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DUAL COMP POROSITY LOG

Company AMERICAN WARRIOR, INC.
Well RUFF UNIT #1-11
Field LIPPOLDT NORTHWEST
County HODGEMAN State KANSAS
Location: API #: 15-083-21959-00-00
259' FNL & 121' FWL
SEC 11 TWP 23S RGE 23W

Other Services
DIL/MEL
BHCS

Elevation
K.B. 2290'
D.F. N/A
G.L. 2279'

Permanent Datum GROUND LEVEL Elevation 2279'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Company	AMERICAN WARRIOR, INC.
Well	RUFF UNIT #1-11
Field	LIPPOLDT NORTHWEST
County	HODGEMAN
State	KANSAS
Location:	259' FNL & 121' FWL SEC 11 TWP 23S RGE 23W
API #:	15-083-21959-00-00
Permanent Datum	GROUND LEVEL
Elevation	2279'
Log Measured From	KELLY BUSHING
Drilling Measured From	KELLY BUSHING
Other Services	DIL/MEL BHCS
Elevation	K.B. 2290' D.F. N/A G.L. 2279'

Date	9/1/2018
Run Number	ONE
Type Log	CNL/CDL
Depth Driller	5300'
Depth Logger	5296'
Bottom Logged Interval	5275'
Top Logged Interval	3750'
Type Fluid In Hole	CHEMICAL
Salinity, PPM CL	6100
Density	9.7
Level	FULL
Max. Rec. Temp. F	129
Operating Rig Time	5 HOURS
Equipment -- Location	108 HAYS
Recorded By	D. SCHMIDT
Witnessed By	LUKE THOMPSON

Borehole Record

Run No.	Bit	From	To
ONE	12.25"	0'	270'
TWO	7.875"	270	TD

Casing Record

Size	Wgt.	From	To
8.625"	23#	0'	270'

<<< 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.

JETMORE,
1 EAST TO 219, SOUTH TO K RD, 3 EAST,
NORTH INTO

Log Measured From: KELLY BUSHING 11 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew	This Log Record Was Witnessed By
Engineer: D. SCHMIDT	Primary Witness: LUKE THOMPSON
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\american warrior_ruff unit 1-11.db
Dataset field/well/STACK/pass3/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	129	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	-40	80	Off	5296

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
			GR-M&W (89-M&W)	3.00	3.50	50.00
GR	33.00					
CNLSC	29.90		CNT-M&W (tk10-MW)	5.50	3.50	100.00
CNSSC	29.15					
			CDL-M&W (126-186)	8.50	4.00	250.00
LSD	20.85					
DCAL	20.83					
SSD	20.35					
RLL3	15.80					
RLL3F	15.79					
			DIL-M&W (1987)	18.50	3.50	220.00
CILD	8.00					

CILM	4.70				
SP	0.20				

Dataset: american warrior_ruff unit 1-11.db: field/well/STACK/pass3
Total length: 35.50 ft
Total weight: 620.00 lb
O.D.: 4.00 in

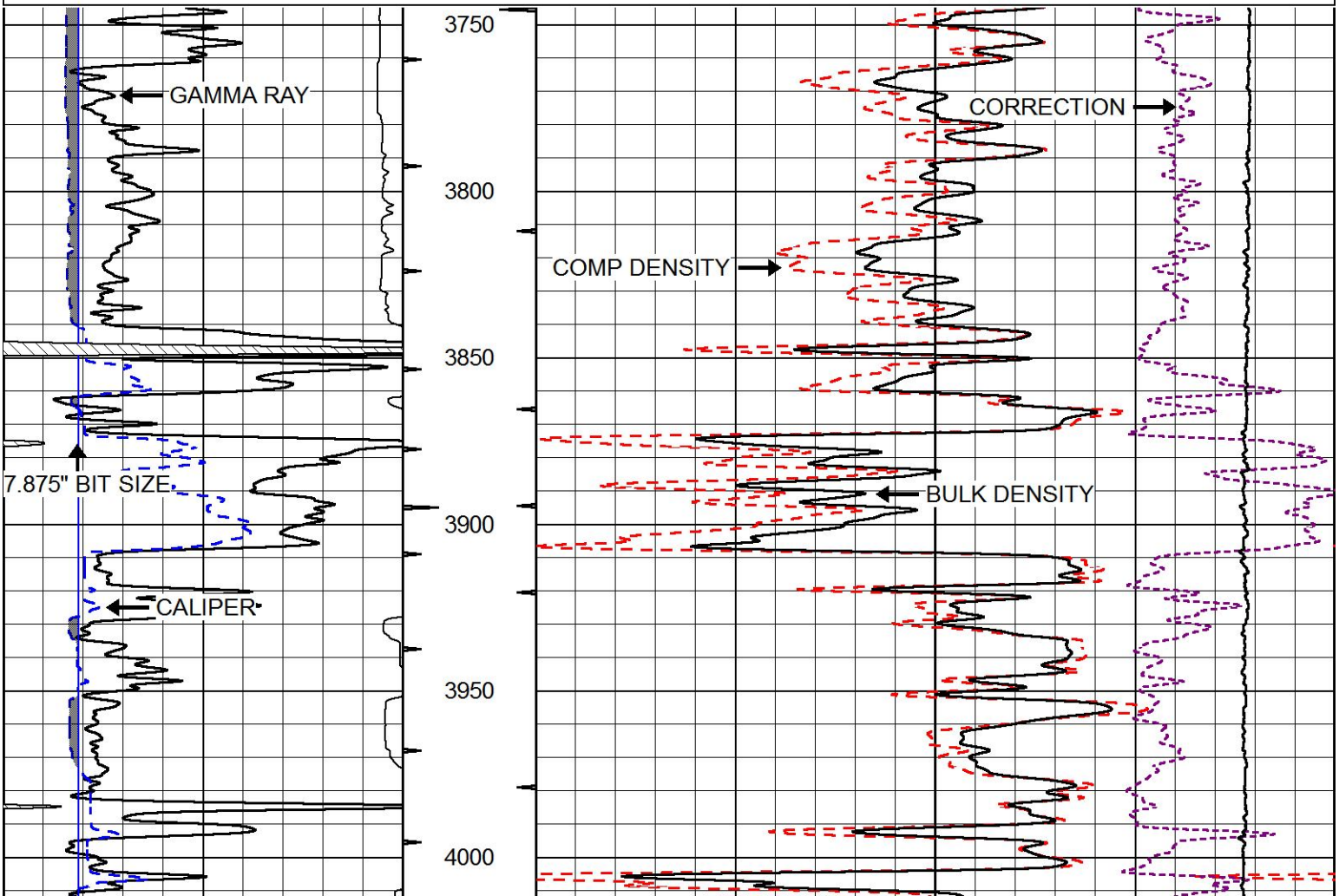
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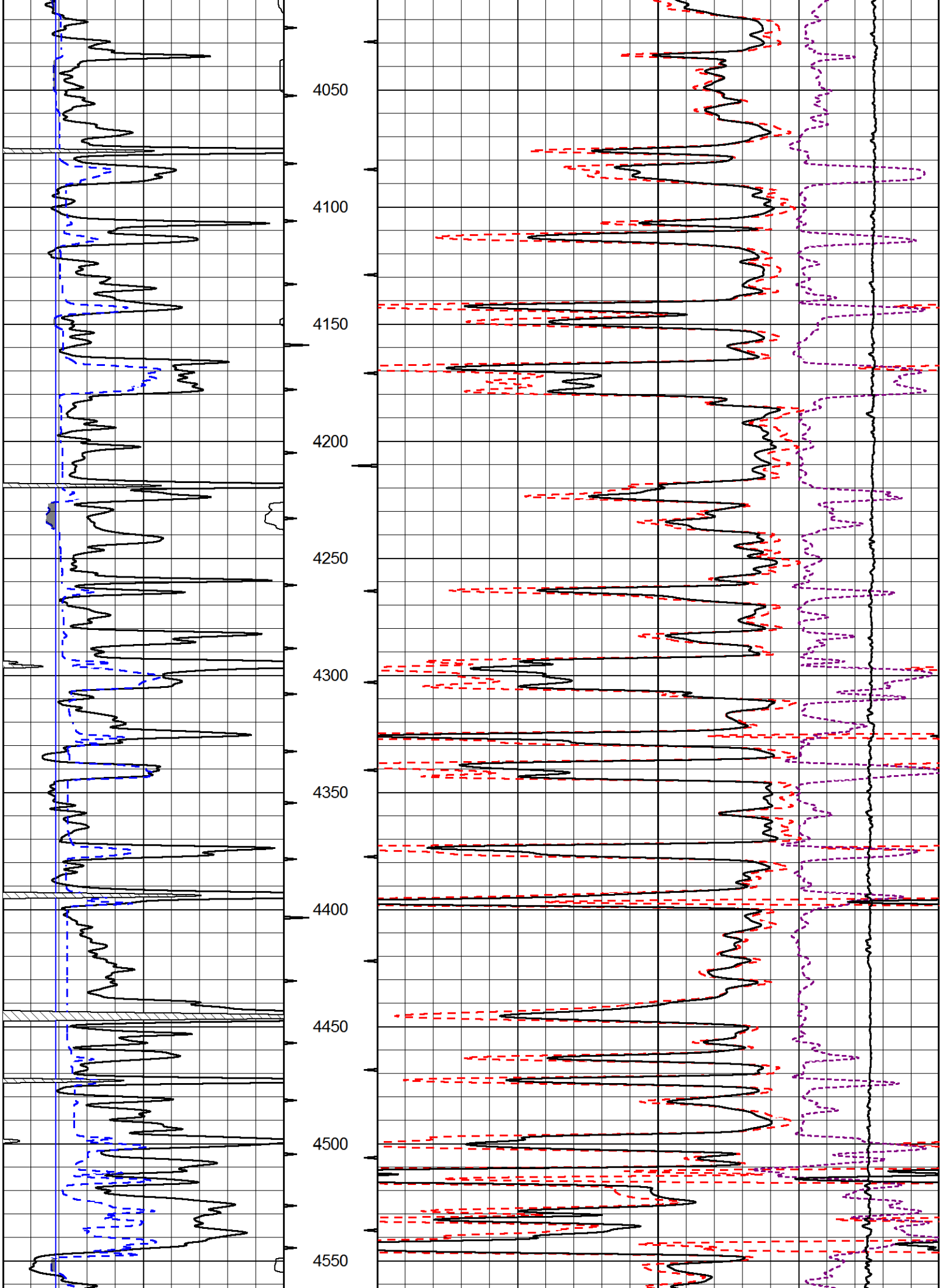
MAIN PASS

