



PIONEER
Pioneer Energy Services

DUAL INDUCTION LOG

Company **PALMER OIL, INC.**
Well **WILLIS #1-20**
Field **UNKNOWN**
County **FINNEY** State **KANSAS**

Location: API #: 15-055-22478-00-00

Other Services

NE SW SE NE
2038' FNL & 737' FEL
SEC 20 TWP 26S RGE 33W

CNL/CDL
MEL/BHCS

Permanent Datum GROUND LEVEL Elevation 2926'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 2937'
D.F. N/A
G.L. 2926'

Date	2/24/2018		
Run Number	ONE		
Depth Driller	5400'		
Depth Logger	5400'		
Bottom Logged Interval	5399'		
Top Log Interval	1750'		
Casing Driller	8.625" @ 1780'		
Casing Logger	1780'		
Bit Size	7.875"		
Type Fluid in Hole	CHEMICAL		
Salinity, ppm CL	2600		
Density / Viscosity	9.25 47		
pH / Fluid Loss	9.0 9.2		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.55 @ 75		
Rmt @ Meas. Temp	0.41 @ 75		
Rmc @ Meas. Temp	0.74 @ 75		
Source of Rmt / Rmc	CHARTS		
Rm @ BHT	0.32 @ 130		
Operating Rig Time	4 HOURS		
Max Rec. Temp. F	130 DEG F		
Equipment Number	108		
Location	HAYS		
Recorded By	T. MARTIN		
Witnessed By	LUKE THOMPSON		

<<< Fold Here >>>

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.

GARDEN CITY, S ON 83 APPX 14 MI TO W TV RD,
5 W TO SANDHILL RD, 1/4 S, W 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: T. MARTIN
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: LUKE THOMPSON
Secondary Witness:
Secondary Witness:
Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\palmer_willis_#1-20.db
Dataset field/well/stack/pass3.1/_vars_

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in	degF	in	in	g/cc	2	g/cc
	7.875	130	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	-210	30		5400

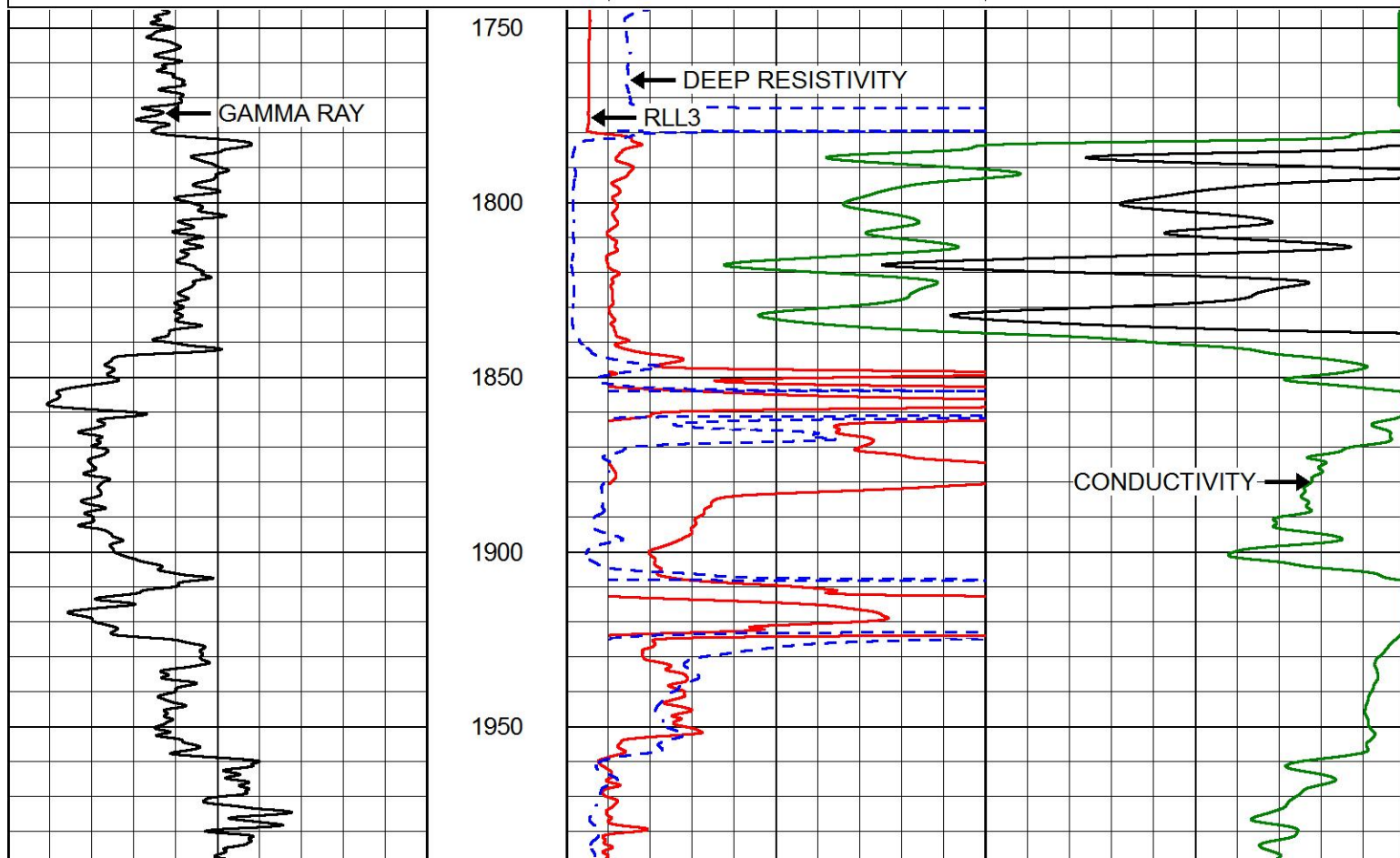


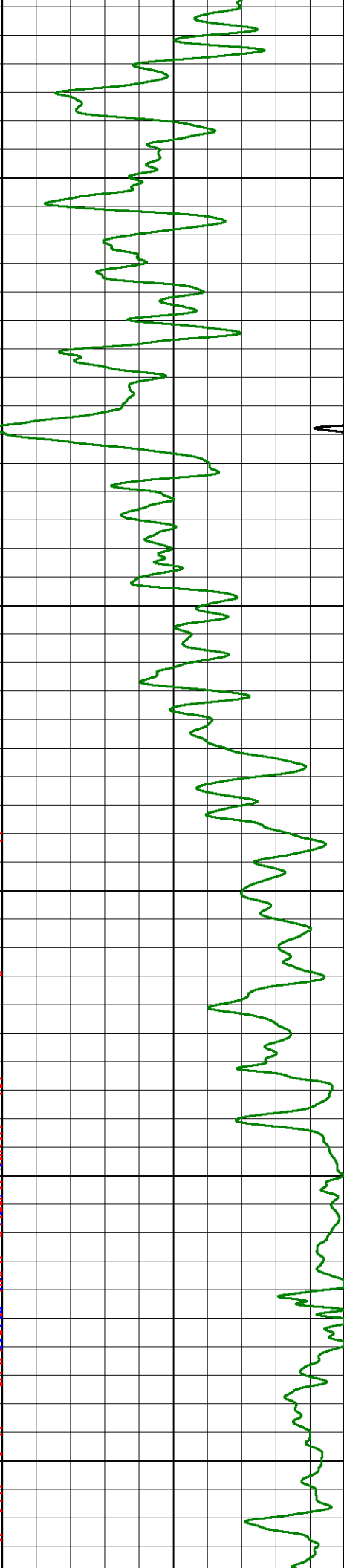
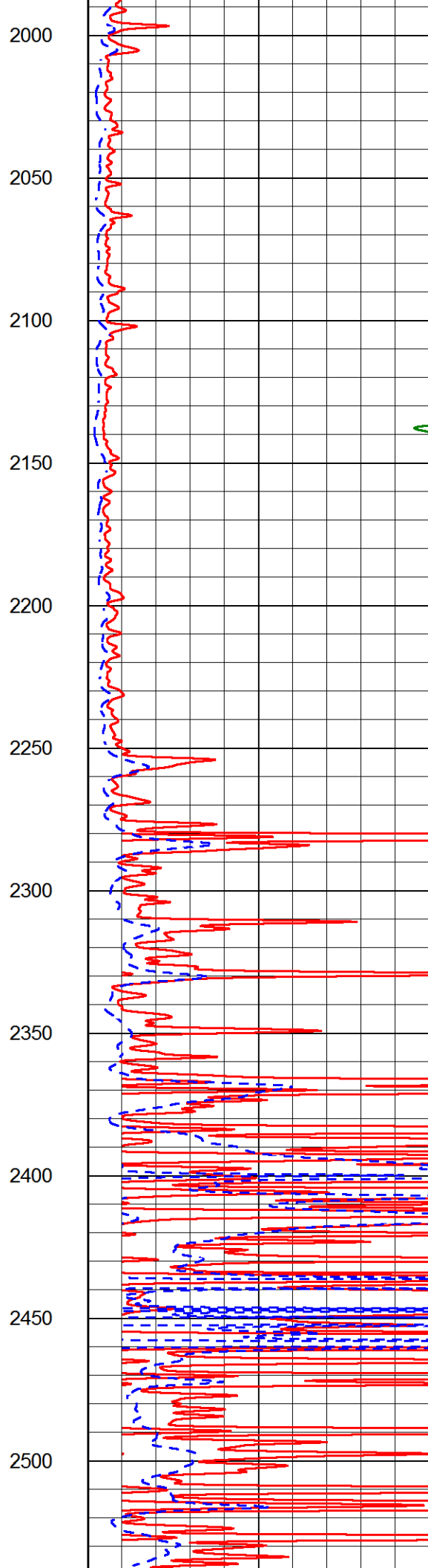
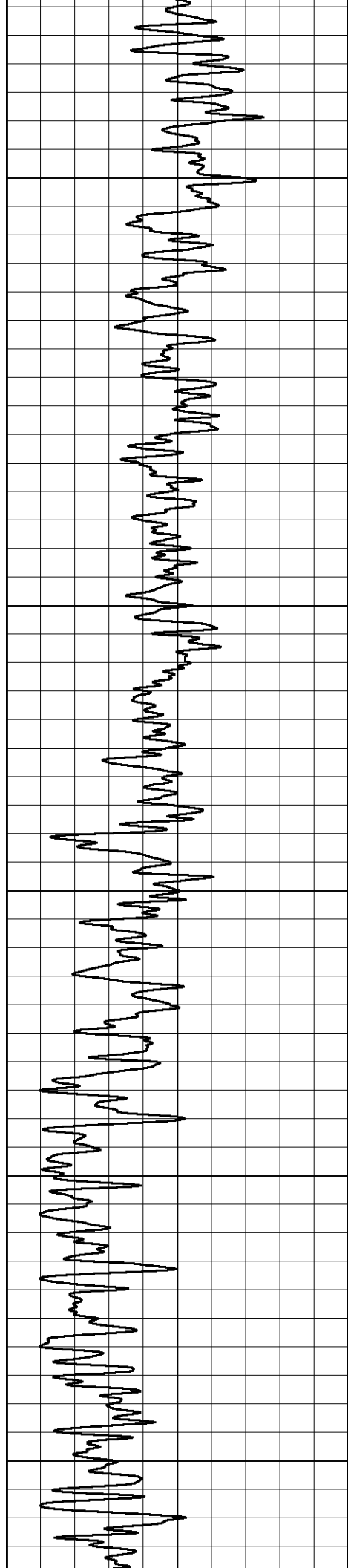
2" SCALE RESISTIVITY

