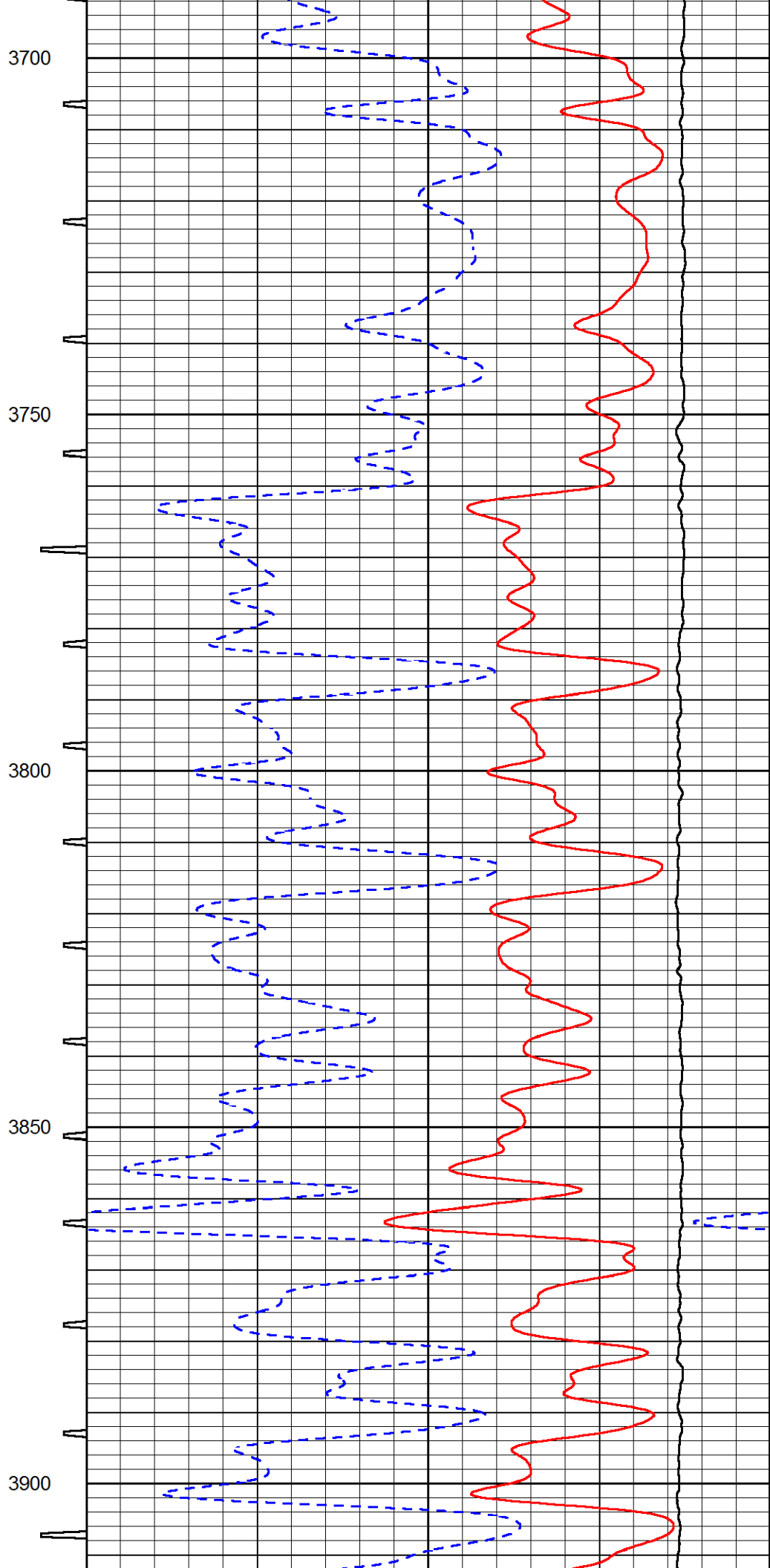
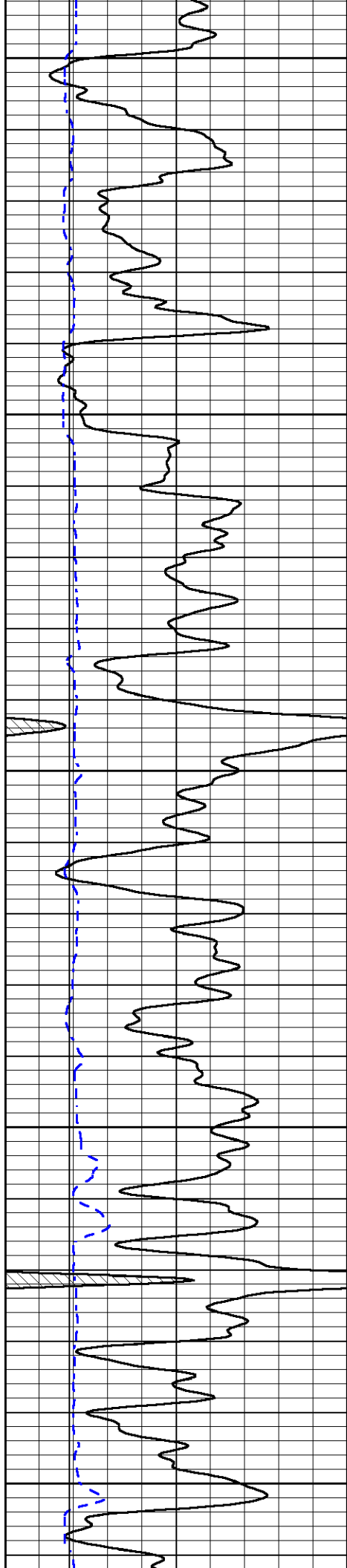


