



DUAL COMP POROSITY LOG

Pioneer Energy Services

Company NORTHERN LIGHTS OIL CO.
 Well RHONDA #1
 Field WILDCAT
 County RUSH State KANSAS

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Location: API #: 15-165-22169-00-00
 2310' FSL & 2040' FWL
 SEC 15 TWP 17S RGE 20W
 Permanent Datum GROUND LEVEL Elevation 2140'
 Log Measured From KELLY BUSHING
 Drilling Measured From KELLY BUSHING
 Other Services DIL MEL

Date	6/13/2019
Run Number	ONE
Type Log	CNL/CDL
Depth Driller	4065'
Depth Logger	4064'
Bottom Logged Interval	4031'
Top Logged Interval	3400'
Type Fluid In Hole	CHEMICAL
Salinity, PPM CL	5000
Density	9.45
Level	FULL
Max. Rec. Temp. F	117 DEG/F
Operating Rig Time	2 HOURS
Equipment -- Location	P-108 HAYS
Recorded By	J. HENRICKSON
Witnessed By	JEFF CHRISTIAN

Borehole Record		Casing Record					
Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	0	253'	8.625"	23#	0	253'
TWO	7.875"	253'		TD			

<<< 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.
 MCCRACKEN KANSAS
 SOUTH SIDE OF TOWN, 2 EAST TO 130 ROAD
 1/2 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: J. HENRICKSON
 Operator:
 Operator:
 Operator:

This Log Record Was Witnessed By

Primary Witness: JEFF CHRISTIAN
 Secondary Witness:
 Secondary Witness:
 Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\northern_lights_rhonda_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	117	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	170	53	Off	4064

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	
ML-PSI UDM ML (UDM-01) Stackable Microlog Tools			11.50	4.00	215.00		
MCAL MI MN	20.87 20.87 20.87						
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: northern_lights_rhonda_1.db: field/well/stackml/pass3.1
 Total length: 47.00 ft
 Total weight: 835.00 lb
 O.D.: 4.00 in

