



PIONEER

Pioneer Energy Services

DUAL COMP POROSITY LOG

Company **AMERICAN WARRIOR, INC.**

Well **GANO #8-17**

Field **LAKIN NORTHWEST**

County **KEARNY** State **KANSAS**

Location: API #: 15-093-21964-00-00

755' FSL & 2347' FEL

Other Services

SEC 17 TWP 25S RGE 36W

DIL/MEL

Permanent Datum GROUND LEVEL Elevation 3023'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 3034'
D.F. N/A
G.L. 3023'

Company **AMERICAN WARRIOR, INC.**
Well **GANO #8-17**
Field **LAKIN NORTHWEST**
County **KEARNY**
State **KANSAS**

Date 01/07/2018

Run Number ONE

Type Log CNL/CDL

Depth Driller 5050'

Depth Logger 5050'

Bottom Logged Interval 5021'

Top Logged Interval 3400'

Type Fluid In Hole CHEMICAL

Salinity, PPM CL 2750

Density 9.4

Level FULL

Max. Rec. Temp. F 127

Operating Rig Time 3 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'	1787'	8.625"	23#	0'	1787'
TWO	7.875"	1787'	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.

LAKIN,
3 SOUTH ON HWY. 25 TO RD. 130,
1 WEST TO S ROAD, 2 SOUTH TO THE CURVE,
1 WEST, 3/4 SOUTH,
WEST INTO

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

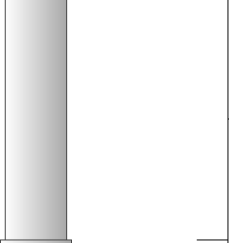
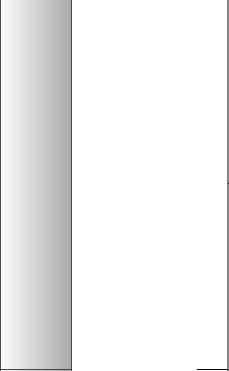
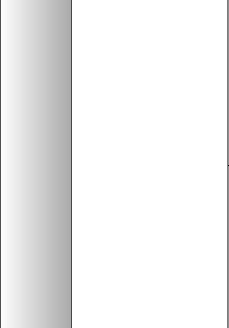
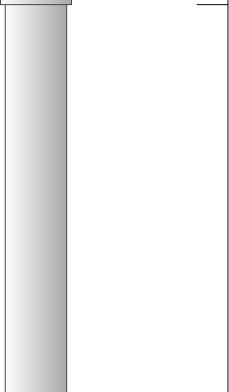
Engineer: D. SCHMIDT
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: LUKE THOMPSON
Secondary Witness:
Secondary Witness:
Secondary Witness:

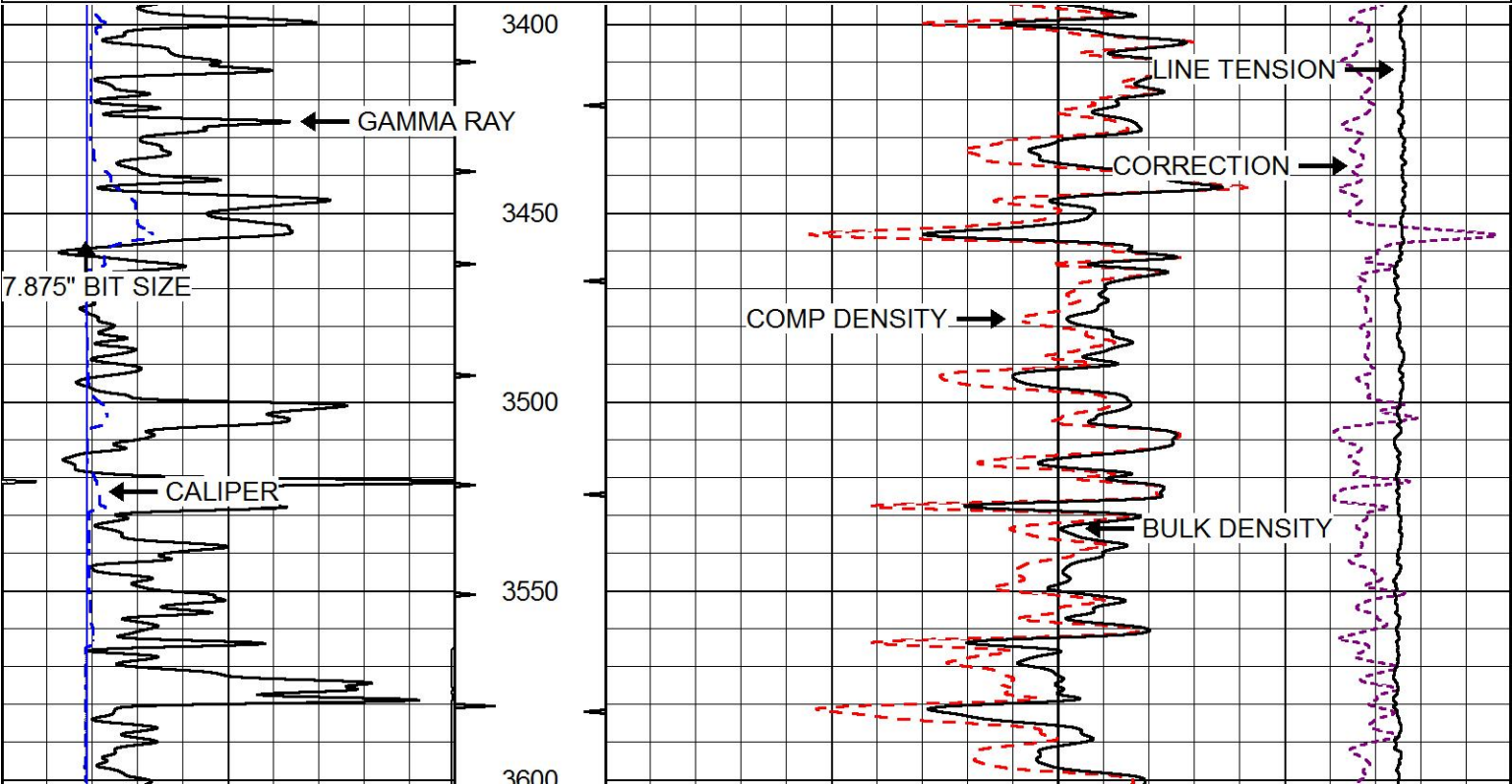
Top - Bottom

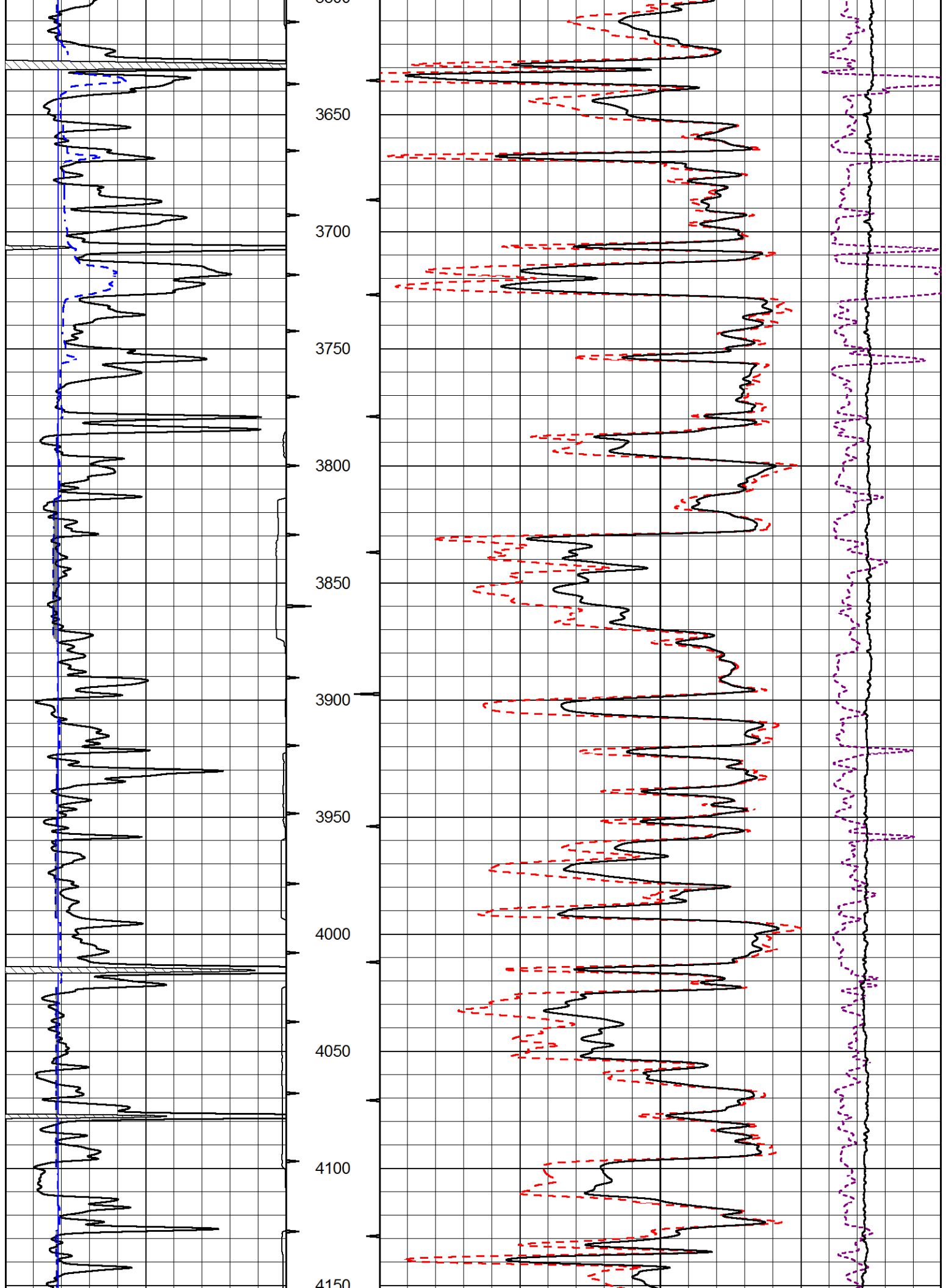
M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	290	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	50	0	5.5	0	5050	127	7.875

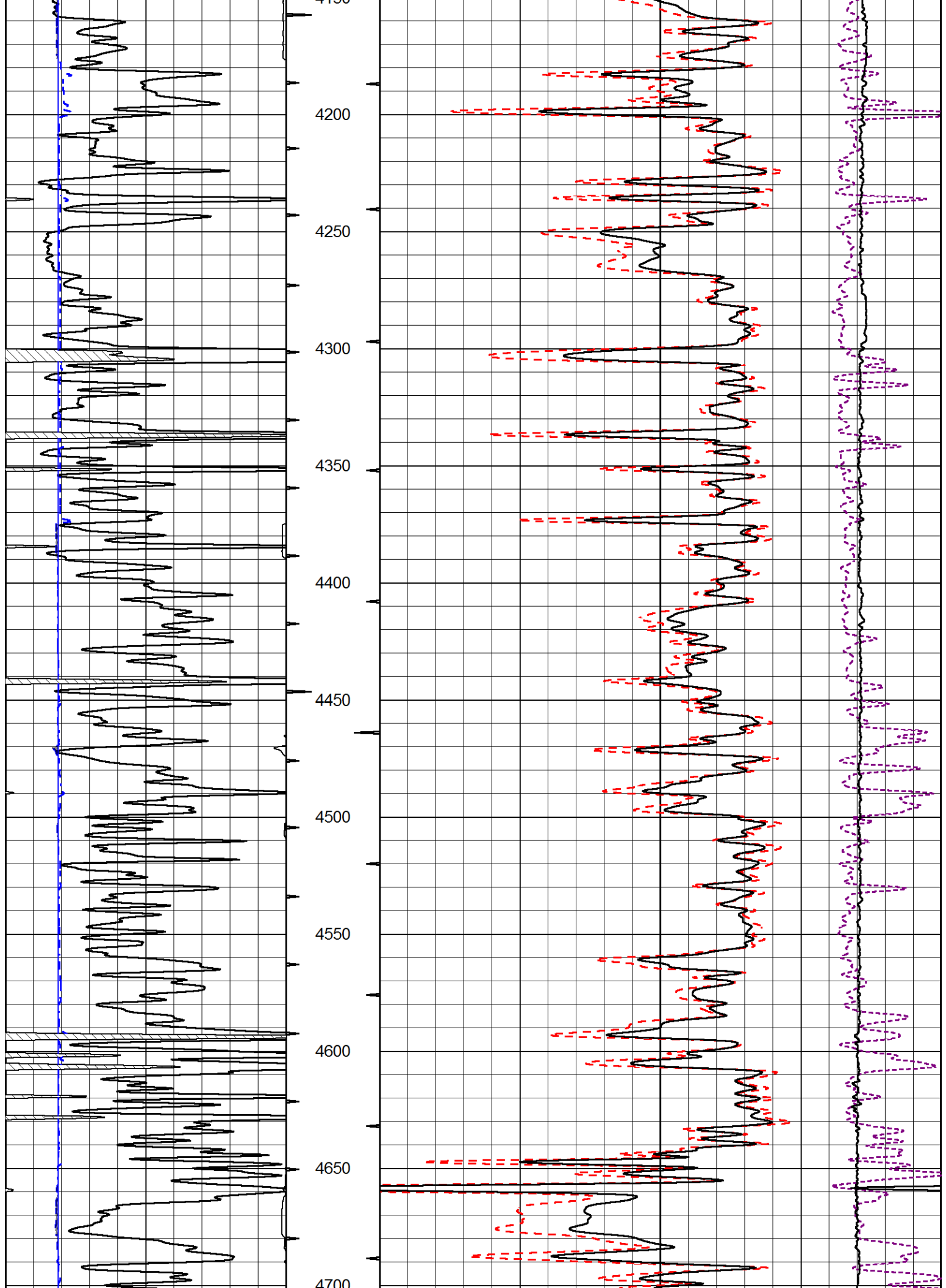
Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (207-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (90-1031)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
RLL3F RLL3	15.80 15.80					

