



PIONEER

Pioneer Energy Services

DUAL COMP POROSITY LOG

Company **COBALT ENERGY, LLC**
Well **JE UNIT A #1-5**
Field **WILDCAT**
County **GOVE** State **KANSAS**

Location: API #: 15-063-22345-00-00

2386' FNL & 86' FWL

SEC 5 TWP 14S RGE 27W

Permanent Datum **GROUND LEVEL** Elevation **2564'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Other Services
DIL/MEL
Elevation
K.B. 2569'
D.F. N/A
G.L. 2564'

Date **2/26/2019**

Run Number **ONE**

Type Log **CNL/CDL**

Depth Driller **4355'**

Depth Logger **4348'**

Bottom Logged Interval **4347'**

Top Logged Interval **3500'**

Type Fluid In Hole **CHEMICAL**

Salinity, PPM CL **4000**

Density **9.3**

Level **FULL**

Max. Rec. Temp. F **120**

Operating Rig Time **4 HOURS**

Equipment -- Location **P-24 HAYS**

Recorded By **IAN MABB**

Witnessed By **ROBERT HENDRIX**

Borehole Record

Casing Record

Run No.	Bit	From	To	Size	Wgt.	From	To
ONE	12.25"	0'	247'	8.625"	23#	0'	247'
TWO	7.875"	247'	TD				

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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.

QUINTER, KS.
SOUTH TO RD K, WEST TO GO RD 60,
NORTH INTO 1 1/2 MILES

Log Measured From: **KELLY BUSHING** 5 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew

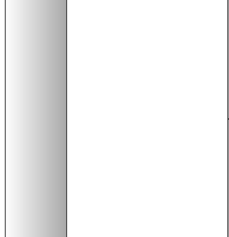
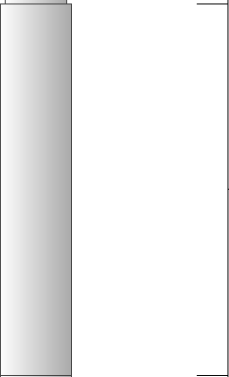
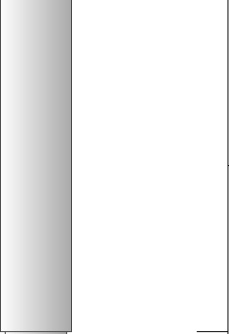
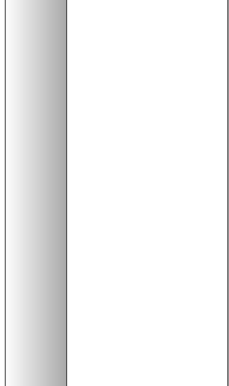
Engineer: **IAN MABB**
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: **ROBERT HENDRIX**
Secondary Witness:
Secondary Witness:
Secondary Witness:

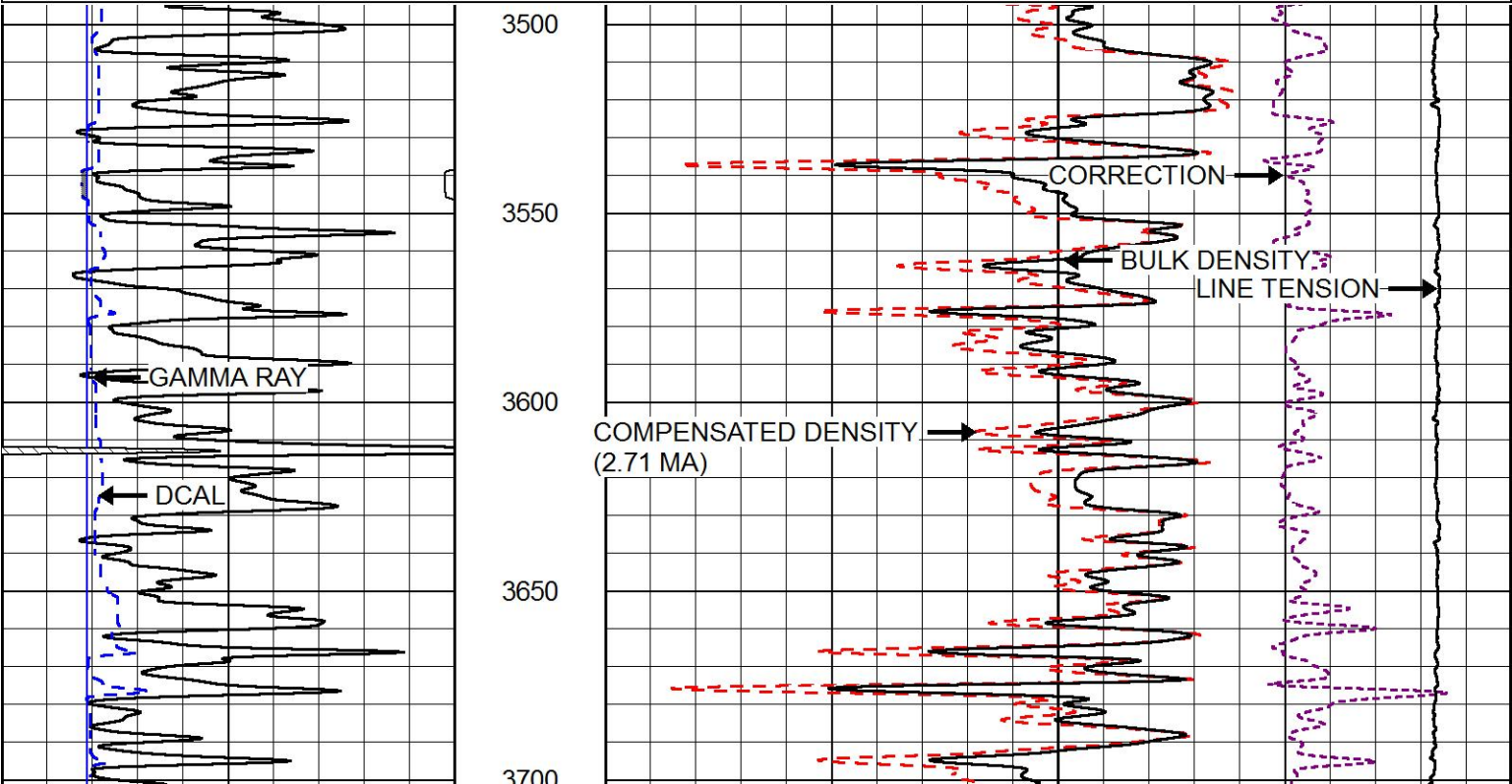
Top - Bottom

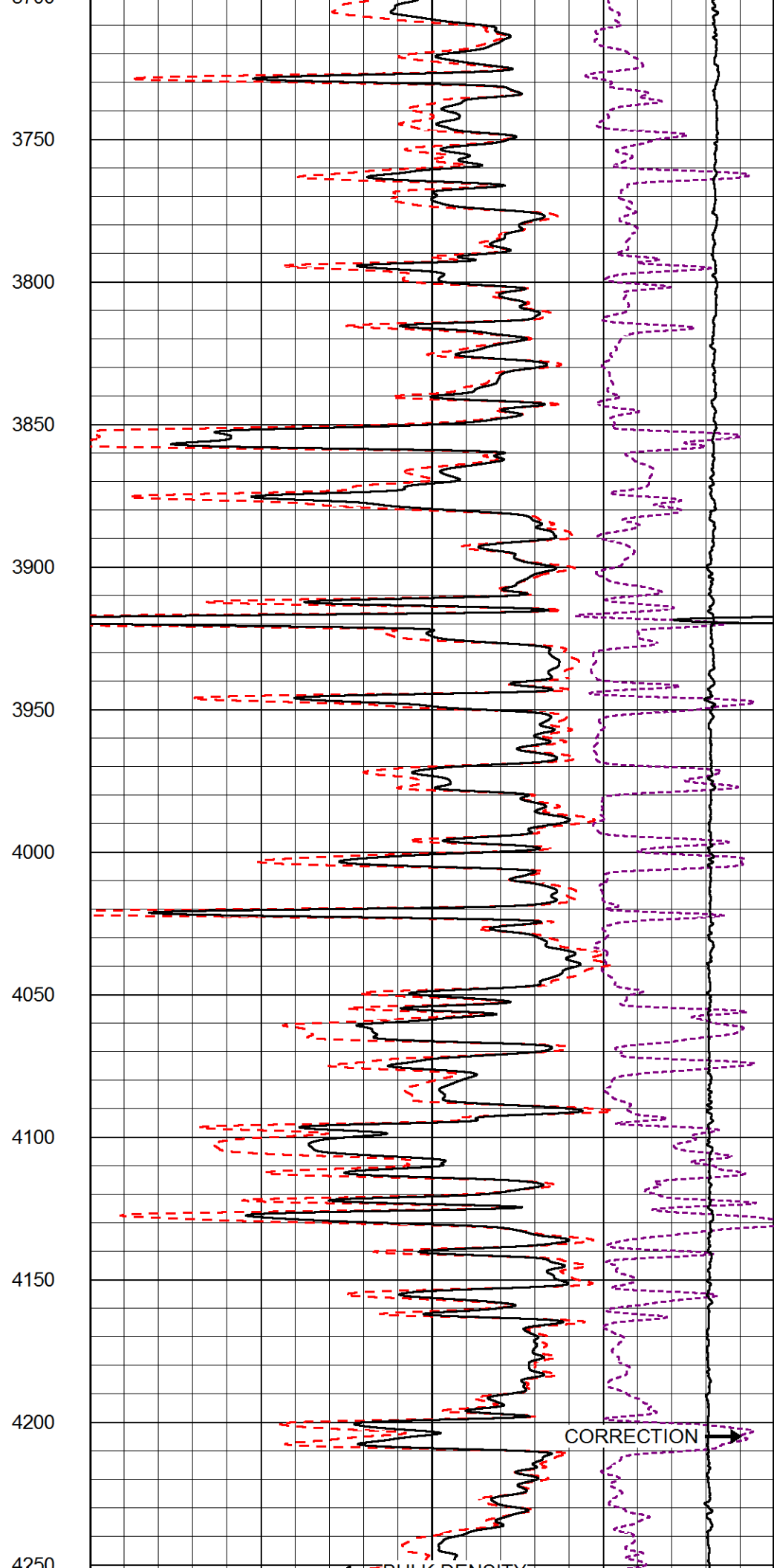
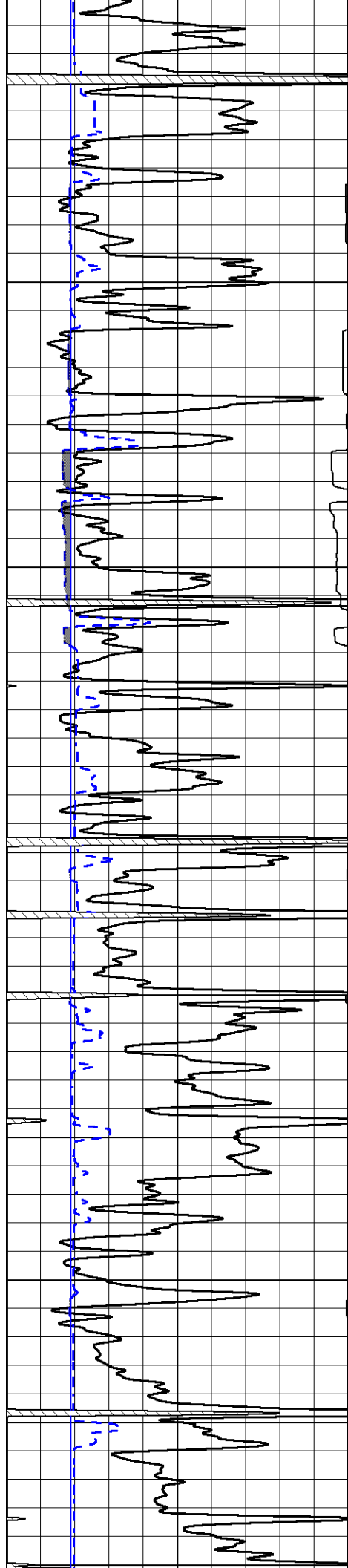
A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 120	in 5.5	in 0	g/cc 1	2	g/cc 2.71
NPORSEL	PERFS	SNDERR	SNDERRM	SPSHIFT	SRFTEMP	SZCOR	TDEPTH
Limestone	0	mmho/m 0	mmho/m 0	mV 153	degF 0	Off	ft 4348

