



PIONEER
Pioneer Energy Services

DUAL INDUCTION LOG

Company AMERICAN WARRIOR, INC.
Well HICKS "A" NO. 1-24
Field WILDCAT
County FINNEY
State KANSAS

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Well HICKS "A" NO. 1-24
Field WILDCAT
County FINNEY State KANSAS

Location: API #: 15-055-22447-00-00

2,469' FNL & 335' FWL

SEC 24 TWP 25S RGE 32W

Permanent Datum GROUND LEVEL Elevation 2880'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Other Services
CNL/CDL
MEL/BHCS
Elevation
K.B. 2892'
D.F. N/A
G.L. 2880'

Date 1/8/2017

Run Number ONE

Depth Driller 5000'

Depth Logger 5000'

Bottom Logged Interval 4999'

Top Log Interval 1600'

Casing Driller 8,625" @ 1660'

Casing Logger 1614'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 1450

Density / Viscosity 9.55 59

pH / Fluid Loss 10.5 7.6

Source of Sample FLOWLINE

Rm @ Meas. Temp .90 @ 64

Rmt @ Meas. Temp .68 @ 64

Rmc @ Meas. Temp 1.22 @ 64

Source of Rmt / Rmc CHARTS

Rm @ BHT .46 @ 126

Operating Rig Time 4 1/2 HOURS

Max Rec. Temp. F 126 DEG F.

Equipment Number 108

Location COLBY

Recorded By J. LONG

Witnessed By KEVIN TIMSON

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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.

GARDEN CITY, SOUTH TO ANNIE SCHEER ROAD, 4 1/4 EAST, NORTH INTO

Log Measured From: KELLY BUSHING

12 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES

www.pioneerenergy.com

785-625-3858

Your Pioneer Energy Services Crew

Engineer: J. LONG
Operator: C. PFEIFER
Operator: J. RUIZ
Operator:

This Log Record Was Witnessed By

Primary Witness: KEVIN TIMSON
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 126	in 5.5	in 0	g/cc 1	2	g/cc 2.71
NPORSEL	PERFS	SNDERR	SNDERRM	SPSHIFT	SRFTEMP	SZCOR	TDEPTH
Limestone	0	mmho/m 0	mmho/m 0	mV -320	degF 12	Off	ft 5000

Sensor	Offset (ft)	Schematic		Description	Length (ft)	O.D. (in)	Weight (lb)
GR	33.00			GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC CNSSC	29.90			CNT-M&W (tk10-MW)	5.50	3.50	100.00
	29.15						
LSD DCAL SSD	20.85			CDL-M&W (71-914)	8.50	4.00	250.00
	20.83						
	20.35						
RLL3 RLL3F	15.80 15.79			DIL-M&W (1987)	18.50	3.50	220.00
CILD	8.00						

CILM	4.70								
SP	0.20								
Dataset: amwarrior_hicks_a_1-24.db: field/well/stack/pass3.17 Total length: 35.50 ft Total weight: 620.00 lb O.D.: 4.00 in									

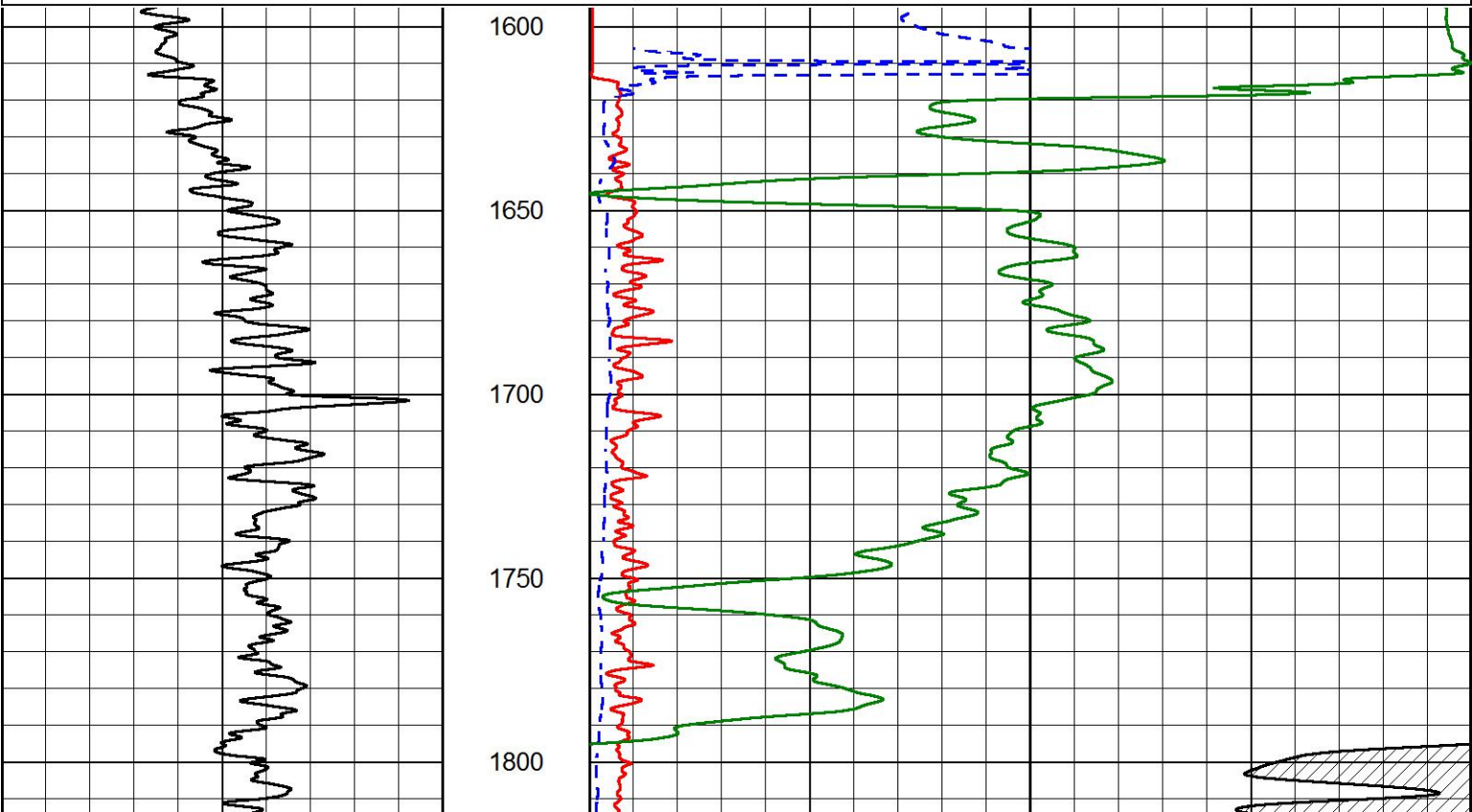


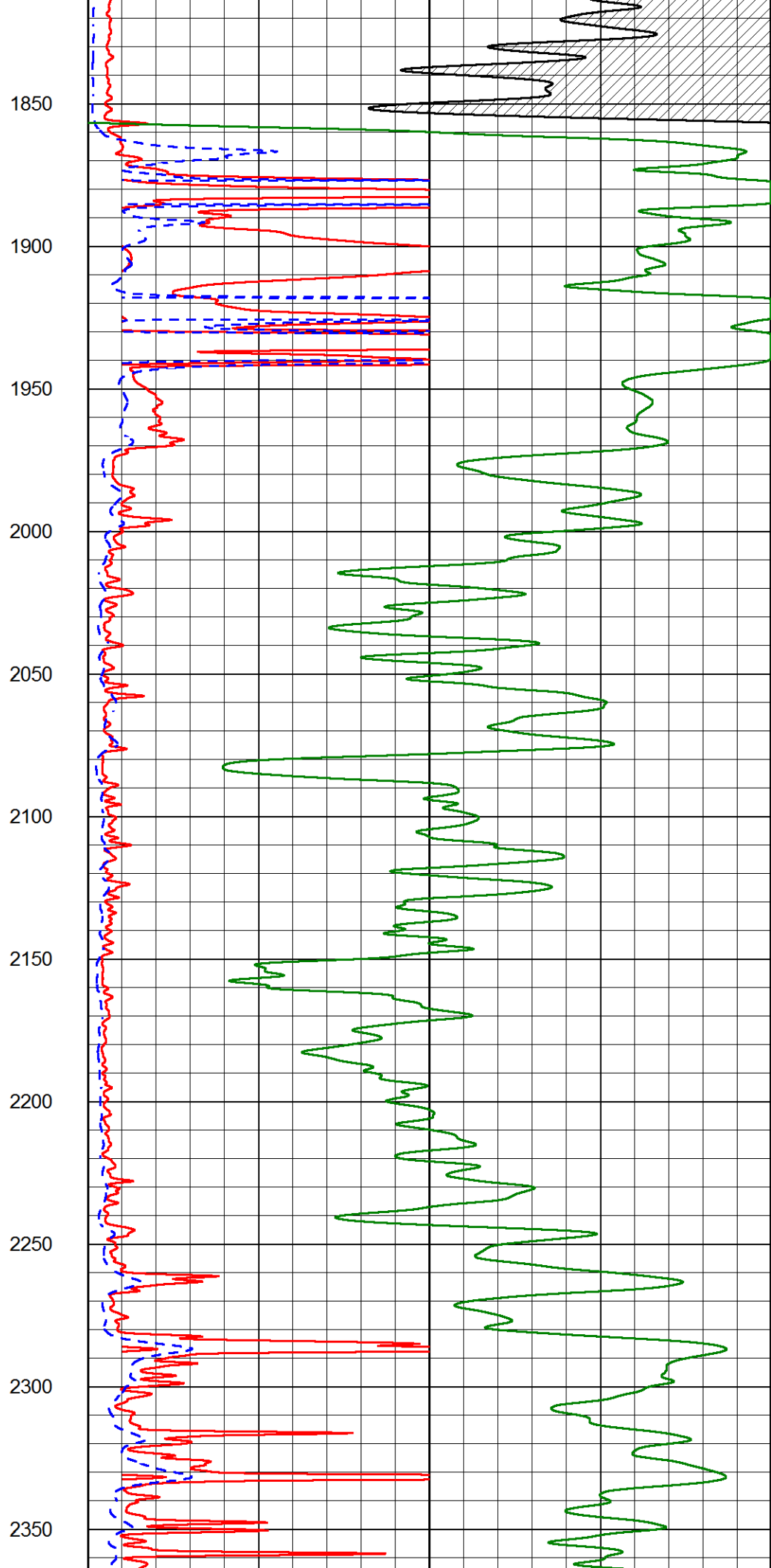
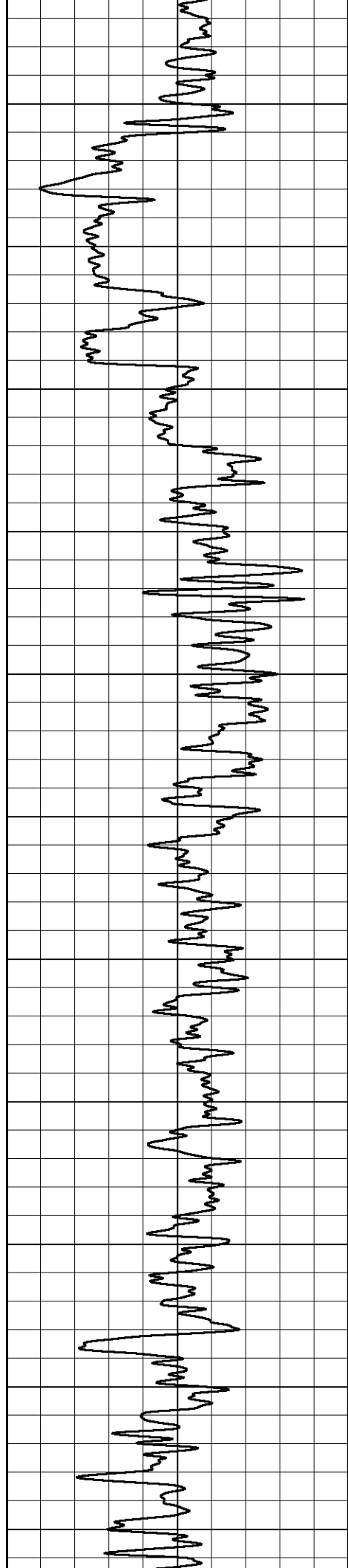
2" SCALE RESISTIVITY

