



PIONEER
Pioneer Energy Services

**DUAL INDUCTION
LOG**

Company **MURFIN DRILLING COMPANY, INC.**
Well **POPP NO. 1-14**
Field **GENIE**
County **SHERIDAN** State **KANSAS**

Company **MURFIN DRILLING COMPANY, INC.**
Well **POPP NO. 1-14**
Field **GENIE**
County **SHERIDAN**
State **KANSAS**

Location: **API #: 15-197-21447-00-00**
1160' FNL & 1365' FEL
SEC 14 TWP 9S RGE 26W
Permanent Datum **GROUND LEVEL Elevation 2597'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**
Other Services **CNL/CDL
MEL/BHCS**
Elevation **K.B. 2602'
D.F. N/A
G.L. 2597'**

Date	4/18/2018
Run Number	ONE
Depth Driller	4183'
Depth Logger	4183'
Bottom Logged Interval	4182'
Top Log Interval	00
Casing Driller	8.625" @ 219'
Casing Logger	219'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	2400
Density / Viscosity	9.2 62
pH / Fluid Loss	11.0 6.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.80 @ 58
Rmt @ Meas. Temp	.60 @ 58
Rmc @ Meas. Temp	1.08 @ 58
Source of Rmf / Rmc	CHARTS
Rm @ BHT	.39 @ 118
Operating Rig Time	4 HOURS
Max Rec. Temp. F	118 DEGF
Equipment Number	108
Location	HAYS
Recorded By	J. HENRICKSON
Witnessed By	ROBERT HENDRIX

<<< 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.
QUINTER KANSAS
NORTH TO 70 ROAD, 3 WEST, 1/2 NORTH, WEST INTO

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

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

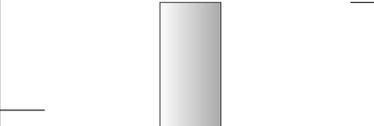
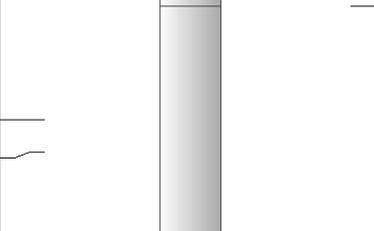
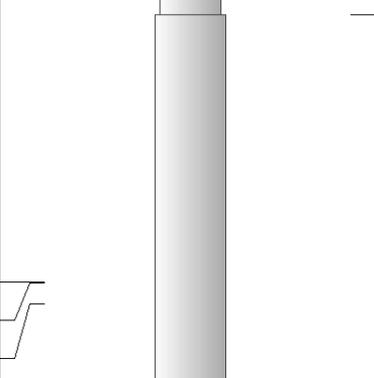
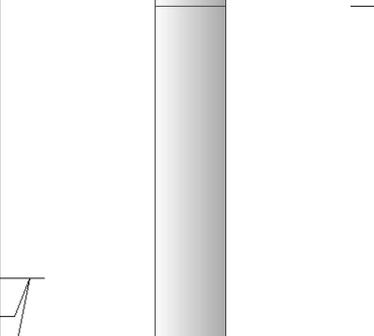
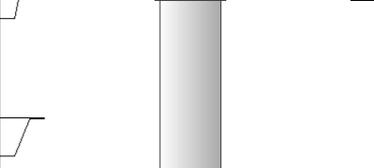
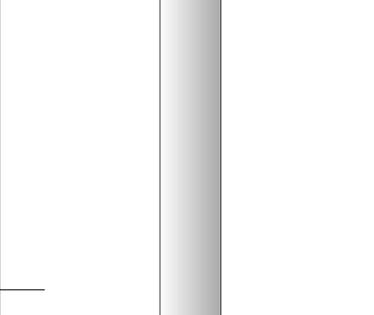
Your Pioneer Energy Services Crew	This Log Record Was Witnessed By
Engineer: J. HENRICKSON	Primary Witness: ROBERT HENDRIX
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\murfin_popp_1_14.db
Dataset field/well/stackml/pass3.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	100	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	0	0	-180	0	Off	0

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (tk10-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (168-986)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSI STKBL ML (PSI-02) Stackable Microlog Tools	7.58	4.00	65.00
RLL3 RLL3F	15.80 15.79					
CILD	8.00		DIL-M&W (PSI 978)	18.50	3.50	220.00

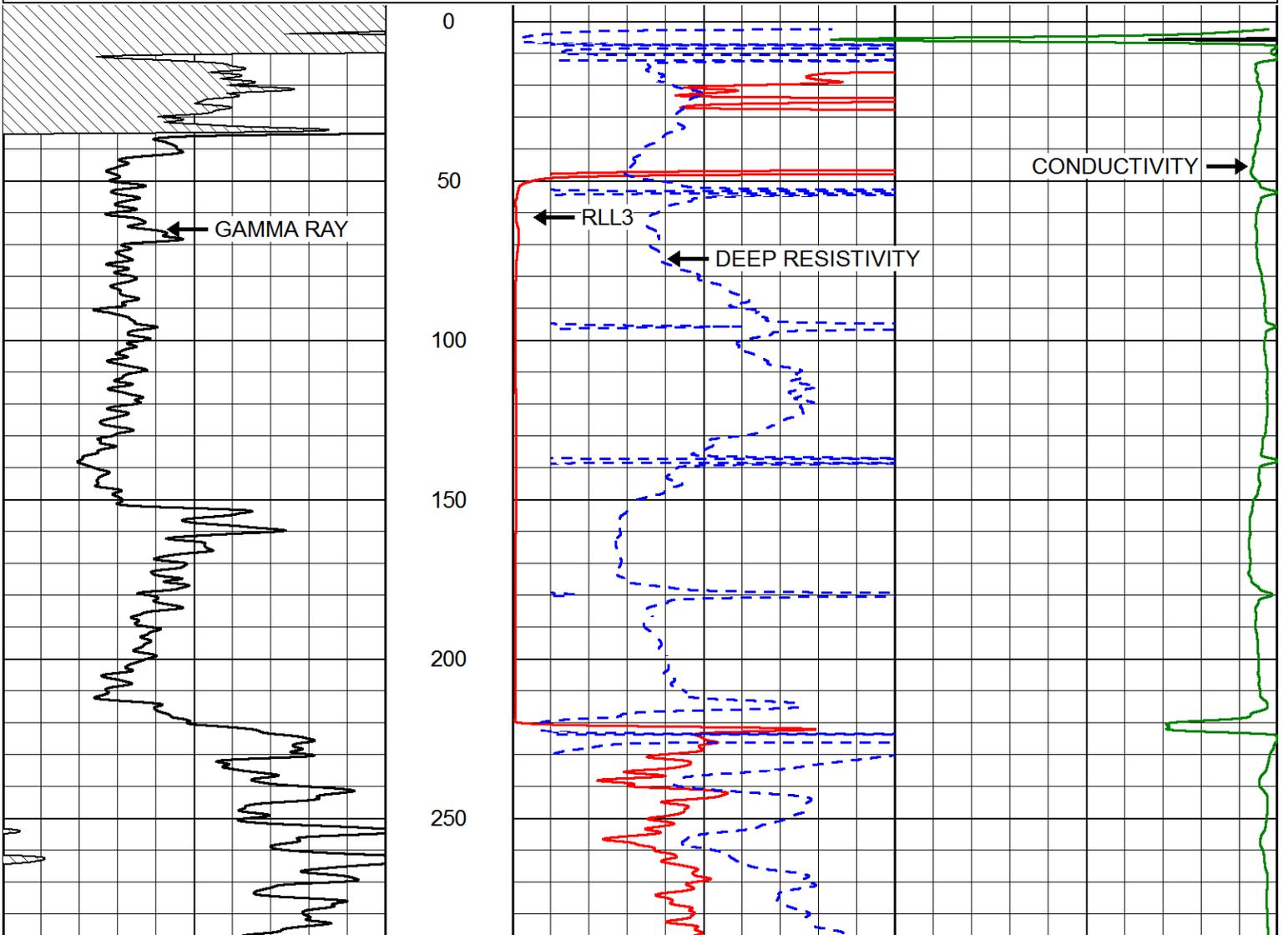
CILM 4.70

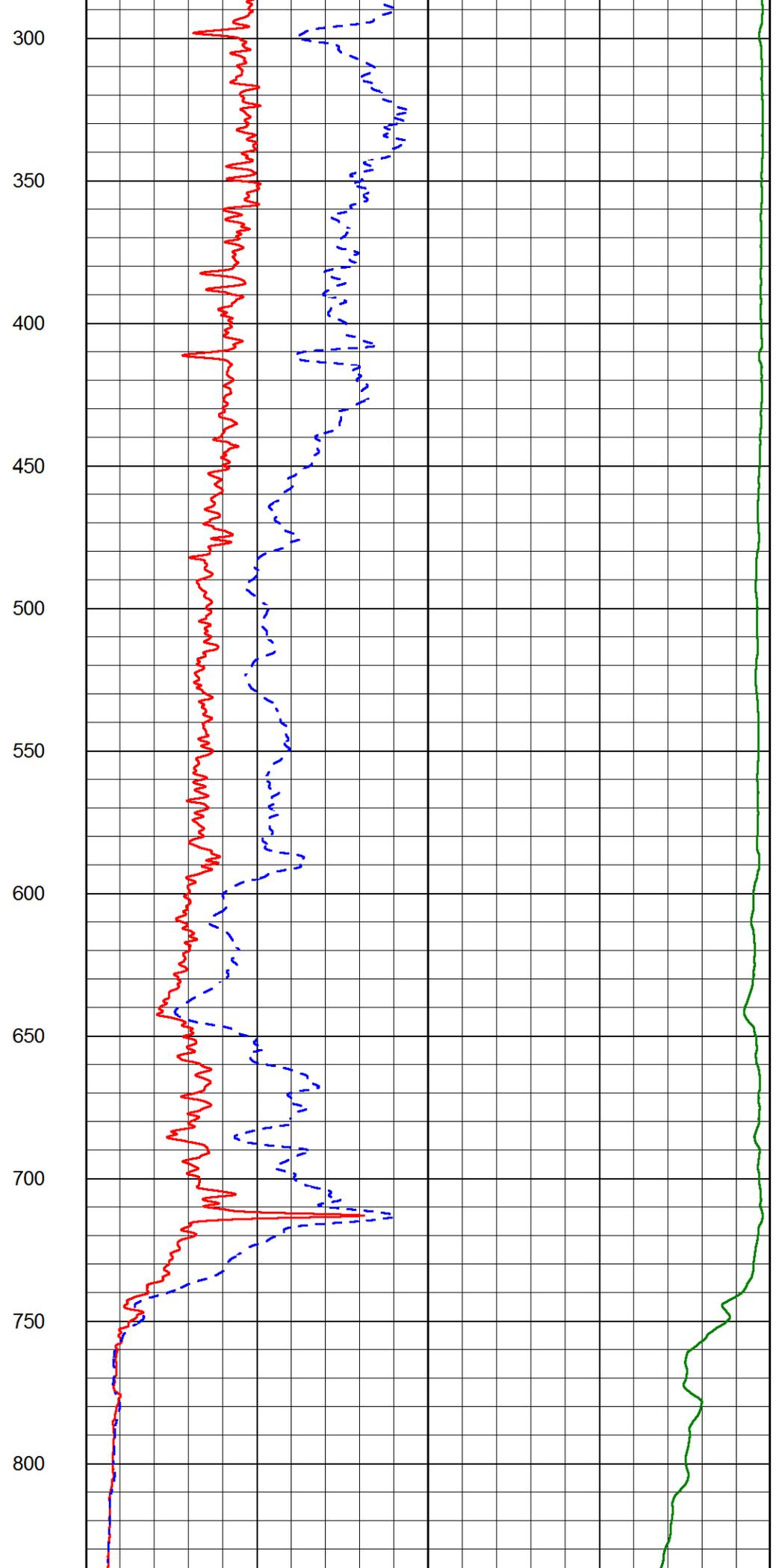
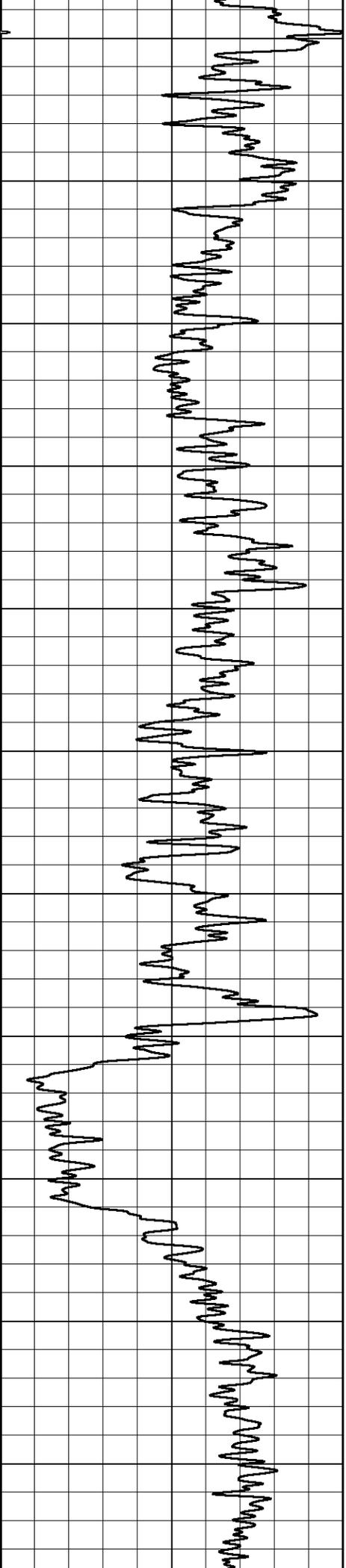
SP 0.20

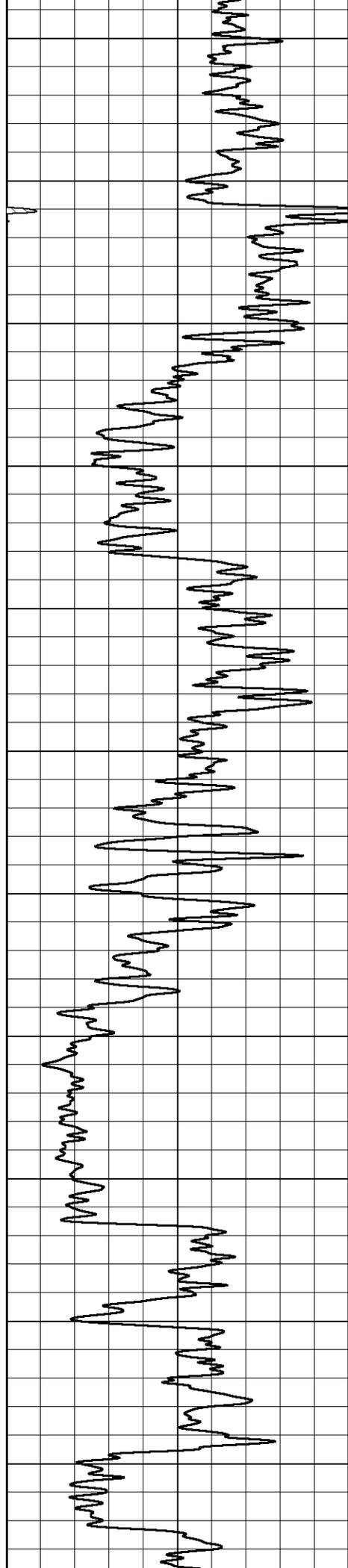
Dataset: murfin_popp_1_14.db: field/well/stackml/pass3.1
 Total length: 43.08 ft
 Total weight: 685.00 lb
 O.D.: 4.00 in

Database File murfin_popp_1_14.db
 Dataset Pathname stackml/pass3.1
 Presentation Format dil2in
 Dataset Creation Wed Apr 18 15:19:52 2018
 Charted by Depth in Feet scaled 1:600

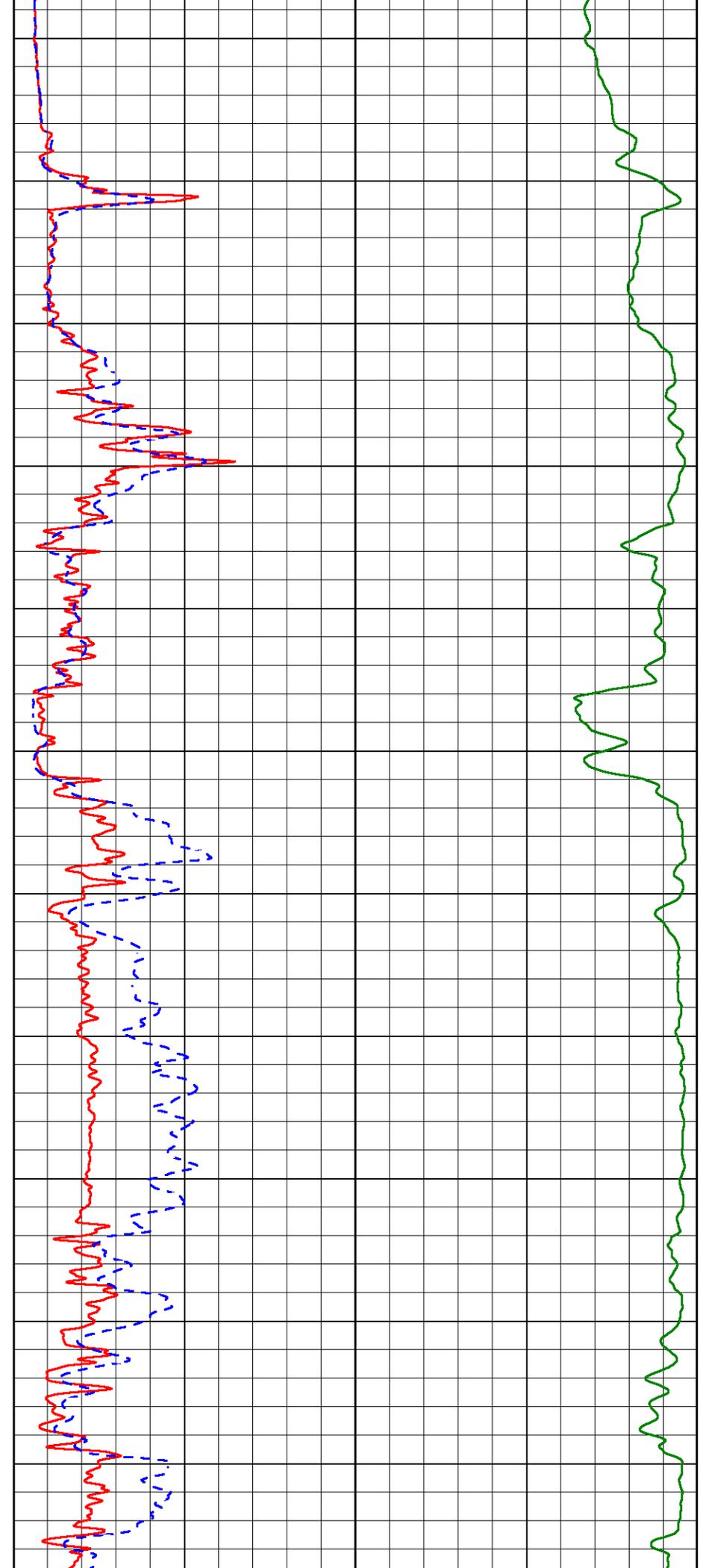
0	GAMMA RAY (GAPI)	150	2000	CONDUCTIVITY (mmho/m)	0
0			RLL3 (Ohm-m)	50	
0			DEEP RESISTIVITY (Ohm-m)	50	
50			RLL3 (Ohm-m)	500	
50			DEEP RESISTIVITY (Ohm-m)	500	

