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DUAL COMP POROSITY LOG

Company MURFIN DRILLING COMPANY, INC.
Well CULWELL 'J' #1-19
Field WILDCAT
County CHEYENNE State KANSAS

Location: API #: 15-023-21482-00-00
2310' FNL & 495' FEL
SEC 19 TWP 2S RGE 37W

Other Services
DIL
MEL/BHCS

Elevation
K.B. 3389'
D.F. N/A
G.L. 3384'

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Other Services	DIL MEL/BHCS
Elevation	K.B. 3389' D.F. N/A G.L. 3384'
Permanent Datum	GROUND LEVEL
Elevation	3384'
Log Measured From	KELLY BUSHING
Drilling Measured From	KELLY BUSHING

Date	4/11/2019
Run Number	ONE
Type Log	CNL/CDL
Depth Driller	4910'
Depth Logger	4912'
Bottom Logged Interval	4891'
Top Logged Interval	3950'
Type Fluid In Hole	CHEMICAL
Salinity, PPM CL	600
Density	9.2
Level	FULL
Max. Rec. Temp. F	125 DEG/F
Operating Rig Time	4 HOURS
Equipment -- Location	P-108 HAYS
Recorded By	J. HENRICKSON
Witnessed By	JEFF CHRISTIAN

Borehole Record

Run No.	Bit	From	To
ONE	12.25"	0	330'
TWO	7.875"	330'	TD

Casing Record

Size	Wgt.	From	To
8.625"	23#	0	330'

<<< Fold Here >>>

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.

BIRD CITY KANSAS
2 EAST TO 30 RD, 7 1/2 NORTH, WEST INTO

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

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

Your Pioneer Energy Services Crew	This Log Record Was Witnessed By
Engineer: J. HENRICKSON	Primary Witness: JEFF CHRISTIAN
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\murfin_culwell_j_1_19.db
Dataset field/well/stack/pass3.1/_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	0	0	0	8	35	Off	4912

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	33.00					
CNLSC	29.90		CNT-M&W (tk10-MW)	5.50	3.50	100.00
CNSSC	29.15					
			CDL-M&W (144-84)	8.50	4.00	250.00
LSD	20.85					
DCAL	20.83					
SSD	20.35					
RLL3	15.80					
RLL3F	15.79					
			DIL-M&W (PSI 988)	18.50	3.50	220.00
CILD	8.00					

CILM	4.70	
SP	0.20	

Dataset: murfin_culwell_j_1_19.db: field/well/stack/pass3.1
Total length: 35.50 ft
Total weight: 620.00 lb
O.D.: 4.00 in

