



MIDWEST WIRELINE

# DUAL COMP POROSITY LOG

Company TDI, Inc.  
 Well Kay #1  
 Field  
 County Ellis State Kansas

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 Field  
 County Ellis  
 State Kansas

Location: API #: 15-051-26991-00-00  
 NE NW NE SW  
 2370' FSL & 1840' FWL  
 SEC 32 TWP 14S RGE 19W  
 Permanent Datum Ground Level Elevation 2076'  
 Log Measured From Kelly Bushing  
 Drilling Measured From Kelly Bushing  
 Other Services  
 DIL/MEL  
 K.B. 2086'  
 D.F.  
 G.L. 2076'

Date	10/18/2020
Run Number	One
Type Log	CNL/CDL
Depth Driller	3850'
Depth Logger	3847'
Bottom Logged Interval	3819'
Top Logged Interval	2950'
Type Fluid In Hole	Chemical
Salinity, PPM CL	9800
Density	9.2
Level	Full
Max. Rec. Temp. F	115 Deg F
Operating Rig Time	3 Hours
Equipment -- Location	P-24 HAYS
Recorded By	T. Martin
Witnessed By	Tom Denning

Borehole Record				Casing Record			
Run No.	Bit	From	To	Size	Wgt.	From	To
One	12.25"	00'	223'	8.625"	23#	00'	223'
Two	7.875"	223'	TD				

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All interpretations are opinions based on inferences from electrical or other measurements and Midwest Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Midwest 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.

Antonino, KS, 4 W to 170th Ave, 1/4 N, E into

Log Measured From: Kelly Bushing Ft. Above Permanent Datum

THANK YOU FOR USING MIDWEST WIRELINE LLC  
 785-625-3858

Your Midwest Wireline Crew

Engineer: T. Martin  
 Operator:  
 Operator:  
 Operator:

This Log Record Was Witnessed By

Primary Witness: Tom Denning  
 Secondary Witness:  
 Secondary Witness:  
 Secondary Witness:

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (233-M&W)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (207-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (817-947)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
RLL3F RLL3	15.80 15.80					
CILD	8.00		DIL-PSI HIGH TEMP (952-828)	18.50	3.50	220.00
CILM	4.70					
SP	0.20					

Dataset: tdi\_kay#1\_20201018.db: field/well/StkMI/pass3.1  
 Total length: 43.08 ft  
 Total weight: 685.00 lb  
 O.D.: 4.00 in

# Log Variables

DatabaseC:\ProgramData\Warrior\Data\tdi\_kay#1\_20201018.db  
 Dataset field/well/StkMI/pass3.1/\_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	150	0	Off	3847

## Variable Description

A : Cement Factor (a)  
 BOREID : Borehole I.D.  
 BOTTEMP : Bottom Hole Temperature  
 CASEOD : Casing O.D.  
 CASETHCK : Casing Thickness  
 FLUIDDEN : Fluid Density  
 M : Cement Exp (m)  
 MATRXDEN : Matrix Density

NPORSEL : Neutron Porosity Curve Select  
 PERFS : Perforation Flag  
 SNDERR : Deep Sonde Error Correction  
 SNDERRM : Medium Sonde Error Correction  
 SPSHIFT : S.P. Baseline Offset  
 SRFTEMP : Surface Temperature  
 SZCOR : CN Size Cor. ?  
 TDEPTH : Total Depth



