



DUAL INDUCTION LOG

Company AMERICAN WARRIOR, INC.
 Well LEE A #6-28
 Field LAKIN
 County KEARNY
 State KANSAS

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 Well LEE A #6-28
 Field LAKIN
 County KEARNY State KANSAS

Location: API #: 15-093-21952-00-00
 381' FSL & 335' FWL
 SEC 28 TWP 25S RGE 36W
 Permanent Datum GROUND LEVEL Elevation 3045'
 Log Measured From KELLY BUSHING
 Drilling Measured From KELLY BUSHING
 Other Services
 CNL/CDL
 MEL
 Elevation
 K.B. 3056'
 D.F. N/A
 G.L. 3045'

Date	1/25/2017
Run Number	ONE
Depth Driller	5050'
Depth Logger	5050'
Bottom Logged Interval	5049'
Top Log Interval	1800'
Casing Driller	8.625" @ 1817'
Casing Logger	1817'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	775
Density / Viscosity	9.3 69
pH / Fluid Loss	10.0 7.2
Source of Sample	FLOWLINE
Rm @ Meas. Temp	0.90 @ 44
Rmt @ Meas. Temp	0.68 @ 44
Rmc @ Meas. Temp	1.22 @ 44
Source of Rmf / Rmc	CHARTS
Rm @ BHT	0.31 @ 127
Operating Rig Time	3 HOURS
Max Rec. Temp. F	127
Equipment Number	91
Location	COLBY
Recorded By	D. SCHMIDT
Witnessed By	LUKE THOMPSON

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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.

LAKIN,
 SOUTH ON HWY 25 TO R RD, 3/4 SOUTH,
 EAST INTO

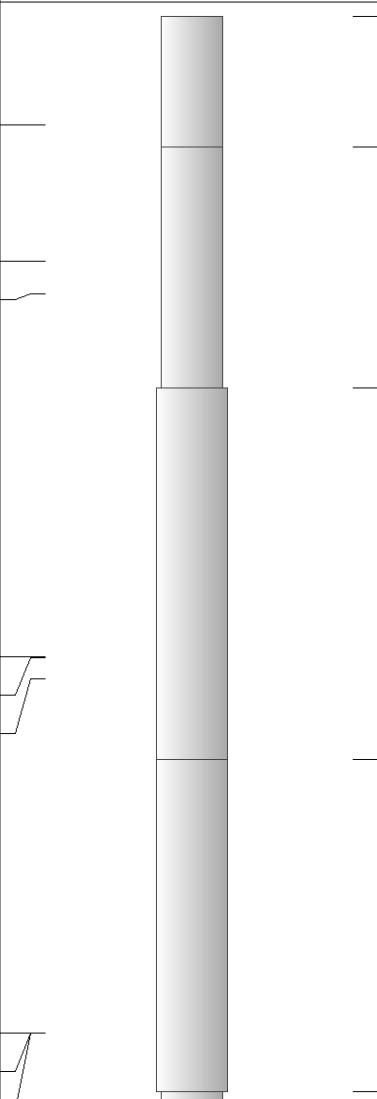
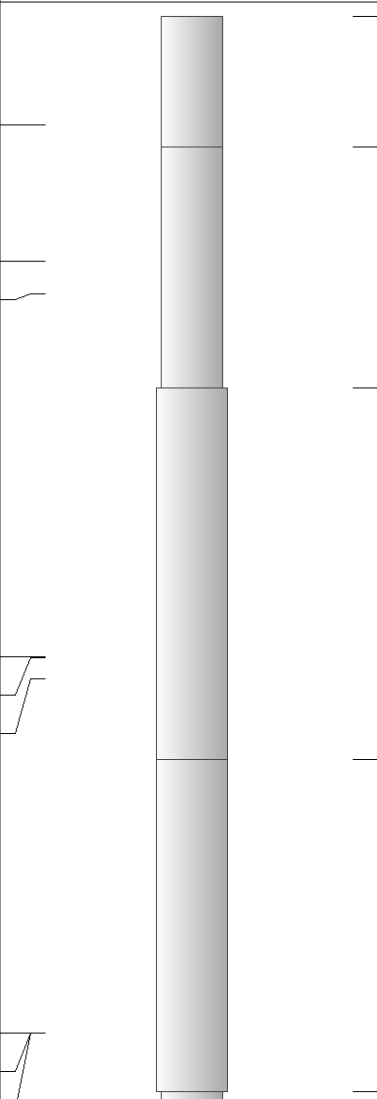
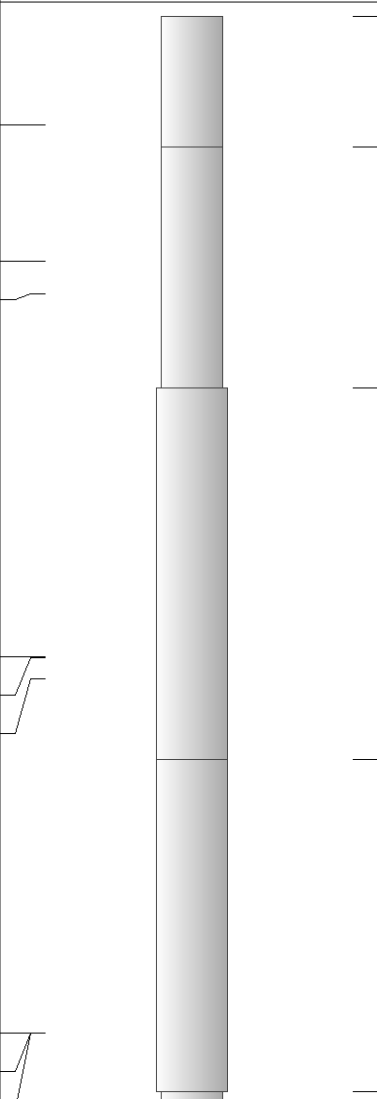
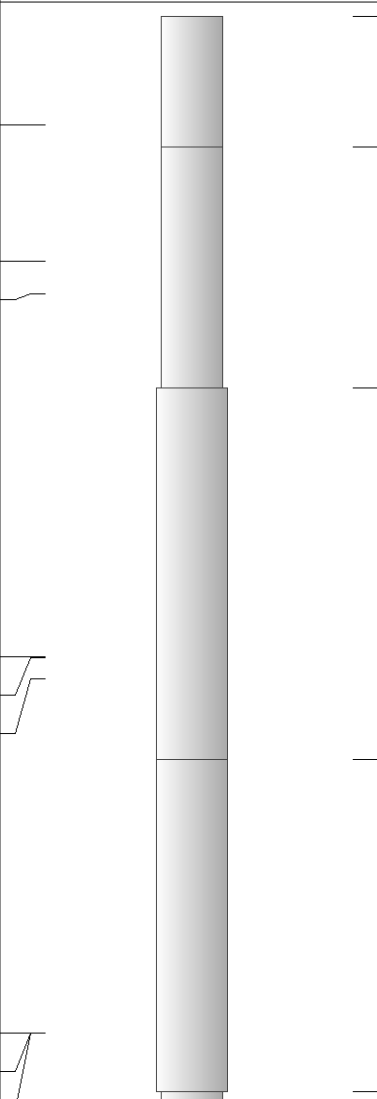
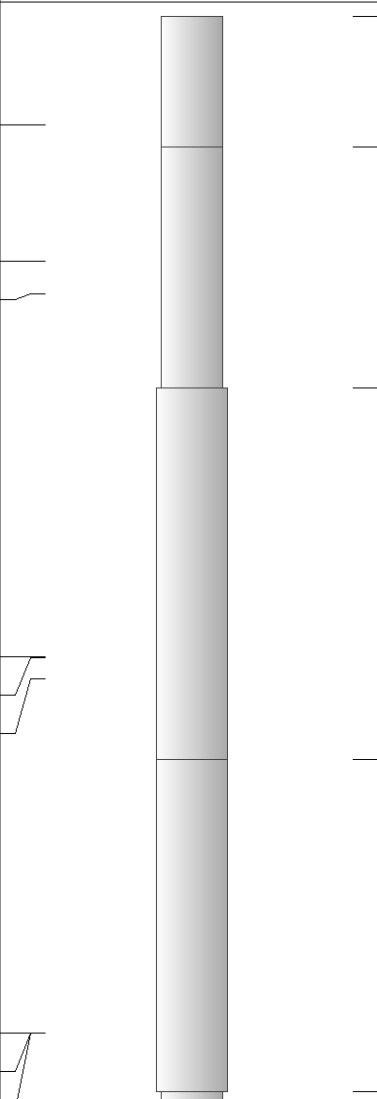
Log Measured From: KELLY BUSHING 11 Ft. Above Permanent Datum

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: LUKE THOMPSON Secondary Witness: 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	70	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	22	0	5.5	0	5050	127	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 13)

18.50

3.50

220.00

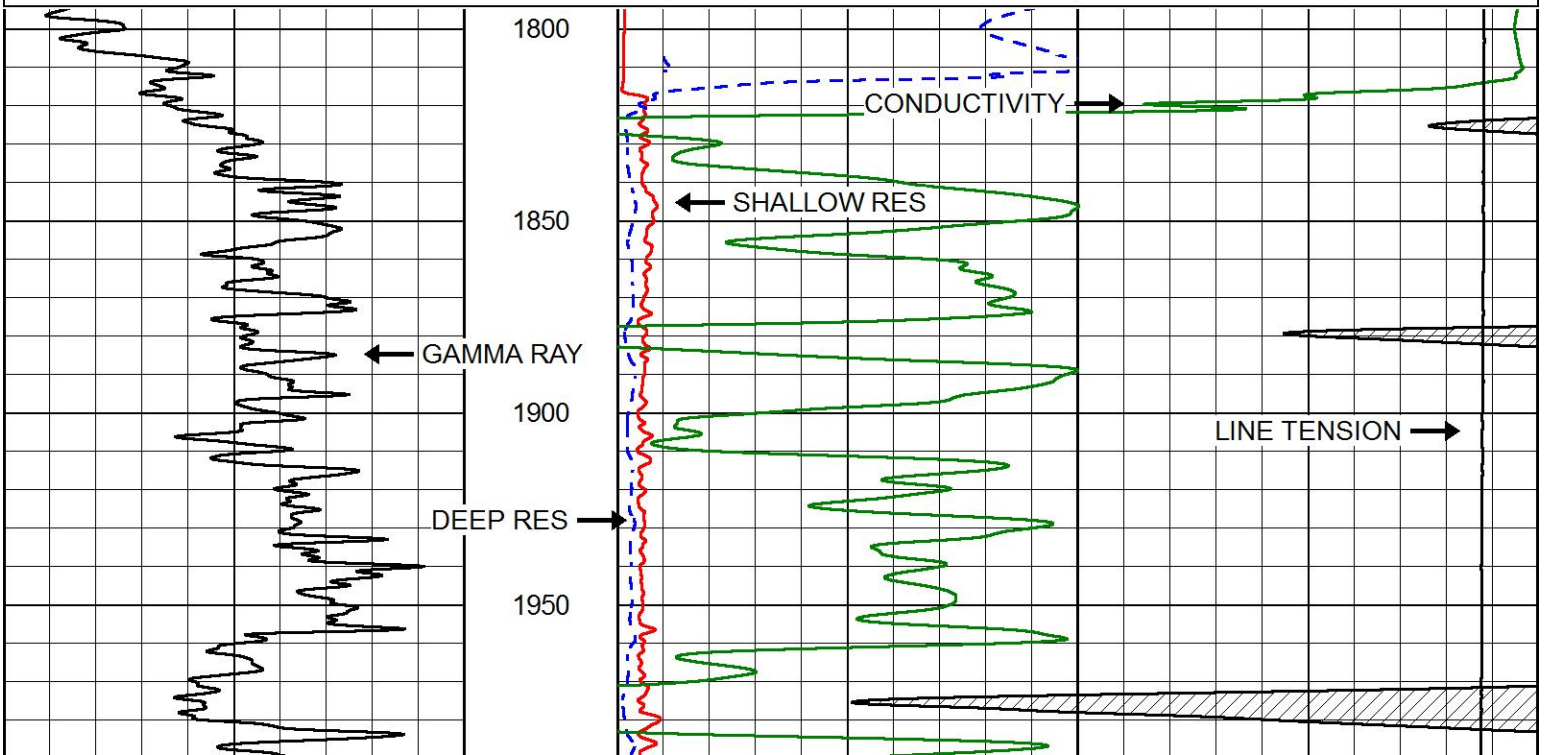
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 Total length: 43.08 ft
 Total weight: 685.00 lb
 O.D.: 4.00 in

