



DUAL INDUCTION LOG

MIDWEST WIRELINE

Company American Warrior, Inc.

Well Ward Unit #1-10

Field

County Logan

State Kansas

Location: API #: 15-109-21649-00-00

Other Services

1347 FNL & 2554 FWL

SEC 10 TWP 12S RGE 36W

CNL/CDL
MEL/BHCS

Permanent Datum Ground Level Elevation 3246
Log Measured From Kelly Bushing
Drilling Measured From Kelly Bushing

Elevation
K.B. 3257
D.F.
G.L. 3246

Date 7/25/2022

Run Number One

Depth Driller 4828

Depth Logger 4830

Bottom Logged Interval 4829

Top Log Interval 350

Casing Driller 8.625 @ 392

Casing Logger 389

Bit Size 7.875

Type Fluid in Hole Chemical

Salinity, ppm CL 4400

Density / Viscosity 9.4 55

pH / Fluid Loss 11.0 8.0

Source of Sample FLOWLINE

Rm @ Meas. Temp 0.40 @ 65

Rmt @ Meas. Temp 0.30 @ 65

Rmc @ Meas. Temp 0.54 @ 65

Source of Rmt / Rmc CHARTS

Rm @ BHT 0.21 @ 124

Operating Rig Time 5 Hours

Max Rec. Temp. F 124

Equipment Number P-108

Location HAYS

Recorded By D. Schmidt

Witnessed By Austin Garner

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and Midwest Wireline LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Midwest Wireline 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.

Winona,
4 West, North and East into

Log Measured From: Kelly Bushing

13 Ft. Above Permanent Datum

THANK YOU FOR USING MIDWEST WIRELINE LLC
785-625-3858

Your Midwest Wireline Crew

Engineer: D. Schmidt
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: Austin Garner
Secondary Witness:
Secondary Witness:
Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\american_warrior_ward unit 1-10.db
Dataset field/well/stkml/pass3.12/_vars_

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in	degF	in	in	g/cc	2	g/cc
	7.875	124	5.5	0	1		2.71
NPORSEL	PERFS	SNDERR	SNDERRM	SPSHIFT	SRFTEMP	SZCOR	TDEPTH
Limestone	0	mmho/m	mmho/m	mV	degF	Off	ft
		0	0	670	60		4830

Variable Description

A : Cement Factor (a)
BOREID : Borehole I.D.
BOTTEMP : Bottom Hole Temperature
CASEOD : Casing O.D.
CASETHCK : Casing Thickness
FLUIDDEN : Fluid Density
M : Cement Exp (m)
MATRXDEN : Matrix Density

NPORSEL : Neutron Porosity Curve Select
PERFS : Perforation Flag
SNDERR : Deep Sonde Error Correction
SNDERRM : Medium Sonde Error Correction
SPSHIFT : S.P. Baseline Offset
SRFTEMP : Surface Temperature
SZCOR : CN Size Cor. ?
TDEPTH : Total Depth

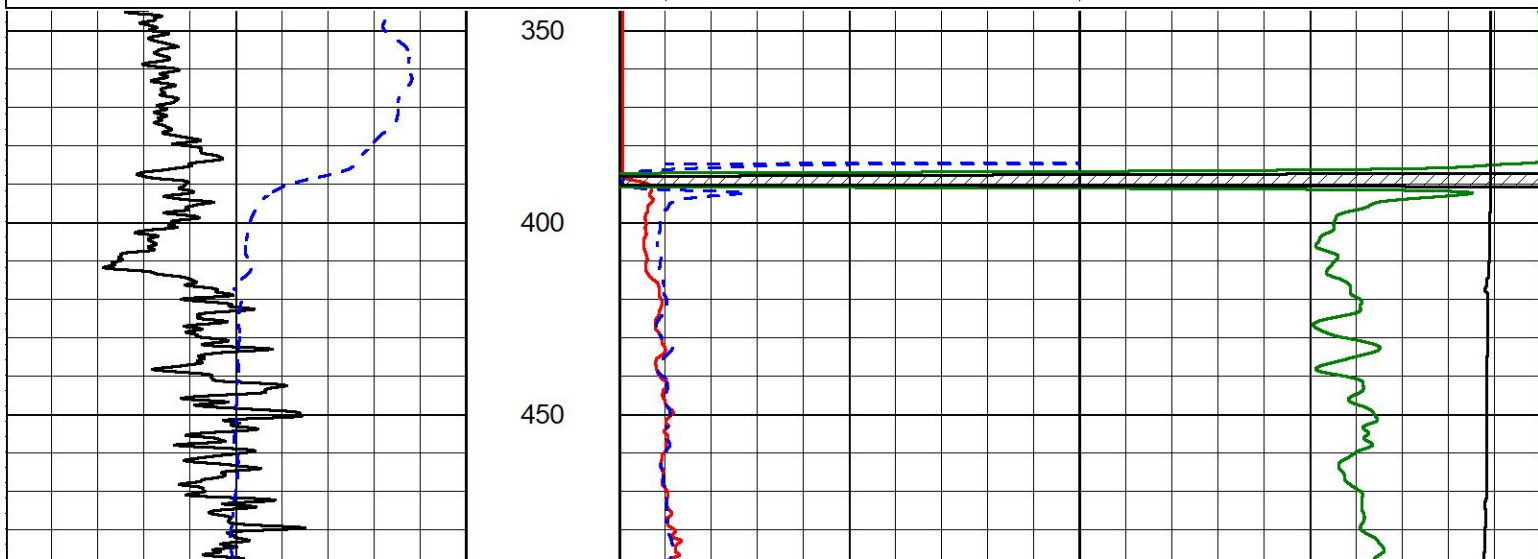


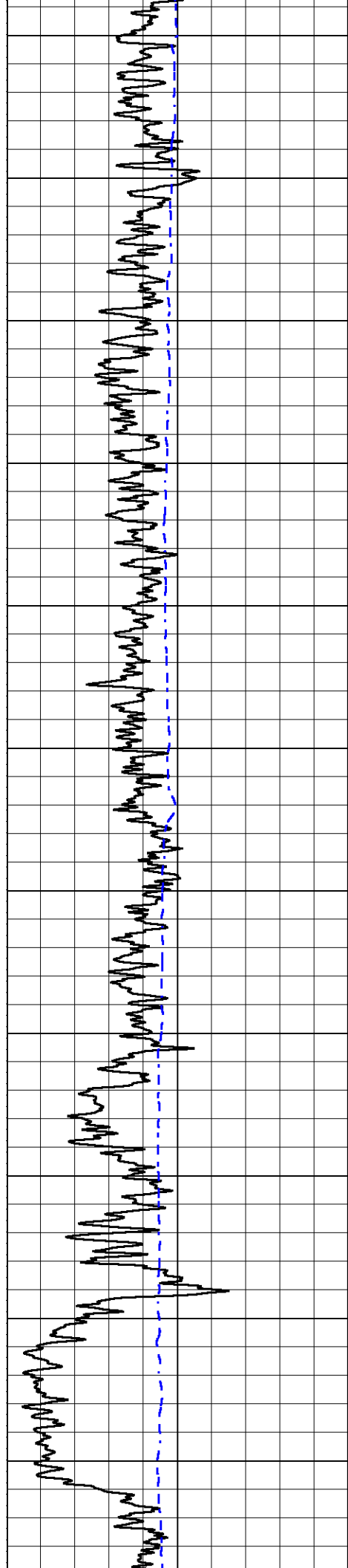
2" SCALE RESISTIVITY

MAIN PASS

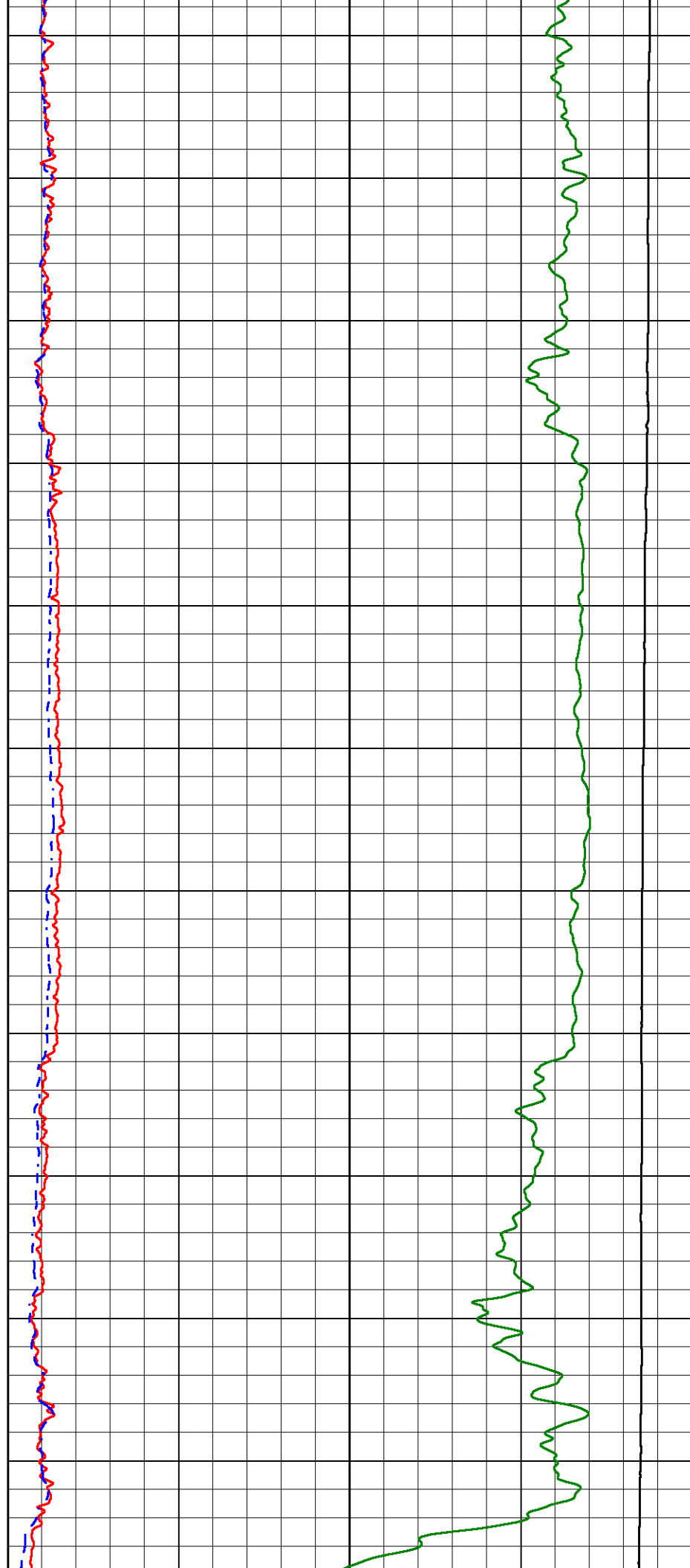
Database File american_warrior_ward unit 1-10.db
Dataset Pathname stkml/pass3.3
Presentation Format _dil2in
Dataset Creation Mon Jul 25 04:36:03 2022
Charted by Depth in Feet scaled 1:600

0	Gamma Ray (GAPI)	300	1000	Conductivity (mmho/m)	0
-200	SP (mV)	0	15000	Line Tension (lb)	0
			0	Shallow Resistivity (Ohm-m)	50
			0	Deep Resistivity (Ohm-m)	50
			Shallow Resistivity		
			50	(Ohm-m)	200
			50	Deep Resistivity (Ohm-m)	200





