



# DUAL COMP POROSITY LOG

Company MURFIN DRILLING CO., INC.  
 Well BANISTER A #2-22  
 Field WILDCAT  
 County CHEYENNE  
 State KANSAS

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 County CHEYENNE State KANSAS

Location: API #: 15-023-21483-00-00  
 2310 FSL & 1320 FWL  
 SEC 22 TWP 2S RGE 37W  
 Permanent Datum GROUND LEVEL Elevation 3409'  
 Log Measured From KELLY BUSHING  
 Drilling Measured From KELLY BUSHING  
 Other Services  
 DIL/MEL  
 SON  
 Elevation  
 K.B. 3414'  
 D.F. N/A  
 G.L. 3414'

Date	5/20/2018
Run Number	ONE
Type Log	CNL/CDL
Depth Driller	4934'
Depth Logger	4934'
Bottom Logged Interval	4913'
Top Logged Interval	4000'
Type Fluid In Hole	CHEMICAL
Salinity, PPM CL	800
Density	9.2
Level	FULL
Max. Rec. Temp. F	127
Operating Rig Time	5 HOURS
Equipment -- Location	108 HAYS
Recorded By	IAN MABB
Witnessed By	SAMAN SHARIFAIE

Run No.	Bit	Borehole Record			Casing Record		
		From	To	Size	Wgt.	From	To
ONE	12.25"	0'	384'	8.625"	23#	0'	384"
TWO	7.875"	384'		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.

BIRD CITY, KS.  
 4 MILES EAST TO RD 32,  
 8 MILES NORTH, EAST INTO

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

THANK YOU FOR USING PIONEER ENERGY SERVICES  
[www.pioneerenergy.com](http://www.pioneerenergy.com)      785-625-3858

Your Pioneer Energy Services Crew

Engineer: IAN MABB  
 Operator:  
 Operator:  
 Operator:

This Log Record Was Witnessed By

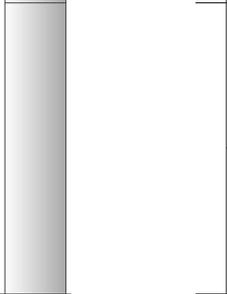
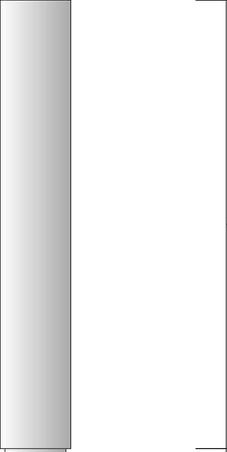
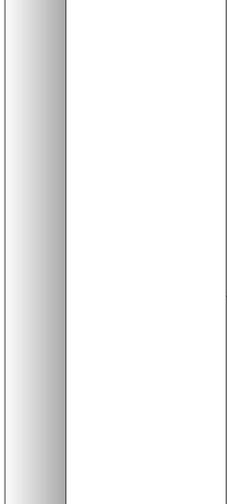
Primary Witness: SAMAN SHARIFAIE  
 Secondary Witness:  
 Secondary Witness:  
 Secondary Witness:

# Log Variables

DatabaseC:\ProgramData\Warrior\Data\murfin\_banister\_a\_2\_22.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	127	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	9	-7	-415	60	Off	4934

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 (128-4110)	8.50	4.00	250.00
RLL3 RLL3F	15.80 15.79					
CILD	8.00		DIL-M&W (1987)	18.50	3.50	220.00

CILM 4.70

SP 0.20

Dataset: murfin\_banister\_a\_2\_22.db: field/well/stack/pass3.1  
 Total length: 35.50 ft  
 Total weight: 620.00 lb  
 O.D.: 4.00 in

