



PIONEER
Pioneer Energy Services

DUAL INDUCTION LOG

Company **JOHN O FARMER**
Well **ULRICH B #1**
Field **WILDCAT**
County **RUSSELL** State **KANSAS**

Location: API #: 15-167-24079-00-00

430' FSL & 990' FEL

SEC 25 TWP 11S RGE 13W

Permanent Datum **GROUND LEVEL** Elevation **1731'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Elevation
K.B. 1738'
D.F. N/A
G.L. 1731'

Other Services
CNL/CDL
MEL

Date 11/27/2017

Run Number ONE

Depth Driller 3340'

Depth Logger 3338'

Bottom Logged Interval 3337'

Top Log Interval 250'

Casing Driller 8.625" @ 261'

Casing Logger 261'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 11500

Density / Viscosity 9.2 42

pH / Fluid Loss 9.5 8.8

Source of Sample FLOWLINE

Rm @ Meas. Temp 0.40 @ 50

Rmf @ Meas. Temp 0.30 @ 50

Rmc @ Meas. Temp 0.54 @ 50

Source of Rmf / Rmc CHARTS

Rm @ BHT 0.18 @ 109

Operating Rig Time 3 HOURS

Max Rec. Temp. F 109

Equipment Number 108

Location HAYS

Recorded By D. SCHMIDT

Witnessed By AUSTIN KLAUS

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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.

BUNKER HILL,
NORTH TO AMHERST RD, 1/2 EAST,
NORTH INTO

Log Measured From: KELLY BUSHING 7 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew

Engineer: D. SCHMIDT
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: AUSTIN KLAUS
Secondary Witness:
Secondary Witness:
Secondary Witness:

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 (934-5002)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83			ML-PSI STKBL ML (PSI-01) Stackable Microlog Tools	7.58	4.00	65.00
RLL3 RLL3F	15.80 15.79			DIL-M&W (976)	18.50	3.50	220.00
CILD	8.00						
CILM	4.70						
SP	0.20						
		Dataset: john o farmer_ulrich b1.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\john o farmer_ulrich b1.db
Dataset field/well/STKML/pass3.1/_vars_

Top - Bottom

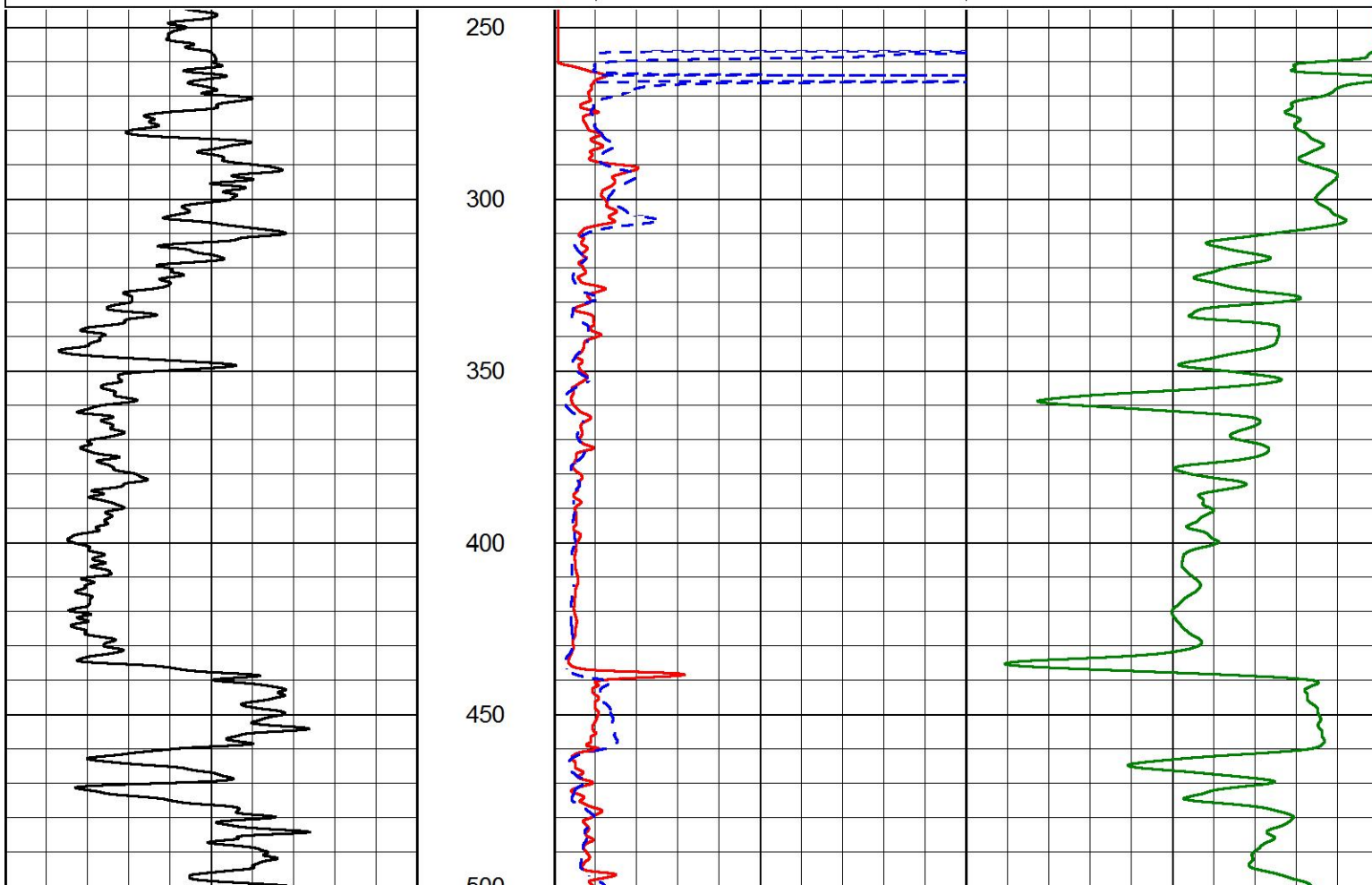
A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	100	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	0	0	-85	0	Off	0

