



PIONEER
Pioneer Energy Services

DUAL INDUCTION LOG

Company AMERICAN WARRIOR, INC.
Well O'BRATE-BEACH #1-22
Field WILDCAT
County FINNEY
State KANSAS

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Well O'BRATE-BEACH #1-22
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County FINNEY State KANSAS

Location: API #: 15-055-22433-00-00

Other Services

975' FSL & 1801' FWL
SEC 22 TWP 25S RGE 31W

CNL/CDL
MEL

Permanent Datum GROUND LEVEL Elevation 2797'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 2809'
D.F. N/A
G.L. 2797'

Date 9/8/2016

Run Number ONE

Depth Driller 5050'

Depth Logger 5052'

Bottom Logged Interval 5051'

Top Log Interval 1700'

Casing Driller 8.625" @ 1700'

Casing Logger 1701'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 2800

Density / Viscosity 9.55 50

pH / Fluid Loss 10.5 8.8

Source of Sample FLOWLINE

Rm @ Meas. Temp 0.70 @ 82

Rmt @ Meas. Temp 0.53 @ 82

Rmc @ Meas. Temp 0.95 @ 82

Source of Rmt / Rmc CHARTS

Rm @ BHT 0.45 @ 127

Operating Rig Time 3 HOURS

Max Rec. Temp. F 127

Equipment Number 91

Location COLBY

Recorded By D. SCHMIDT

Witnessed By KEVIN TIMSON

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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.

PIERCEVILLE,
1 SOUTH, 2 WEST & SOUTH INTO

Log Measured From: KELLY BUSHING 12 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew

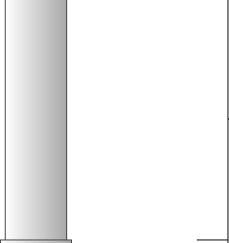
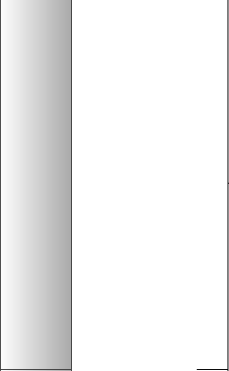
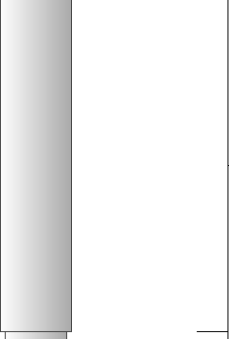
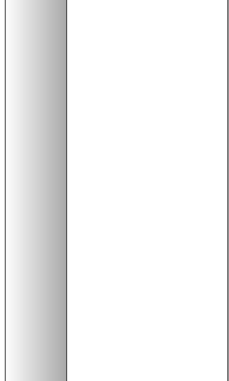
Engineer: D. SCHMIDT
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: KEVIN TIMSON
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	-217	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	82	0	5.5	0	5052	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					

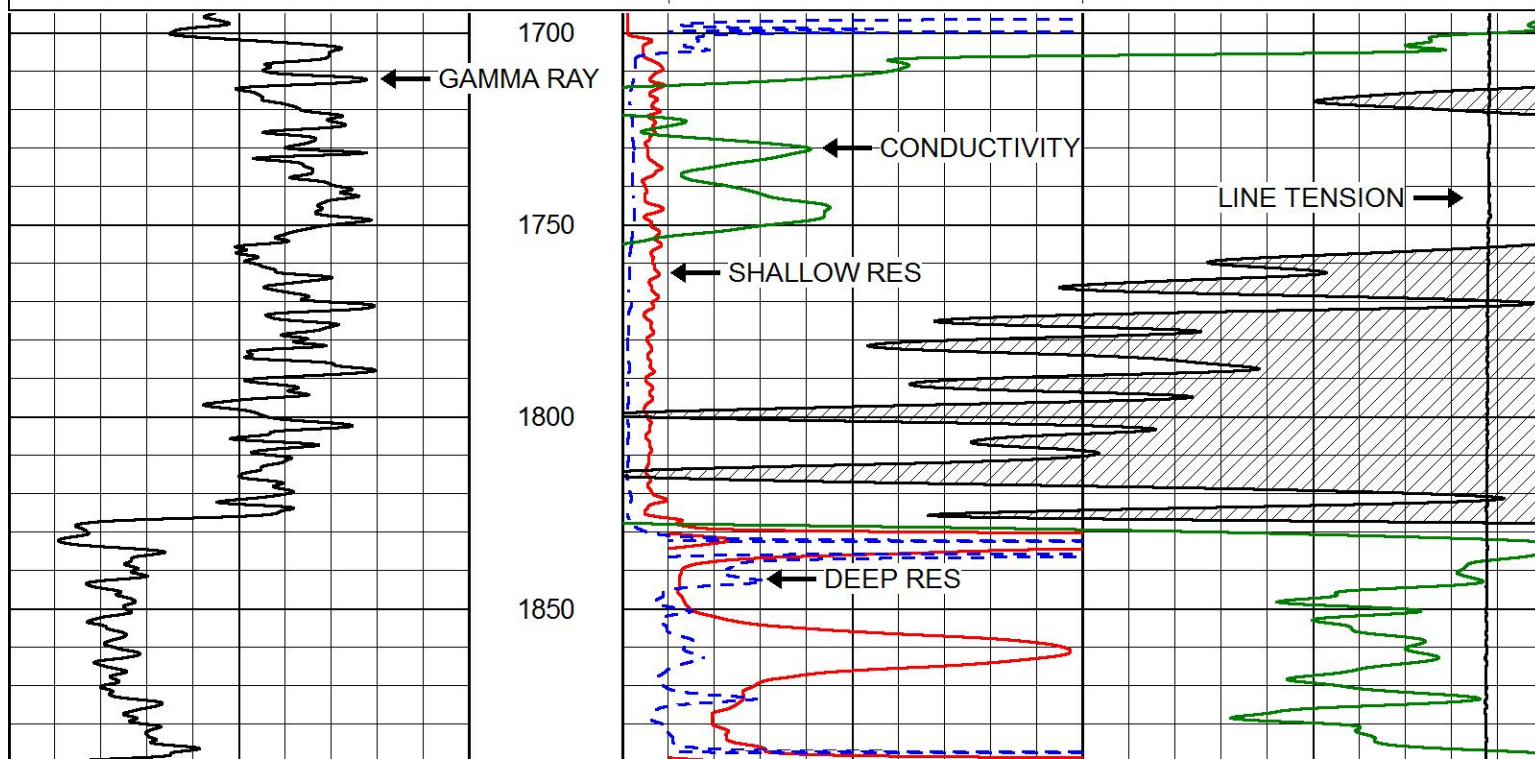
			DIL-PSI HIGH TEMP (PSI 216 HT)	18.50	3.50	220.00
CILD	8.00					
CILM	4.70					
SP	0.20					
Dataset: american warrior_obrate-beach_1-22.db: field/well/STKML/pass3.4 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in						

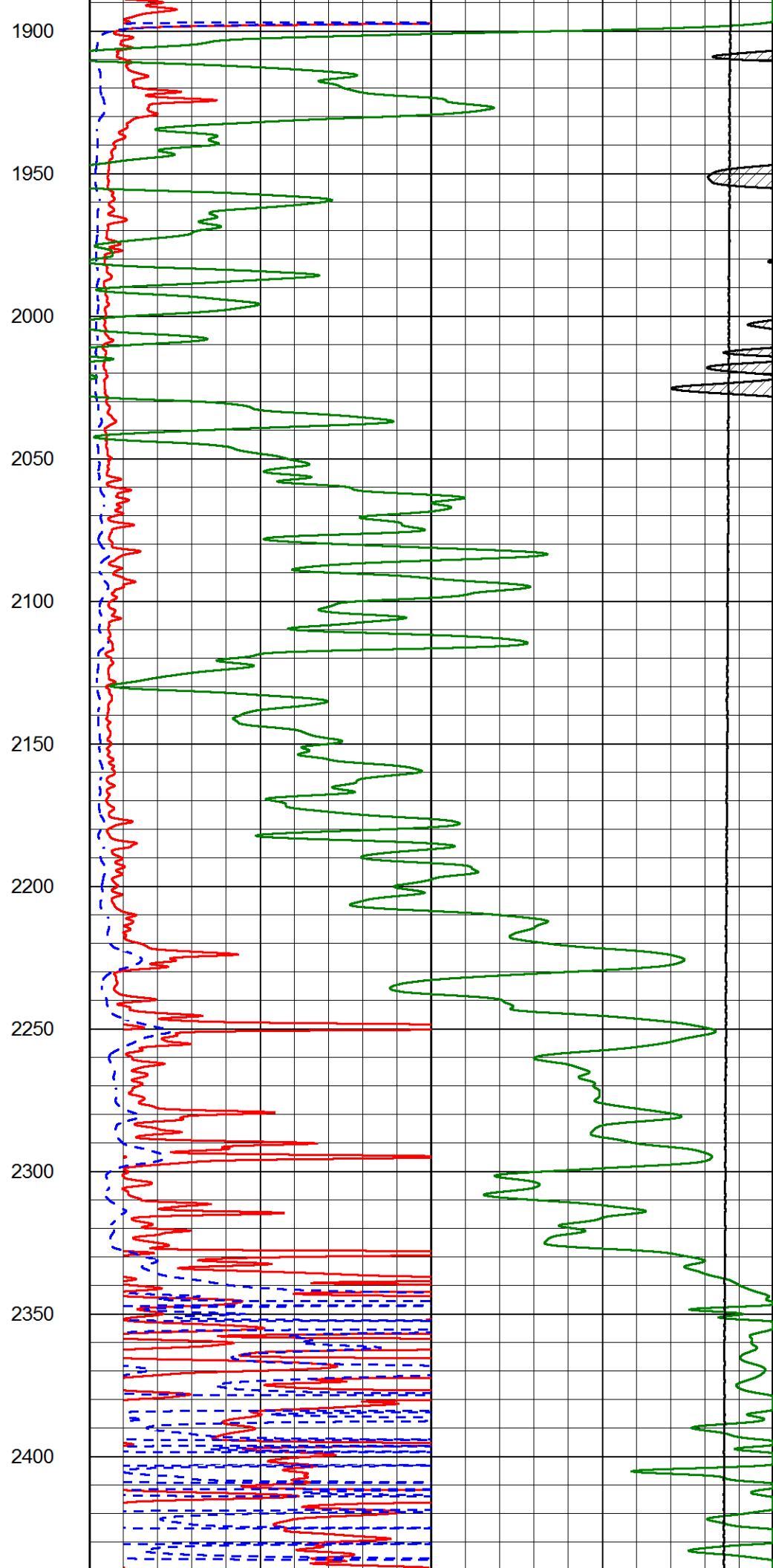
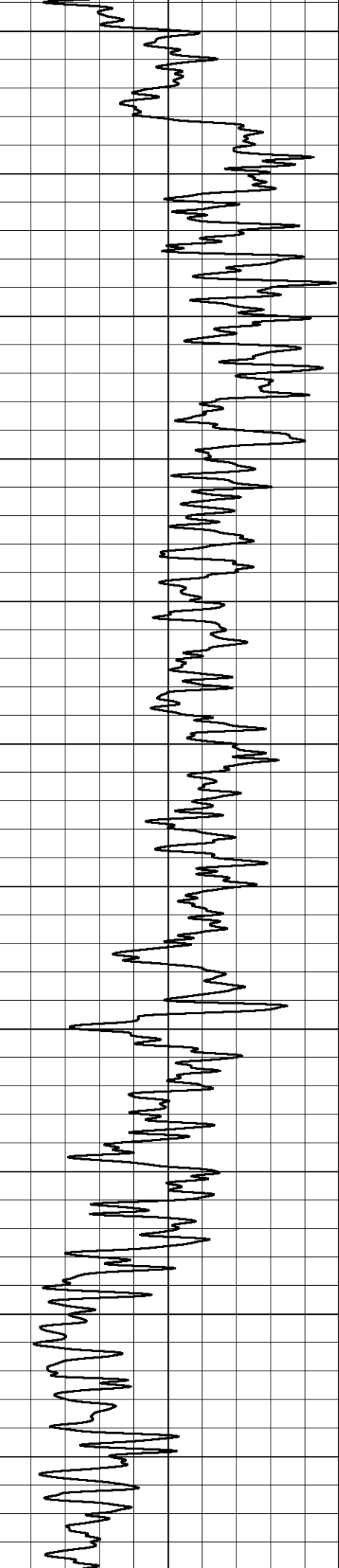