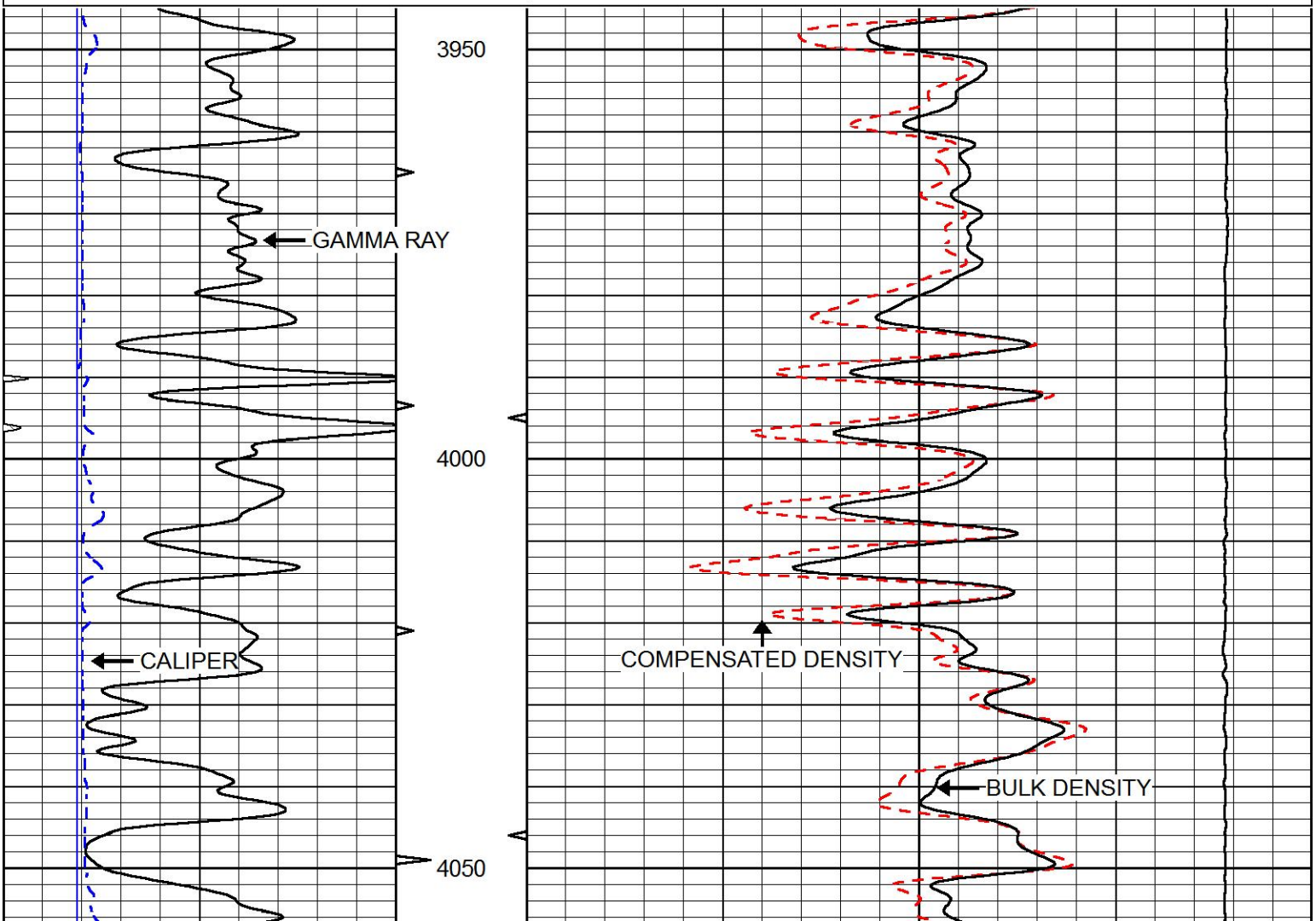
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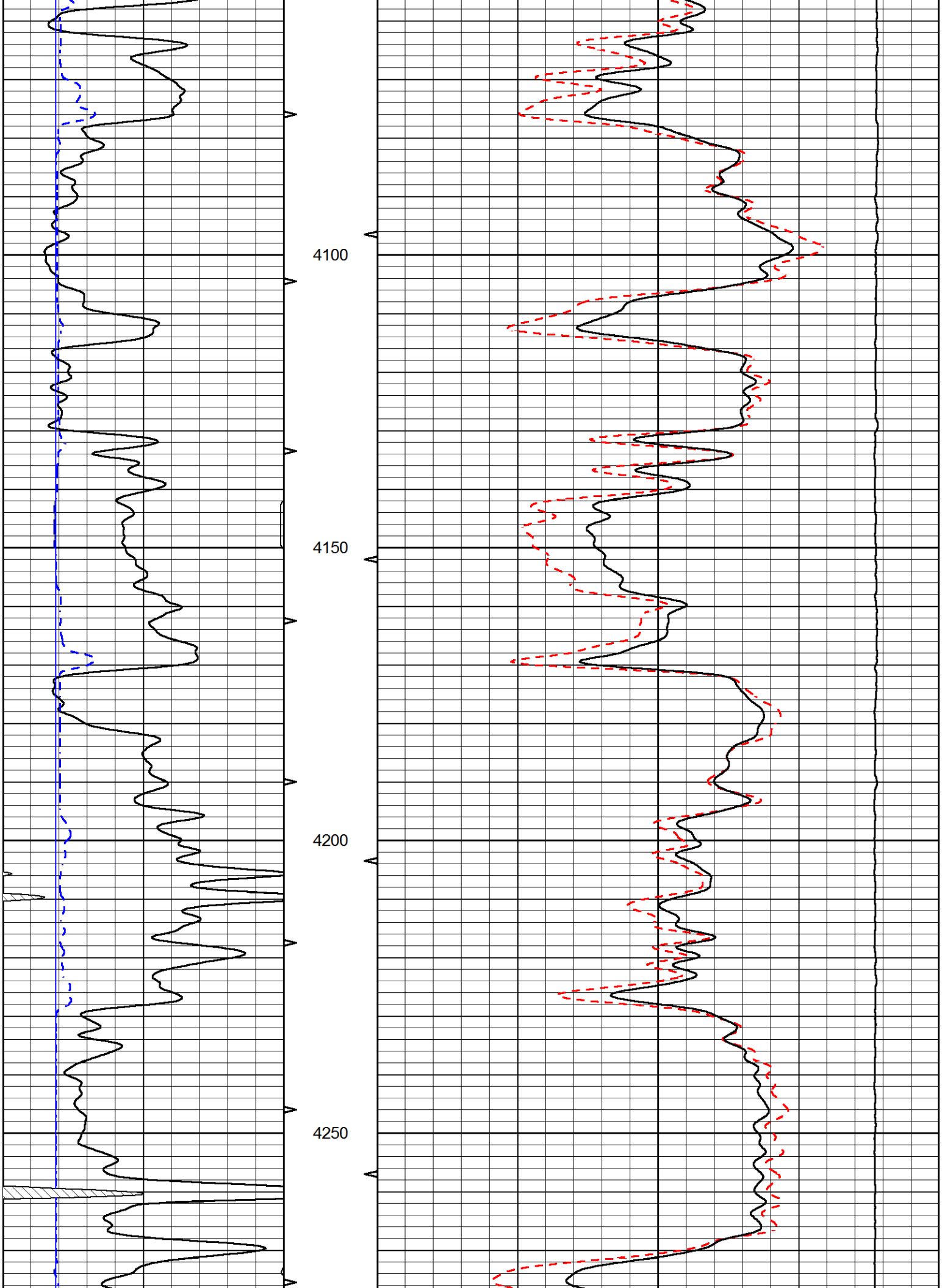
MAIN PASS

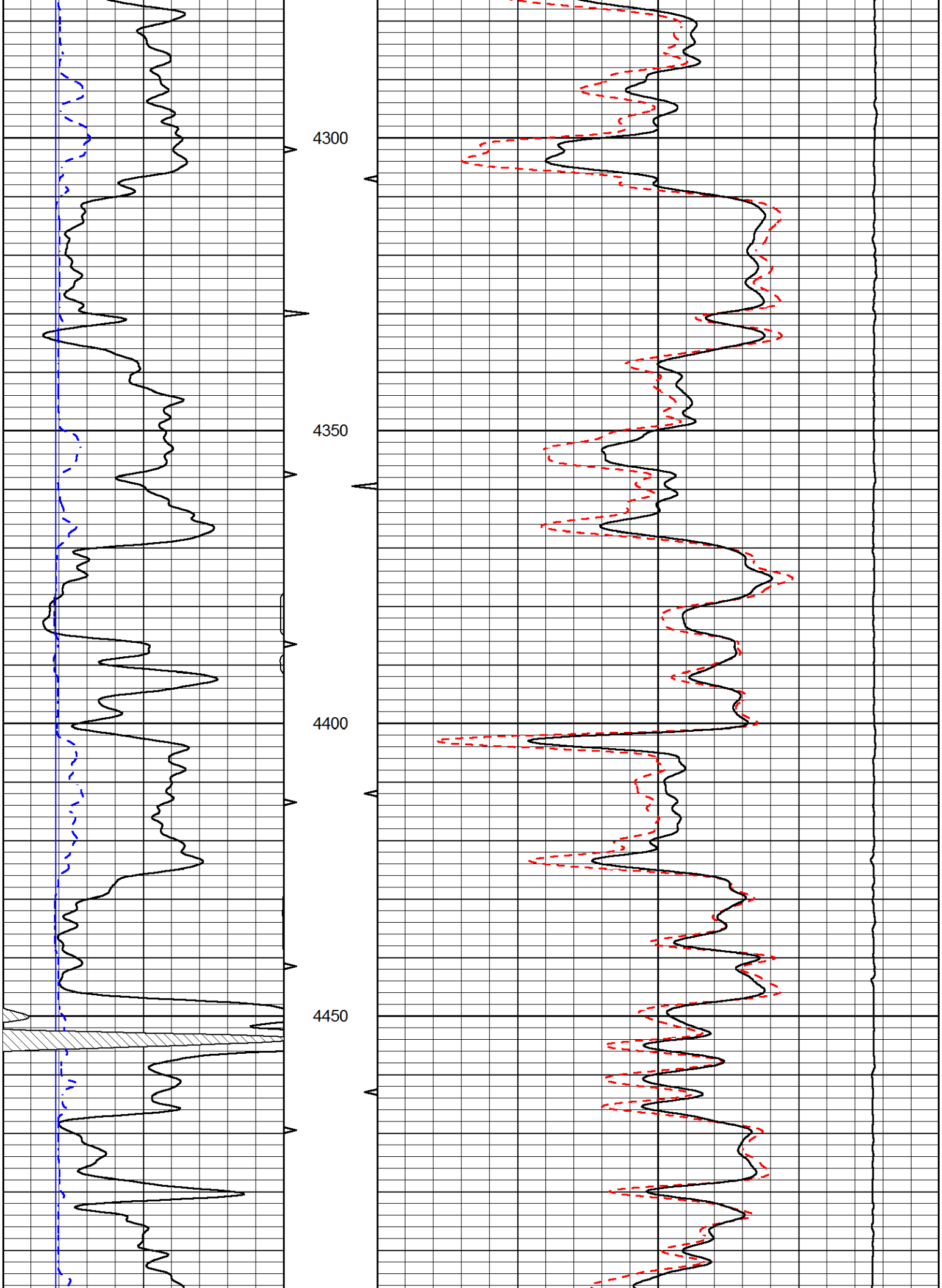
Database File	murfin_culwell_j_1_19.db
Dataset Pathname	stack/pass3.1
Presentation Format	cdl
Dataset Creation	Thu Apr 11 15:59:16 2019
Charted by	Depth in Feet scaled 1:240

