



**PIONEER**  
Pioneer Energy Services

**DUAL INDUCTION  
LOG**

Company STRATAKAN EXPLORATION, LLC  
Well GASKILL RANGE-BERTRAND 5-1  
Field WILDCAT  
County LOGAN  
State KANSAS

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Well GASKILL RANGE-BERTRAND 5-1  
Field WILDCAT  
County LOGAN State KANSAS

Location: API #: 15-109-21524-00-00  
56' FSL & 2048' FWL  
SEC 5 TWP 12S RGE 33W  
Permanent Datum GROUND LEVEL Elevation 3167'  
Log Measured From KELLY BUSHING  
Drilling Measured From KELLY BUSHING  
Other Services  
CNL/CDL  
MEL/BHCS  
Elevation  
K.B. 3172'  
D.F. N/A  
G.L. 3167'

Date	9/17/2017
Run Number	ONE
Depth Driller	4790'
Depth Logger	4789'
Bottom Logged Interval	4788'
Top Log Interval	250'
Casing Driller	8.625" @ 260'
Casing Logger	259'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	5,000
Density / Viscosity	9.2 56
pH / Fluid Loss	9.5 8.0
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.75 @ 67
Rmt @ Meas. Temp	.56 @ 67
Rmc @ Meas. Temp	1.01 @ 67
Source of Rmf / Rmc	CHARTS
Rm @ BHT	.41 @ 124
Operating Rig Time	4 HOURS
Max Rec. Temp. F	124 DEGF
Equipment Number	108
Location	HAYS
Recorded By	J. HENRICKSON
Witnessed By	JASON ALM

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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.  
MONUMENT KANSAS  
5 SOUTH, EAST INTO

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

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


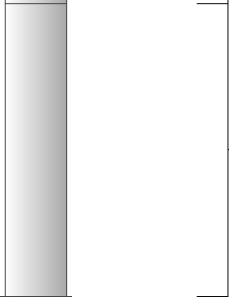
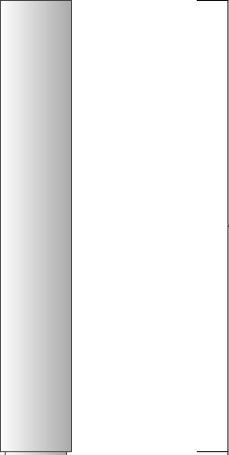

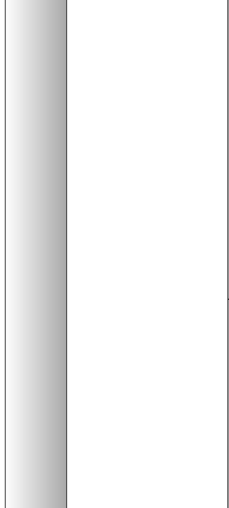
<b>Your Pioneer Energy Services Crew</b>	<b>This Log Record Was Witnessed By</b>
Engineer: J. HENRICKSON	Primary Witness: JASON ALM
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

# Log Variables

DatabaseC:\ProgramData\Warrior\Data\stratakan\_gaskill\_range\_bertrand\_unit\_5\_1.db  
 Dataset field/well/stack/pass3.1/\_vars\_

## Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	124	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	-225	57	Off	4789

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 29.15		CNT-M&W (tk10-MW)	5.50	3.50	100.00
LSD DCAL SSD	20.85 20.83 20.35		CDL-M&W (168-986)	8.50	4.00	250.00
RLL3 RLL3F	15.80 15.79					
CILD	8.00		DIL-M&W (1987)	18.50	3.50	220.00

CILM 4.70

SP 0.20

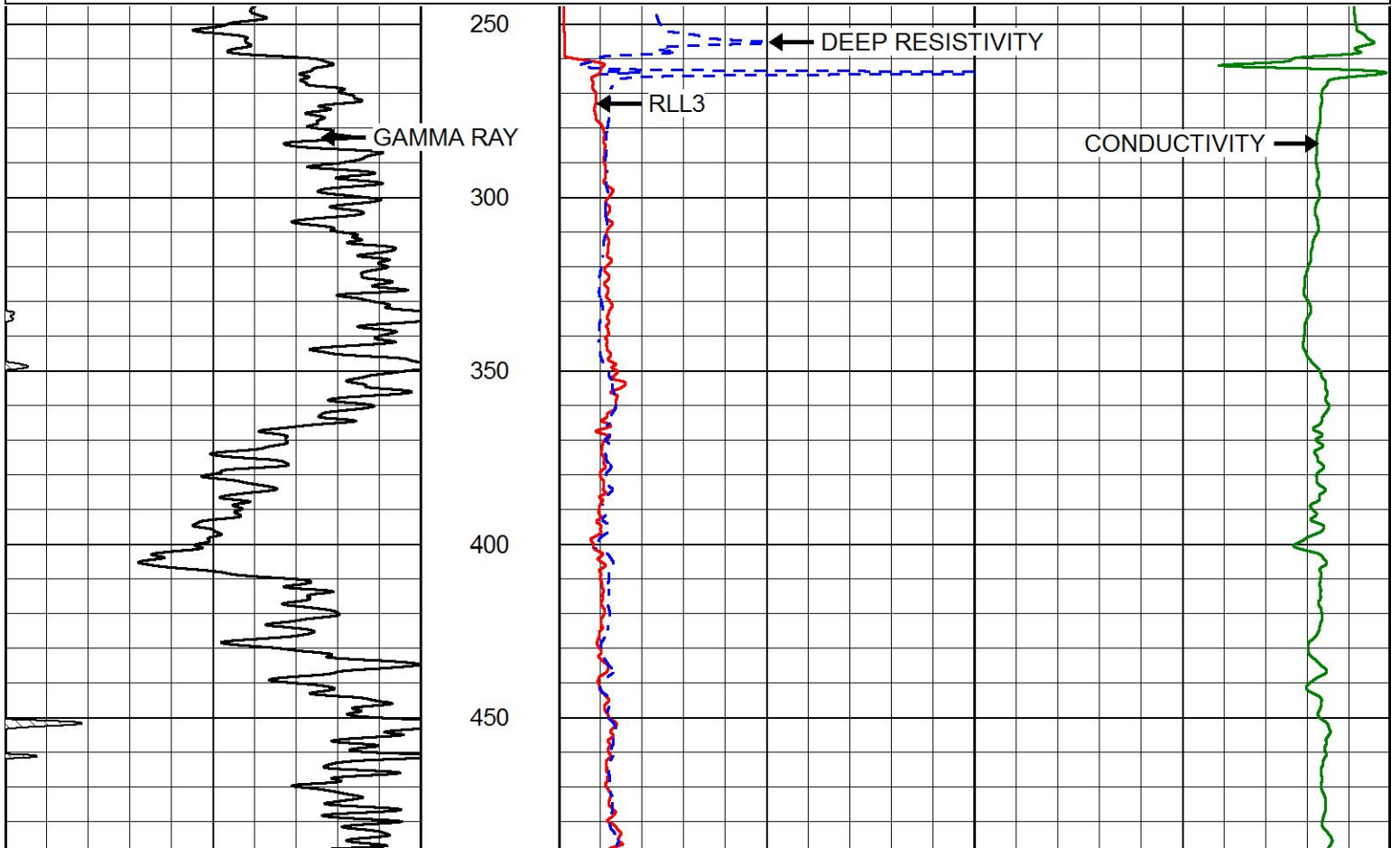
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 Total length: 35.50 ft  
 Total weight: 620.00 lb  
 O.D.: 4.00 in

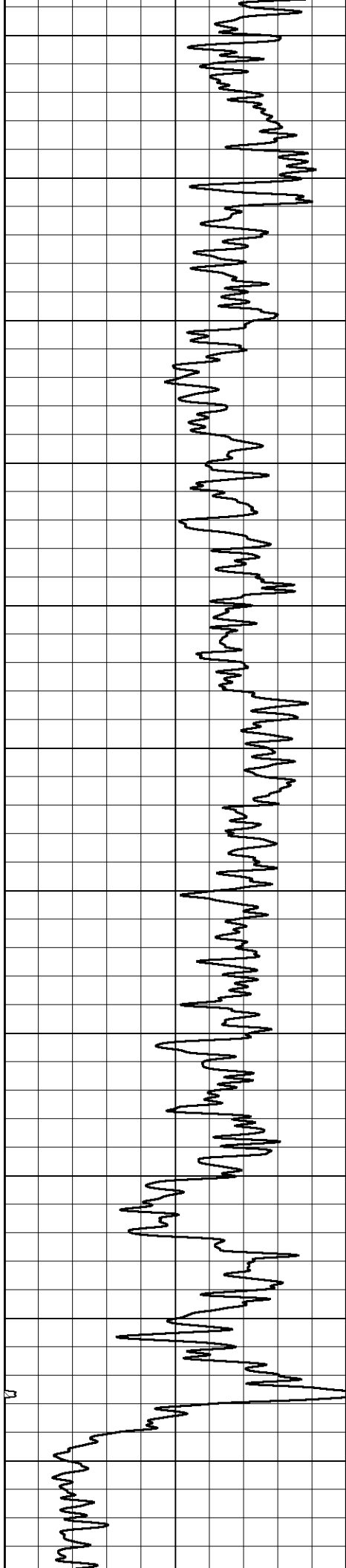


# MAIN PASS

Database File stratakan\_gaskill\_range\_bertrand\_unit\_5\_1.db  
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 Presentation Format dil2in  
 Dataset Creation Sun Sep 17 17:17:20 2017  
 Charted by Depth in Feet scaled 1:600

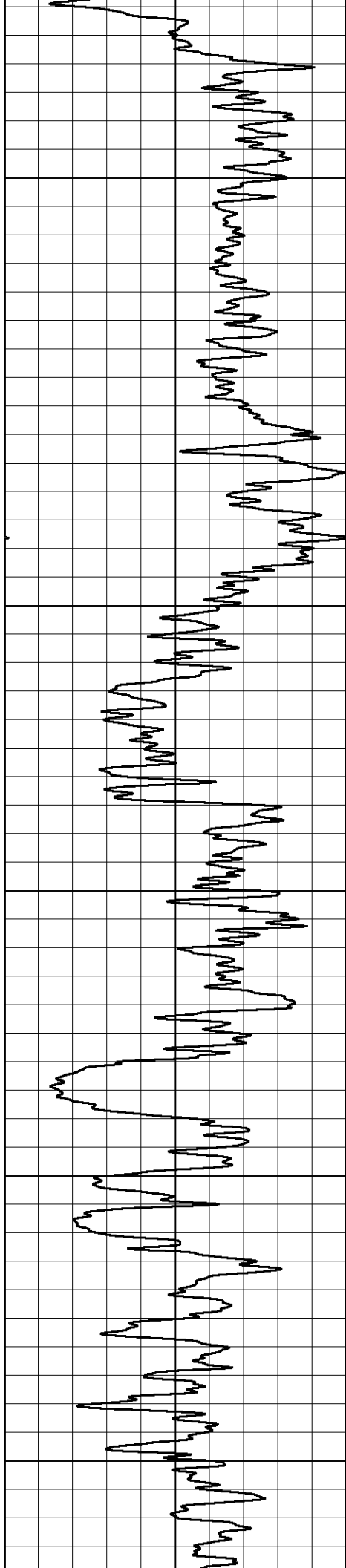
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			0	RLL3 (Ohm-m)	50
			0	DEEP RESISTIVITY (Ohm-m)	50
			50	RLL3 (Ohm-m)	500
				DEEP RESISTIVITY	
			50	(Ohm-m)	500



