



PIONEER
Pioneer Energy Services

DUAL INDUCTION LOG

Company **FUNK PETROLEUM LLC**
Well **CALLIHAM TRUST #1-18**
Field **WILDCAT**
County **THOMAS** State **KANSAS**

Location: API #: 15-193-20975-00-00

Other Services

NE SW SE NW
2297' FNL & 1959' FWL
SEC 18 TWP 9S RGE 35W

CNL/CDL
MEL/BHCS

Permanent Datum GROUND LEVEL Elevation 3380'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 3385'
D.F. N/A
G.L. 3380'

Date 10/15/2016

Run Number ONE

Depth Driller 4900'

Depth Logger 4899'

Bottom Logged Interval 4898'

Top Log Interval 300'

Casing Driller 8.625" @ 303'

Casing Logger 302'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 6000

Density / Viscosity 9.3 64

pH / Fluid Loss 10.5 8.0

Source of Sample FLOWLINE

Rm @ Meas. Temp 0.56 @ 64

Rmt @ Meas. Temp 0.42 @ 64

Rmc @ Meas. Temp 0.76 @ 64

Source of Rmt / Rmc CHARTS

Rm @ BHT 0.29 @ 125

Operating Rig Time 4 1/2 HOURS

Max Rec. Temp. F 125 DEG F

Equipment Number 91

Location COLBY

Recorded By T. MARTIN

Witnessed By TIM PRIEST

<<< 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.

LEVANT, 6 S TO K RD,
3 1/2 W, S 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

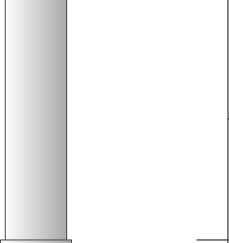
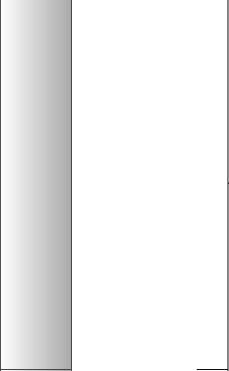
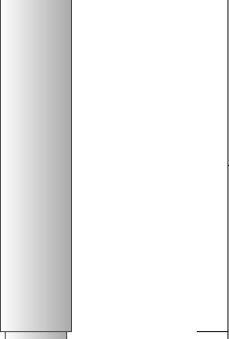
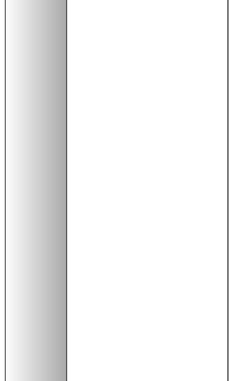
Engineer: T. MARTIN
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: TIM PRIEST
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	-115	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	75	0	5.5	0	4899	125	7.875

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 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		CDL-M&W (90-1031)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
RLL3F RLL3	15.80 15.80					

			DIL-M&W (PSI 13)	18.50	3.50	220.00
CILD	8.00					
CILM	4.70					
SP	0.20					
Dataset: funk_calliham trust_#1-18.db: field/well/stckml/pass4.1 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in						

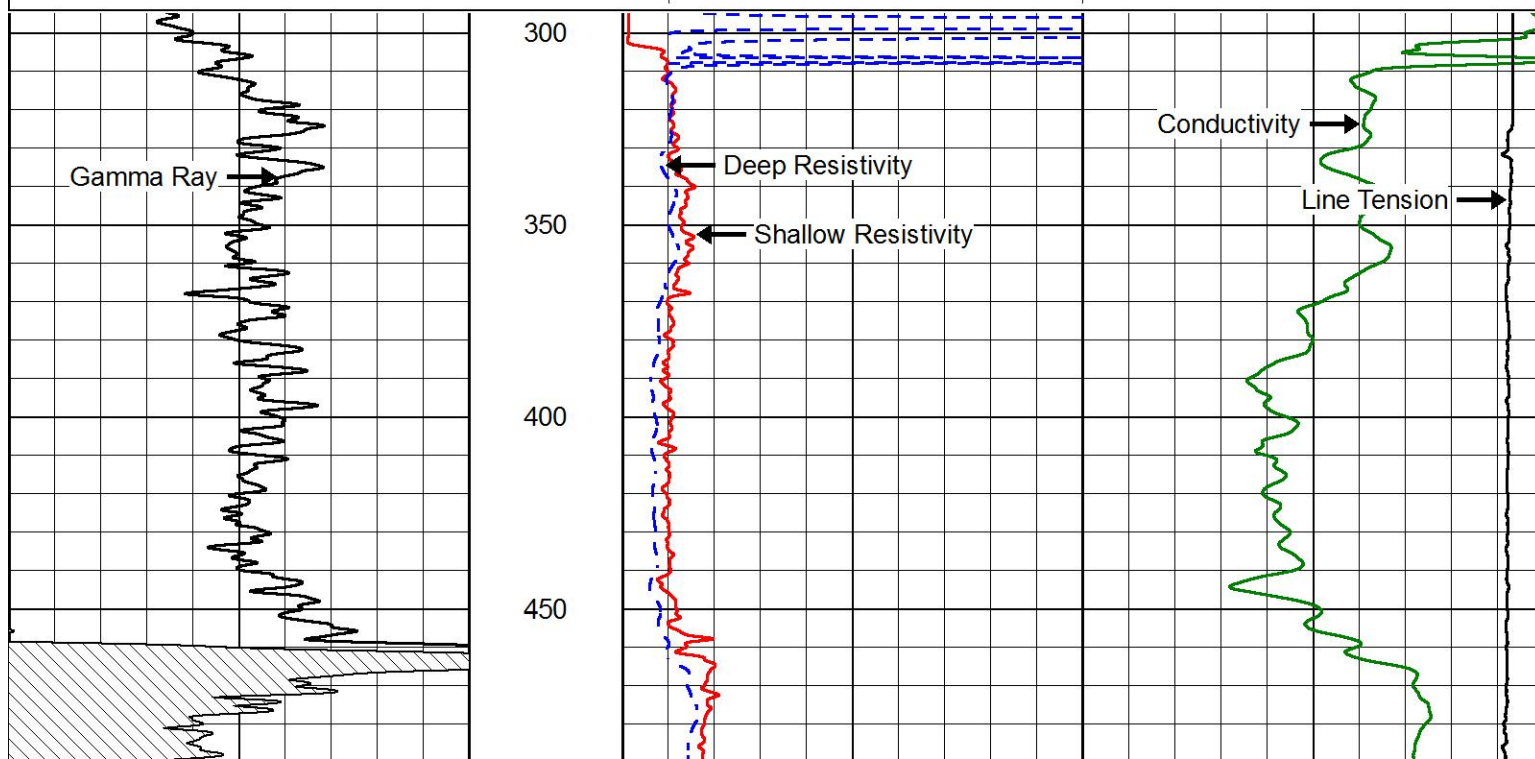


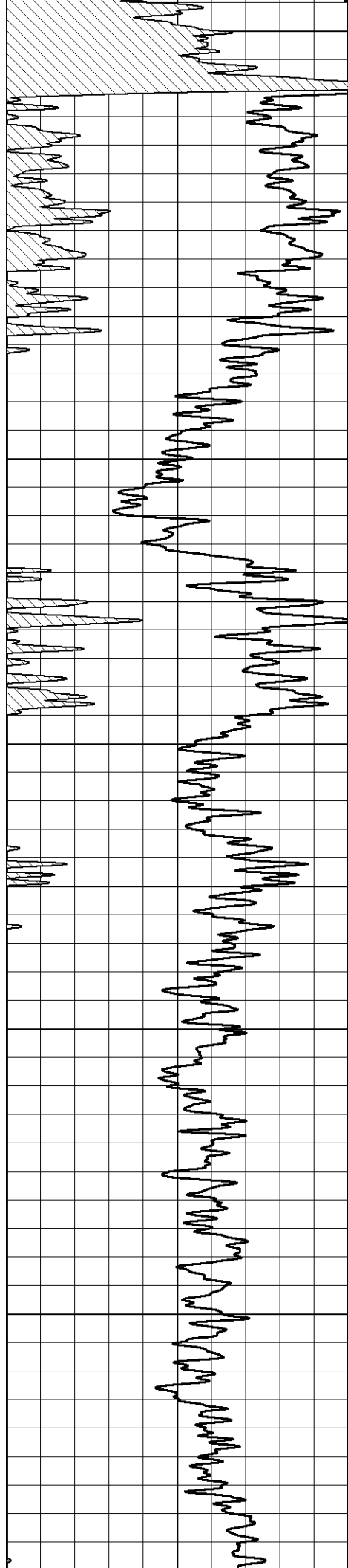
2" SCALE RESISTIVITY

MAIN PASS

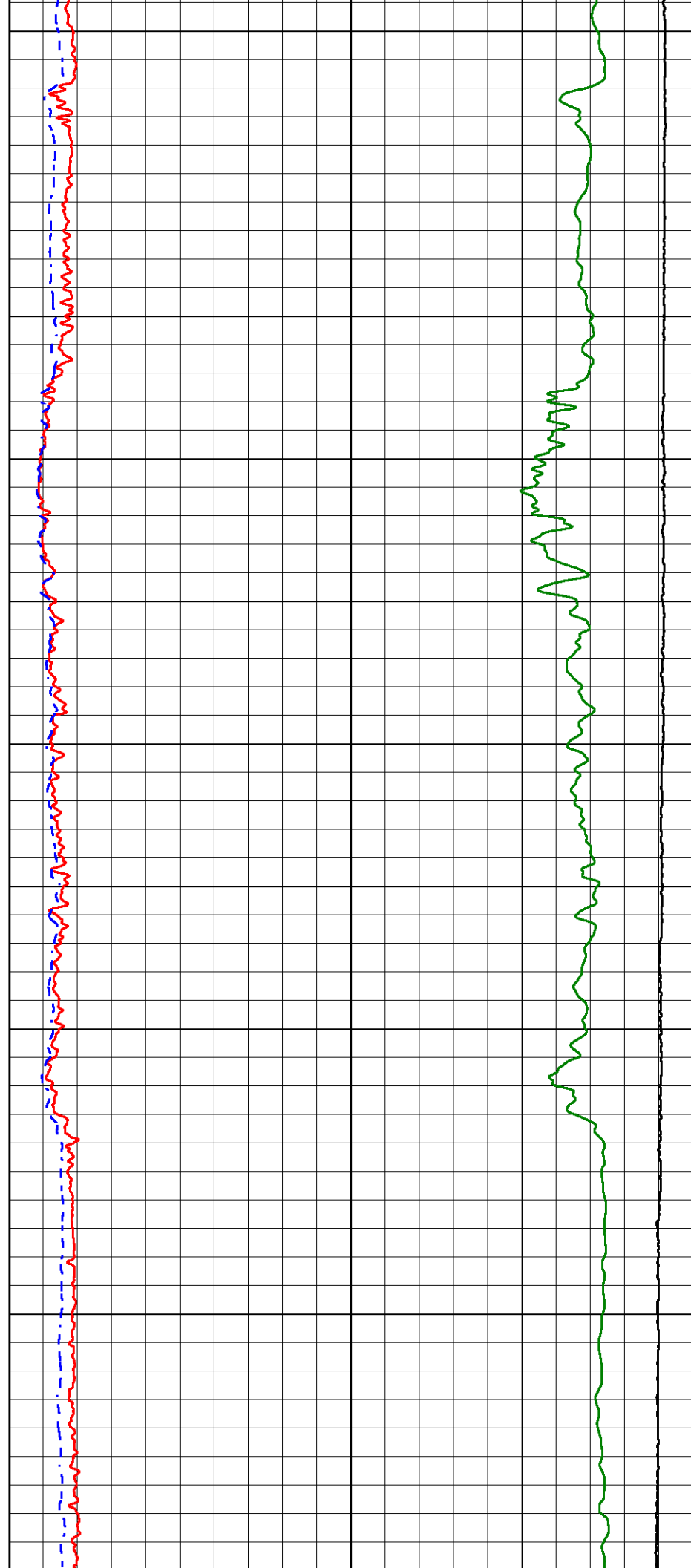
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Dataset Pathname	stckml/pass4.2
Presentation Format	dil2in
Dataset Creation	Sat Oct 15 15:27:28 2016
Charted by	Depth in Feet scaled 1:600

