



# DUAL INDUCTION LOG

Pioneer Energy Services

Company SUMMIT OPERATING LLC  
 Well YOUNGER # 1-17  
 Field REICHEL  
 County RUSH State KANSAS

Company SUMMIT OPERATING LLC  
 Well YOUNGER # 1-17  
 Field REICHEL  
 County RUSH  
 State KANSAS

Location: API #: 15-165-22165-00-00  
 831' FNL & 1460' FWL  
 SEC 17 TWP 16S RGE 17W  
 Permanent Datum GROUND LEVEL Elevation 2006'  
 Log Measured From KELLY BUSHING  
 Drilling Measured From KELLY BUSHING  
 Other Services  
 CNL/CDL  
 MEL  
 Elevation  
 K.B. 2011'  
 D.F. N/A  
 G.L. 2006'

Date	5/24/2019
Run Number	ONE
Depth Driller	3581'
Depth Logger	3580'
Bottom Logged Interval	3579'
Top Log Interval	SURFACE
Casing Driller	8.625" @ 1122'
Casing Logger	1121'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	5000
Density / Viscosity	9.3 53
pH / Fluid Loss	9.5 8.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	0.40 @ 72
Rmt @ Meas. Temp	0.30 @ 72
Rmc @ Meas. Temp	0.54 @ 72
Source of Rmf / Rmc	CHARTS
Rm @ BHT	0.26 @ 112
Operating Rig Time	4 HOURS
Max Rec. Temp. F	112
Equipment Number	P-24
Location	HAYS
Recorded By	M. HISS
Witnessed By	MARC DOWNING

<<< 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.

LIEBENTHAL, KS.  
 4 1/2 MILES EAST, 1 MILE NORTH,  
 1/4 EAST, SOUTH INTO

Log Measured From: KELLY BUSHING 5 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES  
[www.pioneerenergy.com](http://www.pioneerenergy.com) 785-625-3858

Your Pioneer Energy Services Crew

Engineer: M. HISS  
 Operator: I. MABB  
 Operator:  
 Operator:

This Log Record Was Witnessed By

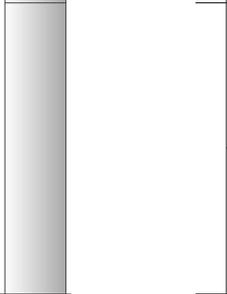
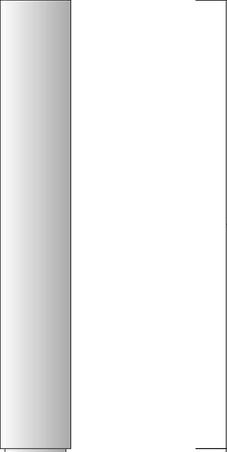
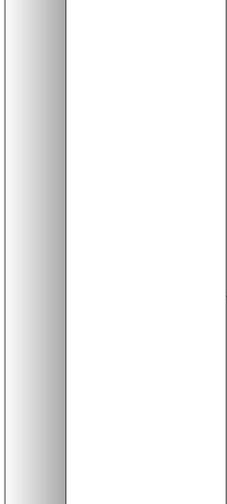
Primary Witness: MARC DOWNING  
 Secondary Witness:  
 Secondary Witness:  
 Secondary Witness:

# Log Variables

DatabaseC:\ProgramData\Warrior\Data\summit\_younger\_1\_17.db  
 Dataset field/well/stack/pass3.1/\_vars\_

## Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	112	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	4	4	630	50	Off	3580

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	33.00		GR-M&W (89)	3.00	3.50	50.00
CNLSC CNSSC	29.90 29.15		CNT-M&W (207-MW)	5.50	3.50	100.00
LSD DCAL SSD	20.85 20.83 20.35		CDL-M&W (96-916)	8.50	4.00	250.00
RLL3F RLL3	15.80 15.80					
CILD	8.00		DIL-PSI HIGH TEMP (967 (HT))	18.50	3.50	220.00

CILM 4.70

SP 0.20

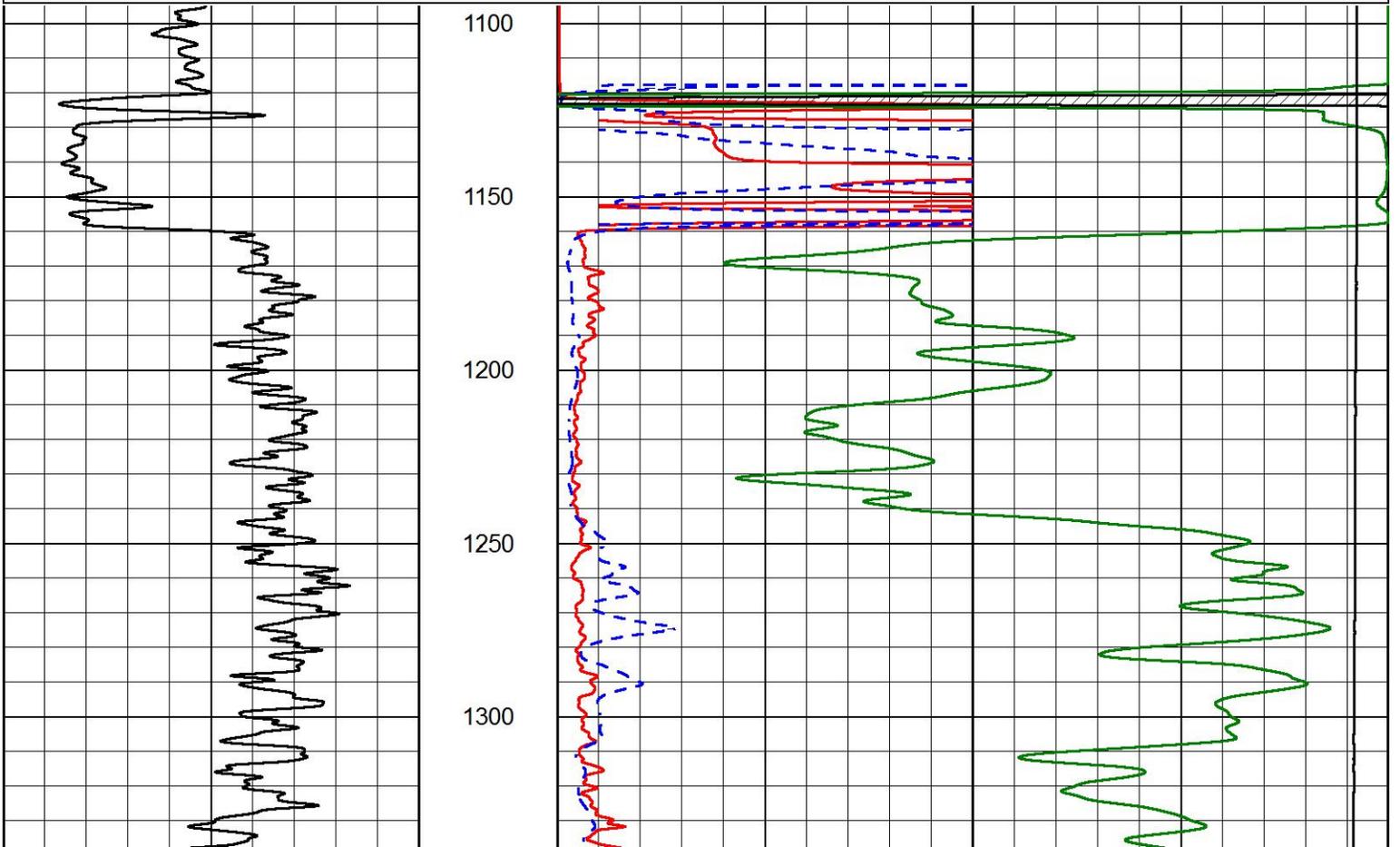
Dataset: summit\_younger\_1\_17.db: field/well/stack/pass3.1  
 Total length: 35.50 ft  
 Total weight: 620.00 lb  
 O.D.: 4.00 in

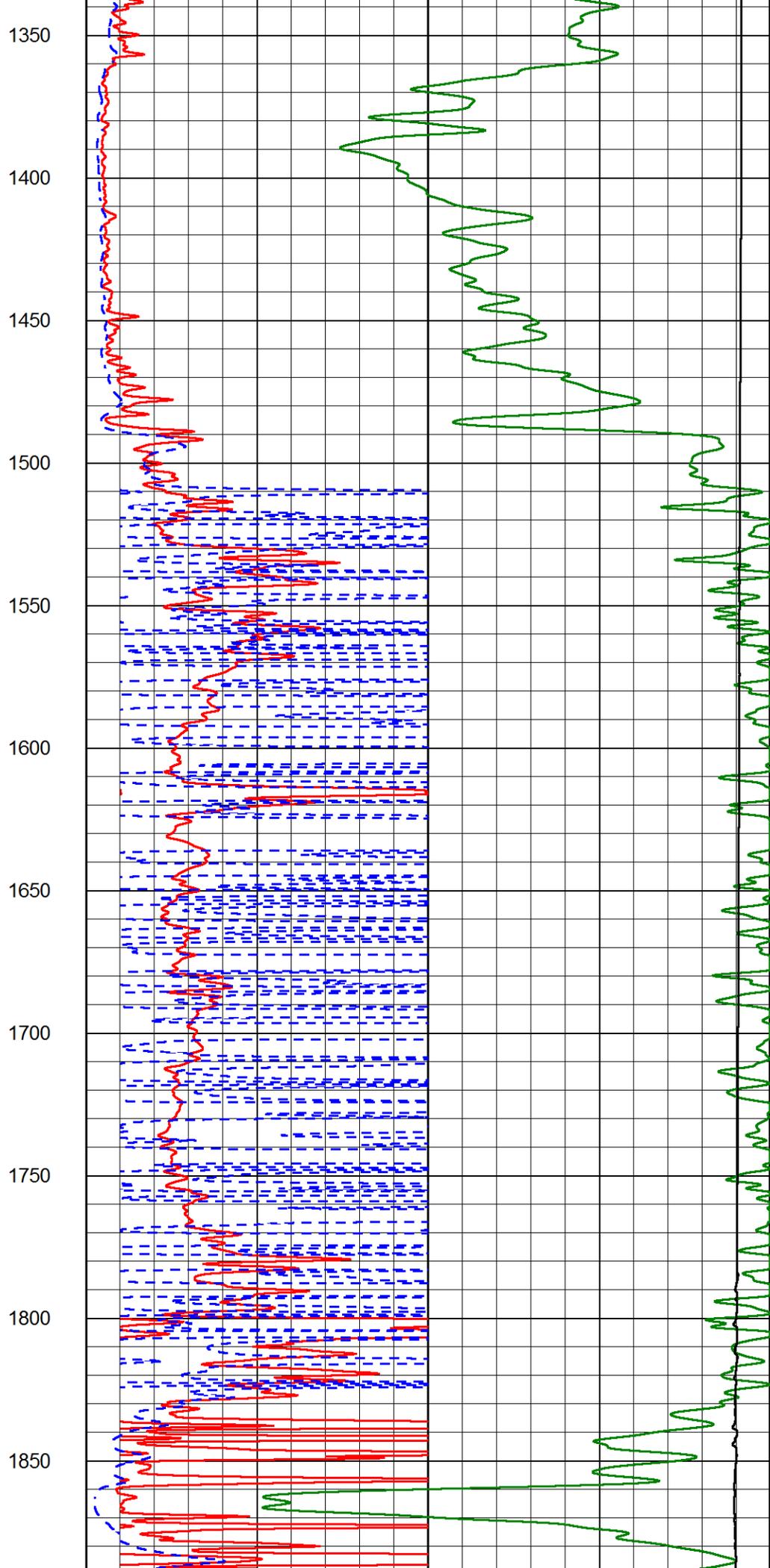
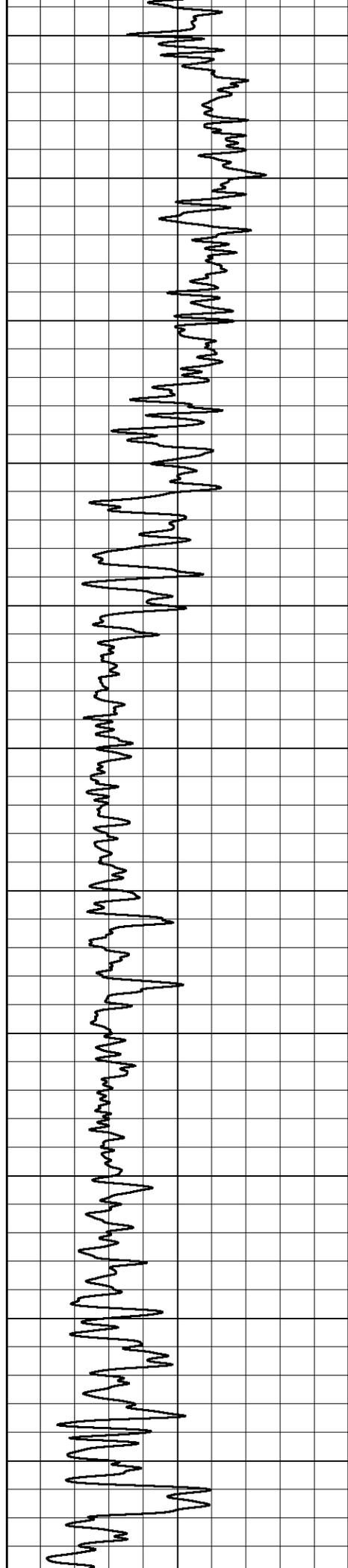