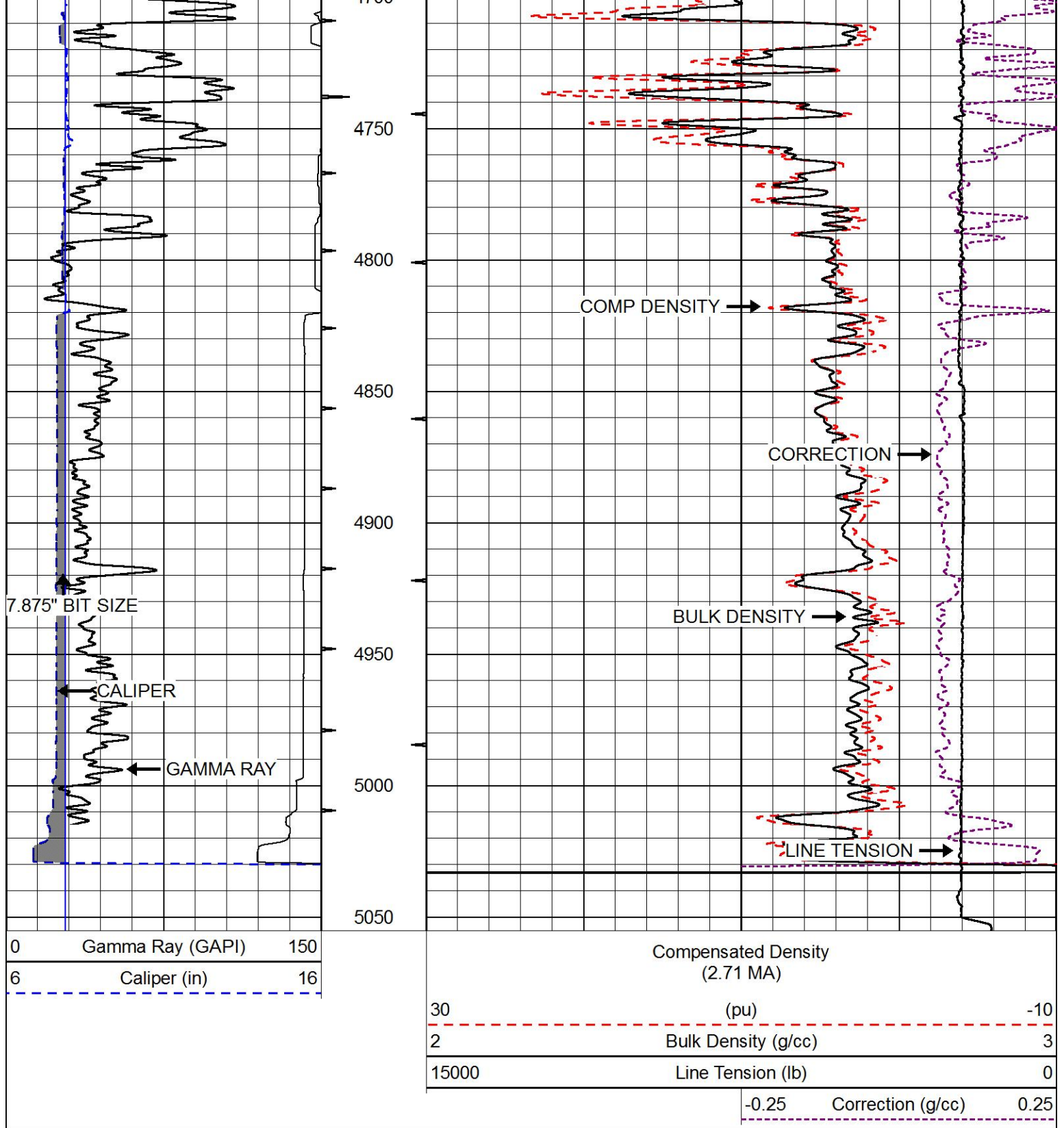
			DIL-M&W (PSI 91)	18.50	3.50	220.00
CILD	8.00					
CILM	4.70					
SP	0.20					
Dataset: americanwarrior_gano8-17.db: field/well/STKML/pass3.4 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in						

 PIONEER Pioneer Energy Services			MAIN PASS		
Database File			americanwarrior_gano8-17.db		
Dataset Pathname			STKML/pass3.1		
Presentation Format			cdl		
Dataset Creation			Sun Jan 07 13:05:11 2018		
Charted by			Depth in Feet scaled 1:600		
0	Gamma Ray (GAPI)	150	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		
6	Caliper (in)	16			