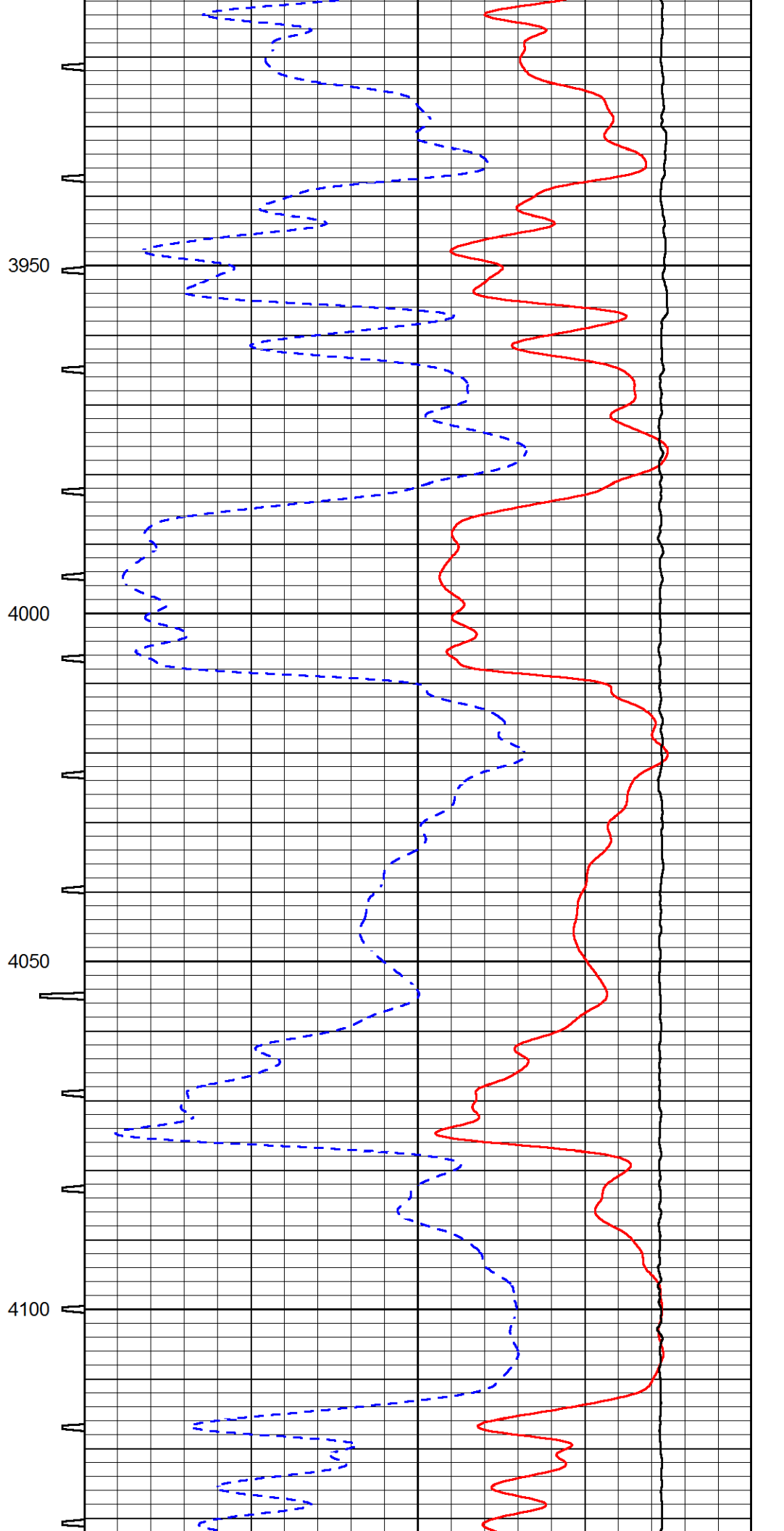
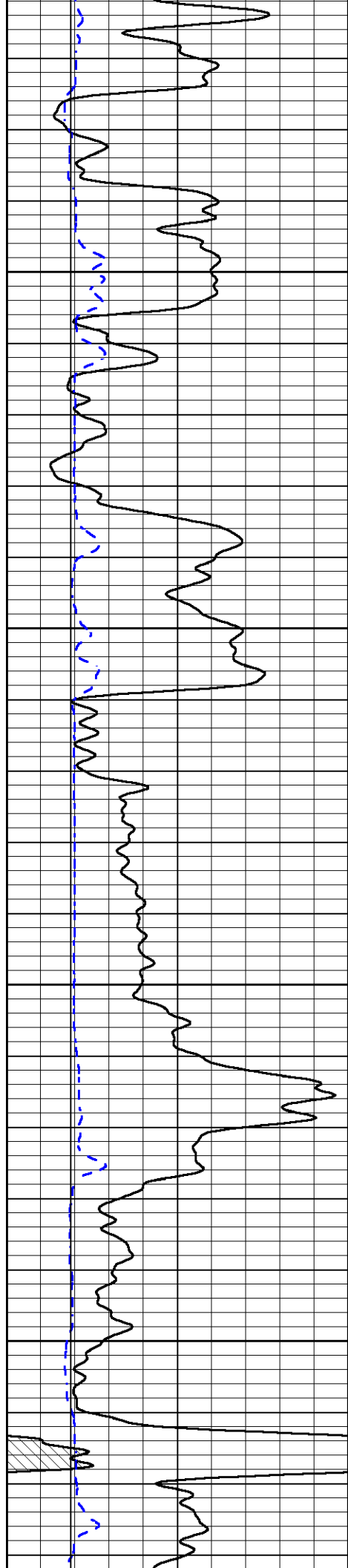