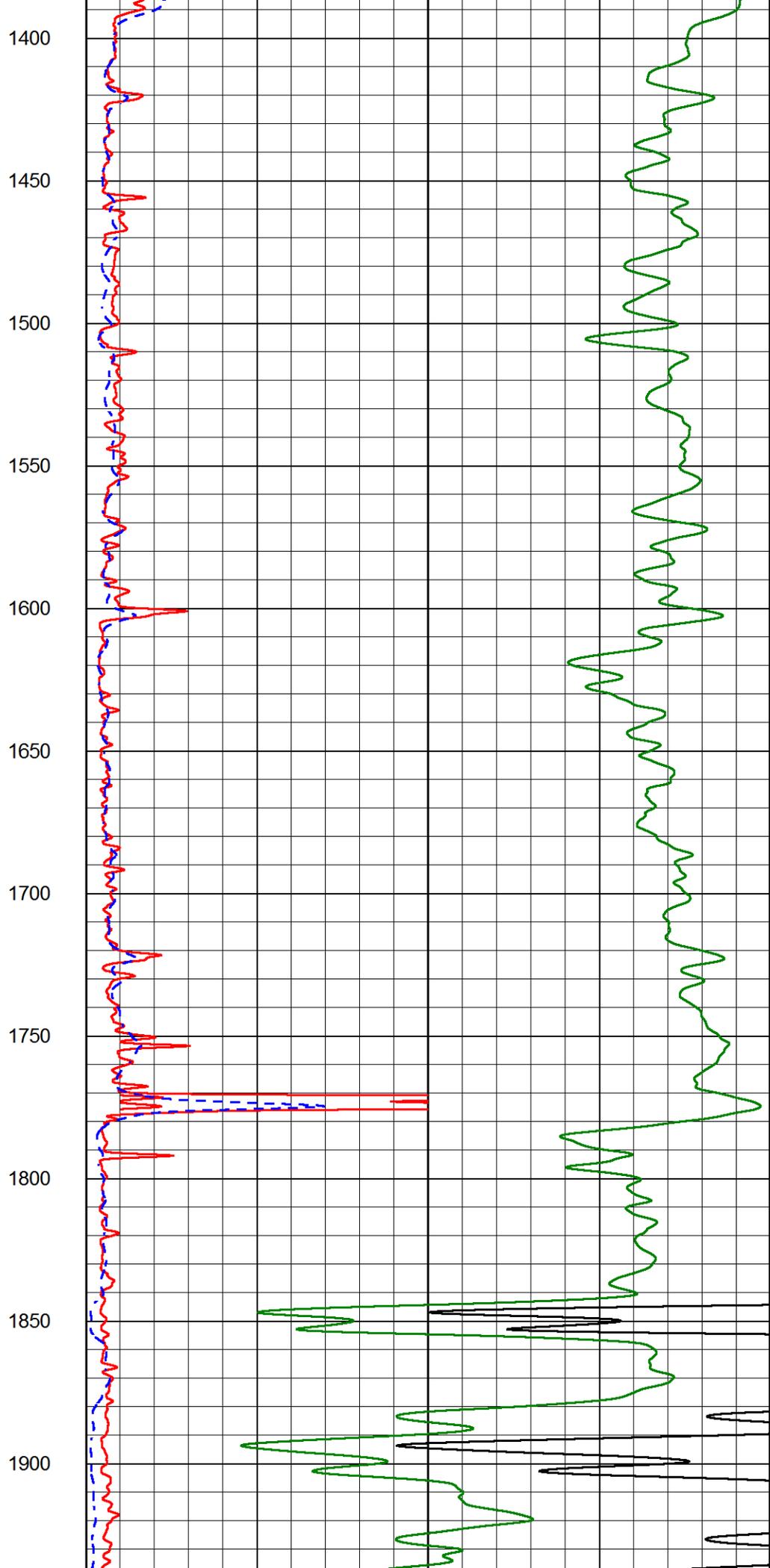
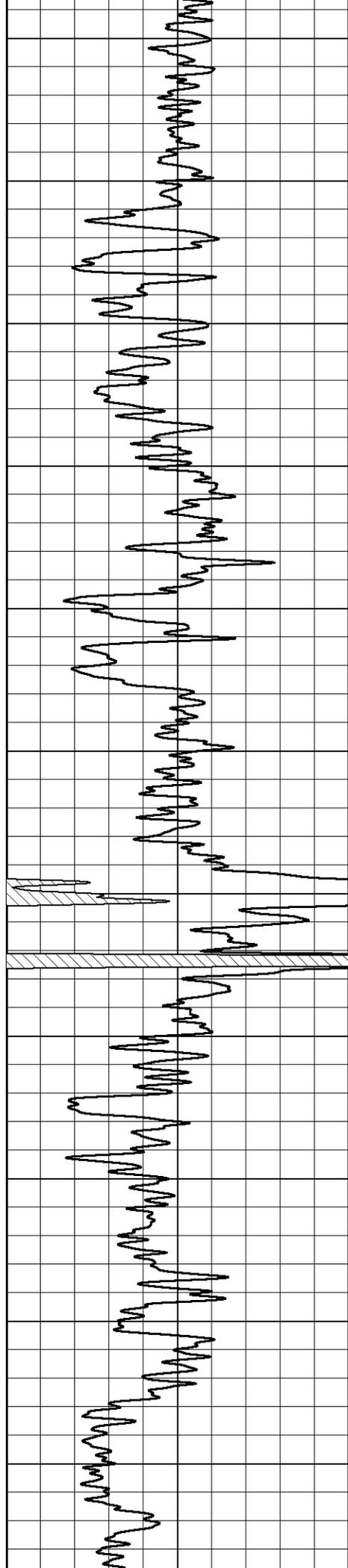


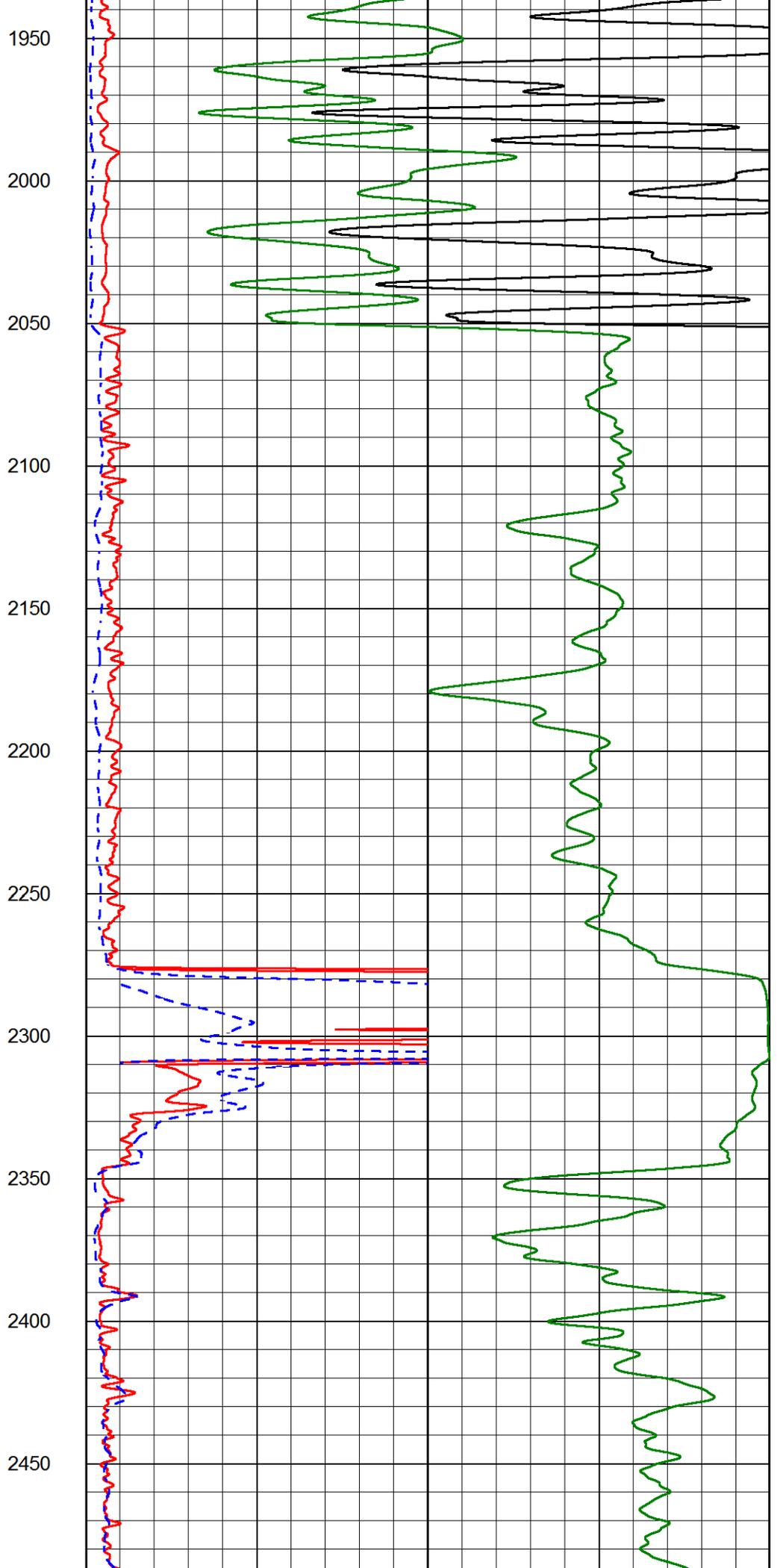
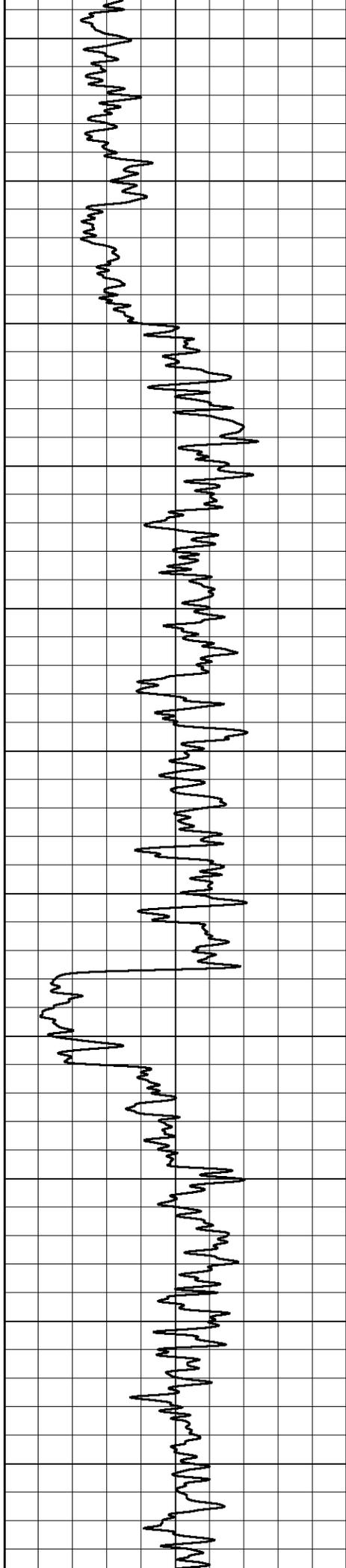


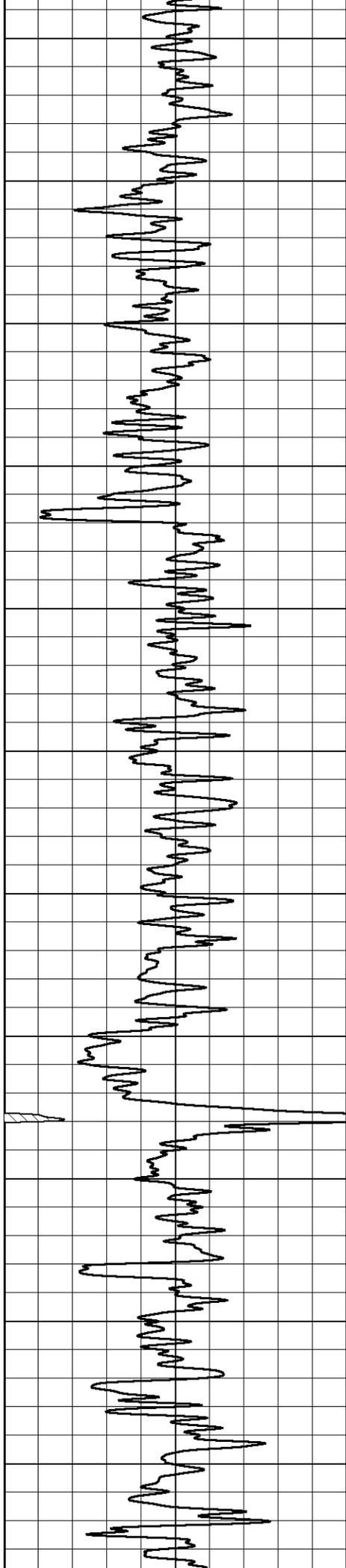


850
900
950
1000
1050
1100
1150
1200
1250
1300
1350

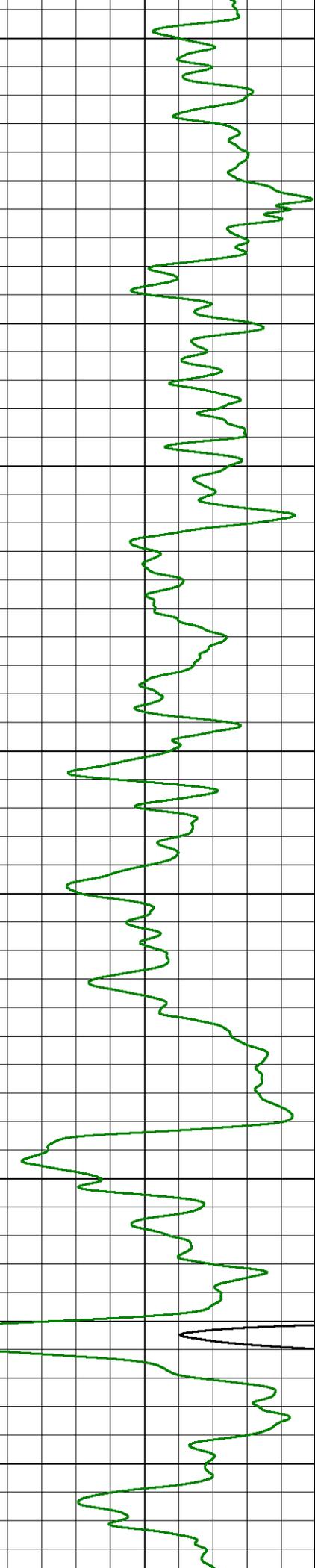
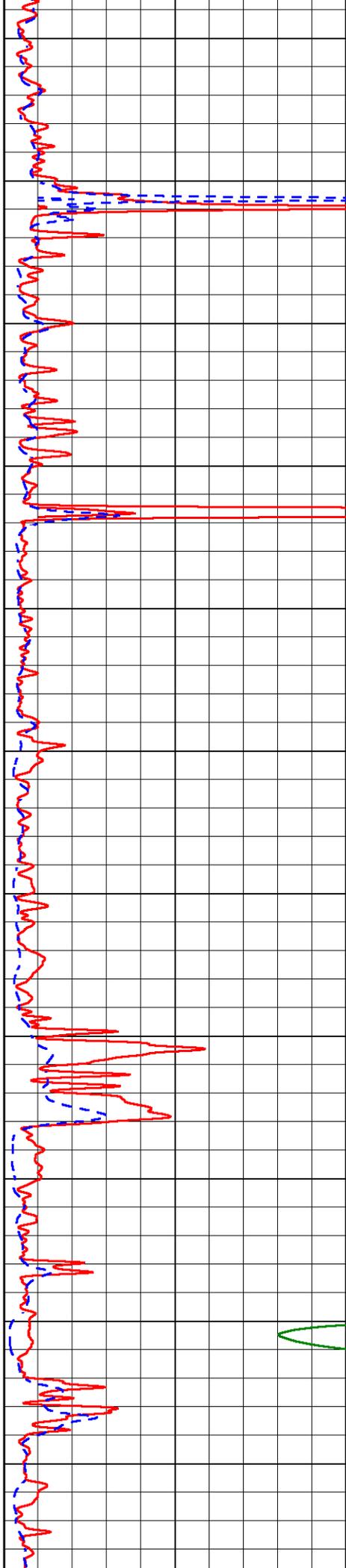


