



PIONEER

Pioneer Energy Services

DUAL COMP POROSITY LOG

Company MURFIN DRILLING CO, INC.
Well ABELL RANCH "B" #4-31
Field GAELAND WEST
County GOVE State KANSAS

Location: API #: 15-063-22332-00-00

Other Services

SEC 31 TWP 12S RGE 30W
1980' FNL & 2077' FWL

DIL/MEL
BHCS

Permanent Datum GROUND LEVEL Elevation 2877'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 2877'
D.F. N/A
G.L. 2872'

Date 7/27/2018

Run Number ONE

Type Log CNL/CDL

Depth Driller 4620'

Depth Logger 4618'

Bottom Logged Interval 4589'

Top Logged Interval 3500'

Type Fluid In Hole CHEMICAL

Salinity, PPM CL 1800

Density 9.5

Level FULL

Max. Rec. Temp. F 122

Operating Rig Time 5 HOURS

Equipment -- Location 91 HAYS

Recorded By IAN MABB

Witnessed By PAUL GUNZELMAN

Borehole Record

Casing Record

Run No.

Bit

From

To

Size

Wgt.

From

To

ONE 12.25" 0' 305' 8.625" 23# 0' 305'

TWO 7.875" 305' TD

<<< 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.

GRINNEL, KS.

10 MILES SOUTH TO RD. S - WEST 4 MILES -
NORTH 1/4 MILE & EAST INTO

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

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

Your Pioneer Energy Services Crew

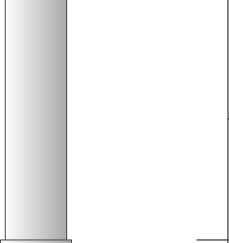
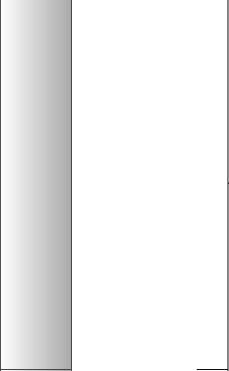
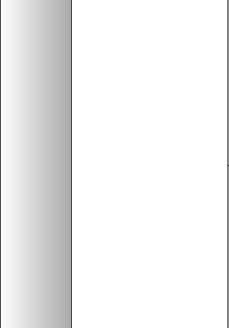
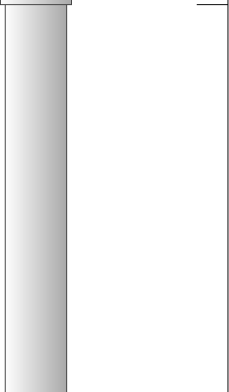
Engineer: IAN MABB
Operator:
Operator:
Operator:

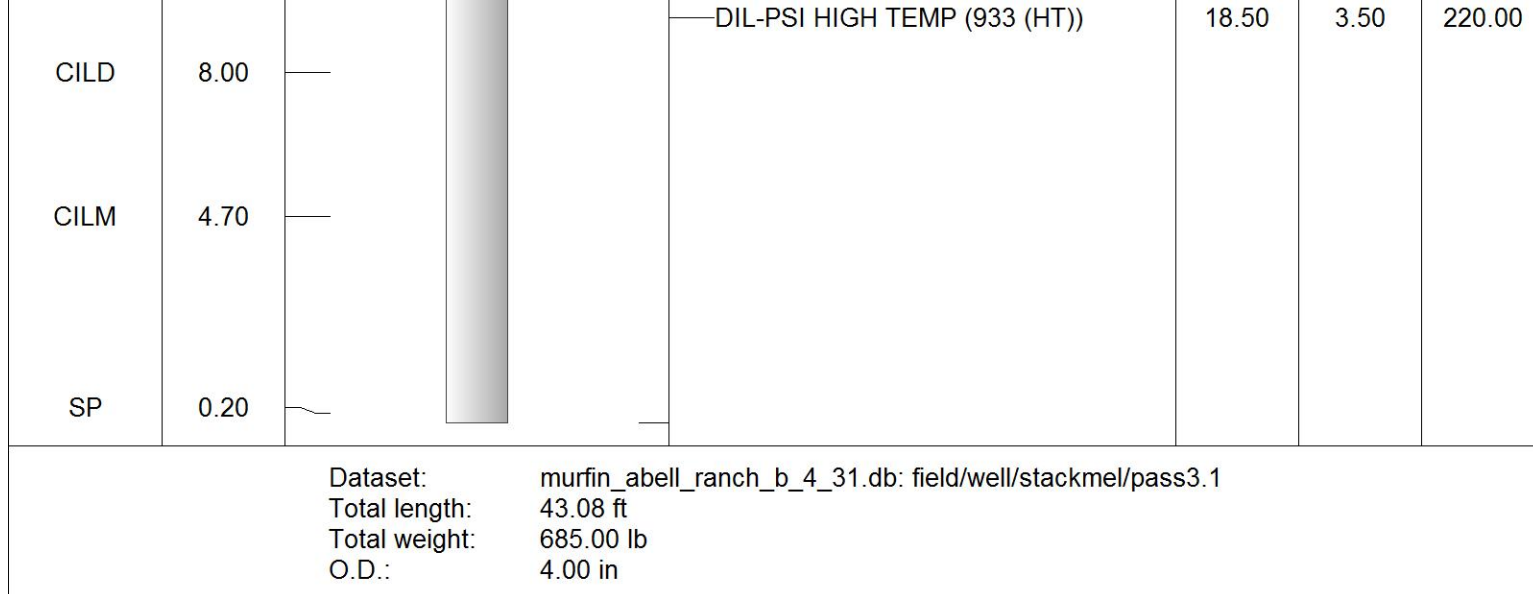
This Log Record Was Witnessed By

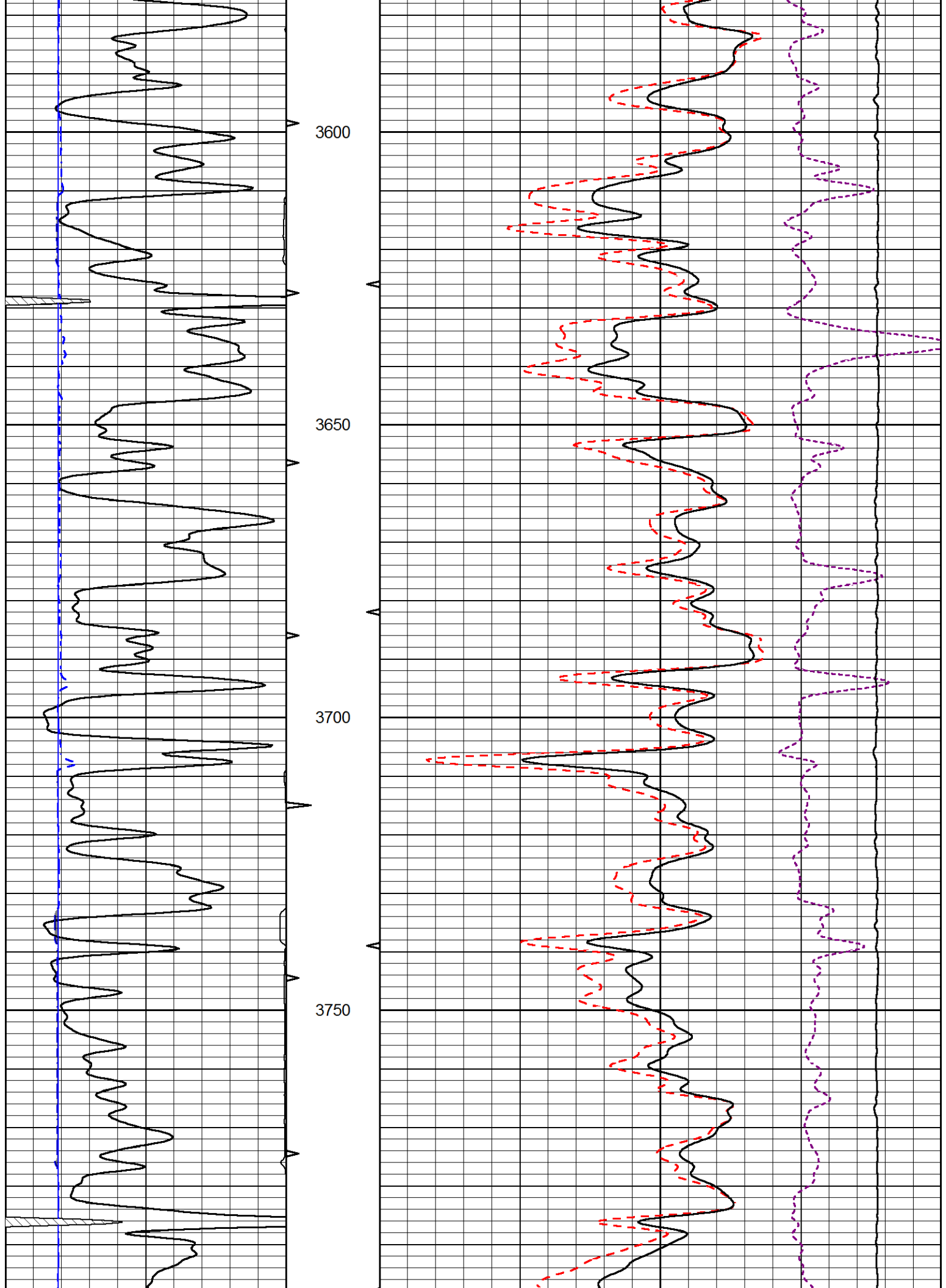
Primary Witness: PAUL GUNZELMAN
Secondary Witness:
Secondary Witness:
Secondary Witness:

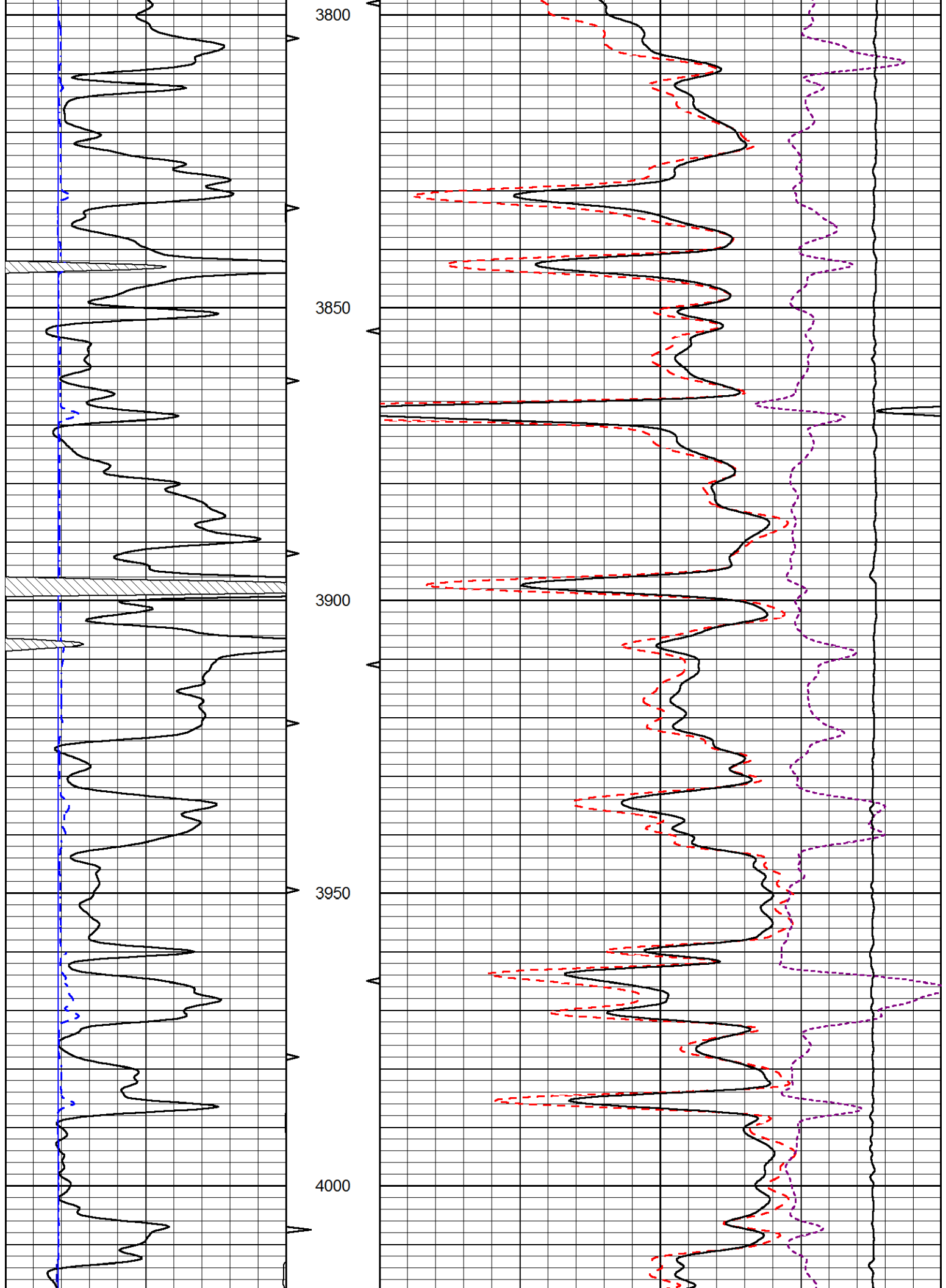
Top - Bottom

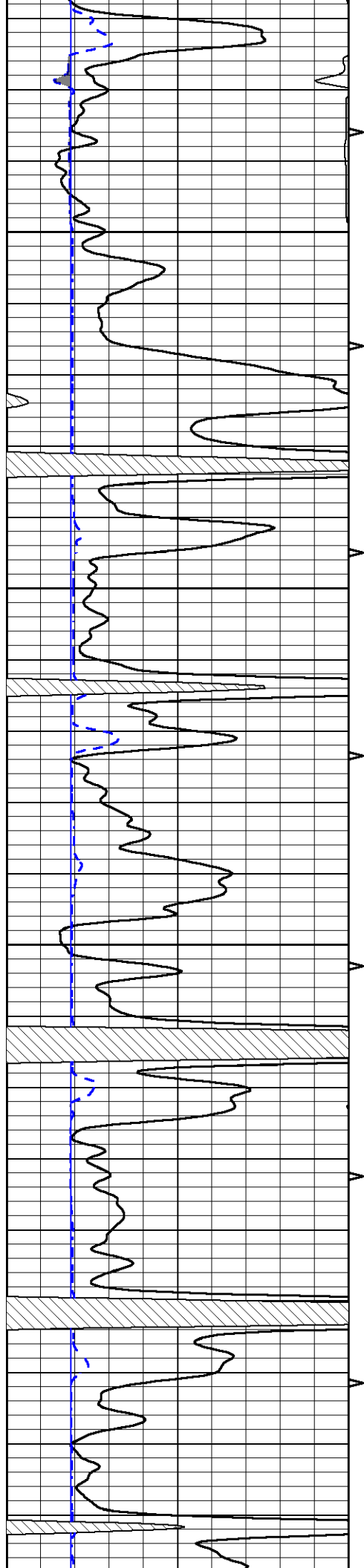
M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	-40	3
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
1	79	0	5.5	0	4618	122	7.875

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 (817-947)	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					