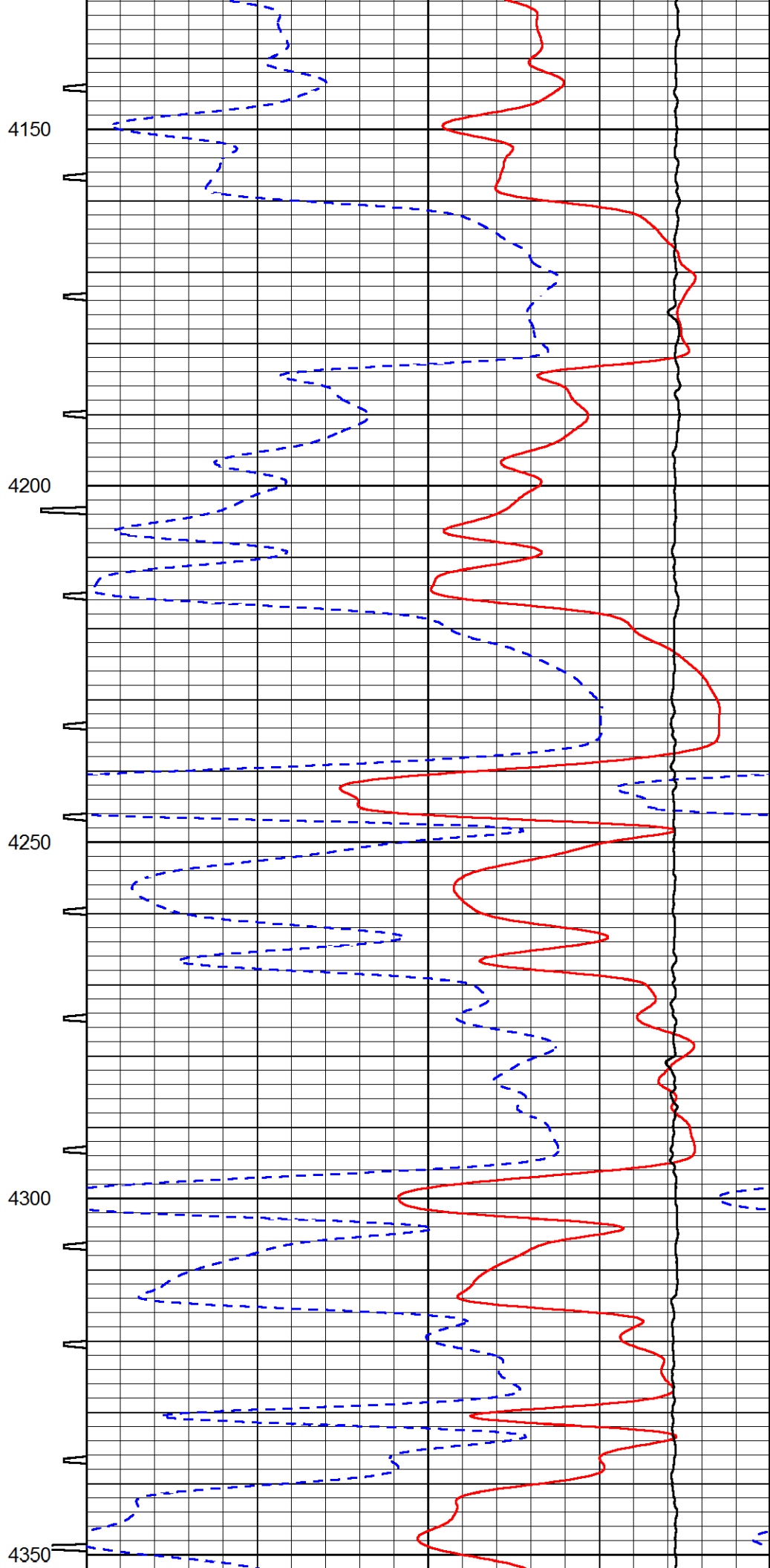
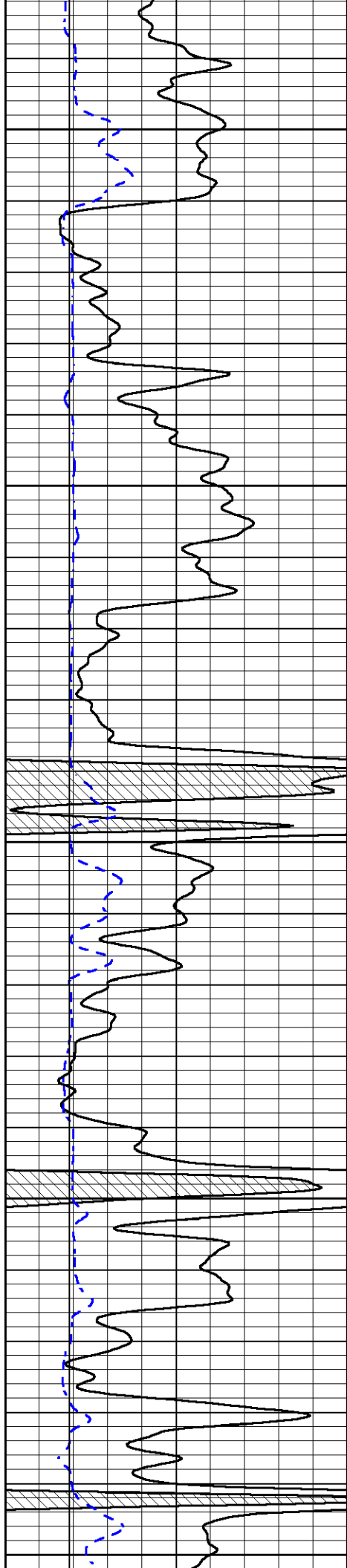












