PIONEER
Pioneer Energy Services

DUAL INDUCTION 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

Other Services: CNL/CDL, MEL

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

Elevation: K.B. 2569', D.F. N/A, G.L. 2564'

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

Date	2/26/2019			
Run Number	ONE			
Depth Driller	4355'			
Depth Logger	4348'			
Bottom Logged Interval	4347'			
Top Log Interval	200'			
Casing Driller	8.625" @ 247'			
Casing Logger	248'			
Bit Size	7.875"			
Type Fluid in Hole	CHEMICAL			
Salinity,ppm CL	4000			
Density / Viscosity	9.3	60		
pH / Fluid Loss	10.0	7.6		
Source of Sample	FLOWLINE			
Rm @ Meas. Temp	1.25 @ 65			
Rmf @ Meas. Temp	0.94 @ 65			
Rmc @ Meas. Temp	1.69 @ 65			
Source of Rmf / Rmc	CHARTS			
Rm @ BHT	0.68 @ 4355			
Operating Rig Time	4 HOURS			
Max Rec. Temp. F	120			
Equipment Number	P-24			
Location	HAYS			
Recorded By	IAN MABB			
Witnessed By	ROBERT HENDRIX			

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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.pioneeres.com 785-625-3858

Your Pioneer Energy Services Crew	This Log Record Was Witnessed By
Engineer: IAN MABB	Primary Witness: ROBERT HENDRIX
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

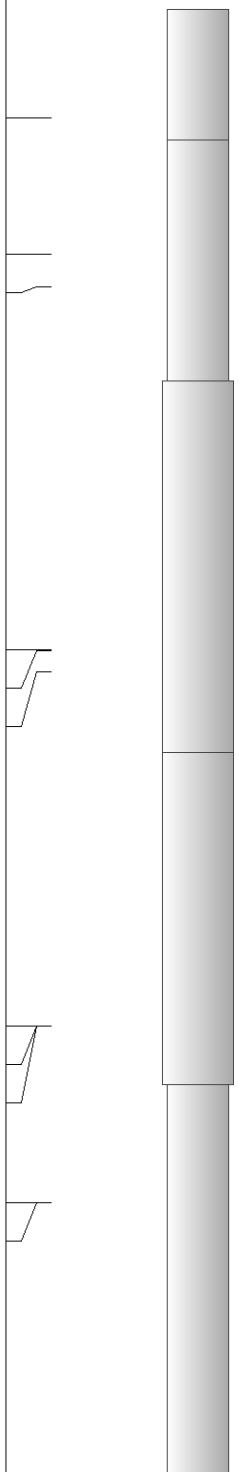
Log Variables

DatabaseC:\ProgramData\Warrior\Data\cobal_je_unit_a_1_5.db
Dataset field/well/stackmel/pass3.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	120	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	153	0	Off	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	37.48		CNT-M&W (207-MW)	5.50	3.50	100.00
CNSSC	36.73					
			CDL-M&W (126-186)	8.50	4.00	250.00
LSD	28.43					
DCAL	28.42					
SSD	27.93					
			ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
MCAL	19.83					
MI	19.83					
MN	19.83					
RLL3F	15.80					
RLL3	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

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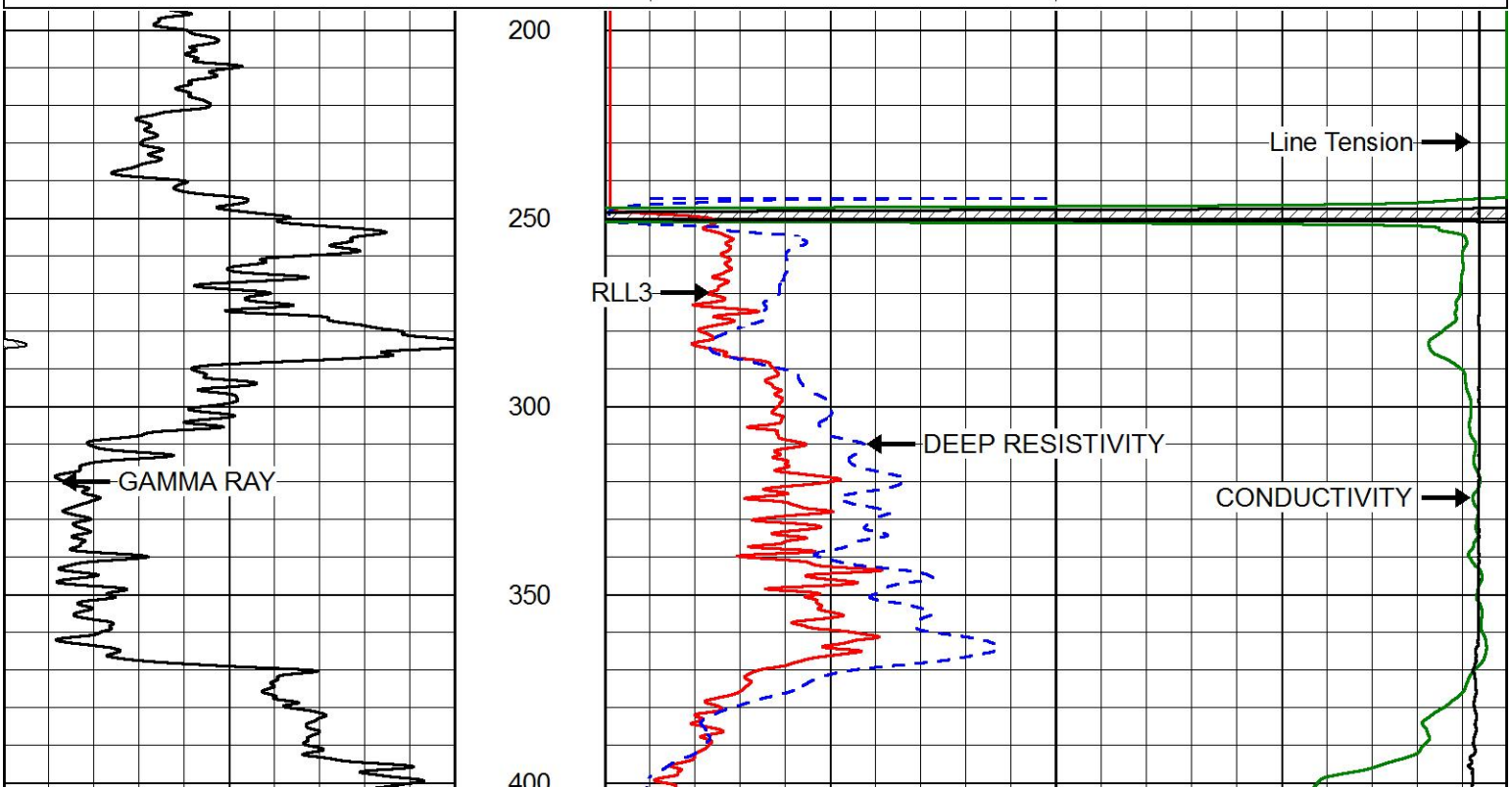
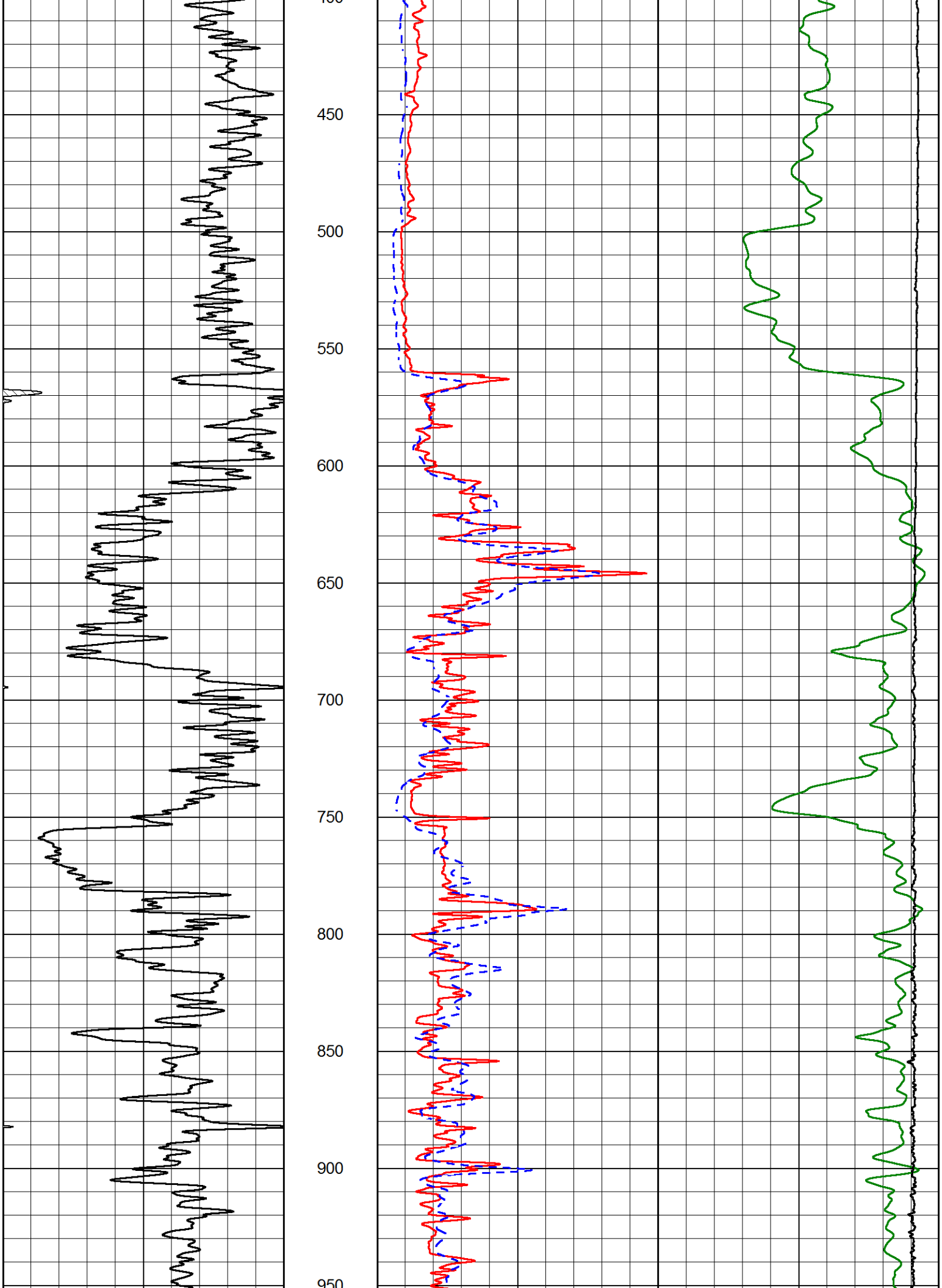
MAIN PASS

