



DUAL COMP POROSITY LOG

Company ELK ENERGY HOLDINGS, LLC
 Well SHEPHERD NO.2-14
 Field NOLLETTE SOUTHEAST
 County THOMAS
 State KANSAS

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Location: API #: 15-193-21072-00-00
 2310' FSL & 2310' FEL
 SEC 14 TWP 10S RGE 33W
 Permanent Datum GROUND LEVEL Elevation 3138'
 Log Measured From KELLY BUSHING
 Drilling Measured From KELLY BUSHING
 Other Services DIL/MEL
 K.B. 3146'
 D.F. N/A
 G.L. 3138'

Date	2/5/2020						
Run Number	ONE						
Type Log	CNL/CDL						
Depth Driller	4700'						
Depth Logger	4700'						
Bottom Logged Interval	4668'						
Top Logged Interval	300'						
Type Fluid In Hole	CHEMICAL						
Salinity, PPM CL	500						
Density	9.4						
Level	FULL						
Max. Rec. Temp. F	123 DEG. F.						
Operating Rig Time	3 HOURS						
Equipment -- Location	P-108 HAYS						
Recorded By	M. HISS						
Witnessed By	PAT DEENIHAN						
Borehole Record							
Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	00'	308'	8.625"	24#	00'	308'
TWO	7.875"	308'	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.

OAKLEY WEST EXIT,
 NORTH TO F RD, WEST TO 23 RD, 1 SOUTH,
 1/3 EAST, NORTH INTO

Log Measured From: KELLY BUSHING 8 Ft. Above Permanent Datum

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

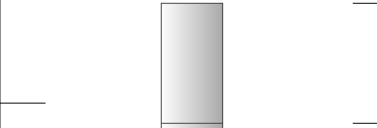
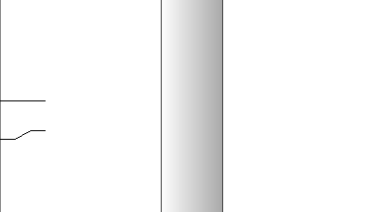
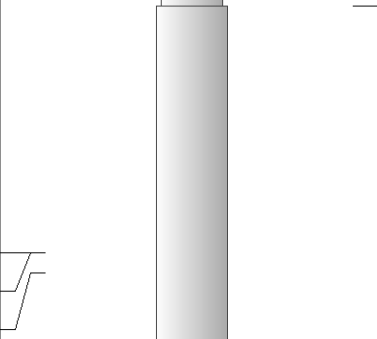
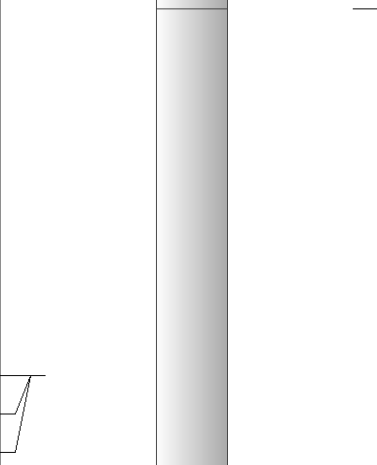
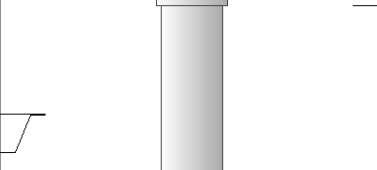
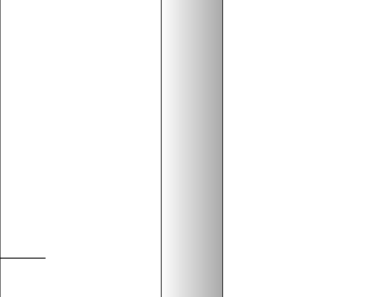
Your Pioneer Energy Services Crew		This Log Record Was Witnessed By	
Engineer: M. HISS	Operator:	Primary Witness: PAT DEENIHAN	Secondary Witness:
Operator:	Operator:	Secondary Witness:	Secondary Witness:
Operator:		Secondary Witness:	

Log Variables

DatabaseC:\ProgramData\Warrior\Data\elk_shepherd_#2_14.db
Dataset field/well/stackmel/pass3.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	123	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	295	50	Off	0

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 (934-229)	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 (55-222)	18.50	3.50	220.00

CILM 4.70

SP 0.20

Dataset: elk_shepherd_#2_14.db: field/well/stackmel/pass3.1
 Total length: 47.00 ft
 Total weight: 835.00 lb
 O.D.: 4.00 in