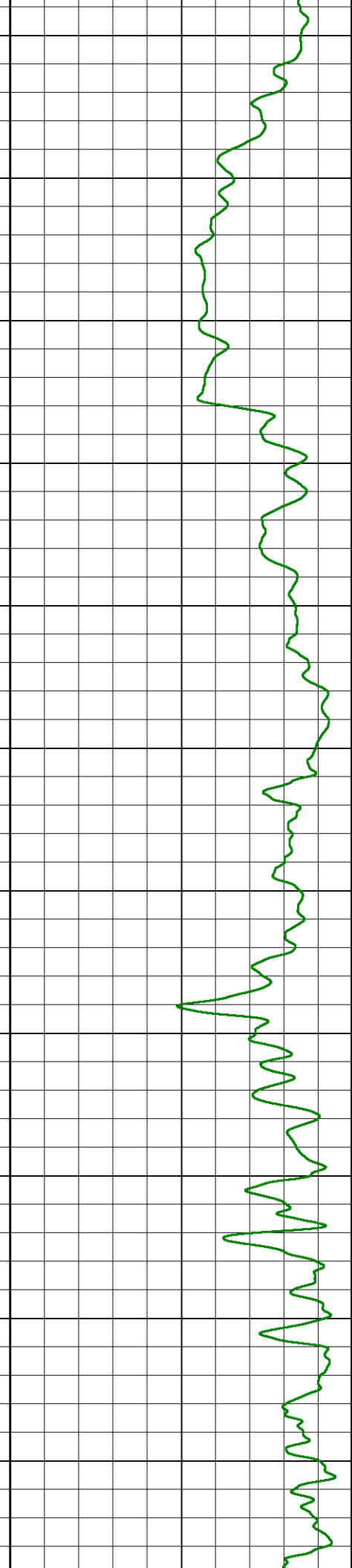
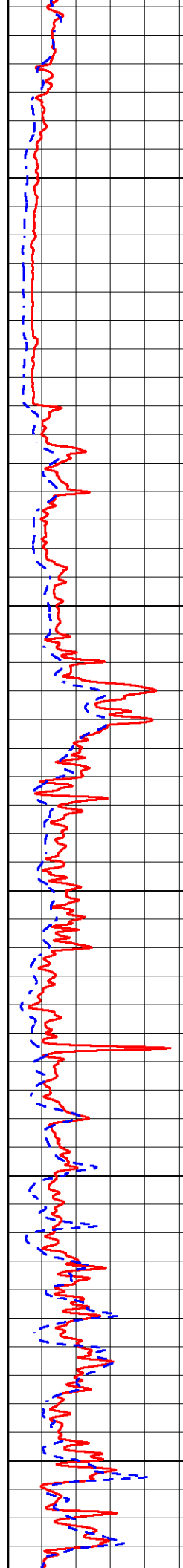


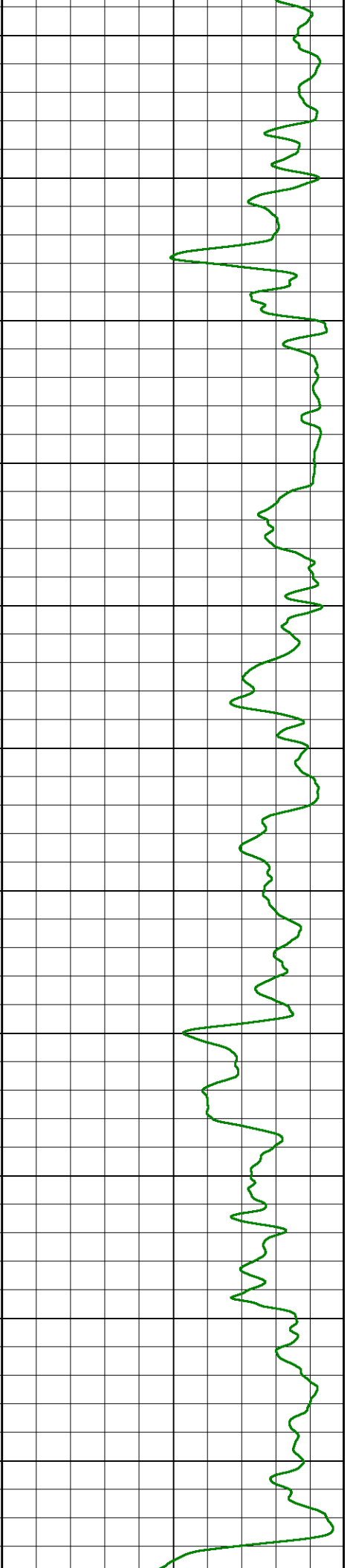
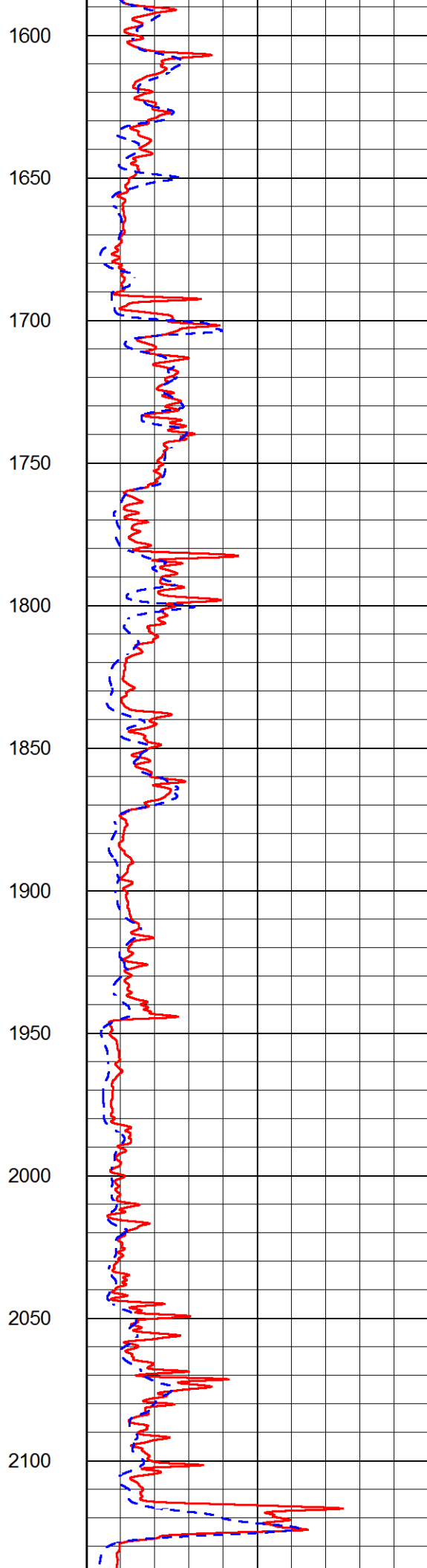
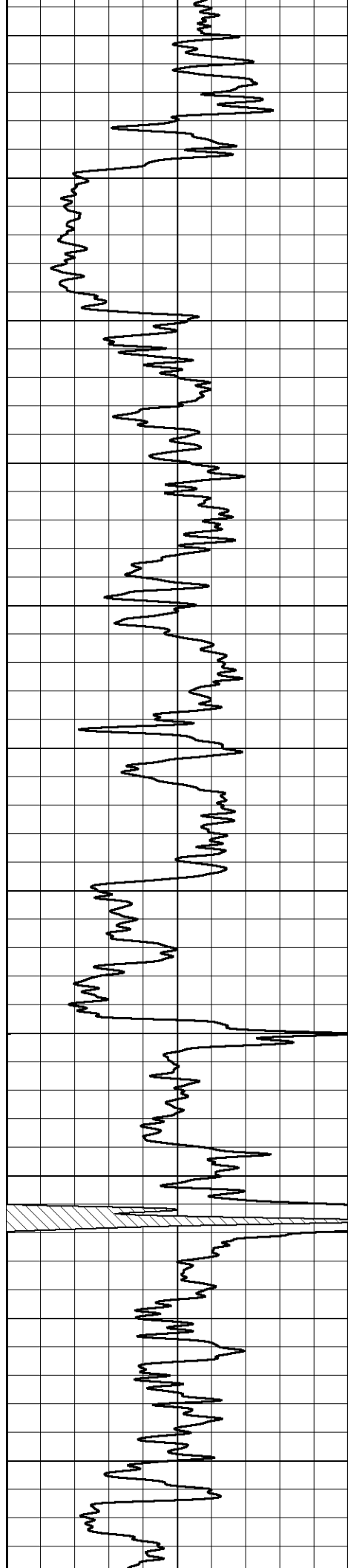
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550  
600  
650  
700  
750  
800  
850  
900  
950  
1000

