



DUAL COMP POROSITY LOG

Company BOWMAN OIL COMPANY
 Well EUNICE BERLAND #1
 Field BERLAND EAST
 County ROOKS
 State KANSAS

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 Field BERLAND EAST
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Location: API #: 15-163-24396-00-00
 4520' FSL & 2500' FEL
 SEC 20 TWP 10S RGE 19W
 Permanent Datum GROUND LEVEL Elevation 2198'
 Log Measured From KELLY BUSHING
 Drilling Measured From KELLY BUSHING
 Other Services
 DIL
 MEL
 Elevation
 K.B. 2203'
 D.F. N/A
 G.L. 2198'

Date	9/13/2019						
Run Number	ONE						
Type Log	CNL/CDL						
Depth Driller	3880'						
Depth Logger	3880'						
Bottom Logged Interval	3848'						
Top Logged Interval	2900'						
Type Fluid In Hole	CHEMICAL						
Salinity, PPM CL	3500						
Density	9.4						
Level	FULL						
Max. Rec. Temp. F	115 DEG/F						
Operating Rig Time	2 HOURS						
Equipment -- Location	P-108 HAYS						
Recorded By	J. HENRICKSON						
Witnessed By	ROGER MOSES						
Borehole Record							
Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	0	259'	8.625"	23#	0	259'
TWO	7.875"	259'		TD			
Casing Record							

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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.
 ZURICH KANSAS
 WEST TO 8 ROAD, 4 1/2 SOUTH, 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

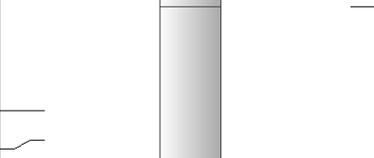
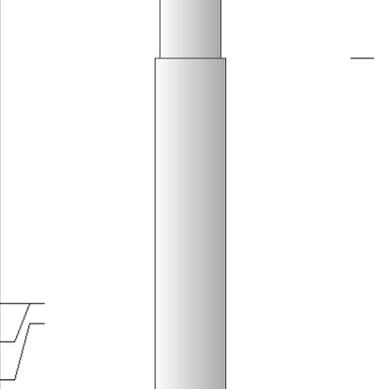
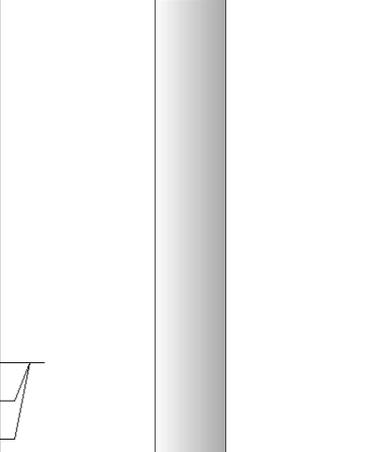
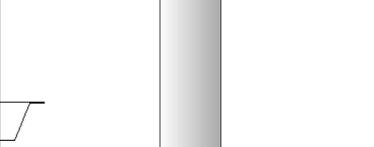
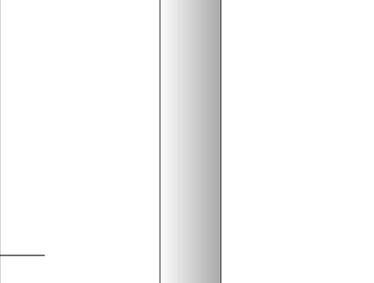
Your Pioneer Energy Services Crew		This Log Record Was Witnessed By	
Engineer: J. HENRICKSON	Operator:	Primary Witness: ROGER MOSES	Secondary Witness:
Operator:	Operator:	Secondary Witness:	Secondary Witness:
Operator:		Secondary Witness:	

Log Variables

DatabaseC:\ProgramData\Warrior\Data\borman_eunice_berland_1.db
 Dataset field/well/stackml/pass3.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	115	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	0	0	60	0	Off	3880

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	44.50		GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC CNSSC	41.40 40.65		CNT-M&W (tk10-MW)	5.50	3.50	100.00
LSD DCAL SSD	32.35 32.33 31.85		CDL-M&W (979-229)	8.50	4.00	250.00
MCAL MI MN	20.87 20.87 20.87		ML-PSI UDM ML (UDM-01) Stackable Microlog Tools	11.50	4.00	215.00
RLL3 RLL3F	15.80 15.79					
CILD	8.00		DIL-M&W (PSI 988)	18.50	3.50	220.00

CILM 4.70

SP 0.20

Dataset: bowman_eunice_berland_1.db: field/well/stackml/pass3.1
 Total length: 47.00 ft
 Total weight: 835.00 lb
 O.D.: 4.00 in