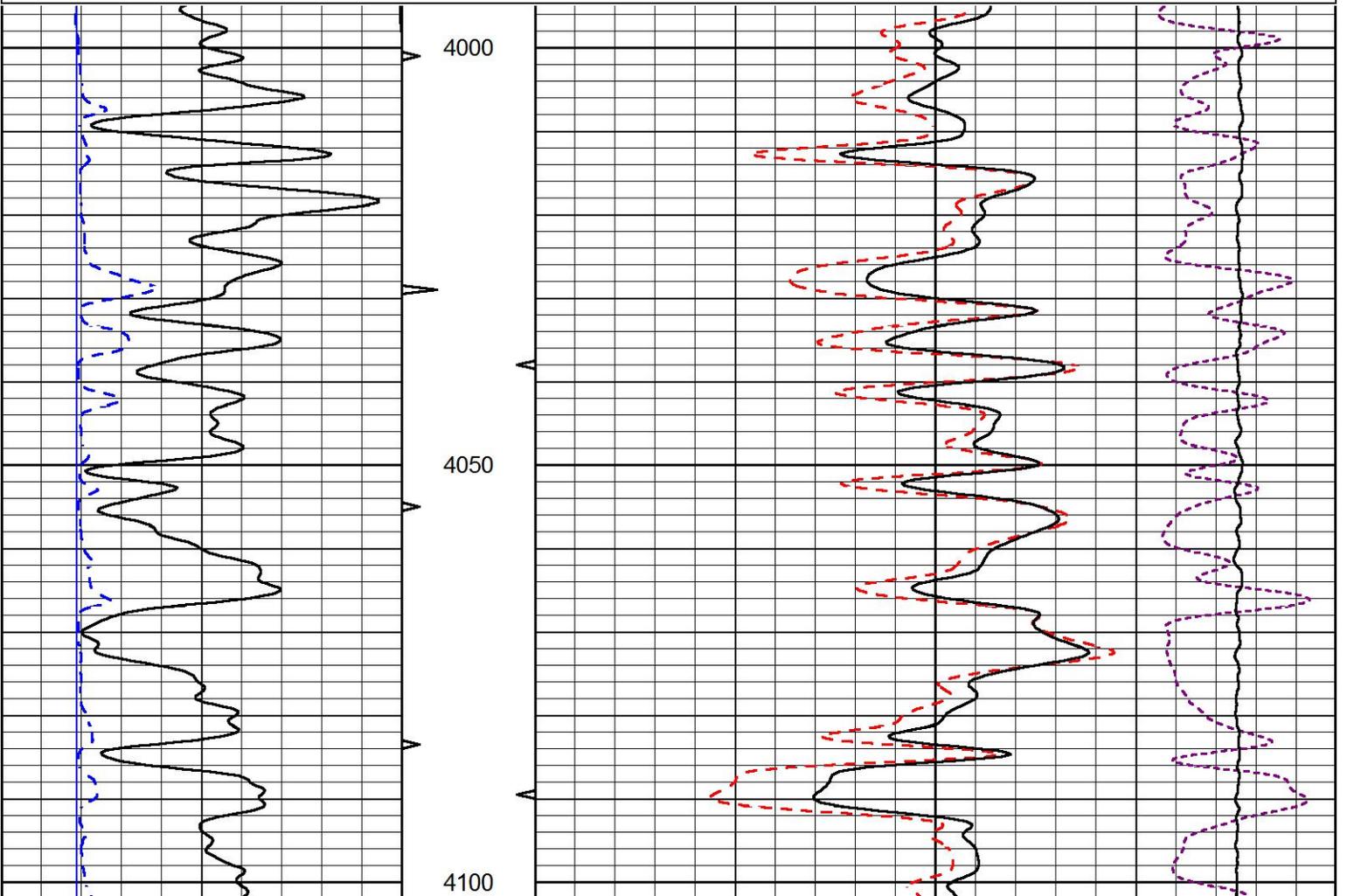


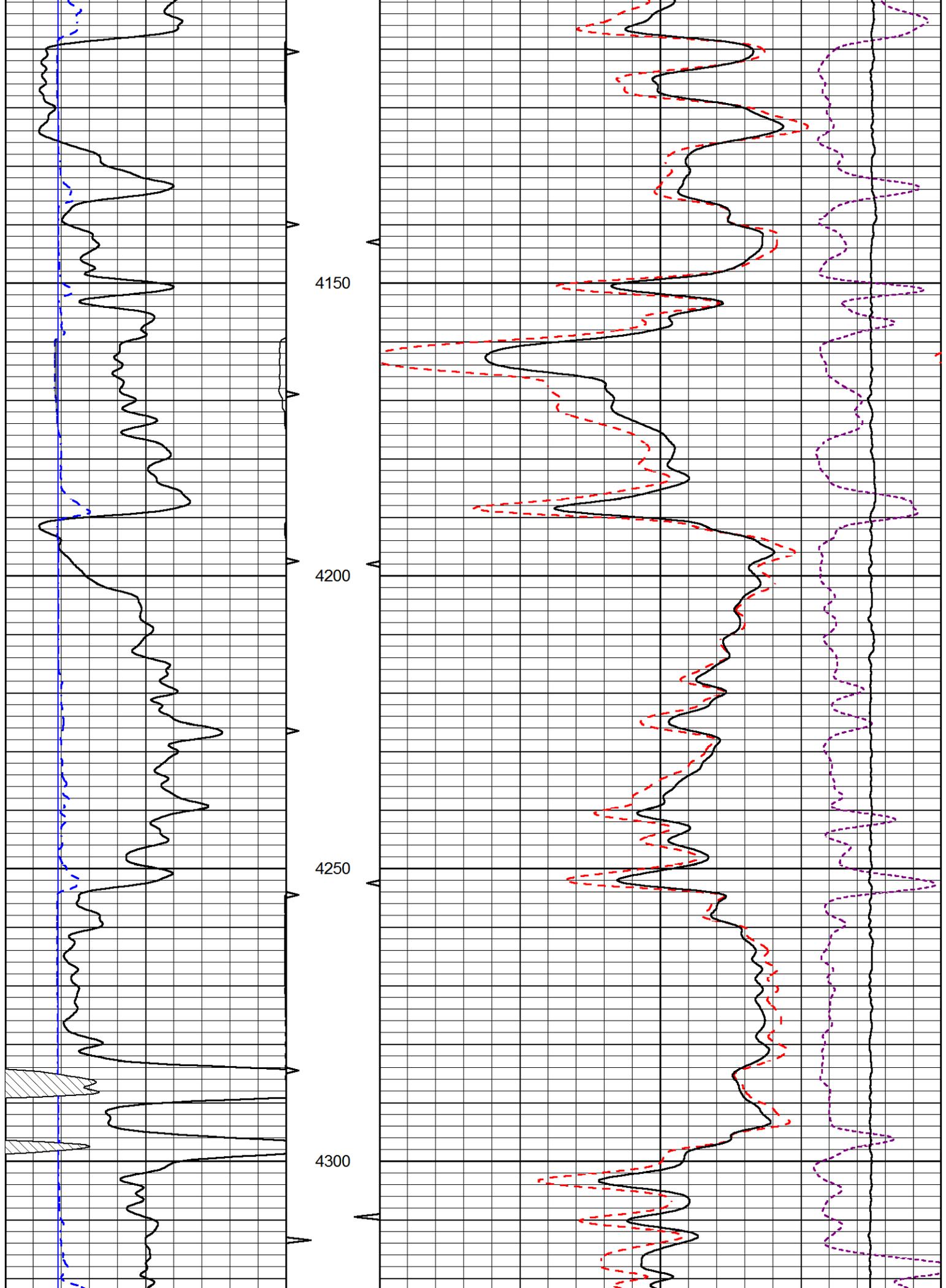
# MAIN PASS

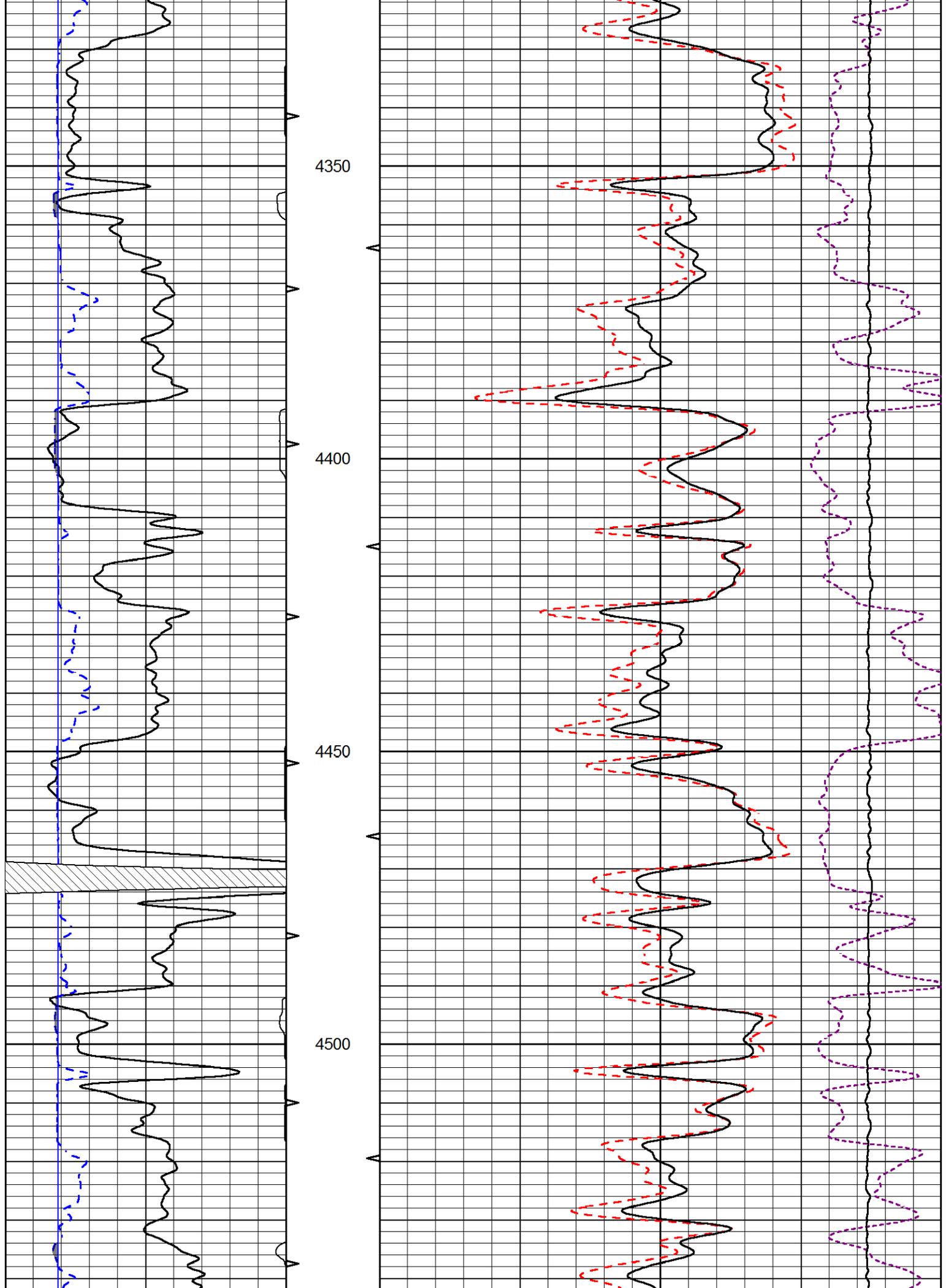
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 Dataset Pathname stack/pass3.1  