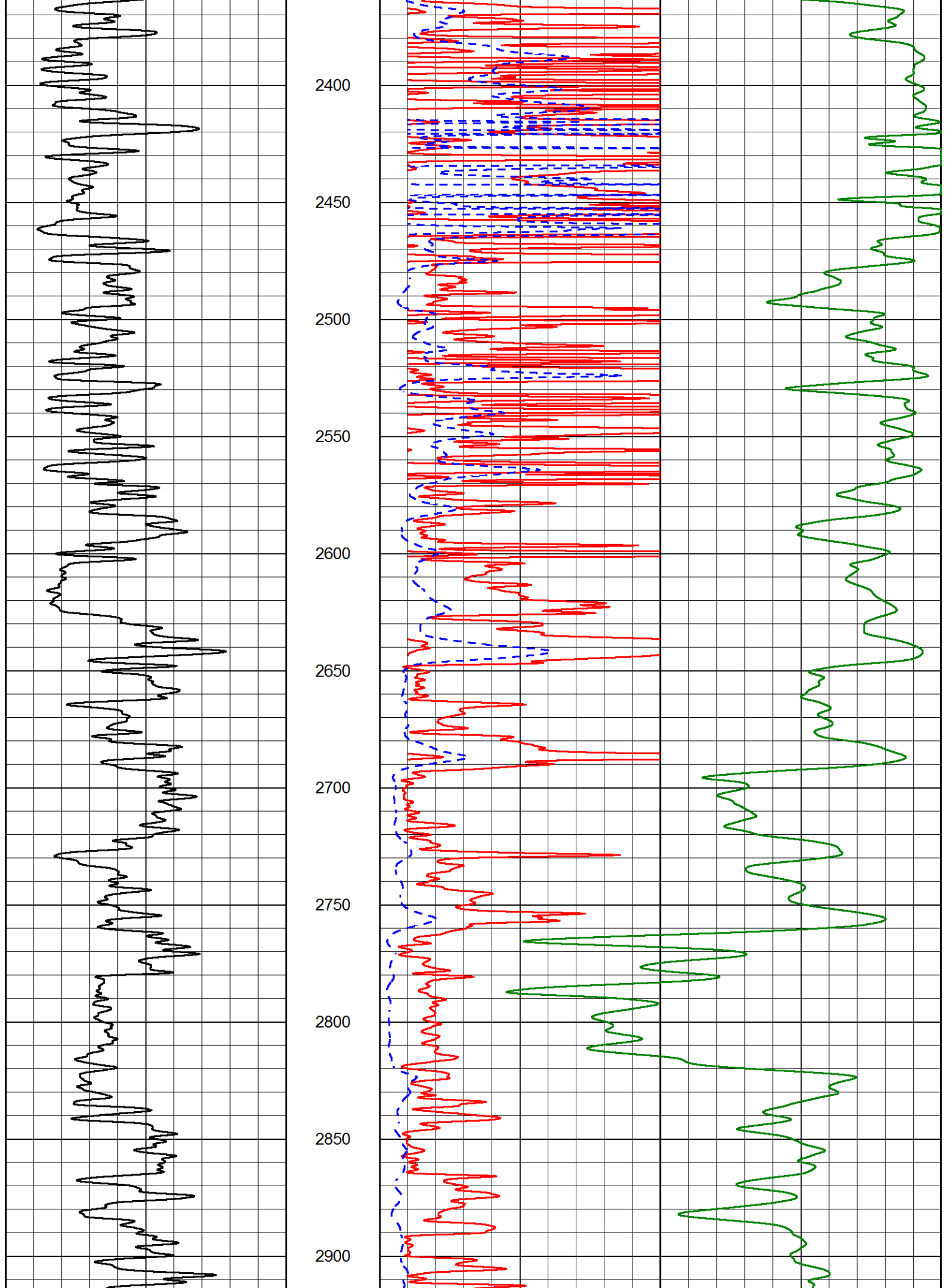
MAIN PASS

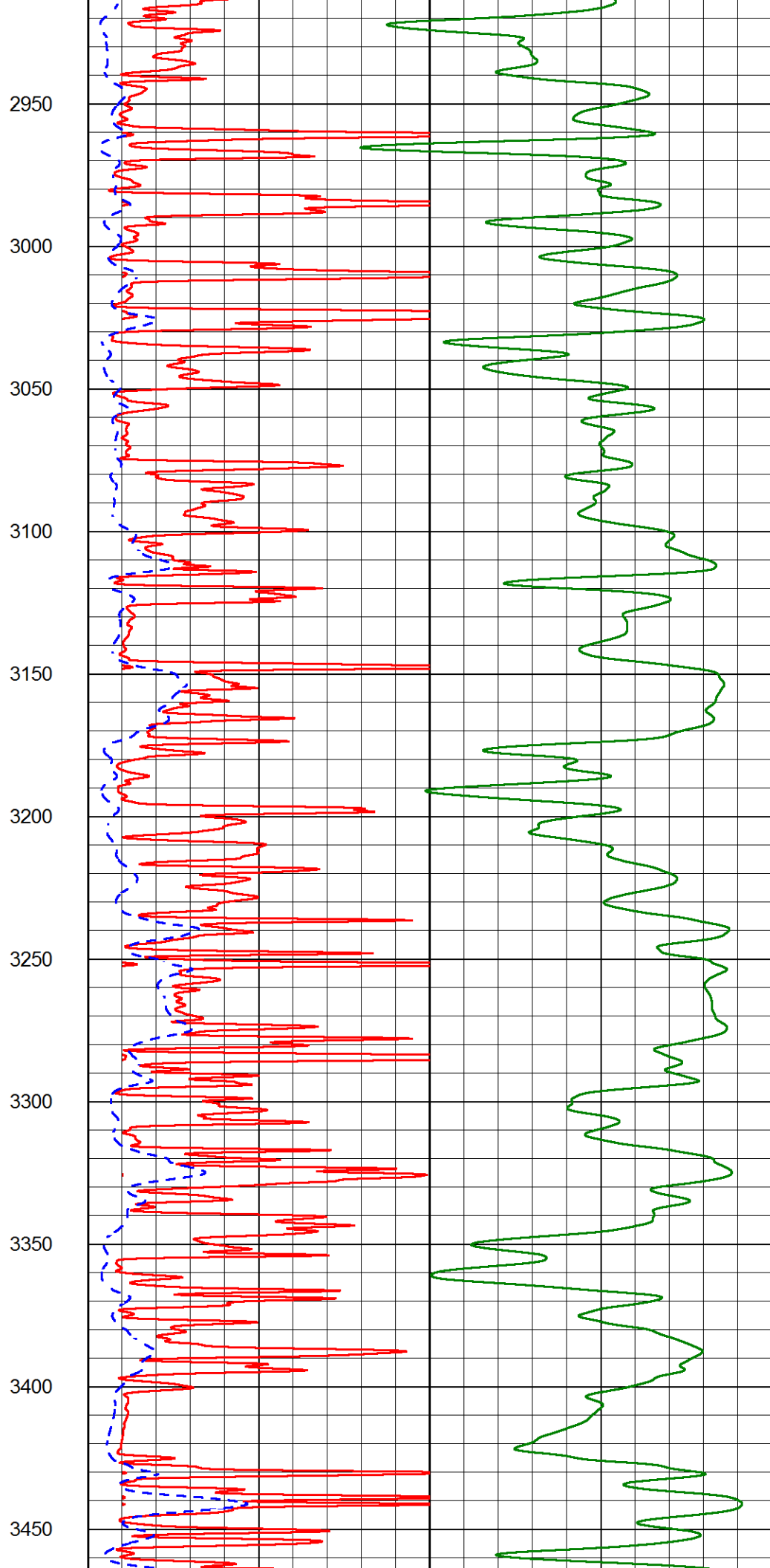
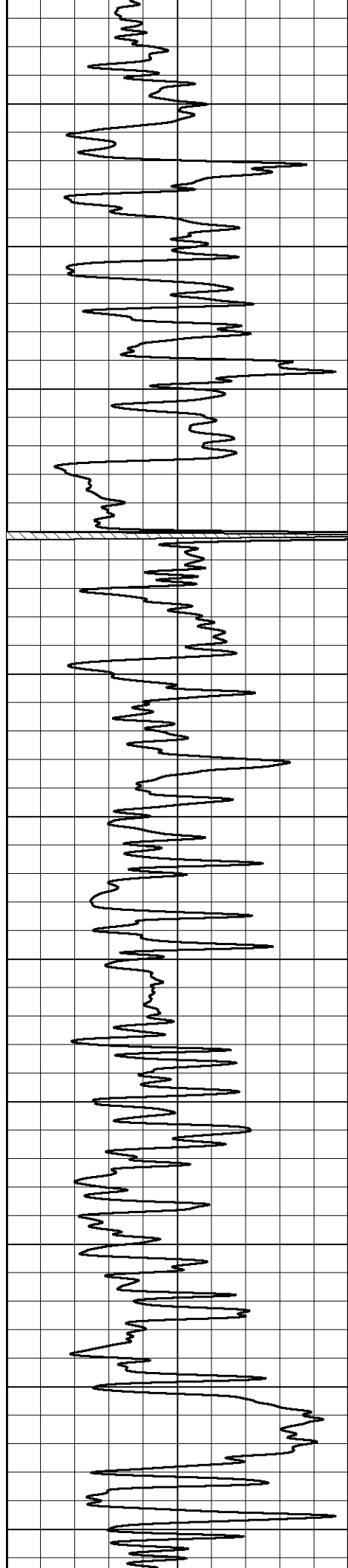
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Presentation Format	dil2in
Dataset Creation	Sun Jan 08 02:51:16 2017
Charted by	Depth in Feet scaled 1:600

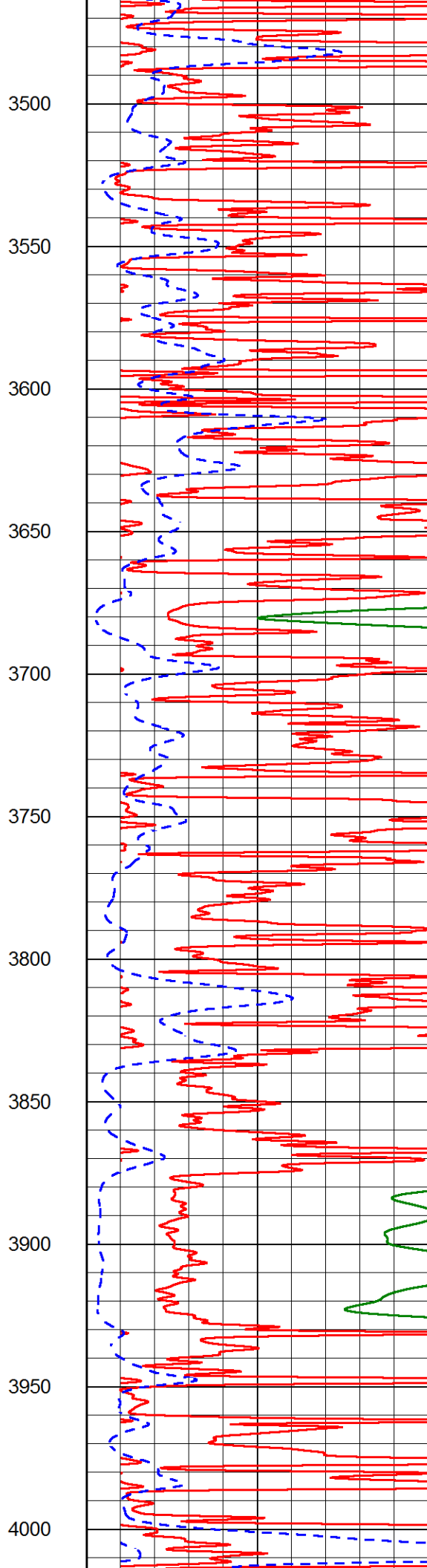
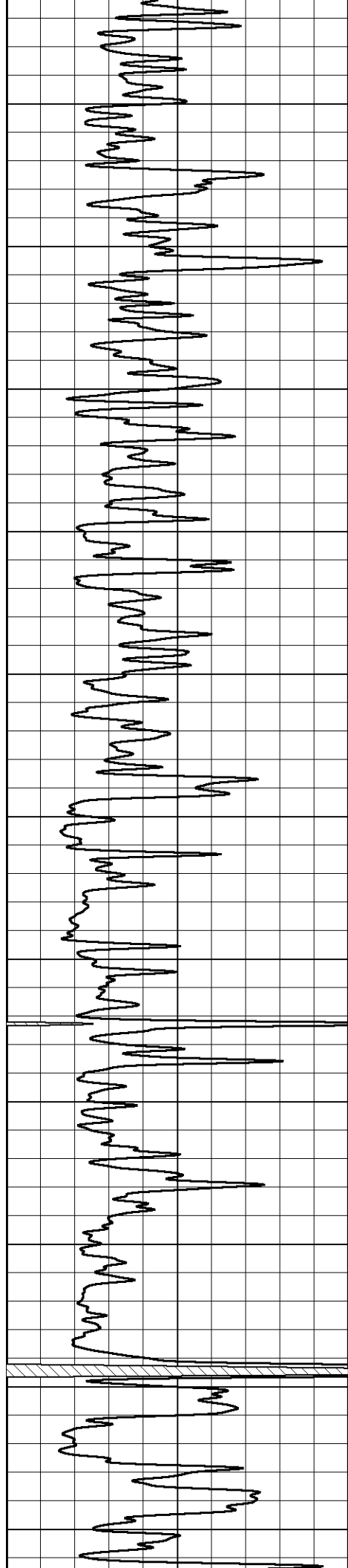
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			SHALLOW RESISTIVITY		
			0	(Ohm-m)	50
			0	DEEP RESISTIVITY (Ohm-m)	50
			SHALLOW RESISTIVITY		
			50	(Ohm-m)	500
			DEEP RESISTIVITY		
			50	(Ohm-m)	500

