MIDWEST WIRELINE

DUAL INDUCTION LOG

Company Murfin Drilling Company, Inc.
Well Culwell H #3-19
Field
County Cheyenne State Kansas
Location: API # : 15-023-21595-00-00
990 FSL & 1980 FEL
SEC 19 TWP 2S RGE 37W

Other Services: CNL/CDL MEL/BHCS

Elevation: K.B. 3356 D.F. G.L. 3351

Permanent Datum: Ground Level Elevation 3351
Log Measured From: Kelly Bushing
Drilling Measured From: Kelly Bushing

Company Murfin Drilling Company, Inc.
Well Culwell H #3-19
Field
County Cheyenne
State Kansas

Date	1/14/2023		
Run Number	One		
Depth Driller	4850		
Depth Logger	4852		
Bottom Logged Interval	4851		
Top Log Interval	0		
Casing Driller	8.625 @ 307		
Casing Logger	301		
Bit Size	8.625		
Type Fluid in Hole	Chemical		
Salinity,ppm CL	700		
Density / Viscosity	9.4 / 72		
pH / Fluid Loss	10.5 / 6.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.80 @ 45		
Rmf @ Meas. Temp	0.60 @ 45		
Rmc @ Meas. Temp	1.08 @ 45		
Source of Rmf / Rmc	CHARTS		
Rm @ BHT	0.29 @ 125		
Operating Rig Time	5 Hours		
Max Rec. Temp. F	125		
Equipment Number	P-108		
Location	HAYS		
Recorded By	D. Schmidt		
Witnessed By	Robert Hendrix		

<<< Fold Here >>>

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.

Bird City,
North to R Rd, 2 East, 3 1/3 North,
West 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: D. Schmidt	Primary Witness: Robert Hendrix
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
GR	40.33		GR-M&W (103)	3.00	3.50	50.00
CNLSC	37.23		CNT-M&W (210)	5.00	3.50	100.00
CNSSC	36.48					
			CDL-M&W (303-03)	8.50	4.00	250.00
LSD	28.18					
DCAL	28.17					
SSD	27.68					
			ML-PSI STKBL ML (402)	7.58	4.00	65.00
MCAL	19.58					
MI	19.58					
MN	19.58					
RLL3F	15.50					
RLL3	15.50					
			DIL-M&W (505 HT)	18.25	3.50	220.00
CILD	8.33					
CILM	4.50					
SP	0.20					

Dataset: murfin_culwell h 3-19.db: field/well/stkml/pass4.12
Total length: 42.33 ft
Total weight: 685.00 lb
O.D.: 4.00 in

Log Variables

DatabaseC:\ProgramData\Warrior\Data\murfin_culwell h 3-19.db
Dataset field/well/stkml/pass4.12/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	125	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	340	30	Off	4852

Variable Description

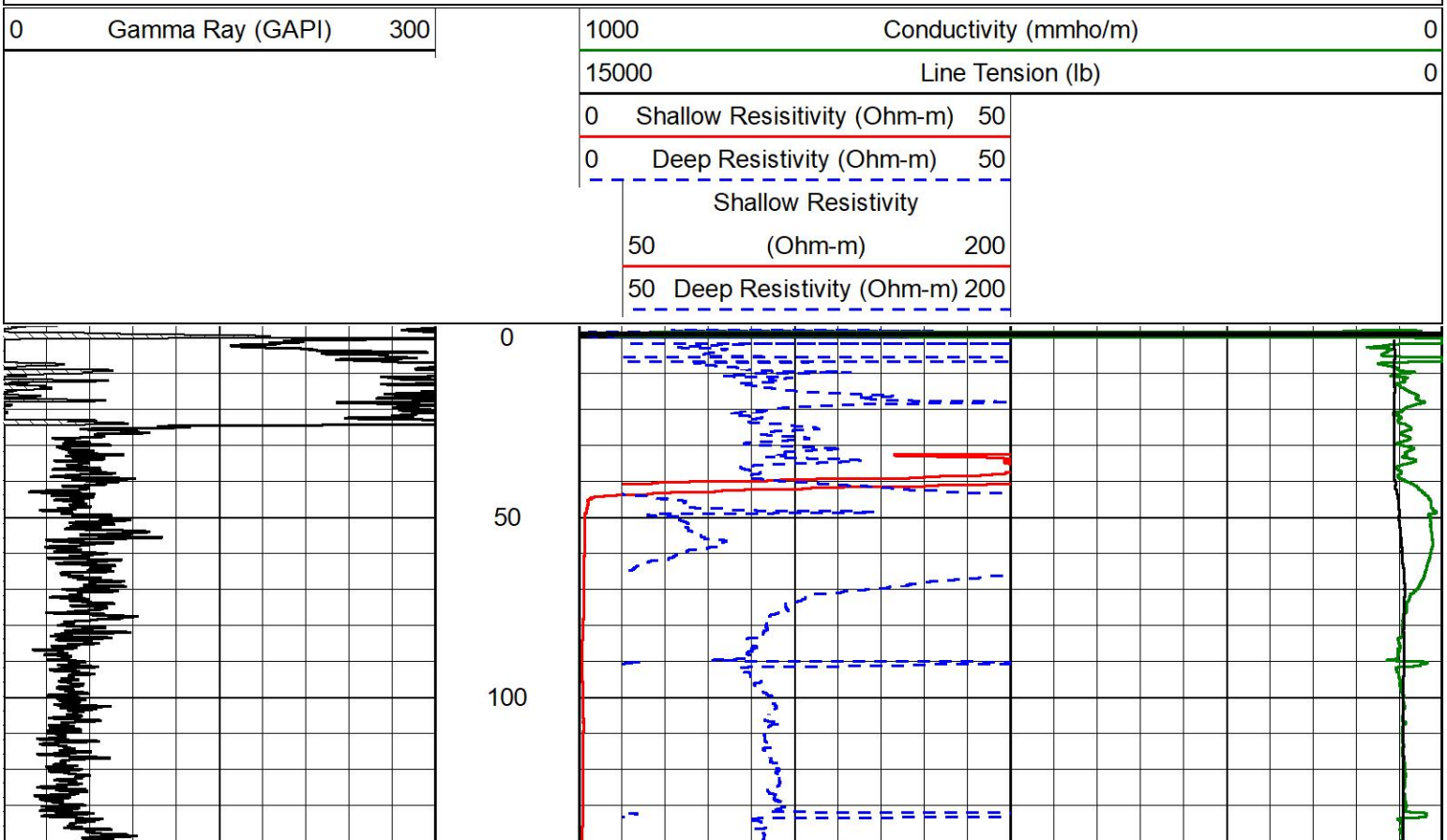
A : Cement Factor (a)
BOREID : Borehole I.D.
BOTTEMP : Bottom Hole Temperature
CASEOD : Casing O.D.
CASETHCK : Casing Thickness
FLUIDDEN : Fluid Density
M : Cement Exp (m)
MATRXDEN : Matrix Density
NPORSEL : Neutron Porosity Curve Select
PERFS : Perforation Flag
SNDERR : Deep Sonde Error Correction
SNDERRM : Medium Sonde Error Correction
SPSHIFT : S.P. Baseline Offset
SRFTEMP : Surface Temperature
SZCOR : CN Size Cor. ?
TDEPTH : Total Depth