500
550
600
650
700
750
800
850
900
950
1000



1050

1100

1150

1200

1250

1300

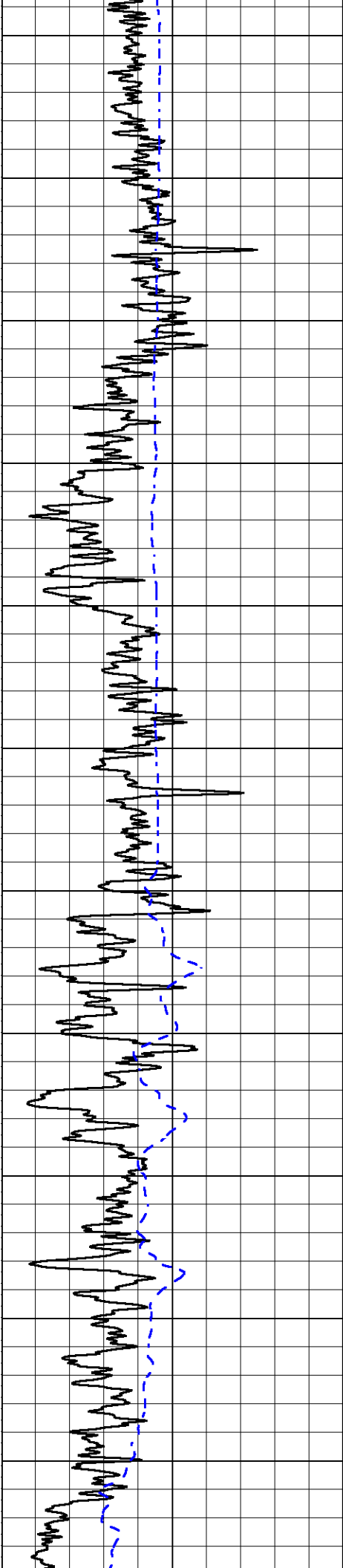
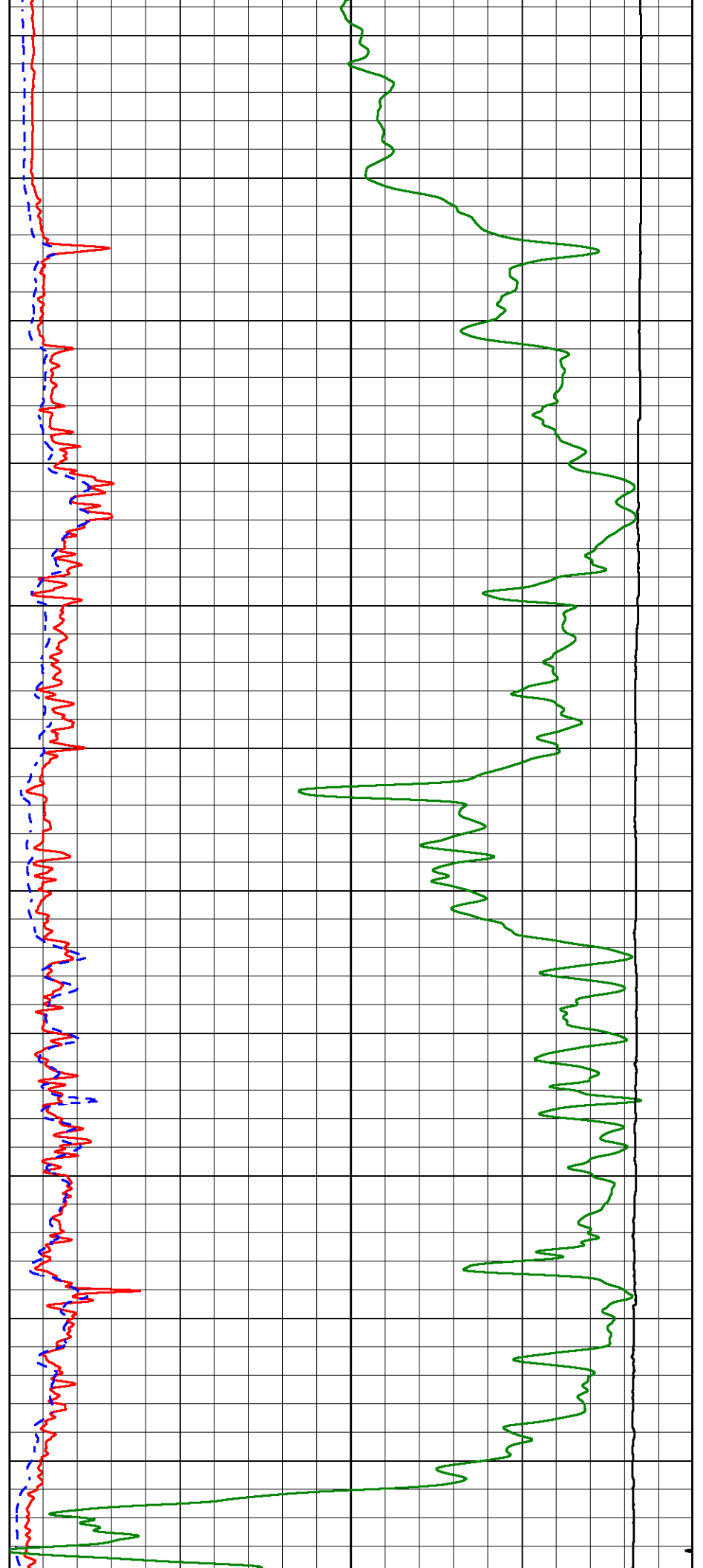
1350

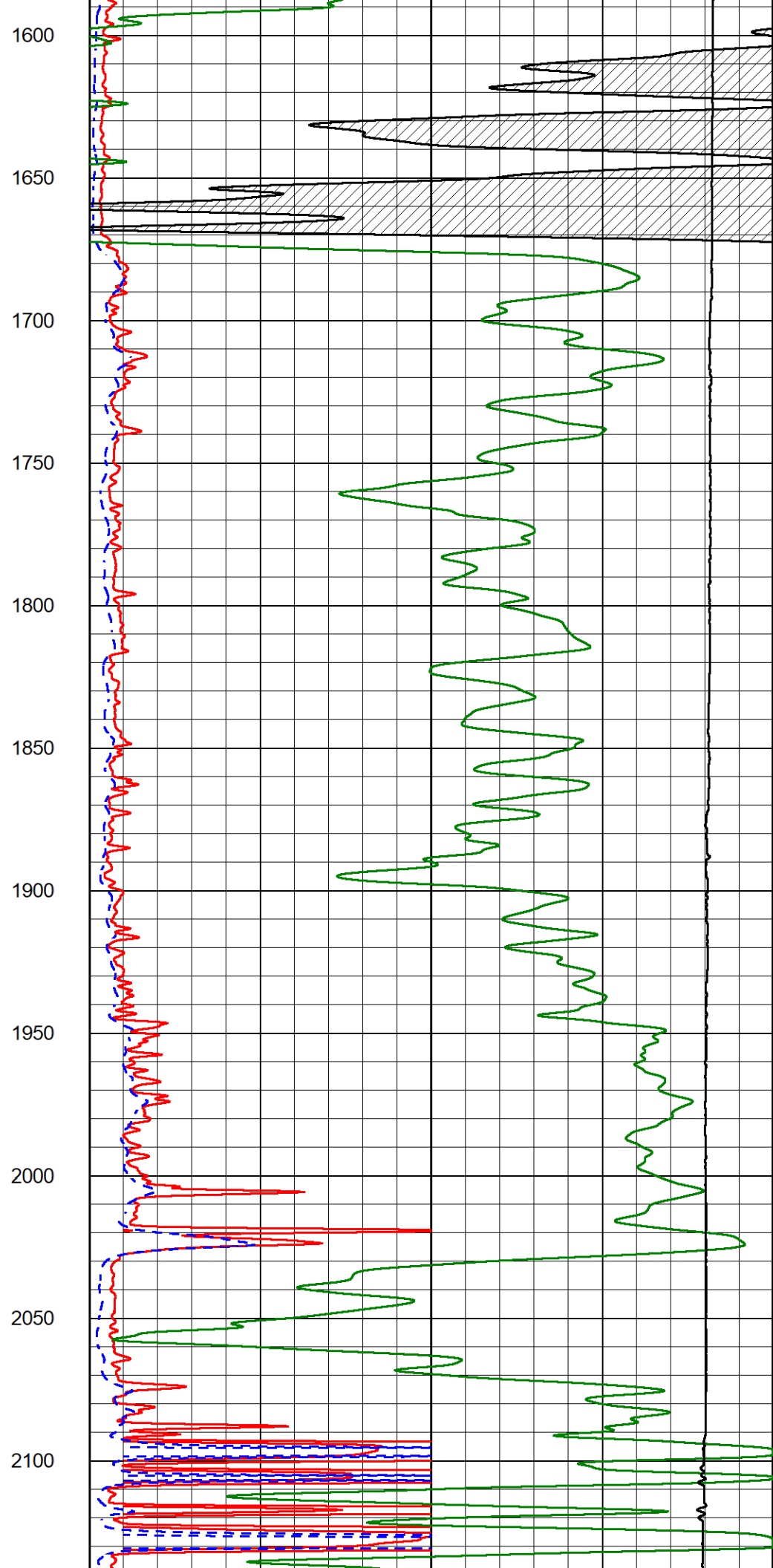
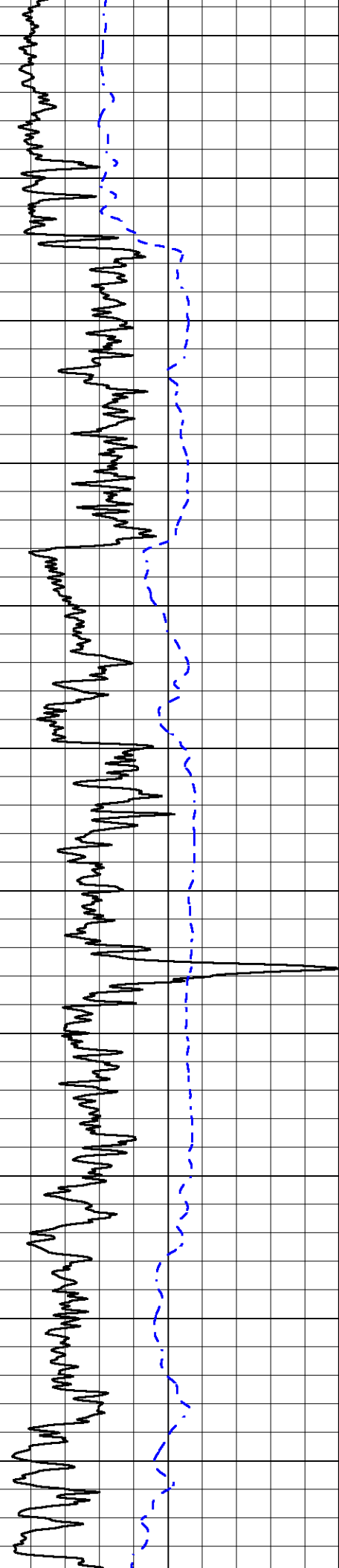
1400

