



DUAL INDUCTION LOG

Company AMERICAN WARRIOR, INC.
 Well LEE A #7-28
 Field LAKIN
 County KEARNY
 State KANSAS

Company AMERICAN WARRIOR, INC.
 Well LEE A #7-28
 Field LAKIN
 County KEARNY State KANSAS

Location: 2225' FSL & 1307' FWL
 SEC 28 TWP 25S RGE 36W
 Permanent Datum GROUND LEVEL Elevation 3050'
 Log Measured From KELLY BUSHING
 Drilling Measured From KELLY BUSHING
 Other Services CNL/CDL MEL
 Elevation 3061'
 K.B. N/A
 D.F. 3050'
 G.L.

Date	2/6/2018
Run Number	ONE
Depth Driller	5070'
Depth Logger	5068'
Bottom Logged Interval	5067'
Top Log Interval	1800'
Casing Driller	8.625" @ 1831'
Casing Logger	1830'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	1200
Density / Viscosity	9.4 55
pH / Fluid Loss	9.5 6.4
Source of Sample	FLOWLINE
Rm @ Meas. Temp	0.90 @ 40
Rmt @ Meas. Temp	0.68 @ 40
Rmc @ Meas. Temp	1.22 @ 40
Source of Rmf / Rmc	CHARTS
Rm @ BHT	0.28 @ 127
Operating Rig Time	3 HOURS
Max Rec. Temp. F	127
Equipment Number	91
Location	HAYS
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, 1/4 SOUTH,
 EAST INTO AT TB

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	This Log Record Was Witnessed By
Engineer: D. SCHMIDT	Primary Witness: LUKE THOMPSON
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Top - Bottom

M	A	SPSHIFT mV	SNDERRM mmho/m	SNDERR mmho/m	SZCOR	NPORSEL	FLUIDDEN g/cc
2	1	-113	0	0	Off	Limestone	1
MATRXDEN g/cc	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
2.71	40	0	5.5	0	5068	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 (227-771)	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

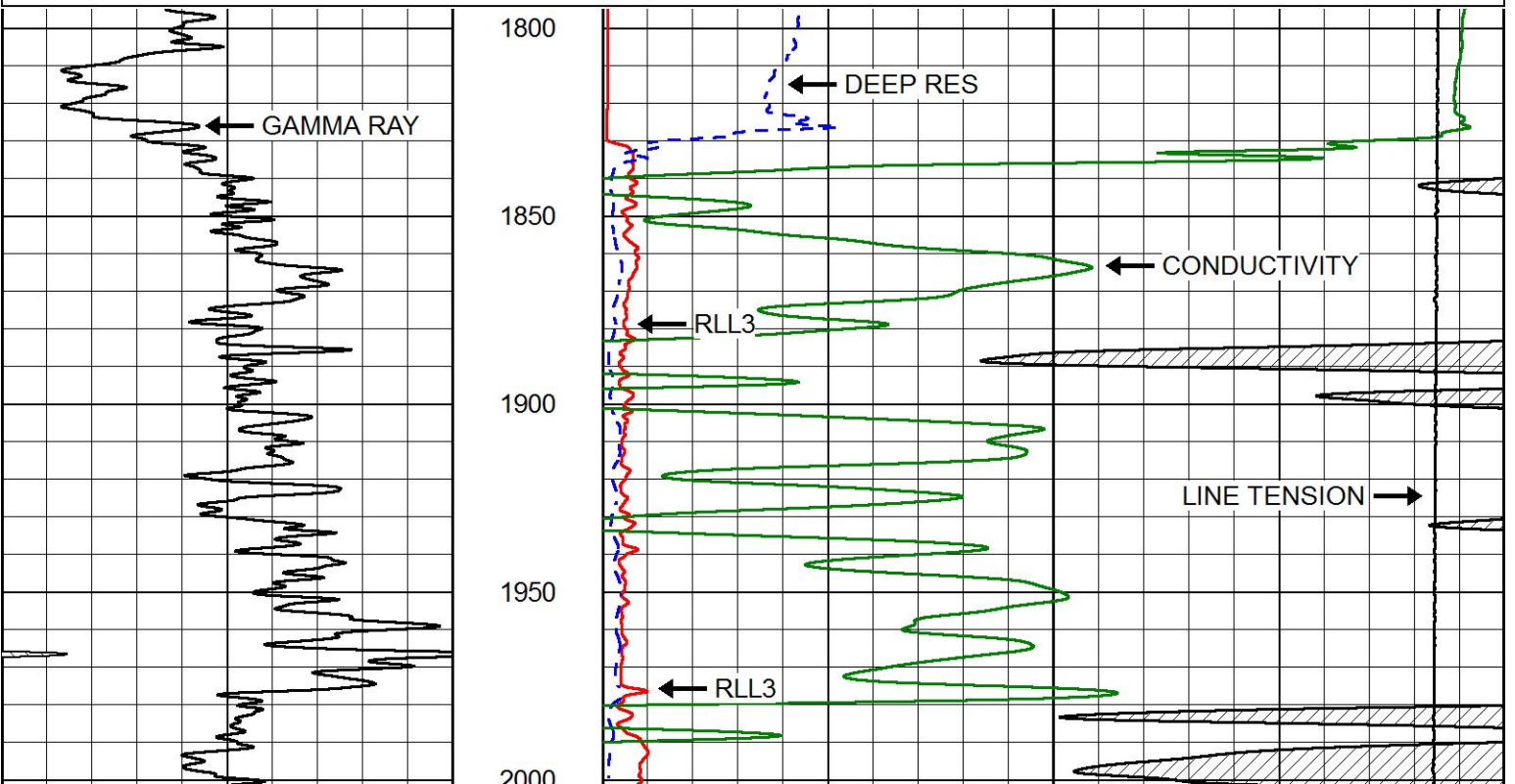
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 Total length: 43.08 ft
 Total weight: 685.00 lb
 O.D.: 4.00 in

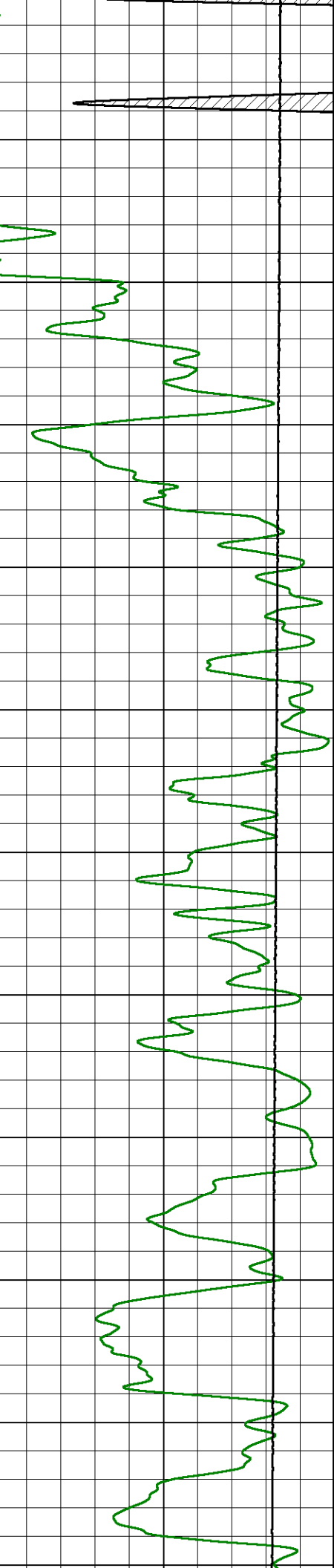
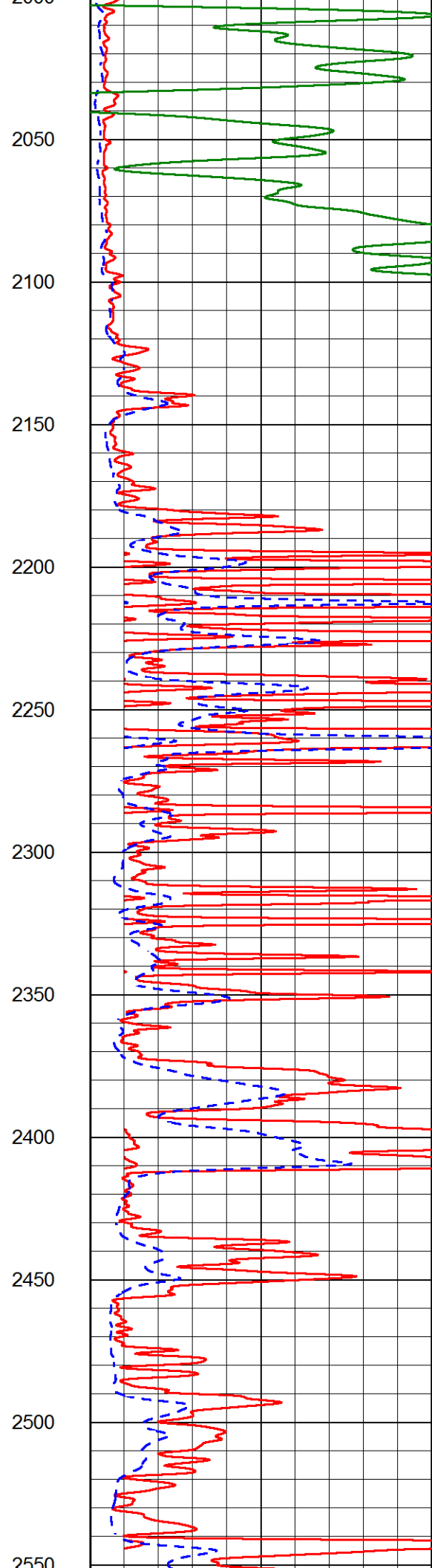
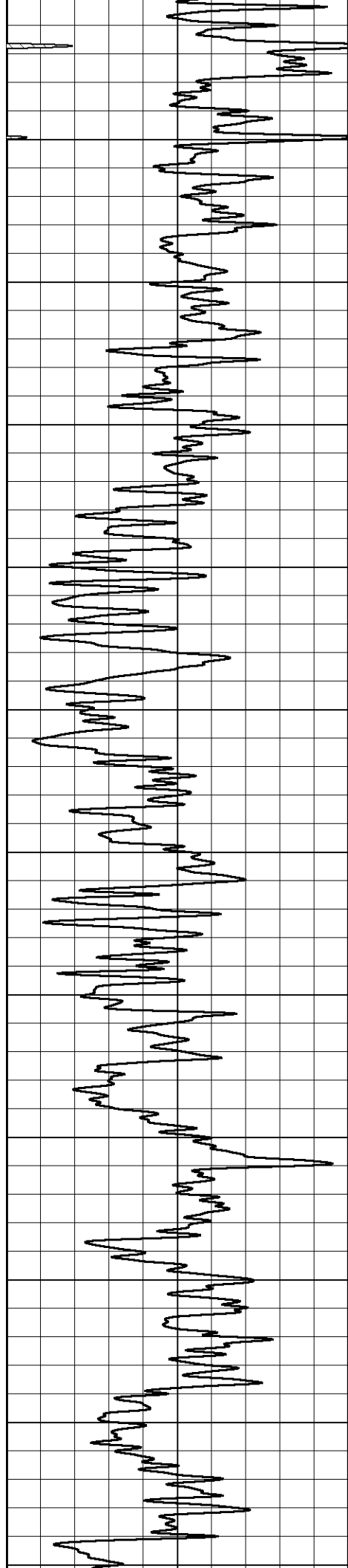


