



PIONEER
Pioneer Energy Services

DUAL COMP POROSITY LOG

Company MURFIN DRILLING, INC.
Well RED POLL #10-21
Field WILDCAT
County LINCOLN
State COLORADO

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Well RED POLL #10-21
Field WILDCAT
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Location: API #: 05-073-06720

Other Services

SEC 21 TWP 10S RGE 56W
2200' FSL & 1500' FEL

DIL/MEL
BHCS

Permanent Datum GROUND LEVEL Elevation 5492'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 5505'
D.F. N/A
G.L. 5492'

Date 9/1/2017

Run Number ONE

Type Log CNL/CDL

Depth Driller 8500'

Depth Logger 8499'

Bottom Logged Interval 8470'

Top Logged Interval 4400'

Type Fluid In Hole CHEMICAL

Salinity, PPM CL 500

Density 9.3

Level FULL

Max. Rec. Temp. F N/A

Operating Rig Time 7 HOURS

Equipment -- Location 91 HAYS

Recorded By D. SCHMIDT

Witnessed By WES HANSEN

Borehole Record

Casing Record

Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	0'	476'	8.625"	23#	0'	476'
8.625"	7.875"	476'	TD				

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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.

LIMON, COLORADO,
SOUTH ON HWY 71 TO 2Z RD, 1 EAST, 1/2 SOUTH,
EAST INTO

NO REPEAT DUE TO HOLE CONDITIONS

Log Measured From: KELLY BUSHING 13 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew


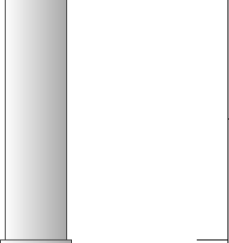
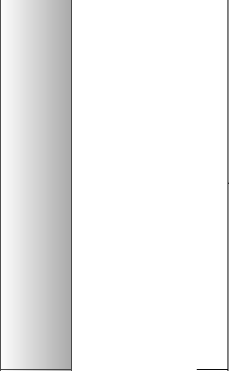
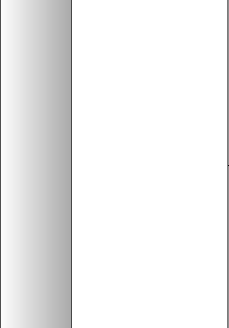
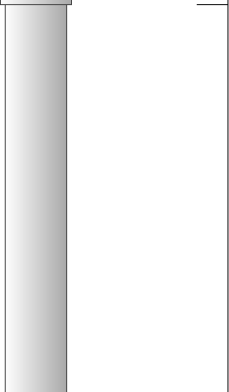
Engineer: D. SCHMIDT
Operator:
Operator:
Operator:

This Log Record Was Witnessed By


Primary Witness: WES HANSEN
Secondary Witness:
Secondary Witness:
Secondary Witness:

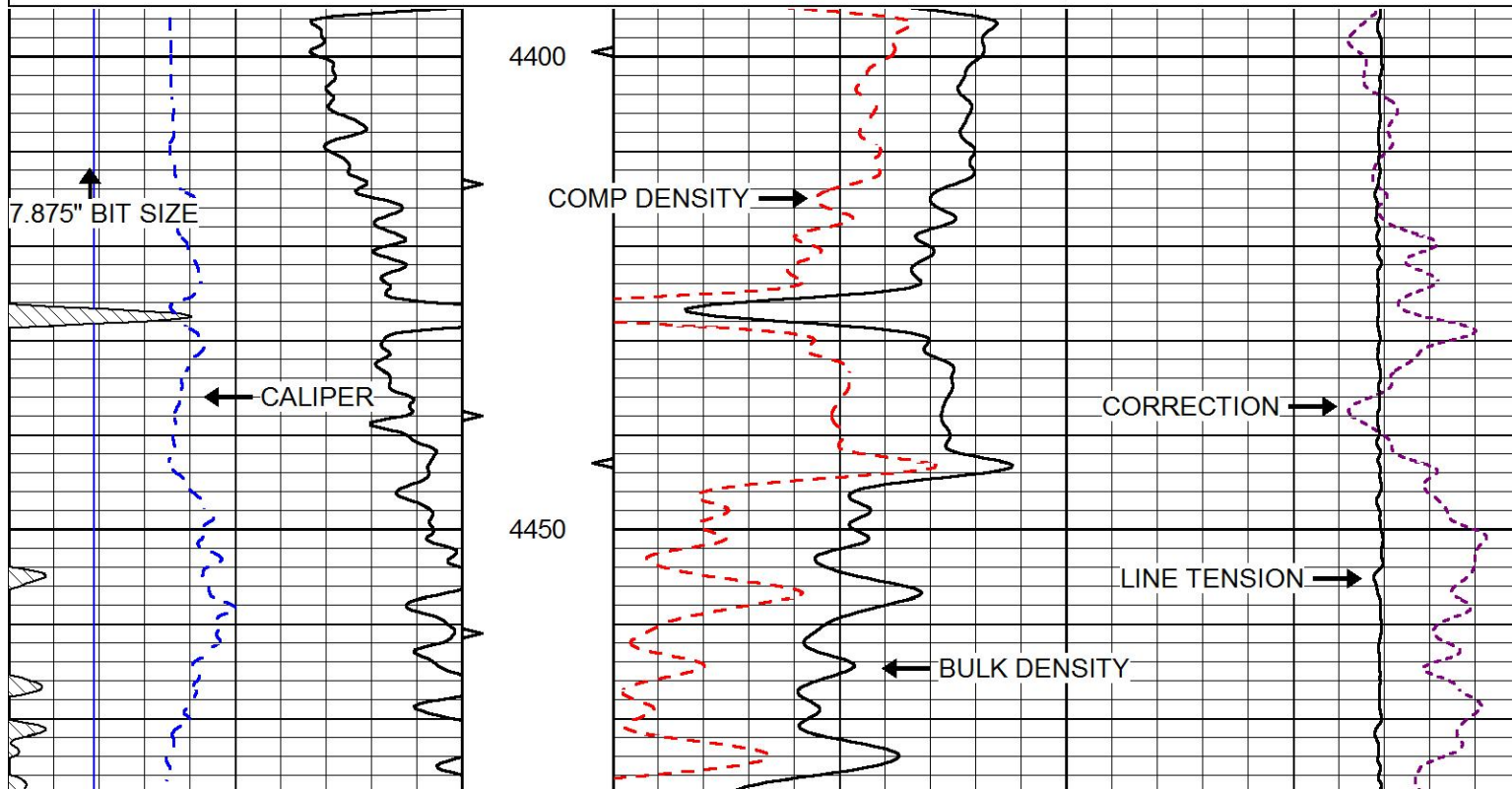
Top - Bottom

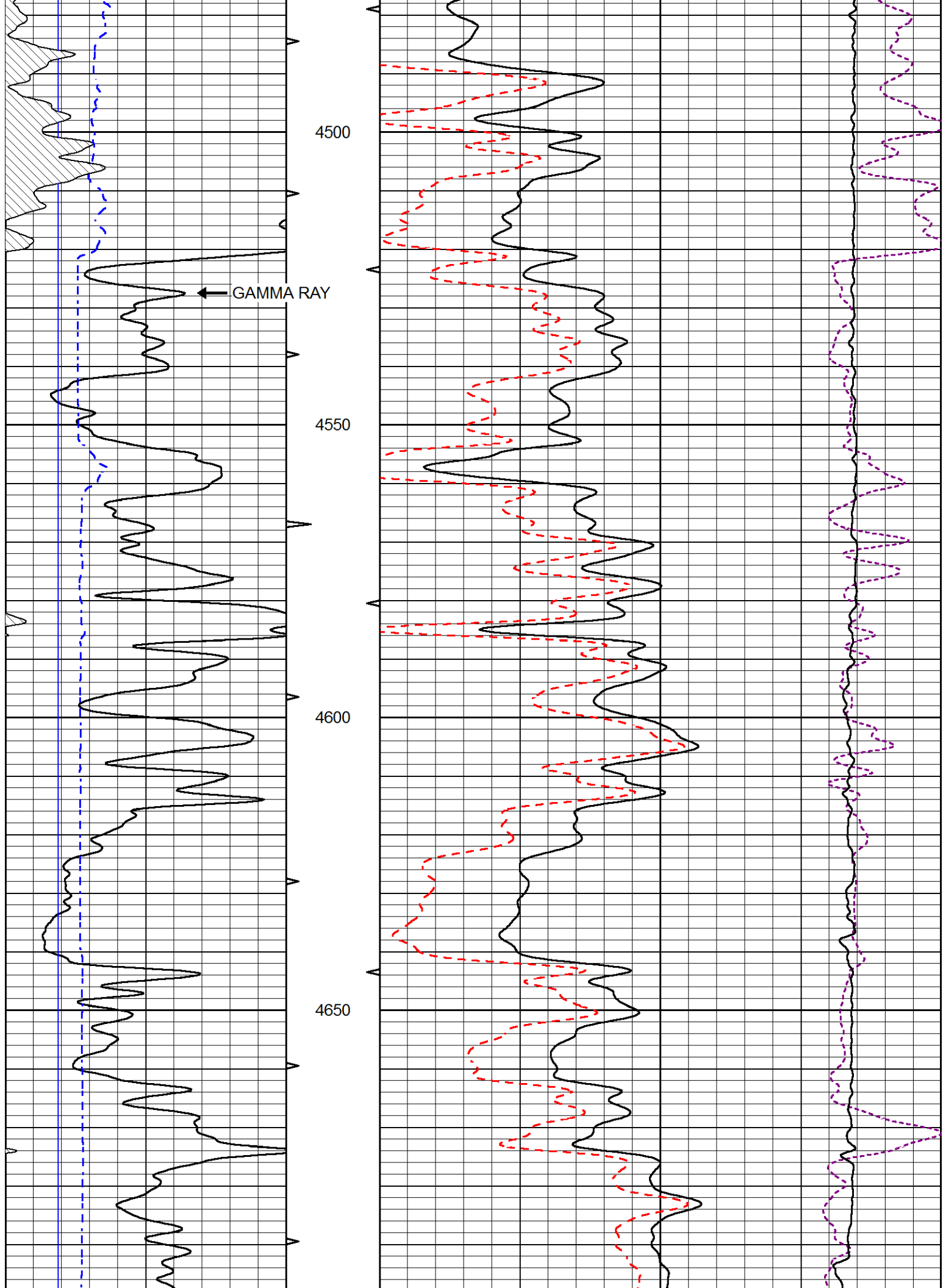
M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	0	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	80	0	5.5	0	8499	100	7.875

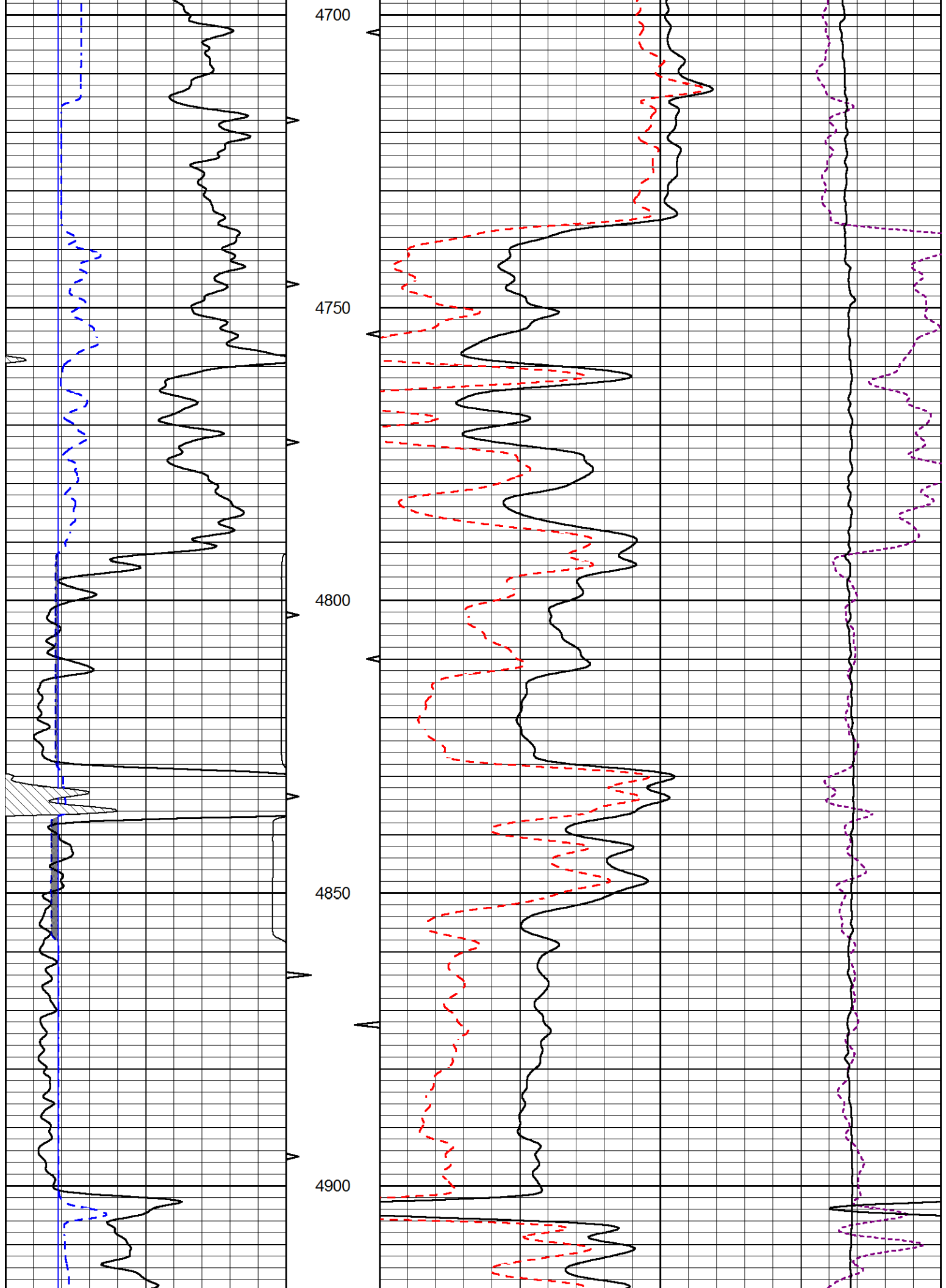
Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (207-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (90-1031)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
RLL3F RLL3	15.80 15.80					

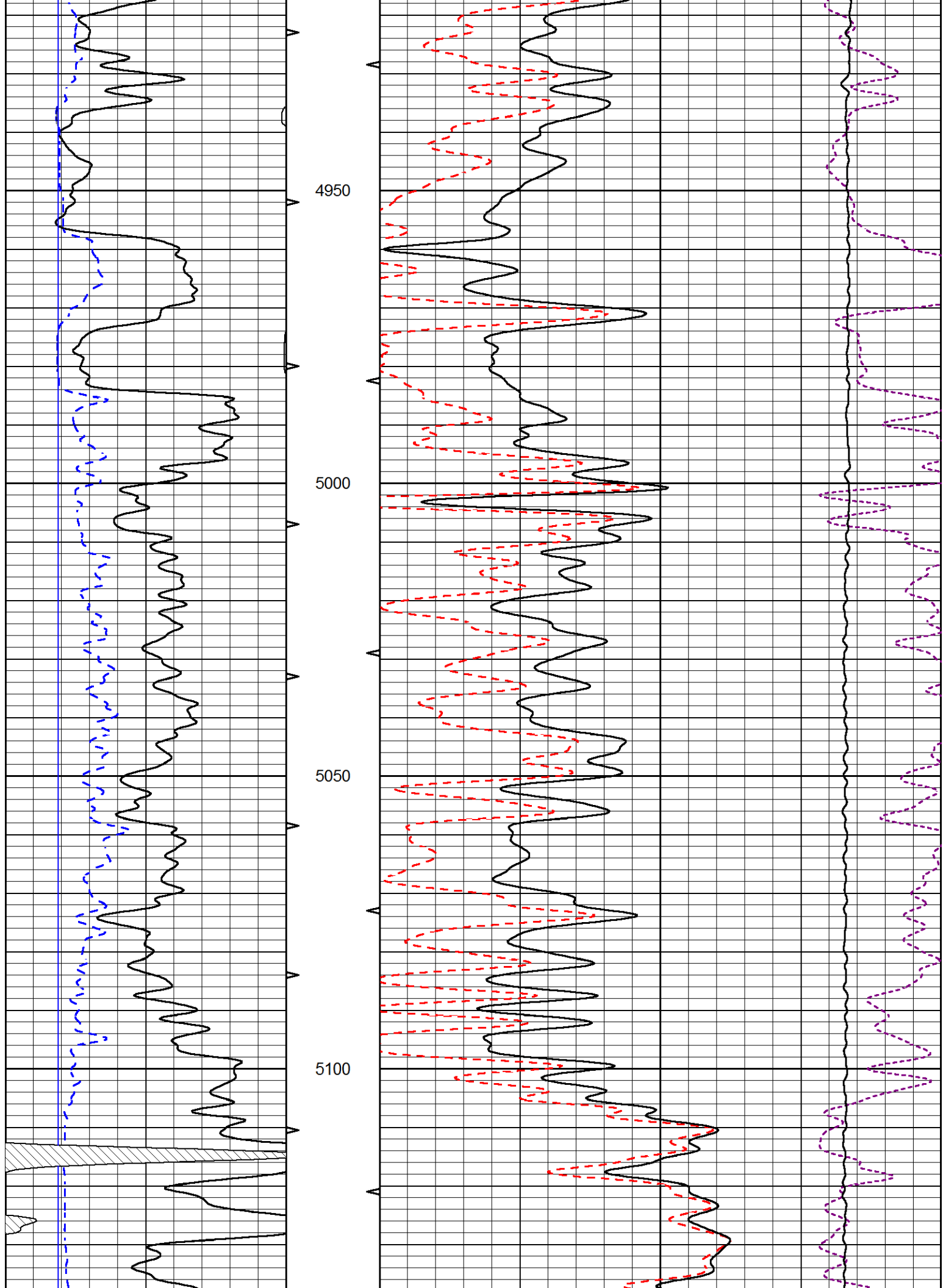
			DIL-M&W (PSI 91)	18.50	3.50	220.00
CILD	8.00					
CILM	4.70					
SP	0.20					
Dataset: murfin_red poll_10-21.db: field/well/STKML/pass5.8 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in						