 Presentation Format cdl  
 Dataset Creation Sun May 20 12:11:09 2018  
 Charted by Depth in Feet scaled 1:240

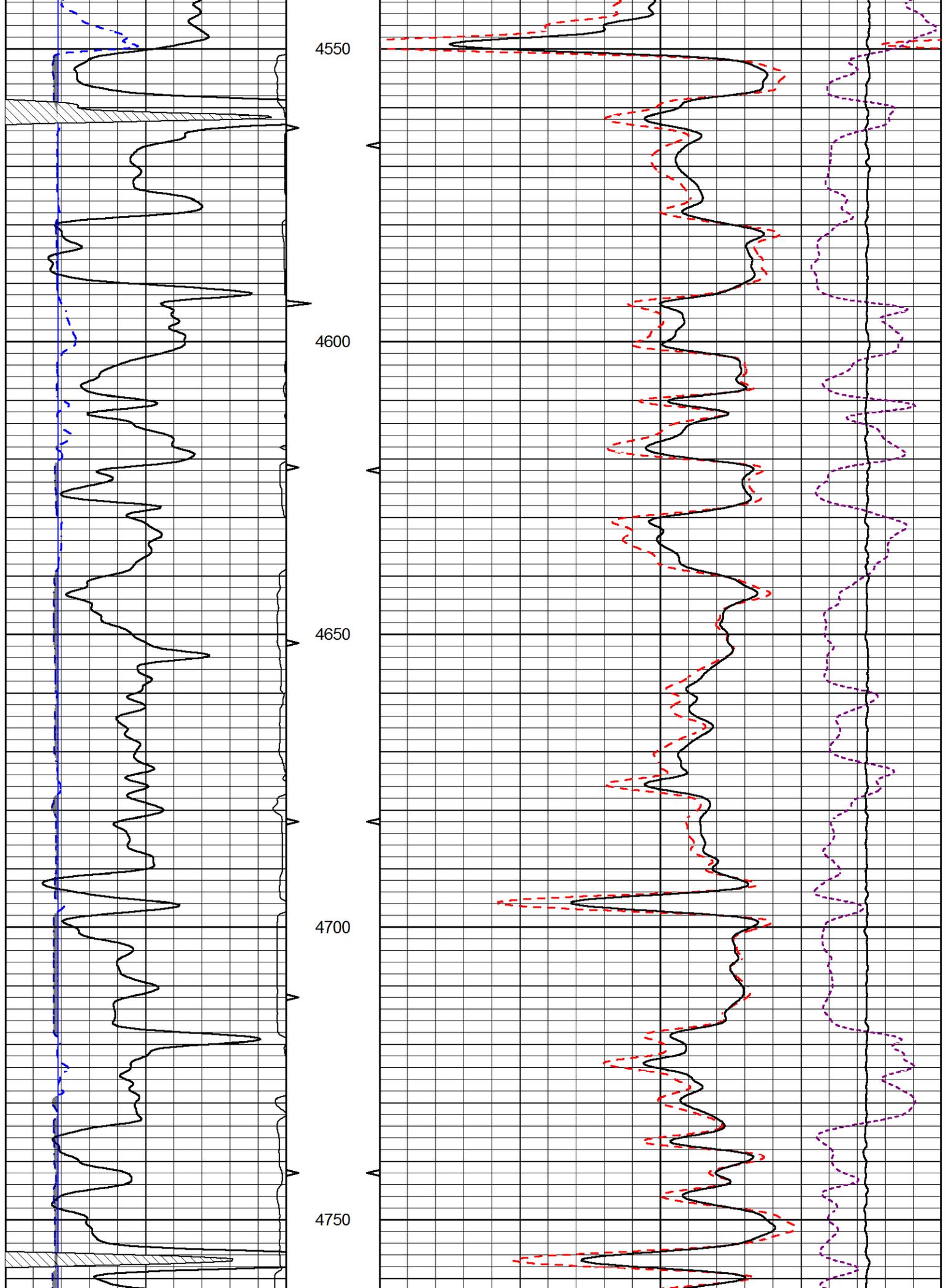
0 GAMMA RAY (GAPI) 150  
 6 CALIPER (in) 16