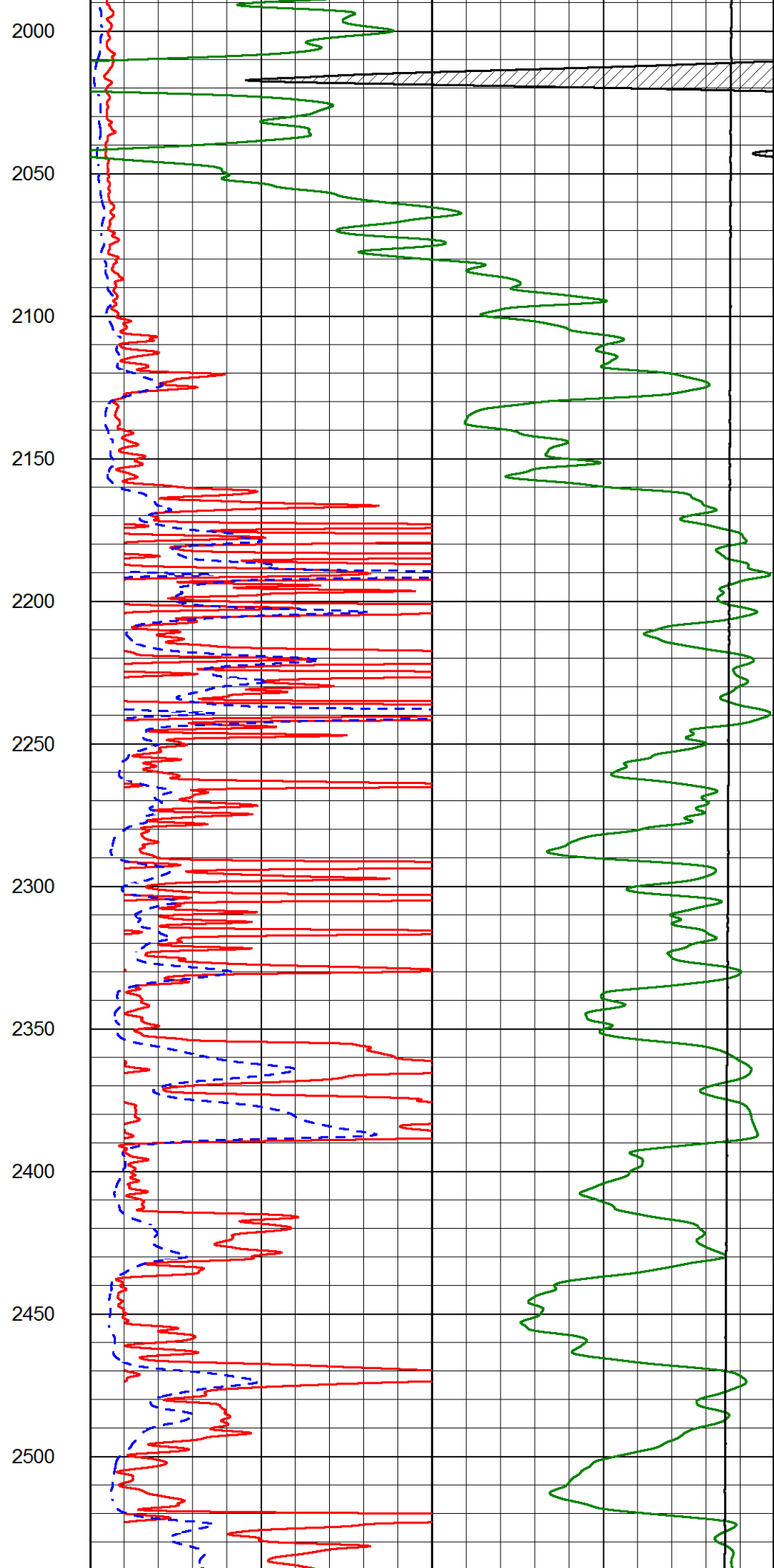
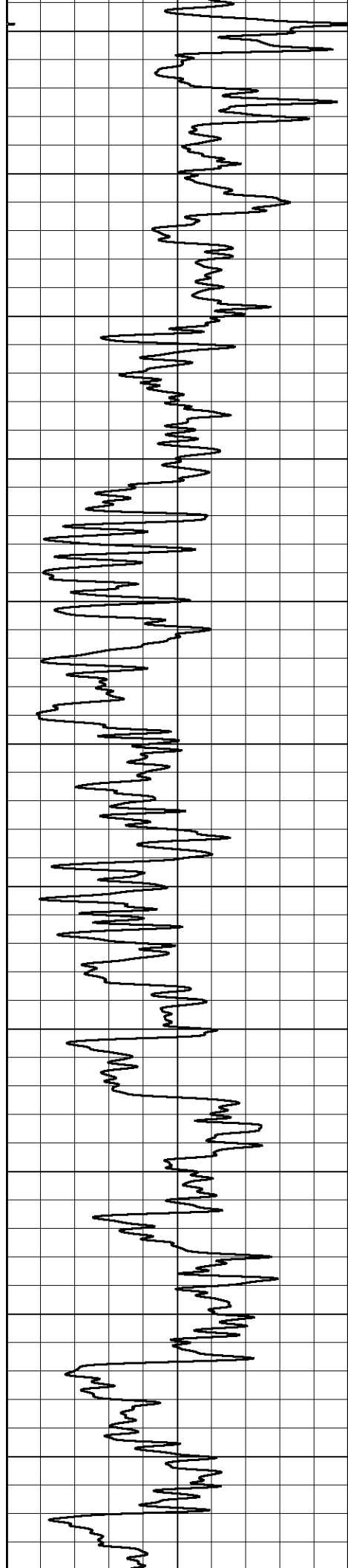


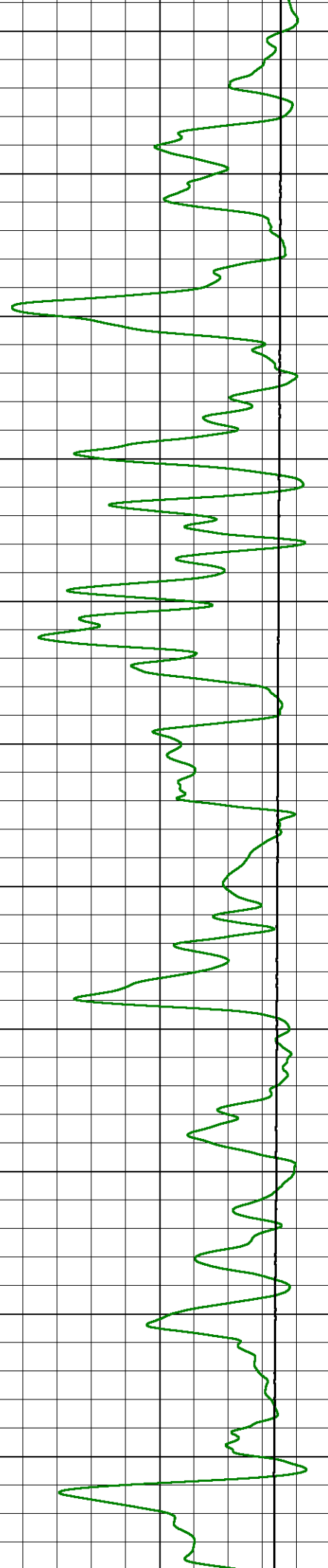
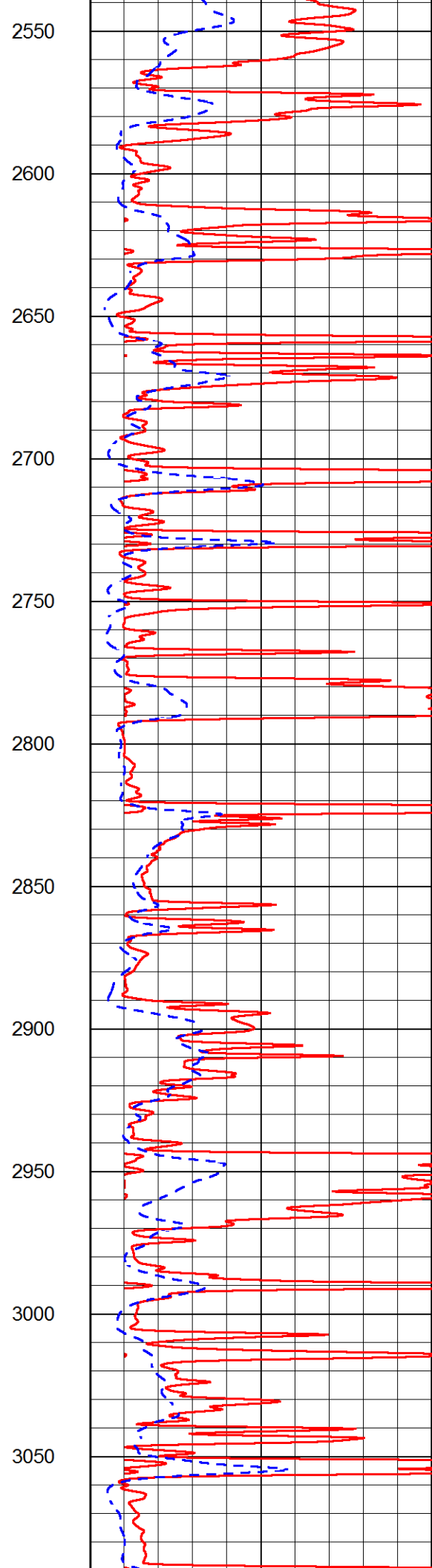
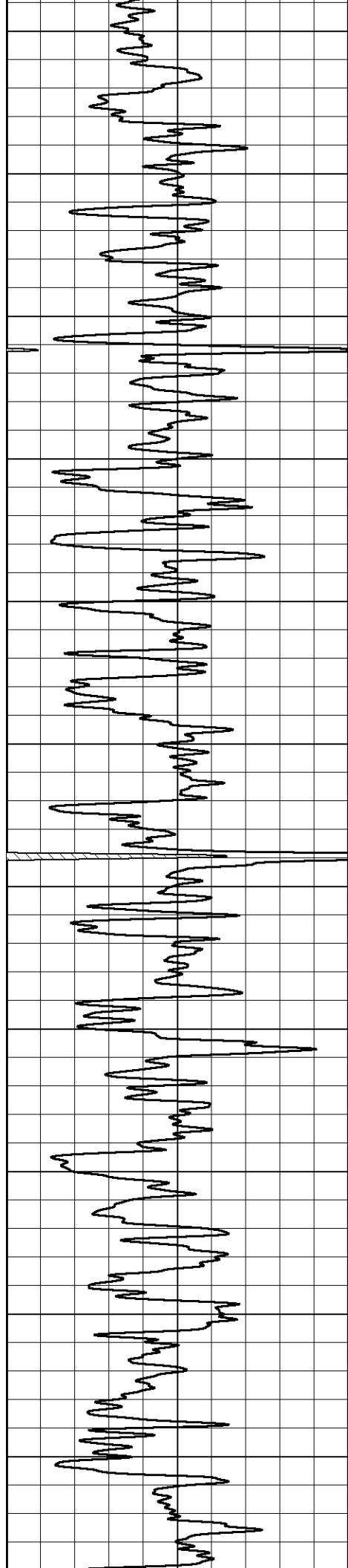
MAIN PASS

