



PIONEER

Pioneer Energy Services

BOREHOLE COMPENSATED SONIC LOG

Company **COBALT ENERGY LLC**
Well **BINNS A #1-32**
Field **WILDCAT**
County **LOGAN** State **KANSAS**

Location: API #: 15-109-21454-00-00

Other Services

SEC 32 TWP 15S RGE 33W
1067' FSL & 1032' FWL

CNL/CDL
MEL/DIL

Permanent Datum **GROUND LEVEL** Elevation **3040'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Elevation
K.B. 3051'
D.F. N/A
G.L. 3040'

Date **8/27/2016**

Run Number **TWO**

Type Log **BHCS**

Depth Driller **4799'**

Depth Logger **4794'**

Bottom Logged Interval **4783'**

Top Logged Interval **200'**

Type Fluid In Hole **CHEMICAL**

Salinity, PPM CL **5000**

Density **9.3**

Level **FULL**

Max. Rec. Temp. F **124**

Operating Rig Time **4 HOURS**

Equipment -- Location **108 COLBY**

Recorded By **T. MARTIN**

Witnessed By **COREY N. BAKER**

Borehole Record

Casing Record

Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	00'	221'	8.625"	23#	00'	221'
TWO	7.875"	221'	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.

SCOTT LAKE, HWY 95 AND 270 RD, 5 W TO GRANT RD,
3 N, W INTO AT SHED, THRU GATE

Log Measured From: **KELLY BUSHING** 11 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew

Engineer: **T. MARTIN**
Operator:
Operator:
Operator:

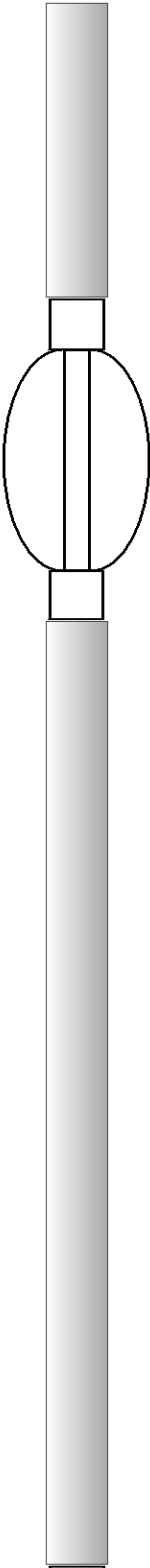
This Log Record Was Witnessed By

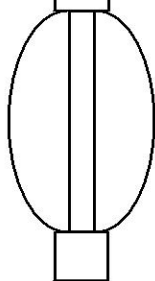
Primary Witness: **COREY N. BAKER**
Secondary Witness:
Secondary Witness:
Secondary Witness:

DatabaseC:\ProgramData\Warrior\Data\cobalt_binns a_#1-32.db
Dataset field/well/stack/pass3.1/_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	-460	82	Off	4794

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
MCAL MI MN	28.00		ML-Armadillo (Armadillo-4) Pengo micro log tool mandrel with Armadillo Electronics	5.00	3.50	100.00	
	28.00						
	28.00						
			CENT-PENGO	5.50	3.00	70.00	



CENT-PENGO

5.50

3.00

70.00

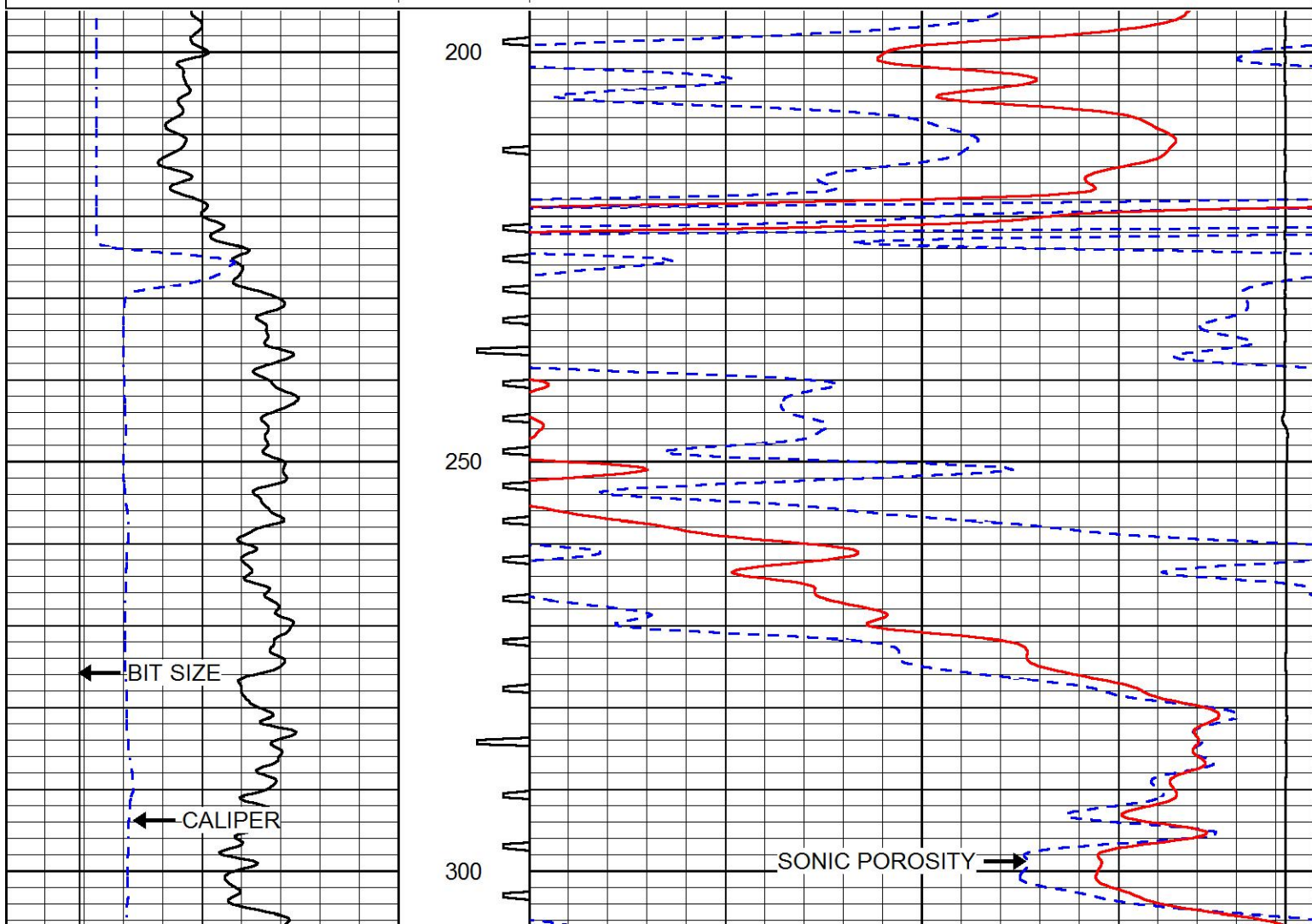
Dataset: cobalt_binns a_#1-32.db: field/well/sonmel/pass3
Total length: 32.00 ft
Total weight: 540.00 lb
O.D.: 3.50 in

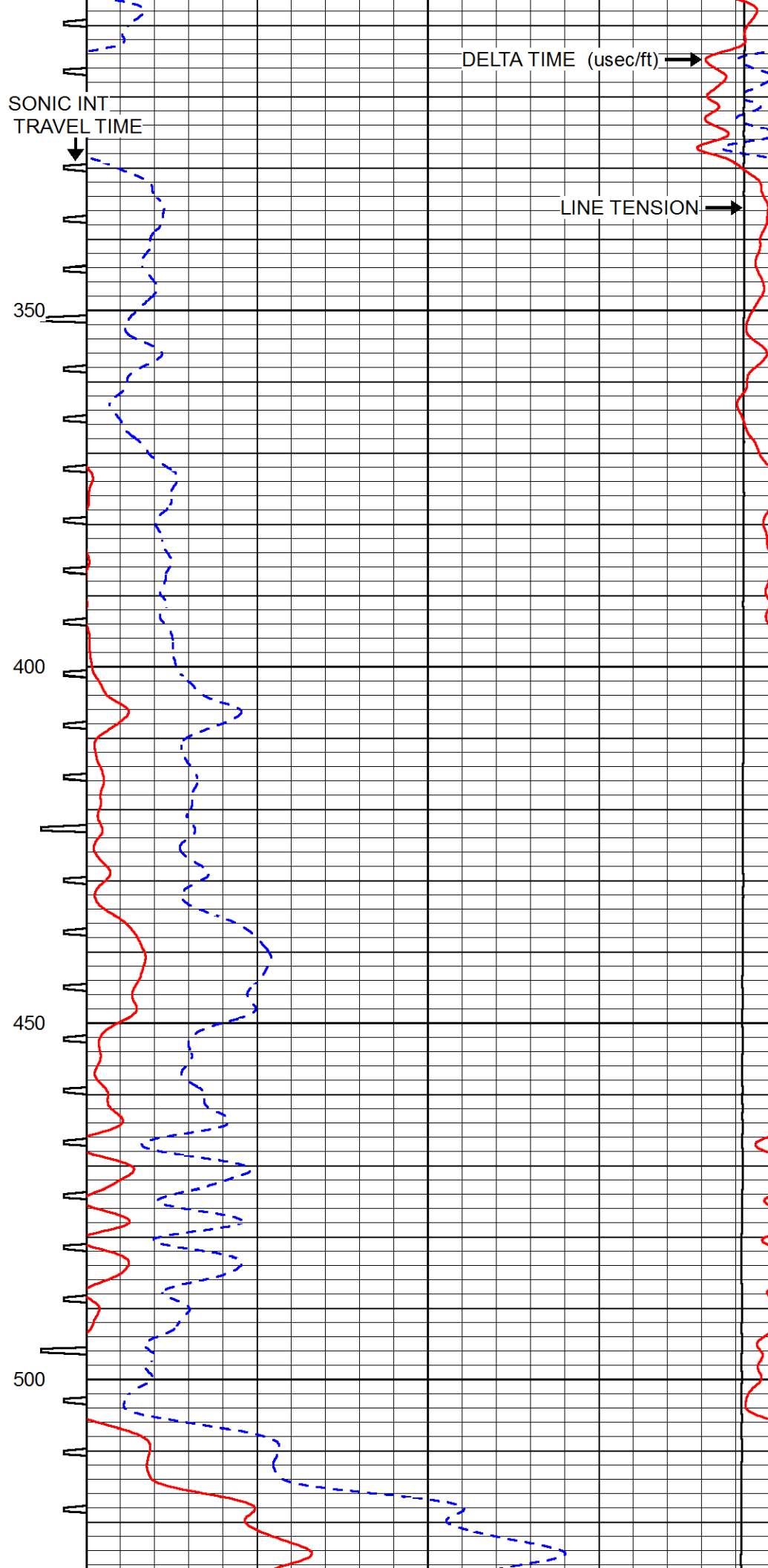
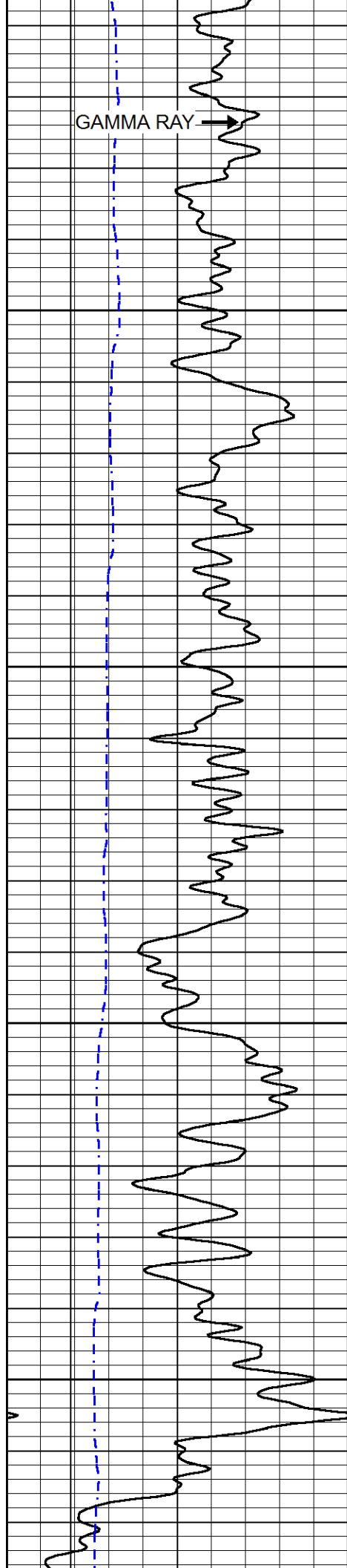


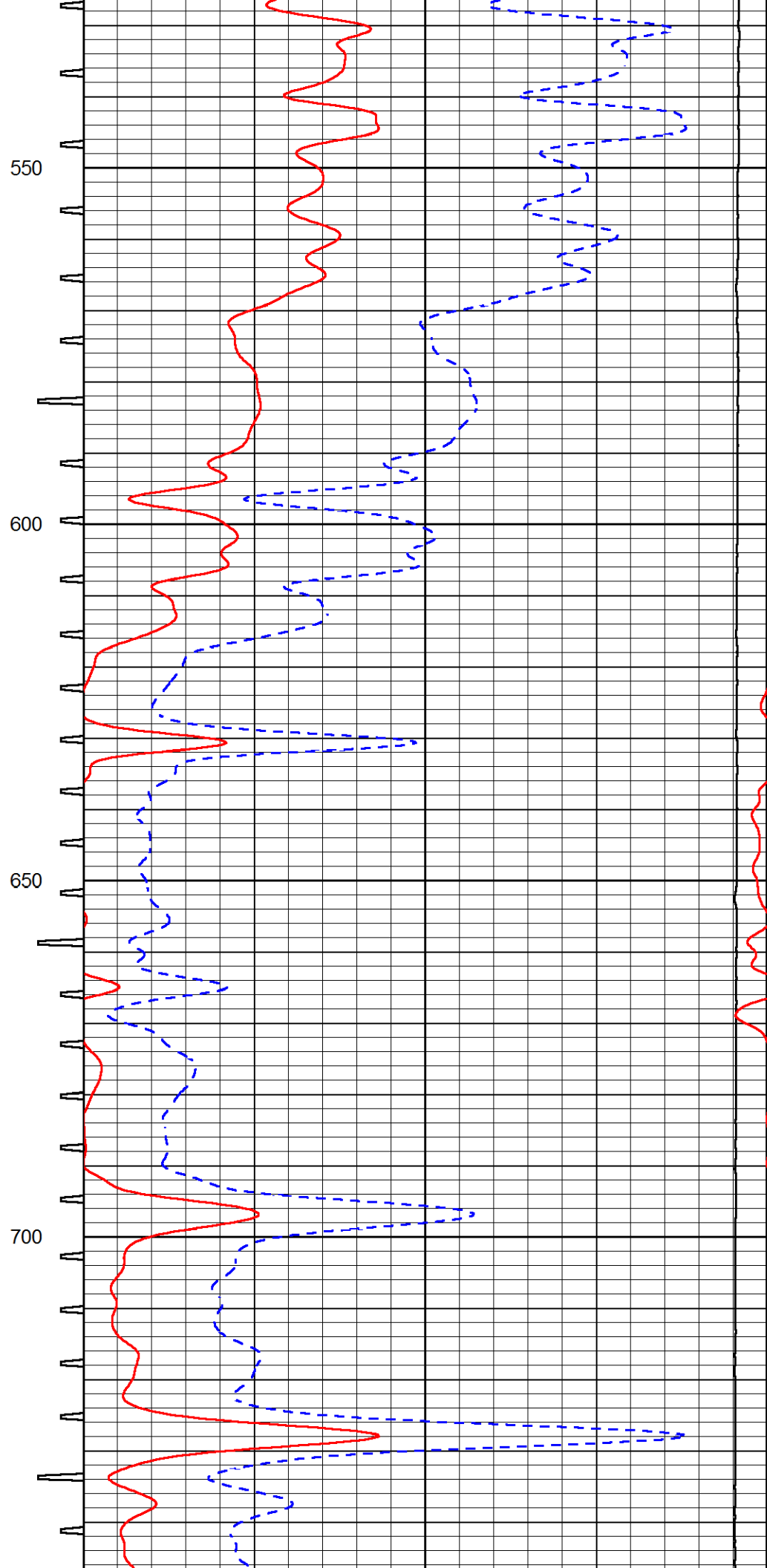
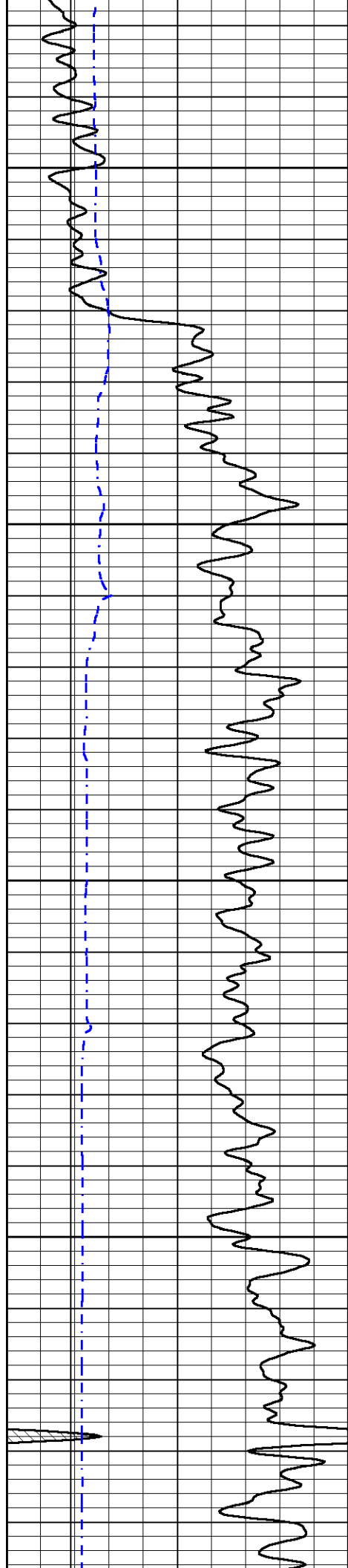
MAIN PASS