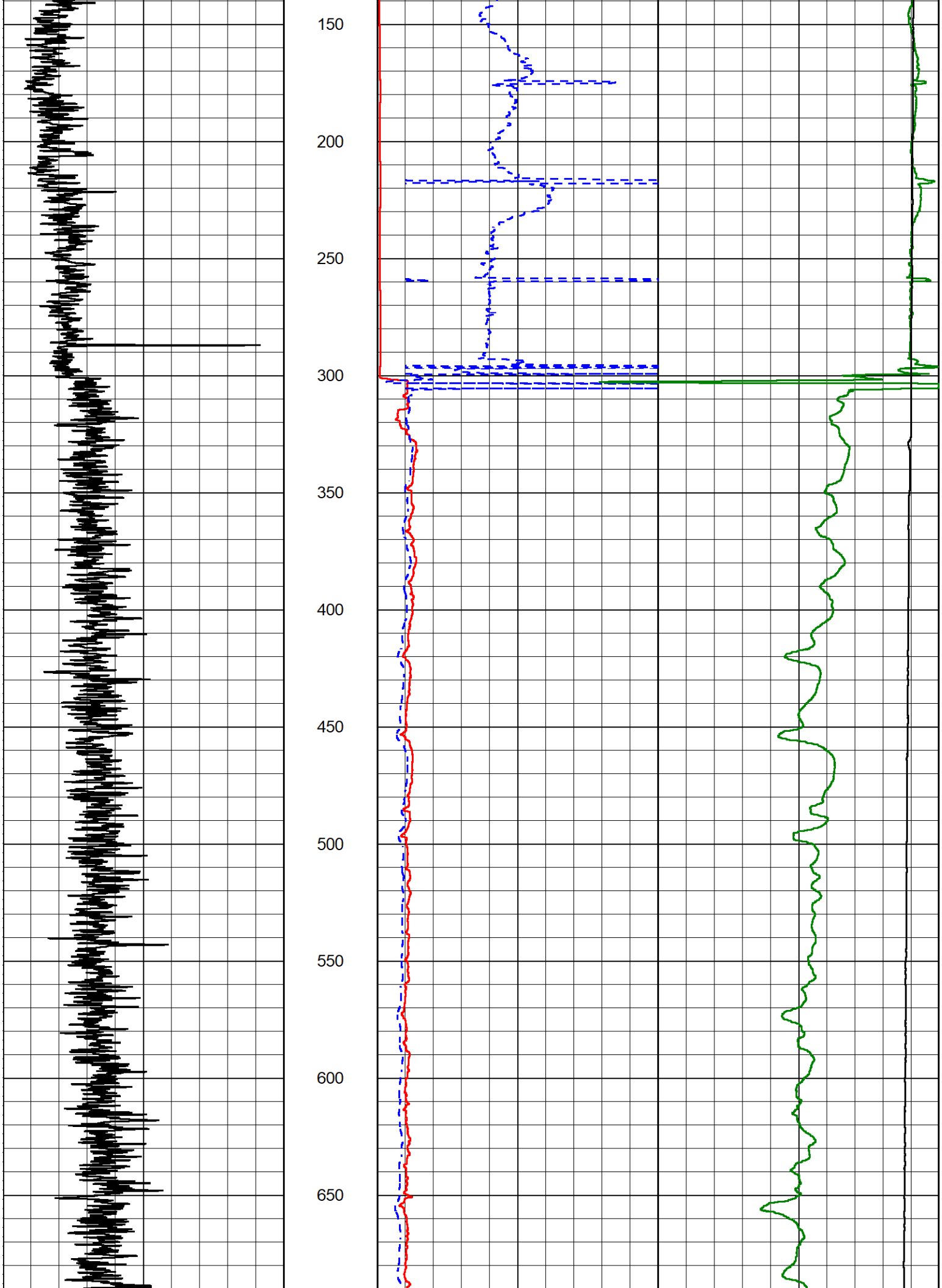
MIDWEST WIRELINE

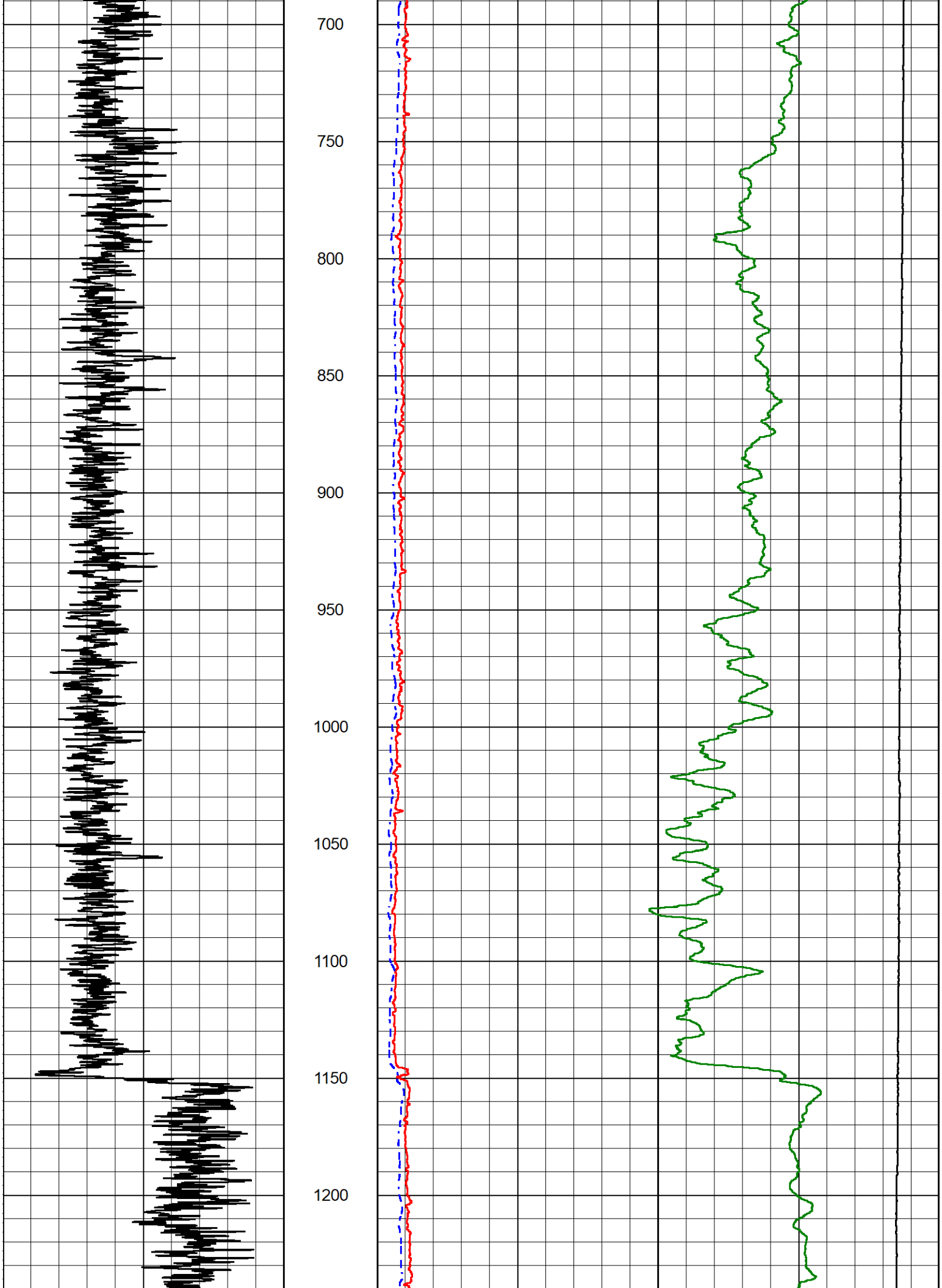
2" SCALE RESISTIVITY

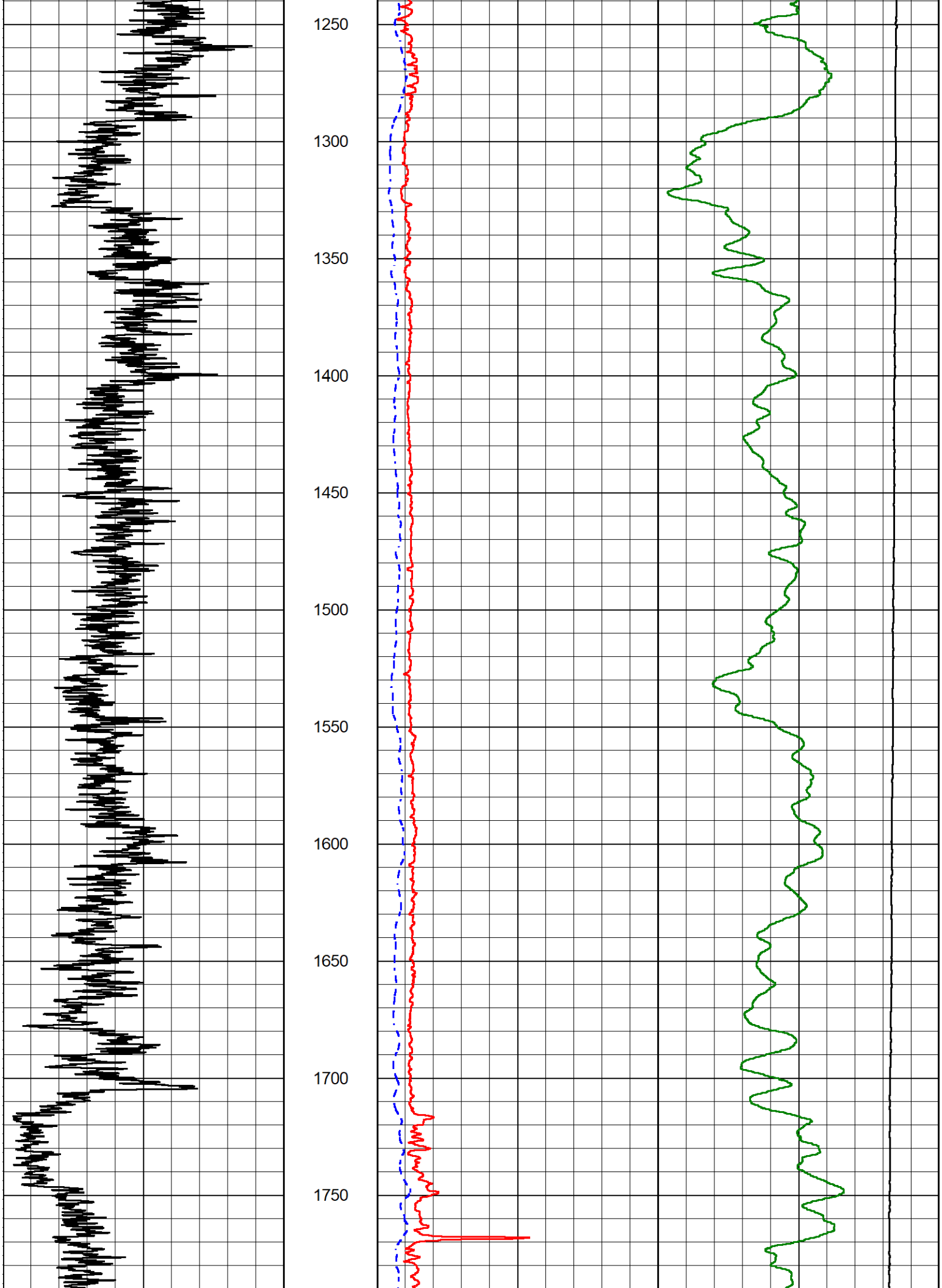
MAIN PASS

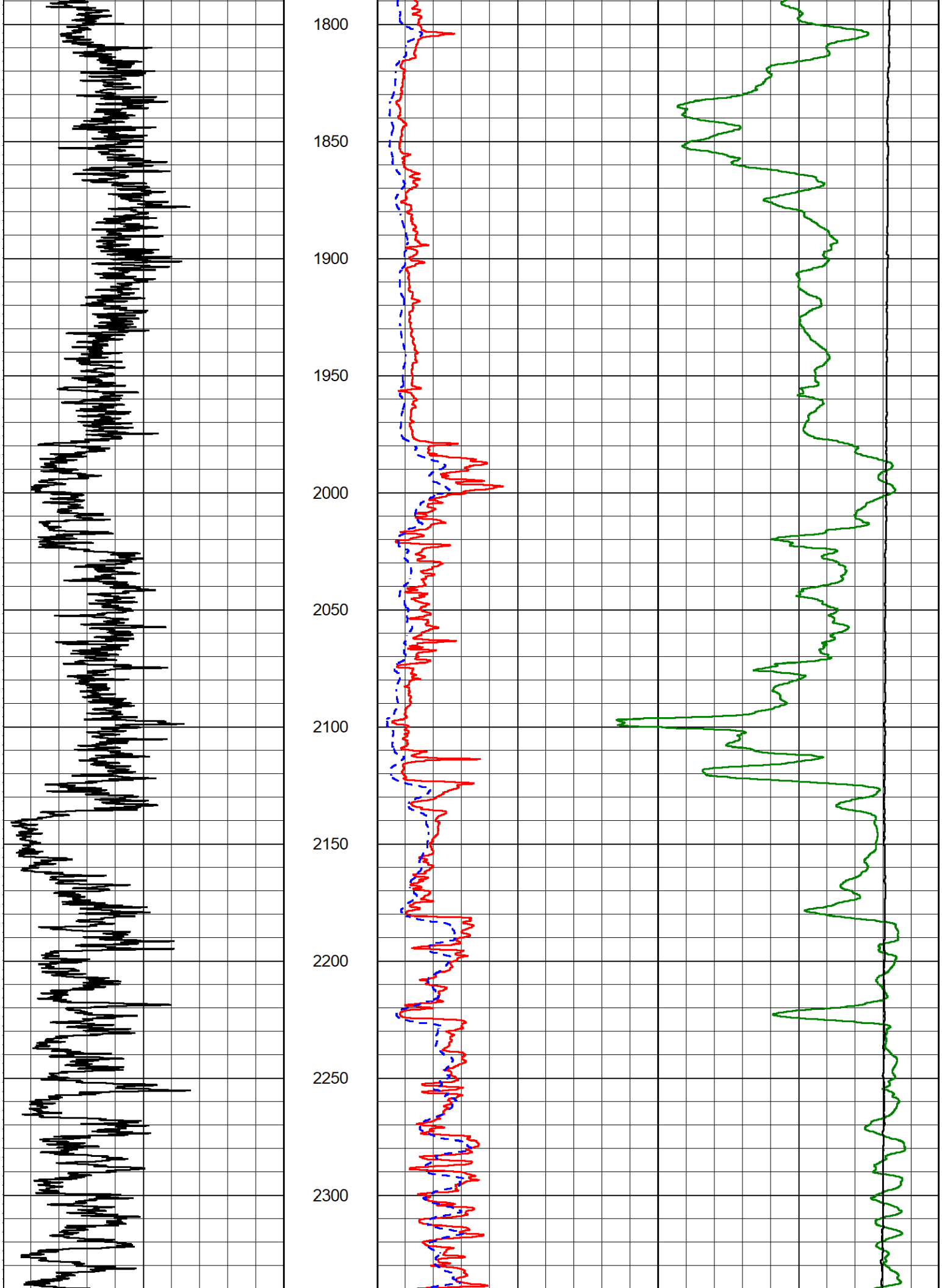
Database File	murfin_culwell h 3-19.db
Dataset Pathname	stkml/pass4.3
Presentation Format	_dil2in
Dataset Creation	Sat Jan 14 23:38:14 2023
Charted by	Depth in Feet scaled 1:600

