



DUAL COMP POROSITY LOG

Company HARTMAN OIL COMPANY, INC.
 Well HADLEY NO.1 TWIN
 Field TRICO
 County TREGO
 State KANSAS

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Location: API #: 15-195-23069-00-00
 2260' FSL & 760' FEL
 SEC 3 TWP 11S RGE 21W
 Permanent Datum GROUND LEVEL Elevation 2080'
 Log Measured From KELLY BUSHING
 Drilling Measured From KELLY BUSHING
 Other Services
 DIL
 MEL
 Elevation
 K.B. 2091'
 D.F. N/A
 G.L. 2080'

Date	9/8/2018						
Run Number	ONE						
Type Log	CNL/CDL						
Depth Driller	3760'						
Depth Logger	3756'						
Bottom Logged Interval	3735'						
Top Logged Interval	3000'						
Type Fluid In Hole	CHEMICAL						
Salinity, PPM CL	6600						
Density	9.4						
Level	FULL						
Max. Rec. Temp. F	114 DEG/F						
Operating Rig Time	4 HOURS						
Equipment -- Location	108 HAYS						
Recorded By	J. HENRICKSON						
Witnessed By	KITT NOAH						
Borehole Record							
Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	0	273'	8.625"	23#	0	273'
TWO	7.875"	273'	TD				
Casing Record							

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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.
 RIGA EXIT I 70
 NORTH TO B ROAD, 1 EAST, 1/2 NORTH, WEST INTO

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

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


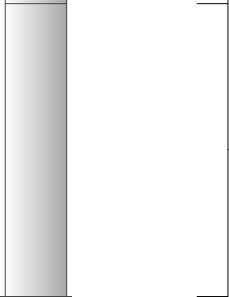
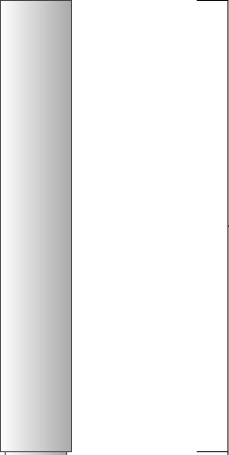

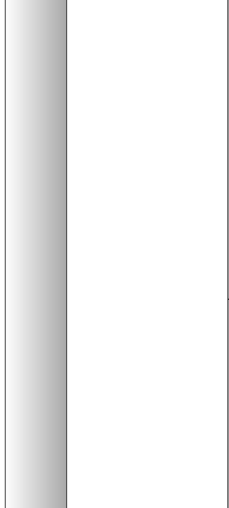
Your Pioneer Energy Services Crew		This Log Record Was Witnessed By	
Engineer: J. HENRICKSON	Operator:	Primary Witness: KITT NOAH	Secondary Witness:
Operator:	Operator:	Secondary Witness:	Secondary Witness:
Operator:		Secondary Witness:	

Log Variables

DatabaseC:\ProgramData\Warrior\Data\hartman_hadley_twin_1.db
 Dataset field/well/stack/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	22	-400	60	Off	3756

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 (126-186)	8.50	4.00	250.00
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: hartman_hadley_twin_1.db: field/well/stack/pass3.1
 Total length: 35.50 ft
 Total weight: 620.00 lb
 O.D.: 4.00 in

