



MIDWEST WIRELINE

**DUAL COMPENSATED
POROSITY /
MICRO LOG**

Company Murfin Drilling Company, Inc.
Well Keller B #1-36
Field
County Cheyenne
State Kansas

Company Murfin Drilling Company, Inc.
Well Keller B #1-36
Field
County Cheyenne State Kansas

Location: API #: 15-023-21564-00-00
1320 FSL 500 FEL

SEC 36 TWP 2S RGE 39W

Permanent Datum Ground Level Elevation 3404
Log Measured From Kelly Bushing
Drilling Measured From Kelly Bushing

Other Services
DIL/BHCS

K.B. 3409
D.F.
G.L. 3404

| | | | | | | | |
|------------------------|----------------|------|-----|-------|------|------|-----|
| Date | 1/24/2022 | | | | | | |
| Run Number | One | | | | | | |
| Type Log | CNL / CDL / ML | | | | | | |
| Depth Driller | 5200 | | | | | | |
| Depth Logger | 5204 | | | | | | |
| Bottom Logged Interval | 5203 | | | | | | |
| Top Logged Interval | 3700 | | | | | | |
| Type Fluid In Hole | Chemical | | | | | | |
| Salinity, PPM CL | 900 | | | | | | |
| Density | 9.2 | | | | | | |
| Level | Full | | | | | | |
| Max. Rec. Temp. F | 128 | | | | | | |
| Operating Rig Time | 6 Hours | | | | | | |
| Equipment -- Location | P-24 Hays | | | | | | |
| Recorded By | D. Schmidt | | | | | | |
| Witnessed By | Wes Hansen | | | | | | |
| Borehole Record | | | | | | | |
| Run No. | Bit | From | To | Size | Wgt. | From | To |
| One | 12.25 | 0 | 322 | 8.625 | 23 | 0 | 322 |
| Two | 7.875 | 322 | TD | | | | |
| Casing Record | | | | | | | |

<<< 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,
5 West to 23 Rd, 5 1/4 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

Engineer: D. Schmidt
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: Wes Hansen
Secondary Witness:
Secondary Witness:
Secondary Witness:

| Sensor | Offset (ft) | Schematic | Description | Length (ft) | O.D. (in) | Weight (lb) |
|--------------------|-------------------------|-----------|------------------|-------------|-----------|-------------|
| GR | 40.33 | | GR-M&W (101) | 3.00 | 3.50 | 50.00 |
| CNLSC CNSSC | 37.23 36.48 | | CNT-M&W (207-MW) | 5.00 | 3.50 | 100.00 |
| LSD DCAL SSD | 28.18 28.17 27.68 | | CDL-M&W (305-05) | 8.50 | 4.00 | 250.00 |
| ML-PSIML (402) | | | 7.58 | 4.00 | 65.00 | |
| MCAL MI MN | 19.58 19.58 19.58 | | | | | |
| RLL3F RLL3 | 15.50 15.50 | | | | | |
| DIL-M&W (501 HT) | | | 18.25 | 3.50 | 220.00 | |
| CILD | 8.33 | | | | | |
| CILM | 4.50 | | | | | |
| SP | 0.20 | | | | | |

Dataset: murfin_keller b 1-36.db: field/well/stkml/pass3.1
 Total length: 42.33 ft
 Total weight: 685.00 lb
 O.D.: 4.00 in

Log Variables

DatabaseC:\ProgramData\Warrior\Data\murfin_keller b 1-36.db
 Dataset field/well/stkml/pass3.1/_vars_

Top - Bottom

| | | | | | | | |
|-----------|--------------|------------------|-------------------|----------------|------------------|-------|------------------|
| A | BOREID in | BOTTEMP degF | CASEOD in | CASETHCK in | FLUIDDEN g/cc | M | MATRXDEN g/cc |
| 1 | 7.875 | 129 | 5.5 | 0 | 1 | 2 | 2.71 |
| NPORSEL | PERFS | SNDERR mmho/m | SNDERRM mmho/m | SPSHIFT mV | SRFTEMP degF | SZCOR | TDEPTH ft |
| Limestone | 0 | 0 | 0 | 480 | 40 | Off | 5204 |

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

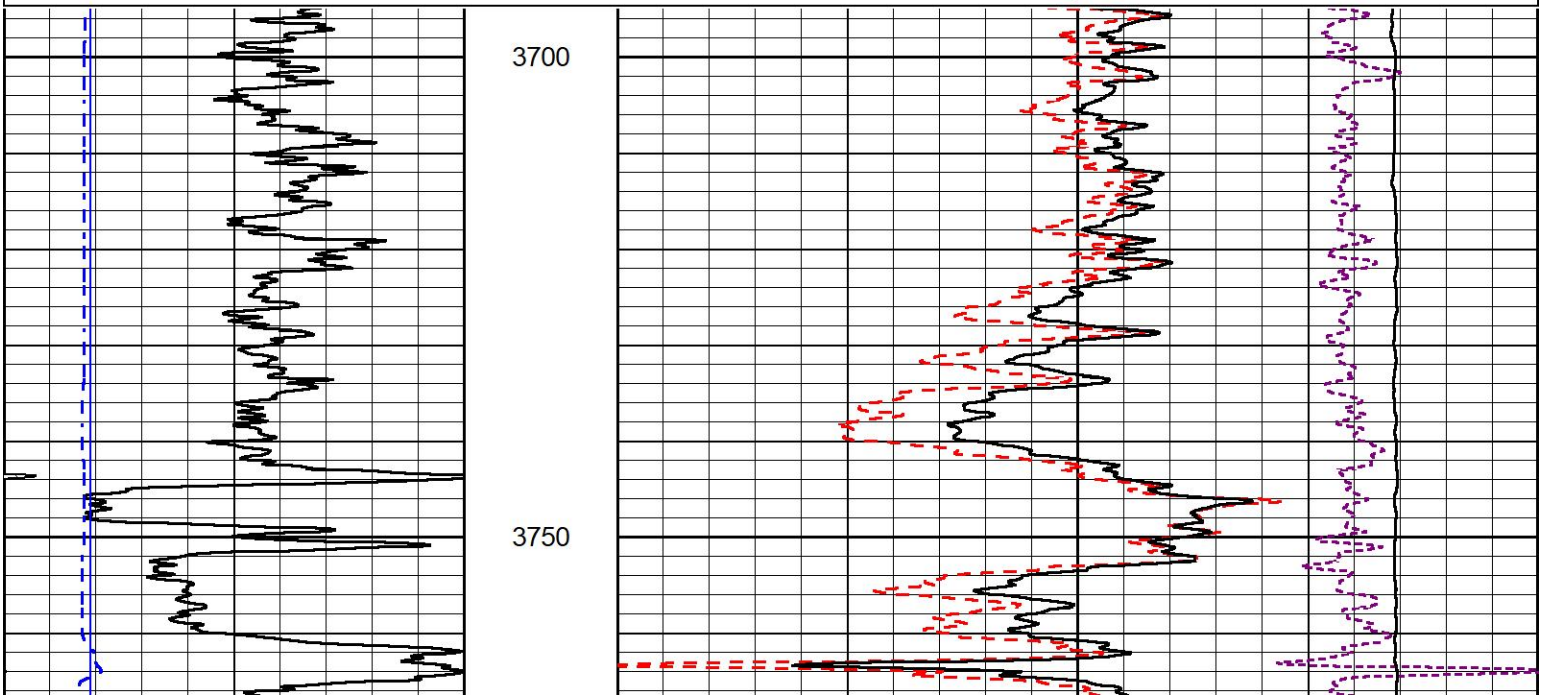


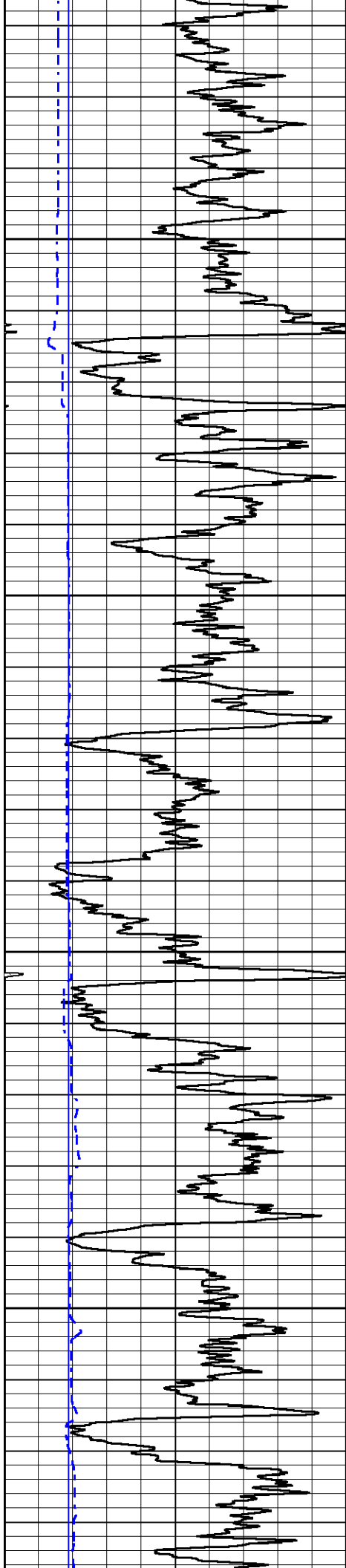
5" SCALE BULK DENSITY

MAIN PASS

Database File murfin_keller b 1-36.db
 Dataset Pathname stkml/pass3.2
 Presentation Format _cdl
 Dataset Creation Mon Jan 24 22:16:01 2022
 Charted by Depth in Feet scaled 1:240

| | | | | | | |
|---|------------------|-----|-------|--------------------------|-------------------|------|
| 0 | Gamma Ray (GAPI) | 150 | 30 | Compensated Density (pu) | -10 | |
| 6 | Caliper (in) | 16 | 2 | Bulk Density (g/cc) | 3 | |
| | | | 10000 | Line Tension (lb) | 0 | |
| | | | | -0.25 | Correction (g/cc) | 0.25 |



