



PIONEER
Pioneer Energy Services

DUAL INDUCTION LOG

Company LANDMARK RESOURCES, INC.
Well GERSTBERGER UNIT #1-20
Field WILDCAT
County WICHITA
State KANSAS

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Well GERSTBERGER UNIT #1-20
Field WILDCAT
County WICHITA State KANSAS

Location: API #: 15-203-20355-00-00

246' FNL & 215' FEL

SEC 20 TWP 17S RGE 36W

Permanent Datum GROUND LEVEL Elevation 3220'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Other Services
CNL/CDL
MEL/BHCS
Elevation
K.B. 3231'
D.F. N/A
G.L. 3220'

Date	3/29/2019		
Run Number	ONE		
Depth Driller	4795'		
Depth Logger	4800'		
Bottom Logged Interval	4799'		
Top Log Interval	280'		
Casing Driller	8.625" @ 296'		
Casing Logger	296'		
Bit Size	7.875"		
Type Fluid in Hole	CHEMICAL		
Salinity, ppm CL	7500		
Density / Viscosity	9.1 68		
pH / Fluid Loss	10.0 9.6		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.80 @ 69		
Rmt @ Meas. Temp	0.60 @ 69		
Rmc @ Meas. Temp	1.08 @ 69		
Source of Rmt / Rmc	CHARTS		
Rm @ BHT	0.45 @ 124		
Operating Rig Time	5 HOURS		
Max Rec. Temp. F	124		
Equipment Number	P-24		
Location	HAYS		
Recorded By	IAN MABB		
Witnessed By	TERRY MCLEOD		

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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.

LEOTI, KS.
2 MILES EAST TO RD 15,
NORTH 6 1/2 MILES,
WEST 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: IAN MABB
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: TERRY MCLEOD
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 124	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 4	mmho/m 2	mV 426	degF 41	Off	ft 4800

Sensor	Offset (ft)	Schematic		Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58			GR-M&W (89)	3.00	3.50	50.00
CNLSC	37.48			CNT-M&W (207-MW)	5.50	3.50	100.00
CNSSC	36.73						
LSD	28.43			CDL-M&W (96-916)	8.50	4.00	250.00
	DCAL						
	SSD						
MCAL	19.83			ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
	MI						
	MN						
RLL3F	15.80						
RLL3	15.80						
CILD	8.00			DIL-PSI HIGH TEMP (967 (HT))	18.50	3.50	220.00

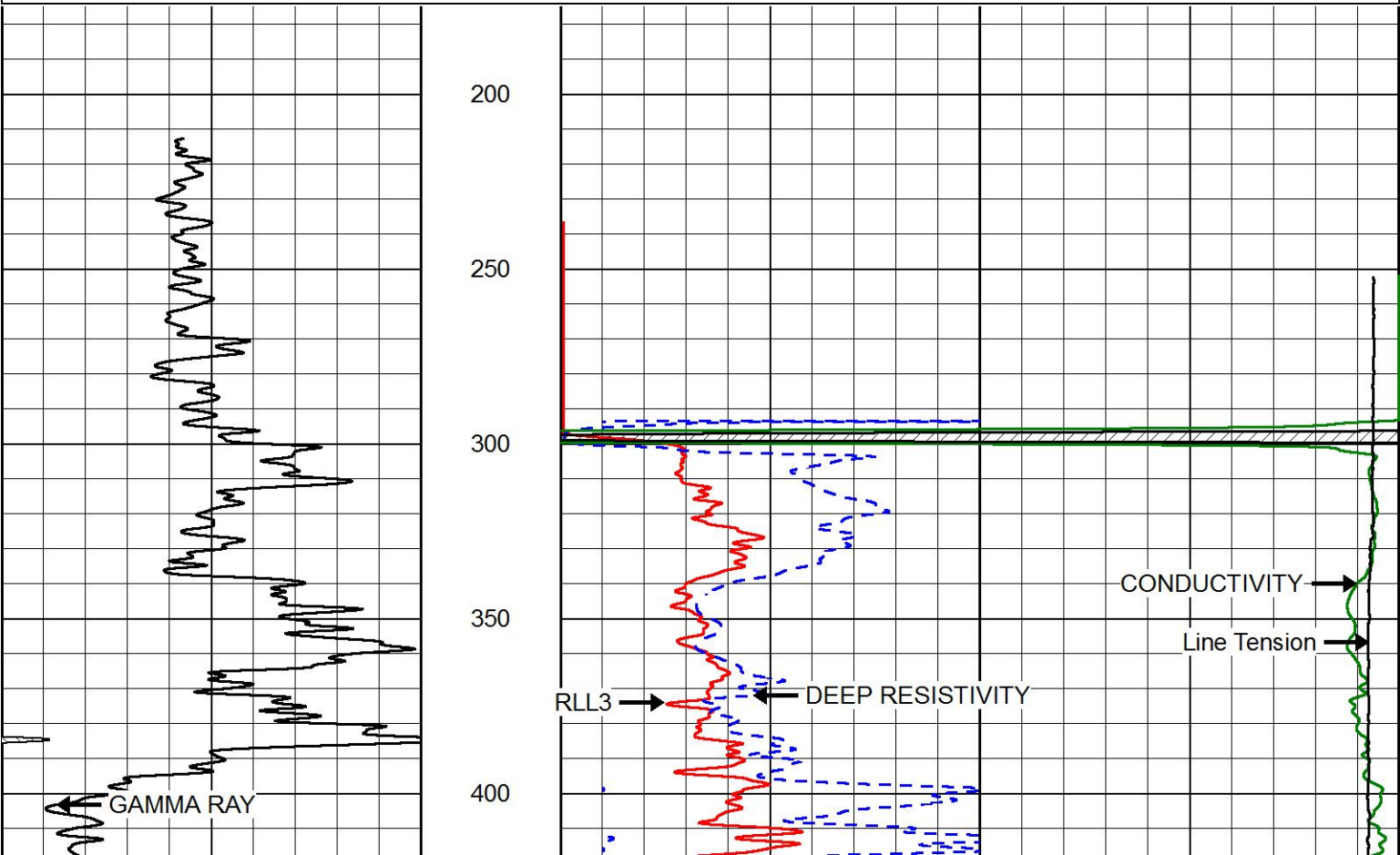
CILM	4.70								
SP	0.20								
Dataset: landmark_gerstberger_unit_1_20.db: field/well/stackmel/pass4.1 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in									

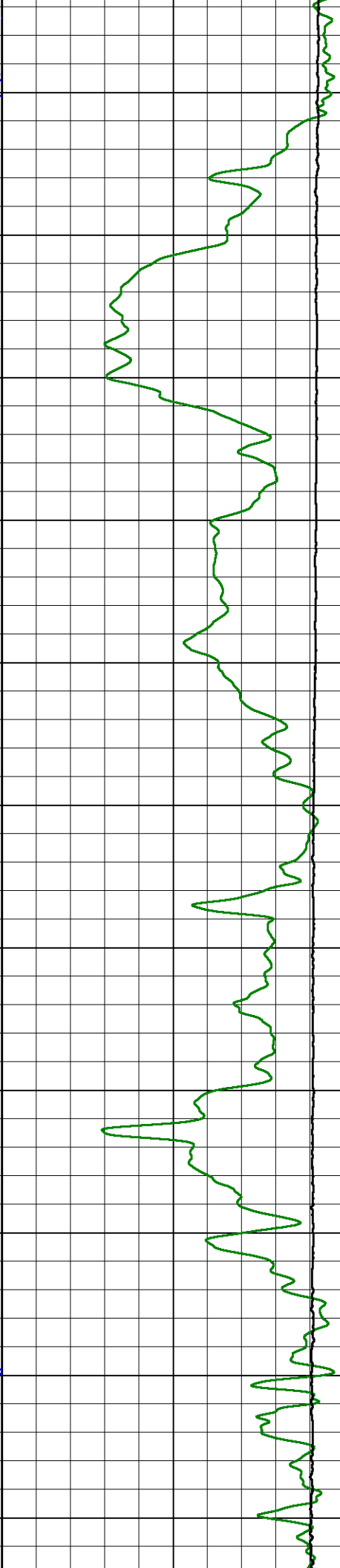
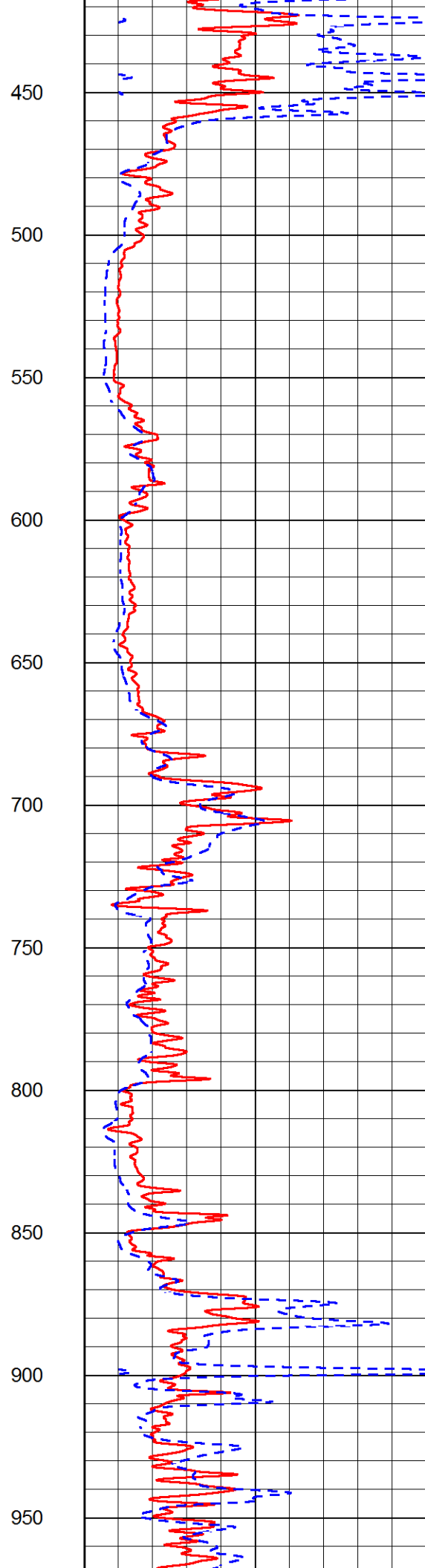
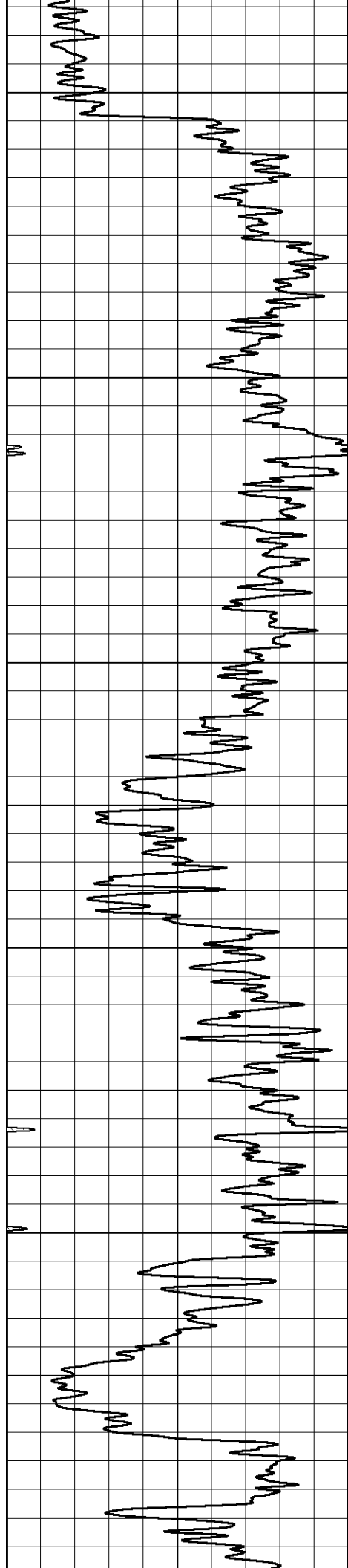