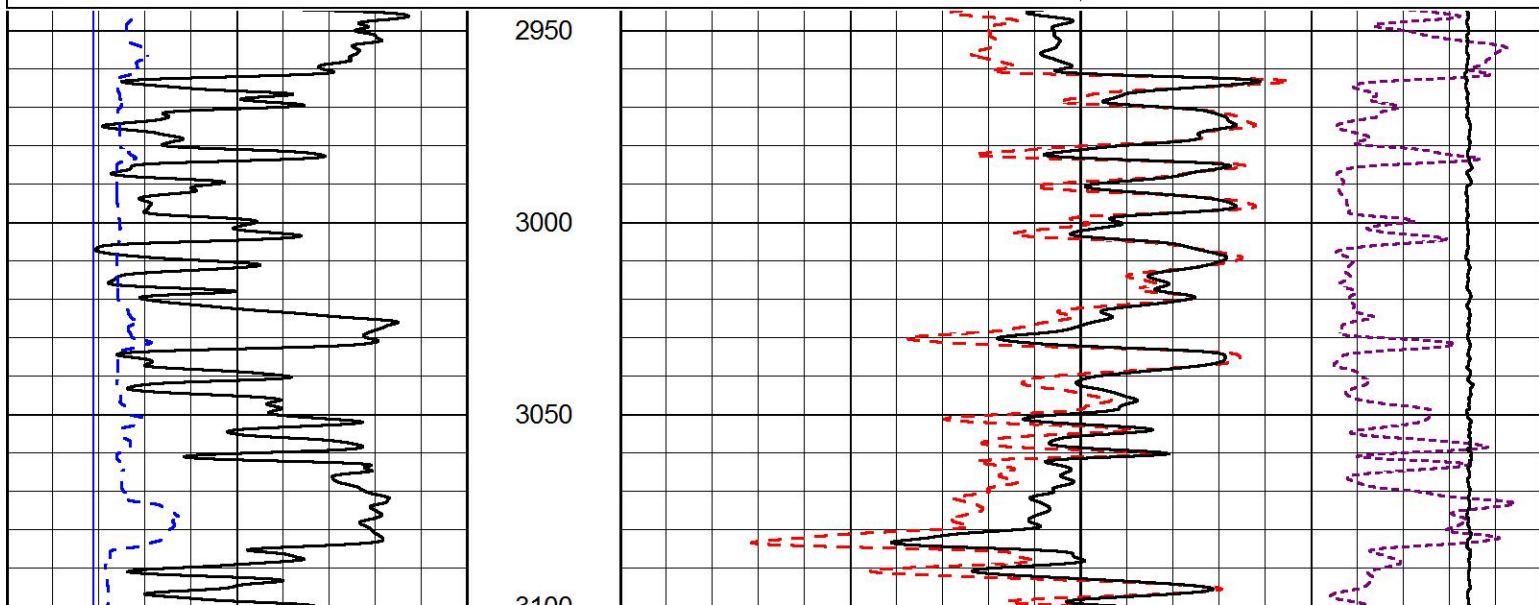
## 2" SCALE BULK DENSITY

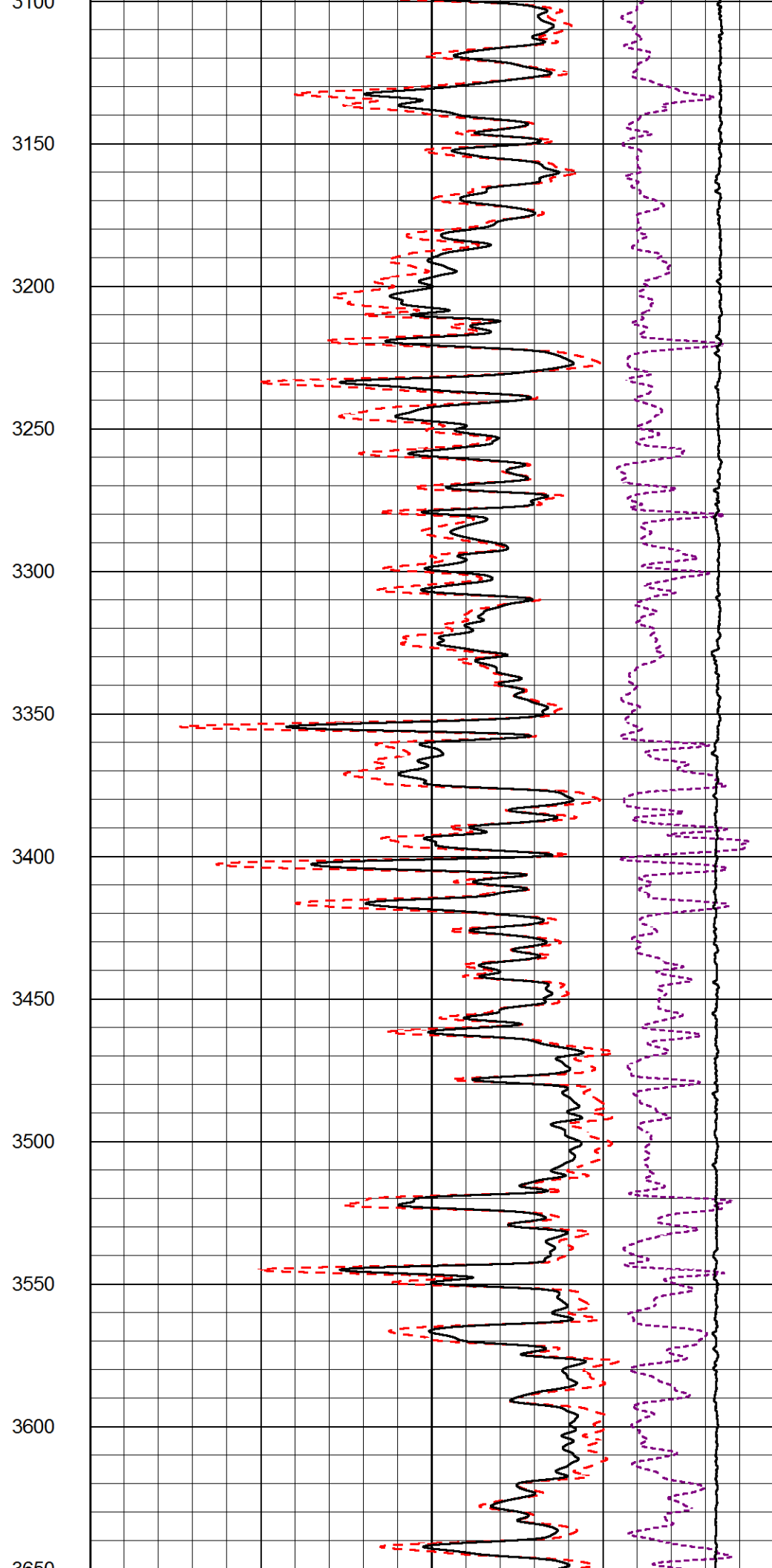
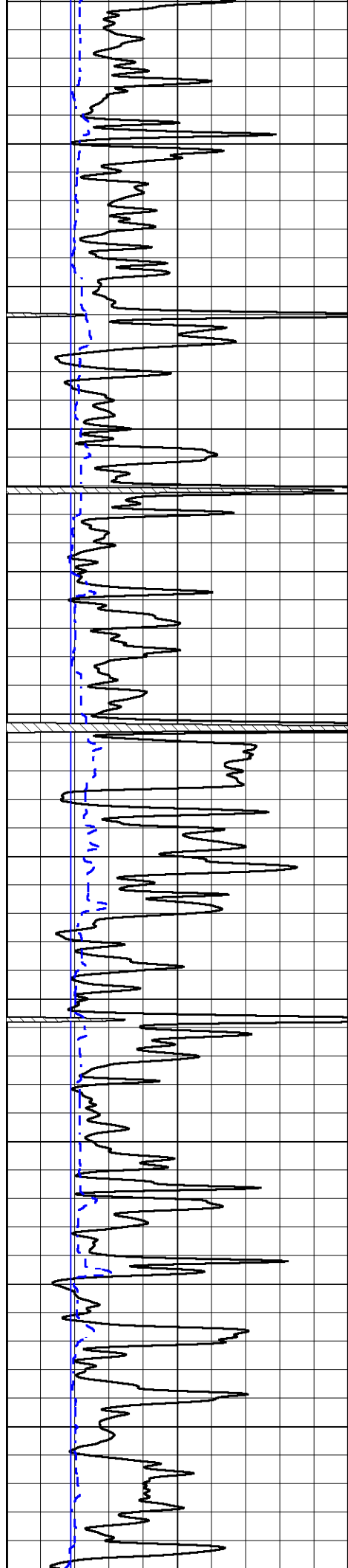
### MAIN PASS