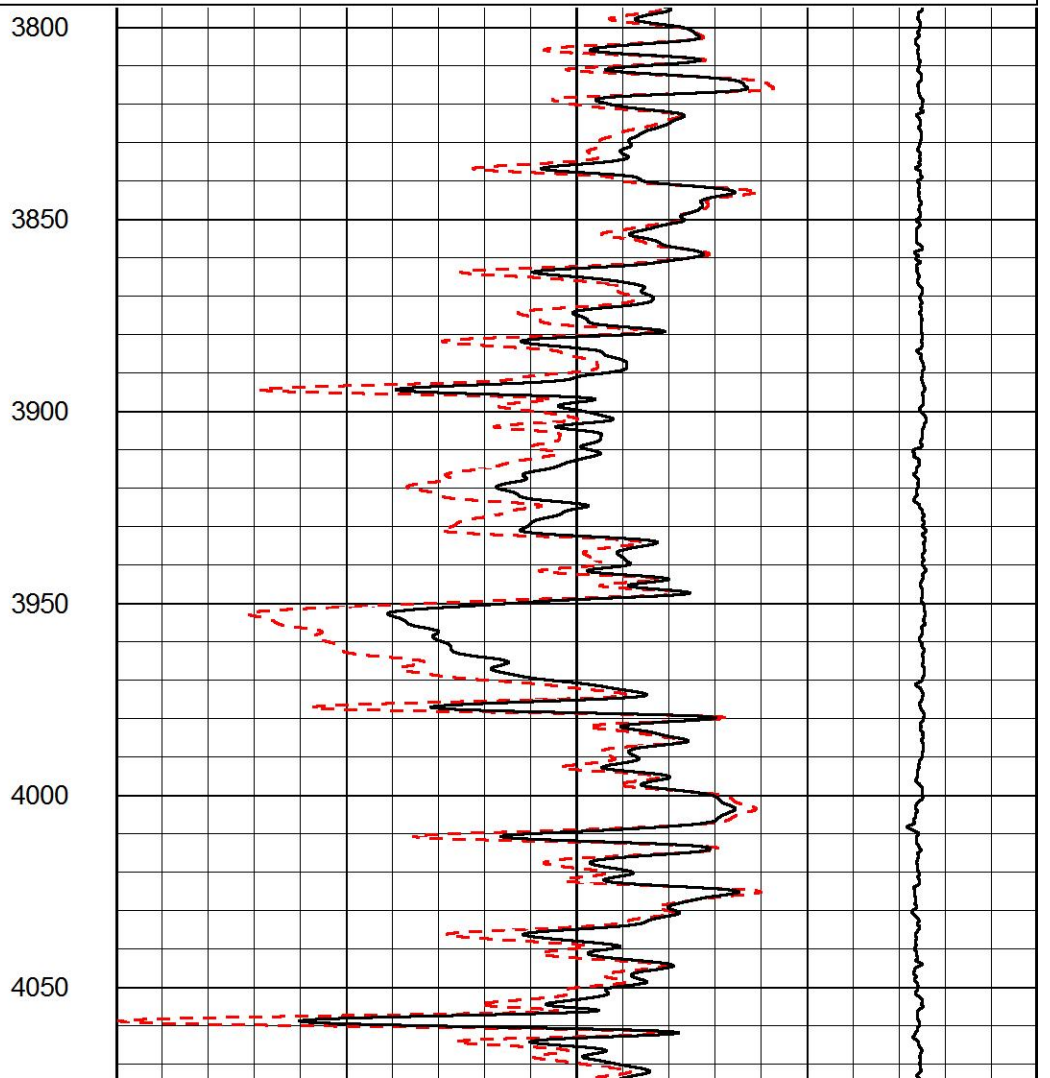


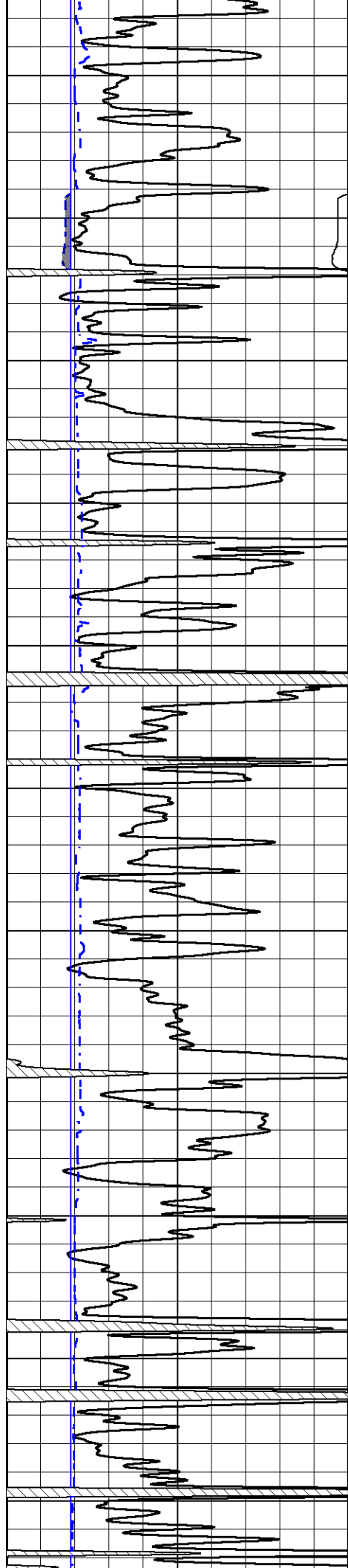
MAIN PASS

Database File elk_shepherd_#2_14.db
 Dataset Pathname stackmel/pass3.1
 Presentation Format cdl
 Dataset Creation Wed Feb 05 23:58:26 2020
 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





