



# DUAL INDUCTION LOG

Company **ROCK CREEK CRUDE, LLC**  
 Well **BAUMAN #3**  
 Field **STRAHM**  
 County **NEMAHA**  
 State **KANSAS**

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Location: **API #: 15-131-20245-00-00**  
**3170' FSL & 4750' FEL**  
**SEC 27 TWP 2S RGE 14E**  
 Permanent Datum **GROUND LEVEL** Elevation **1313'**  
 Log Measured From **KELLY BUSHING**  
 Drilling Measured From **KELLY BUSHING**  
 Other Services **CNL/CDL MEL/BHCS**  
 Elevation **K.B. 1319' D.F. N/A G.L. 1313'**

Date	4/5/2018
Run Number	ONE
Depth Driller	2962'
Depth Logger	2962'
Bottom Logged Interval	2961'
Top Log Interval	200'
Casing Driller	8.625" @ 248'
Casing Logger	254'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	N/A
Density / Viscosity	9.1 48
pH / Fluid Loss	N/A N/A
Source of Sample	FLOWLINE
Rm @ Meas. Temp	0.90 @ 50
Rmt @ Meas. Temp	0.68 @ 50
Rmc @ Meas. Temp	1.22 @ 50
Source of Rmf / Rmc	CHARTS
Rm @ BHT	0.43 @ 106
Operating Rig Time	4 HOURS
Max Rec. Temp. F	106
Equipment Number	91
Location	HAYS
Recorded By	D. SCHMIDT
Witnessed By	DOUG DAVIS

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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.

SABETHA,  
 SOUTH TO HWY 36, 6 WEST, 1/2 NORTH,  
 EAST INTO

Log Measured From: **KELLY BUSHING** 6 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES  
[www.pioneerenergy.com](http://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: **DOUG DAVIS**  
 Secondary Witness:  
 Secondary Witness:  
 Secondary Witness:

# Log Variables

Database: C:\ProgramData\Warrior\Data\rock\_creek\_bauaman 3.db  
 Dataset: field/well/STKML/pass4.1/\_vars\_

## Top - Bottom

M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	-30	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	30	0	5.5	0	3962	106	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 (182-152)	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-PSI HIGH TEMP (933 (HT))

18.50

3.50

220.00

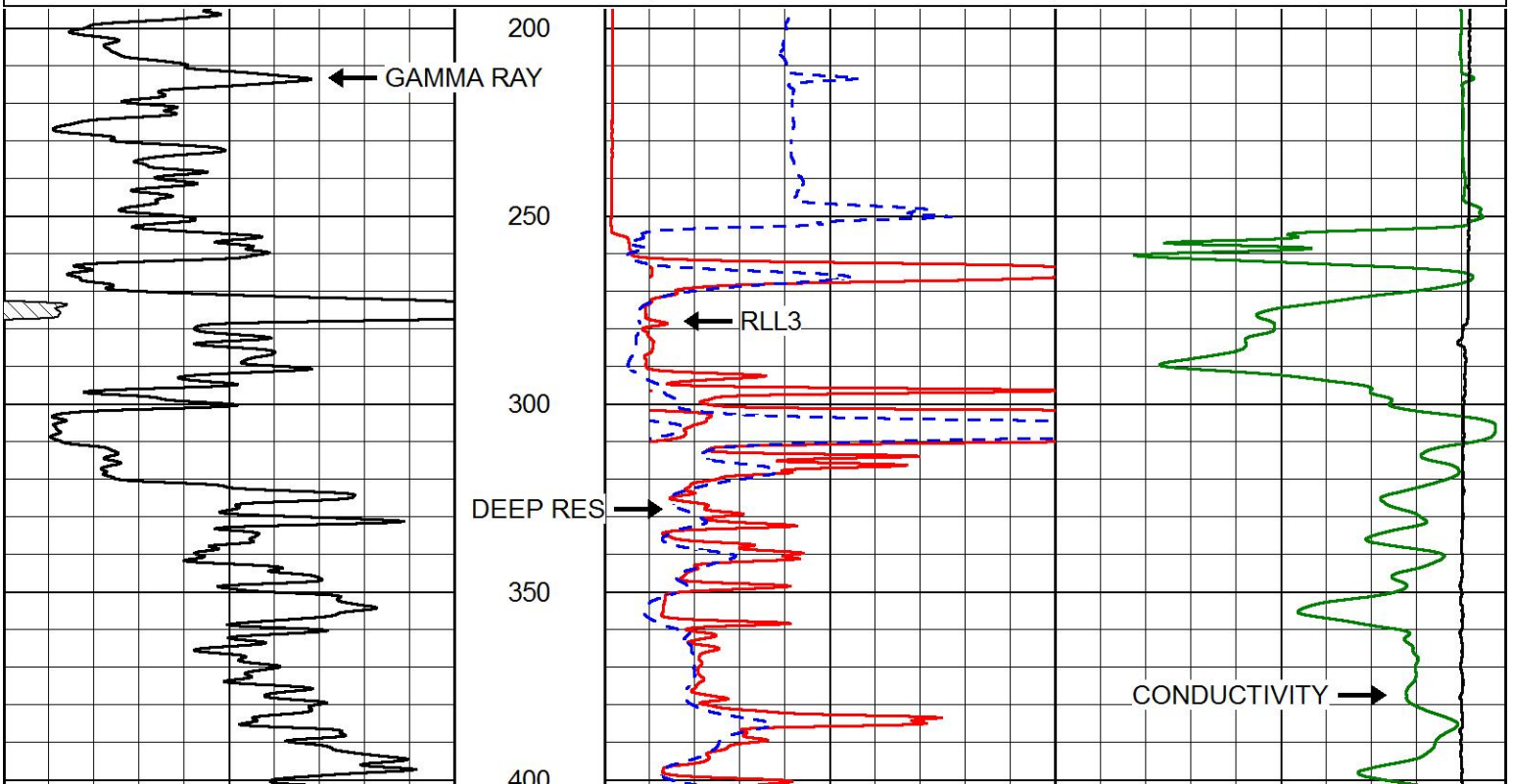
Dataset: rock creek\_bauaman 3.db: field/well/STKML/pass4.1  
 Total length: 43.08 ft  
 Total weight: 685.00 lb  
 O.D.: 4.00 in