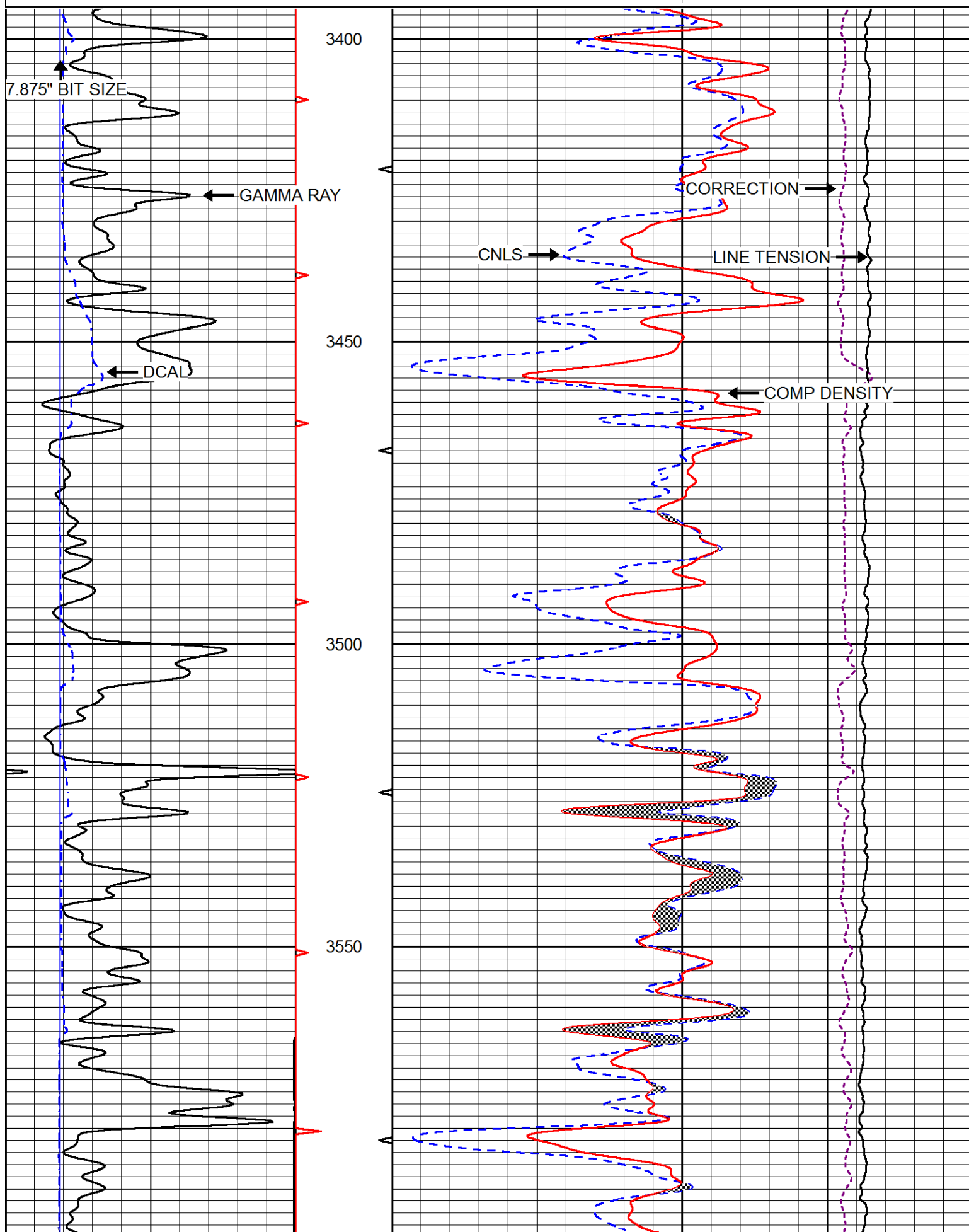
MAIN PASS

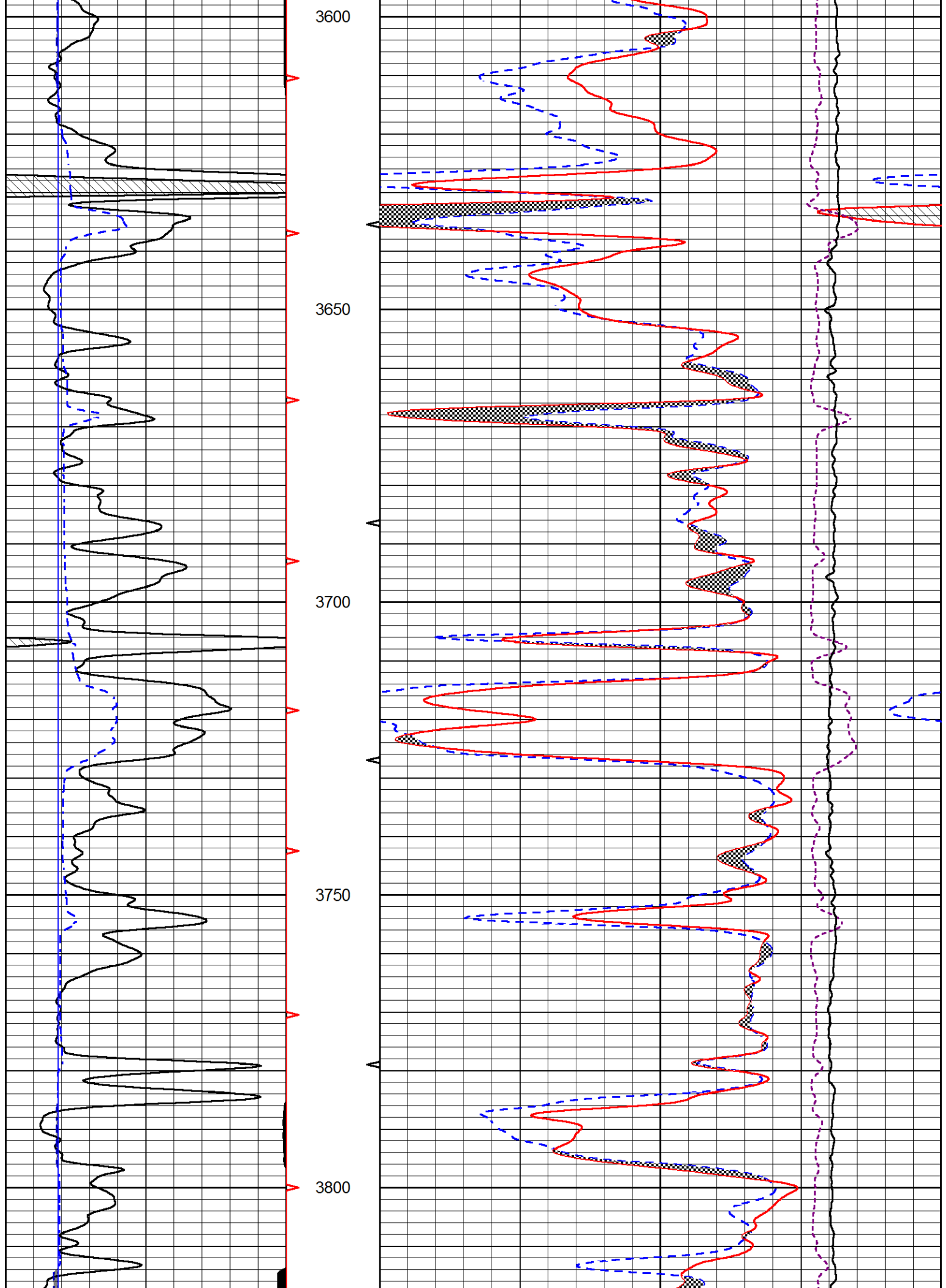
Database File	americanwarrior_gano8-17.db
Dataset Pathname	STKML/pass3.1
Presentation Format	cnldspec
Dataset Creation	Sun Jan 07 13:05:11 2018
Charted by	Depth in Feet scaled 1:240