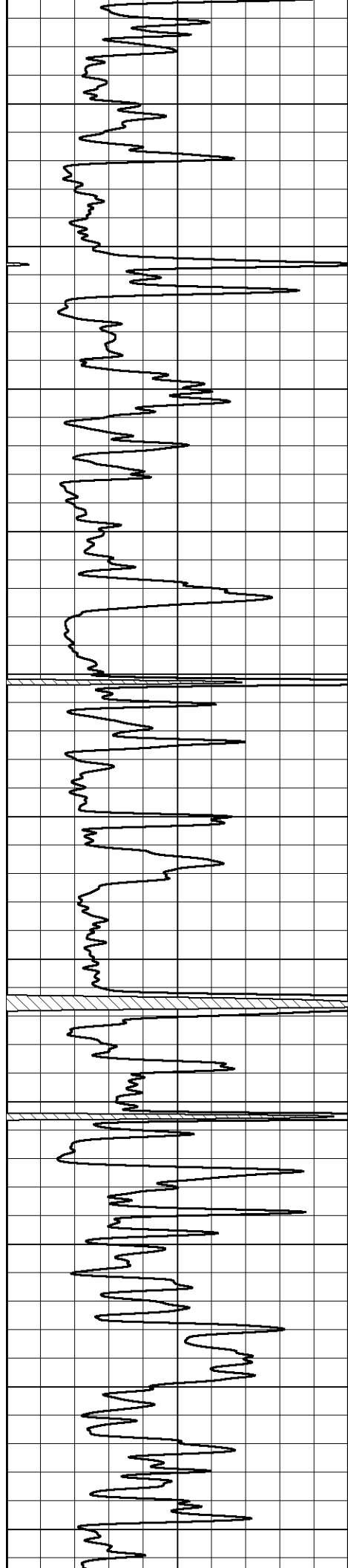












4050

4100

4150

4200

4250

4300

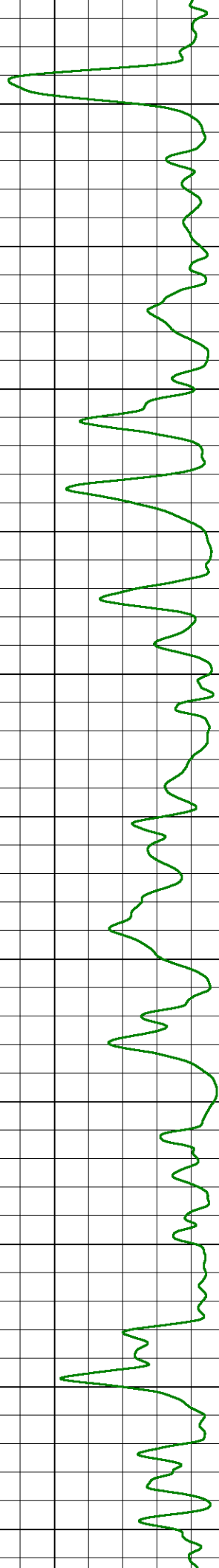
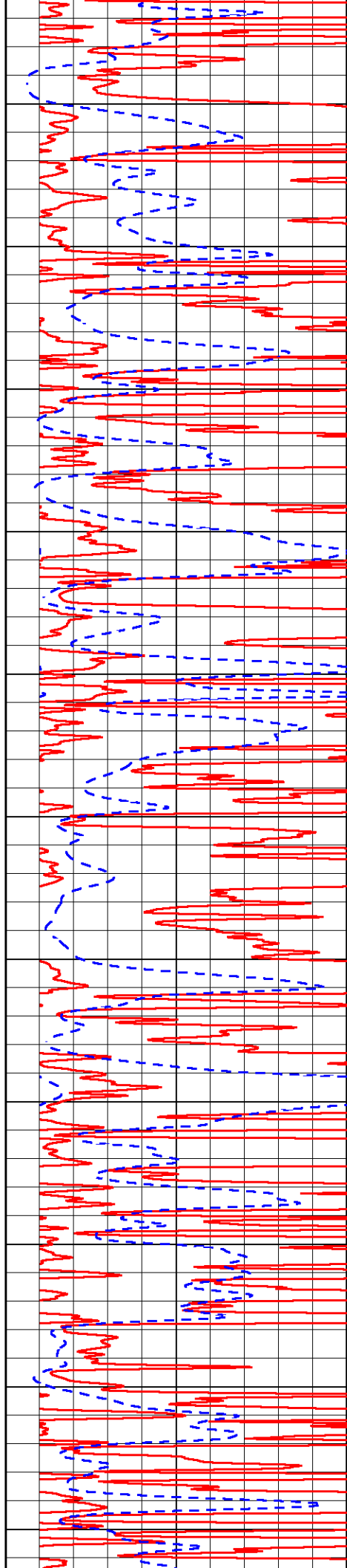
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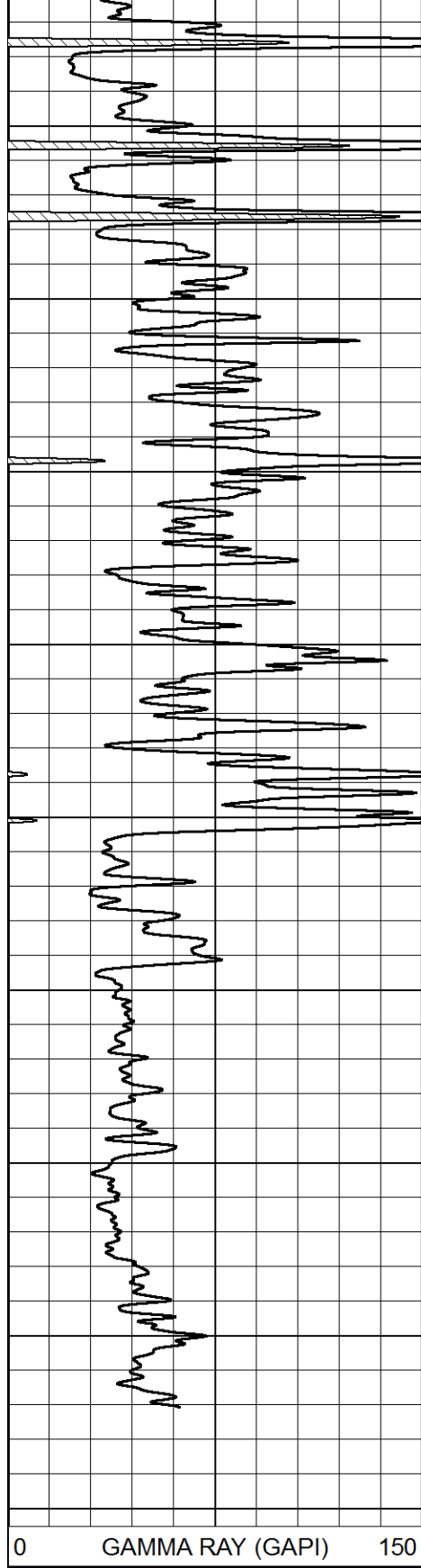
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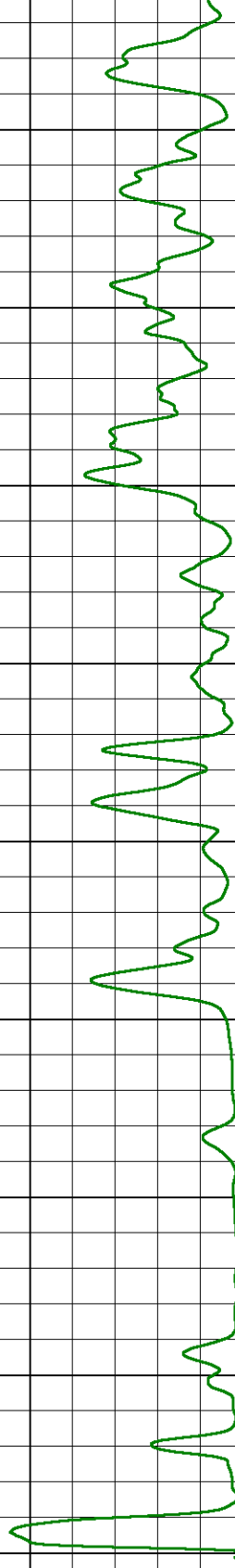
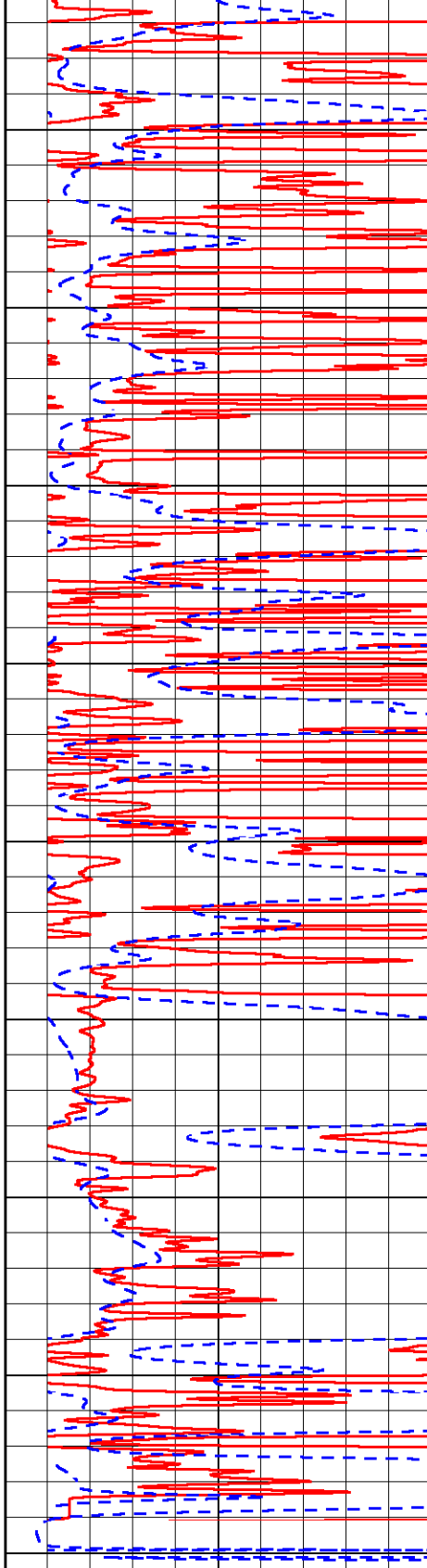
4500

4550





4600
4650
4700
4750
4800
4850
4900
4950
5000



0 GAMMA RAY (GAPI) 150

1000 CONDUCTIVITY (mmho/m) 0

SHALLOW RESISTIVITY		
0	(Ohm-m)	50
DEEP RESISTIVITY (Ohm-m) 50		
SHALLOW RESISTIVITY		
50	(Ohm-m)	500
DEEP RESISTIVITY		
50	(Ohm-m)	500

PIONEER

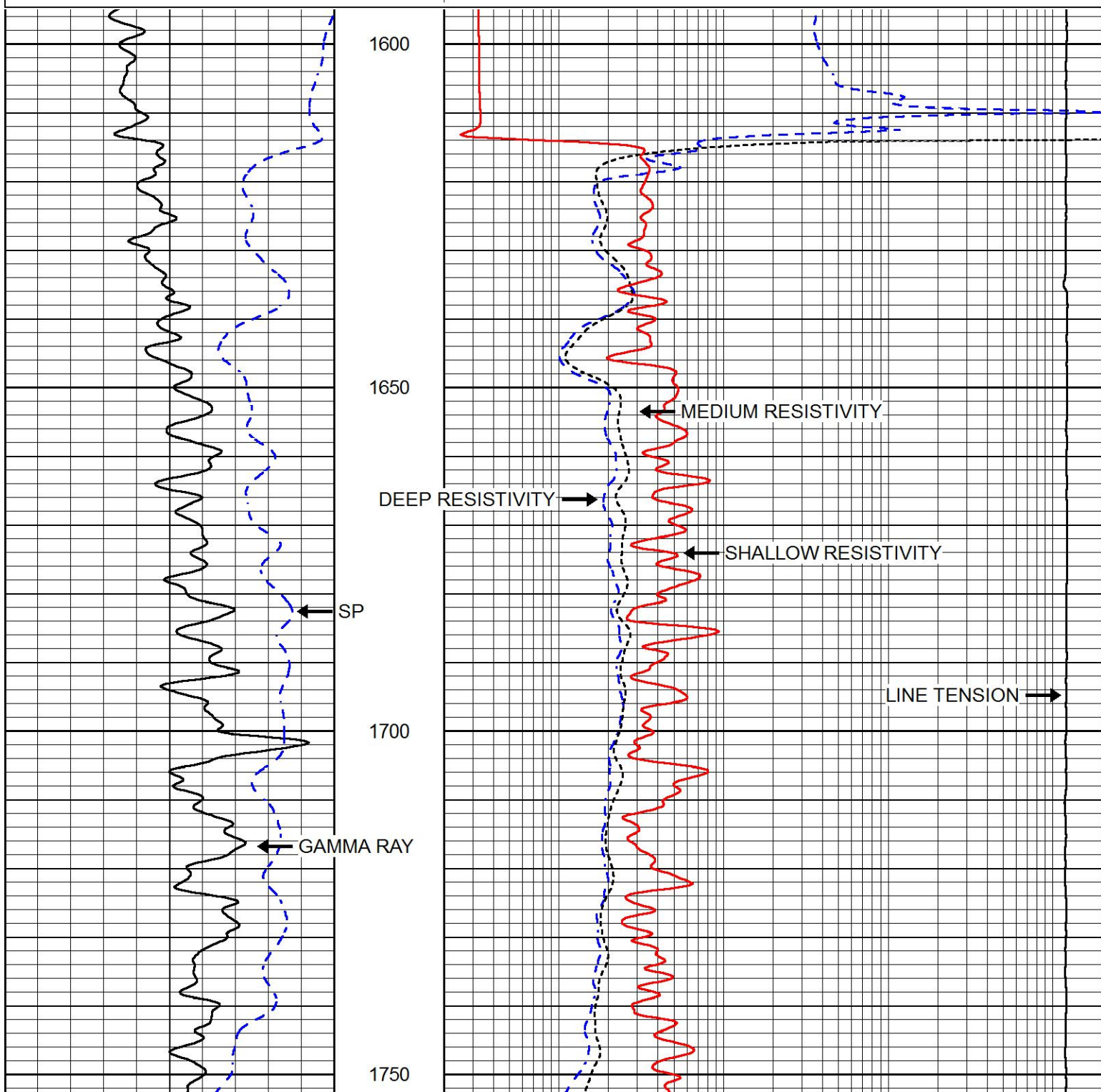
Pioneer Energy Services

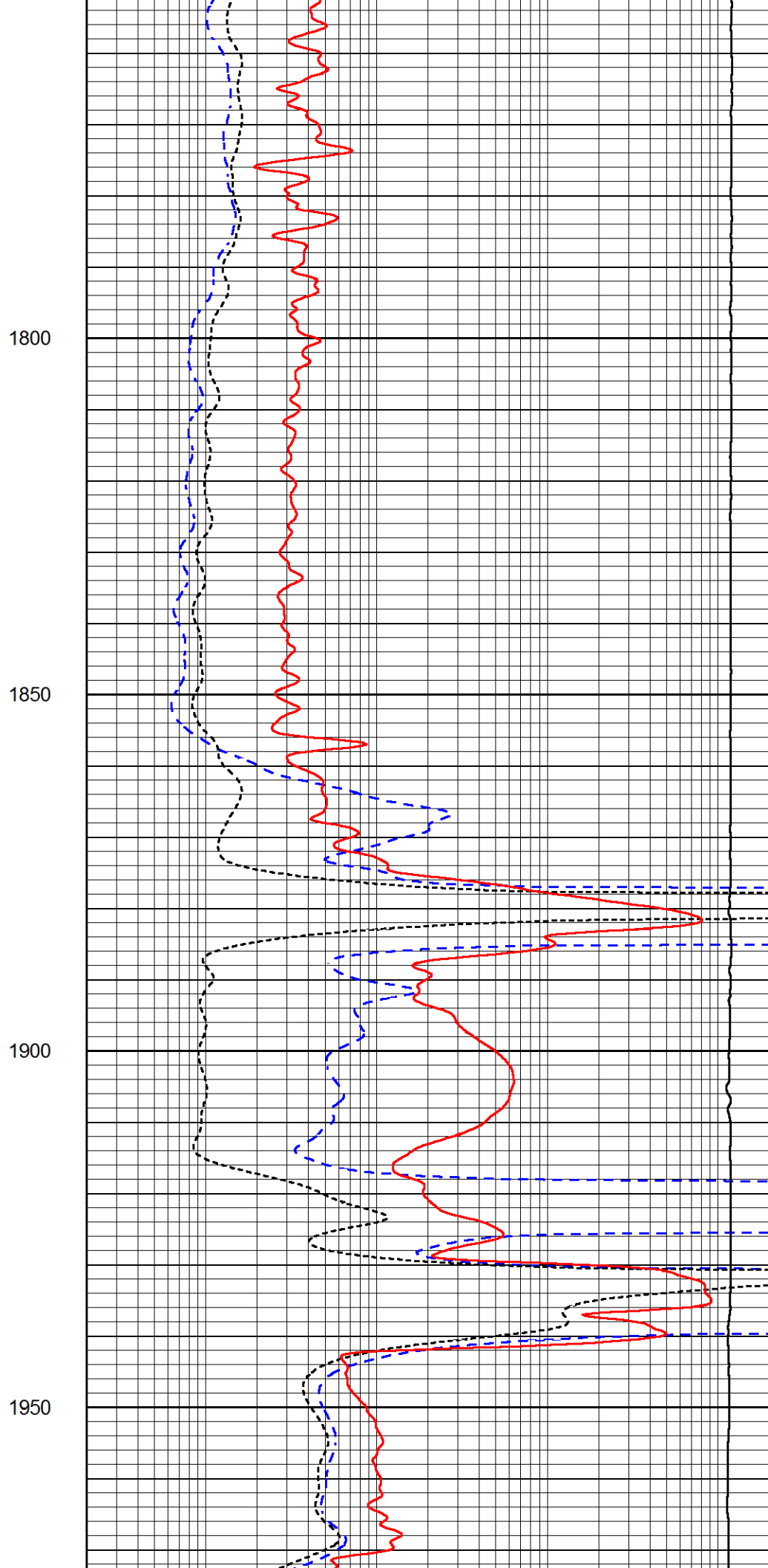
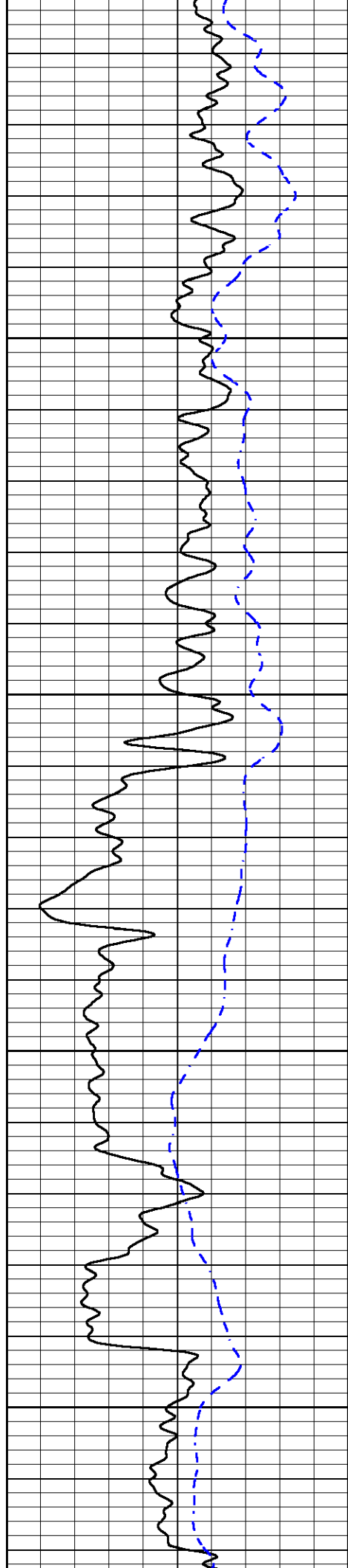
MAIN PASS

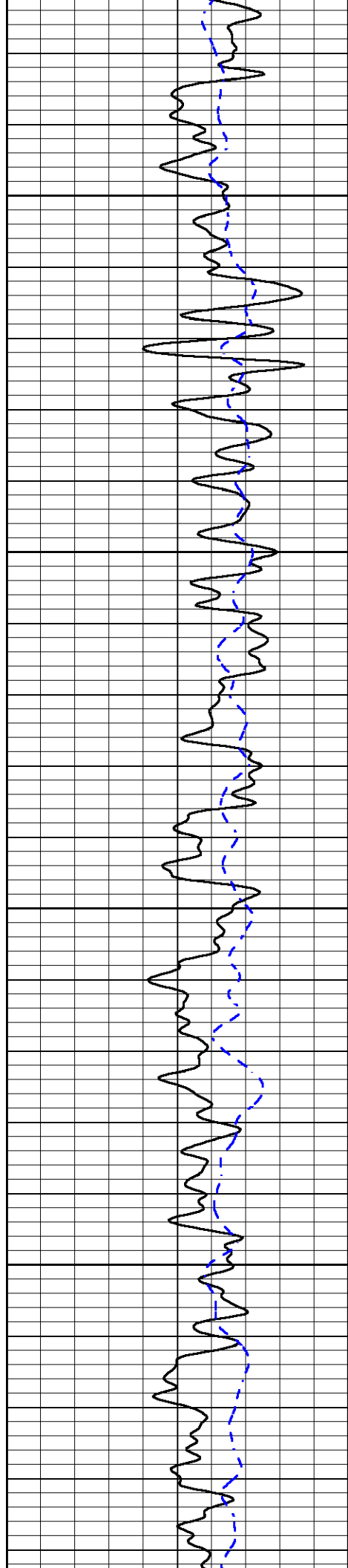
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Dataset Pathname stack/pass3.1
Presentation Format dil
Dataset Creation Sun Jan 08 02:50:28 2017
Charted by Depth in Feet scaled 1:240