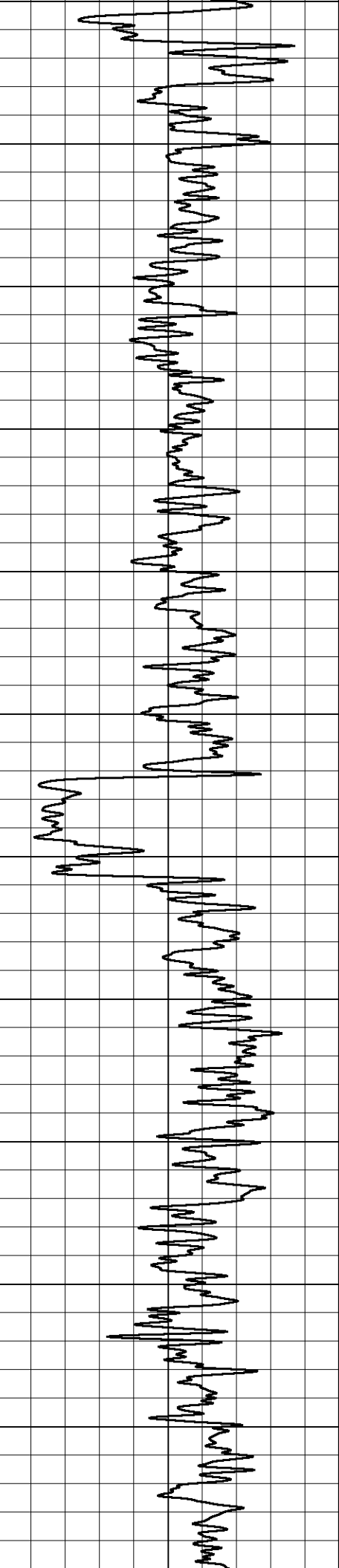


MAIN PASS

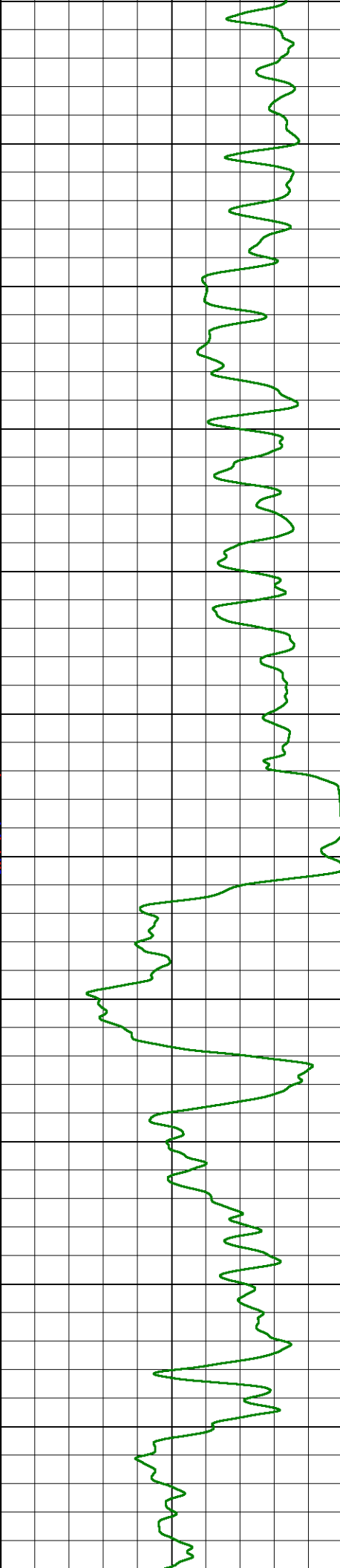
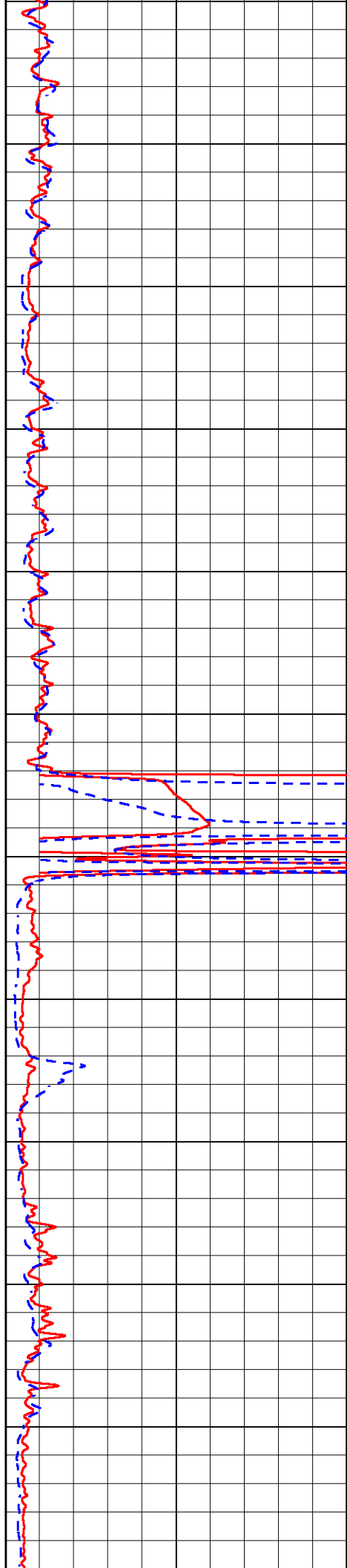
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Dataset Pathname STKML/pass3.1
Presentation Format dil2in
Dataset Creation Tue Nov 27 13:02:12 2018
Charted by Depth in Feet scaled 1:600

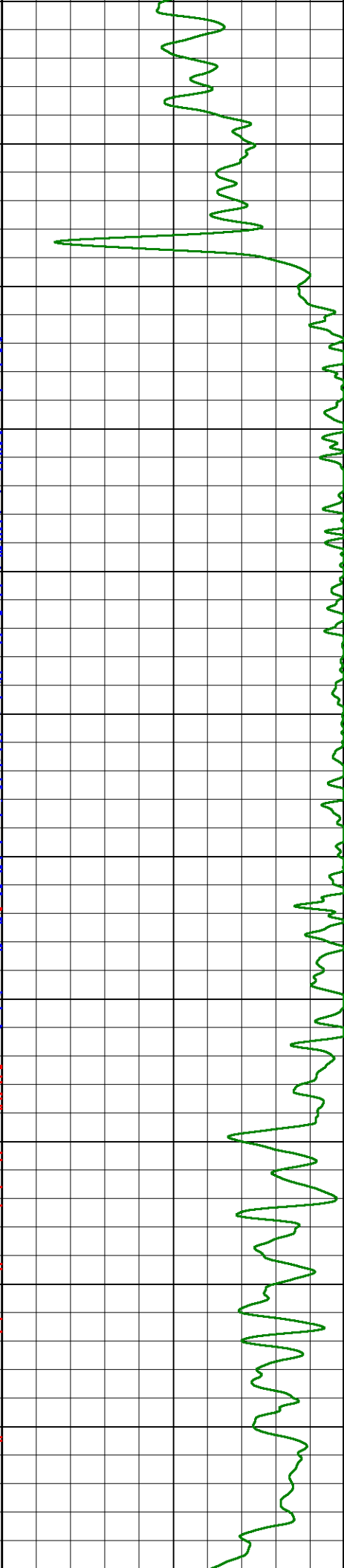
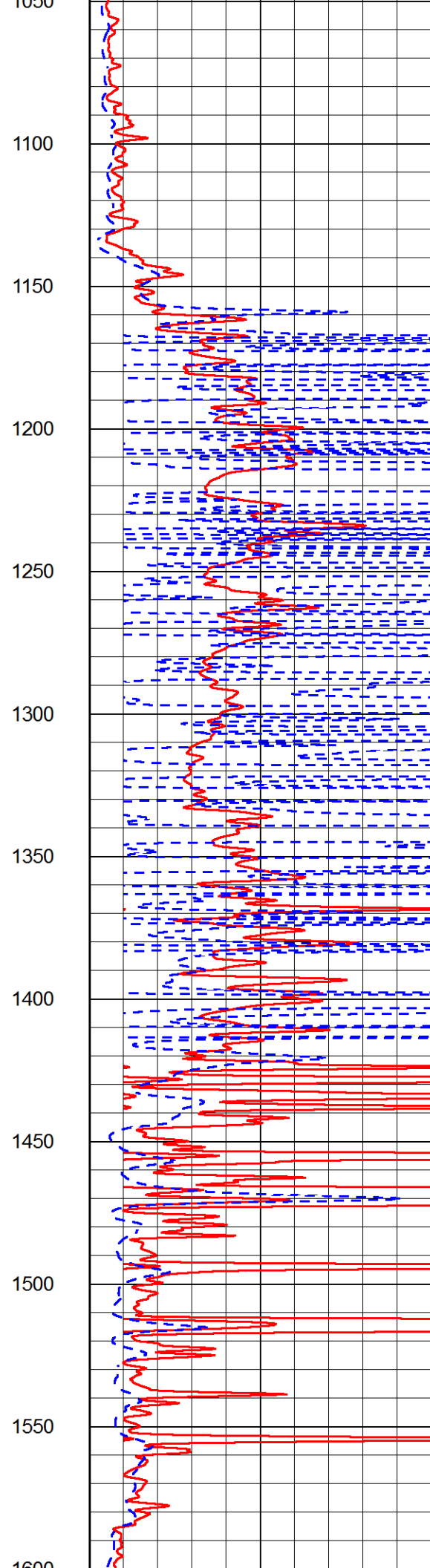
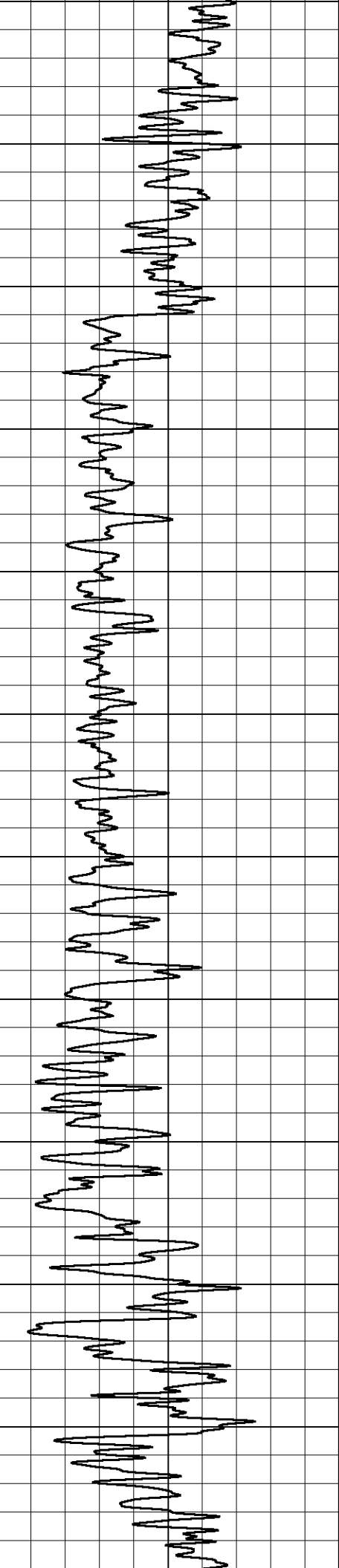
0	GAMMA RAY (GAPI)	150	2000	CILD (mmho/m)	0
0	RLL3 (Ohm-m)	50			
0	DEEP RESISTIVITY (Ohm-m)	50			
50	RLL3 (Ohm-m)	500			
50	RILD (Ohm-m)	500			