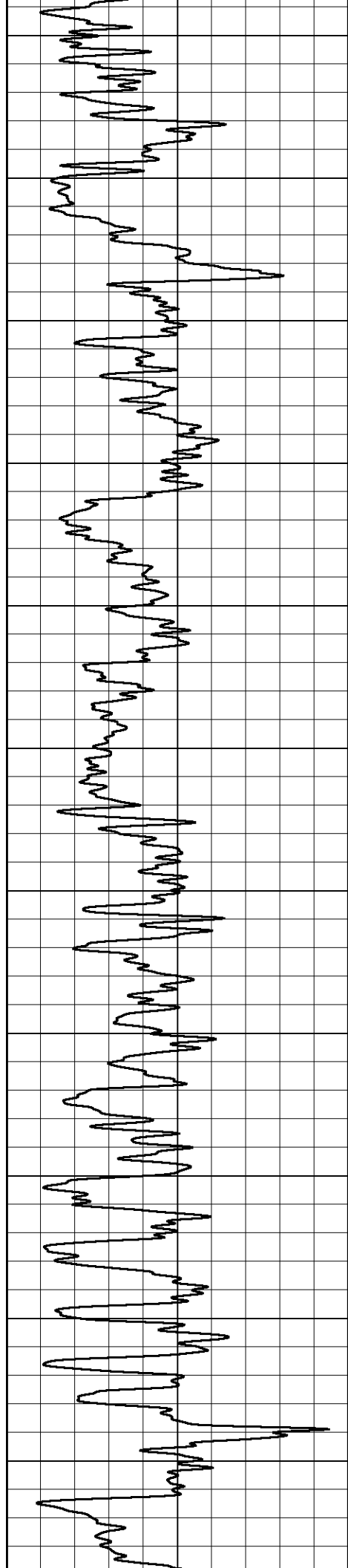
MAIN PASS

Database File palmer_willis_#1-20.db
Dataset Pathname stack/pass3.2
Presentation Format dil2in
Dataset Creation Sat Feb 24 07:55:39 2018
Charted by Depth in Feet scaled 1:600

0	GAMMA RAY (GAPI)	150	2000	CONDUCTIVITY (mmho/m)	0
			0	RLL3 (Ohm-m)	50
			0	DEEP RESISTIVITY (Ohm-m)	50
			50	RLL3 (Ohm-m)	500
				DEEP RESISTIVITY	
			50	(Ohm-m)	500







2550

2600

2650

2700

2750

2800

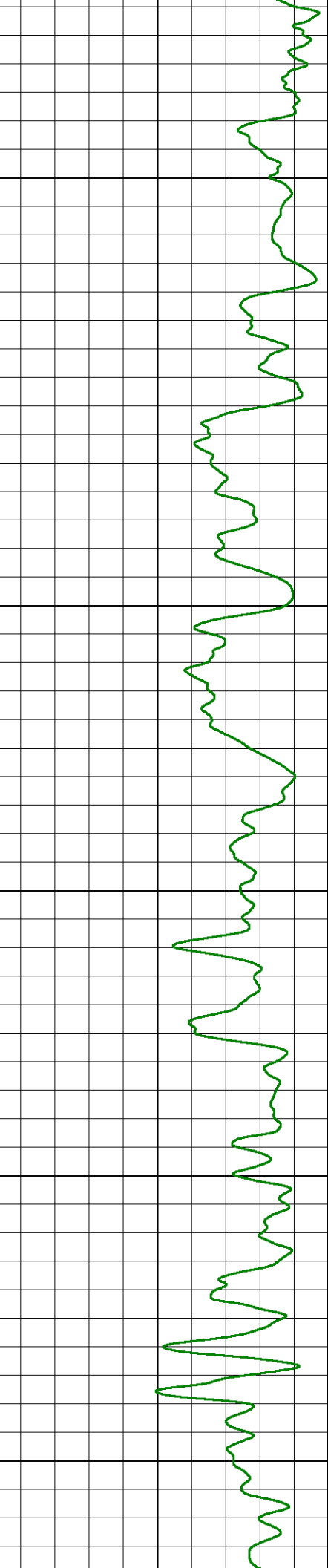
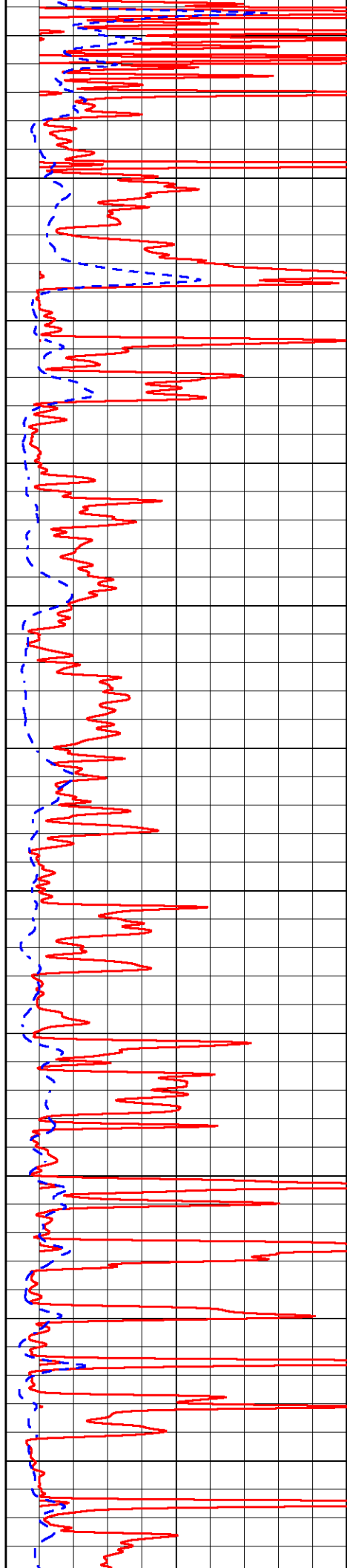
2850

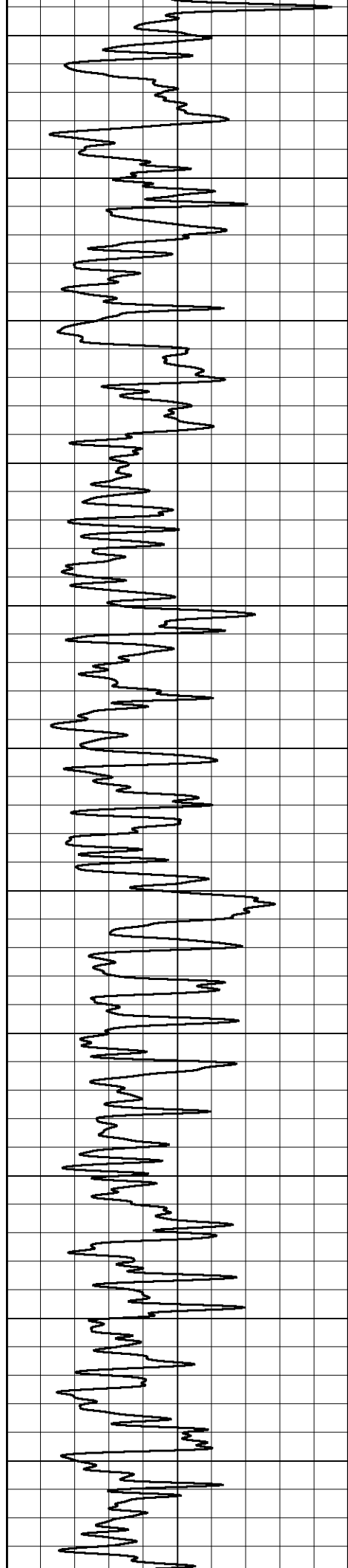
2900

2950

3000

3050





3100

3150

3200

3250

3300

3350

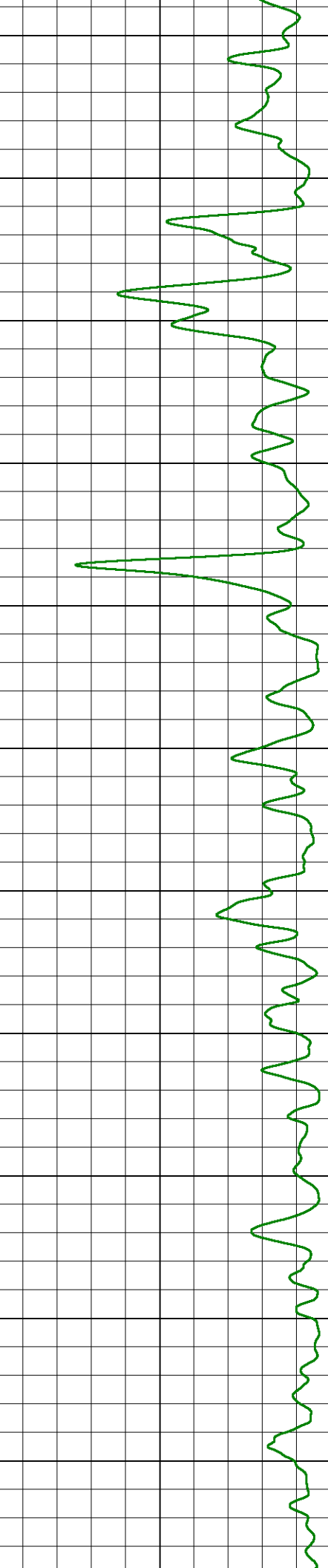
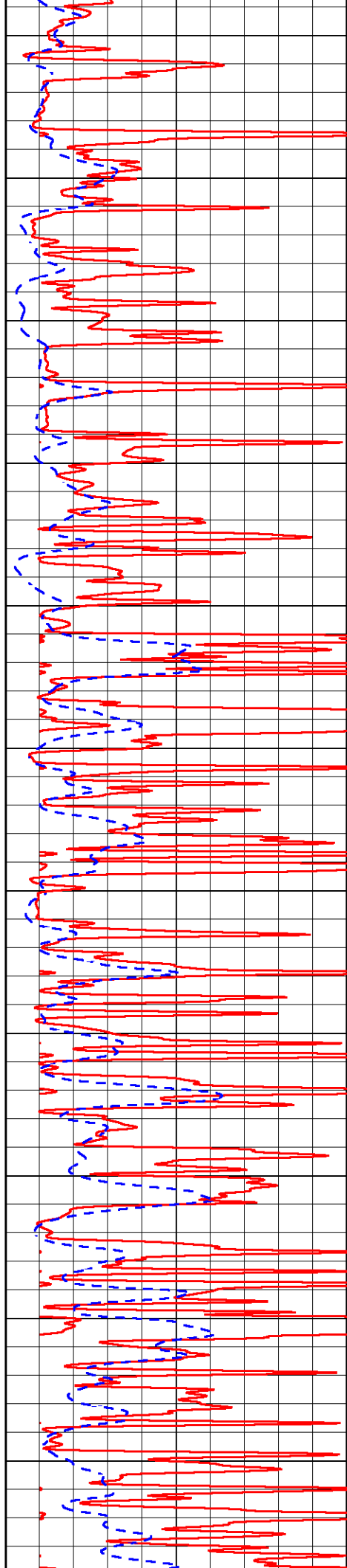
3400

