



DUAL INDUCTION LOG

Pioneer Energy Services

Company STRATAKAN EXPLORATION, INC.
 Well BONNEWELL NO. 18-1
 Field FARMER NORTH
 County RICE State KANSAS

Location: API #: 15-159-22850-00-00
 2270' FSL & 3010' FEL
 SEC 18 TWP 18S RGE 9W
 Permanent Datum GROUND LEVEL Elevation 1722'
 Log Measured From KELLY BUSHING
 Drilling Measured From KELLY BUSHING
 Other Services CNL/CDL MEL/BHCS
 Elevation K.B. 1727' D.F. N/A G.L. 1722'

Date	3/11/2018
Run Number	ONE
Depth Driller	3300'
Depth Logger	3300'
Bottom Logged Interval	3299'
Top Log Interval	400'
Casing Driller	8.625" @ 430'
Casing Logger	427'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	8000
Density / Viscosity	9.5 51
pH / Fluid Loss	9.5 8.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.40 @ 52
Rmt @ Meas. Temp	.30 @ 52
Rmc @ Meas. Temp	.54 @ 52
Source of Rmf / Rmc	CHARTS
Rm @ BHT	.19 @ 109
Operating Rig Time	3 HOURS
Max Rec. Temp. F	109 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.
 BUSHTON KS
 EAST TO CHASE BLACKTOP, 2 SOUTH, WEST INTO AT TANKS

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

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

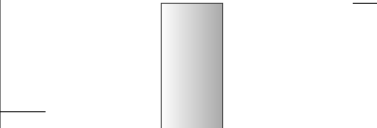
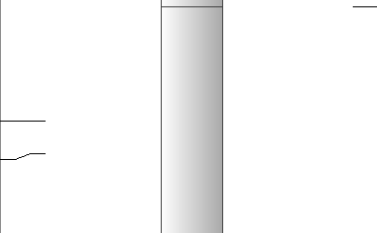
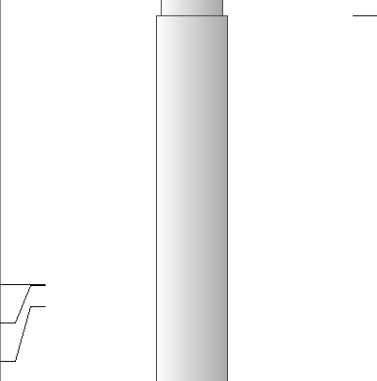
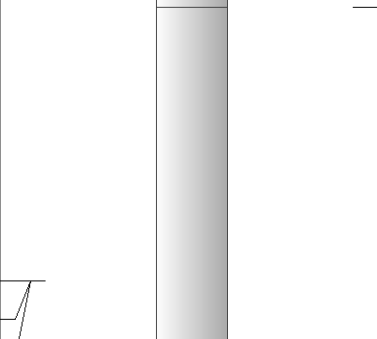
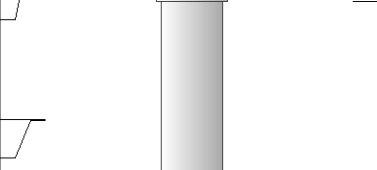
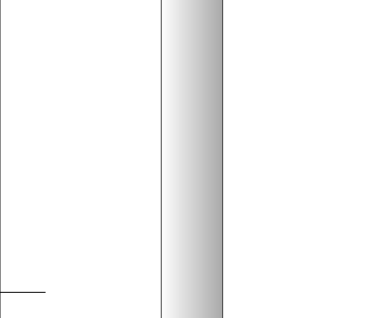
Your Pioneer Energy Services Crew Engineer: J. HENRICKSON Operator: Operator: Operator:	This Log Record Was Witnessed By Primary Witness: JASON ALM Secondary Witness: Secondary Witness: Secondary Witness:
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Log Variables

DatabaseC:\ProgramData\Warrior\Data\stratakan_bonnewell_18_1.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	109	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	2	-180	40	Off	3300