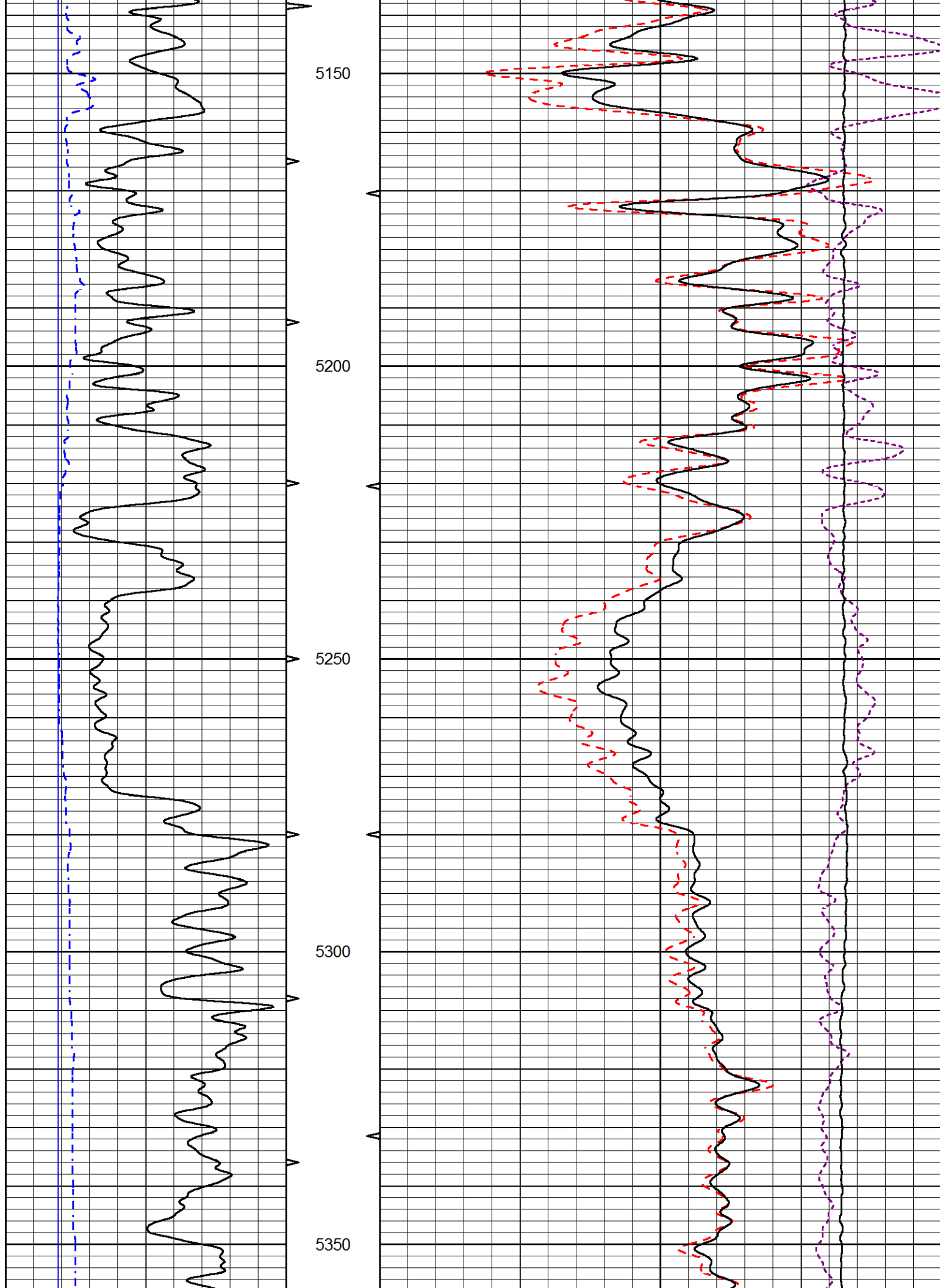
			MAIN PASS		
Database File murfin_red poll_10-21.db Dataset Pathname STKML/pass5.1 Presentation Format cdl Dataset Creation Sat Sep 02 00:49:36 2017 Charted by Depth in Feet scaled 1:240					
0	Gamma Ray (GAPI)	150	Compensated Density (2.71 MA)		
6	Caliper (in)	16			
			30	(pu)	-10
			2	Bulk Density (g/cc)	3
			15000	Line Tension (lb)	0
			-0.25	Correction (g/cc)	0.25