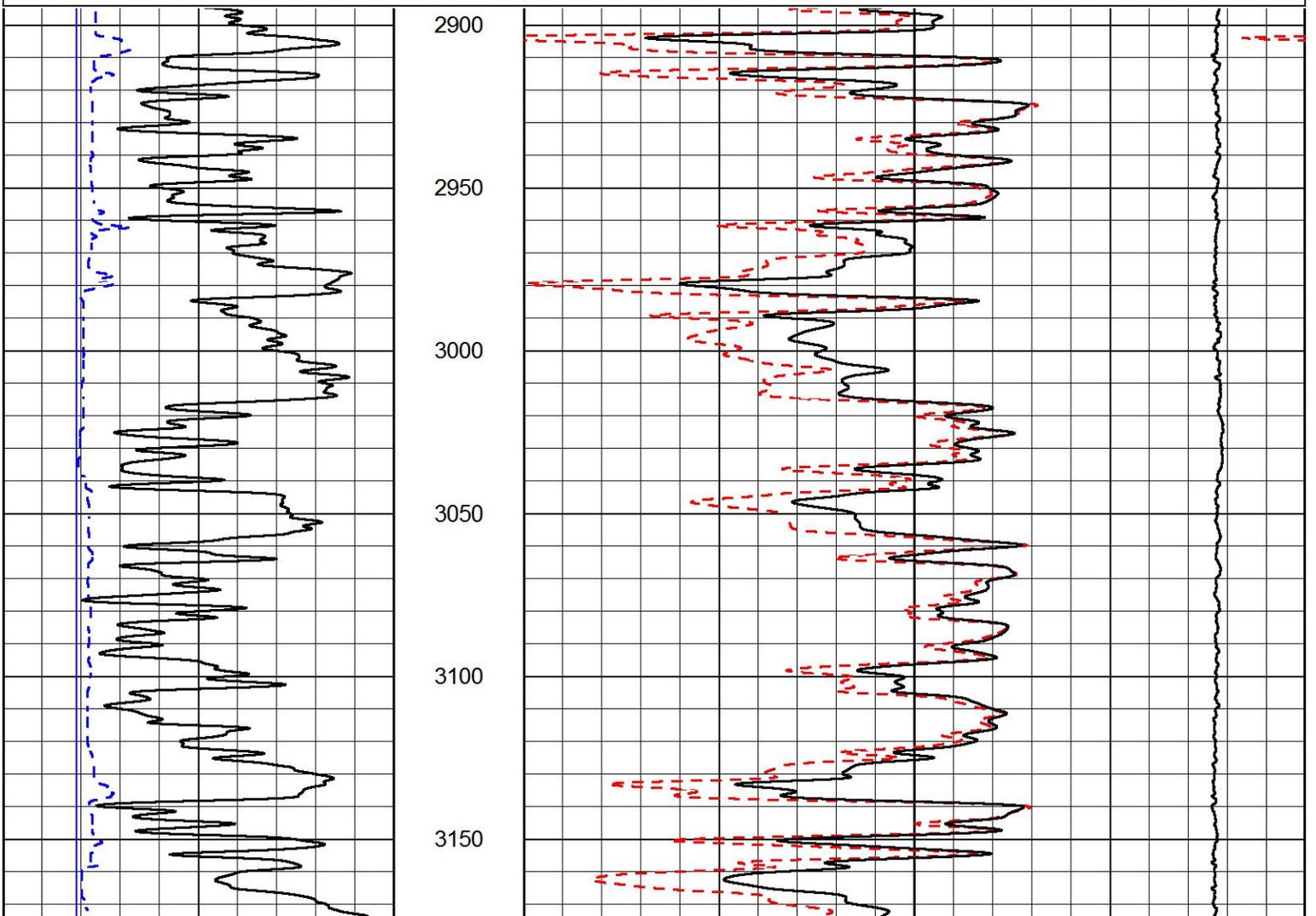


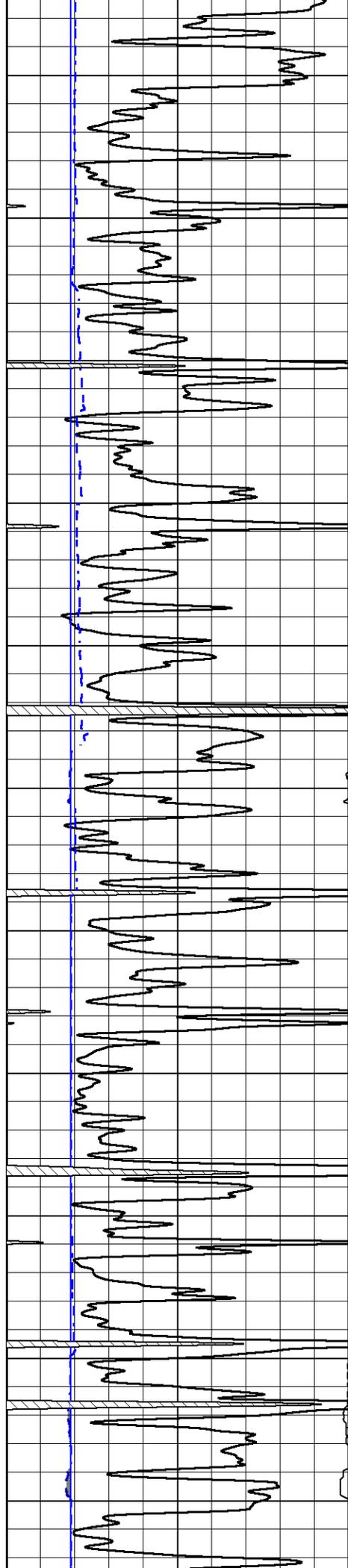
MAIN PASS

Database File bowman_eunice_berland_1.db
 Dataset Pathname stackml/pass3.1
 Presentation Format cdl
 Dataset Creation Fri Sep 13 18:03:42 2019
 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