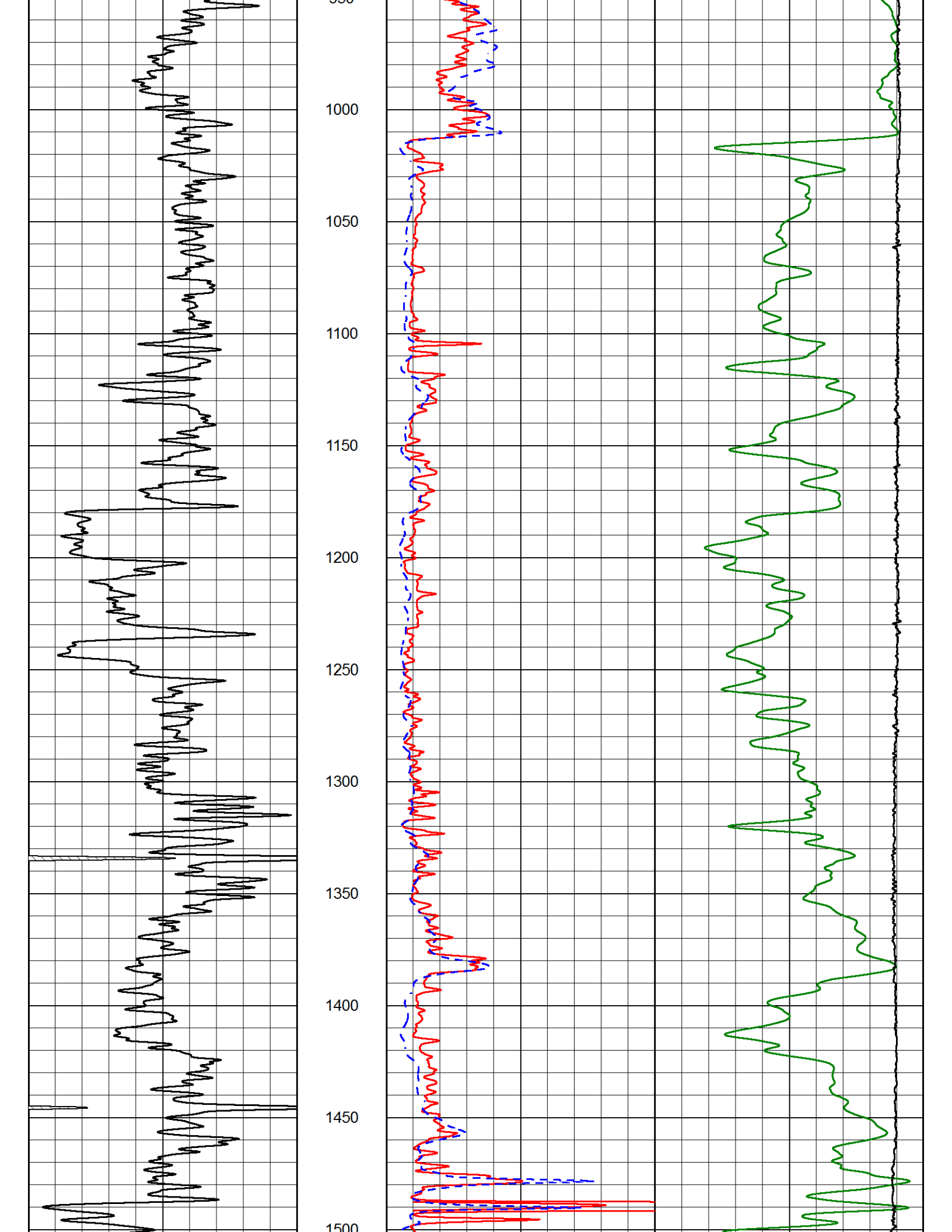
Database File	cobal_je_unit_a_1_5.db
Dataset Pathname	stackmel/pass3.1
Presentation Format	dil2in
Dataset Creation	Tue Feb 26 15:10:29 2019
Charted by	Depth in Feet scaled 1:600

