



# DUAL INDUCTION LOG

Company STEWART PRODUCERS, INC.  
 Well SUTTON NO. 4  
 Field UNNAMED  
 County NESS  
 State KANSAS

Company STEWART PRODUCERS, INC.  
 Well SUTTON NO. 4  
 Field UNNAMED  
 County NESS State KANSAS

Location: 1784' FSL & 1700' FWL  
 SEC 8 TWP 18S RGE 24W  
 Permanent Datum GROUND LEVEL Elevation 2319'  
 Log Measured From KELLY BUSHING  
 Drilling Measured From KELLY BUSHING  
 API #: 15-135-25980-00-00  
 Other Services CNL/CDL MEL  
 Elevation K.B. 2324'  
 D.F. N/A  
 G.L. 2319'

Date	12/13/2017
Run Number	ONE
Depth Driller	4410'
Depth Logger	4409'
Bottom Logged Interval	4408'
Top Log Interval	200'
Casing Driller	8.625" @ 218'
Casing Logger	217'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	7600
Density / Viscosity	9.2 52
pH / Fluid Loss	9.5 8.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.70 @ 62
Rmt @ Meas. Temp	.53 @ 62
Rmc @ Meas. Temp	.95 @ 62
Source of Rmf / Rmc	CHARTS
Rm @ BHT	.36 @ 120
Operating Rig Time	2 HOURS
Max Rec. Temp. F	120 DEGF
Equipment Number	108
Location	HAYS
Recorded By	J. HENRICKSON
Witnessed By	DAVID GOLDAK

<<< 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.  
 NESS CITY KANSAS  
 3 NORTH TO 160 RD, 5 3/4 WEST, SOUTH INTO

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

THANK YOU FOR USING PIONEER ENERGY SERVICES  
[www.pioneerenergy.com](http://www.pioneerenergy.com) 785-625-3858

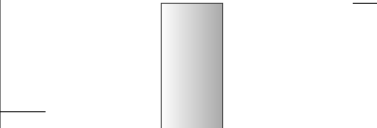
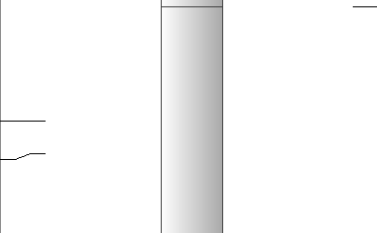
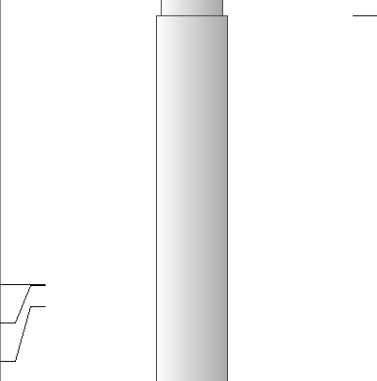
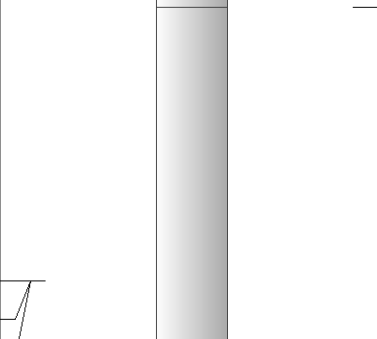
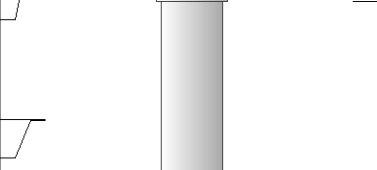
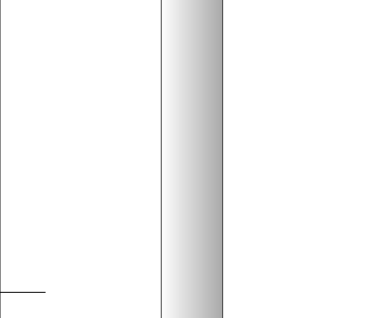
Your Pioneer Energy Services Crew Engineer: J. HENRICKSON Operator: Operator: Operator:	This Log Record Was Witnessed By Primary Witness: DAVID GOLDAK Secondary Witness: Secondary Witness: Secondary Witness:
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# Log Variables

DatabaseC:\ProgramData\Warrior\Data\stewart\_sutton\_4.db  
Dataset field/well/stackml/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	-320	0	Off	4409

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (tk10-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (168-986)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSI STKBL ML (PSI-02) Stackable Microlog Tools	7.58	4.00	65.00
RLL3 RLL3F	15.80 15.79					
CILD	8.00		DIL-M&W (PSI 978)	18.50	3.50	220.00

CILM 4.70

SP 0.20

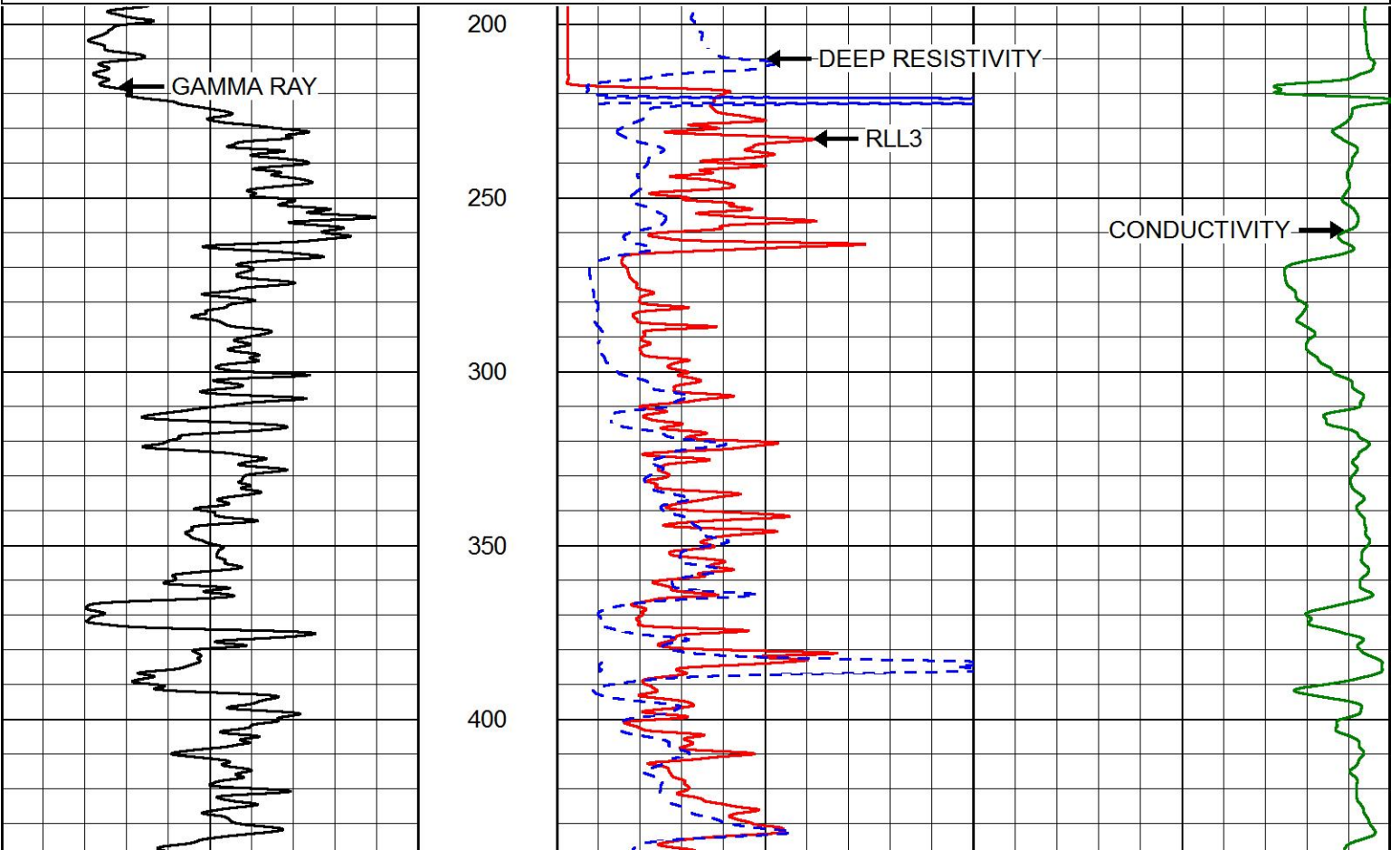
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 Total weight:      685.00 lb  
 O.D.:               4.00 in

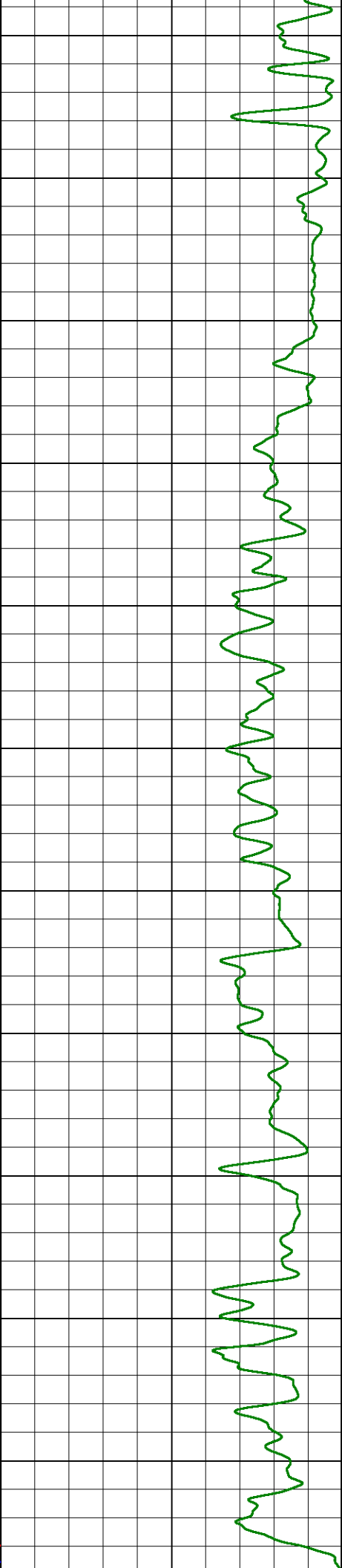
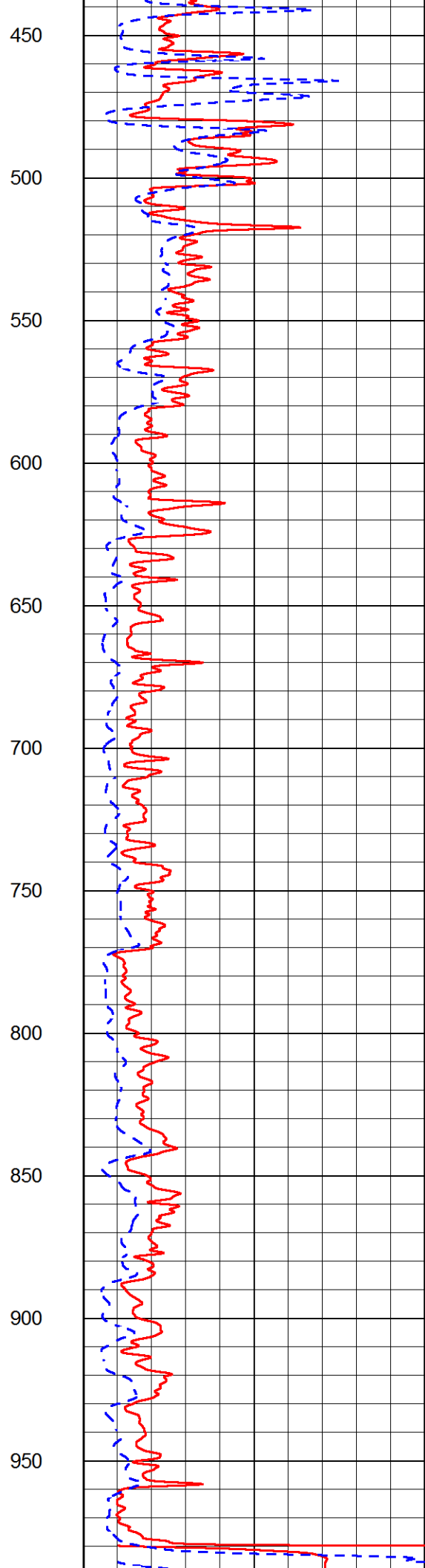
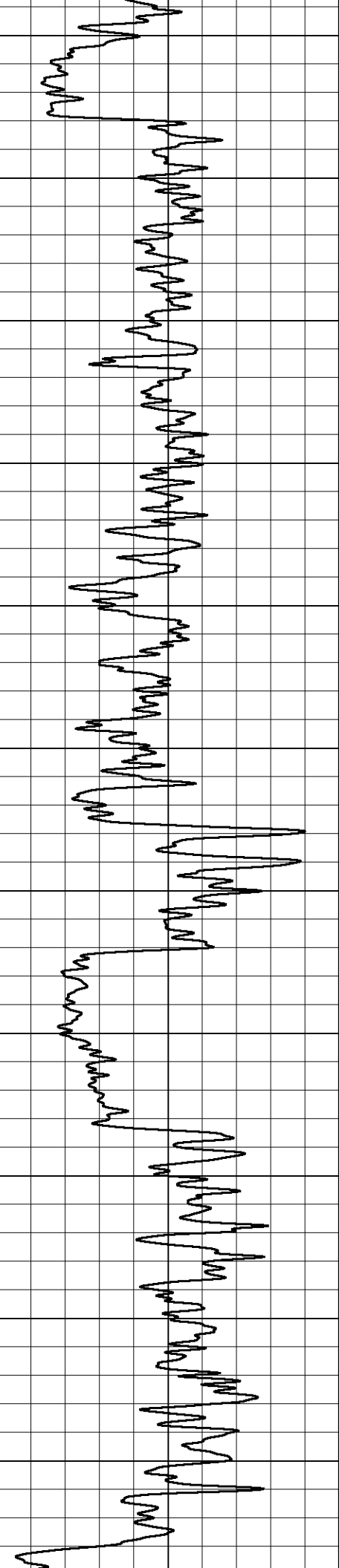