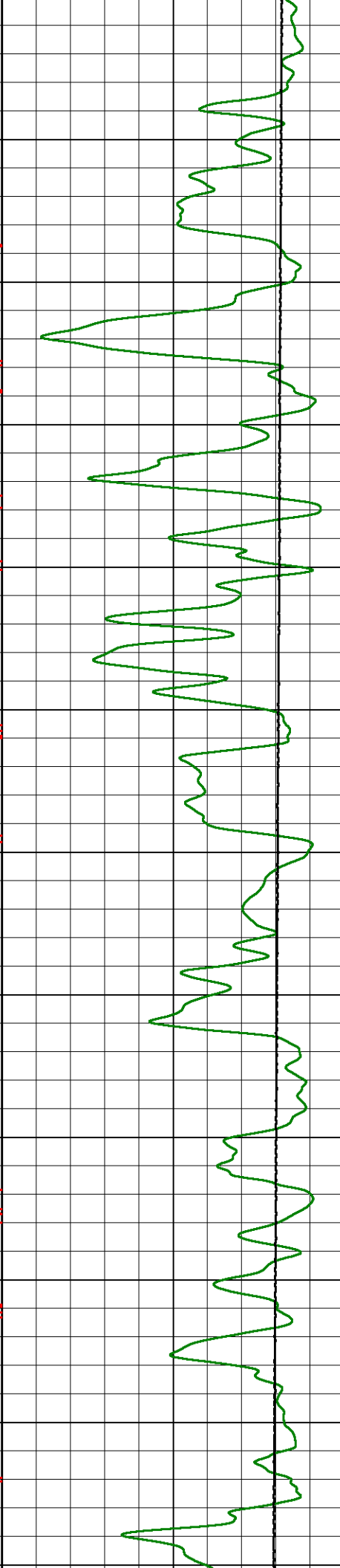
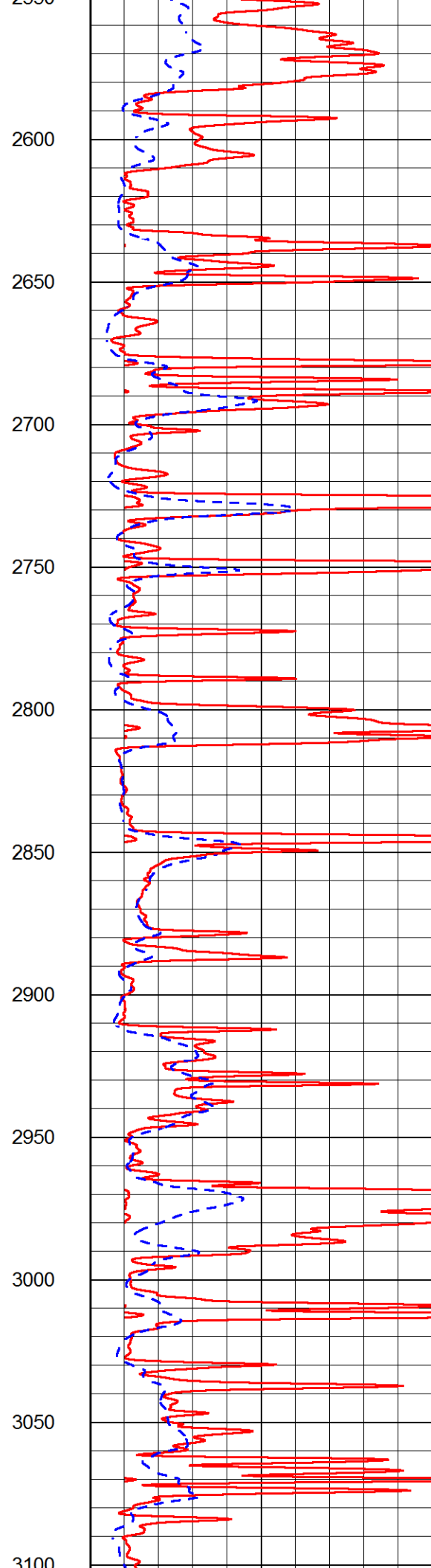
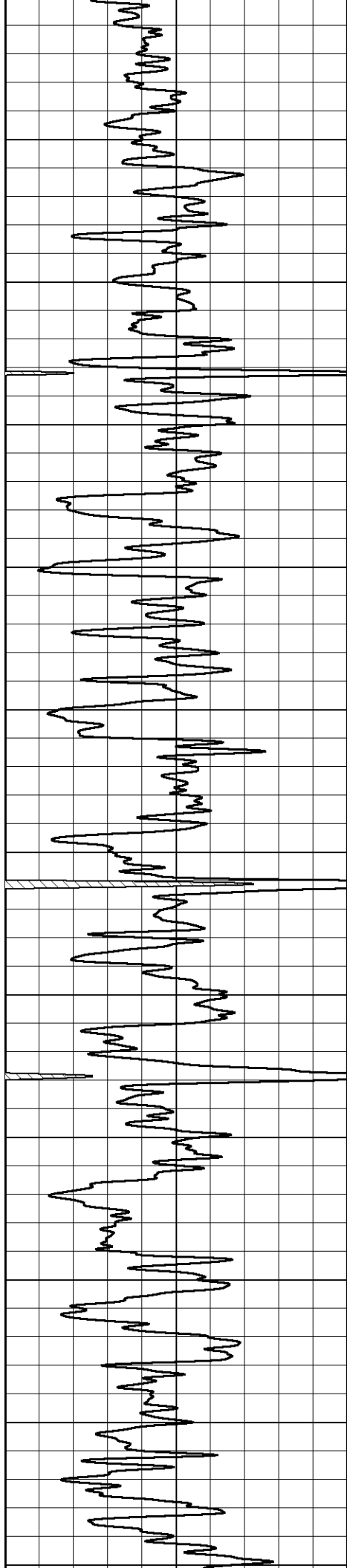
MAIN PASS

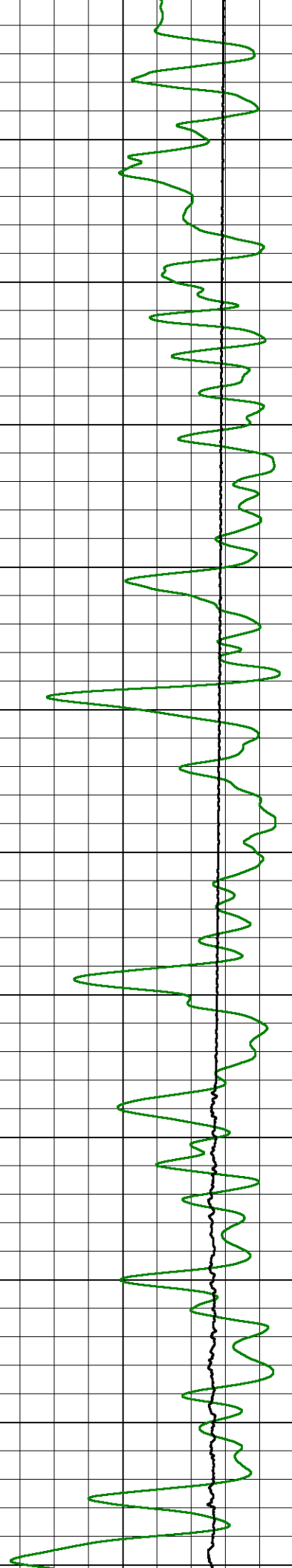
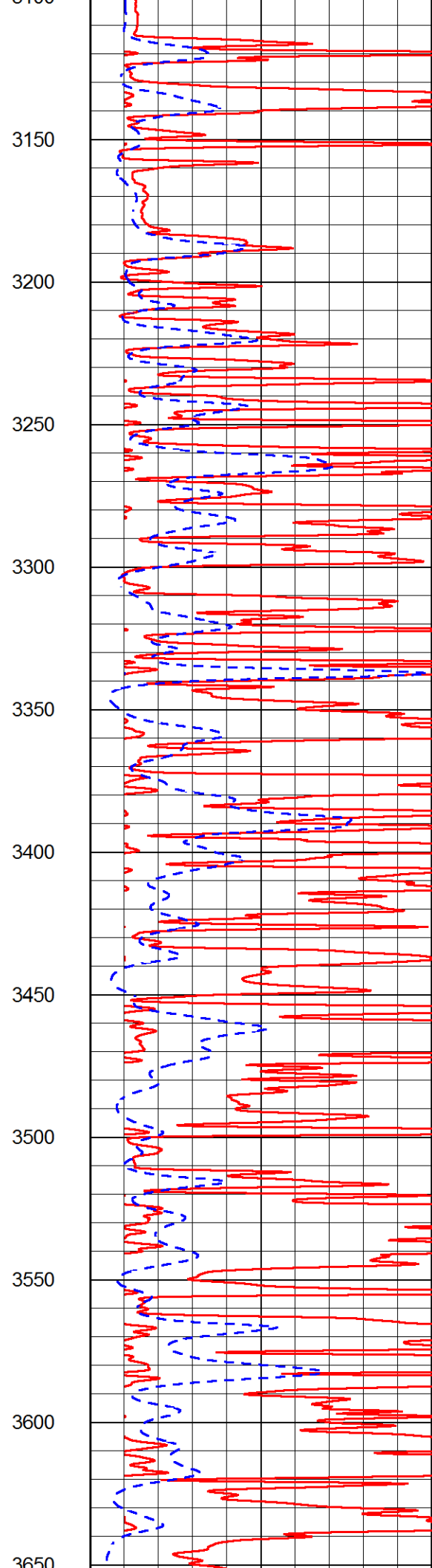
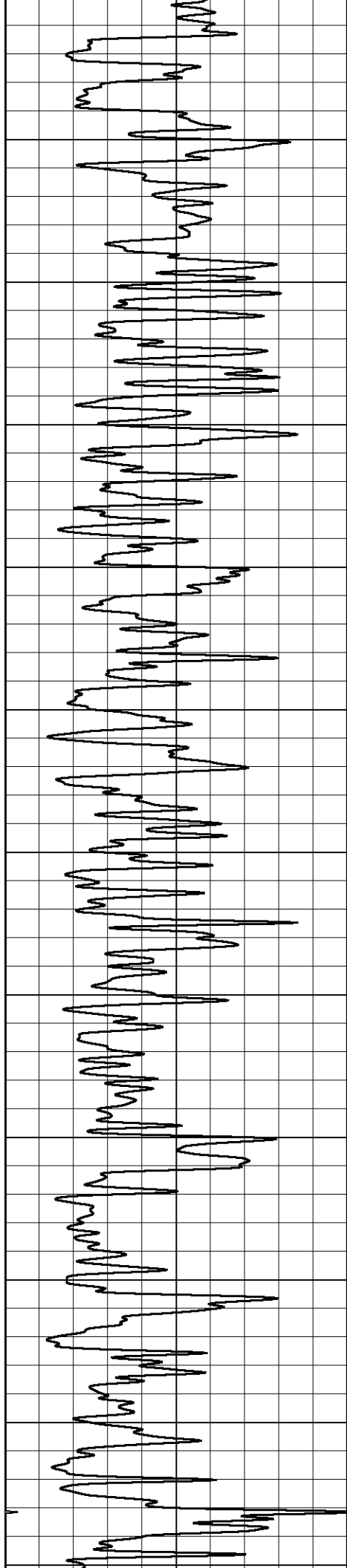
Database File american warrior_lea a 7-28.db
 Dataset Pathname STKML/pass4.1
 Presentation Format dil2in
 Dataset Creation Tue Feb 06 09:20:38 2018
 Charted by Depth in Feet scaled 1:600

