



PIONEER

Pioneer Energy Services

BOREHOLE COMPENSATED SONIC LOG

Company MURFIN DRILLING COMPANY, INC.

Well KOPRIVA #1-14

Field WILDCAT

County RAWLINS

State KANSAS

Company MURFIN DRILLING COMPANY, INC.

Well KOPRIVA #1-14

Field WILDCAT

County RAWLINS State KANSAS

Location: API #: 15-153-21191-00-00

1320' FNL & 1980' FWL

Other Services
CNL/CDL
DIL/MEL

SEC 14 TWP 2S RGE 35W

Permanent Datum GROUND LEVEL Elevation 3196'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 3201'
D.F. N/A
G.L. 3196'

Date 6/18/2017

Run Number TWO

Type Log BHCS

Depth Driller 4855'

Depth Logger 4856'

Bottom Logged Interval 4844'

Top Logged Interval 250'

Type Fluid In Hole CHEMICAL

Salinity, PPM CL 1800

Density 9.0

Level FULL

Max. Rec. Temp. F 125

Operating Rig Time 5 HOURS

Equipment -- Location 91 HAYS

Recorded By D. SCHMIDT

Witnessed By ROCKY MILFORD

Borehole Record

Casing Record

Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	0'	253'	8.625"	23#	0'	253'
TWO	7.875"	253'	TD				

<<< Fold Here >>>

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.

BEARDSLEY,
NORTH TO W RD, 1 1/2 EAST,
SOUTH 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

Engineer: D. SCHMIDT
Operator:
Operator:
Operator:

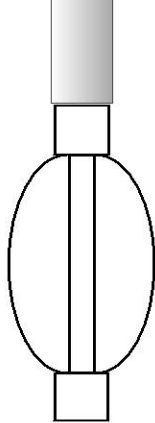
This Log Record Was Witnessed By

Primary Witness: ROCKY MILFORD
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	153	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	80	0	5.5	0	0	125	7.875

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
MCAL MI MN	28.00		ML-Armadillo (ARM001) Pengo Mandrel & Armadillo ML Electronics (2014)	5.50	3.50	100.00
	28.00		CENT-PENGO (4-PENGO)	5.50	3.00	70.00
	28.00		SLT-PENGO (0001)	16.00	3.50	300.00
WVF4 WVF1	13.50 13.50					
WVF3 WVF2	11.50 11.50					



CENT-PENGO (3-PENGO)

5.50

3.00

70.00

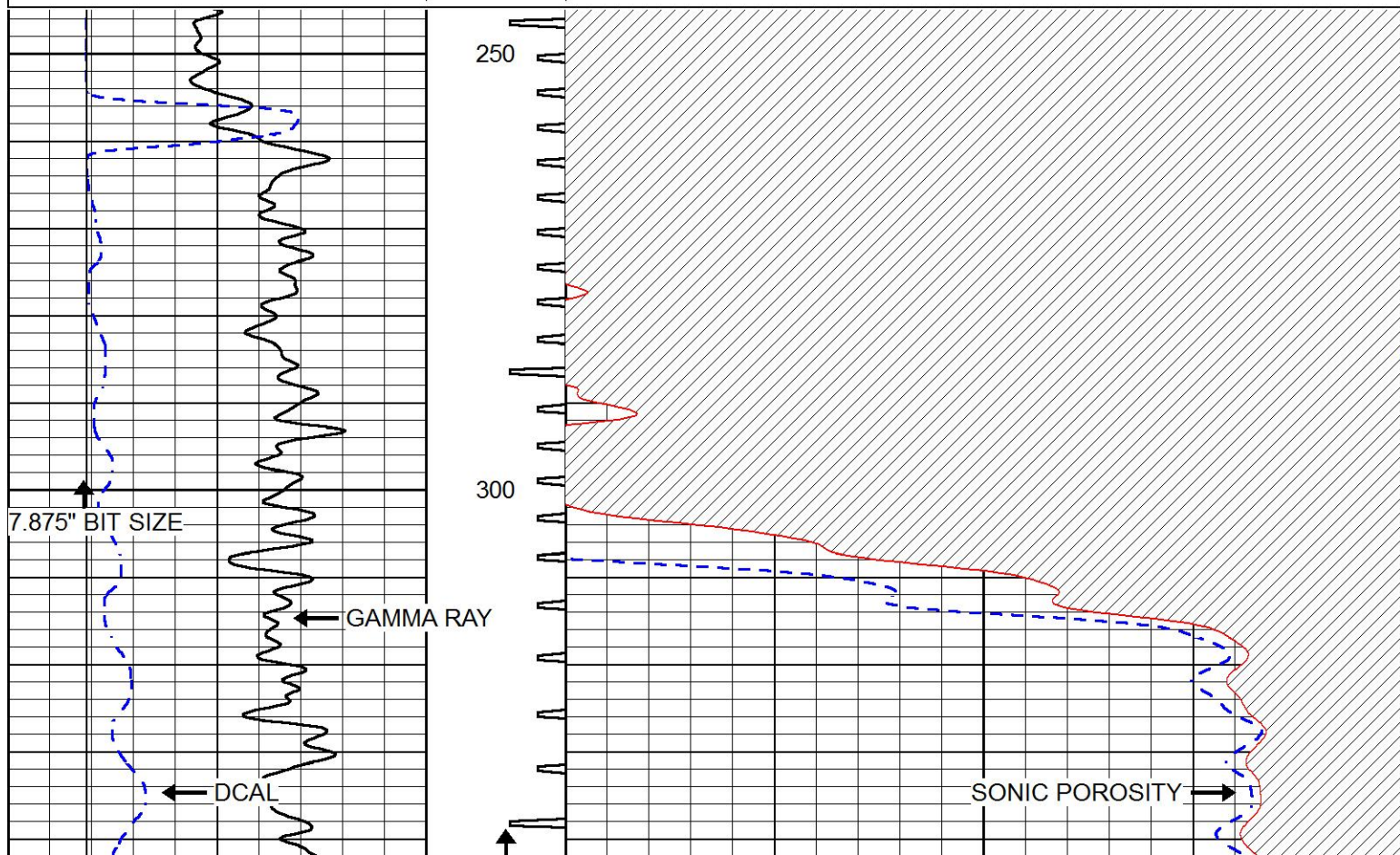
Dataset: murfin_kopriva_1-14.db: field/well/SONMEL/pass3
Total length: 32.50 ft
Total weight: 540.00 lb
O.D.: 3.50 in

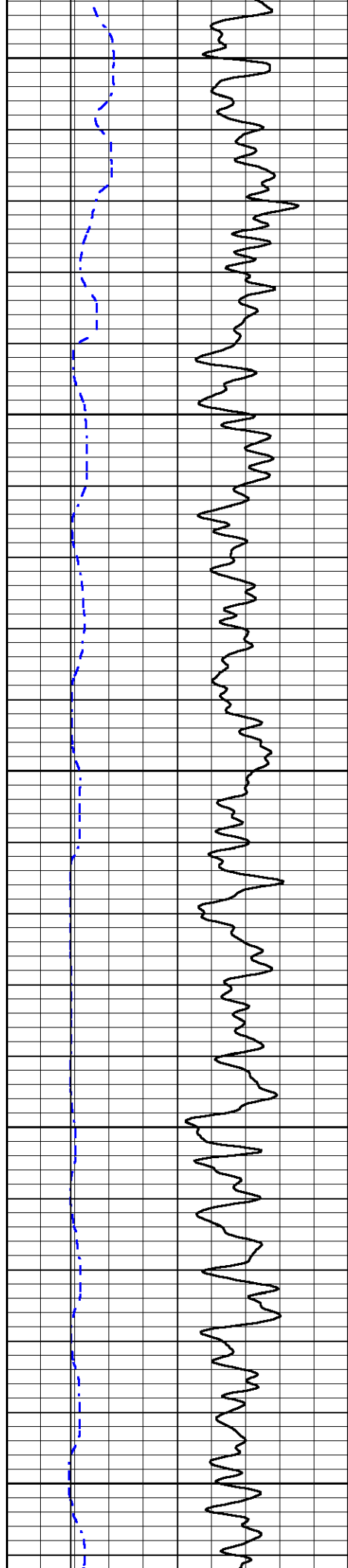


MAIN PASS

Database File murfin_kopriva_1-14.db
Dataset Pathname STACK/pass5.1
Presentation Format sonic
Dataset Creation Mon Jun 19 02:03:15 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