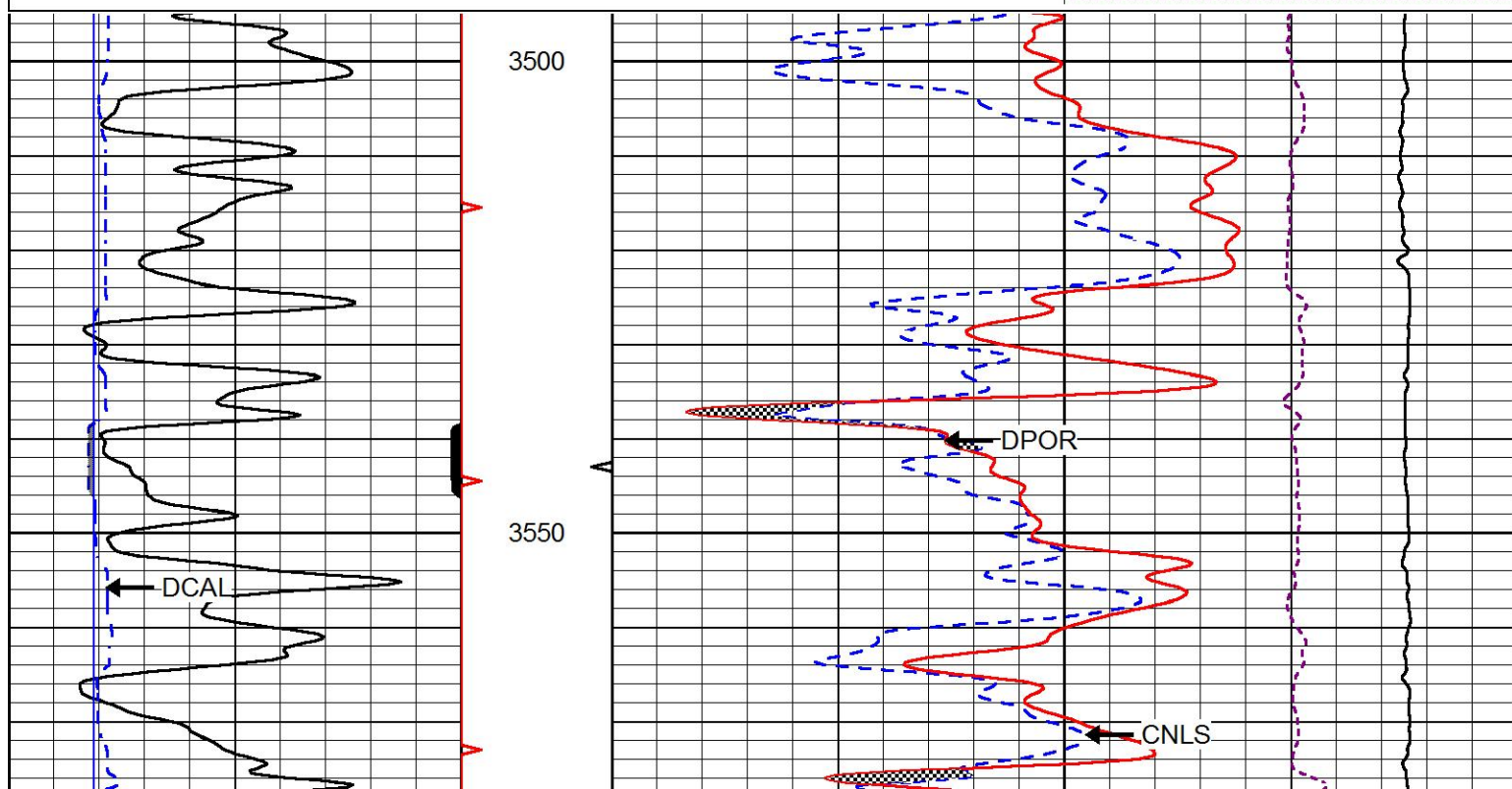
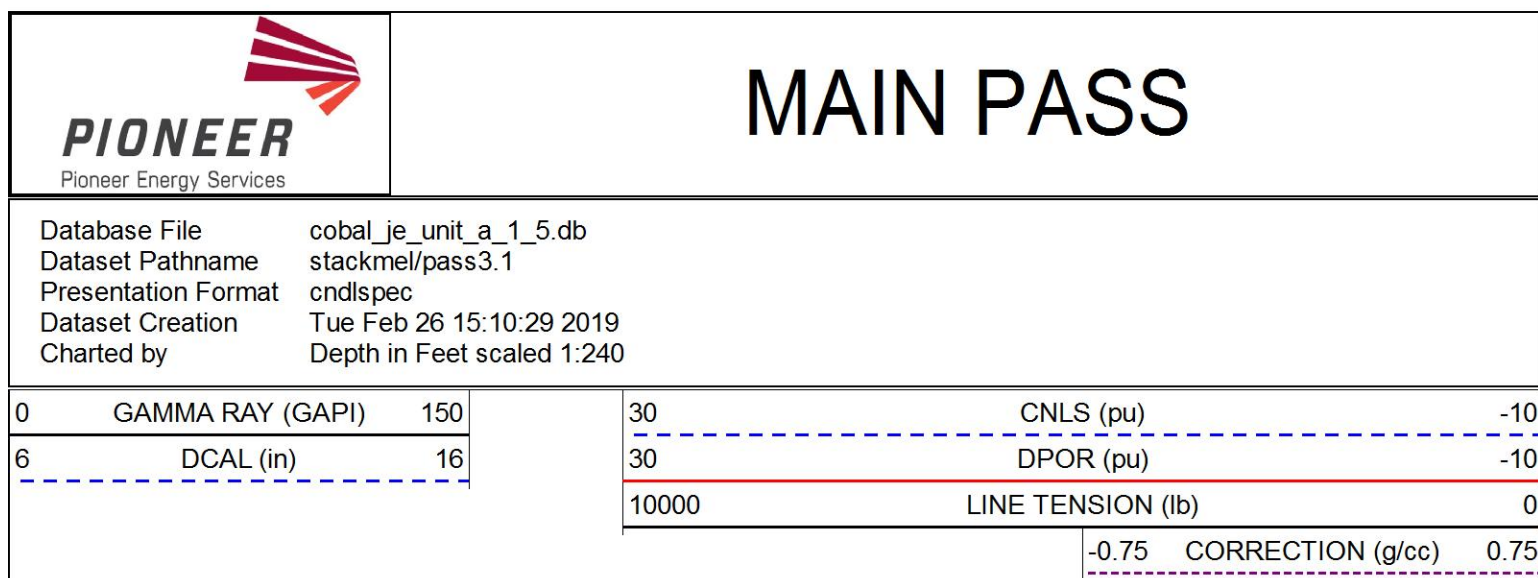
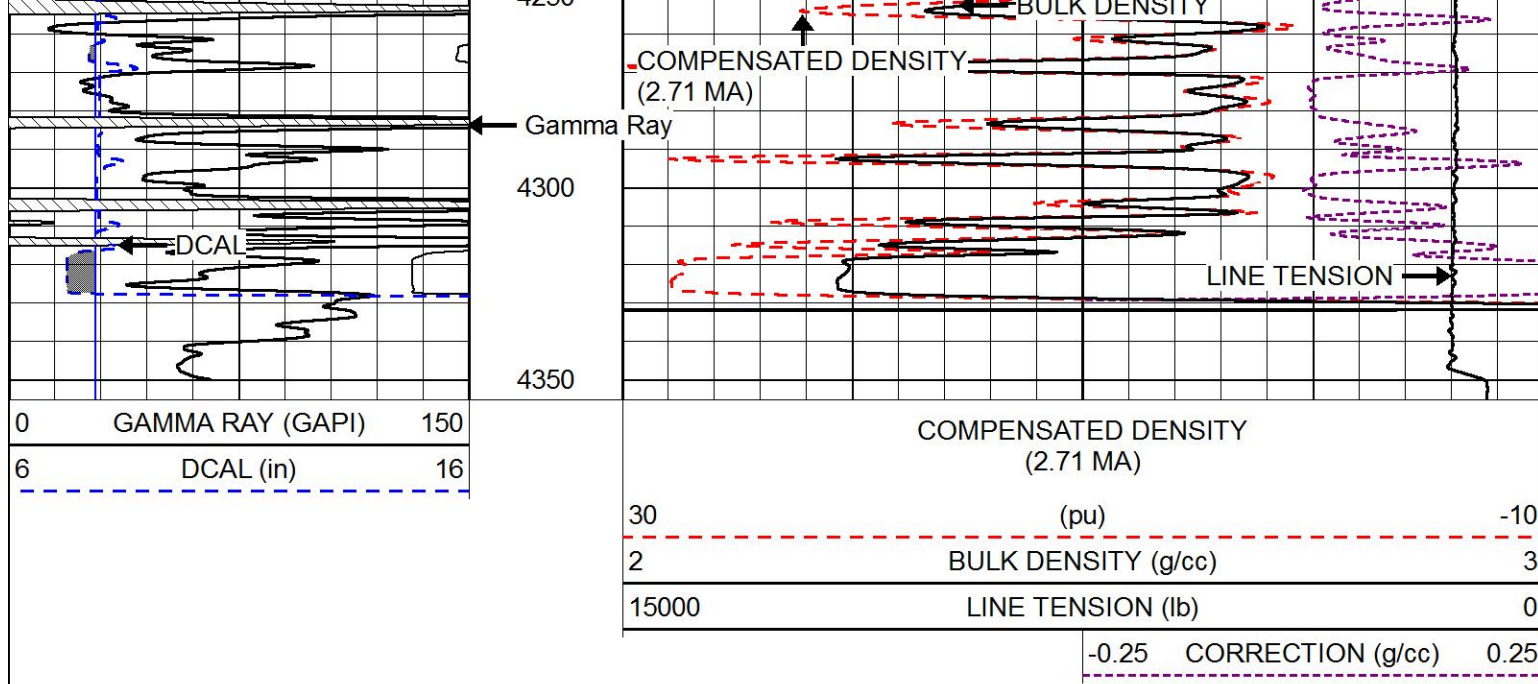
Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (207-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (126-186)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
RLL3F RLL3	15.80 15.80					

