



# DUAL COMP POROSITY LOG

Company RITCHEE EXPLORATION, INC.  
 Well VMW LAND 16C NO.1  
 Field WILDCAT  
 County WICHITA  
 State KANSAS

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Location: API #: 15-203-20313-00-00  
 1400' FSL & 695' FWL  
 SEC 16 TWP 16S RGE 38W  
 Permanent Datum GROUND LEVEL Elevation 3447'  
 Log Measured From KELLY BUSHING  
 Drilling Measured From KELLY BUSHING  
 Elevation K.B. 3452'  
 D.F. N/A  
 G.L. 3447'

Other Services  
 DIL

Date	3/20/17						
Run Number	ONE						
Type Log	CNL/CDL						
Depth Driller	5120'						
Depth Logger	5119'						
Bottom Logged Interval	5098'						
Top Logged Interval	3600'						
Type Fluid In Hole	CHEMICAL						
Salinity, PPM CL	6,500						
Density	9.3						
Level	FULL						
Max. Rec. Temp. F	127 DEG/F						
Operating Rig Time	2 HOURS						
Equipment -- Location	108 HAYS						
Recorded By	J. HENRICKSON						
Witnessed By	JOHN GOLDSMITH						
Borehole Record							
Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	0	229'	8.625"	23#	0	229'
TWO	7.875"	229'	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.  
 RUSSELL SPRINGS KANSAS  
 SOUTH ON HWY 25 TO D ROAD, 10 WEST, 1/4 NORTH, EAST INTO

Log Measured From: KELLY BUSHING 5 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES  
[www.pioneerenergy.com](http://www.pioneerenergy.com) 785-625-3858

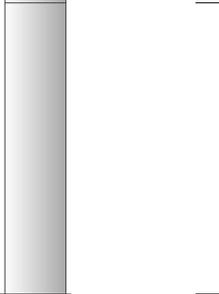
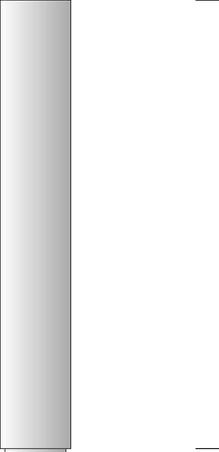
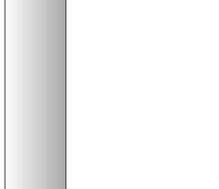
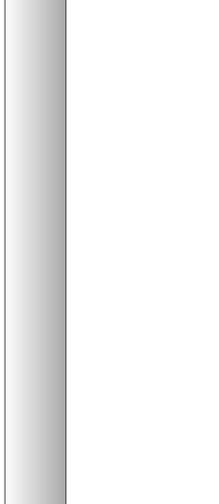
Your Pioneer Energy Services Crew		This Log Record Was Witnessed By	
Engineer: J. HENRICKSON	Operator: C. PFEIFER	Primary Witness: JOHN GOLDSMITH	Secondary Witness:
Operator:	Operator:	Secondary Witness:	Secondary Witness:
Operator:	Operator:	Secondary Witness:	Secondary Witness:

# Log Variables

DatabaseC:\ProgramData\Warrior\Data\ritchie\_vmw\_land\_16c\_1.db  
 Dataset field/well/STACK/pass3.1/\_vars\_

## Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	127	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	-370	76	Off	5119

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	33.00		GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC CNSSC	29.90 29.15		CNT-M&W (tk10-MW)	5.50	3.50	100.00
LSD DCAL SSD	20.85 20.83 20.35		CDL-M&W (168-986)	8.50	4.00	250.00
RLL3 RLL3F	15.80 15.79					
CILD	8.00		DIL-M&W (1987)	18.50	3.50	220.00

CILM 4.70

SP 0.20

Dataset: ritchie\_vmw\_land\_16c\_1.db: field/well/STACK/pass3.1  
 Total length: 35.50 ft  
 Total weight: 620.00 lb  
 O.D.: 4.00 in