SONIC INT

350

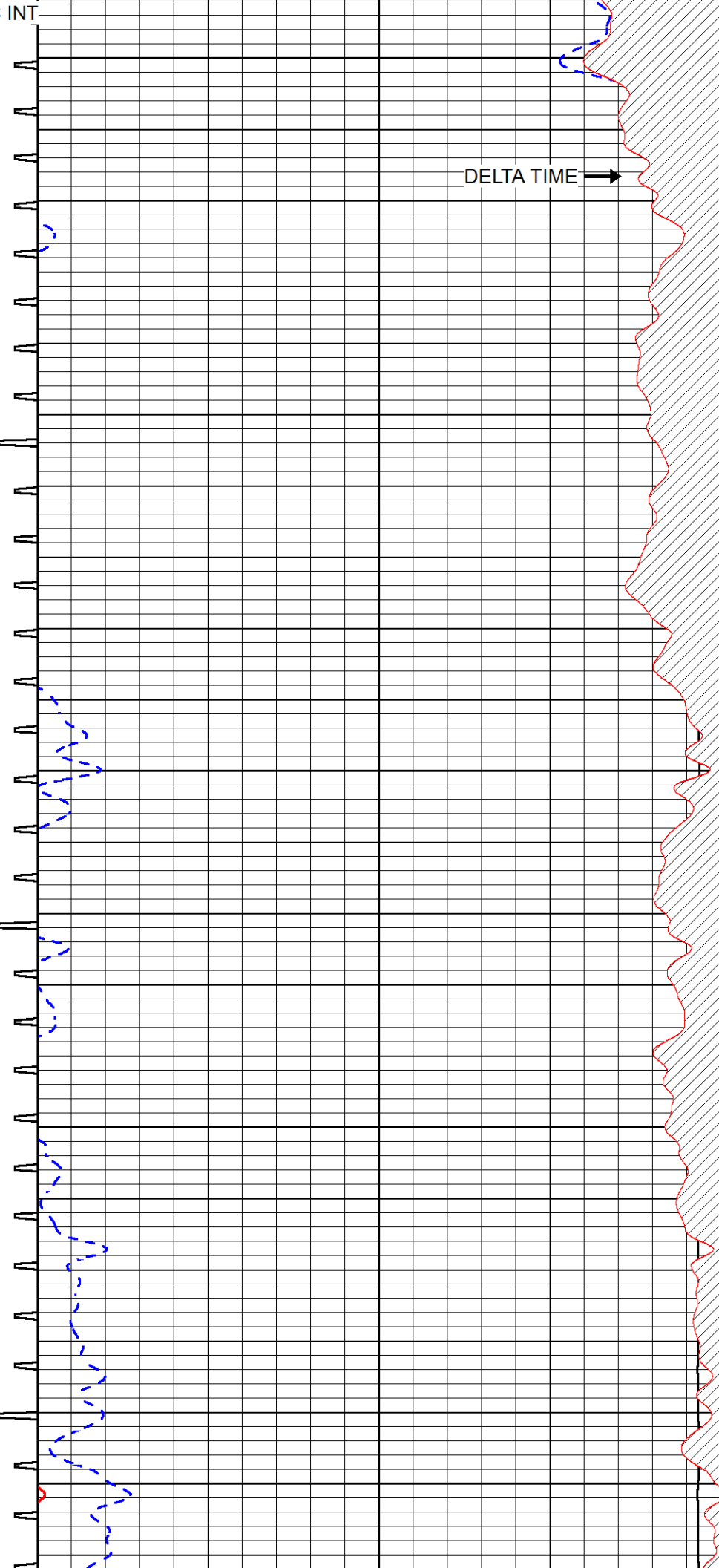
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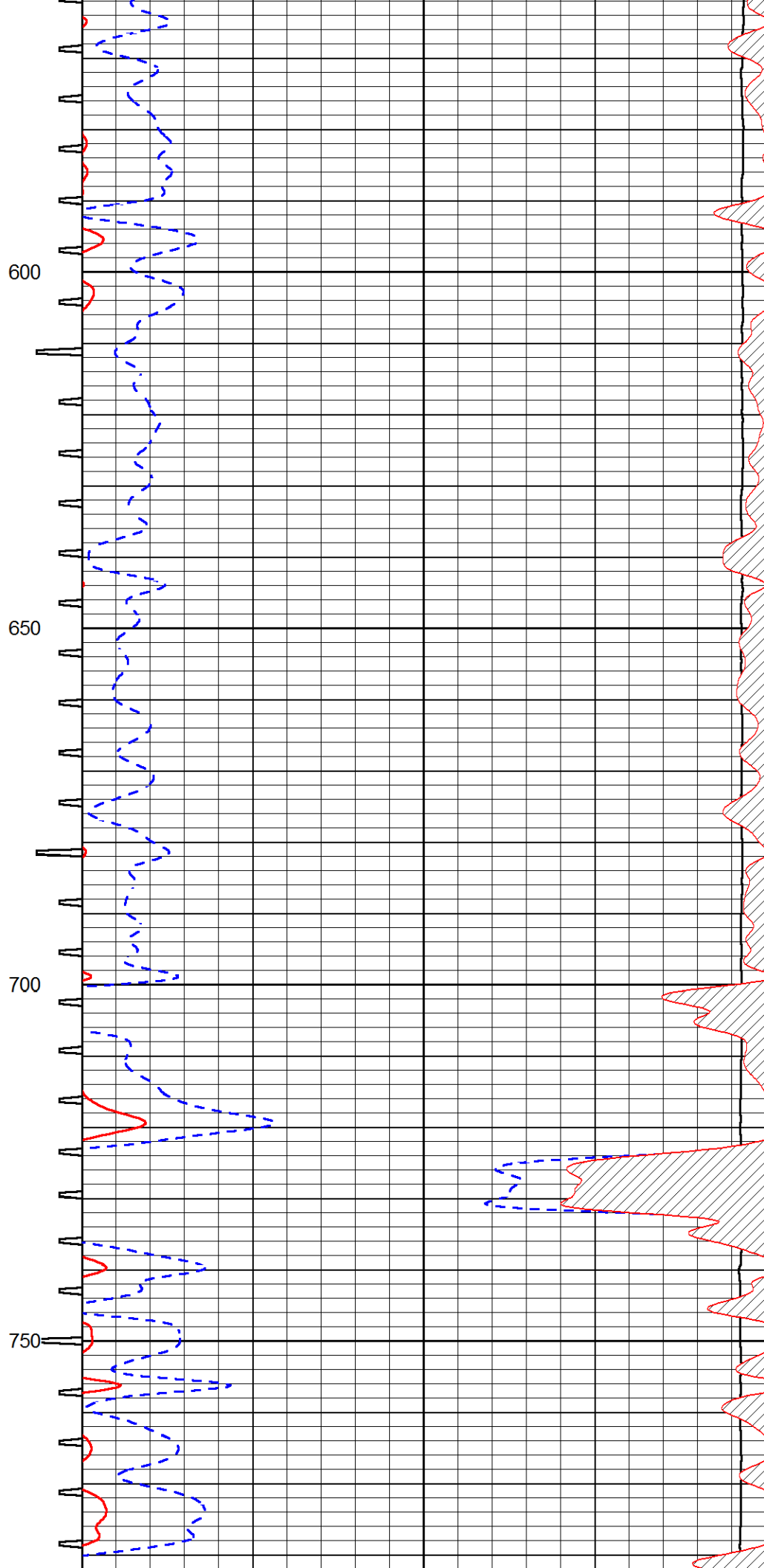
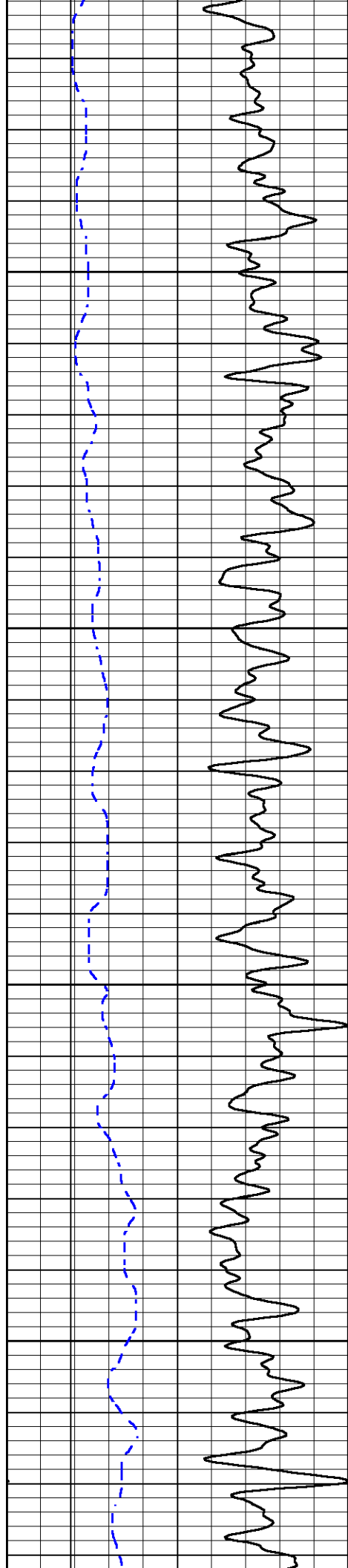
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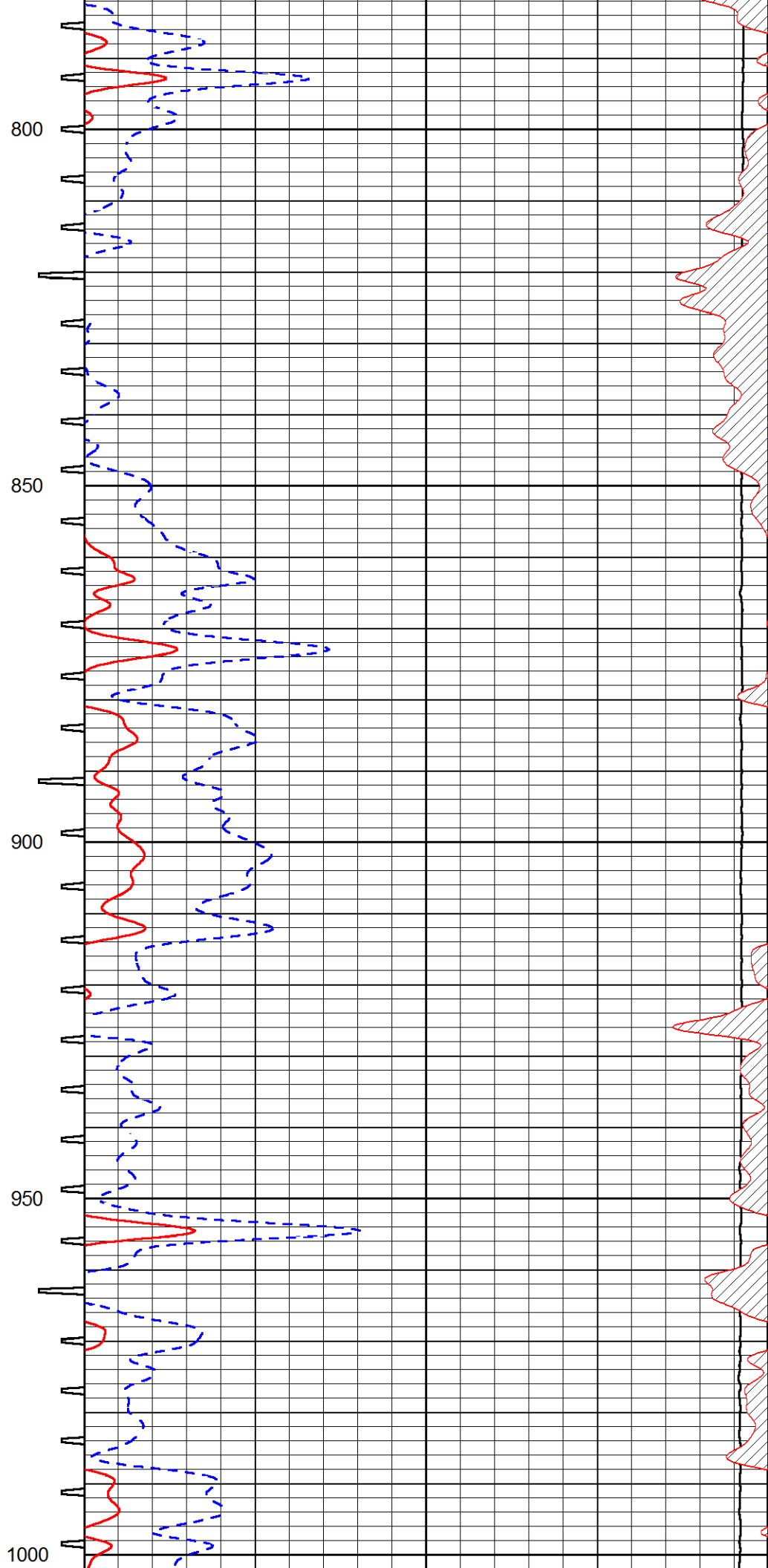
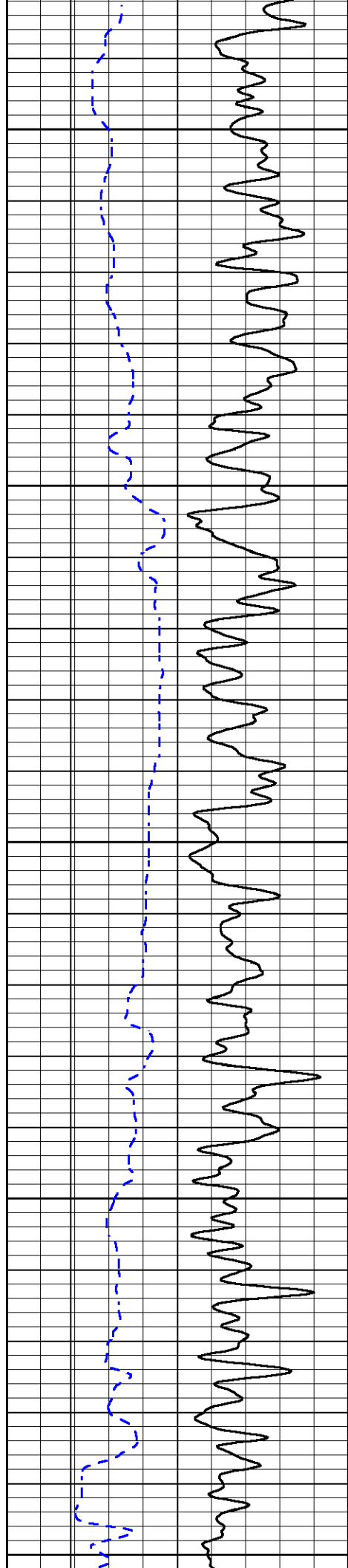
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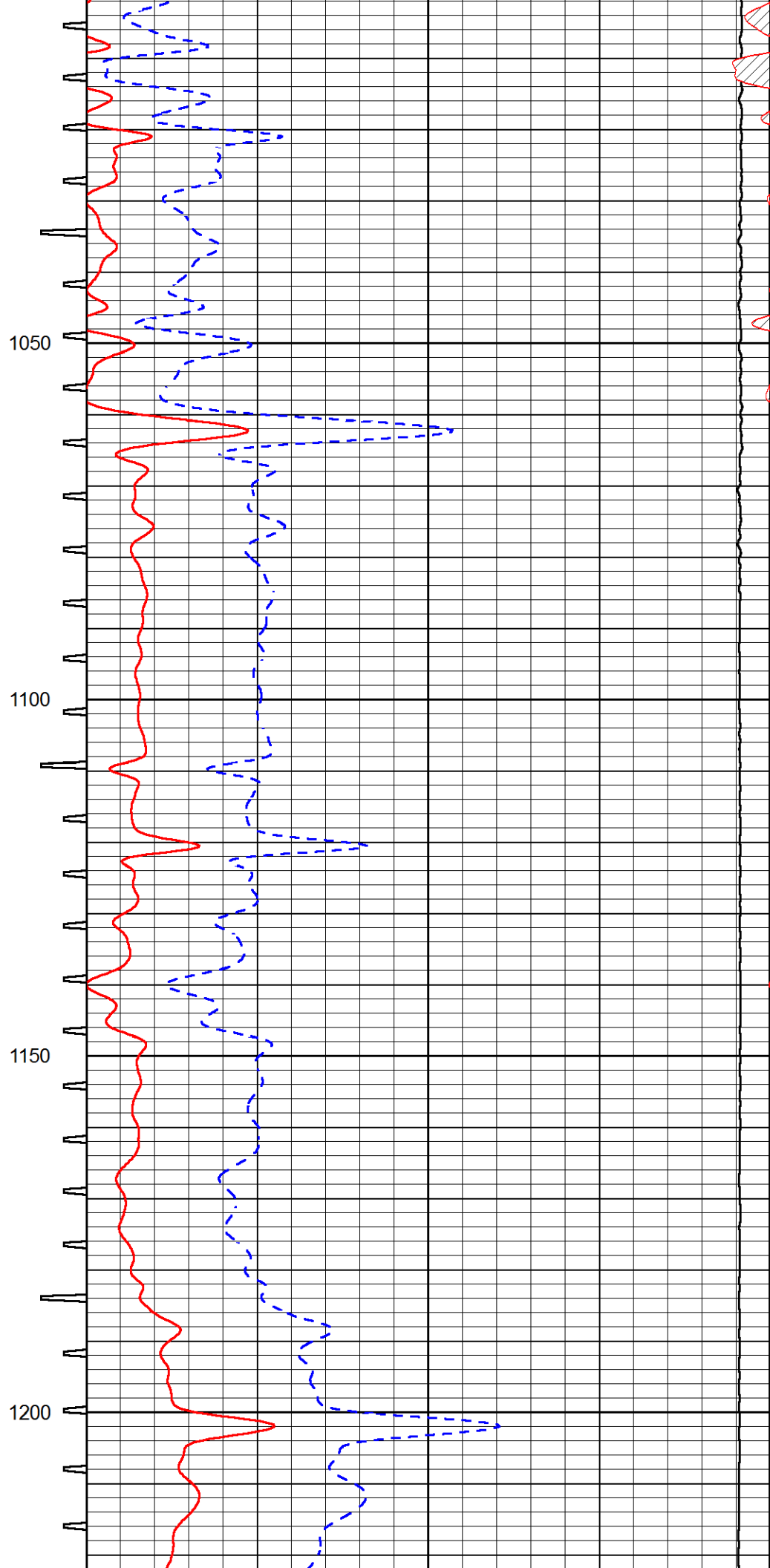
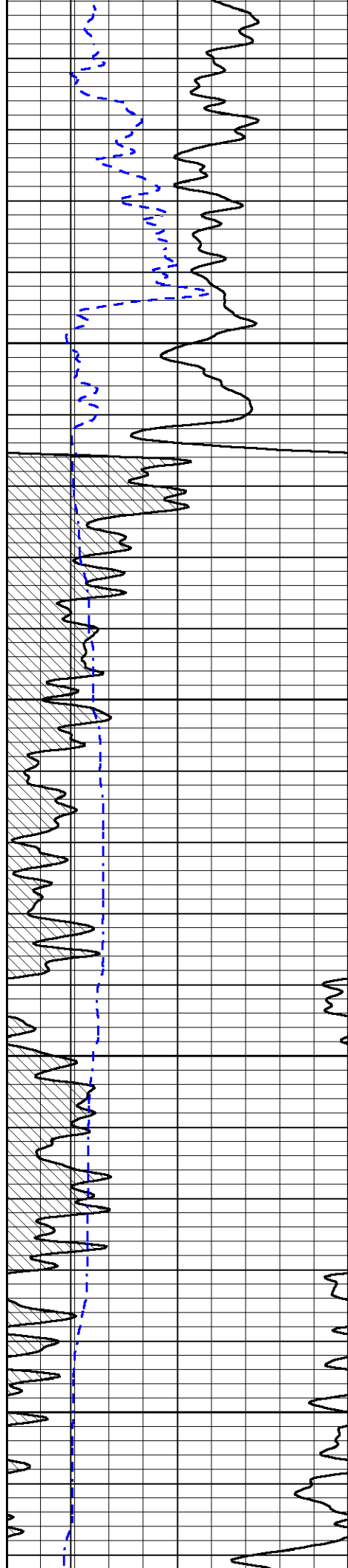
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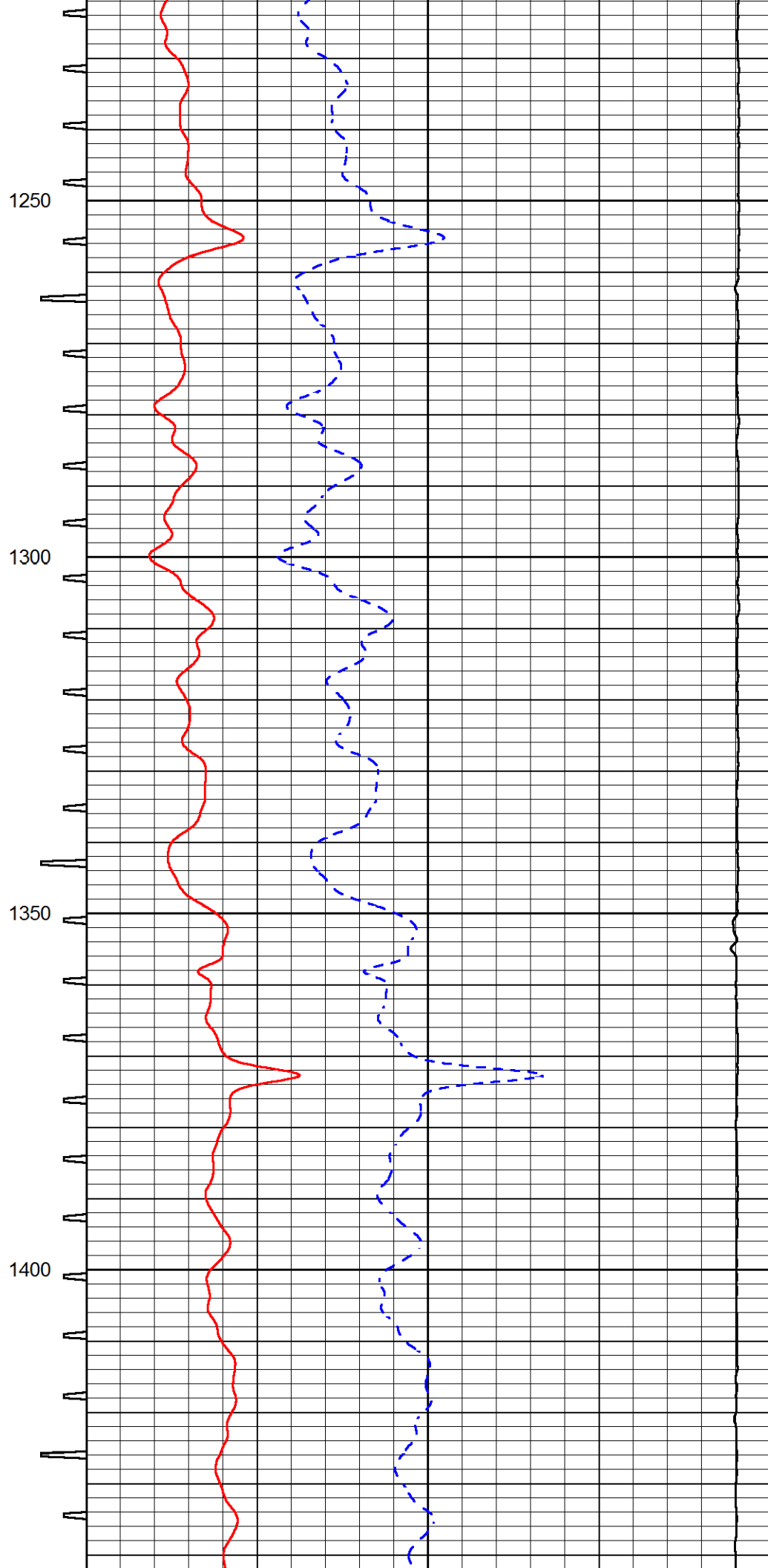
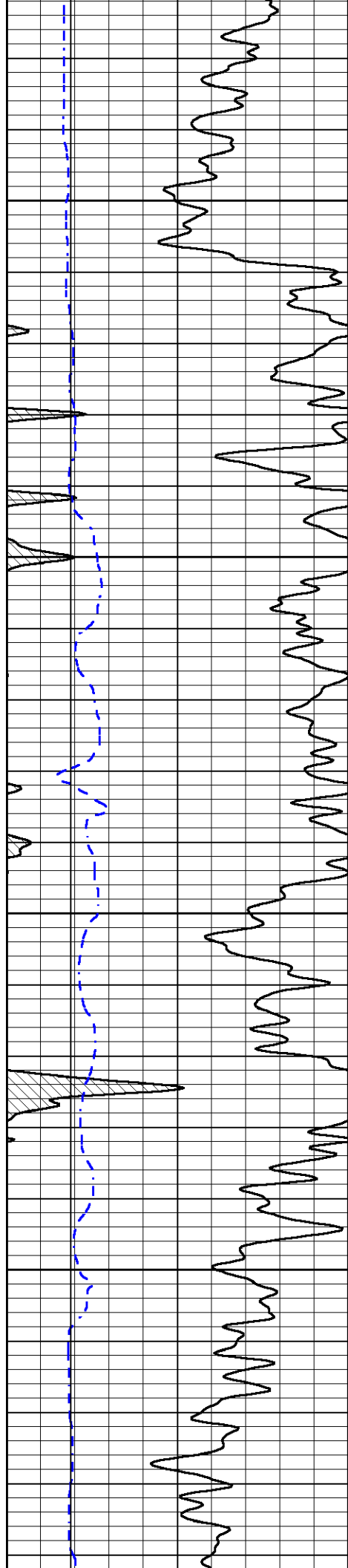
DELTA TIME →

