



DUAL COMP POROSITY LOG

Pioneer Energy Services

Company MURFIN DRILLING COMPANY, INC.
 Well MCCLURG #2-12
 Field BRUMM WEST
 County CHEYENNE
 State KANSAS

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 County CHEYENNE State KANSAS

Location: API #: 15-023-21501-00-00
 1860' FSL & 1320' FEL
 SEC 12 TWP 2S RGE 37W
 Permanent Datum GROUND LEVEL Elevation 3375'
 Log Measured From KELLY BUSHING
 Drilling Measured From KELLY BUSHING
 Other Services
 DIL
 MEL/BHCS
 Elevation
 K.B. 3380'
 D.F. N/A
 G.L. 3375'

Date	12/16/2018						
Run Number	ONE						
Type Log	CNL/CDL						
Depth Driller	4900'						
Depth Logger	4900'						
Bottom Logged Interval	4879'						
Top Logged Interval	3900'						
Type Fluid In Hole	CHEMICAL						
Salinity, PPM CL	800						
Density	9.1						
Level	FULL						
Max. Rec. Temp. F	124 DEG/F						
Operating Rig Time	4 HOURS						
Equipment -- Location	108 HAYS						
Recorded By	J. HENRICKSON						
Witnessed By	ROBERT HENDRICKS						
Borehole Record							
Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	0	337'	8.625"	23#	0	337'
TWO	7.875"	337'	TD				
Casing Record							

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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.
 MCDONALD KANSAS
 8 NORTH, 2 WEST, 1/2 NORTH, WEST INTO

Log Measured From: KELLY BUSHING 5 Ft. Above Permanent Datum

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


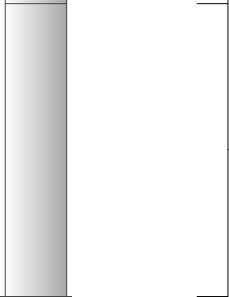
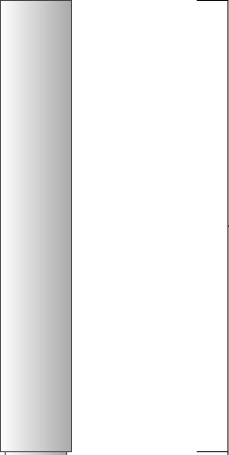

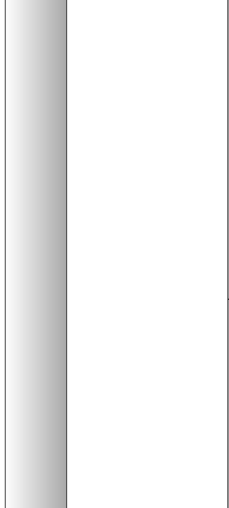
<p>Your Pioneer Energy Services Crew</p> <p>Engineer: J. HENRICKSON</p> <p>Operator:</p> <p>Operator:</p> <p>Operator:</p>	<p>This Log Record Was Witnessed By</p> <p>Primary Witness: ROBERT HENDRICKS</p> <p>Secondary Witness:</p> <p>Secondary Witness:</p> <p>Secondary Witness:</p>
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Log Variables

DatabaseC:\ProgramData\Warrior\Data\murfin_mcclurg_2_12.db
 Dataset field/well/stack/pass4.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	124	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	-15	31	Off	4900

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	33.00		GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC CNSSC	29.90 29.15		CNT-M&W (tk10-MW)	5.50	3.50	100.00
LSD DCAL SSD	20.85 20.83 20.35		CDL-M&W (934-5002)	8.50	4.00	250.00
RLL3 RLL3F	15.80 15.79					
CILD	8.00		DIL-M&W (PSI 988)	18.50	3.50	220.00

CILM 4.70

SP 0.20

Dataset: murfin_mcclurg_2_12.db: field/well/stack/pass4.1
 Total length: 35.50 ft
 Total weight: 620.00 lb
 O.D.: 4.00 in