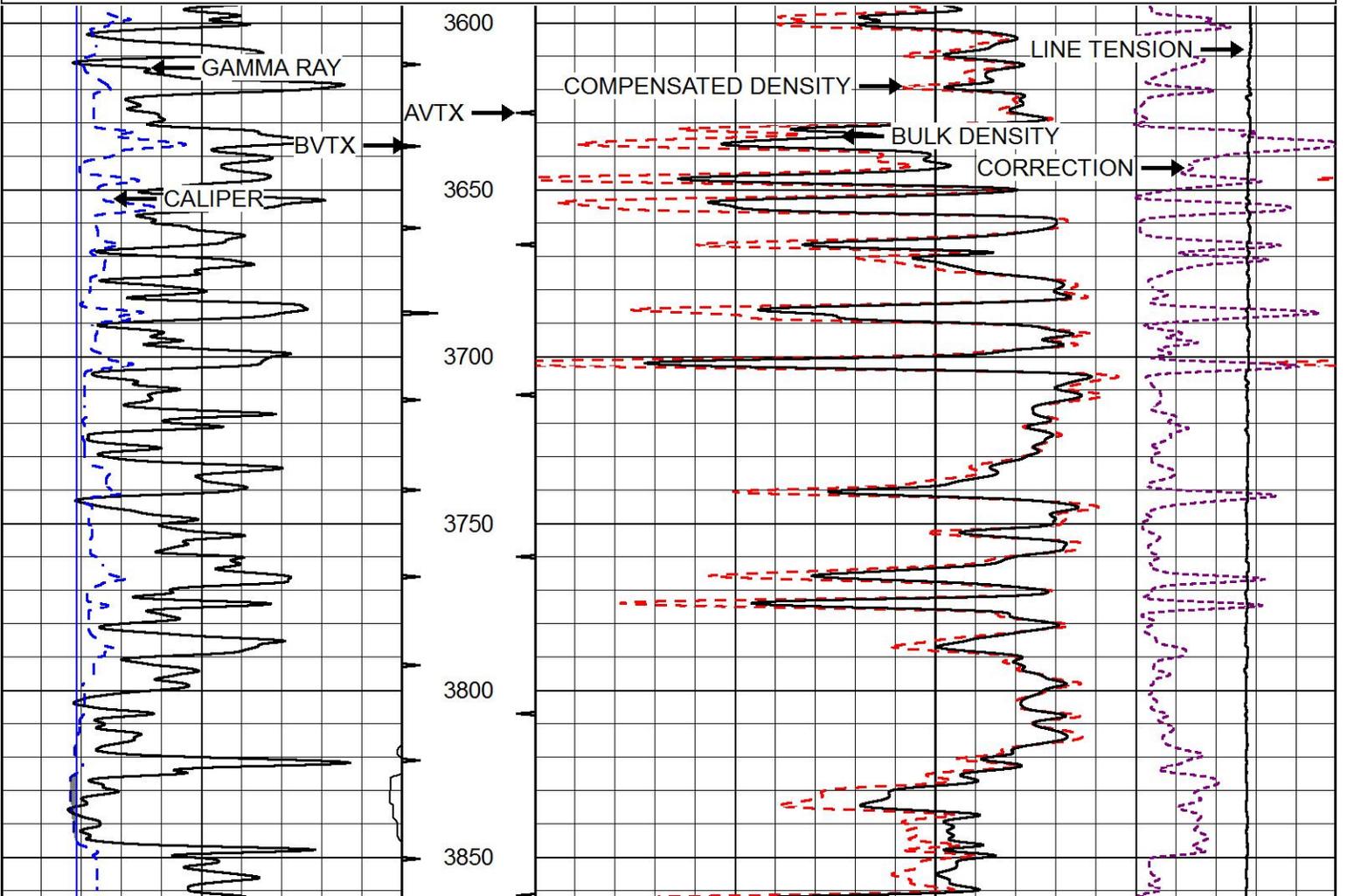


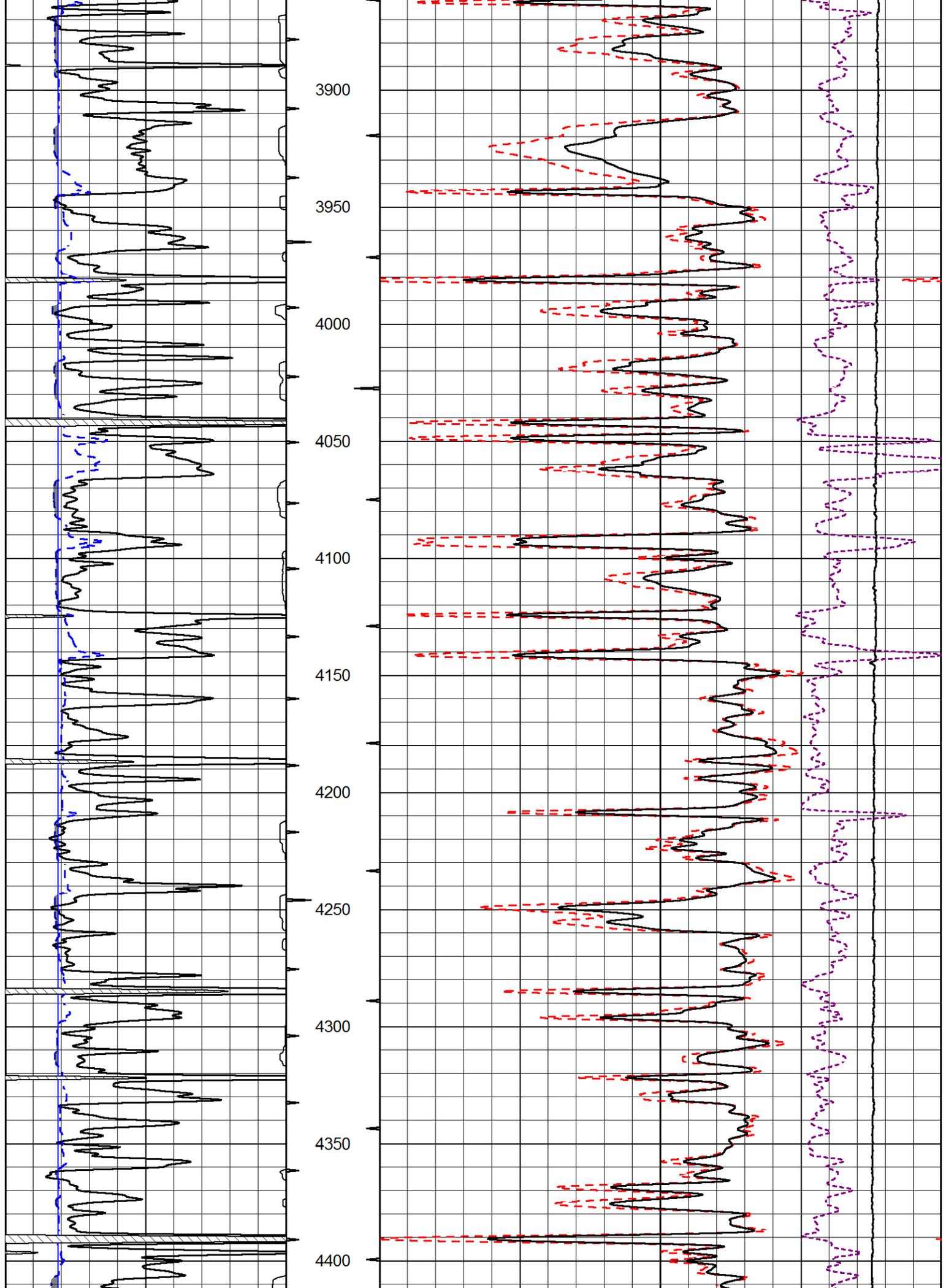
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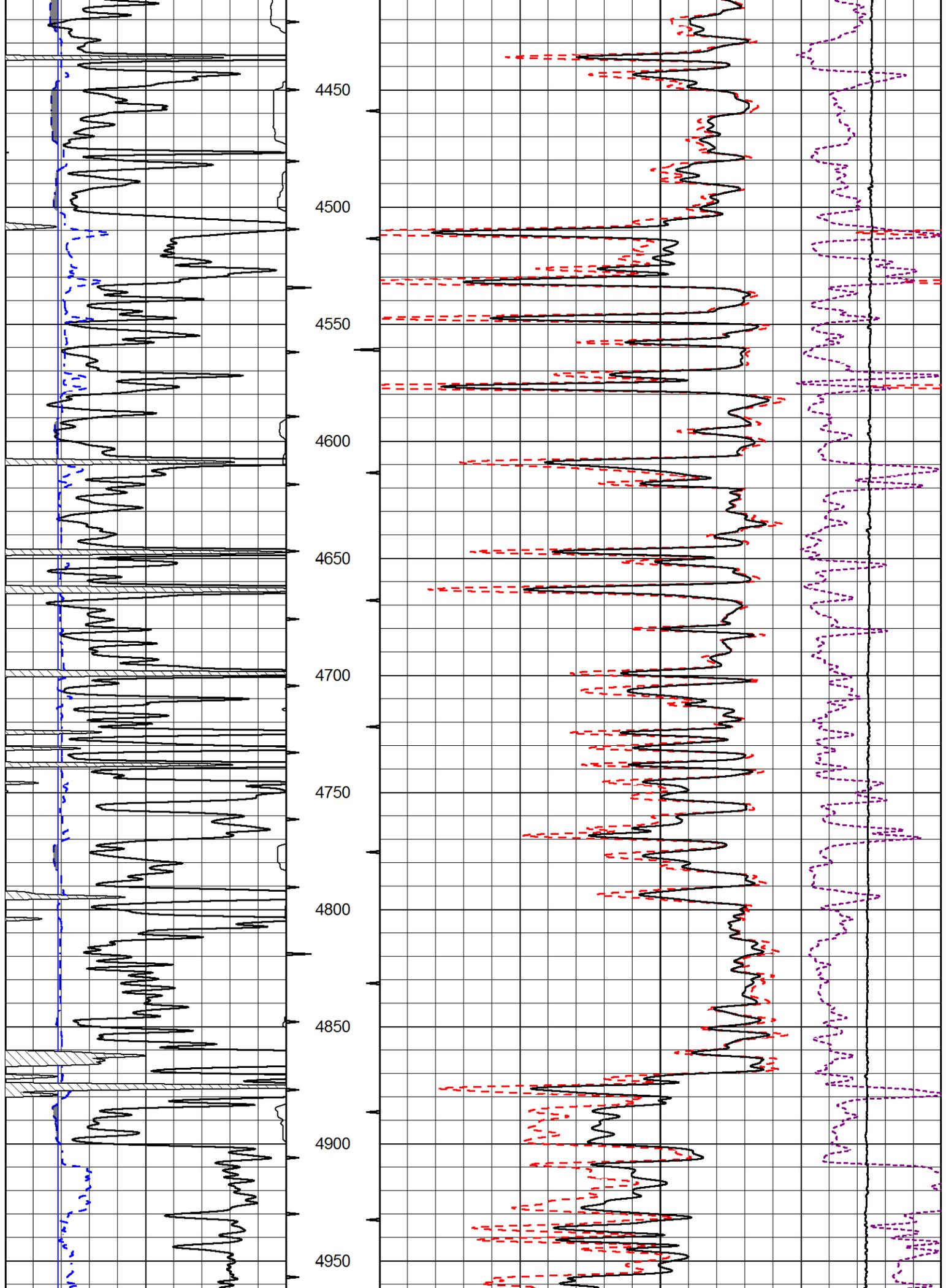
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 Presentation Format cdl  
 Dataset Creation Mon Mar 20 19:50:31 2017  
 Charted by Depth in Feet scaled 1:600