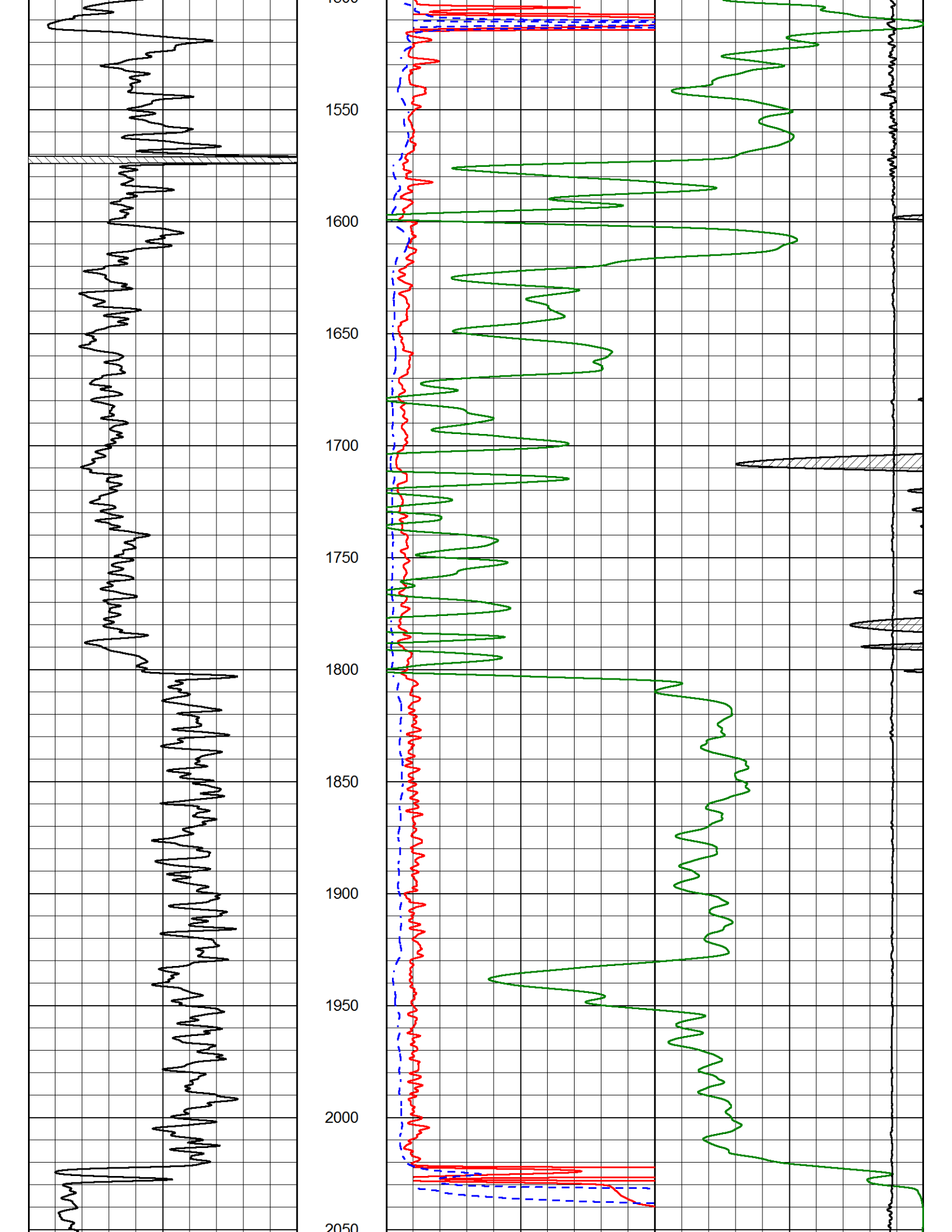
GAMMA RAY
0 (GAPI) 150

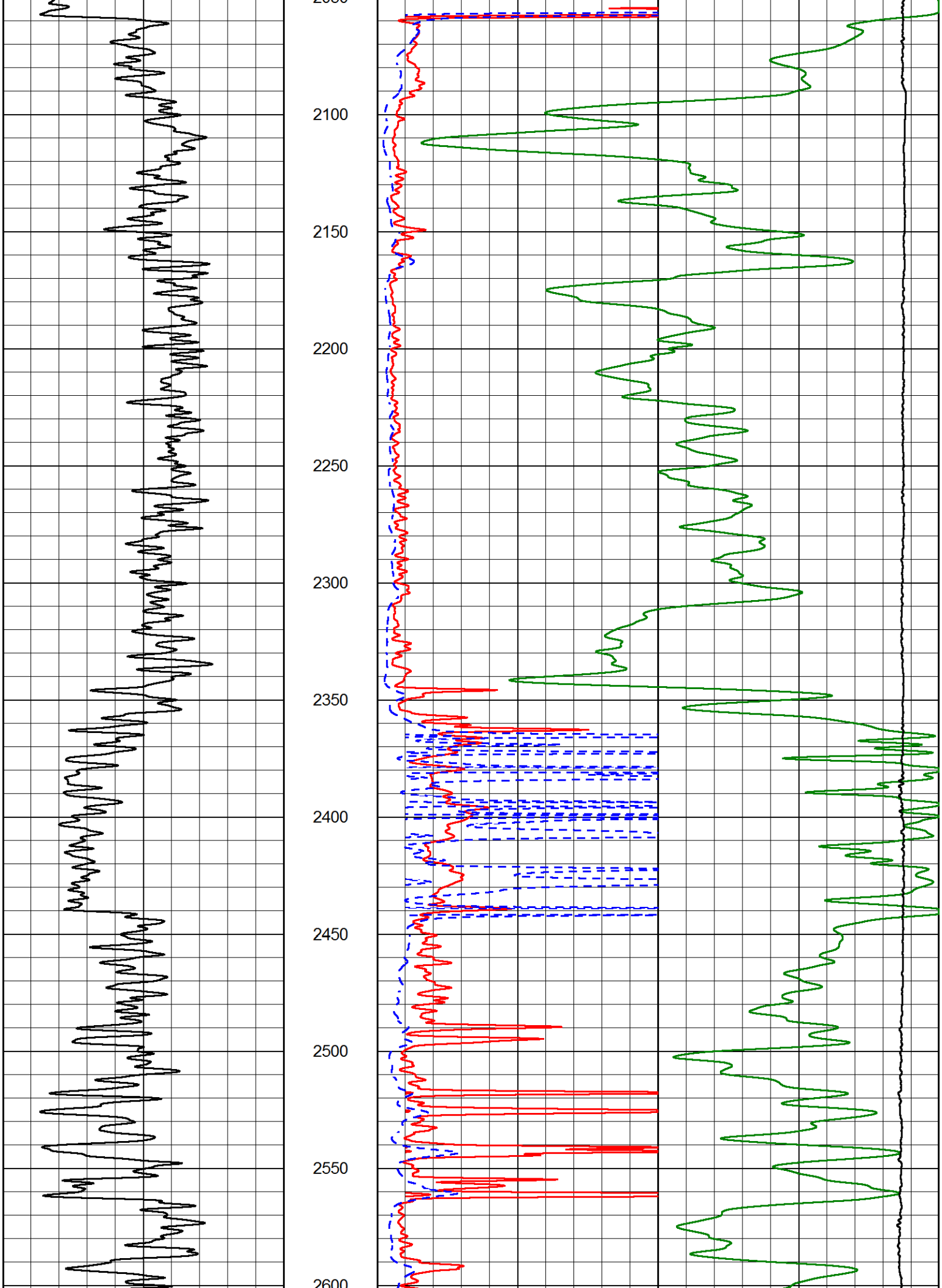
1000 CONDUCTIVITY (mmho/m) 0
15000 Line Tension (lb) 0
0 RLL3 (Ohm-m) 50
0 DEEP RESISTIVITY (Ohm-m) 50
50 RLL3 (Ohm-m) 500
50 Deep Resistivity (Ohm-m) 500