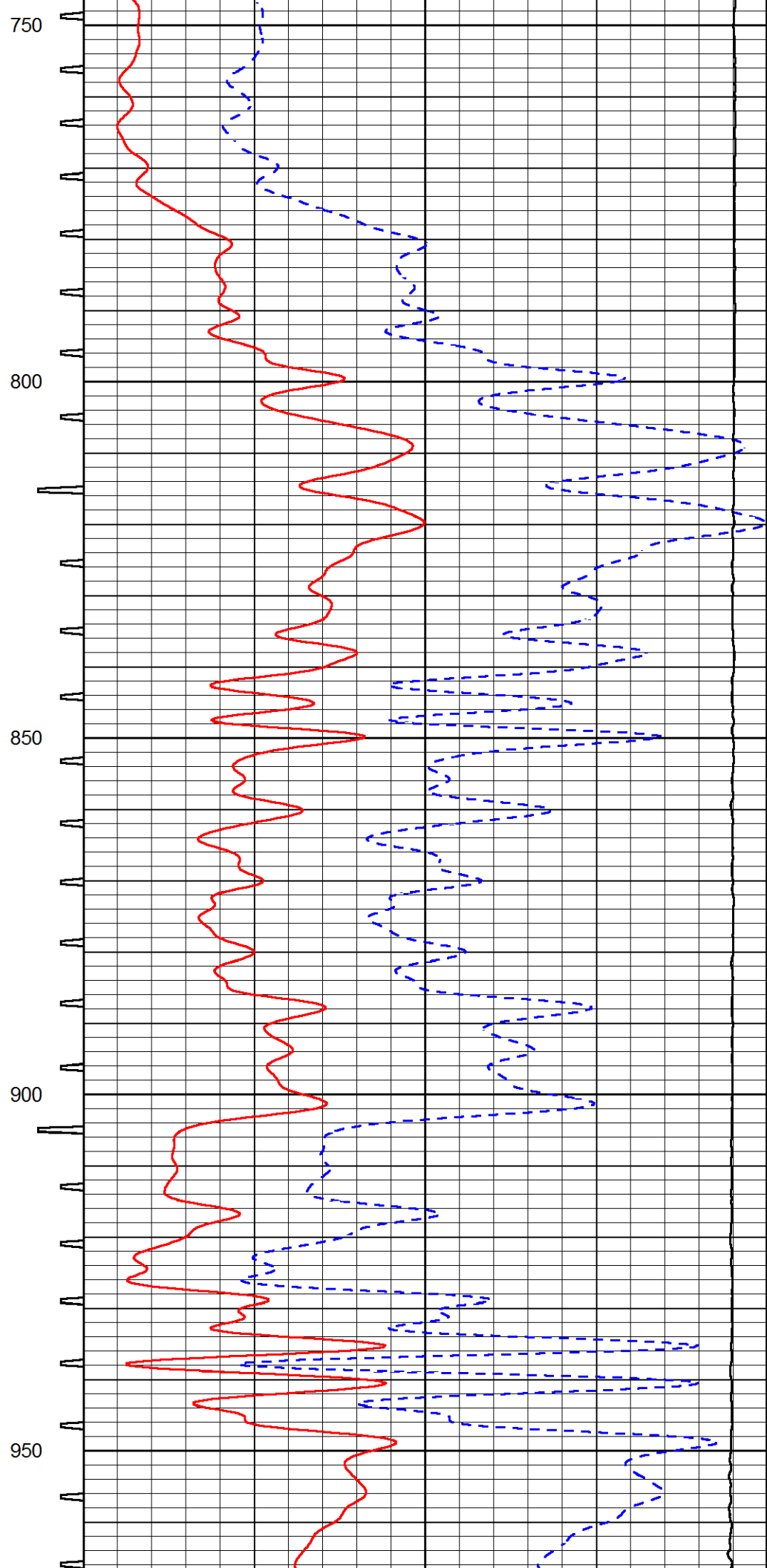
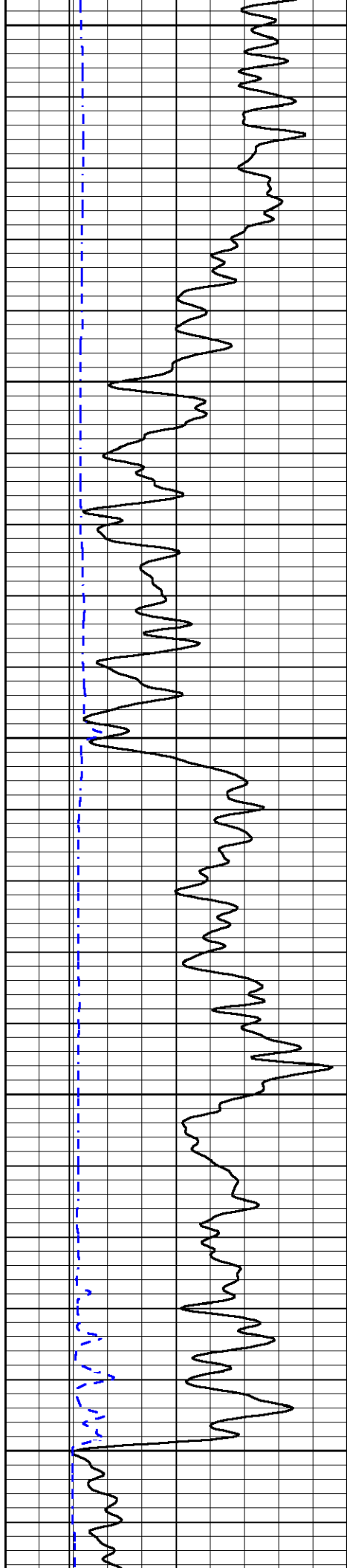
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Dataset Pathname stack/pass3.1
Presentation Format sonic
Dataset Creation Sat Aug 27 20:08:49 2016
Charted by Depth in Feet scaled 1:240

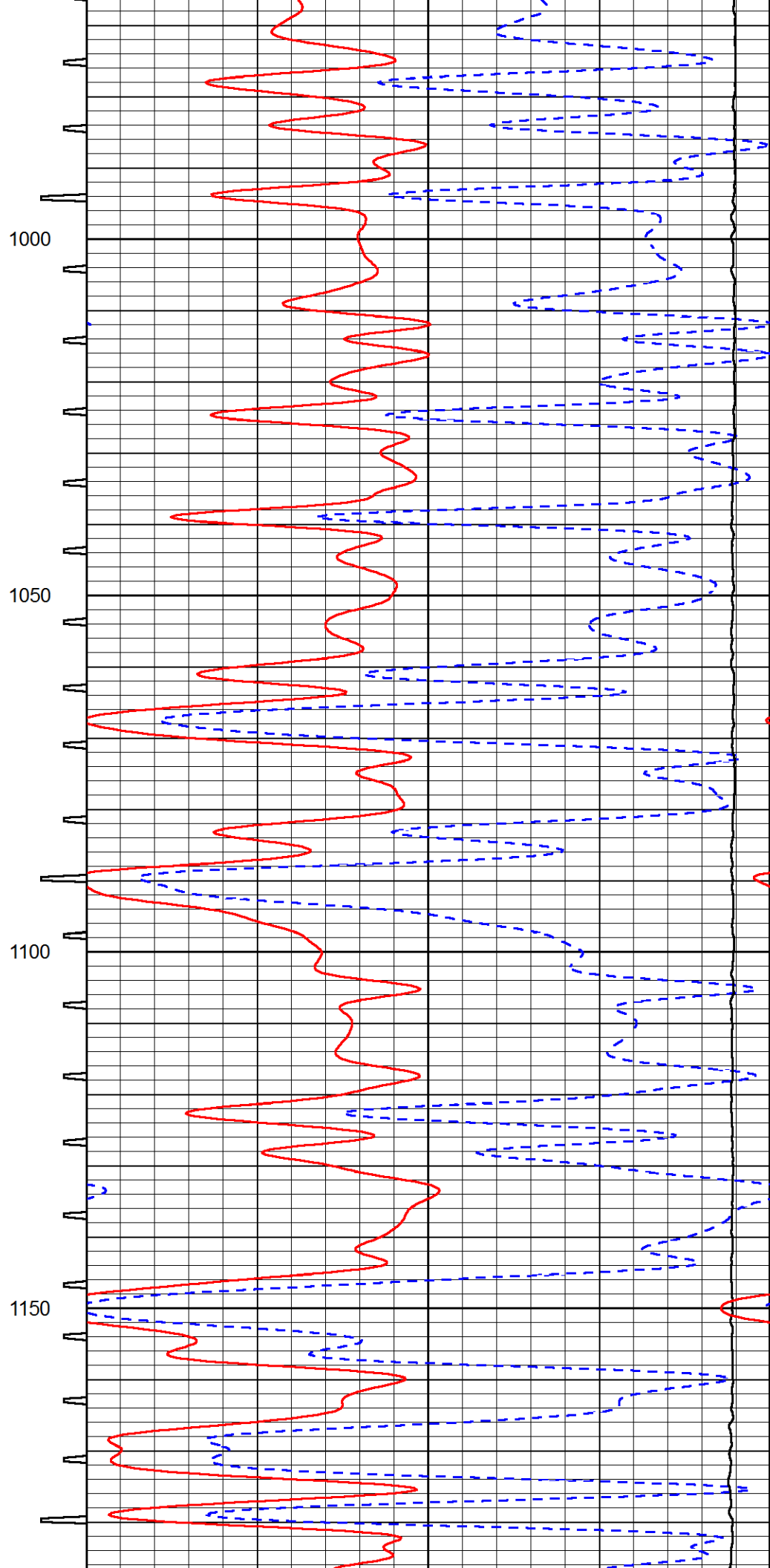
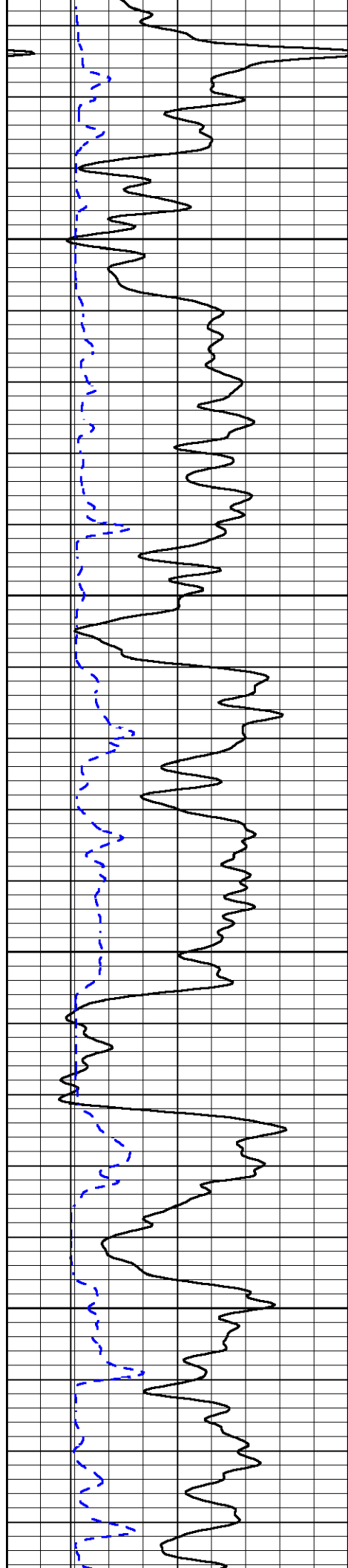
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6	CALIPER (in)	16	RAVEL TIM	30	SONIC POROSITY (pu)	-10
6	BIT SIZE	16	(msec)	15000	LINE TENSION (lb)	0

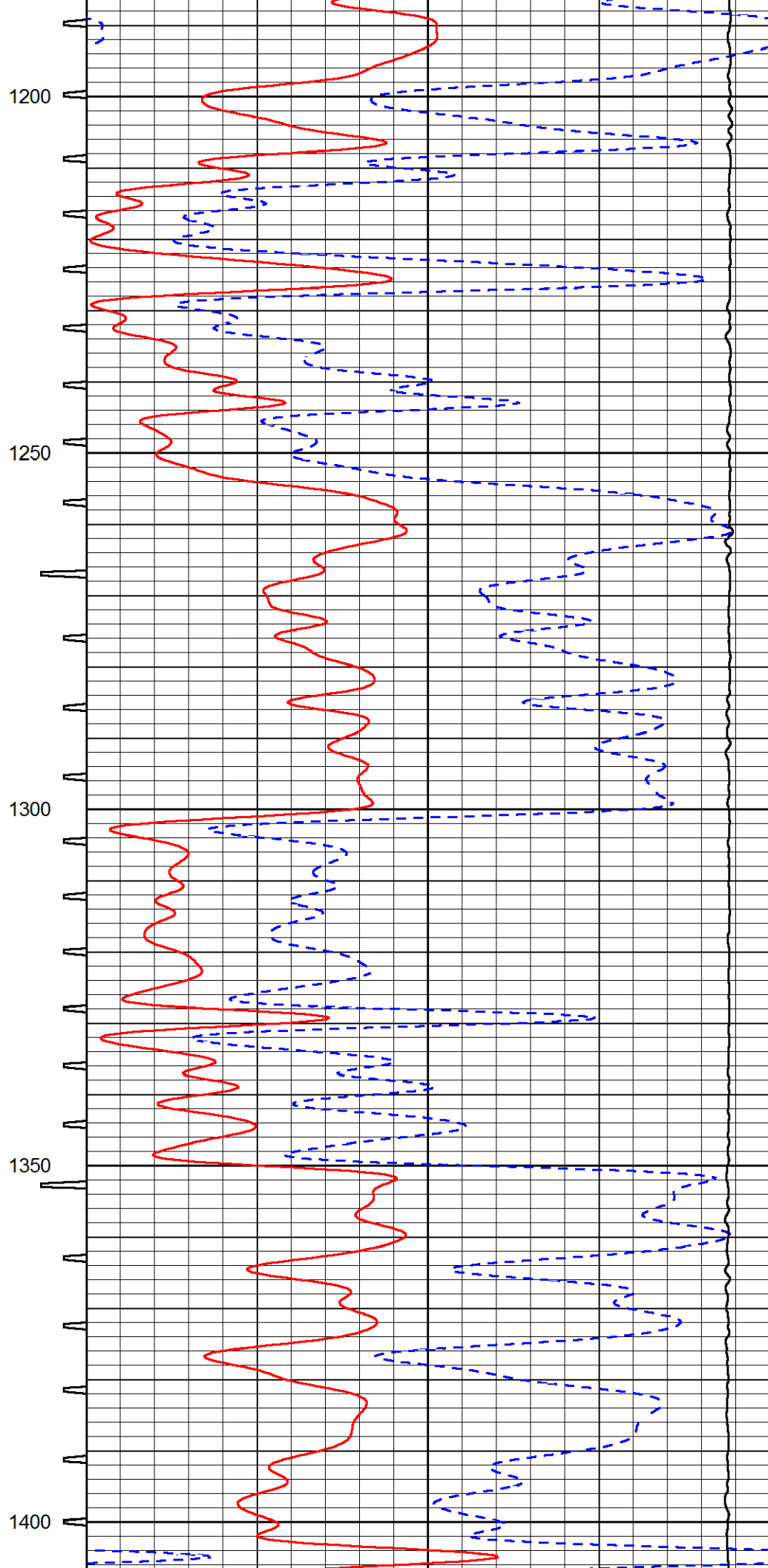
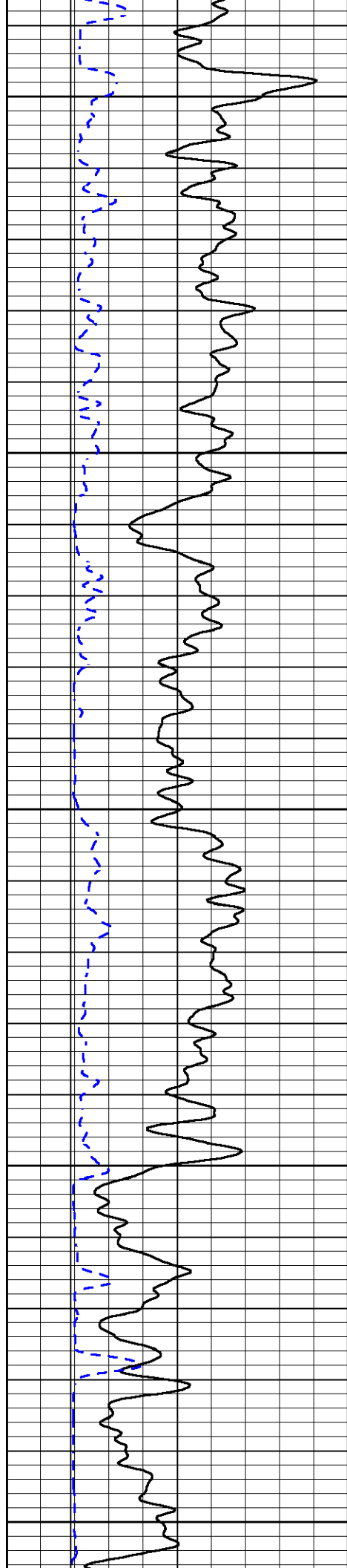


