



PIONEER

Pioneer Energy Services

DUAL COMP POROSITY LOG

Company **AMERICAN WARRIOR, INC.**

Well **CRIST NO. 1-28**

Field **WILDCAT**

County **FINNEY** State **KANSAS**

Location: API #: 15-055-22483-00-00

Other Services

2288' FSL & 440' FWL

SEC 28 TWP 21S RGE 34W

DIL
MEL/BHCS

Permanent Datum GROUND LEVEL Elevation 2979'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 2990'
D.F. N/A
G.L. 2979'

Company **AMERICAN WARRIOR, INC.**
Well **CRIST NO. 1-28**
Field **WILDCAT**
County **FINNEY**
State **KANSAS**

Date **4/9/2018**

Run Number **ONE**

Type Log **CNL/CDL**

Depth Driller **5000'**

Depth Logger **4996'**

Bottom Logged Interval **4967'**

Top Logged Interval **3700'**

Type Fluid In Hole **CHEMICAL**

Salinity, PPM CL **2800**

Density **9.4**

Level **FULL**

Max. Rec. Temp. F **126 DEG/F**

Operating Rig Time **4 HOURS**

Equipment -- Location **108 HAYS**

Recorded By **J. HENRICKSON**

Witnessed By **LUKE THOMPSON**

Borehole Record

Casing Record

Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	0	1741'	8.625"	23#	0	1741'
TWO	7.875"	1741'	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.

SCOTT CITY KANSAS
SOUTH TO GANO ROAD, 10 WEST, NORTH 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: J. HENRICKSON
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

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

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 126	in 5.5	in 0	g/cc 1	2	g/cc 2.71
NPORSEL	PERFS	SNDERR	SNDERRM	SPSHIFT	SRFTEMP	SZCOR	TDEPTH
Limestone	0	mmho/m -2	mmho/m 3	mV -230	degF 53	Off	ft 4996

Sensor	Offset (ft)	Schematic		Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58			GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC	37.48			CNT-M&W (tk10-MW)	5.50	3.50	100.00
CNSSC	36.73						
LSD DCAL SSD	28.43 28.42 27.93			CDL-M&W (168-986)	8.50	4.00	250.00
ML-PSI STKBL ML (PSI-02) Stackable Microlog Tools	7.58				7.58	4.00	65.00
MCAL	19.83						
MI	19.83						
MN	19.83						
RLL3	15.80						
RLL3F	15.79						
CILD	8.00			DIL-M&W (PSI 978)	18.50	3.50	220.00

CILM

4.70

SP

0.20

Dataset: american_warrior_crist_1_28.db: field/well/stackml/pass3.1
Total length: 43.08 ft
Total weight: 685.00 lb
O.D.: 4.00 in

