



PIONEER

Pioneer Energy Services

DUAL COMP POROSITY LOG

Company **AMERICAN WARRIOR, INC.**

Well **SUNRAY #3-12**

Field **UNNAMED**

County **GREELEY** State **KANSAS**

Location: API #: 15-071-20886-00-00

1323' FNL & 1057' FWL

SEC 12 TWP 16S RGE 42W

DIL/MEL

Permanent Datum GROUND LEVEL Elevation 3776'

Log Measured From KELLY BUSHING

Drilling Measured From KELLY BUSHING

Elevation
K.B. 3787'
D.F. N/A
G.L. 3776'

Company **AMERICAN WARRIOR, INC.**
Well **SUNRAY #3-12**
Field **UNNAMED**
County **GREELEY**
State **KANSAS**

Date 10/8/2018

Run Number ONE

Type Log CNL/CDL

Depth Driller 5220'

Depth Logger 5220'

Bottom Logged Interval 5199'

Top Logged Interval 3800'

Type Fluid In Hole CHEMICAL

Salinity, PPM CL 2500

Density 9.2

Level FULL

Max. Rec. Temp. F 128

Operating Rig Time 4 HOURS

Equipment -- Location 91 HAYS

Recorded By D. SCHMIDT

Witnessed By LUKE THOMPSON

Borehole Record

Casing Record

Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	0'	437'	8.625"	23#	0'	437'
TWO	7.875"	437'	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.

SHARRON SPRINGS,
SOUTH TO D RD, 9 WEST TO 7 RD, 1 1/2 NORTH,
EAST & NORTH INTO AT TB

Log Measured From: KELLY BUSHING 11 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew

Engineer: D. SCHMIDT
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: LUKE THOMPSON
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	385	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	50	0	5.5	0	5220	128	7.875



MAIN PASS

Database File

Dataset Pathname

Presentation Format

Dataset Creation

Charted by

american warrior_sunray 3-12.db

STACK/pass4.1

cdl

Mon Oct 08 06:05:39 2018

Depth in Feet scaled 1:600

0

GAMMA RAY (GAPI)

150

6

DCAL (in)

16

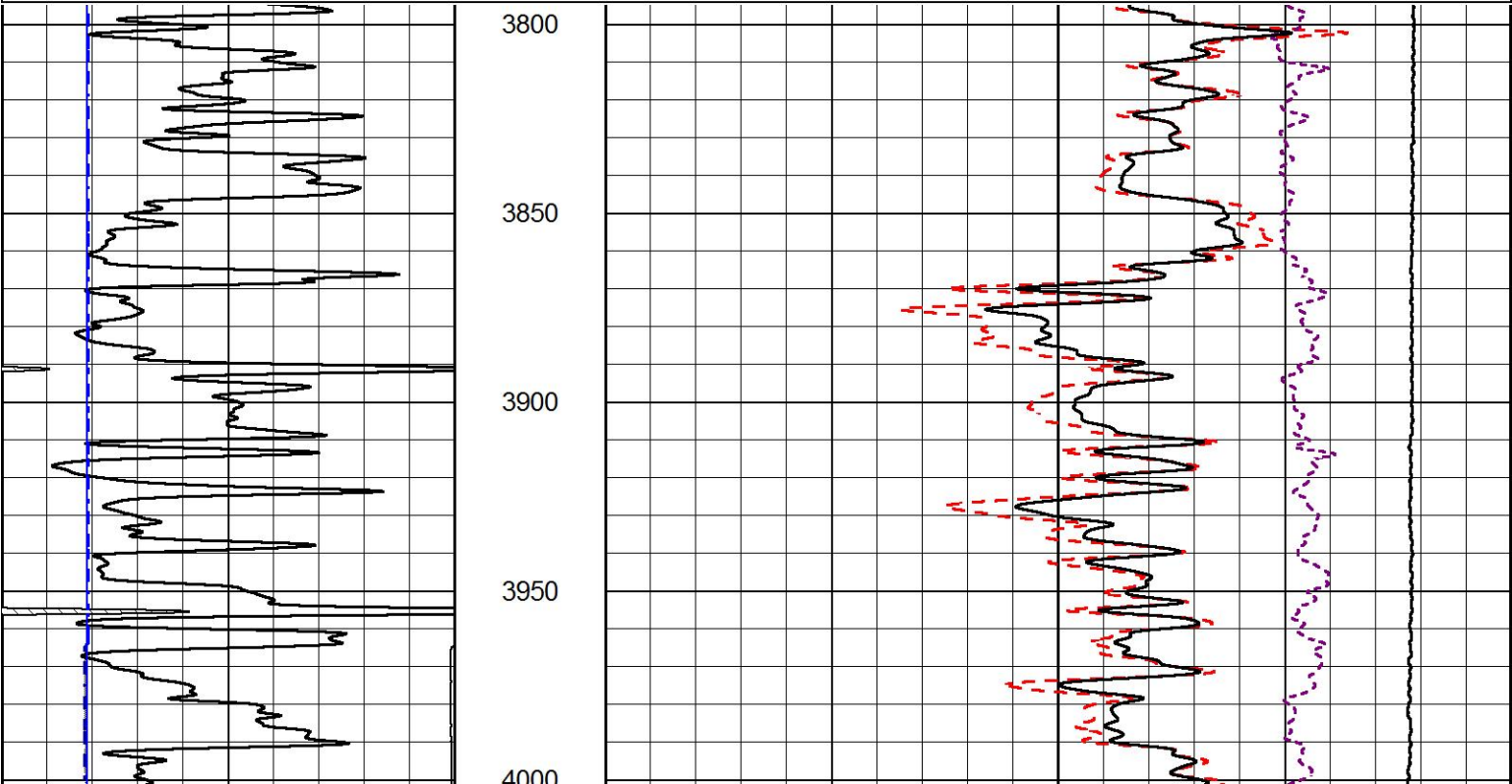
COMPENSATED DENSITY
(2.71 MA)