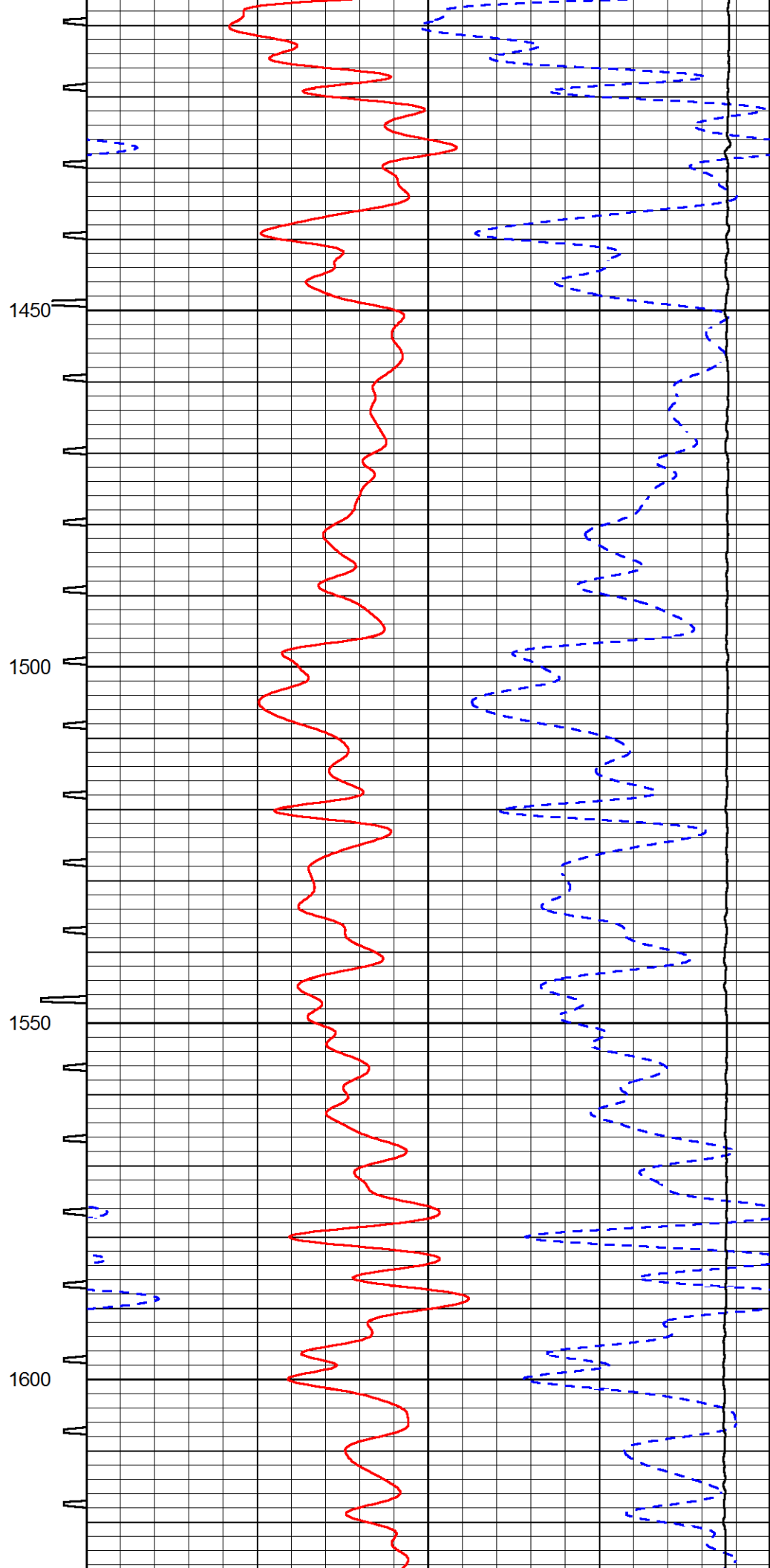
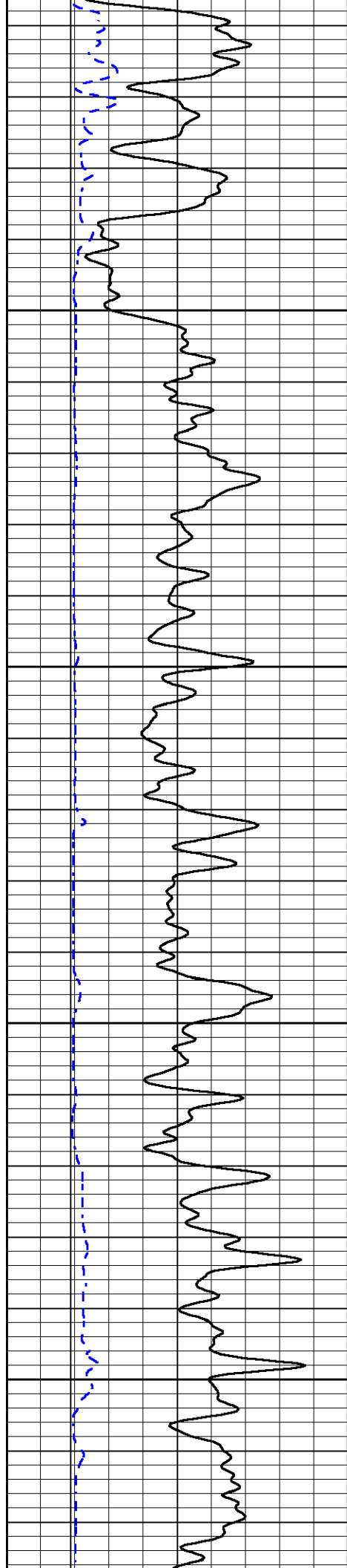


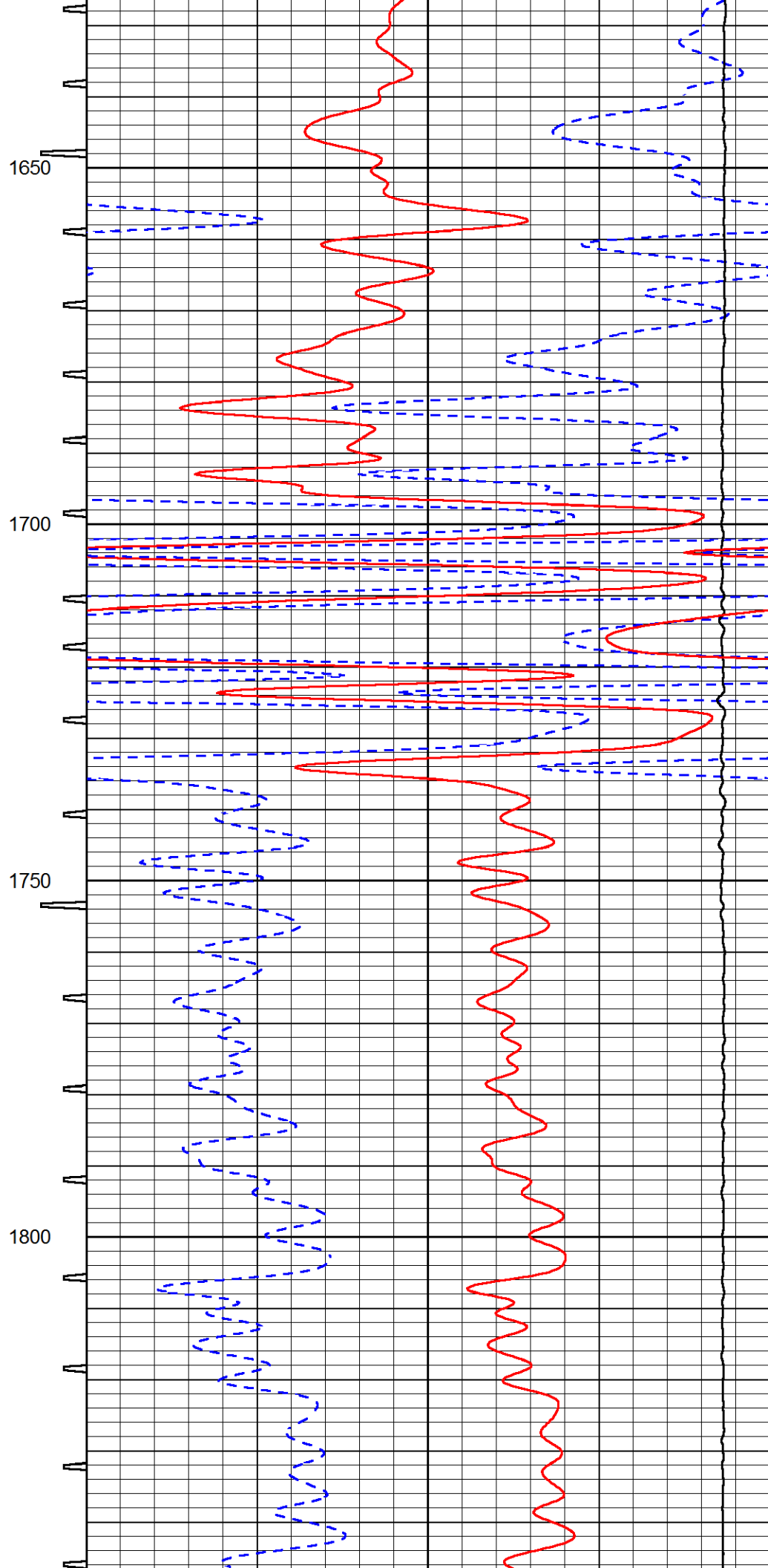
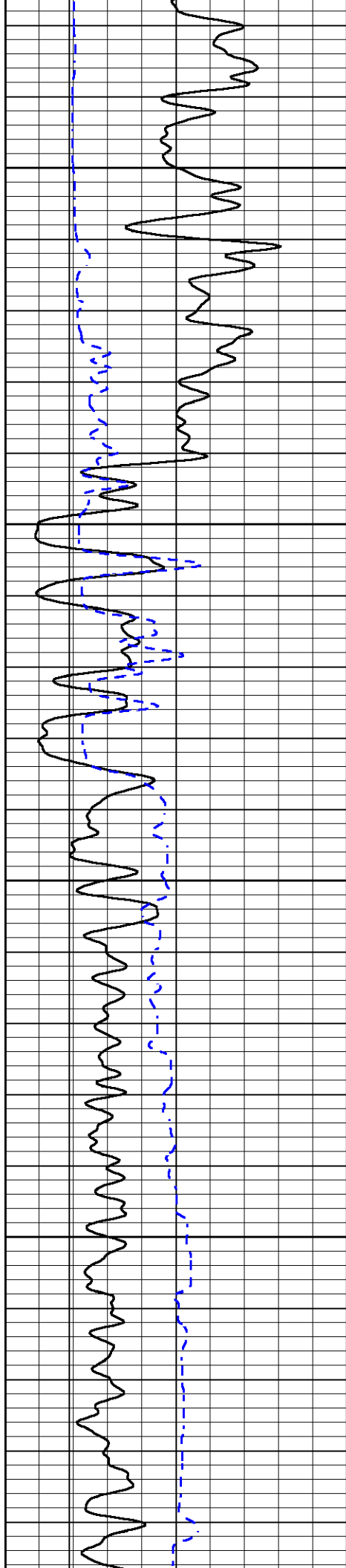