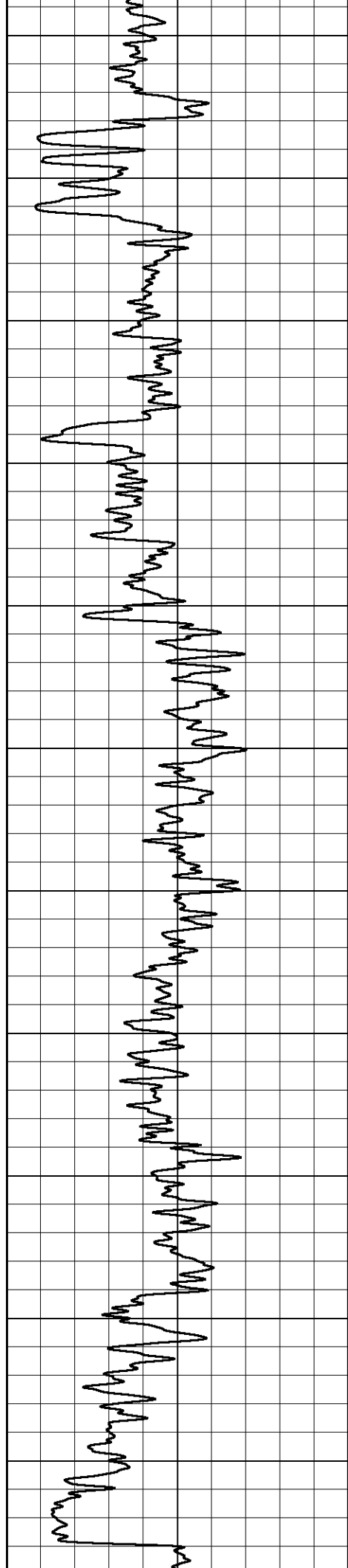




1050  
1100  
1150  
1200  
1250  
1300  
1350  
1400  
1450  
1500  
1550







2150

2200

2250

2300

2350

2400

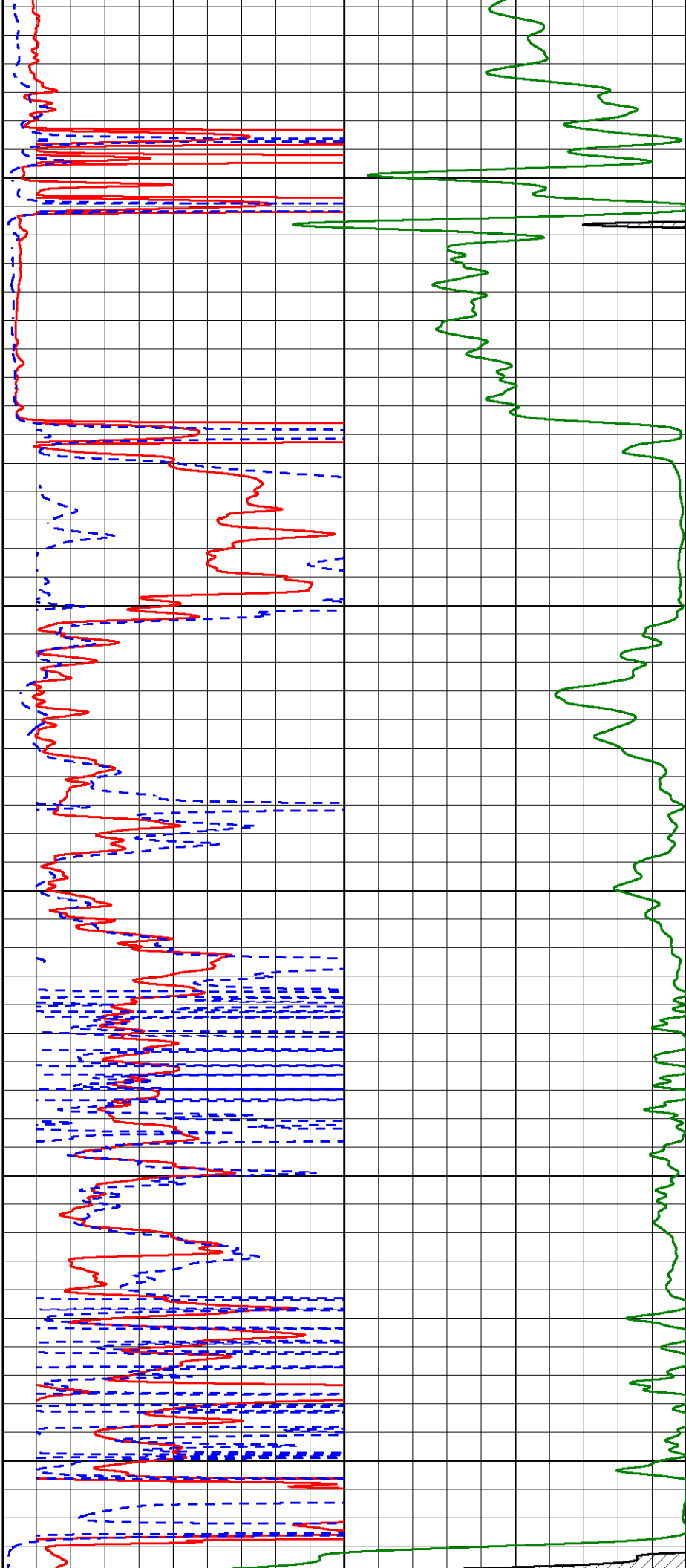
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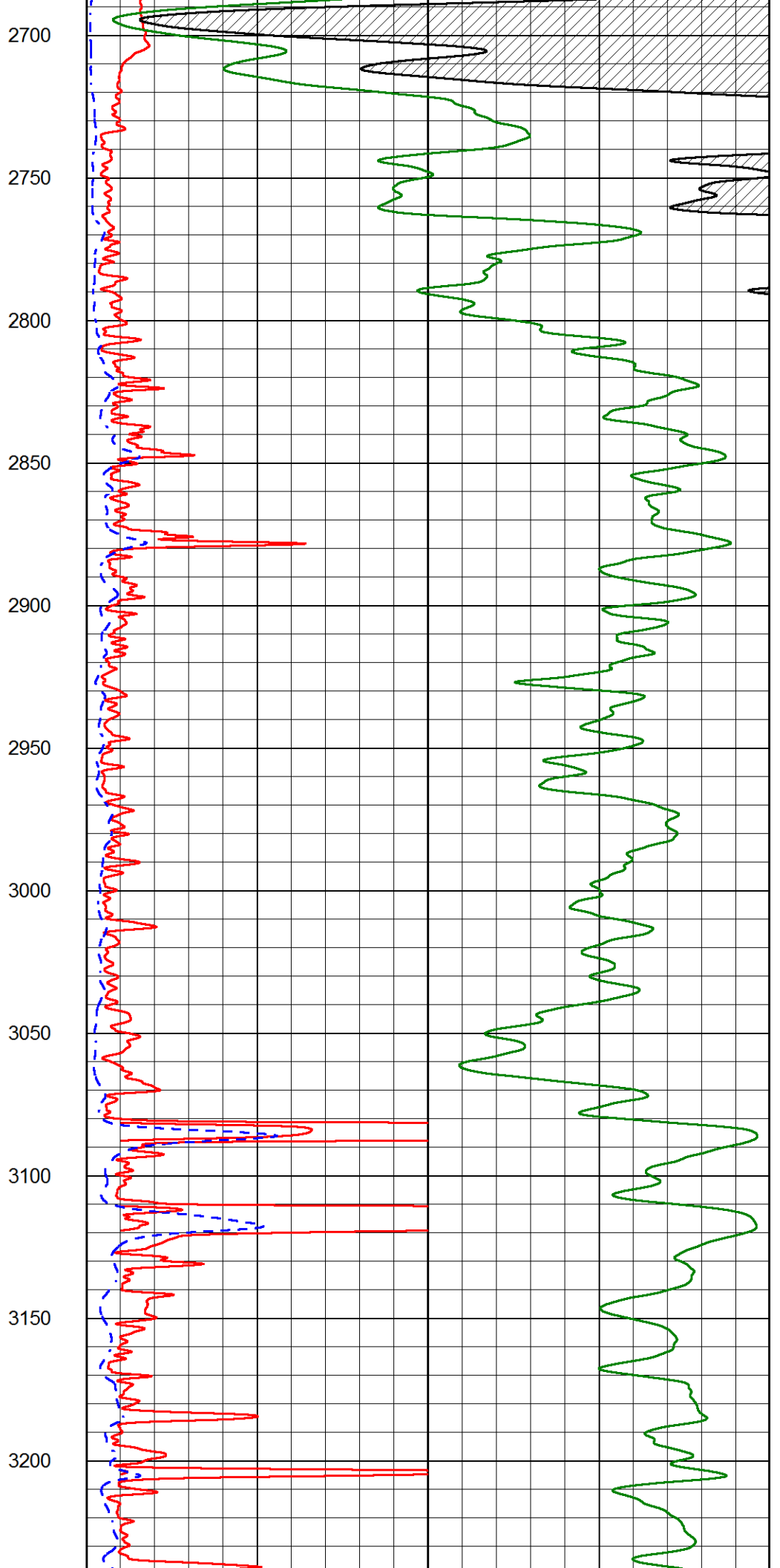
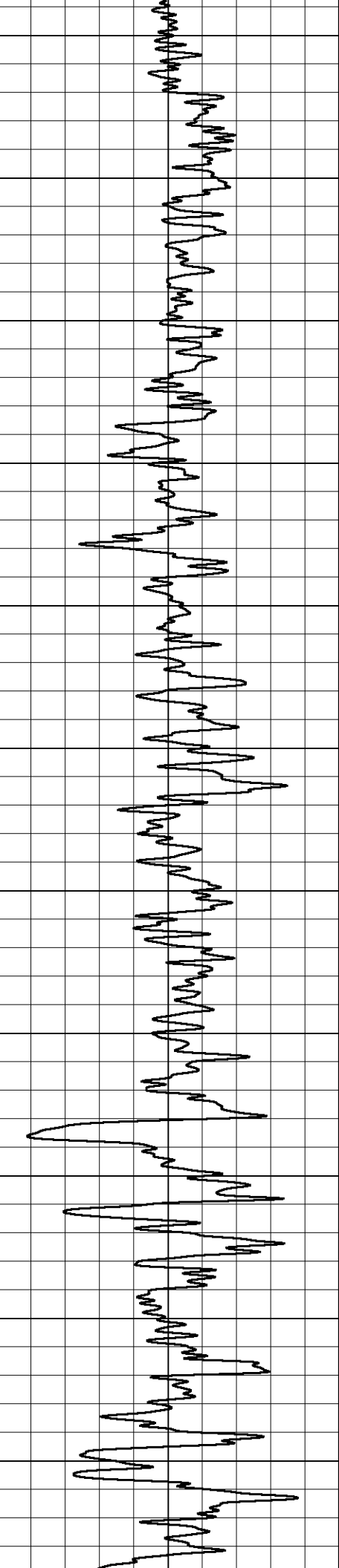
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2550