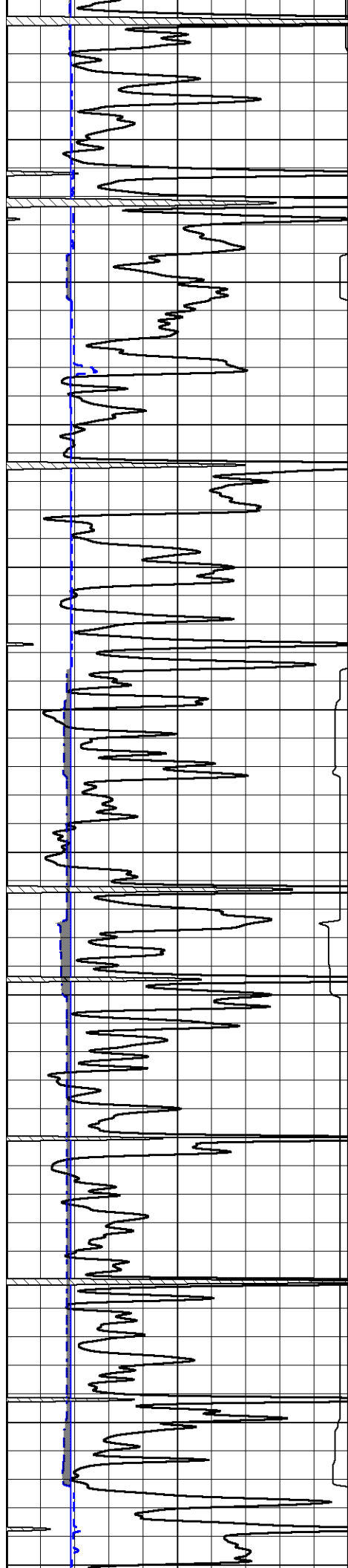
30 (pu) -10

2 BULK DENSITY (g/cc) 3

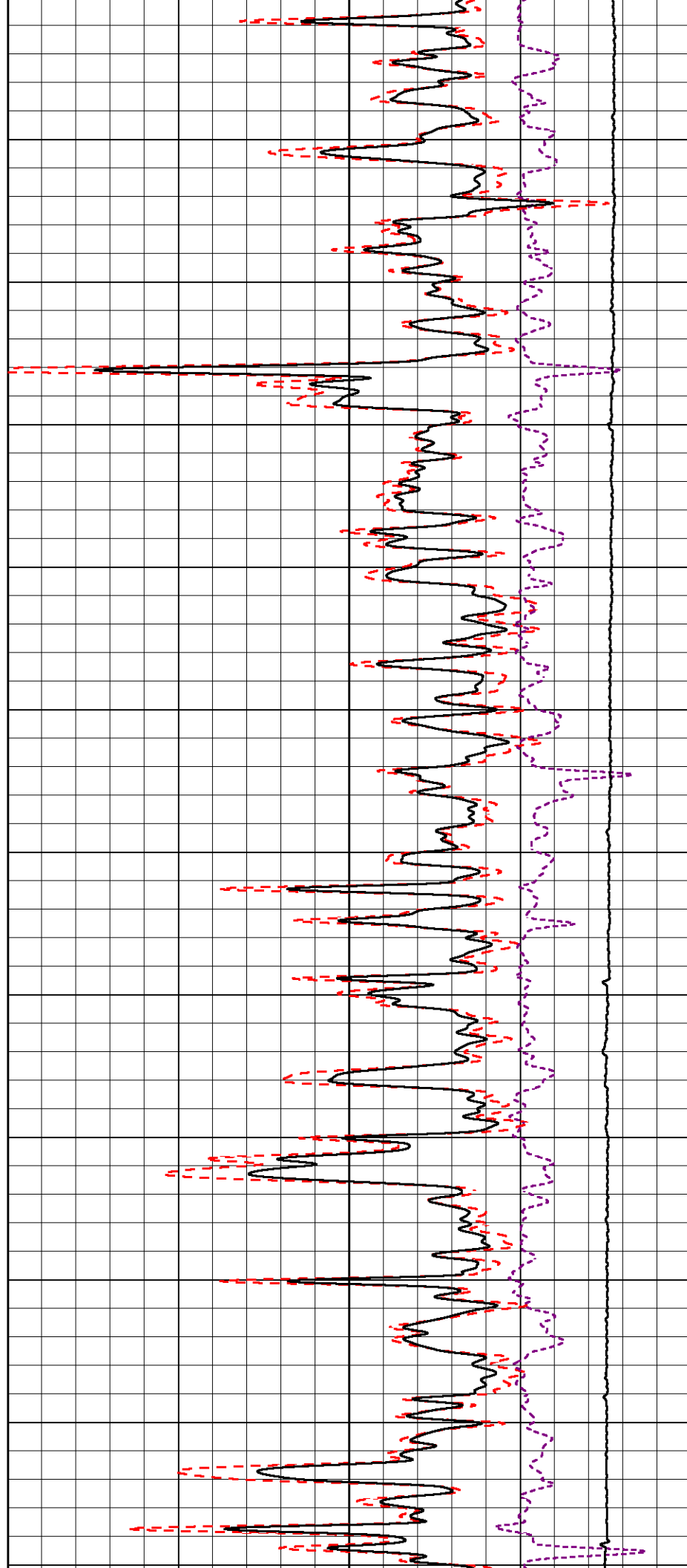
15000 LINE TENSION (lb) 0

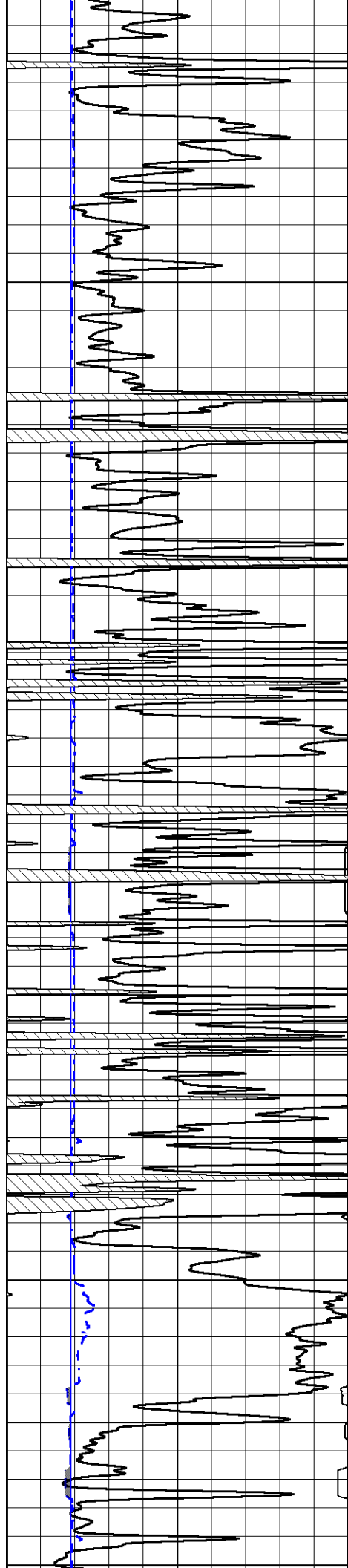
-0.25 CORRECTION (g/cc) 0.25



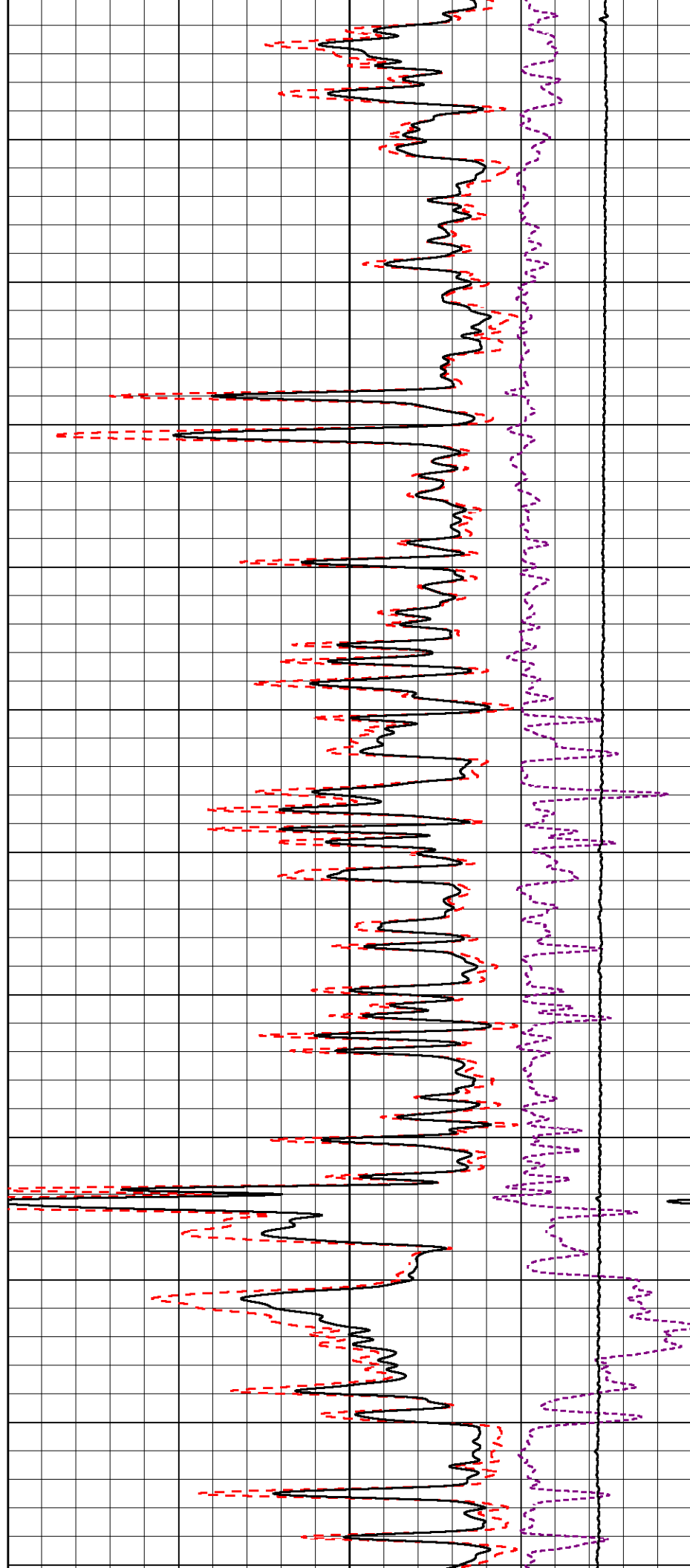


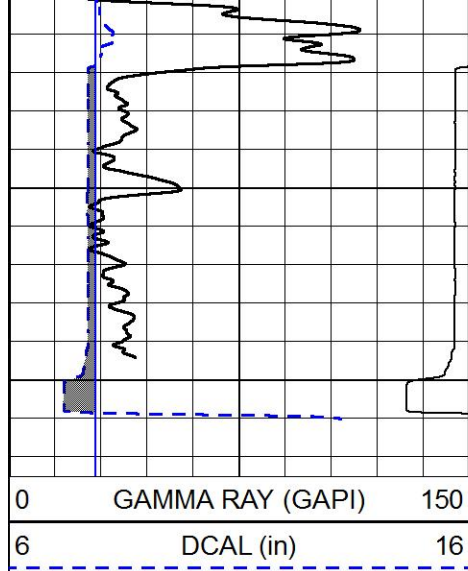
4050
4100
4150
4200
4250
4300
4350
4400
4450
4500
