MIDWEST WIRELINE

DUAL COMPENSATED POROSITY / MICRO 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
BHCS

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

Company	Murfin Drilling Company, Inc.
Well	Helene #1-10
Field	Unnamed
County	Cheyenne
State	Kansas

Date	3/26/2021	
Run Number	One	
Type Log	CNL / CDL / ML	
Depth Driller	5200'	
Depth Logger	5196'	
Bottom Logged Interval	5195'	
Top Logged Interval	3000'	
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.

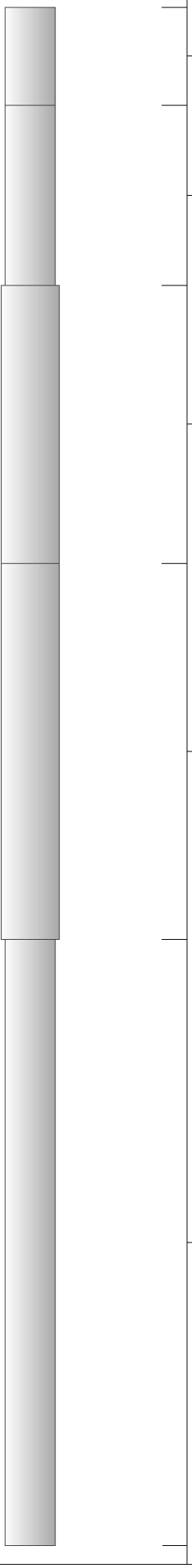
Wheeler Kansas, 3 North, 2 East, South Into

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
			GR-M&W (89-M&W)	3.00	3.50	50.00
GR	44.50					
CNLSC	41.40		CNT-M&W (tk10-MW)	5.50	3.50	100.00
CNSSC	40.65					
			CDL-M&W (915-956)	8.50	4.00	250.00
LSD	32.35					
DCAL	32.33					
SSD	31.85					
			ML-PSI UDM ML (UDM-01) Stackable Microlog Tools	11.50	4.00	215.00
MCAL	20.87					
MI	20.87					
MN	20.87					
RLL3F	15.80					
RLL3	15.80					
			DIL-PSI HIGH TEMP (952-828)	18.50	3.50	220.00
CILD	8.00					
CILM	4.70					
SP	0.20					

Dataset: murfin_helena_1_10.db: field/well/stackml/pass4.1
Total length: 47.00 ft
Total weight: 835.00 lb
O.D.: 4.00 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

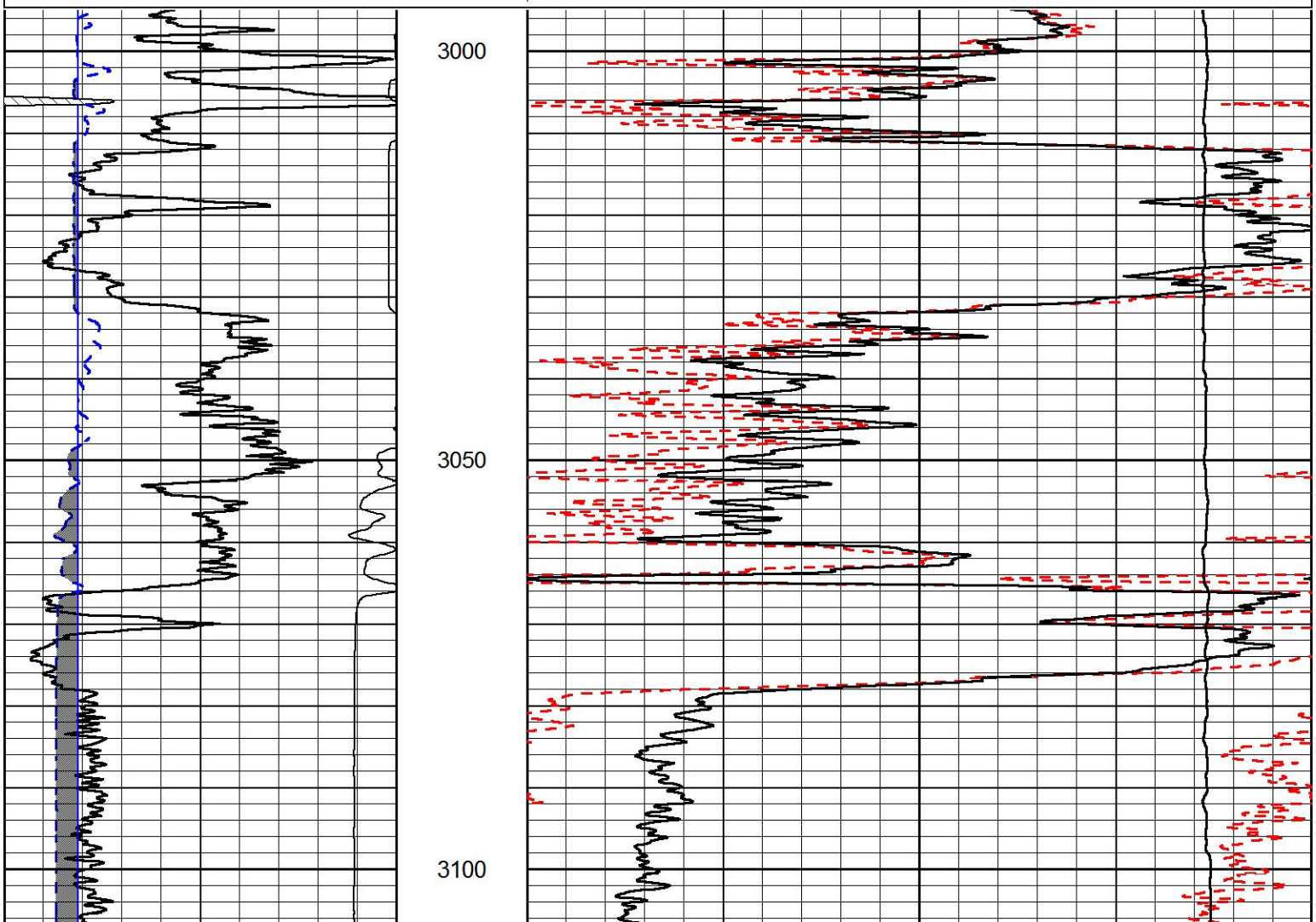
MIDWEST WIRELINE

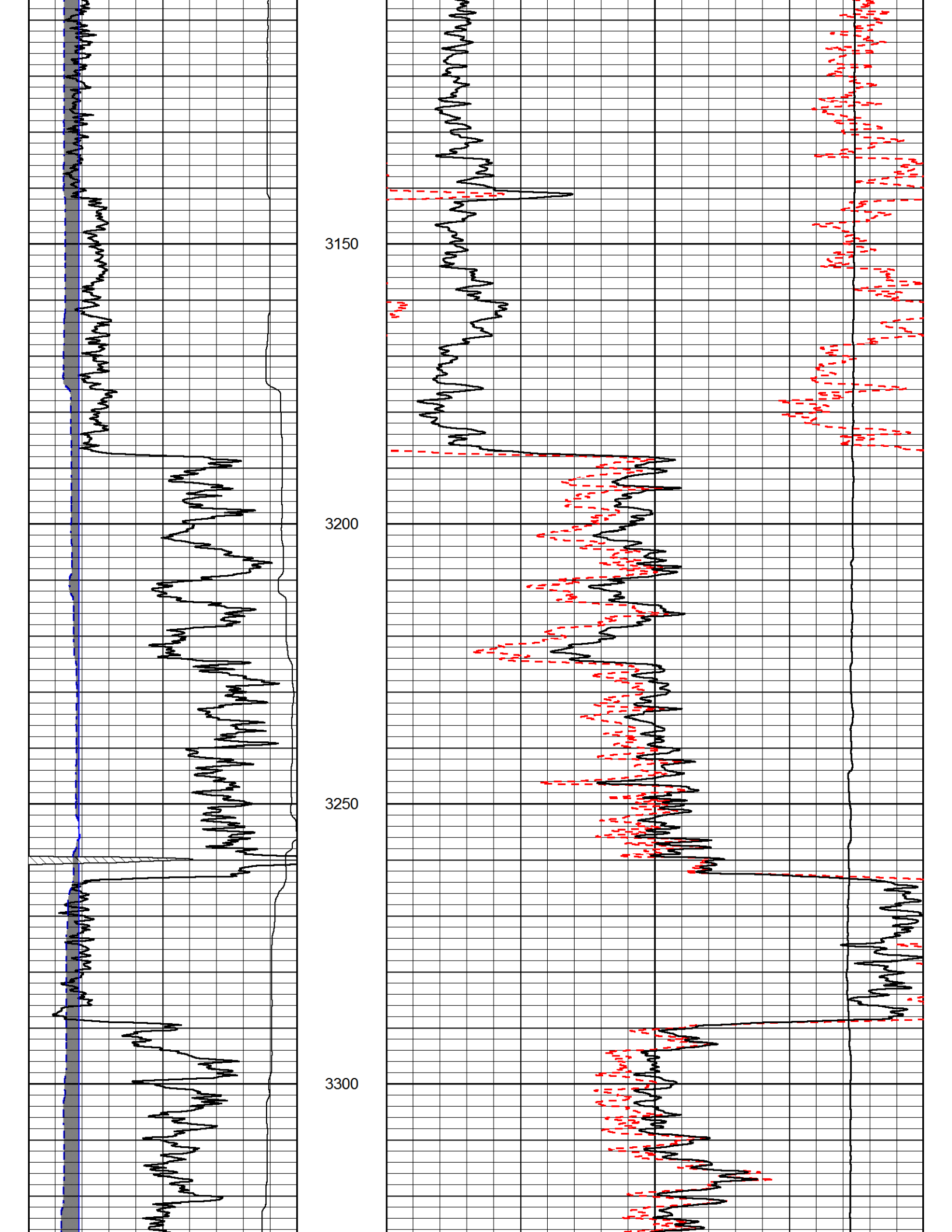
Bulk Density

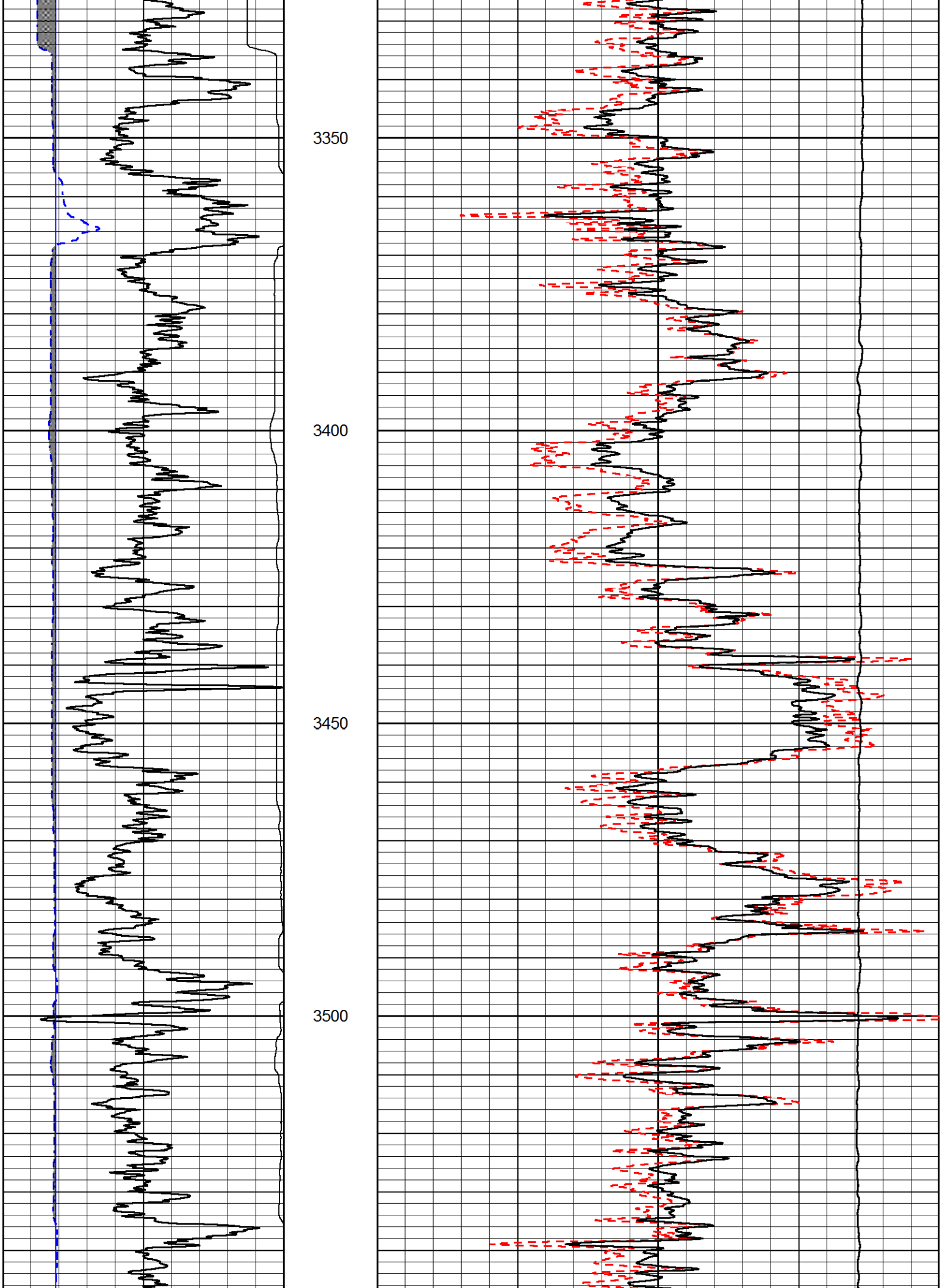
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Presentation Format	cdl
Dataset Creation	Fri Mar 26 21:00:01 2021
Charted by	Depth in Feet scaled 1:240