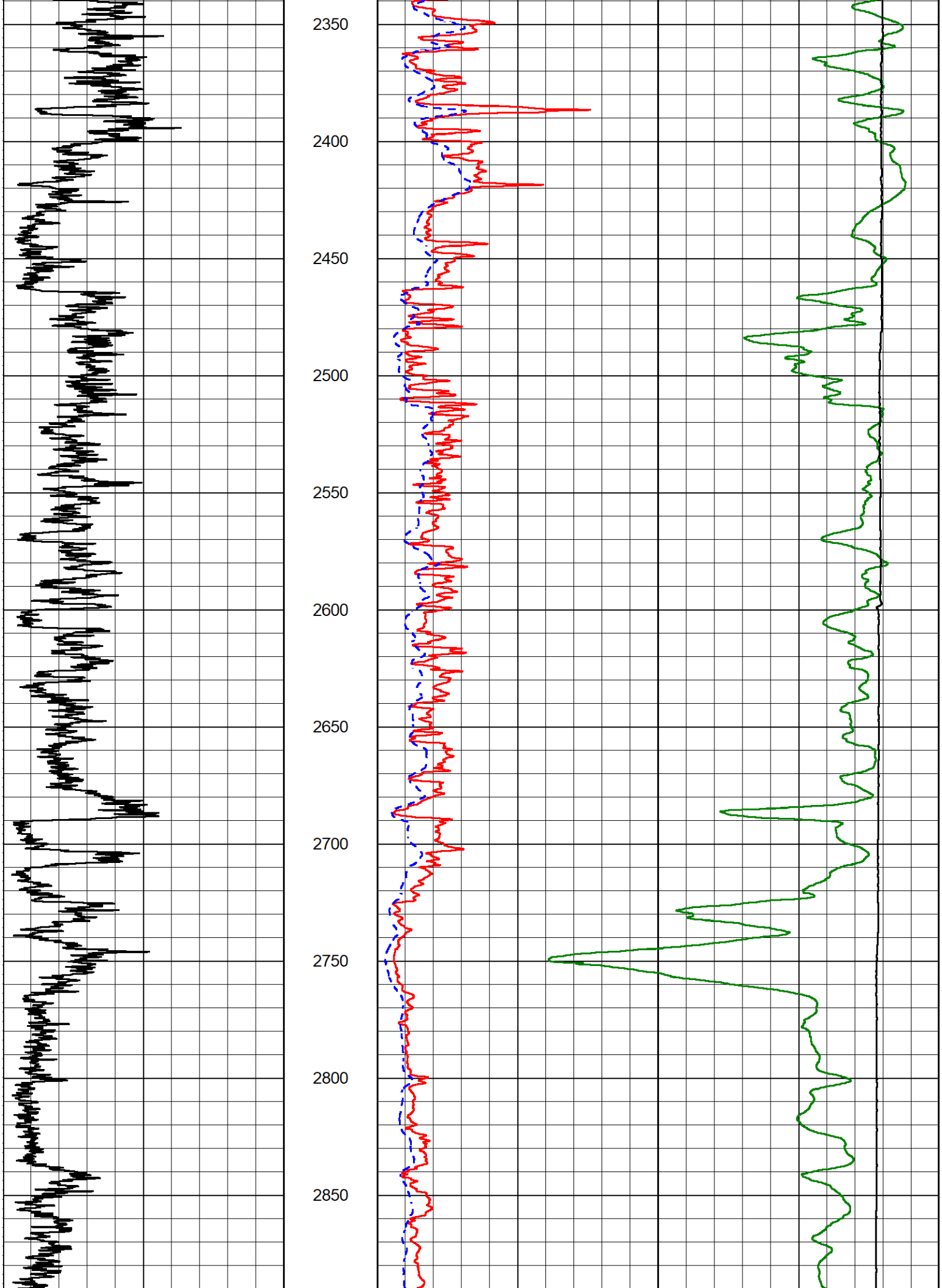


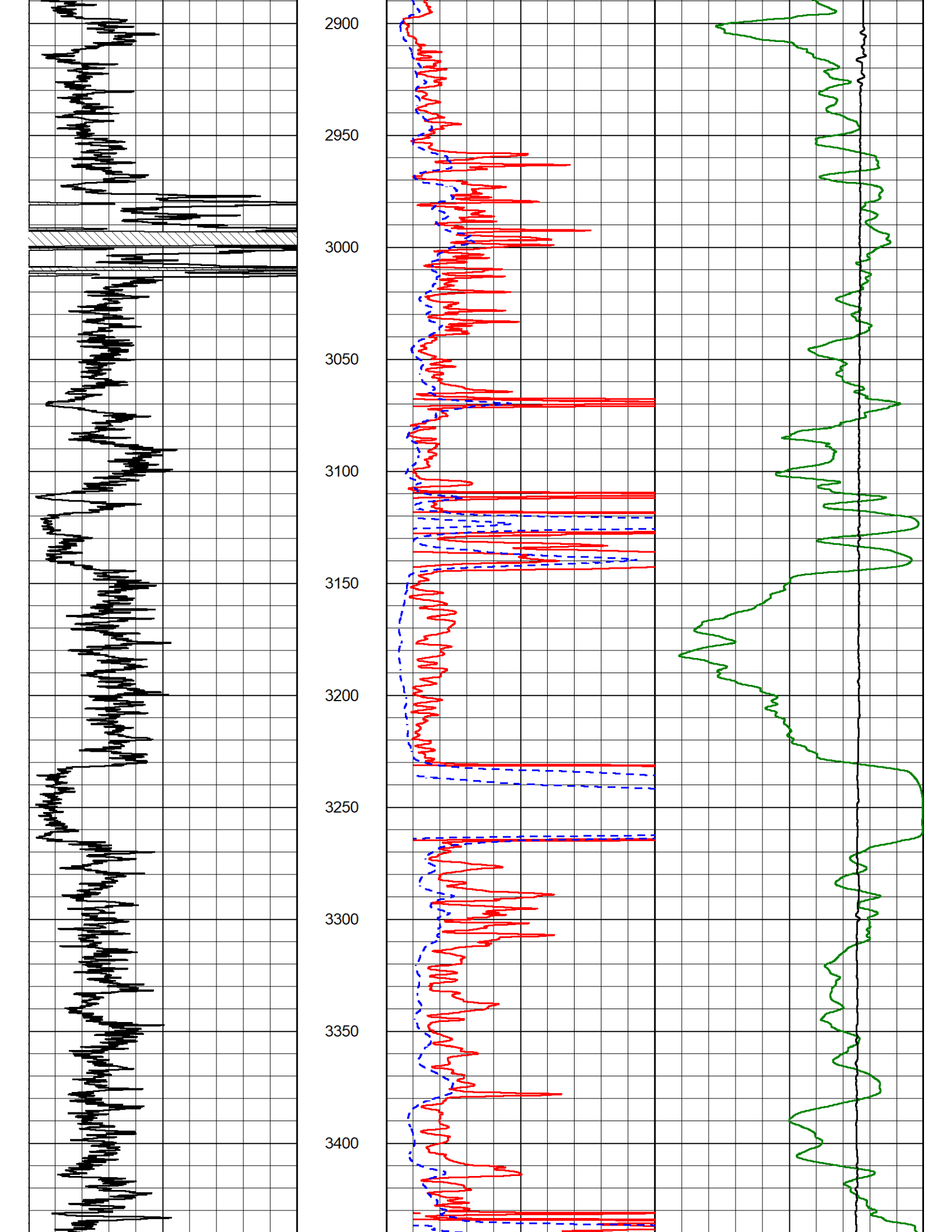

150
200
250
300
350
400
450
500
550
600
650

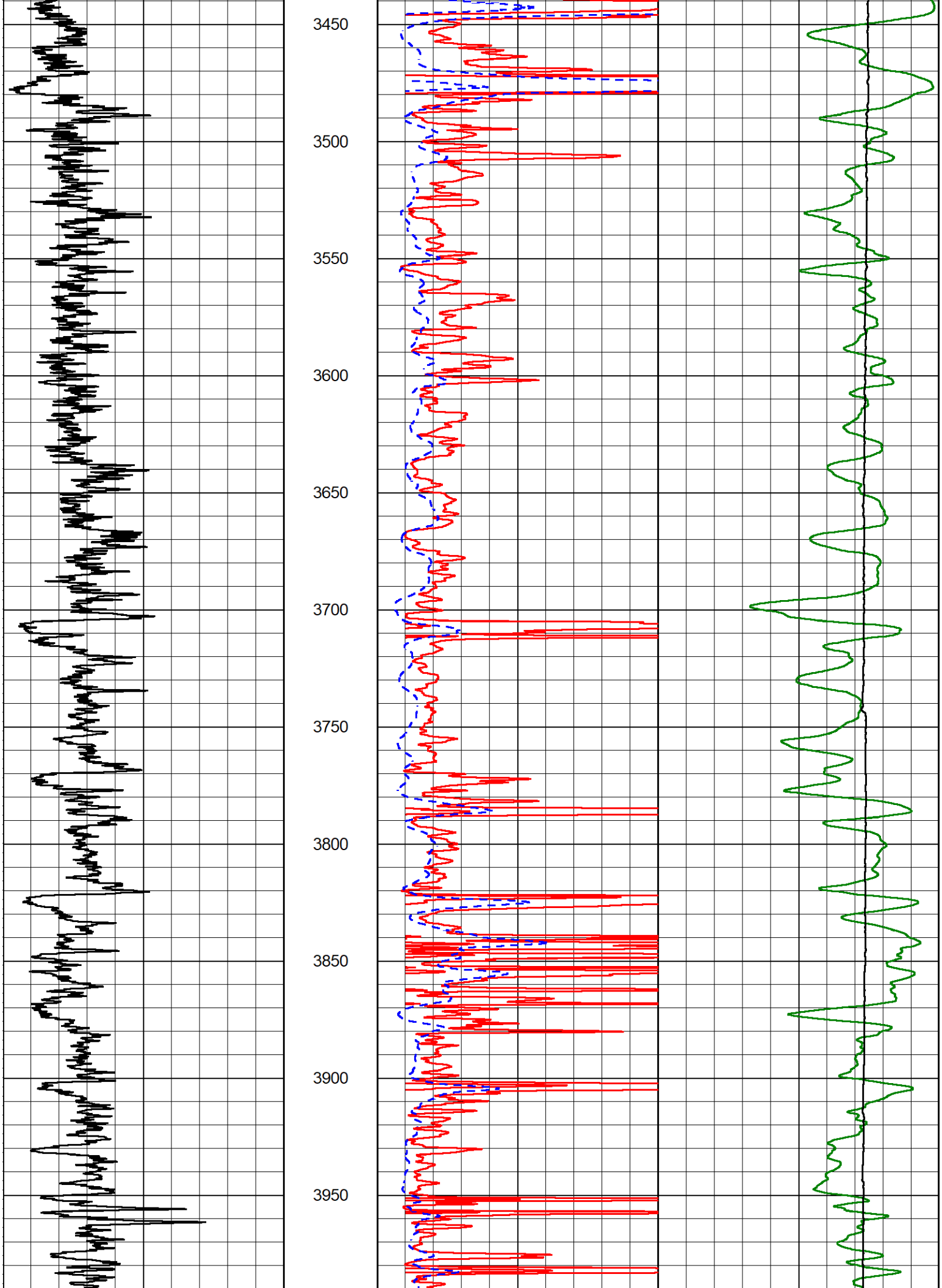

700
750
800
850
900
950
1000
1050
1100
1150
1200

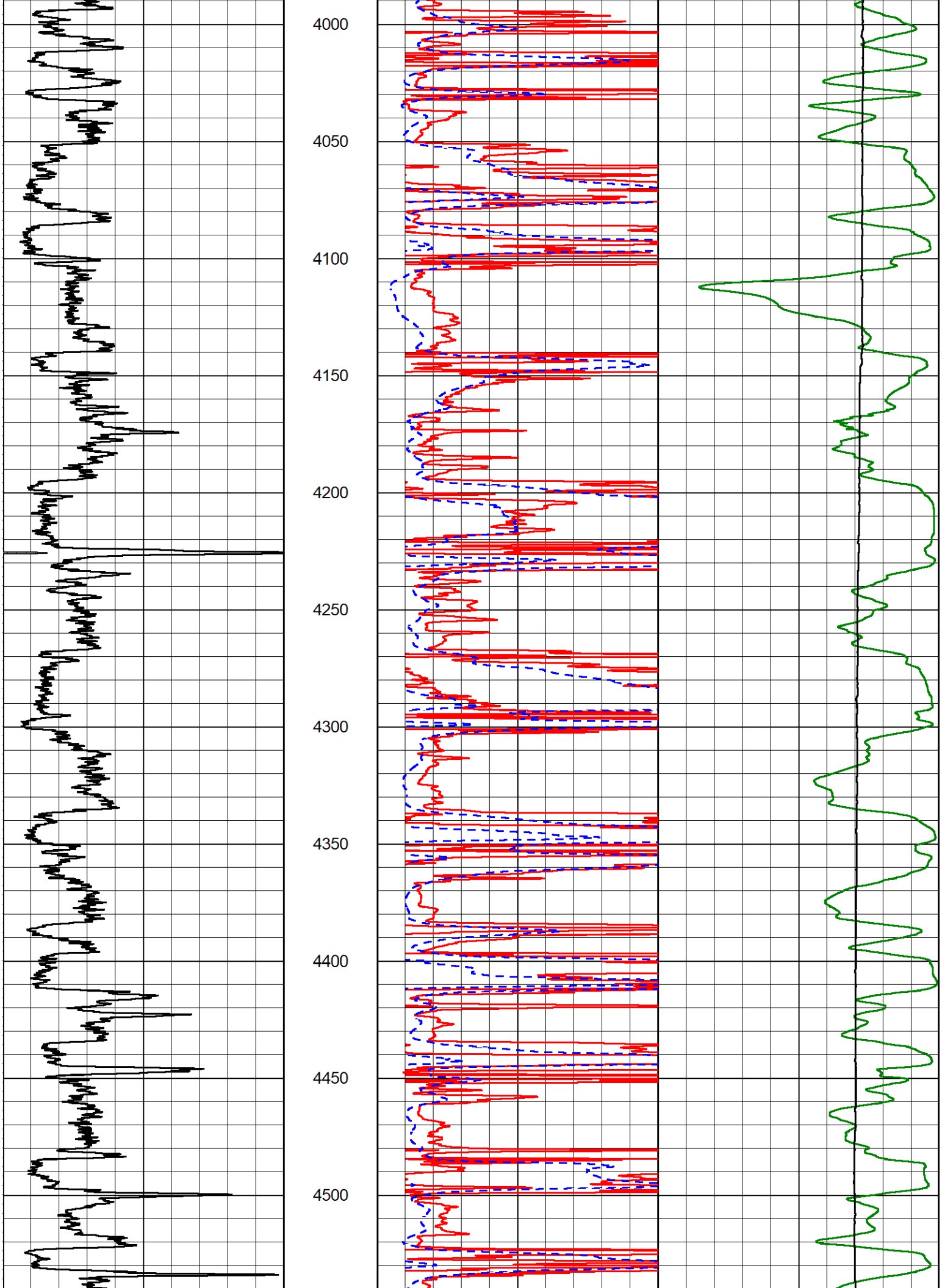

1250
1300
1350
1400
1450
1500
1550
1600
1650
1700
1750

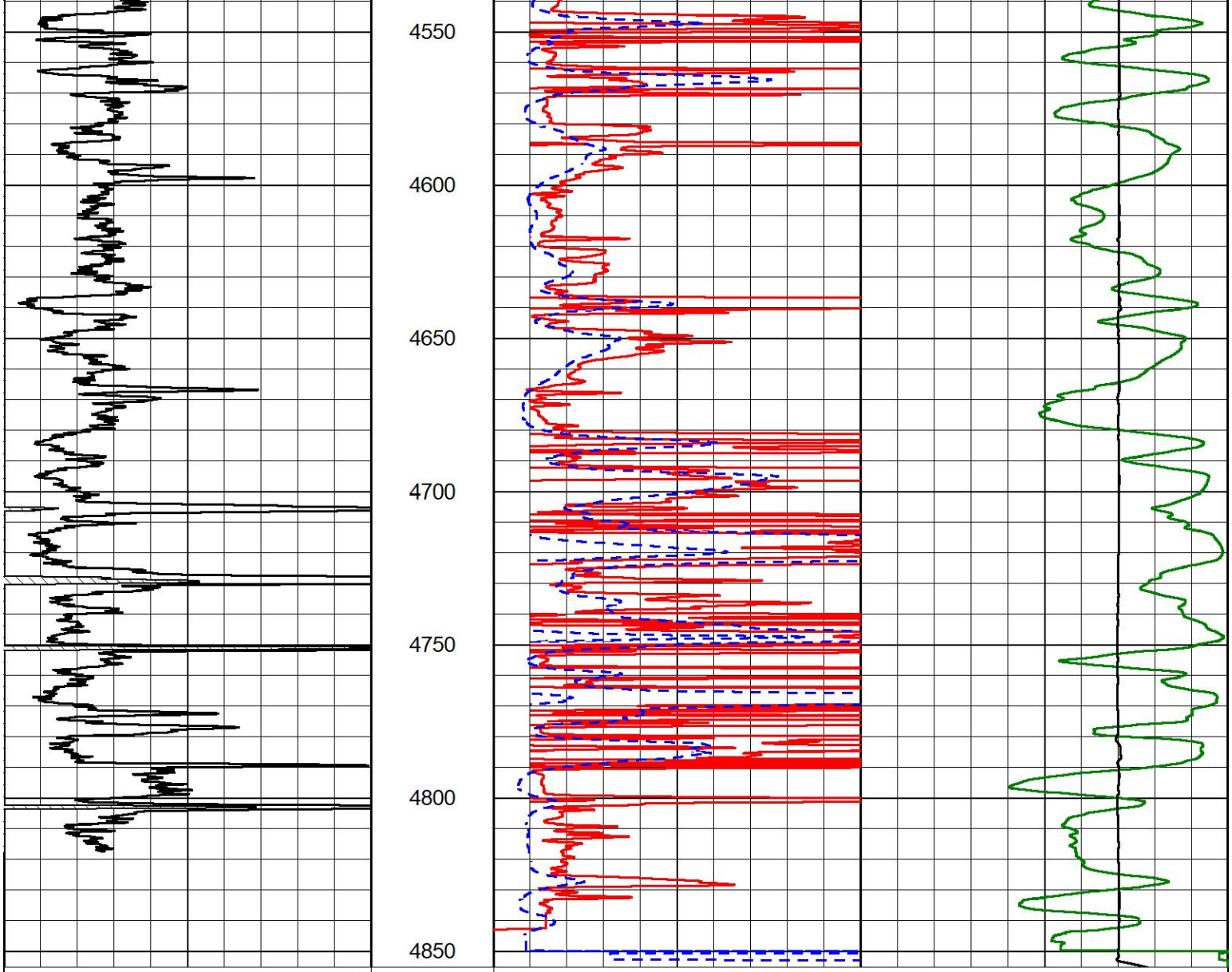

1800
1850
1900
1950
2000
2050
2100
2150
2200
2250
2300


2350
2400
2450
2500
2550
2600
2650
2700
2750
2800
2850


2900
2950
3000
3050
3100
3150
3200
3250
3300
3350
3400


3450
3500
3550
3600
3650
3700
3750
3800
3850
3900
3950


4000
4050
4100
4150
4200
4250
4300
4350
4400
4450
4500



MIDWEST WIRELINE

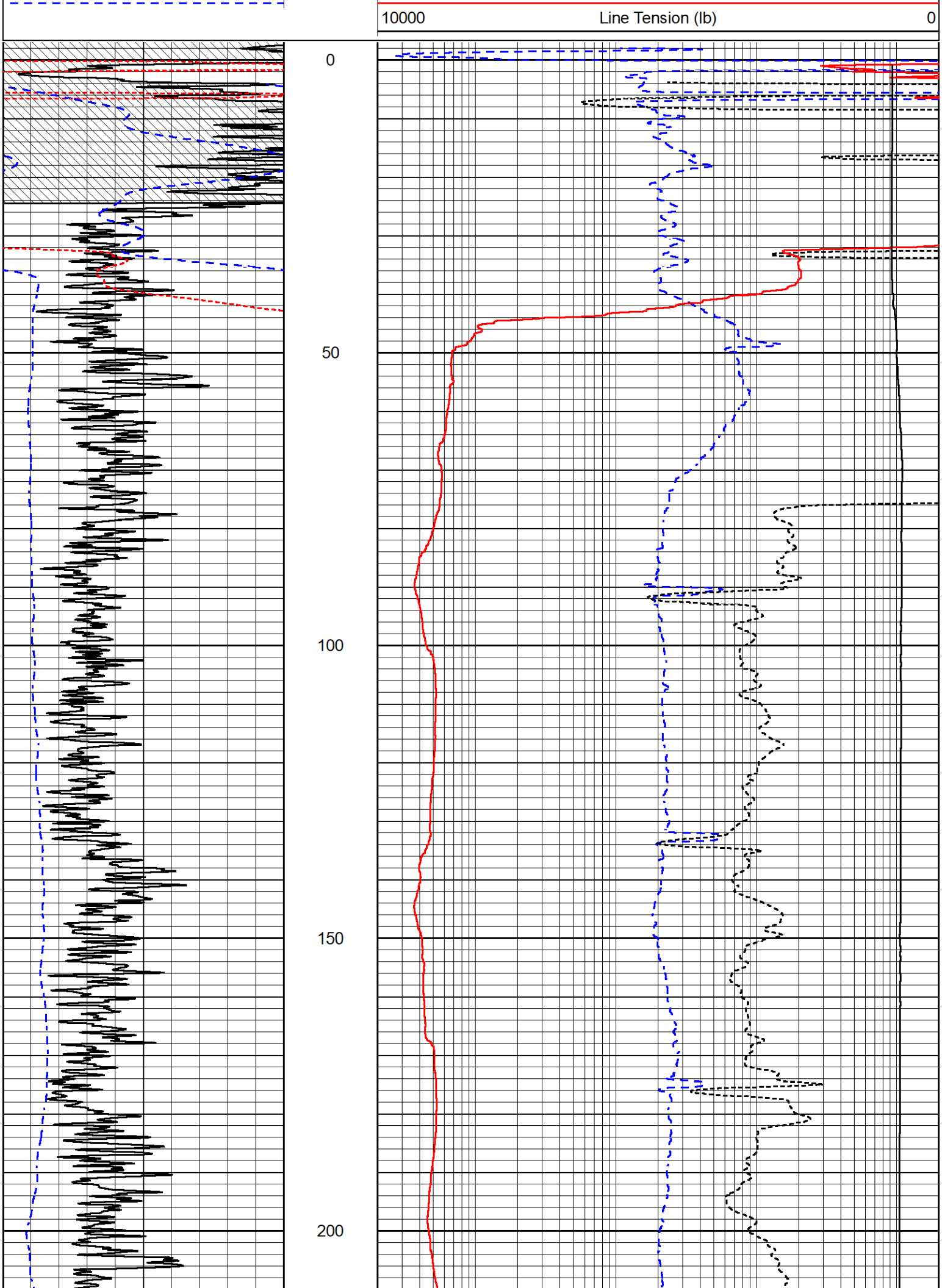
DETAIL SECTION

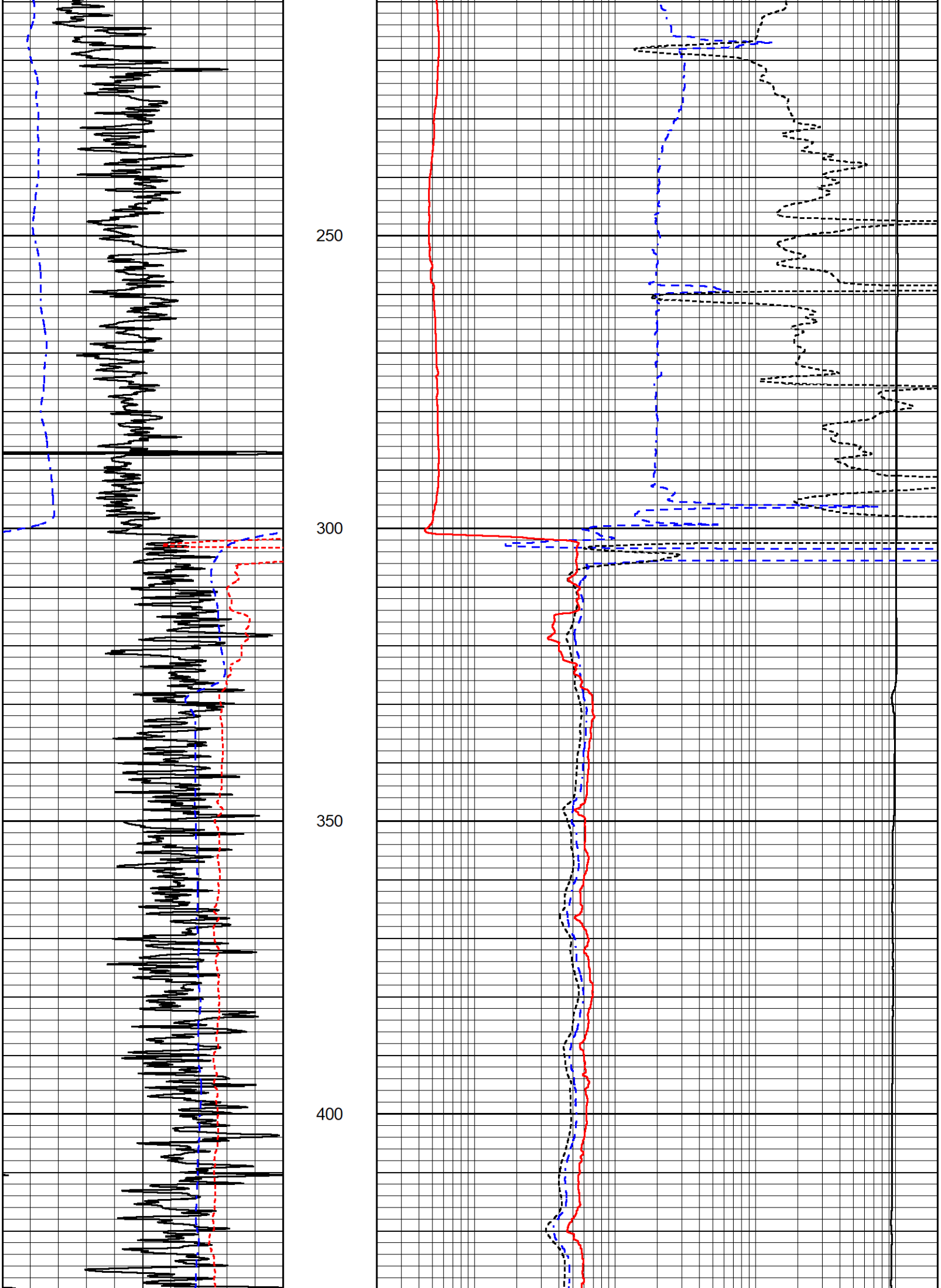
MAIN PASS

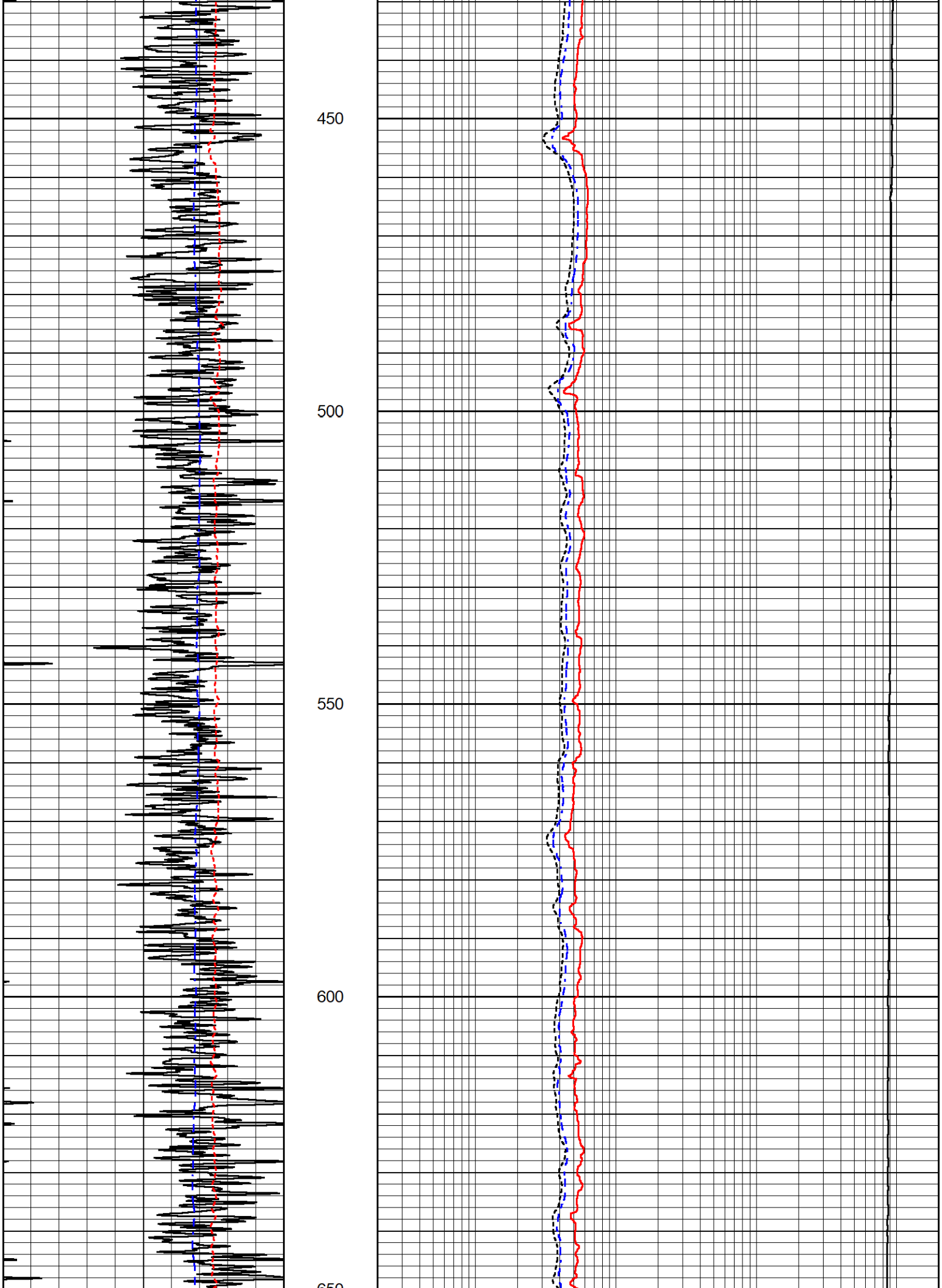
Database File	murfin_culwell h 3-19.db
Dataset Pathname	stkml/pass4.1
Presentation Format	_dil
Dataset Creation	Sat Jan 14 23:37:58 2023
Charted by	Depth in Feet scaled 1:240

