



# DUAL INDUCTION LOG

Company: GREAT PLAINS ENERGY, INC.  
 Well: SAUVAGE #11  
 Field: SWEDE HOLLOW  
 County: DECATUR  
 State: KANSAS

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 Well: SAUVAGE #11  
 Field: SWEDE HOLLOW  
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 State: KANSAS

Location: API #: 15-039-21265-00-00  
 550' FSL & 900' FEL  
 SEC 26 TWP 4S RGE 30W  
 Permanent Datum: GROUND LEVEL Elevation 2841'  
 Log Measured From: KELLY BUSHING  
 Drilling Measured From: KELLY BUSHING  
 Other Services: CNL/CDL MEL  
 Elevation: K.B. 2848', D.F. N/A, G.L. 2841'

Date	10/14/2019
Run Number	ONE
Depth Driller	4200'
Depth Logger	4202'
Bottom Logged Interval	4201'
Top Log Interval	250'
Casing Driller	8.625" @ 269'
Casing Logger	266'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	1800
Density / Viscosity	8.9 70
pH / Fluid Loss	11.0 6.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	0.80 @ 60
Rmt @ Meas. Temp	0.60 @ 60
Rmc @ Meas. Temp	1.08 @ 60
Source of Rmf / Rmc	CHARTS
Rm @ BHT	0.41 @ 118
Operating Rig Time	3 HOURS
Max Rec. Temp. F	118
Equipment Number	P-24
Location	HAYS
Recorded By	D. SCHMIDT
Witnessed By	CLAYTON ERICKSON

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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.

OBERLIN,  
 10 SOUTH TO I LANE (RD 352),  
 6 1/2 WEST, 1 SOUTH, 1/2 WEST,  
 NORTH INTO

Log Measured From: KELLY BUSHING 7 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		This Log Record Was Witnessed By	
Engineer: D. SCHMIDT	Operator:	Primary Witness: CLAYTON ERICKSON	Secondary Witness:
Operator:	Operator:	Secondary Witness:	Secondary Witness:
Operator:		Secondary Witness:	

Core	Offset (ft)	Depth	Description	Length (ft)	O.D. (in)	Weight (lb)
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Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (233-M&W)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (207-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
MCAL MI MN	19.83 19.83 19.83		CDL-M&W (96-916)	8.50	4.00	250.00
RLL3F RLL3	15.80 15.80					
CILD	8.00		DIL-PSI HIGH TEMP (1039)	18.50	3.50	220.00
CILM	4.70					
SP	0.20					

Dataset: great plains\_sauvage 11.db: field/well/stkml/pass3.1  
 Total length: 43.08 ft  
 Total weight: 685.00 lb  
 O.D.: 4.00 in

# Log Variables

DatabaseC:\ProgramData\Warrior\Data\great plains\_sauvage 11.db  
 Dataset field/well/stkml/pass3.1/\_vars\_

## Top - Bottom

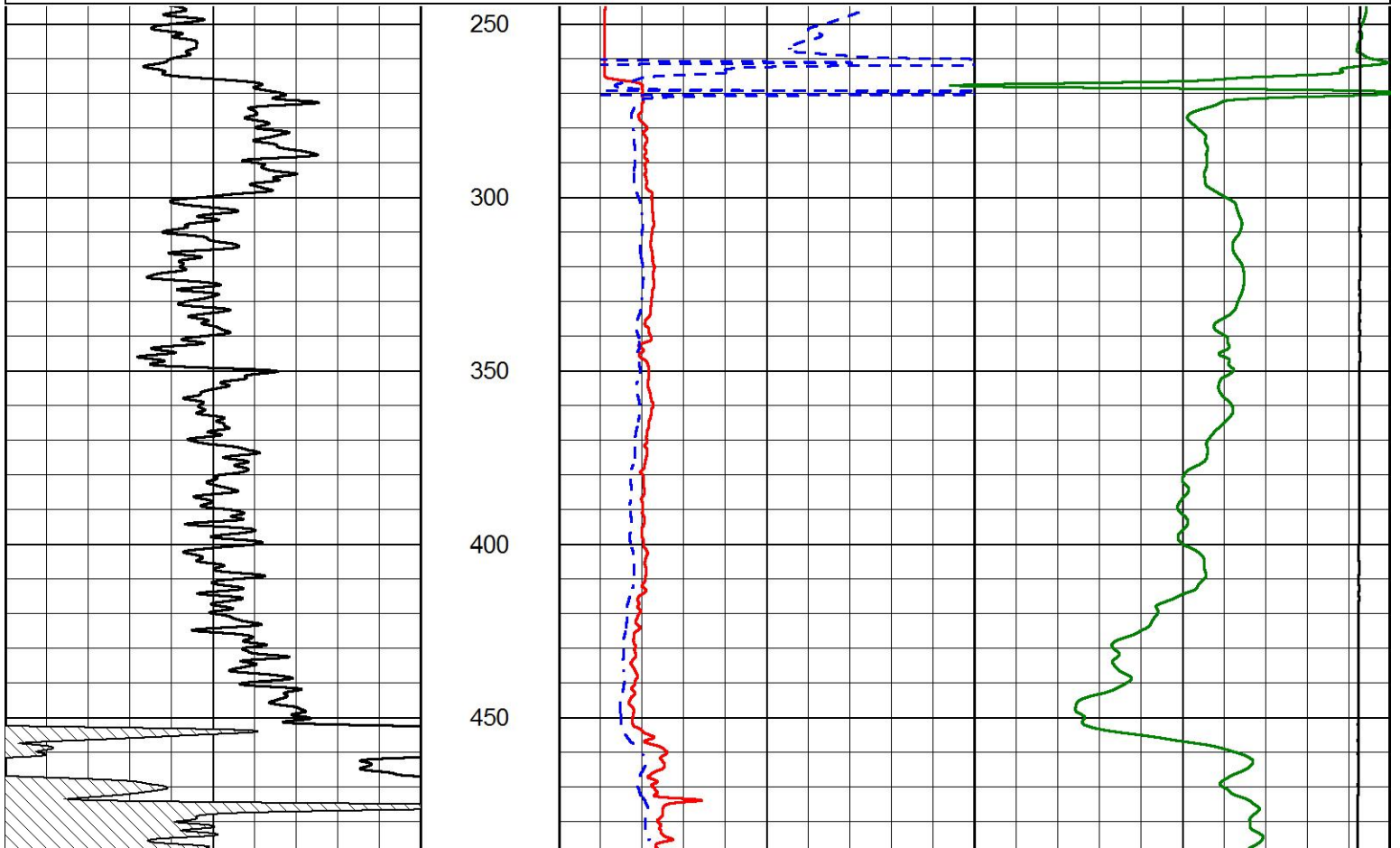
A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	100	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	0	0	460	0	Off	0

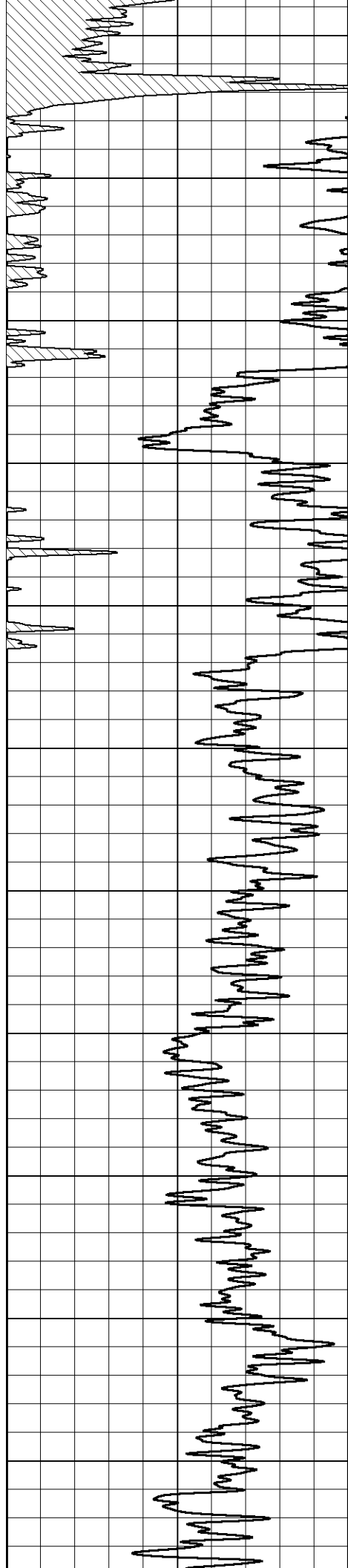


# MAIN PASS

Database File great plains\_sauvage 11.db  
 Dataset Pathname stkml/pass4.1  
 Presentation Format \_dil2in  
 Dataset Creation Mon Oct 14 21:33:55 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
	50	RLL3 (Ohm-m)	500
	0	RILD (Ohm-m)	50
	50	Deep Resistivity (Ohm-m)	500





