



MIDWEST WIRELINE

BOREHOLE COMPENSATED SONIC LOG

Company Darrah Oil Company, LLC
Well Sangster-UP Unit #1-13
Field SHS
County Logan
State Kansas

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Well Sangster-UP Unit #1-13
Field SHS
County Logan
State Kansas

Location: 112 FSL & 157 FWL
 SEC 13 TWP 14S RGE 34W
Permanent Datum Ground Level Elevation 3008
Log Measured From Kelly Bushing
Drilling Measured From Kelly Bushing

Other Services
 CNL/CDL
 DIL/MEL

Date	11/11/2025	
Run Number	Two	
Type Log	BHCS	
Depth Driller	4680	
Depth Logger	4678	
Bottom Logged Interval	4666	
Top Logged Interval	200	
Type Fluid In Hole	Chemical	
Salinity, PPM CL	Full	
Density	9.3	
Level	Full	
Max. Rec. Temp. F	123	
Operating Rig Time	5 Hours	
Equipment -- Location	110 HAYS	
Recorded By	D. Schmidt	
Witnessed By	Saman Sharifaie	

Borehole Record				Casing Record			
Run No.	Bit	From	To	Size	Wgt.	From	To
One	12.25	0	218	8.625	23	0	218
Two	7.875	218	TD				

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All interpretations are opinions based on inferences from electrical or other measurements and Midwest Wireline LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Midwest Wireline 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.

Monument,
South on 350 to Indian Rd,
2 West, 1 North to location

Log Measured From: Kelly Bushing 5 Ft. Above Permanent Datum

THANK YOU FOR USING MIDWEST WIRELINE LLC
785-625-3858

Your Midwest Wireline Crew Engineer: D. Schmidt Operator: Operator: Operator:	This Log Record Was Witnessed By Primary Witness: Saman Sharifaie Secondary Witness: Secondary Witness: Secondary Witness:
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Case No.	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
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Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			CENT-PENGO (3-PENGO)	4.25	3.00	70.00
WVF4 WVF1	12.25 12.25		SLT-PENGO (602) 3 1/2 BHC Sonic	16.00	3.50	300.00
WVF3 WVF2	10.25 10.25					
			CENT-PENGO (4-PENGO)	4.25	3.00	70.00

Dataset: darrah_sangster-up unit 1-13.db: field/well/son/pass2
 Total length: 24.50 ft
 Total weight: 440.00 lb
 O.D.: 3.50 in

Log Variables

DatabaseC:\ProgramData\Warrior\Data\darrah_sangster-up unit 1-13.db
 Dataset field/well/stkml/pass3.5/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	123	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	No	0	0	517	40	Off	4678



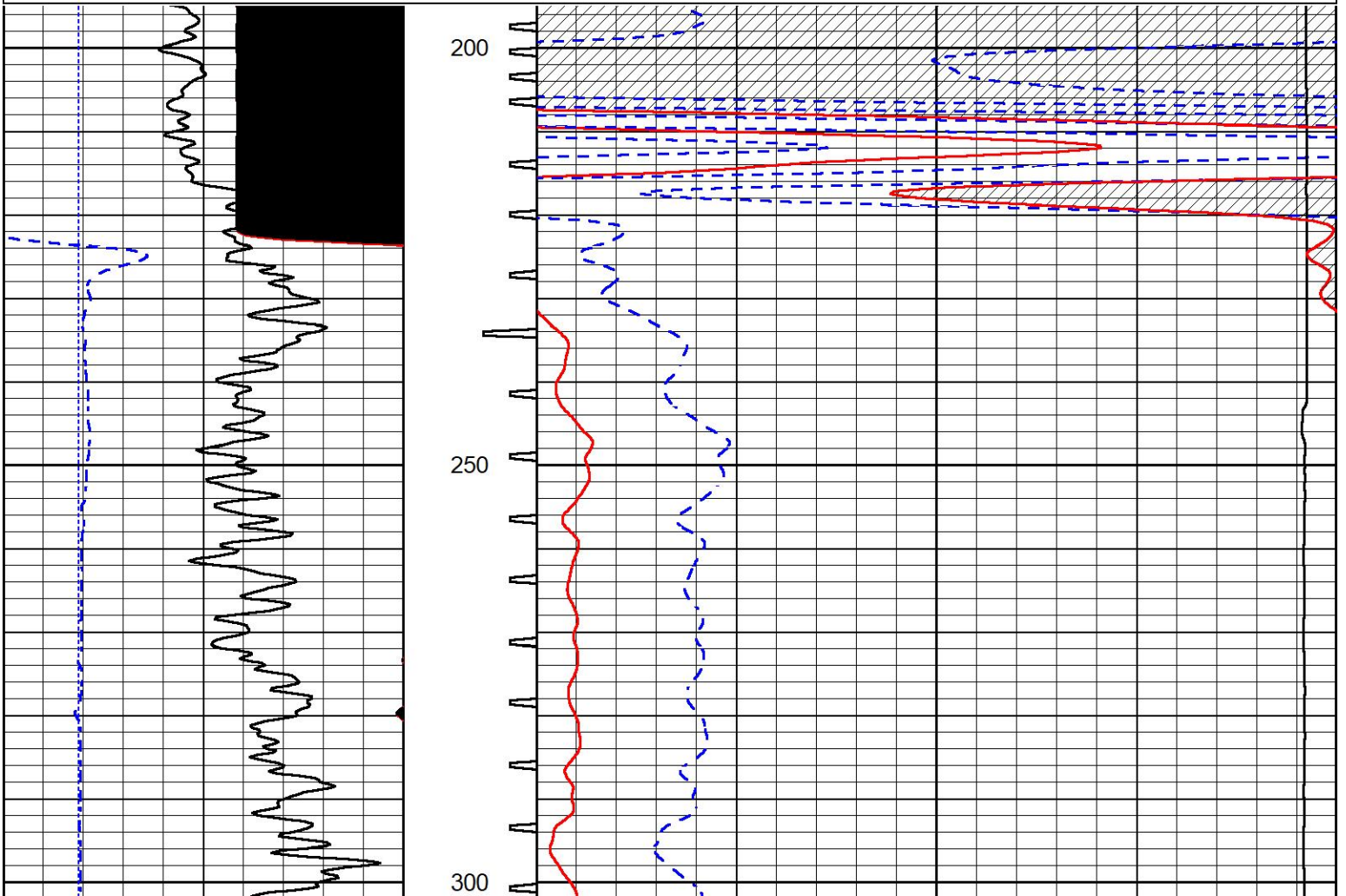
MIDWEST WIRELINE

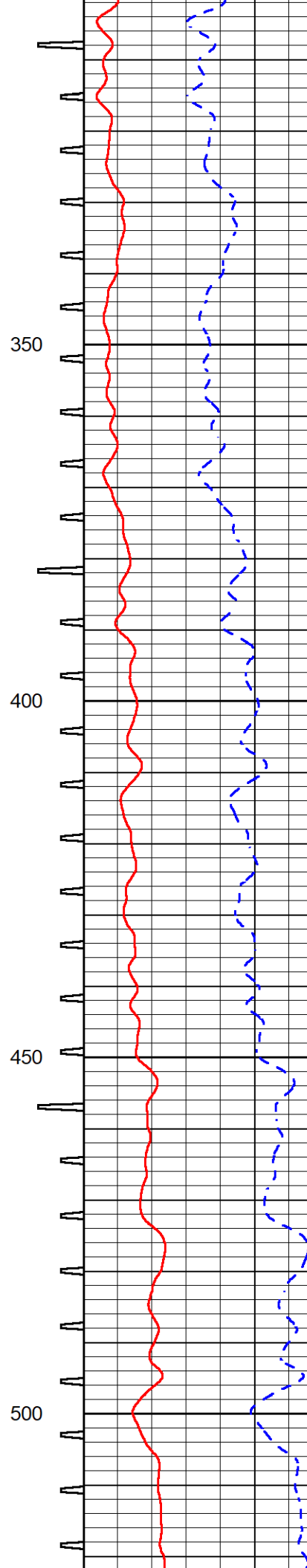
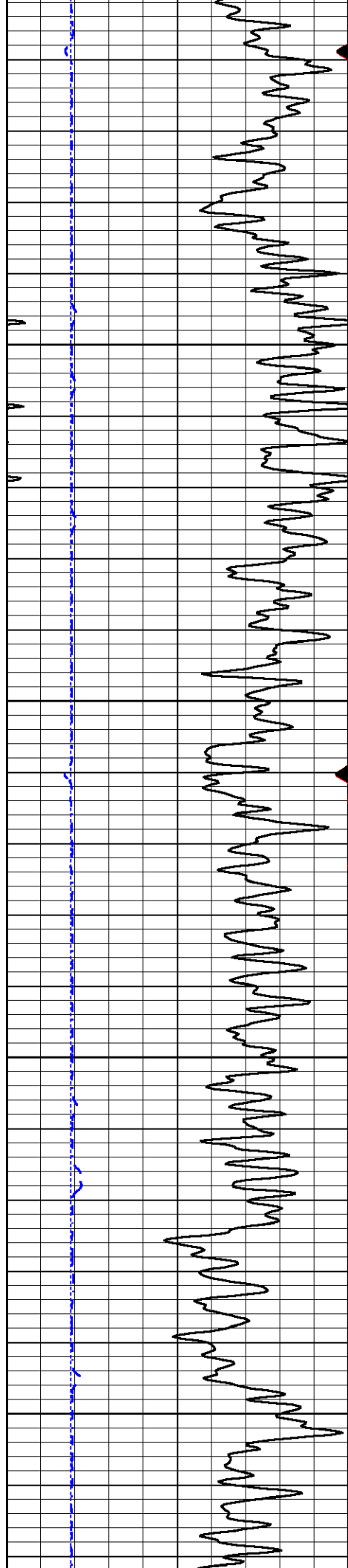
DETAIL SECTION

MAIN PASS

Database File darrah_sangster-up unit 1-13.db
 Dataset Pathname stkml/pass3.1
 Presentation Format _sonic
 Dataset Creation Tue Nov 11 02:53:13 2025
 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) (pu)	-10
6	LCAL (in)	16		15000	Line Tension (lb)	0
2.875	LCAL (in)	7.875				