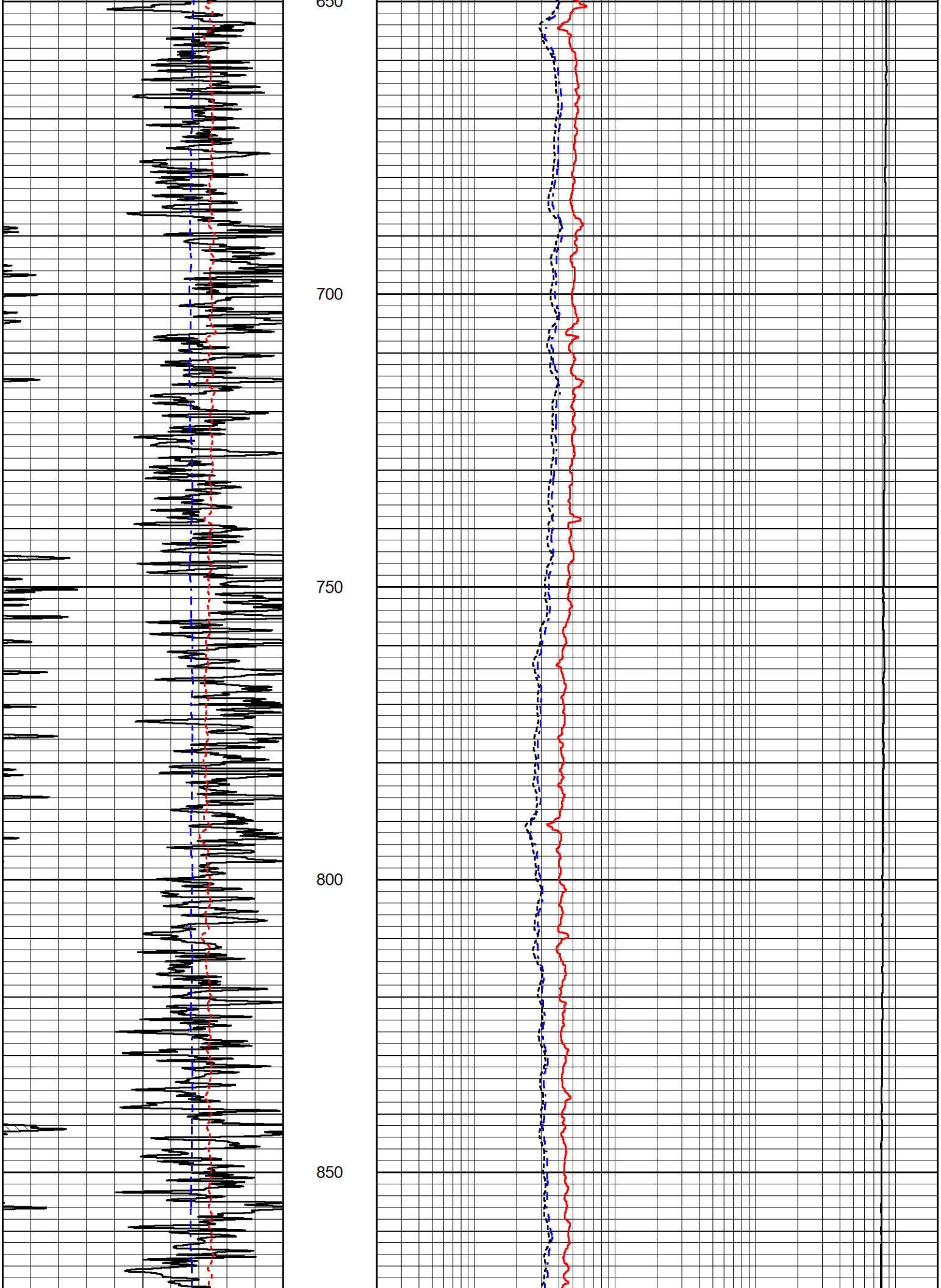
0	Gamma Ray (GAPI)	150
-160	RXORT	40
-200	SP (mV)	0

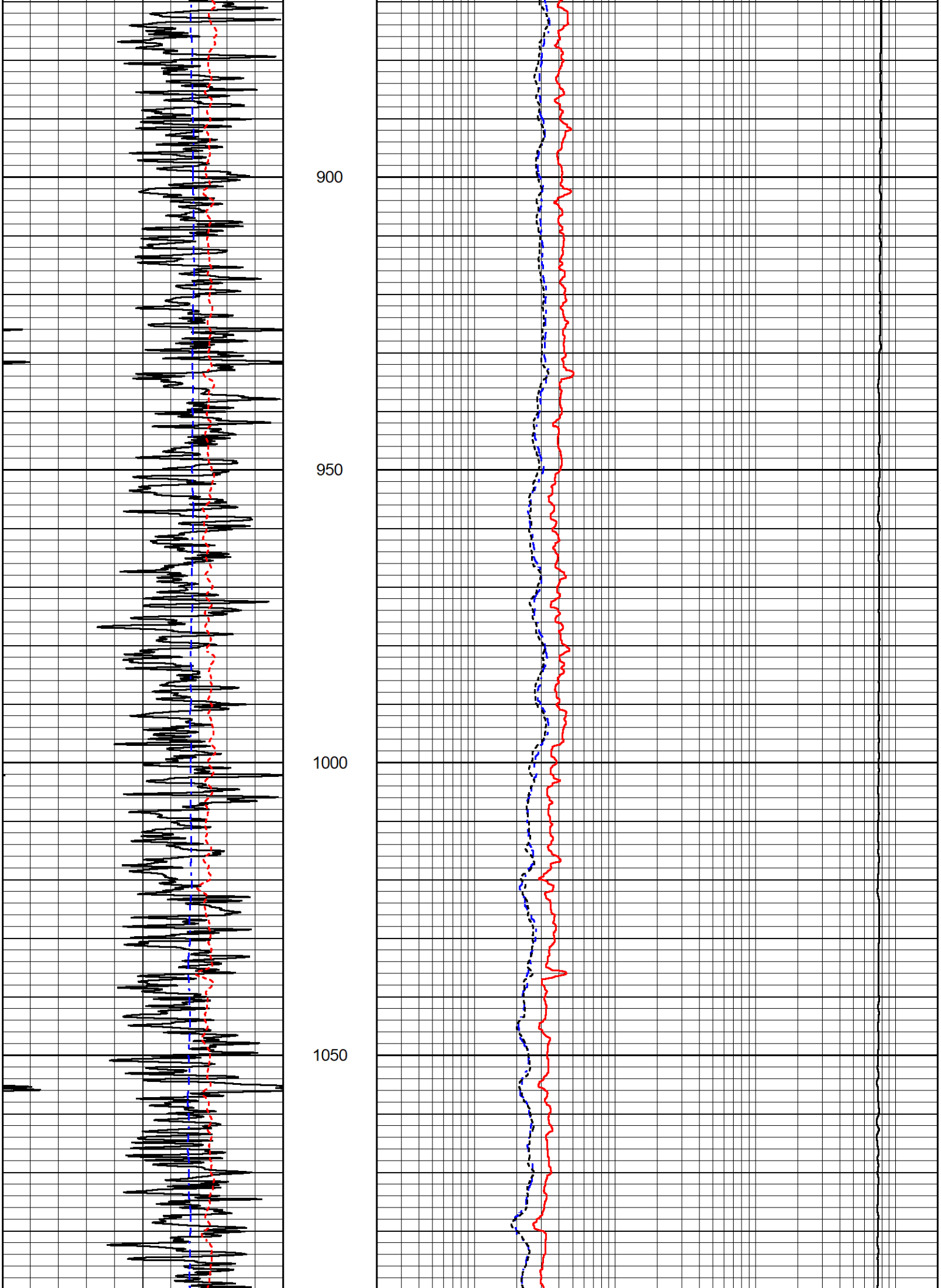
0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000