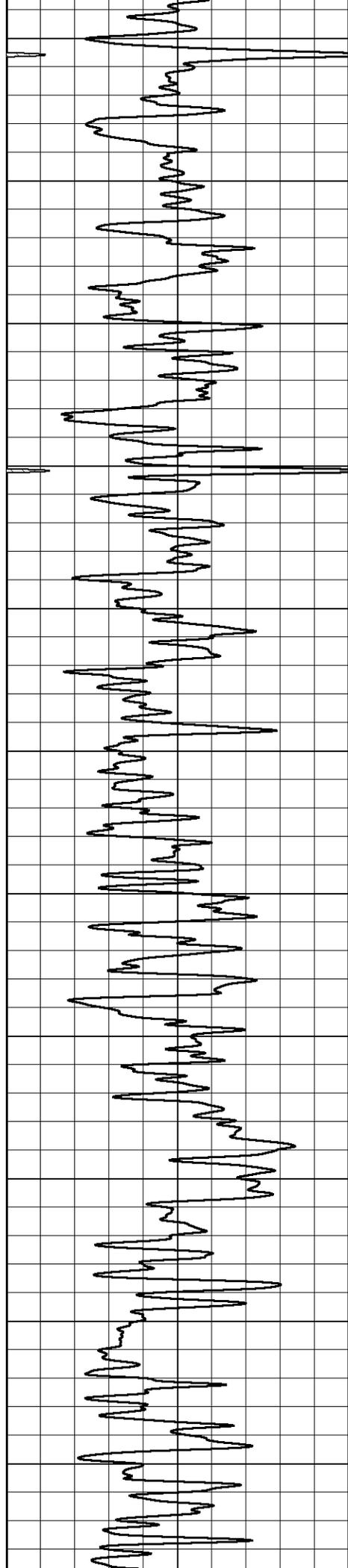




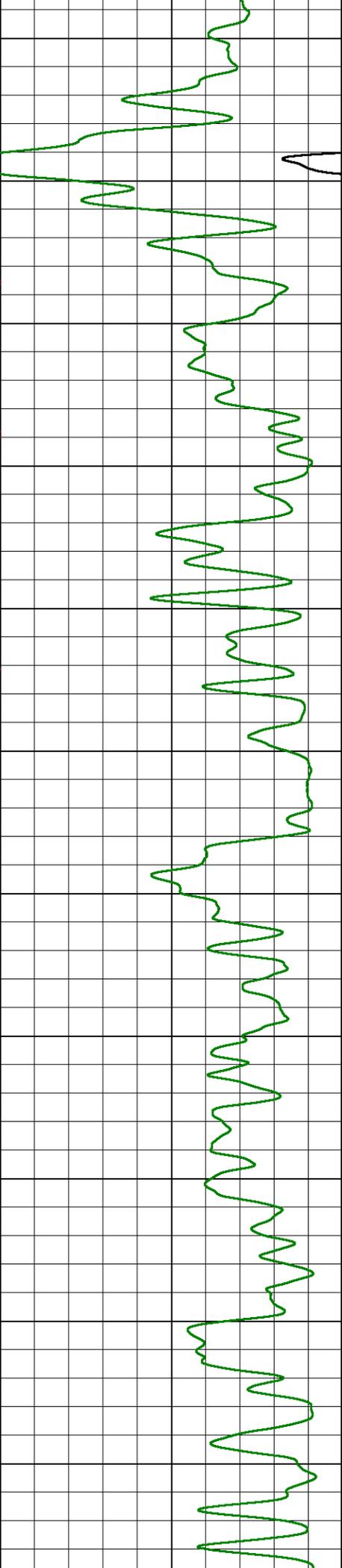
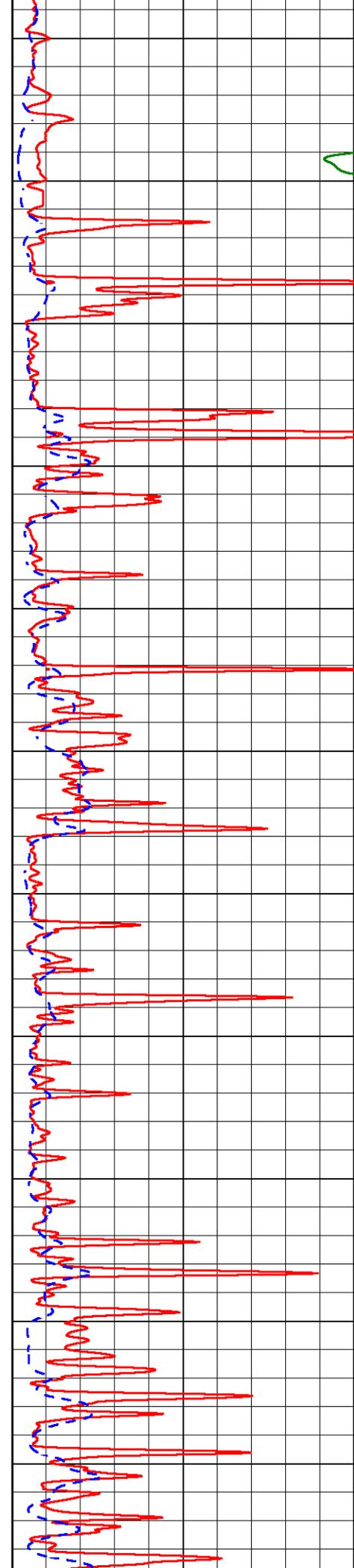


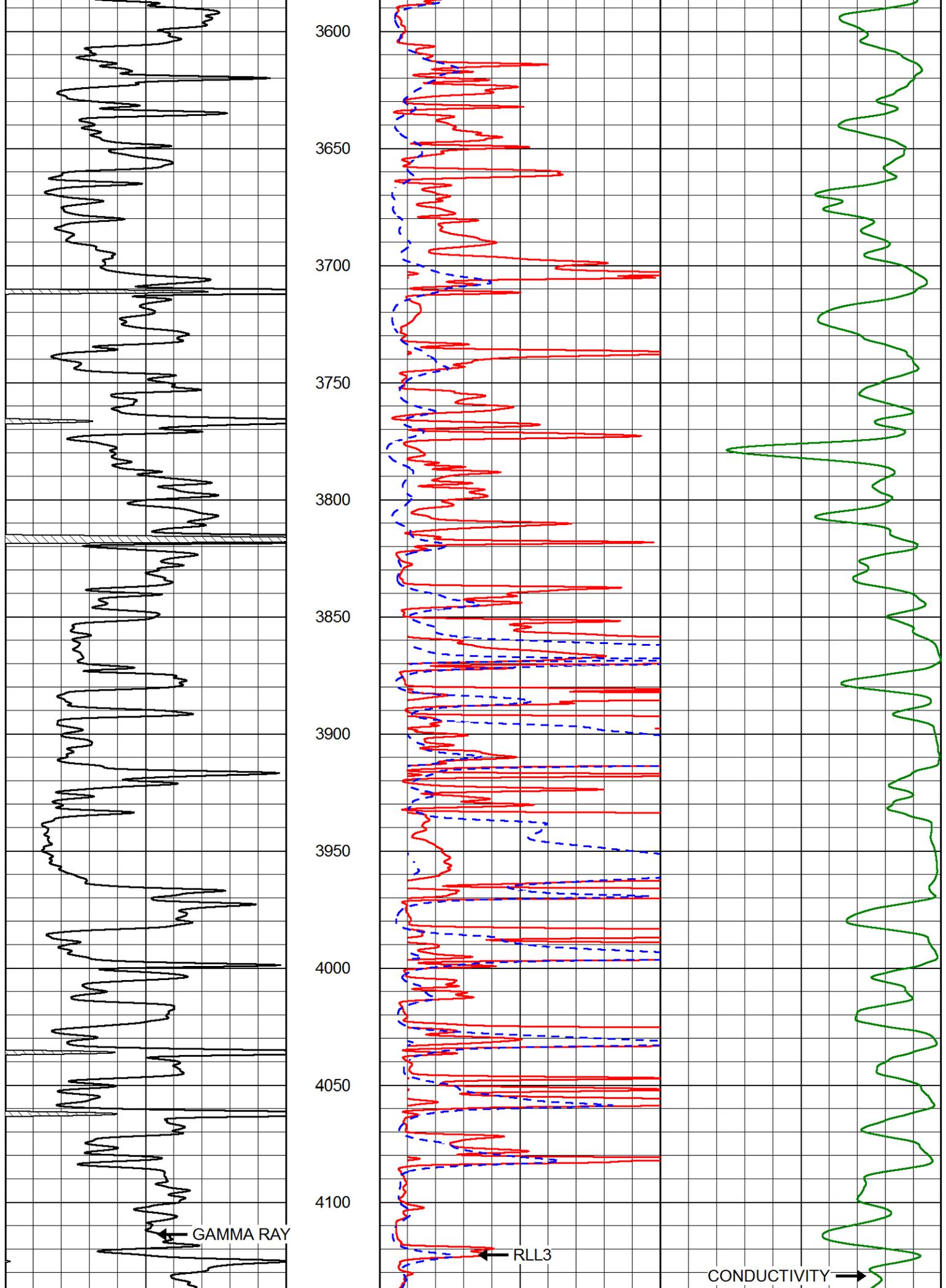
2500
2550
2600
2650
2700
2750
2800
2850
2900
2950
3000

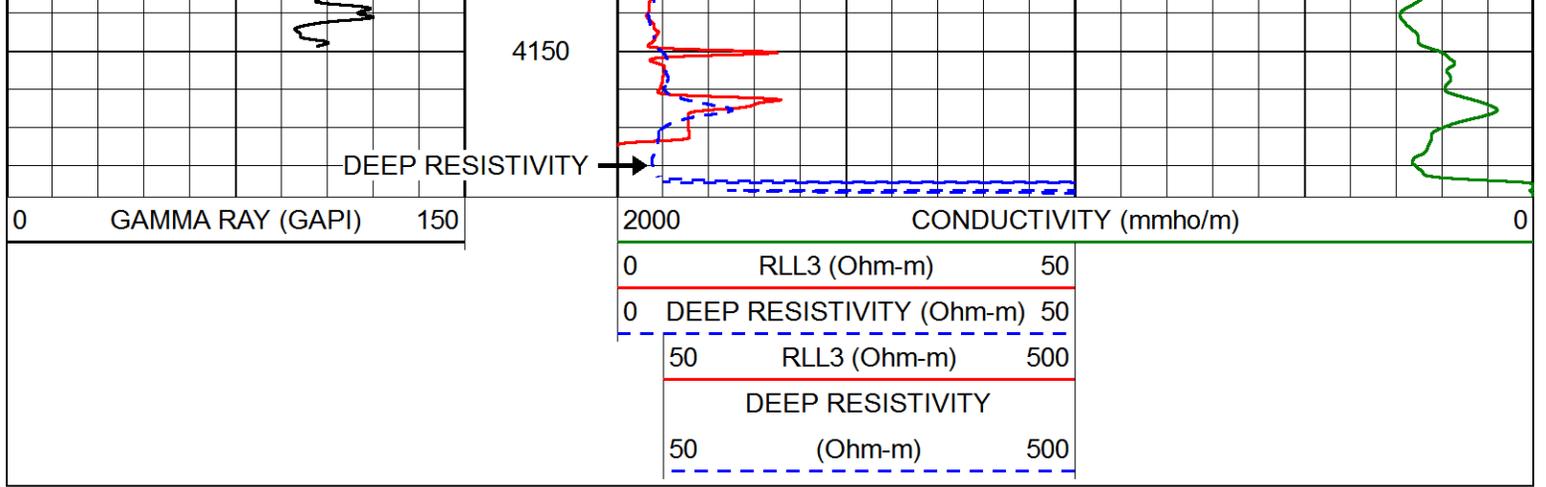




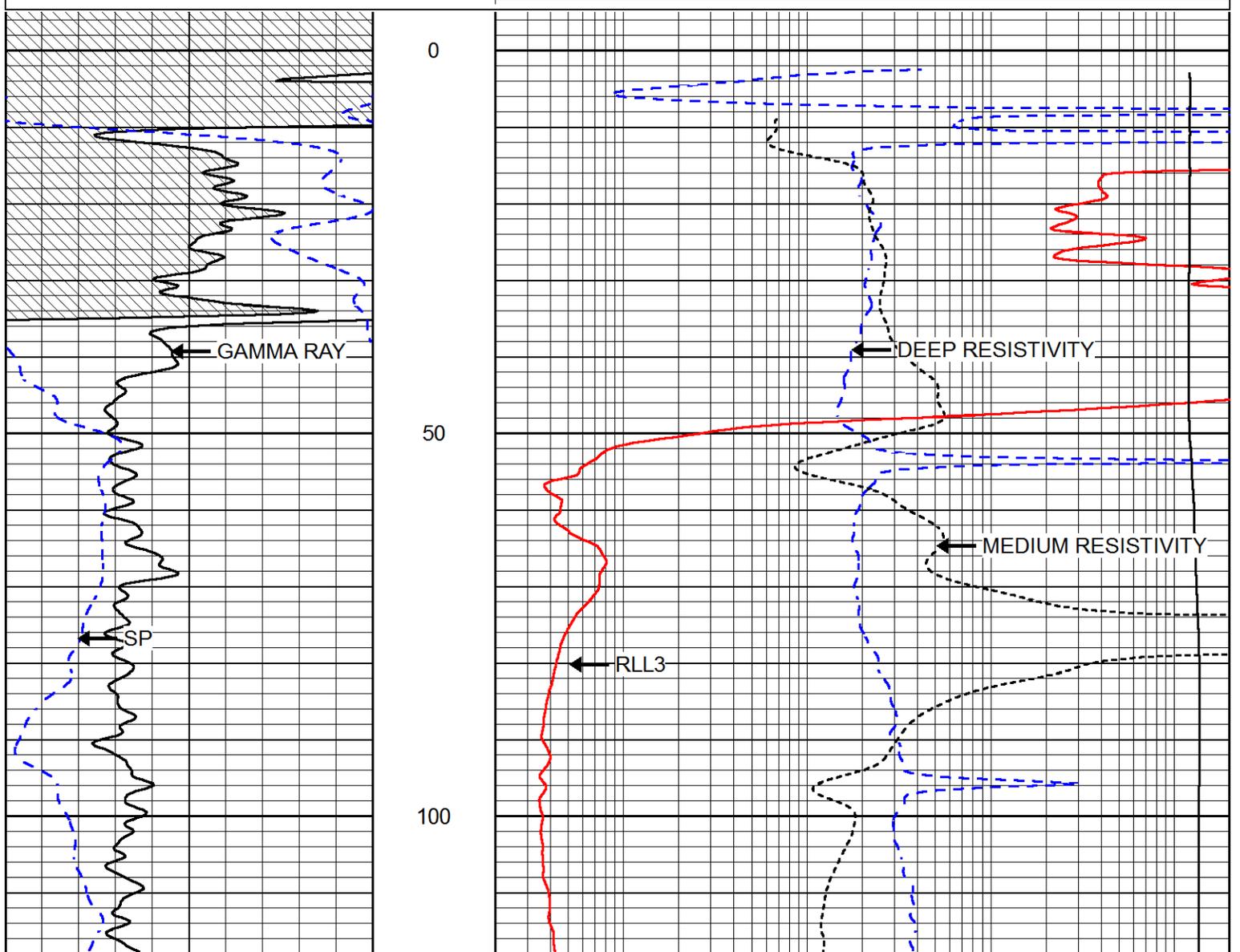
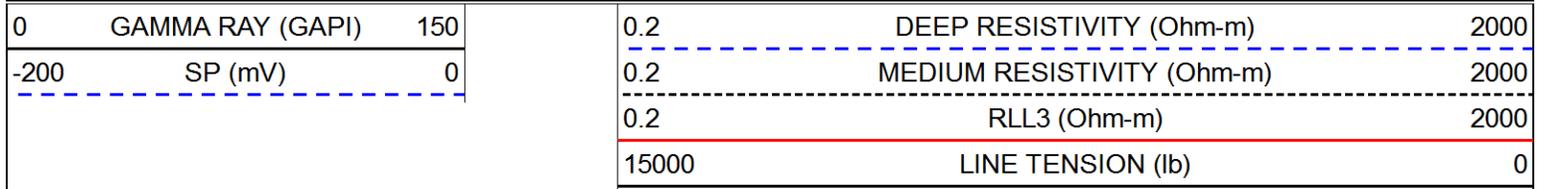
3050
3100
3150
3200
3250
3300
3350
3400
3450
3500
3550

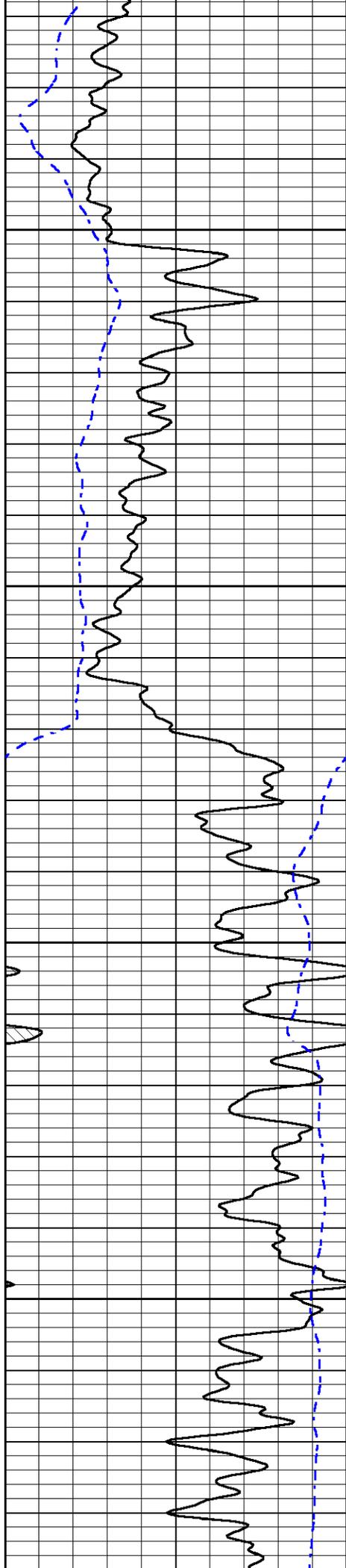






Database File murfin_popp_1_14.db
 Dataset Pathname stackml/pass3.1
 Presentation Format dil
 Dataset Creation Wed Apr 18 15:19:52 2018
 Charted by Depth in Feet scaled 1:240