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	SHALLOW RESISTIVITY (Ohm-m)	2000
15000	LINE TENSION (lb)	0





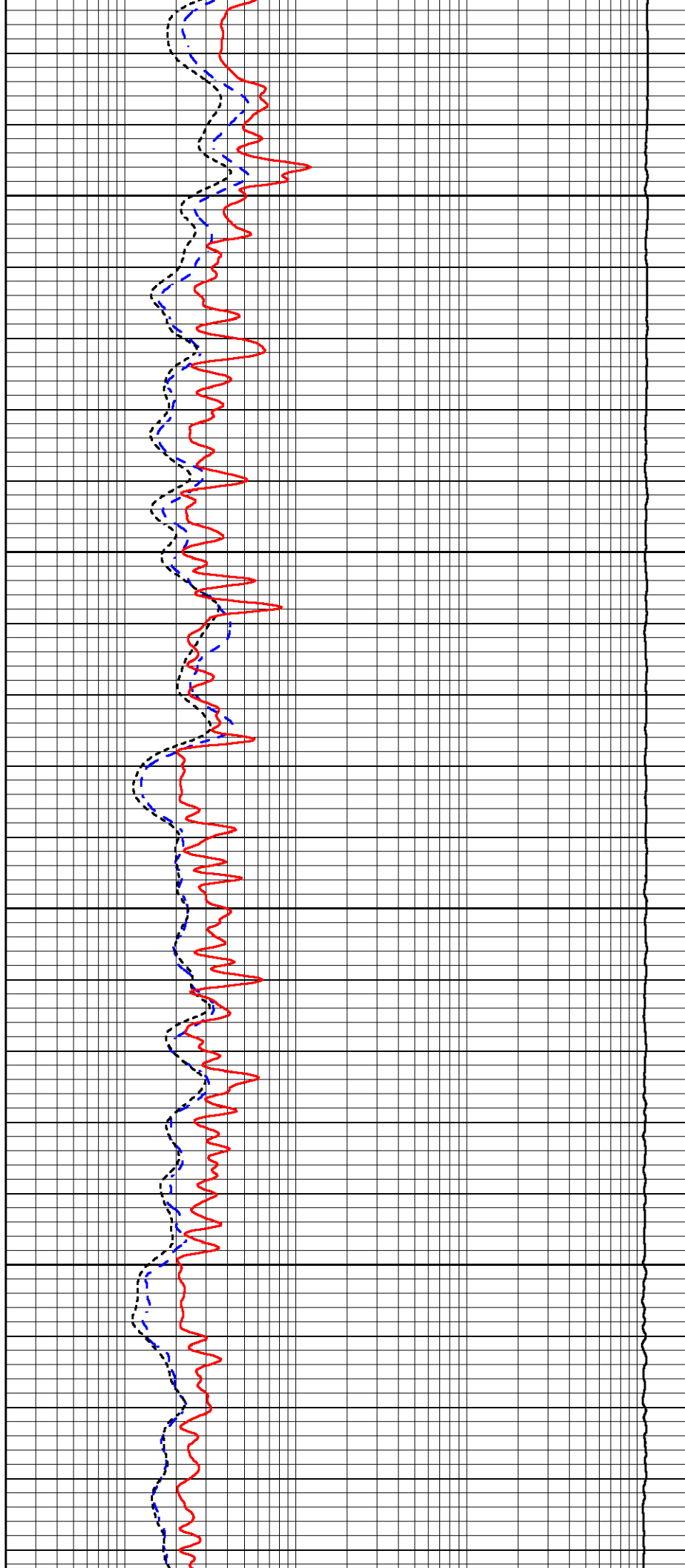


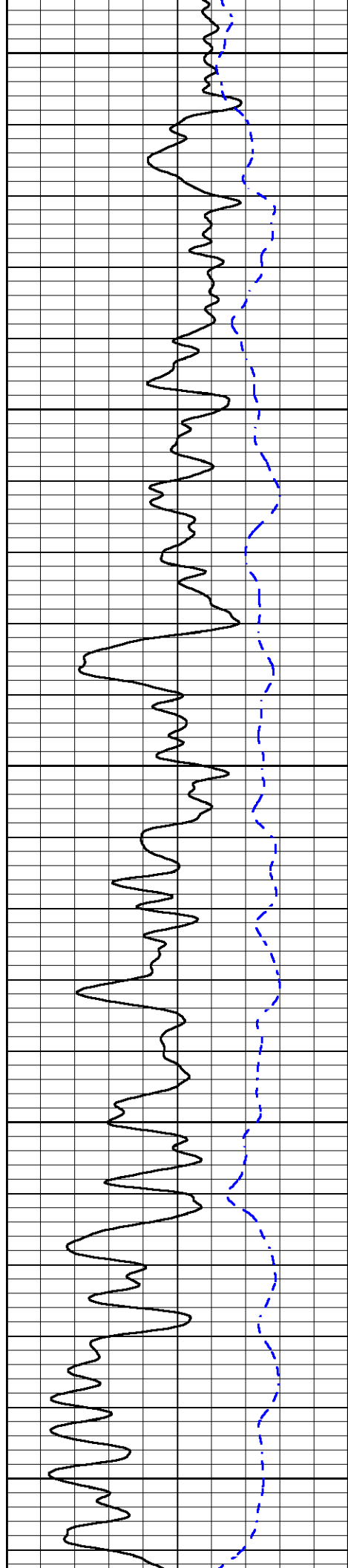
2000

2050

2100

2150





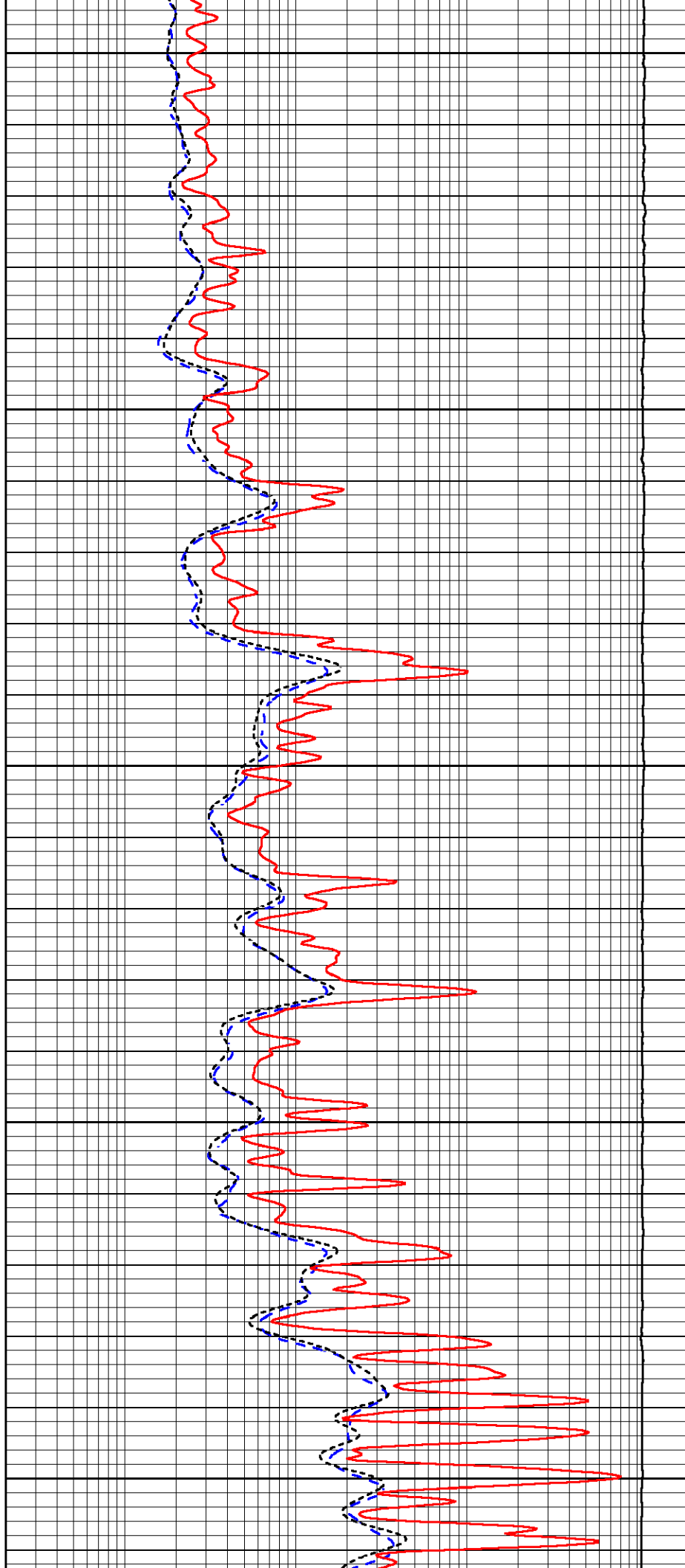
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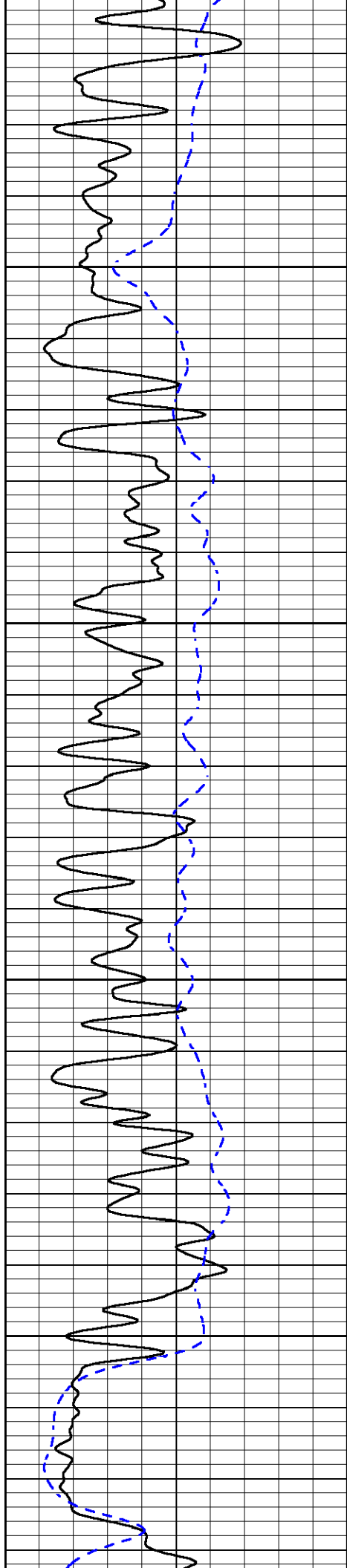
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2300

2350

2400



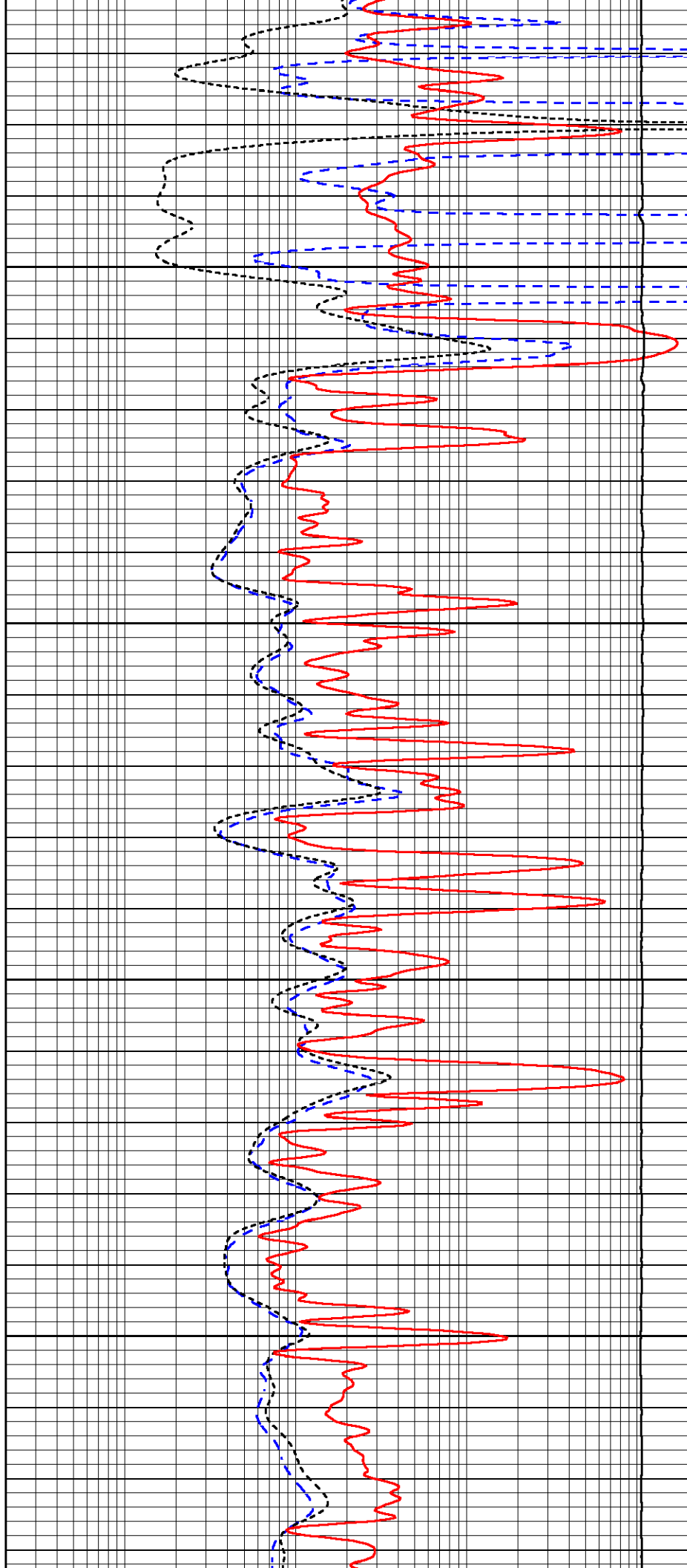


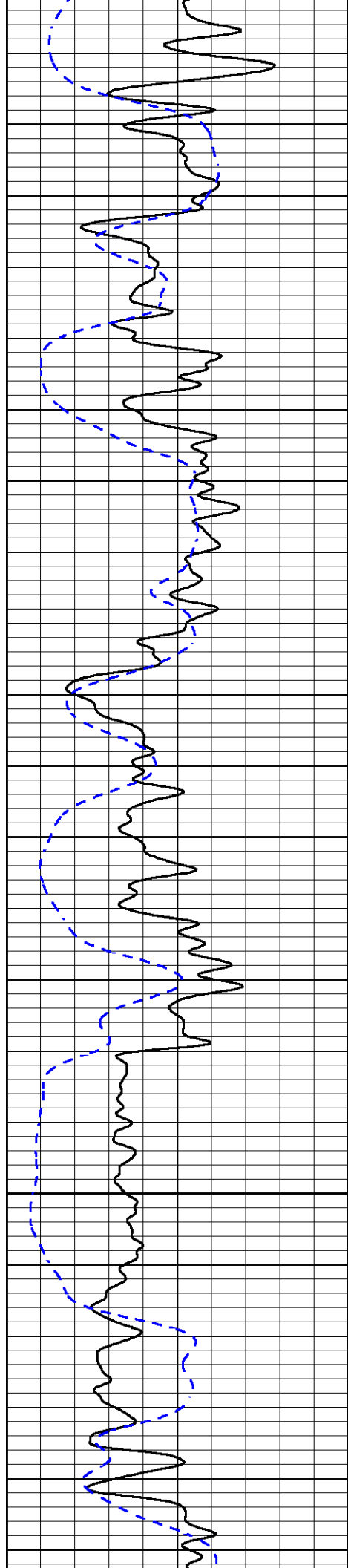
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2500

