



DUAL COMP POROSITY LOG

Pioneer Energy Services

Company **TDI, INC.**
 Well **HART #1**
 Field **WILDCAT**
 County **ELLIS** State **KANSAS**

Company **TDI, INC.**
 Well **HART #1**
 Field **WILDCAT**
 County **ELLIS**
 State **KANSAS**

Location: **2260' FNL & 550' FEL**
 SEC 26 TWP 13S RGE 19W
 Permanent Datum **GROUND LEVEL** Elevation **2096'**
 Log Measured From **KELLY BUSHING**
 Drilling Measured From **KELLY BUSHING**
 Other Services **DIL MEL**
 K.B. **2105'**
 D.F. **N/A**
 G.L. **2096'**

Date	6/21/2019						
Run Number	ONE						
Type Log	CNL/CDL						
Depth Driller	3800'						
Depth Logger	3800'						
Bottom Logged Interval	3771'						
Top Logged Interval	3000'						
Type Fluid In Hole	CHEMICAL						
Salinity, PPM CL	4000						
Density	9.4						
Level	FULL						
Max. Rec. Temp. F	114 DEG/F						
Operating Rig Time	2 HOURS						
Equipment -- Location	P-108 HAYS						
Recorded By	J. HENRICKSON						
Witnessed By	HERB DEINES						
Borehole Record							
Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	0	221'	8.625"	23#	0	221'
TWO	7.875"	221'	TD				
Casing Record							

<<< 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.
 HAYS KANSAS
 WEST ON OLD 40 TO 210 ROAD, 1/2 SOUTH,
 WEST INTO

Log Measured From: **KELLY BUSHING** 9 Ft. Above Permanent Datum

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

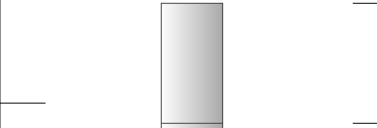
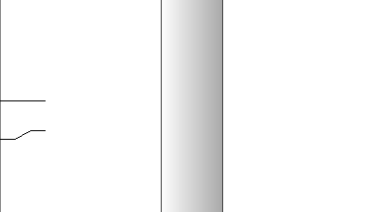
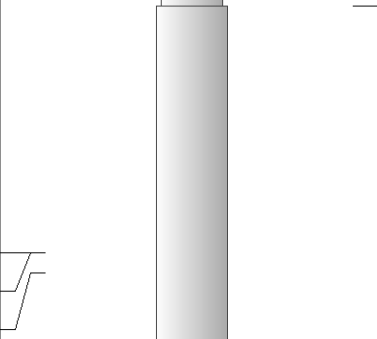
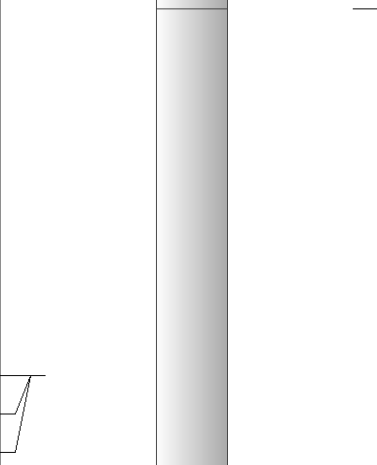
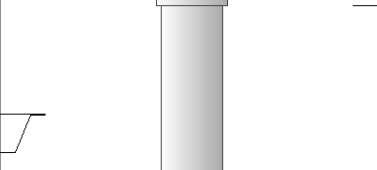
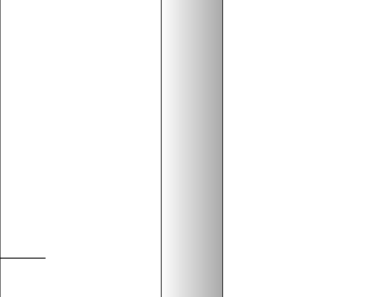
Your Pioneer Energy Services Crew		This Log Record Was Witnessed By	
Engineer: J. HENRICKSON	Operator:	Primary Witness: HERB DEINES	Secondary Witness: TOM DENNING
Operator:	Operator:	Secondary Witness:	Secondary Witness:
Operator:		Secondary Witness:	

Log Variables

DatabaseC:\ProgramData\Warrior\Data\tdi_hart_1.db
Dataset field/well/stackml/pass3.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	114	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	185	51	Off	3800