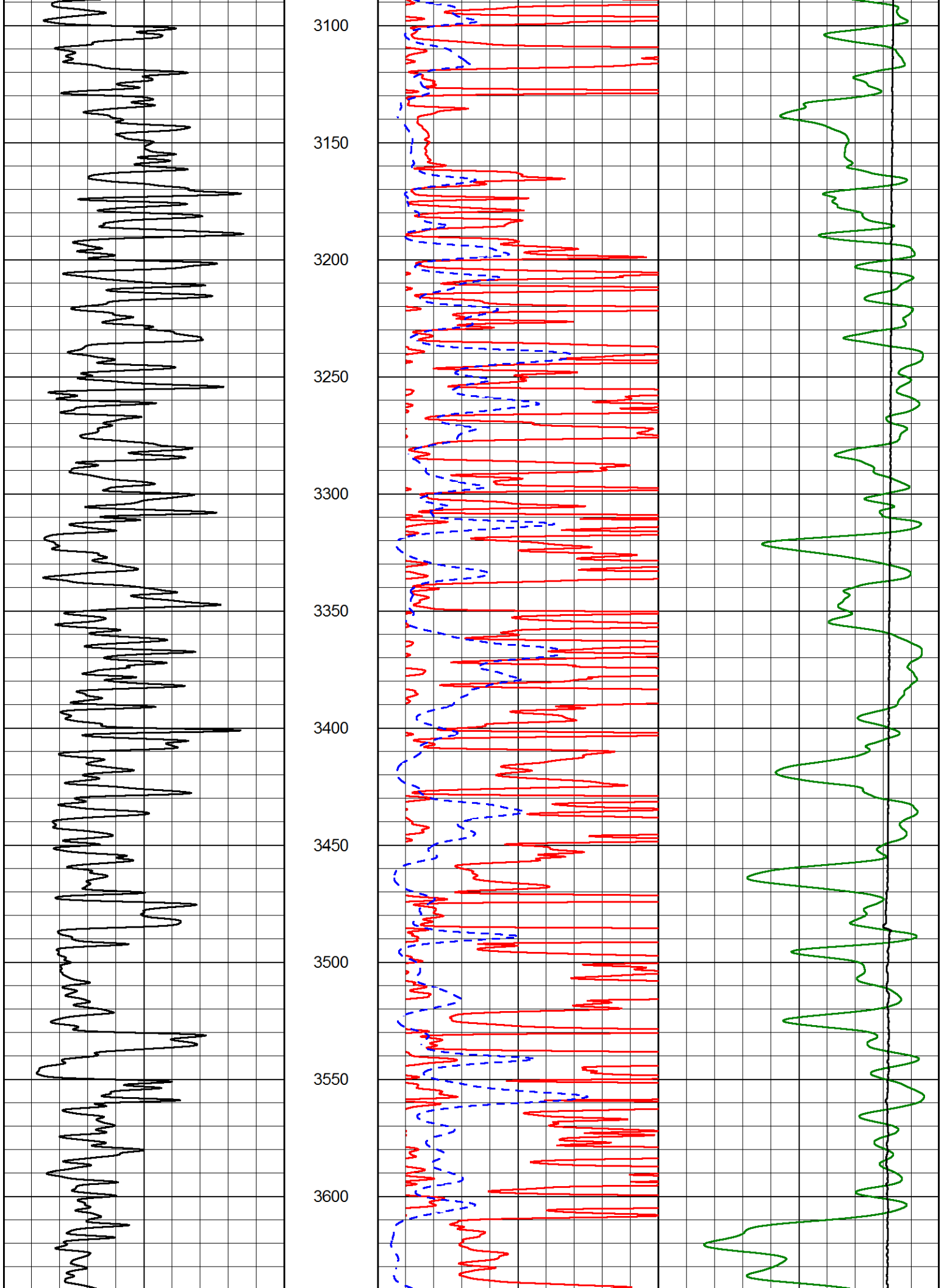
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 Dataset Pathname: STKML/pass4.1
 Presentation Format: dil2in
 Dataset Creation: Wed Jan 25 07:40:32 2017
 Charted by: Depth in Feet scaled 1:600

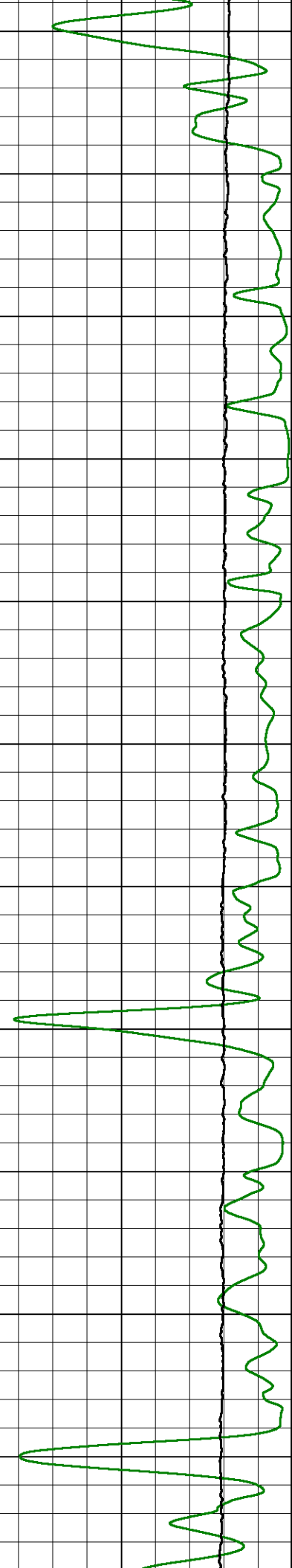
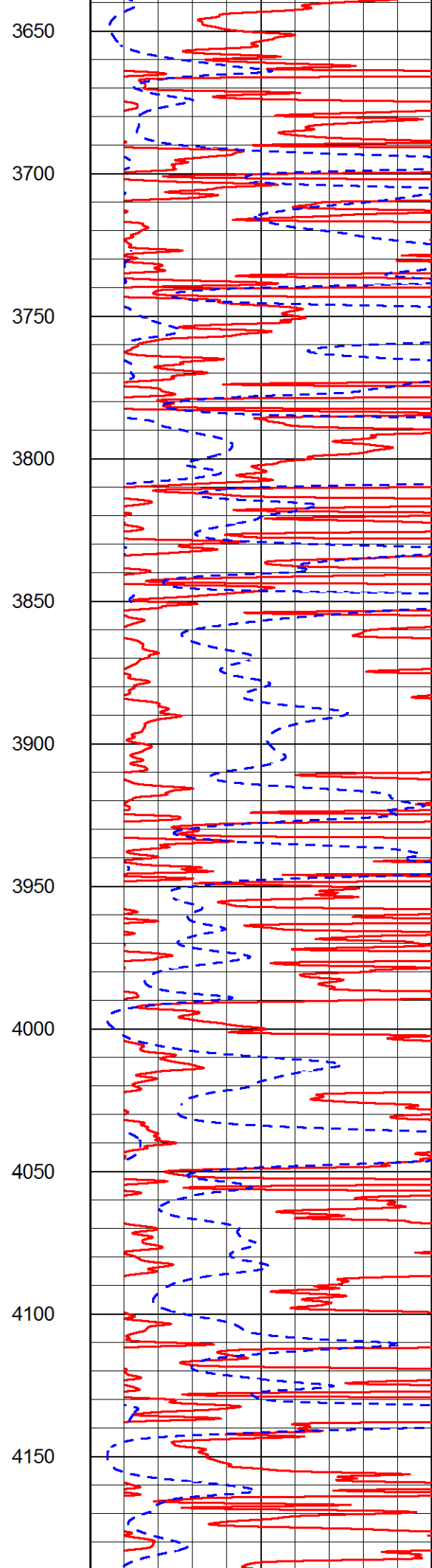
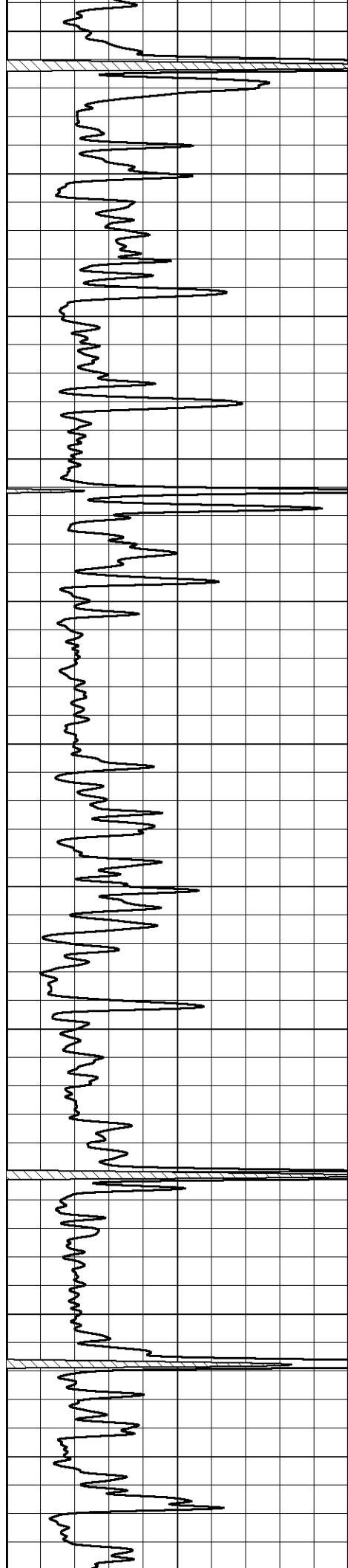
0	Gamma Ray (GAPI)	150	1000	Conductivity (mmho/m)	0
			15000	Line Tension (lb)	0
			0	Shallow Resistivity (Ohm-m)	50
			0	Deep Resistivity (Ohm-m)	50
				Shallow Resistivity	
			50	(Ohm-m)	500
			50	Deep Resistivity (Ohm-m)	500