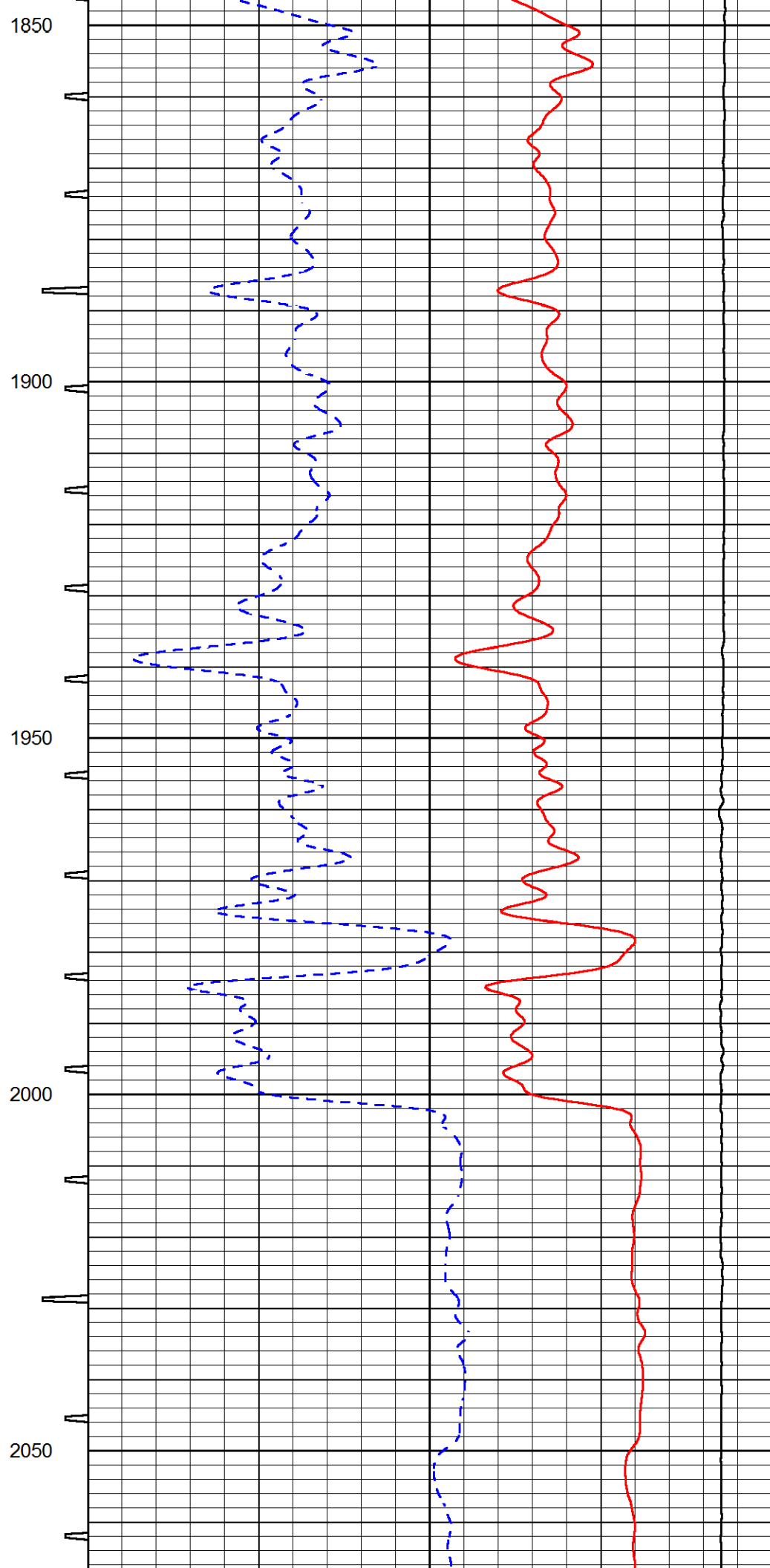
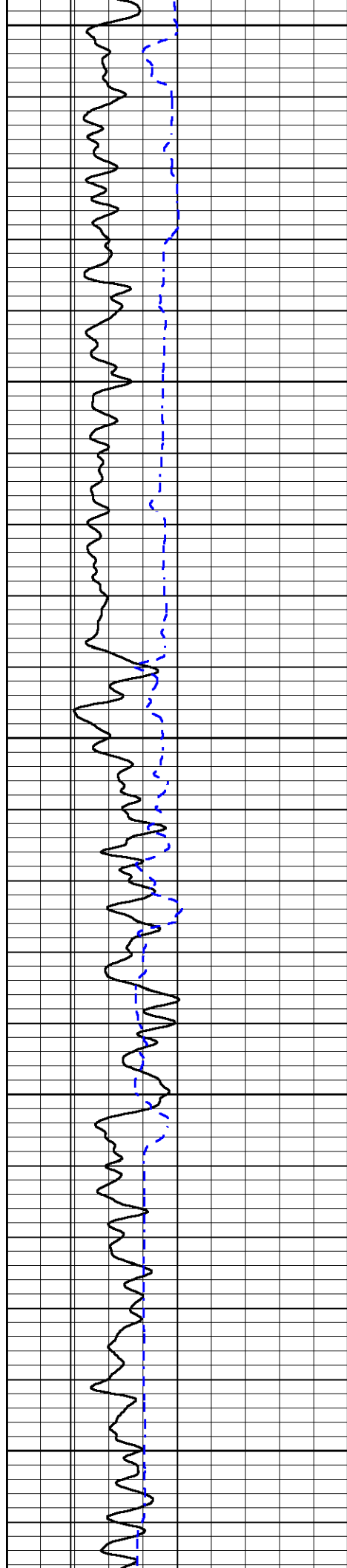


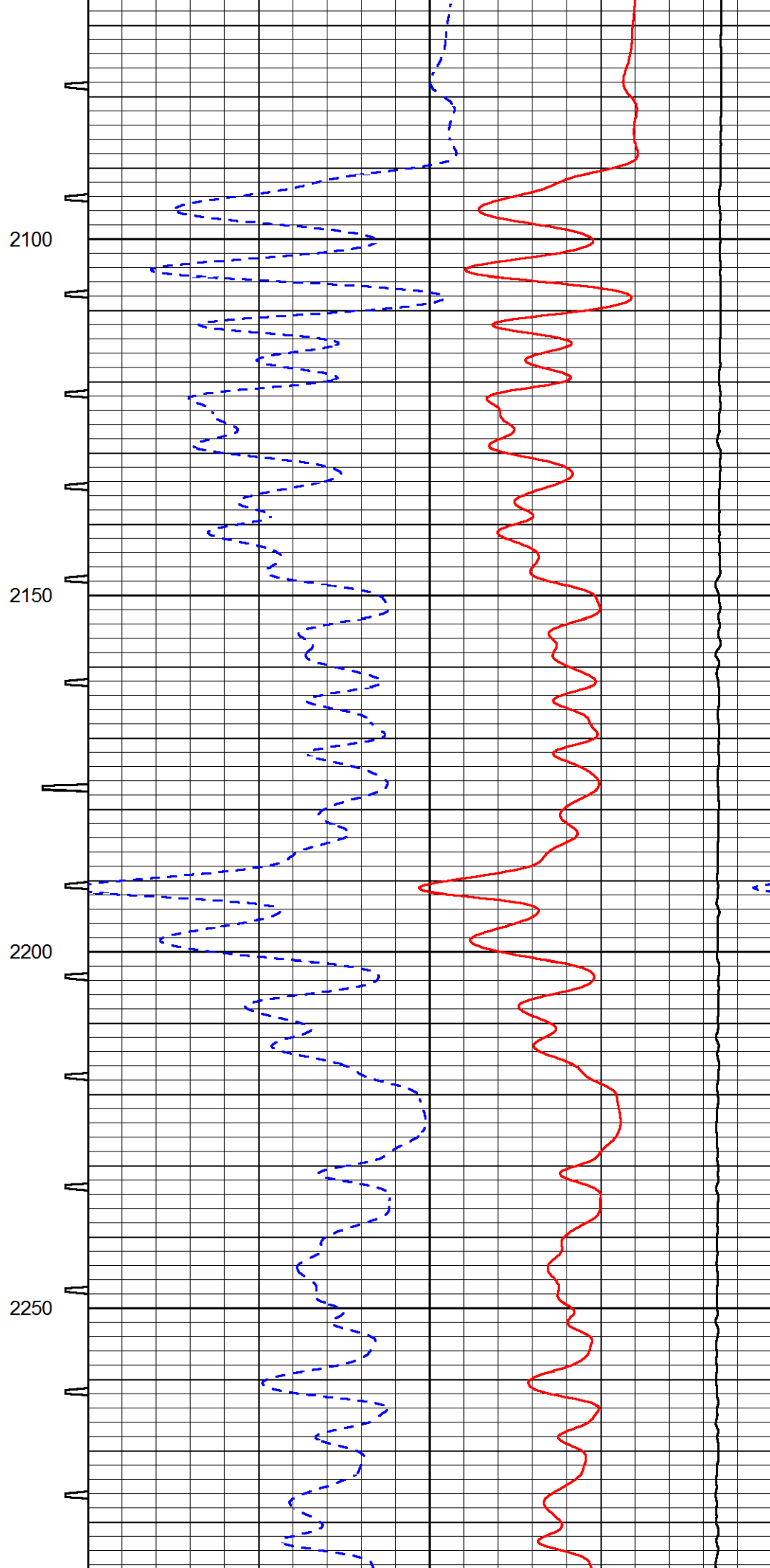
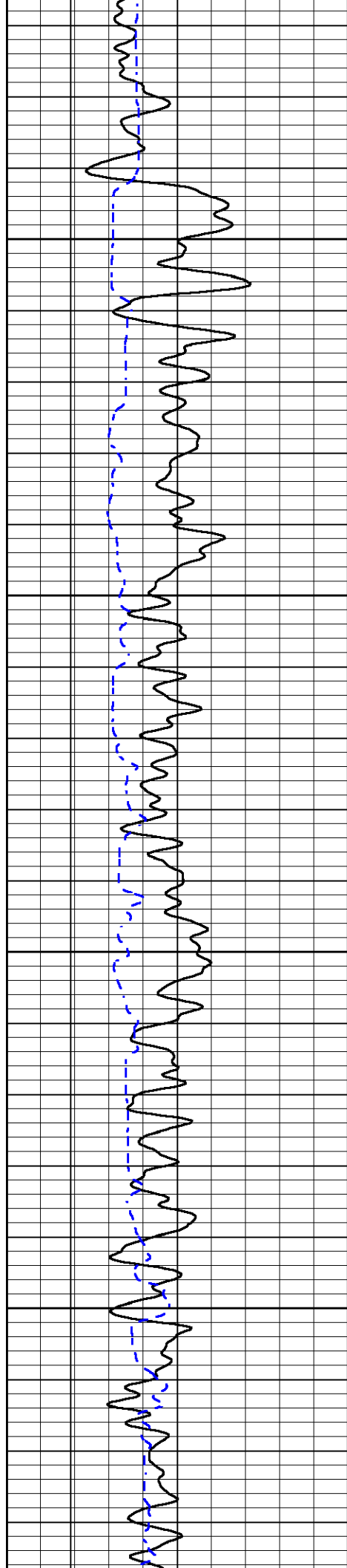


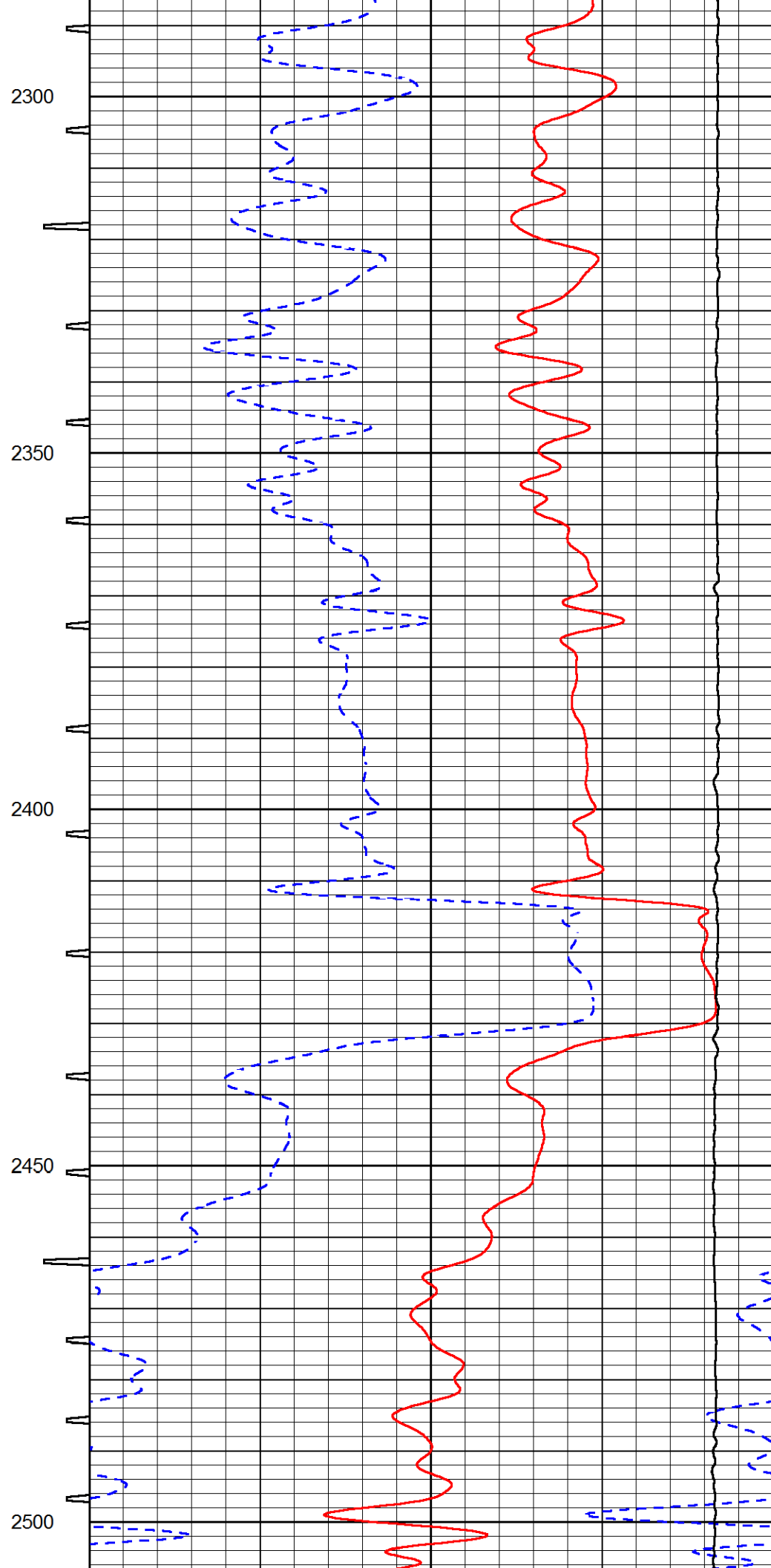
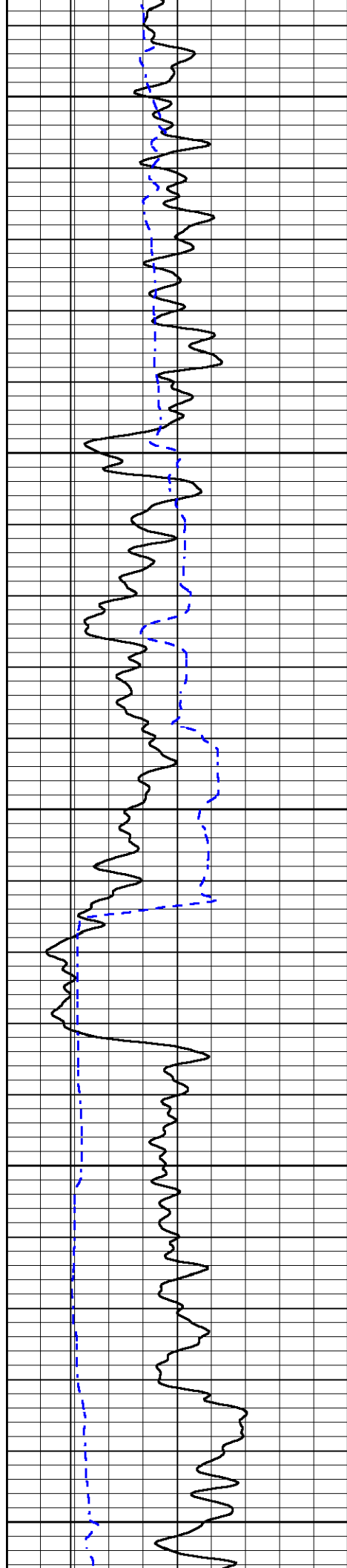