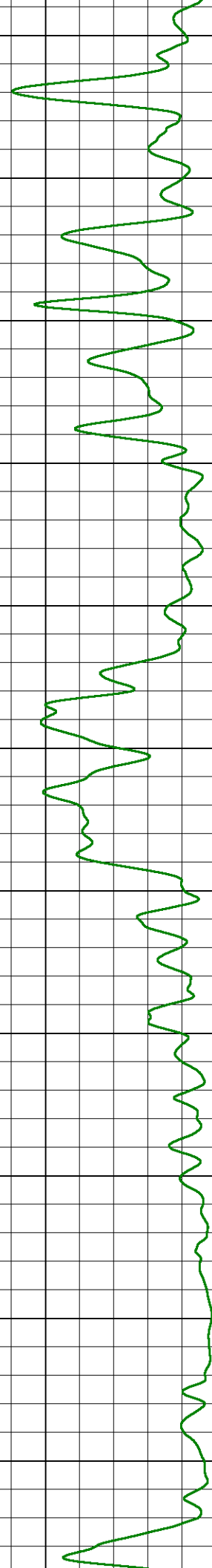
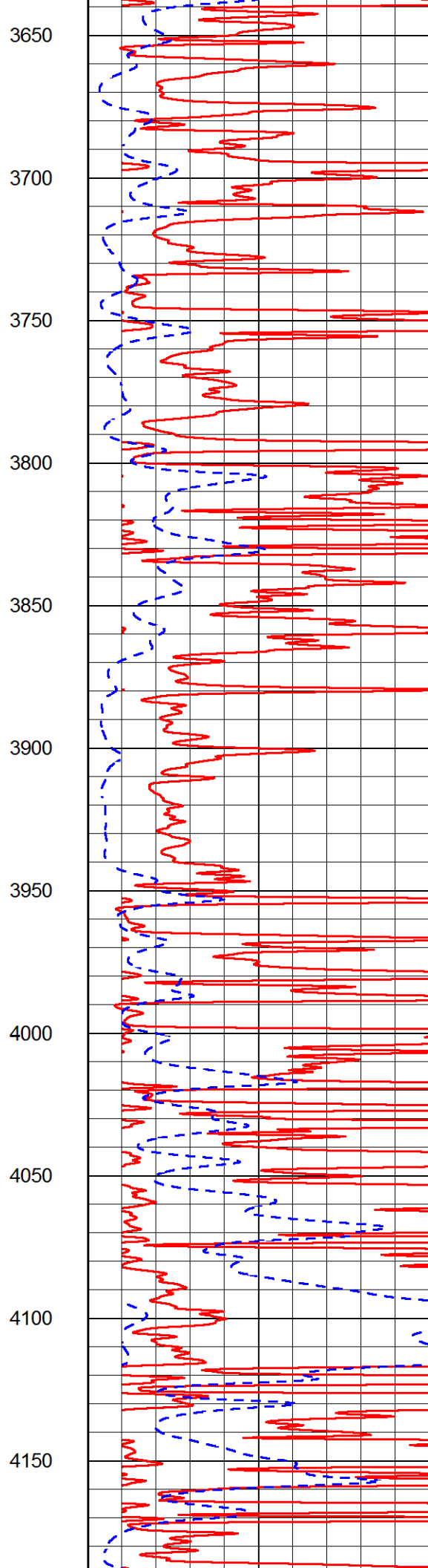
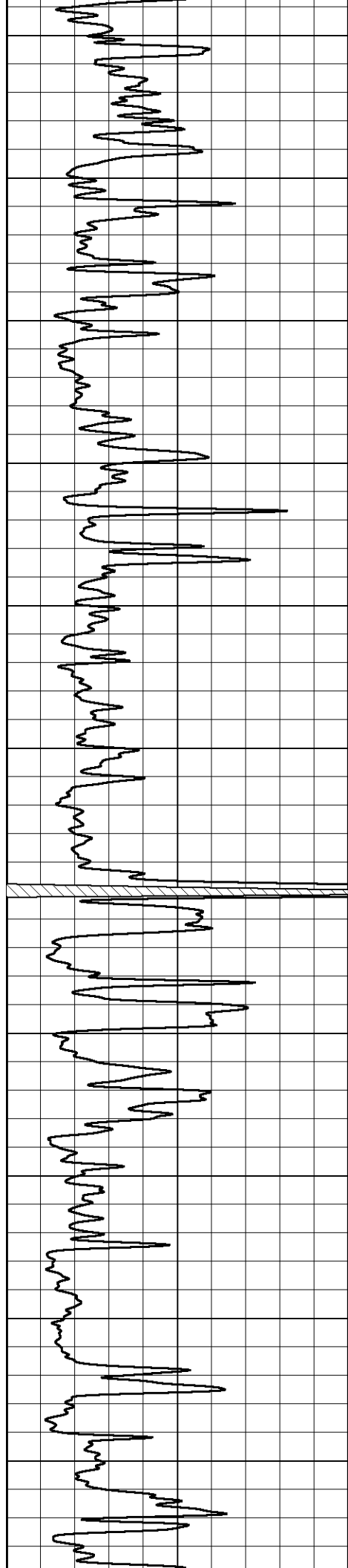
3450

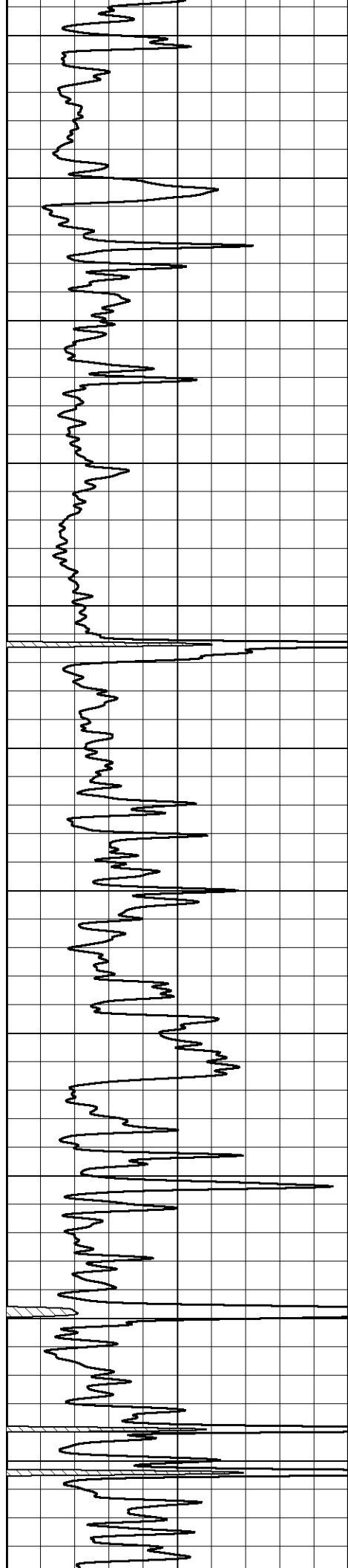
3500

3550

3600







4200

4250

4300

4350

4400

4450

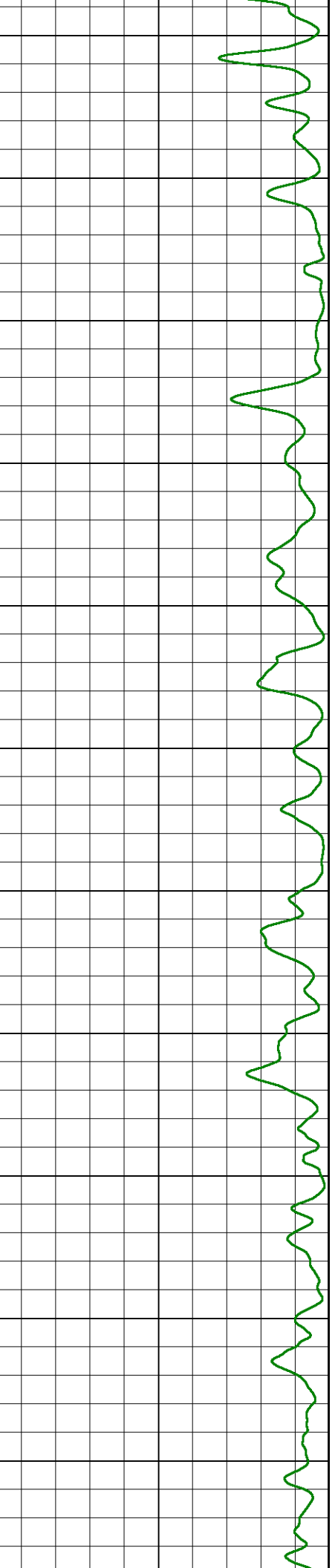
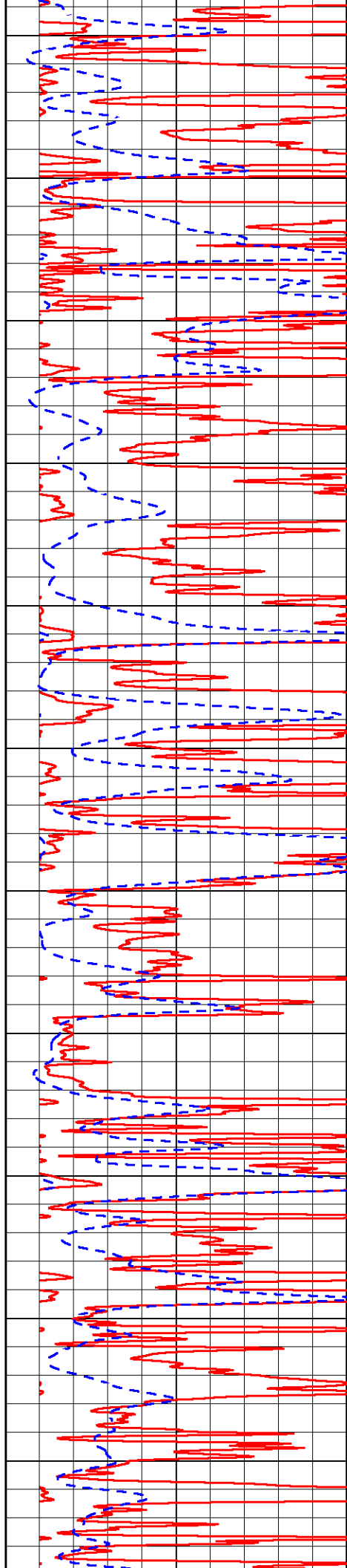
4500