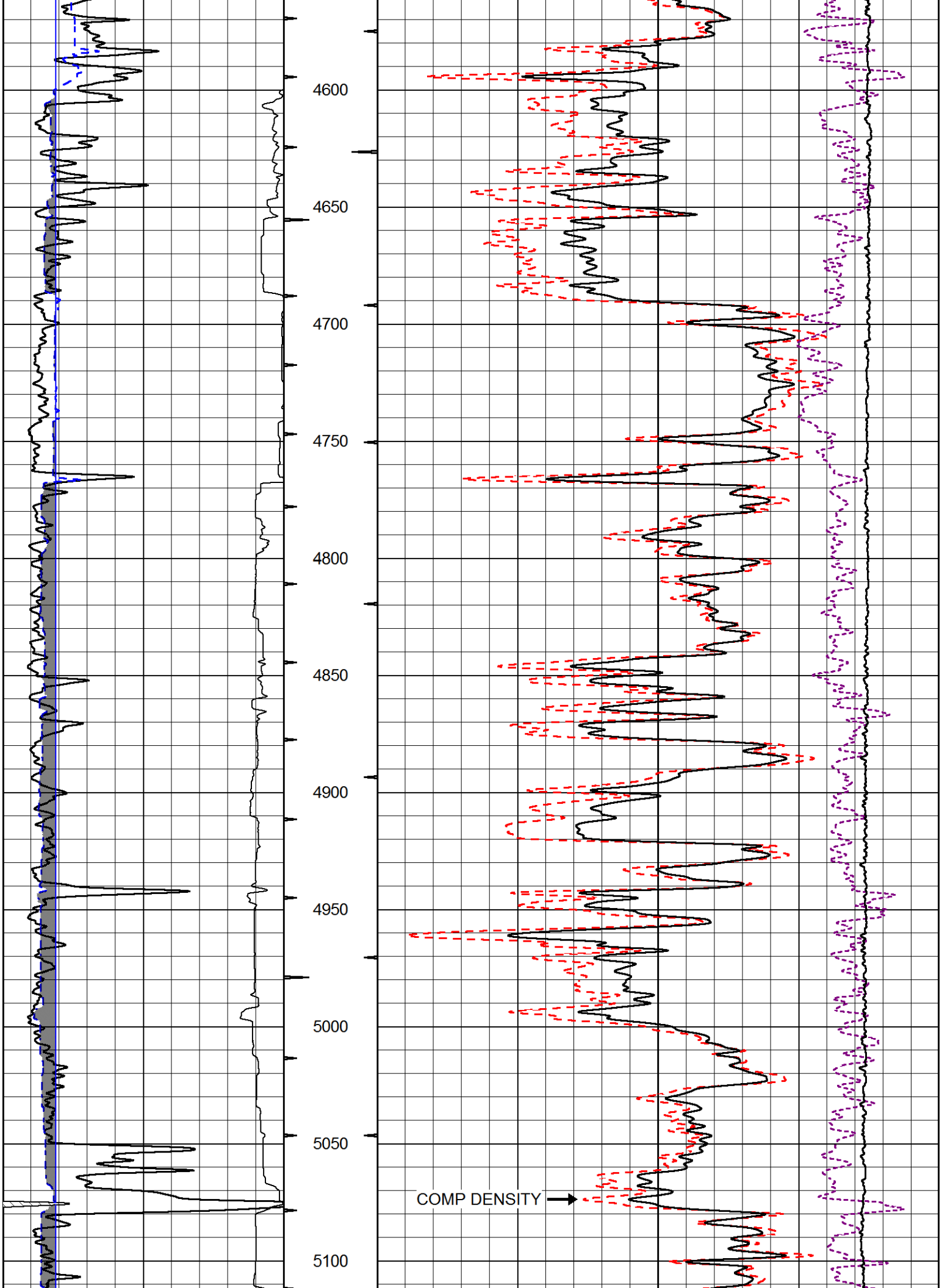
Database File	american warrior_ruff unit 1-11.db
Dataset Pathname	STACK/pass3.1
Presentation Format	cdl
Dataset Creation	Sat Sep 01 02:36:54 2018
Charted by	Depth in Feet scaled 1:600