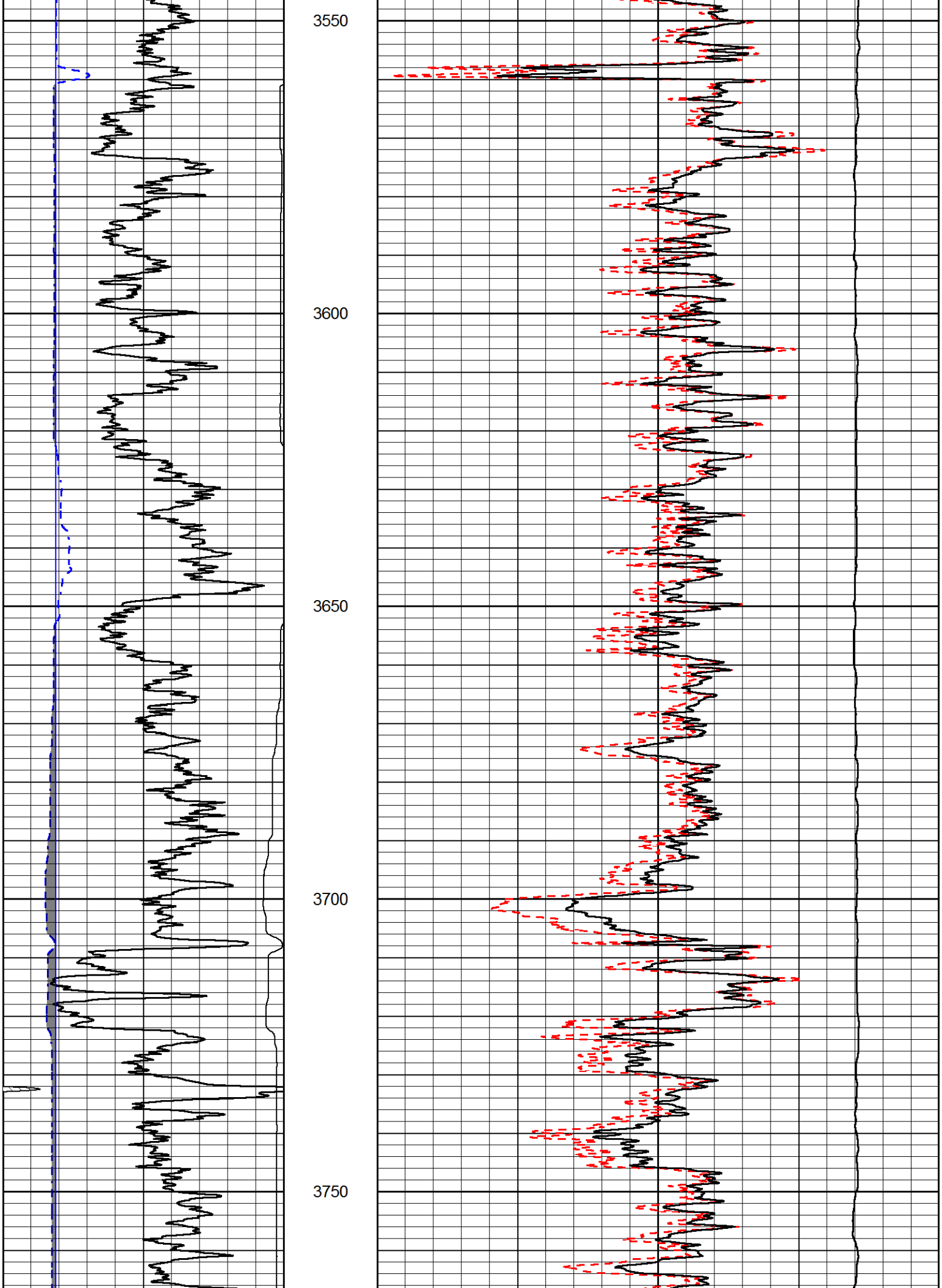
0	GAMMA RAY (GAPI)	150
6	CALIPER (in)	16

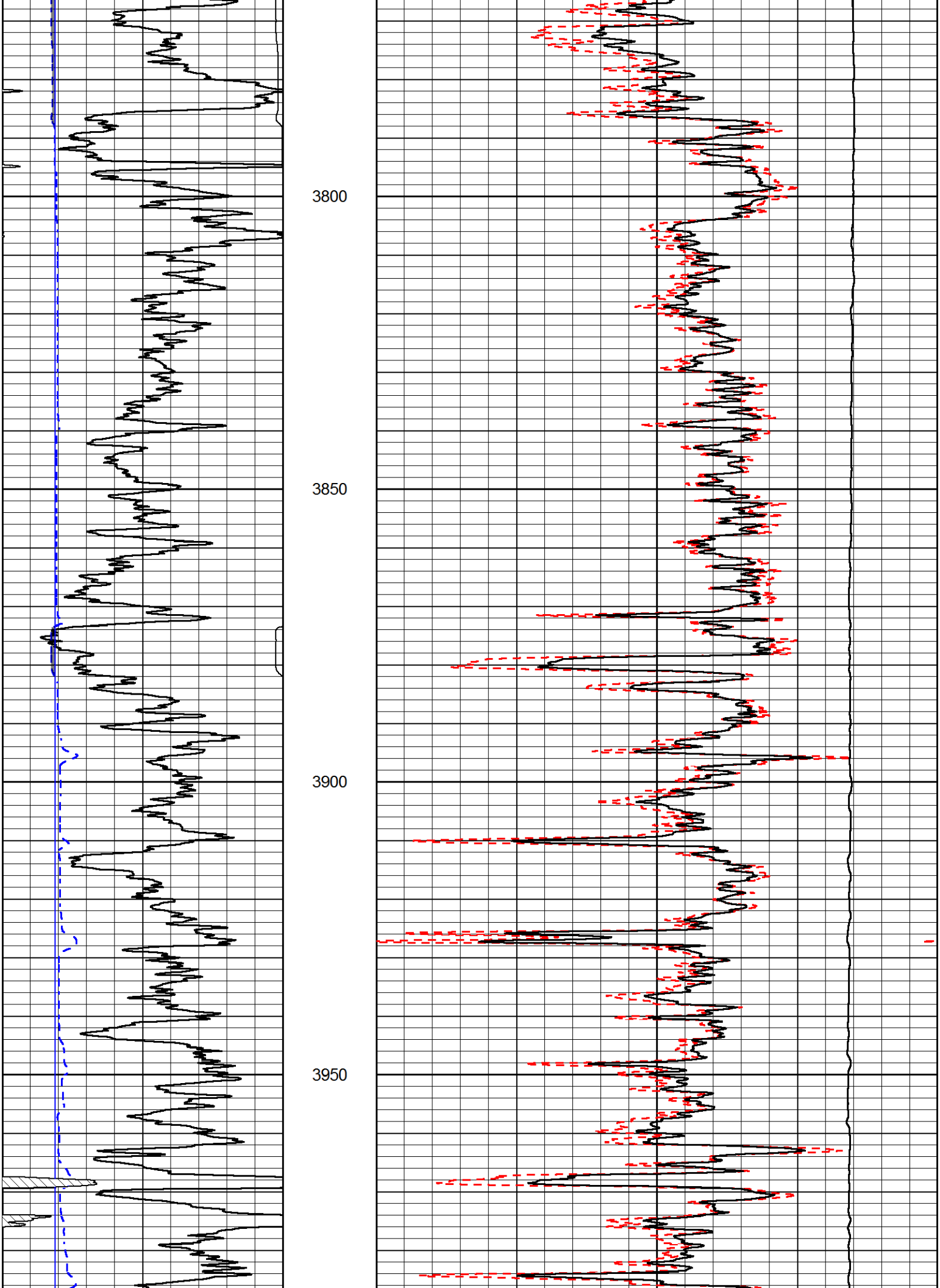
30	COMPENSATED DENSITY (pu)	-10
2	BULK DENSITY (g/cc)	3
15000	LINE TENSION (lb)	0