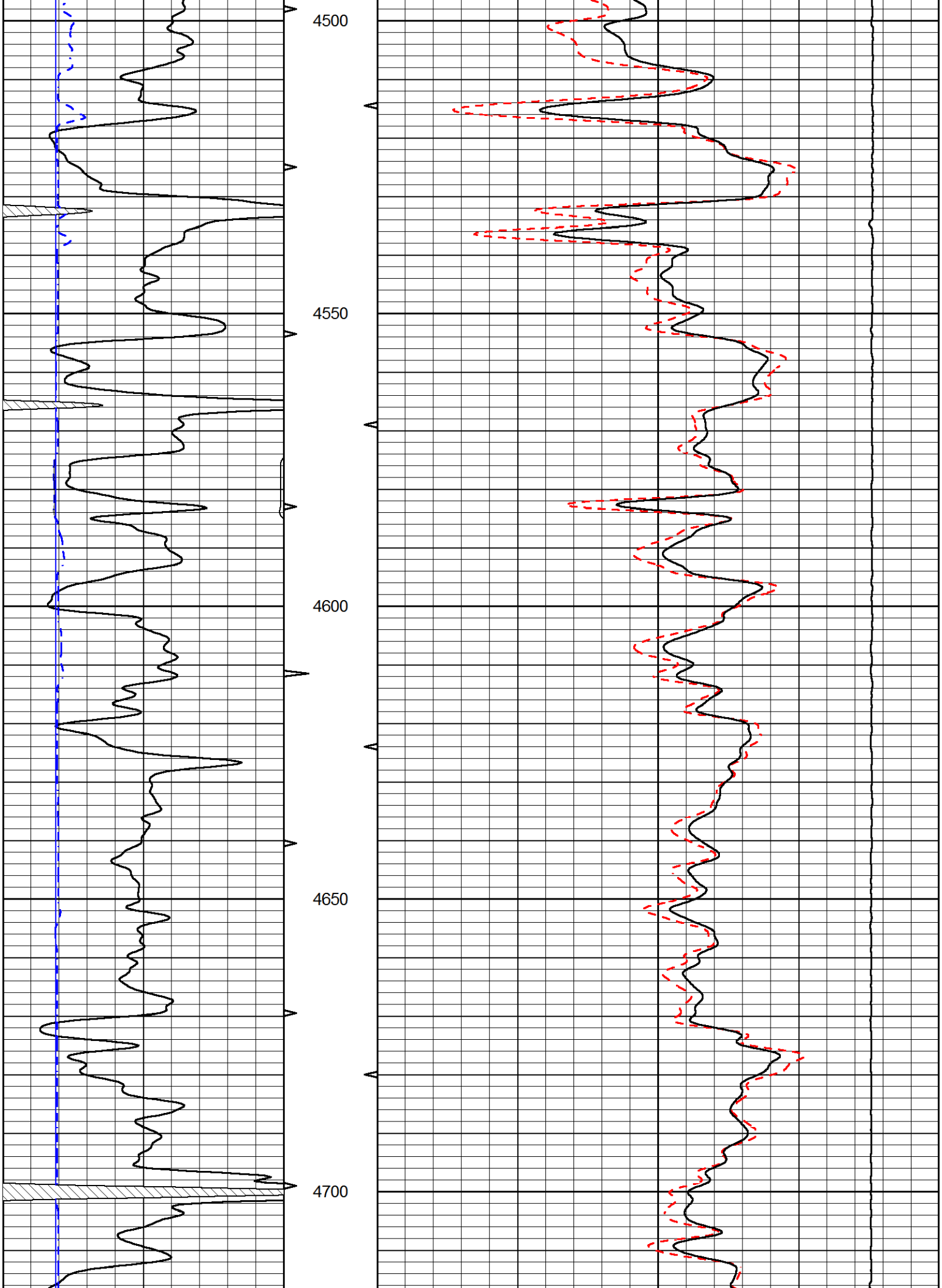
0	GAMMA RAY (GAPI)	150
6	CALIPER (in)	16