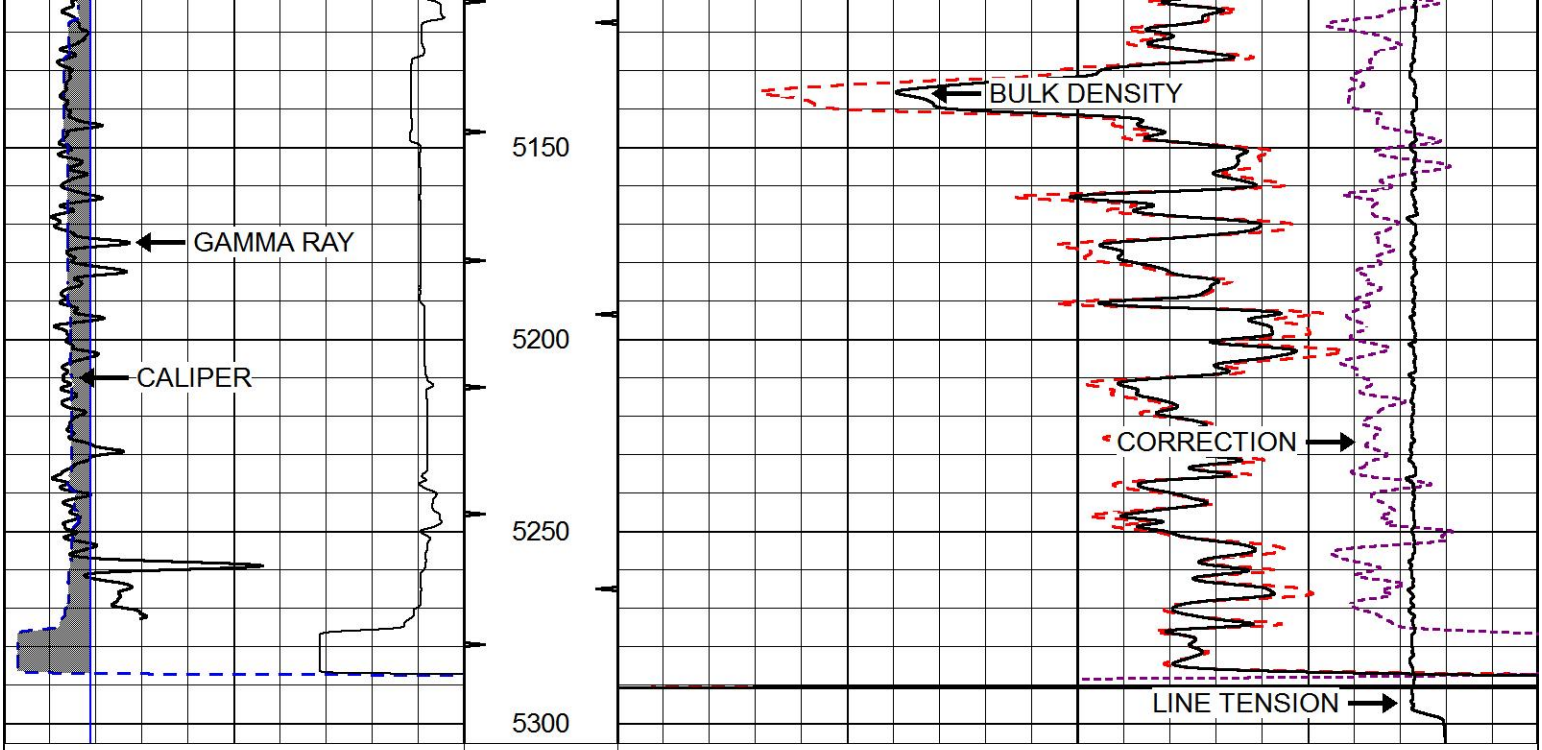
0	GAMMA RAY (GAPI)	150
6	CALIPER (in)	16