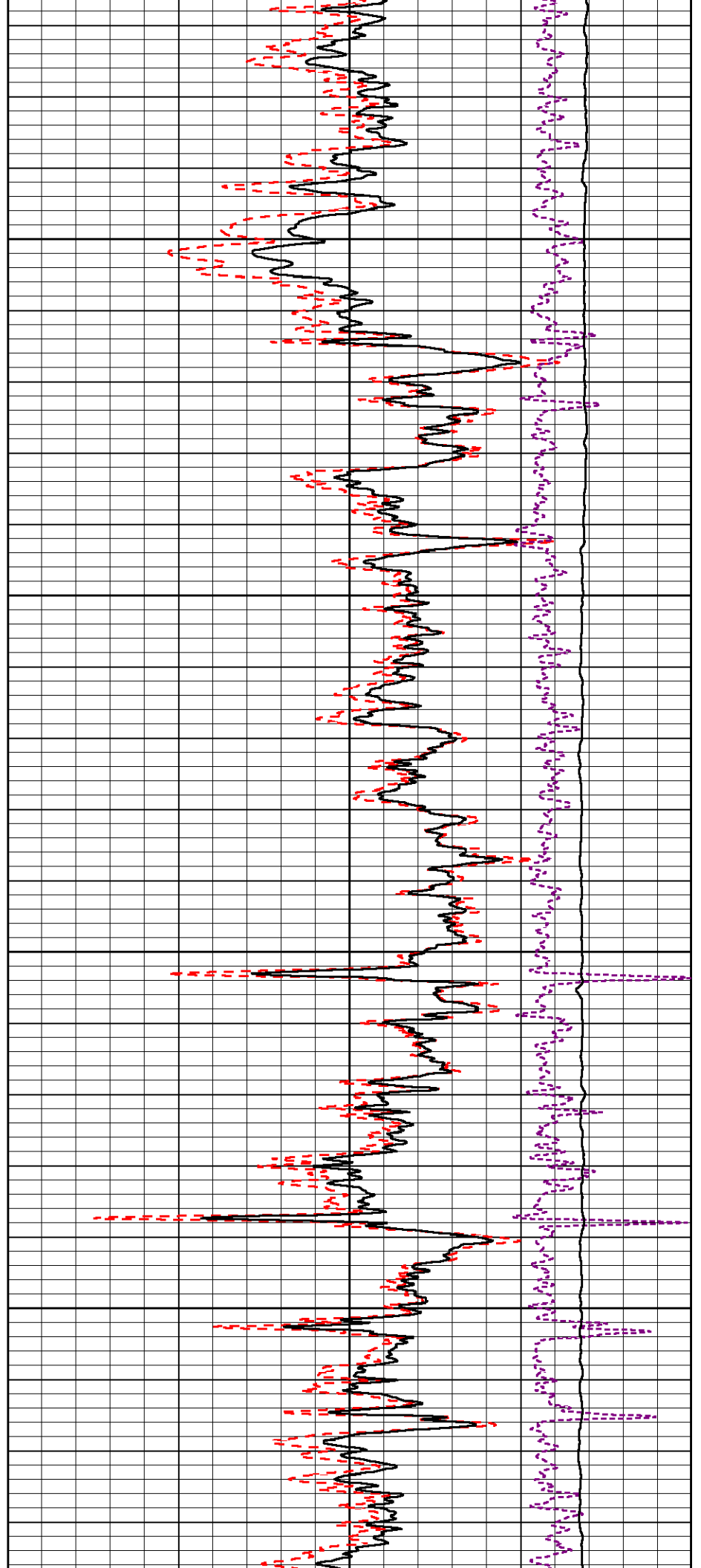


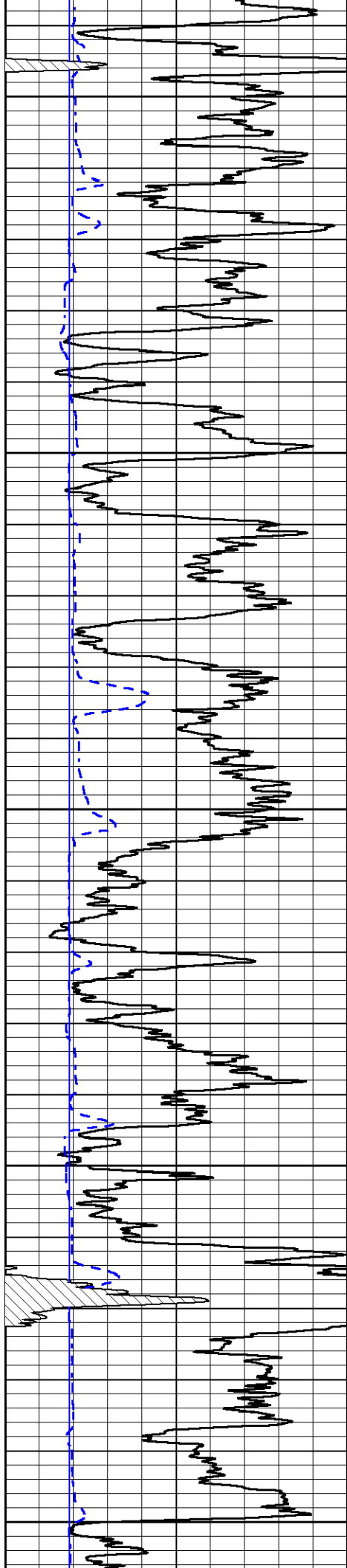
3800

3850

3900

3950





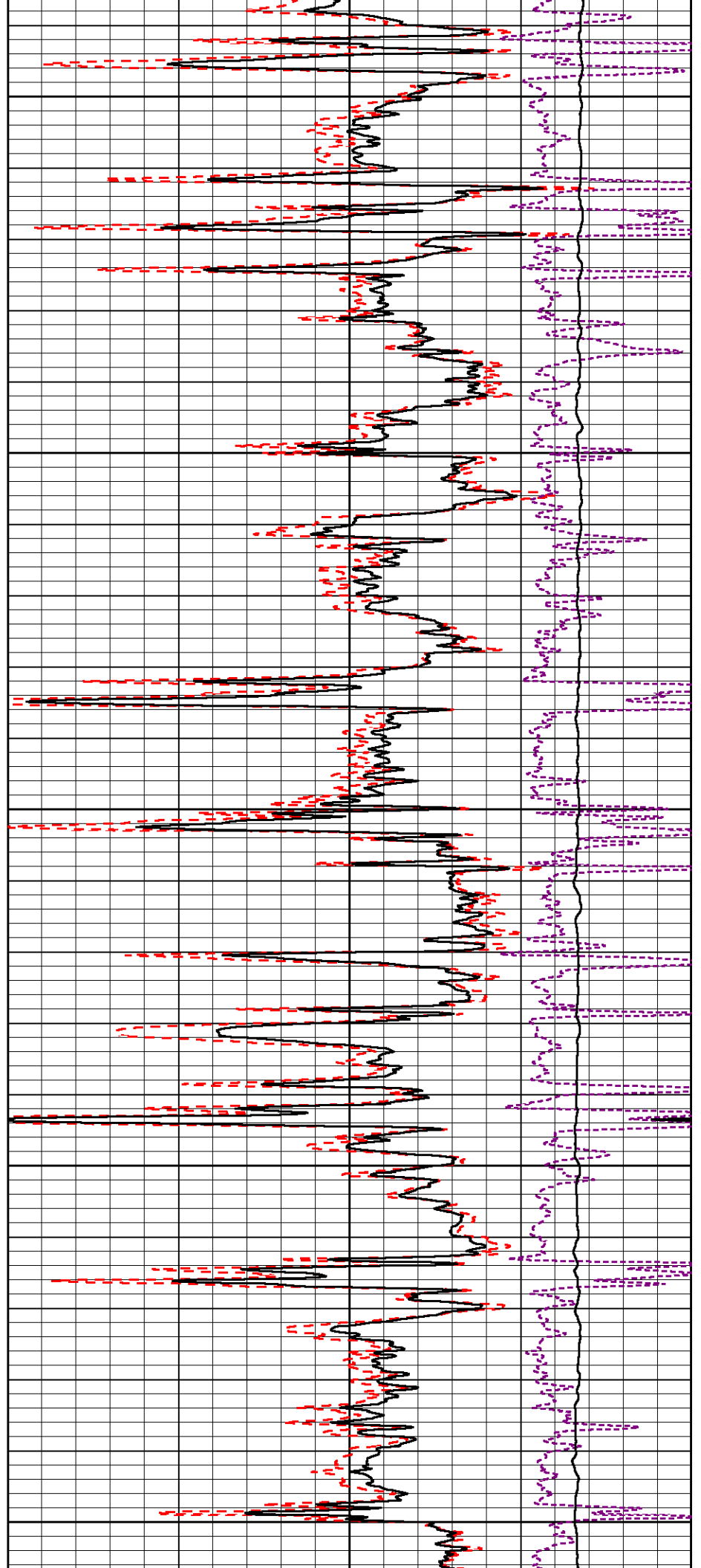
4000

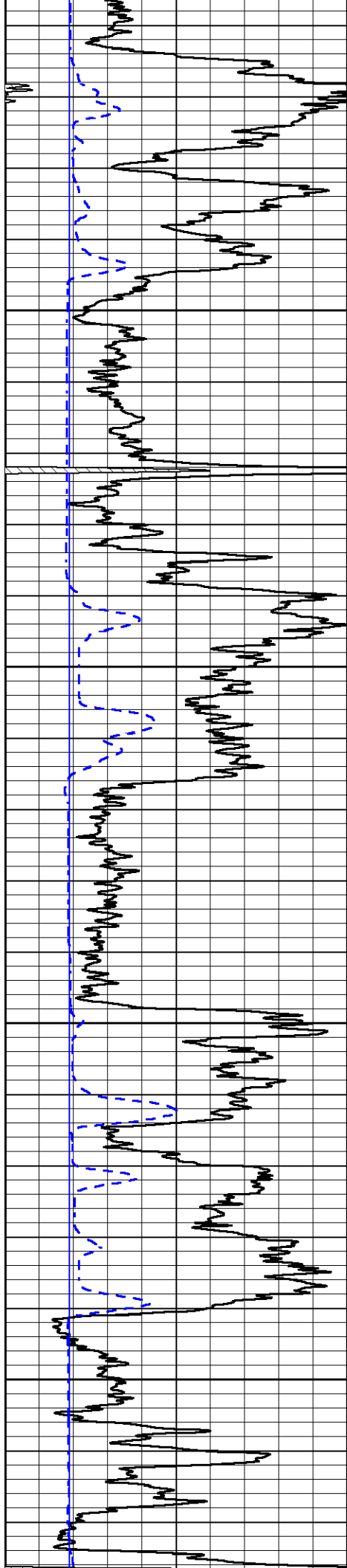
4050

4100

4150

