



DUAL COMP POROSITY LOG

Pioneer Energy Services
PIONEER
 Company **TDI, INC.**
 Well **ENGEL NORTH #3**
 Field **SCHOENCHEN**
 County **ELLIS** State **KANSAS**

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Location: API #: 15-051-26880-00-00
 530' FNL & 1970' FEL
 SEC 21 TWP 15S RGE 18W
 Permanent Datum **GROUND LEVEL Elevation 2027'**
 Log Measured From **KELLY BUSHING**
 Drilling Measured From **KELLY BUSHING**
 Other Services **DIL/MEL**
 Elevation **K.B. 2037'**
D.F. N/A
G.L. 2027'

Date	7/24/2017						
Run Number	ONE						
Type Log	CNL/CDL						
Depth Driller	3640'						
Depth Logger	3639'						
Bottom Logged Interval	3638'						
Top Logged Interval	3610'						
Type Fluid In Hole	CHEMICAL						
Salinity, PPM CL	4800						
Density	9.1						
Level	FULL						
Max. Rec. Temp. F	112						
Operating Rig Time	3 HOURS						
Equipment -- Location	91 HAYS						
Recorded By	D. SCHMIDT						
Witnessed By	TOM DENNING						
Borehole Record							
Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	0'	1189'	8.625"	23#	0'	1189'
TWO	7.875"	1189'		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.
HAYS,
SOUTH TO CHETOLAH GOLD RD, 1/2 WEST, 1/8 SOUTH,
EAST INTO

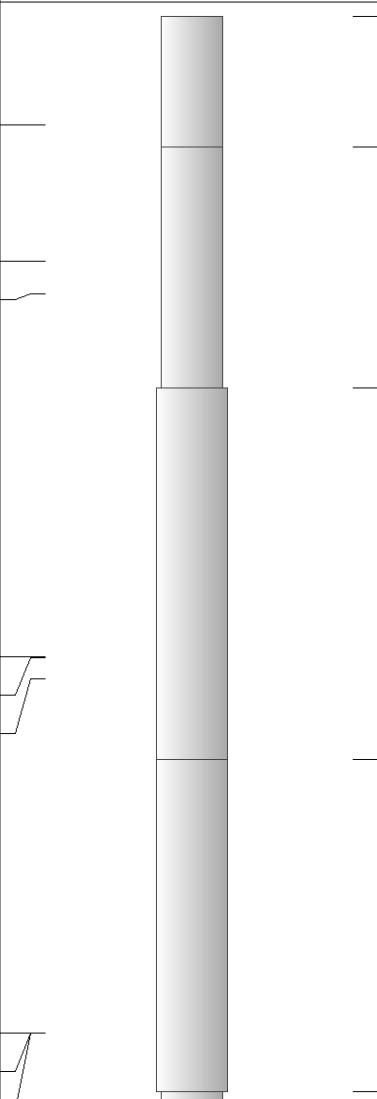
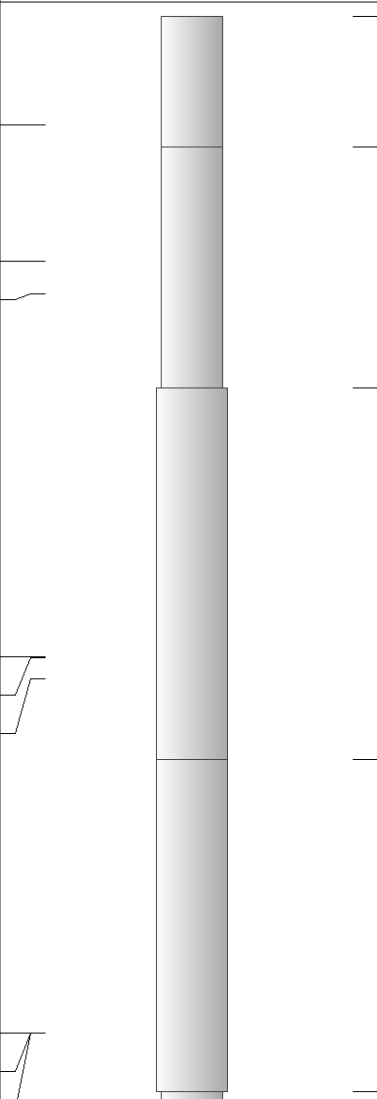
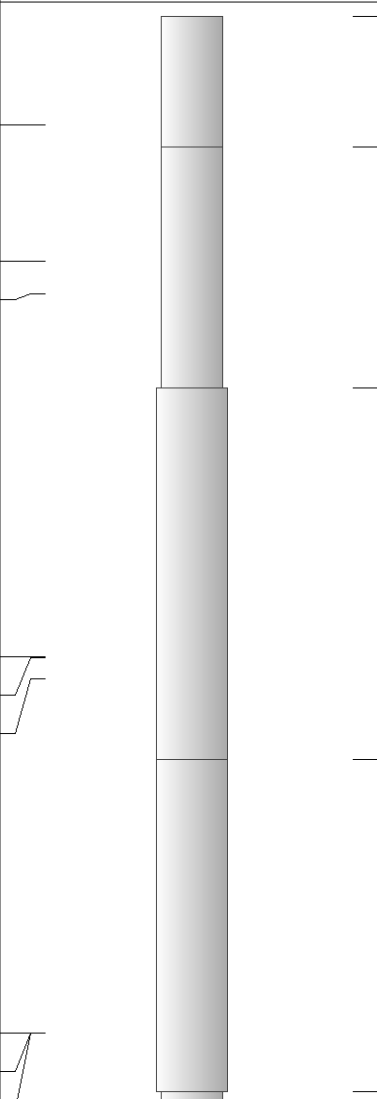
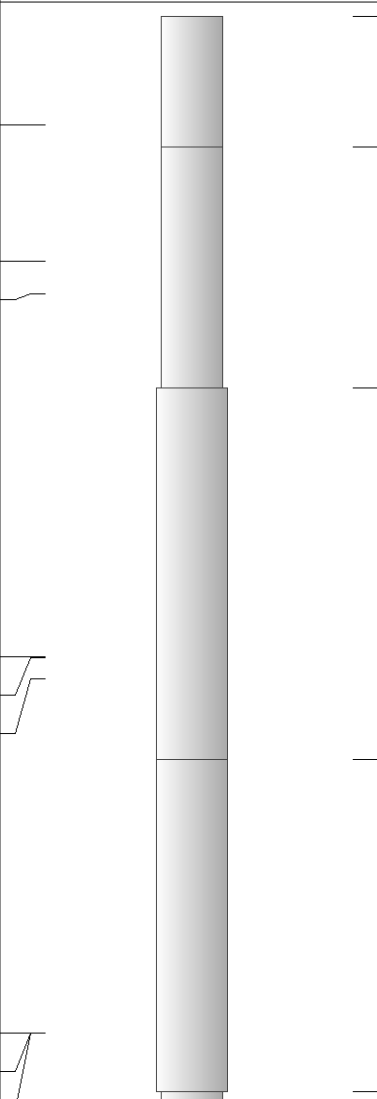
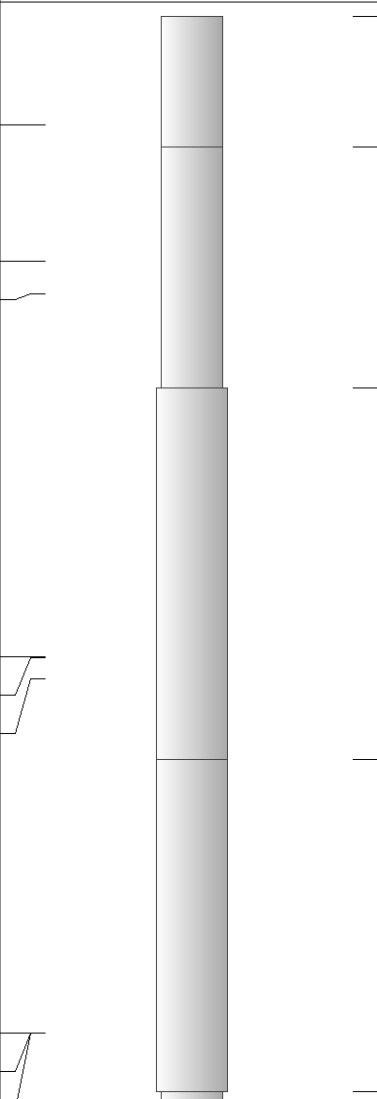
Log Measured From: **KELLY BUSHING** 10 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew Engineer: D. SCHMIDT Operator: Operator: Operator:	This Log Record Was Witnessed By Primary Witness: TOM DENNING Secondary Witness: HERB DEINES Secondary Witness: Secondary Witness:
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Top - Bottom