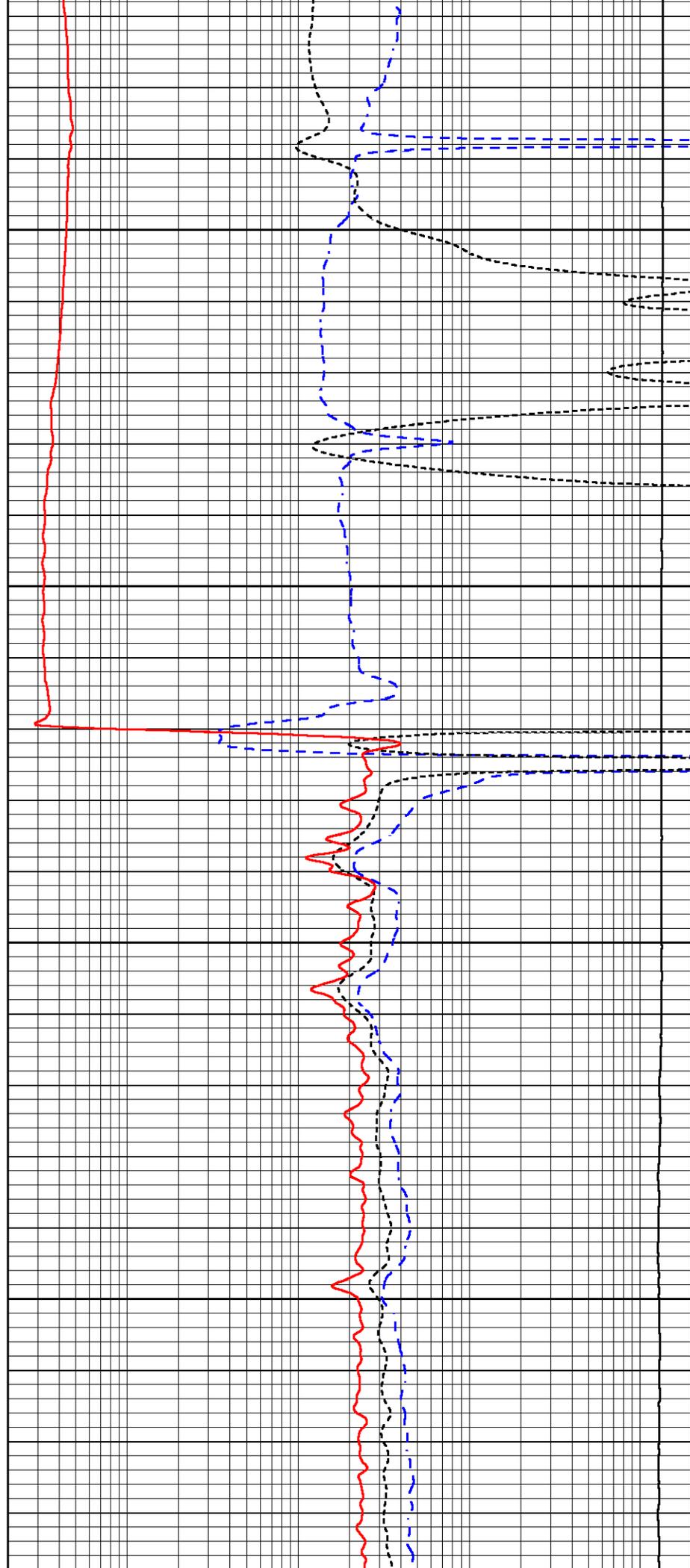


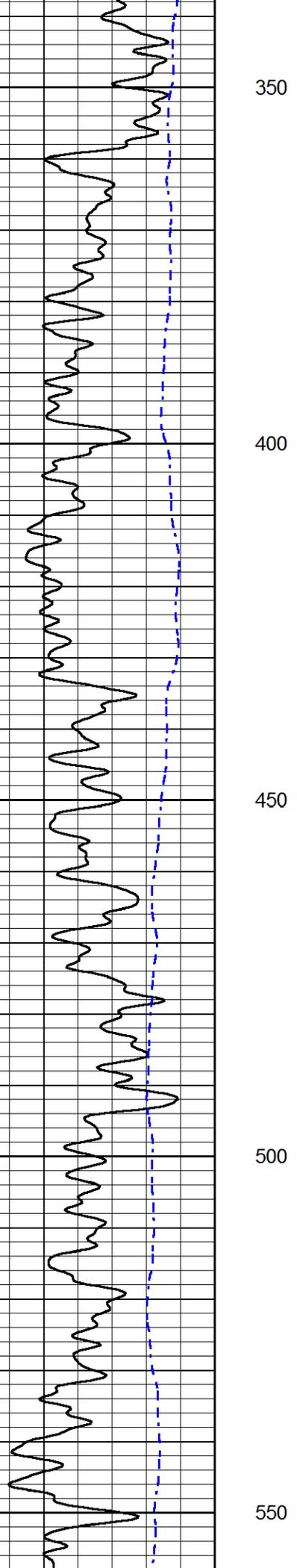
150

200

250

300





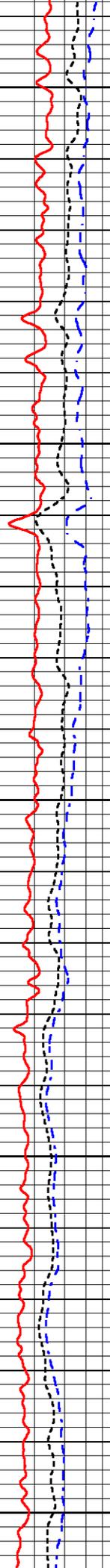
350

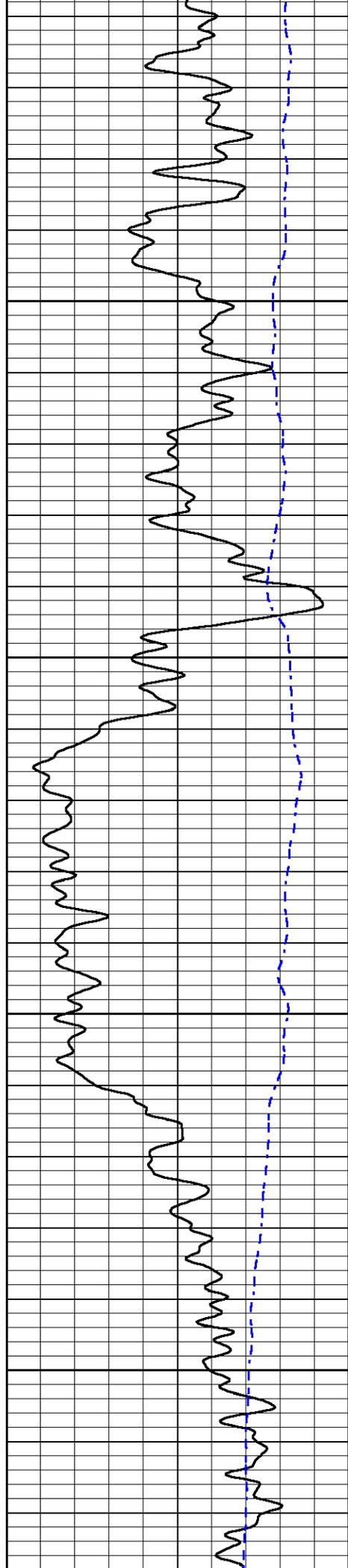
400

450

500

550



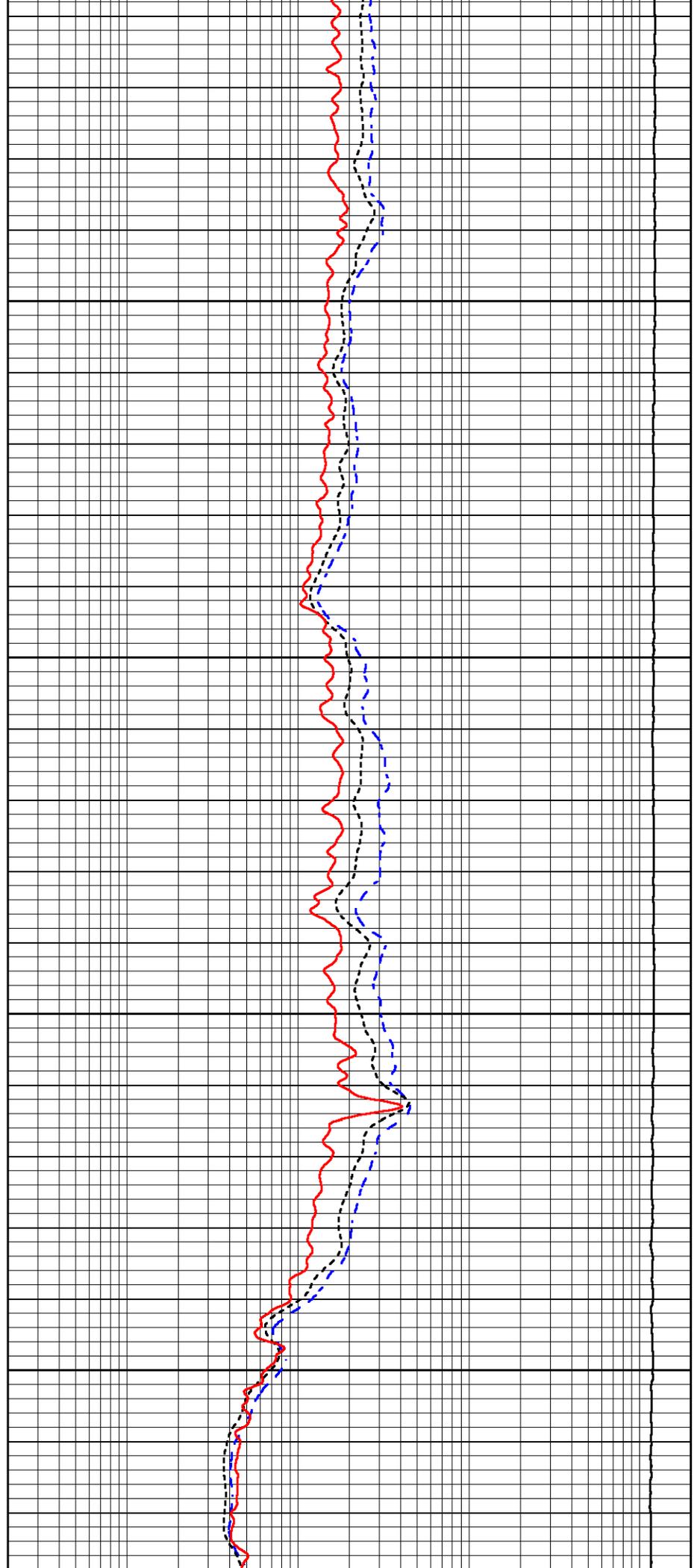


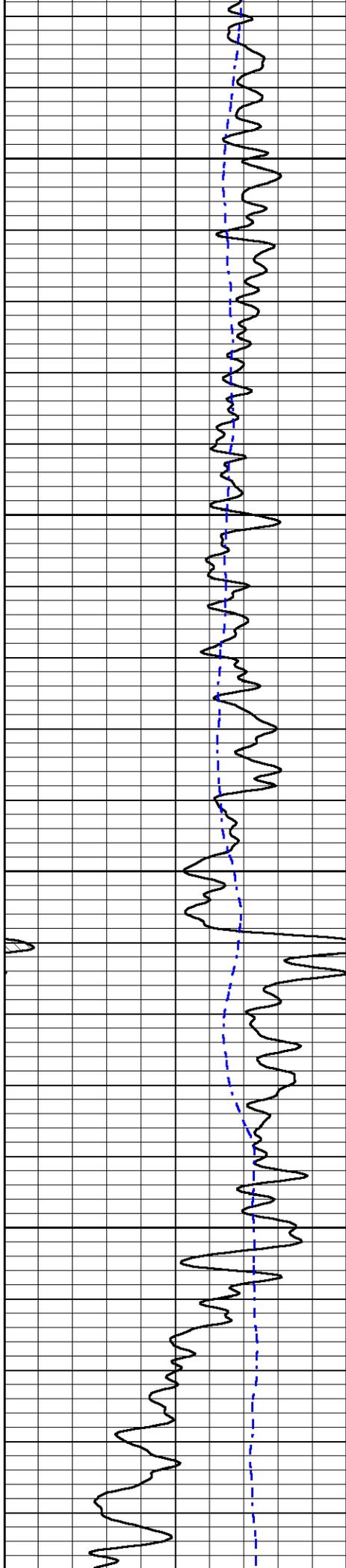
600

650

700

750



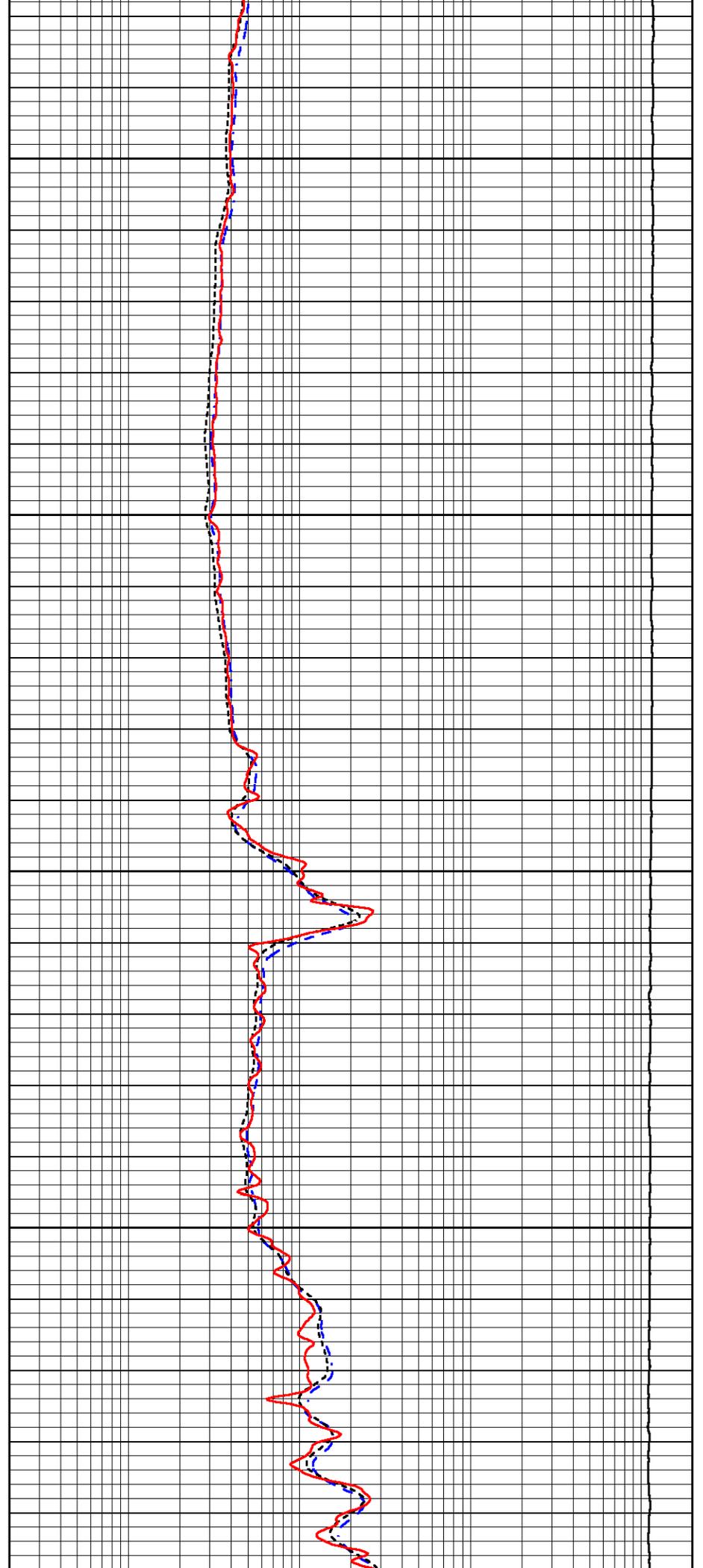


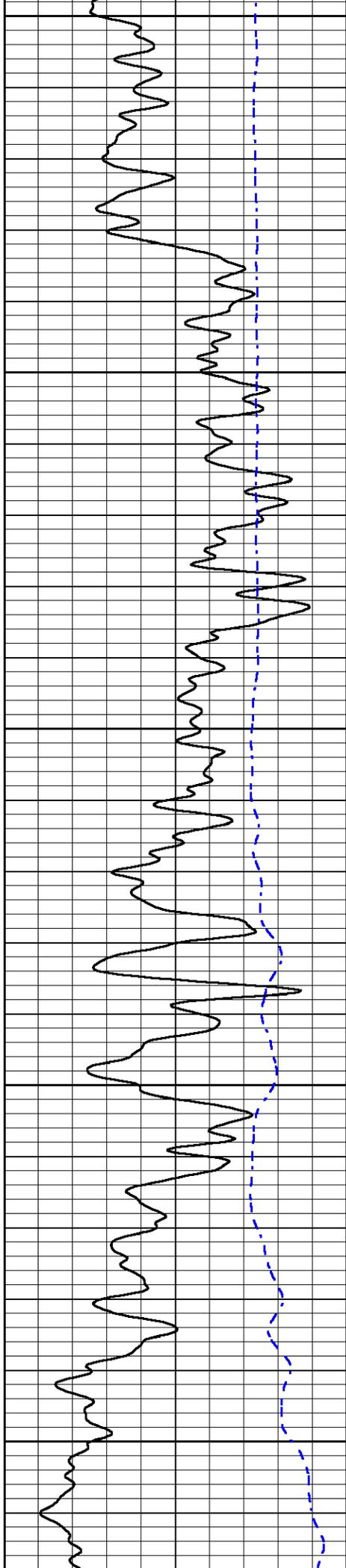