4200



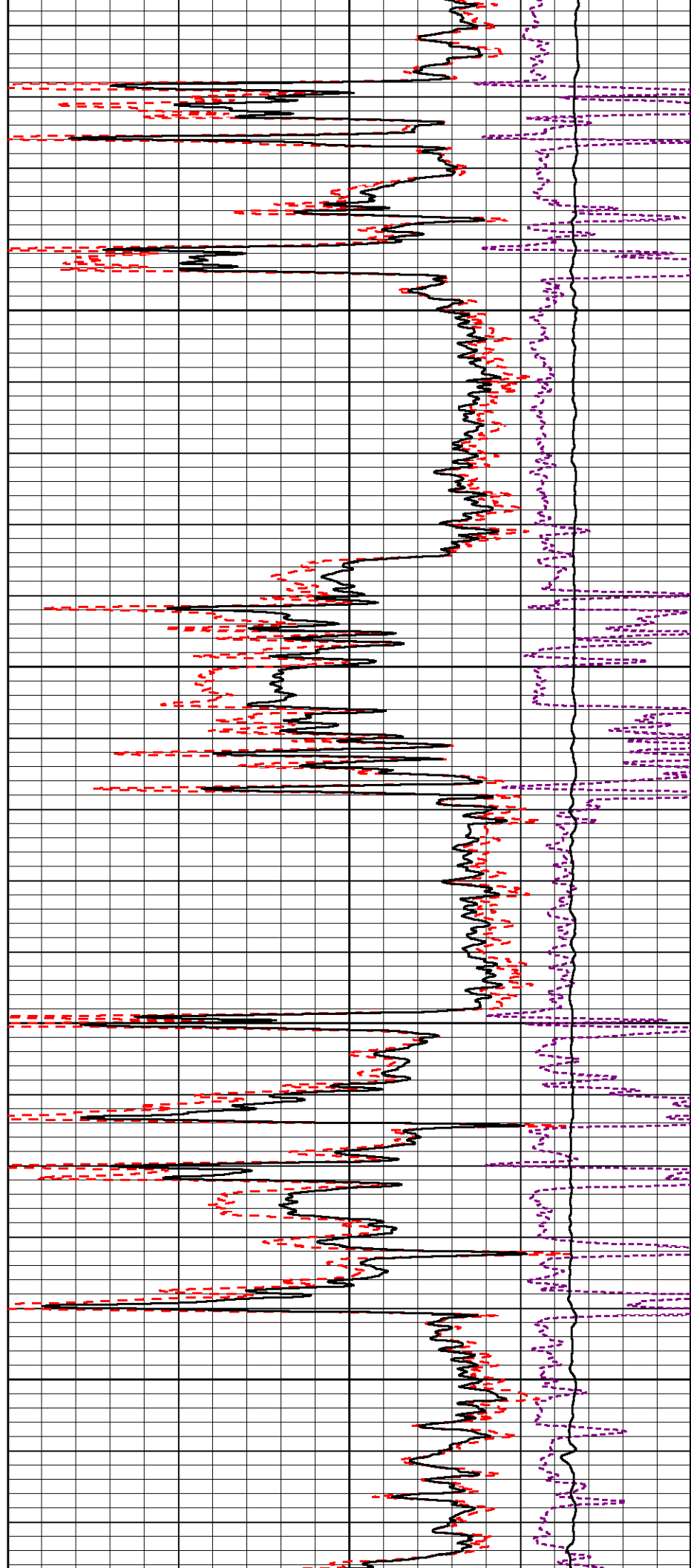


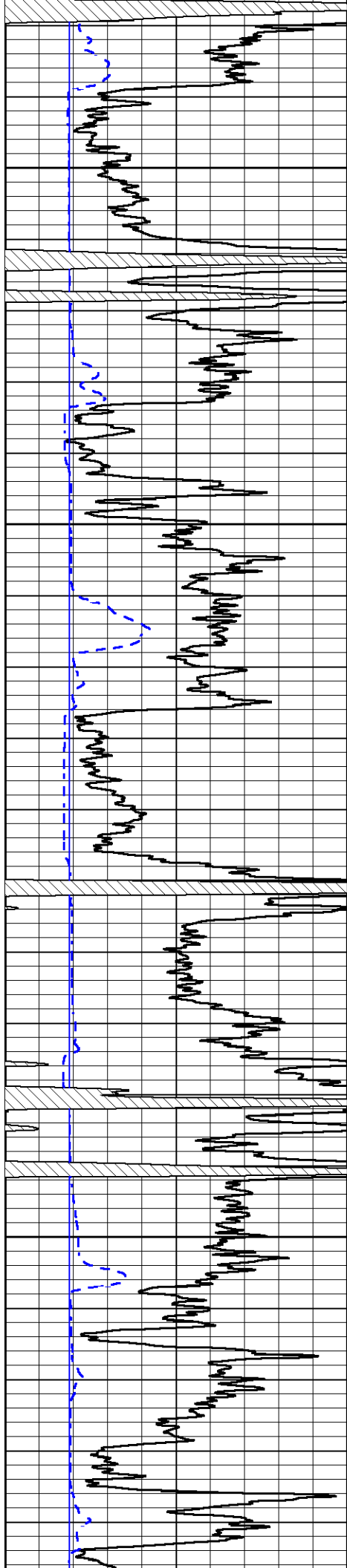
4250

4300

4350

4400



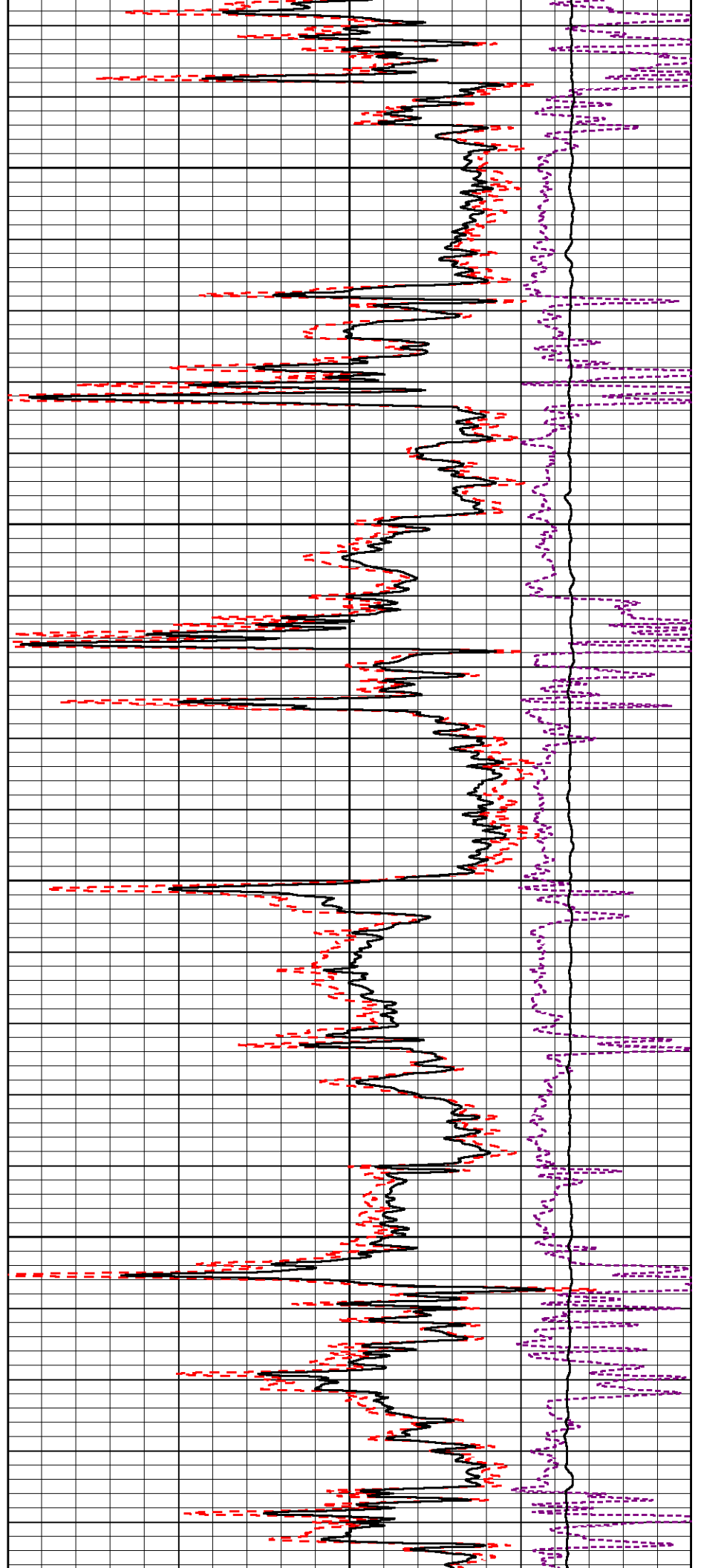


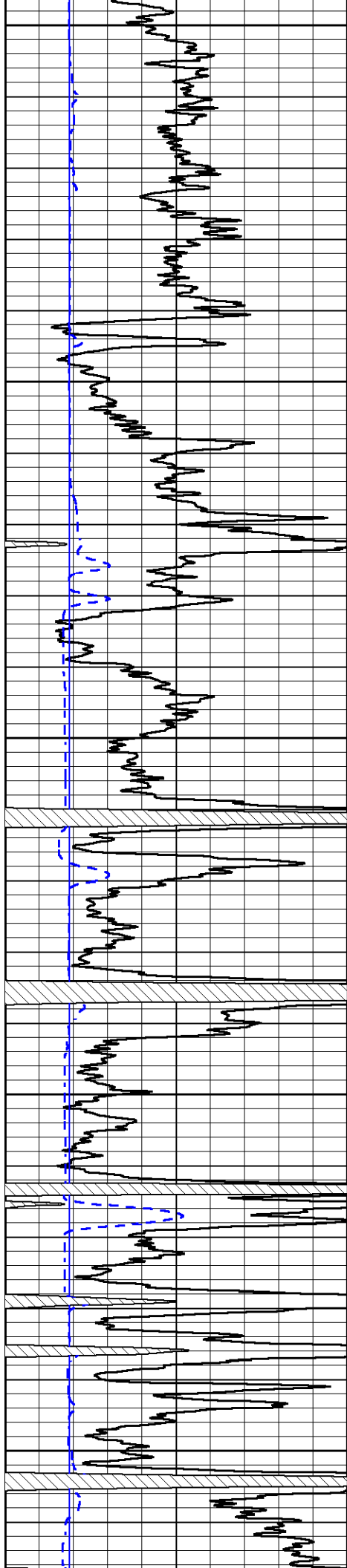
4450

4500

4550