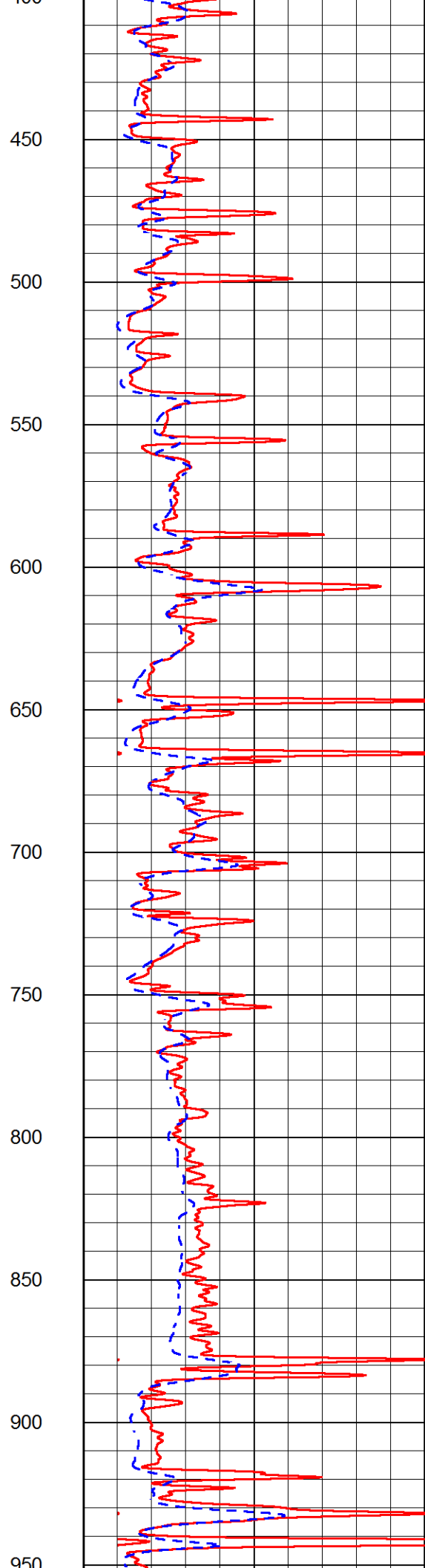
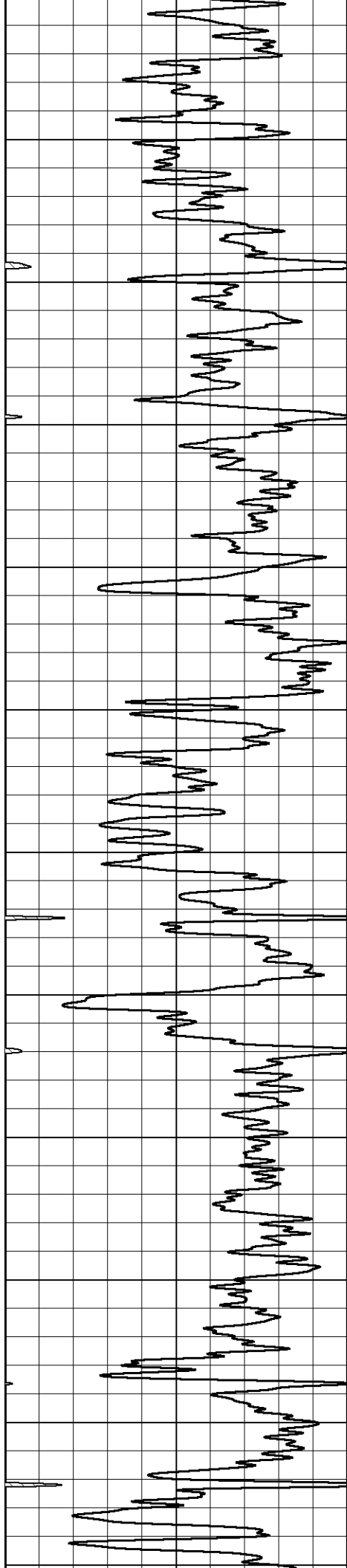


# MAIN PASS

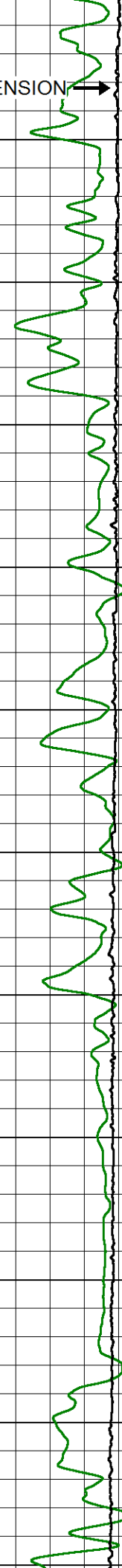
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 Dataset Pathname: STKML/pass4.1  
 Presentation Format: dil2in  
 Dataset Creation: Thu Apr 05 08:46:28 2018  
 Charted by: Depth in Feet scaled 1:600

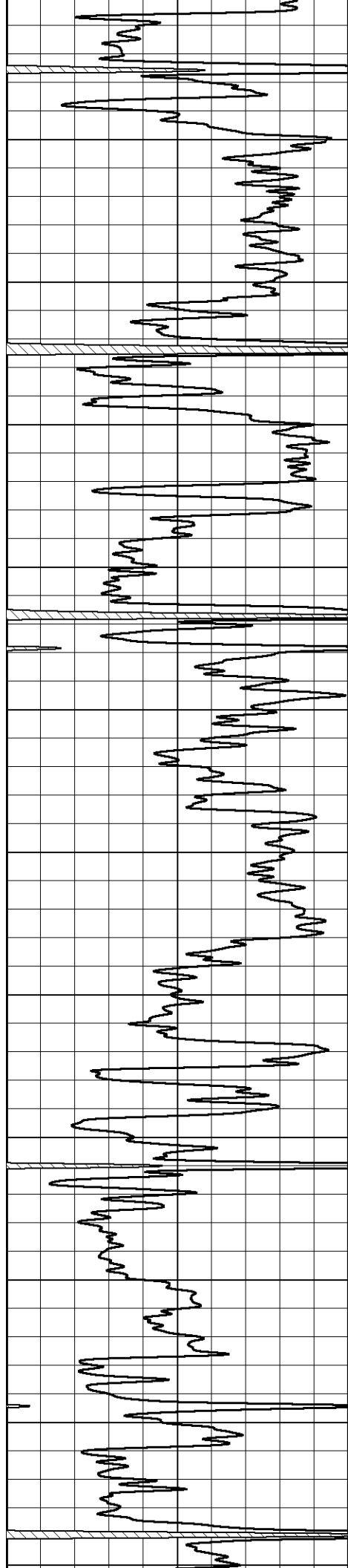
0	Gamma Ray (GAPI)	150	1000	Conductivity (mmho/m)	0
			15000	Line Tension (lb)	0
			0	RLL3 (Ohm-m)	50
			0	Deep Resistivity (Ohm-m)	50
			50	RLL3 (Ohm-m)	500
			50	Deep Resistivity (Ohm-m)	500