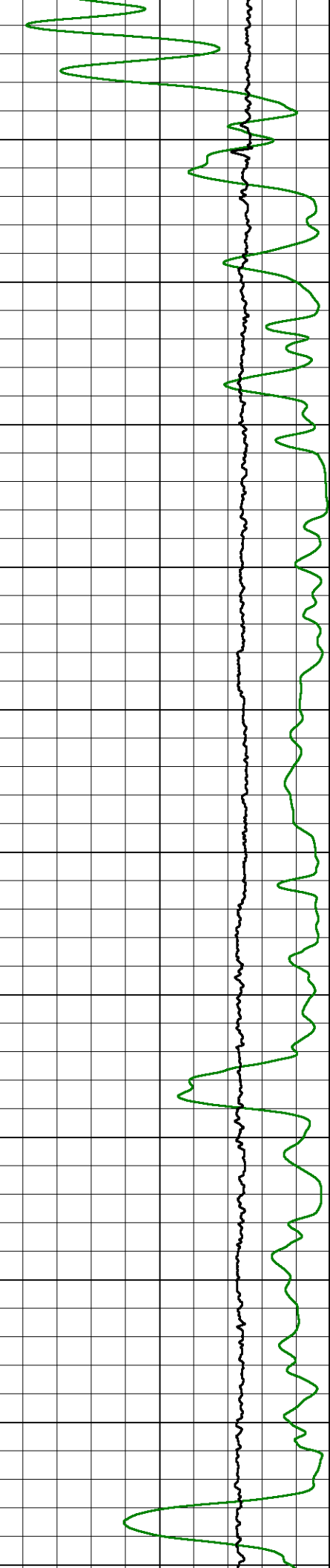
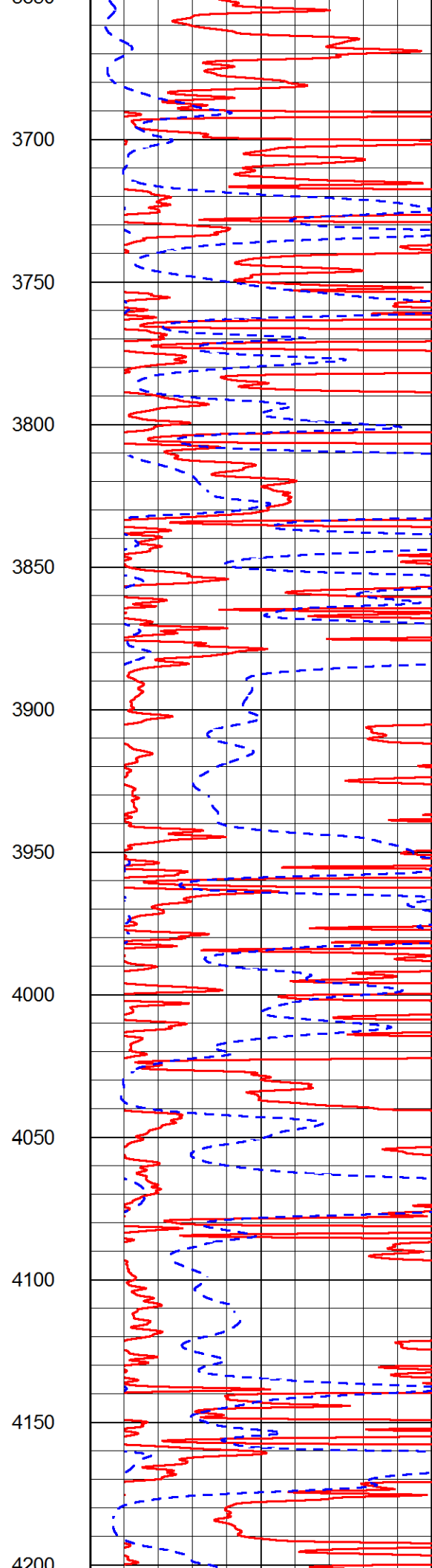
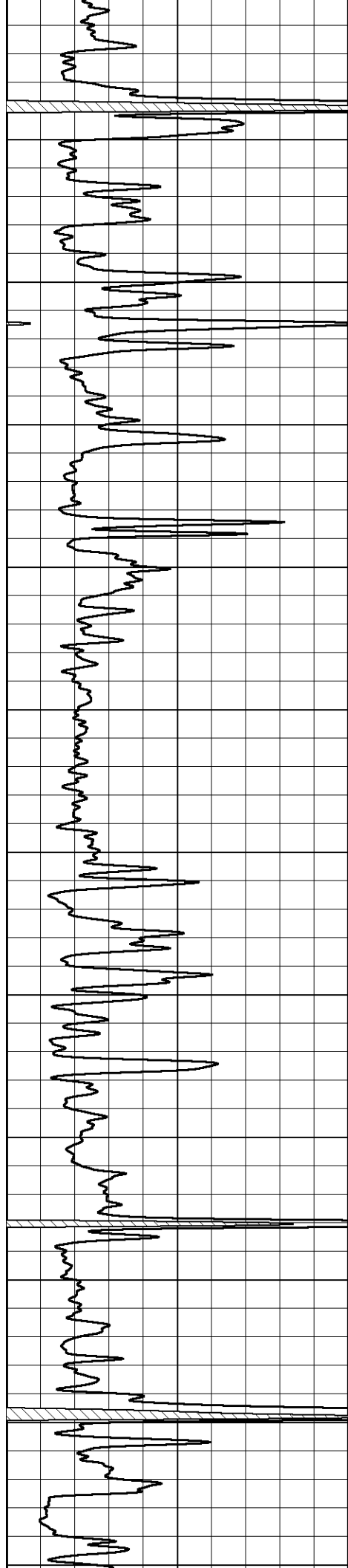
0	Gamma Ray (GAPI)	150	1000	Conductivity (mmho/m)	0
			15000	Line Tension (lb)	0
			0	RLL3 (Ohm-m)	50
			0	Deep Resistivity (Ohm-m)	50
			50	RLL3 (Ohm-m)	500
			50	Deep Resistivity (Ohm-m)	500

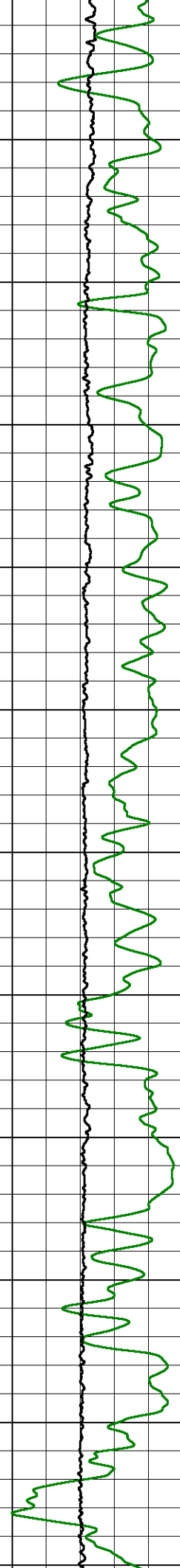
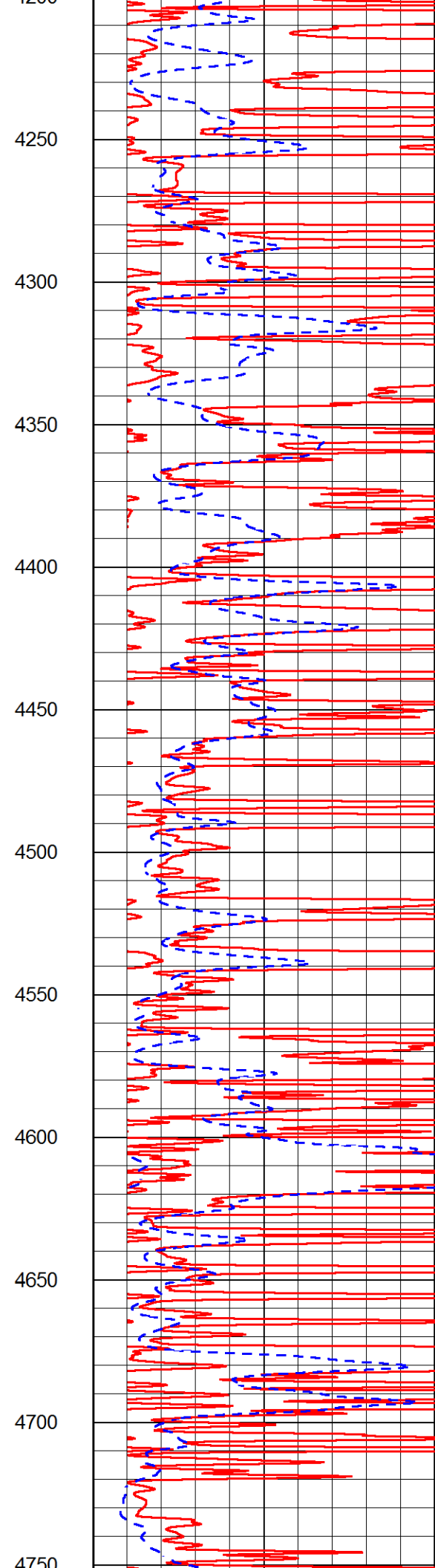
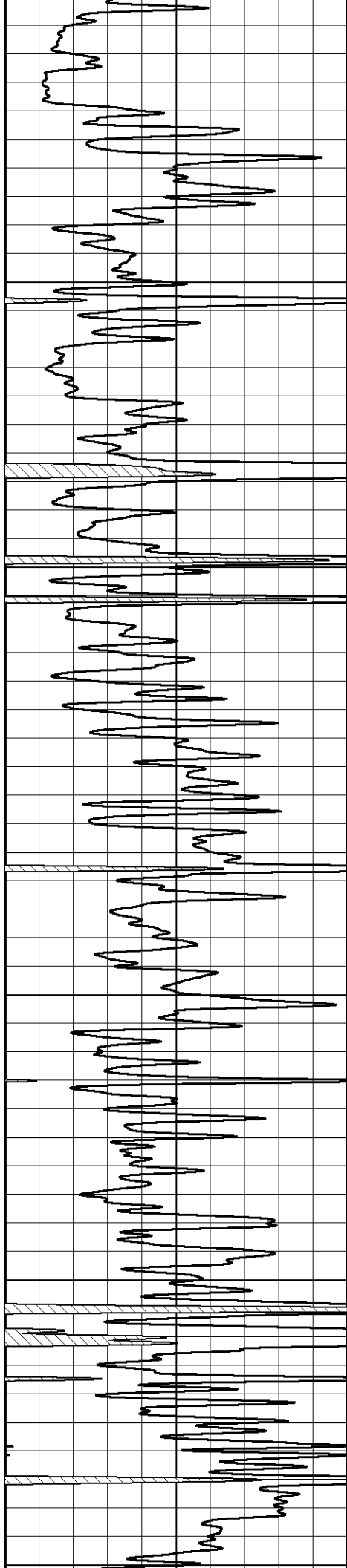