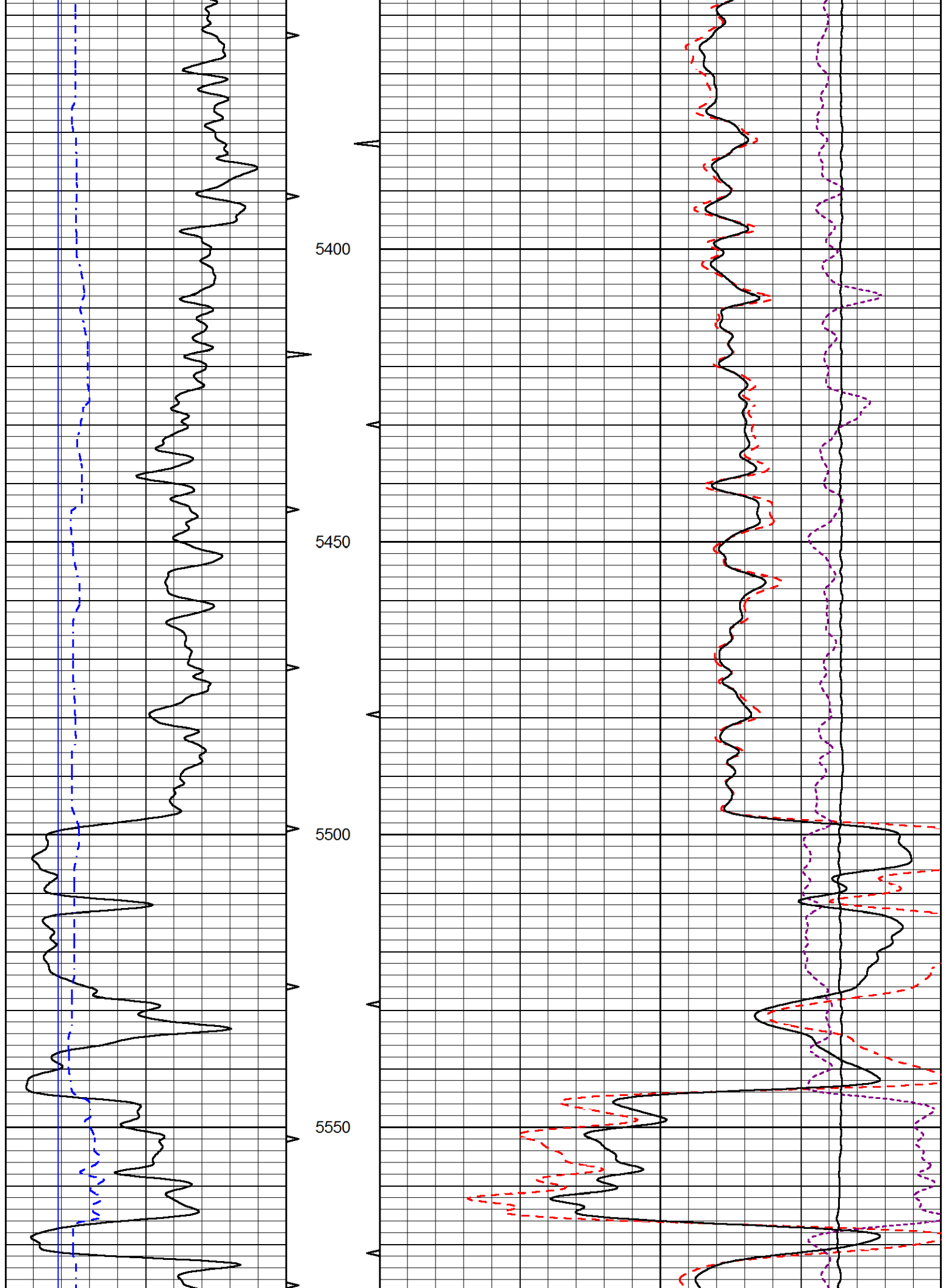


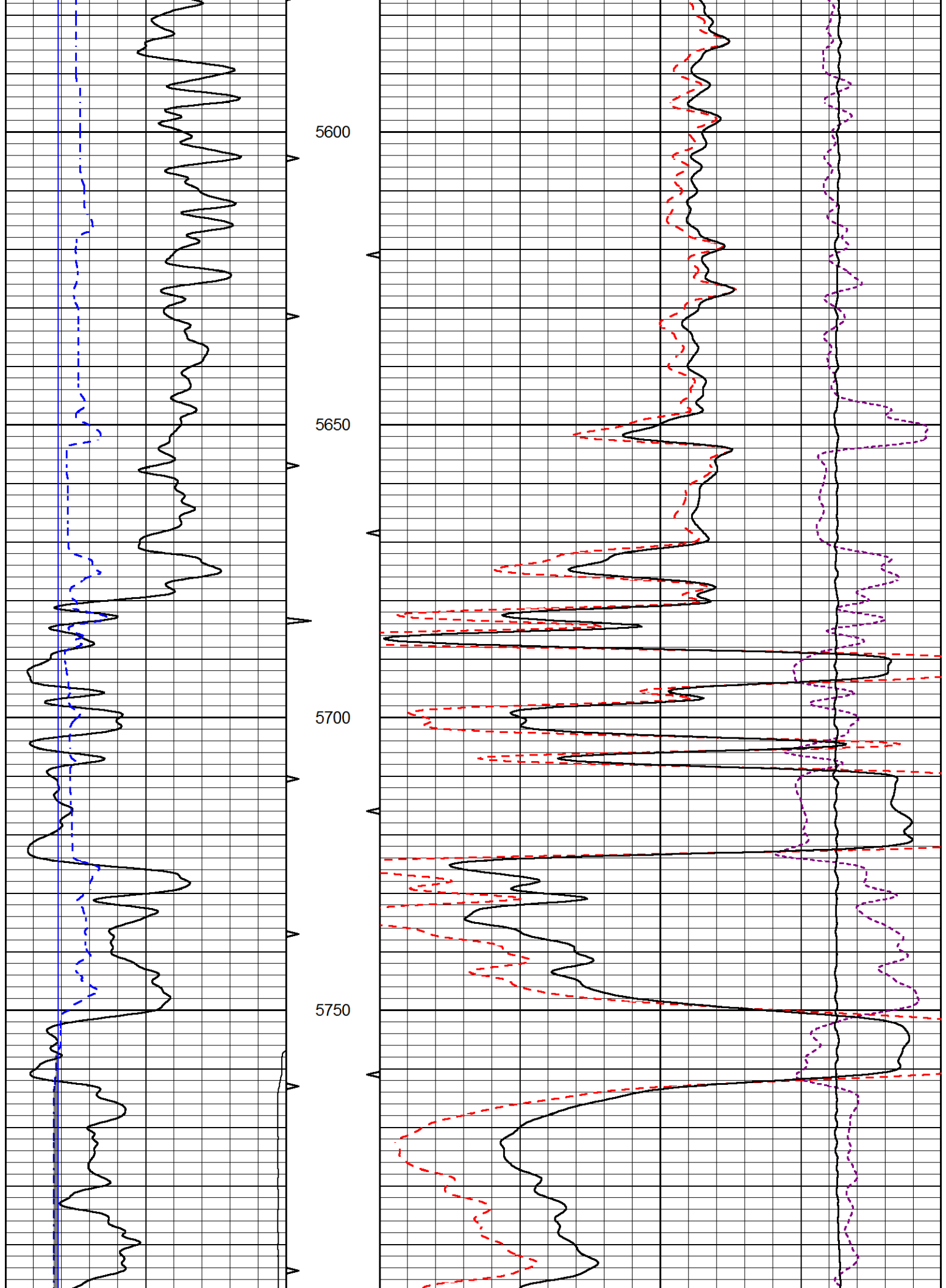


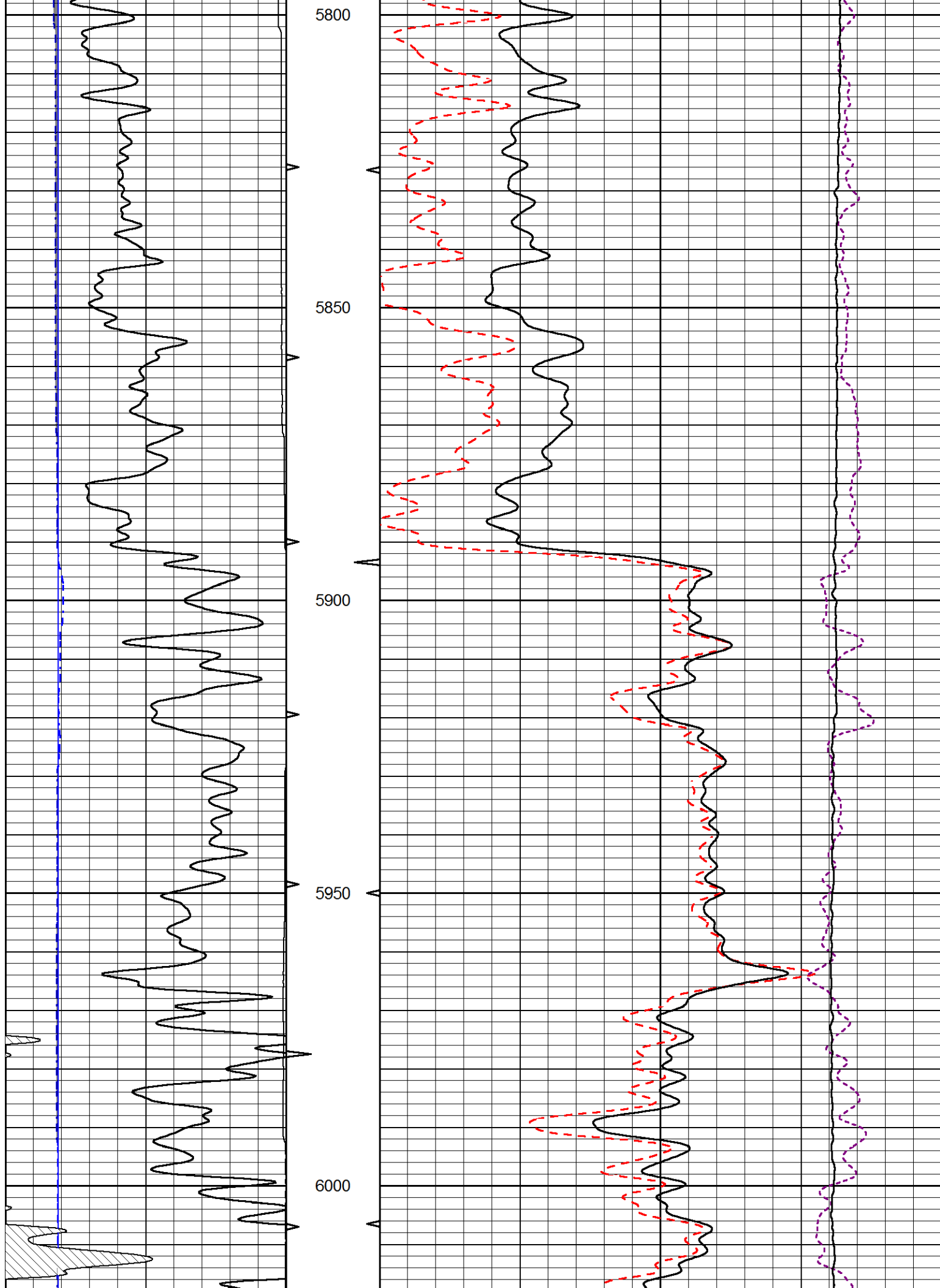


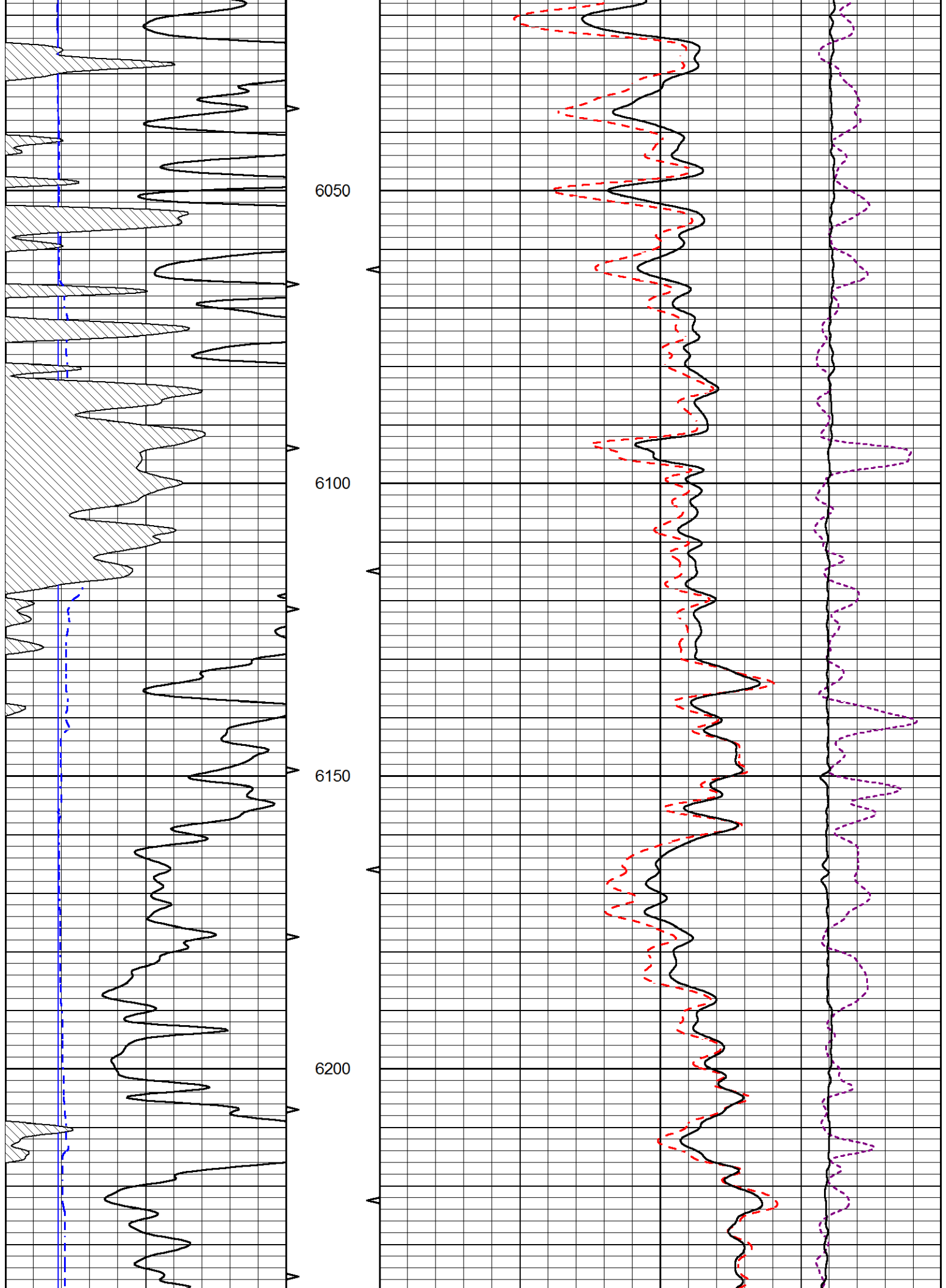


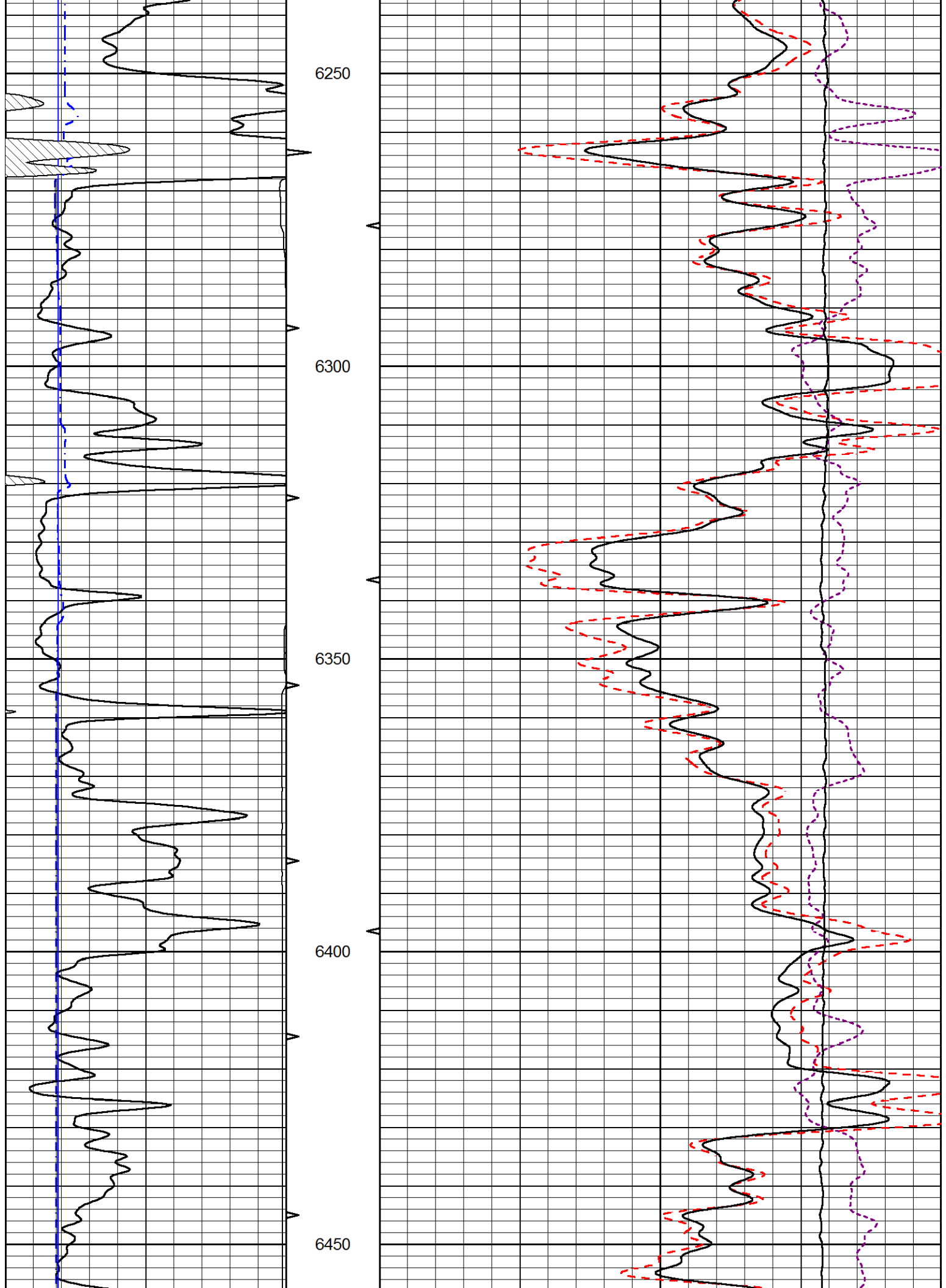


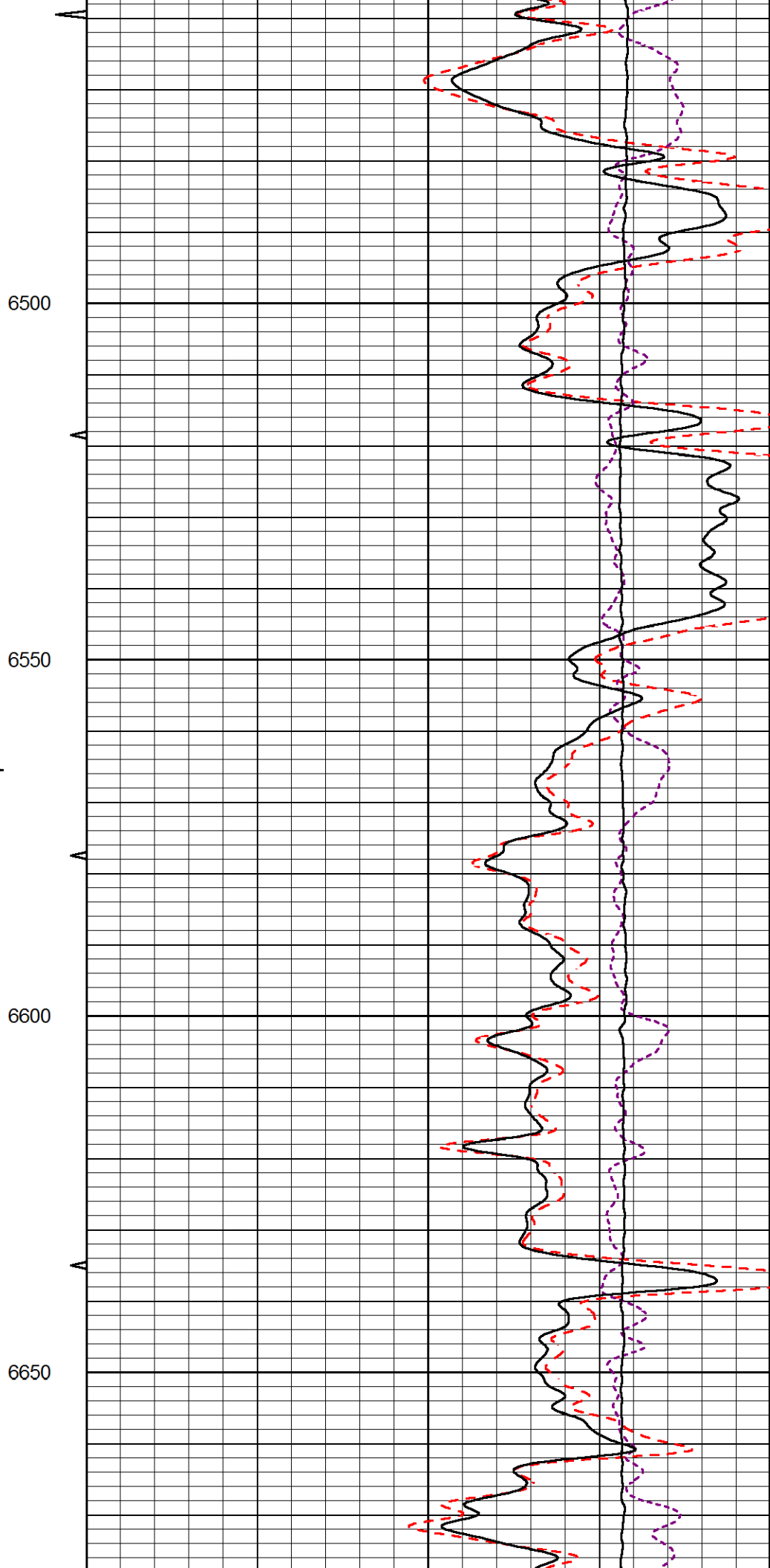
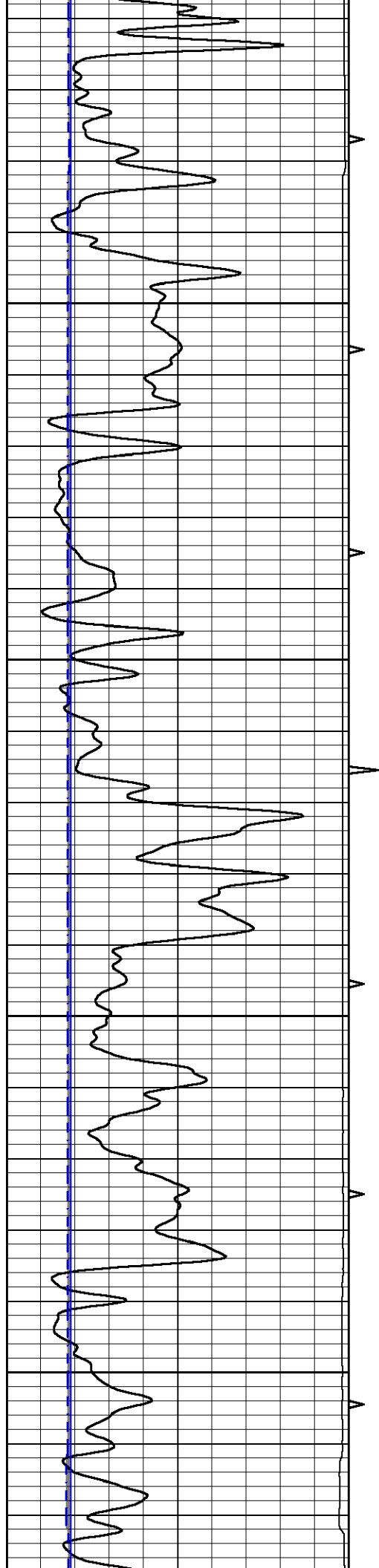