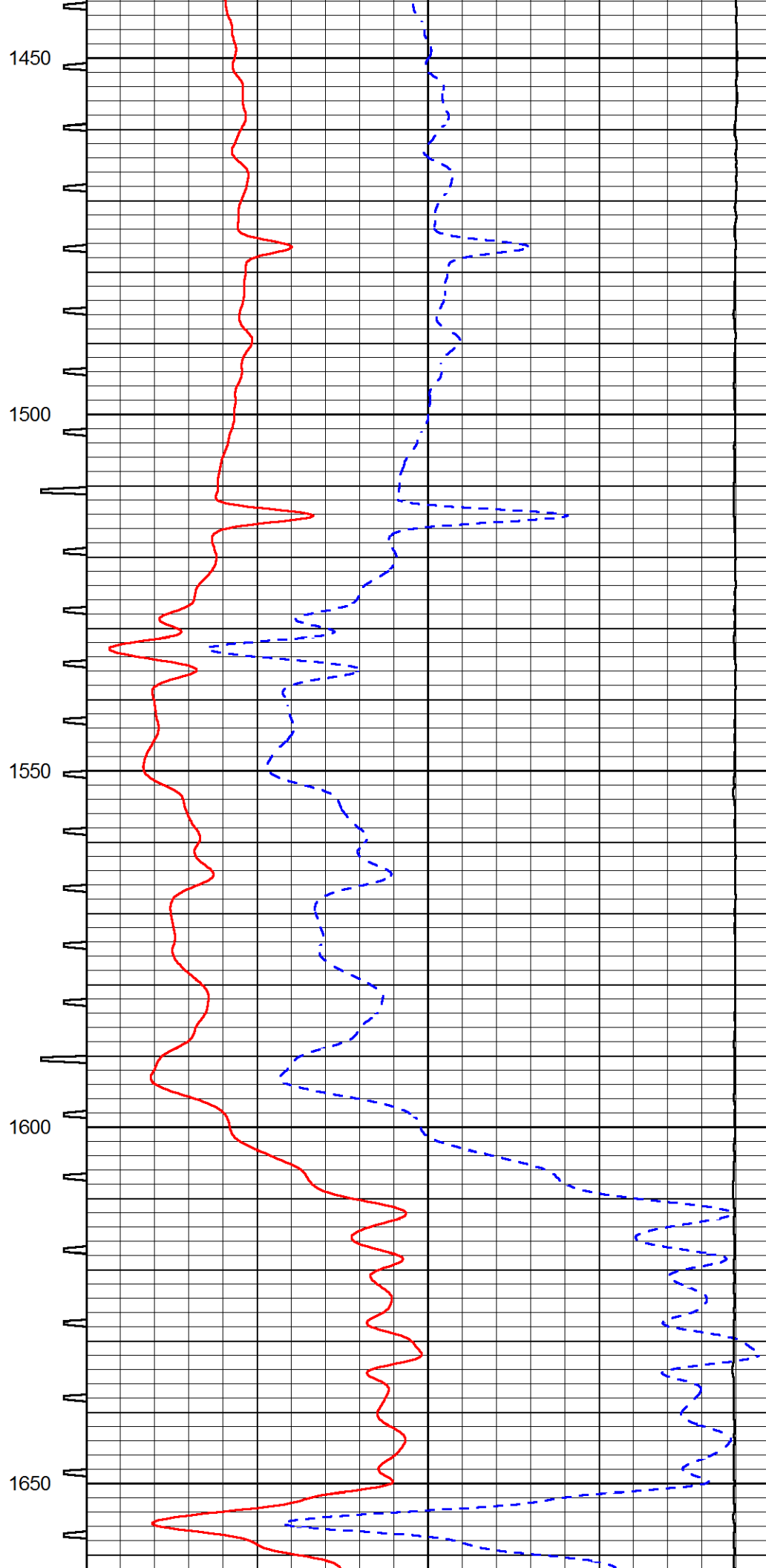
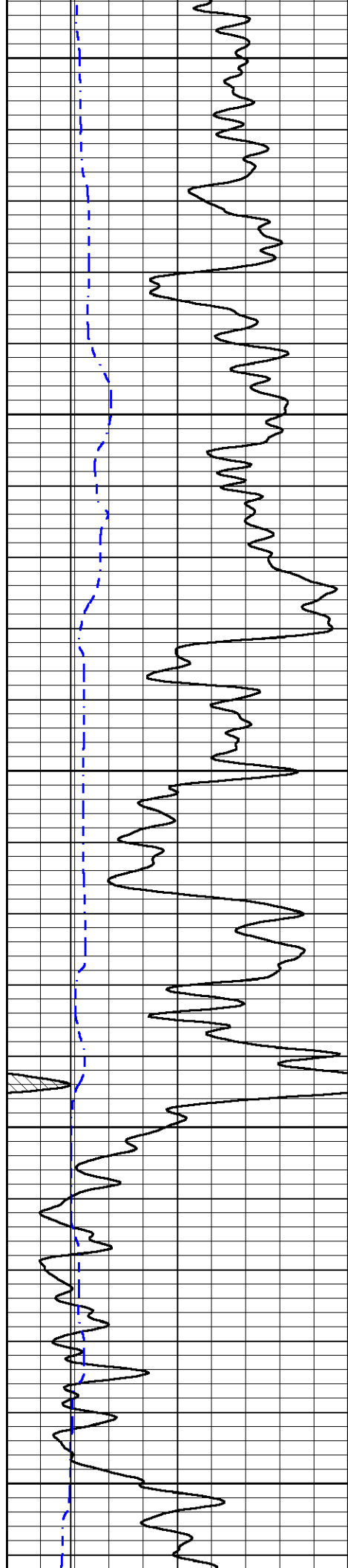


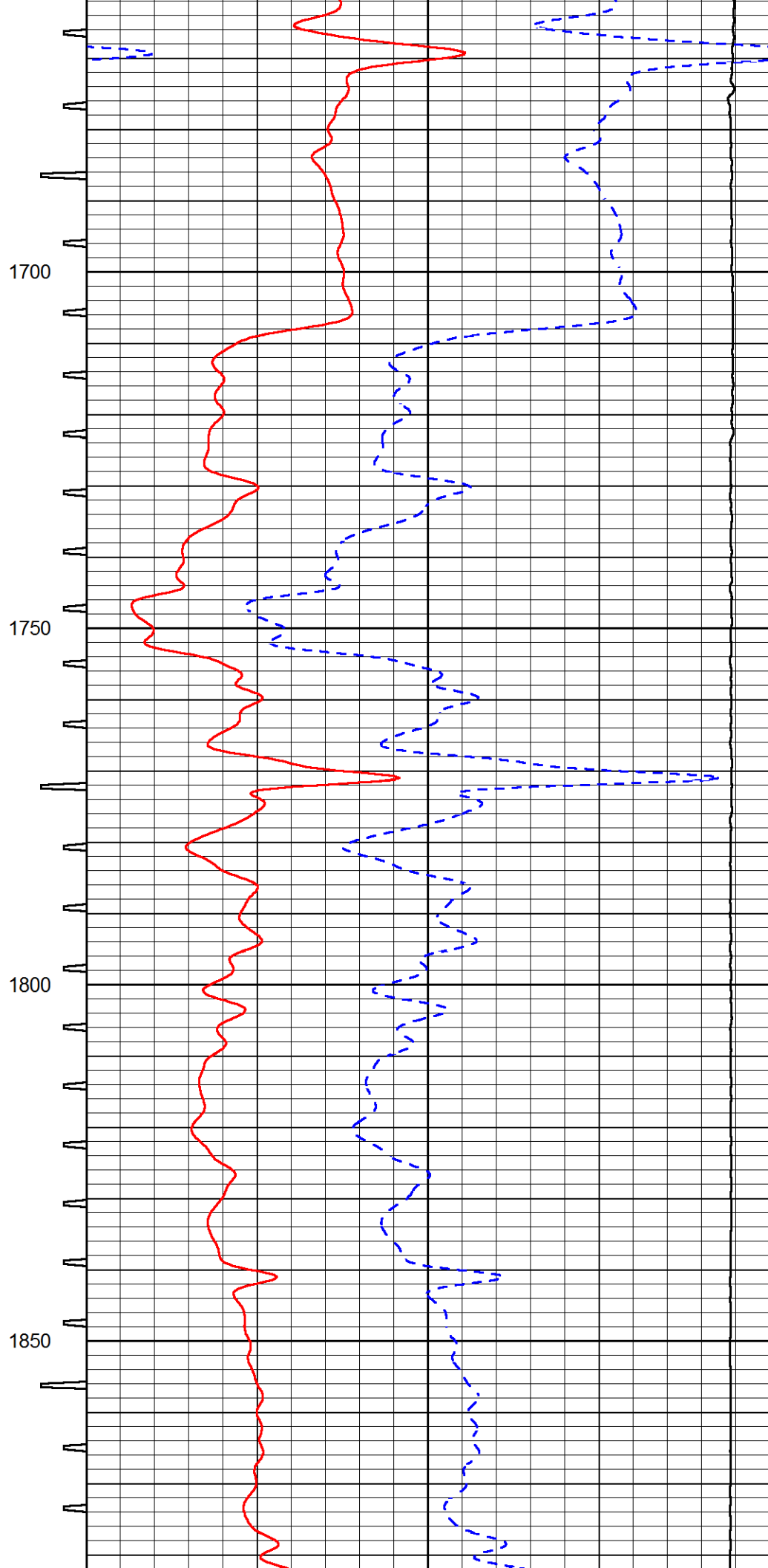
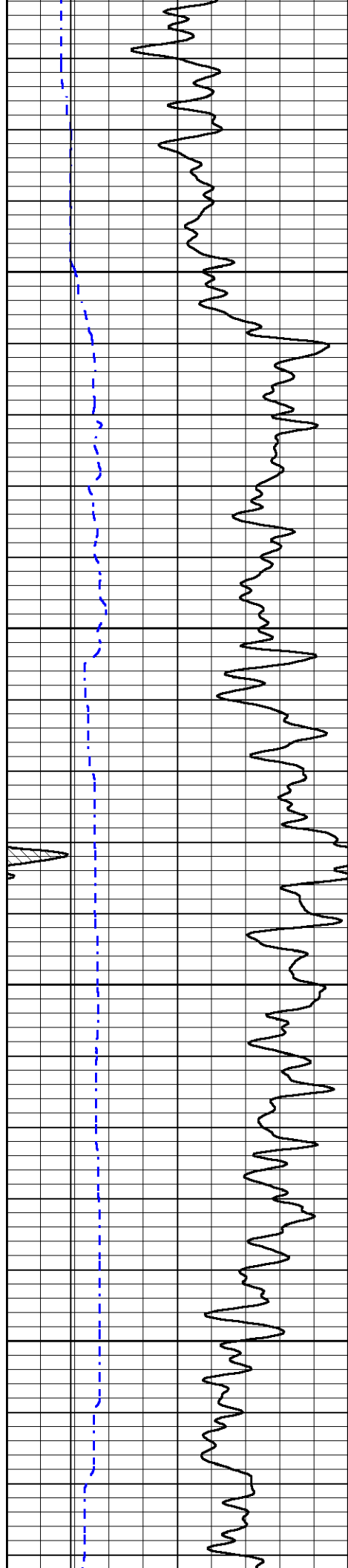