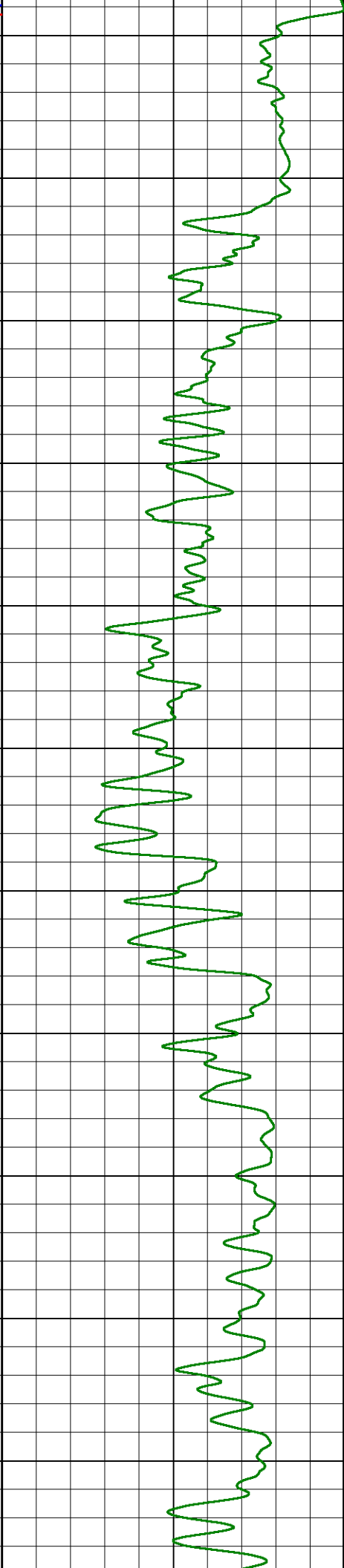
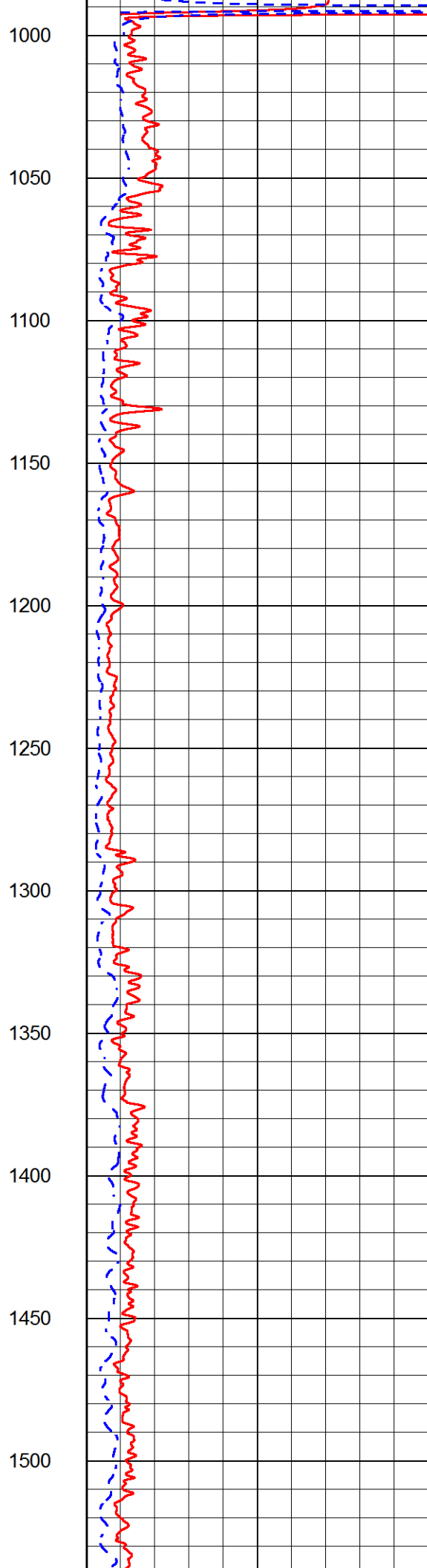
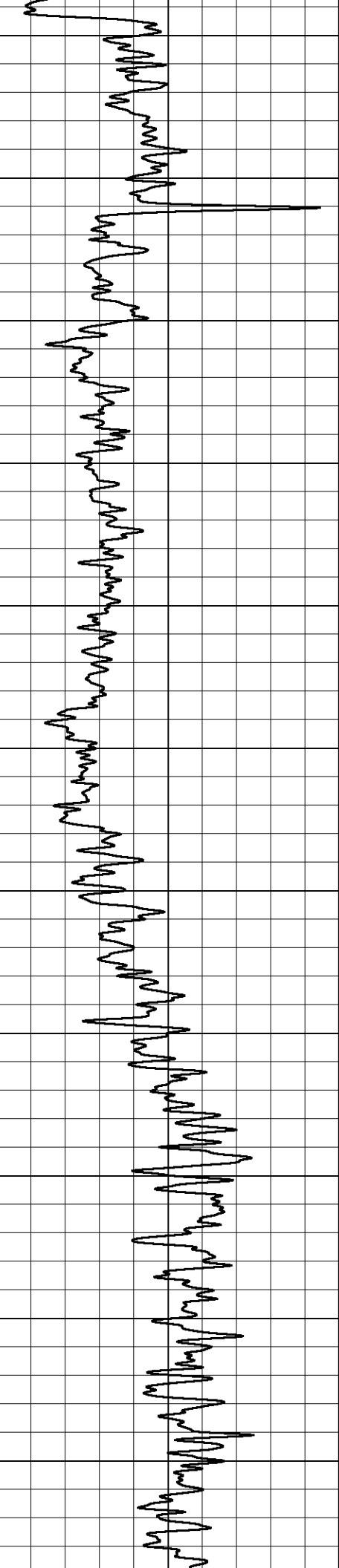
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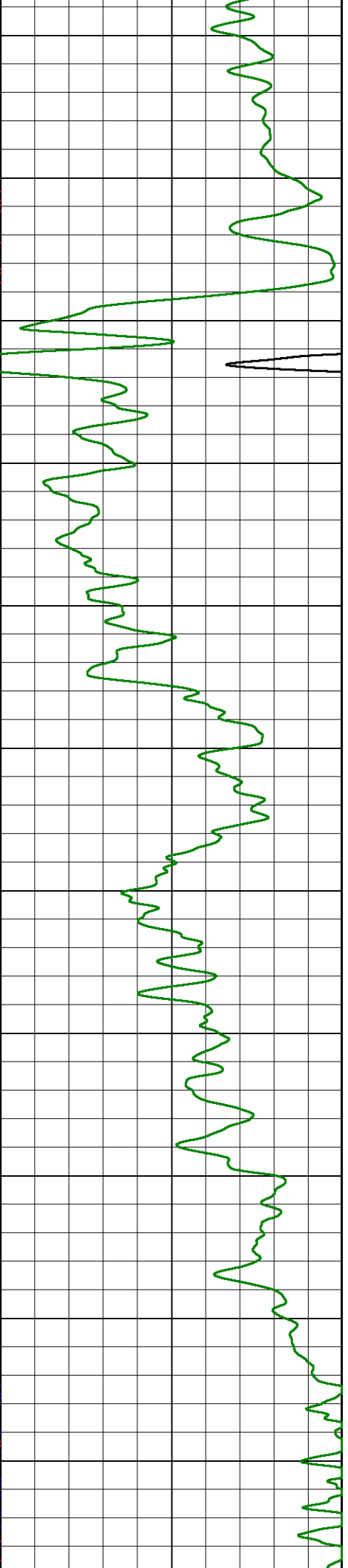
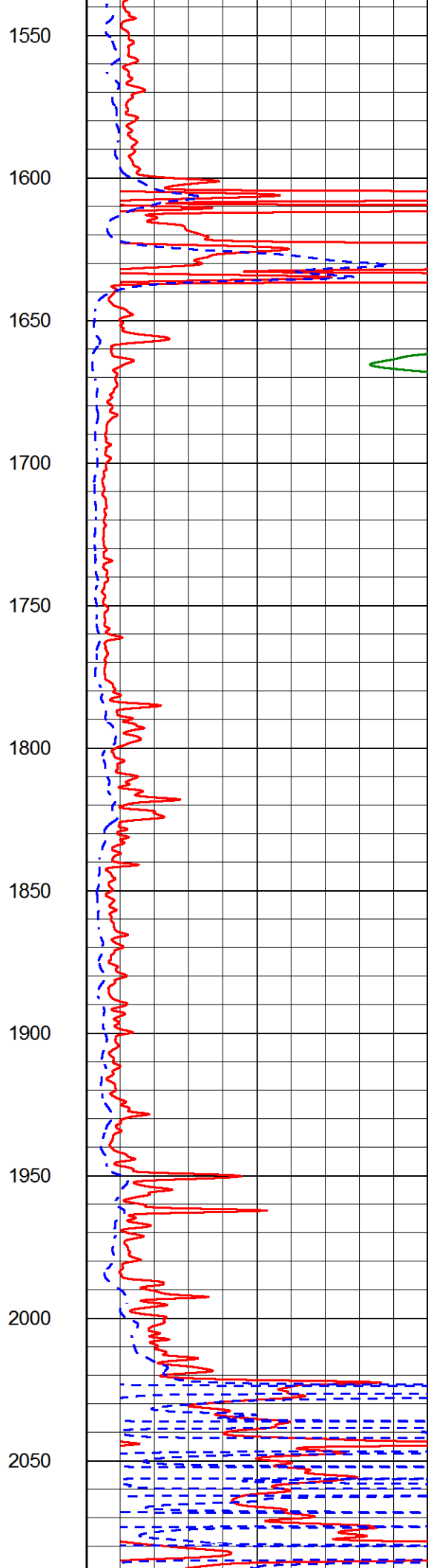
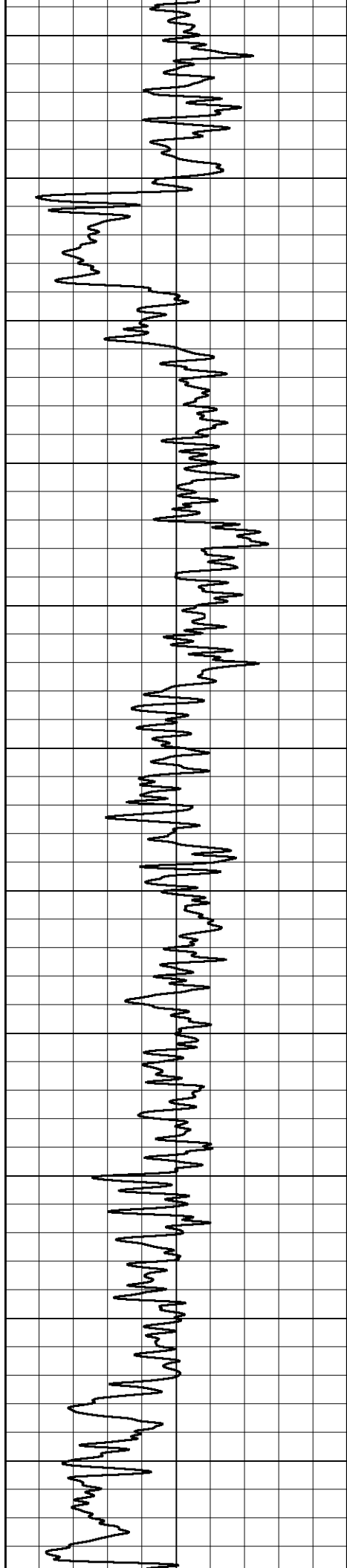
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 Dataset Creation    Wed Dec 13 14:57:33 2017  
 Charted by         Depth in Feet scaled 1:600