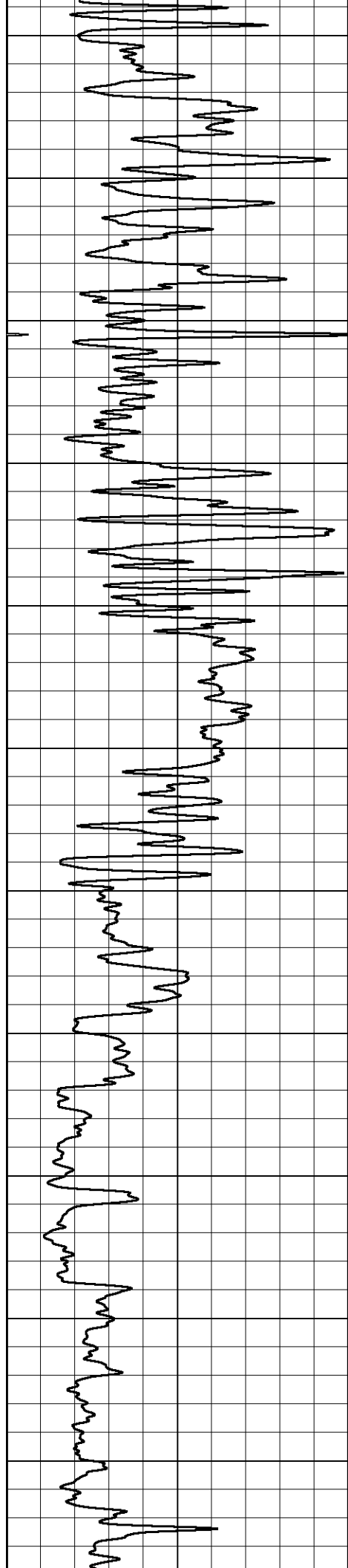
4550

4600

4650

4700





4750

4800

4850

4900

4950

5000

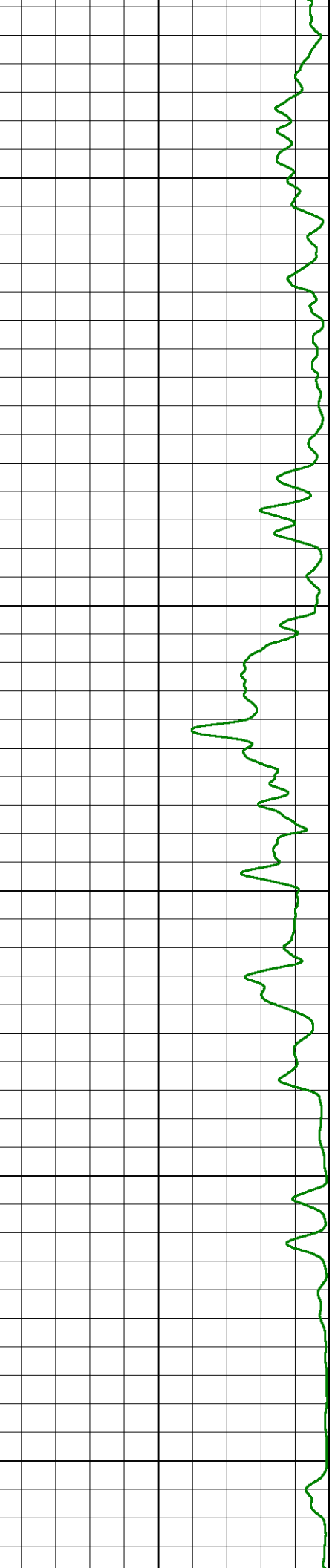
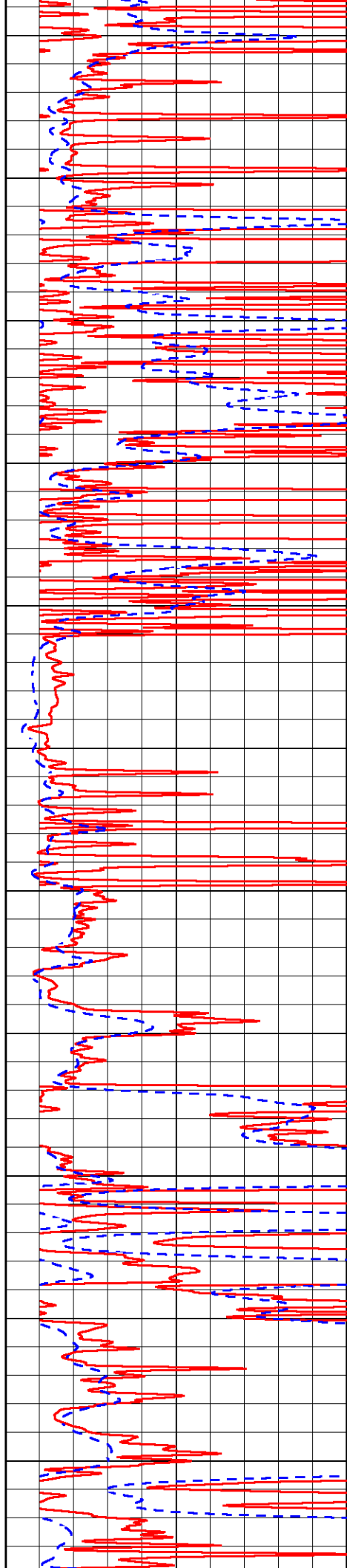
5050