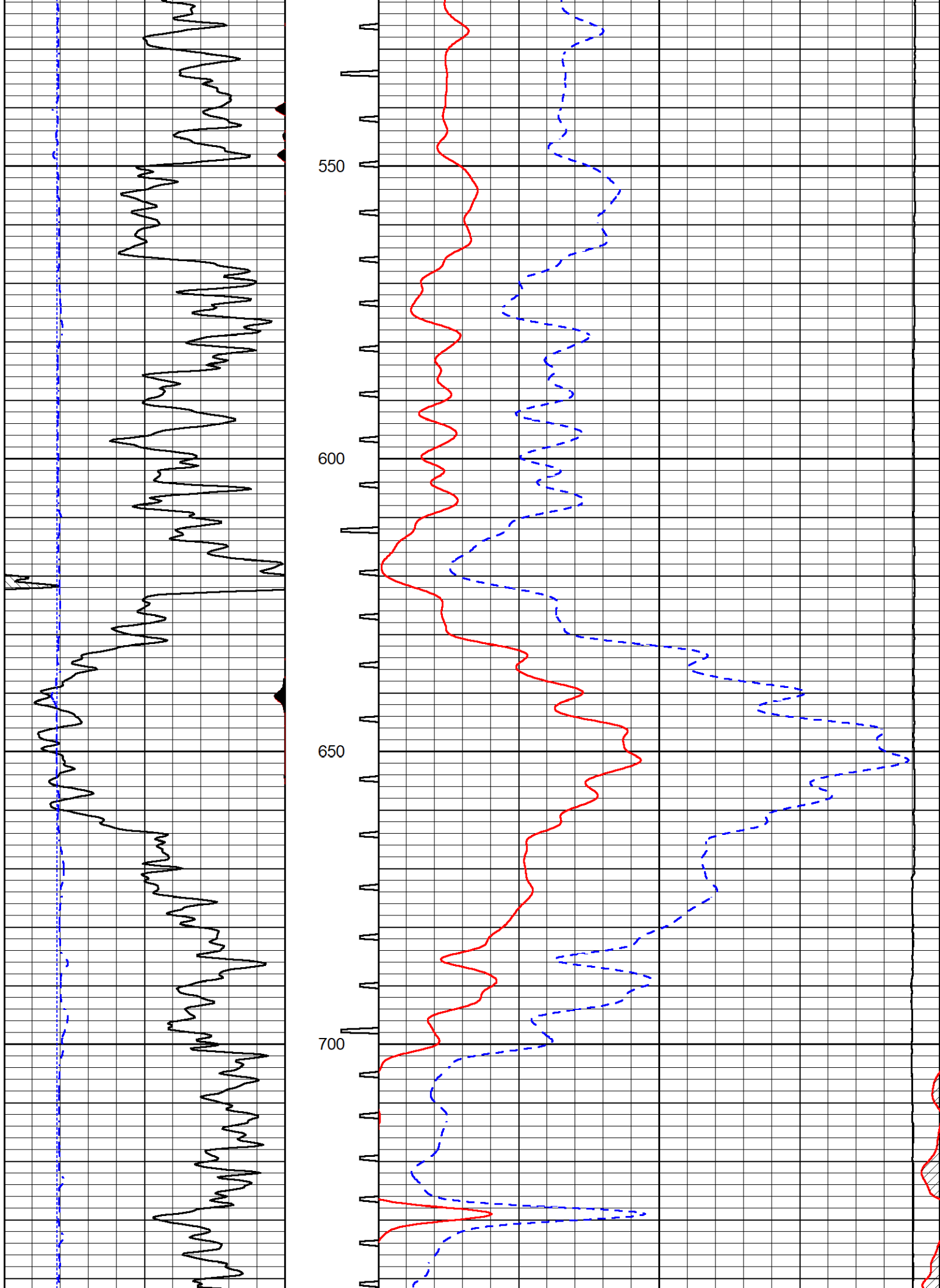


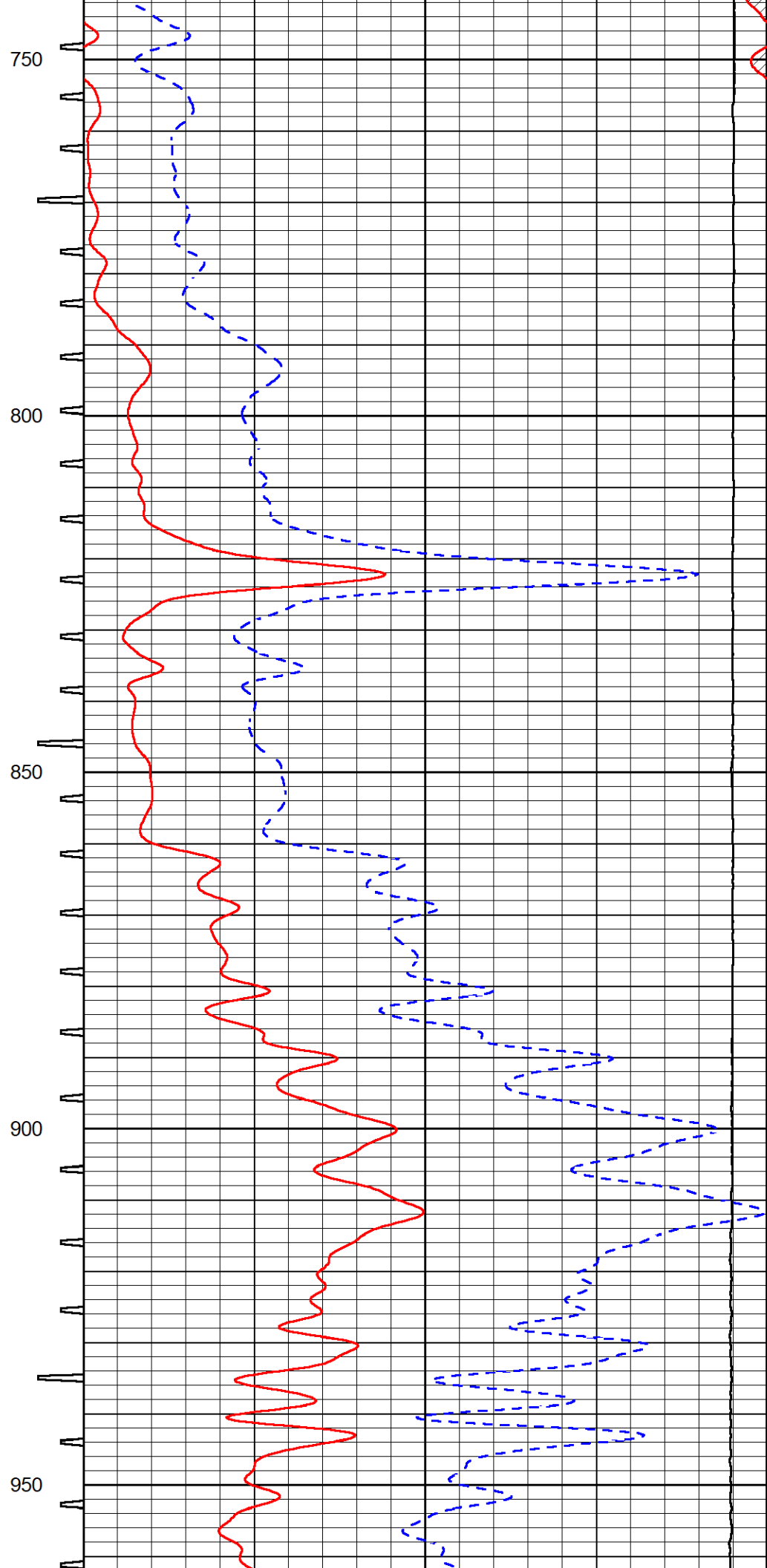
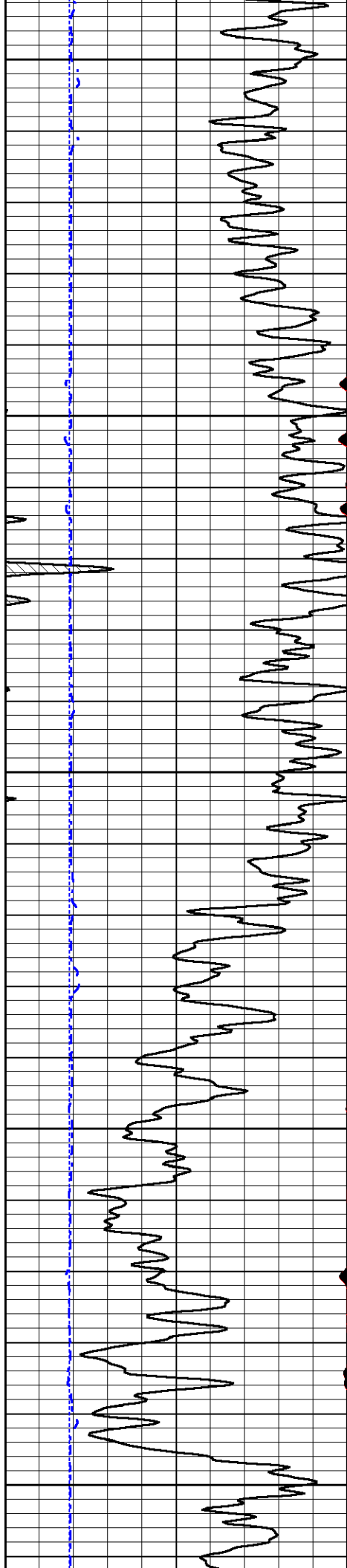
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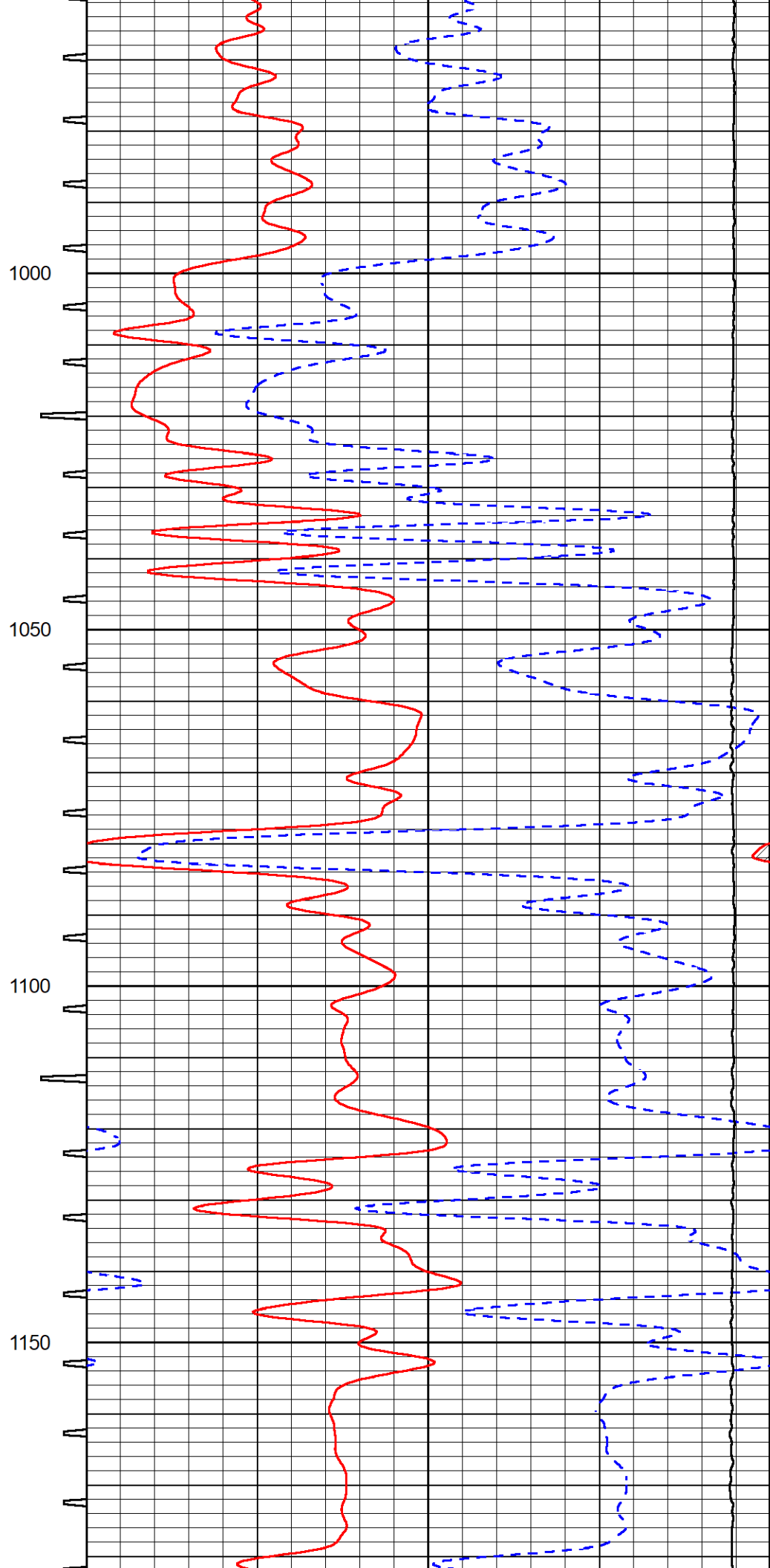
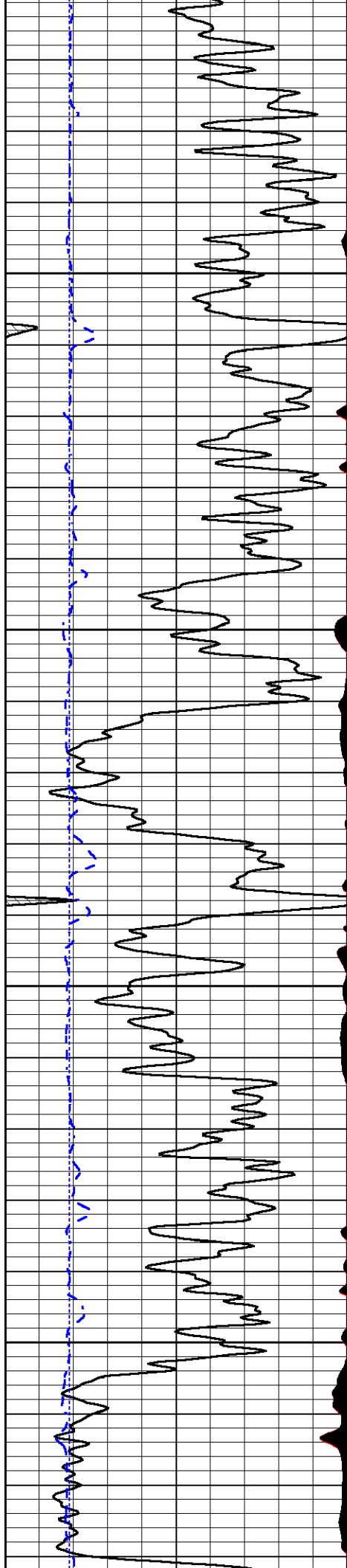
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450