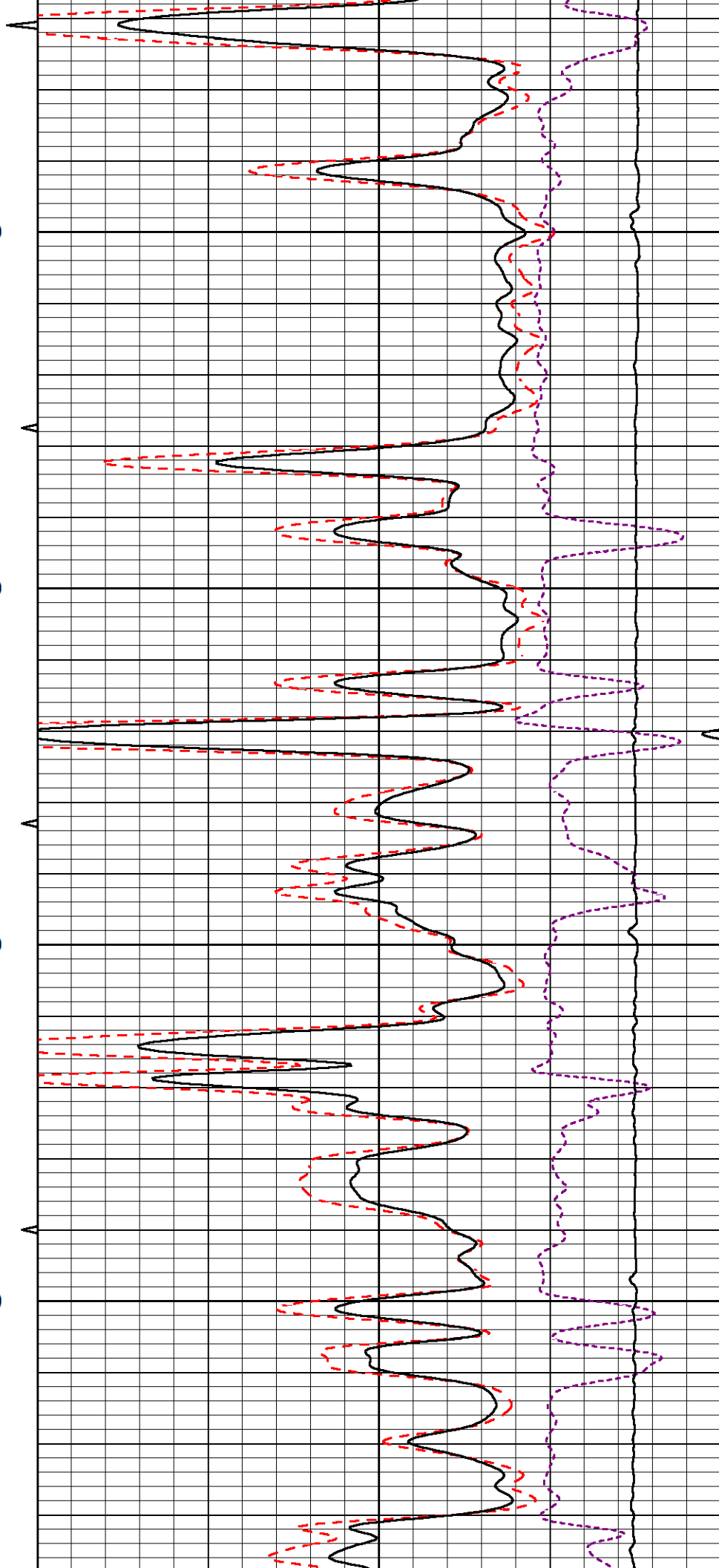


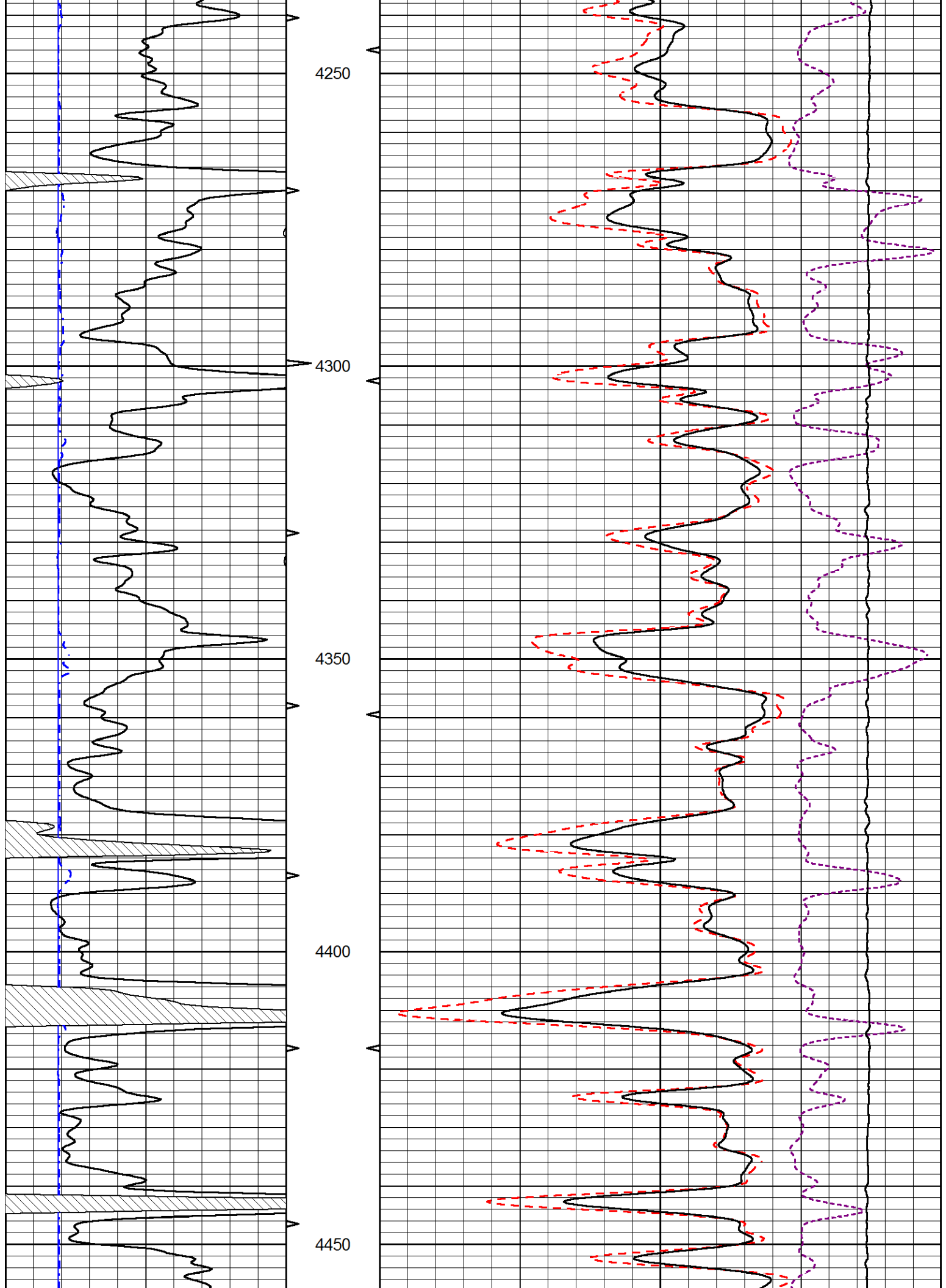
4050

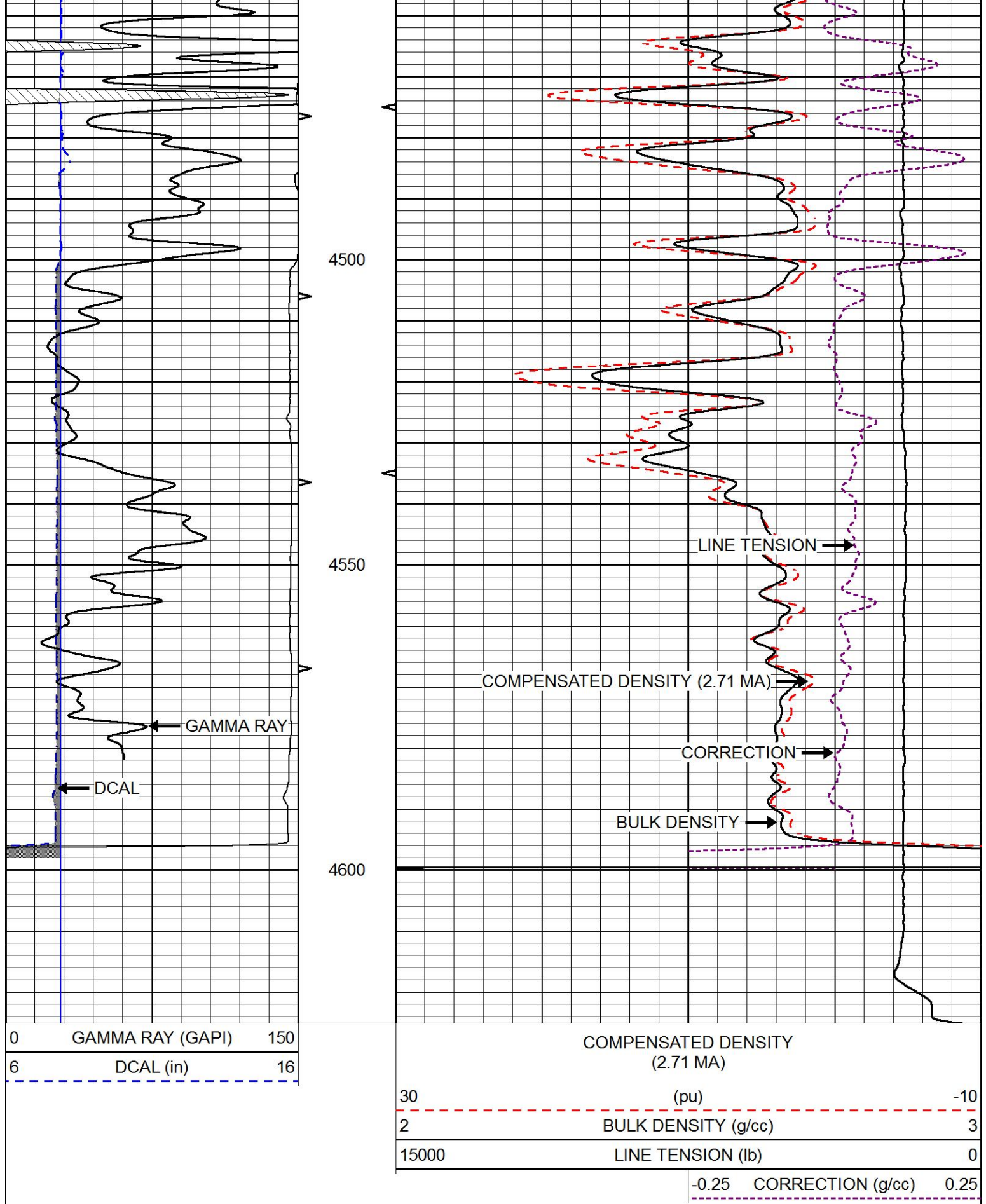
4100

4150

4200