3200

3250

3300

3350

3400

3450

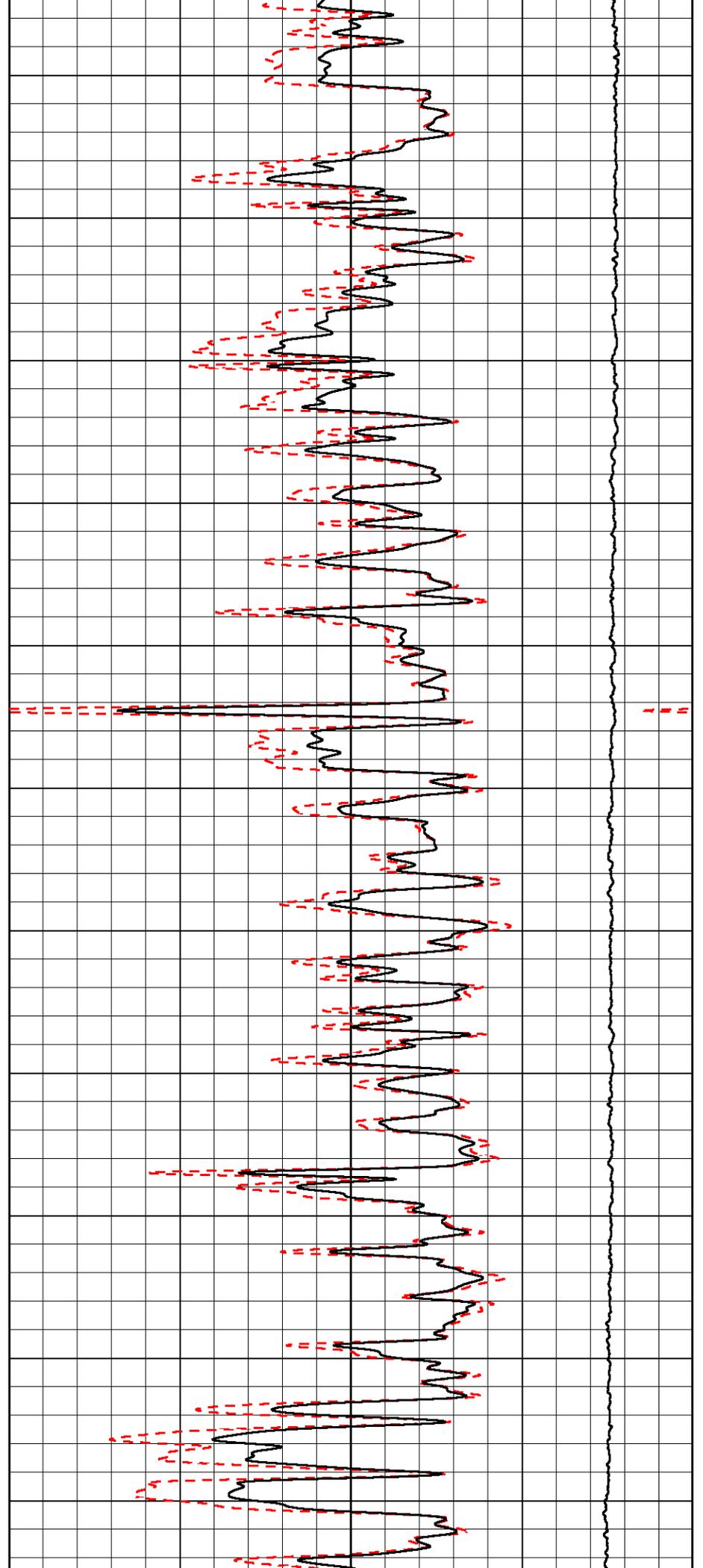
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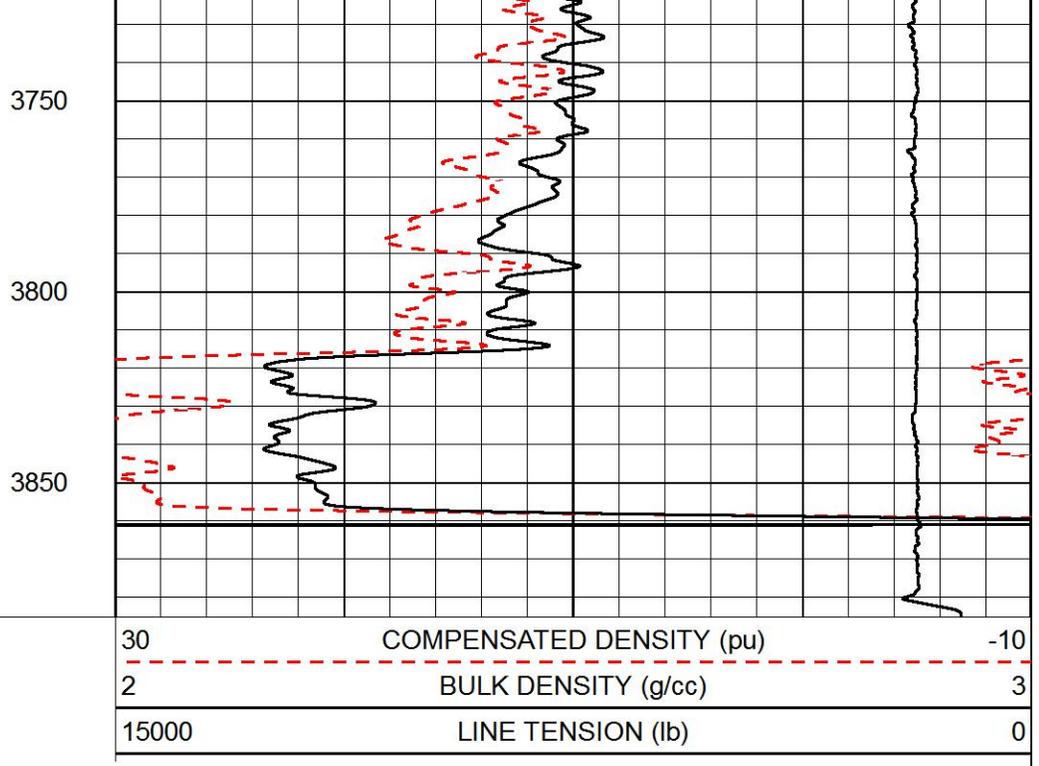
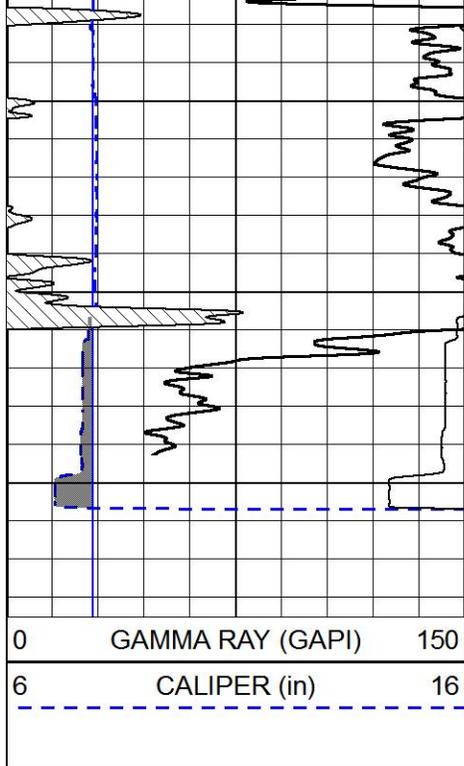
3550