**PIONEER**

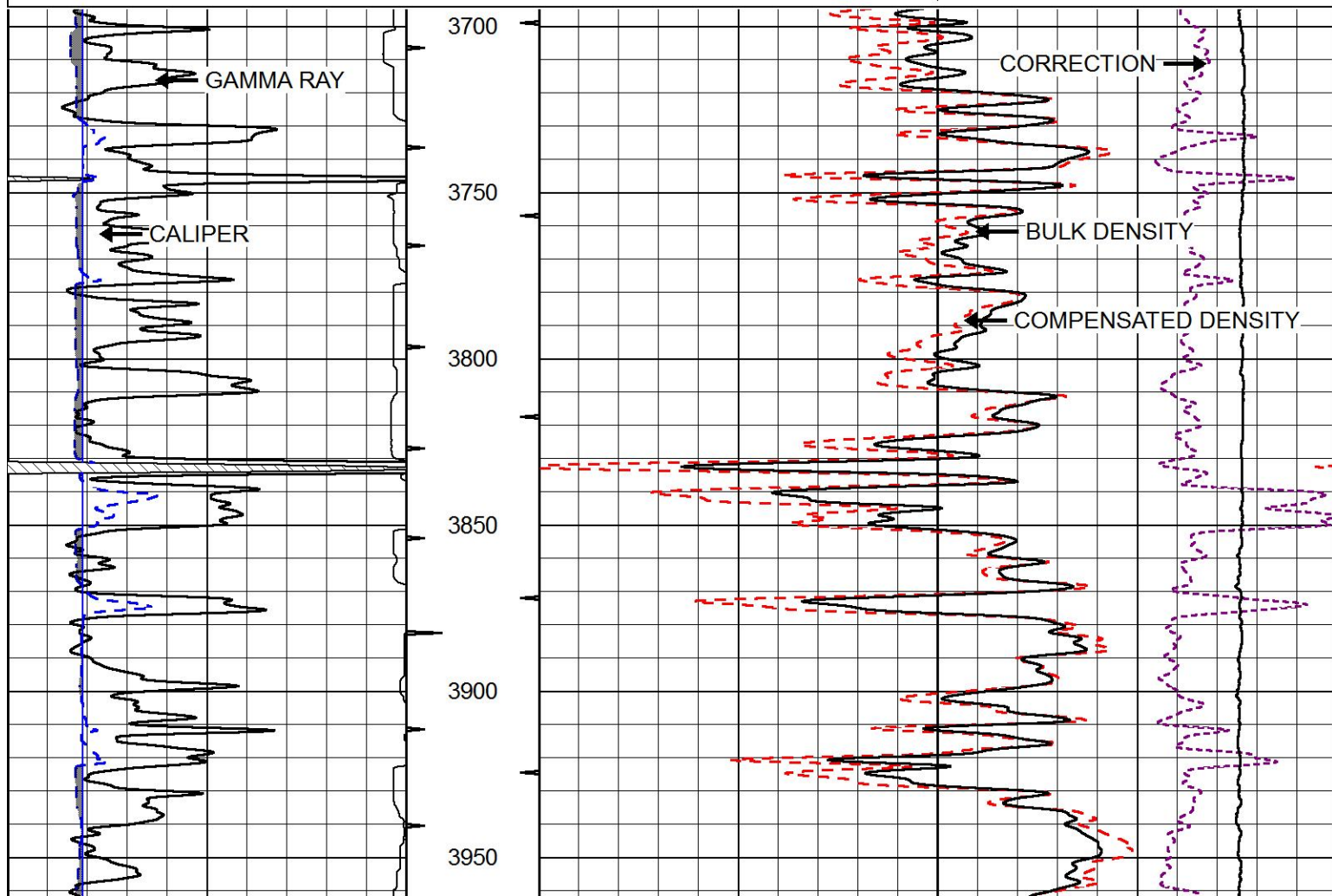
Pioneer Energy Services

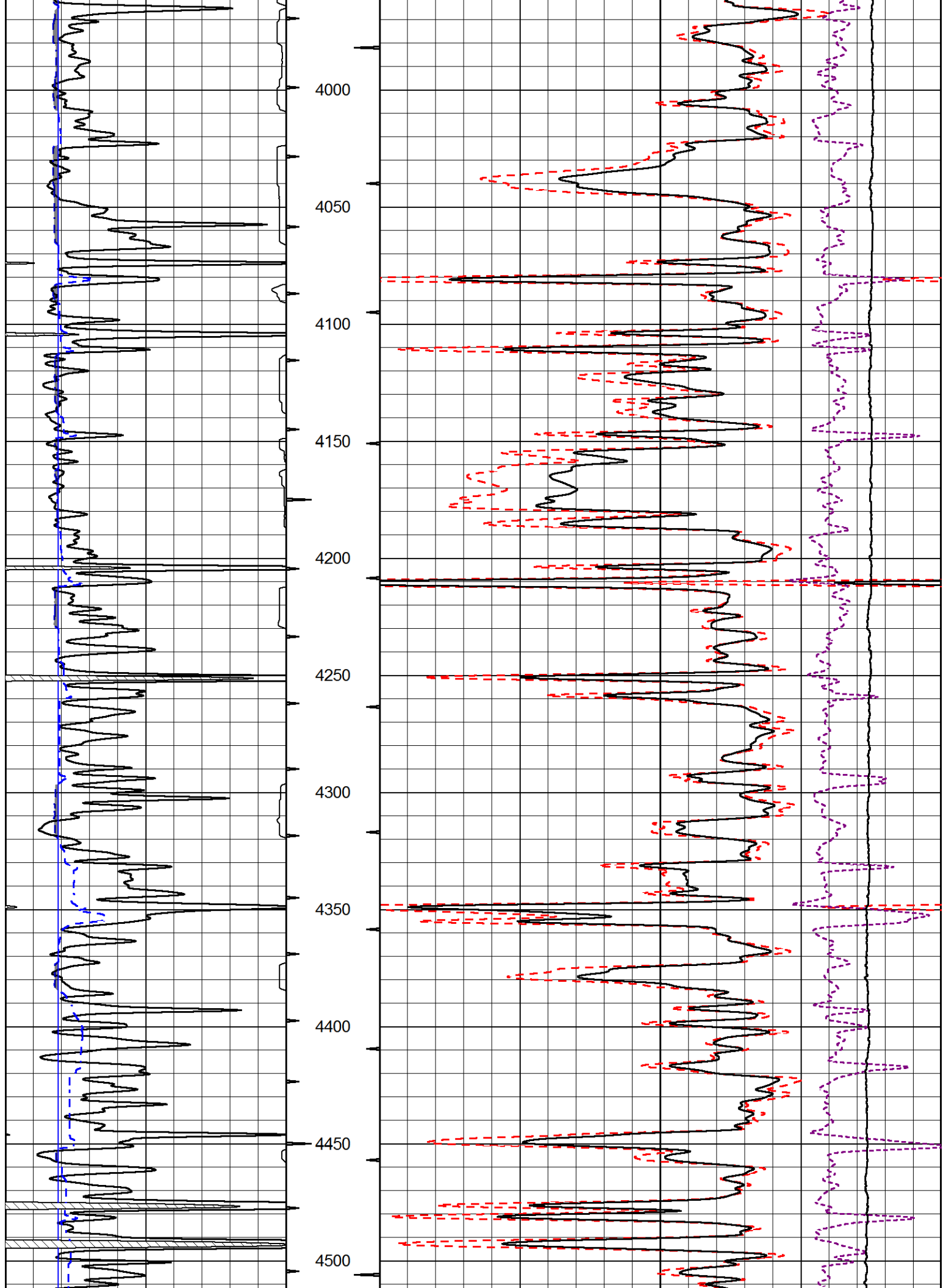
MAIN PASS

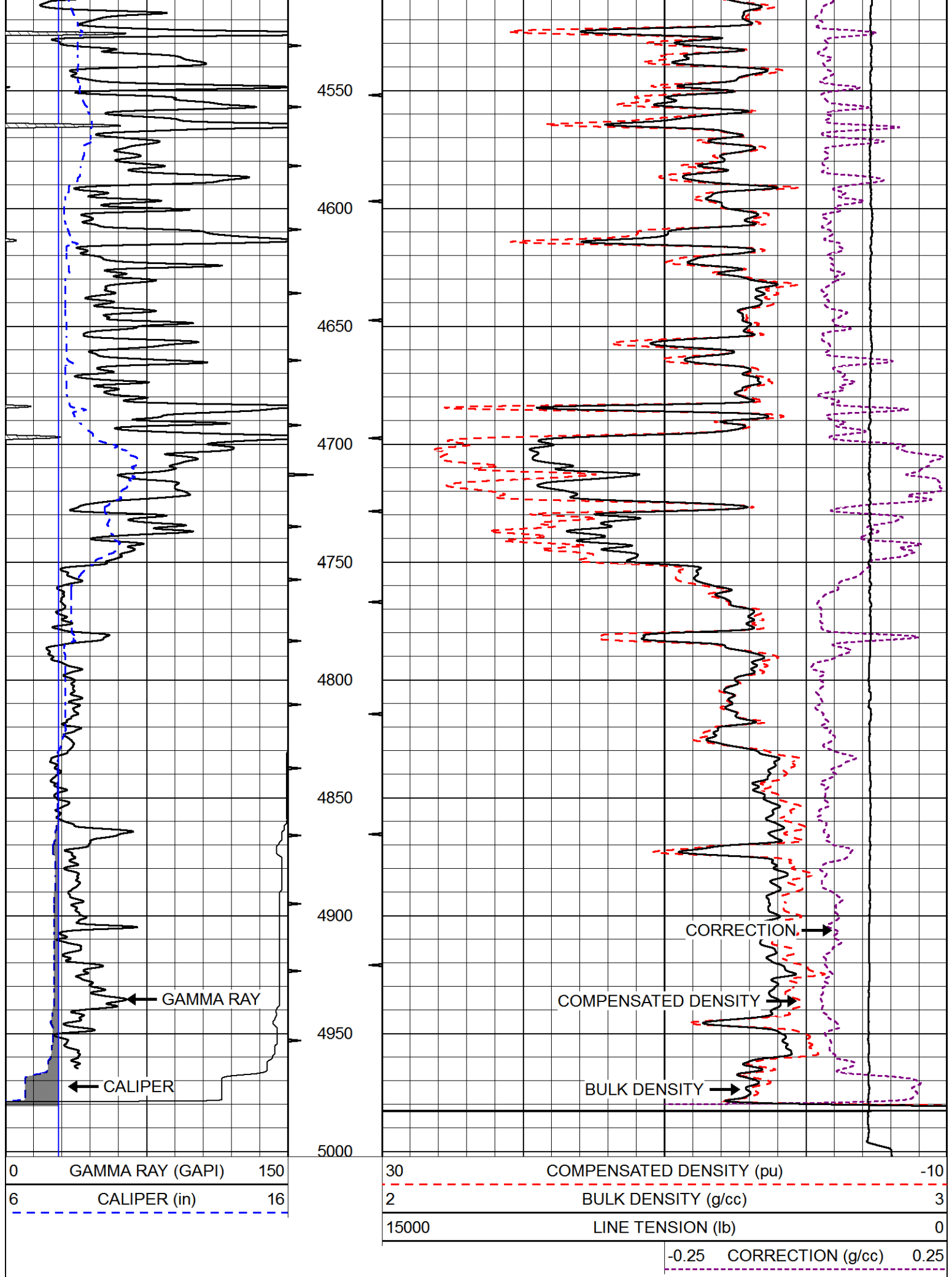
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Dataset Pathname stackml/pass3.1
Presentation Format cdl
Dataset Creation Mon Apr 09 15:21:54 2018
Charted by Depth in Feet scaled 1:600