4550





4550
4600
4650
4700
4750
4800
4850
4900
4950
5000
5050
5100

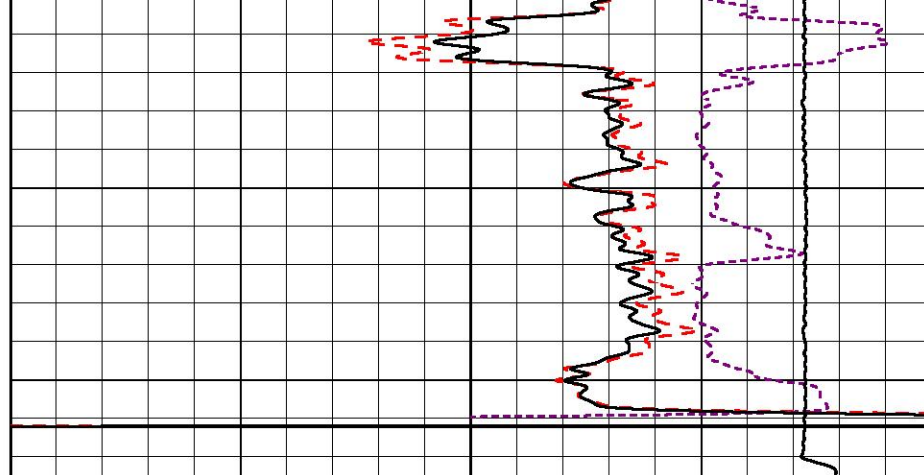




5150

5200

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



COMPENSATED DENSITY
(2.71 MA)

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

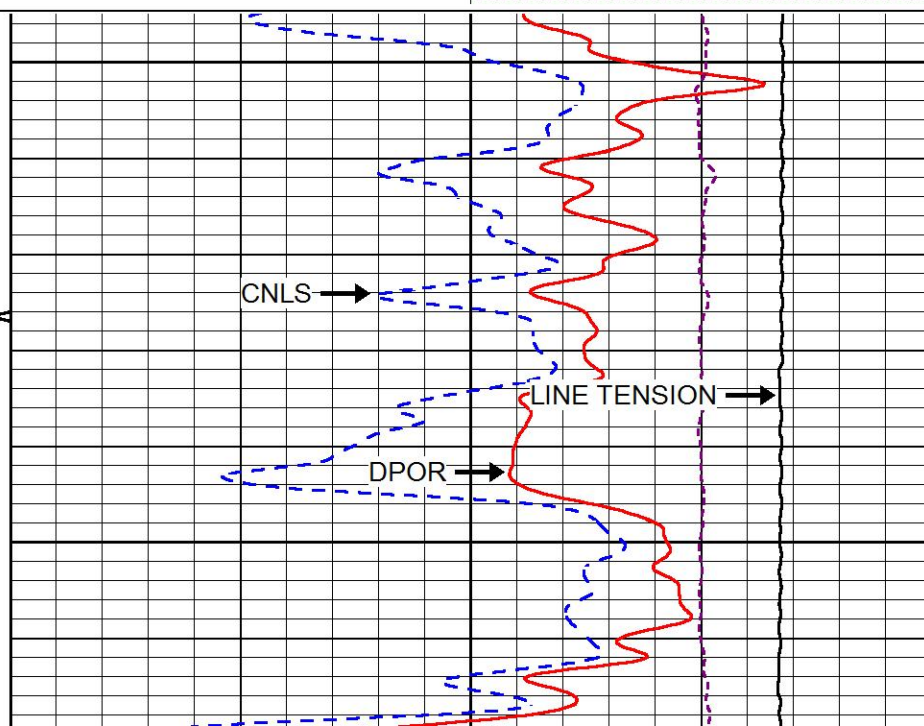
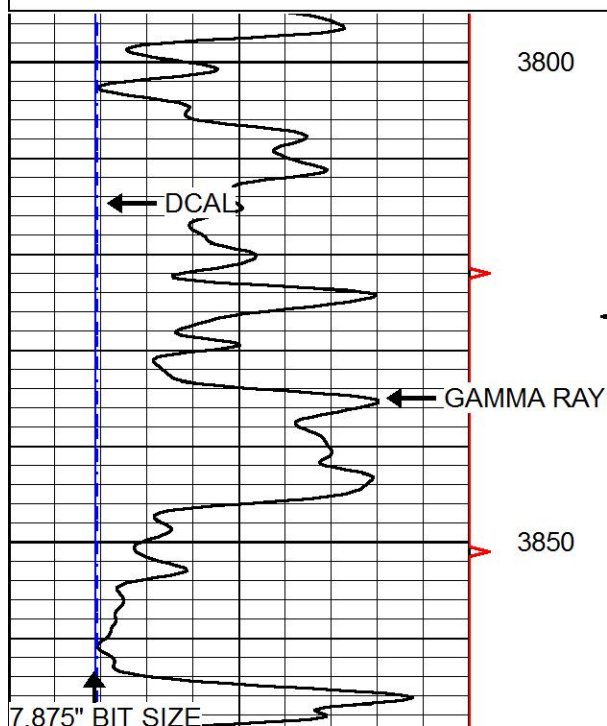