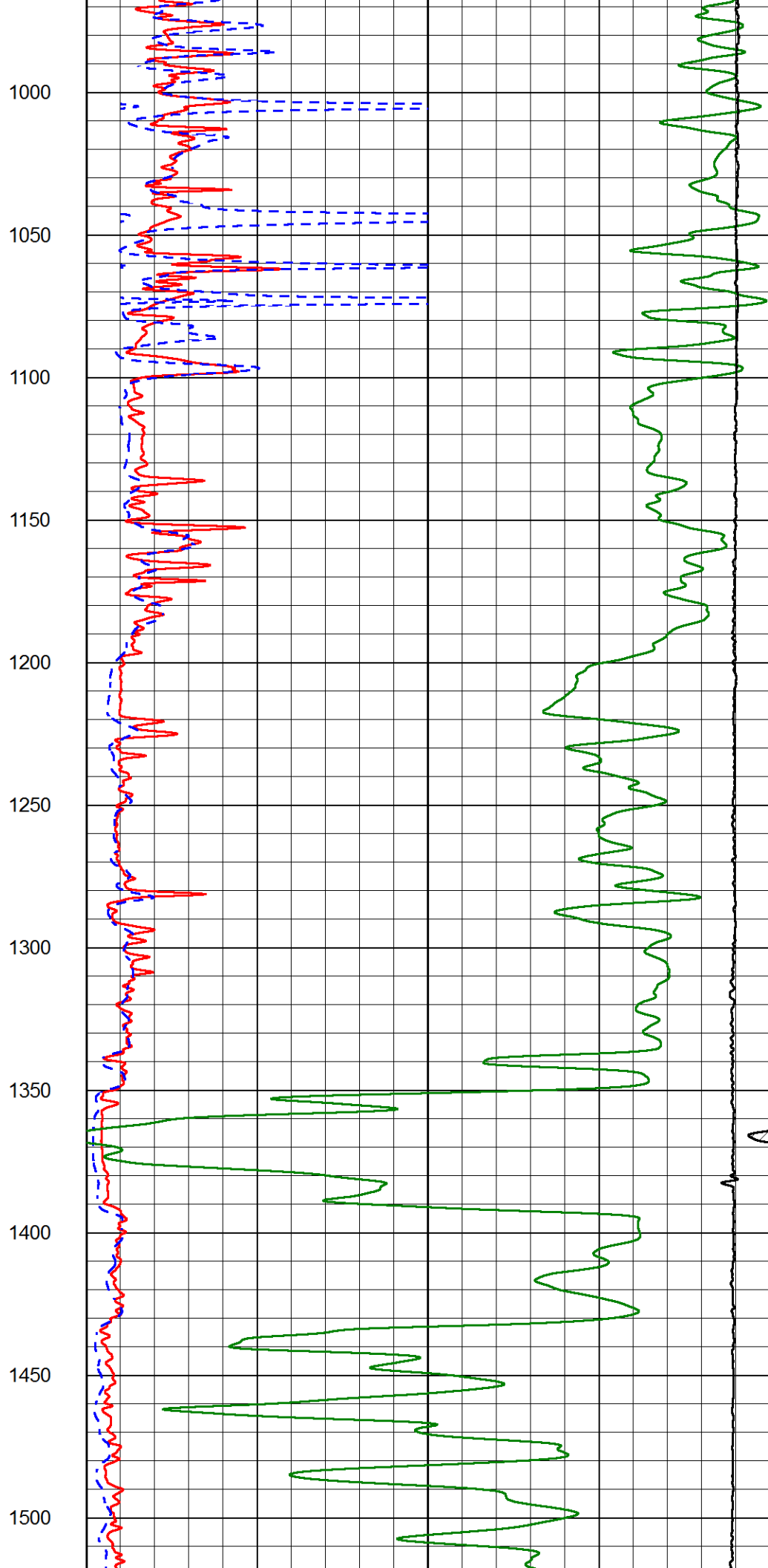
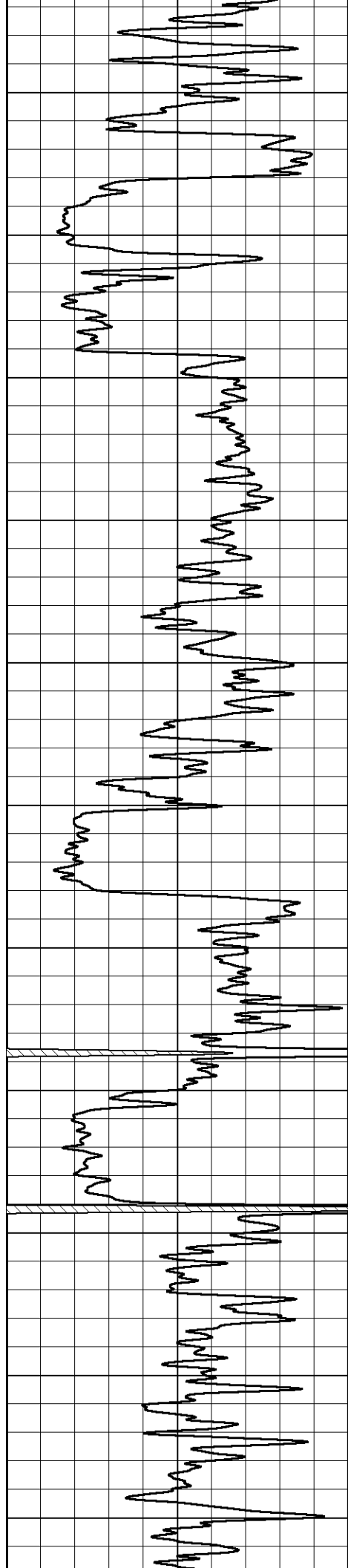
MAIN PASS

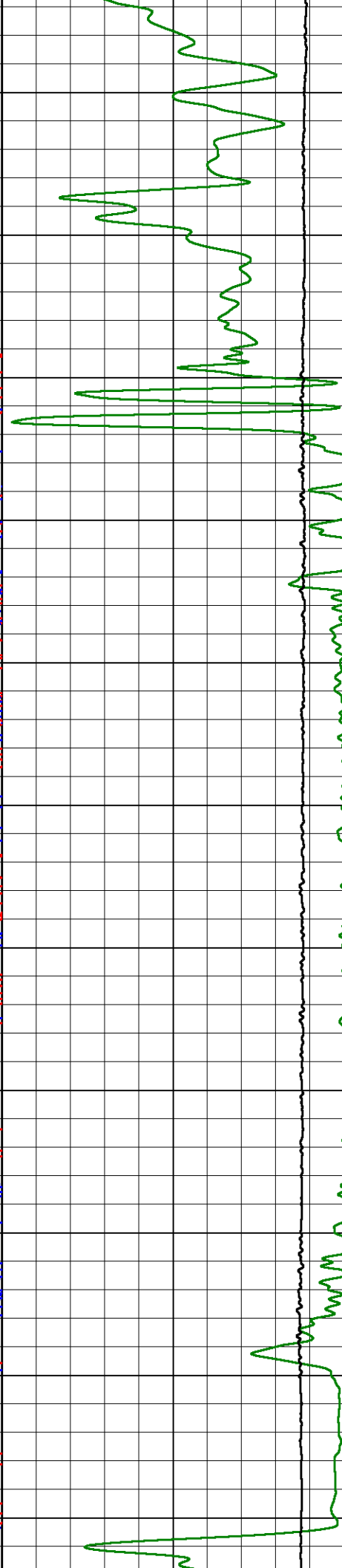
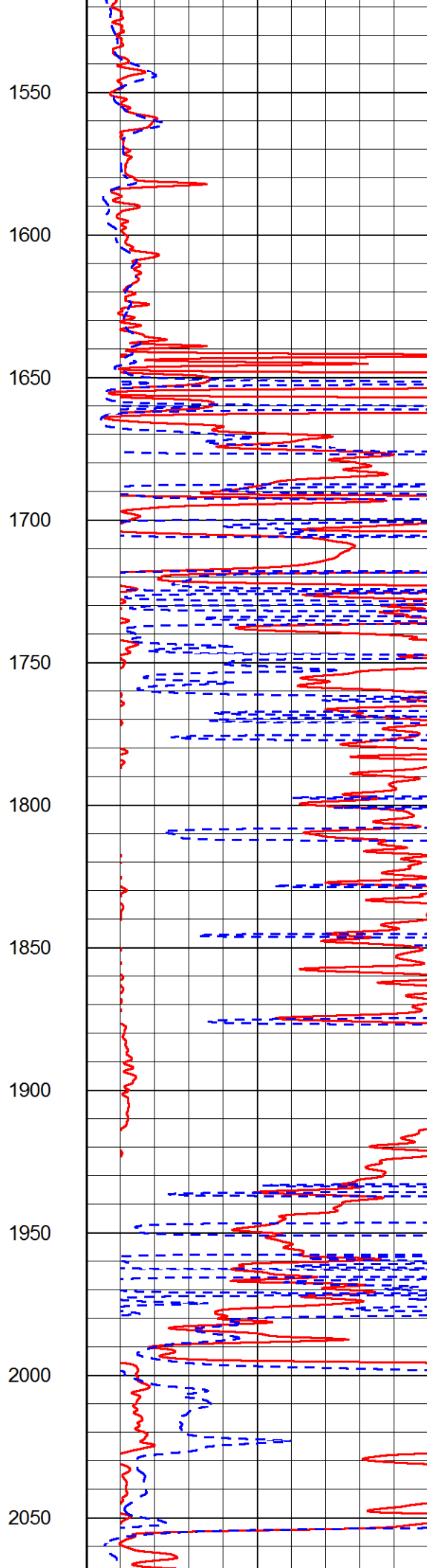
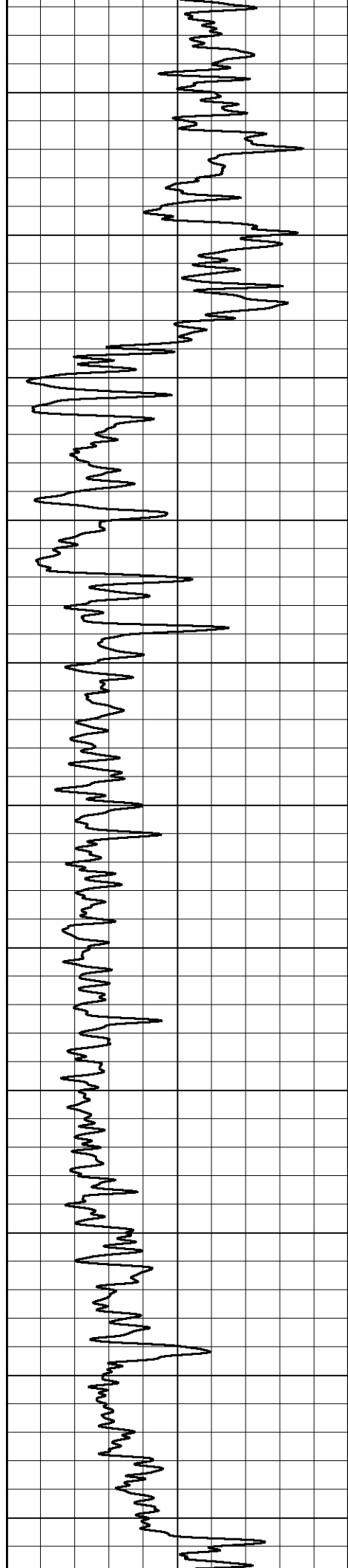
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Presentation Format	_dil2in
Dataset Creation	Fri Mar 29 05:36:01 2019
Charted by	Depth in Feet scaled 1:600