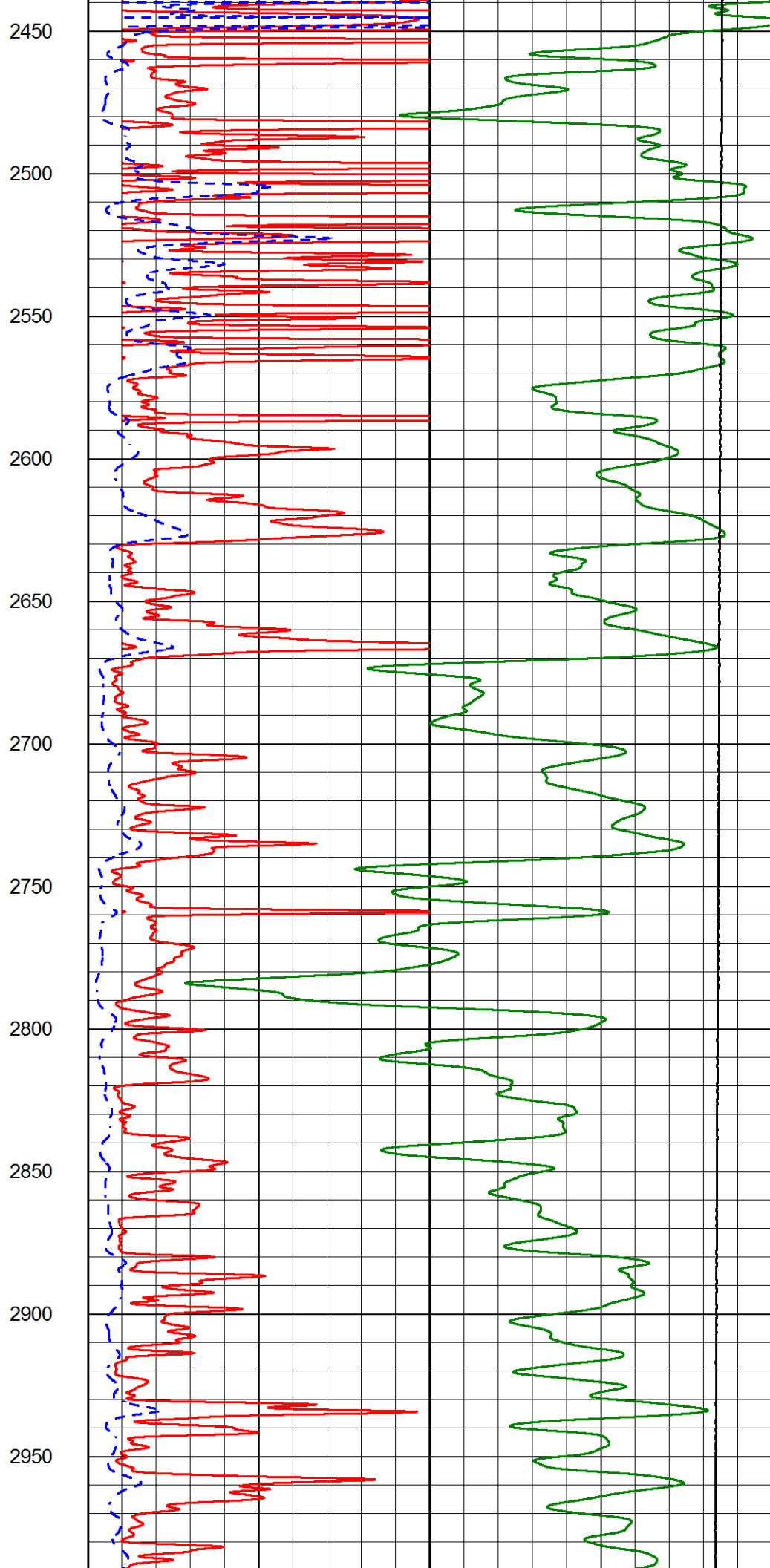
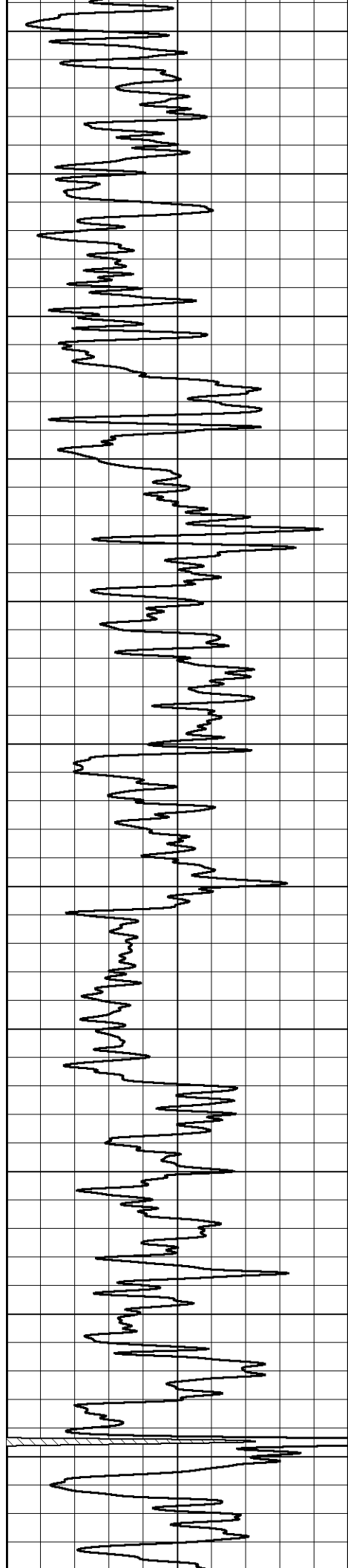
MAIN PASS

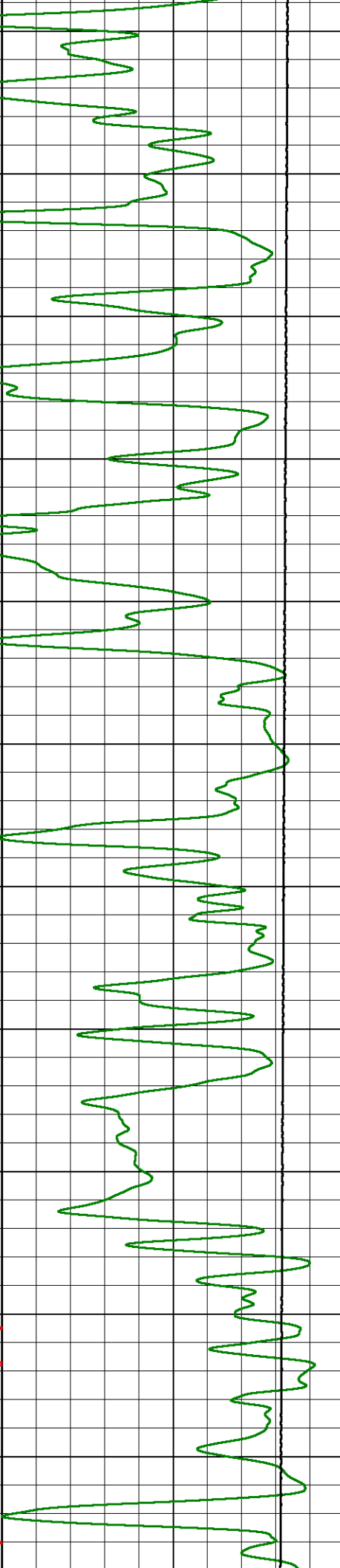
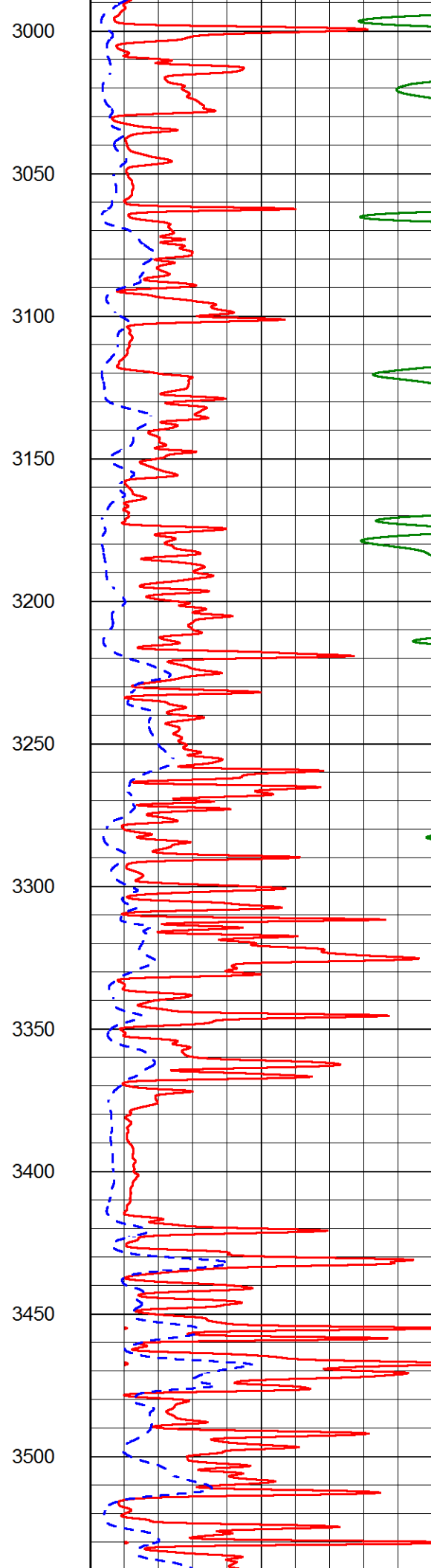
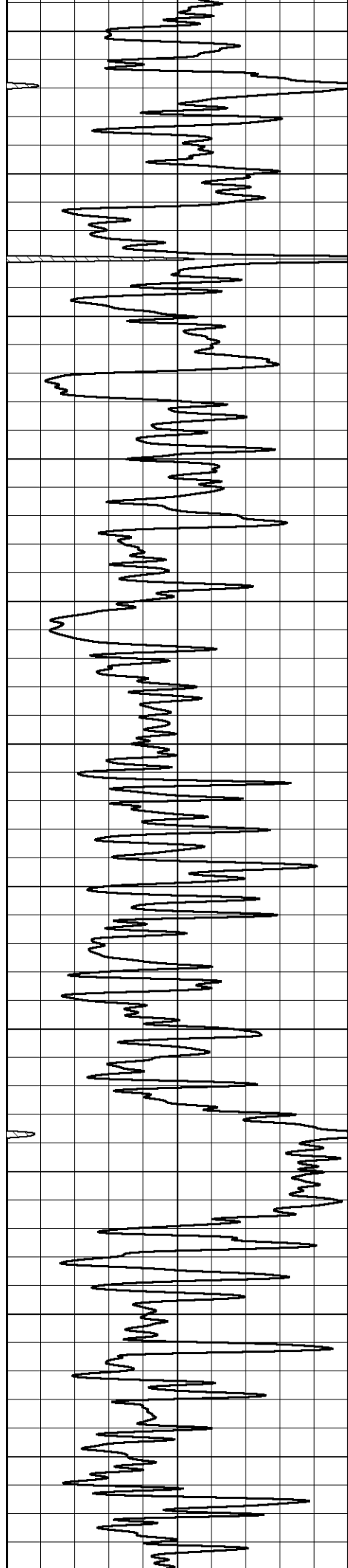
Database File	american warrior_obrate-beach_1-22.db
Dataset Pathname	STKML/pass4.1
Presentation Format	dil2in
Dataset Creation	Thu Sep 08 14:40:09 2016
Charted by	Depth in Feet scaled 1:600