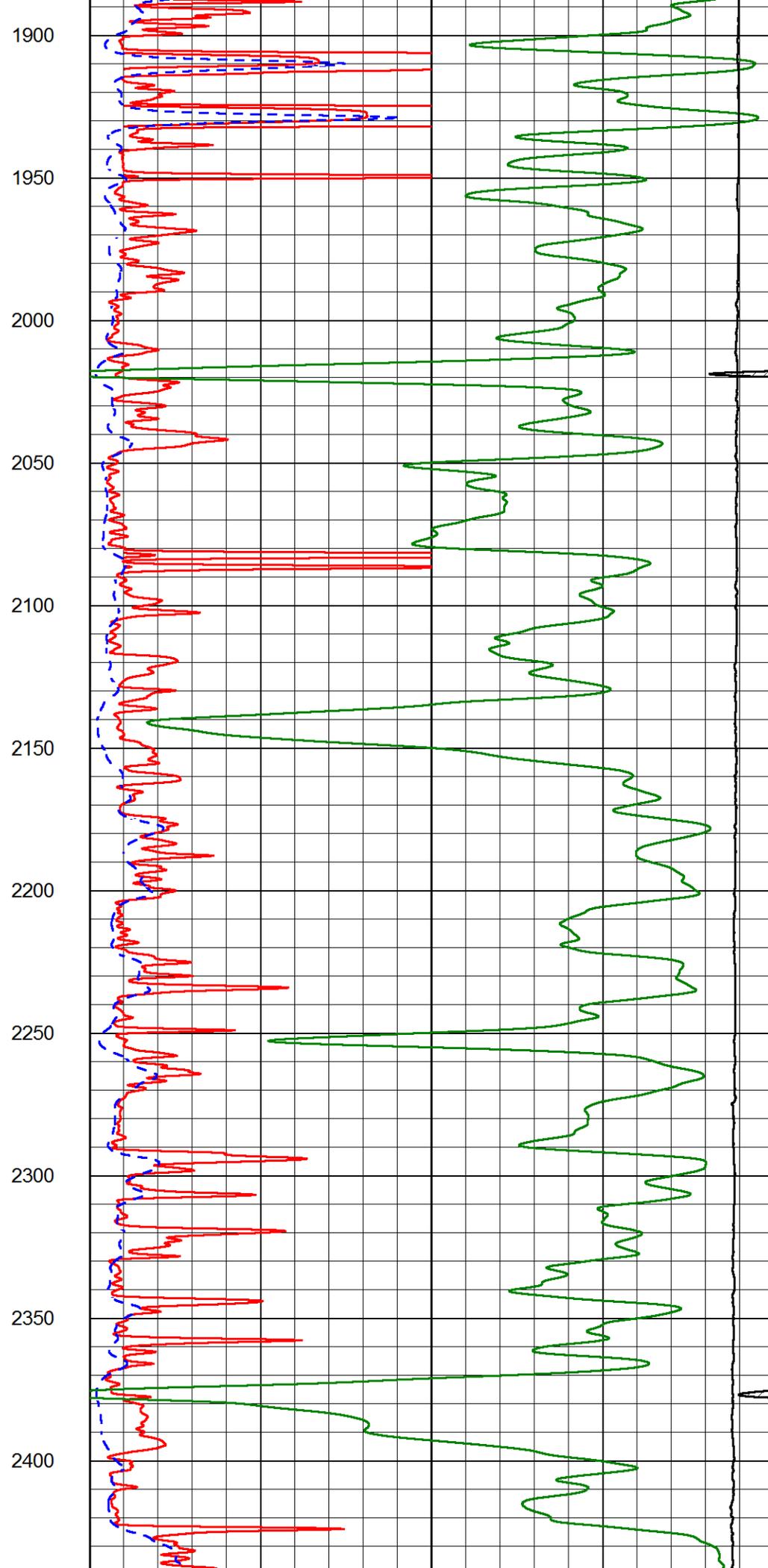
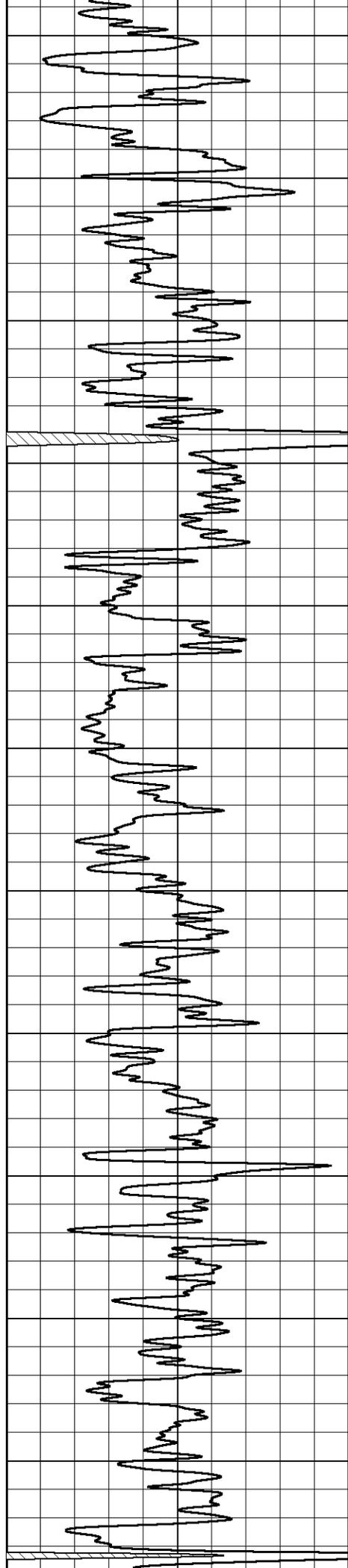
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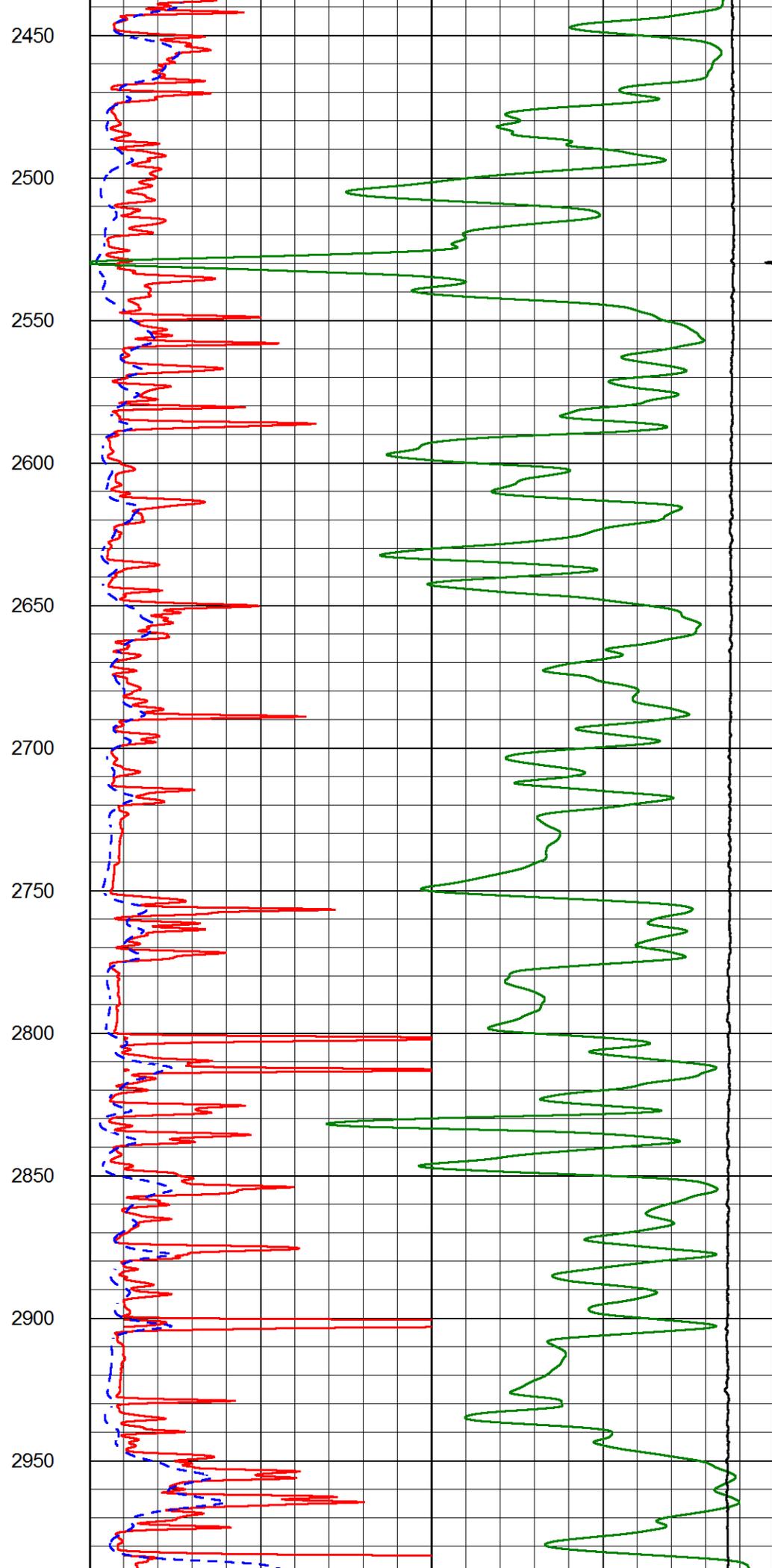
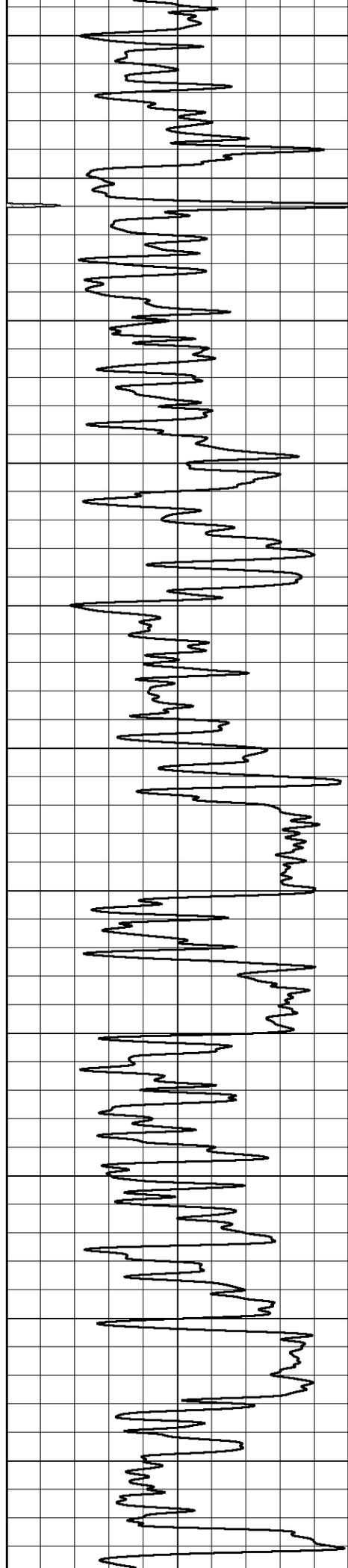
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 Presentation Format \_dil2in  
 Dataset Creation Fri May 24 11:41:23 2019  
 Charted by Depth in Feet scaled 1:600