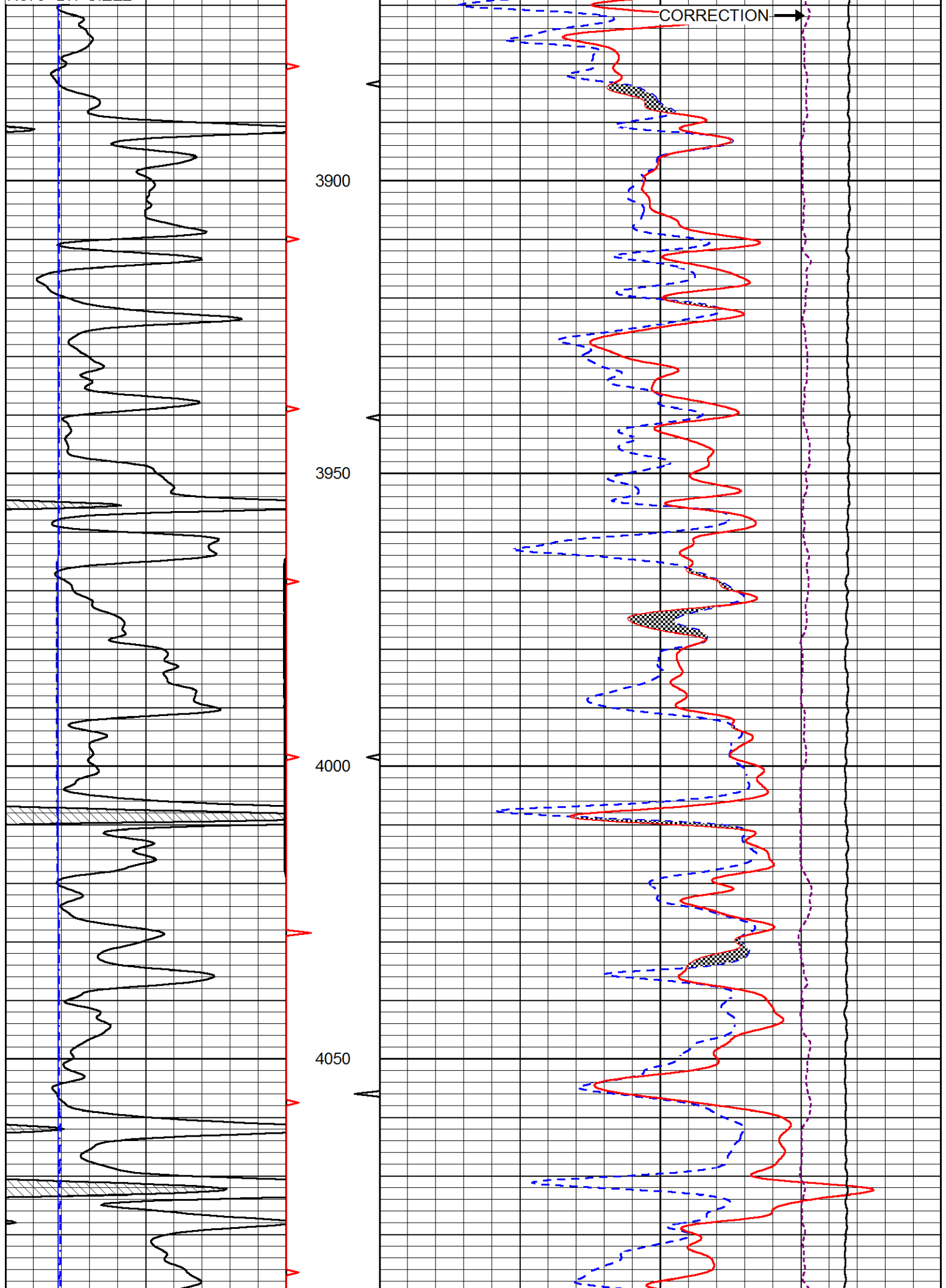
MAIN PASS

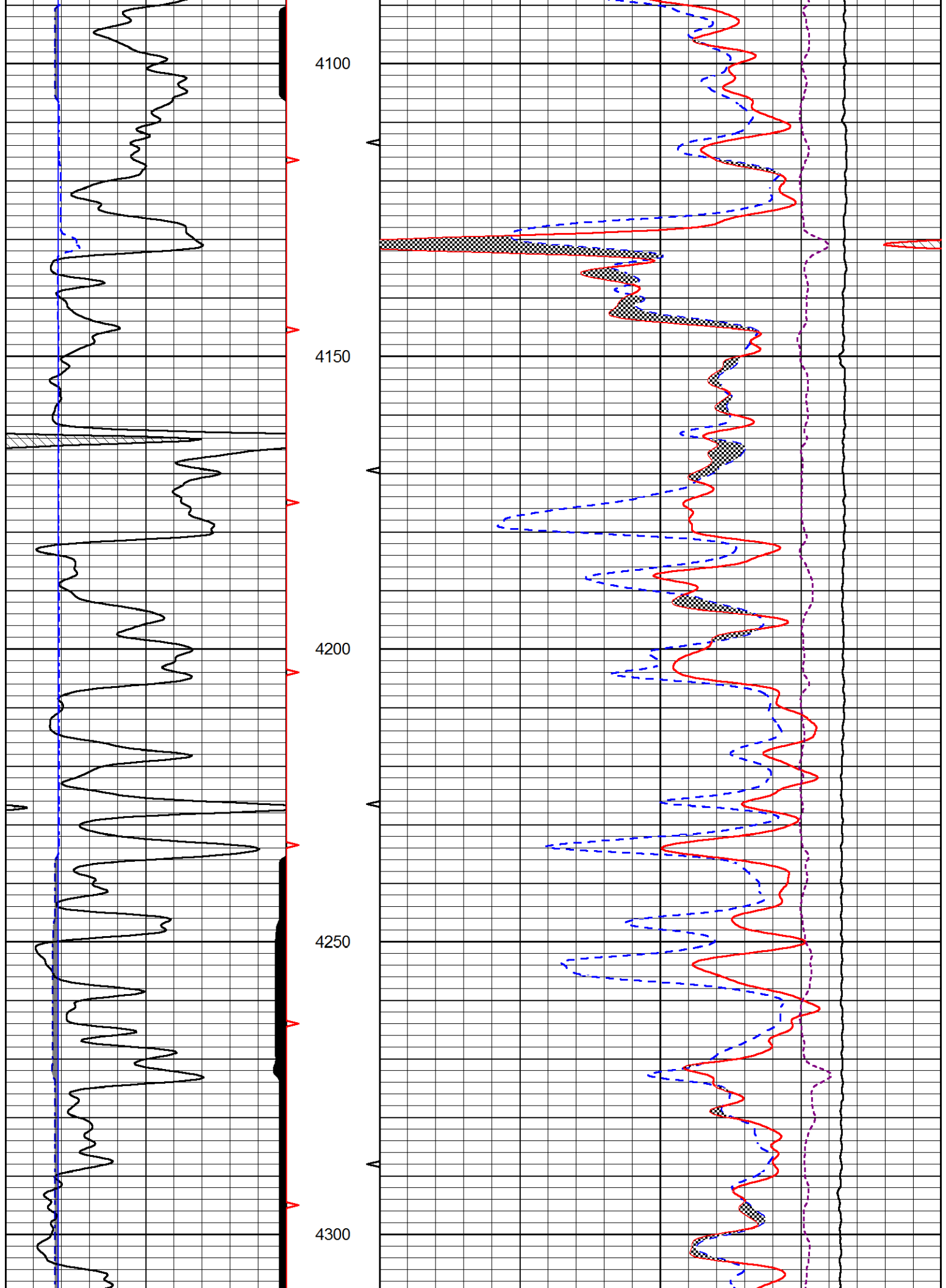
Database File american_warrior_sunray_3-12.db
Dataset Pathname STACK/pass4.1
Presentation Format cndlspec
Dataset Creation Mon Oct 08 06:05:39 2018
Charted by Depth in Feet scaled 1:240