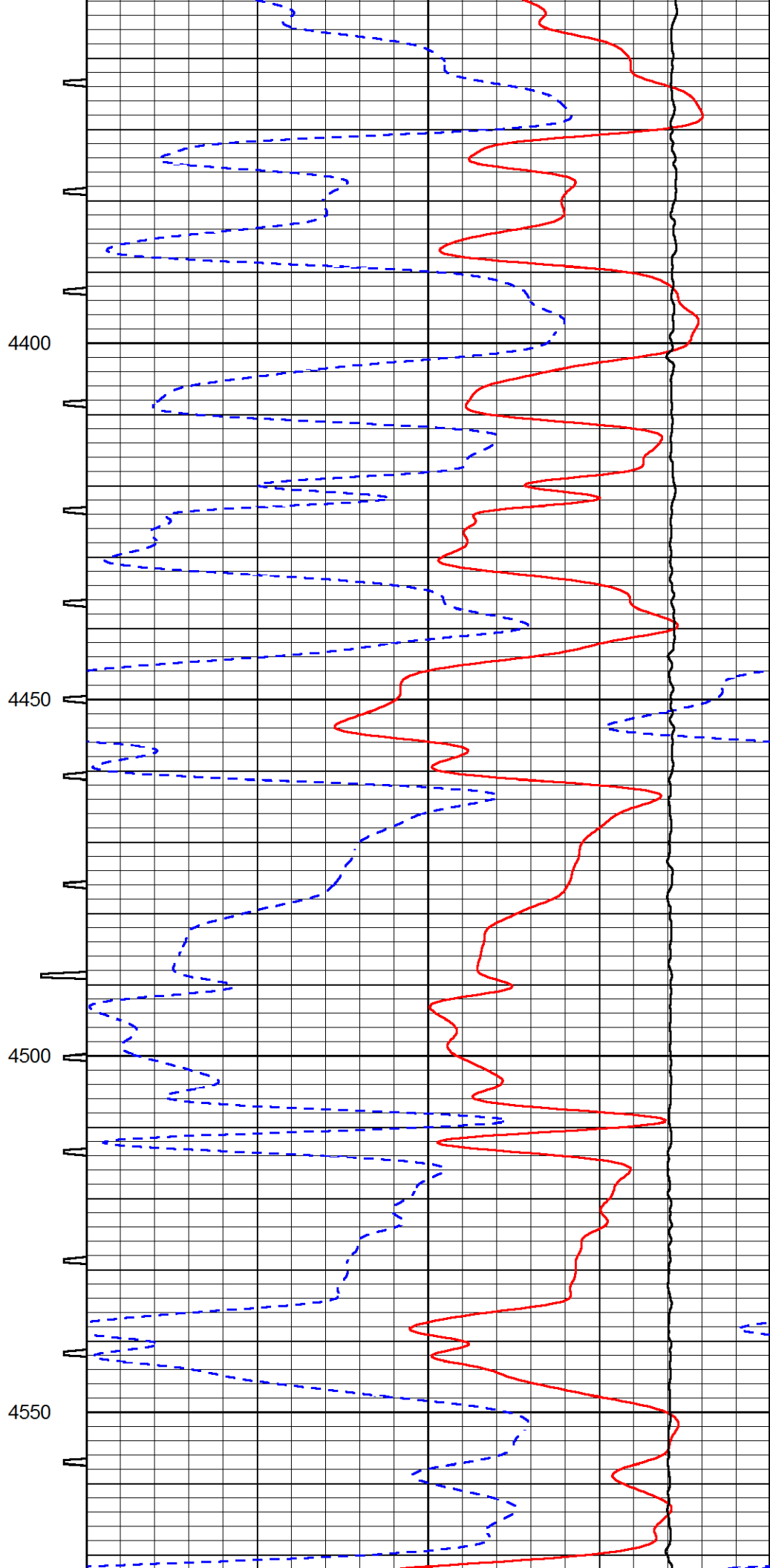
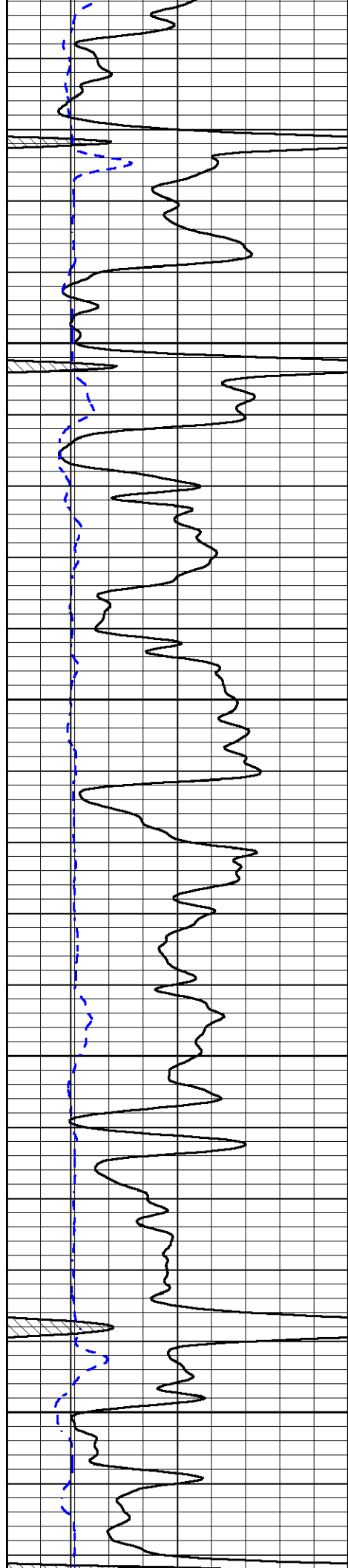
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