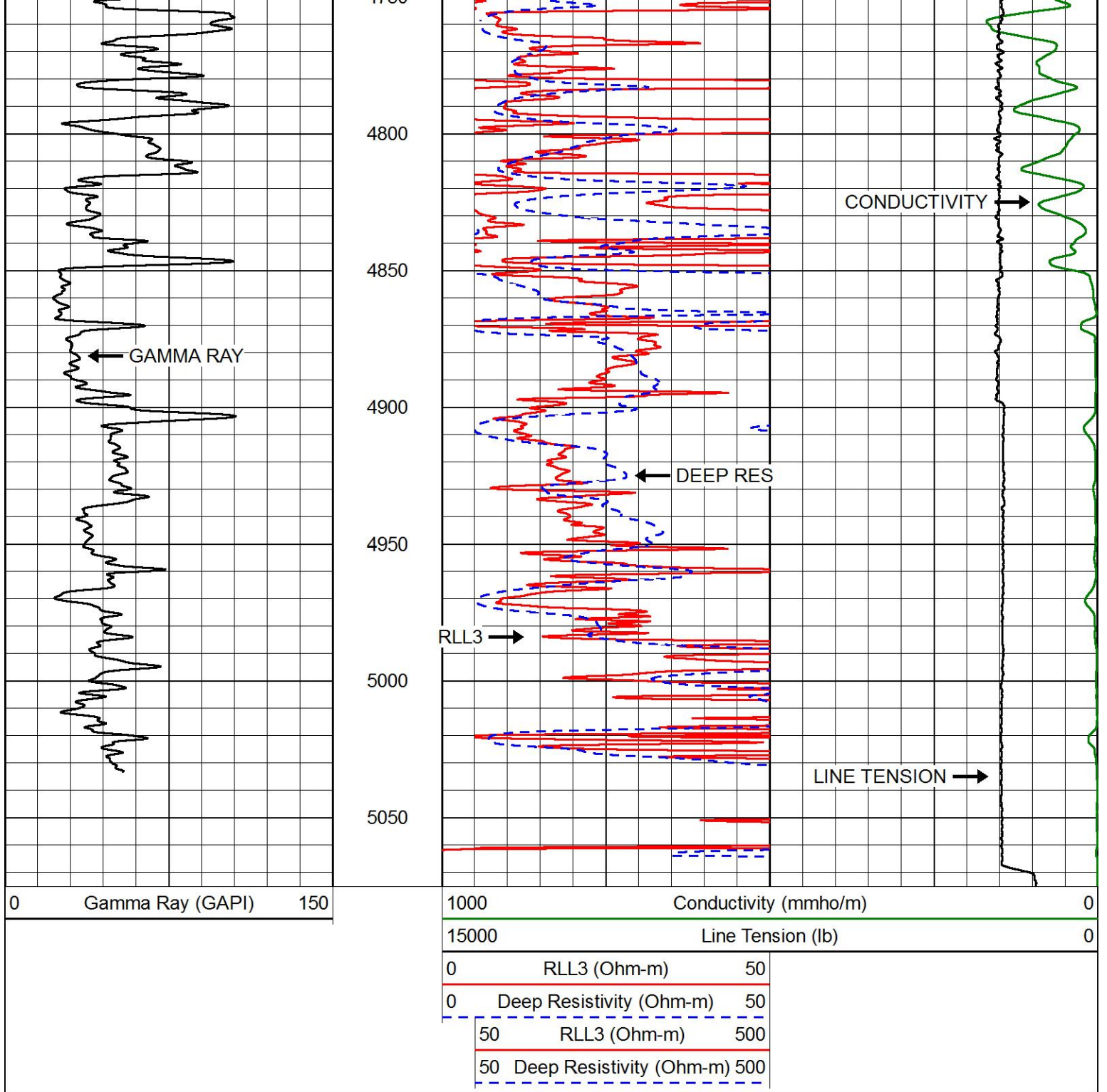








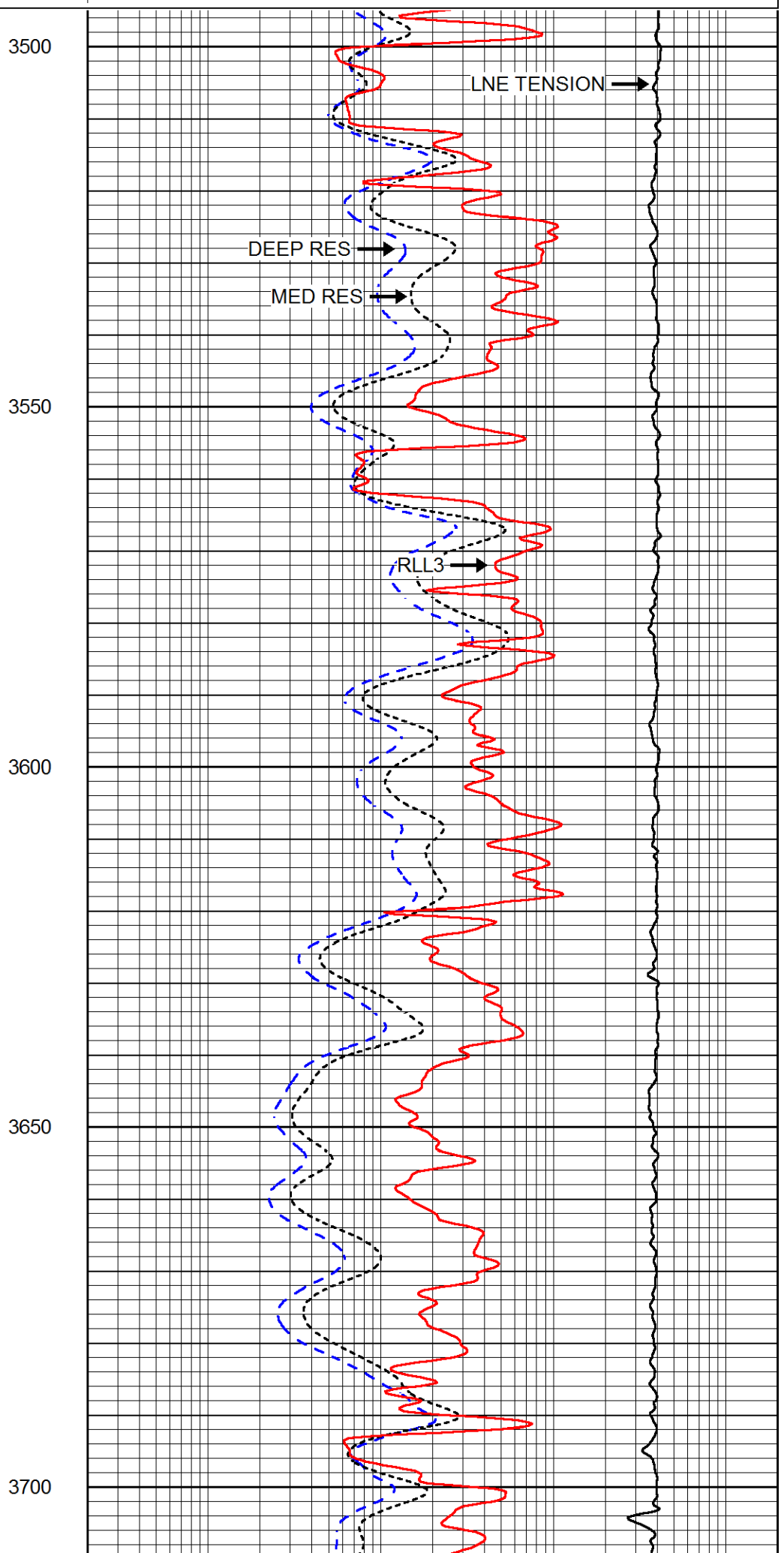
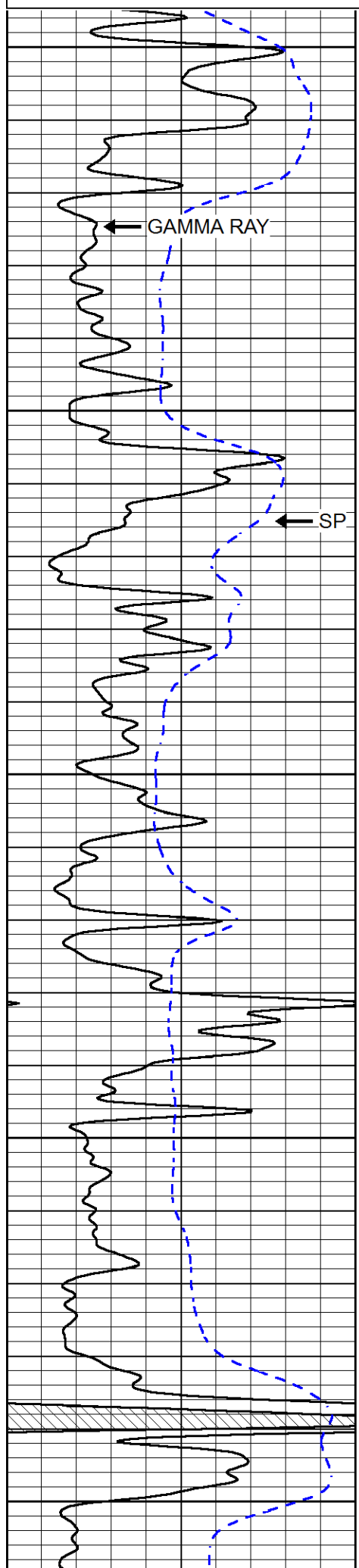


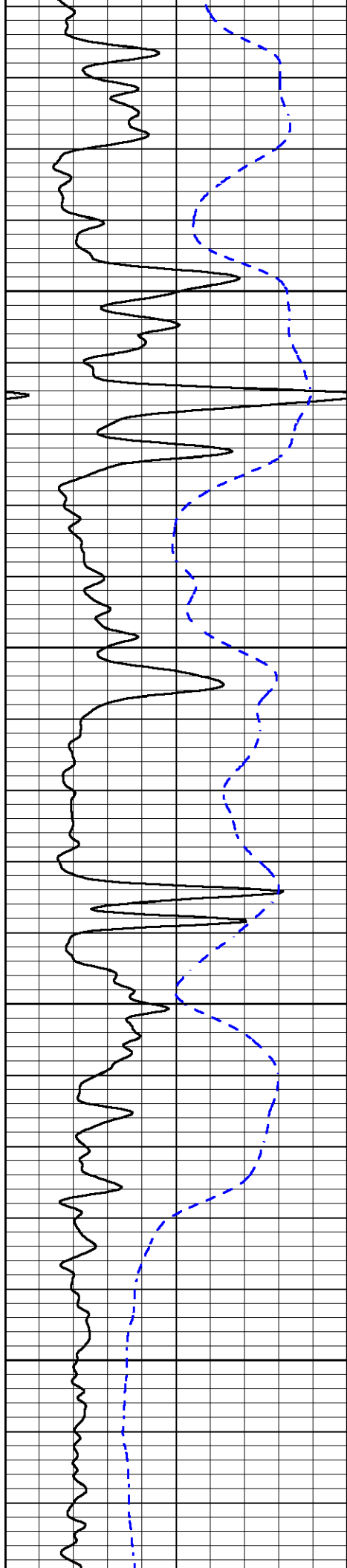


MAIN PASS

Database File: american warrior_lea a 7-28.db
 Dataset Pathname: STKML/pass3.1
 Presentation Format: dil
 Dataset Creation: Tue Feb 06 09:00:54 2018
 Charted by: Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150	0.2	Deep Resistivity (Ohm-m)	2000
-200	SP (mV)	0	0.2	Medium Resistivity (Ohm-m)	2000
			0.2	RLL3 (Ohm-m)	2000