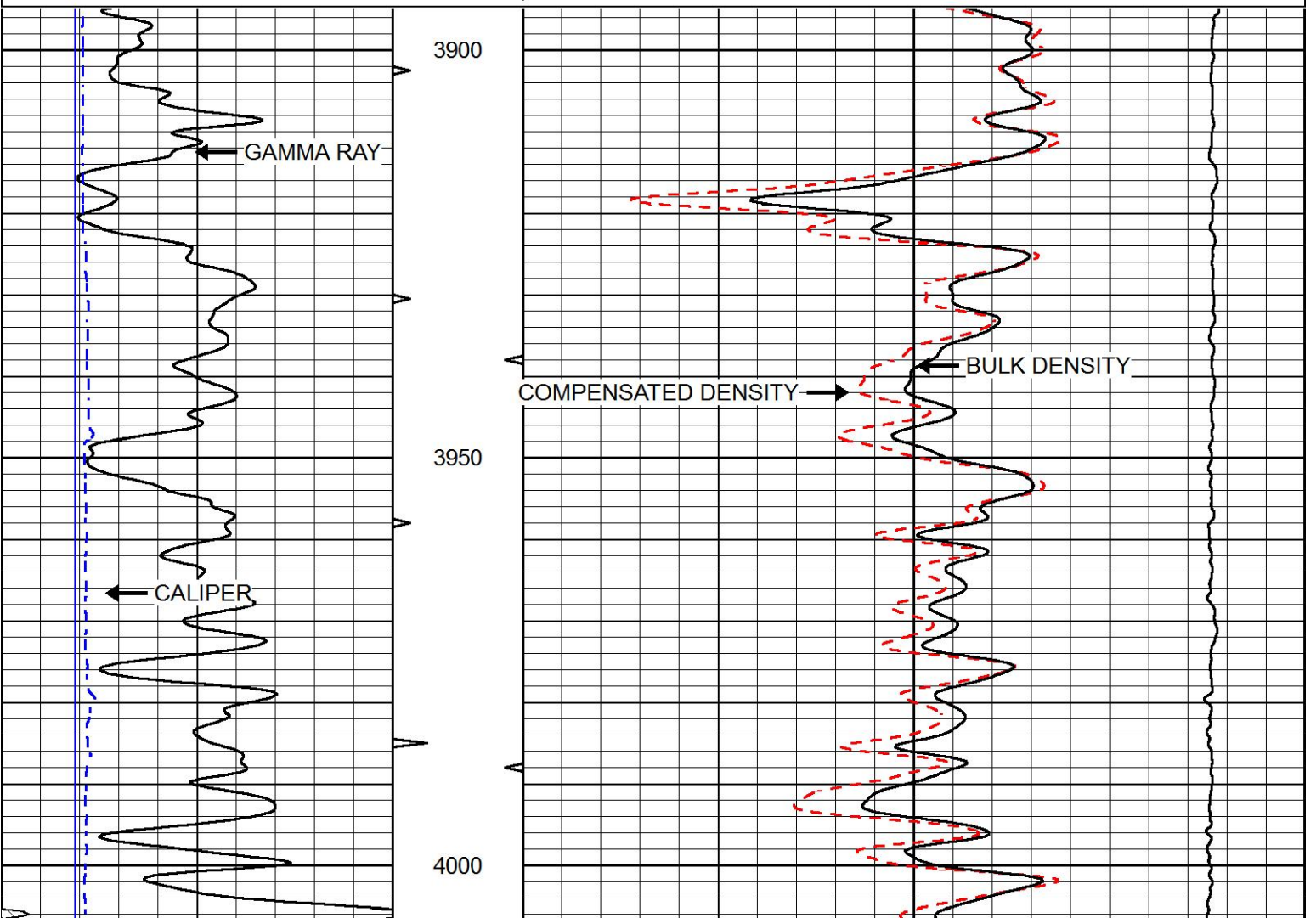


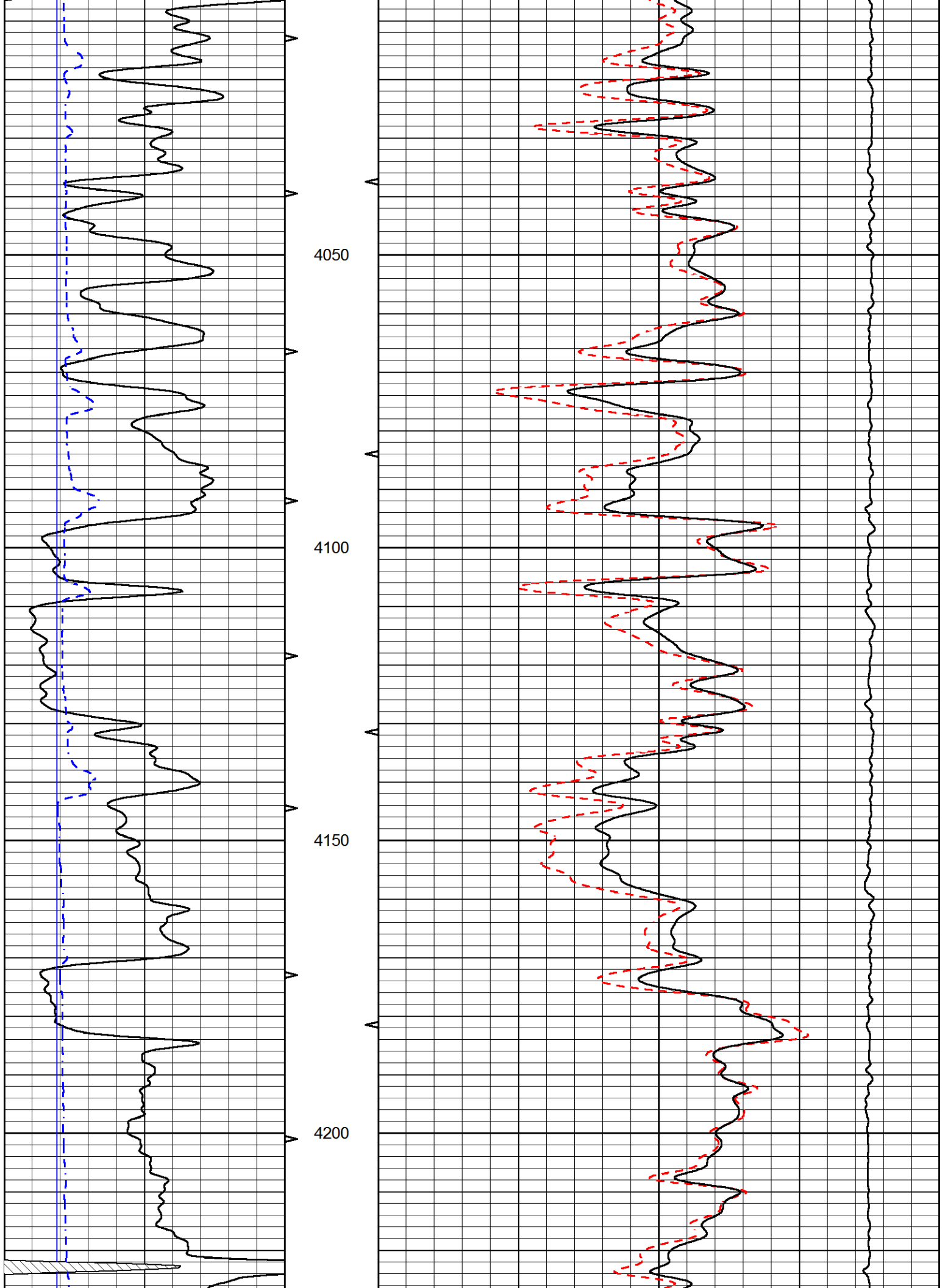
MAIN PASS

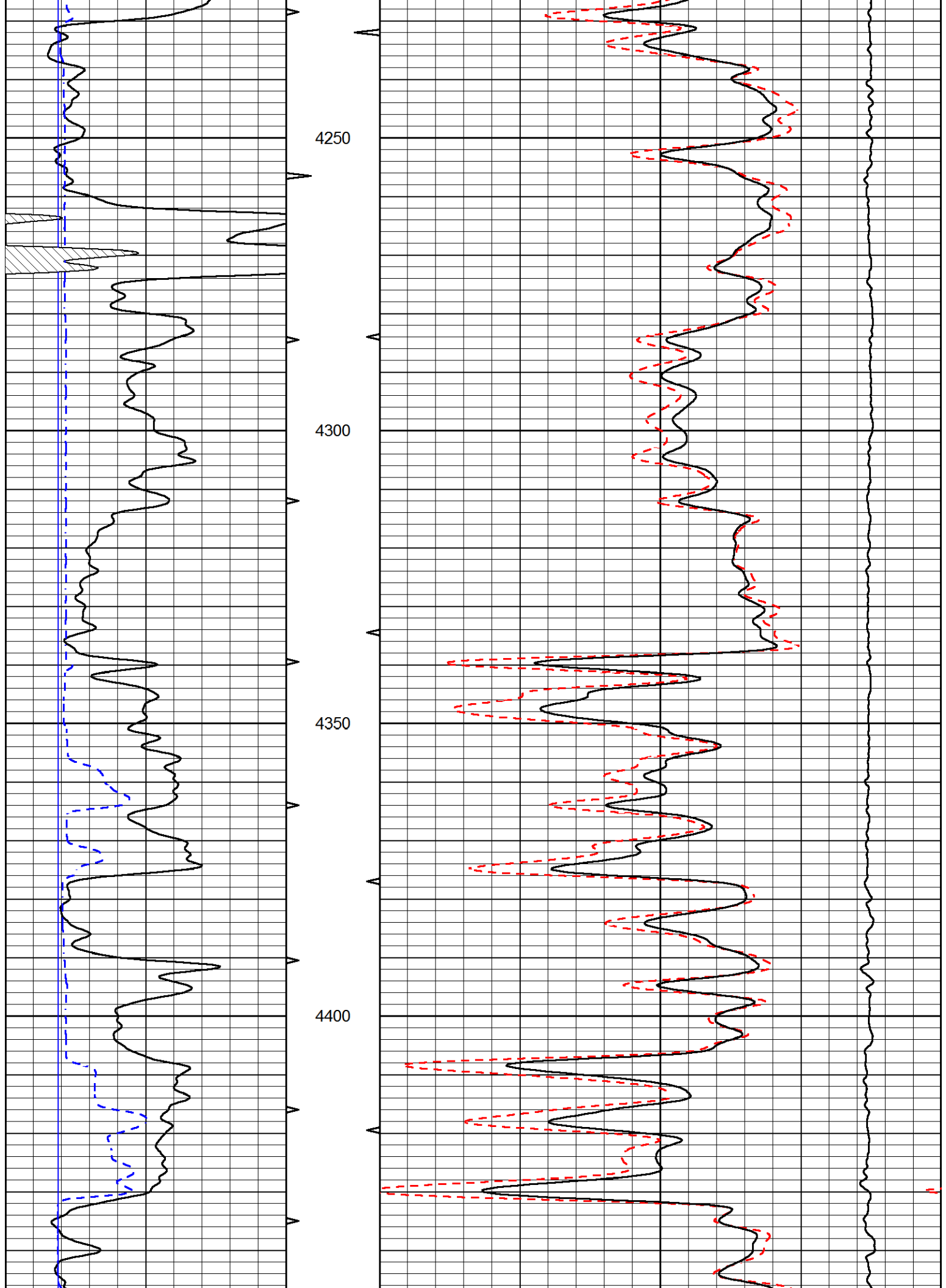
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 Dataset Pathname stack/pass4.1
 Presentation Format cdl
 Dataset Creation Mon Dec 17 00:40:53 2018
 Charted by Depth in Feet scaled 1:240

