



PIONEER
Pioneer Energy Services

DUAL INDUCTION LOG

Company **COBALT ENERGY, LLC**
Well **WETZEL UNIT A #1-14**
Field **NA**
County **FORD** State **KANSAS**

Location: API #: 15-057-21009-00-00

Other Services

NE NE NW SW
2389' FSL & 1268' FWL
SEC 14 TWP 26S RGE 21W

CNL/CDL
MEL

Permanent Datum GROUND LEVEL Elevation 2275'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 2282'
D.F. N/A
G.L. 2275'

Date 5/26/2019

Run Number ONE

Depth Driller 4895'

Depth Logger 4898'

Bottom Logged Interval 4897'

Top Log Interval 350'

Casing Driller 8.625" @ 371'

Casing Logger 371'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 5500

Density / Viscosity 9.4 47

pH / Fluid Loss 10.0 9.2

Source of Sample FLOWLINE

Rm @ Meas. Temp 0.40 @ 60

Rmf @ Meas. Temp 0.30 @ 60

Rmc @ Meas. Temp 0.54 @ 60

Source of Rmf / Rmc CHARTS

Rm @ BHT 0.19 @ 125

Operating Rig Time 3 HOURS

Max Rec. Temp. F 125

Equipment Number P-24

Location HAYS

Recorded By D. SCHMIDT

Witnessed By LARRY NICHOLSON

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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.

OFFERLE,
EAST TO 20 AVE, SOUTH TO THE T, 1/2 EAST,
SOUTH TO V RD, WEST TO 340 RD, 1/4 NORTH,
EAST INTO

Log Measured From: KELLY BUSHING 7 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: LARRY NICHOLSON
Secondary Witness:
Secondary Witness:
Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\cobalt_wetzel unit a 1-14.db
Dataset field/well/STACK/pass3.3/_vars_

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in	degF	in	in	g/cc	2	g/cc
	7.875	125	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	630	60		4897



MAIN PASS

Database File cobalt_wetzel unit a 1-14.db
Dataset Pathname STACK/pass4.1
Presentation Format _dil2in
Dataset Creation Sun May 26 03:24:04 2019
Charted by Depth in Feet scaled 1:600

GAMMA RAY

0 (GAPI) 150

1000 CONDUCTIVITY (mmho/m) 0

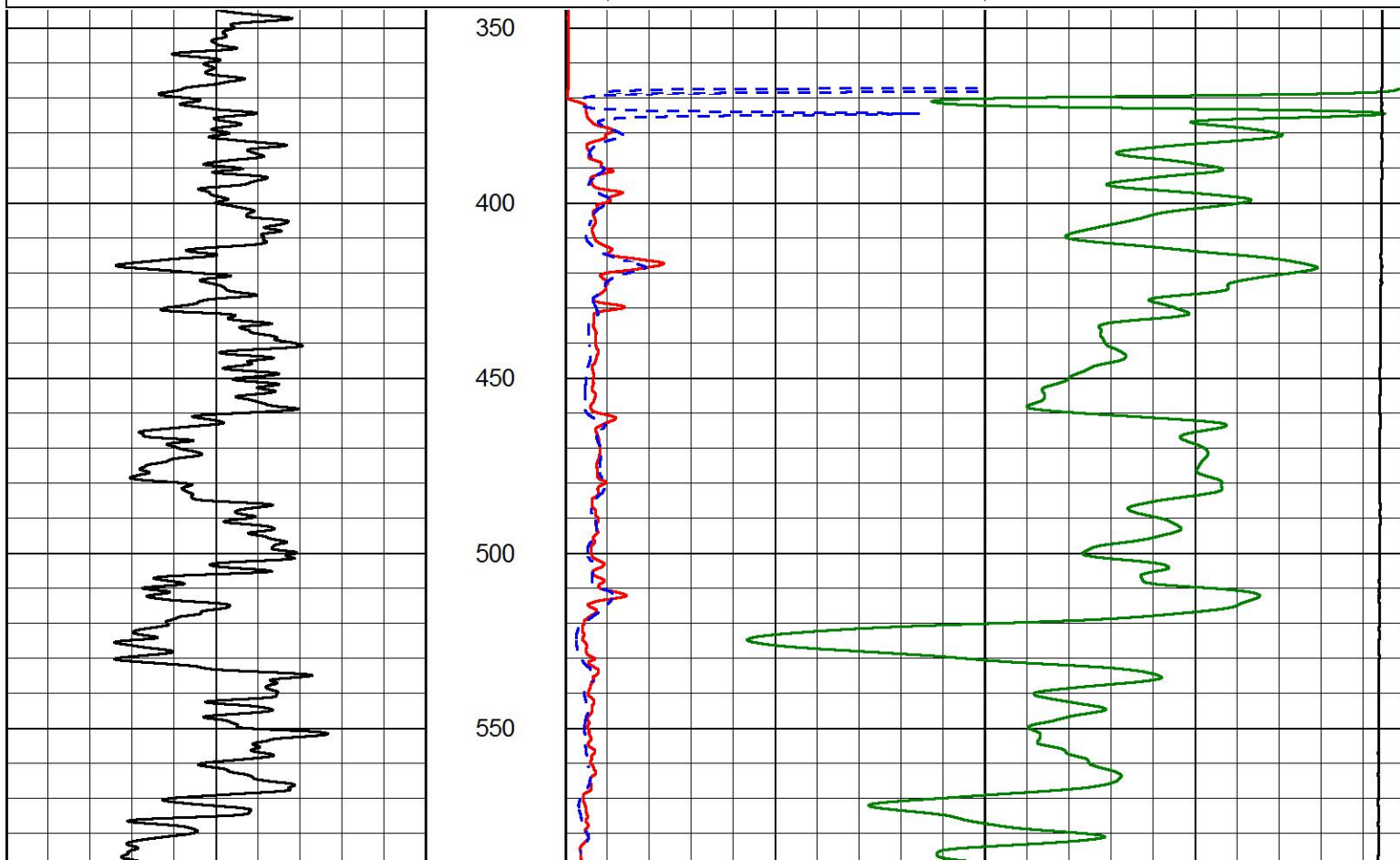
15000 Line Tension (lb) 0

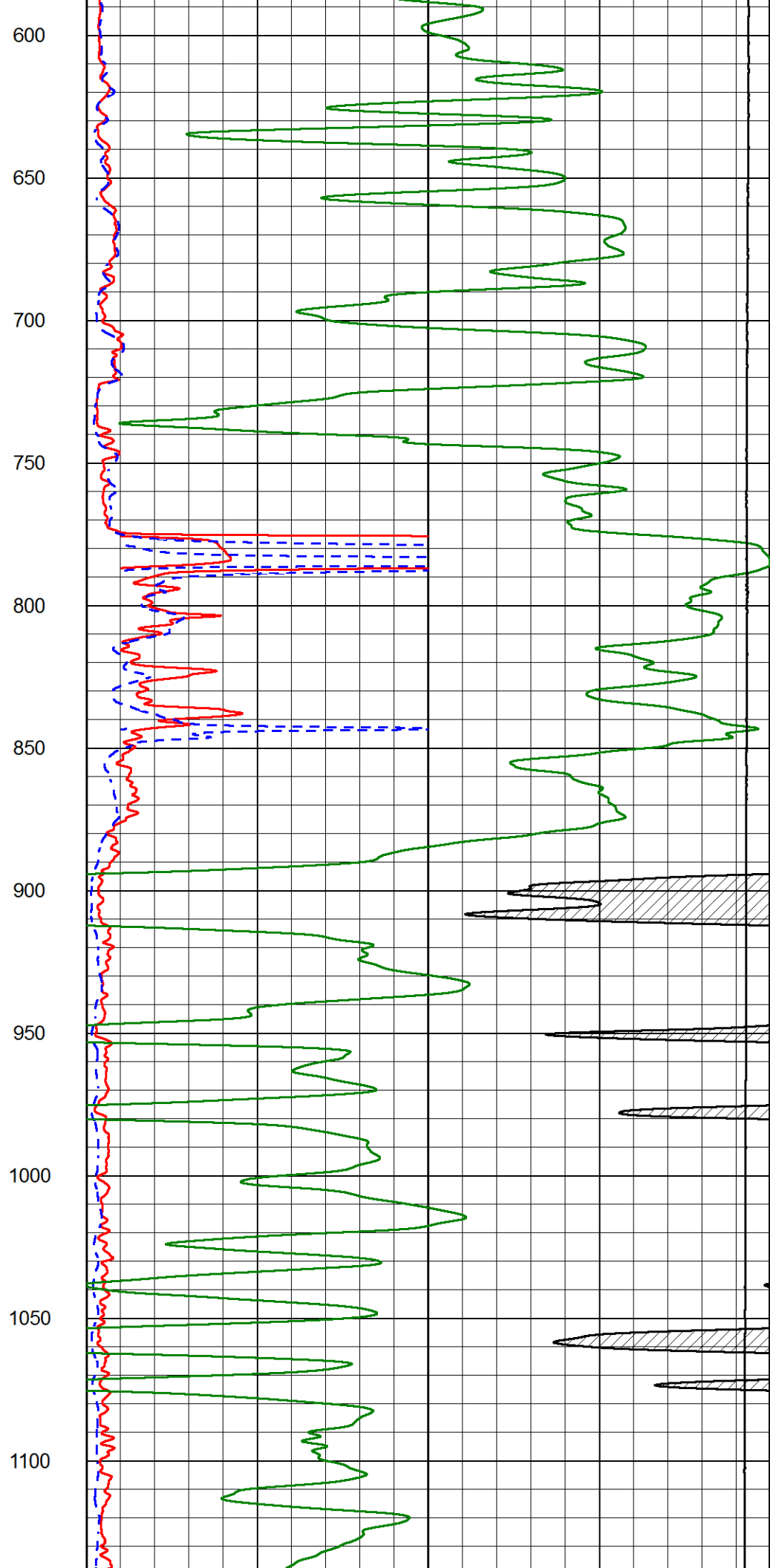
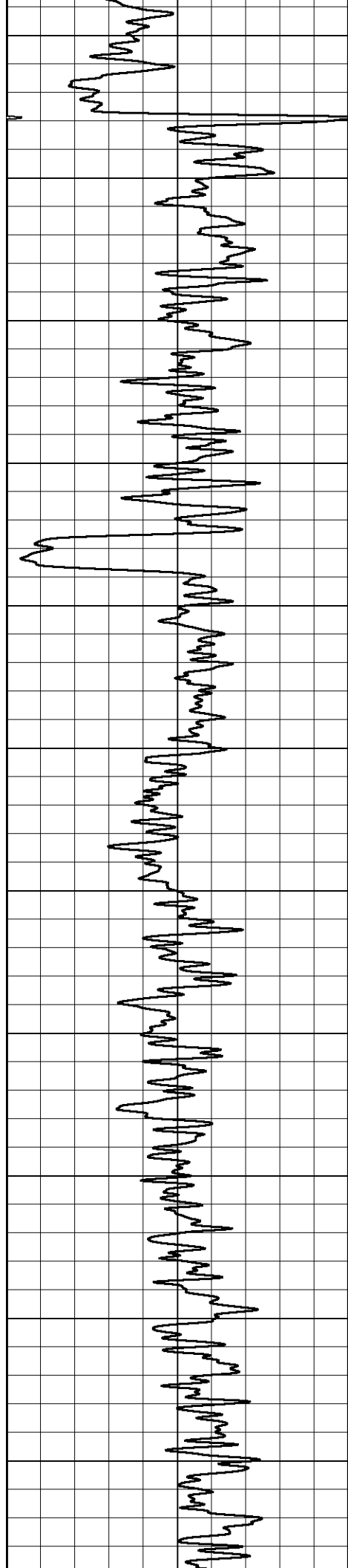
0 RLL3 (Ohm-m) 50