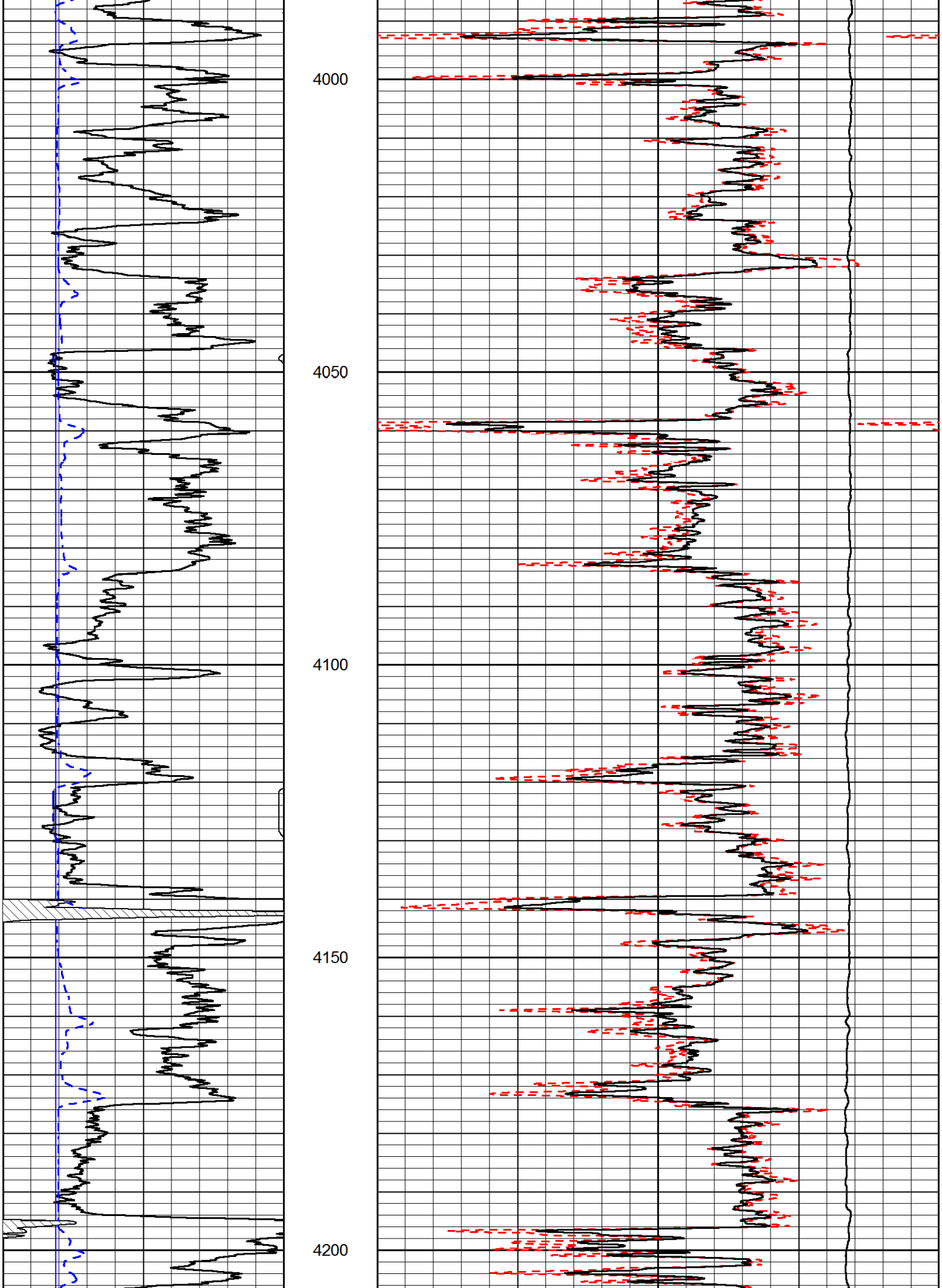


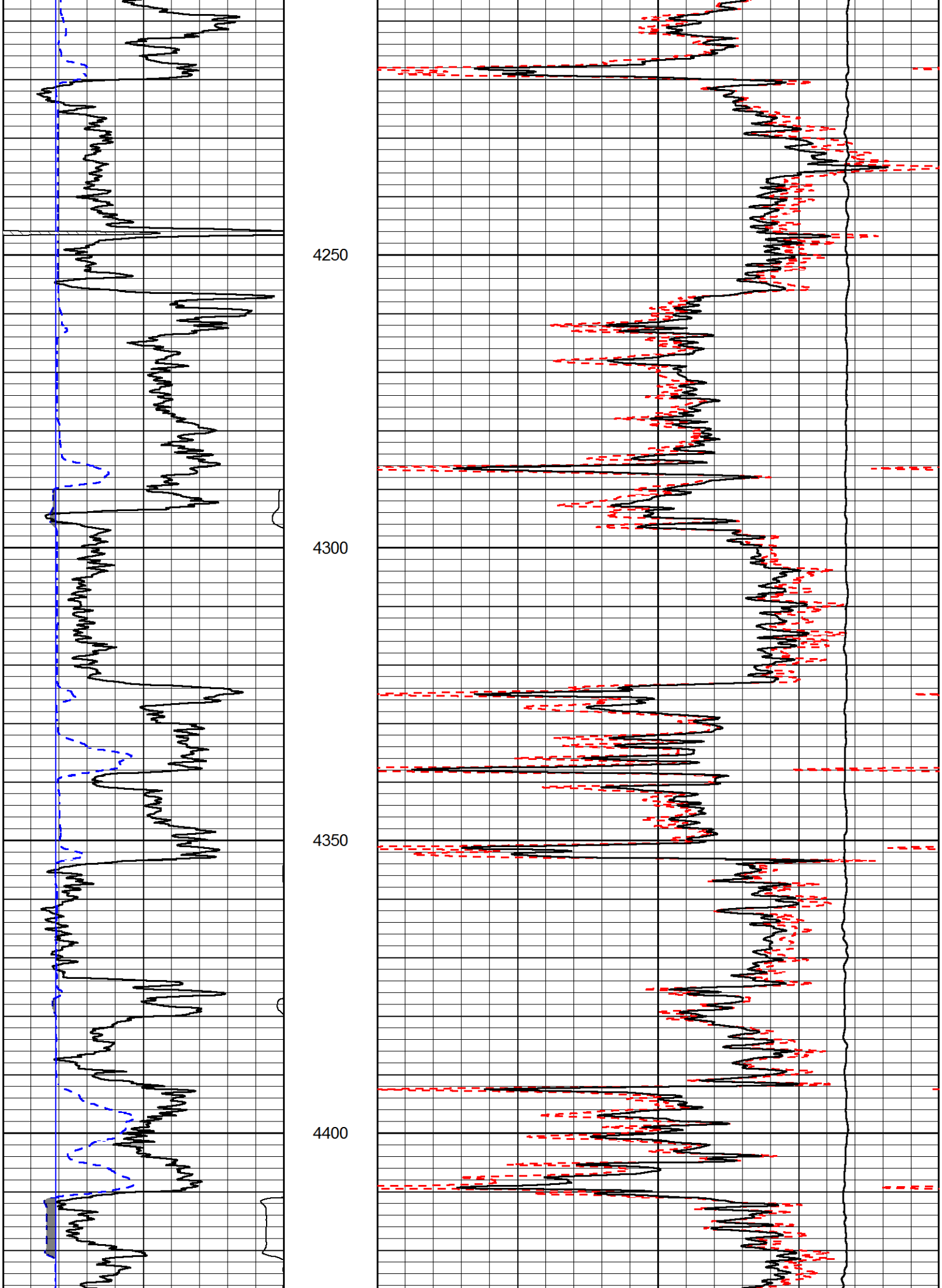

3150
3200
3250
3300

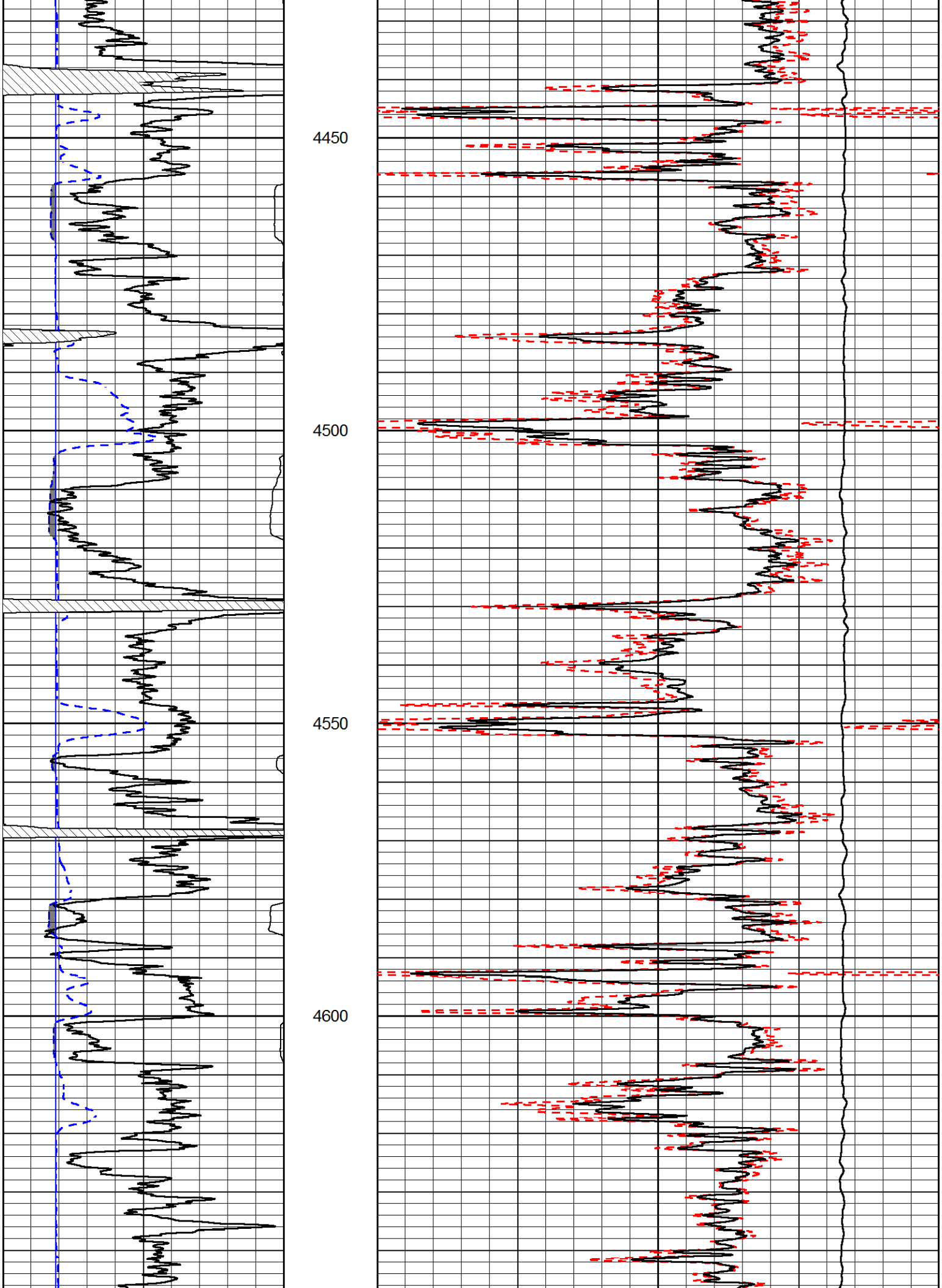

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3500

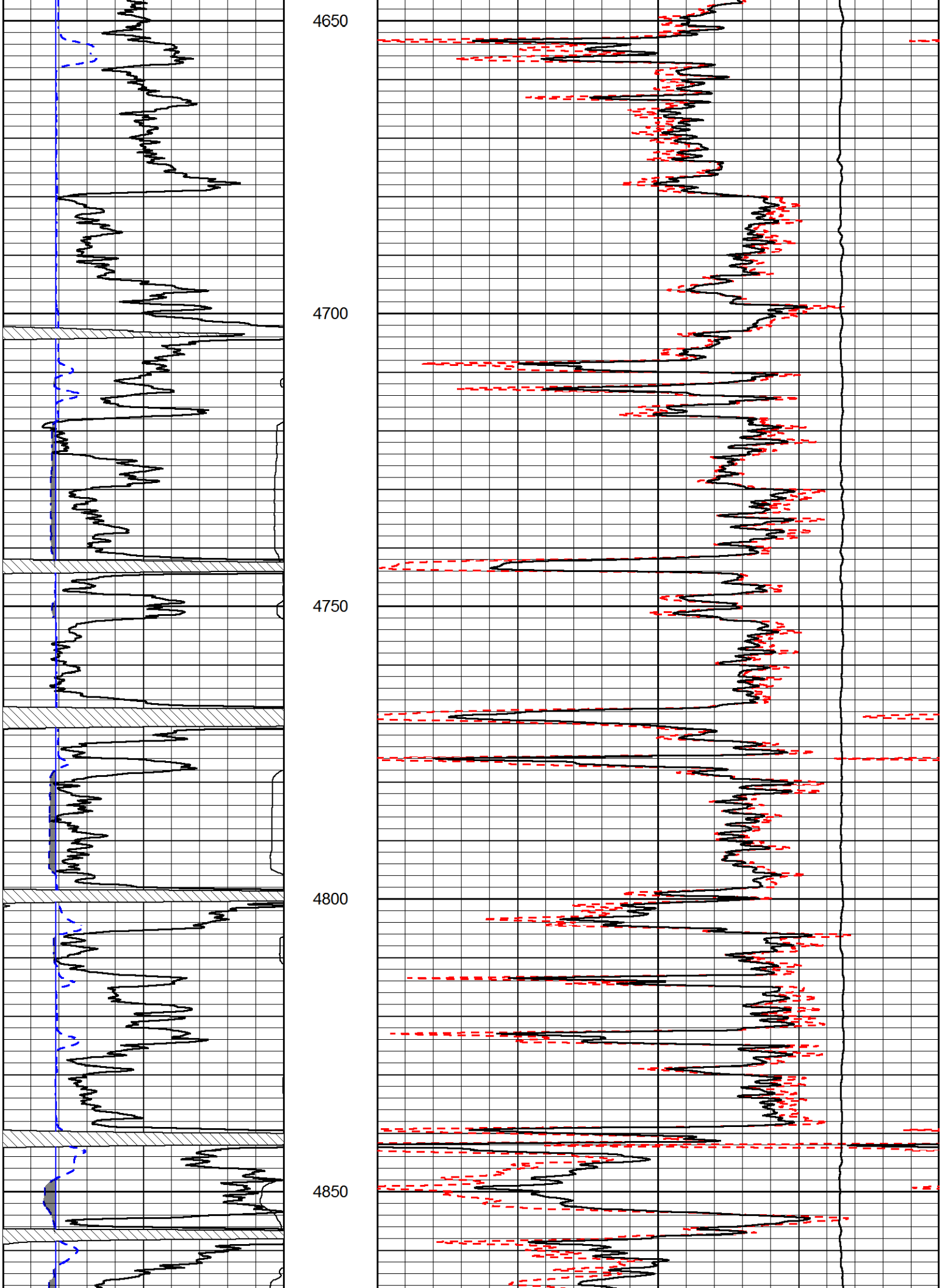

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3700
3750

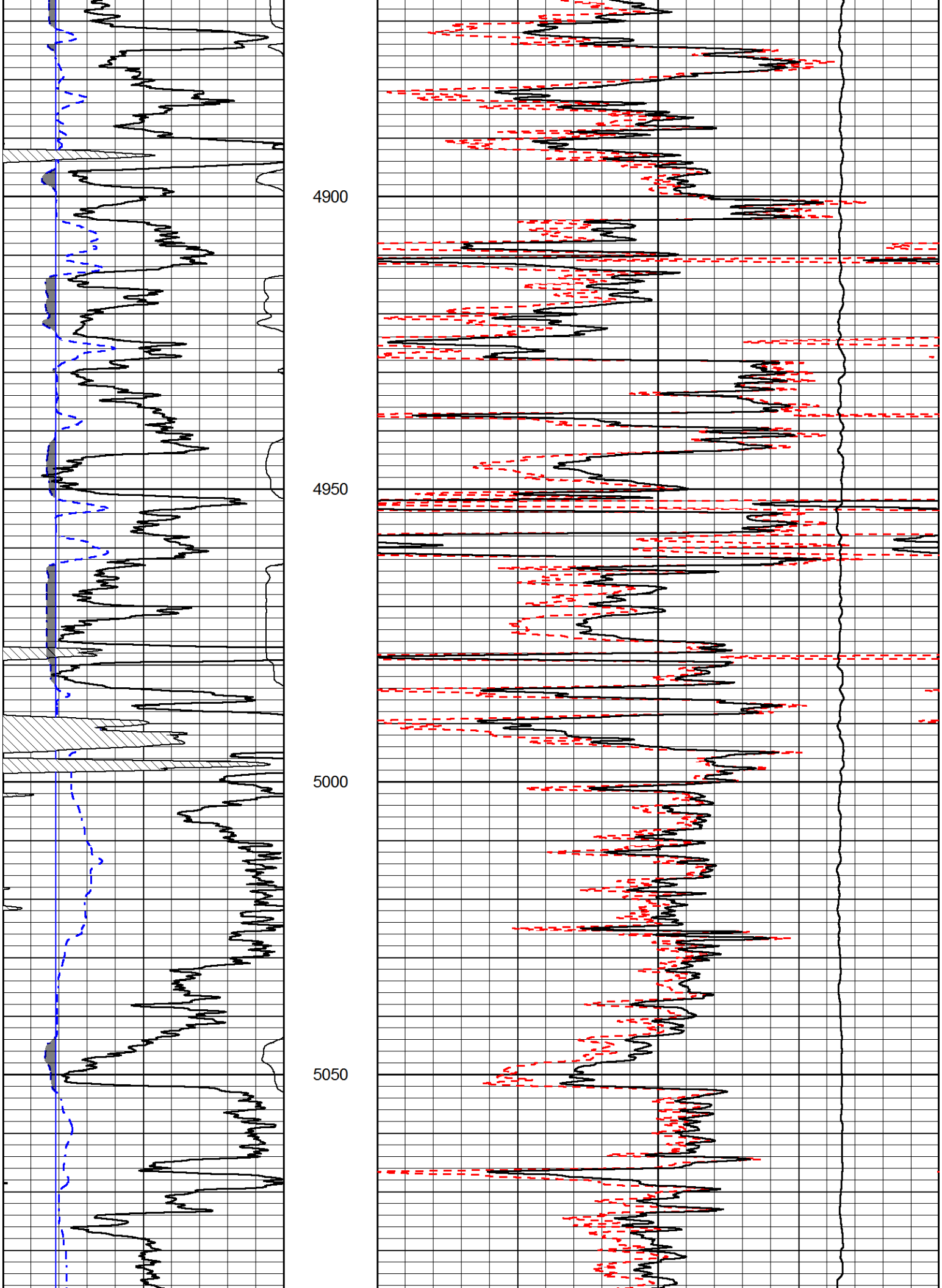

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3950

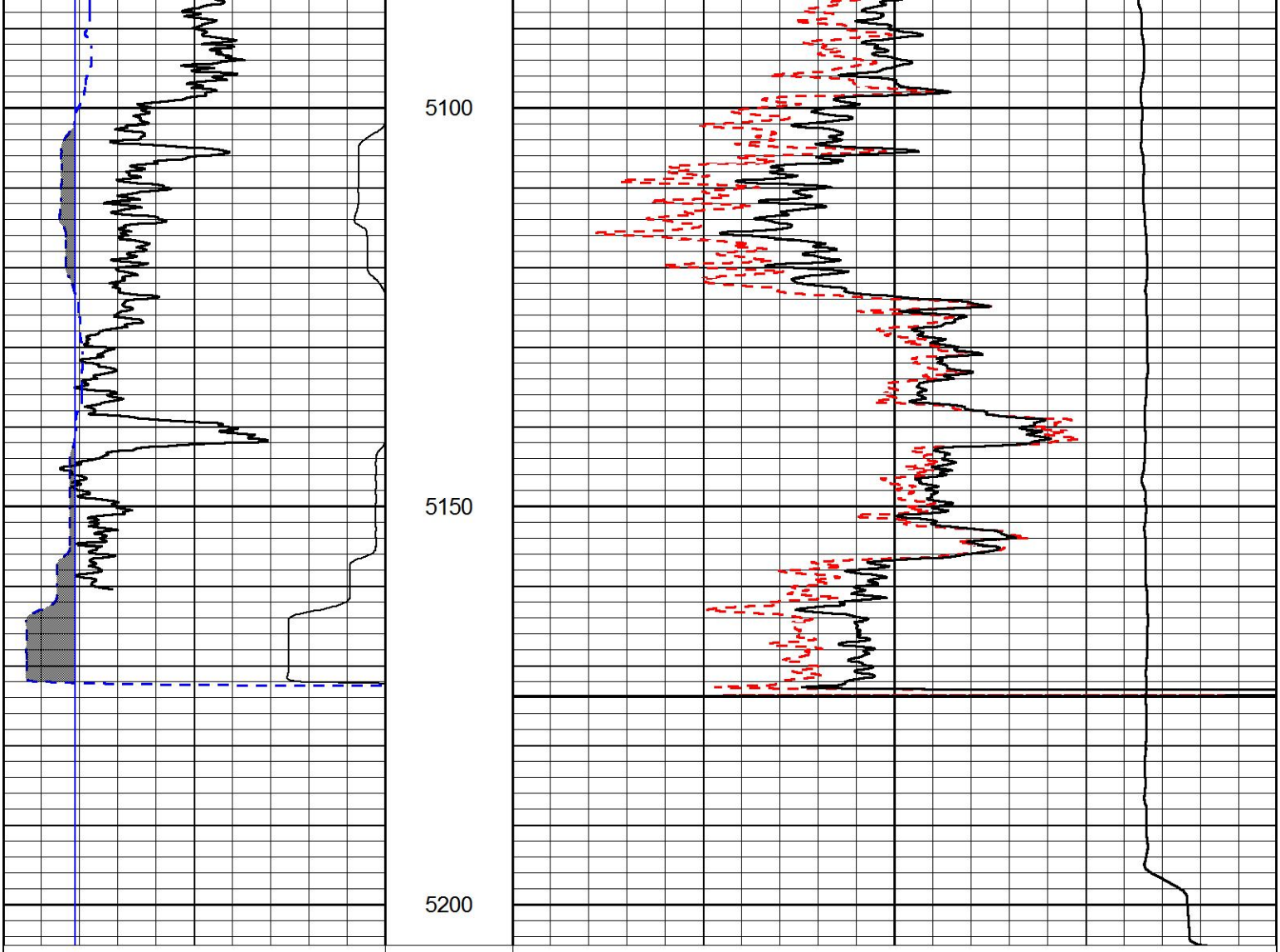

