MIDWEST WIRELINE

BOREHOLE COMPENSATED SONIC LOG

Company Murfin Drilling Company, Inc.
Well Helene #1-10
Field Unnamed
County Cheyenne State Kansas
Location: API # : 15-023-21548-00-00
500' FNL & 660' FEL
SEC 10 TWP 3S RGE 39W

Other Services
DIL/MEL
CNL/CDL

Elevation
K.B. 3404'
D.F. N/A
G.L. 3399'

Permanent Datum Ground Level Elevation 3399'
Log Measured From Kelly Bushing
Drilling Measured From Kelly Bushing

Date	3/26/2021
Run Number	Two
Type Log	BHCS
Depth Driller	5200'
Depth Logger	5196'
Bottom Logged Interval	5185'
Top Logged Interval	300'
Type Fluid In Hole	Chemical
Salinity, PPM CL	600
Density	9.2
Level	Full
Max. Rec. Temp. F	128 Deg/F
Operating Rig Time	6 Hours
Equipment -- Location	P-108 | HAYS
Recorded By	J. Henrickson
Witnessed By	Saman Sharifaie

Borehole Record

Run No.	Bit	From	To
One	12.25"	0	305'
Two	7.875"	305'	TD

Casing Record

Size	Wgt.	From	To
8.625"	24#	0	305'

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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.

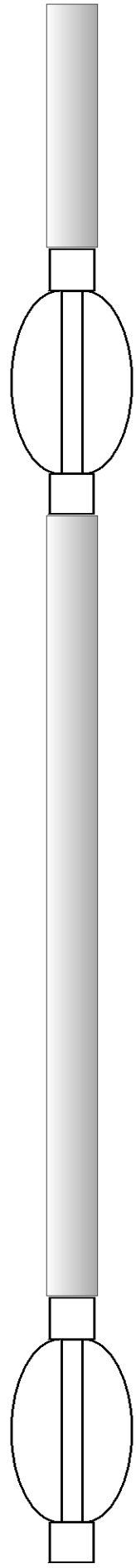
Wheeler Kansas, 3 North, 2 East, South Into

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

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

Your Midwest Wireline Crew	This Log Record Was Witnessed By
Engineer: J. Henrickson	Primary Witness: Saman Sharifaie
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
			ML-Armadillo (Armadillo-1) Pengo micro log tool mandrel with Armadillo Electronics	5.00	3.50	100.00
MCAL	28.00					
MI	28.00					
MN	28.00					
			CENT-PENGO	5.50	3.00	70.00
WVF4	13.50		SLT-PENGO (0001)	16.00	3.50	300.00
WVF1	13.50					
WVF3	11.50					
WVF2	11.50					
			CENT-PENGO	5.50	3.00	70.00

Dataset: murfin_helena_1_10.db: field/well/sonmel/pass3
Total length: 32.00 ft
Total weight: 540.00 lb
O.D.: 3.50 in

Log Variables

DatabaseC:\ProgramData\Warrior\Data\murfin_helena_1_10.db
Dataset field/well/stackml/pass4.1/_vars_

Top - Bottom

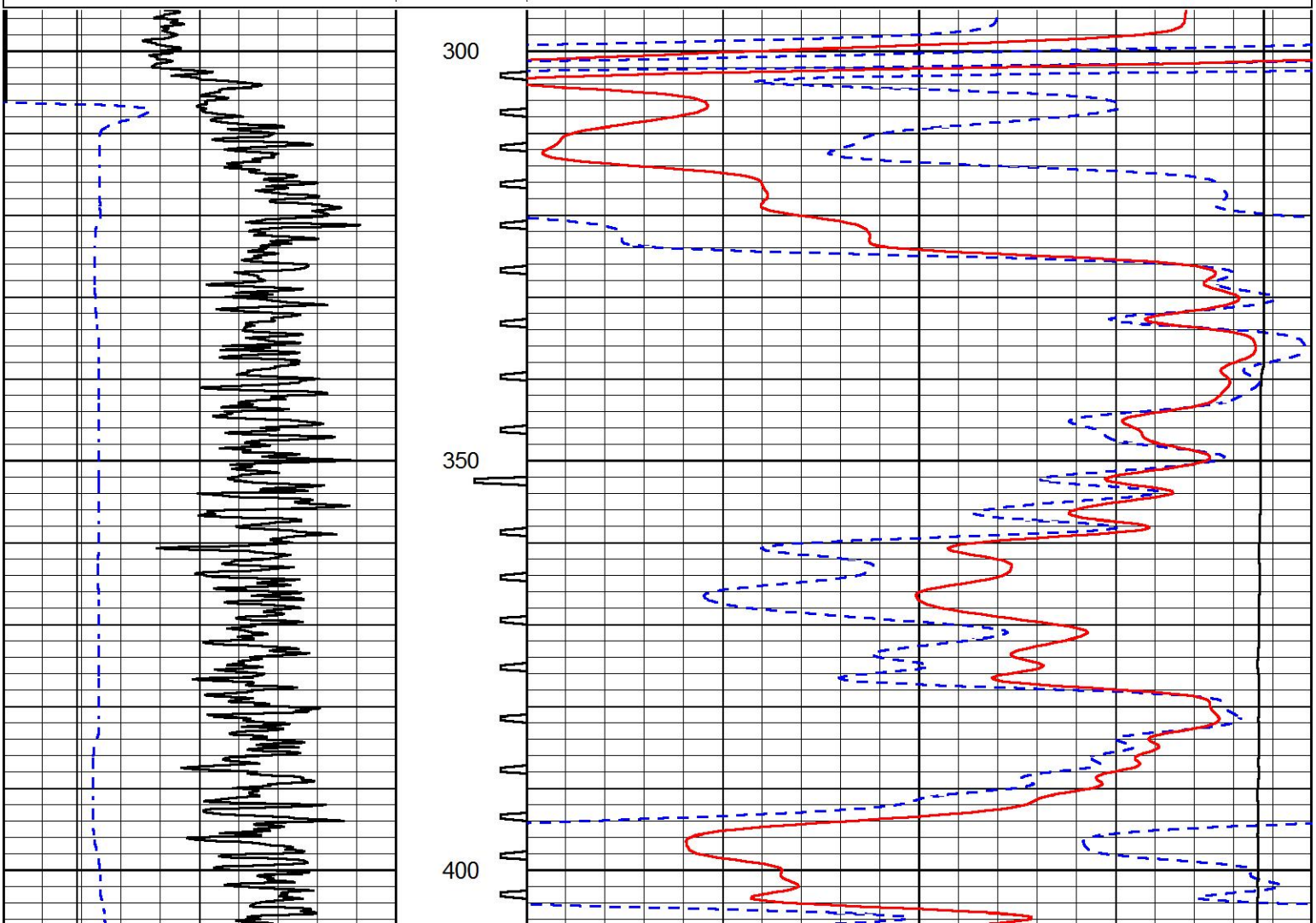
A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	128	5.5	0	1	2	2.71
NPORSEL	**PERFS**	**SNDERR mmho/m**	**SNDERRM mmho/m**	**SPSHIFT mV**	**SRFTEMP degF**	**SZCOR**	**TDEPTH ft**
Limestone	0	10	0	610	64	Off	5196

