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DUAL COMP POROSITY LOG

Company RITCHIE EXPLORATION, INC.
Well WHITHAM 35ABD NO.1
Field UNKNOWN
County WICHITA State KANSAS

Location: API #: 15-203-20315-00-00
335' FNL & 2470' FEL
SEC 35 TWP 16S RGE 37W

Other Services: DIL

Elevation: K.B. 3345' D.F. N/A G.L. 3340'

Company	RITCHIE EXPLORATION, INC.
Well	WHITHAM 35ABD NO.1
Field	UNKNOWN
County	WICHITA
State	KANSAS
Location:	API #: 15-203-20315-00-00
	335' FNL & 2470' FEL
	SEC 35 TWP 16S RGE 37W
Other Services	DIL
Elevation	K.B. 3345' D.F. N/A G.L. 3340'
Permanent Datum	GROUND LEVEL
Elevation	3340'
Log Measured From	KELLY BUSHING
Drilling Measured From	KELLY BUSHING

Date	4/21/17
Run Number	ONE
Type Log	CNL/CDL
Depth Driller	4950'
Depth Logger	4951'
Bottom Logged Interval	4930'
Top Logged Interval	3500'
Type Fluid In Hole	CHEMICAL
Salinity, PPM CL	7,000
Density	9.4
Level	FULL
Max. Rec. Temp. F	126 DEG/F
Operating Rig Time	2 HOURS
Equipment -- Location	108 HAYS
Recorded By	J. HENRICKSON
Witnessed By	MAY LOVELY

Borehole Record

Run No.	Bit	From	To
ONE	12.25"	0	259'
TWO	7.875"	259'	TD

Casing Record

Size	Wgt.	From	To
8.625"	23#	0	259'

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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.

LEOTI KANSAS
10 NORTH, 1/2 WEST, SOUTH INTO

Log Measured From: KELLY BUSHING 5 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: J. HENRICKSON	Primary Witness: MAY LOVELY
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\ritchie_whitham_35abd_1.db
Dataset field/well/stack/pass2.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	126	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	-305	42	Off	4951

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 (168-986)	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: ritchie_whitham_35abd_1.db: field/well/stack/pass2.1
Total length: 35.50 ft
Total weight: 620.00 lb
O.D.: 4.00 in

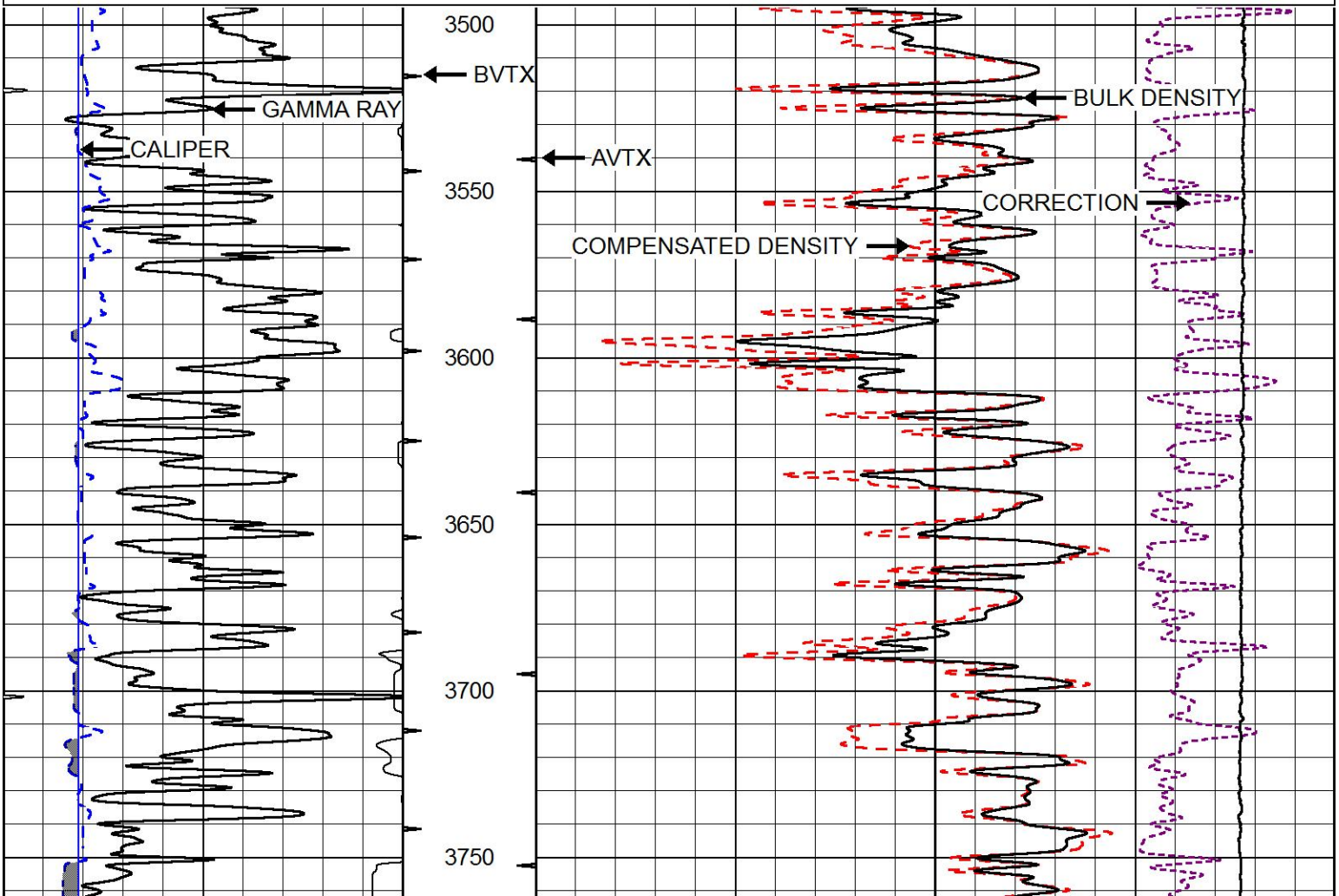
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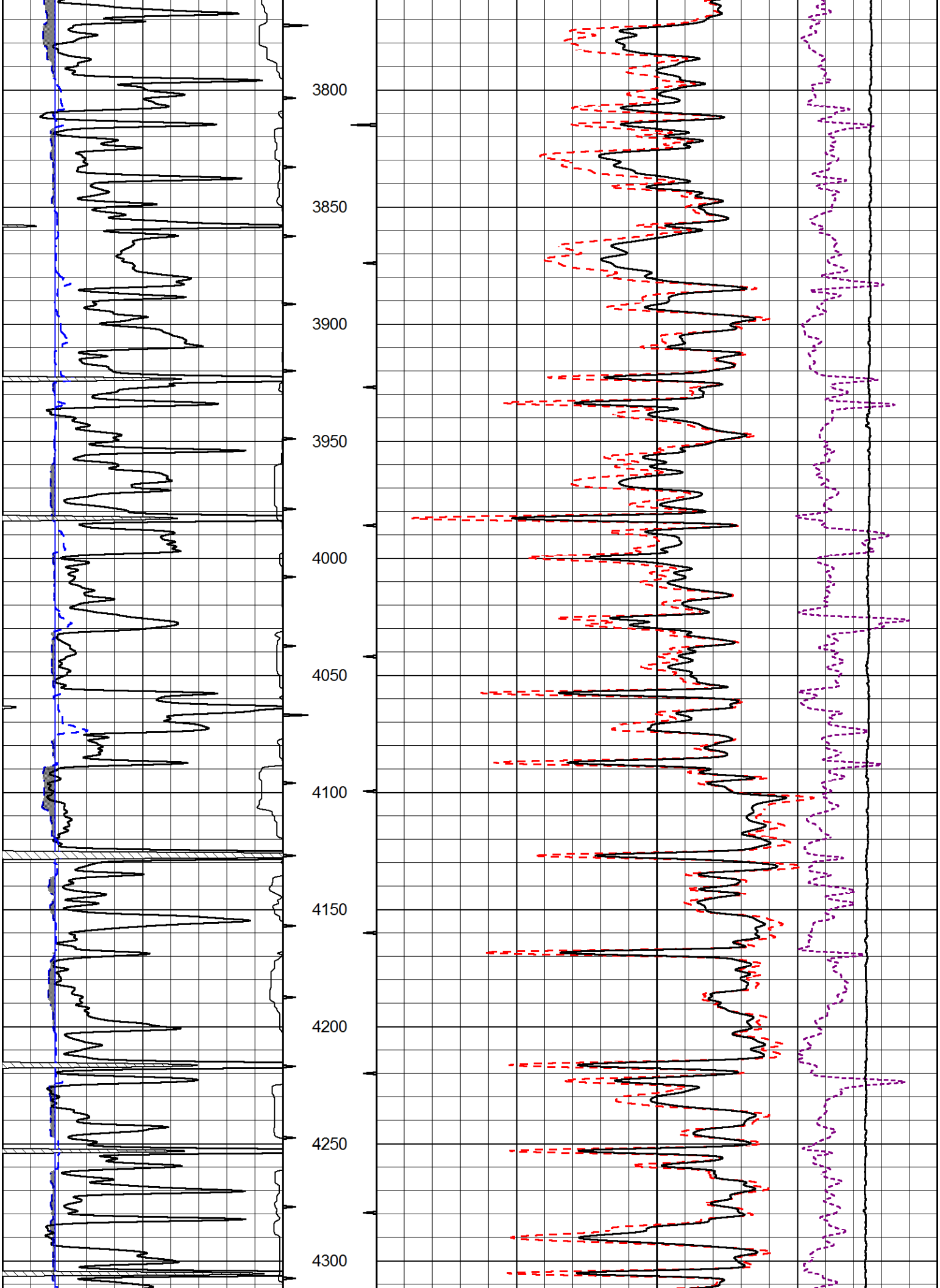
MAIN PASS