500

550

600

650

700

750

800

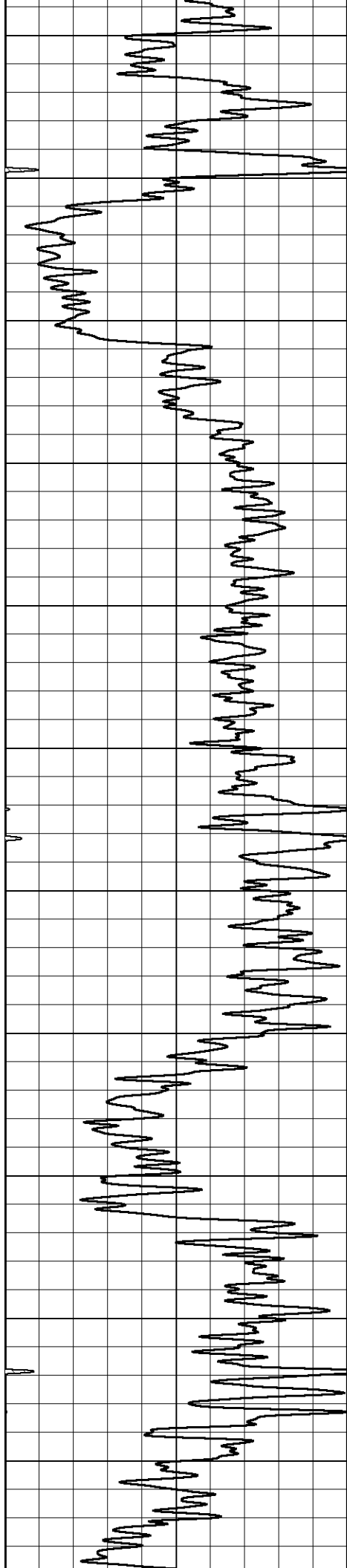
850

900

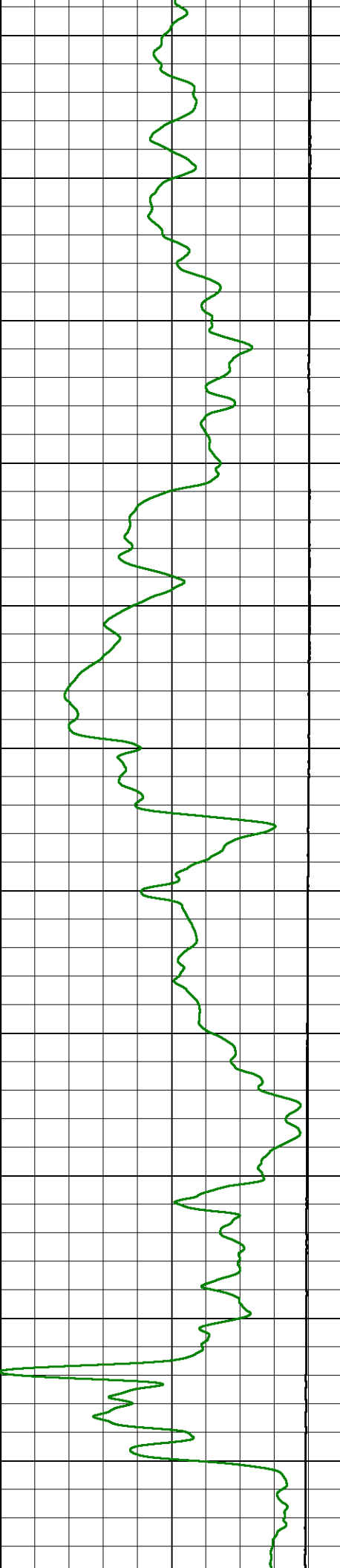
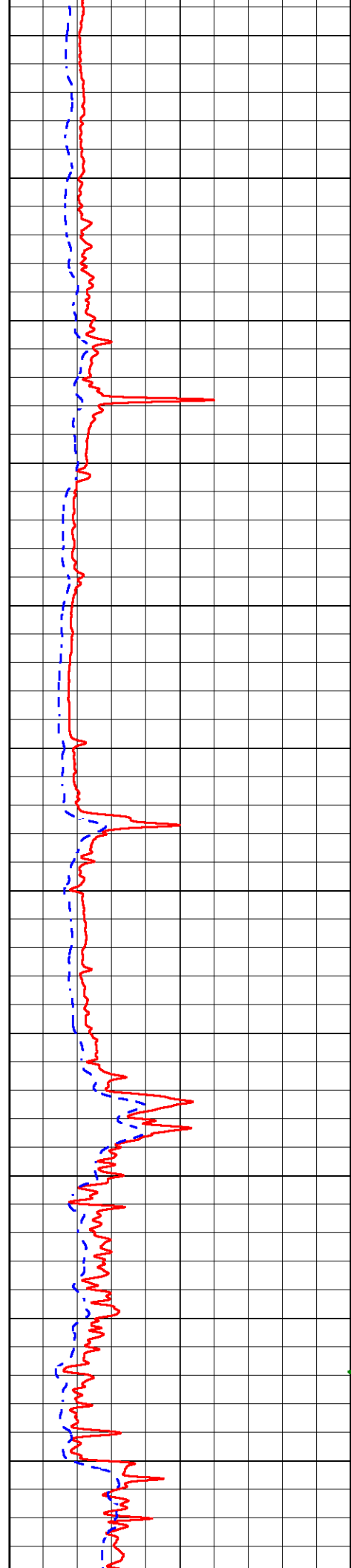
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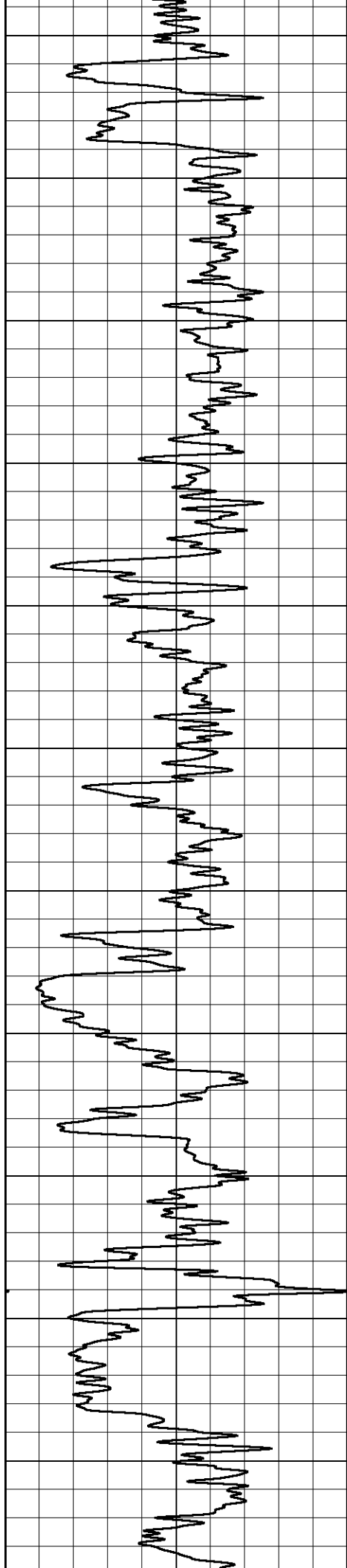
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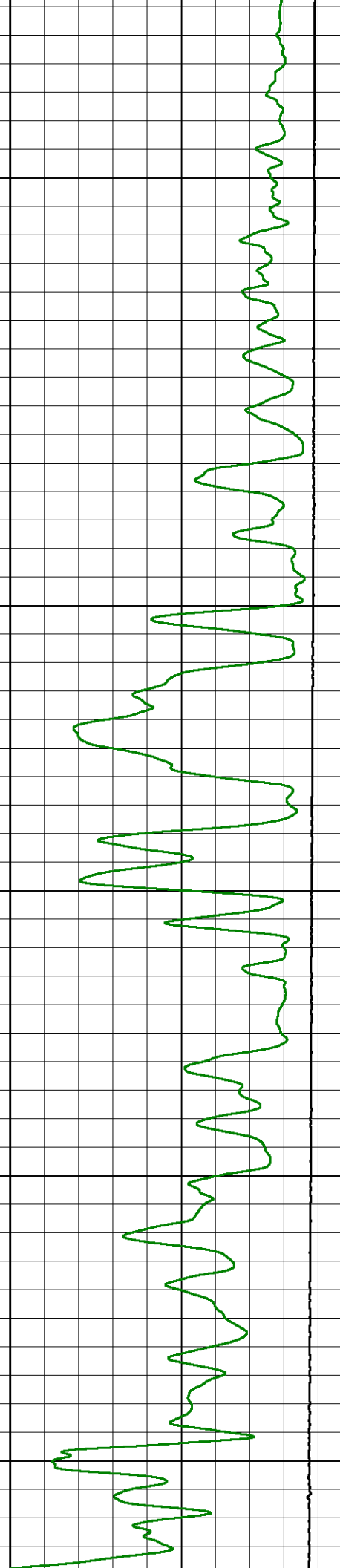
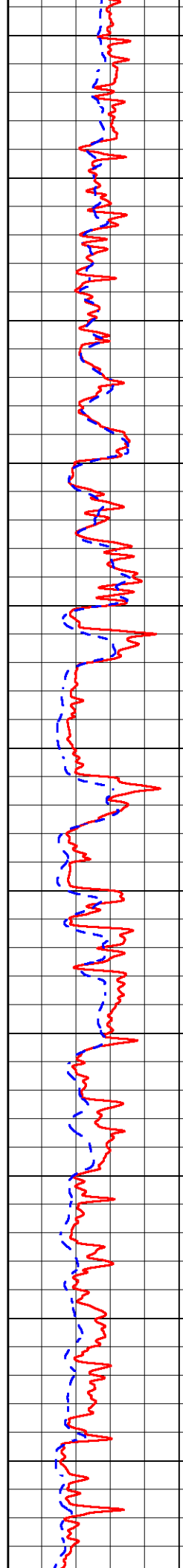


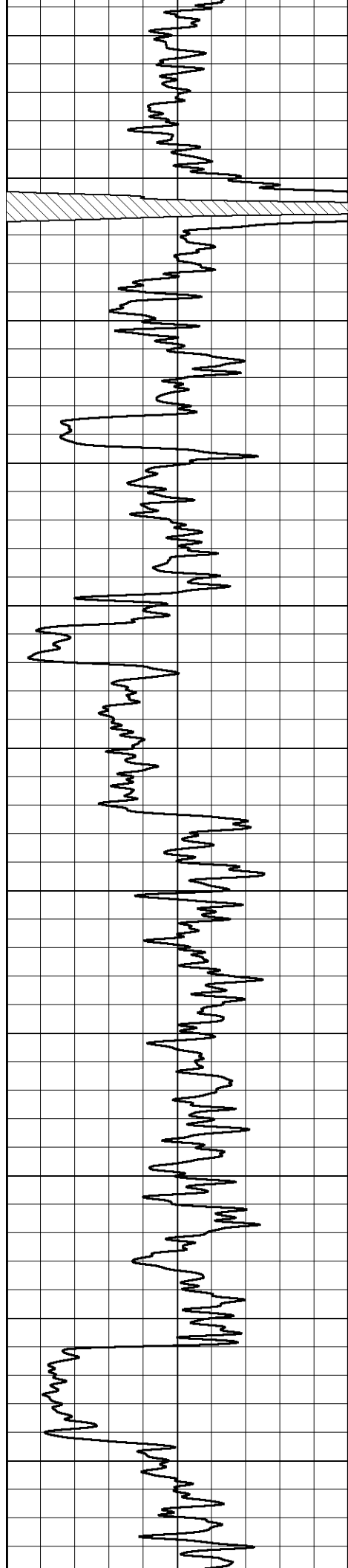
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1100  
1150  
1200  
1250  
1300  
1350  
1400  
1450  
1500  
1550