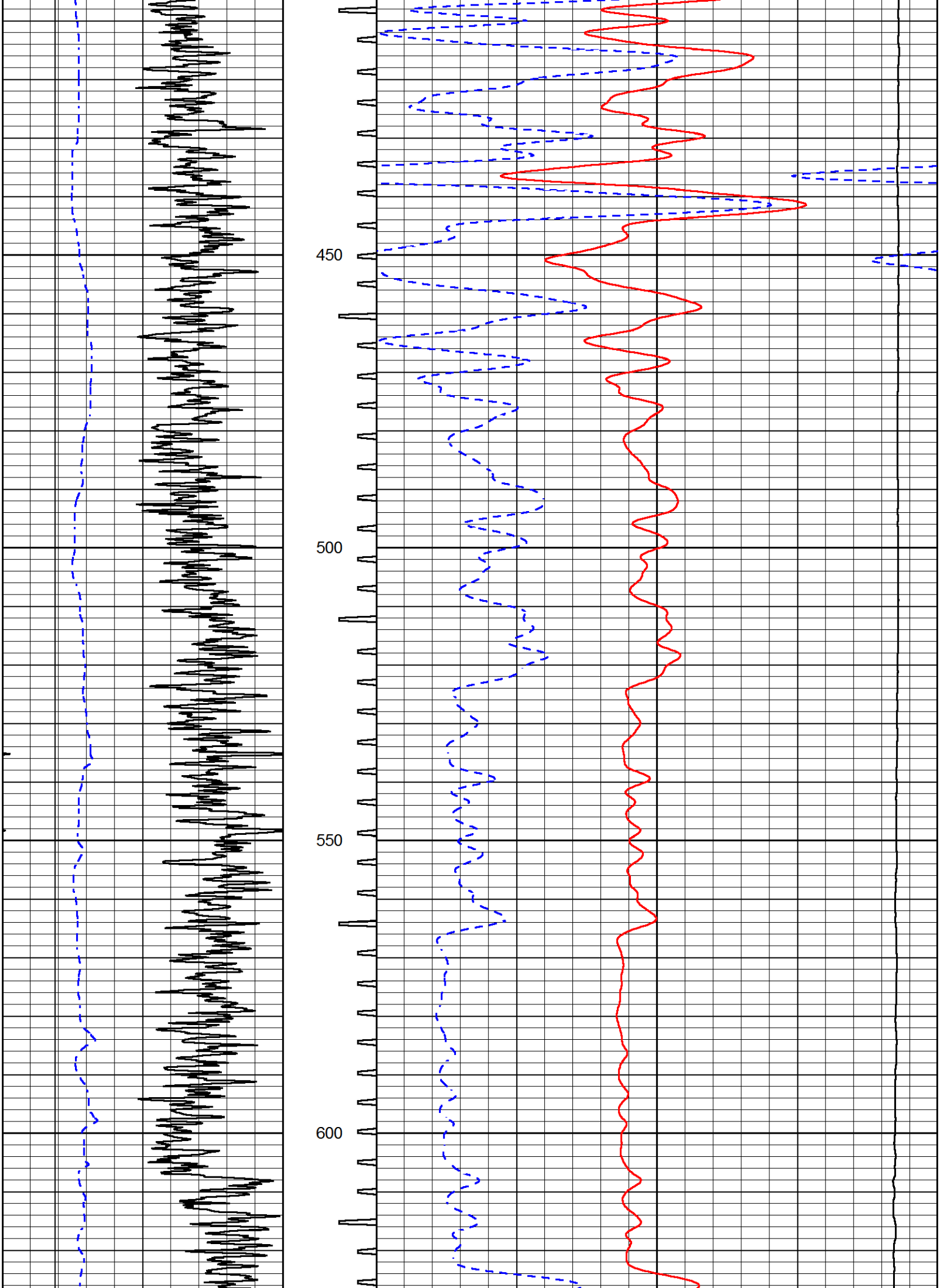
MIDWEST WIRELINE

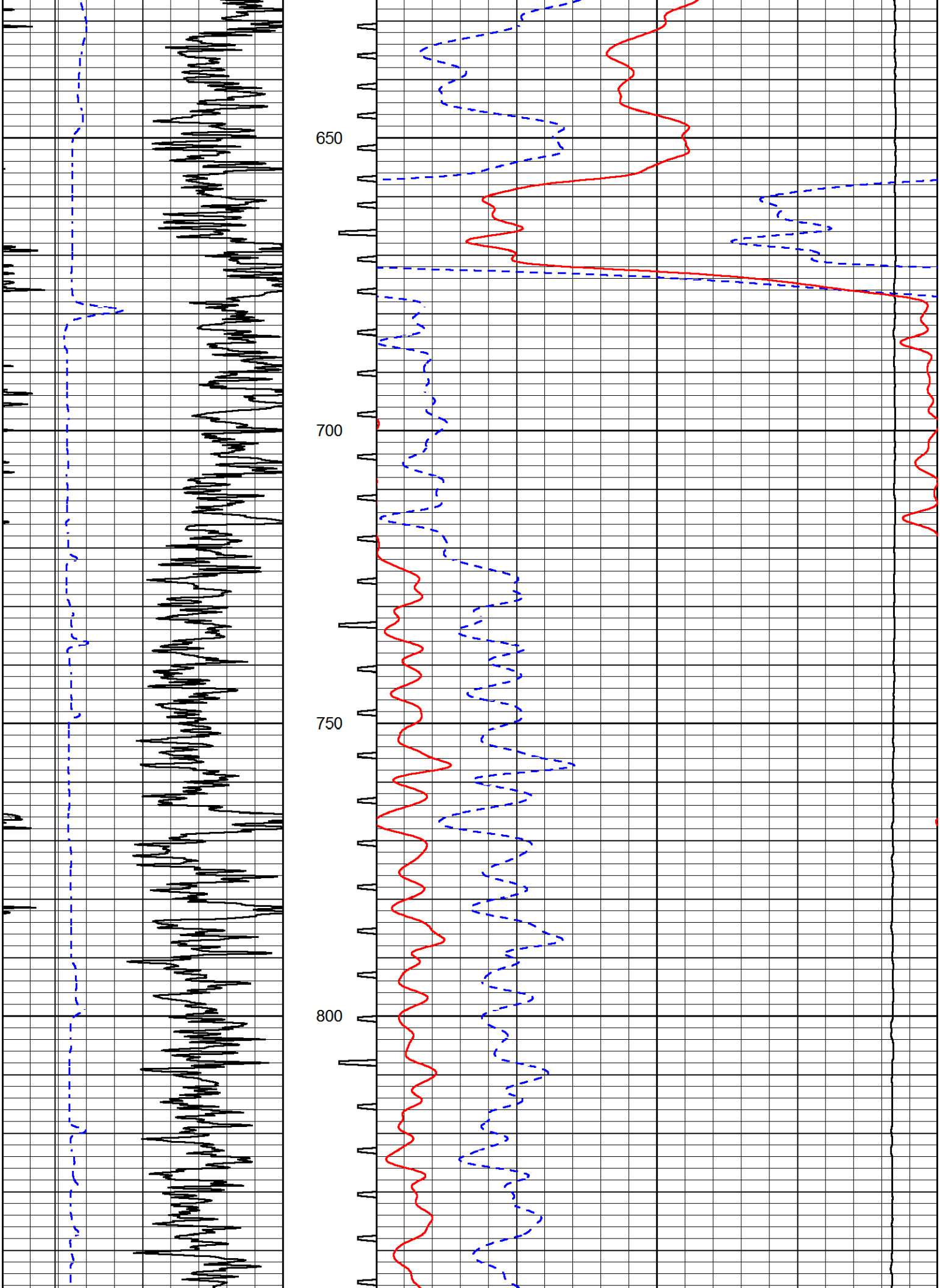
MAIN PASS

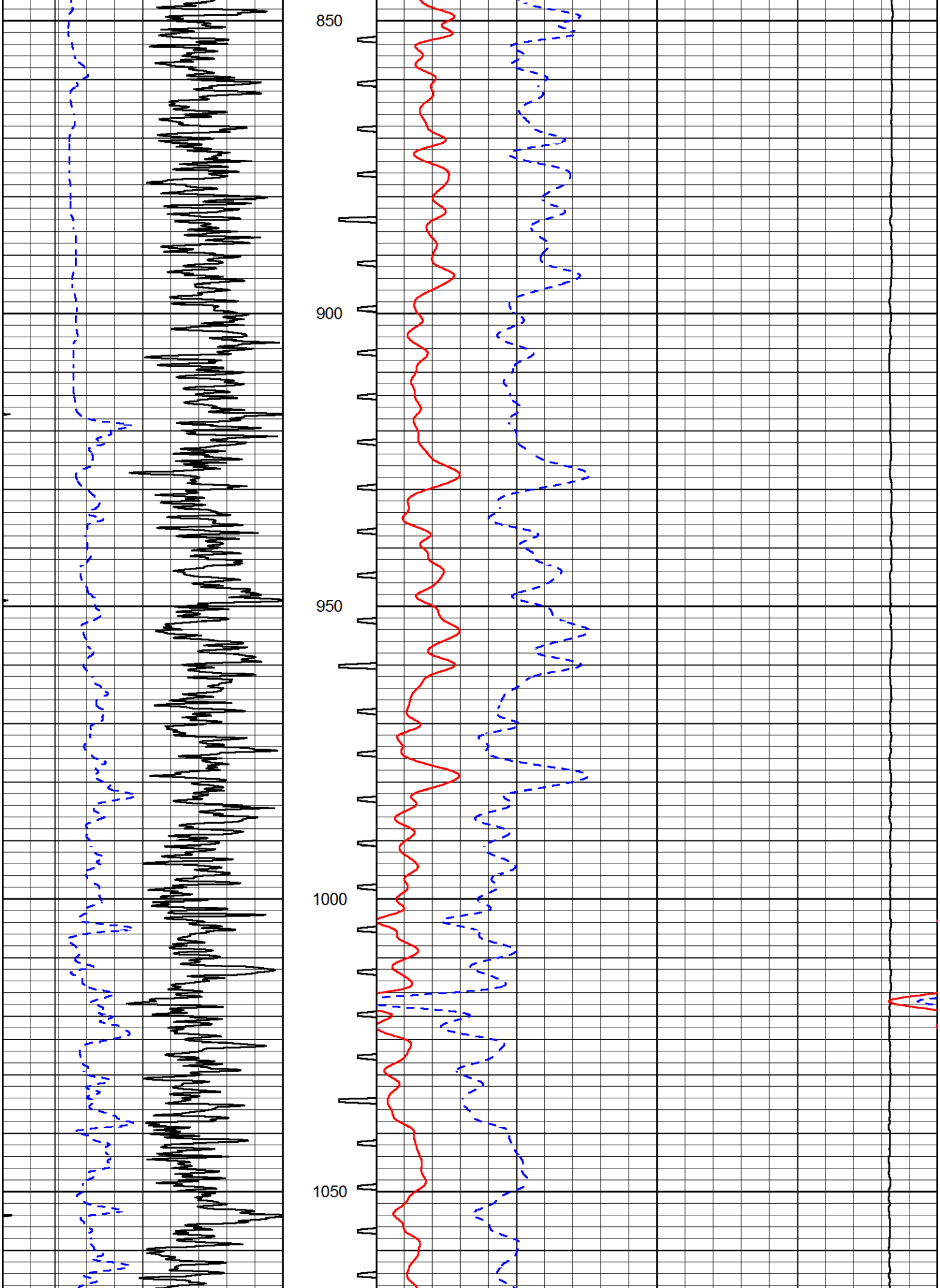
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Presentation Format	sonic
Dataset Creation	Fri Mar 26 21:02:51 2021
Charted by	Depth in Feet scaled 1:240

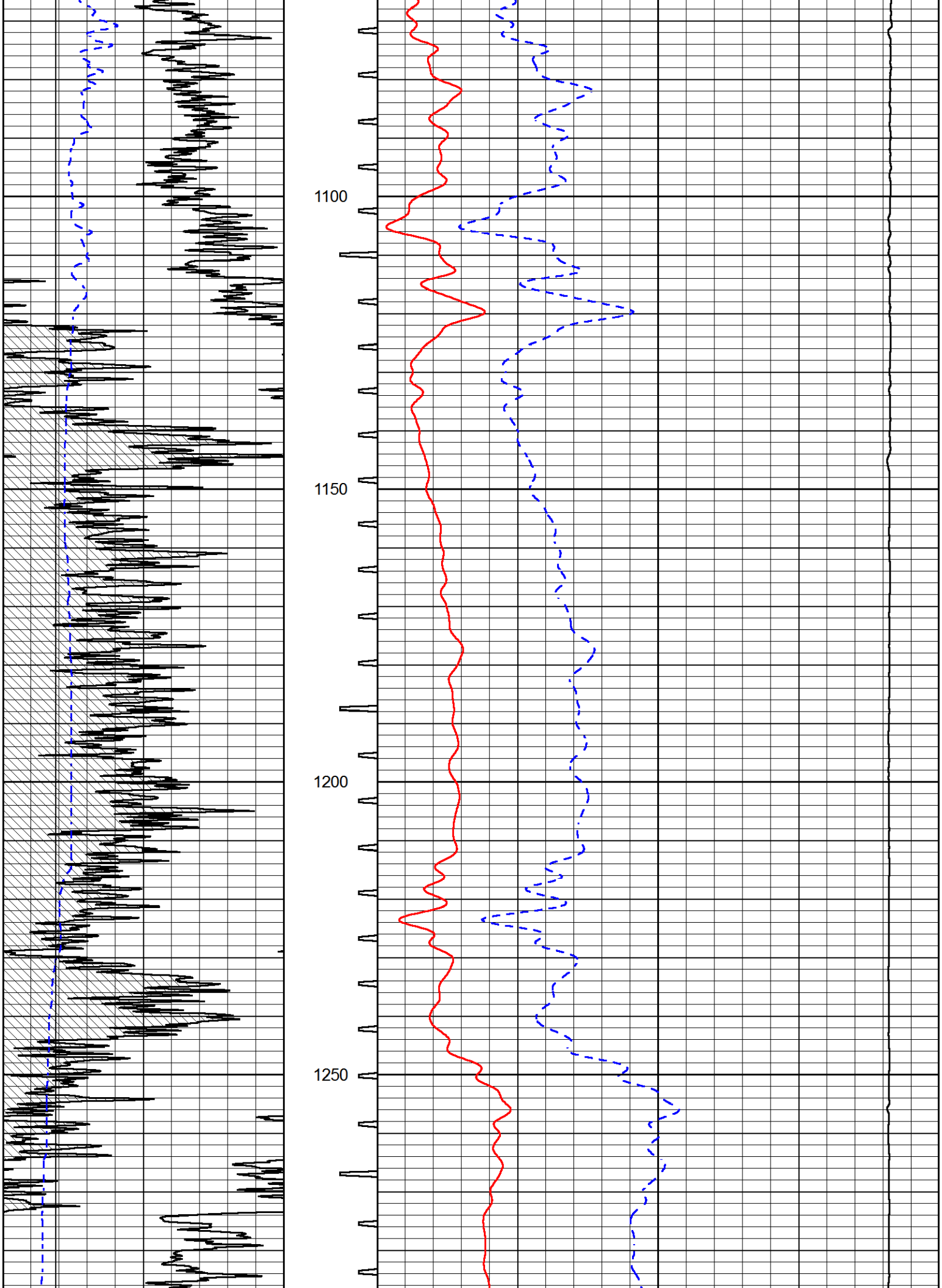
0	GAMMA RAY (GAPI)	150	SONIC INT TRAVEL TIM (msec)	140	DELTA TIME (usec/ft) (usec/ft) 40
6	CALIPER (in)	16		30	SONIC POROSITY (pu) -10
6	BIT SIZE	16		15000	LINE TENSION (lb) 0