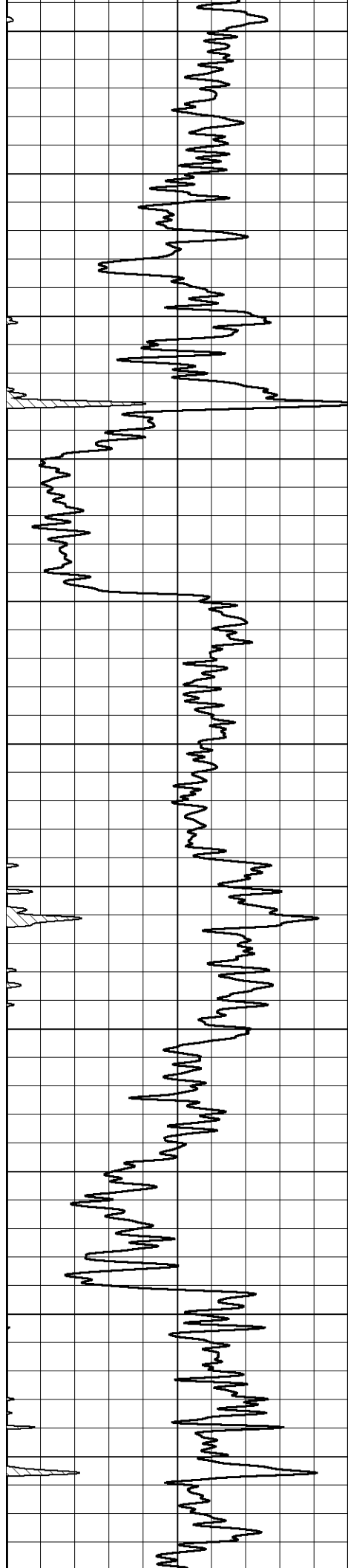
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			15000	Line Tension (lb)	0
			0	Shallow Resistivity (Ohm-m)	50
			0	Deep Resistivity (Ohm-m)	50
				Shallow Resistivity	
			50	(Ohm-m)	500
			50	Deep Resistivity (Ohm-m)	500



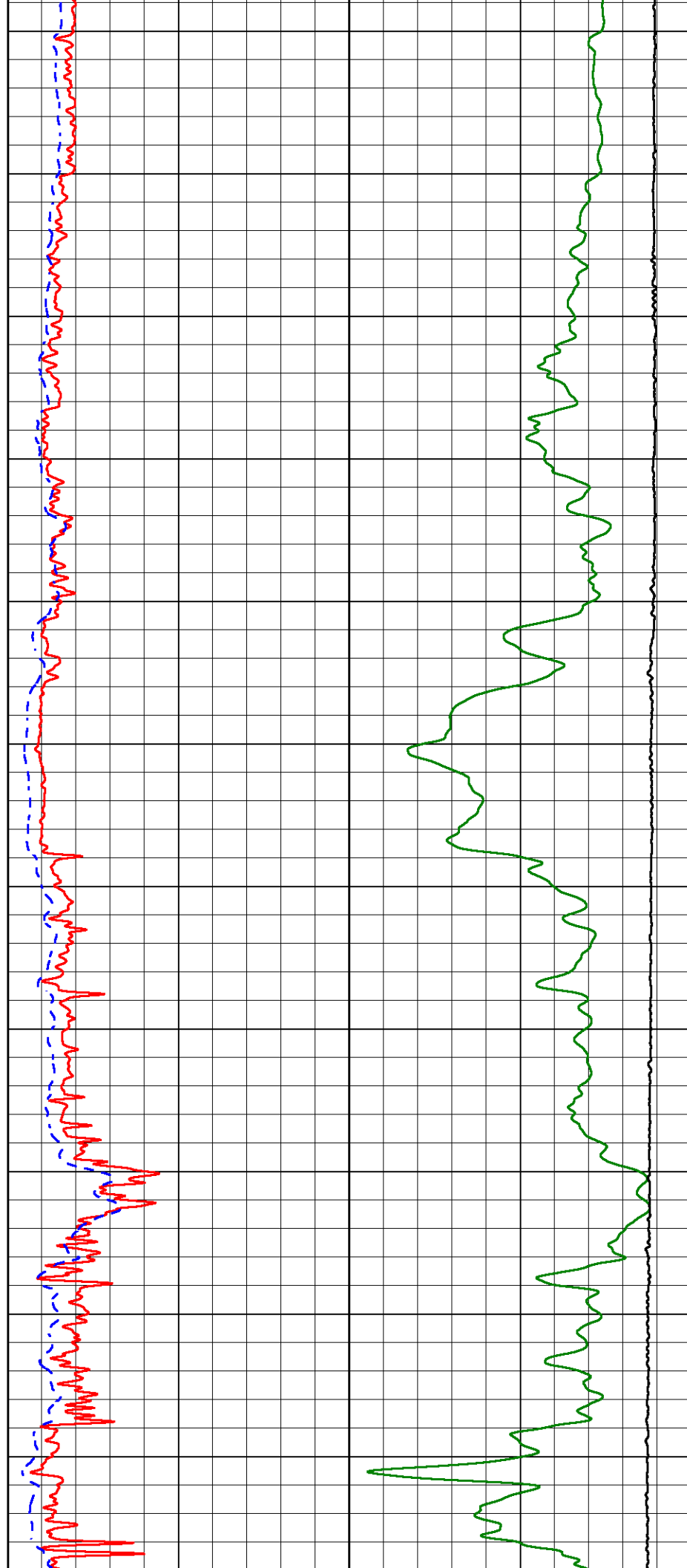


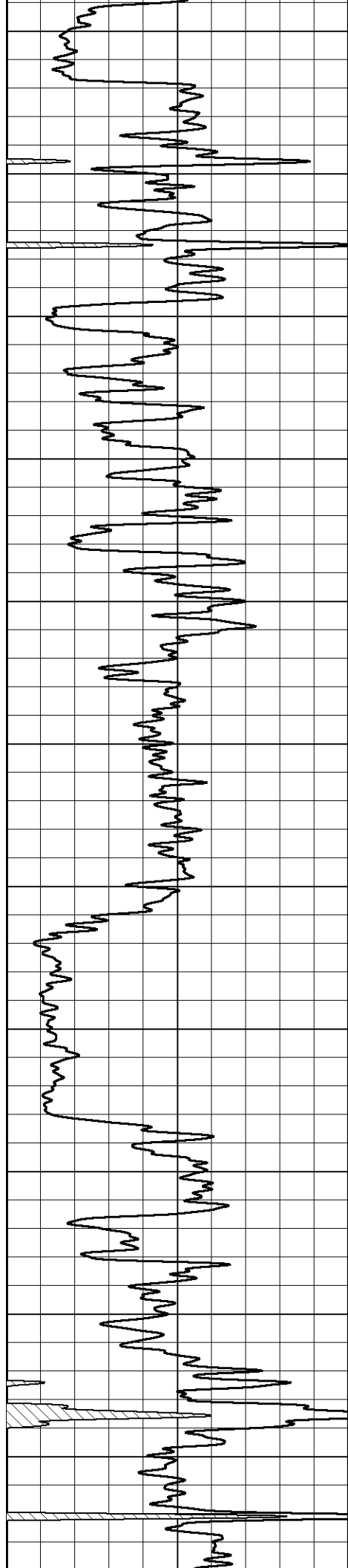
500
550
600
650
700
750
800
850
900
950
1000