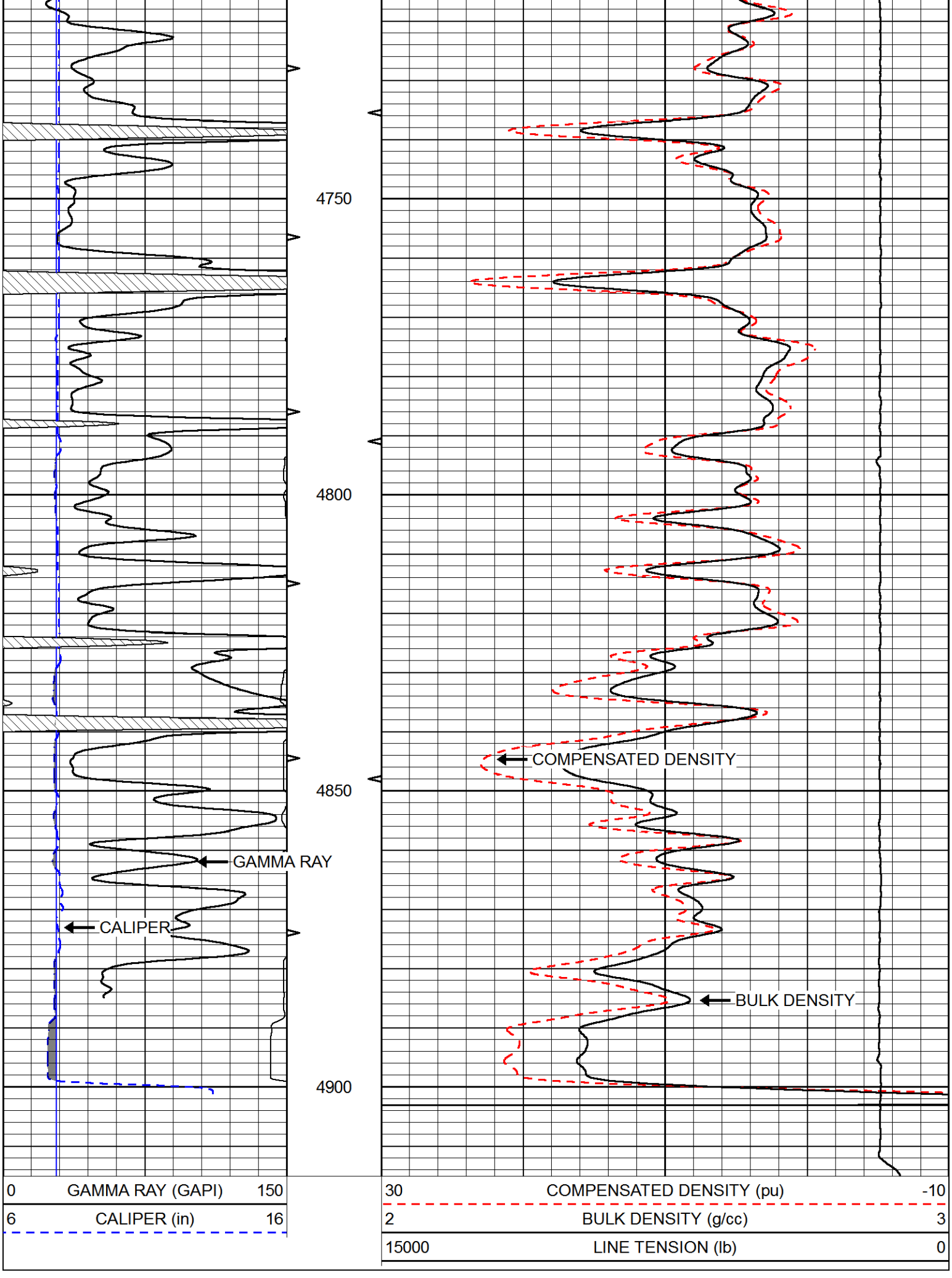
30	COMPENSATED DENSITY (pu)	-10
2	BULK DENSITY (g/cc)	3
15000	LINE TENSION (lb)	0




4100
4150
4200
4250


4300
4350
4400
4450


4500
4550
4600
4650
4700


4750
4800
4850
4900
GAMMA RAY
CALIPER
COMPENSATED DENSITY
BULK DENSITY
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