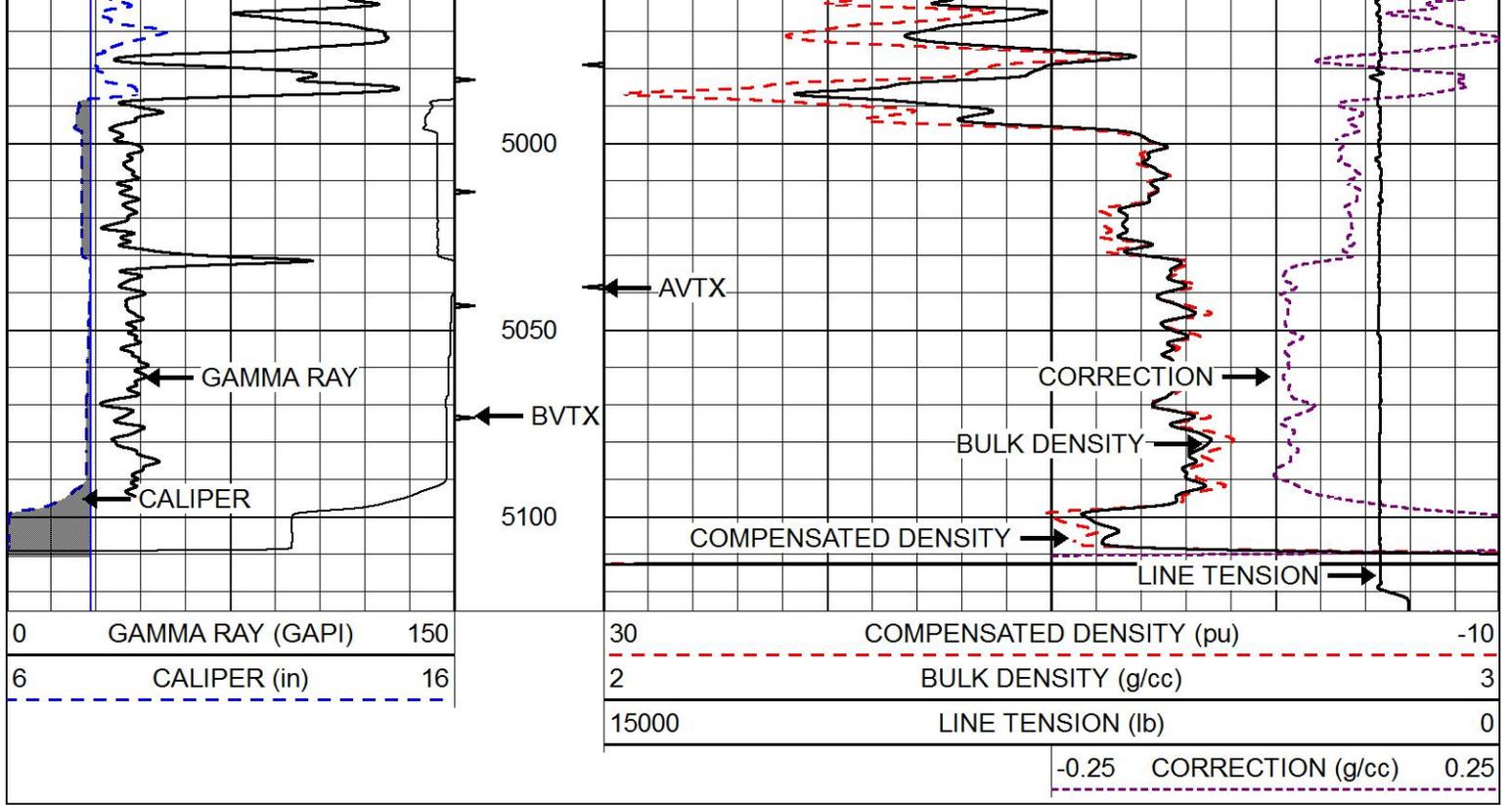
0	GAMMA RAY (GAPI)	150
6	CALIPER (in)	16