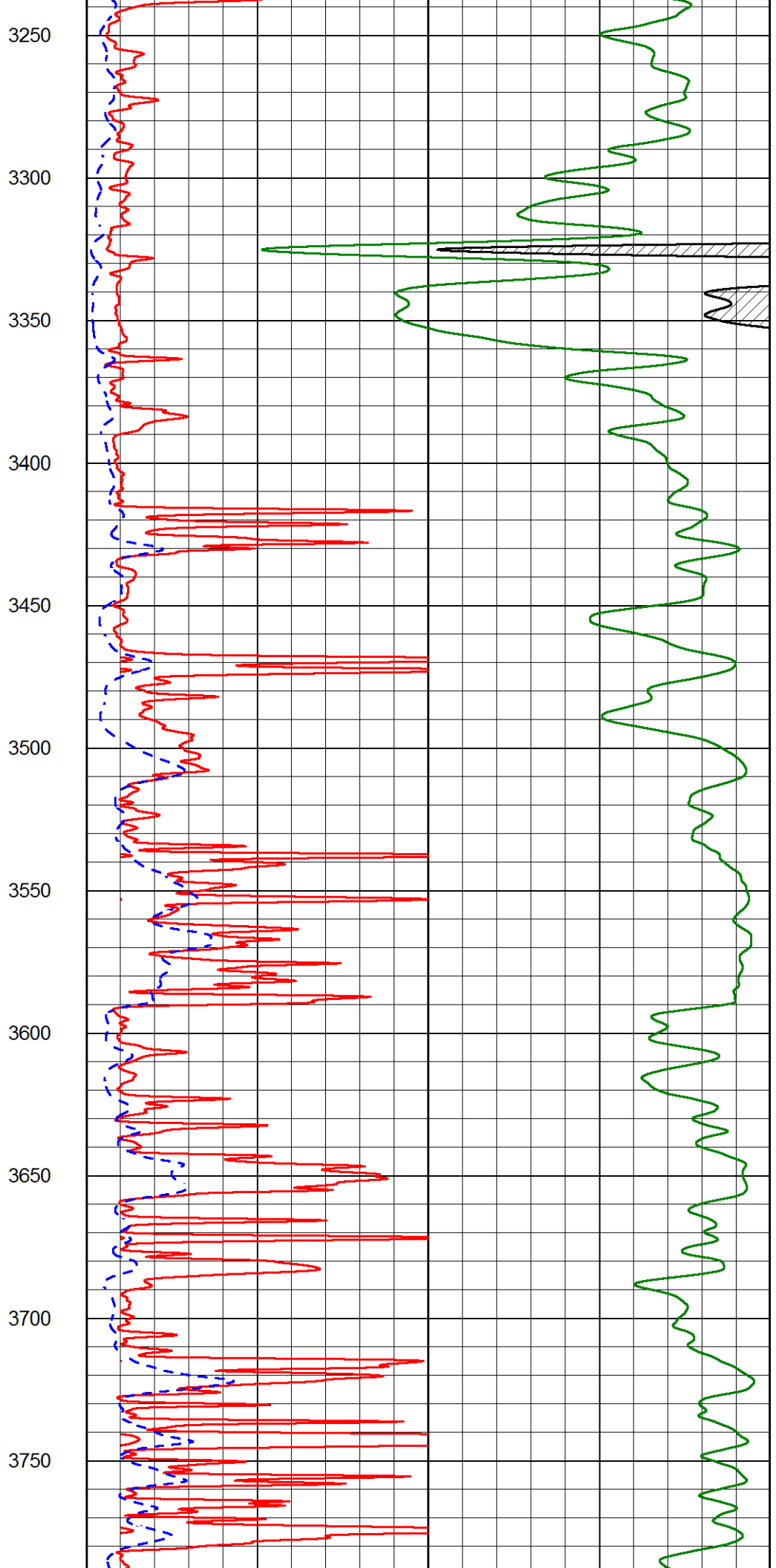
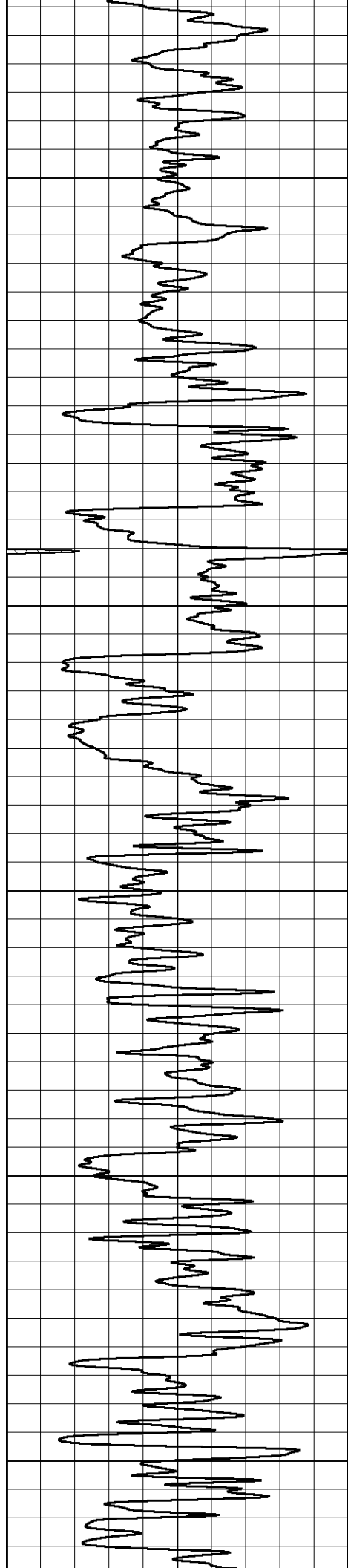
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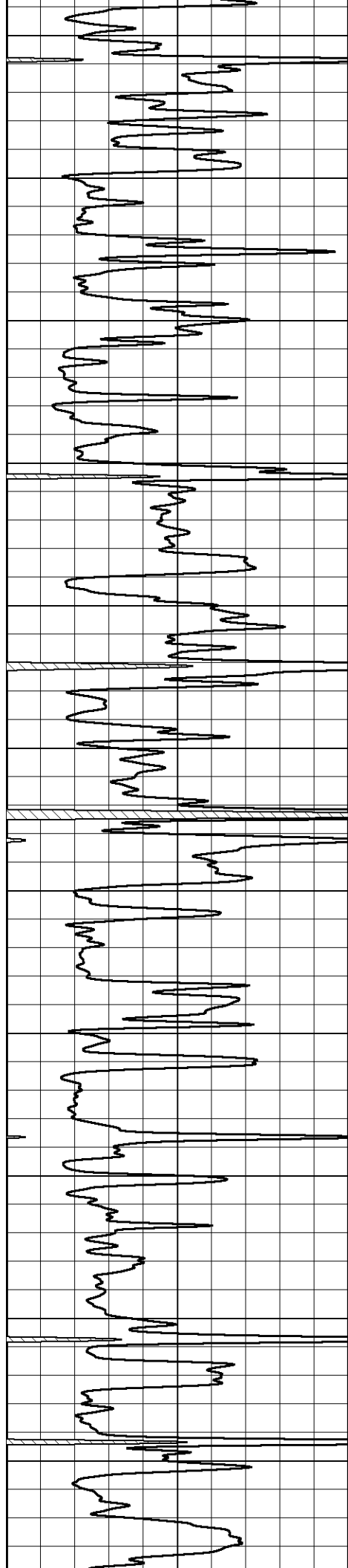
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3800

3850

3900

3950

4000

4050

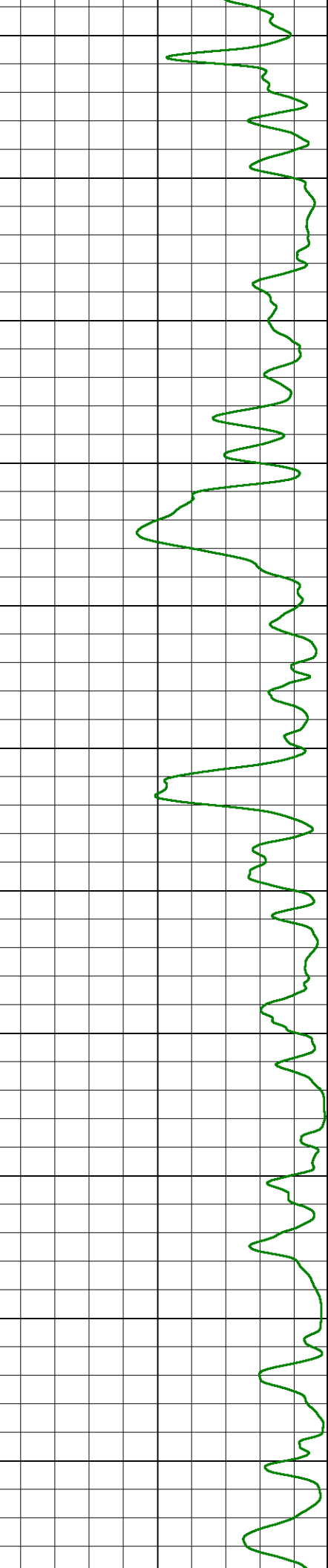
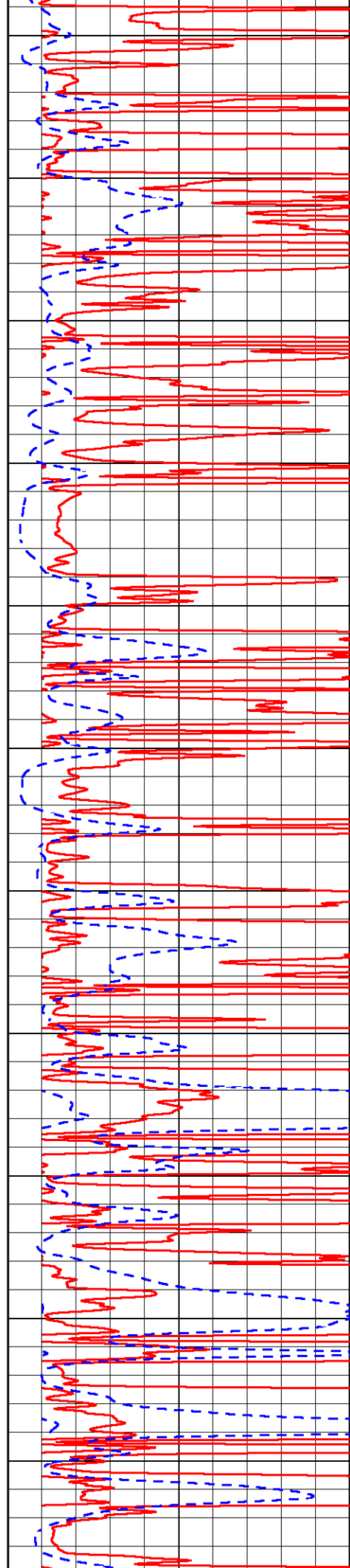
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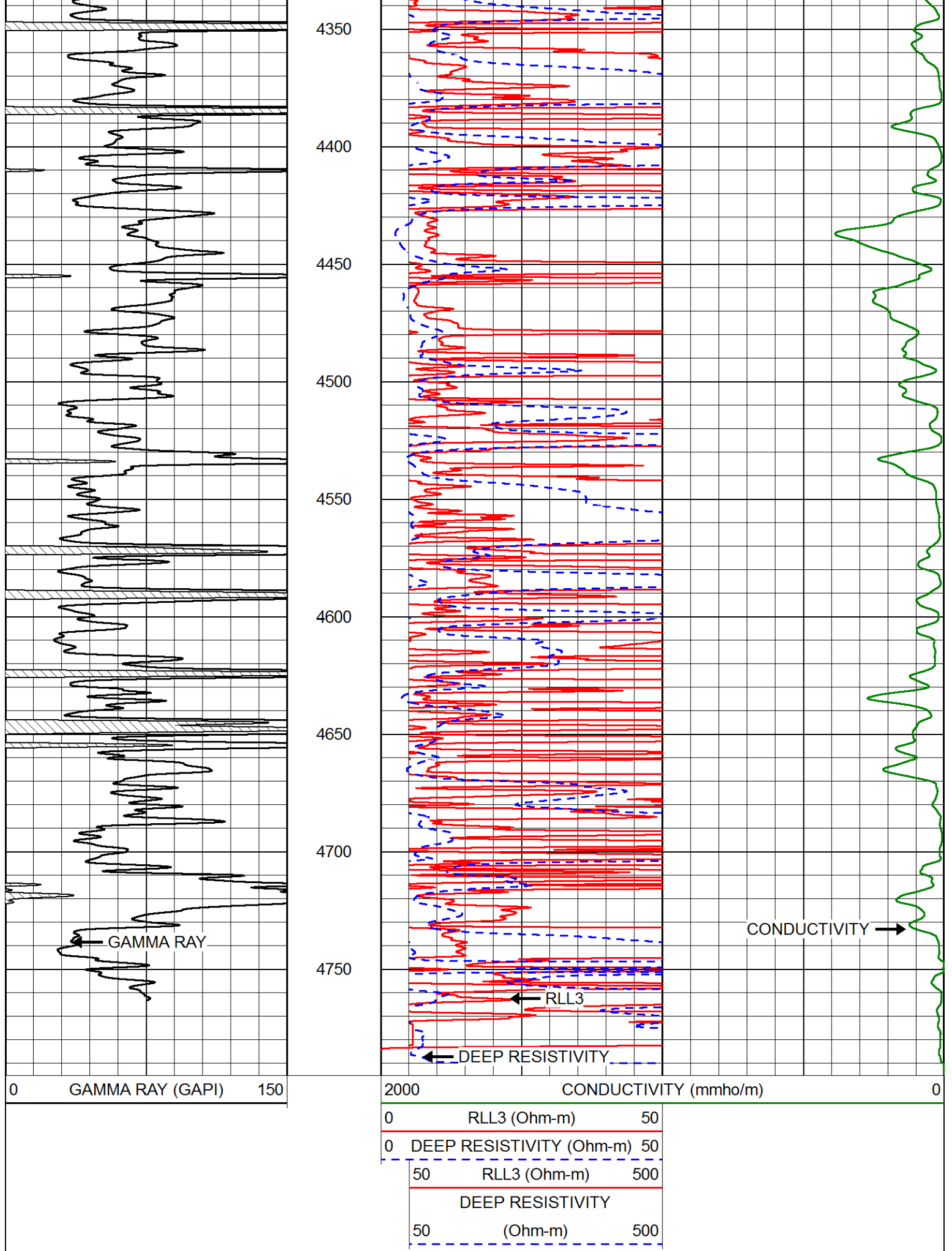
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4200