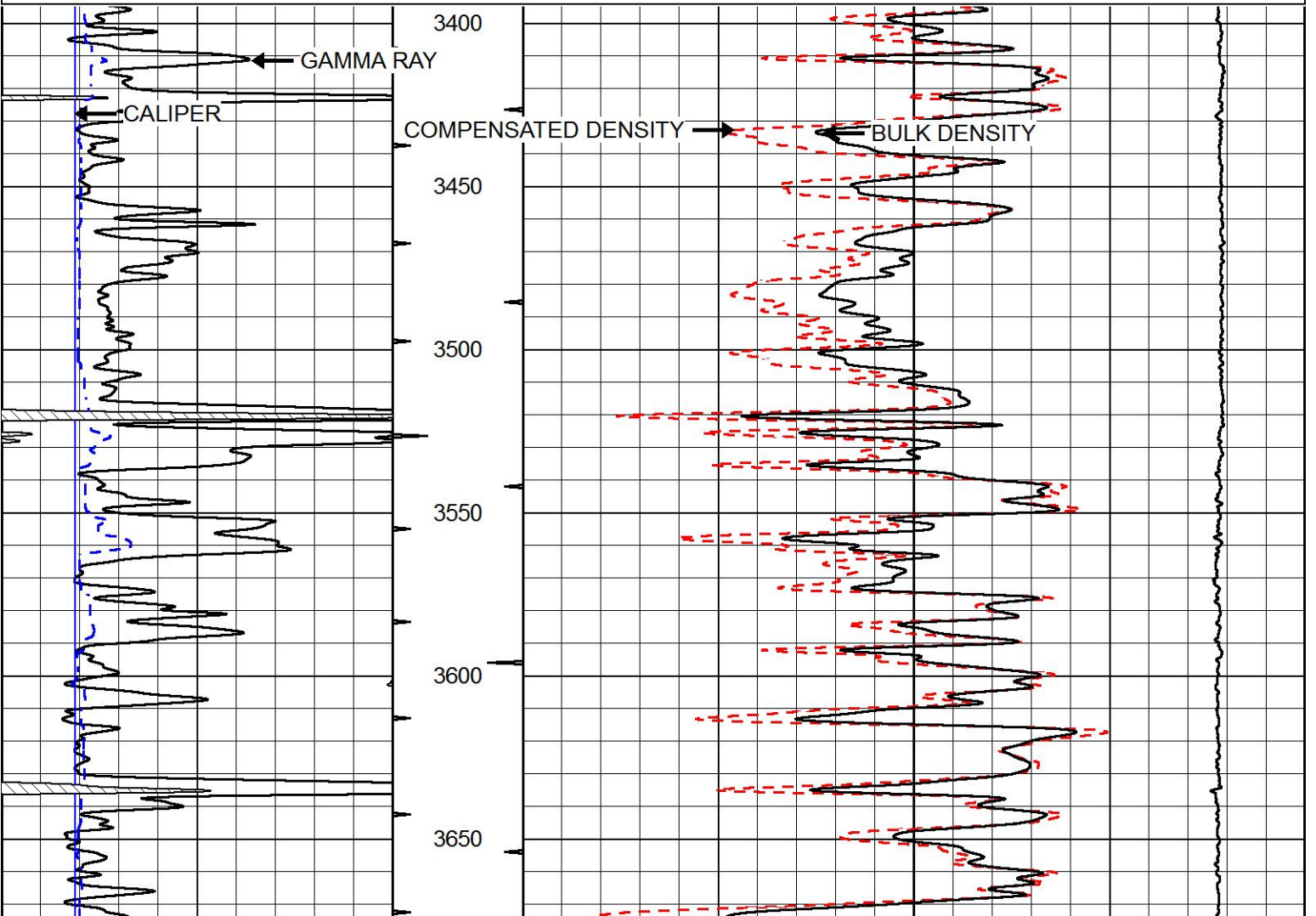


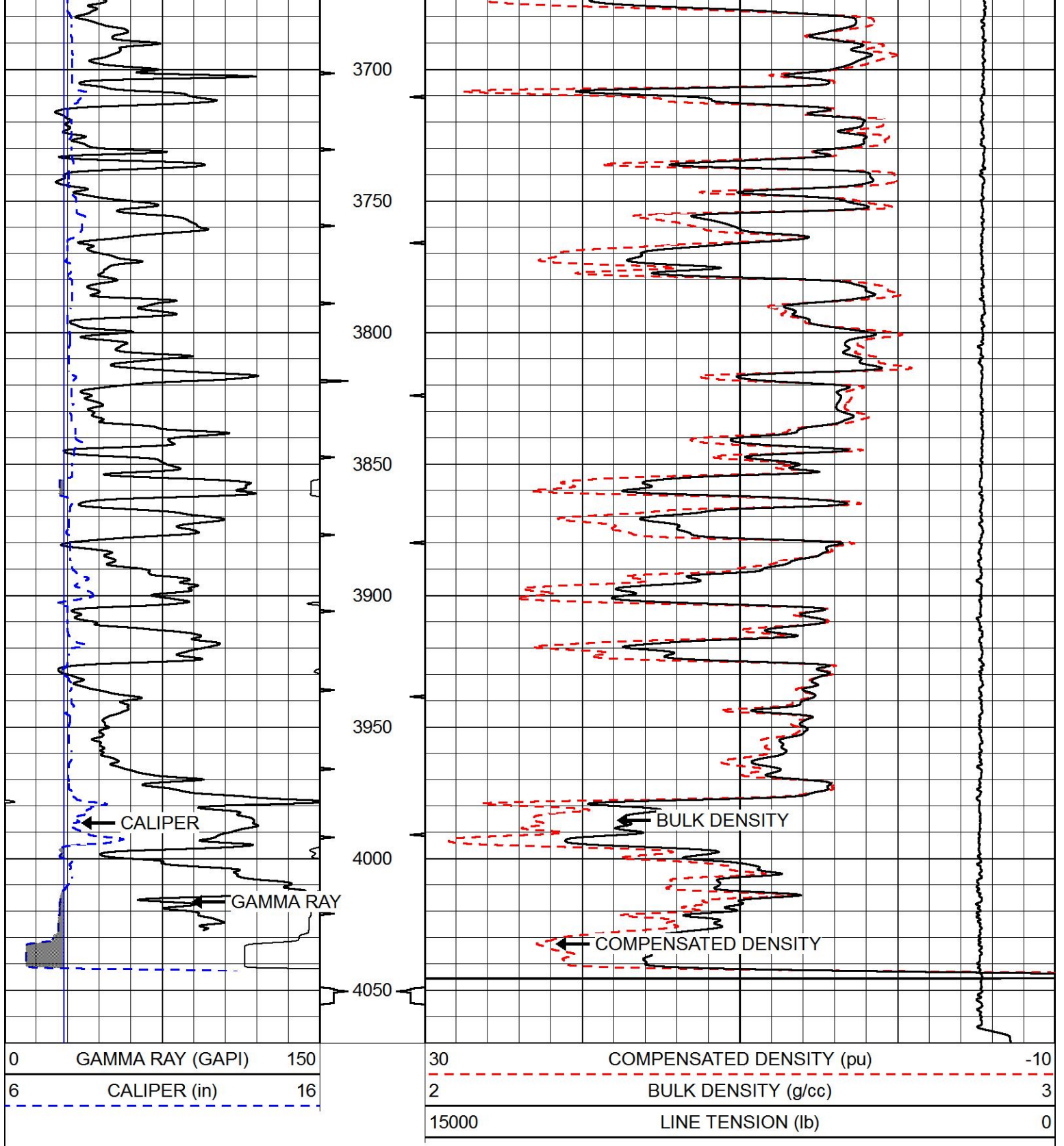
MAIN PASS

Database File northern_lights_rhonda_1.db
 Dataset Pathname stackml/pass3.1
 Presentation Format cdl
 Dataset Creation Thu Jun 13 07:34:26 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