4100

4150

4200

4250

4300

4350

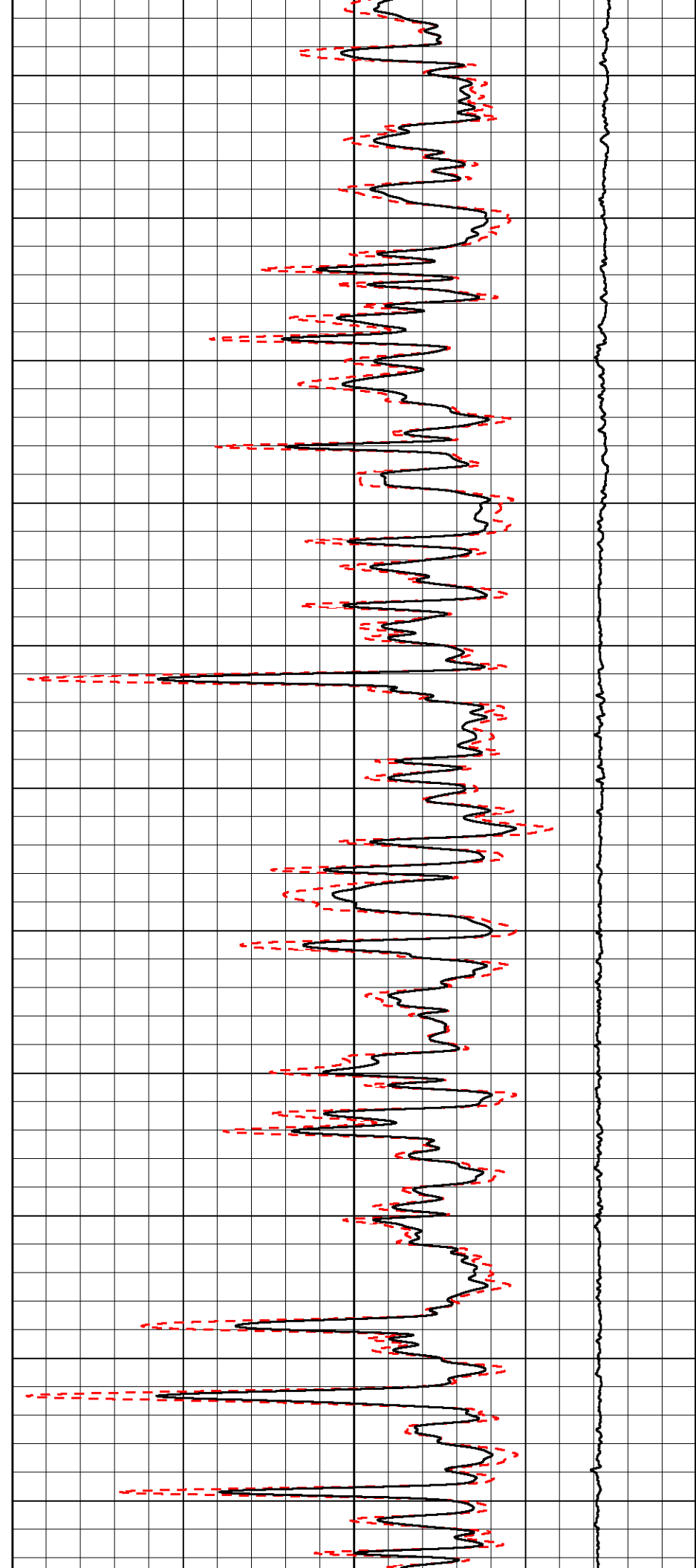
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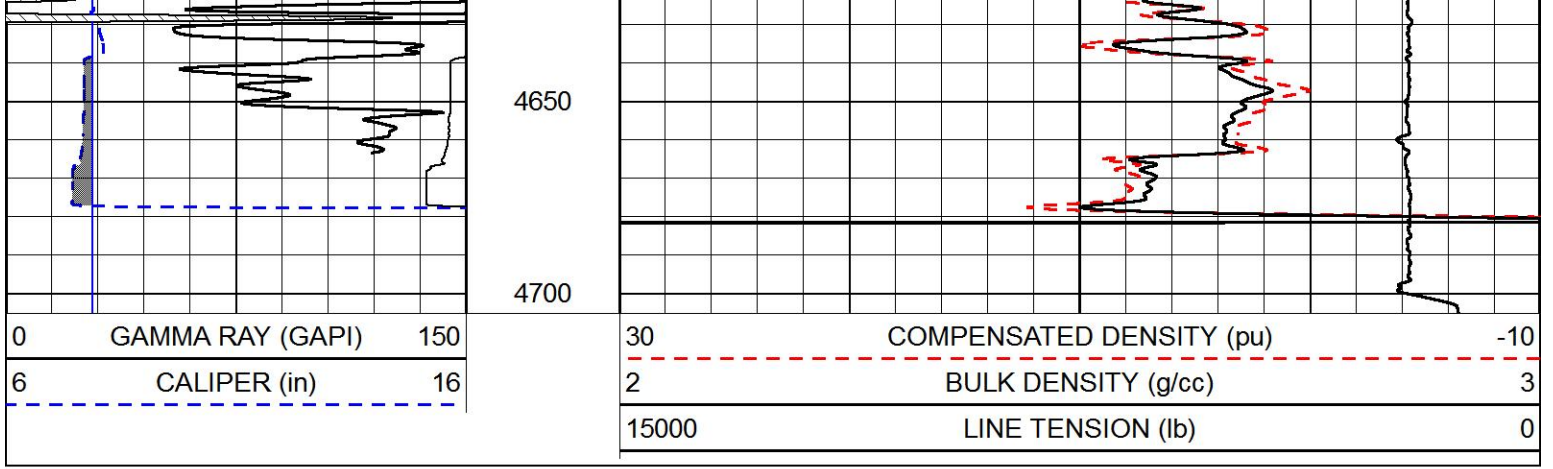
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4500