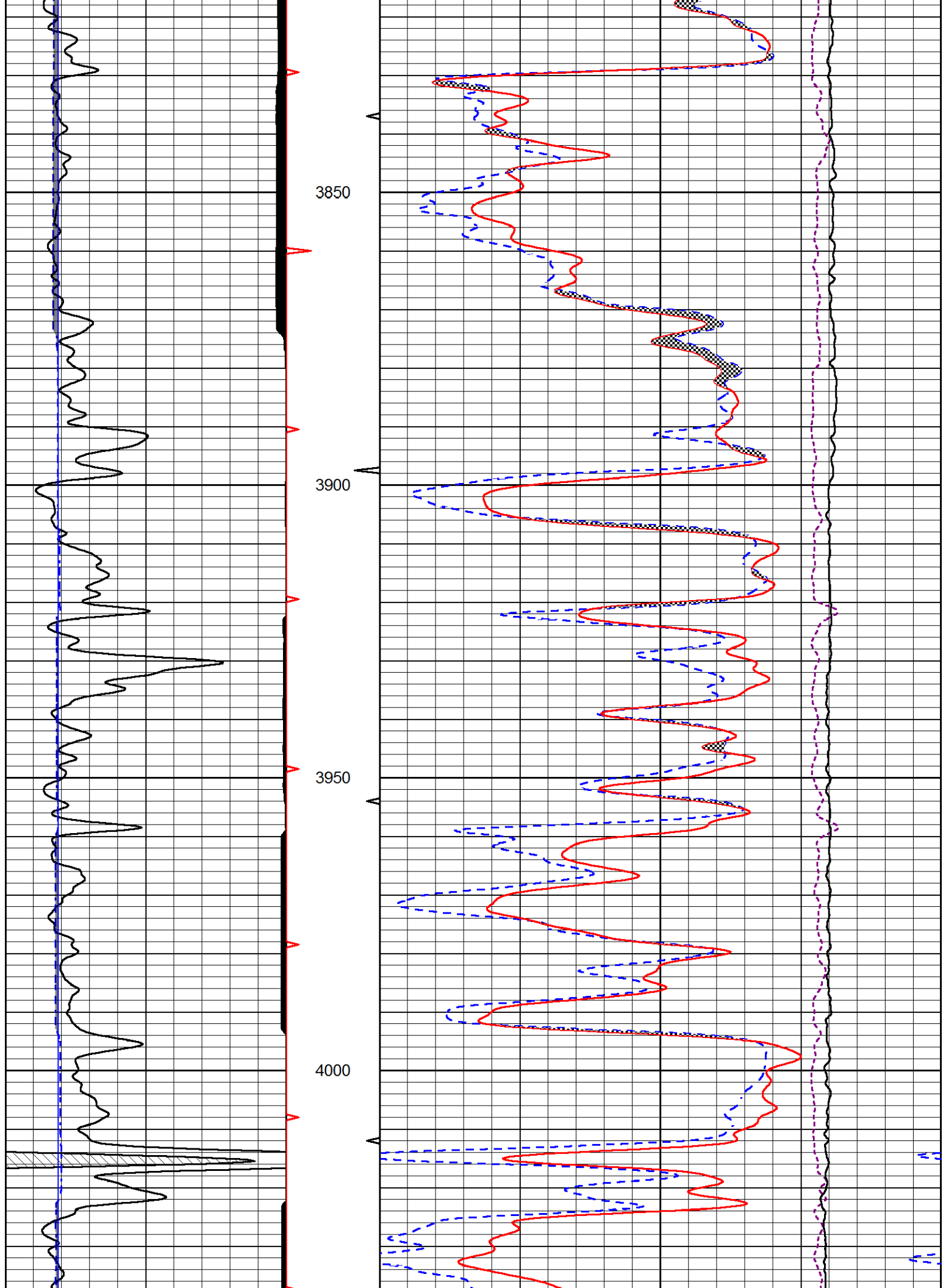


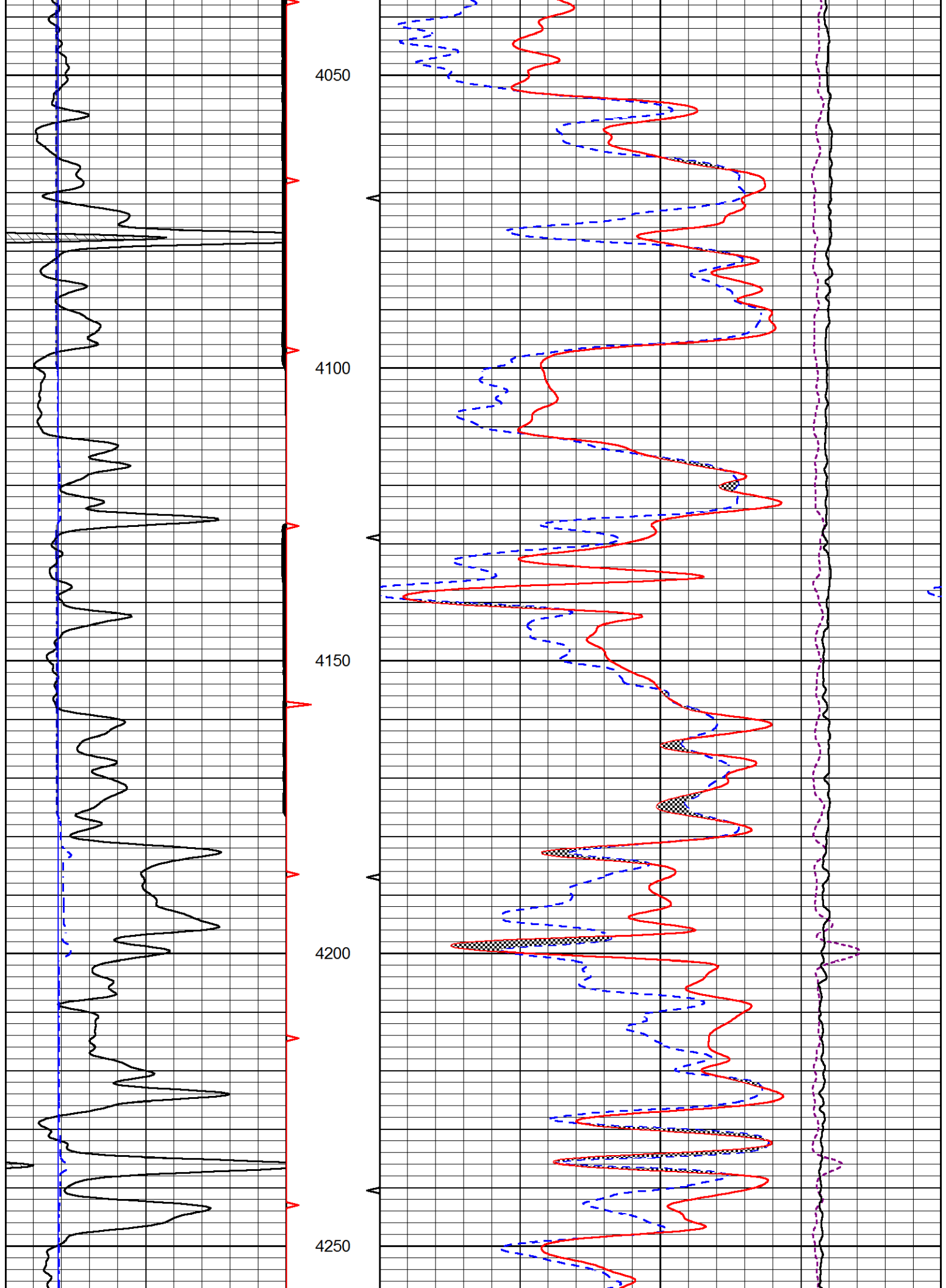
Gamma Ray (API) 100
6 DCAL (in) 16