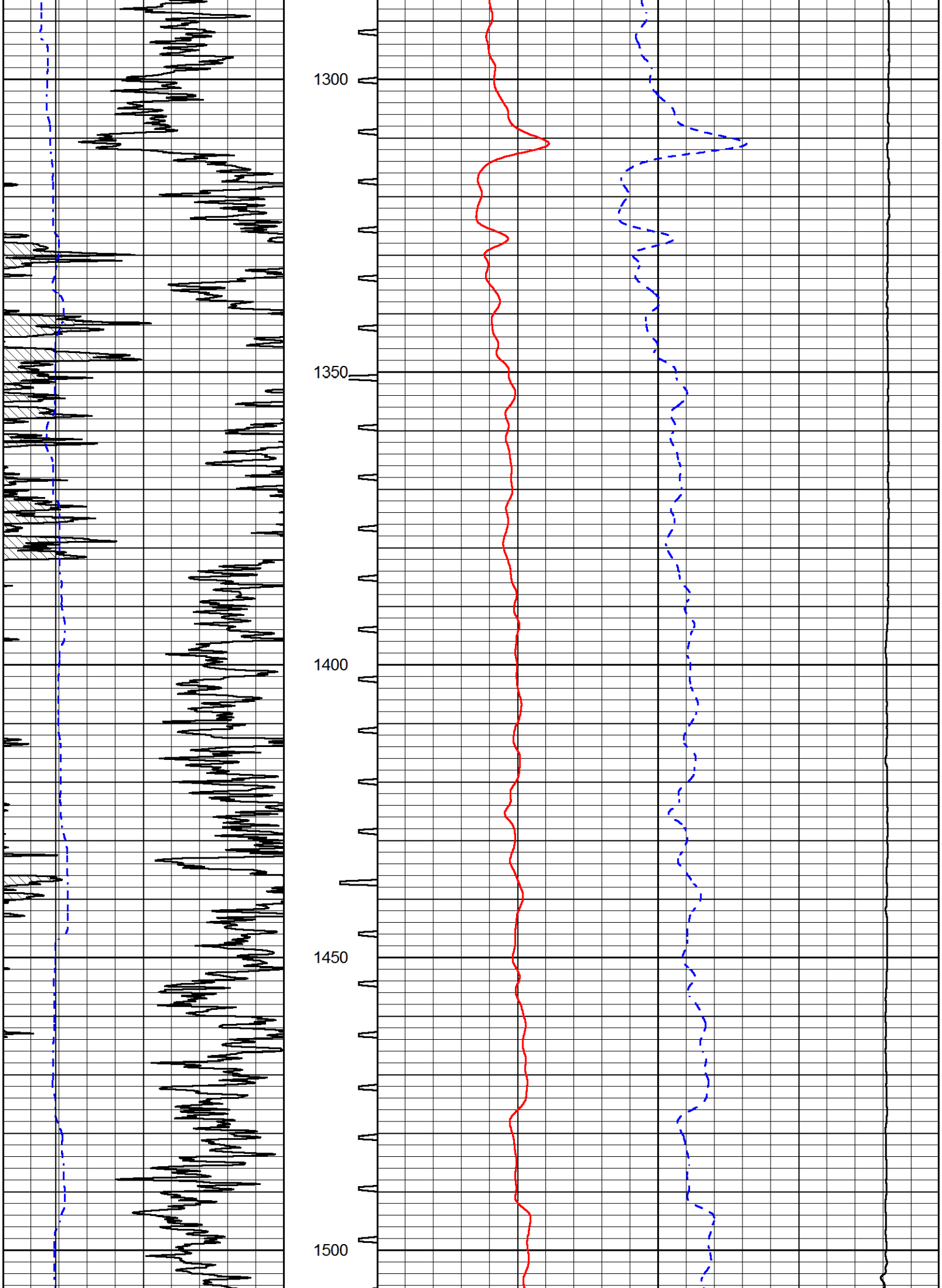


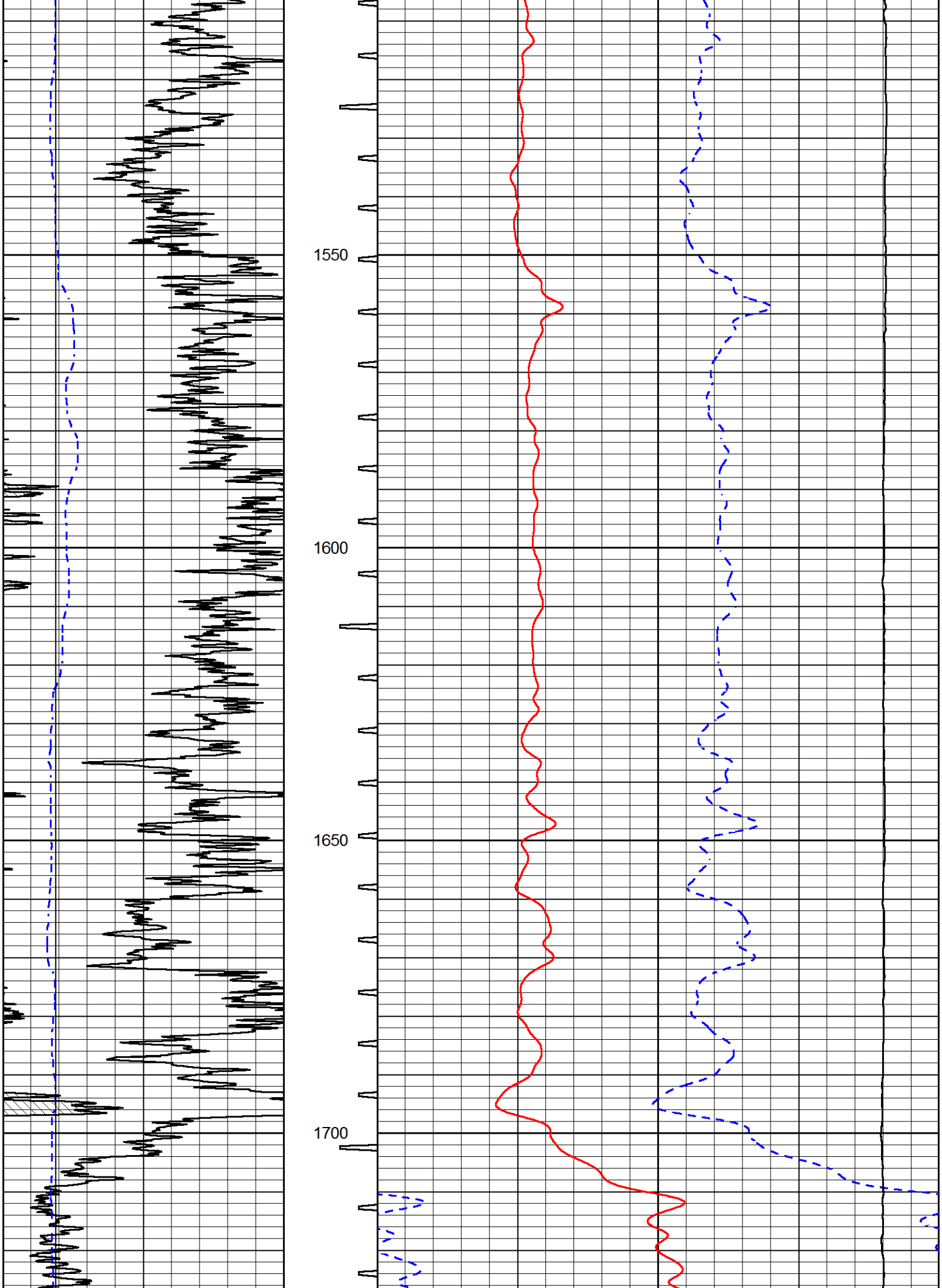

450
500
550
600

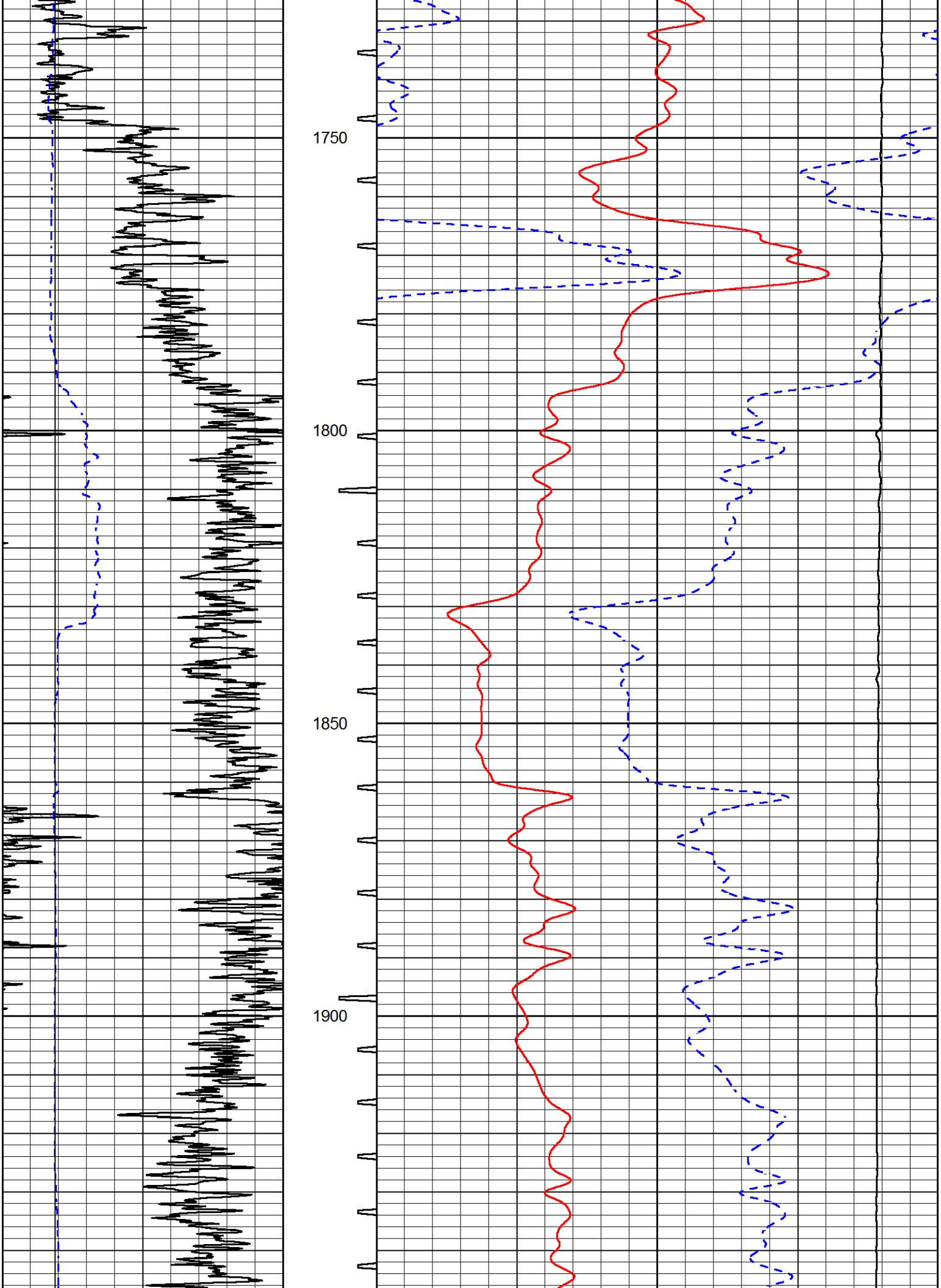

650
700
750
800

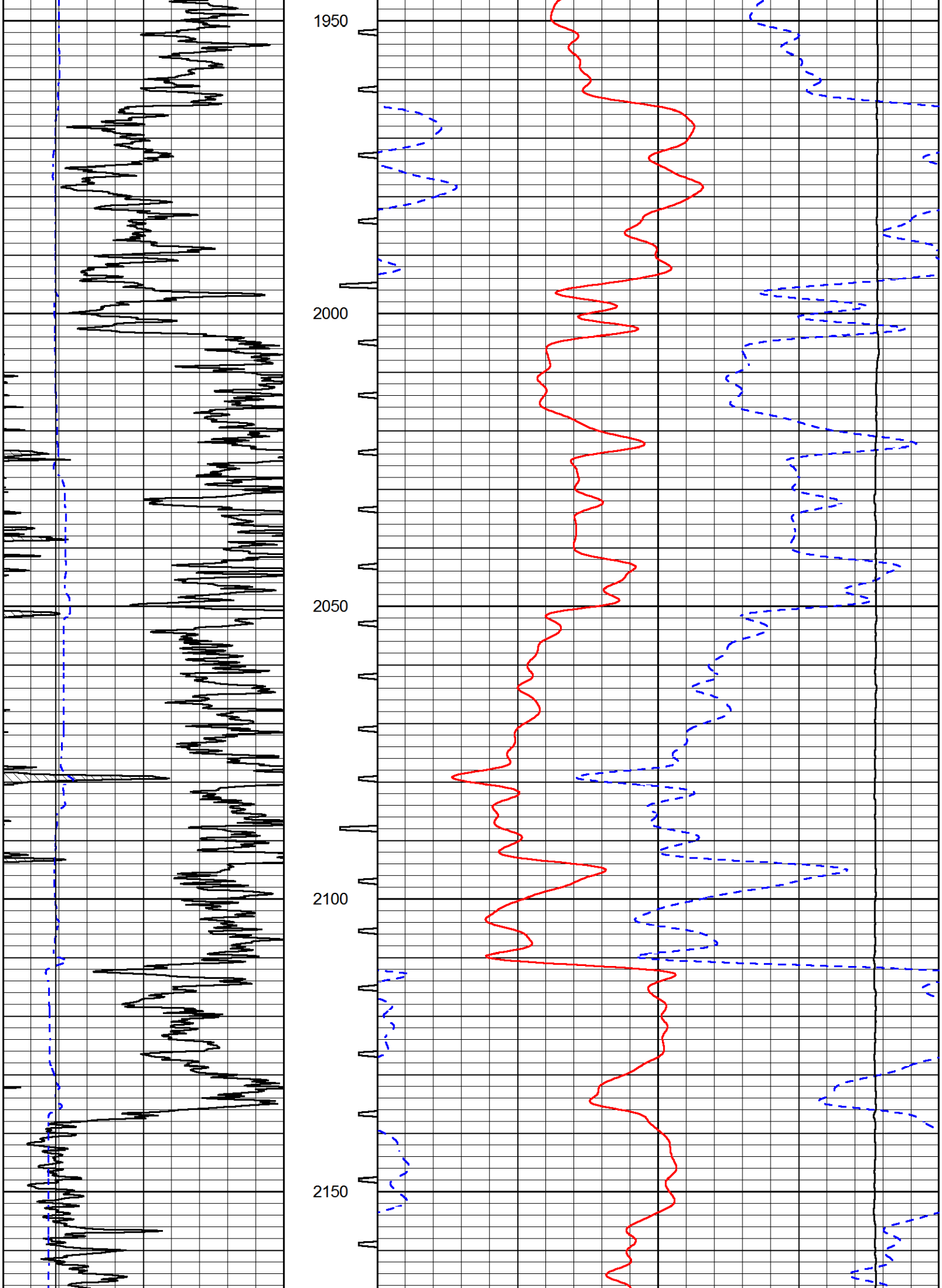

850
900
950
1000
1050

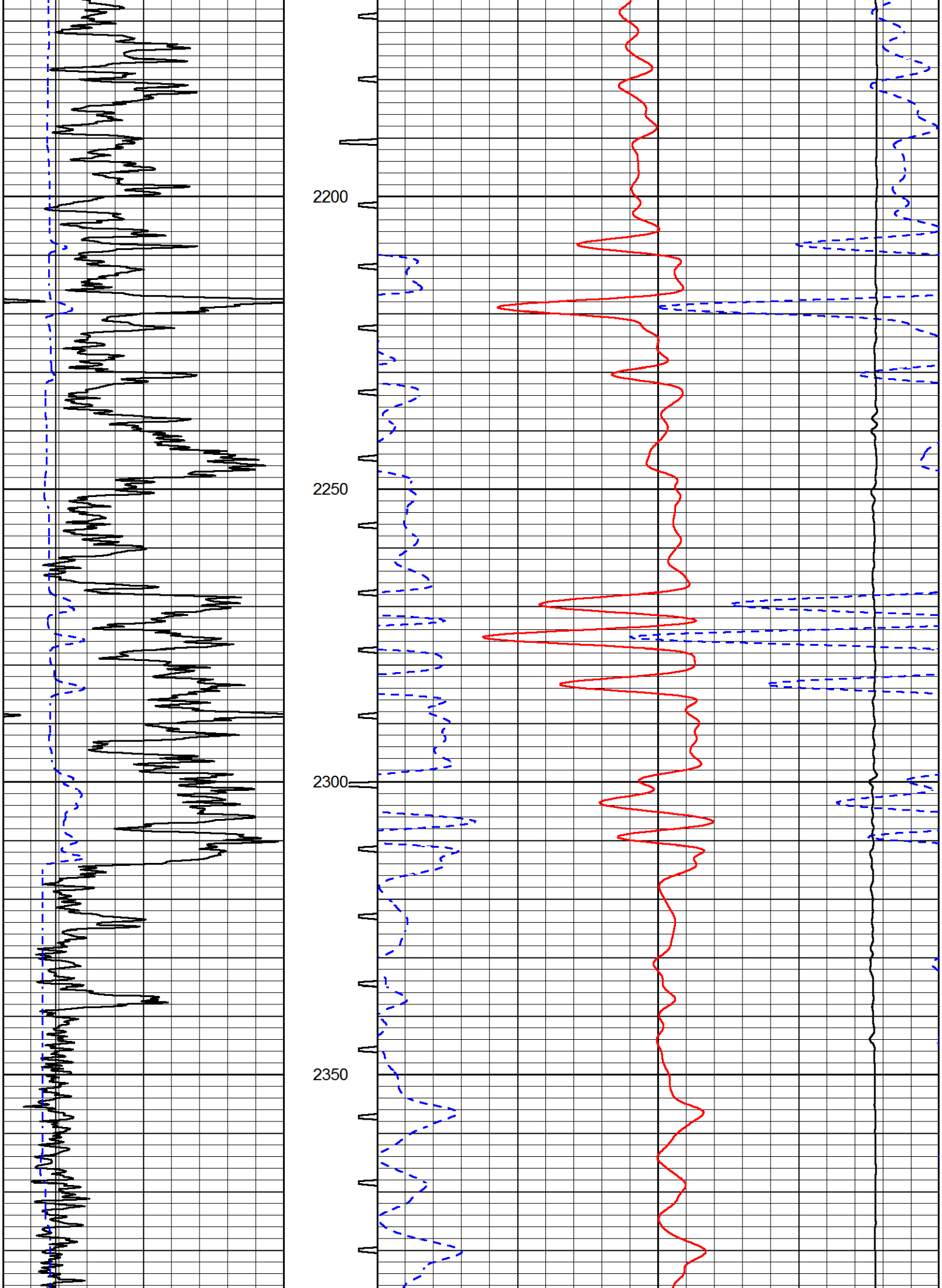

1100
1150
1200
1250

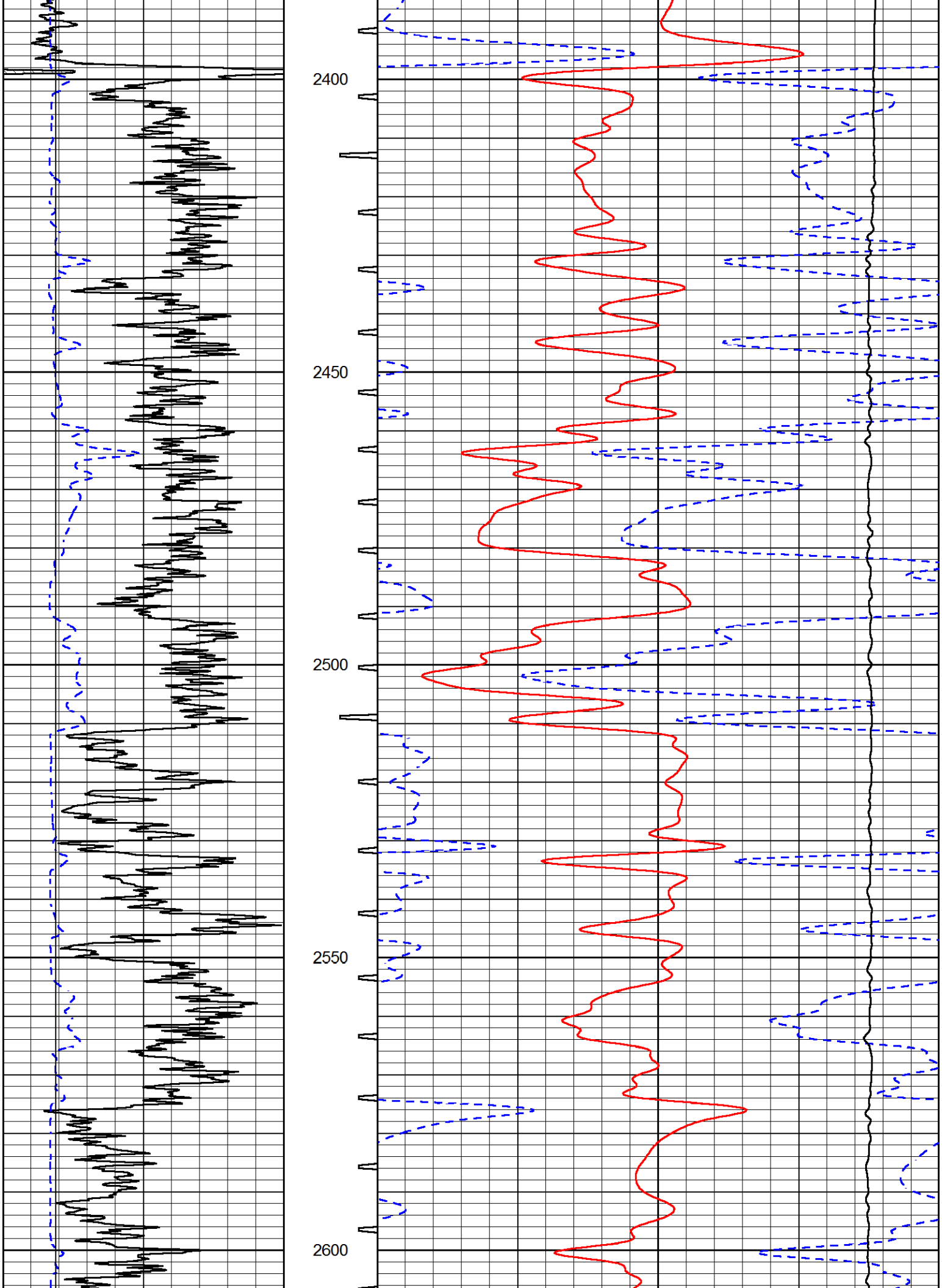

1300
1350
1400
1450