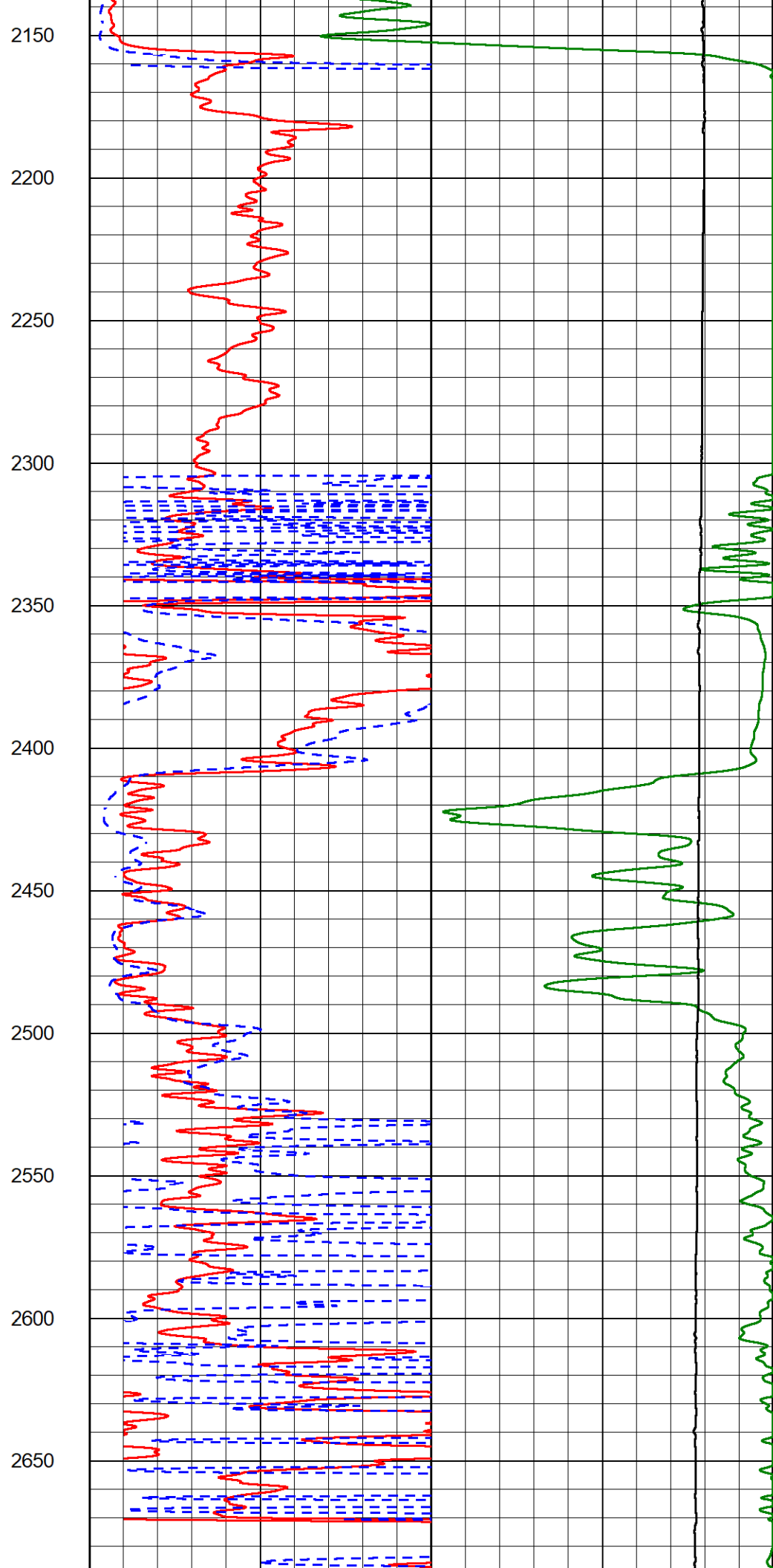
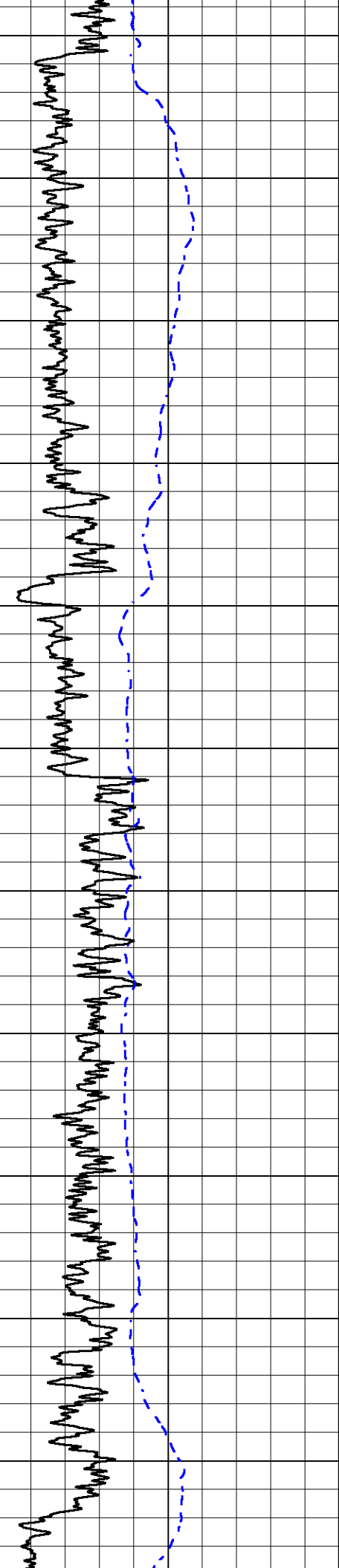
1450

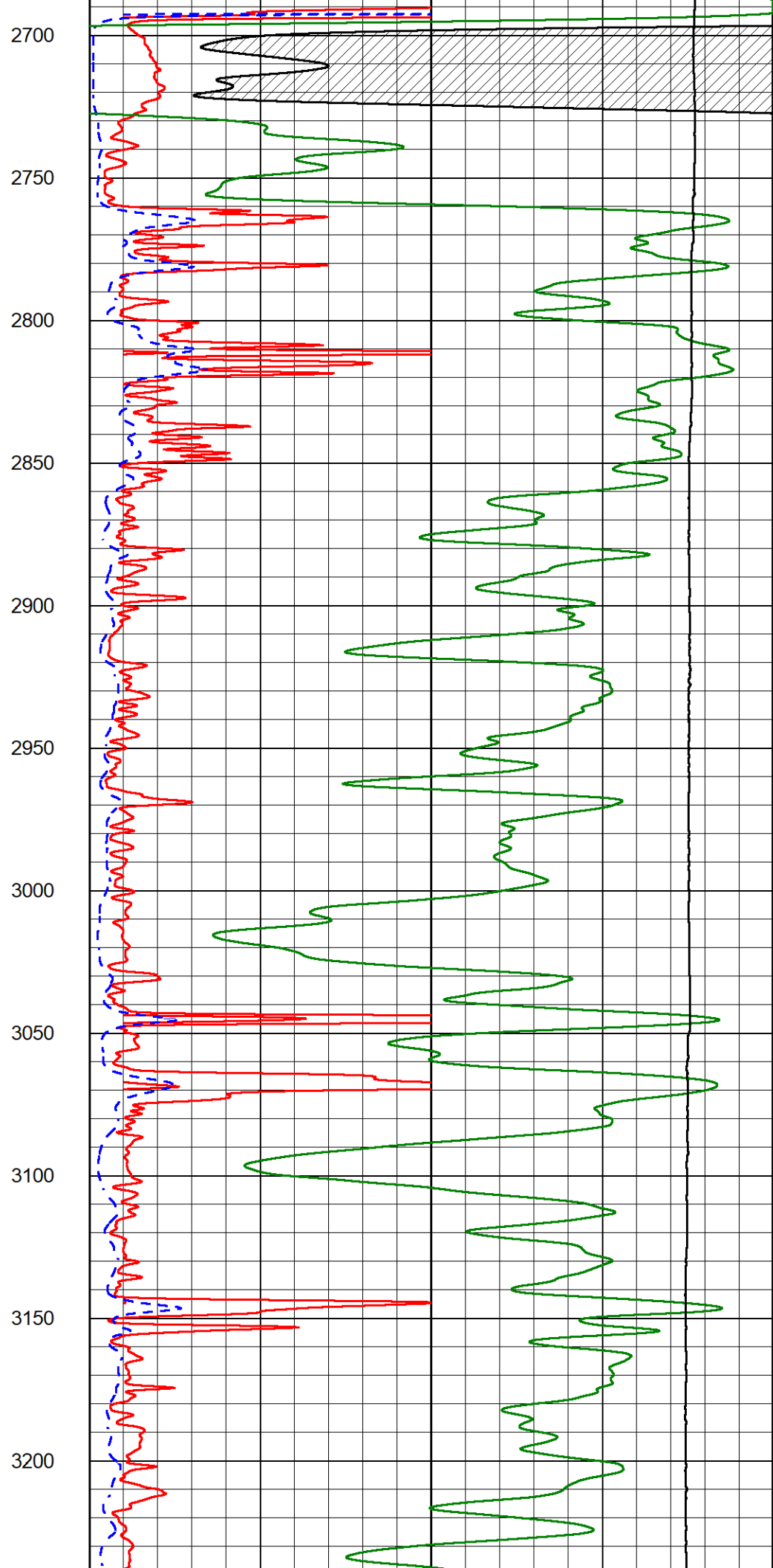
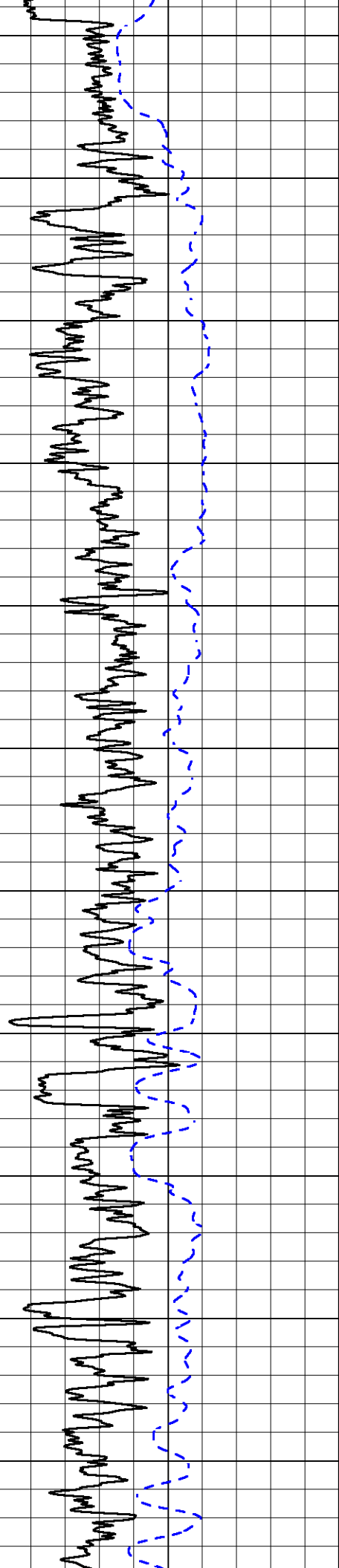
1500