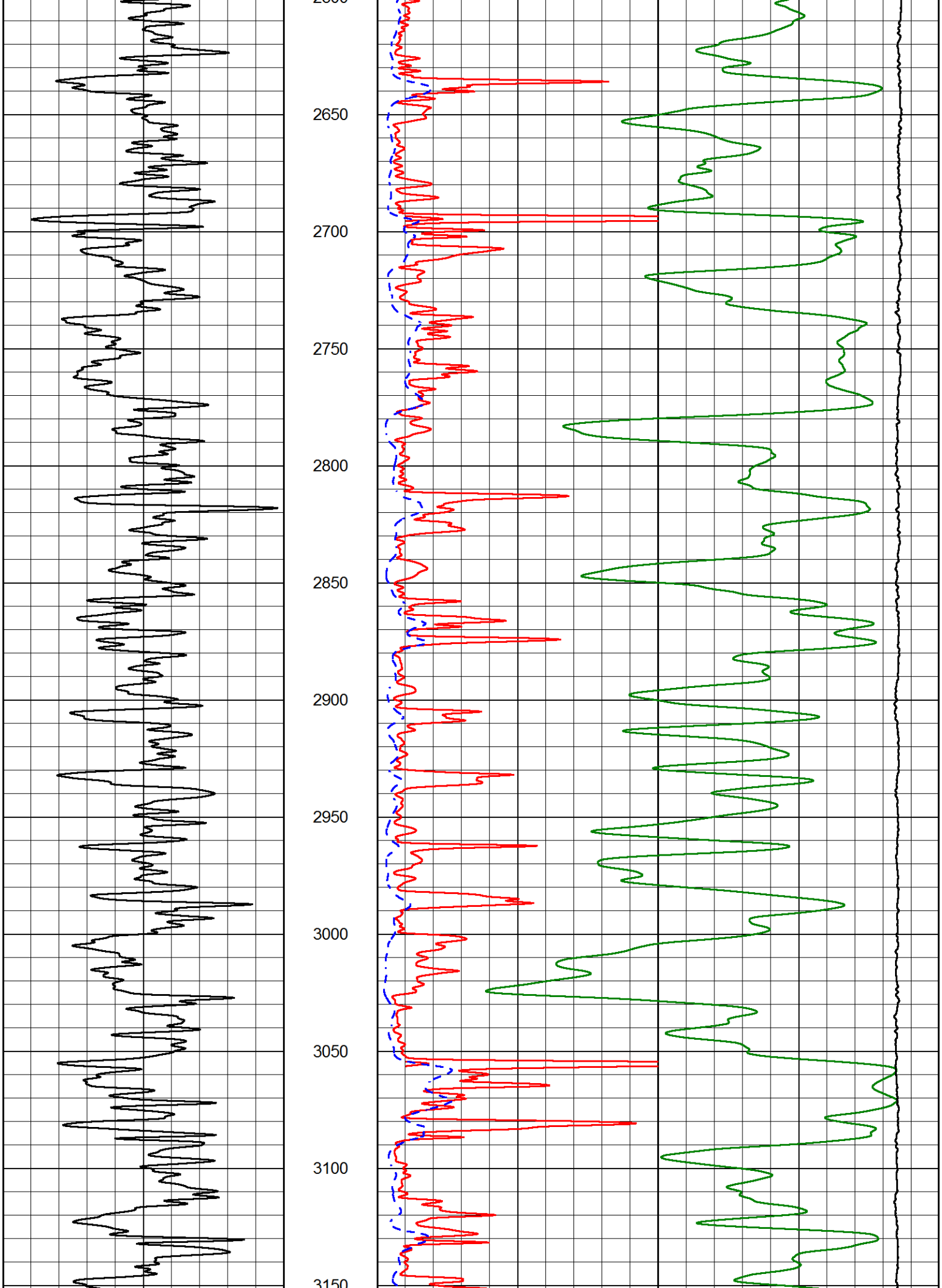


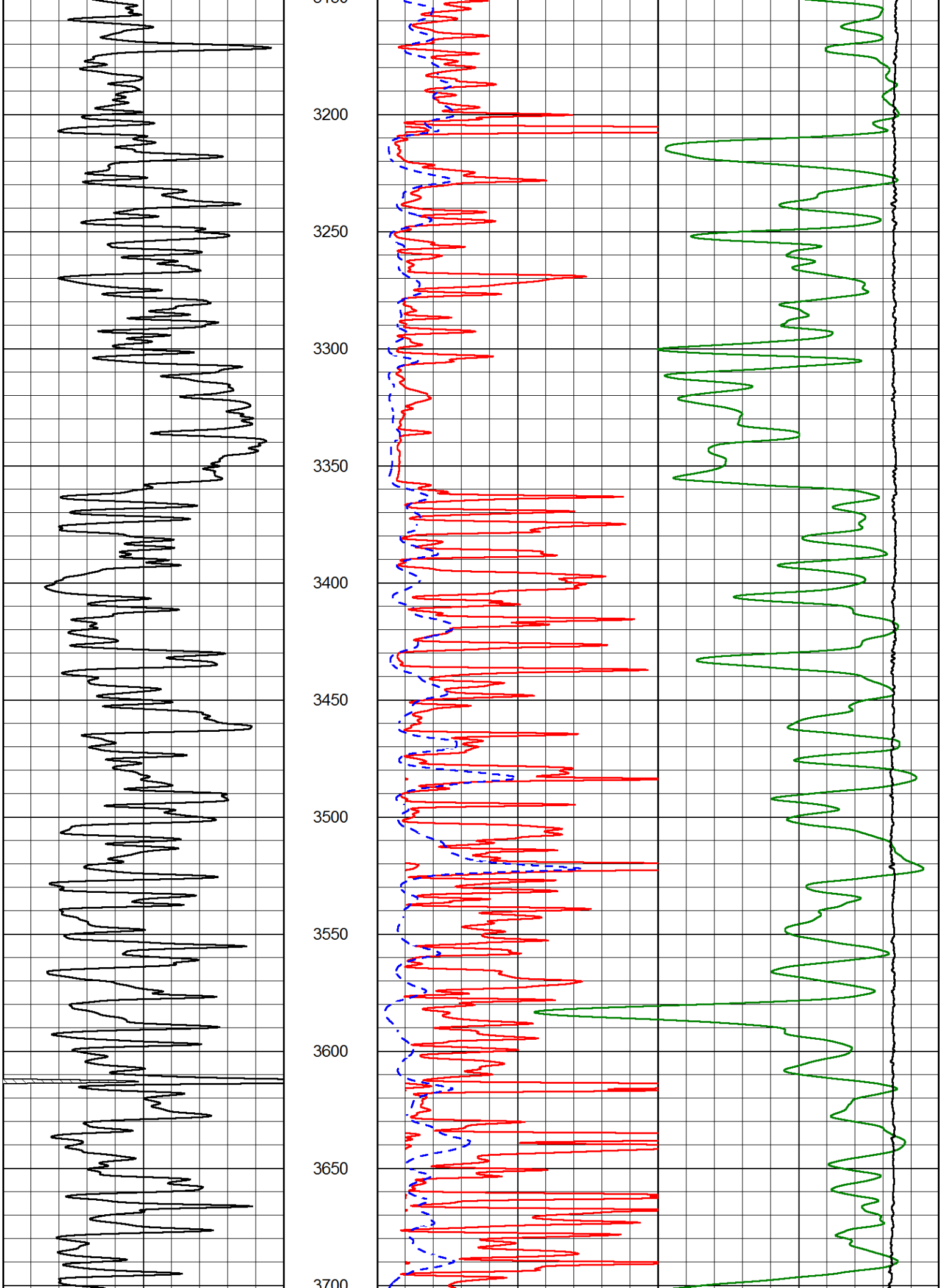

450
500
550
600
650
700
750
800
850
900
950

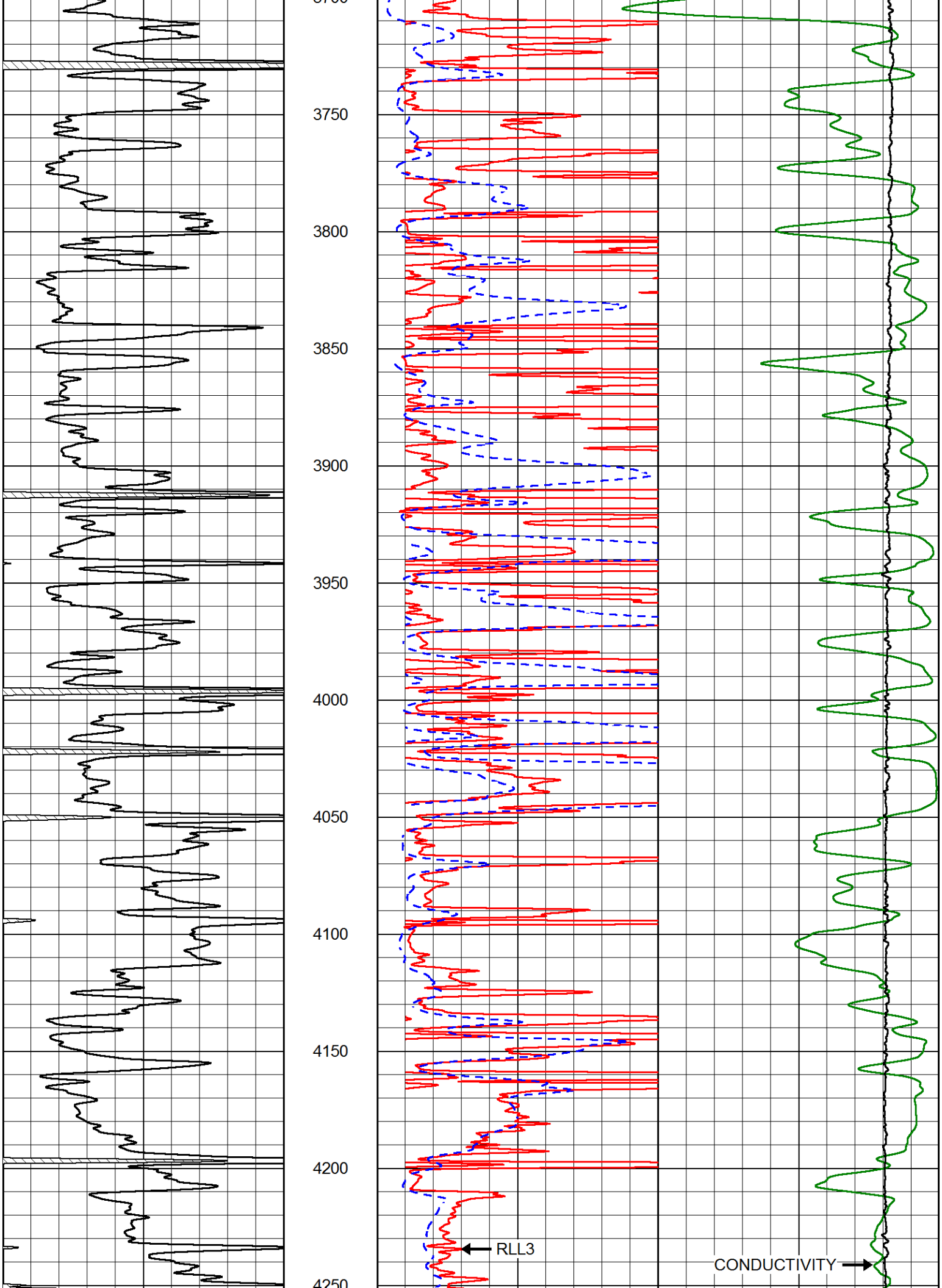

1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500

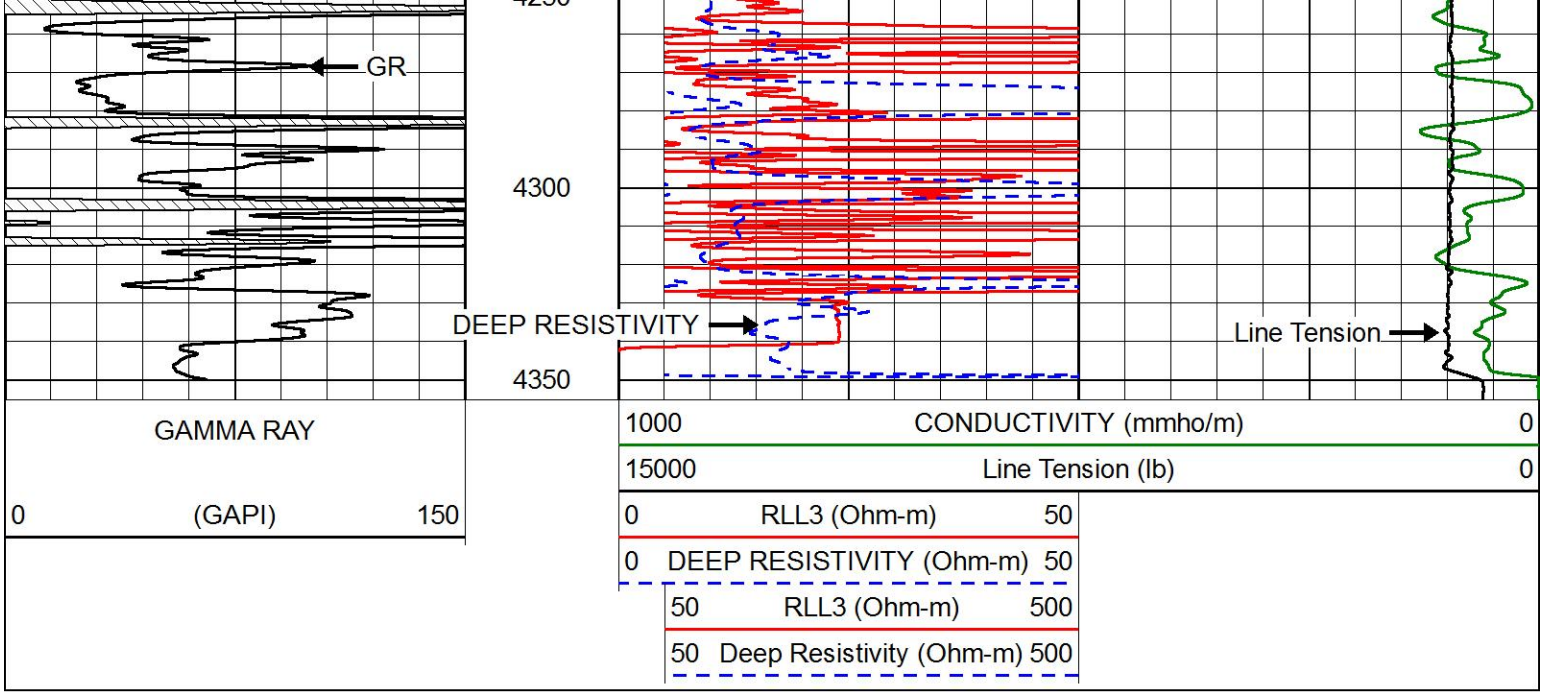

1550
1600
1650
1700
1750
1800
1850
1900
1950
2000
2050


2100
2150
2200
2250
2300
2350
2400
2450
2500
2550
2600


2650
2700
2750
2800
2850
2900
2950
3000
3050
3100
3150