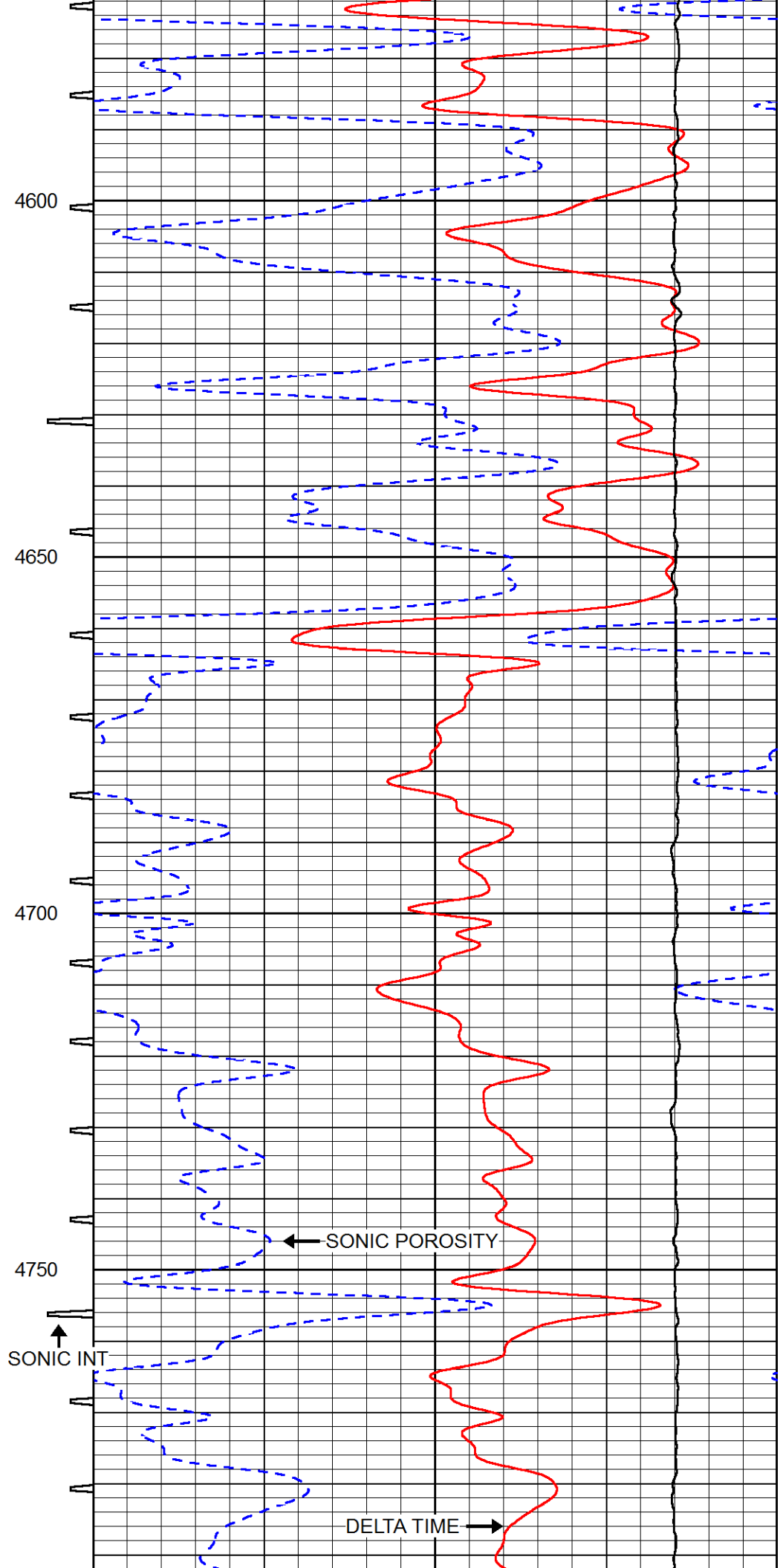
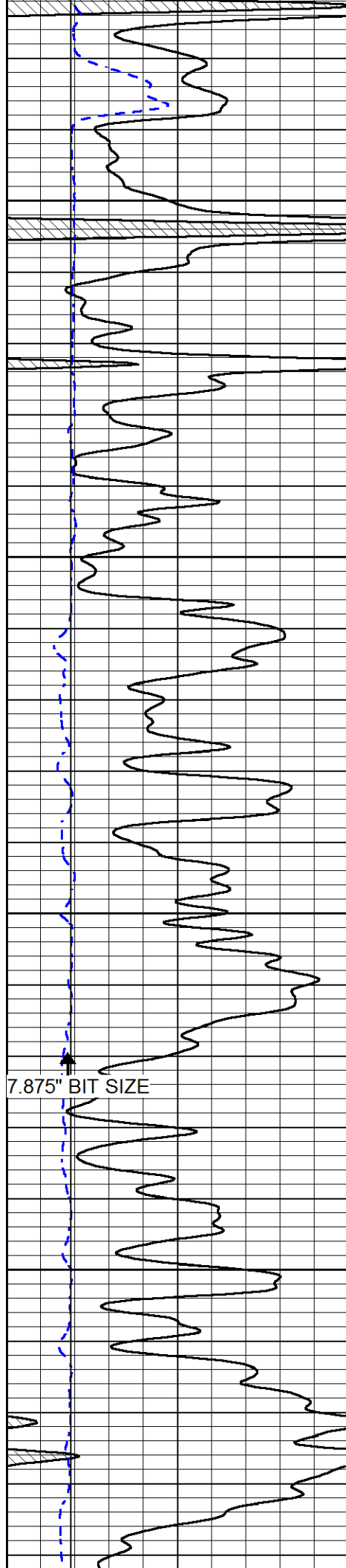
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