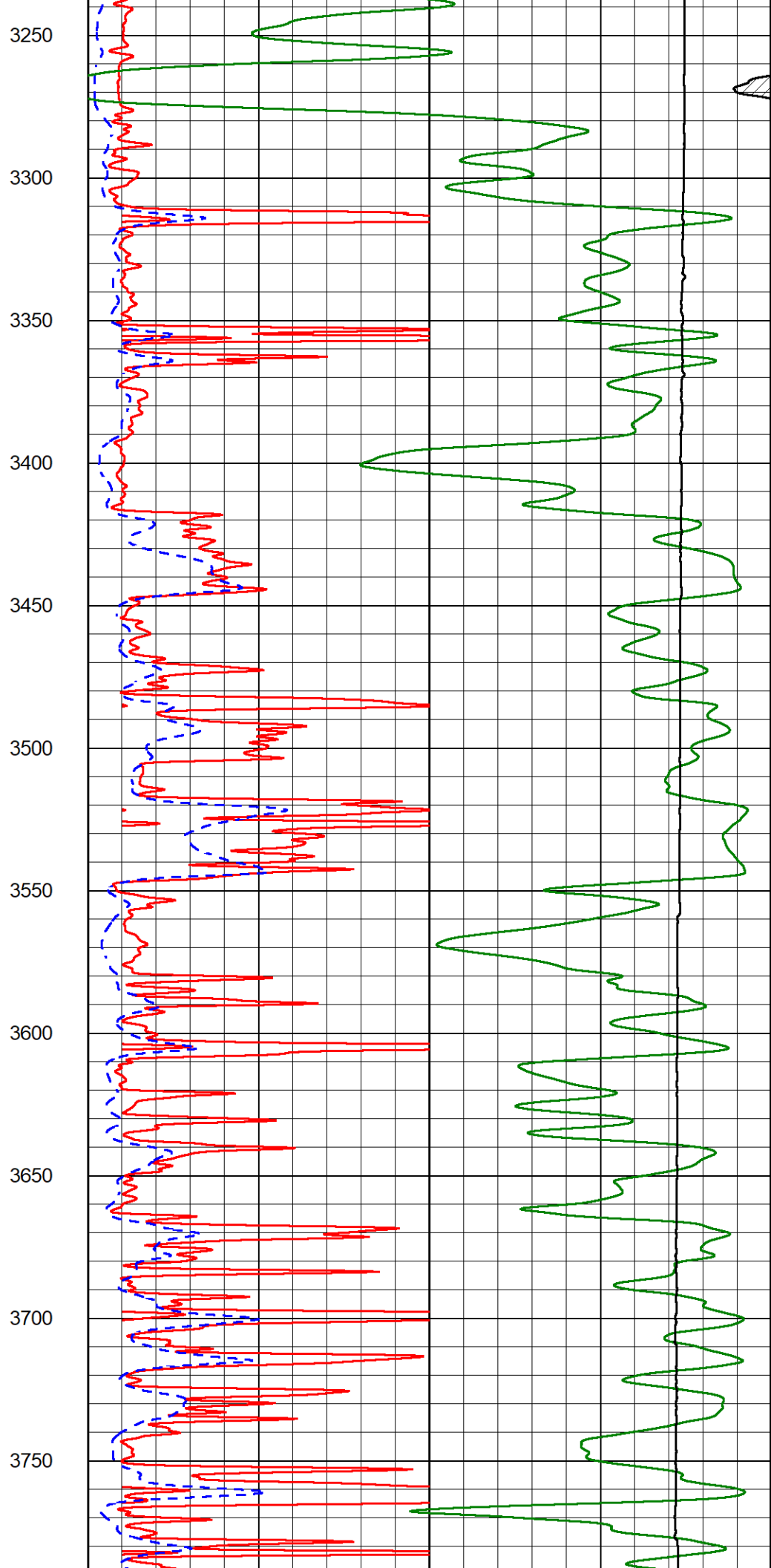
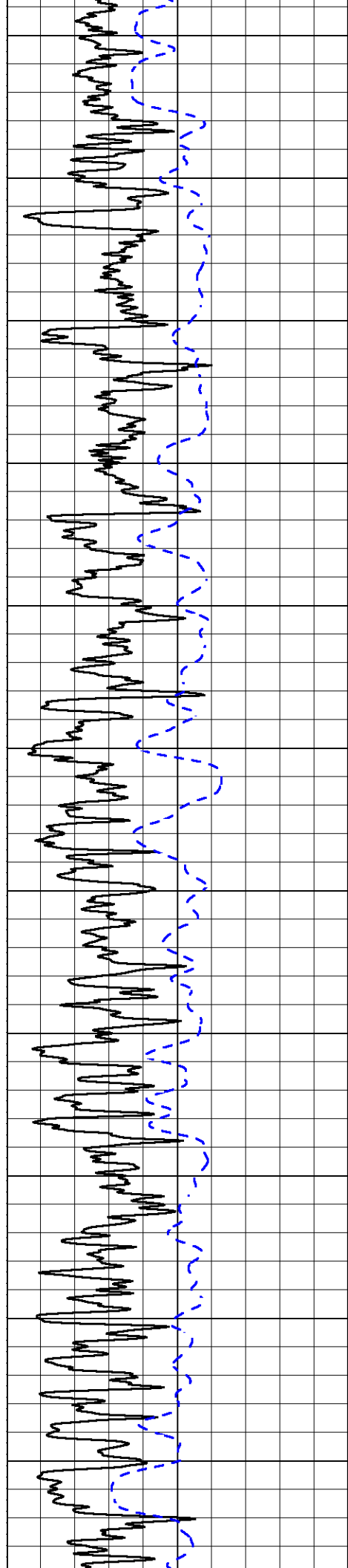
1550

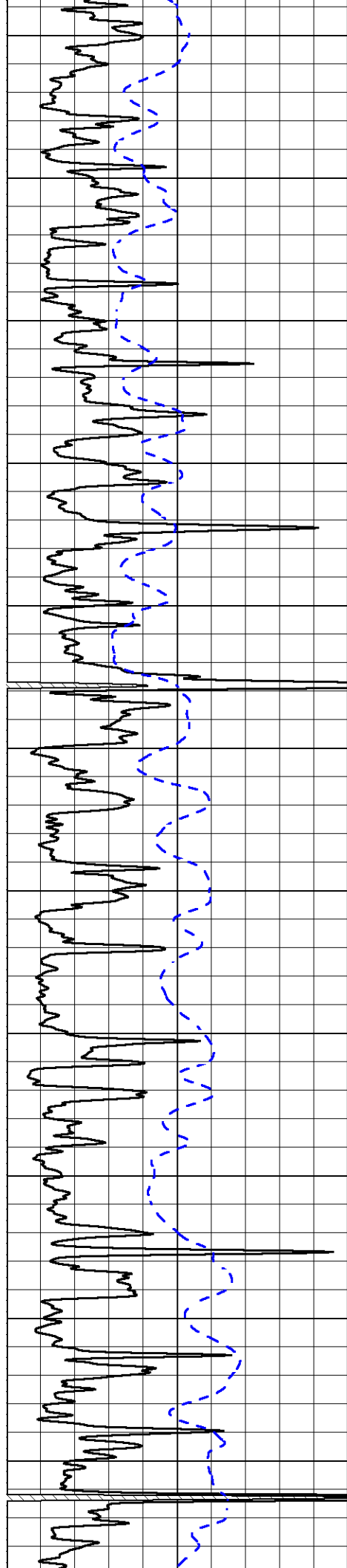












3800

3850

3900

3950

4000

4050

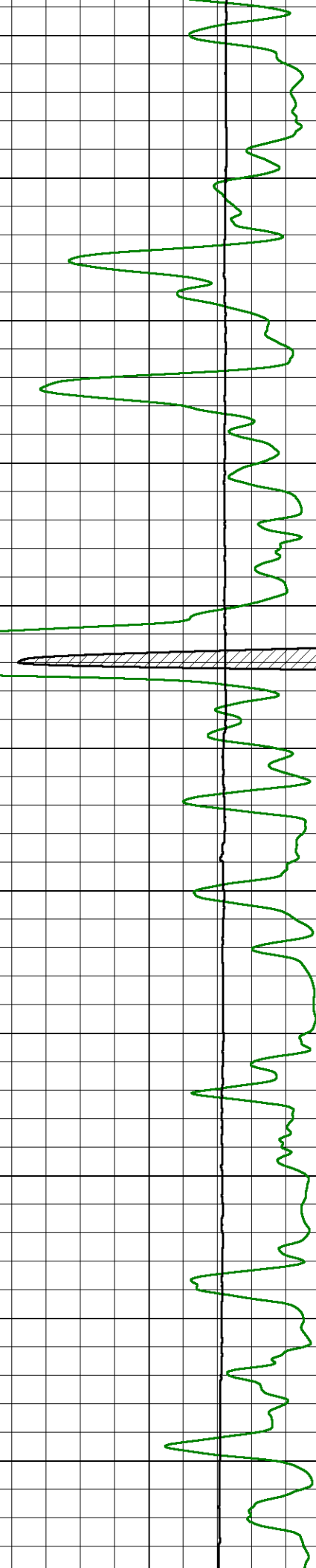
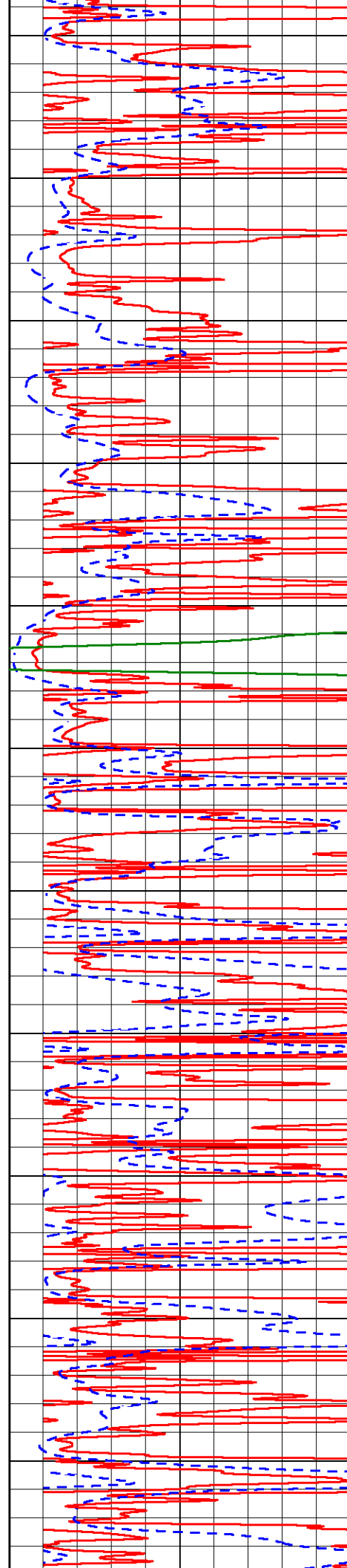
4100