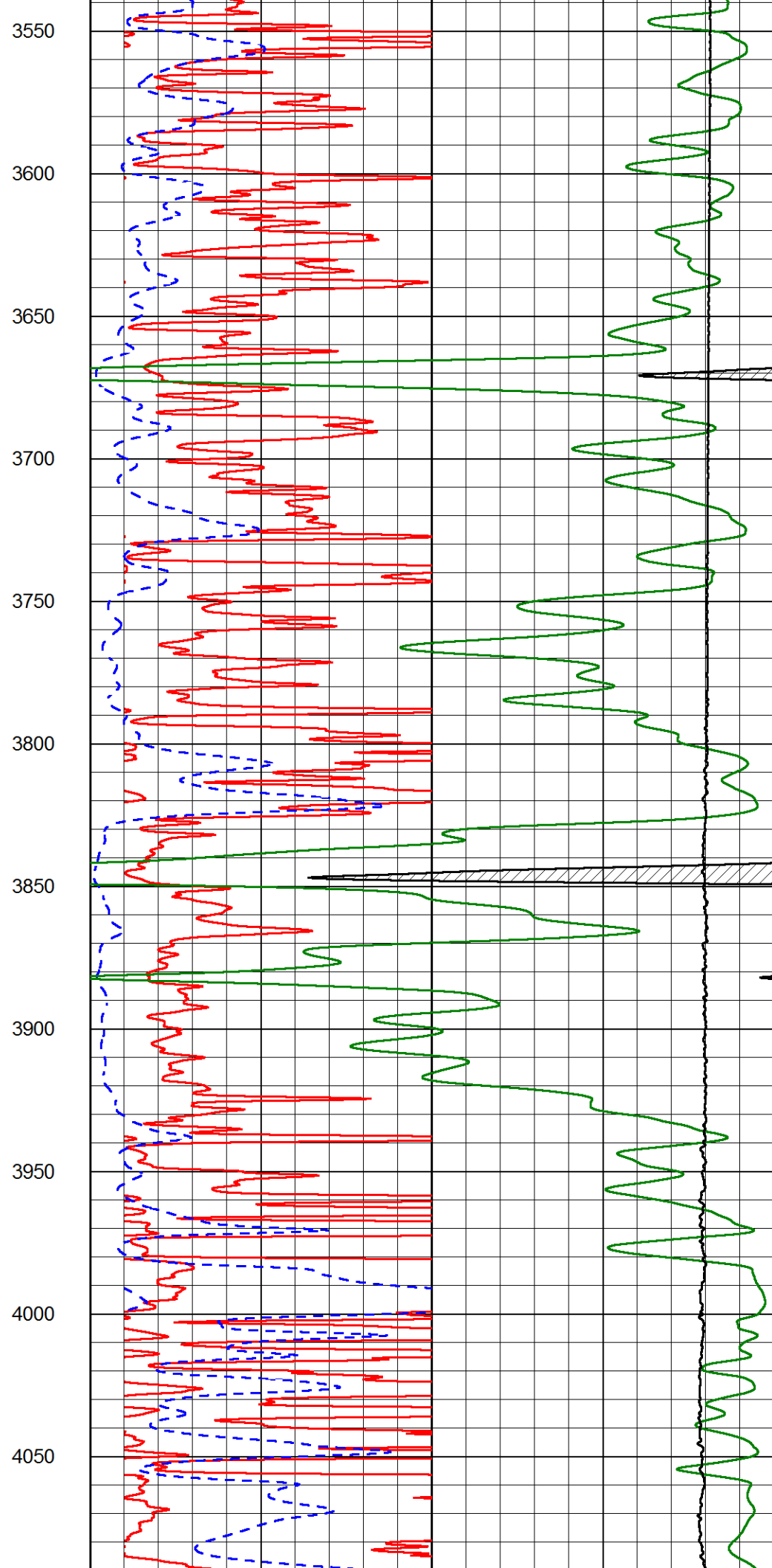
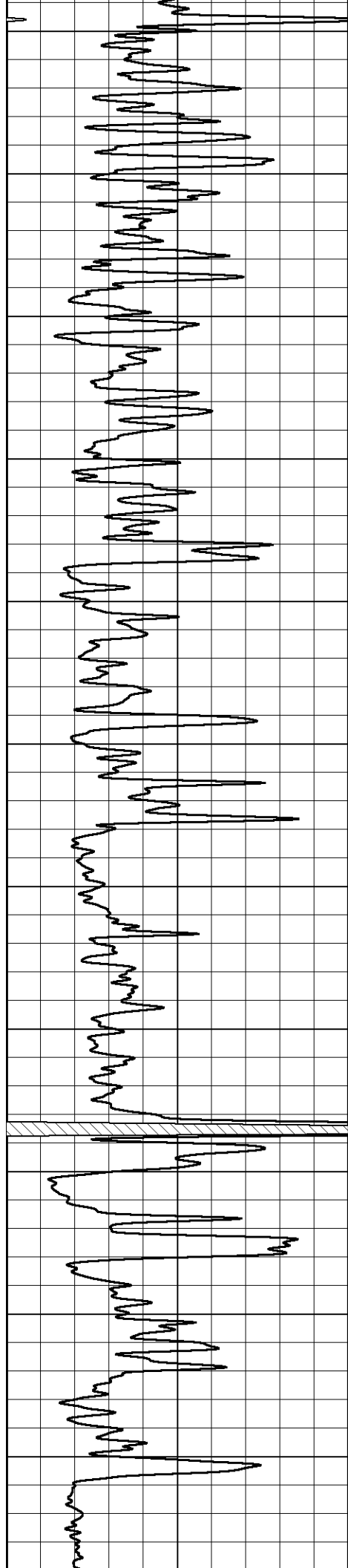
0	Gamma Ray (GAPI)	150	1000	Conductivity (mmho/m)	0
			15000	Line Tension (lb)	0
			0	Shallow Resistivity (Ohm-m)	50
			0	Deep Resistivity (Ohm-m)	50
				Shallow Resistivity	
			50	(Ohm-m)	500
			50	Deep Resistivity (Ohm-m)	500