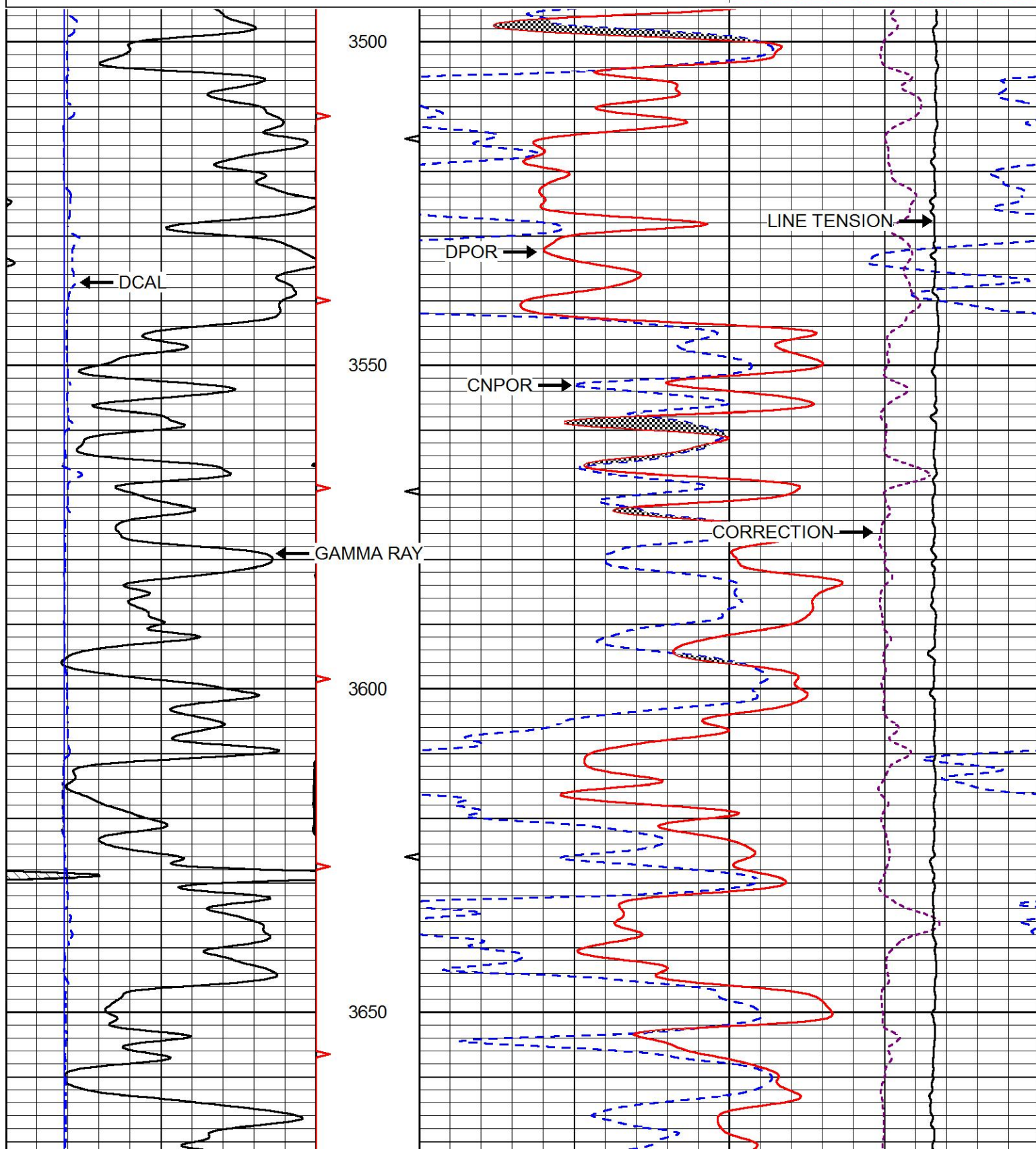


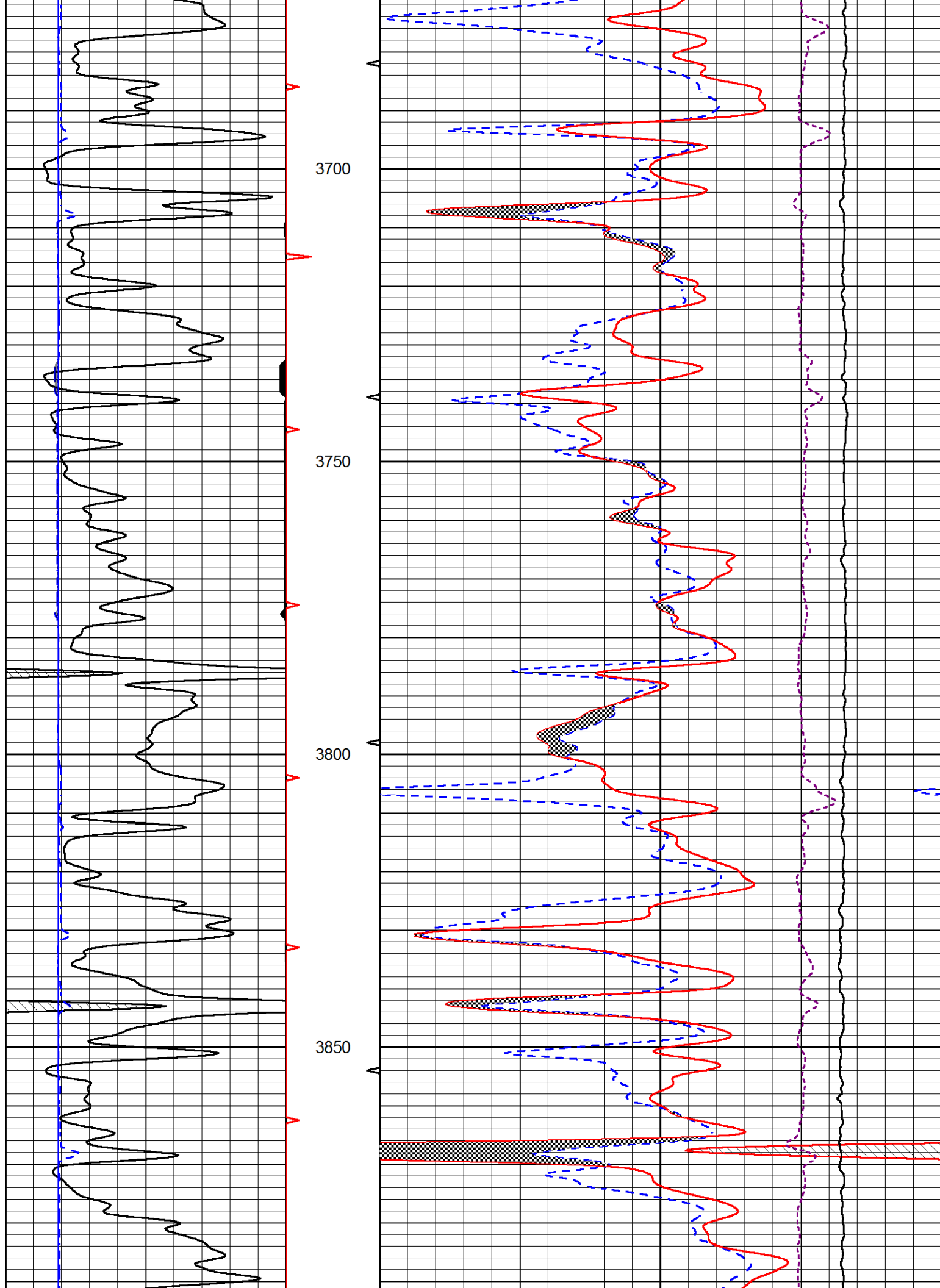


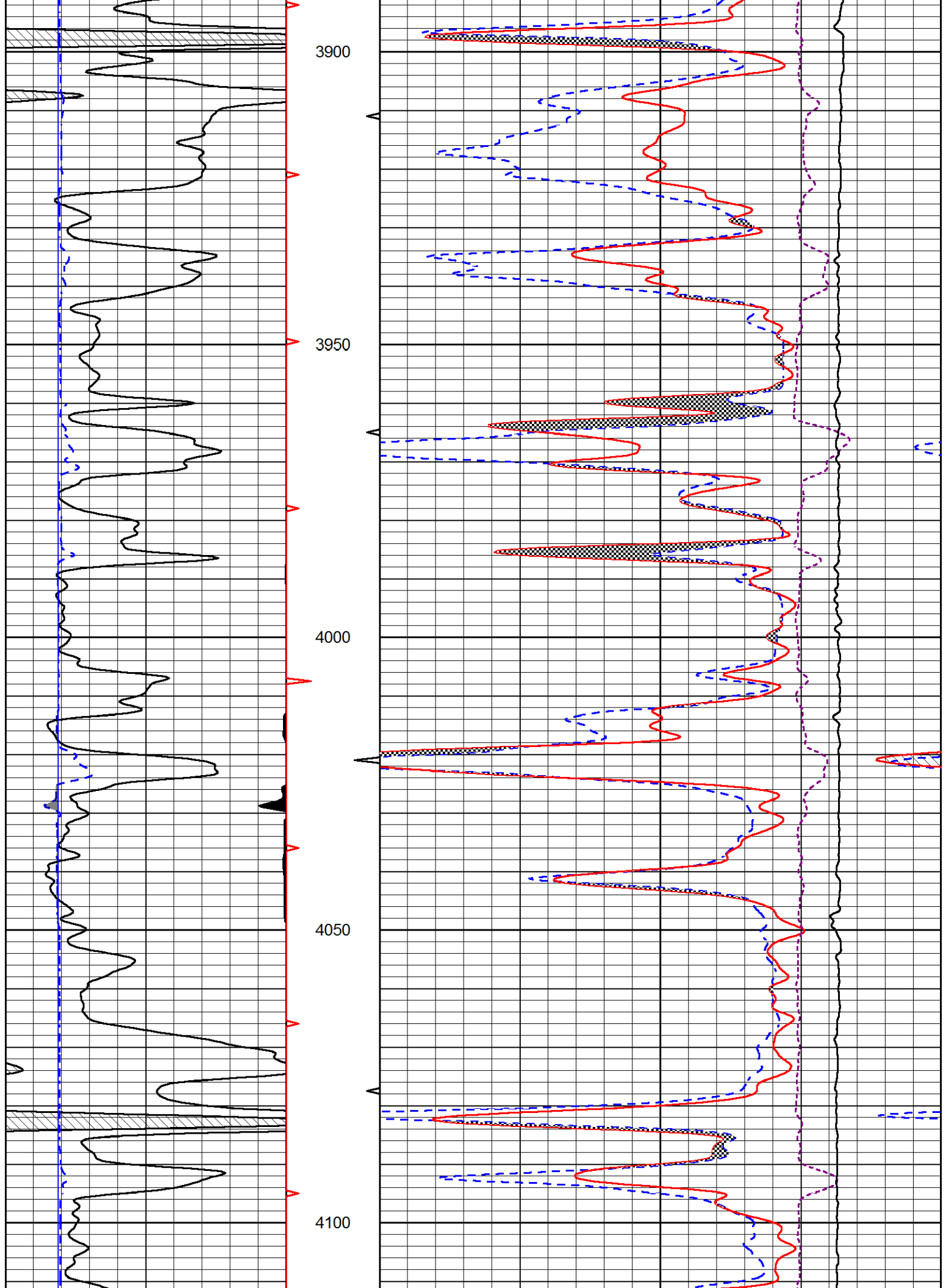
Database File murfin_abell_ranch_b_4_31.db
Dataset Pathname stackmel/pass3.1
Presentation Format cndlspec
Dataset Creation Sat Jul 28 01:22:16 2018
Charted by Depth in Feet scaled 1:240