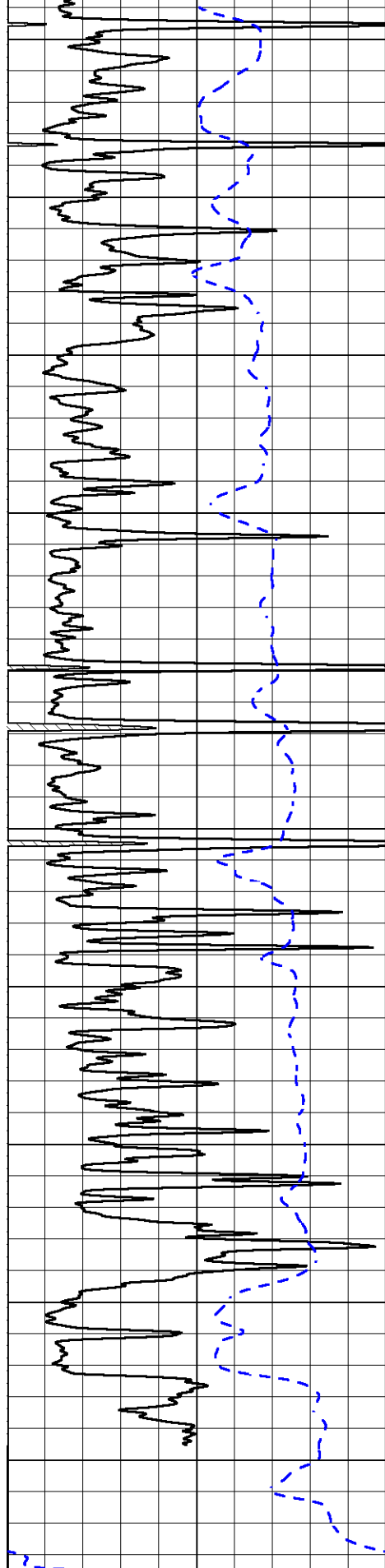
4150

4200

4250

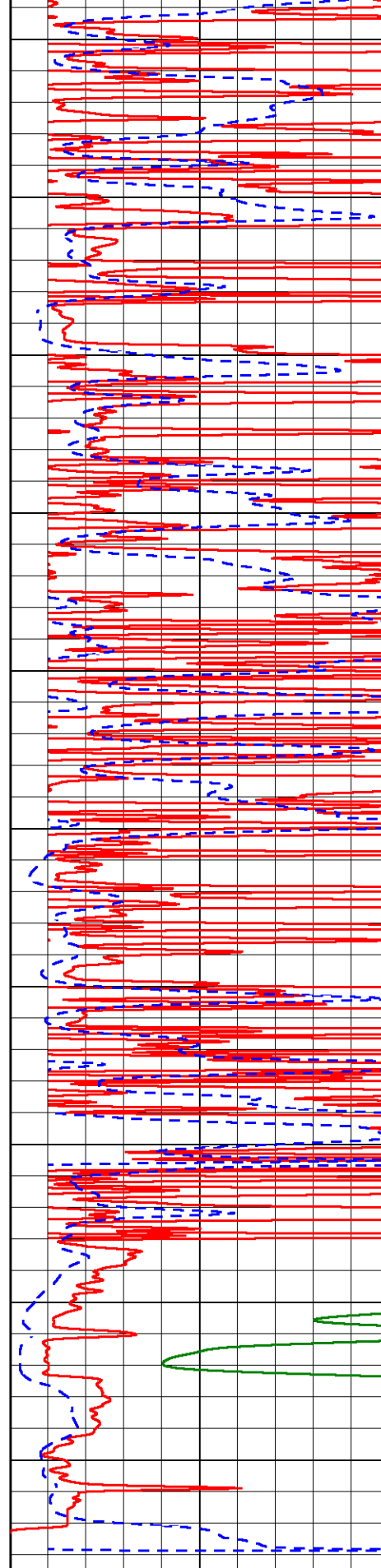
4300





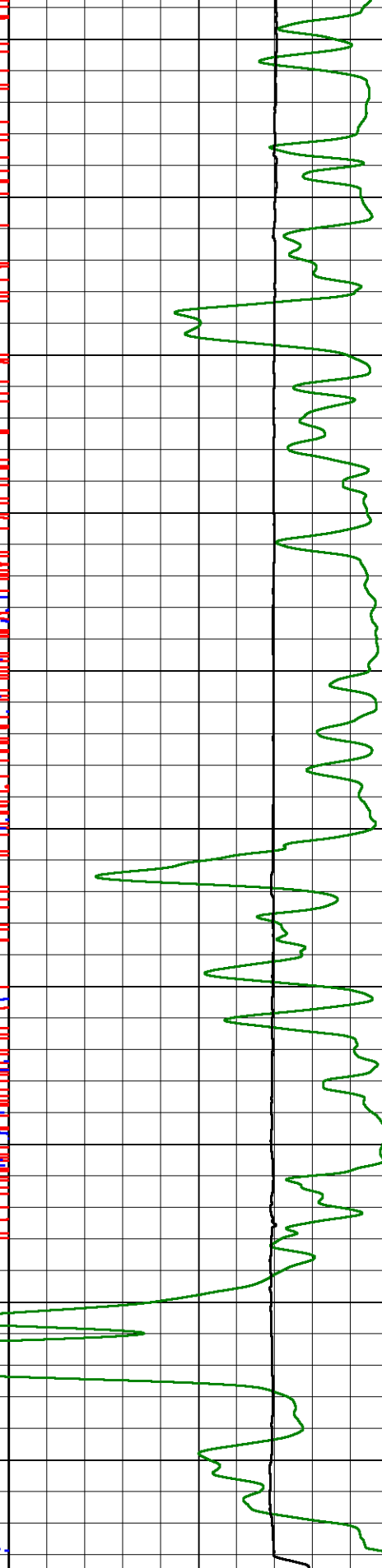
0 Gamma Ray (GAPI) 300
-200 SP (mV) 0

4350
4400
4450
4500
4550
4600
4650
4700
4750
4800



1000 Conductivity (mmho/m) 15000
0 Line Tension (lb) 50

0 Shallow Resistivity (Ohm-m) 50
0 Deep Resistivity (Ohm-m) 50



0 SP (mV) 0

Shallow Resistivity		
50	(Ohm-m)	200
50	Deep Resistivity (Ohm-m)	200



MIDWEST WIRELINE

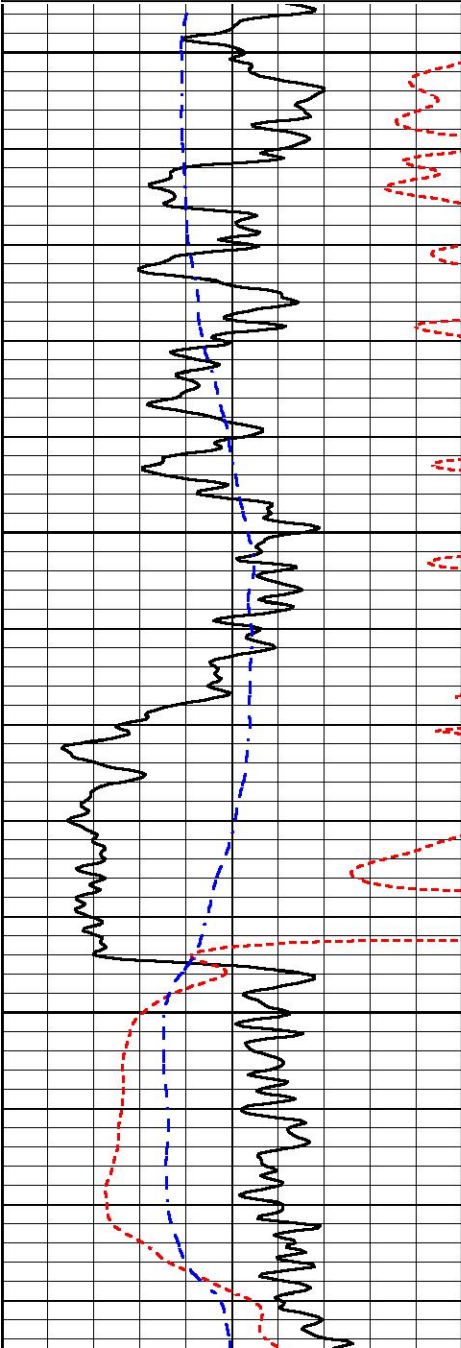
ANHYDRITE SECTION

MAIN PASS

Database File american_warrior_ward unit 1-10.db
Dataset Pathname stkml/pass3.4
Presentation Format _dil
Dataset Creation Mon Jul 25 04:36:16 2022
Charted by Depth in Feet scaled 1:240

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

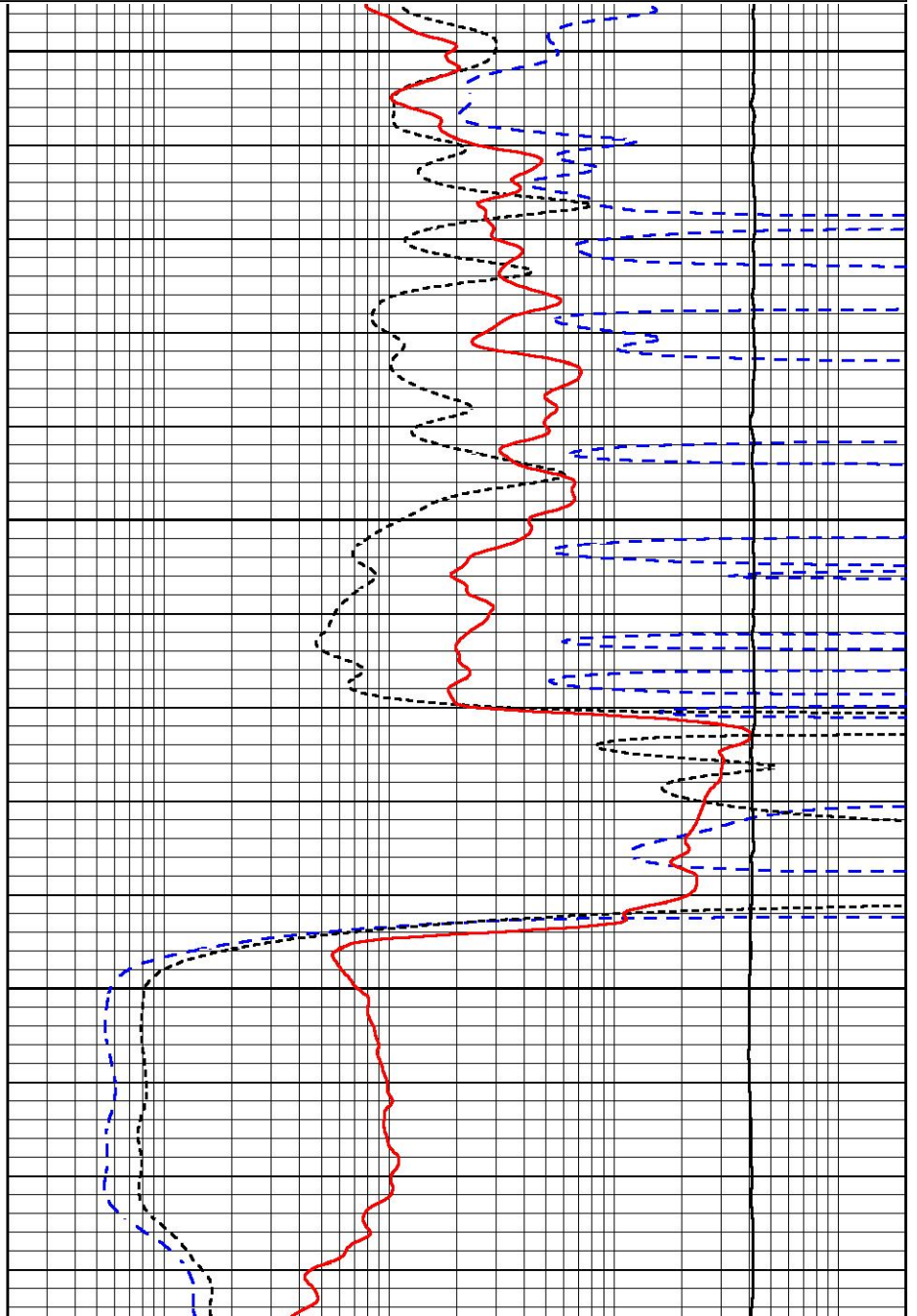
0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	Line Tension (lb)	0