M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	0	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	0	0	5.5	0	0	100	7.875

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89)	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 (90-1031)	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

CILM 4.70

SP 0.20

DIL-M&W (PSI 91)

18.50

3.50

220.00

Dataset: tdi_engel north_3.db: field/well/STKML/pass3.3
 Total length: 43.08 ft
 Total weight: 685.00 lb
 O.D.: 4.00 in



MAIN PASS

Database File tdi_engel north_3.db
 Dataset Pathname STKML/pass3.1
 Presentation Format cdl
 Dataset Creation Mon Jul 24 02:28:48 2017
 Charted by Depth in Feet scaled 1:600

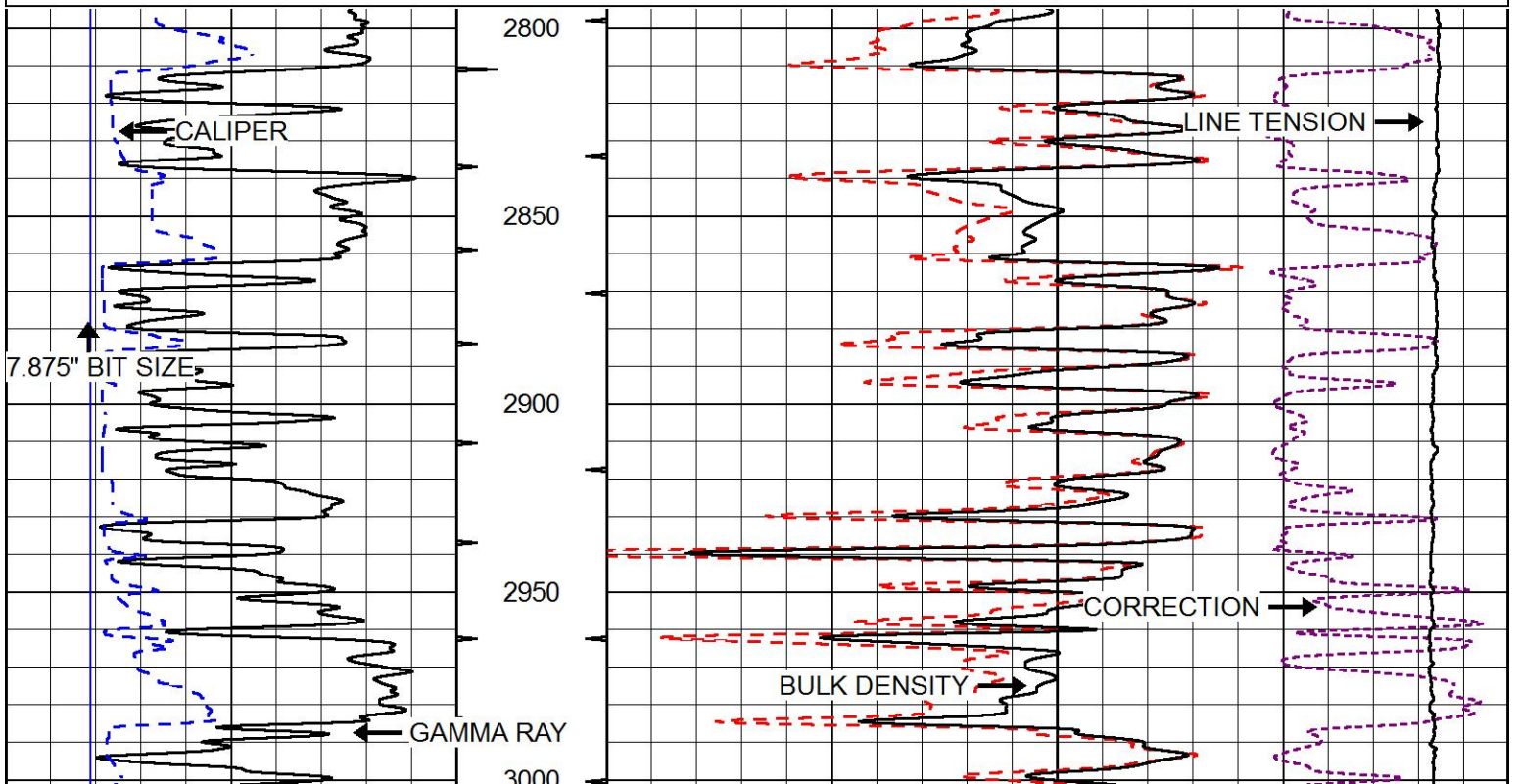
0	Gamma Ray (GAPI)	150
6	Caliper (in)	16