3600

3650

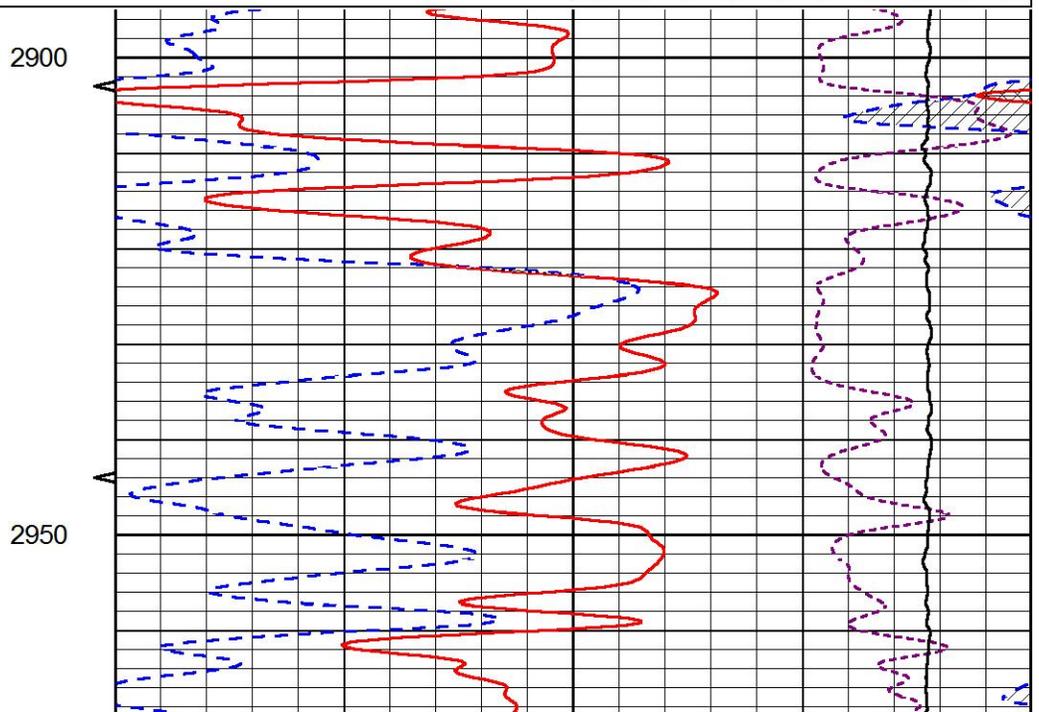
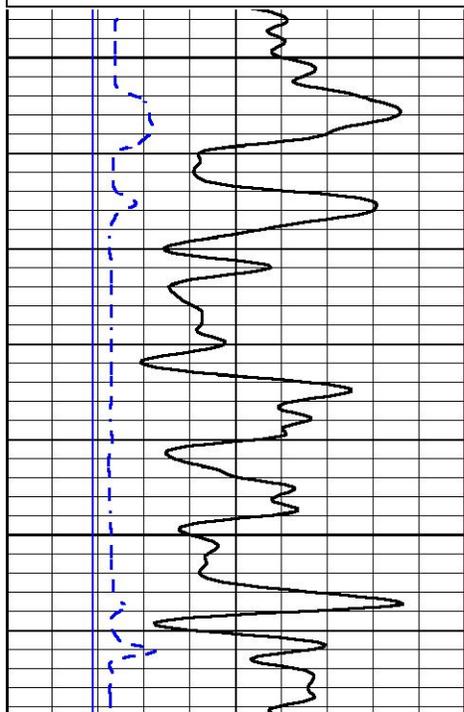
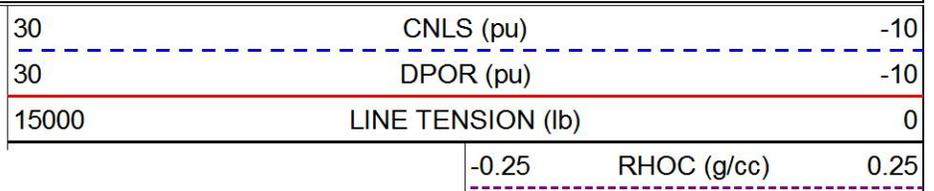
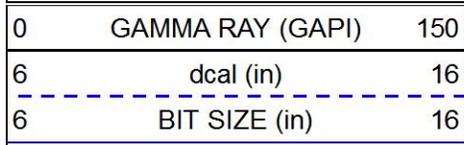
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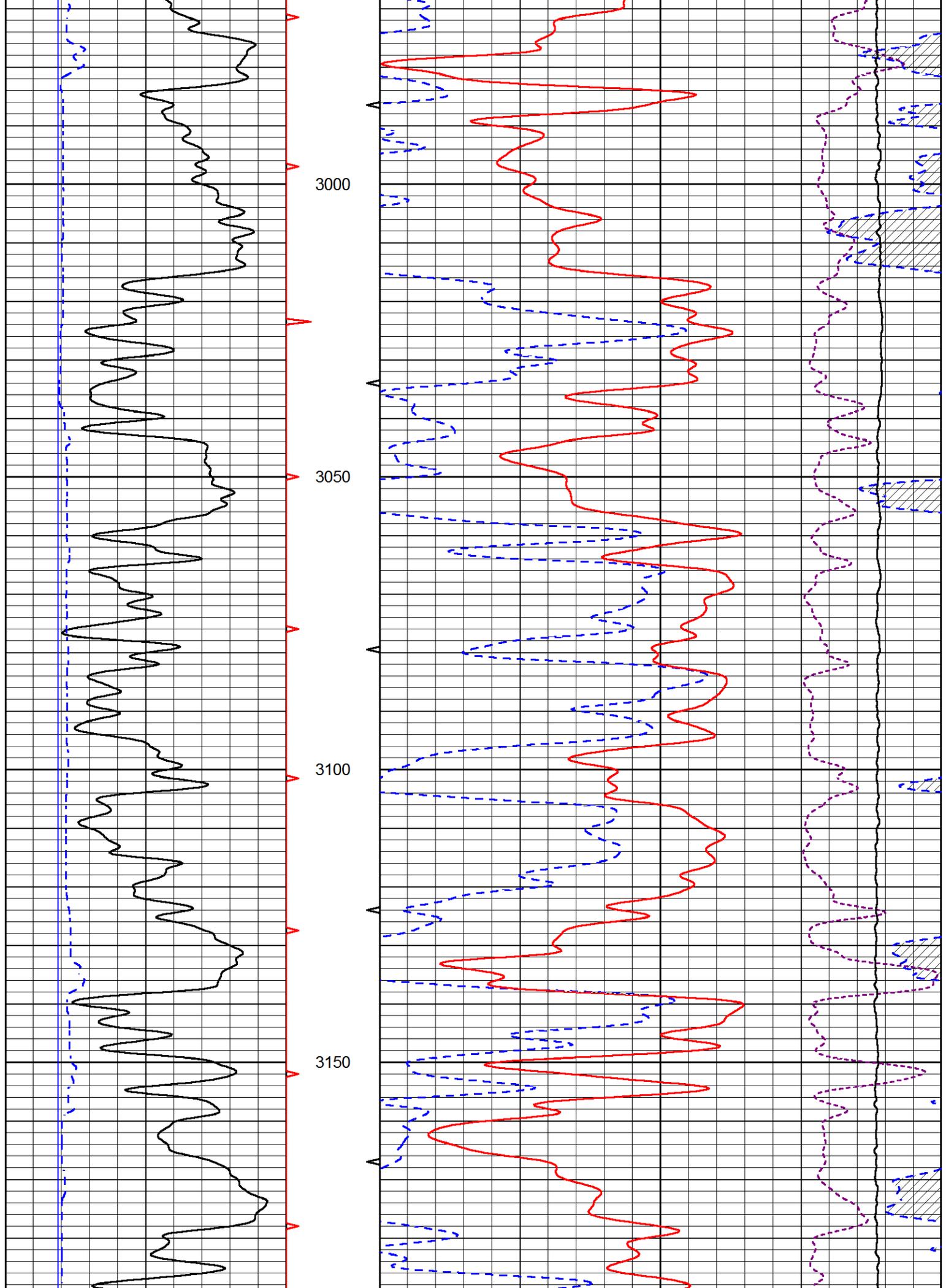