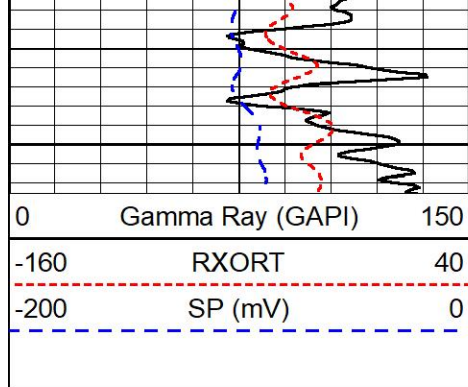


2600

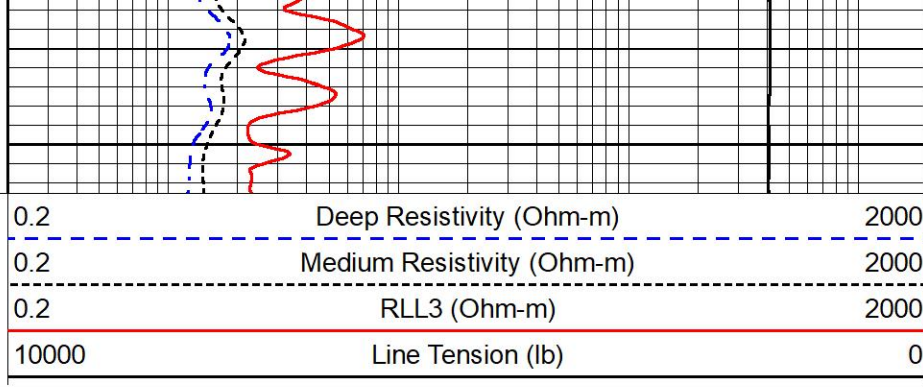
2650

2700





2750

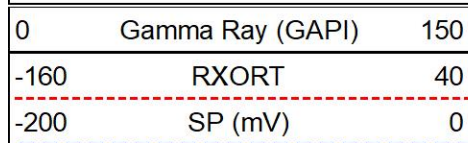


MIDWEST WIRELINE

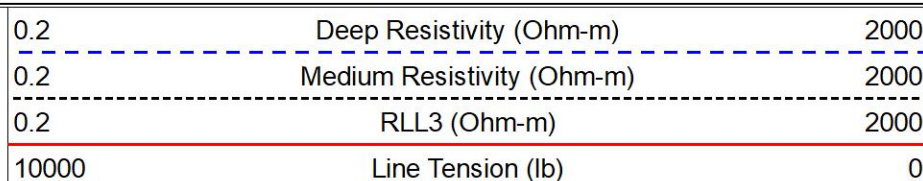
DETAIL SECTION

MAIN PASS

Database File american_warrior_ward unit 1-10.db
 Dataset Pathname stkml/pass3.1
 Presentation Format _dil
 Dataset Creation Mon Jul 25 04:27:21 2022
 Charted by Depth in Feet scaled 1:240