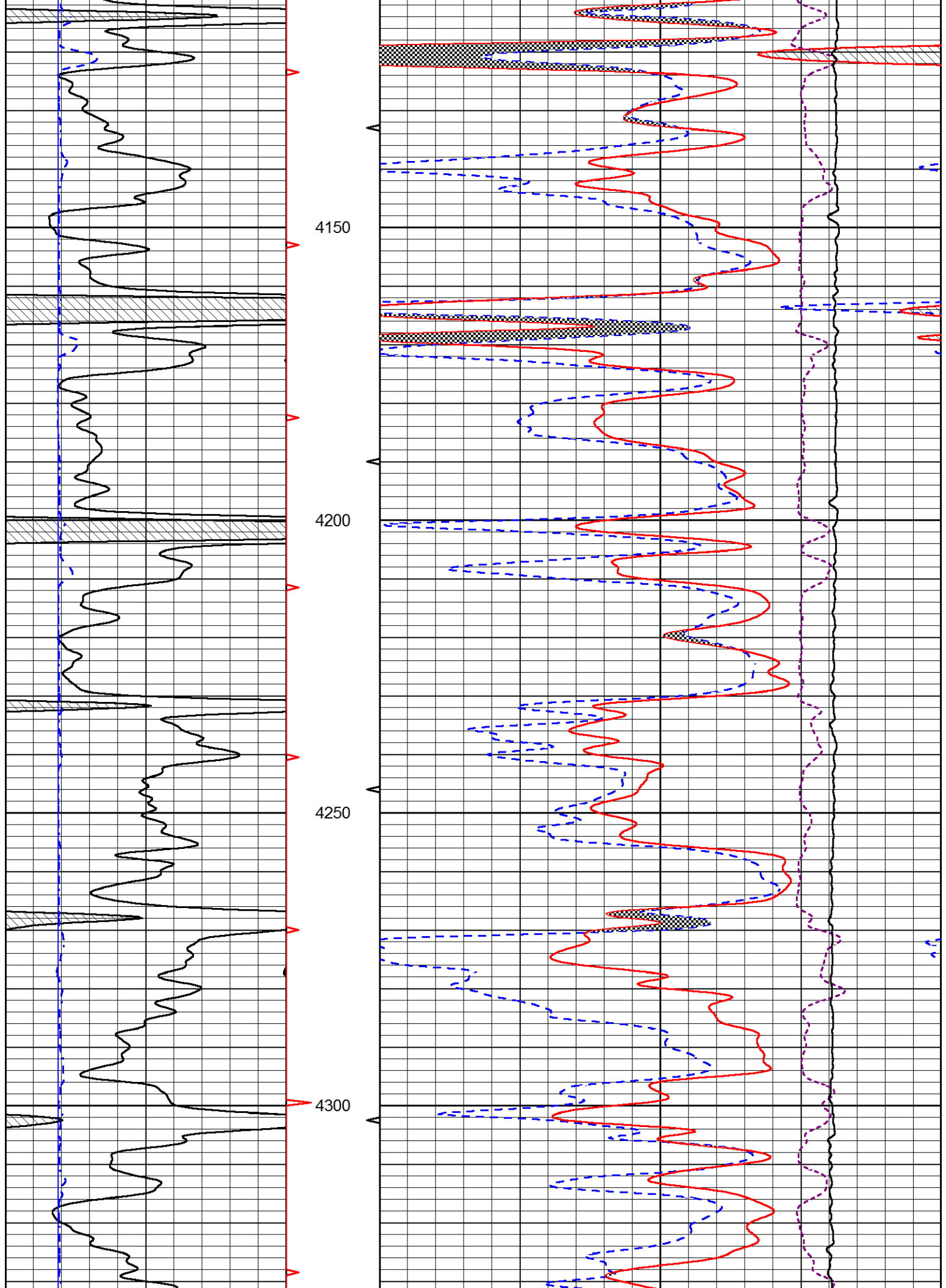
0	GAMMA RAY (GAPI)	150
6	DCAL (in)	16

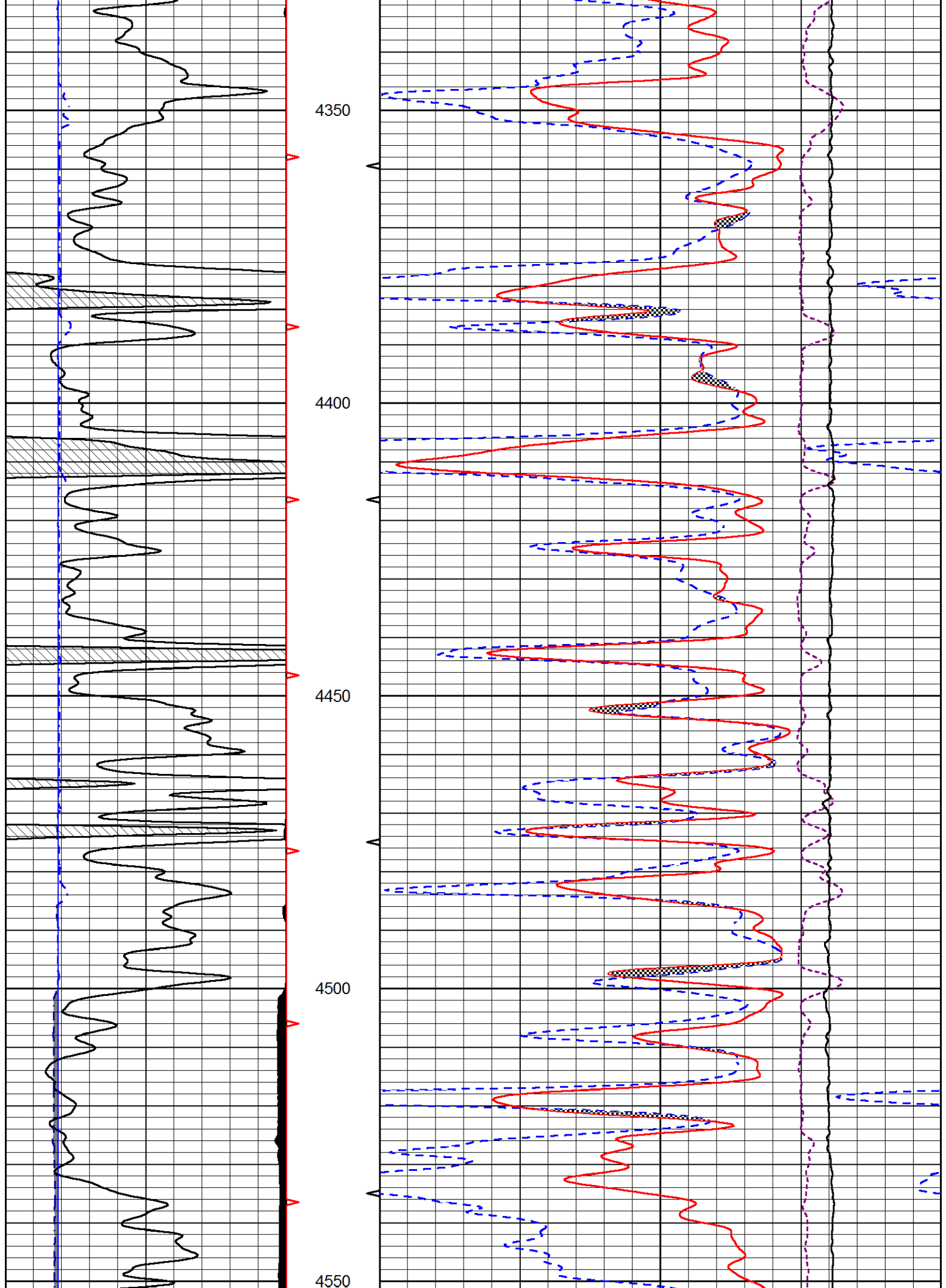
30	CNLS (pu)	-10
30	DPOR (pu)	-10
10000	LINE TENSION (lb)	0
-0.75	CORRECTION (g/cc)	0.75