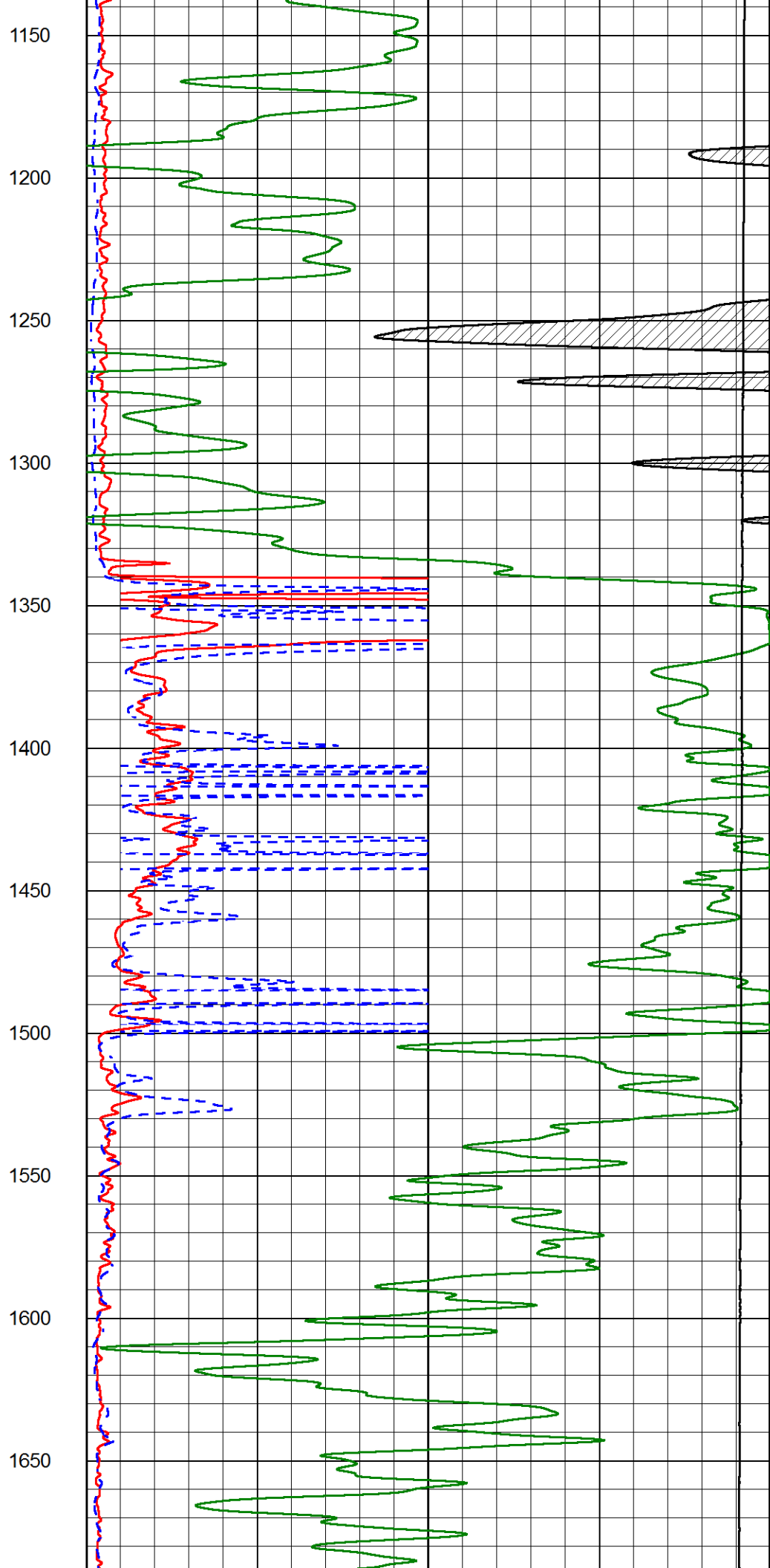
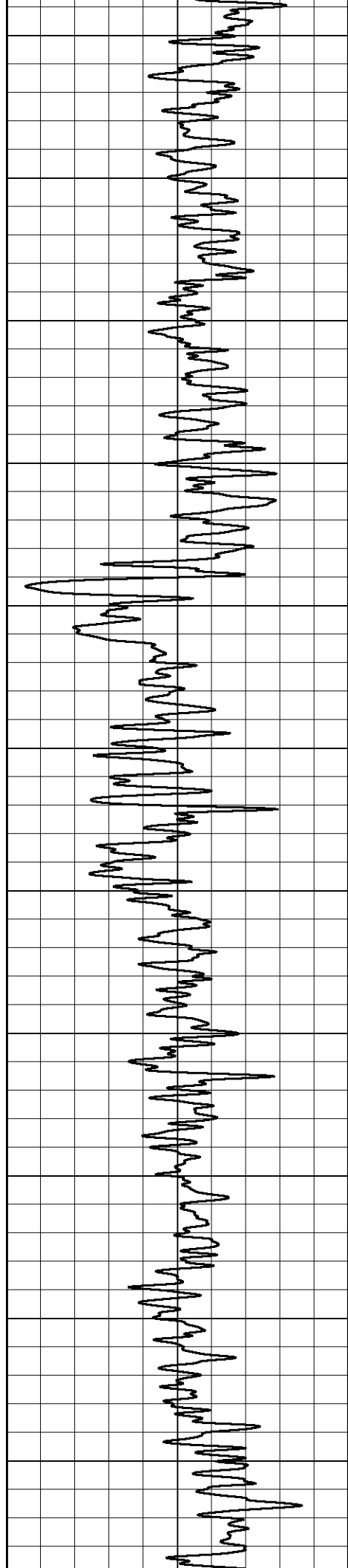
0 DEEP RESISTIVITY (Ohm-m) 50

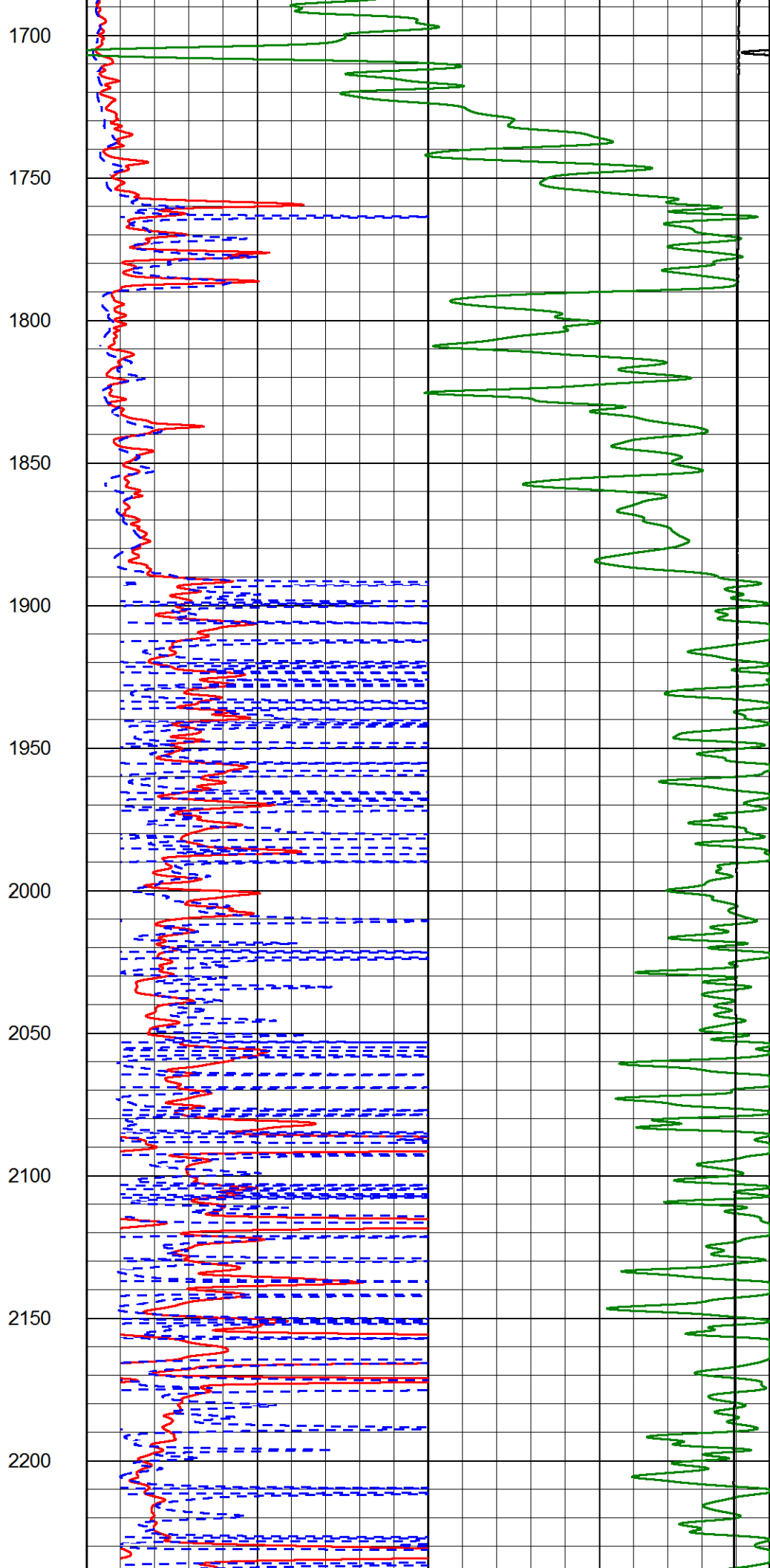
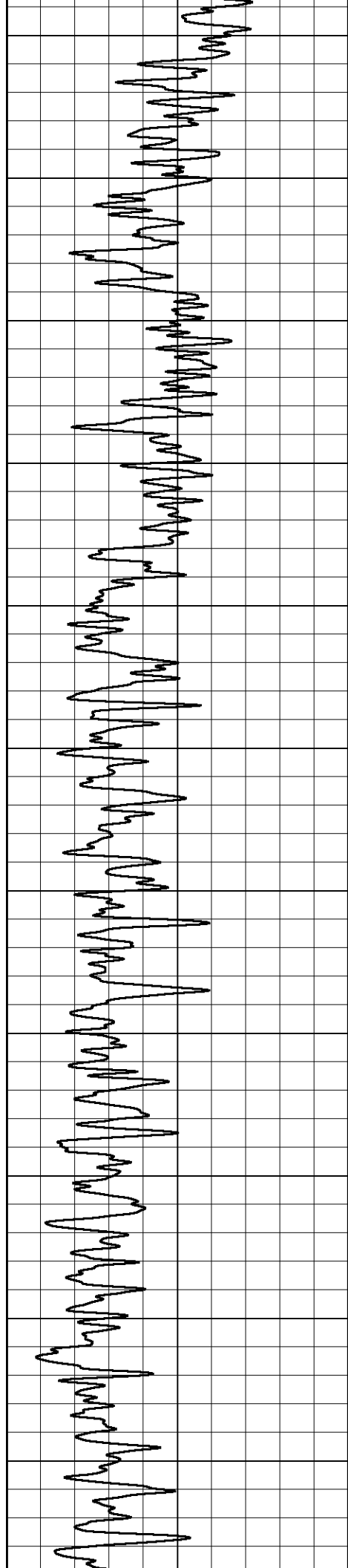
50 RLL3 (Ohm-m) 500