4550

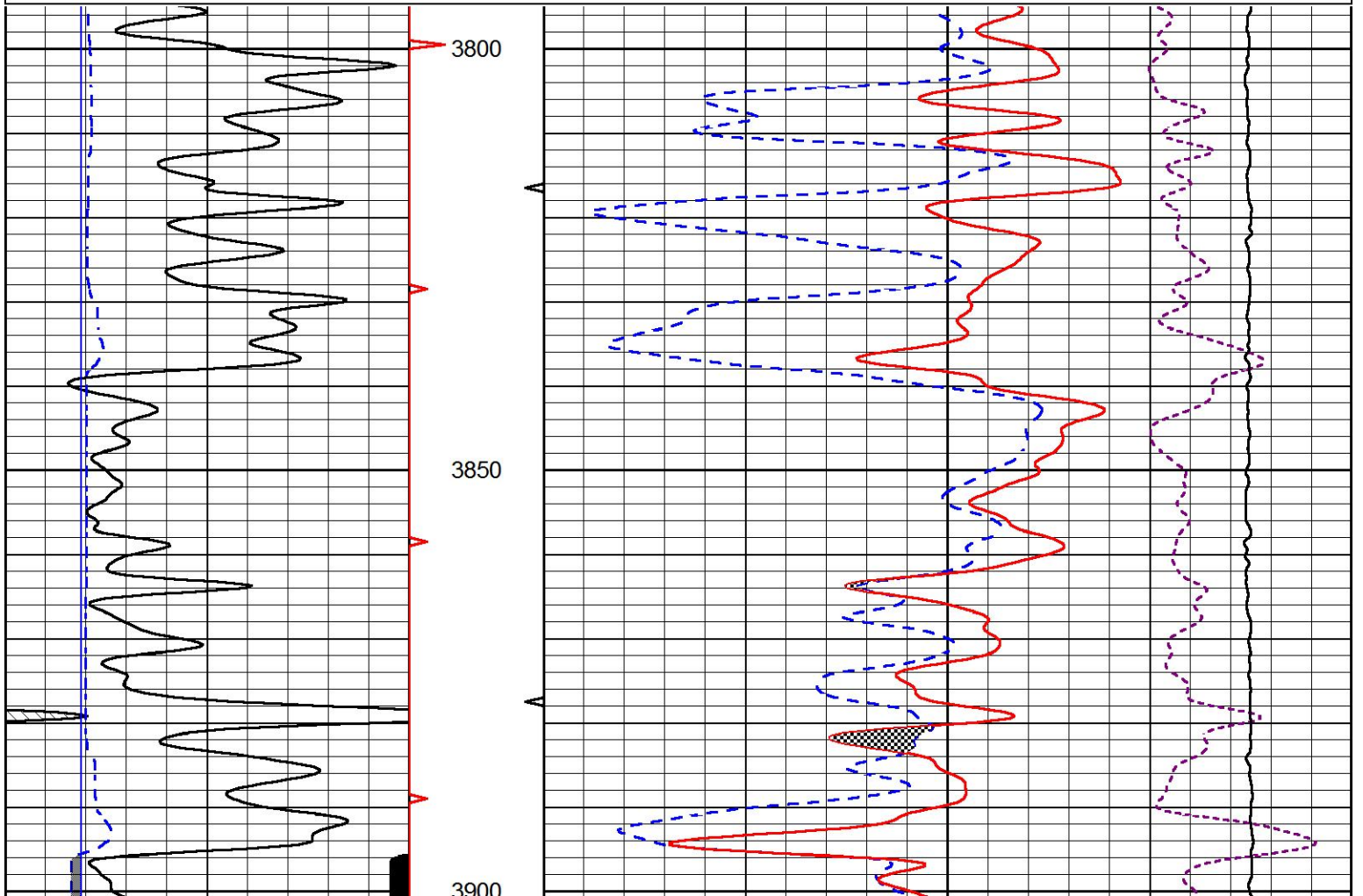
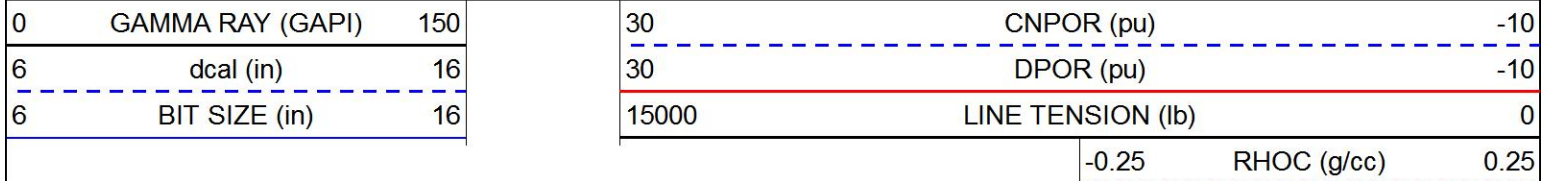