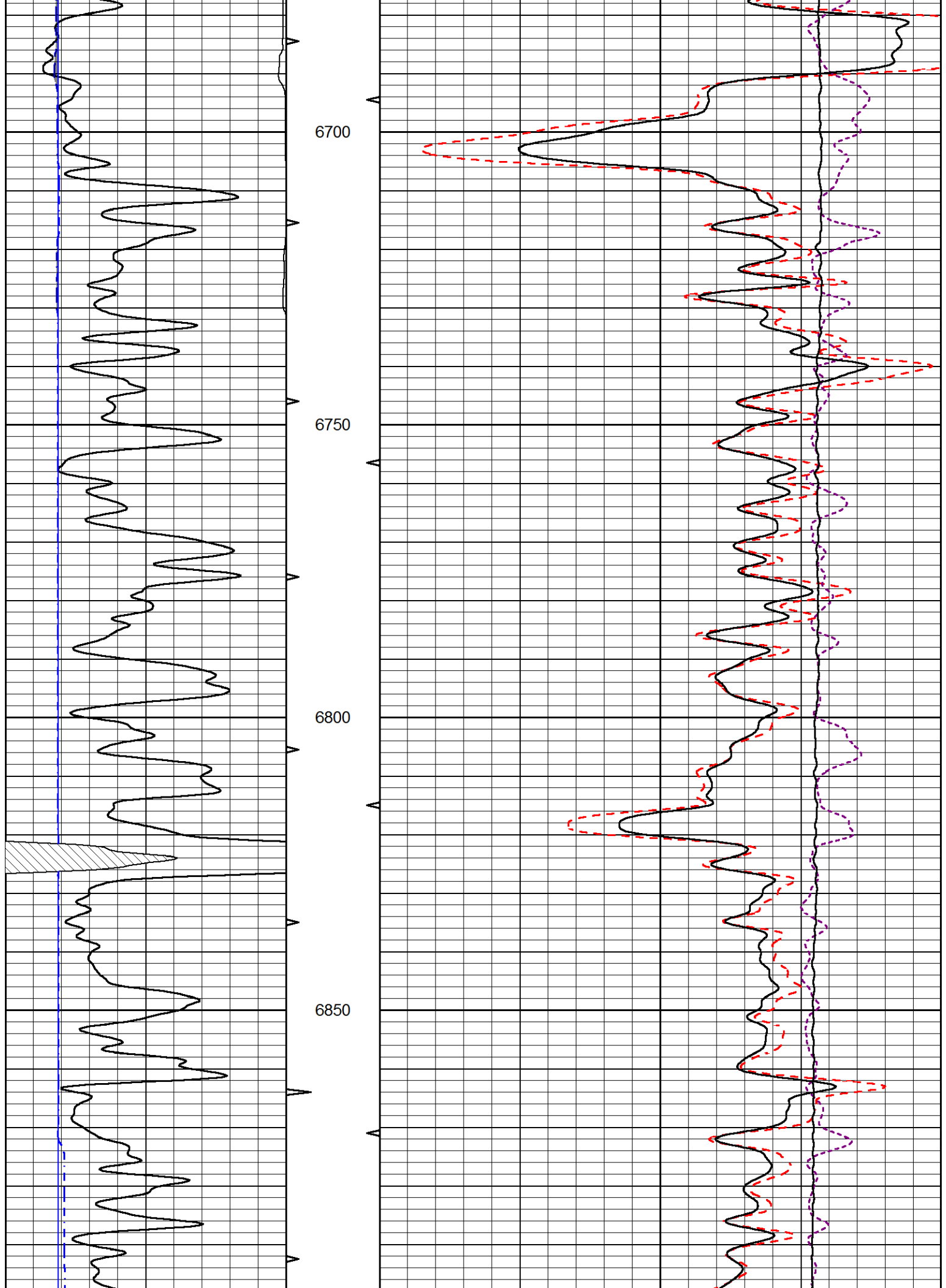


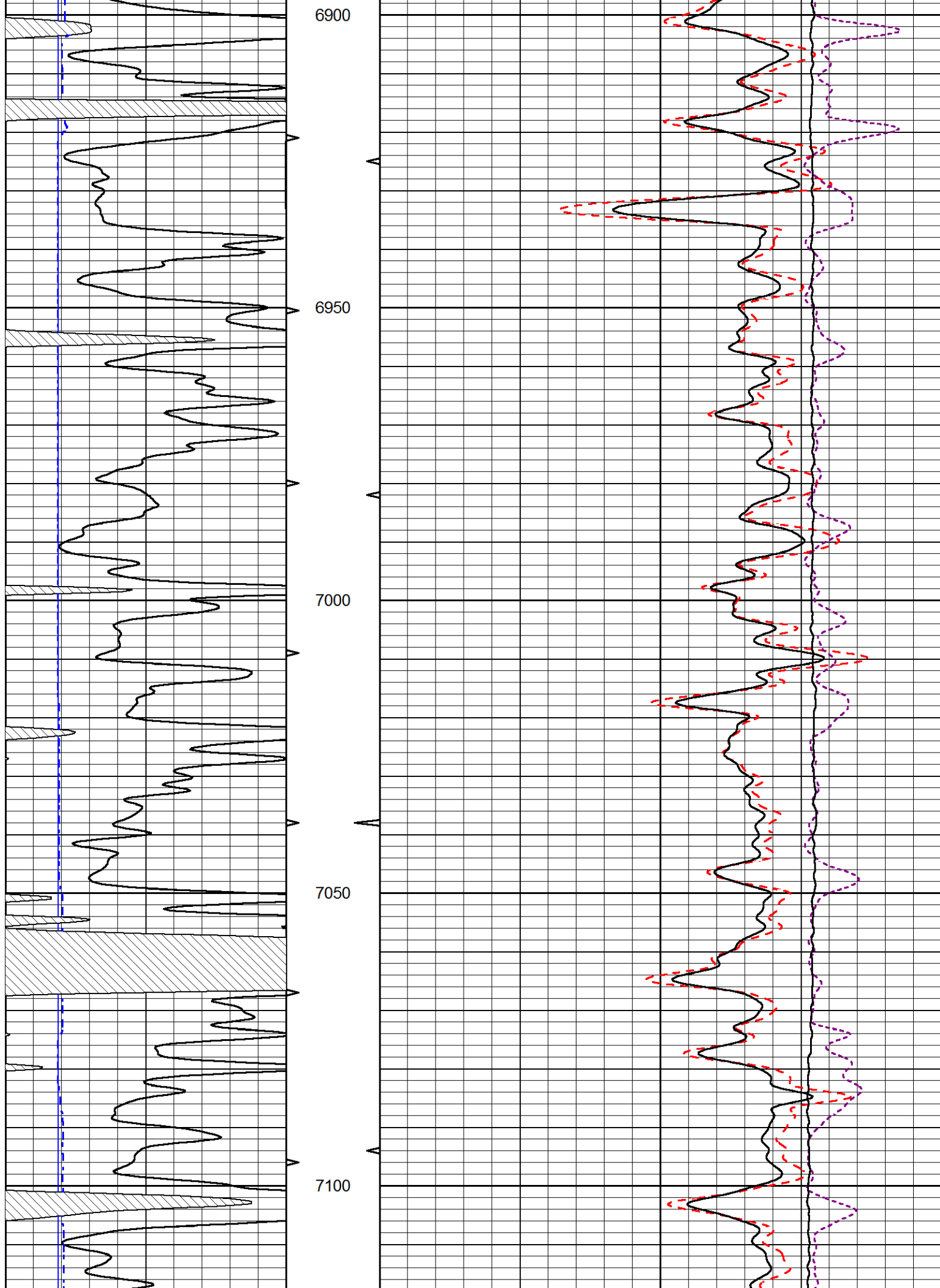


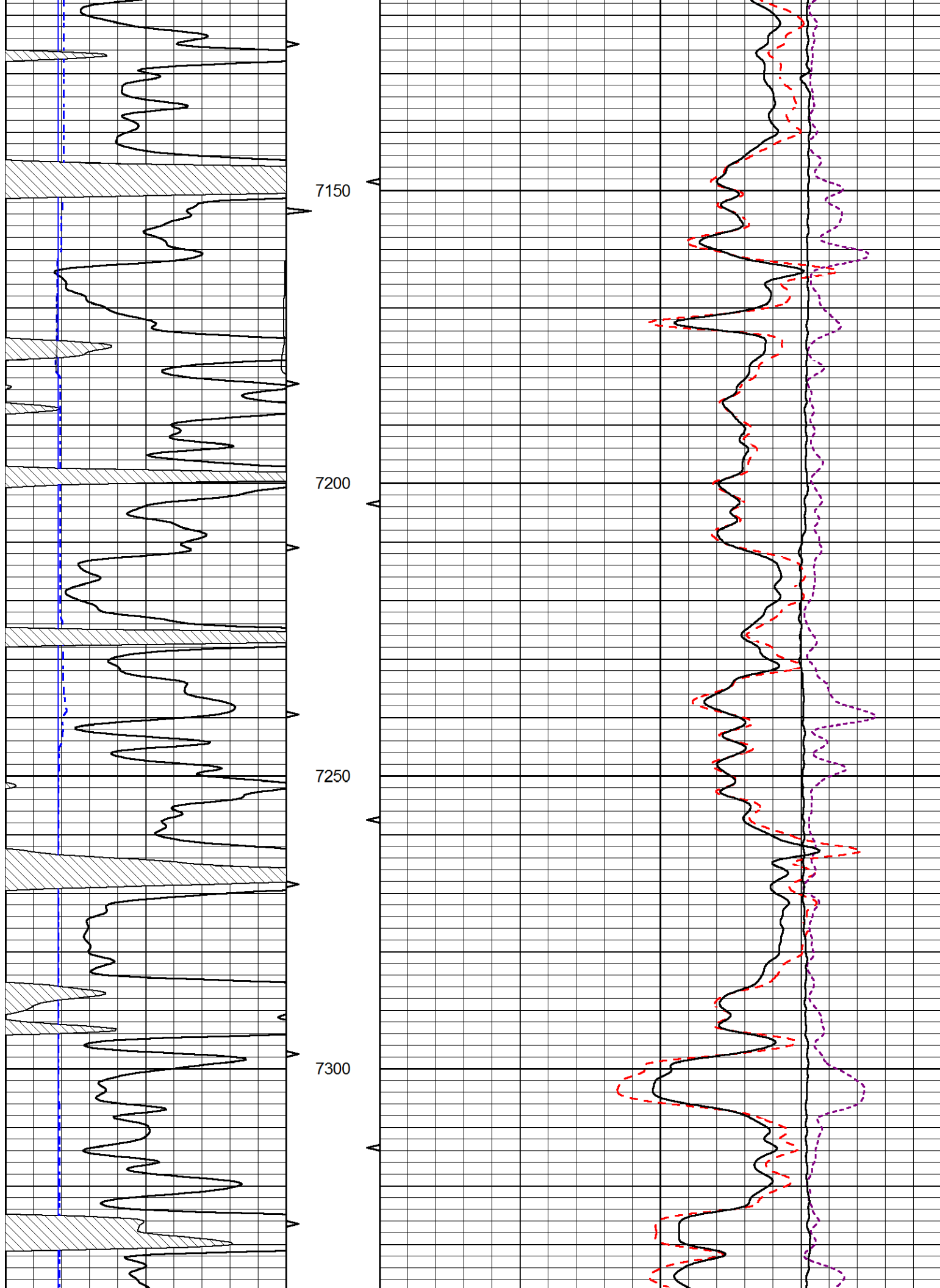


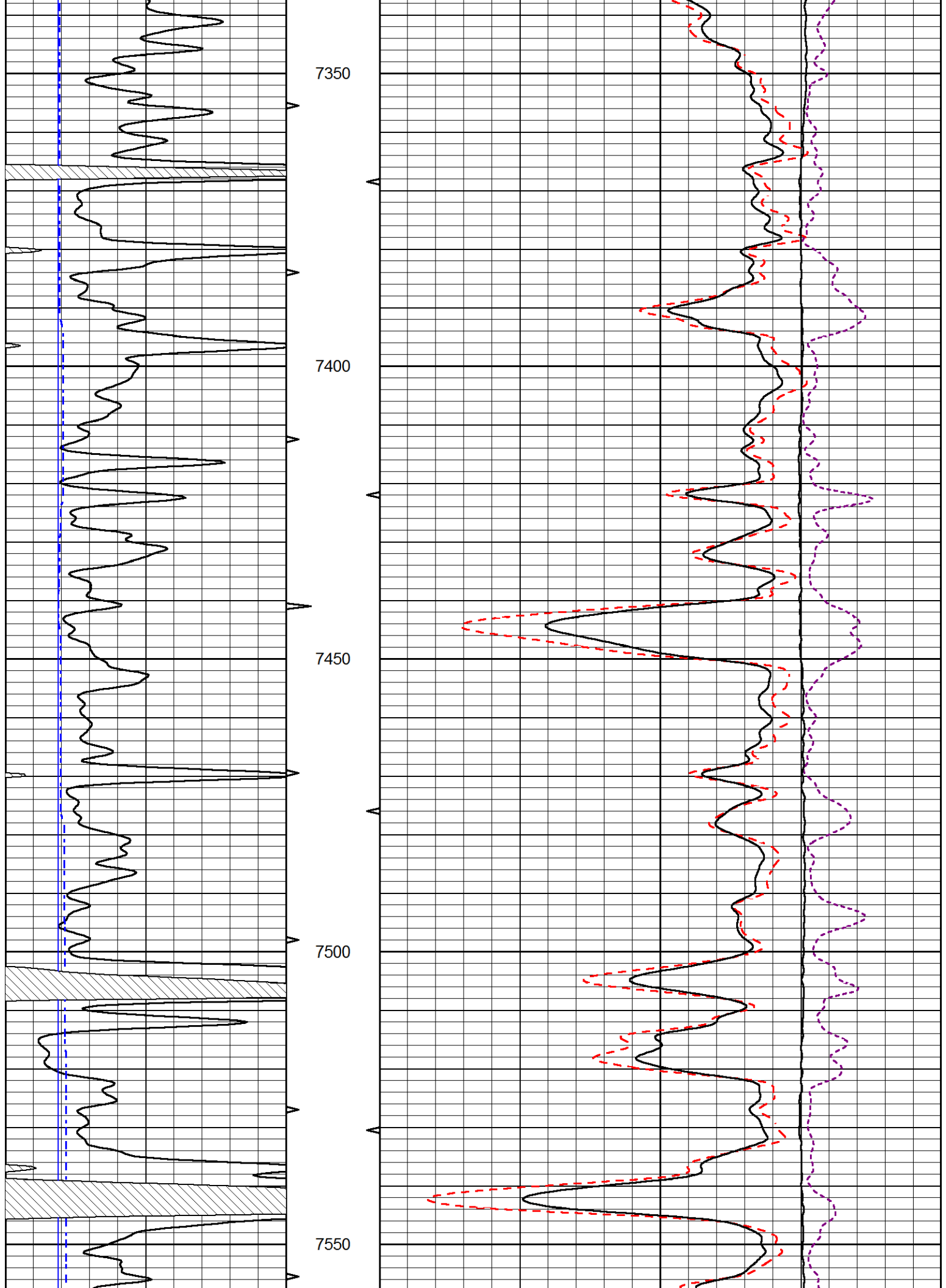


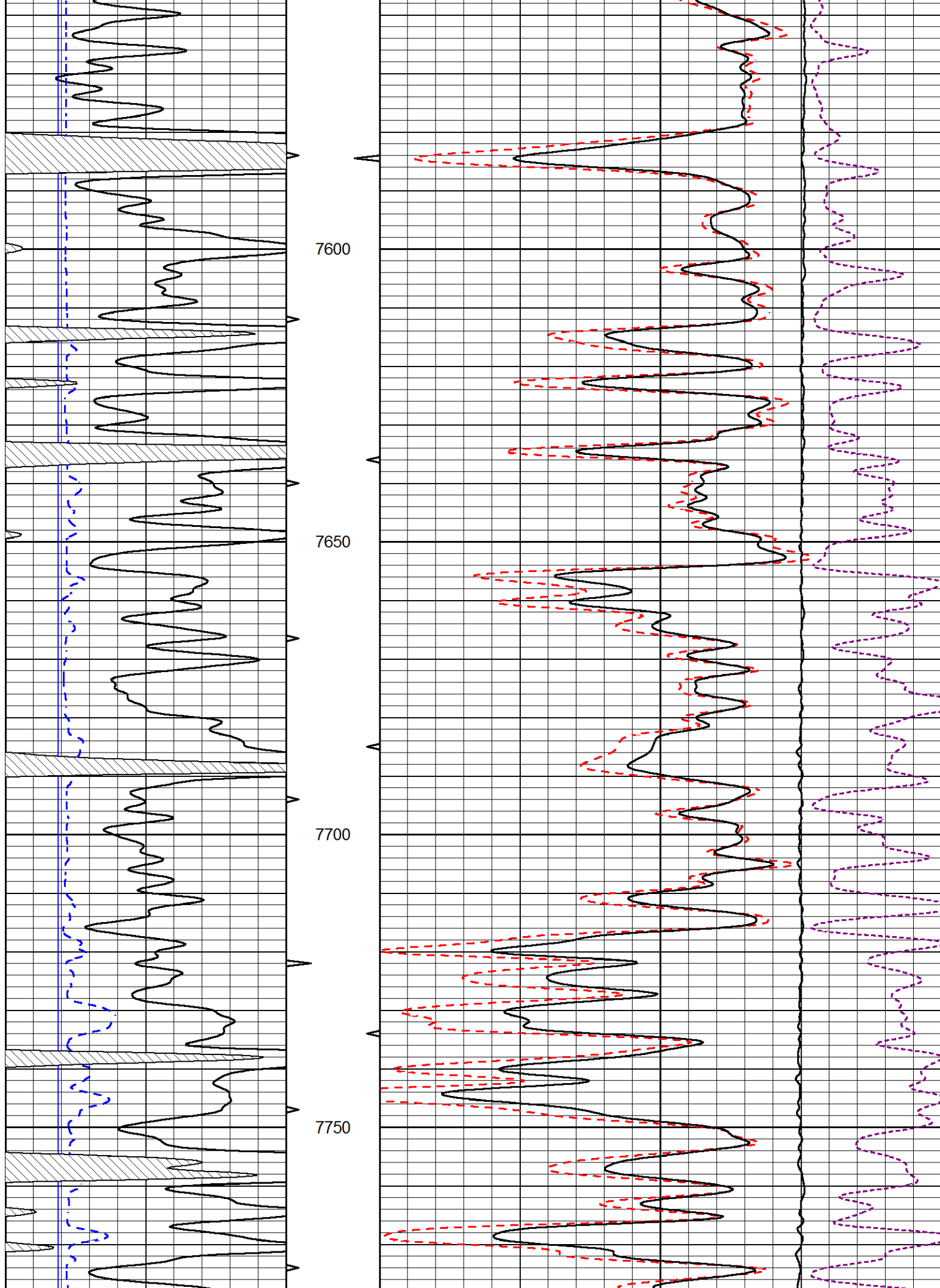


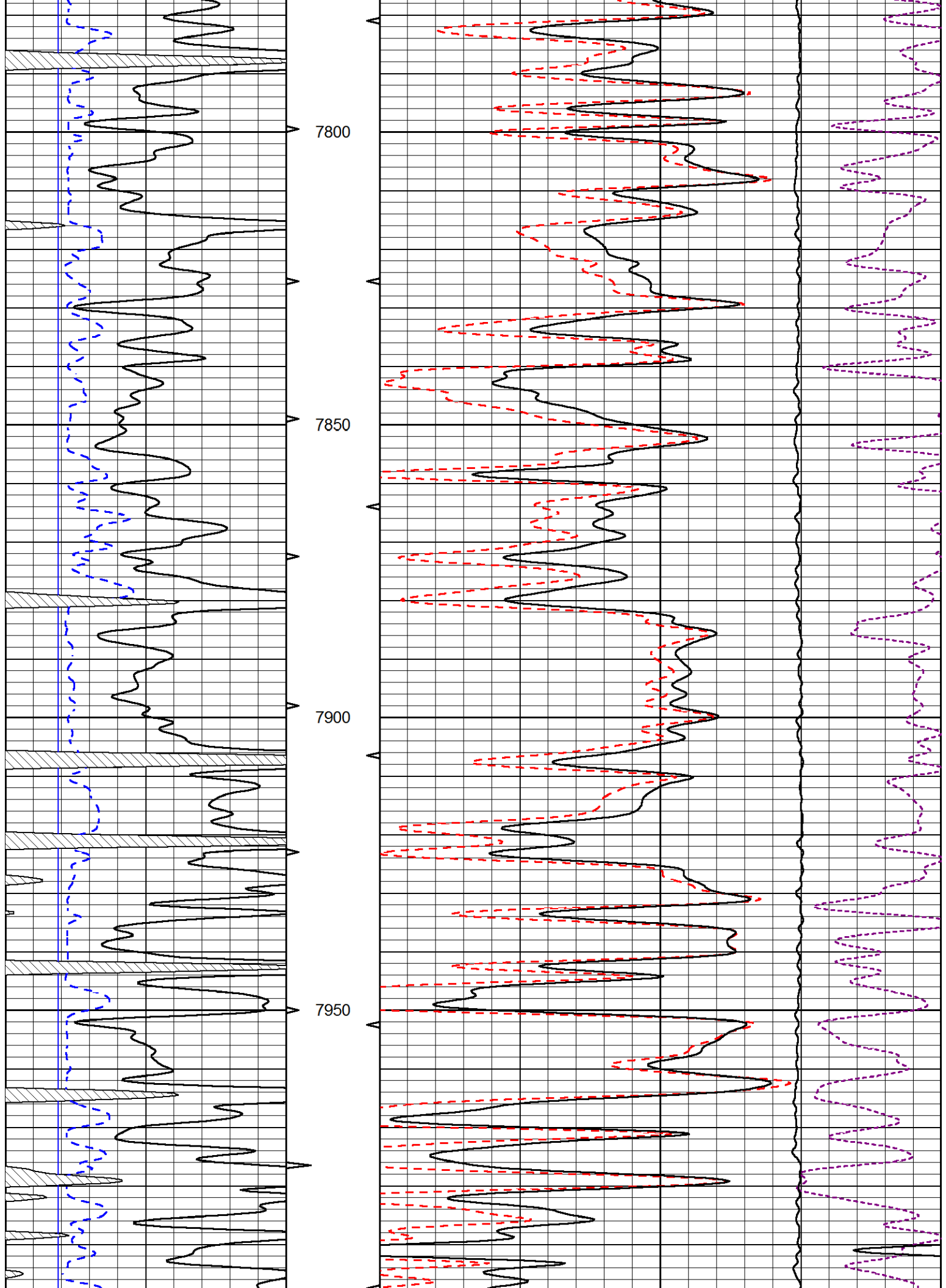


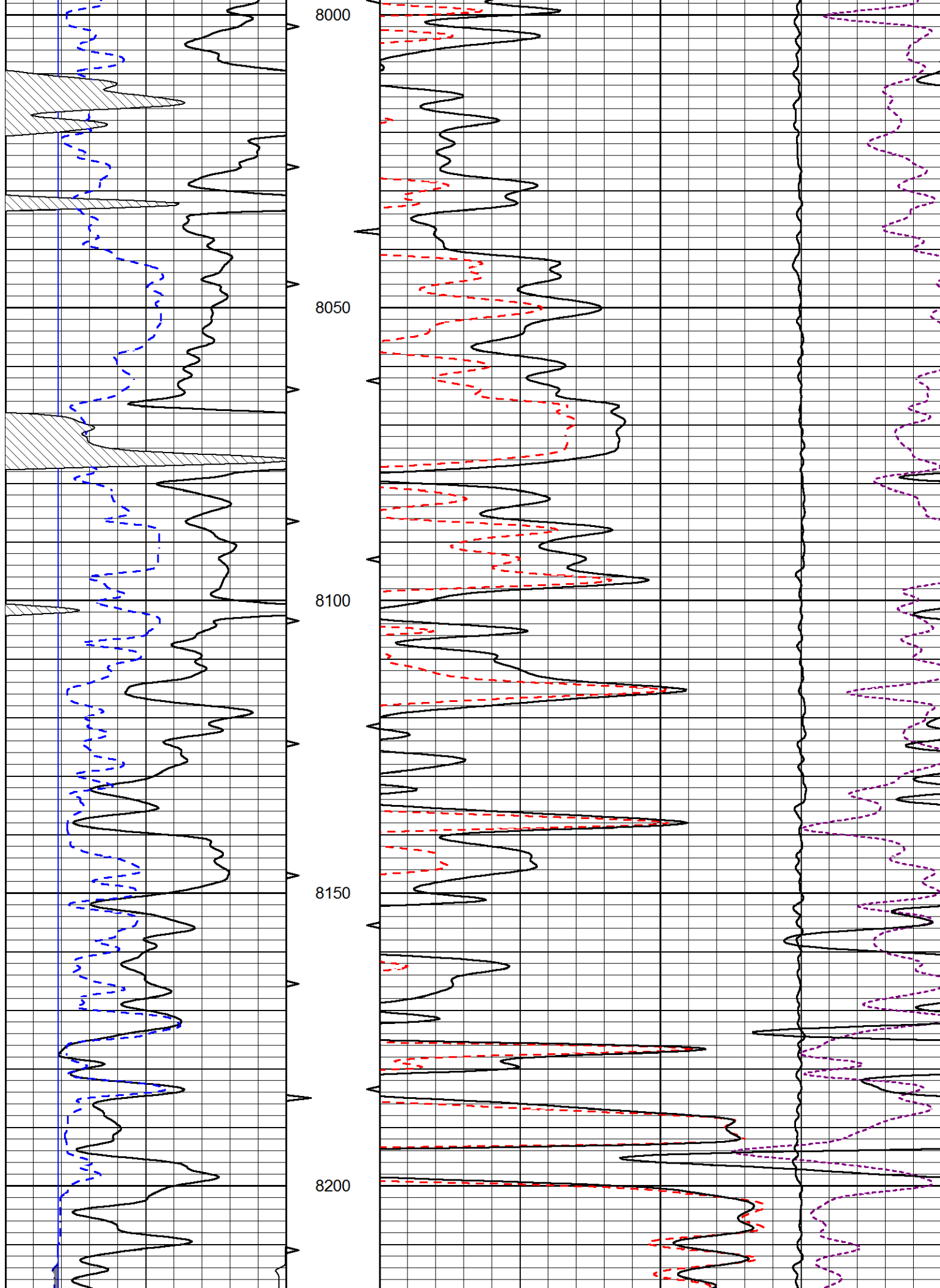


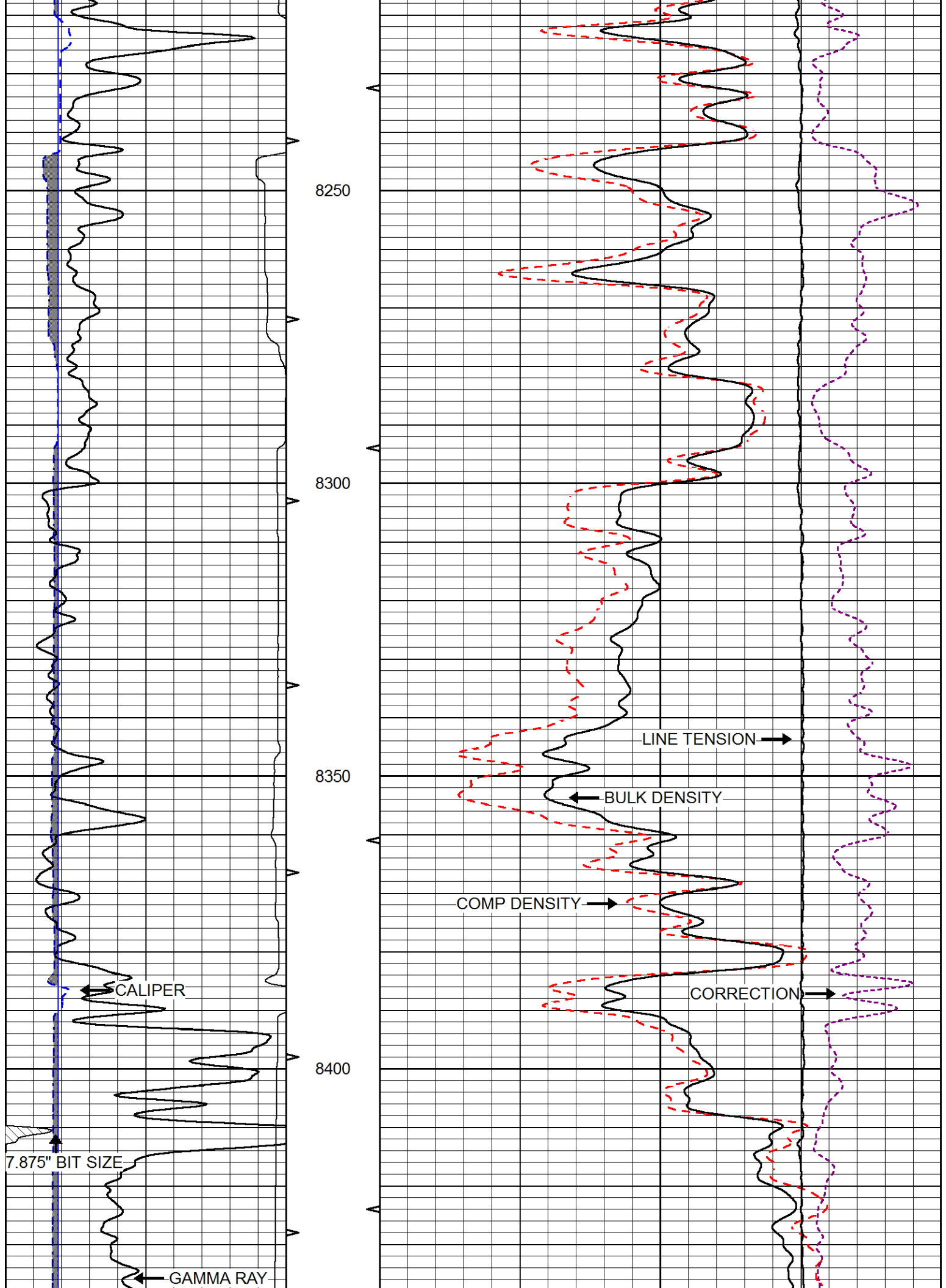


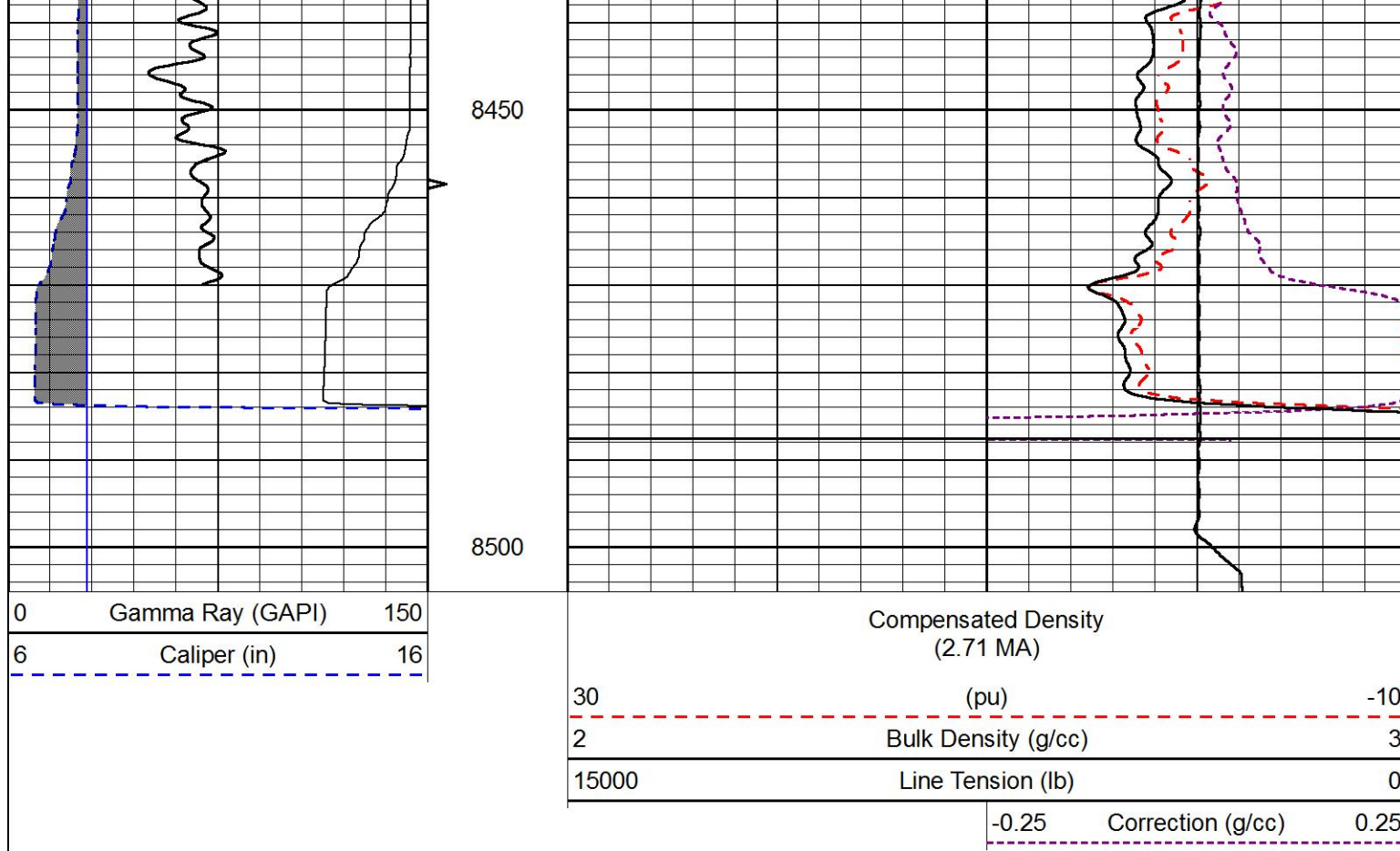








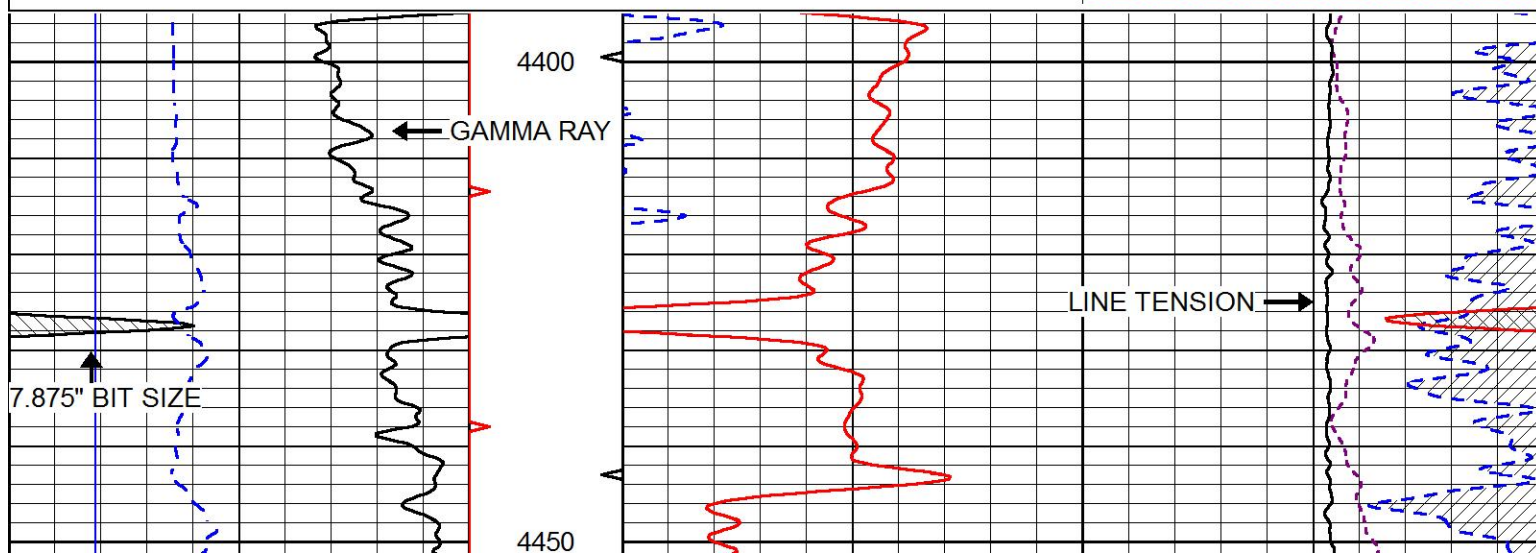
