



PIONEER

Pioneer Energy Services

DUAL COMP POROSITY LOG

Company BLACK ROCK RESOURCES, LLC
Well POLIFKA #18-1
Field WILDCAT
County GOVE
State KANSAS

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Field WILDCAT
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Location: API #: 15-063-22364-00-00

Other Services

SEC 18 TWP 13S RGE 26W
505' FSL & 2070' FEL

DIL/MEL
BHCS

Permanent Datum GROUND LEVEL Elevation 2505'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 2515'
D.F. N/A
G.L. 2505'

Date 9/10/2019

Run Number ONE

Type Log CNL/CDL

Depth Driller 4400'

Depth Logger 4402'

Bottom Logged Interval 4373'

Top Logged Interval 3300'

Type Fluid In Hole CHEMICAL

Salinity, PPM CL 3900

Density 9.2

Level FULL

Max. Rec. Temp. F 120

Operating Rig Time 4 HOURS

Equipment -- Location P-24 HAYS

Recorded By IAN MABB

Witnessed By CHAD COUNTS

Borehole Record

Casing Record

Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	0'	274'	8.625"	23#	0'	274'
TWO	7.875"	274'	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.

QUINTER, KS.
SOUTH 10 MILES TO P RD,
WEST 1/2 MILE, AND NORTH INTO

Log Measured From: KELLY BUSHING 10' 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: CHAD COUNTS
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 120	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 0	mmho/m 0	mV 238	degF 0	Off	ft 4402

Sensor	Offset (ft)	Schematic		Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58			GR-M&W (233-M&W)	3.00	3.50	50.00
CNLSC	37.48			CNT-M&W (207-MW)	5.50	3.50	100.00
CNSSC	36.73						
LSD	28.43			CDL-M&W (96-916)	8.50	4.00	250.00
DCAL	28.42			ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
SSD	27.93						
MCAL	19.83						
MI	19.83						
MN	19.83						
RLL3F	15.80						
RLL3	15.80			DIL-PSI HIGH TEMP (1039)	18.50	3.50	220.00
CILD	8.00						

CILM

4.70

SP

0.20

Dataset: black_rock_18_1.db: field/well/stackmel/pass3.1
Total length: 43.08 ft
Total weight: 685.00 lb
O.D.: 4.00 in

**PIONEER**

Pioneer Energy Services

MAIN PASS

Database File black_rock_18_1.db
Dataset Pathname stackmel/pass3.1
Presentation Format _cdl
Dataset Creation Tue Sep 10 09:39:03 2019
Charted by Depth in Feet scaled 1:600

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

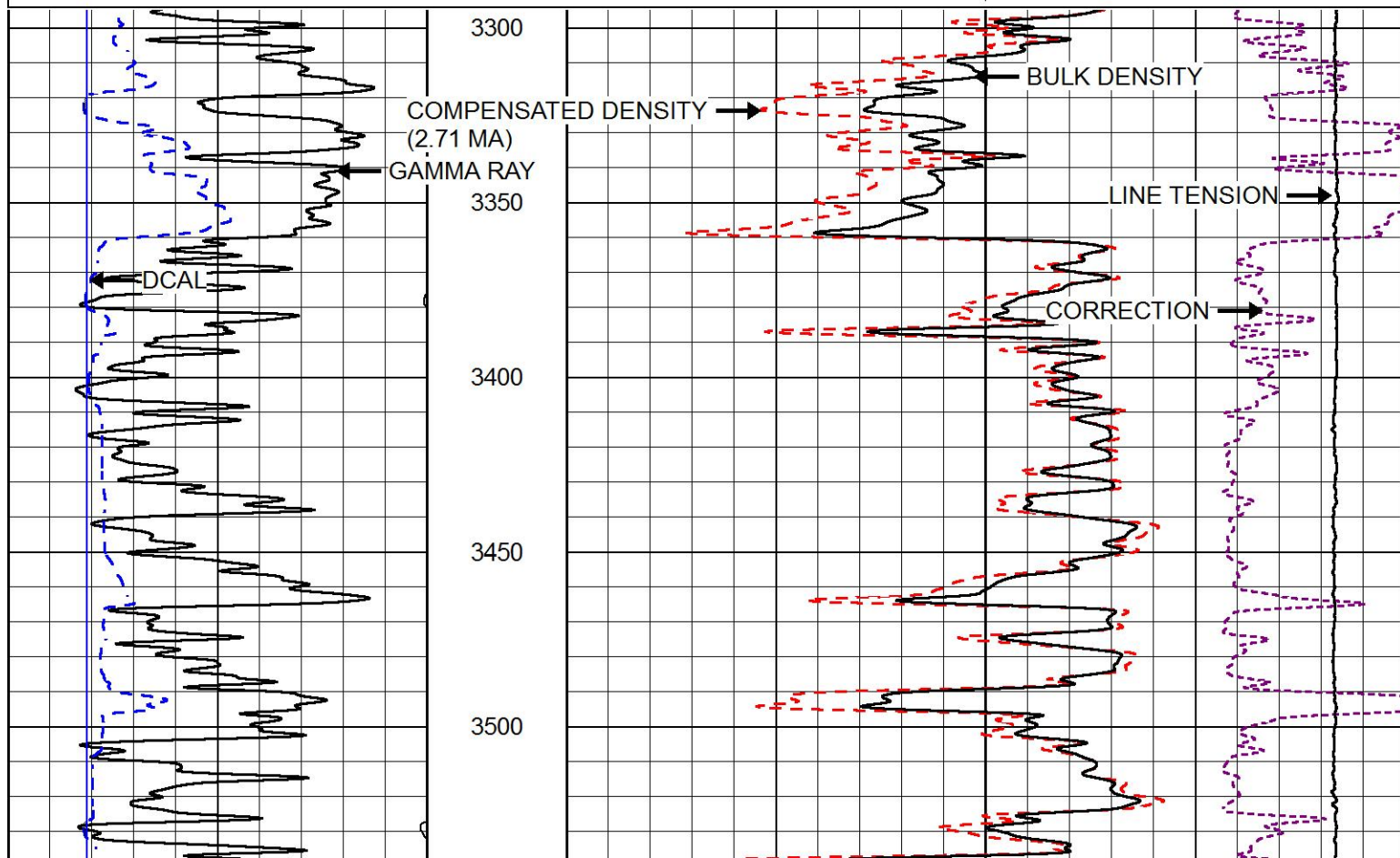
COMPENSATED DENSITY
(2.71 MA)

