



# DUAL COMP POROSITY LOG

Pioneer Energy Services

Company **CHOLLA PRODUCTION, LLC**  
 Well **ZIMMERMAN #1-3**  
 Field **WILDCAT**  
 County **RUSH** State **KANSAS**

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Location: **API #: 15-165-22166-00-00**  
**735' FNL & 2065' FWL**  
 SEC 3 TWP 16S RGE 20W  
 Permanent Datum **GROUND LEVEL Elevation 2166'**  
 Log Measured From **KELLY BUSHING**  
 Drilling Measured From **KELLY BUSHING**  
 Other Services **DIL MEL/BHCS**

Date	10/4/2019						
Run Number	ONE						
Type Log	CNL/CDL						
Depth Driller	3900'						
Depth Logger	3900'						
Bottom Logged Interval	3879'						
Top Logged Interval	2900'						
Type Fluid In Hole	CHEMICAL						
Salinity, PPM CL	3900						
Density	9.2						
Level	FULL						
Max. Rec. Temp. F	115 DEG/F						
Operating Rig Time	4 HOURS						
Equipment -- Location	P-108 HAYS						
Recorded By	J. HENRICKSON						
Witnessed By	CHARLIE STURDAVANT						
Borehole Record		Casing Record					
Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	0	258'	8.625"	23#	0	258'
TWO	7.875"	258'	TD				

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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.  
 ELLIS, KANSAS  
 SOUTH TO RUSH COUNTY LINE, 2 1/2 EAST, SOUTH INTO

Log Measured From: **KELLY BUSHING** 7 Ft. Above Permanent Datum

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


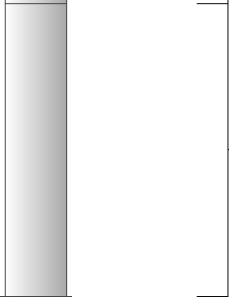
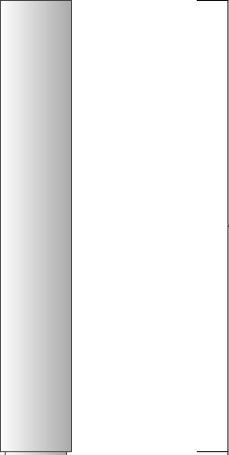

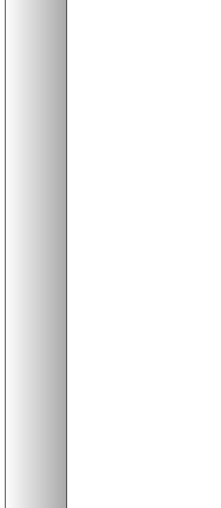
Your Pioneer Energy Services Crew		This Log Record Was Witnessed By	
Engineer: <b>J. HENRICKSON</b>	Operator:	Primary Witness: <b>CHARLIE STURDAVANT</b>	Secondary Witness:
Operator:	Operator:	Secondary Witness:	Secondary Witness:
Operator:		Secondary Witness:	

# Log Variables

DatabaseC:\ProgramData\Warrior\Data\cholla\_zimmerman\_1\_3.db  
 Dataset field/well/stack/pass4.1/\_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	0	0	Off	3900

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 (979-229)	8.50	4.00	250.00
RLL3 RLL3F	15.80 15.79					
CILD	8.00		DIL-M&W (976)	18.50	3.50	220.00

CILM 4.70

SP 0.20

Dataset: cholla\_zimmerman\_1\_3.db: field/well/stack/pass4.1  
 Total length: 35.50 ft  
 Total weight: 620.00 lb  
 O.D.: 4.00 in