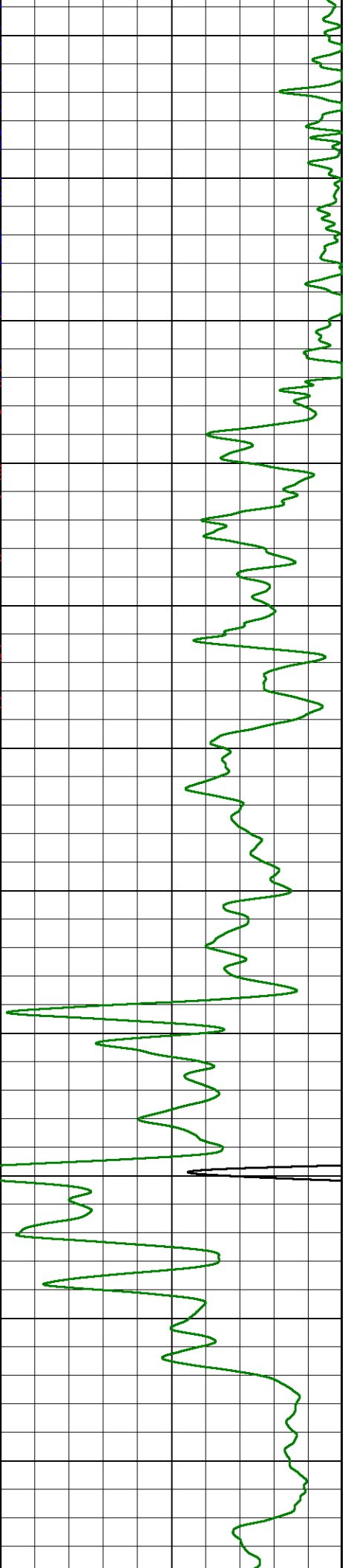
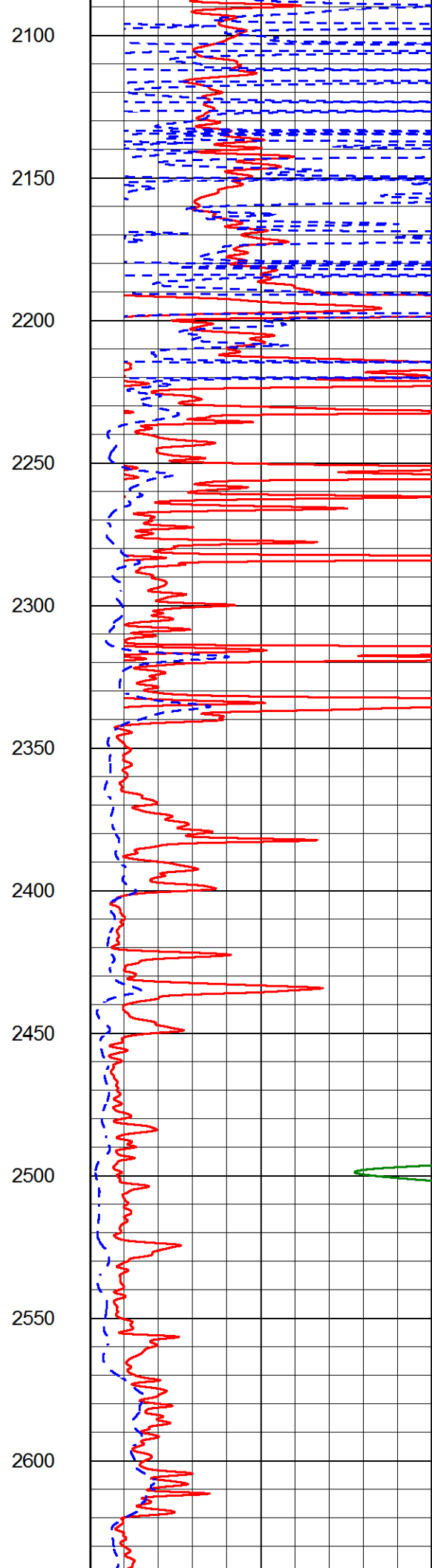
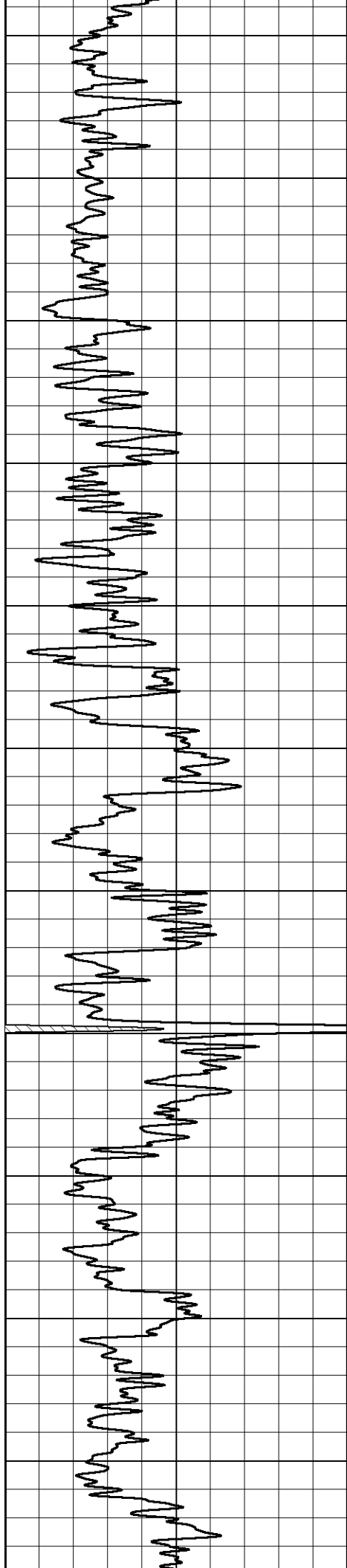
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			0	RLL3 (Ohm-m)	50
			0	DEEP RESISTIVITY (Ohm-m)	50
			50	RLL3 (Ohm-m)	500
				DEEP RESISTIVITY	
			50	(Ohm-m)	500

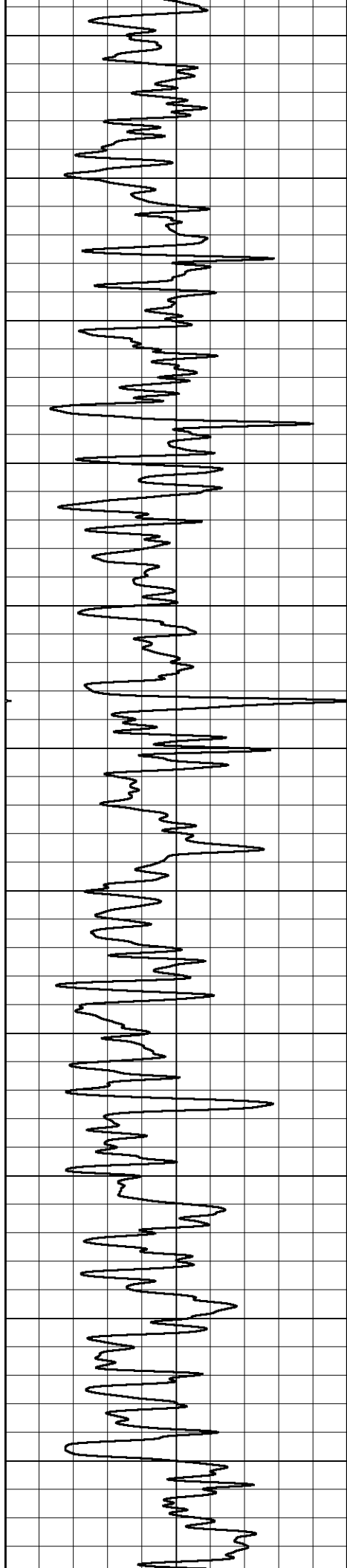




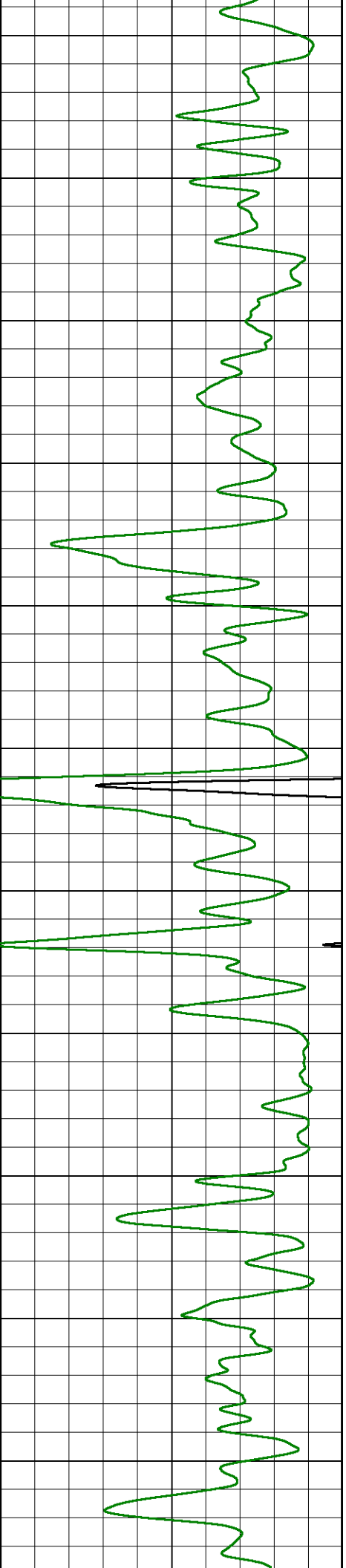
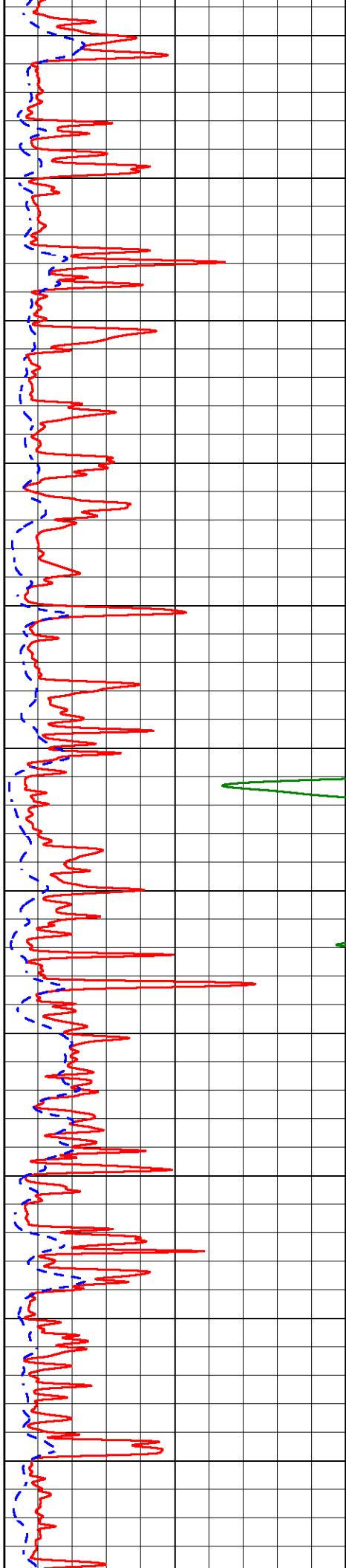