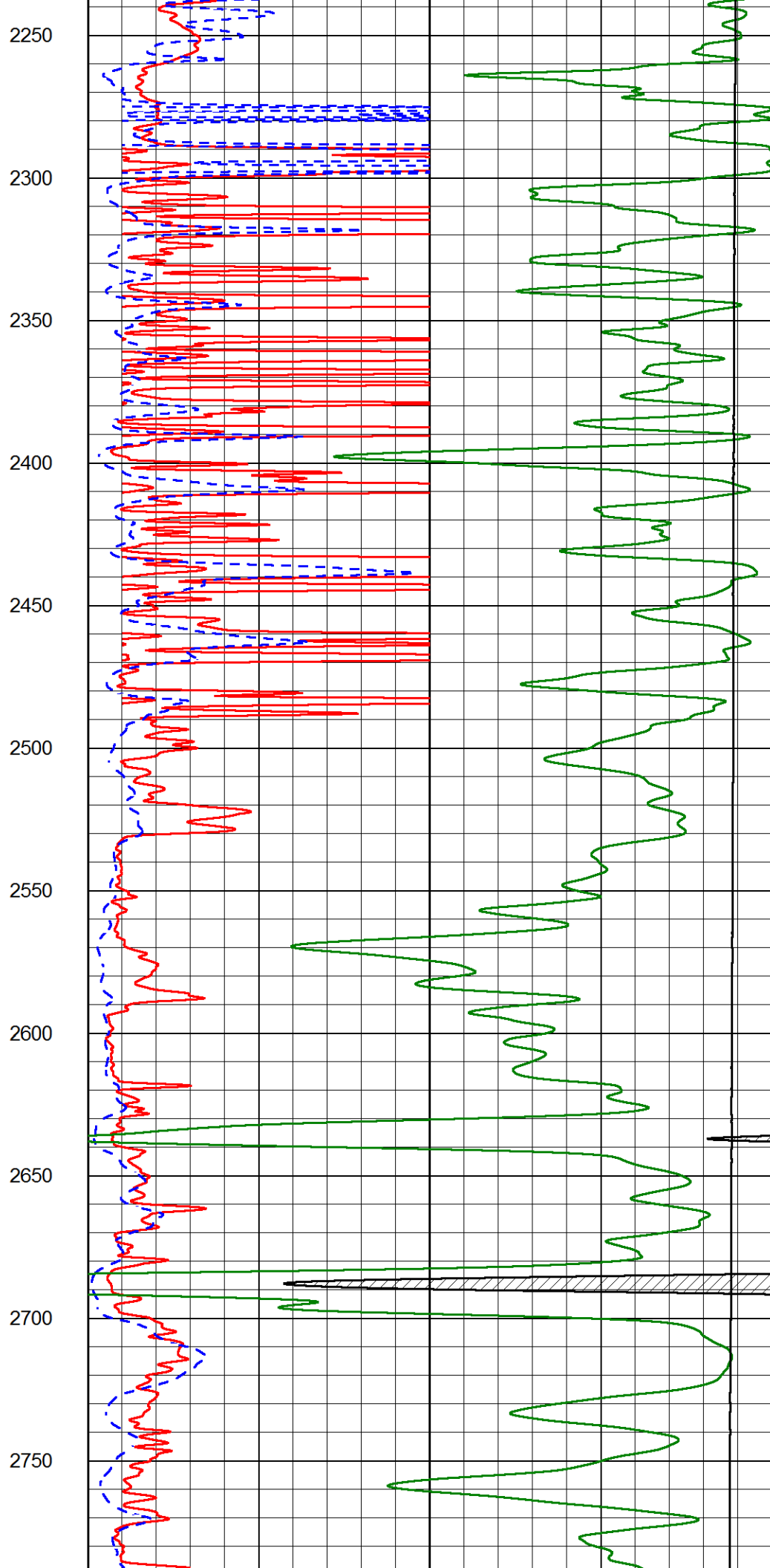
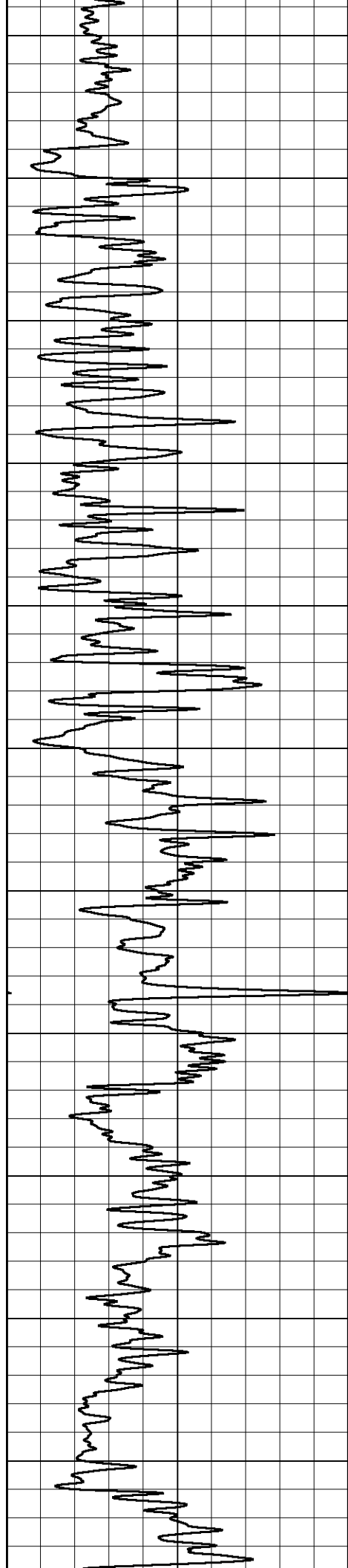
50 Deep Resistivity (Ohm-m) 500

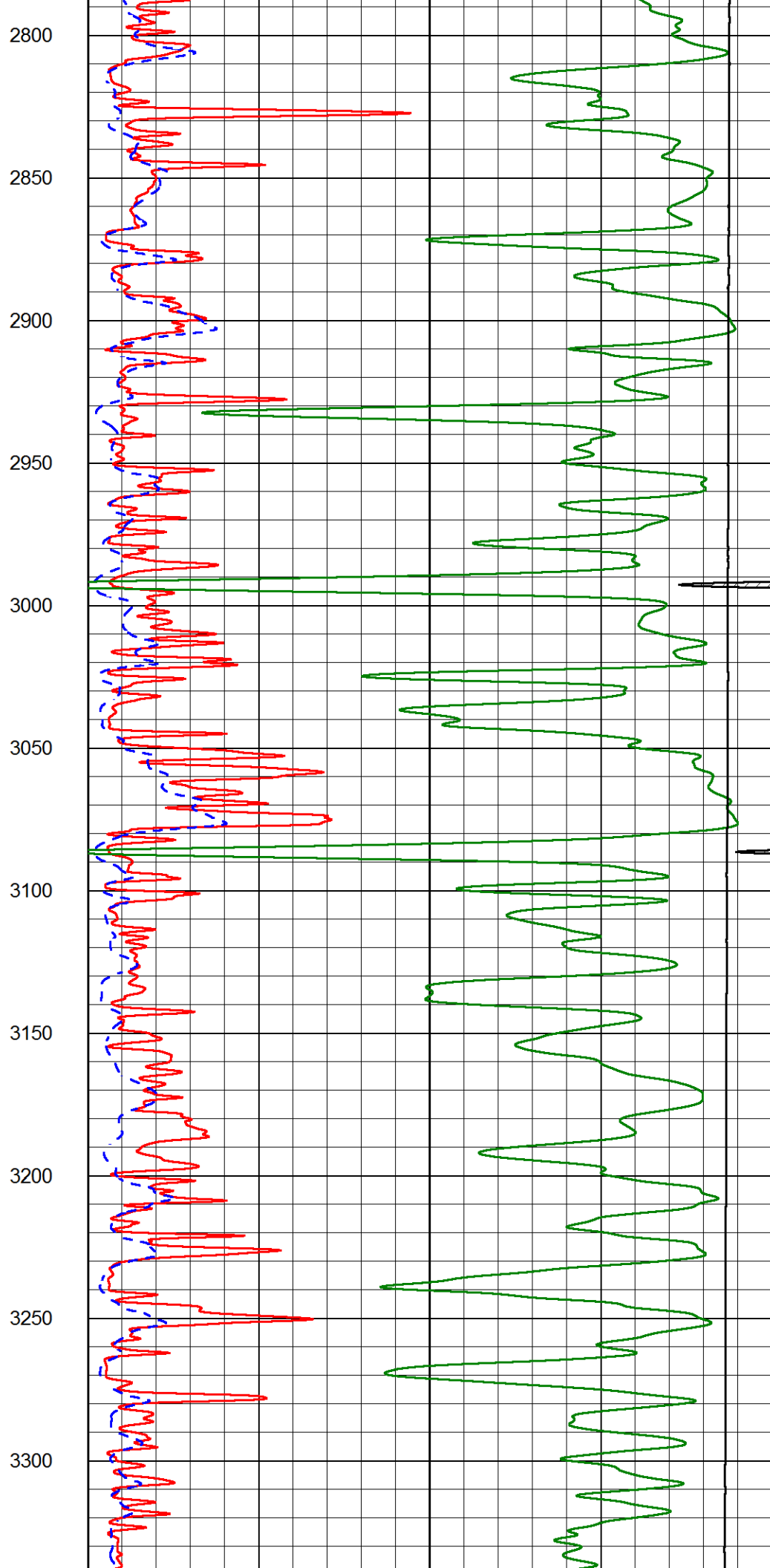
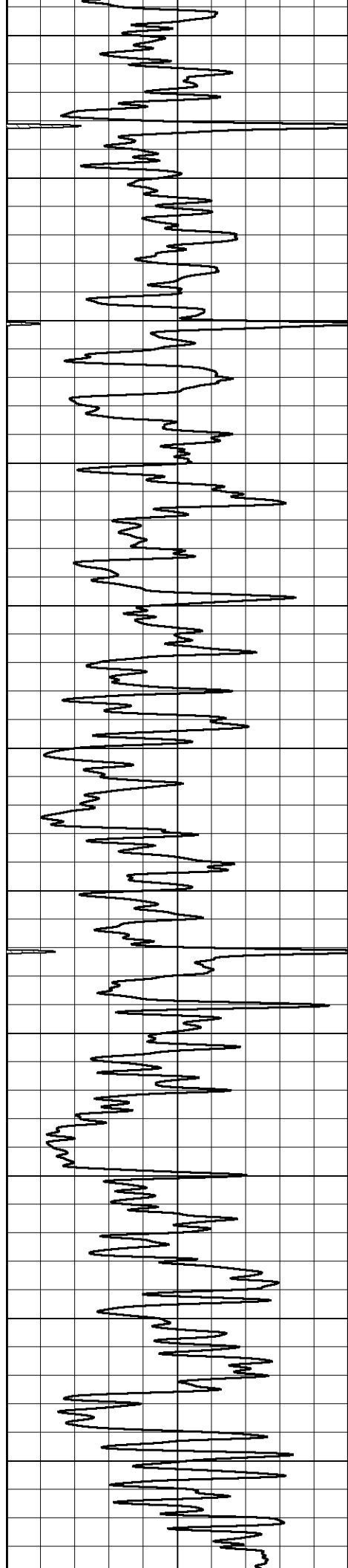