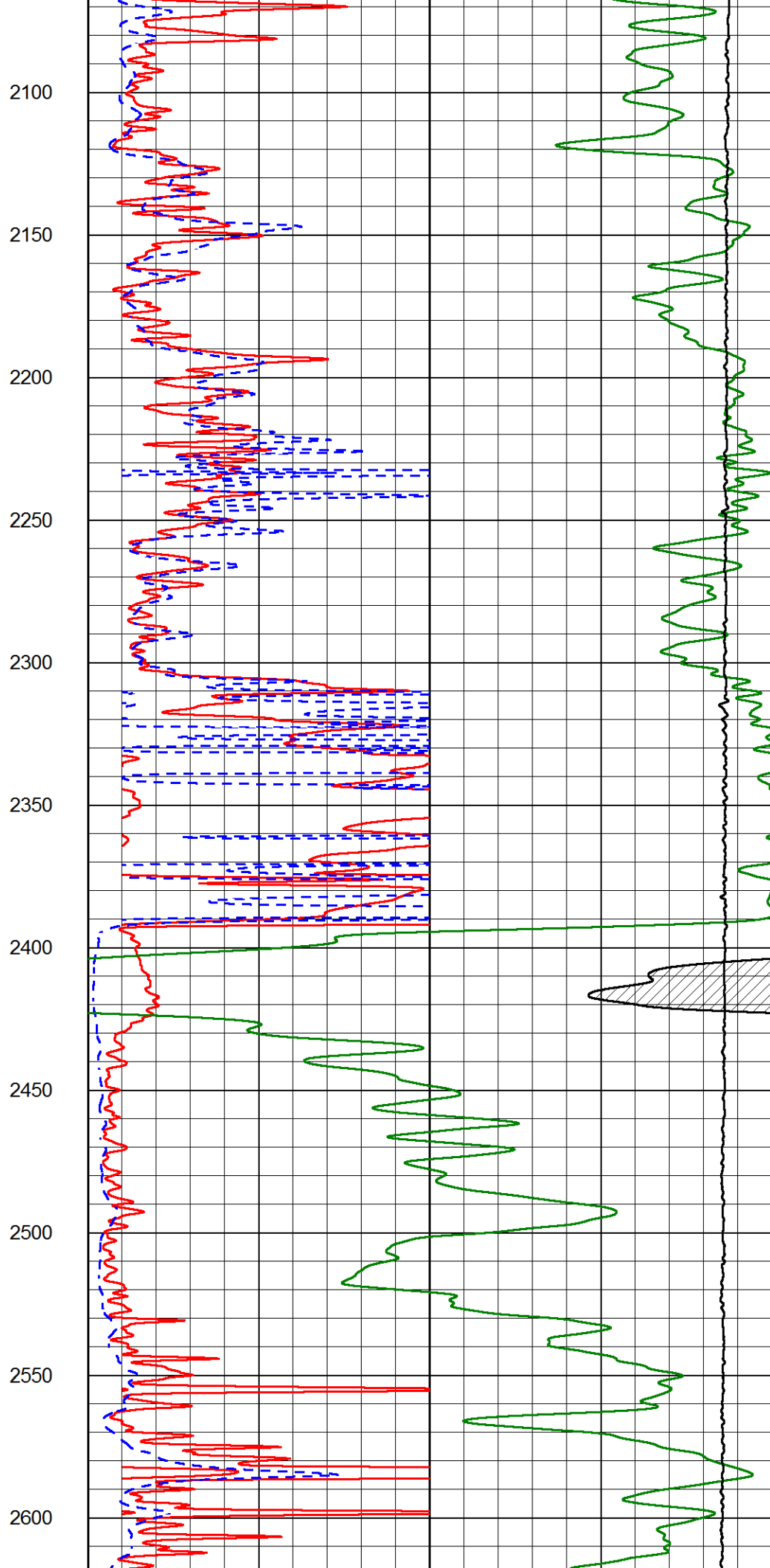
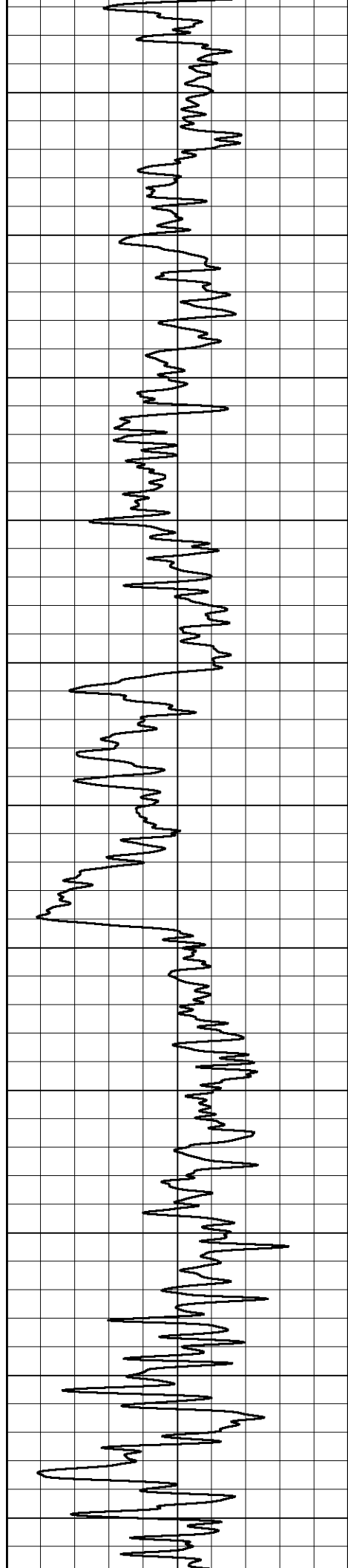
GAMMA RAY (GAPI)	1000	CONDUCTIVITY (mmho/m)	0
	15000	Line Tension (lb)	0
	0	RLL3 (Ohm-m)	50
	0	DEEP RESISTIVITY (Ohm-m)	50
	50	RLL3 (Ohm-m)	500
	50	Deep Resistivity (Ohm-m)	500

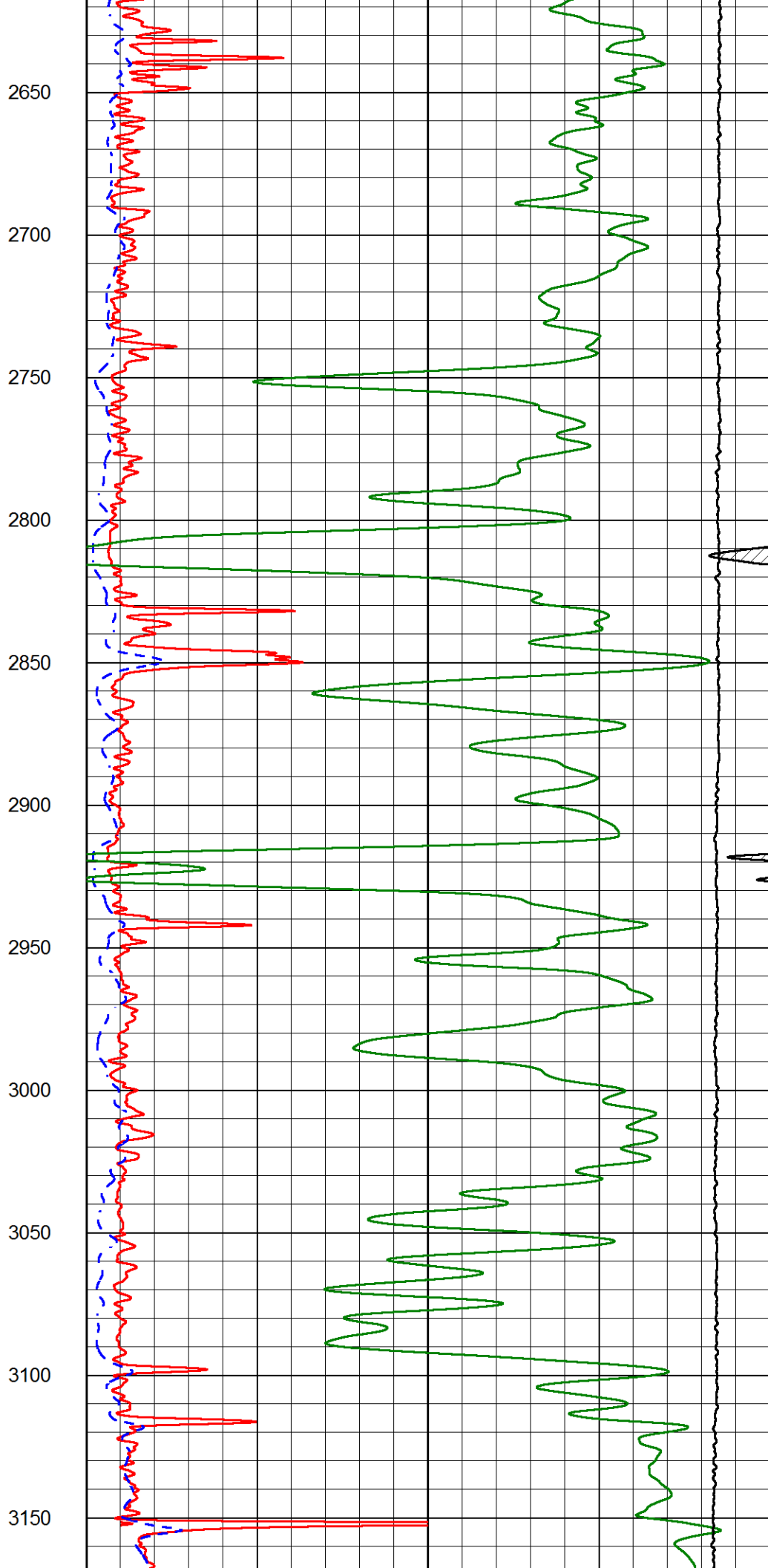
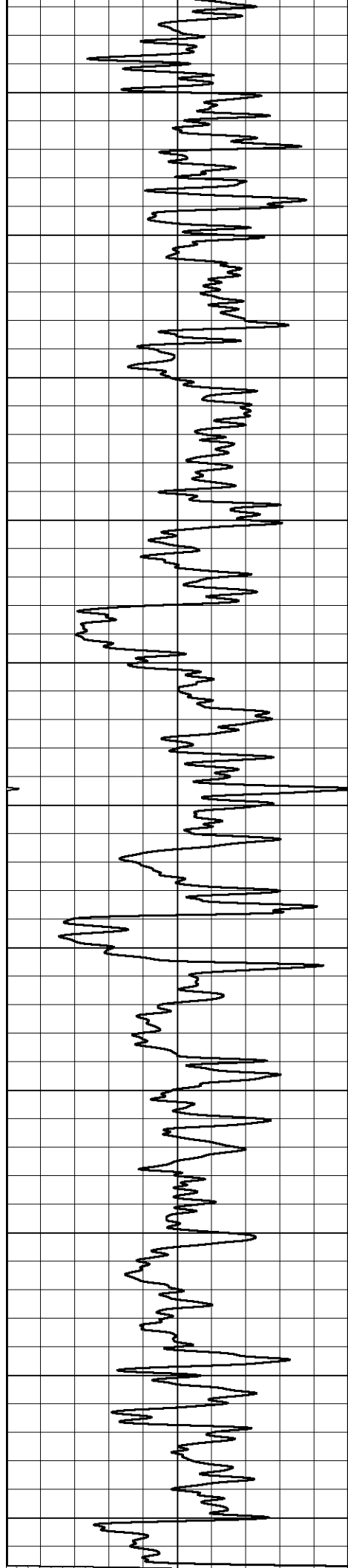