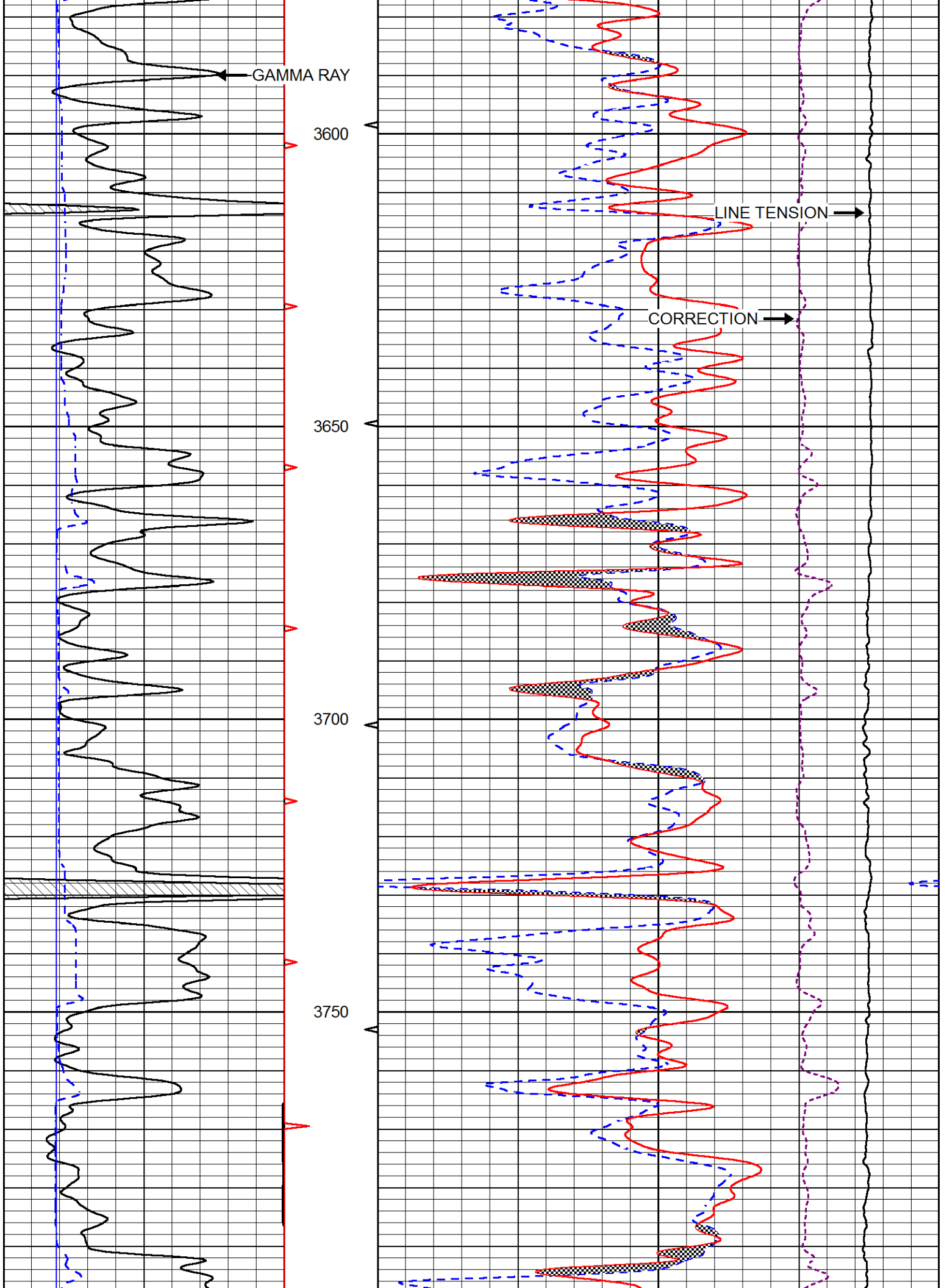
			DIL-PSI HIGH TEMP (967 (HT))	18.50	3.50	220.00
CILD	8.00					
CILM	4.70					
SP	0.20					
Dataset: cobal_je_unit_a_1_5.db: field/well/stackmel/pass3.1 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in						