4600





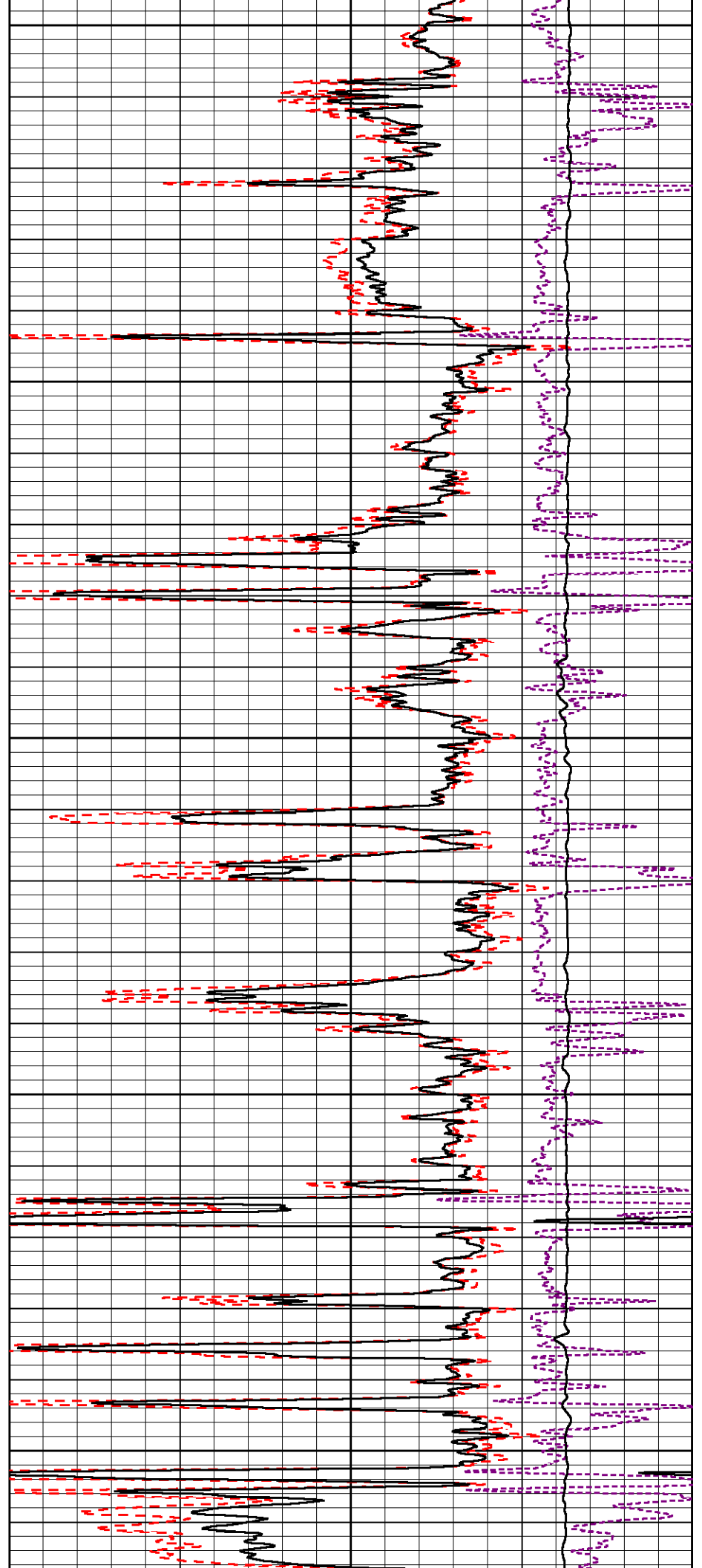
4650

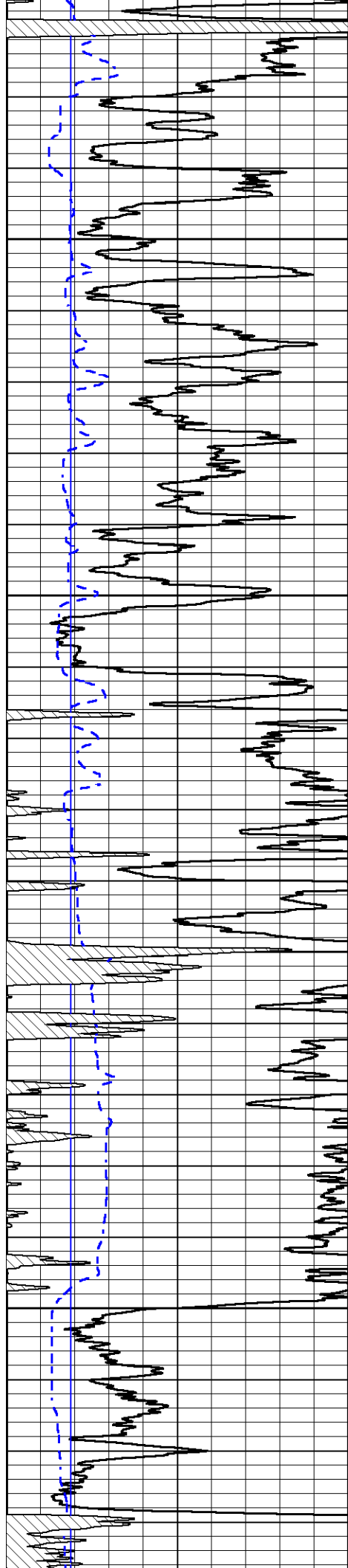
4700

4750

4800

4850



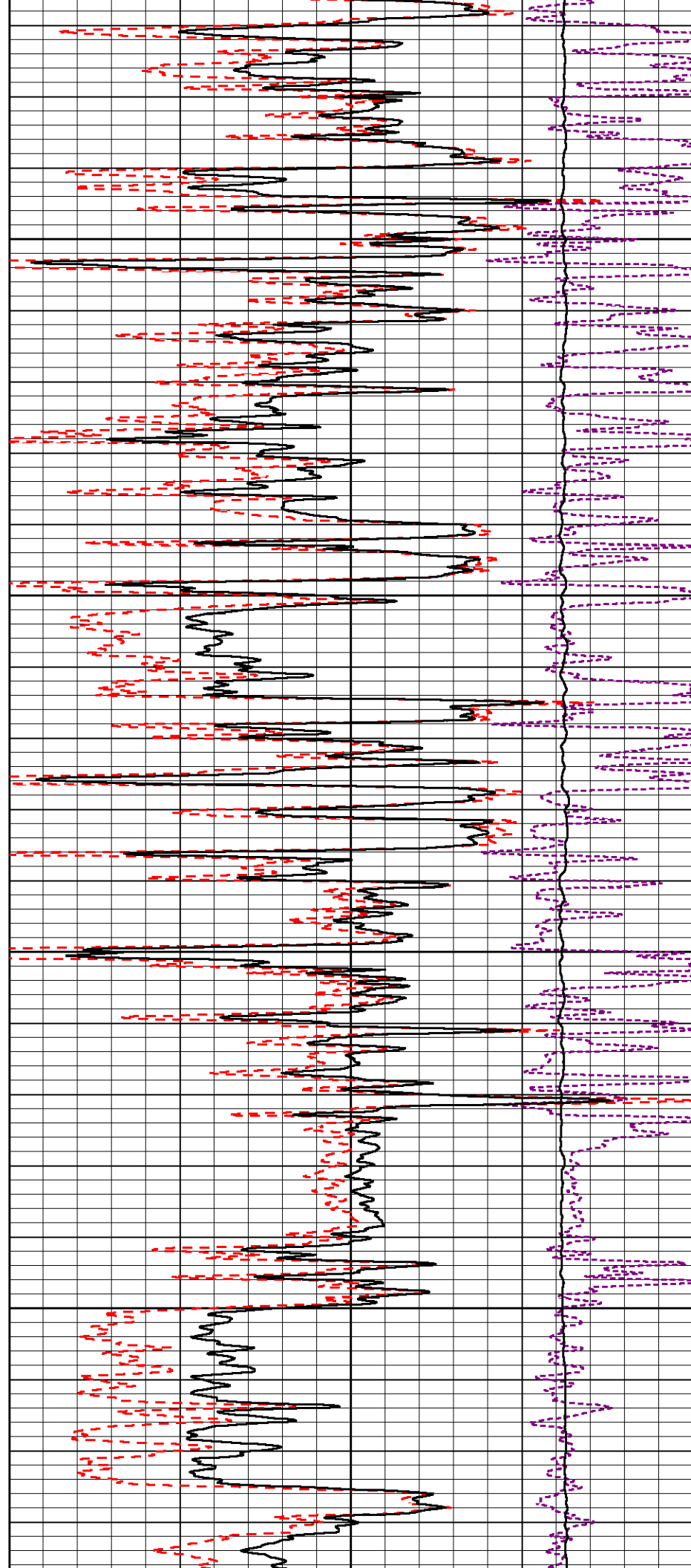


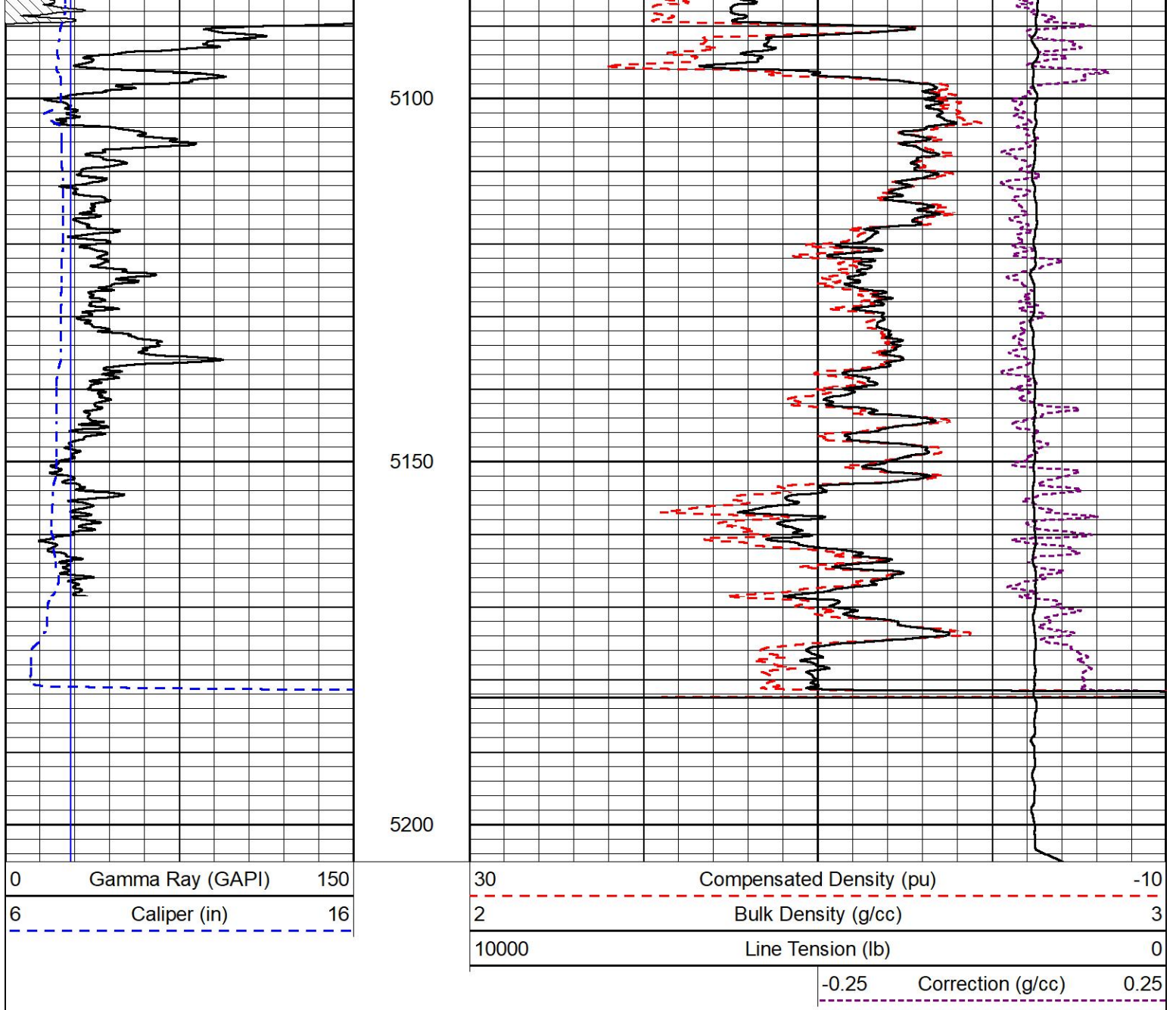
4900