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




4050
4100
4150
4200
4250
4300
4350
4400
4450
4500
4550

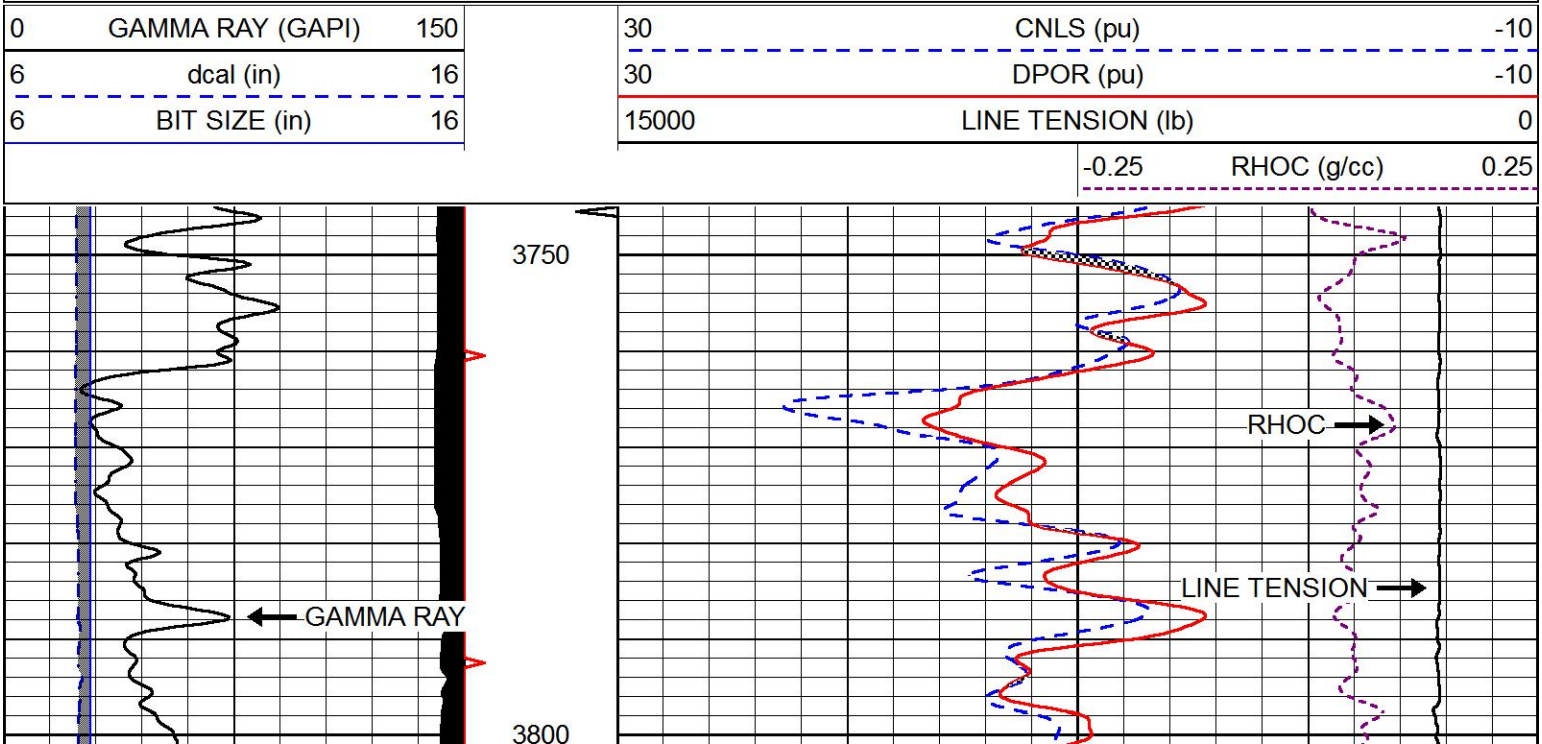

4600
4650
4700
4750
4800
4850
4900
4950
5000
5050