1050
1100
1150
1200
1250
1300
1350
1400
1450
1500
1550





1600

1650

1700

1750

1800

1850

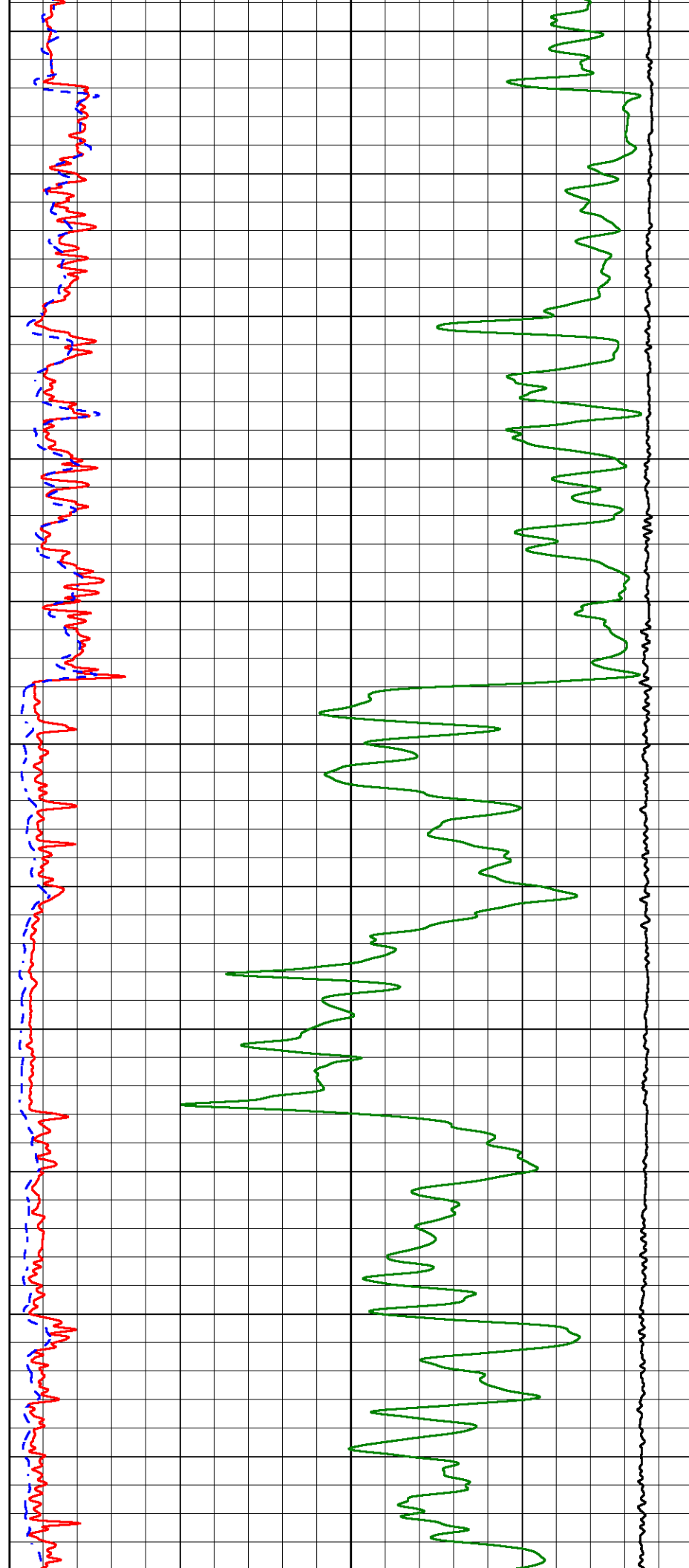
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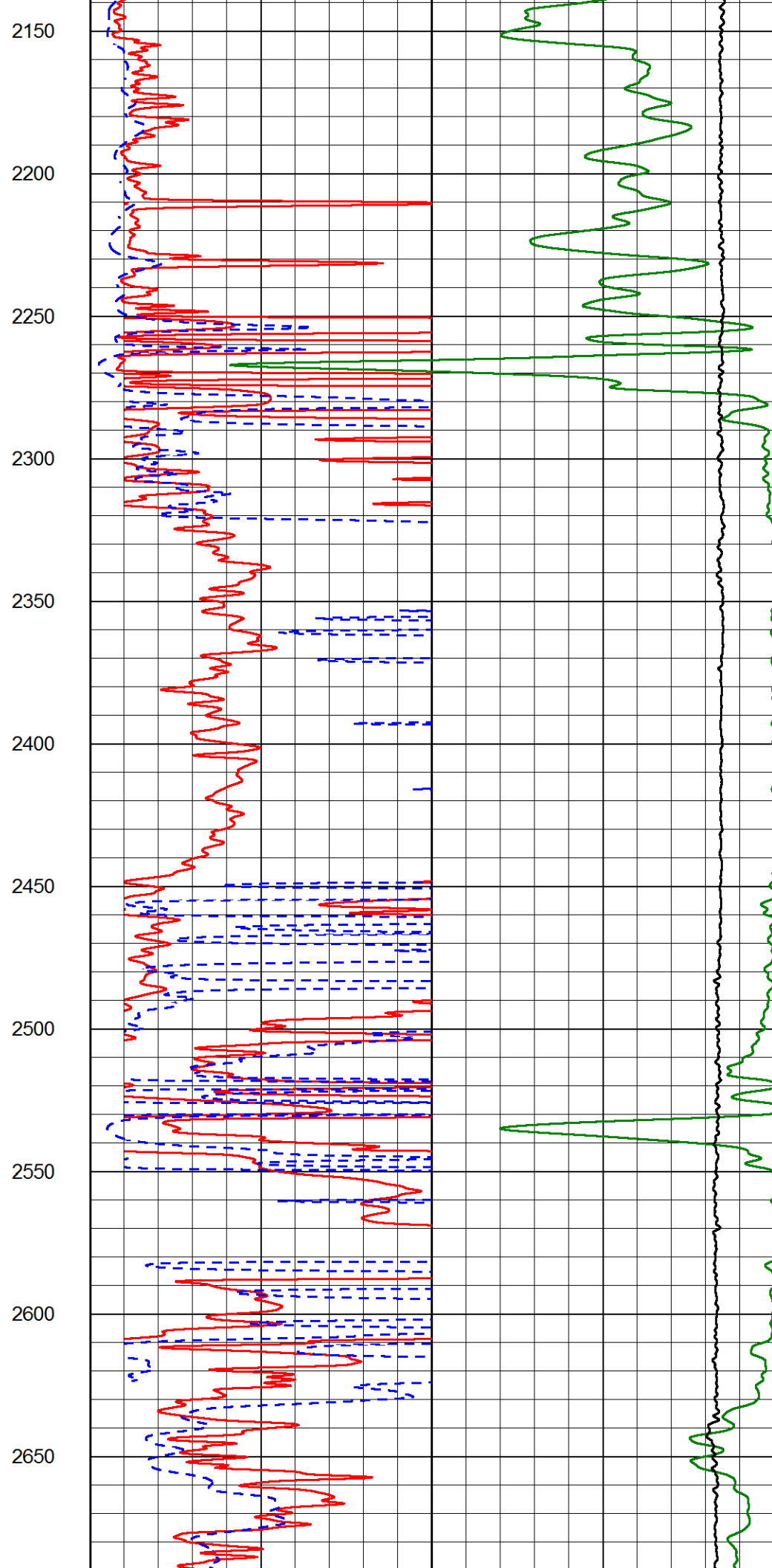
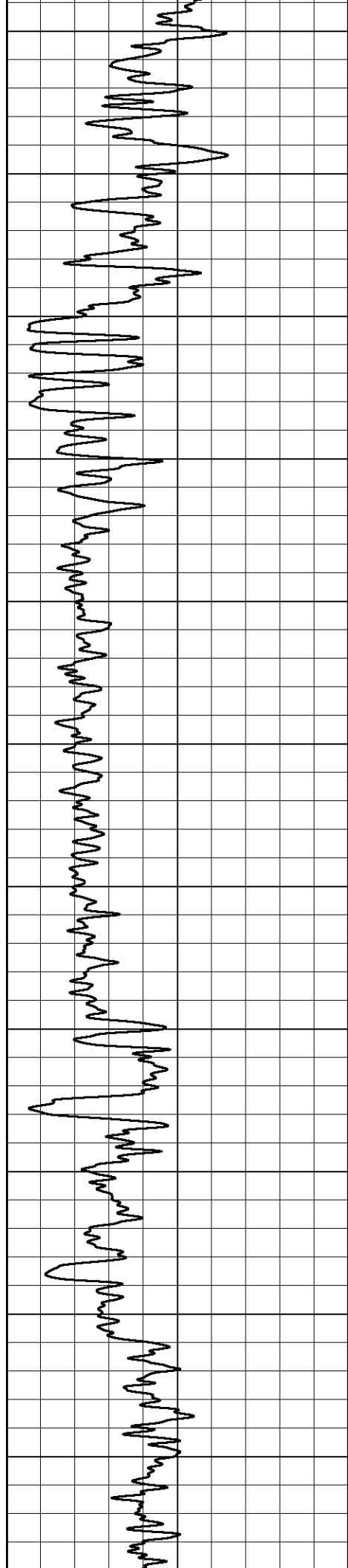
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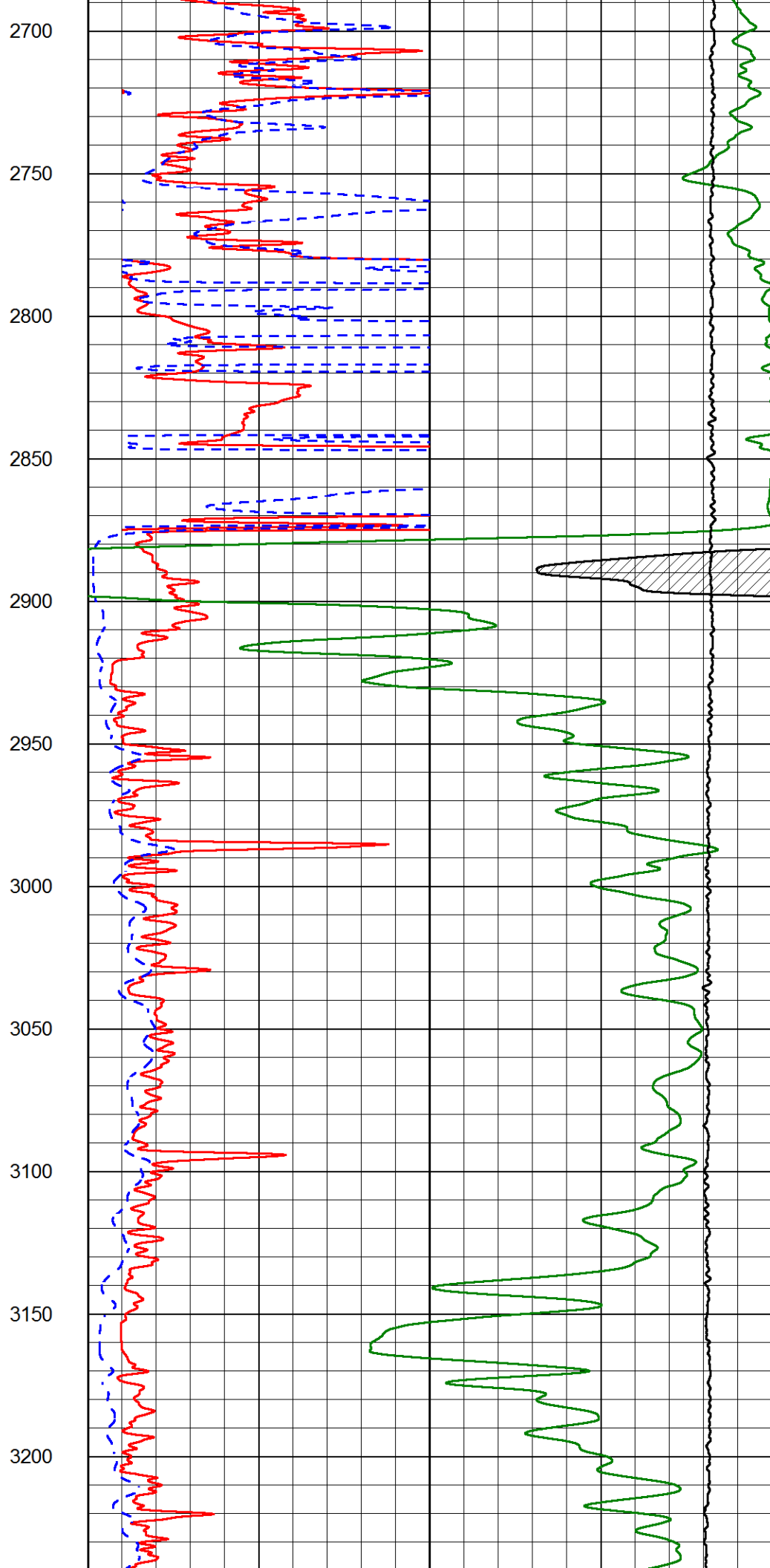
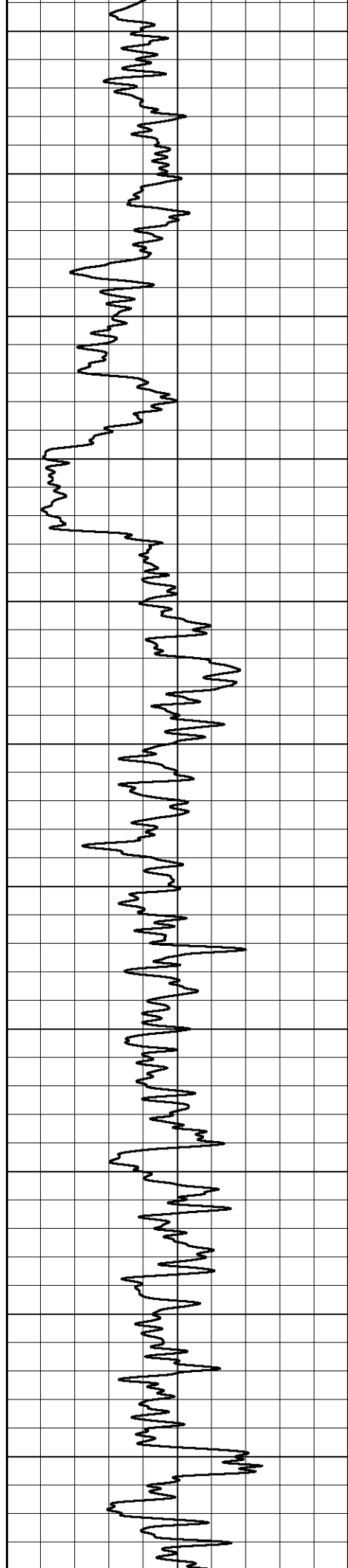
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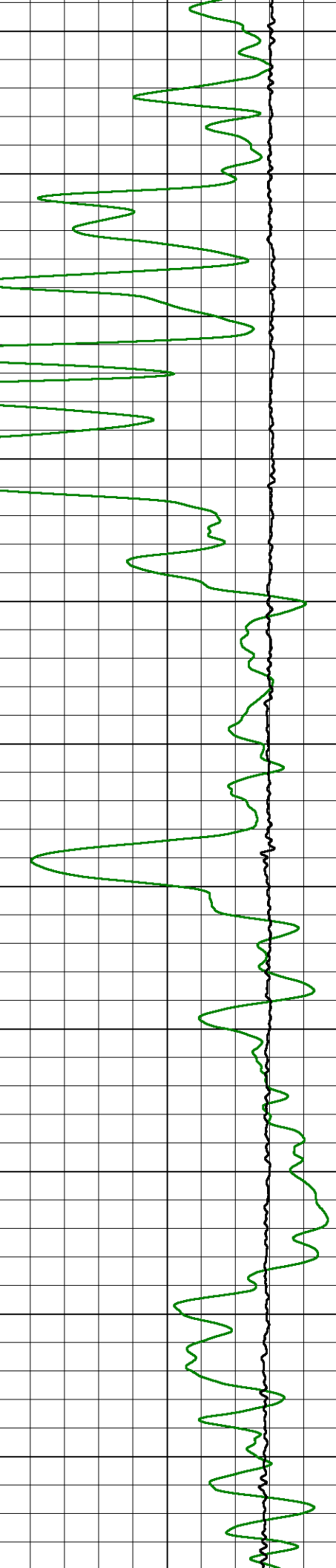
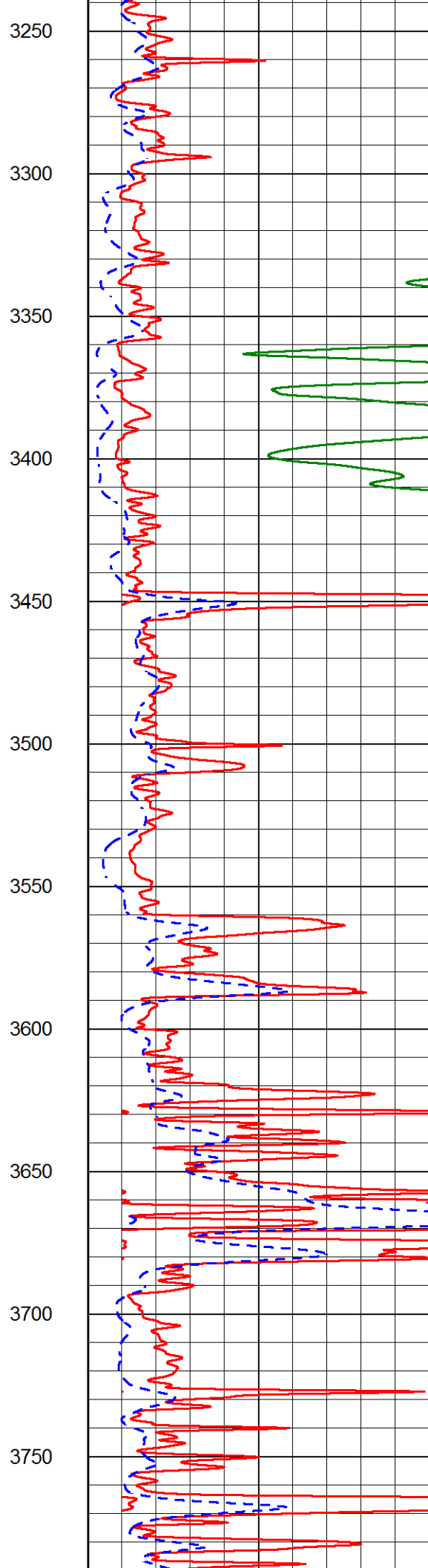
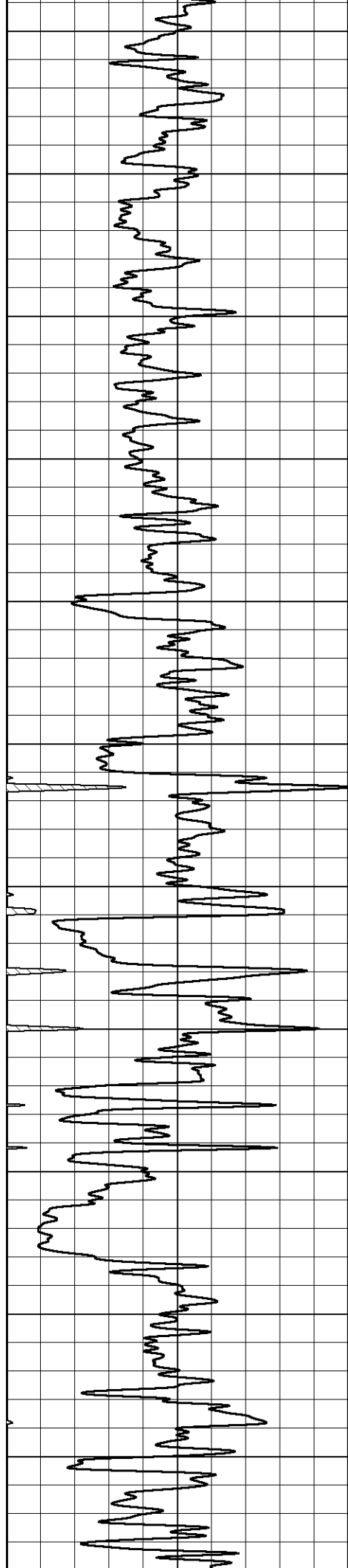
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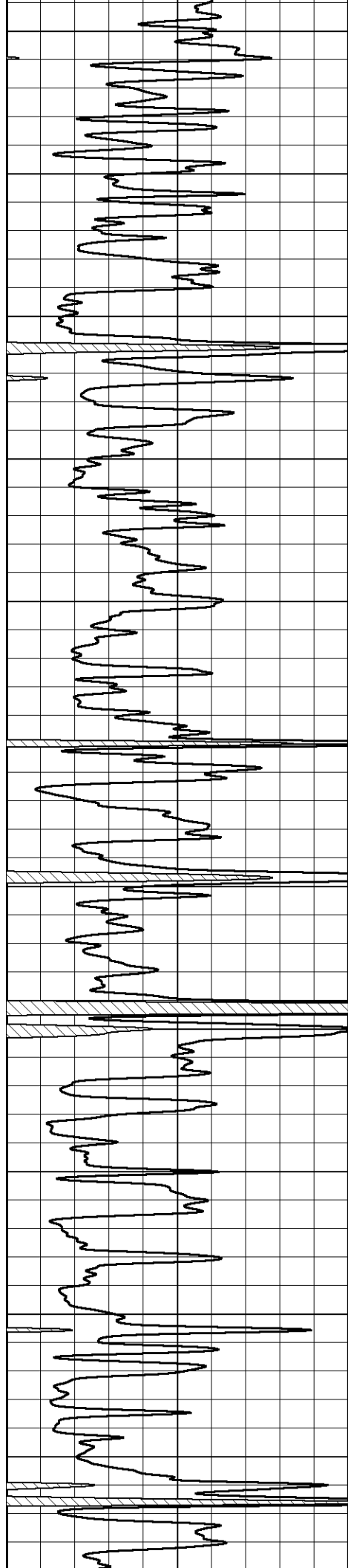
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3800