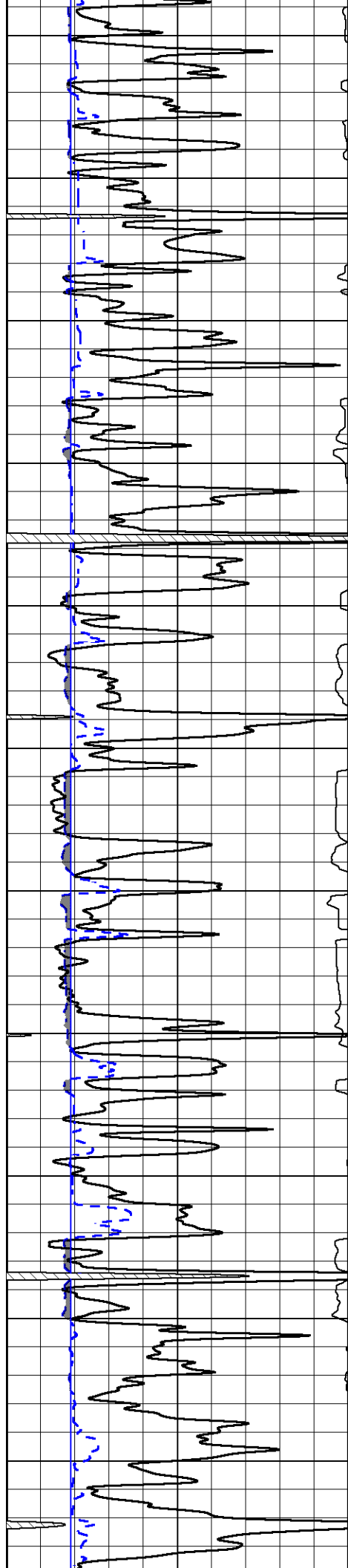
30 (pu) -10

2 BULK DENSITY (g/cc) 3

15000 LINE TENSION (lb) 0

-0.25 CORRECTION (g/cc) 0.25





3550

3600

3650

3700

3750

3800

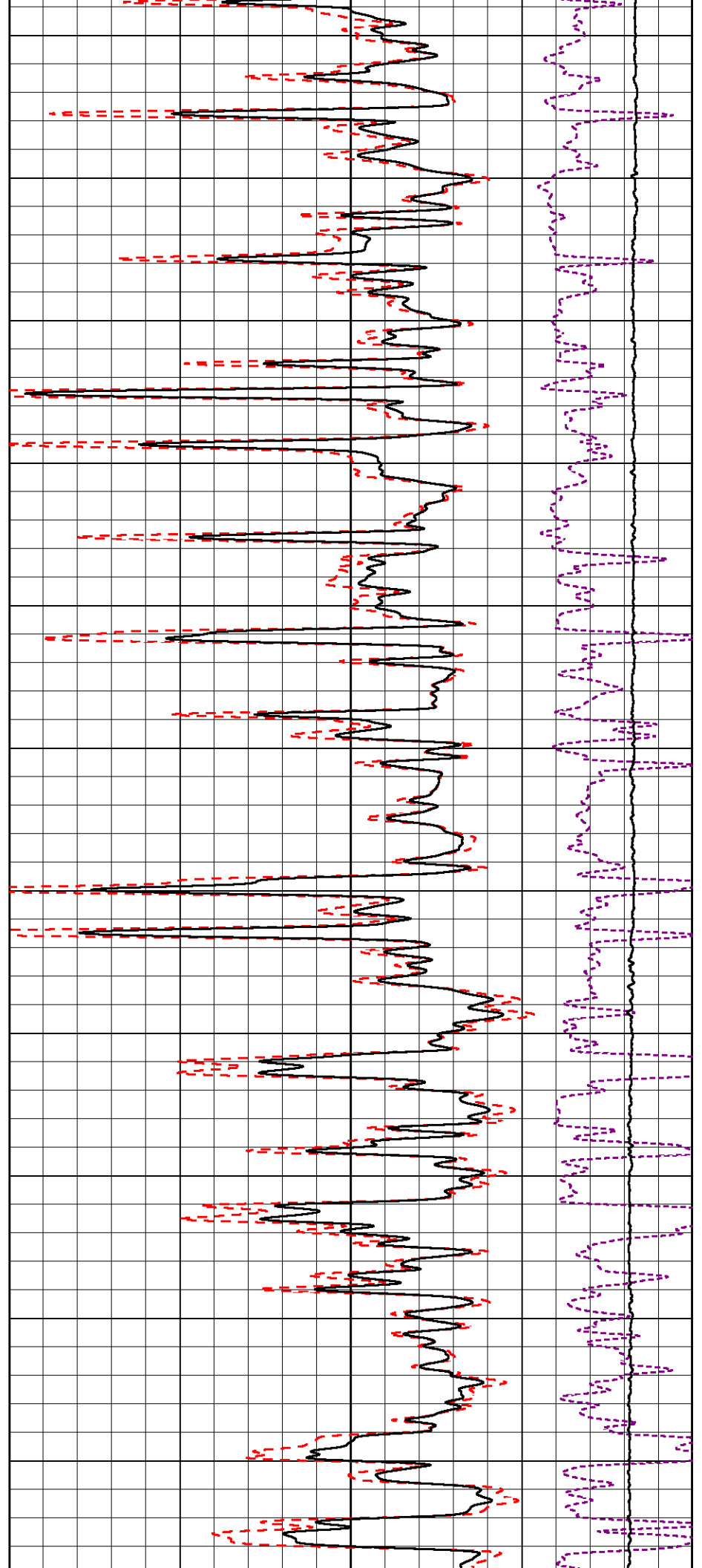
3850

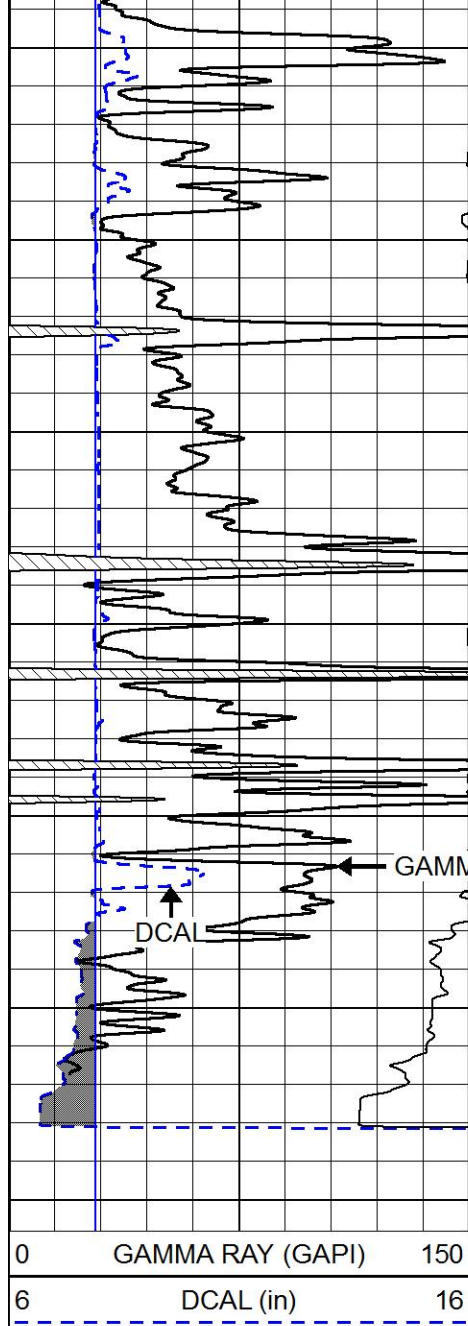
3900

3950

4000

4050





4100

4150

4200

4250

4300

4350

4400

COMPENSATED DENSITY
(2.71 MA)