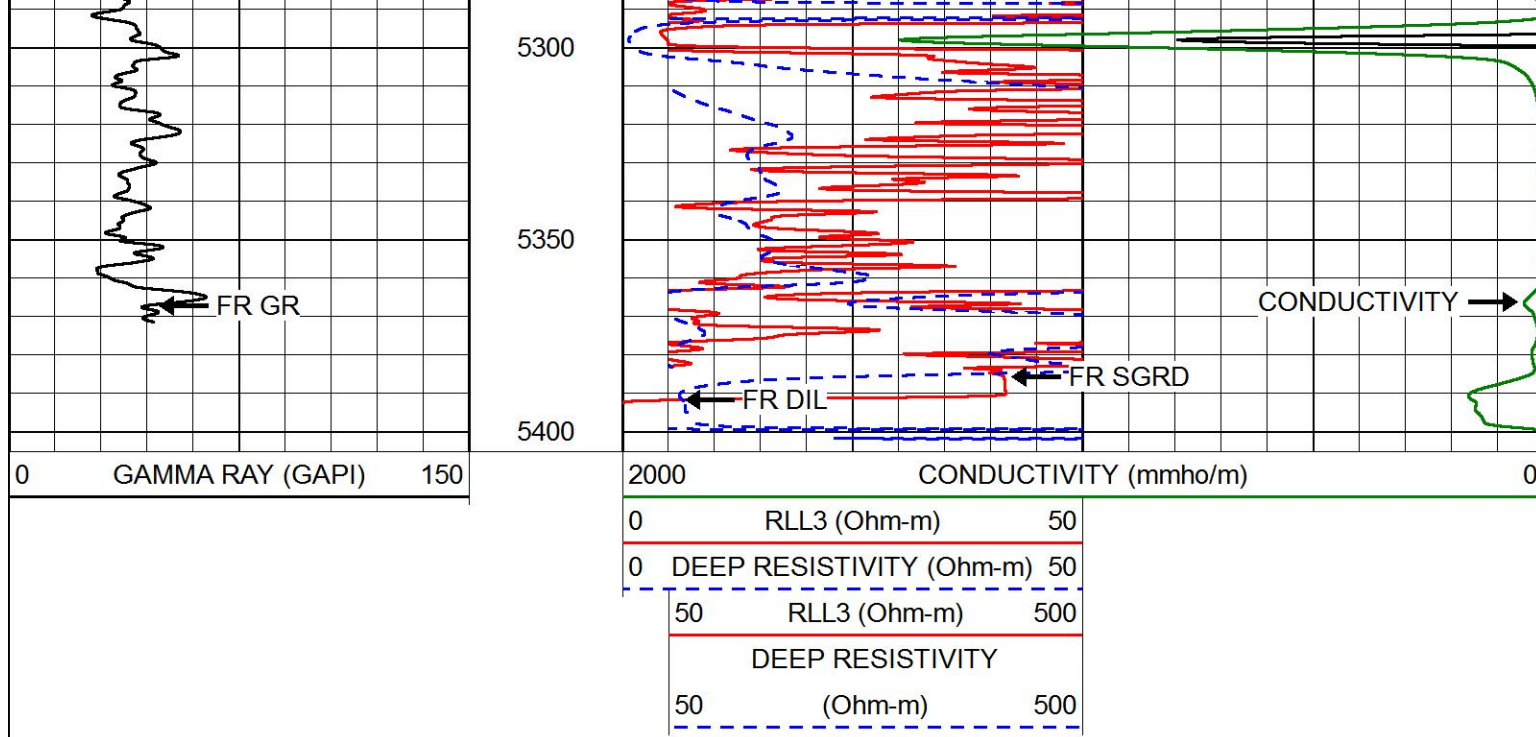
5100

5150

5200

5250





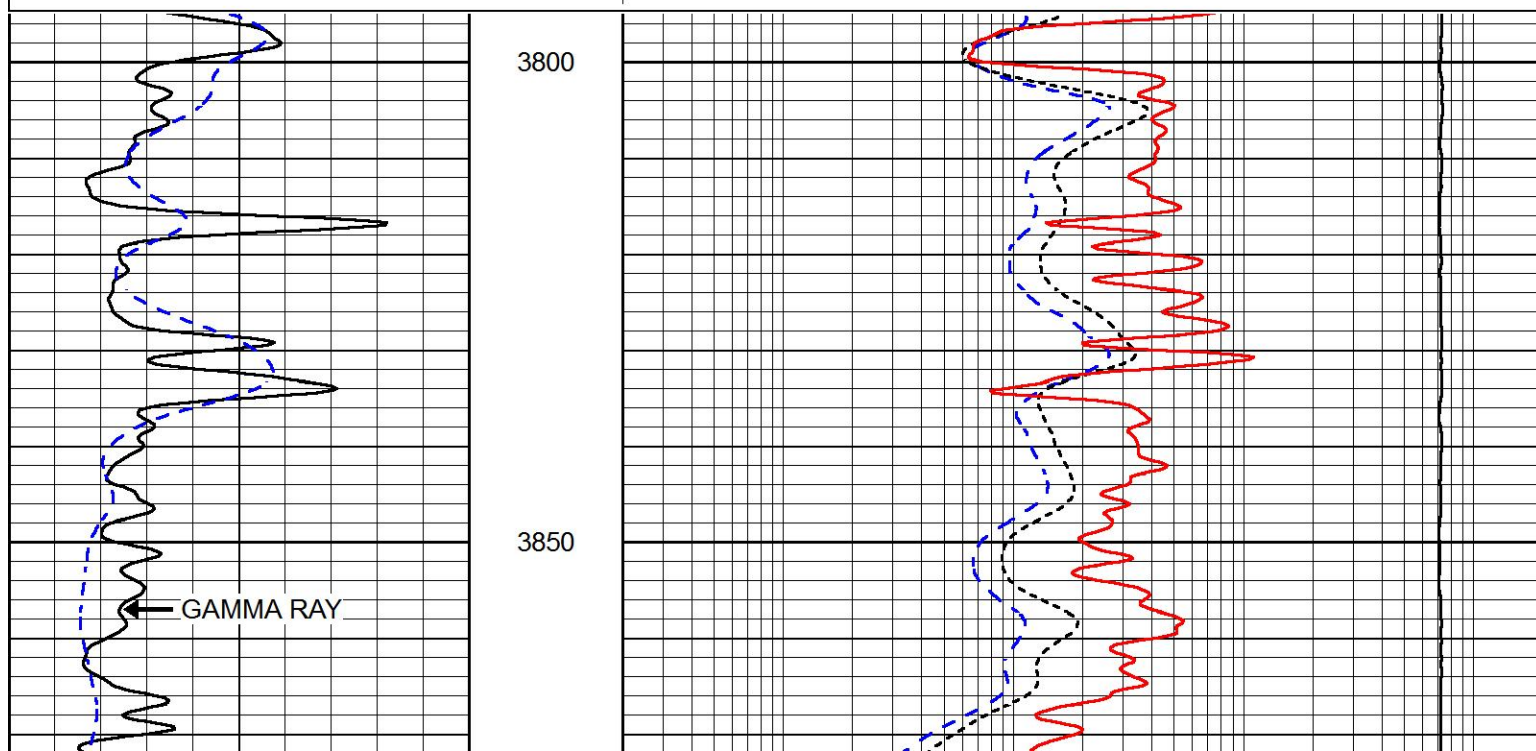


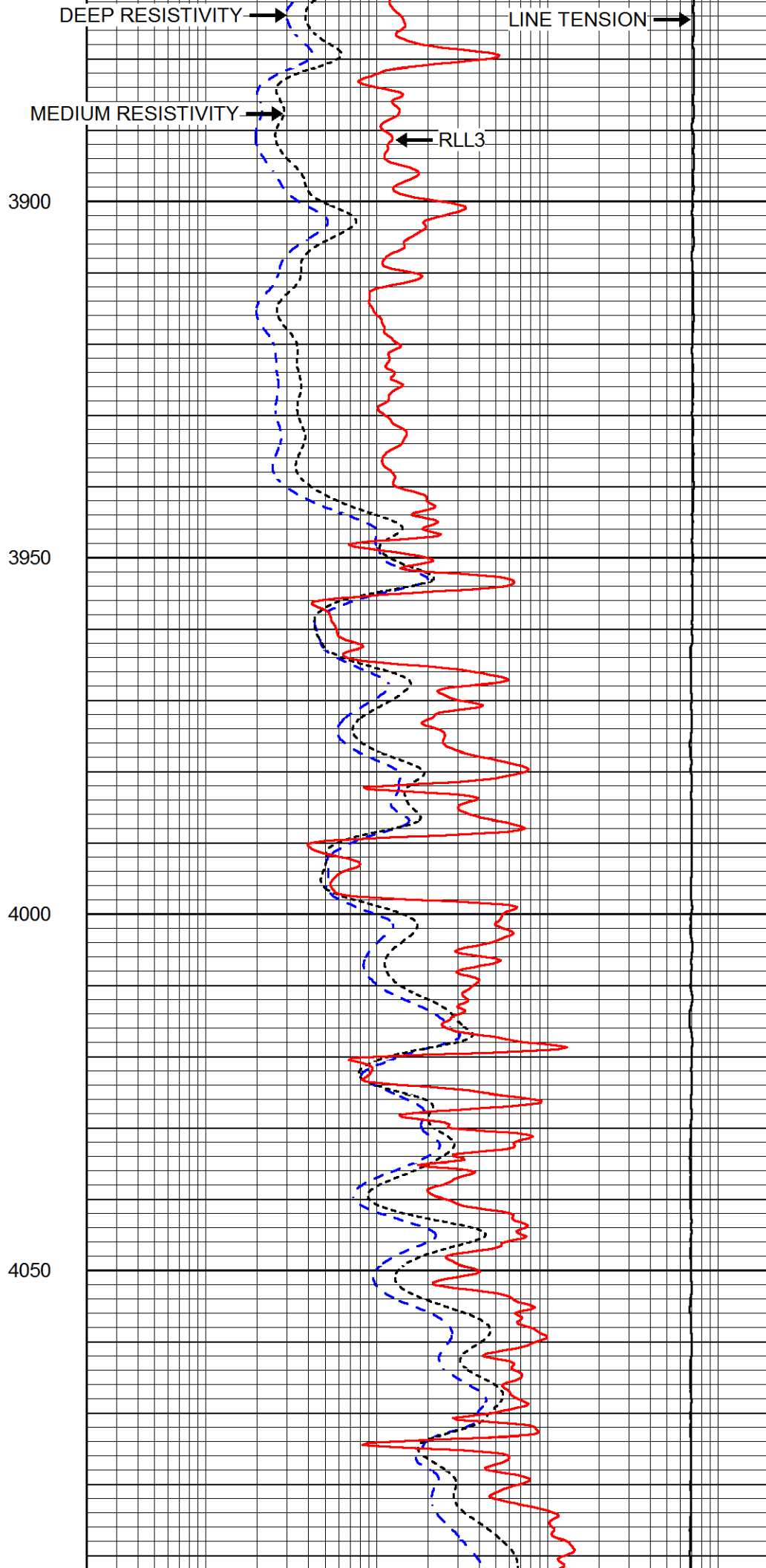
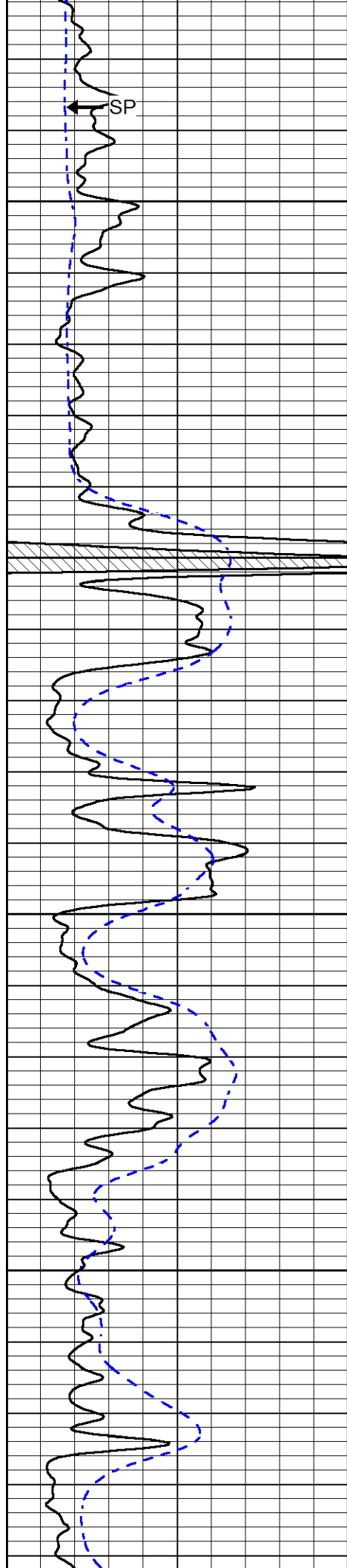
PIONEER
Pioneer Energy Services

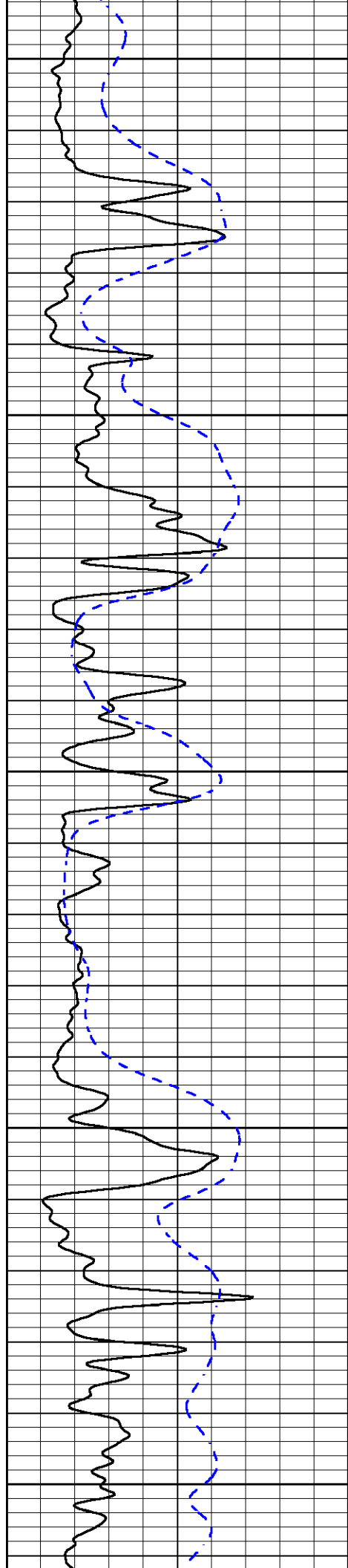
MAIN PASS

Database File palmer_willis_#1-20.db
 Dataset Pathname stack/pass3.1
 Presentation Format dil
 Dataset Creation Sat Feb 24 07:55:27 2018
 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
15000	LINE TENSION (lb)	0