3850

3900

3950

4000

4050

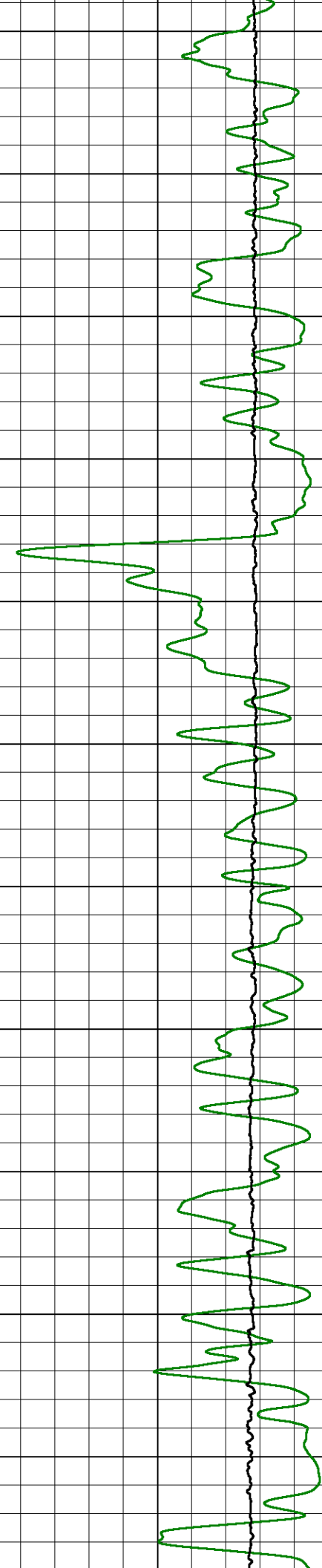
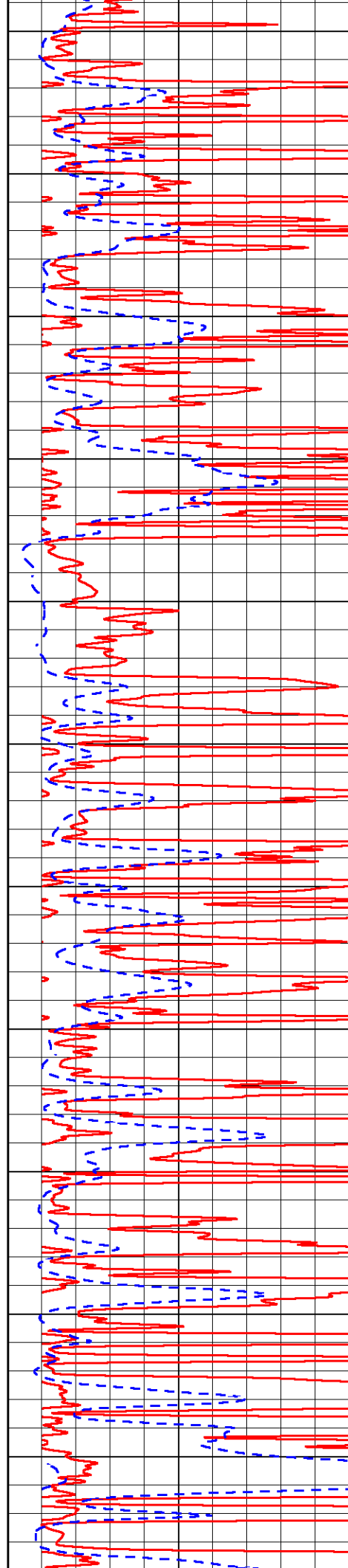
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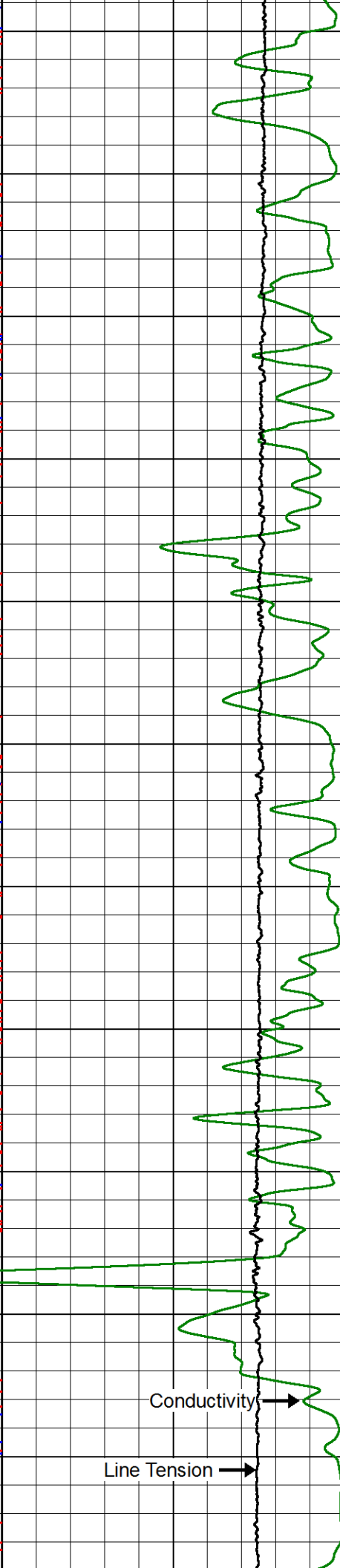
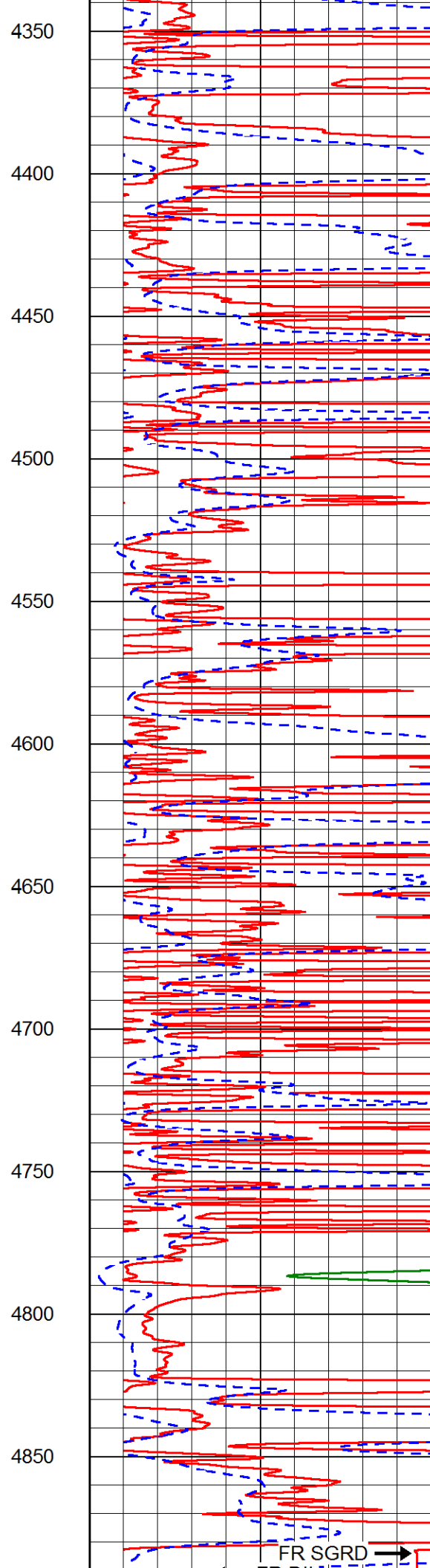
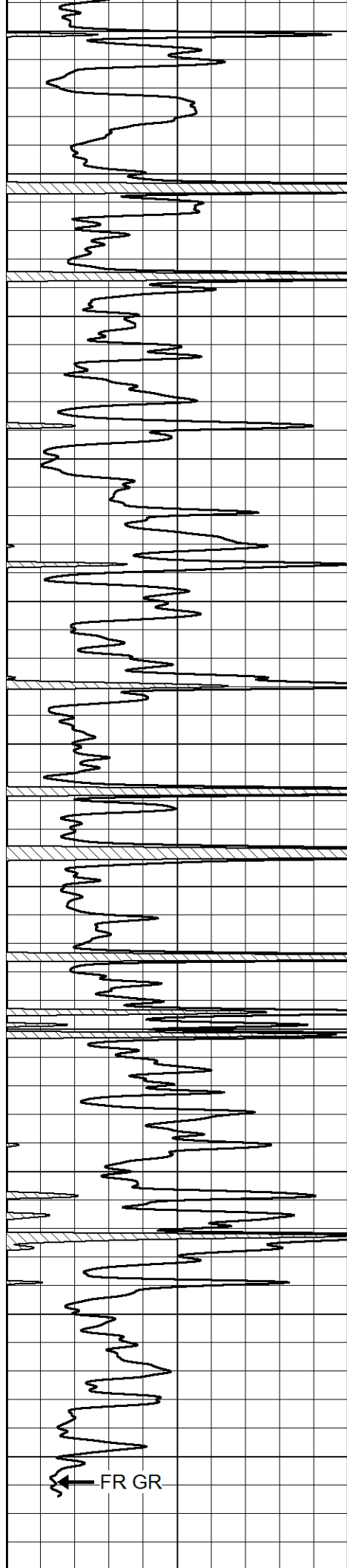
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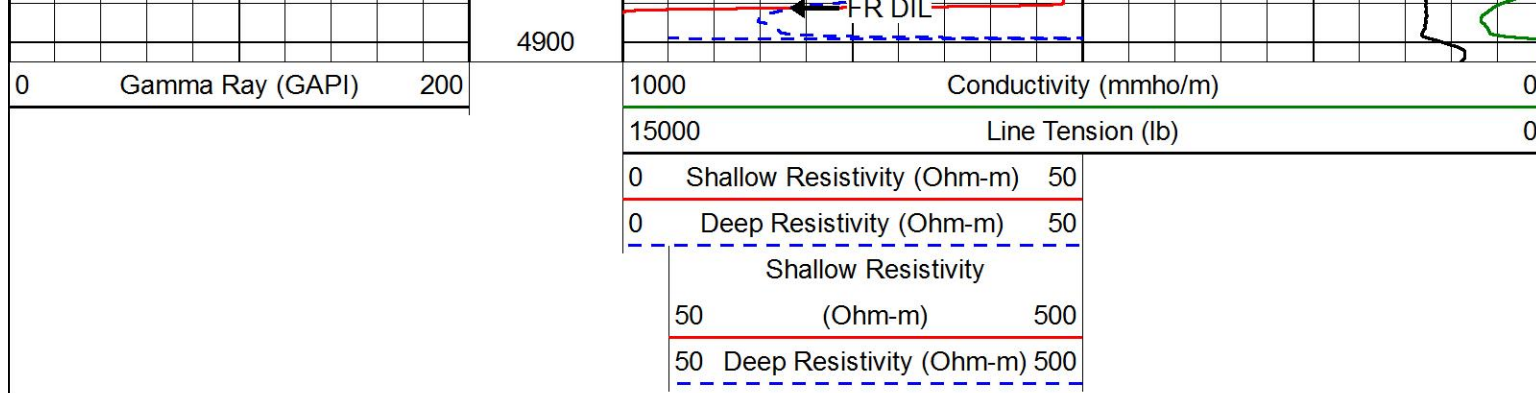
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4250