2550

2600





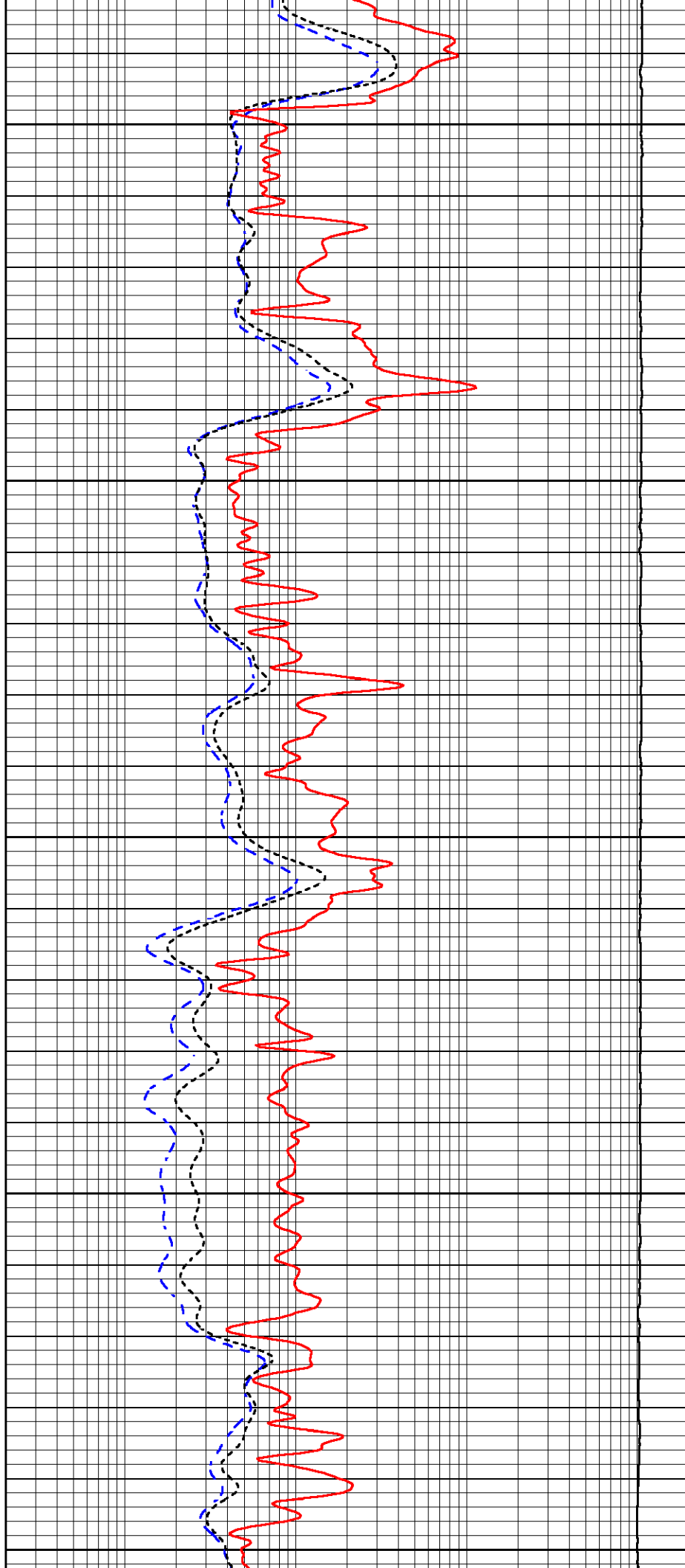
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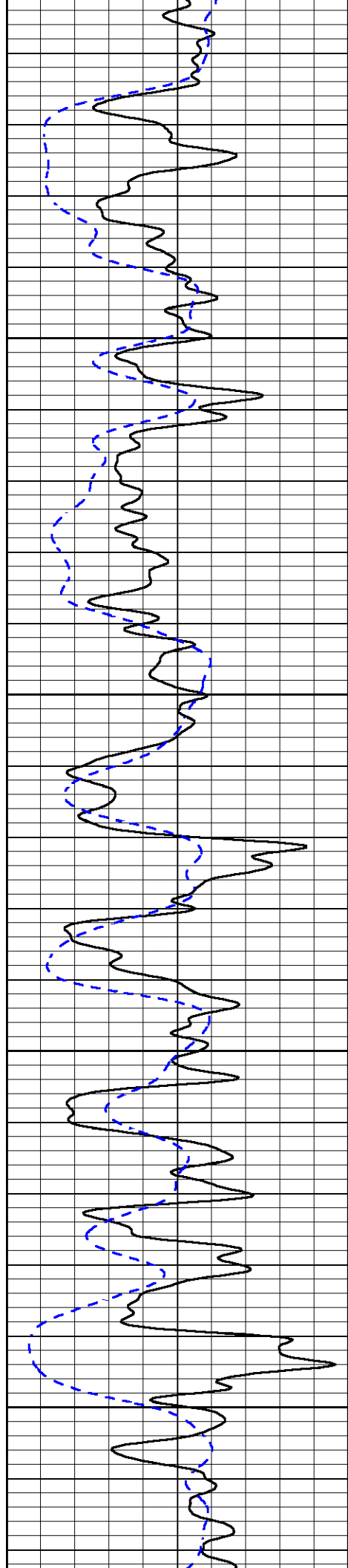
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2750

2800

2850



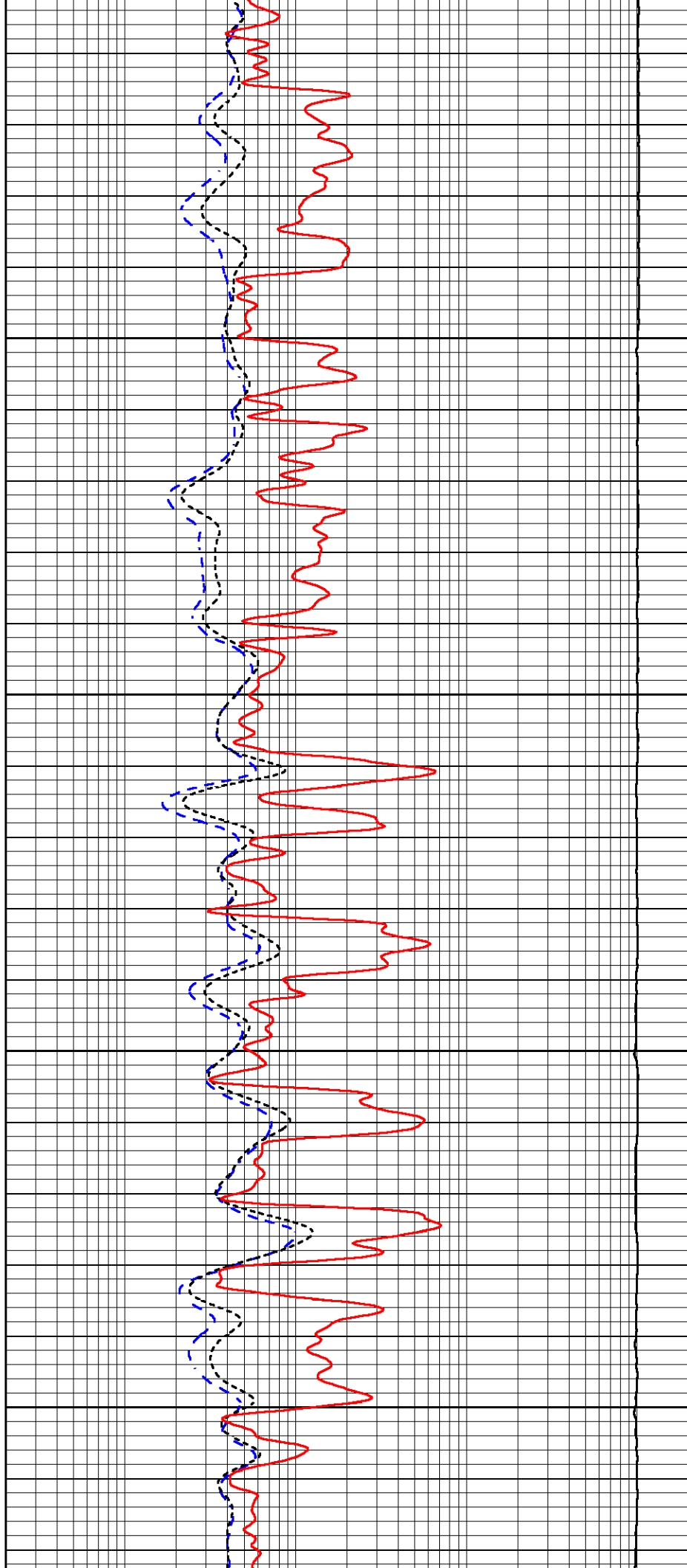


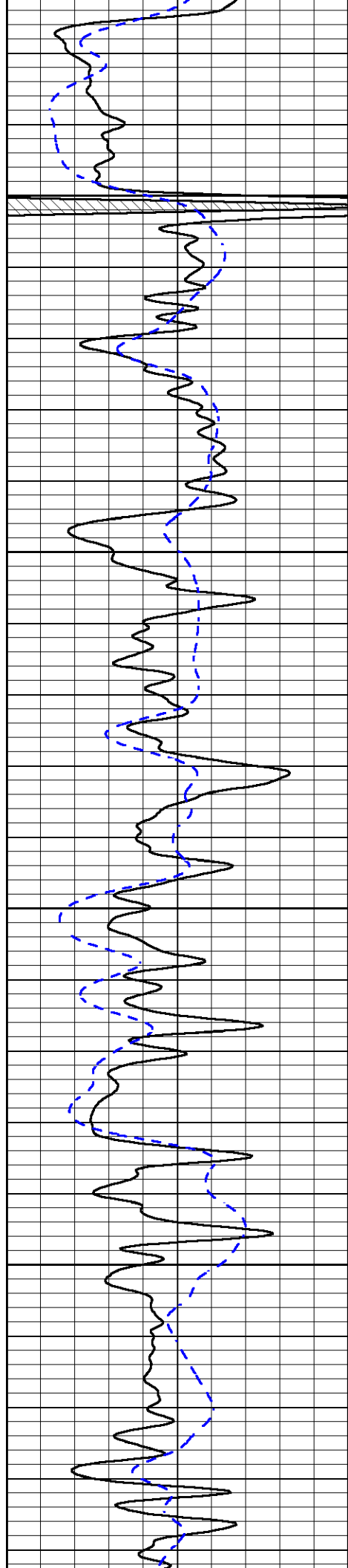
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2950

3000

3050



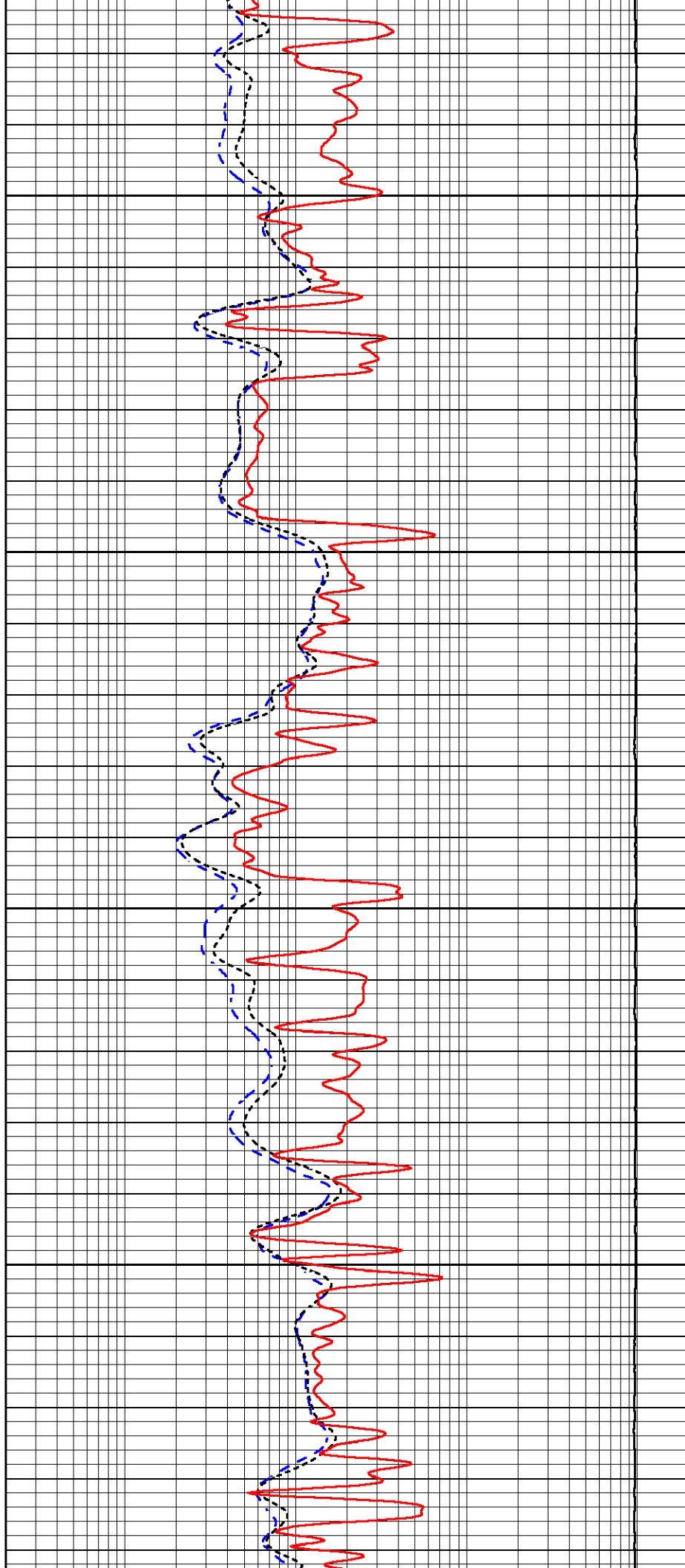


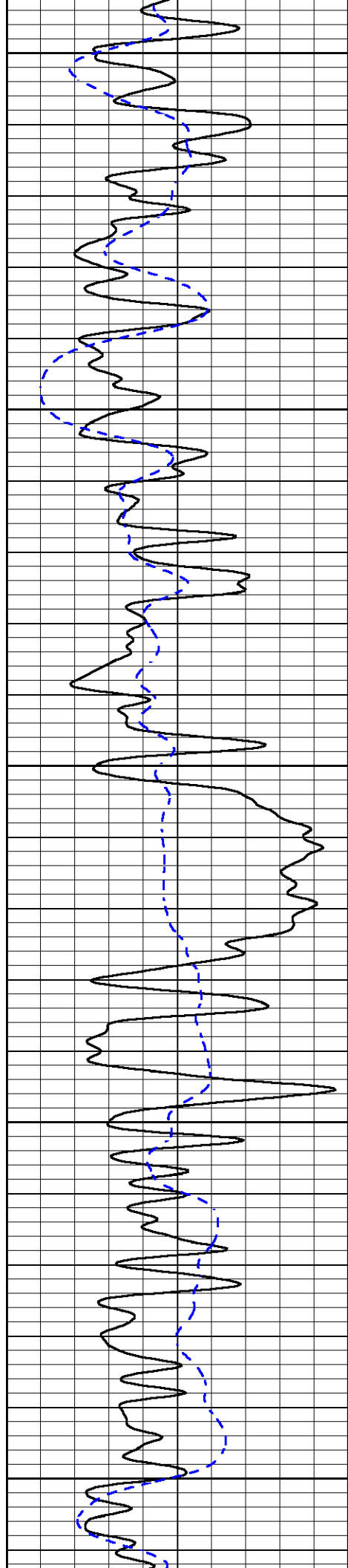
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3150