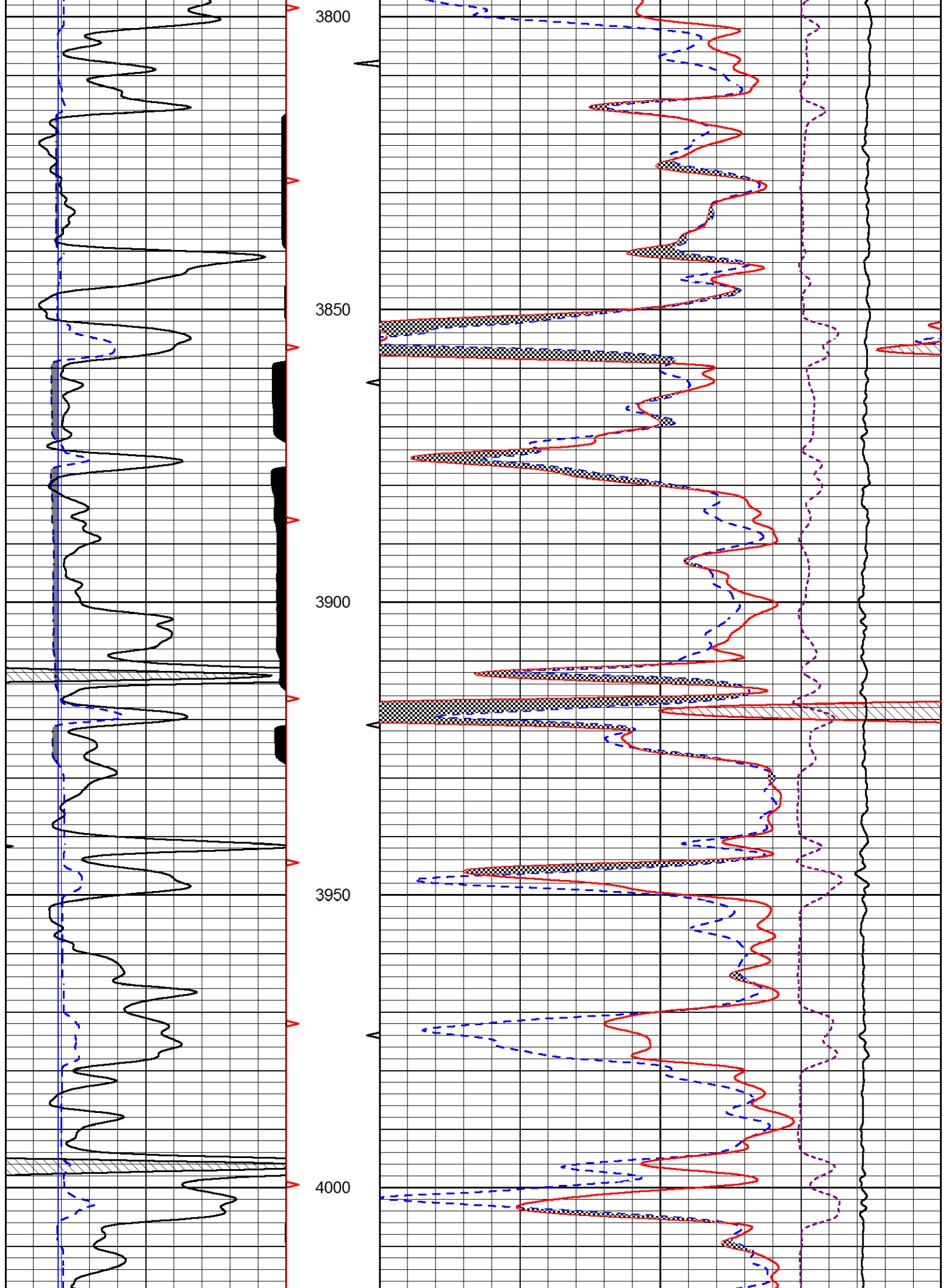
			MAIN PASS			
Database File	cobal_je_unit_a_1_5.db					
Dataset Pathname	stackmel/pass3.1					
Presentation Format	cdl					
Dataset Creation	Tue Feb 26 15:10:29 2019					
Charted by	Depth in Feet scaled 1:600					
0	GAMMA RAY (GAPI)	150	COMPENSATED DENSITY (2.71 MA)			
6	DCAL (in)	16	30 (pu) -10 2 BULK DENSITY (g/cc) 3 15000 LINE TENSION (lb) 0 -0.25 CORRECTION (g/cc) 0.25			