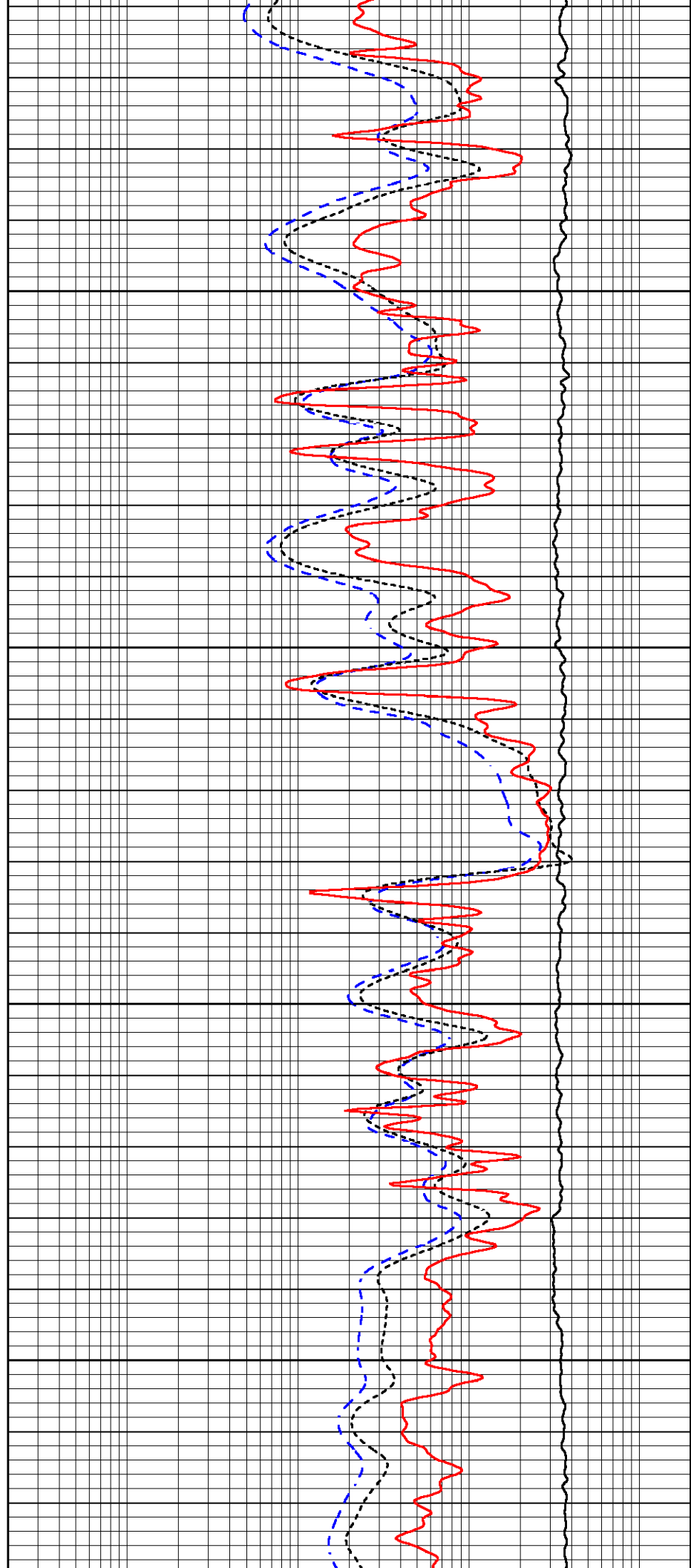


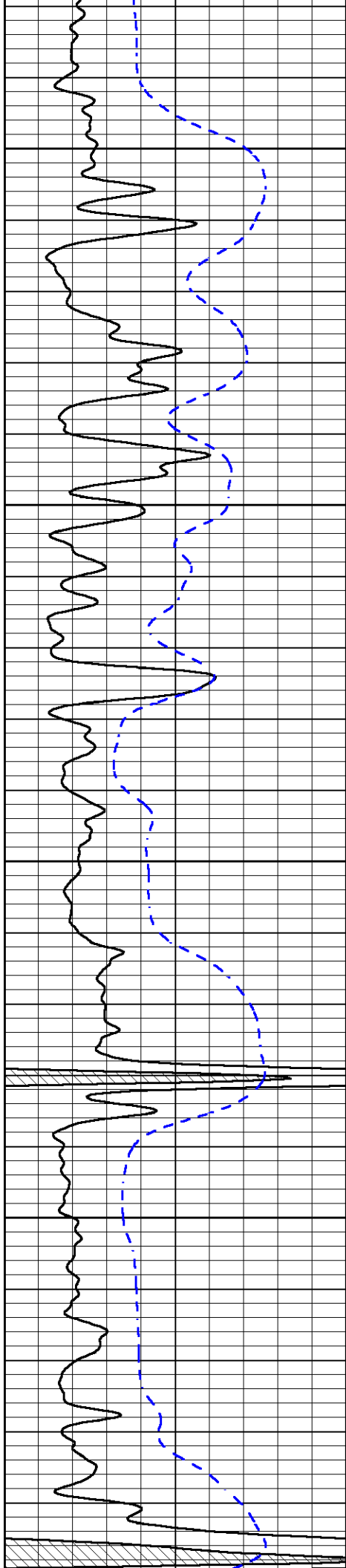
3750

3800

3850

3900





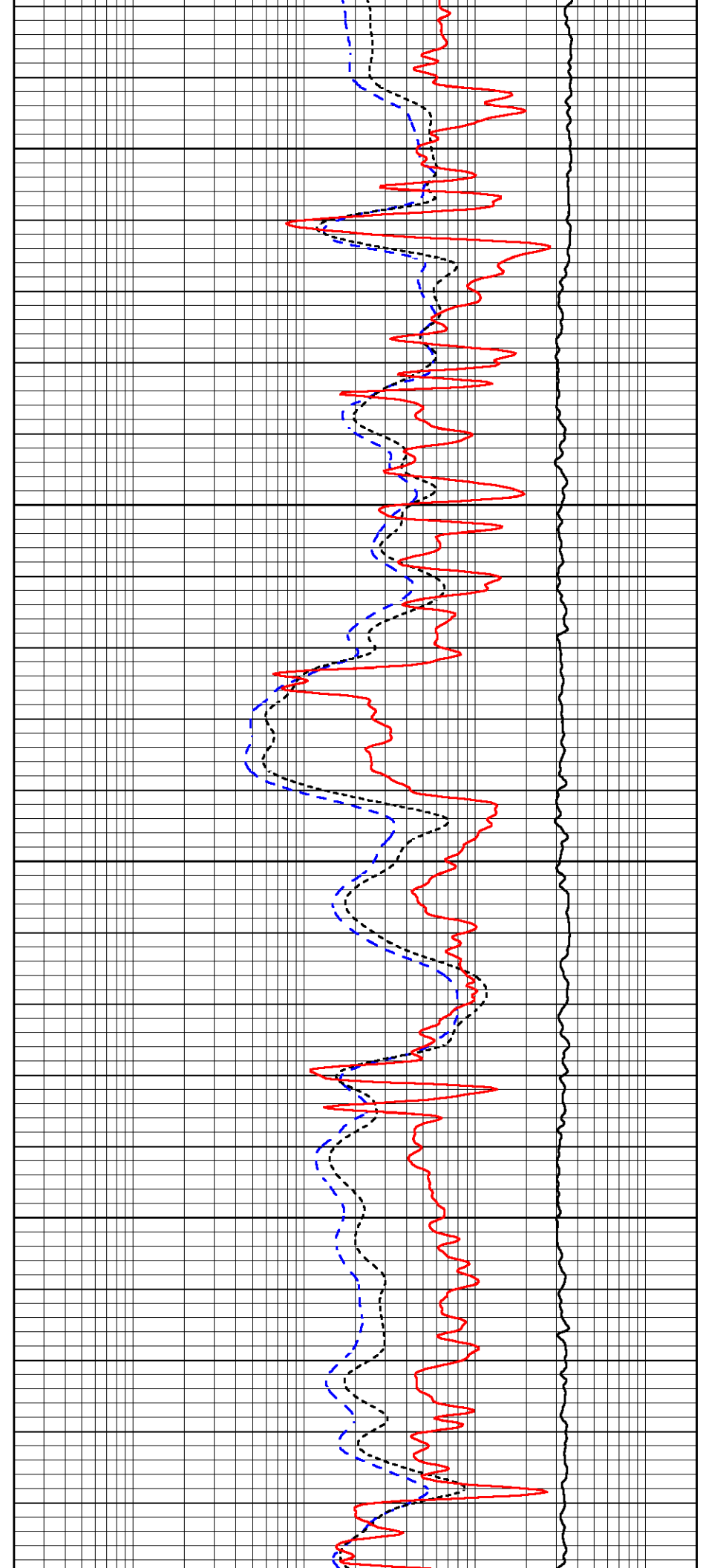
3950

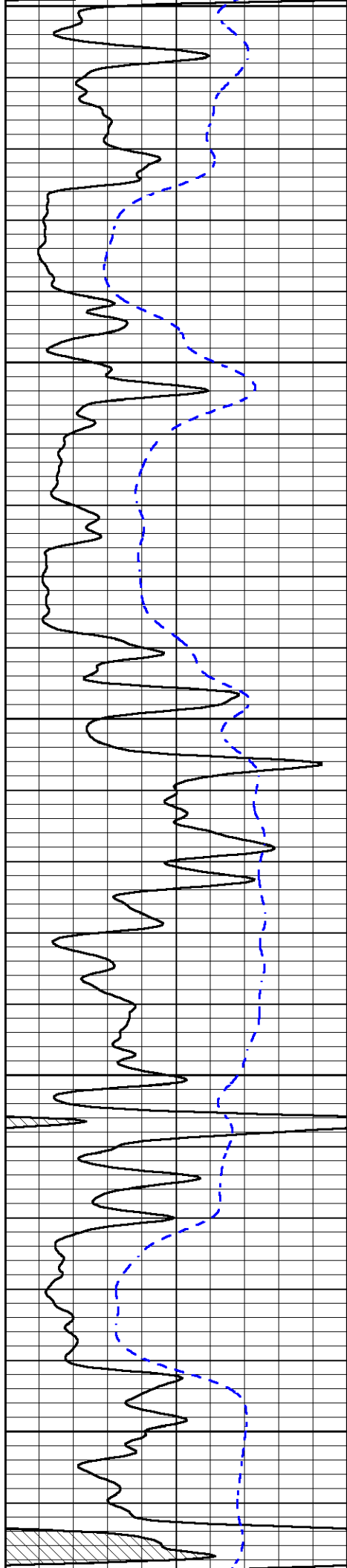
4000

4050

4100

4150





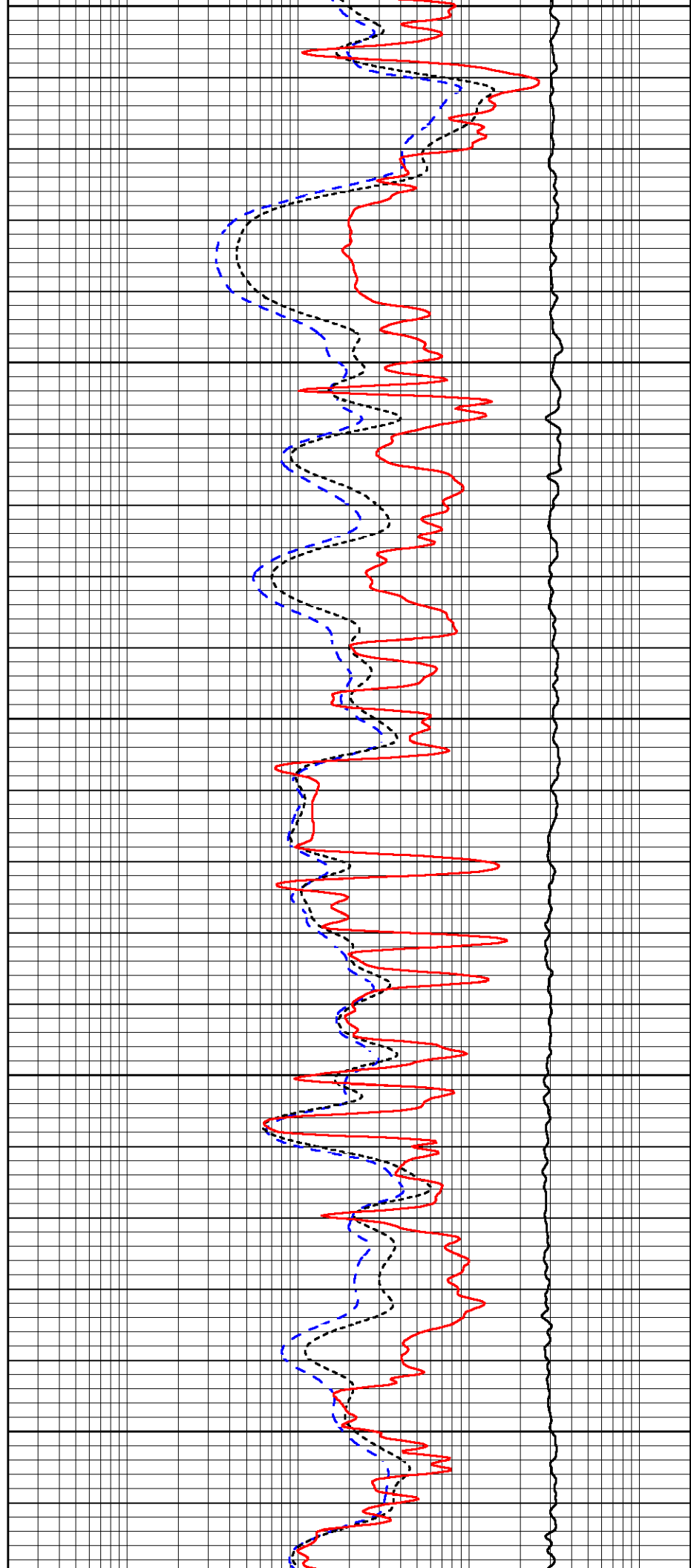
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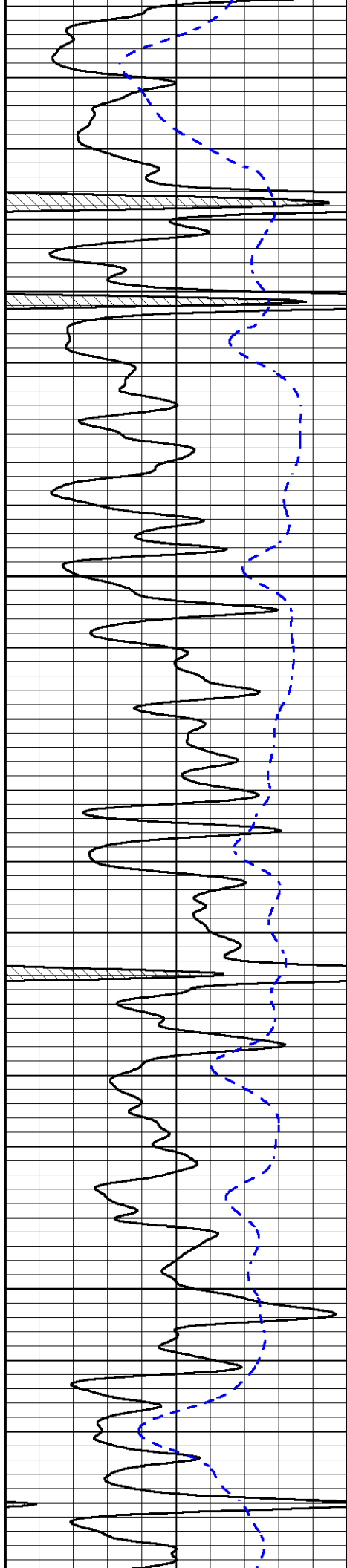
4200