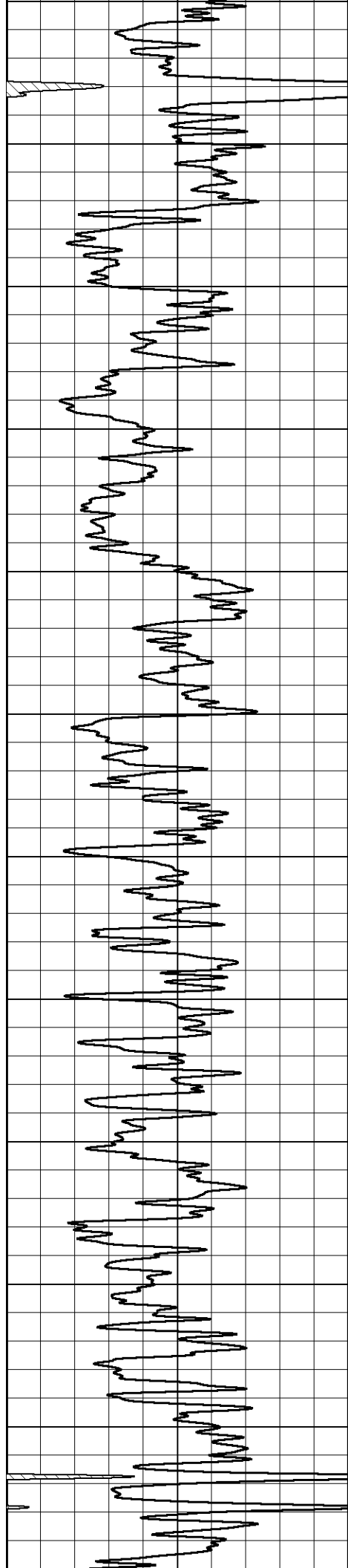




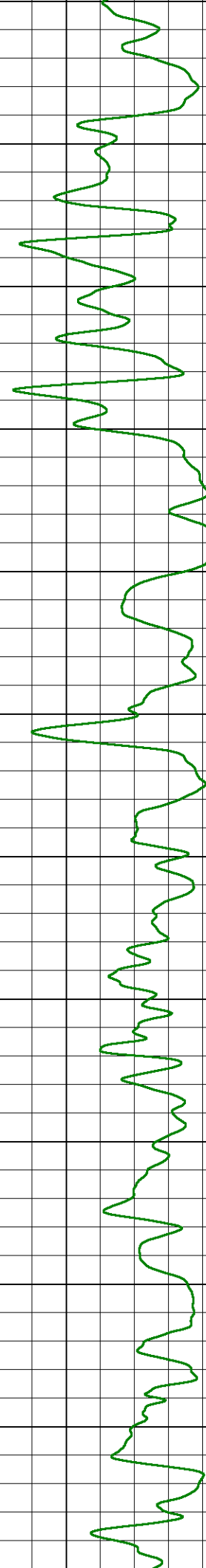
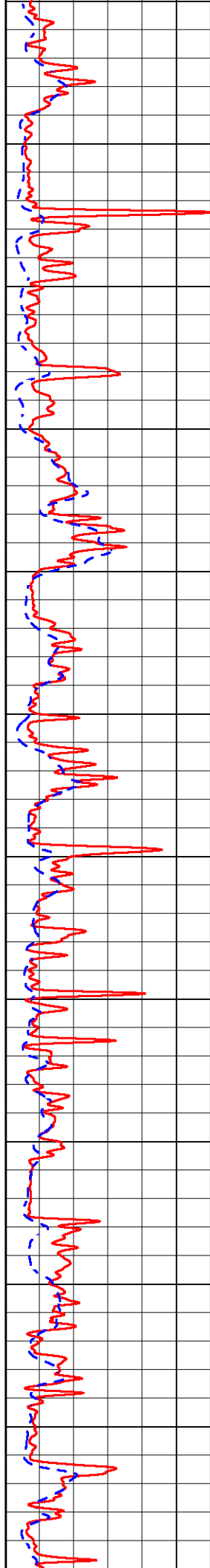
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550
600
650
700
750
800
850
900
950
1000
1050

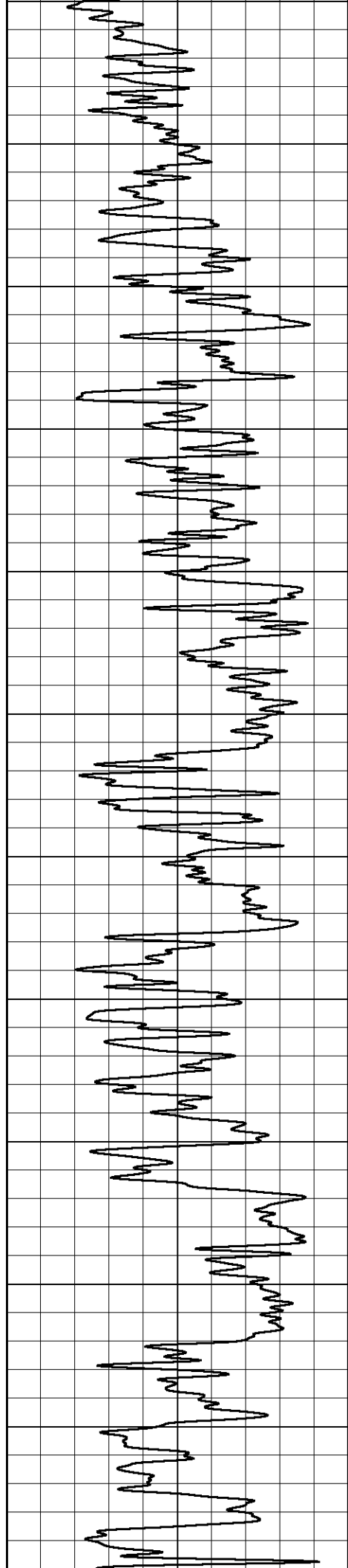




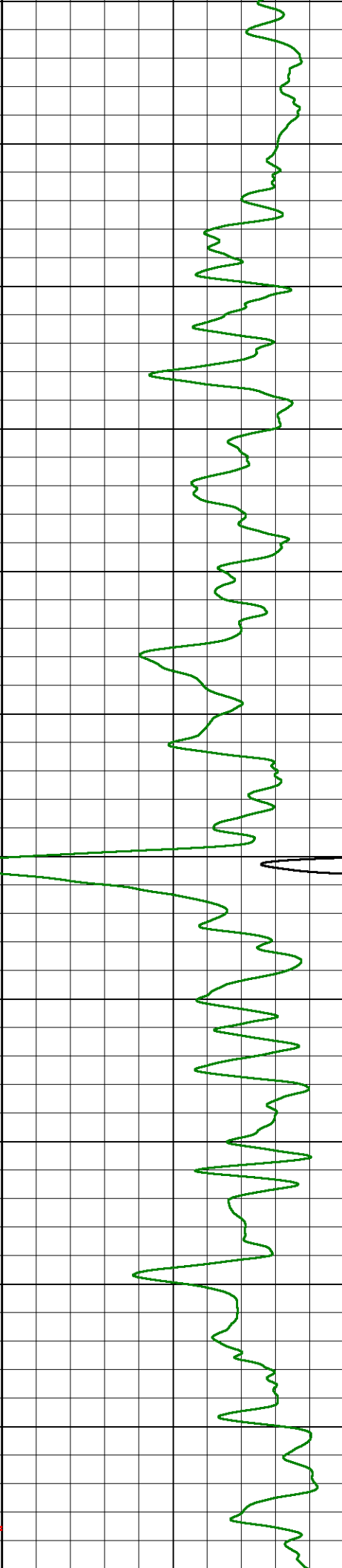
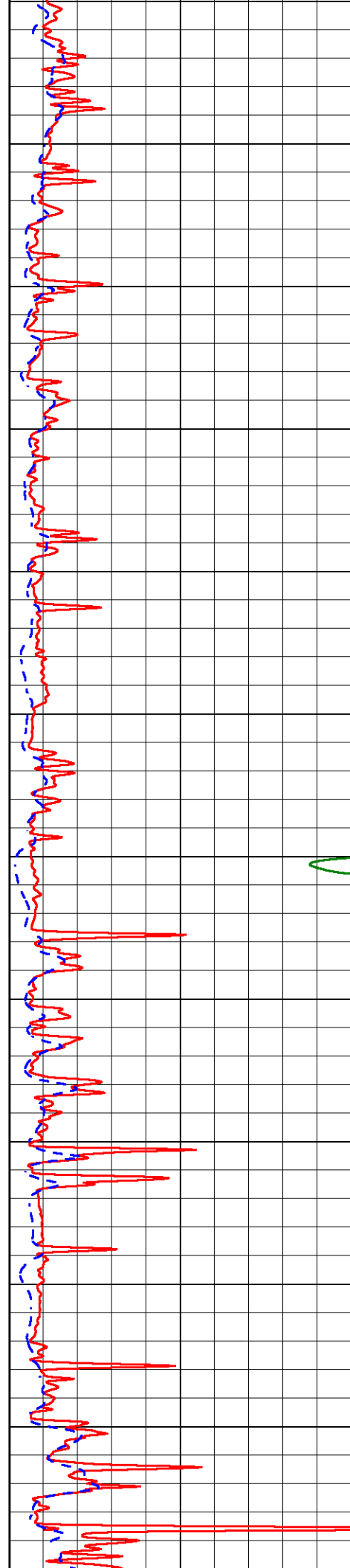