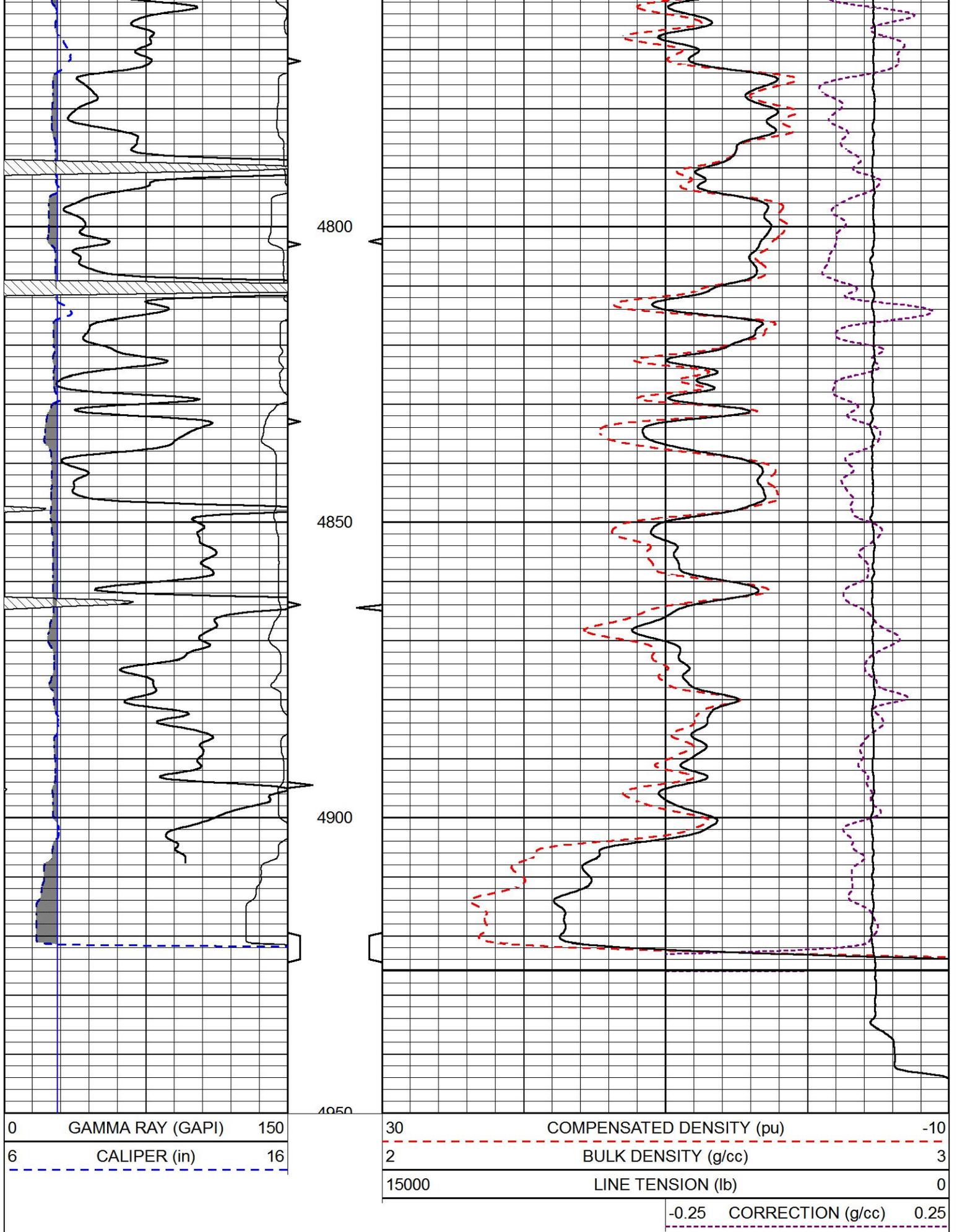
30 COMPENSATED DENSITY (pu) -10  
 2 BULK DENSITY (g/cc) 3  
 15000 LINE TENSION (lb) 0  
 -0.25 CORRECTION (g/cc) 0.25