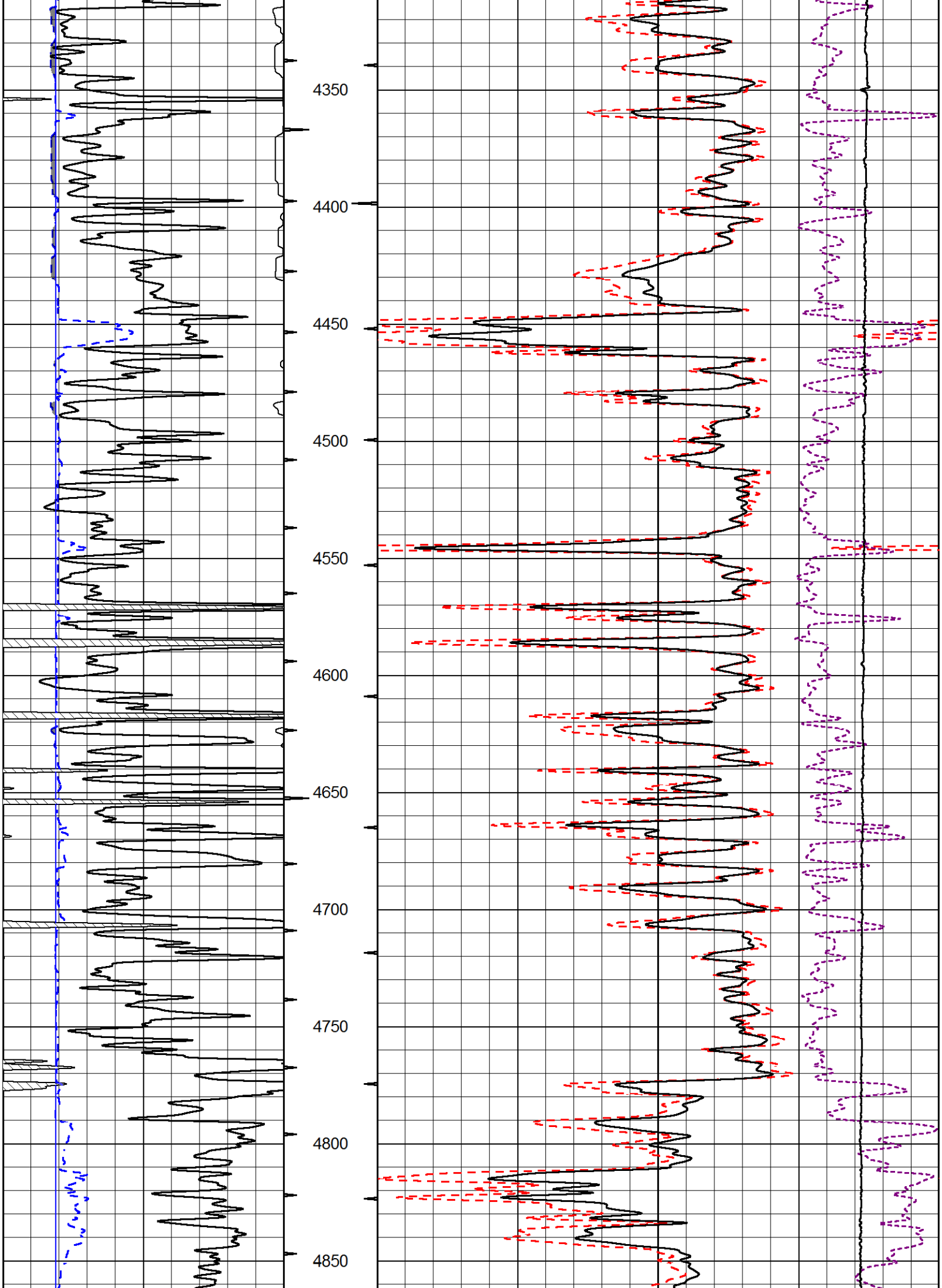
Database File ritchie_whitham_35abd_1.db
Dataset Pathname stack/pass3.1
Presentation Format cdl
Dataset Creation Fri Apr 21 01:56:39 2017
Charted by Depth in Feet scaled 1:600