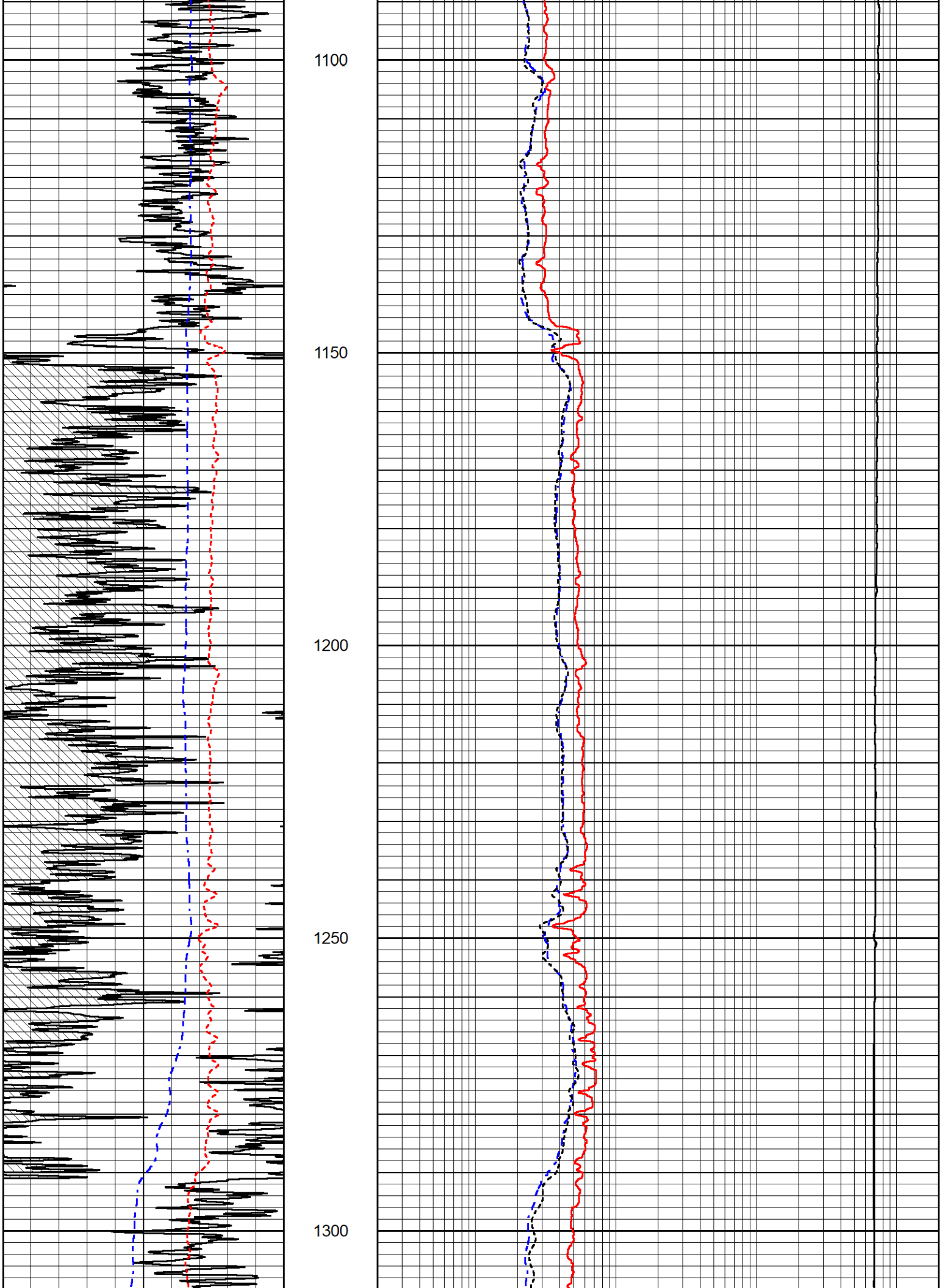

10000
Line Tension (lb)
0
0
50
100
150
200

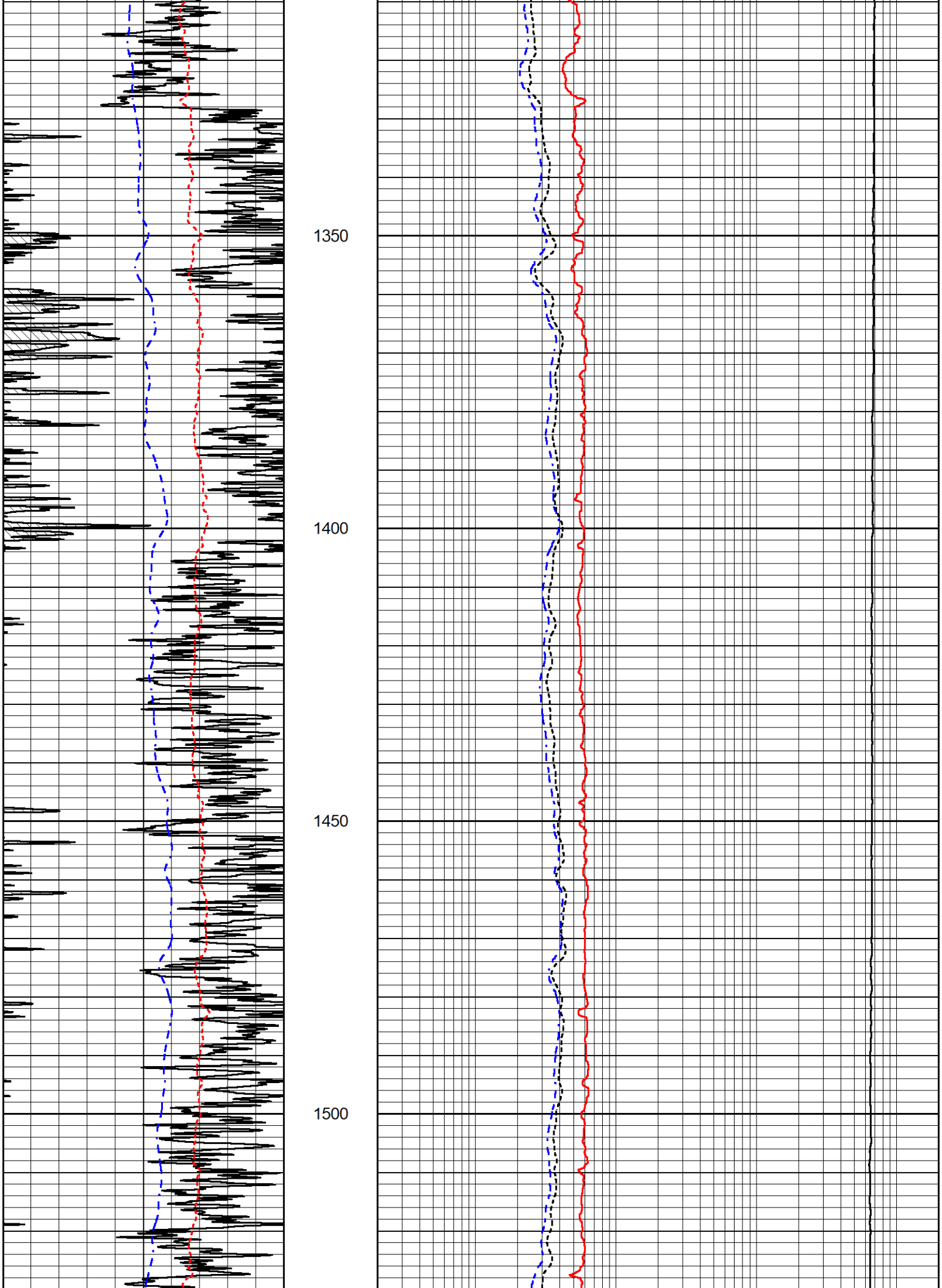

250
300
350
400

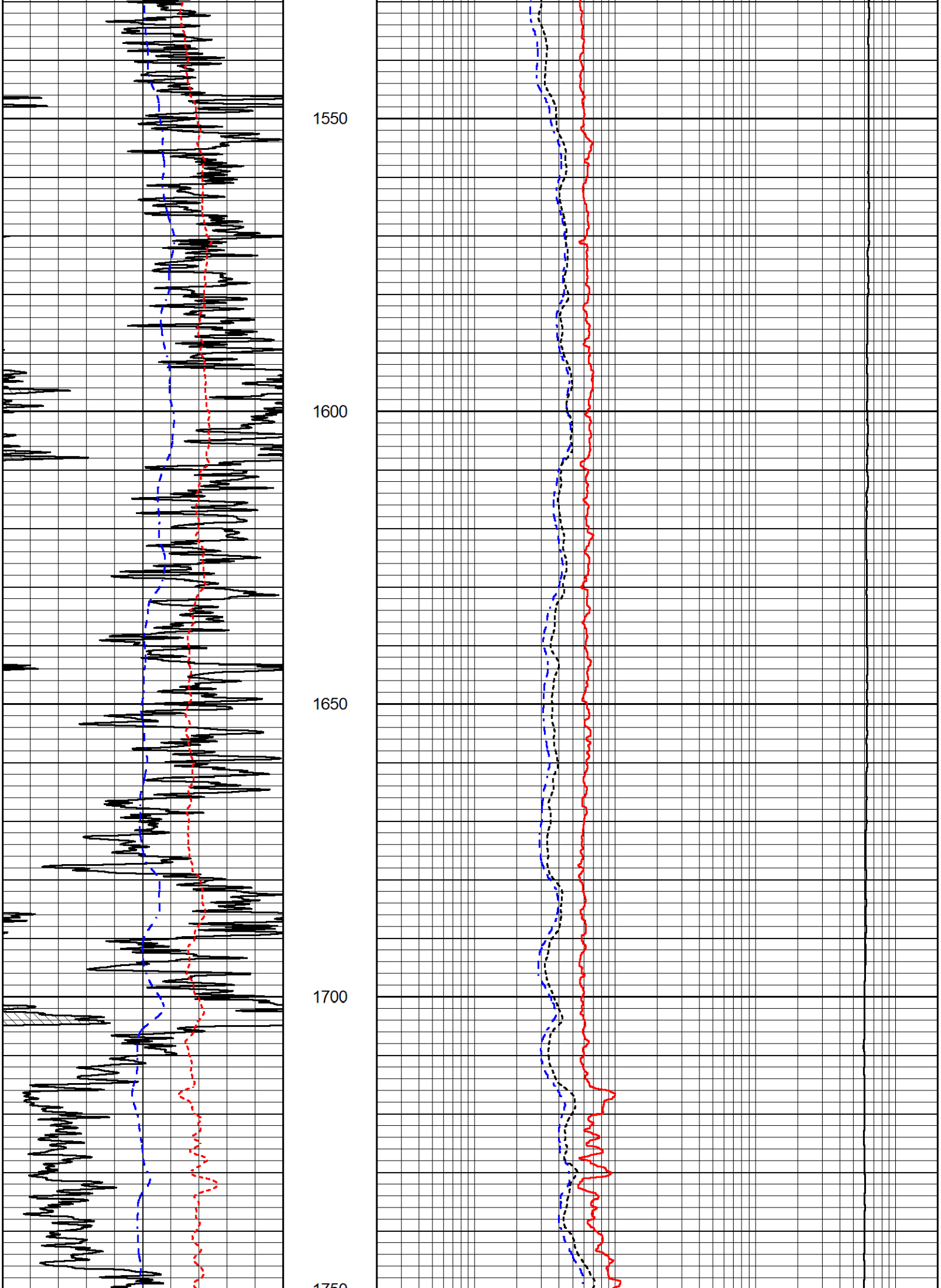

450
500
550
600

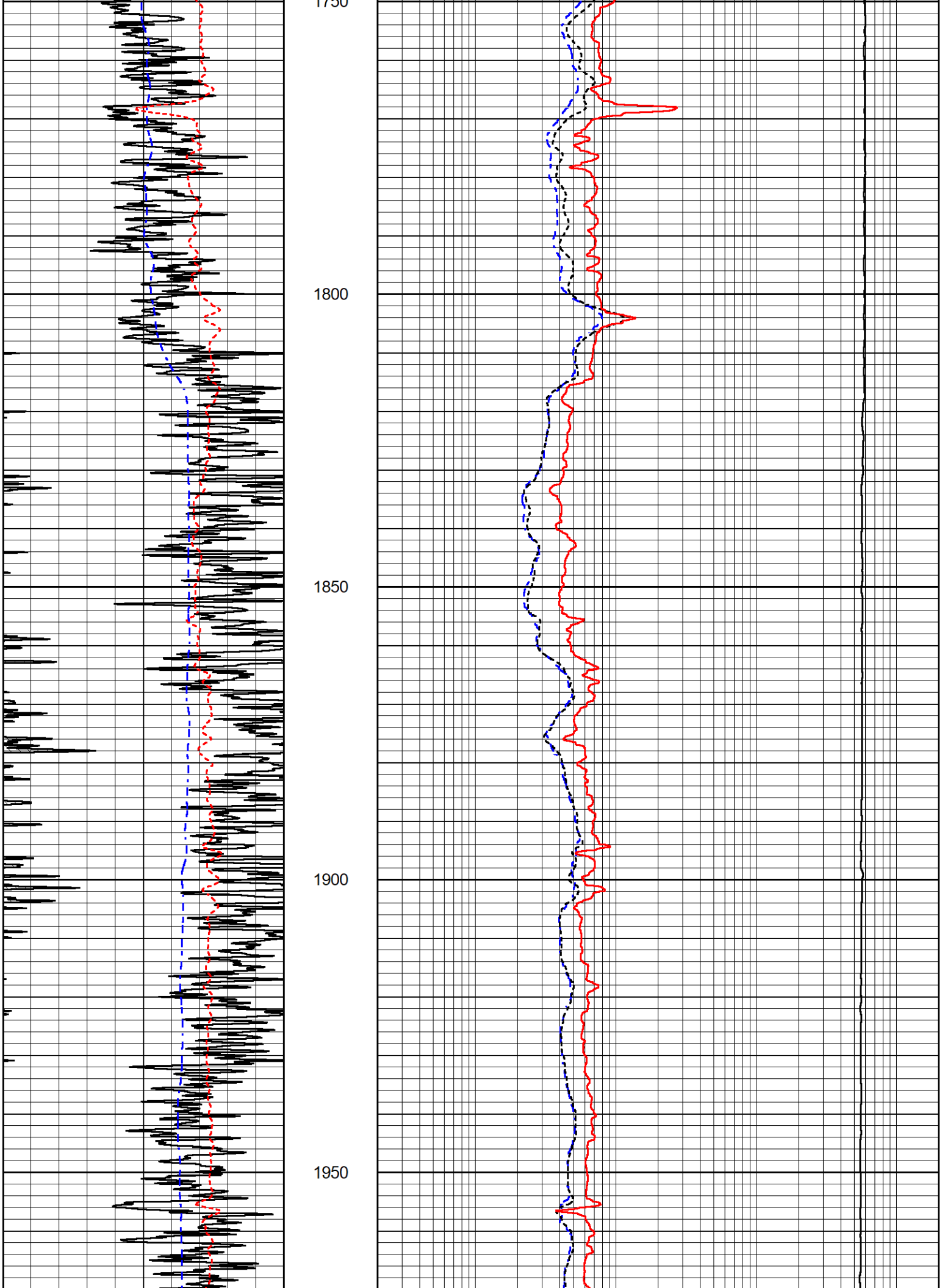

650
700
750
800
850

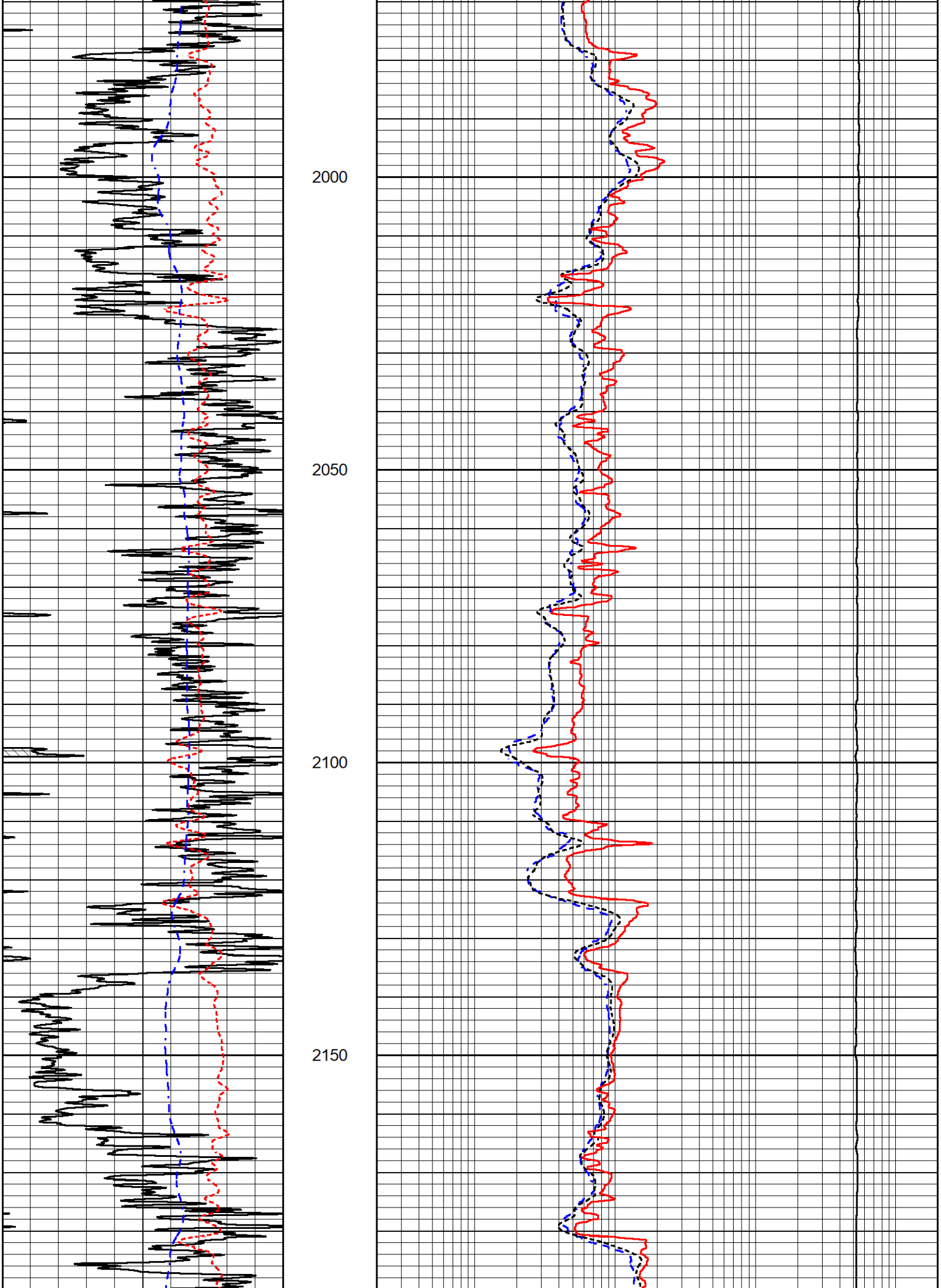

900
950
1000
1050

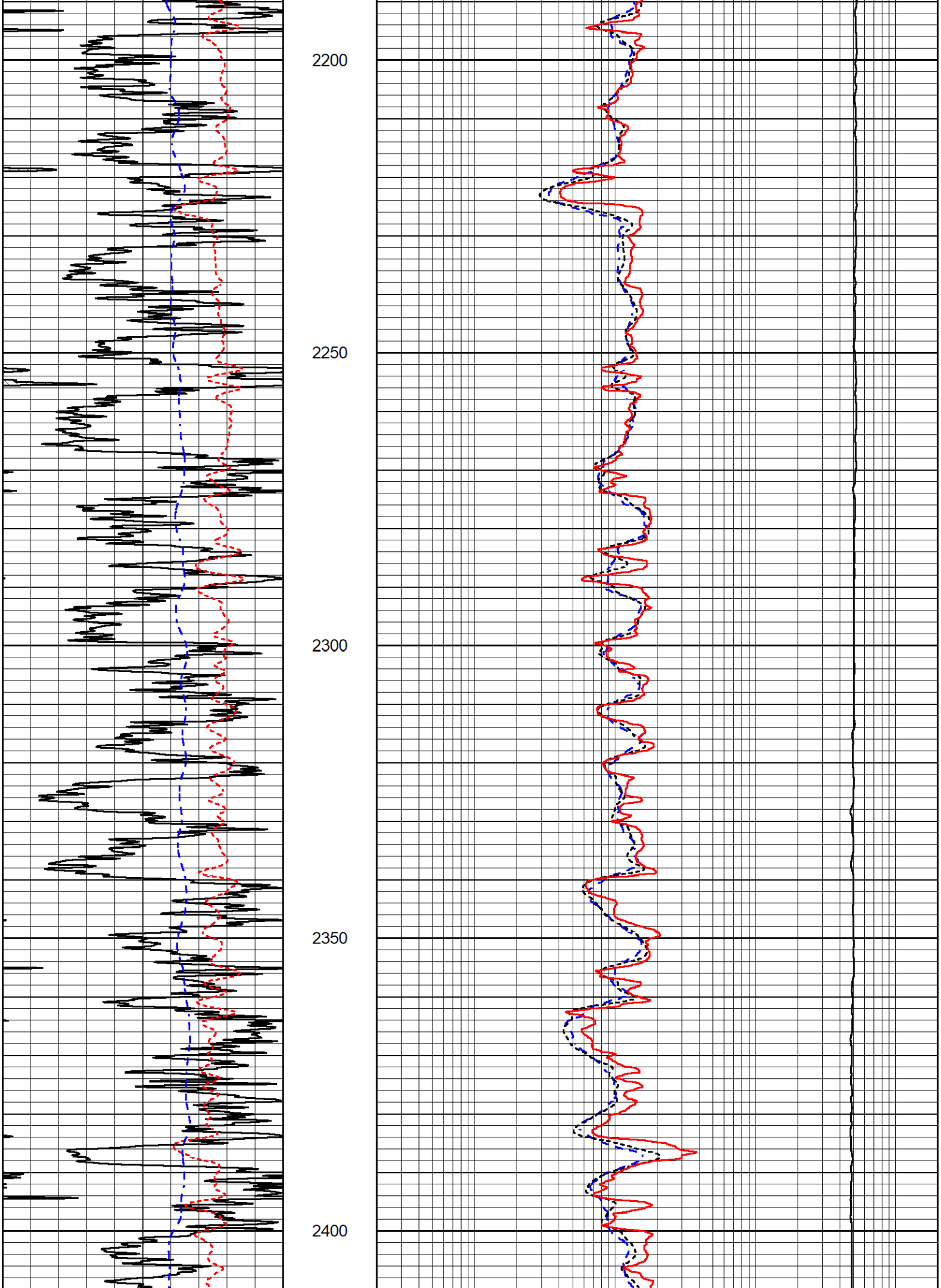

1100
1150
1200
1250
1300

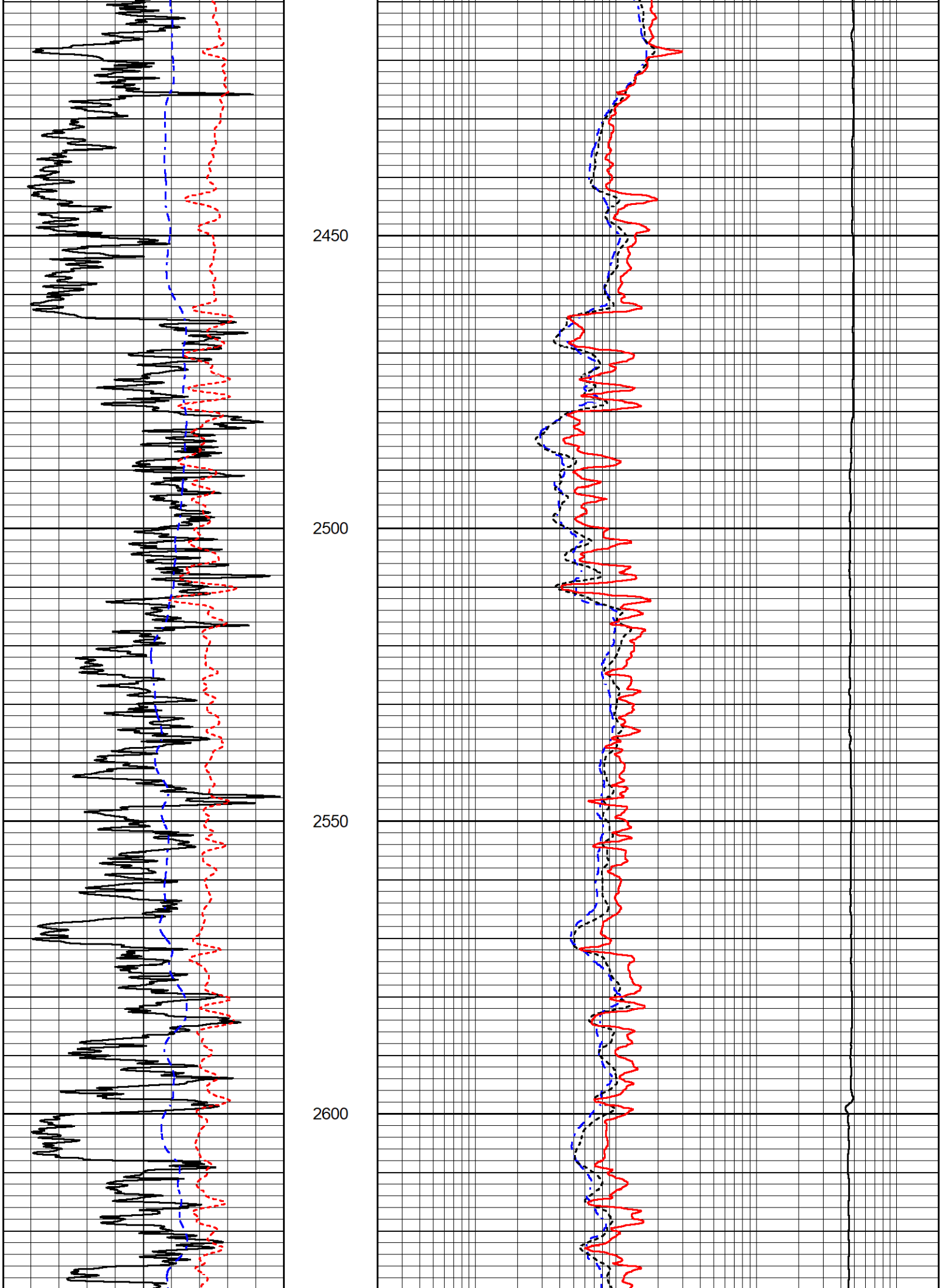

1350
1400
1450
1500

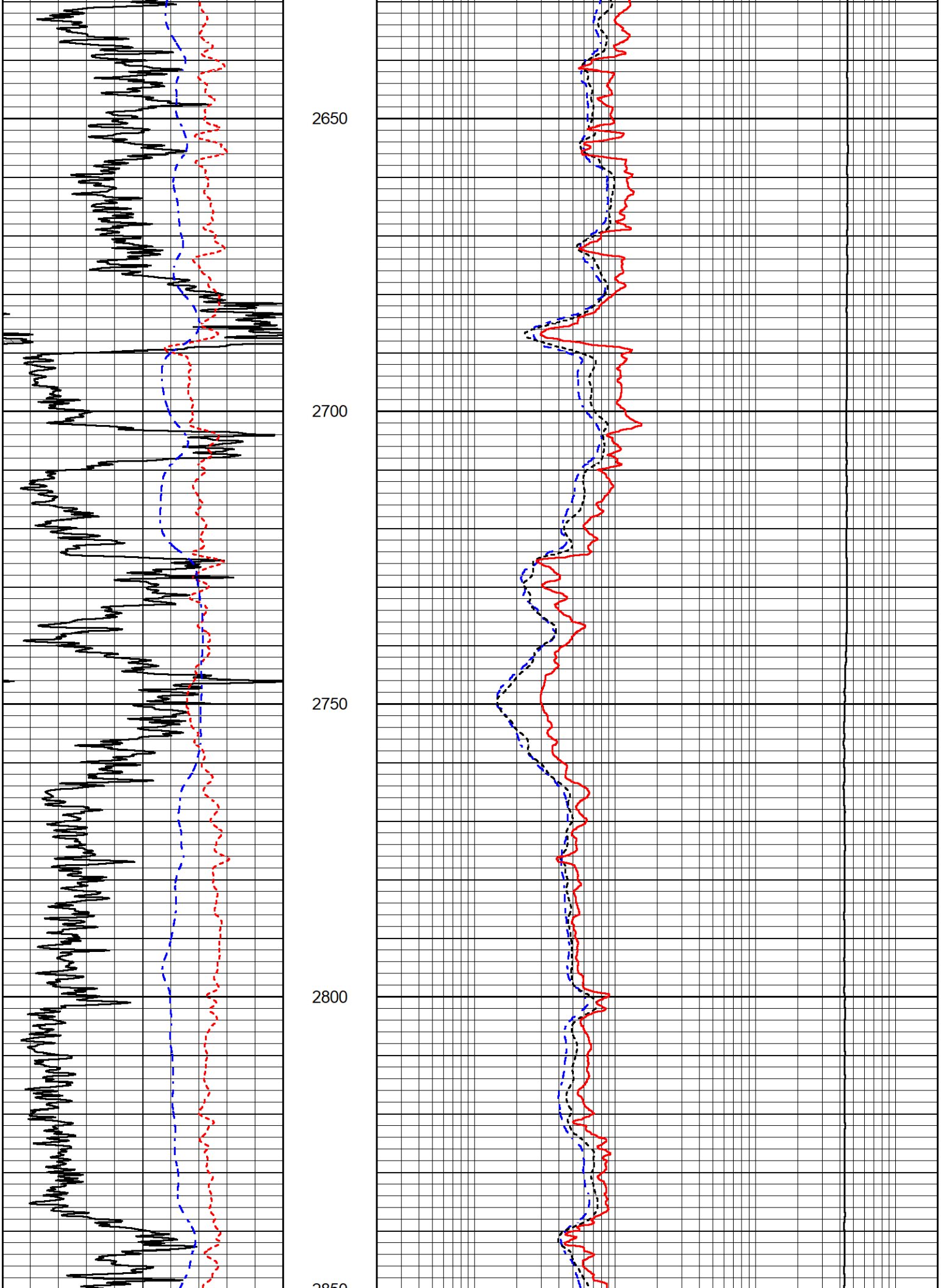

1550
1600
1650
1700

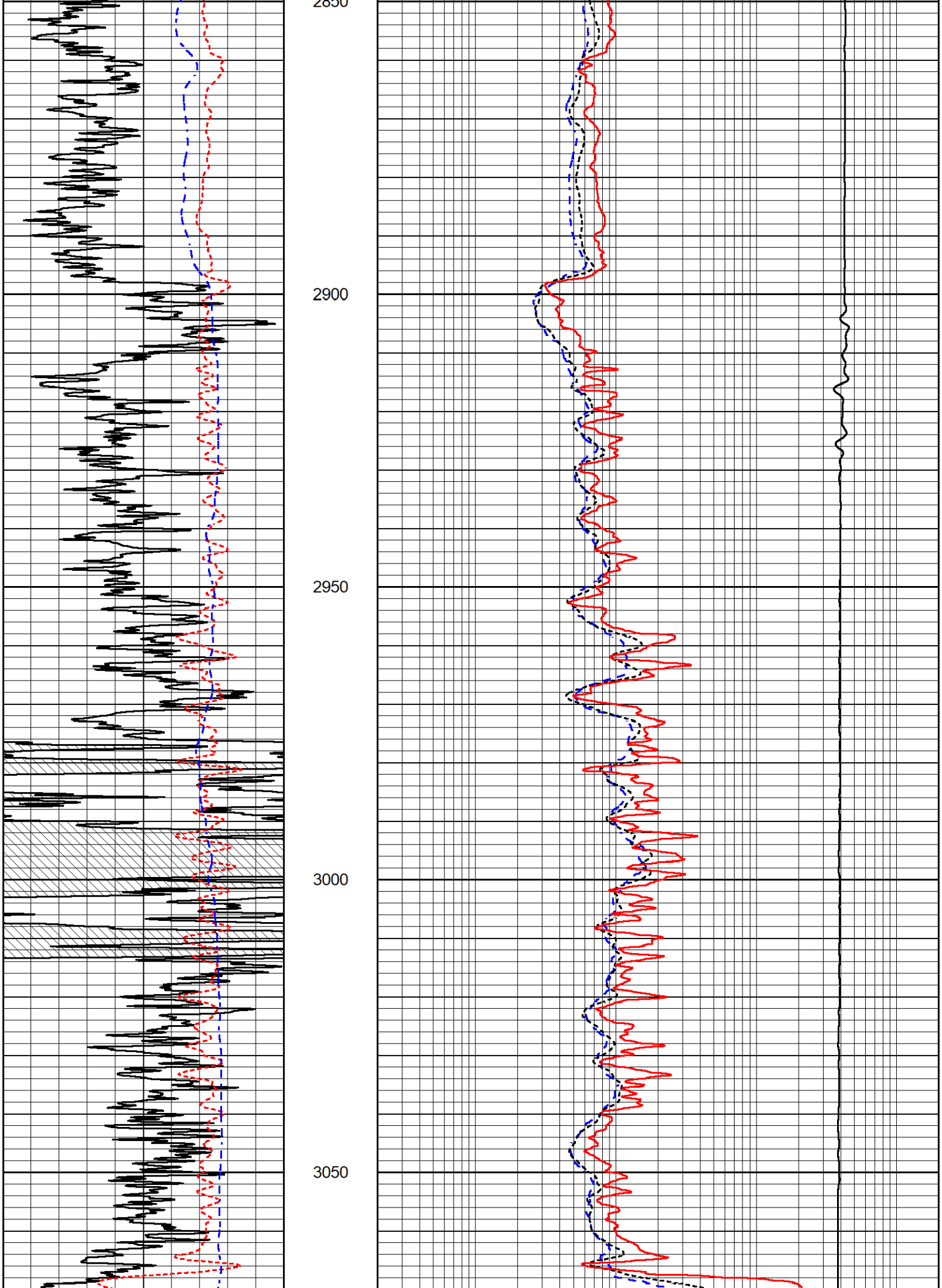

1750
1800
1850
1900
1950

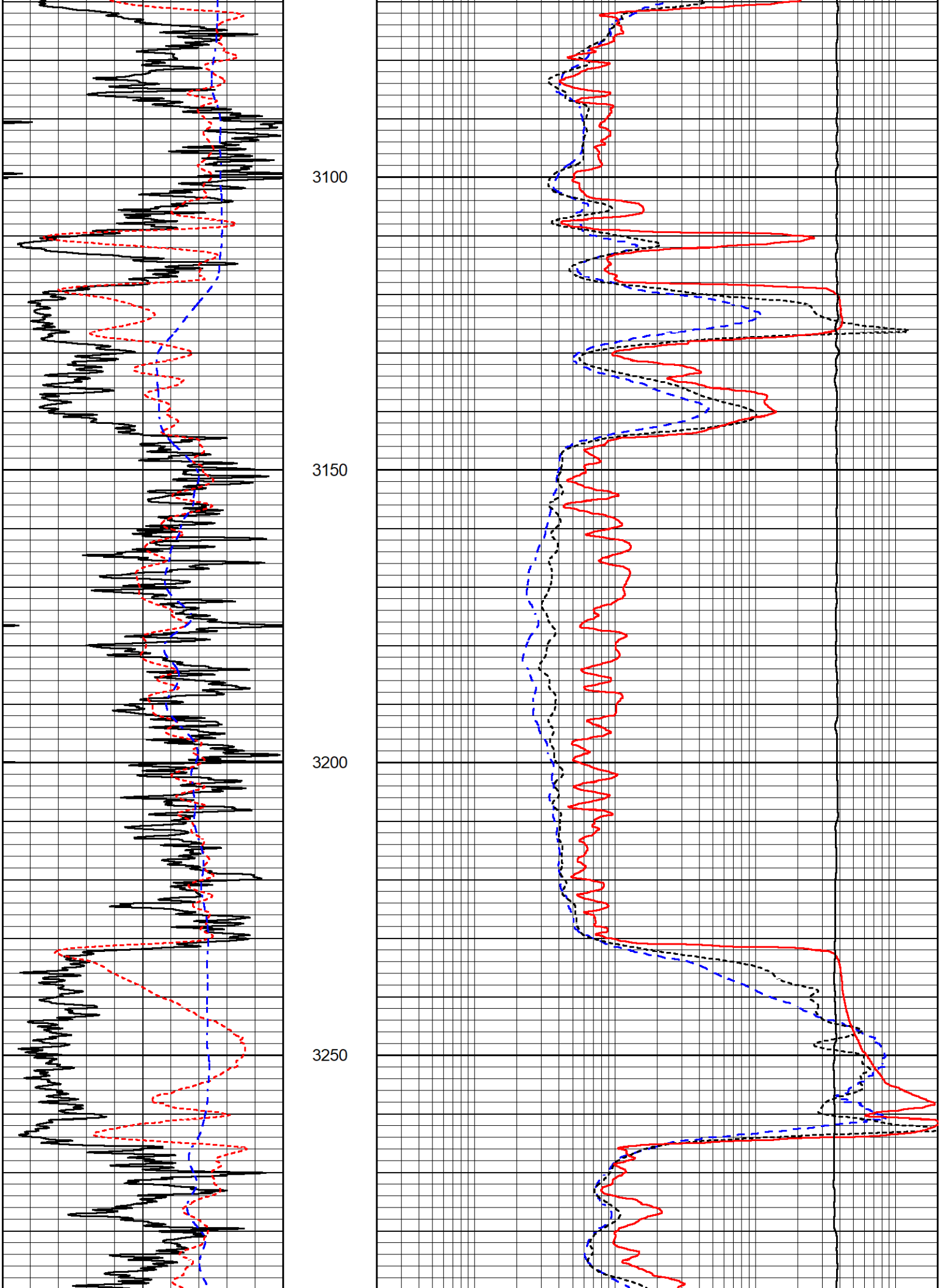

2000
2050
2100
2150

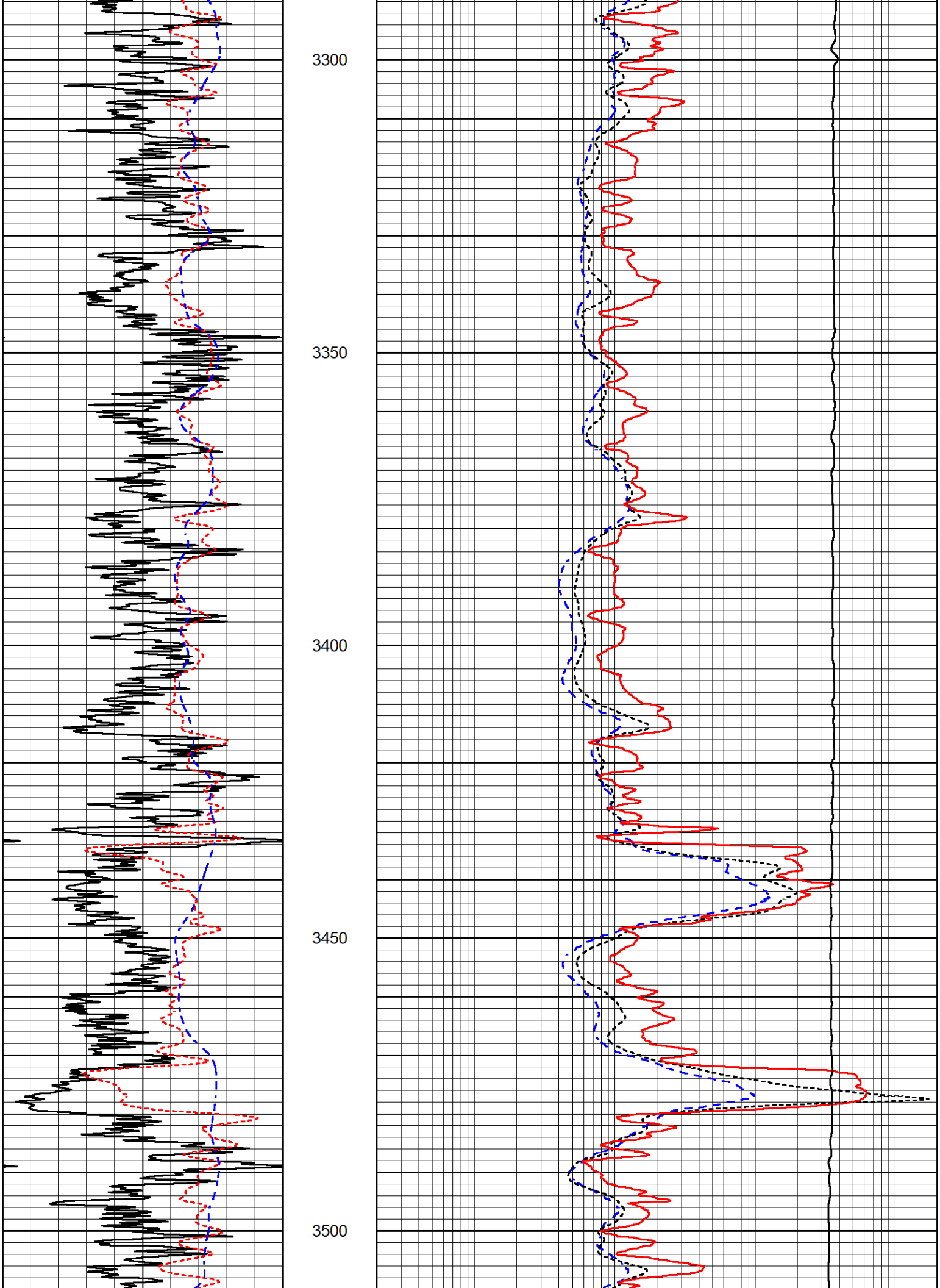

2200
2250
2300
2350
2400

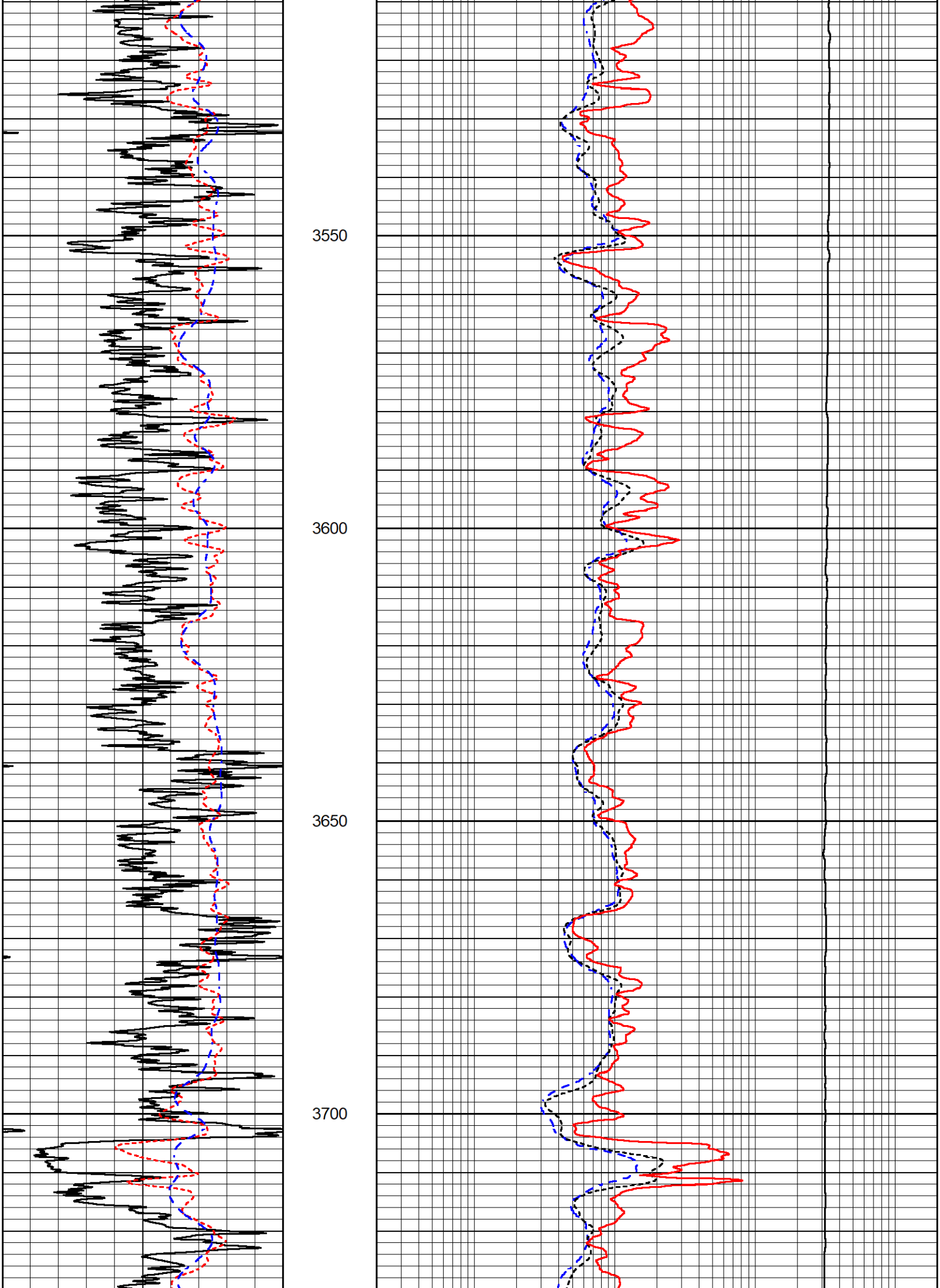

2450
2500
2550
2600

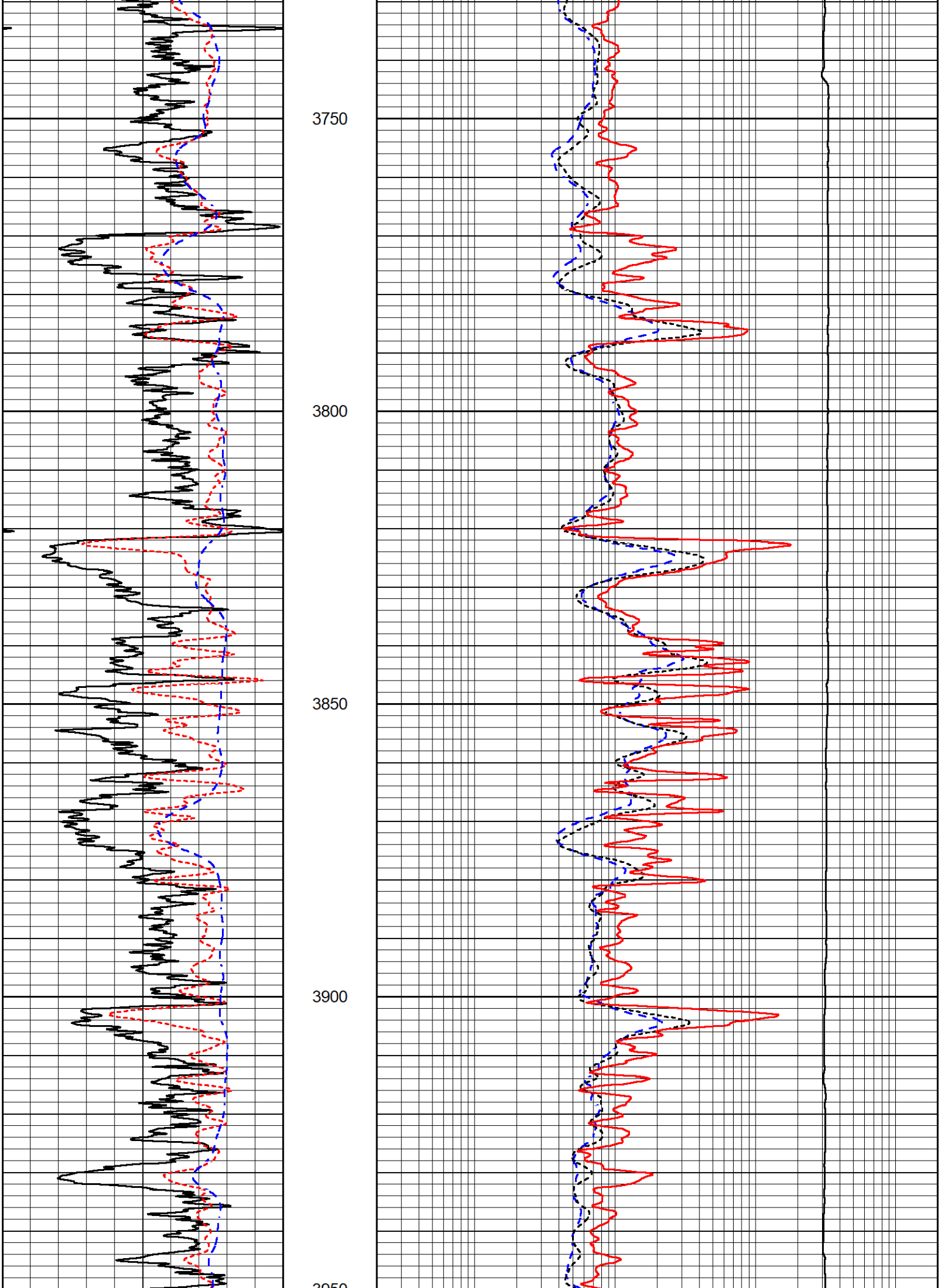

2650
2700
2750
2800

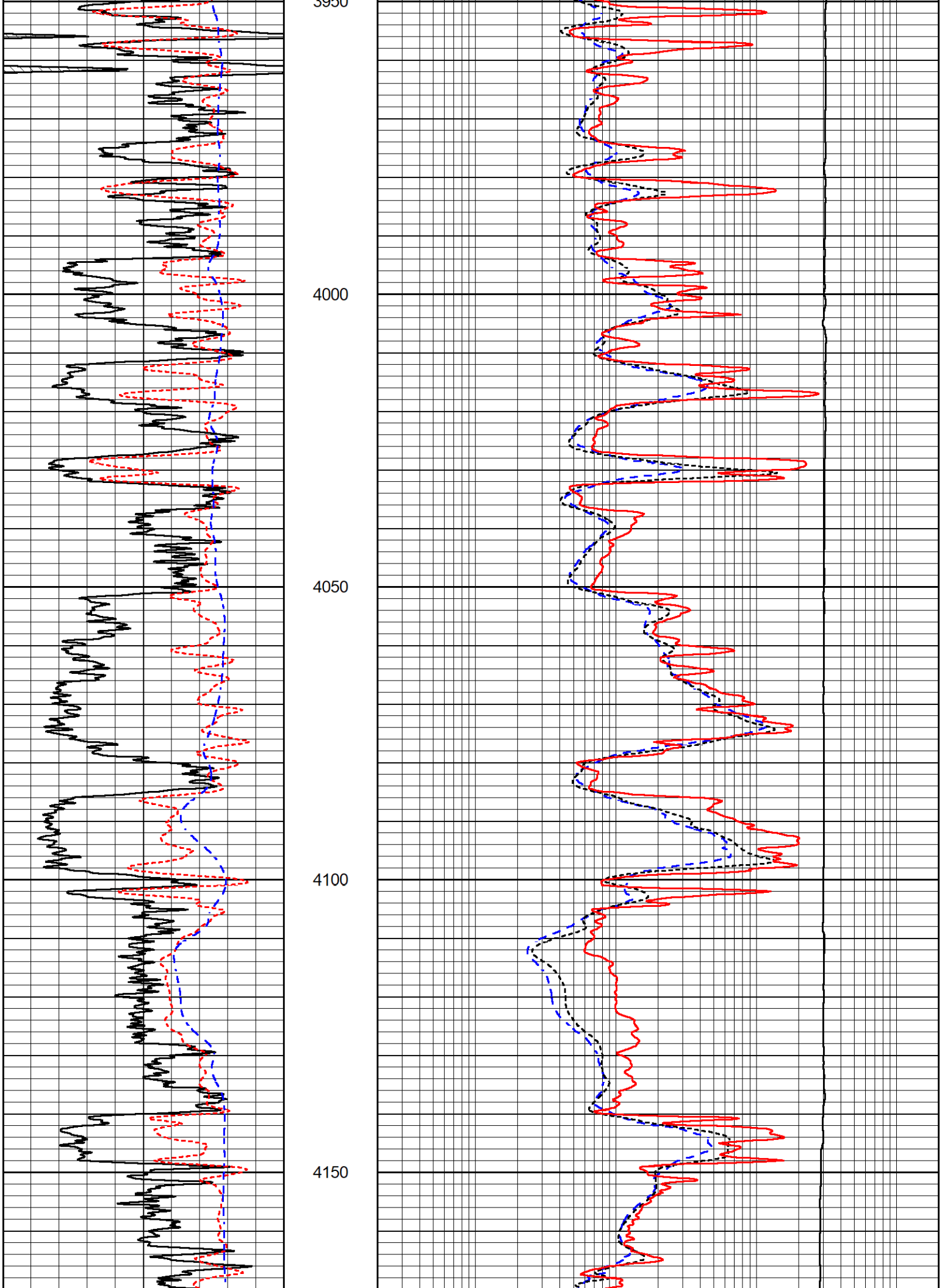