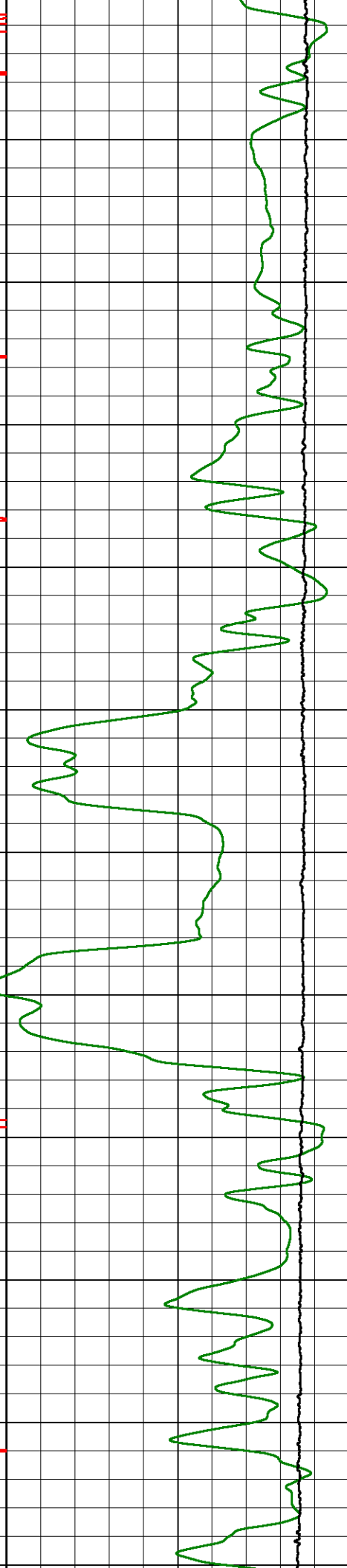
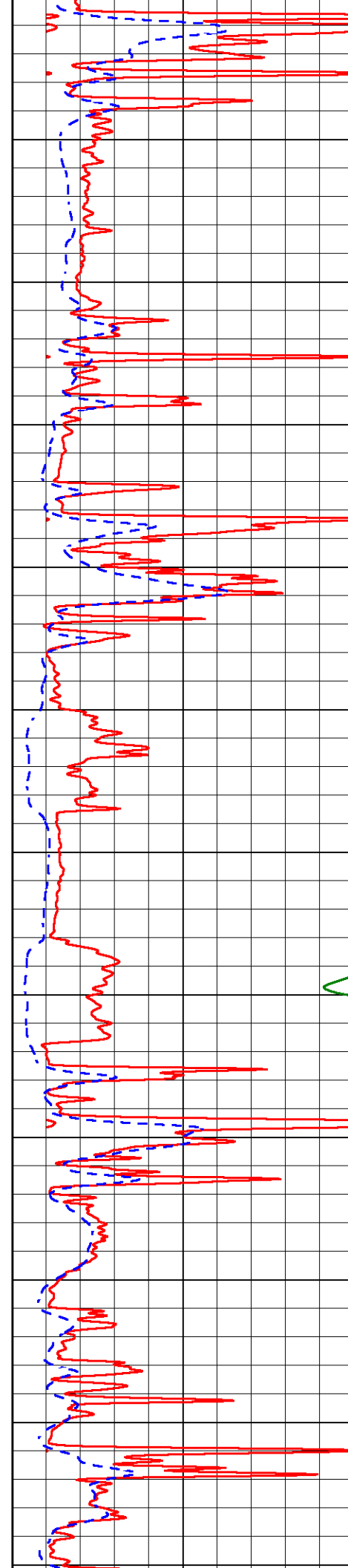


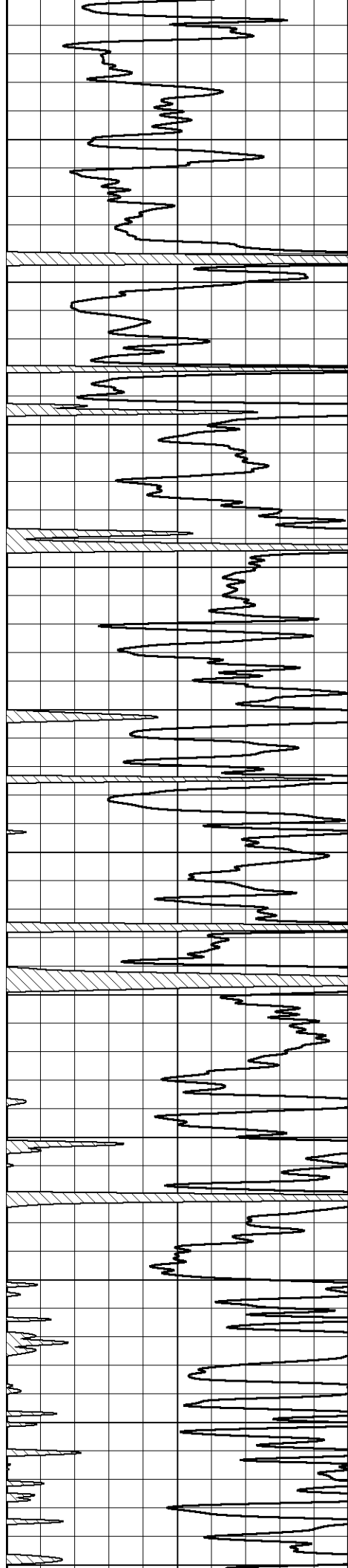
LINE TENSION →



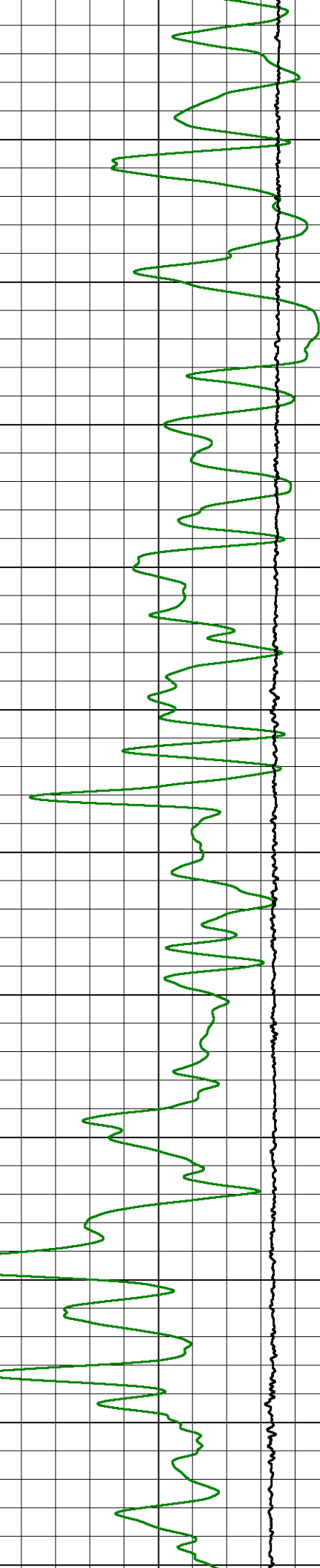
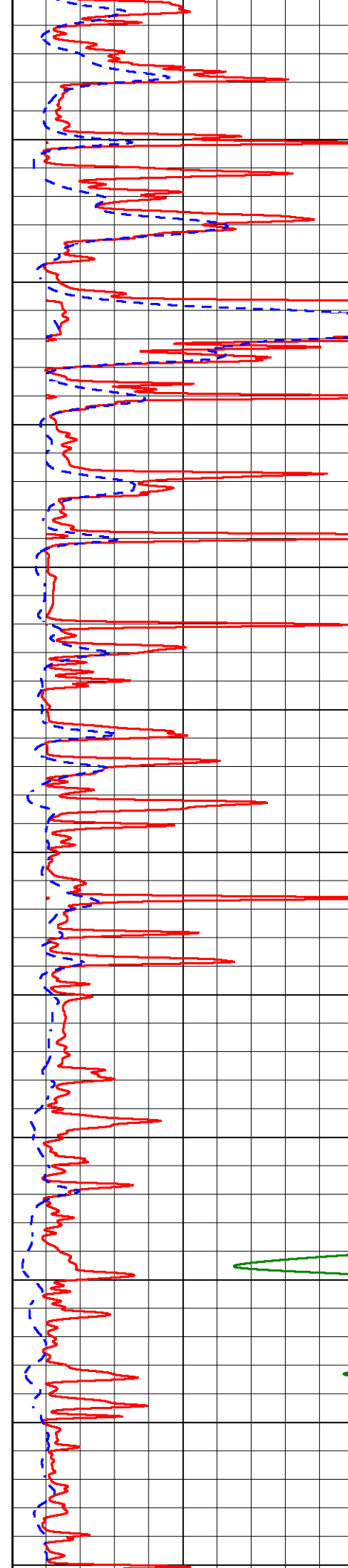