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





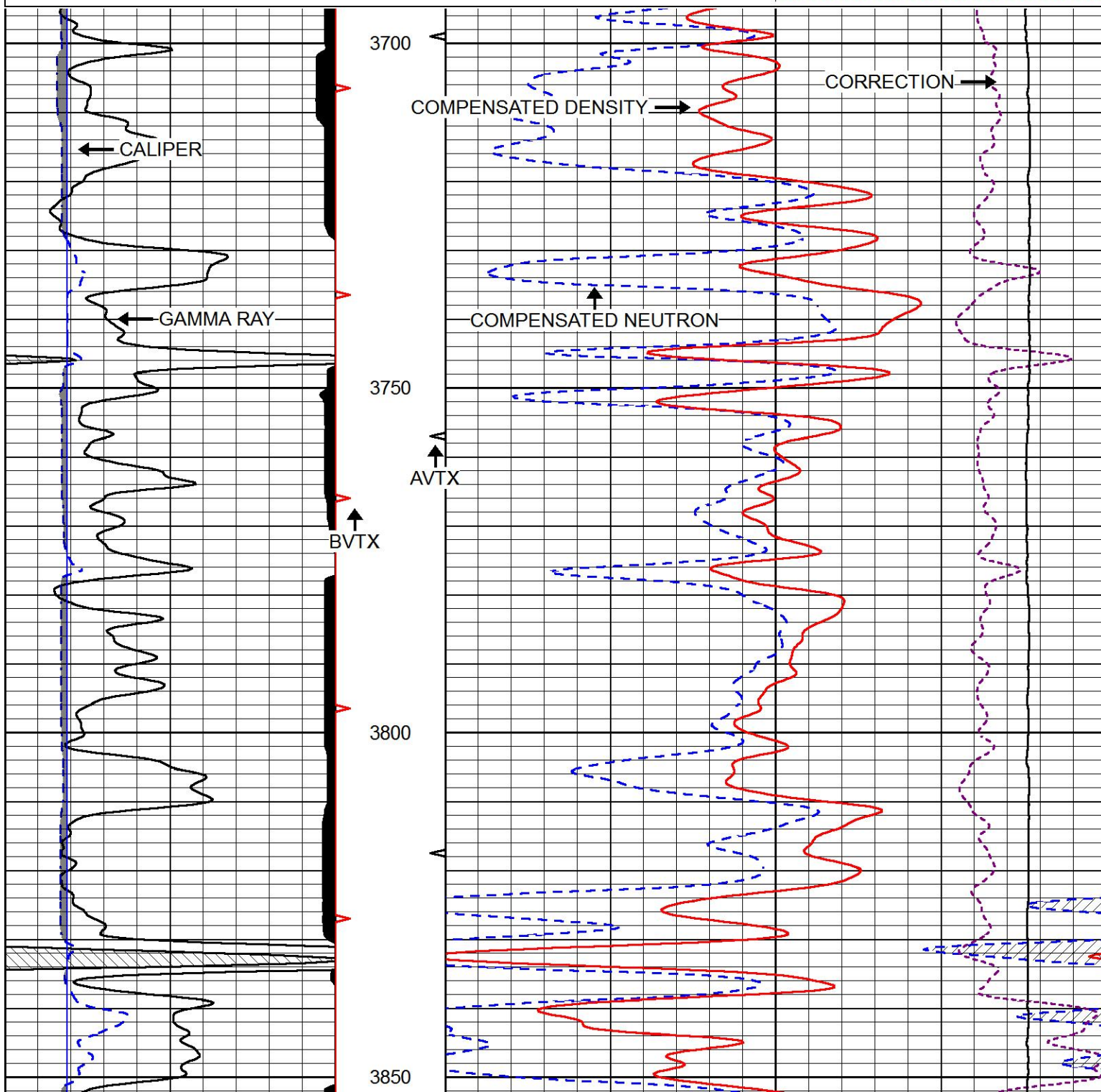


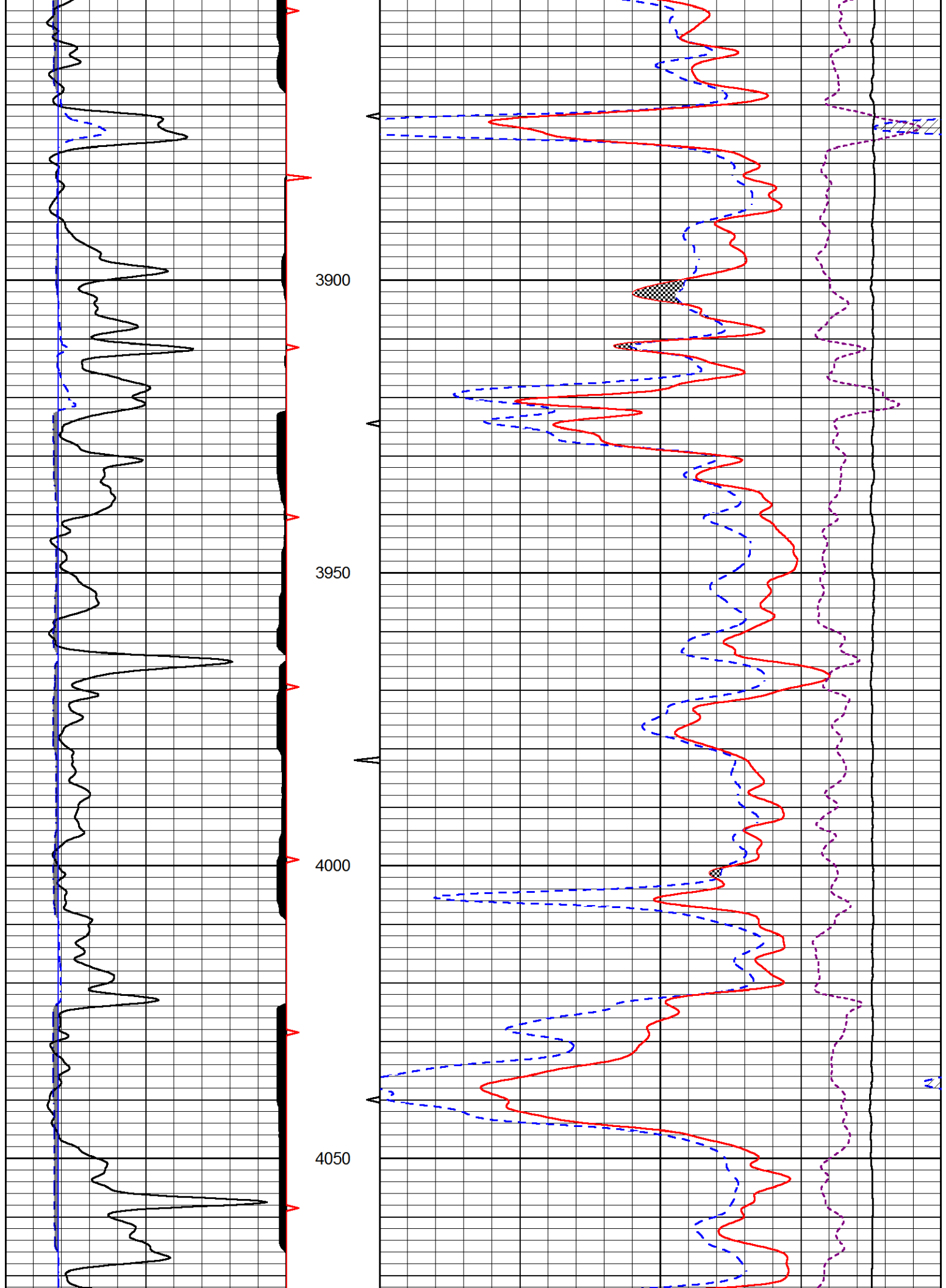
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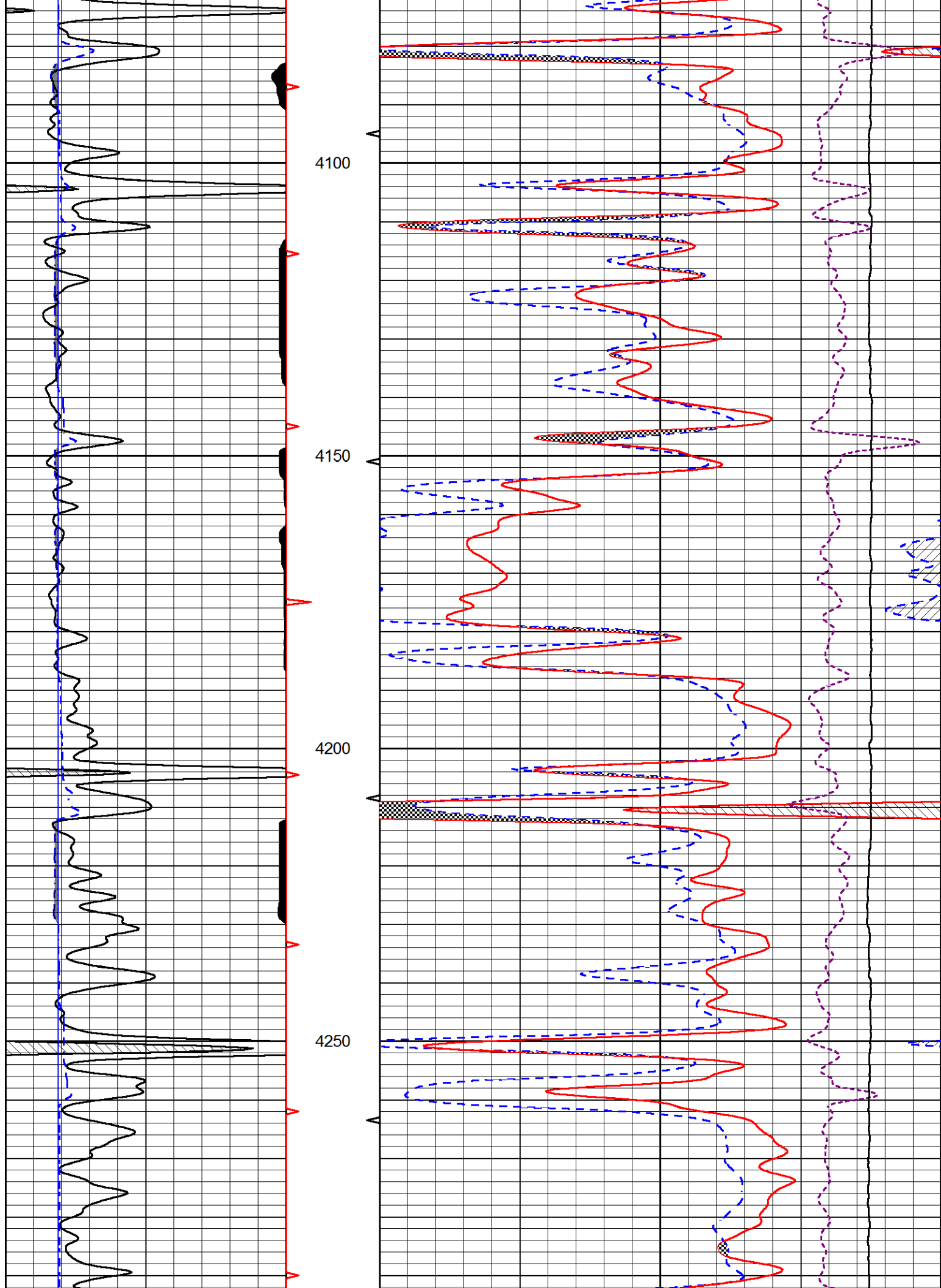
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Dataset Pathname stackml/pass3.1
Presentation Format cndlspec
Dataset Creation Mon Apr 09 15:21:54 2018
Charted by Depth in Feet scaled 1:240