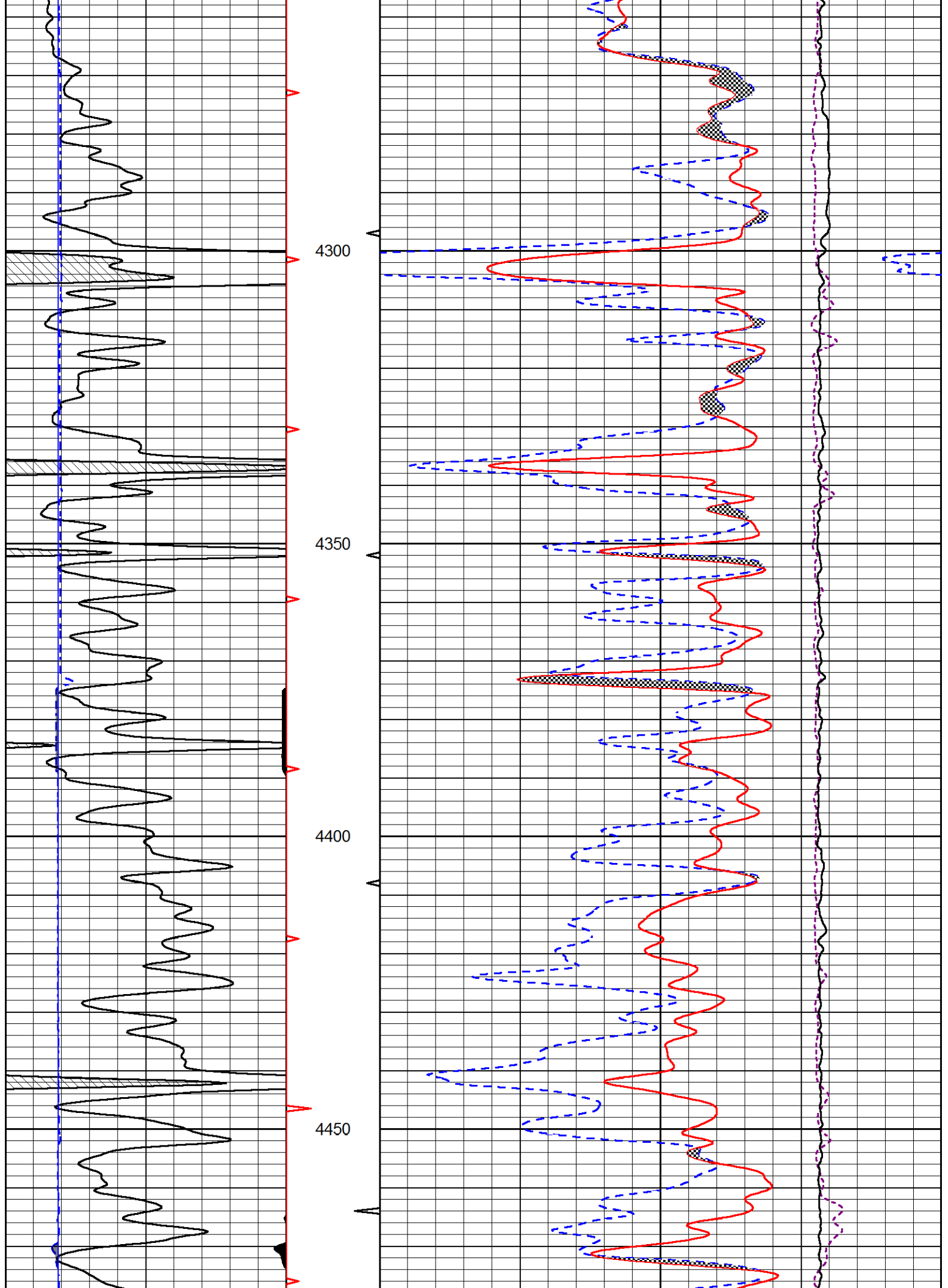
30 Compensated Density 2.71 g/cc (pu) -10
10000 Line Tension (lb) 0
-0.75 Correction (g/cc) 0.75