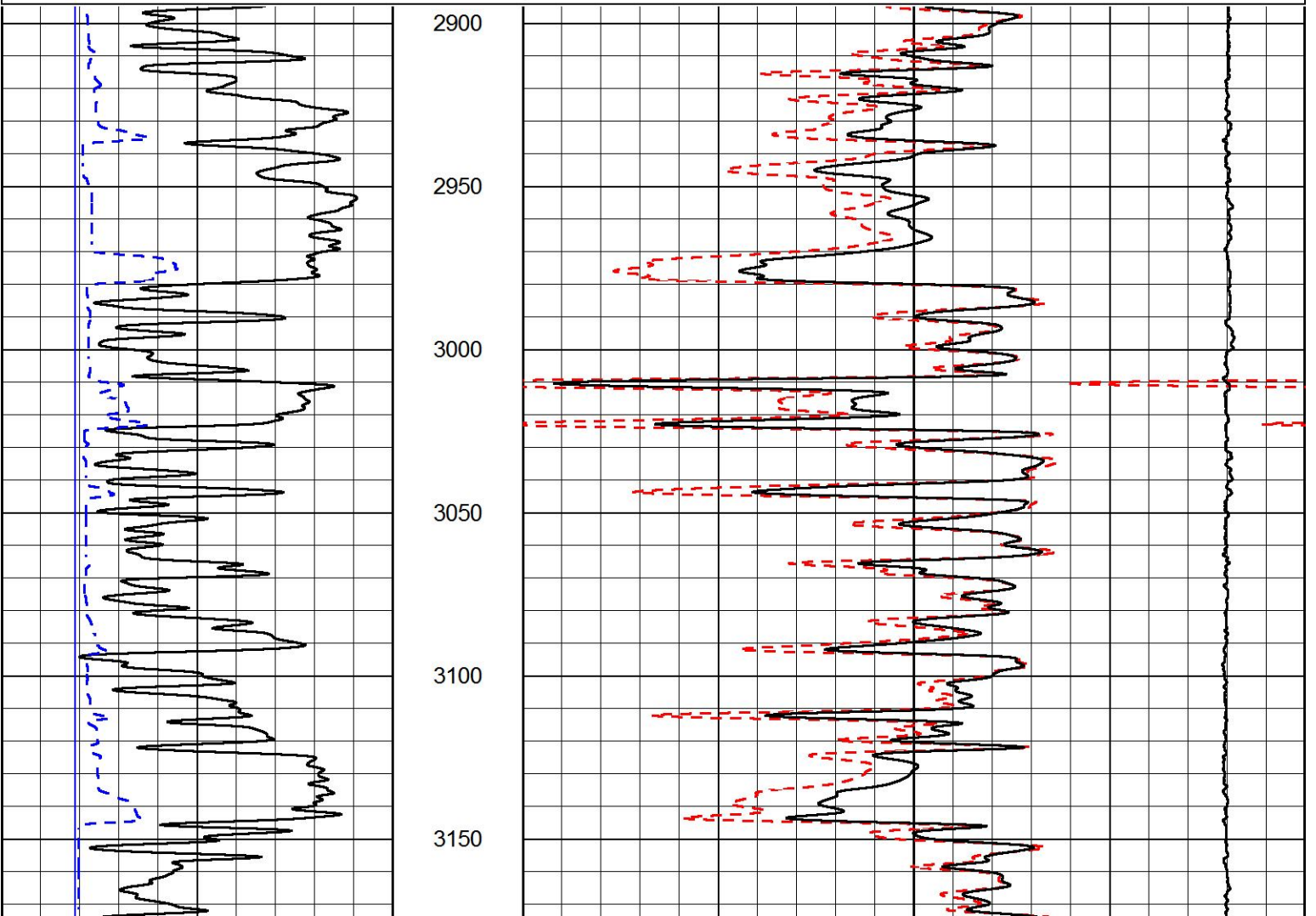


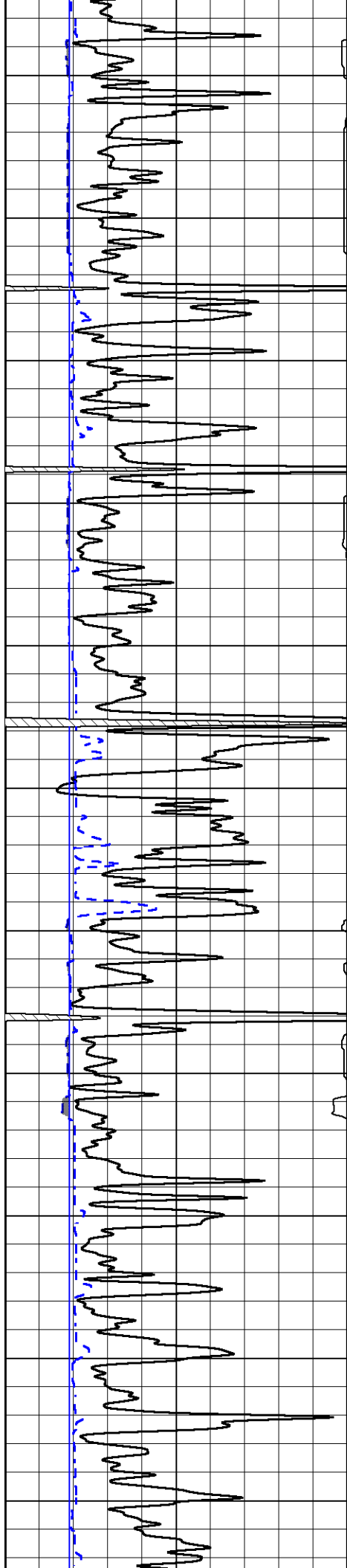
# MAIN PASS

Database File cholla\_zimmerman\_1\_3.db  
 Dataset Pathname stack/pass4.1  
 Presentation Format cdl  
 Dataset Creation Fri Oct 04 06:23:11 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