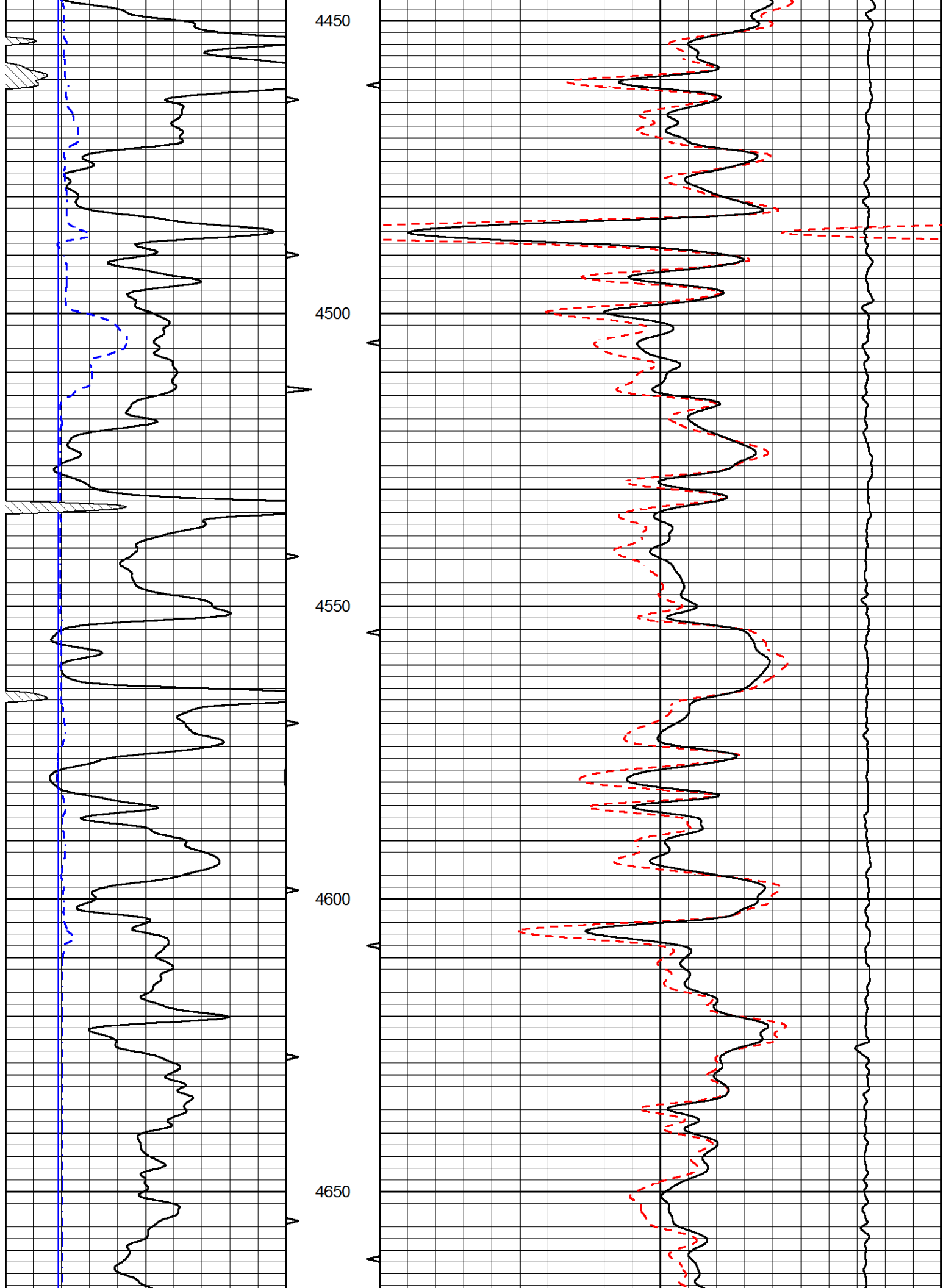
0	GAMMA RAY (GAPI)	150
6	CALIPER (in)	16