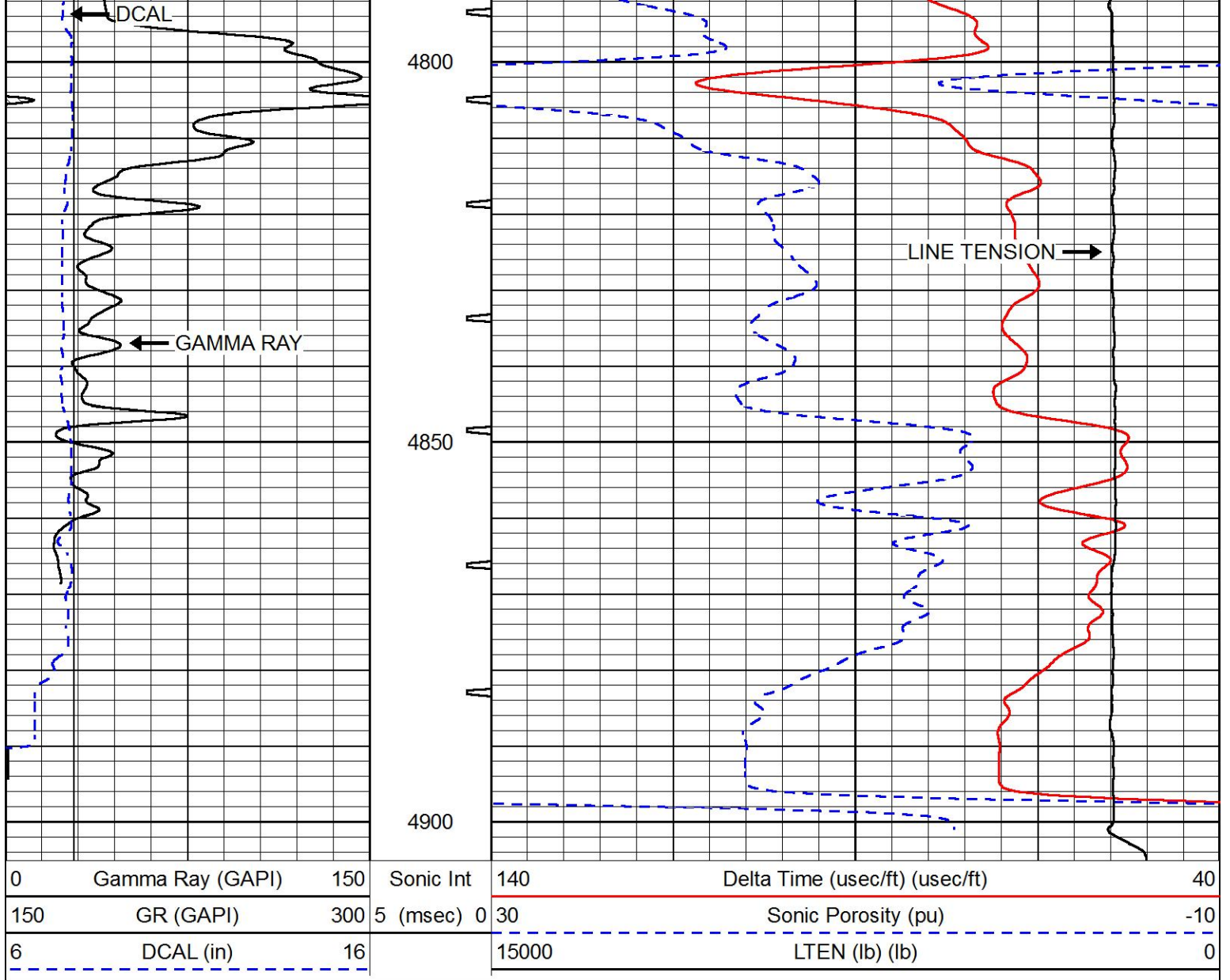
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4300