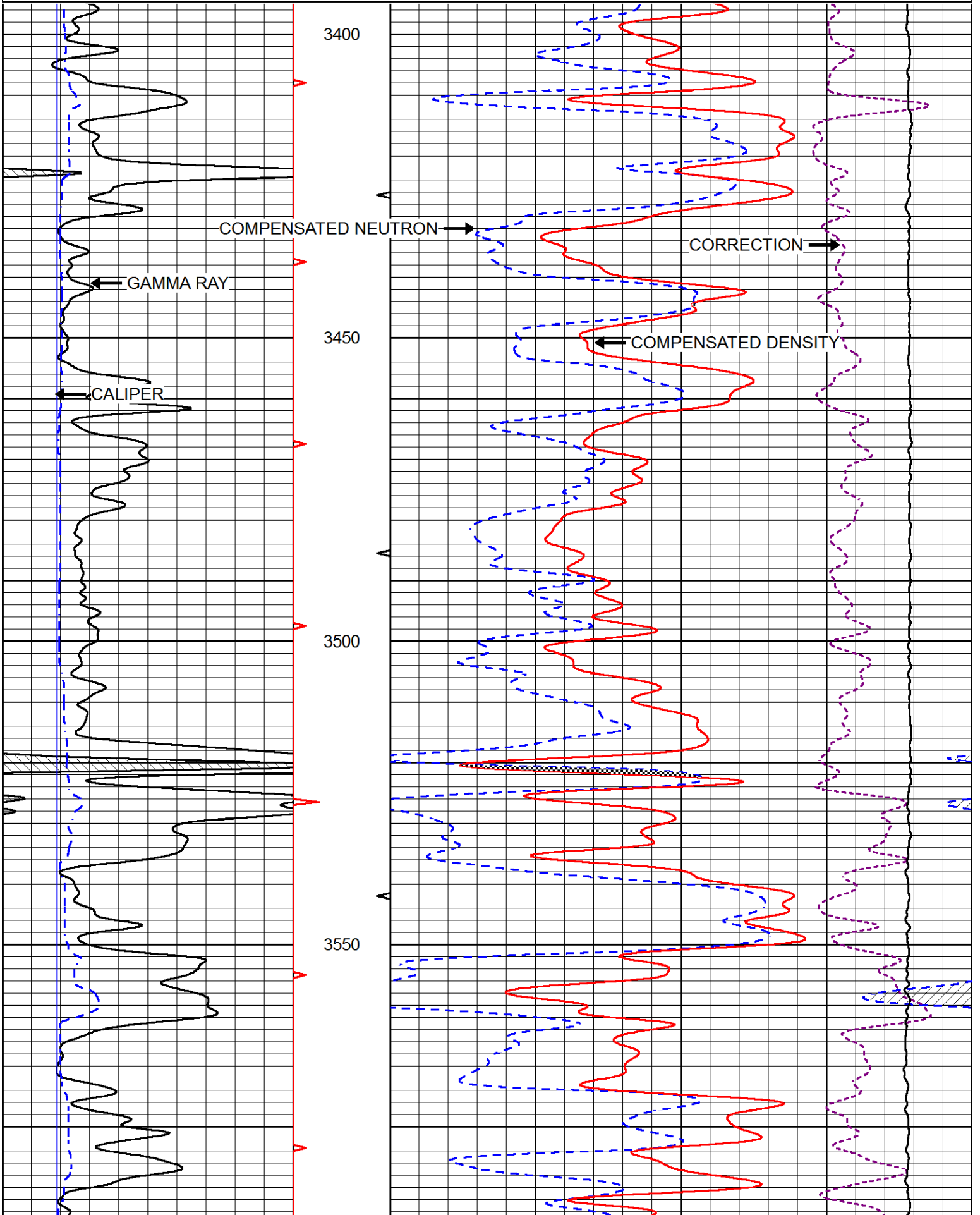
MAIN PASS

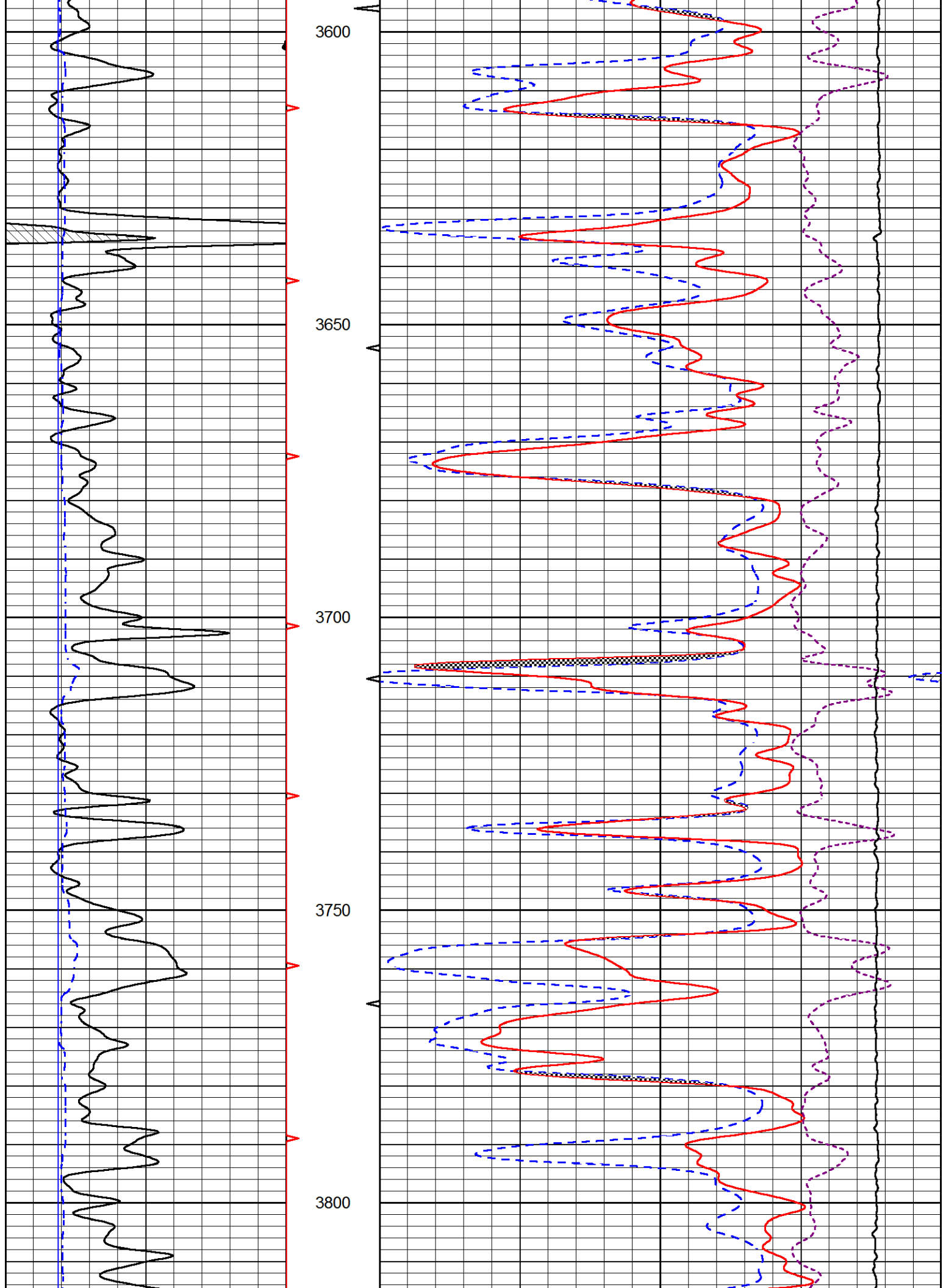
Database File northern_lights_rhonda_1.db
 Dataset Pathname stackml/pass3.1
 Presentation Format cndlspec
 Dataset Creation Thu Jun 13 07:34:26 2019
 Charted by Depth in Feet scaled 1:240