30	COMPENSATED DENSITY (pu)	-10
2	BULK DENSITY (g/cc)	3
15000	LINE TENSION (lb)	0
-0.25	CORRECTION (g/cc)	0.25





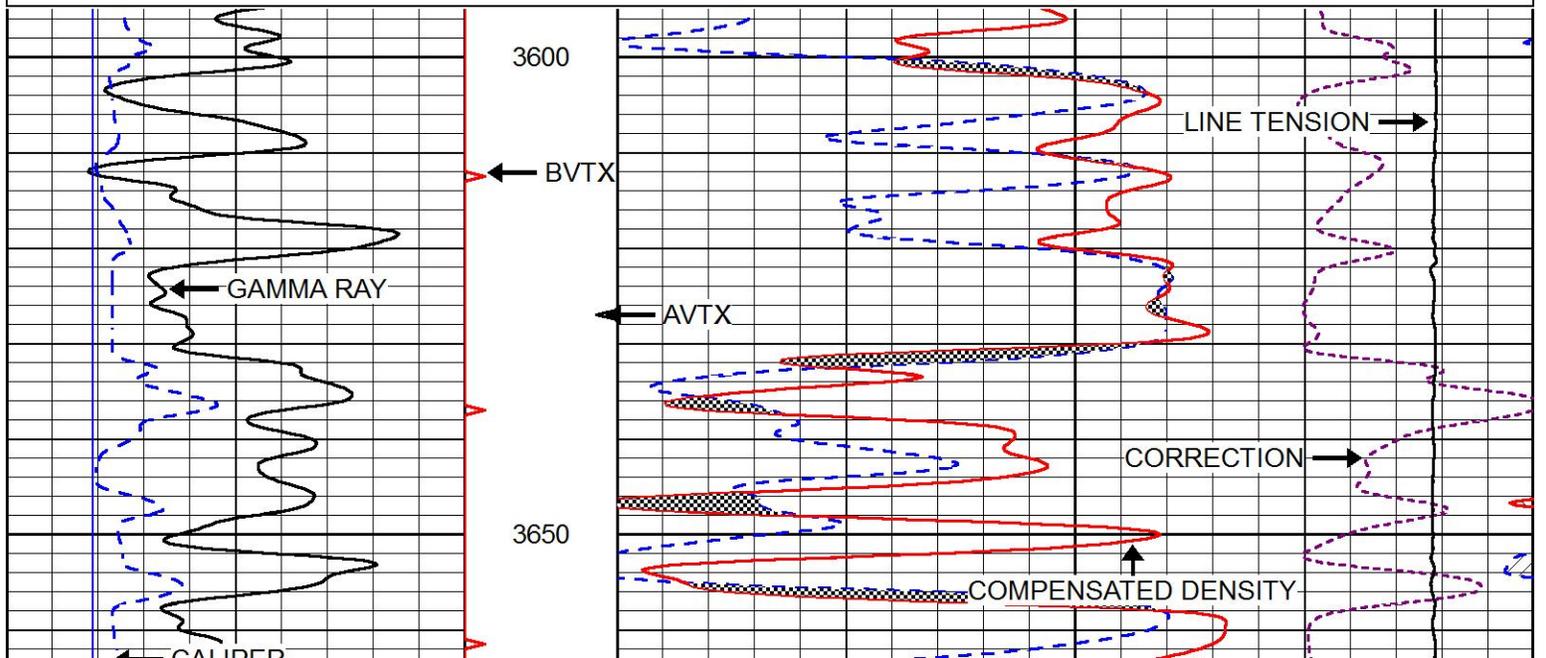


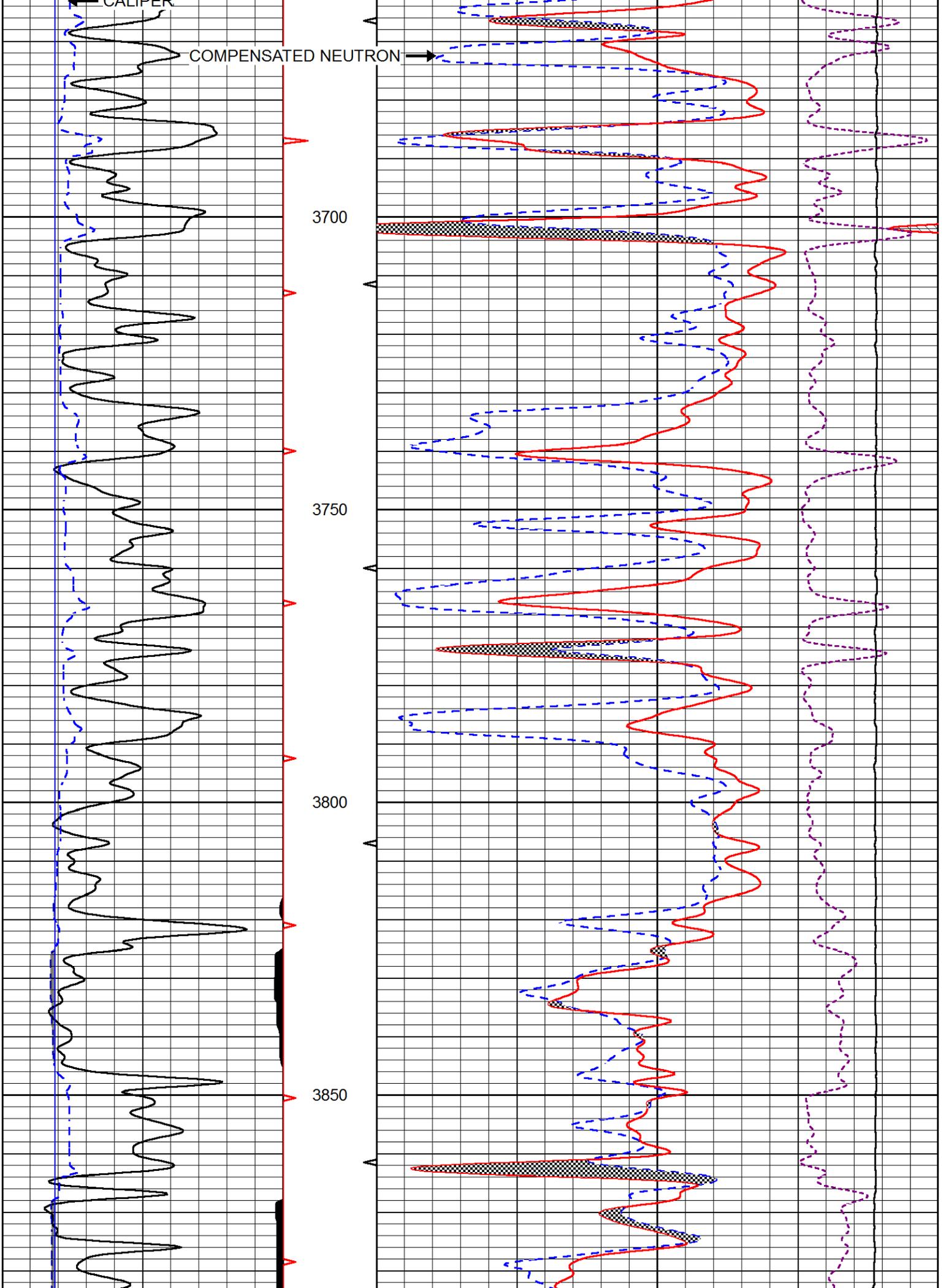


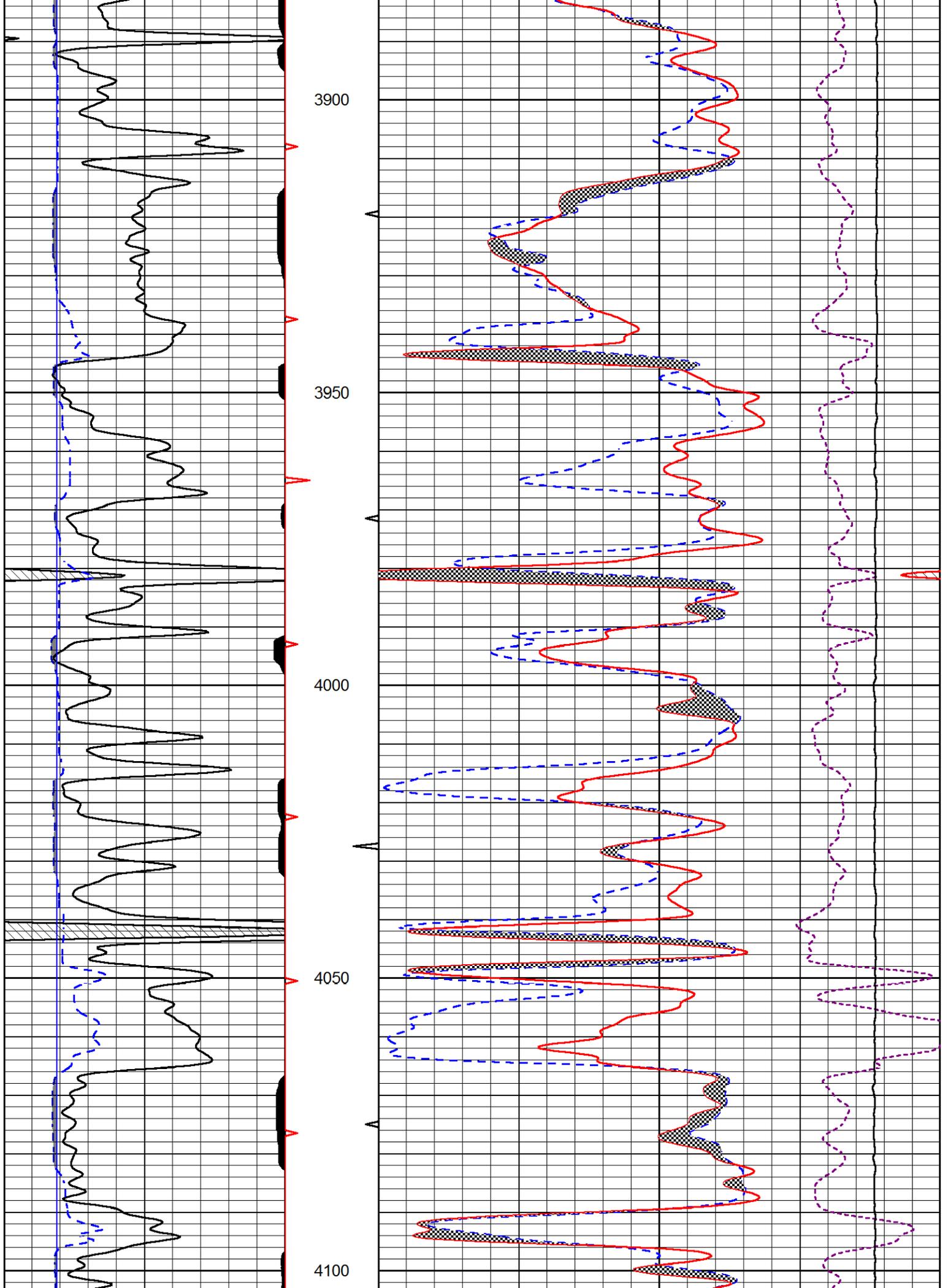