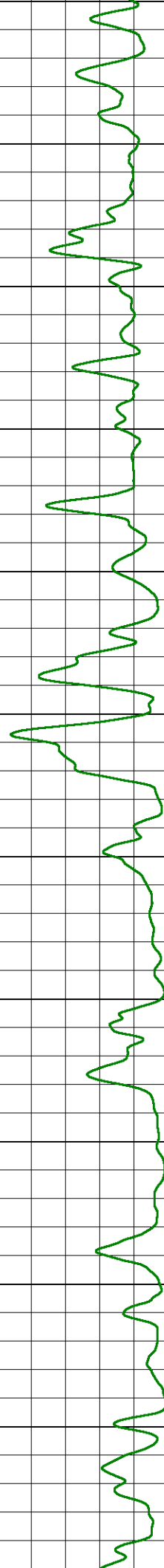
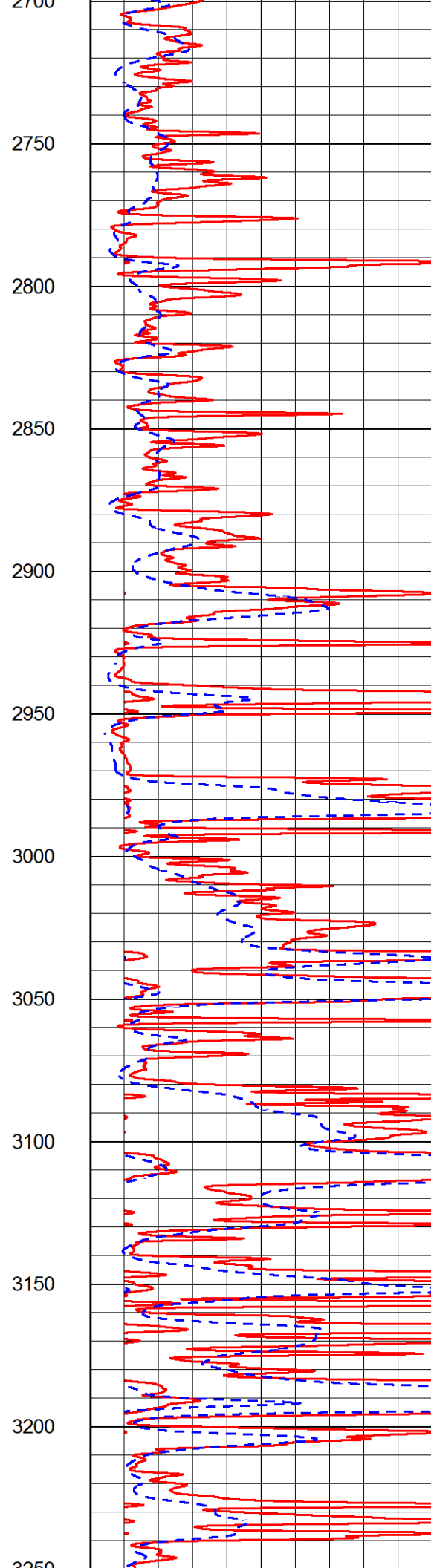
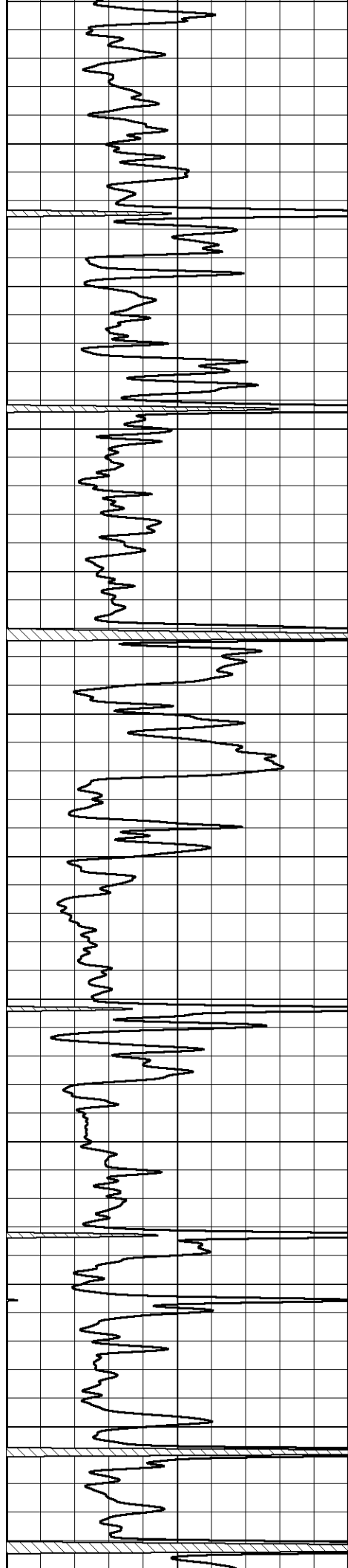
1600
1650
1700
1750
1800
1850
1900
1950
2000
2050
2100
2150