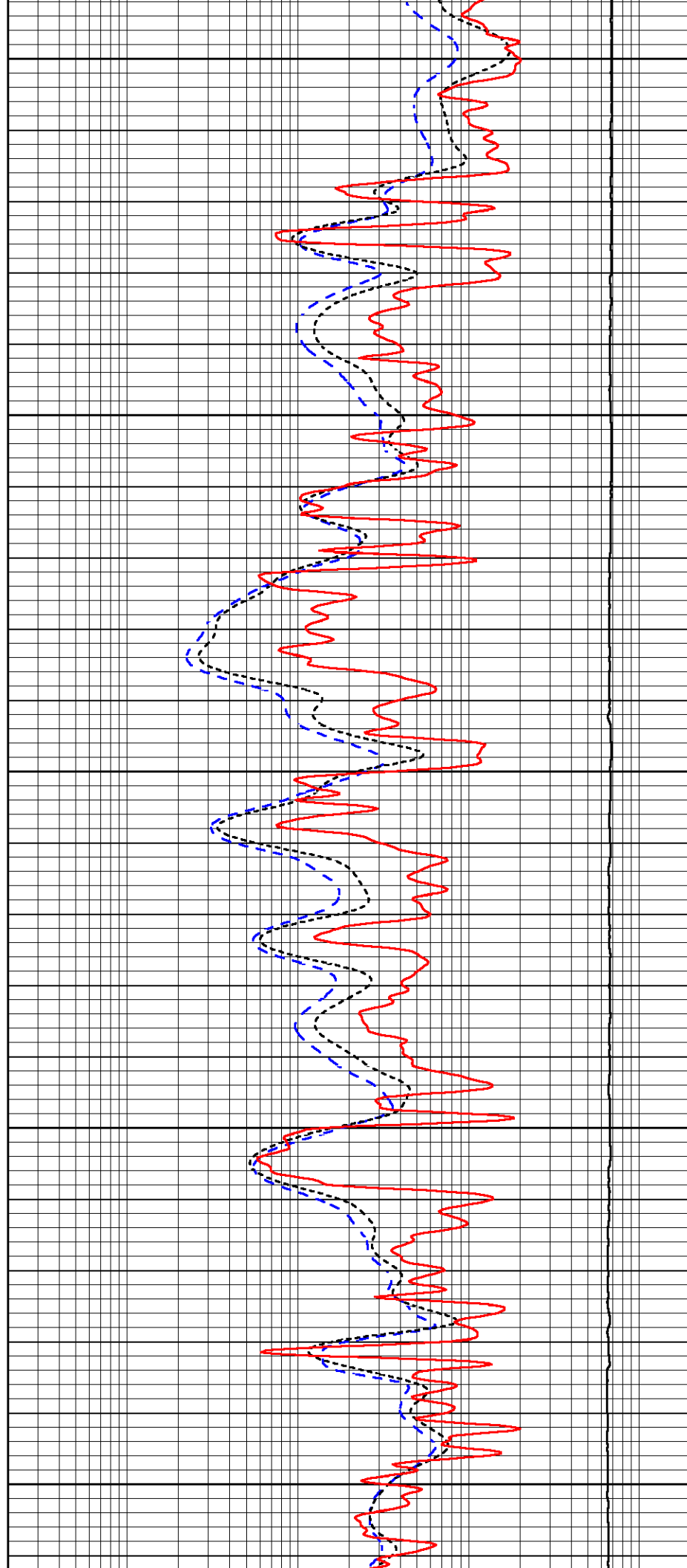
4100

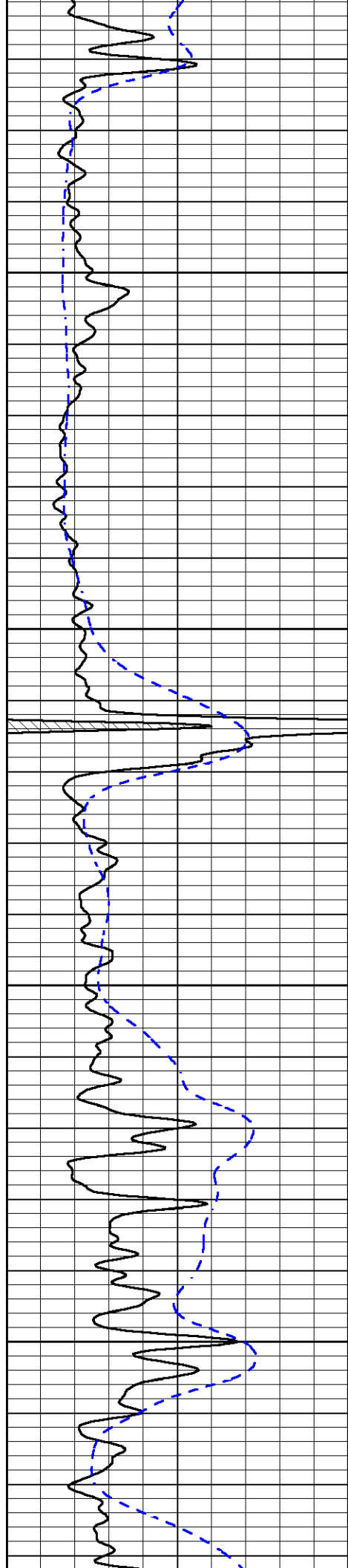
4150

4200

4250

4300



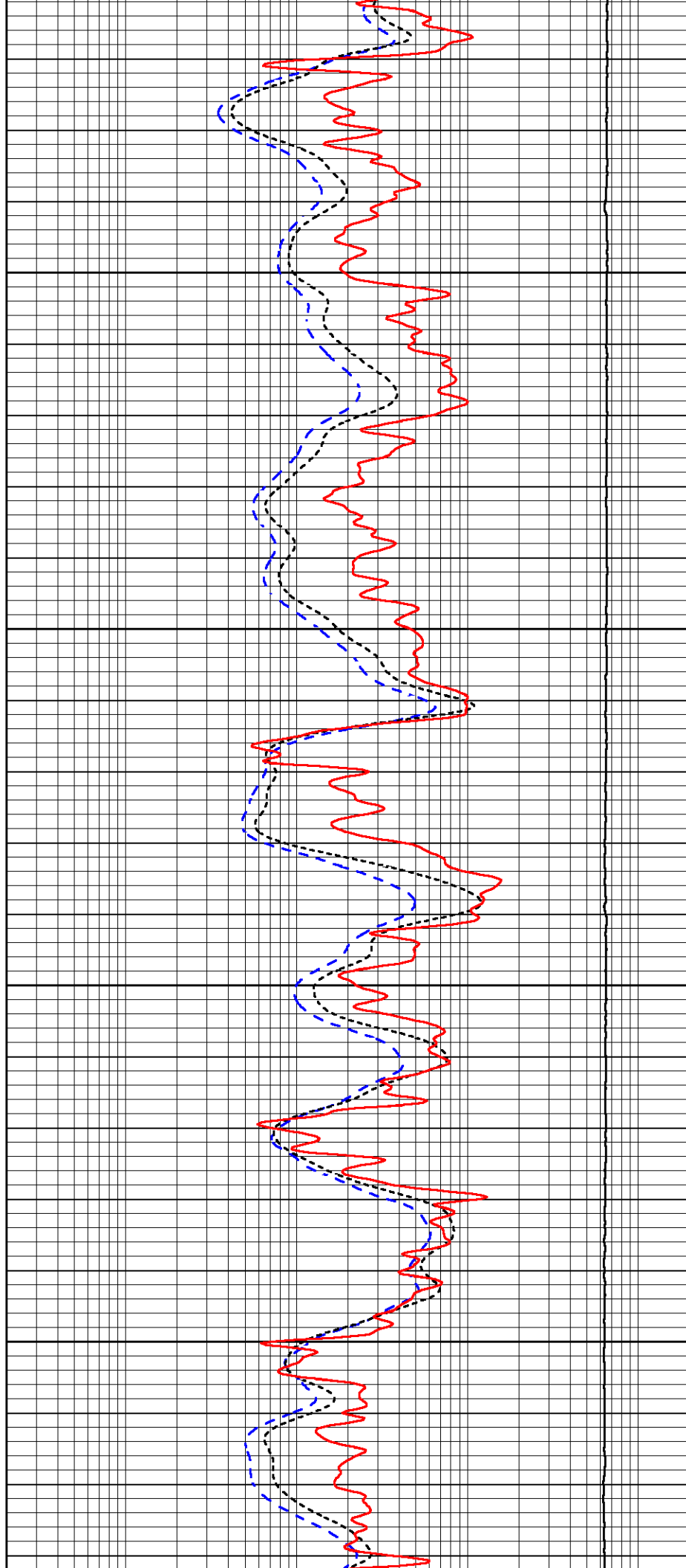


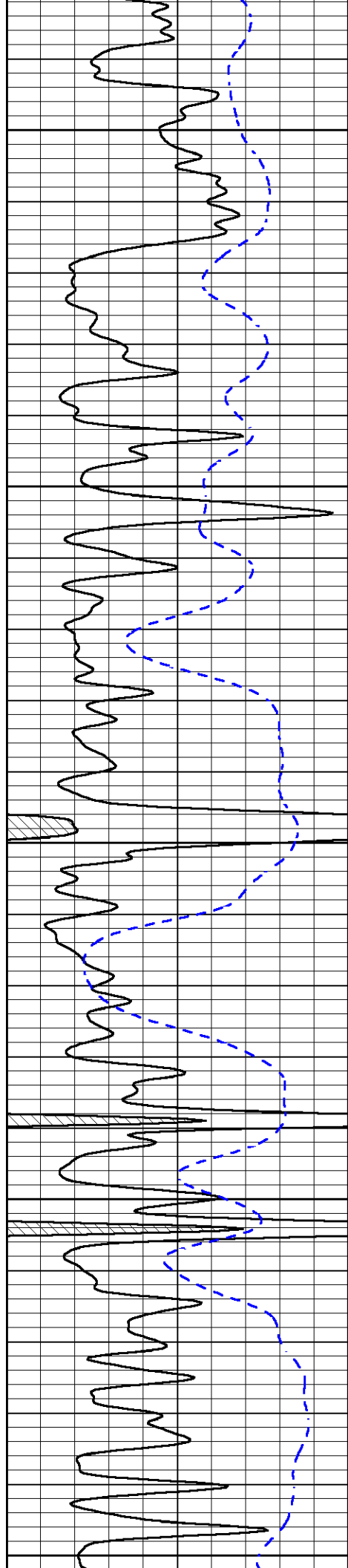
4350

4400

4450

4500





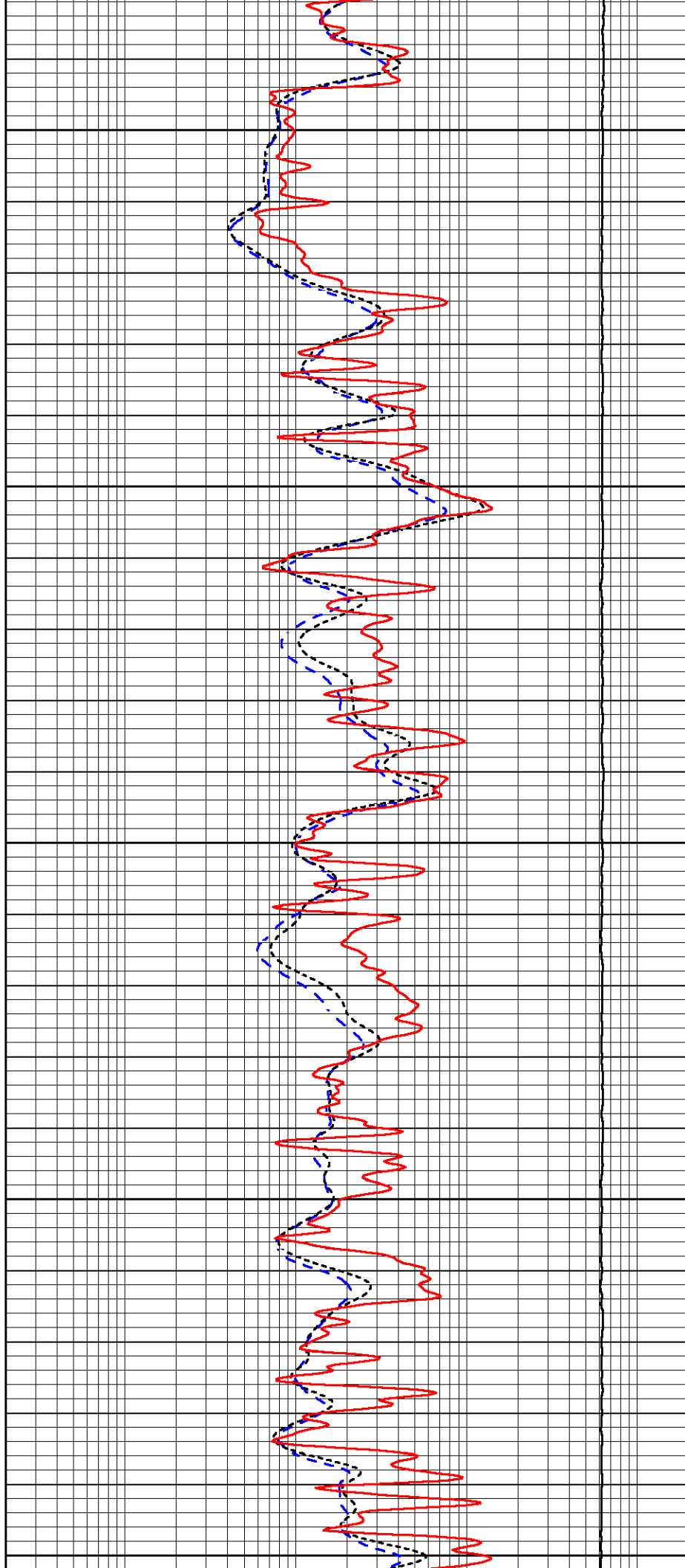
4550

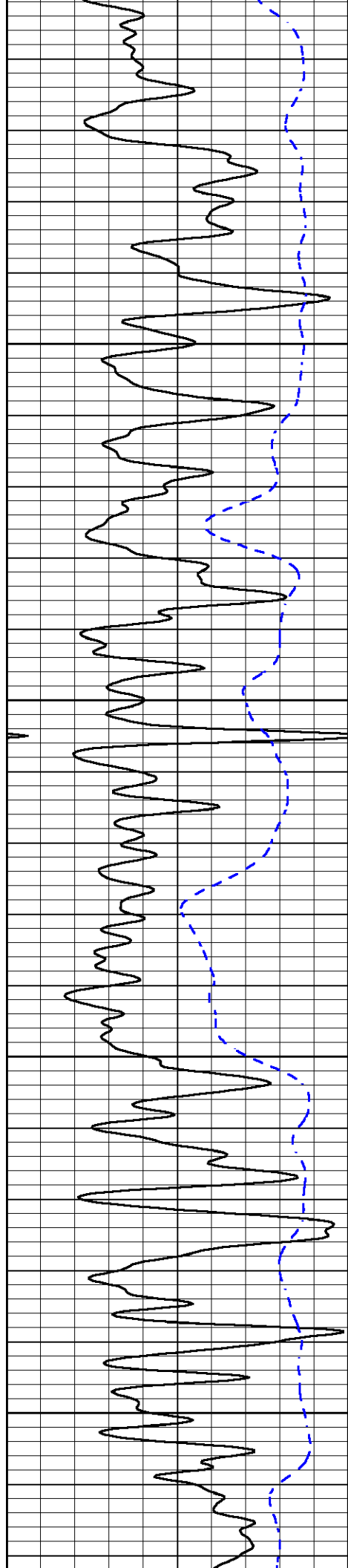
4600

4650

4700