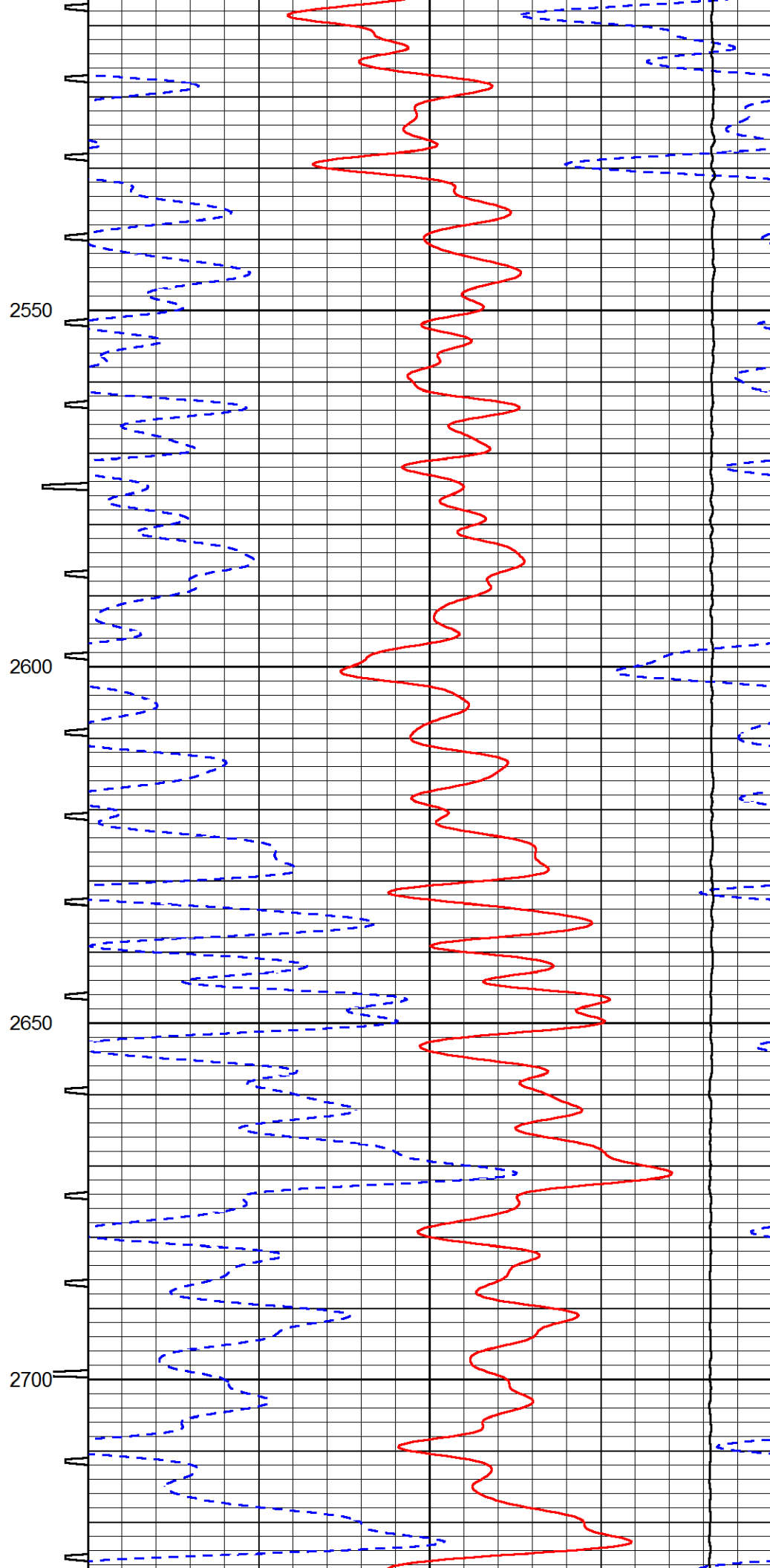
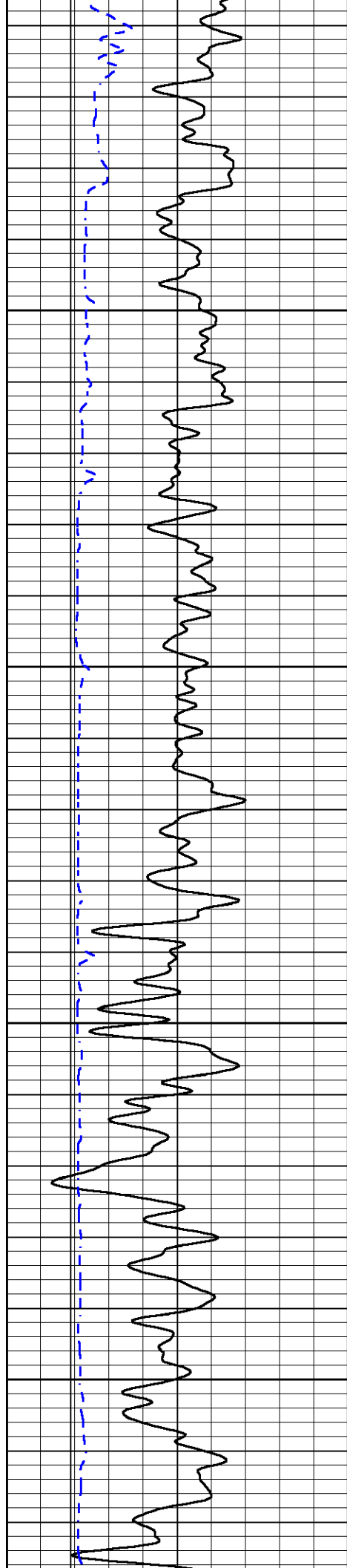


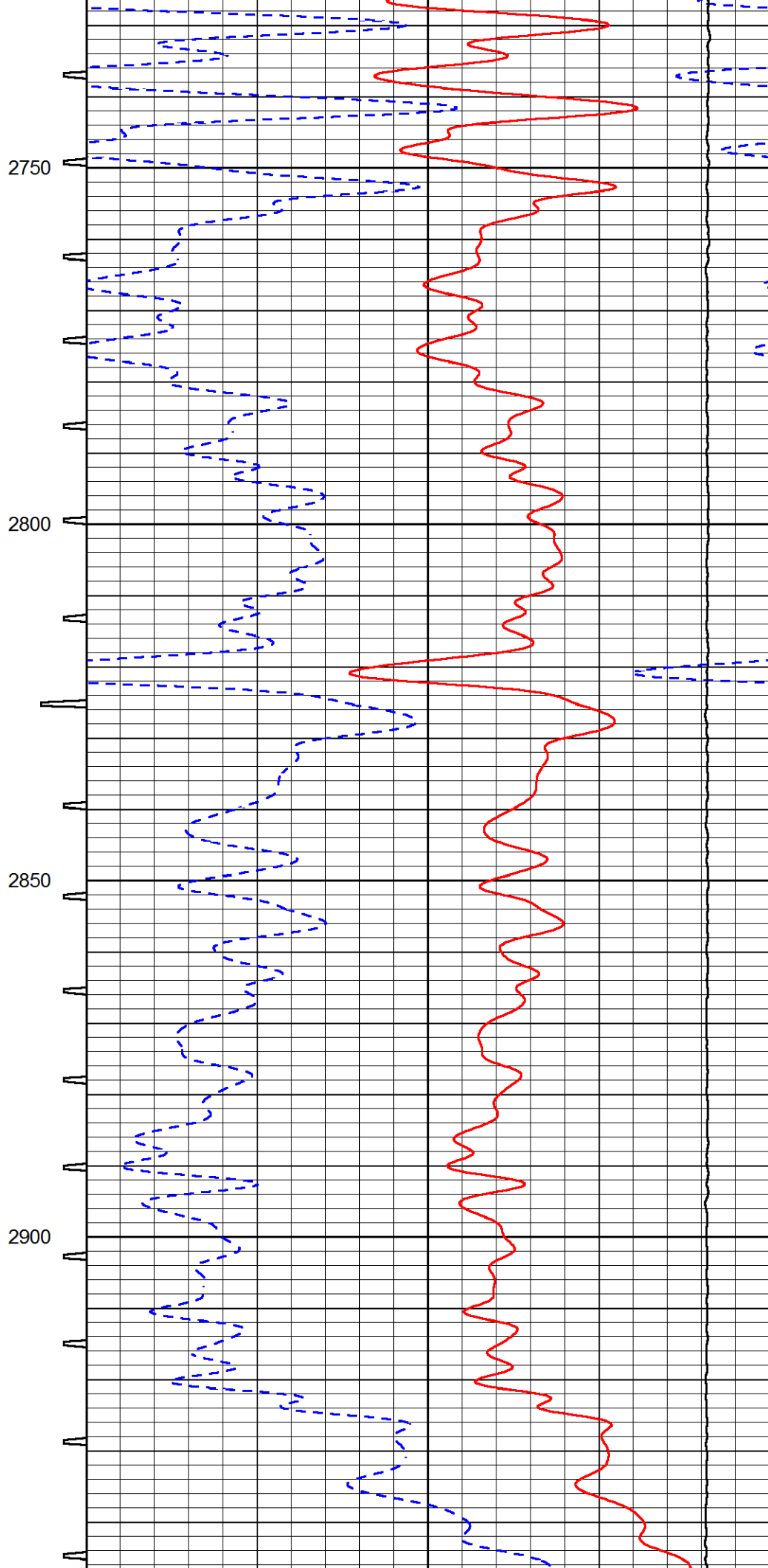
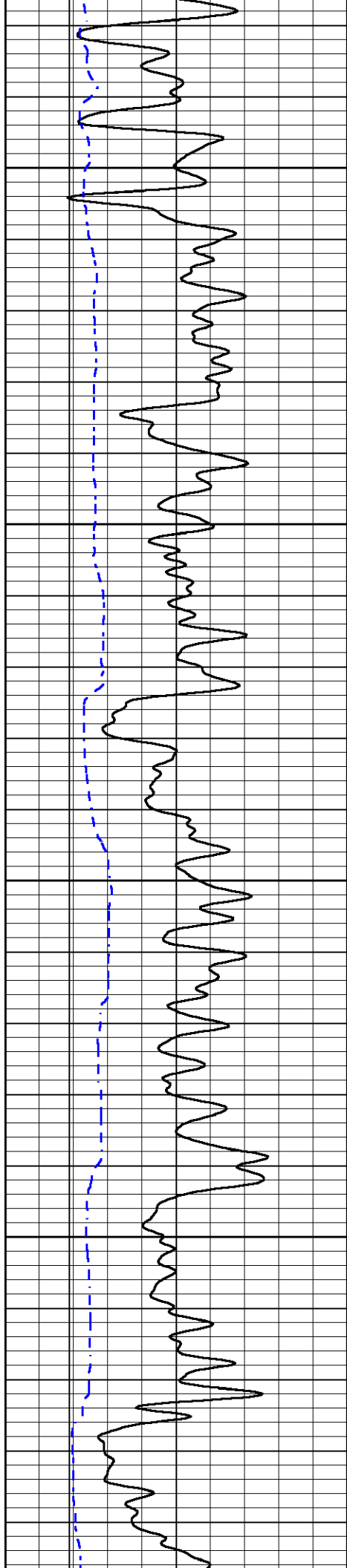


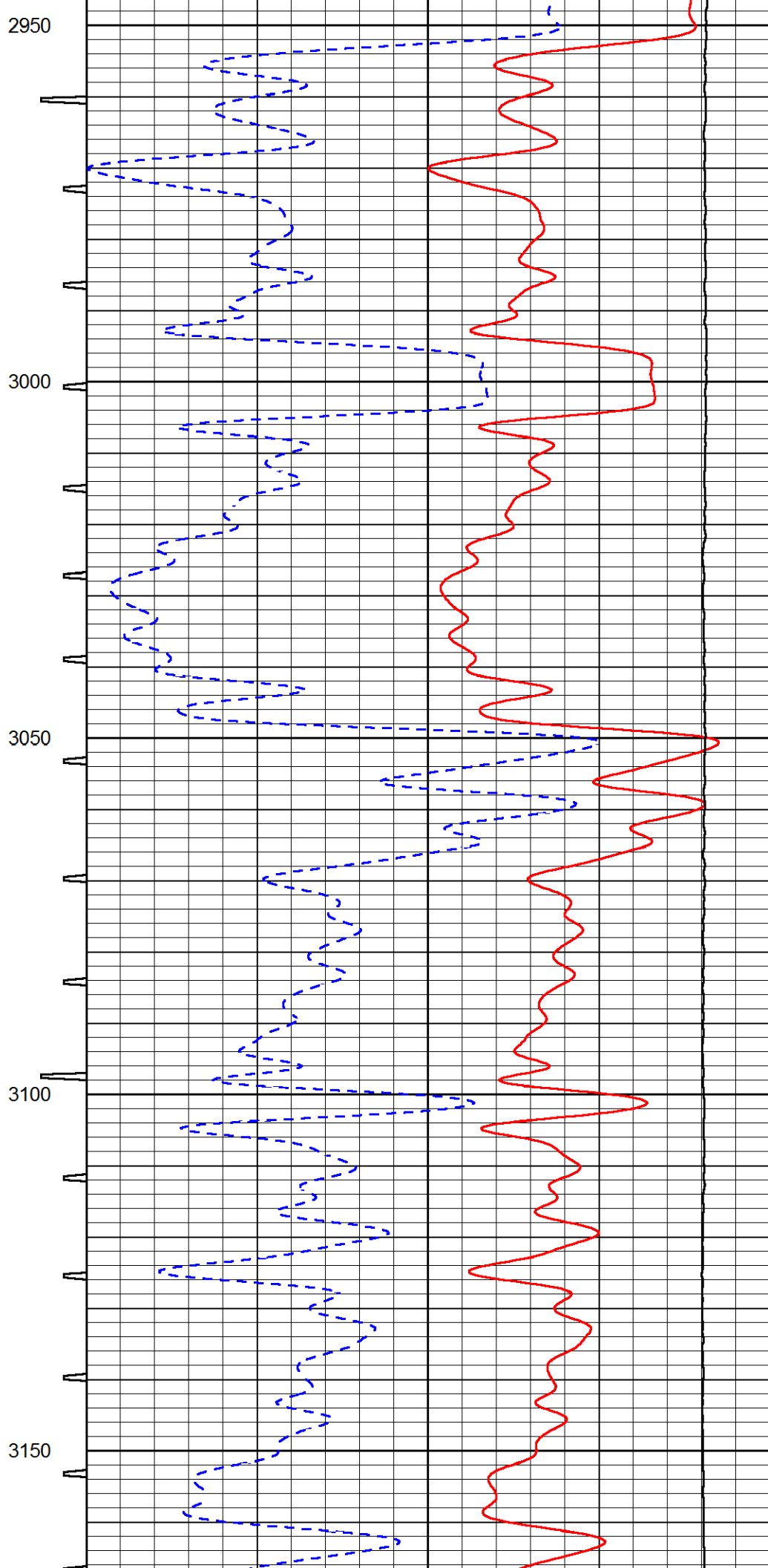
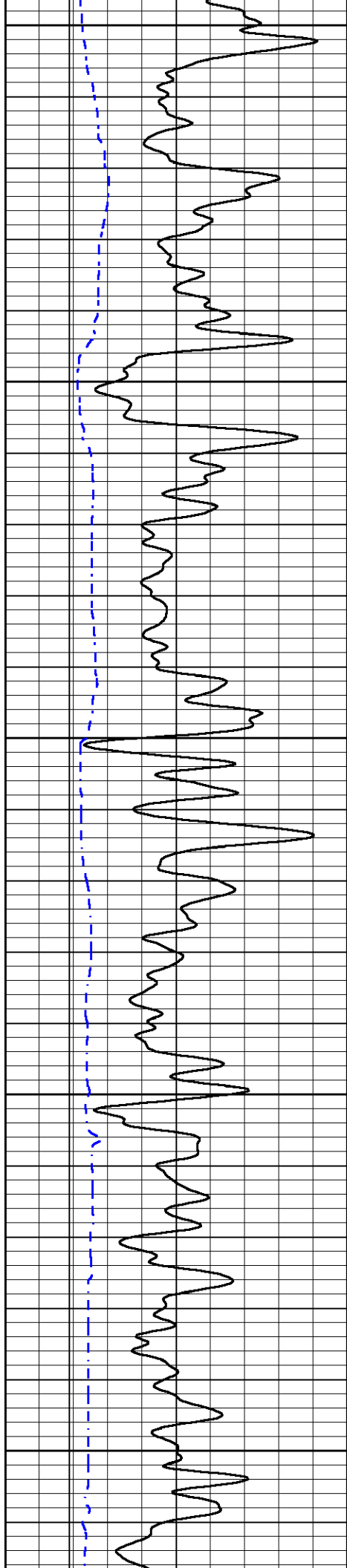