500





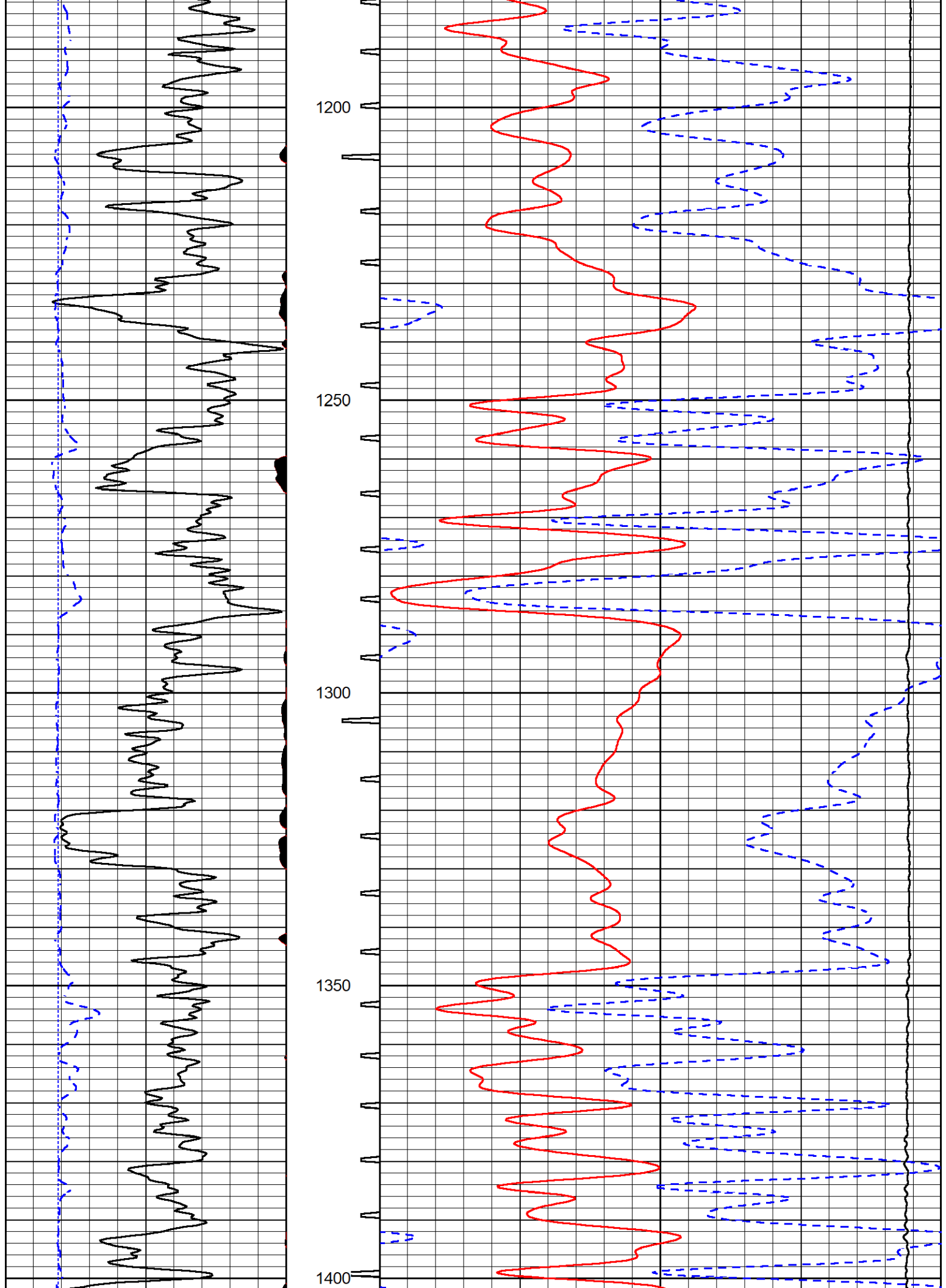


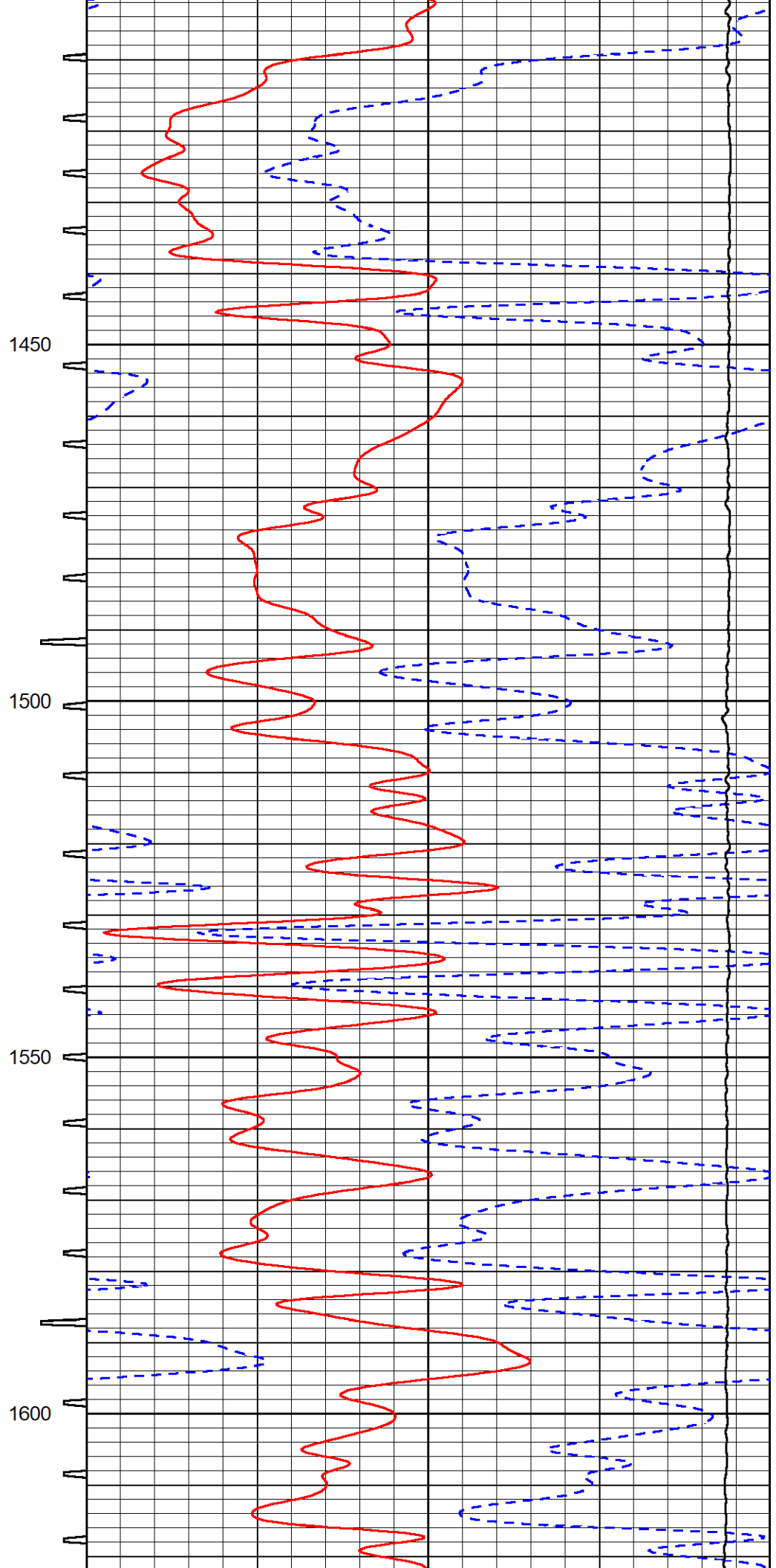
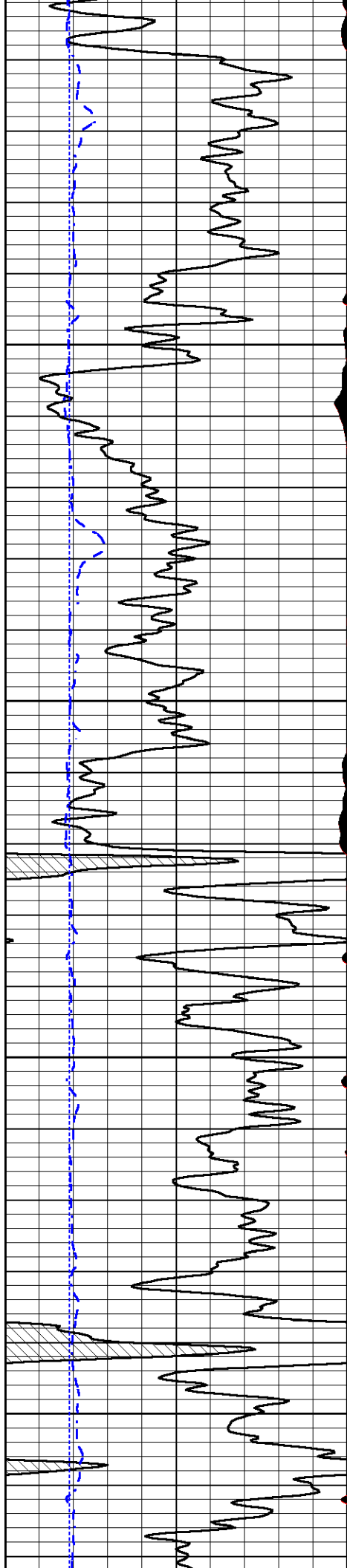
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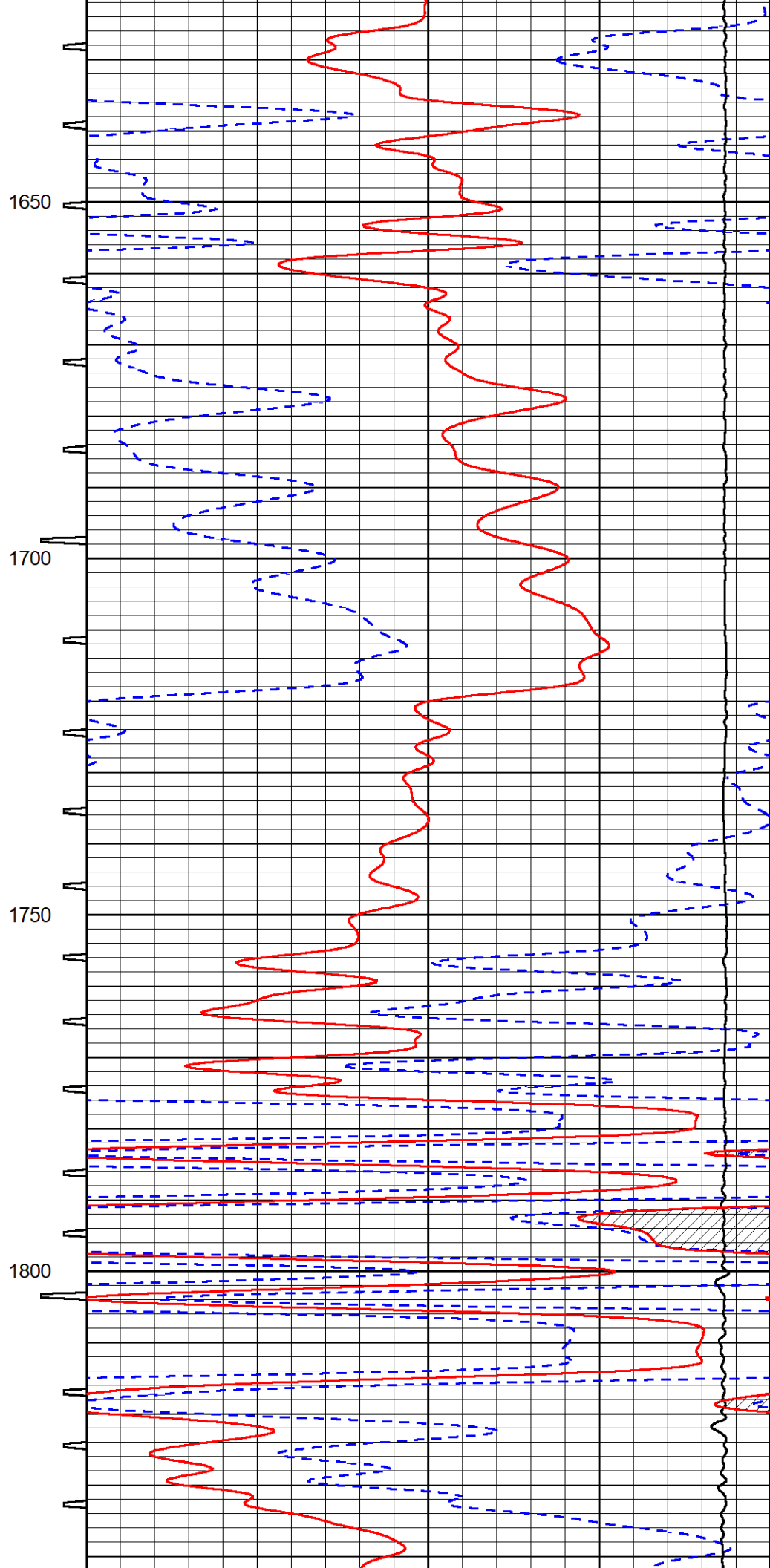
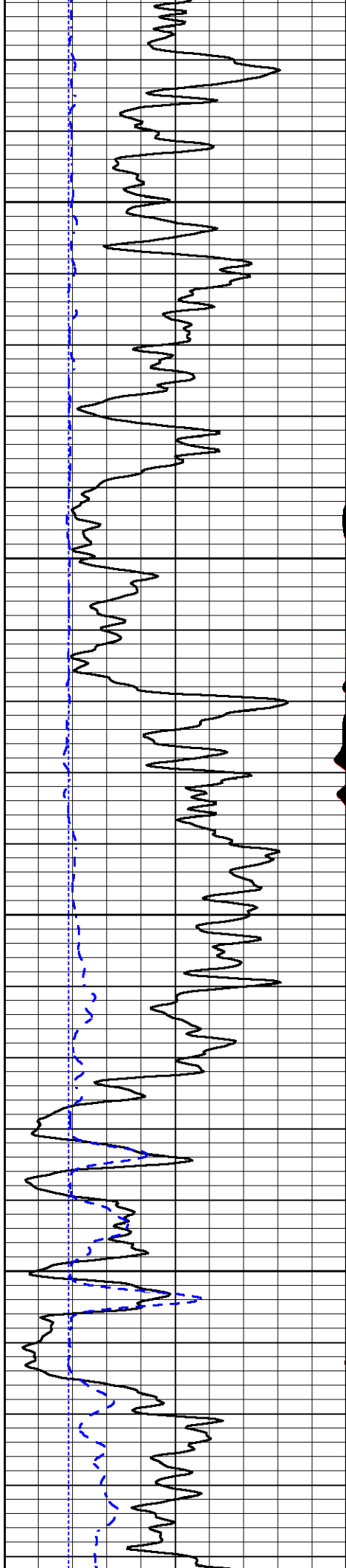
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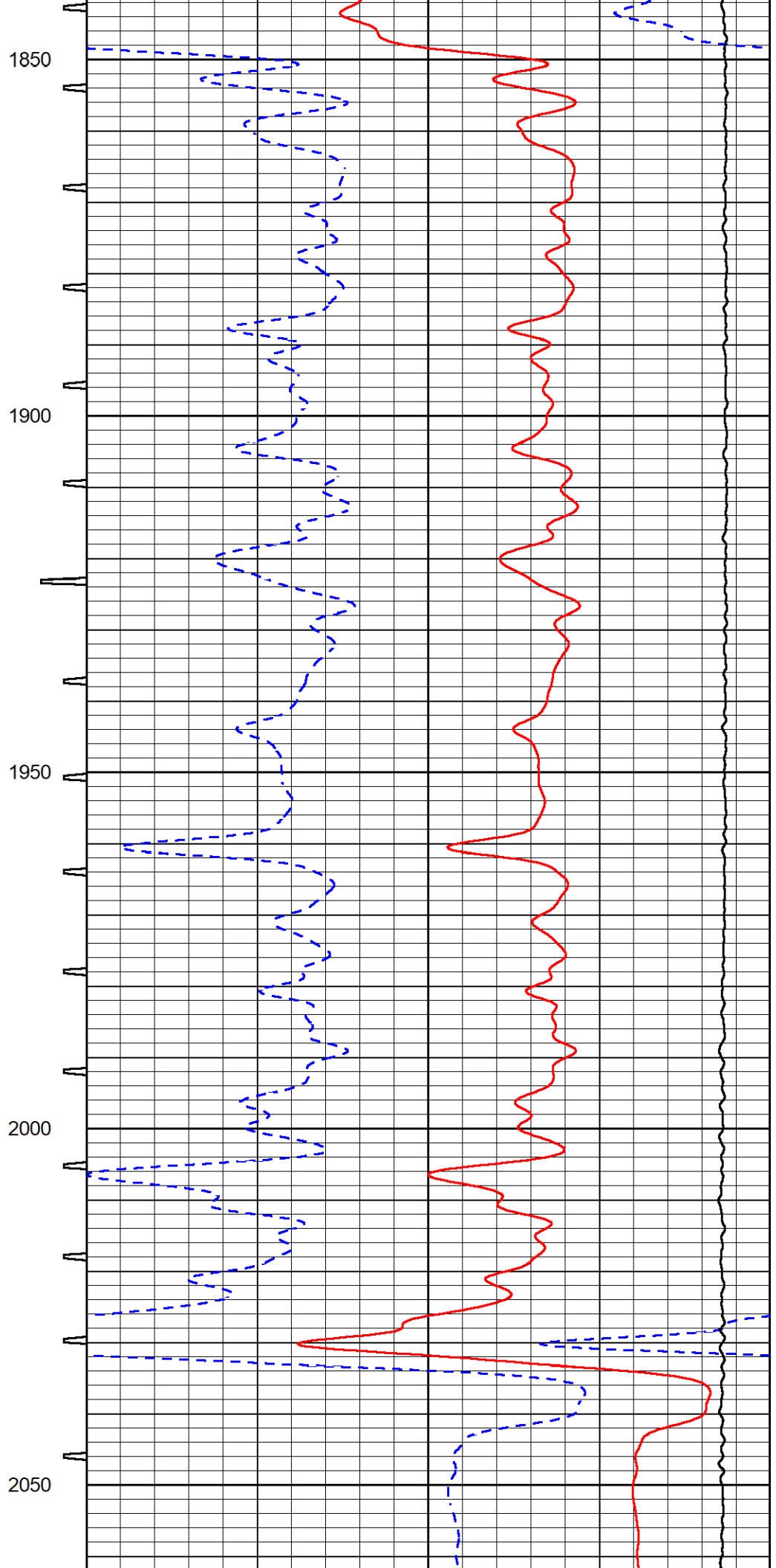
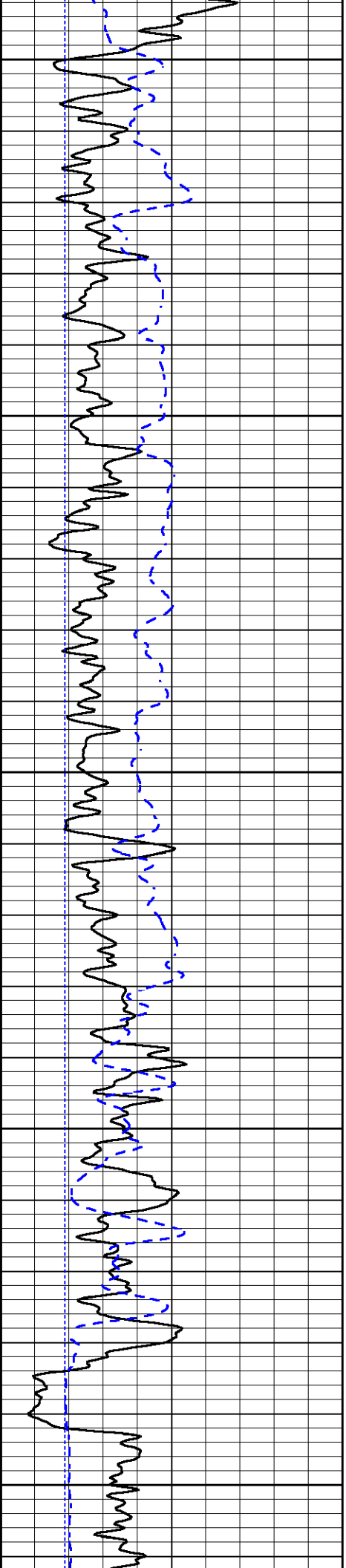
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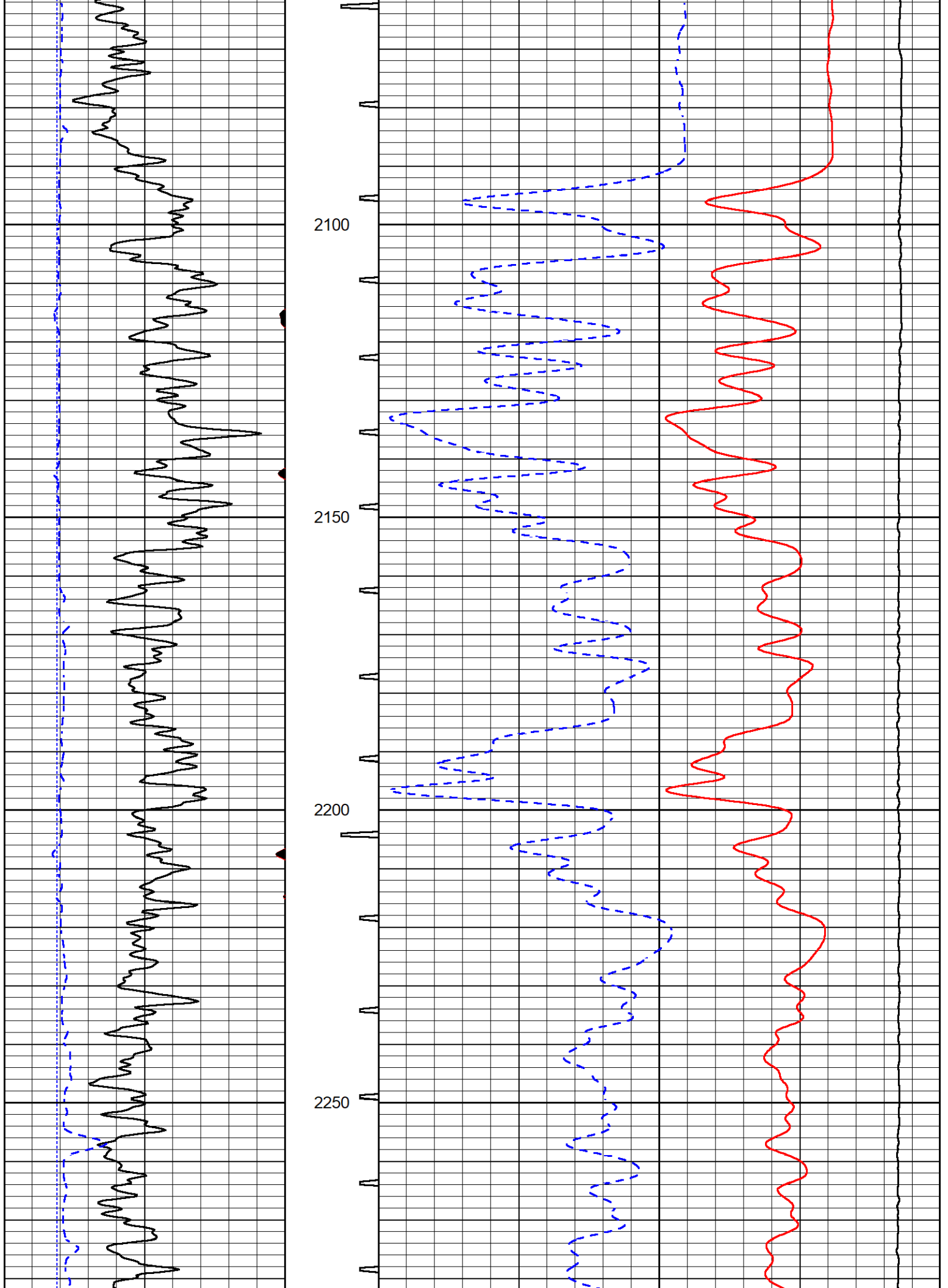
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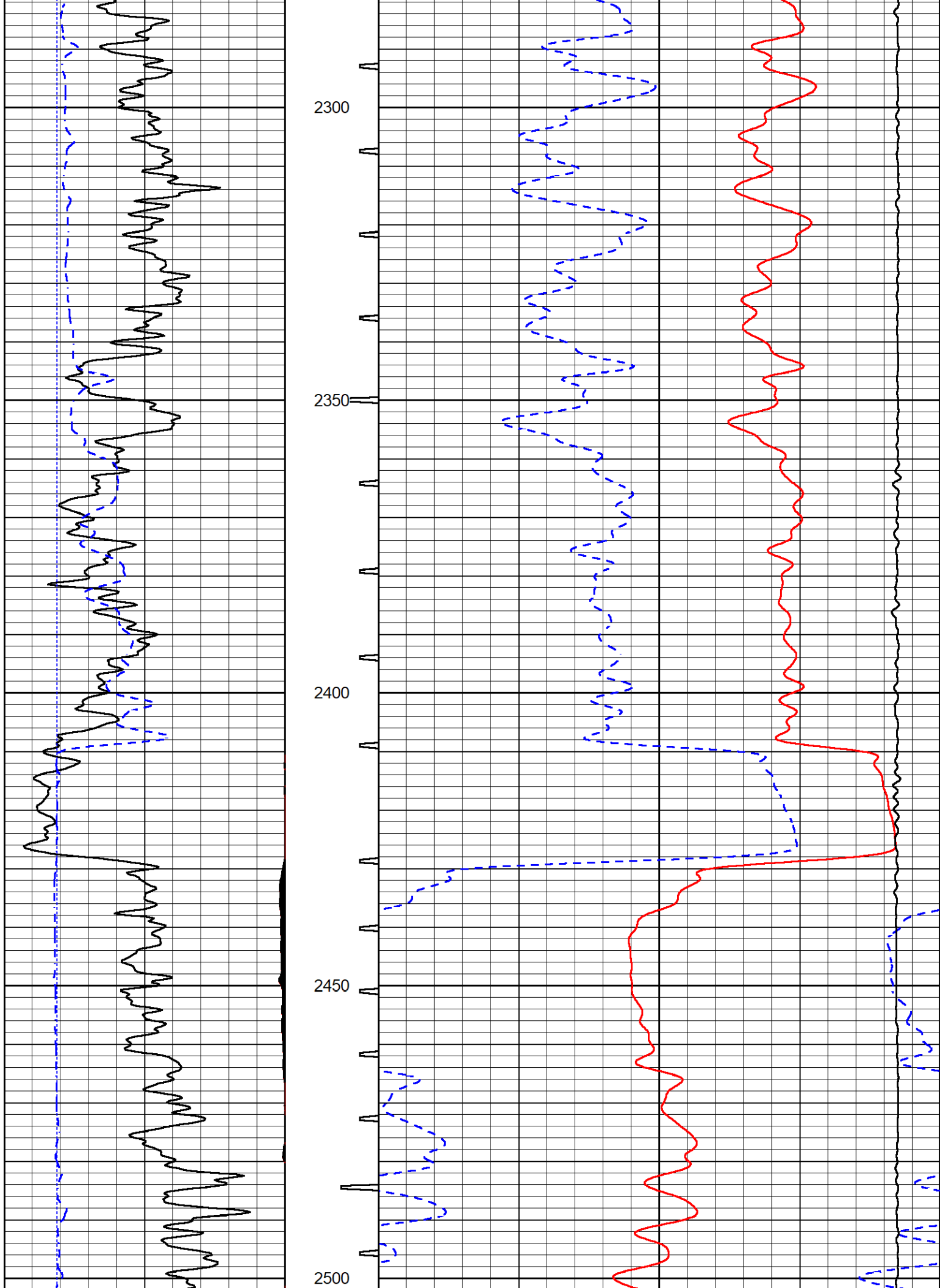