800

850

900

950





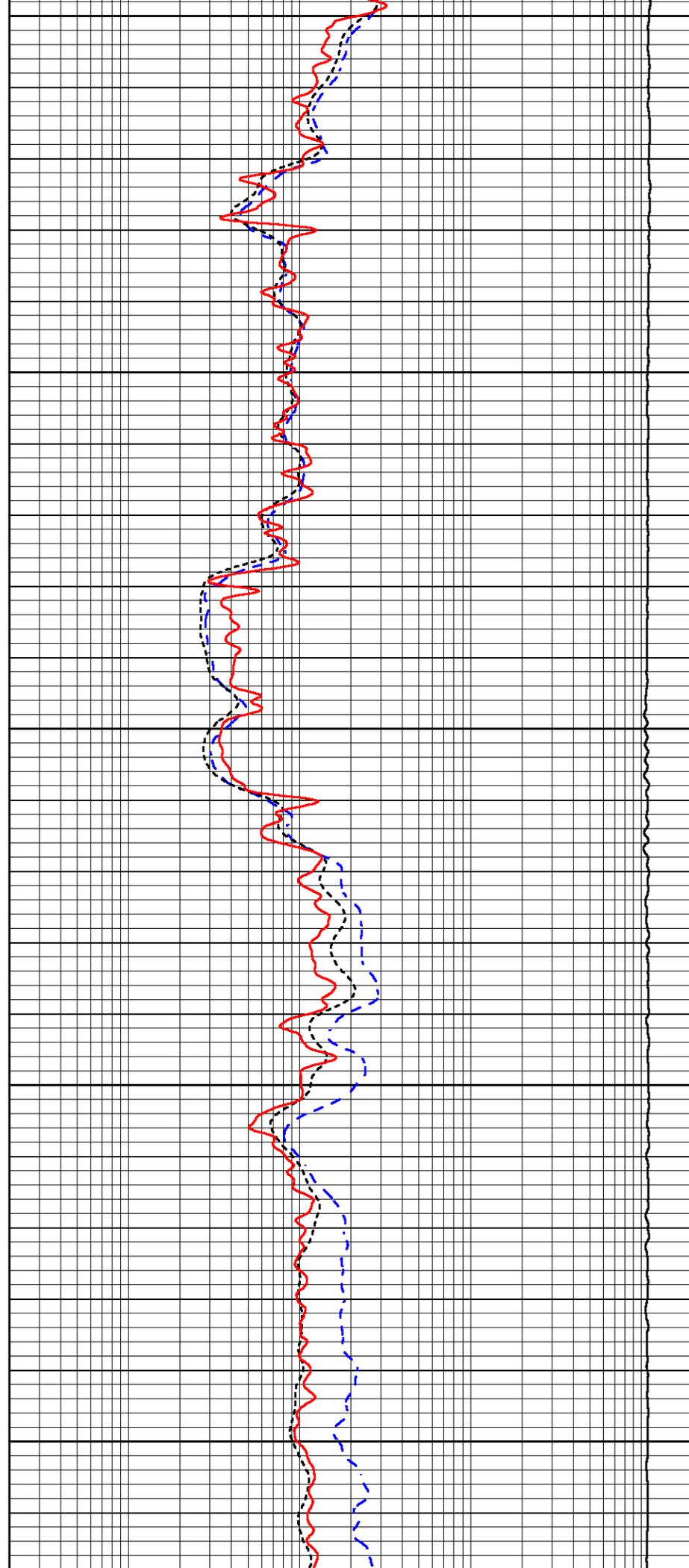
1000

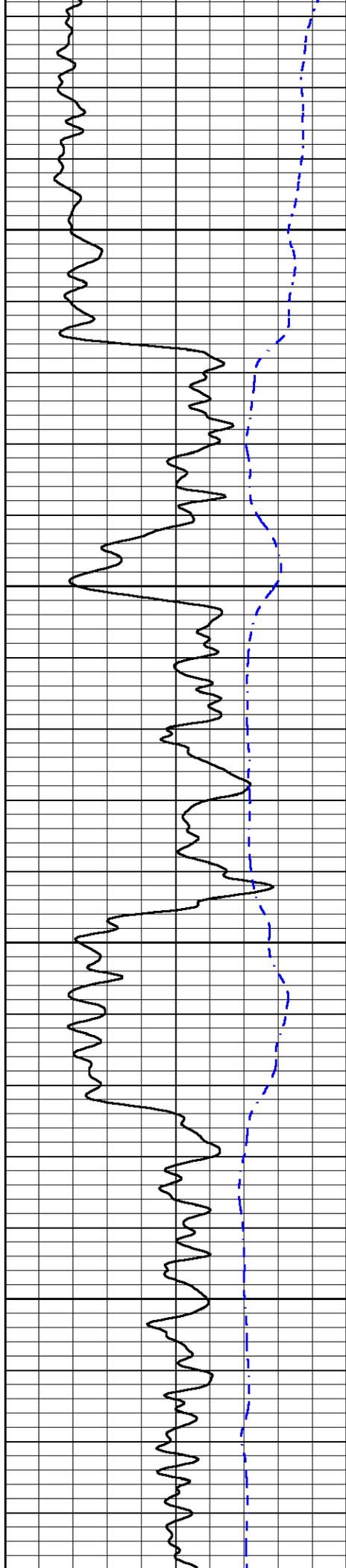
1050

1100

1150

1200



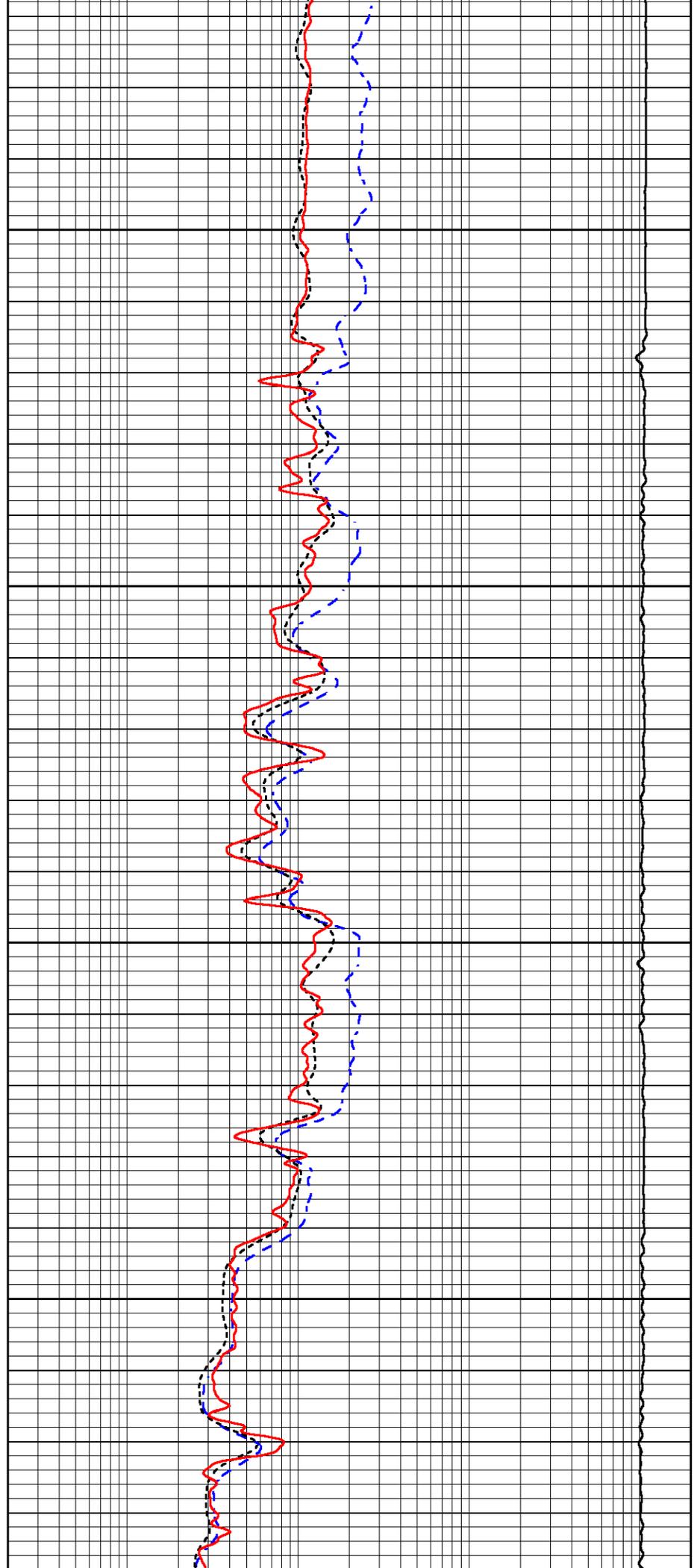


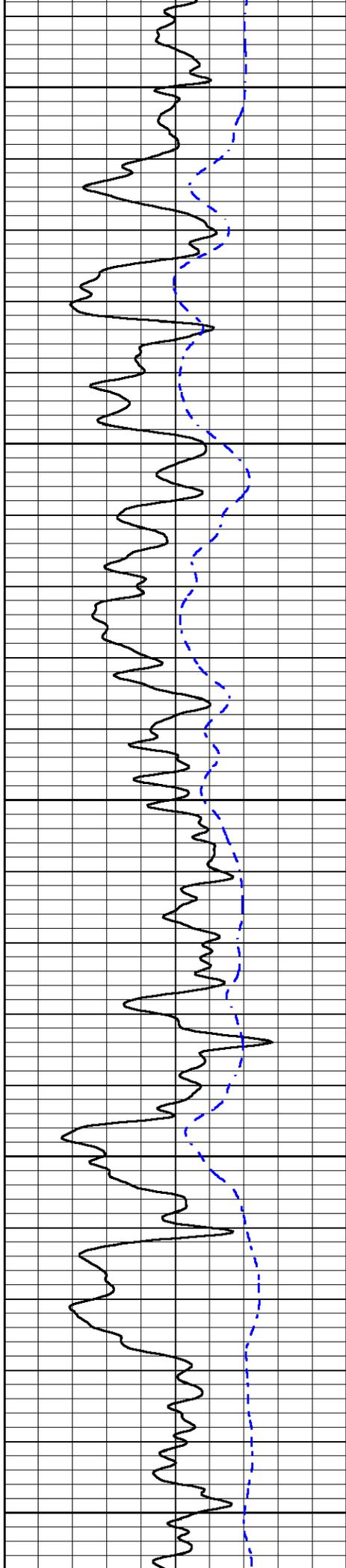
1250

1300

1350

1400





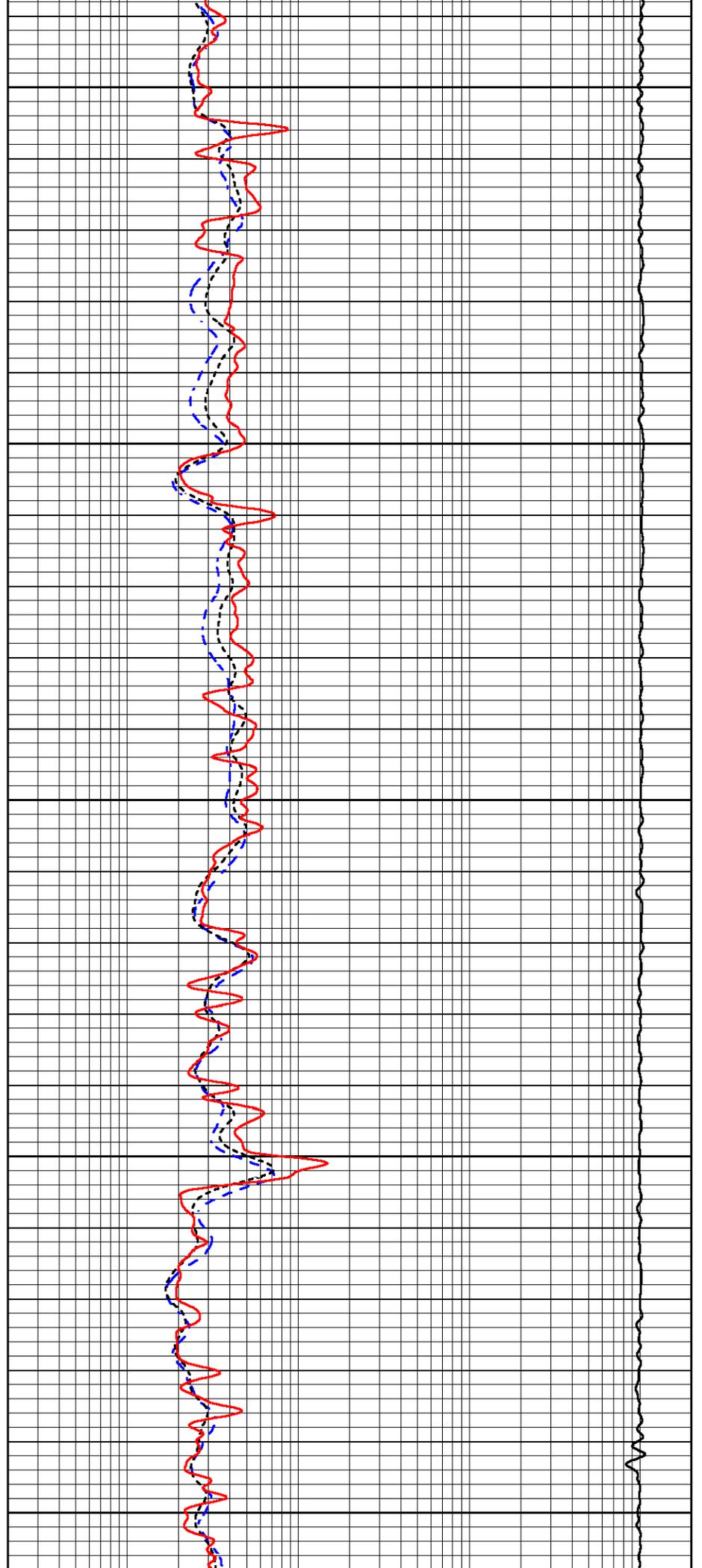
1450

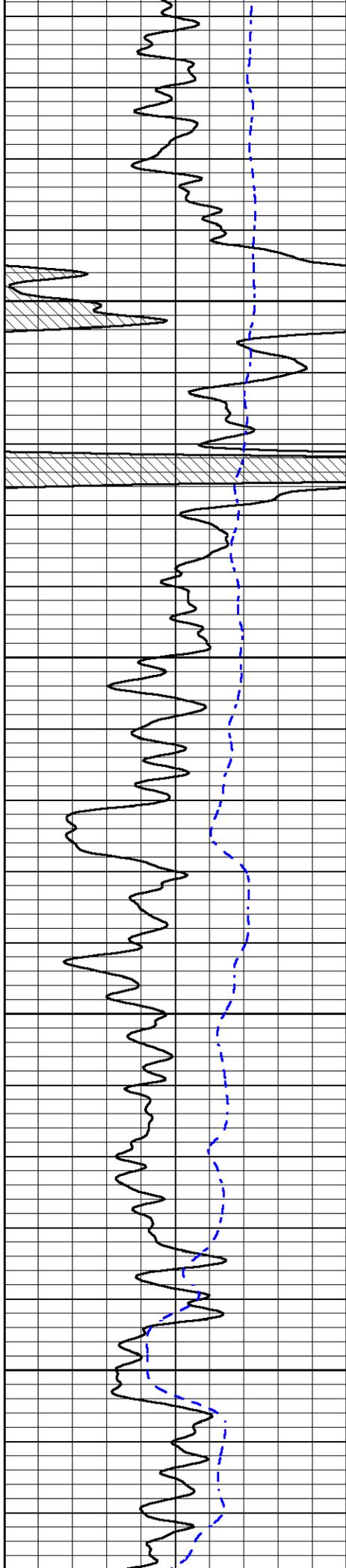
1500

1550

1600

1650



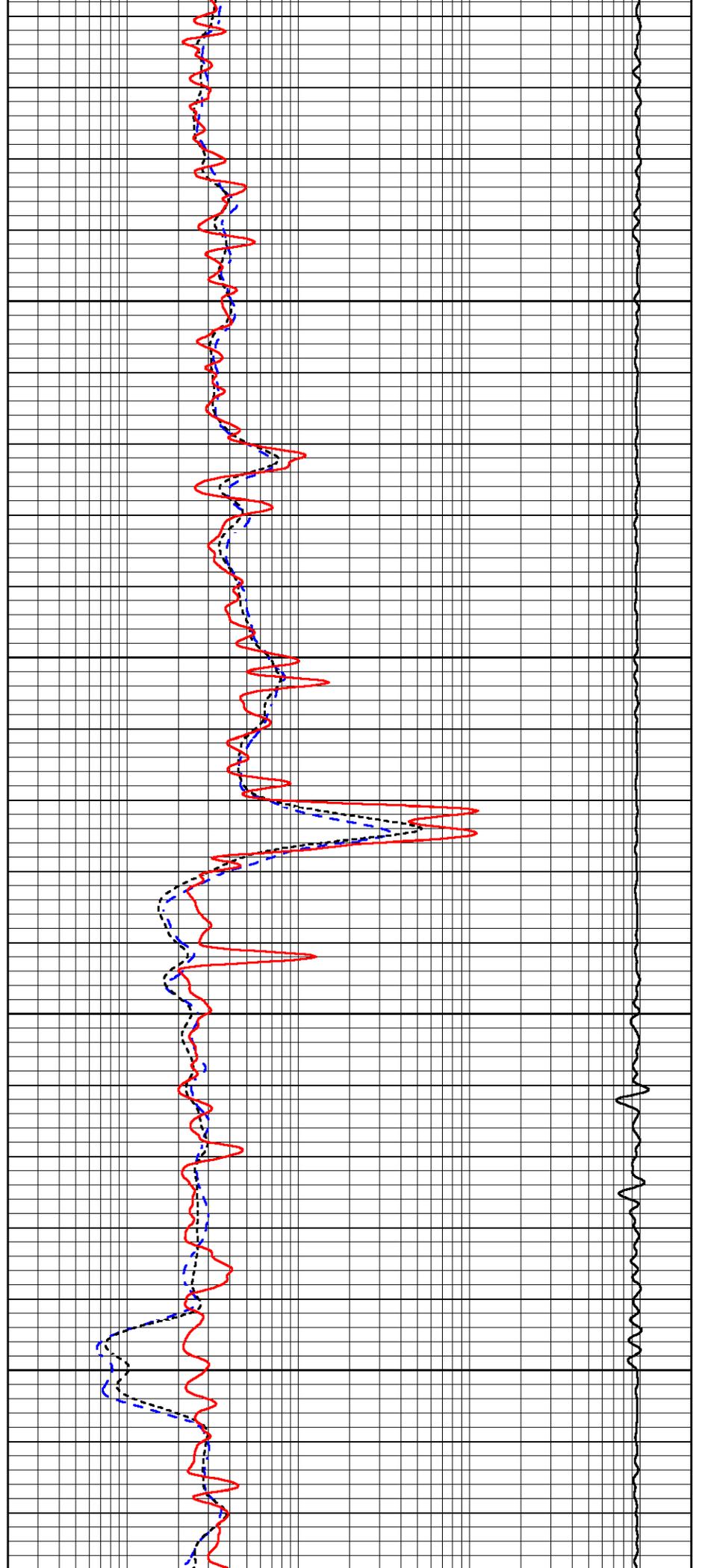