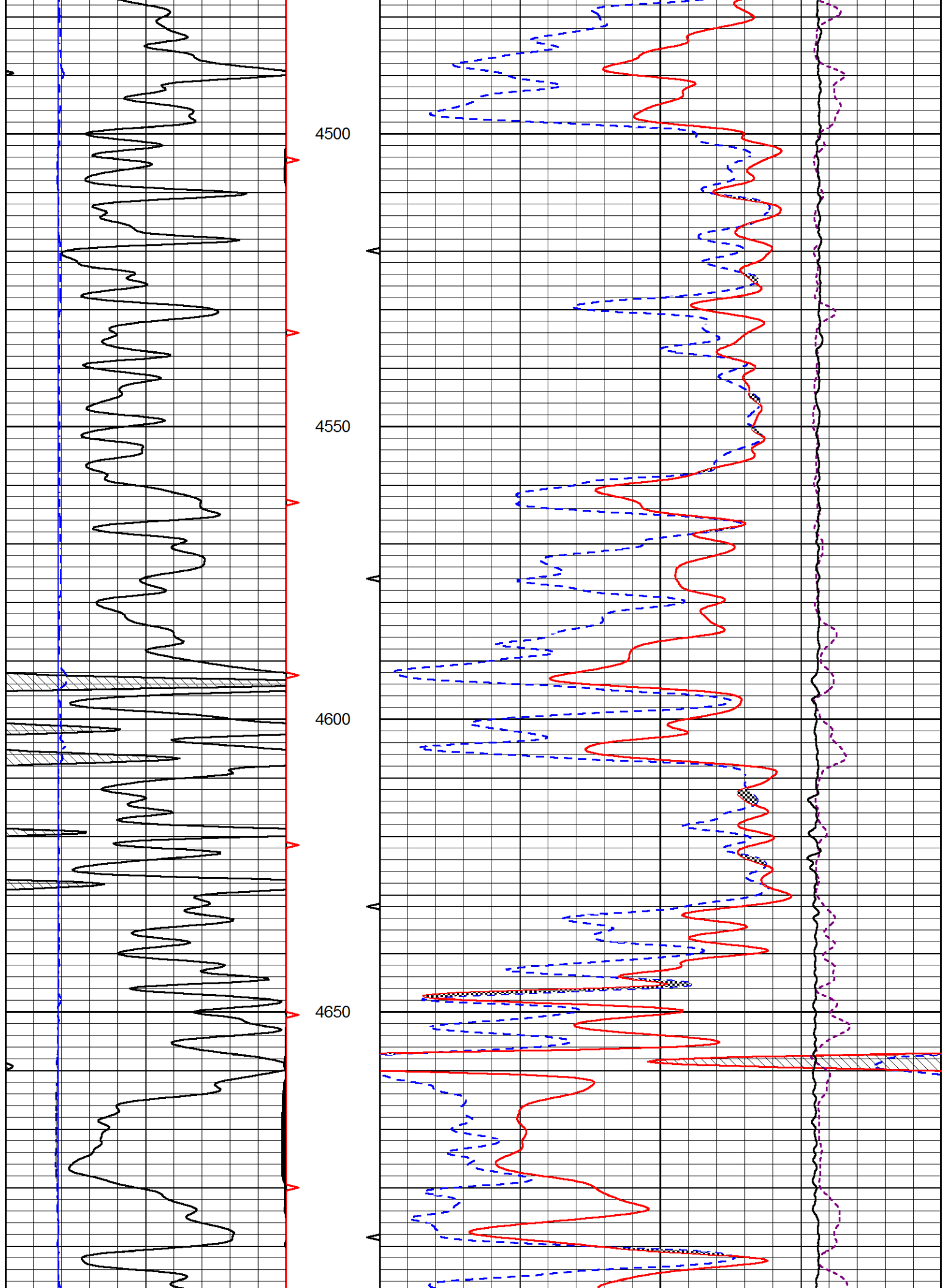


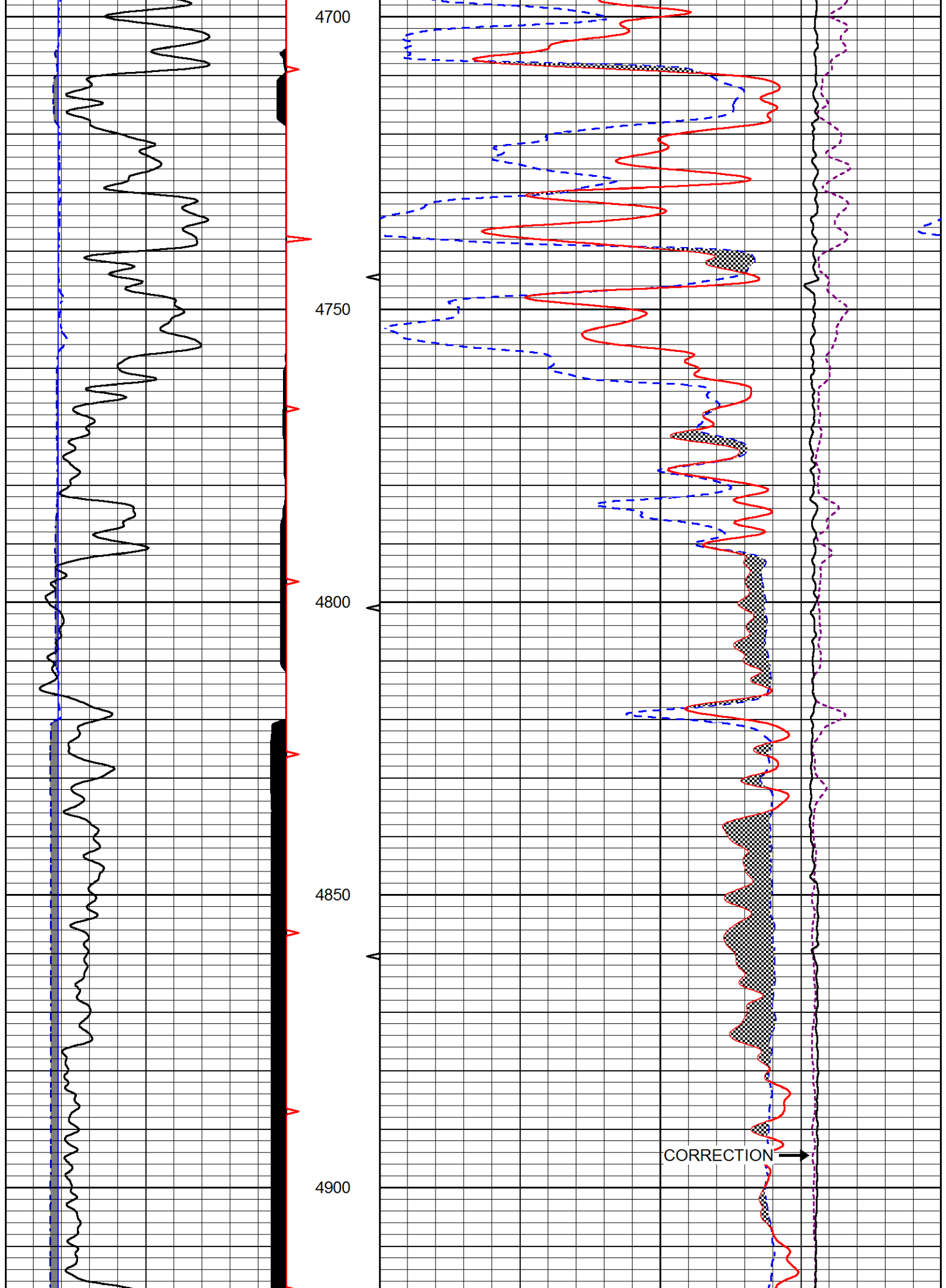


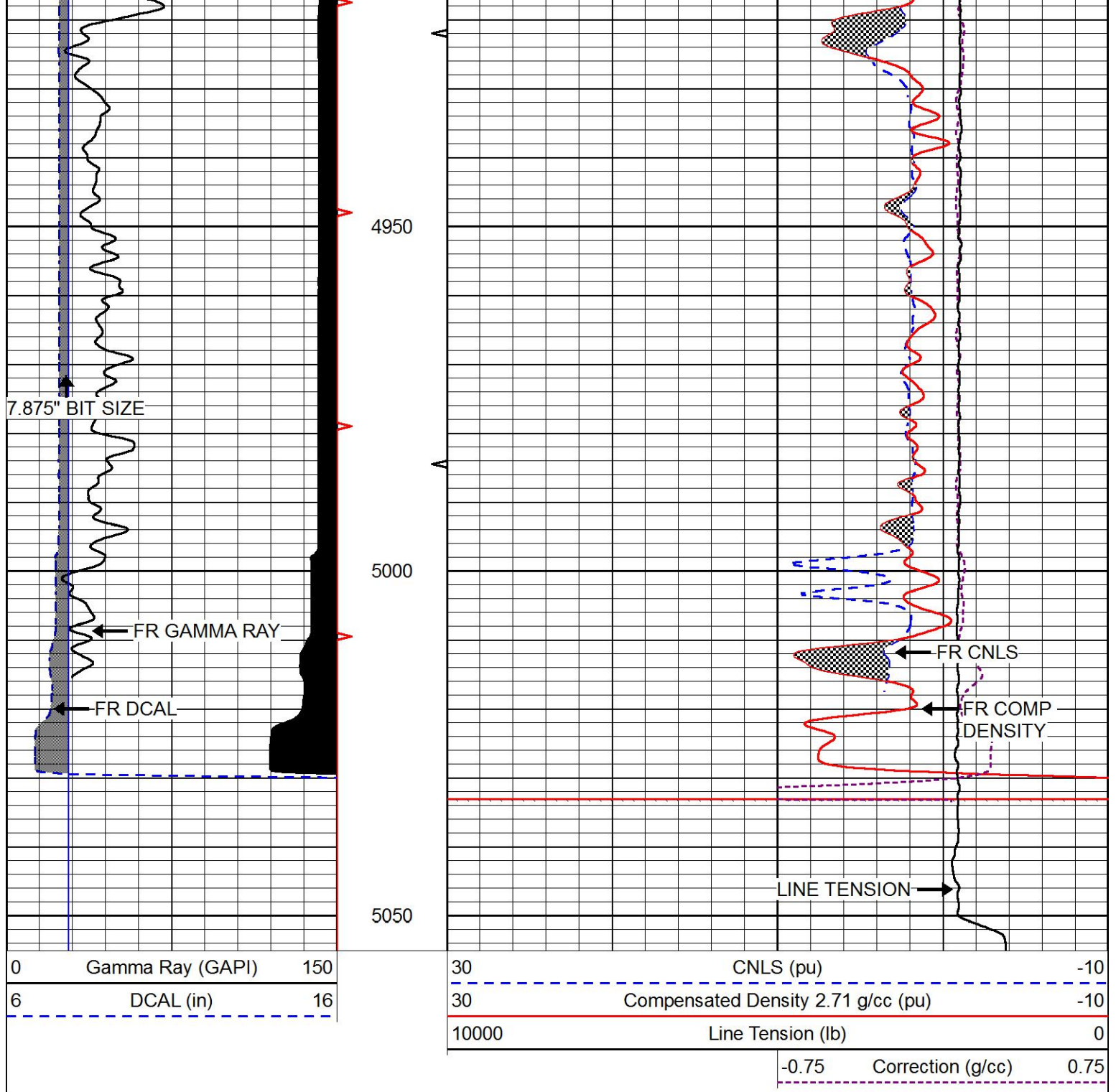














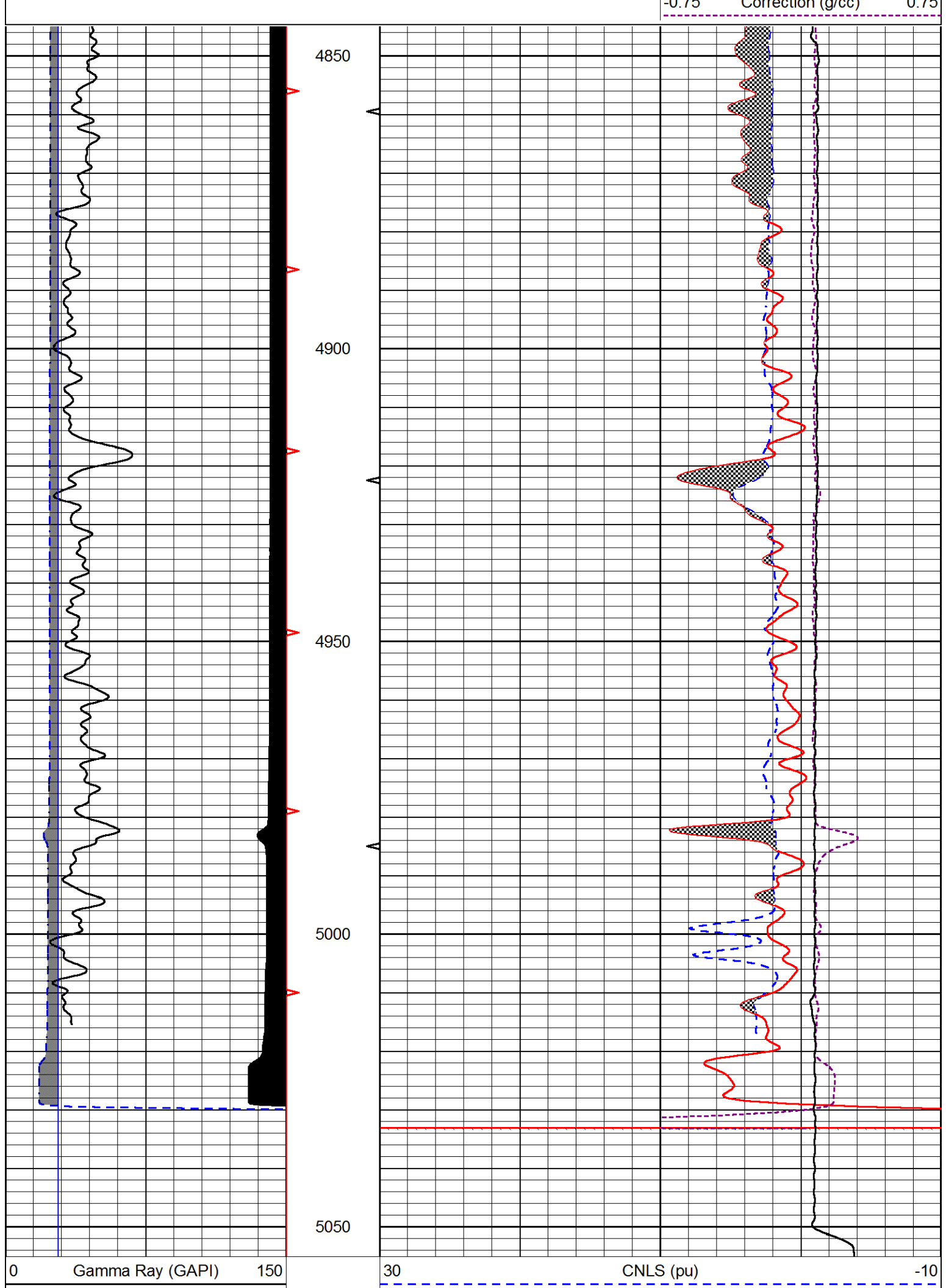
PIONEER
Pioneer Energy Services

REPEAT SECTION

Database File	americanwarrior_gano8-17.db
Dataset Pathname	STKML/pass2.1
Presentation Format	cnlspec
Dataset Creation	Sun Jan 07 12:50:36 2018
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
6	DCAL (in)	16

30	CNLS (pu)	-10
30	Compensated Density 2.71 g/cc (pu)	-10
10000	Line Tension (lb)	0
-0.75	Correction (g/cc)	0.75



6	DCAL (in)	16	30	Compensated Density 2.71 g/cc (pu)	-10	
			10000	Line Tension (lb)	0	
				-0.75	Correction (g/cc)	0.75

Database File		americanwarrior_gano8-17.db
Dataset Pathname		STKML/pass3.4
Dataset Creation		Sun Jan 07 12:45:02 2018

Dual Induction Calibration Report	
-----------------------------------	--

Serial-Model:		PSI 91-M&W
Calibration Performed:		Wed Jan 03 10:46:51 2018

Readings			References			Results	
Loop:	Air	Loop	Air	Loop		Gain	Offset
Deep	166.796	835.089	0.000	255.800	mmho/m	0.565	-14.500
Medium	142.009	1348.560	0.000	255.800	mmho/m	0.360	-35.000

Microlog Calibration Report	
-----------------------------	--