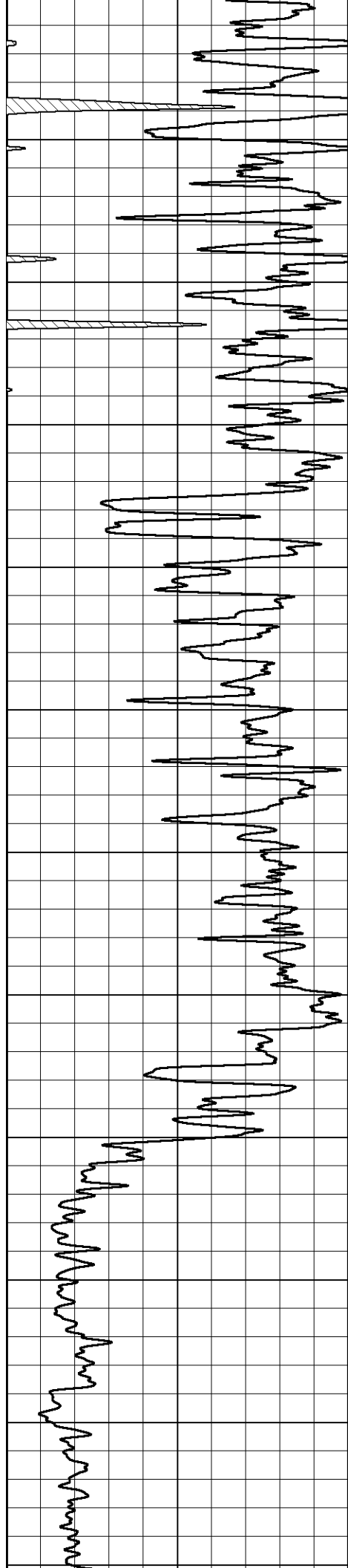
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1000  
1050  
1100  
1150  
1200  
1250  
1300  
1350  
1400  
1450  
1500



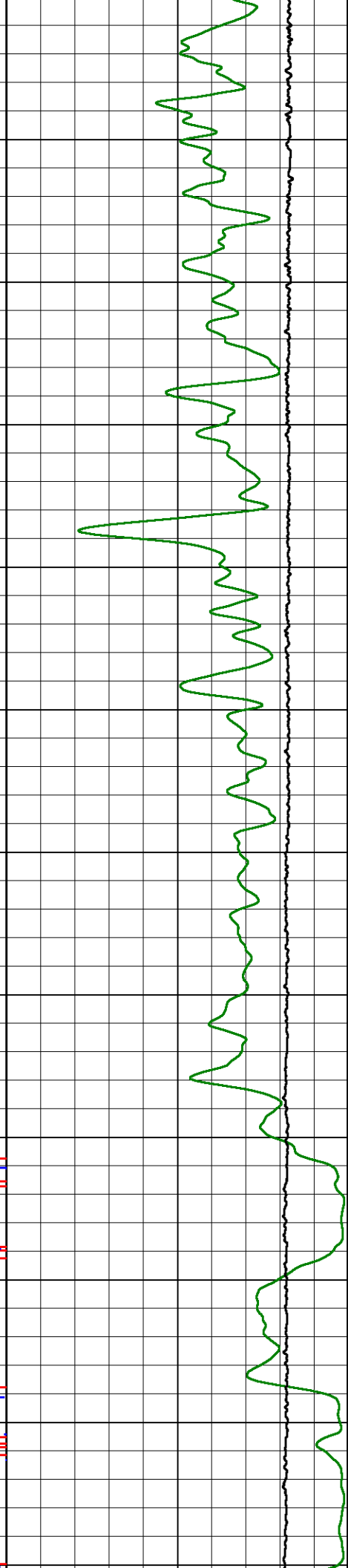
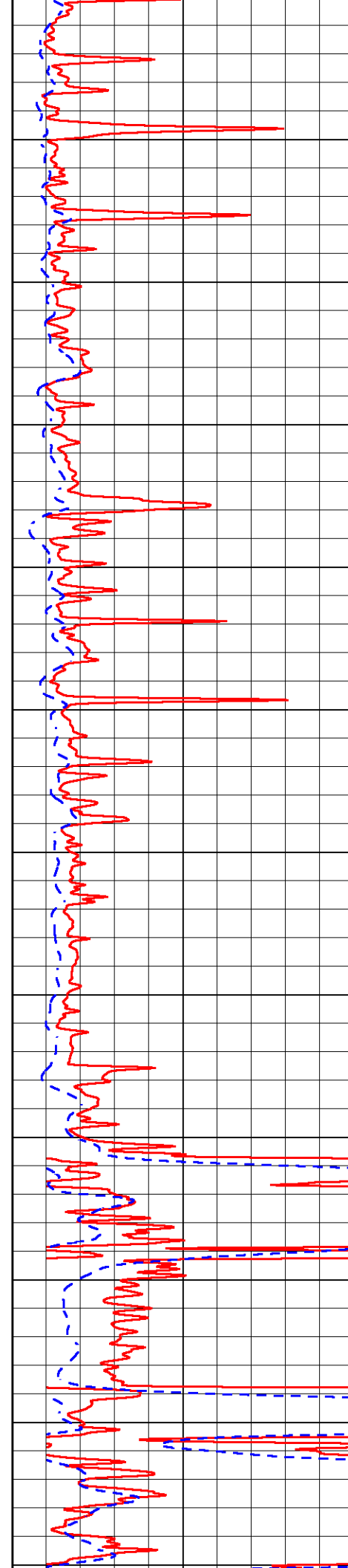