BULK DENSITY

CORRECTION

LINE TENSION

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

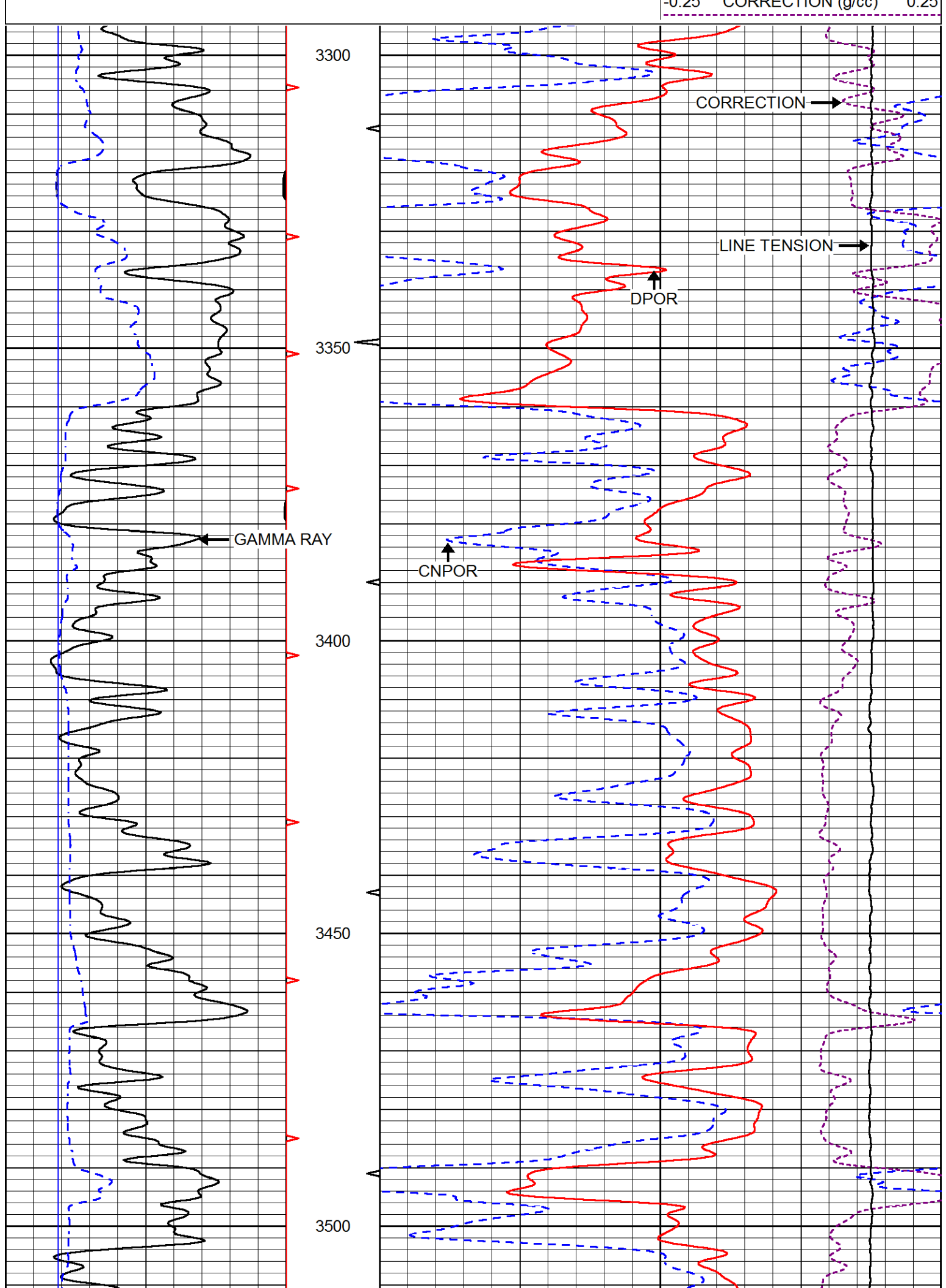


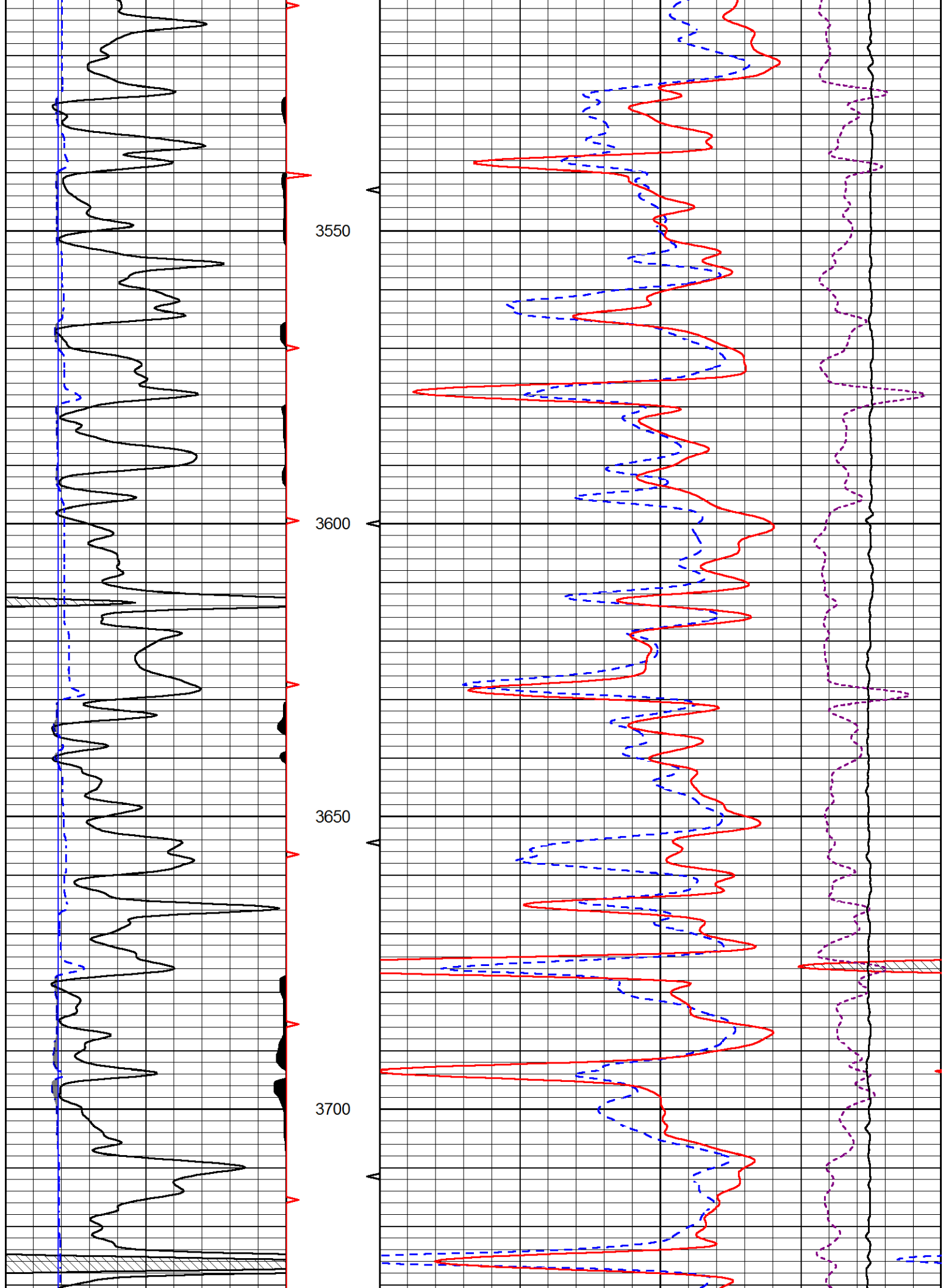
MAIN PASS