Serial-Model:		PSI-01-PSIML
Performed:		Thu Dec 14 04:11:04 2017

Readings			References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	21000.0000	-1.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	27000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	100.0000	-97.3500

Compensated Density Calibration Report	
--	--

Serial-Model:		90-1031-M&W
Source / Verifier:		16955B / 2ci
Master Calibration Performed:		Sat Dec 02 18:42:45 2017

Master Calibration							
		Density		Far Detector		Near Detector	
Magnesium		1.755	g/cc	4903.44		6153.79	cps
Aluminum		2.640	g/cc	934.50		4021.31	cps
Spine Angle = 75.61				Density/Spine Ratio = 0.517			
		Size		Reading			
Small Ring		8.00	in	1.84			
Large Ring		22.00	in	1.46			

Compensated Neutron Calibration Report	
--	--

Serial Number:		207-MW
Tool Model:		M&W
Calibration Performed:		WED DEC 13 10:30:30 2017

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:	Wed Sep 06 19:51:14 2017		
Calibrator Value:	1.0	GAPI	
Background Reading:	0.0	cps	
Calibrator Reading:	1.0	cps	
Sensitivity:	0.6000	GAPI/cps	

 PIONEER Pioneer Energy Services	Company	AMERICAN WARRIOR, INC.
	Well	GANO #8-17
	Field	LAKIN NORTHWEST
	County	KEARNY
	State	KANSAS