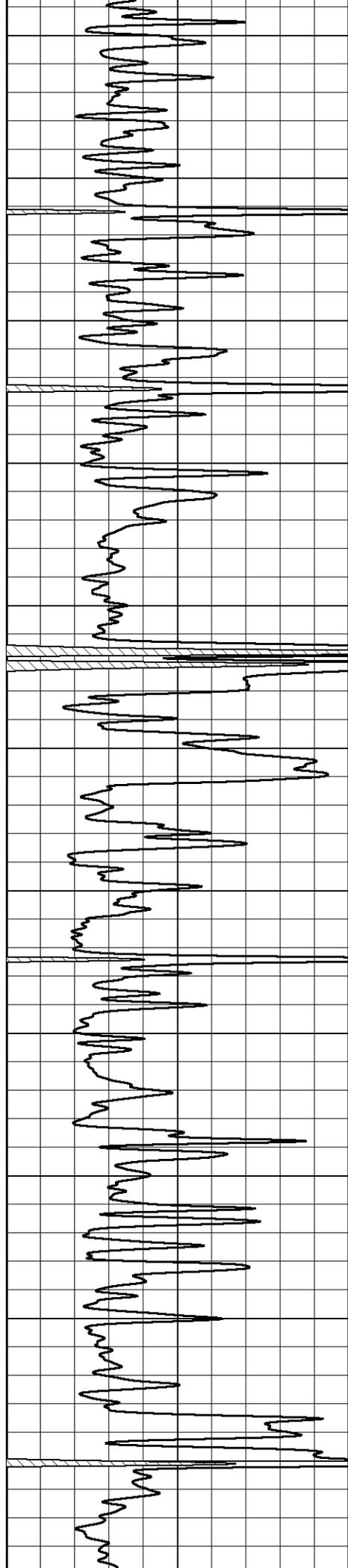
GAMMA RAY  (GAPI)	0	150	1000	CONDUCTIVITY (mmho/m)	0
			15000	Line Tension (lb)	0
			0	RLL3 (Ohm-m)	50
			0	DEEP RESISTIVITY (Ohm-m)	50
			50	RLL3 (Ohm-m)	500
			50	Deep Resistivity (Ohm-m)	500



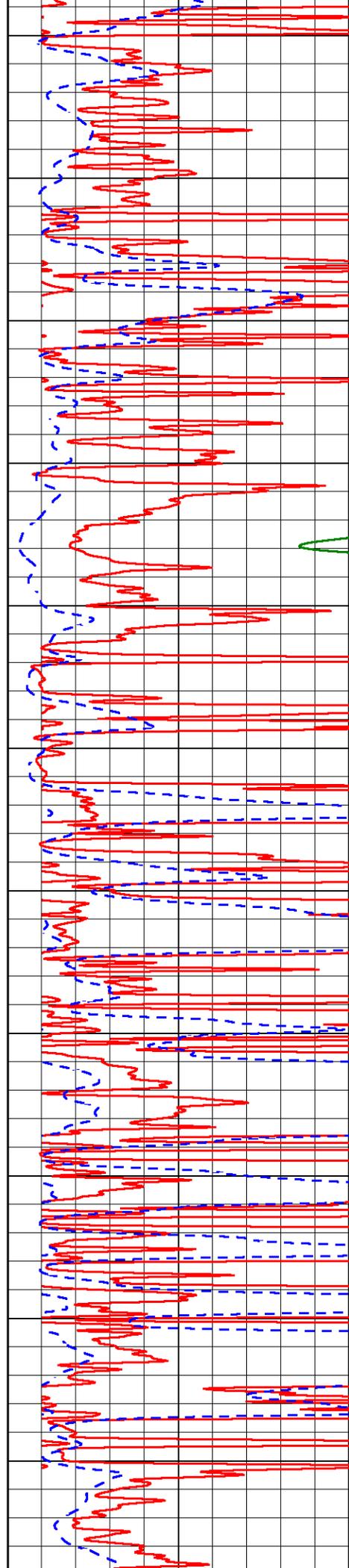


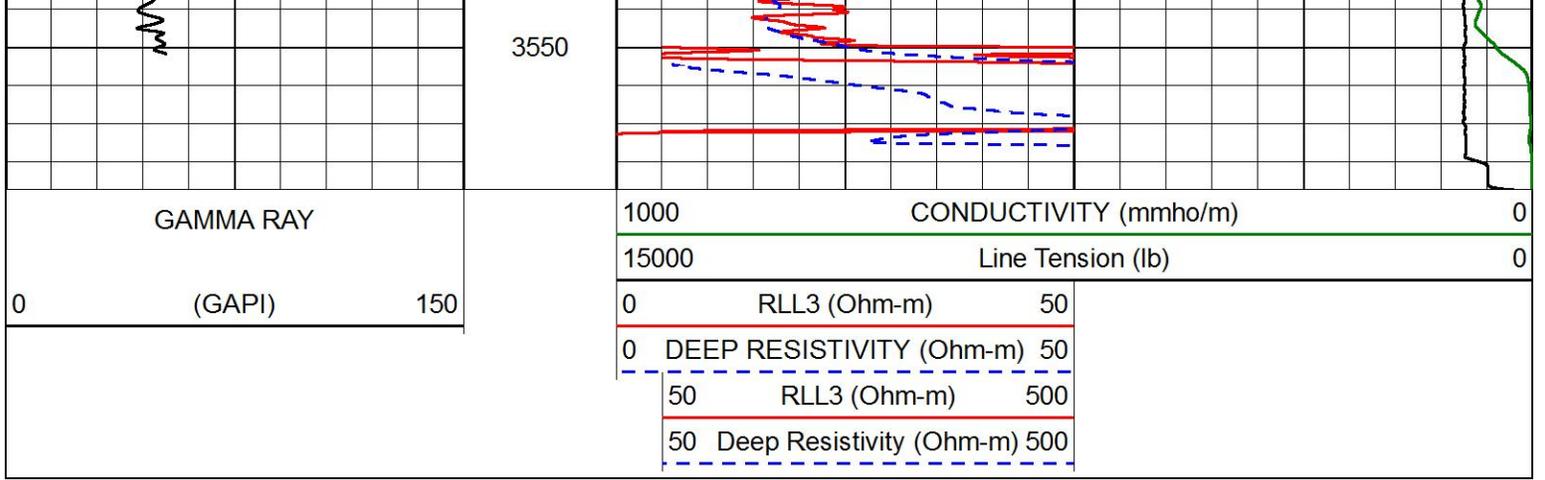






3000  
3050  
3100  
3150  
3200  
3250  
3300  
3350  
3400  
3450  
3500

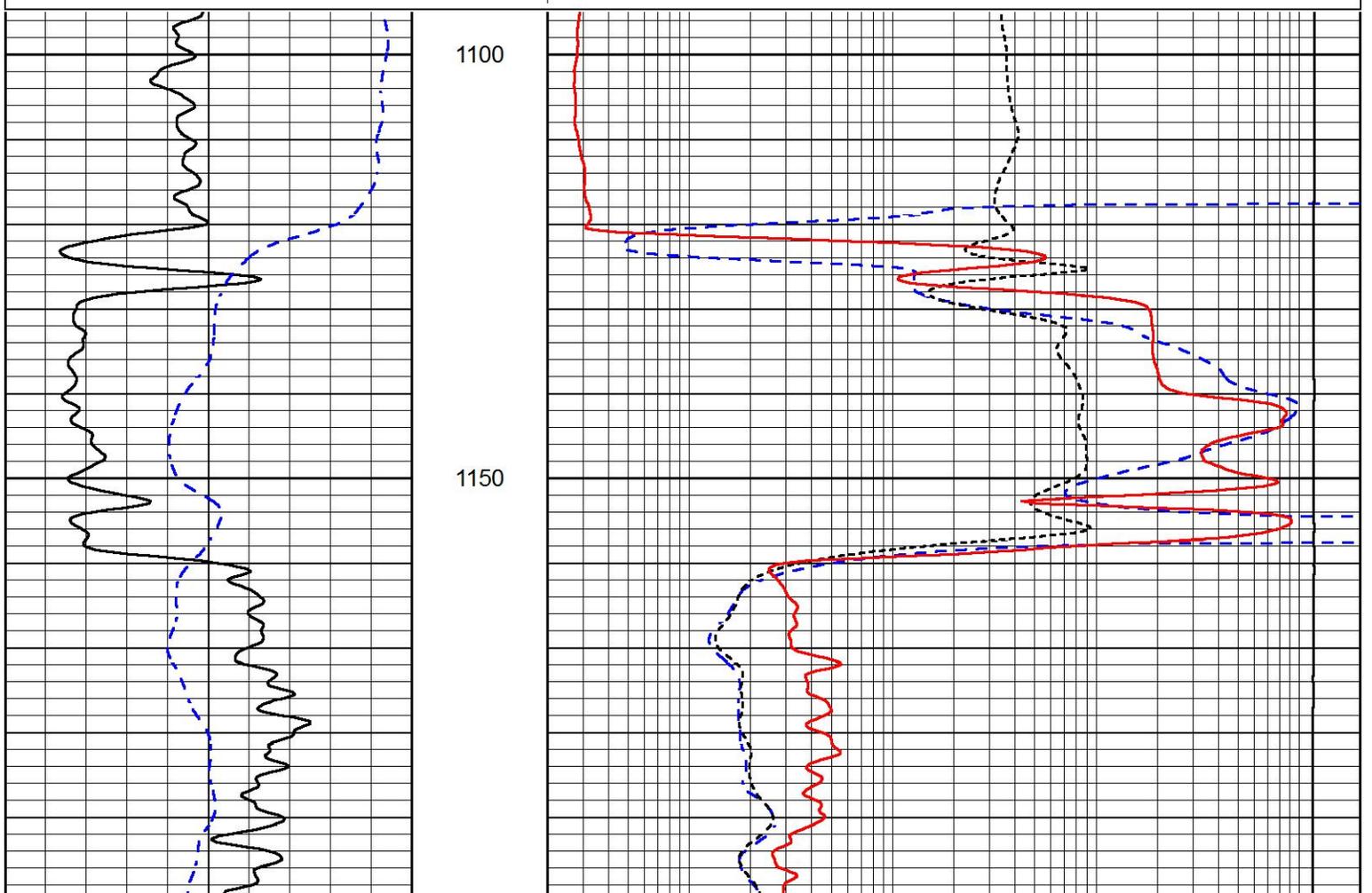


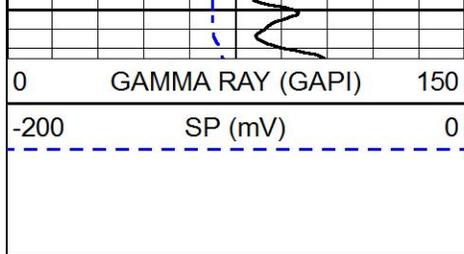



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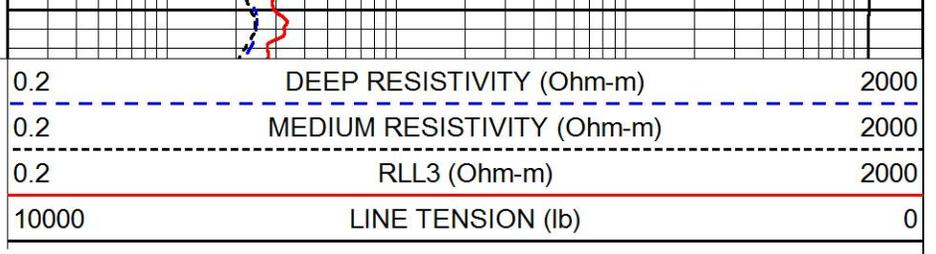
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 Dataset Pathname: stack/pass3.1  
 Presentation Format: \_dil  
 Dataset Creation: Fri May 24 11:41:23 2019  
 Charted by: Depth in Feet scaled 1:240