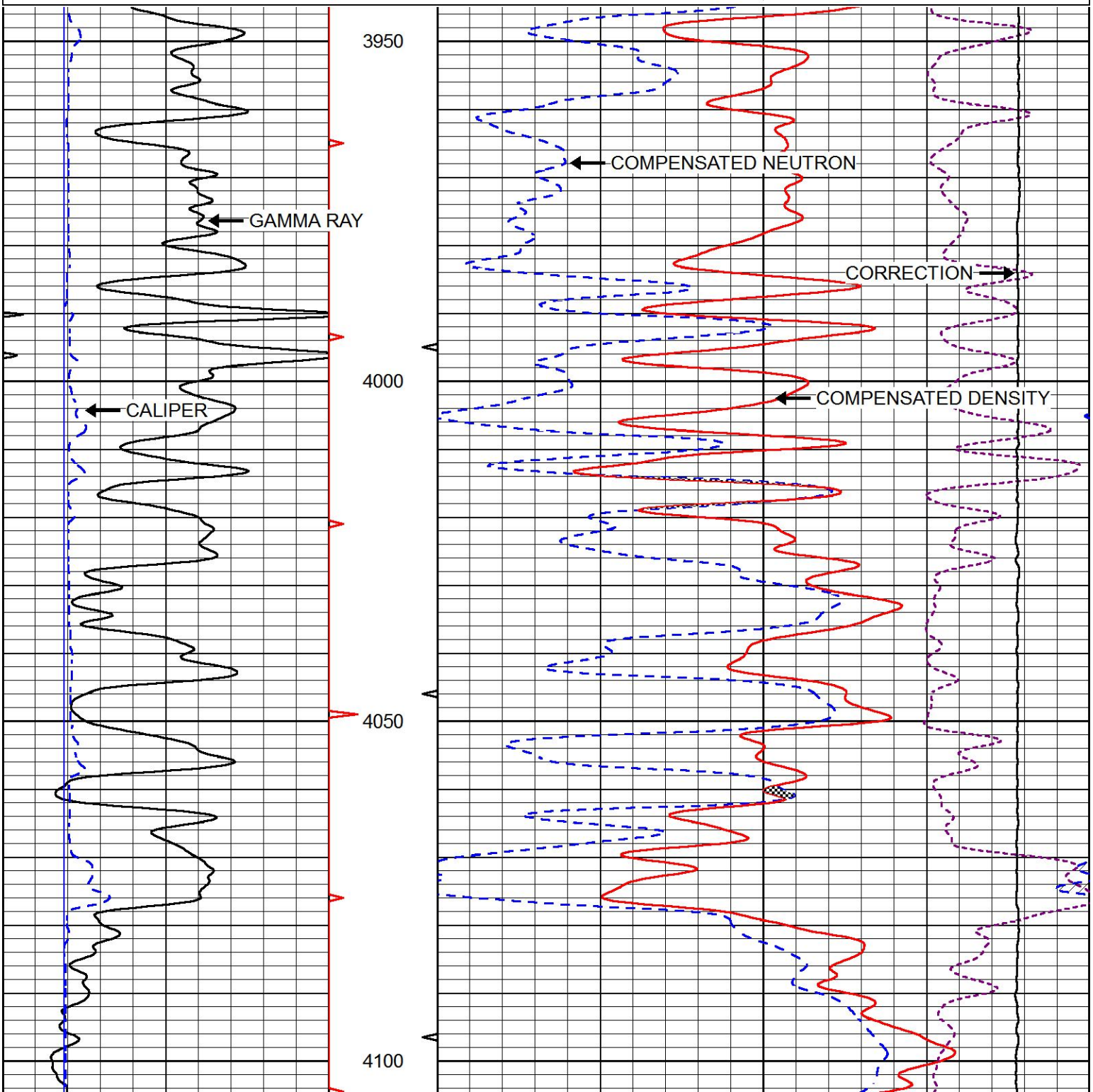
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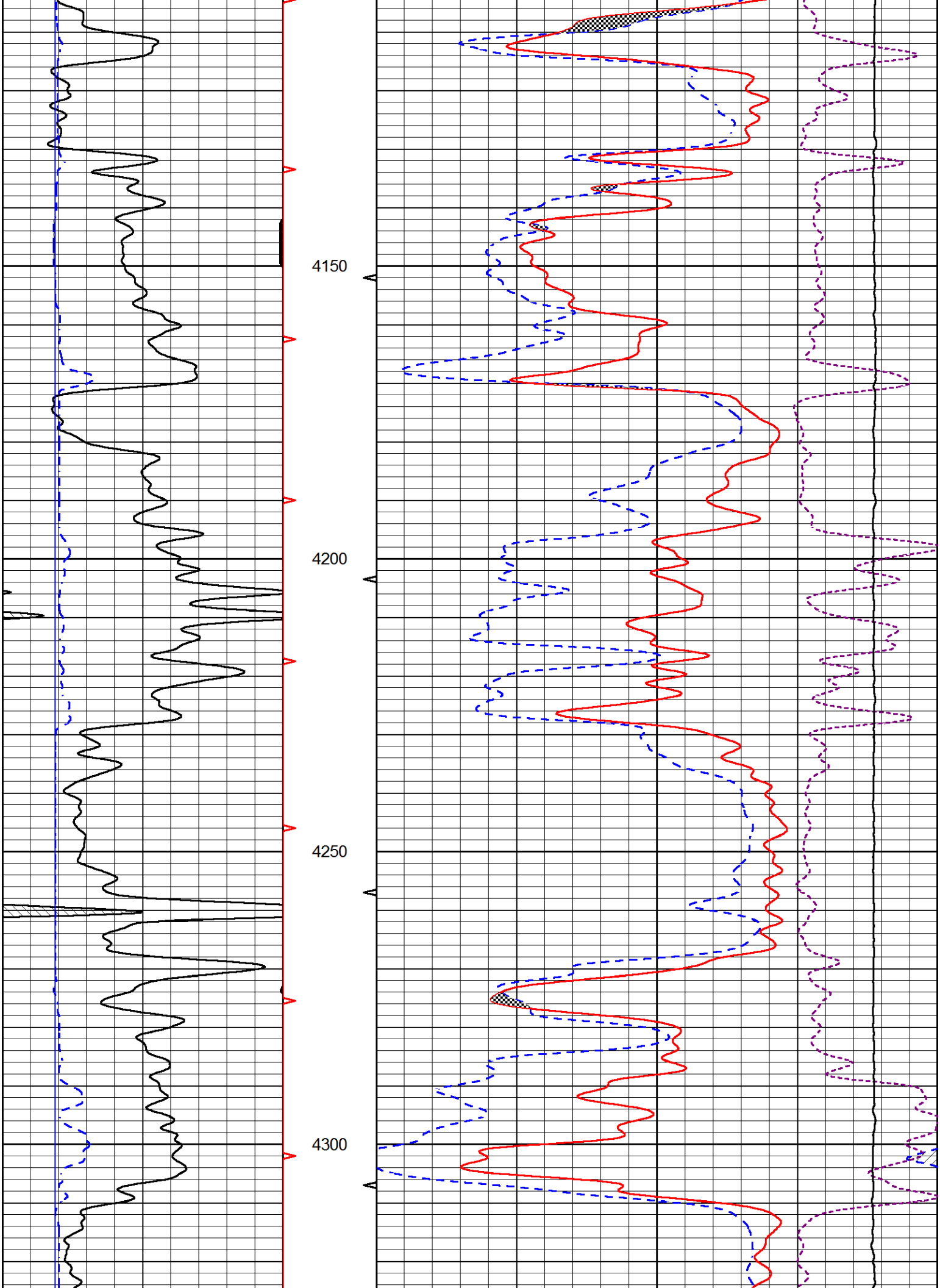
MAIN PASS