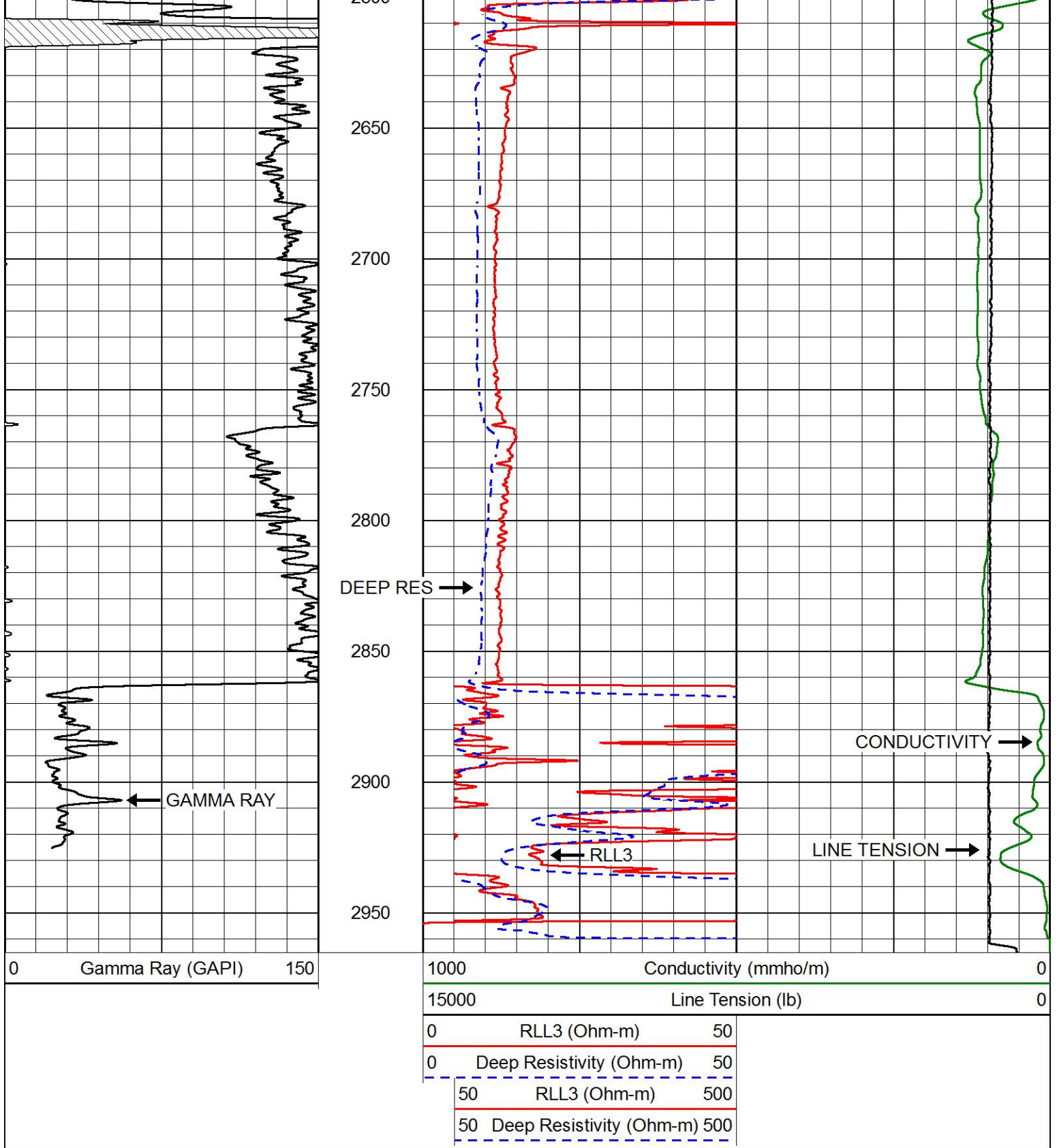
1550  
1600  
1650  
1700  
1750  
1800  
1850  
1900  
1950  
2000  
2050





2000  
2100  
2150  
2200  
2250  
2300  
2350  
2400  
2450  
2500  
2550  
2600



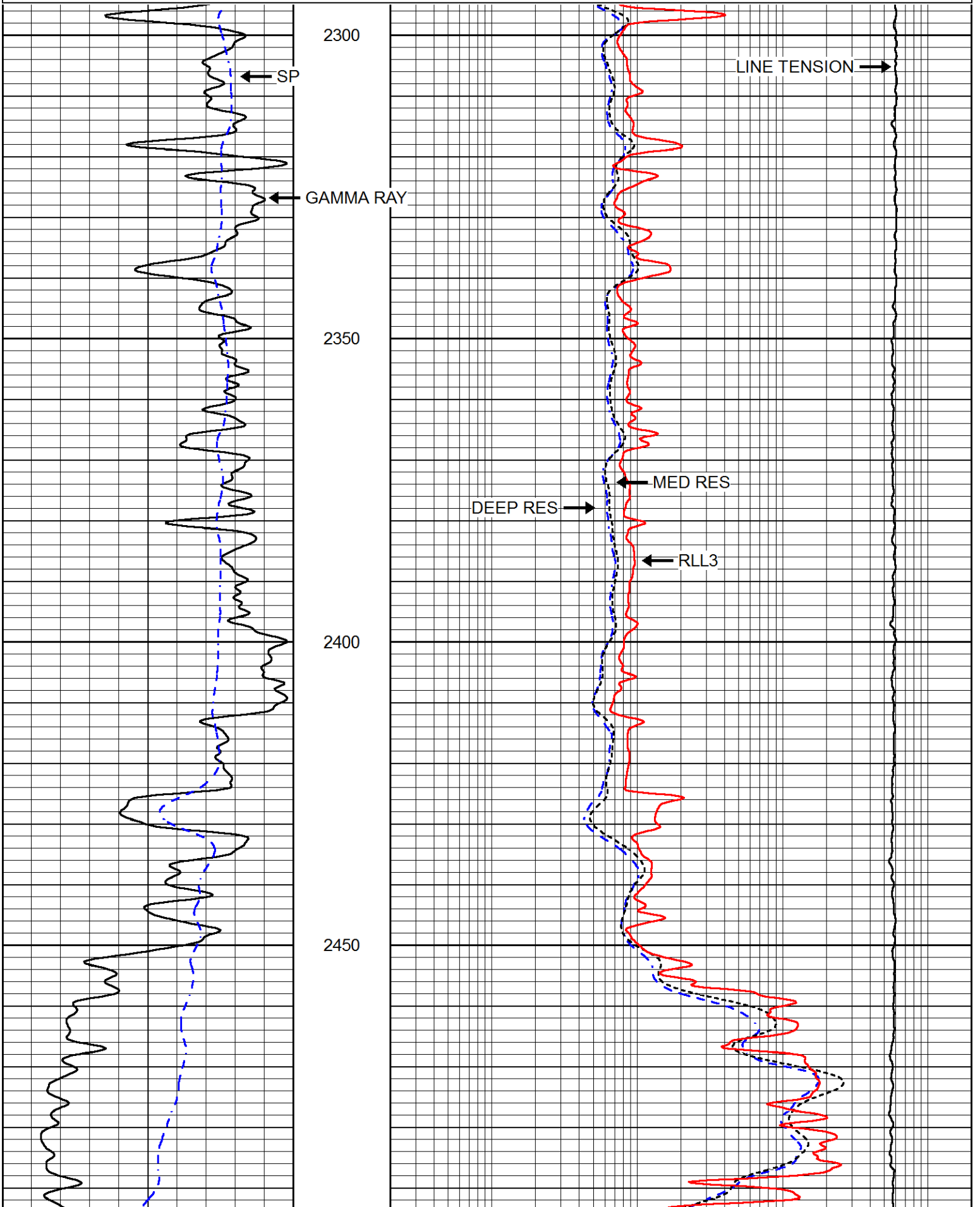


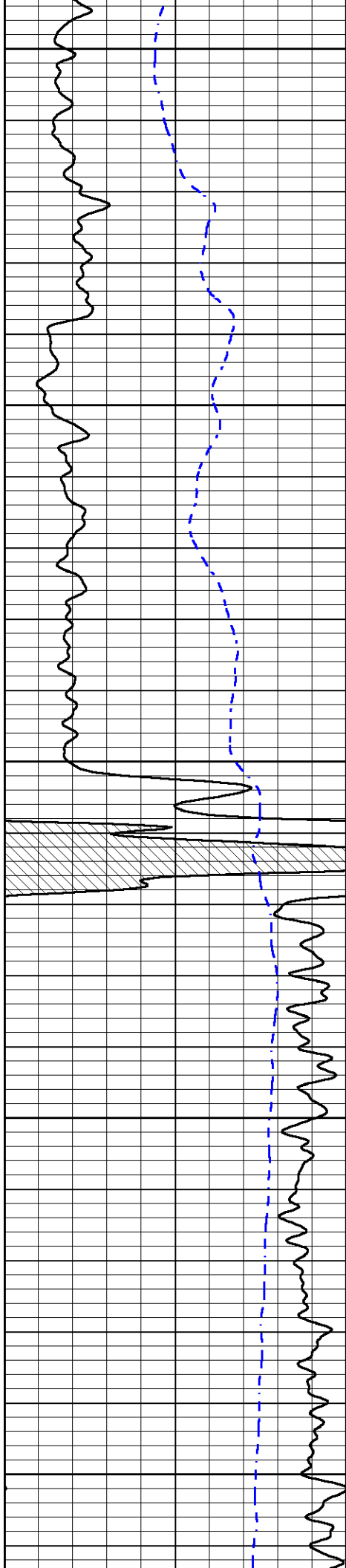
# MAIN PASS

Database File rock creek\_bauaman 3.db  
 Dataset Pathname STKML/pass4.1  
 Presentation Format dil  
 Dataset Creation Thu Apr 05 08:46:28 2018  
 Charted by Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
-200	SP (mV)	0