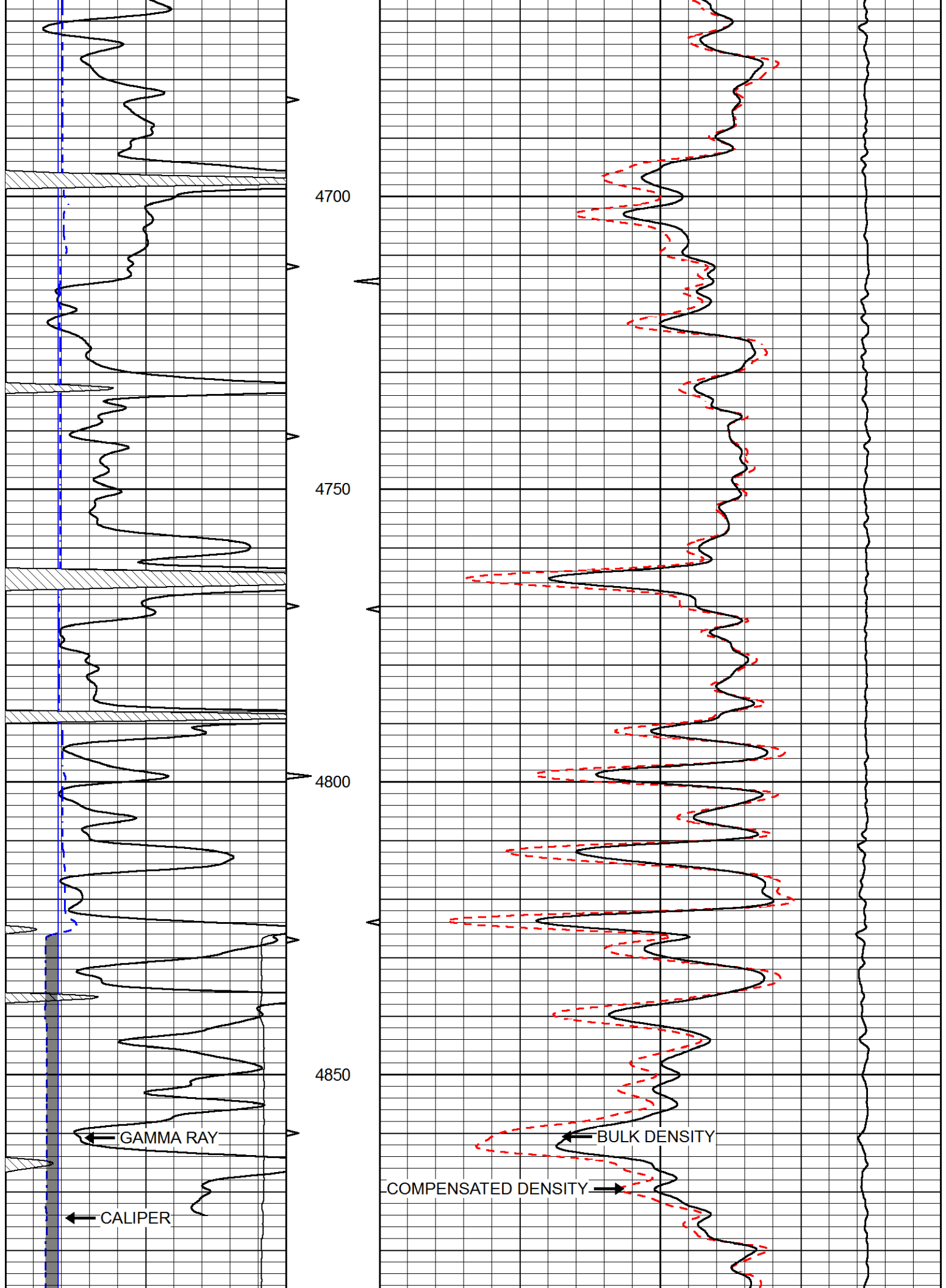
30	COMPENSATED DENSITY (pu)	-10
2	BULK DENSITY (g/cc)	3
15000	LINE TENSION (lb)	0