4950

5000

5050

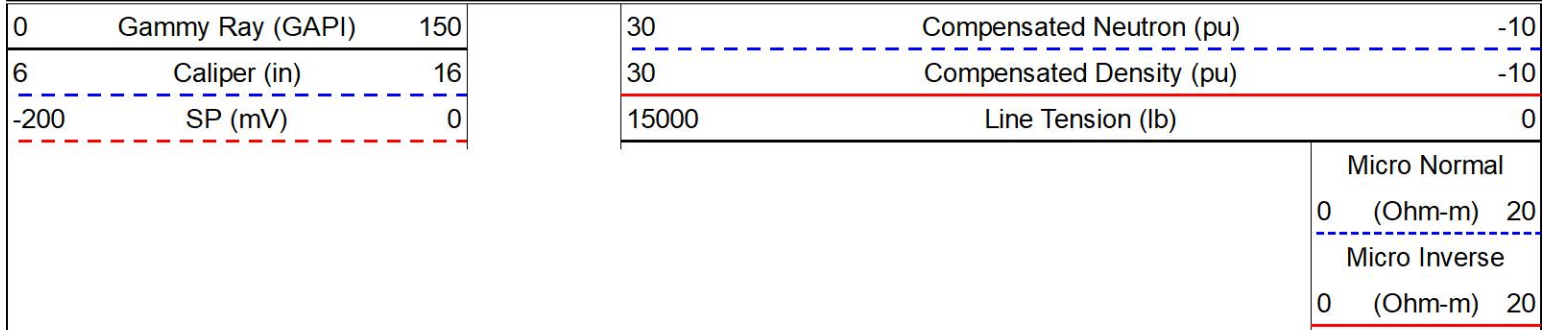


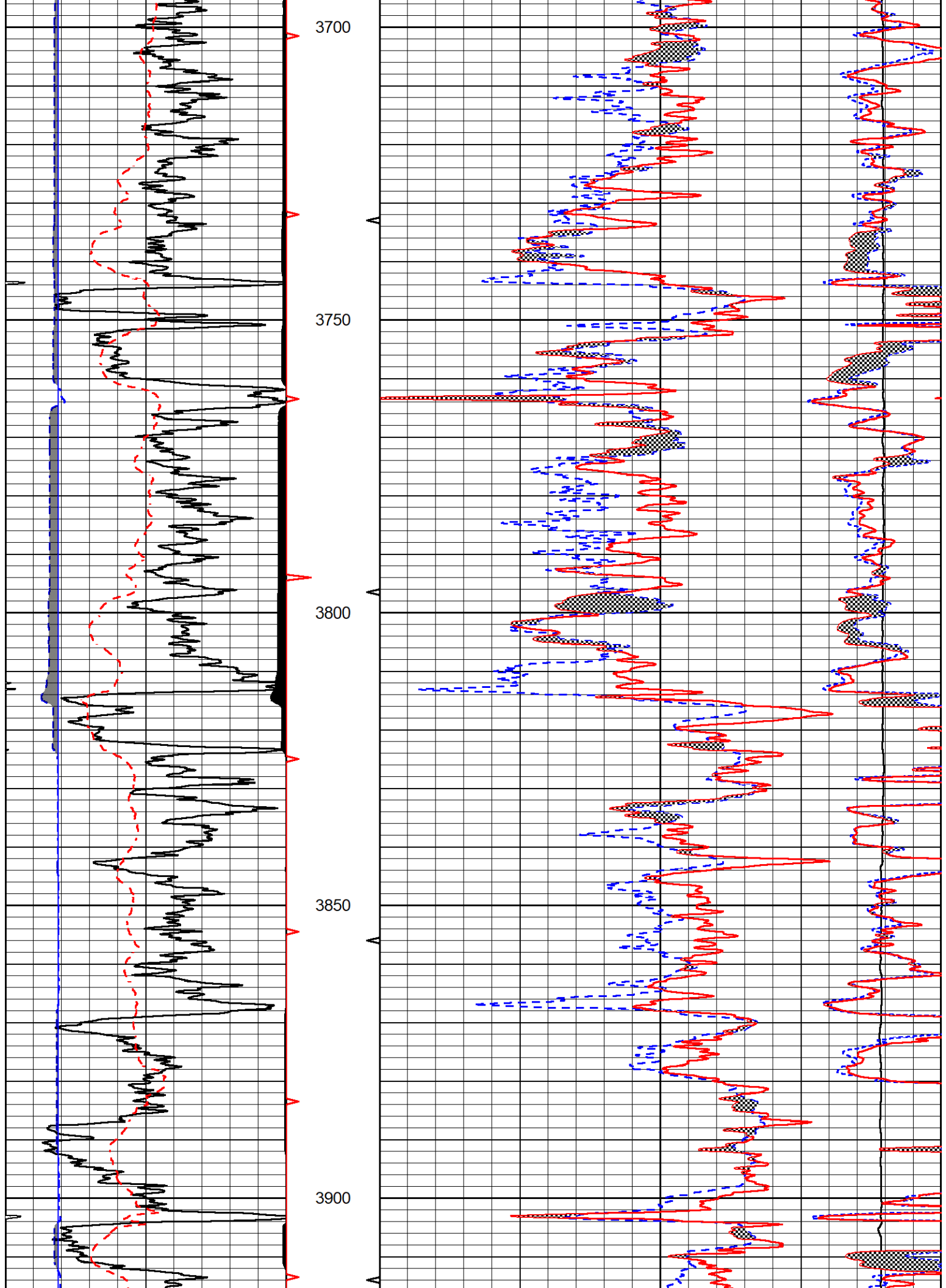


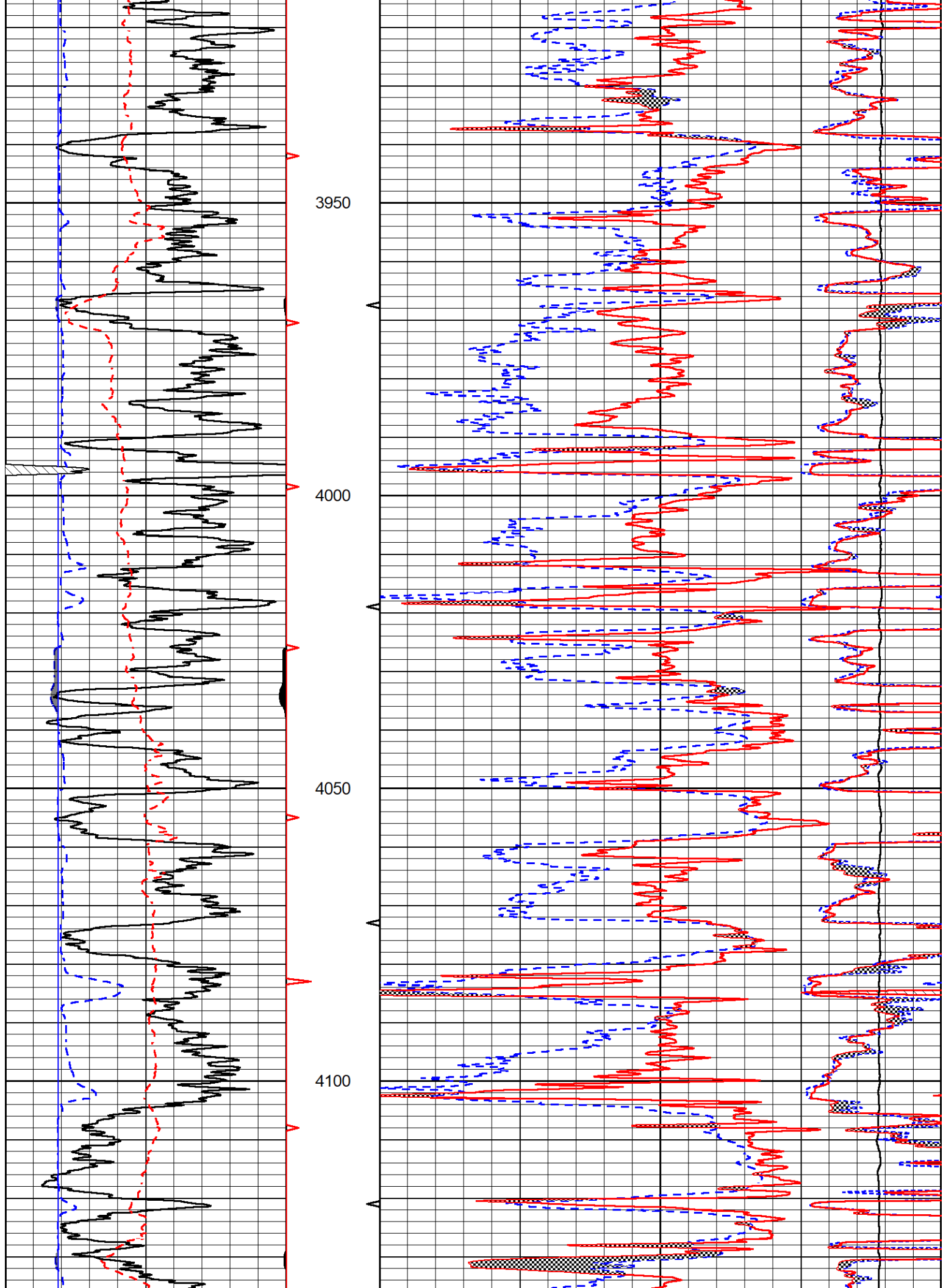
DETAIL SECTION

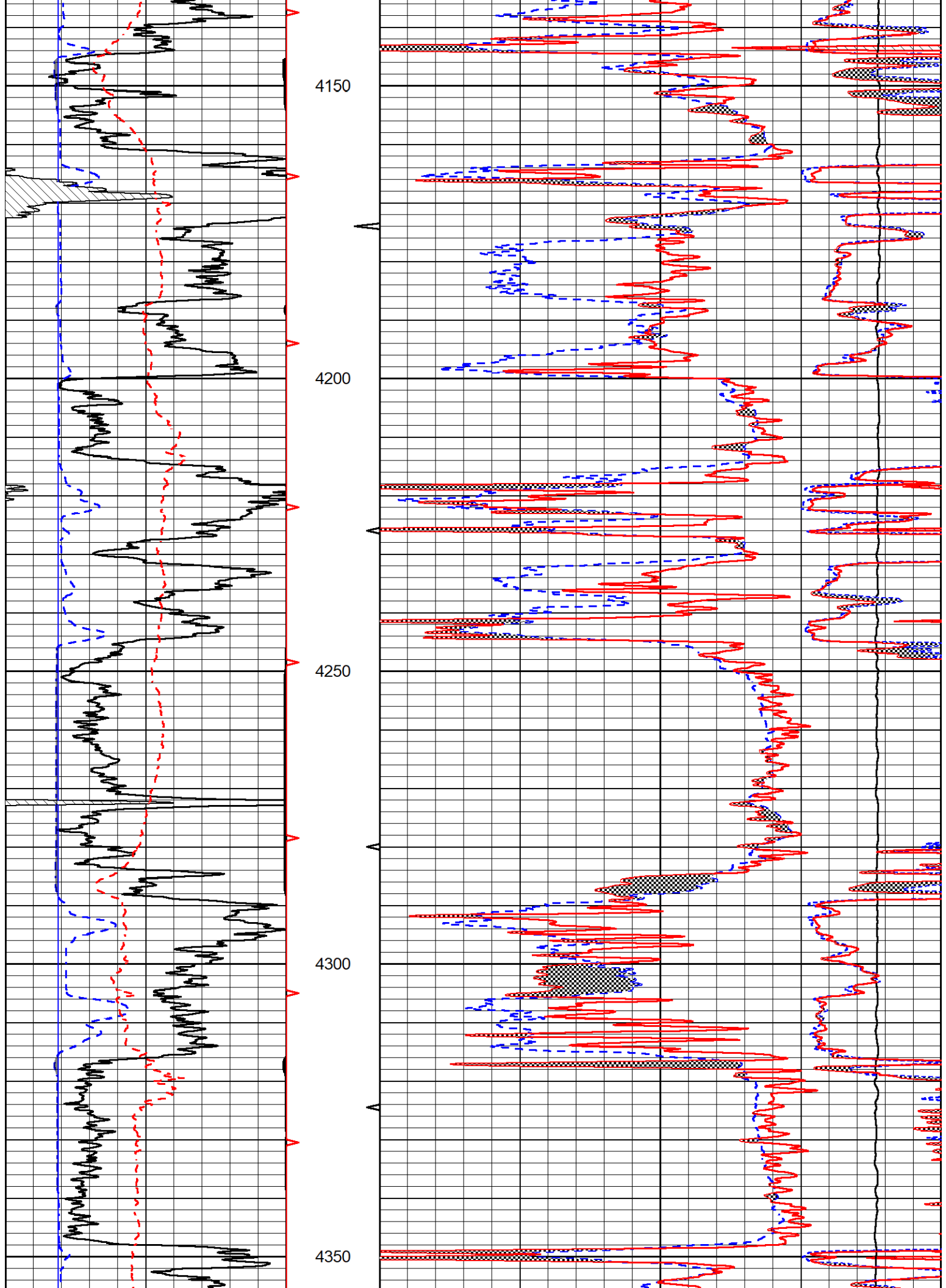
MAIN PASS