4300







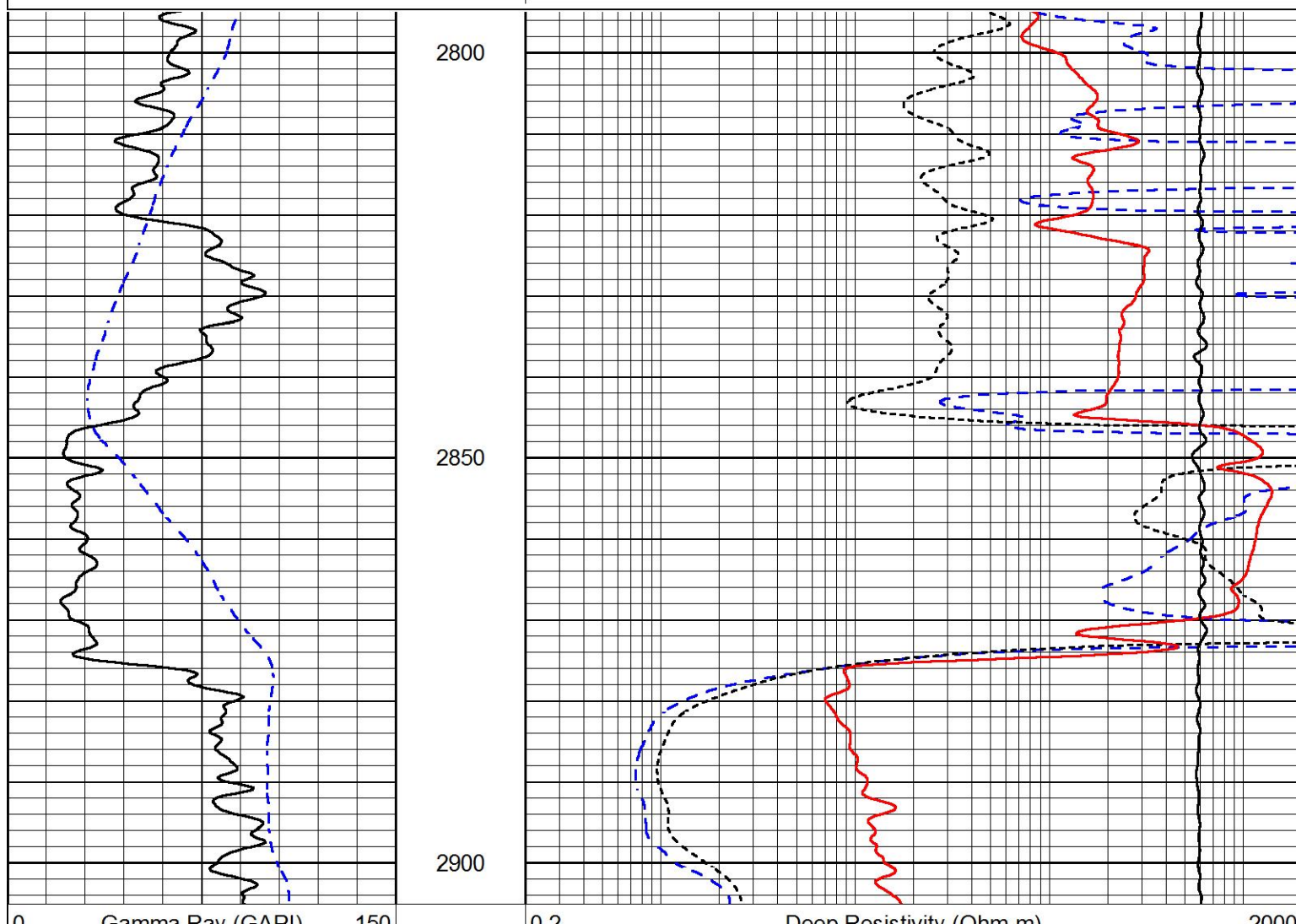
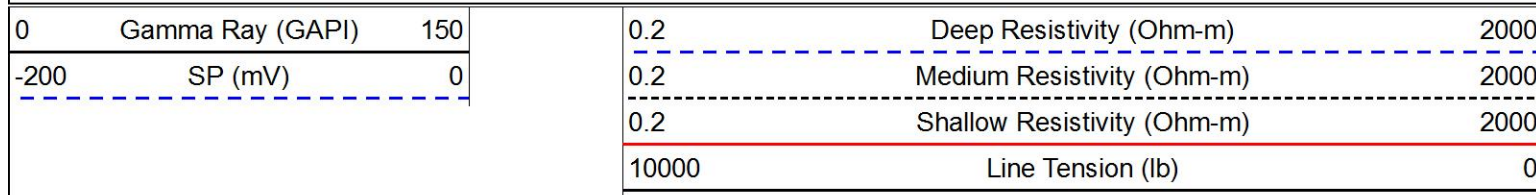


PIONEER
Pioneer Energy Services

ANHYDRITE SECTION

MAIN PASS

Database File	funk_calliham trust_#1-18.db
Dataset Pathname	stckml/pass4.4
Presentation Format	dil
Dataset Creation	Sat Oct 15 14:54:17 2016
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
10000	Line Tension (lb)	0

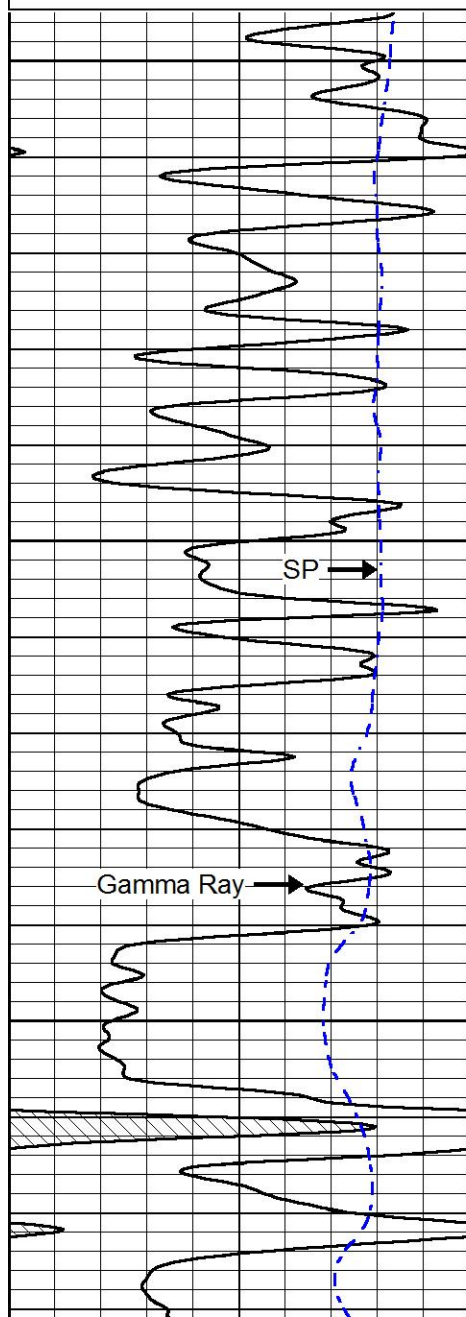


MAIN PASS

Database File funk_calliham trust_#1-18.db
Dataset Pathname stckml/pass4.1
Presentation Format dil
Dataset Creation Sat Oct 15 15:27:40 2016
Charted by Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
-200	SP (mV)	0

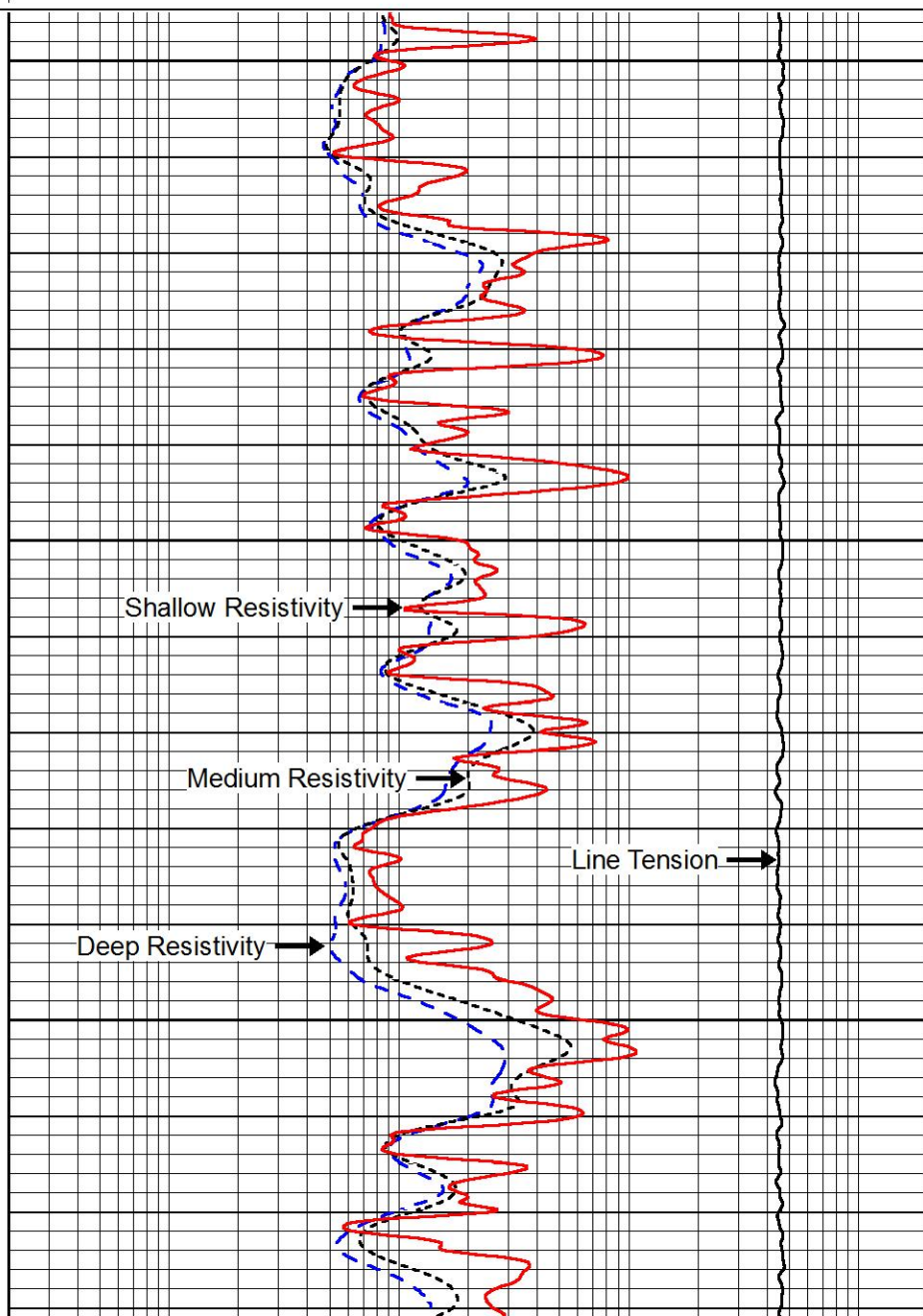
0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	Shallow Resistivity (Ohm-m)	2000
10000	Line Tension (lb)	0