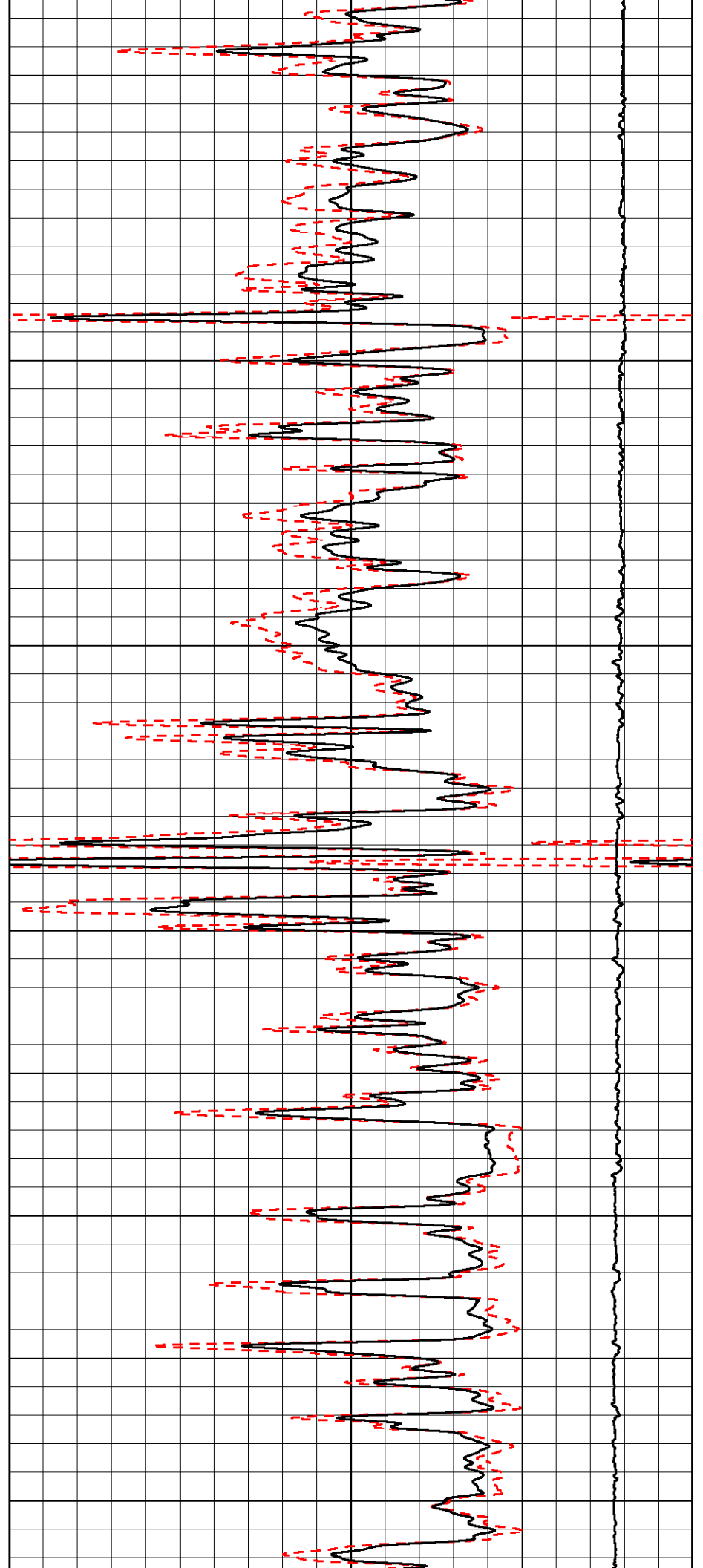
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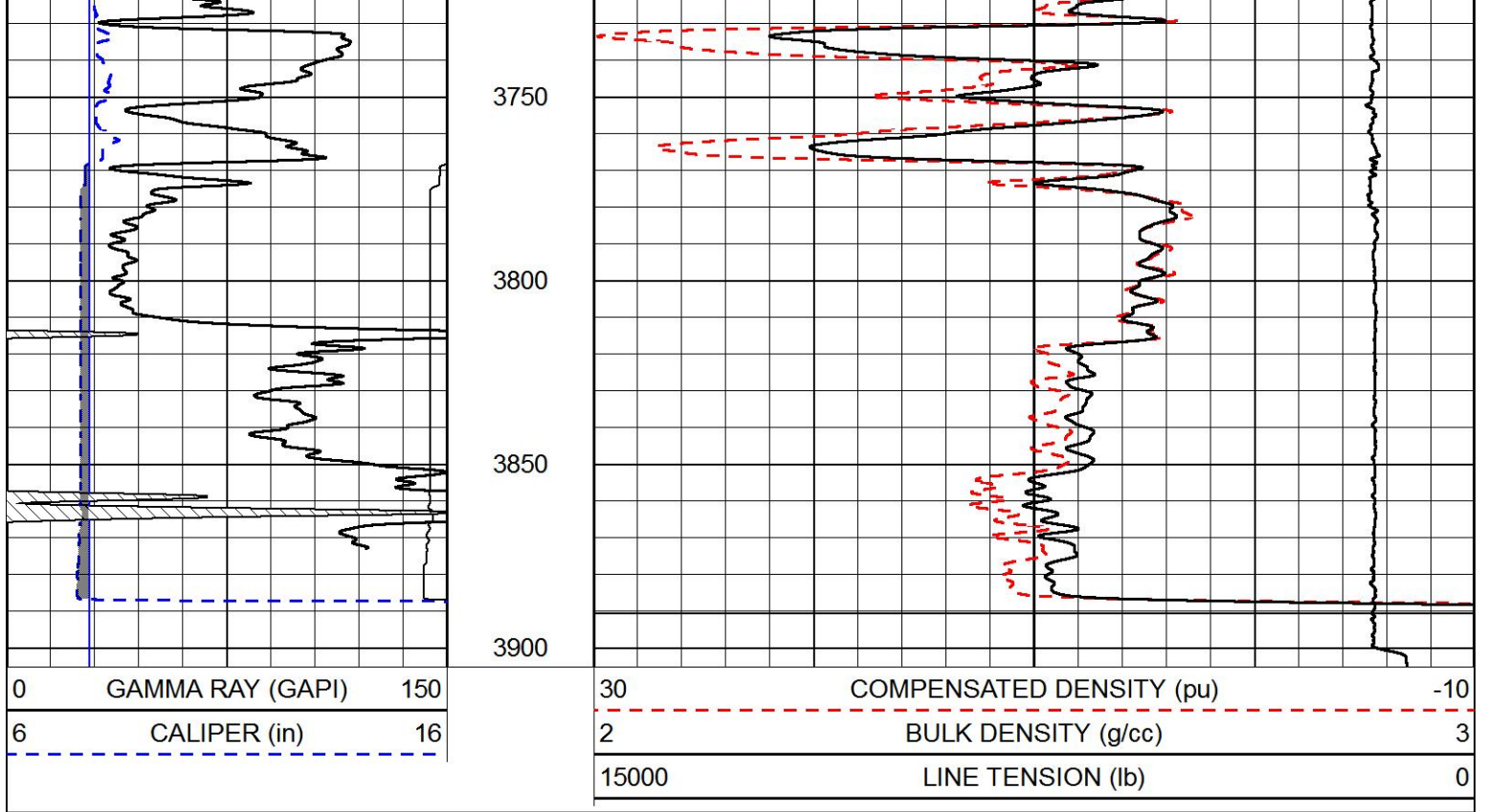
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3600