4250

4300



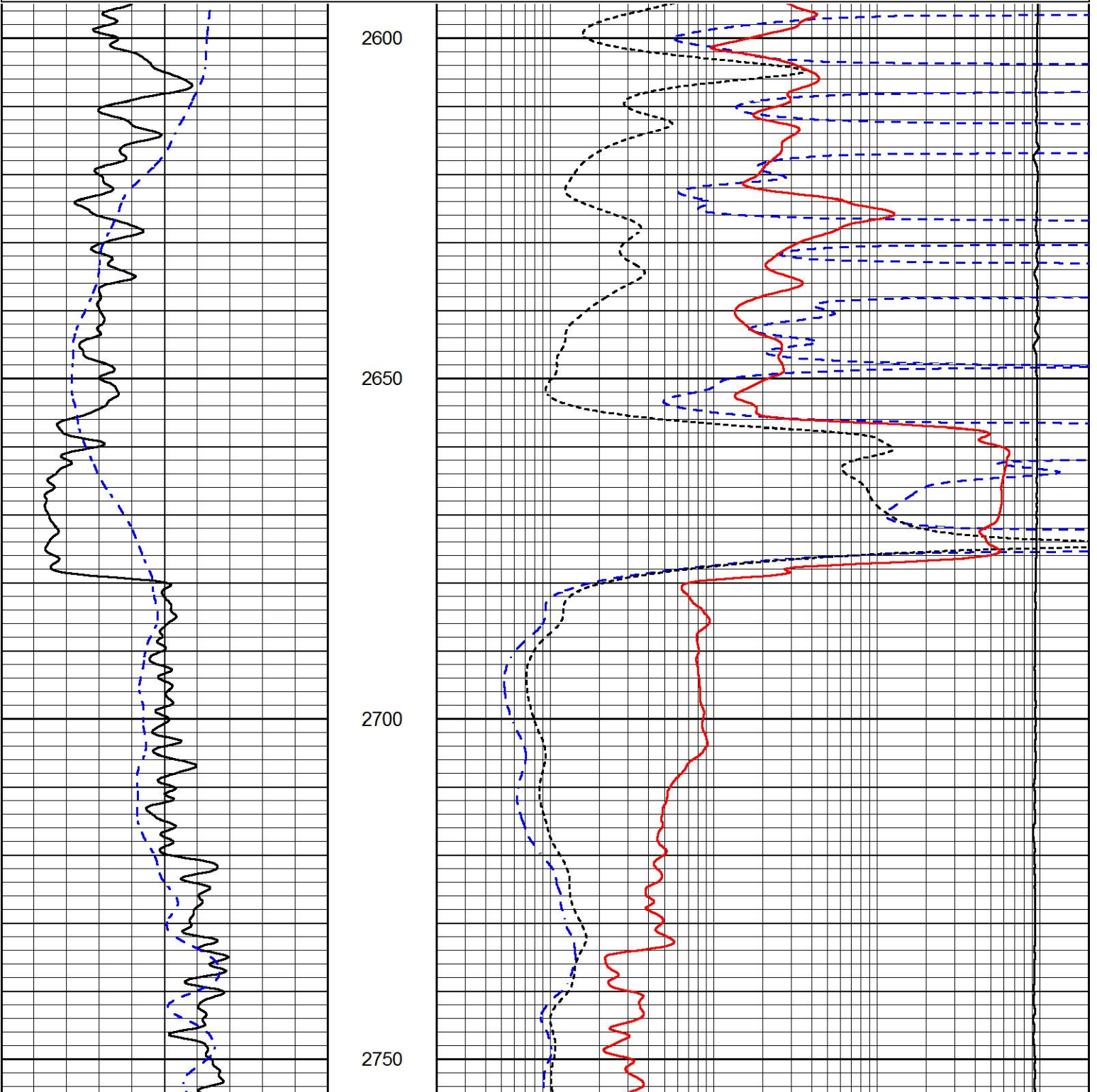


# MAIN PASS

Database File      stratakan\_gaskill\_range\_bertrand\_unit\_5\_1.db  
 Dataset Pathname    stack/pass3.1  
 Presentation Format    dil  
 Dataset Creation      Sun Sep 17 17:17:20 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	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0



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

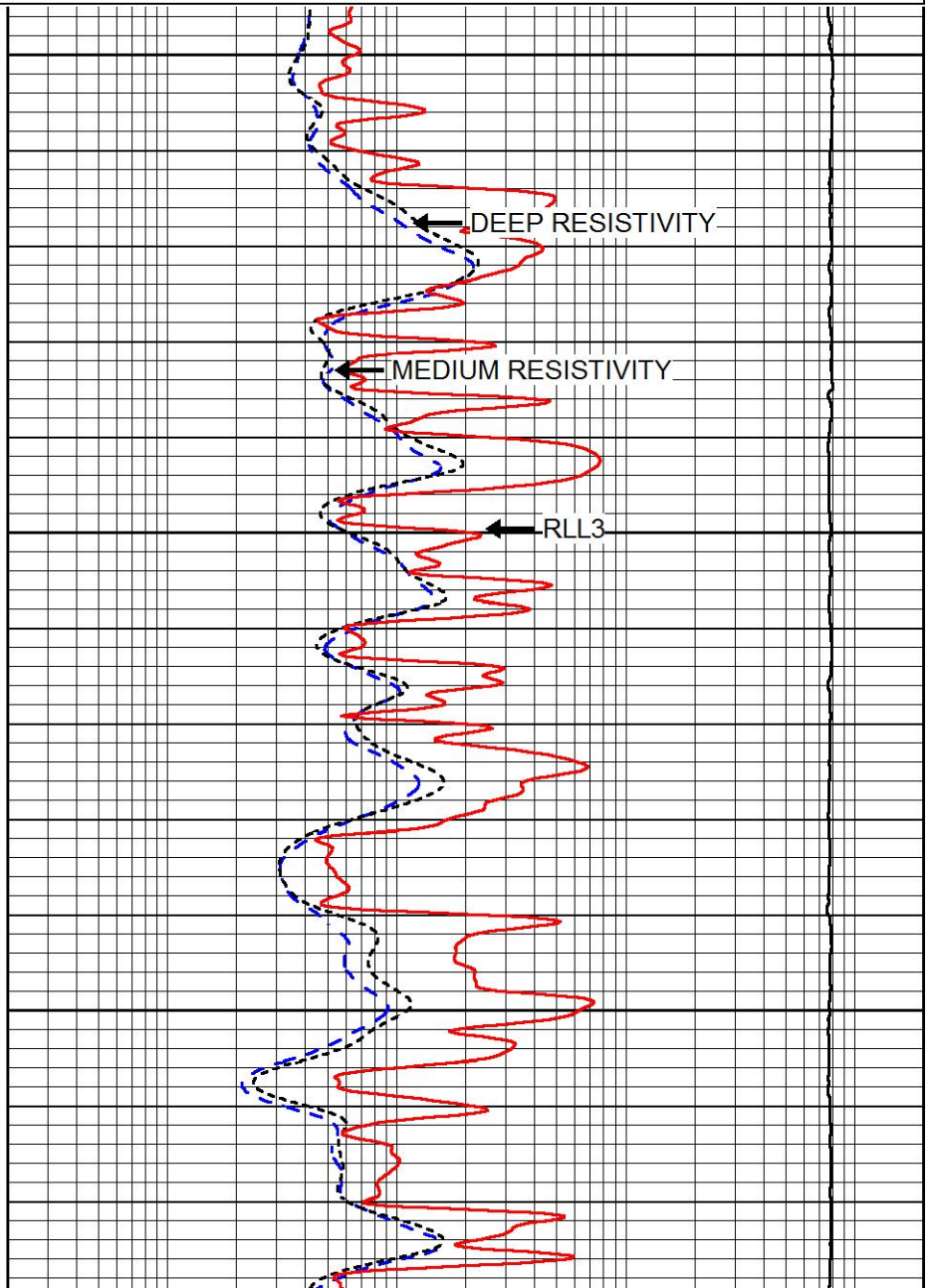
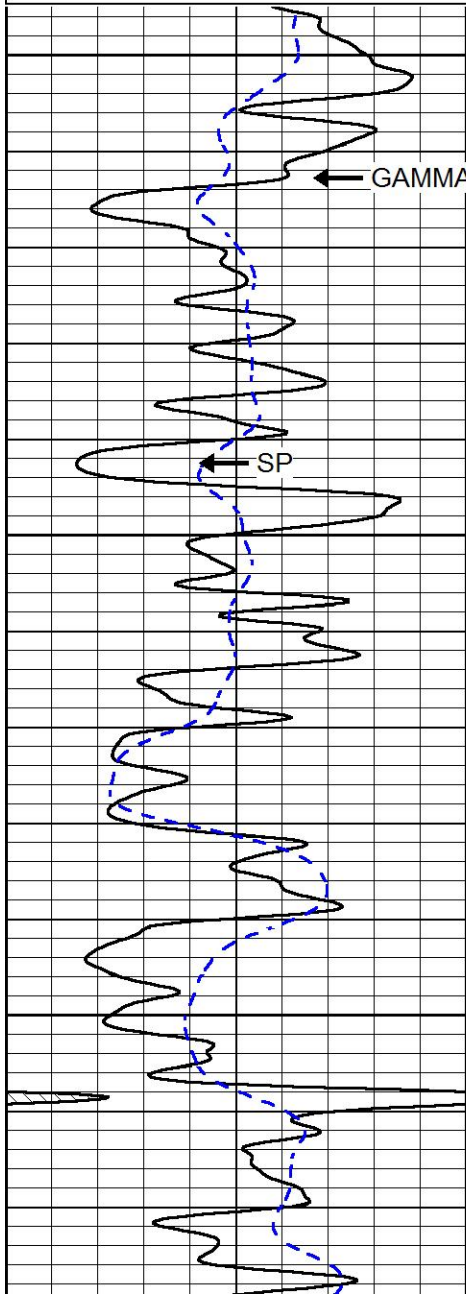