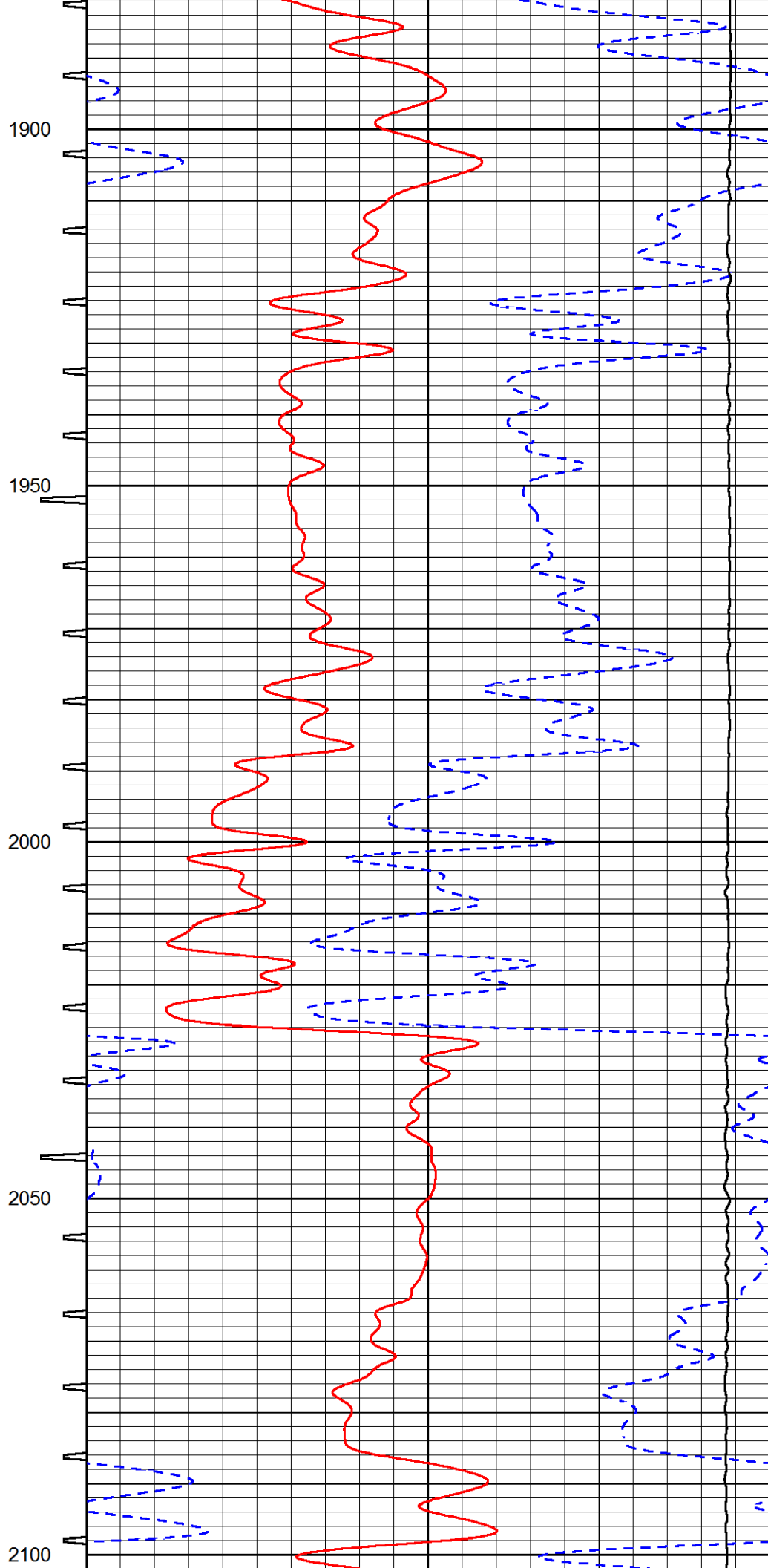
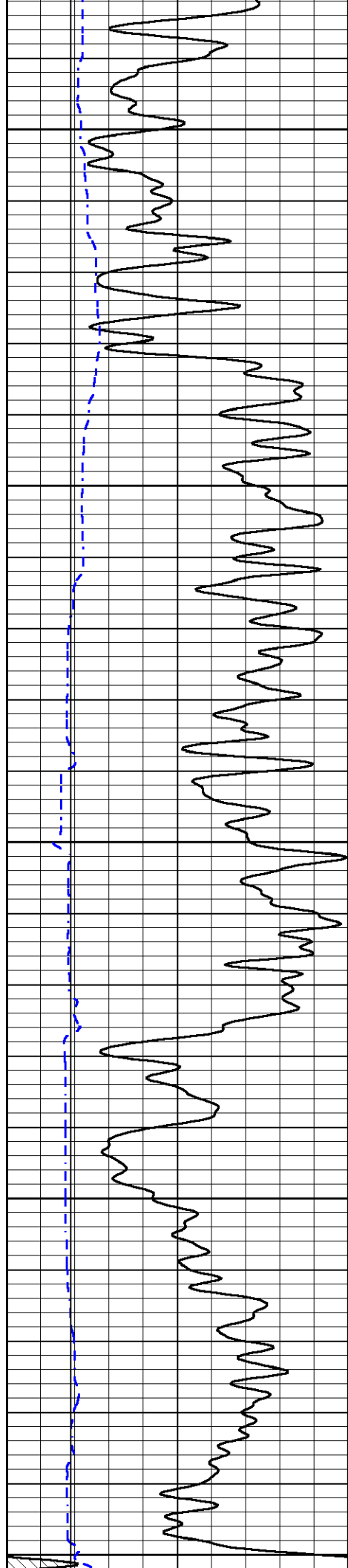


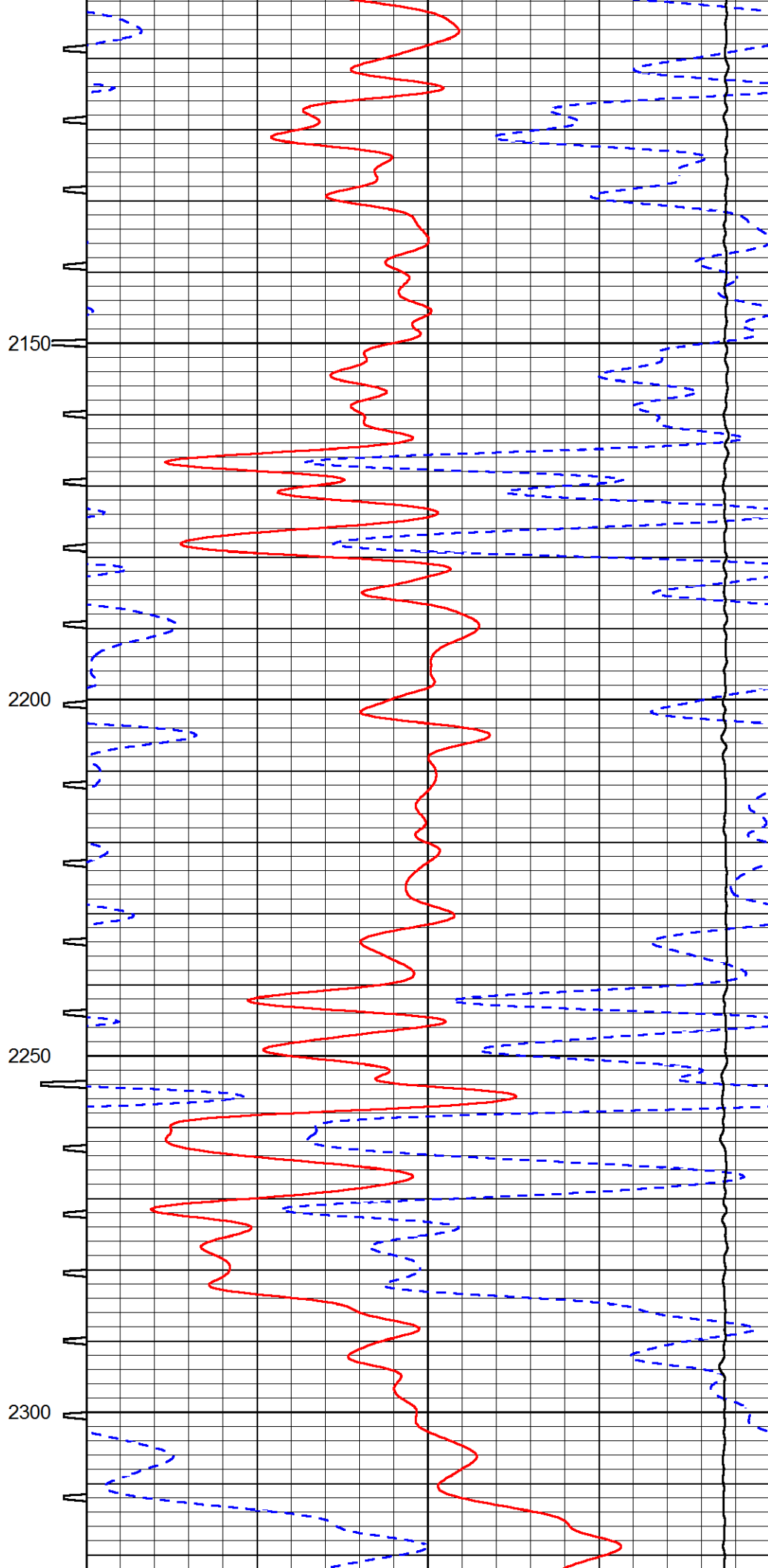
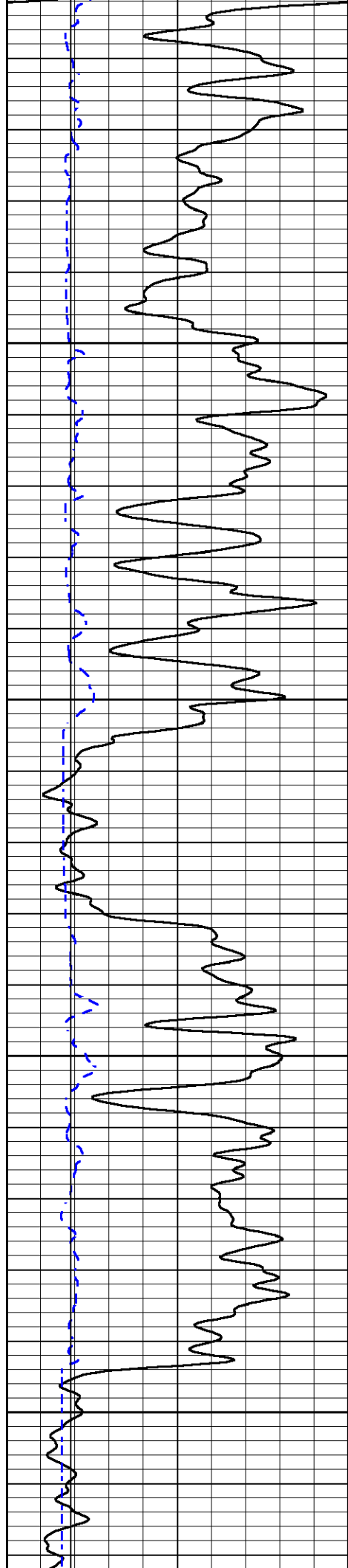


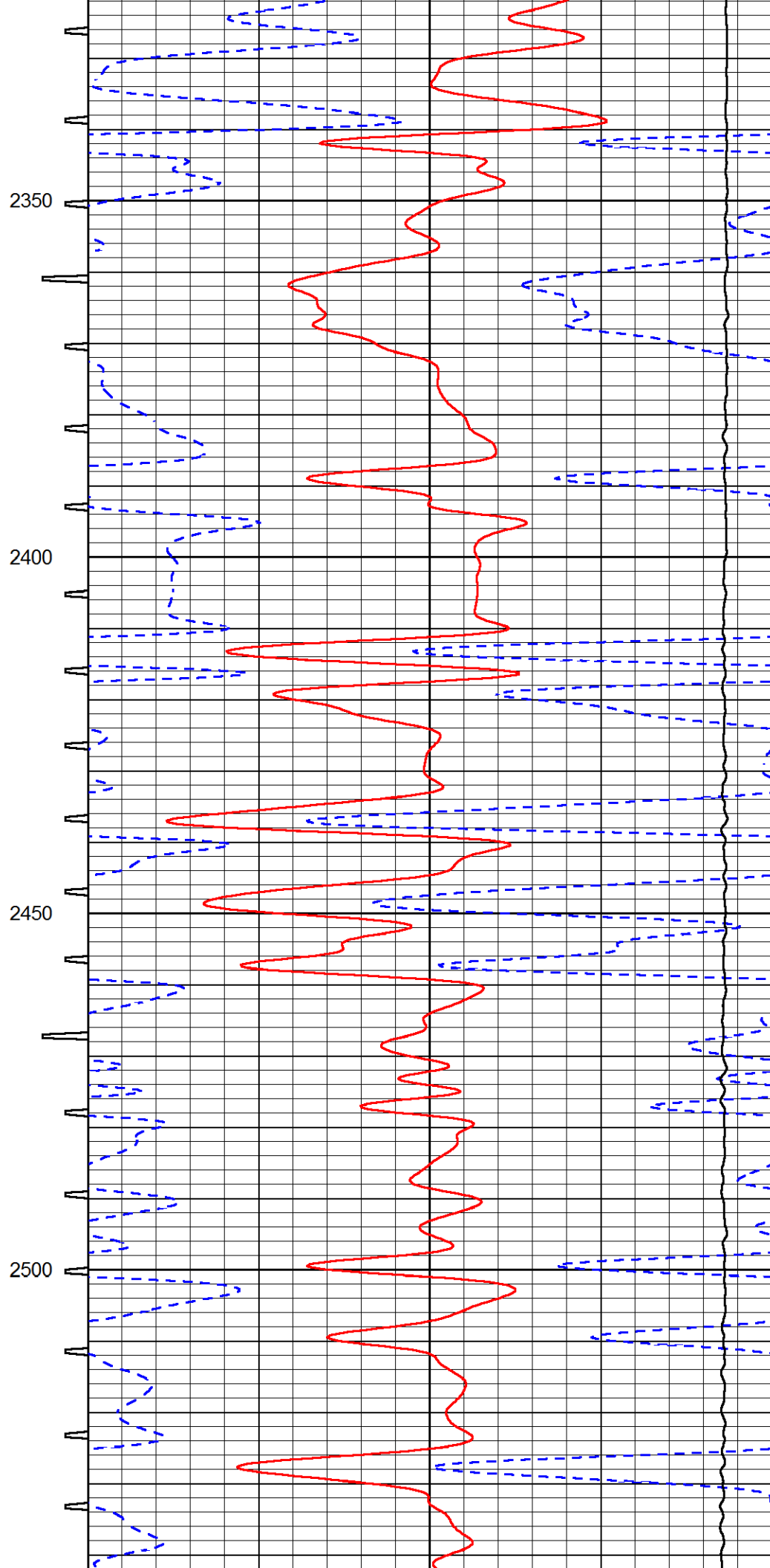
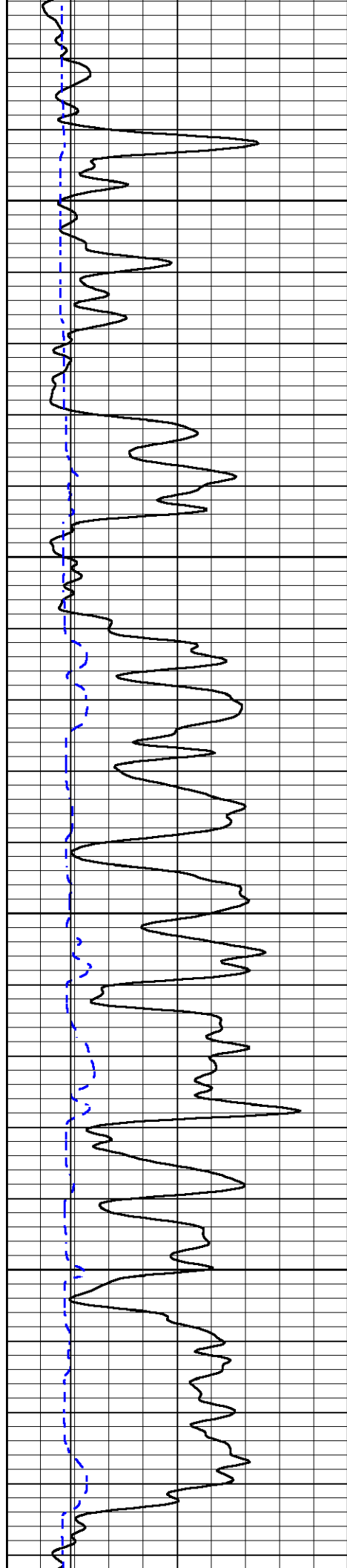