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	44.50		GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC CNSSC	41.40 40.65		CNT-M&W (tk10-MW)	5.50	3.50	100.00
LSD DCAL SSD	32.35 32.33 31.85		CDL-M&W (144-84)	8.50	4.00	250.00
MCAL MI MN	20.87 20.87 20.87		ML-PSI UDM ML (UDM-01) Stackable Microlog Tools	11.50	4.00	215.00
RLL3 RLL3F	15.80 15.79					
CILD	8.00		DIL-M&W (PSI 988)	18.50	3.50	220.00

CILM 4.70

SP 0.20

Dataset: tdi_hart_1.db: field/well/stackml/pass3.1
 Total length: 47.00 ft
 Total weight: 835.00 lb
 O.D.: 4.00 in

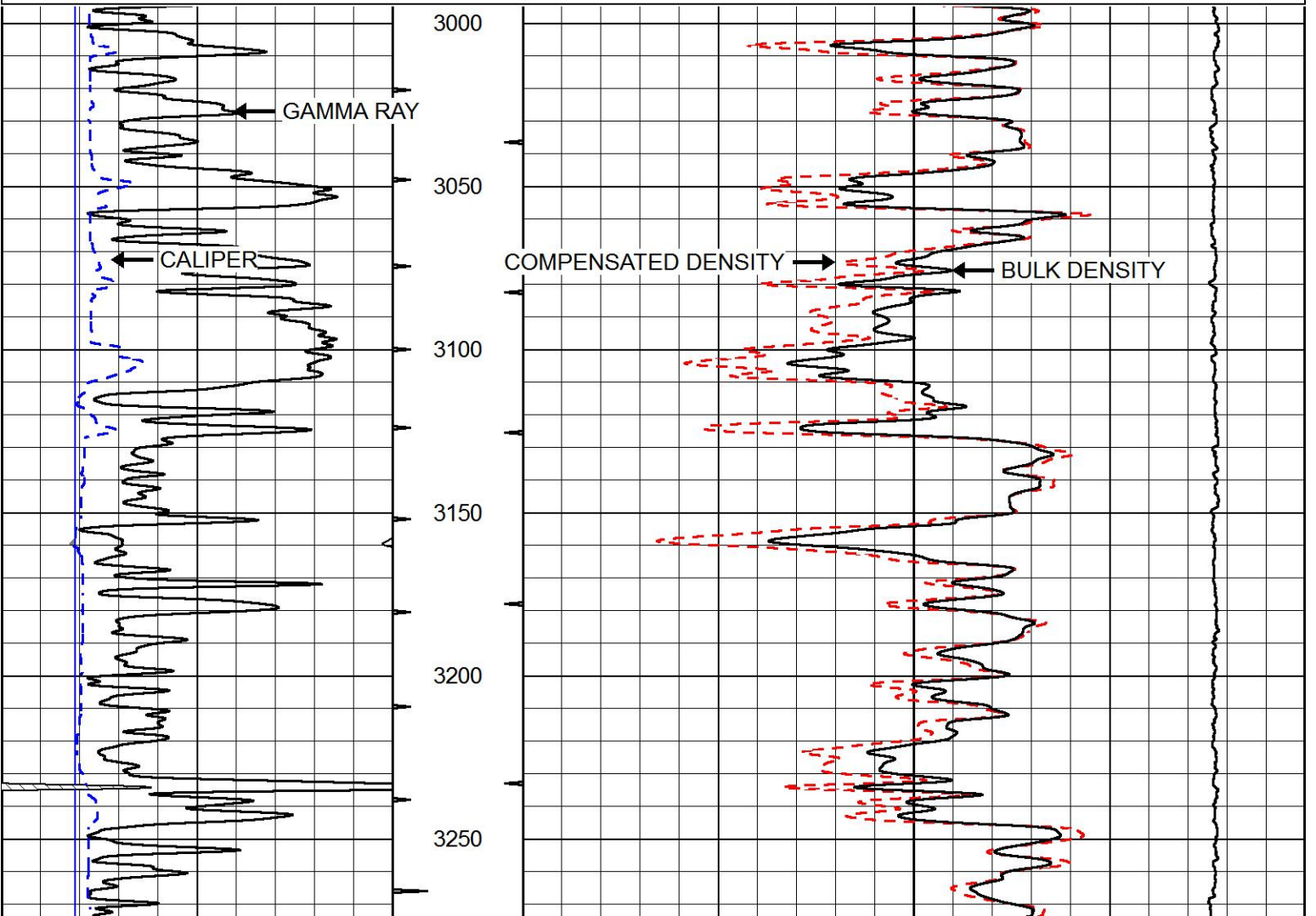