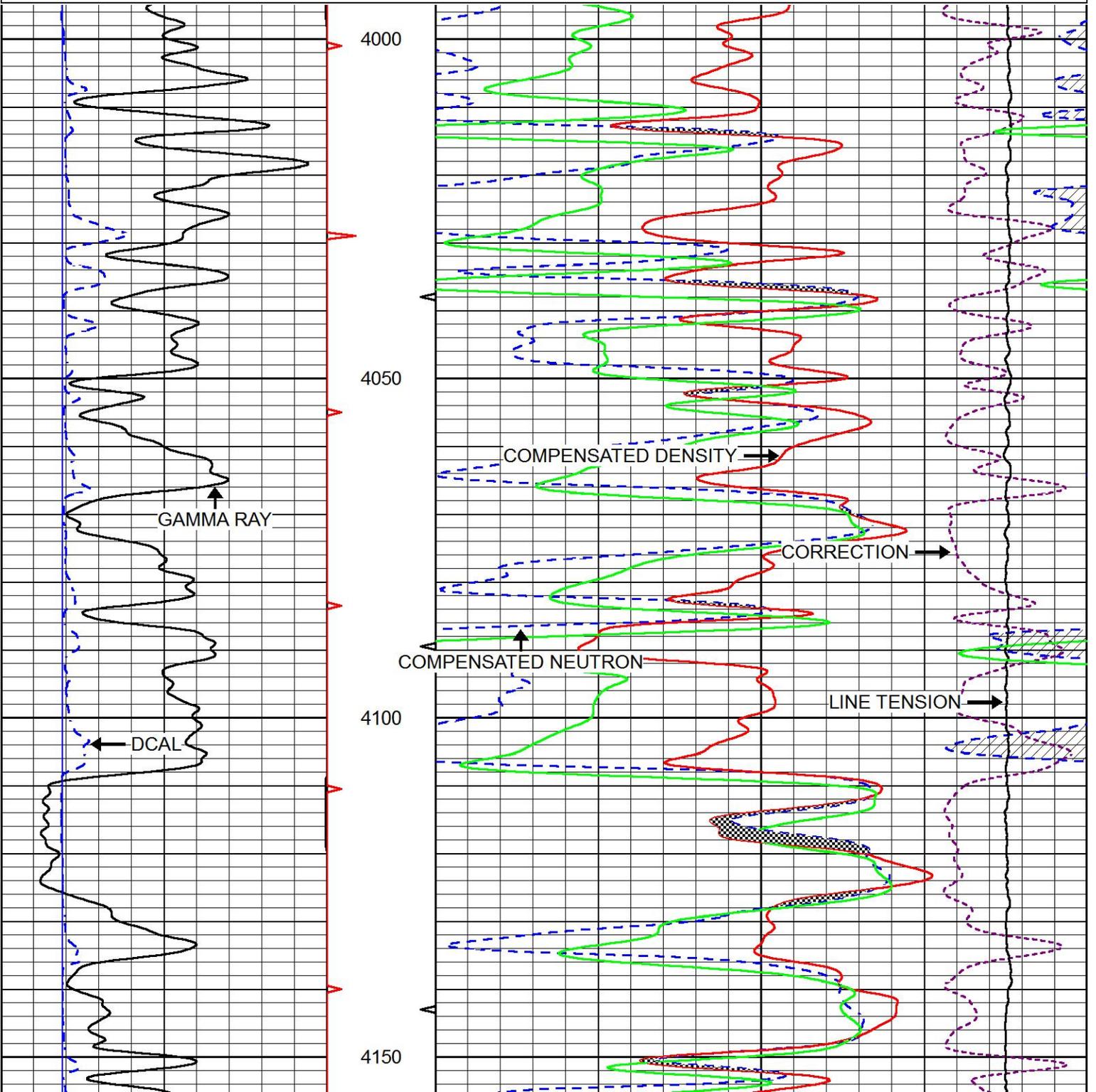


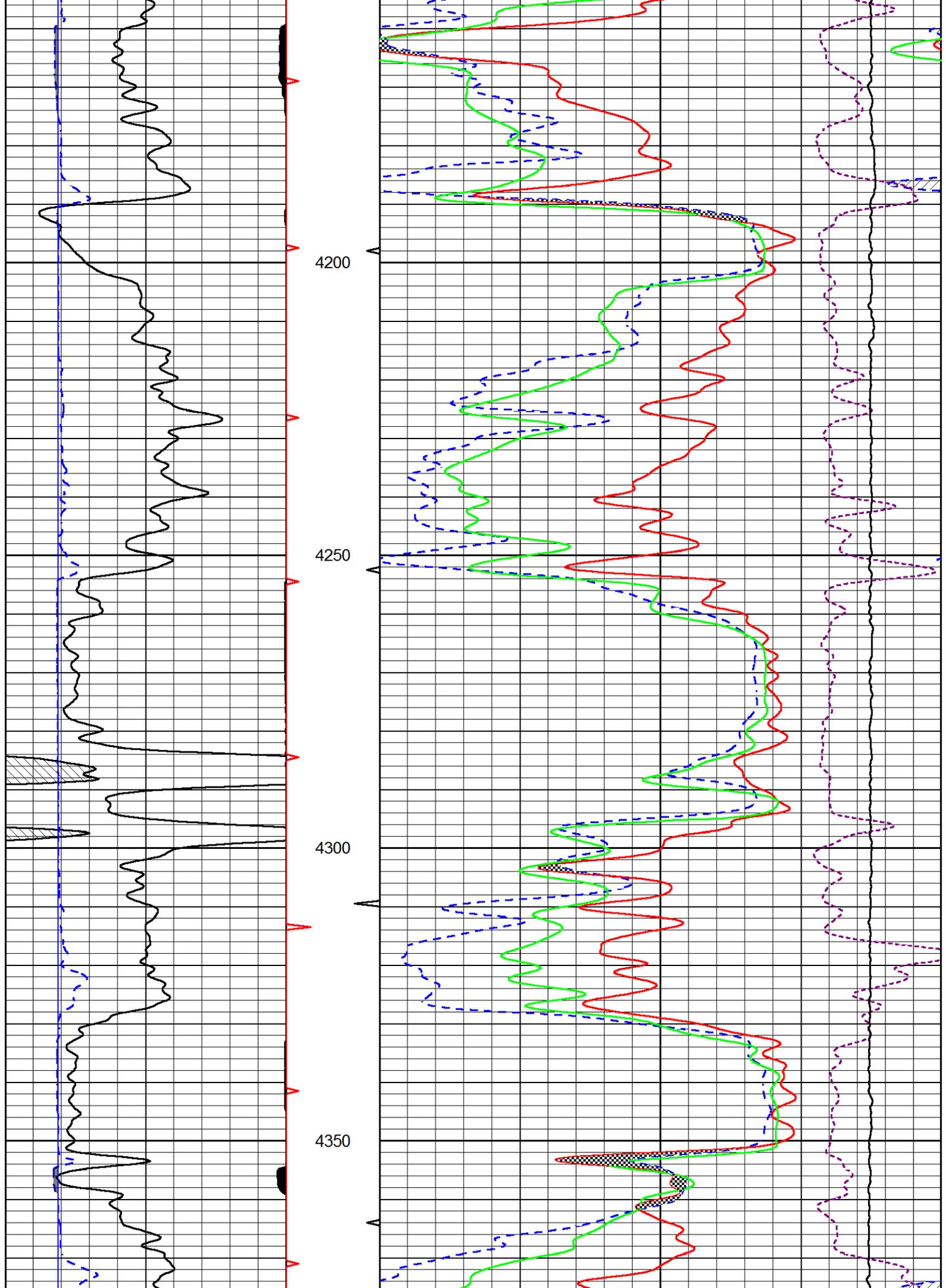


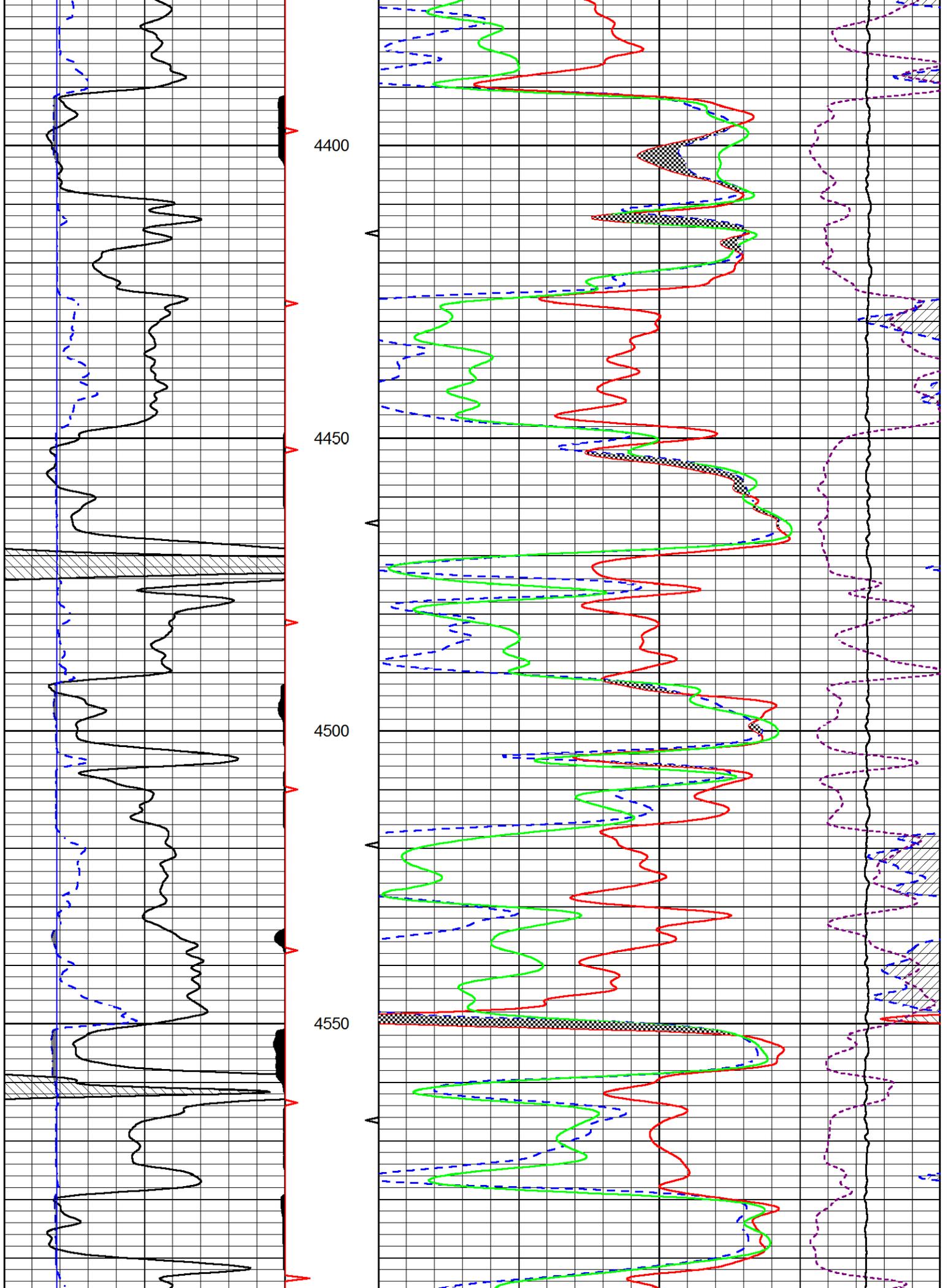
# MAIN PASS

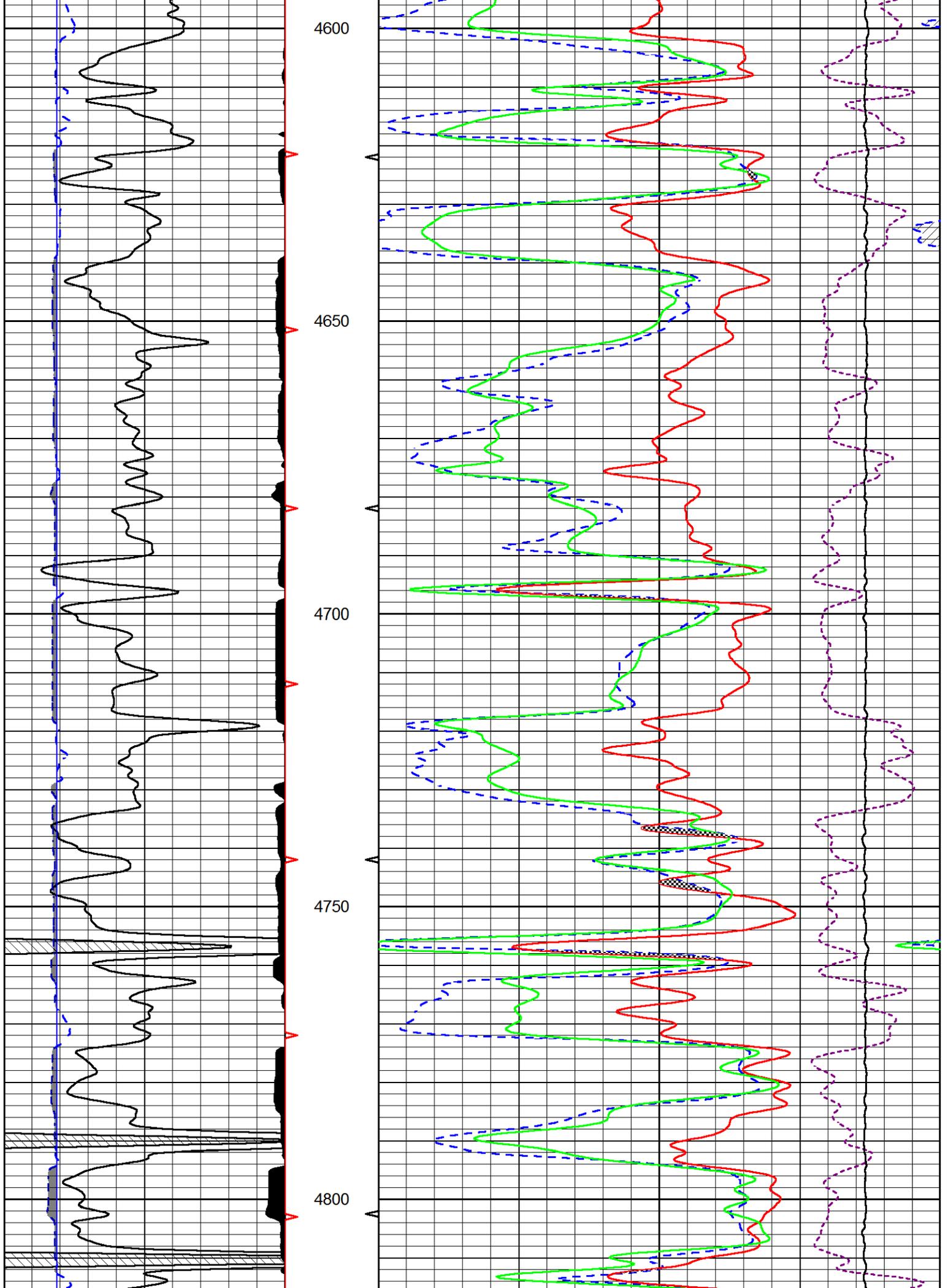
Database File murfin\_banister\_a\_2\_22.db  
 Dataset Pathname stack/pass3.1  
 Presentation Format cndlspec  
 Dataset Creation Sun May 20 12:11:09 2018  
 Charted by Depth in Feet scaled 1:240