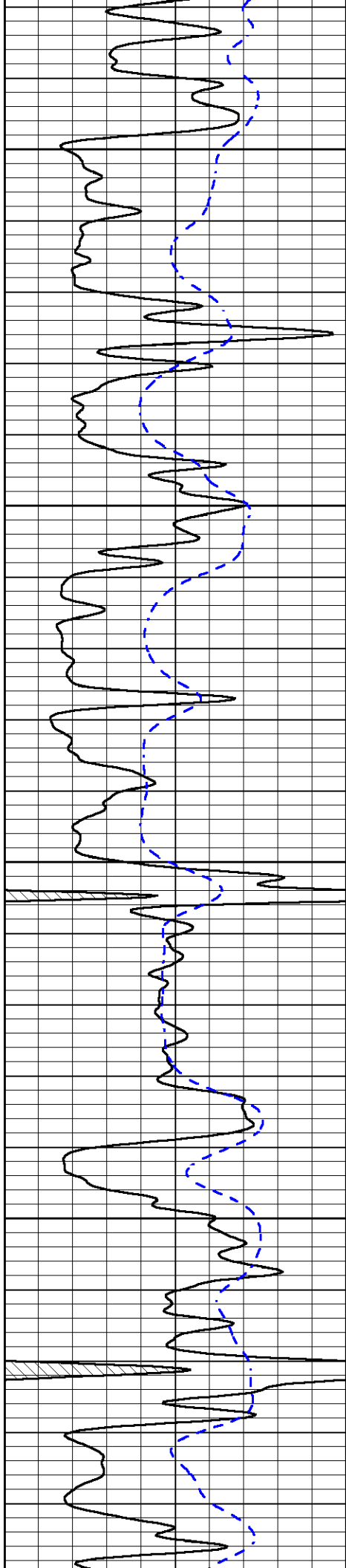
# MAIN PASS

Database File	stratakan_gaskill_range_bertrand_unit_5_1.db
Dataset Pathname	stack/pass3.1
Presentation Format	dil
Dataset Creation	Sun Sep 17 17:17:20 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	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0





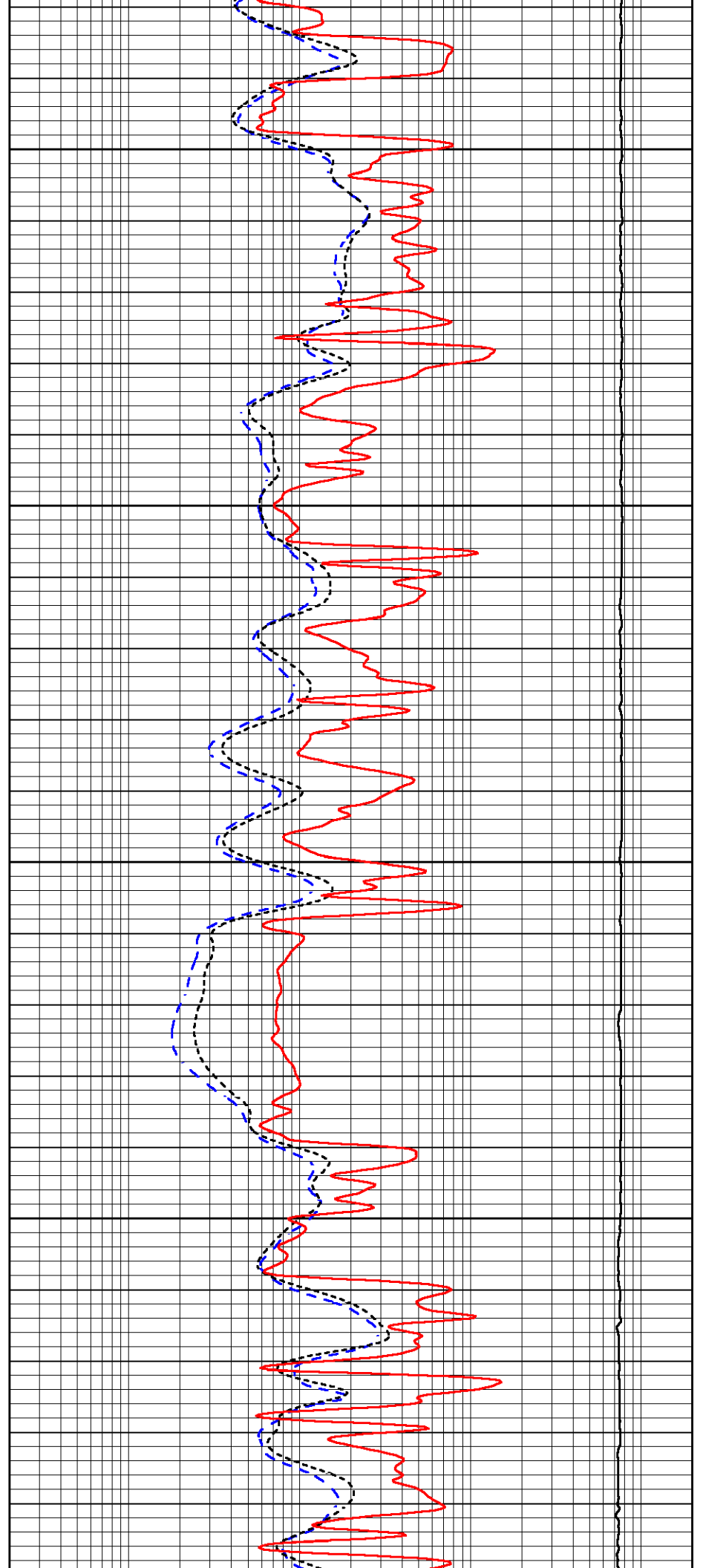
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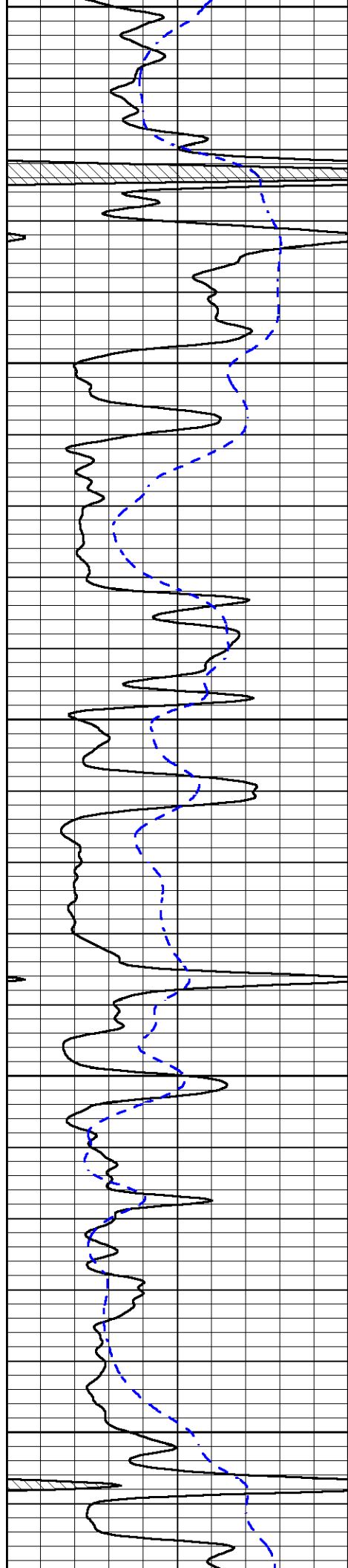
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3950