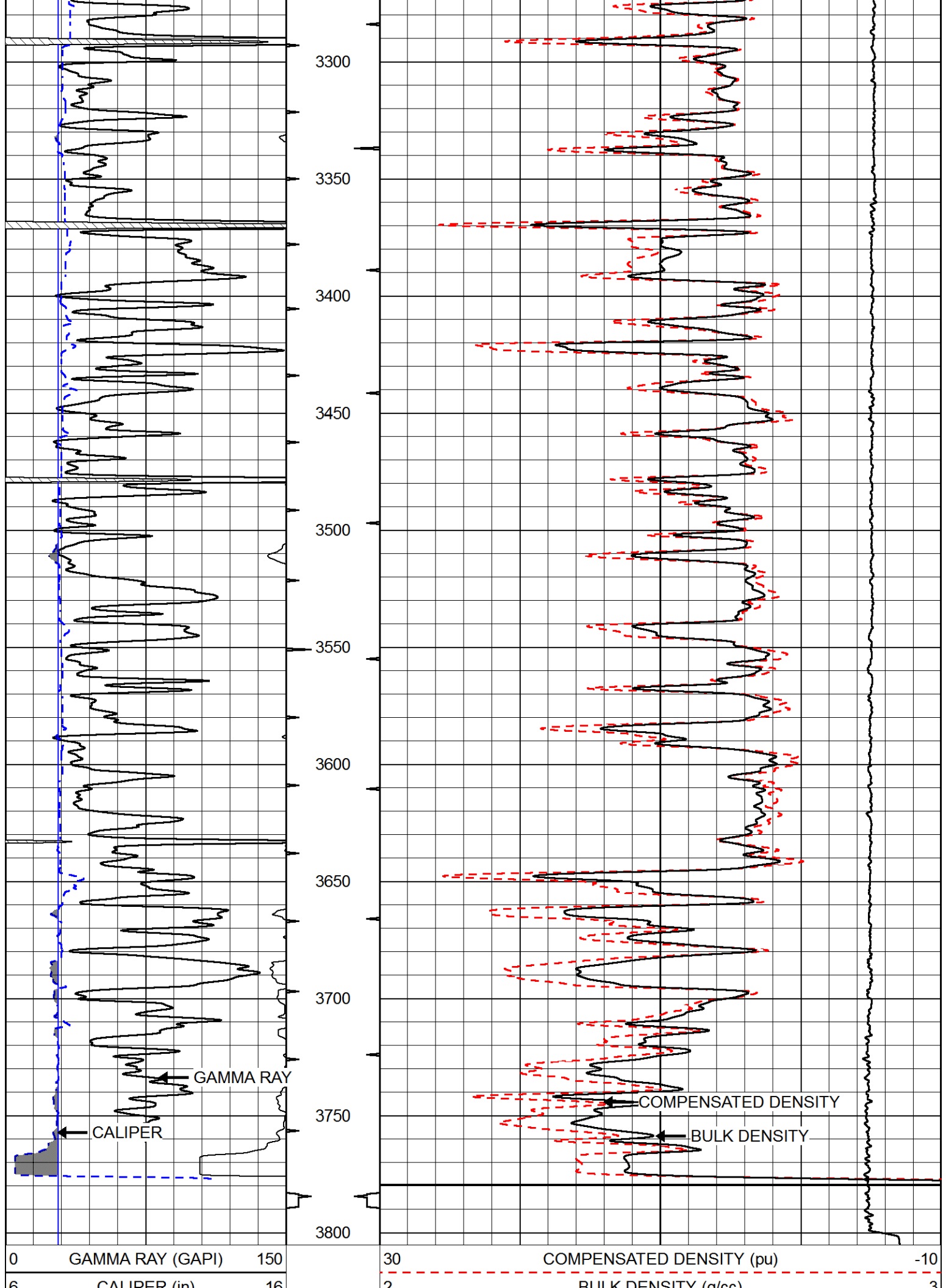
MAIN PASS

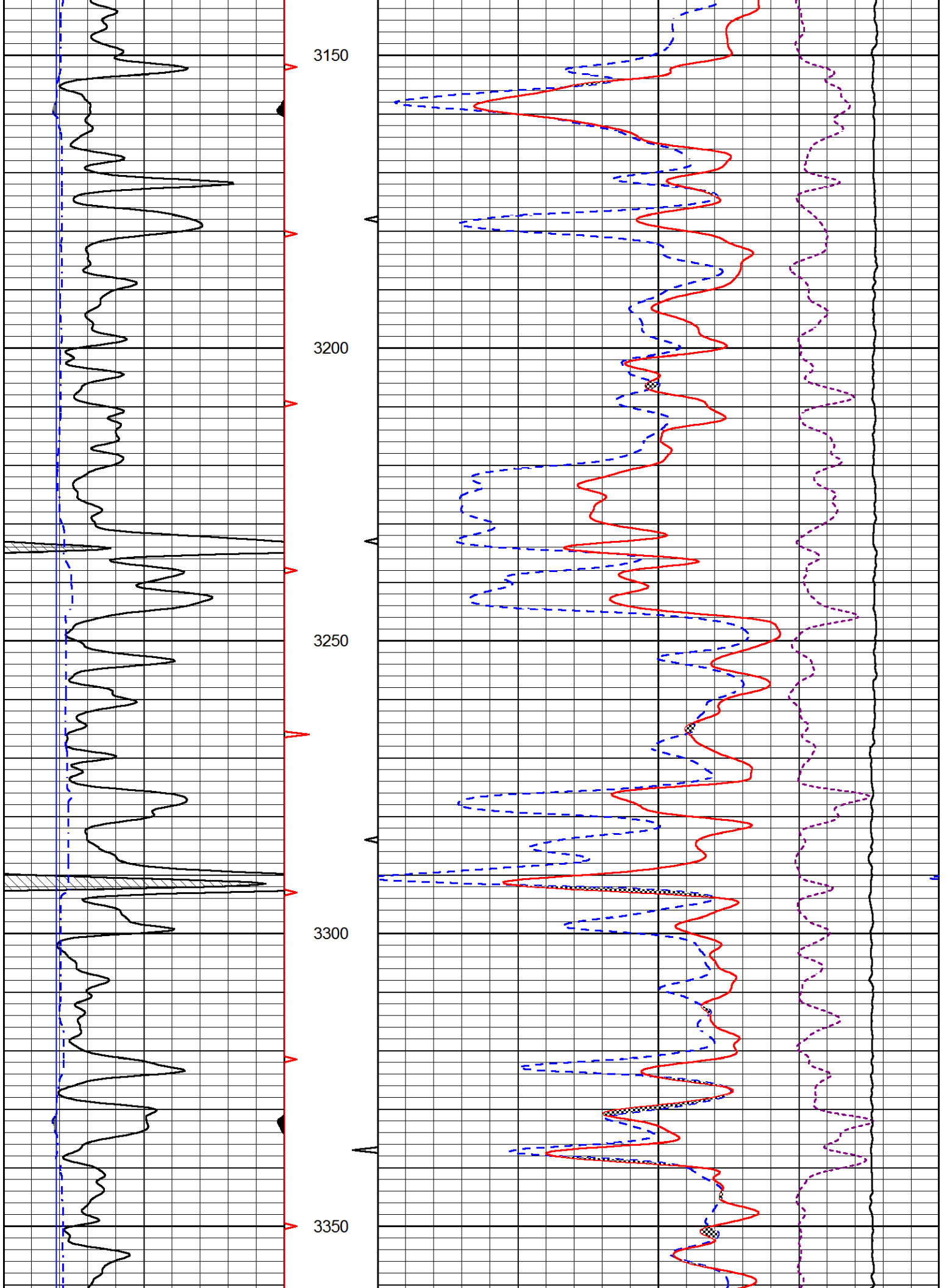
Database File tdi_hart_1.db
 Dataset Pathname stackml/pass3.1
 Presentation Format cdl
 Dataset Creation Fri Jun 21 07:38:50 2019
 Charted by Depth in Feet scaled 1:600