0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	Line Tension (lb)	0





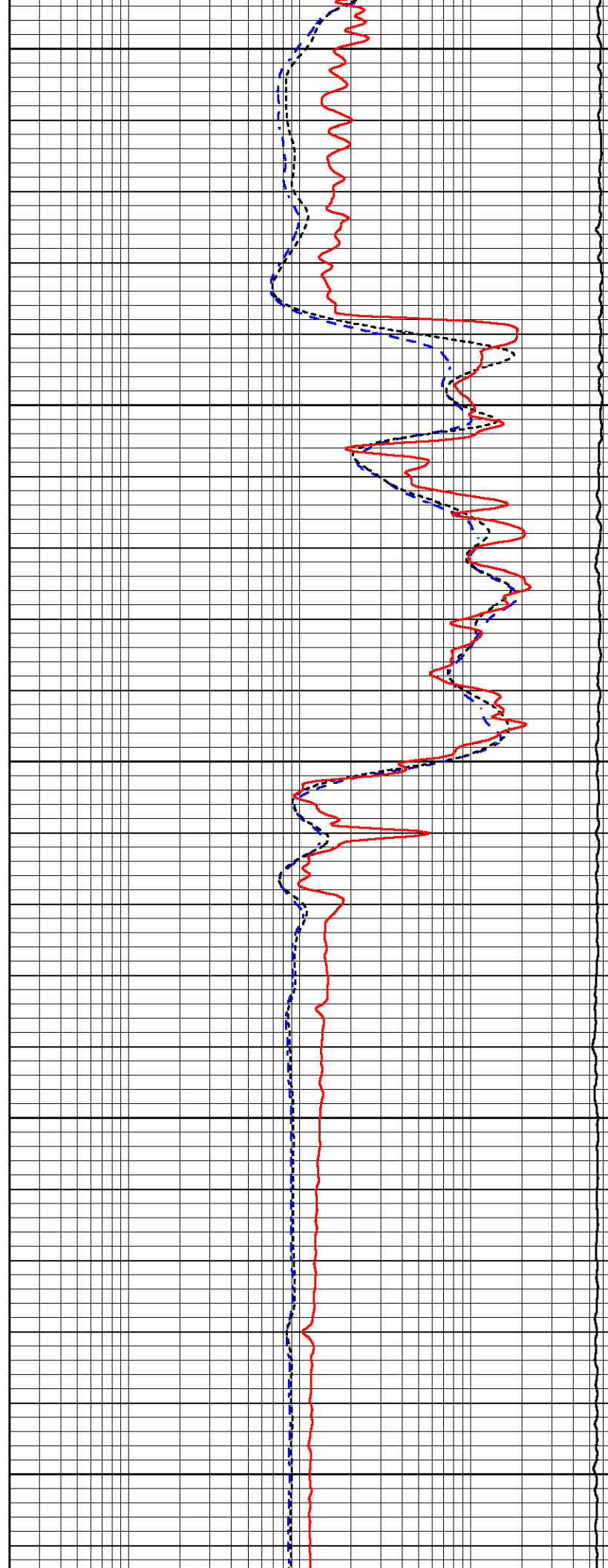
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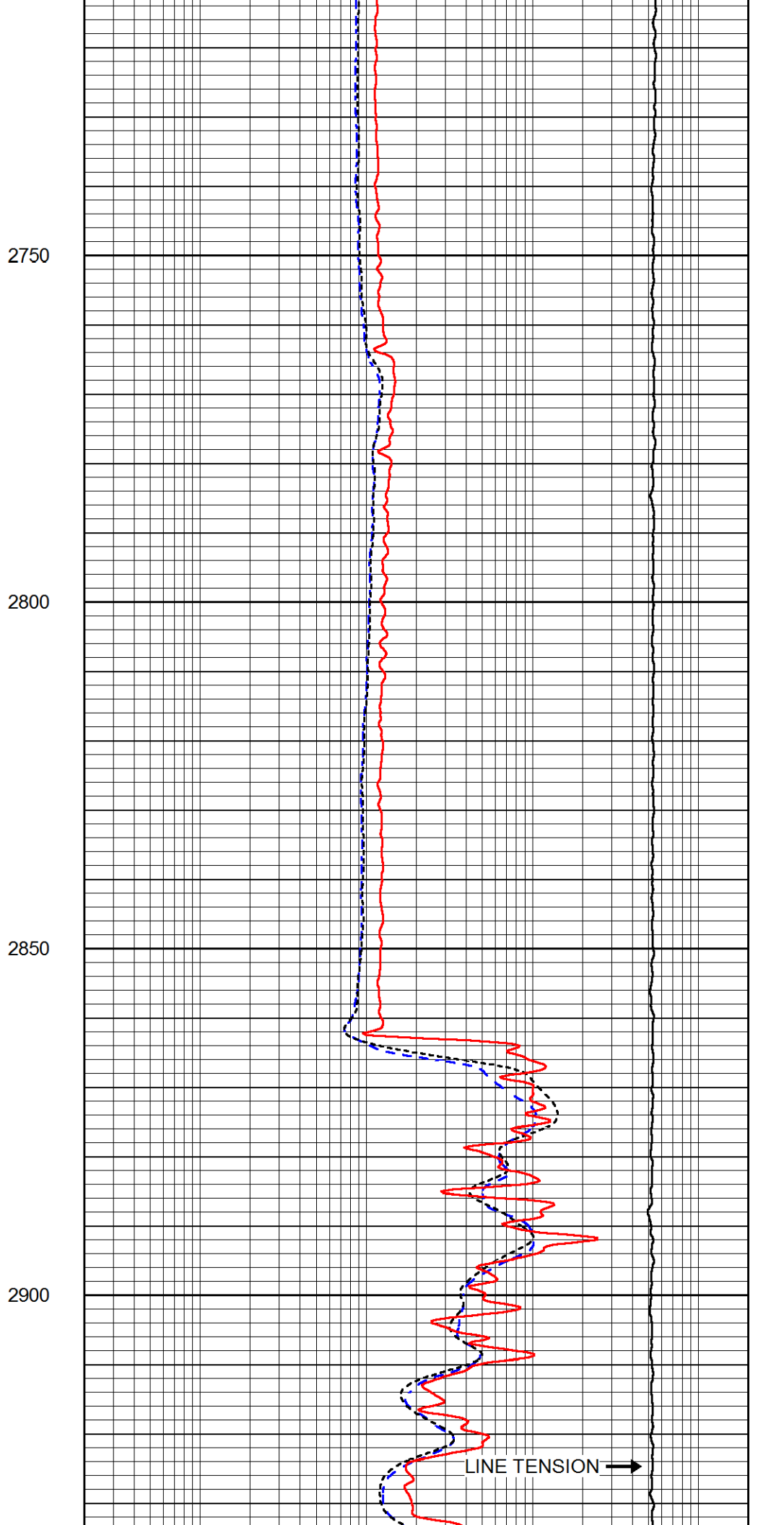
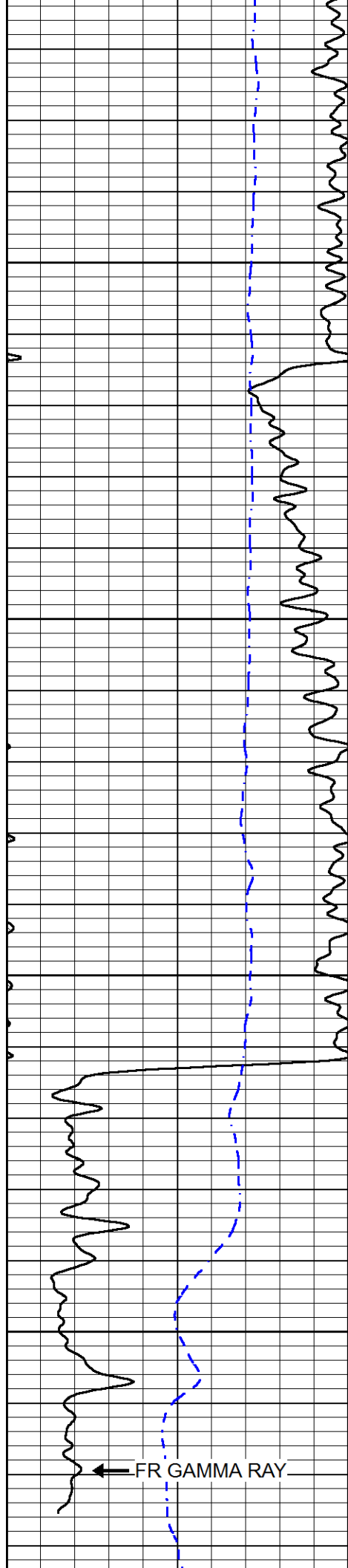
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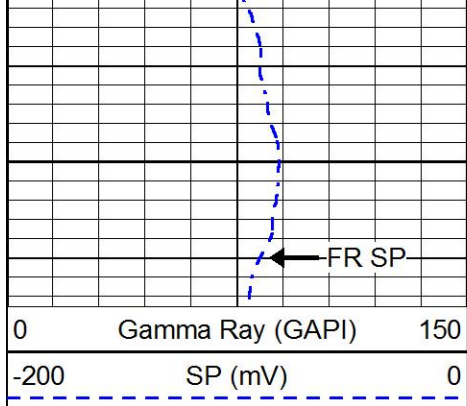
2600