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



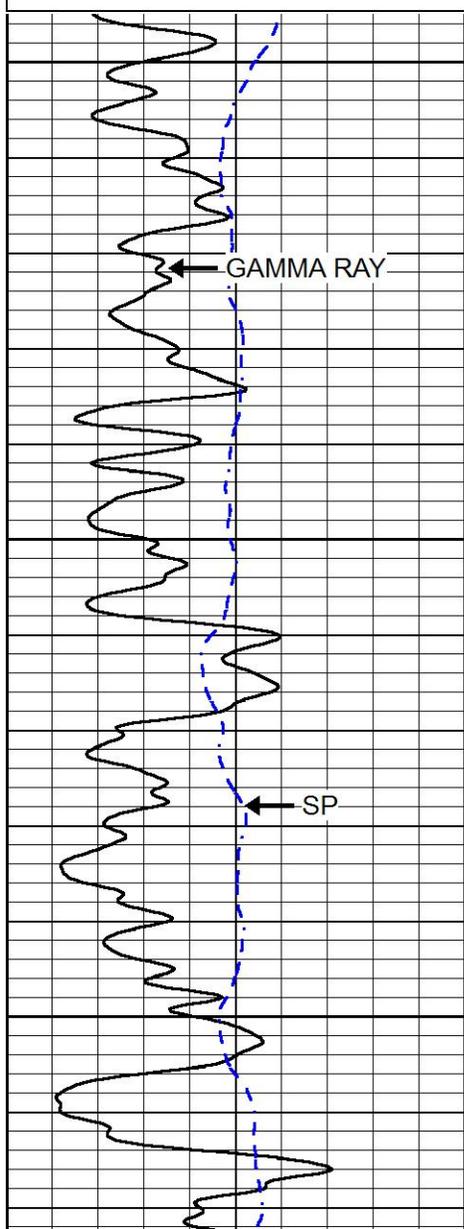
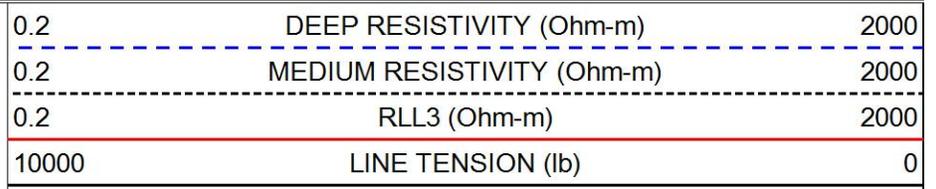
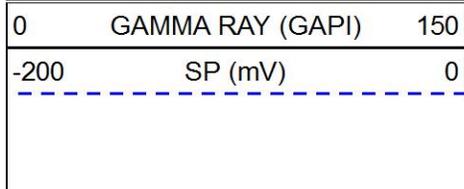


1200



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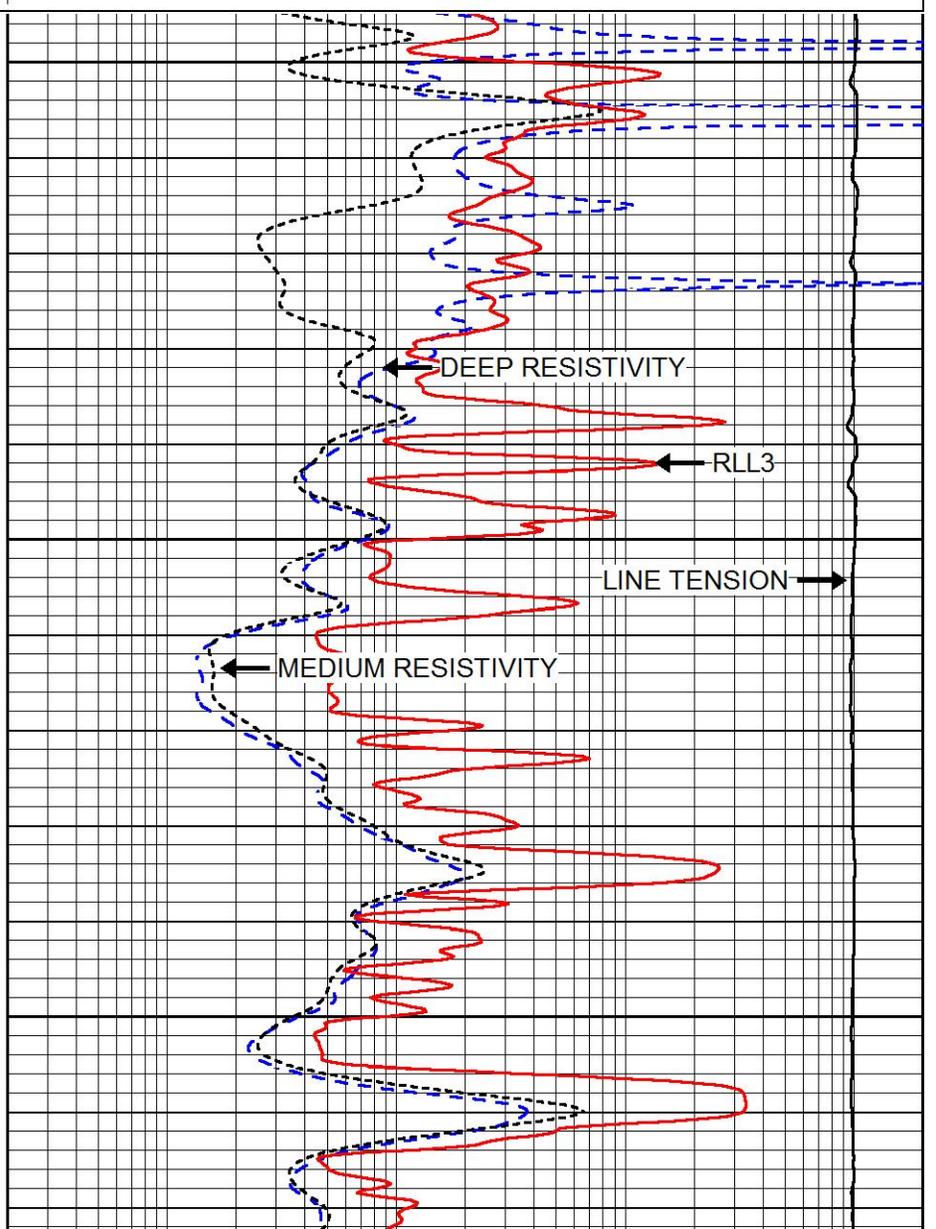
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 Presentation Format: \_dil  
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 Charted by: Depth in Feet scaled 1:240