3200
3250
3300
3350
3400
3450
3500
3550
3600
3650
3700


3750
3800
3850
3900
3950
4000
4050
4100
4150
4200
4250
RLL3
CONDUCTIVITY



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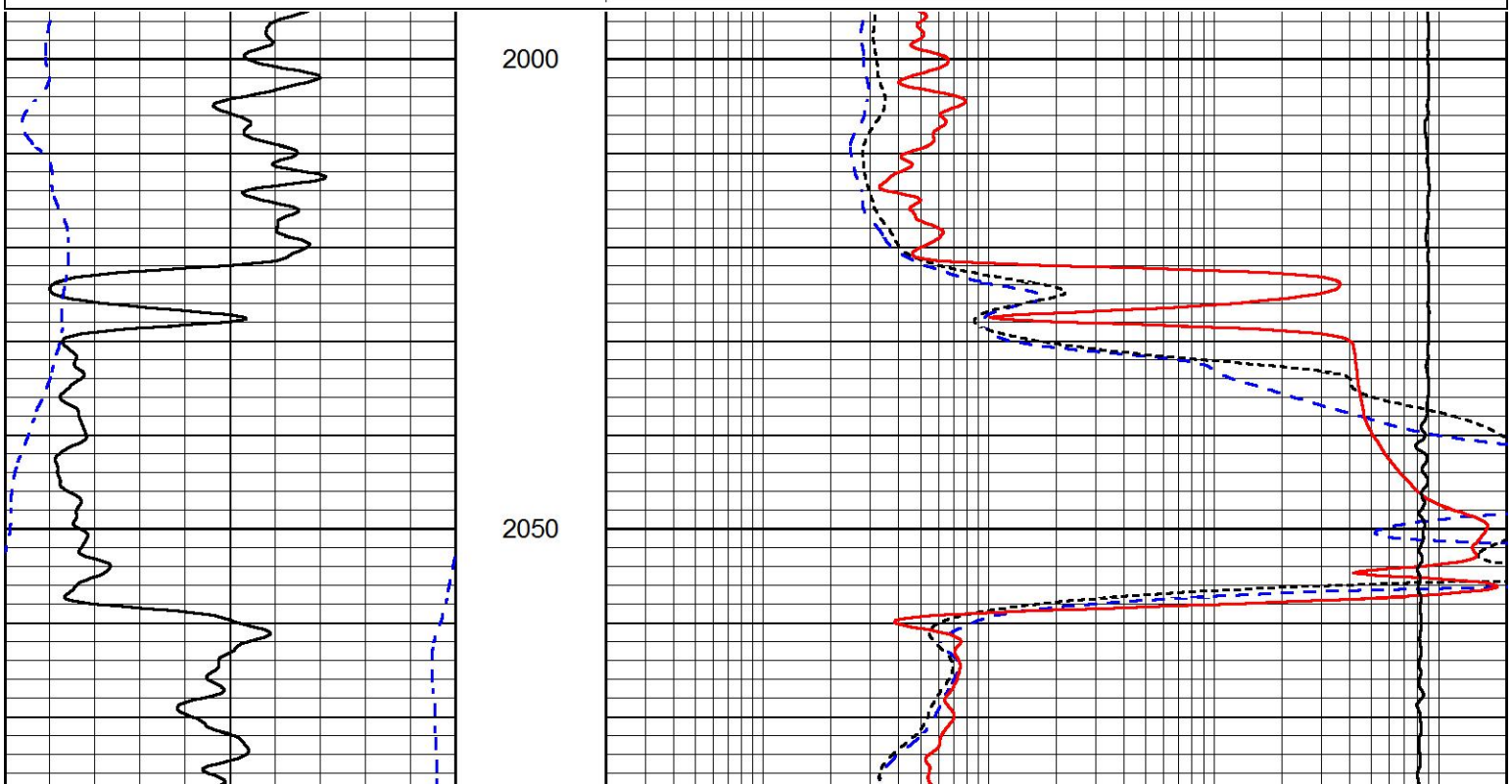
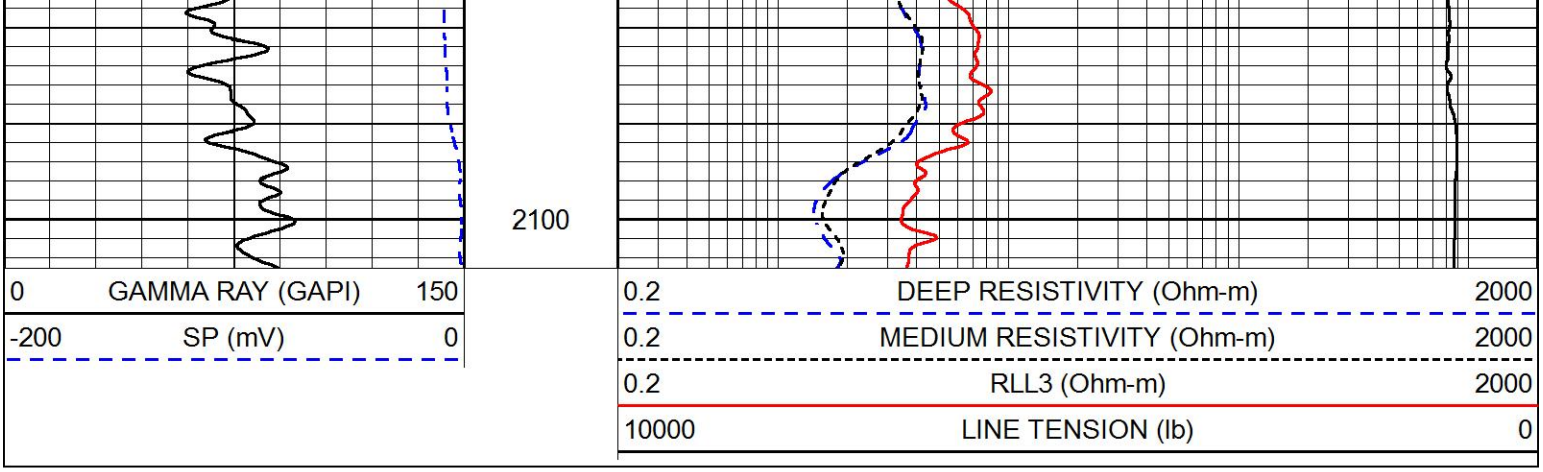
Database File	cobal_je_unit_a_1_5.db
Dataset Pathname	stackmel/pass3.1
Presentation Format	dil
Dataset Creation	Tue Feb 26 15:10:29 2019
Charted by	Depth in Feet scaled 1:240