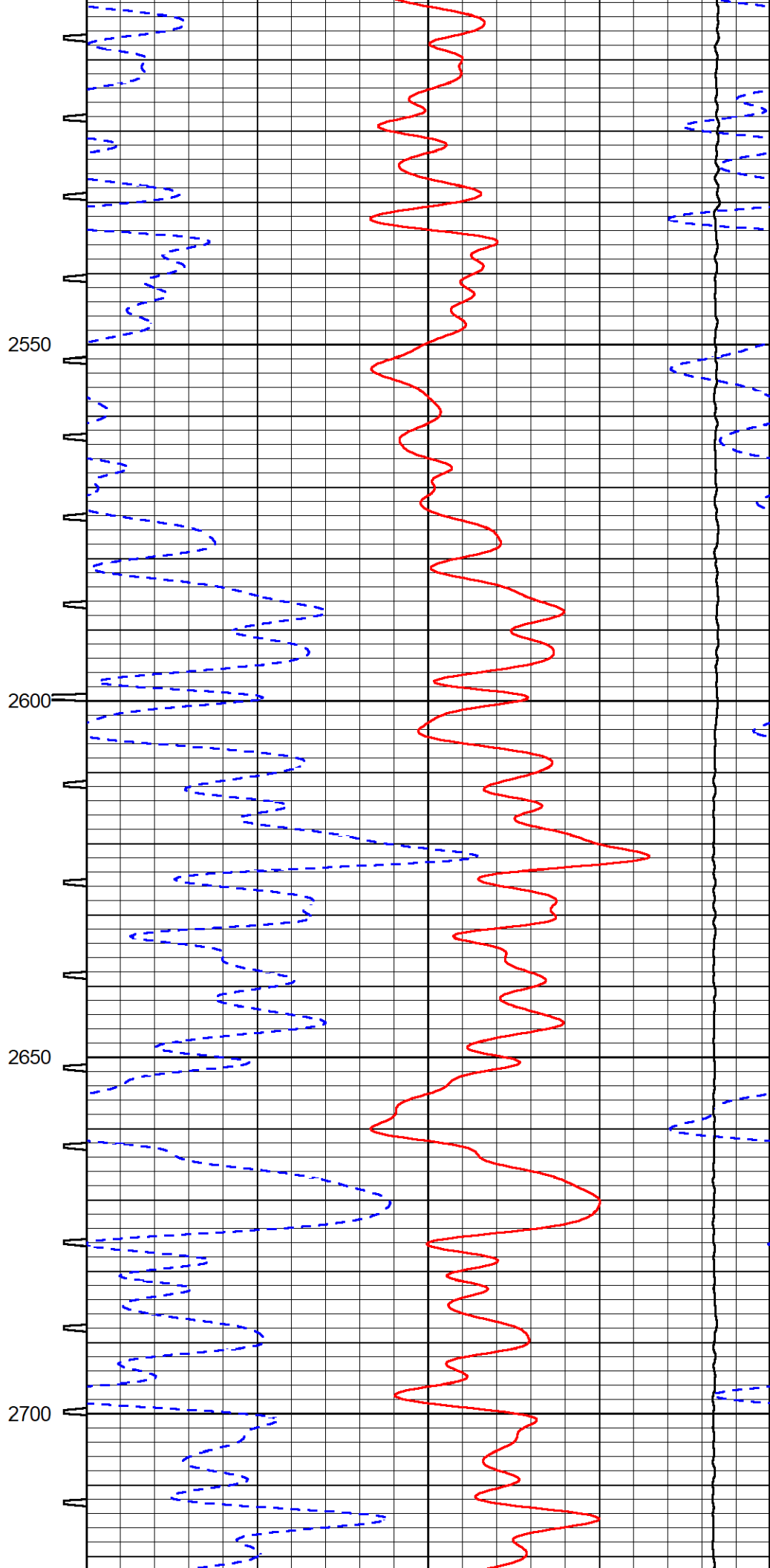
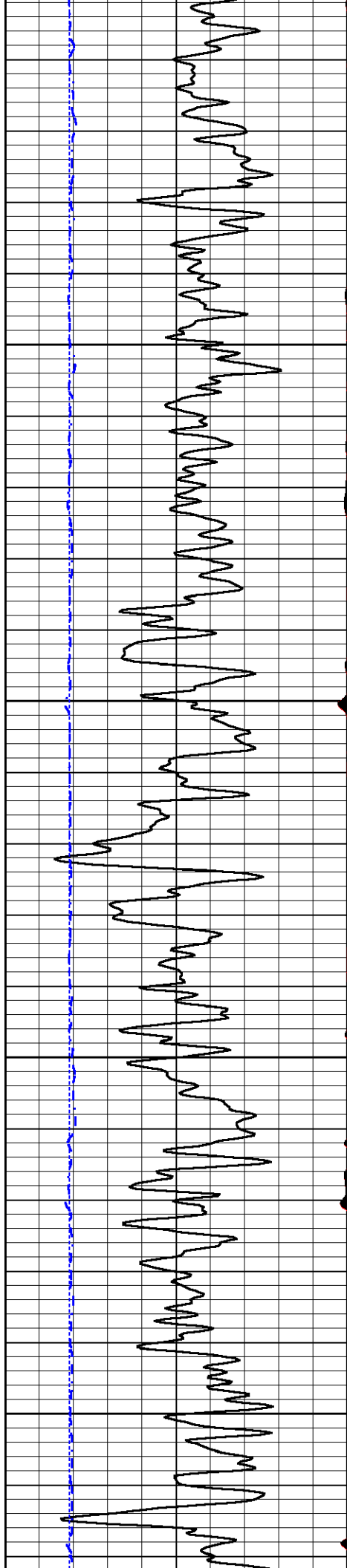