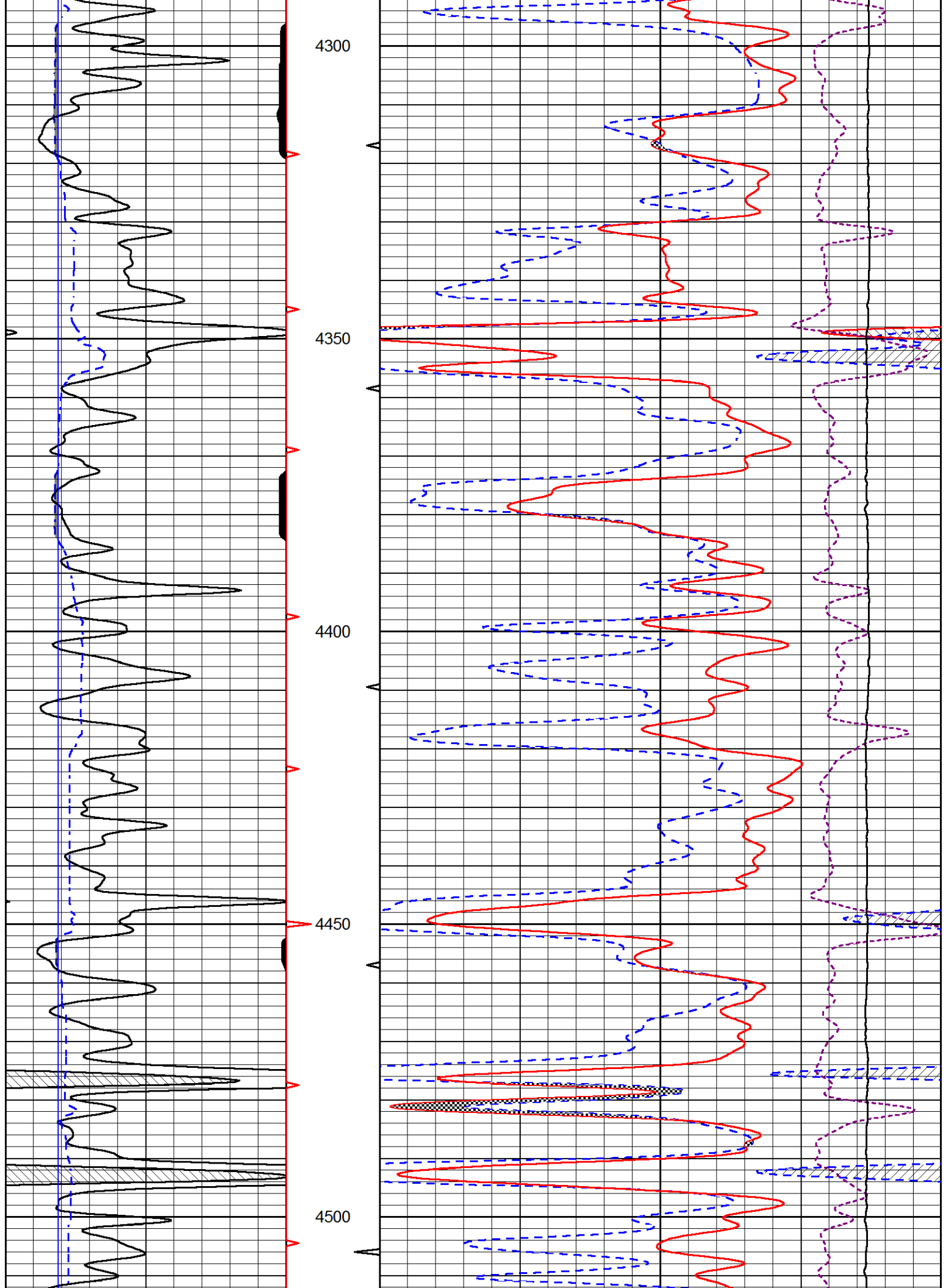
0	GAMMA RAY (GAPI)	150
6	dcal (in)	16
6	BIT SIZE (in)	16