4000
4050
4100
4150
4200


4250
4300
4350
4400


4450
4500
4550
4600


4650
4700
4750
4800
4850


4900
4950
5000
5050



0	GAMMA RAY (GAPI)	150
6	CALIPER (in)	16

30	COMPENSATED DENSITY (pu)	-10
2	BULK DENSITY (g/cc)	3
15000	LINE TENSION (lb)	0

MIDWEST WIRELINE

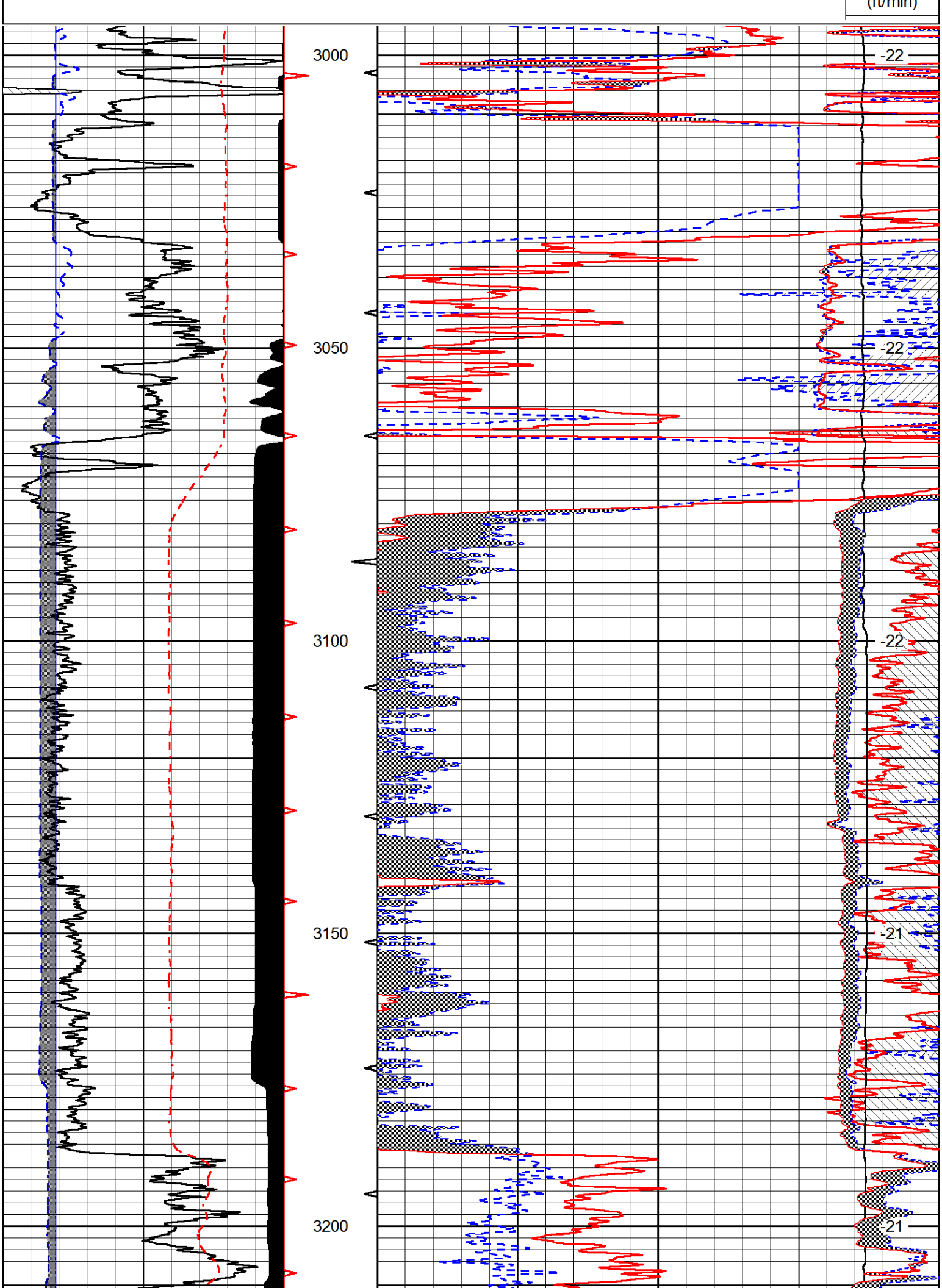
Main Pass

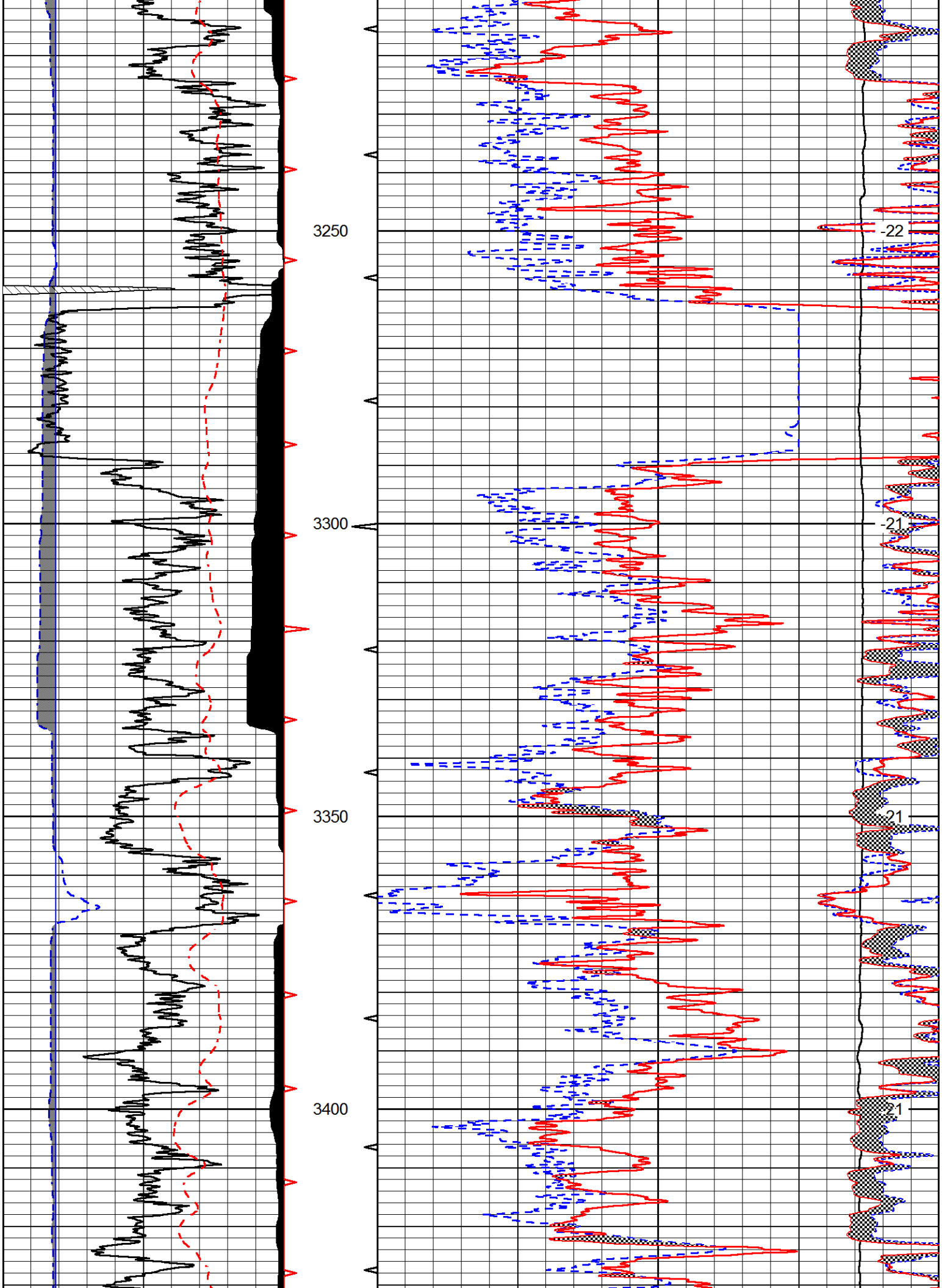
Database File	murfin_helena_1_10.db
Dataset Pathname	stackml/pass5.1
Presentation Format	cndlspml