1600  
1650  
1700  
1750  
1800  
1850  
1900  
1950  
2000  
2050  
2100





2150

2200

2250

2300

2350

2400

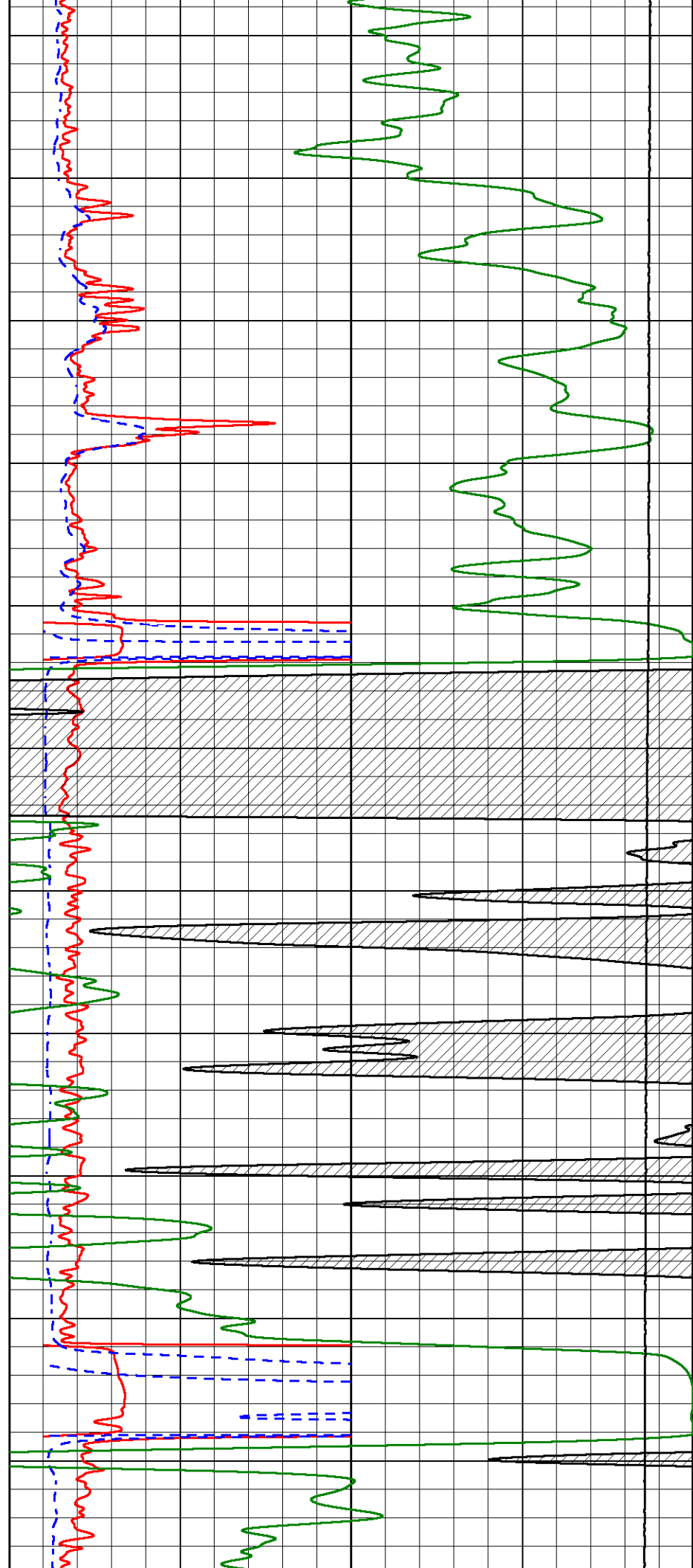
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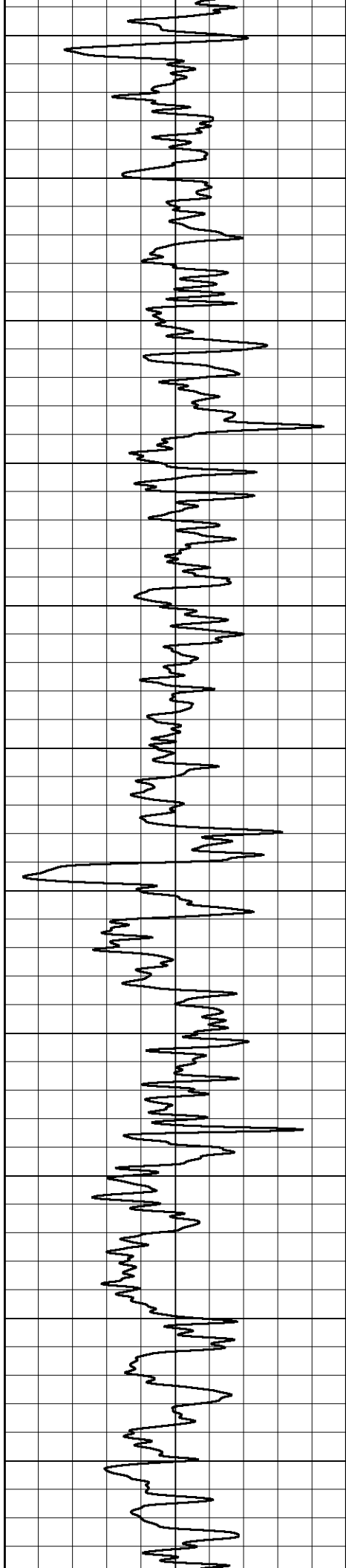
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2550