3650

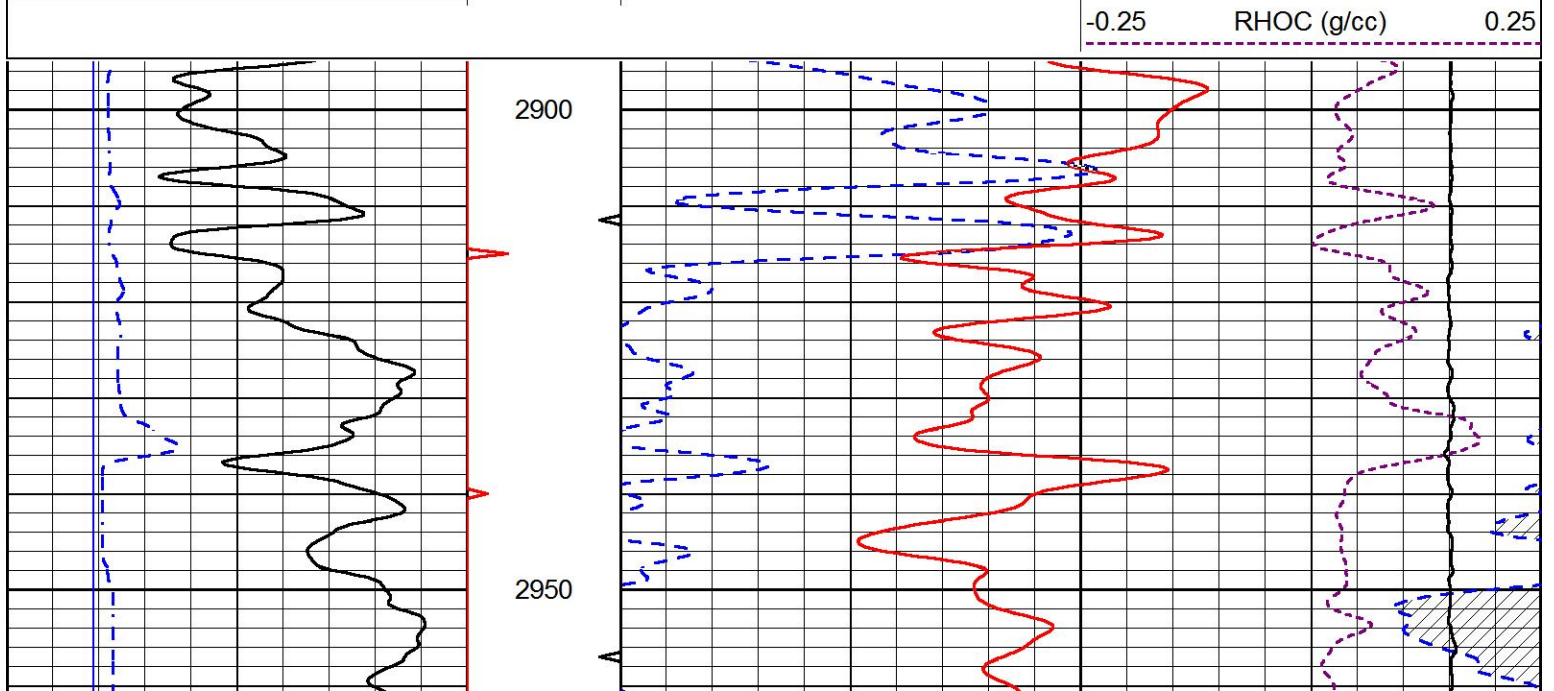
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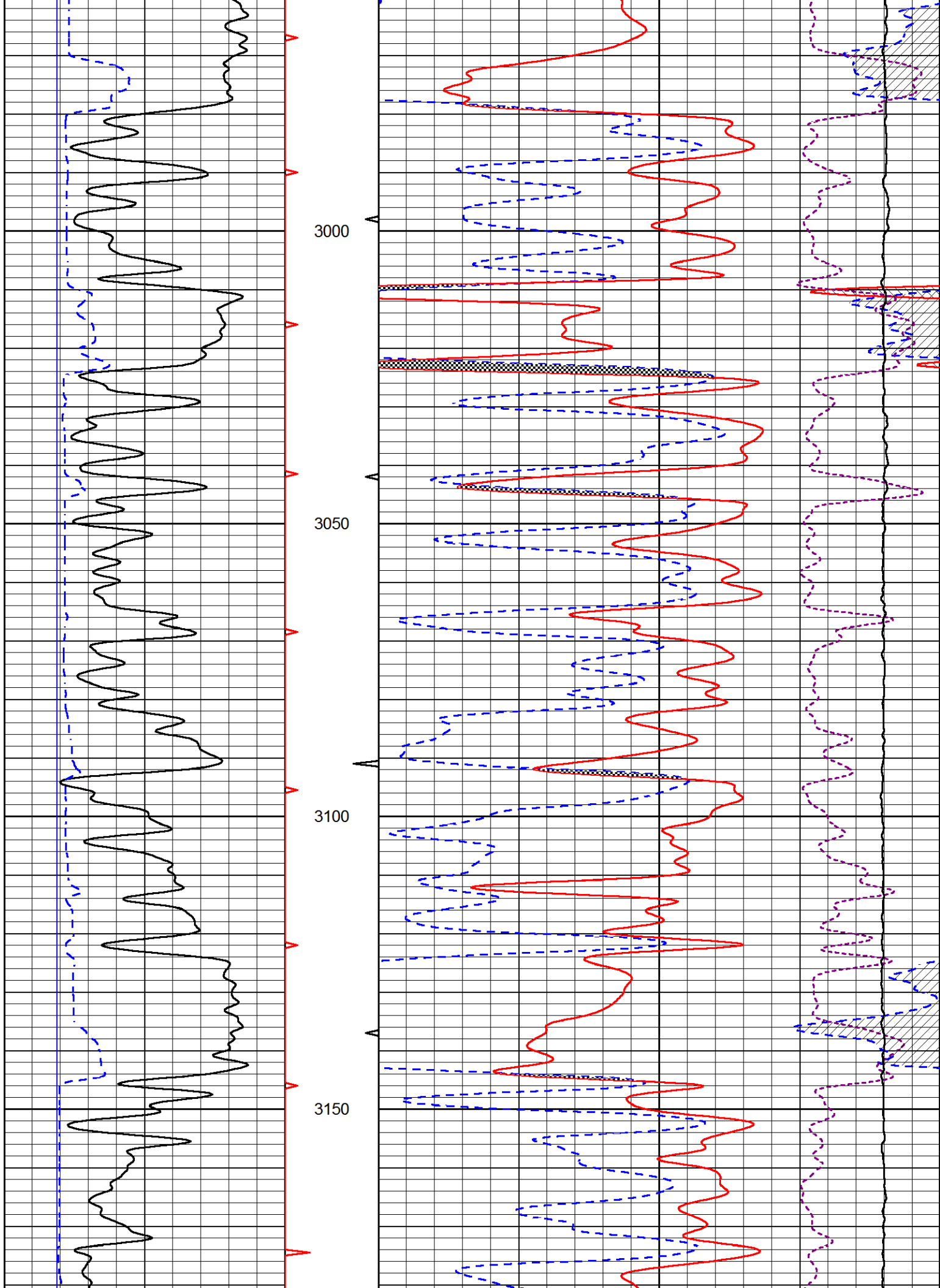