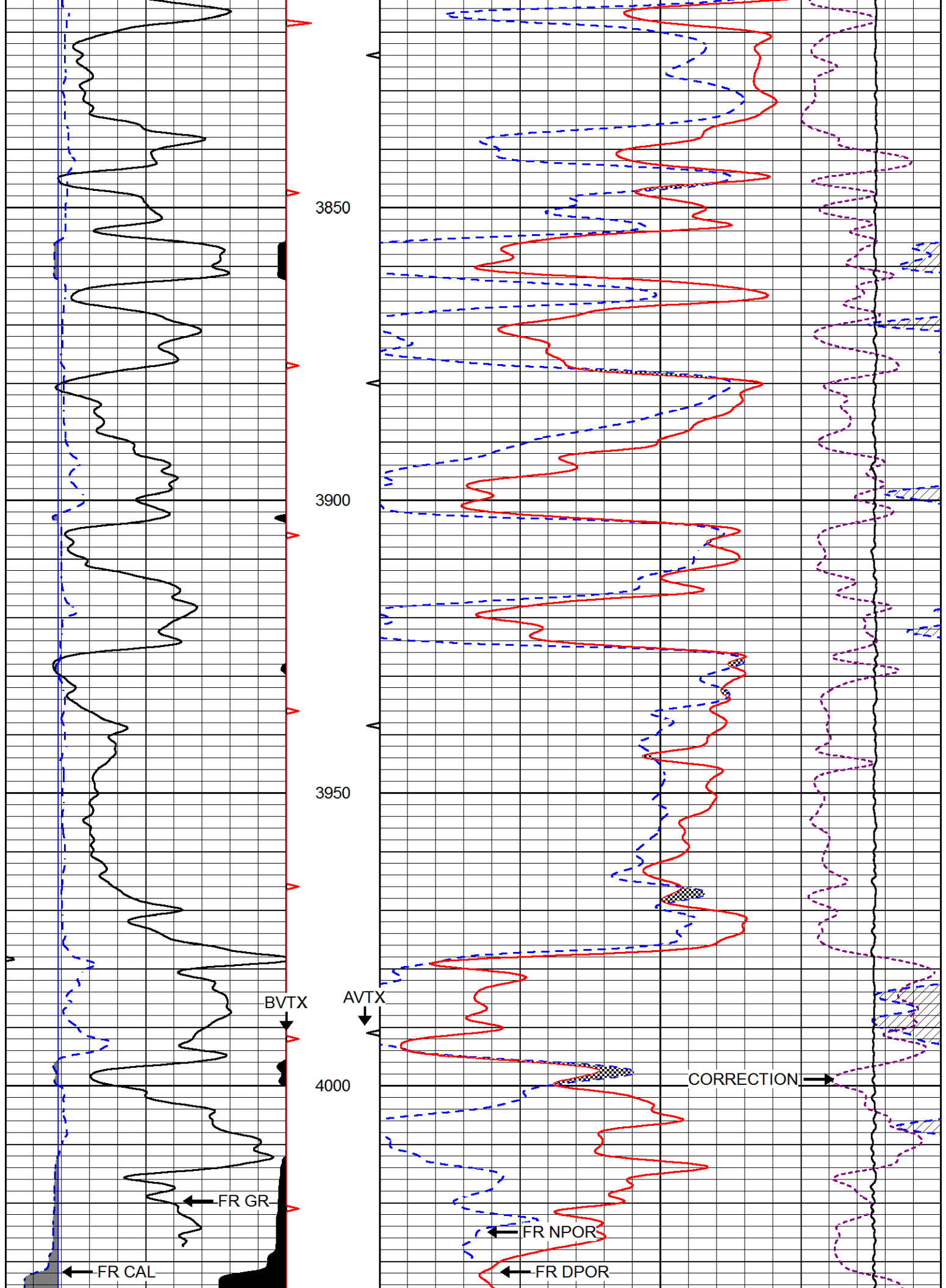
0	GAMMA RAY (GAPI)	150
6	dcal (in)	16
6	BIT SIZE (in)	16