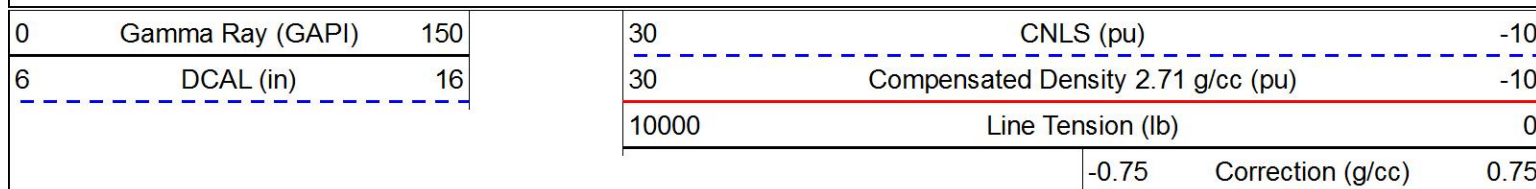


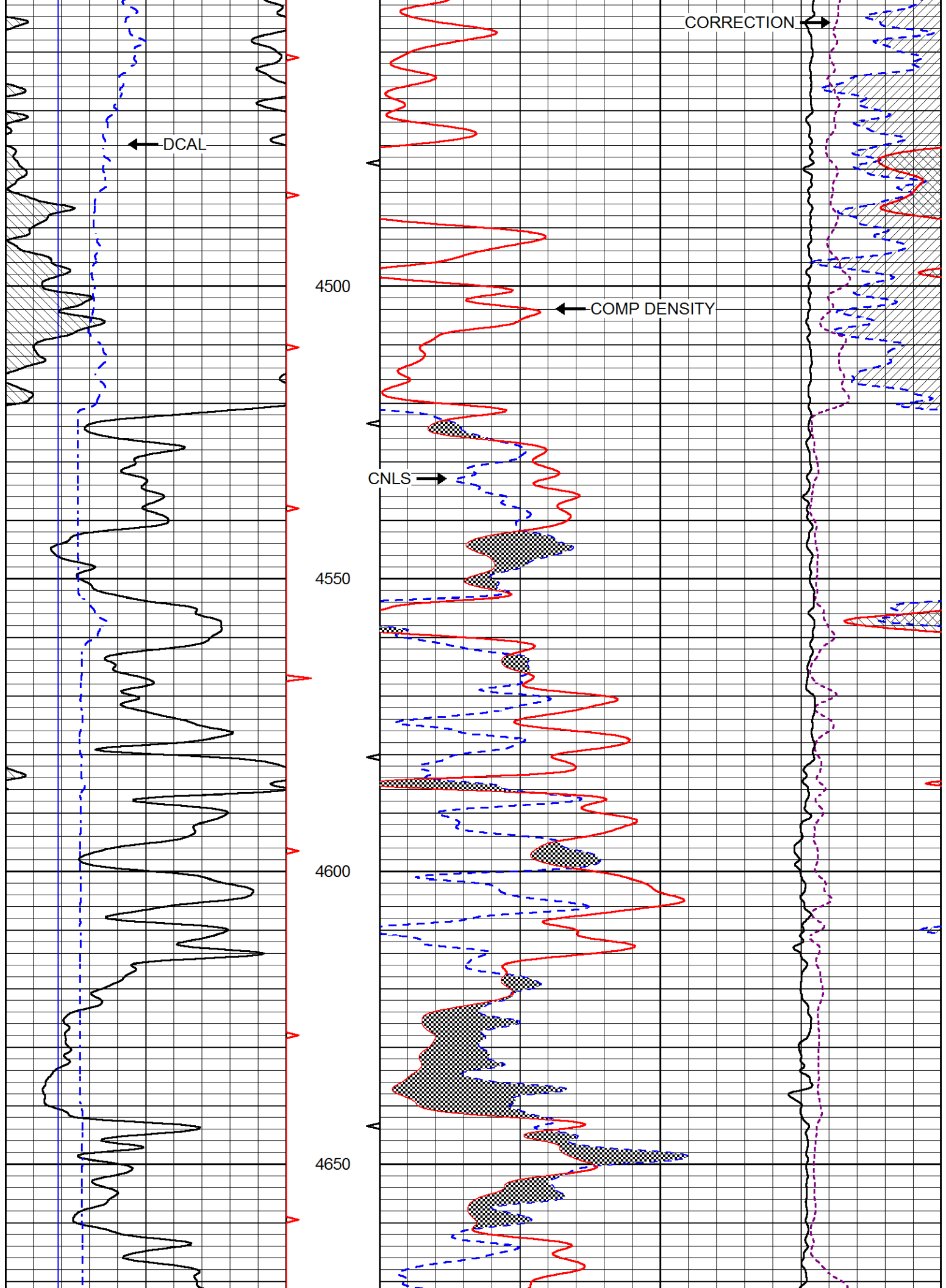


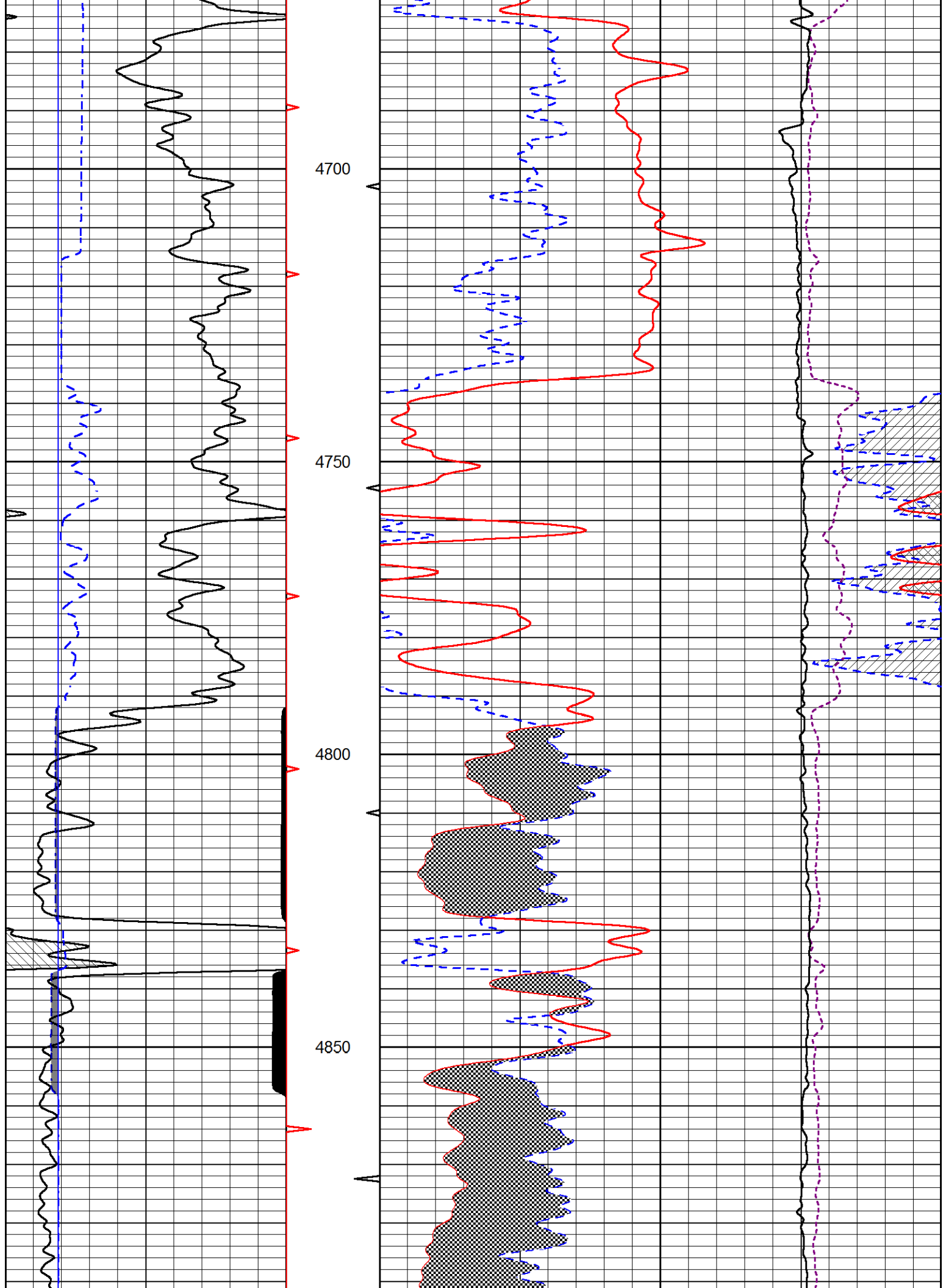


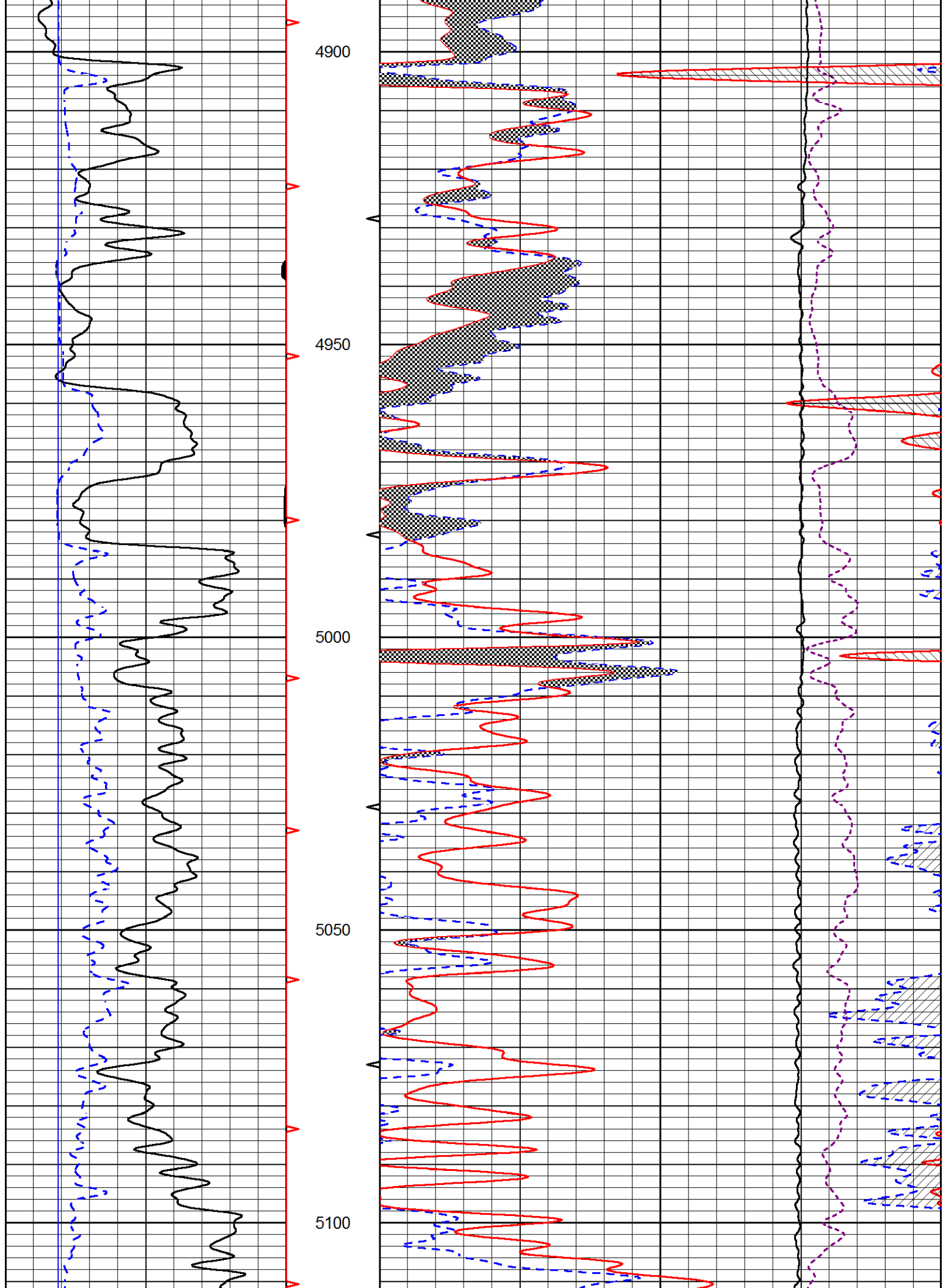
MAIN PASS

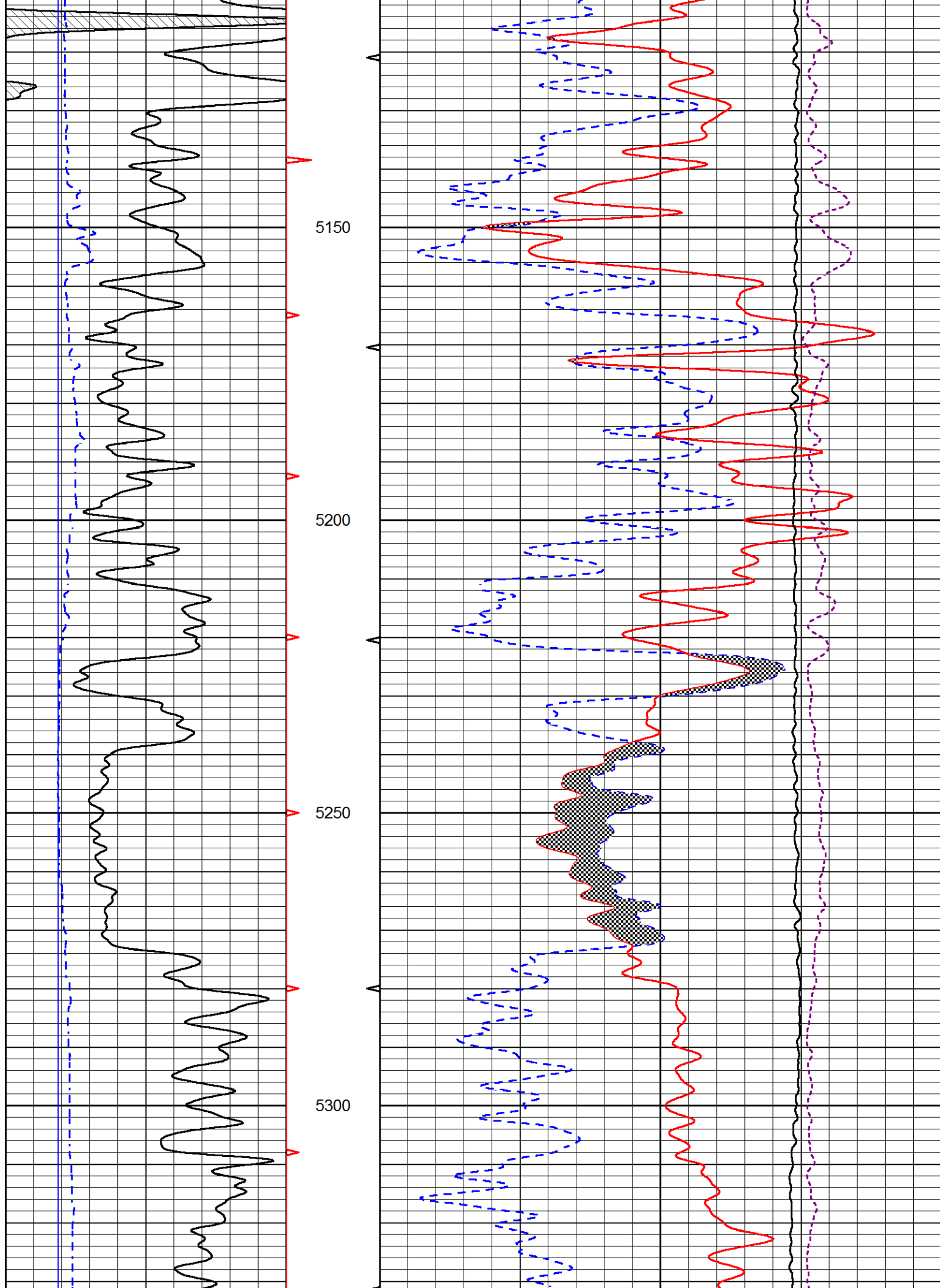
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Dataset Pathname STKML/pass5.1
Presentation Format cndlspec
Dataset Creation Sat Sep 02 00:49:36 2017
Charted by Depth in Feet scaled 1:240