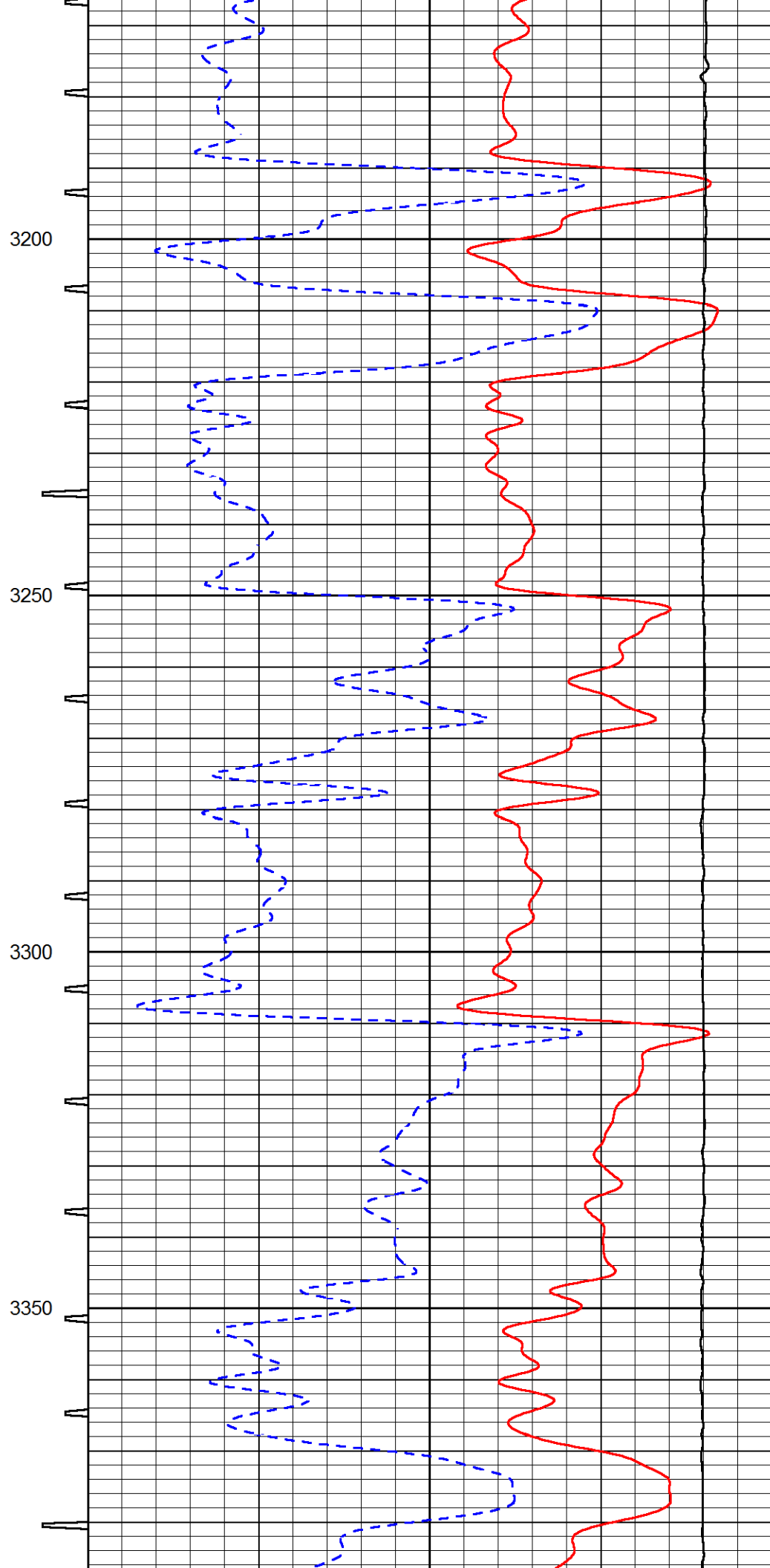
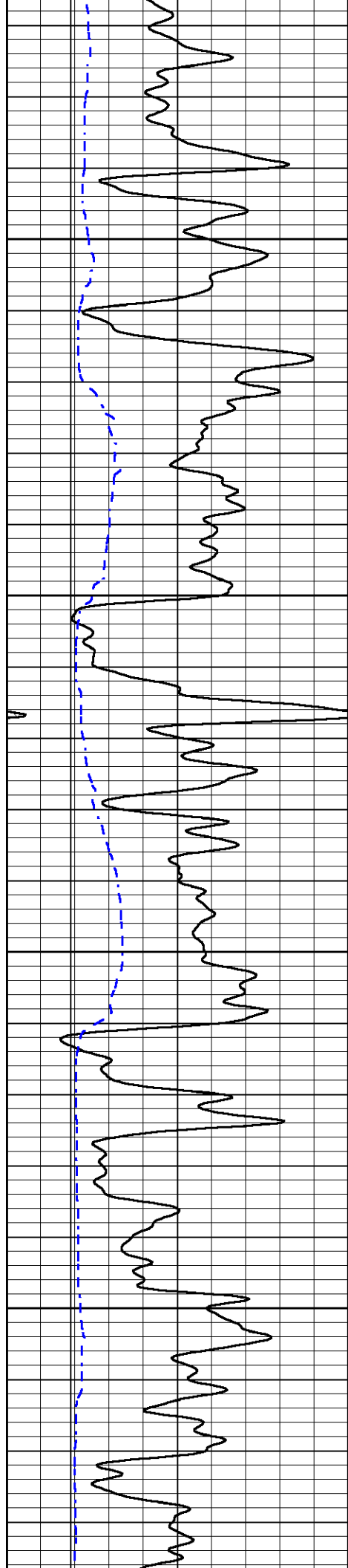


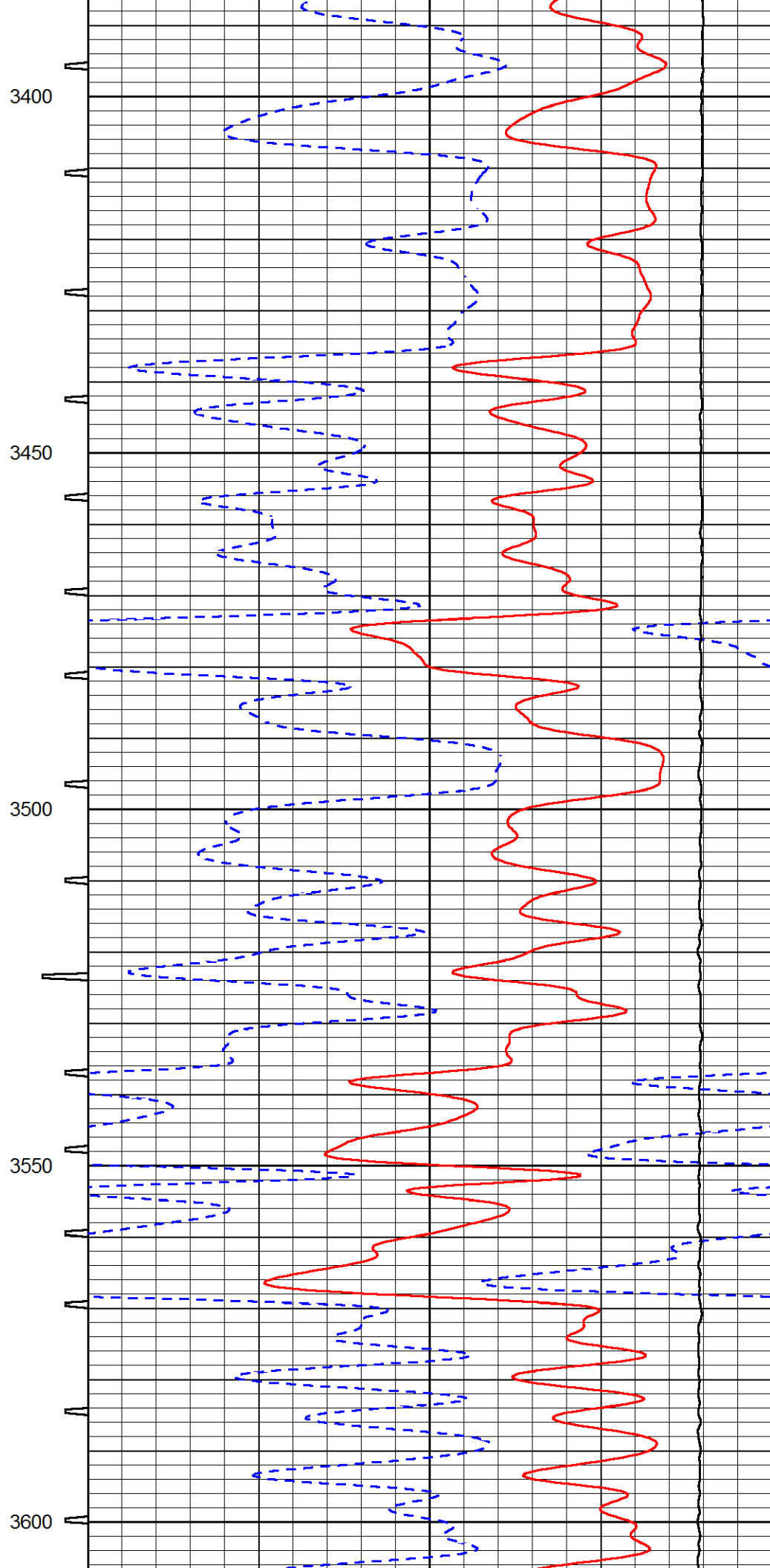
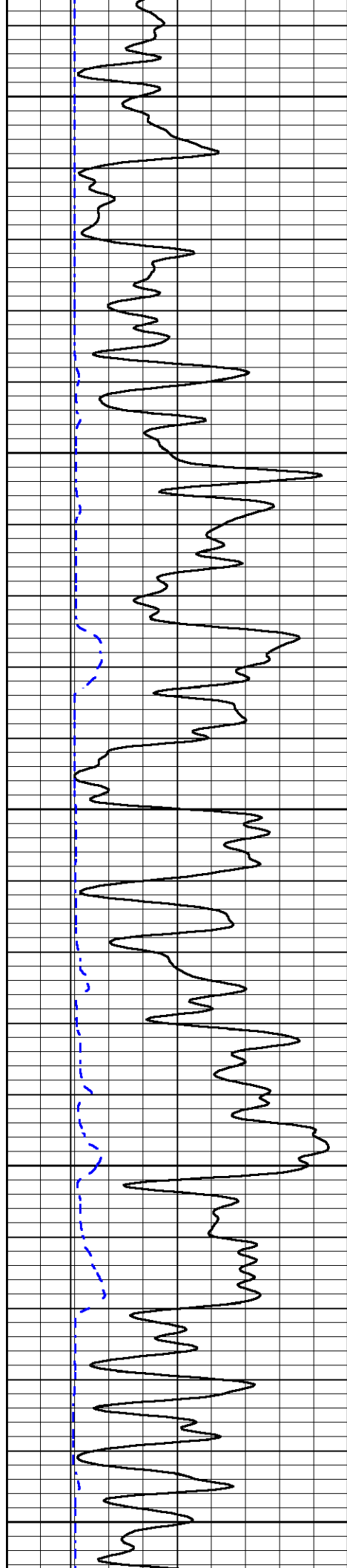


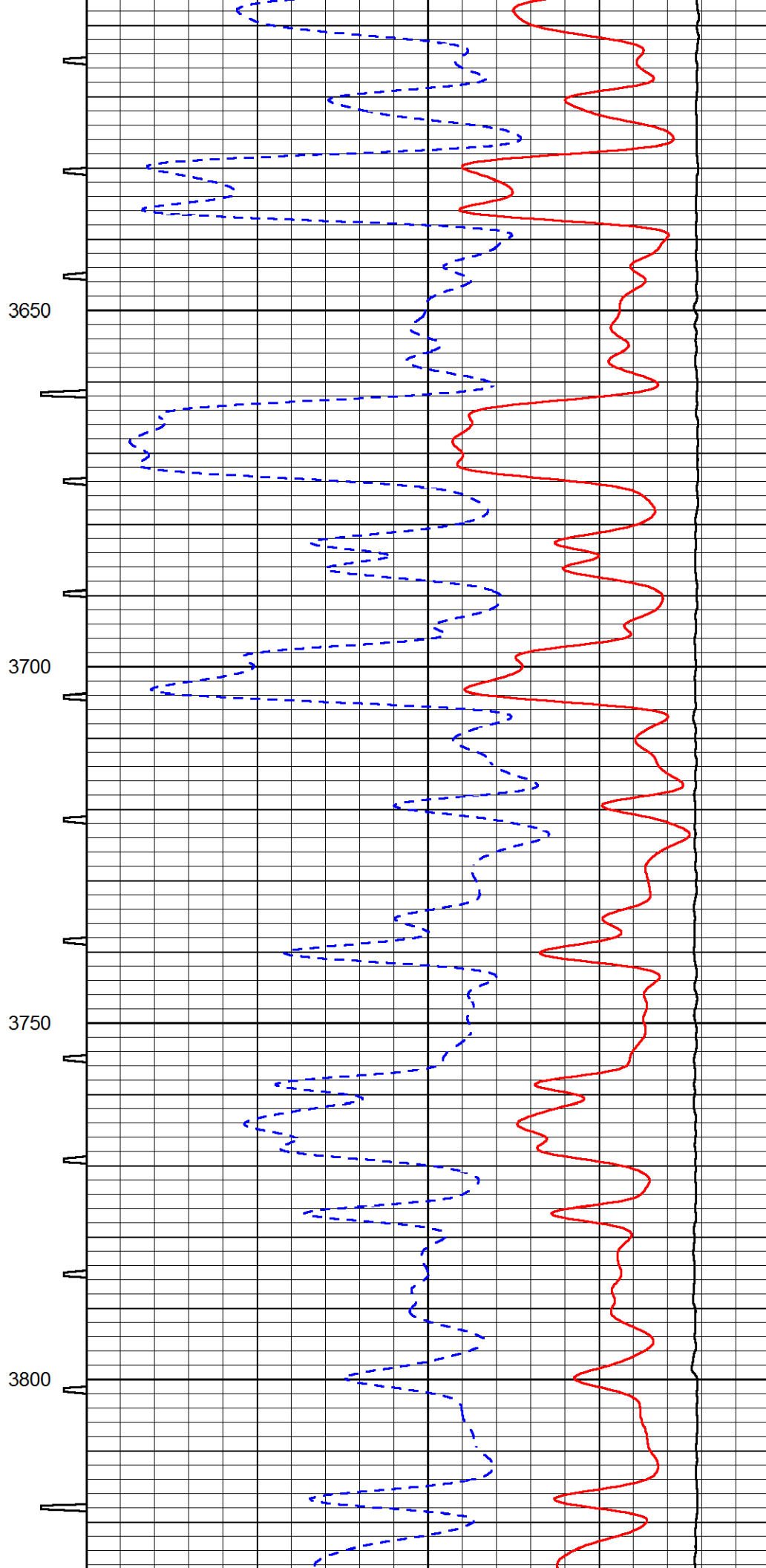
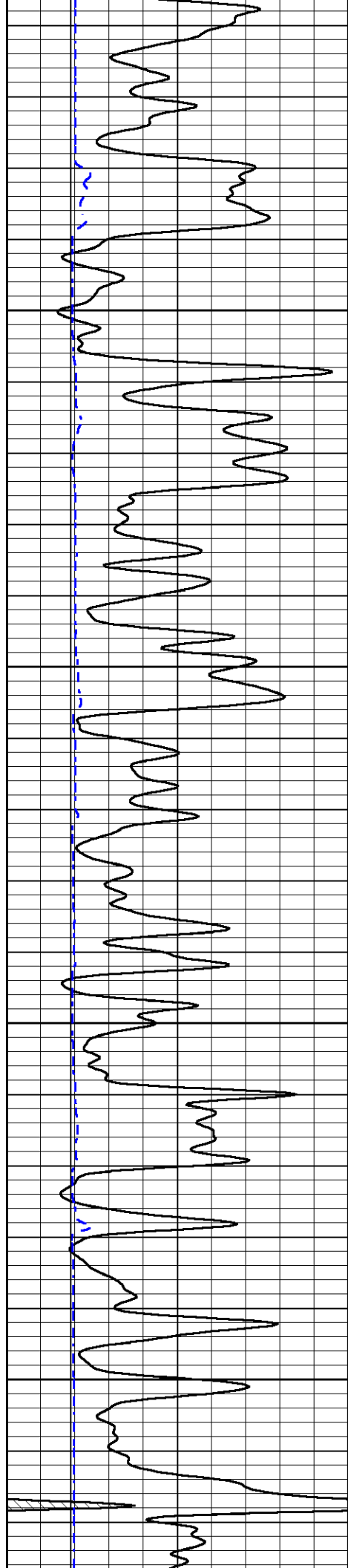