4250

4300

4350



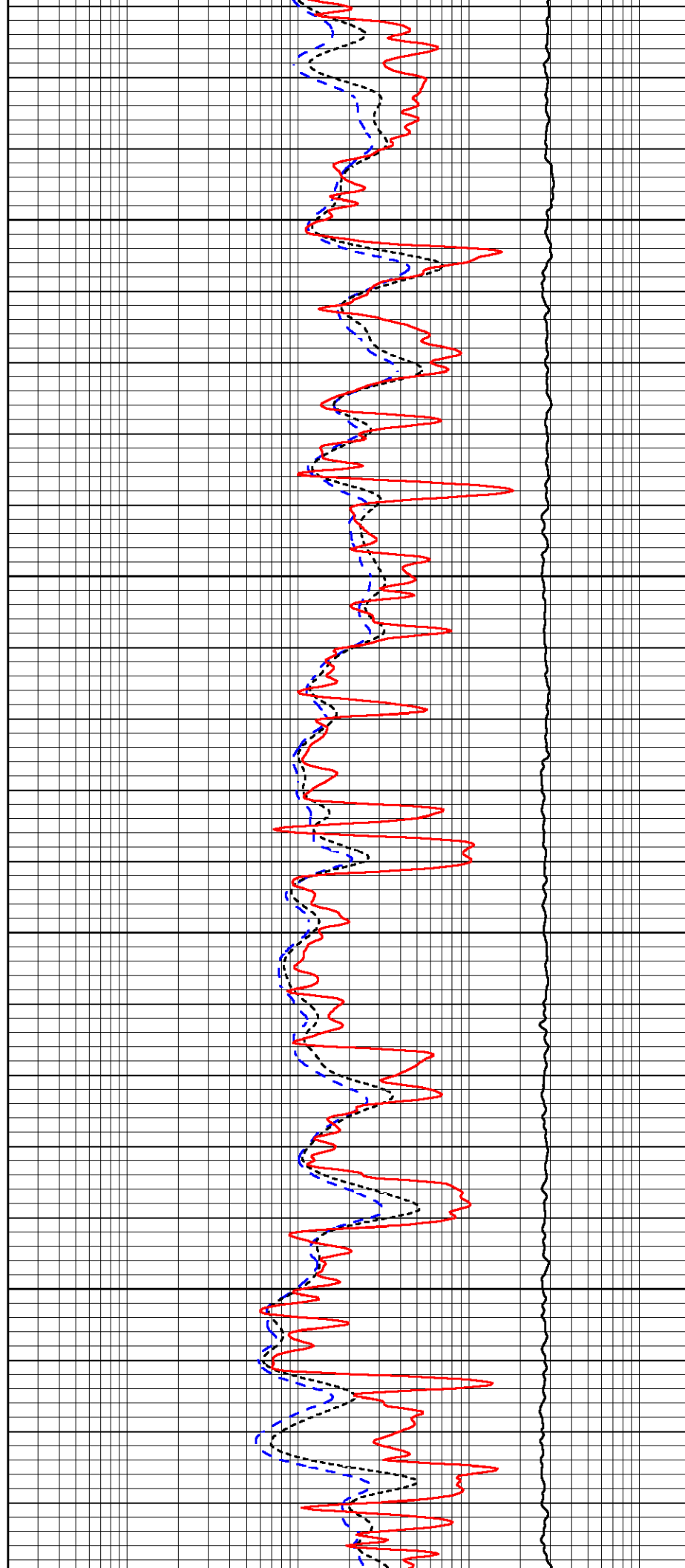


4400

4450

4500

4550

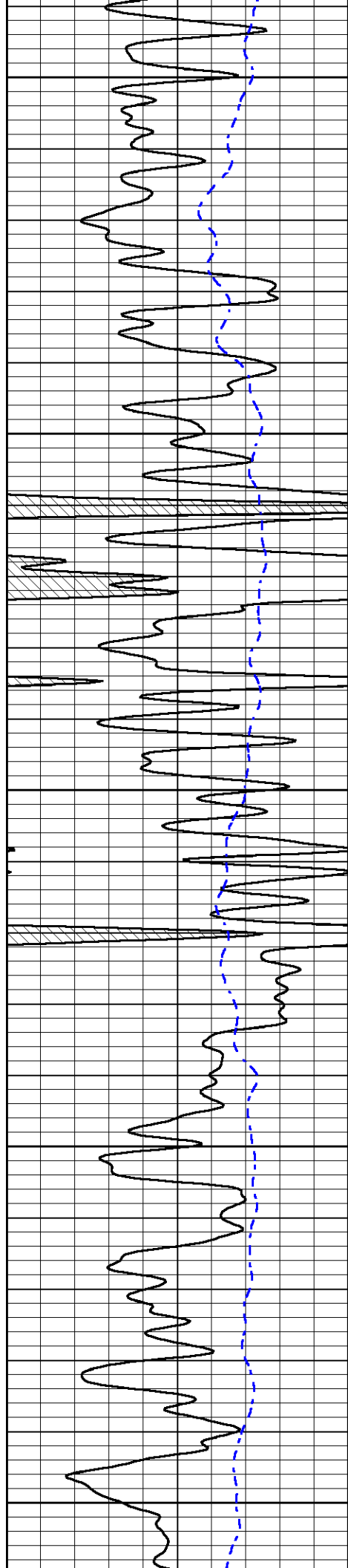


4400

4450

4500

4550



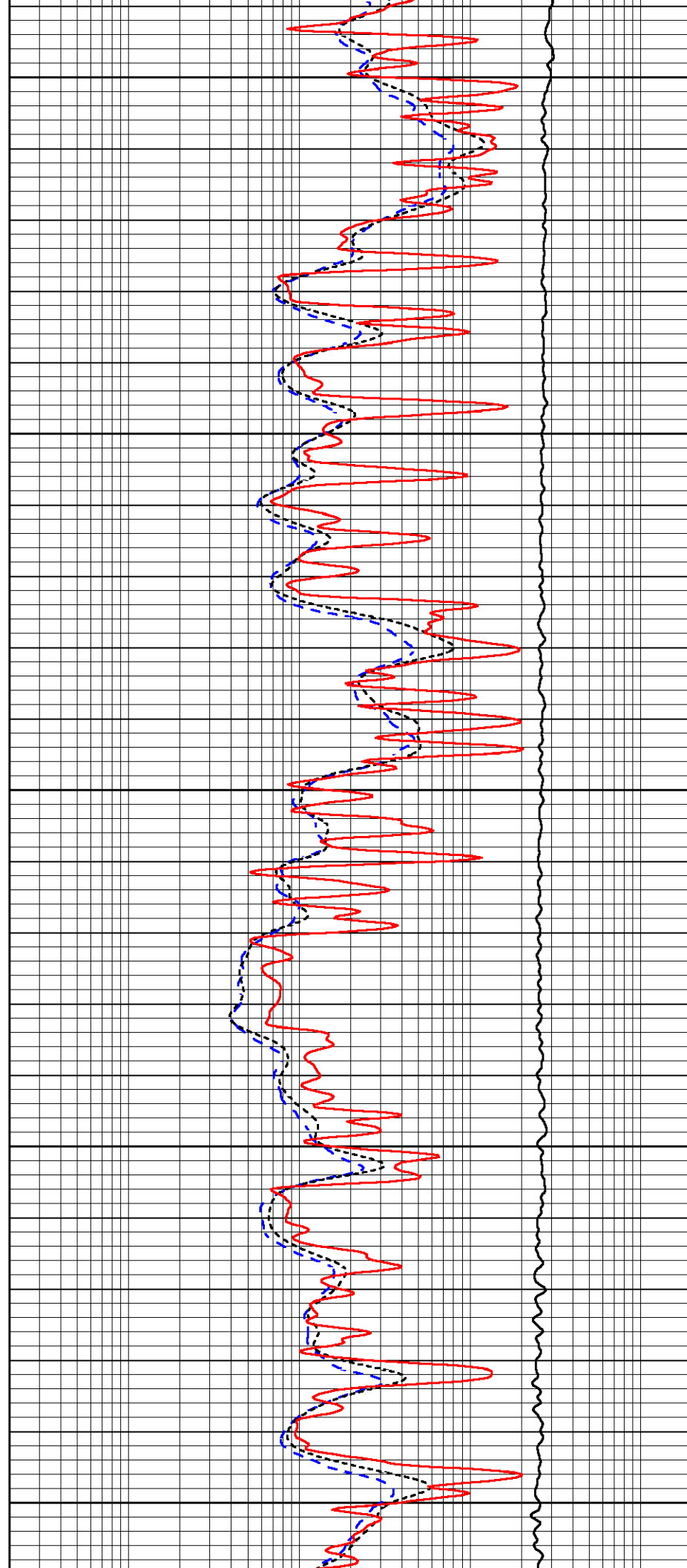
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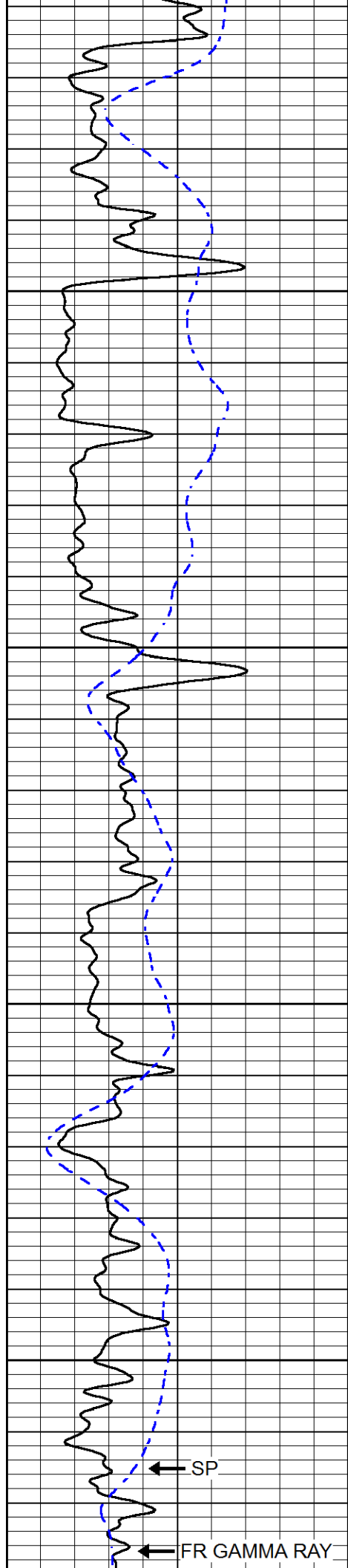