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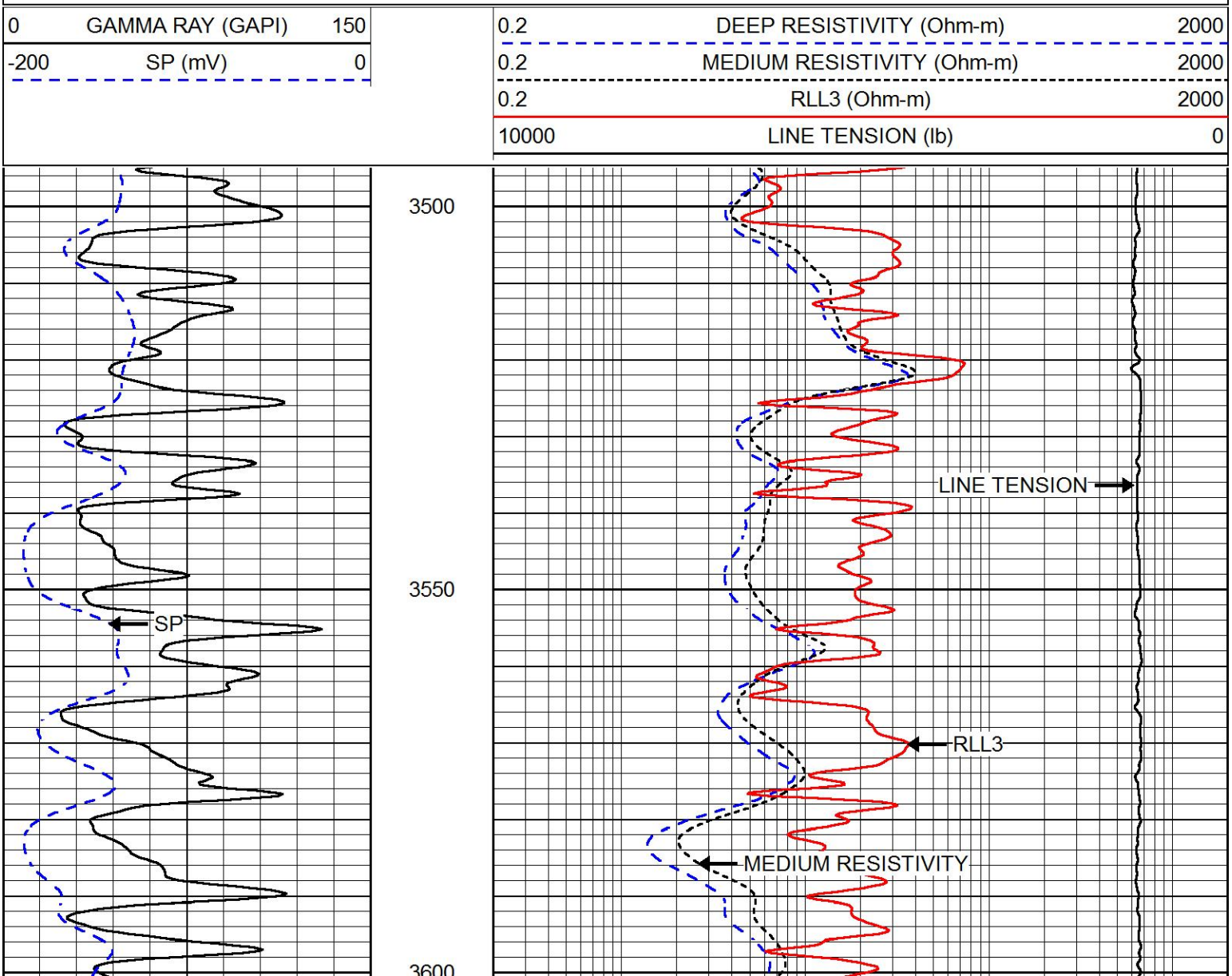
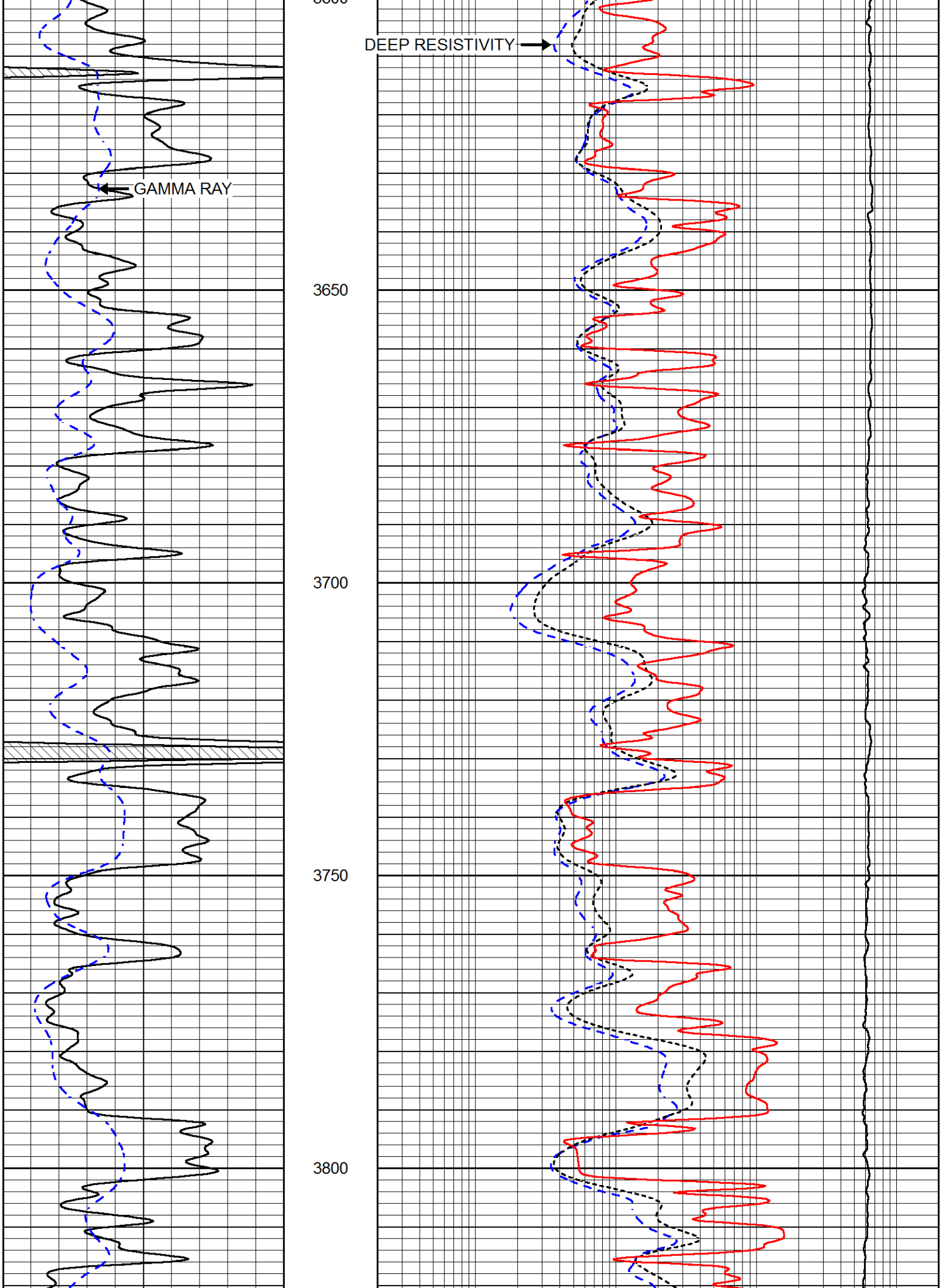
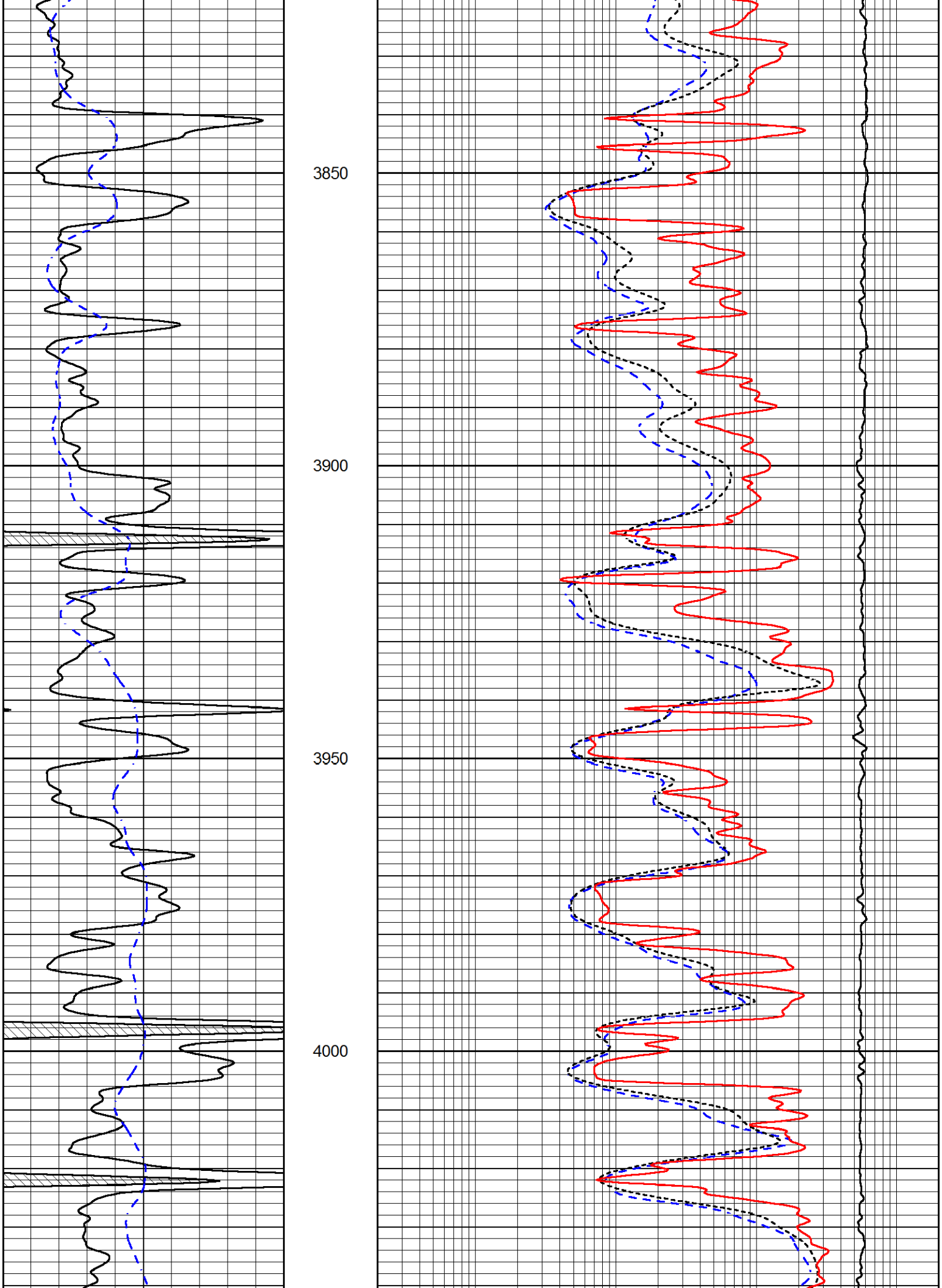