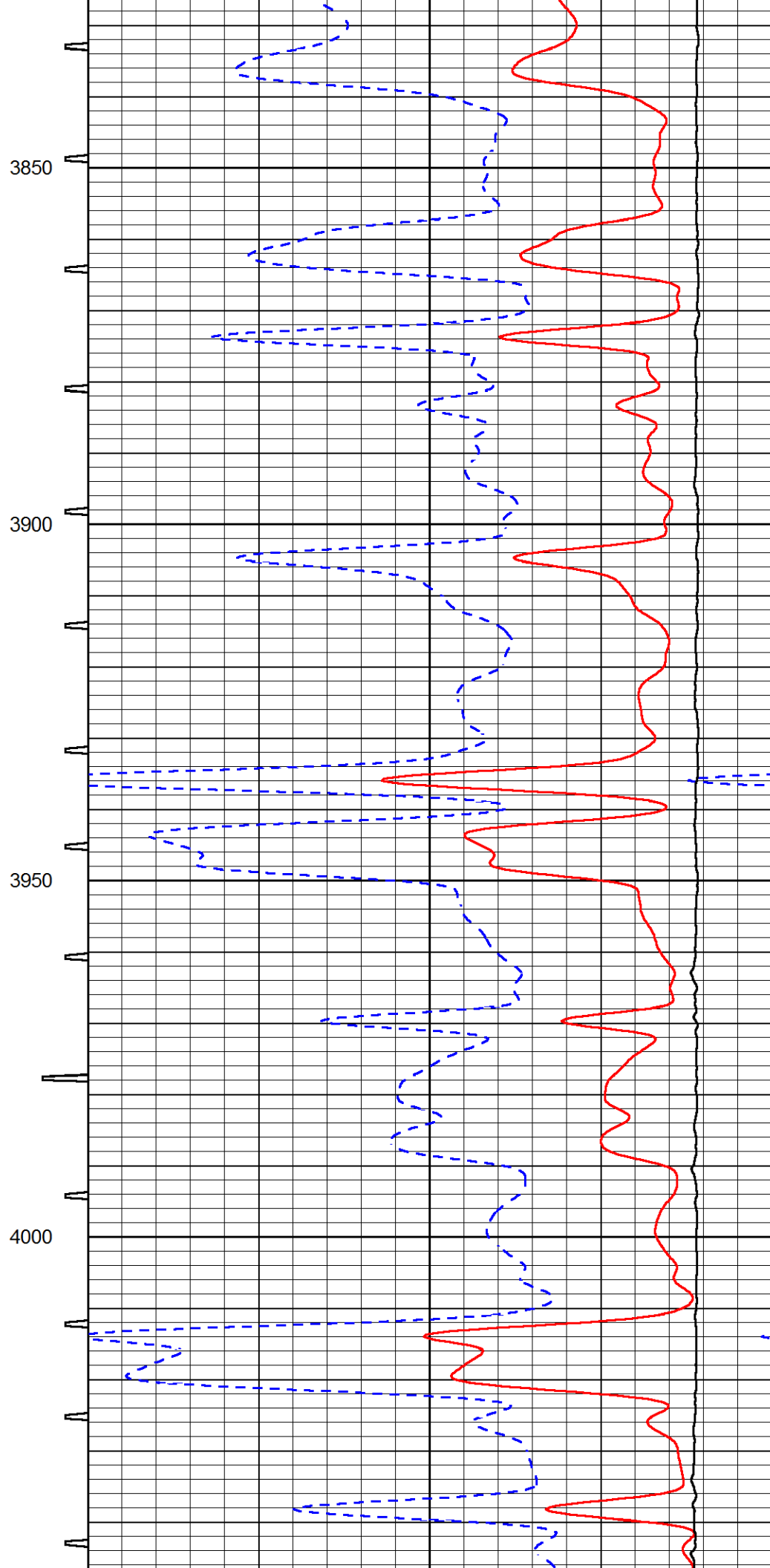
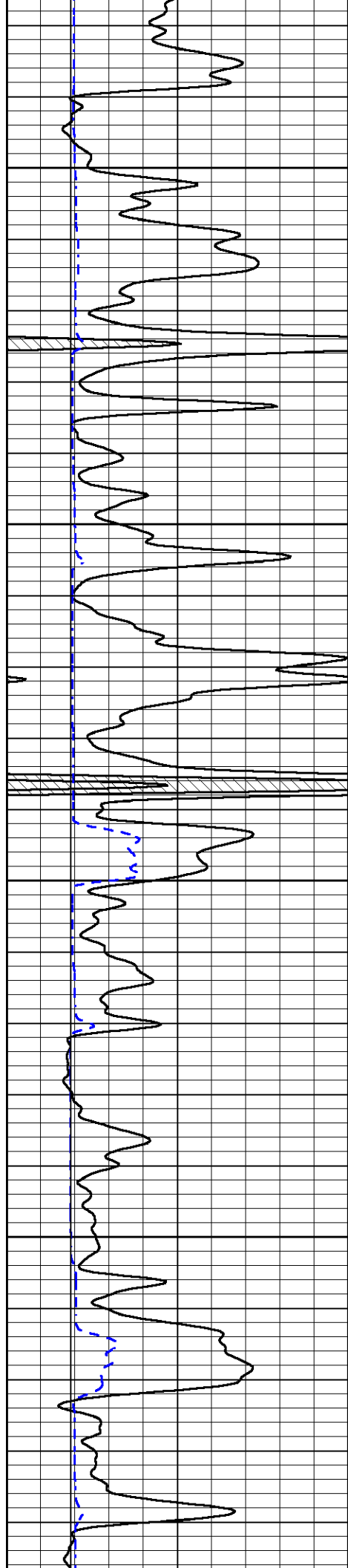


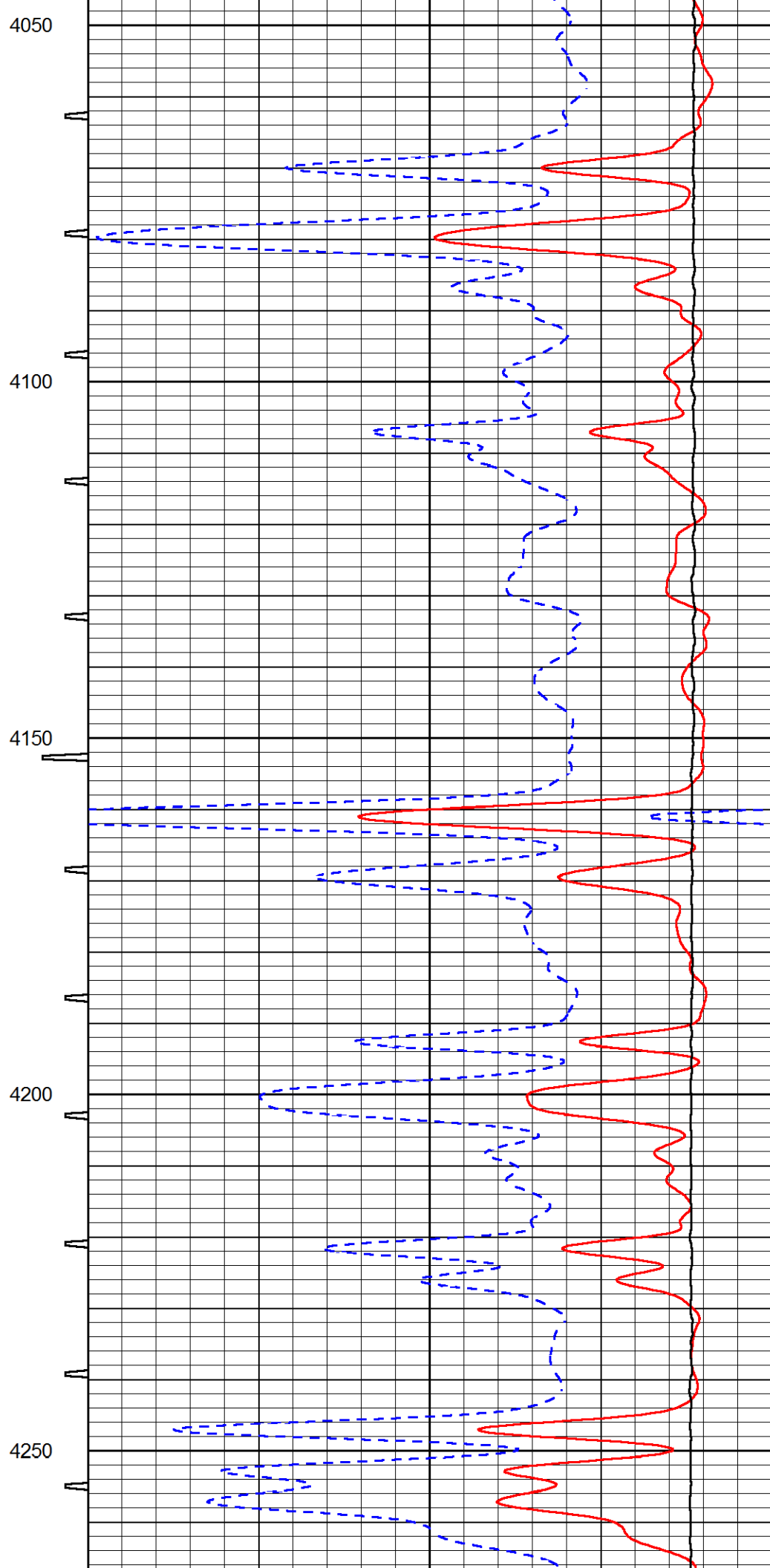
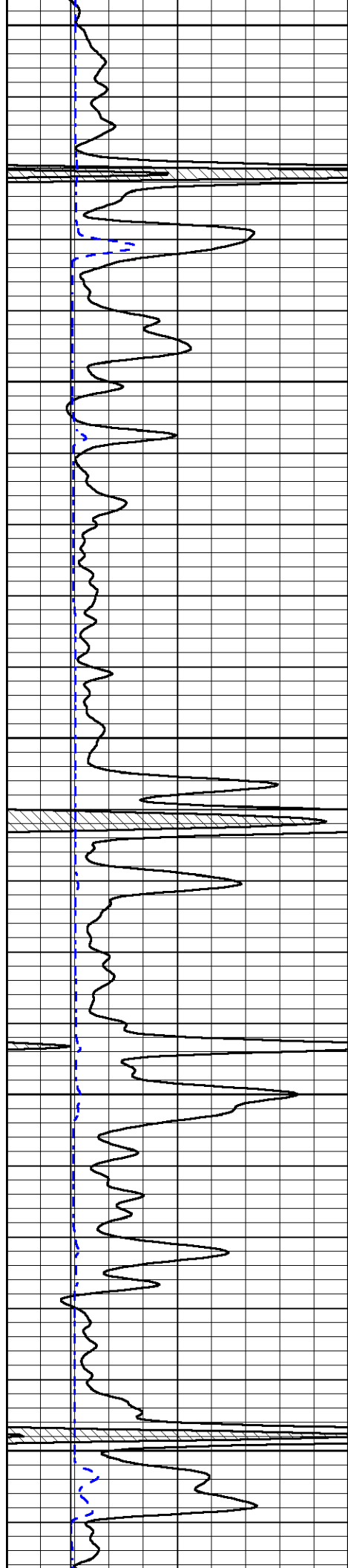


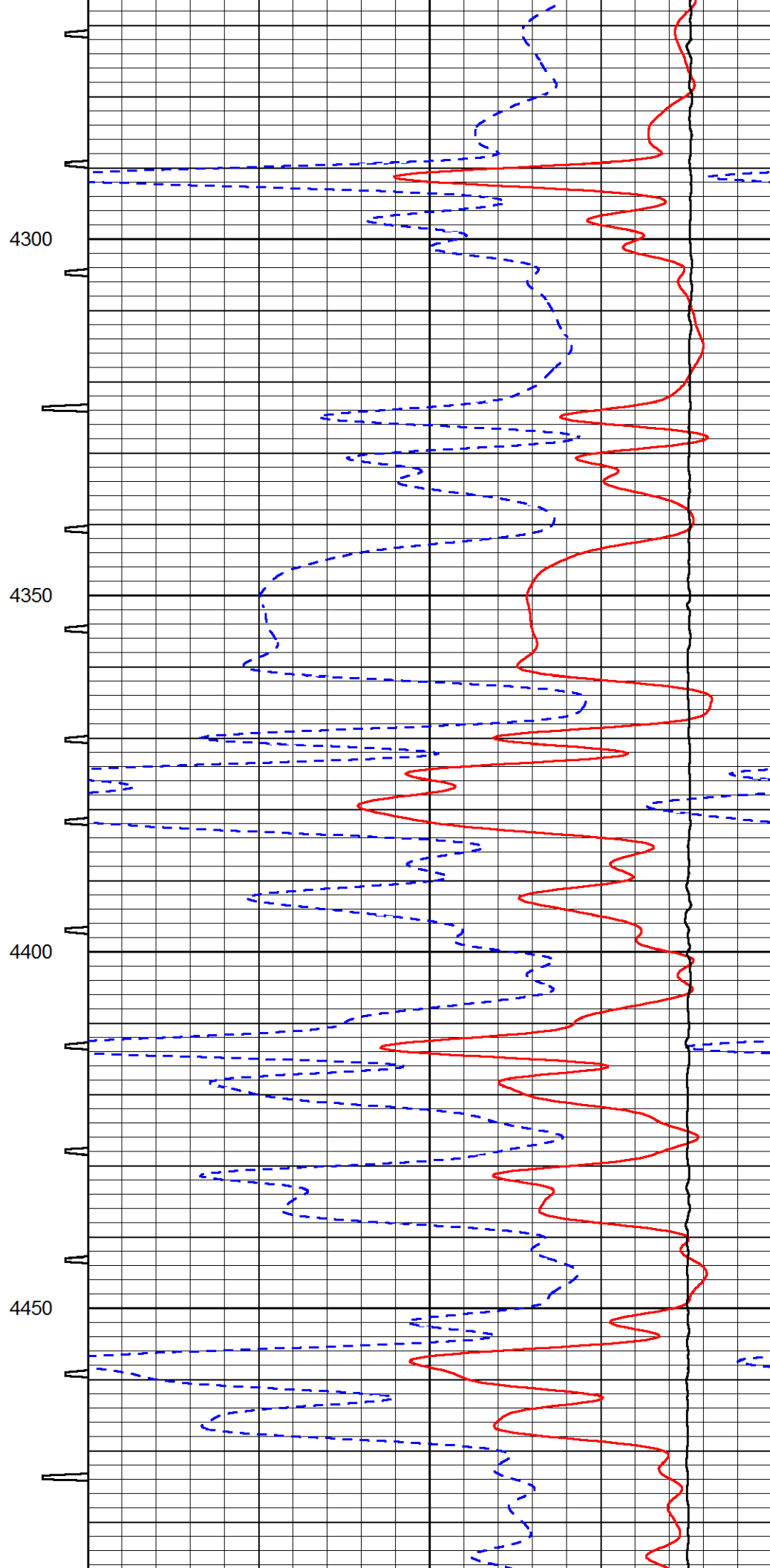
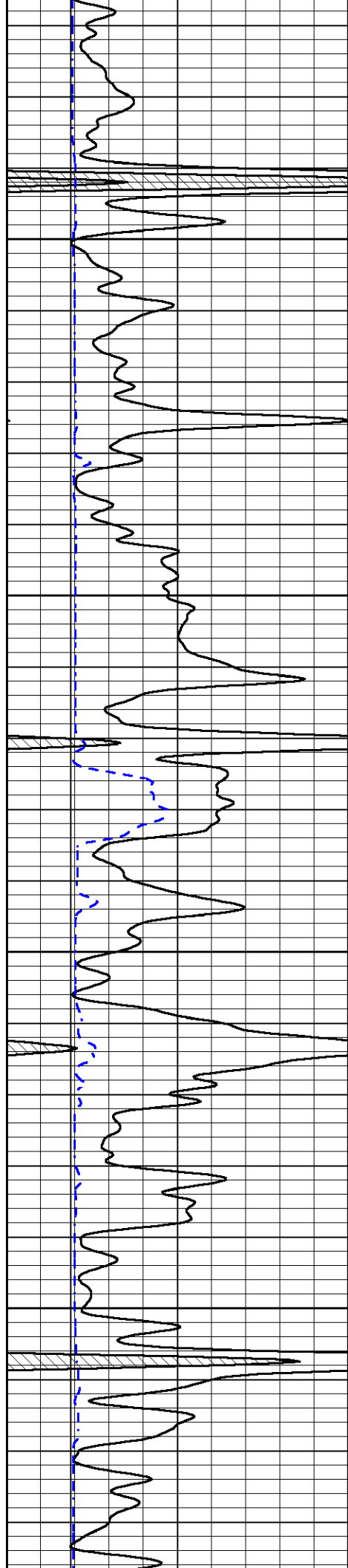