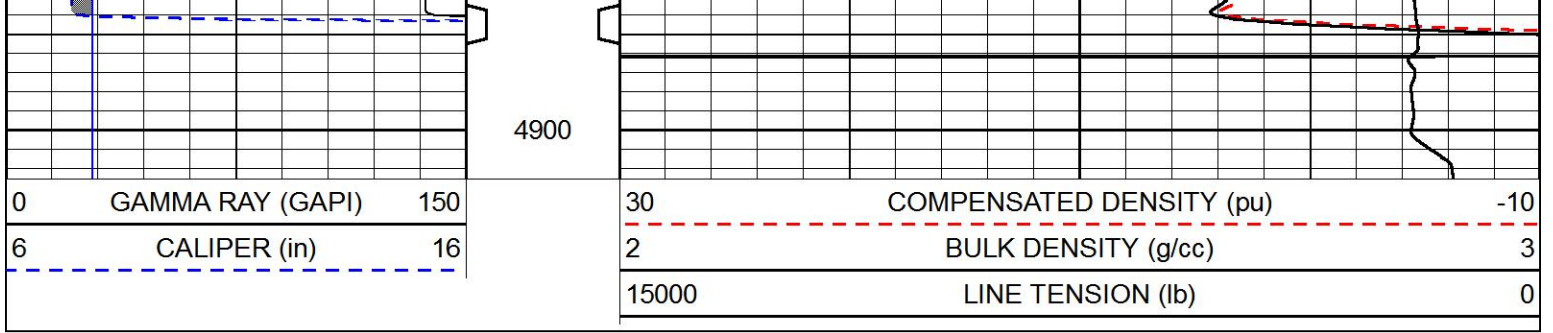






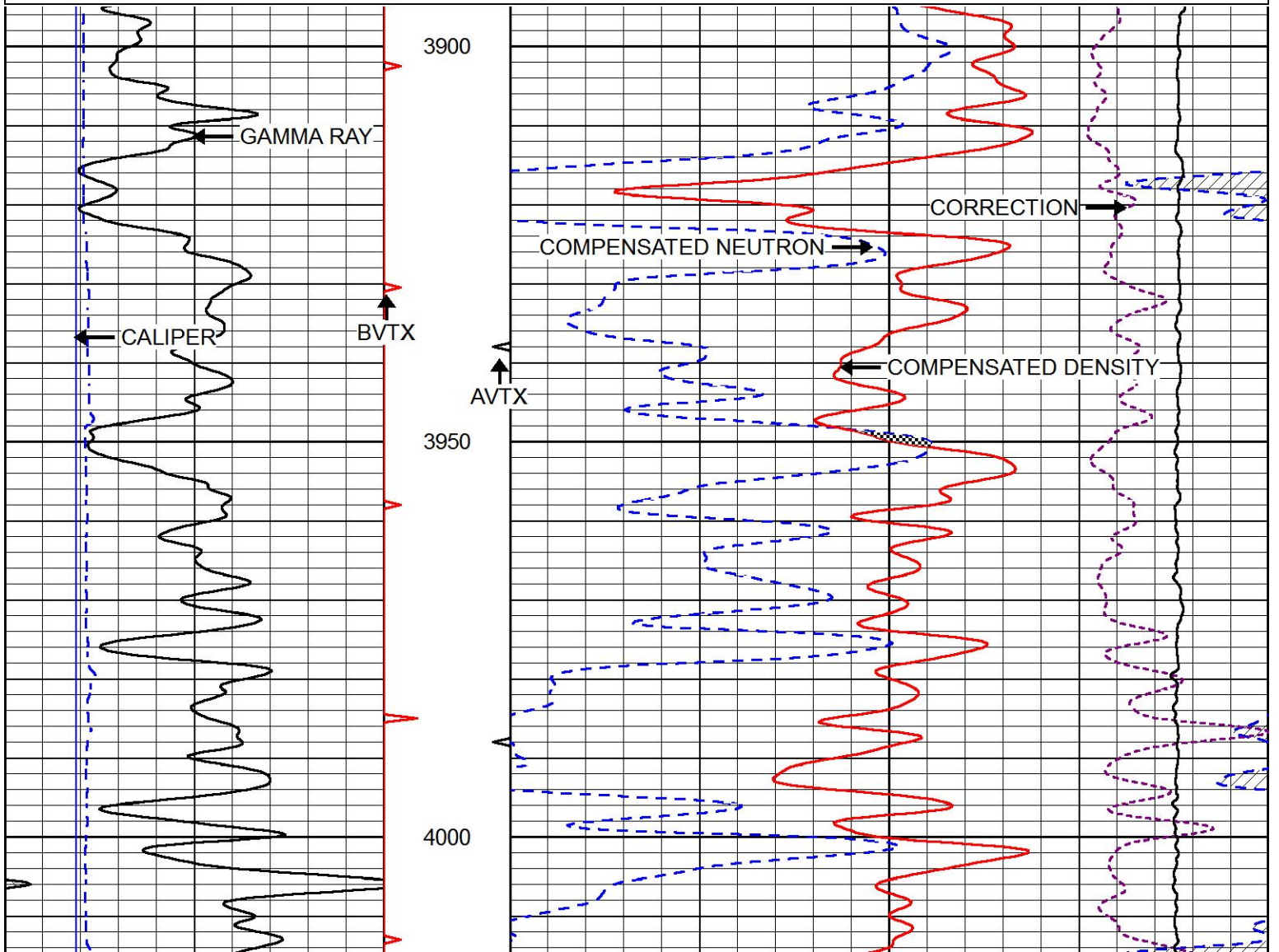
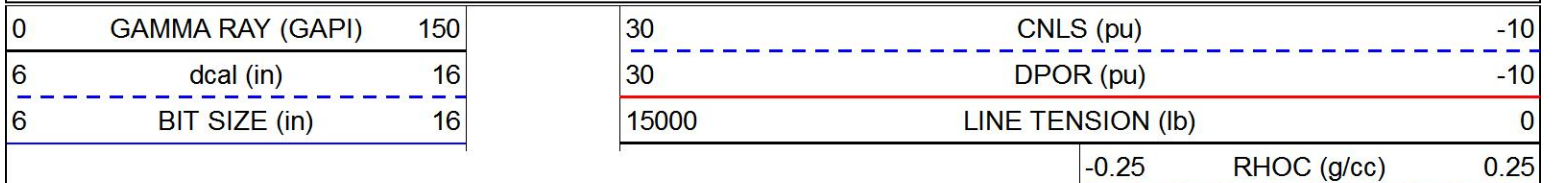