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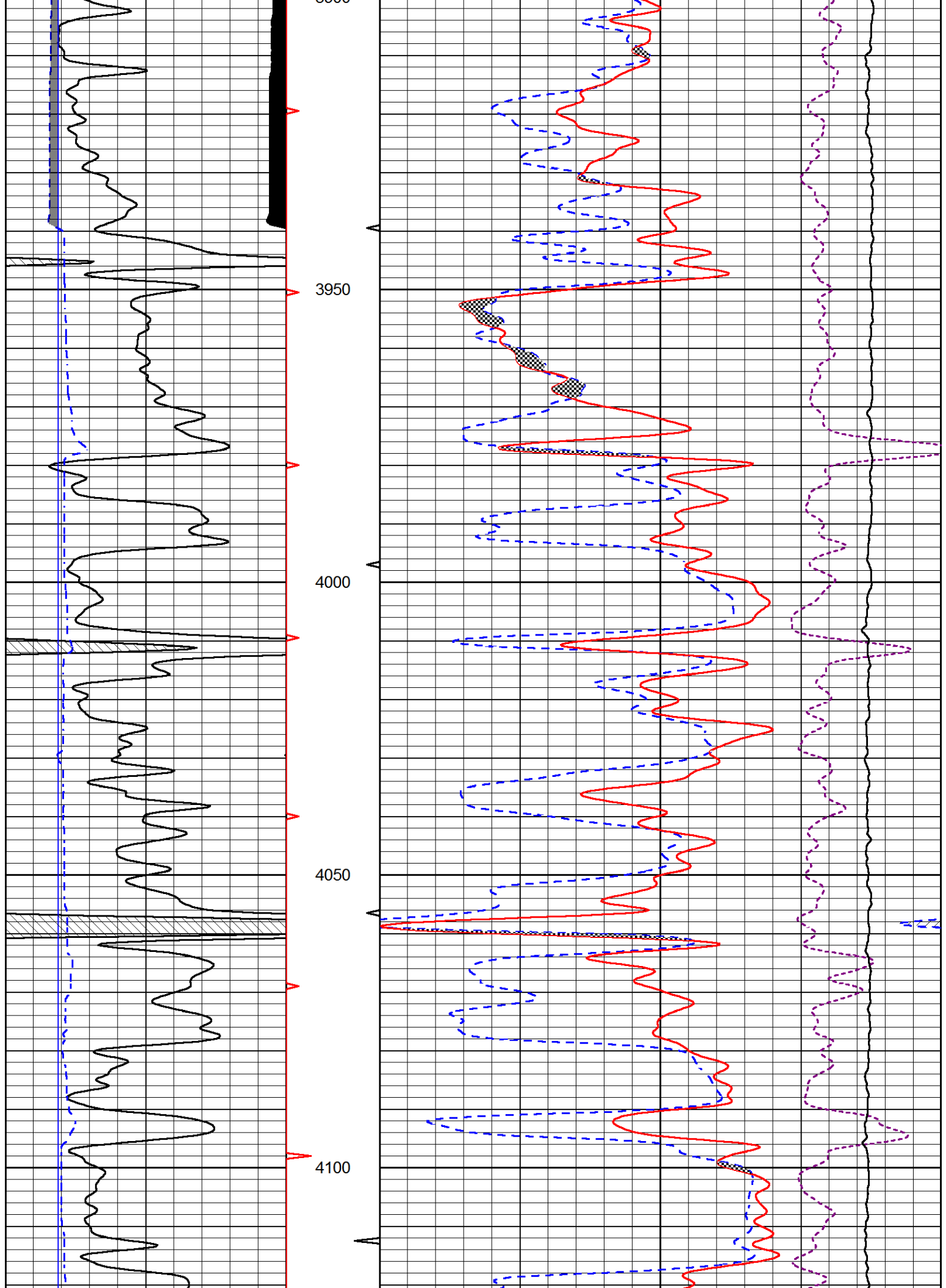