4750



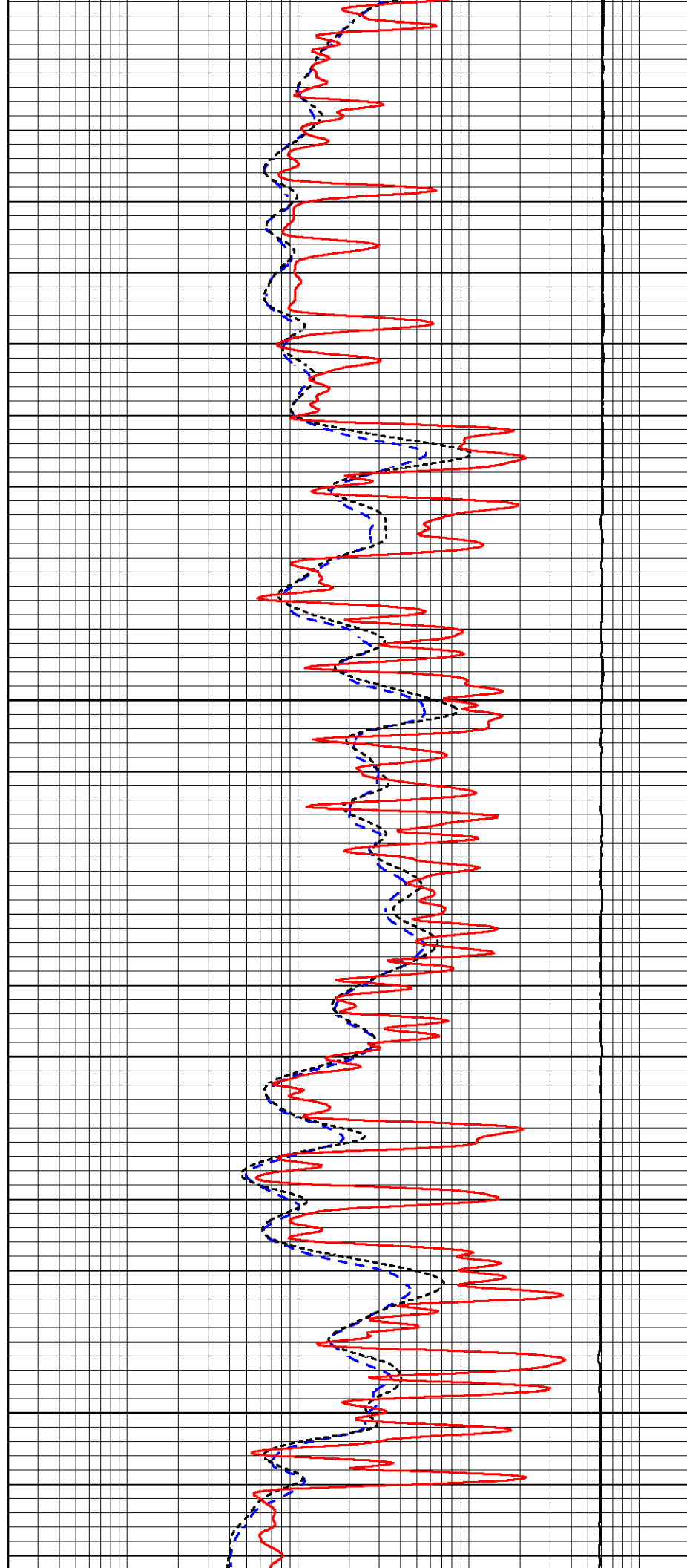


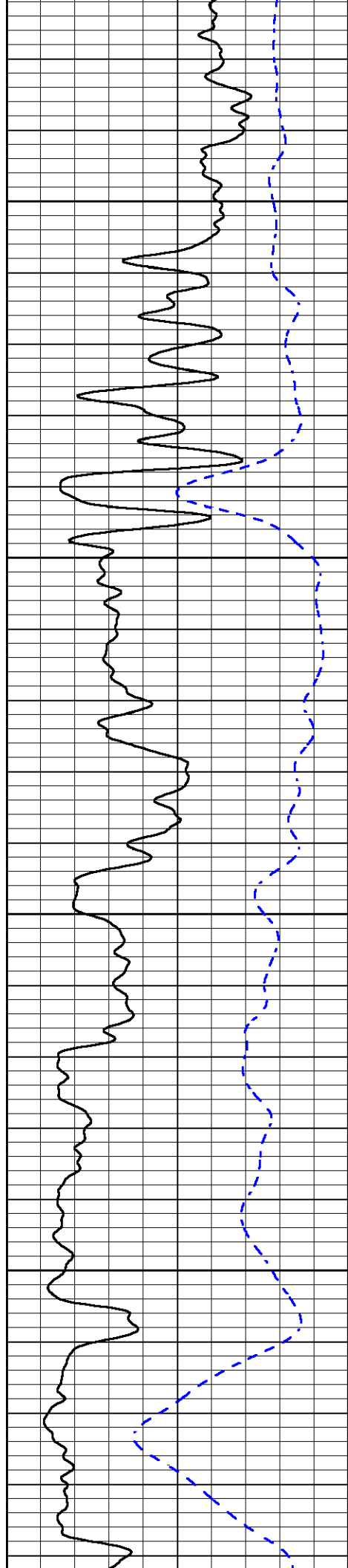
4800

4850

4900

4950



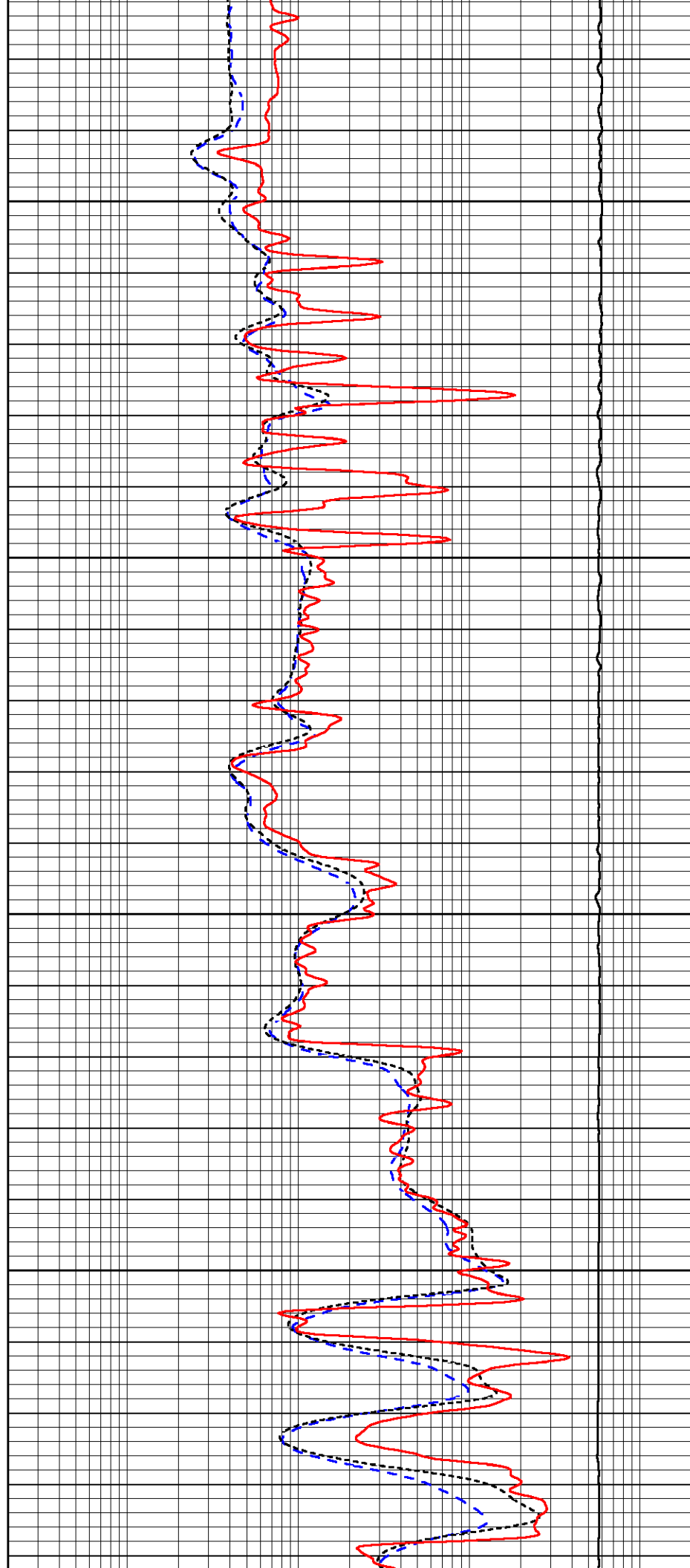


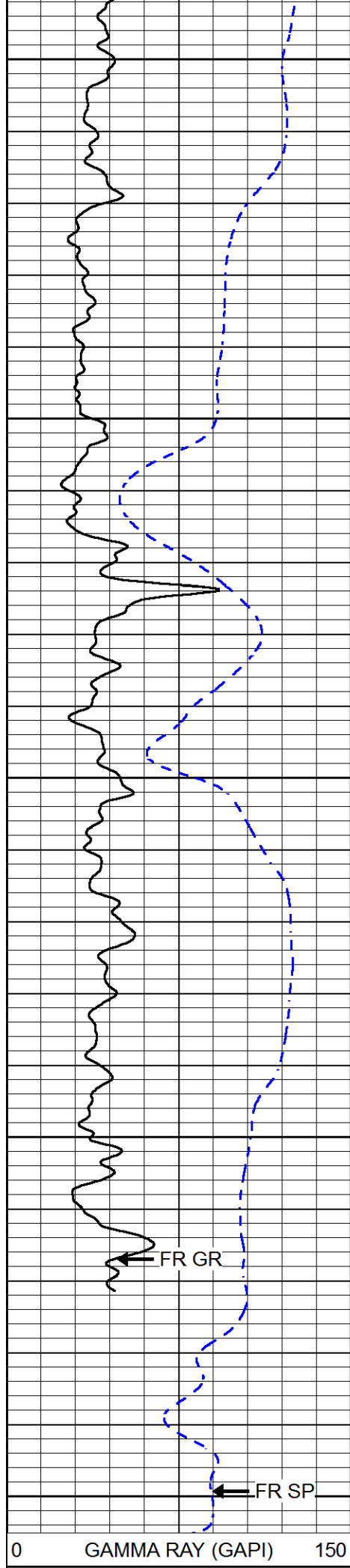
5000

5050

5100

5150





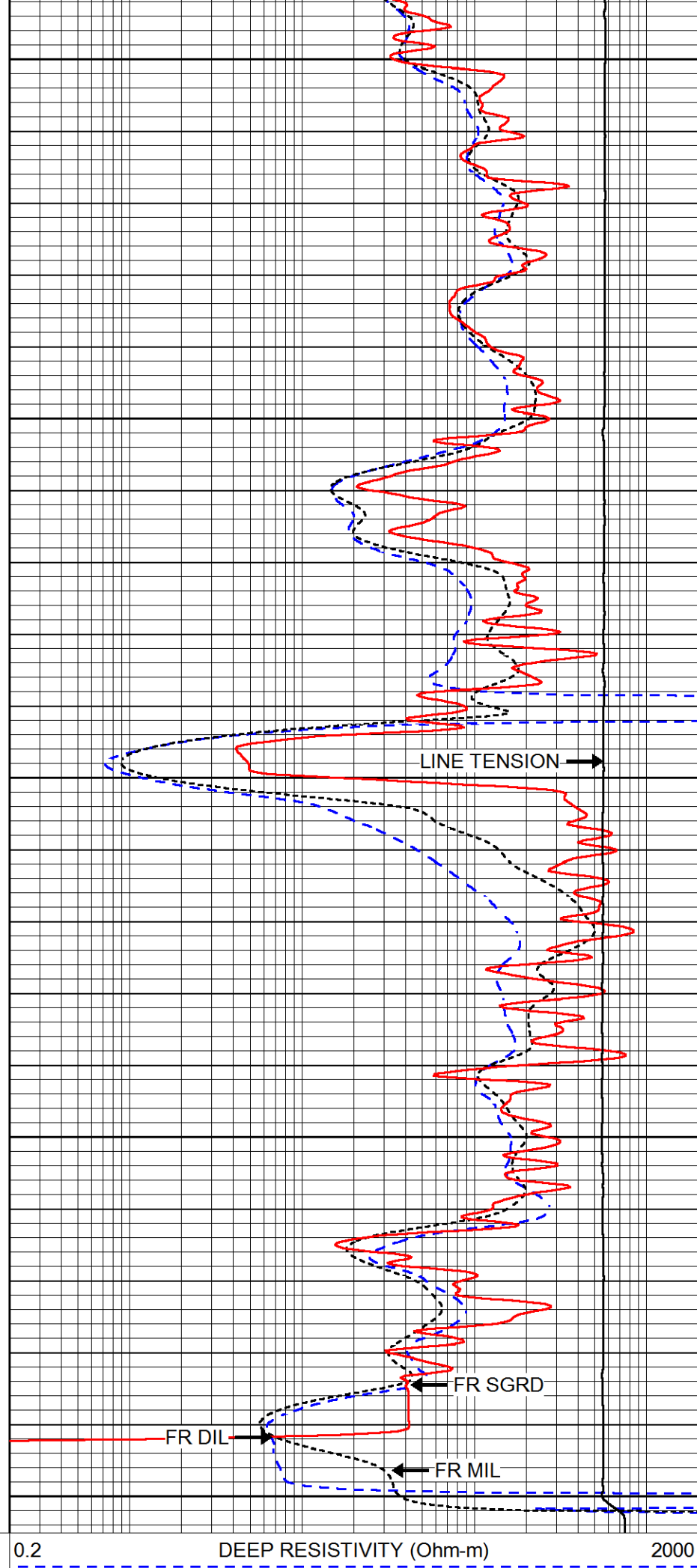
5200

5250

5300

5350

5400



0.2

DEEP RESISTIVITY (Ohm-m)