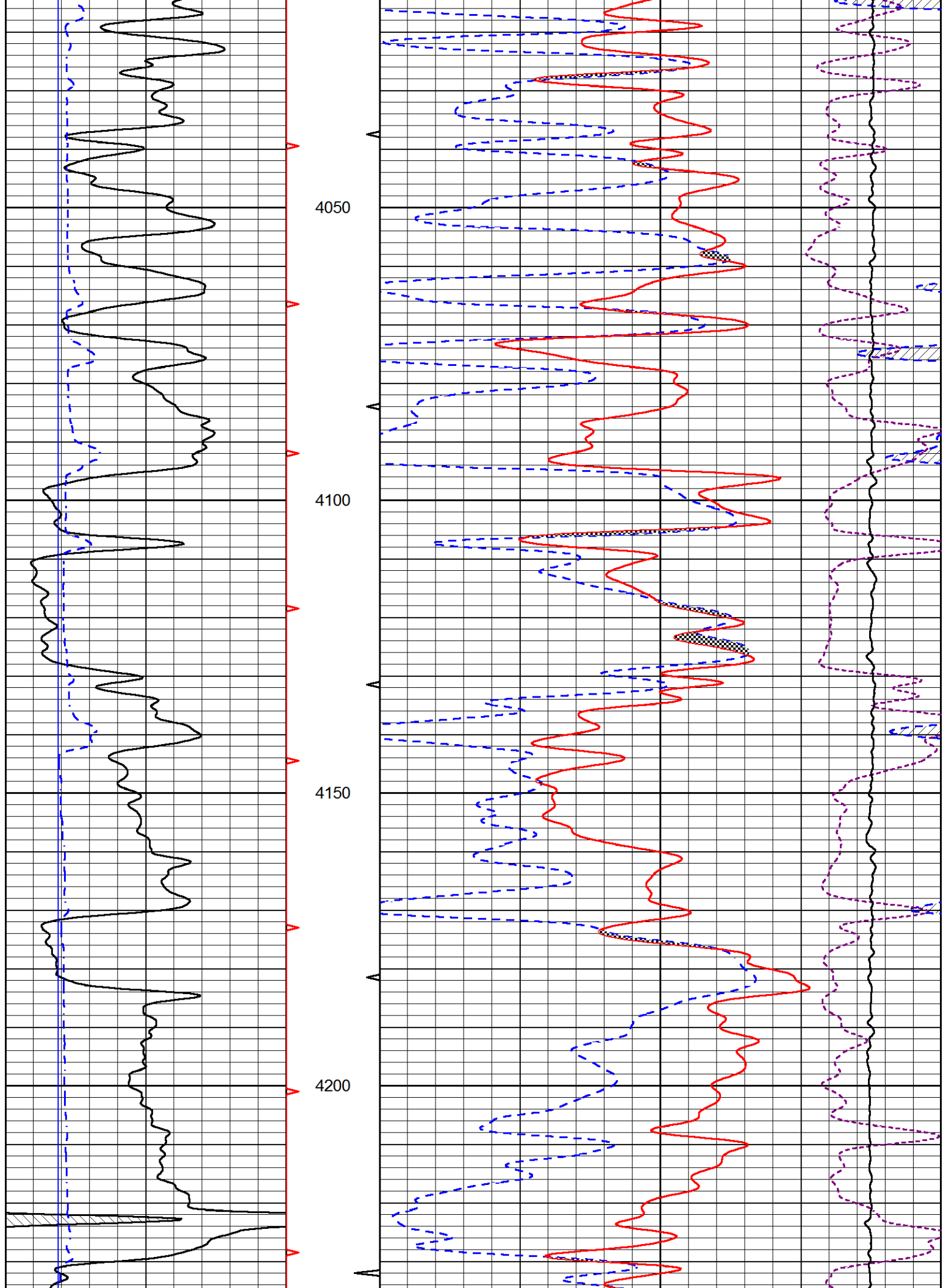


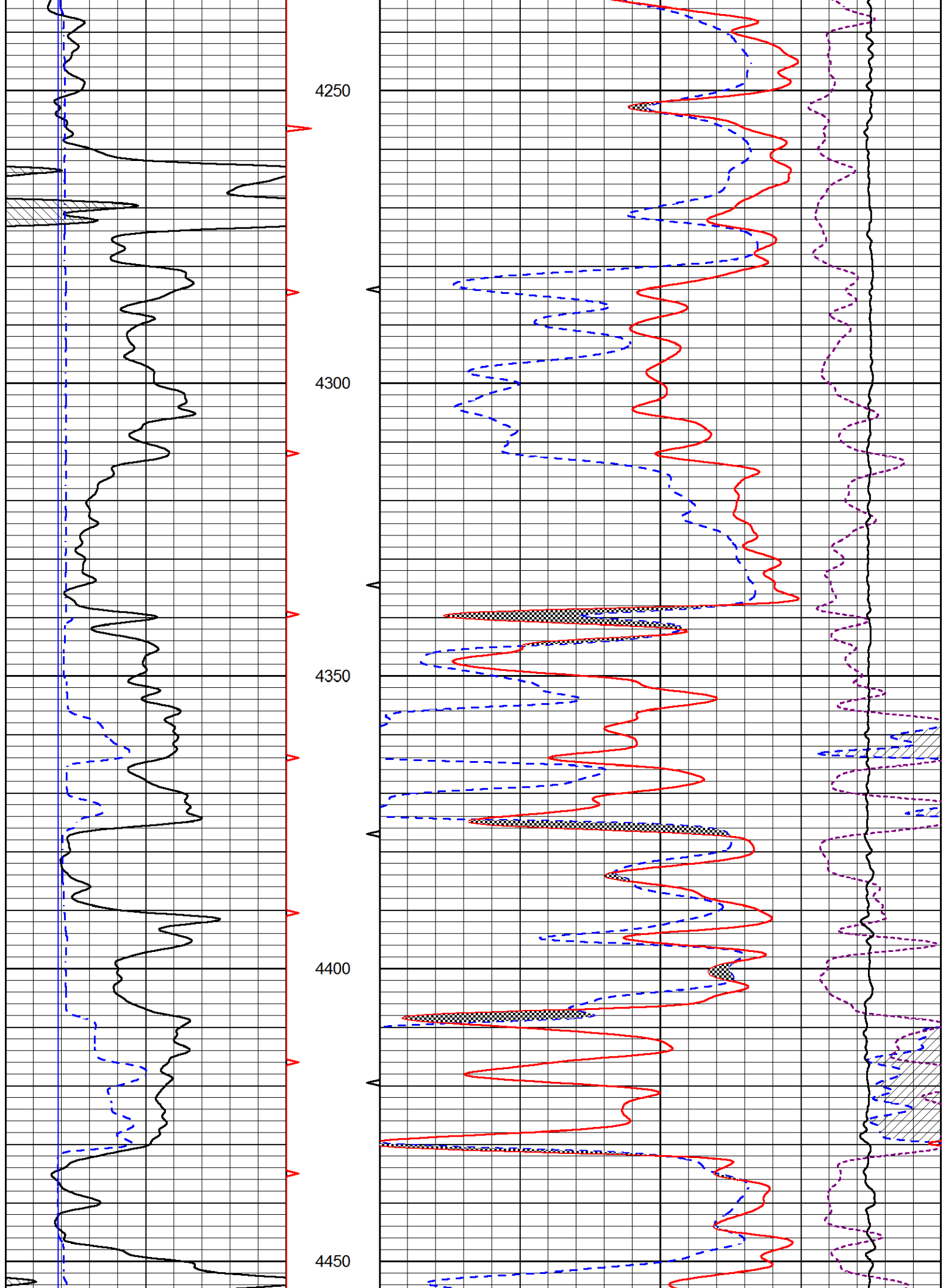


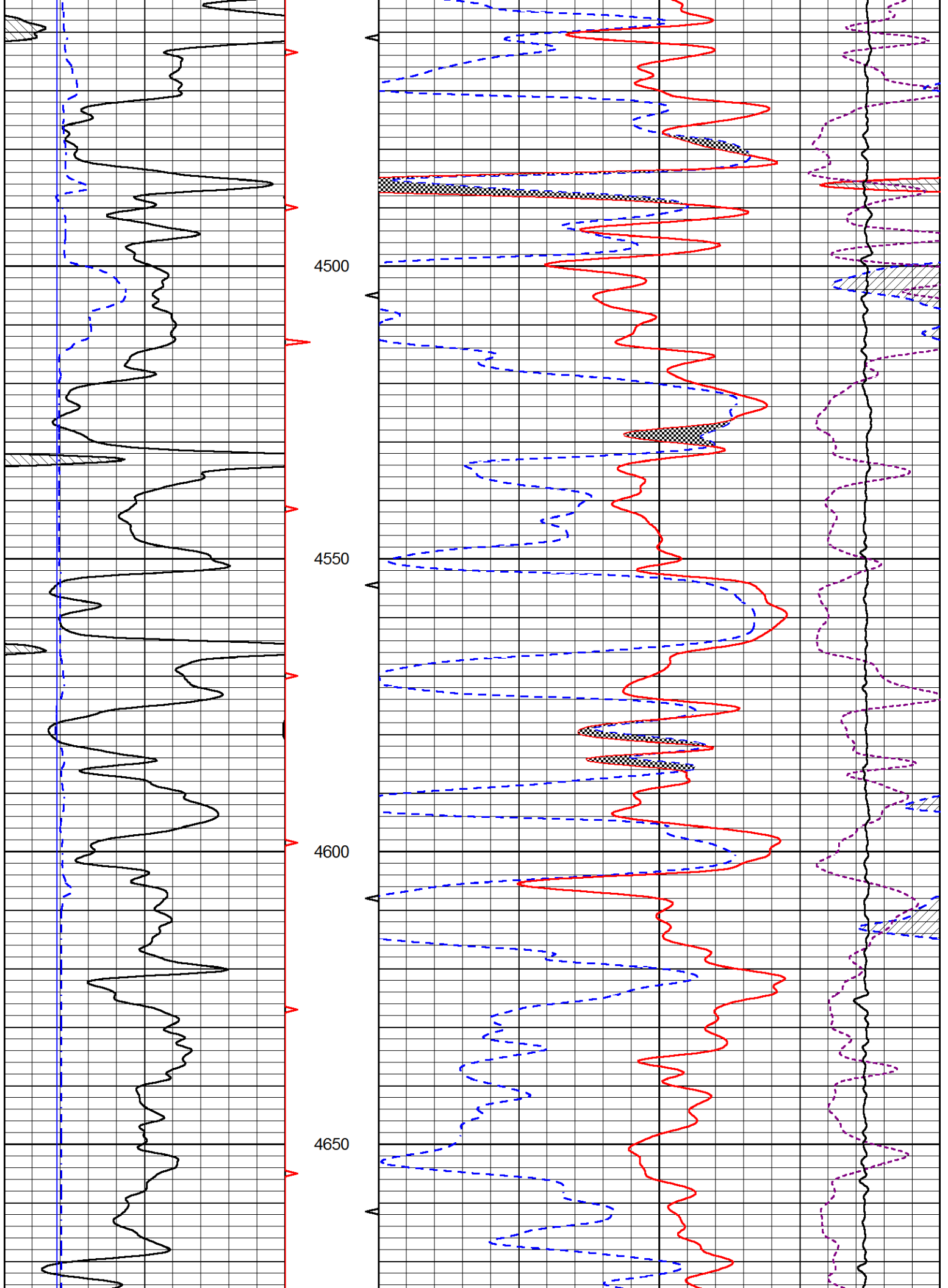
MAIN PASS

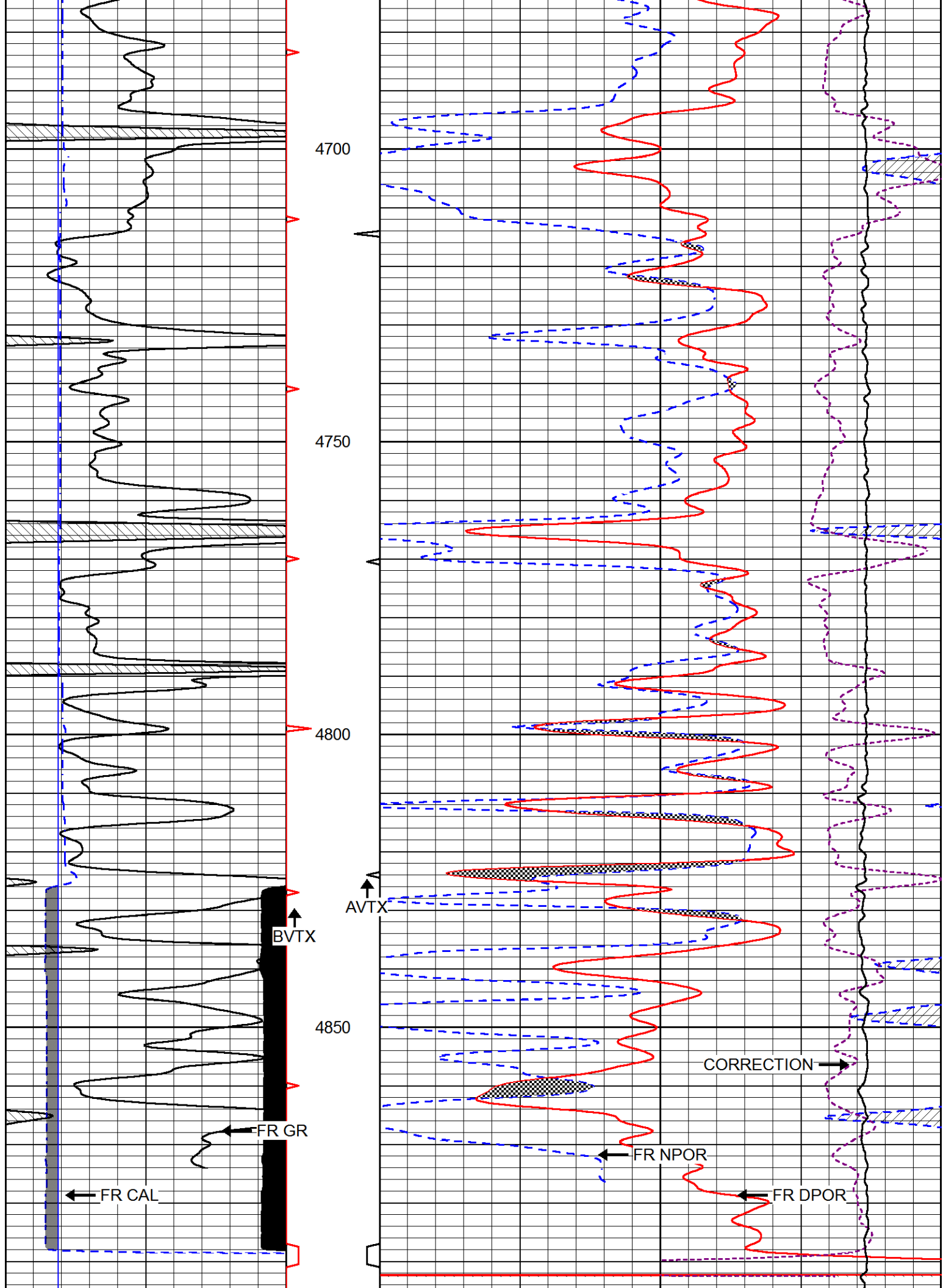
Database File murfin_mcclurg_2_12.db
 Dataset Pathname stack/pass4.1
 Presentation Format cndlspec
 Dataset Creation Mon Dec 17 00:40:53 2018
 Charted by Depth in Feet scaled 1:240