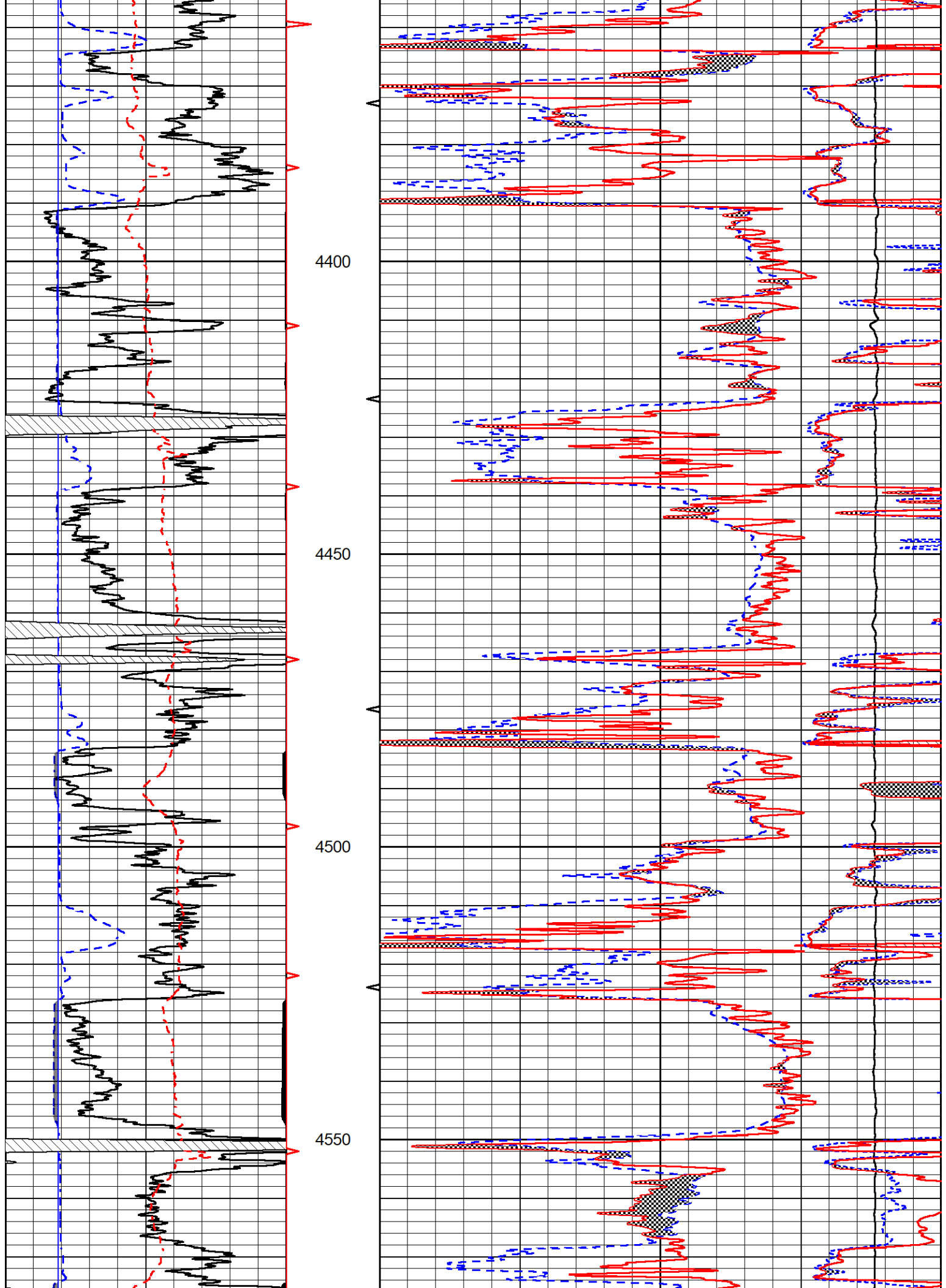
Database File murfin_keller b 1-36.db
 Dataset Pathname stkml/pass3.1
 Presentation Format _CNDLS~2
 Dataset Creation Mon Jan 24 22:15:54 2022
 Charted by Depth in Feet scaled 1:240