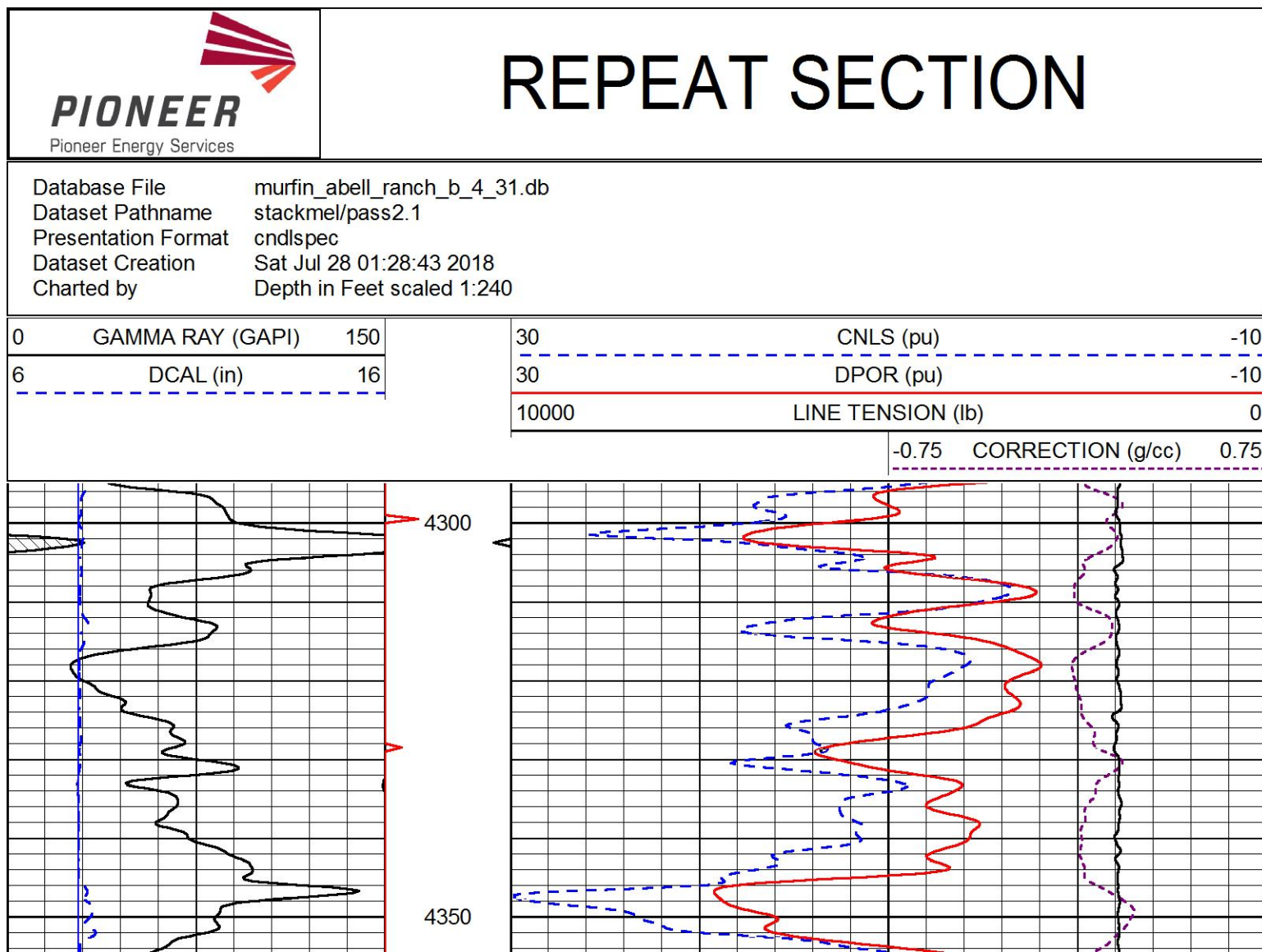
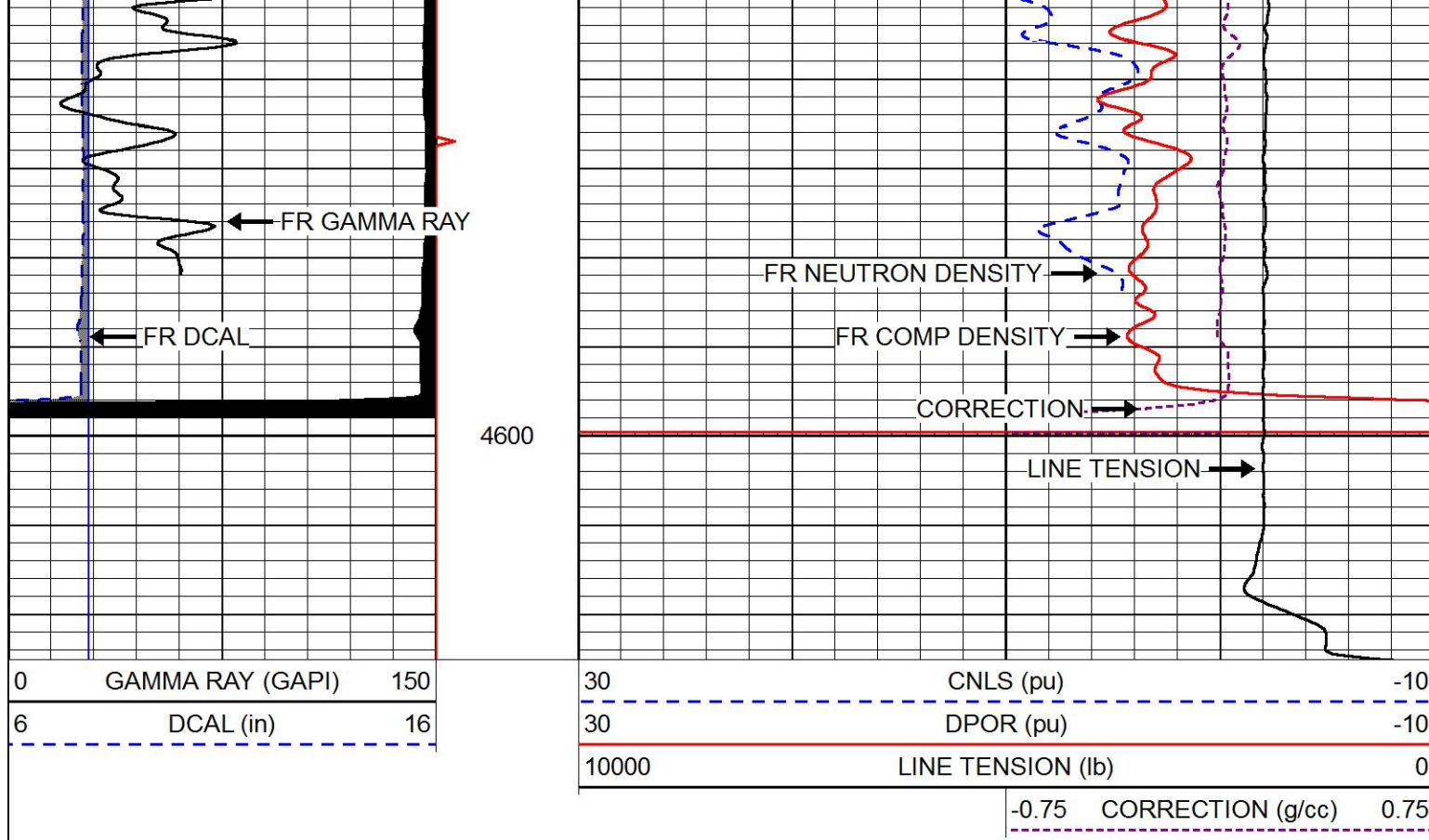