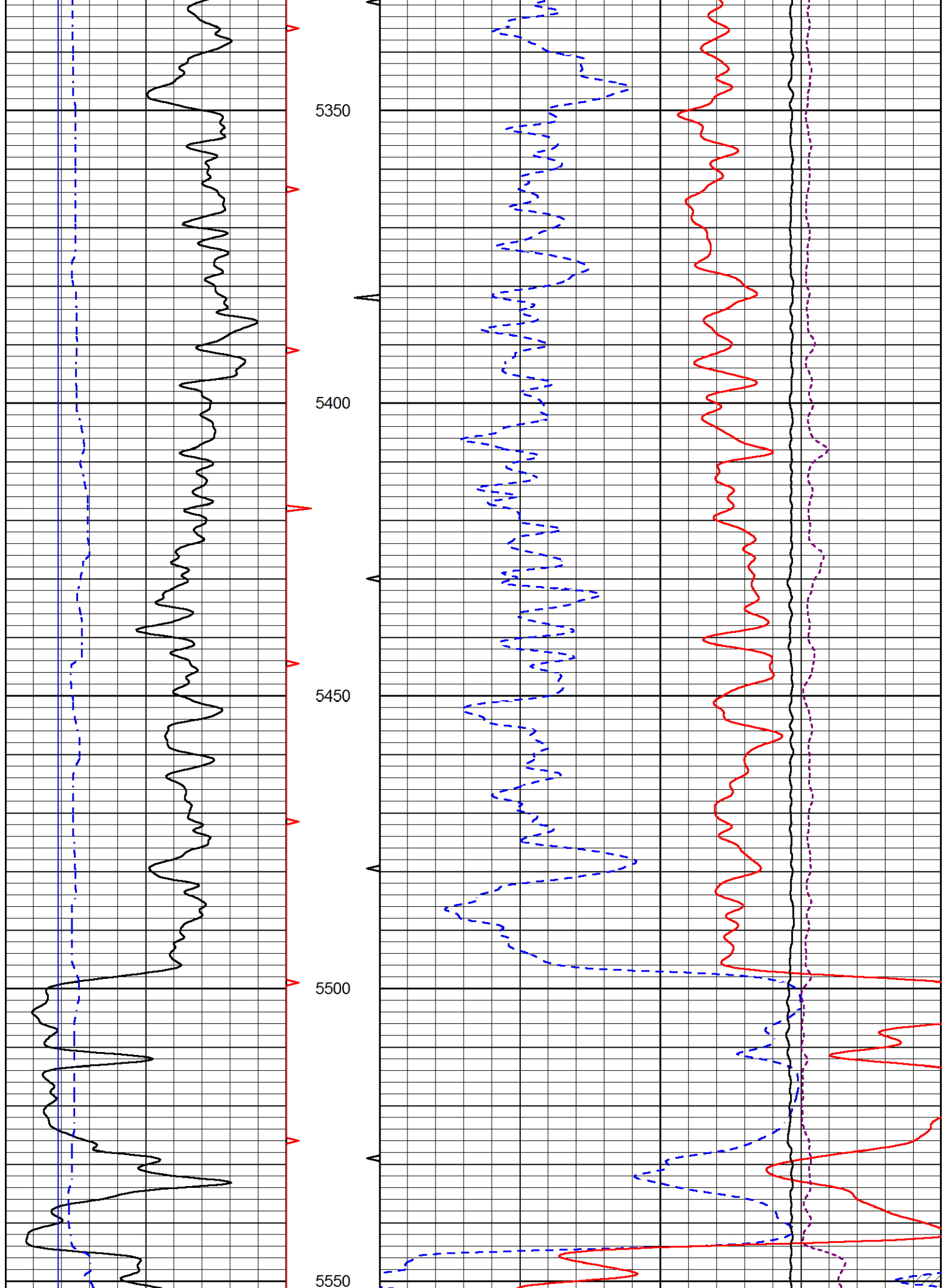


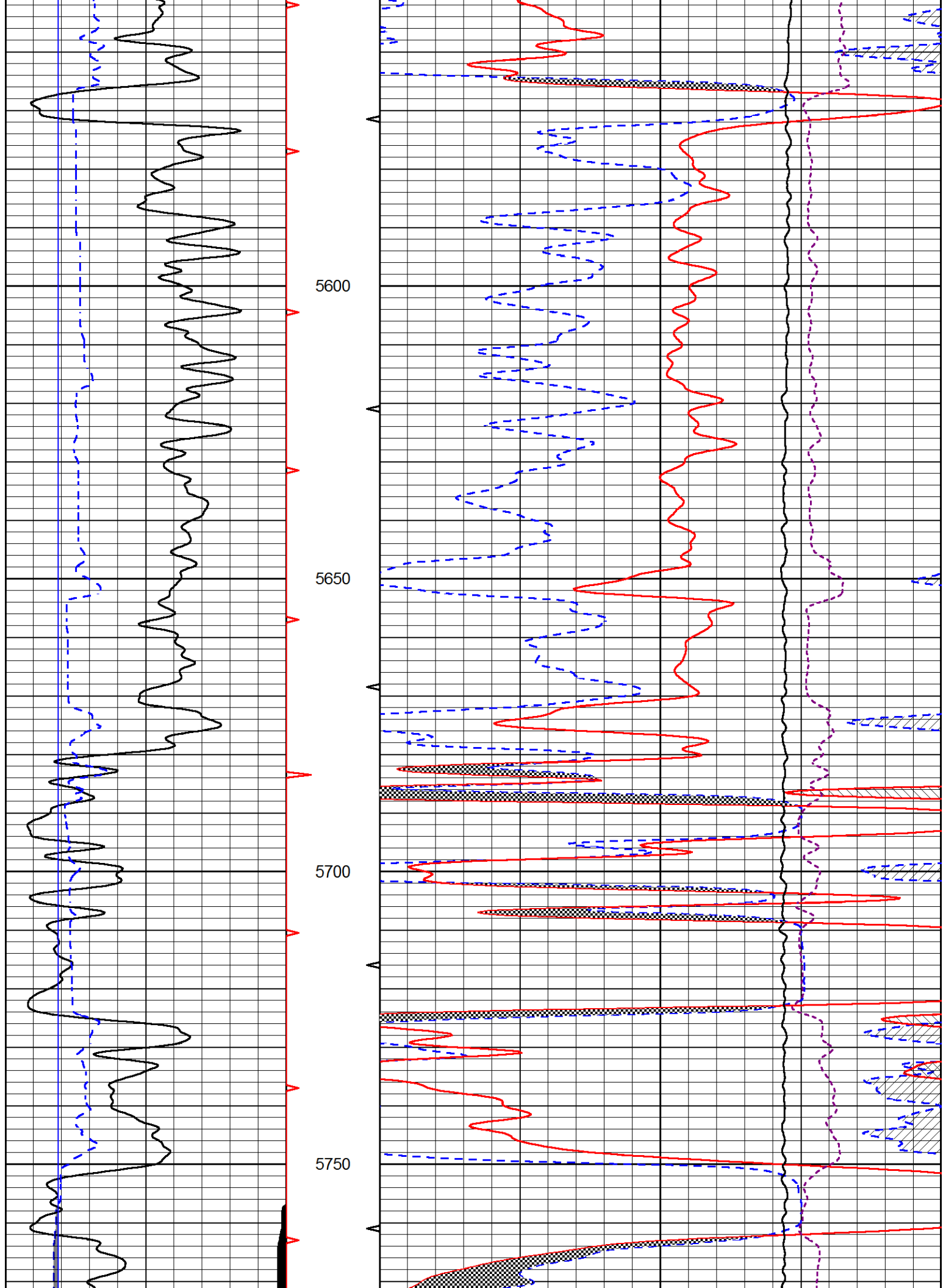


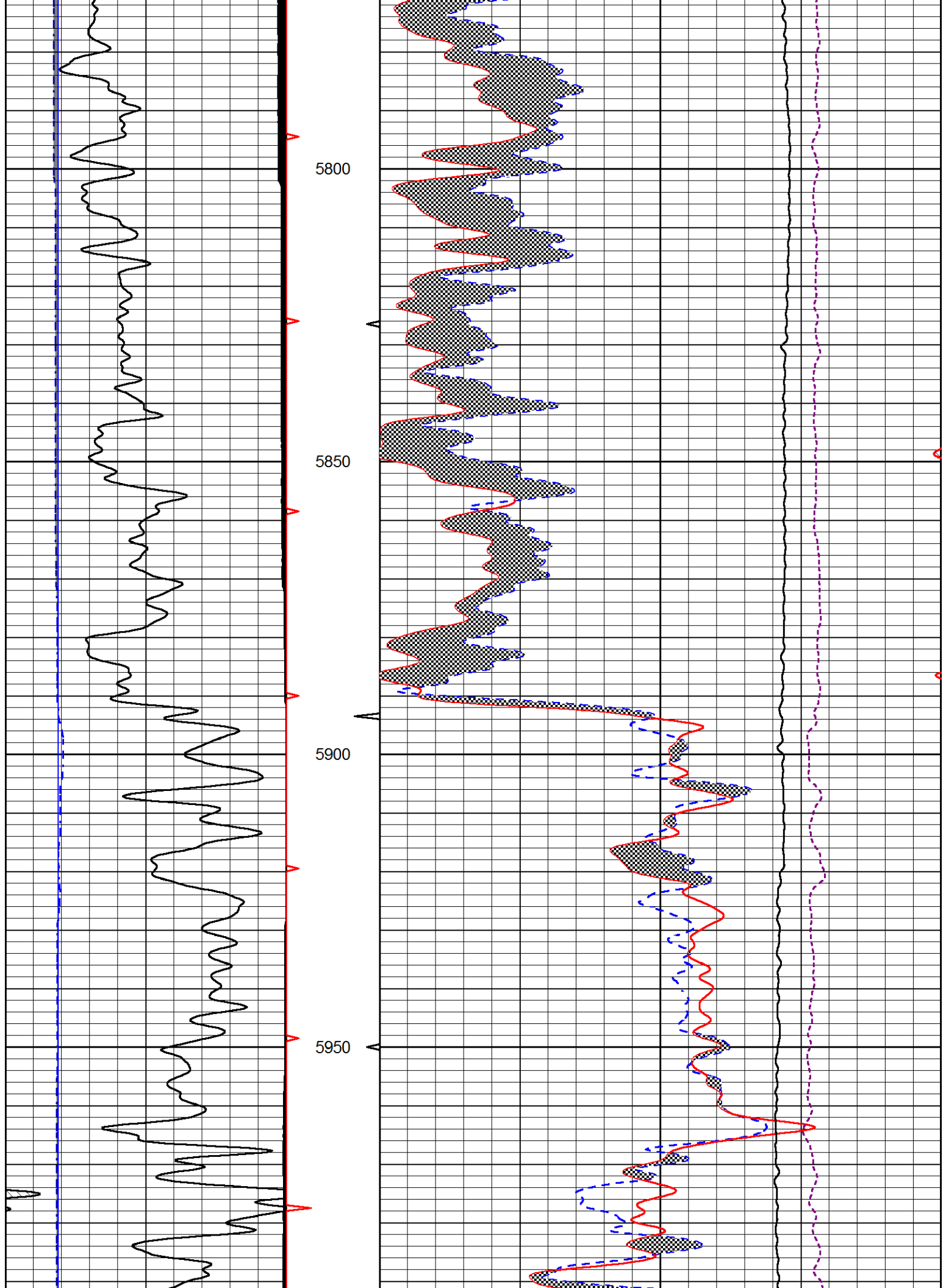


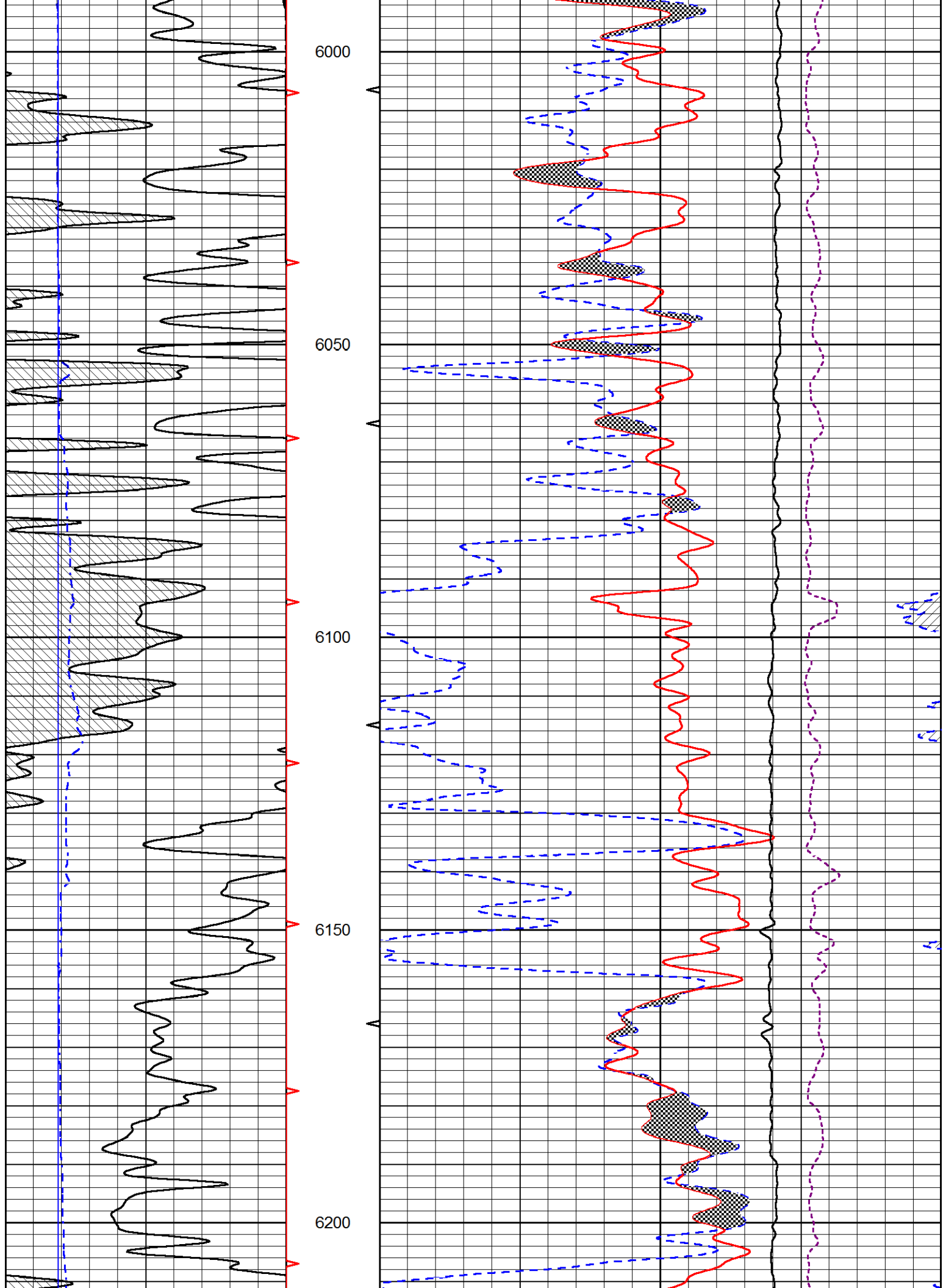


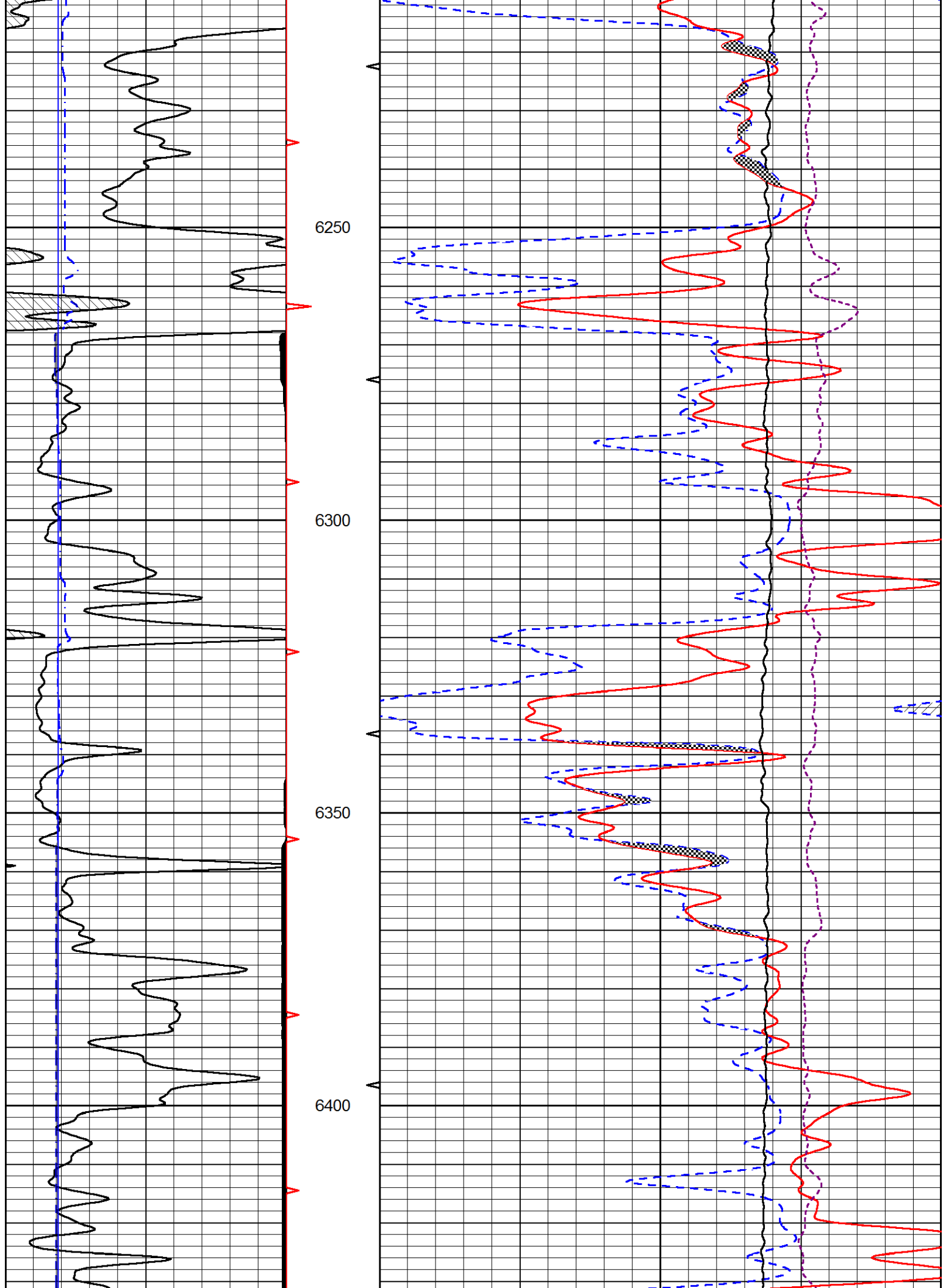


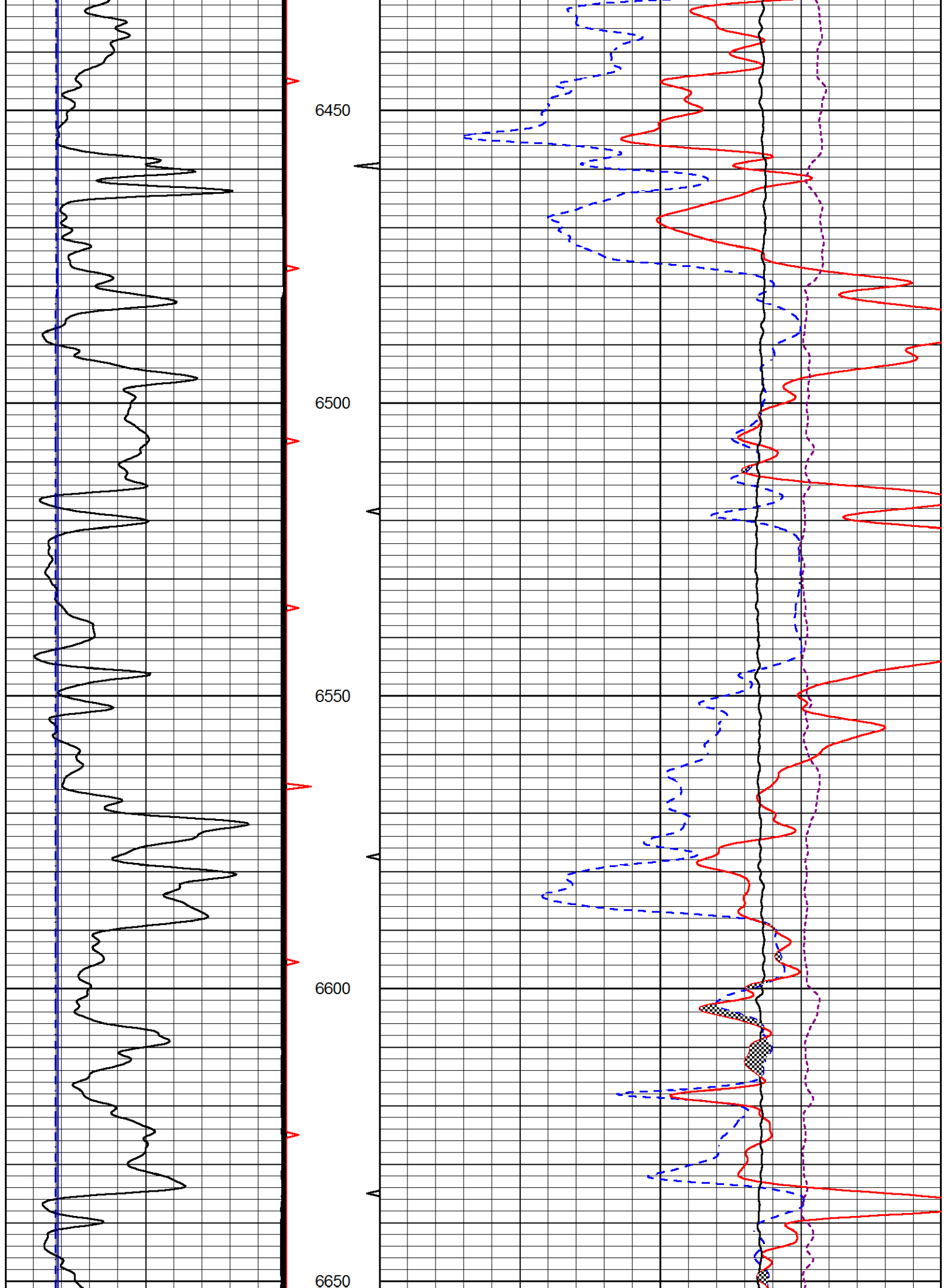


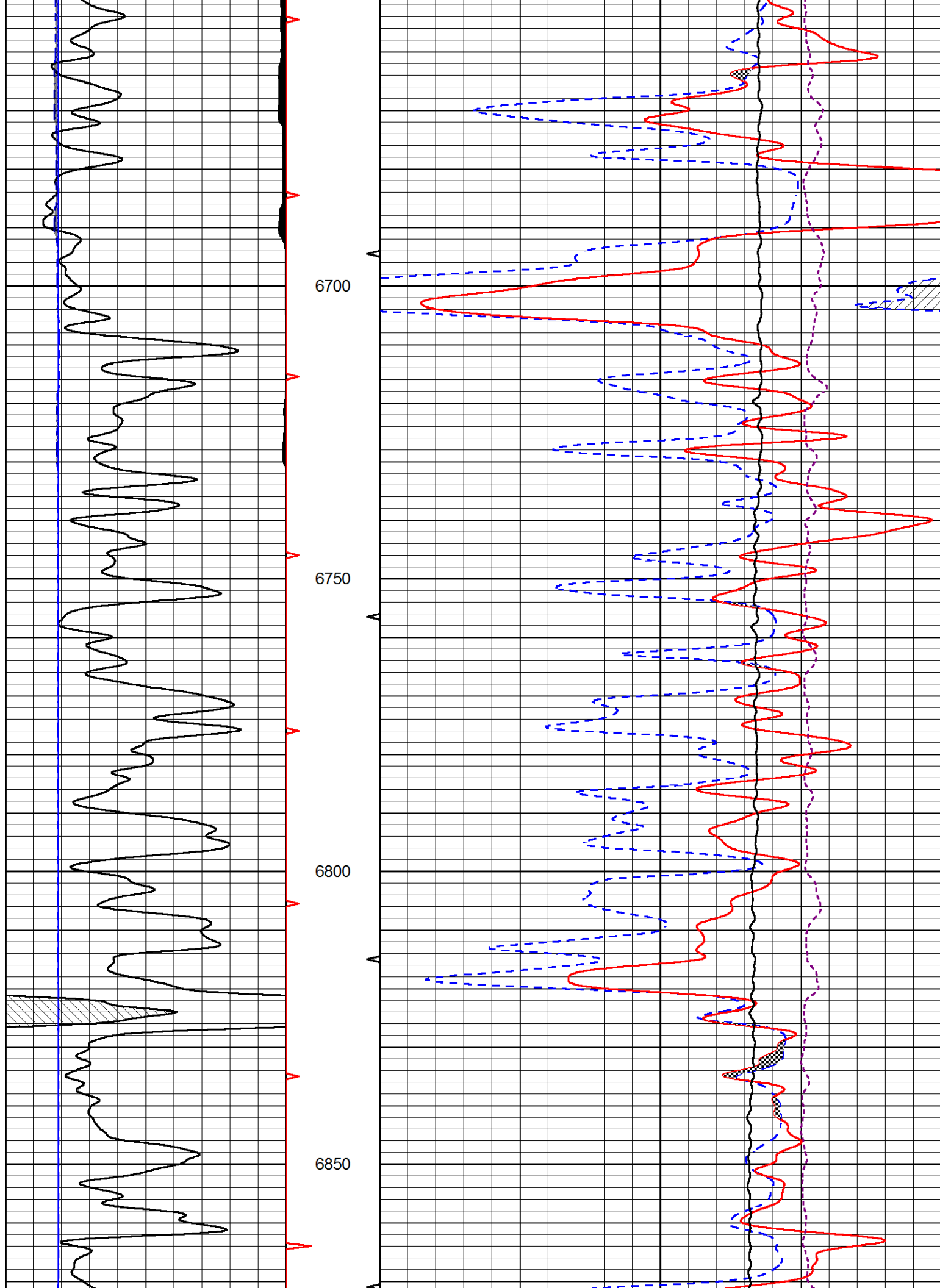


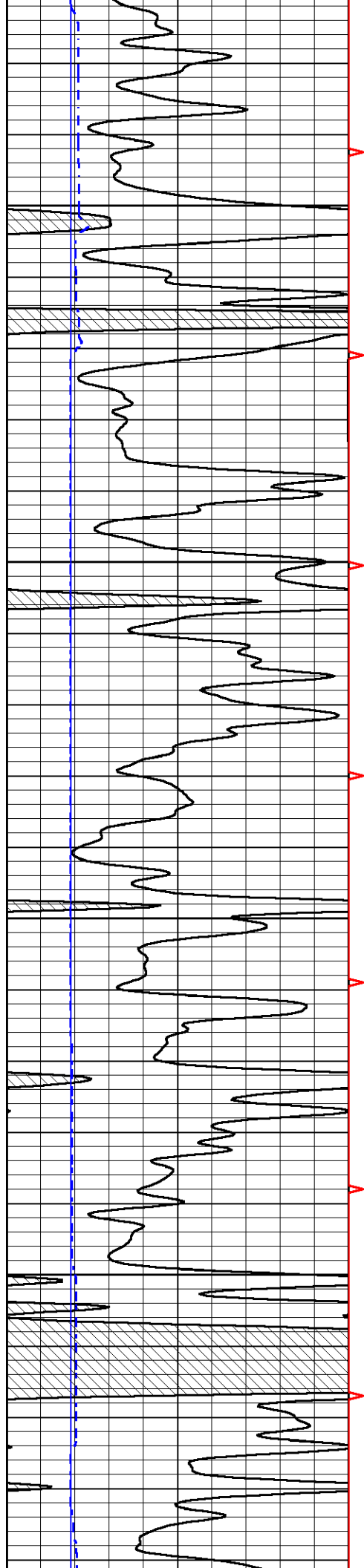










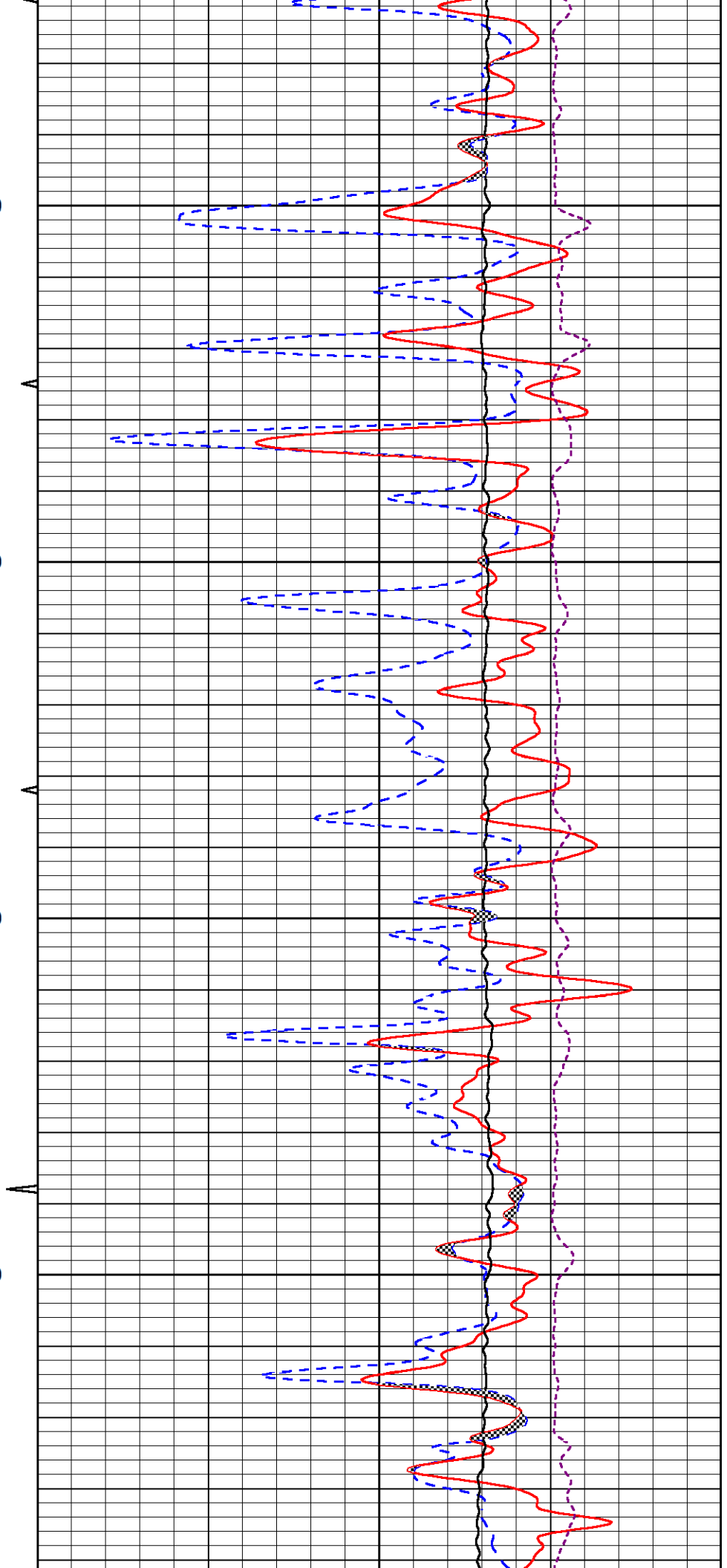


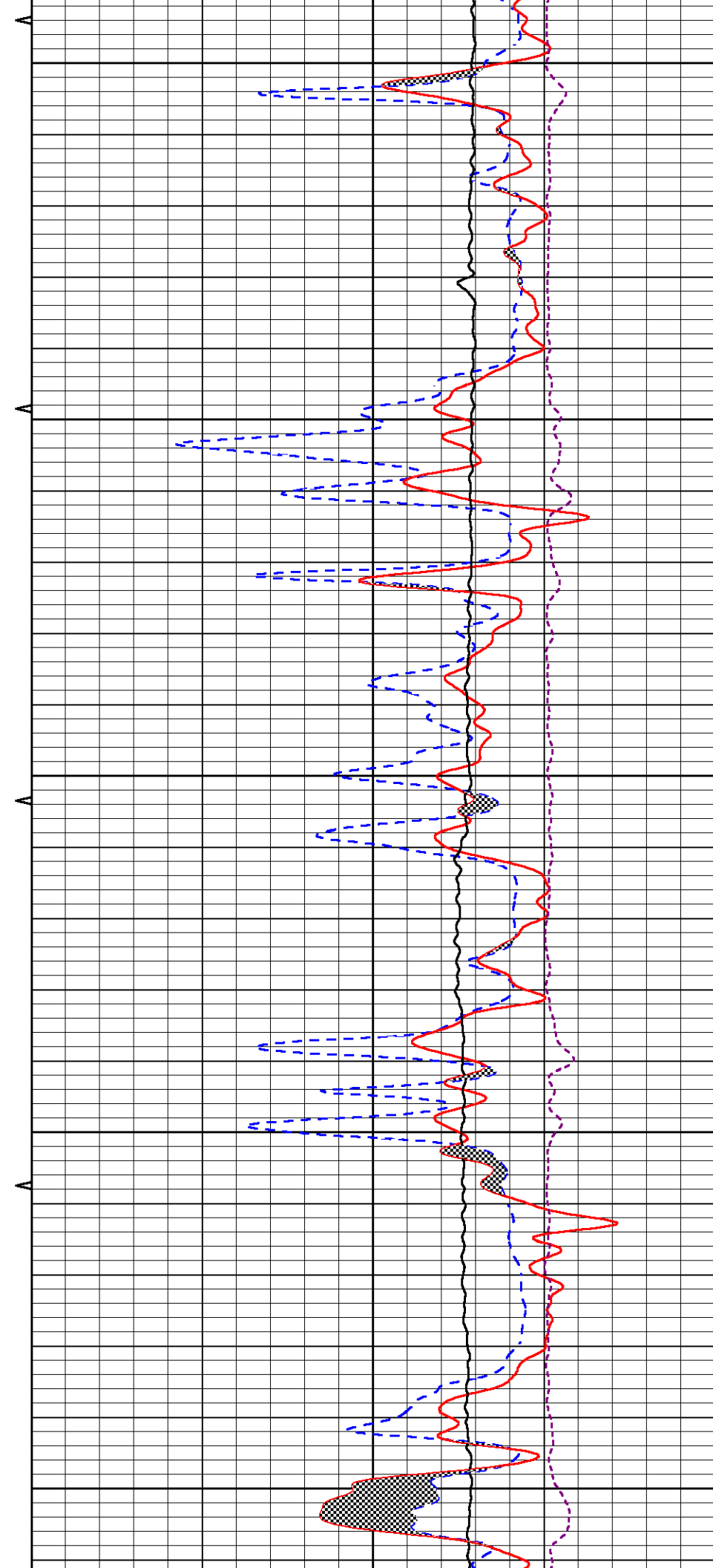
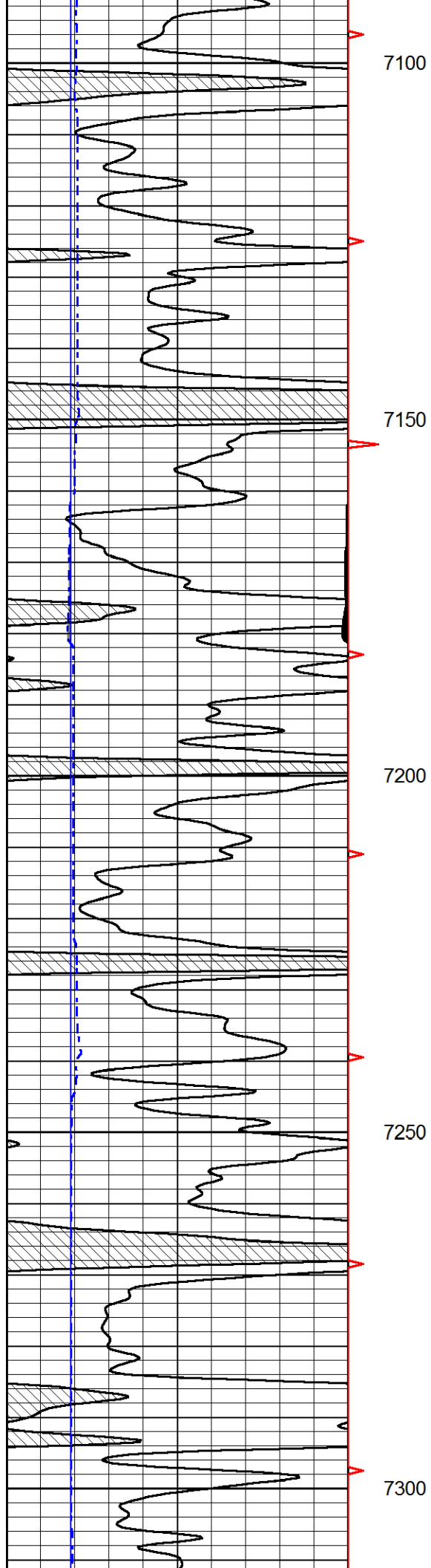
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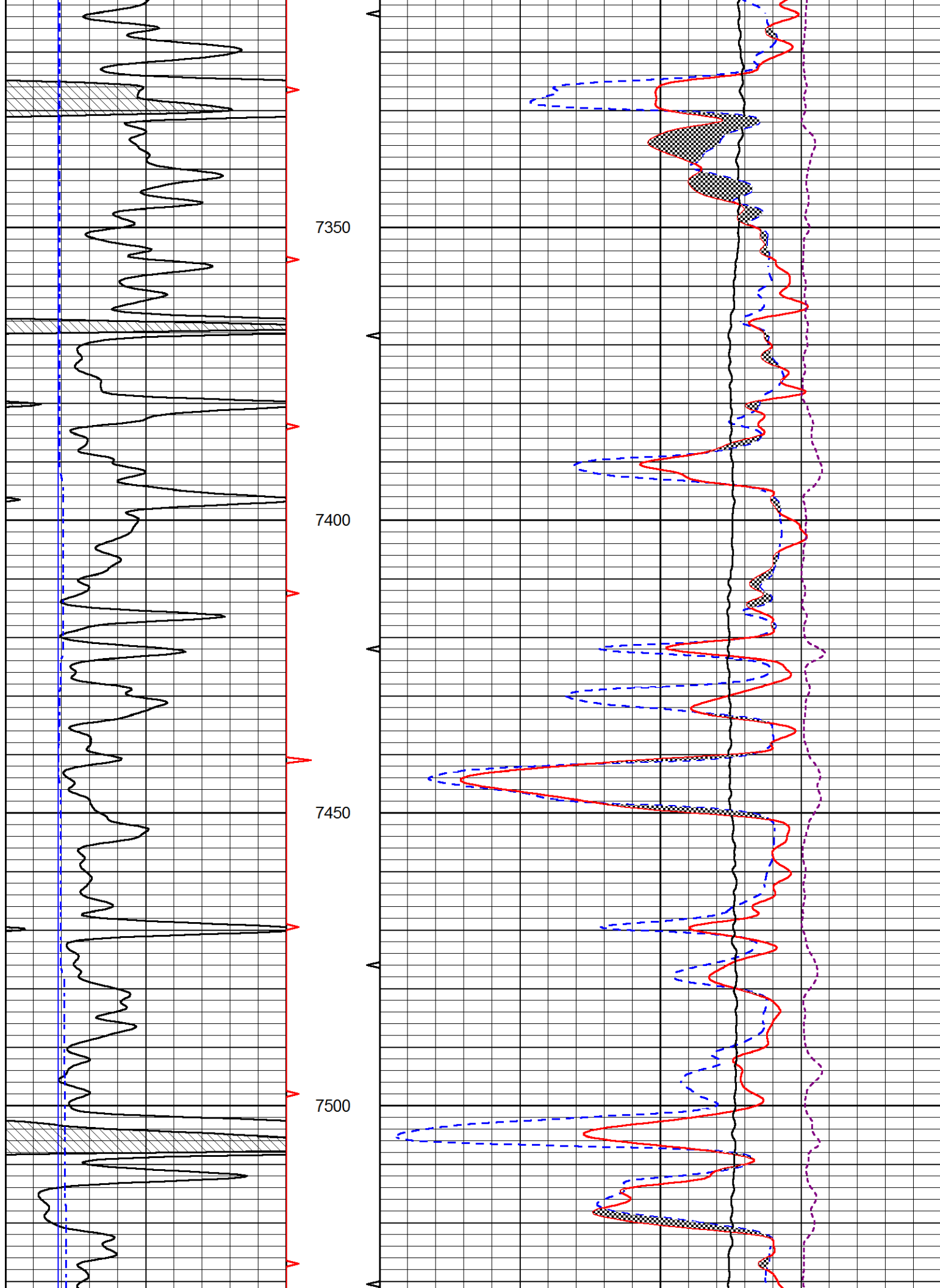
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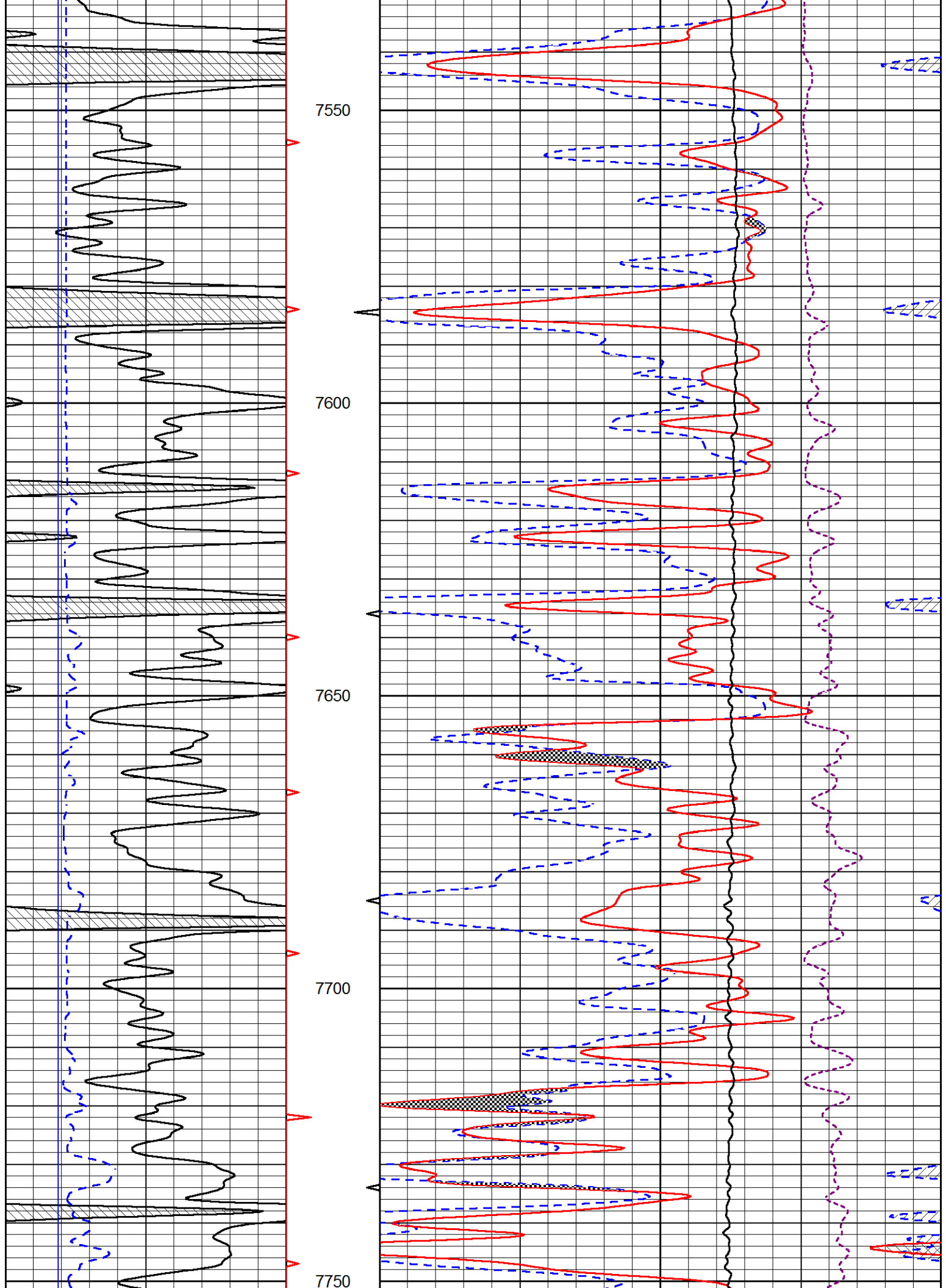
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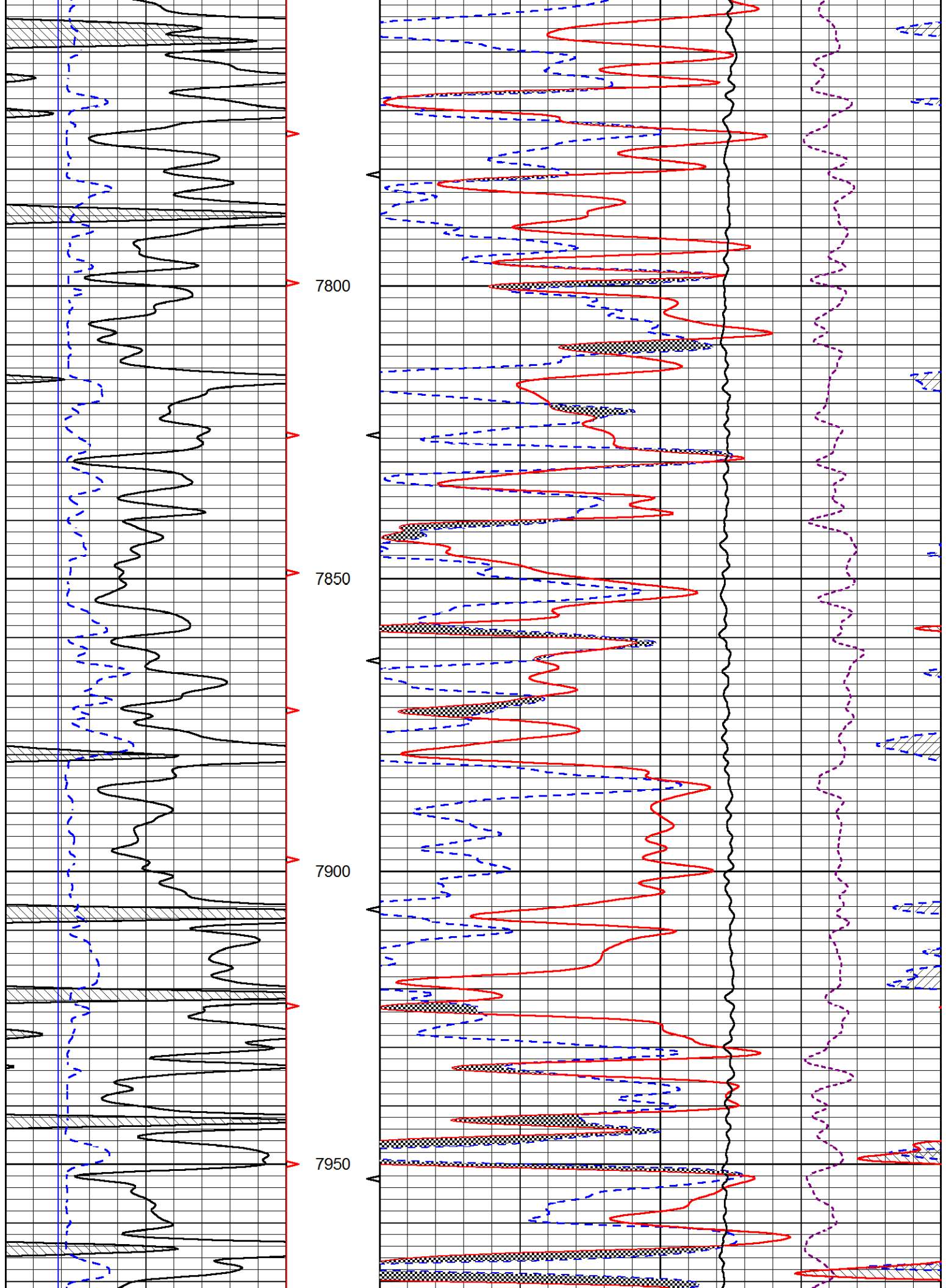
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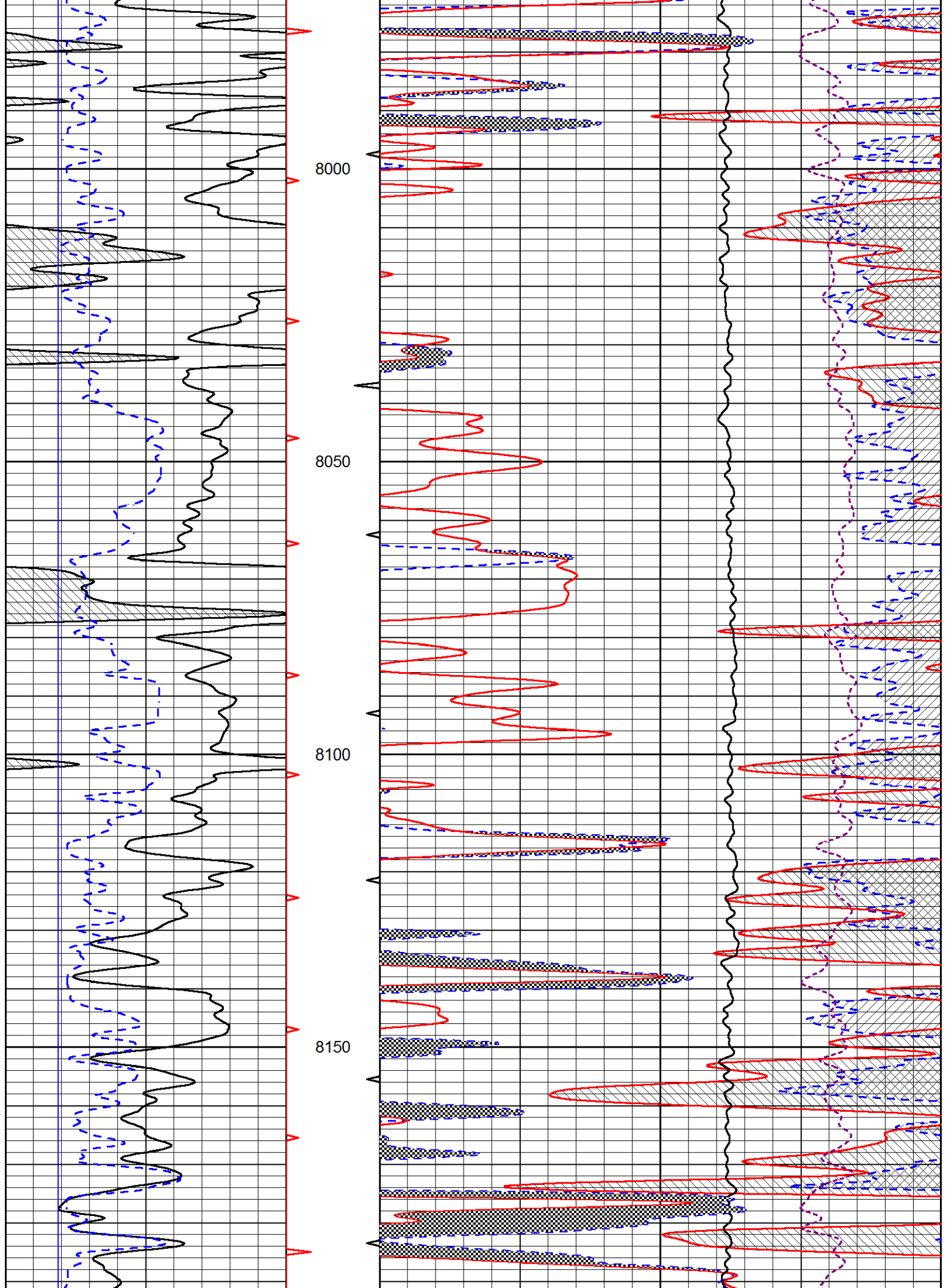