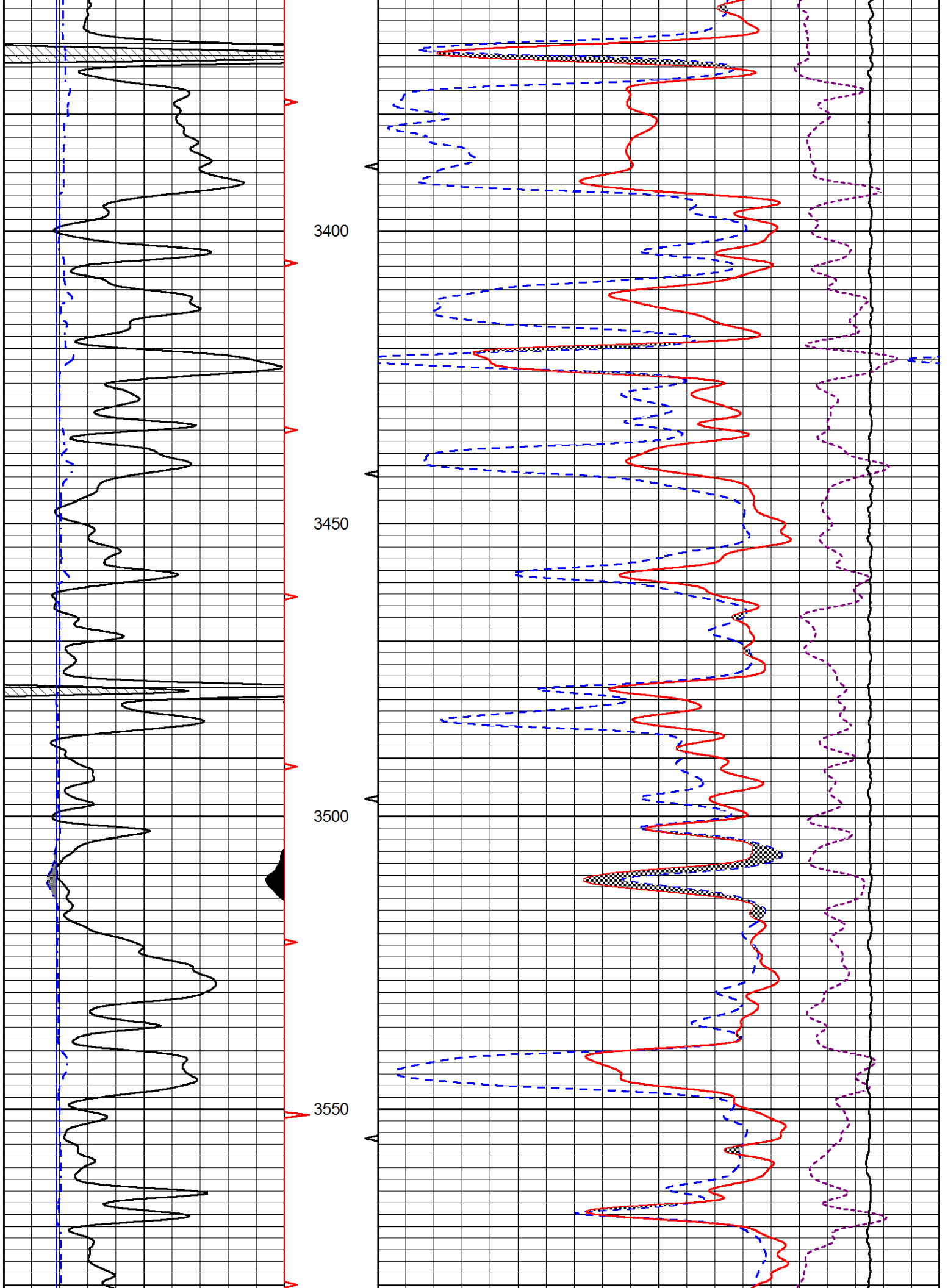
0	GAMMA RAY (GAPI)	150
6	CALIPER (in)	16