Dataset Creation	Fri Mar 26 21:01:22 2021
Charted by	Depth in Feet scaled 1:240

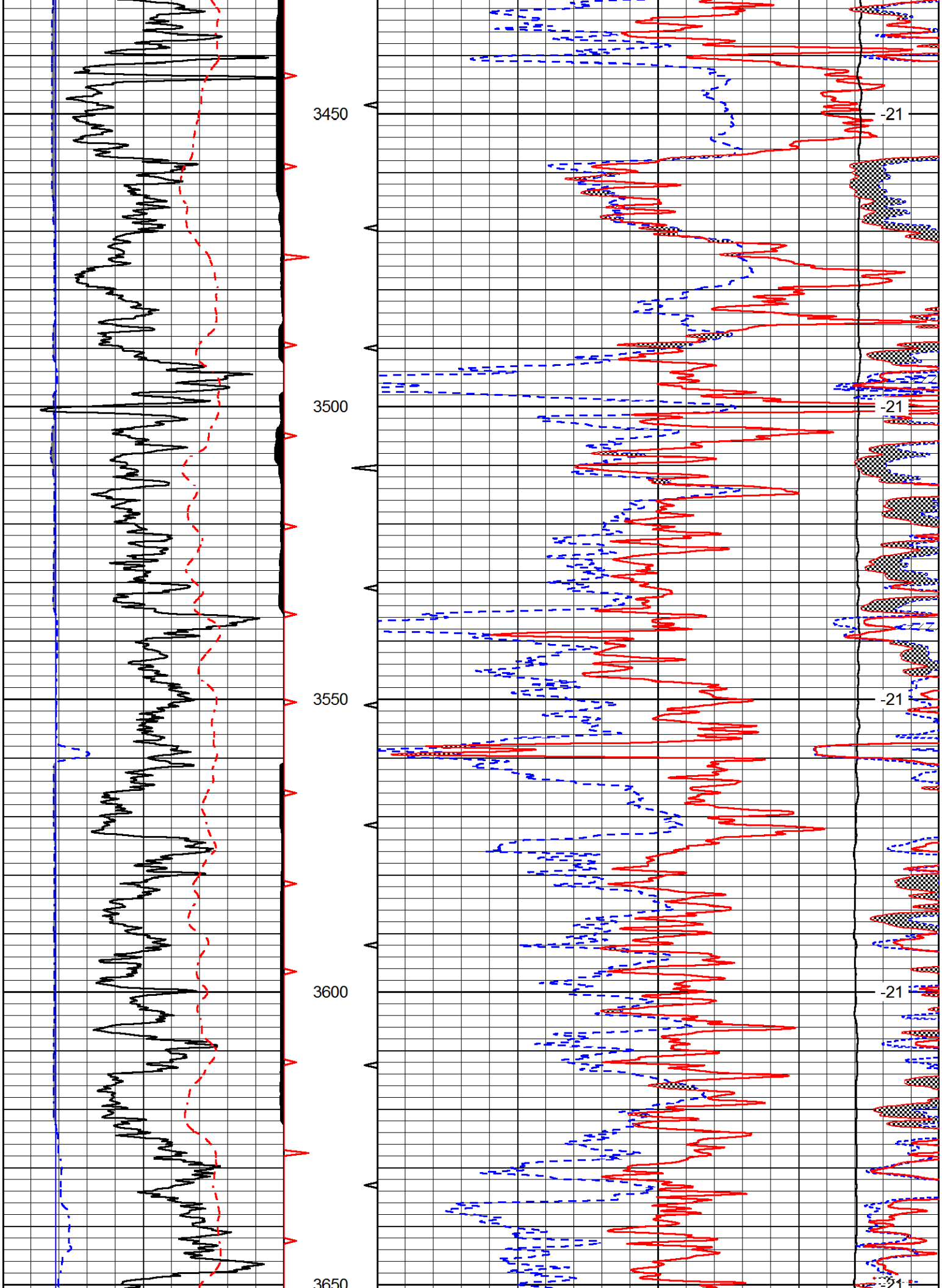
0	GAMMA RAY (GAPI)	150
6	CALIPER (in)	16
6	BIT SIZE	16
-200	SP (mV)	0

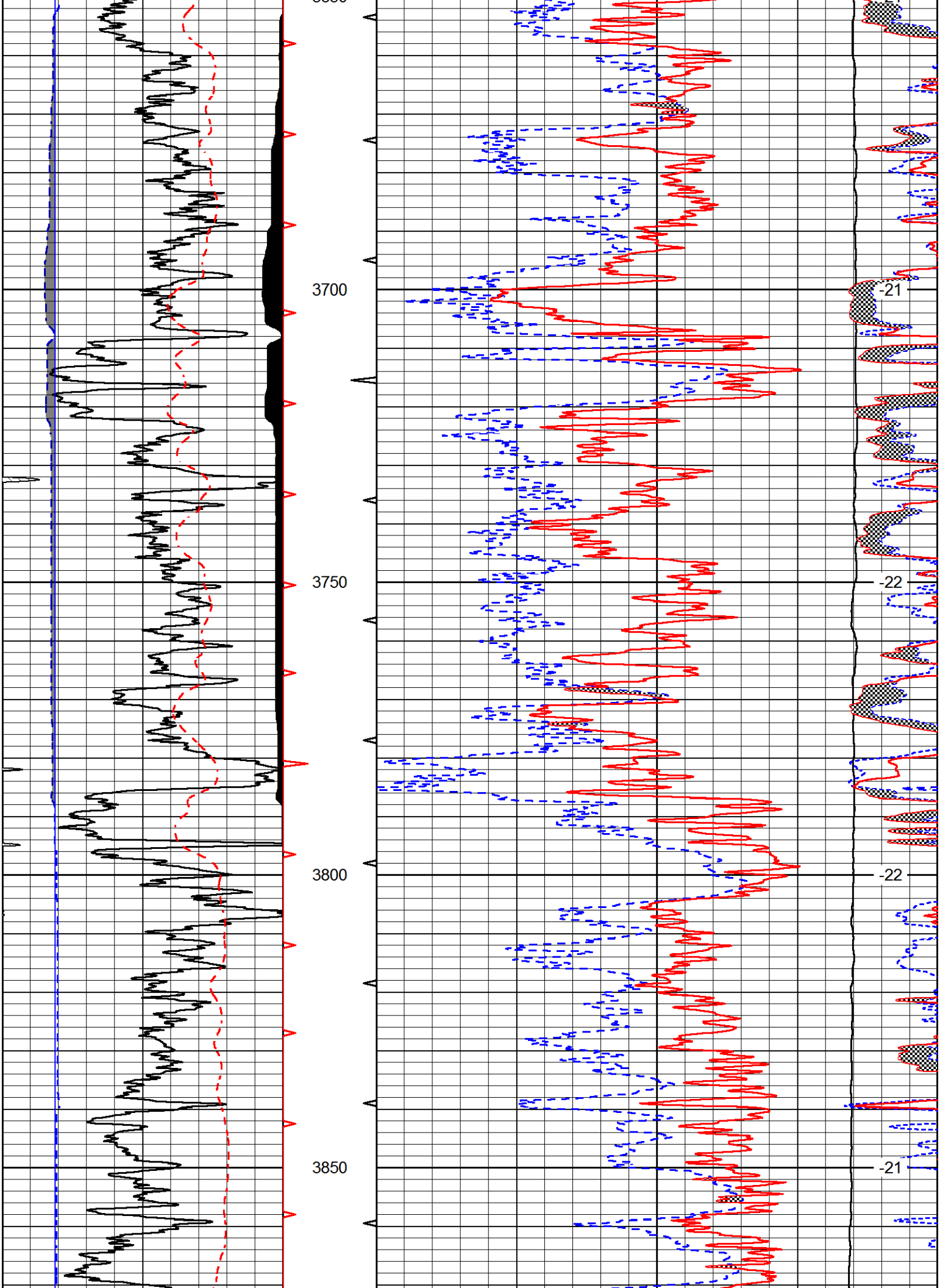
30	COMPENSATED NEUTRON (pu)	-10
30	COMPENSATED DENSITY (2.71 mA) (pu)	-10
15000	LINE TENSION (lb)	0

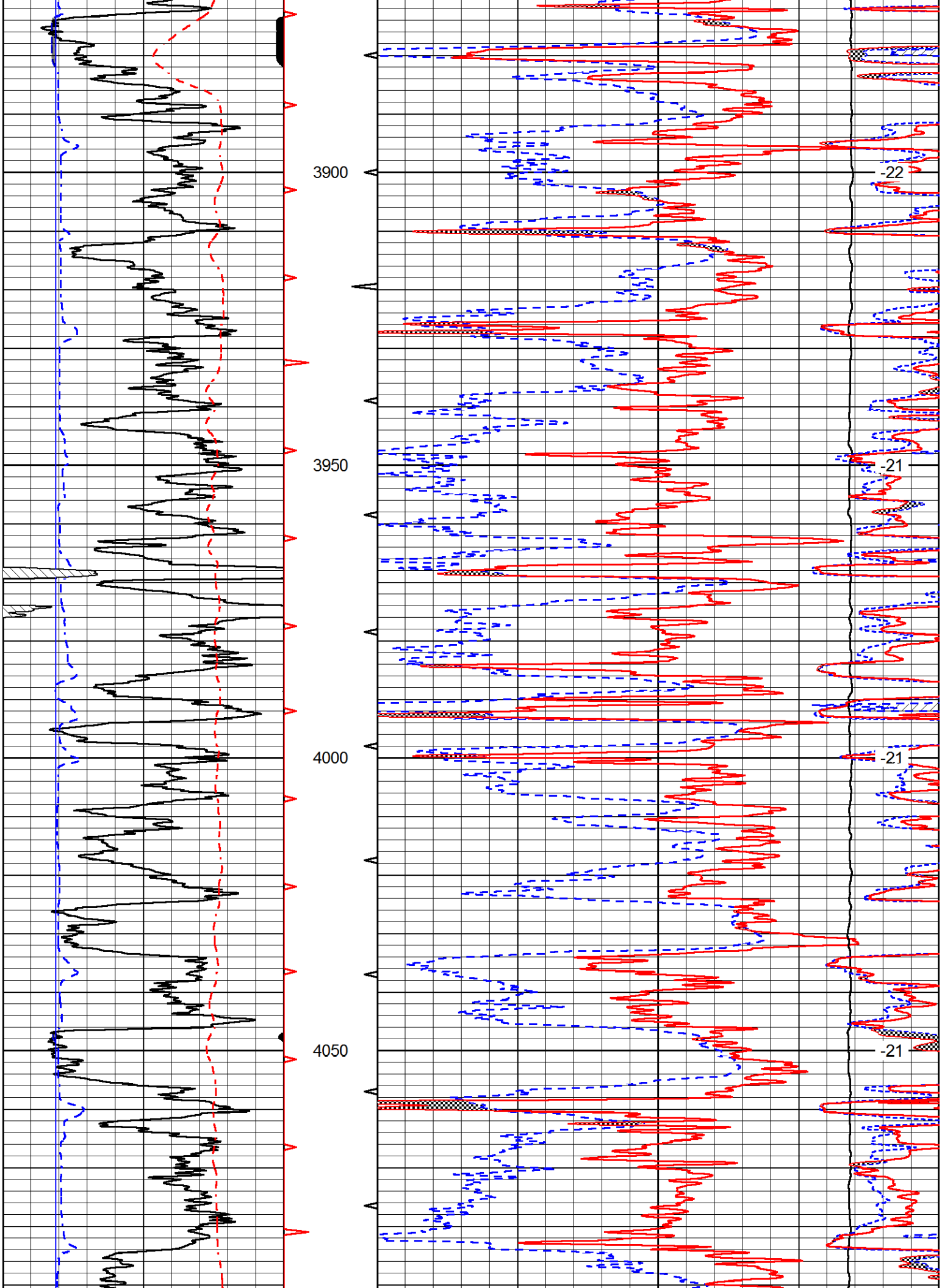
MICRO NORMAL		
0	(Ohm-m)	20
MICRO INVERSE		
0	(Ohm-m)	20
LSPD		
	(ft/min)	