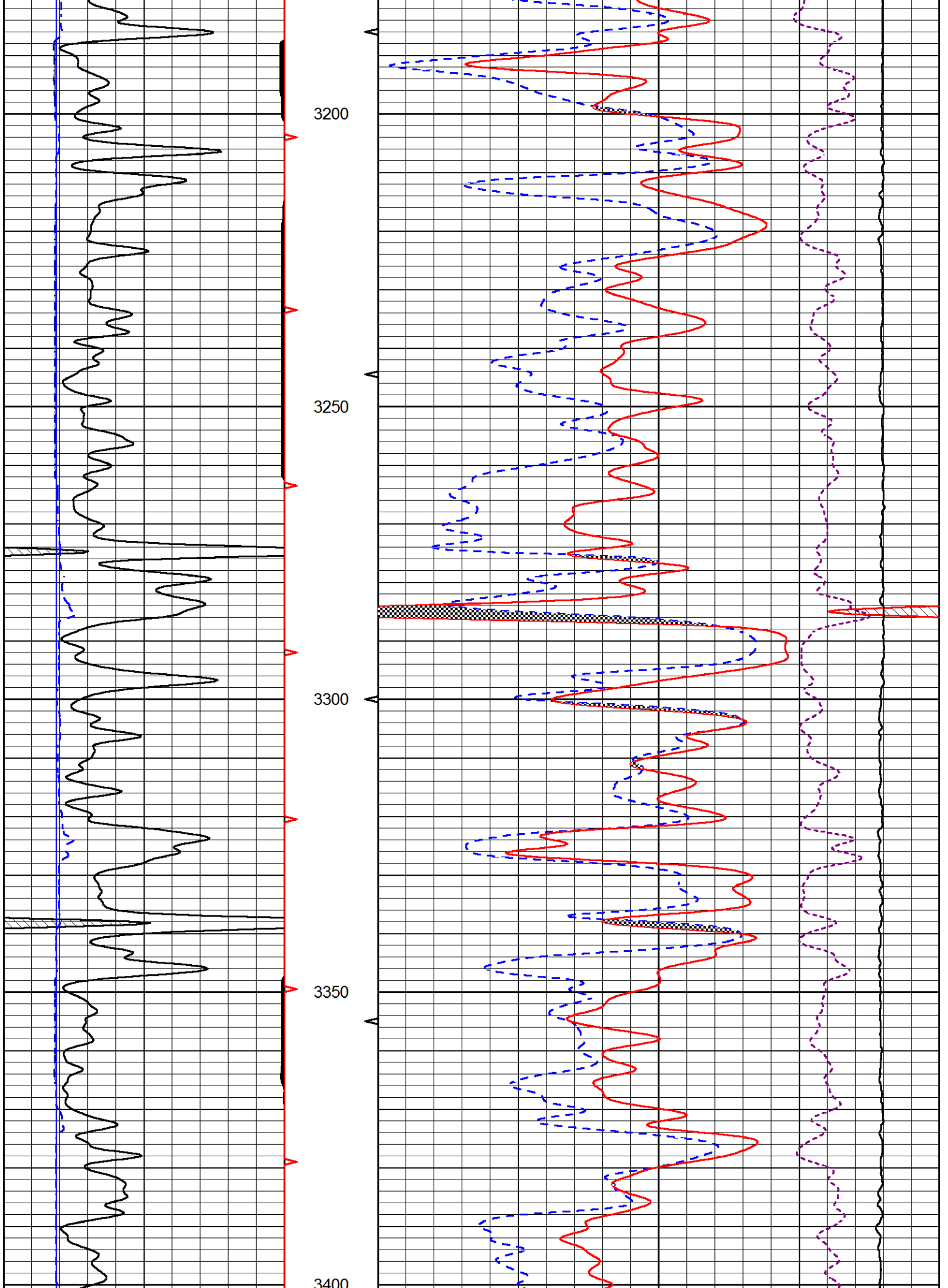


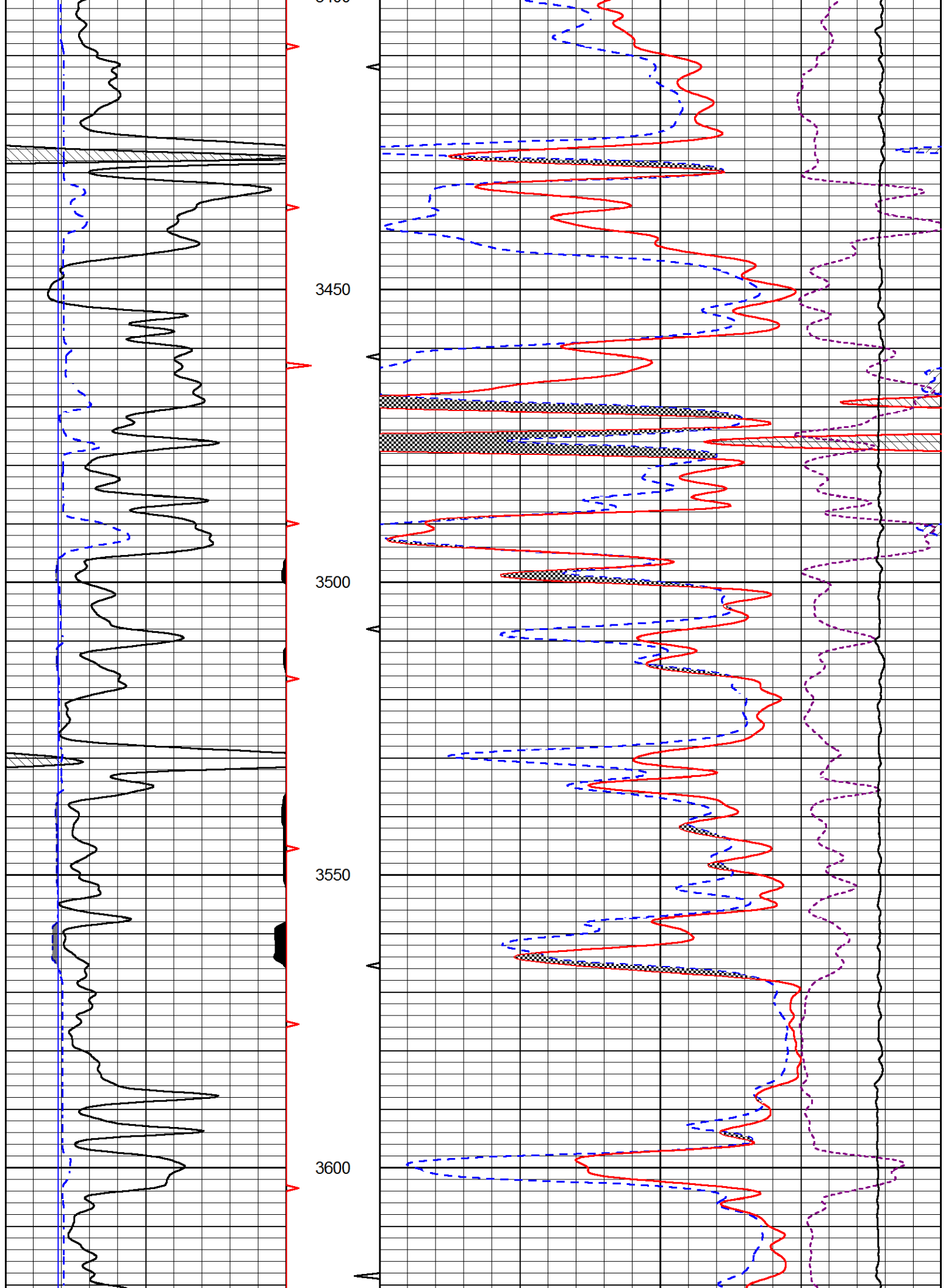
# MAIN PASS

Database File cholla\_zimmerman\_1\_3.db  
 Dataset Pathname stack/pass4.1  
 Presentation Format cndlspec  
 Dataset Creation Fri Oct 04 06:23:11 2019  
 Charted by Depth in Feet scaled 1:240