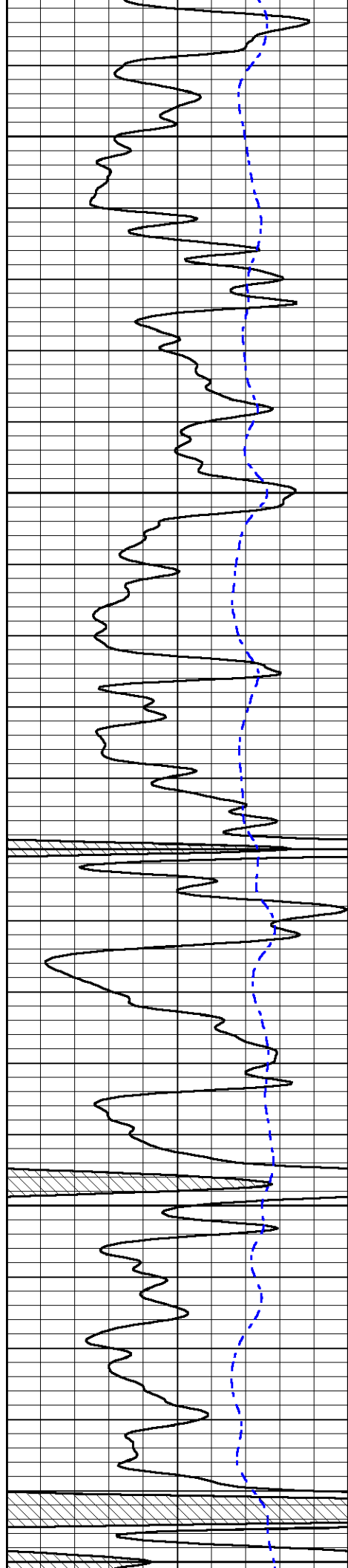


3800

3850

3900





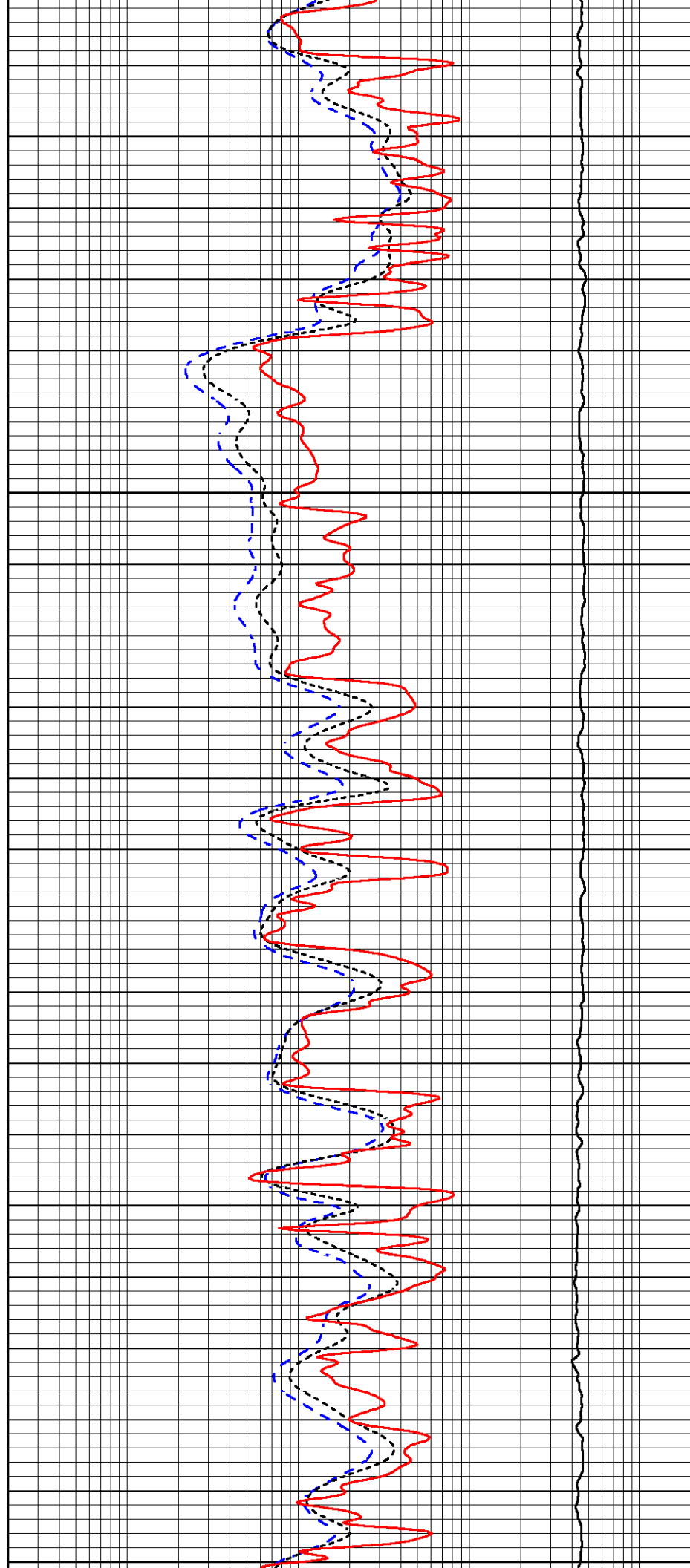
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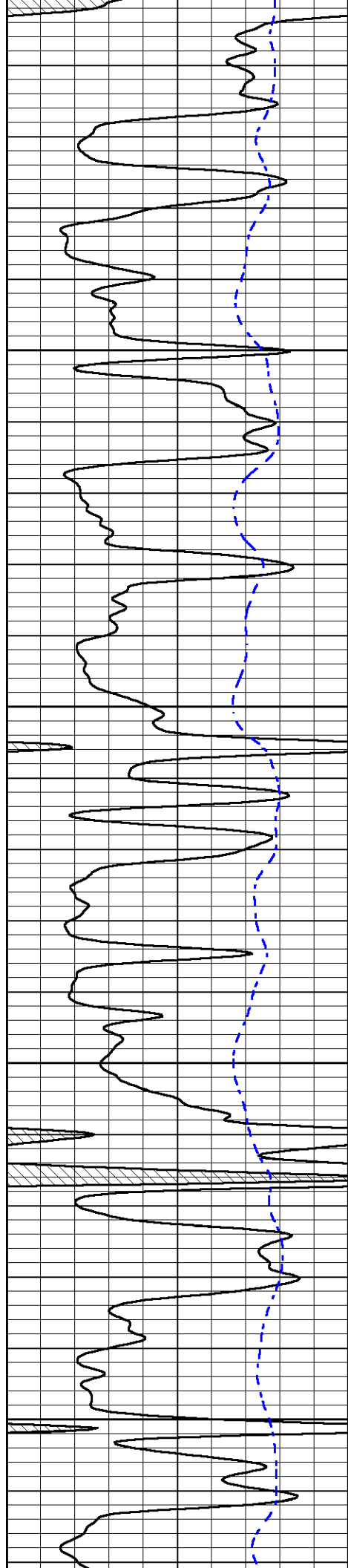
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4050

4100

4150



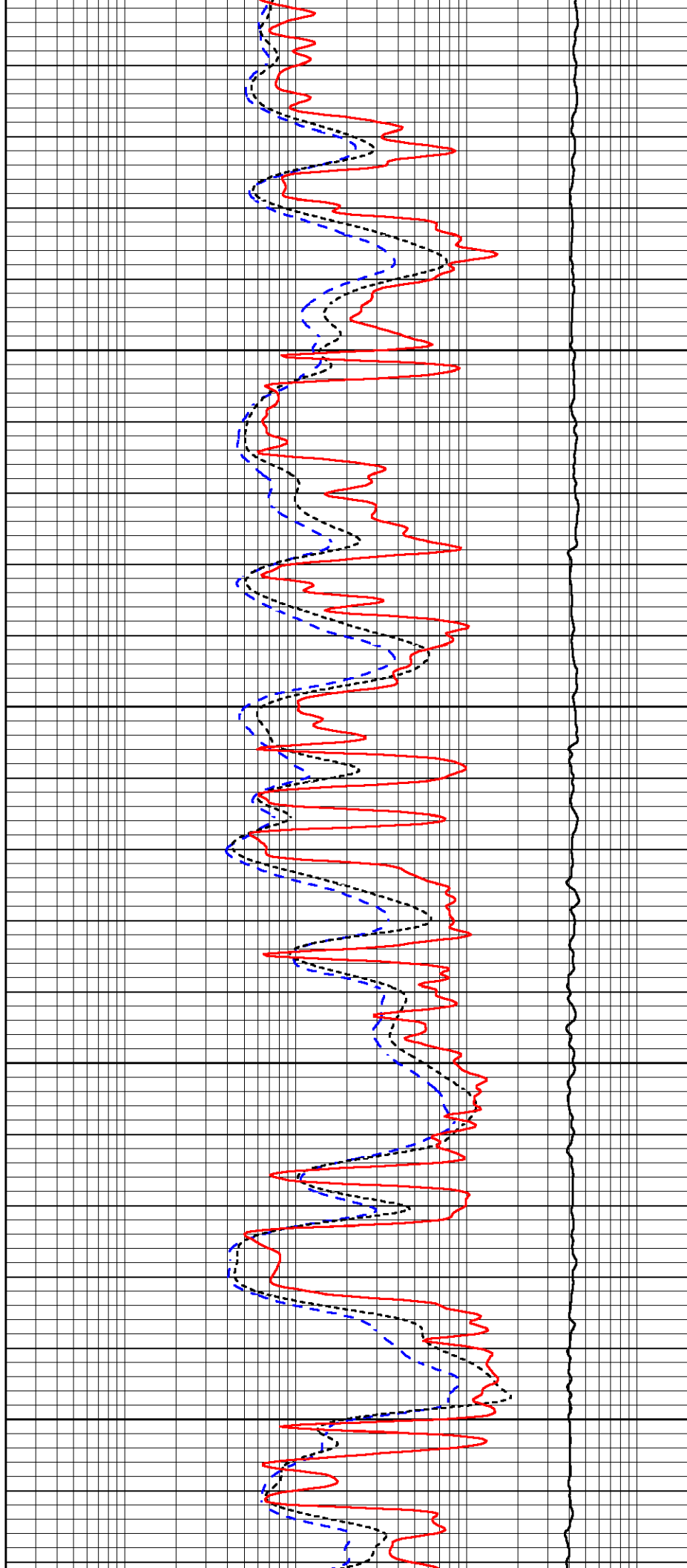


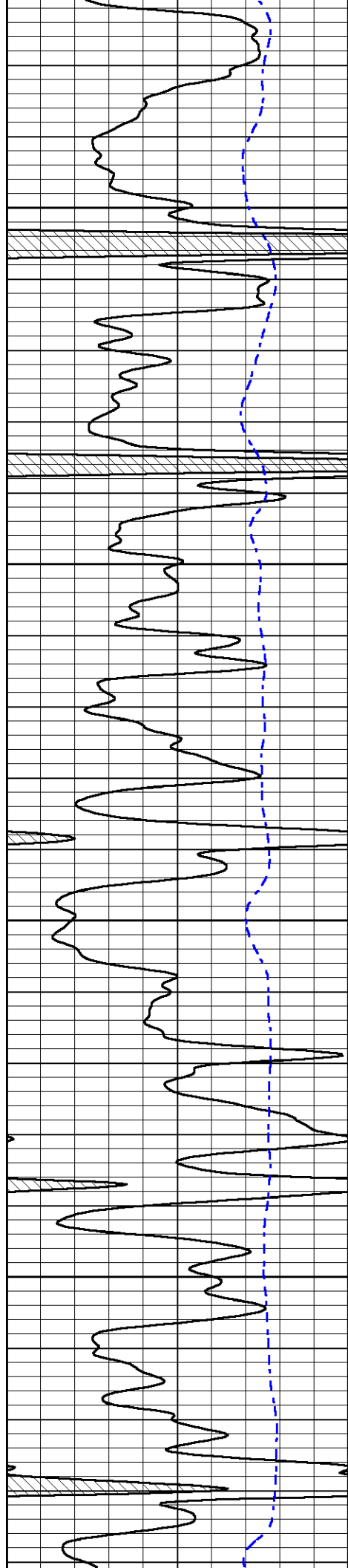
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4250