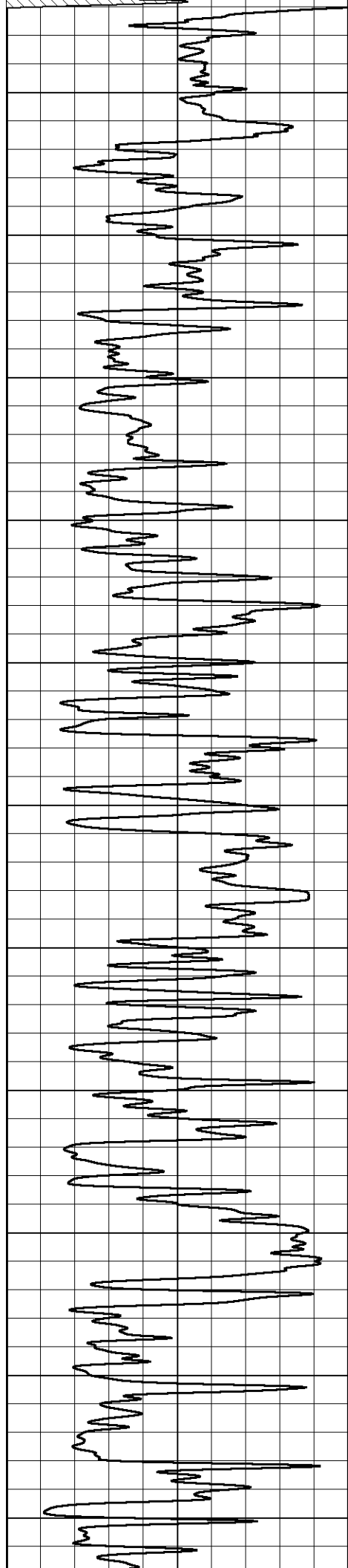




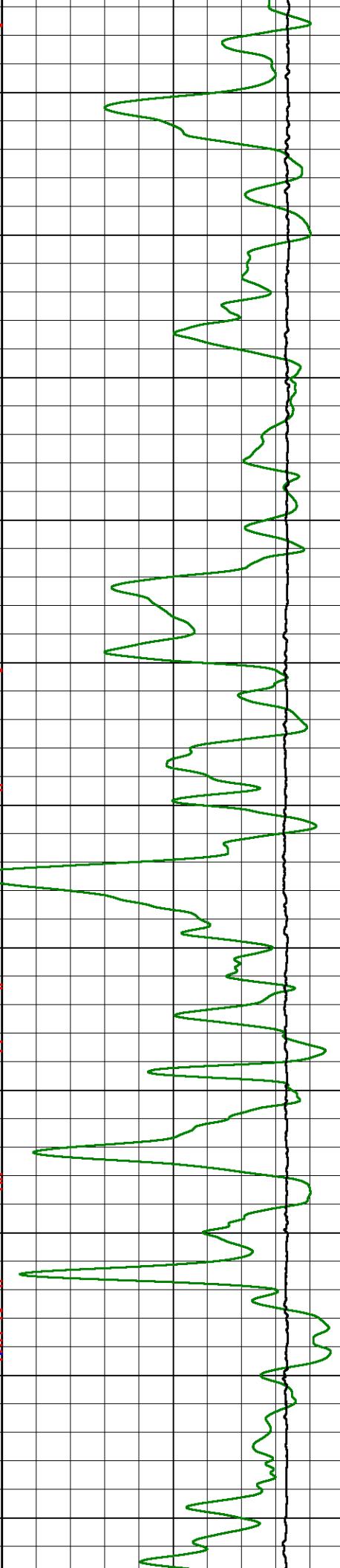
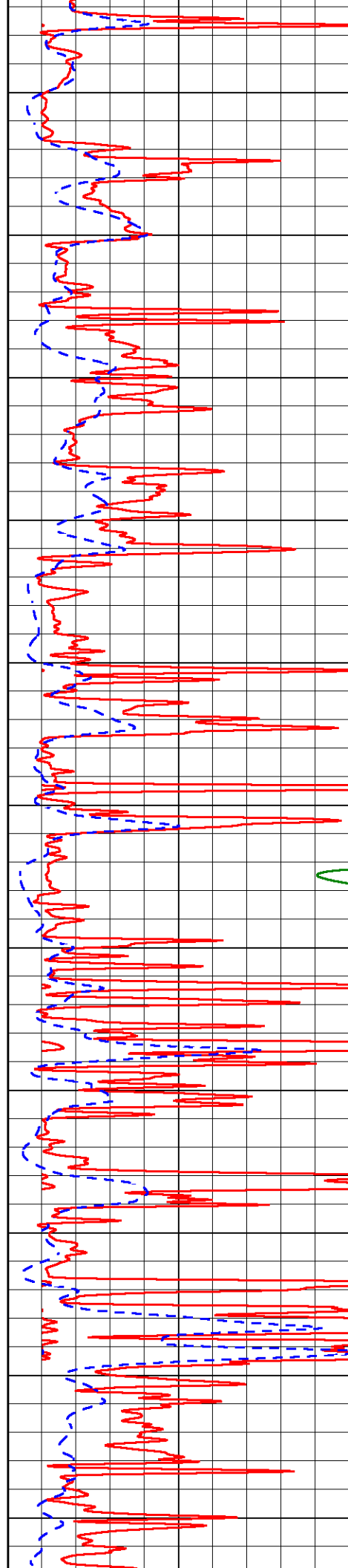


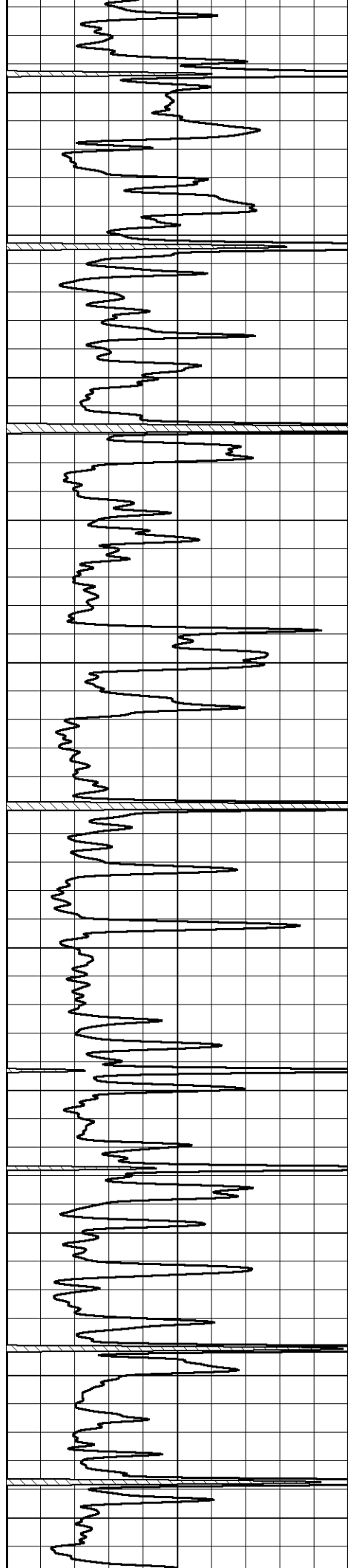






3200
3250
3300
3350
3400
3450
3500
3550
3600
3650
3700





3750

3800

3850

3900

3950

4000

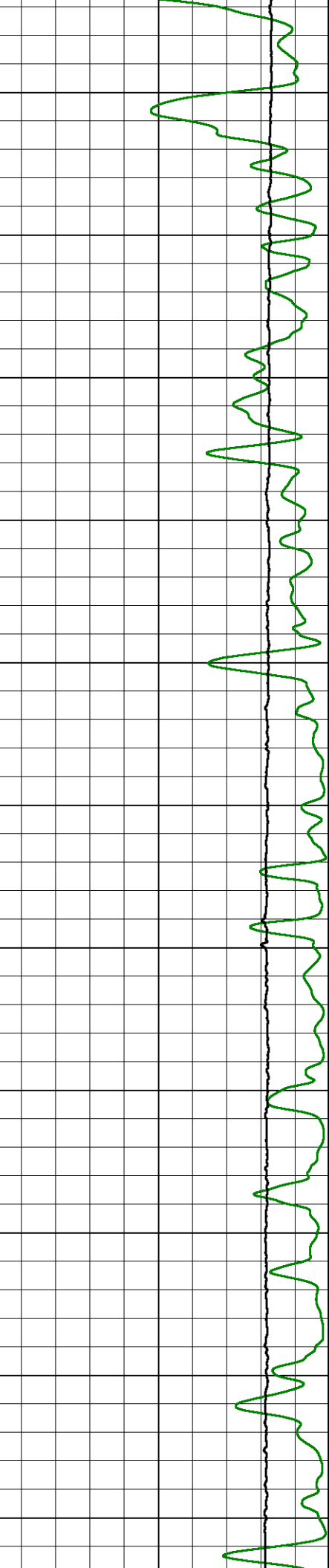
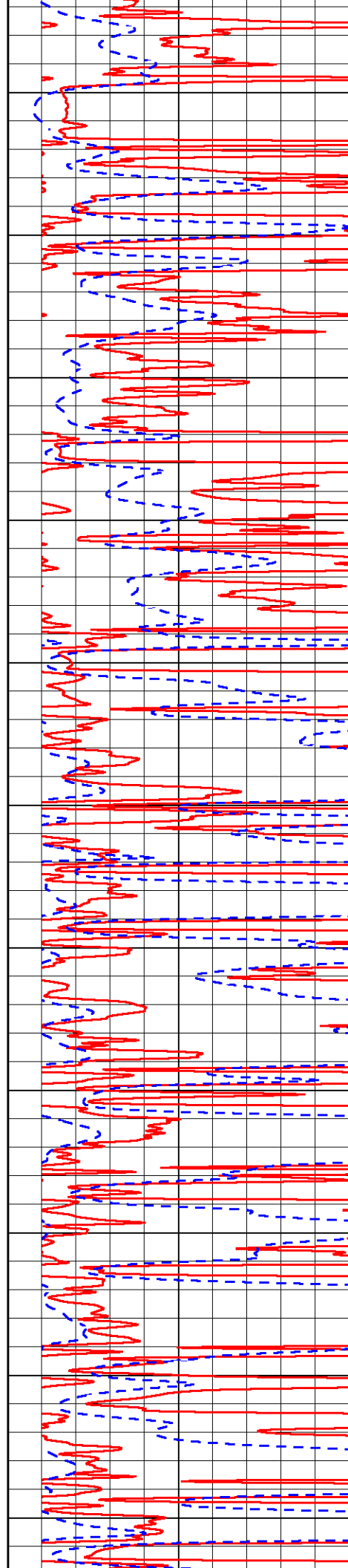
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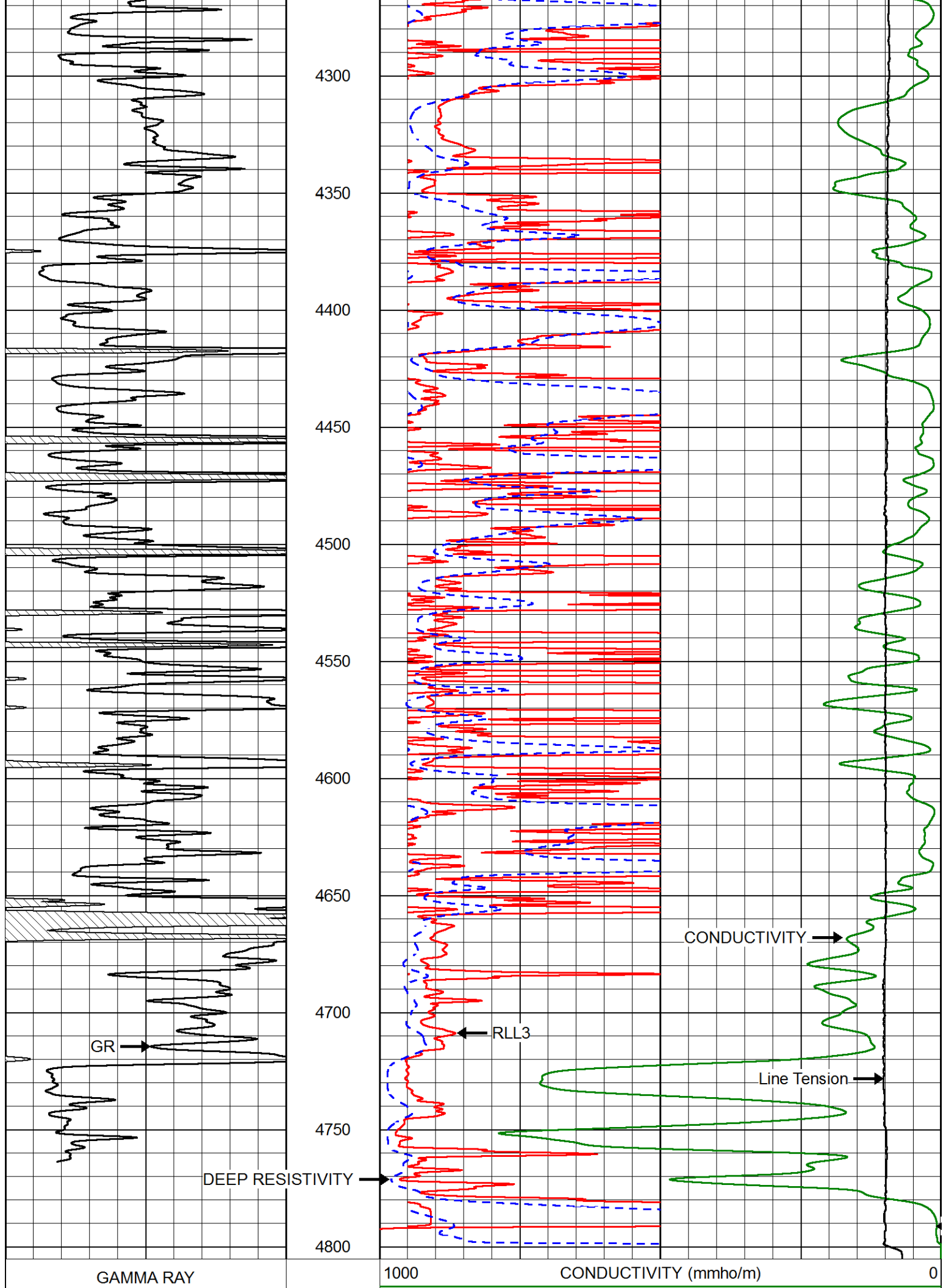
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4150