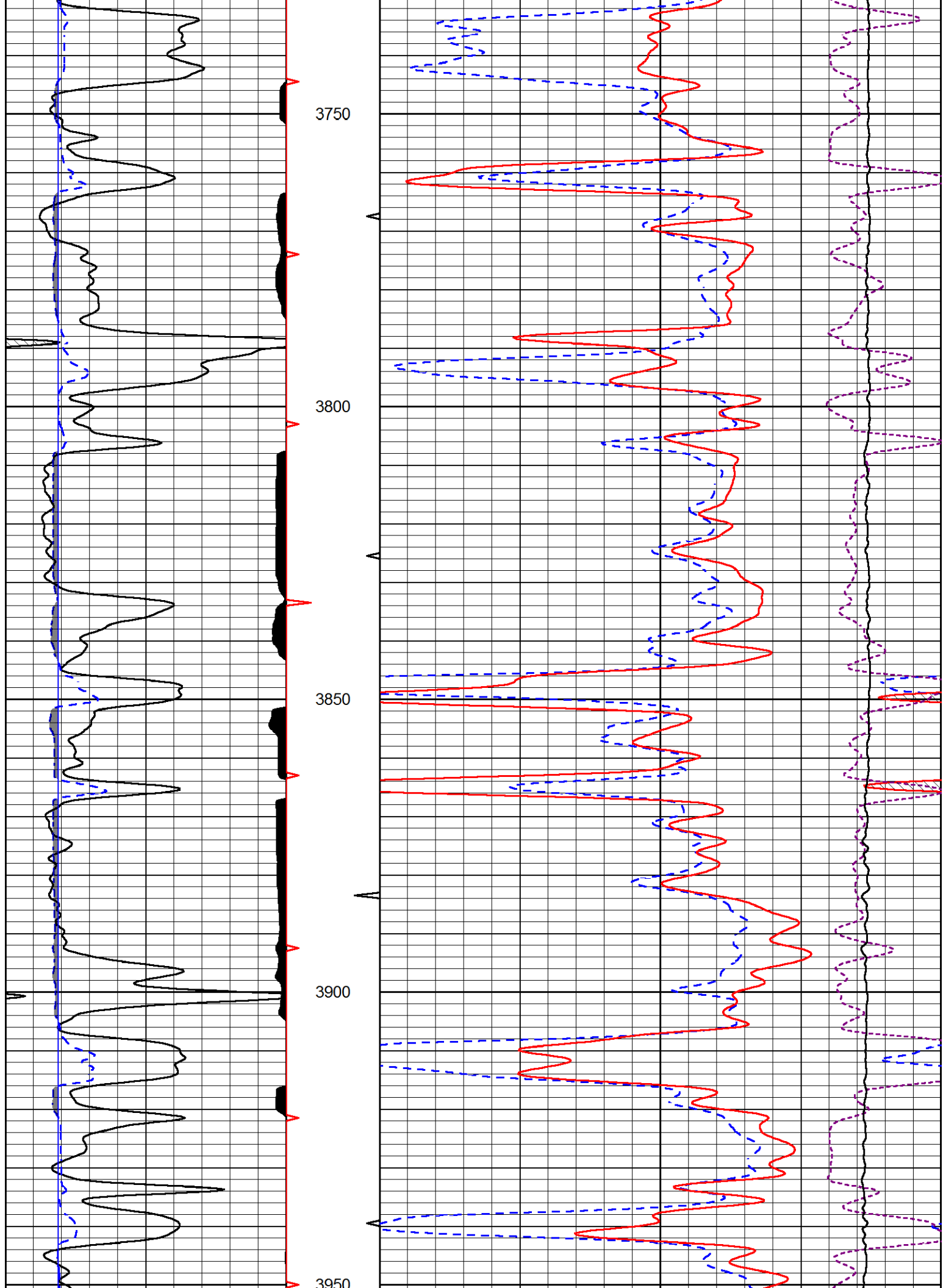
Database File black_rock_18_1.db
 Dataset Pathname stackmel/pass3.1
 Presentation Format _CNDLS~1
 Dataset Creation Tue Sep 10 09:39:03 2019
 Charted by Depth in Feet scaled 1:240