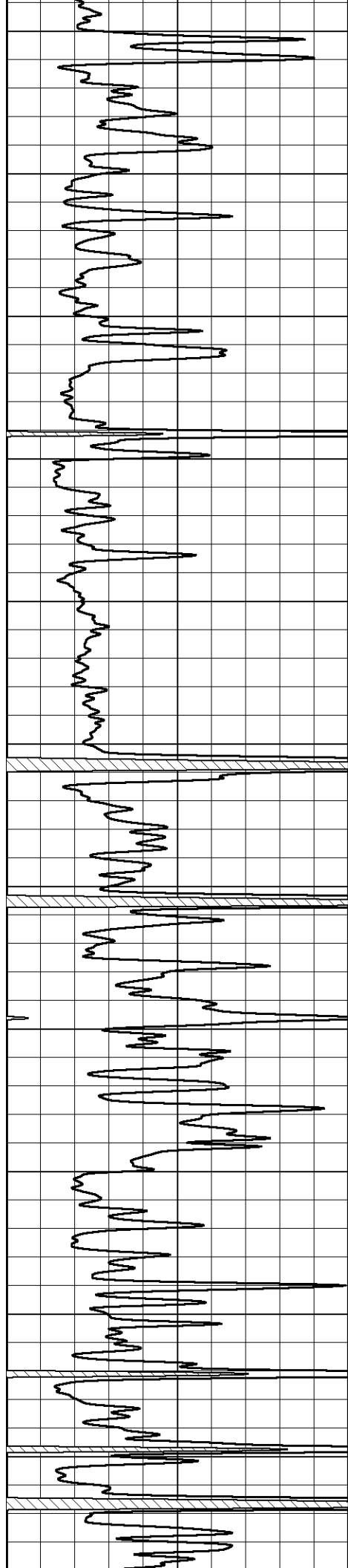




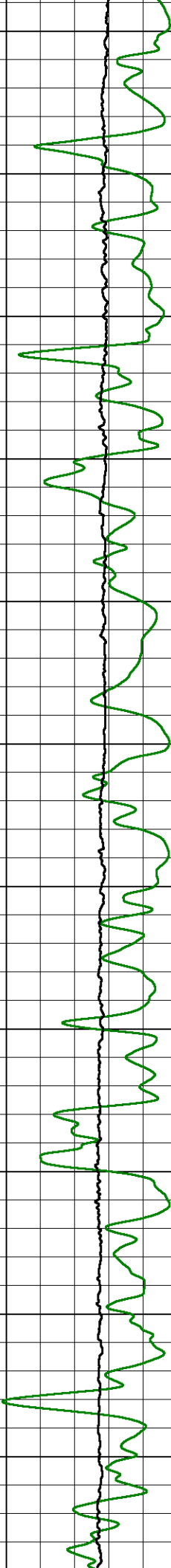
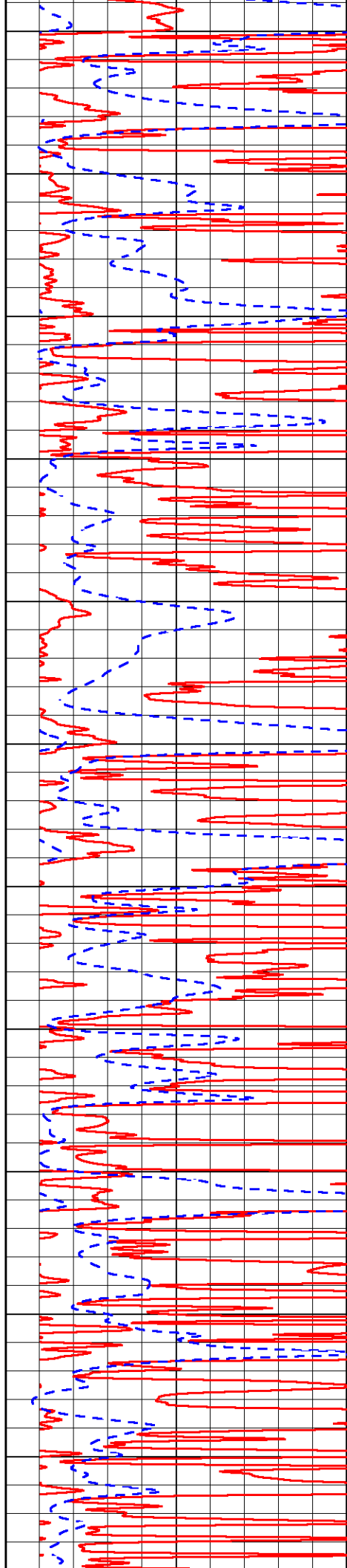


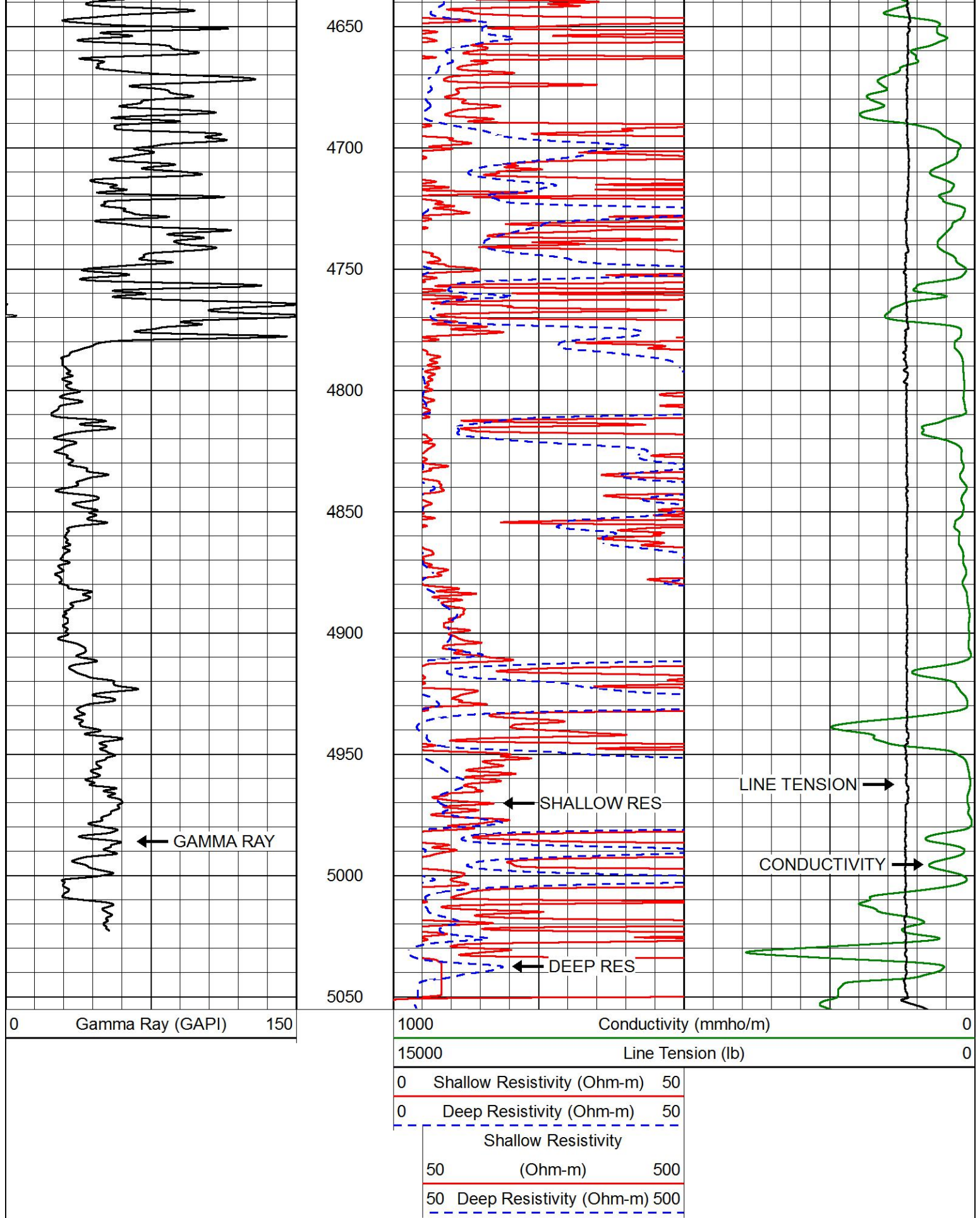






4100
4150
4200
4250
4300
4350
4400
4450
4500
4550
4600



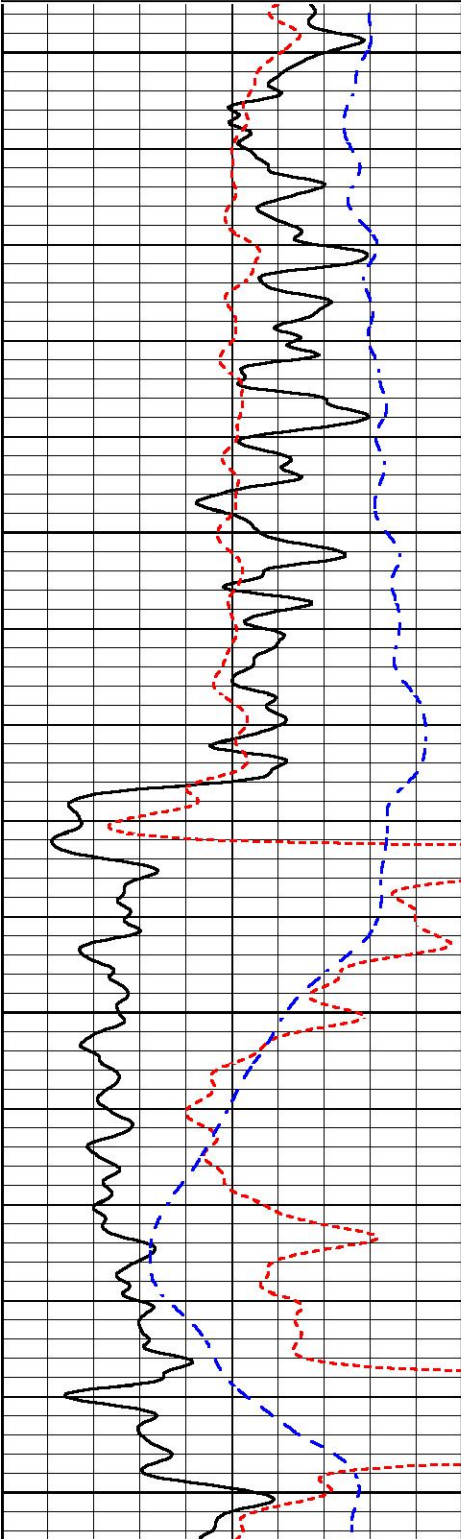


MAIN PASS

Database File american_warrior_brate-beach_1-22.db
Dataset Pathname STKML/pass4.1
Presentation Format dil
Dataset Creation Thu Sep 08 14:40:09 2016
Charted by Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
-160	RXORT	40
-200	SP (mV)	0

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



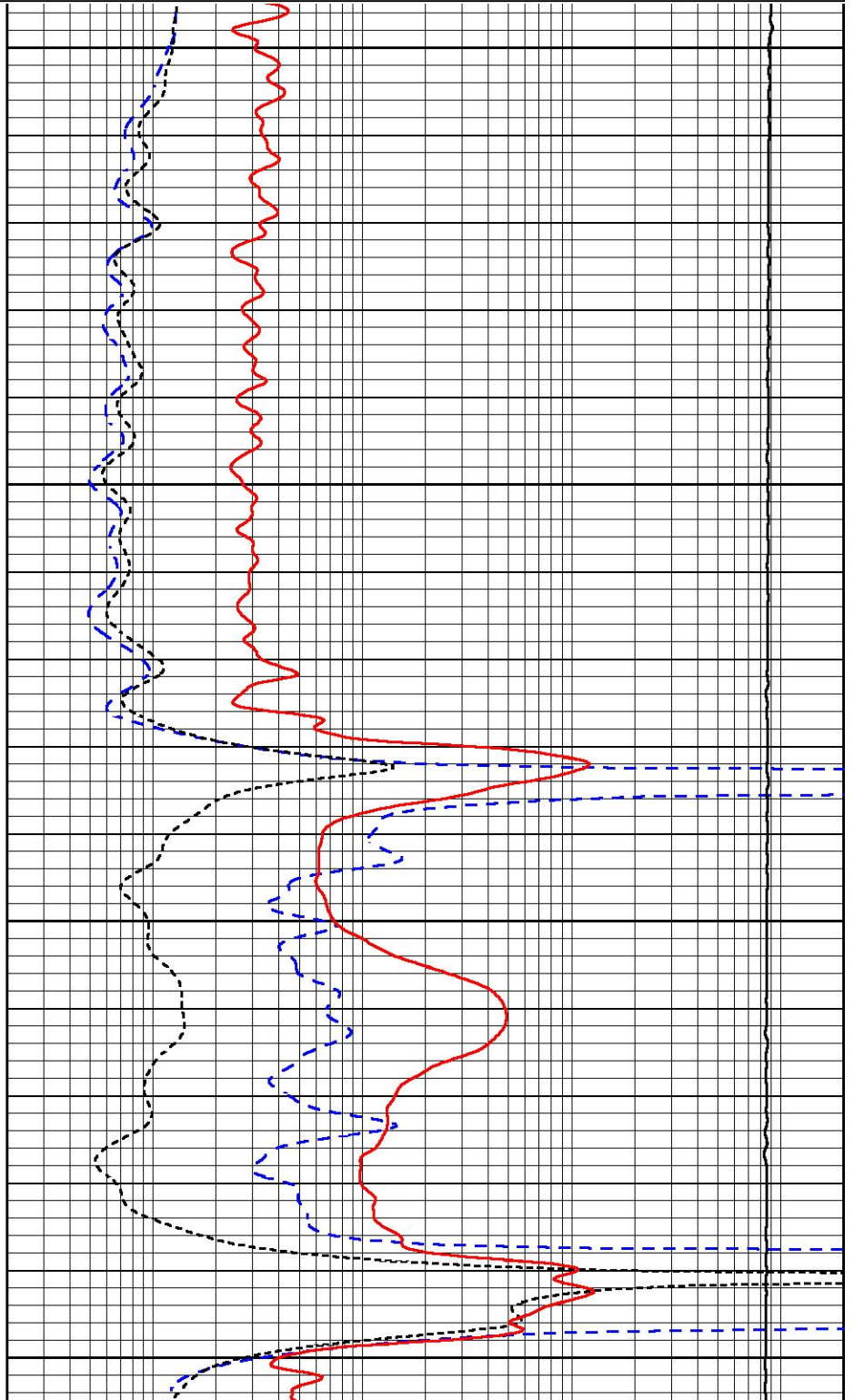
0	Gamma Ray (GAPI)	150
-160	RXORT	40
-200	SP (mV)	0