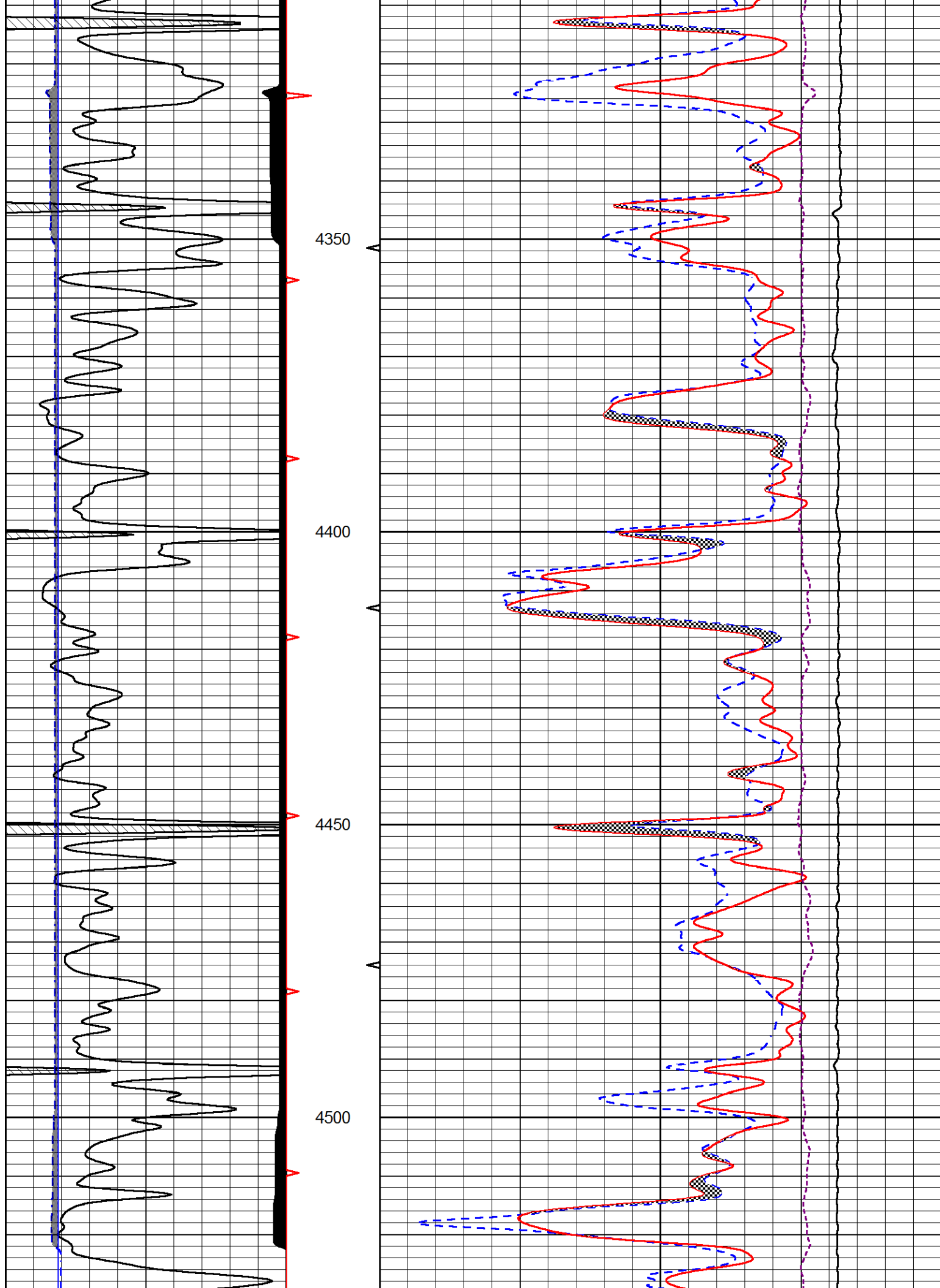
0 GAMMA RAY (GAPI) 150
6 DCAL (in) 16

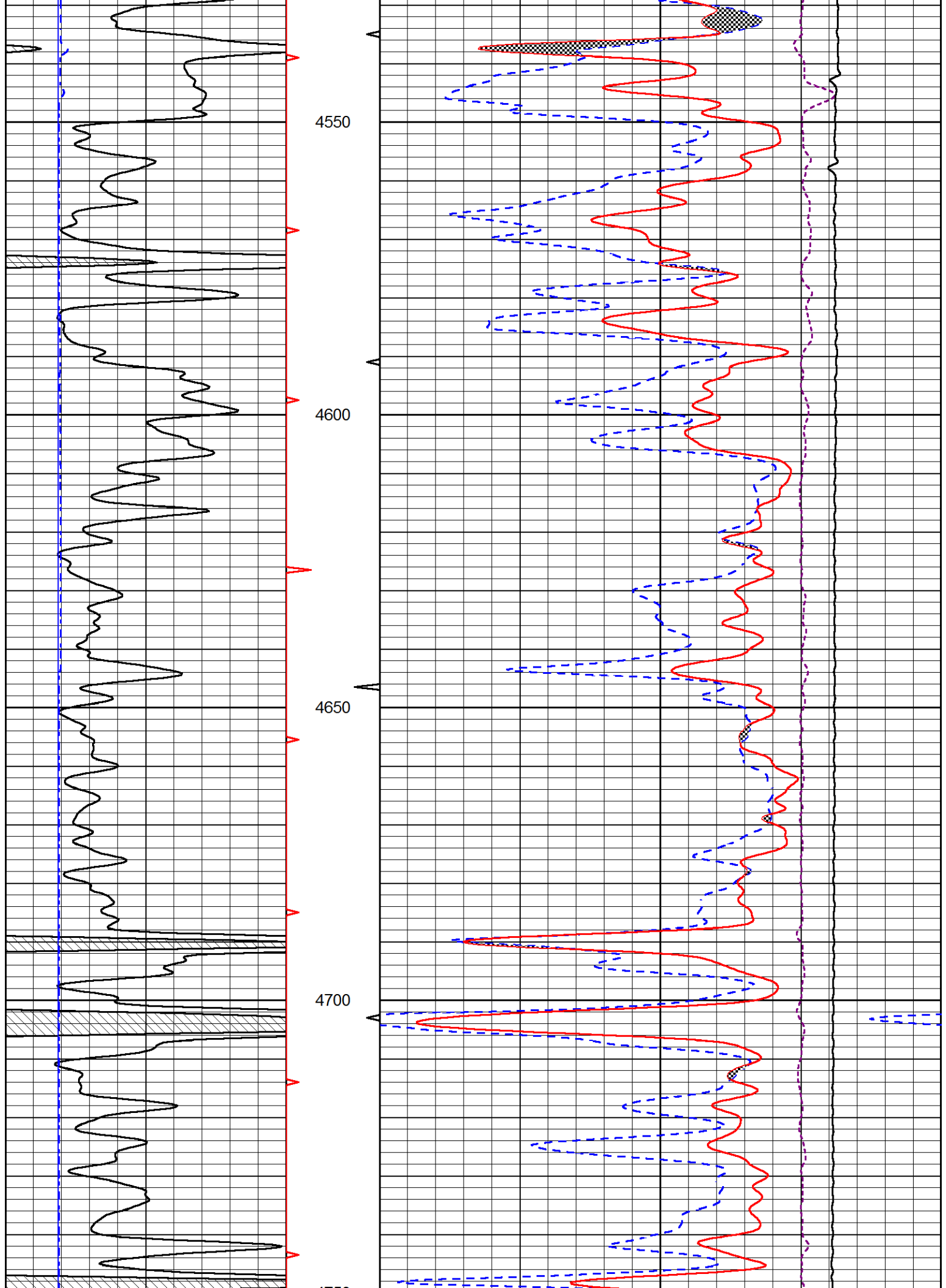
30 CNLS (pu) -10
30 DPOR (pu) -10
10000 LINE TENSION (lb) 0
-0.75 CORRECTION (g/cc) 0.75