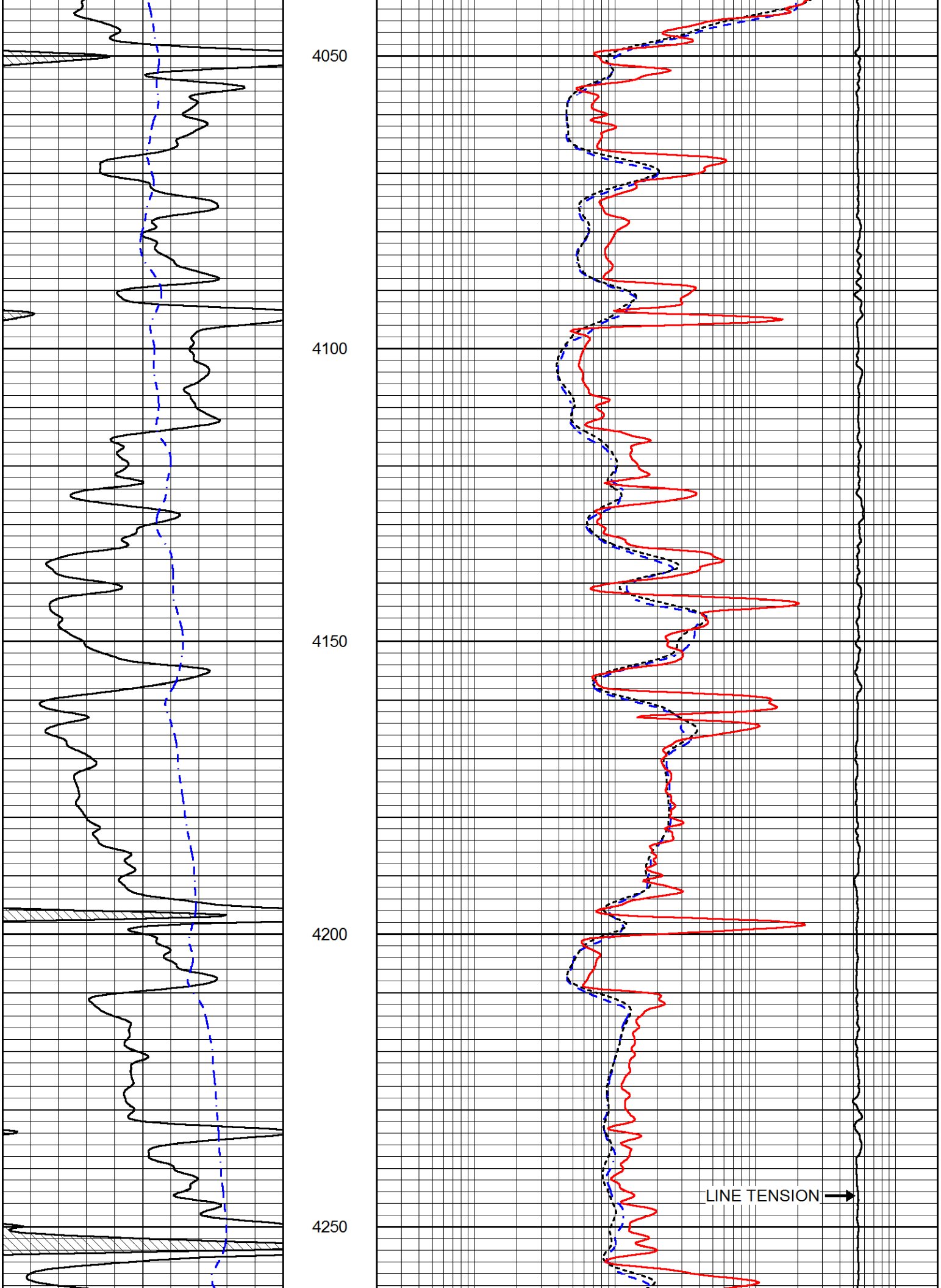
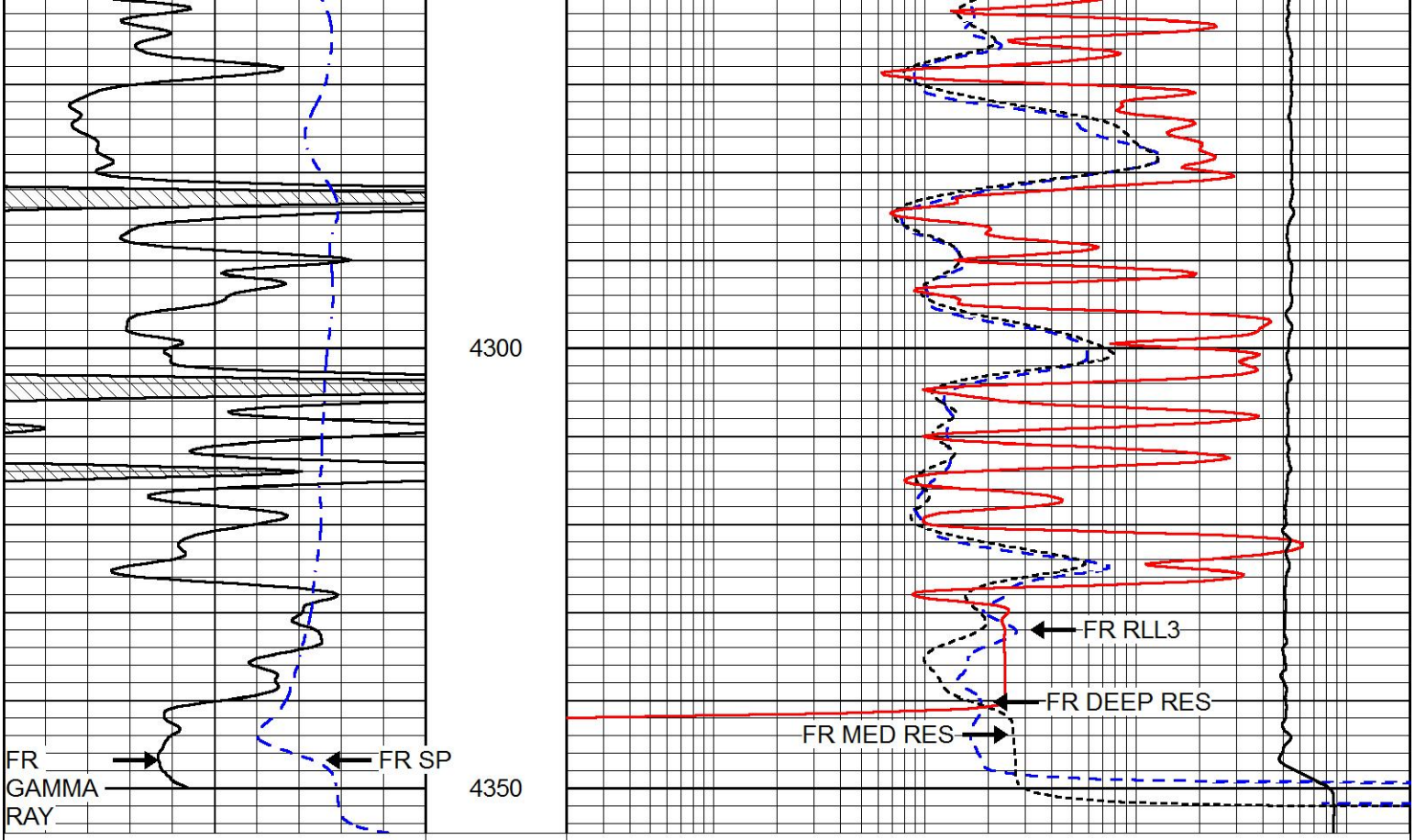
Presentation Format	dil
Dataset Creation	Tue Feb 26 15:10:29 2019
Charted by	Depth in Feet scaled 1:240