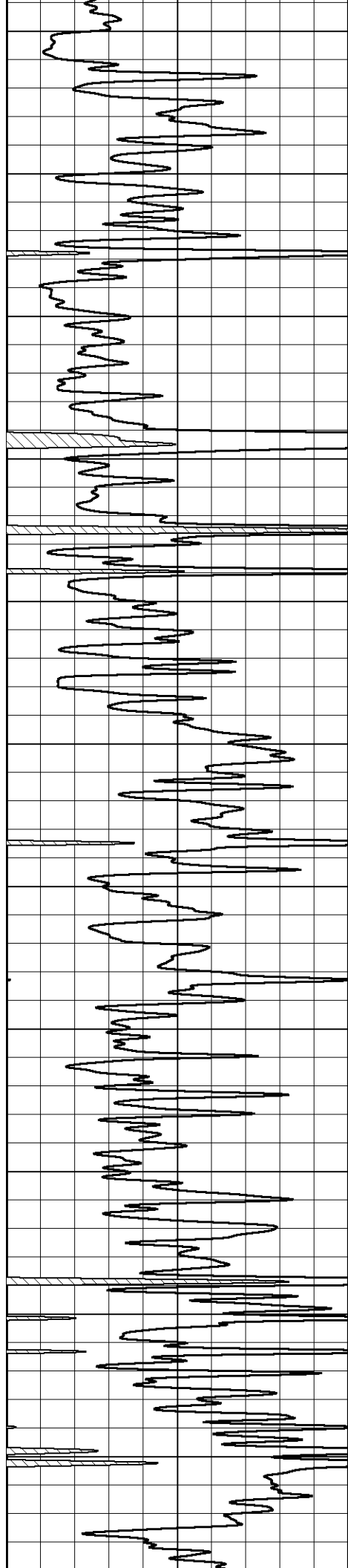




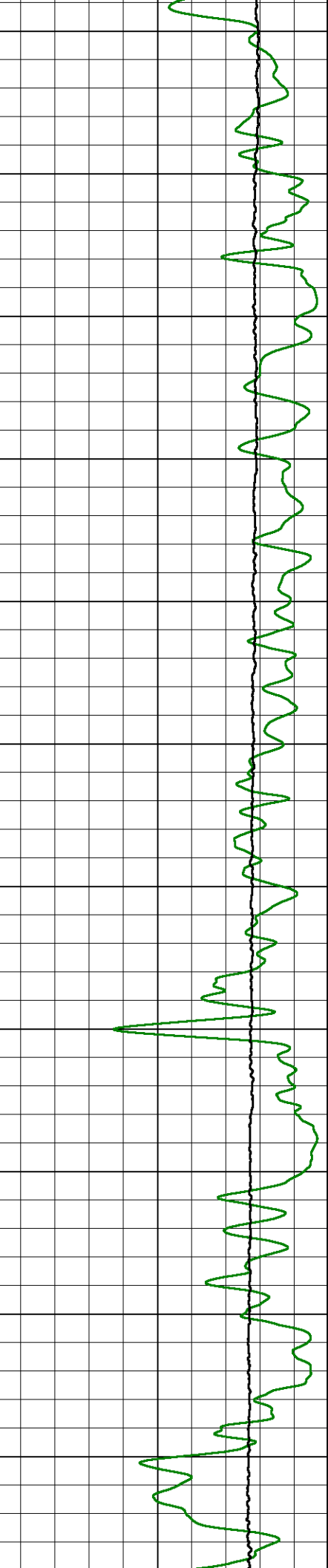
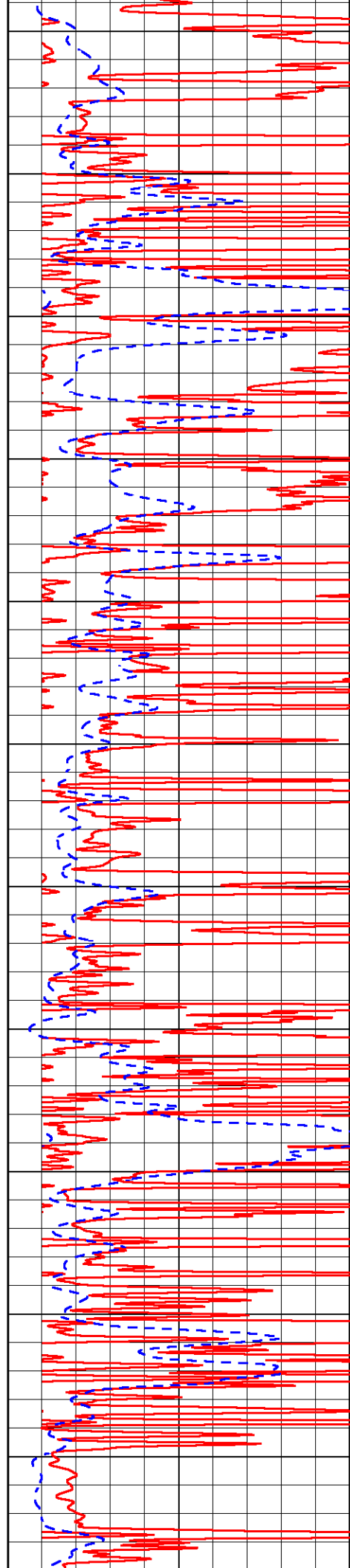


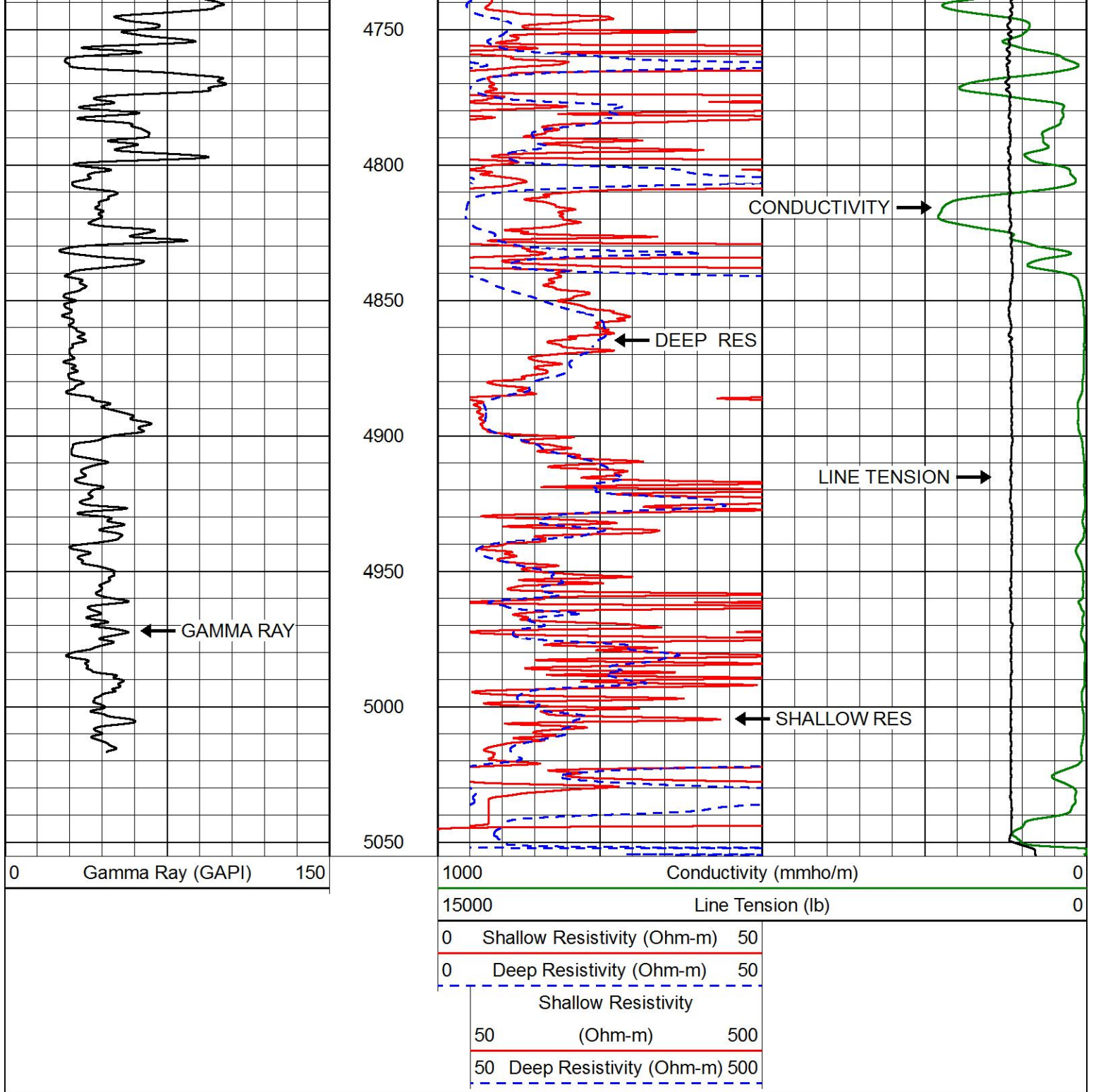






4200
4250
4300
4350
4400
4450
4500
4550
4600
4650
4700



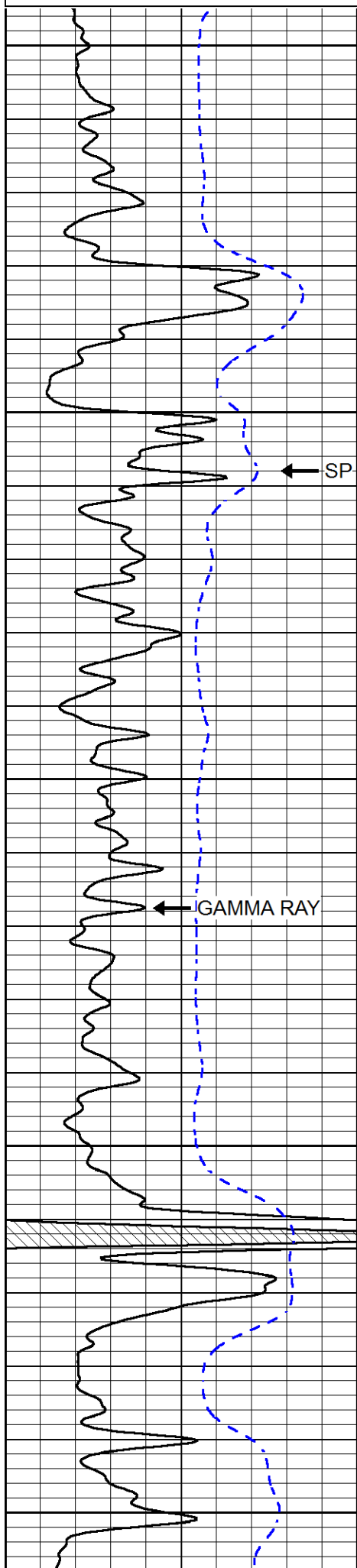


MAIN PASS

Database File: american_warrior_lee_a_6-28.db
 Dataset Pathname: STKML/pass4.1
 Presentation Format: dil
 Dataset Creation: Wed Jan 25 07:40:32 2017
 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