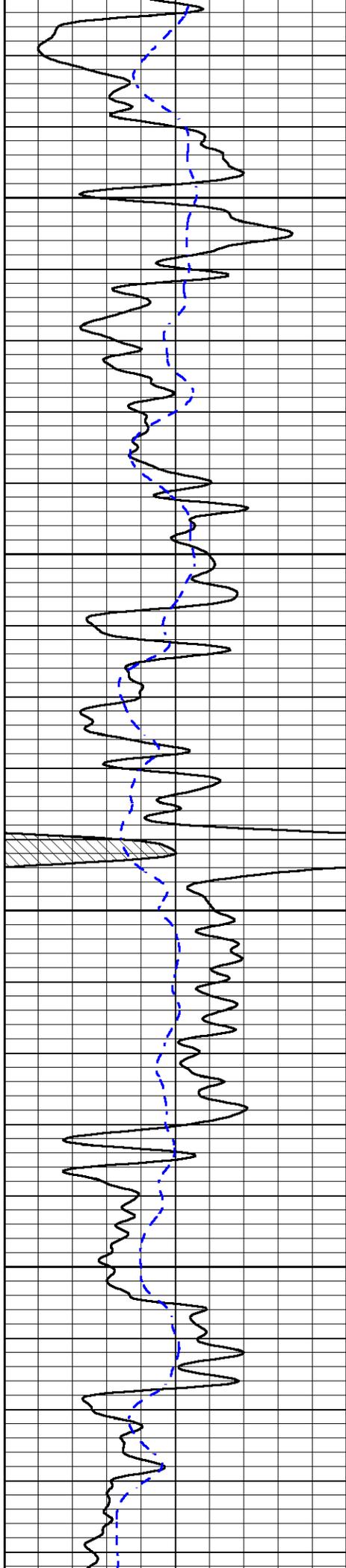


1800

1850

1900



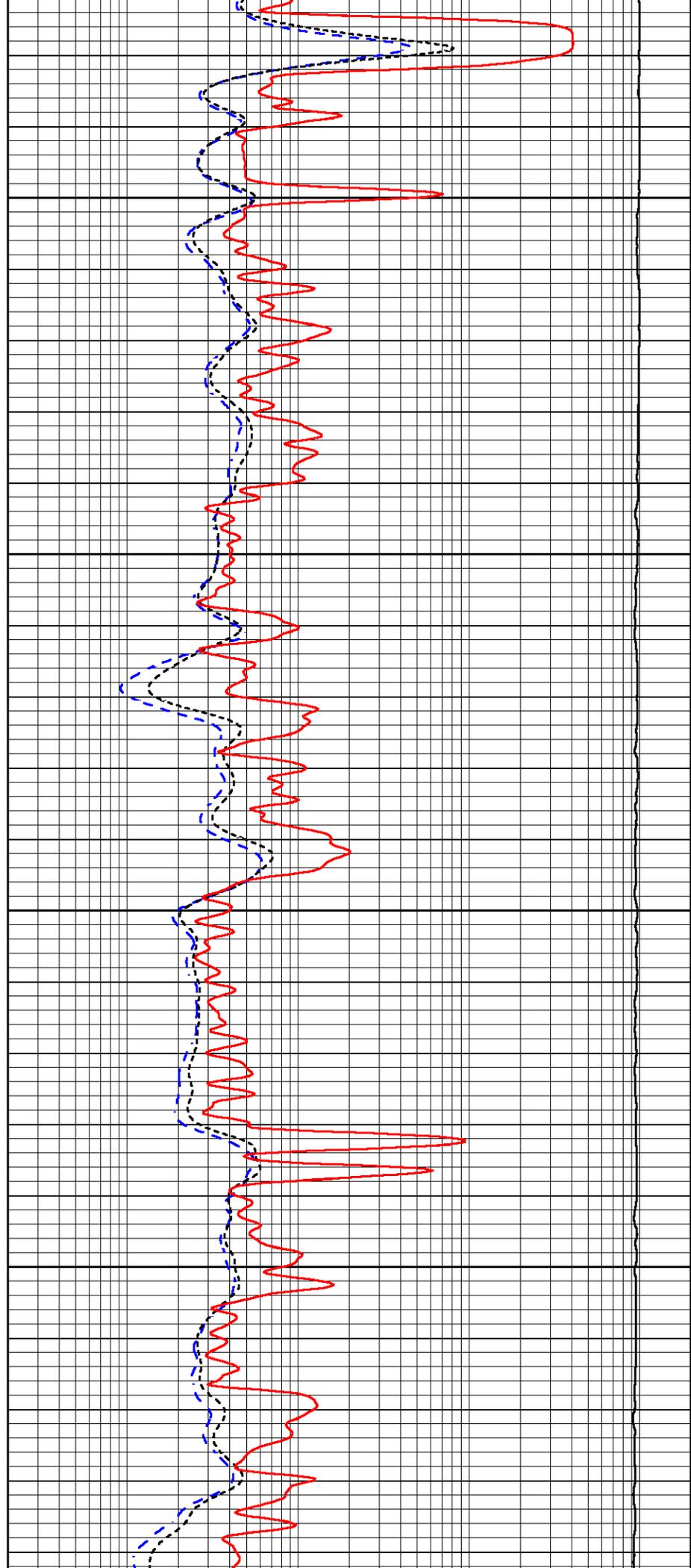


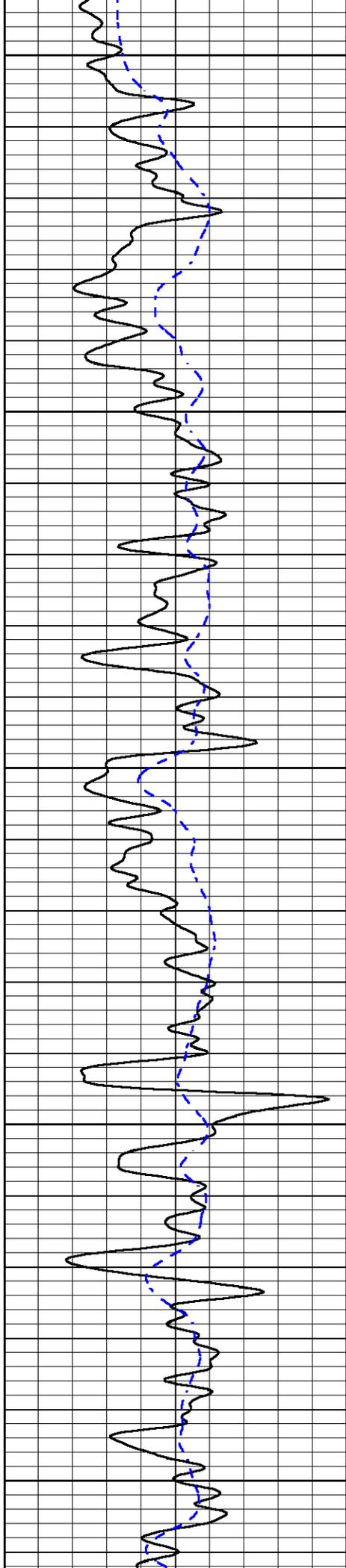
1950

2000

2050

2100





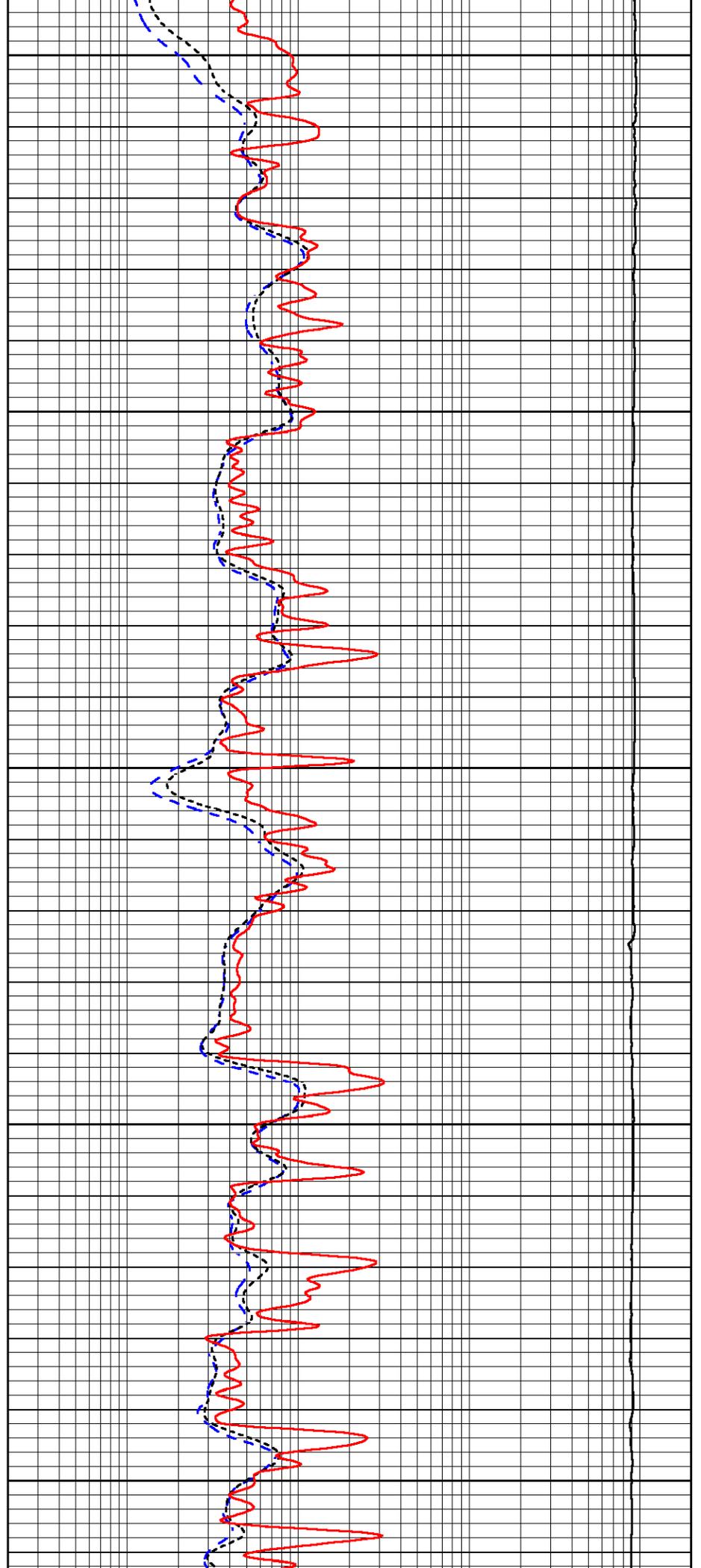
2150

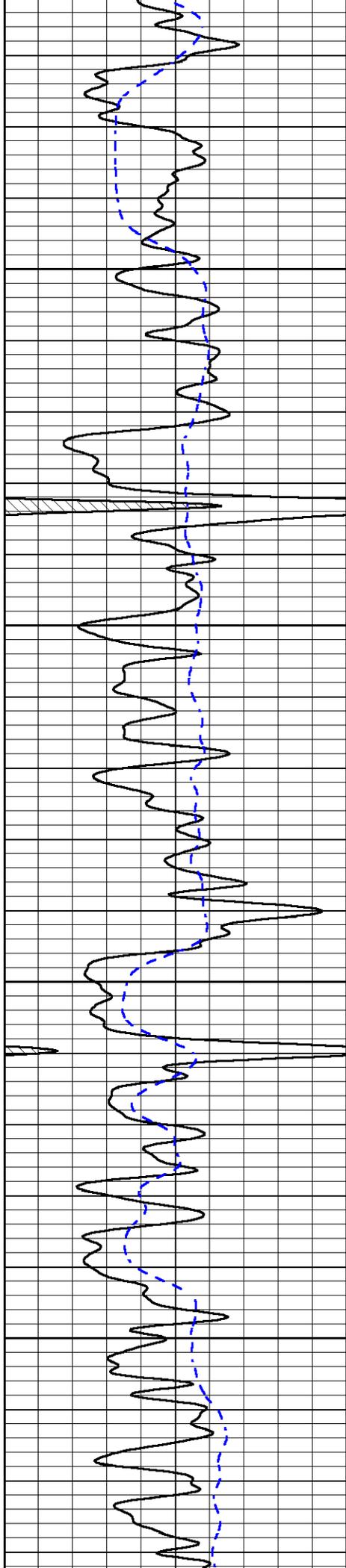
2200

2250

2300

2350