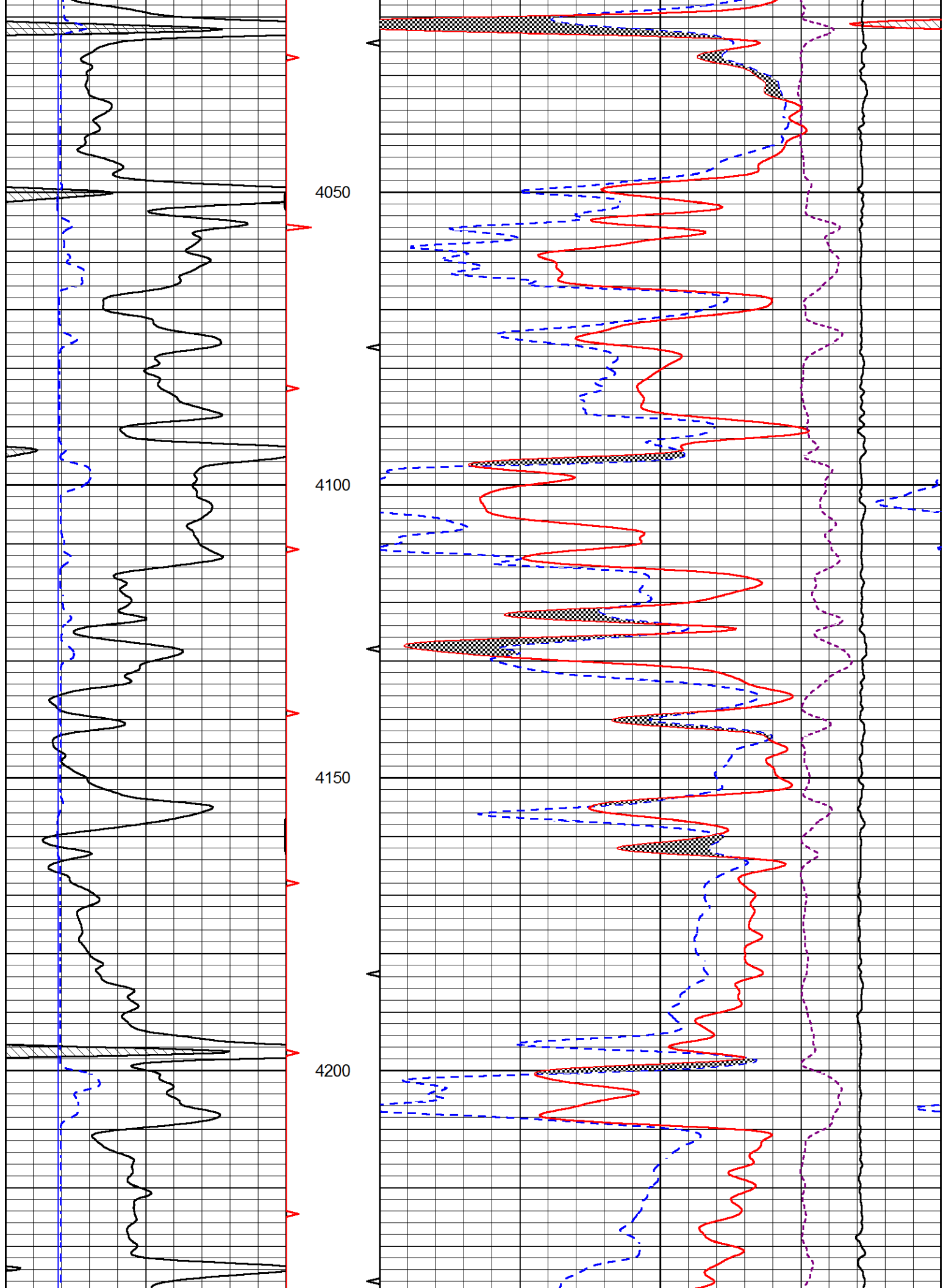


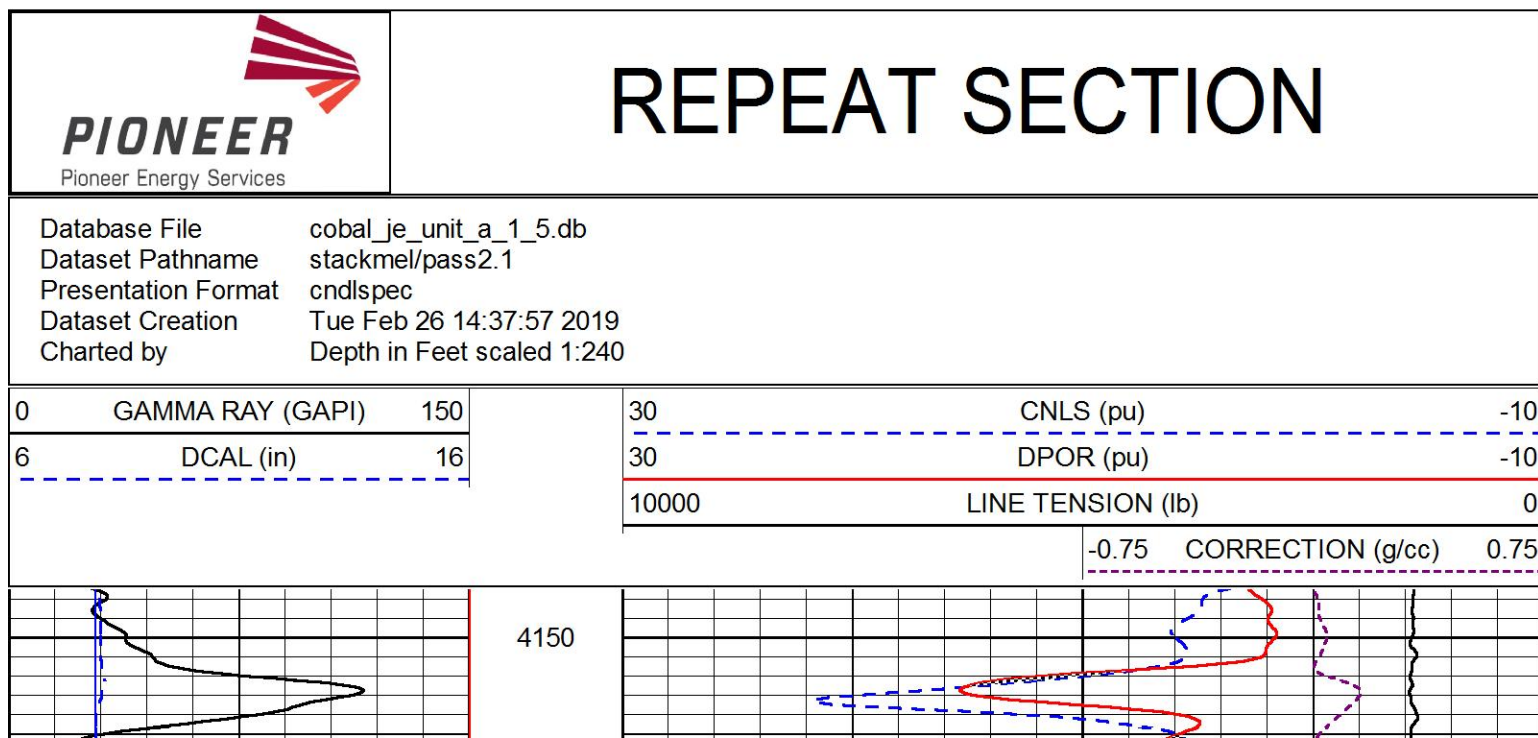