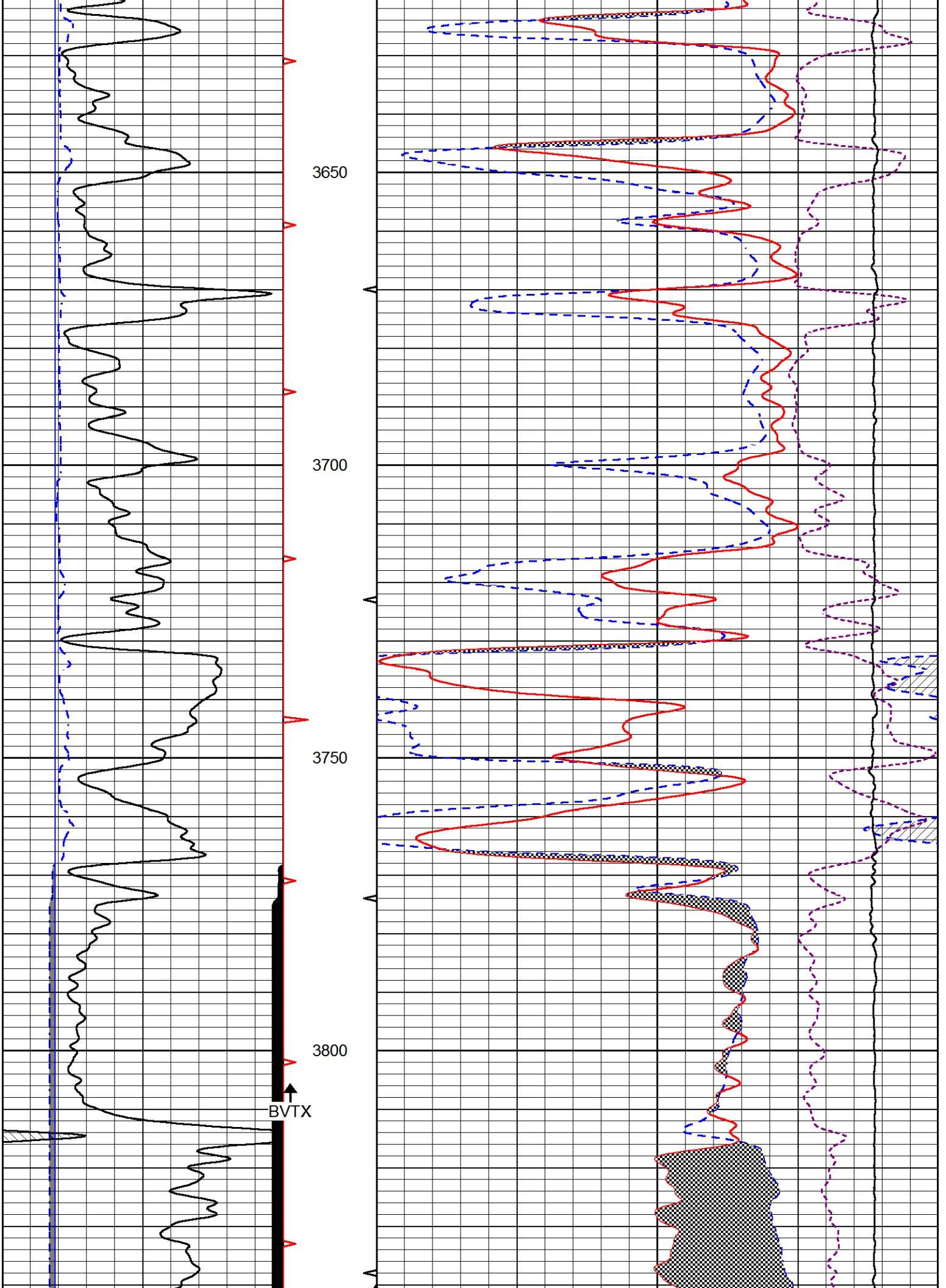


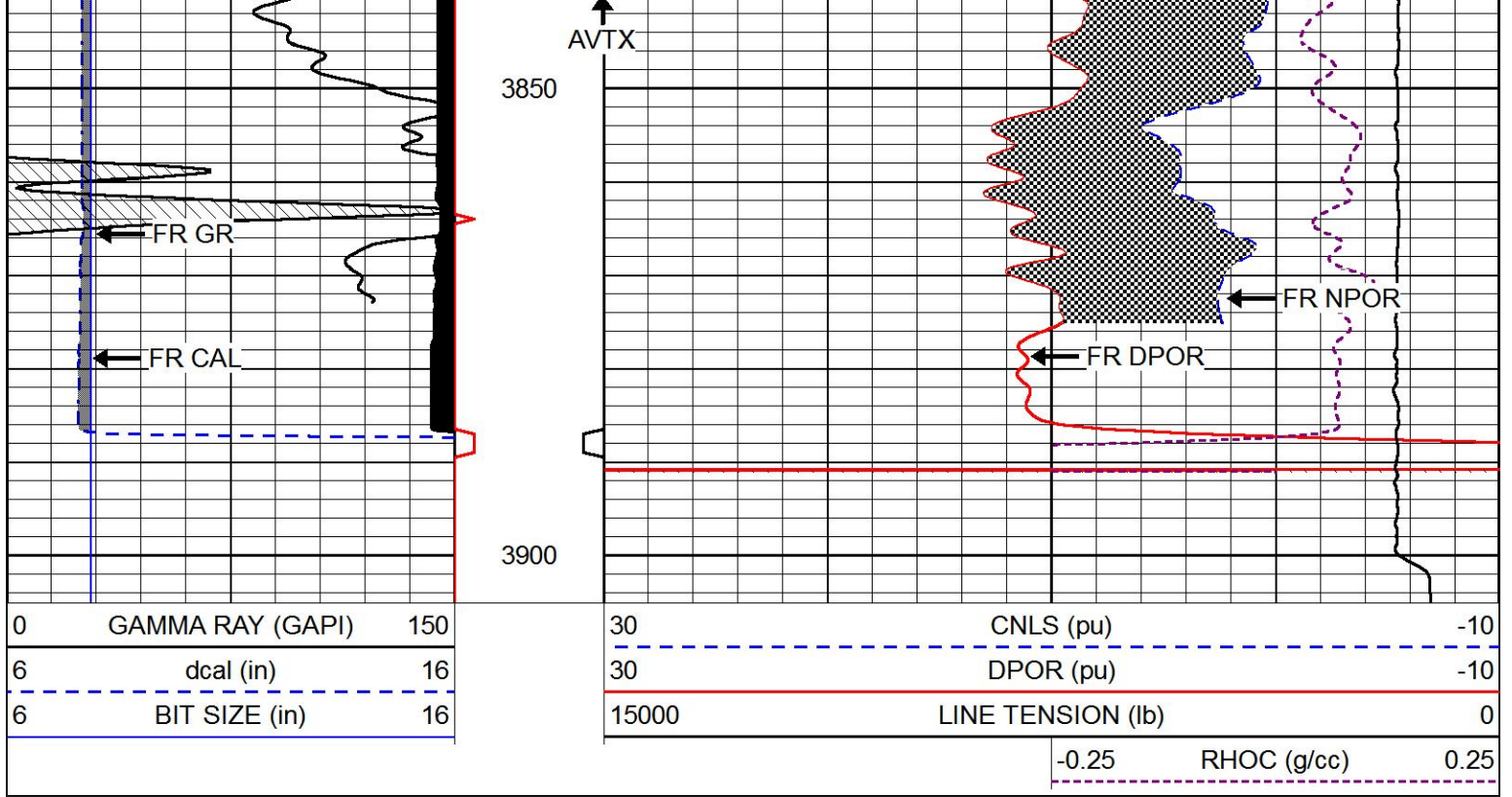