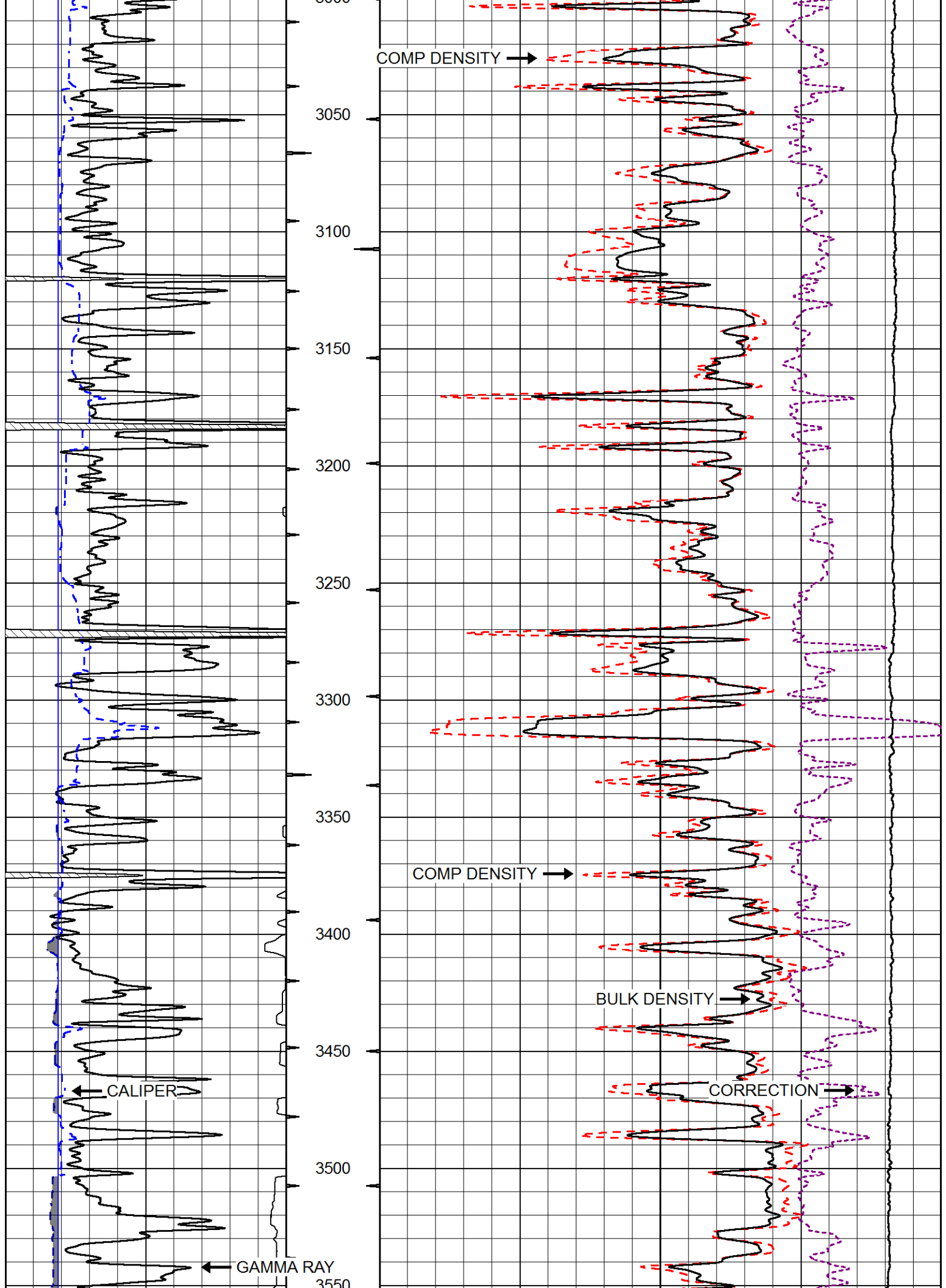
Compensated Density (2.71 MA)	
30	(pu) -10