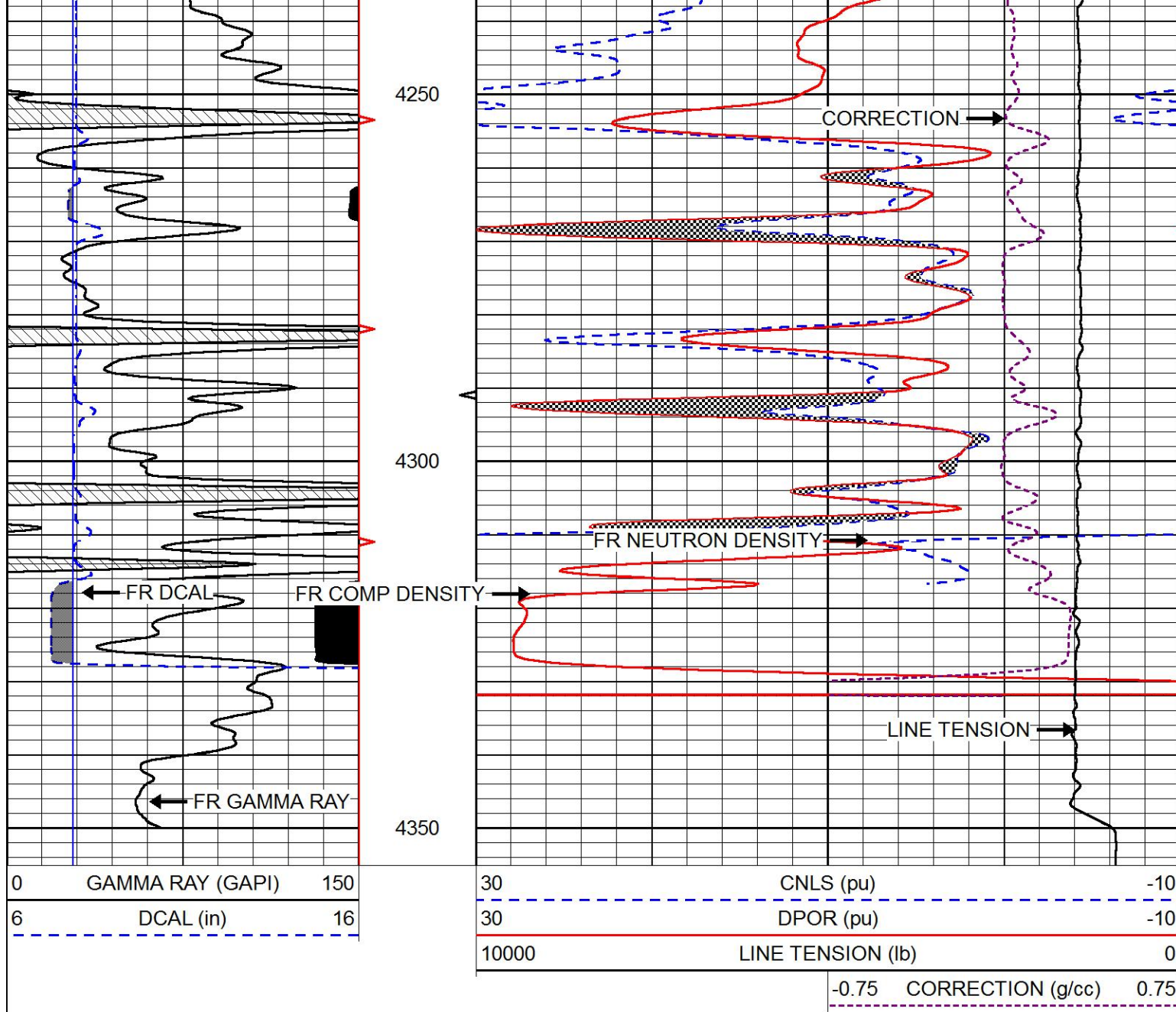