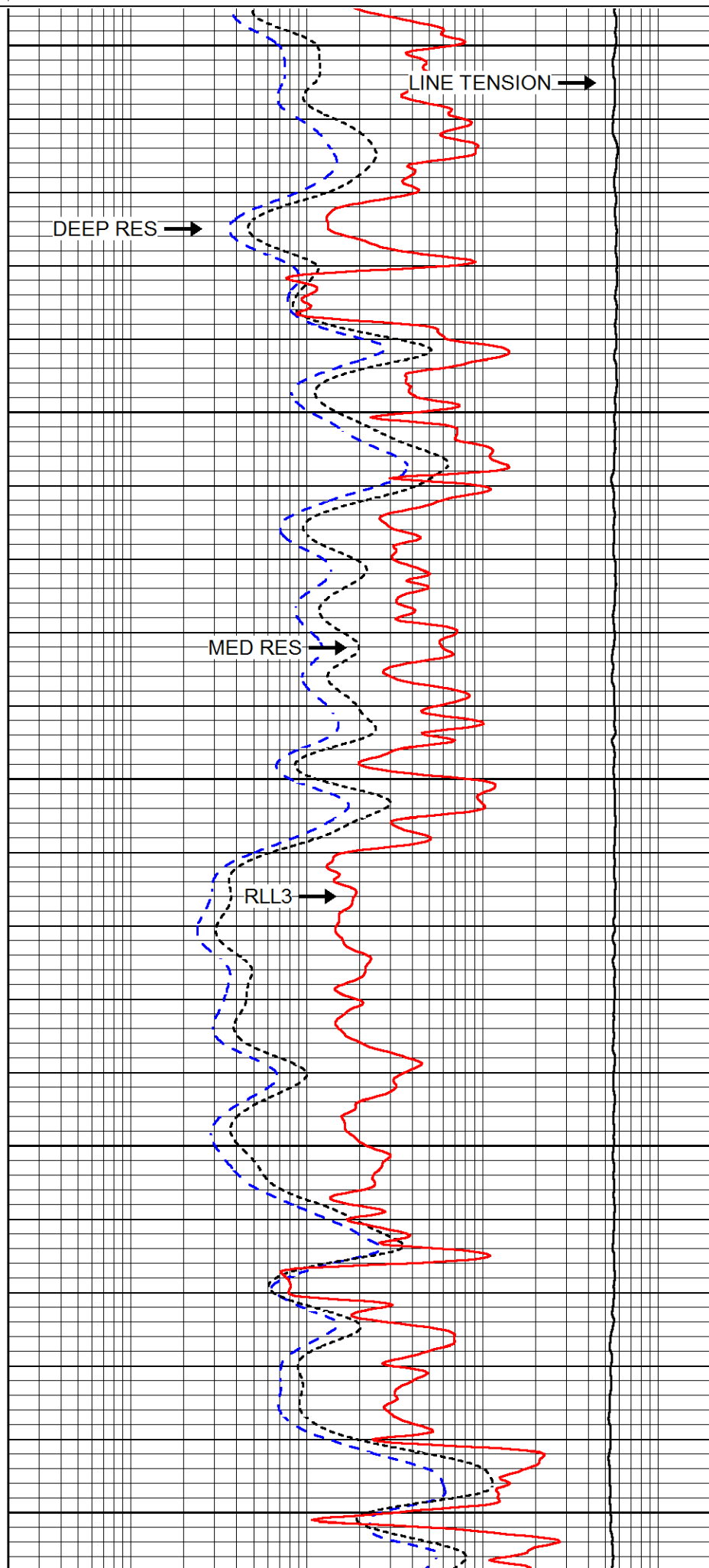
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3550

3600

3650

3700

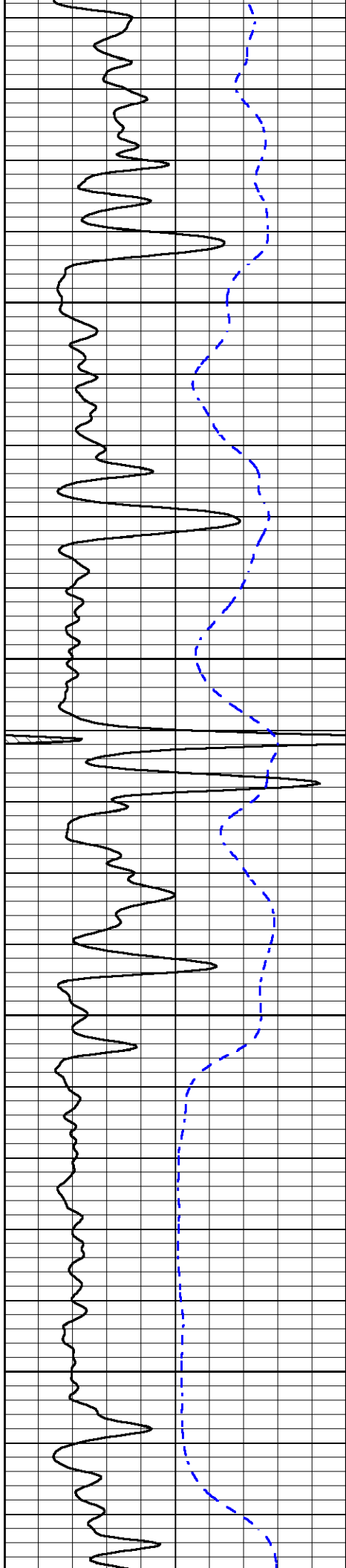


LINE TENSION →

DEEP RES →

MED RES →

RLL3 →

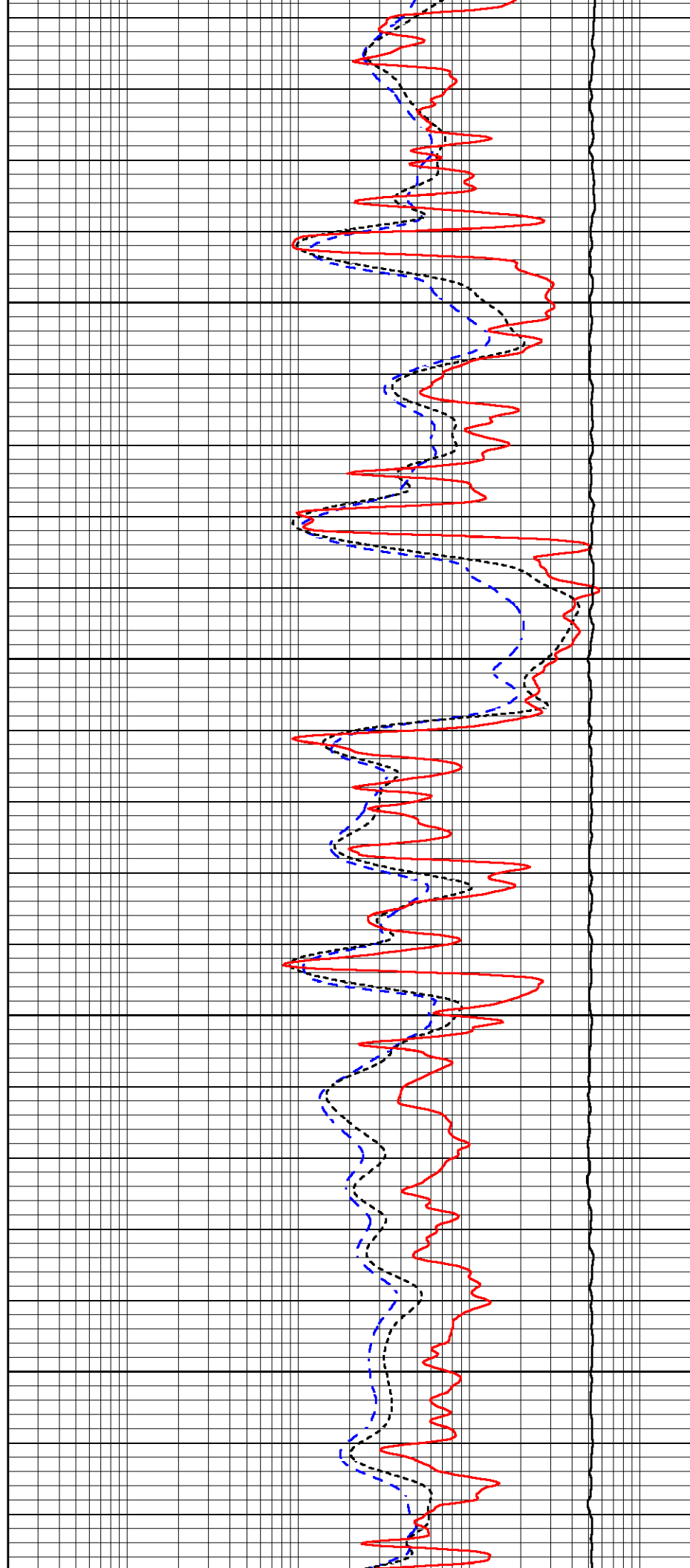


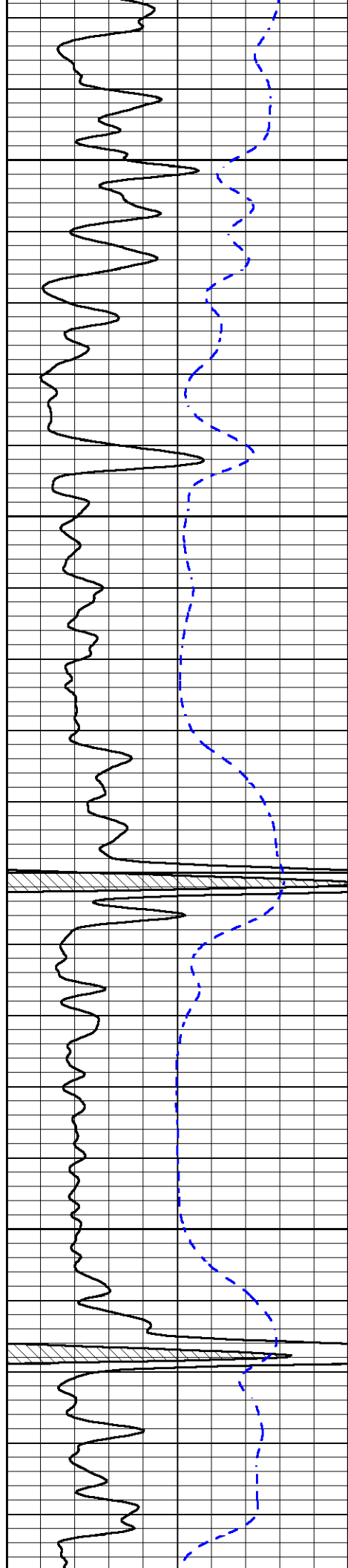
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3800