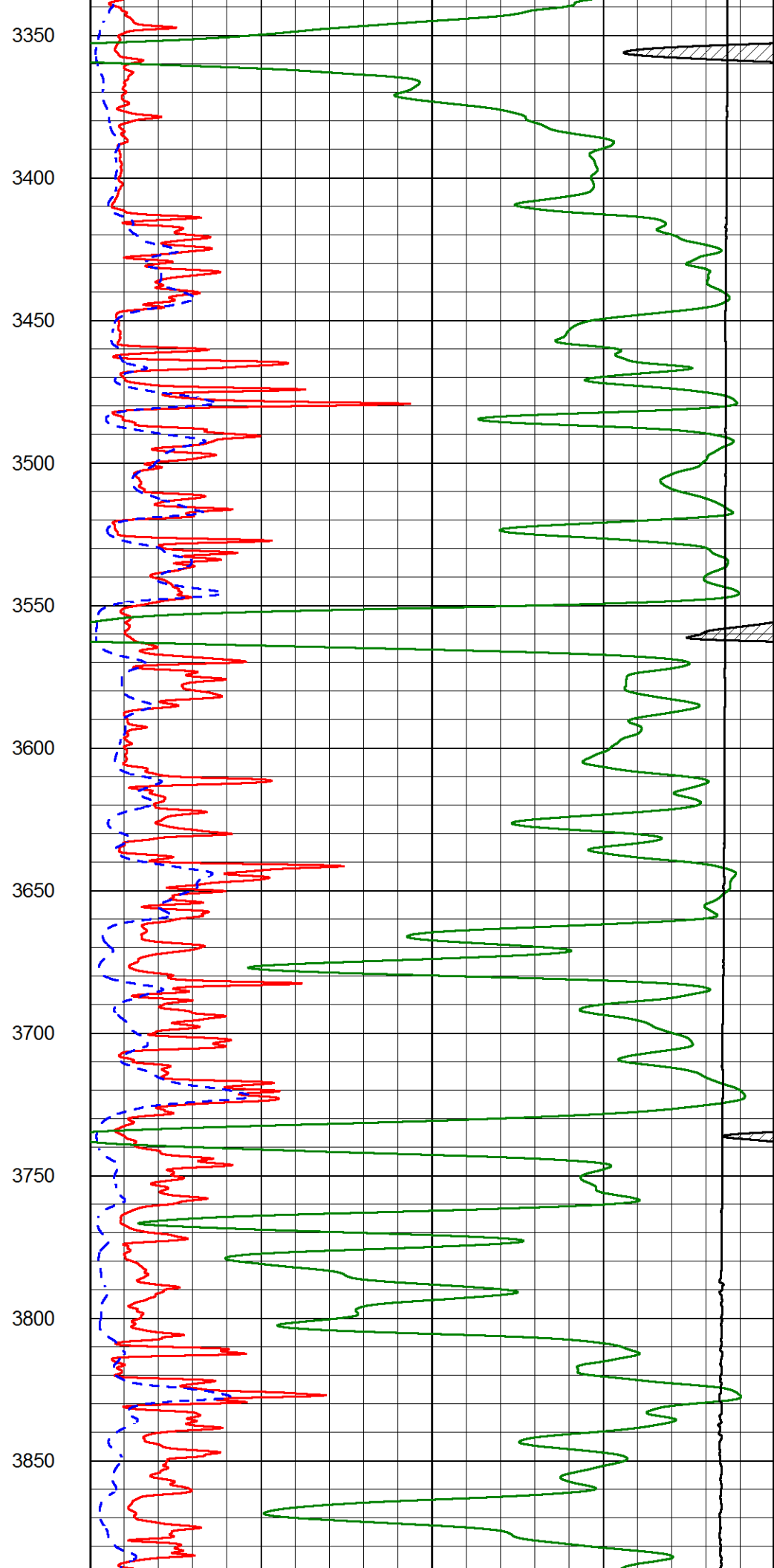
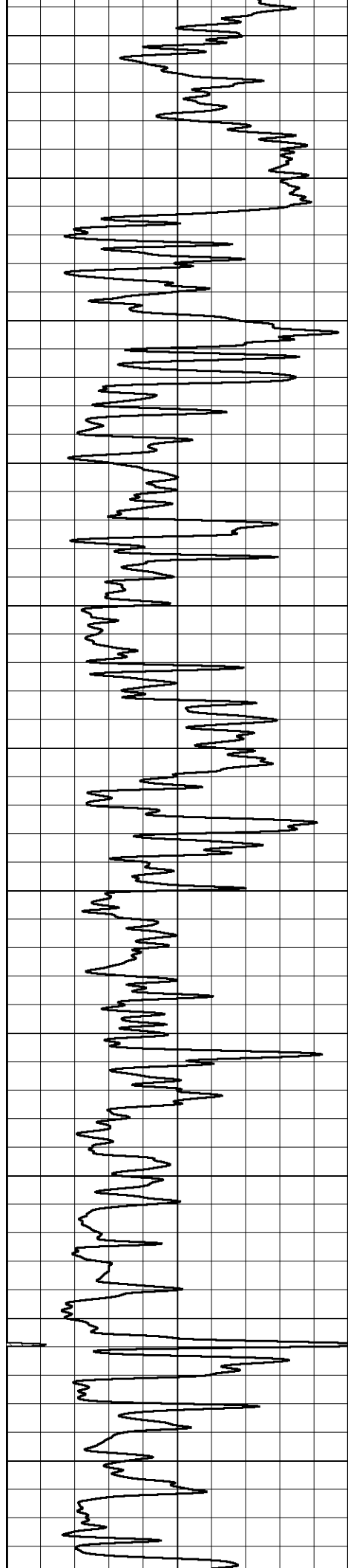


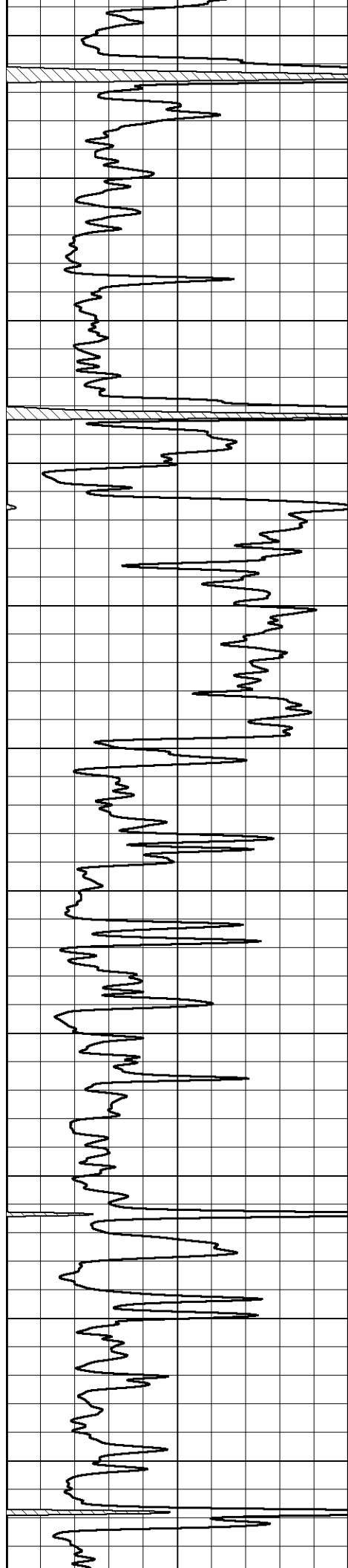












3900

3950

4000

4050

4100

4150

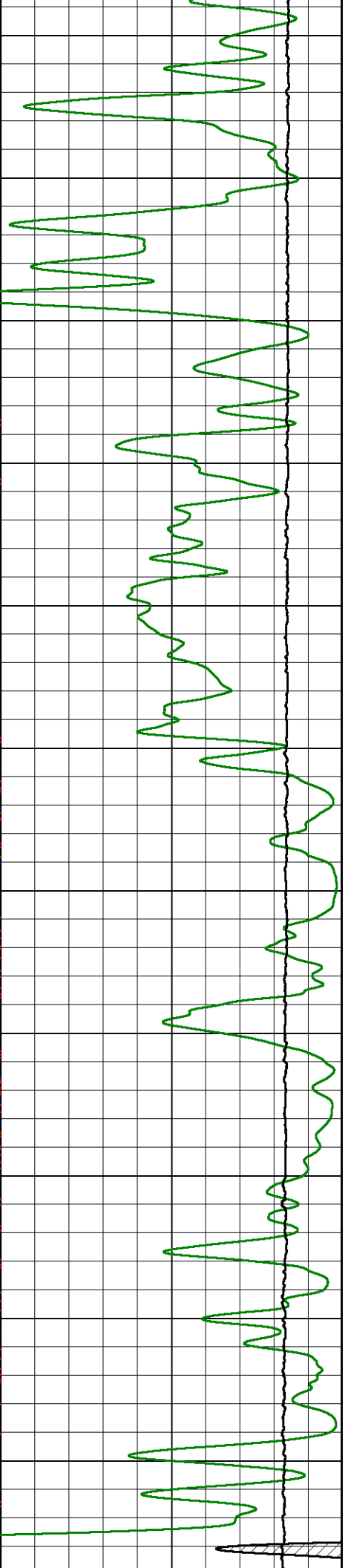
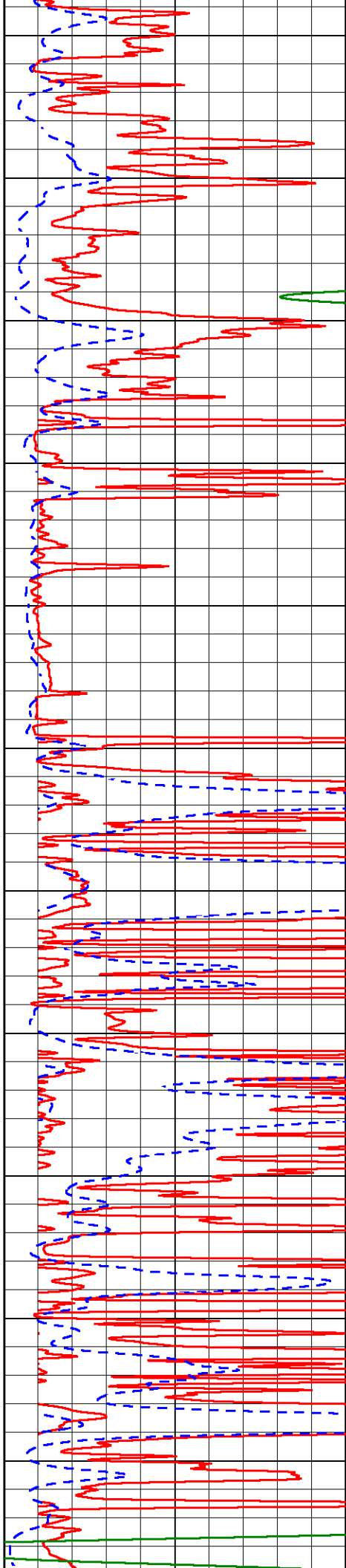
4200