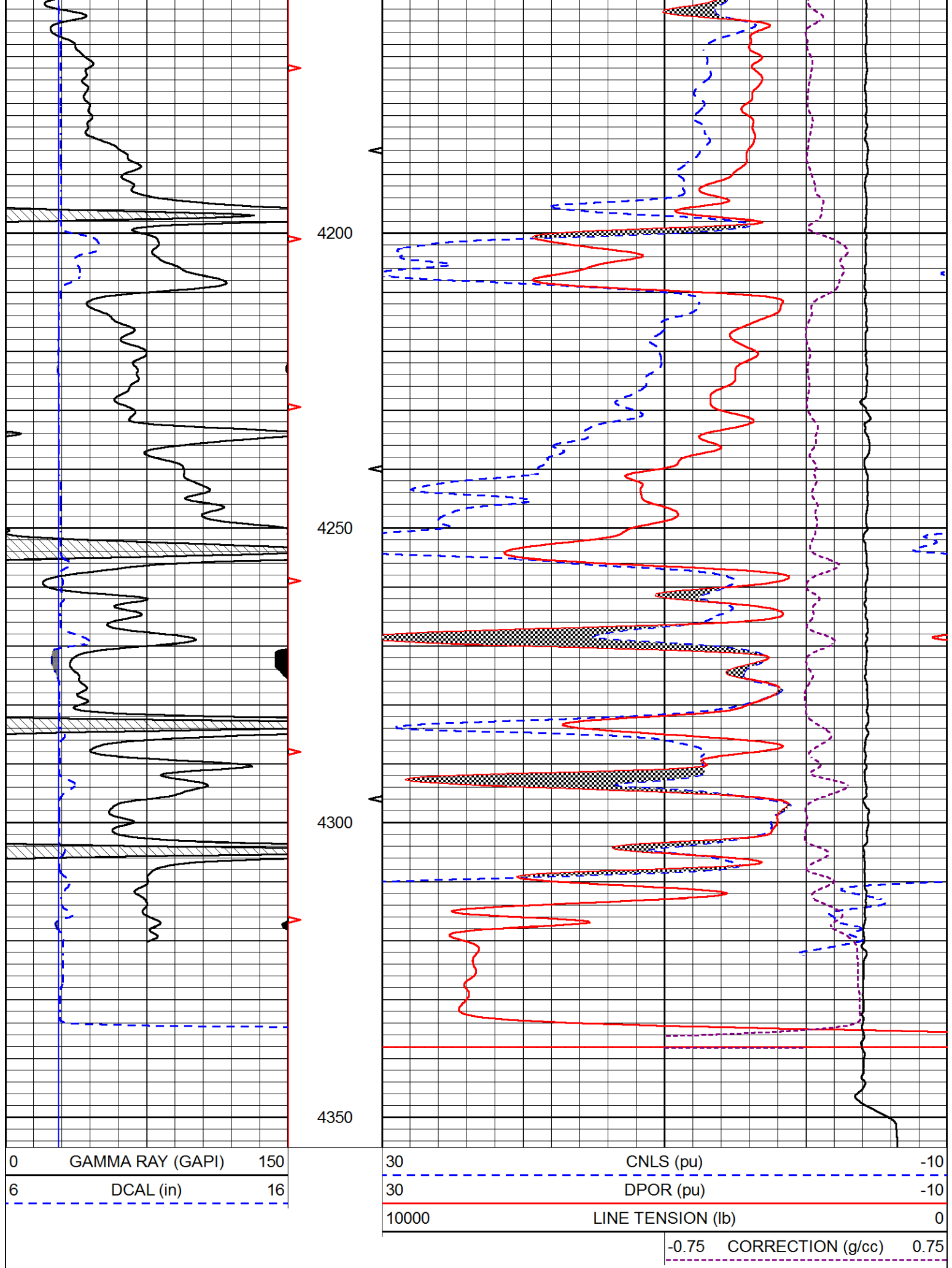












Calibration Report

Database File cobal_je_unit_a_1_5.db
Dataset Pathname stackmel/pass3.1
Dataset Creation Tue Feb 26 15:10:29 2019

Dual Induction Calibration Report

Serial-Model: 967 (HT)-PSI HIGH TEMP
Calibration Performed: Sun Oct 07 19:24:22 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.565	-17.500
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.390	-40.000

Microlog Calibration Report

Serial-Model: PSI-01-PSIML
Performed: Sun Feb 24 09:53:40 2019

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	24000.0000	-0.7000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	28000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.5000

Compensated Density Calibration Report

Serial-Model: 126-186-M&W
Source / Verifier: 16955B / 2ci
Master Calibration Performed: Tue Feb 12 14:50:39 2019

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4753.97	6898.87	cps
Aluminum	2.678	g/cc	896.28	4374.48	cps
Spine Angle = 74.73			Density/Spine Ratio = 0.533		
	Size		Reading		
Small Ring	4.00	in	2.58		
Large Ring	14.00	in	1.66		

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:	89	
Tool Model:	M&W	
Calibration Performed:	Fri Aug 24 11:16:10 2018	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6000	GAPI/cps



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