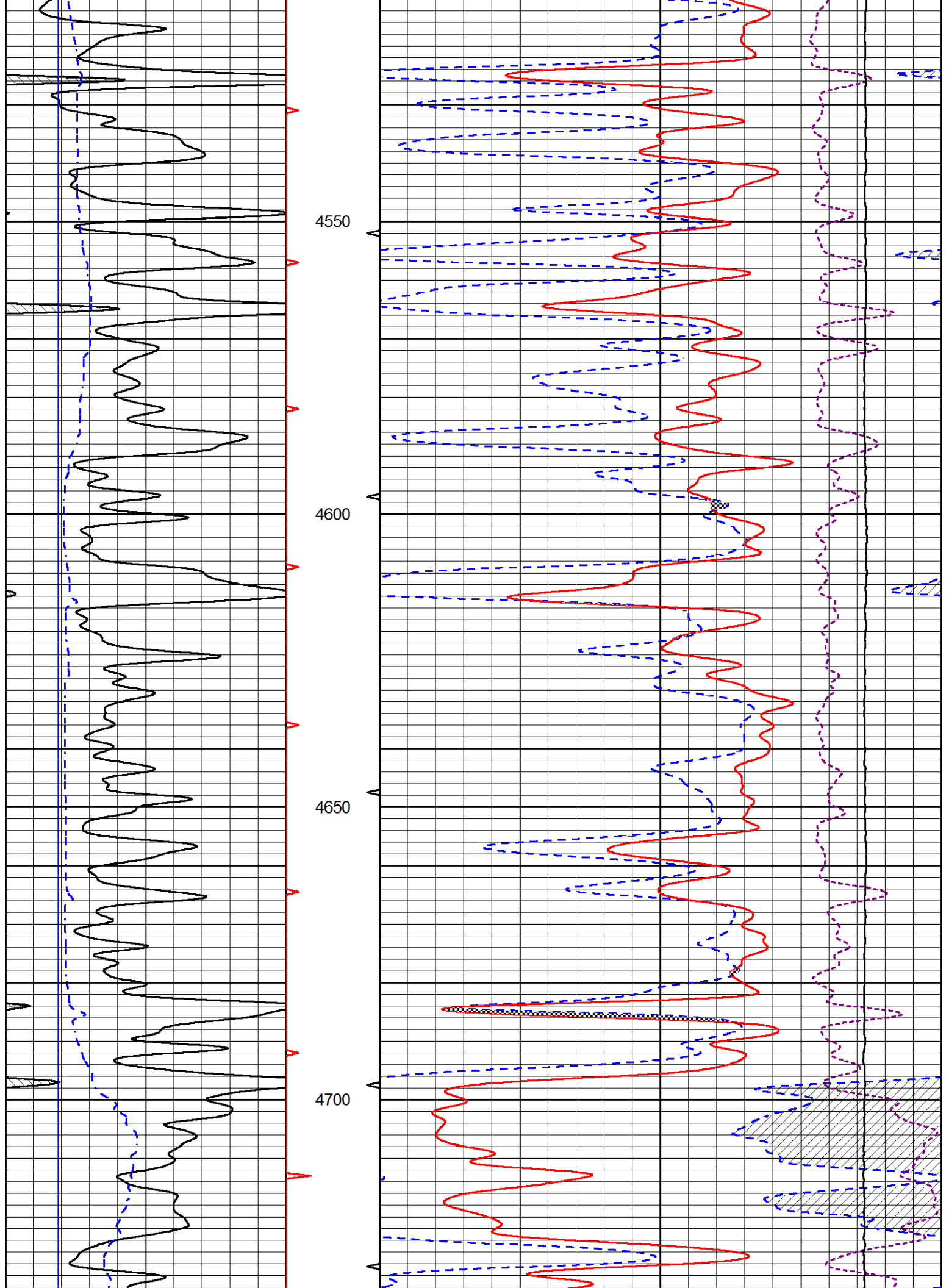
30	CNLS (pu)	-10
30	COMPENSATED DENSITY (2.71 ma) (pu)	-10
15000	LINE TENSION (lb)	0
-0.25	CORRECTION (g/cc)	0.25