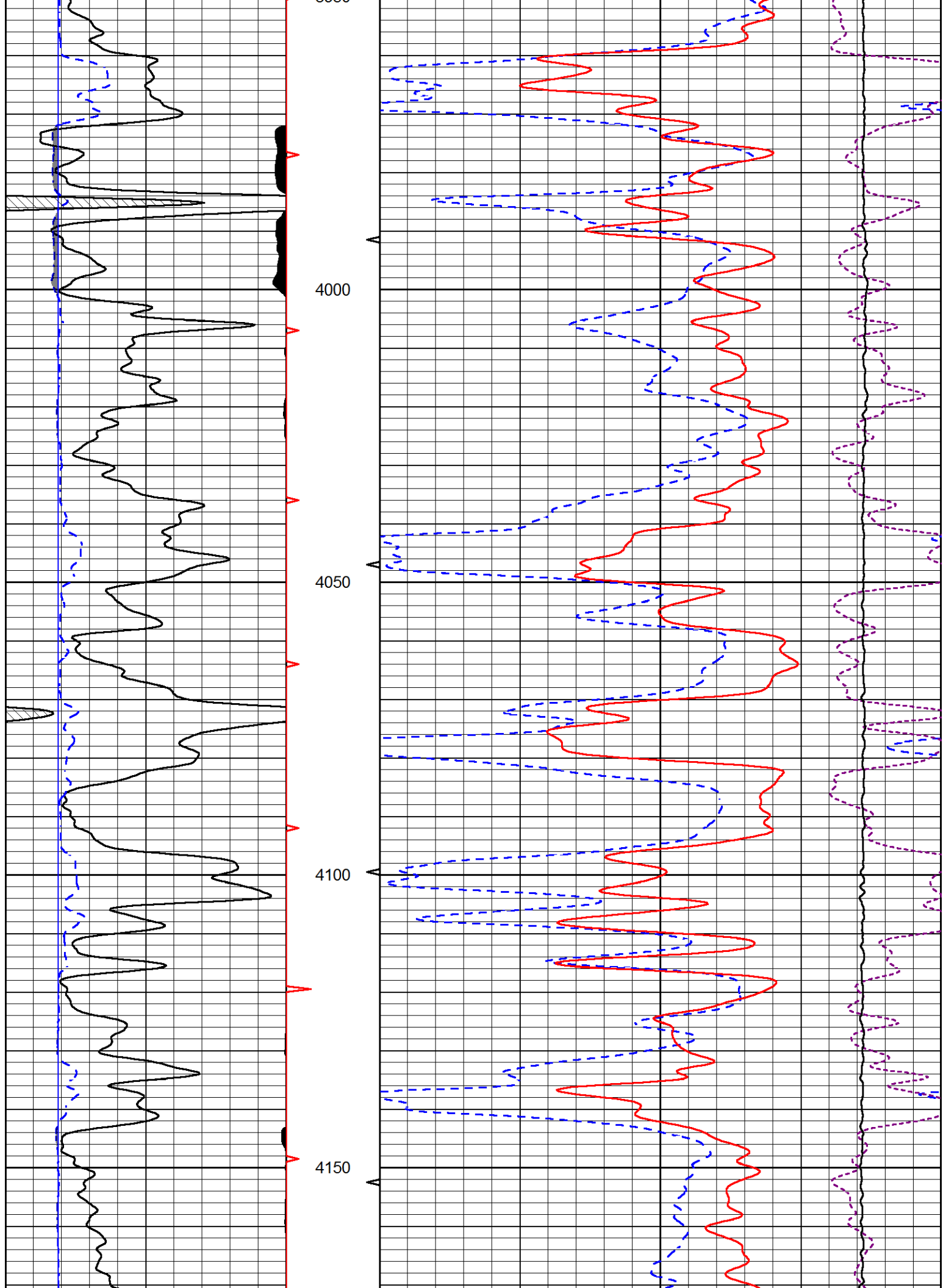
0	GAMMA RAY (GAPI)	150
6	DCAL (in)	16

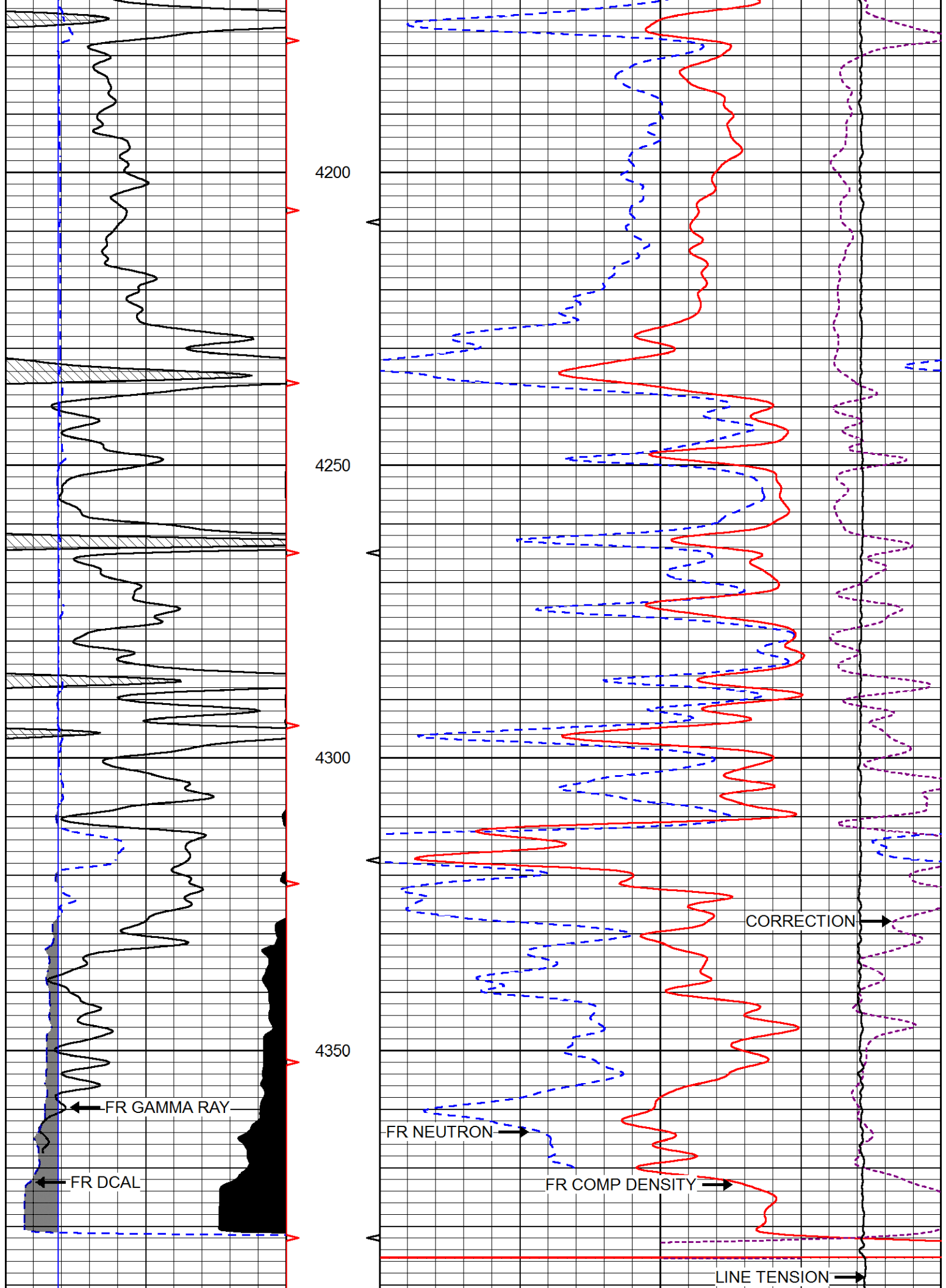
30	CNPOR (pu)	-10
30	DPOR (pu)	-10
10000	LINE TENSION (lb)	0
-0.25	CORRECTION (g/cc)	0.25