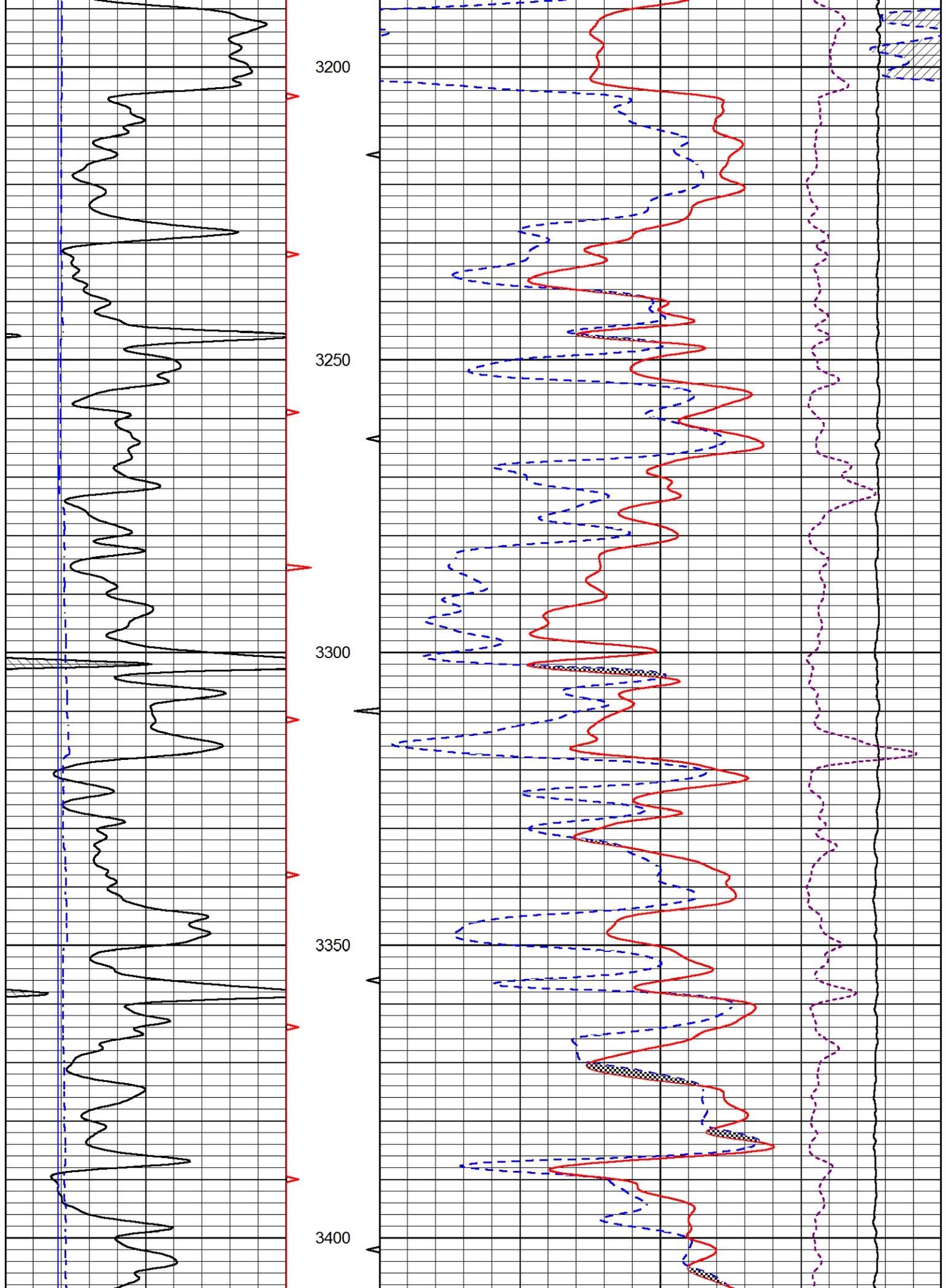


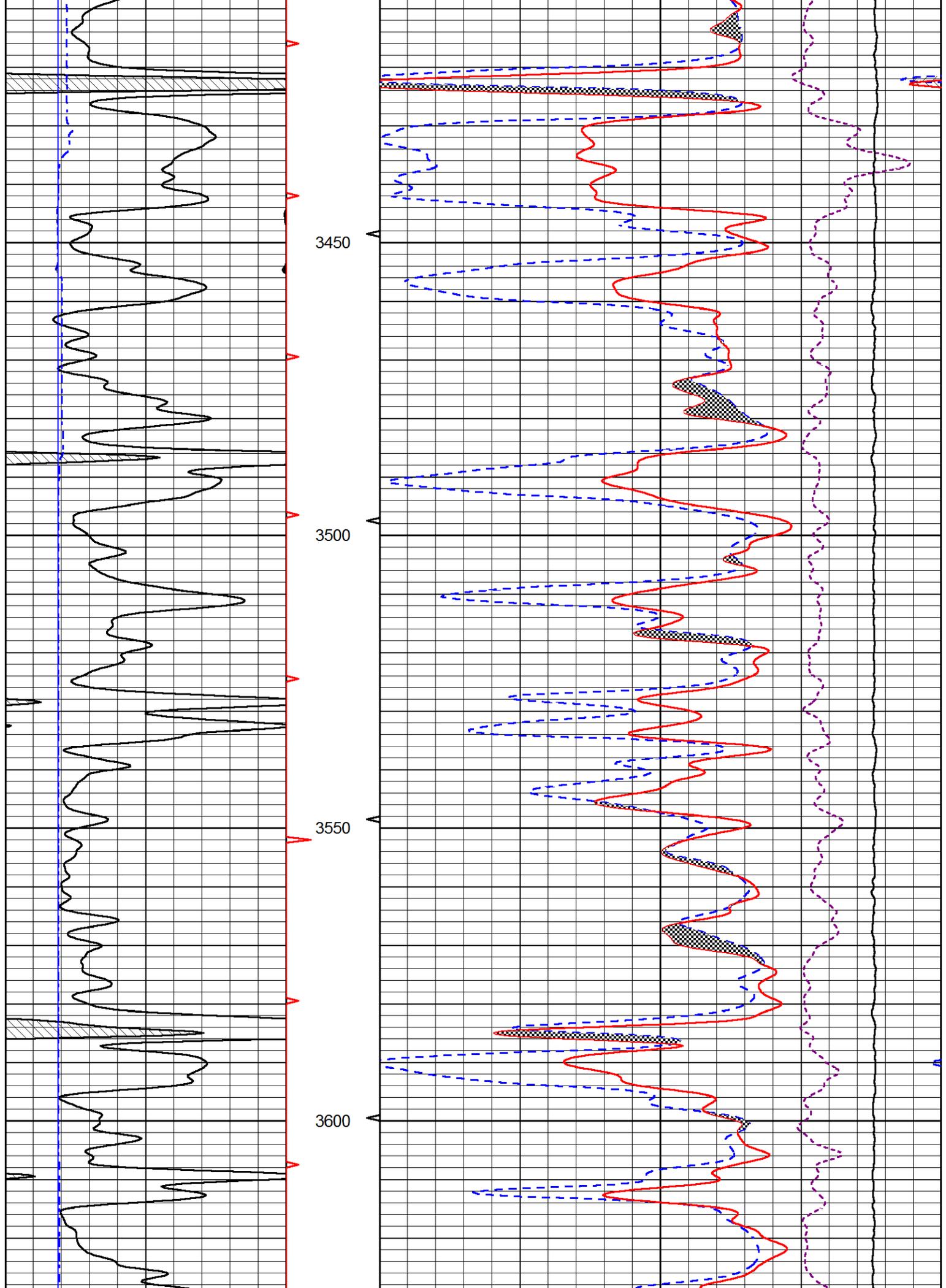
MAIN PASS

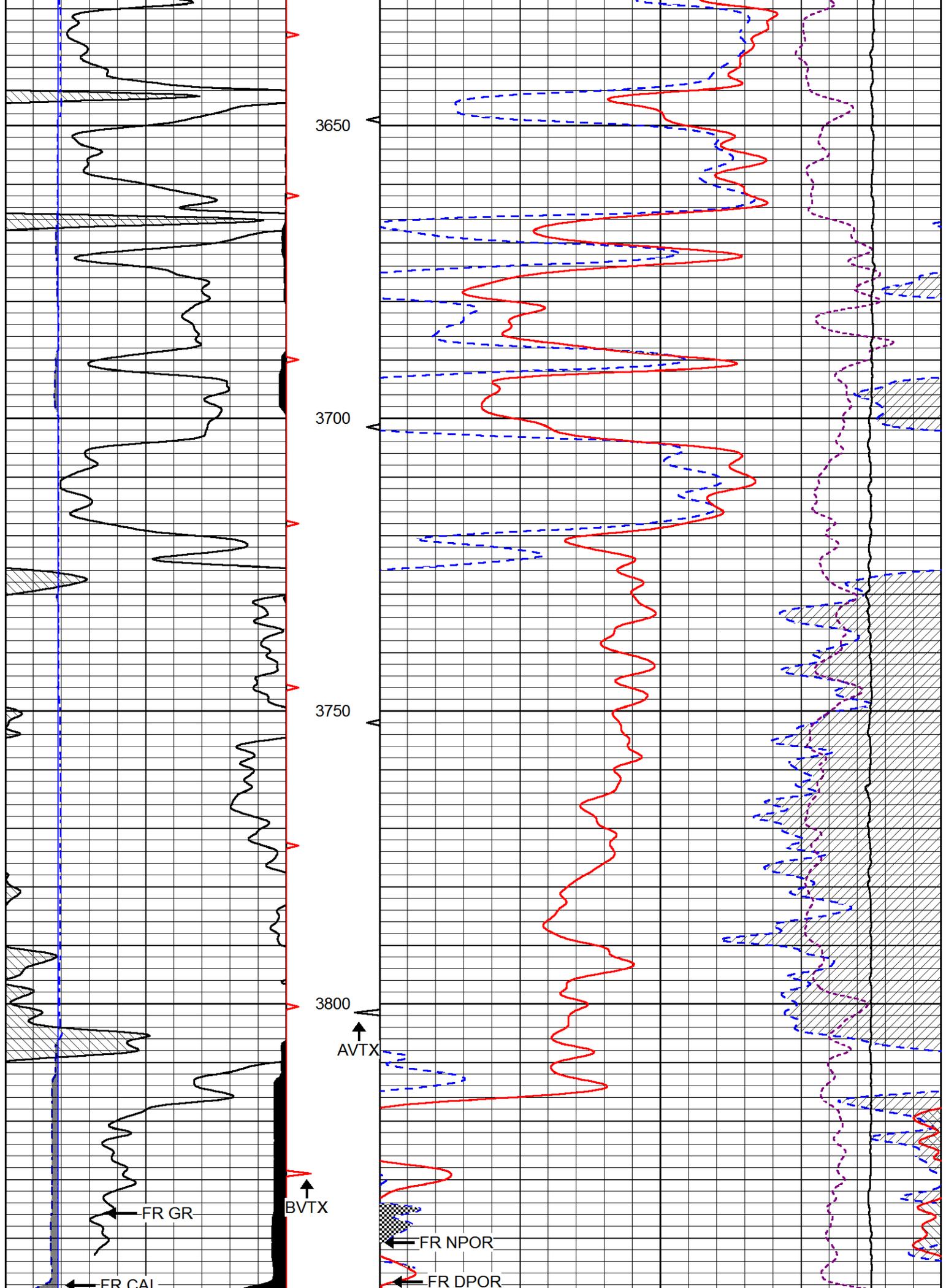
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 Dataset Pathname stackml/pass3.1
 Presentation Format cndlspec
 Dataset Creation Fri Sep 13 18:03:42 2019
 Charted by Depth in Feet scaled 1:240