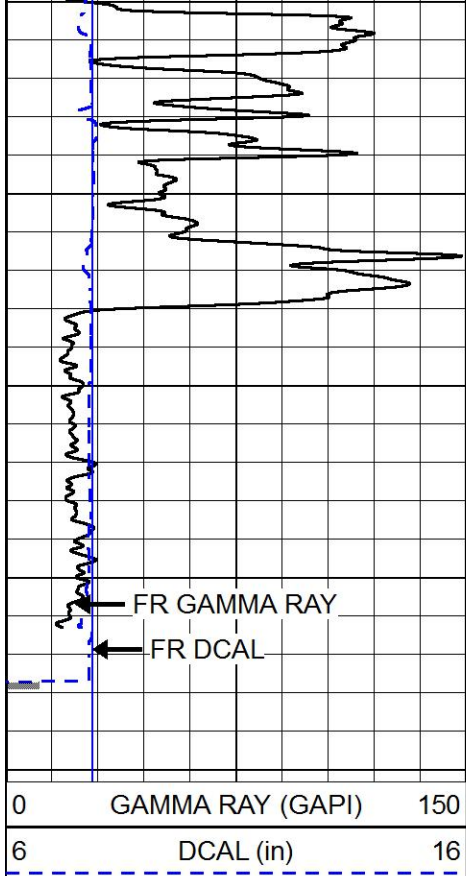
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 Dataset Pathname StkMI/pass3.3  
 Presentation Format \_cdl  
 Dataset Creation Sun Oct 18 17:57:38 2020  
 Charted by Depth in Feet scaled 1:600

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

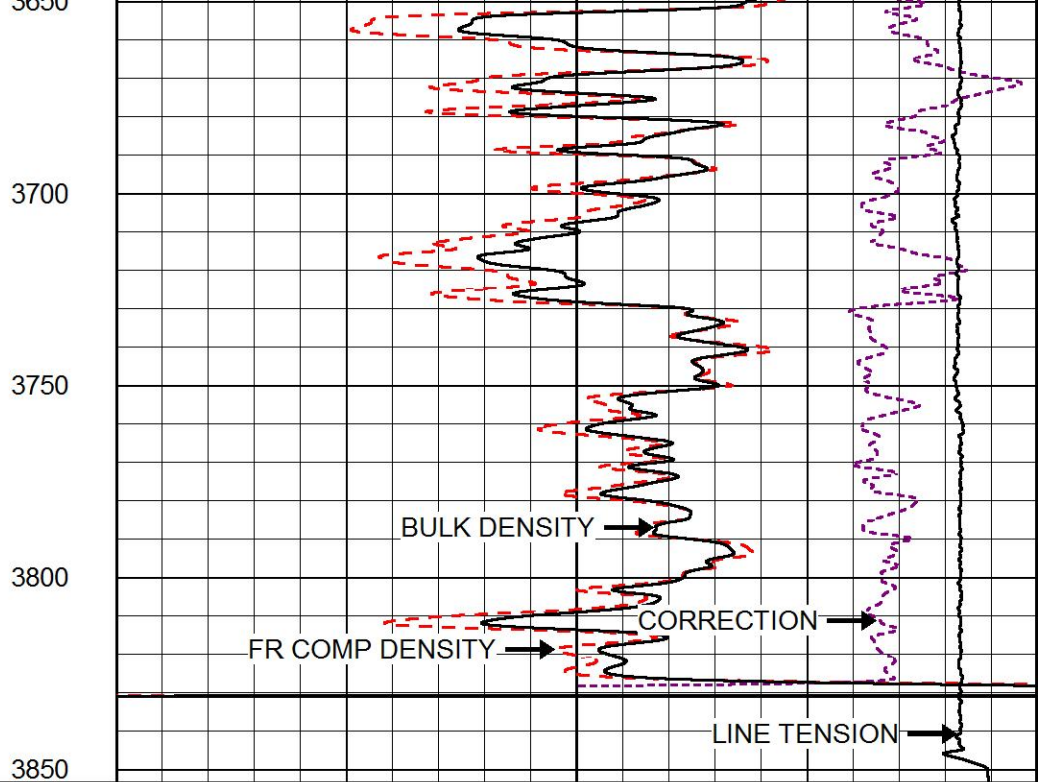
COMPENSATED DENSITY (2.71 MA)	
30	(pu) -10
2	BULK DENSITY (g/cc) 3
15000	LINE TENSION (lb) 0
-0.25	CORRECTION (g/cc) 0.25







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



COMPENSATED DENSITY (2.71 MA)		
30	(pu)	-10
2	BULK DENSITY (g/cc)	3
15000	LINE TENSION (lb)	0
-0.25	CORRECTION (g/cc)	0.25