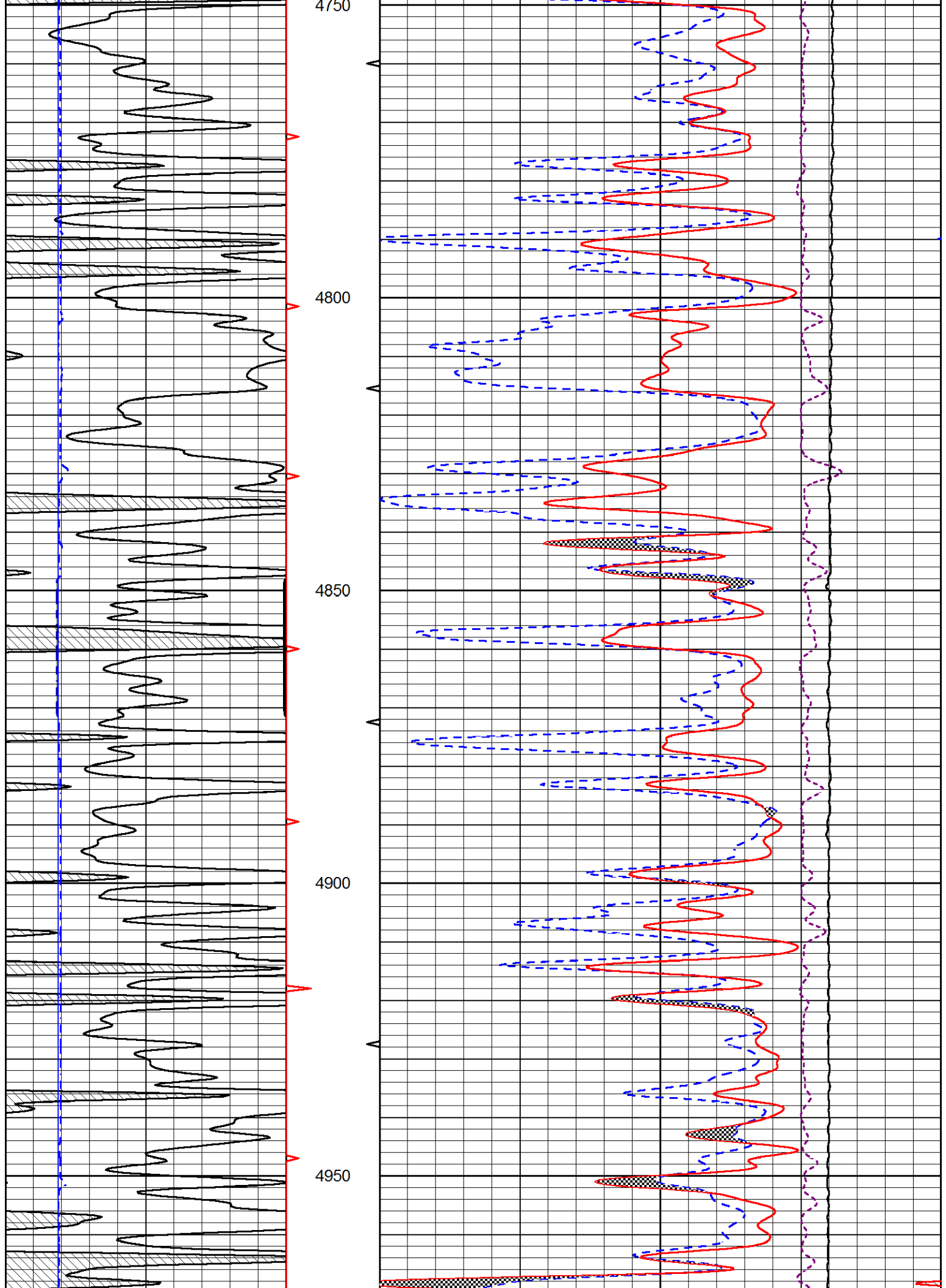


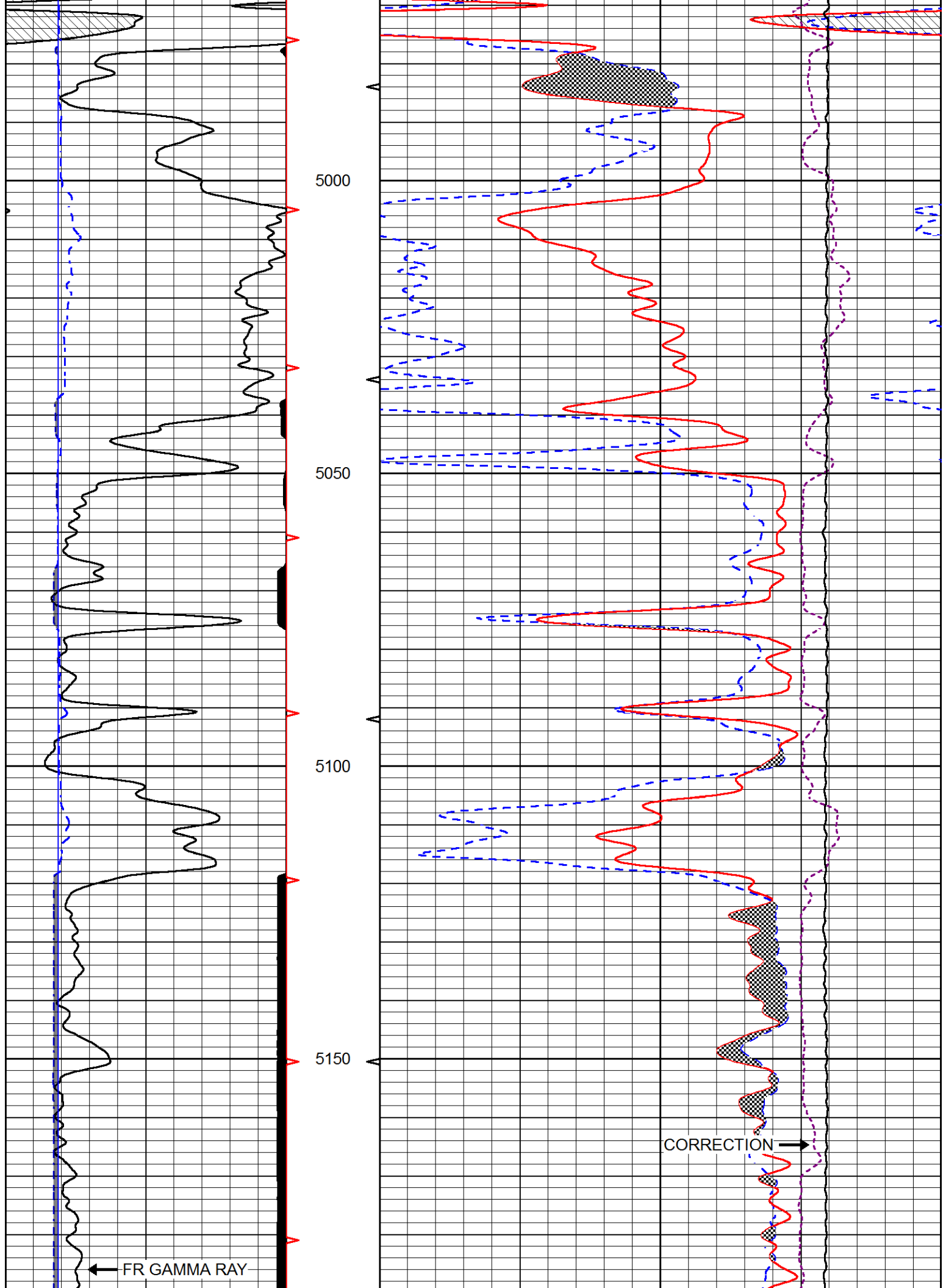


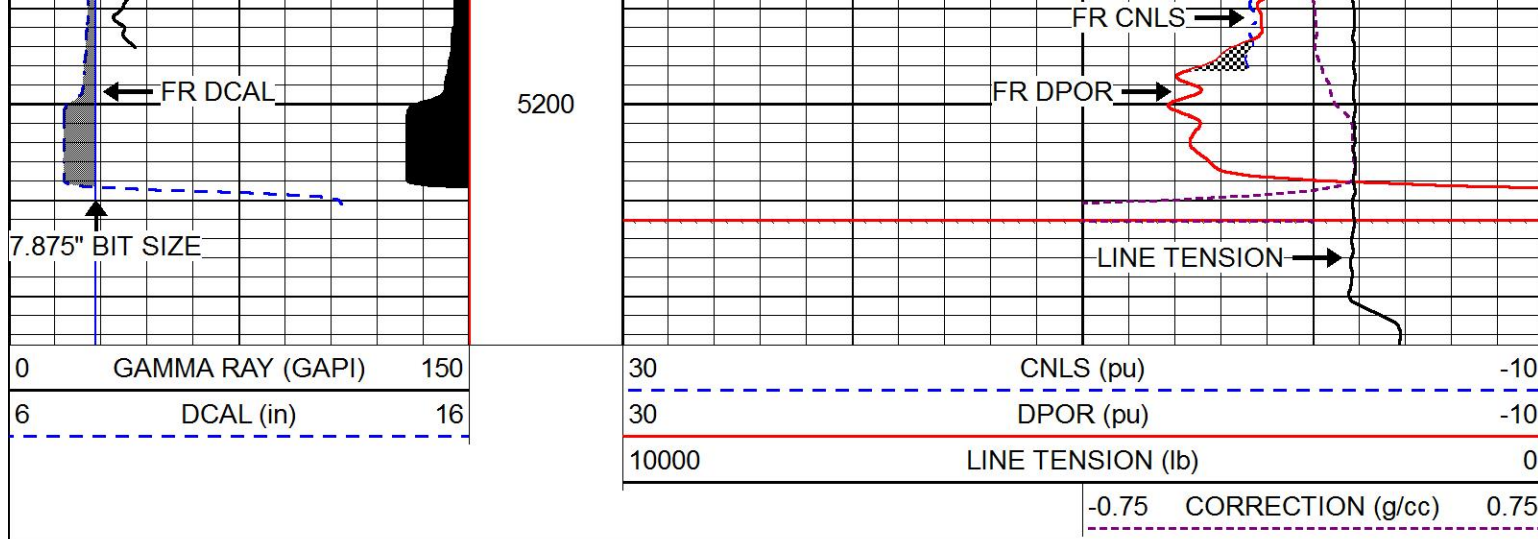