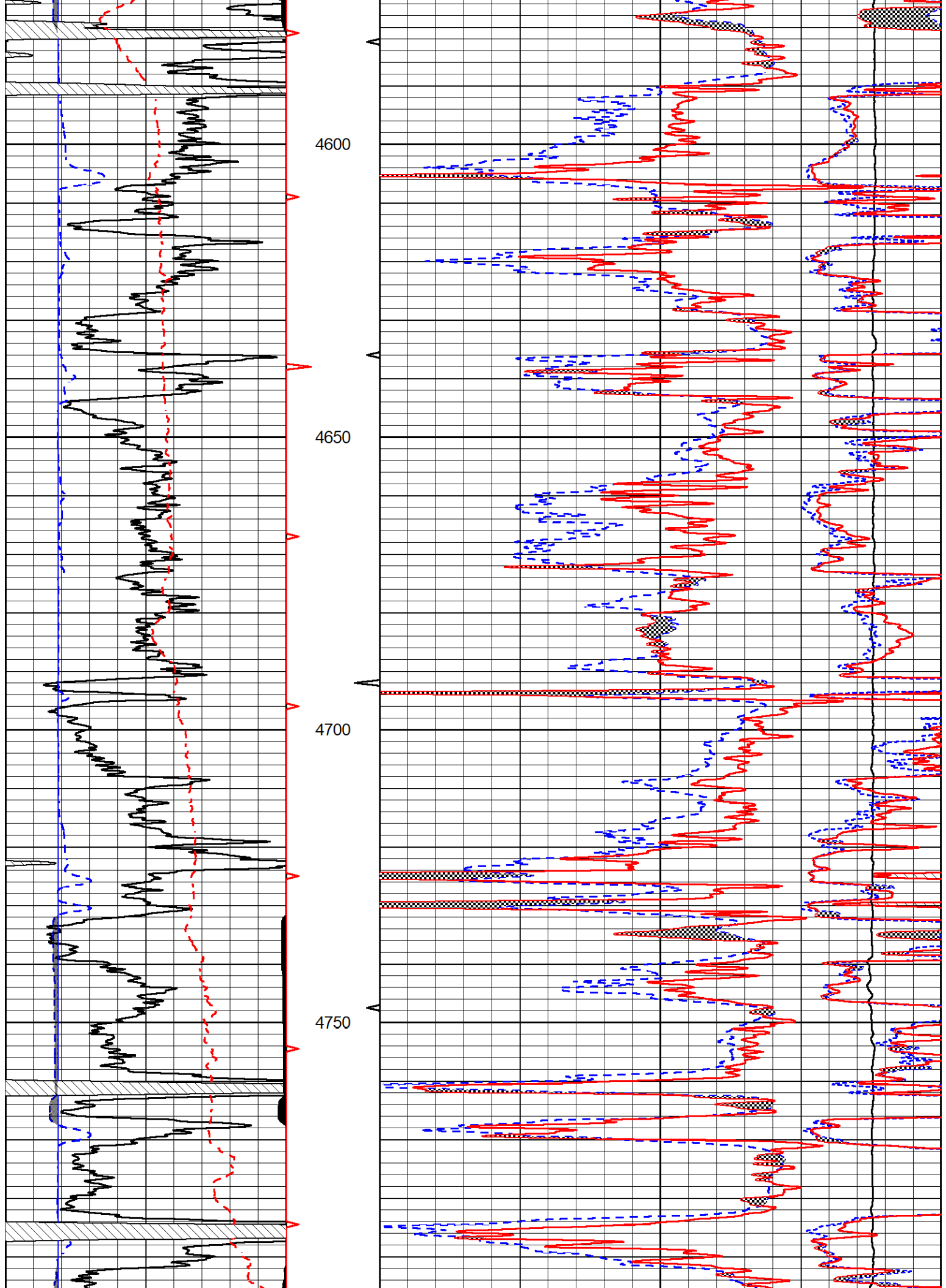


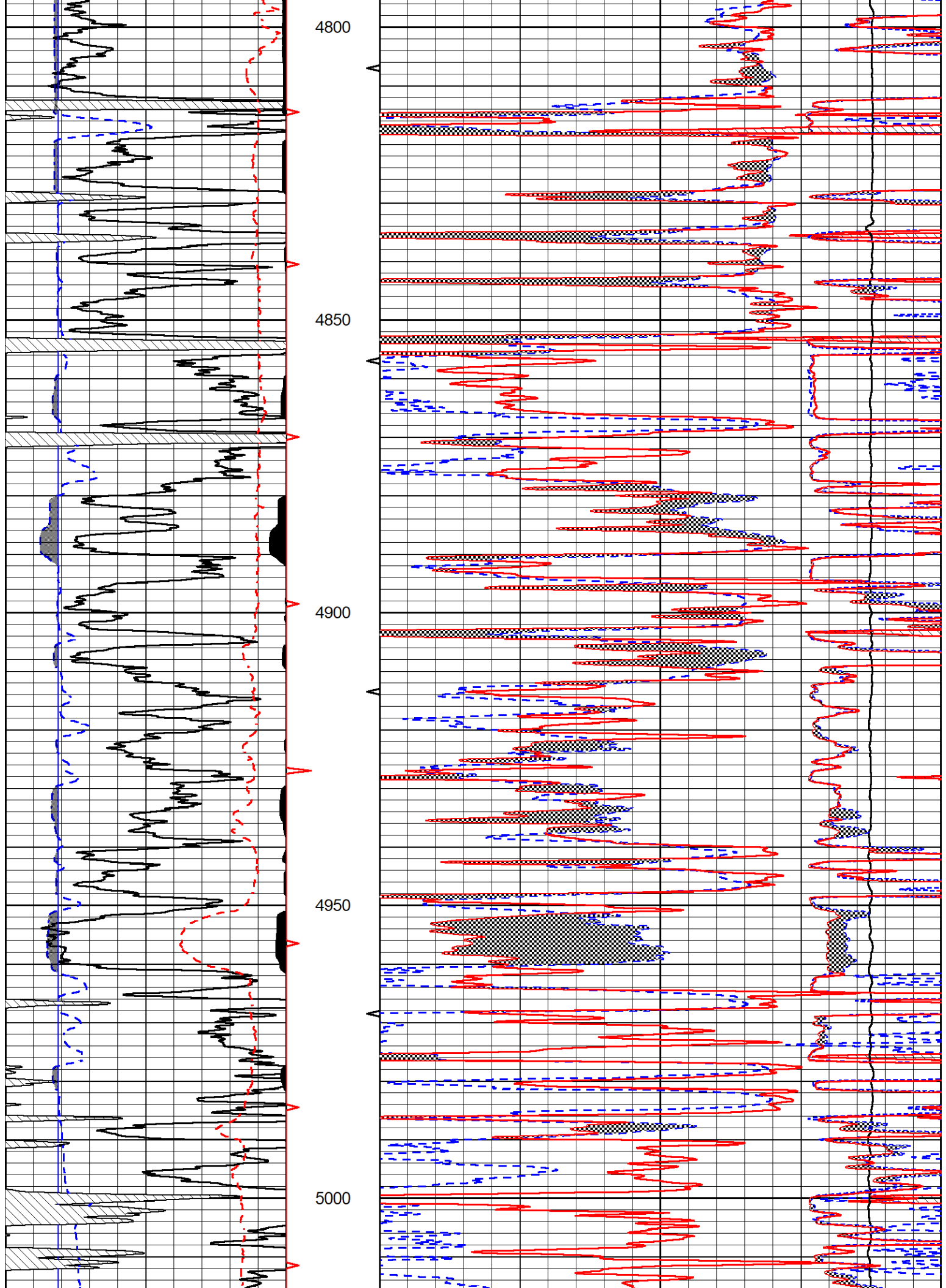














REPEAT SECTION

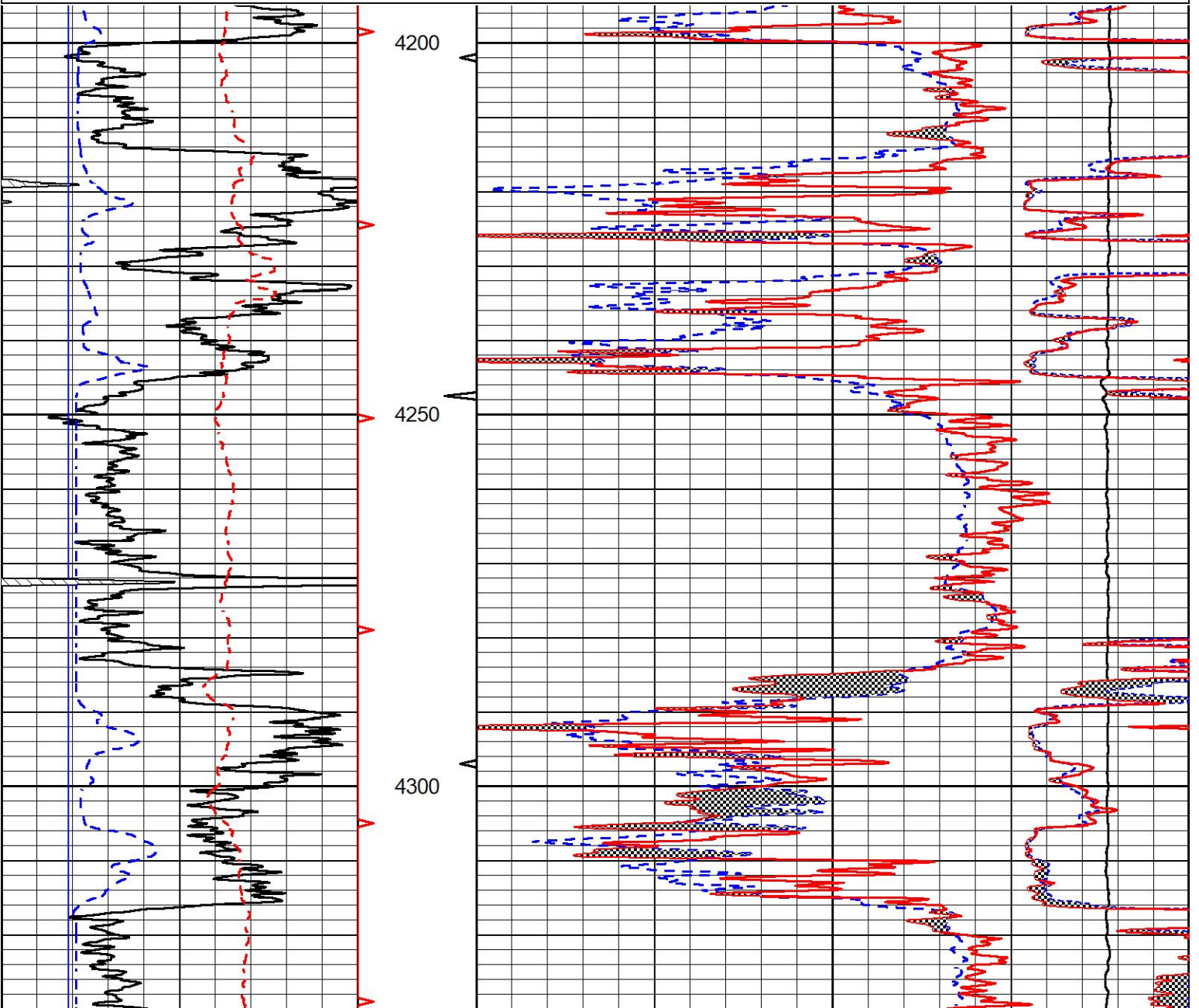
REPEAT PASS

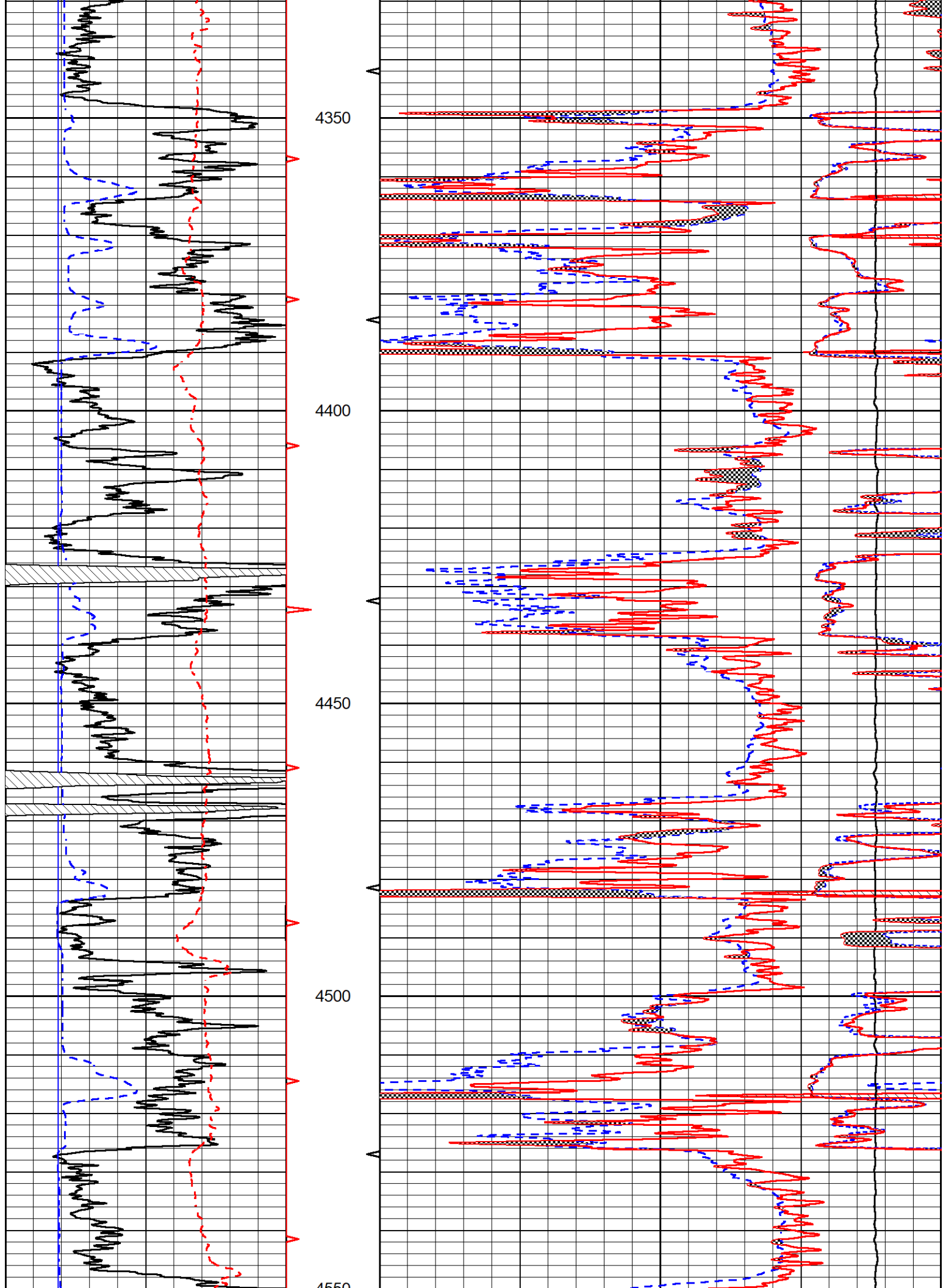
Database File murfin_keller b 1-36.db
 Dataset Pathname stkml/pass2.1
 Presentation Format _CNDLS~2
 Dataset Creation Mon Jan 24 22:14:24 2022
 Charted by Depth in Feet scaled 1:240

| | | |
|------|------------------|-----|
| 0 | Gammy Ray (GAPI) | 150 |
| 6 | Caliper (in) | 16 |
| -200 | SP (mV) | 0 |

| | | |
|-------|--------------------------|-----|
| 30 | Compensated Neutron (pu) | -10 |
| 30 | Compensated Density (pu) | -10 |
| 15000 | Line Tension (lb) | 0 |

| | | |
|---|---------------|----|
| | Micro Normal | |
| 0 | (Ohm-m) | 20 |
| | Micro Inverse | |
| 0 | (Ohm-m) | 20 |





| | Readings | | References | | | Results | |
|---------|----------|--------|------------|---------|-------|------------|-----------|
| | Zero | Cal | Zero | Cal | | m | b |
| Normal | 0.0000 | 1.0000 | 0.0000 | 1.0000 | Ohm-m | 34000.0000 | -2.5000 |
| Inverse | 0.0000 | 1.0000 | 0.0000 | 1.0000 | Ohm-m | 20000.0000 | 0.0000 |