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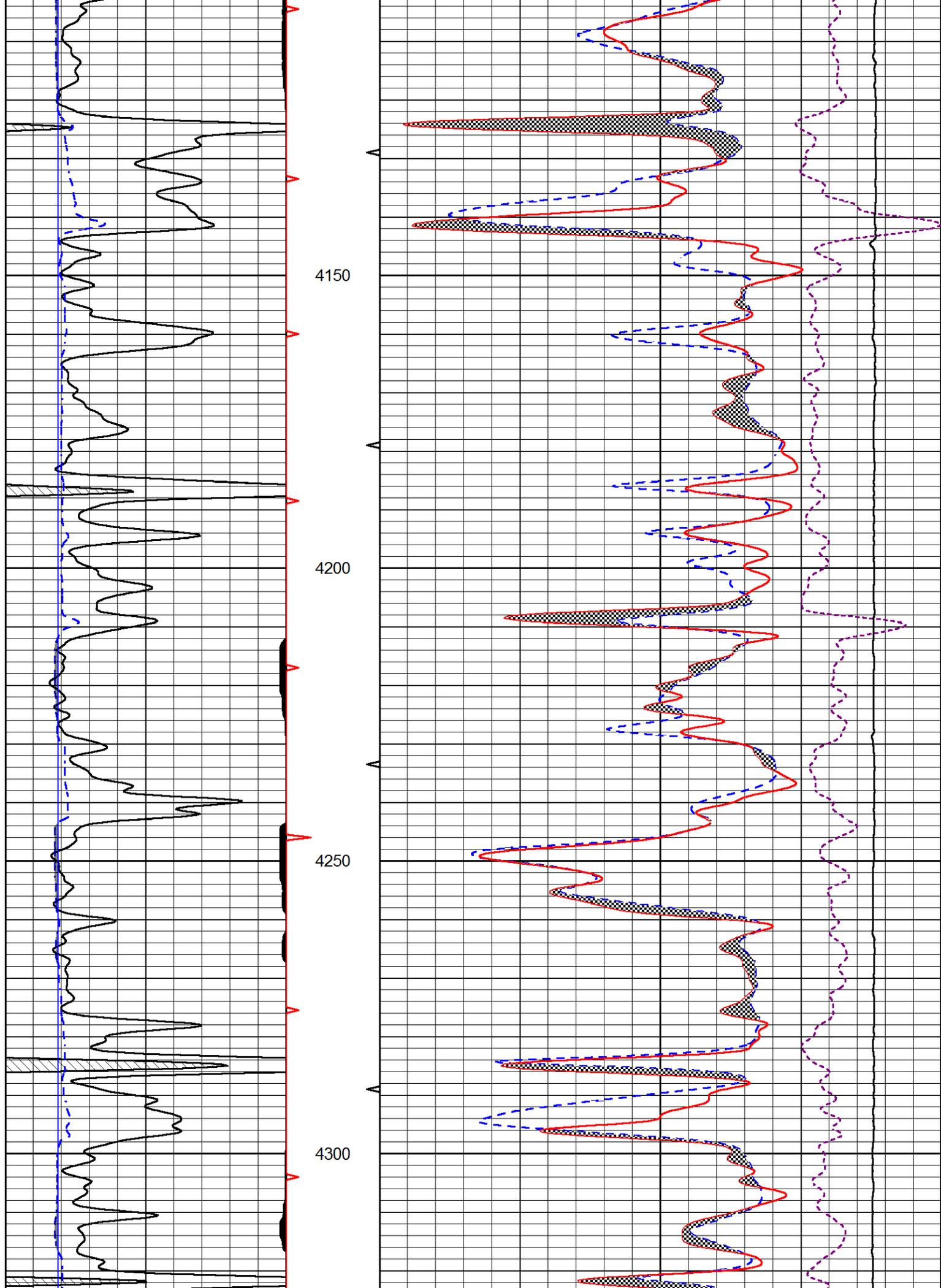
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 Dataset Pathname    STACK/pass3.1  
 Presentation Format    cndlspec  
 Dataset Creation      Mon Mar 20 19:50:31 2017  
 Charted by            Depth in Feet scaled 1:240