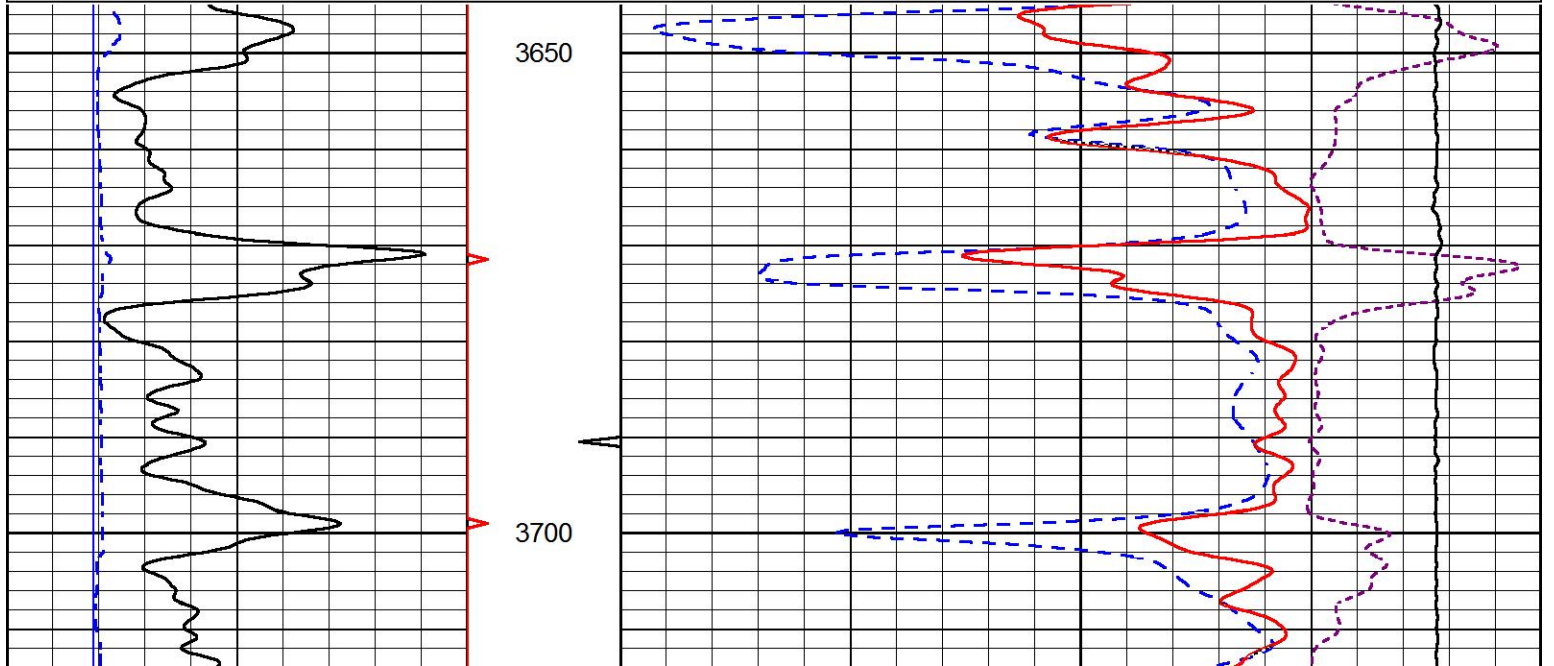
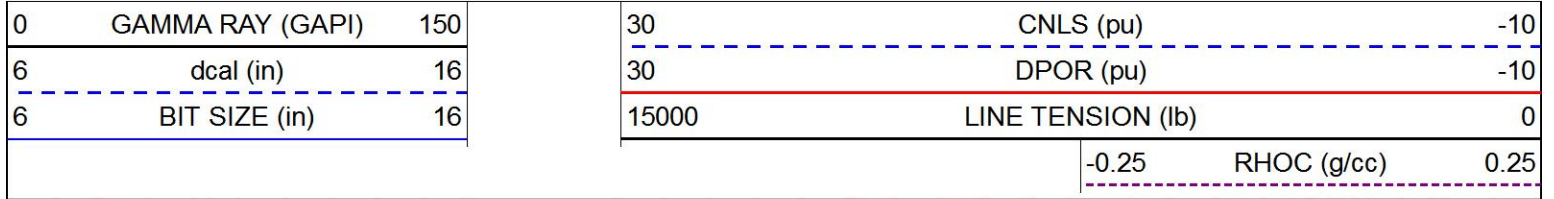