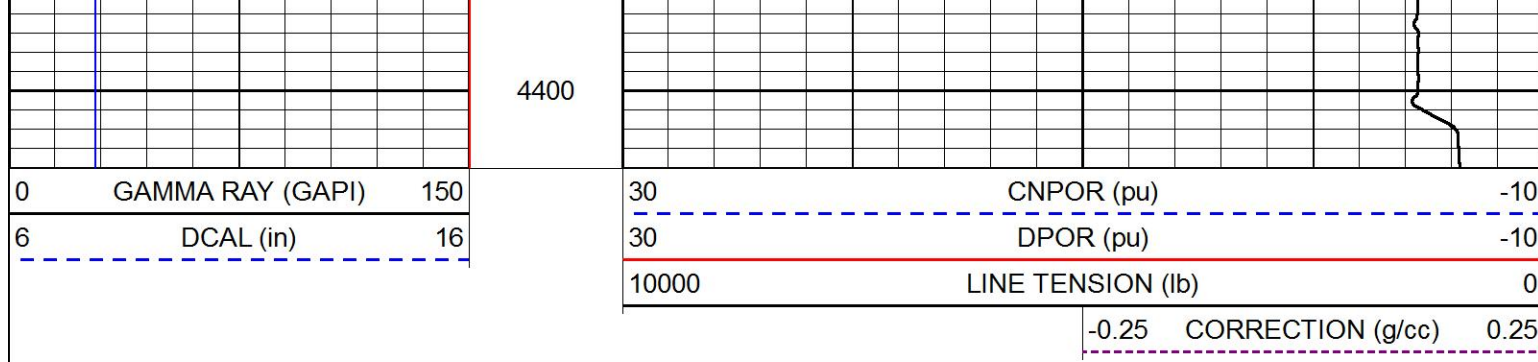






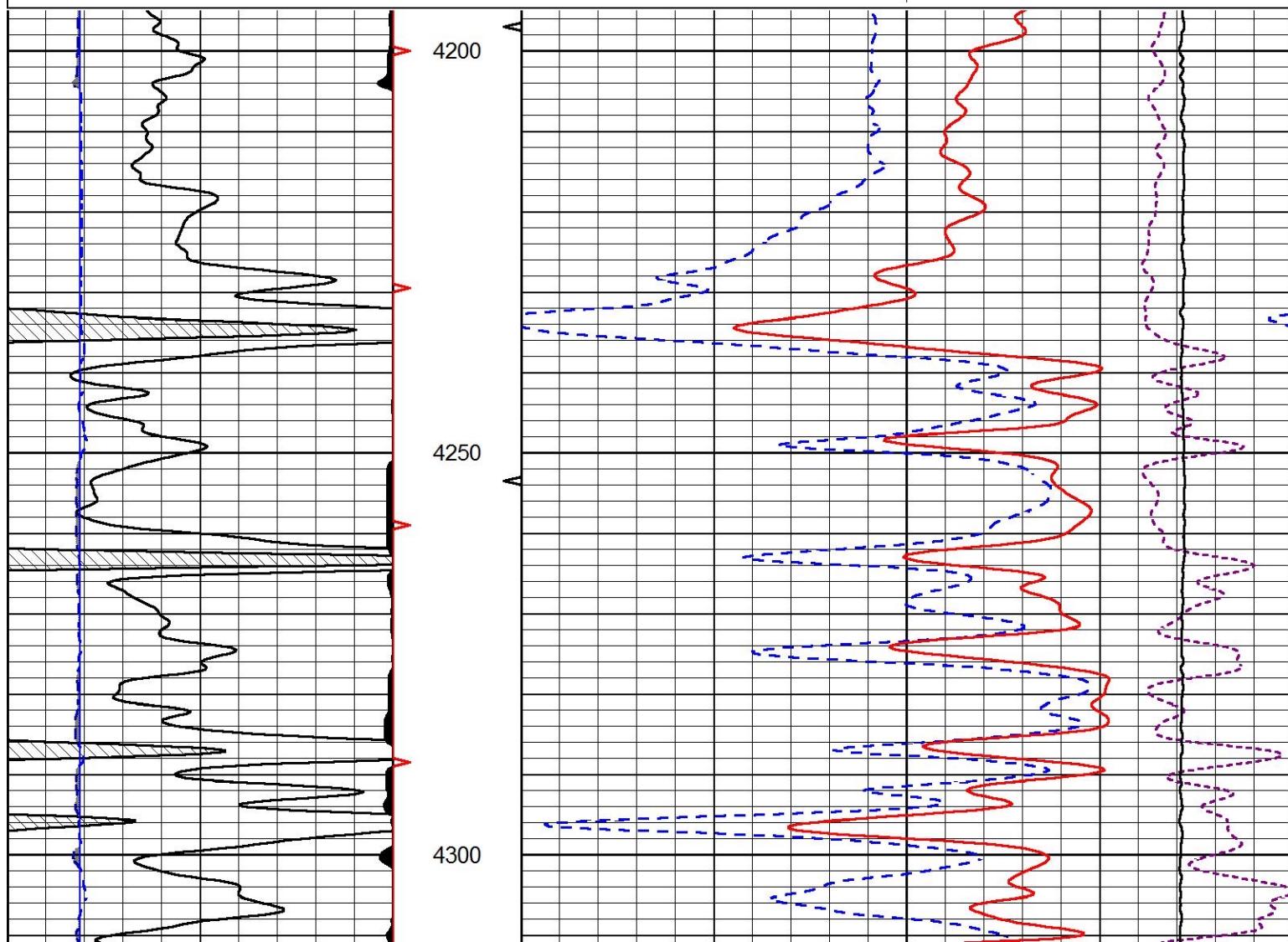
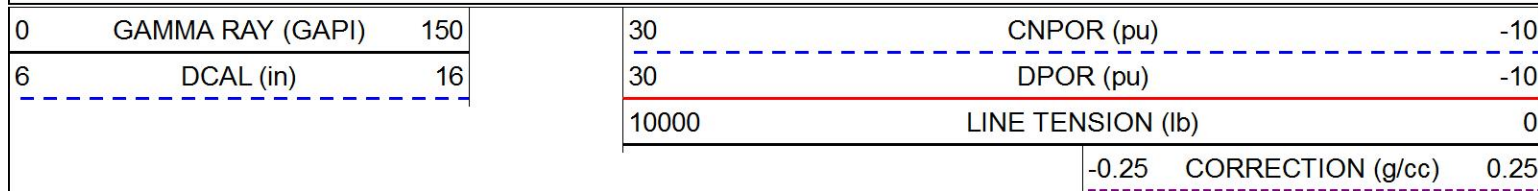