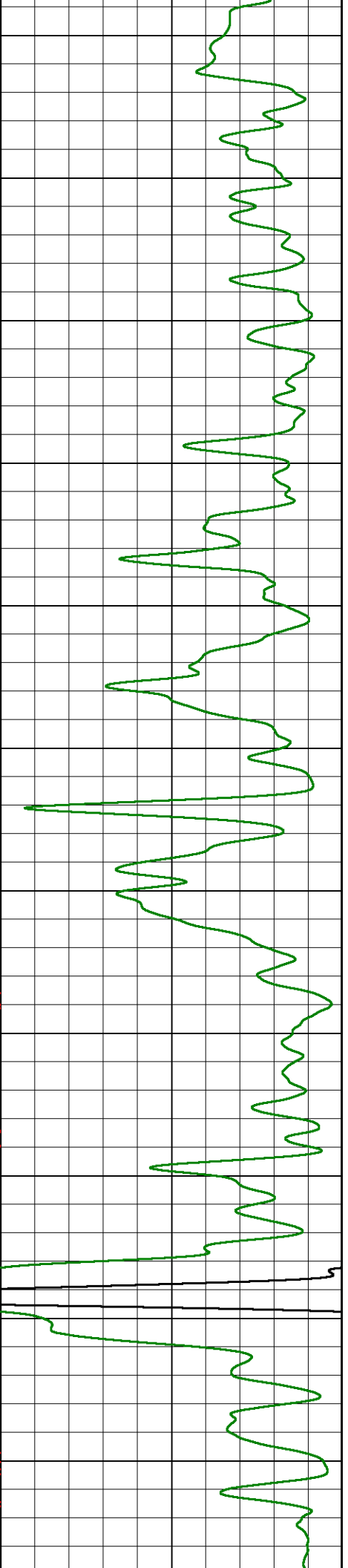
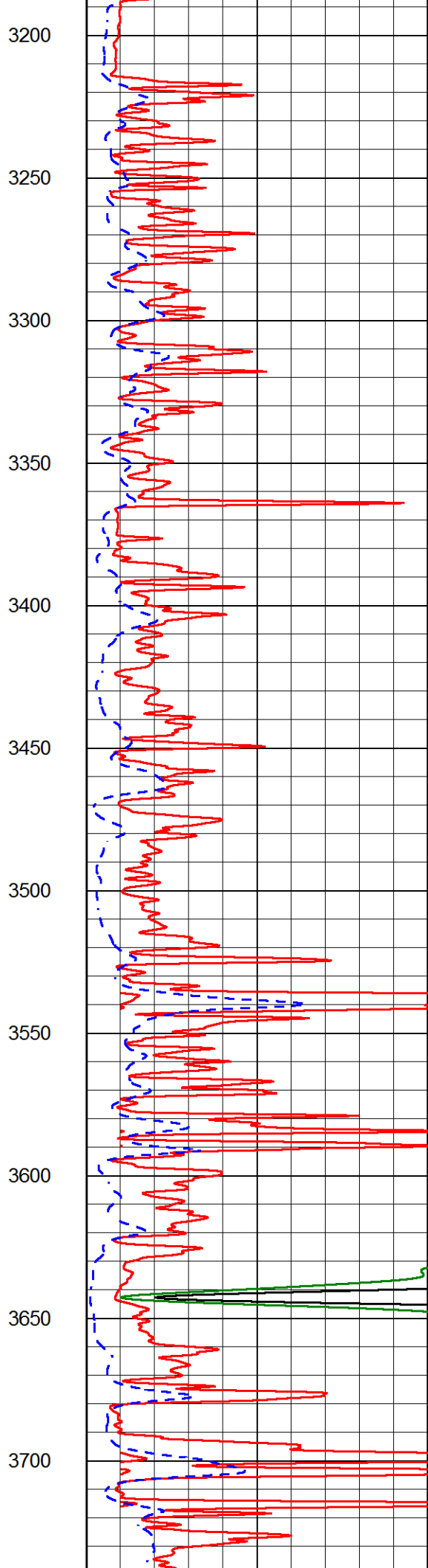
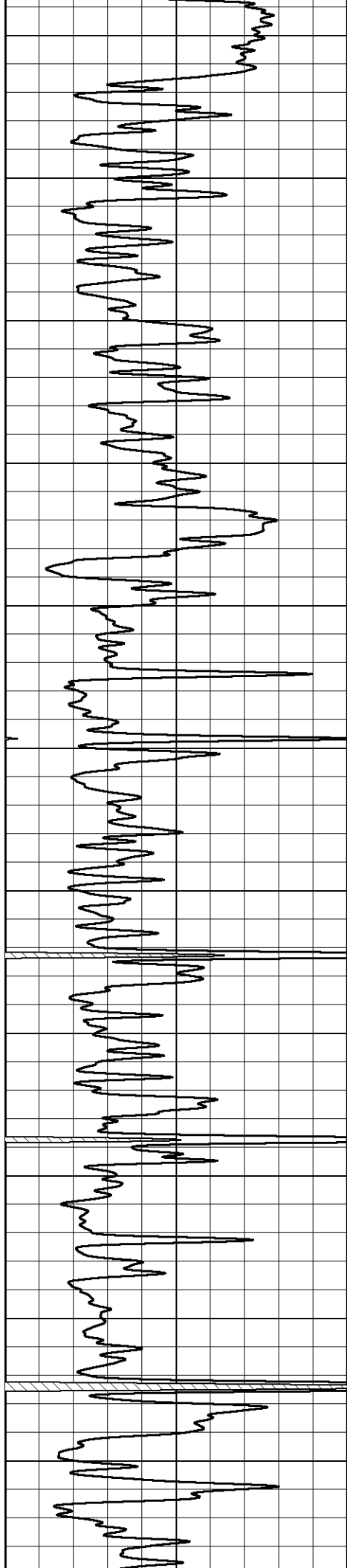


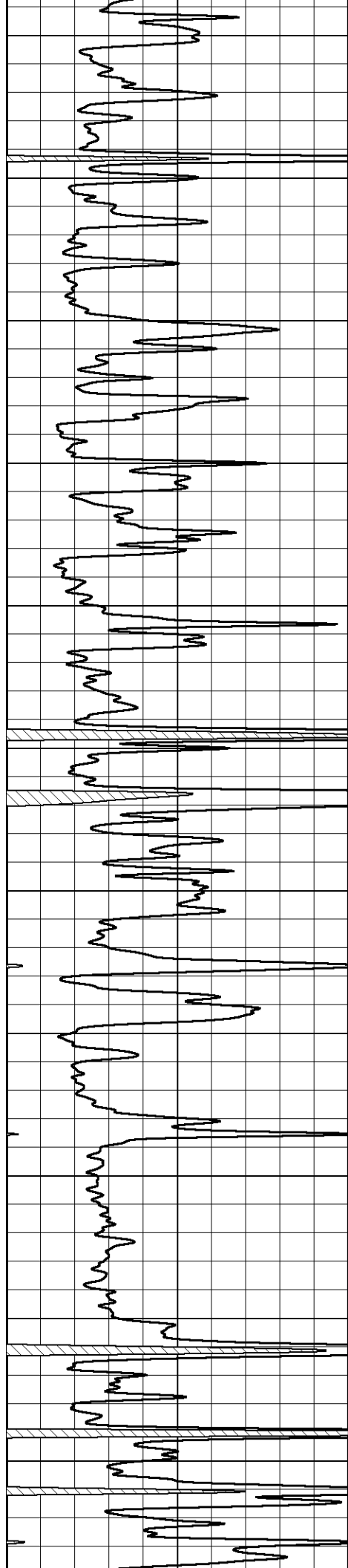




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2700  
2750  
2800  
2850  
2900  
2950  
3000  
3050  
3100  
3150







3750

3800

3850

3900

3950

4000

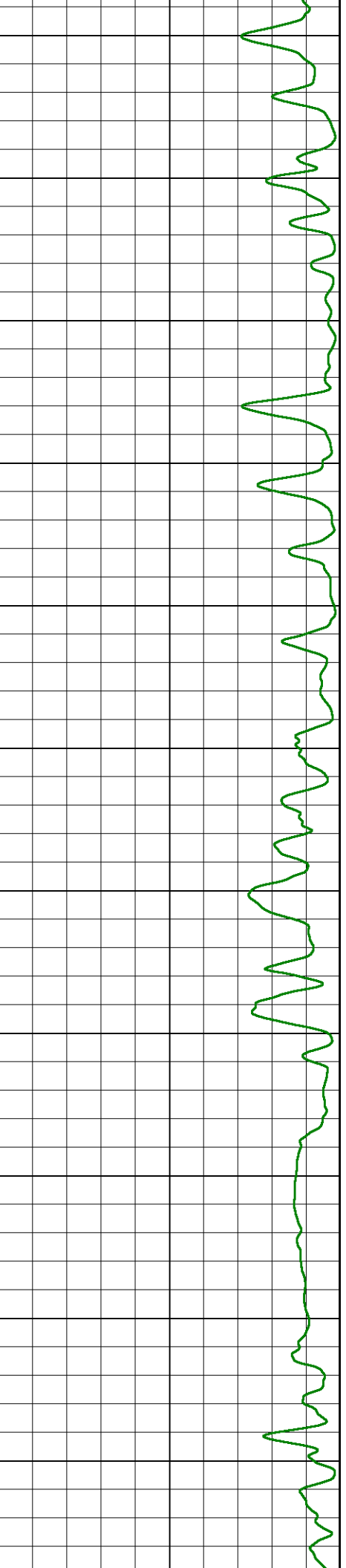
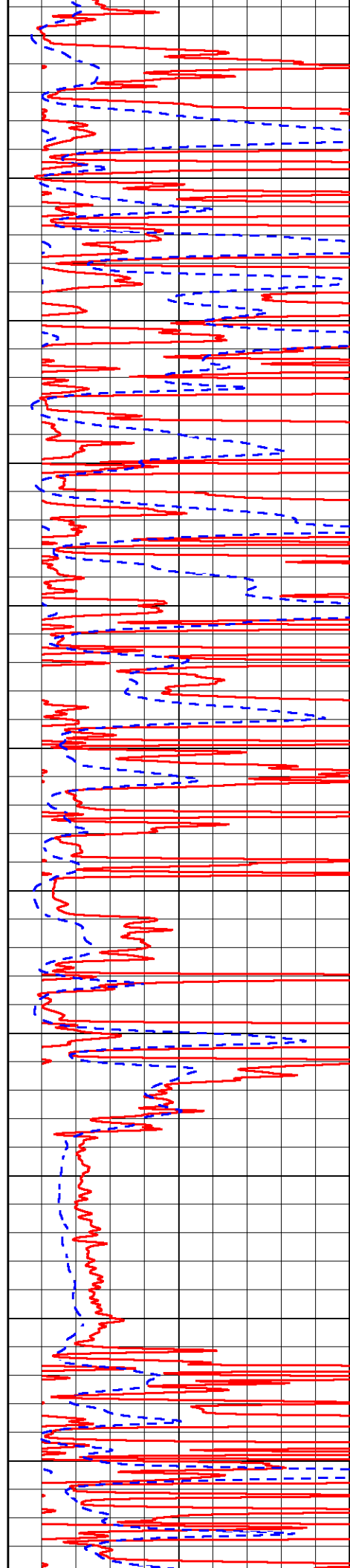
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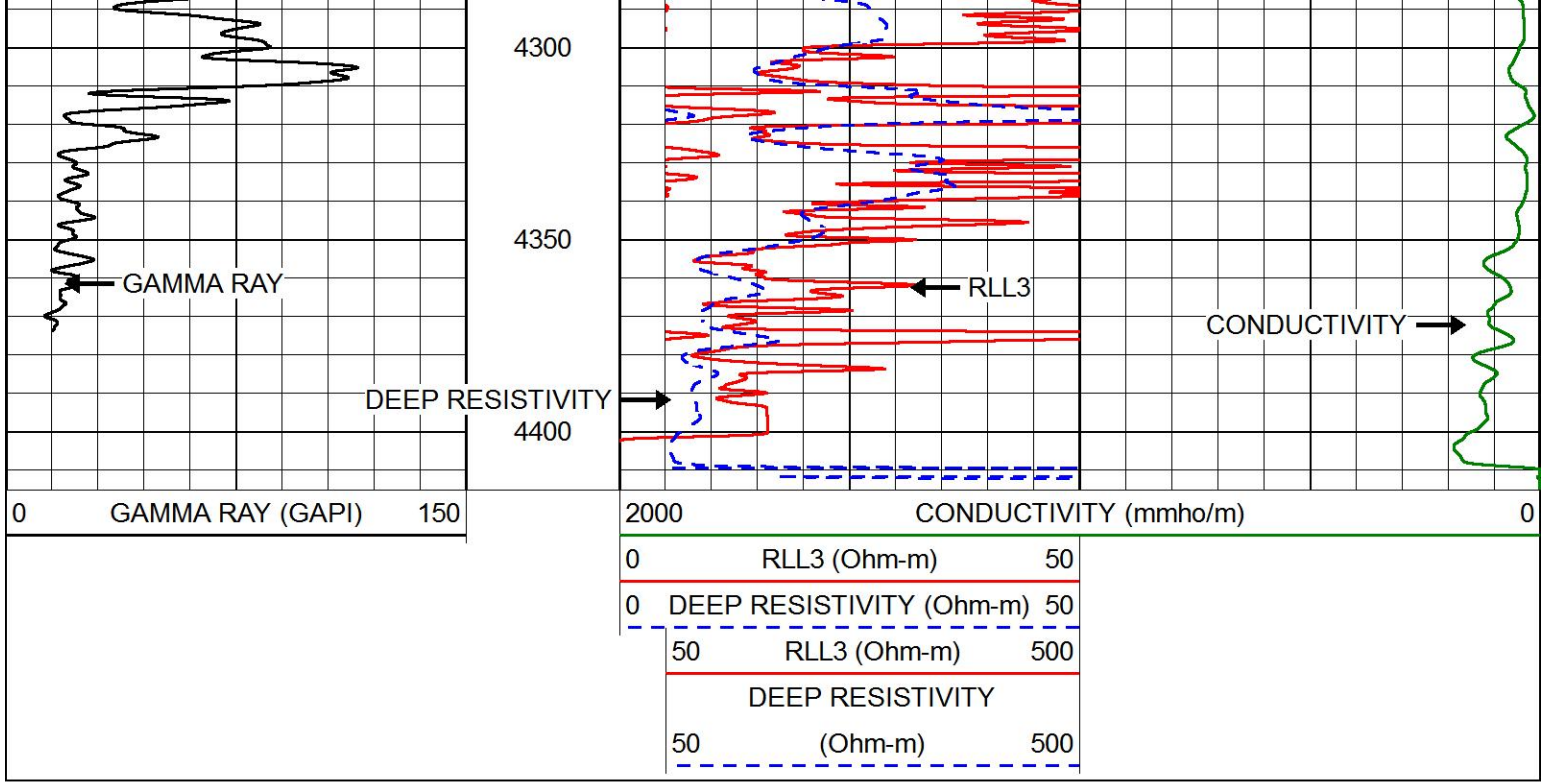
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4200