2850
2900
2950
3000
3050

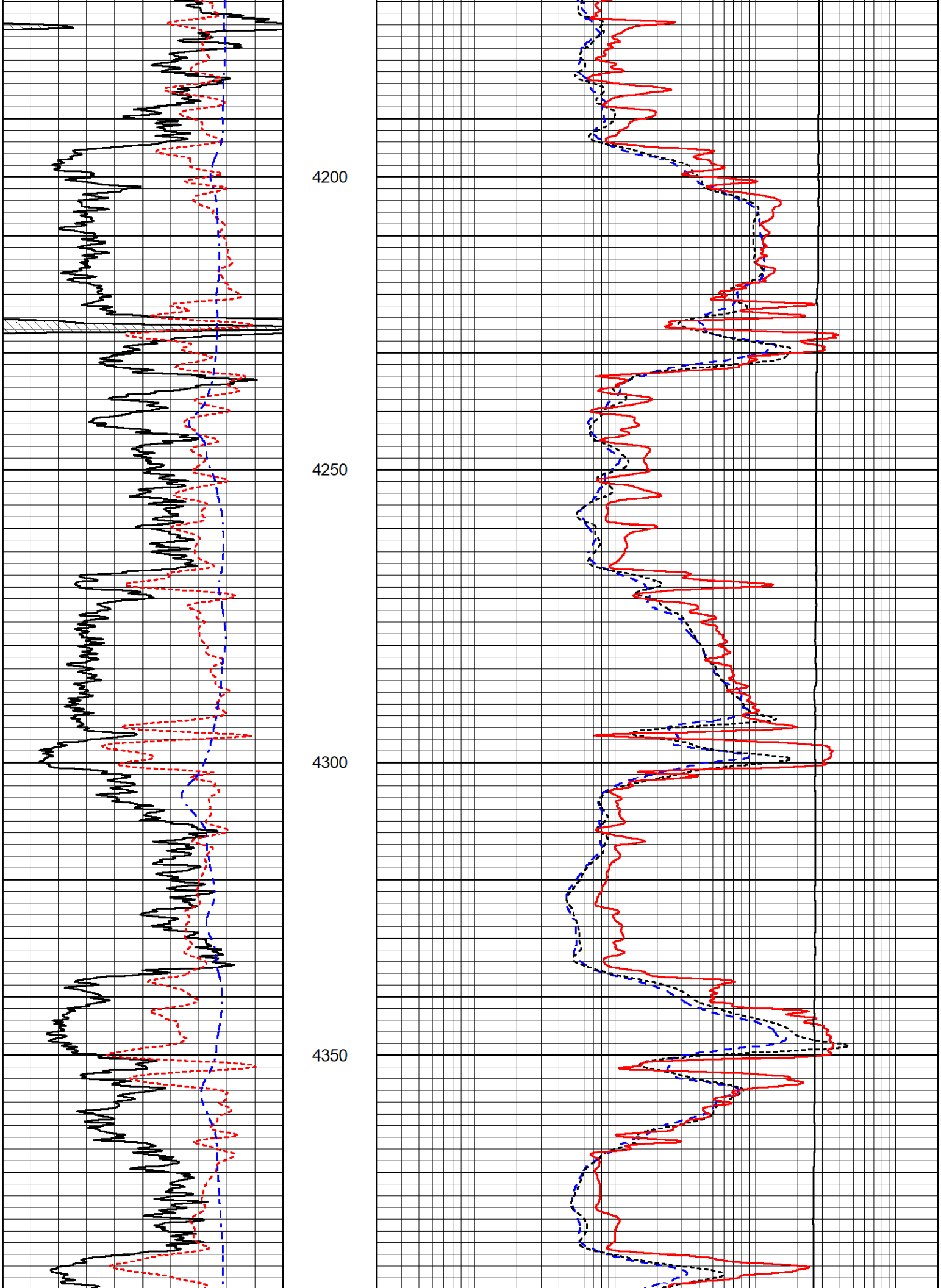

3100
3150
3200
3250

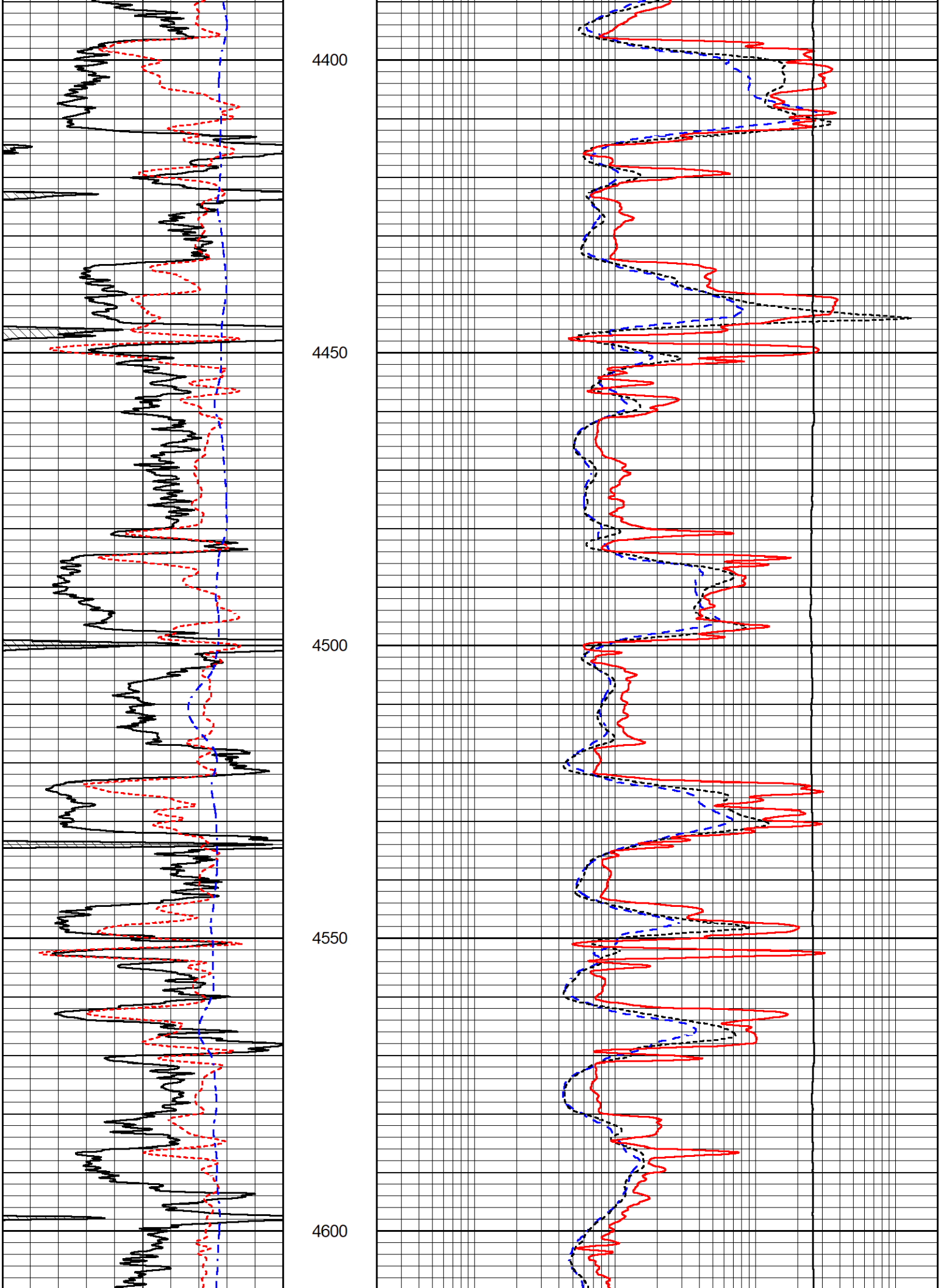

3300
3350
3400
3450
3500

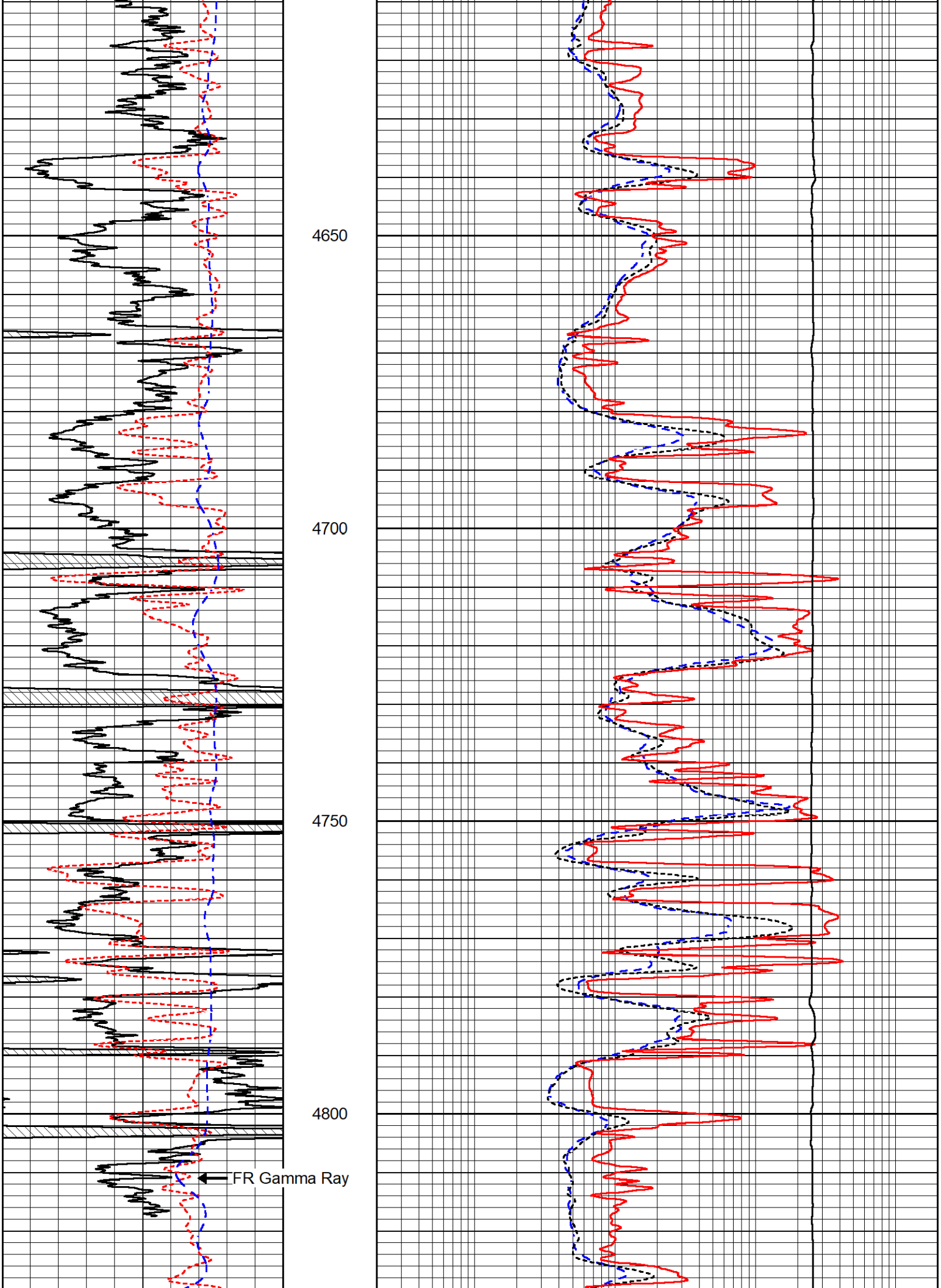

3550
3600
3650
3700

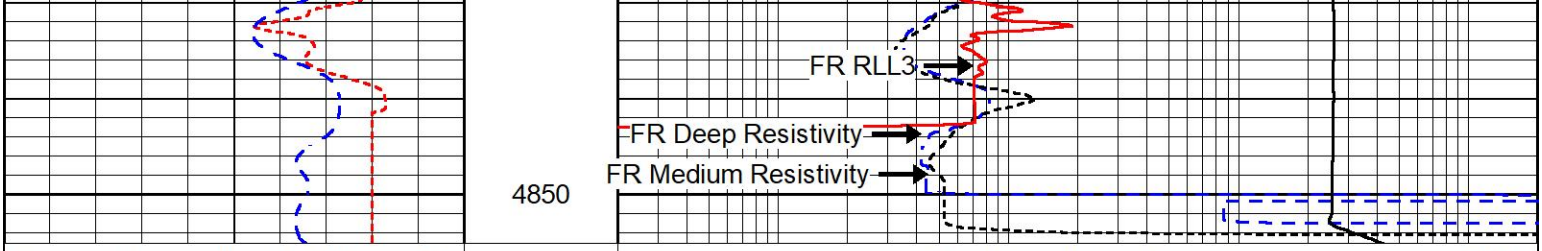

3750
3800
3850
3900


3950
4000
4050
4100
4150


4200
4250
4300
4350


4400
4450
4500
4550
4600


4650
4700
4750
4800
FR Gamma Ray



0	Gamma Ray (GAPI)	150
-160	RXORT	40
-200	SP (mV)	0

0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	Line Tension (lb)	0

MIDWEST WIRELINE

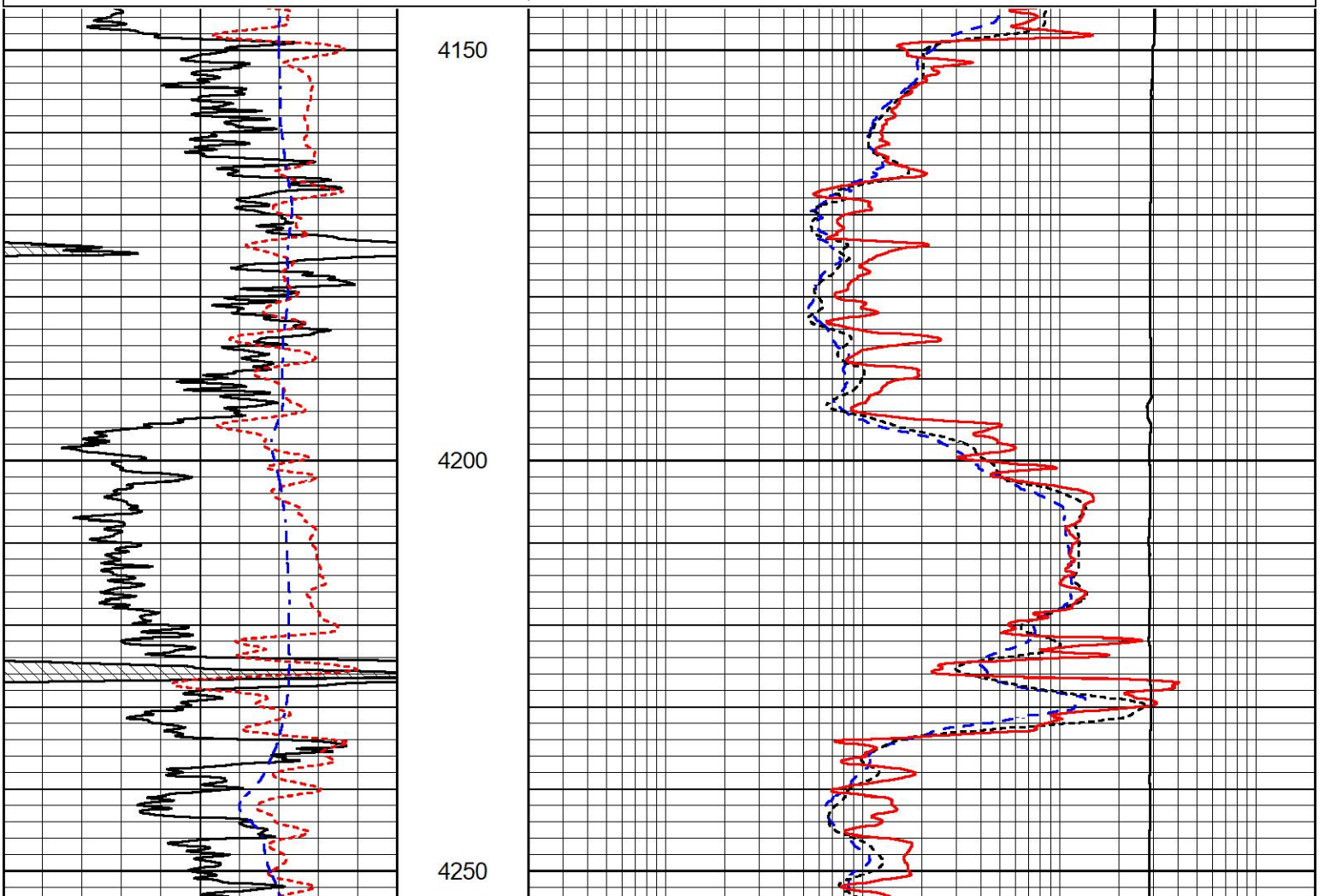
REPEAT SECTION

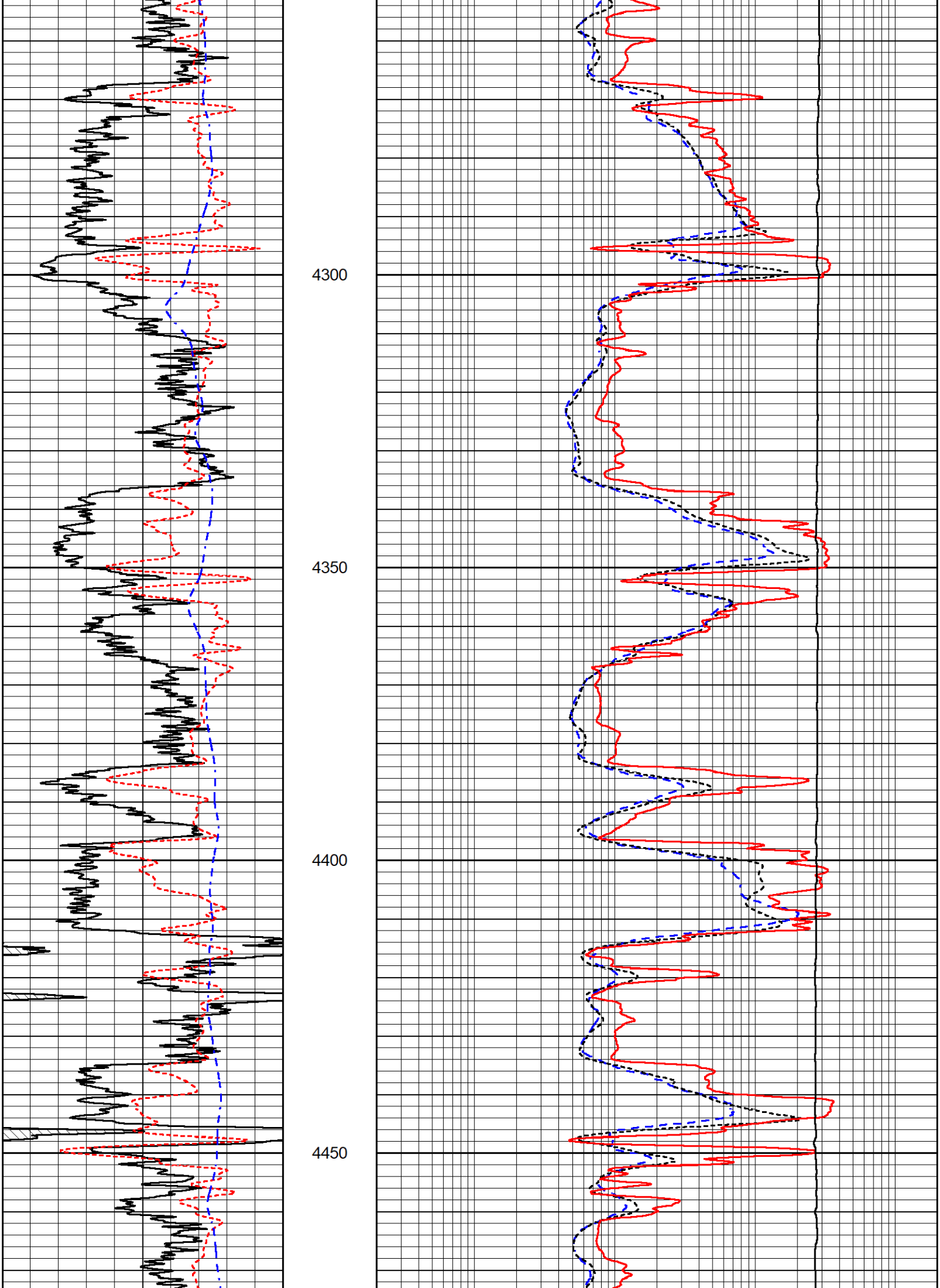
REPEAT PASS

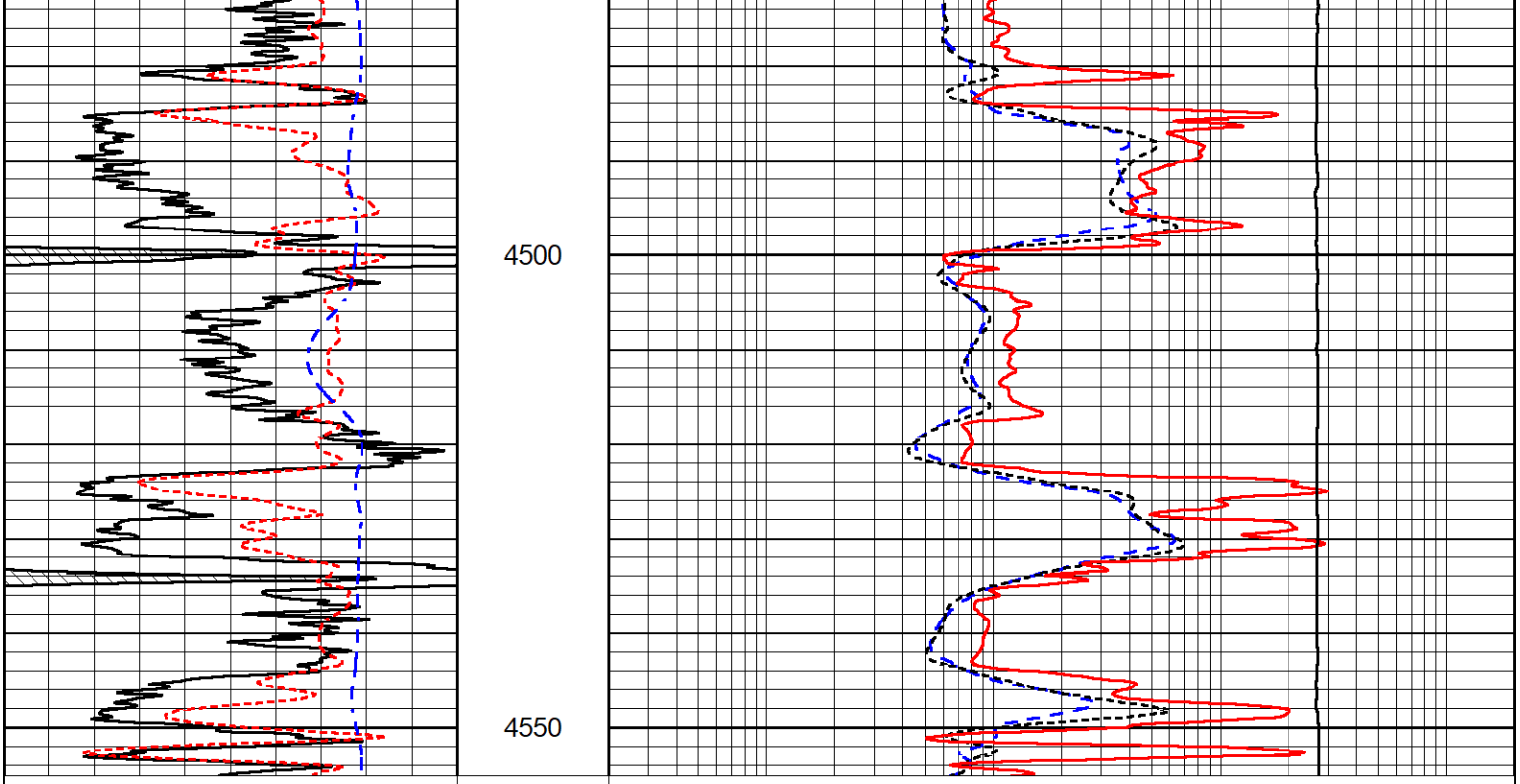
Database File	murfin_culwell h 3-19.db
Dataset Pathname	stkml/pass2.1
Presentation Format	_dil
Dataset Creation	Sat Jan 14 23:14:19 2023
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