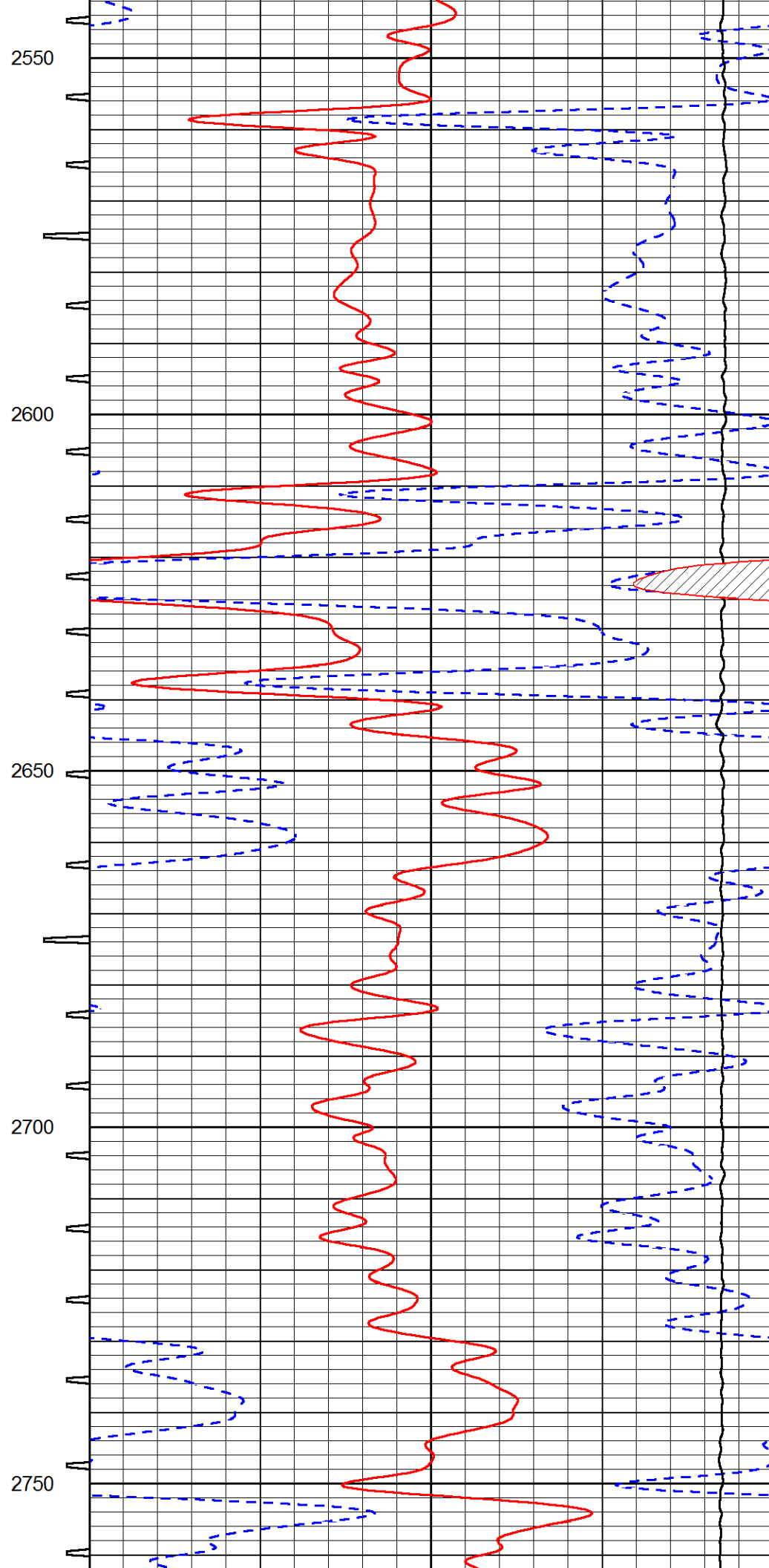
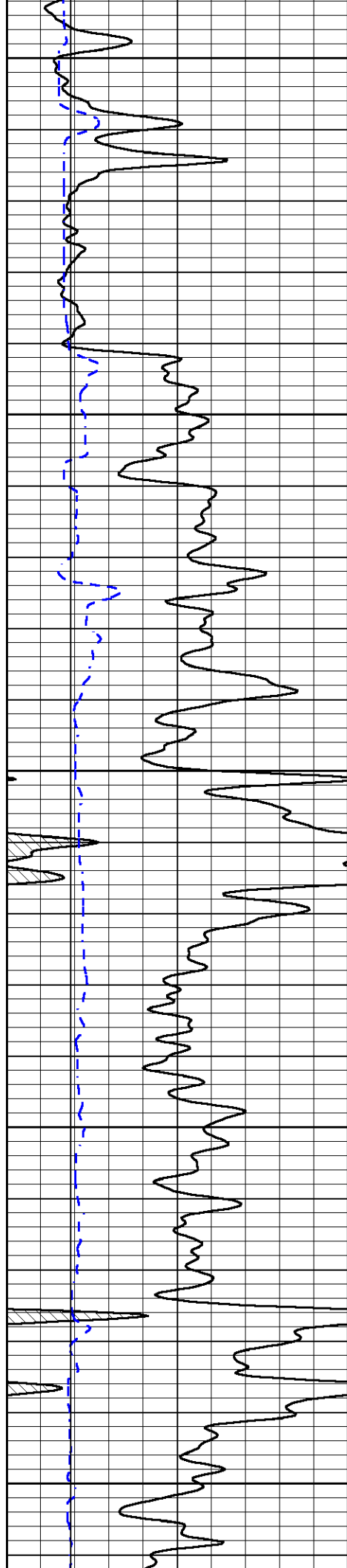


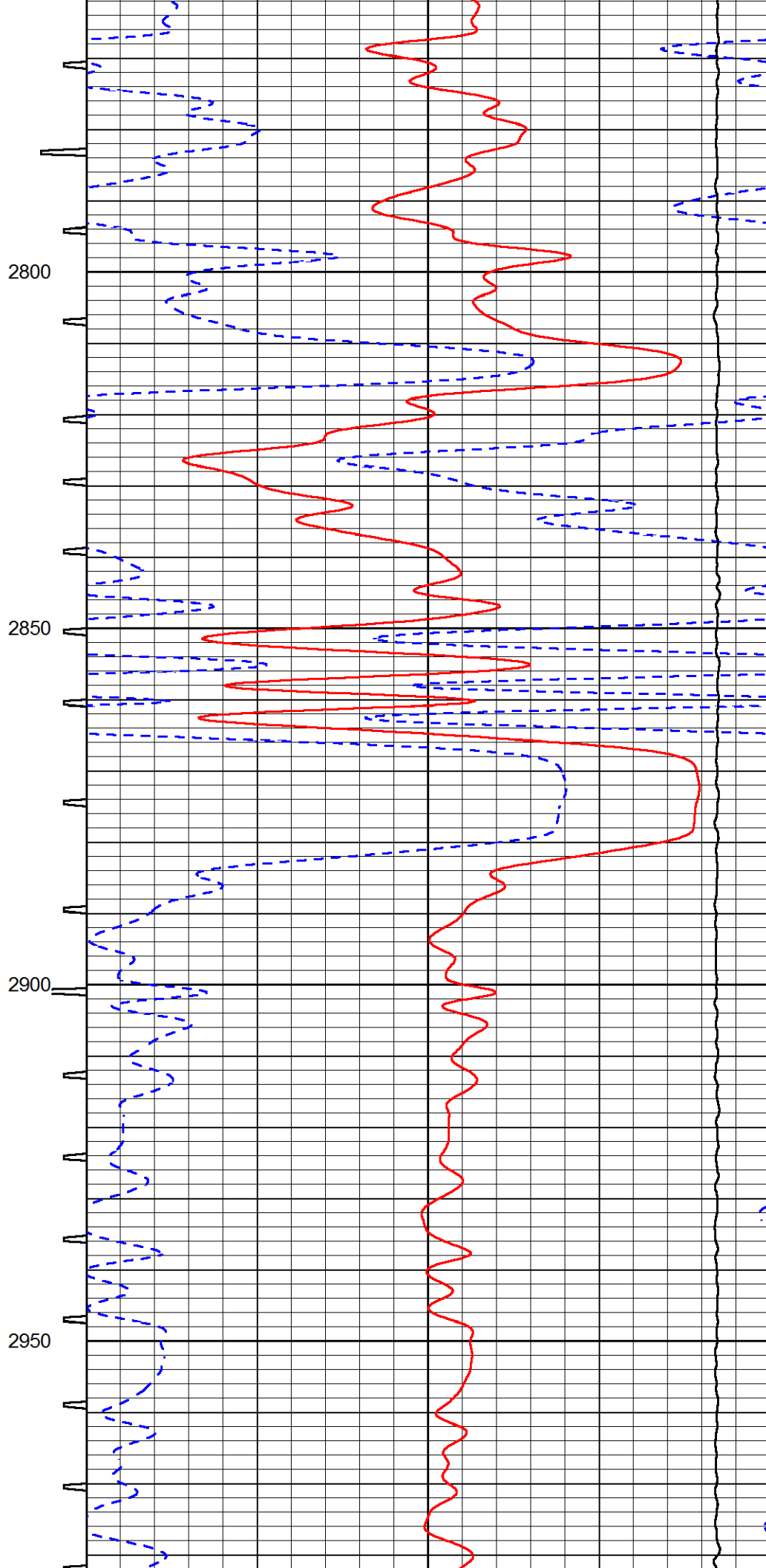
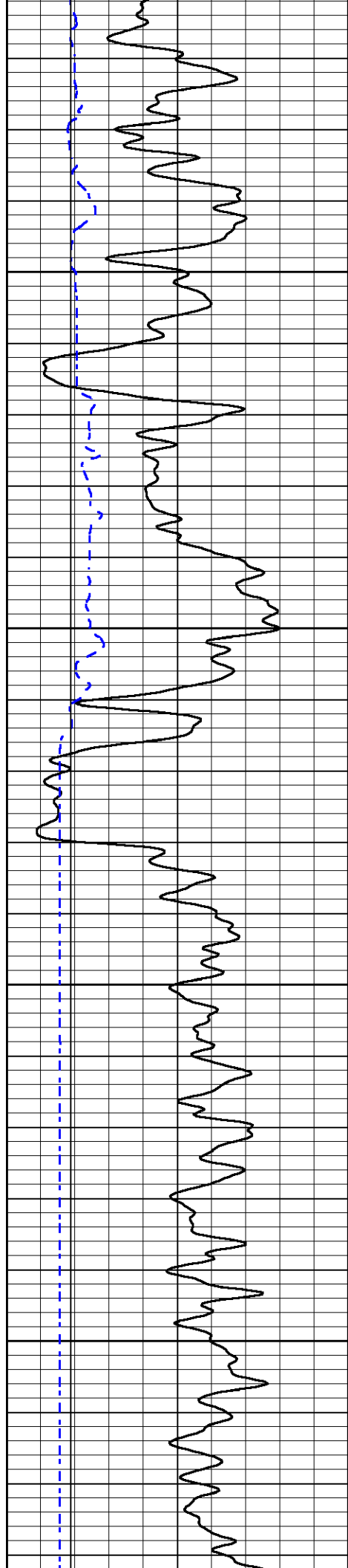


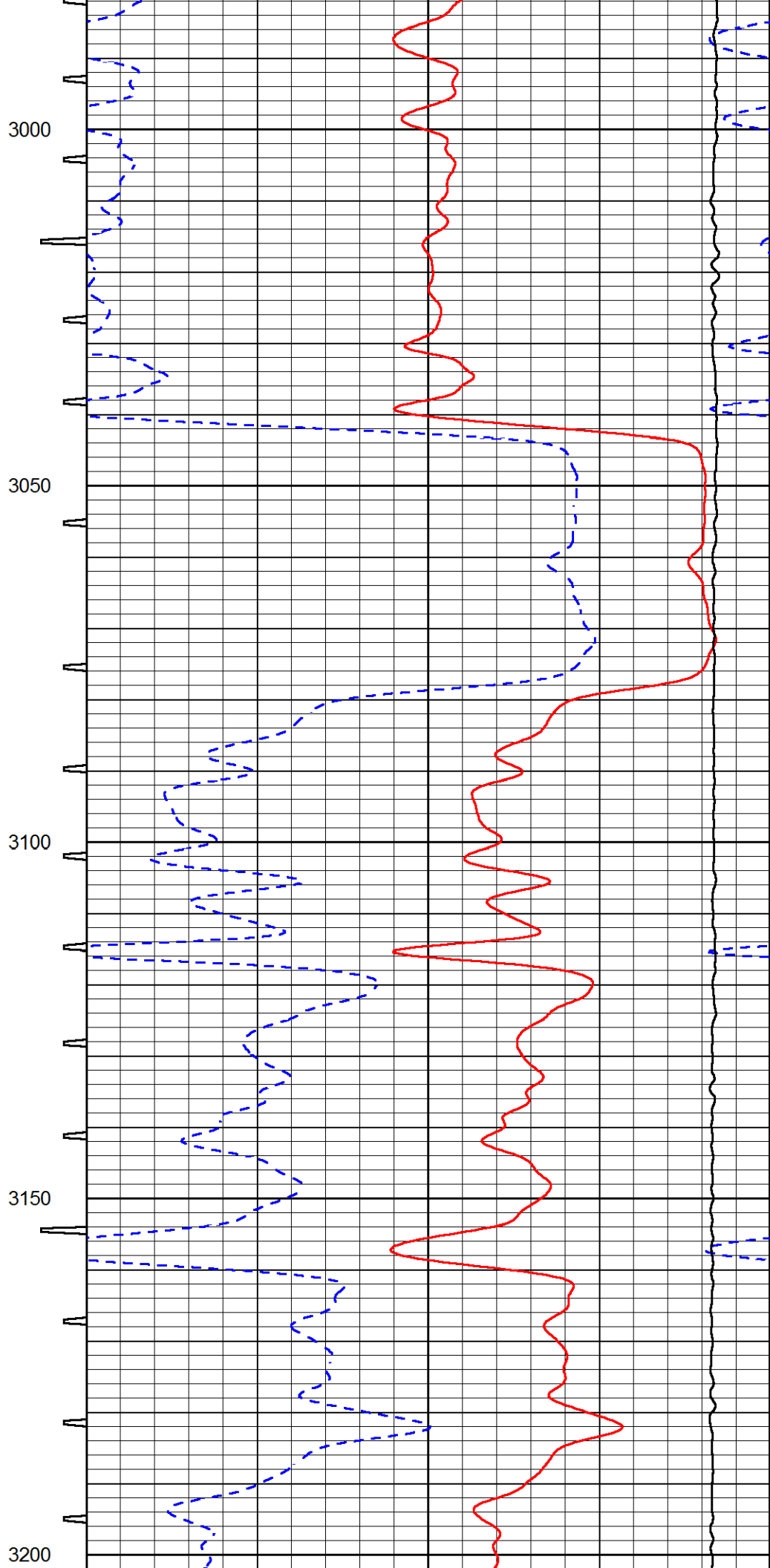
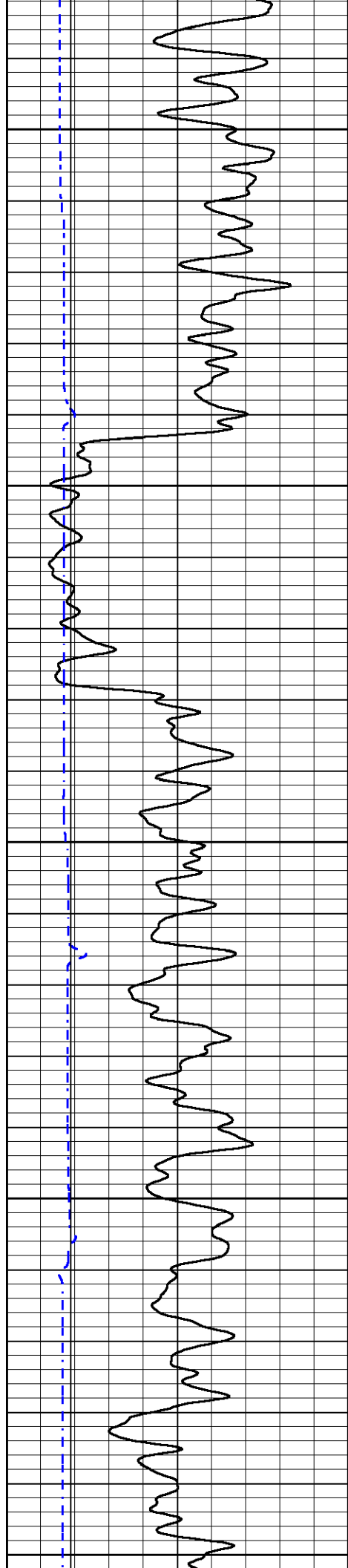