4300

4350



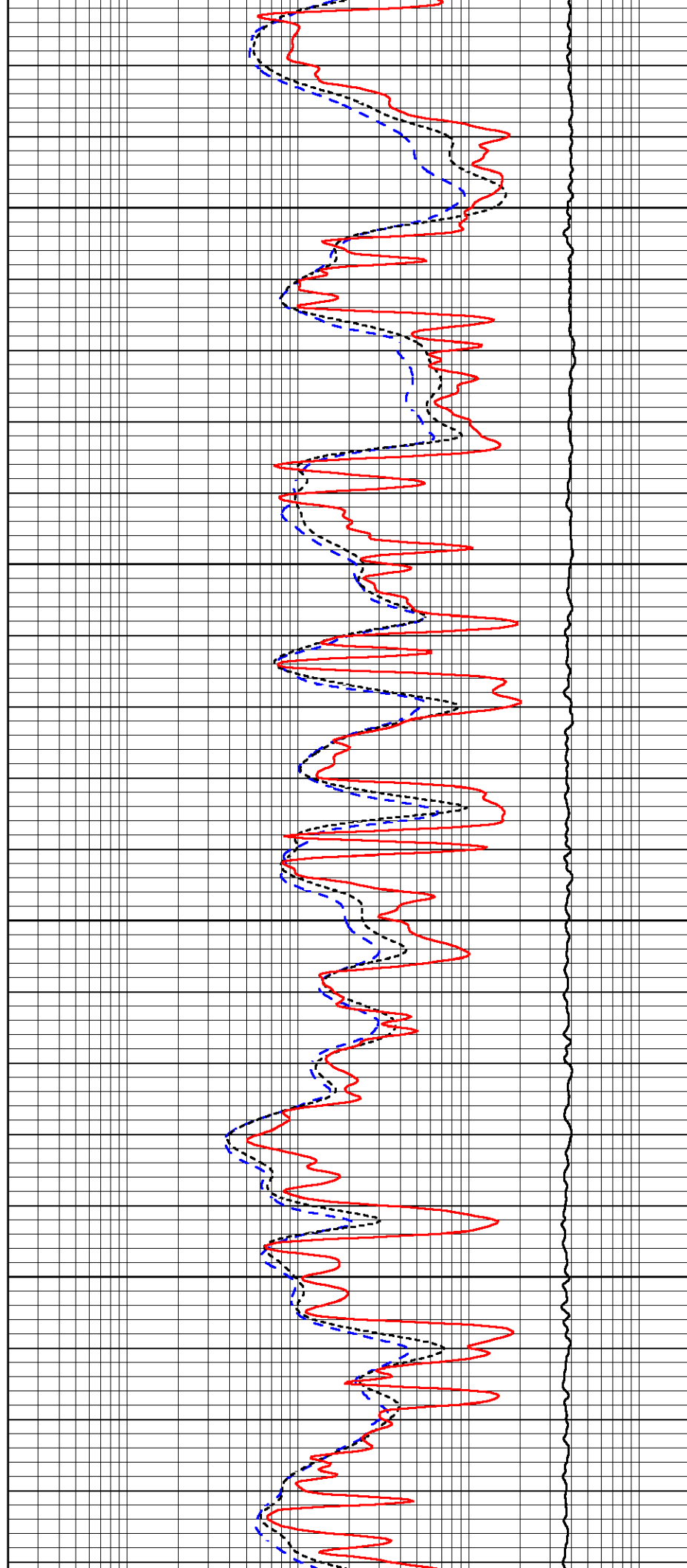


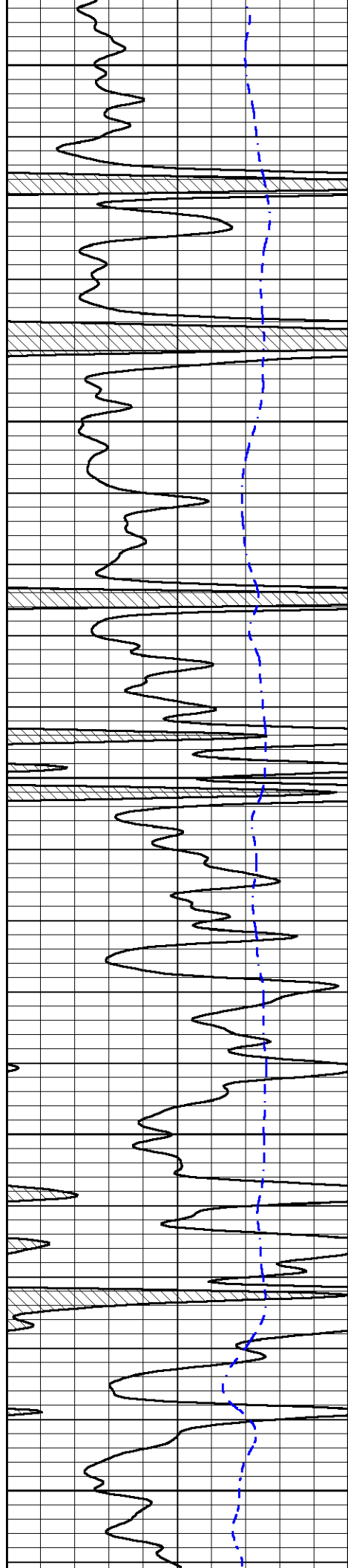
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4450

4500

4550





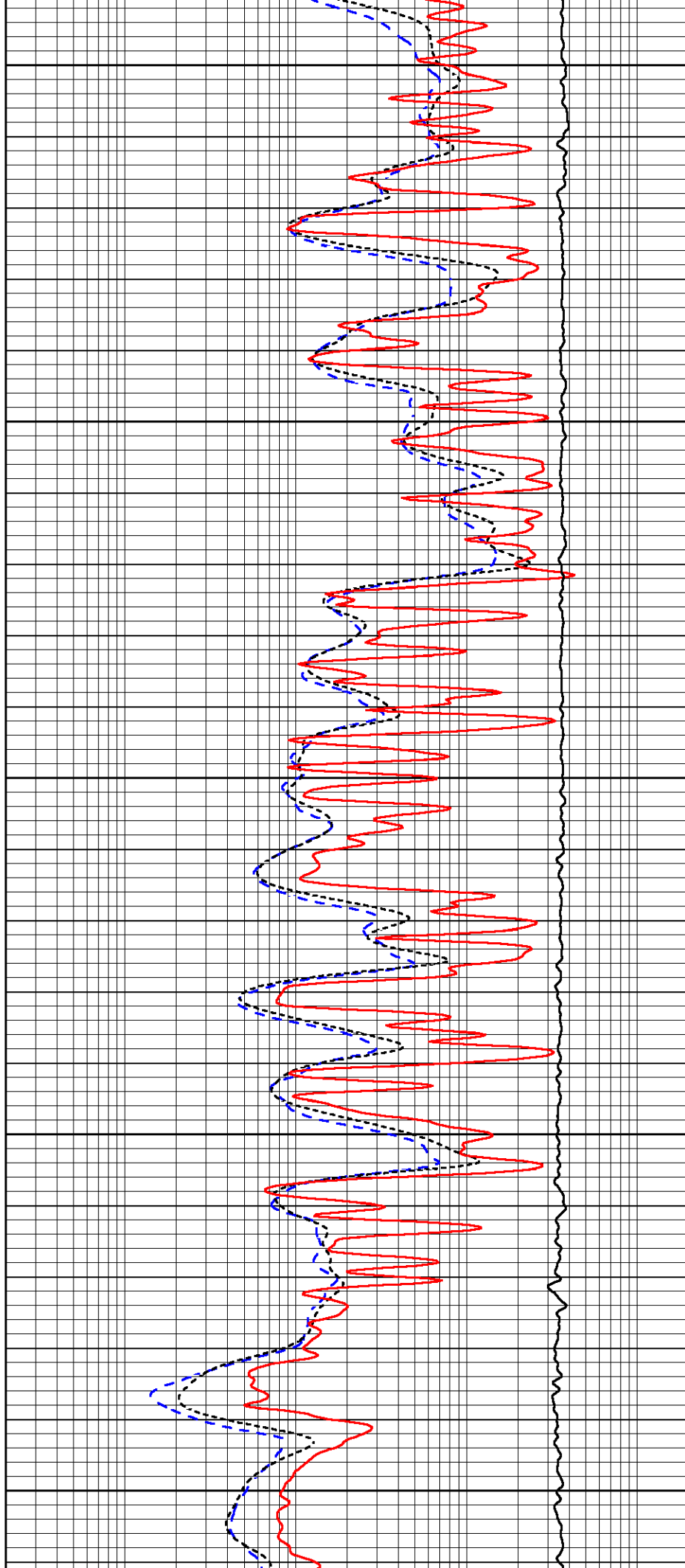
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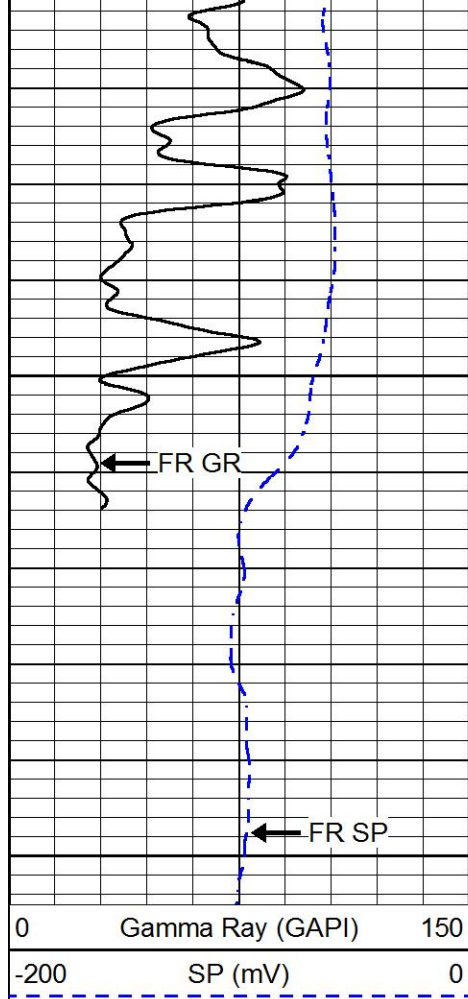
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4700