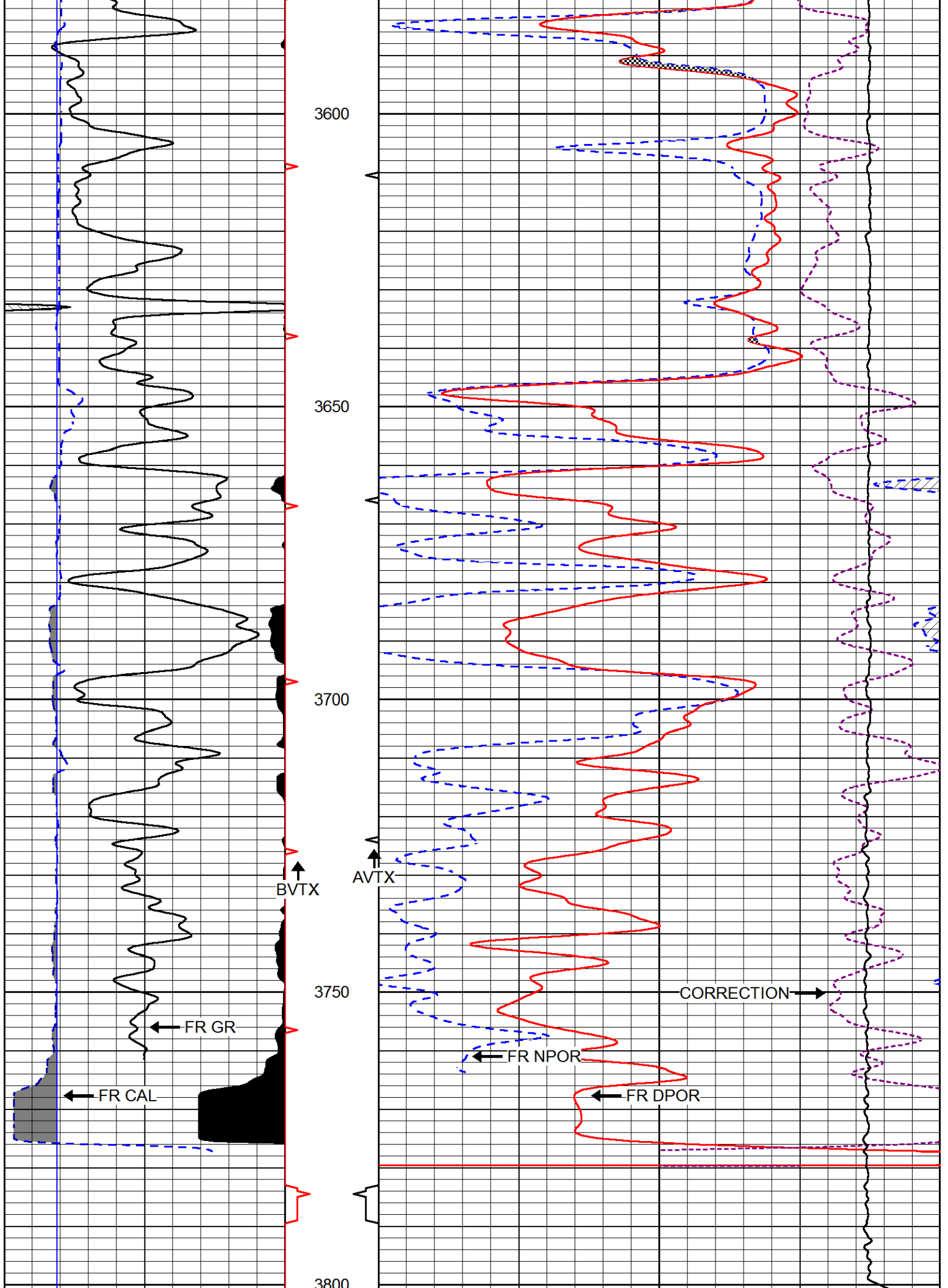
30	COMPENSATED DENSITY (pu)	-10
2	BULK DENSITY (g/cc)	3
15000	LINE TENSION (lb)	0