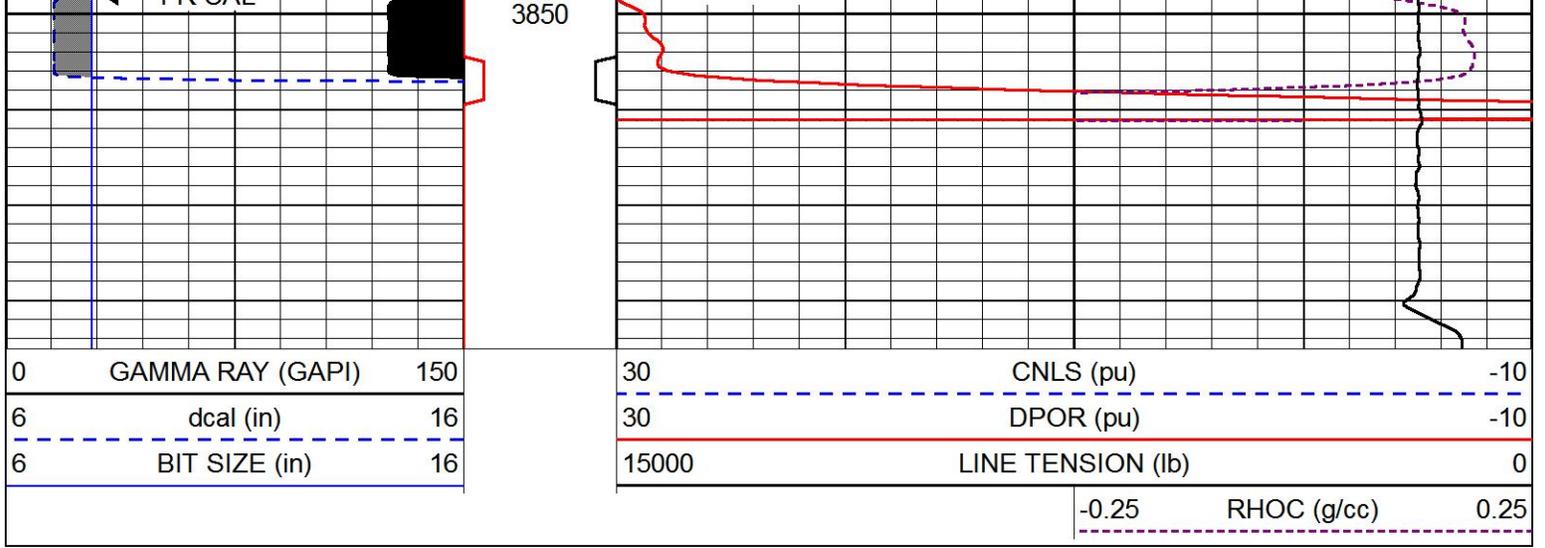






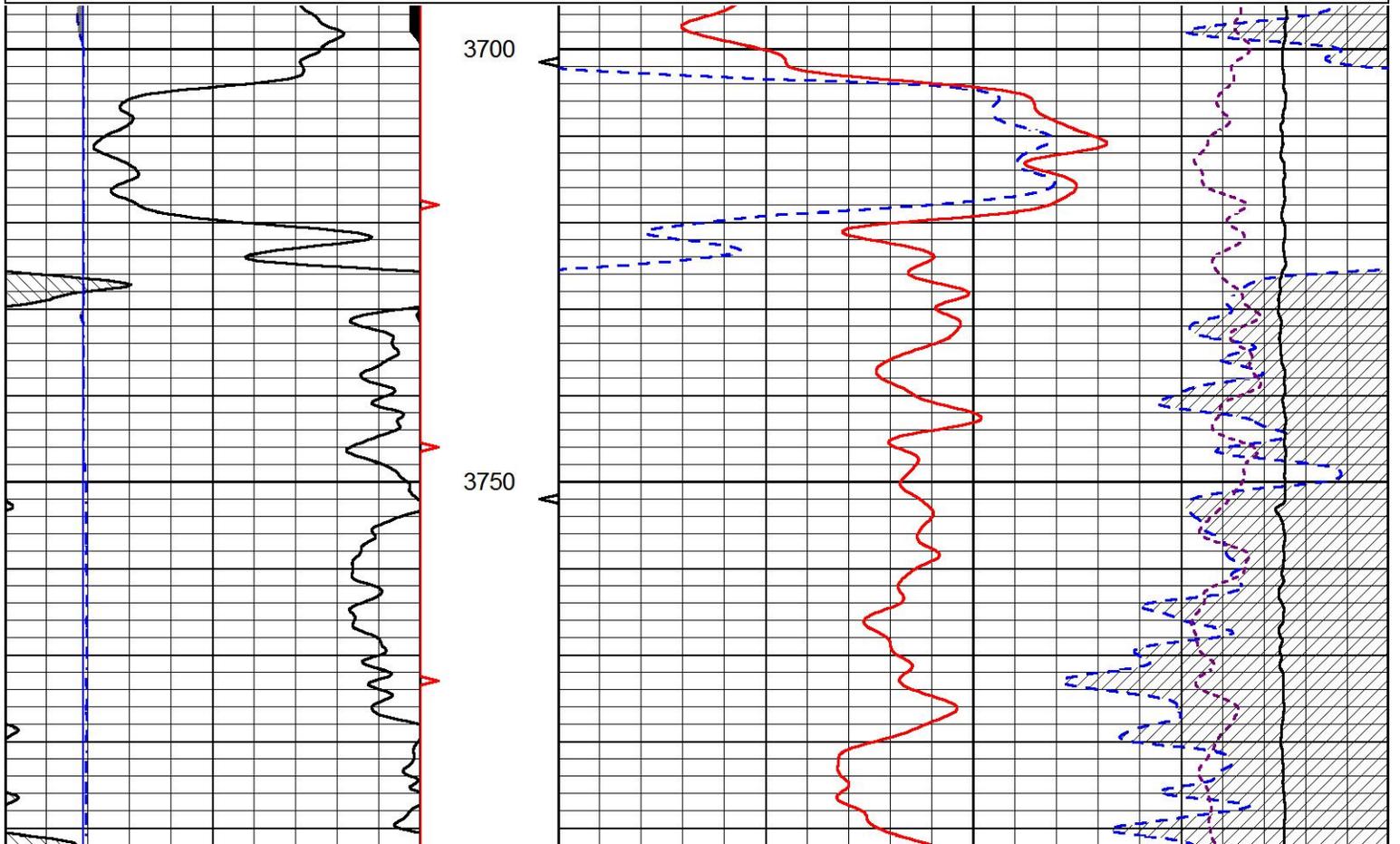
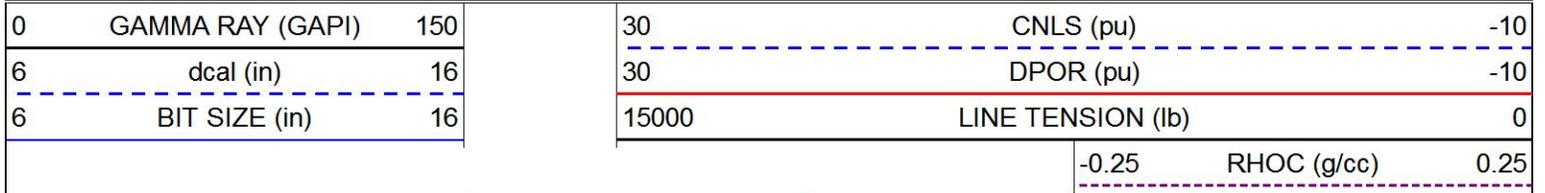