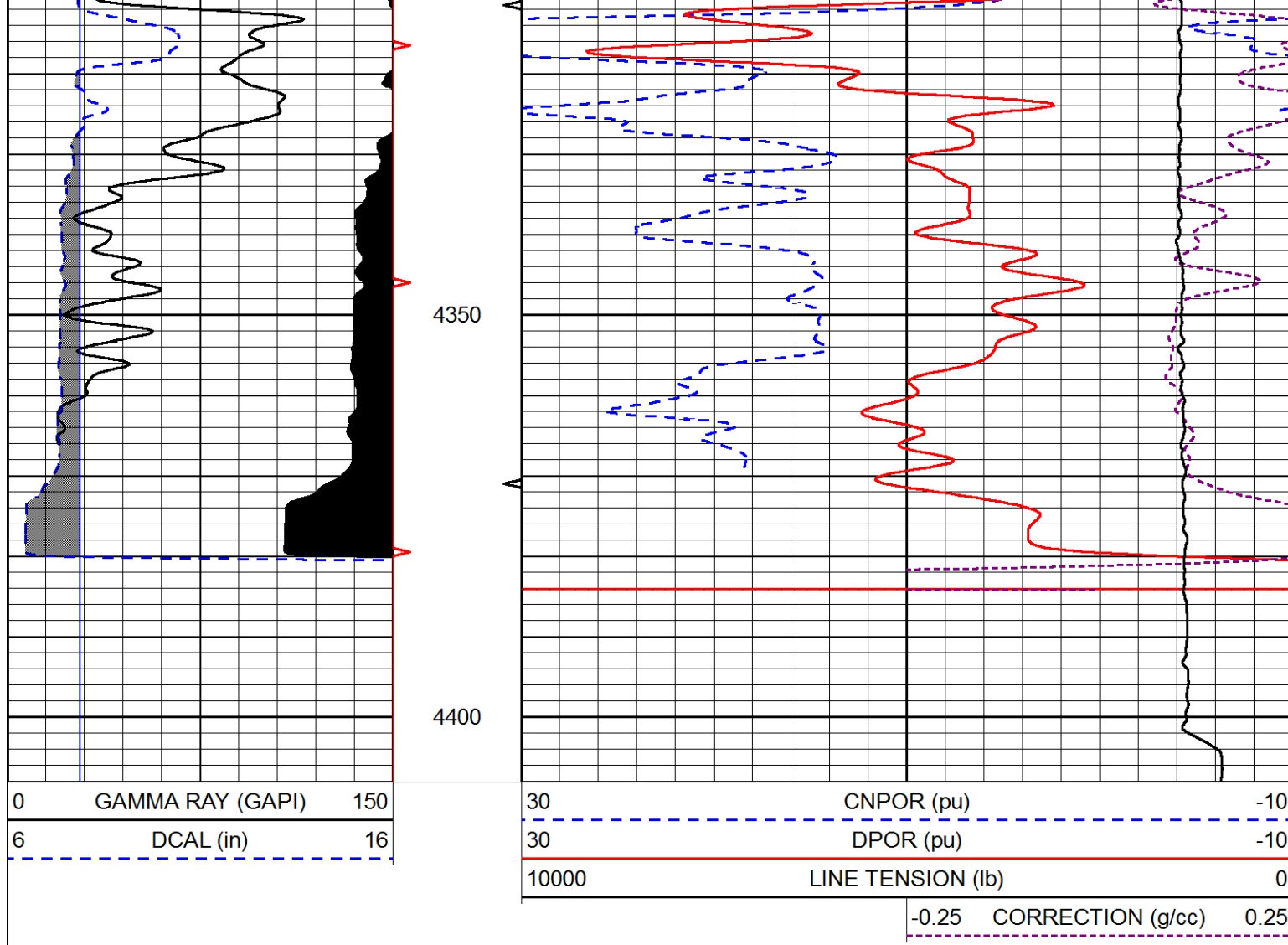




REPEAT SECTION

Database File black_rock_18_1.db
 Dataset Pathname stackmel/pass2.1
 Presentation Format _cndlspec
 Dataset Creation Tue Sep 10 09:44:08 2019
 Charted by Depth in Feet scaled 1:240





Calibration Report							
Database File	black_rock_18_1.db						
Dataset Pathname	stackmel/pass3.1						
Dataset Creation	Tue Sep 10 09:39:03 2019						
Dual Induction Calibration Report							
Serial-Model:		1039-PSI HIGH TEMP					
Calibration Performed:		Tue Sep 10 08:34:01 2019					
Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.450	-51.000
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.365	-49.000
Microlog Calibration Report							
Serial-Model:		PSI-01-PSIML					
Performed:		Thu Aug 01 07:57:13 2019					
	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	17000.0000	-0.7000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	18000.0000	0.6000

Inverse	0.0000	1.0000	0.0000	1.0000	0.0000	1.0000	0.0000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-64.2000

Compensated Density Calibration Report

Serial-Model:	96-916-M&W
Source / Verifier:	16955B / 2ci
Master Calibration Performed:	Wed Mar 27 11:00:53 2019

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	8943.64	10054.60	cps
Aluminum	2.655	g/cc	1595.61	6242.82	cps
Spine Angle = 74.54			Density/Spine Ratio = 0.503		
	Size		Reading		
Small Ring	4.00	in	1.74		
Large Ring	16.00	in	1.38		

Compensated Neutron Calibration Report

Serial Number:	207-MW
Tool Model:	M&W
Calibration Performed:	WED FEB 13 10:30:30 2019

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:	233-M&W	
Tool Model:	M&W	
Calibration Performed:	Fri Feb 07 01:42:40 2014	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.5500	GAPI/cps



Company	BLACK ROCK RESOURCES, LLC
Well	POLIFKA #18-1
Field	WILDCAT
County	GOVE
State	KANSAS