1500

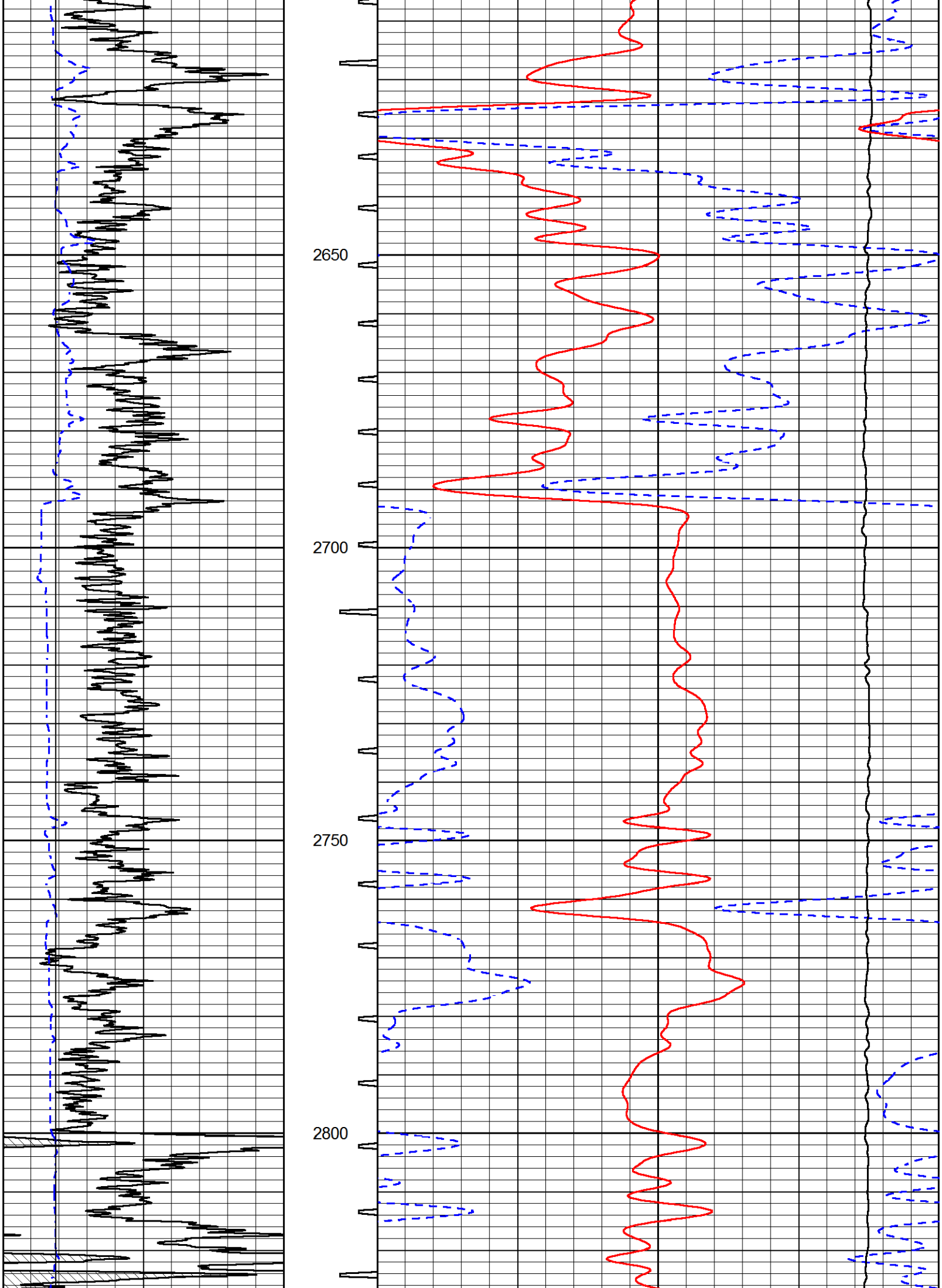

1550
1600
1650
1700

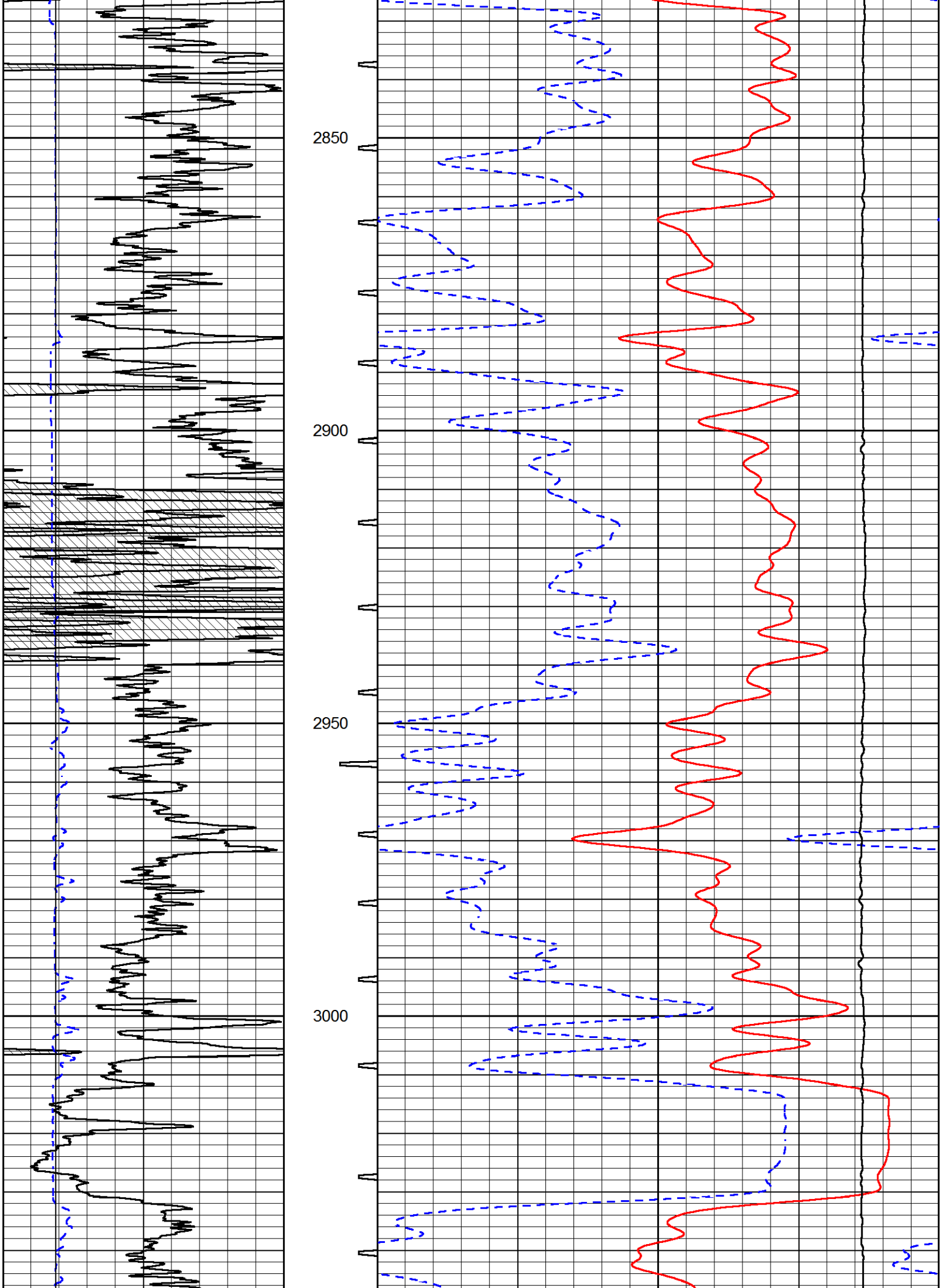

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1800
1850
1900

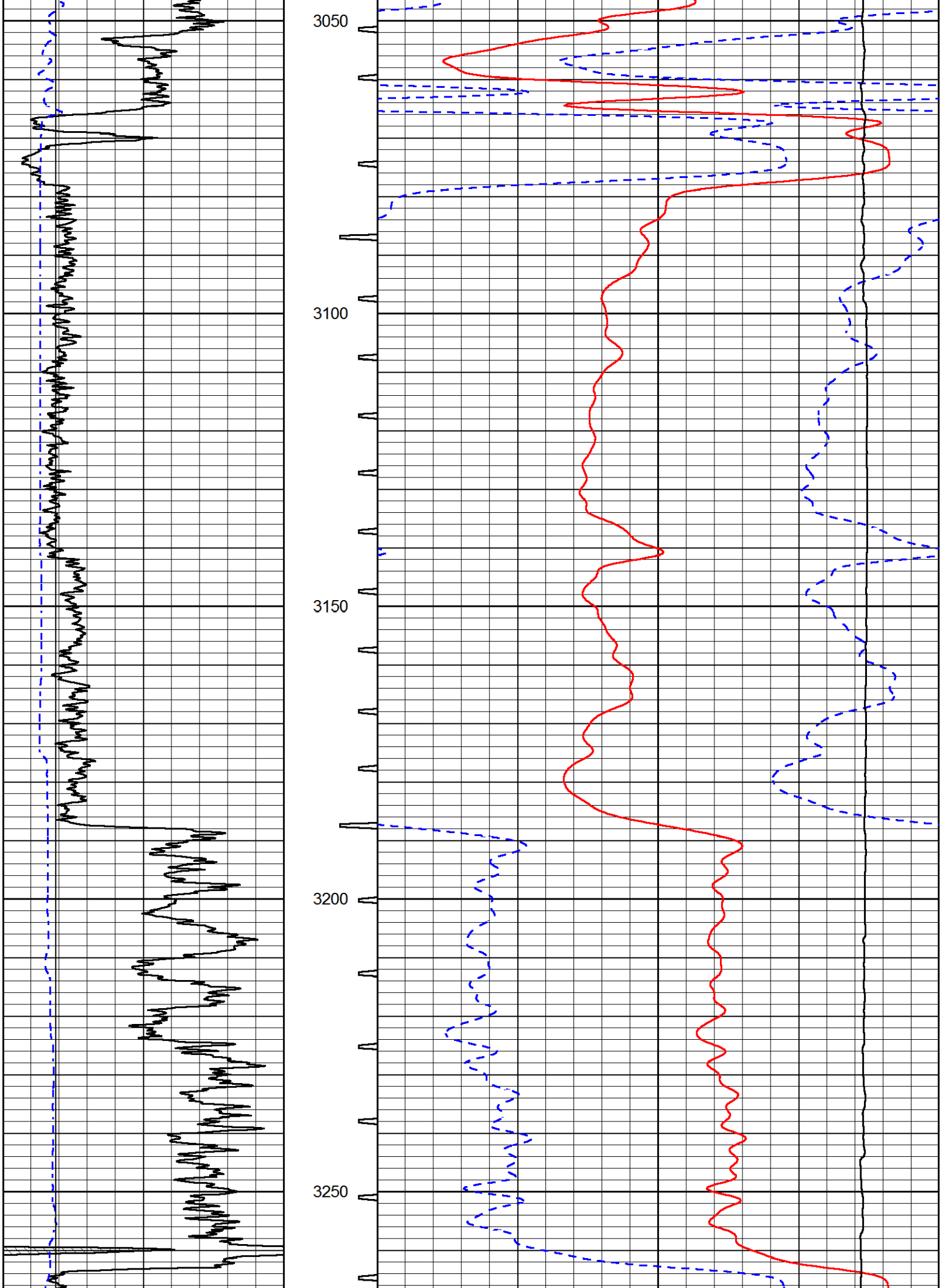

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2000
2050
2100
2150

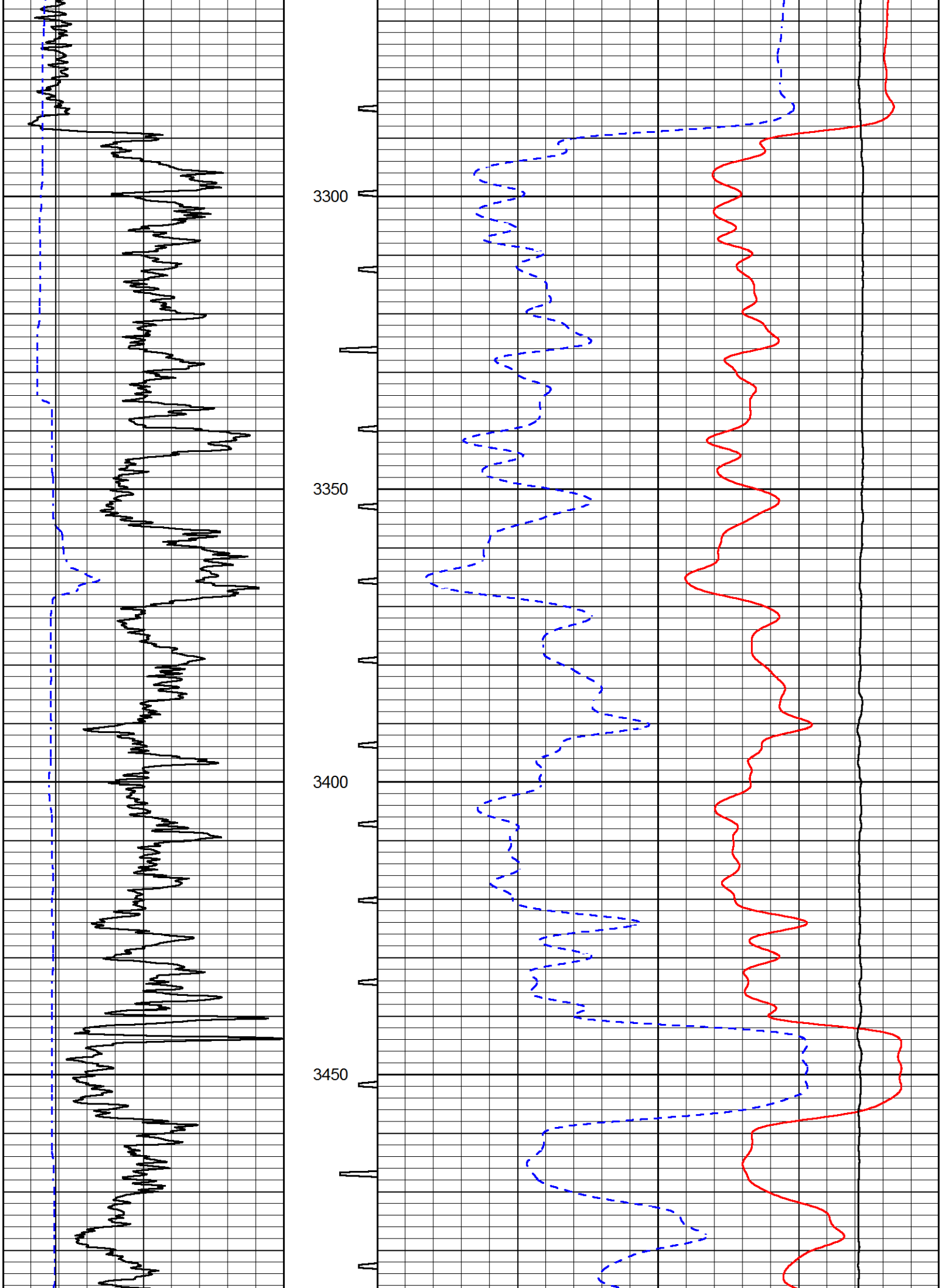

2200
2250
2300