2650

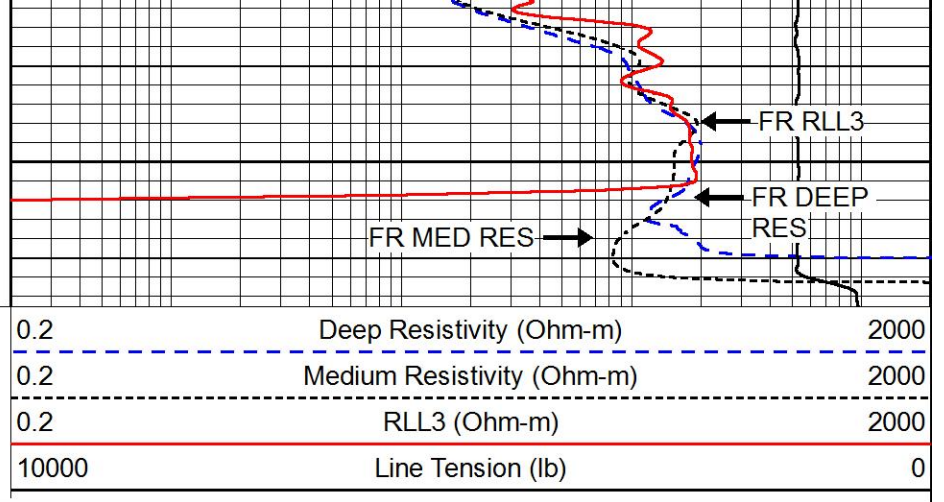
2700







2950



0	Gamma Ray (GAPI)	150
-200	SP (mV)	0

0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	Line Tension (lb)	0

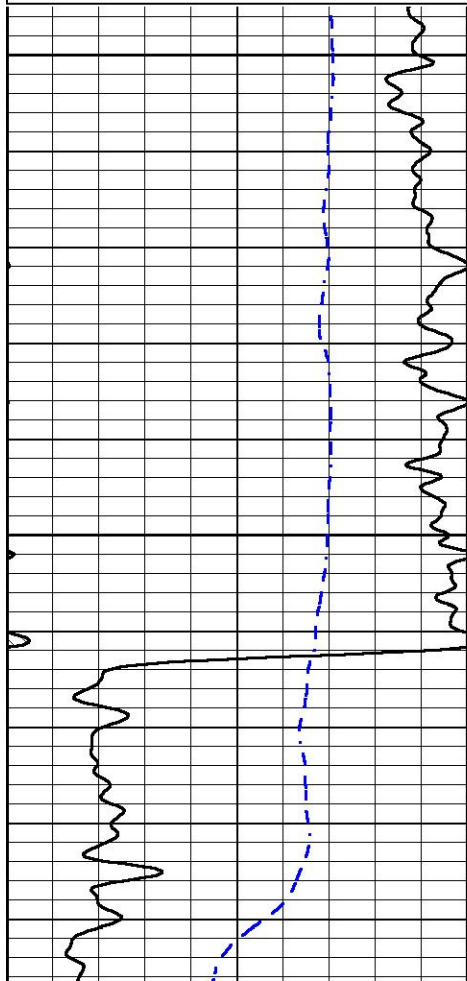


# REPEAT SECTION

Database File: rock creek\_bauaman 3.db  
 Dataset Pathname: STKML/pass2.1  
 Presentation Format: dil  
 Dataset Creation: Thu Apr 05 08:32:25 2018  
 Charted by: Depth in Feet scaled 1:240