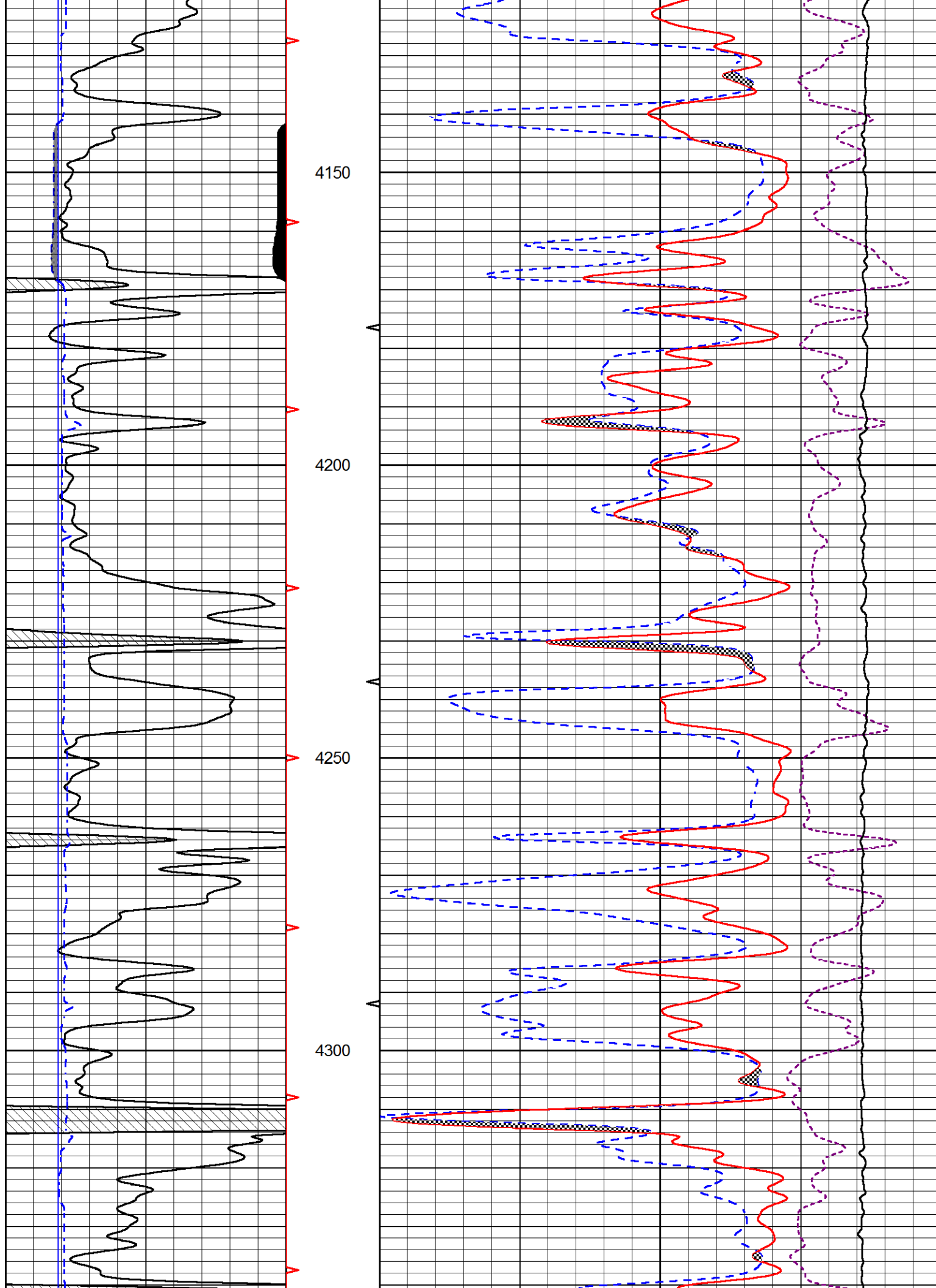


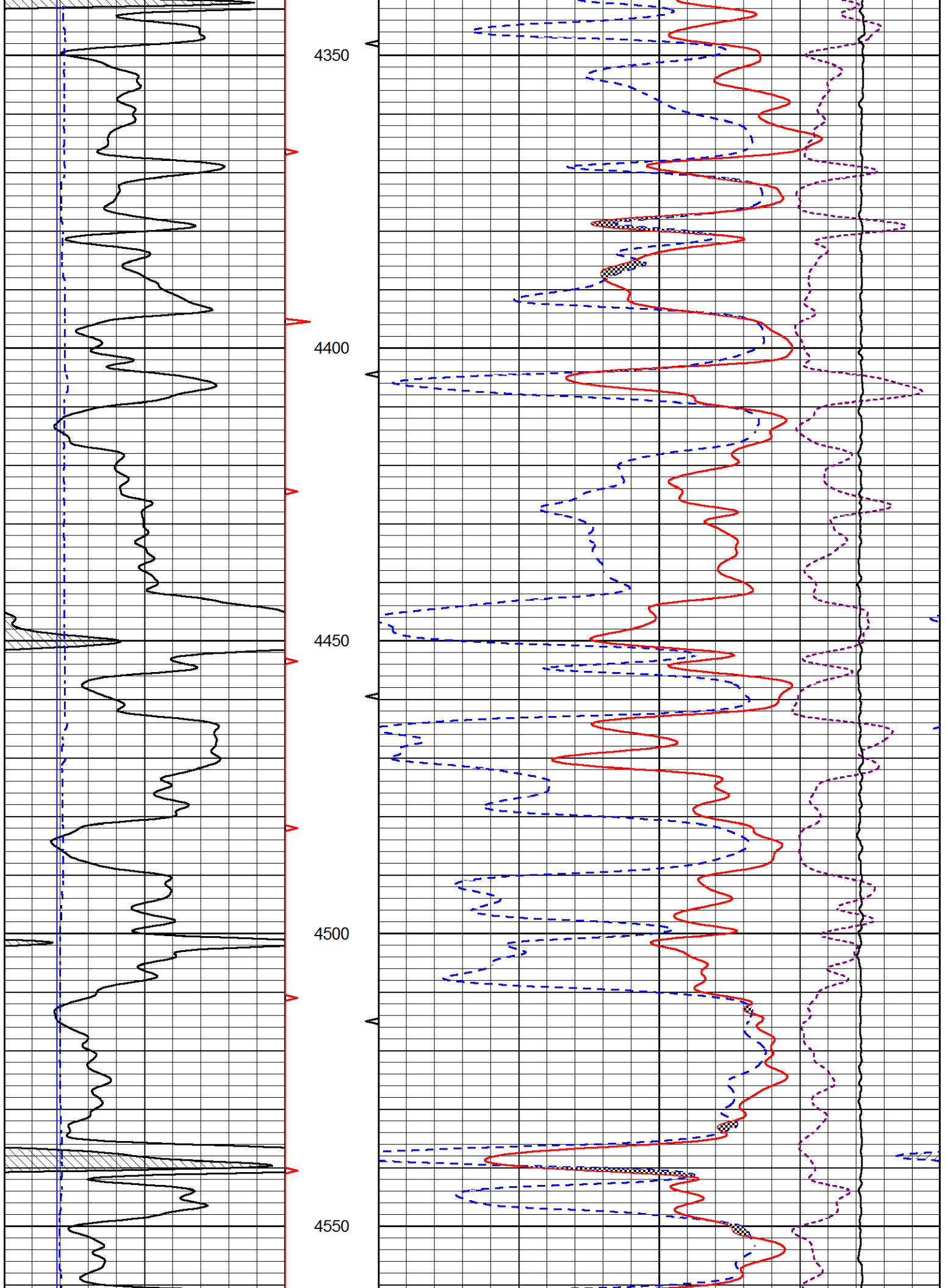
MAIN PASS

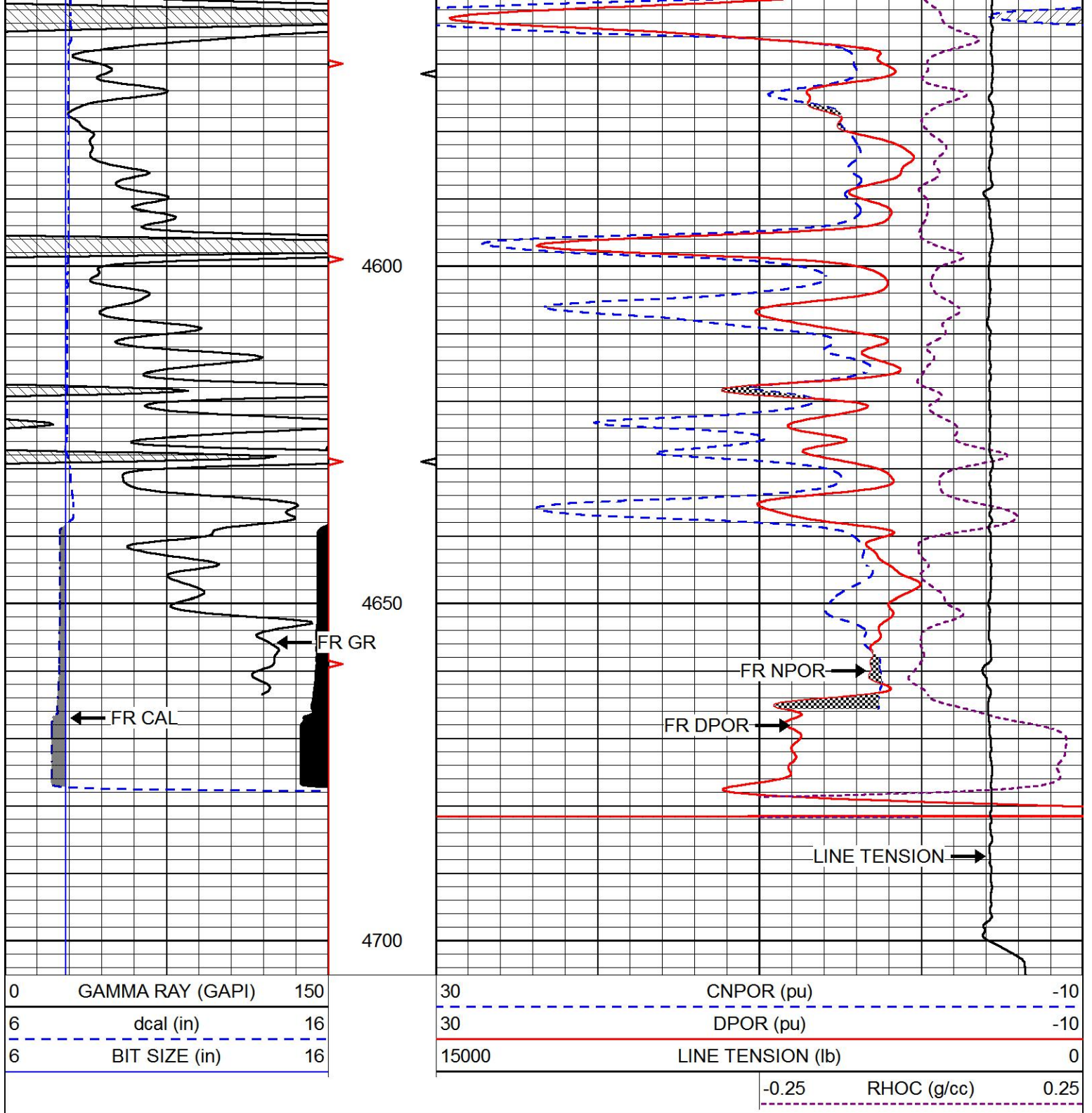
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 Dataset Pathname stackmel/pass3.1
 Presentation Format cndlspec
 Dataset Creation Wed Feb 05 23:58:26 2020
 Charted by Depth in Feet scaled 1:240