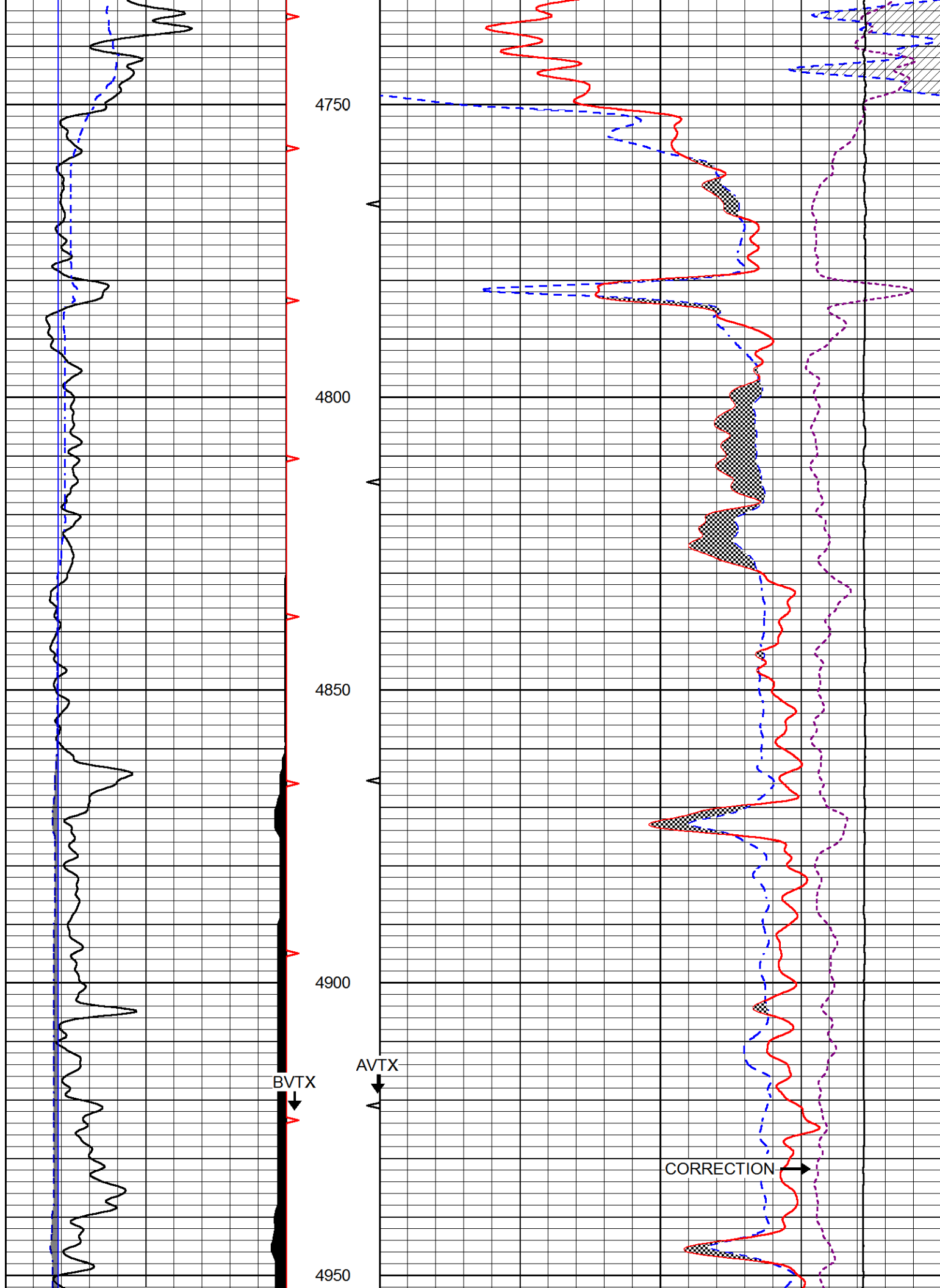


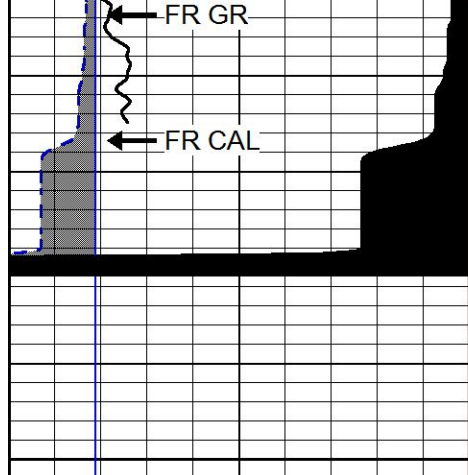






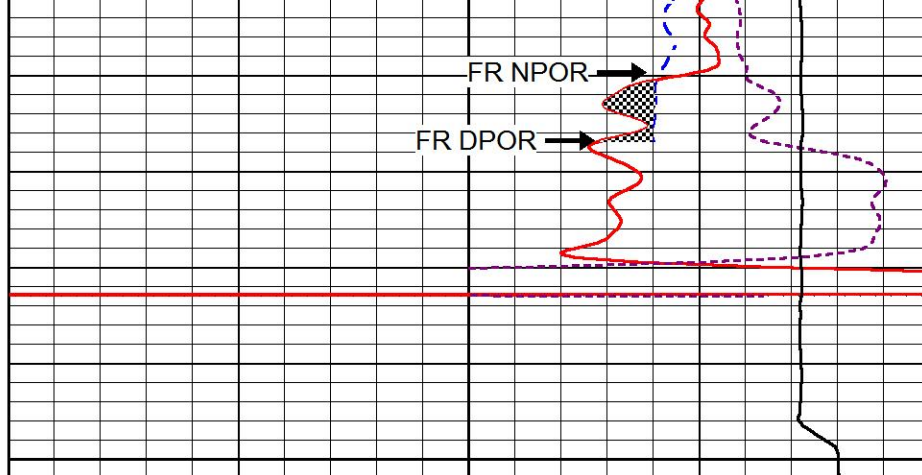






0	GAMMA RAY (GAPI)	150
6	dcal (in)	16
6	BIT SIZE (in)	16

5000



30	CNLS (pu)	-10
30	COMPENSATED DENSITY (2.71 ma) (pu)	-10
15000	LINE TENSION (lb)	0
-0.25	CORRECTION (g/cc)	0.25

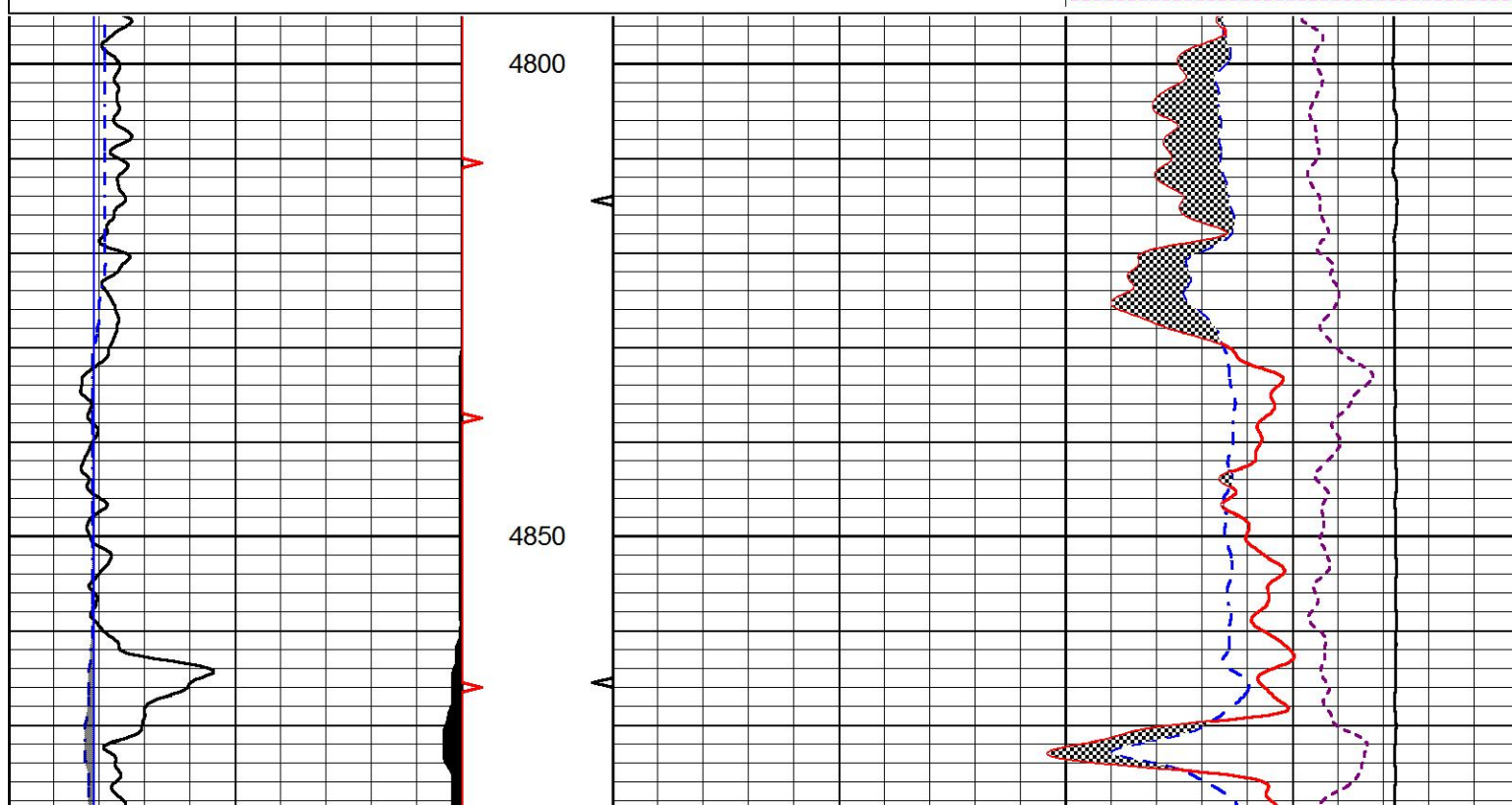


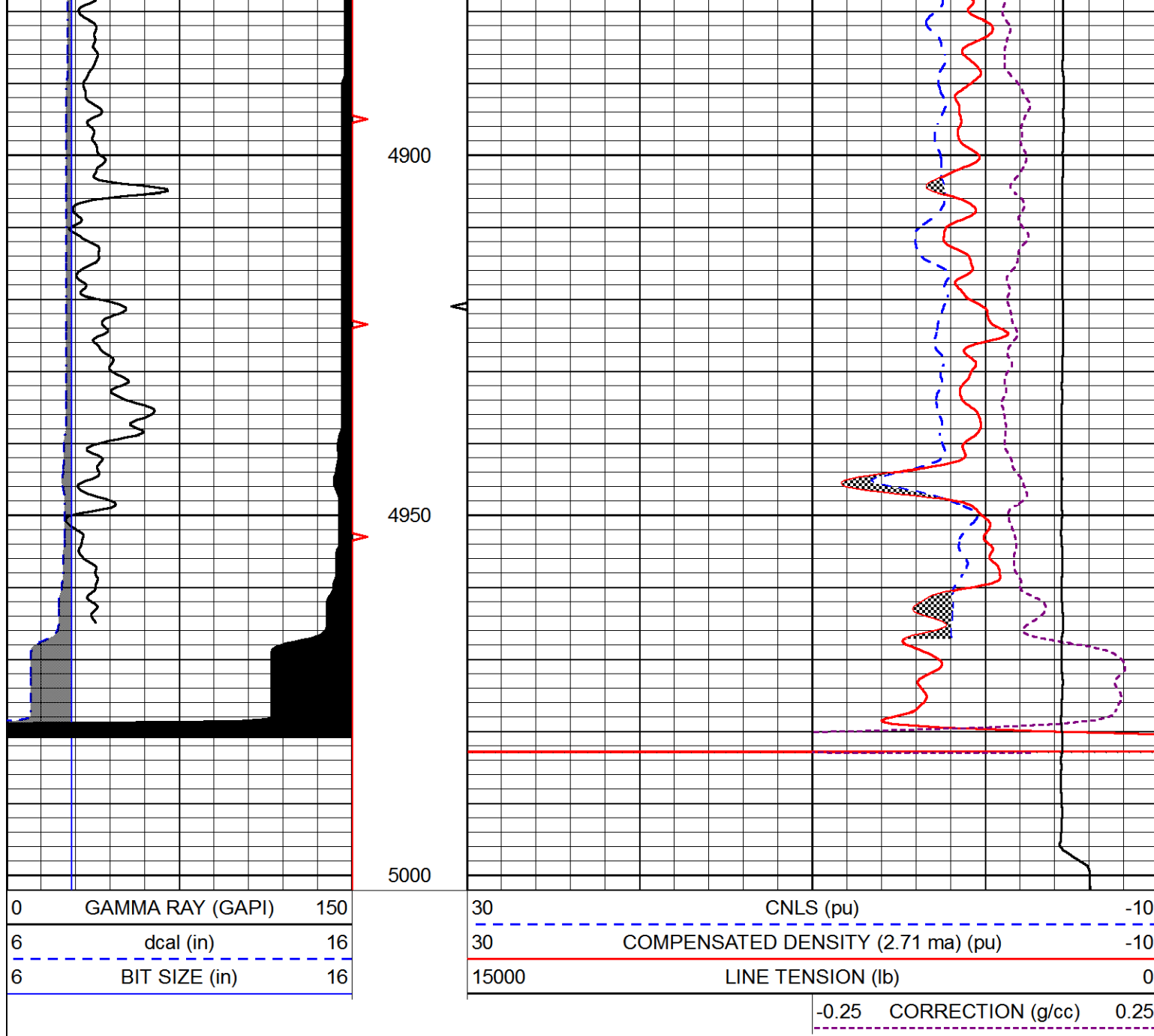
REPEAT SECTION

Database File american_warrior_crist_1_28.db
 Dataset Pathname stackml/pass2.1
 Presentation Format cndlspec
 Dataset Creation Mon Apr 09 15:24:20 2018
 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	COMPENSATED DENSITY (2.71 ma) (pu)	-10
15000	LINE TENSION (lb)	0
-0.25	CORRECTION (g/cc)	0.25





Calibration Report							
Database File	american_warrior_crist_1_28.db						
Dataset Pathname	stackml/pass3.1						
Dataset Creation	Mon Apr 09 15:21:54 2018						
Dual Induction Calibration Report							
Serial-Model:				PSI 978-M&W			
Calibration Performed:				Sun Feb 04 11:50:02 2018			
		Readings		References		Results	
Loop:	Air	Loop		Air	Loop	Gain	Offset
Deep	178.615	710.235		0.000	255.800	mmho/m	0.570
Medium	161.982	1441.110		0.000	255.800	mmho/m	-40.500
Microlog Calibration Report							

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0031	0.0043	0.0000	10.0000	Ohm-m	14000.0000	-1.0000
Inverse	0.0000	0.0013	0.0000	10.0000	Ohm-m	12000.0000	0.0000
Caliper	1.0020	1.0834	5.5000	16.5000	in	135.1560	-131.8000

Compensated Density Calibration Report

Serial-Model: 168-986-M&W
Source / Verifier: /
Master Calibration Performed: Tue Apr 11 17:07:47 2017

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4691.86	4818.19	cps
Aluminum	2.695	g/cc	859.57	3020.22	cps
Spine Angle = 74.61			Density/Spine Ratio = 0.534		
	Size		Reading		
Small Ring	4.00	in	1.00		
Large Ring	14.00	in	1.20		

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



Company AMERICAN WARRIOR, INC.
Well CRIST NO. 1-28
Field WILDCAT
County FINNEY

Pioneer Energy Services

State

KANSAS