4900

0	GAMMA RAY (GAPI)	150
6	dcal (in)	16
6	BIT SIZE (in)	16

30	CNLS (pu)	-10
30	DPOR (pu)	-10
15000	LINE TENSION (lb)	0
-0.25	RHOC (g/cc)	0.25

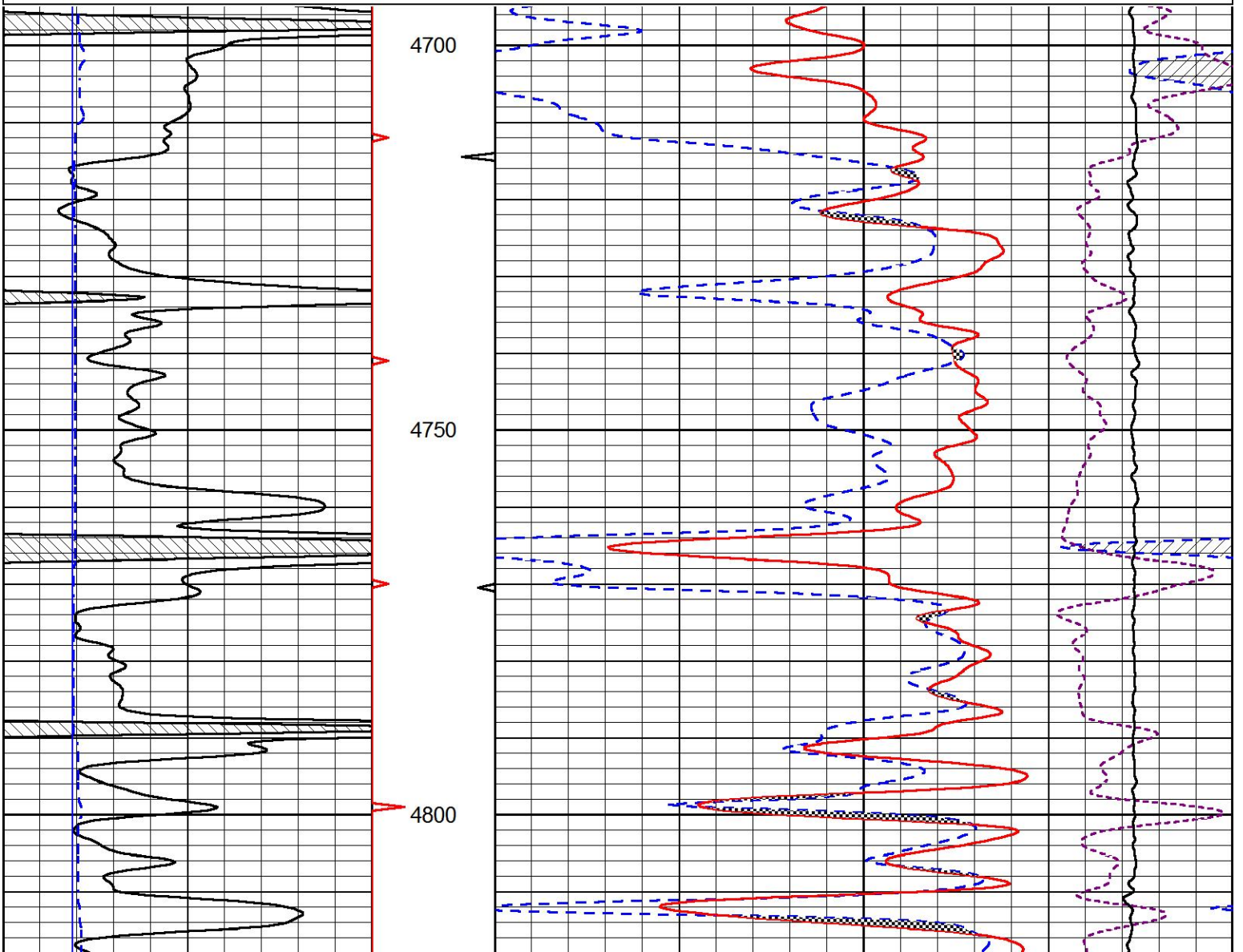


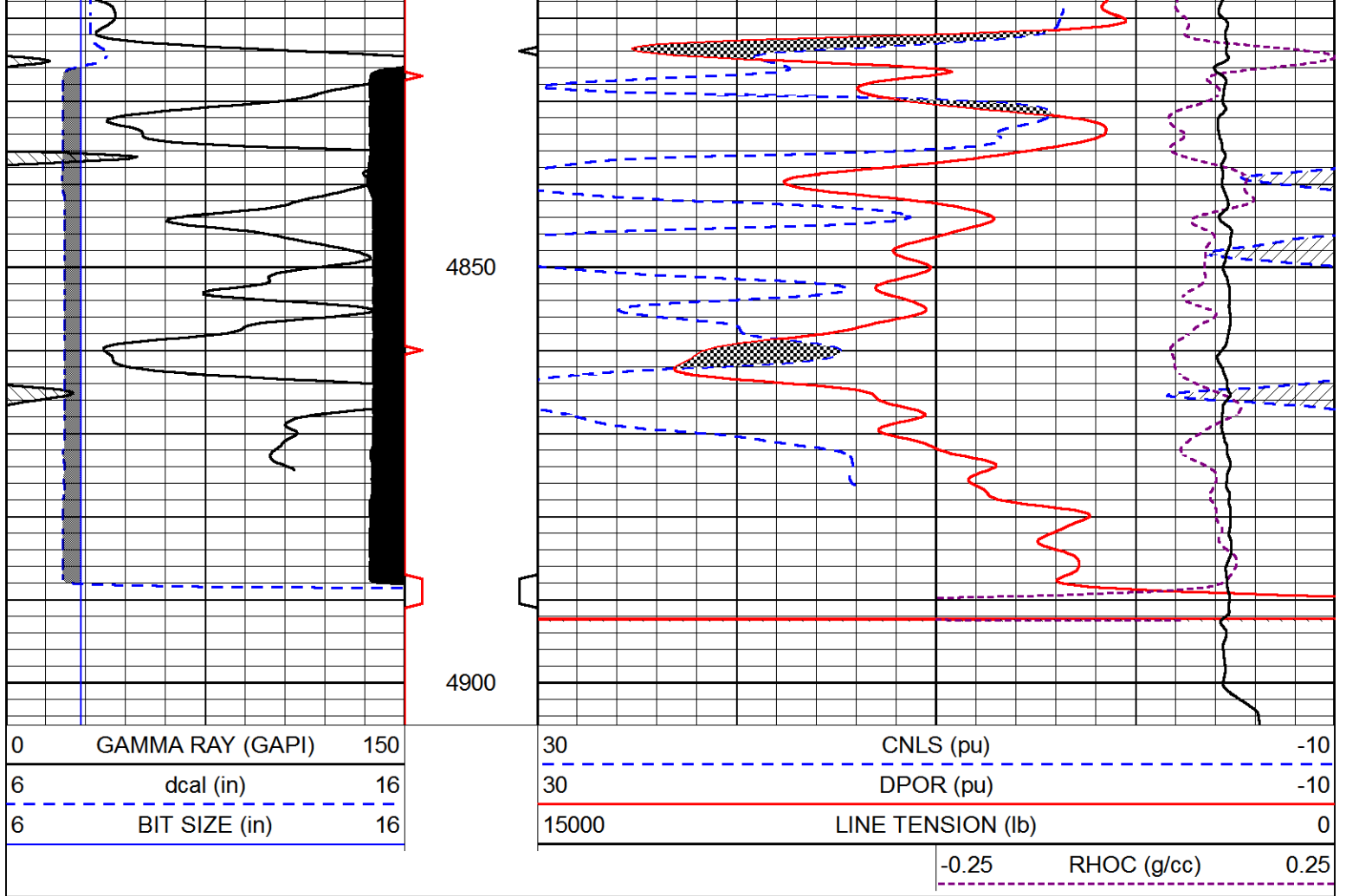
REPEAT SECTION

Database File murfin_mcclurg_2_12.db
 Dataset Pathname stack/pass3.1
 Presentation Format cndlspec
 Dataset Creation Mon Dec 17 00:41:05 2018
 Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
6	dcal (in)	16
6	BIT SIZE (in)	16

30	CNLS (pu)	-10
30	DPOR (pu)	-10
15000	LINE TENSION (lb)	0
-0.25	RHOC (g/cc)	0.25





Calibration Report

Database File: murfin_mcclurg_2_12.db
 Dataset Pathname: stack/pass4.1
 Dataset Creation: Mon Dec 17 00:40:53 2018

Dual Induction Calibration Report

Serial-Model: PSI 988-M&W
 Calibration Performed: Tue Nov 20 10:50:19 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.500	-44.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.400	-17.000

Compensated Density Calibration Report

Serial-Model: 934-5002-M&W
 Source / Verifier: /
 Master Calibration Performed: Wed Aug 29 11:03:55 2018

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	3720.16	2661.79	cps
Aluminum	2.685	g/cc	696.57	1725.83	cps

Spine Angle = 75.50

Density/Spine Ratio = 0.537

Size

Reading

Small Ring	4.00	in	1.16
Large Ring	16.00	in	1.01

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: Tue Apr 11 17:08:01 2017

Calibrator Value: 1000.0 GAPI

Background Reading: 0.0 cps
 Calibrator Reading: 6.2 cps

Sensitivity: 0.5200 GAPI/cps



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