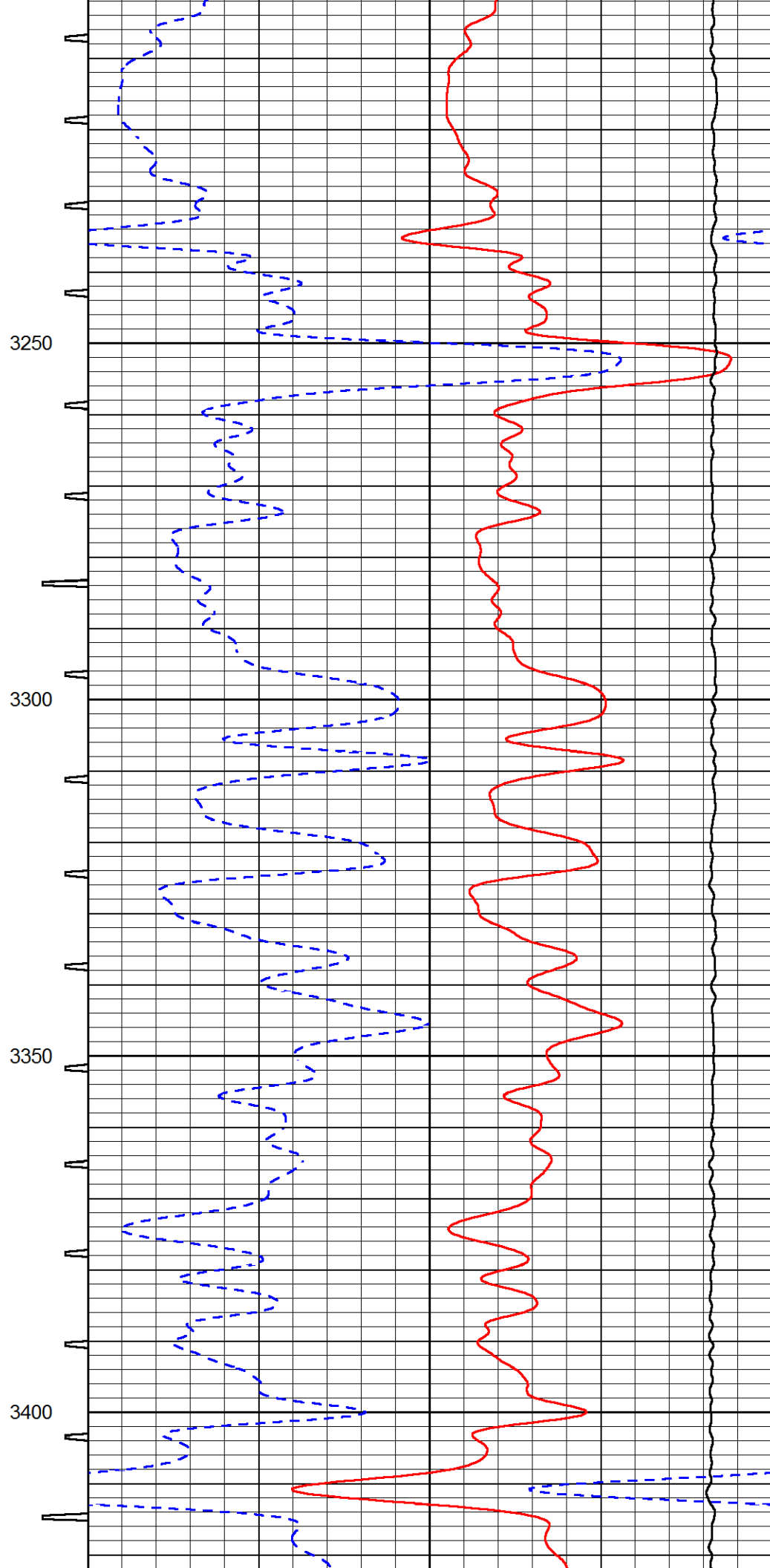
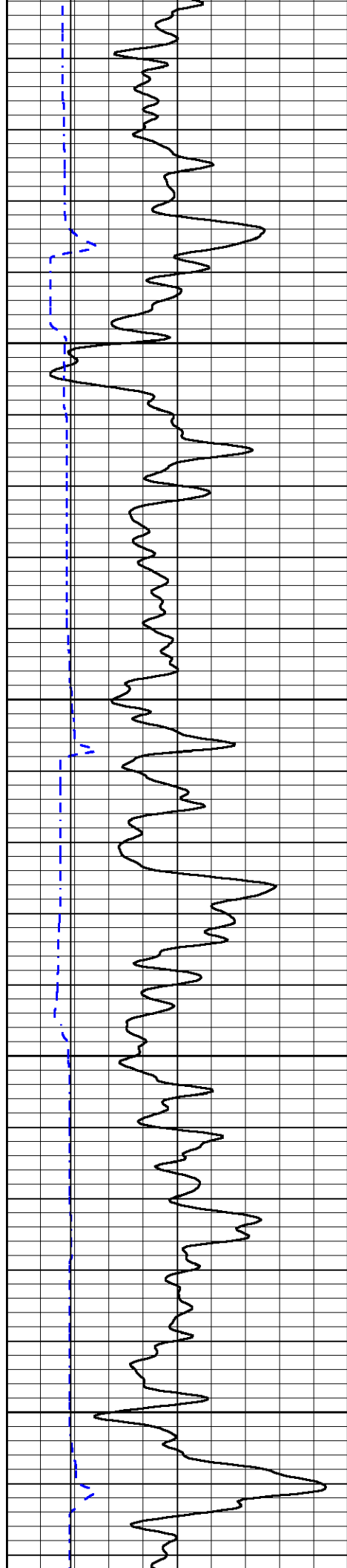


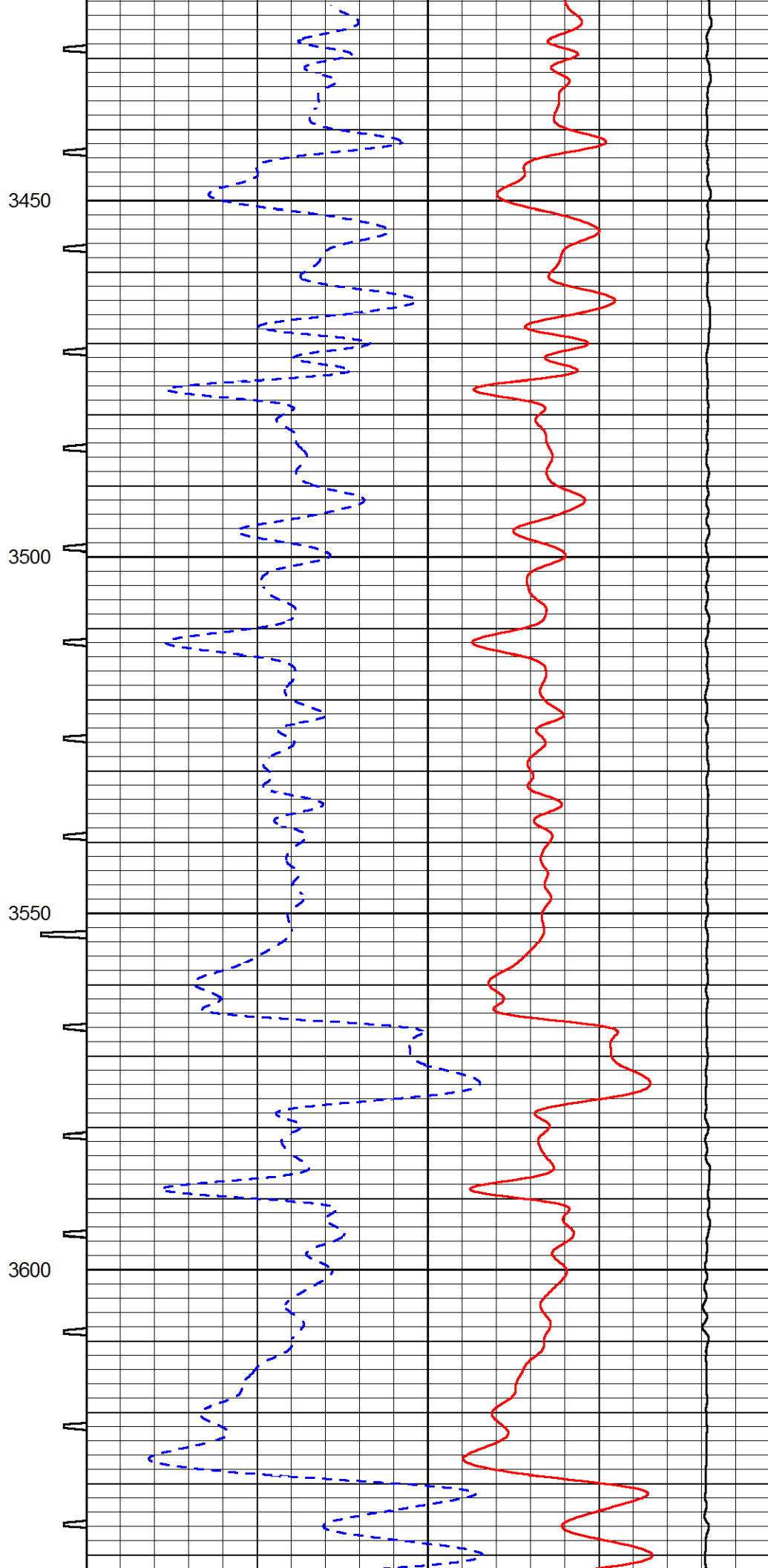
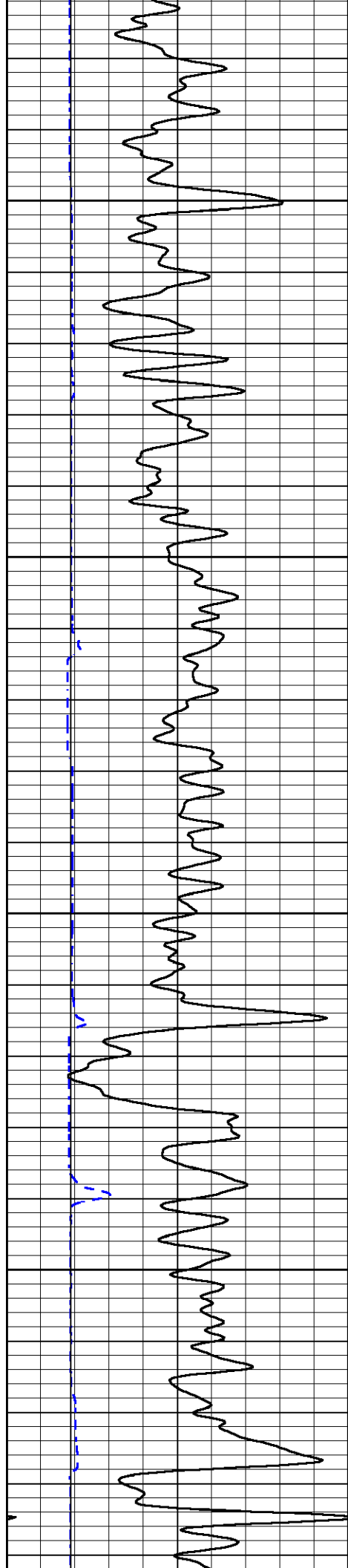


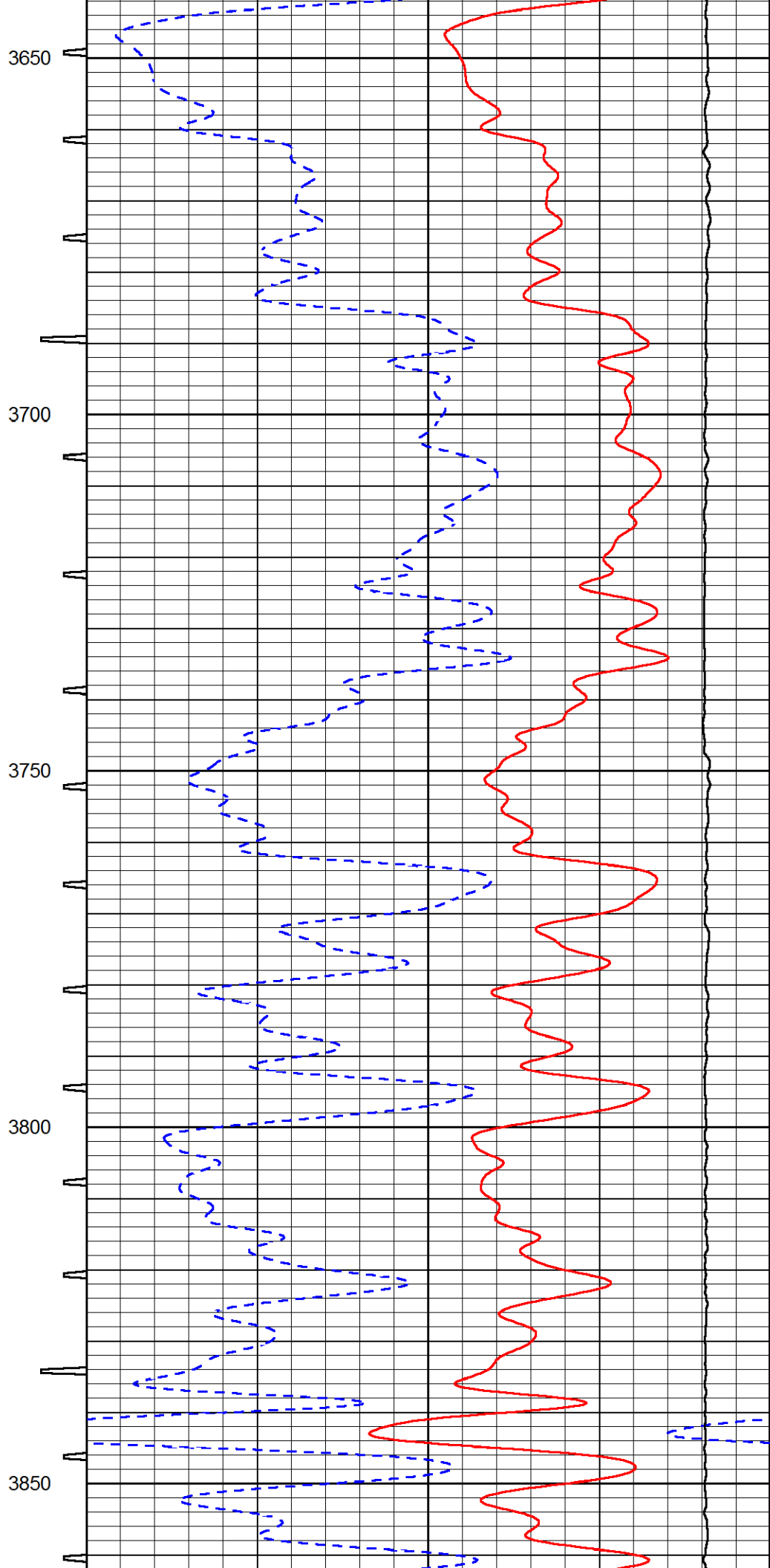
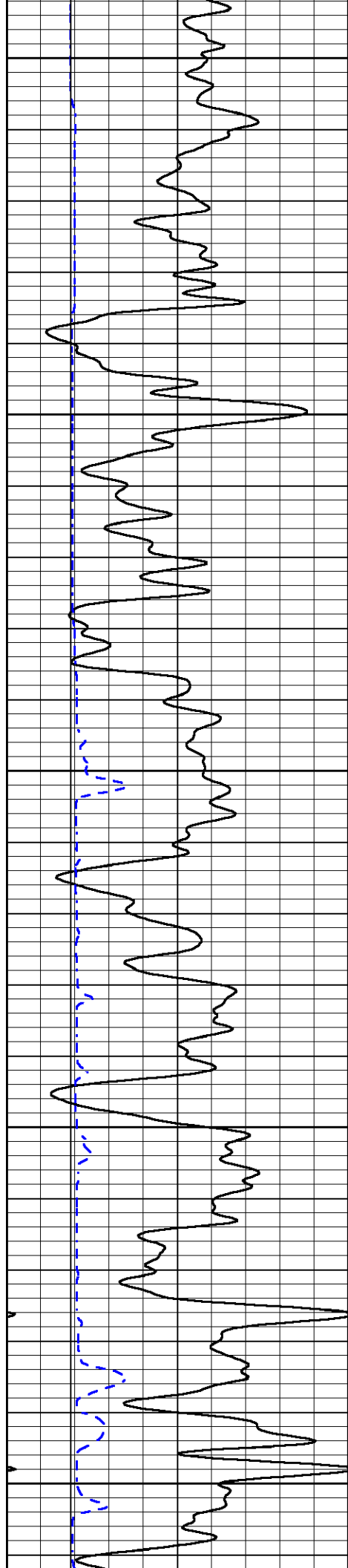