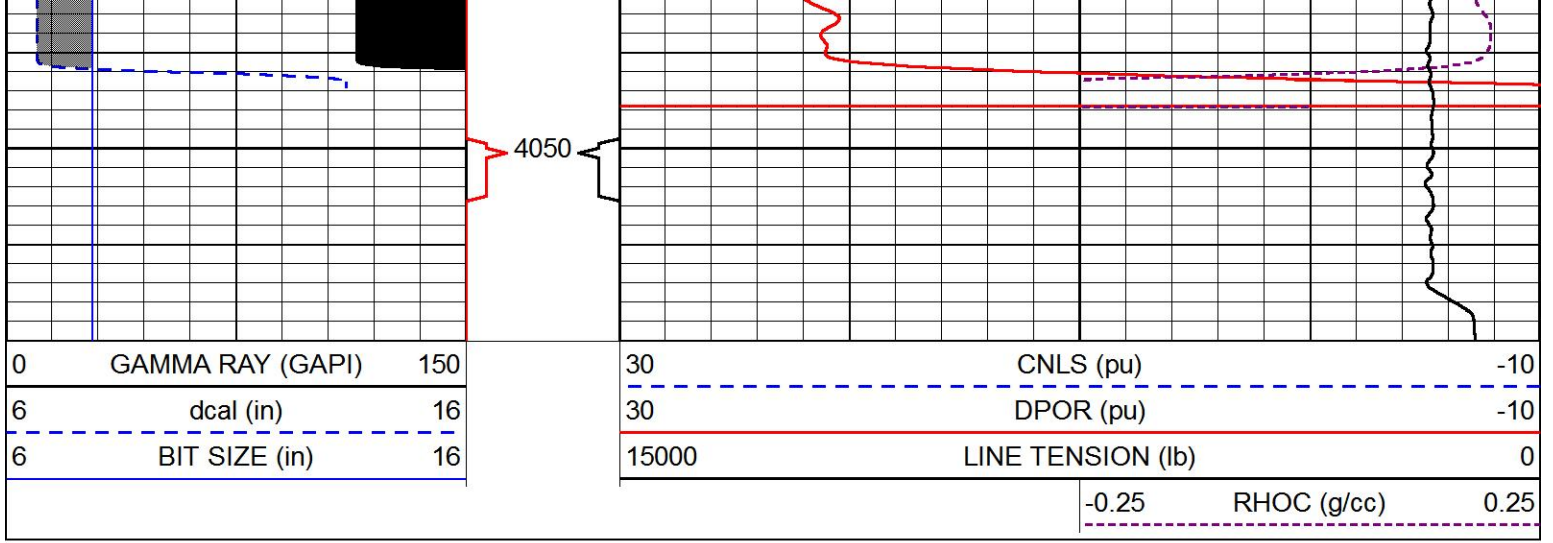
30	CNLS (pu)	-10
30	DPOR (pu)	-10
15000	LINE TENSION (lb)	0