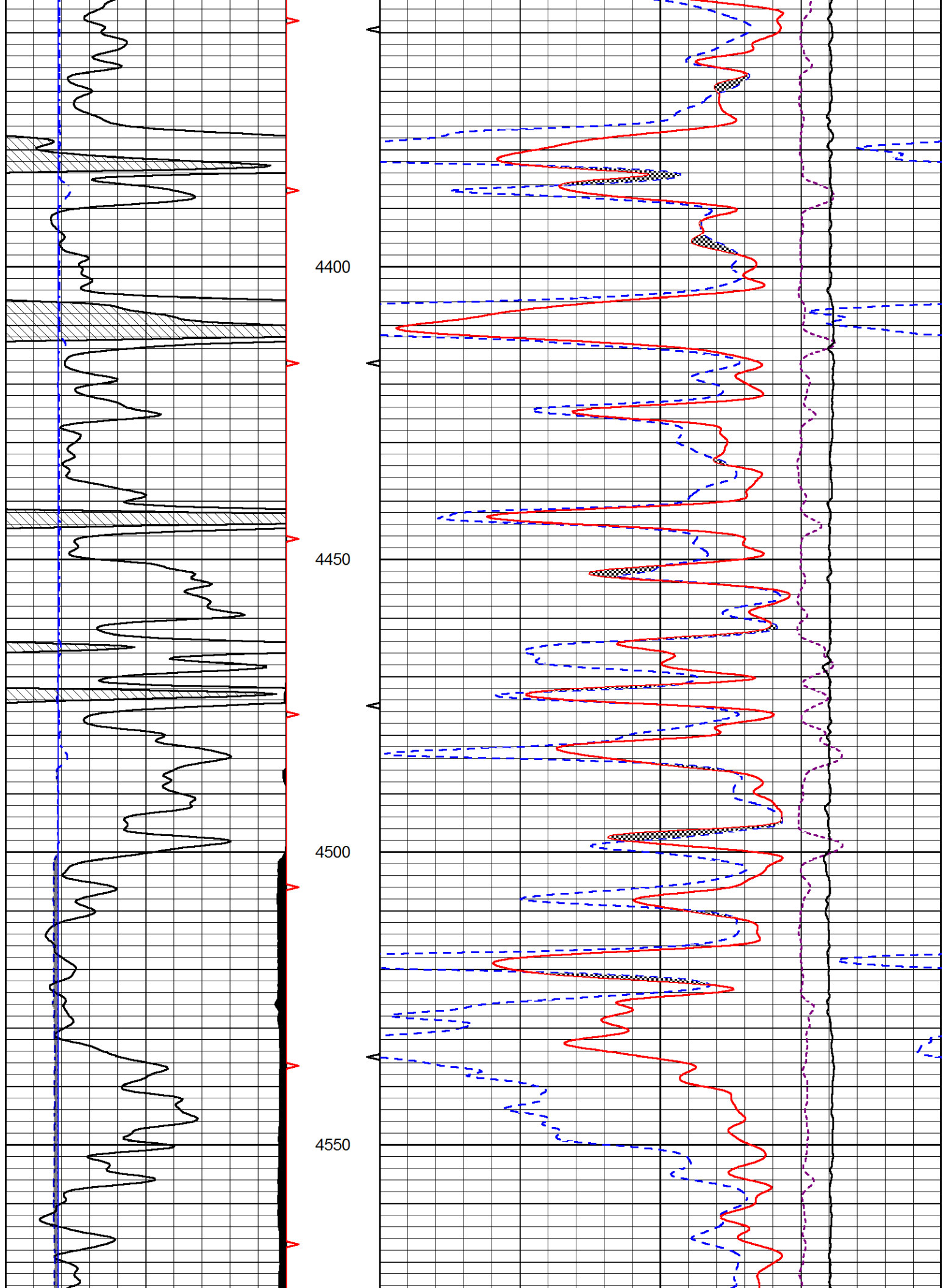


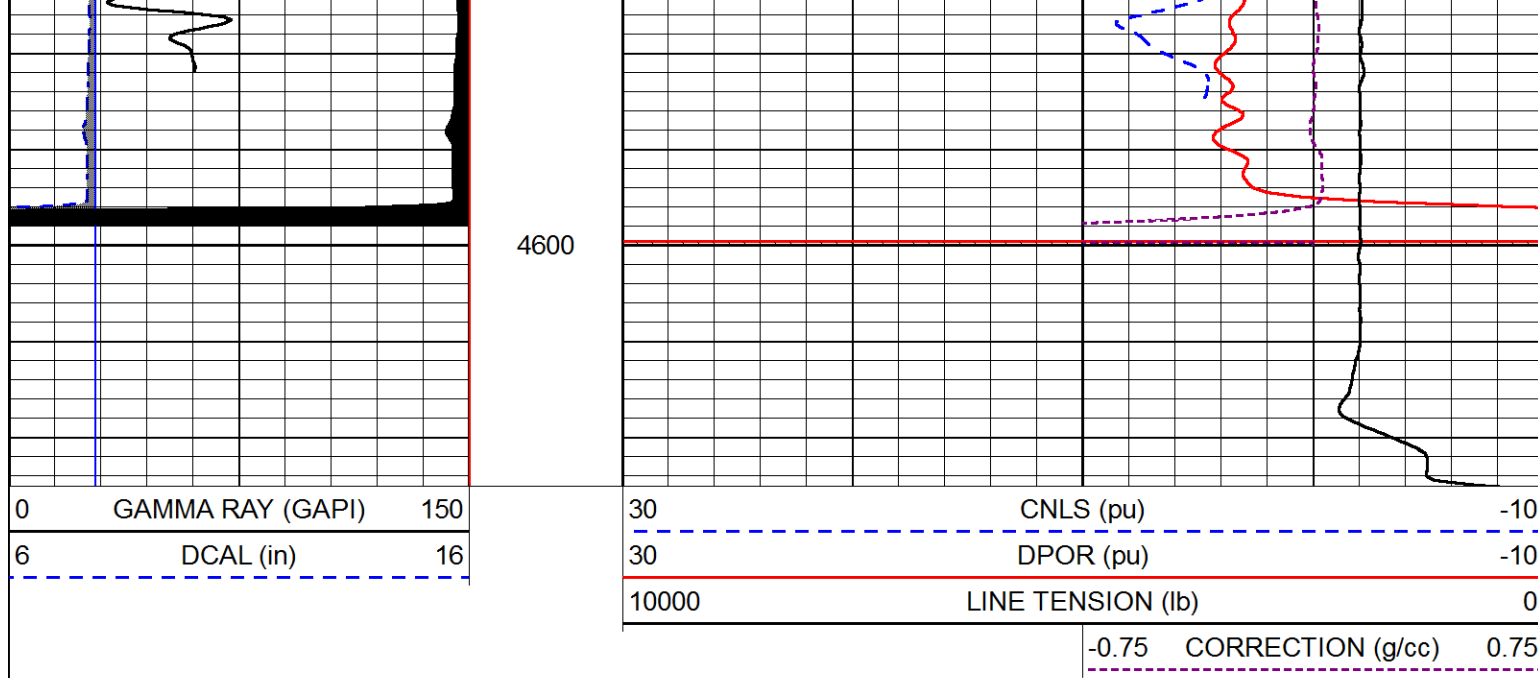












Calibration Report							
Database File	murfin_abell_ranch_b_4_31.db						
Dataset Pathname	stackmel/pass3.1						
Dataset Creation	Sat Jul 28 01:22:16 2018						
Dual Induction Calibration Report							
Serial-Model:		933 (HT)-PSI HIGH TEMP					
Calibration Performed:		Sun Jul 15 05:36:29 2018					
Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
	Deep	167.000	835.000	0.000	255.000	mmho/m	0.700
Medium	142.000	1349.000	0.000	255.000	mmho/m	0.565	-60.500
Microlog Calibration Report							
Serial-Model:		PSI-01-PSIML					
Performed:		Sun Jul 15 07:40:28 2018					
	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
	Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	24000.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	30000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.8100
Compensated Density Calibration Report							
Serial-Model:		817-947-M&W					
Source / Verifier:		16955B / 2ci					
Master Calibration Performed:		Sun Jul 15 05:36:52 2018					
Master Calibration							
Density		Far Detector		Near Detector			

Magnesium	1.755	g/cc	6127.15	5922.31	cps
Aluminum	2.670	g/cc	1141.85	3762.09	cps
Spine Angle = 74.89			Density/Spine Ratio = 0.526		
	Size		Reading		
Small Ring	4.50	in	1.02		
Large Ring	15.00	in	1.15		

Compensated Neutron Calibration Report
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Serial Number:	207-MW
Tool Model:	M&W
Calibration Performed:	SUN JUL 15 10:30:30 2018

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:	Sun Jul 15 05:37:08 2018	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6000	GAPI/cps

	Company	MURFIN DRILLING CO, INC.
	Well	ABELL RANCH "B" #4-31
	Field	GAELAND WEST
	County	GOVE
	State	KANSAS