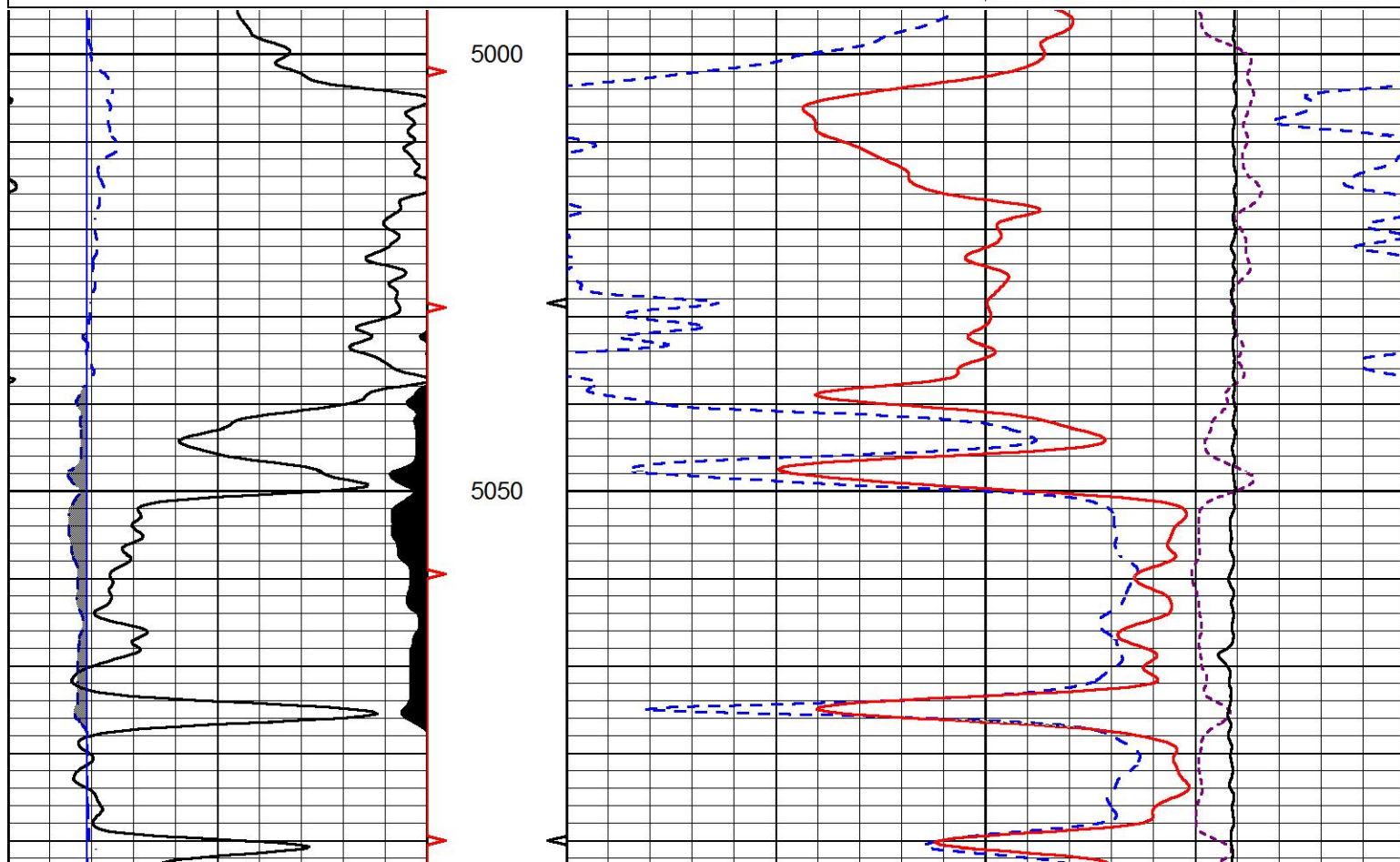
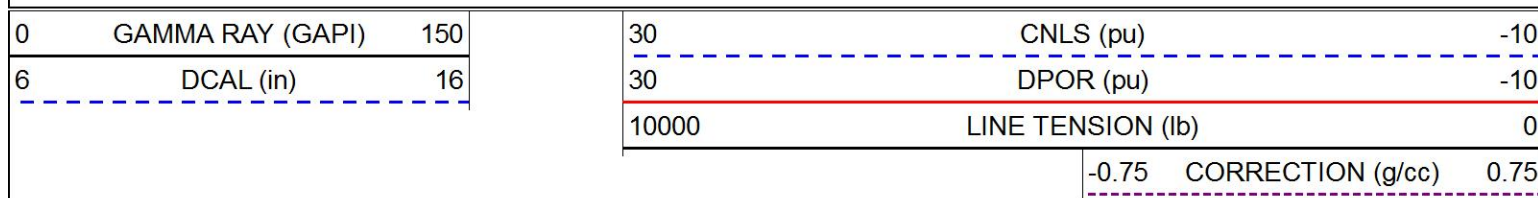