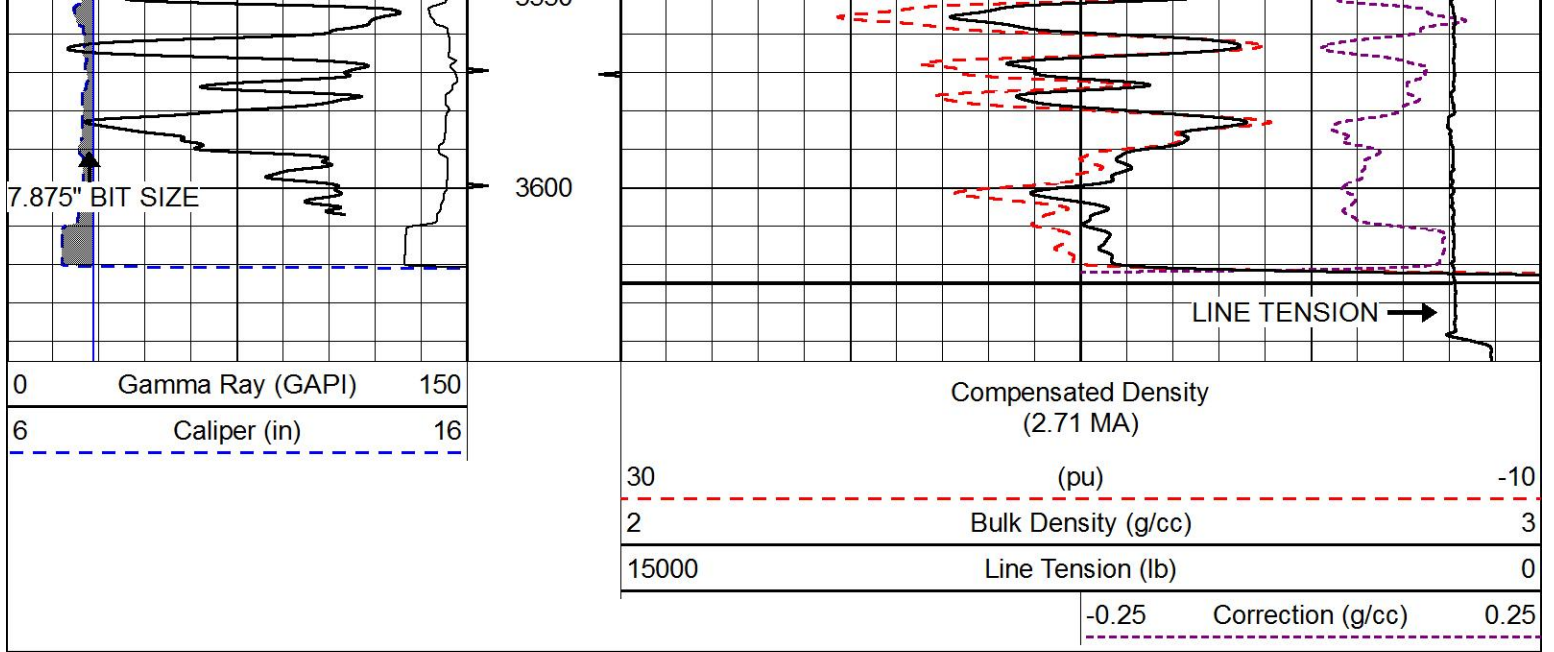
2	Bulk Density (g/cc) 3

15000	Line Tension (lb) 0

-0.25	Correction (g/cc) 0.25

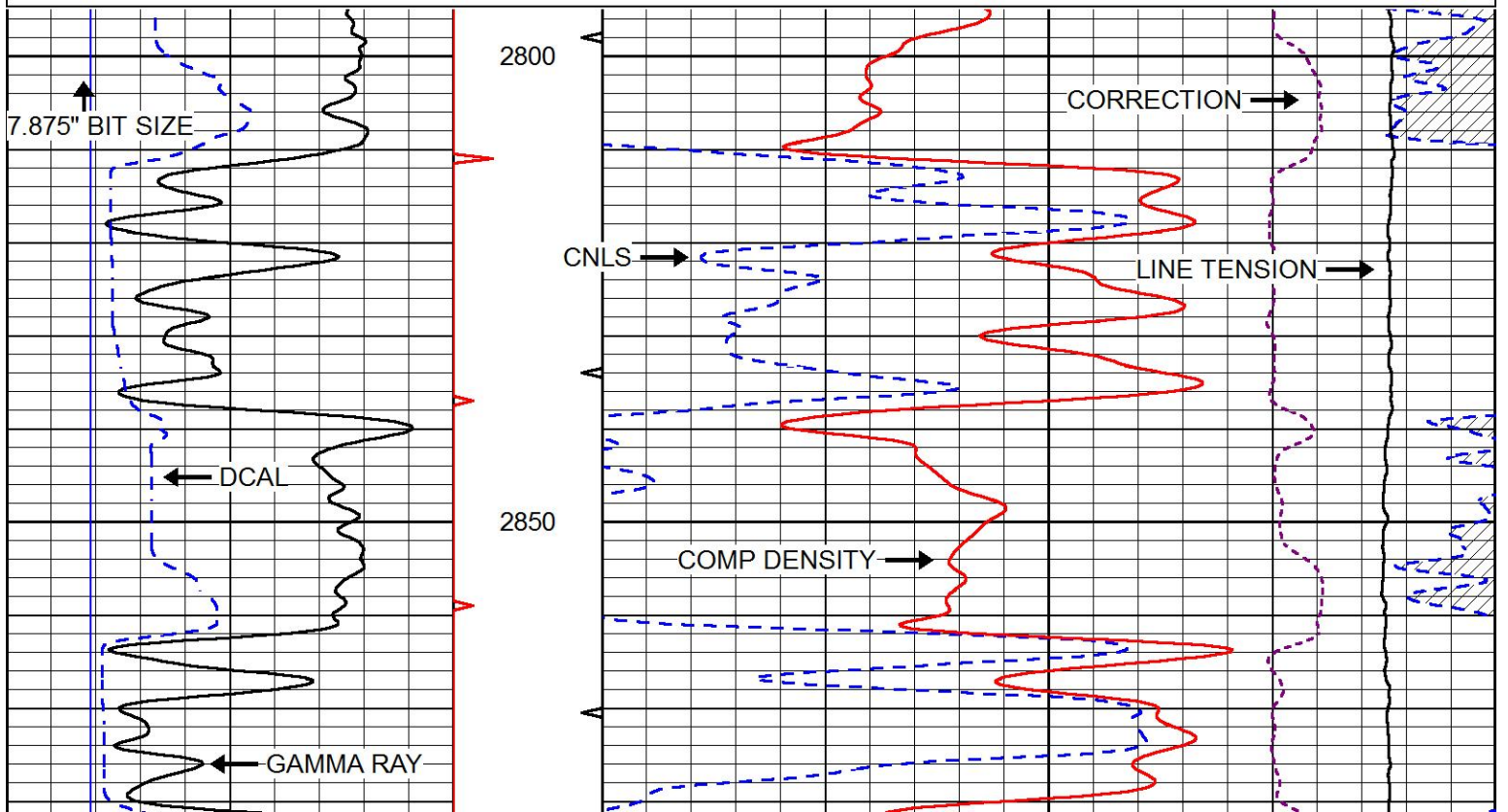
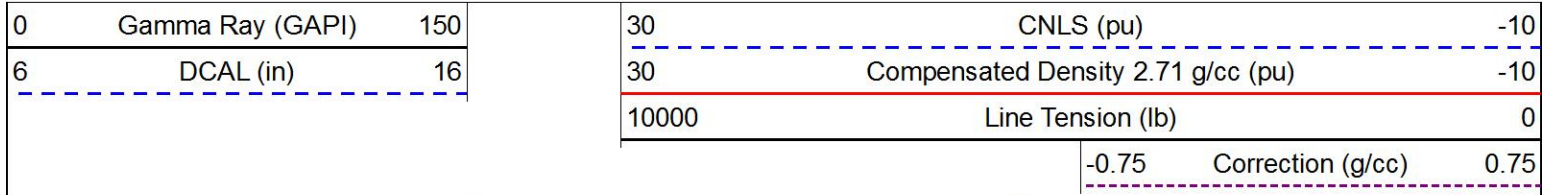