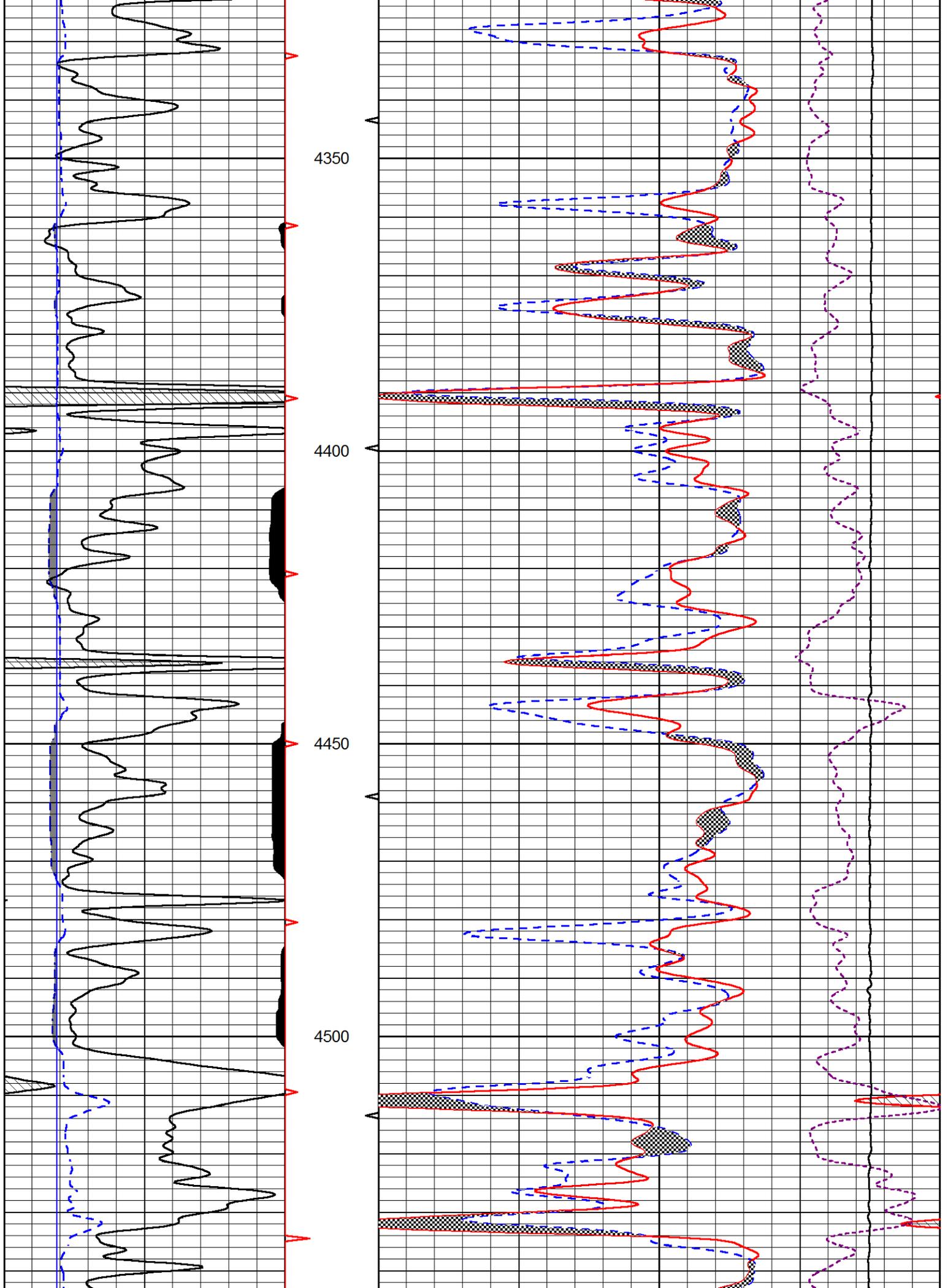
0	GAMMA RAY (GAPI)	150	30	COMPENSATED NEUTRON (pu)	-10
6	dcal (in)	16	30	COMPENSATED DENSITY (2.71 ma) (pu)	-10
6	BIT SIZE (in)	16	15000	LINE TENSION (lb)	0
			-0.25	CORRECTION (g/cc)	0.25