4250



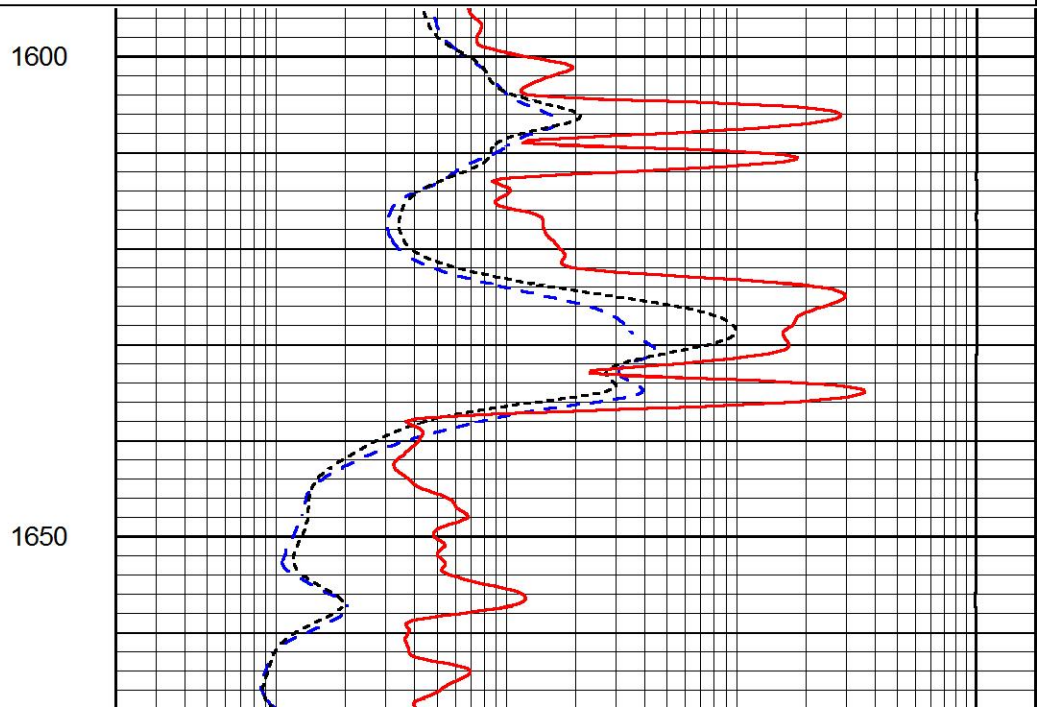
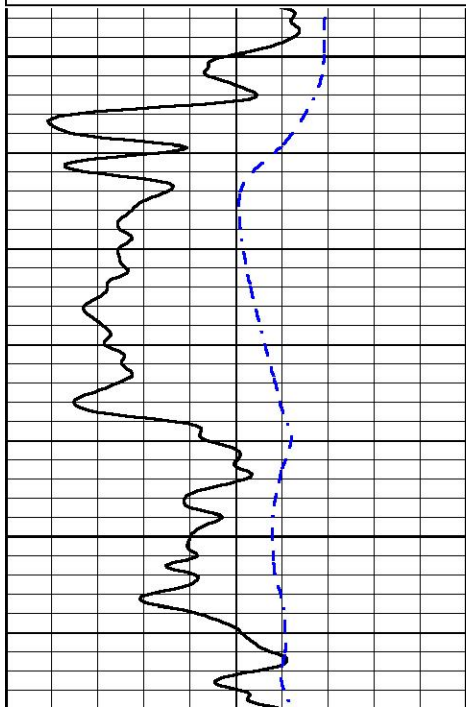


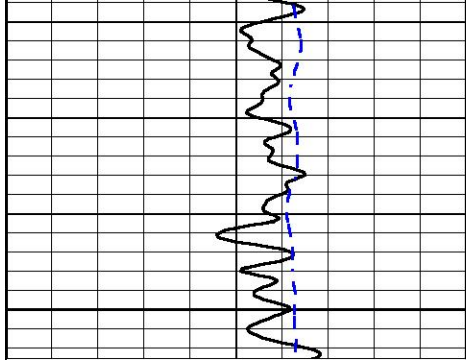
# MAIN PASS

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 Dataset Pathname   stackml/pass3.1  
 Presentation Format   dil  
 Dataset Creation    Wed Dec 13 14:57:33 2017  
 Charted by          Depth in Feet scaled 1:240

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

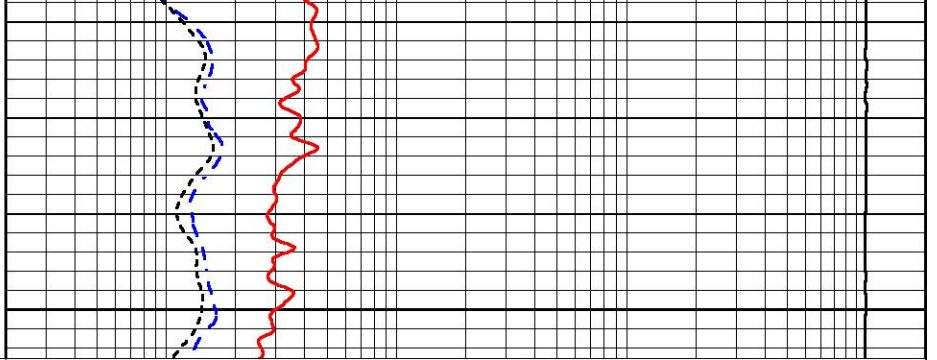
0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0





1700

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

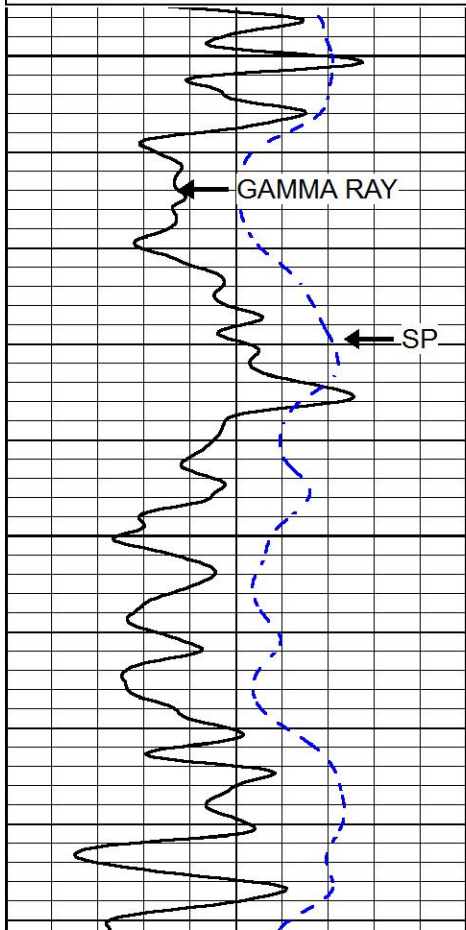


# MAIN PASS

Database File      stewart\_sutton\_4.db  
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 Dataset Creation    Wed Dec 13 14:57:33 2017  
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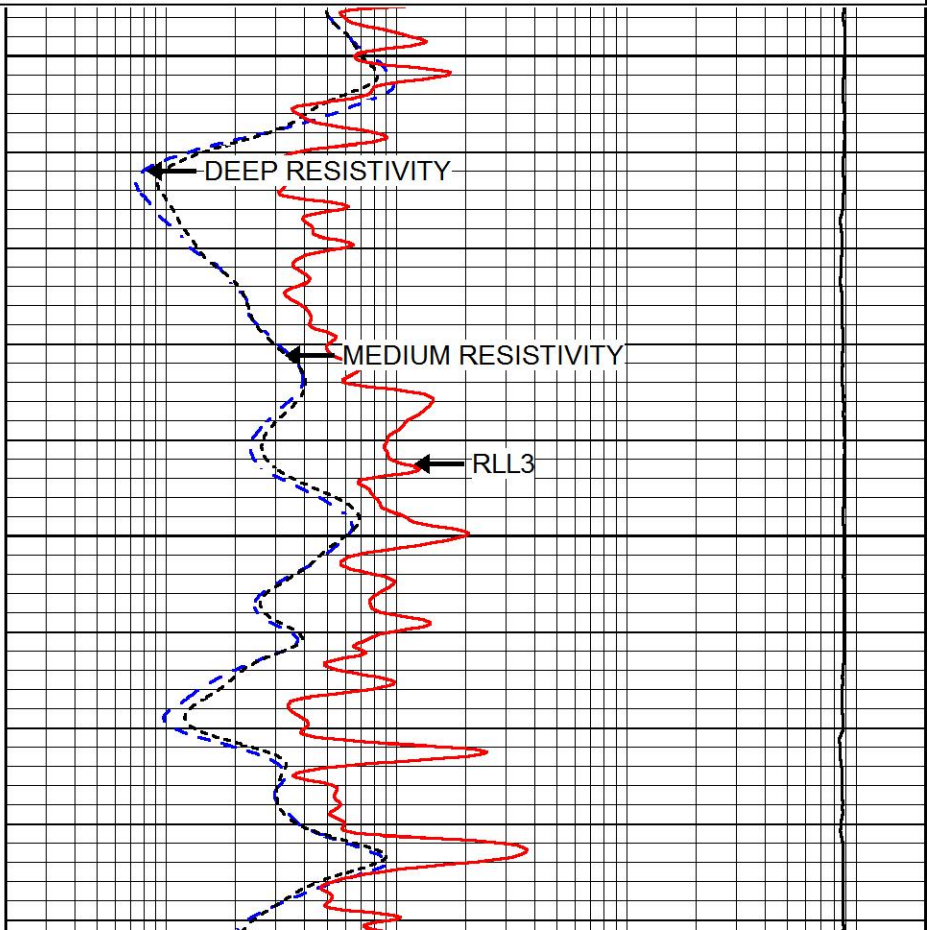
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-200	SP (mV)	0

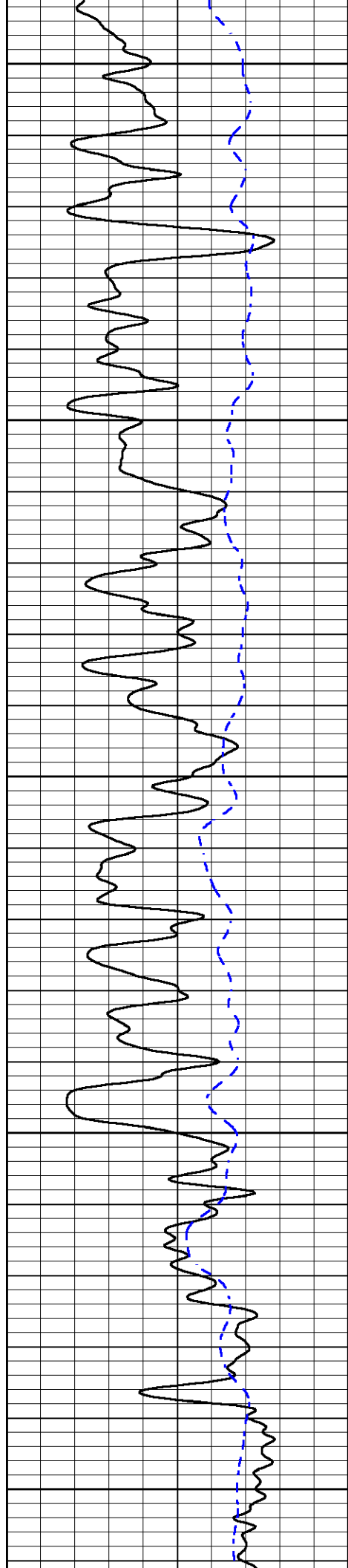
0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0