2000

-200	SP (mV)	0

0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0

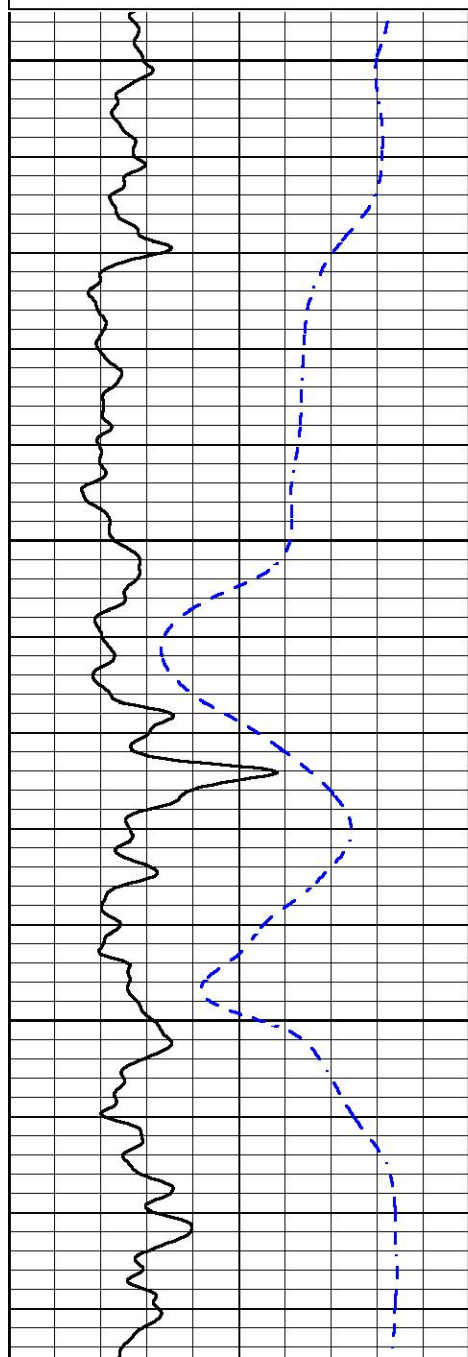


REPEAT SECTION

Database File palmer_willis_#1-20.db
 Dataset Pathname stack/pass2.1
 Presentation Format dil
 Dataset Creation Sat Feb 24 07:09:43 2018
 Charted by Depth in Feet scaled 1:240

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

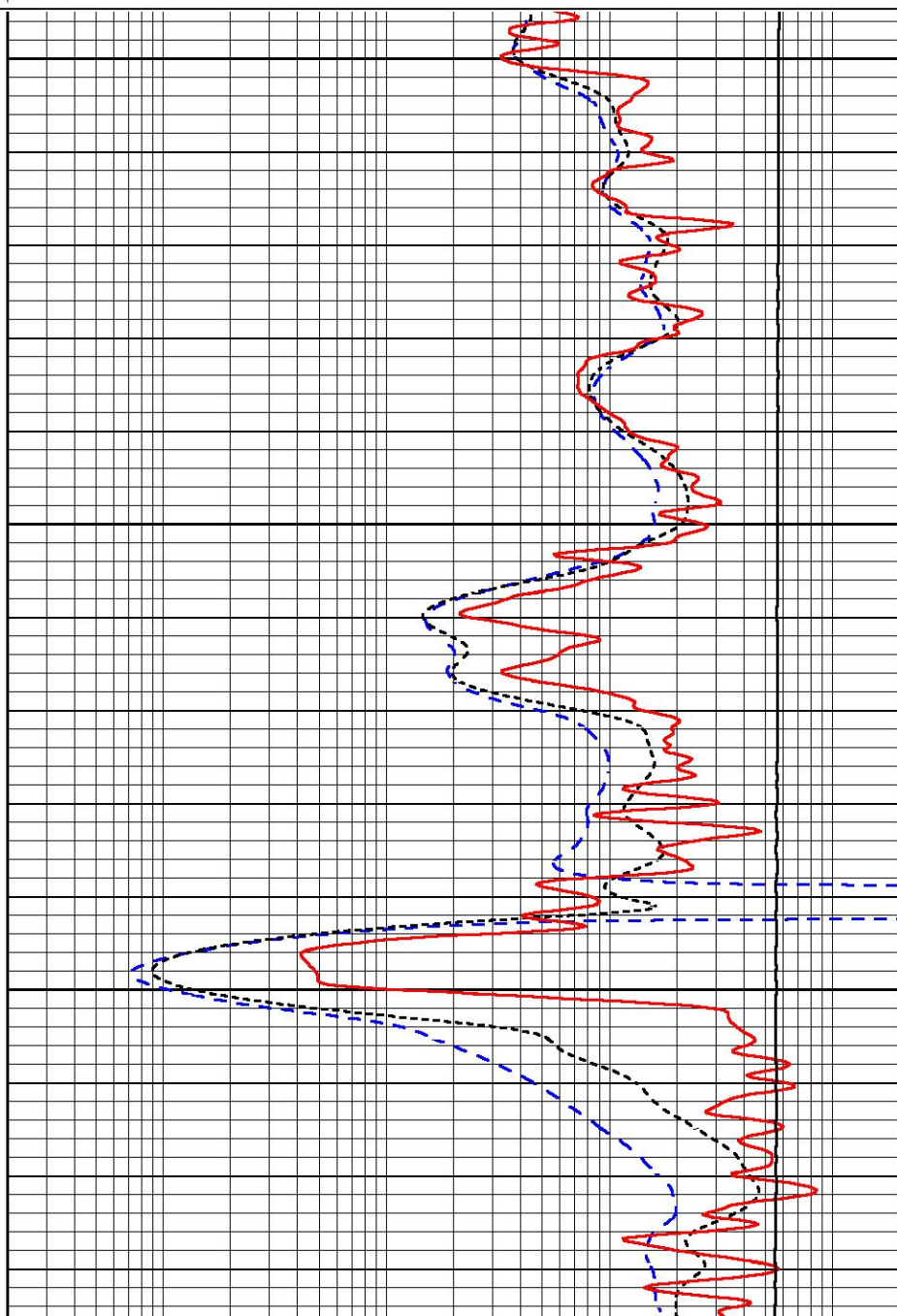
0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0

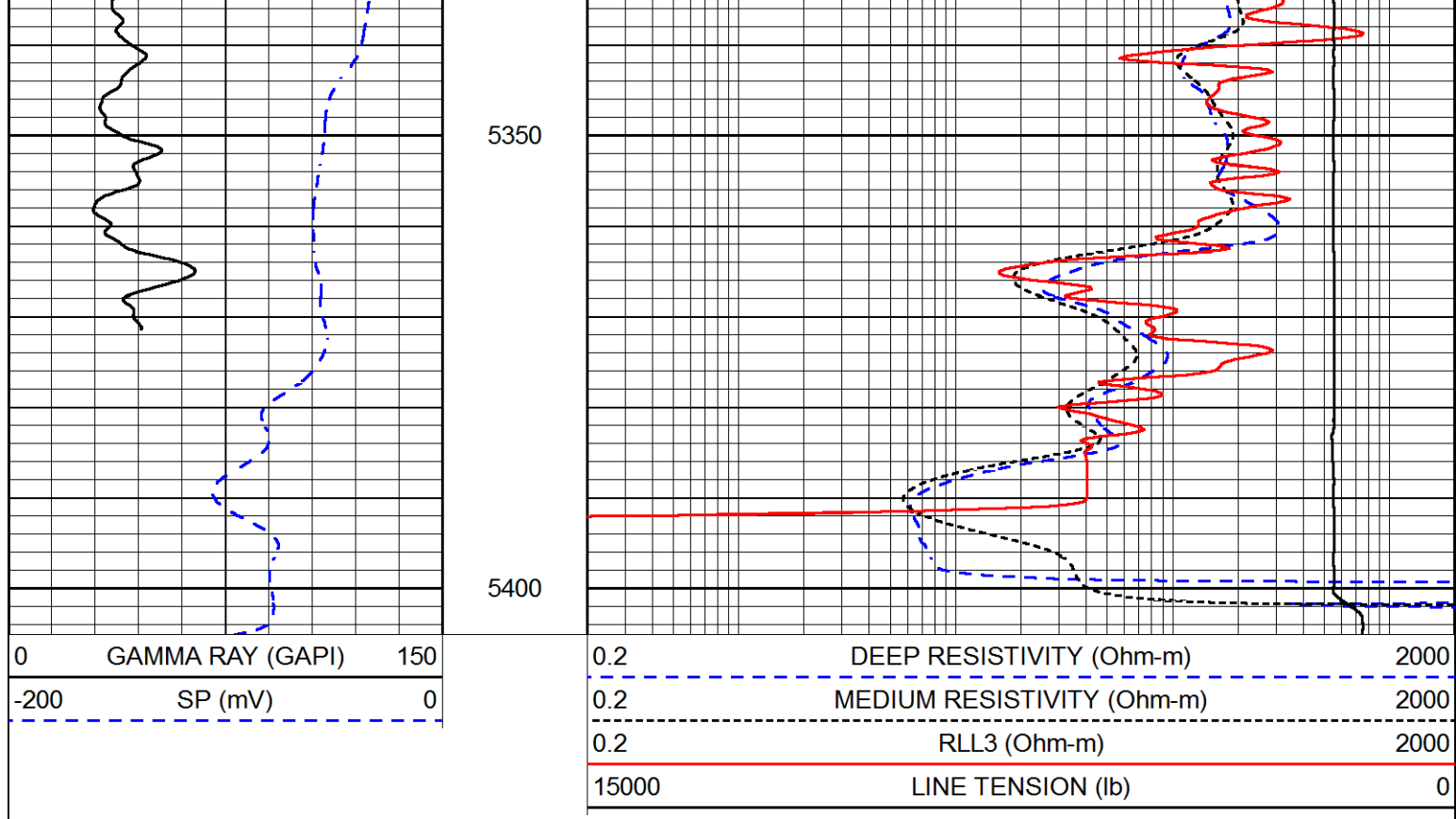


5200

5250

5300





Calibration Report

Database File palmer_willis_#1-20.db
 Dataset Pathname stack/pass3.1
 Dataset Creation Sat Feb 24 07:55:27 2018

Dual Induction Calibration Report

Serial-Model: PSI 978-M&W
 Calibration Performed: Sun Feb 04 11:50:02 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.570	-40.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.400	-34.000

Compensated Density Calibration Report

Serial-Model: 168-986-M&W
 Source / Verifier: /
 Master Calibration Performed: Tue Apr 11 17:07:47 2017

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4691.86	4818.19	cps
Aluminum	2.675	g/cc	859.57	3020.22	cps

Spine Angle = 74.61

Density/Spine Ratio = 0.523

Size

Reading

Small Ring	4.00	in	1.00
Large Ring	14.00	in	1.20

Compensated Neutron Calibration Report

Serial Number:	tk10-MW
Tool Model:	M&W
Calibration Performed:	Wed Nov 16 11:21:36 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-M&W	
Tool Model:	M&W	
Calibration Performed:	Tue Apr 11 17:08:01 2017	
Calibrator Value:	1000.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	6.2	cps
Sensitivity:	0.5200	GAPI/cps



Company	PALMER OIL, INC.
Well	WILLIS #1-20
Field	UNKNOWN
County	FINNEY
State	KANSAS