4000

4050





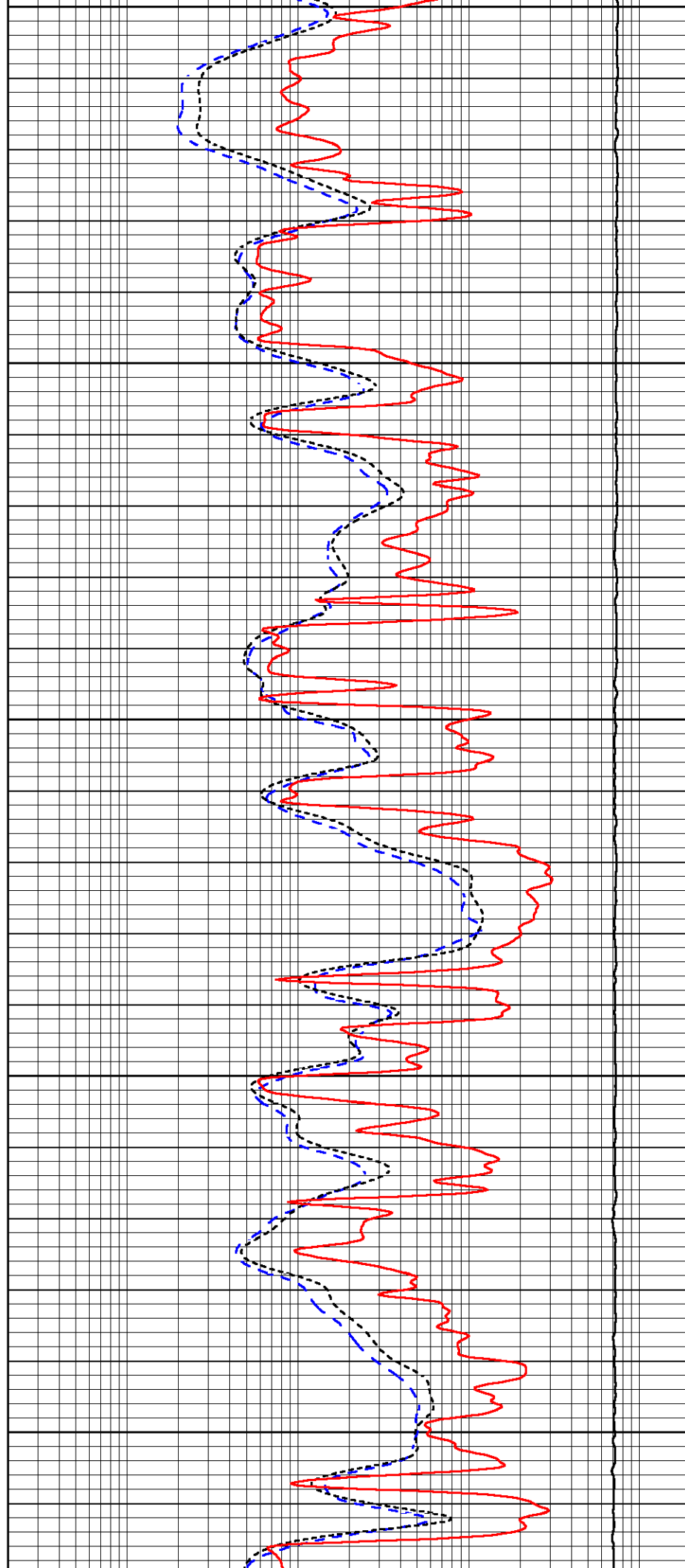
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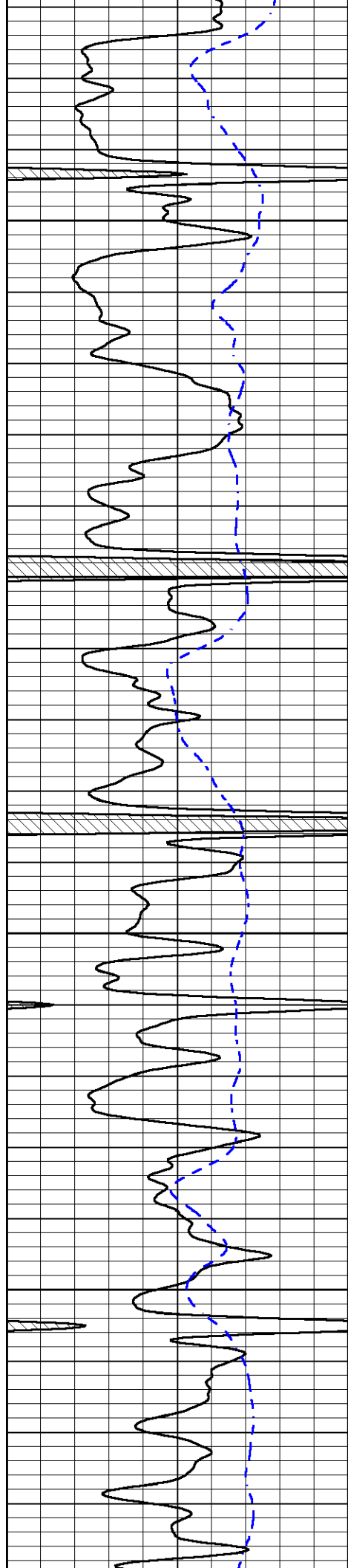
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4150

4200

4250



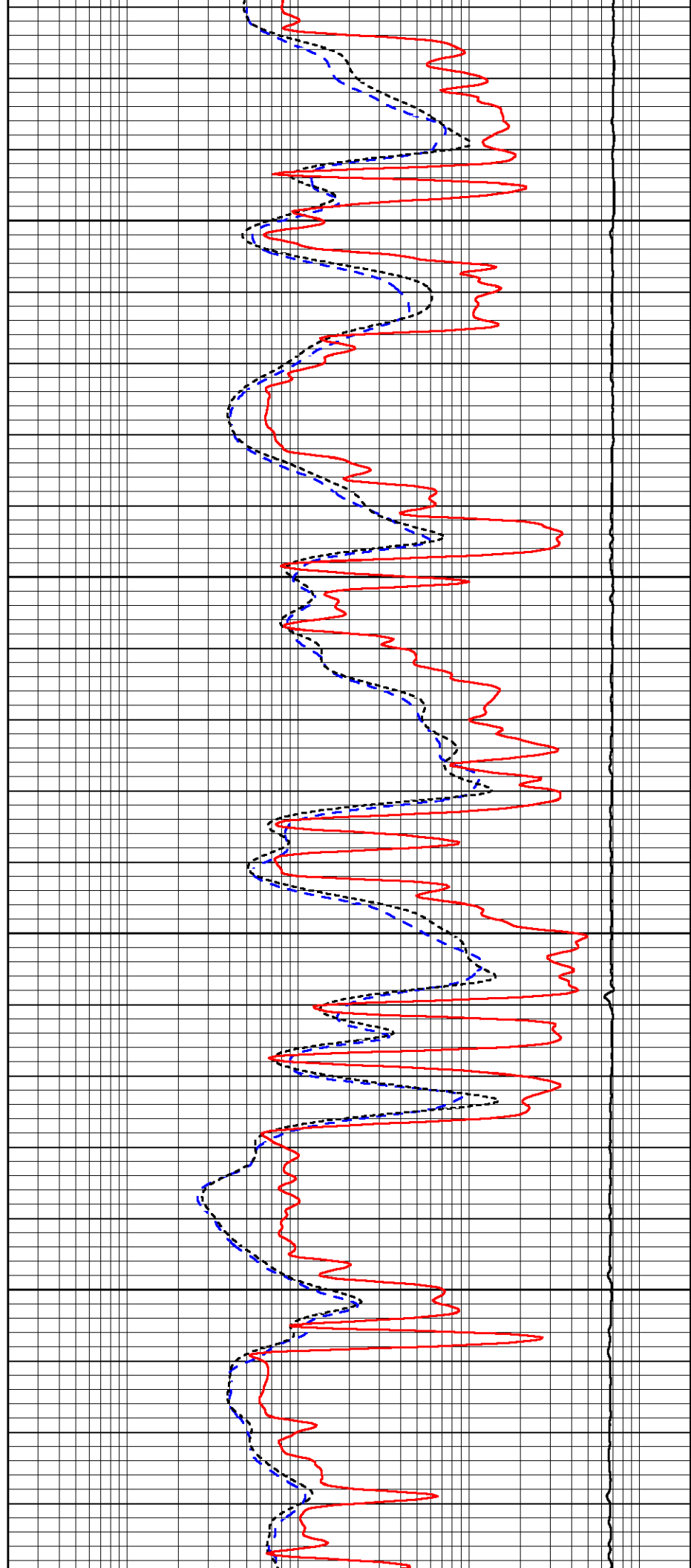


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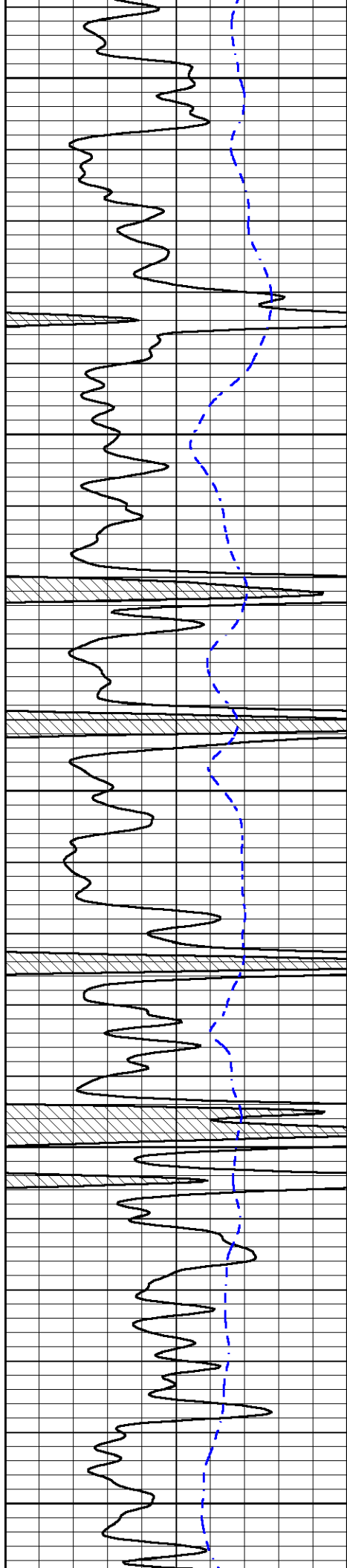
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4400

4450







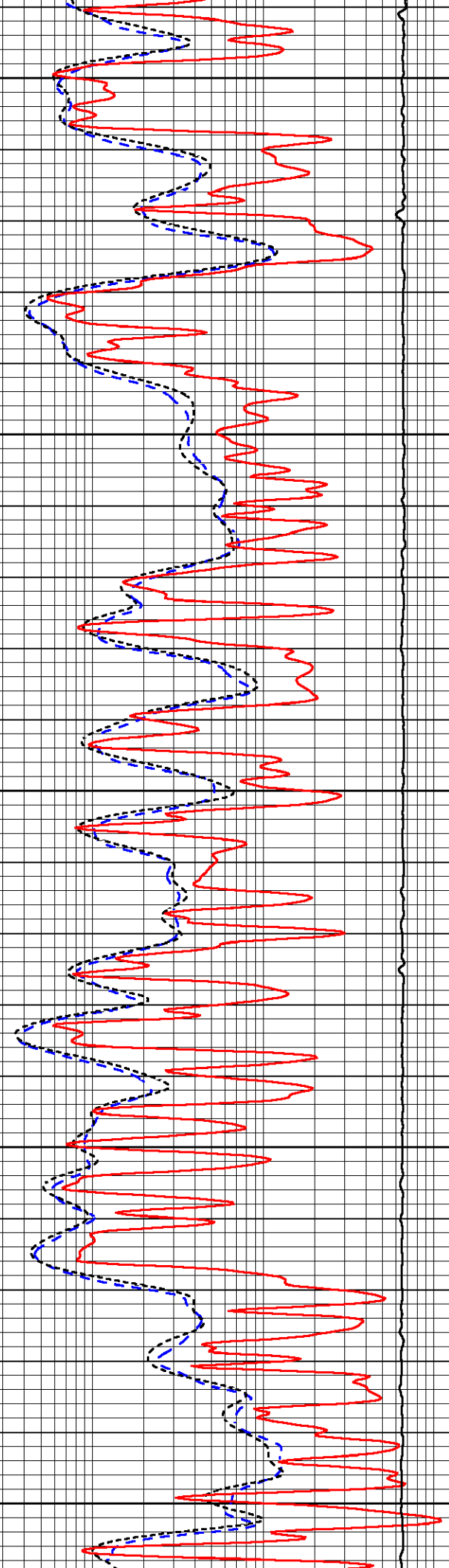
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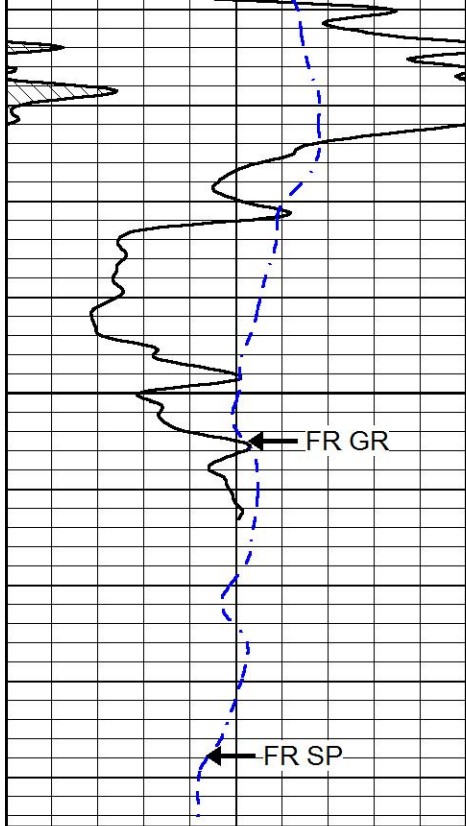
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4600