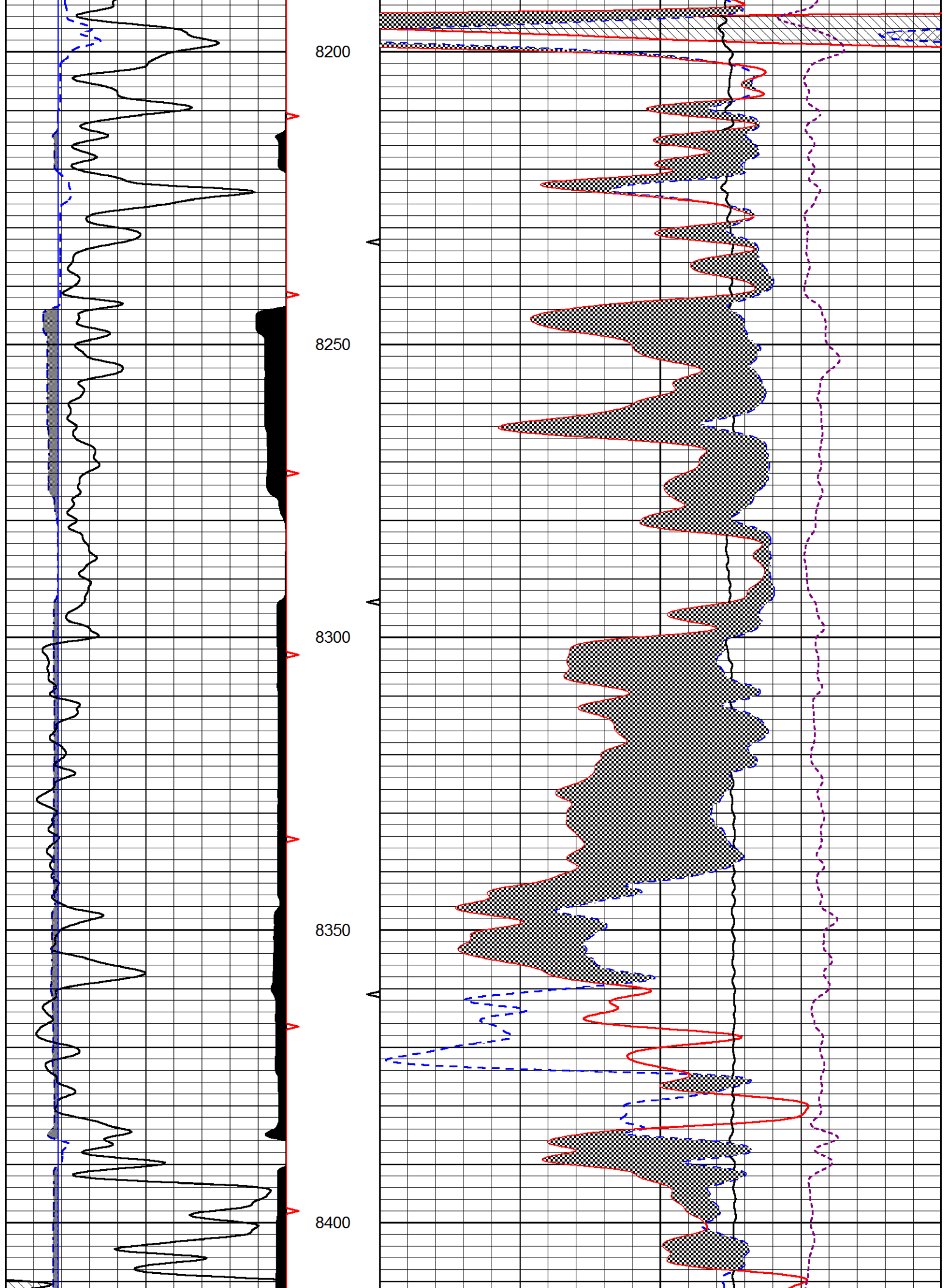


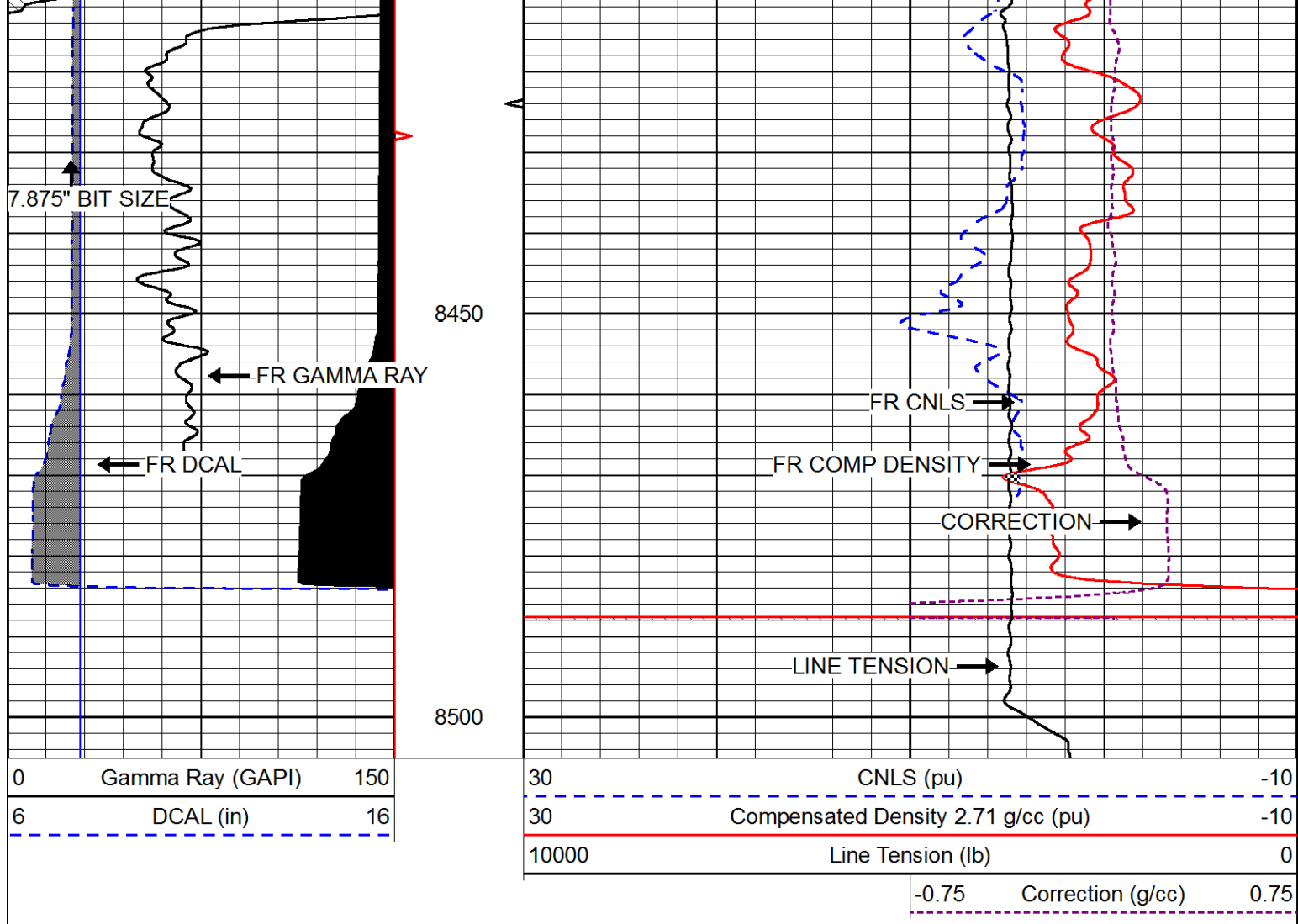












Calibration Report

Database File murfin_red poll_10-21.db
 Dataset Pathname STKML/pass5.8
 Dataset Creation Sat Sep 02 00:34:08 2017

Dual Induction Calibration Report

Serial-Model: PSI 91-M&W
 Calibration Performed: Thu Aug 10 08:41:25 2017

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	166.796	835.089	0.000	255.800	mmho/m	0.430	-32.000
Medium	142.009	1348.560	0.000	255.800	mmho/m	0.360	-27.000

Microlog Calibration Report

Serial-Model: PSI-01-PSIML
 Performed: Fri Aug 11 11:41:38 2017

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	35000.0000	-0.8000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	35000.0000	-0.4000
Caliper	1.0001	1.1397	6.5000	18.5000	in	100.0000	97.1750

Compensated Density Calibration Report

Serial-Model: 90-1031-M&W
Source / Verifier: 16955B / 2ci
Master Calibration Performed: Wed Aug 02 00:28:57 2017

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4903.44	6153.79	cps
Aluminum	2.685	g/cc	934.50	4021.31	cps
Spine Angle = 75.61			Density/Spine Ratio = 0.543		
	Size		Reading		
Small Ring	8.00	in	1.84		
Large Ring	22.00	in	1.46		

Compensated Neutron Calibration Report

Serial Number: 207-MW
Tool Model: M&W
Calibration Performed: Tues Aug 1 10:30:30 2017

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
Tool Model: M&W
Calibration Performed: Wed Aug 02 00:29:15 2017

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Sensitivity: 0.6000 GAPI/cps



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