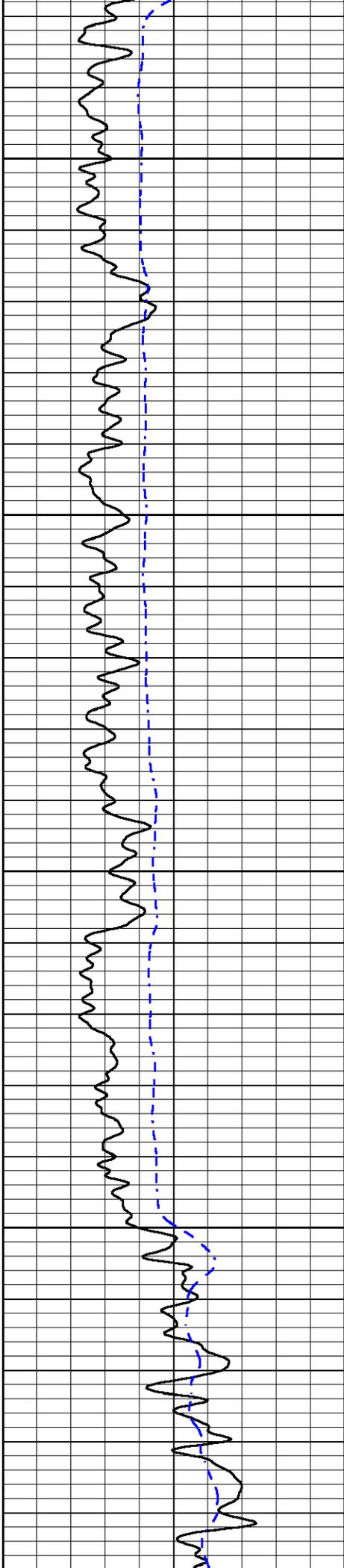
1700

1750

1800

1850



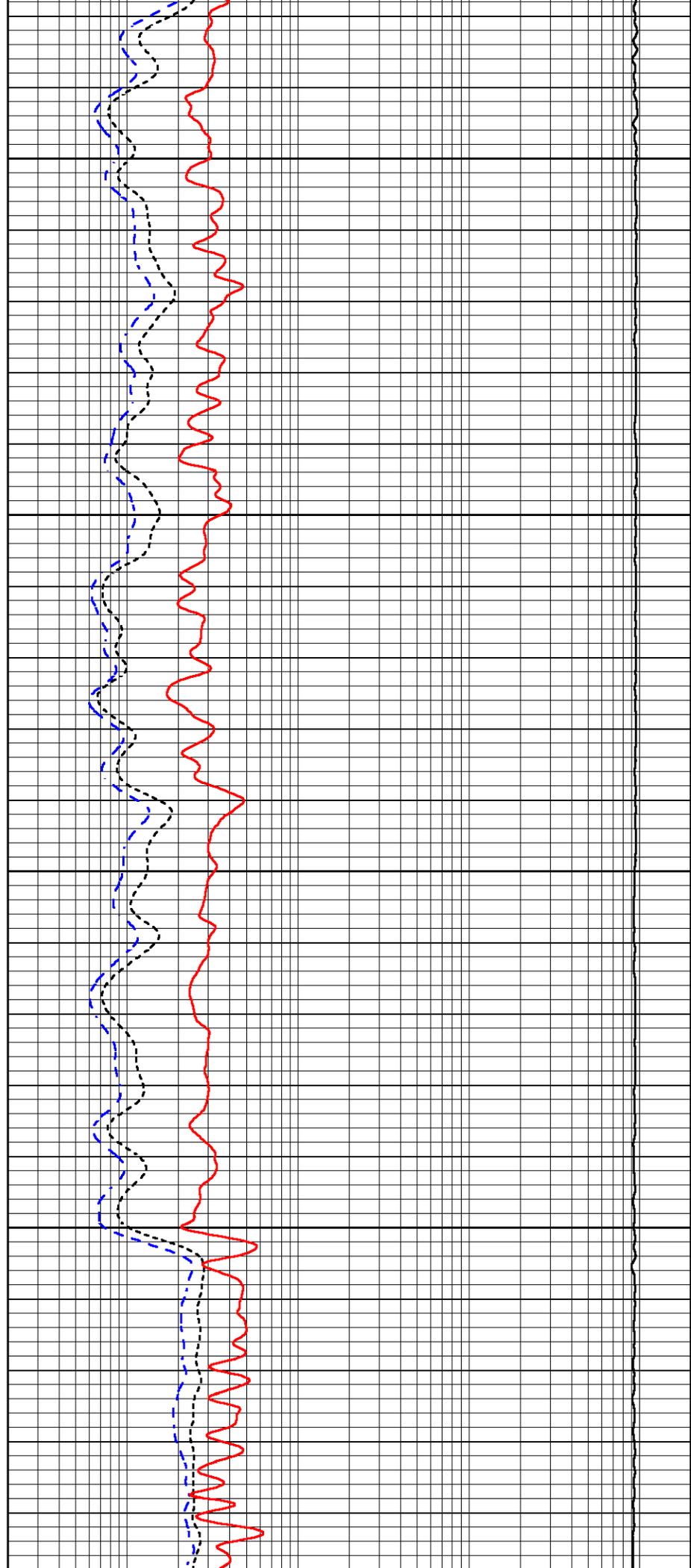


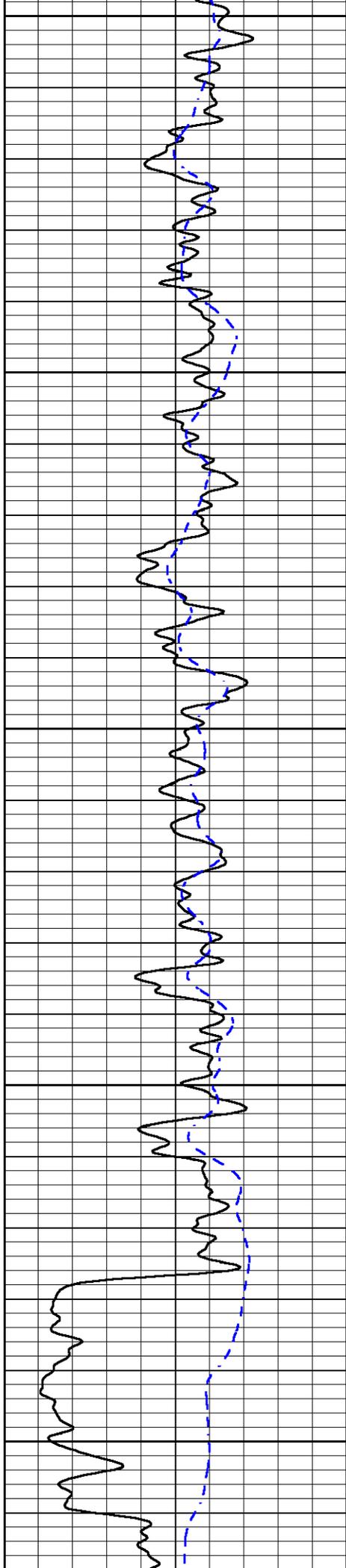
1900

1950

2000

2050





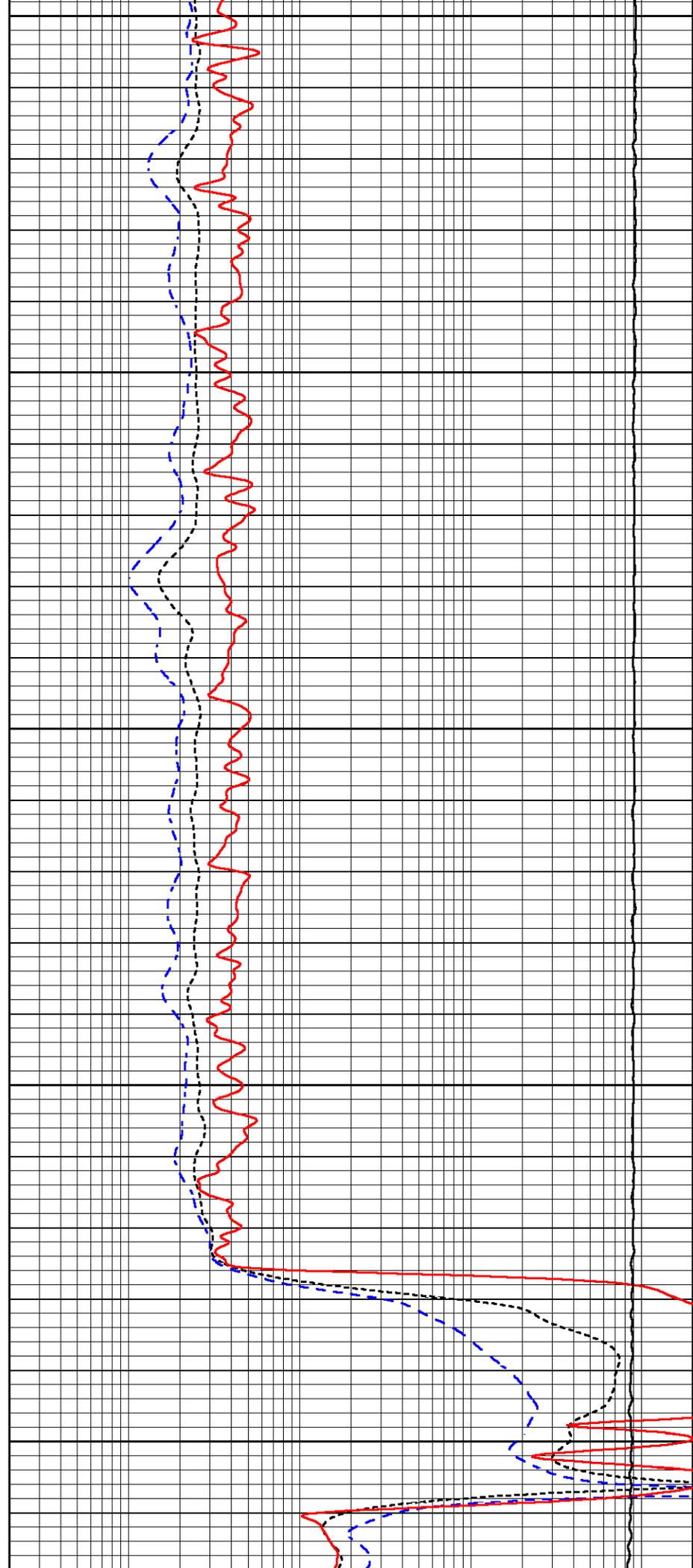
2100

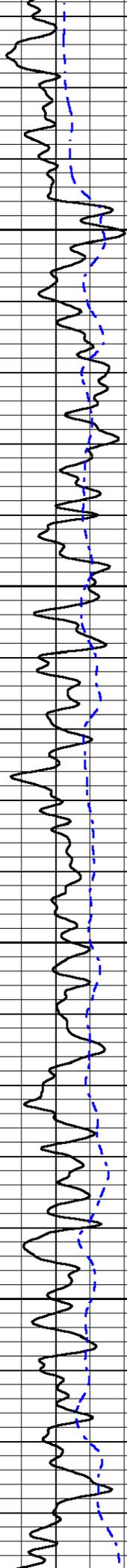
2150

2200

2250

2300



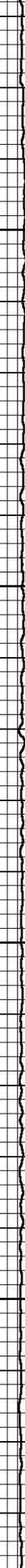
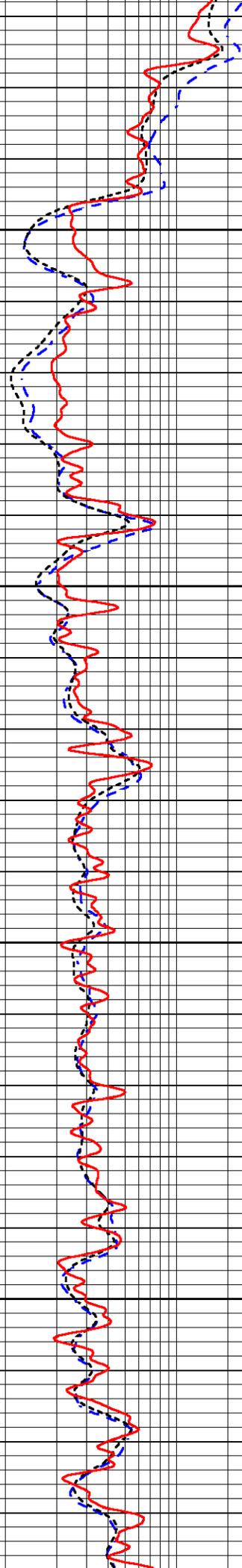