1750

1800

1850

1900



0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	Shallow Resistivity (Ohm-m)	2000

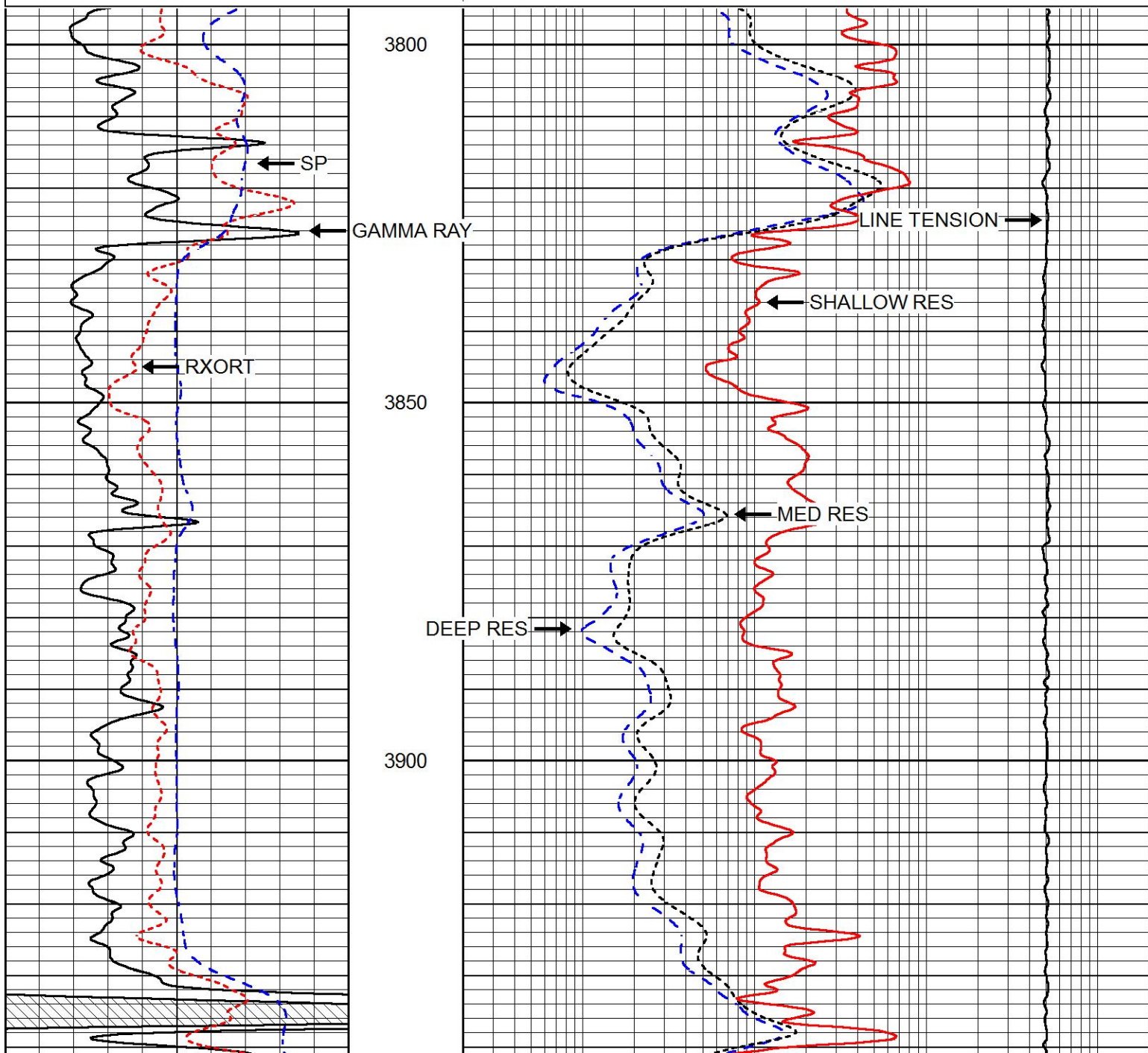
200	SP (mV)	0.2	Shallow Resistivity (Ohm-m)	2000
		10000	Line Tension (lb)	0

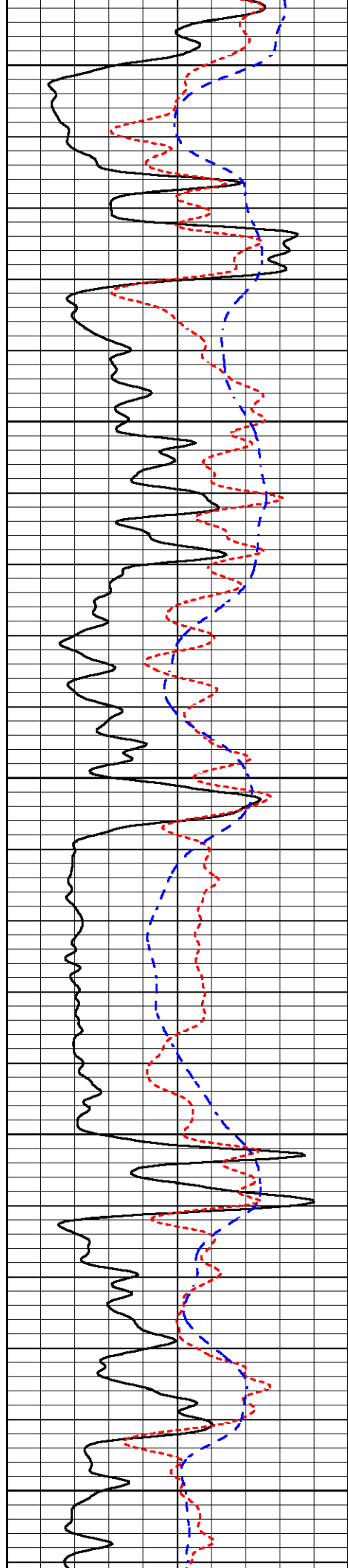


MAIN PASS

Database File	american warrior_obrate-beach_1-22.db
Dataset Pathname	STKML/pass3.4
Presentation Format	dil
Dataset Creation	Thu Sep 08 14:16:33 2016
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150	0.2	Deep Resistivity (Ohm-m)	2000
-160	RXORT	40	0.2	Medium Resistivity (Ohm-m)	2000
-200	SP (mV)	0	0.2	Shallow Resistivity (Ohm-m)	2000
			10000	Line Tension (lb)	0





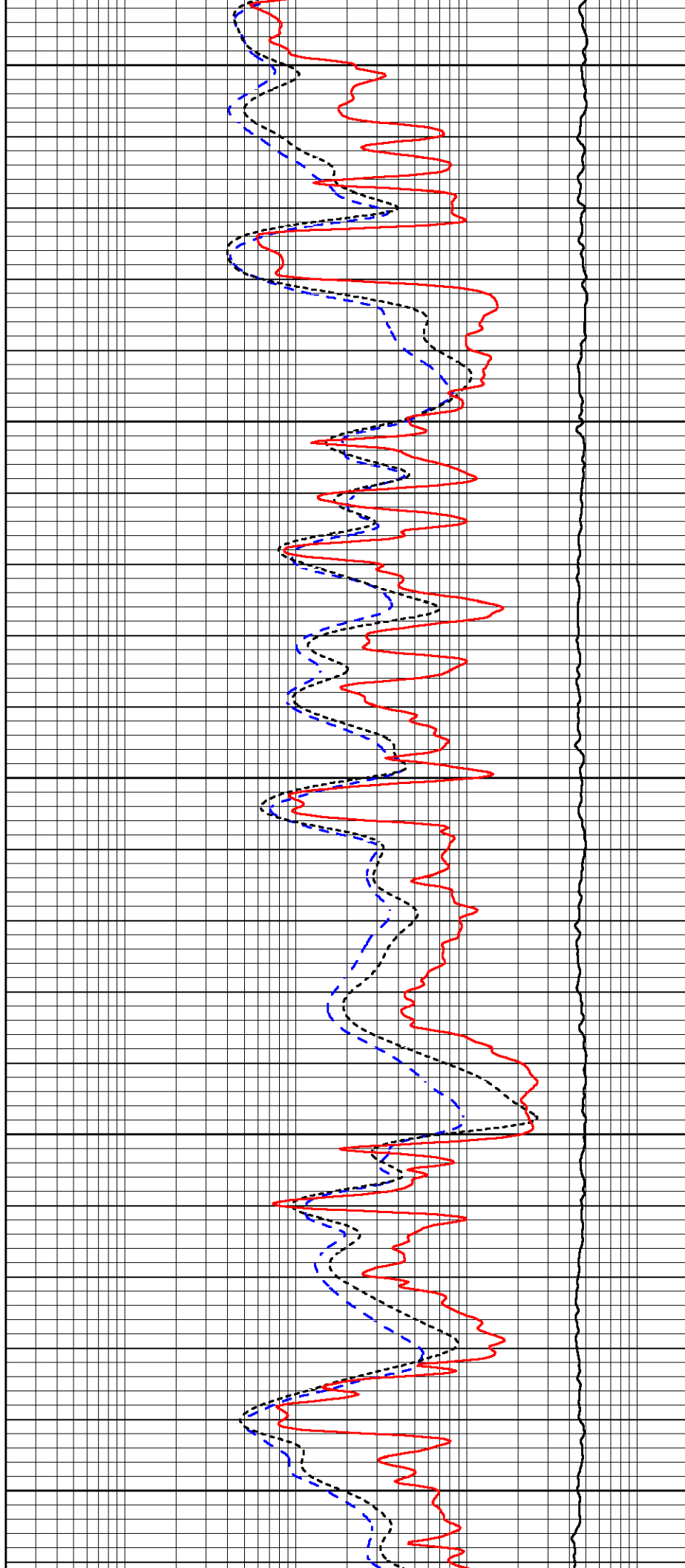
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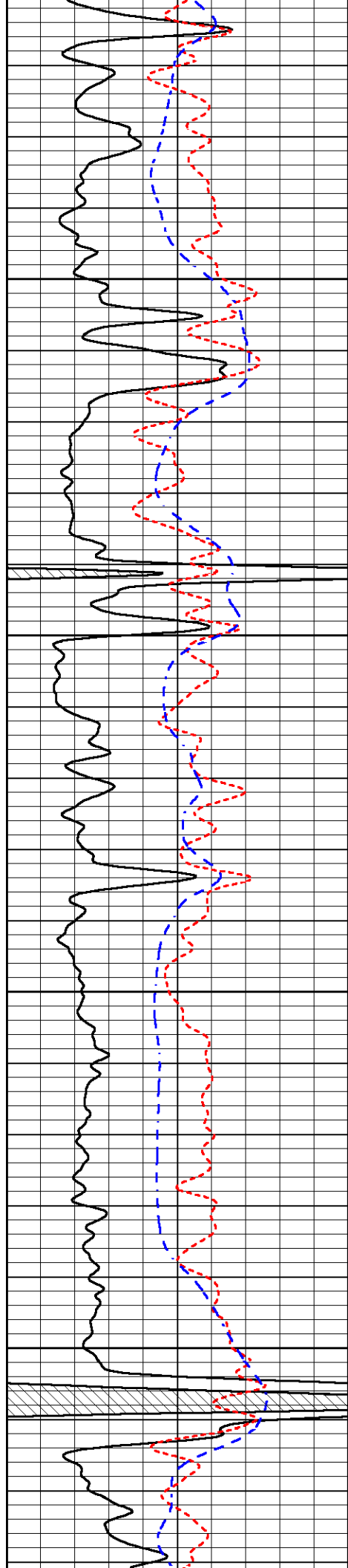
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4050