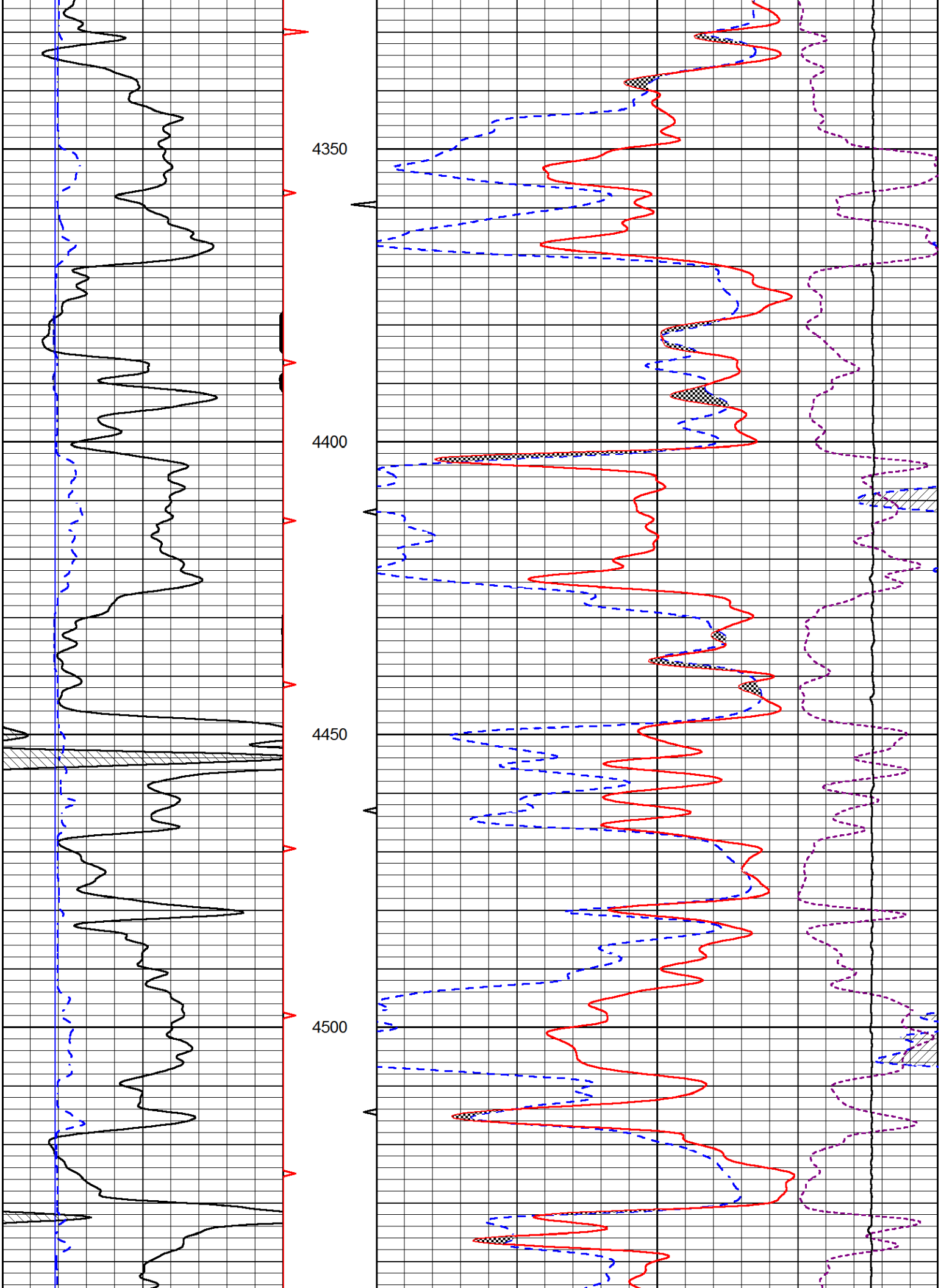
Database File	murfin_culwell_j_1_19.db
Dataset Pathname	stack/pass3.1
Presentation Format	cndlspec
Dataset Creation	Thu Apr 11 15:59:16 2019
Charted by	Depth in Feet scaled 1:240

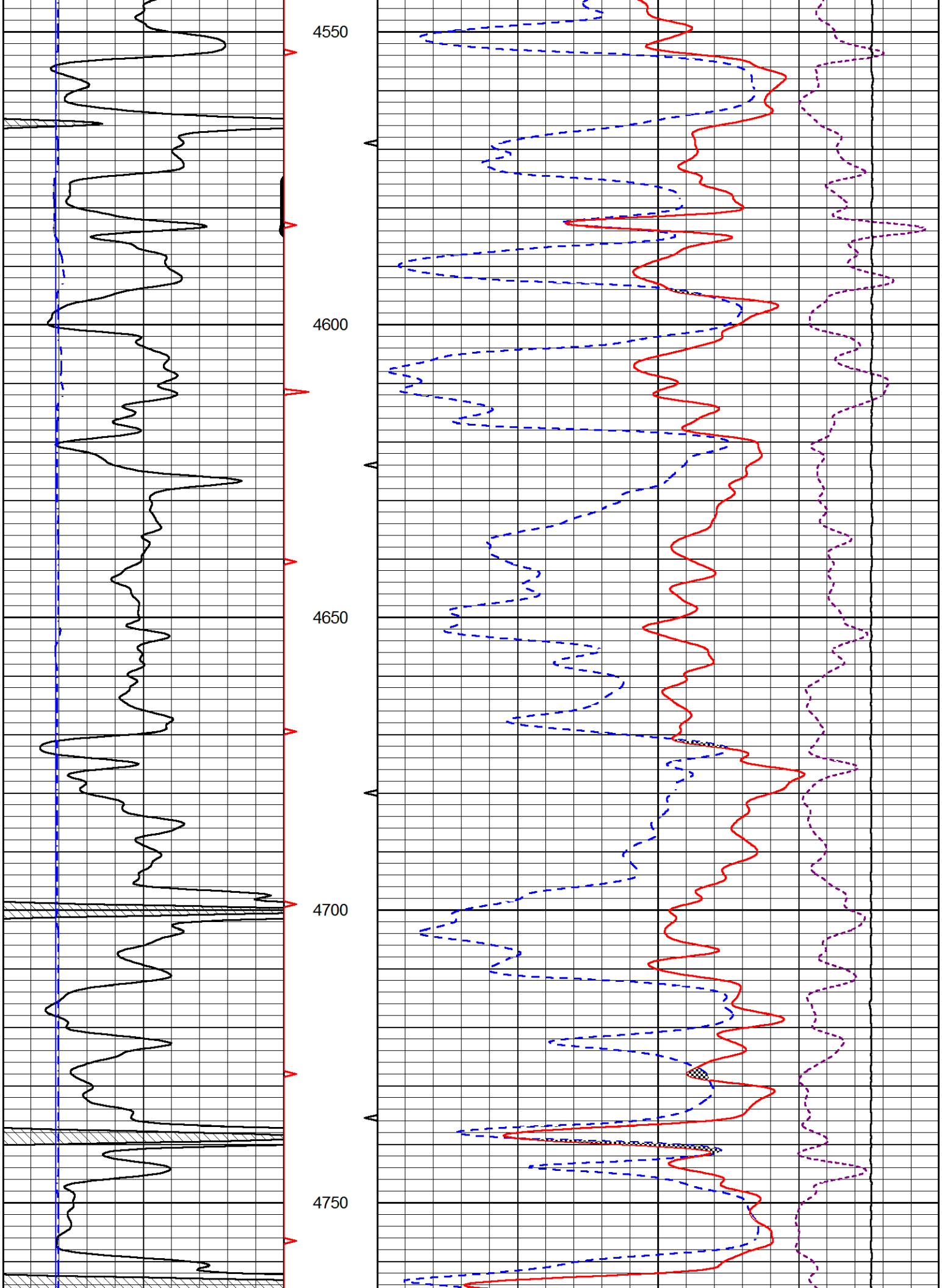
0	GAMMA RAY (GAPI)	150
6	dcal (in)	16
6	BIT SIZE (in)	16