2900

2950





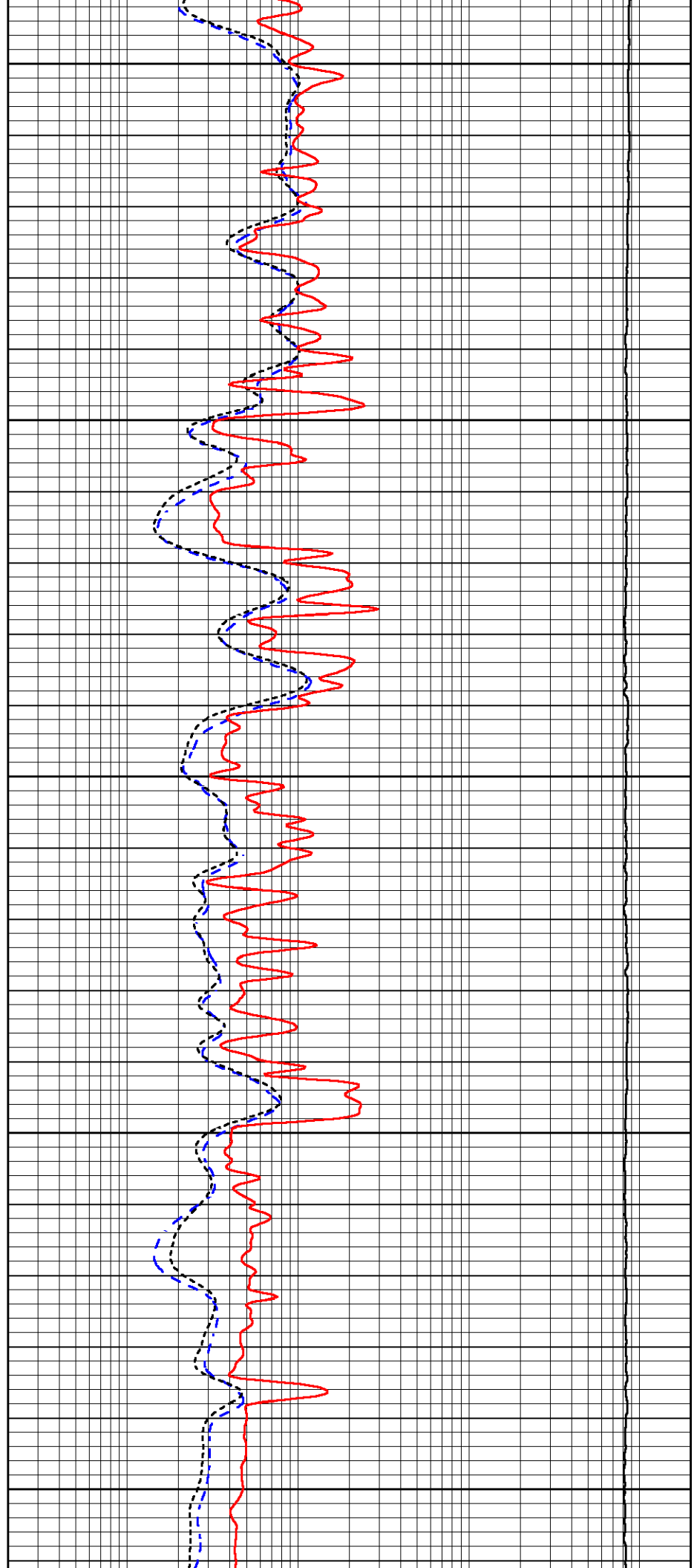
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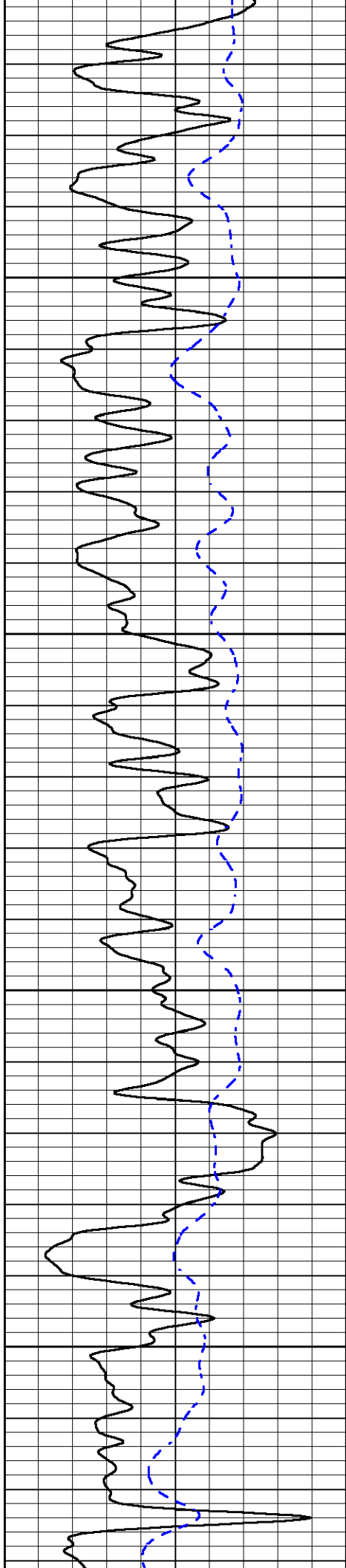
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3150

3200



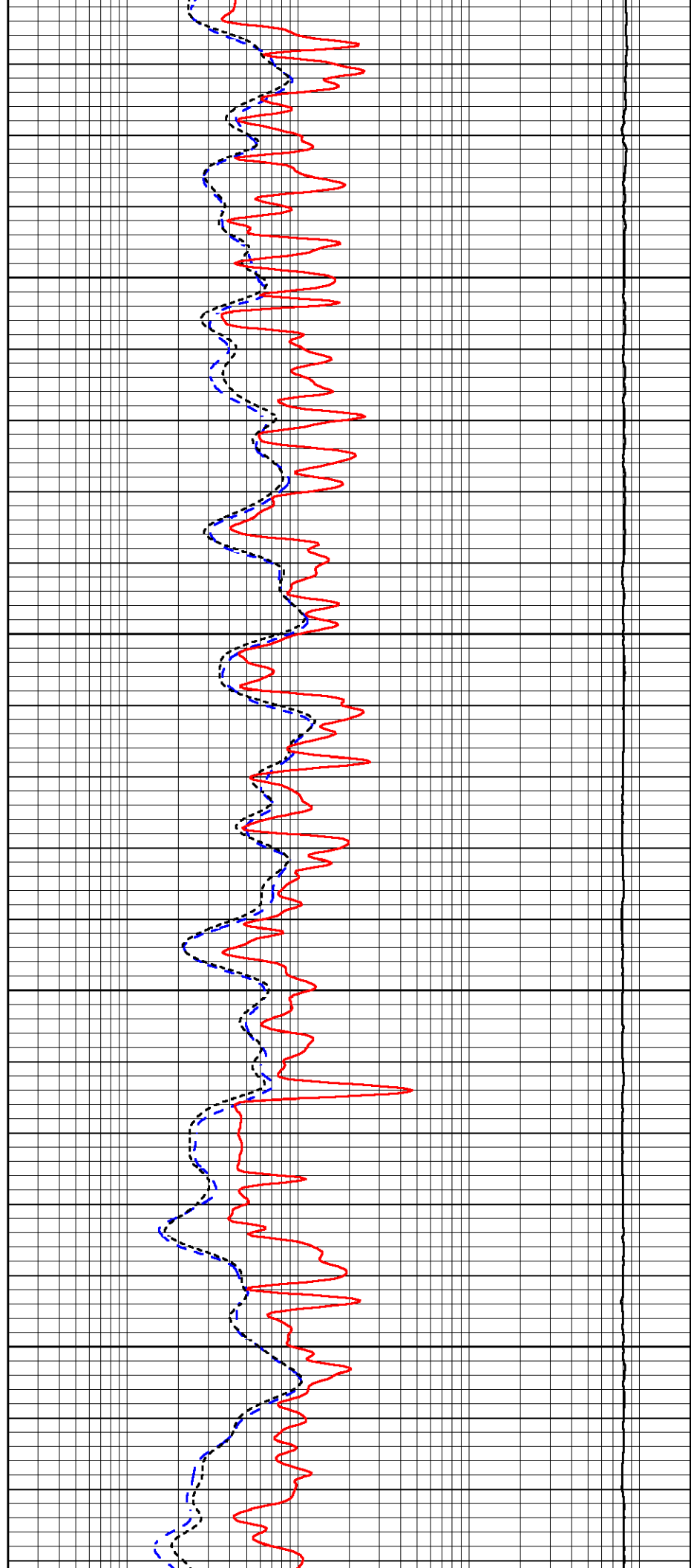


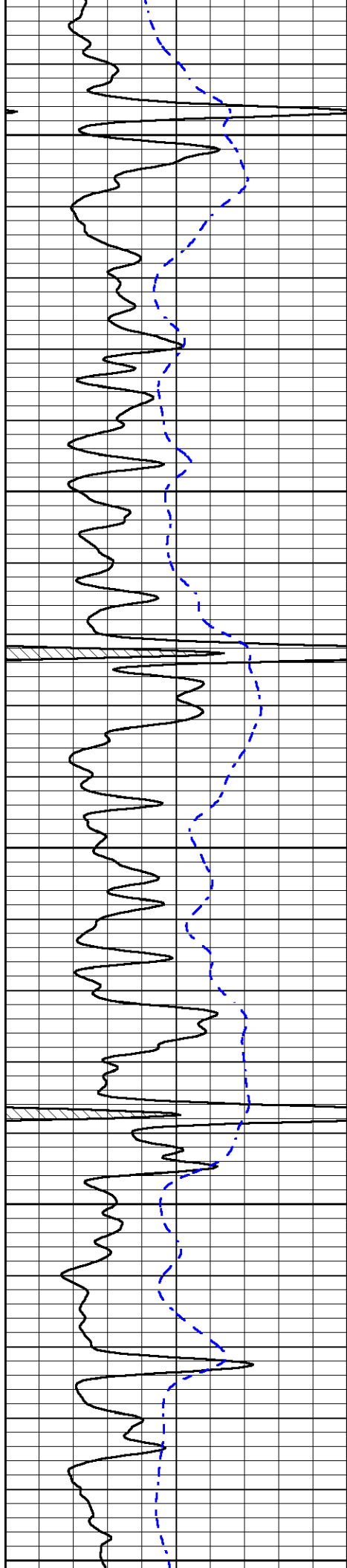
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3350

3400





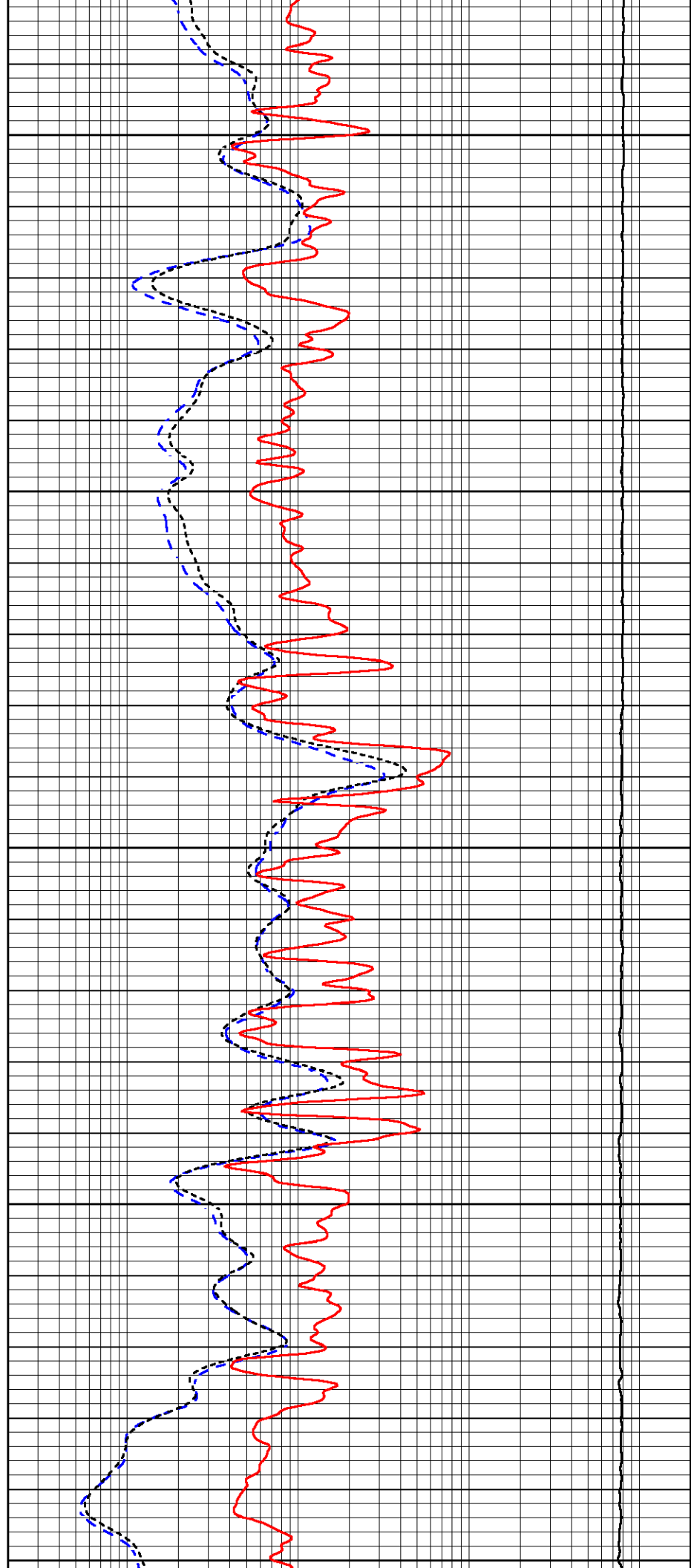
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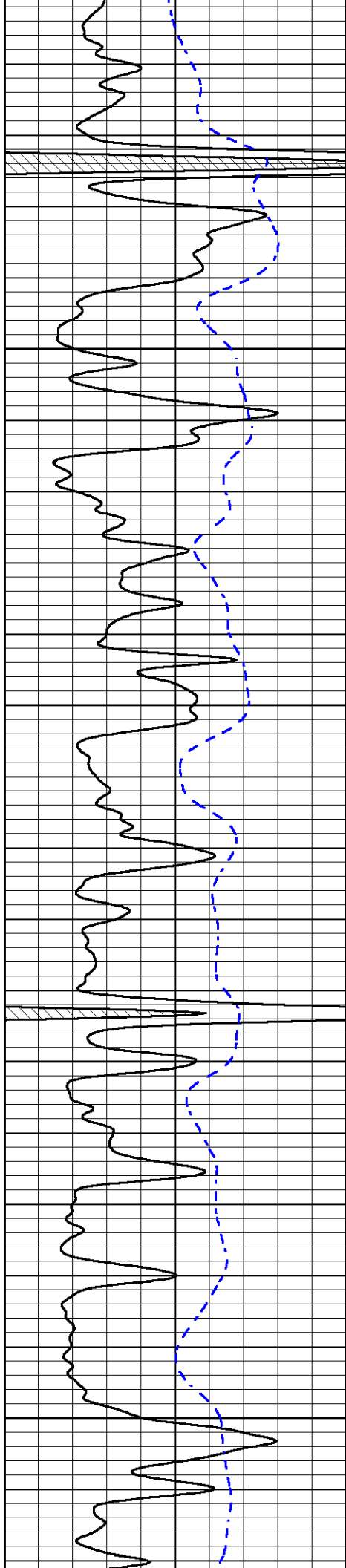
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3600