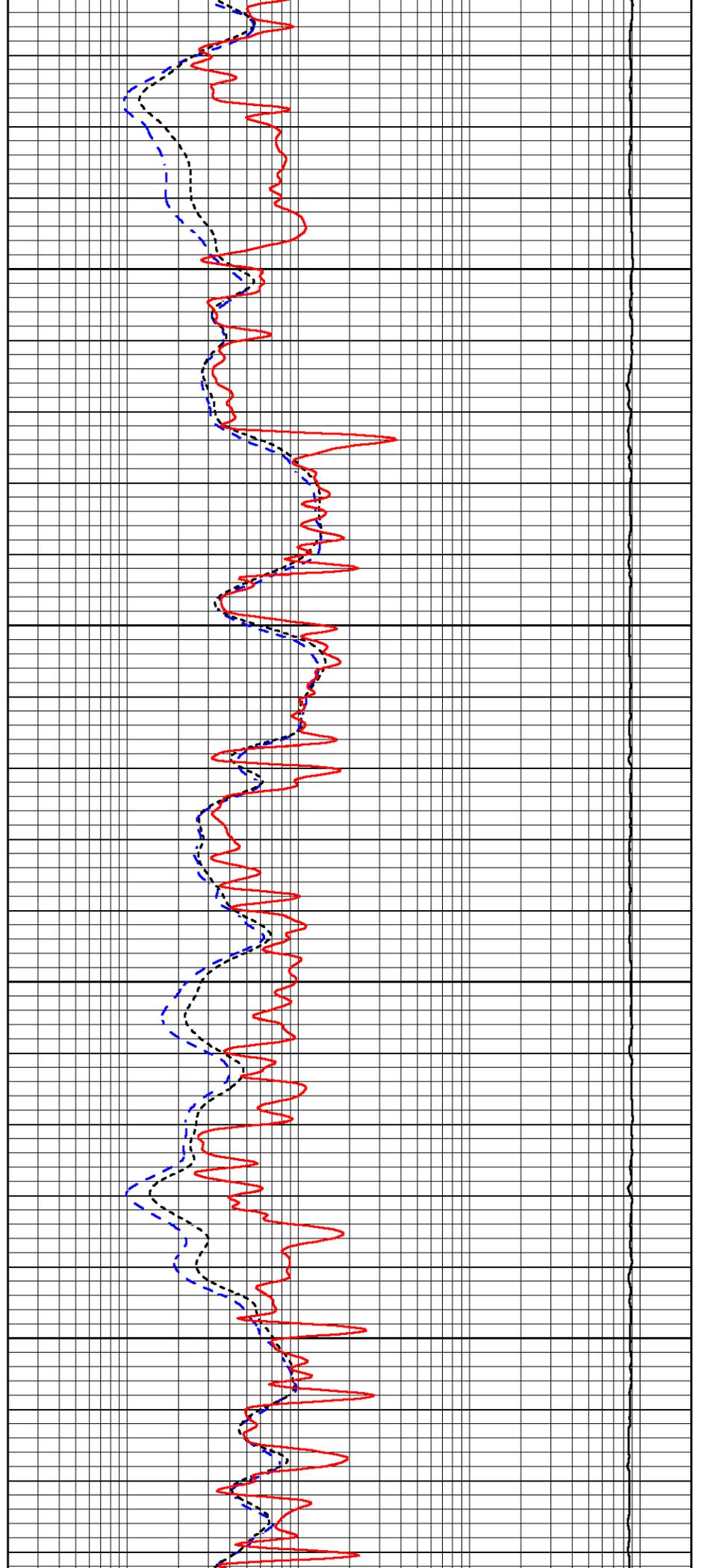


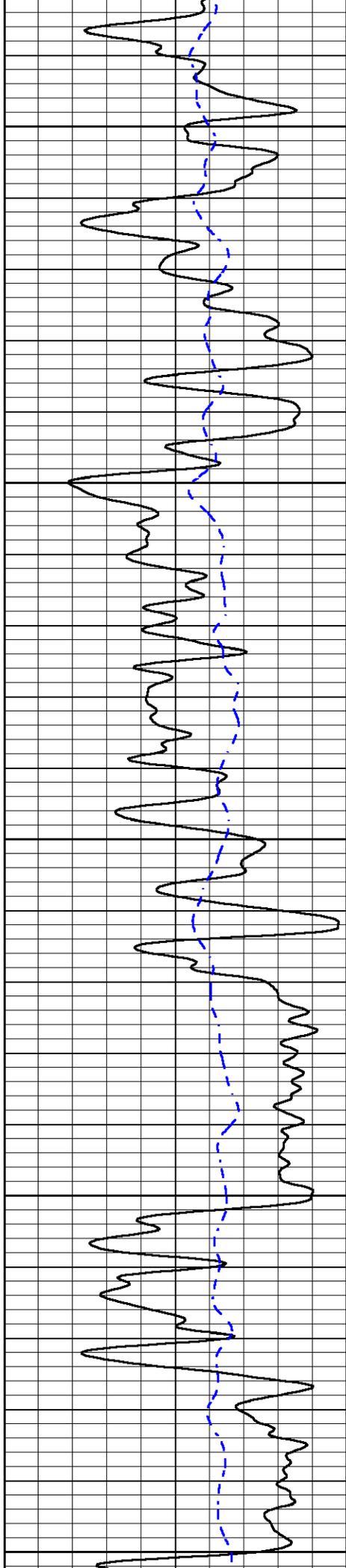
2400

2450

2500

2550





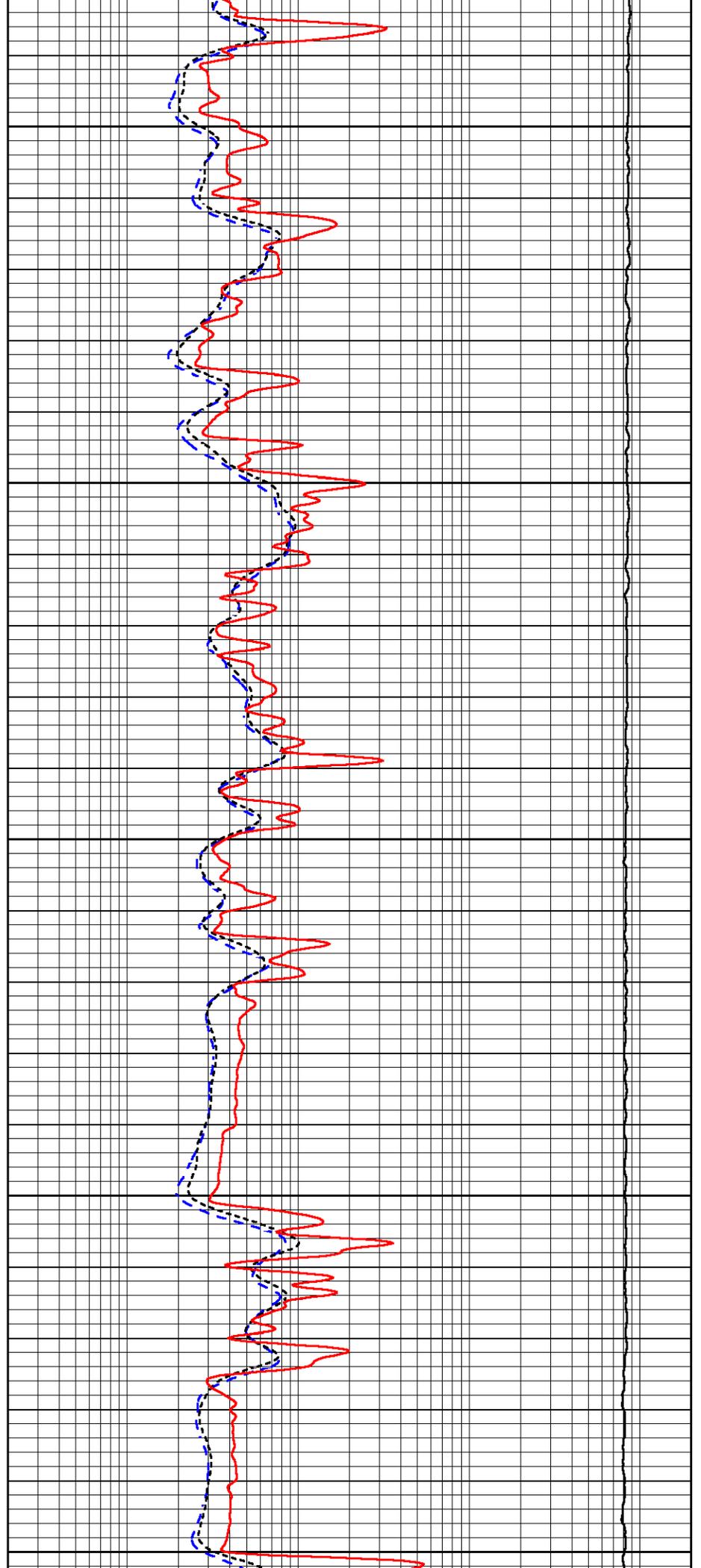
2600

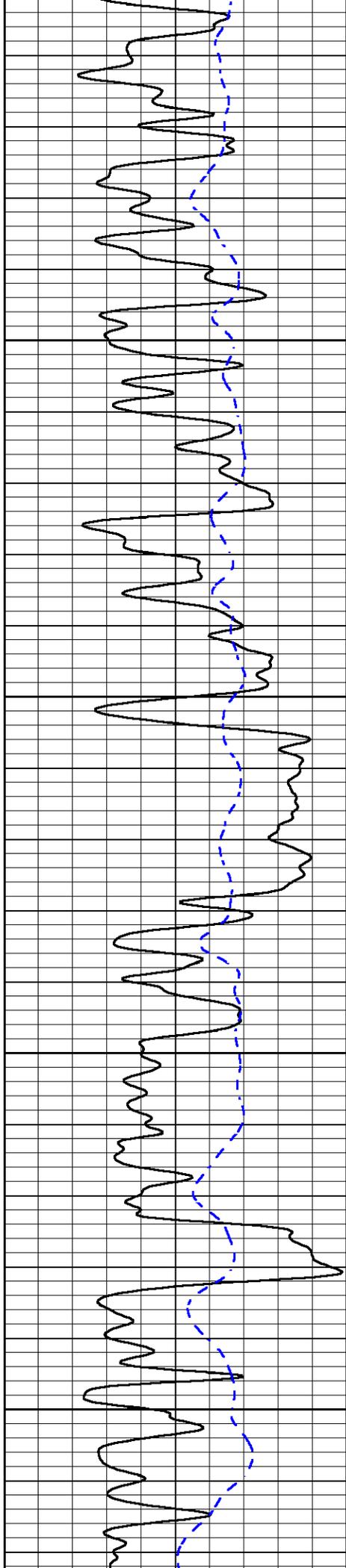
2650

2700

2750

2800



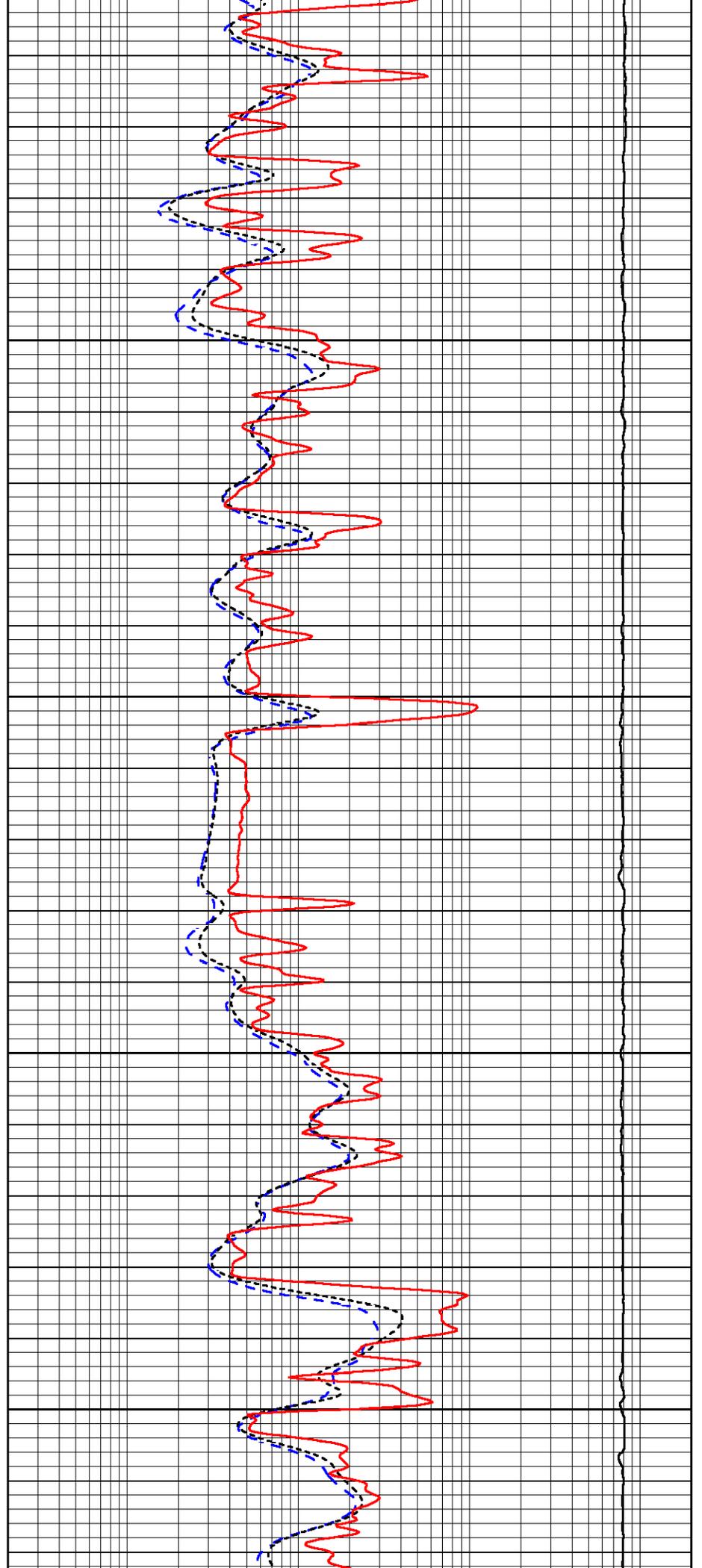


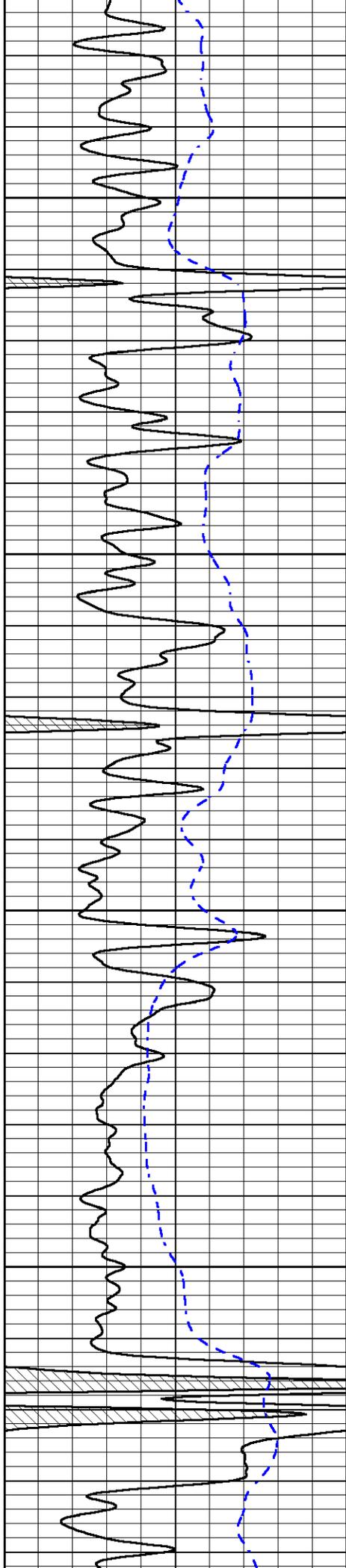