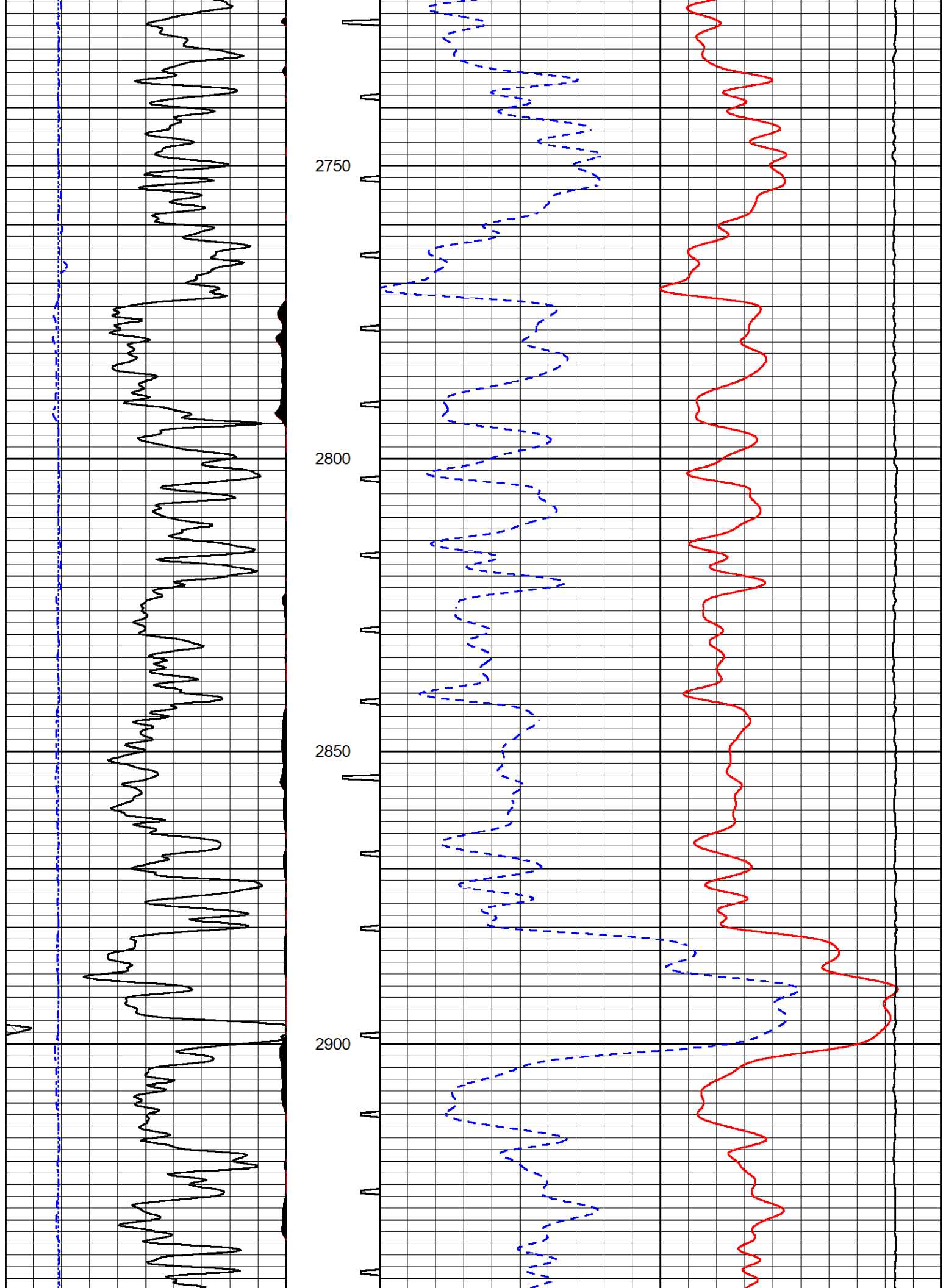


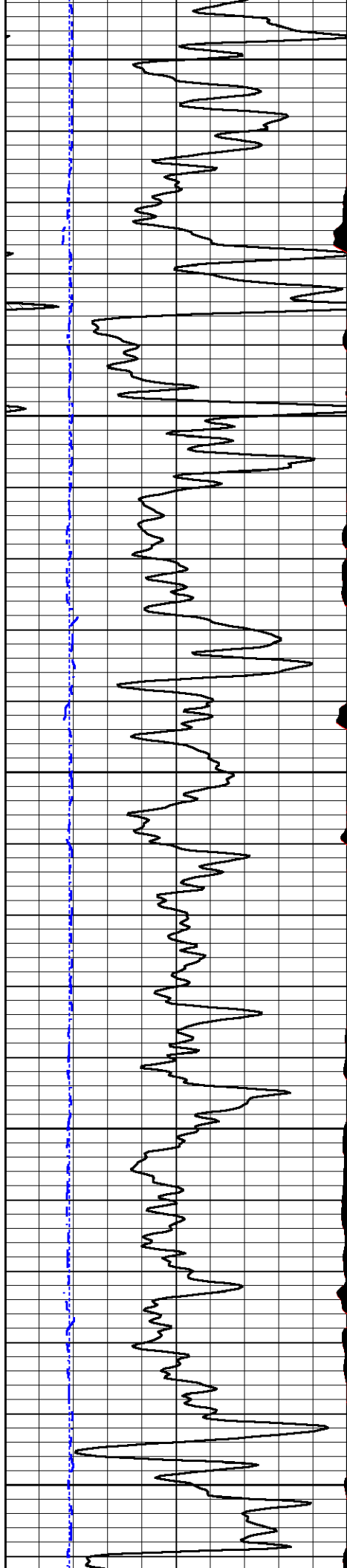












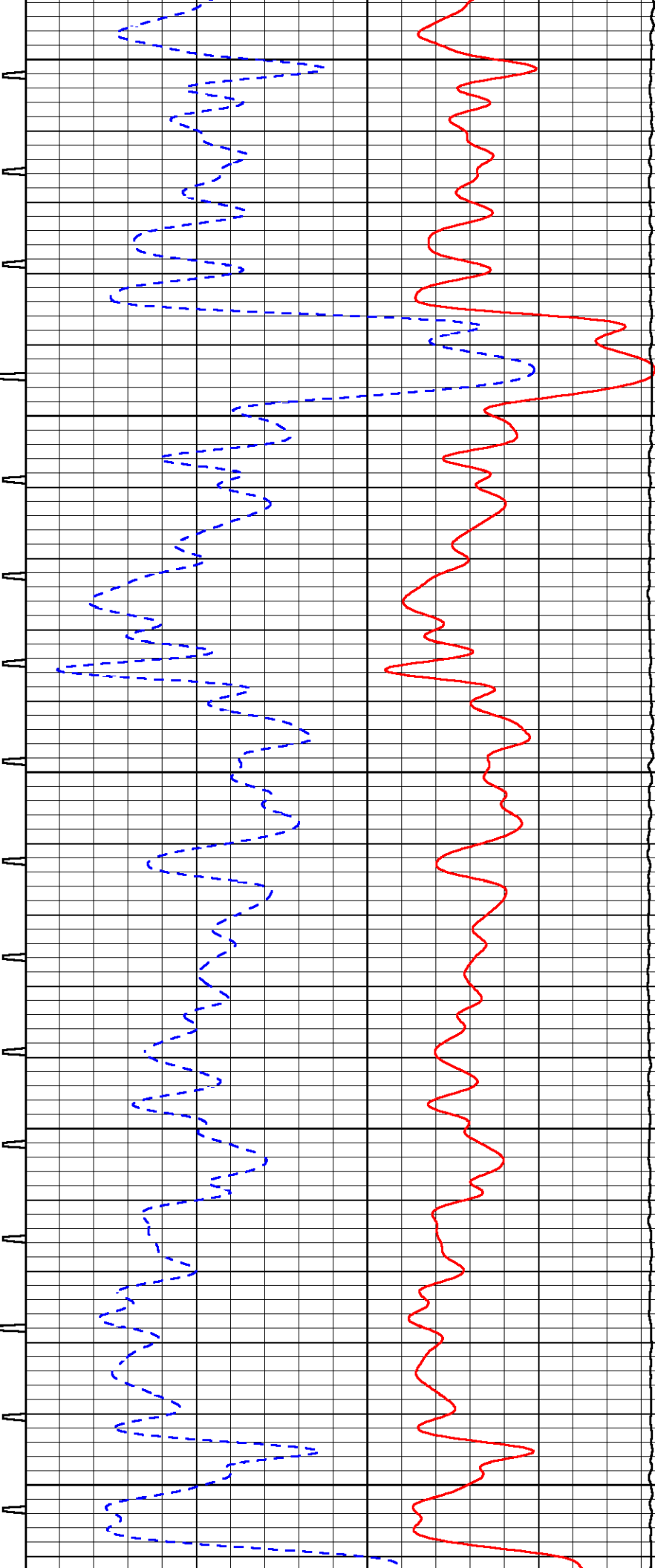
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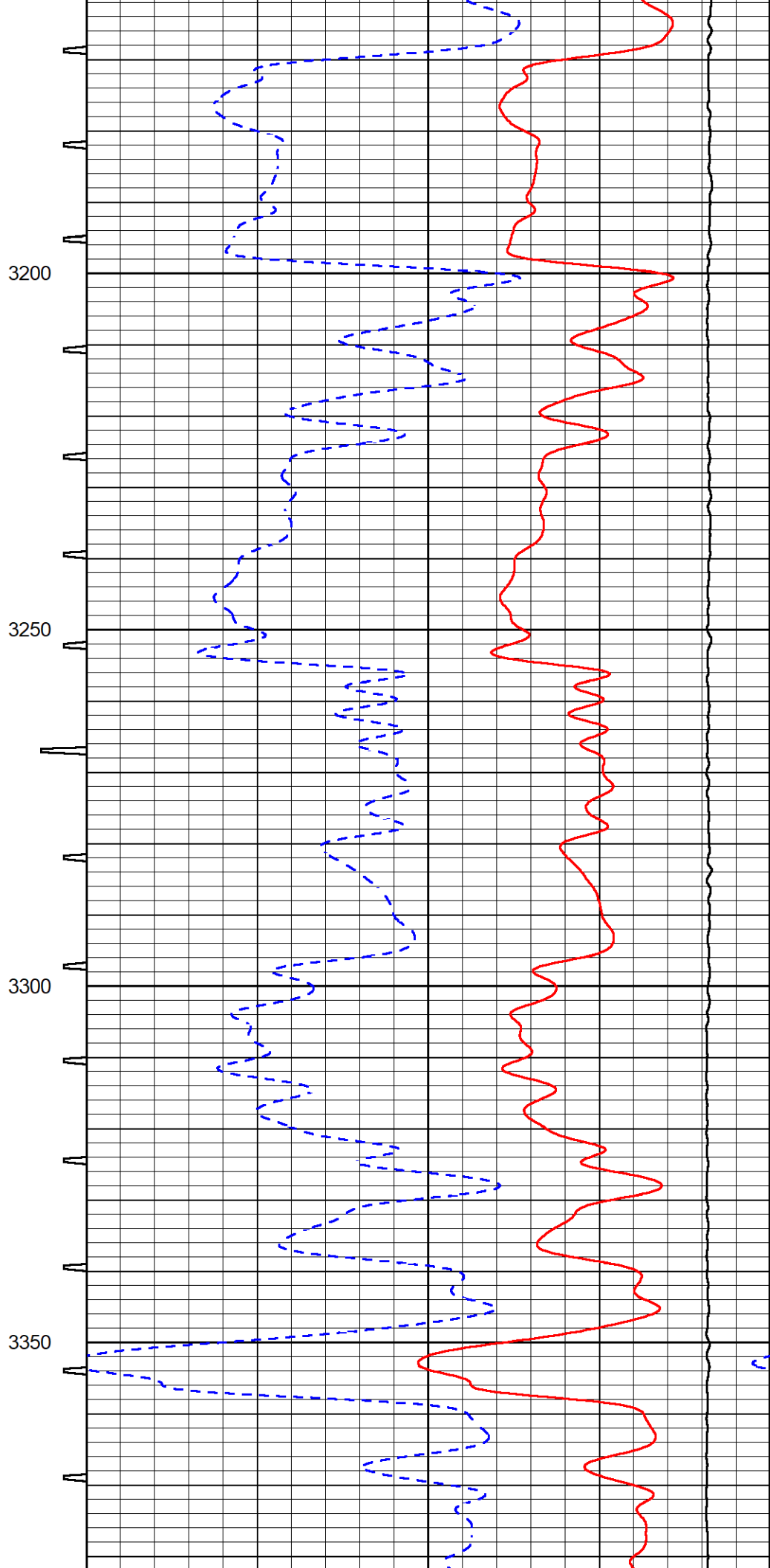
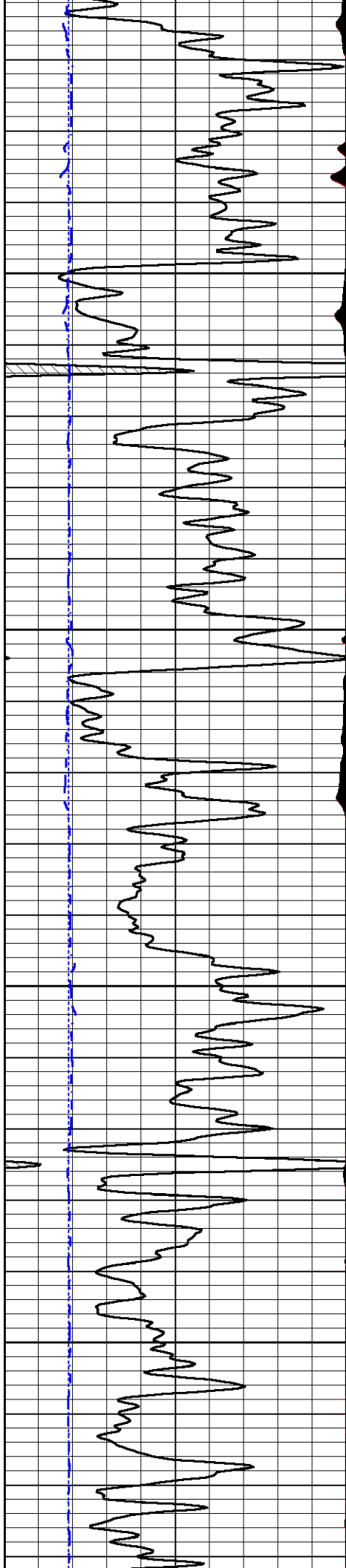
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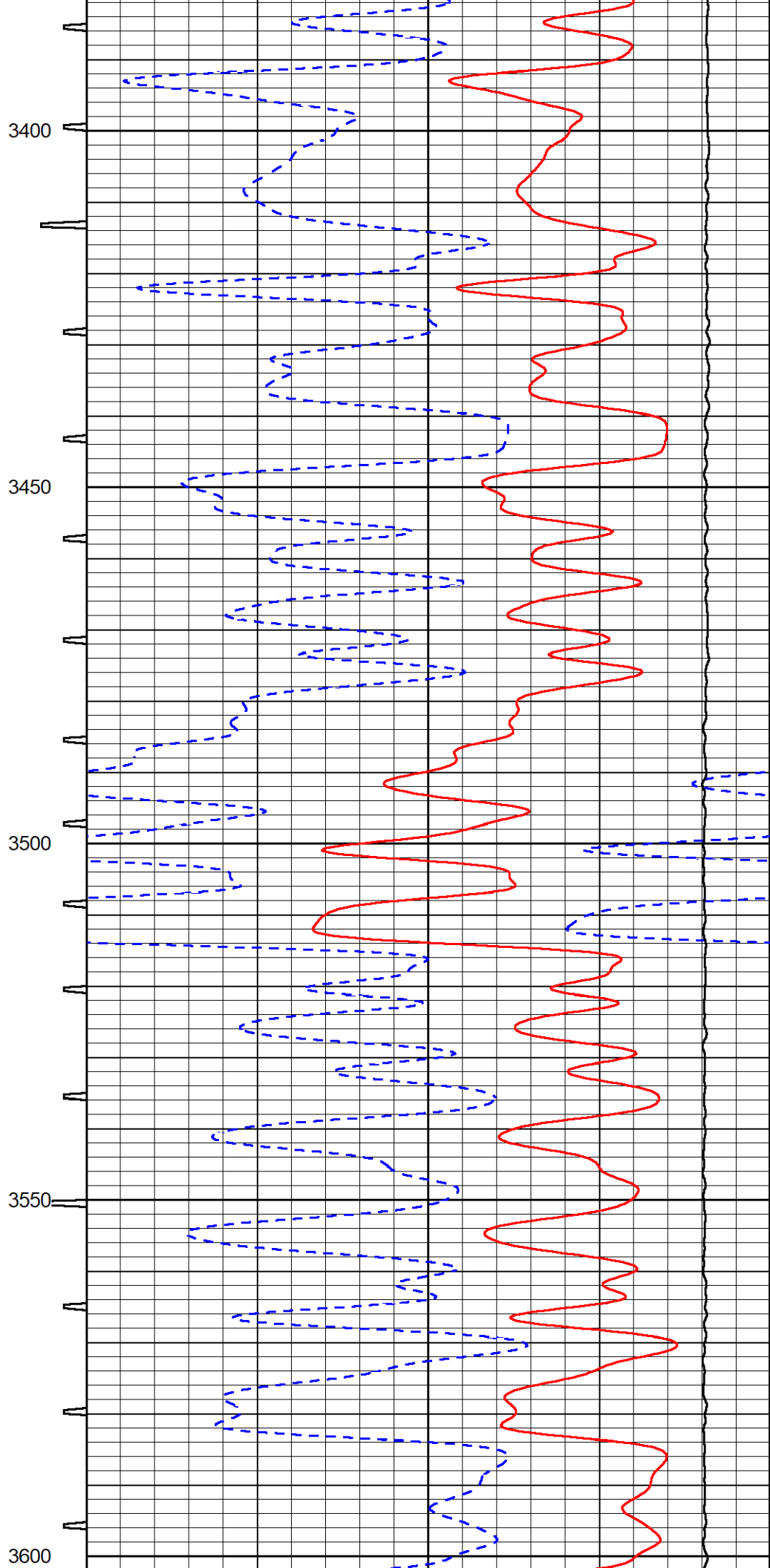
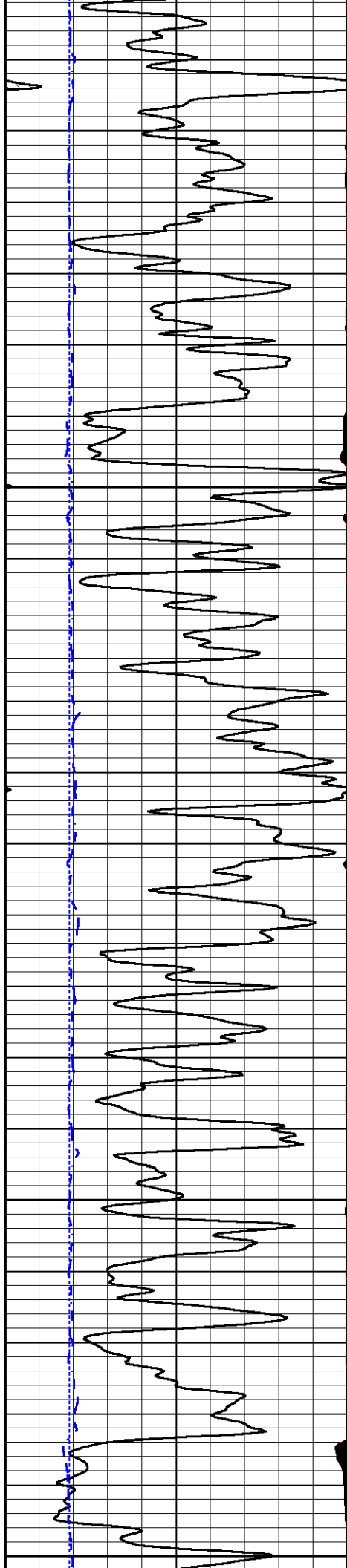