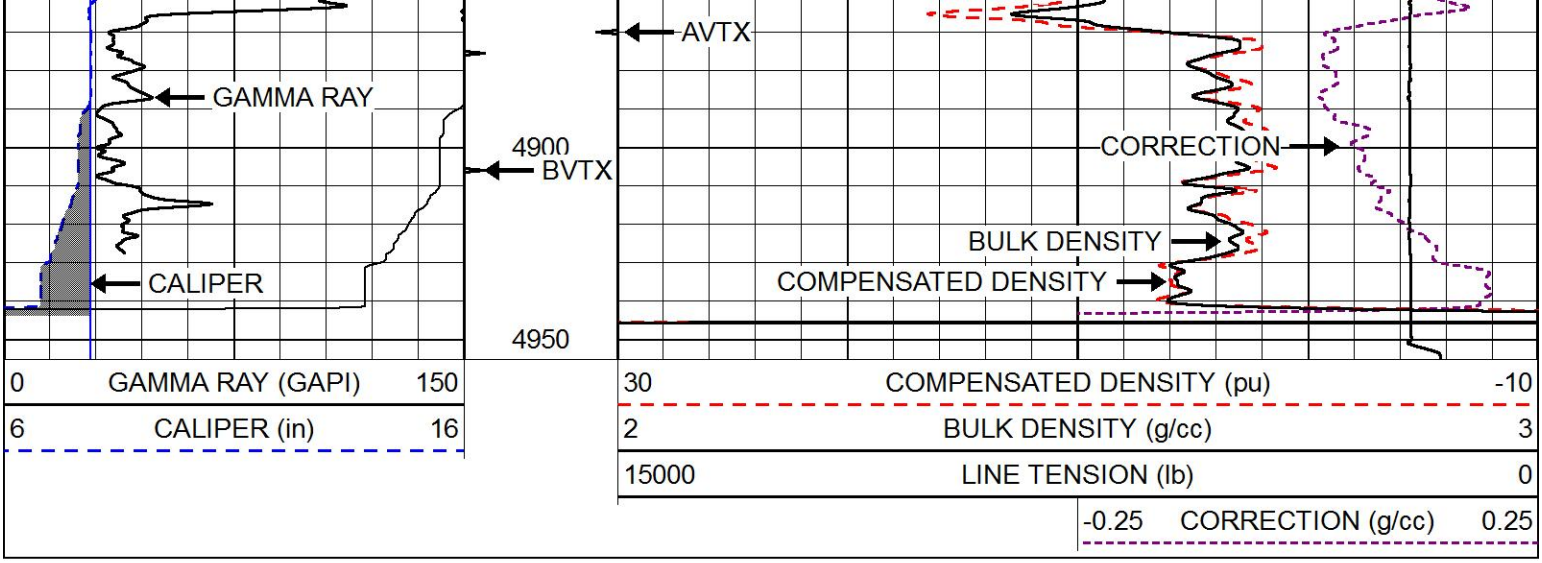
0	GAMMA RAY (GAPI)	150
6	CALIPER (in)	16

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




3800
3850
3900
3950
4000
4050
4100
4150
4200
4250
4300

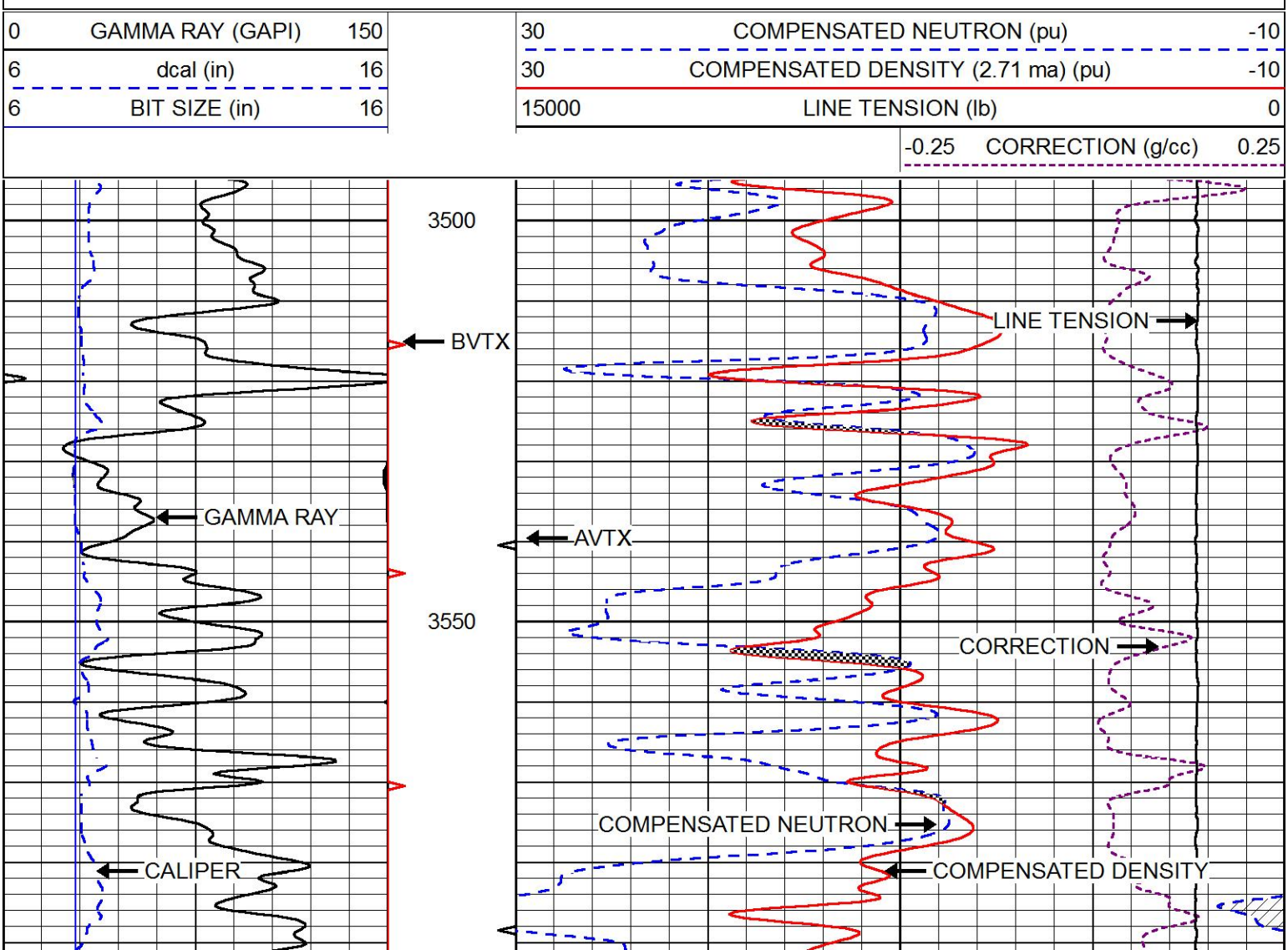

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4500
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4600
4650
4700
4750
4800
4850