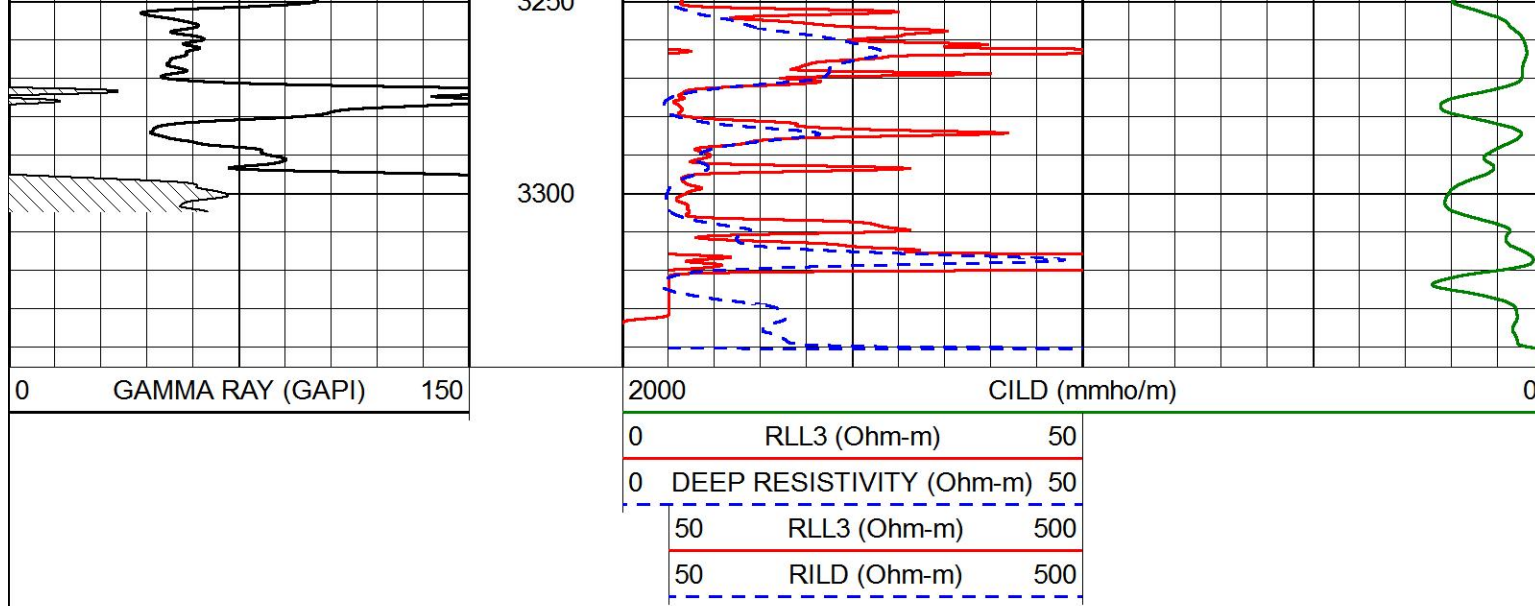




2150
2200
2250
2300
2350
2400
2450
2500
2550
2600
2650
2700



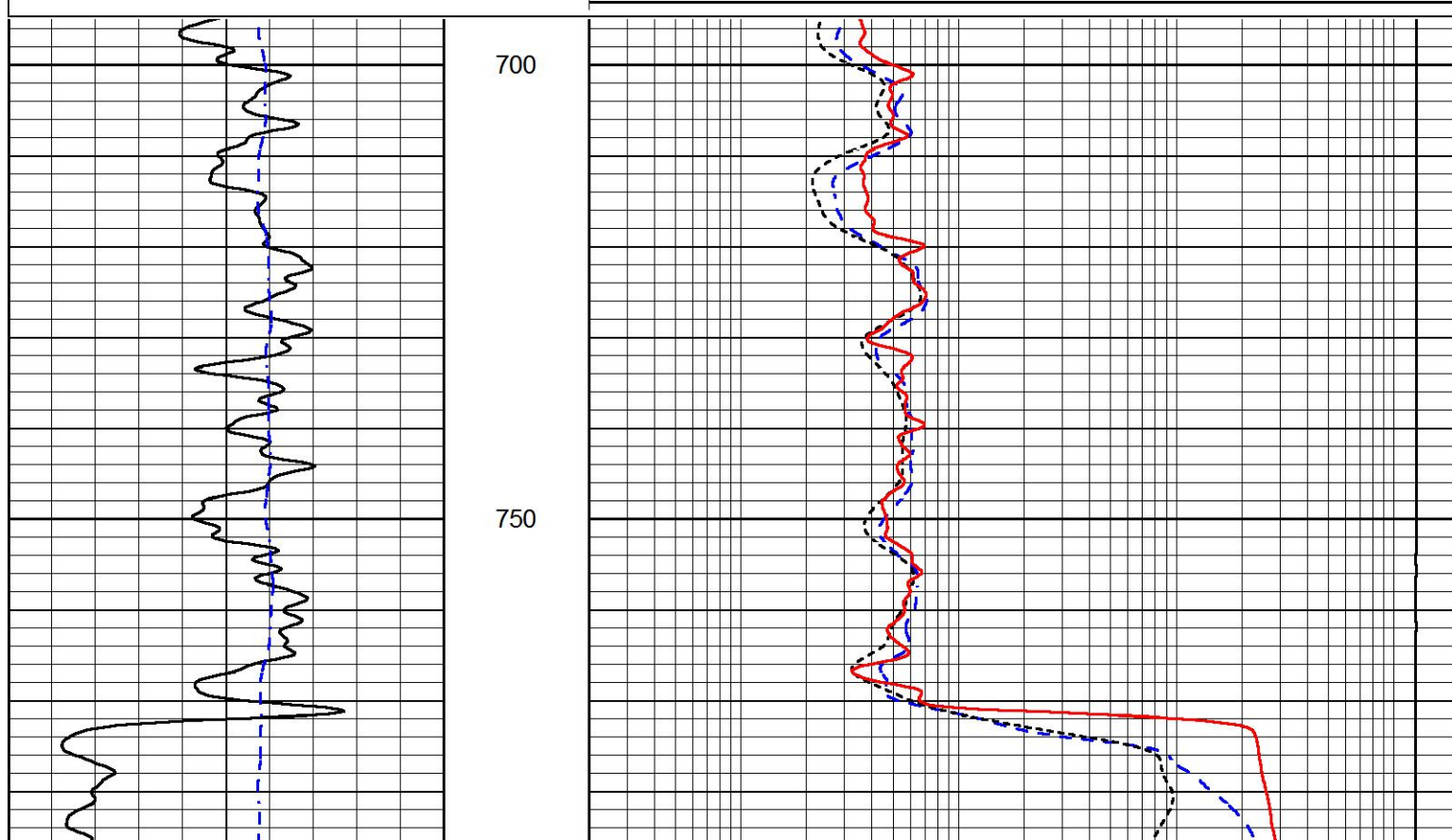


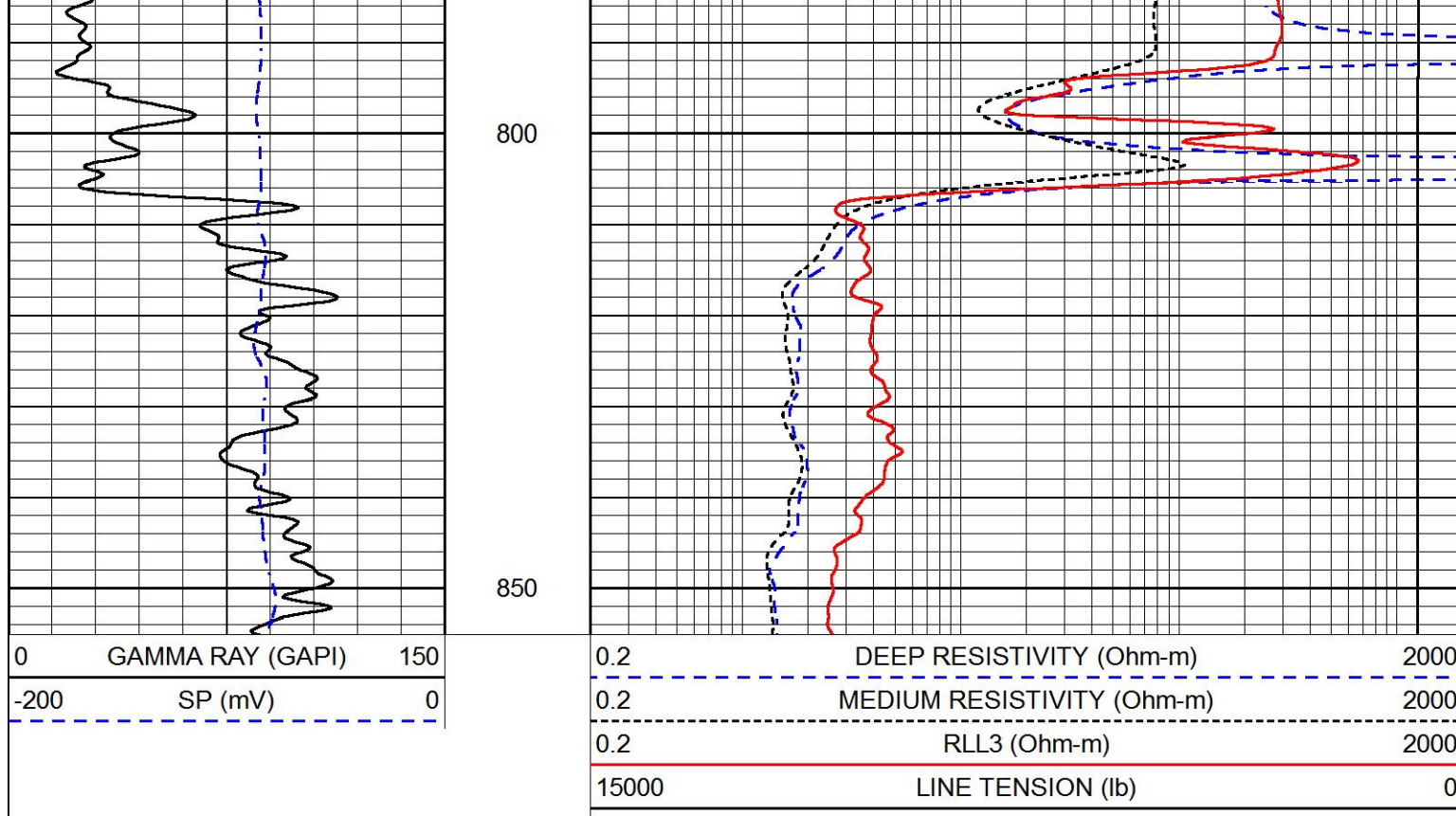


MAIN PASS

Database File	john o farmer_ulrich b1.db
Dataset Pathname	STKML/pass3.1
Presentation Format	dil
Dataset Creation	Tue Nov 27 13:02:12 2018
Charted by	Depth in Feet scaled 1:240

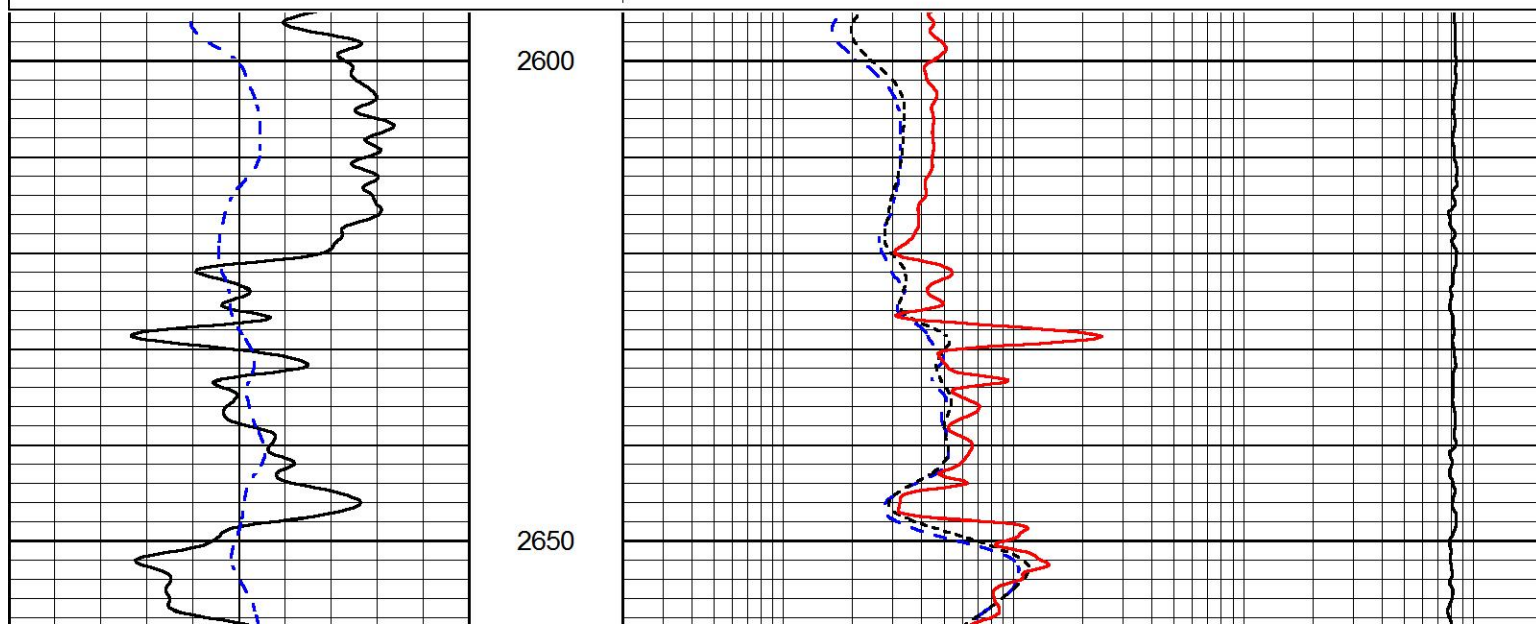
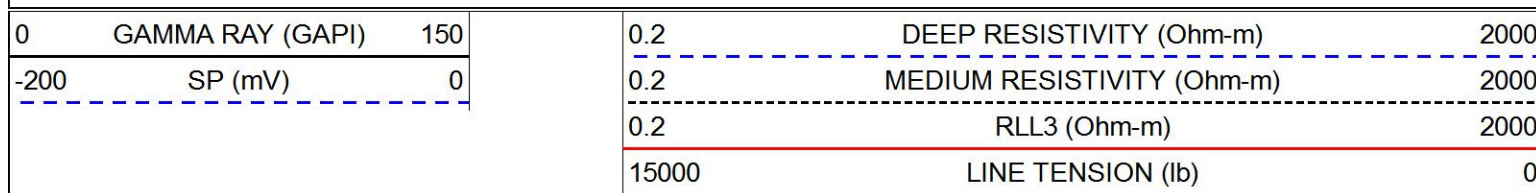
0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0
0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0