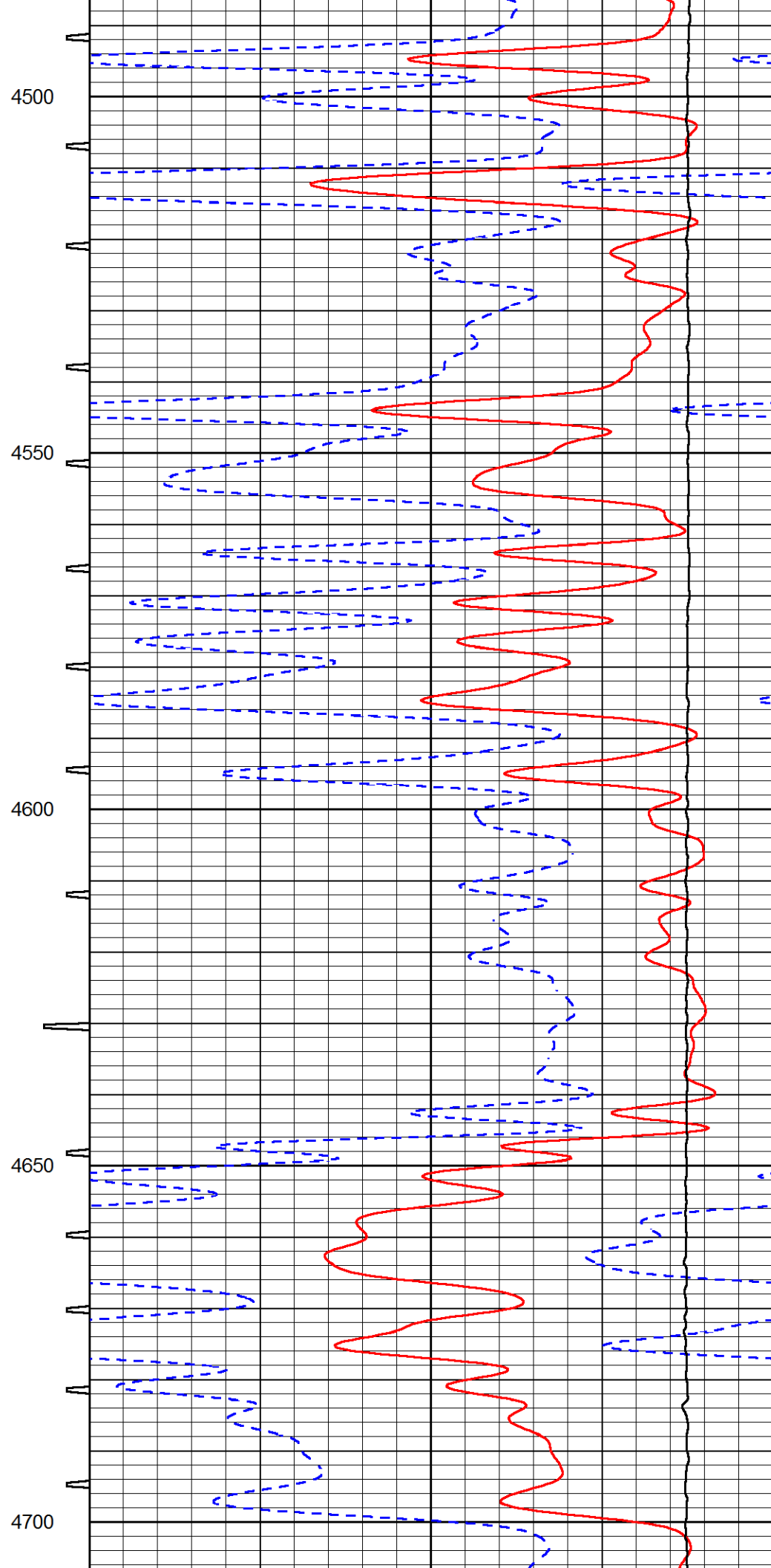
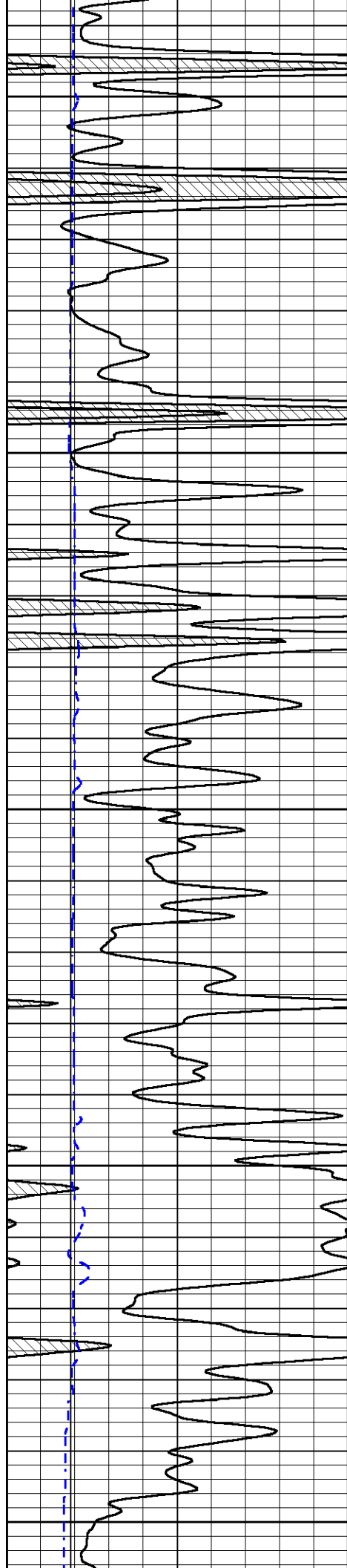


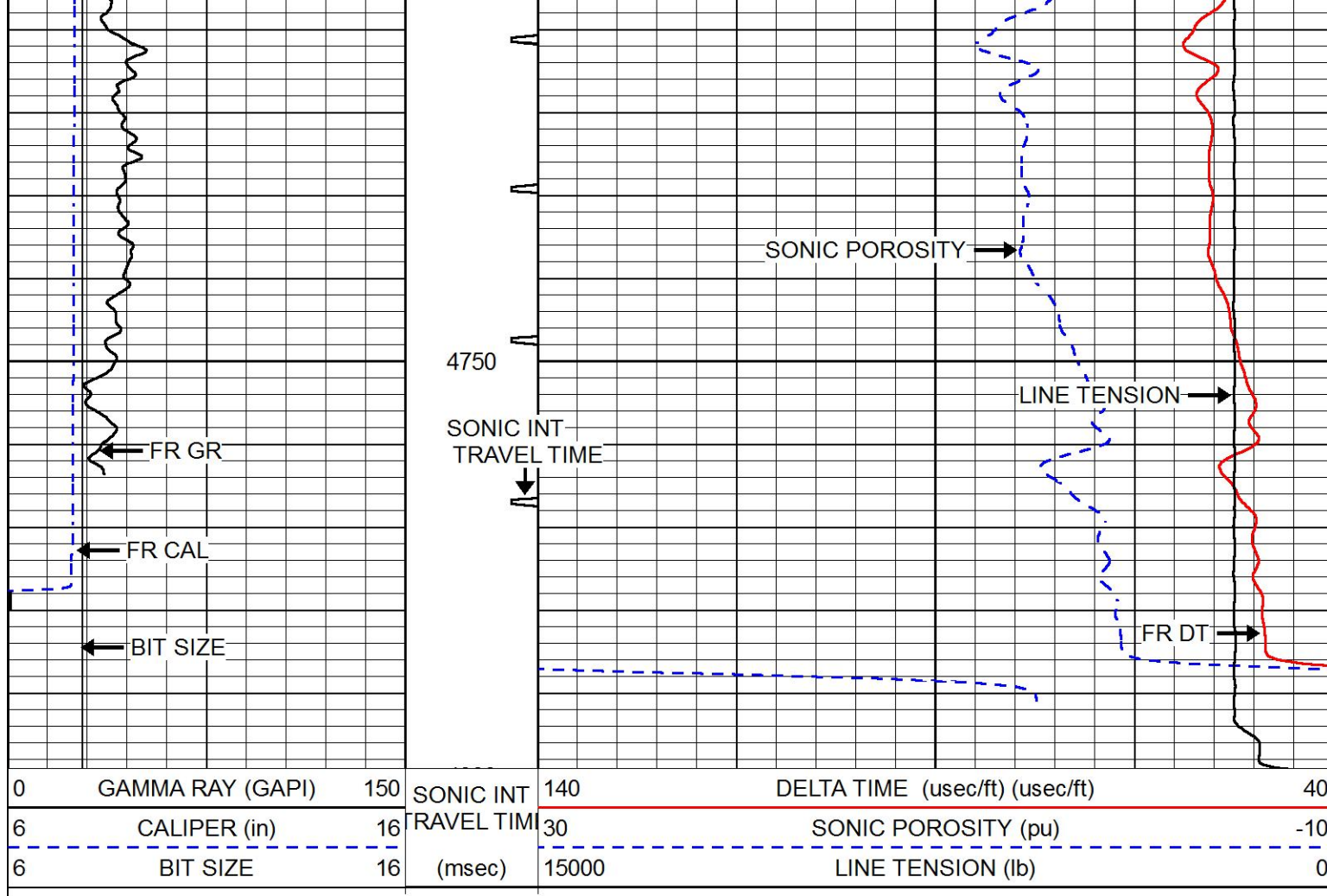










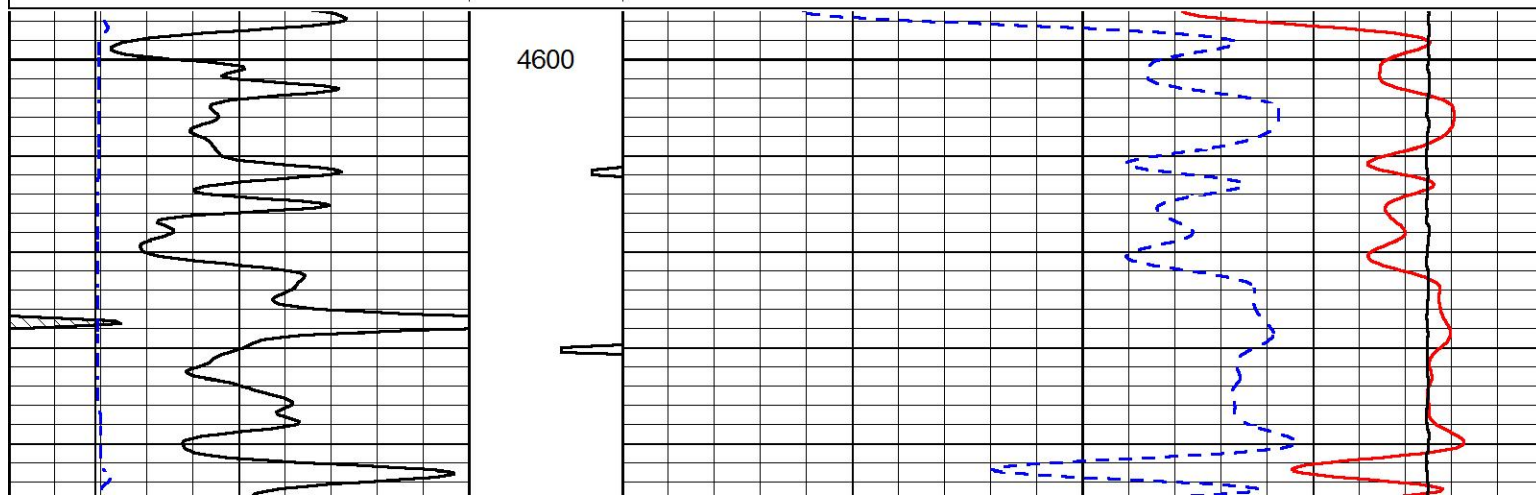


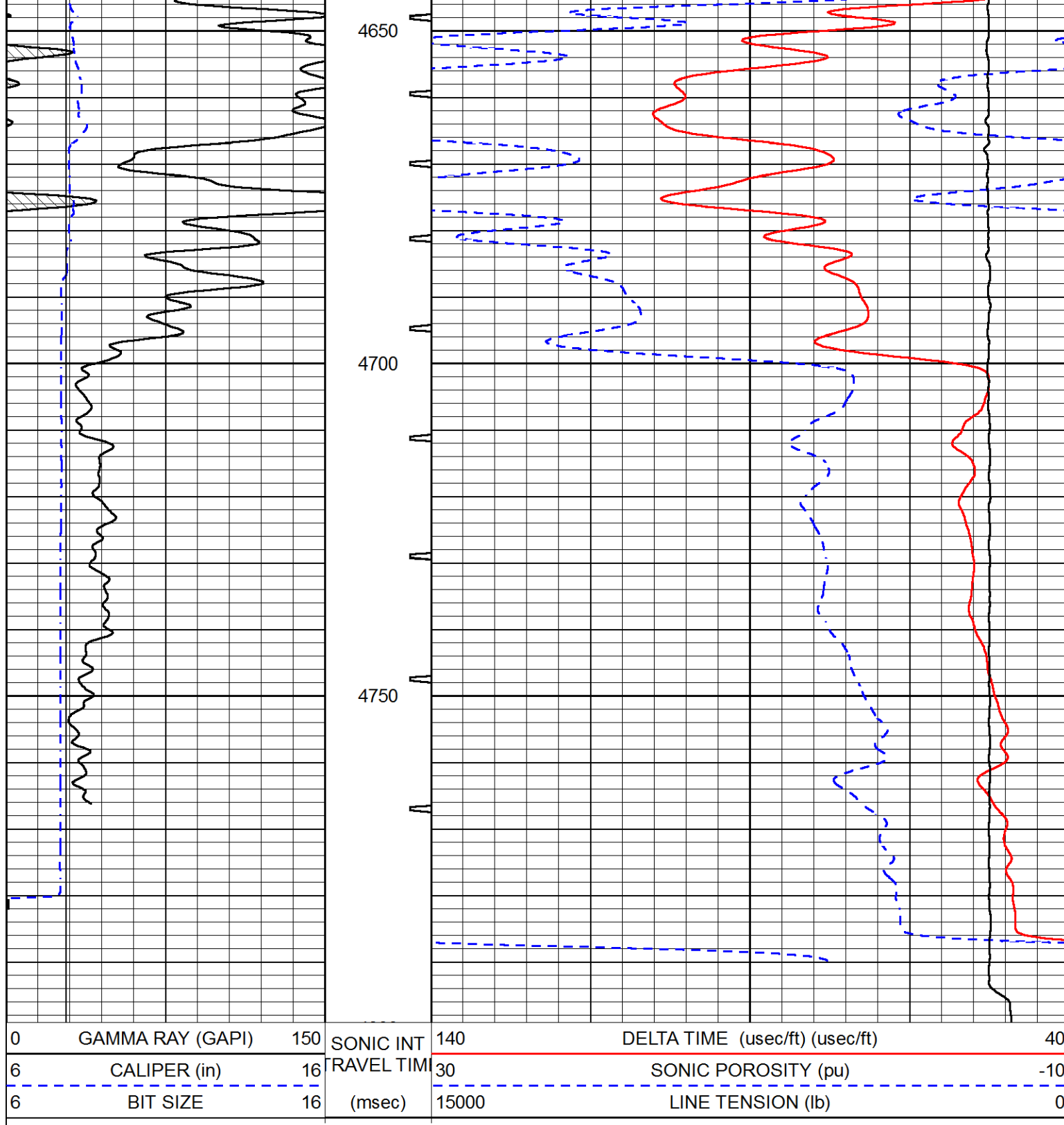
REPEAT SECTION

PIONEER
Pioneer Energy Services

Database File cobalt_binns a_#1-32.db
 Dataset Pathname stack/pass2.1
 Presentation Format sonic
 Dataset Creation Sat Aug 27 19:13:15 2016
 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





Calibration Report							
Database File		cobalt_binns a_#1-32.db					
Dataset Pathname		stack/pass3.1					
Dataset Creation		Sat Aug 27 20:08:49 2016					
Dual Induction Calibration Report							
Serial-Model:				1987-M&W			
Calibration Performed:				Fri Jul 22 02:17:58 2016			
Readings				References		Results	
Loop	Air	Loop	Air	Loop	Gain	Offset	

Loop.	Al	Loop	Al	Loop	Gain	Onset	
Deep	178.615	710.235	0.000	255.800	mmho/m	0.530	-38.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.440	-113.000
Compensated Density Calibration Report							
Serial-Model:				71-914-M&W			
Source / Verifier:				/			
Master Calibration Performed:				Thu Jul 28 15:08:02 2016			
Master Calibration							
	Density			Far Detector		Near Detector	
Magnesium	1.755	g/cc		4314.49		5307.52	cps
Aluminum	2.670	g/cc		822.19		3456.36	cps
	Spine Angle = 75.49			Density/Spine Ratio = 0.534			
	Size			Reading			
Small Ring	4.00	in		1.16			
Large Ring	14.00	in		1.57			
Compensated Neutron Calibration Report							
Serial Number:				tk10-MW			
Tool Model:				M&W			
Calibration Performed:				Wed July 20 08:04:05 2016			
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-M&W					
Tool Model:		M&W					
Calibration Performed:		Sun Jul 17 19:05:06 2016					
Calibrator Value:		1000.0		GAPI			
Background Reading:		0.0		cps			
Calibrator Reading:		6.2		cps			
Sensitivity:		0.5200		GAPI/cps			



Company

Well

Field

County

State

COBALT ENERGY LLC

BINNS A #1-32

WILDCAT

LOGAN

KANSAS