2600

2650





2700

2750

2800

2850

2900

2950

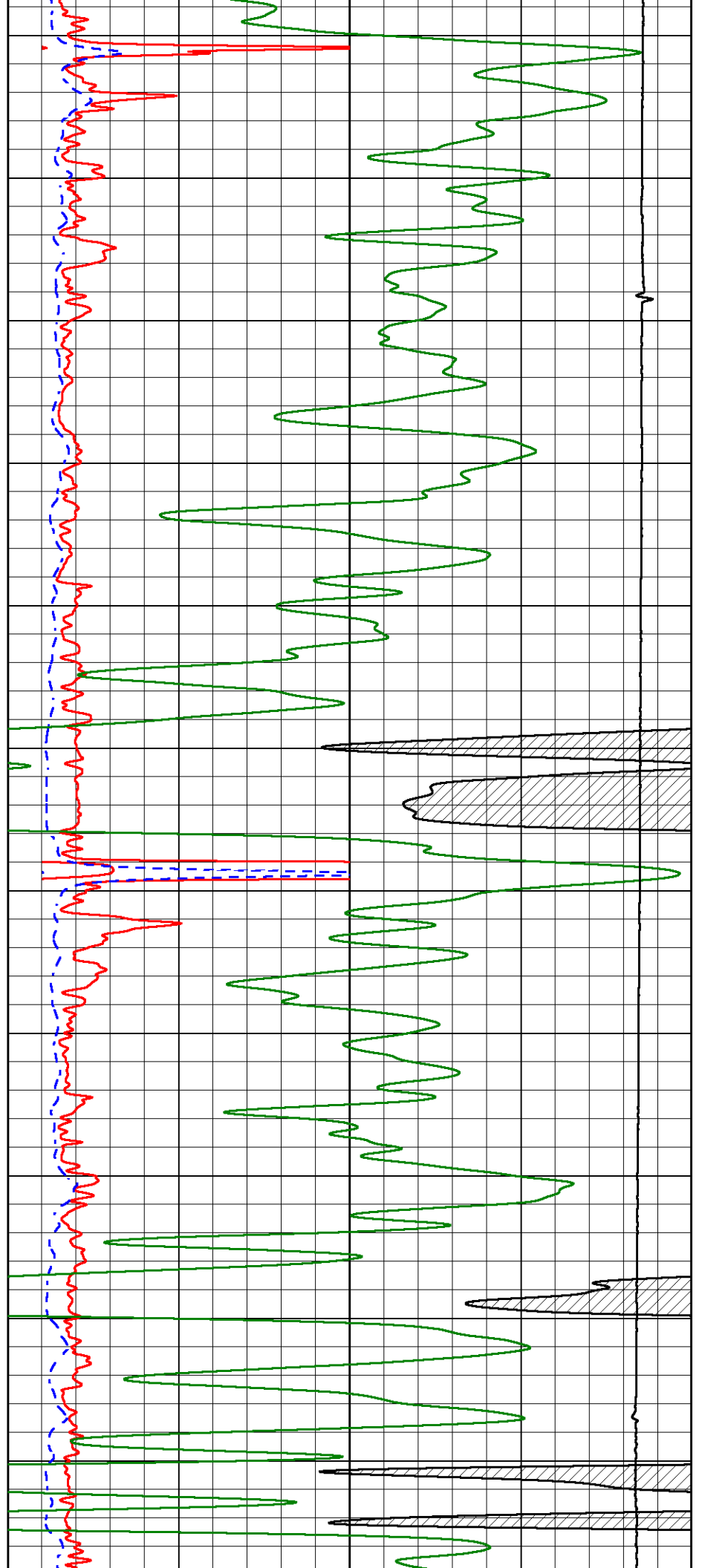
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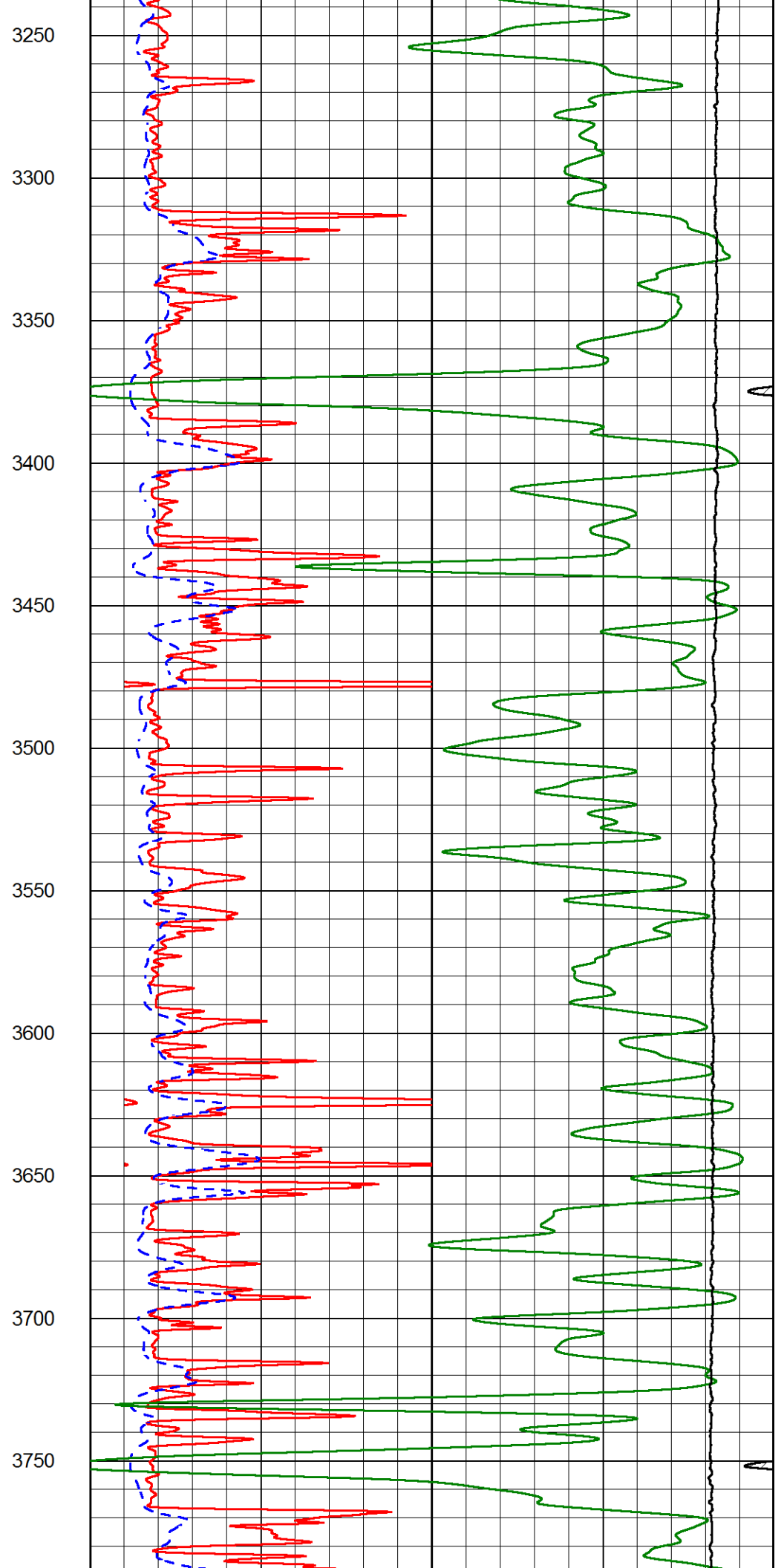
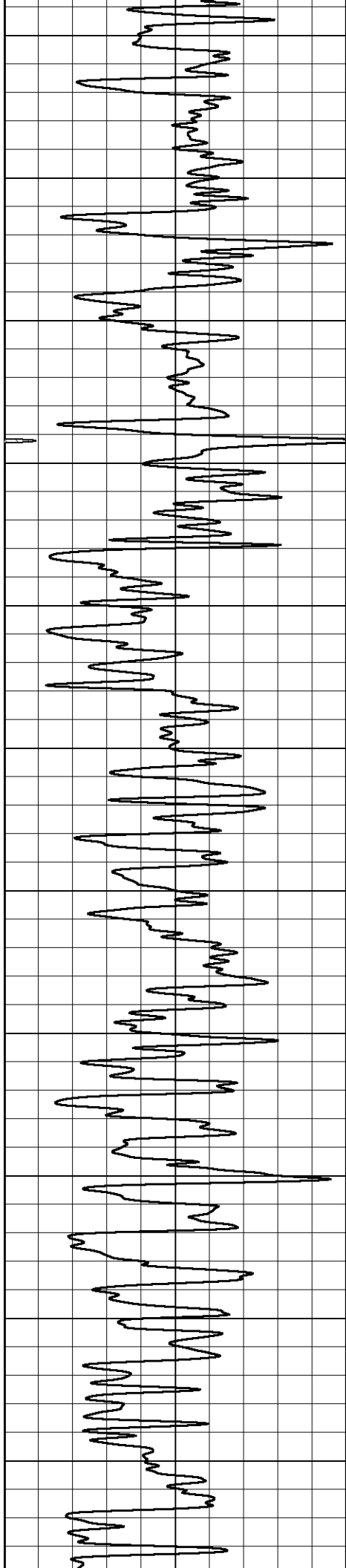
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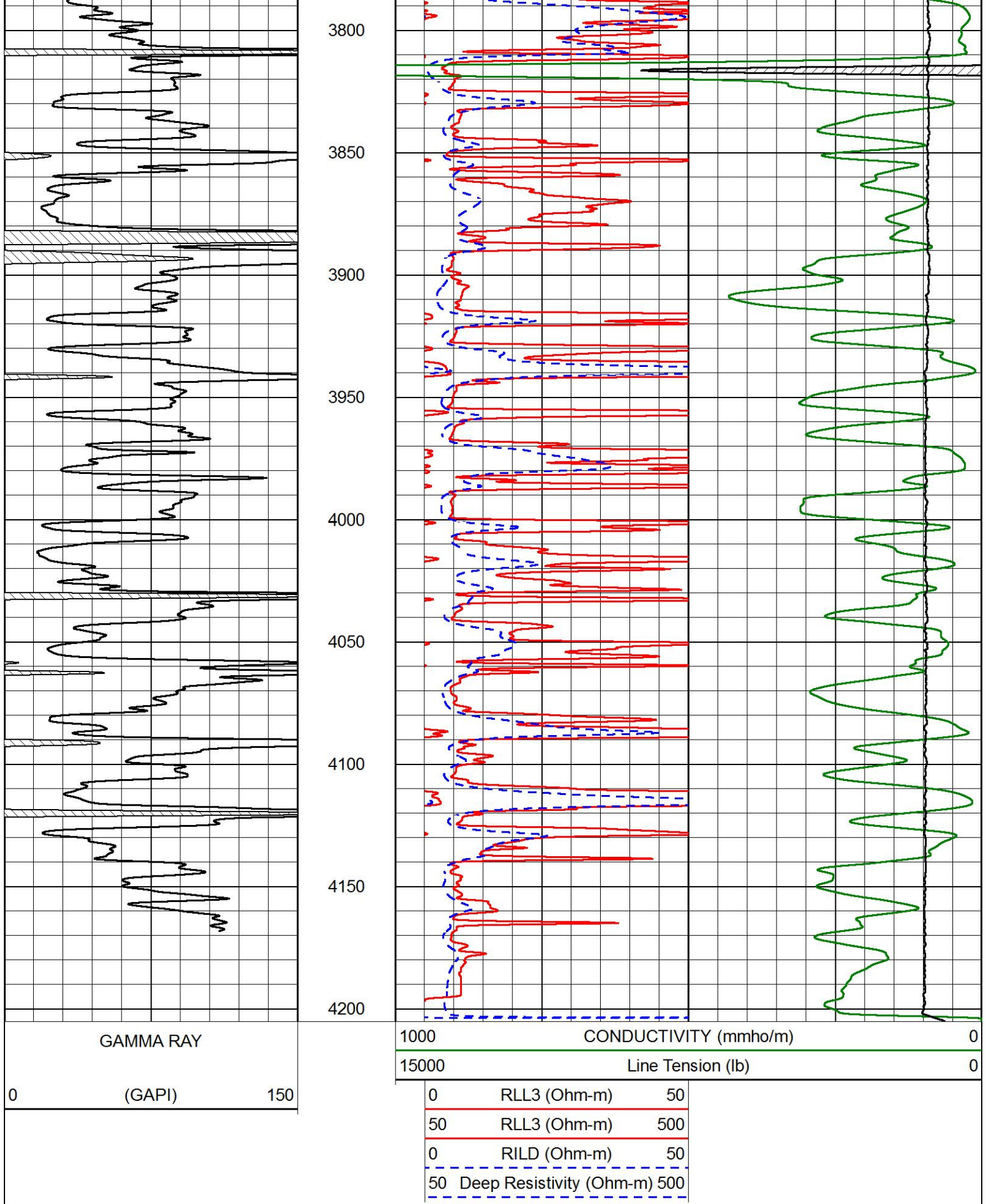
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3150

3200



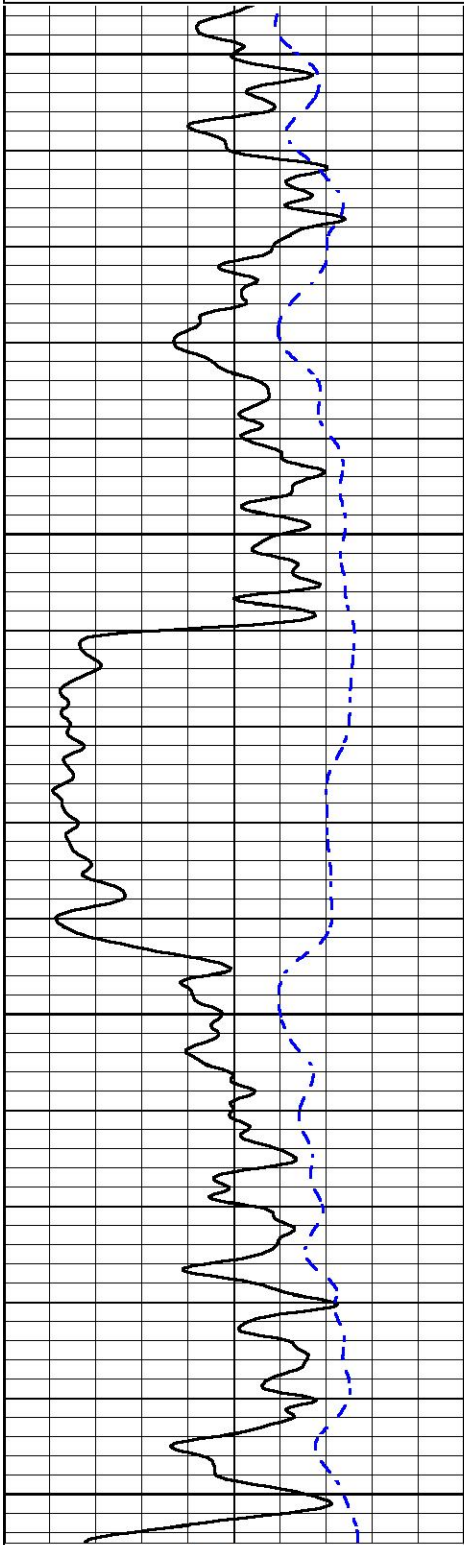




Database File great plains\_sauvage 11.db  
 Dataset Pathname stkml/pass4.1  
 Presentation Format \_dil  
 Dataset Creation Mon Oct 14 21:33:55 2019  
 Charted by Depth in Feet scaled 1:240