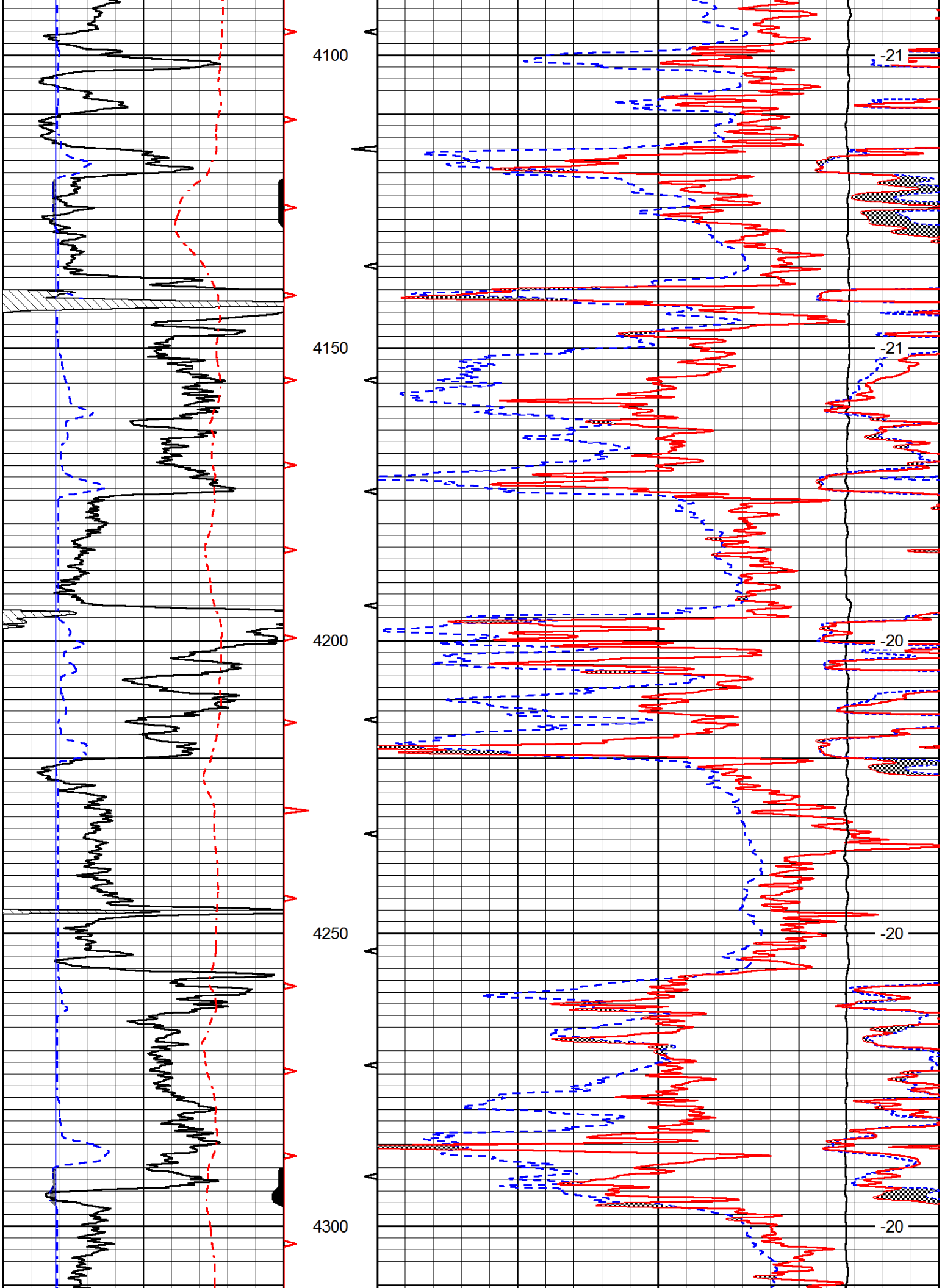

(ft/min)
3000
3050
3100
3150
3200
-22
-22
-22
-21
-21

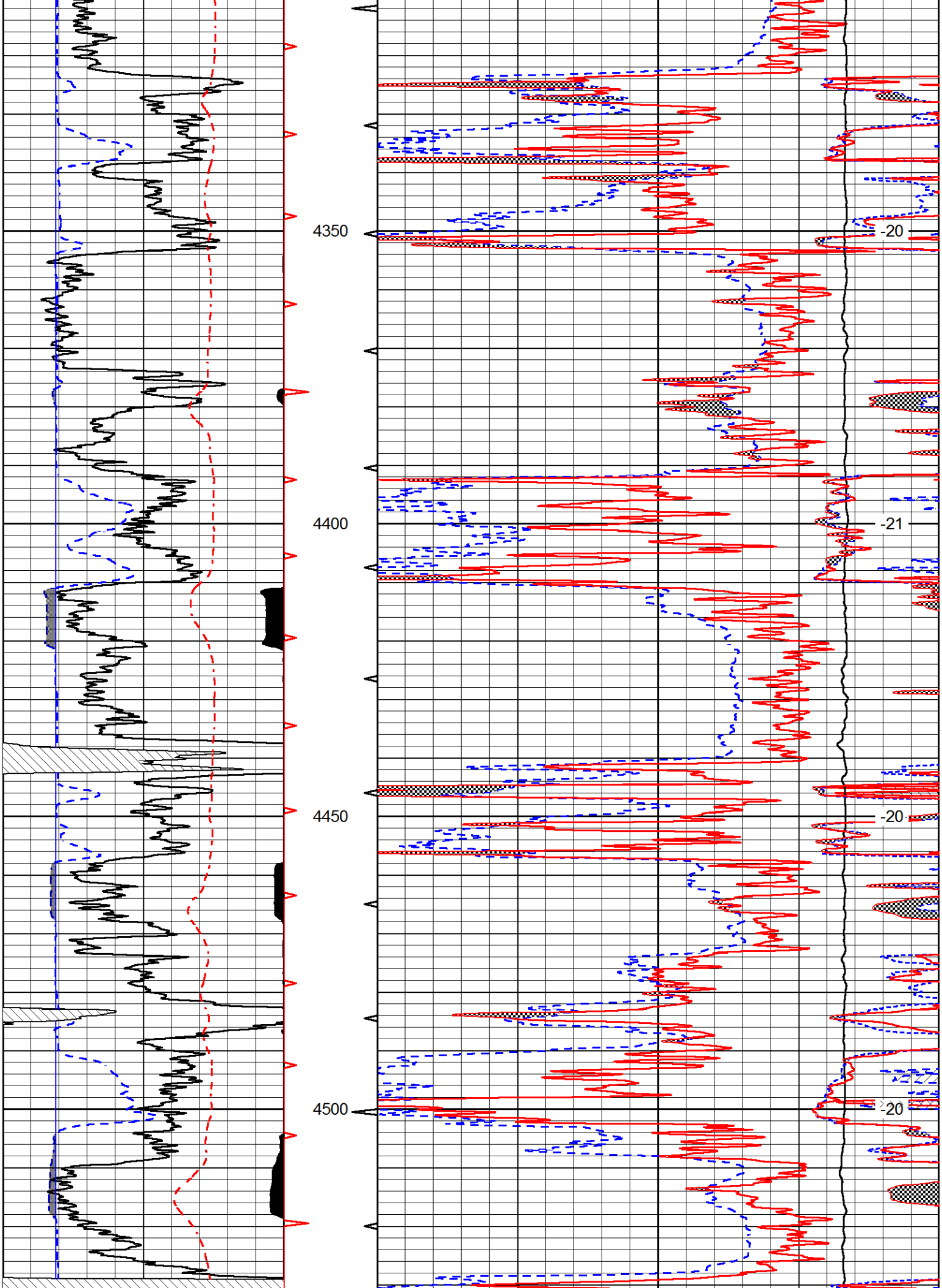

3250
3300
3350
3400
-22
-21
-21
-21

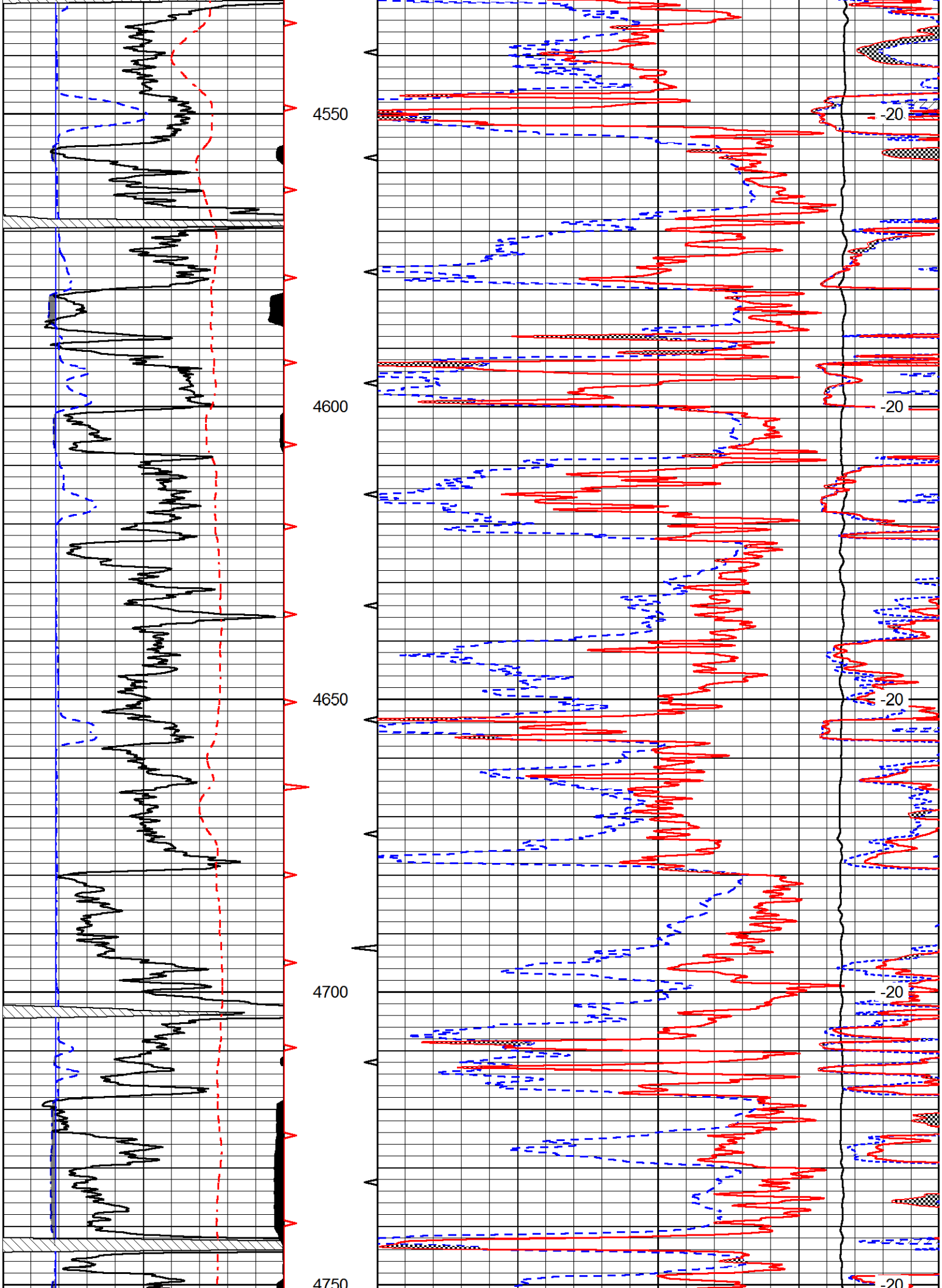

3450
3500
3550
3600
3650
-21
-21
-21
-21
-21

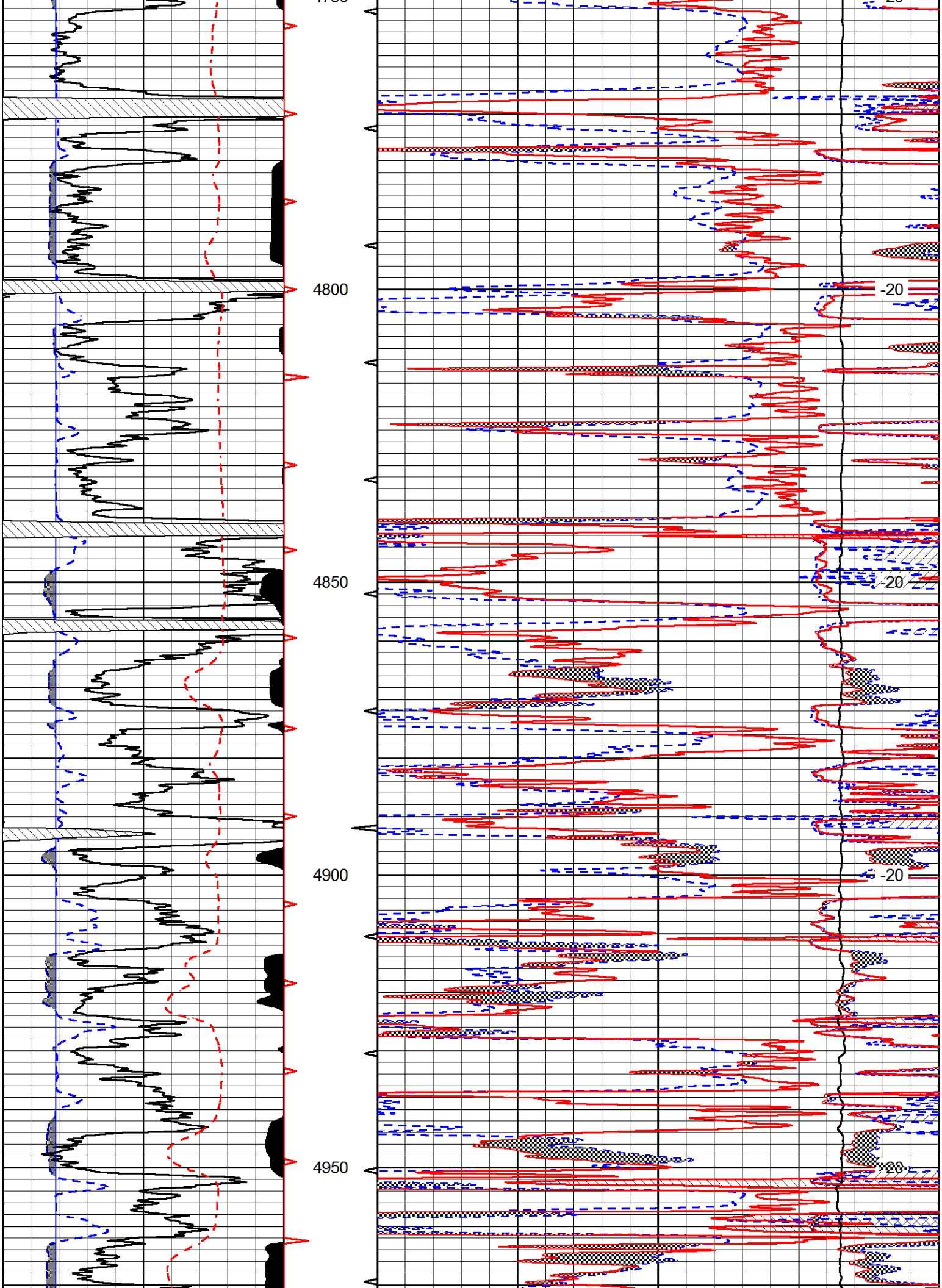

3700
3750
3800
3850
-21
-22
-22
-21