3200

3250





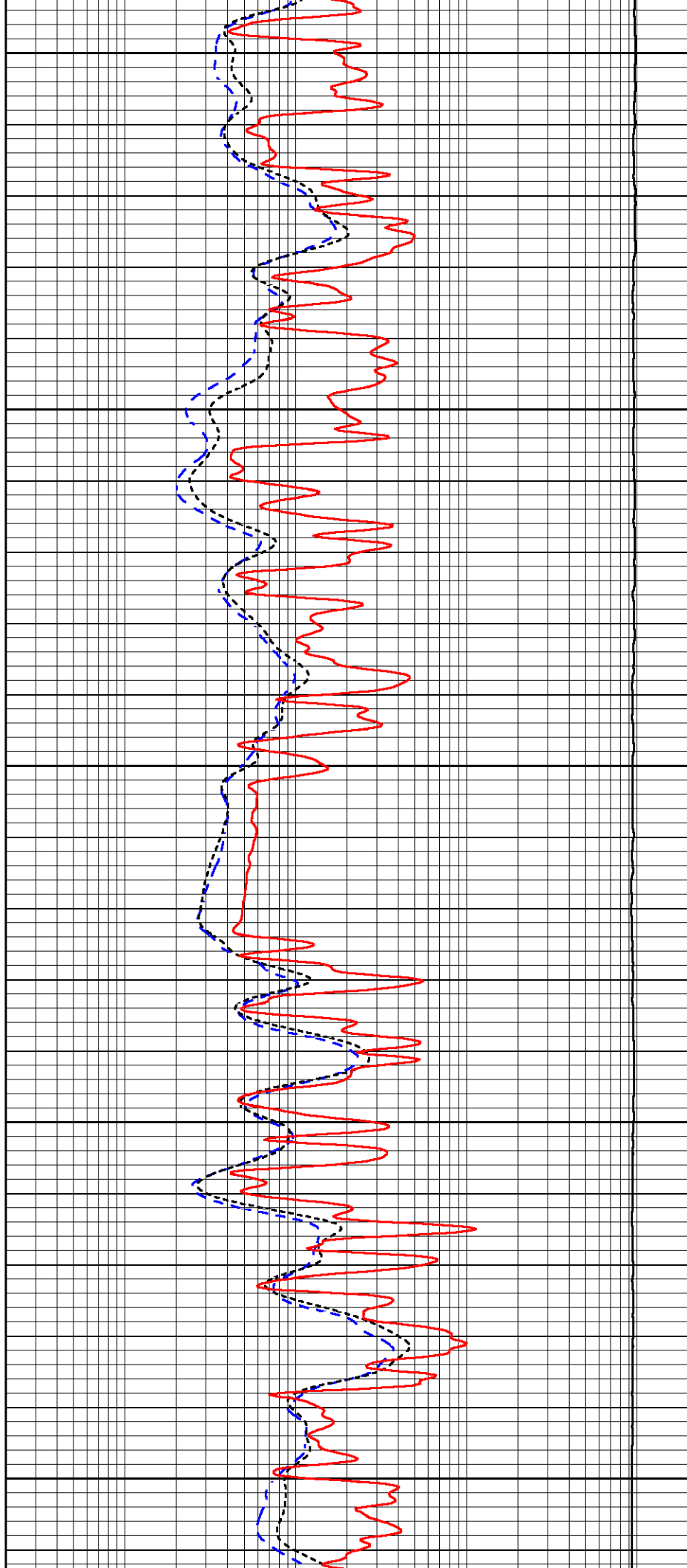
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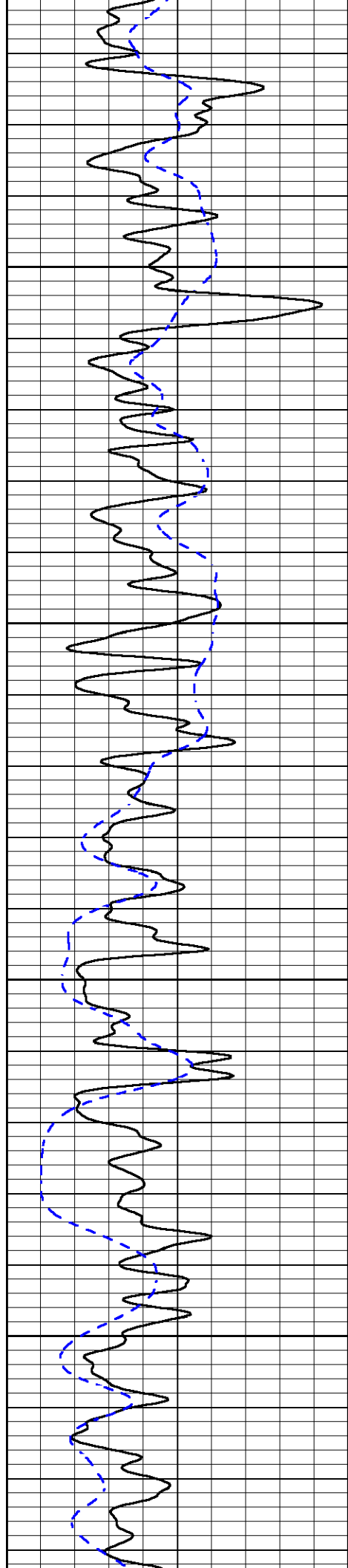
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3450

3500



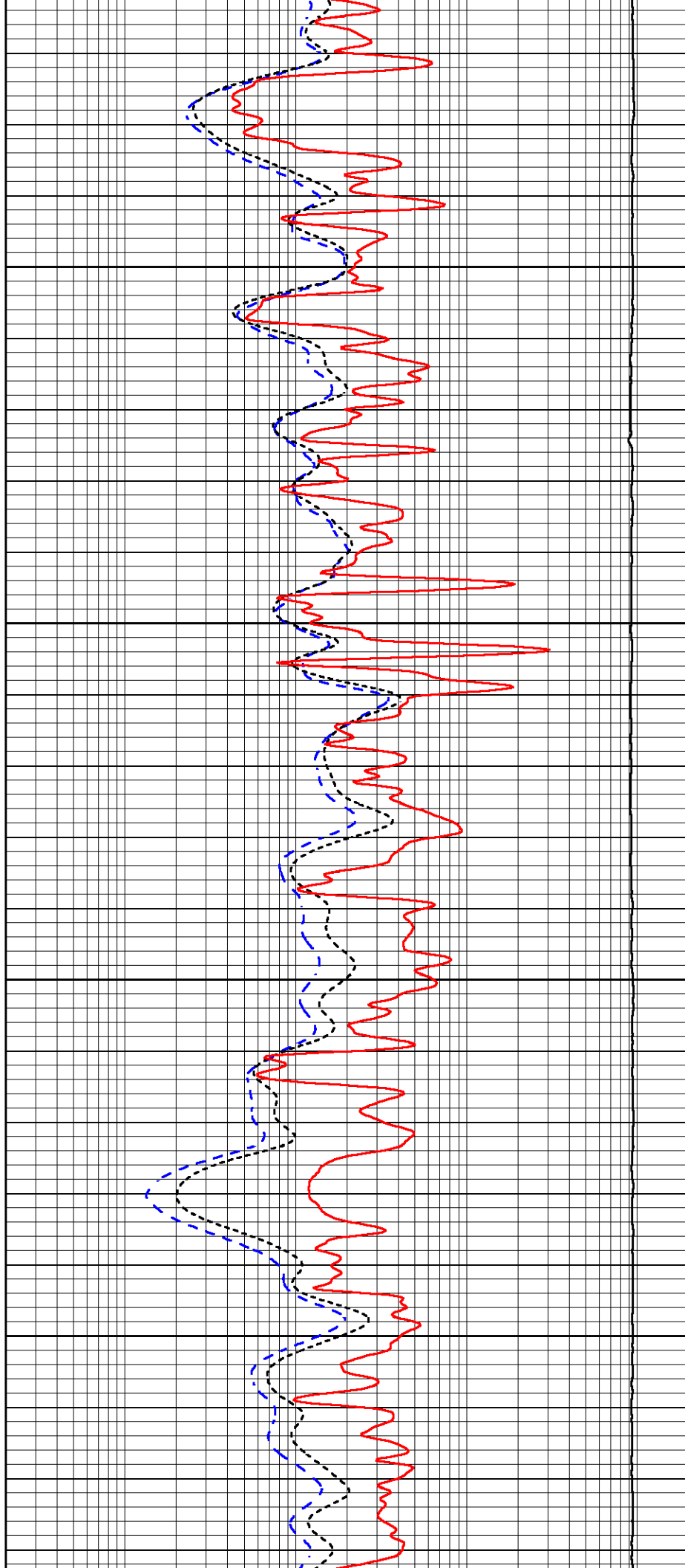


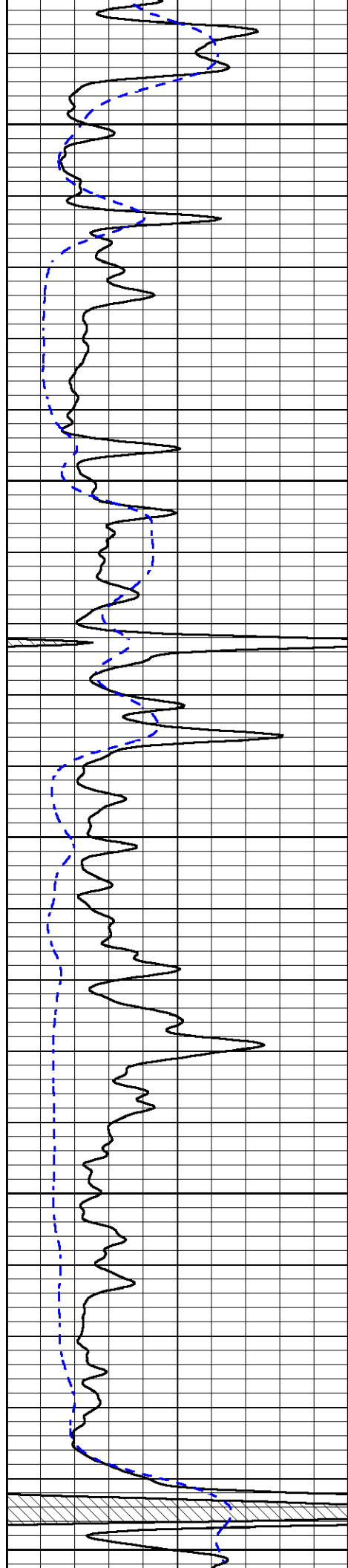
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3600

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3700





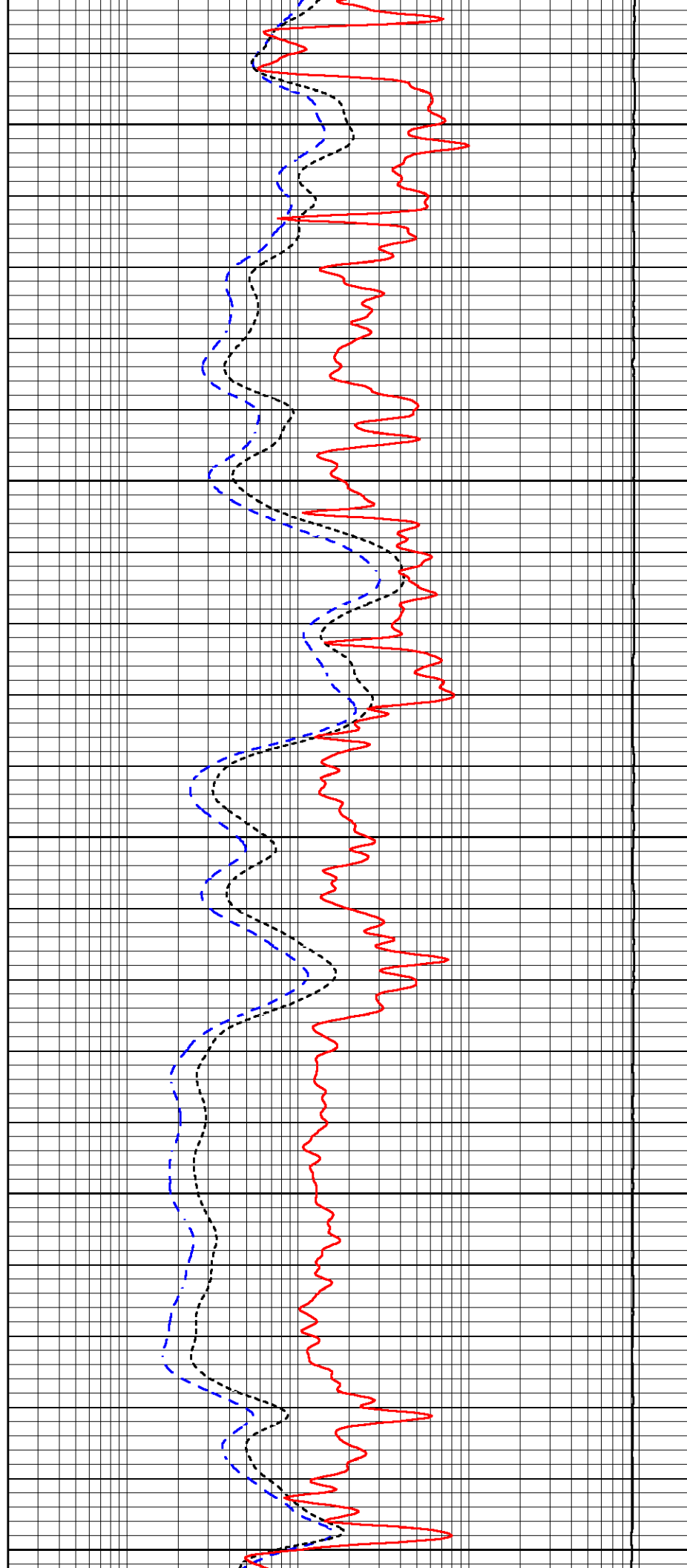
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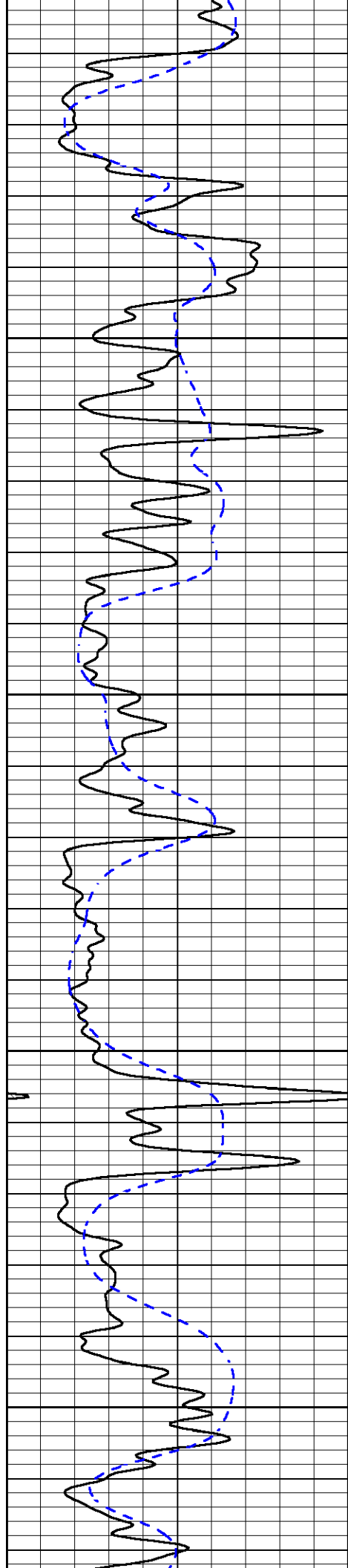
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3900