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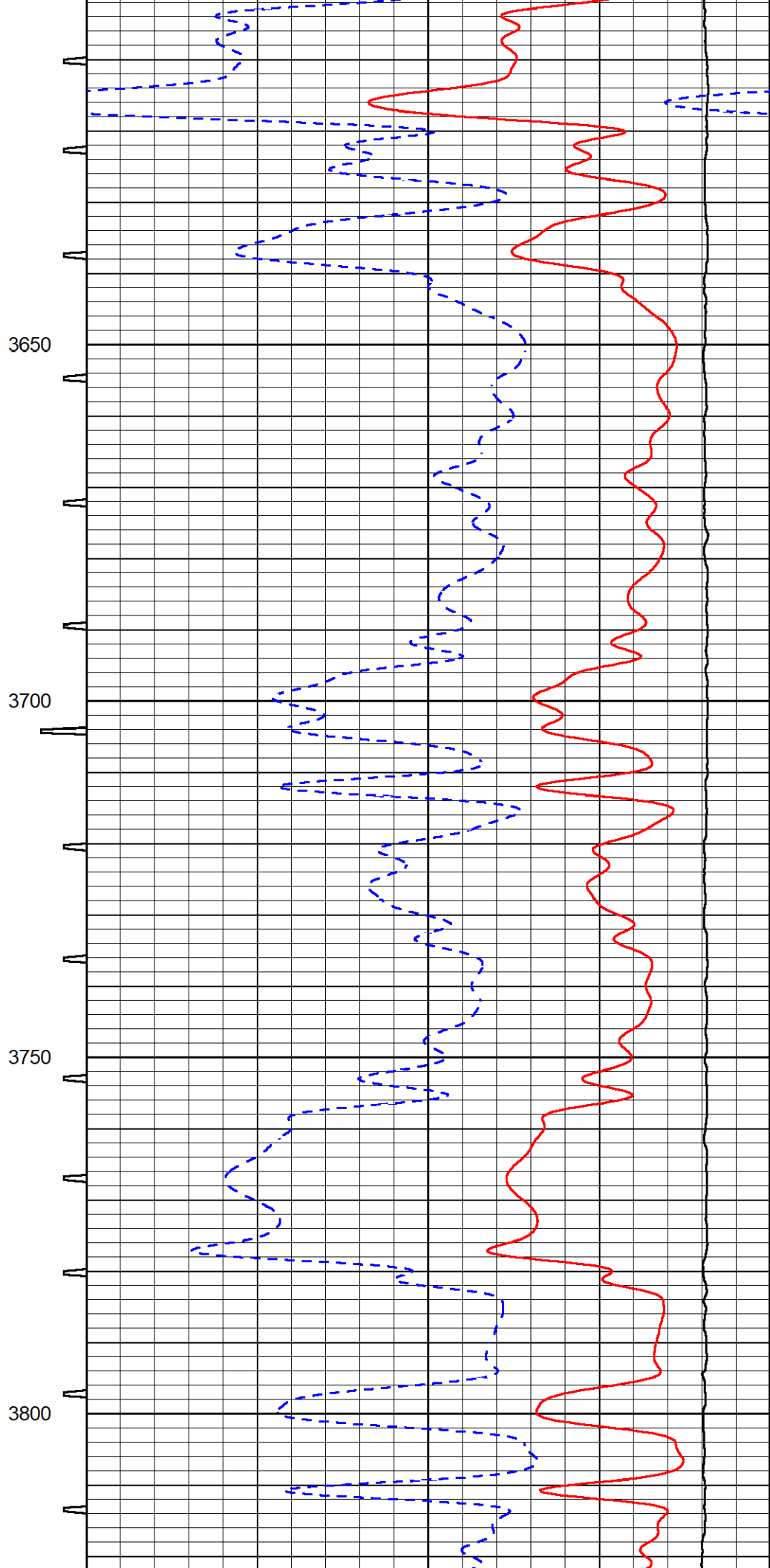
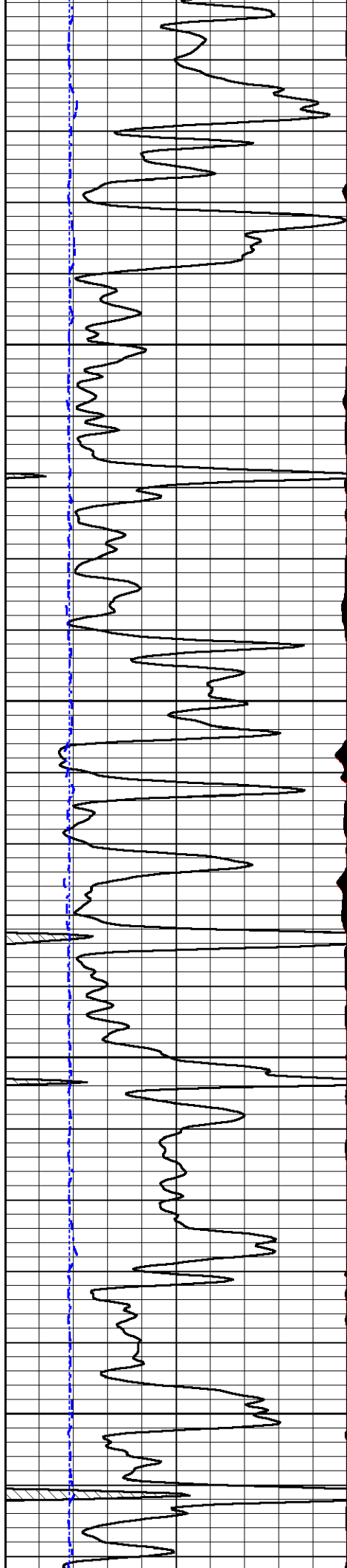
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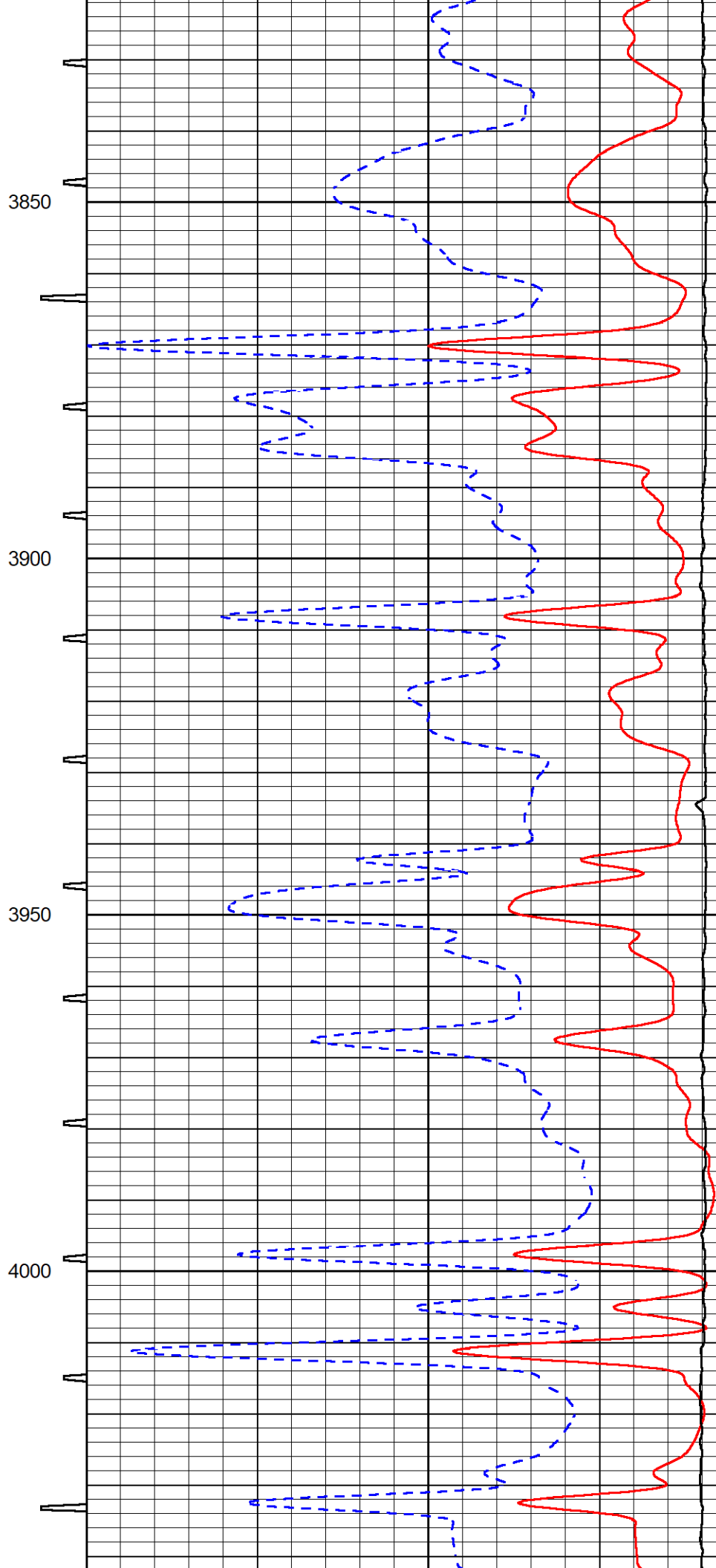
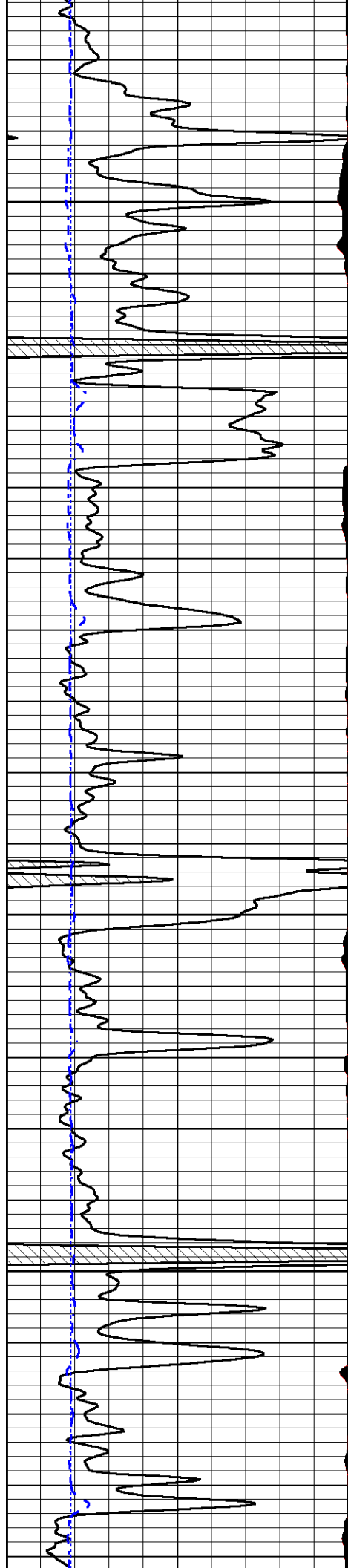
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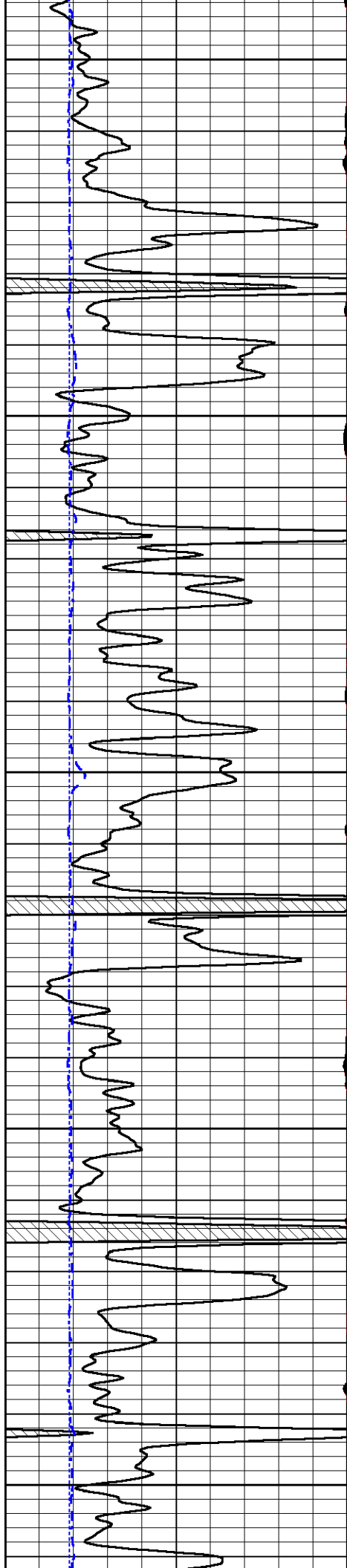