2350

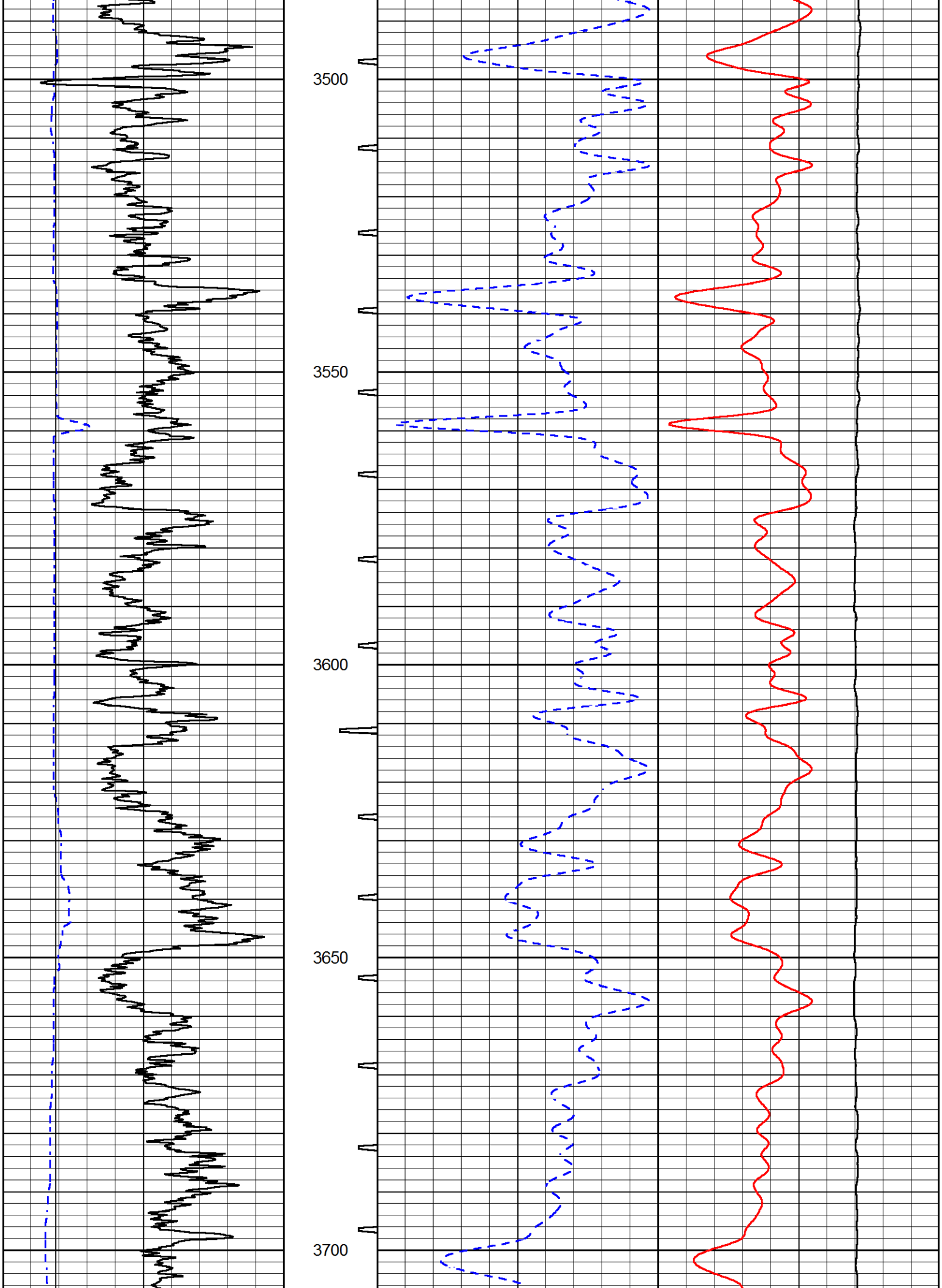

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2450
2500
2550
2600

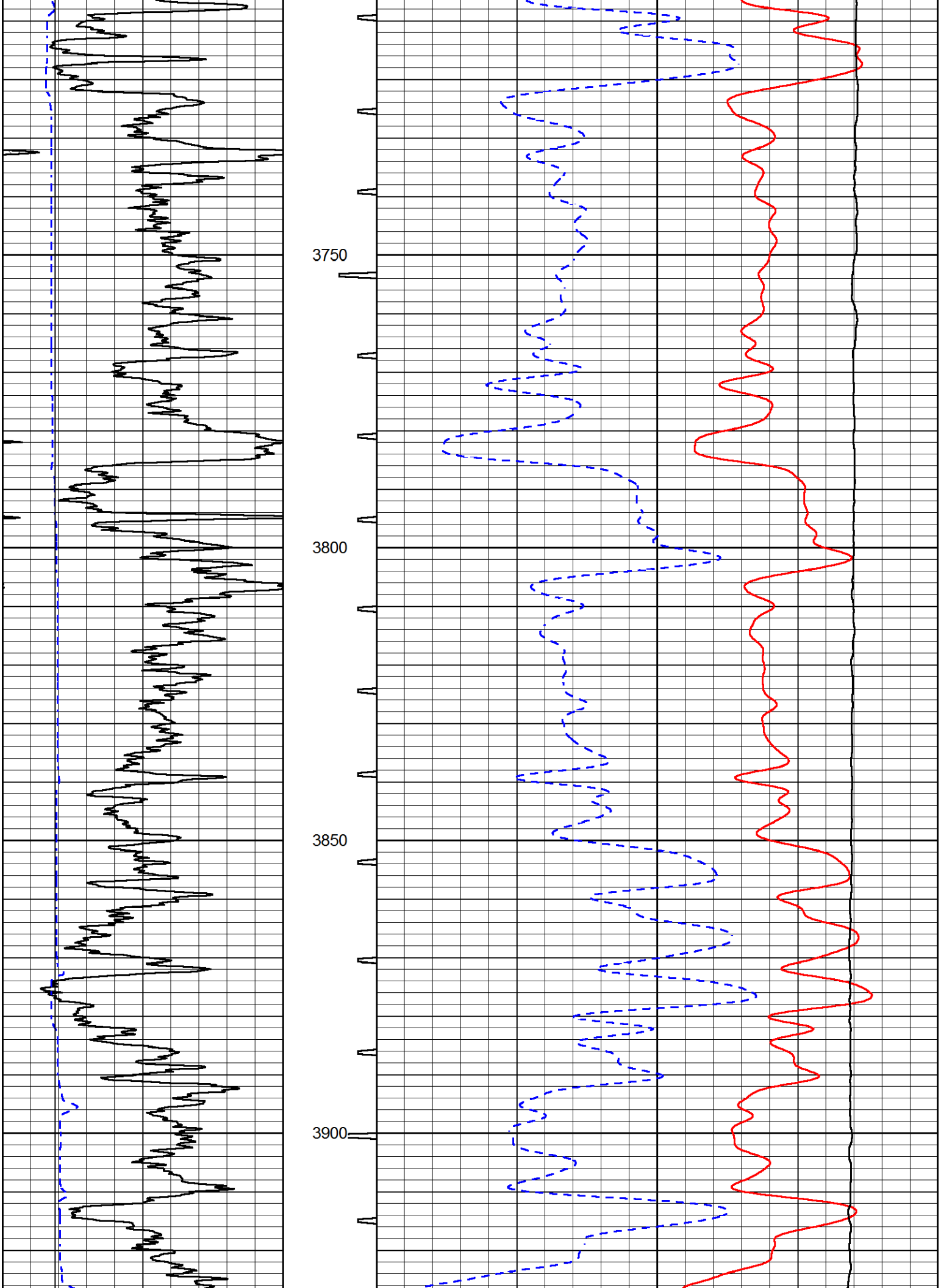

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2700
2750
2800

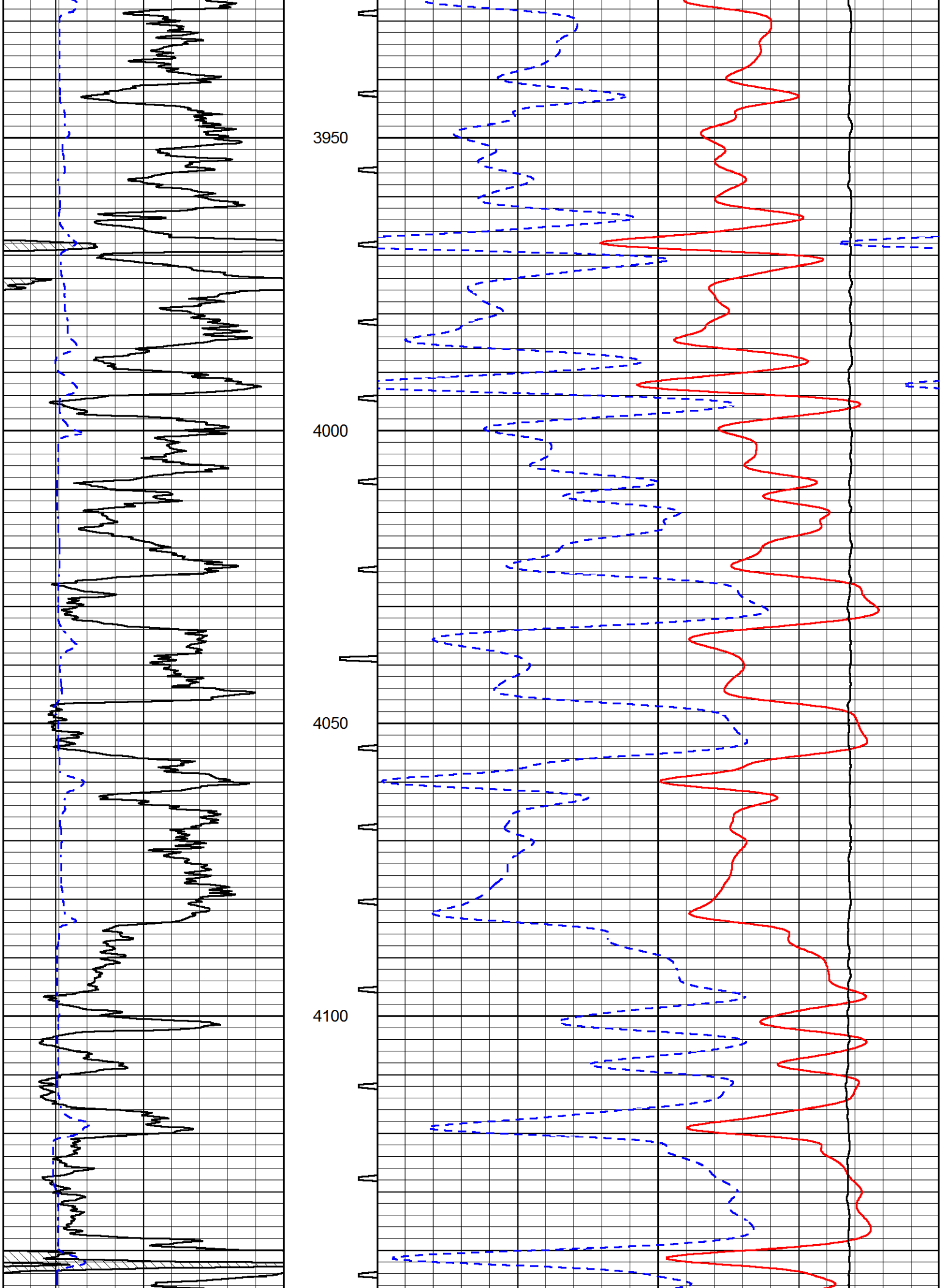

2850
2900
2950
3000

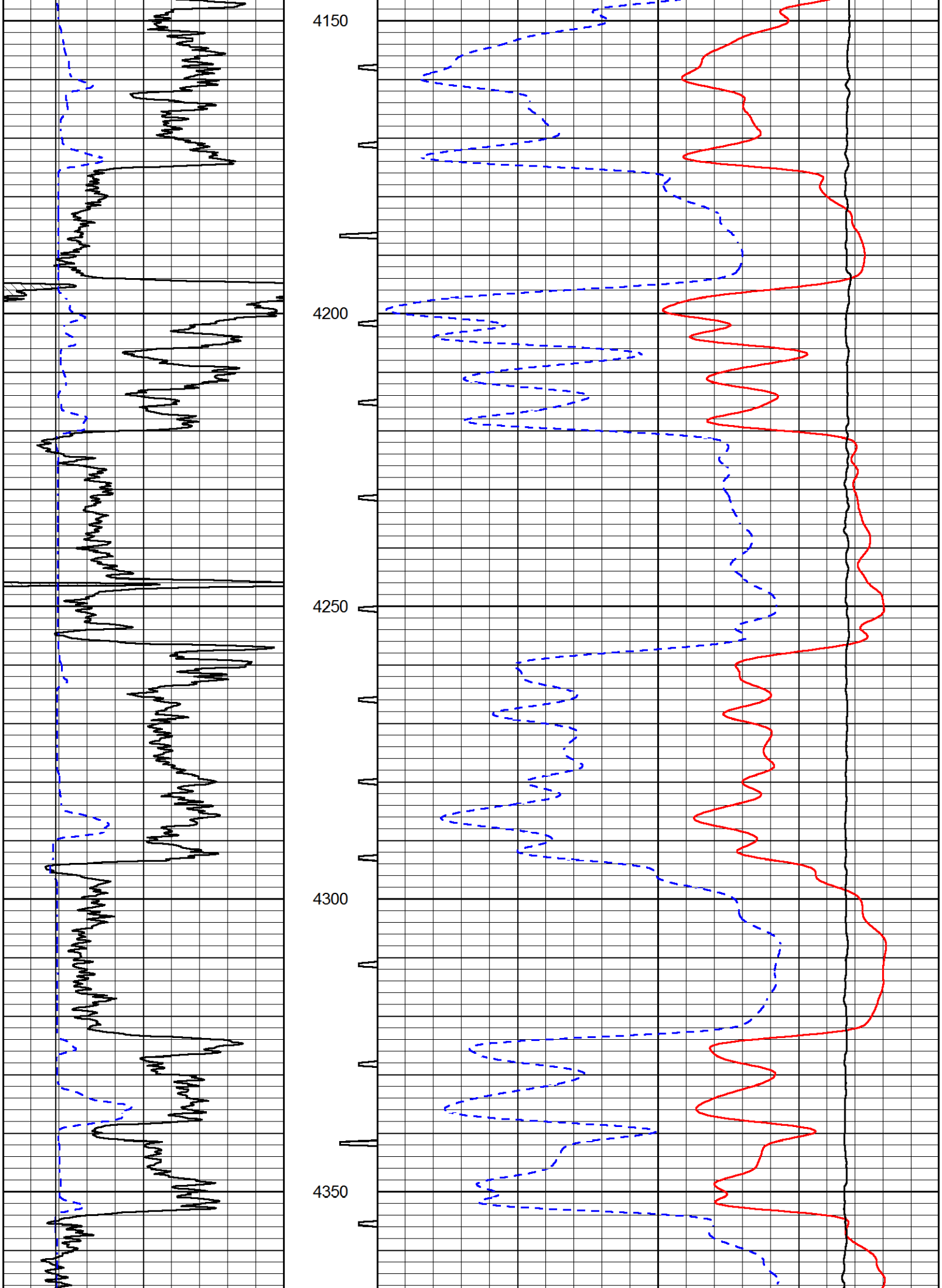

3050
3100
3150