4350



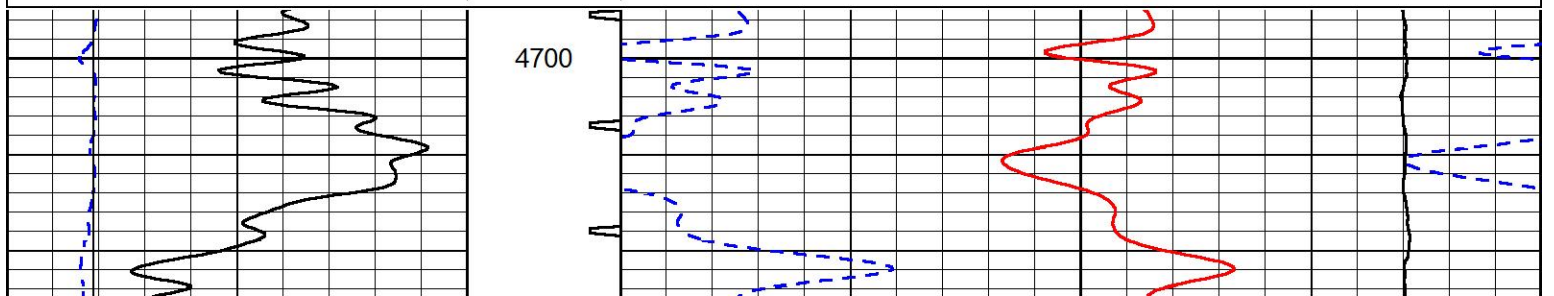


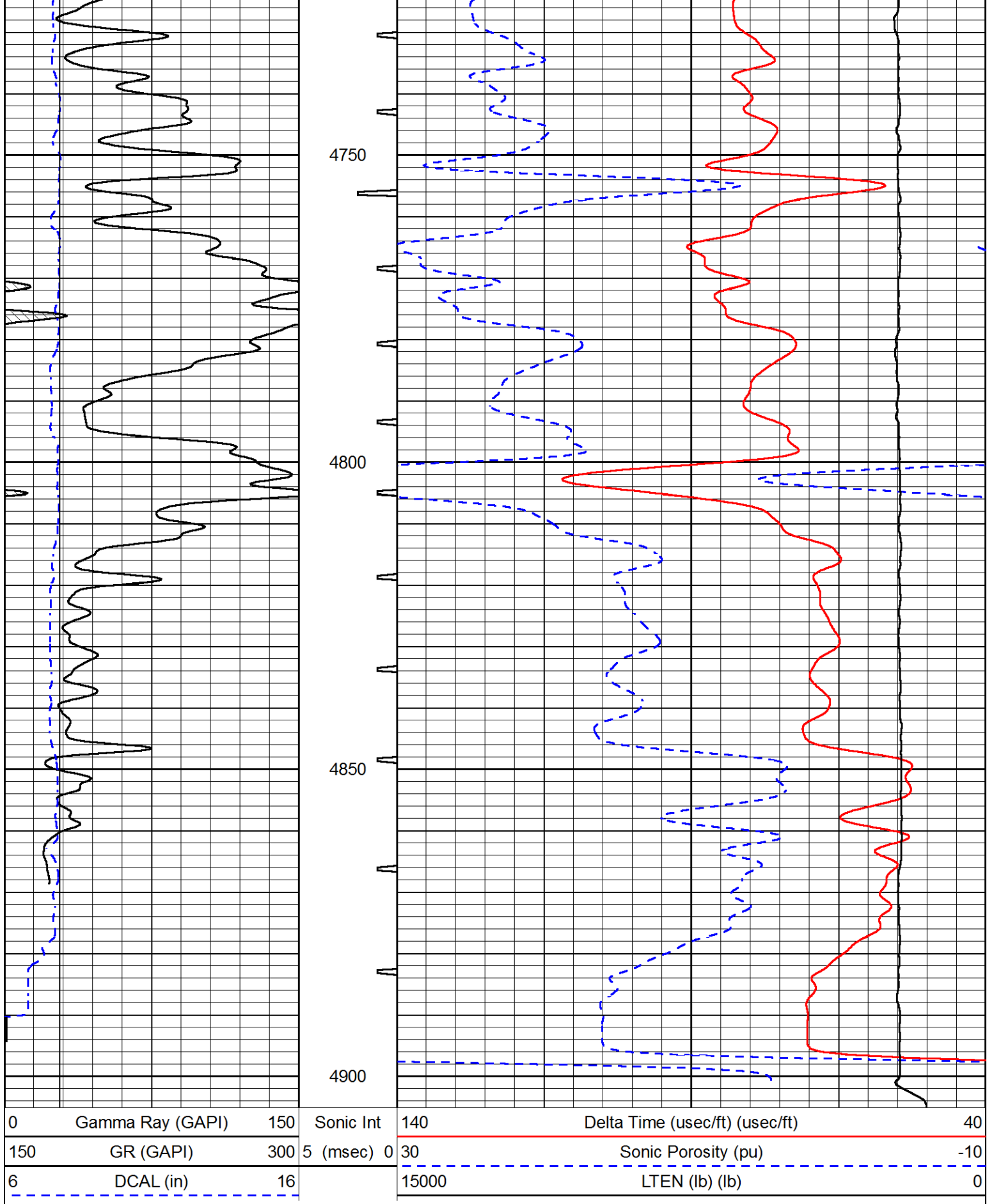



REPEAT SECTION

Database File: murfin_cwa_e 1-17.db
 Dataset Pathname: stkml/pass2.1
 Presentation Format: sonic
 Dataset Creation: Wed Sep 20 18:14:44 2017
 Charted by: Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150	Sonic Int	140	Delta Time (usec/ft) (usec/ft)	40
150	GR (GAPI)	300	5 (msec) 0	30	Sonic Porosity (pu)	-10
6	DCAL (in)	16		15000	LTEN (lb) (lb)	0





Calibration Report

Database File murfin_cwa_e 1-17.db
 Dataset Pathname stkml/pass6.1
 Dataset Creation Wed Sep 20 19:06:53 2017

Dual Induction Calibration Report

Serial-Model: PSI 91-M&W
 Calibration Performed: Wed Sep 13 22:23:16 2017

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	166.796	835.089	0.000	255.800	mmho/m	0.430	-33.000
Medium	142.009	1348.560	0.000	255.800	mmho/m	0.360	-29.500

Microlog Calibration Report

Serial-Model: PSI-01-PSIML
 Performed: Wed Sep 06 19:50:56 2017

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	38000.0000	-1.2000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	41000.0000	-0.3000