3650



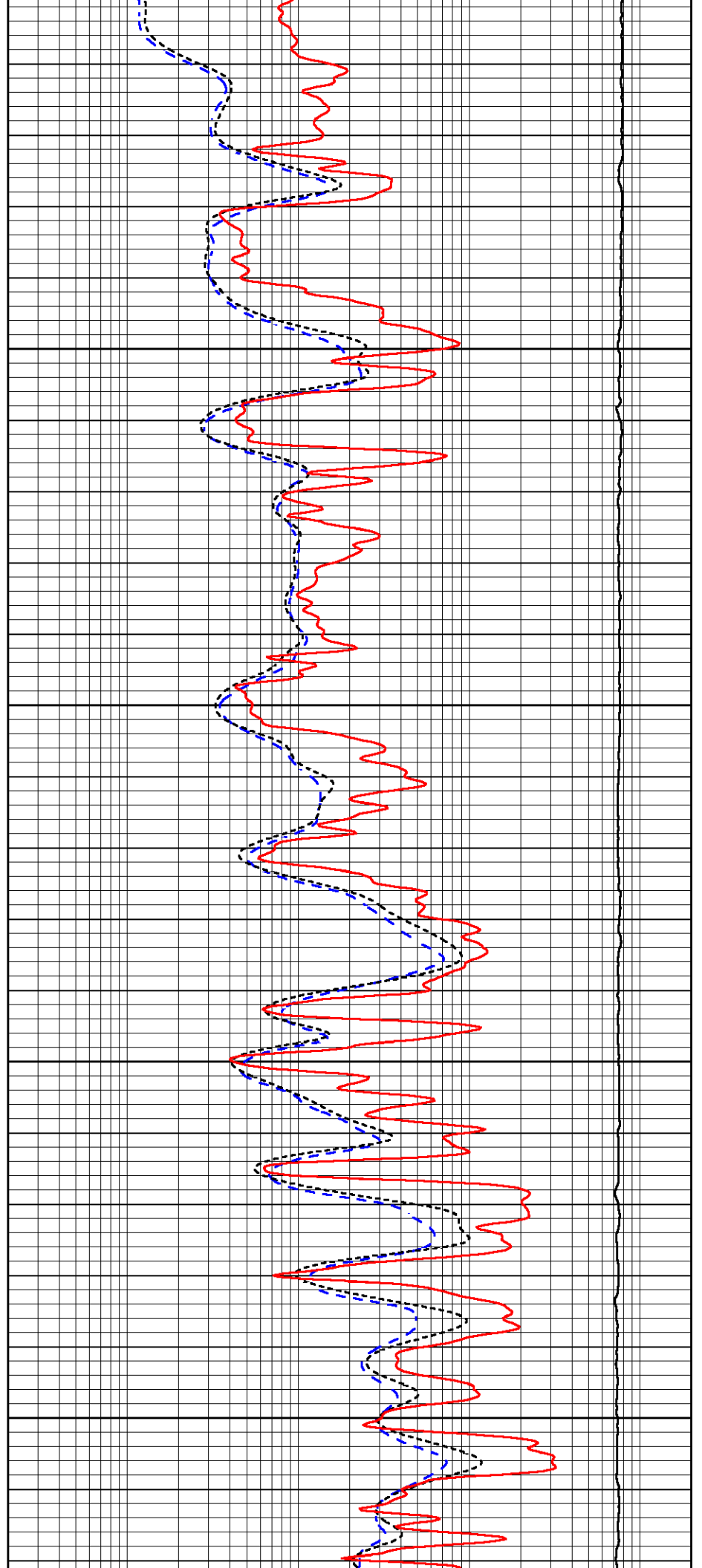


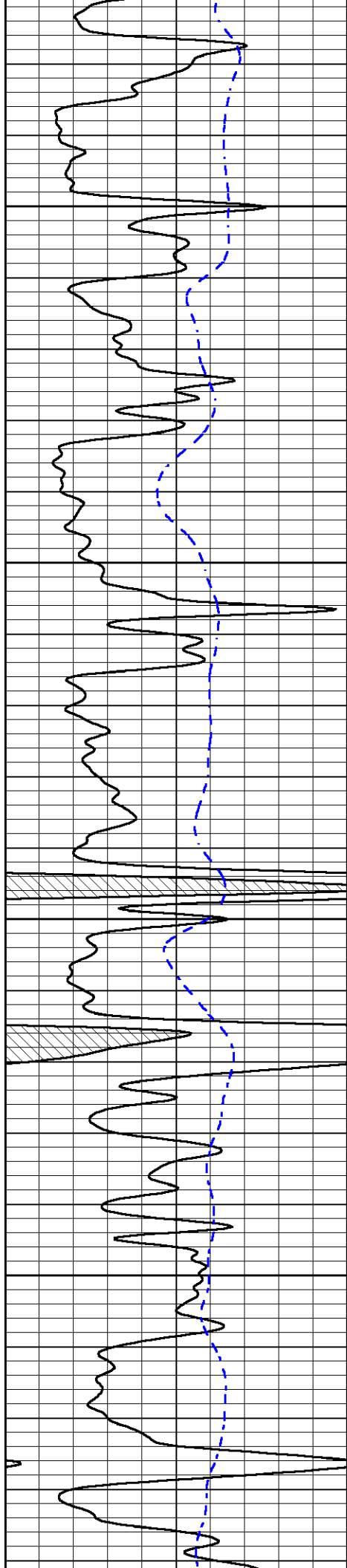
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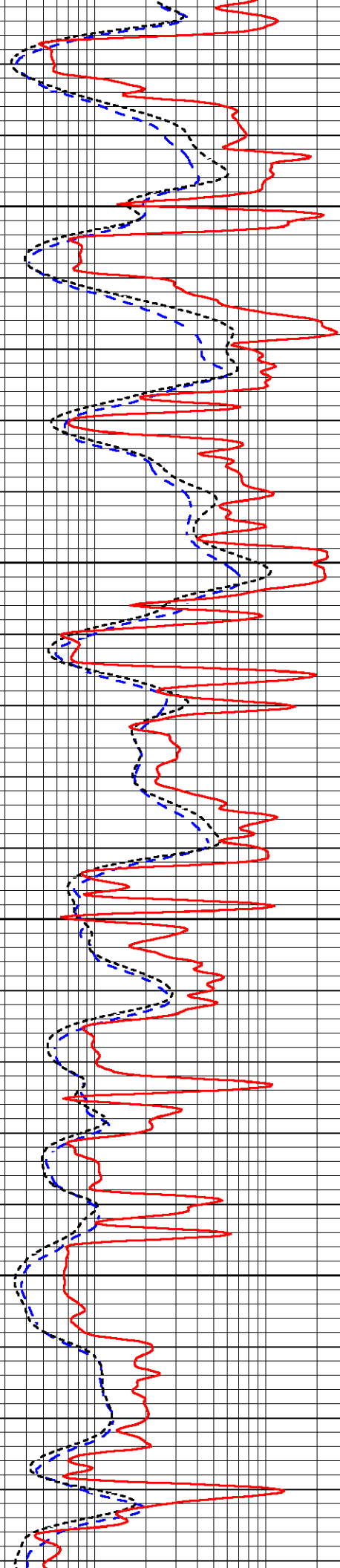


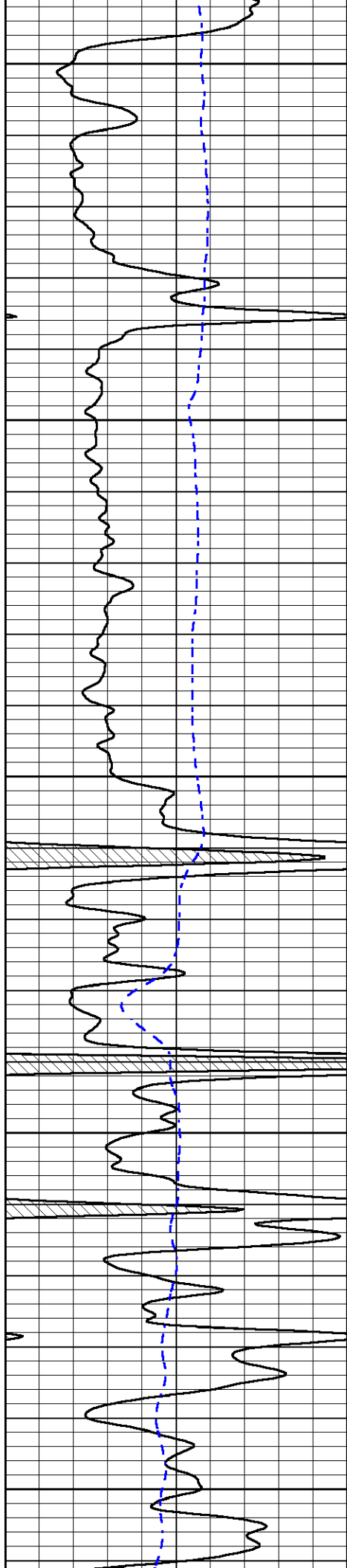
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3950

4000

4050





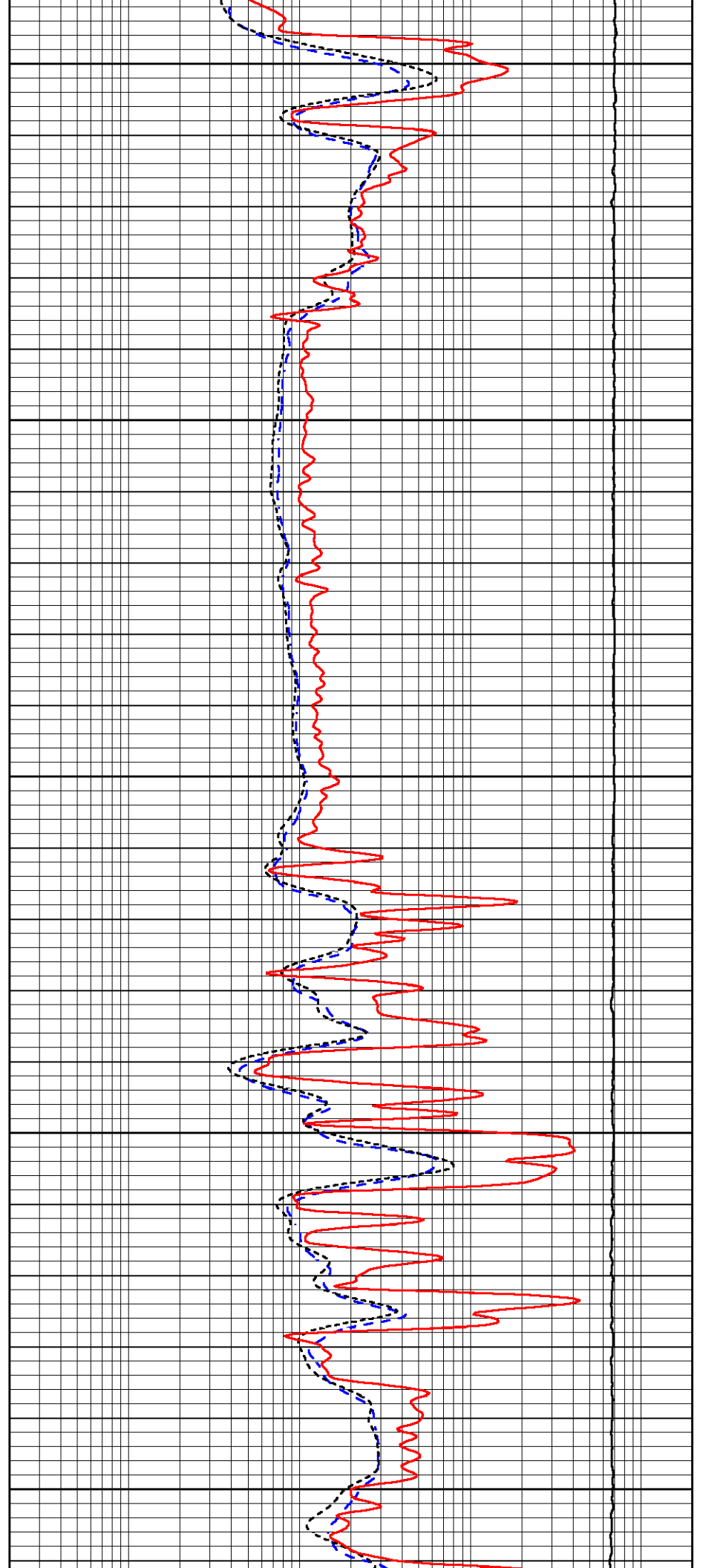
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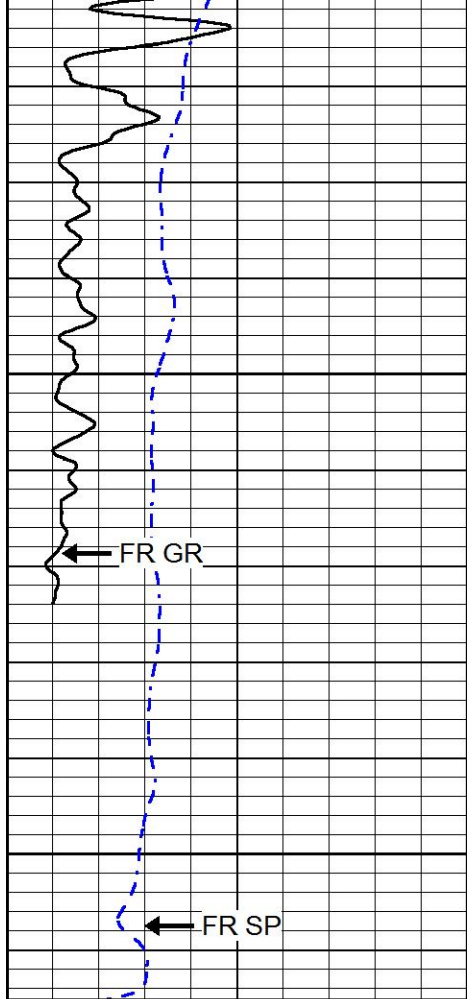
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4200