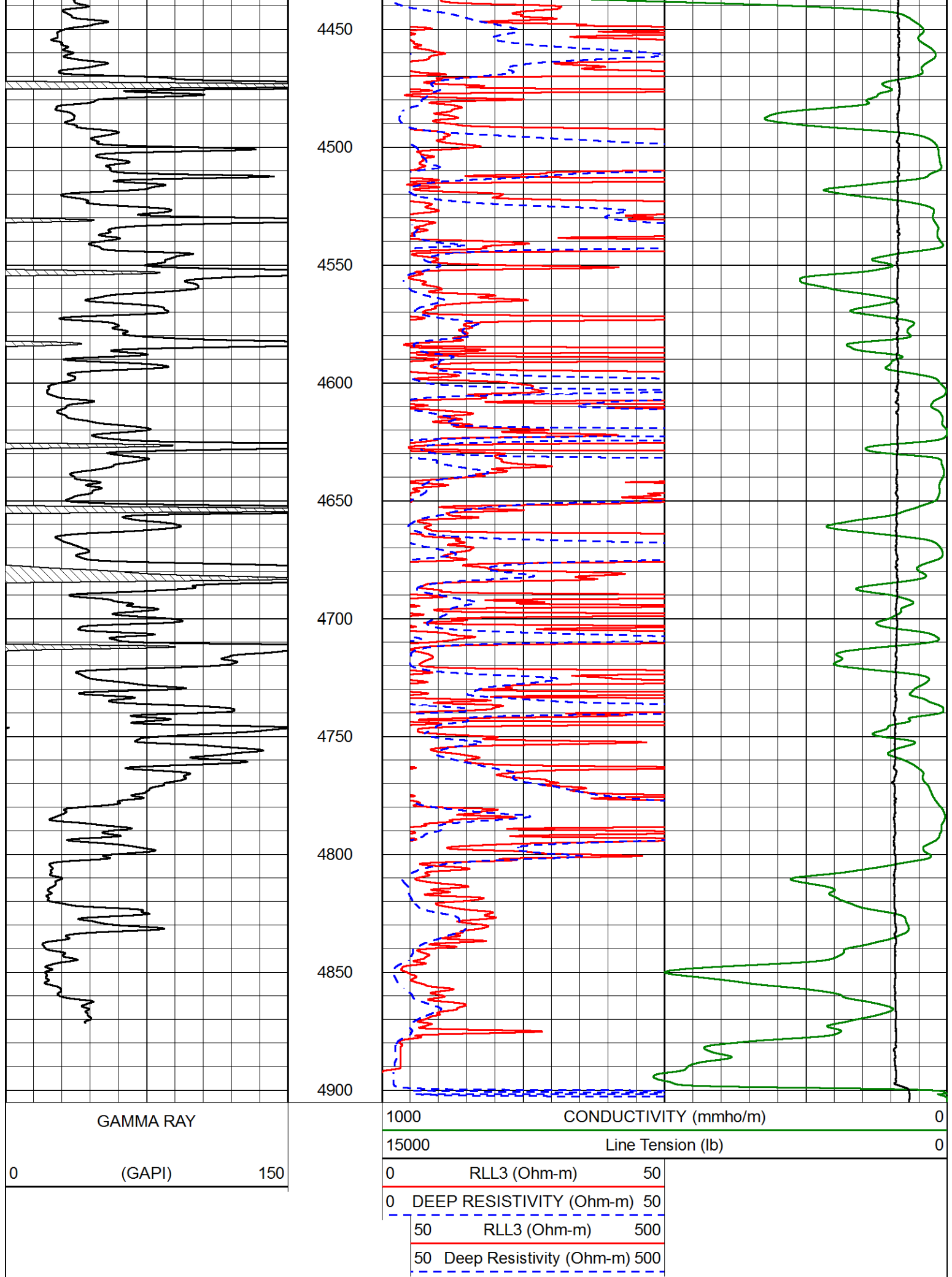
4250

4300

4350

4400



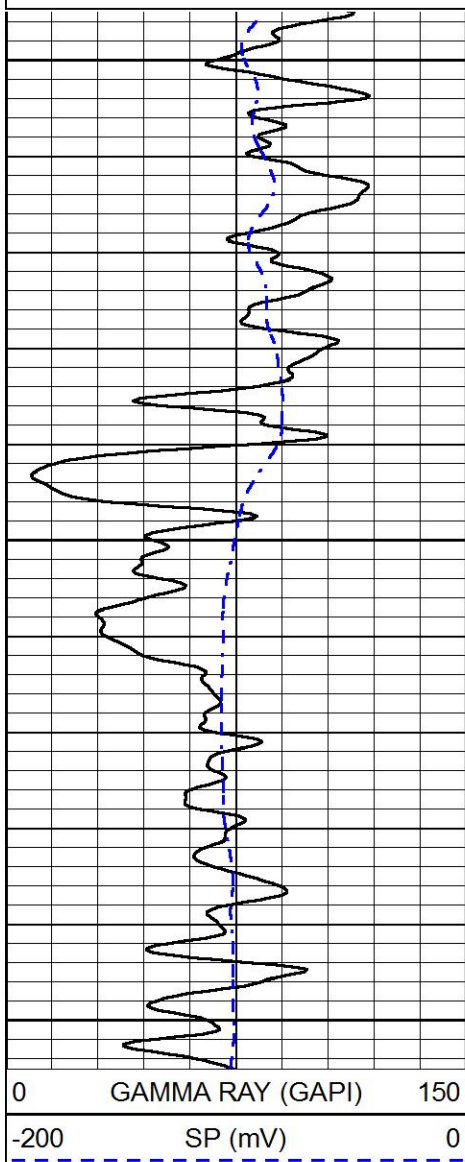


MAIN PASS

Database File cobalt_wetzel unit a 1-14.db
 Dataset Pathname STACK/pass4.1
 Presentation Format _dil
 Dataset Creation Sun May 26 03:24:04 2019
 Charted by Depth in Feet scaled 1:240

0 GAMMA RAY (GAPI) 150
 -200 SP (mV) 0

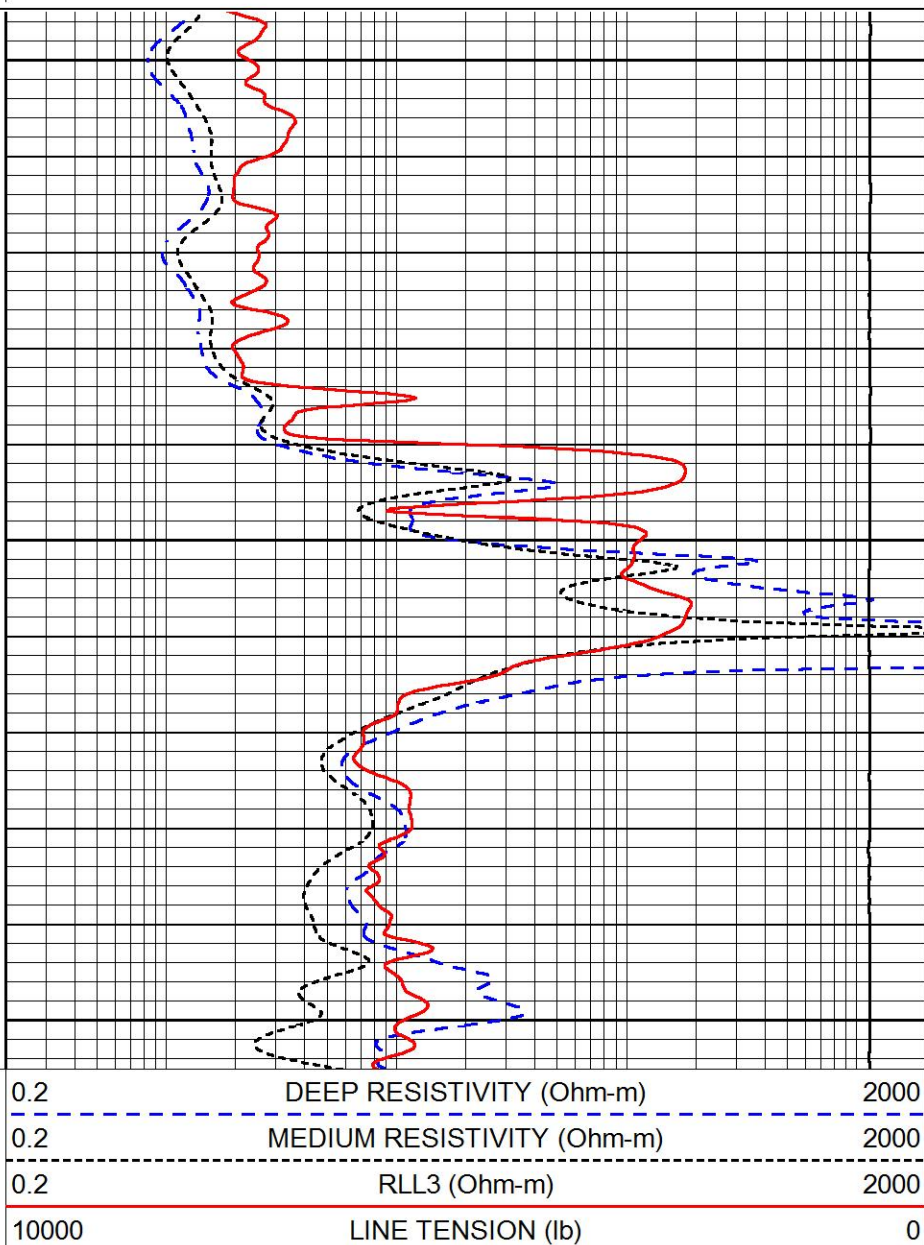
0.2 DEEP RESISTIVITY (Ohm-m) 2000
 0.2 MEDIUM RESISTIVITY (Ohm-m) 2000
 0.2 RLL3 (Ohm-m) 2000
 10000 LINE TENSION (lb) 0