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4700

4750

4800





4850

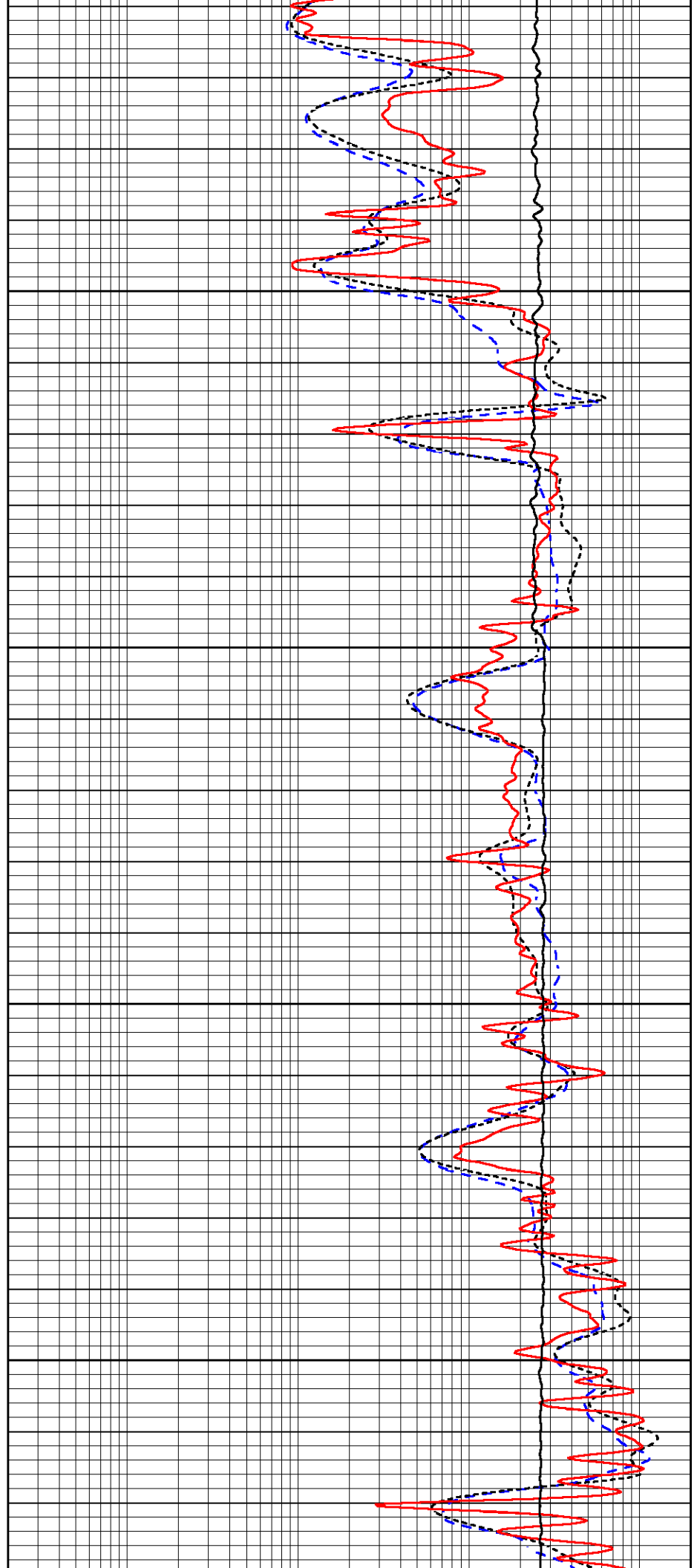
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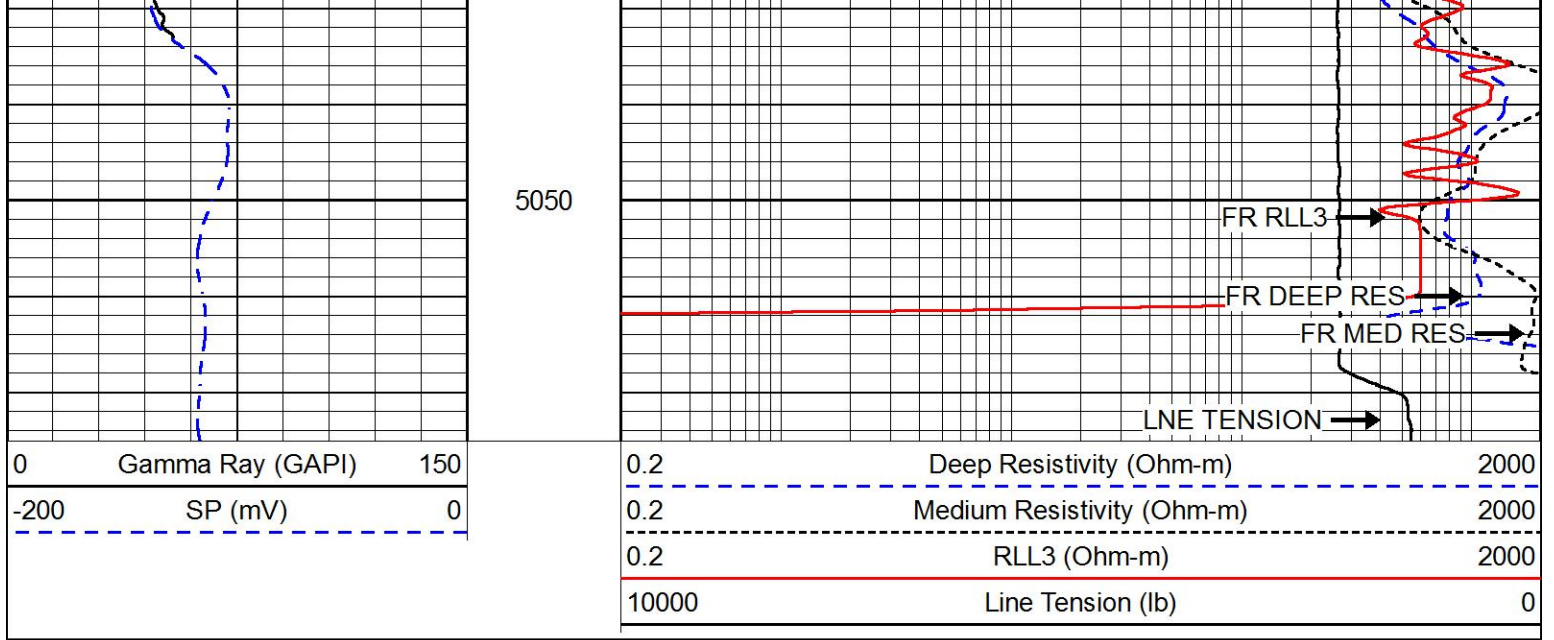
4950