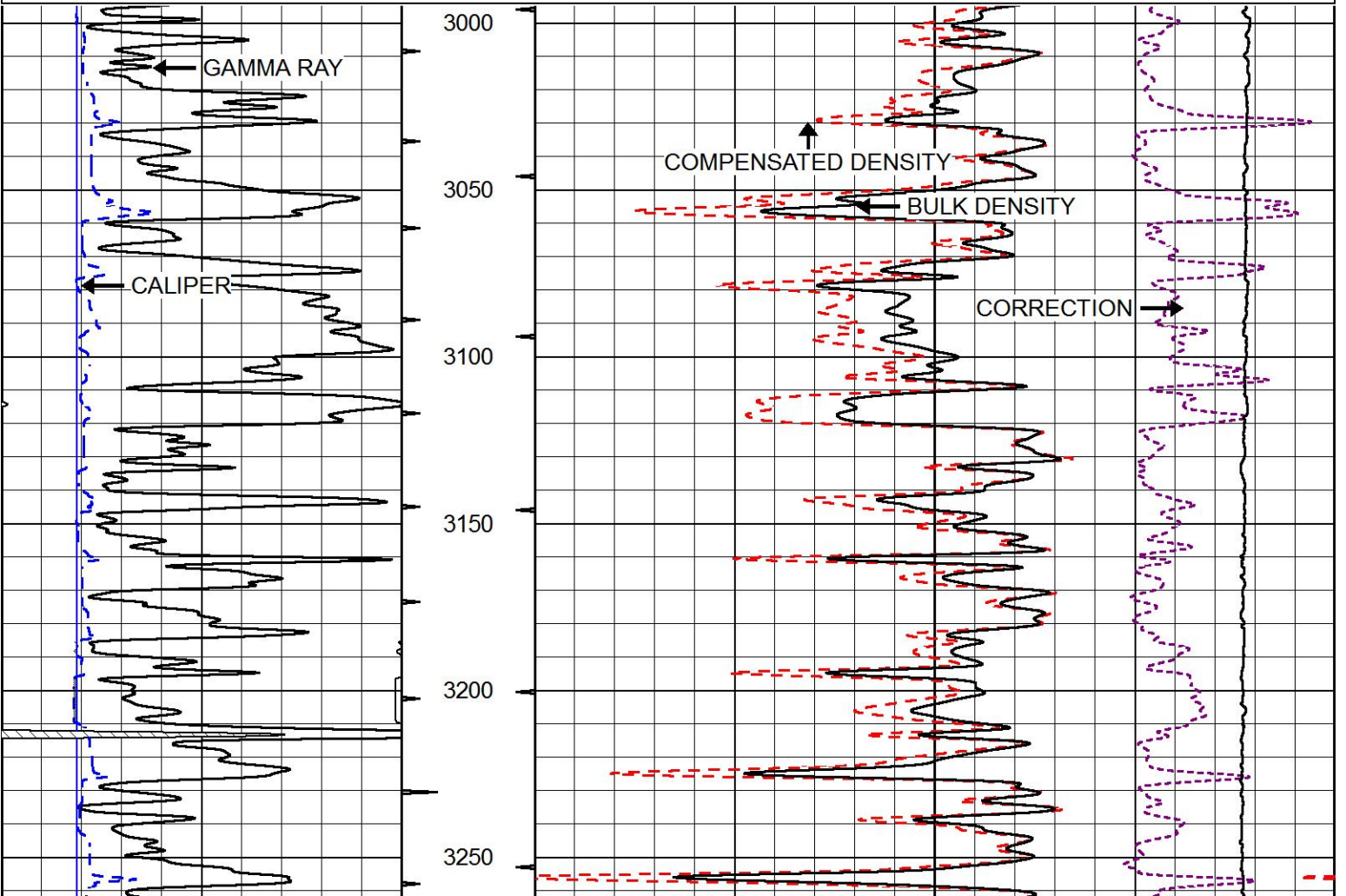


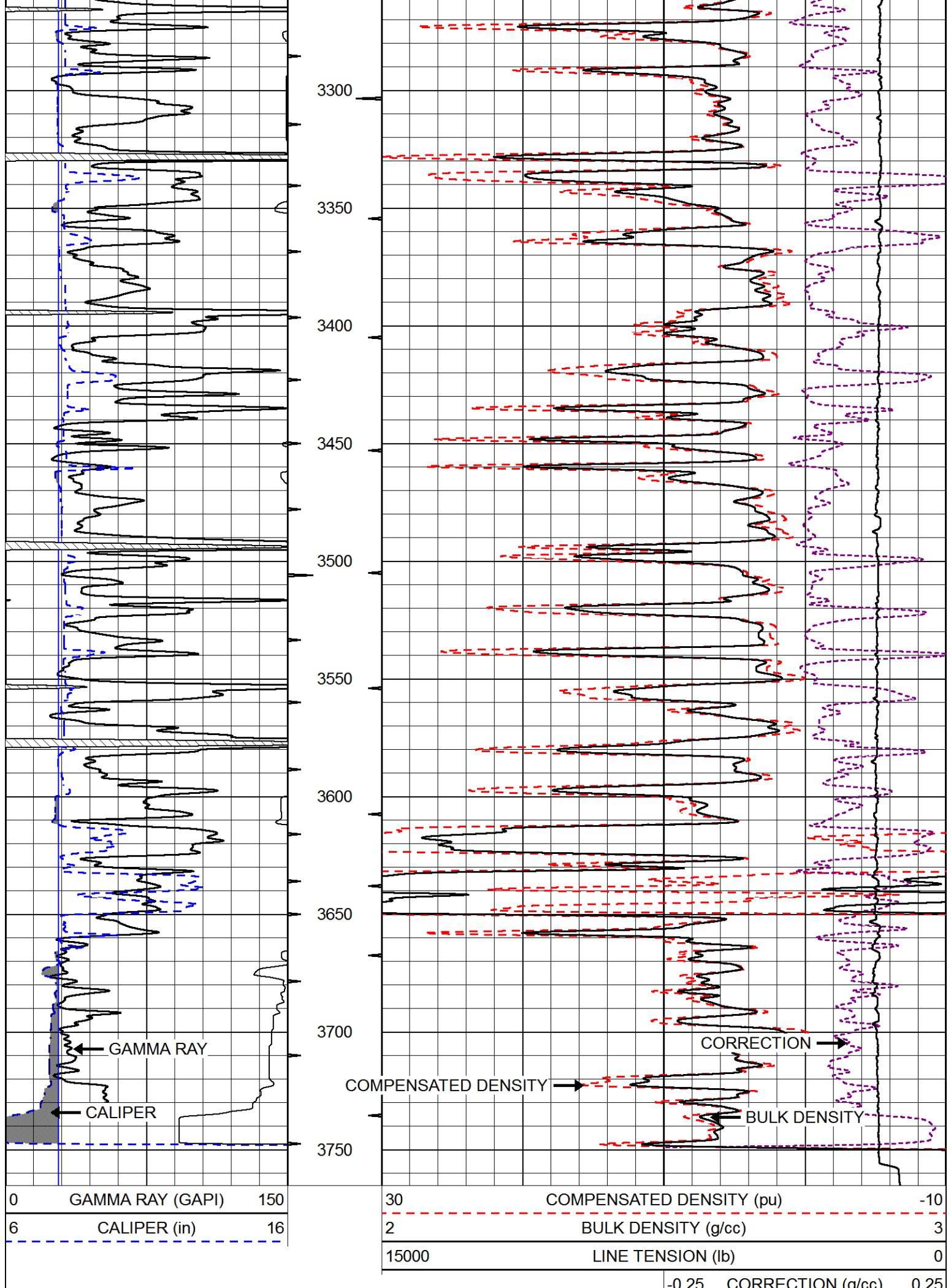
MAIN PASS

Database File hartman_hadley_twin_1.db
 Dataset Pathname stack/pass3.1
 Presentation Format cdl
 Dataset Creation Sat Sep 08 02:52:28 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