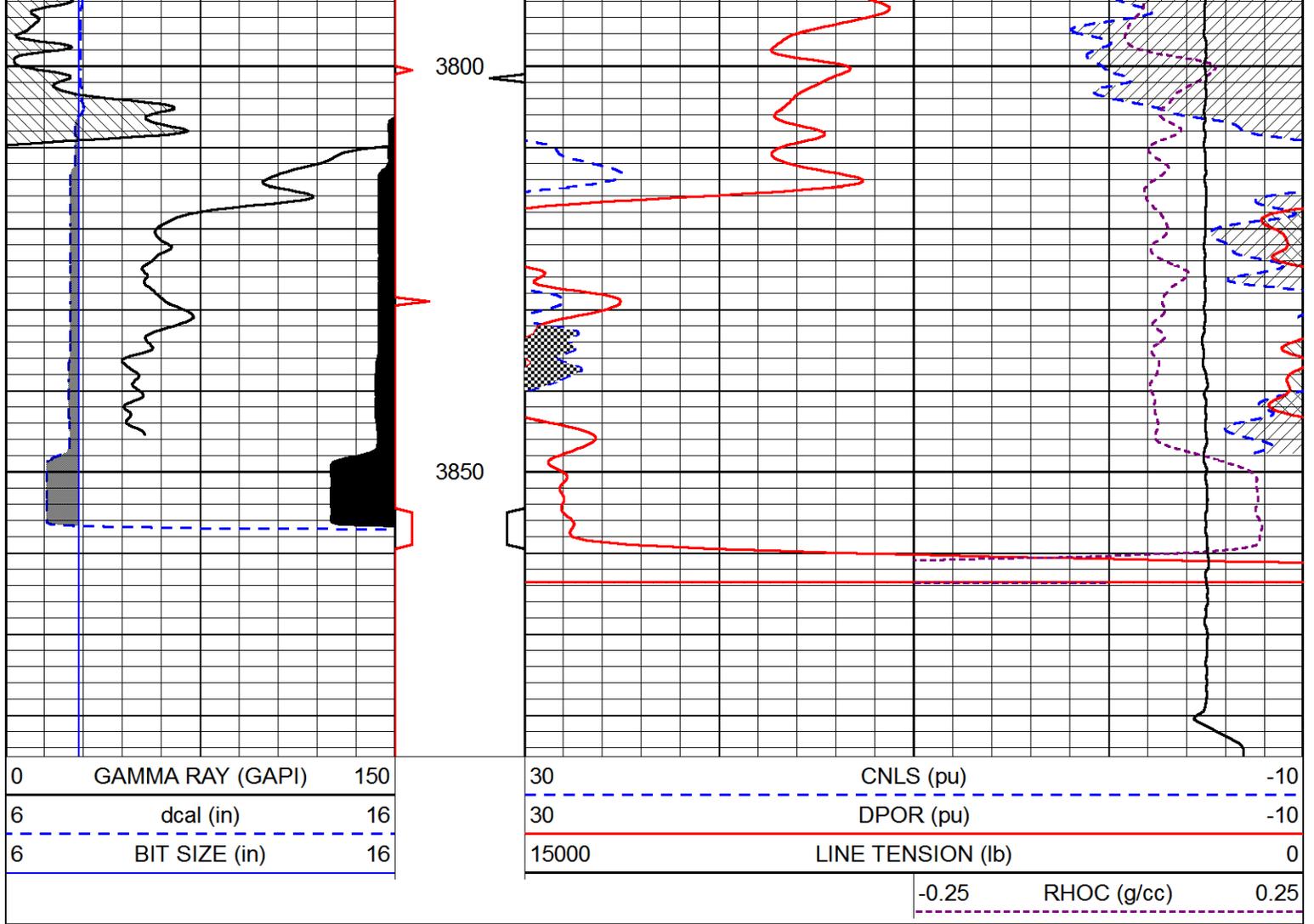




REPEAT SECTION

Database File bowman_eunice_berland_1.db
 Dataset Pathname stackml/pass2.1
 Presentation Format cndlspec
 Dataset Creation Fri Sep 13 17:32:57 2019
 Charted by Depth in Feet scaled 1:240





Calibration Report

Database File bowman_eunice_berland_1.db
 Dataset Pathname stackml/pass3.1
 Dataset Creation Fri Sep 13 18:03:42 2019

Dual Induction Calibration Report

Serial-Model: PSI 988-M&W
 Calibration Performed: Tue Nov 20 10:50:19 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.525	-44.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.380	-17.000

Microlog Calibration Report

Serial-Model: UDM-01-PSI UDM ML
 Performed: Fri May 31 06:10:42 2019

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	25000.0000	0.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	23000.0000	0.0000
Caliber	1.3409	1.3109	8.0000	22.0000	in	-466.5090	619.5500

Compensated Density Calibration Report

Serial-Model: 979-229-M&W
 Source / Verifier: 21170B /
 Master Calibration Performed: Tue Jul 23 10:17:03 2019

Master Calibration

	<u>Density</u>		<u>Far Detector</u>	<u>Near Detector</u>	
Magnesium	1.755	g/cc	7680.82	9959.08	cps
Aluminum	2.690	g/cc	1424.07	6427.19	cps
	Spine Angle = 75.43		Density/Spine Ratio = 0.537		
	<u>Size</u>		<u>Reading</u>		
Small Ring	4.00	in	1.15		
Large Ring	16.00	in	1.03		

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

 <p>PIONEER Pioneer Energy Services</p>	Company	BOWMAN OIL COMPANY
	Well	EUNICE BERLAND #1
	Field	BERLAND EAST
	County	ROOKS
	State	KANSAS