-0.25	RHOC (g/cc)	0.25
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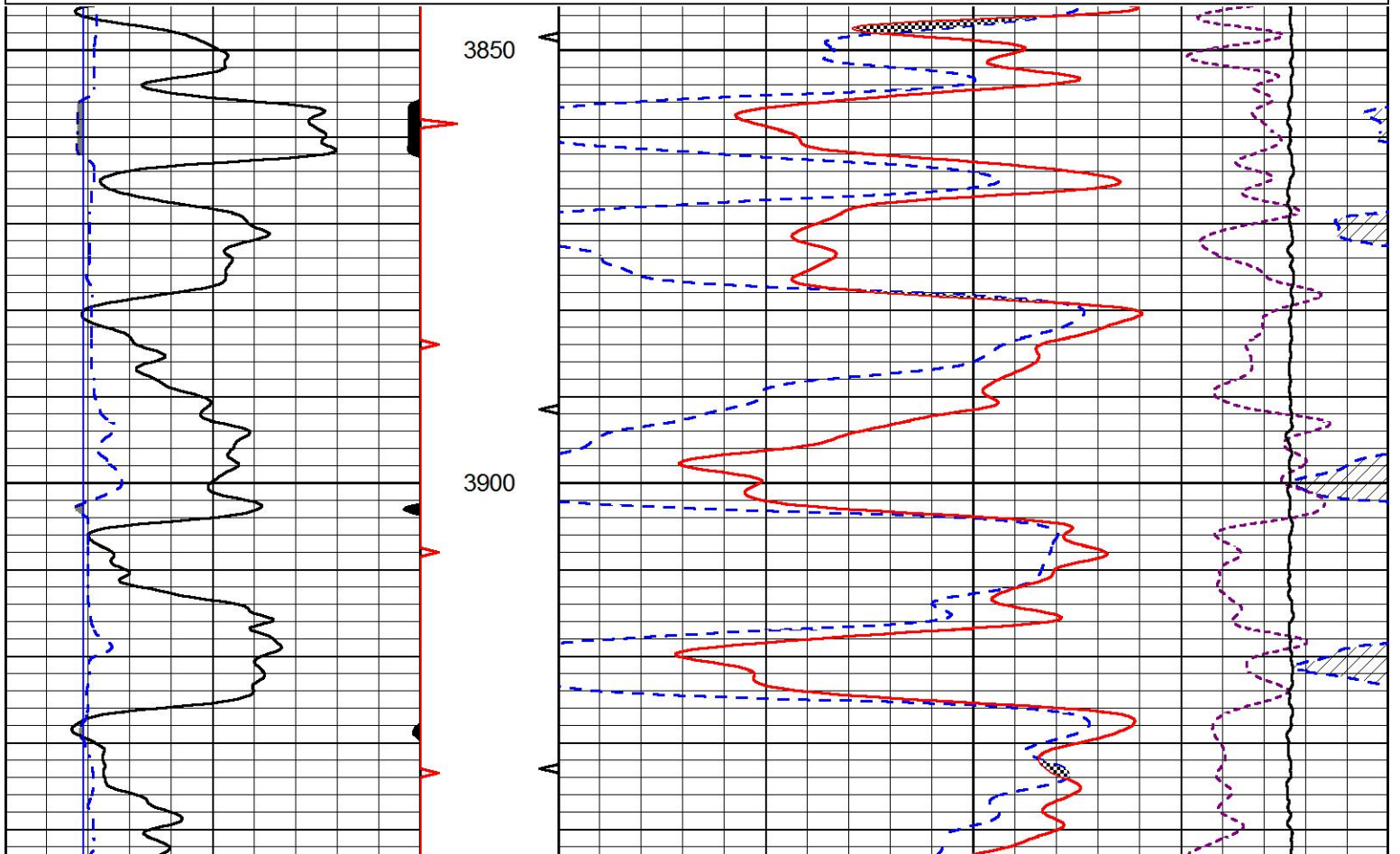
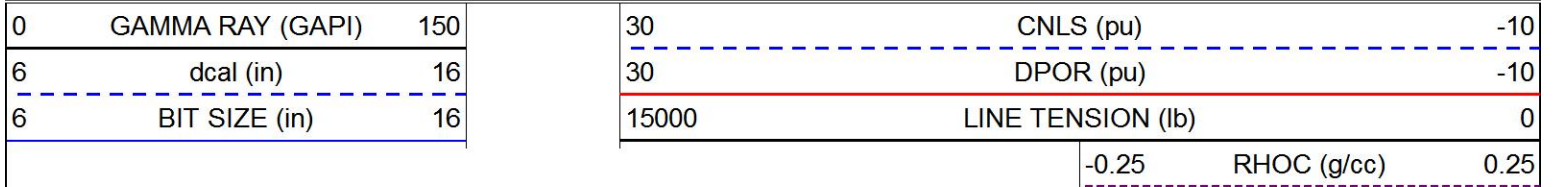