3200
3250

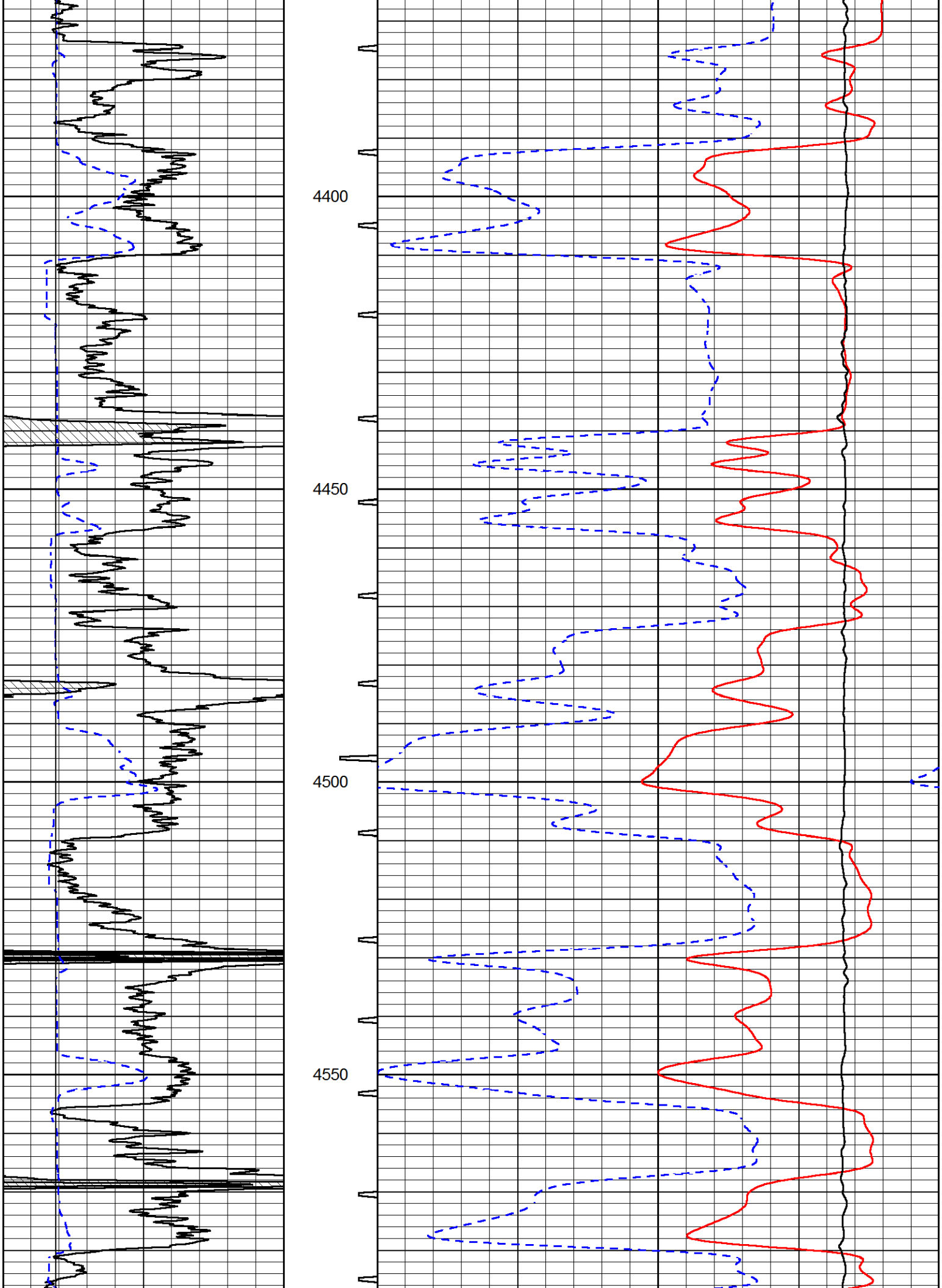

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3350
3400
3450

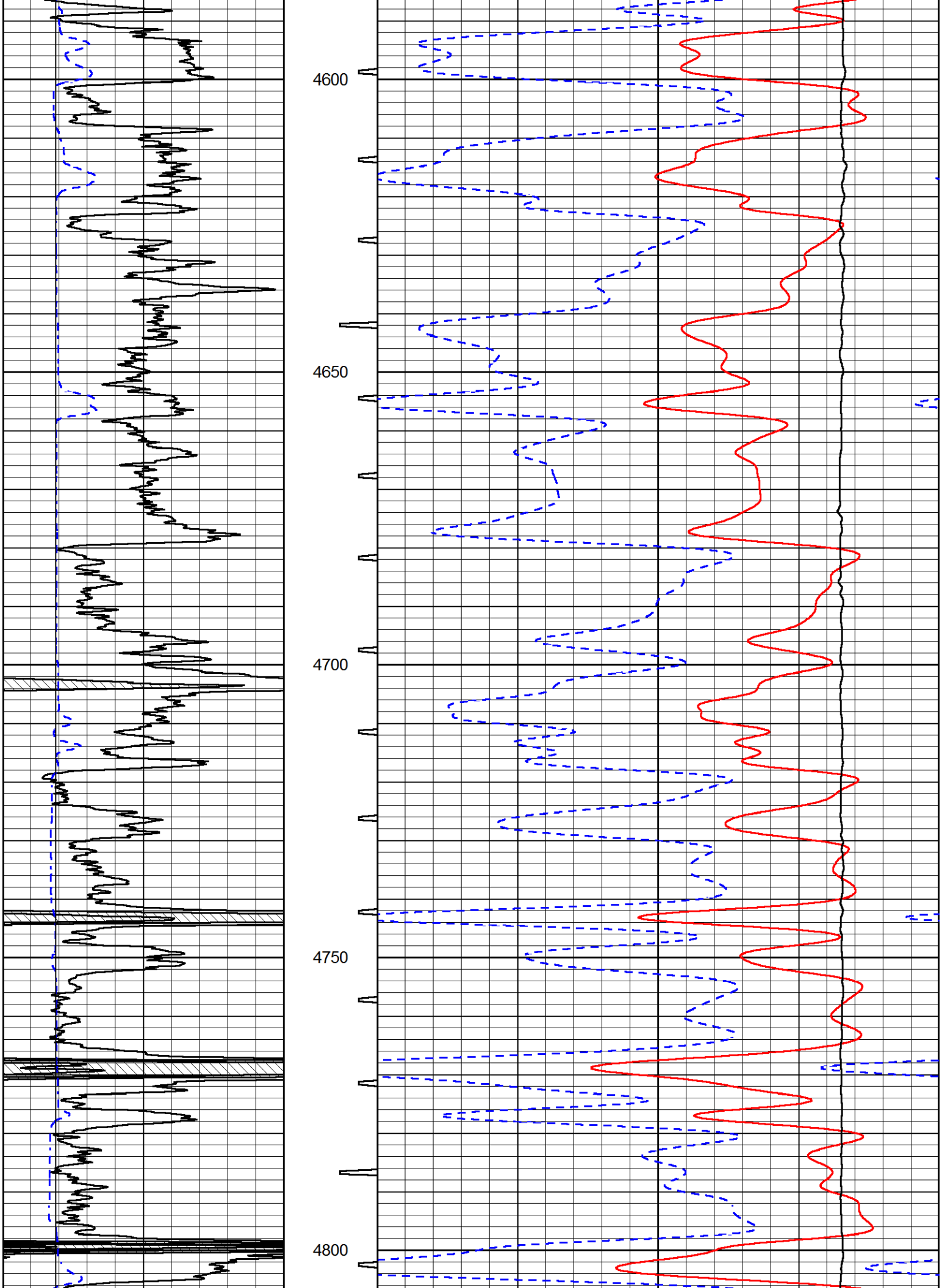

3500
3550
3600
3650
3700

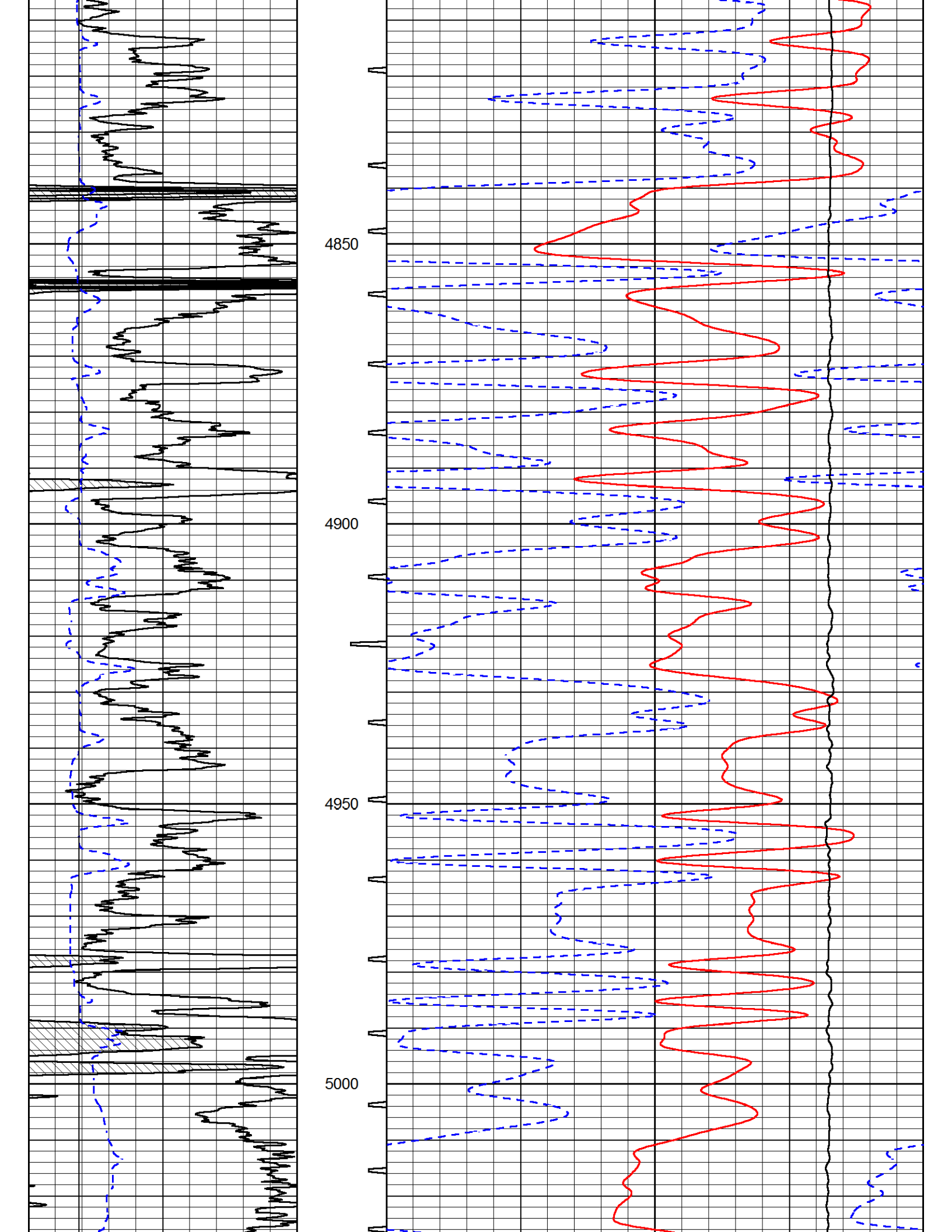

3750
3800
3850
3900

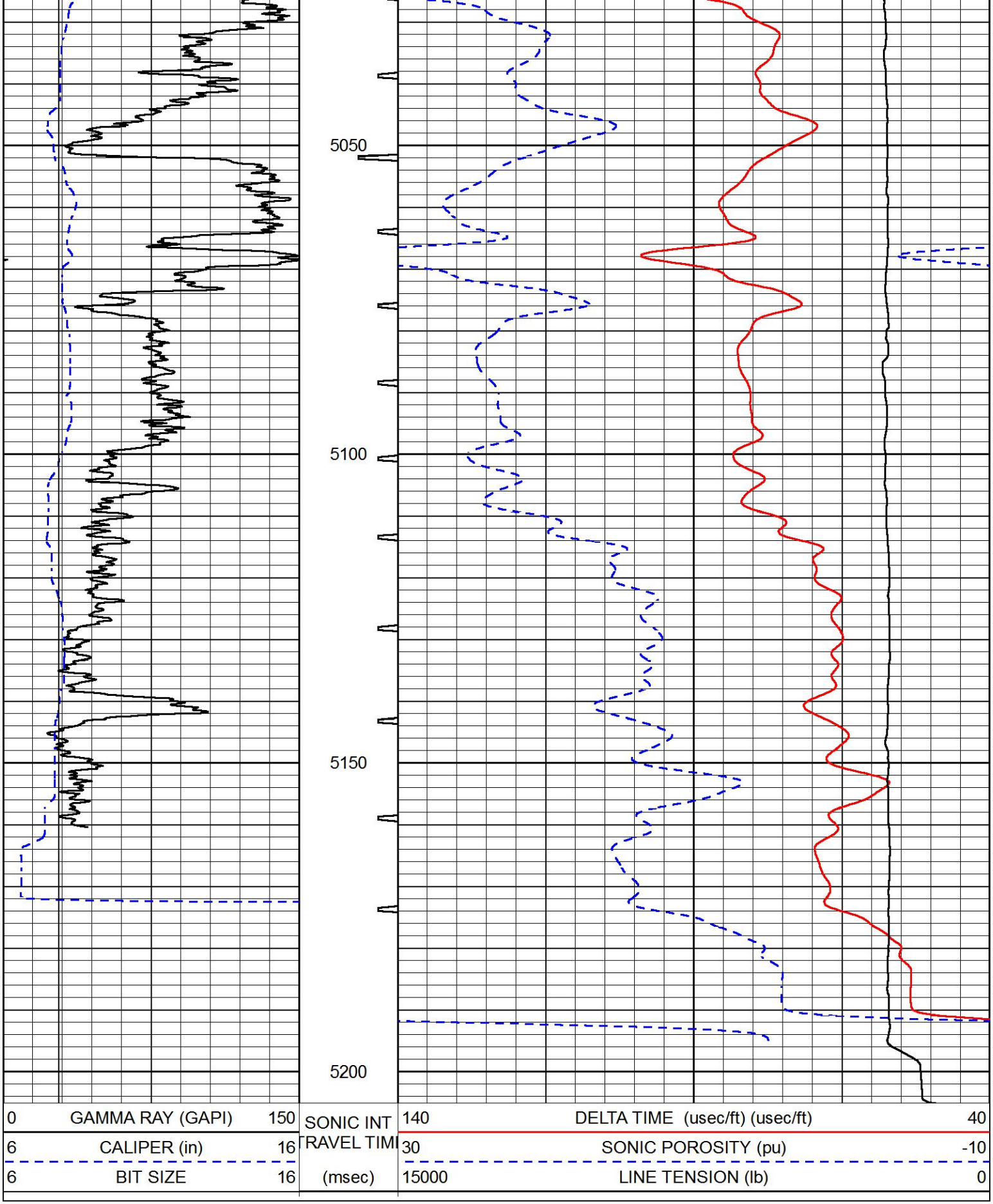

3950
4000
4050
4100


4150
4200
4250
4300
4350


4400
4450