Caliper	1.0001	1.1397	6.5000	18.5000	in	100.0000	-97.1750

Compensated Density Calibration Report

Serial-Model: 90-1031-M&W
 Source / Verifier: 16955B / 2ci
 Master Calibration Performed: Wed Sep 06 19:51:03 2017

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4903.44	6153.79	cps
Aluminum	2.640	g/cc	934.50	4021.31	cps
Spine Angle = 75.61			Density/Spine Ratio = 0.517		
	Size		Reading		
Small Ring	8.00	in	1.84		
Large Ring	22.00	in	1.46		

Compensated Neutron Calibration Report

Serial Number: 207-MW
 Tool Model: M&W
 Calibration Performed: WED SEP 6 10:30:30 2017

Detector	Readings	Target	Normalization
Short Space	6240.00 cps	1000.00 cps	1.6025
Long Space	460.00 cps	1000.00 cps	1.9500

Gamma Ray Calibration Report

Serial Number: 89
 Tool Model: M&W
 Calibration Performed: Wed Sep 06 19:51:14 2017

Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6000	GAPI/cps



PIONEER
Pioneer Energy Services

Company	MURFIN DRILLING COMPANY, INC
Well	CWA 'E' #1-17
Field	WILDCAT
County	RAWLINS
State	KANSAS