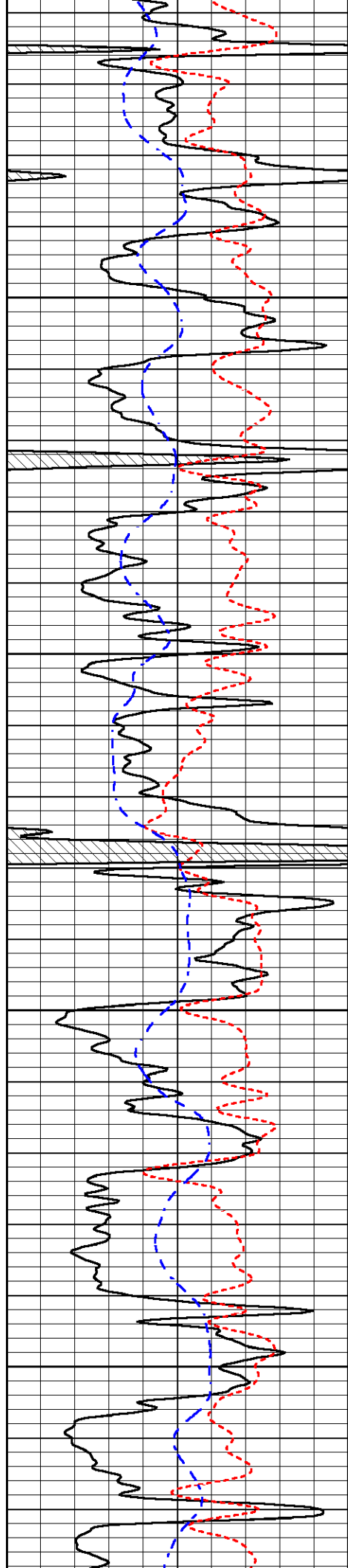


3800



3850

3900

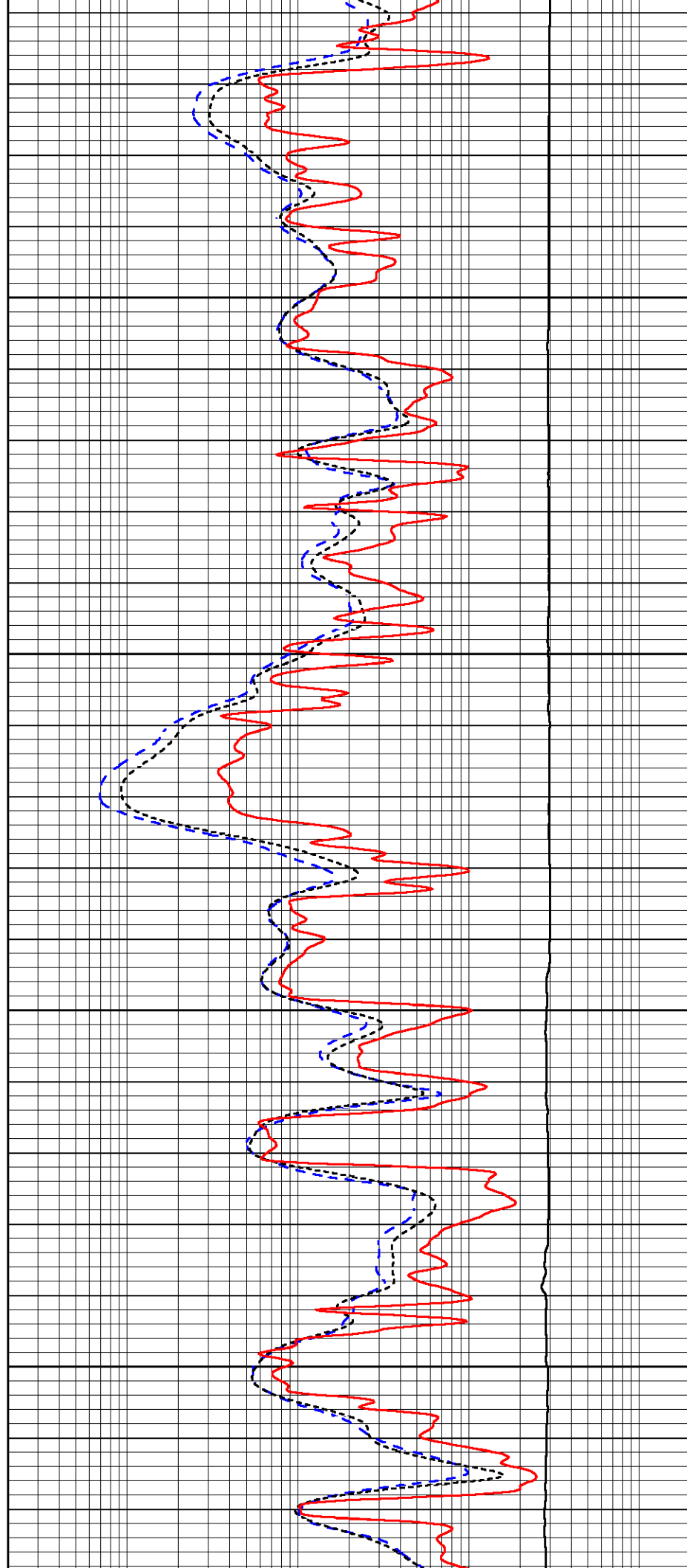


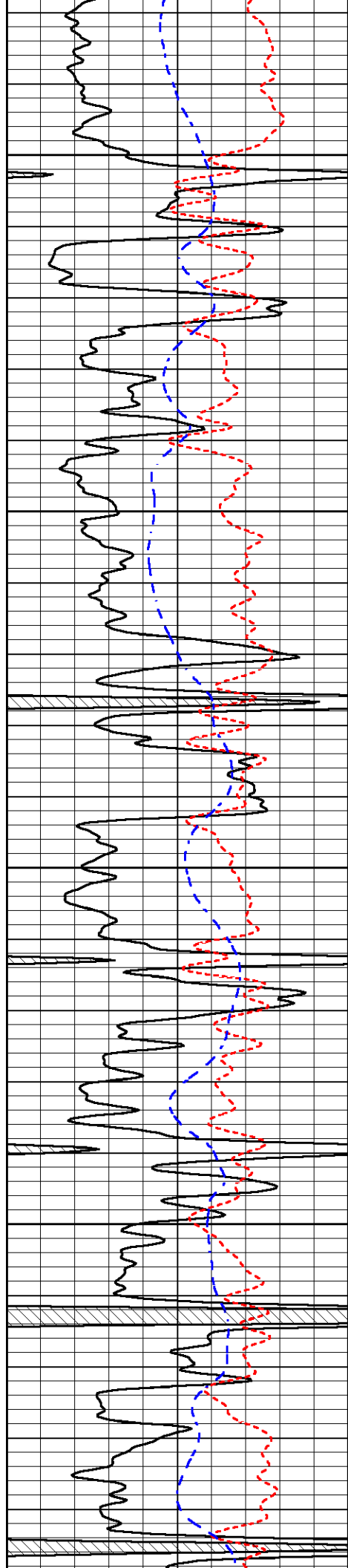
3950

4000

4050

4100



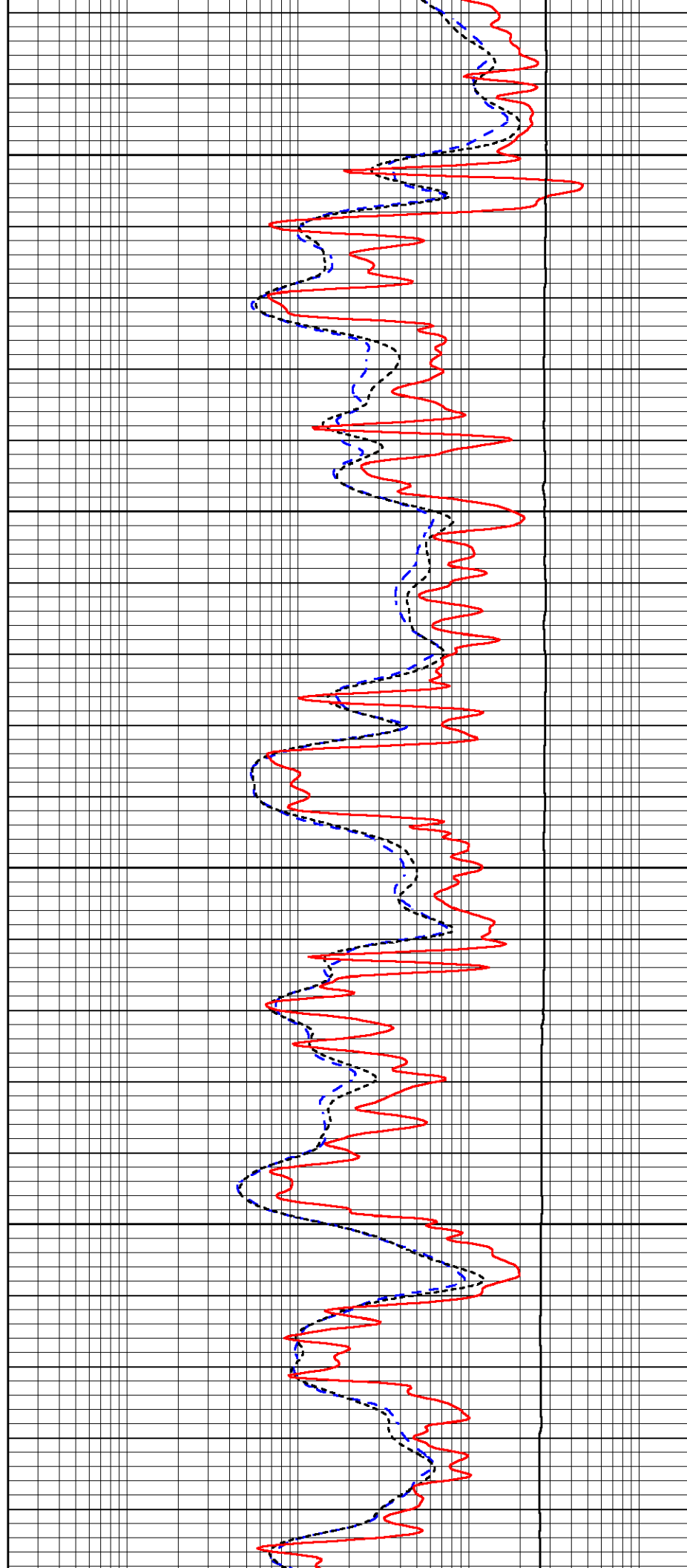


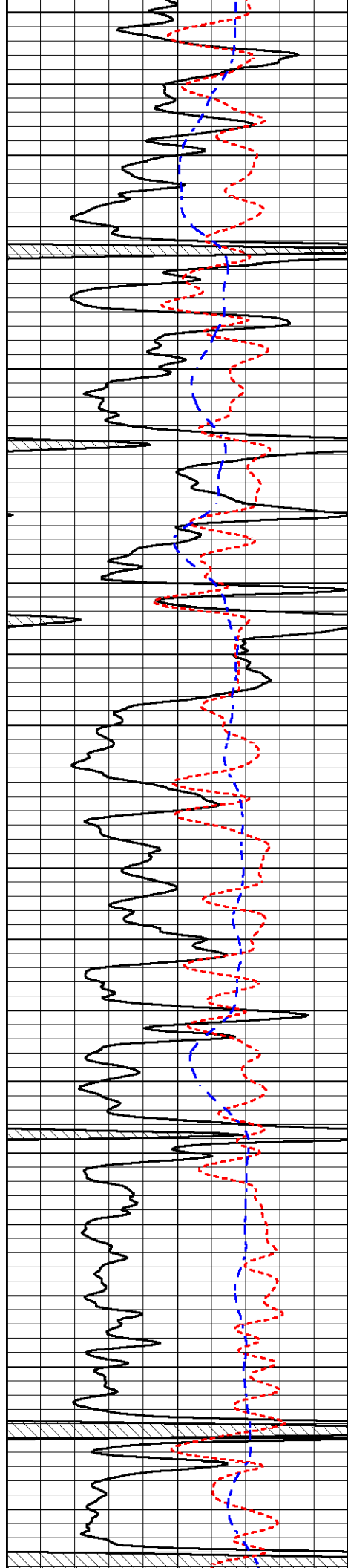
4150

4200

4250

4300





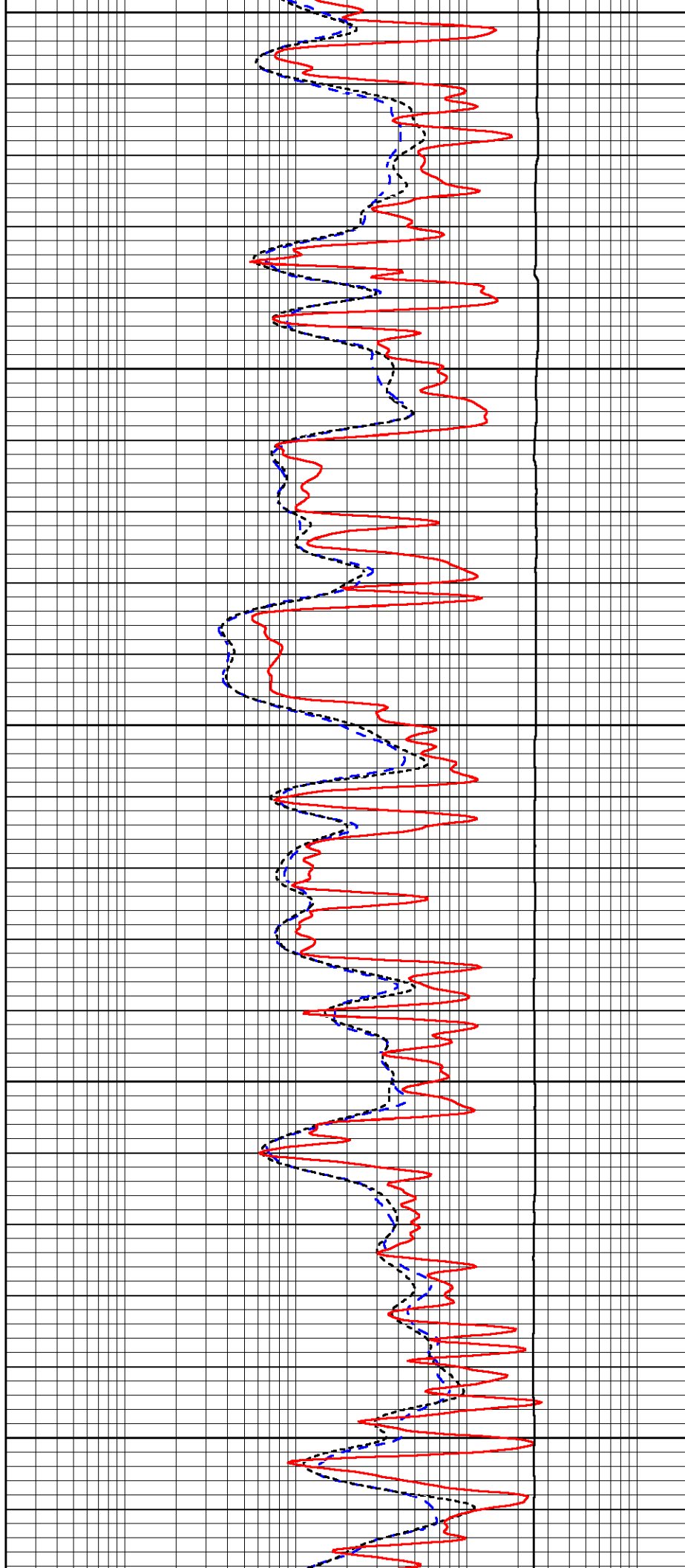
4350

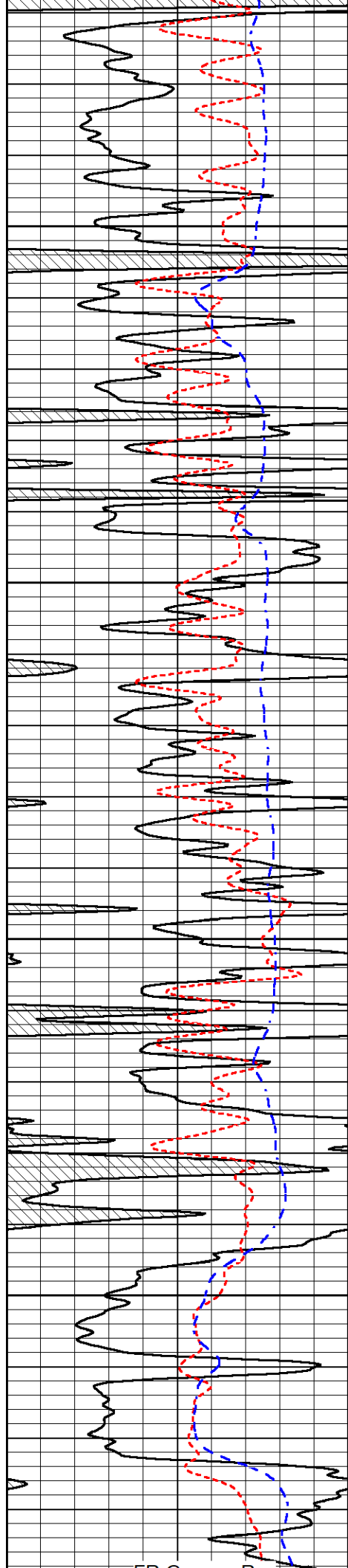
4400

4450

4500

4550



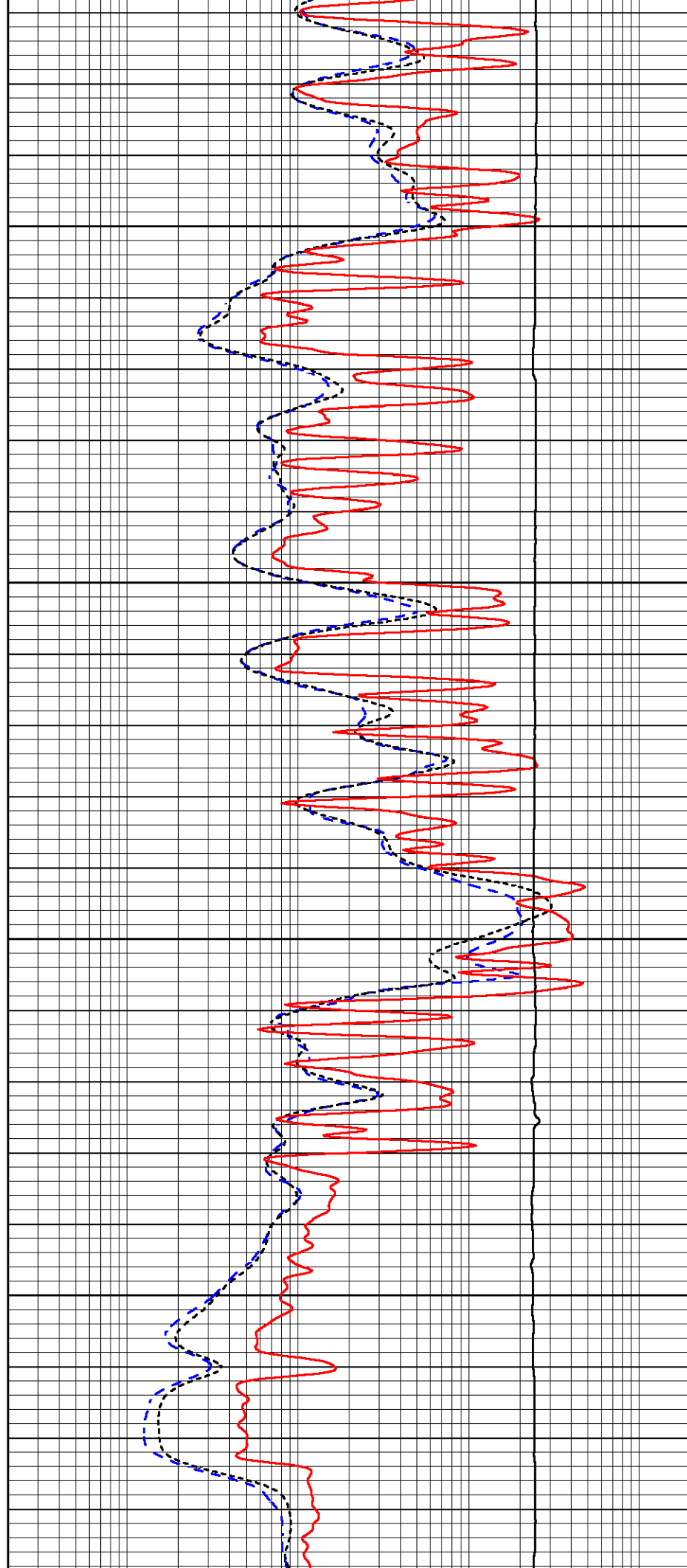


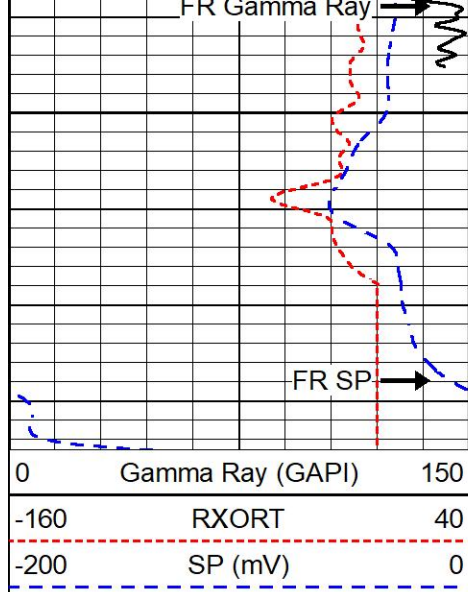
4600

4650

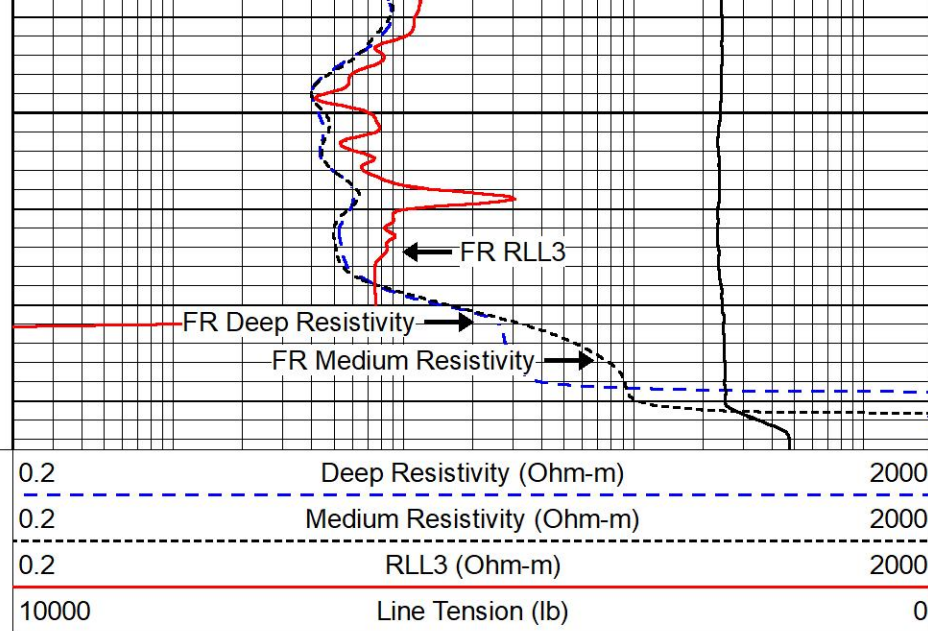
4700

4750





4800

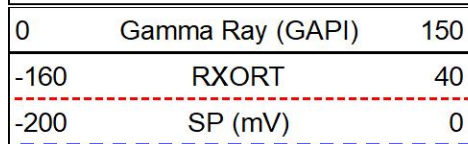


MIDWEST WIRELINE

REPEAT SECTION

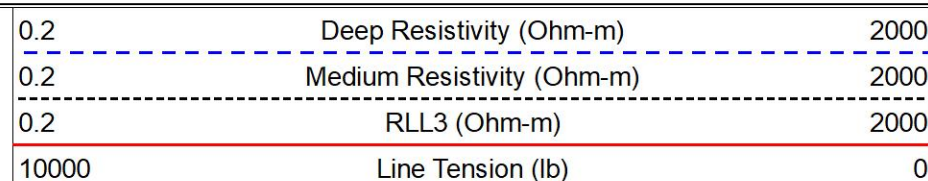
REPEAT PASS

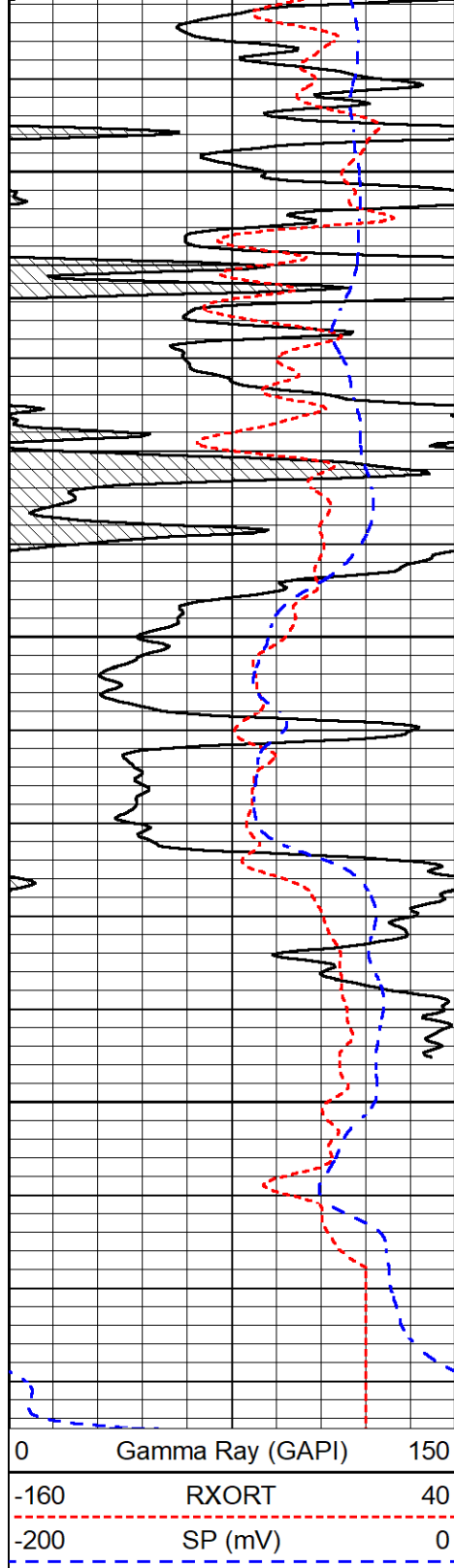
Database File american_warrior_ward unit 1-10.db
 Dataset Pathname stkml/pass2.1
 Presentation Format _dil
 Dataset Creation Mon Jul 25 03:47:31 2022
 Charted by Depth in Feet scaled 1:240



4600

4650

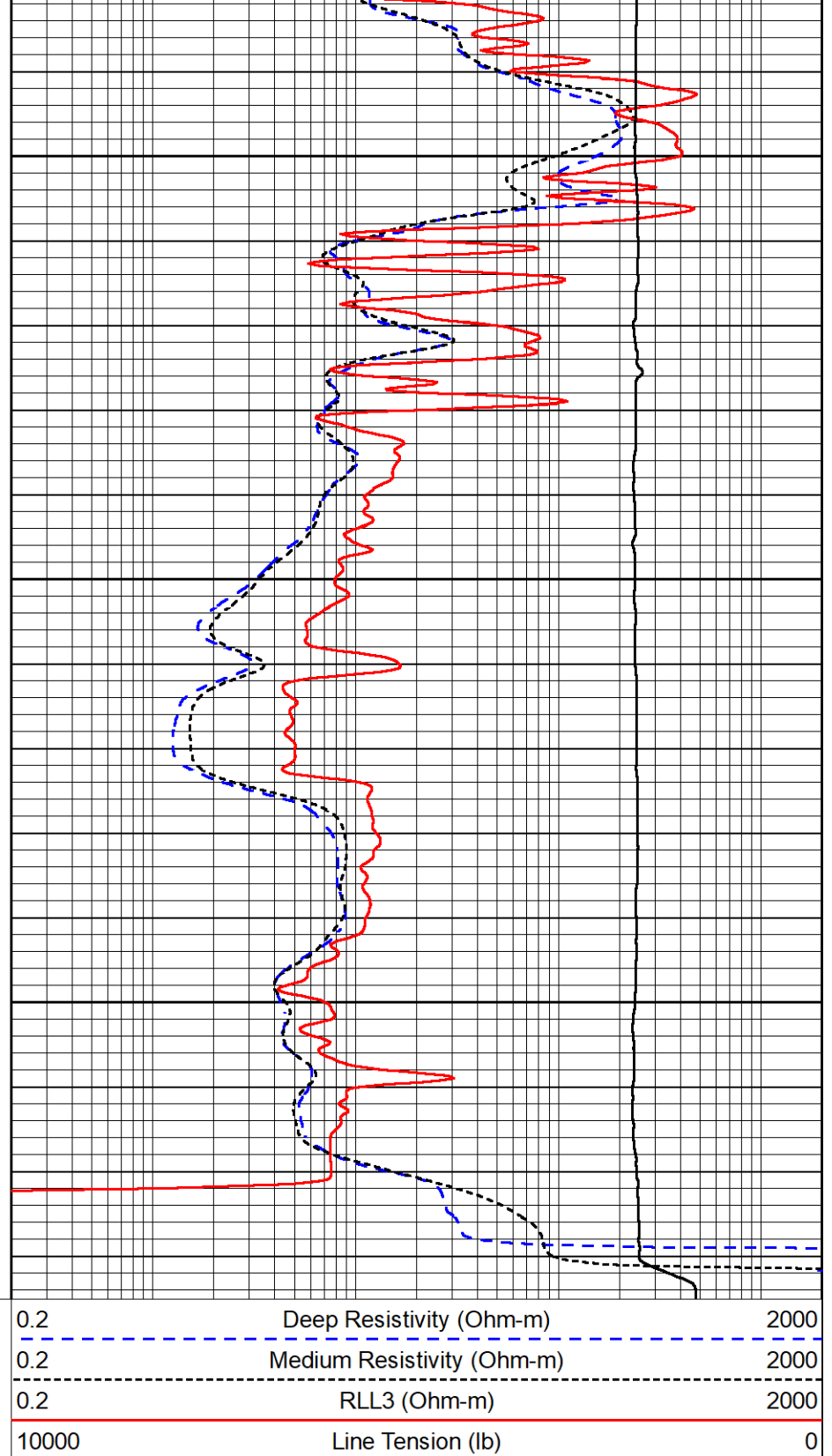




4700

4750

4800



Calibration Report

Database File american_warrior_ward unit 1-10.db
 Dataset Pathname stkml/pass3.12
 Dataset Creation Mon Jul 25 03:46:45 2022

Dual Induction Calibration Report

Serial-Model: 504 HT-M&W
 Surface Cal Performed: Wed Jun 29 12:51:29 2022

Readings

References

Results

Loop:	Air	Loop		Air	Loop		m	b
Deep	178.615	710.235		0.000	255.800	mmho/m	0.650	-19.000