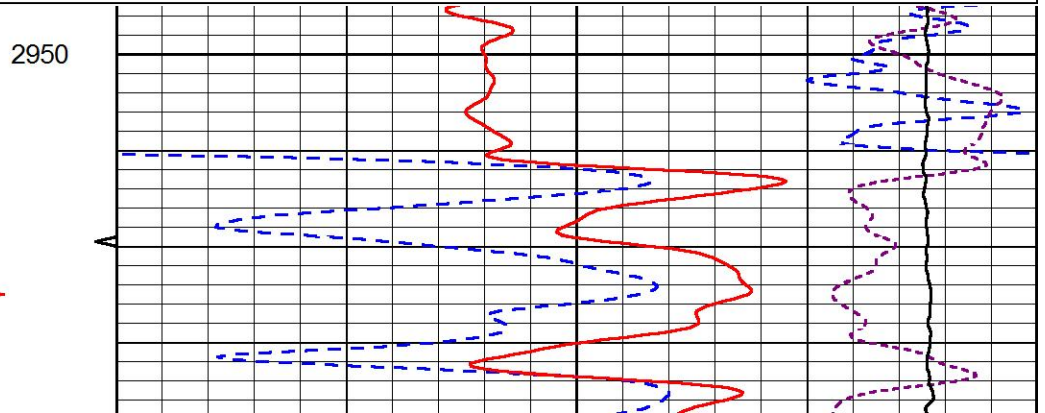
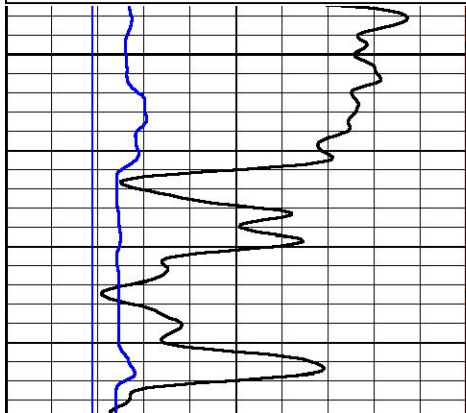
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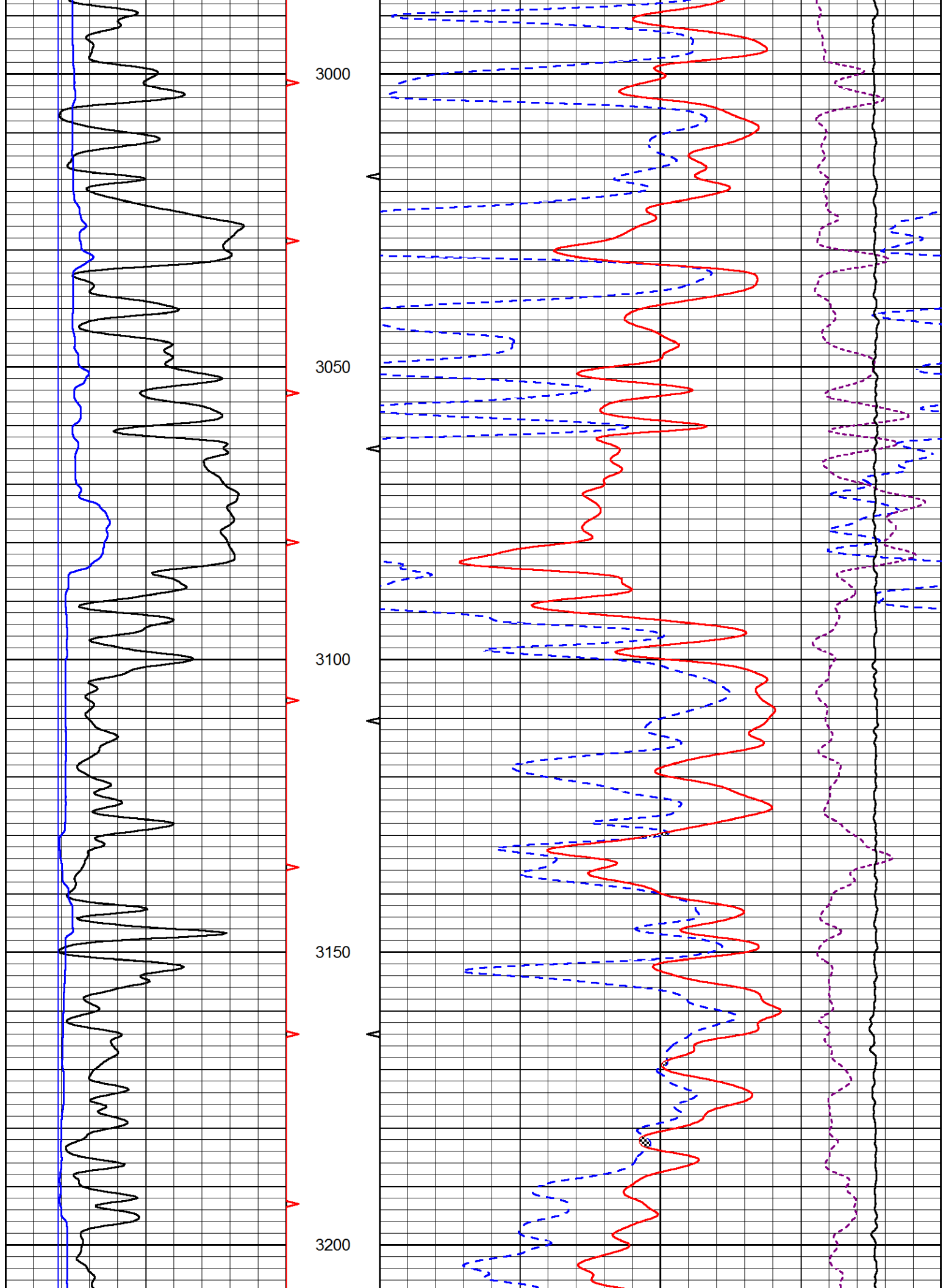
# MAIN PASS