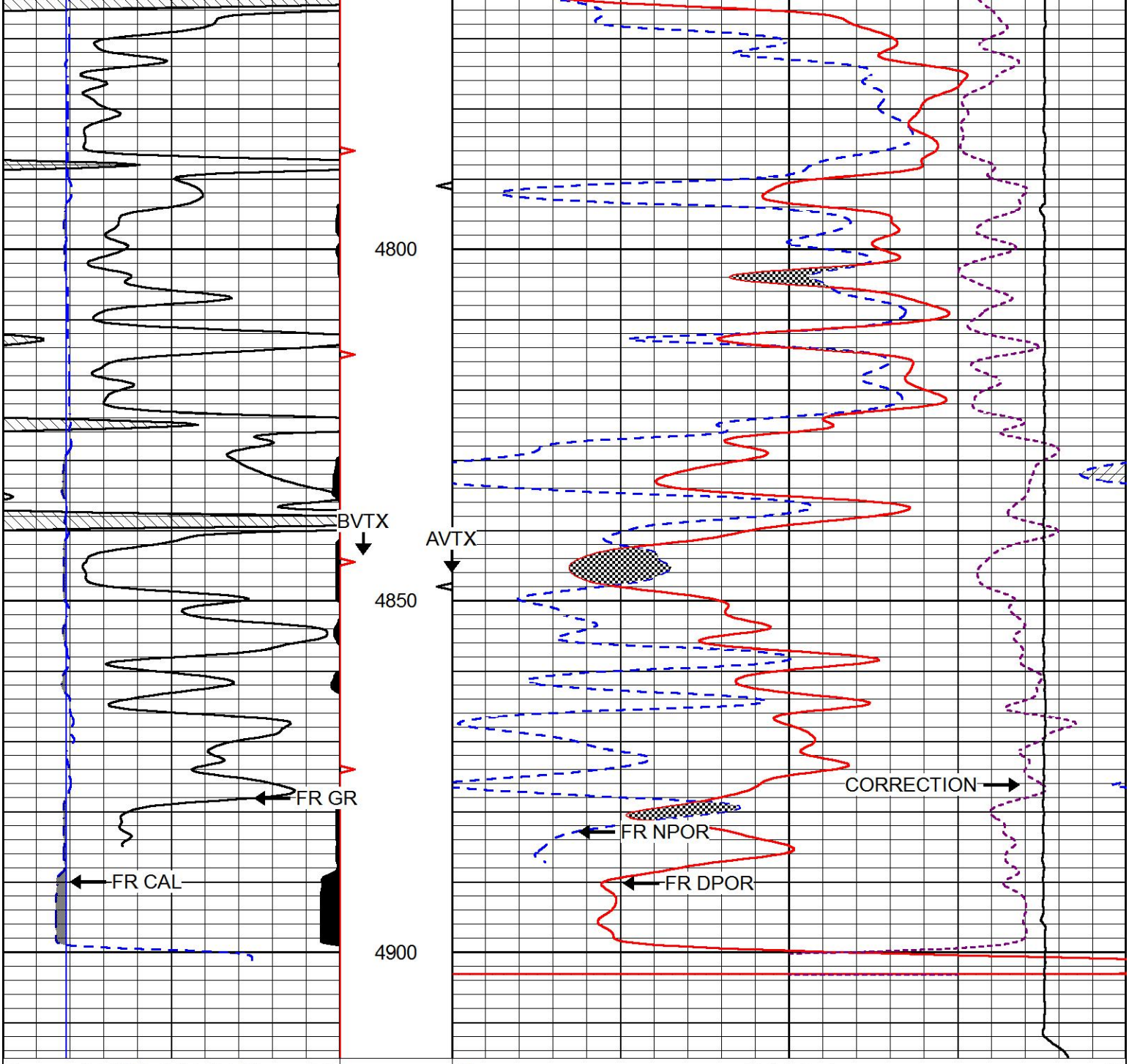
30	CNLS (pu)	-10
30	DPOR (pu)	-10
15000	LINE TENSION (lb)	0
-0.25	RHOC (g/cc)	0.25