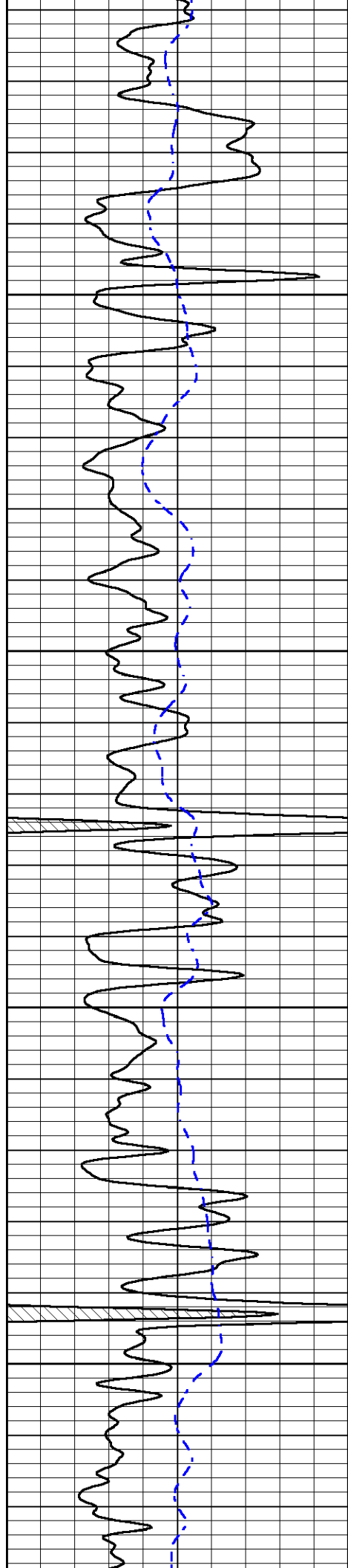




MAIN PASS

Database File john o farmer_ulrich b1.db
 Dataset Pathname STKML/pass3.1
 Presentation Format dil
 Dataset Creation Tue Nov 27 13:02:12 2018
 Charted by Depth in Feet scaled 1:240