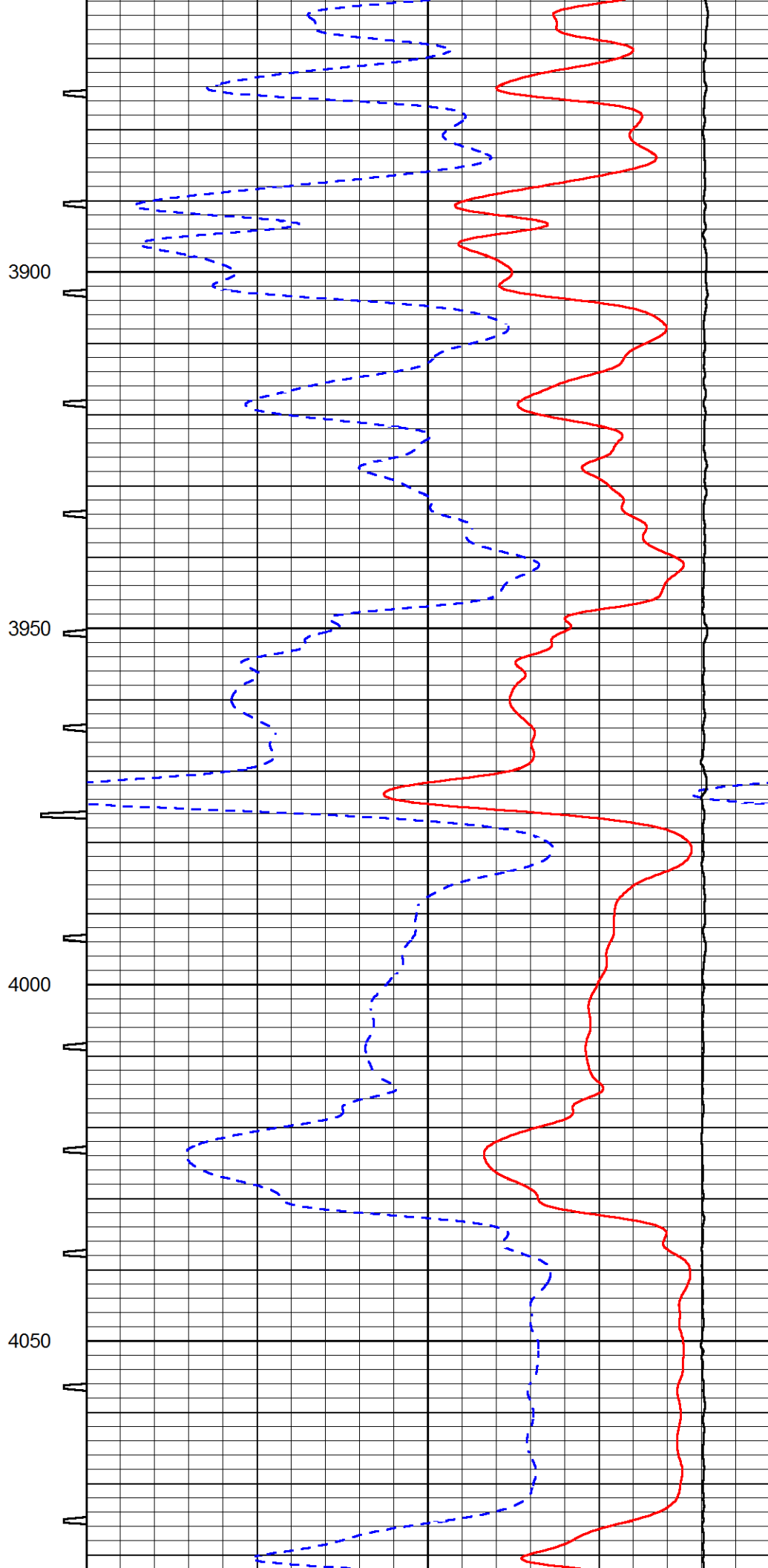
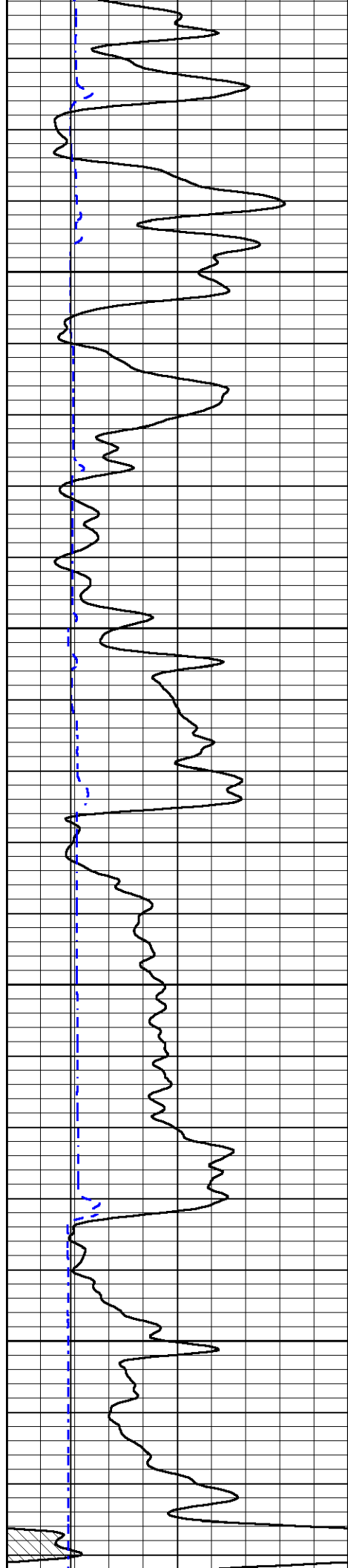


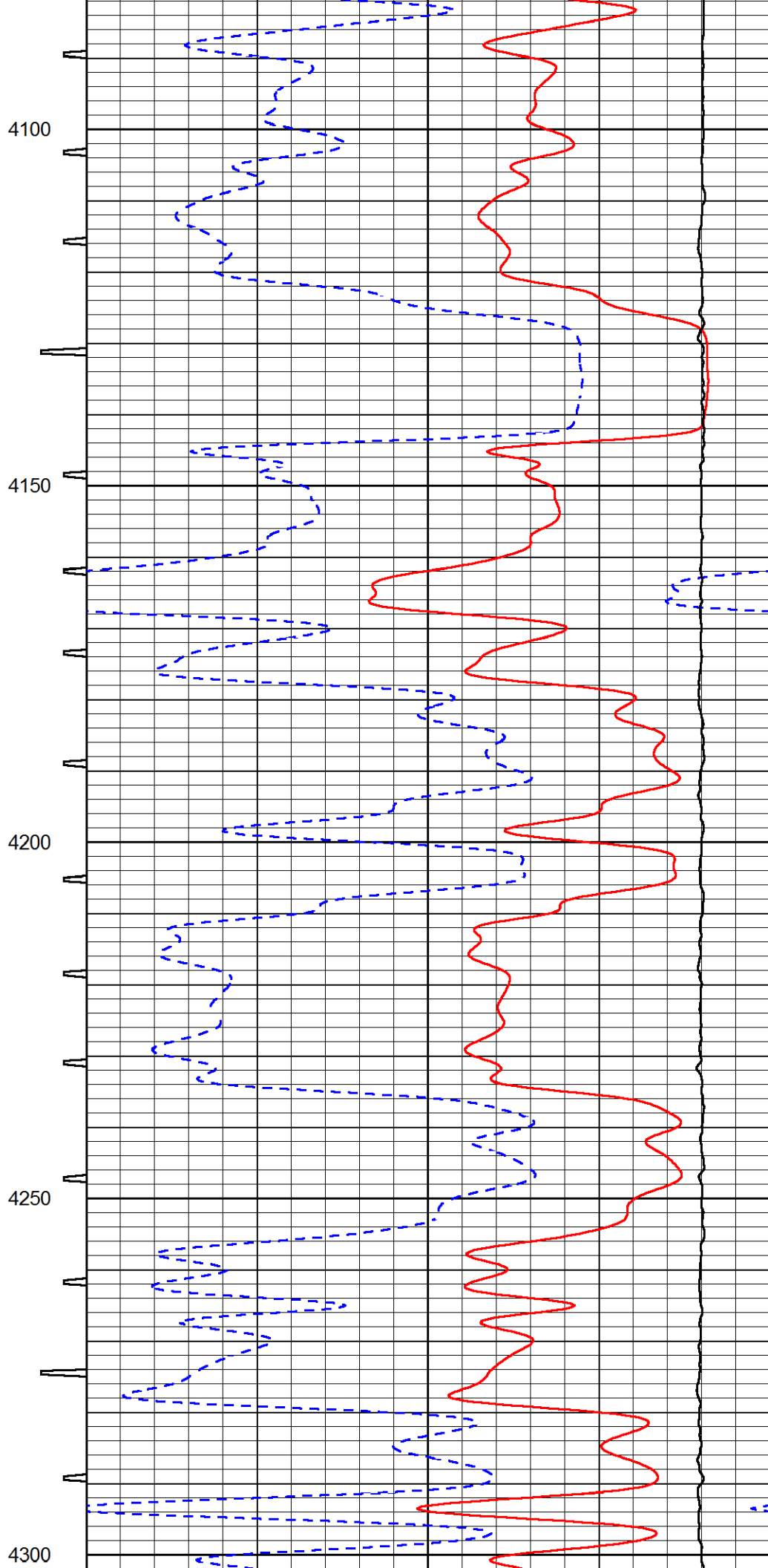
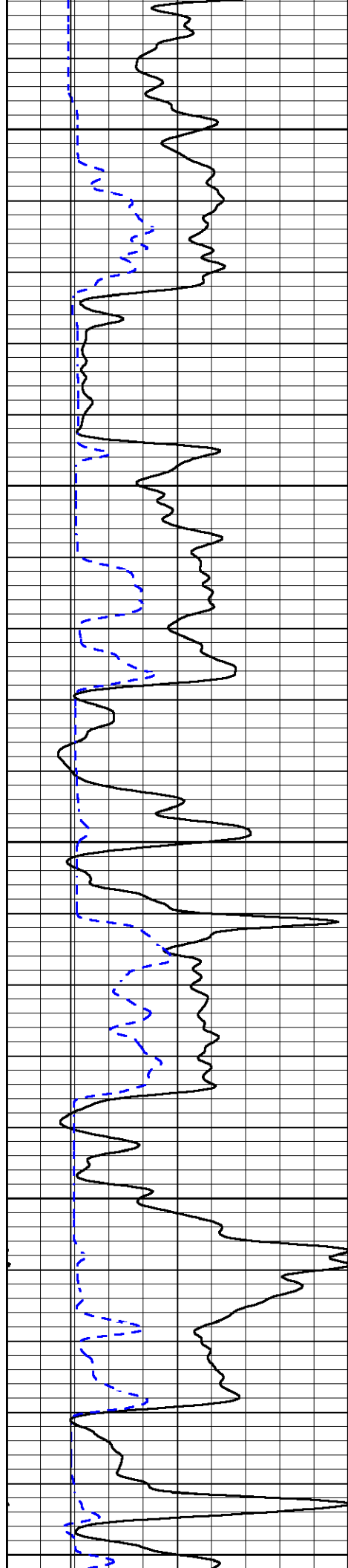


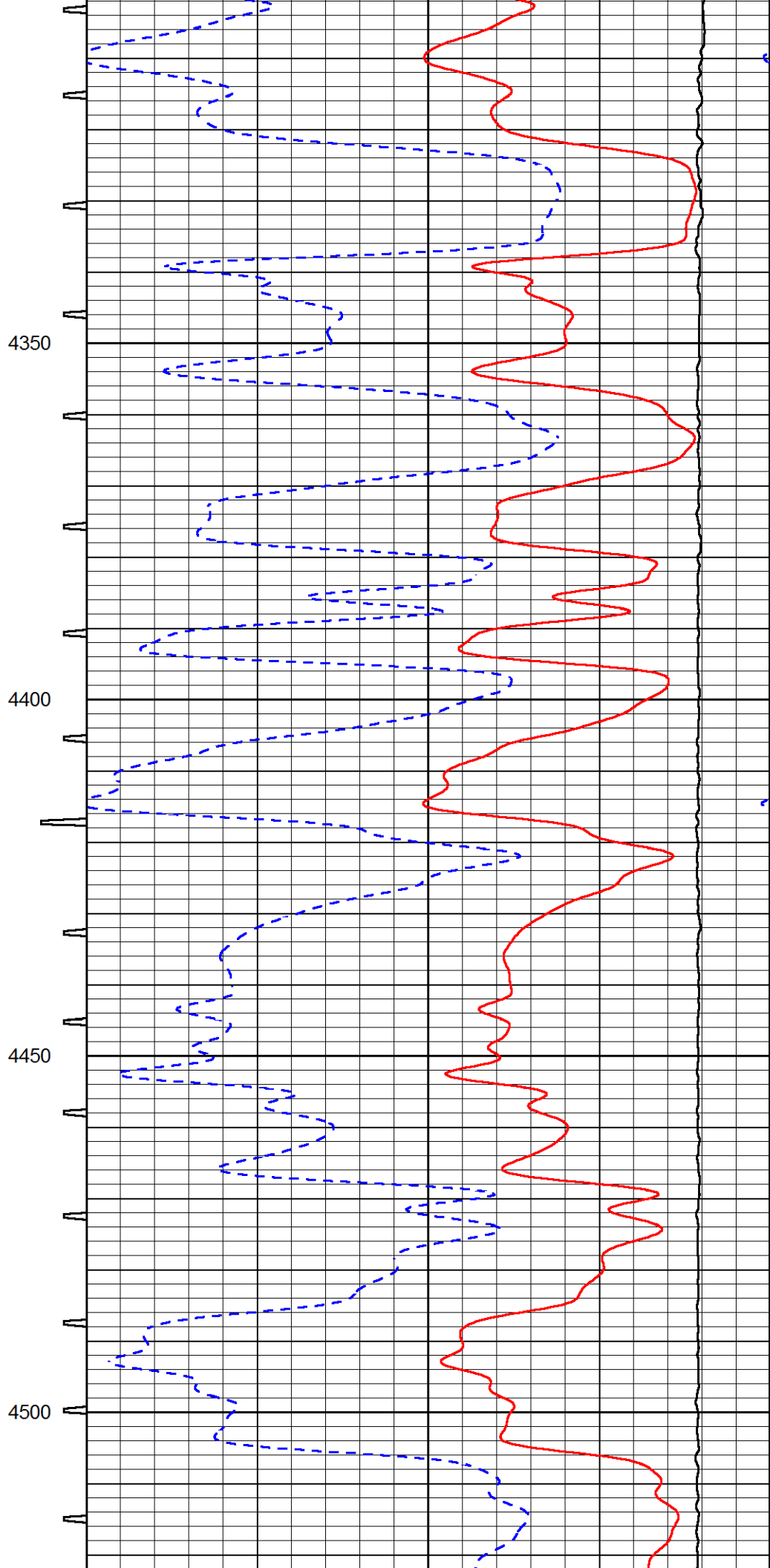
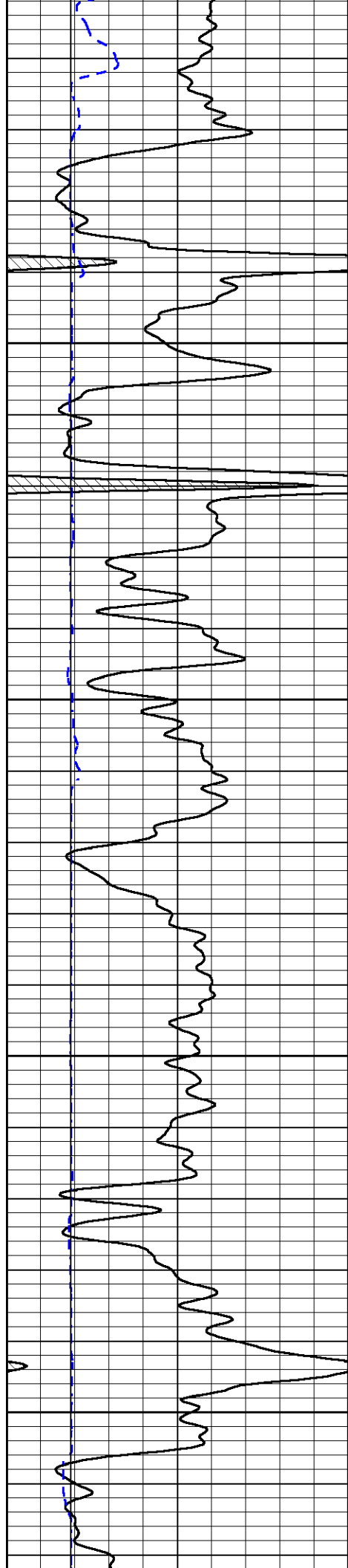