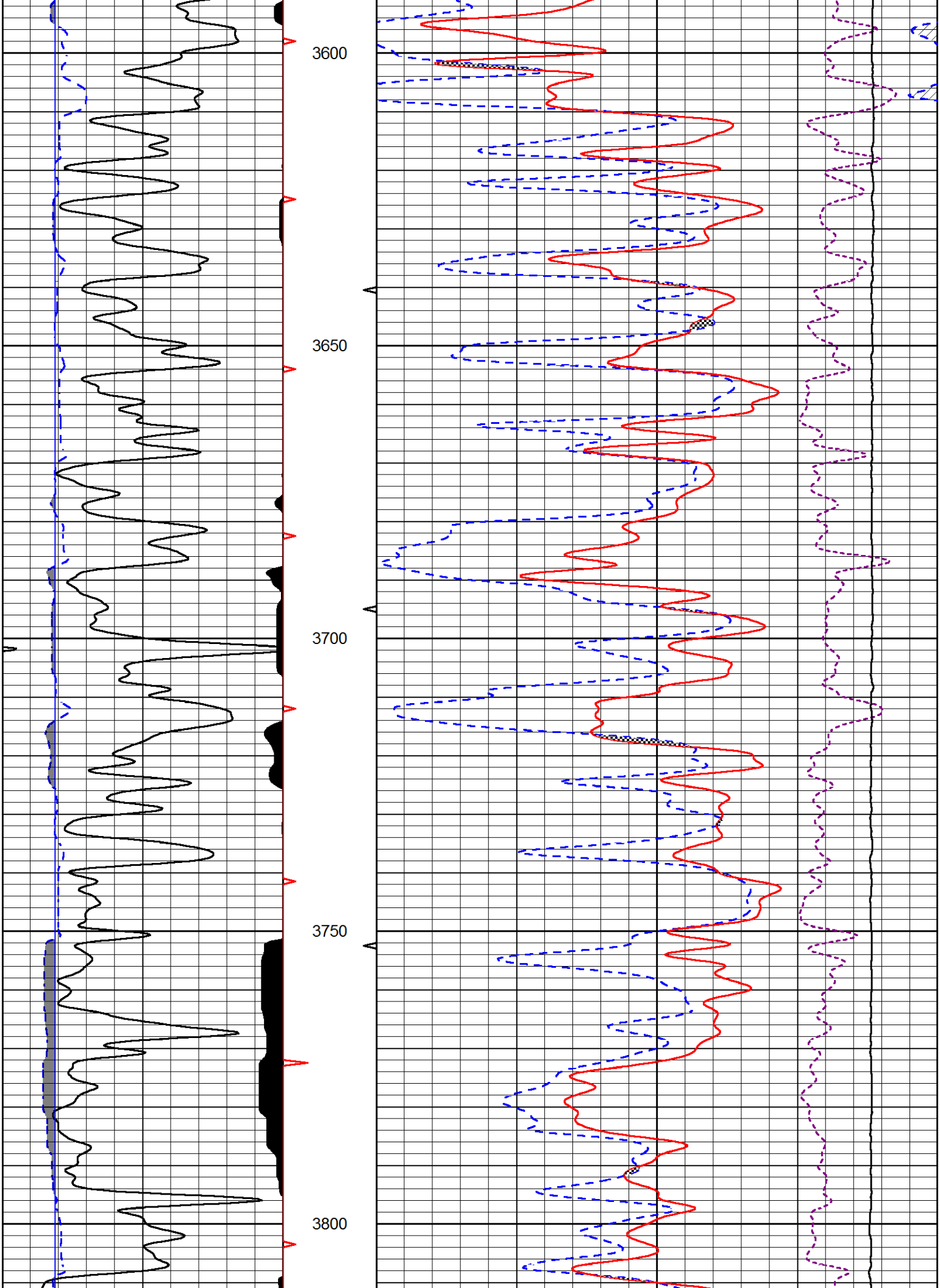


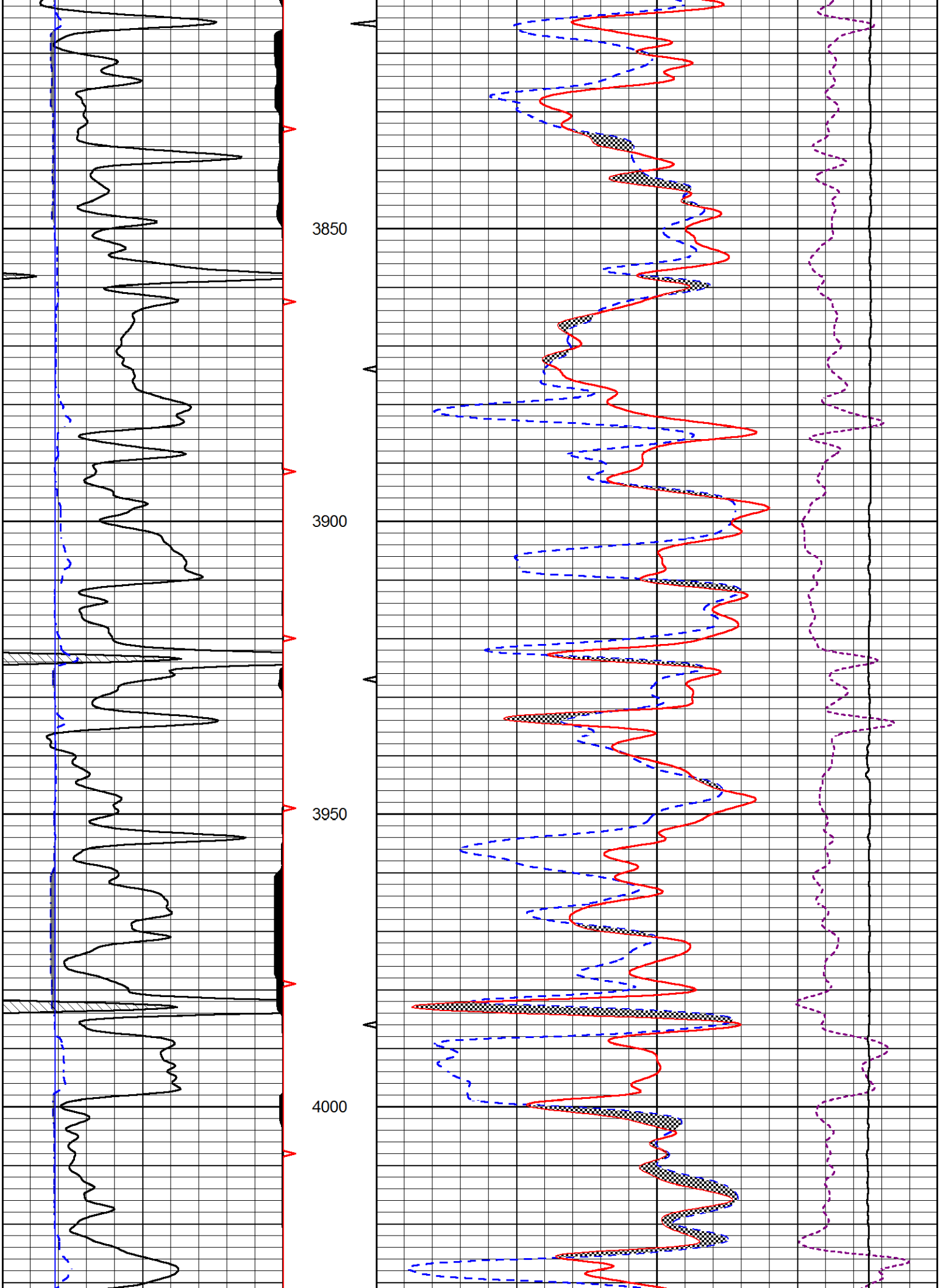
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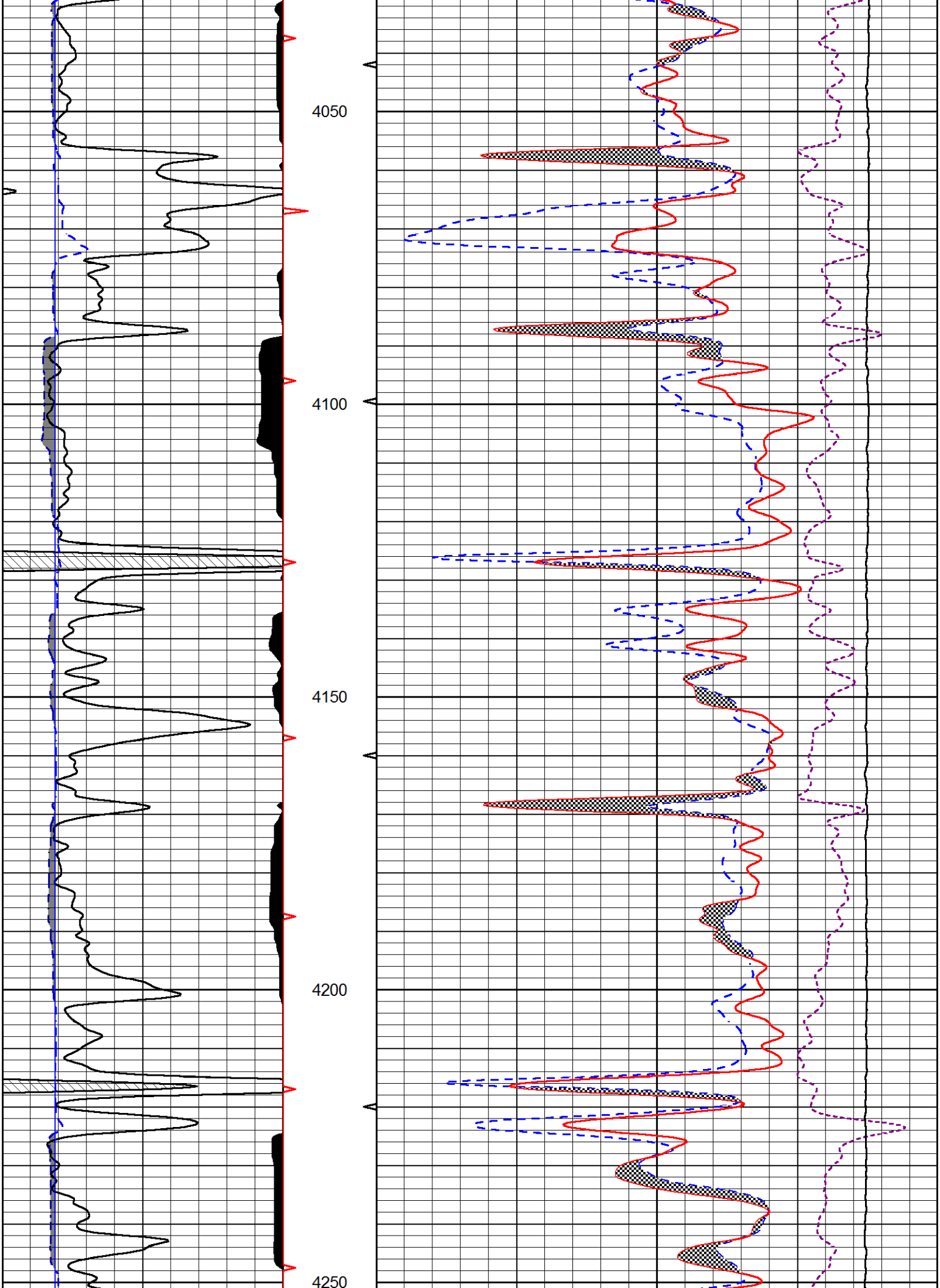
MAIN PASS

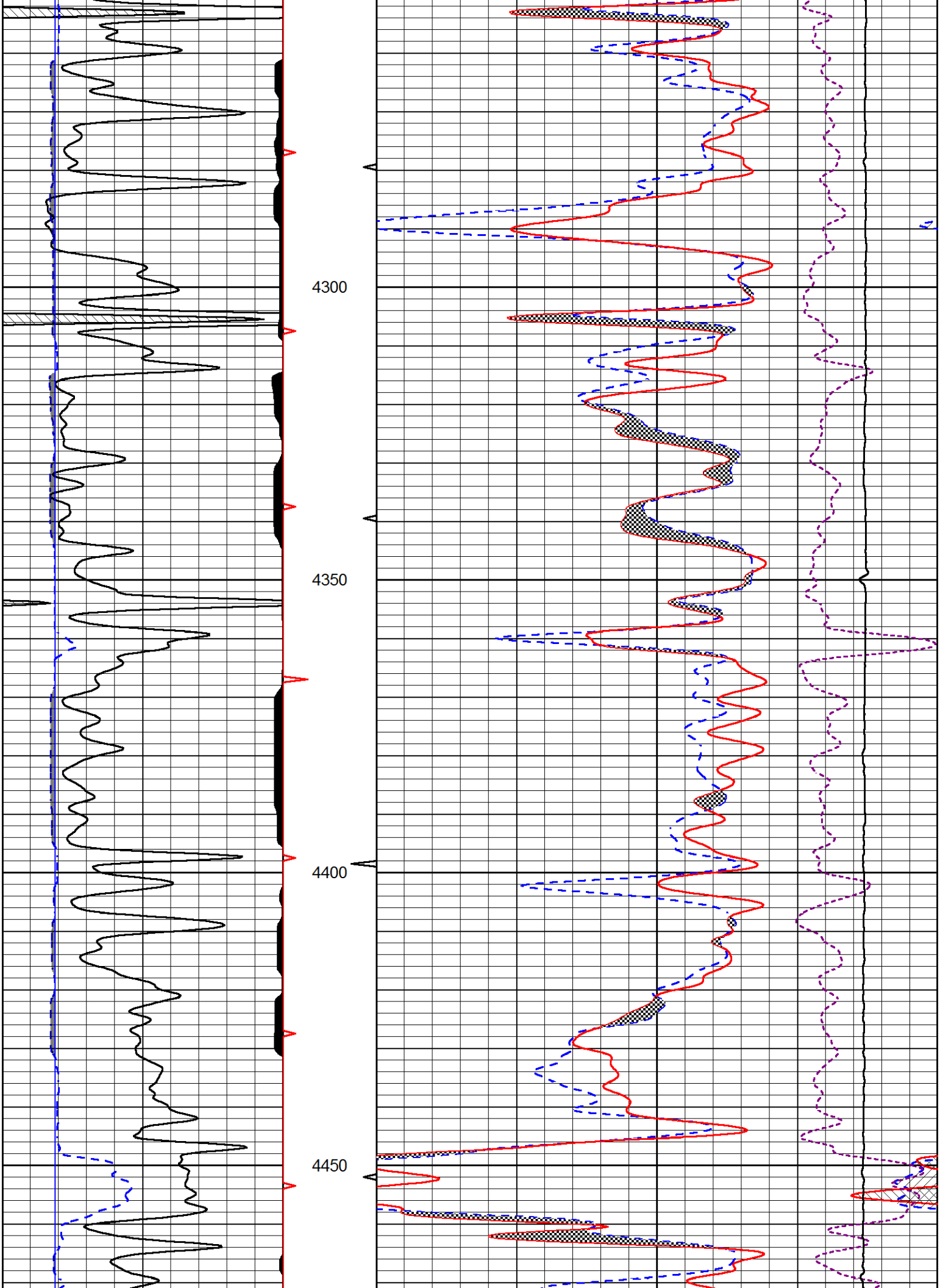
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Dataset Pathname	stack/pass3.1
Presentation Format	cndlspec
Dataset Creation	Fri Apr 21 01:56:39 2017
Charted by	Depth in Feet scaled 1:240