4100

4150



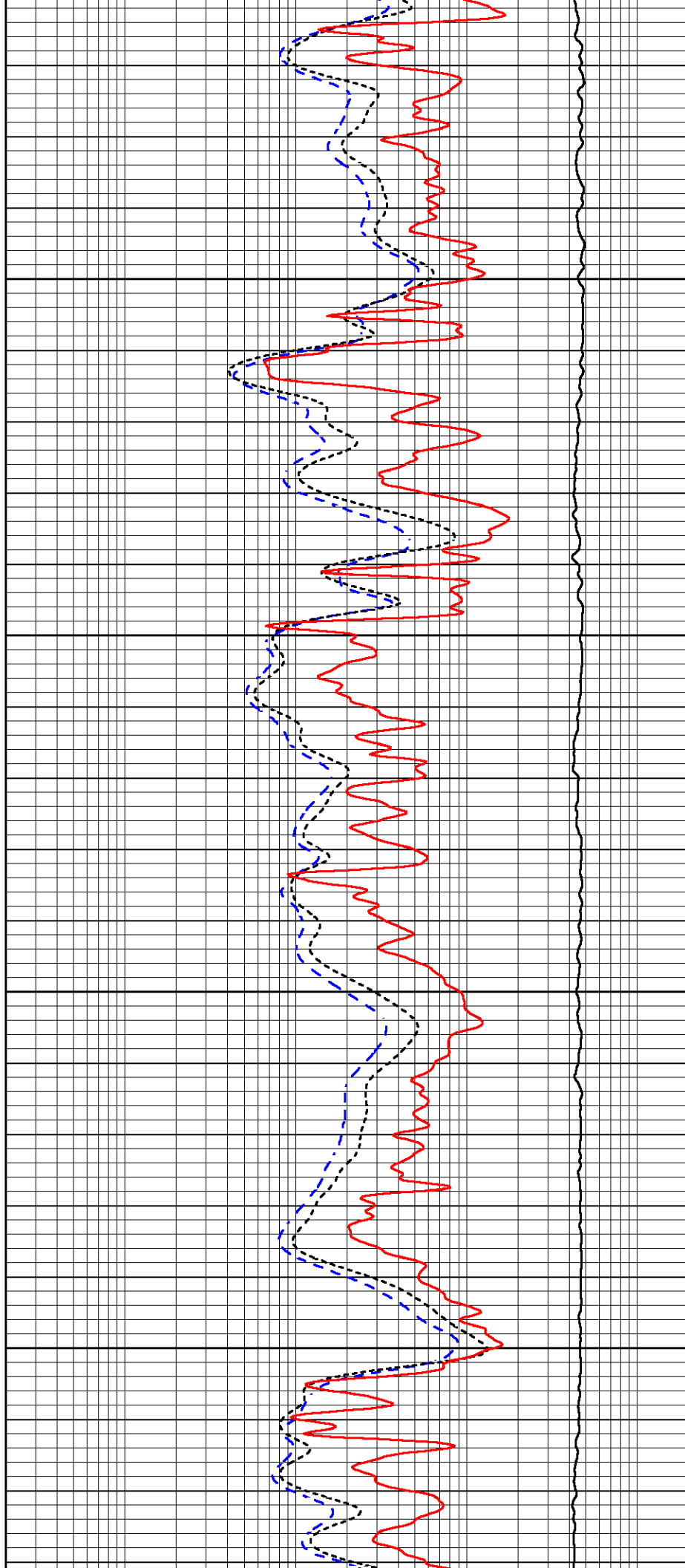


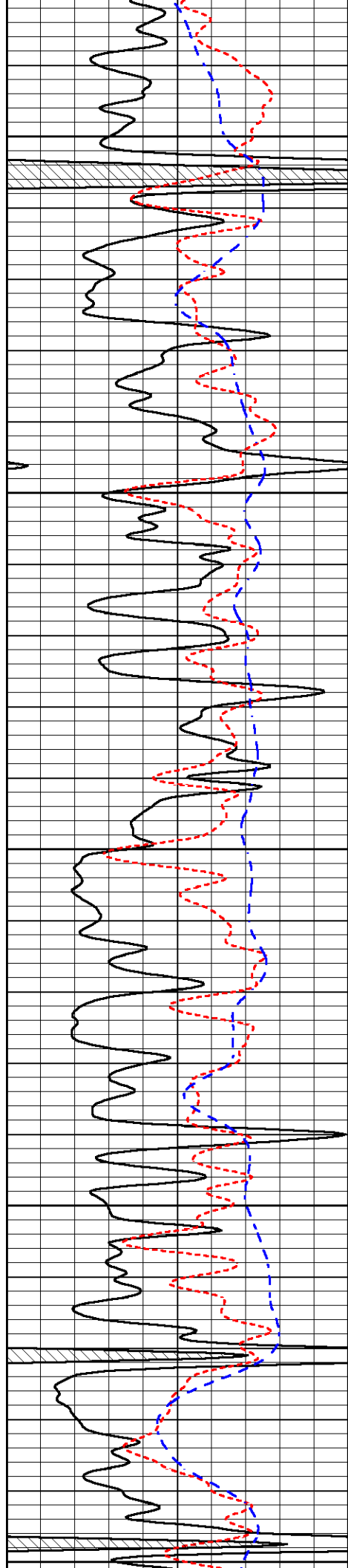
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4250

4300

4350





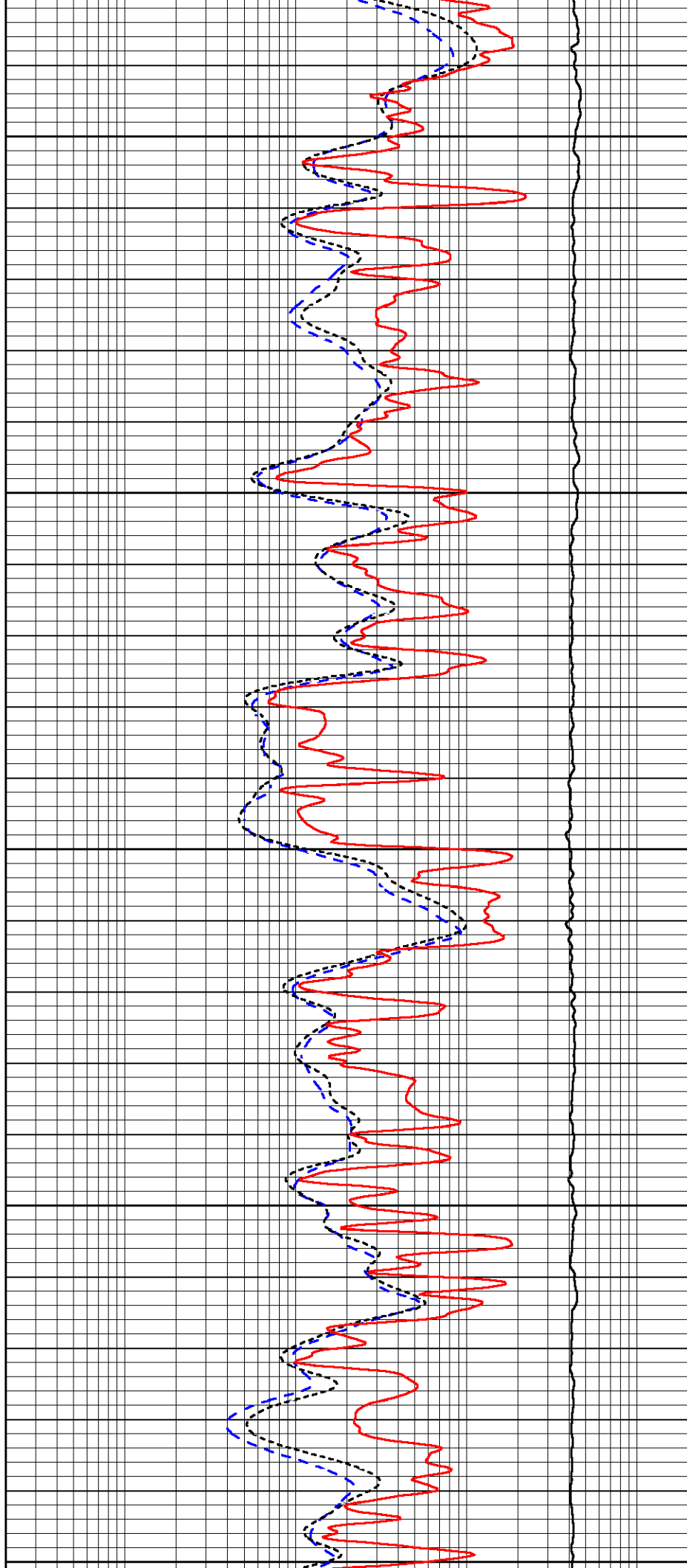
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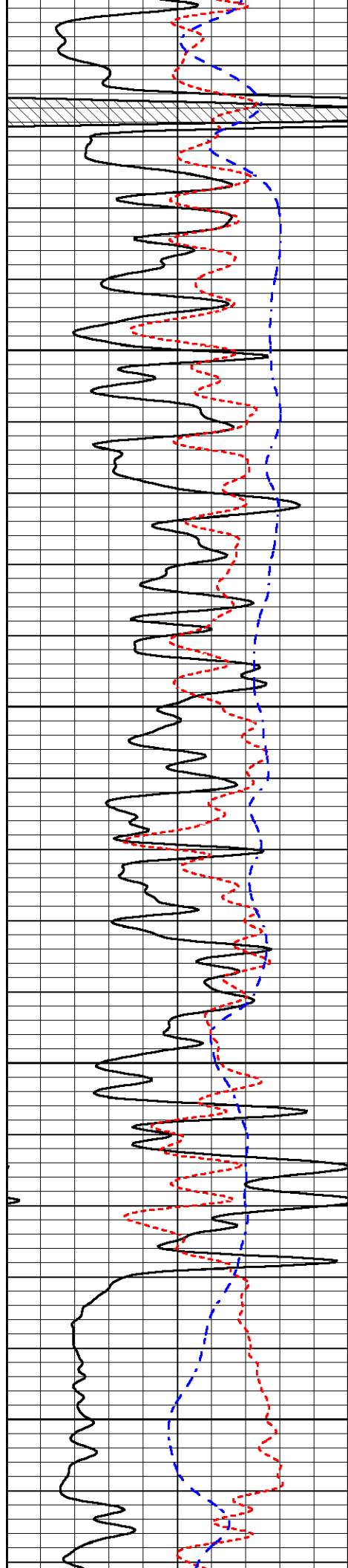
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4600