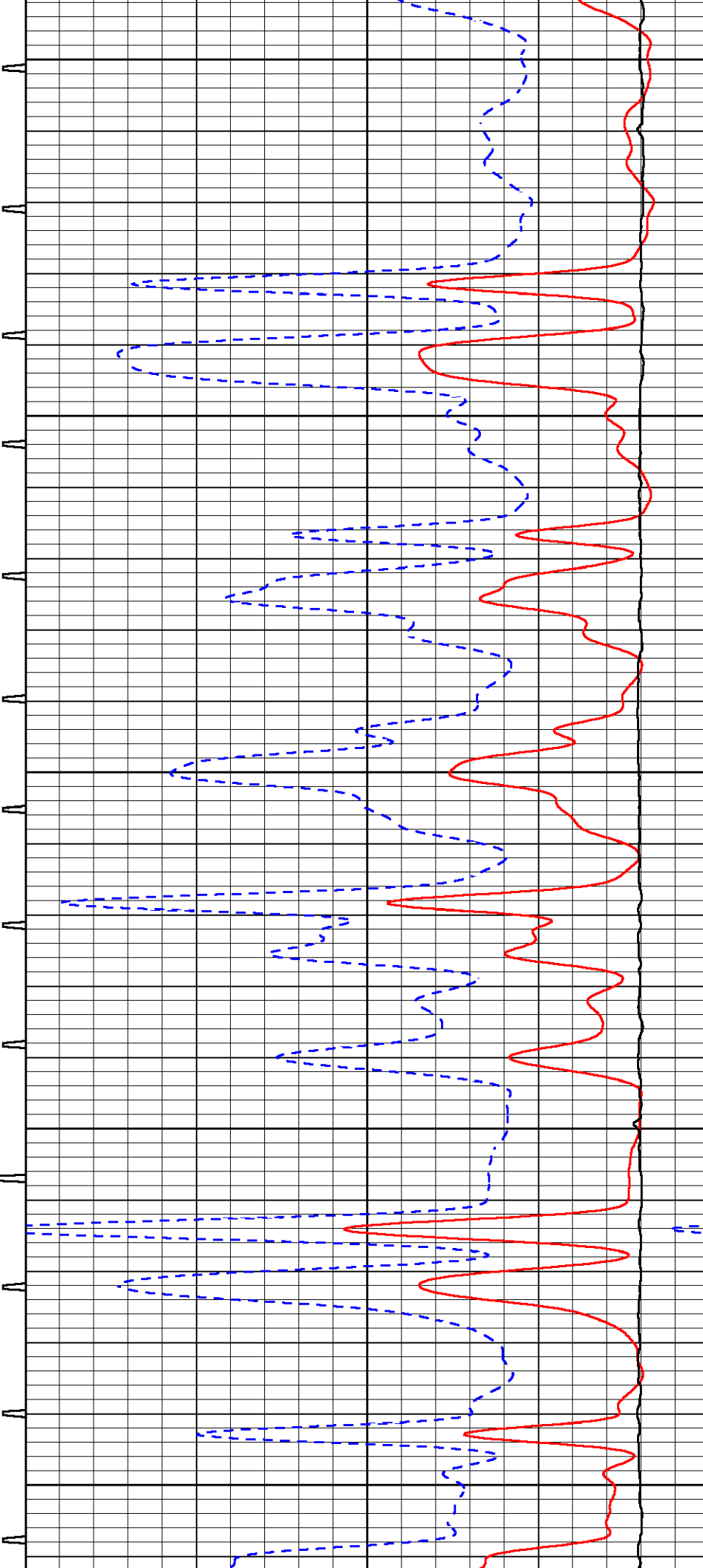
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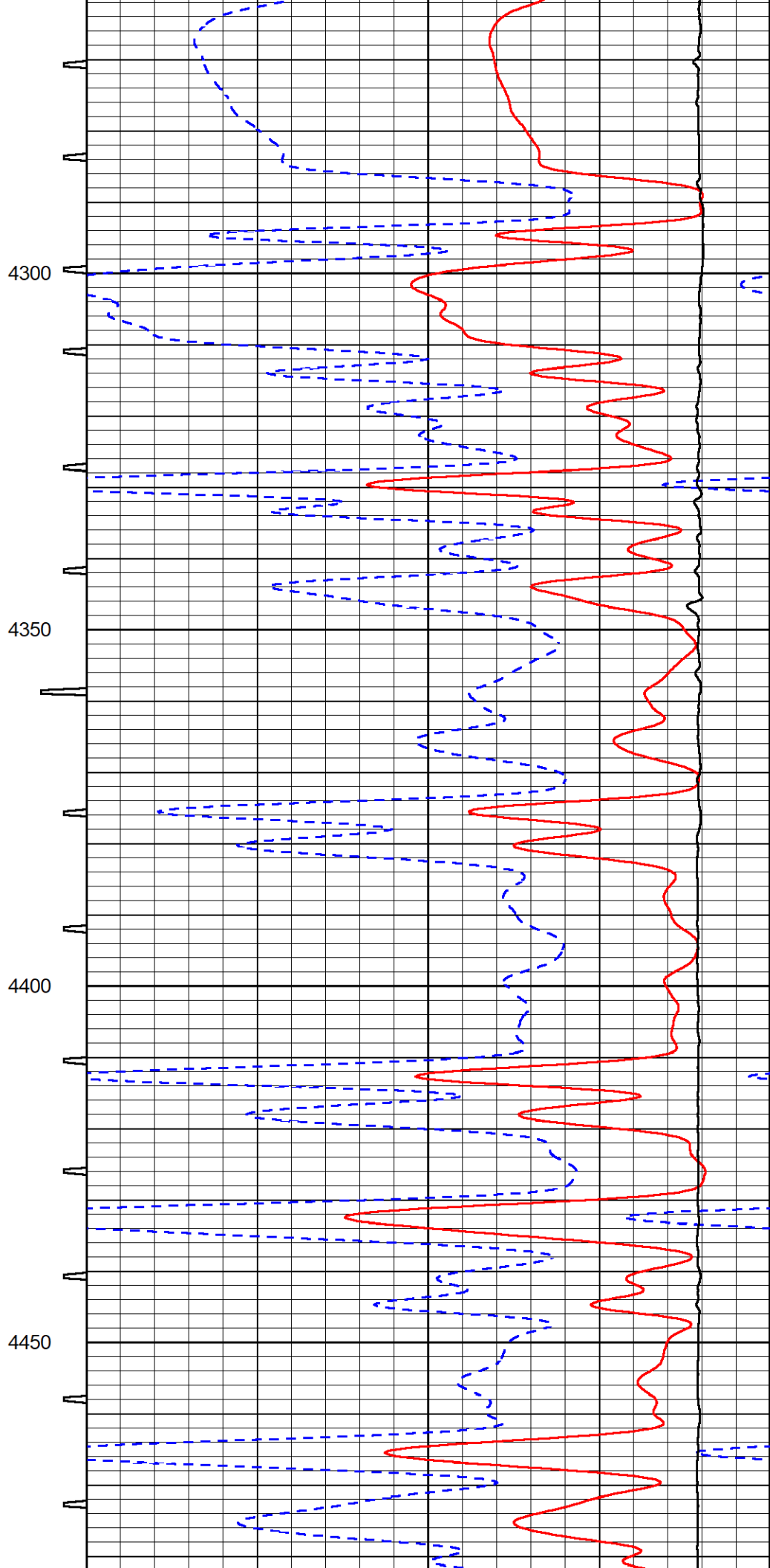
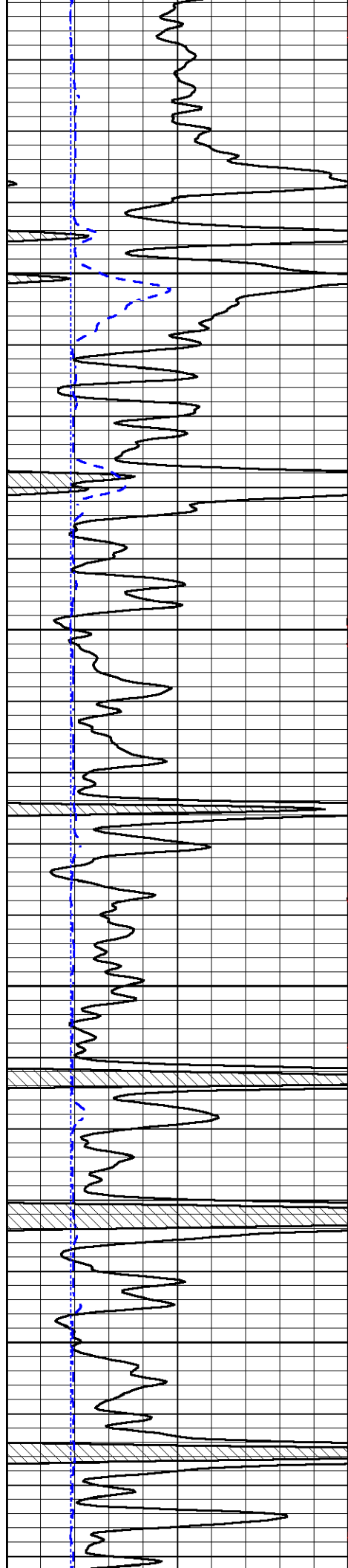
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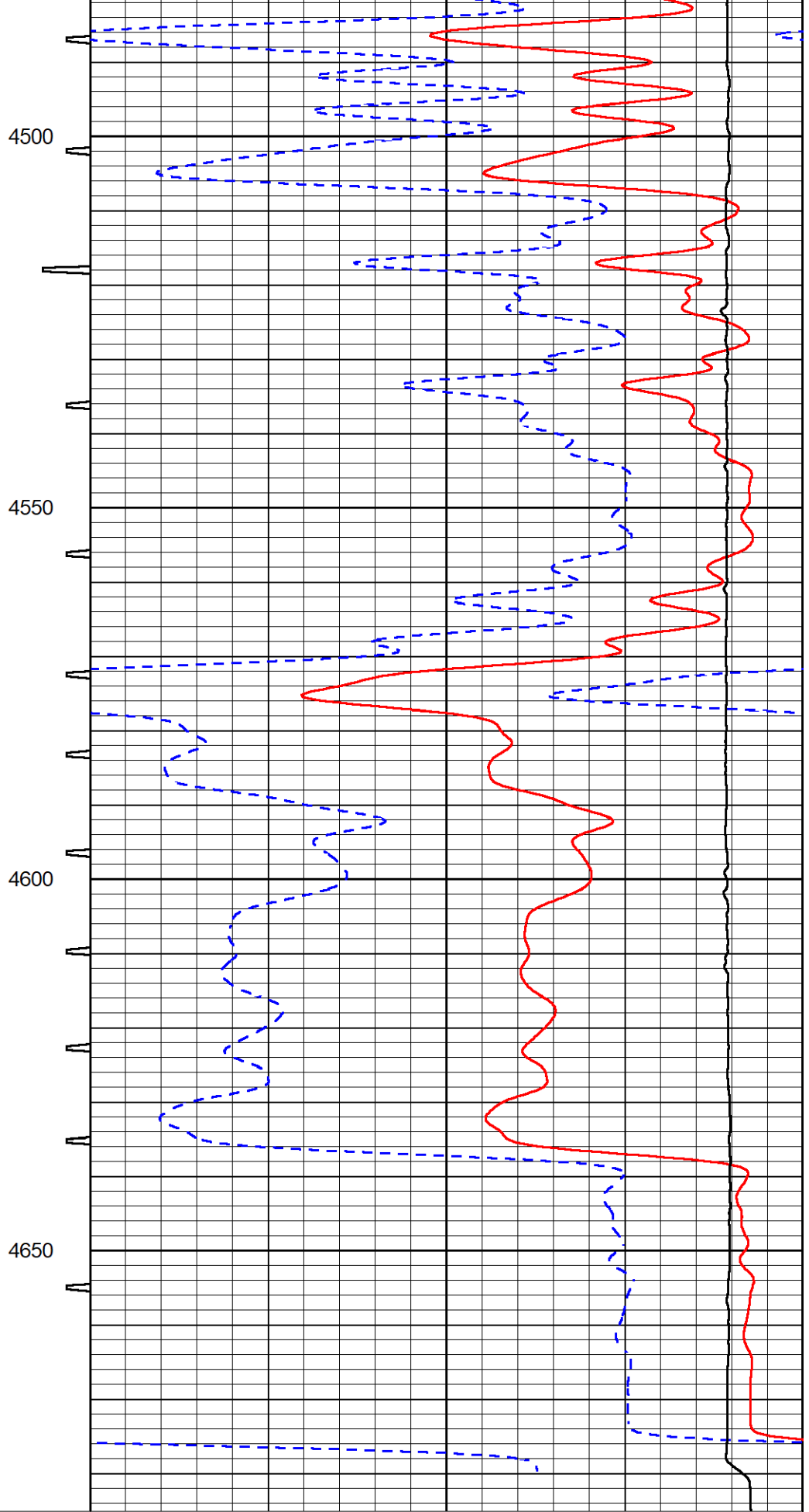
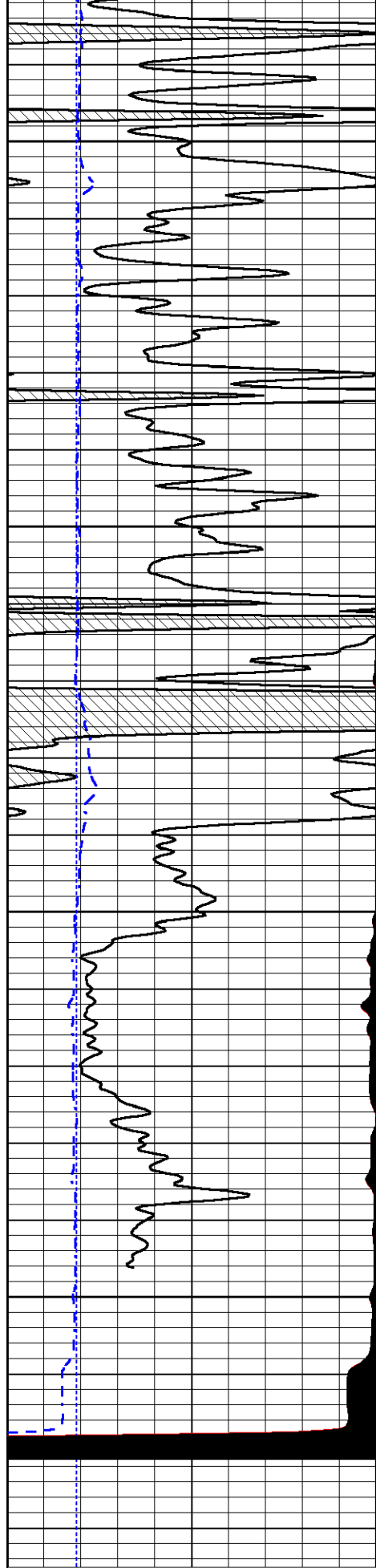
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4200