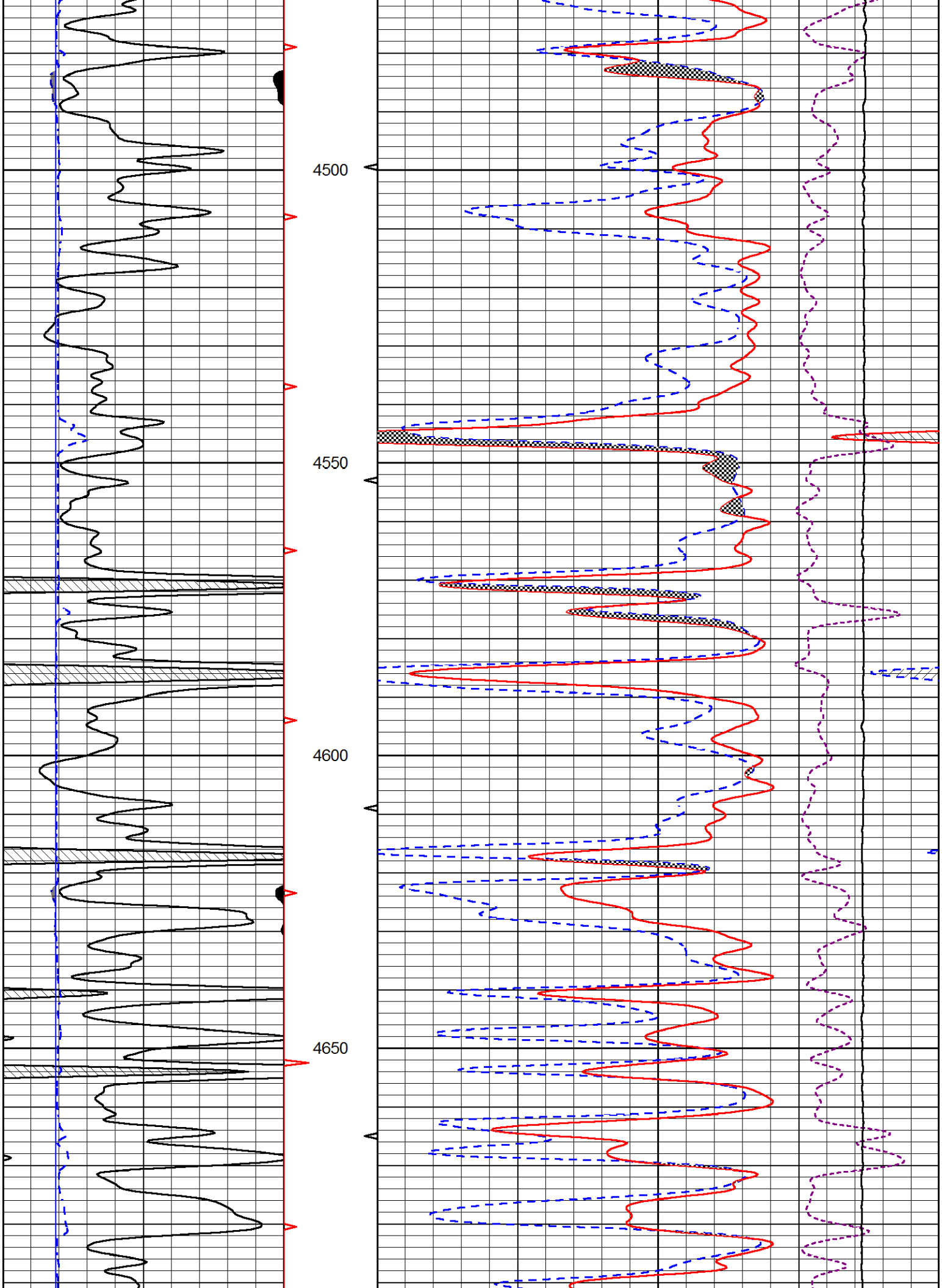


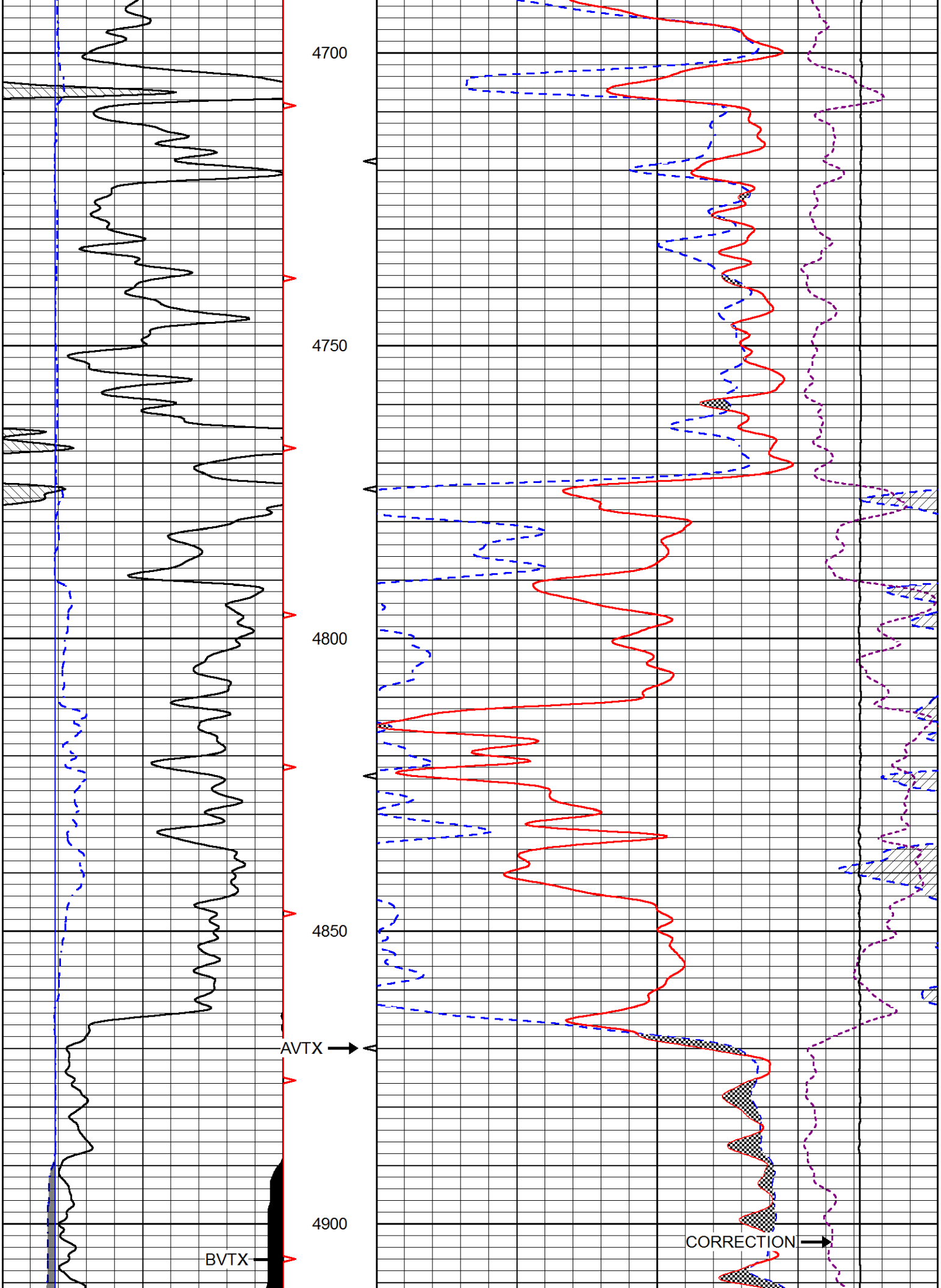

3600
3650
3700
3750
3800

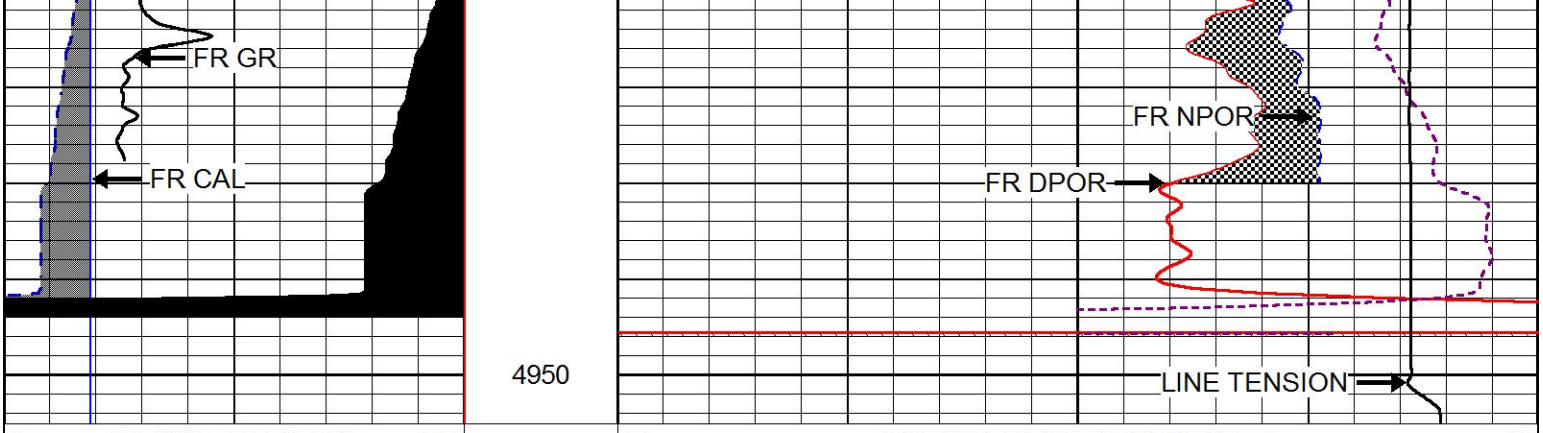

3850
3900
3950
4000


4050
4100
4150
4200
4250


4300
4350
4400
4450


4500
4550
4600
4650


4700
4750
4800
4850
AVTX
4900
BVTX
CORRECTION



0	GAMMA RAY (GAPI)	150
6	dcal (in)	16
6	BIT SIZE (in)	16

30	COMPENSATED NEUTRON (pu)	-10
30	COMPENSATED DENSITY (2.71 ma) (pu)	-10
15000	LINE TENSION (lb)	0
-0.25	CORRECTION (g/cc)	0.25