4650

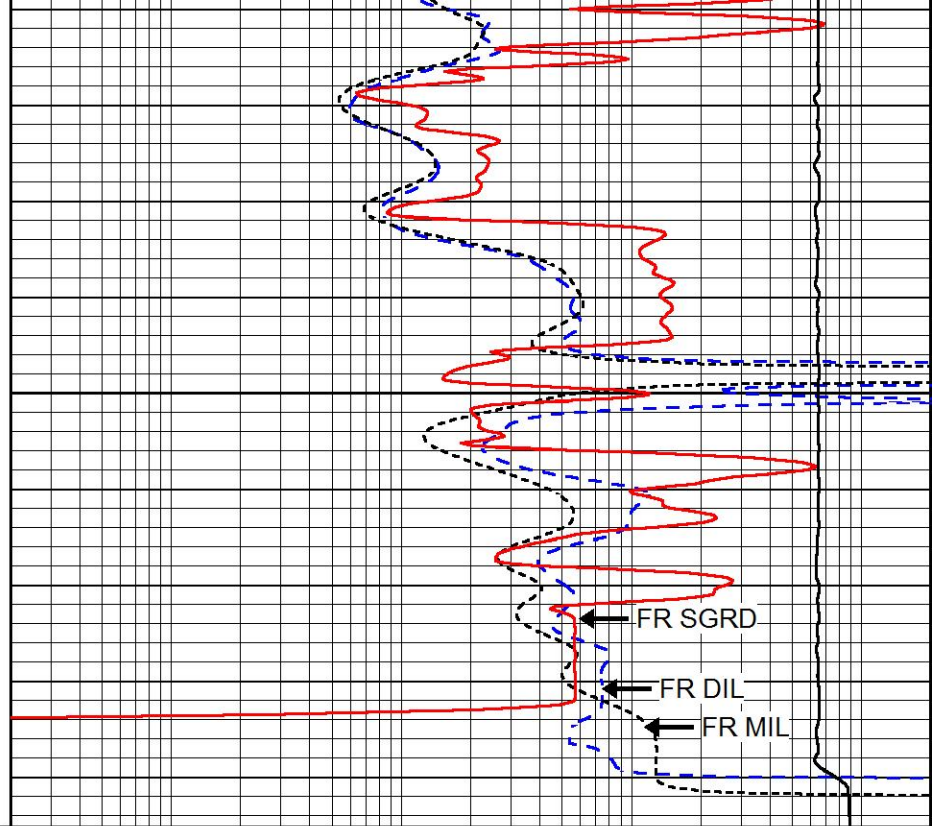
4700





4750

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

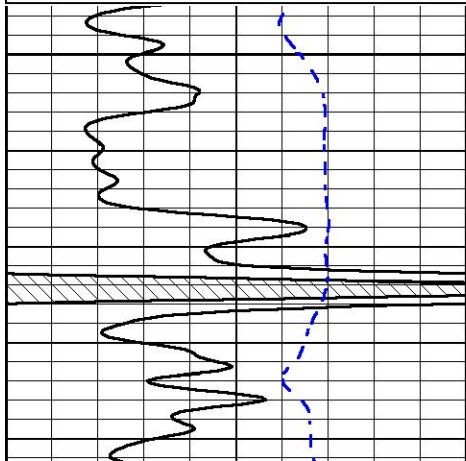


# REPEAT SECTION

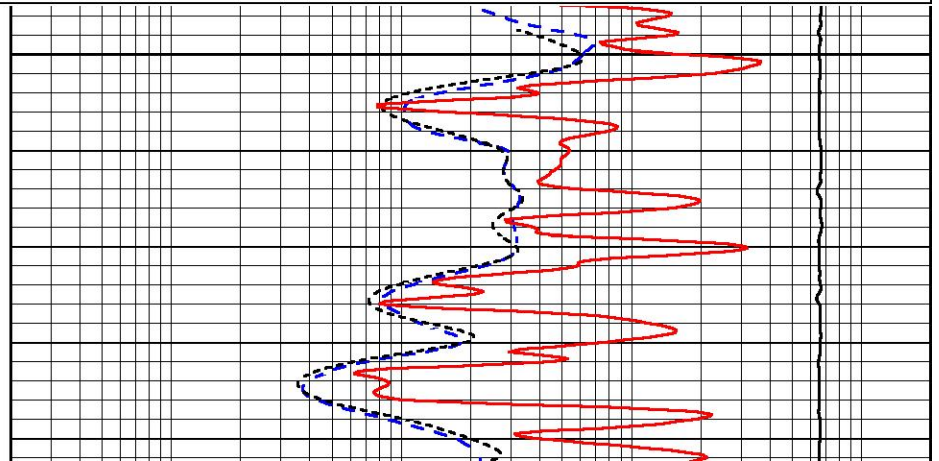
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 Dataset Pathname stack/pass2.1  
 Presentation Format dil  
 Dataset Creation Sun Sep 17 16:32:22 2017  
 Charted by Depth in Feet scaled 1:240

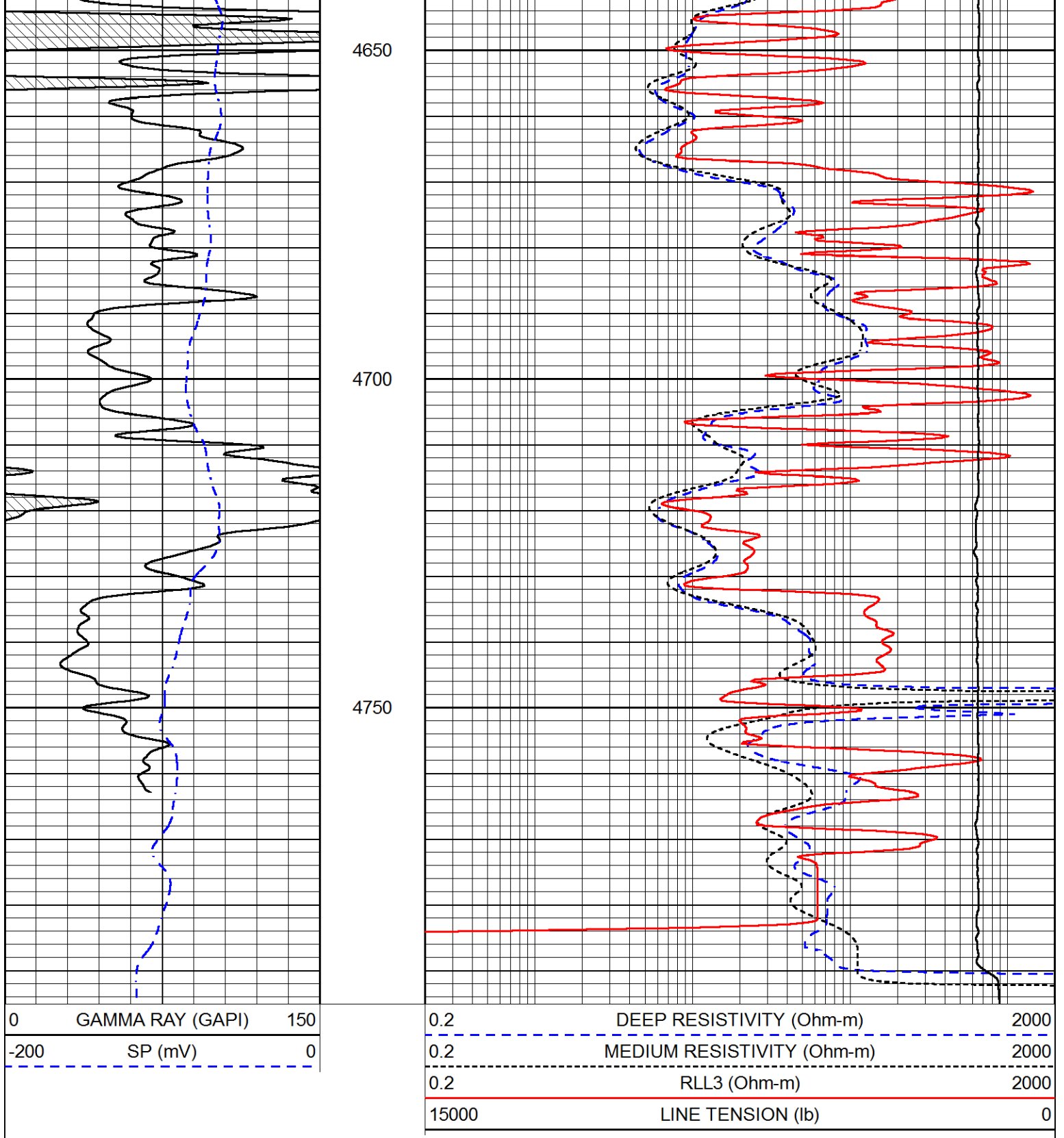
0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0



4600





Calibration Report

Database File stratakan\_gaskill\_range\_bertrand\_unit\_5\_1.db  
 Dataset Pathname stack/pass3.1  
 Dataset Creation Sun Sep 17 17:17:20 2017

Dual Induction Calibration Report

Serial-Model: 1987-M&W  
 Calibration Performed: Tue Apr 11 16:07:38 2017

Readings

References

Results

Loop:	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.530	-36.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.440	-110.500

**Compensated Density Calibration Report**

Serial-Model: 168-986-M&W  
Source / Verifier: /  
Master Calibration Performed: Tue Apr 11 16:07:47 2017

**Master Calibration**

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4691.86	4818.19	cps
Aluminum	2.675	g/cc	859.57	3020.22	cps
Spine Angle = 74.61			Density/Spine Ratio = 0.523		
	Size		Reading		
Small Ring	4.00	in	1.03		
Large Ring	14.00	in	1.23		

**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 16:08:01 2017

Calibrator Value: 1000.0 GAPI

Background Reading: 0.0 cps  
Calibrator Reading: 6.2 cps

Sensitivity: 0.5200 GAPI/cps



Company STRATAKAN EXPLORATION, LLC  
Well GASKILL RANGE-BERTRAND 5-1  
Field WILDCAT  
County LOGAN  
State KANSAS