3950



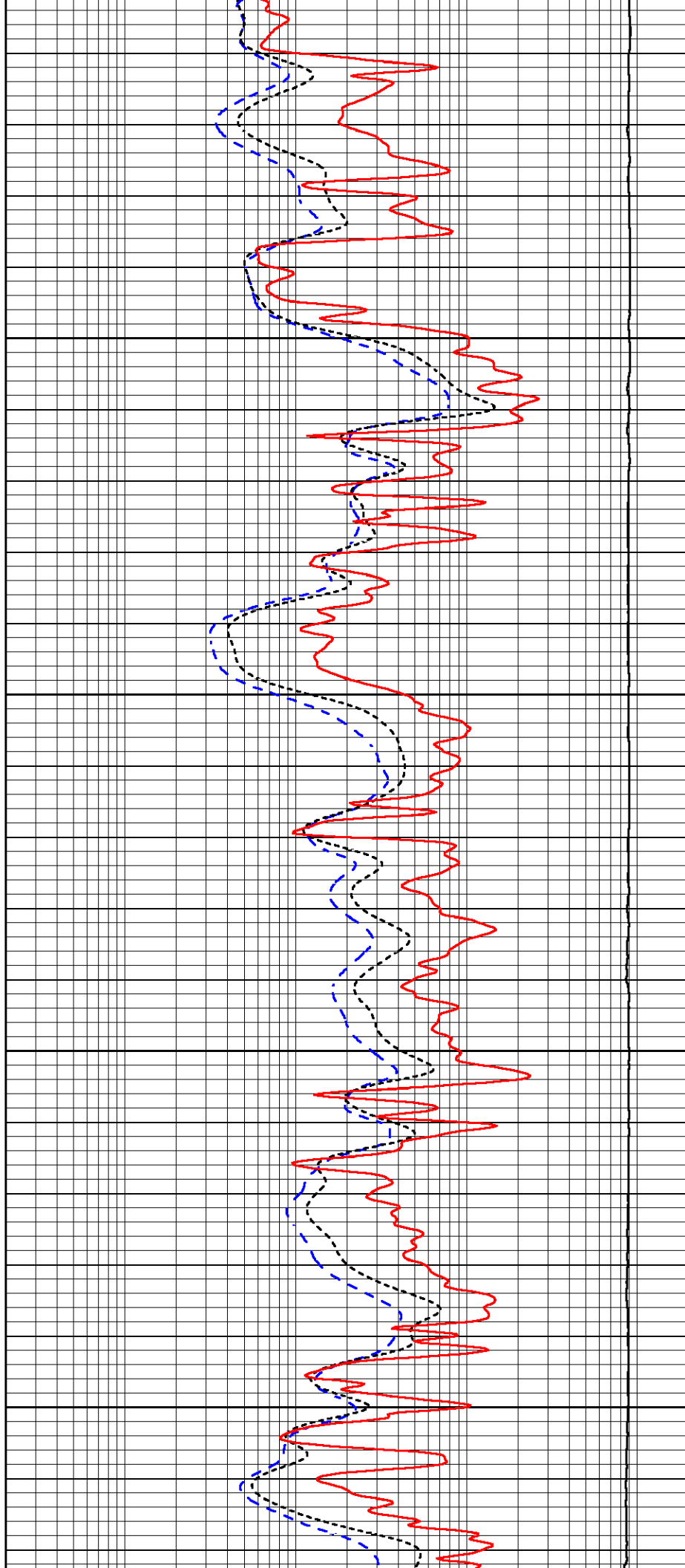


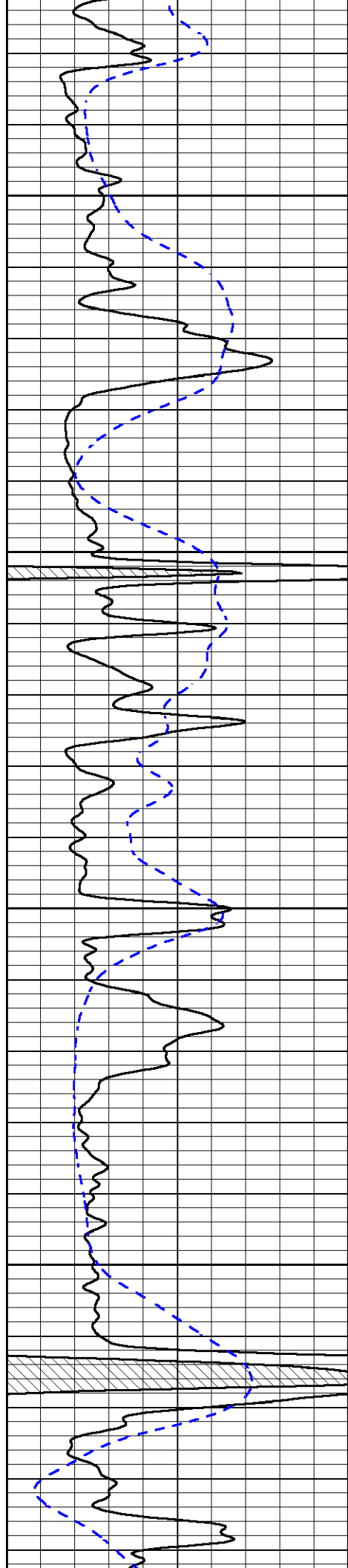
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4050

4100

4150



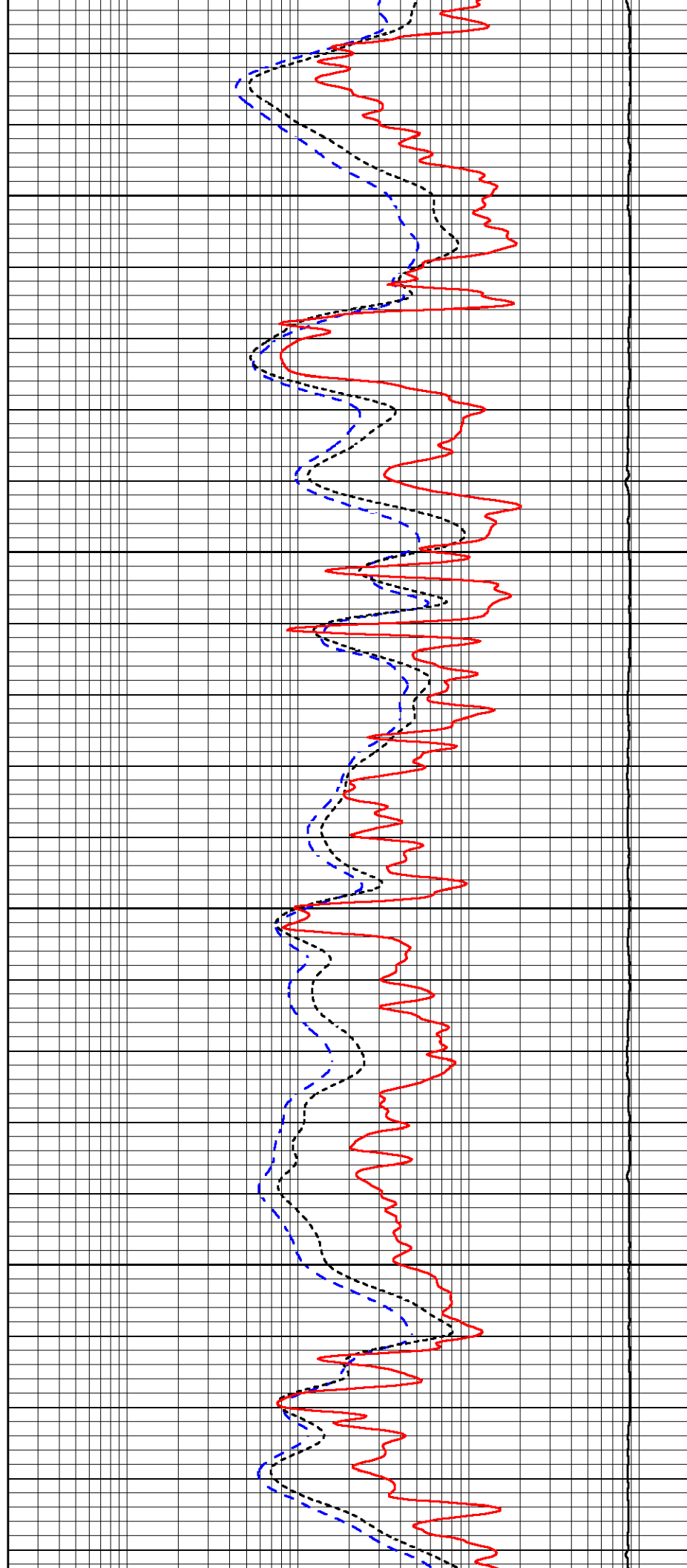


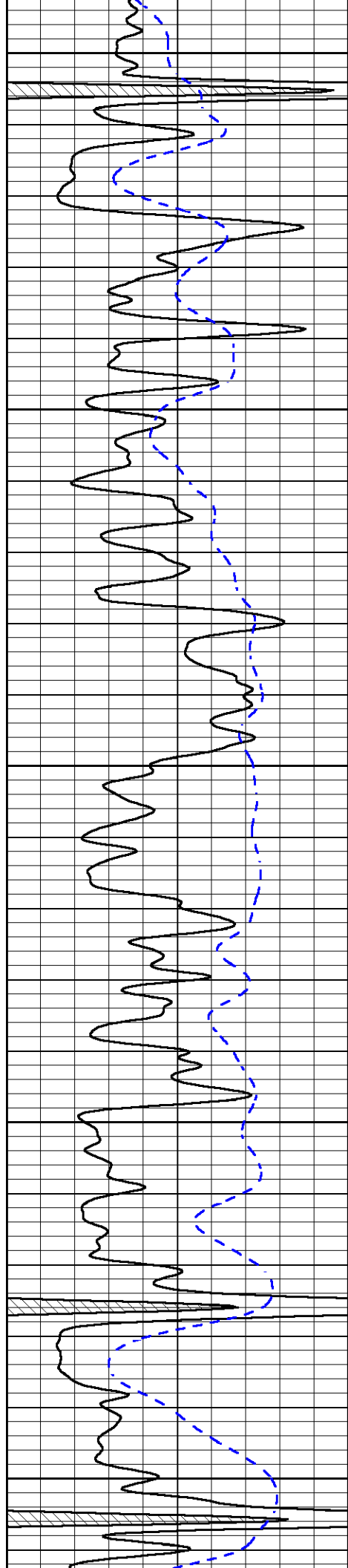
4200

4250

4300

4350





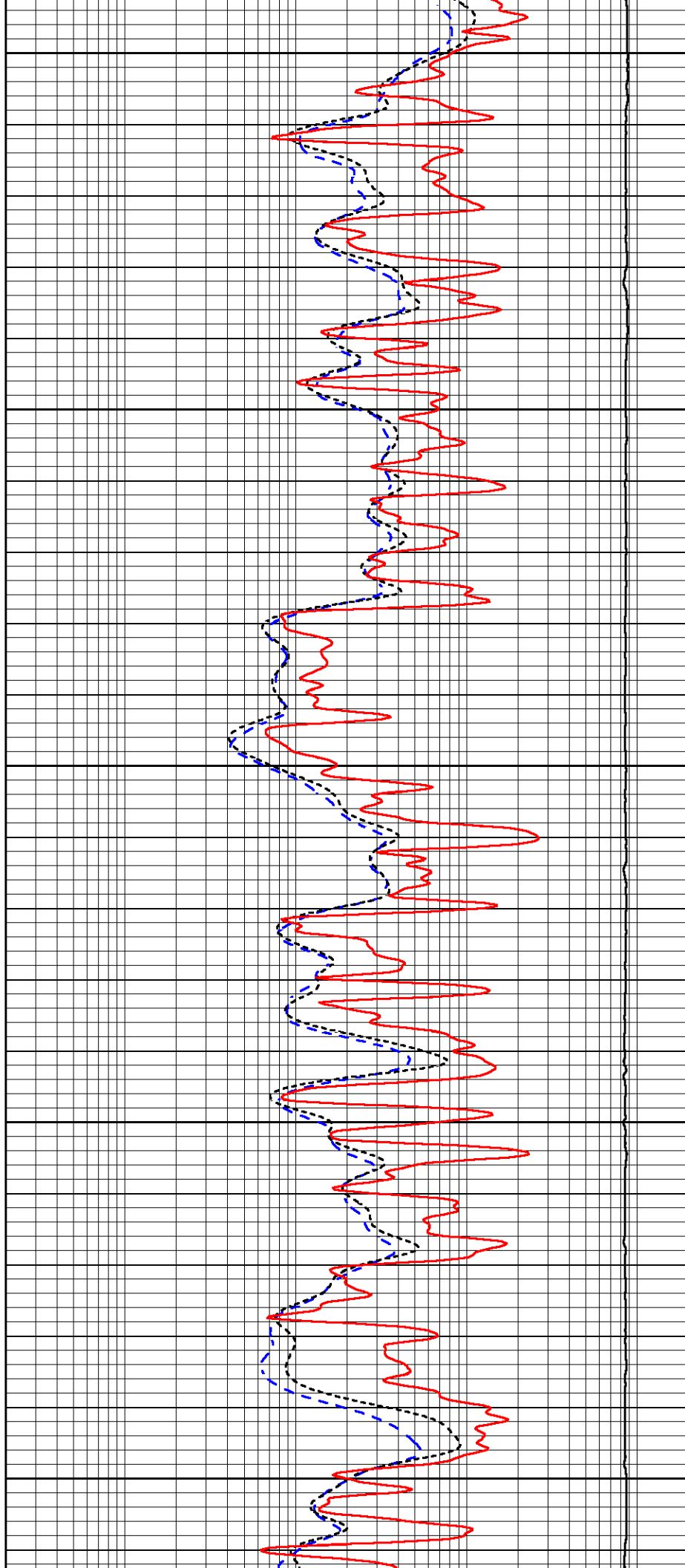
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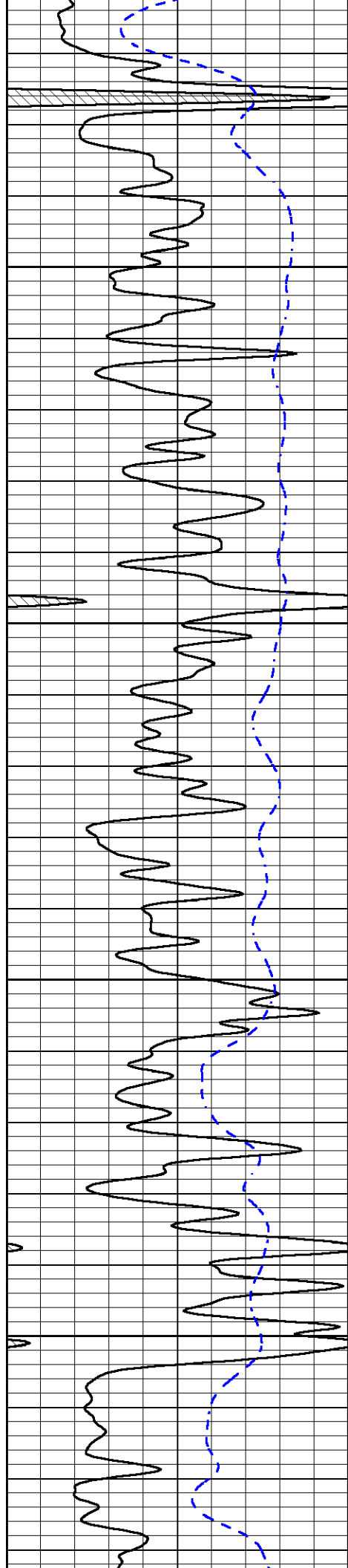
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4500