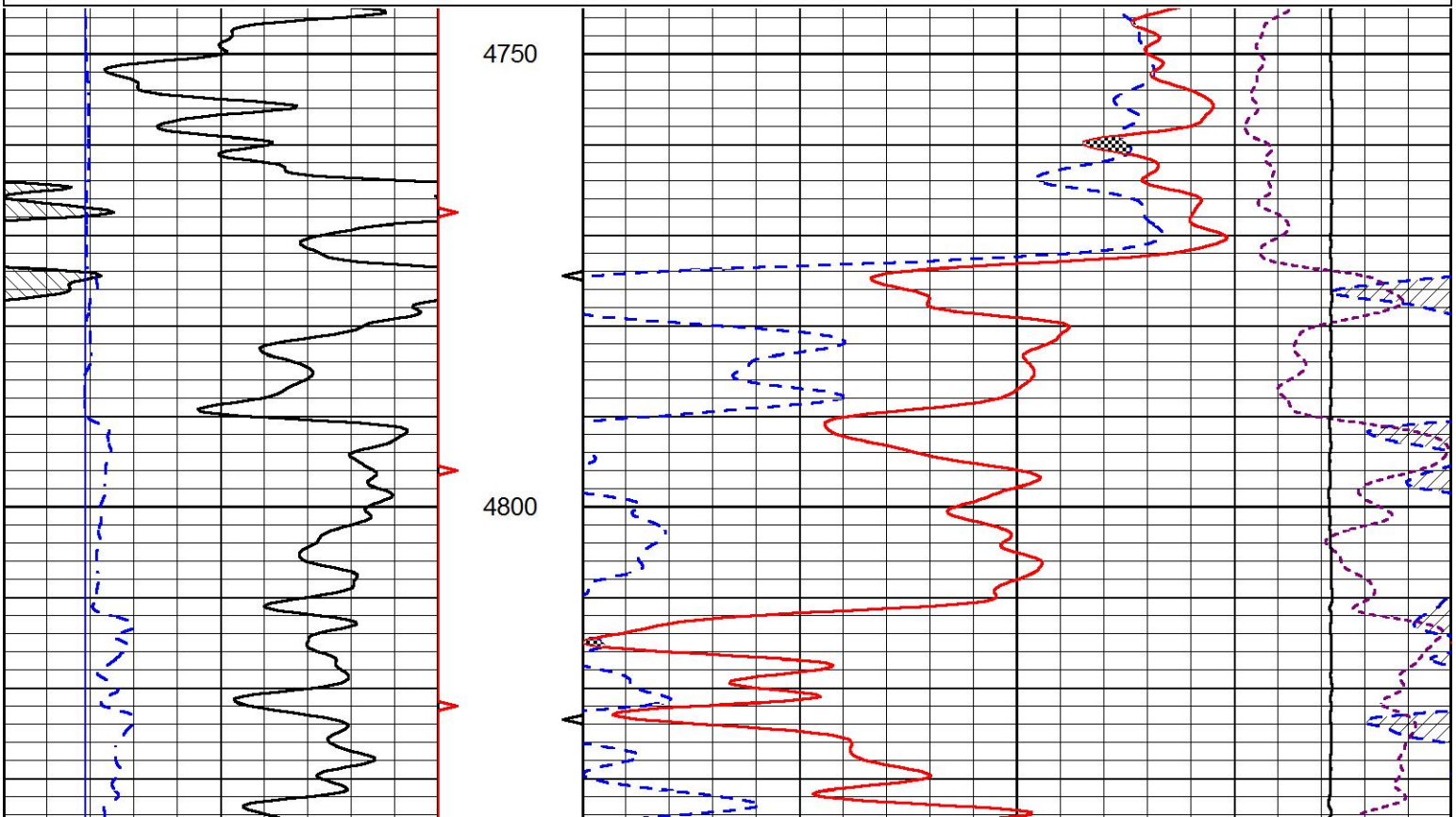
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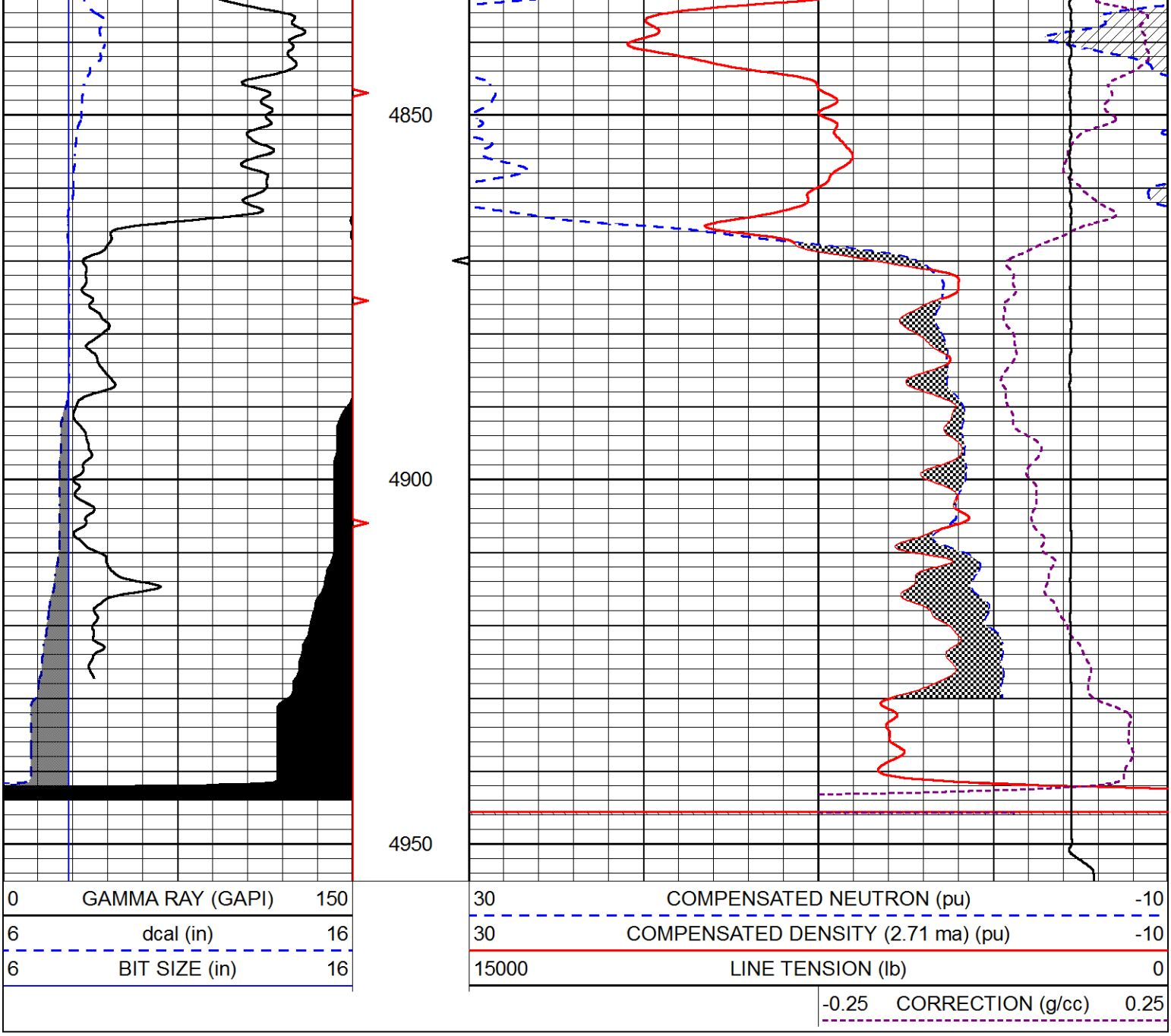
REPEAT SECTION

Database File	ritchie_whitham_35abd_1.db
Dataset Pathname	stack/pass2.1
Presentation Format	cndlspec
Dataset Creation	Fri Apr 21 01:55:41 2017
Charted by	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
6	dcal (in)	16
6	BIT SIZE (in)	16

30	COMPENSATED NEUTRON (pu)	-10
30	COMPENSATED DENSITY (2.71 ma) (pu)	-10
15000	LINE TENSION (lb)	0
-0.25	CORRECTION (g/cc)	0.25





Calibration Report

Database File	ritchie_whitham_35abd_1.db
Dataset Pathname	stack/pass3.1
Dataset Creation	Fri Apr 21 01:56:39 2017

Dual Induction Calibration Report

Serial-Model:	1987-M&W
Calibration Performed:	Tue Apr 11 16:07:38 2017

	Readings		References			Results	
Loop:	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:	Tue Apr 11 16:07:47 2017

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:	Tue Apr 11 16:08:01 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	RITCHIE EXPLORATION, INC.
Well	WHITHAM 35ABD NO.1
Field	UNKNOWN
County	WICHITA
State	KANSAS