4750

4800

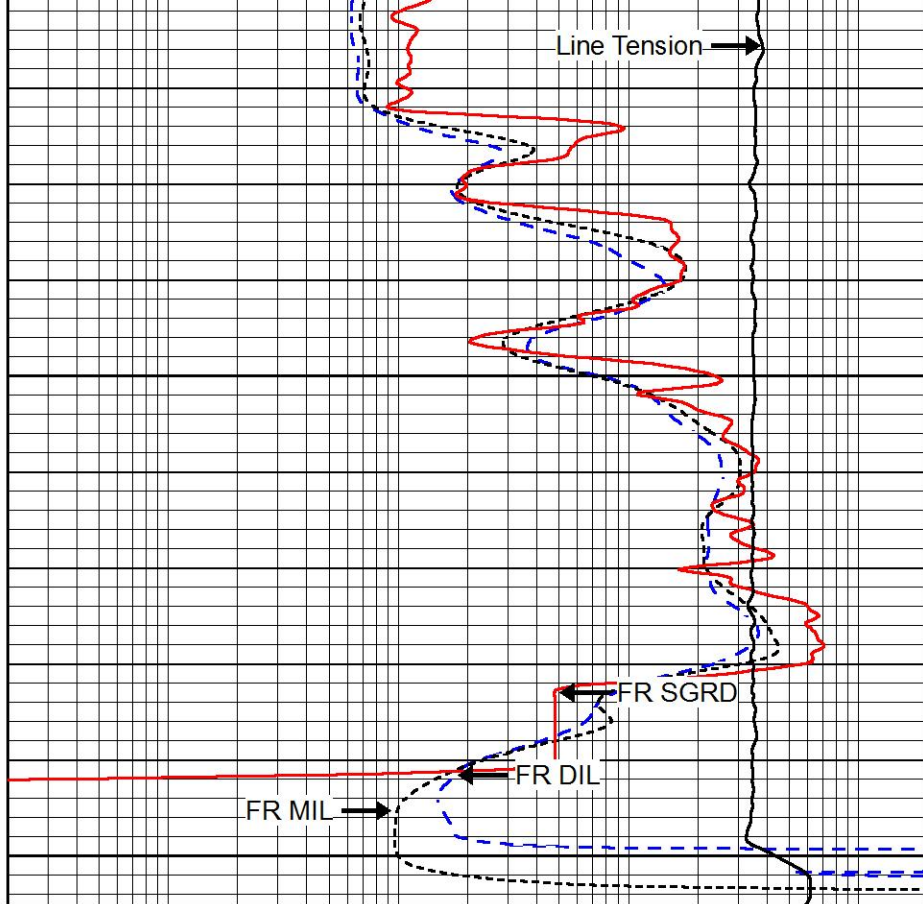




4850

4900

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
10000 Line Tension (lb) 0

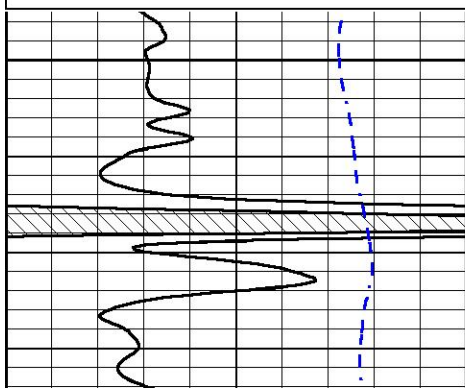


REPEAT SECTION

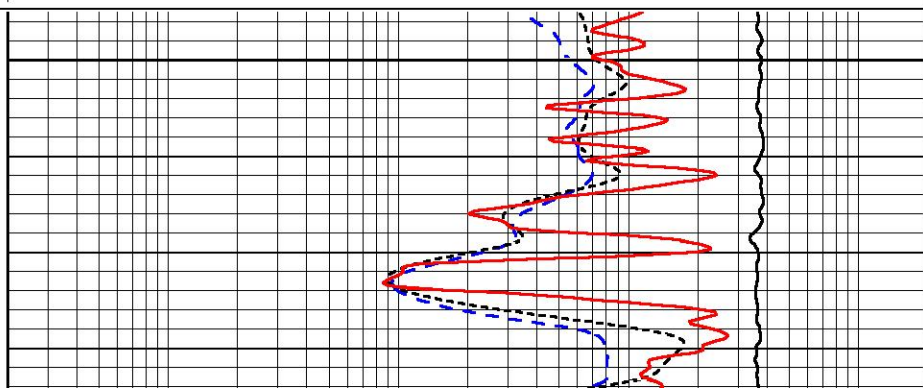
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Dataset Pathname stckml/pass2.1
Presentation Format dil
Dataset Creation Sat Oct 15 14:35:25 2016
Charted by Depth in Feet scaled 1:240

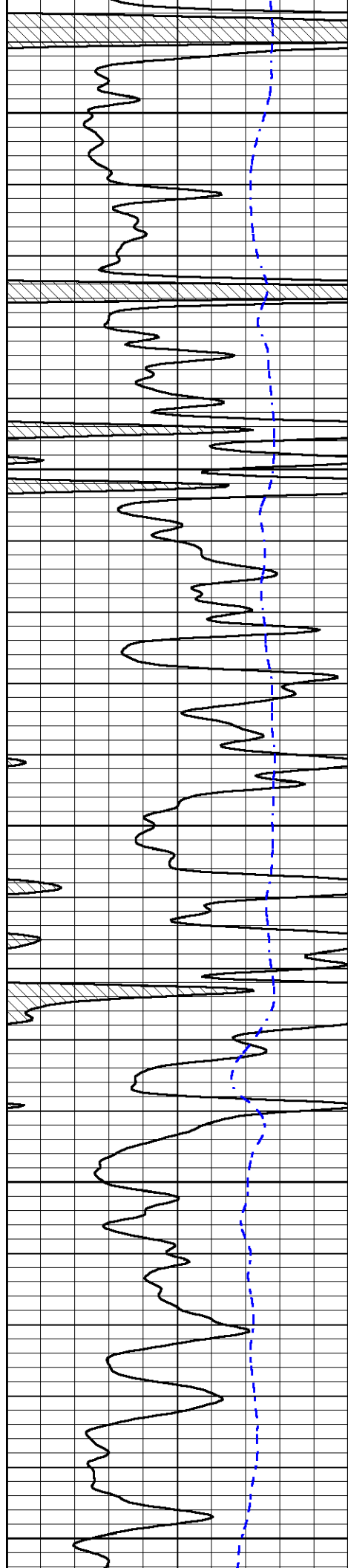
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-200 SP (mV) 0

0.2 Deep Resistivity (Ohm-m) 2000
0.2 Medium Resistivity (Ohm-m) 2000
0.2 Shallow Resistivity (Ohm-m) 2000
10000 Line Tension (lb) 0



4600





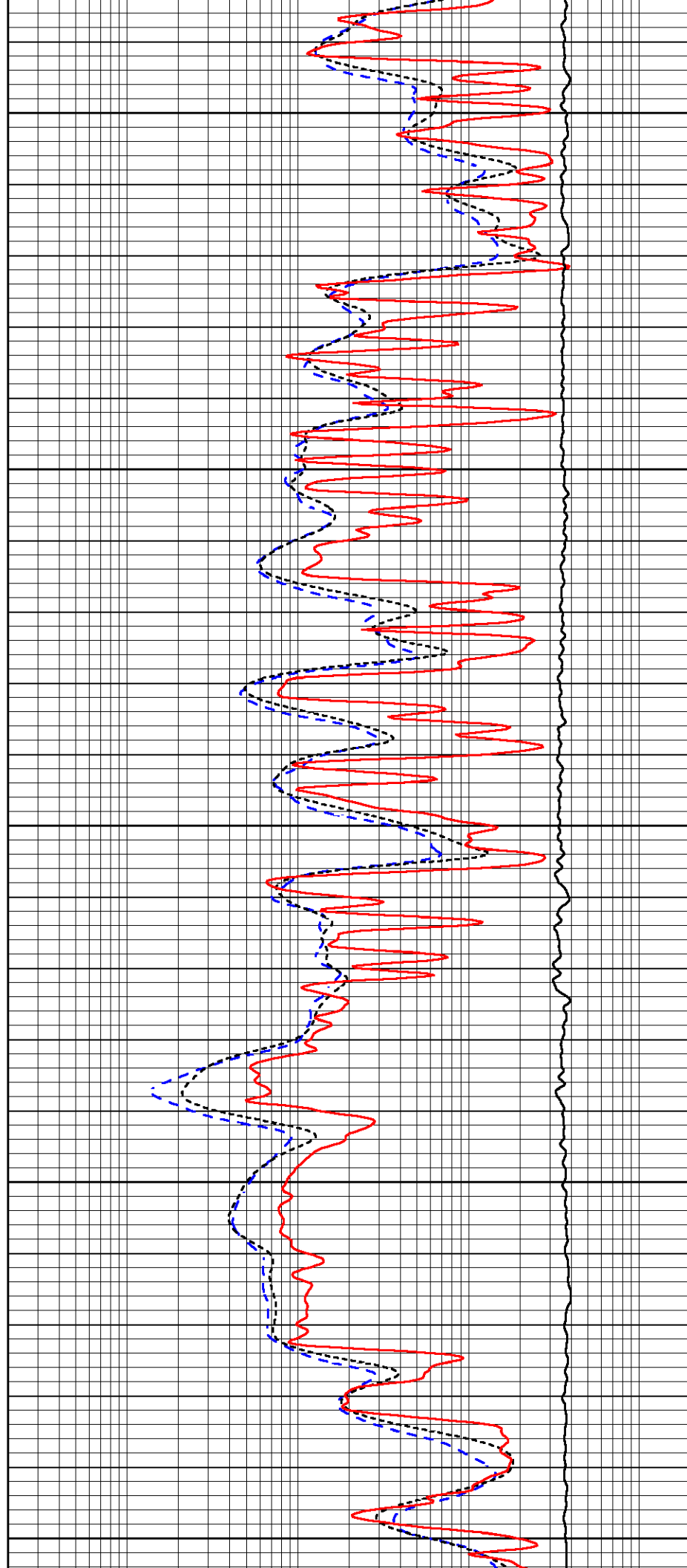
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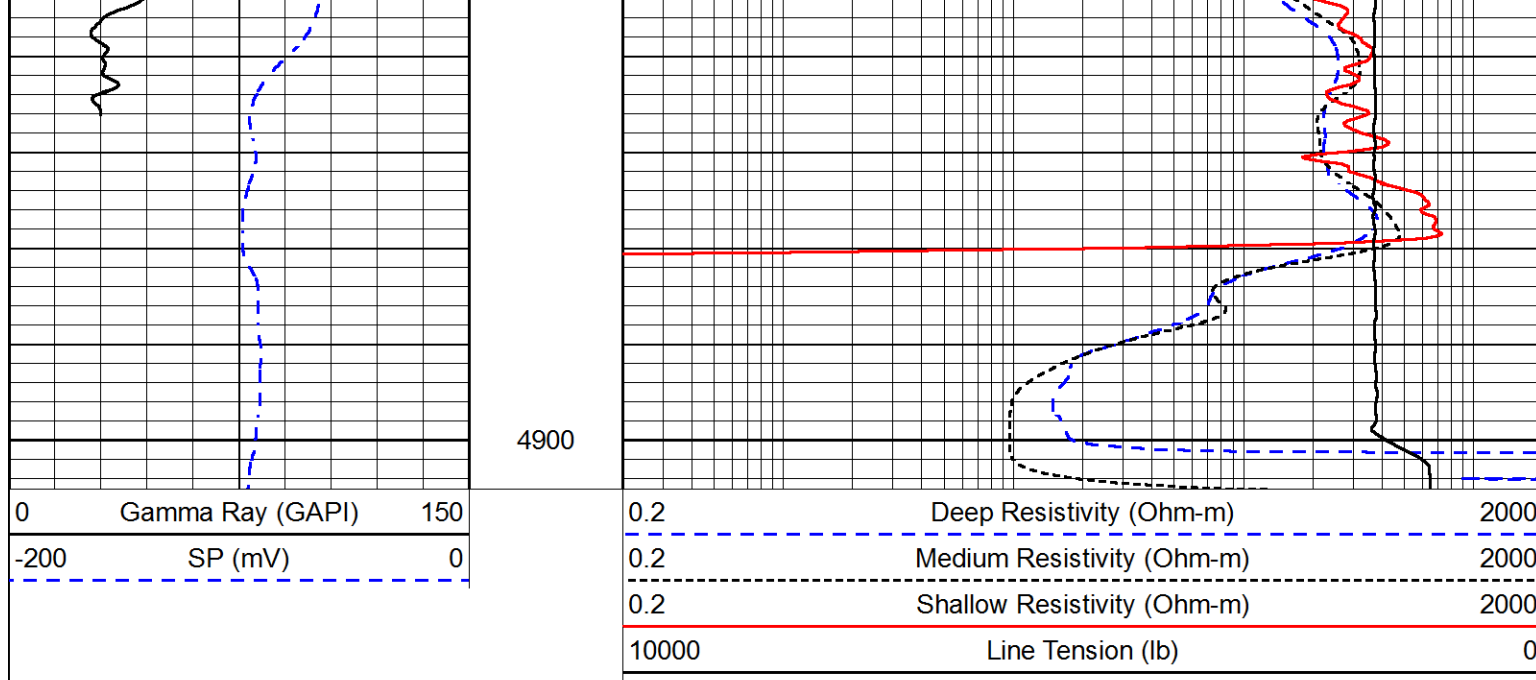
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4750

4800

4850





Calibration Report

Database File funk_calliham trust_#1-18.db
 Dataset Pathname stckml/pass4.1
 Dataset Creation Sat Oct 15 15:27:40 2016

Dual Induction Calibration Report

Serial-Model: PSI 13-M&W
 Calibration Performed: Thu Oct 06 06:17:37 2016

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	166.796	835.089	0.000	255.800	mmho/m	0.450	-29.500
Medium	142.009	1348.560	0.000	255.800	mmho/m	0.370	-25.000

Microlog Calibration Report

Serial-Model: PSI-01-PSIML
 Performed: Thu Sep 29 18:47:00 2016

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	25000.0000	-0.6000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	29500.0000	-0.5000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.6000

Compensated Density Calibration Report

Serial-Model: 90-1031-M&W
 Source / Verifier: 16955B / 2ci
 Master Calibration Performed: Thu Sep 29 18:47:07 2016

Master Calibration

Density Far Detector Near Detector

Magnesium	1.755	g/cc	5174.18	6425.27	cps
Aluminum	2.665	g/cc	963.17	4037.42	cps
Spine Angle = 74.55			Density/Spine Ratio = 0.522		
	Size		Reading		
Small Ring	6.00	in	1.83		
Large Ring	16.00	in	1.48		

Compensated Neutron Calibration Report
--

Serial Number:	207-MW
Tool Model:	M&W
Calibration Performed:	Wed Sep 28 10:30:30 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	
Tool Model:	M&W	
Calibration Performed:	Thu Sep 29 18:47:18 2016	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6000	GAPI/cps

	Company	FUNK PETROLEUM LLC
	Well	CALLIHAM TRUST #1-18
	Field	WILDCAT
	County	THOMAS
	State	KANSAS