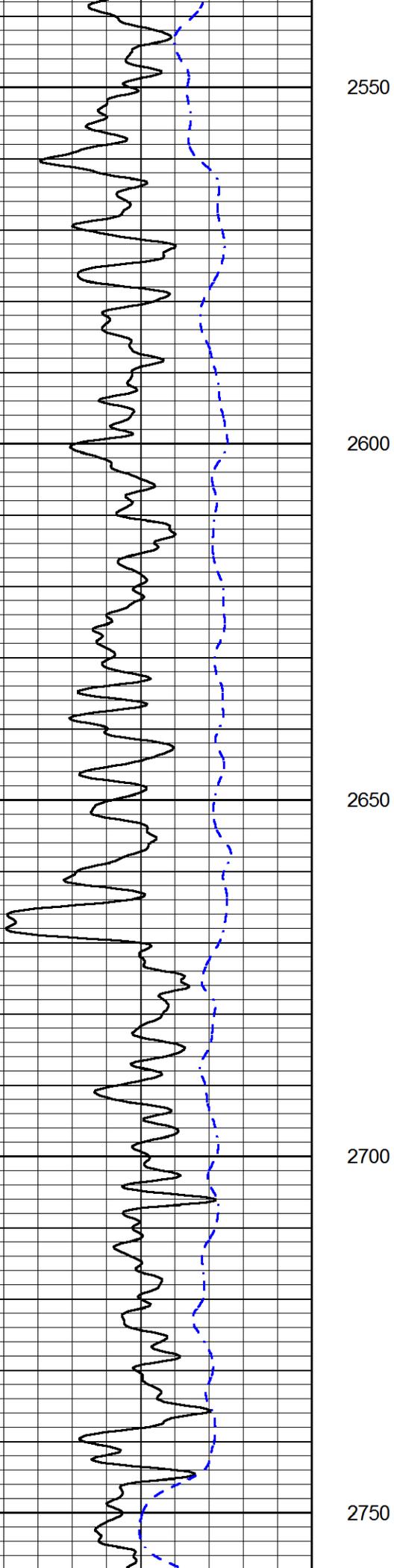
2350

2400

2450

2500





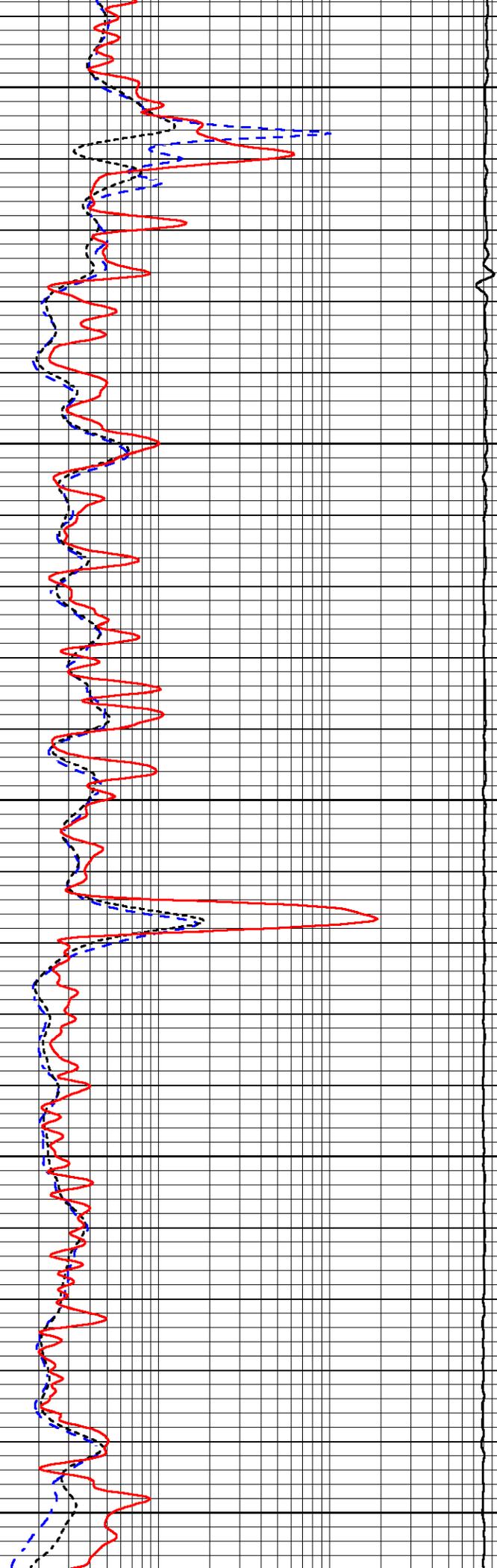
2550

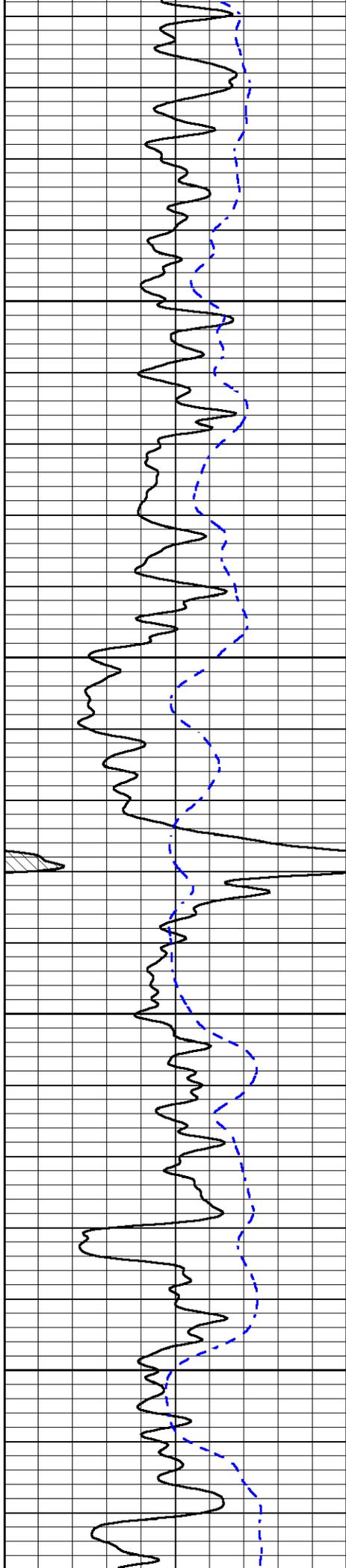
2600

2650

2700

2750



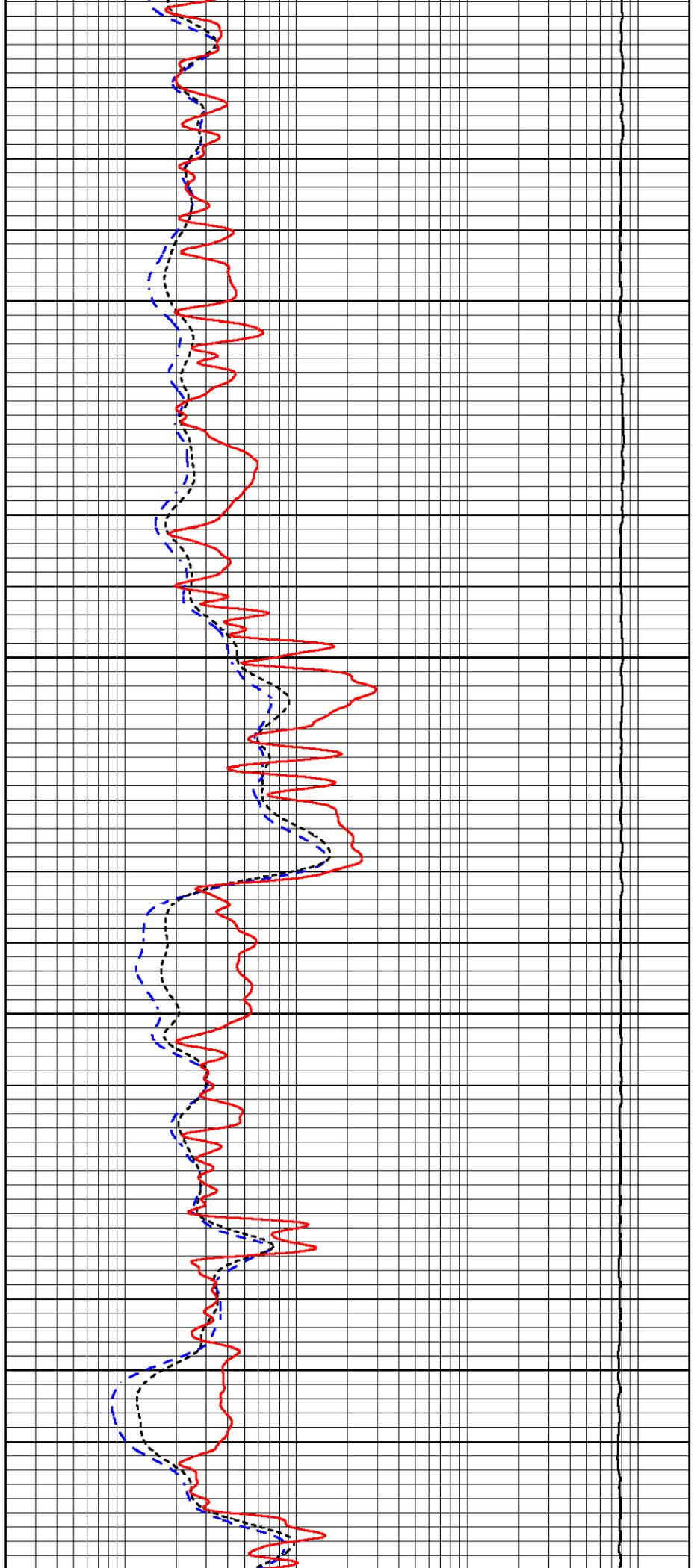


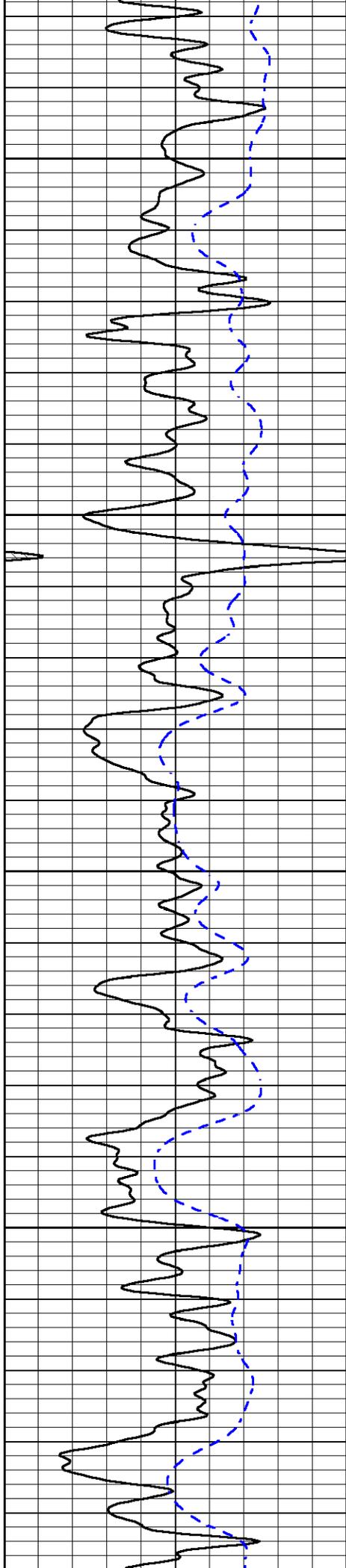
2800

2850

2900

2950



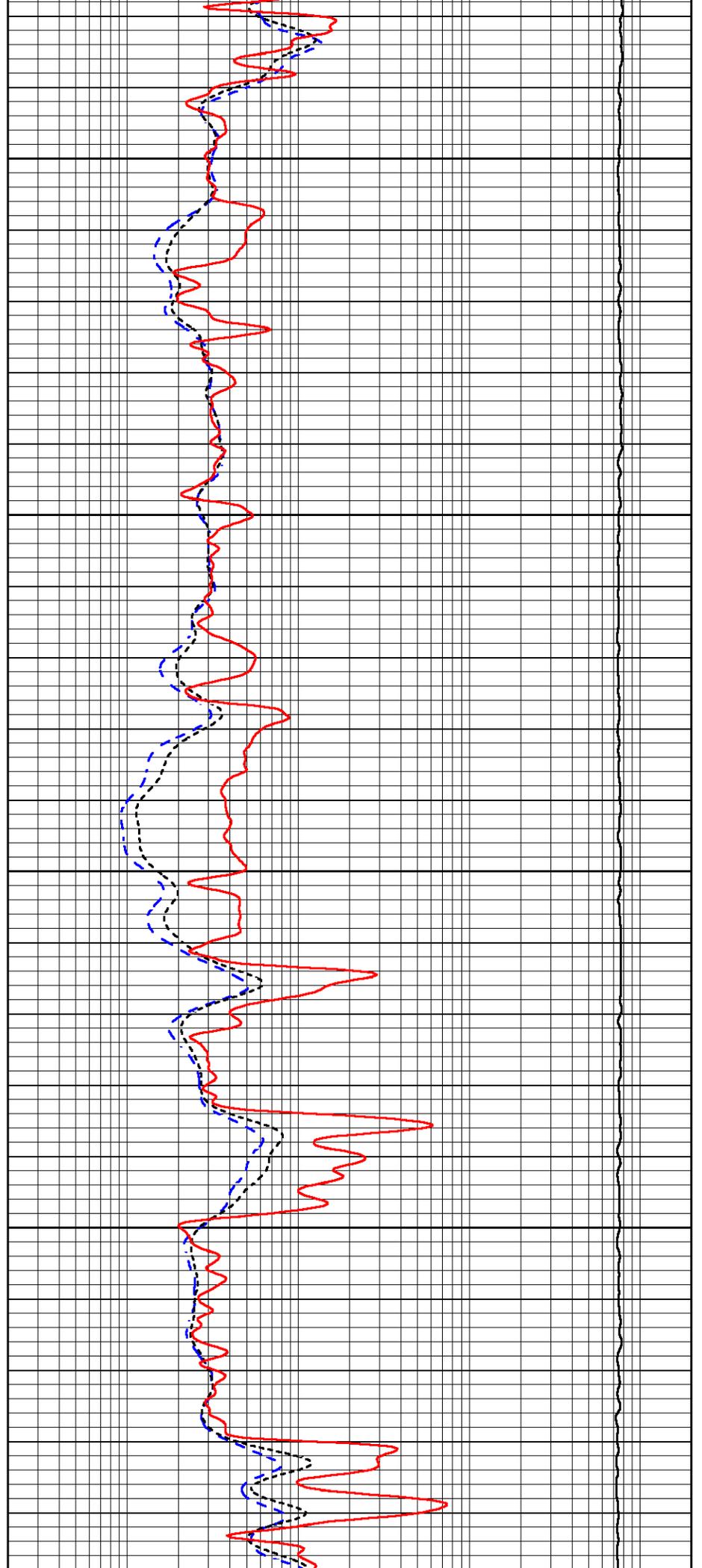


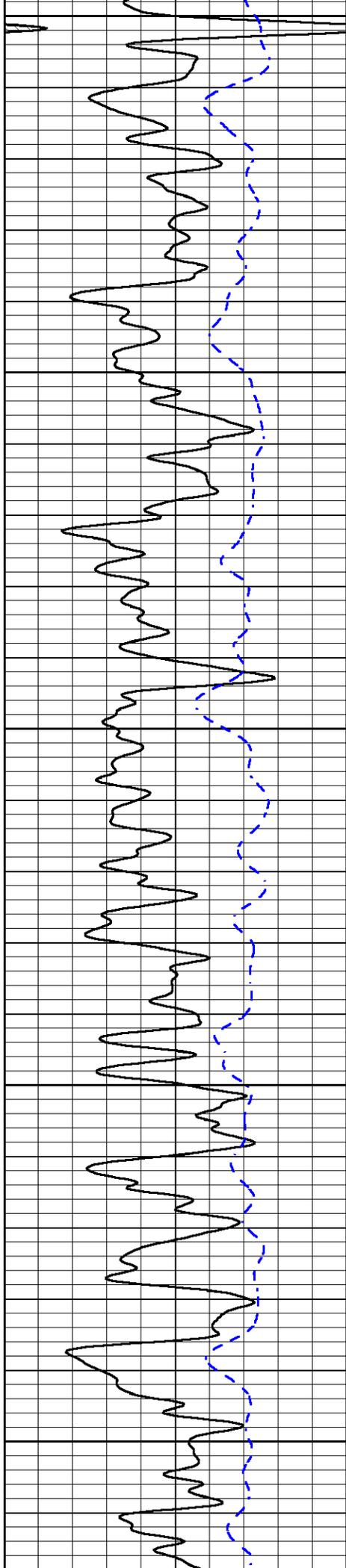
3000

3050

3100

3150





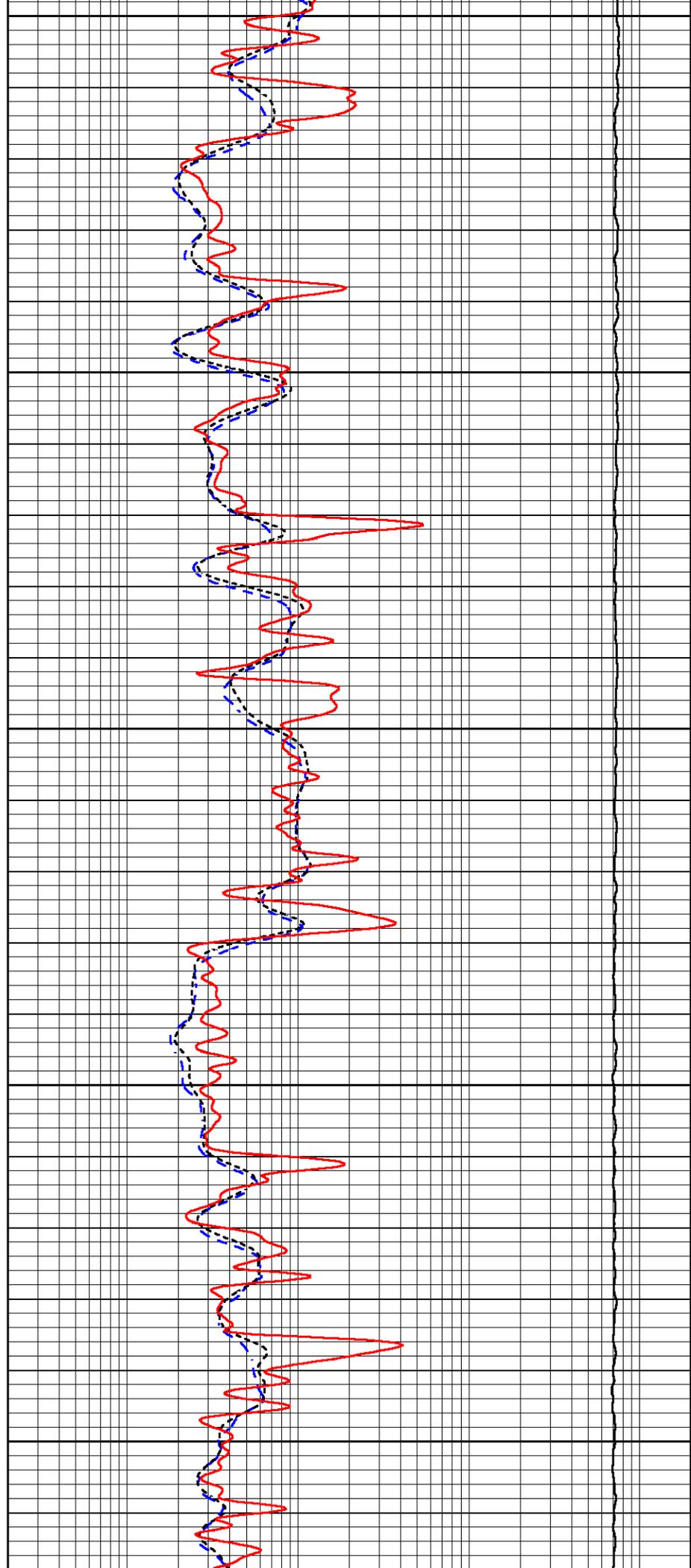
3200

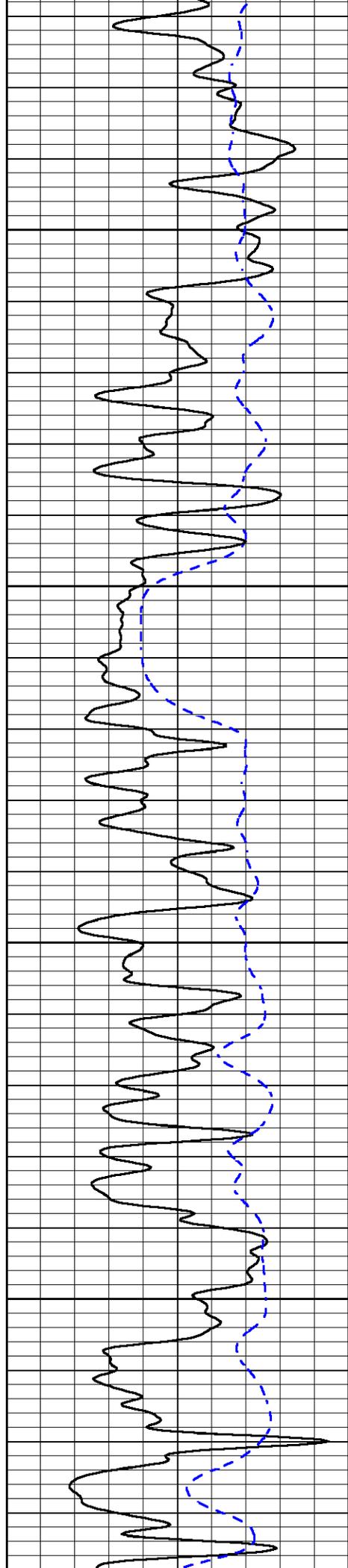
3250

3300

3350

3400



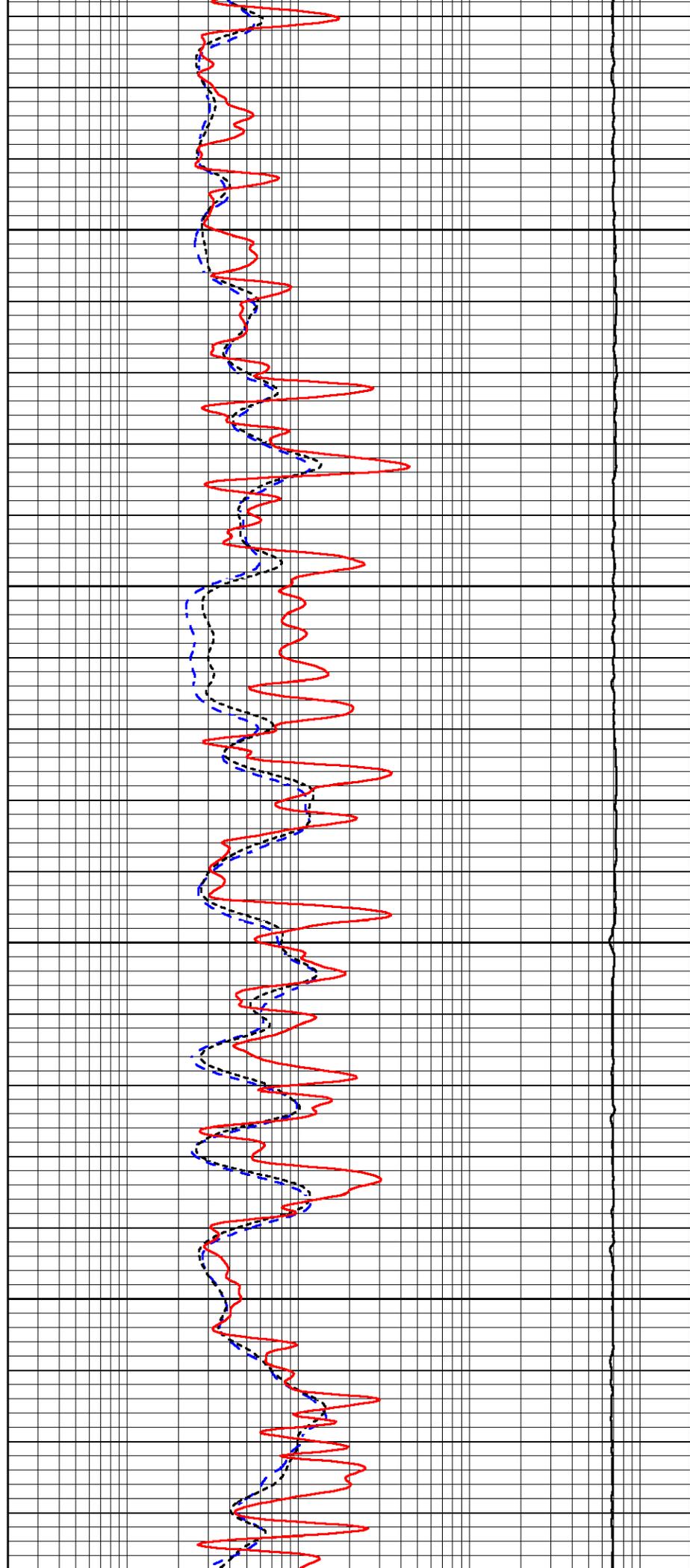


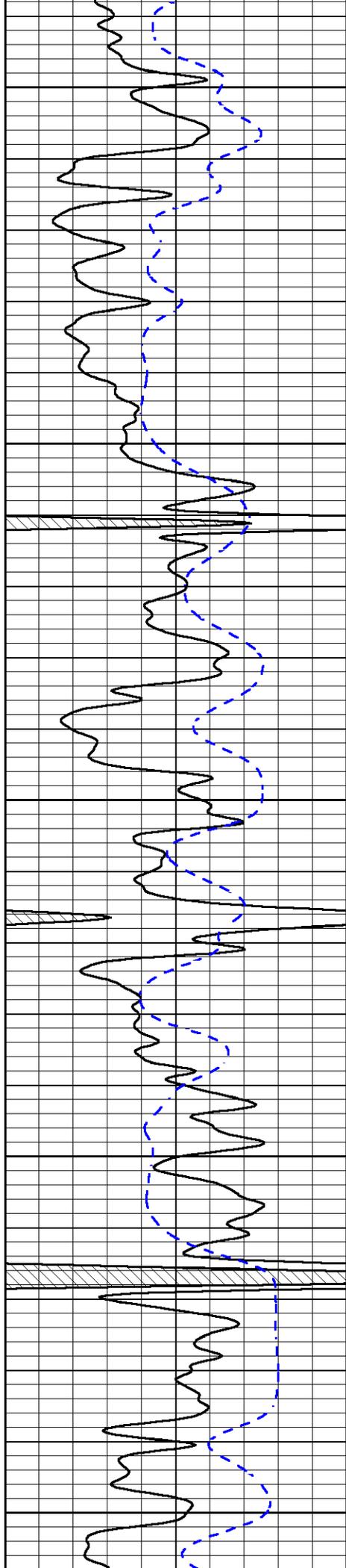
3450

3500

3550

3600





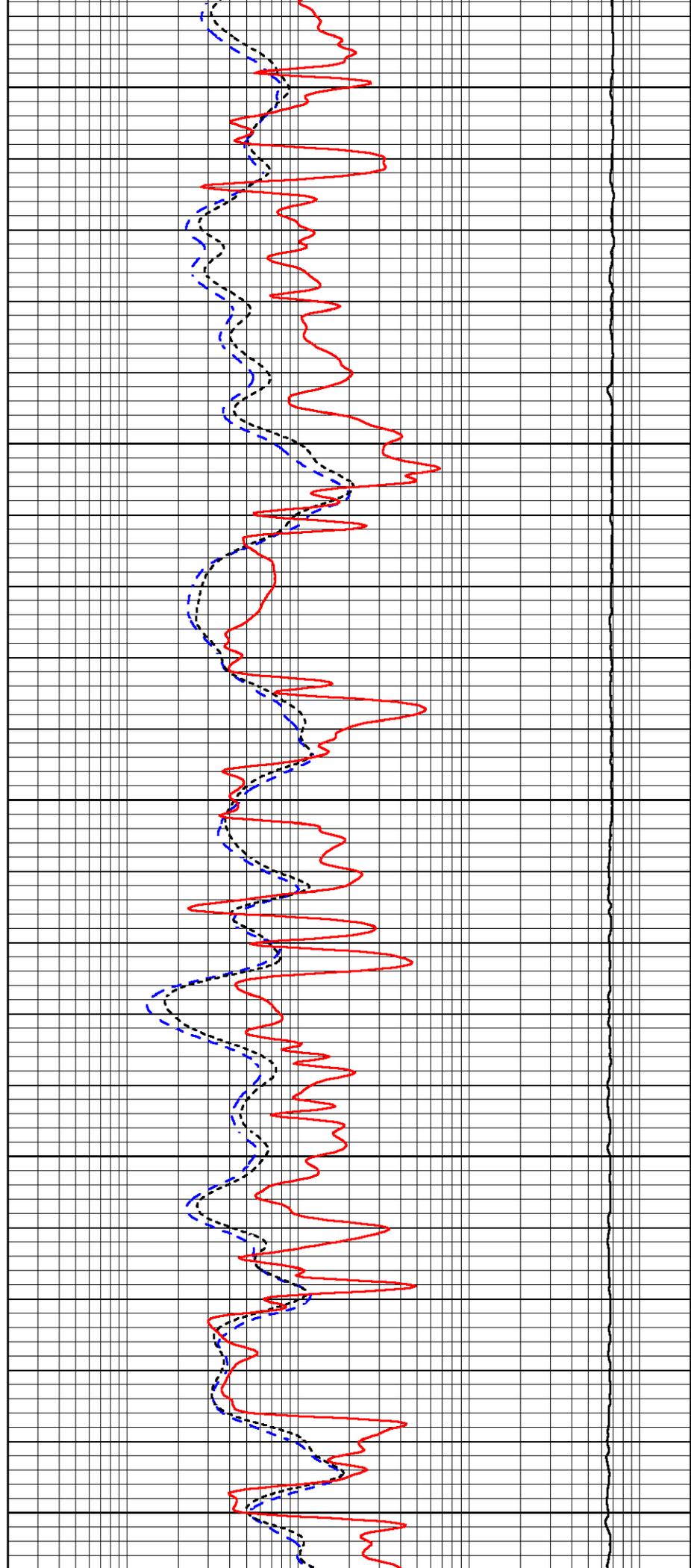
3650

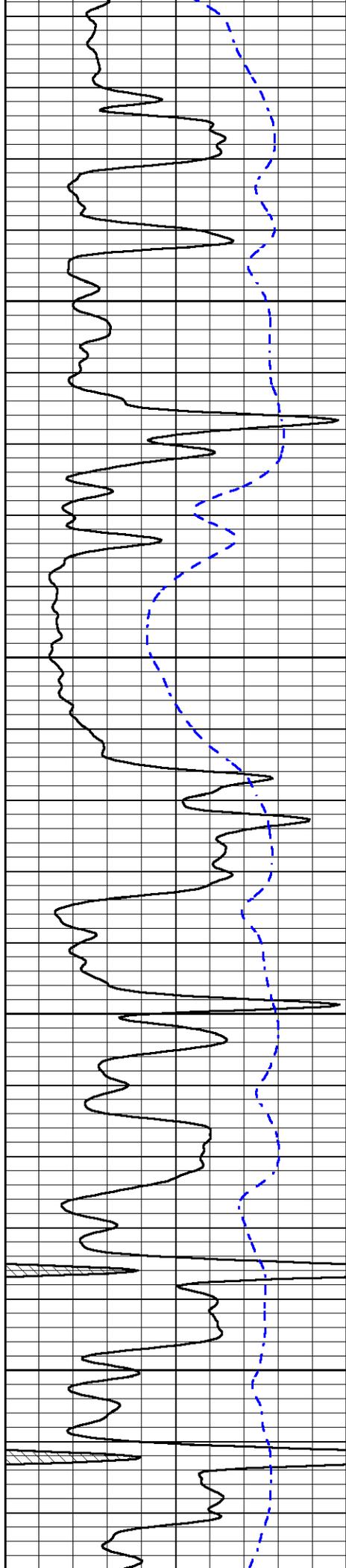
3700

3750

3800

3850



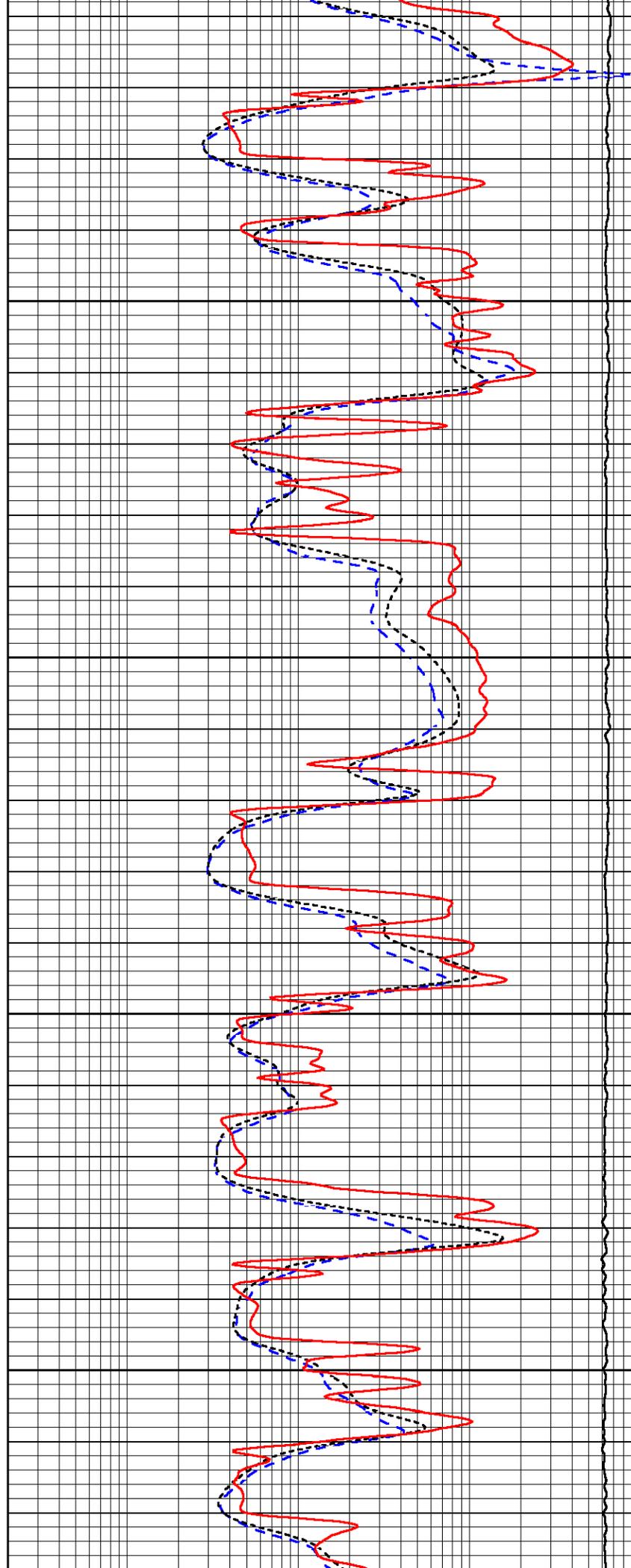


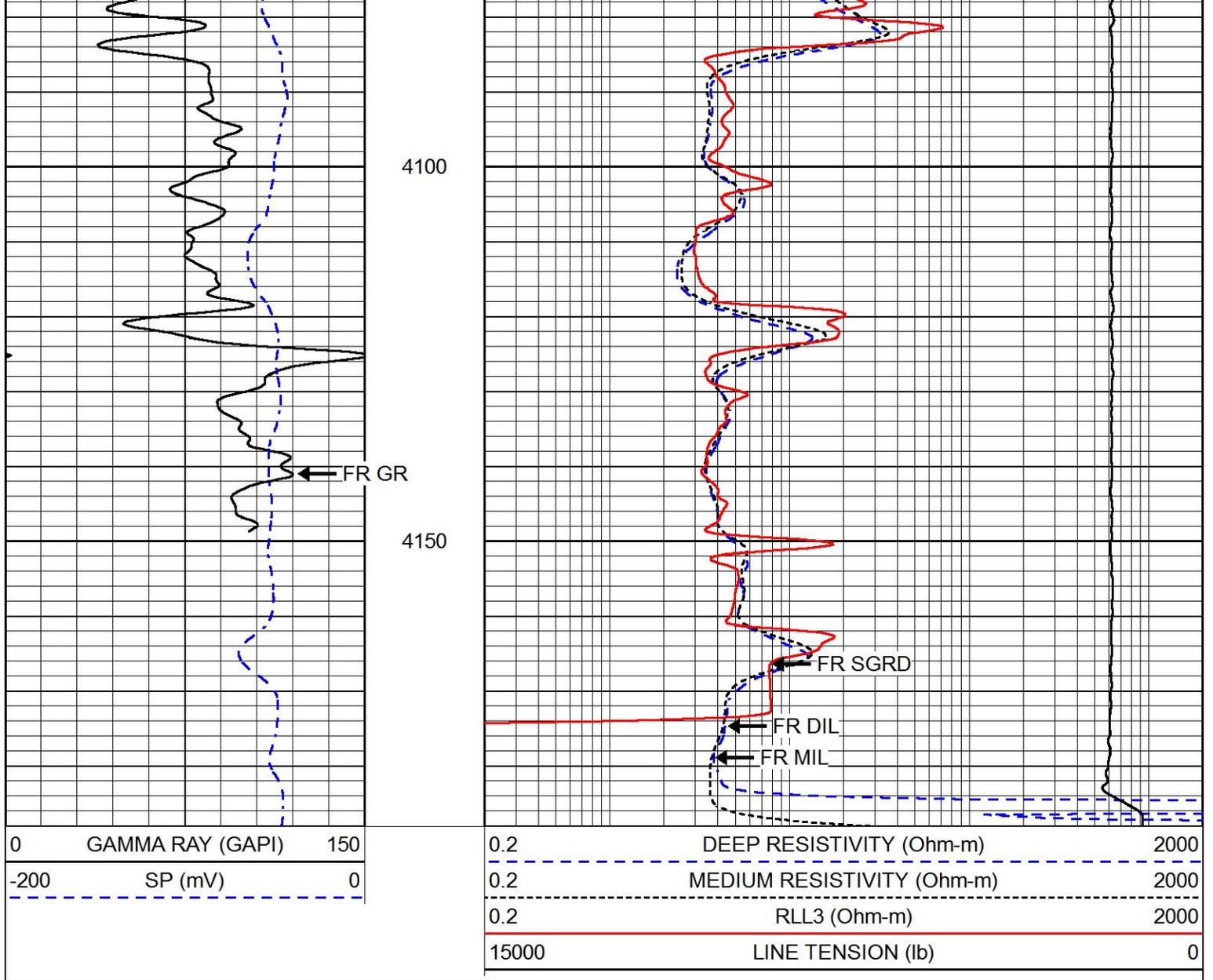
3900

3950

4000

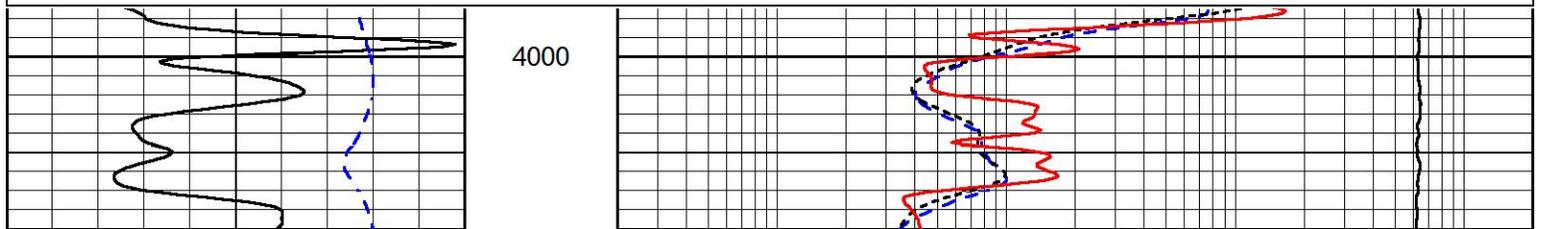
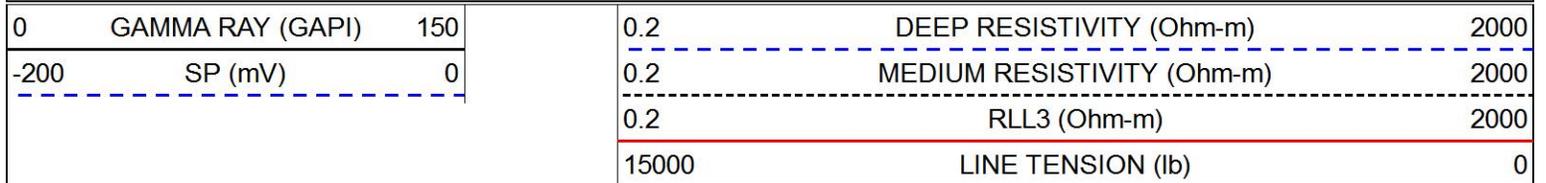
4050

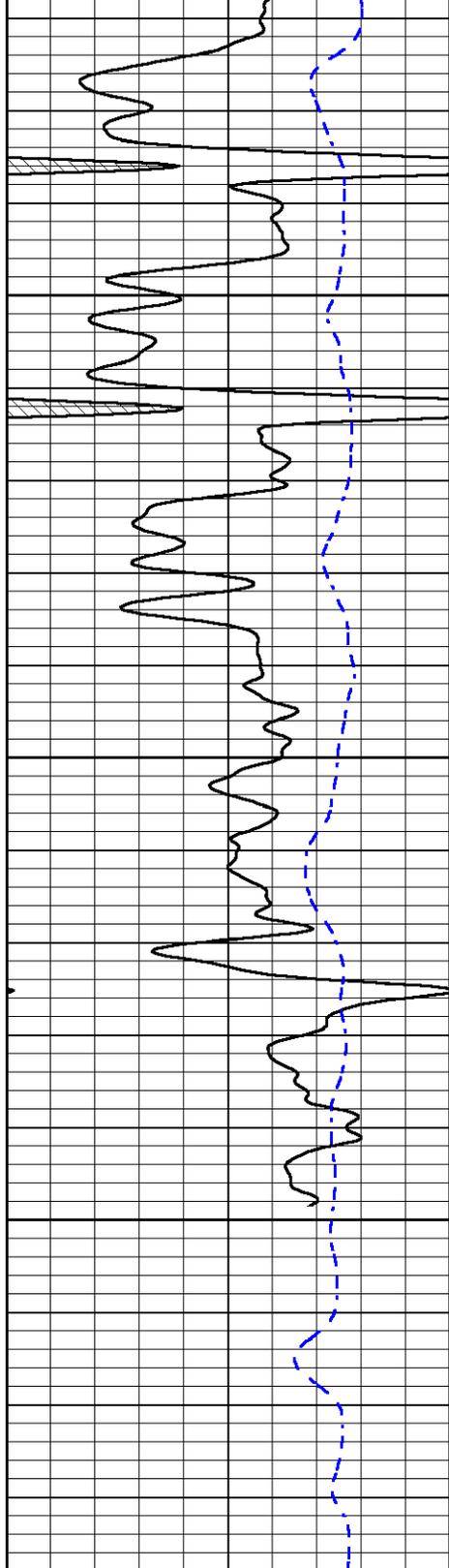




REPEAT SECTION

Database File murfin_popp_1_14.db
 Dataset Pathname stackml/pass2.1
 Presentation Format dil
 Dataset Creation Wed Apr 18 15:22:06 2018
 Charted by Depth in Feet scaled 1:240