5100
COMP DENSITY

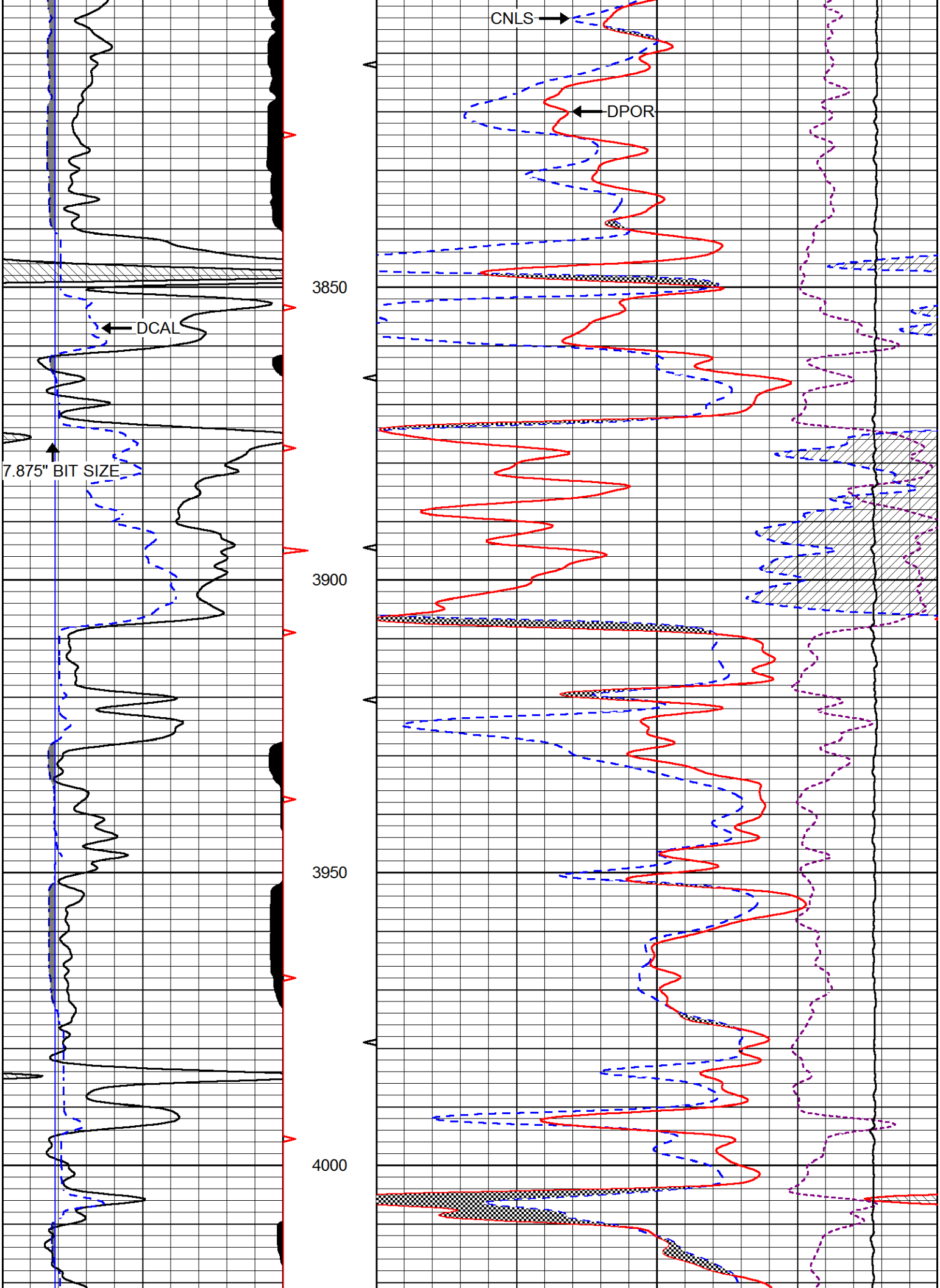


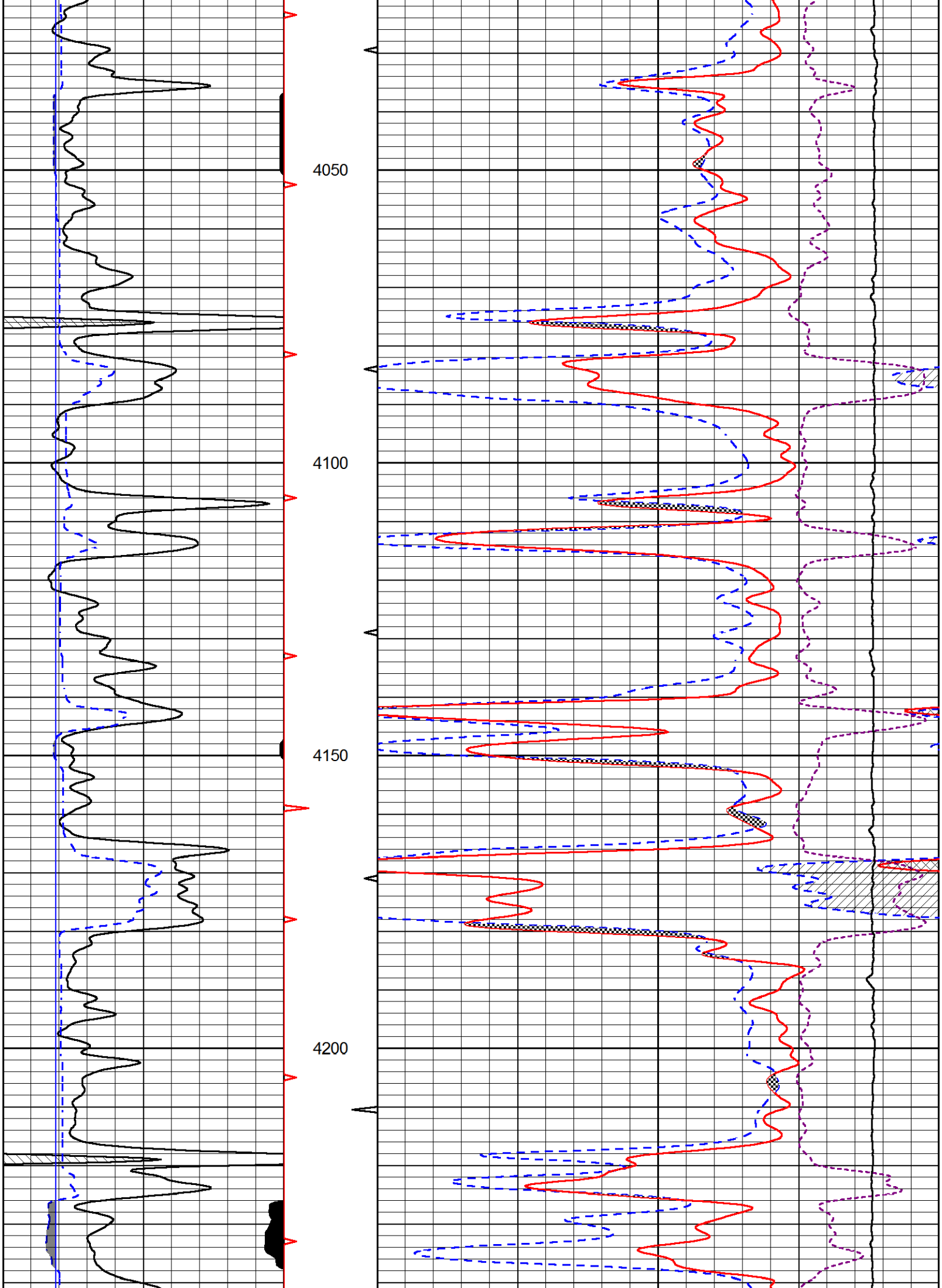
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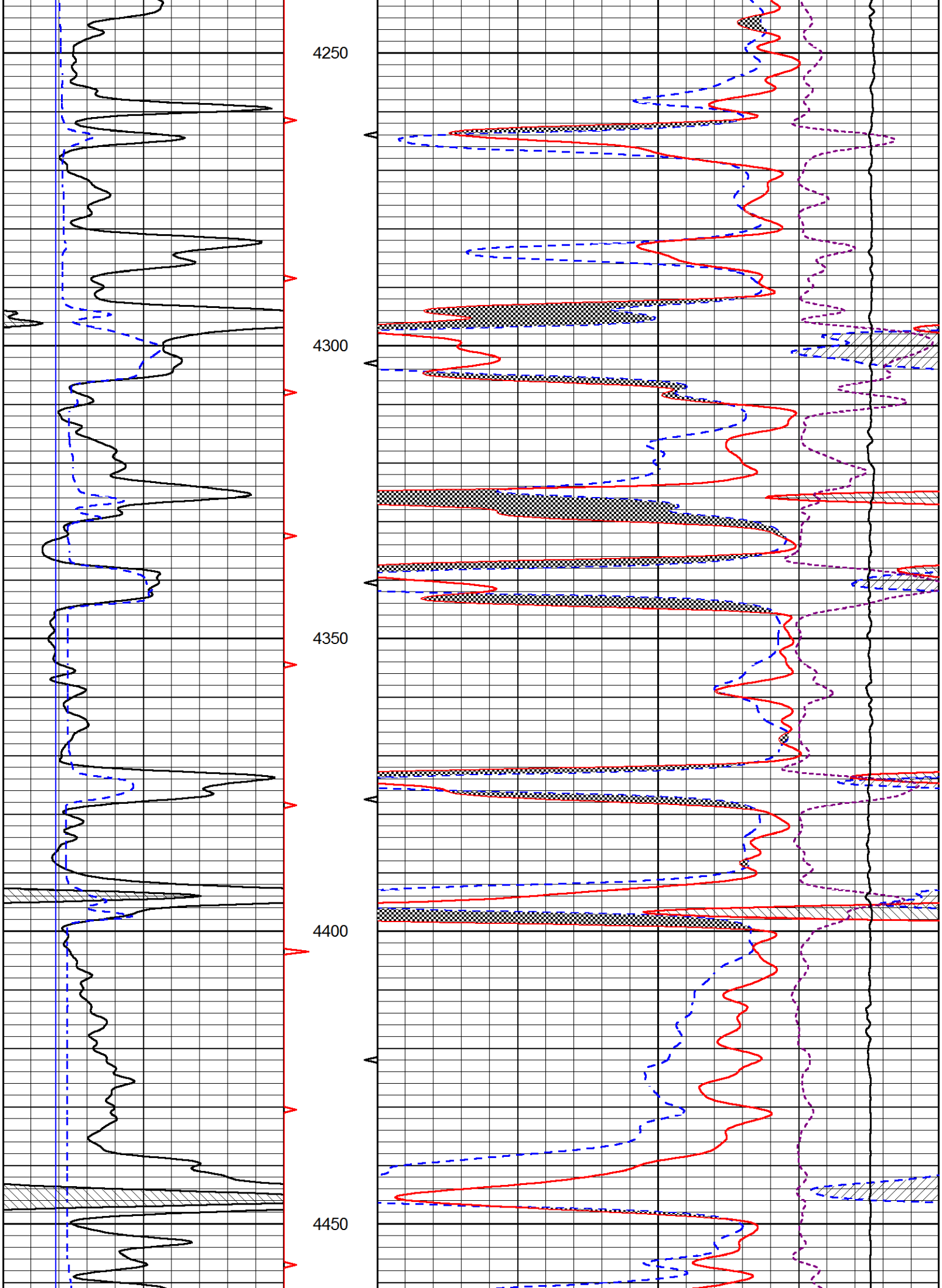
MAIN PASS