Medium	161.982	1441.110		0.000	255.800	mmho/m	0.450	-48.500
Microlog Calibration Report								
Serial-Model: Performed:				401-PSI STKBL ML Sat Jul 16 16:13:48 2022				
Readings			References			Results		
	Zero	Cal		Zero	Cal		m	b
Normal	0.0037	0.0043		0.0000	10.0000	Ohm-m	26500.0000	-2.8000
Inverse	0.1208	0.0013		0.0000	10.0000	Ohm-m	18700.0000	-1.2000
Caliper	1.0049	1.0846		5.5000	20.0000	in	90.0000	-84.7000
Compensated Density Calibration Report								
Serial-Model: Source #: Master Calibration Performed:				303-03-M&W 21170B Thu Dec 16 23:28:34 2021				
Master Calibration								
	Density			Far Detector		Near Detector		
Magnesium	1.755	g/cc		3841.78		5151.73	cps	
Aluminum	2.670	g/cc		700.98		3068.49	cps	
Spine Angle = 73.06			Density/Spine Ratio = 0.515					
	Size			Reading				
Small Ring	4.00	in		1.17				
Large Ring	14.00	in		1.04				
Compensated Neutron Calibration Report								
Serial-Model: Source #: Master Calibration Performed:				210-M&W N-1238 Fri Dec 3 09:16:24 2021				
Master Calibration								
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: Tool Model: Performed:			103 M&W Fri Dec 3 12:13:24 2021					
Calibrator Value:			500.0	GAPI				
Background Reading:			28.0	cps				
Calibrator Reading:			986.0	cps				
Sensitivity:			0.5700	GAPI/cps				

Sensitivity.

0.5700

GAPI/cps



MIDWEST WIRELINE

Company	American Warrior, Inc.
Well	Ward Unit #1-10
Field	
County	Logan
State	Kansas