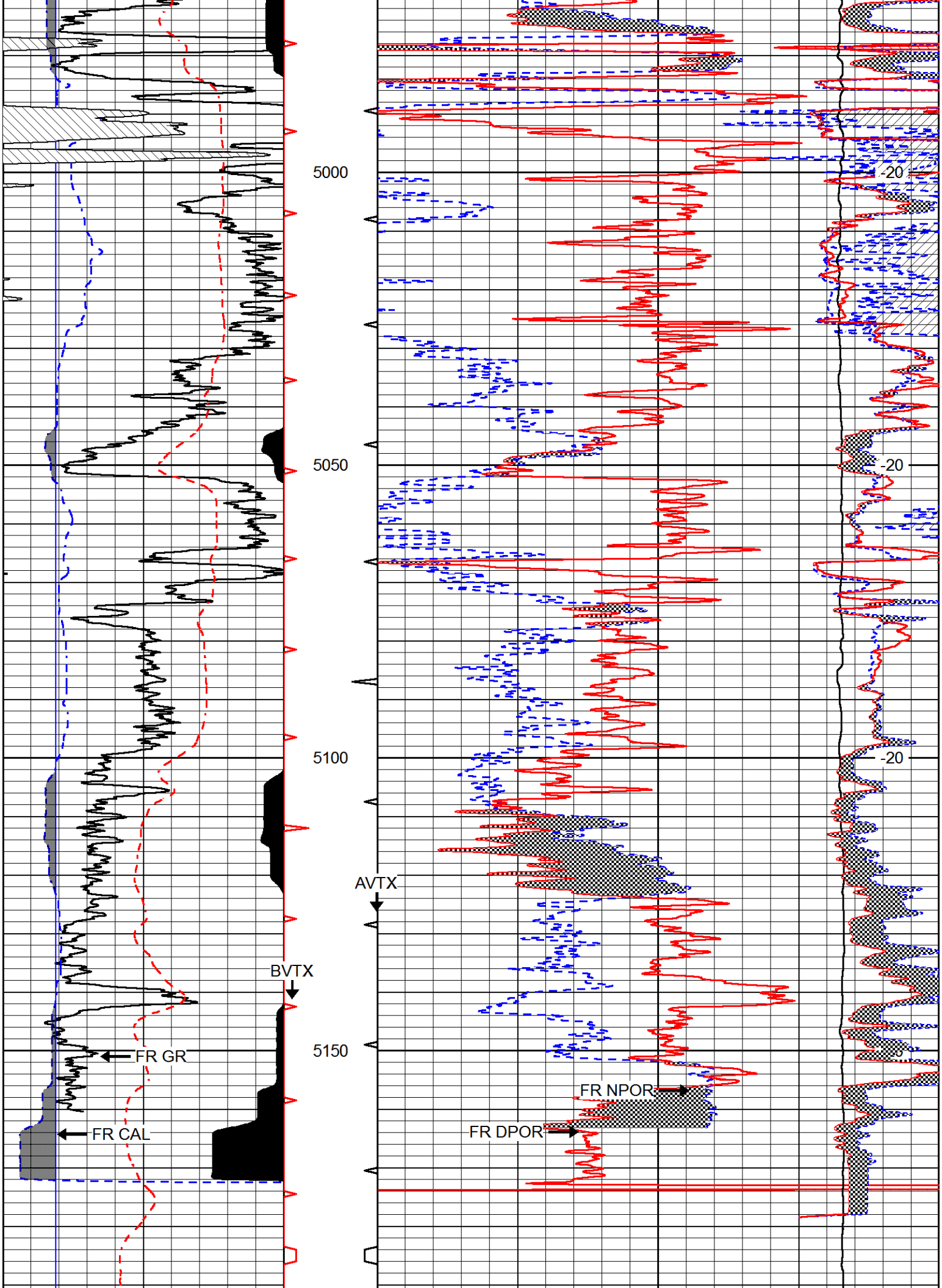

3900
3950
4000
4050
-22
-21
-21
-21

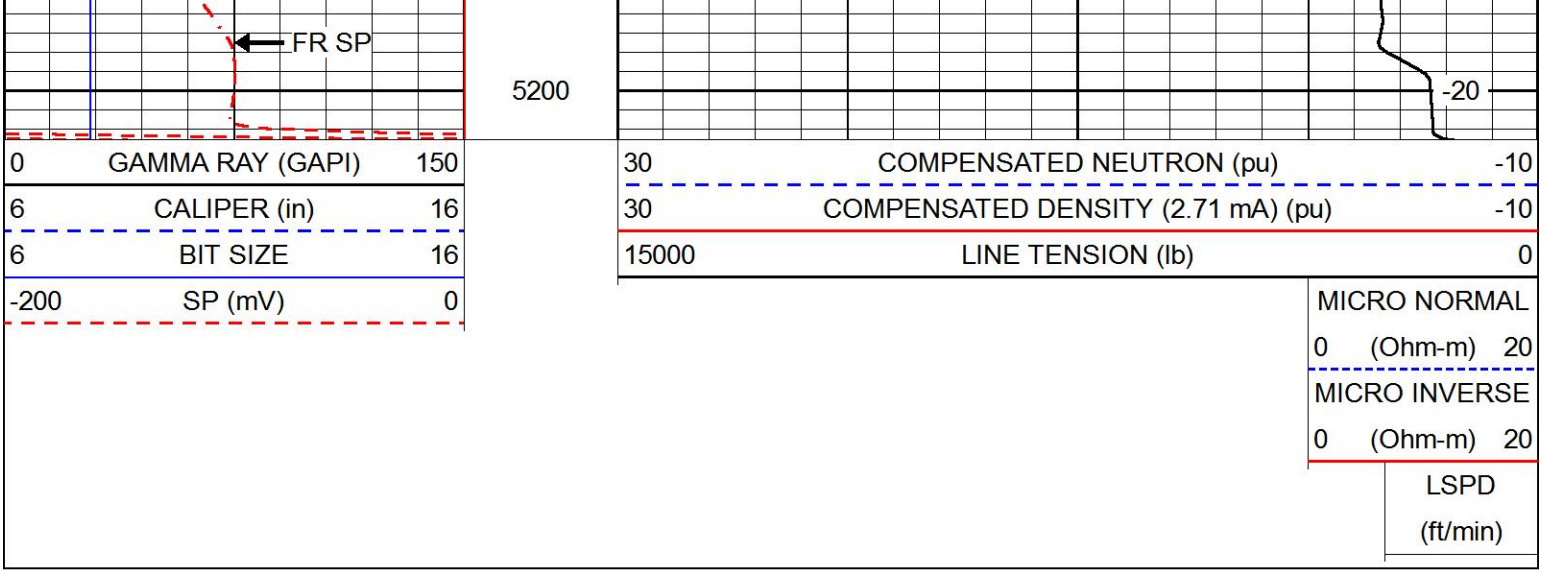

4100
4150
4200
4250
4300
-21
-21
-20
-20
-20


4350
4400
4450
4500
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-21
-20
-20


4550
4600
4650
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4900
-20
4950
-20