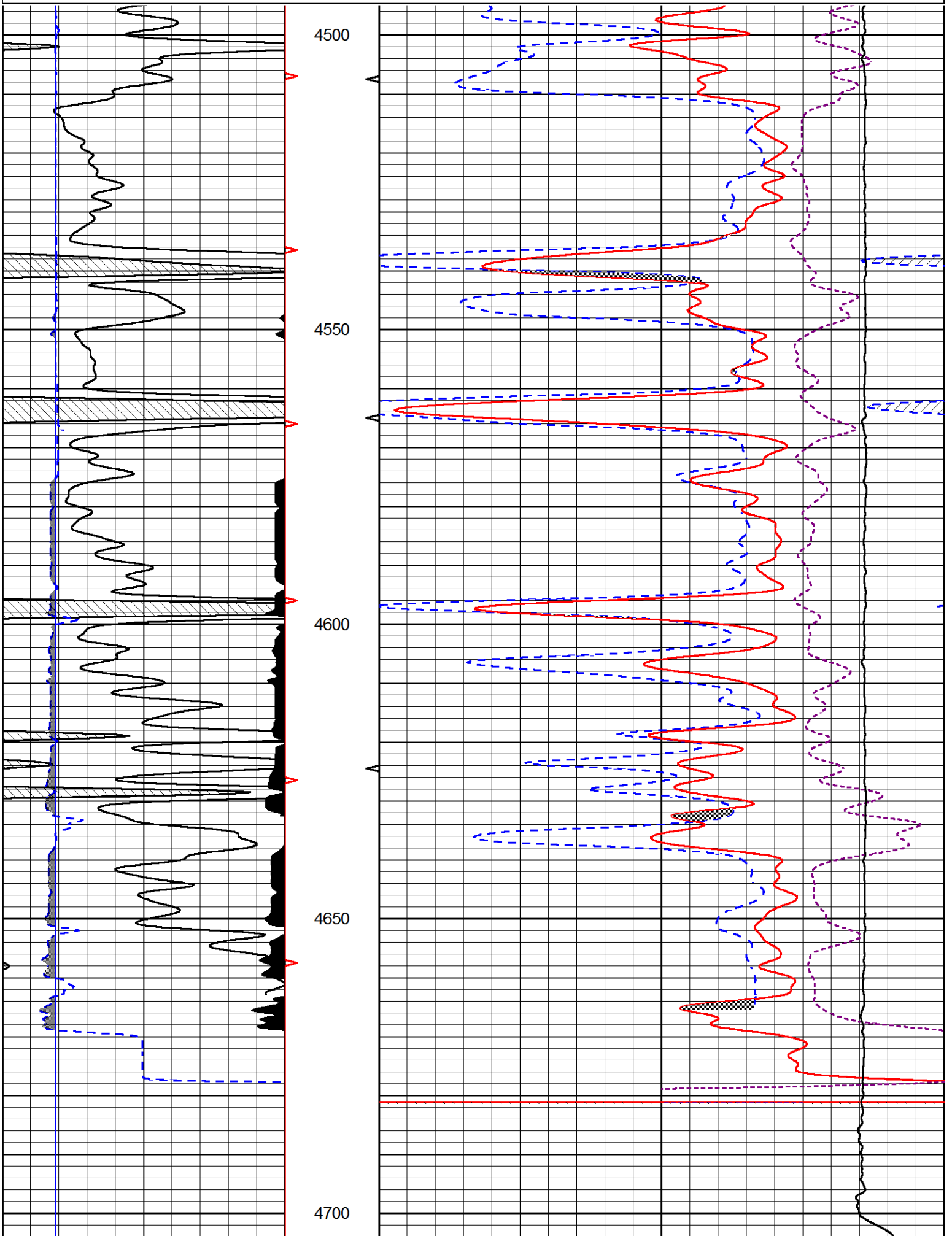




REPEAT SECTION

Database File elk_shepherd_#2_14.db
 Dataset Pathname stackmel/pass2.1
 Presentation Format cndlspec
 Dataset Creation Wed Feb 05 23:24:09 2020
 Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	30	CNPOR (pu)	-10
6	dcal (in)	16	30	DPOR (pu)	-10



0	GAMMA RAY (GAPI)	150	30	CNPOR (pu)	-10
6	dcal (in)	16	30	DPOR (pu)	-10
6	BIT SIZE (in)	16	15000	LINE TENSION (lb)	0
				-0.25	RHOC (g/cc) 0.25

Calibration Report

Database File elk_shepherd_#2_14.db
Dataset Pathname stackmel/pass3.1
Dataset Creation Wed Feb 05 23:58:26 2020

Dual Induction Calibration Report

Serial-Model: 55-222-M&W
Calibration Performed: Tue Dec 10 05:11:10 2019

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.500	-41.000
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.370	-15.000

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	16000.0000	-1.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	18000.0000	-1.0000
Caliper	1.0019	1.2642	8.0000	22.0000	in	53.3774	-47.5000

Compensated Density Calibration Report

Serial-Model: 934-229-M&W
Source / Verifier: 21170B /
Master Calibration Performed: Thu Dec 19 15:46:53 2019

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	3391.68	2392.26	cps
Aluminum	2.670	g/cc	645.86	1568.99	cps
Spine Angle = 75.73			Density/Spine Ratio = 0.535		
	Size		Reading		
Small Ring	4.00	in	1.39		
Large Ring	14.00	in	1.04		

Compensated Neutron Calibration Report

Serial Number: tk10-MW
Tool Model: M&W

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 Dec 10 05:11:34 2019
Calibrator Value:	1000.0 GAPI
Background Reading:	0.0 cps
Calibrator Reading:	6.2 cps
Sensitivity:	0.5200 GAPI/cps



PIONEER
Pioneer Energy Services

Company	ELK ENERGY HOLDINGS, LLC
Well	SHEPHERD NO.2-14
Field	NOLLETTE SOUTHEAST
County	THOMAS
State	KANSAS