4550

4600



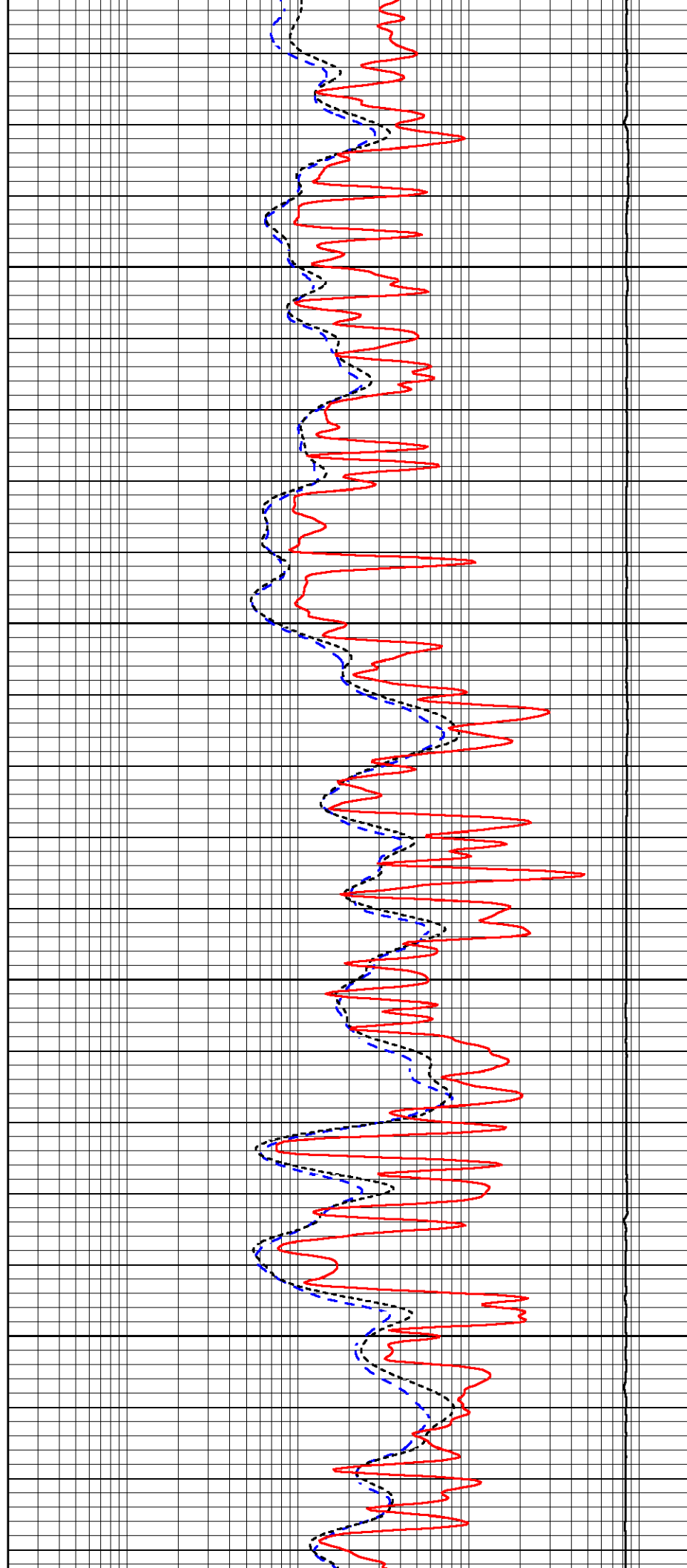


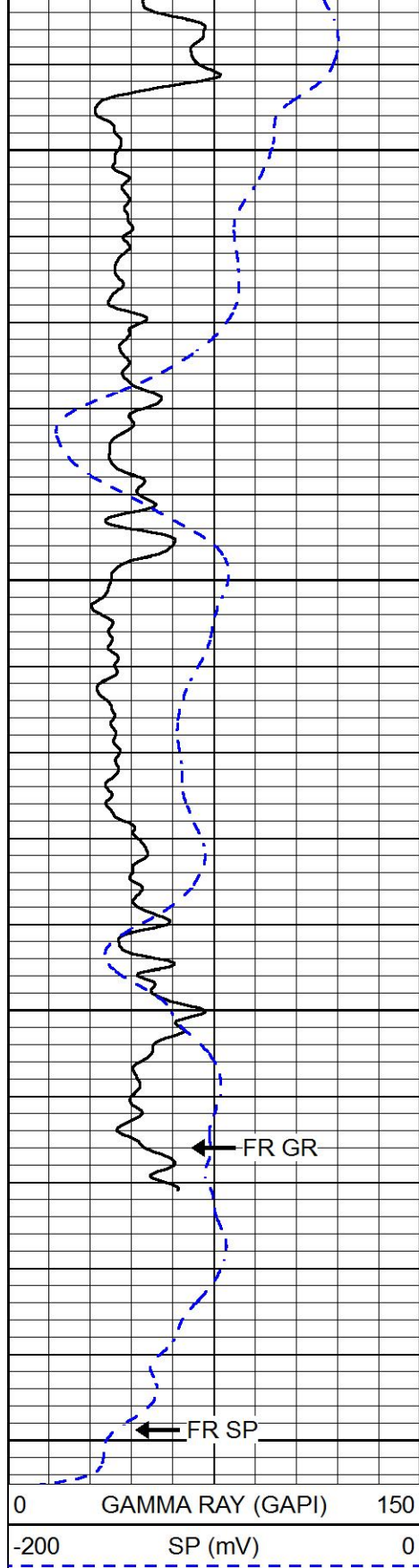
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4700

4750

4800



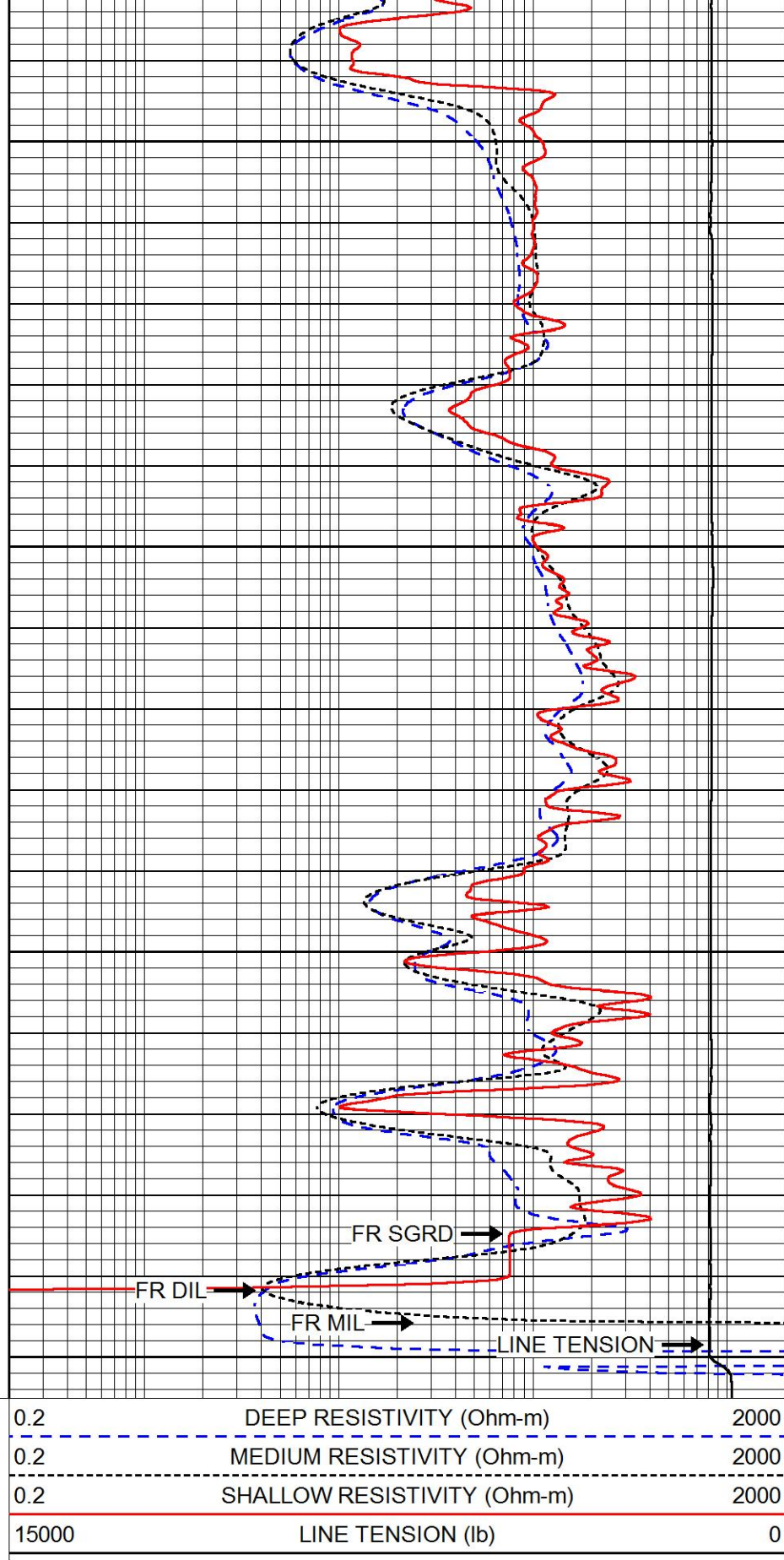


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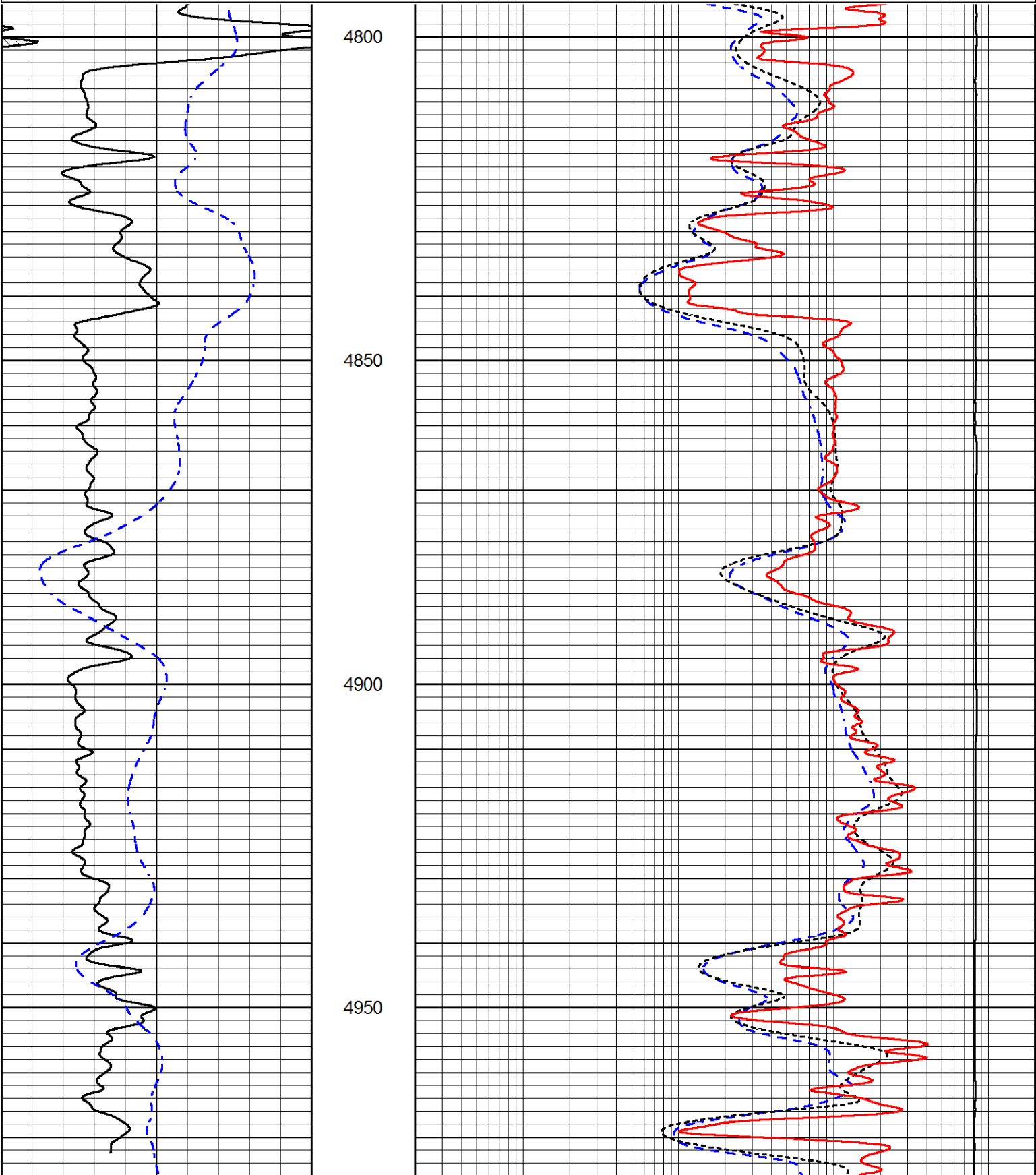
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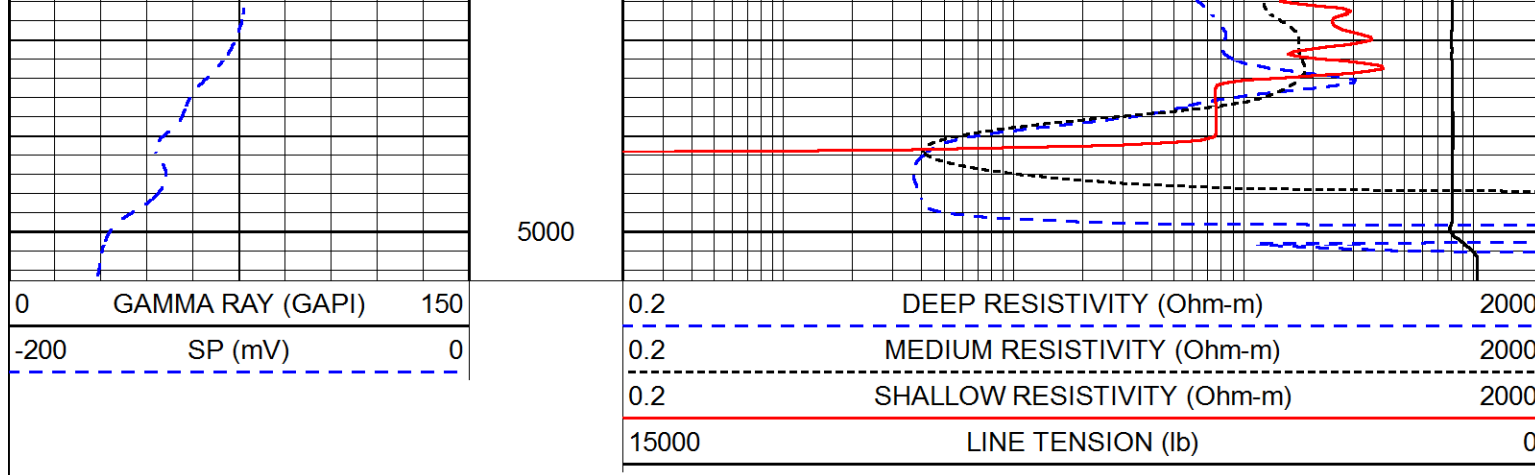
5000



Database File	amwarrior_hicks_a_1-24.db
Dataset Pathname	stack/pass2.1
Presentation Format	dil
Dataset Creation	Sun Jan 08 01:56:56 2017
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	SHALLOW RESISTIVITY (Ohm-m)	2000
			15000	LINE TENSION (lb)	0





Calibration Report	
Database File	amwarrior_hicks_a_1-24.db
Dataset Pathname	stack/pass3.17
Dataset Creation	Sun Jan 08 01:43:56 2017

Dual Induction Calibration Report	
Serial-Model:	1987-M&W
Calibration Performed:	Fri Dec 23 14:41:51 2016

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.490	-32.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.400	-101.000

Compensated Density Calibration Report	
Serial-Model:	71-914-M&W
Source / Verifier:	/
Master Calibration Performed:	Fri Dec 23 14:42:24 2016

Master Calibration					
	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4314.49	5307.52	cps
Aluminum	2.680	g/cc	822.19	3456.36	cps
Spine Angle = 75.49			Density/Spine Ratio = 0.540		
	Size		Reading		
Small Ring	4.00	in	1.16		
Large Ring	14.00	in	1.57		

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
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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:	Fri Dec 23 14:43:38 2016				
Calibrator Value:	1000.0	GAPI			
Background Reading:	0.0	cps			
Calibrator Reading:	6.2	cps			
Sensitivity:	0.5600	GAPI/cps			

 PIONEER Pioneer Energy Services	Company Well Field County State AMERICAN WARRIOR, INC. HICKS "A" NO. 1-24 WILDCAT FINNEY KANSAS
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