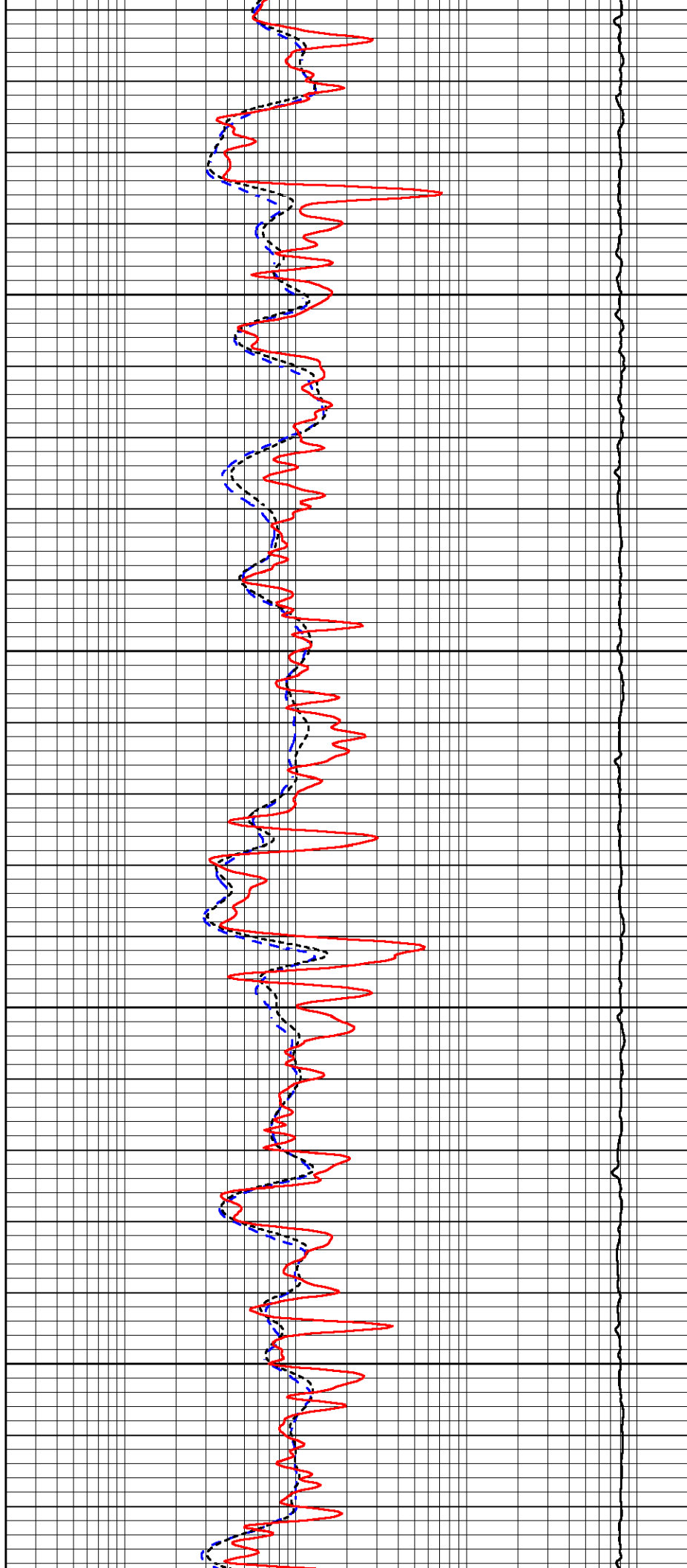


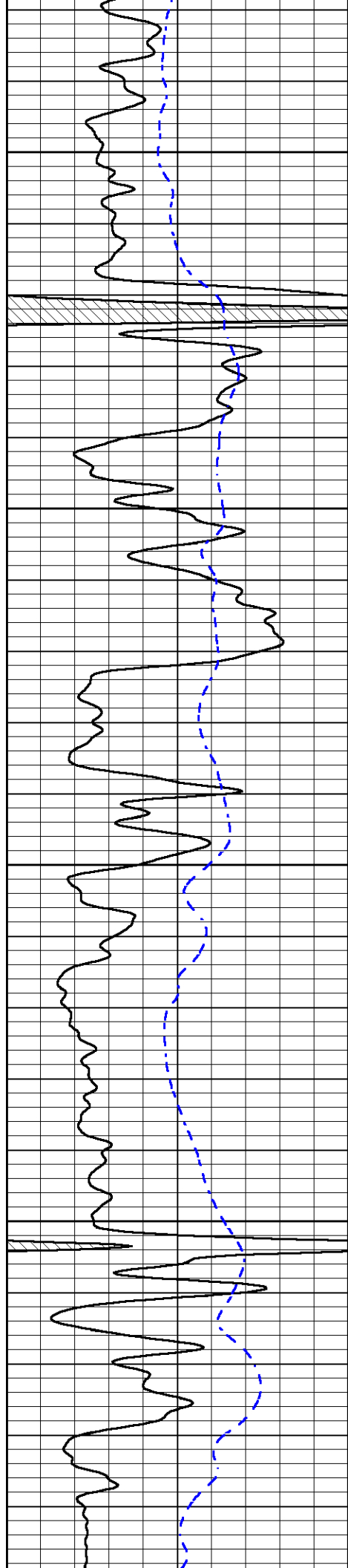
2700

2750

2800

2850



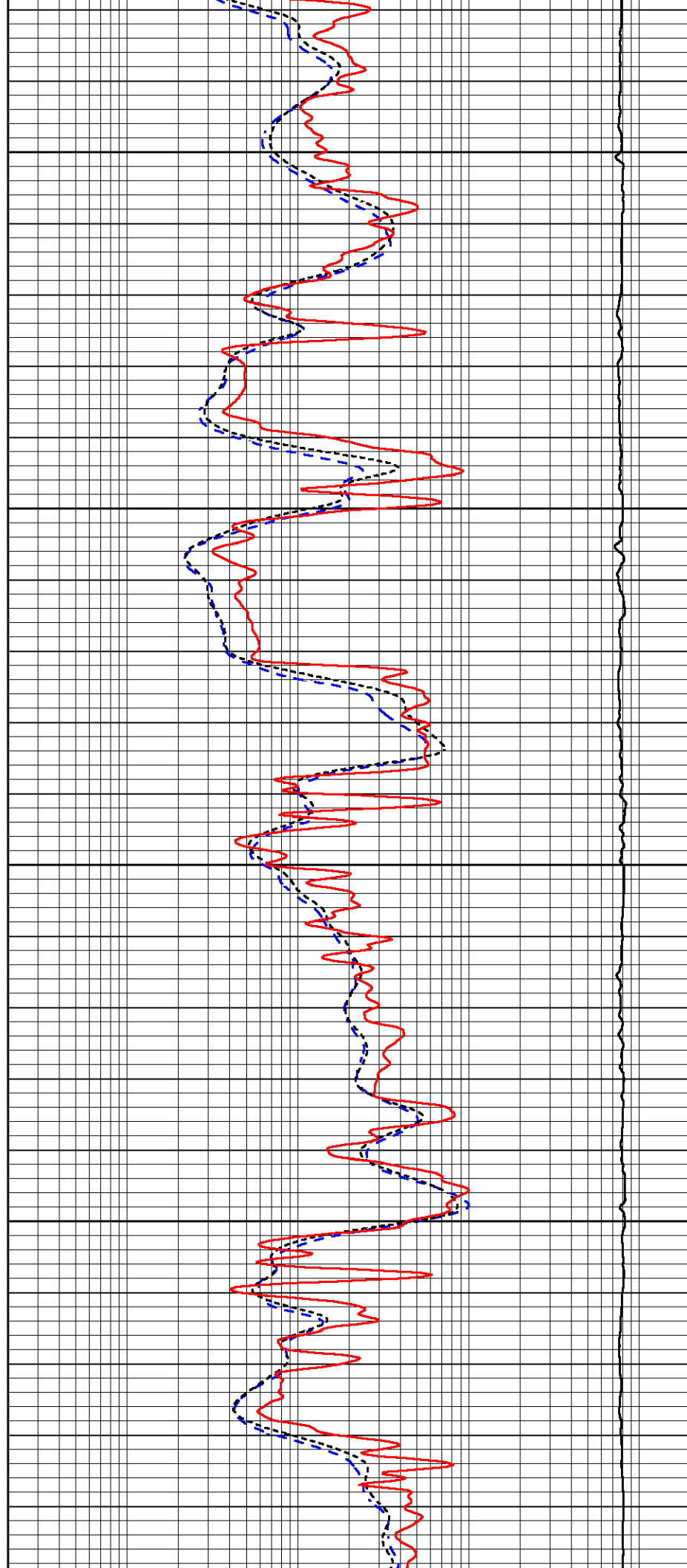


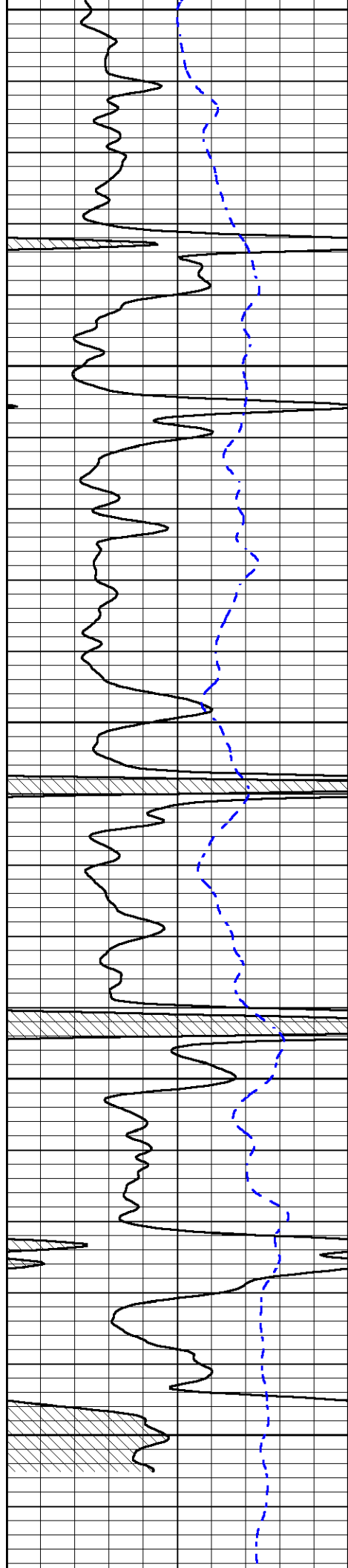
2900

2950

3000

3050





3100

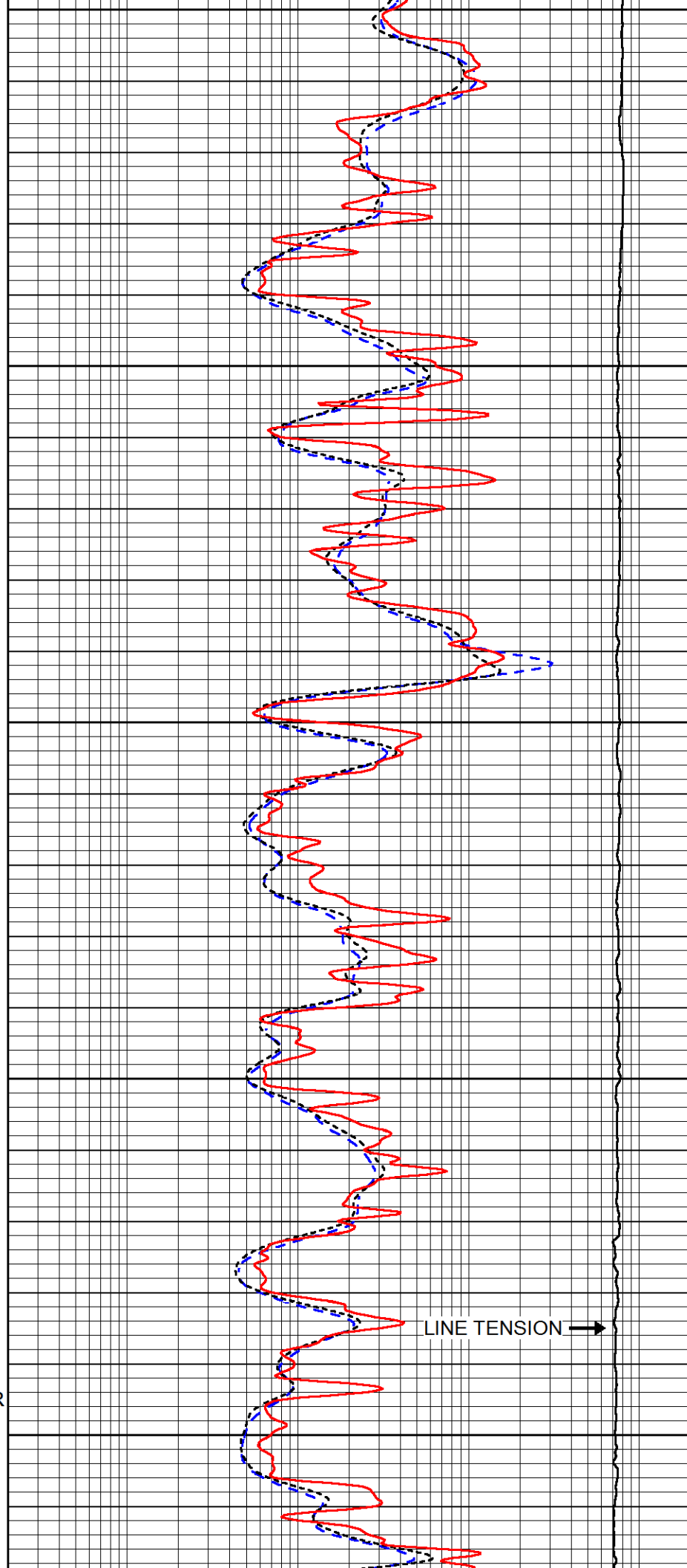
3150

3200

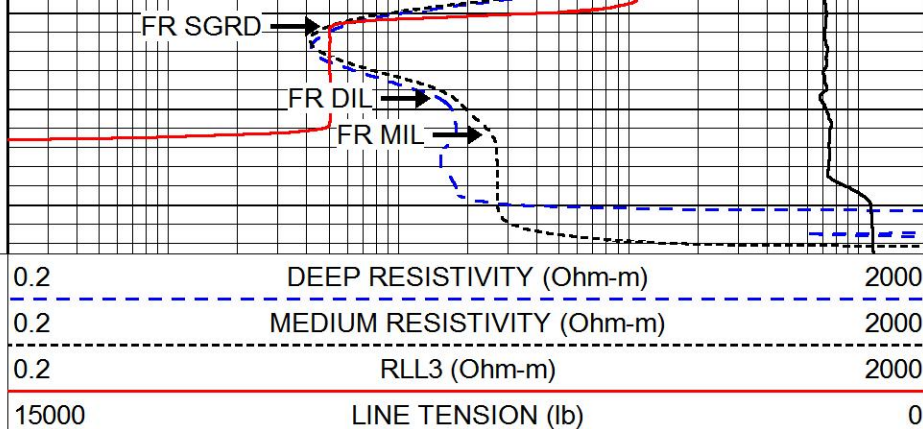
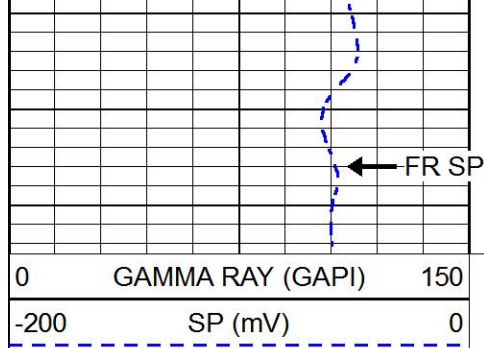
3250