| Caliper | 1.0052 | 1.0858 | 5.0000 | 16.5000 | in | 125.0000 | -124.0000 |

Compensated Density Calibration Report

Serial-Model: 305-05-M&W
 Source #: 20762B
 Master Calibration Performed: Mon Jan 24 19:14:33 2022

Master Calibration

| | Density | | Far Detector | Near Detector | |
|---------------------|---------|------|-----------------------------|---------------|-----|
| Magnesium | 1.755 | g/cc | 8758.11 | 9709.36 | cps |
| Aluminum | 2.630 | g/cc | 1513.14 | 5652.54 | cps |
| Spine Angle = 72.88 | | | Density/Spine Ratio = 0.476 | | |
| | Size | | Reading | | |
| Small Ring | 4.00 | in | 1.75 | | |
| Large Ring | 14.00 | in | 1.38 | | |

Compensated Neutron Calibration Report

Serial-Model: 207-MW-M&W
 Source #: 100046B
 Master Calibration Performed: Mon Nov 29 15:06:24 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: 101
 Tool Model: M&W
 Performed: Mon Jan 24 19:14:46 2022

Calibrator Value: 500.0 GAPI

Background Reading: 24.0 cps
 Calibrator Reading: 637.0 cps

Sensitivity: 0.5500 GAPI/cps



Company Murfin Drilling Company, Inc.
 Well Keller B #1-36
 Field
 County Cheyenne
 State

MIDWEST WIRELINE

STATE NEWS