2850

2900

2950

3000



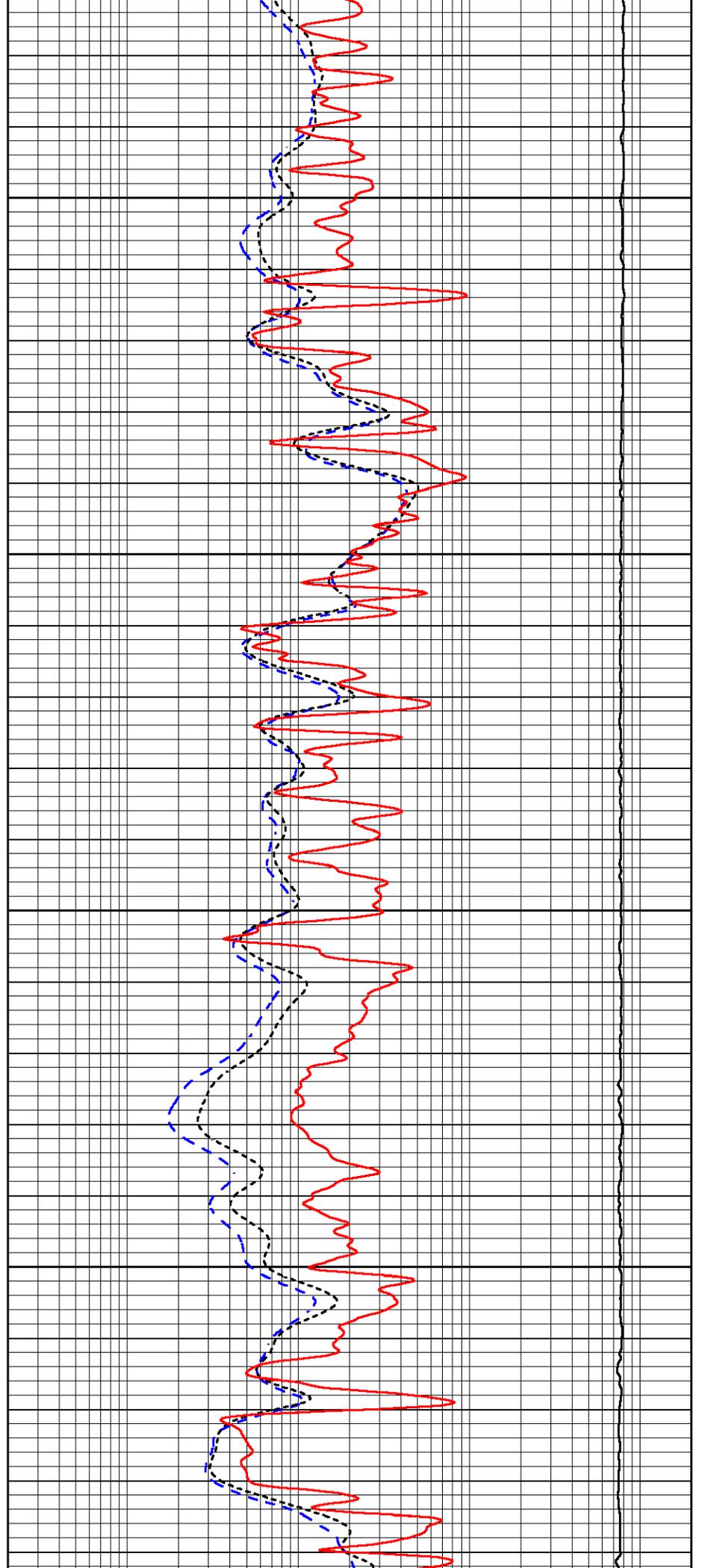


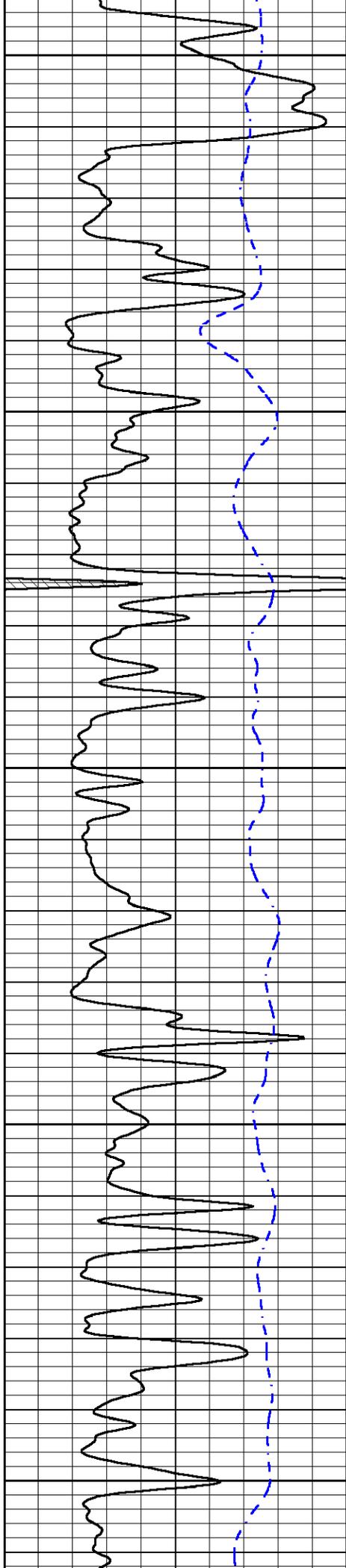
3050

3100

3150

3200





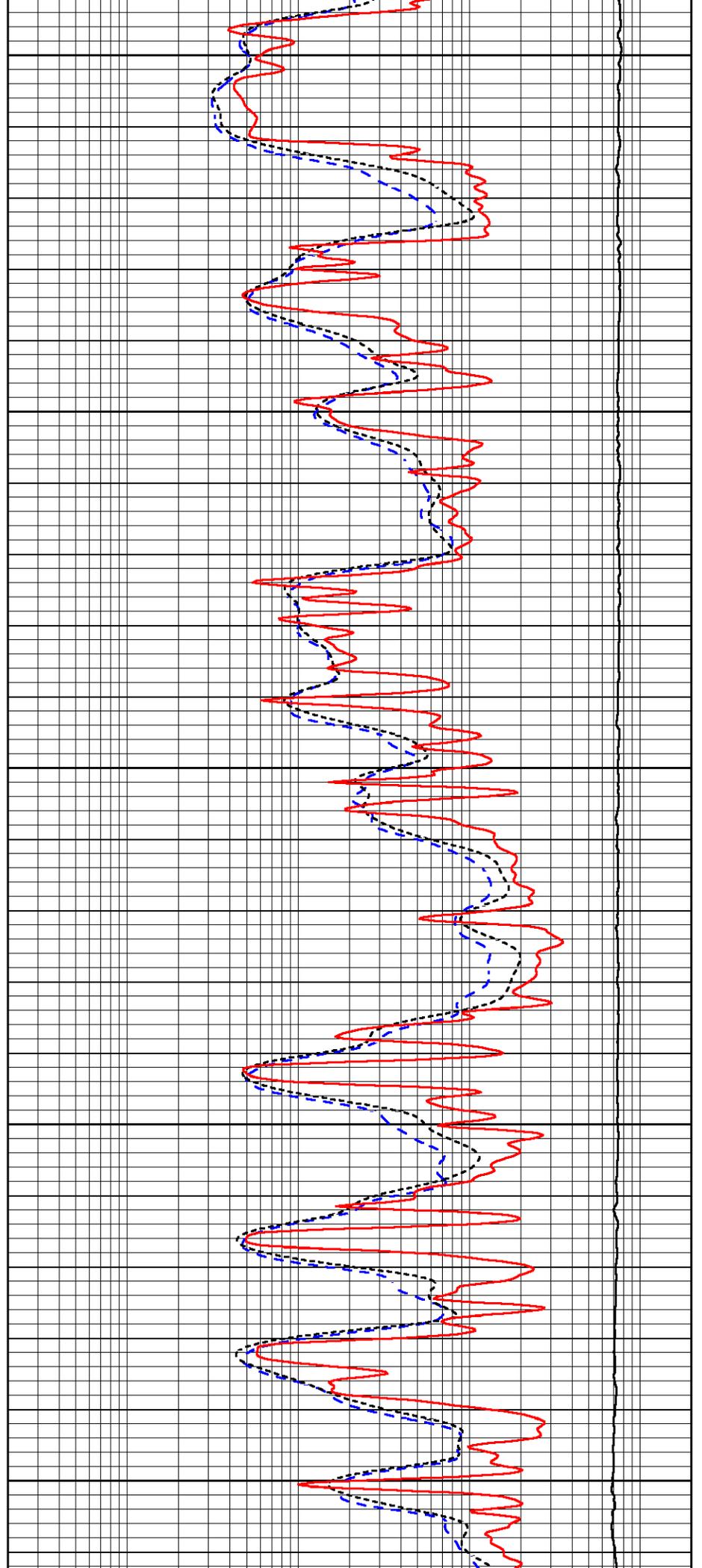
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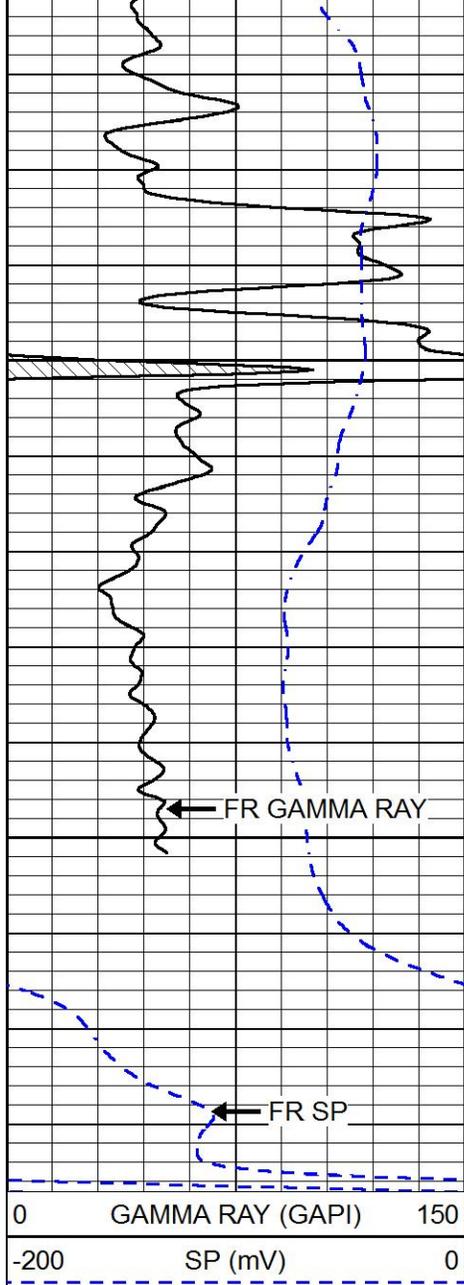
3300