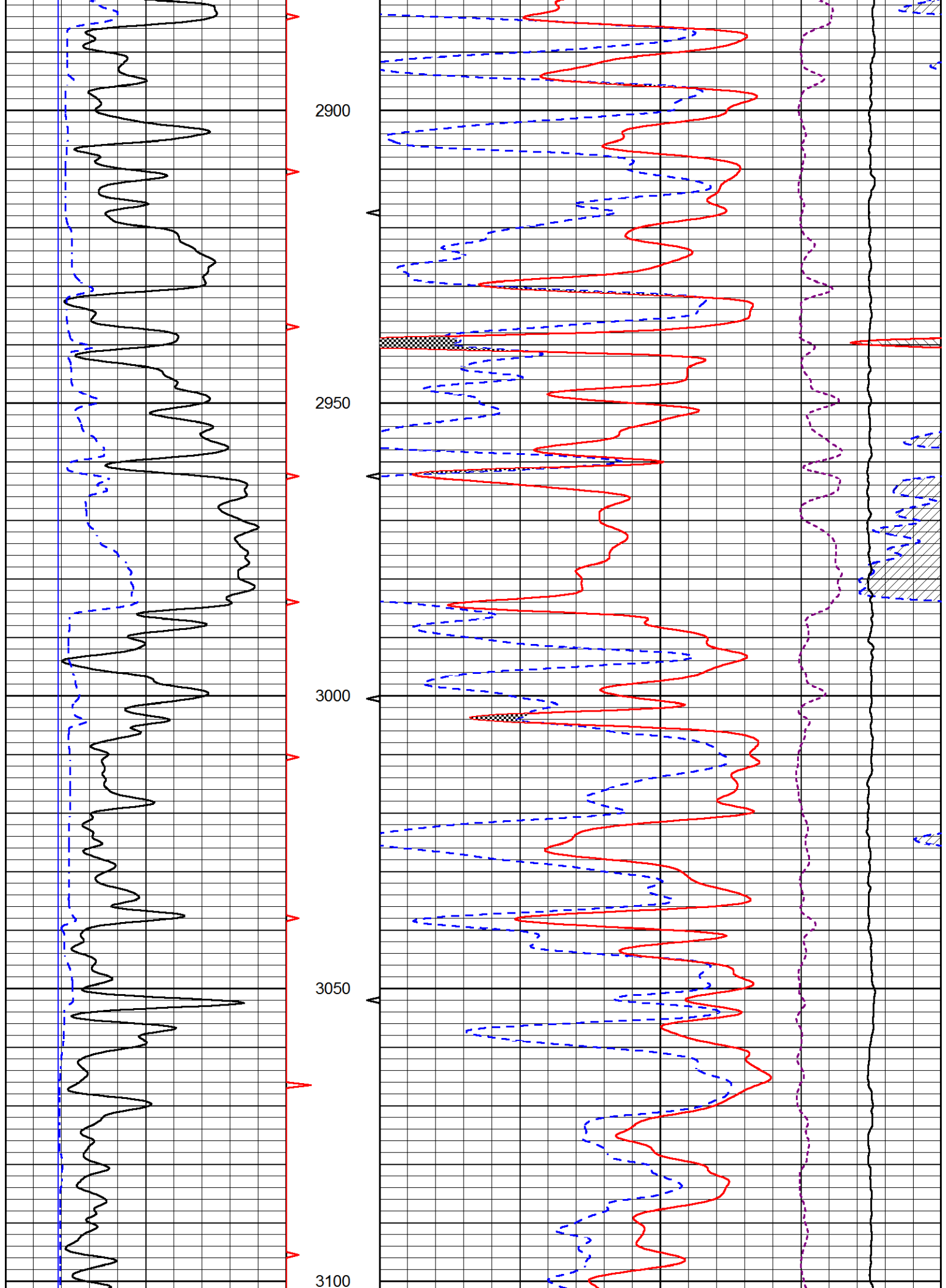


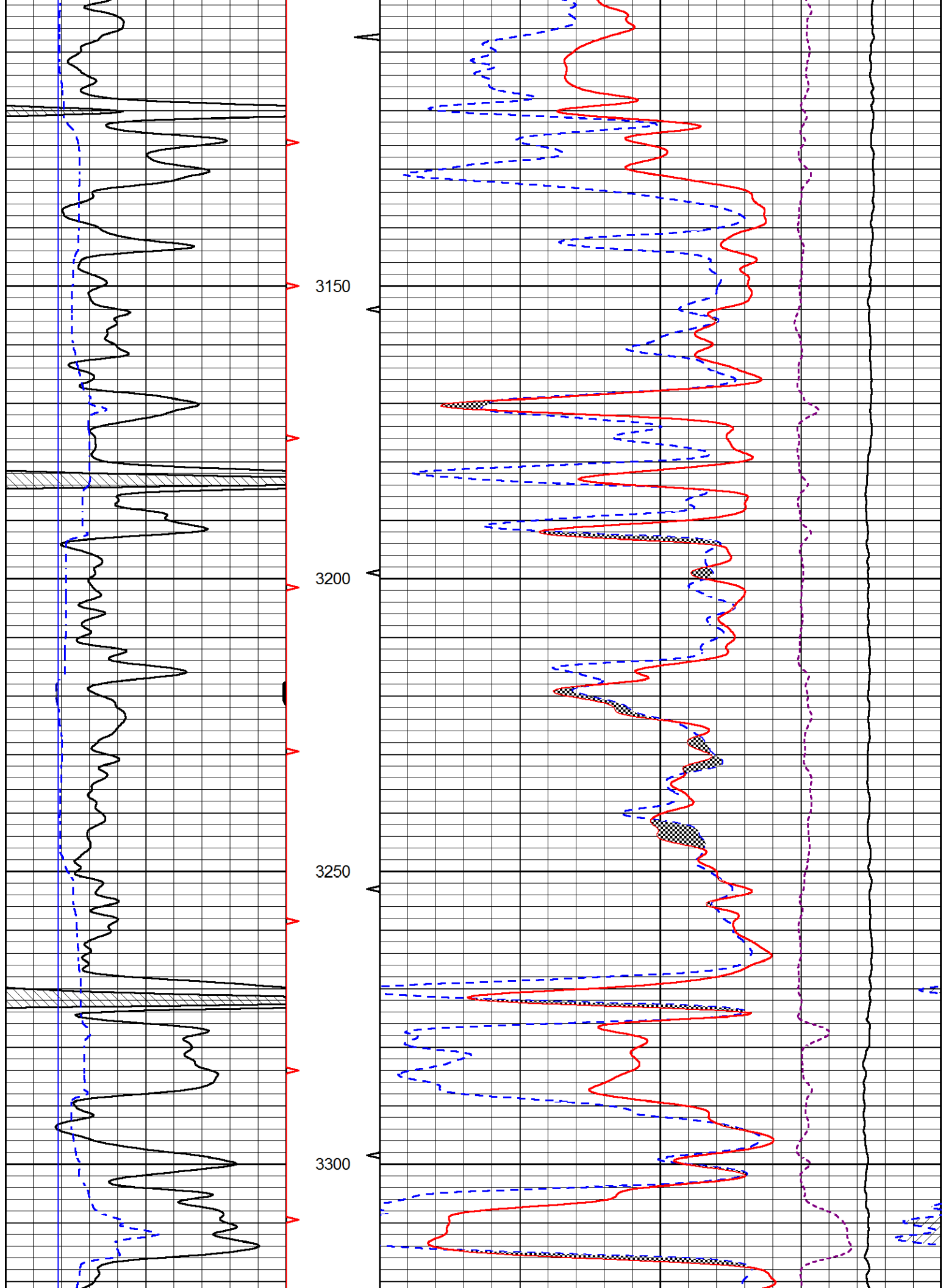


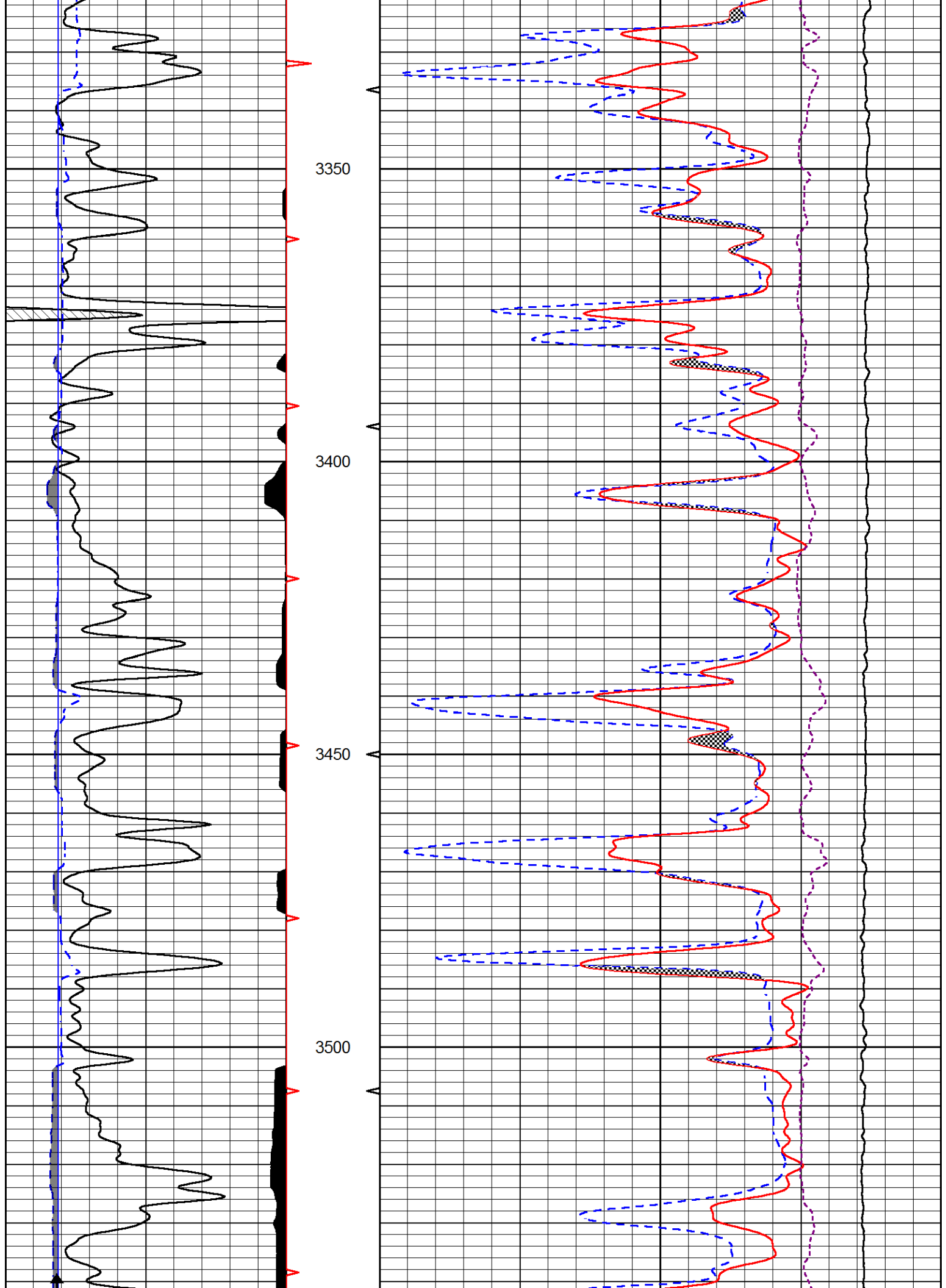

MAIN PASS