4200

4250





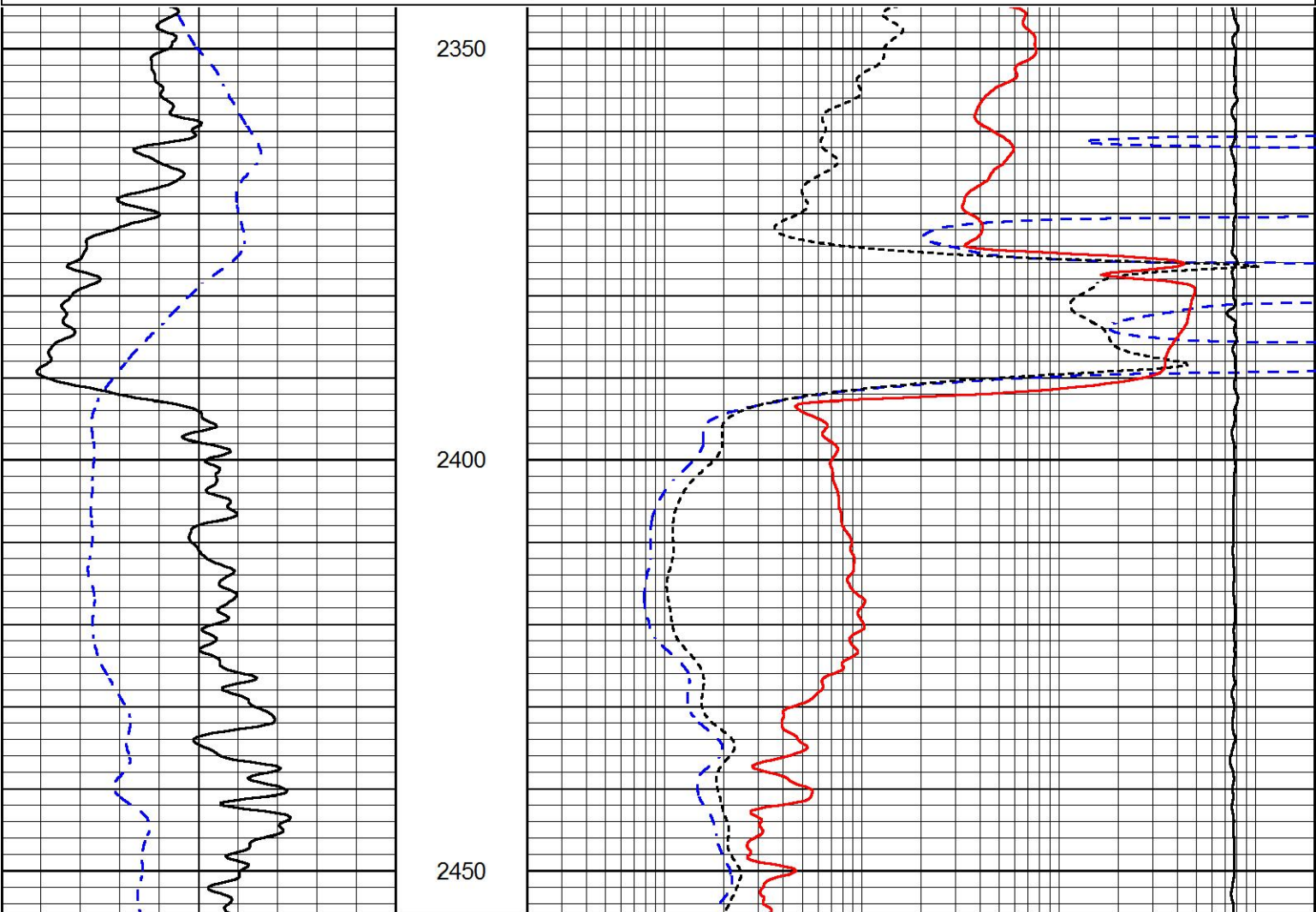
0	(GAPI)	150	15000	Line Tension (lb)	0
			0	RLL3 (Ohm-m)	50
			0	DEEP RESISTIVITY (Ohm-m)	50
			50	RLL3 (Ohm-m)	500
			50	Deep Resistivity (Ohm-m)	500



MAIN PASS

Database File	landmark_gerstberger_unit_1_20.db
Dataset Pathname	stackmel/pass5.1
Presentation Format	_dil
Dataset Creation	Fri Mar 29 05:36:01 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



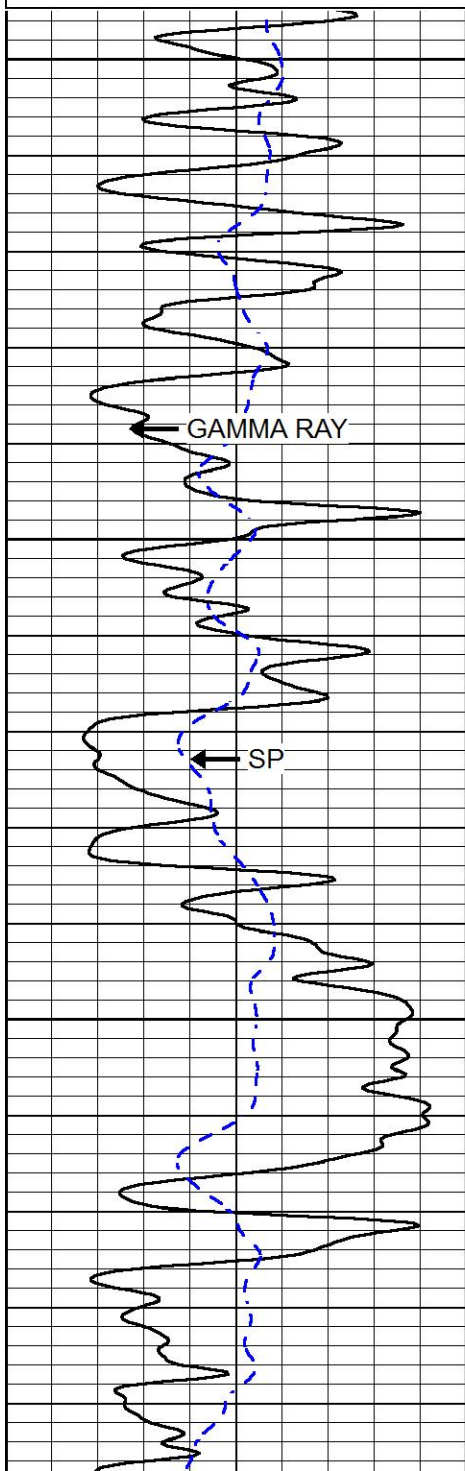
0	GAMMA RAY (GAPI)	150	0.2	DEEP RESISTIVITY (Ohm-m)	2000
-200	SP (mV)	0	0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
			0.2	RLL3 (Ohm-m)	2000
			10000	LINE TENSION (lb)	0

MAIN PASS

Database File landmark_gerstberger_unit_1_20.db
 Dataset Pathname stackmel/pass4.1
 Presentation Format _dil
 Dataset Creation Fri Mar 29 04:53:19 2019
 Charted by Depth in Feet scaled 1:240

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

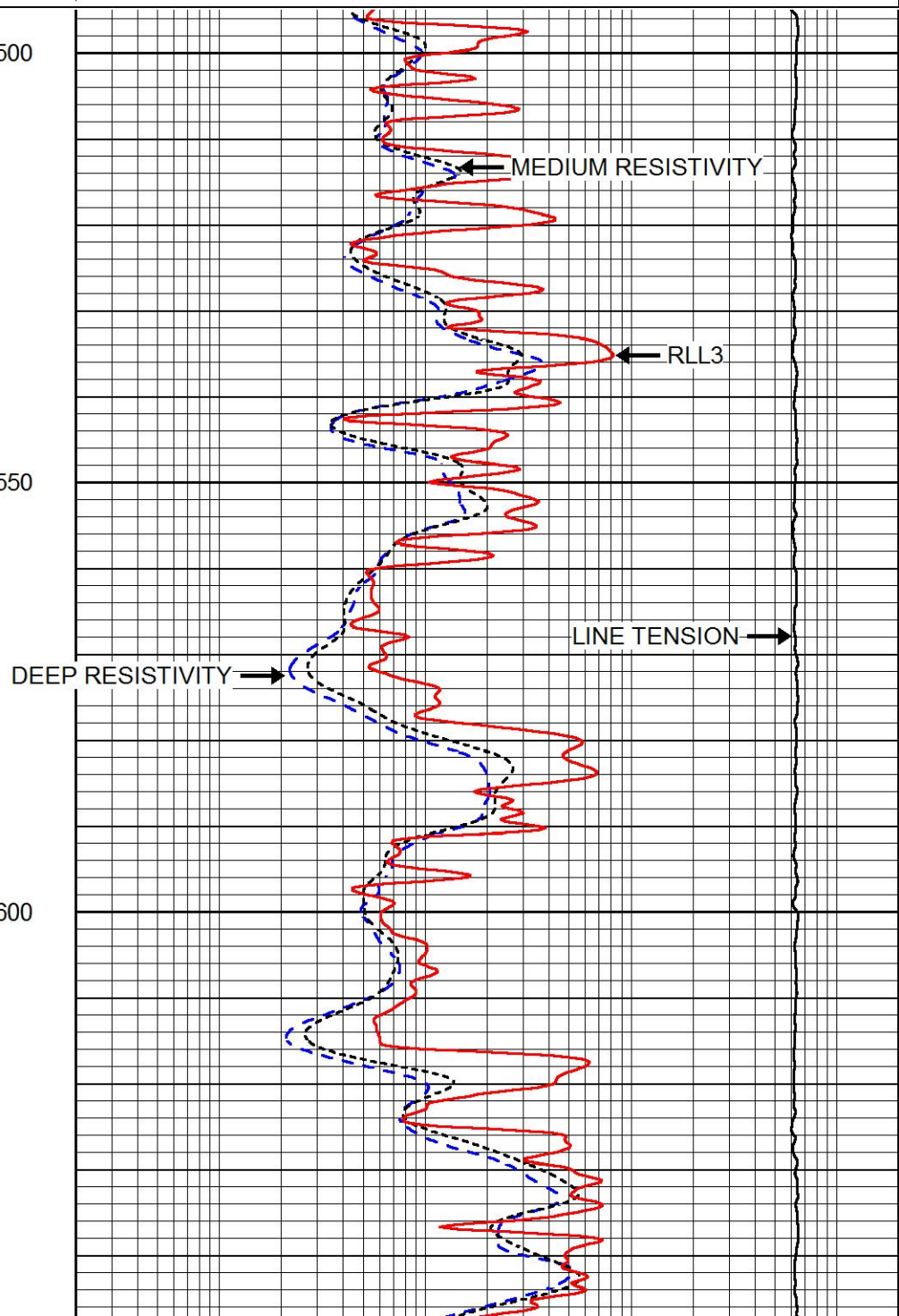
0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	LINE TENSION (lb)	0