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

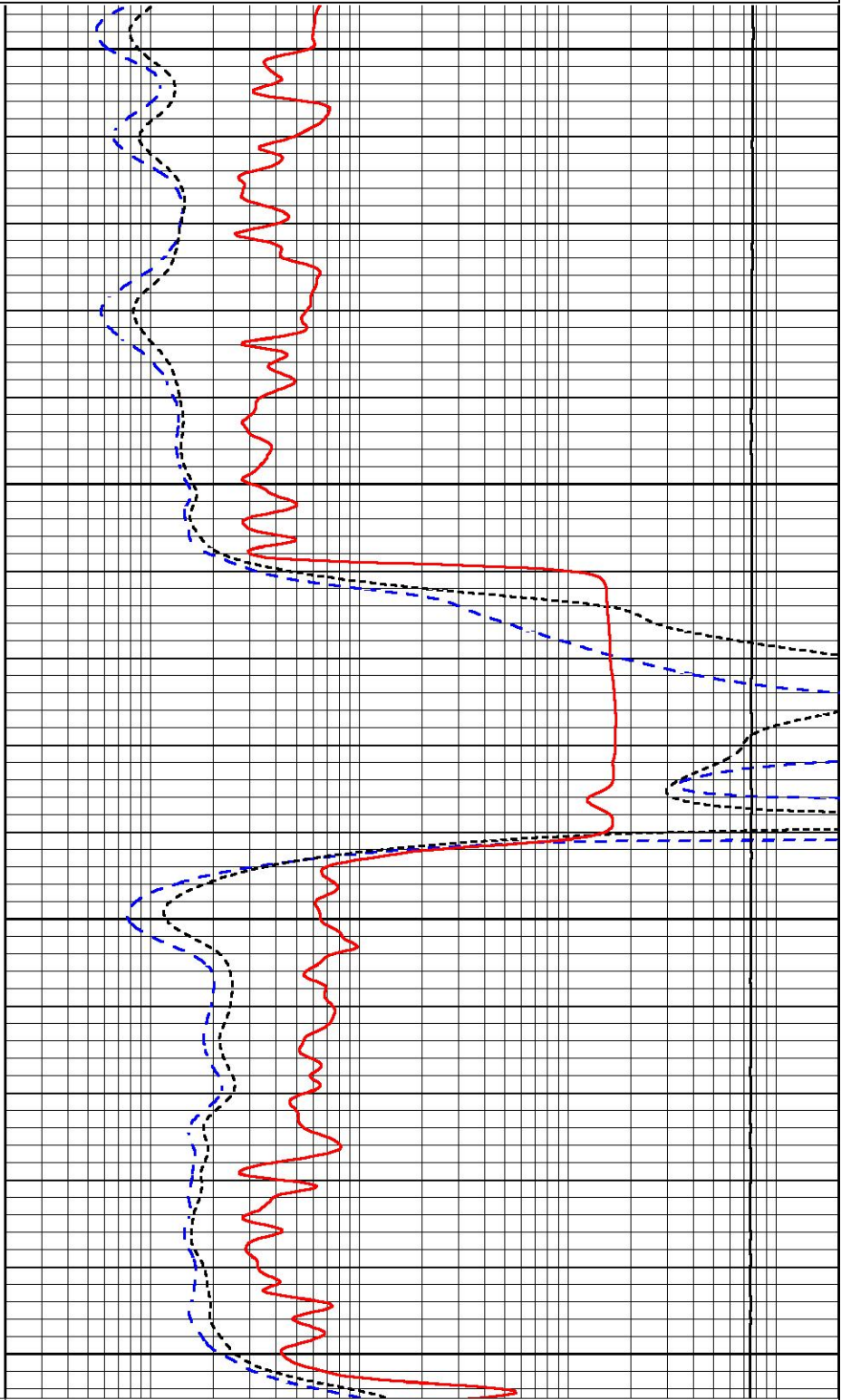


2550

2600

2650

2700



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

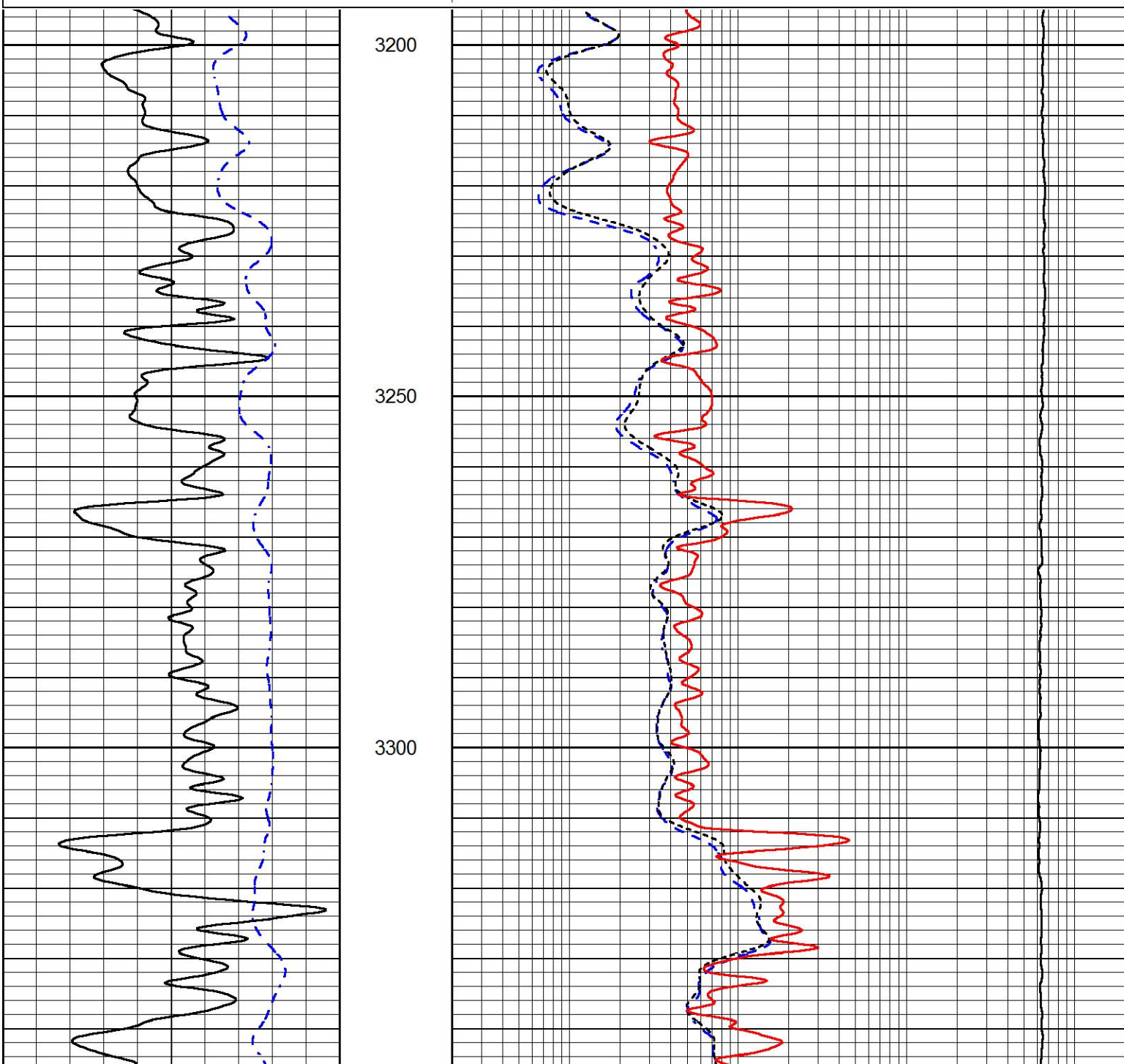


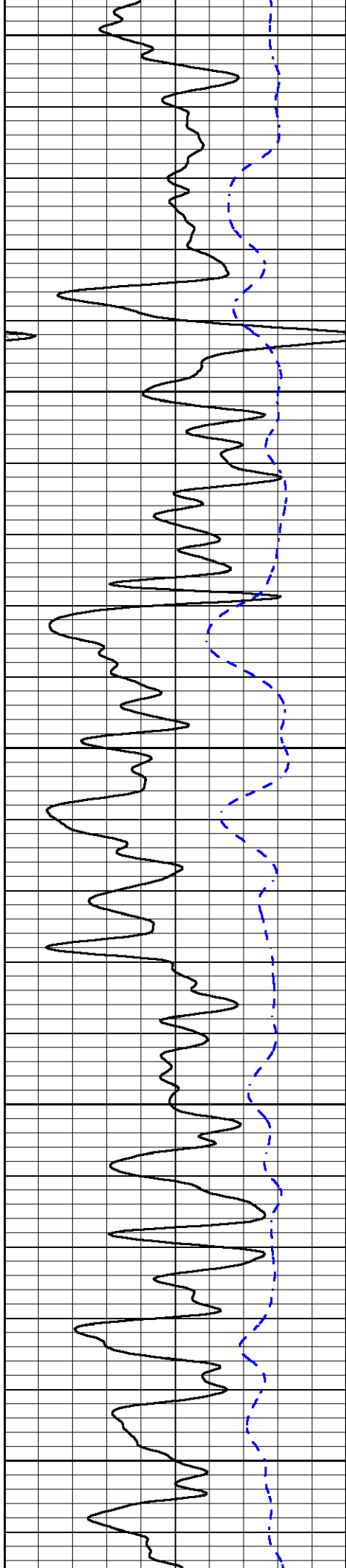
# MAIN PASS

Database File      great plains\_sauvage 11.db  
 Dataset Pathname   stkml/pass3.1  
 Presentation Format   \_dil  
 Dataset Creation    Mon Oct 14 21:12:16 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