4250

4300

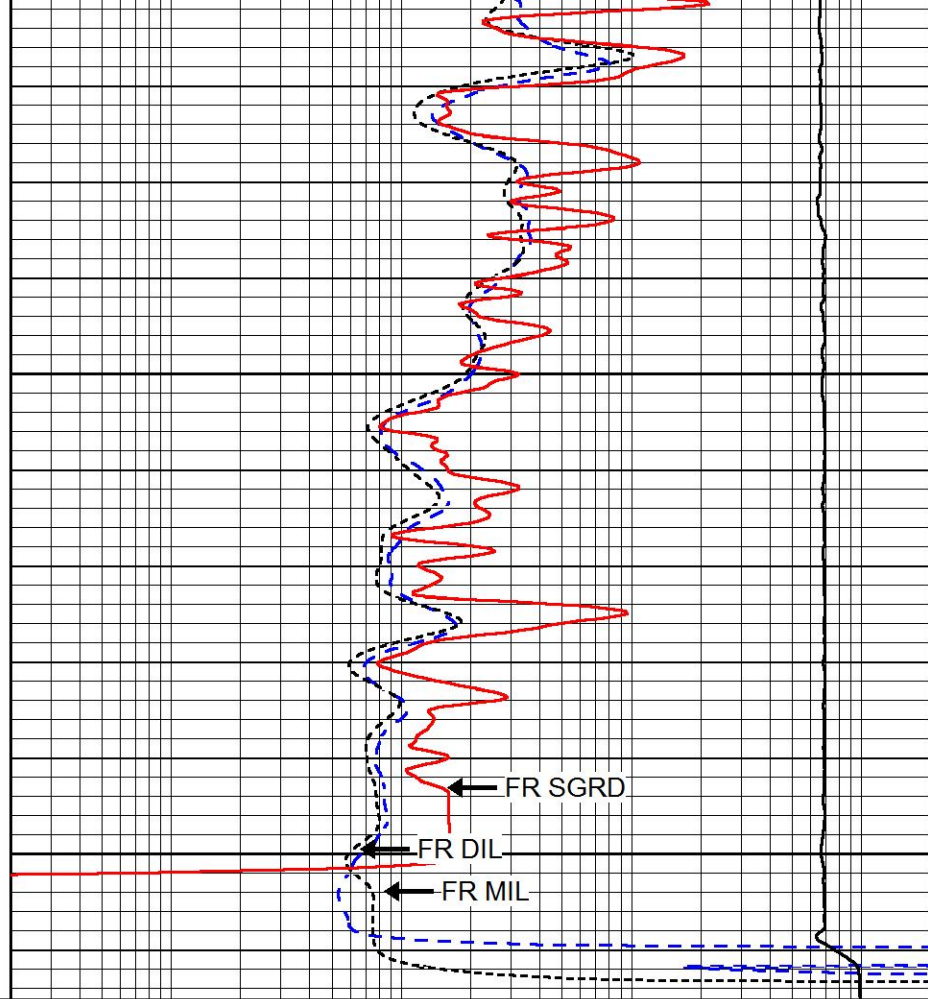




4350

4400

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

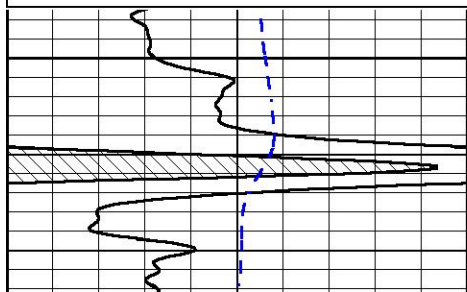


# REPEAT SECTION

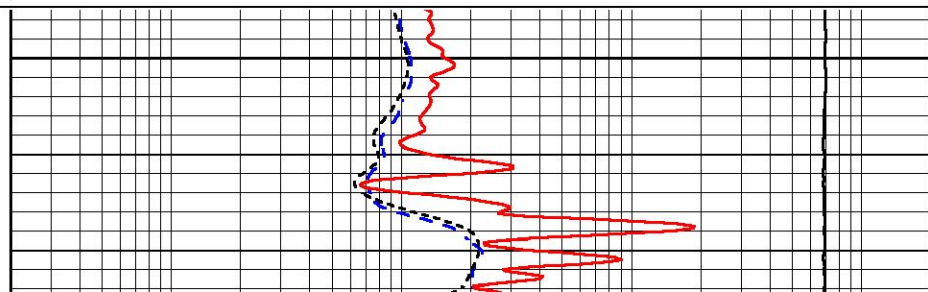
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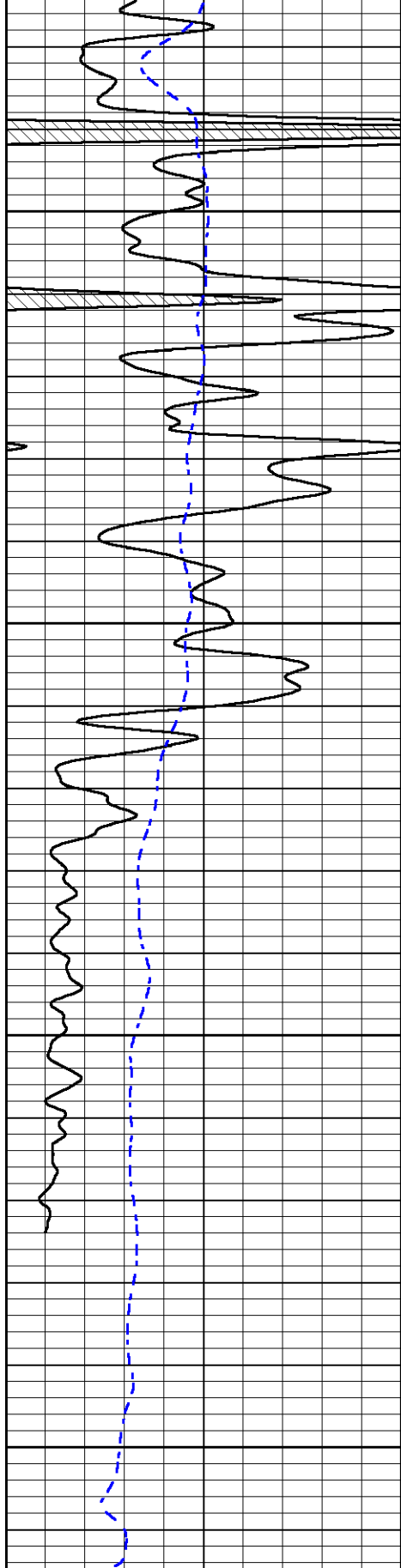
0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

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



4200





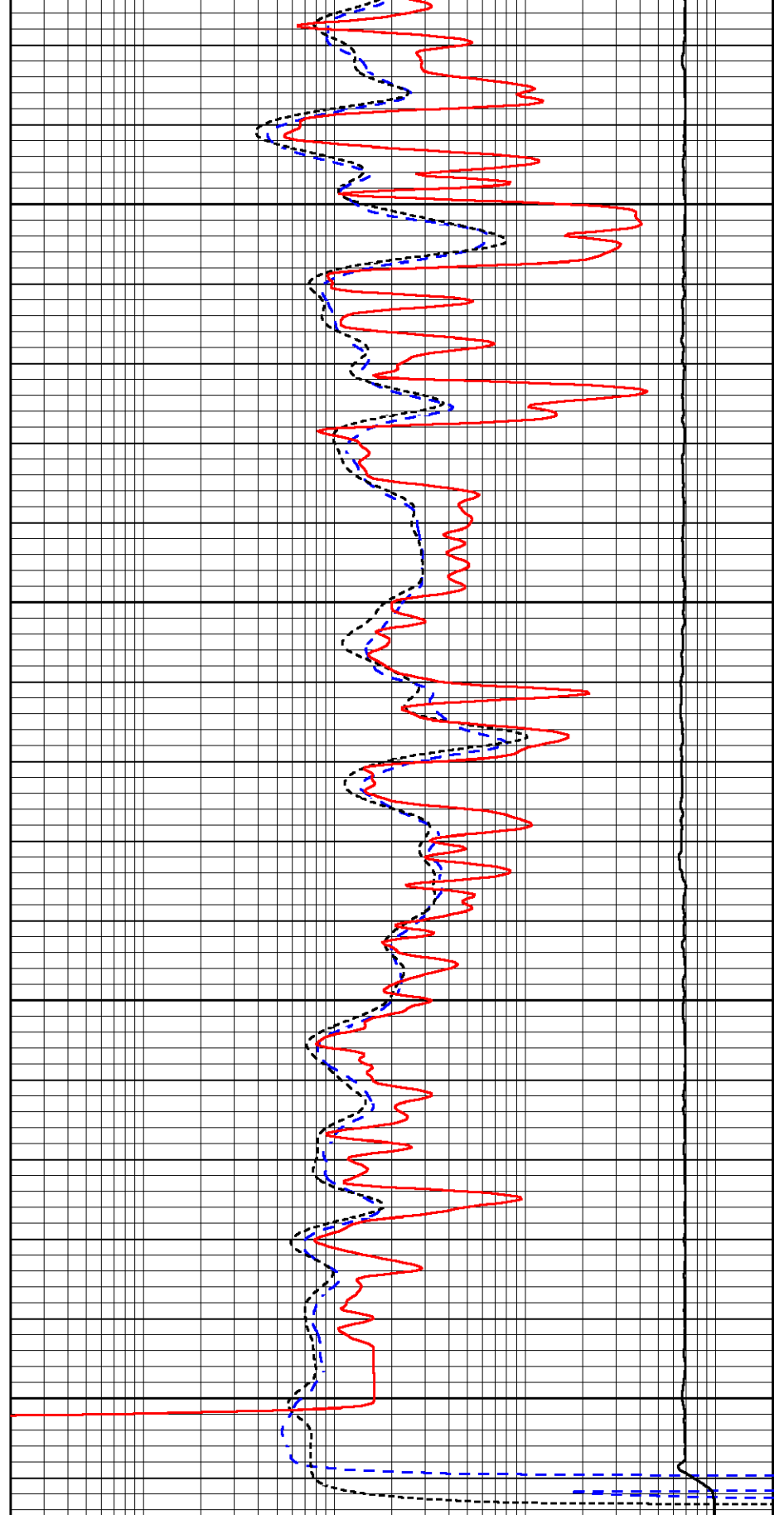
4250

4300

4350

4400

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

Calibration Report

Database File      stewart\_sutton\_4.db  
 Dataset Pathname  stackml/pass3.1  
 Dataset Creation   Wed Dec 13 14:57:33 2017

Dual Induction Calibration Report

Serial-Model:                   PSI 978-M&W  
 Calibration Performed:        Wed Dec 13 12:45:09 2017

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.560	-36.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.420	-35.000

Microlog Calibration Report

Serial-Model:                   PSI-02-PSI STKBL ML  
 Performed:                     Fri Jun 23 01:25:19 2017

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0031	0.0043	0.0000	10.0000	Ohm-m	12000.0000	0.0000
Inverse	0.0000	0.0013	0.0000	10.0000	Ohm-m	13000.0000	0.0000
Caliper	1.0020	1.0834	5.5000	16.5000	in	135.1560	-131.5000

Compensated Density Calibration Report

Serial-Model:                   168-986-M&W  
 Source / Verifier:             /  
 Master Calibration Performed:  Tue Apr 11 17:07:47 2017

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4691.86	4818.19	cps
Aluminum	2.690	g/cc	859.57	3020.22	cps
Spine Angle = 74.61			Density/Spine Ratio = 0.531		
	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 17:08:01 2017

Calibrator Value: 1000.0 GAPI

Background Reading: 0.0 cps  
Calibrator Reading: 6.2 cps

Sensitivity: 0.5200 GAPI/cps



**PIONEER**  
Pioneer Energy Services

Company STEWART PRODUCERS, INC.  
Well SUTTON NO. 4  
Field UNNAMED  
County NESS  
State KANSAS