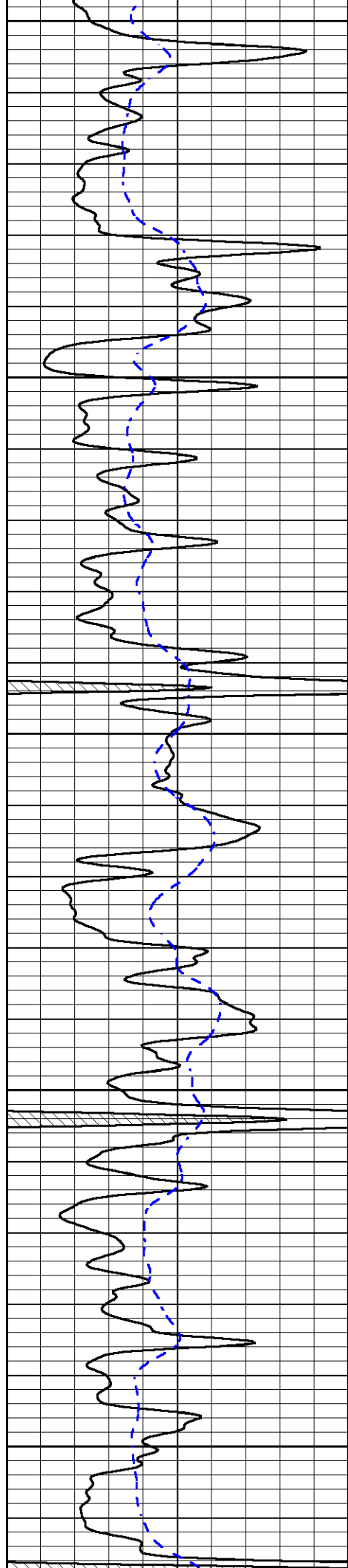


3500

3550

3600





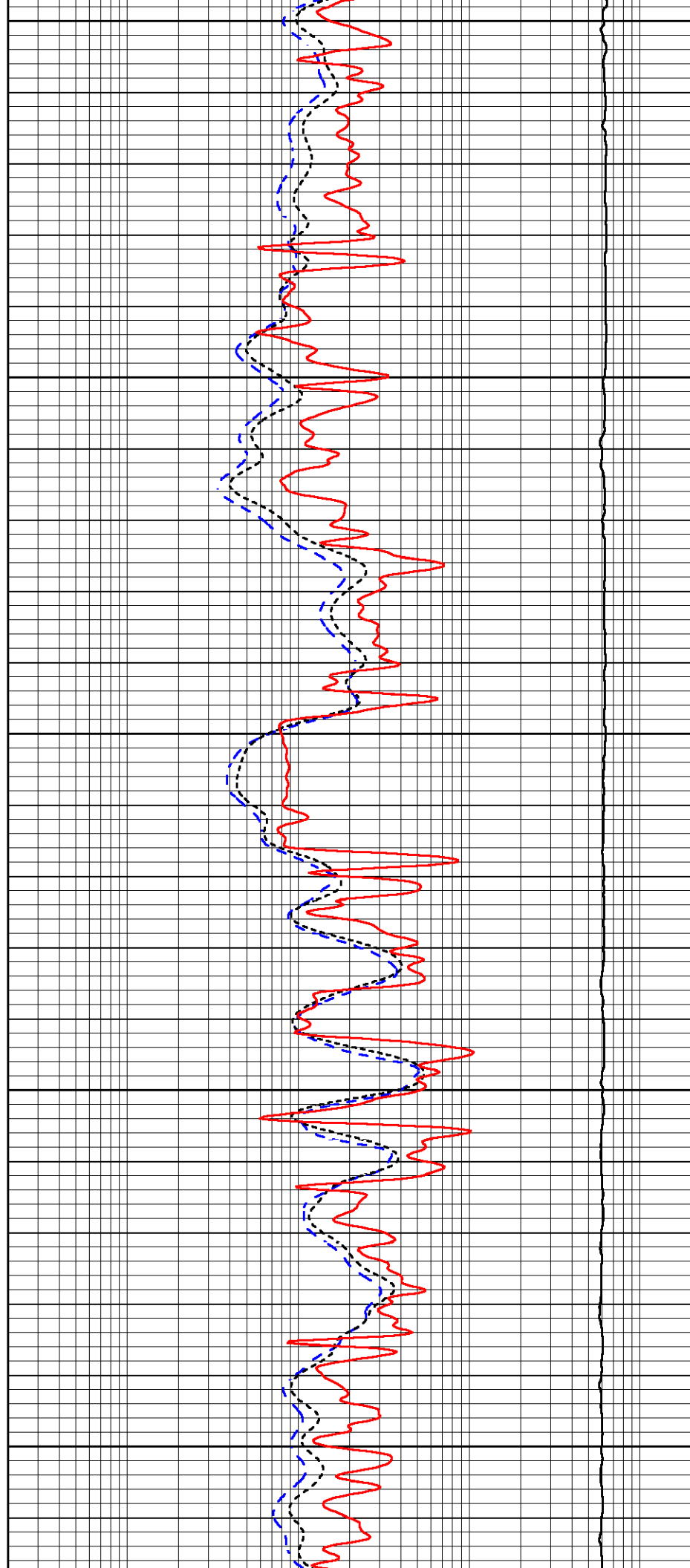
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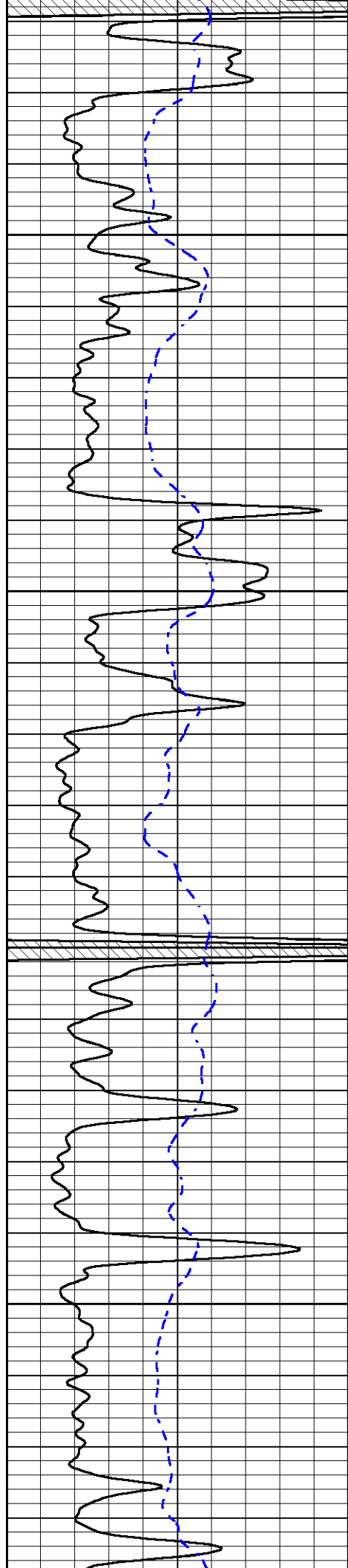
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3750