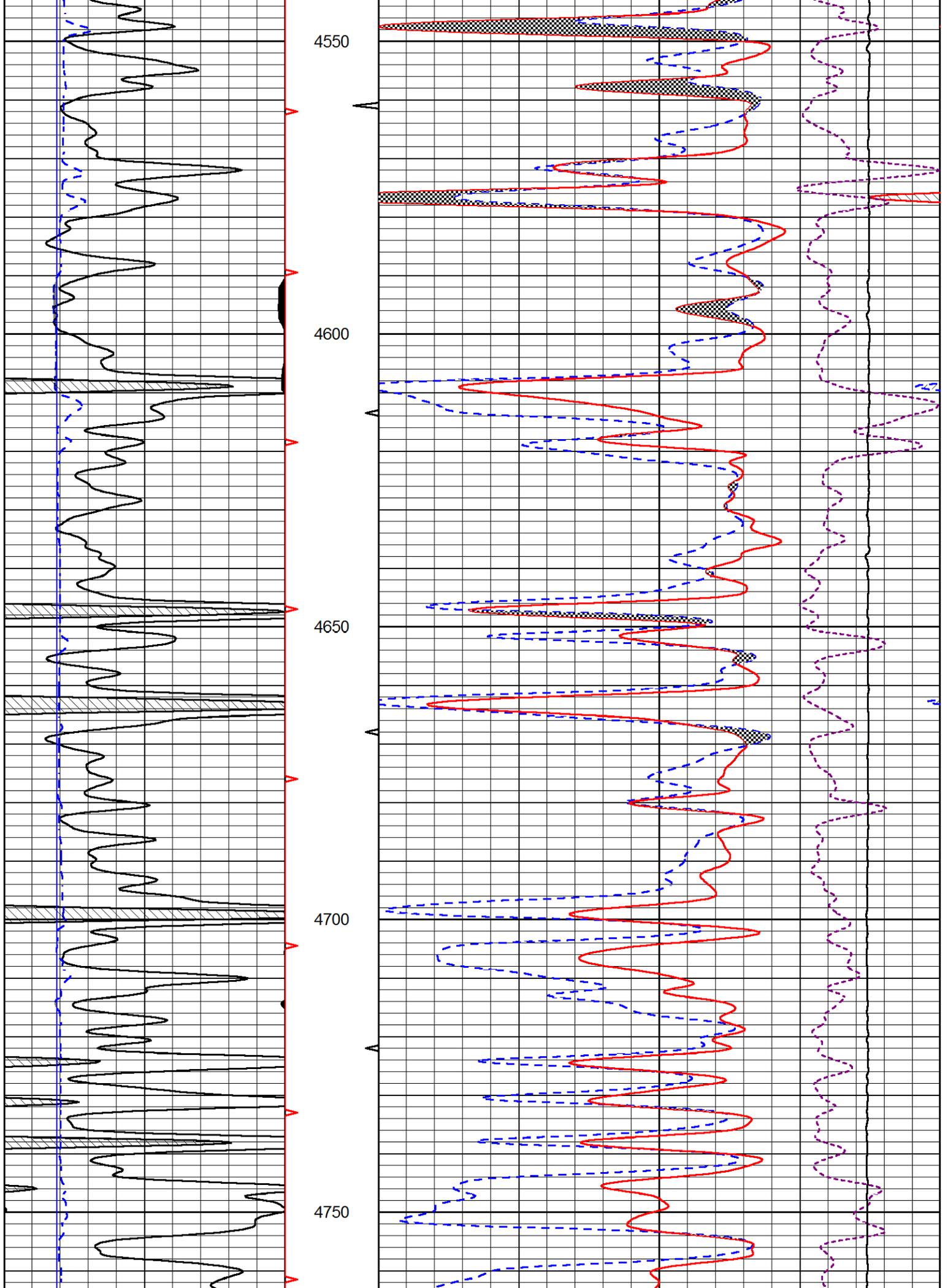


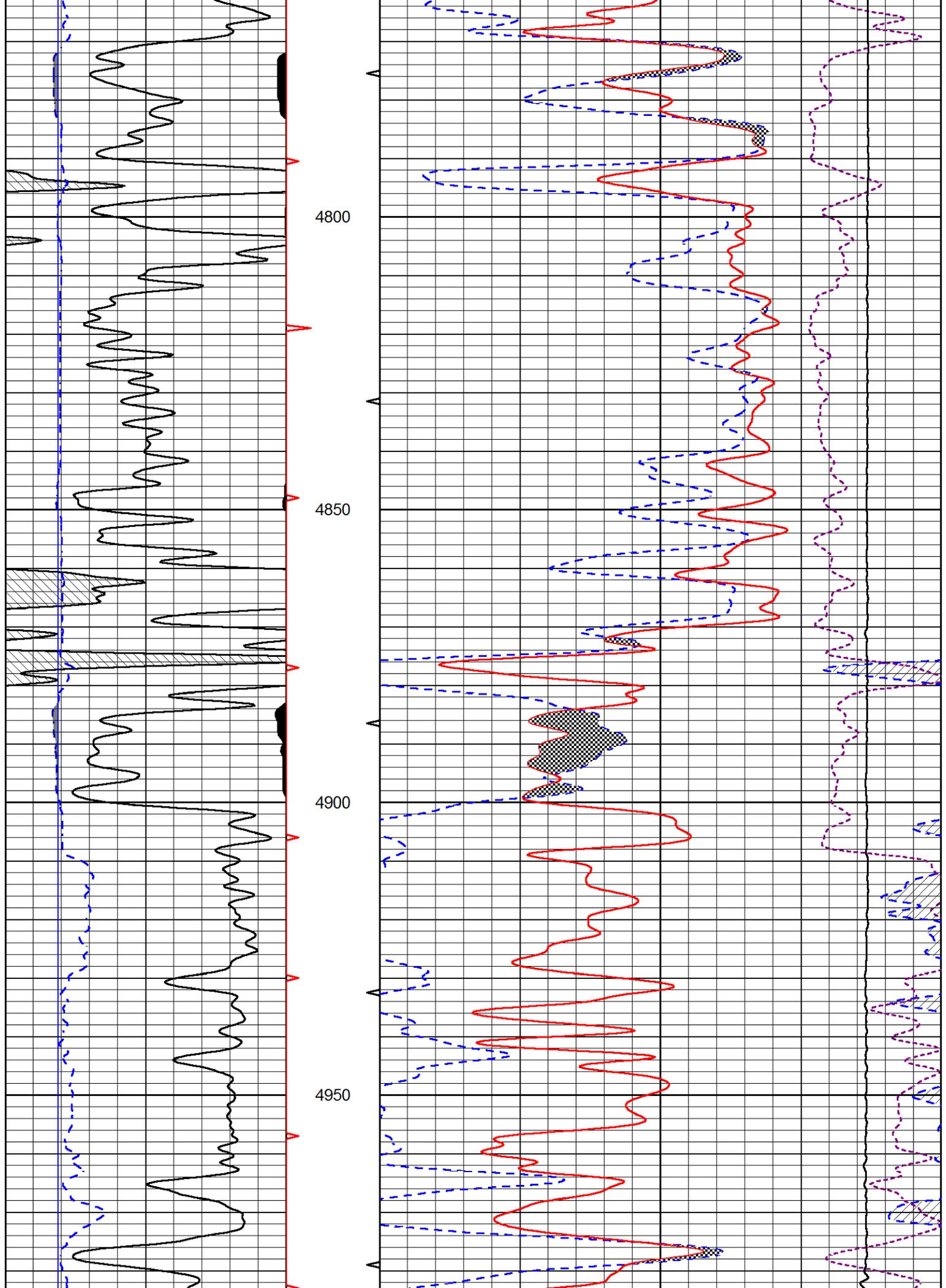


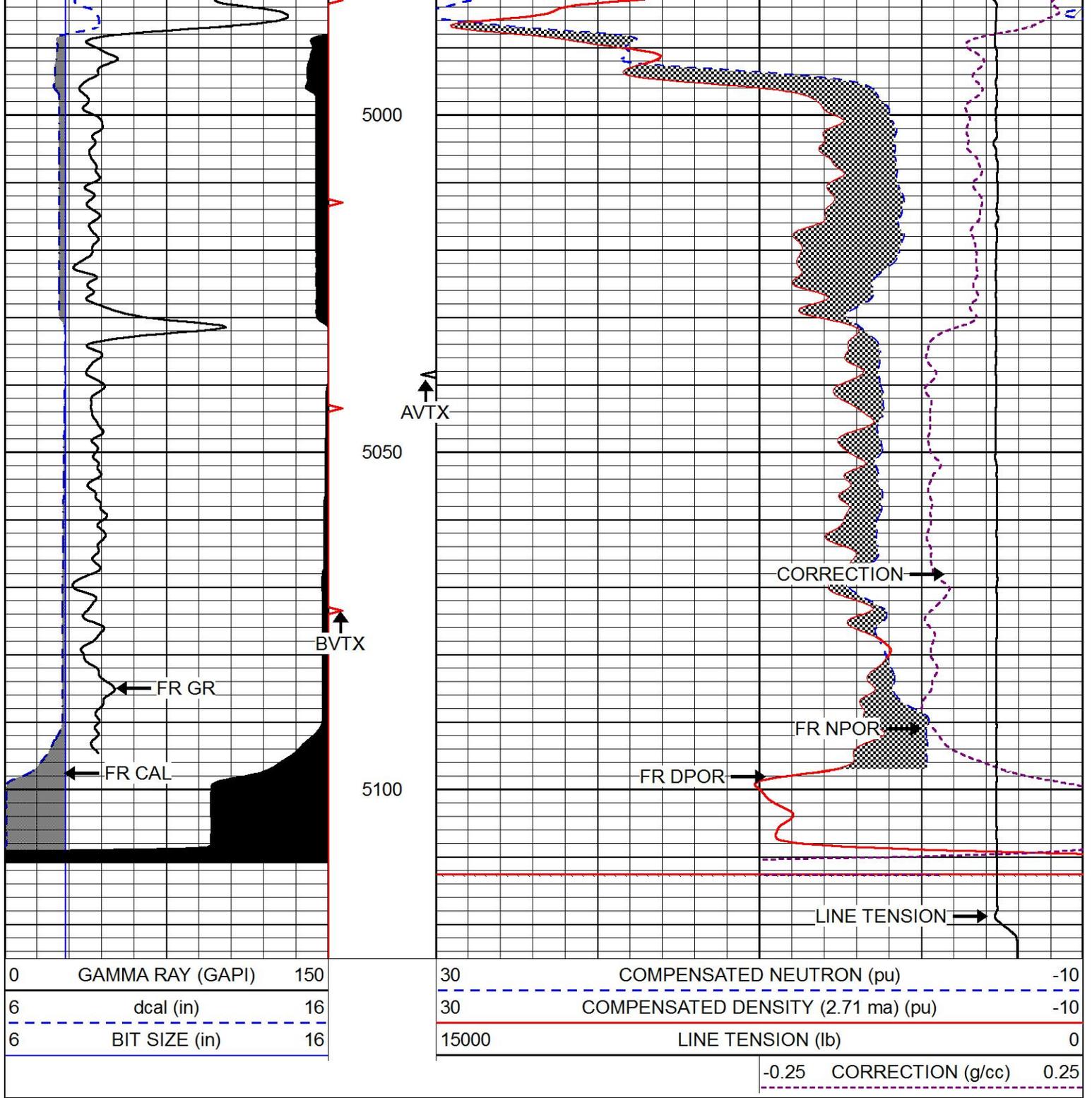






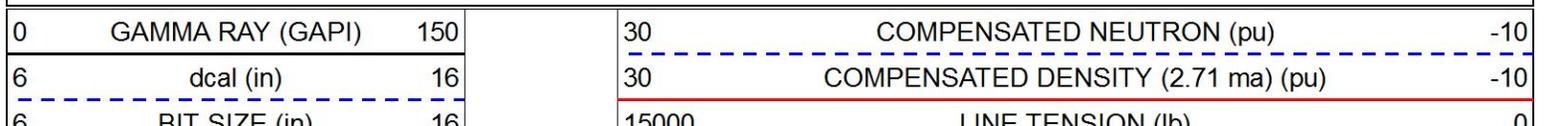




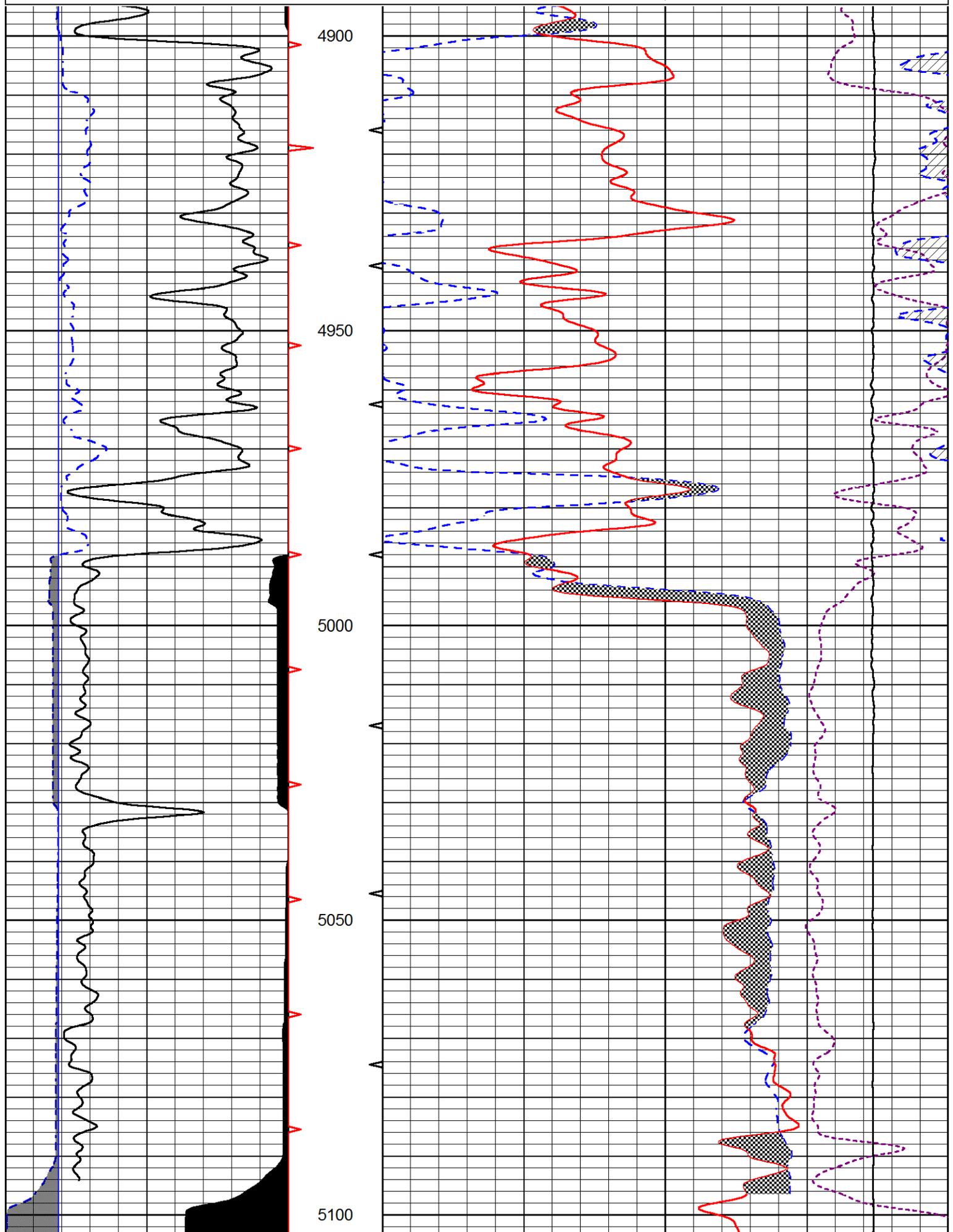


# REPEAT SECTION

Database File      ritchie\_vmw\_land\_16c\_1.db  
 Dataset Pathname    STACK/pass2.1  
 Presentation Format    cndlspec  
 Dataset Creation      Mon Mar 20 19:00:35 2017  
 Charted by            Depth in Feet scaled 1:240



-0.25 CORRECTION (g/cc) 0.25



0	GAMMA RAY (GAPI)	150	30	COMPENSATED NEUTRON (pu)	-10
6	dcal (in)	16	30	COMPENSATED DENSITY (2.71 ma) (pu)	-10
6	BIT SIZE (in)	16	15000	LINE TENSION (lb)	0
				-0.25 CORRECTION (g/cc)	0.25

Calibration Report

Database File     ritchie\_vmw\_land\_16c\_1.db  
 Dataset Pathname   STACK/pass3.1  
 Dataset Creation    Mon Mar 20 19:50:31 2017

Dual Induction Calibration Report

Serial-Model:                     1987-M&W  
 Calibration Performed:           Fri Dec 23 14:41:51 2016

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.530	-36.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.440	-110.500

Compensated Density Calibration Report

Serial-Model:                     168-986-M&W  
 Source / Verifier:               /  
 Master Calibration Performed:   Fri Nov 18 10:05:18 2016

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4691.86	4818.19	cps
Aluminum	2.675	g/cc	859.57	3020.22	cps
Spine Angle = 74.61			Density/Spine Ratio = 0.523		
	Size		Reading		
Small Ring	4.00	in	1.03		
Large Ring	14.00	in	1.23		

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:	Fri Dec 23 14:43:38 2016	
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	RITCHIE EXPLORATION, INC.
Well	VMW LAND 16C NO.1
Field	WILDCAT
County	WICHITA
State	KANSAS