4500
4550


4600
4650
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4800


4850
4900
4950
5000

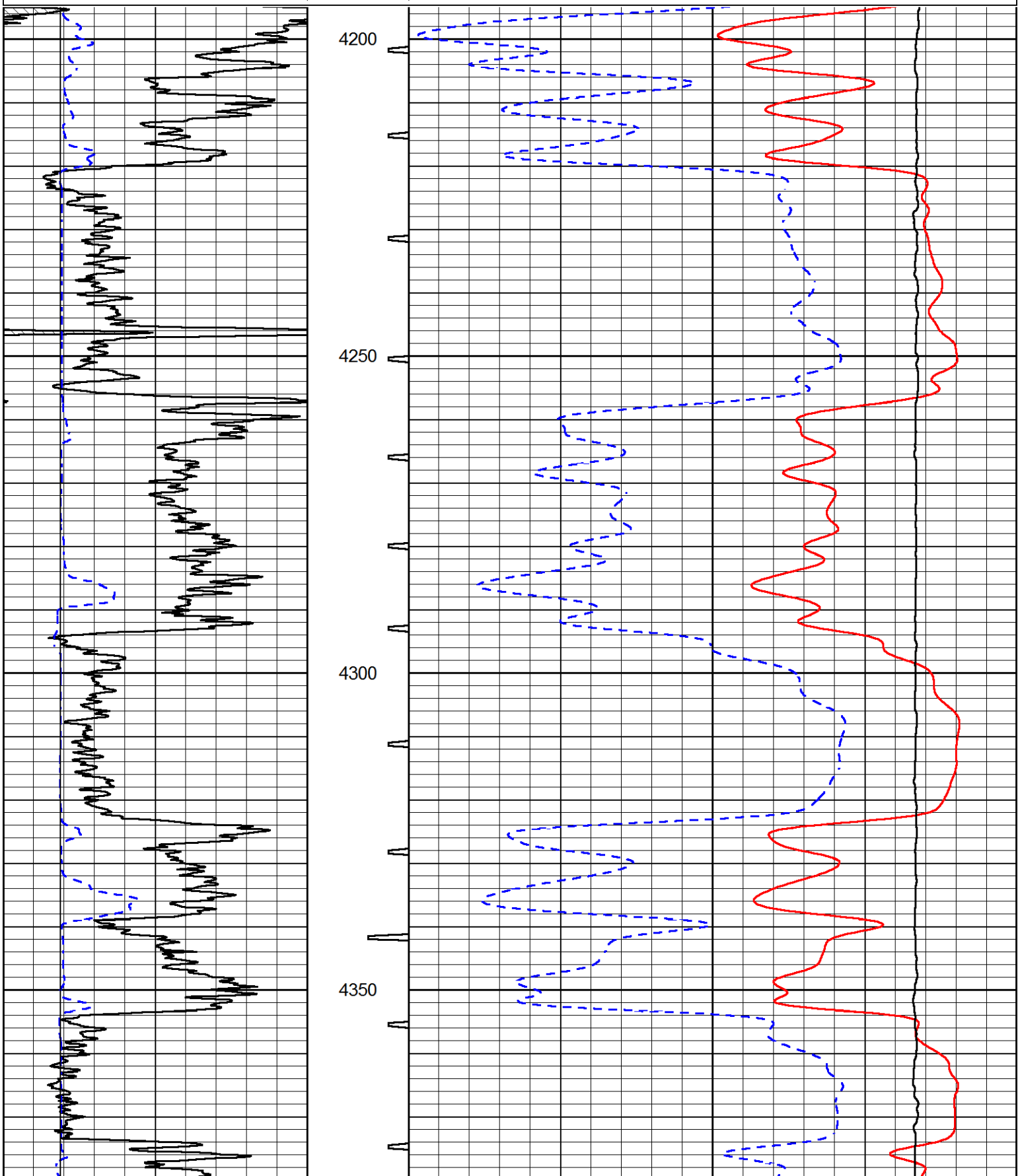


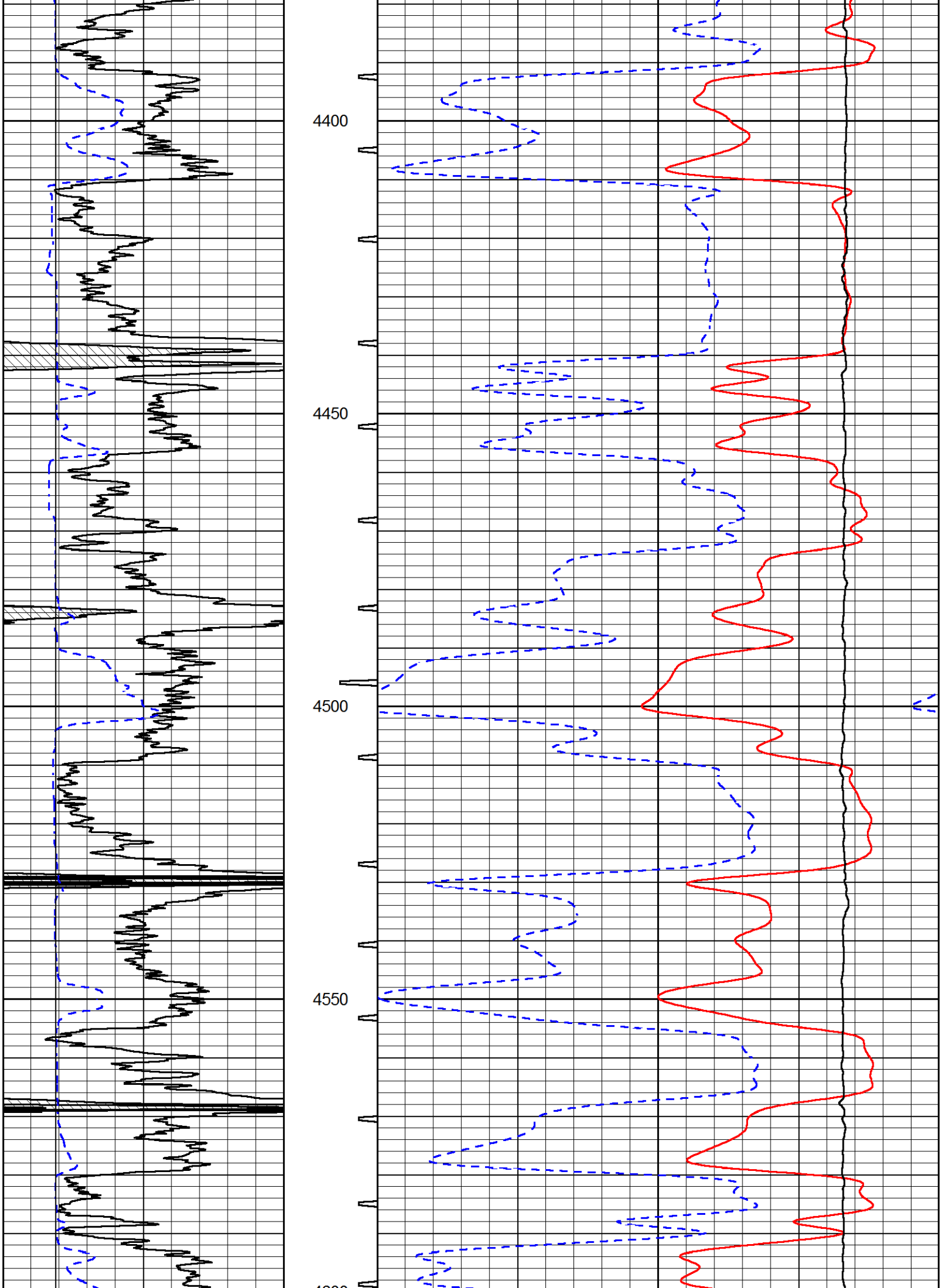
MIDWEST WIRELINE

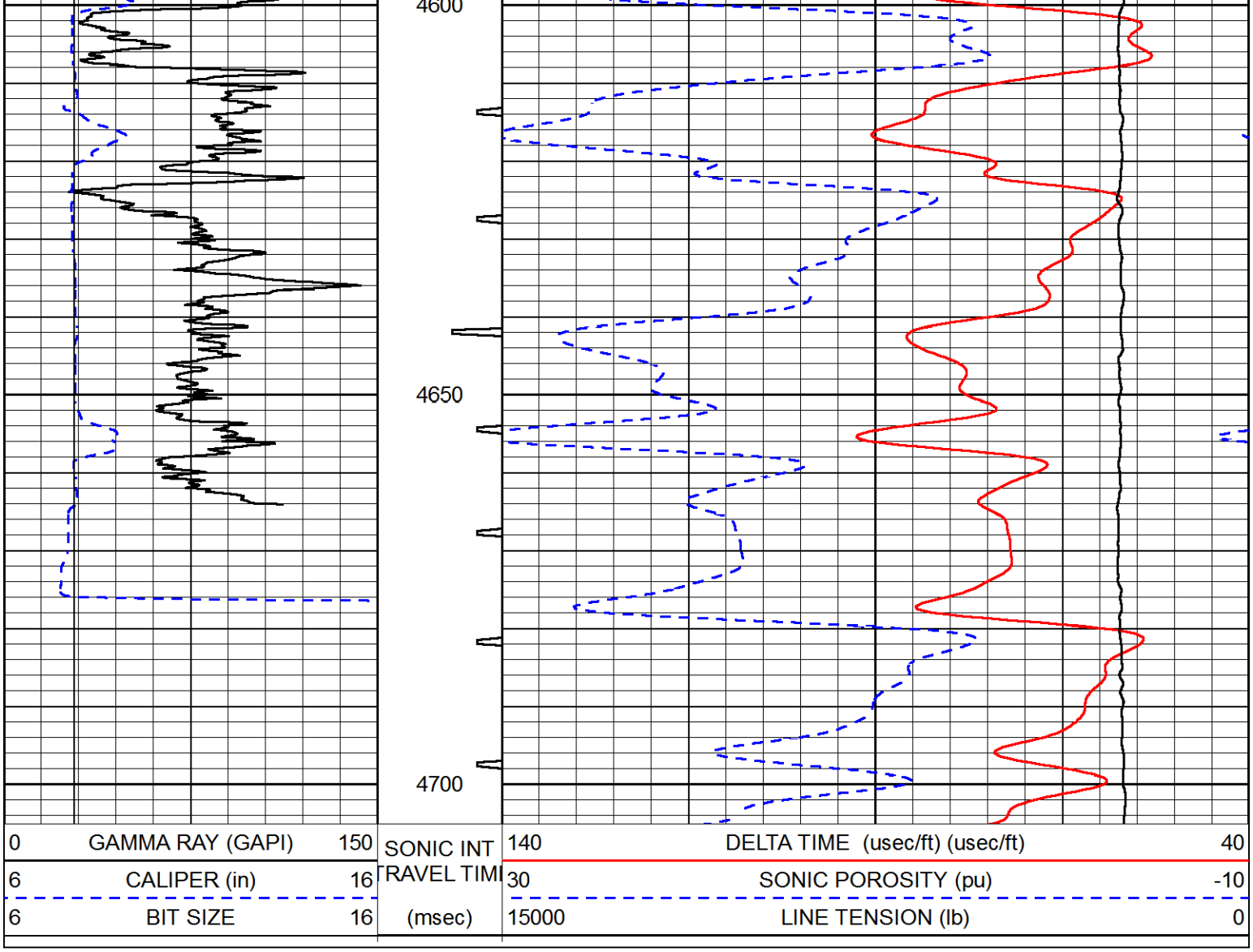
Repeat Section

Database File	murfin_helena_1_10.db
Dataset Pathname	stackml/pass3.1
Presentation Format	sonic
Dataset Creation	Fri Mar 26 19:20:09 2021
Charted by	Depth in Feet scaled 1:240

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




4400
4450
4500
4550


4600
4650
4700
0
GAMMA RAY (GAPI)
150
6
CALIPER (in)
16
6
BIT SIZE
16
SONIC INT
TRAVEL TIM
(msec)
140
DELTA TIME (usec/ft) (usec/ft)
40
30
SONIC POROSITY (pu)
-10
15000
LINE TENSION (lb)
0