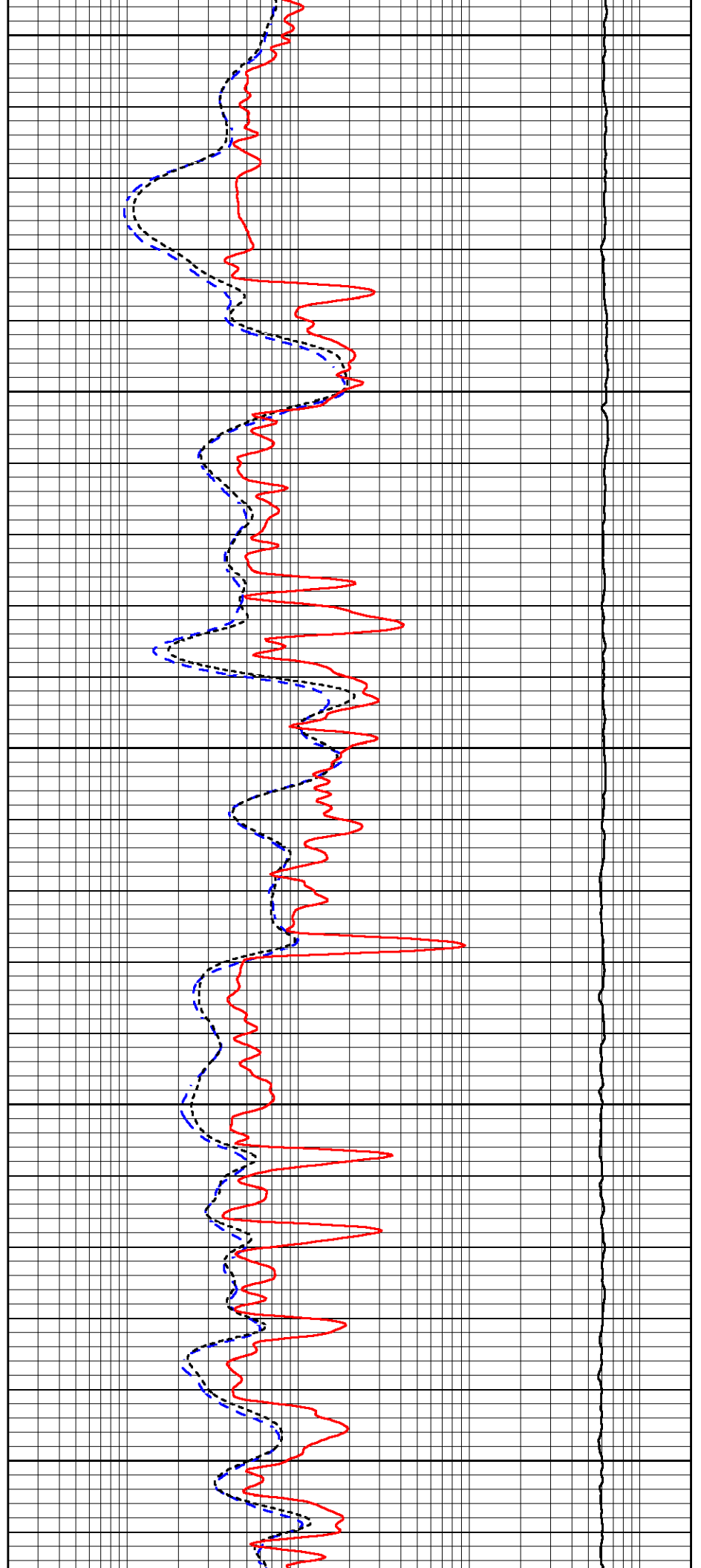
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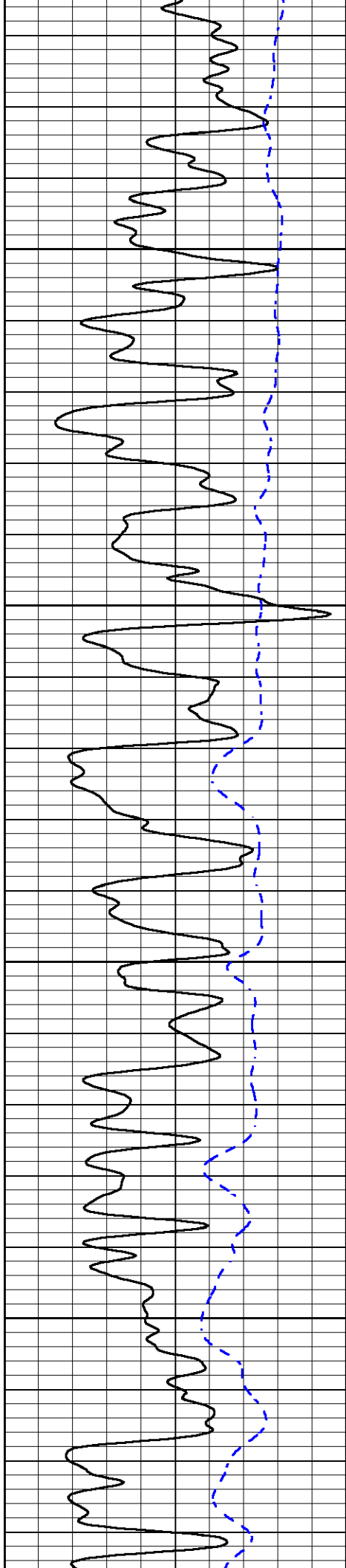
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3450

3500

3550



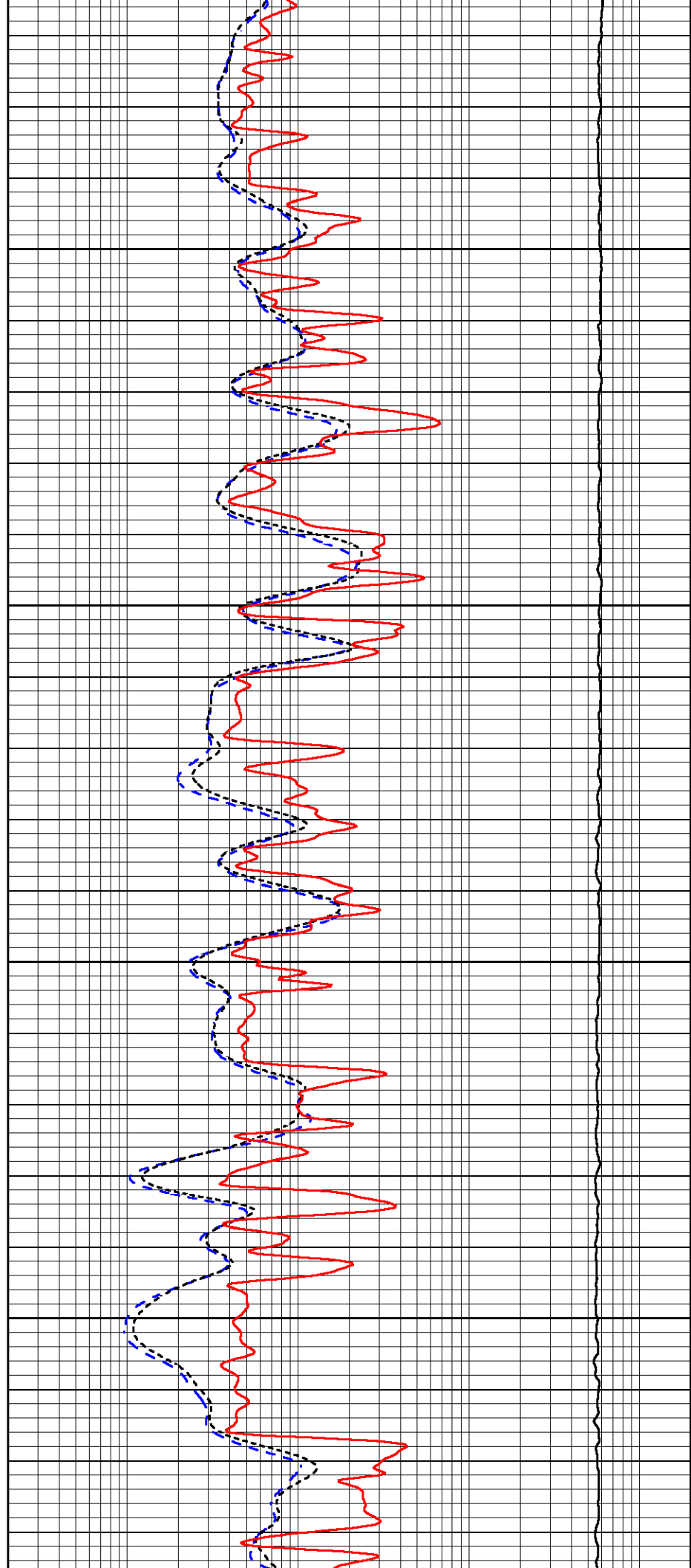


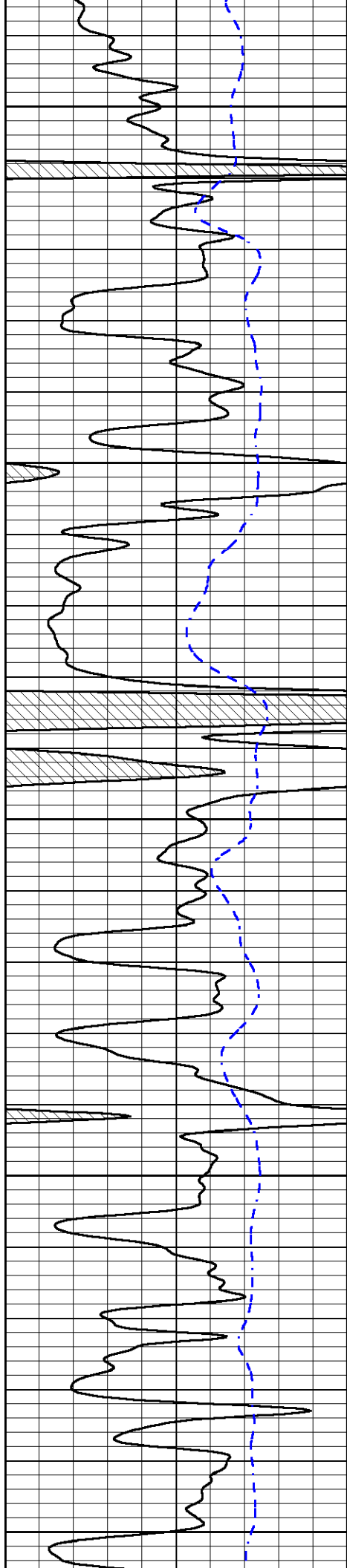
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3650