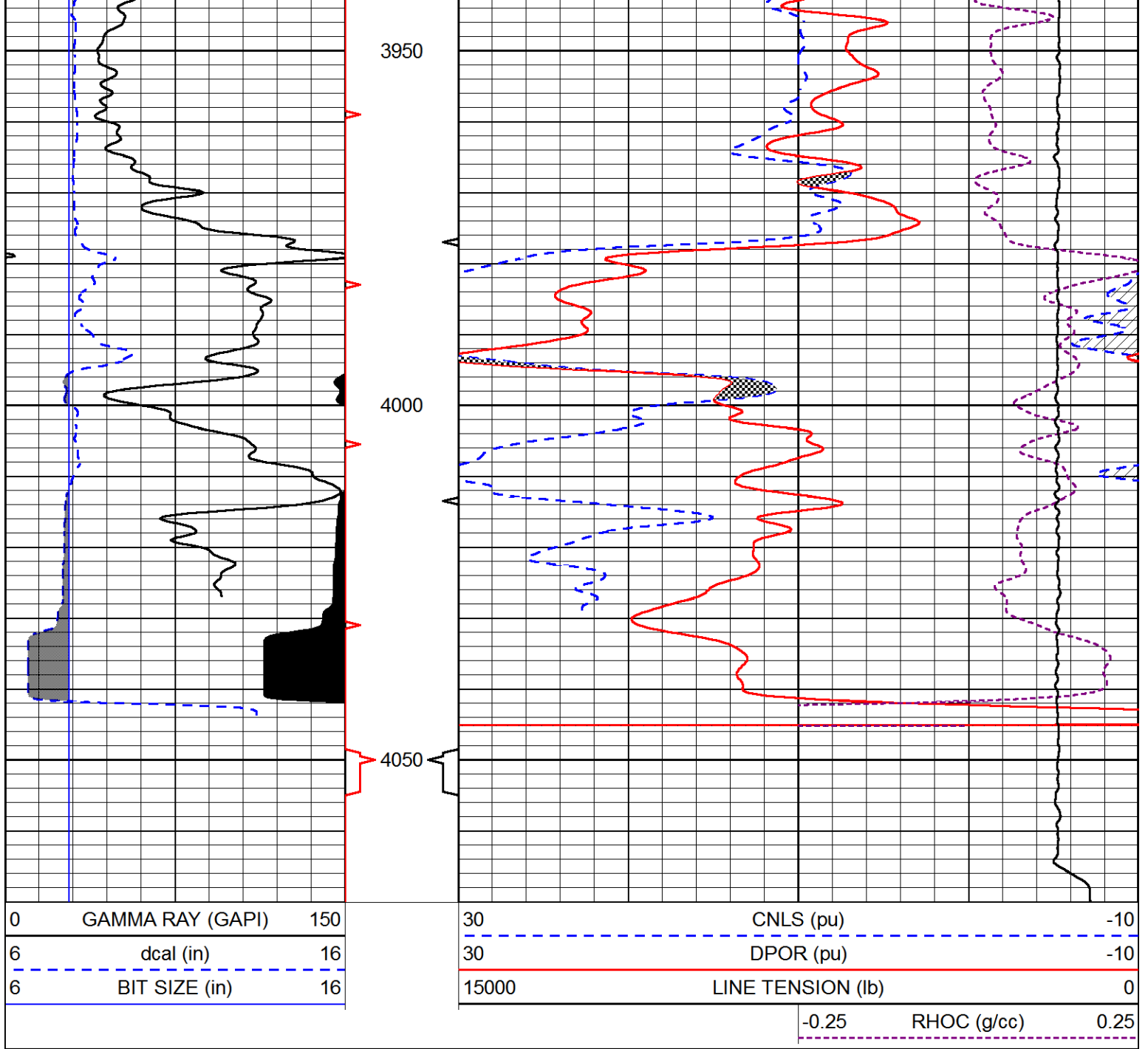




REPEAT SECTION

Database File northern_lights_rhonda_1.db
 Dataset Pathname stackml/pass2.1
 Presentation Format cndlspec
 Dataset Creation Thu Jun 13 06:45:51 2019
 Charted by Depth in Feet scaled 1:240





Calibration Report

Database File northern_lights_rhonda_1.db
 Dataset Pathname stackml/pass3.1
 Dataset Creation Thu Jun 13 07:34:26 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:
Performed:

UDM-01-PSI UDM ML
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	28000.0000	0.0000
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	123.6000

Compensated Density Calibration Report

Serial-Model: 144-84-M&W
Source / Verifier: /
Master Calibration Performed: 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	2.675	g/cc	825.26	3443.46	cps
Spine Angle = 75.33			Density/Spine Ratio = 0.538		
	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



PIONEER

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