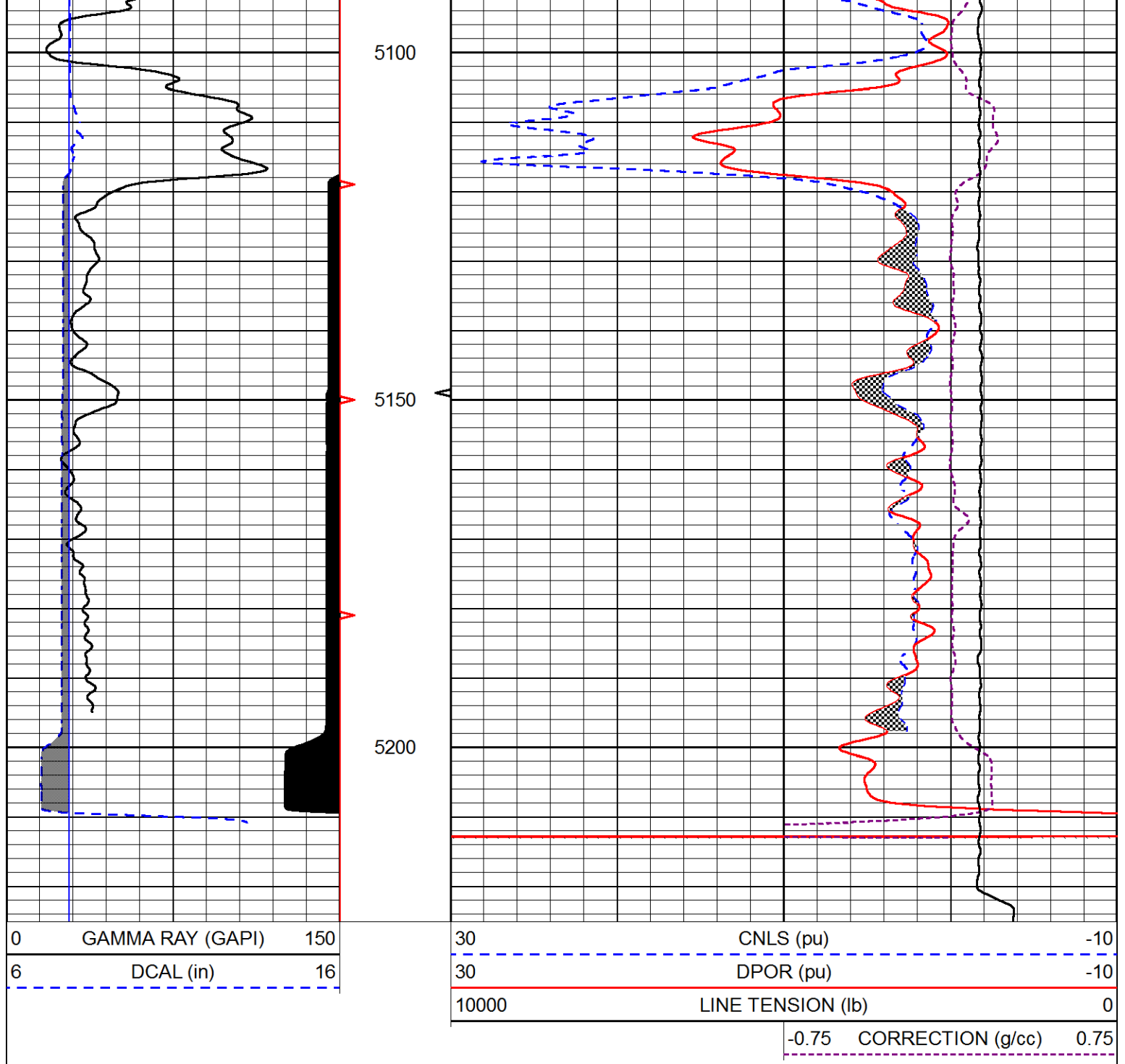




REPEAT SECTION

Database File american_warrior_sunray_3-12.db
 Dataset Pathname STACK/pass2.1
 Presentation Format cndlspec
 Dataset Creation Mon Oct 08 05:50:52 2018
 Charted by Depth in Feet scaled 1:240





Calibration Report							
Database File	american warrior_sunray 3-12.db						
Dataset Pathname	STACK/pass4.4						
Dataset Creation	Mon Oct 08 05:49:57 2018						
Dual Induction Calibration Report							
Serial-Model:				967 (HT)-PSI HIGH TEMP			
Calibration Performed:				Sun Oct 07 19:24:22 2018			
		Readings		References		Results	
Loop:	Air	Loop		Air	Loop	Gain	Offset
Deep	167.000	835.000		0.000	255.800	mmho/m	0.565
Medium	0.000	1348.000		142.000	255.800	mmho/m	-20.500
							-38.000

Compensated Density Calibration Report

Serial-Model:	144-84-M&W
Source / Verifier:	16955B / 2ci
Master Calibration Performed:	Thu Aug 30 10:10:19 2018

Master Calibration

	Density			Far Detector	Near Detector	
Magnesium	1.755	g/cc		4867.47	6031.92	cps
Aluminum	2.670	g/cc		906.23	3806.99	cps
Spine Angle = 74.69			Density/Spine Ratio = 0.525			
	Size			Reading		
Small Ring	5.00	in		0.70		
Large Ring	15.00	in		0.04		

Compensated Neutron Calibration Report

Serial Number:	207-MW
Tool Model:	M&W
Calibration Performed:	FRI AUG 24 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:	Fri Aug 24 11:16:10 2018	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6000	GAPI/cps



Company	AMERICAN WARRIOR, INC.
Well	SUNRAY #3-12
Field	UNNAMED
County	GREELEY
State	KANSAS