DEEP RESISTIVITY
GAMMA RAY
3650
3700
3750
3800


3850
3900
3950
4000


4050
4100
4150
4200
4250
LINE TENSION



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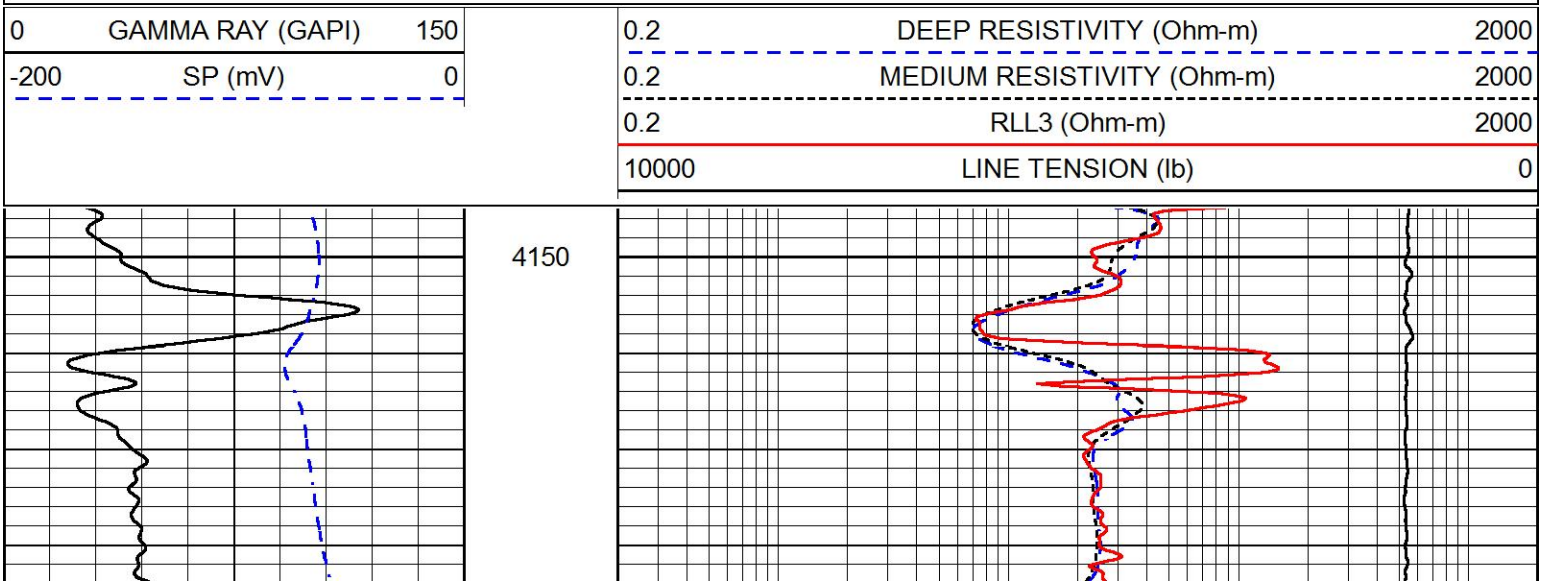
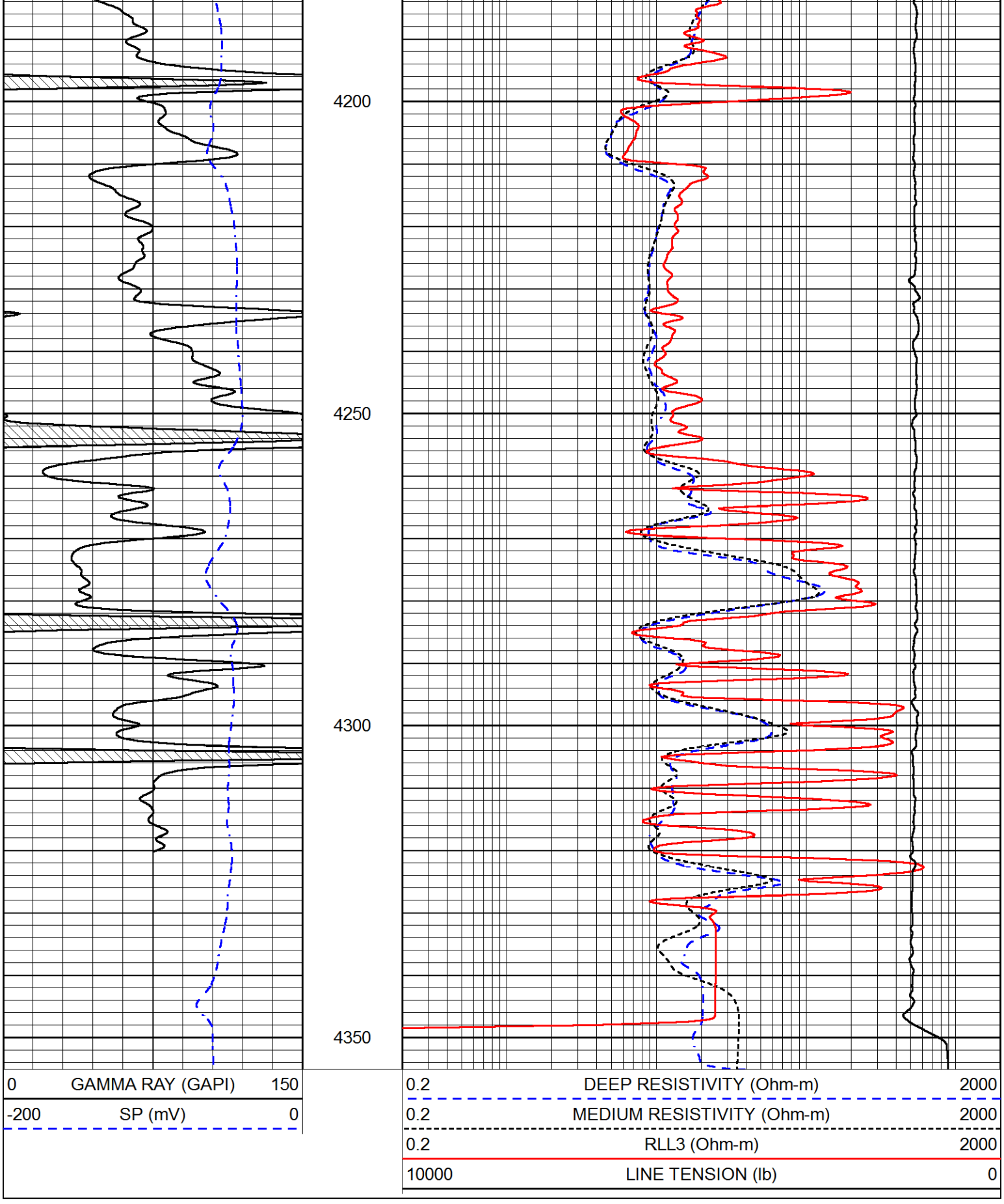
REPEAT SECTION

Database File	cobal_je_unit_a_1_5.db
Dataset Pathname	stackmel/pass2.1
Presentation Format	dil
Dataset Creation	Tue Feb 26 14:37:57 2019
Charted by	Depth in Feet scaled 1:240





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 Air	Readings Loop	References Air	References Loop		Results Gain	Results 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 Zero	Readings Cal	References Zero	References Cal		Results m	Results 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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Company	COBALT ENERGY, LLC
Well	JE UNIT A #1-5
Field	WILDCAT
County	GOVE
State	KANSAS