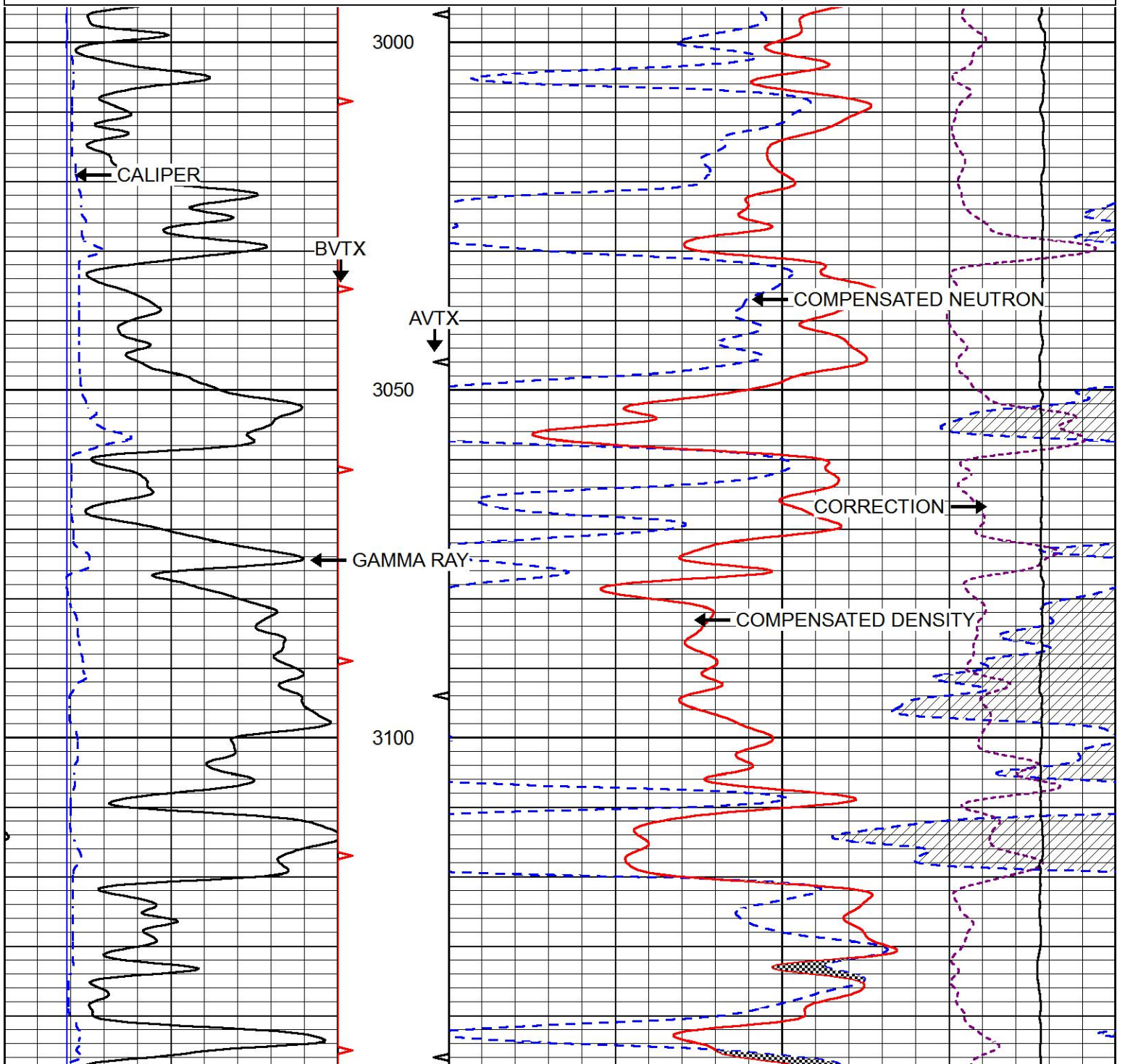


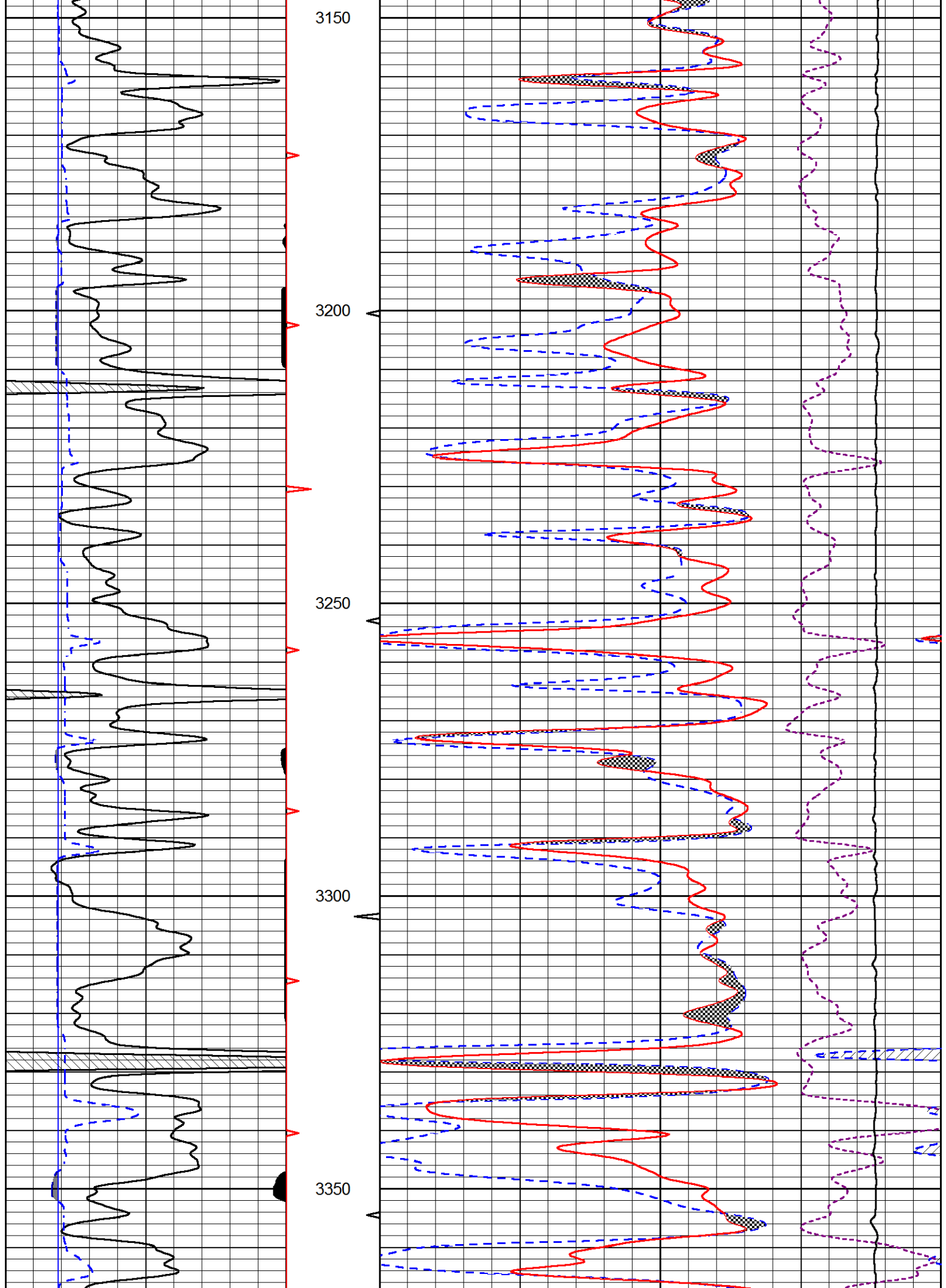


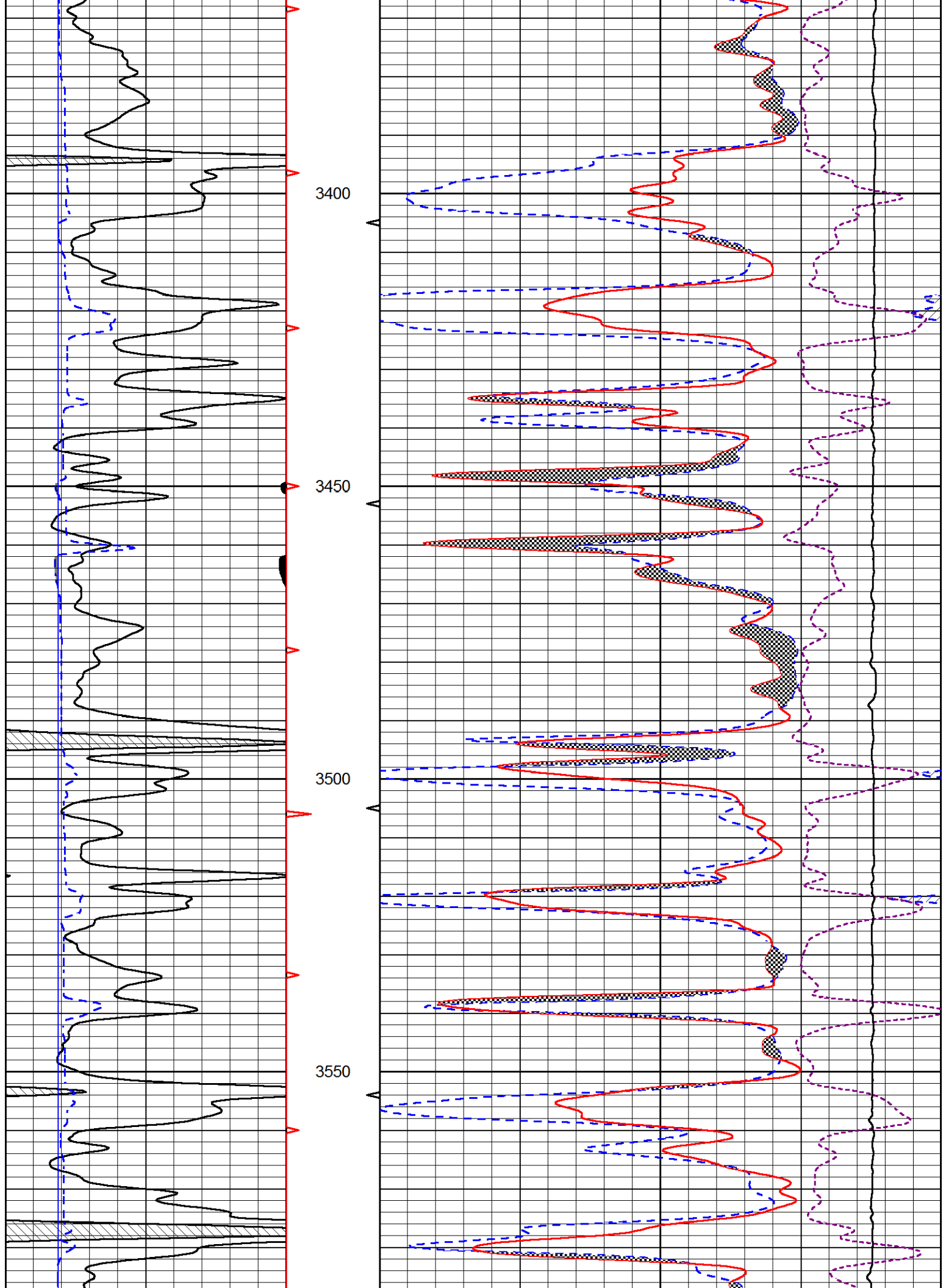
MAIN PASS

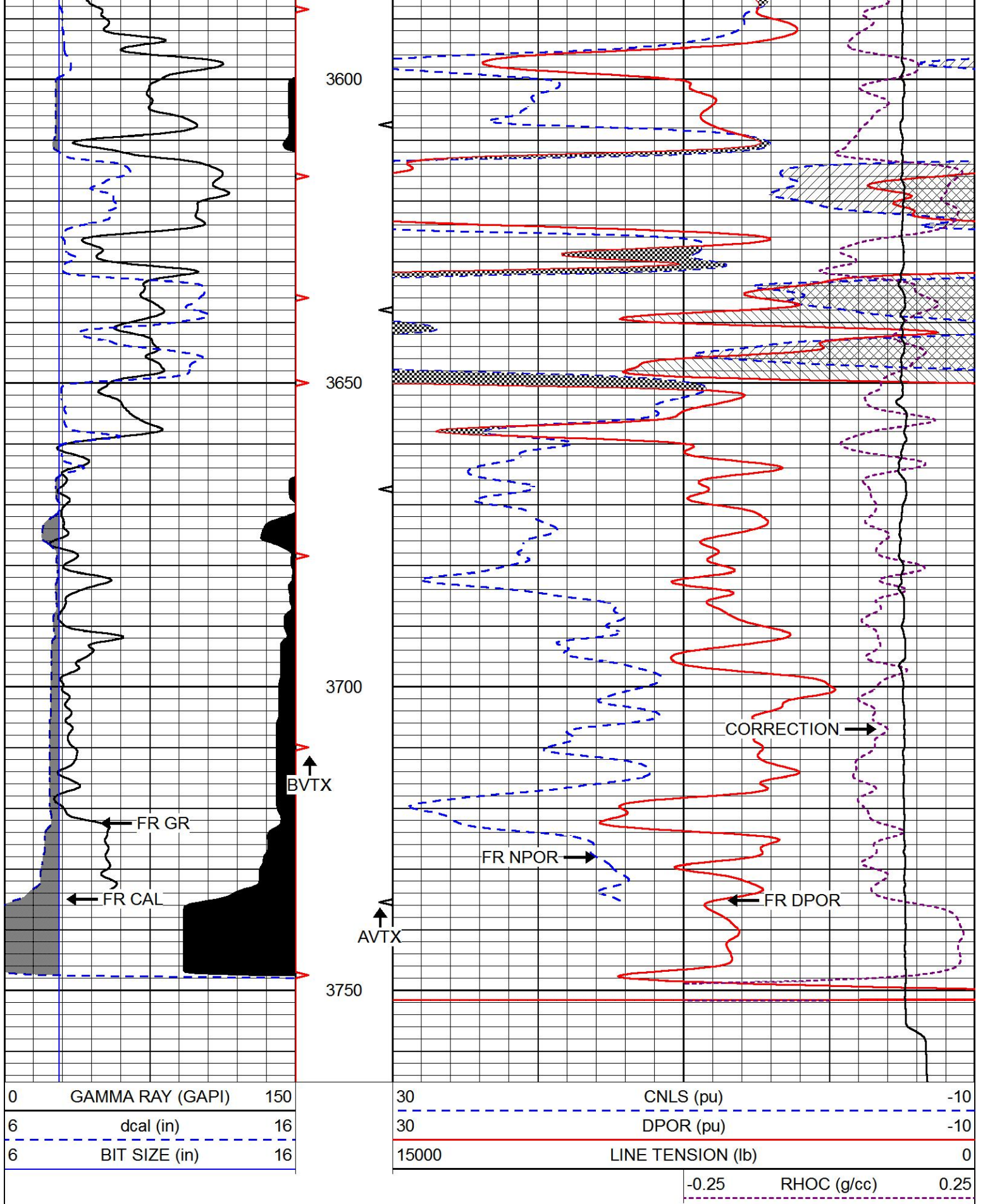
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 Dataset Pathname stack/pass3.1
 Presentation Format cndlspec
 Dataset Creation Sat Sep 08 02:52:28 2018
 Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	30	CNLS (pu)	-10
6	dcal (in)	16	30	DPOR (pu)	-10
6	BIT SIZE (in)	16	15000	LINE TENSION (lb)	0
			-0.25	RHOC (g/cc)	0.25