5000

← SP

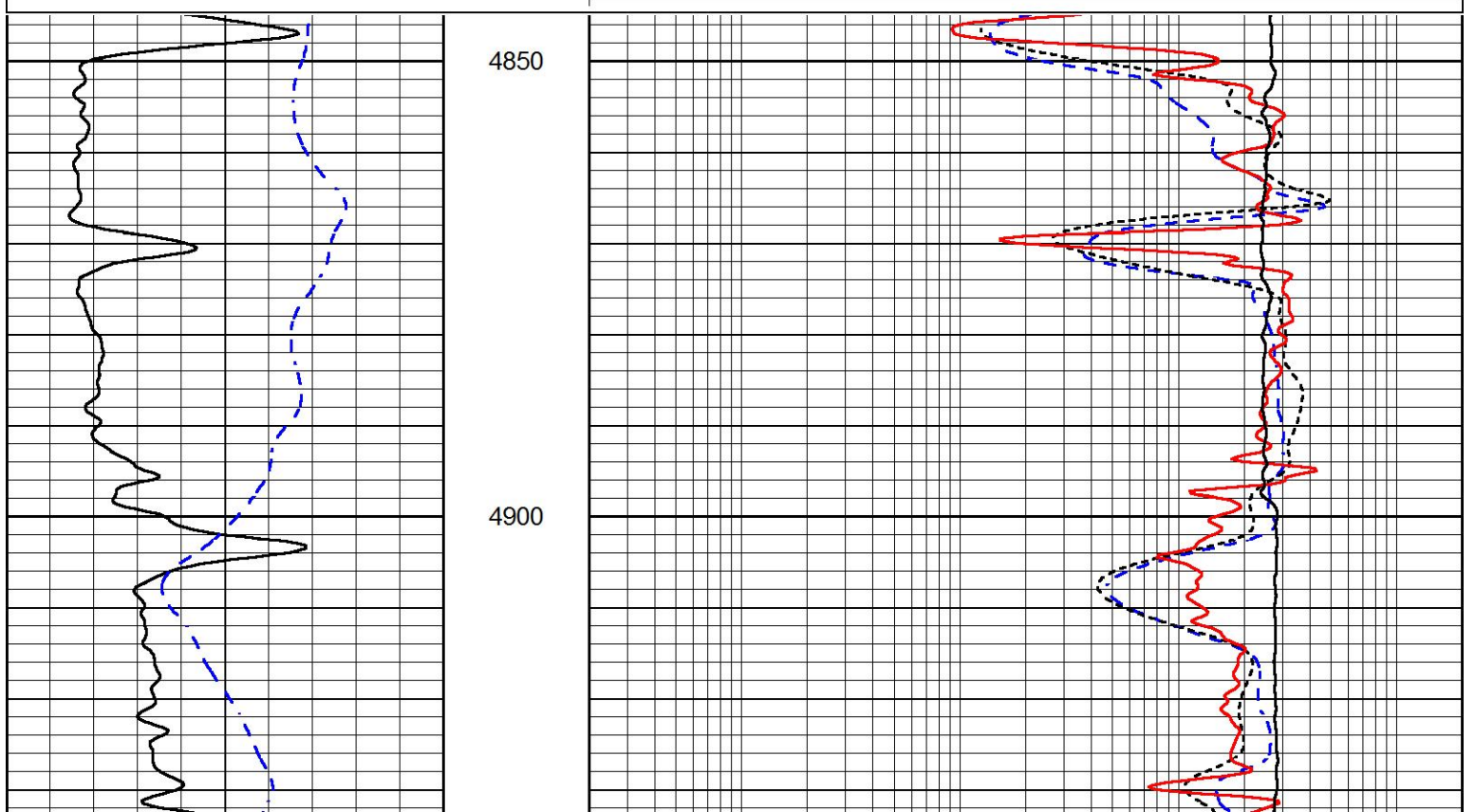
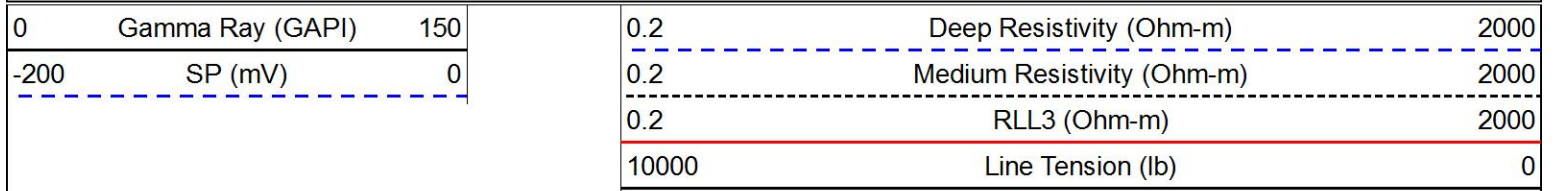
← FR GAMMA RAY

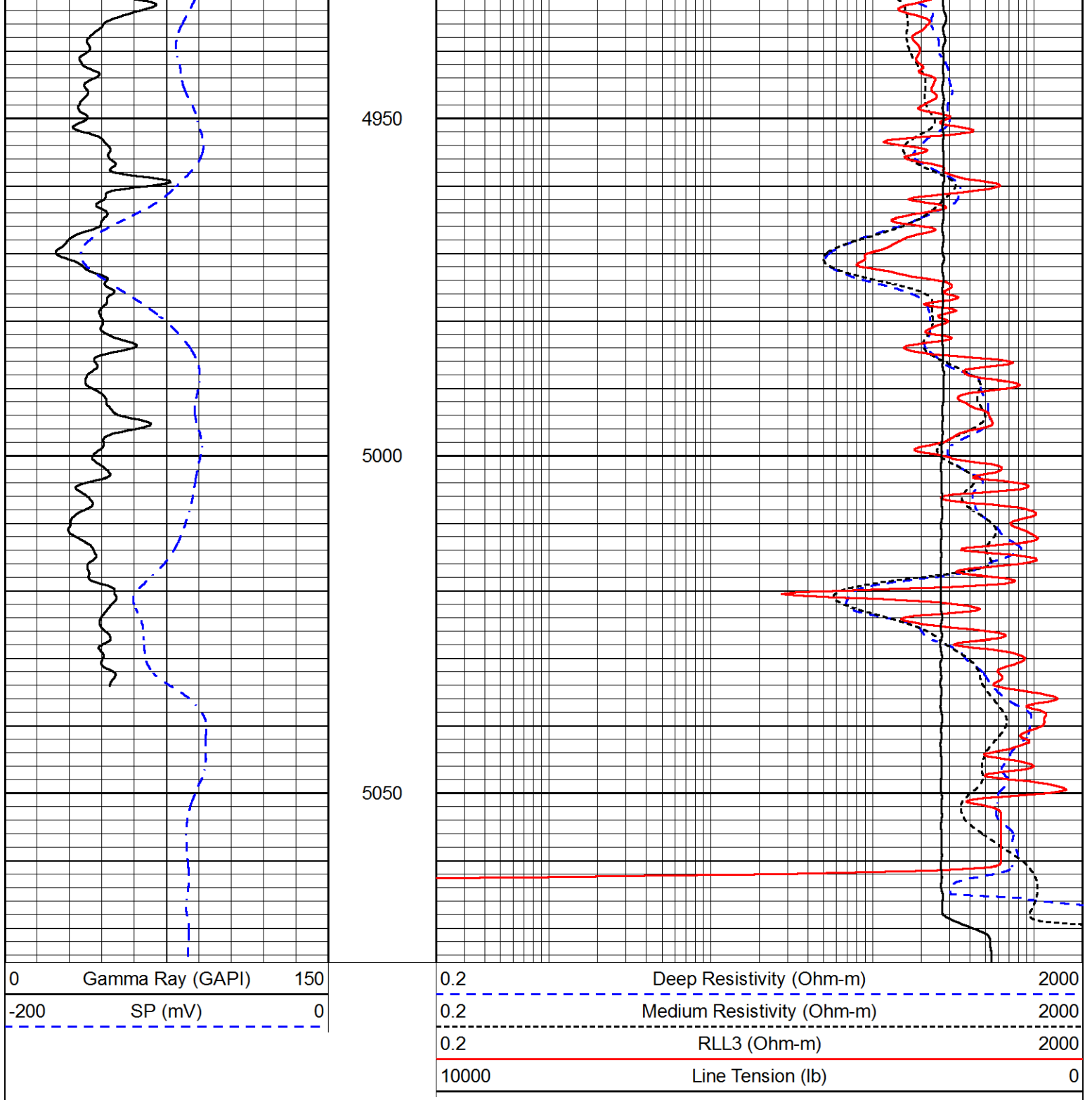





REPEAT SECTION

Database File american warrior_lea a 7-28.db
 Dataset Pathname STKML/pass2.1
 Presentation Format dil
 Dataset Creation Tue Feb 06 08:33:58 2018
 Charted by Depth in Feet scaled 1:240





Calibration Report

Database File: american warrior_lea a 7-28.db
 Dataset Pathname: STKML/pass3.4
 Dataset Creation: Tue Feb 06 08:32:05 2018

Dual Induction Calibration Report

Serial-Model: 933 (HT)-PSI HIGH TEMP
 Calibration Performed: Sun Jan 28 18:12:06 2018

Loop:	Readings		References		Results	
	Air	Loop	Air	Loop	Gain	Offset
Deep	167.000	835.000	0.000	255.000	0.720	18.400

Deep	167.000	833.000	0.000	255.000	mmho/m	0.720	-18.400
Medium	142.000	1349.000	0.000	255.000	mmho/m	0.560	-61.300

Microlog Calibration Report

Serial-Model: PSI-01-PSIML
 Performed: Mon Jan 15 11:19:55 2018

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	12500.0000	-0.5000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	13500.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	100.0000	-97.3800

Compensated Density Calibration Report

Serial-Model: 227-771-M&W
 Source / Verifier: 16955B / 2ci
 Master Calibration Performed: Sat Jan 27 18:11:20 2018

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4919.18	6345.34	cps
Aluminum	2.665	g/cc	911.94	4081.94	cps
Spine Angle = 75.33			Density/Spine Ratio = 0.522		
	Size		Reading		
Small Ring	8.00	in	1.84		
Large Ring	22.00	in	1.46		

Compensated Neutron Calibration Report

Serial Number: 207-MW
 Tool Model: M&W
 Calibration Performed: MON JAN 15 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

Company	AMERICAN WARRIOR, INC.
Well	LEE A #7-28
Field	LAKIN
County	KEARNY
State	KANSAS