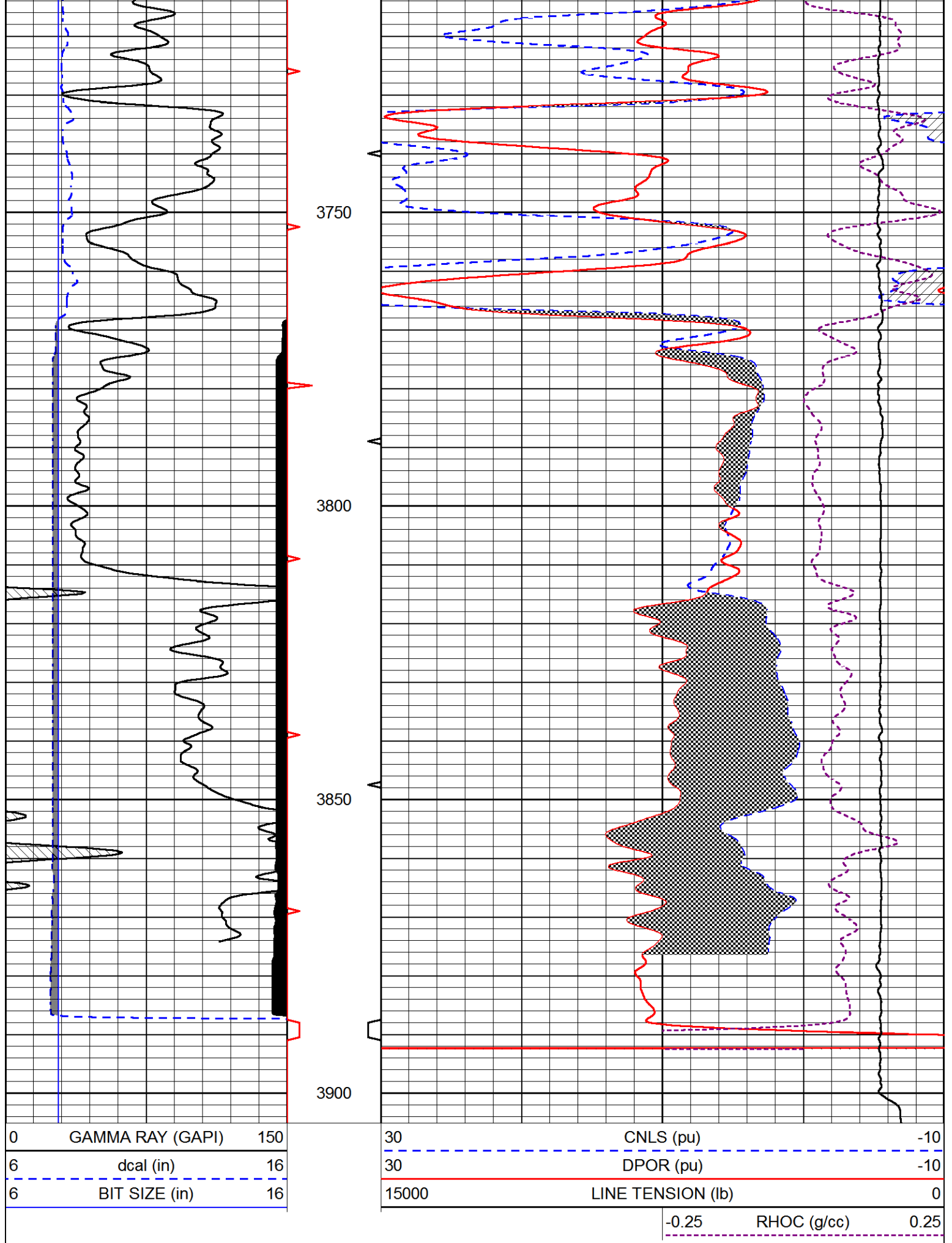




# REPEAT SECTION

Database File cholla\_zimmerman\_1\_3.db  
 Dataset Pathname stack/pass2.1  
 Presentation Format cndlspec  
 Dataset Creation Fri Oct 04 05:37:31 2019  
 Charted by Depth in Feet scaled 1:240





Database File cholla\_zimmerman\_1\_3.db  
 Dataset Pathname stack/pass4.1  
 Dataset Creation Fri Oct 04 06:23:11 2019

Dual Induction Calibration Report

Serial-Model: 976-M&W  
 Calibration Performed: Thu Nov 15 20:52:51 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.565	-17.500
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.390	-40.000

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

	Density		Far Detector	Near Detector	
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		
	Size		Reading		
Small Ring	4.00	in	1.15		
Large Ring	14.00	in	1.02		

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



**PIONEER**

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Field	WILDCAT
County	RUSH
State	KANSAS