1300

1350

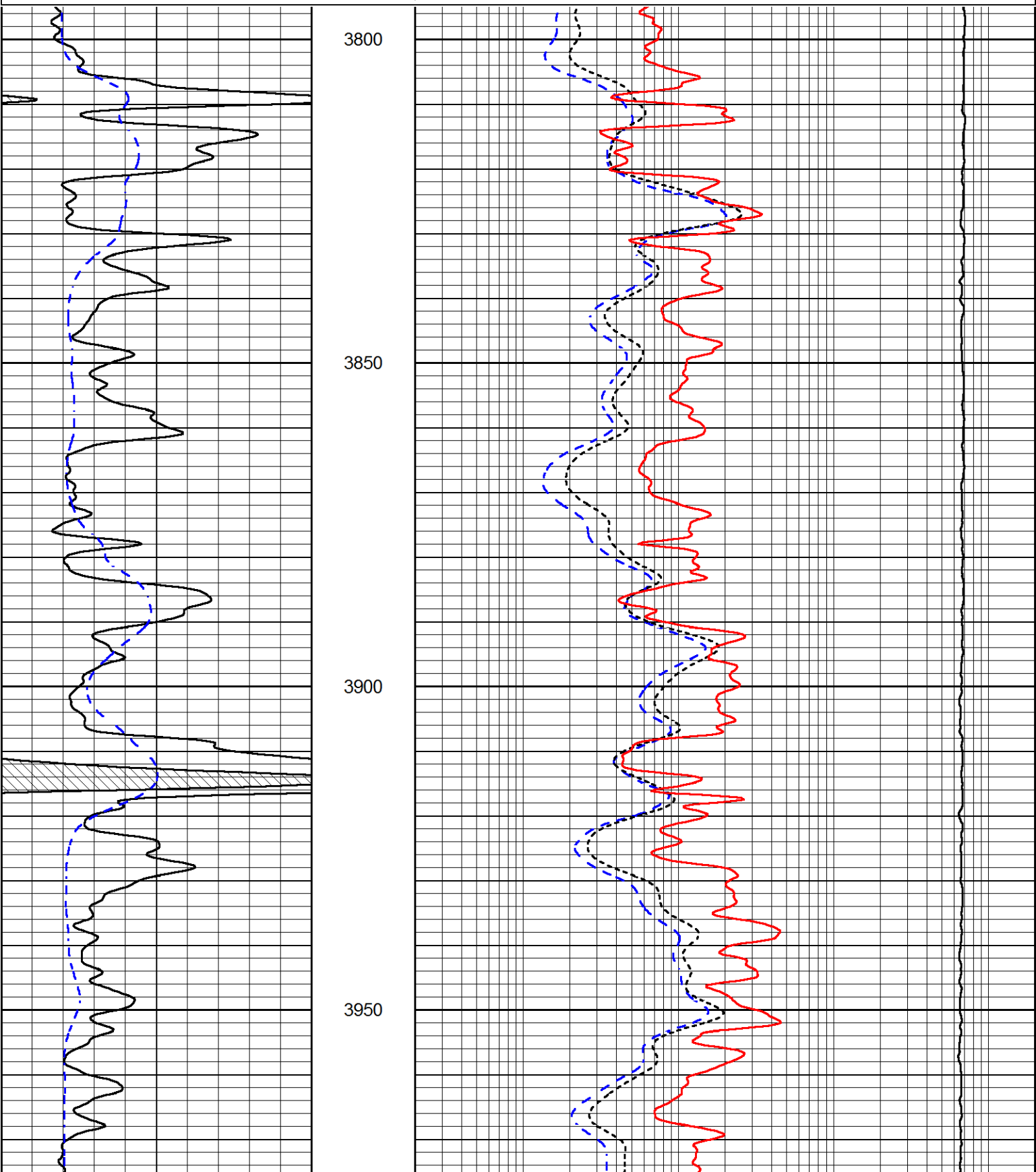
1400

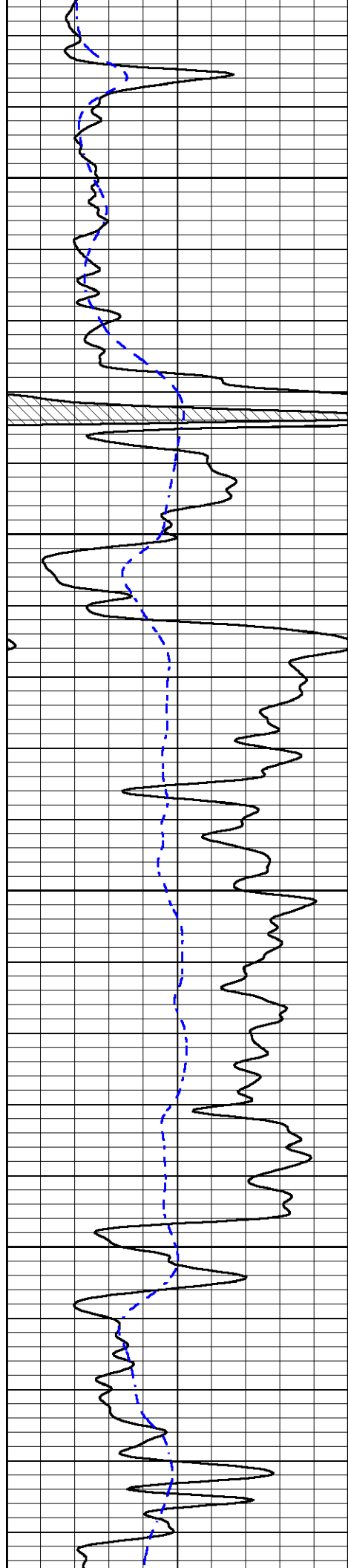


MAIN PASS

Database File	cobalt_wetzel unit a 1-14.db
Dataset Pathname	STACK/pass4.1
Presentation Format	_dil
Dataset Creation	Sun May 26 03:24:04 2019
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
			10000	LINE TENSION (lb)	0



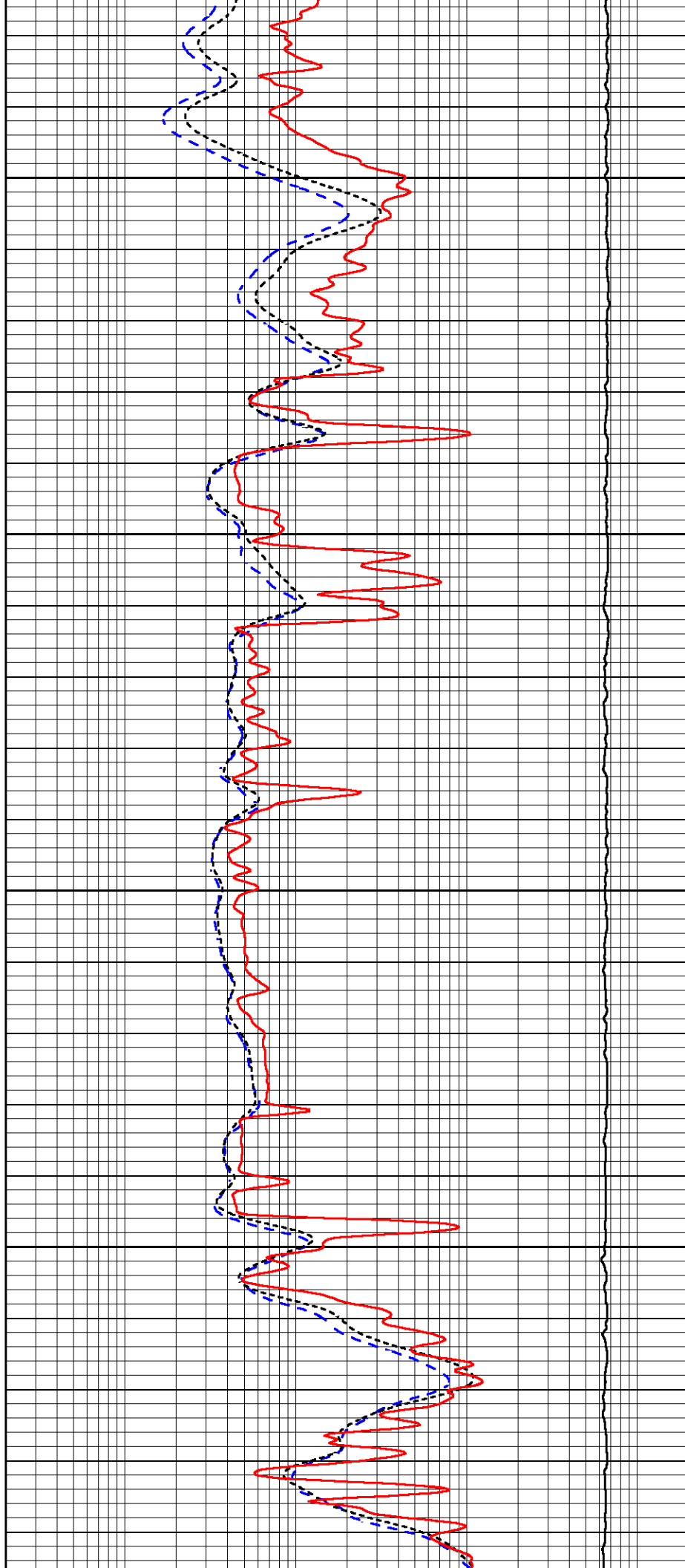


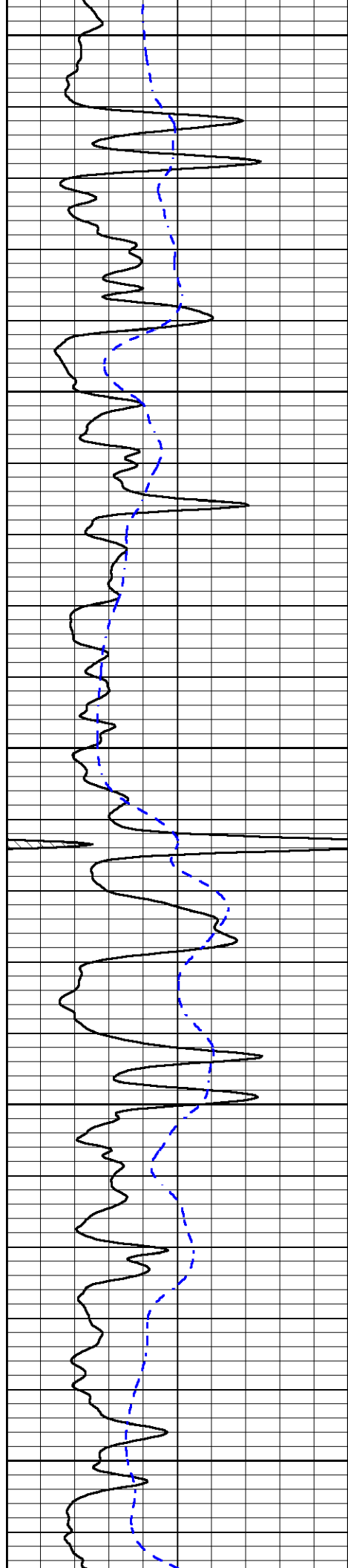
4000

4050

4100

4150





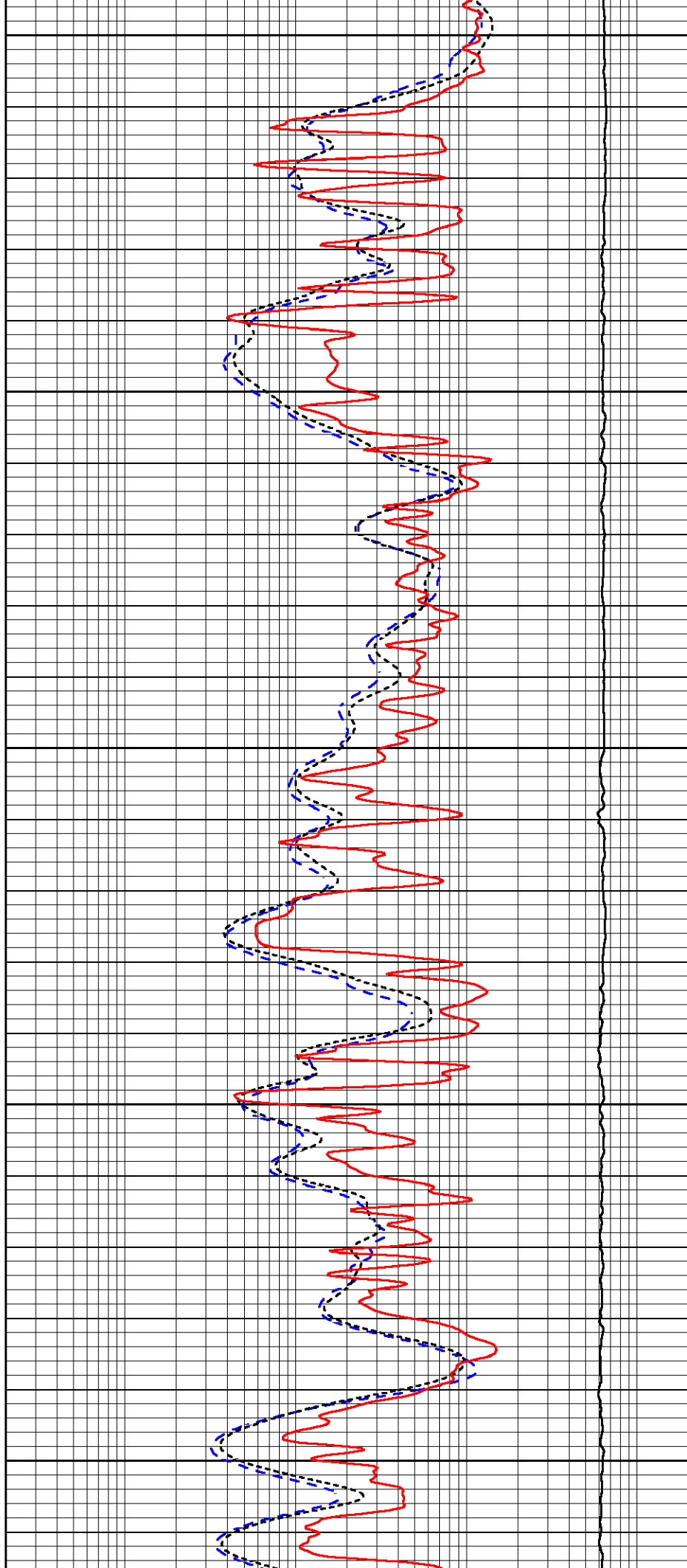
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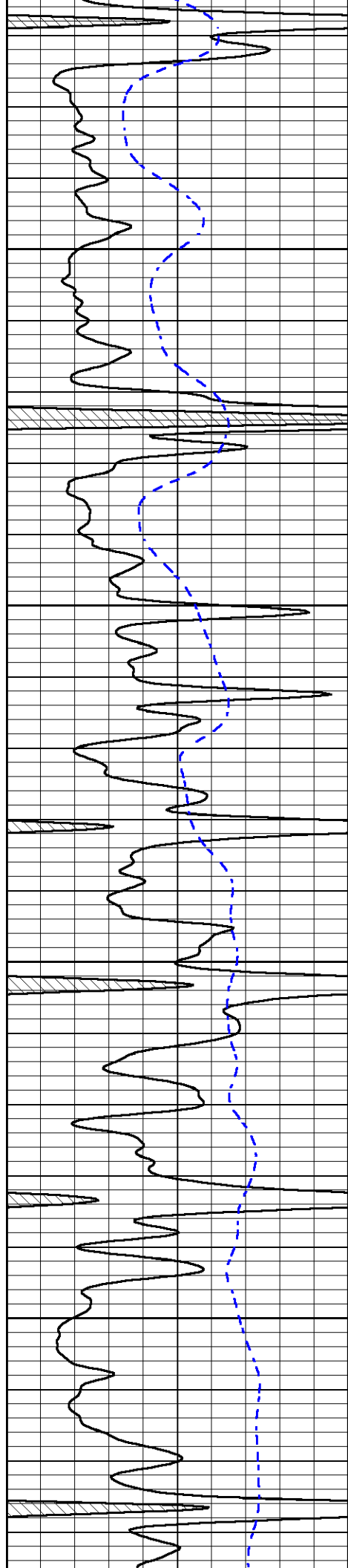
4250