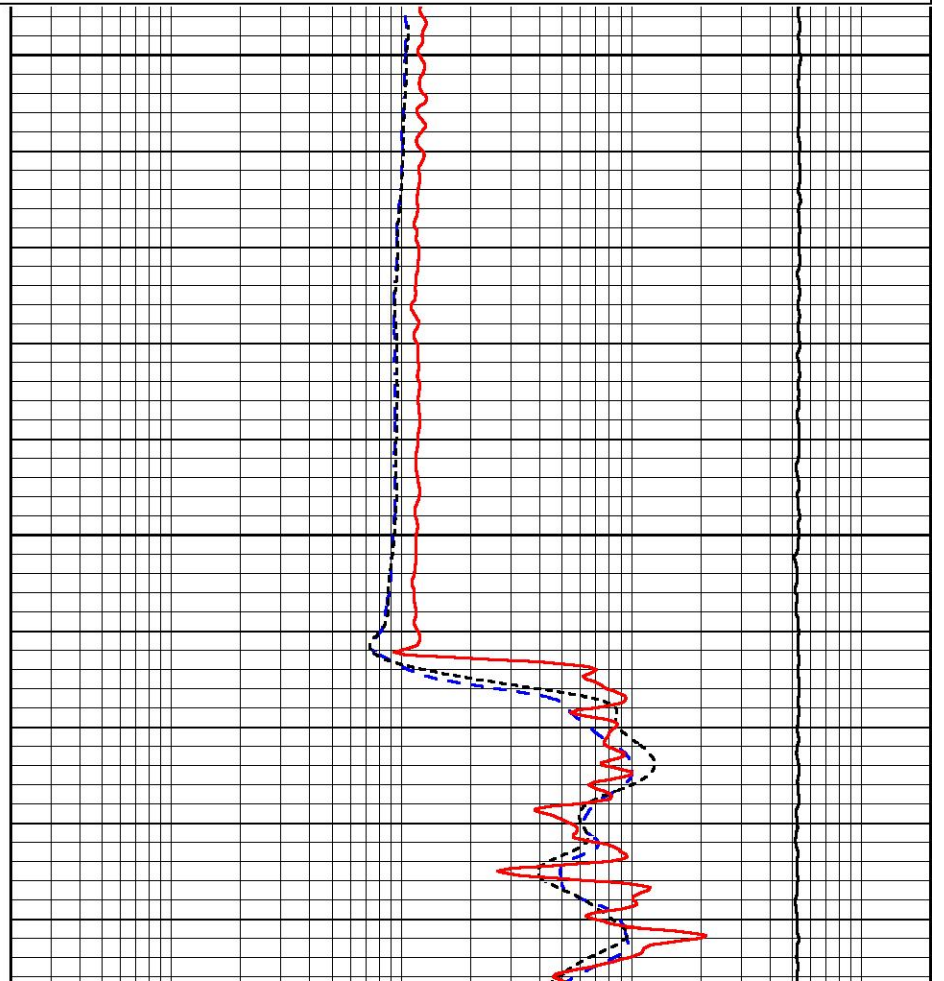
0	Gamma Ray (GAPI)	150
-200	SP (mV)	0

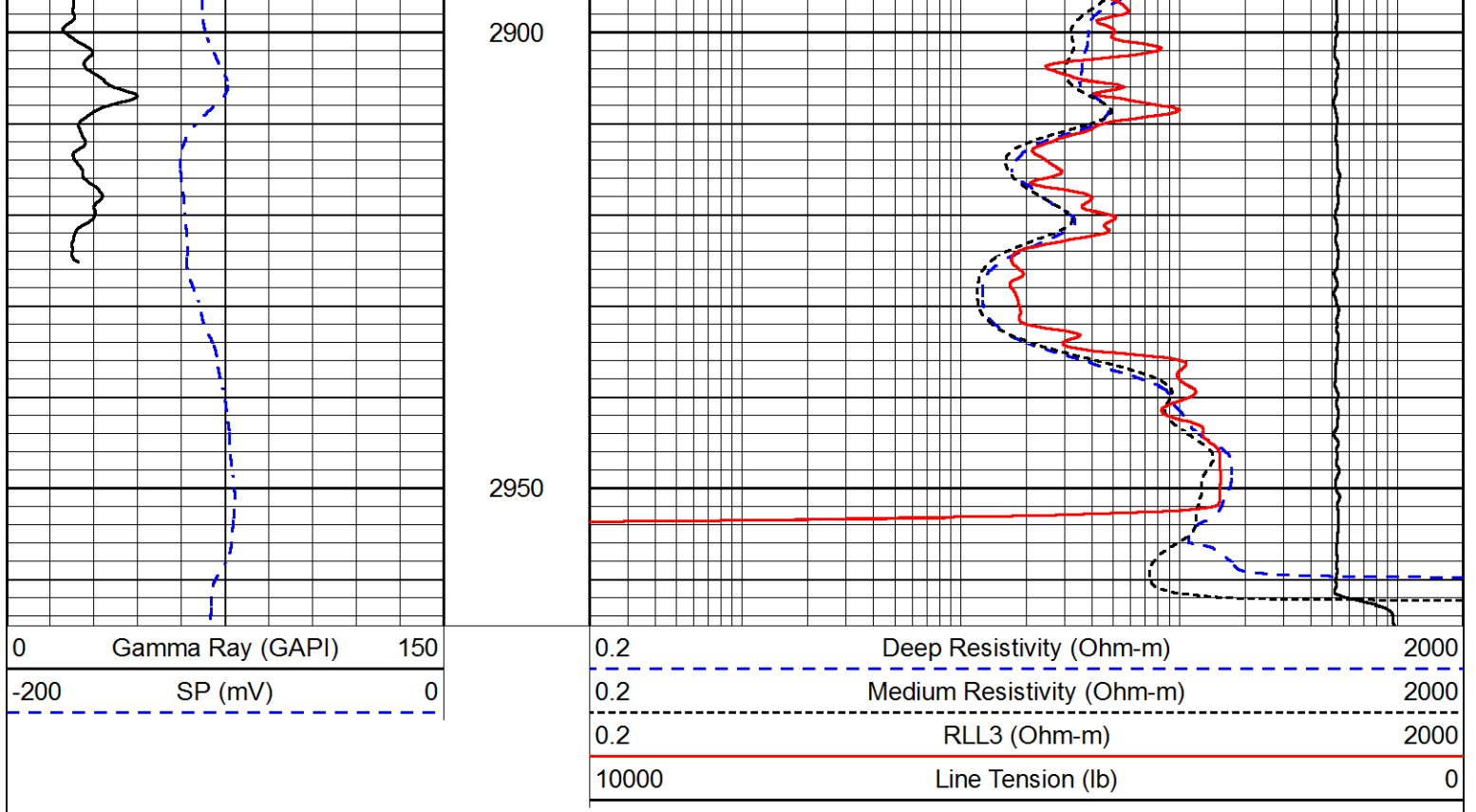
0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	Line Tension (lb)	0



2800

2850





#### Calibration Report

Database File      rock creek\_bauaman 3.db  
 Dataset Pathname    STKML/pass4.1  
 Dataset Creation    Thu Apr 05 08:46:28 2018

#### Dual Induction Calibration Report

Serial-Model:                      933 (HT)-PSI HIGH TEMP  
 Calibration Performed:            Sun Feb 18 17:32:17 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop	mmho/m	Gain	Offset
Deep	167.000	835.000	0.000	255.000	mmho/m	0.700	-18.350
Medium	142.000	1349.000	0.000	255.000	mmho/m	0.565	-63.000

#### Microlog Calibration Report

Serial-Model:                      PSI-01-PSIML  
 Performed:                          Sun Mar 18 23:48:42 2018

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	18500.0000	-1.9000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	19500.0000	-1.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.8500

#### Compensated Density Calibration Report

Serial-Model:                      182-152-M&W  
 Source / Verifier:                16955B / 2ci  
 Master Calibration Performed:    Wed Mar 28 03:05:33 2018

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4992.81	6098.44	cps
Aluminum	2.670	g/cc	945.67	3945.60	cps
Spine Angle = 75.33			Density/Spine Ratio = 0.532		
	Size		Reading		
Small Ring	4.50	in	1.09		
Large Ring	15.00	in	1.03		

Compensated Neutron Calibration Report

Serial Number: 207-MW  
 Tool Model: M&W  
 Calibration Performed: FRI MAR 9 10:30:30 2018

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: Mon Jan 15 11:20:44 2018

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps  
 Calibrator Reading: 1.0 cps

Sensitivity: 0.6000 GAPI/cps



**PIONEER**  
 Pioneer Energy Services

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