3850

3900



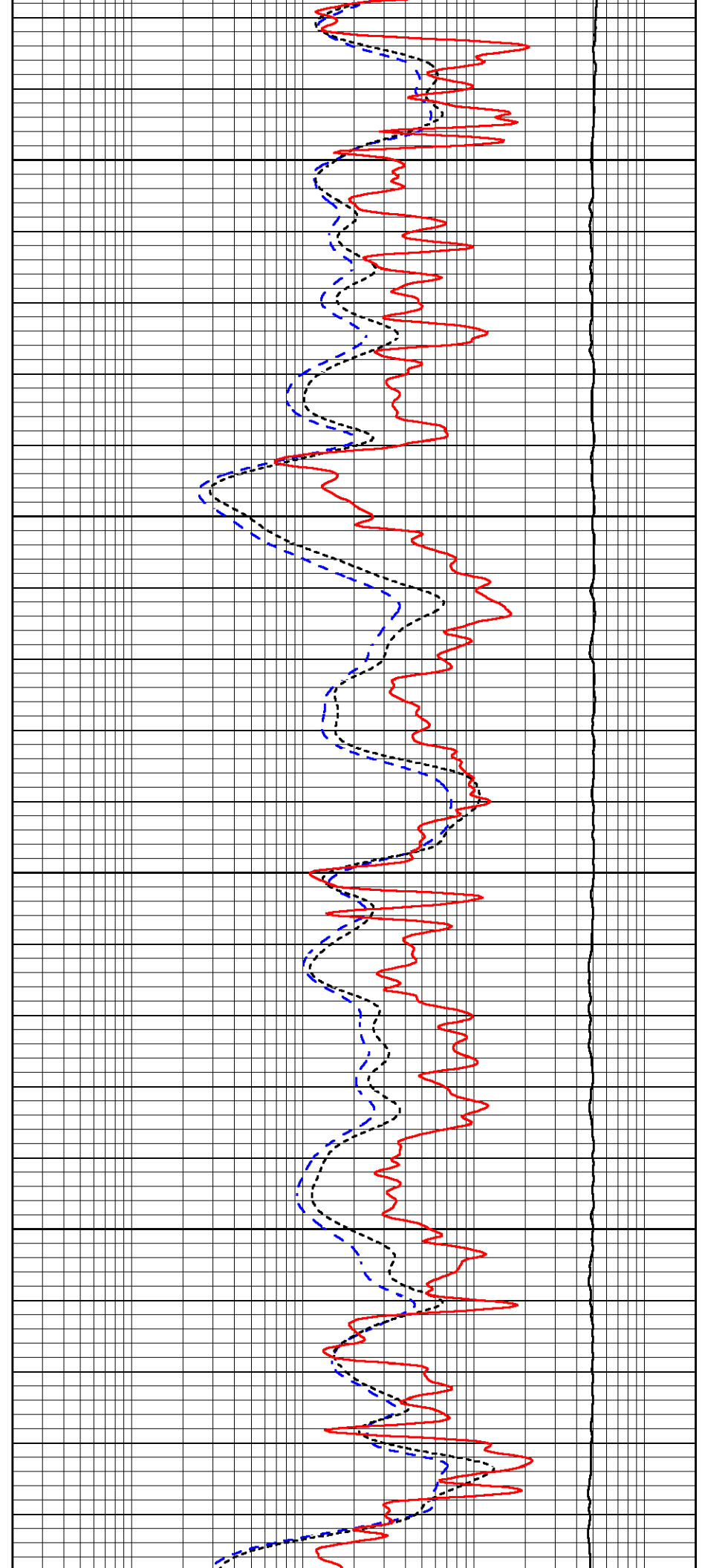


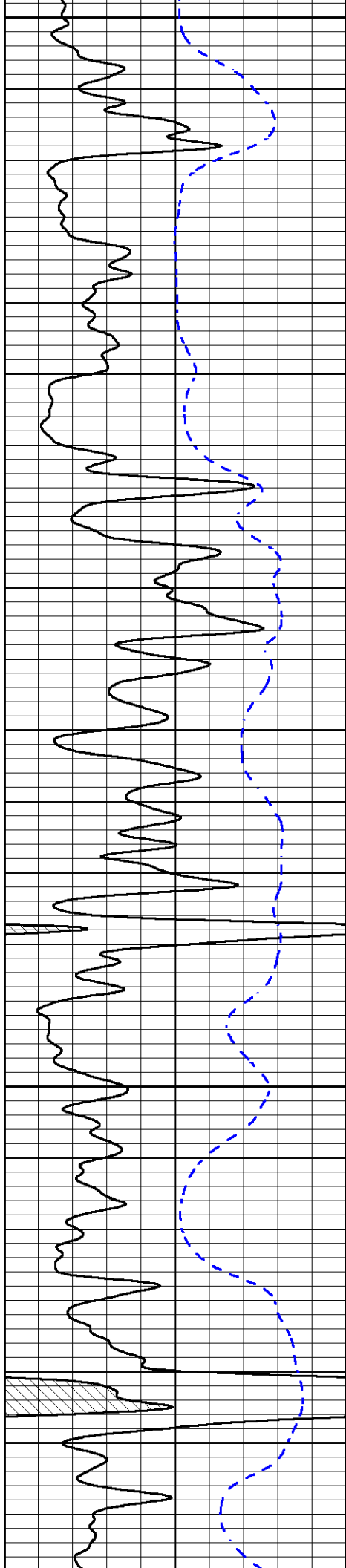
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4000

4050

4100





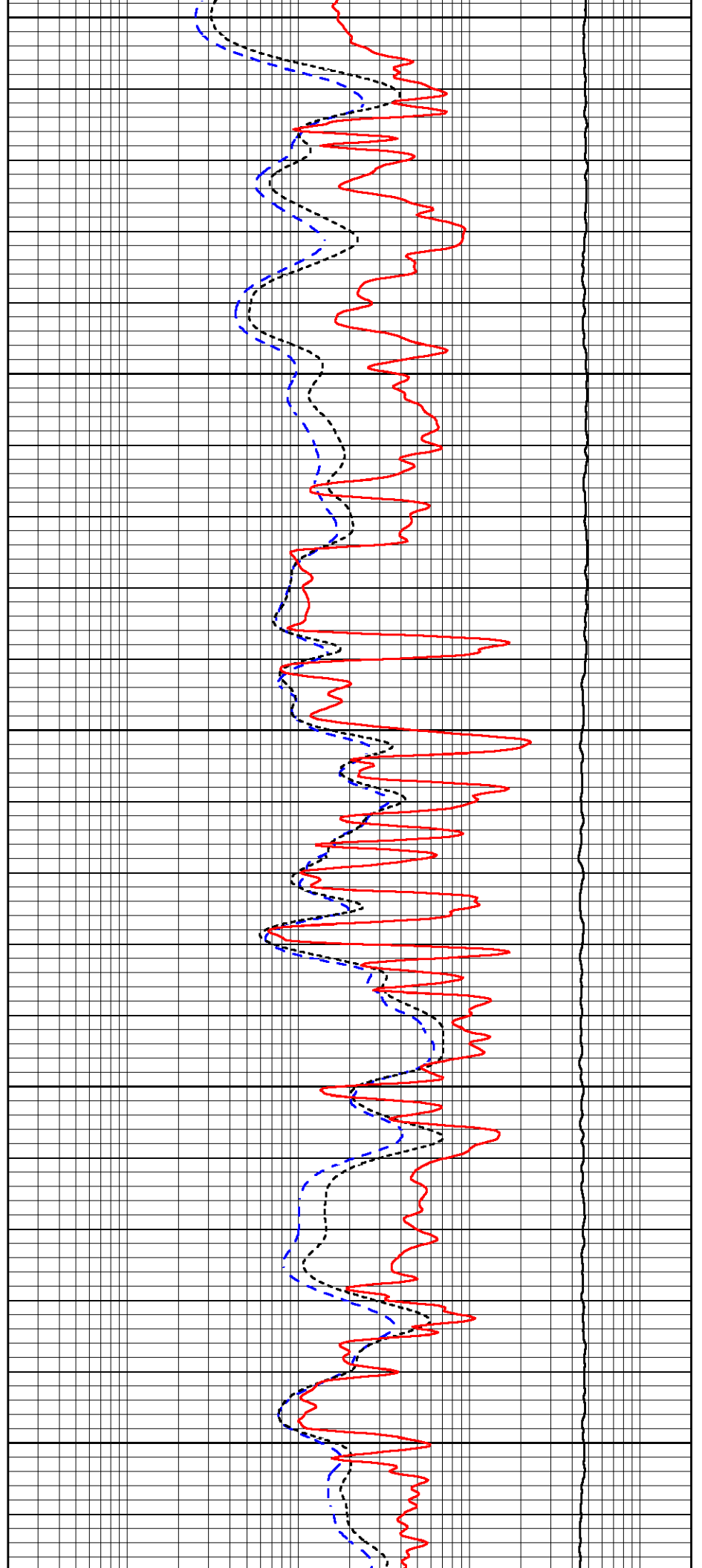
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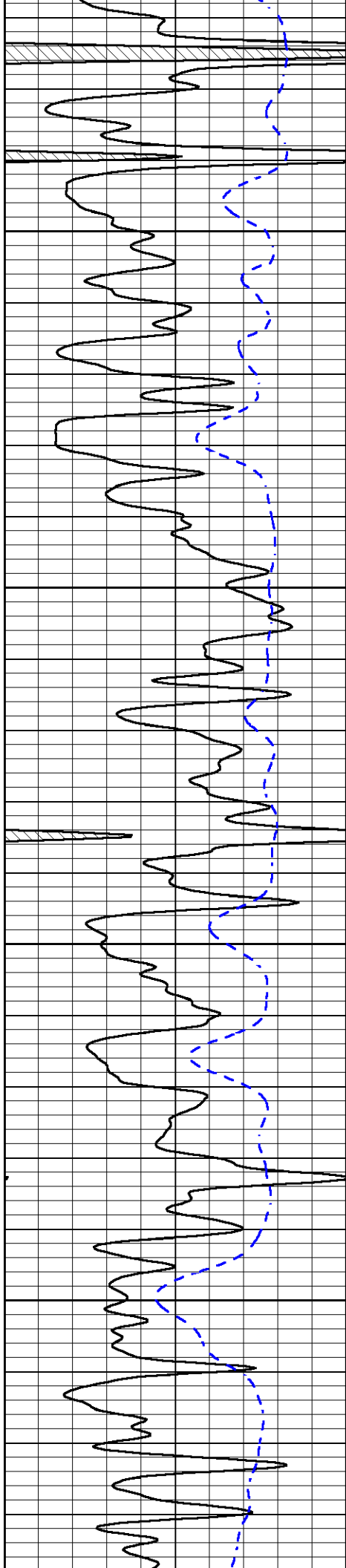
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4250