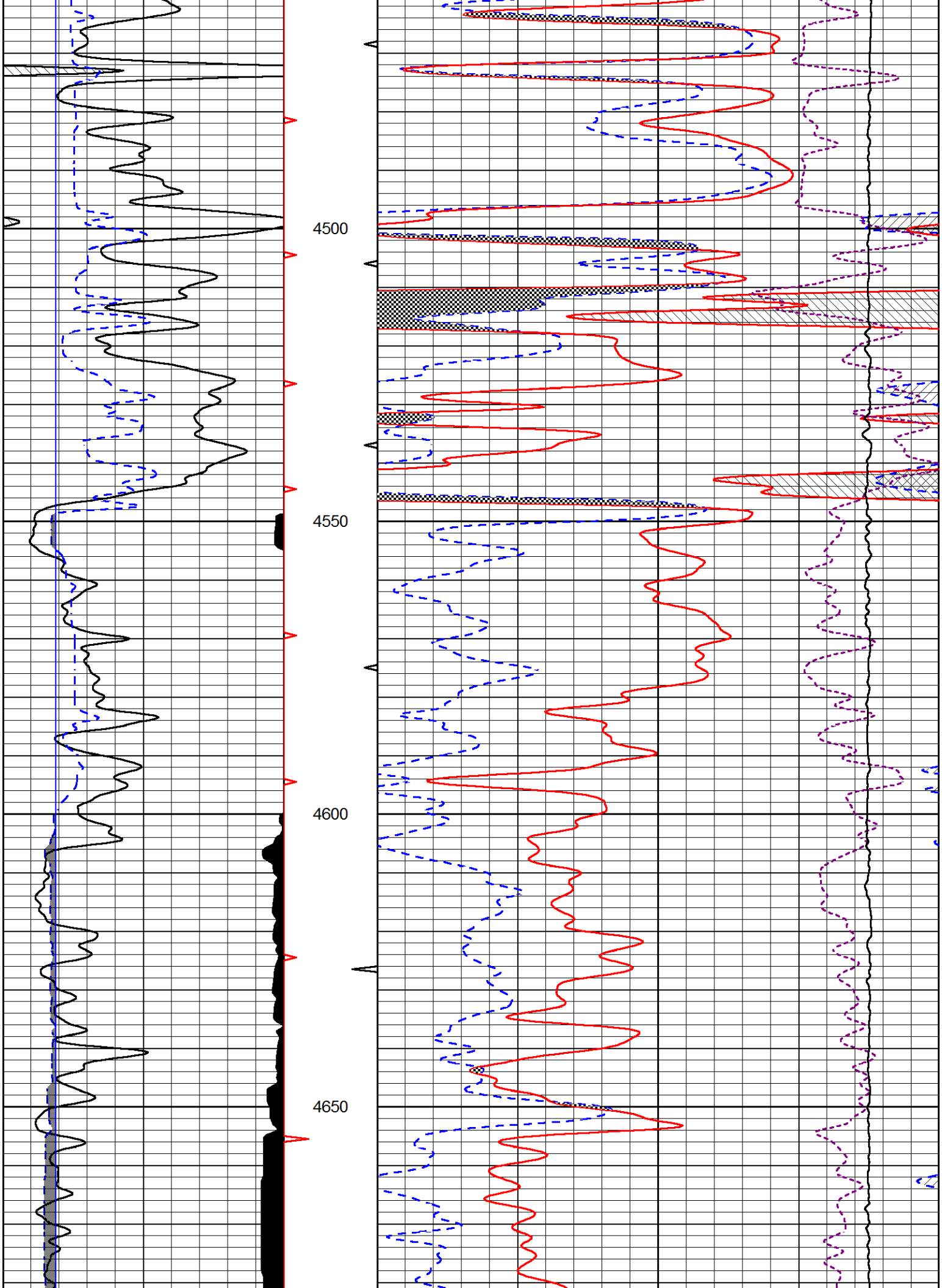
Database File	american warrior_ruff unit 1-11.db
Dataset Pathname	STACK/pass3.1
Presentation Format	cndlspec
Dataset Creation	Sat Sep 01 02:36:54 2018
Charted by	Depth in Feet scaled 1:240