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

30	CNLS (pu)	-10
30	DPOR (pu)	-10
15000	LINE TENSION (lb)	0
-0.25	RHOC (g/cc)	0.25

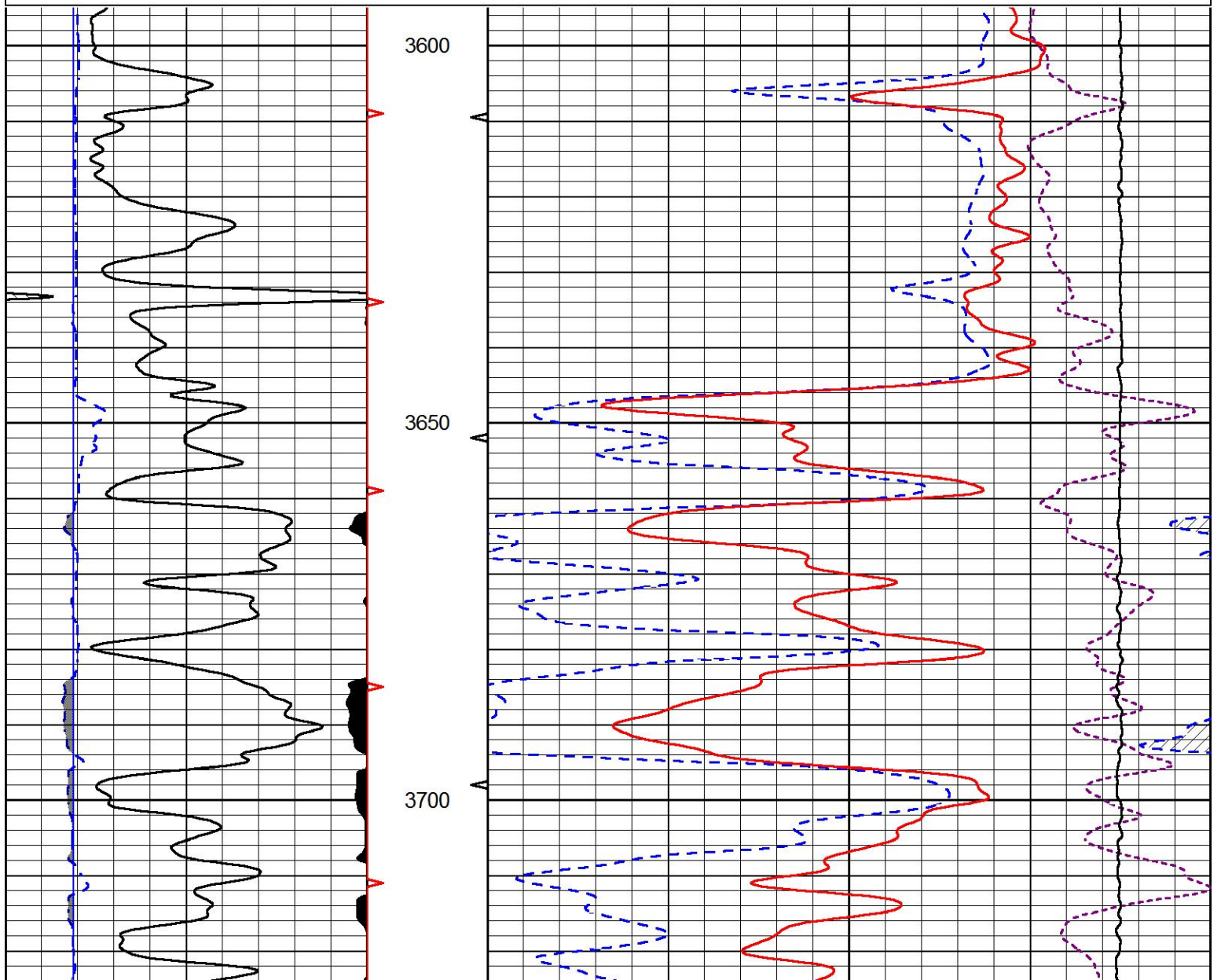


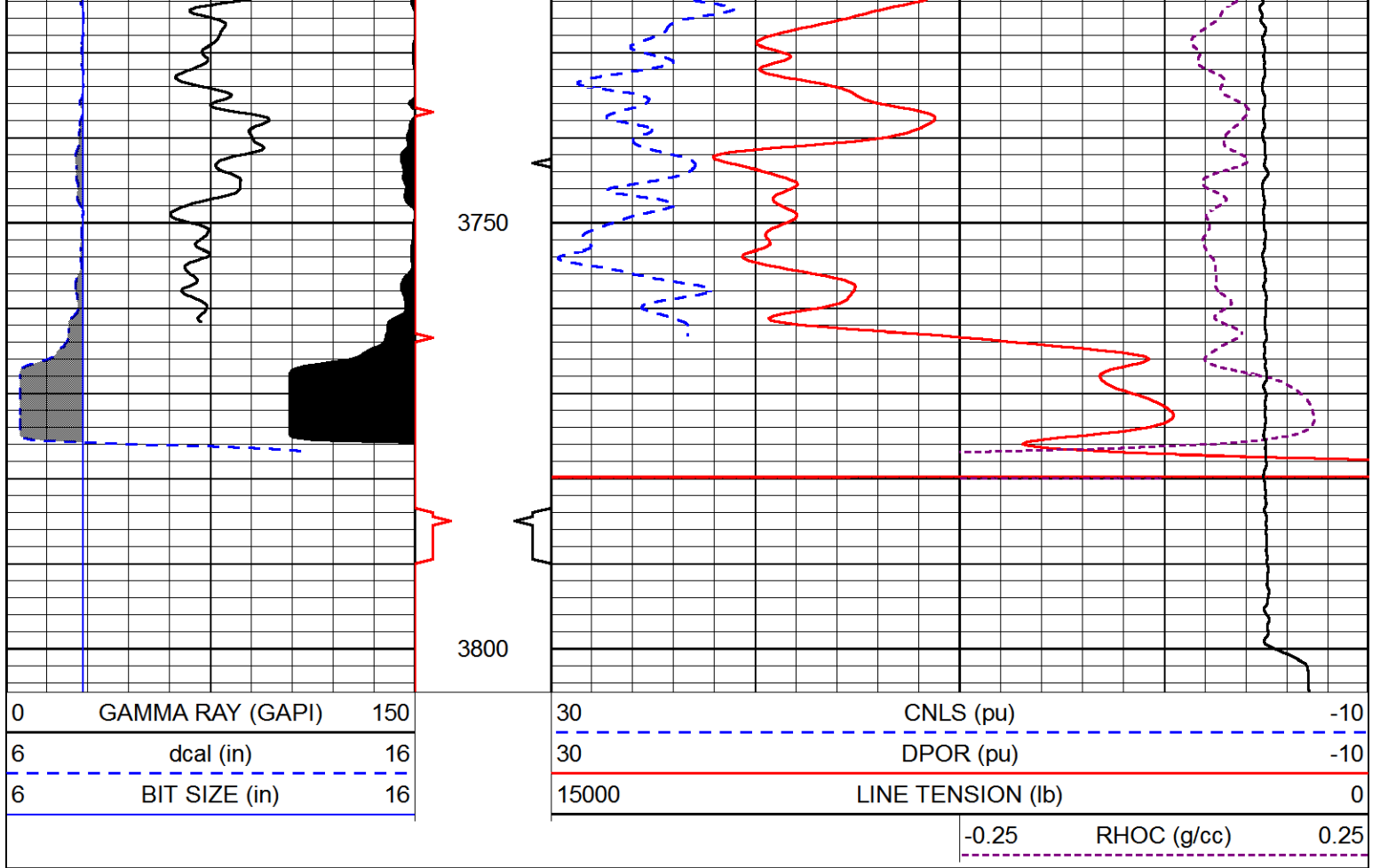
REPEAT SECTION

Database File tdi_hart_1.db
 Dataset Pathname stackml/pass2.1
 Presentation Format cndlspec
 Dataset Creation Fri Jun 21 07:10:05 2019
 Charted by Depth in Feet scaled 1:240

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

30	CNLS (pu)	-10
30	DPOR (pu)	-10
15000	LINE TENSION (lb)	0
-0.25	RHOC (g/cc)	0.25





Calibration Report

Database File tdi_hart_1.db
 Dataset Pathname stackml/pass3.1
 Dataset Creation Fri Jun 21 07:38:50 2019

Dual Induction Calibration Report

Serial-Model: PSI 988-M&W
 Calibration Performed: Tue Nov 20 10:50:19 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.525	-44.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.380	-17.000

Microlog Calibration Report

Serial-Model: UDM-01-PSI UDM ML
 Performed: Fri May 31 06:10:42 2019

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	30000.0000	-0.3000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	25000.0000	0.0000
Caliper	1.3170	1.1585	8.0000	22.0000	in	-88.3214	123.7000

Compensated Density Calibration Report

Serial-Model:
Source / Verifier:
Master Calibration Performed:

144-84-M&W
/
Mon Jan 07 15:00:31 2019

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4315.49	5309.89	cps
Aluminum	2.665	g/cc	825.26	3443.46	cps
Spine Angle = 75.33			Density/Spine Ratio = 0.532		
	Size		Reading		
Small Ring	4.00	in	0.69		
Large Ring	14.00	in	0.04		

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



Company TDI, INC.
Well HART #1
Field WILDCAT
County ELLIS
State KANSAS