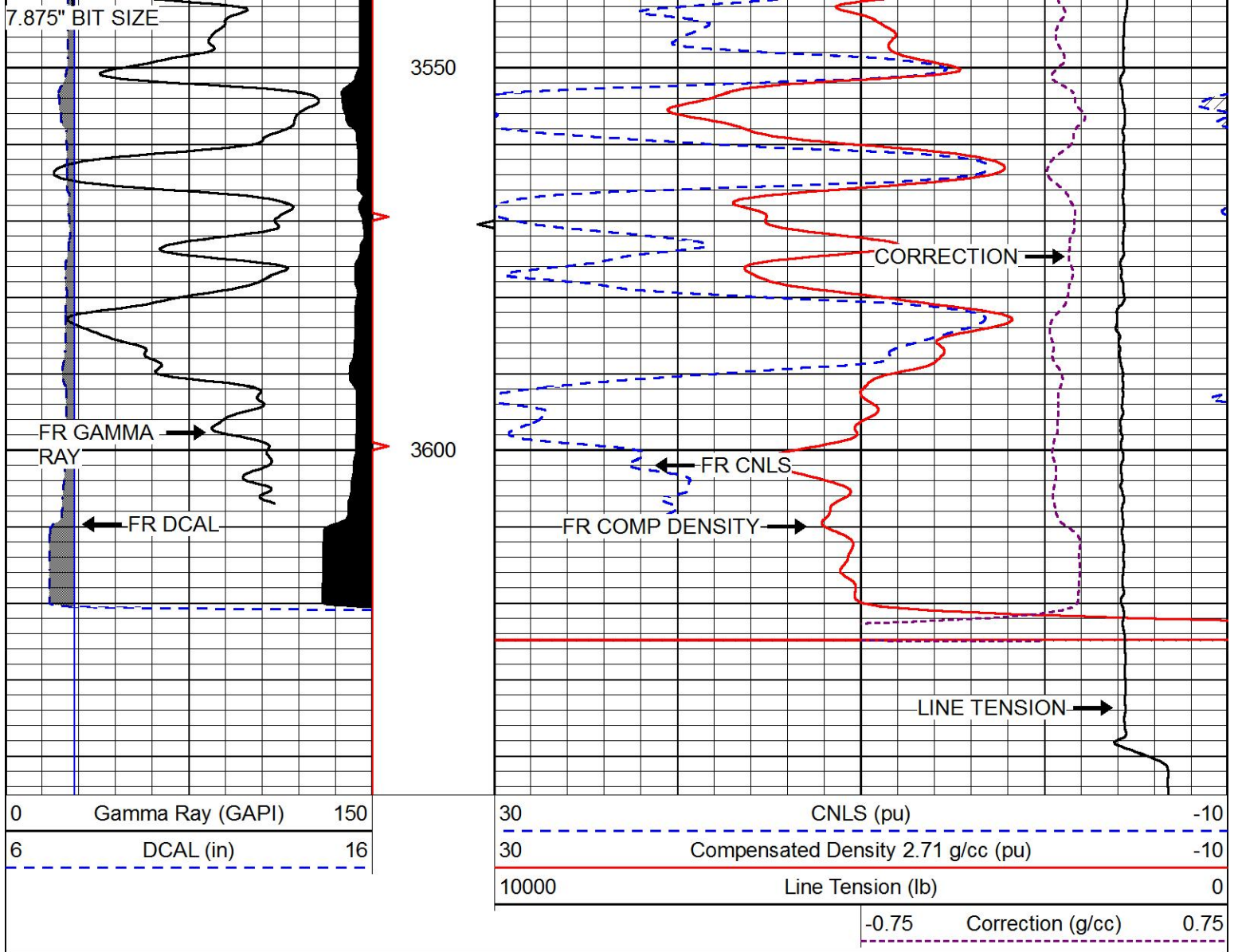
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 Dataset Pathname STKML/pass3.1
 Presentation Format cndlspec