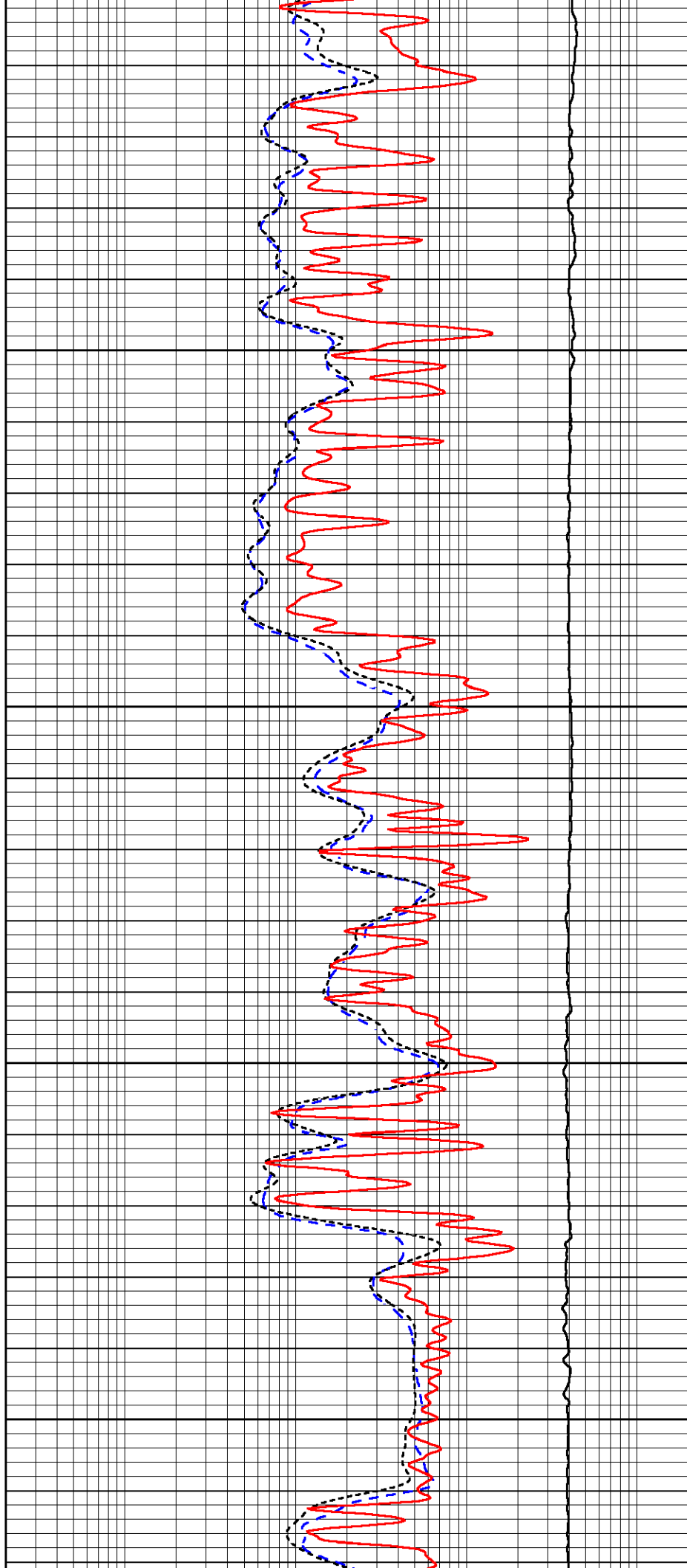


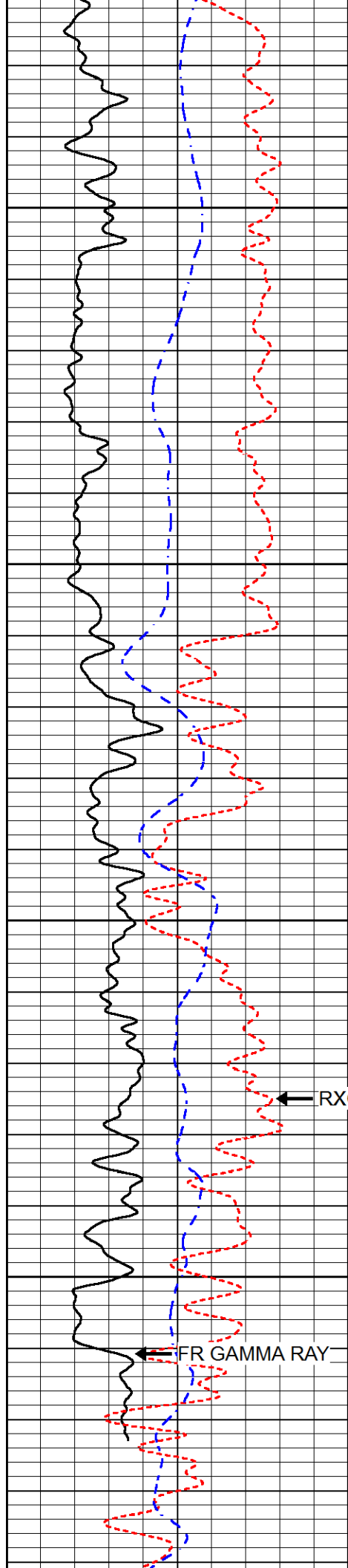
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4700