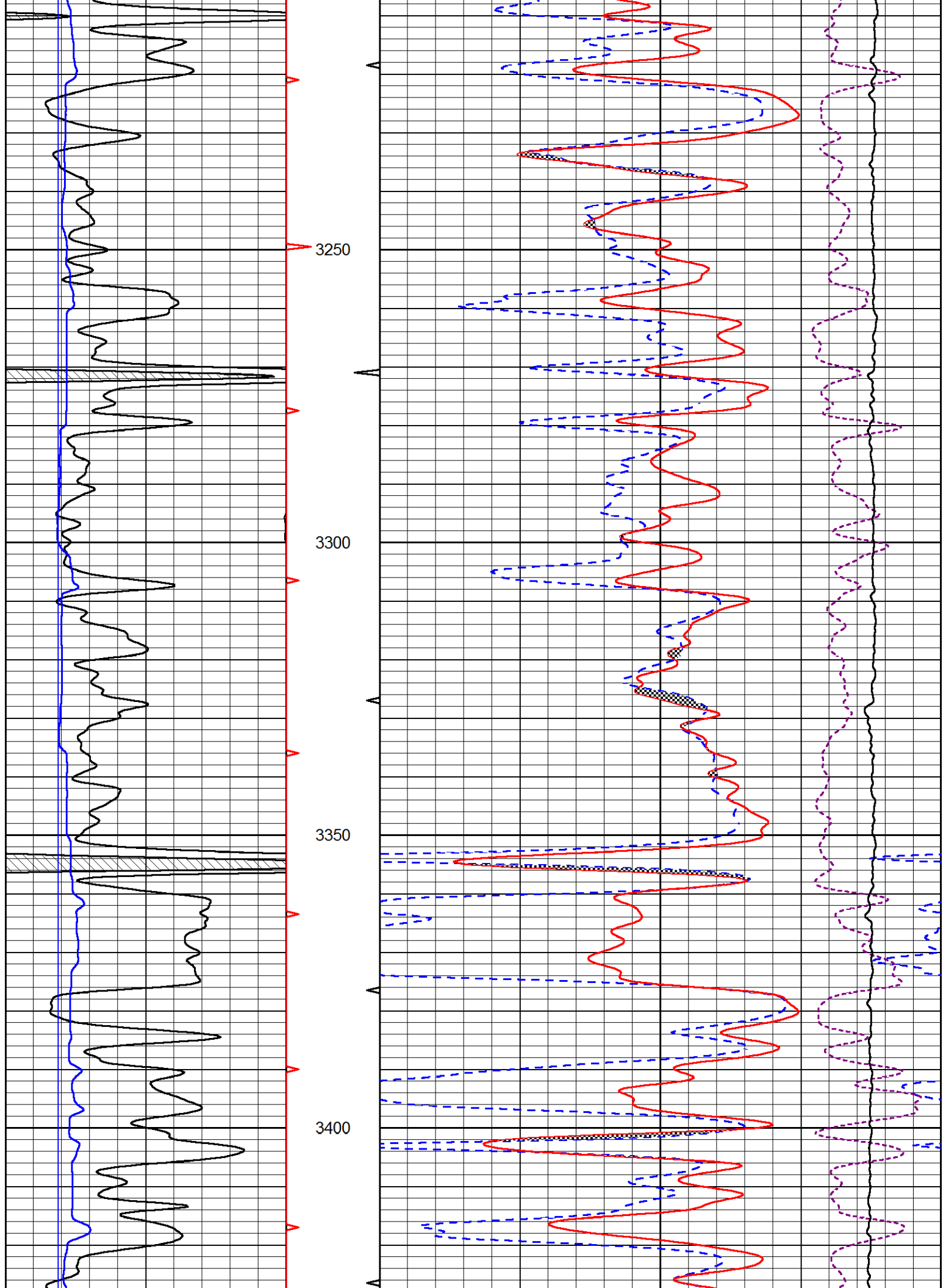
Database File tdi\_kay#1\_20201018.db  
 Dataset Pathname StkMI/pass3.1  
 Presentation Format \_CNDLS~1  
 Dataset Creation Sun Oct 18 18:30:07 2020  
 Charted by Depth in Feet scaled 1:240