 Dataset Creation Mon Jul 24 02:28:48 2017
 Charted by Depth in Feet scaled 1:240





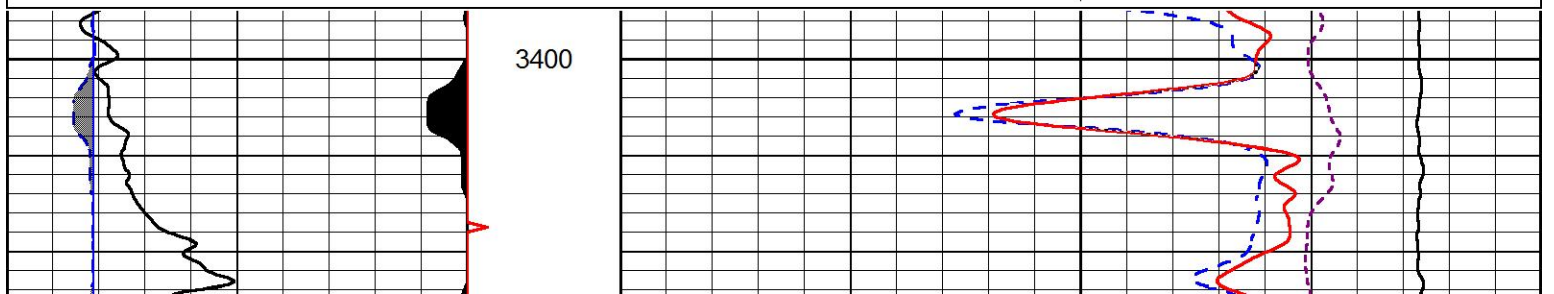
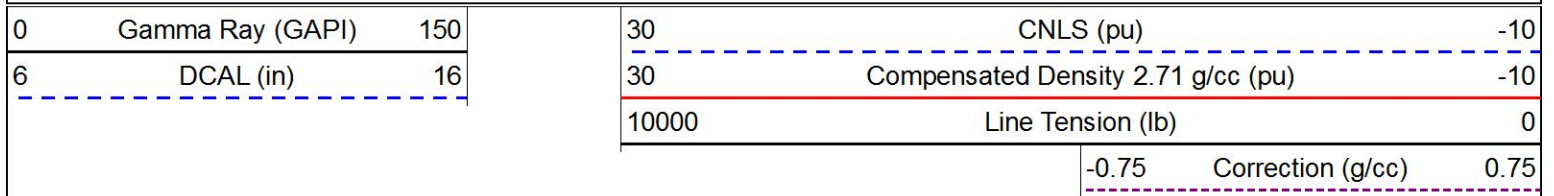