4750

4800





4850

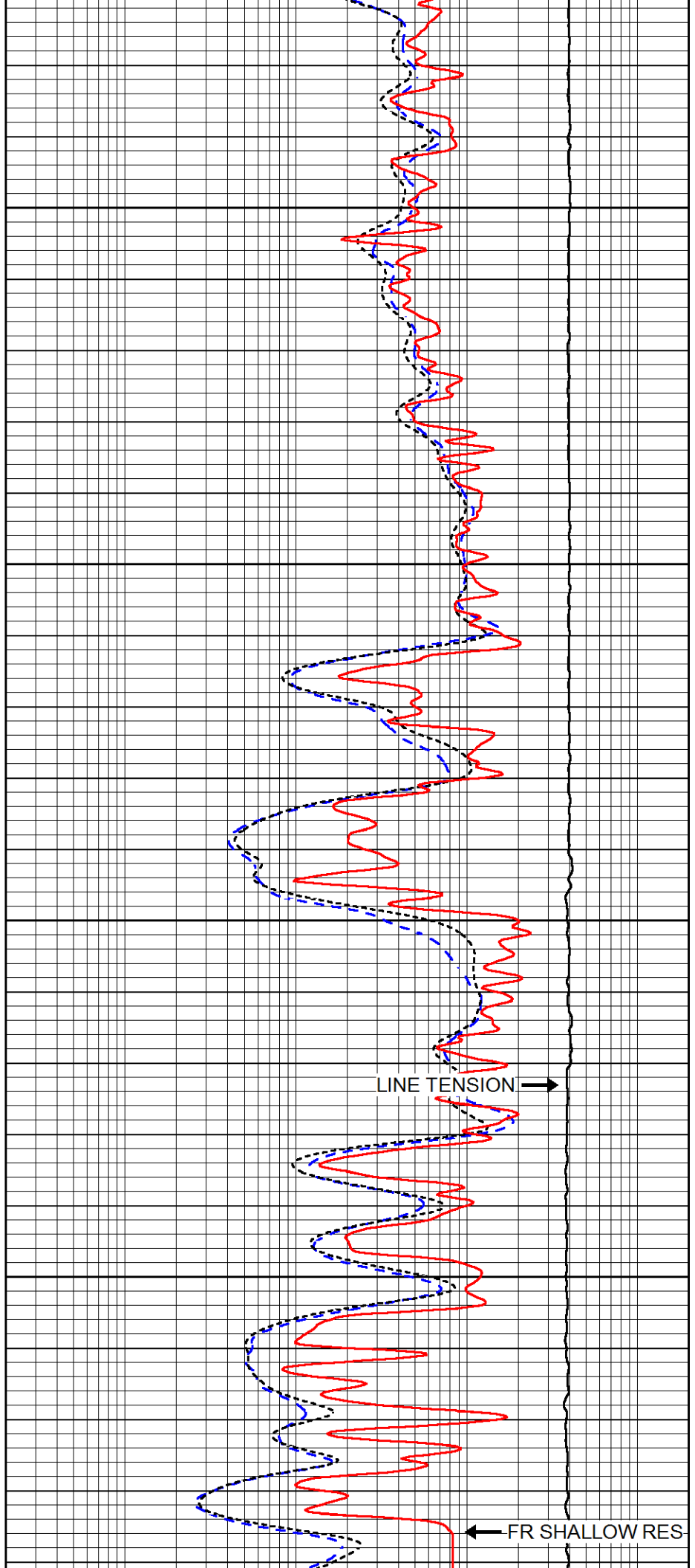
4900

4950

5000

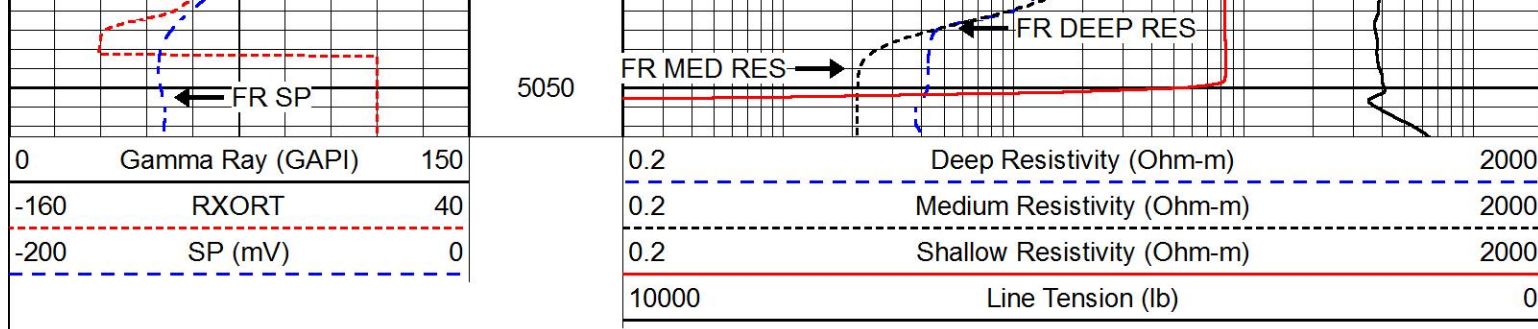
← RXORT

← FR GAMMA RAY



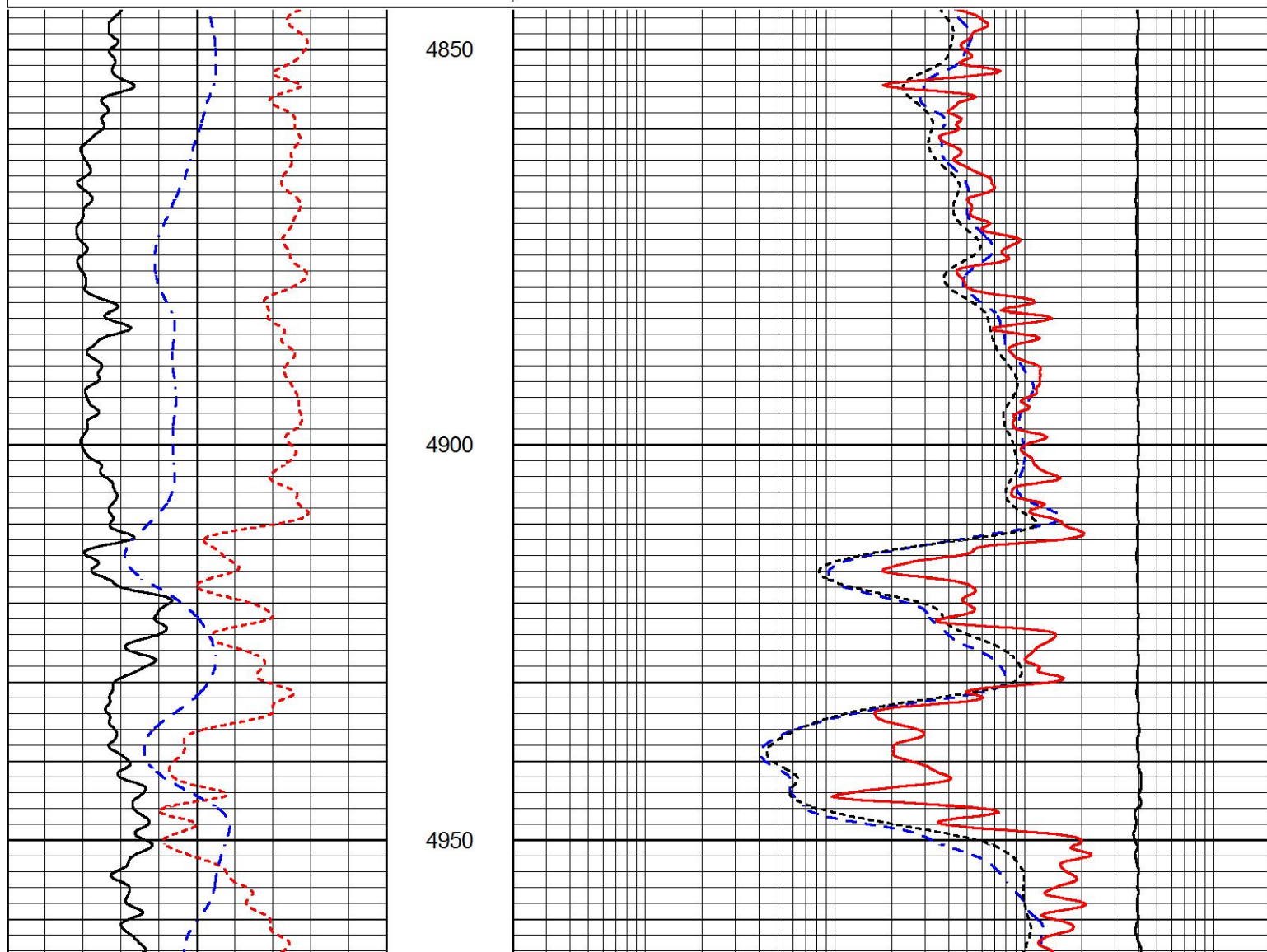
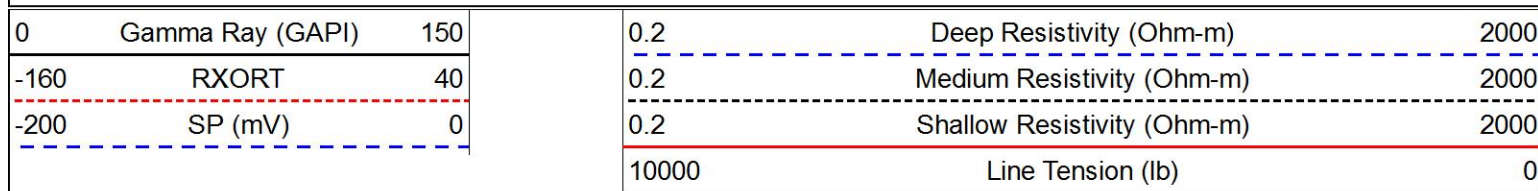
LINE TENSION →

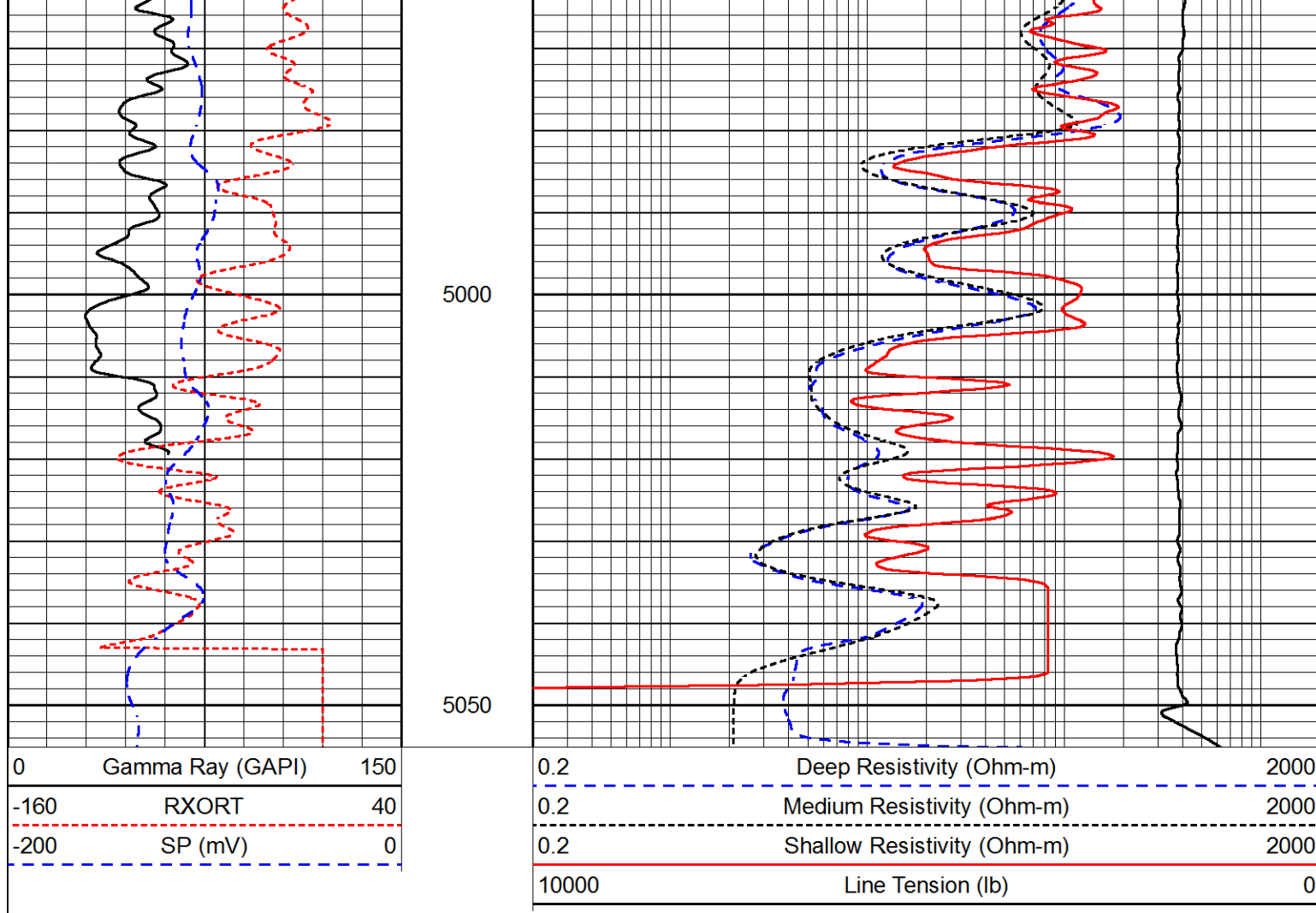
← FR SHALLOW RES



REPEAT SECTION

Database File american_warrior_brate-beach_1-22.db
 Dataset Pathname STKML/pass2.2
 Presentation Format dil
 Dataset Creation Thu Sep 08 14:13:24 2016
 Charted by Depth in Feet scaled 1:240





Calibration Report	
Database File	american warrior_obrate-beach_1-22.db
Dataset Pathname	STKML/pass3.4
Dataset Creation	Thu Sep 08 14:16:33 2016

Dual Induction Calibration Report	
Serial-Model:	PSI 216 HT-PSI HIGH TEMP
Calibration Performed:	Wed Aug 31 19:08:33 2016

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	75.411	495.929	4.000	250.000	mmho/m	0.580	-38.000
Medium	75.269	470.661	0.000	250.000	mmho/m	0.520	-36.000

Microlog Calibration Report	
Serial-Model:	PSI-01-PSIML
Performed:	Thu Sep 08 13:30:14 2016

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	24000.0000	-1.6000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	24500.0000	-0.5000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.7250

Compensated Density Calibration Report

Serial-Model:	90-1031-M&W
Source / Verifier:	16955B / 2ci
Master Calibration Performed:	Wed Aug 24 22:26:37 2016

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	5174.18	6425.27	cps
Aluminum	2.665	g/cc	963.17	4037.42	cps
Spine Angle = 74.55			Density/Spine Ratio = 0.522		
	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:	Wed Aug 31 10:30:30 2016

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:	Wed Aug 24 22:26:53 2016	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6000	GAPI/cps



Company	AMERICAN WARRIOR, INC.
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Field	WILDCAT
County	FINNEY
State	KANSAS