4150
4200
4250
4300


4350
4400
4450
4500


4550
4600
4650
4700
4750

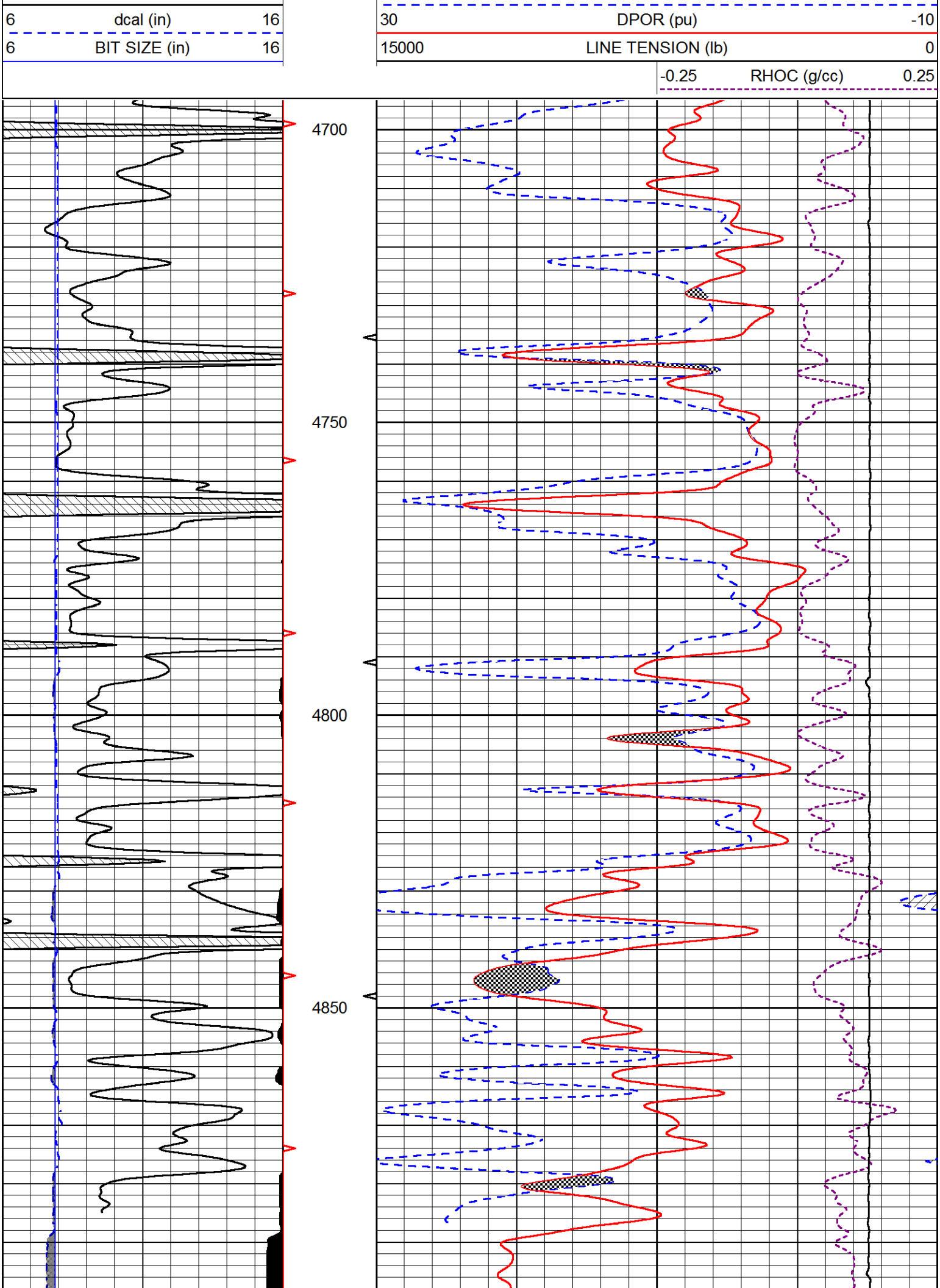


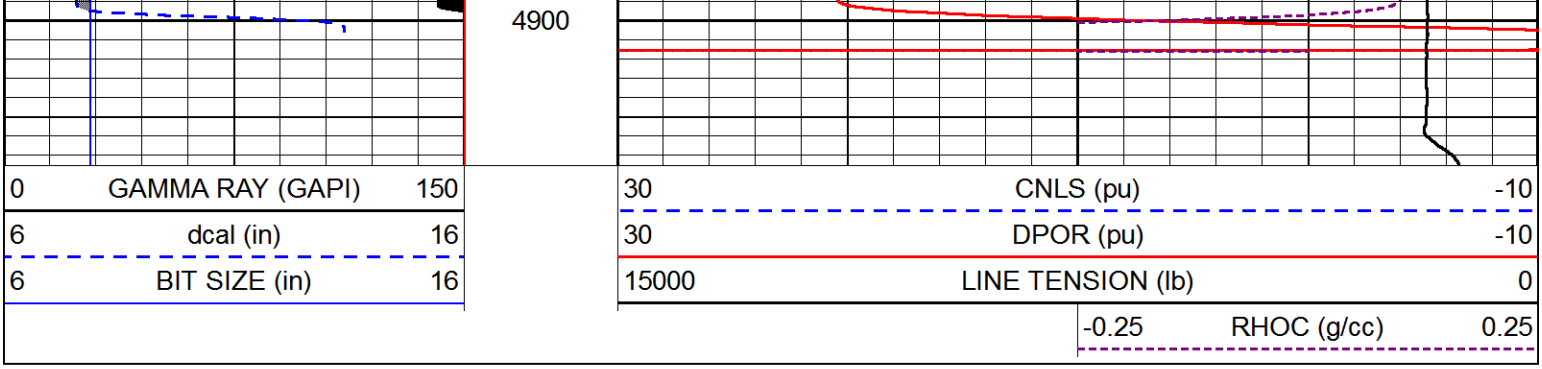
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REPEAT SECTION

Database File	murfin_culwell_j_1_19.db
Dataset Pathname	stack/pass2.1
Presentation Format	cndlspec
Dataset Creation	Thu Apr 11 15:40:45 2019
Charted by	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	30	CNLS (pu)	-10


6 dcal (in) 16
6 BIT SIZE (in) 16
30 DPOR (pu) -10
15000 LINE TENSION (lb) 0
-0.25 RHOC (g/cc) 0.25
4700
4750
4800
4850



Calibration Report

Database File	murfin_culwell_j_1_19.db
Dataset Pathname	stack/pass3.1
Dataset Creation	Thu Apr 11 15:59:16 2019

Dual Induction Calibration Report

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

	Readings		References			Results	
Loop:	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.525	-44.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.400	-17.000

Compensated Density Calibration Report

Serial-Model:	144-84-M&W
Source / Verifier:	/
Master Calibration Performed:	Mon Jan 07 15:00:31 2019

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4315.49	5309.89	cps
Aluminum	2.675	g/cc	825.26	3443.46	cps

Spine Angle = 75.33

Density/Spine Ratio = 0.538

	Size		Reading
Small Ring	4.00	in	0.69
Large Ring	14.00	in	0.04

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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State	KANSAS