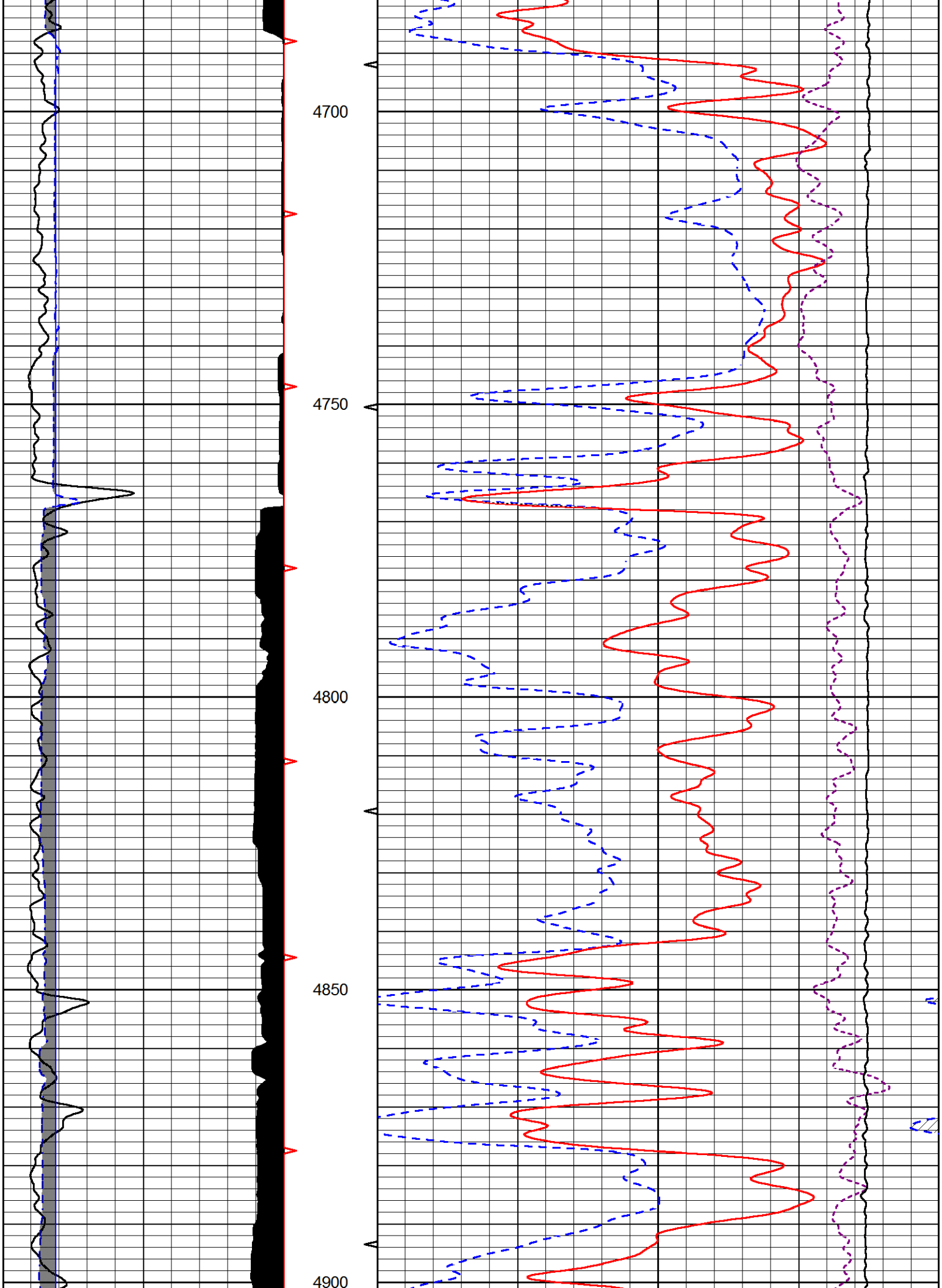


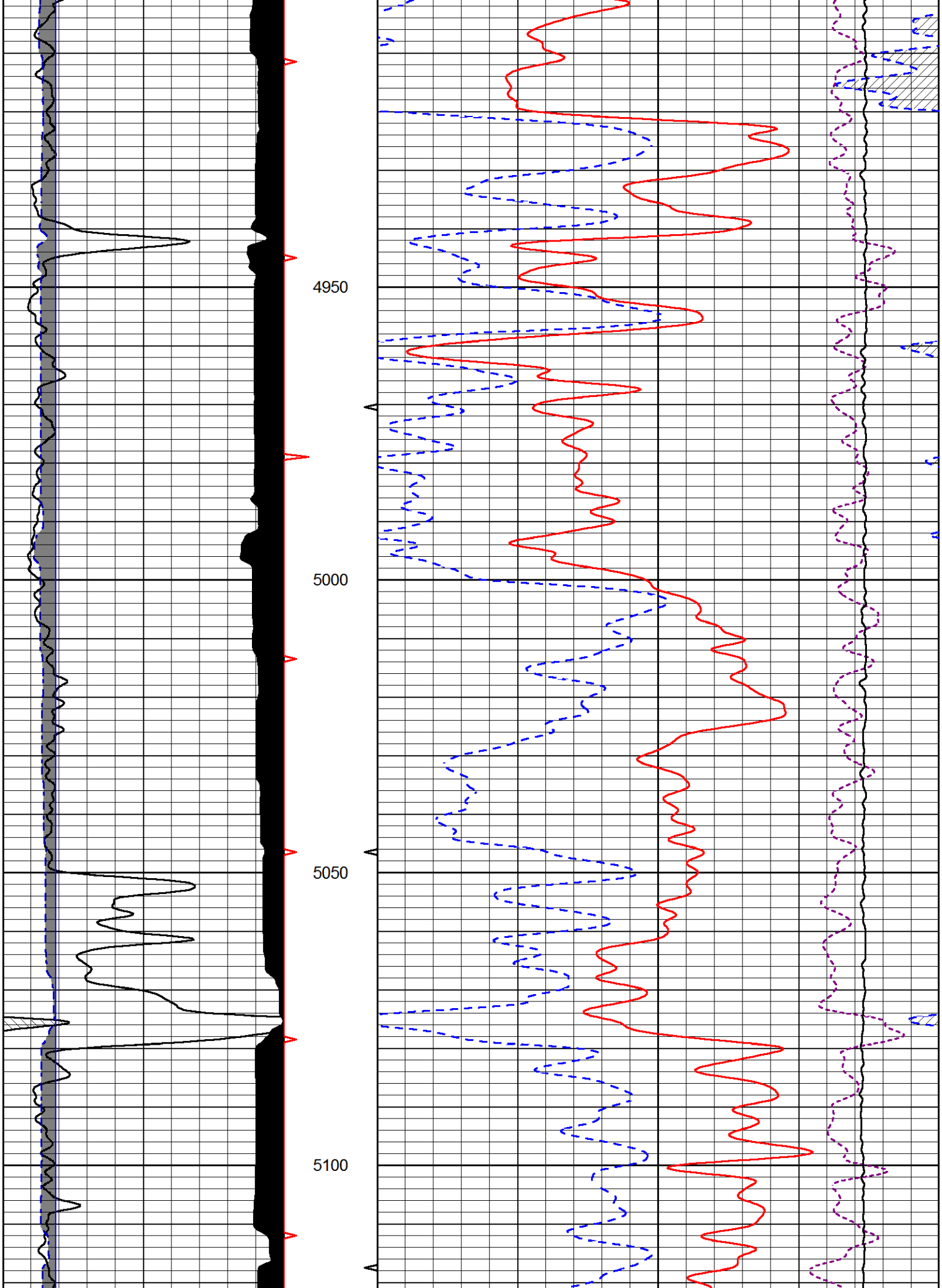

CNLS
DPOR
DCAL
7.875" BIT SIZE
3850
3900
3950
4000

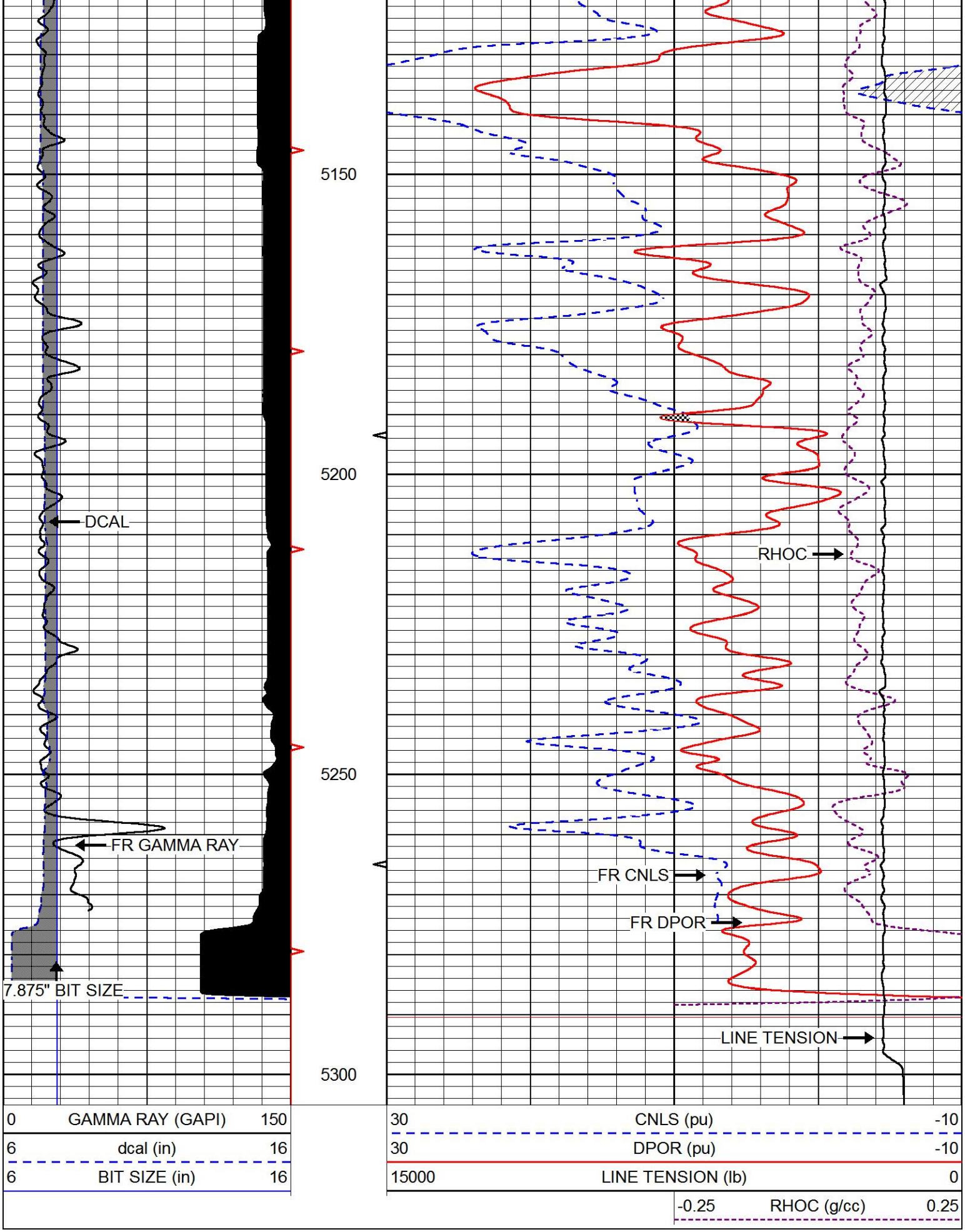

4050
4100
4150
4200


4250
4300
4350
4400
4450


4500
4550
4600
4650


4700
4750
4800
4850
4900


4950
5000
5050
5100



REPEAT SECTION

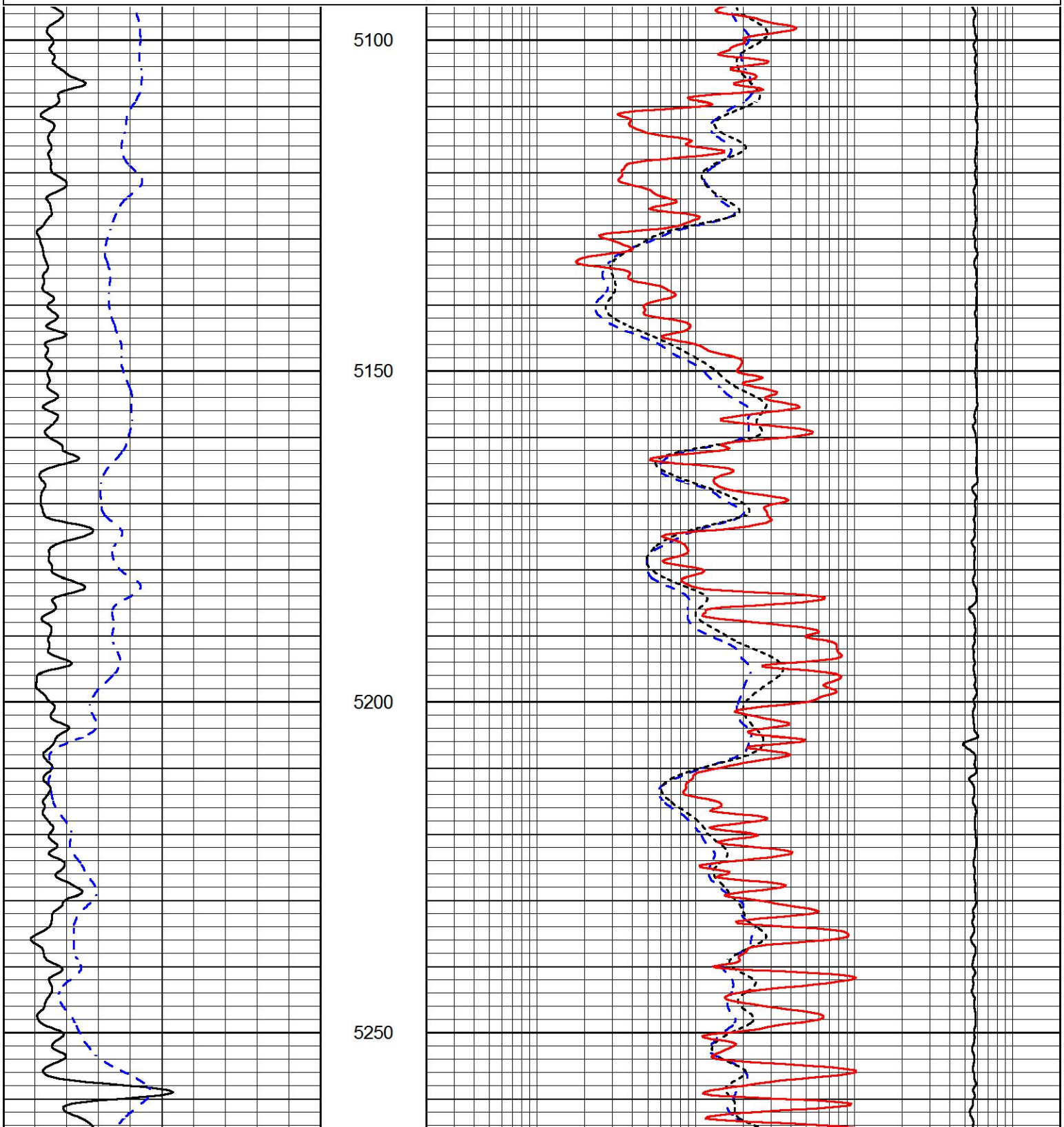
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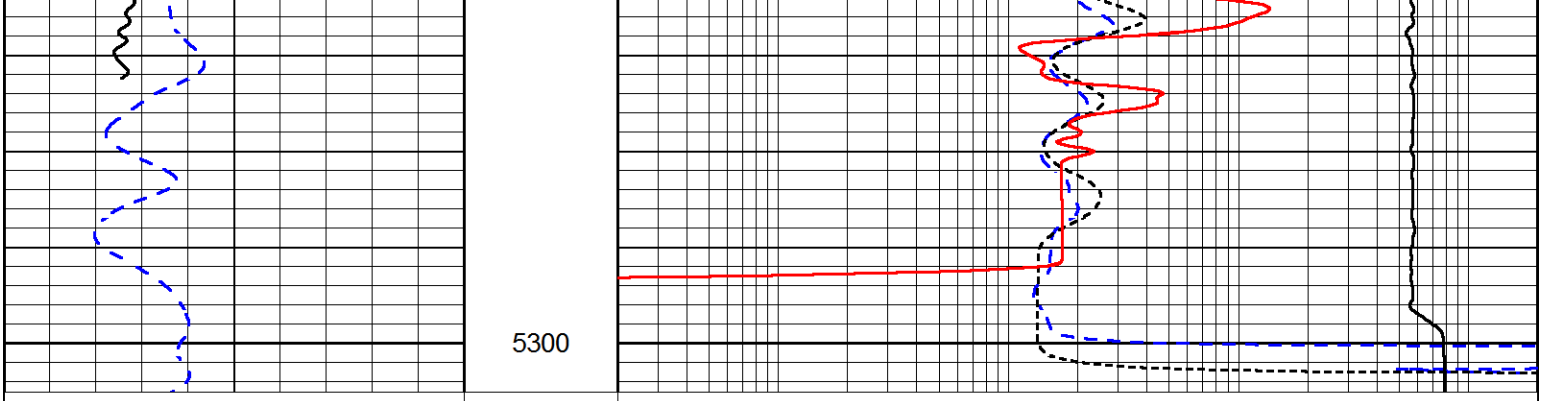
REPEAT SECTION

Database File	american warrior_ruff unit 1-11.db
Dataset Pathname	STACK/pass2.1
Presentation Format	cndlspec
Dataset Creation	Sat Sep 01 02:48:31 2018
Charted by	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0





Calibration Report

Database File	american warrior_ruff unit 1-11.db
Dataset Pathname	STACK/pass3.1
Dataset Creation	Sat Sep 01 02:36:54 2018

Dual Induction Calibration Report

Serial-Model:	1987-M&W
Calibration Performed:	Thu Aug 09 22:42:18 2018

	Readings		References			Results	
Loop:	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.505	-40.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.390	-110.000

Compensated Density Calibration Report

Serial-Model:	126-186-M&W
Source / Verifier:	/
Master Calibration Performed:	Wed Aug 29 10:37:15 2018

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4403.06	6298.47	cps
Aluminum	2.670	g/cc	836.60	3999.09	cps

Spine Angle = 74.70

Density/Spine Ratio = 0.531

	Size		Reading
Small Ring	4.00	in	2.62
Large Ring	16.00	in	1.66

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

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Company	AMERICAN WARRIOR, INC.
Well	RUFF UNIT #1-11
Field	LIPPOLDT NORTHWEST
County	HODGEMAN
State	KANSAS