3800

3850



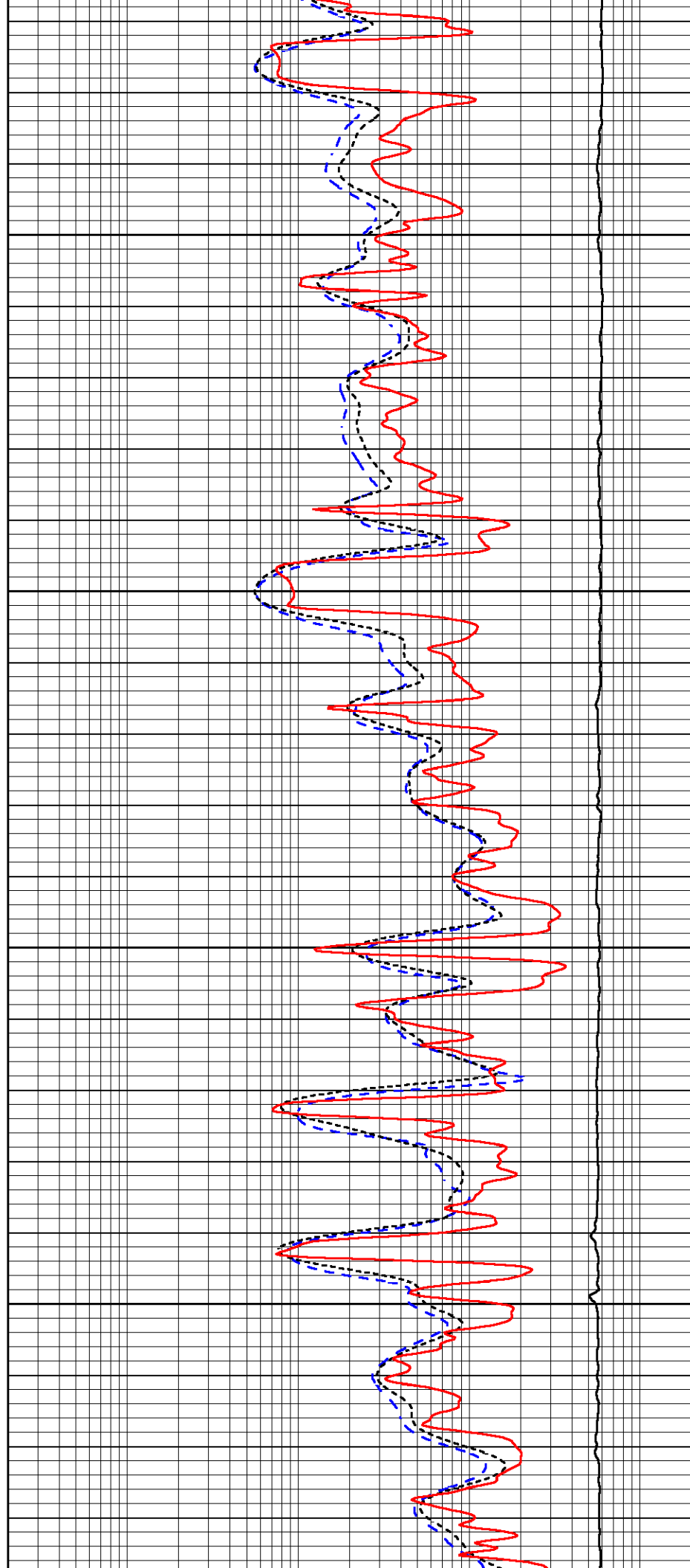


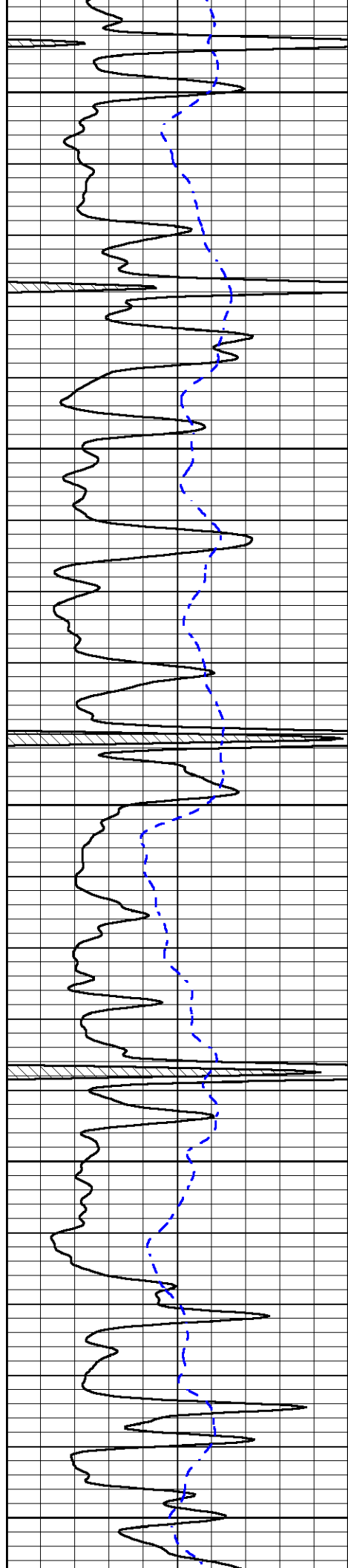
3900

3950

4000

4050





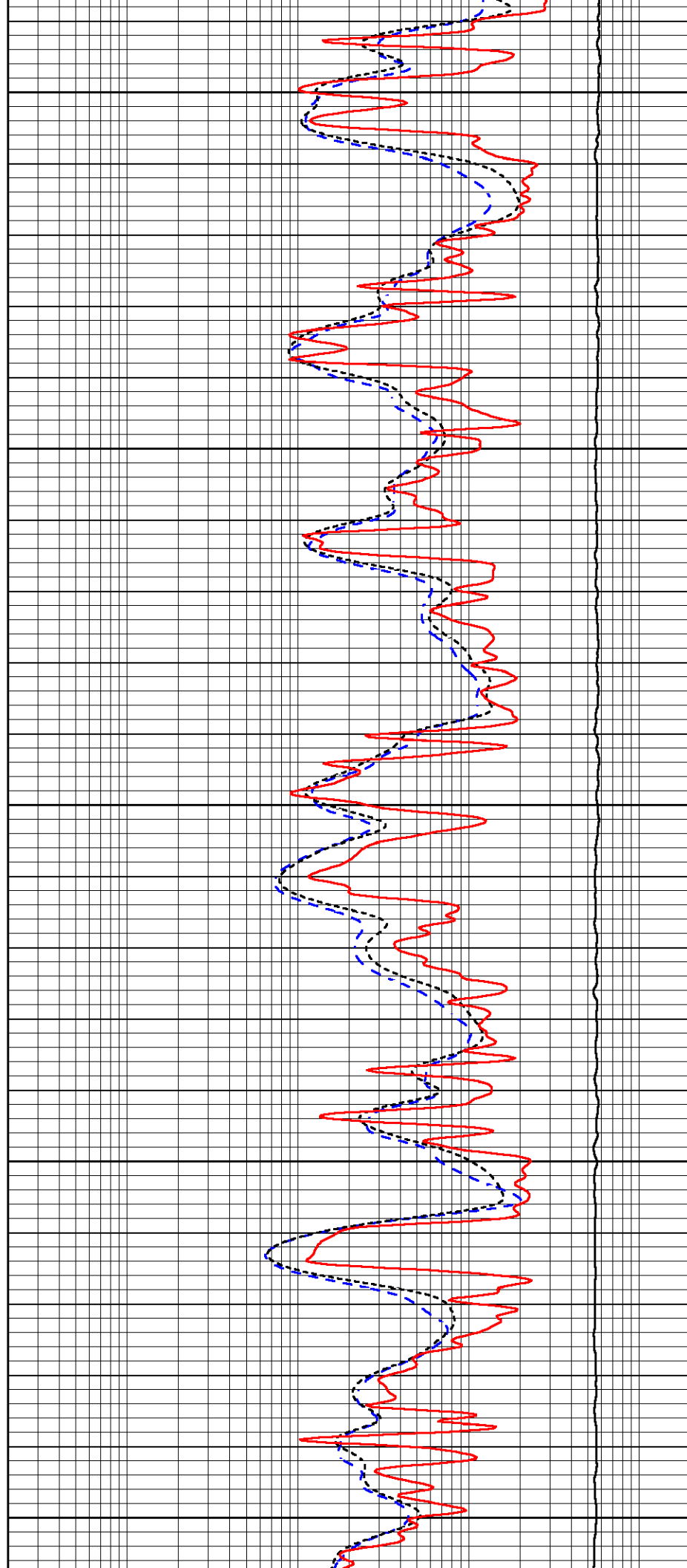
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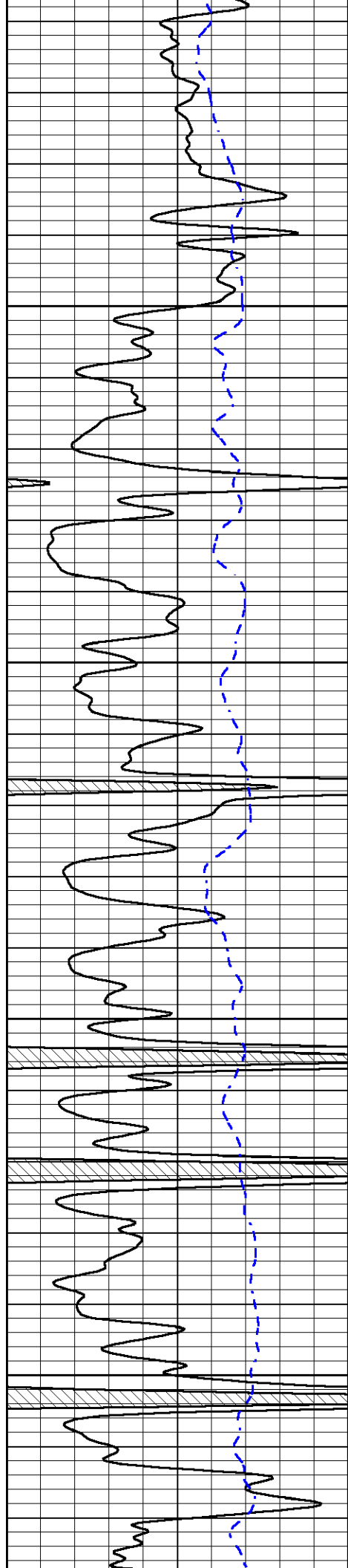
4150

4200

4250

4300



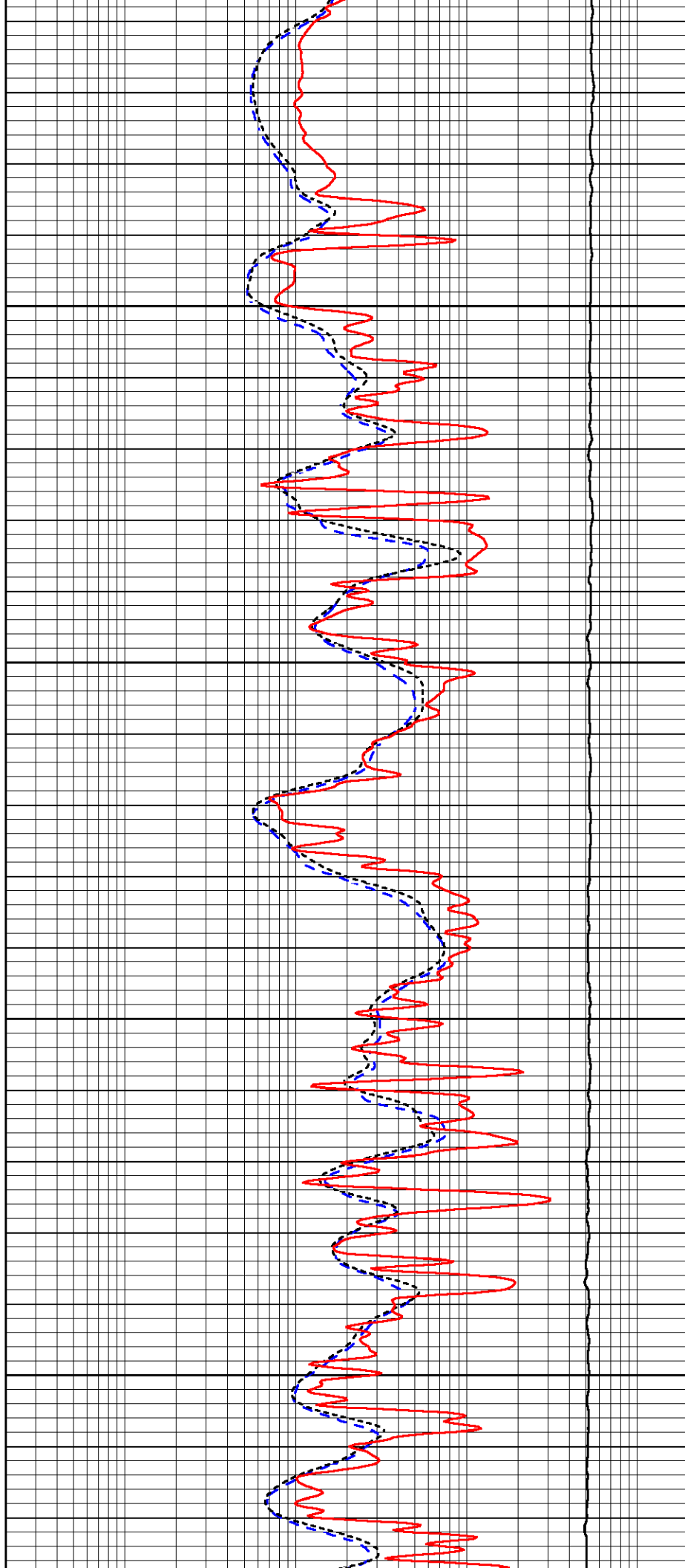


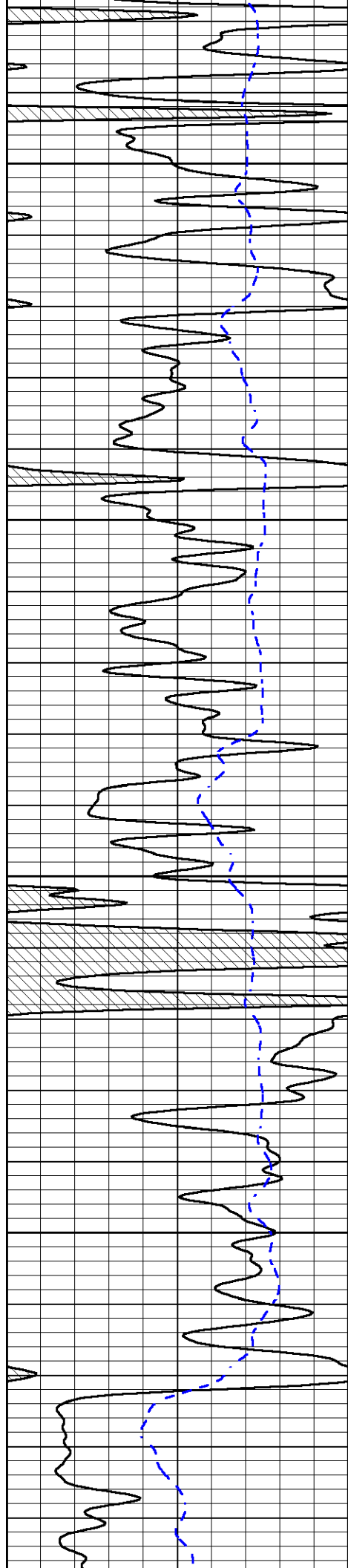
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4400

4450

4500



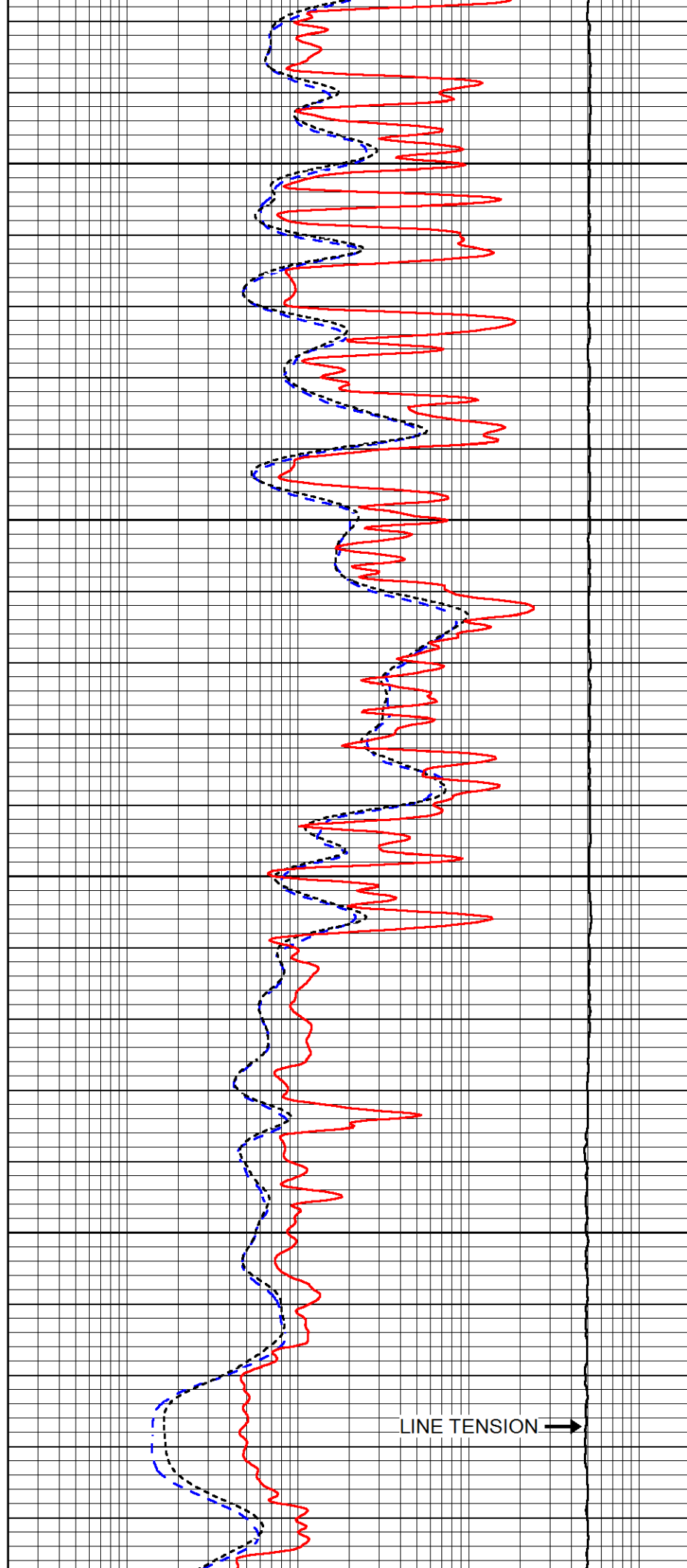


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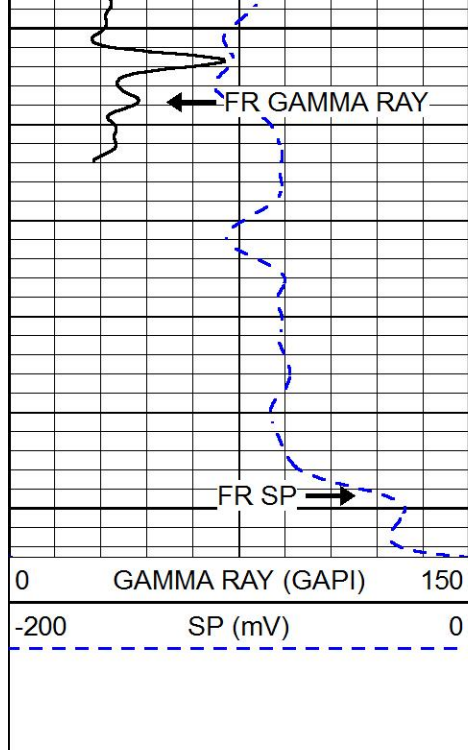
4600