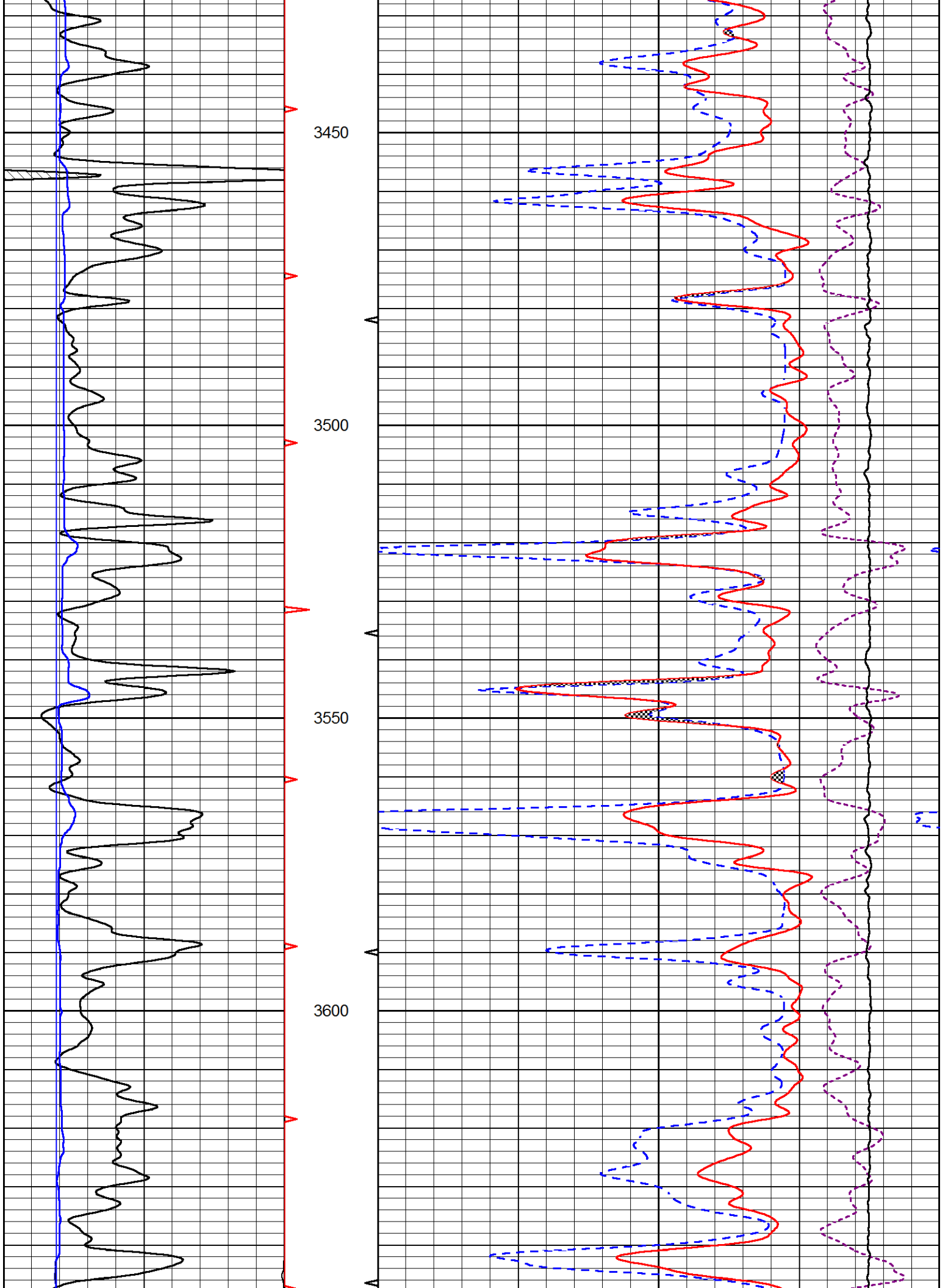
0	GAMMA RAY (GAPI)	150
6	DCAL (in)	16

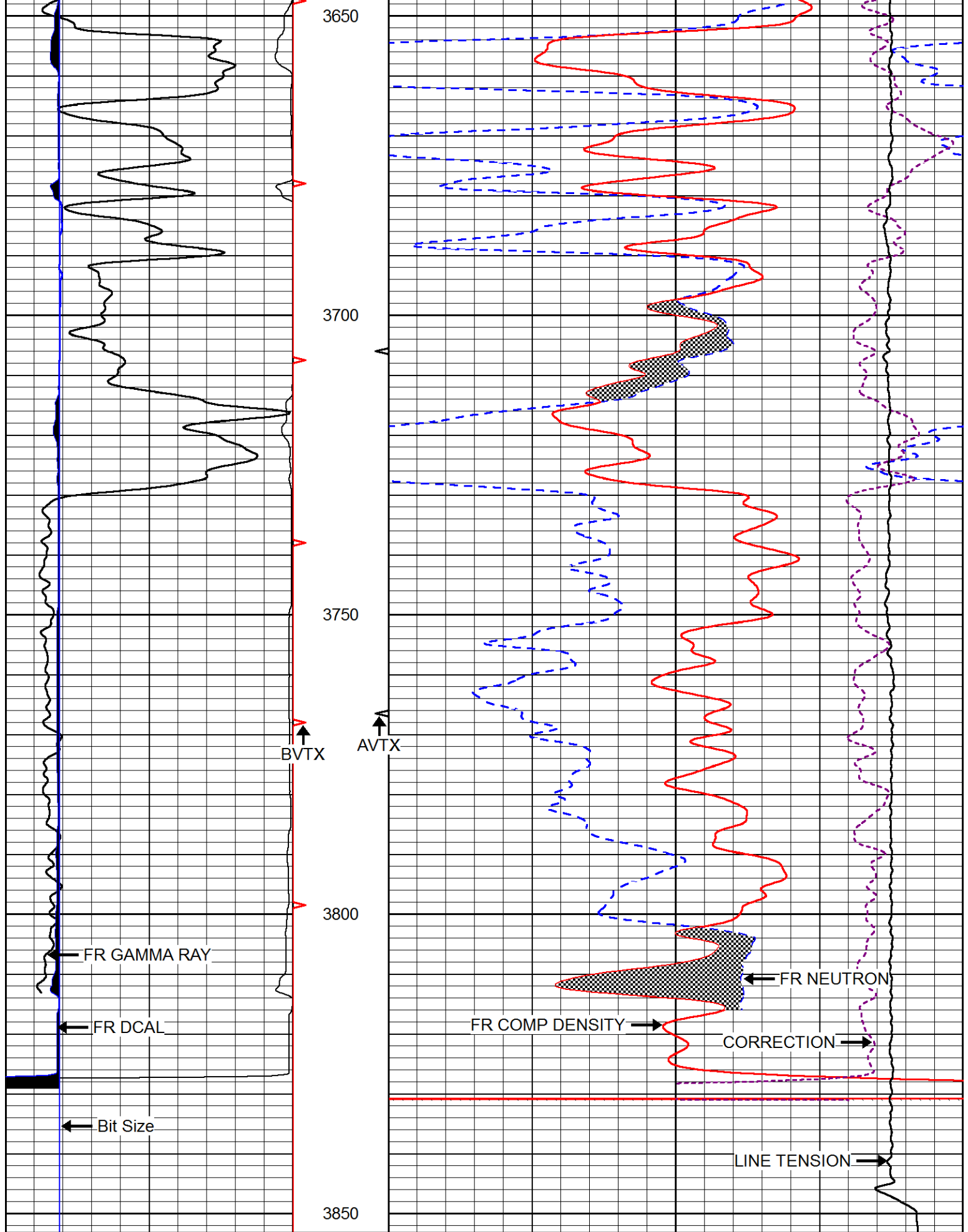
30	CNPOR (pu)	-10
30	DPOR (pu)	-10
10000	LINE TENSION (lb)	0
-0.25	CORRECTION (g/cc)	0.25