4300

4350



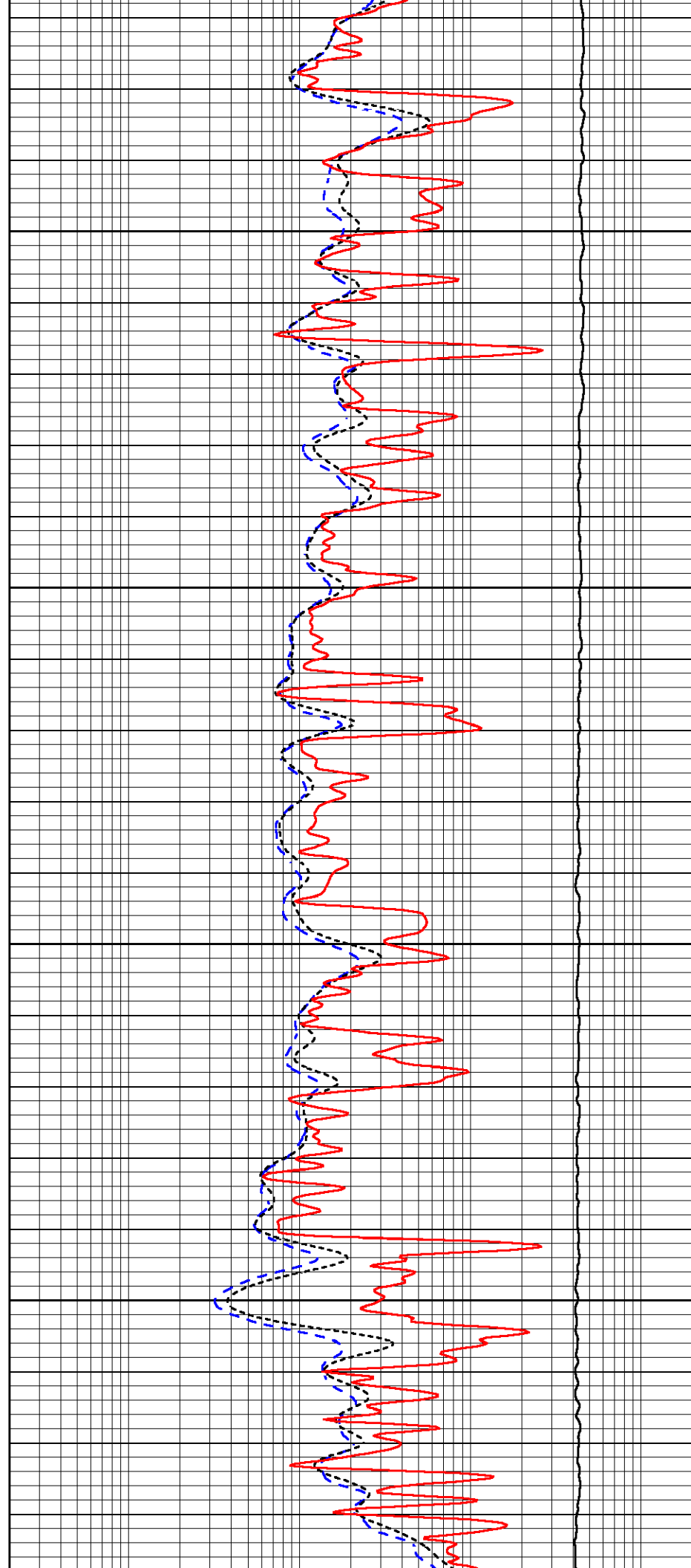


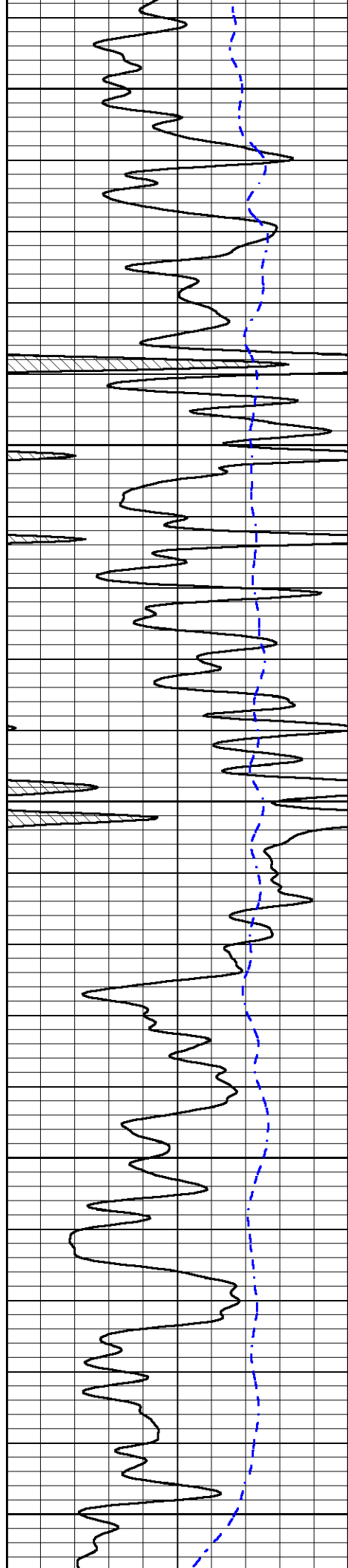
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4450

4500

4550





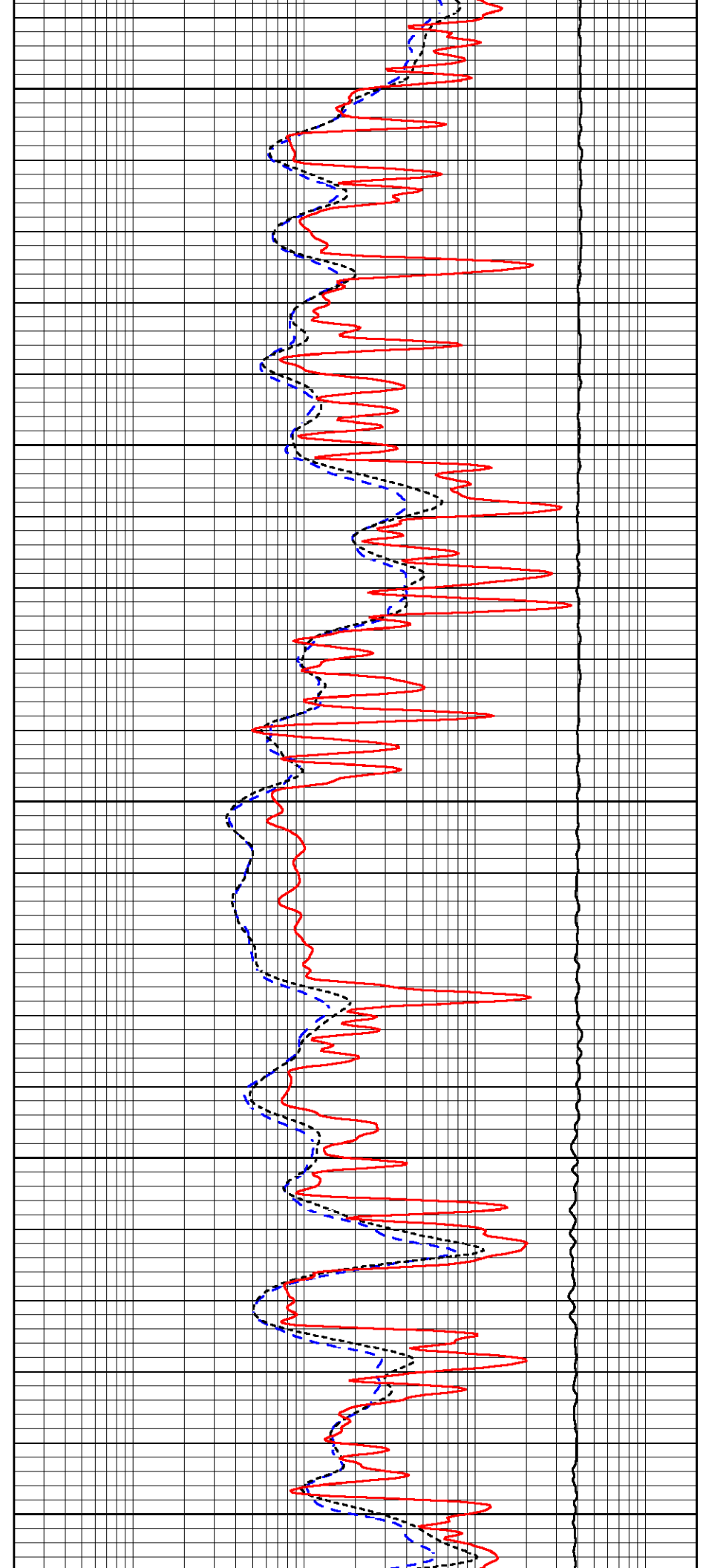
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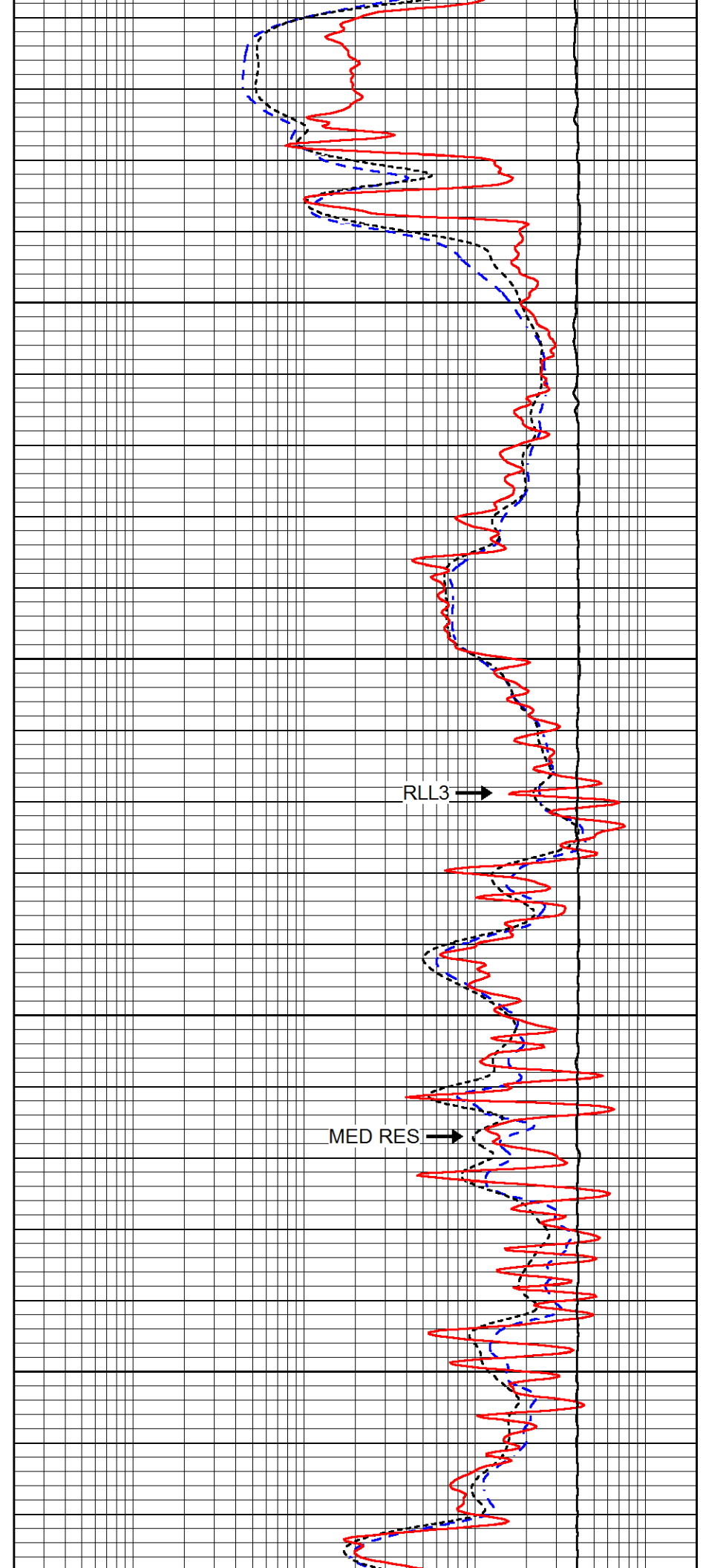
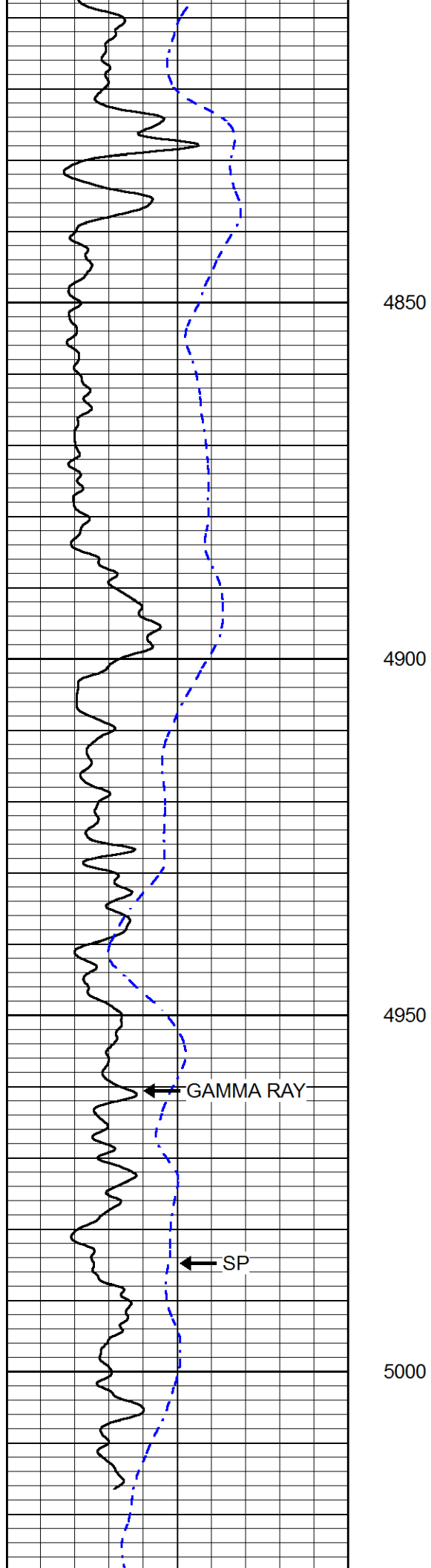
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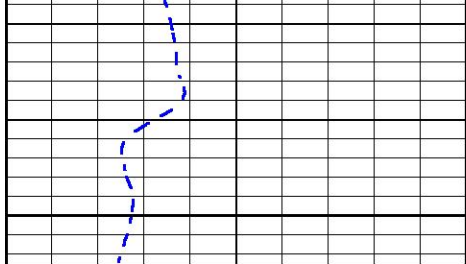
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4750