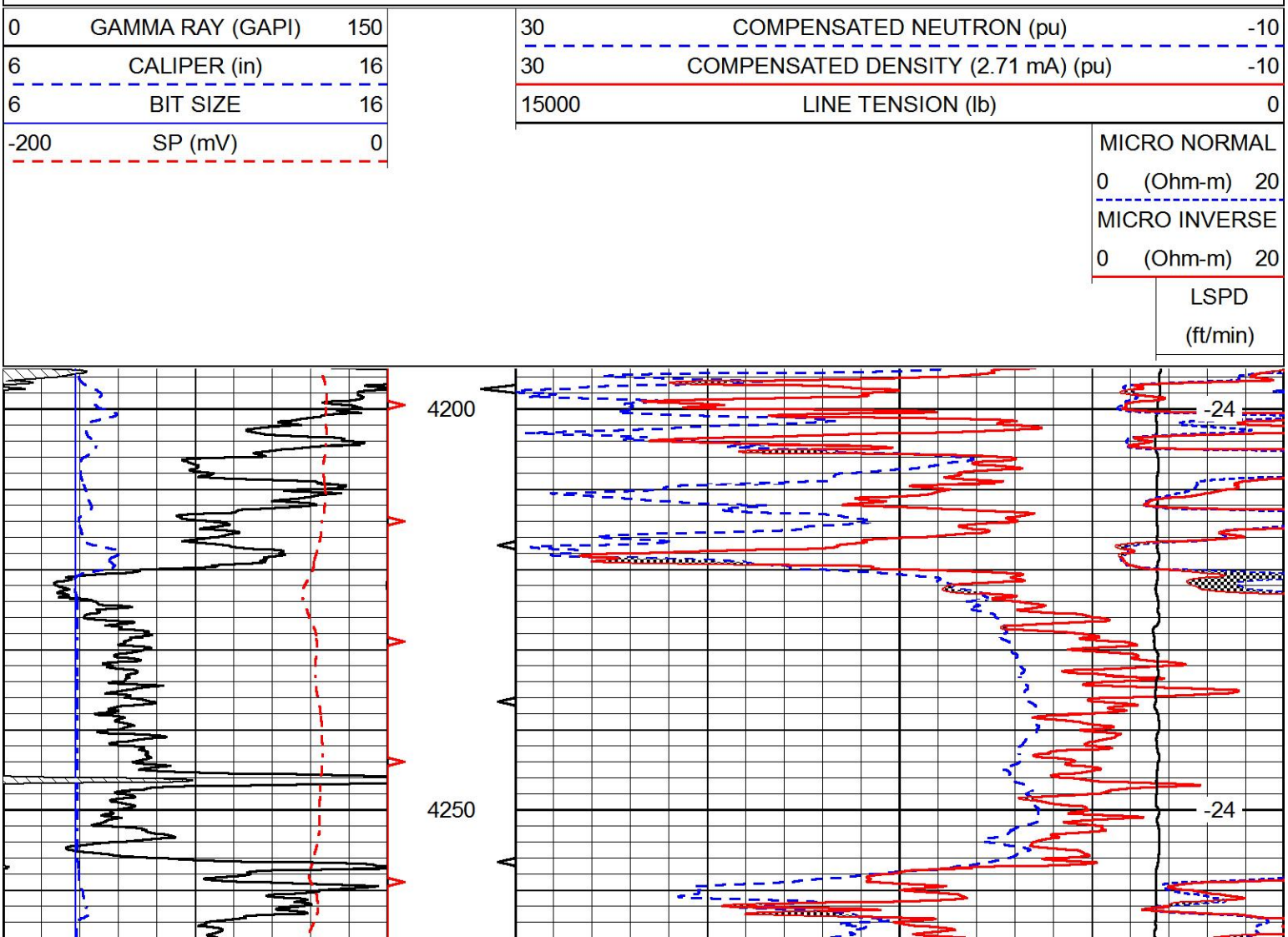

5000
5050
5100
5150
AVTX
BVTX
FR GR
FR CAL
FR NPOR
FR DPOR
-20
-20
-20
0

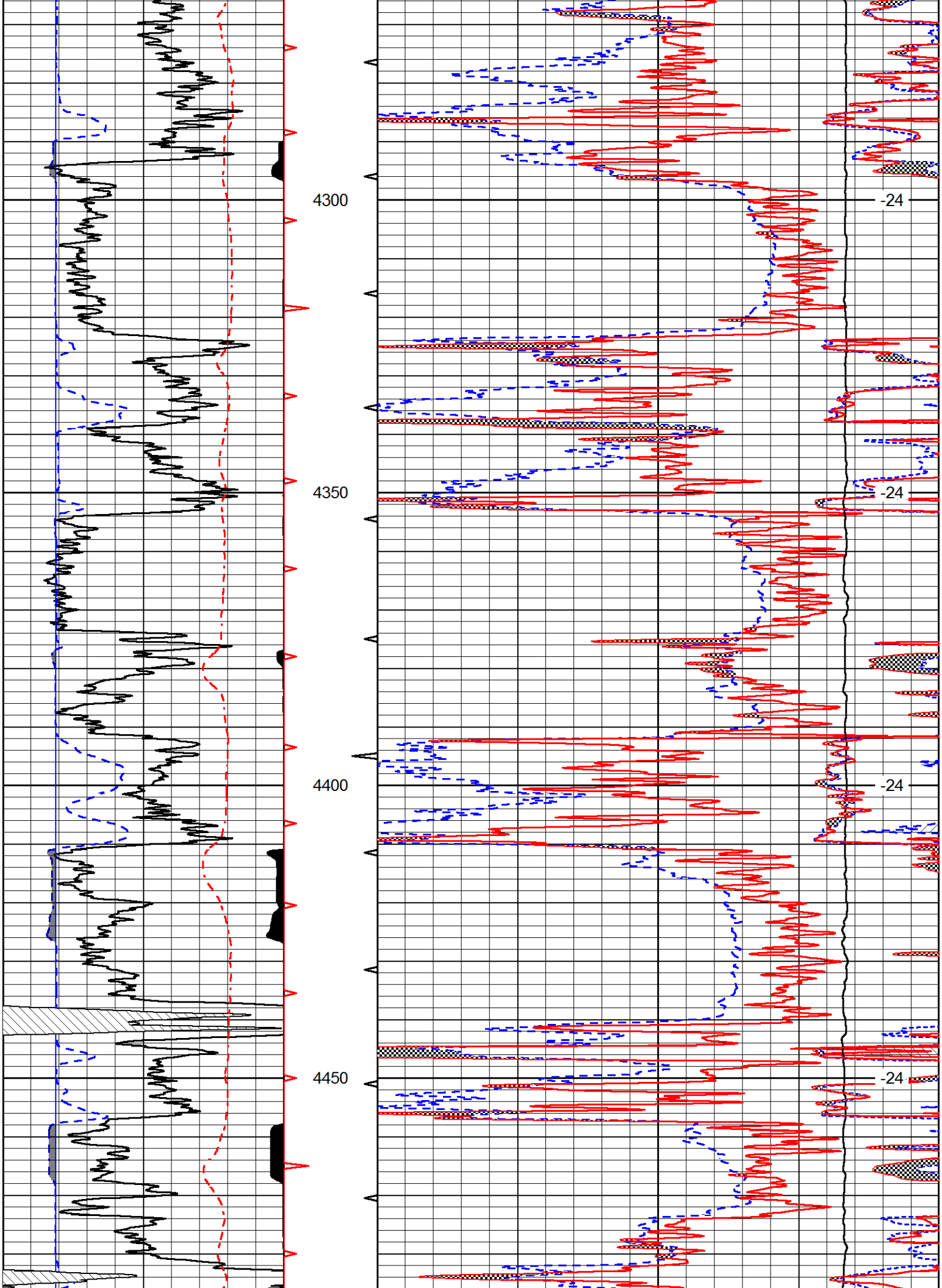


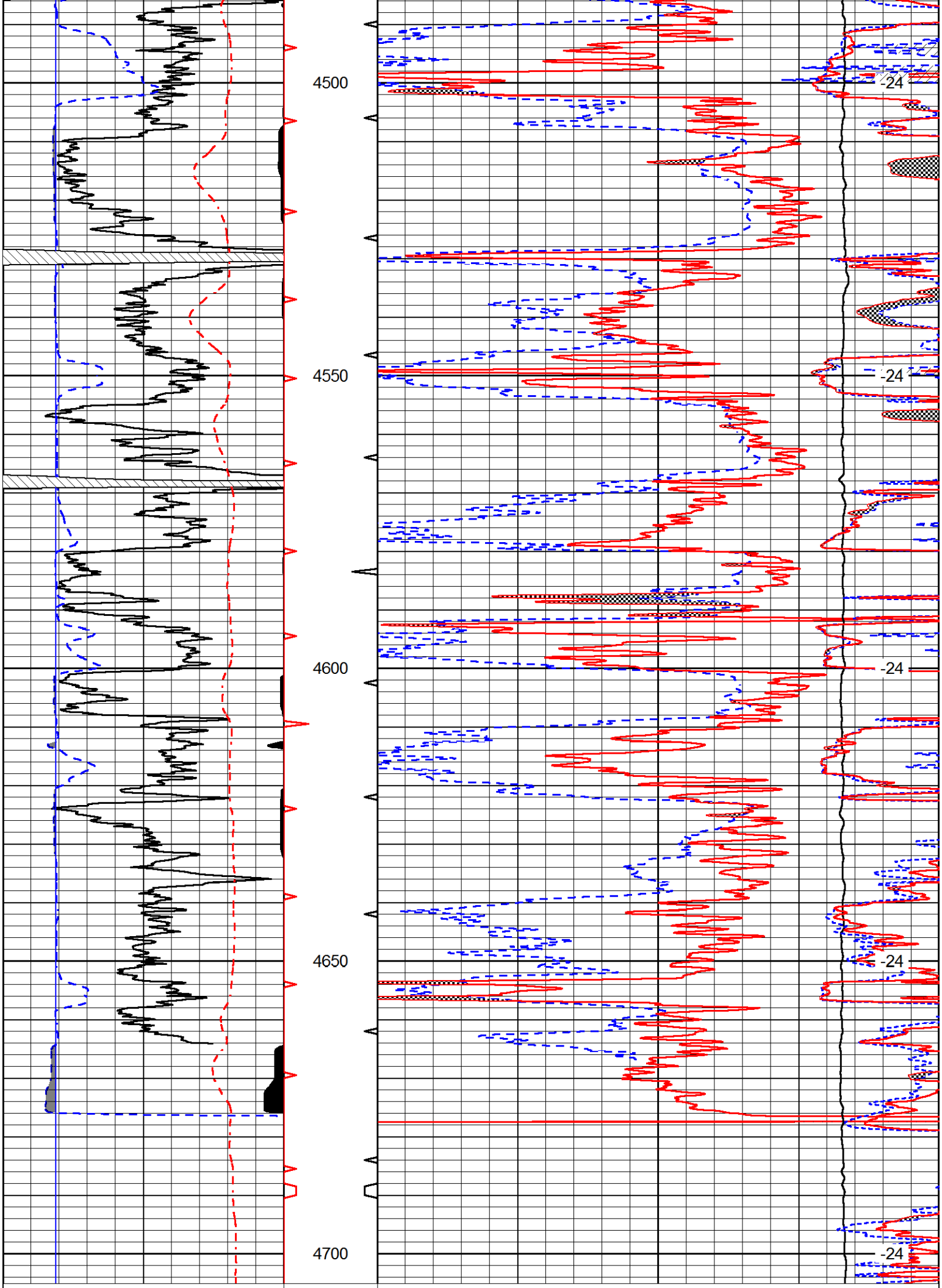
MIDWEST WIRELINE

Repeat Section

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




4300
4350
4400
4450
-24
-24
-24


4500
4550
4600
4650
4700
-24
-24
-24
-24
-24

0	GAMMA RAY (GAPI)	150
6	CALIPER (in)	16
6	BIT SIZE	16
-200	SP (mV)	0

30	COMPENSATED NEUTRON (pu)	-10
30	COMPENSATED DENSITY (2.71 mA) (pu)	-10
15000	LINE TENSION (lb)	0

MICRO NORMAL		
0	(Ohm-m)	20
MICRO INVERSE		
0	(Ohm-m)	20
LSPD		
(ft/min)		

Calibration Report

Database File	murfin_helena_1_10.db
Dataset Pathname	stackml/pass4.1
Dataset Creation	Fri Mar 26 21:00:01 2021

Dual Induction Calibration Report

Serial-Model:	952-828-PSI HIGH TEMP
Calibration Performed:	Fri Mar 26 18:10:57 2021

	Readings		References			Results	
Loop:	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.000	mmho/m	0.500	-32.000
Medium	0.000	1348.000	142.000	255.000	mmho/m	0.335	-36.000

Microlog Calibration Report

Serial-Model:	UDM-01-PSI UDM ML
Performed:	Fri Mar 26 17:51:08 2021

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	55000.0000	0.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	48000.0000	0.0000
Caliper	1.3802	1.0814	6.0000	22.0000	in	-53.5473	79.9032

Compensated Density Calibration Report

Serial-Model:	915-956-M&W
Source / Verifier:	/
Master Calibration Performed:	Fri Mar 26 17:51:14 2021

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	3668.53	4669.61	cps
Aluminum	2.675	g/cc	710.88	3056.05	cps

Spine Angle = 75.51

Density/Spine Ratio = 0.543

	Size		Reading
Small Ring	4.00	in	1.17

Small Ring	4.00	in	1.17
Large Ring	14.00	in	1.05

Compensated Neutron Calibration Report

Serial Number:	tk10-MW
Tool Model:	M&W
Calibration Performed:	Wed Nov 16 11:21:36 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:	Fri Mar 26 17:51:23 2021	
Calibrator Value:	1000.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	6.2	cps
Sensitivity:	0.5200	GAPI/cps