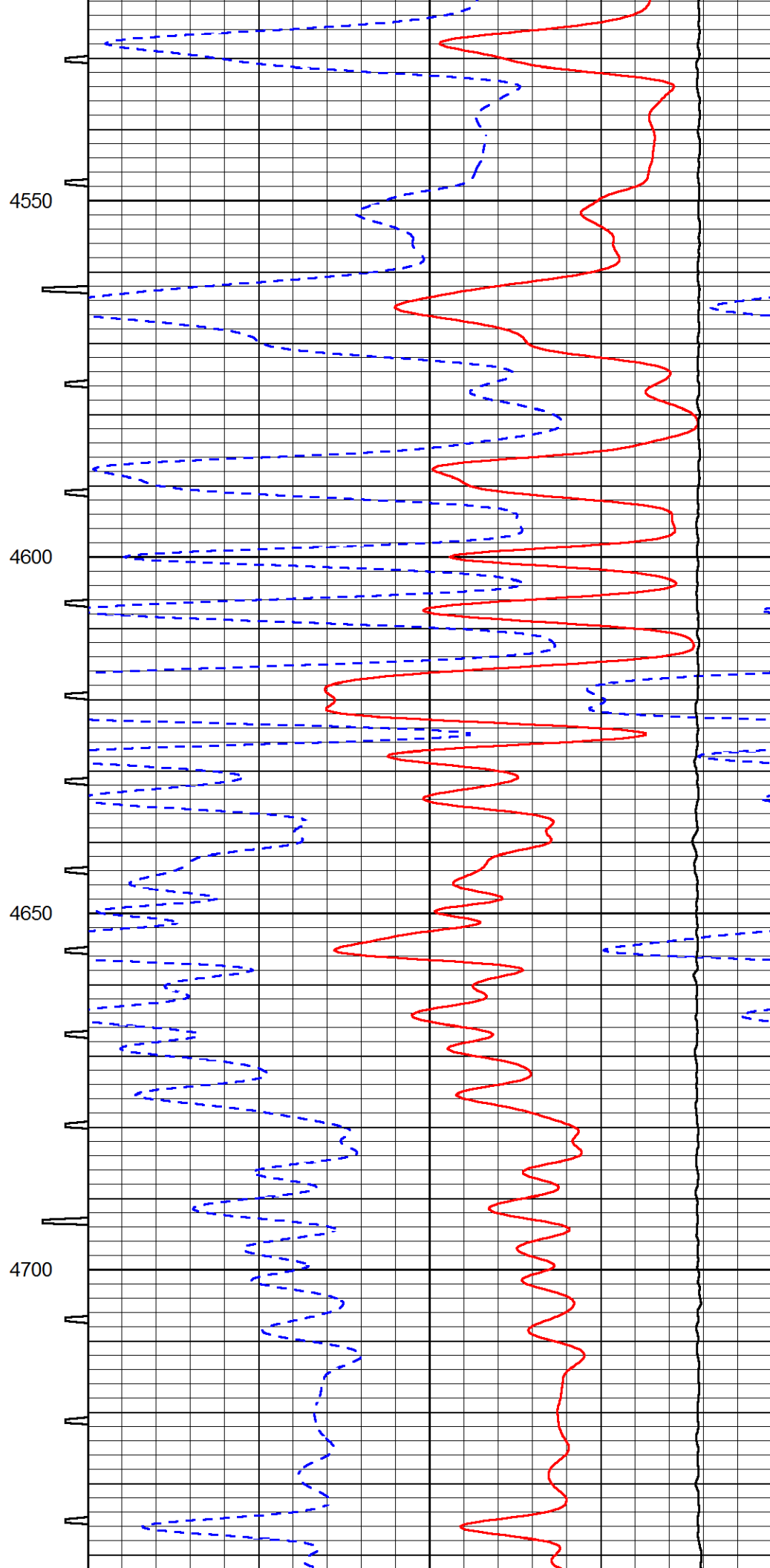
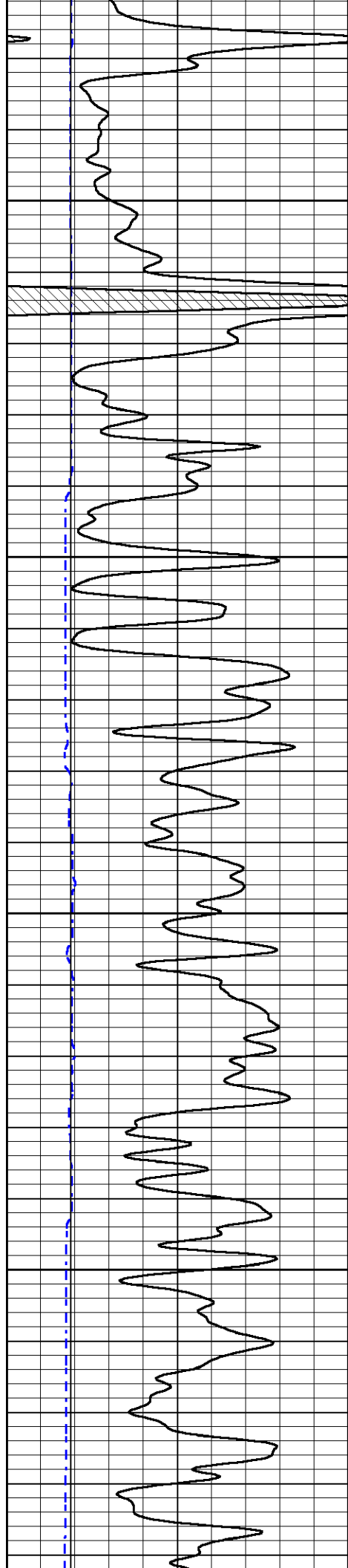


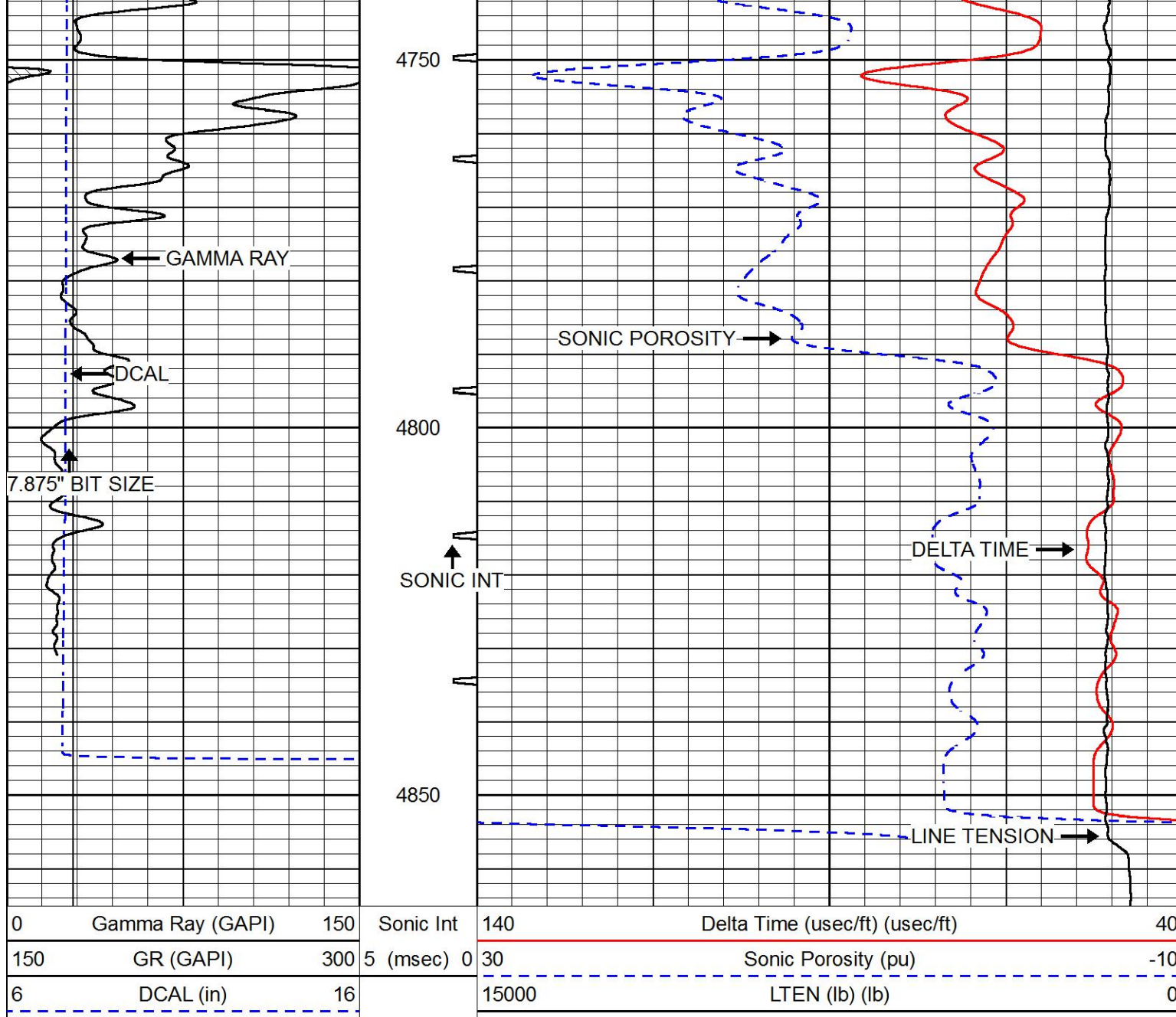








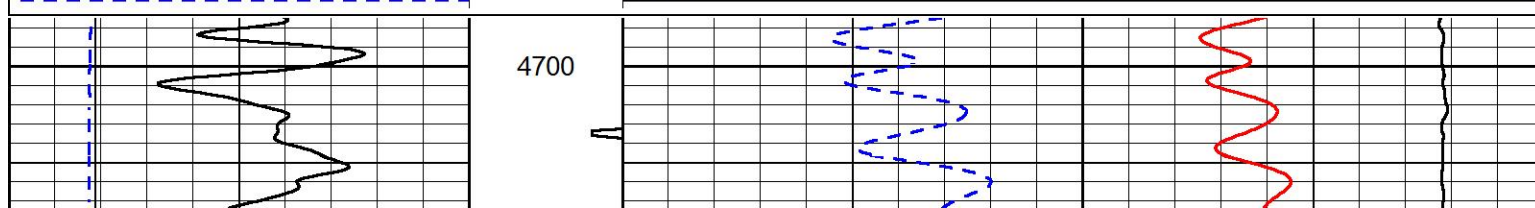


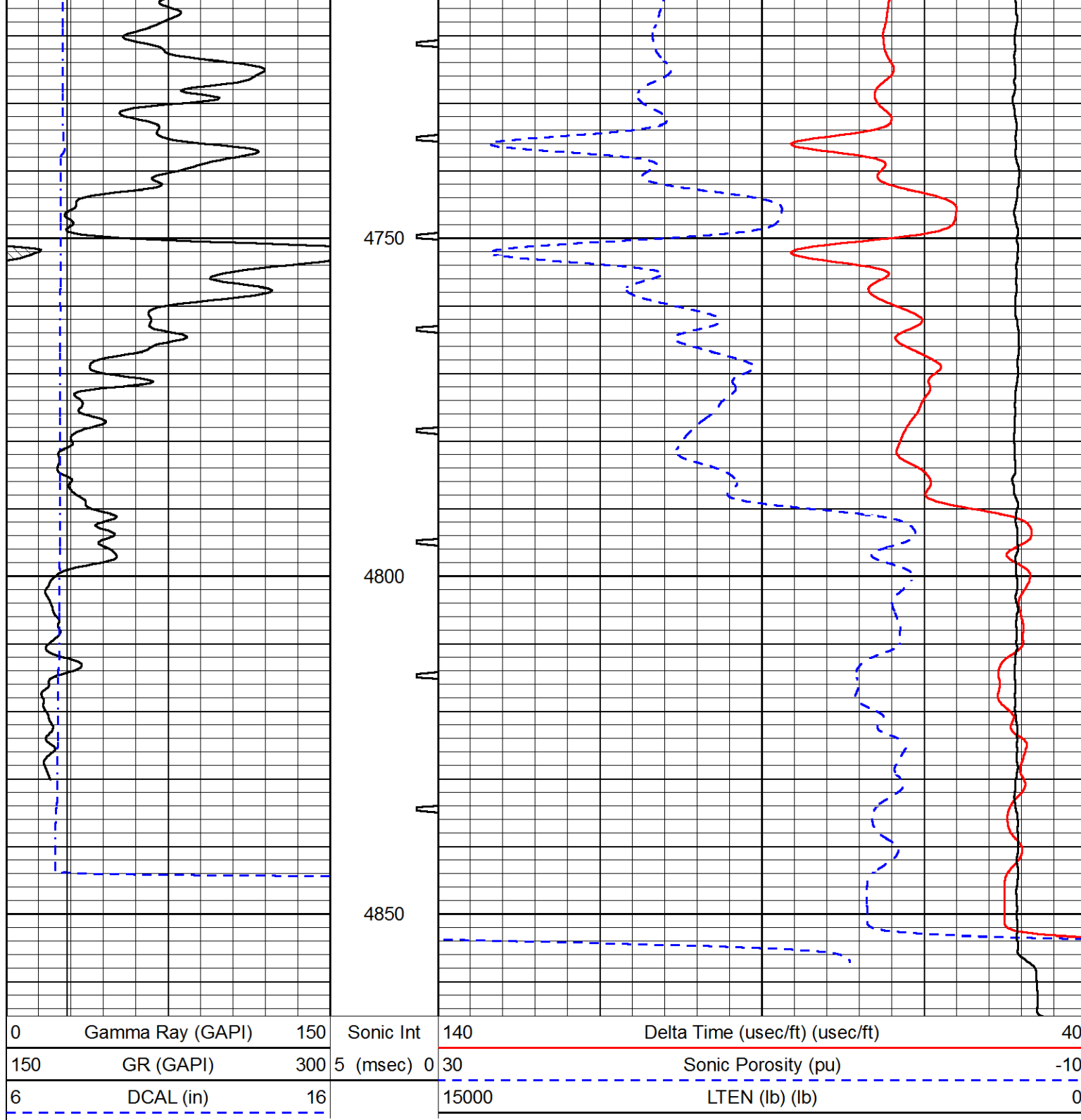


REPEAT SECTION

Database File	murfin_kopriva_1-14.db
Dataset Pathname	STACK/pass3.1
Presentation Format	sonic
Dataset Creation	Mon Jun 19 01:17:11 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_kopriva_1-14.db					
Dataset Pathname	STACK/pass5.1					
Dataset Creation	Mon Jun 19 02:03:15 2017					
Dual Induction Calibration Report						
Serial-Model:			PSI 91-M&W			
Calibration Performed:			Sat Jun 17 12:42:37 2017			
Readings		References			Results	
Loop:	Air	Loop	Air	Loop	Gain	Offset

Deep	166.796	835.089	0.000	255.800	mmho/m	0.420	-32.000
Medium	142.009	1348.560	0.000	255.800	mmho/m	0.360	-31.000

Compensated Density Calibration Report

Serial-Model: 90-1031-M&W
 Source / Verifier: 16955B / 2ci
 Master Calibration Performed: Sat Jun 17 12:42:56 2017

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	5174.18	6425.27	cps
Aluminum	2.665	g/cc	963.17	4037.42	cps
Spine Angle = 74.55			Density/Spine Ratio = 0.522		
	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: Sat Jun 17 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: Sat Jun 17 12:44:49 2017

 Calibrator Value: 1.0 GAPI

 Background Reading: 0.0 cps
 Calibrator Reading: 1.0 cps

 Sensitivity: 0.6000 GAPI/cps



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