4800

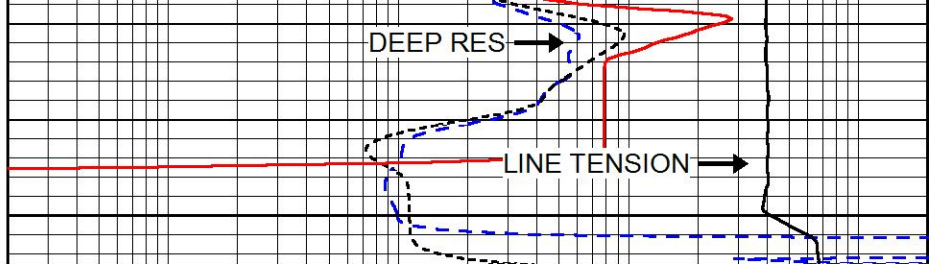






5050

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

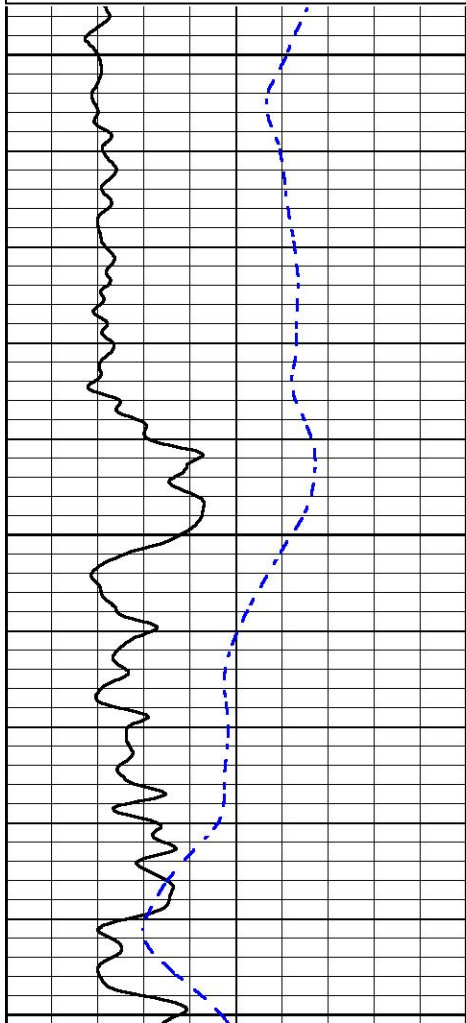


REPEAT SECTION

Database File american_warrior_lee_a_6-28.db
 Dataset Pathname STKML/pass2.3
 Presentation Format dil
 Dataset Creation Wed Jan 25 07:06:09 2017
 Charted by Depth in Feet scaled 1:240

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

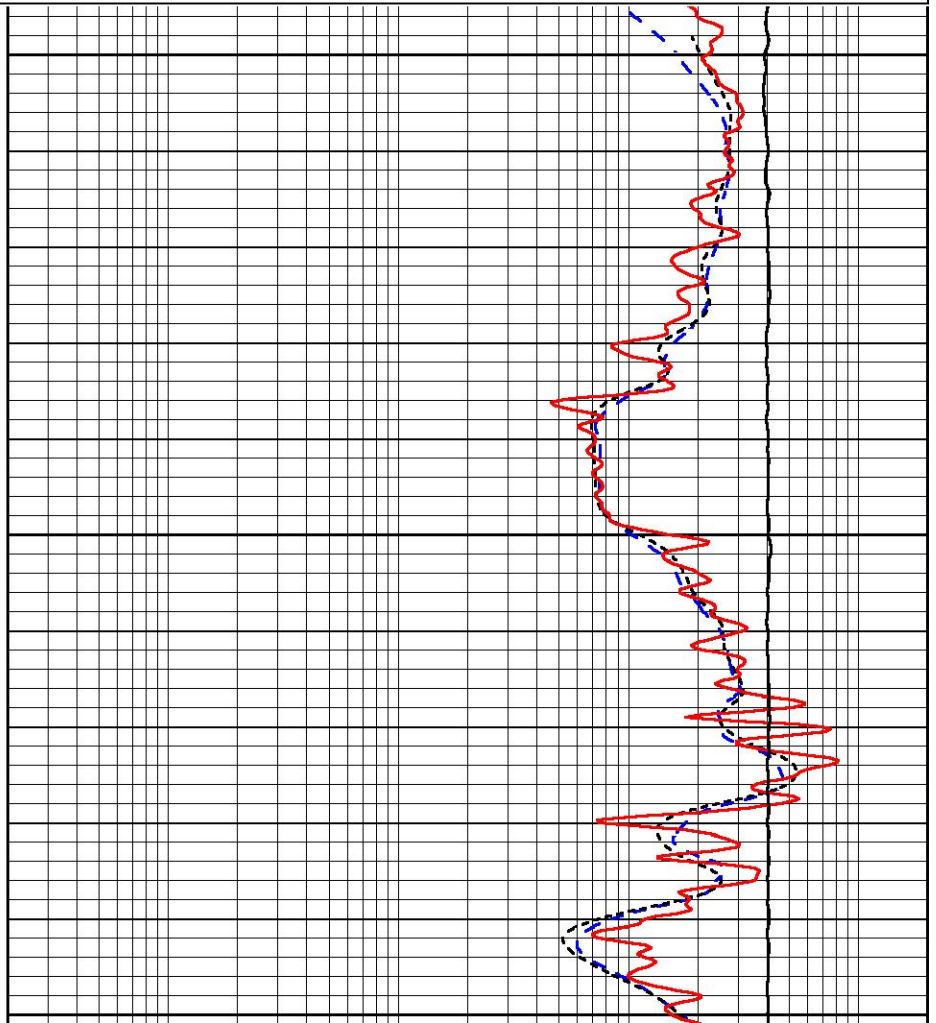
0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	Line Tension (lb)	0

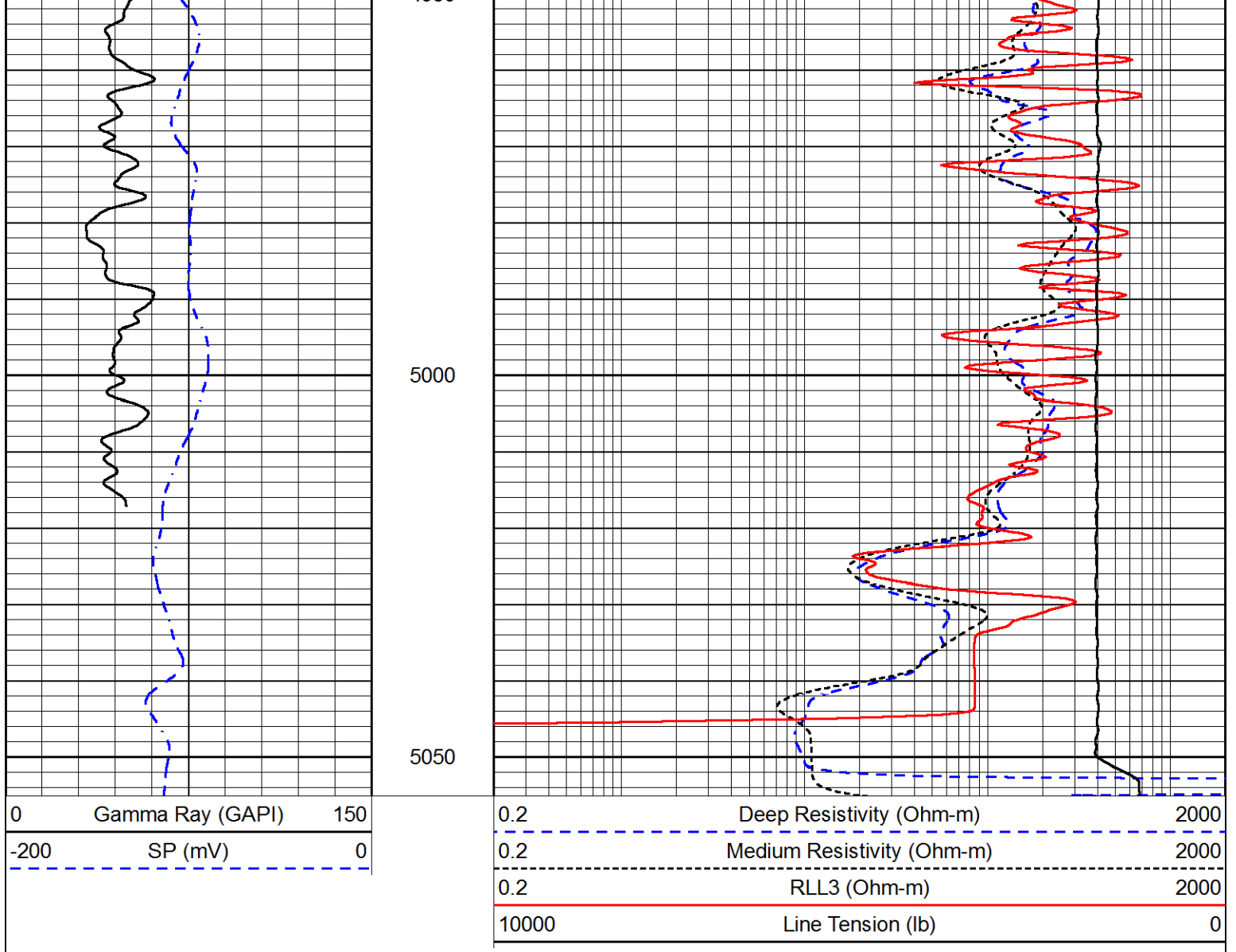


4850

4900

4950





Calibration Report

Database File american_warrior_lee_a_6-28.db
 Dataset Pathname STKML/pass3.3
 Dataset Creation Wed Jan 25 07:01:48 2017

Dual Induction Calibration Report

Serial-Model: PSI 13-M&W
 Calibration Performed: Mon Jan 02 18:08:07 2017

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop	mmho/m	Gain	Offset
Deep	166.796	835.089	0.000	255.800	mmho/m	0.950	-34.000
Medium	142.009	1348.560	0.000	255.800	mmho/m	0.830	-33.000

Microlog Calibration Report

Serial-Model: PSI-01-PSIML
 Performed: Mon Jan 02 18:08:17 2017

Readings		References		Results	
Zero	Cal	Zero	Cal	m	b

Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	16000.0000	-0.4000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	20000.0000	-0.3000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.8000

Compensated Density Calibration Report

Serial-Model: 90-1031-M&W
Source / Verifier: 16955B / 2ci
Master Calibration Performed: Wed Jan 25 06:09:31 2017

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	5174.18	6425.27	cps
Aluminum	2.670	g/cc	963.17	4037.42	cps
Spine Angle = 74.55			Density/Spine Ratio = 0.525		
	Size		Reading		
Small Ring	6.00	in	1.83		
Large Ring	16.00	in	1.48		

Compensated Neutron Calibration Report

Serial Number: 207-MW
Tool Model: M&W
Calibration Performed: Mon Jan 2 10:30:30 2017

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 02 18:08:34 2017

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Sensitivity: 0.6000 GAPI/cps



PIONEER
Pioneer Energy Services

Company AMERICAN WARRIOR, INC.
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County KEARNY
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