-160	RXORT	40
-200	SP (mV)	0

0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	Line Tension (lb)	0




4300
4350
4400
4450



Calibration Report

Database File	murfin_culwell h 3-19.db
Dataset Pathname	stkml/pass4.12
Dataset Creation	Sat Jan 14 22:52:47 2023

Dual Induction Calibration Report

Serial-Model:	505 HT-M&W
Surface Cal Performed:	Mon Nov 14 06:05:40 2022

	Readings		References			Results	
Loop:	Air	Loop	Air	Loop		m	b
Deep	167.000	835.000	0.000	255.800	mmho/m	0.480	-49.500
Medium	1348.000	1348.000	0.000	255.800	mmho/m	0.390	-33.500

Microlog Calibration Report

Serial-Model:	402-PSI STKBL ML
Performed:	Tue Jan 3 20:52:47 2023

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0037	0.0043	0.0000	10.0000	Ohm-m	14500.0000	-1.0000
Inverse	0.1208	0.0013	0.0000	10.0000	Ohm-m	13500.0000	-0.5000
Caliper	1.0046	1.1419	5.5000	20.0000	in	50.0000	-44.5500

Compensated Density Calibration Report

Serial-Model:	303-03-M&W
Source #:	21170B
Master Calibration Performed:	Mon Jan 2 03:21:14 2023

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	3841.78	5151.73	cps
Aluminum	2.640	g/cc	700.98	3068.49	cps

Spine Angle = 73.06 Density/Spine Ratio = 0.498

	Size		Reading
Small Ring	4.00	in	1.17
Large Ring	14.00	in	1.04

Compensated Neutron Calibration Report

Serial-Model:	210-M&W
Source #:	N-1238
Master Calibration Performed:	Fri Dec 3 09:16:24 2021

Master 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:	103	
Tool Model:	M&W	
Performed:	Fri Dec 3 12:13:24 2021	
Calibrator Value:	500.0	GAPI
Background Reading:	28.0	cps
Calibrator Reading:	986.0	cps
Sensitivity:	0.5700	GAPI/cps

MIDWEST WIRELINE

Company	Murfin Drilling Company, Inc.
Well	Culwell H 3-19
Field	
County	Cheyenne
State	Kansas