4300

4350

4400



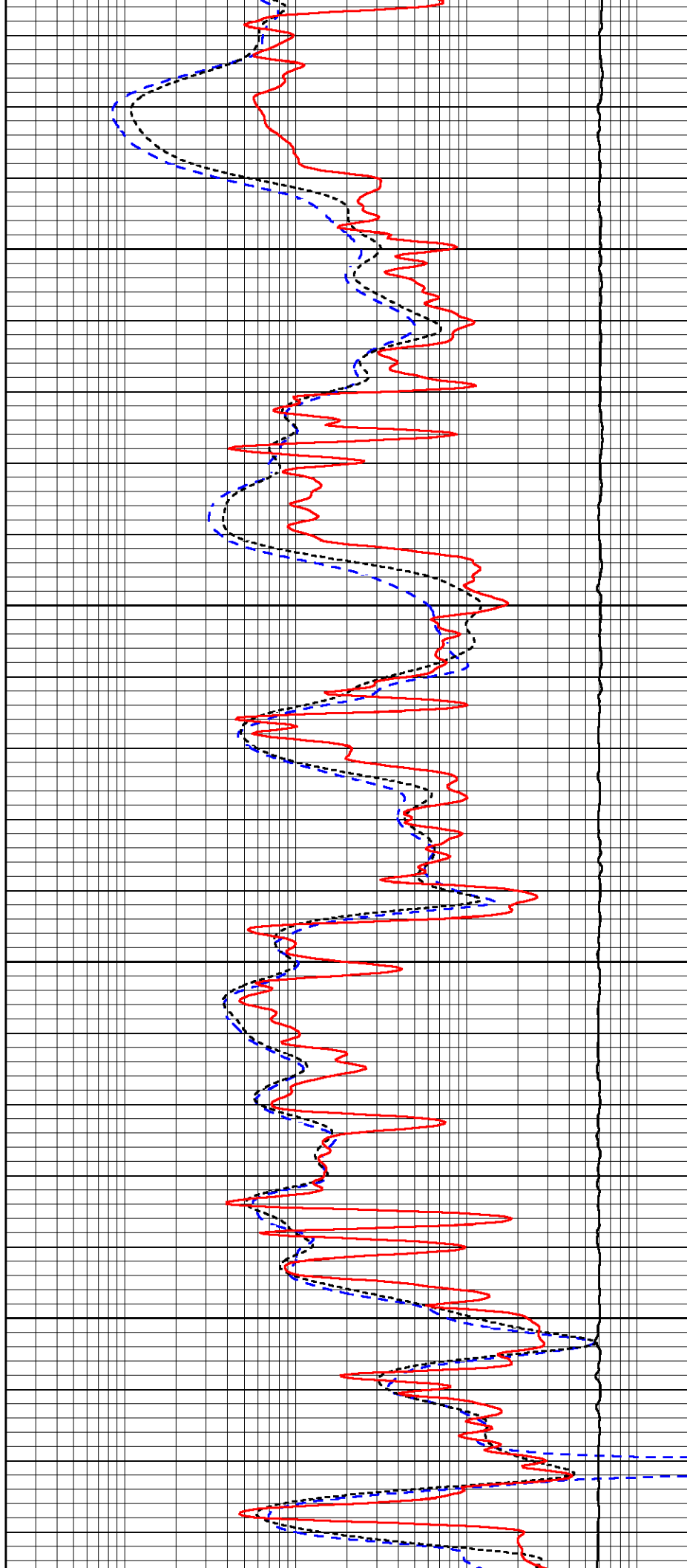


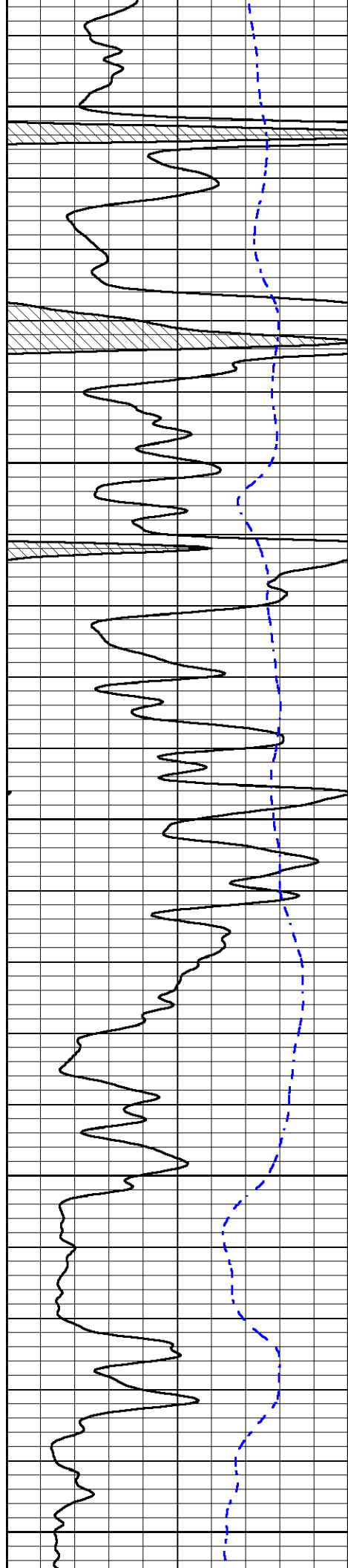
4450

4500

4550

4600





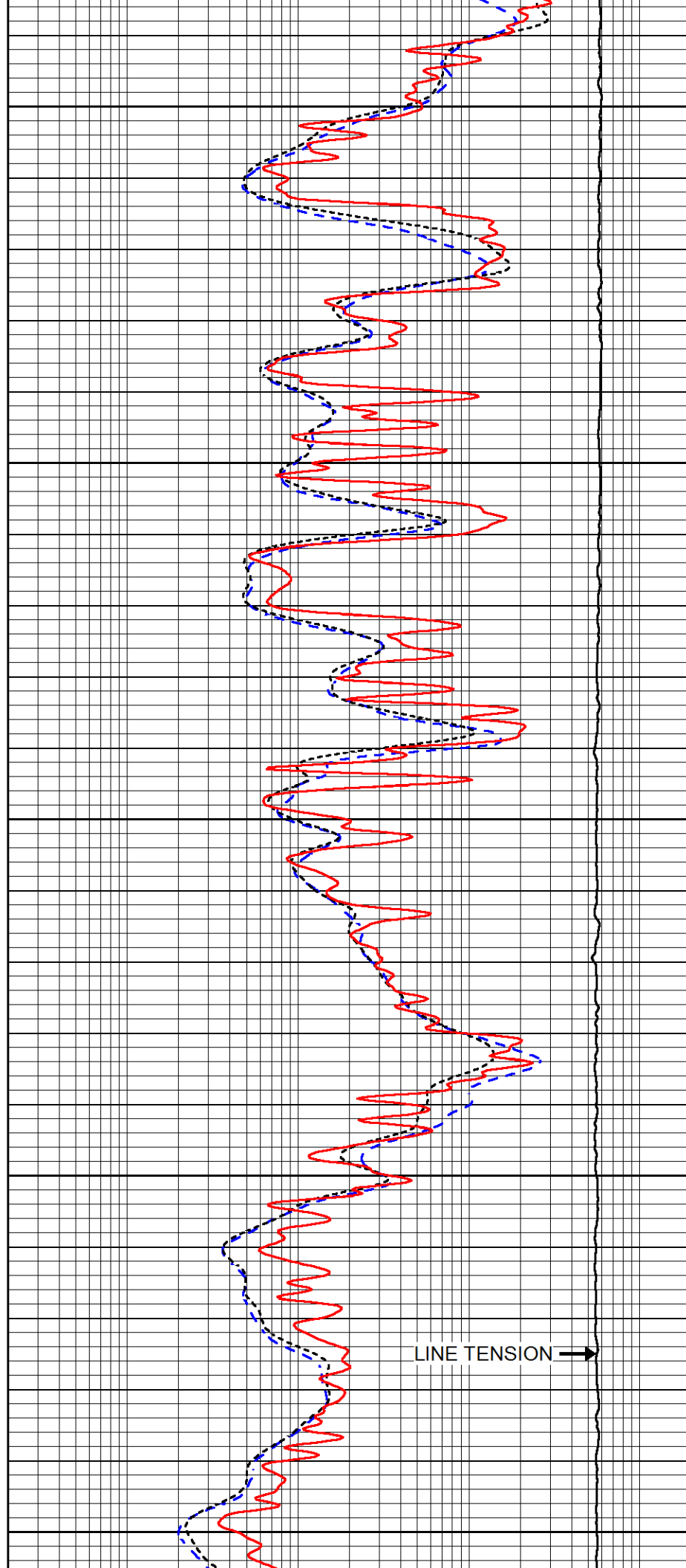
4650

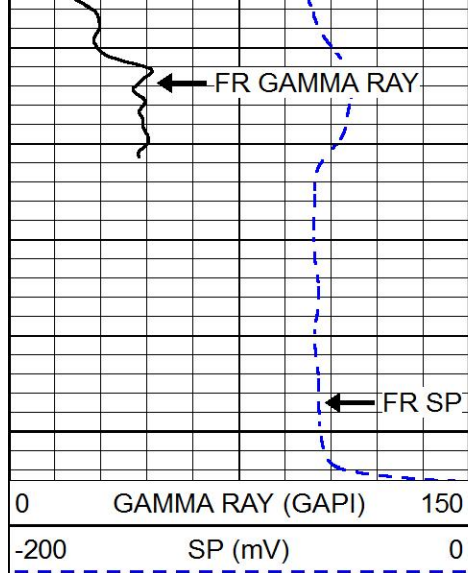
4700

4750

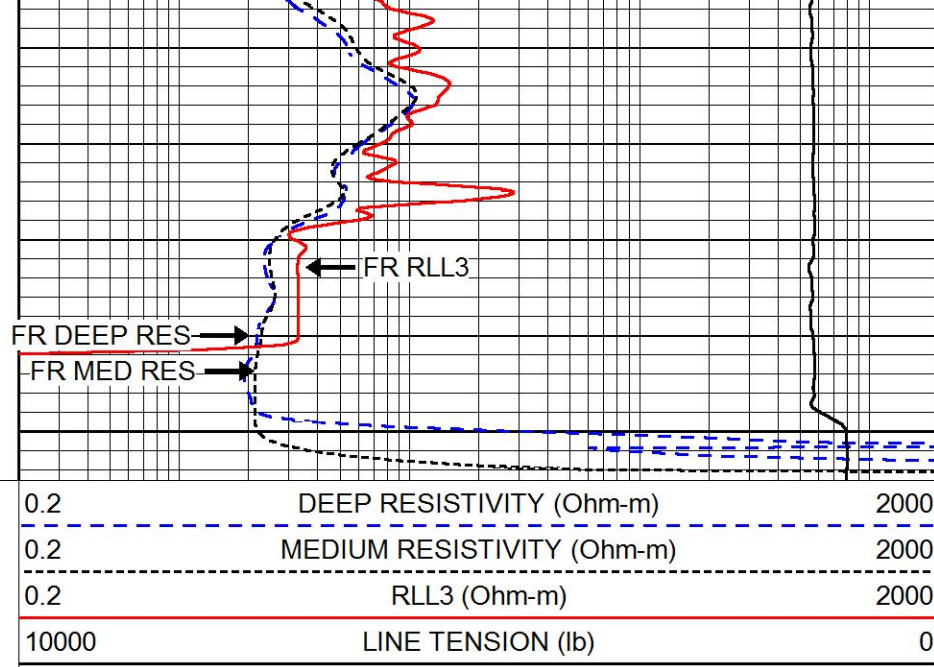
4800

4850



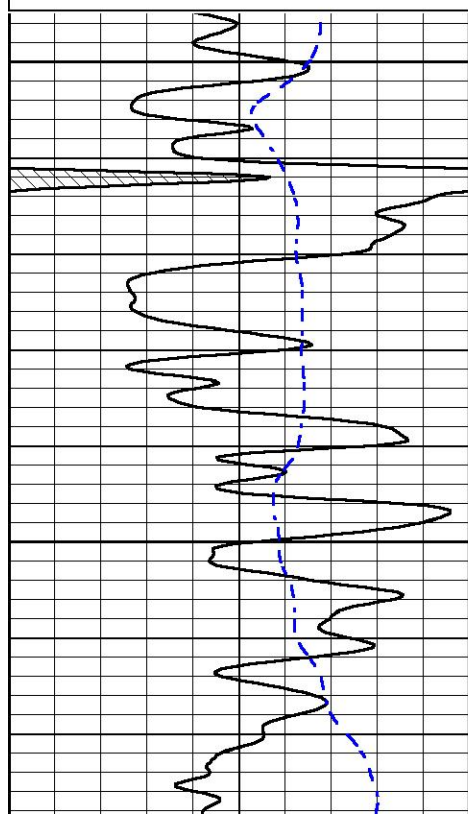
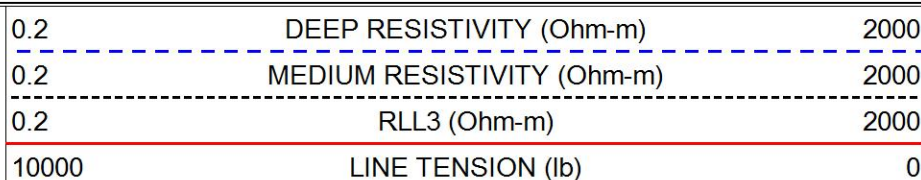
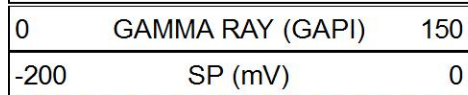


4900



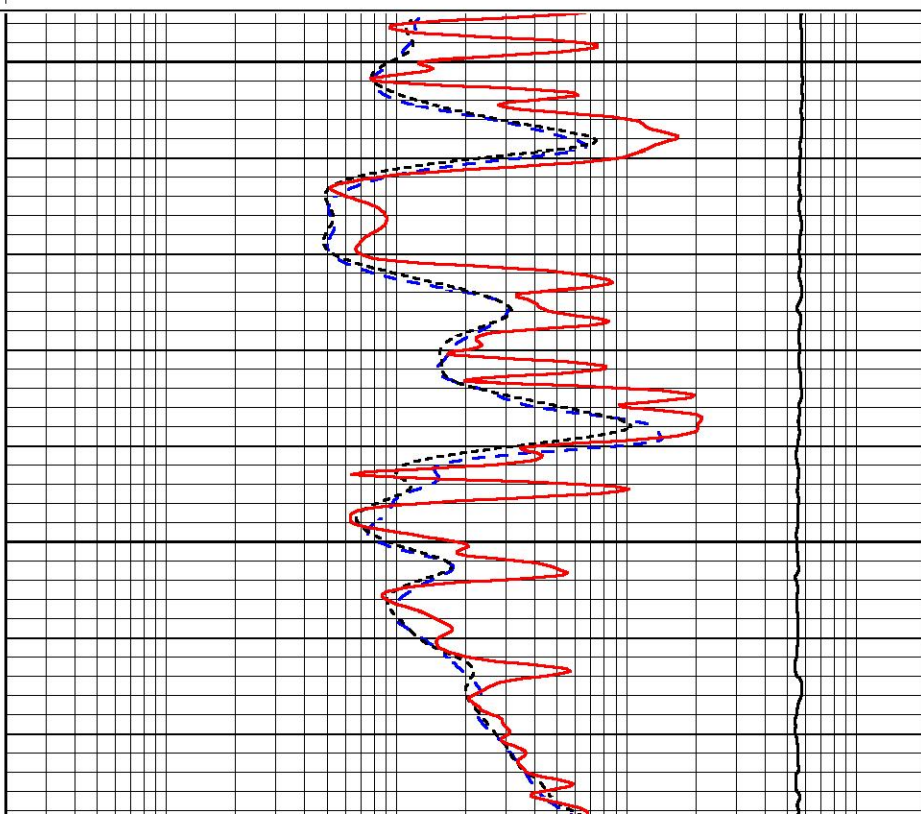
REPEAT SECTION

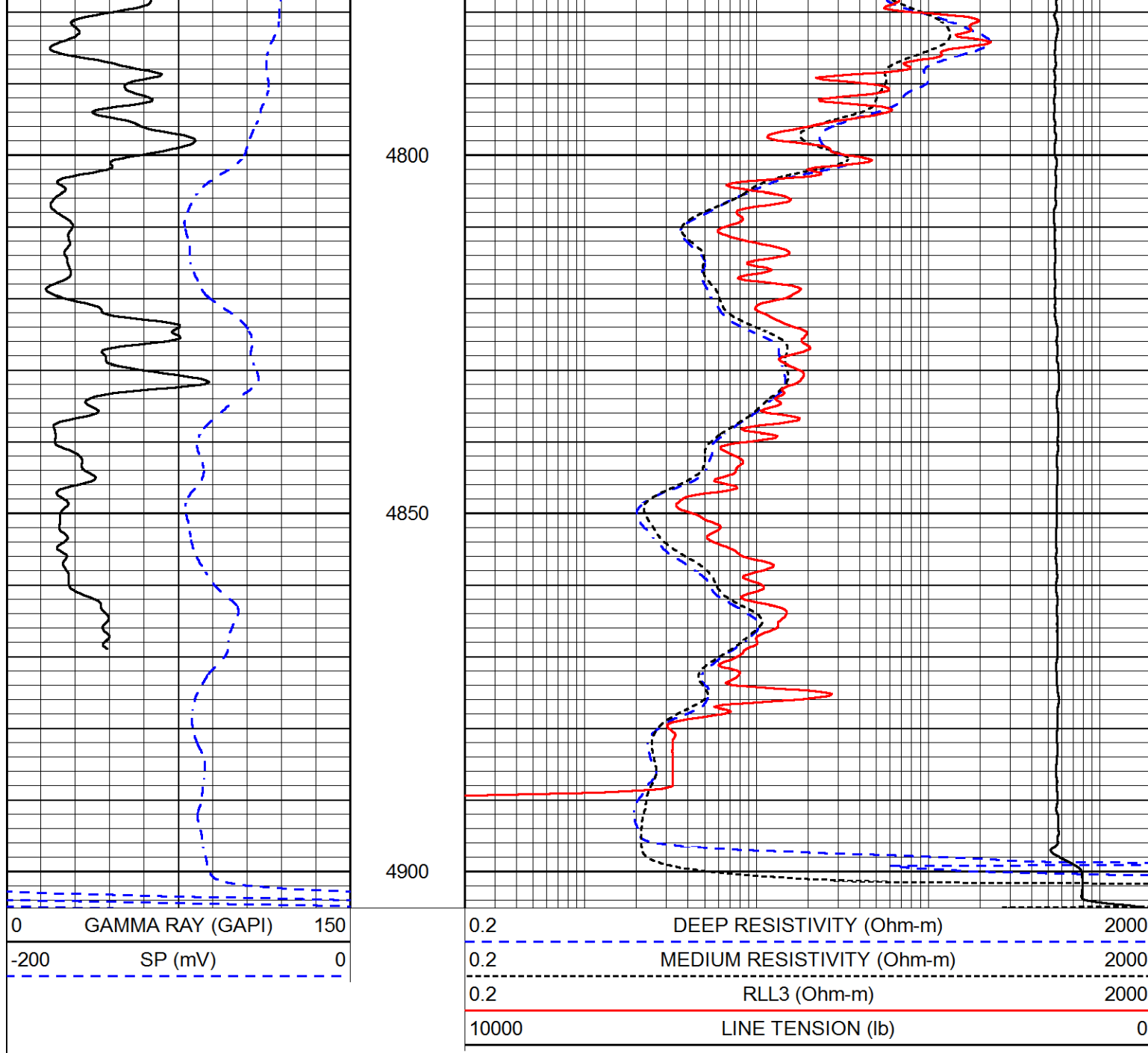
Database File cobalt_wetzel unit a 1-14.db
Dataset Pathname STACK/pass2.1
Presentation Format _dil
Dataset Creation Sun May 26 03:00:07 2019
Charted by Depth in Feet scaled 1:240



4700

4750





Calibration Report

Database File cobalt_wetzel unit a 1-14.db
 Dataset Pathname STACK/pass3.3
 Dataset Creation Sun May 26 02:27:45 2019

Dual Induction Calibration Report

Serial-Model: 967 (HT)-PSI HIGH TEMP
 Calibration Performed: Fri Apr 12 09:37:07 2019

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.565	-17.500
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.390	-40.000

Compensated Density Calibration Report

Serial-Model:
Source / Verifier:
Master Calibration Performed:

96-916-M&W
16955B / 2ci
Wed Mar 27 11:00:53 2019

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	8943.64	10054.60	cps
Aluminum	2.655	g/cc	1595.61	6242.82	cps
Spine Angle = 74.54			Density/Spine Ratio = 0.503		
	Size		Reading		
Small Ring	6.00	in	1.75		
Large Ring	16.00	in	1.46		

Compensated Neutron Calibration Report

Serial Number: 207-MW
Tool Model: M&W
Calibration Performed: WED FEB 13 10:30:30 2019

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: Fri Aug 24 11:16:10 2018

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Sensitivity: 0.6000 GAPI/cps



Company COBALT ENERGY, LLC
Well WETZEL UNIT A #1-14
Field NA
County FORD
State KANSAS