3350

3400

3450





3500

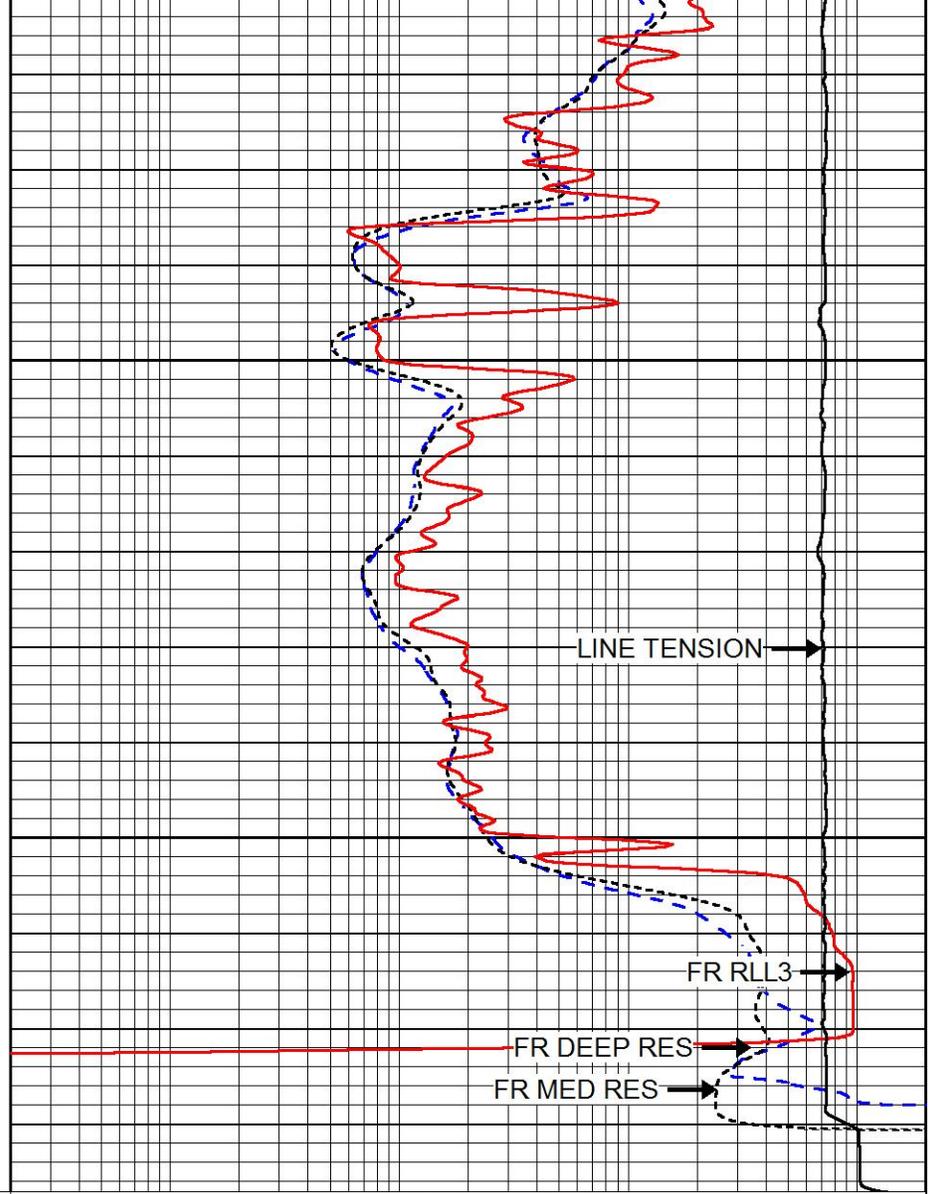
3550

FR GAMMA RAY

FR SP

0 GAMMA RAY (GAPI) 150

-200 SP (mV) 0



LINE TENSION

FR RLL3

FR DEEP RES

FR MED RES

0.2 DEEP RESISTIVITY (Ohm-m) 2000

0.2 MEDIUM RESISTIVITY (Ohm-m) 2000

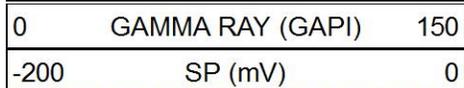
0.2 RLL3 (Ohm-m) 2000

10000 LINE TENSION (lb) 0

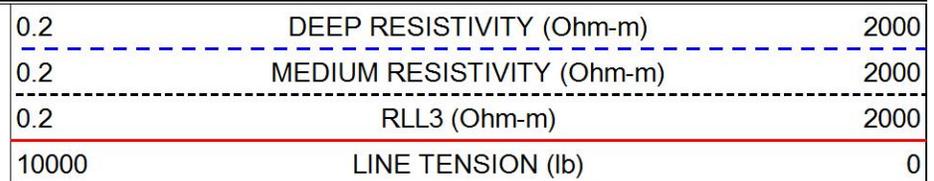


# REPEAT SECTION

Database File summit\_younger\_1\_17.db  
 Dataset Pathname stack/pass2.1  
 Presentation Format \_dil  
 Dataset Creation Fri May 24 11:44:29 2019  
 Charted by Depth in Feet scaled 1:240



3350

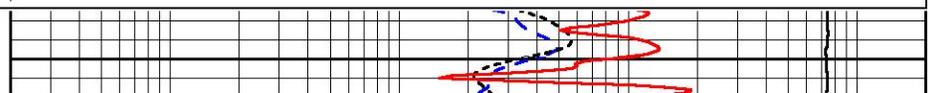
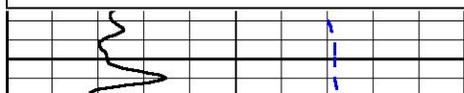


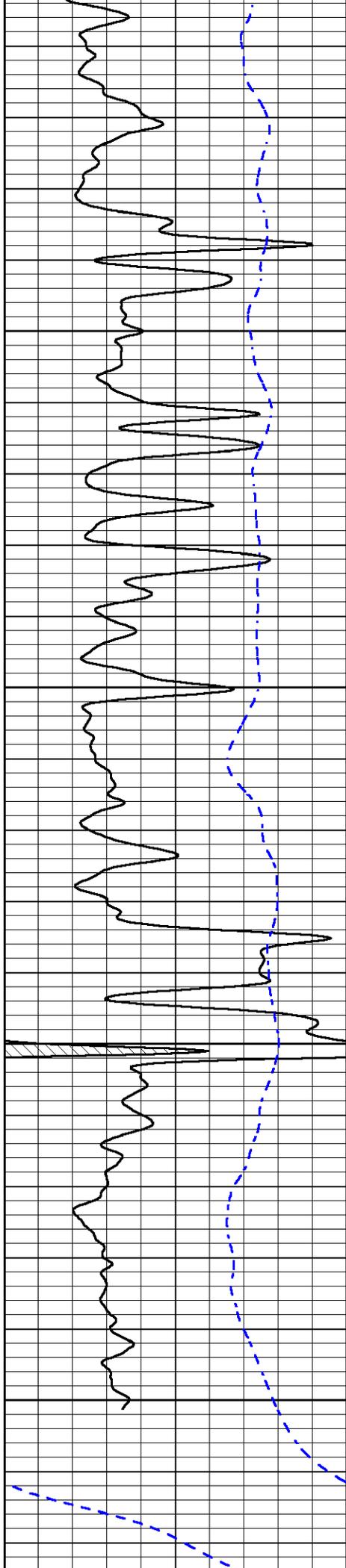
0.2 DEEP RESISTIVITY (Ohm-m) 2000

0.2 MEDIUM RESISTIVITY (Ohm-m) 2000

0.2 RLL3 (Ohm-m) 2000

10000 LINE TENSION (lb) 0



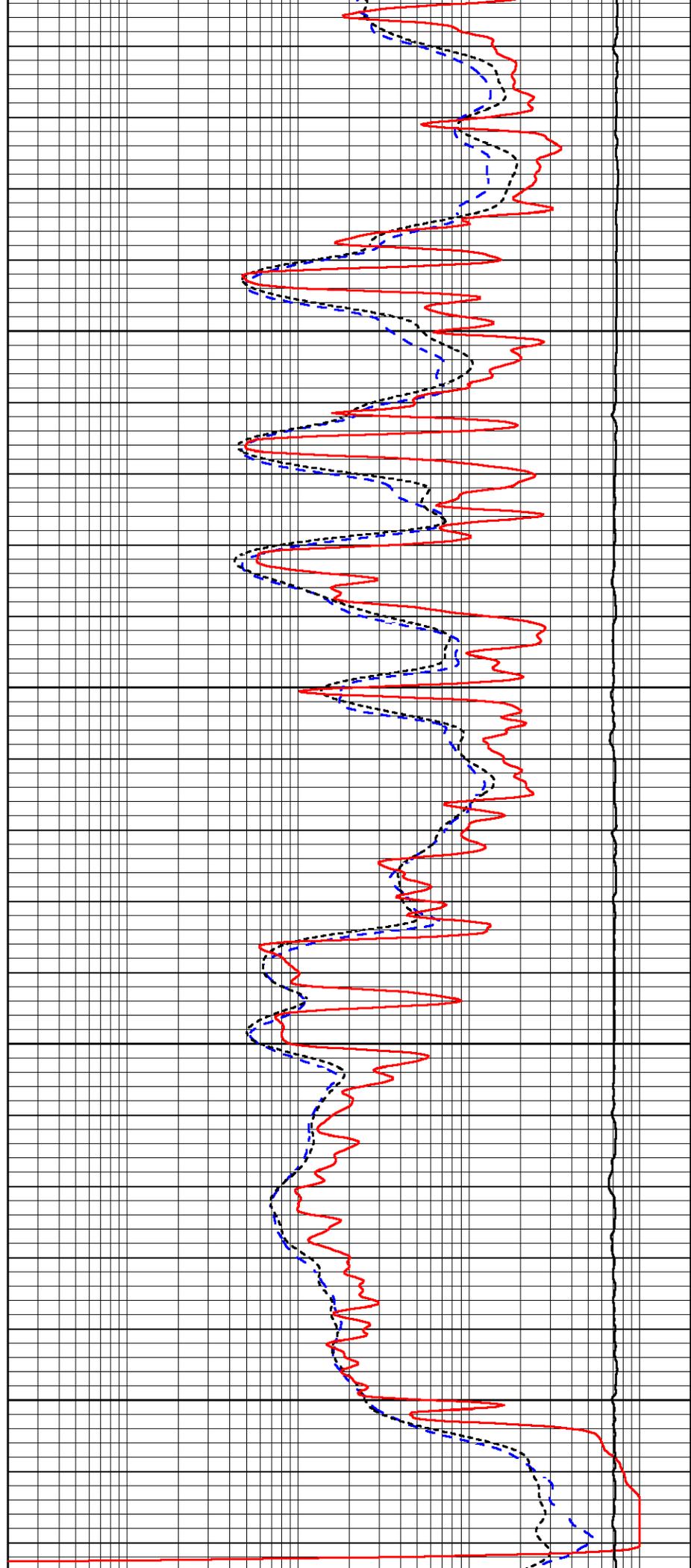


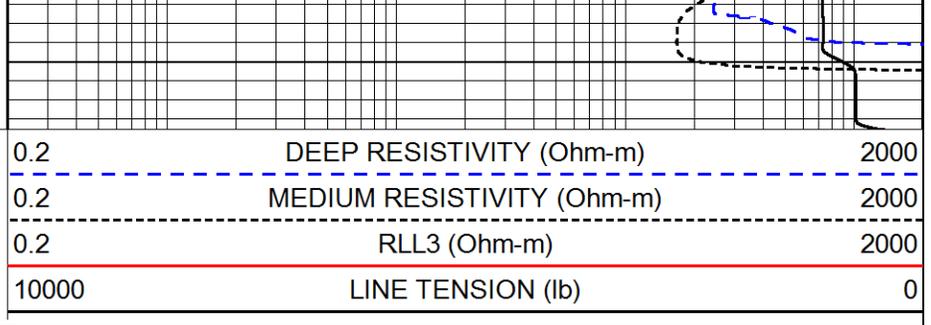
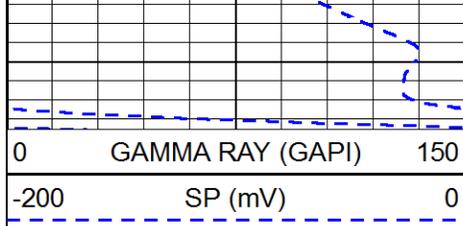
3400

3450

3500

3550





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

### Calibration Report

Database File      summit\_younger\_1\_17.db  
 Dataset Pathname    stack/pass3.12  
 Dataset Creation    Fri May 24 10:50:14 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:                      96-916-M&W  
 Source / Verifier:                16955B / 2ci  
 Master Calibration Performed:    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



**PIONEER**

Pioneer Energy Services

Company SUMMIT OPERATING LLC  
Well YOUNGER # 1-17  
Field REICHEL  
County RUSH  
State KANSAS