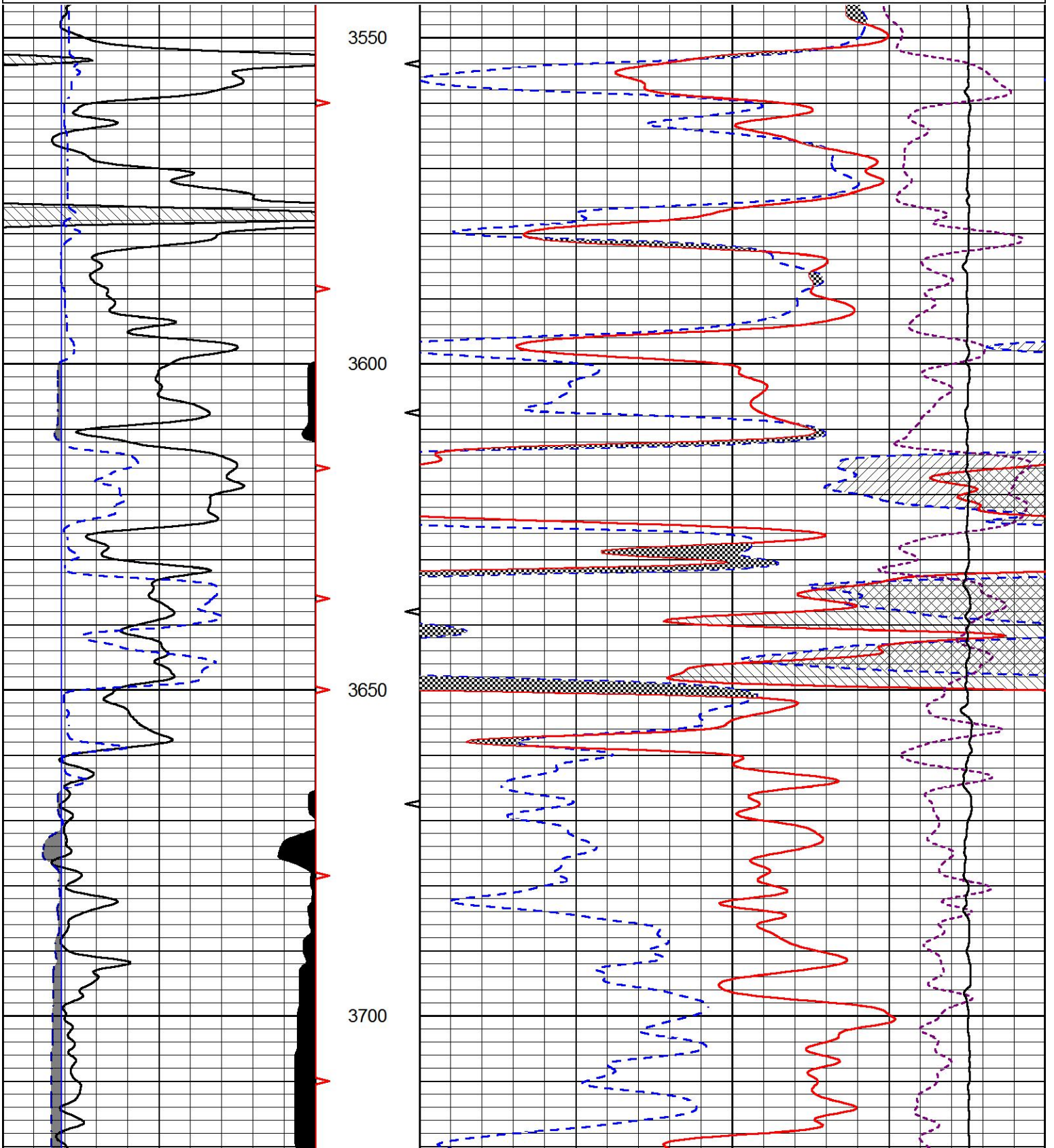
REPEAT SECTION

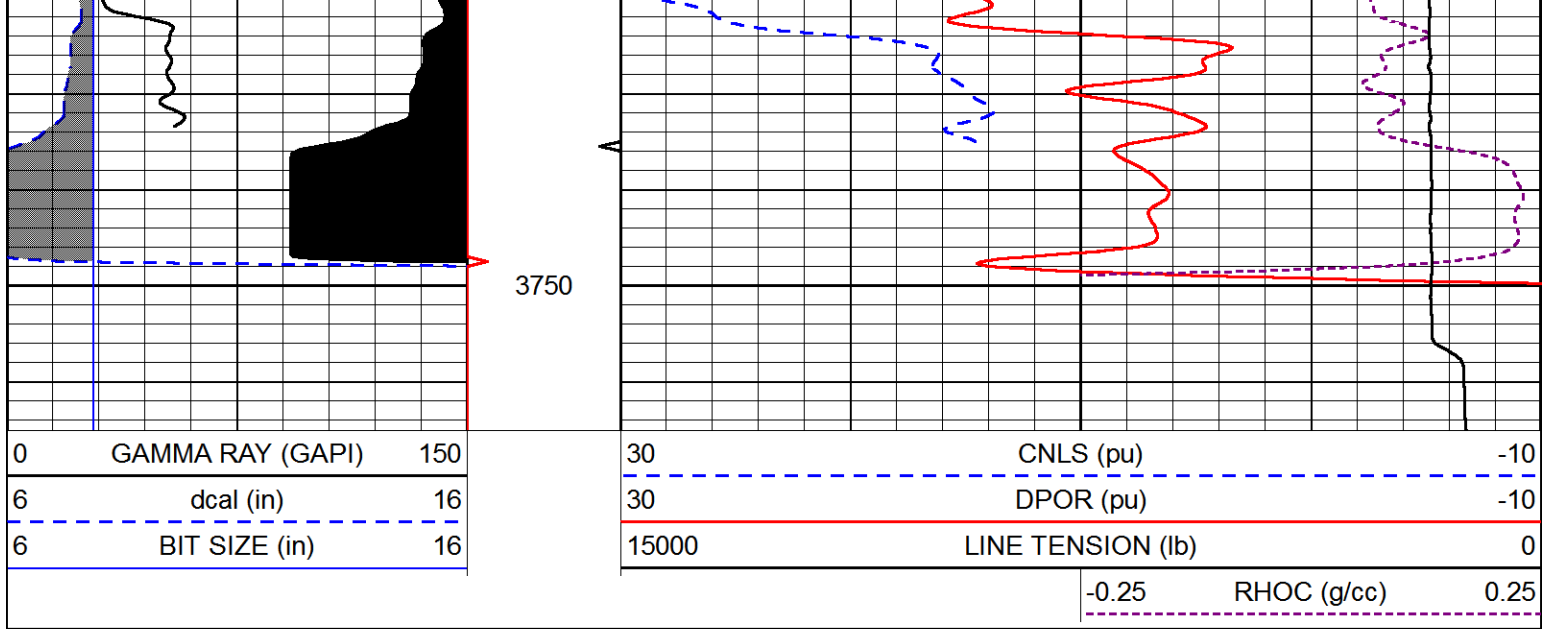
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 Dataset Pathname stack/pass2.1
 Presentation Format cndlspec
 Dataset Creation Sat Sep 08 02:54:24 2018
 Charted by Depth in Feet scaled 1:240

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
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Calibration Report

Database File hartman_hadley_twin_1.db
 Dataset Pathname stack/pass3.1
 Dataset Creation Sat Sep 08 02:52:28 2018

Dual Induction Calibration Report

Serial-Model: PSI 988-M&W
 Calibration Performed: Thu Sep 06 14:52:38 2018

Loop:	Readings		References		Results		
	Air	Loop	Air	Loop	Gain	Offset	
Deep	178.615	710.235	0.000	255.800	mmho/m	0.570	-40.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.400	-37.000

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	2.660	g/cc	836.60	3999.09	cps
Spine Angle = 74.70			Density/Spine Ratio = 0.526		
	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

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
Pioneer Energy Services

Company	HARTMAN OIL COMPANY, INC.
Well	HADLEY NO.1 TWIN
Field	TRICO
County	TREGO
State	KANSAS