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

30	CNPOR (pu)	-10
30	DPOR (pu)	-10
10000	LINE TENSION (lb)	0

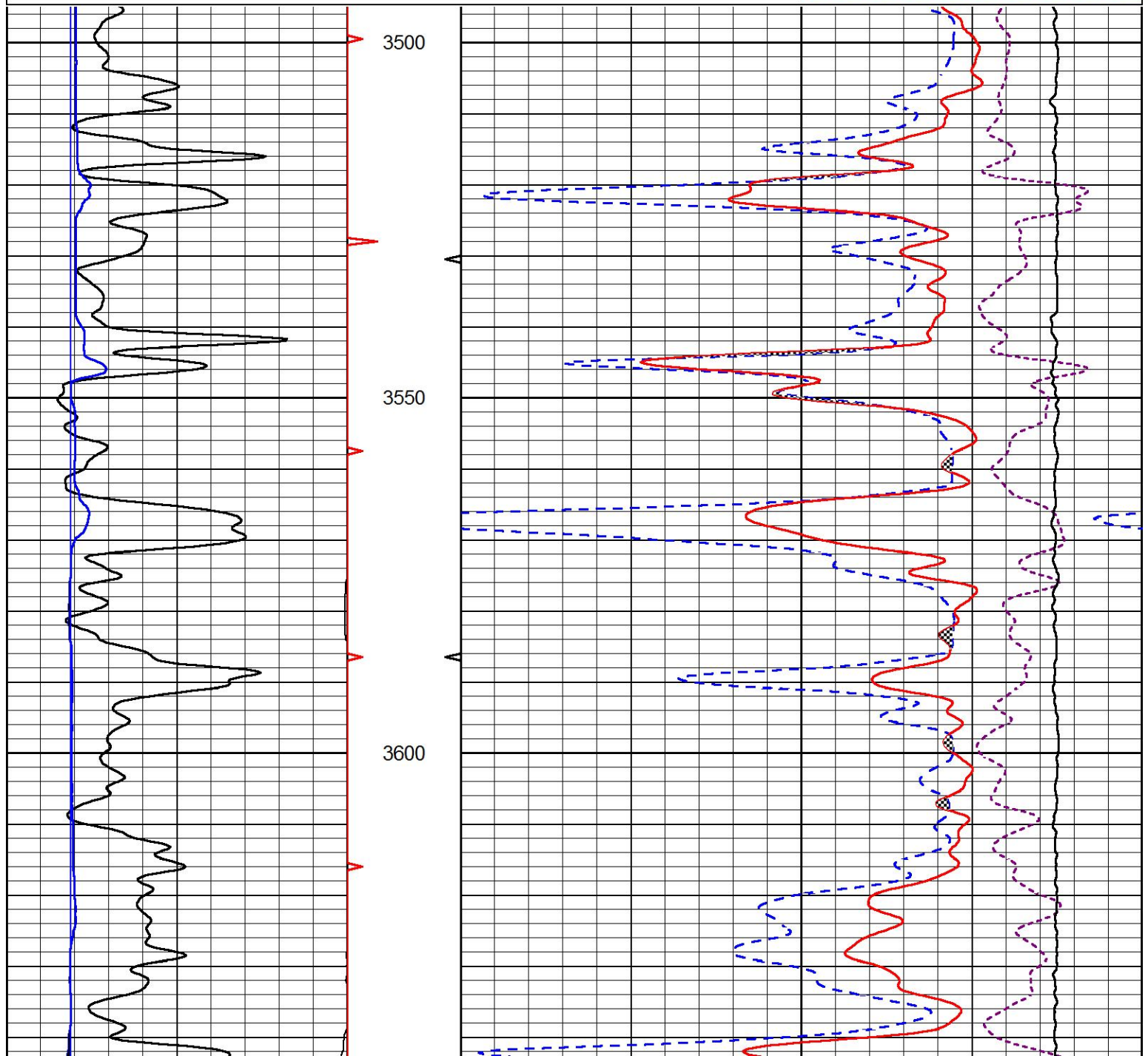


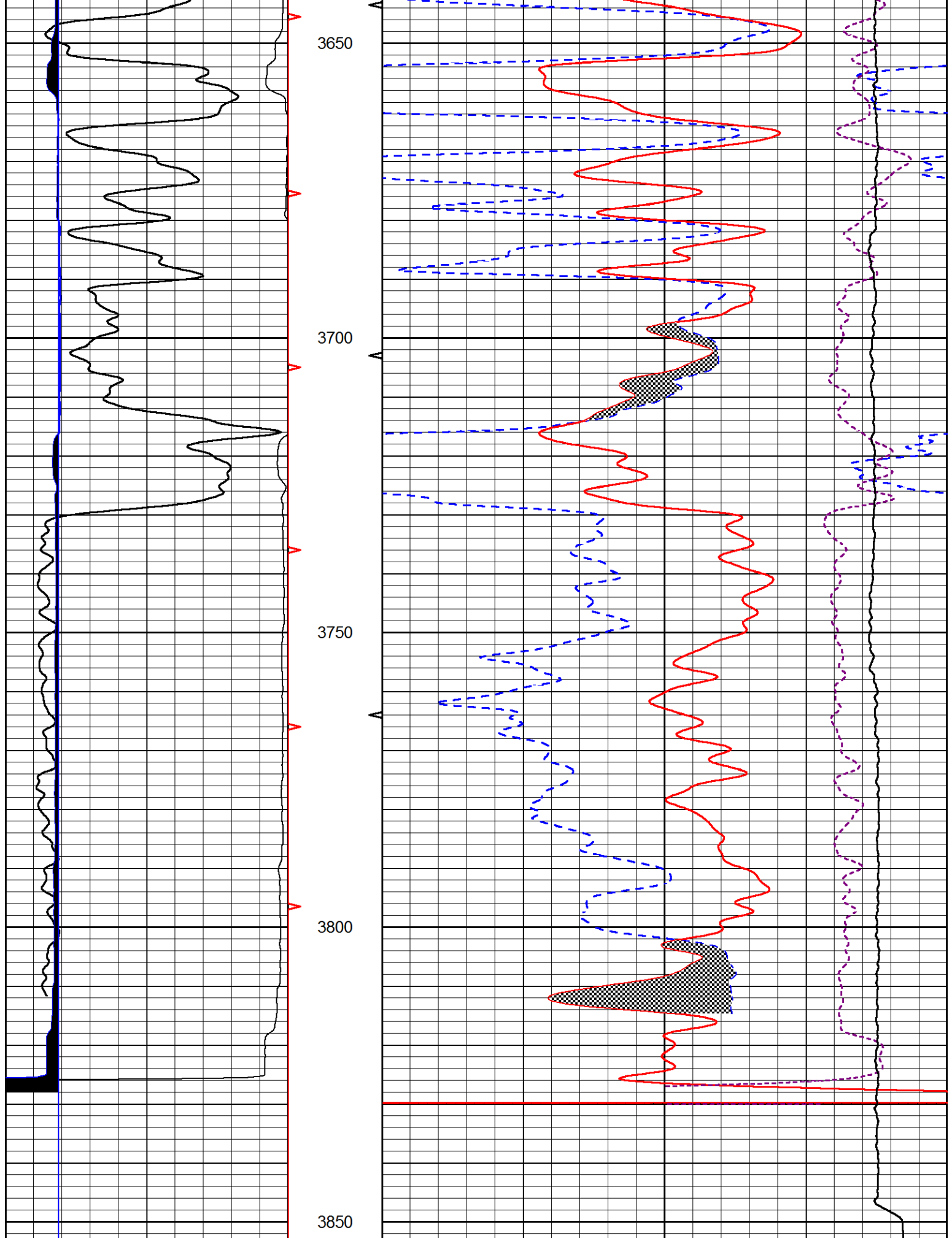
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# REPEAT SECTION

Database File tdi\_kay#1\_20201018.db  
 Dataset Pathname StkMI/pass2.1  
 Presentation Format \_CNDLS~1  
 Dataset Creation Sun Oct 18 18:00:08 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
			10000	LINE TENSION (lb)	0
				-0.25 CORRECTION (g/cc)	0.25





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

30	CNPOR (pu)	-10
30	DPOR (pu)	-10

10000

LINE TENSION (lb)

0

-0.25 CORRECTION (g/cc) 0.25

## Calibration Report

Database File tdi\_kay#1\_20201018.db  
 Dataset Pathname StkMI/pass3.4  
 Dataset Creation Sun Oct 18 18:14:54 2020

## Dual Induction Calibration Report

Serial-Model: 952-828-PSI HIGH TEMP  
 Calibration Performed: Sun Jun 28 08:39:24 2020

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.000	mmho/m	0.455	-30.000
Medium	0.000	1348.000	142.000	255.000	mmho/m	0.325	-28.000

## Microlog Calibration Report

Serial-Model: PSI-01-PSIML  
 Performed: Tue Sep 29 10:01:17 2020

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	14000.0000	-0.5000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	16500.0000	-0.3000
Caliper	1.0033	1.0841	5.0000	16.5000	in	142.3500	-138.4500

## Compensated Density Calibration Report

Serial-Model: 817-947-M&W  
 Source / Verifier: 16955B / 2ci  
 Master Calibration Performed: Sun Sep 20 22:09:47 2020

## Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	6127.15	5922.31	cps
Aluminum	2.670	g/cc	1141.85	3762.09	cps
Spine Angle = 74.89			Density/Spine Ratio = 0.526		
	Size		Reading		
Small Ring	4.50	in	1.02		
Large Ring	14.50	in	1.23		

## Compensated Neutron Calibration Report

Serial Number: 207-MW  
 Tool Model: M&W  
 Calibration Performed: WED FEB 13 10:30:30 2019

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:	233-M&W	
Tool Model:	M&W	
Calibration Performed:	Sun Sep 20 22:10:24 2020	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.5500	GAPI/cps



Company	TDI, Inc.
Well	Kay #1
Field	
County	Ellis
State	Kansas