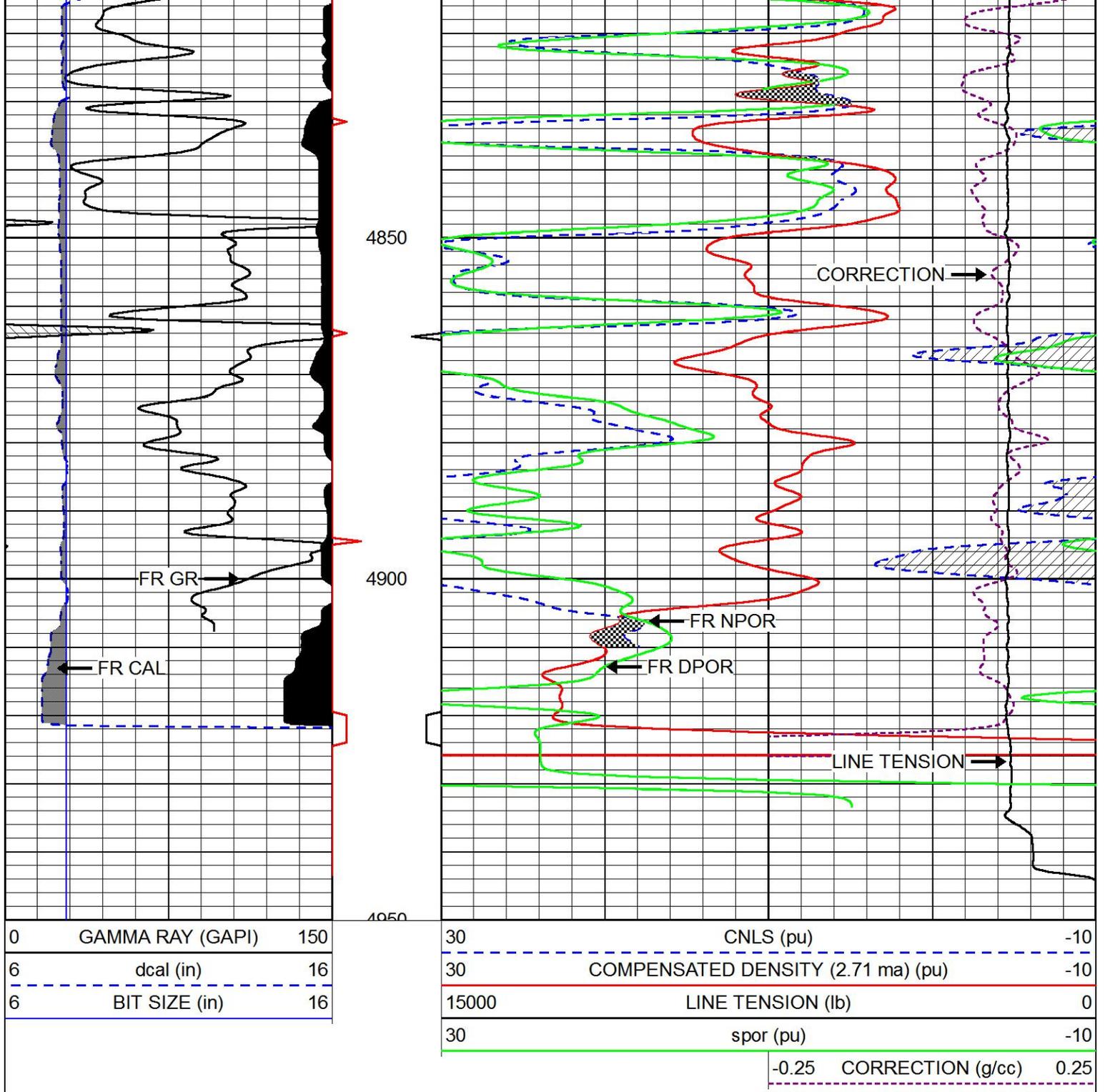
0	GAMMA RAY (GAPI)	150	30	CNLS (pu)	-10
6	dcal (in)	16	30	COMPENSATED DENSITY (2.71 ma) (pu)	-10
6	BIT SIZE (in)	16	15000	LINE TENSION (lb)	0
			30	spor (pu)	-10
				-0.25 CORRECTION (g/cc)	0.25











# REPEAT SECTION

Database File      murfin\_banister\_a\_2\_22.db  
 Dataset Pathname    stack/pass2.2  
 Presentation Format    cndlspec  
 Dataset Creation      Sun May 20 12:29:55 2018  
 Charted by            Depth in Feet scaled 1:240