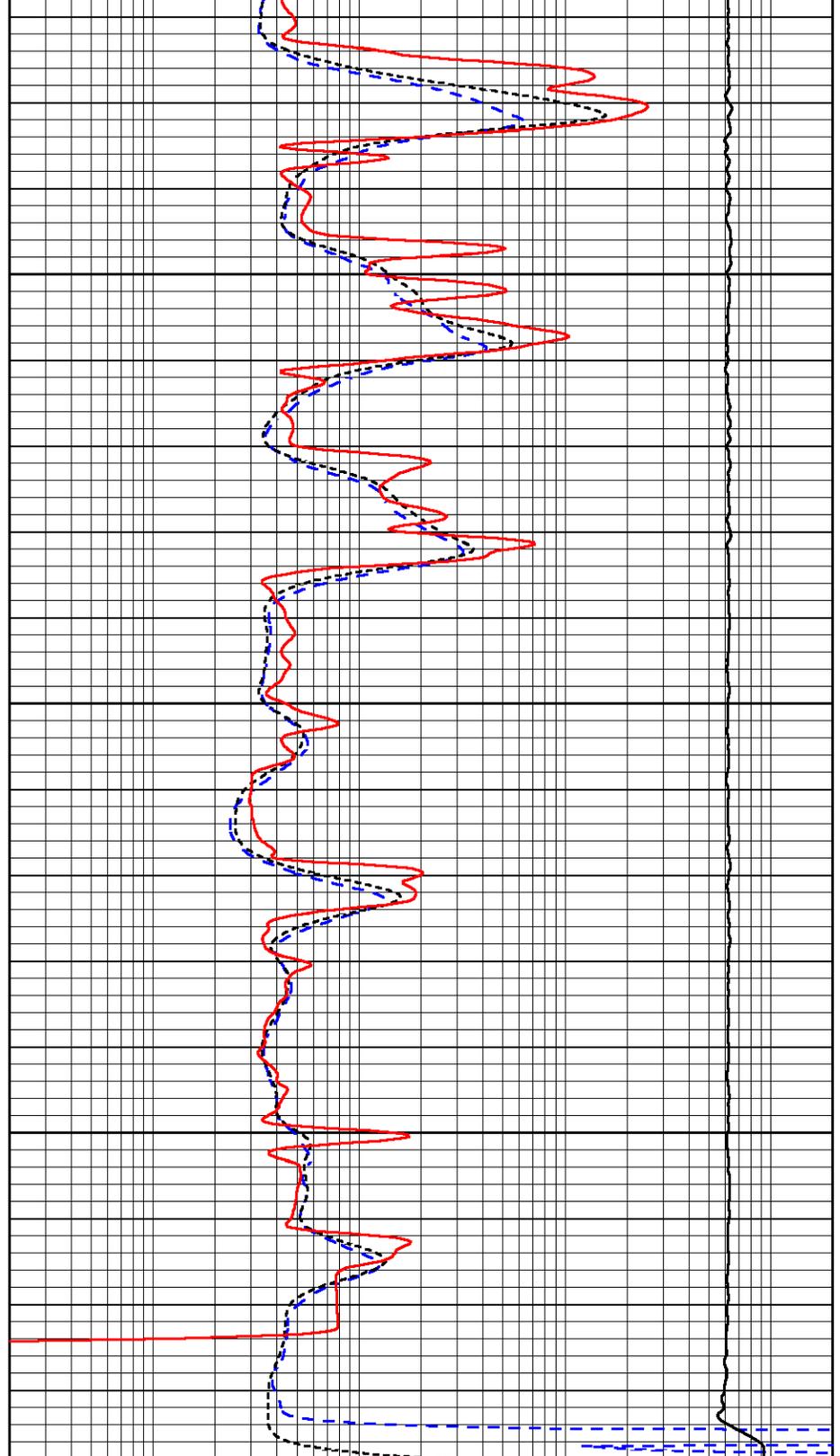


4050

4100

4150

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

Calibration Report

Database File murfin_popp_1_14.db
 Dataset Pathname stackml/pass3.1
 Dataset Creation Wed Apr 18 15:19:52 2018

Serial-Model:
Calibration Performed:

PSI 978-M&W
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	-37.000

Microlog Calibration Report

Serial-Model:
Performed:

PSI-02-PSI STKBL ML
Sat Apr 07 12:01:20 2018

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0031	0.0043	0.0000	10.0000	Ohm-m	20000.0000	-1.0000
Inverse	0.0000	0.0013	0.0000	10.0000	Ohm-m	18000.0000	0.0000
Caliper	1.0020	1.0834	5.5000	16.5000	in	135.1560	-131.7000

Compensated Density Calibration Report

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

168-986-M&W
/
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	2.690	g/cc	859.57	3020.22	cps
Spine Angle = 74.61		Density/Spine Ratio = 0.531			
	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:
Calibrator Reading:

0.0
6.2

cps
cps

Sensitivity:

0.5200

GAPI/cps



PIONEER
Pioneer Energy Services

Company	MURFIN DRILLING COMPANY, INC.
Well	POPP NO. 1-14
Field	GENIE
County	SHERIDAN
State	KANSAS