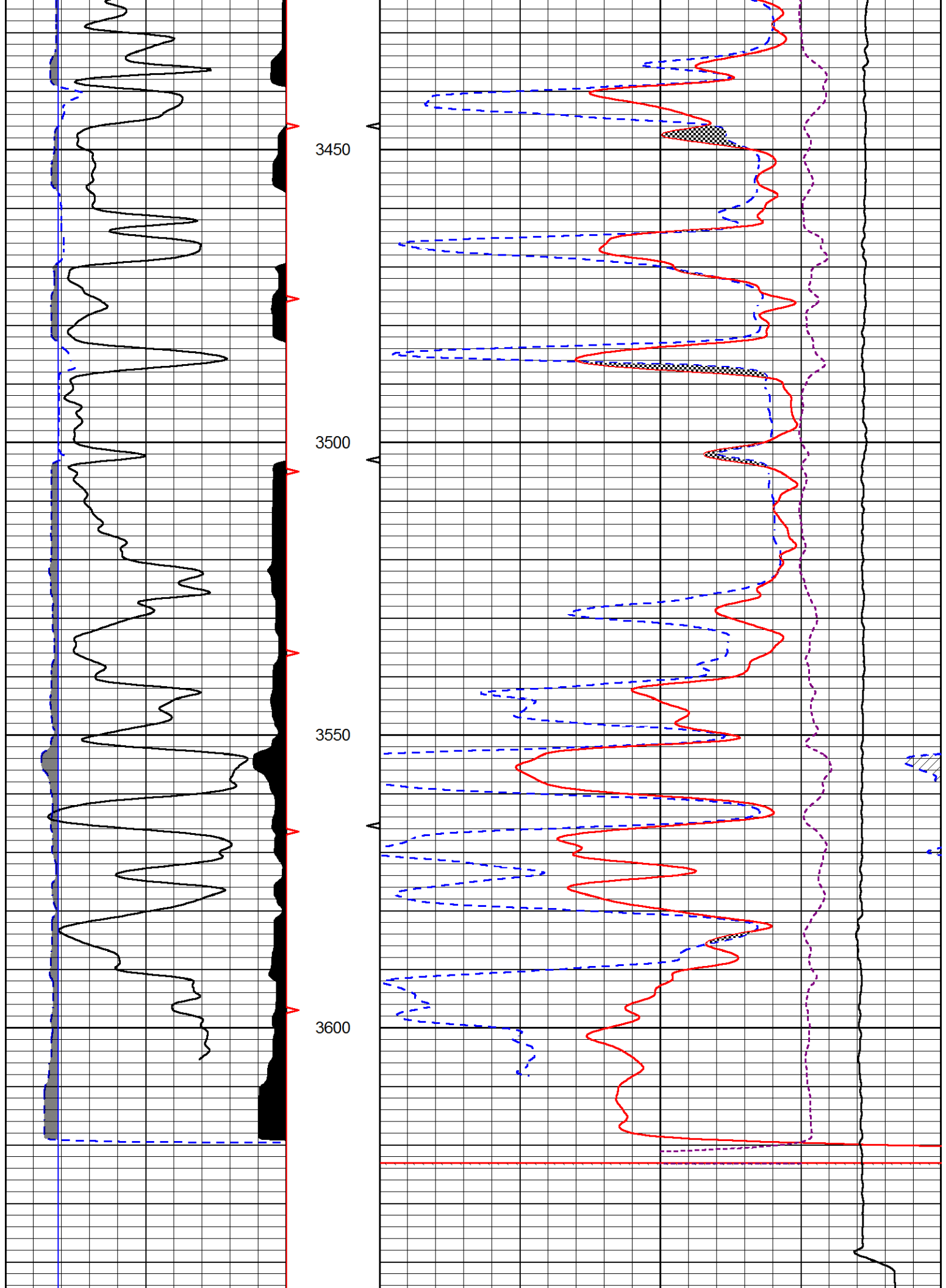




REPEAT SECTION

Database File tdi_engel north_3.db
 Dataset Pathname STKML/pass2.1
 Presentation Format cndlspec
 Dataset Creation Mon Jul 24 02:36:54 2017
 Charted by Depth in Feet scaled 1:240





0	Gamma Ray (GAPI)	150	30	CNLS (pu)	-10
6	DCAL (in)	16	30	Compensated Density 2.71 g/cc (pu)	-10
			10000	Line Tension (lb)	0
				-0.75 Correction (g/cc)	0.75

Calibration Report

Database File tdi_engel north_3.db
 Dataset Pathname STKML/pass3.3
 Dataset Creation Mon Jul 24 02:01:45 2017

Dual Induction Calibration Report

Serial-Model: PSI 91-M&W
 Calibration Performed: Thu Jul 13 13:00:25 2017

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	166.796	835.089	0.000	255.800	mmho/m	0.430	-30.500
Medium	142.009	1348.560	0.000	255.800	mmho/m	0.360	-30.000

Microlog Calibration Report

Serial-Model: PSI-01-PSIML
 Performed: Thu Jul 13 13:00:38 2017

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	30000.0000	-1.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	30000.0000	-0.3000
Caliper	1.0001	1.1397	6.5000	18.5000	in	100.0000	-97.2500

Compensated Density Calibration Report

Serial-Model: 90-1031-M&W
 Source / Verifier: 16955B / 2ci
 Master Calibration Performed: Thu Jul 13 13:00:48 2017

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4903.44	6153.79	cps
Aluminum	2.685	g/cc	934.50	4021.31	cps
Spine Angle = 75.61			Density/Spine Ratio = 0.543		
	Size		Reading		
Small Ring	8.00	in	1.84		
Large Ring	22.00	in	1.46		


Compensated Neutron Calibration Report

Serial Number: 207-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	
Tool Model:	M&W	
Calibration Performed:	Thu Jul 13 13:01:02 2017	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6000	GAPI/cps

 <p>PIONEER Pioneer Energy Services</p>	Company	TDI, INC.
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