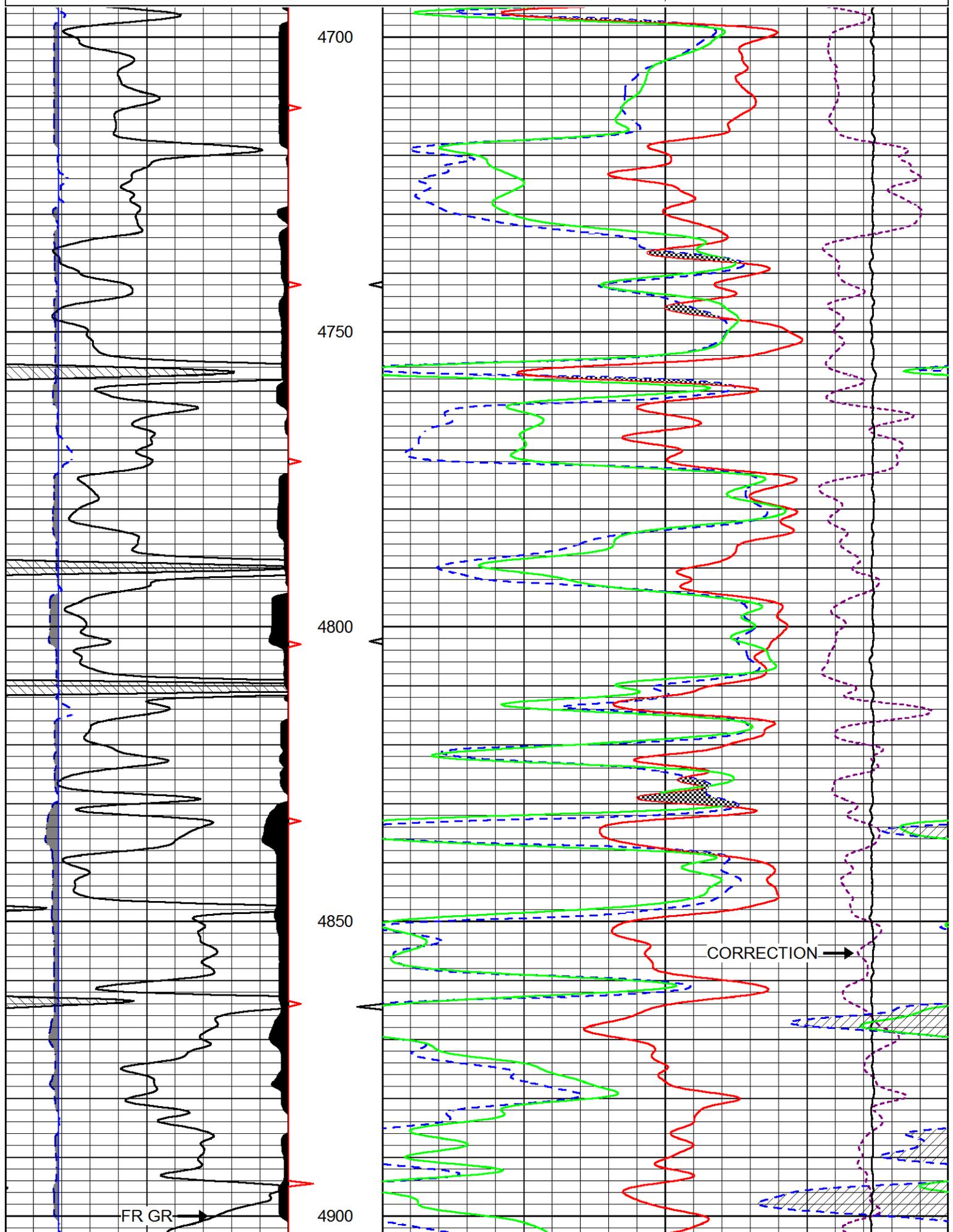
0	GAMMA RAY (GAPI)	150	30	CNLS (pu)	-10
6	dcal (in)	16	30	COMPENSATED DENSITY (2.71 ma) (pu)	-10
6	BIT SIZE (in)	16	15000	LINE TENSION (lb)	0

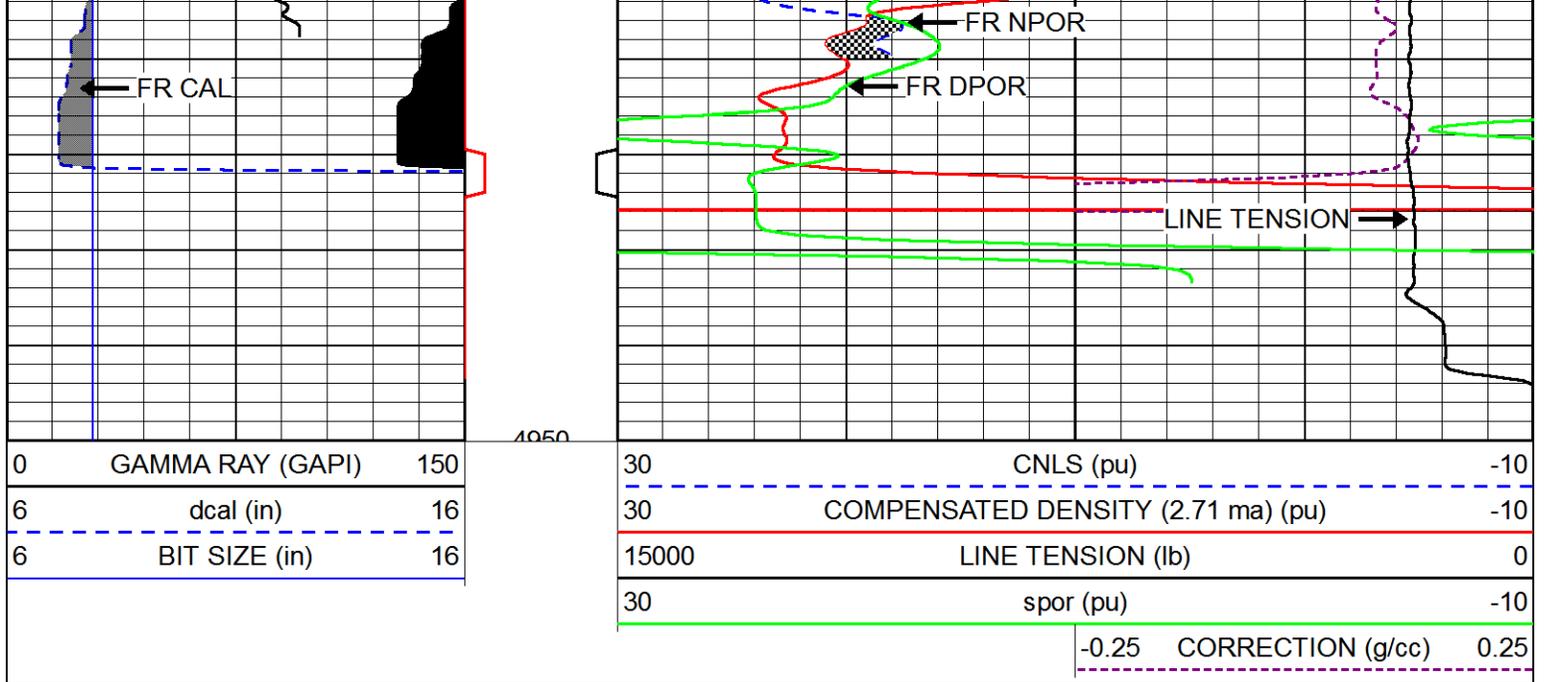
30

spor (pu)

-10

-0.25 CORRECTION (g/cc) 0.25





### Calibration Report

Database File murfin\_banister\_a\_2\_22.db  
 Dataset Pathname stack/pass3.1  
 Dataset Creation Sun May 20 12:11:09 2018

### Dual Induction Calibration Report

Serial-Model: 1987-M&W  
 Calibration Performed: Tue Apr 11 17:07:38 2017

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.530	-36.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.440	-110.500

### Compensated Density Calibration Report

Serial-Model: 128-4110-M&W  
 Source / Verifier: /  
 Master Calibration Performed: Thu Mar 02 17:30:49 2017

### Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.750	g/cc	4555.61	2204.19	cps
Aluminum	2.650	g/cc	856.69	1405.61	cps
Spine Angle = 74.93			Density/Spine Ratio = 0.520		
	Size		Reading		
Small Ring	4.00	in	1.15		
Large Ring	14.00	in	1.04		

### 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



**PIONEER**  
Pioneer Energy Services

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