3700

3750





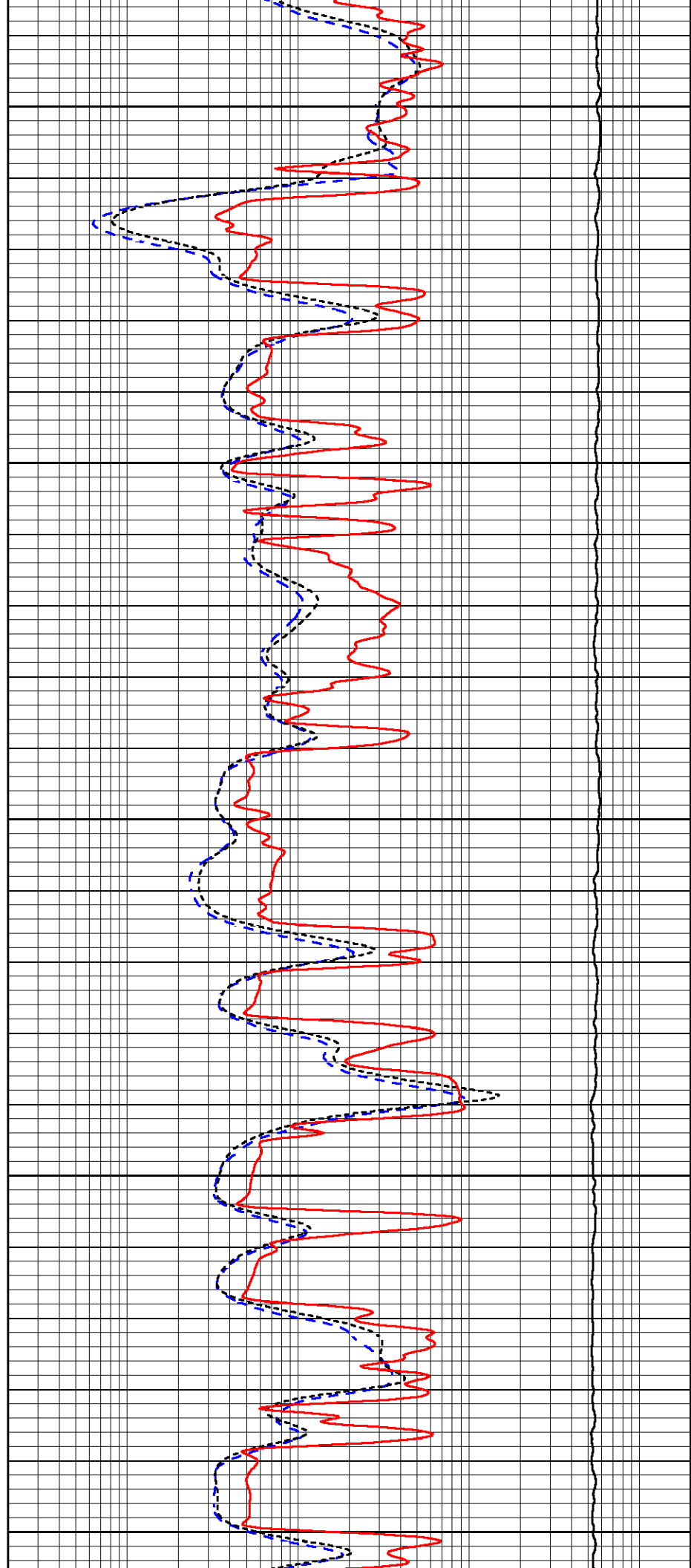
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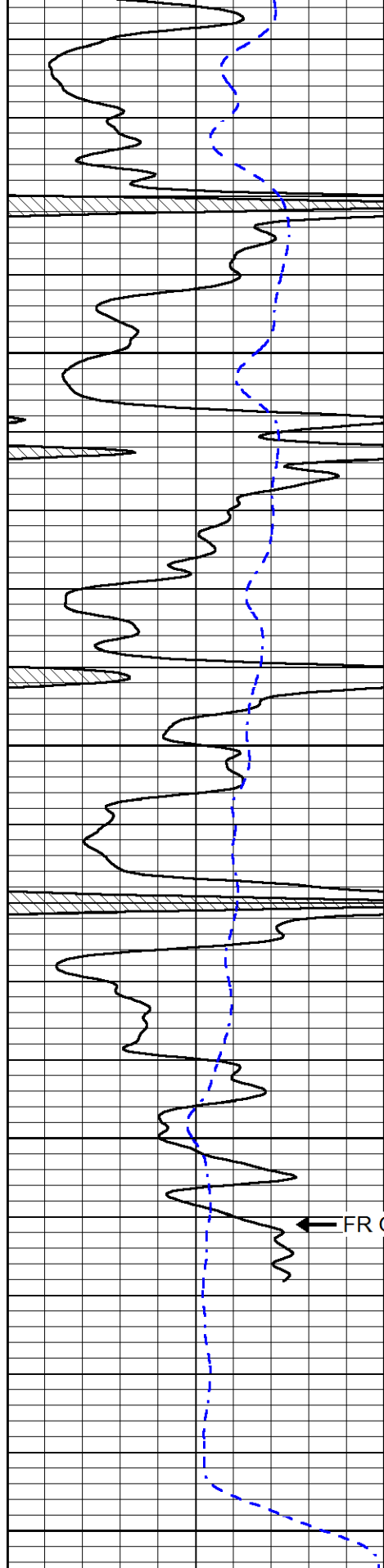
3850