3300

← FR GR

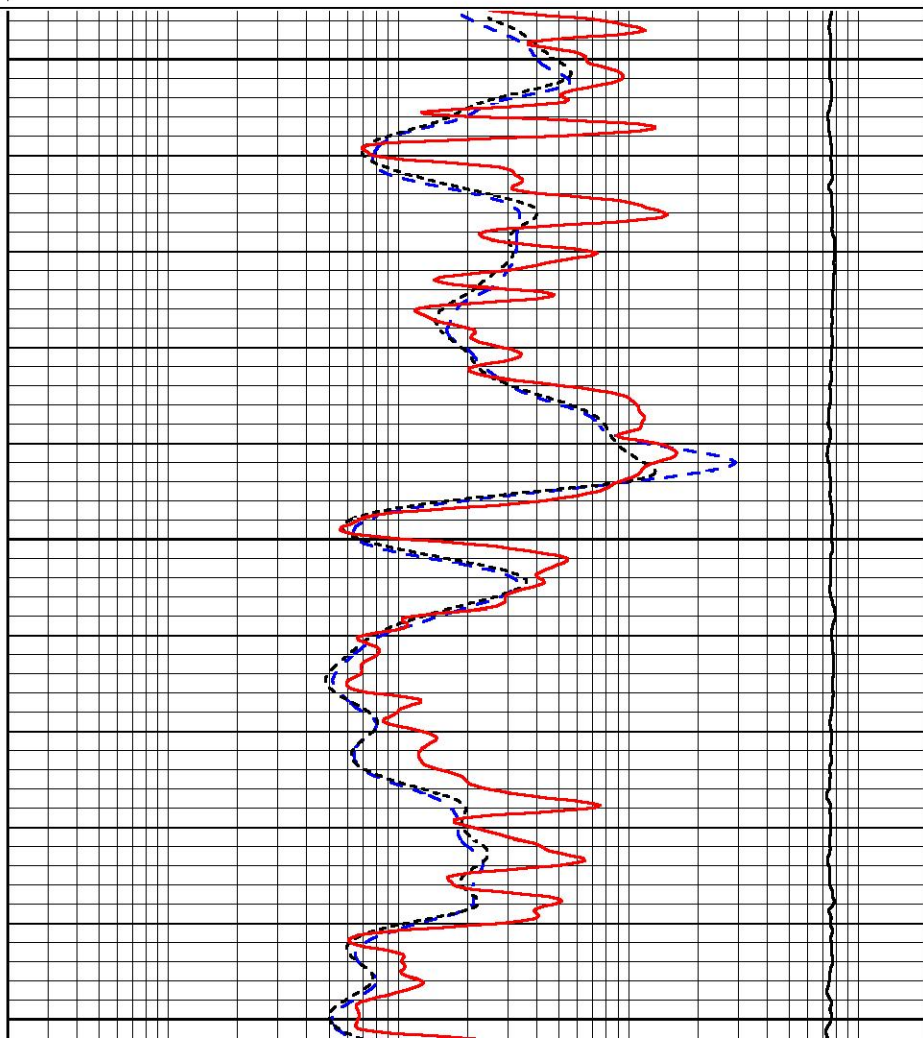
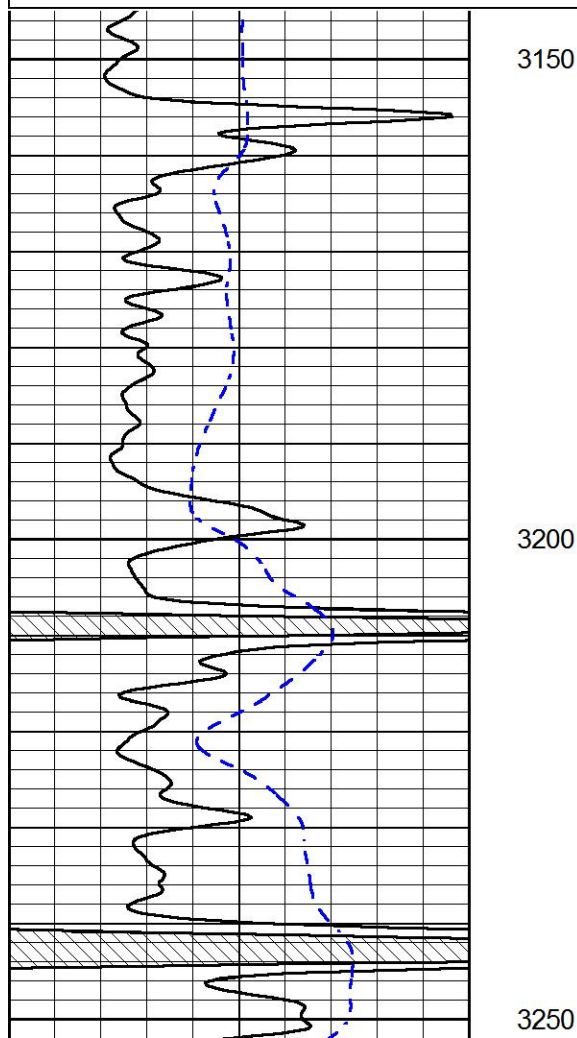
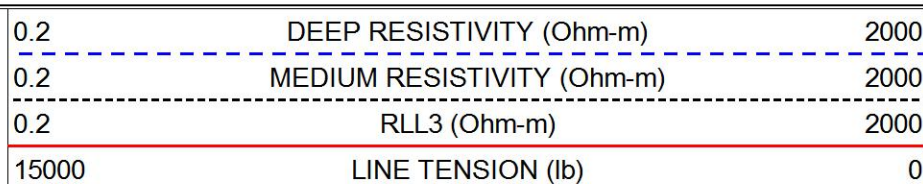
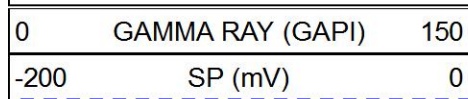


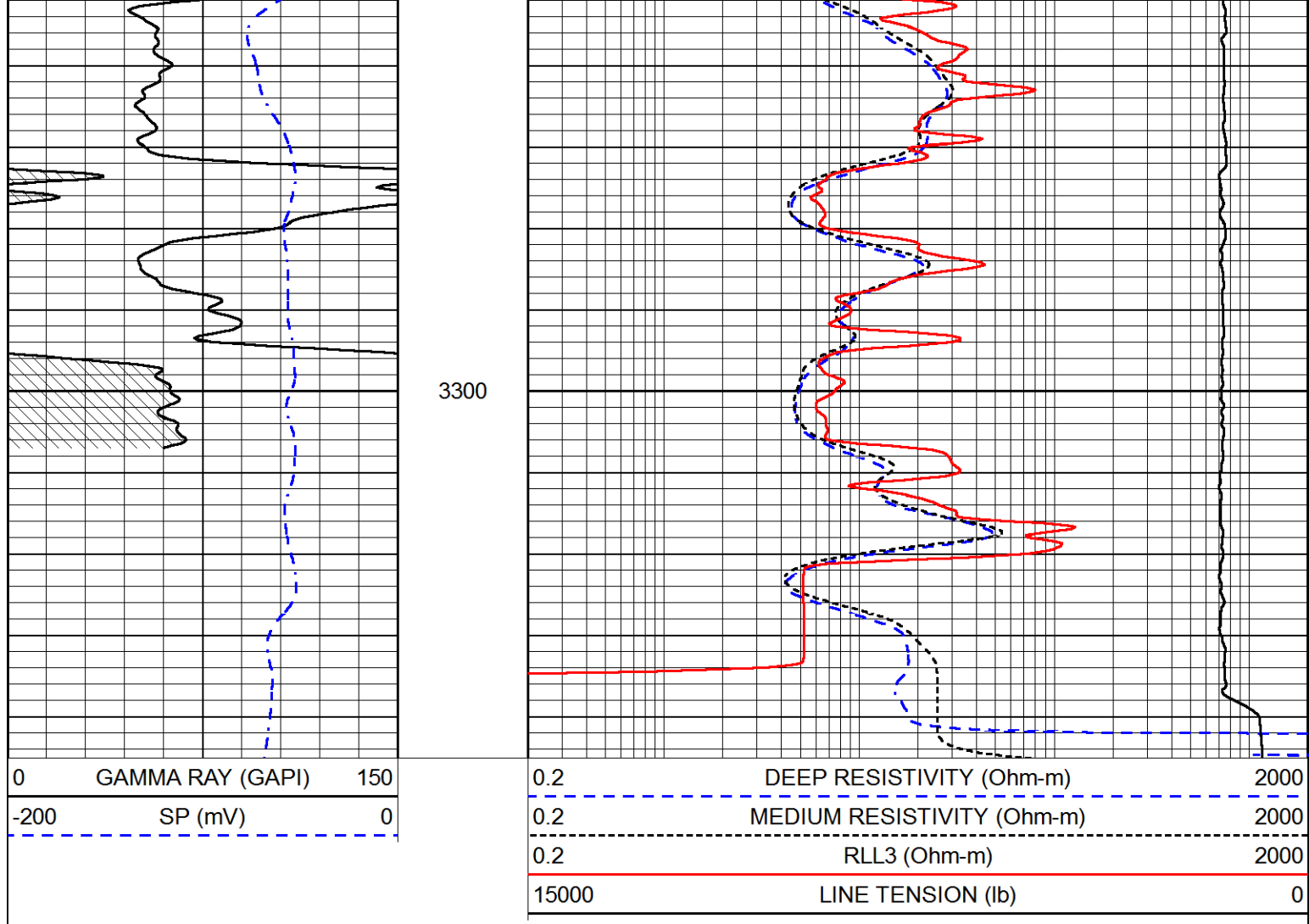
LINE TENSION →



REPEAT SECTION

Database File john o farmer_ulrich b1.db
 Dataset Pathname STKML/pass2.5
 Presentation Format dil
 Dataset Creation Tue Nov 27 12:48:56 2018
 Charted by Depth in Feet scaled 1:240





Calibration Report

Database File john o farmer_ulrich b1.db
 Dataset Pathname STKML/pass3.1
 Dataset Creation Tue Nov 27 13:02:12 2018

Dual Induction Calibration Report

Serial-Model: 976-M&W
 Calibration Performed: Thu Nov 15 20:52:51 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.450	-35.000
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.340	-12.500

Microlog Calibration Report

Serial-Model: PSI-01-PSI STKBL ML
 Performed: Thu Mar 31 18:14:32 2016

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	35500.0000	-1.1000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	29500.0000	-0.2000
Caliper	1.0001	1.1397	6.5000	18.5000	in	86.0000	-82.7500

Compensated Density Calibration Report

Serial-Model: 934-5002-M&W
 Source / Verifier: /
 Master Calibration Performed: Wed Aug 29 11:03:55 2018

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	3720.16	2661.79	cps
Aluminum	2.685	g/cc	696.57	1725.83	cps
Spine Angle = 75.50			Density/Spine Ratio = 0.537		
	Size		Reading		
Small Ring	4.00	in	1.16		
Large Ring	16.00	in	1.01		

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



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