4250







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) (pu)	-10
6	LCAL (in)	16		15000	Line Tension (lb)	0
2.875	LCAL (in)	7.875				

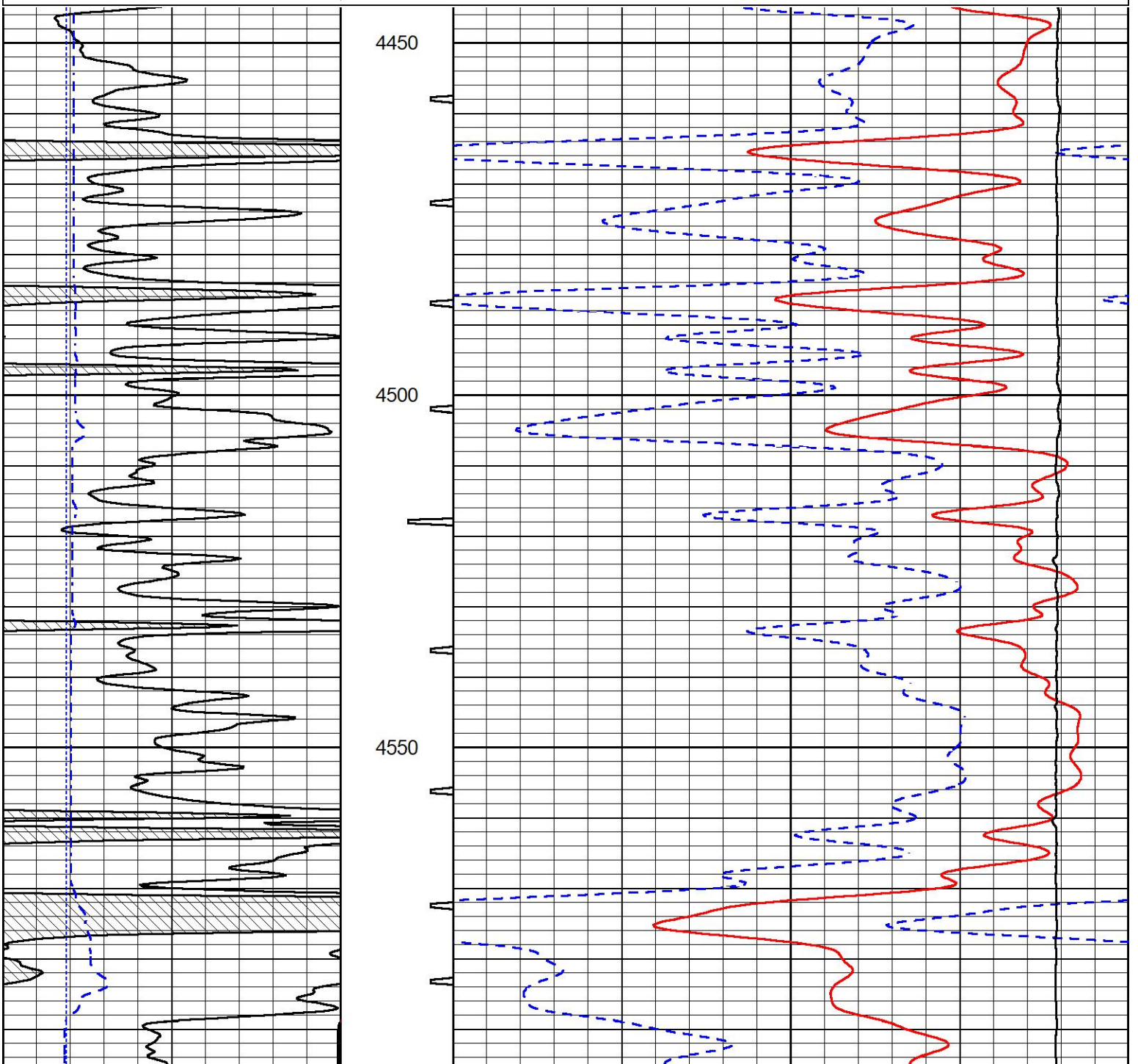


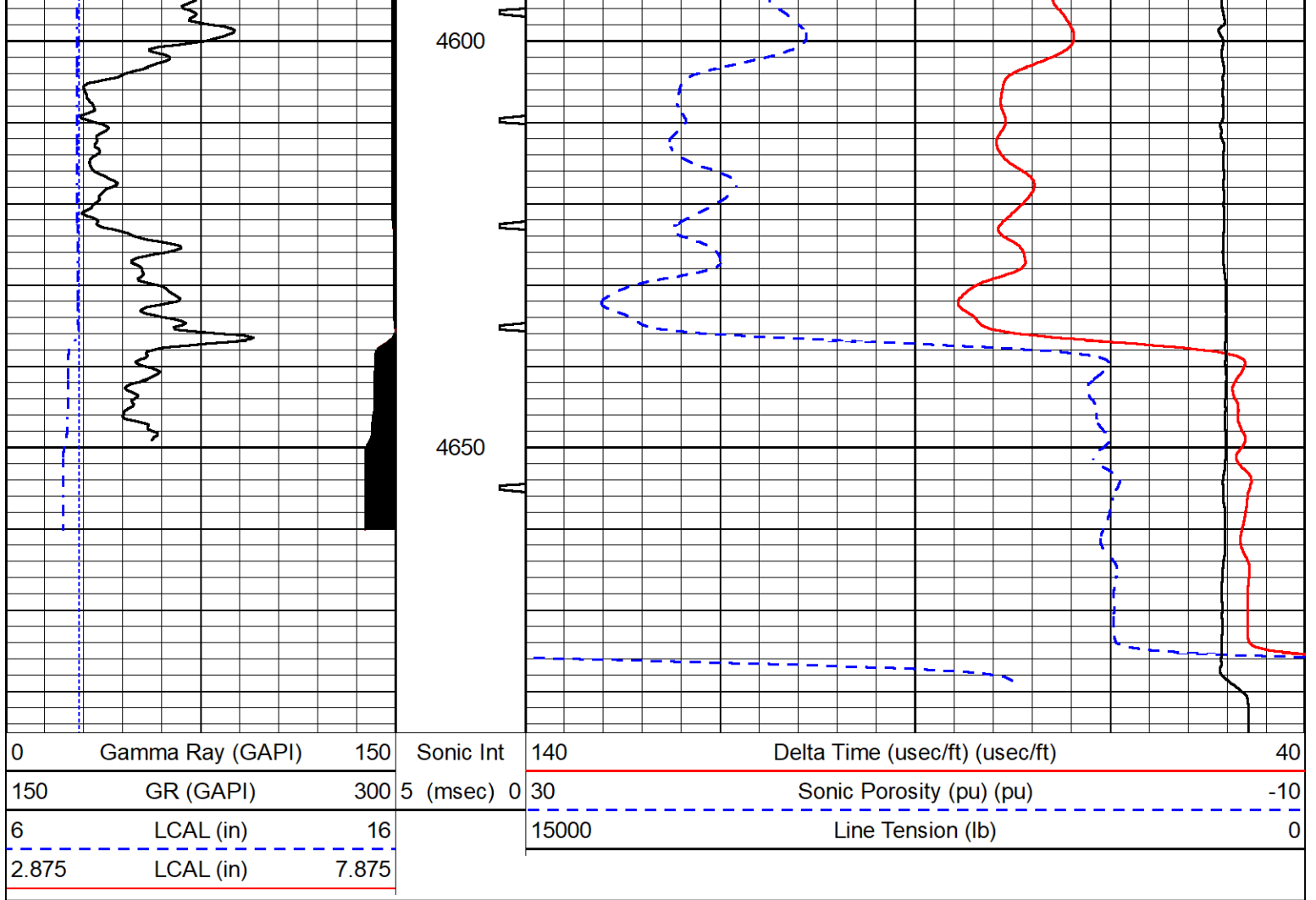
REPEAT SECTION

REPEAT PASS

Database File darrah_sangster-up unit 1-13.db
 Dataset Pathname stkml/pass2.1
 Presentation Format _sonic
 Dataset Creation Tue Nov 11 02:27:40 2025
 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) (pu)	-10
6	LCAL (in)	16		15000	Line Tension (lb)	0
2.875	LCAL (in)	7.875				





Calibration Report

Database File darrah_sangster-up unit 1-13.db
 Dataset Pathname stkml/pass3.5
 Dataset Creation Tue Nov 11 02:20:41 2025

Dual Induction Calibration Report

Serial-Model: 504 HT-M&W
 Surface Cal Performed: Tue Nov 11 01:14:53 2025

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop	mmho/m	m	b
Deep	178.615	710.235	0.000	255.800	mmho/m	1.350	-8.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.900	-40.000

Microlog Calibration Report

Serial-Model: 402-PSI STKBL ML
 Performed: Sat Nov 1 16:03:24 2025

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0037	0.0043	0.0000	10.0000	Ohm-m	18500.0000	-1.0000
Inverse	0.1208	0.0013	0.0000	10.0000	Ohm-m	21500.0000	-0.5000
Caliper	1.0046	1.1419	5.5000	20.0000	in	50.0000	-44.5650

LITHODENSITY Calibration Report

Serial Number: 701-03
 Tool Model: STEP LITHO Short
 Performed: Tue Sep 23 11:08:22 2025

Source:

	Win1	Win2	Win3	Win4	Win5	Win6	Win7	Win8	
Background:									
SS:	56	59	219	268	24	71	46	1	cps
LS:	78	88	333	431	50	131	87	4	cps
Aluminum:									
SS:	1019	1215	2861	2617	50	77	49	3	cps
LS:	1263	2145	3830	1712	72	136	59	4	cps
Magnesium:									
SS:	1699	1990	4685	3819	56	78	46	4	cps
LS:	4984	8437	15068	6103	123	112	86	24	cps
Aluminum+Iron:									
SS:	655	863	2400	2274	45	78	49	3	cps
LS:	711	1512	3267	1588	59	132	86	6	cps

	Density Actual	Calibrated		PE Actual	Calibrated	Quality
Background:						
SS:						0.213
LS:						0.202
Aluminum:						
SS:	2.6000	2.6000	g/cc			0.219
LS:	2.6000	2.6000	g/cc			0.395
Magnesium:						
SS:	1.6800	1.6800	g/cc	2.5700	2.5700	0.255
LS:	1.6800	1.6800	g/cc	2.5700	2.5700	0.131
Aluminum+Iron:						
SS:					6.1800	0.229
LS:					6.1800	0.212

Caliper:	Reference:	Reading:
Small Ring:	6.0 in	0.2
Large Ring:	17.5 in	0.8
Gain:	18.284	
Offset:	0.100	

Compensated Neutron Calibration Report

Serial Number: 210
 Tool Model: M&W

CALIBRATION

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: 105
 Tool Model: M&W
 Performed: Tue Aug 26 12:59:12 2025

Calibrator Value: 500.0 GAPI

Background Reading:	24.0	cps
Calibrator Reading:	637.0	cps
Sensitivity:	0.6000	GAPI/cps



Company	Darrah Oil Company, LLC
Well	Sangster-UP Unit #1-13
Field	SHS
County	Logan
State	Kansas