4650

4700

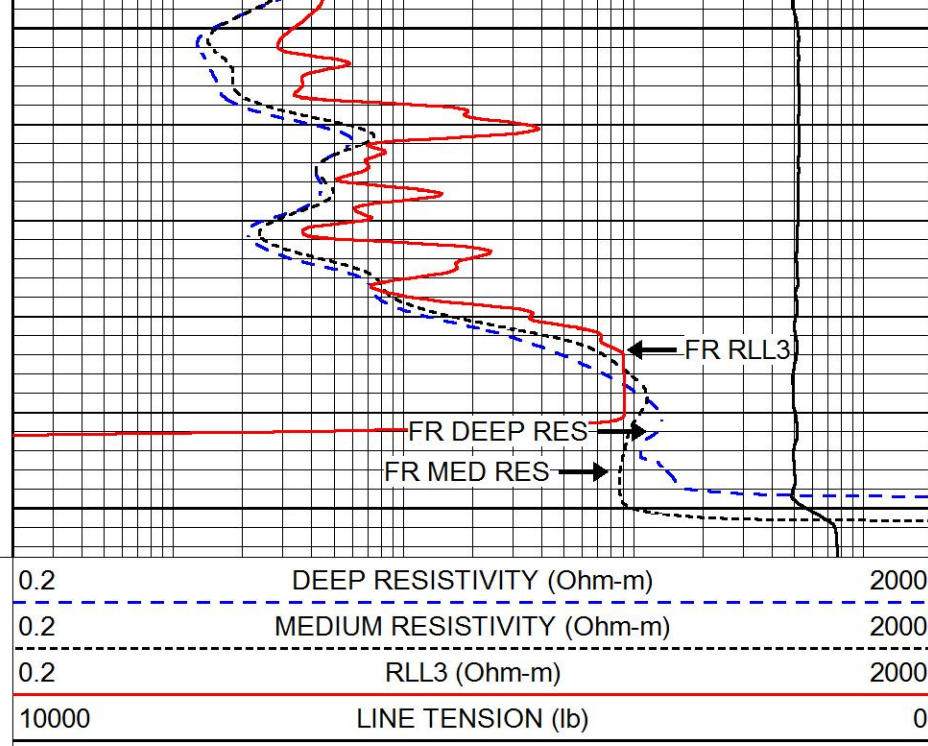


LINE TENSION →



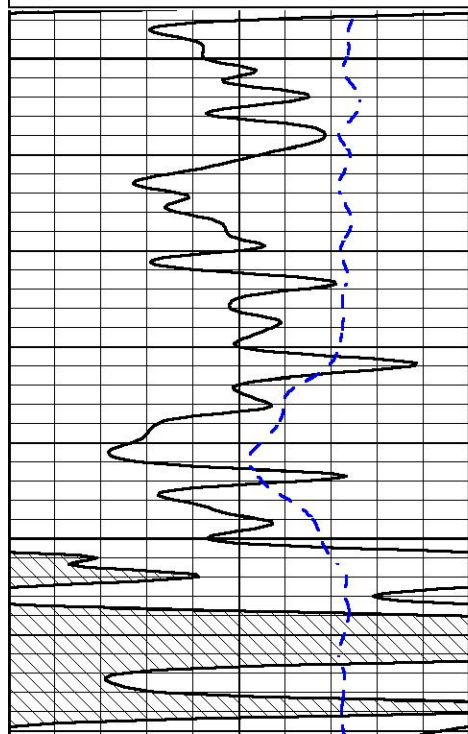
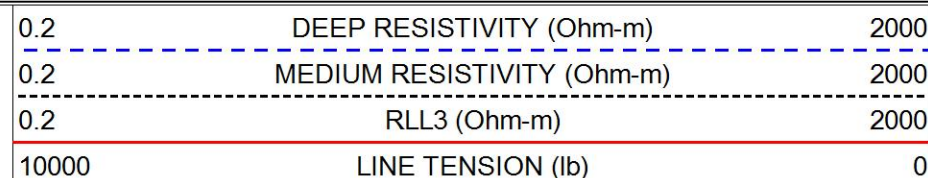
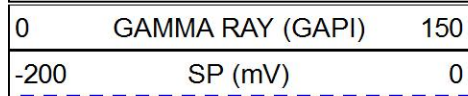
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4800



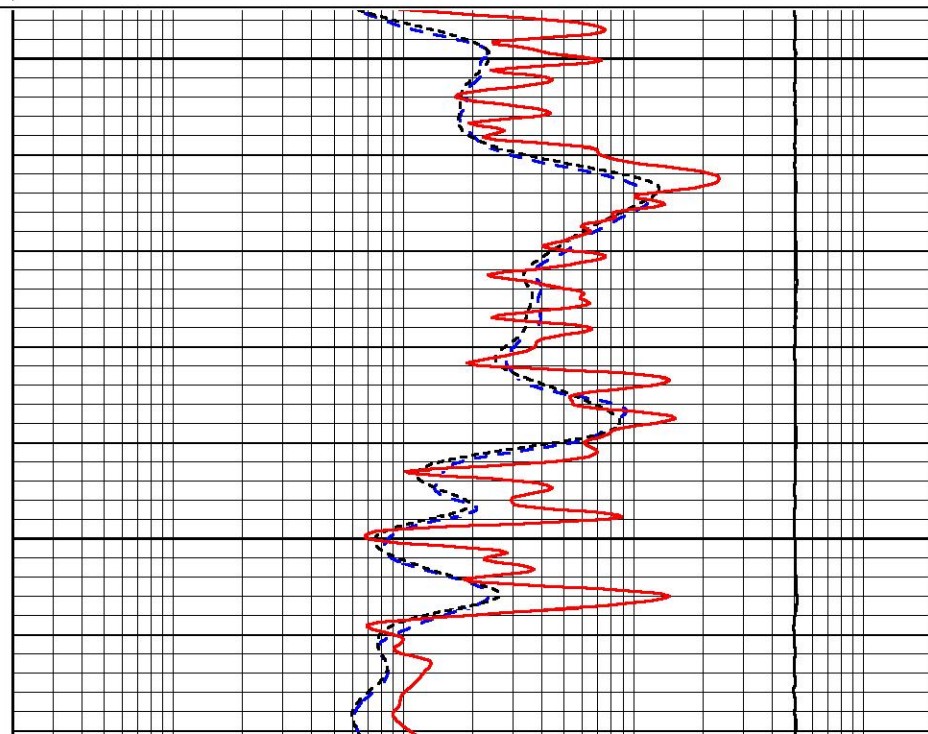
REPEAT SECTION

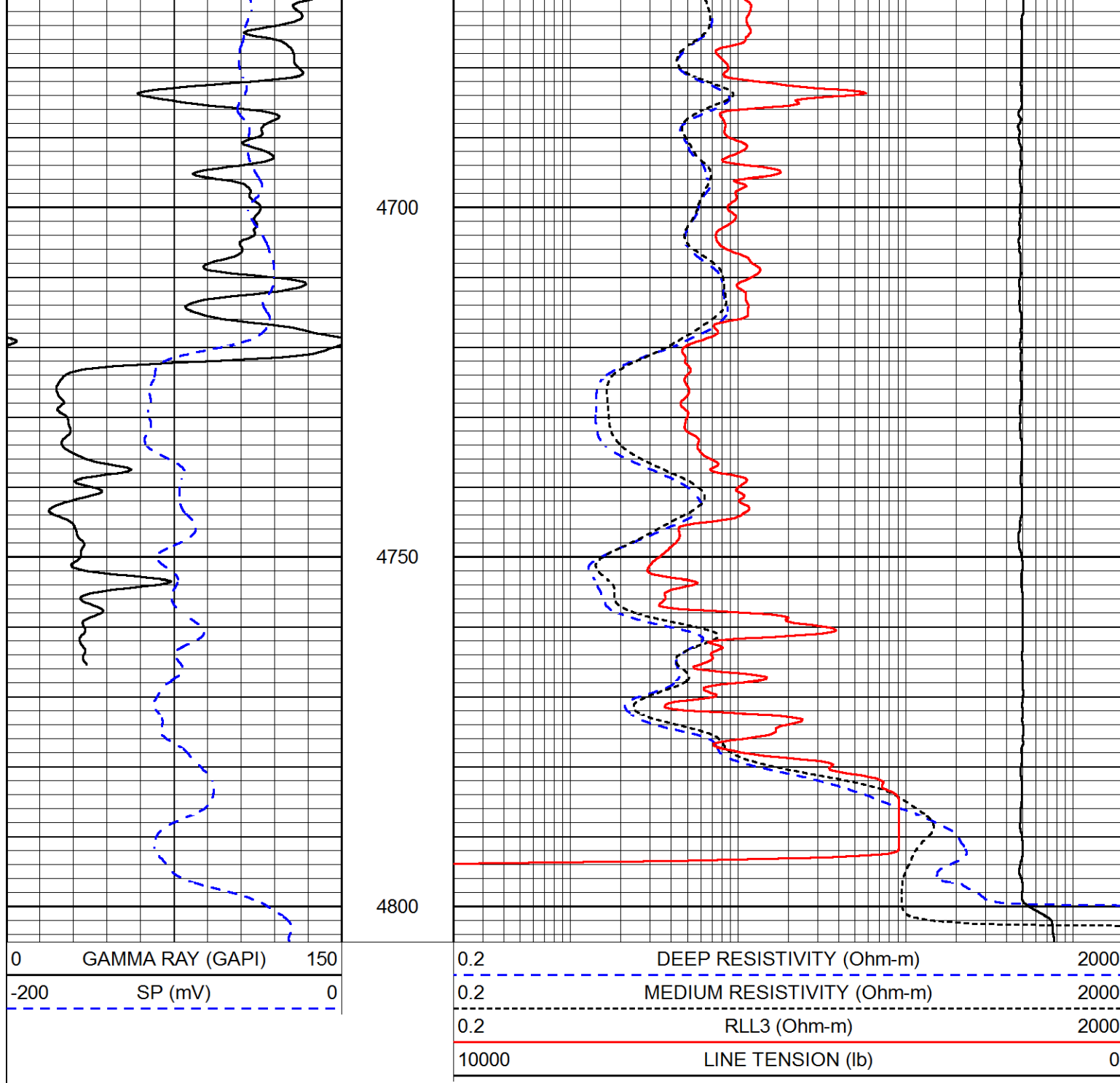
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 Dataset Pathname stackmel/pass3.1
 Presentation Format _dil
 Dataset Creation Fri Mar 29 04:23:37 2019
 Charted by Depth in Feet scaled 1:240



4600

4650





Calibration Report	
Database File	landmark_gerstberger_unit_1_20.db
Dataset Pathname	stackmel/pass4.1
Dataset Creation	Fri Mar 29 04:53:19 2019

Dual Induction Calibration Report

Serial-Model:	967 (HT)-PSI HIGH TEMP
Calibration Performed:	Sun Oct 07 19:24:22 2018

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

Microlog Calibration Report							
Serial-Model: Performed:				PSI-01-PSIML Sun Feb 24 09:53:40 2019			
	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	21000.0000	-0.7000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	25000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.8000

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

Field

WILDCAT

County

WICHITA

State

KANSAS