3900

3950

4000





4050

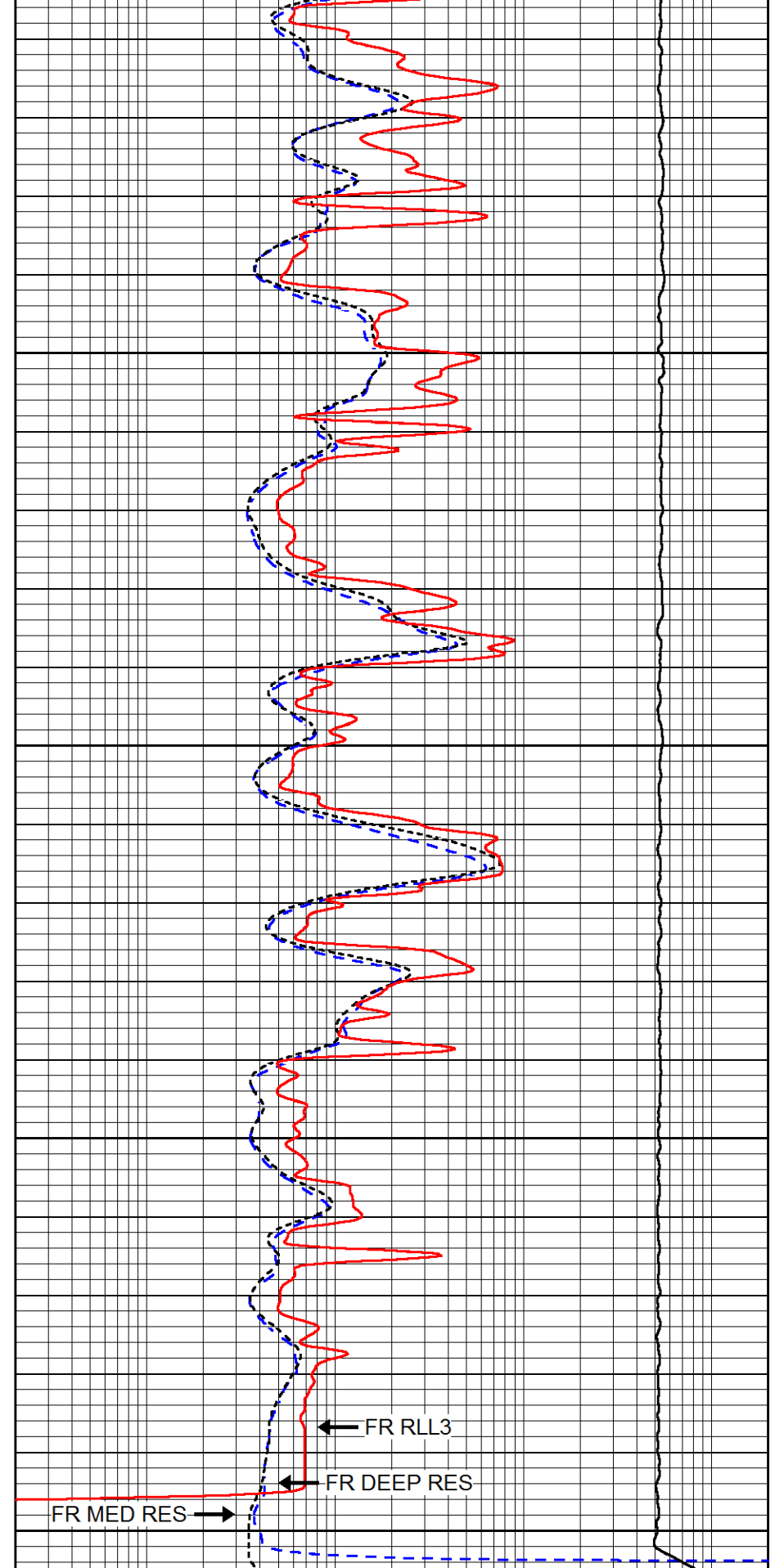
4100

4150

4200

← FR GR

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



← 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

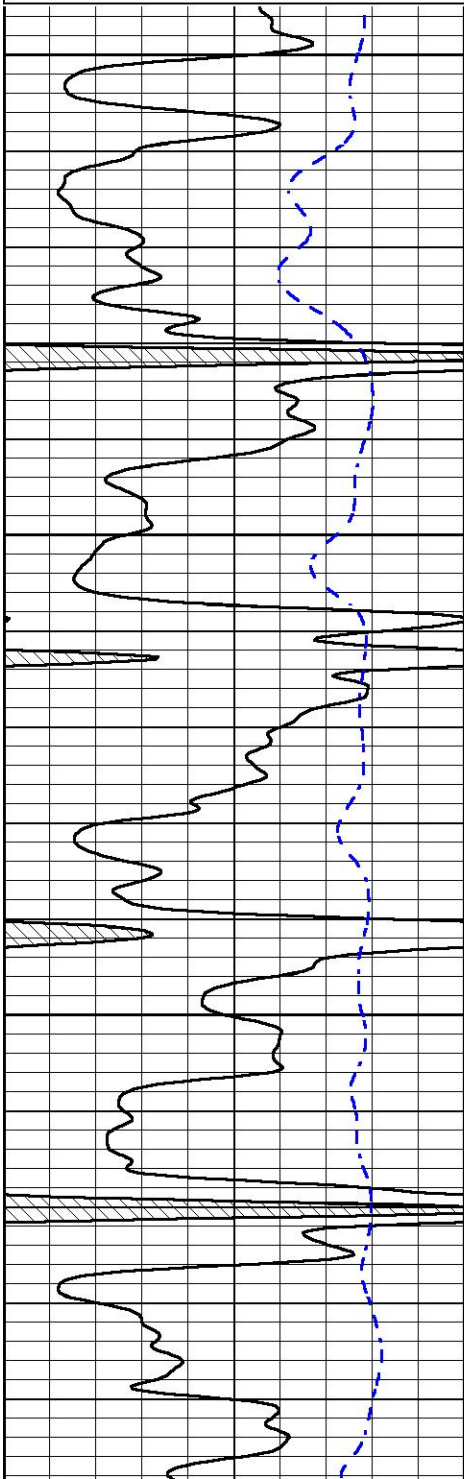


# REPEAT SECTION

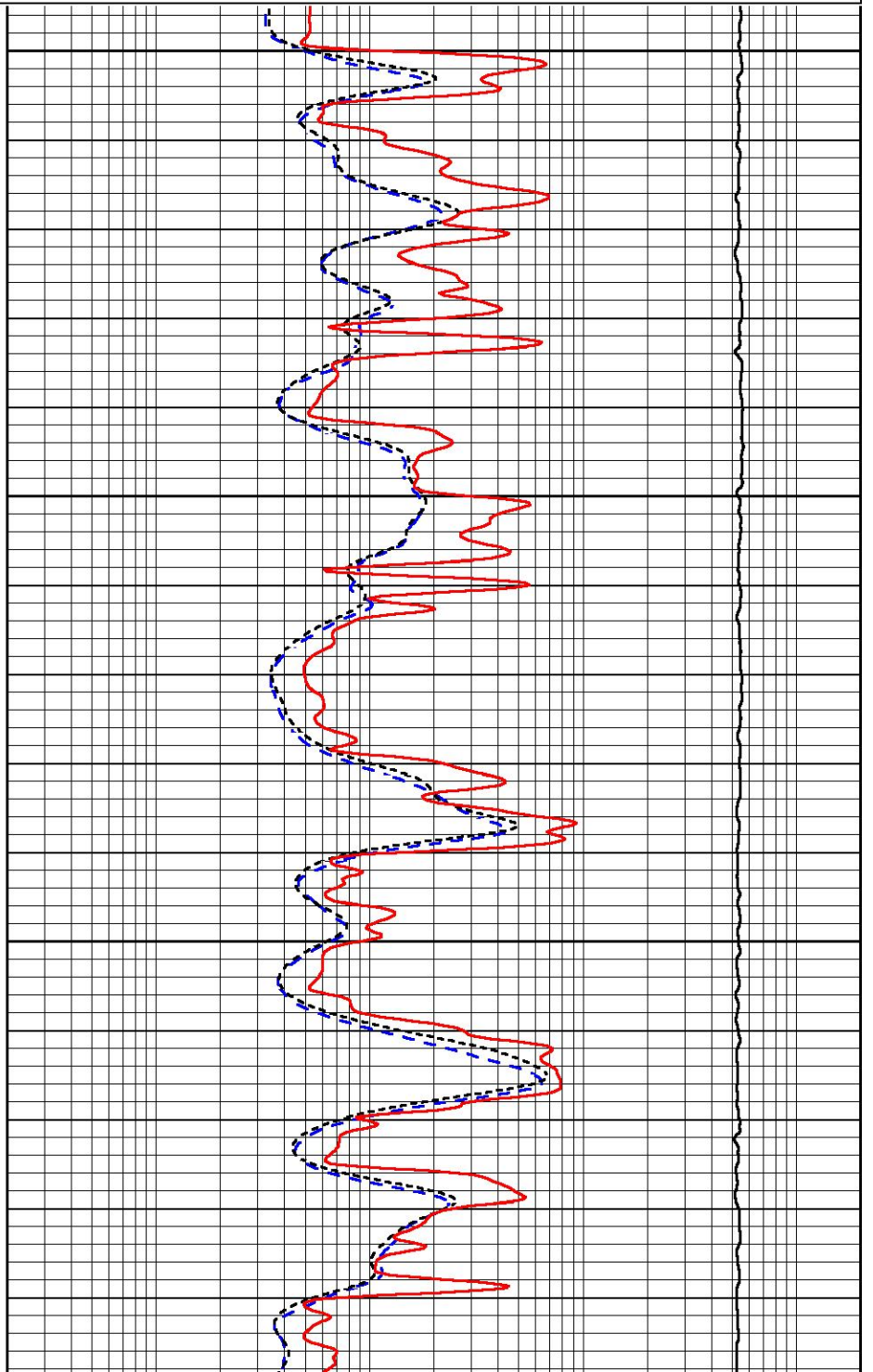
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 Dataset Pathname    stkml/pass2.1  
 Presentation Format    \_dil  
 Dataset Creation      Mon Oct 14 21:11:27 2019  
 Charted by            Depth in Feet scaled 1:240

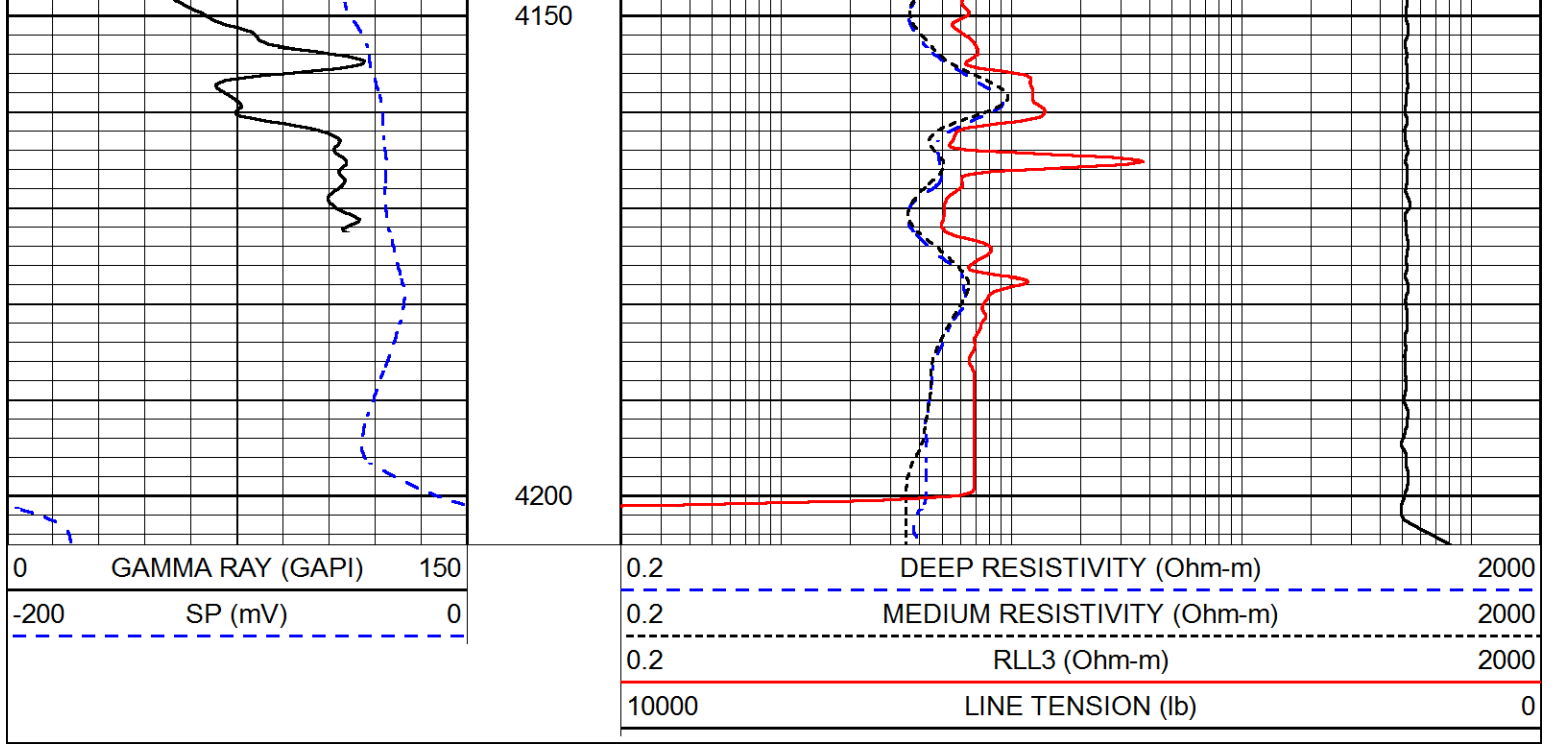
0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

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



4000  
4050  
4100





### Calibration Report

Database File    great plains\_sauvage 11.db  
 Dataset Pathname    stkml/pass3.1  
 Dataset Creation    Mon Oct 14 21:12:16 2019

### Dual Induction Calibration Report

Serial-Model:                    1039-PSI HIGH TEMP  
 Calibration Performed:        Sat Sep 28 21:39:07 2019

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.470	-41.000
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.360	-15.000

### Compensated Density Calibration Report

Serial-Model:                    96-916-M&W  
 Source / Verifier:              16955B / 2ci  
 Master Calibration Performed:    Sat Oct 12 17:38:31 2019

#### Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	8943.64	10054.60	cps
Aluminum	2.650	g/cc	1595.61	6242.82	cps
Spine Angle = 74.54			Density/Spine Ratio = 0.500		
	Size		Reading		
Small Ring	6.00	in	1.75		
Large Ring	15.00	in	1.40		

Microlog Calibration Report

Serial-Model:  
Performed:

PSI-01-PSIML  
Thu Aug 01 07:57:13 2019

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	19500.0000	-1.8000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	18000.0000	-1.3000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-64.4250

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: 233-M&W  
Tool Model: M&W  
Calibration Performed: Fri Feb 07 01:42:40 2014

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps  
Calibrator Reading: 1.0 cps

Sensitivity: 0.5500 GAPI/cps

 <p><b>PIONEER</b> Pioneer Energy Services</p>	Company	GREAT PLAINS ENERGY, INC.
	Well	SAUVAGE #11
	Field	SWEDE HOLLOW
	County	DECATUR
	State	KANSAS