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

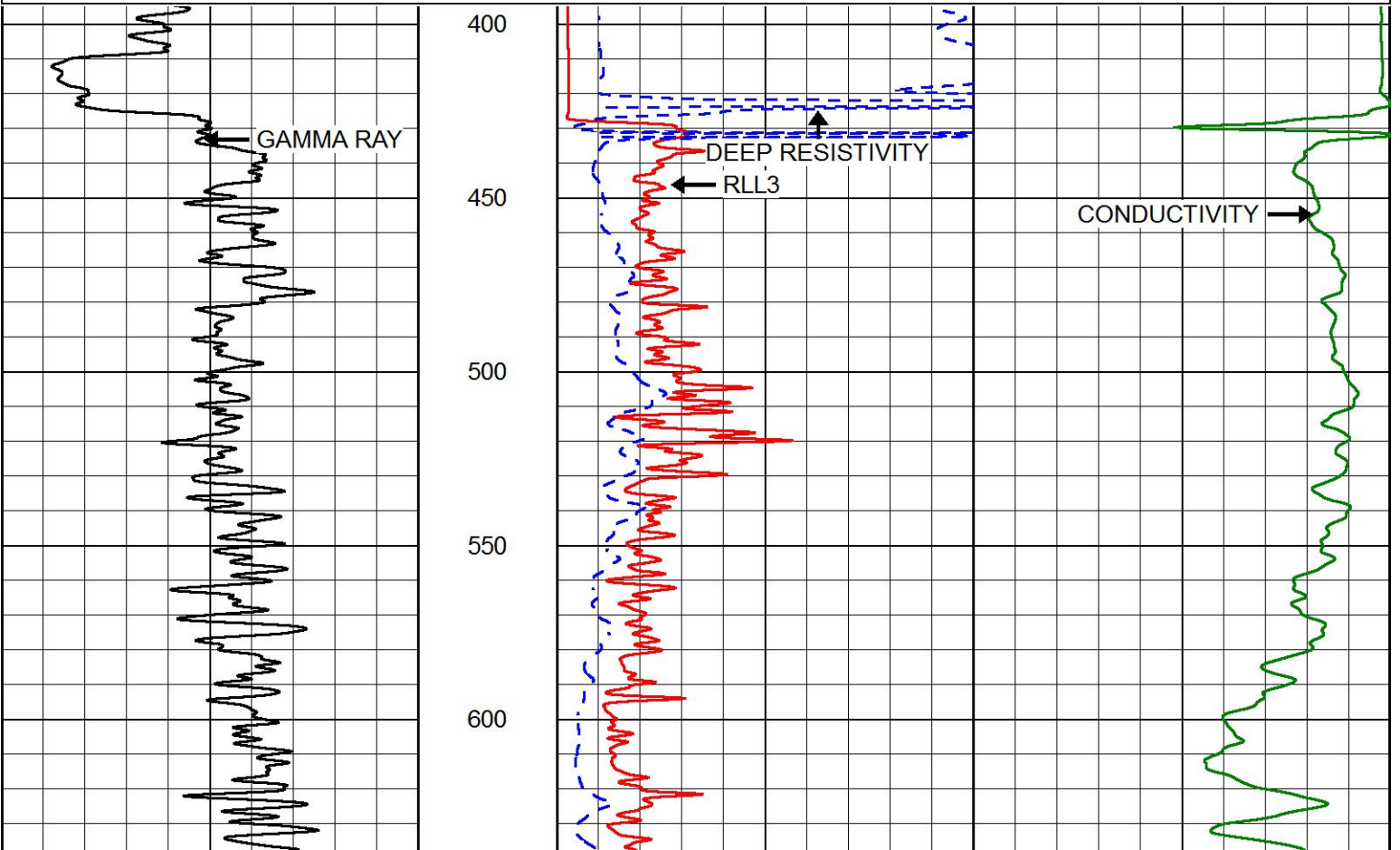
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 Total length: 43.08 ft
 Total weight: 685.00 lb
 O.D.: 4.00 in

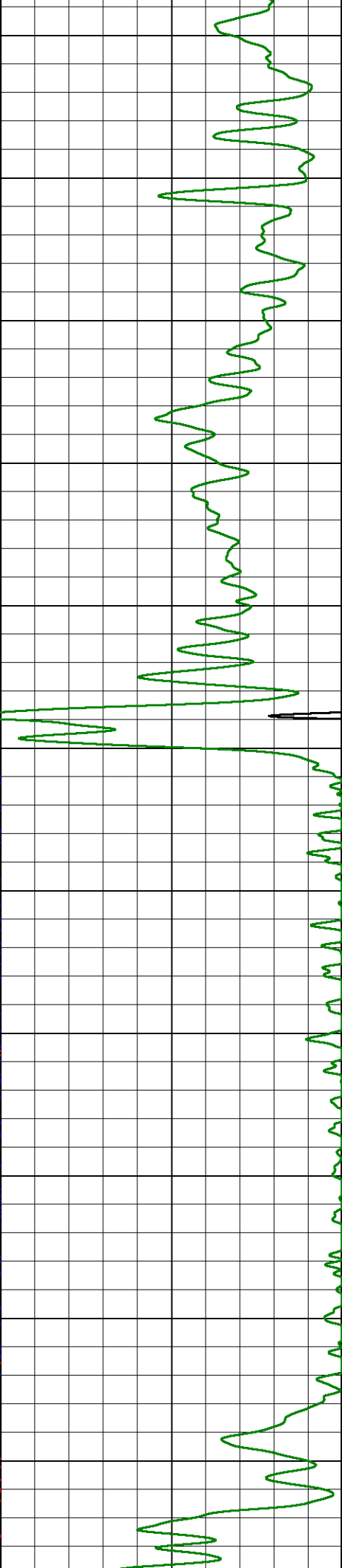
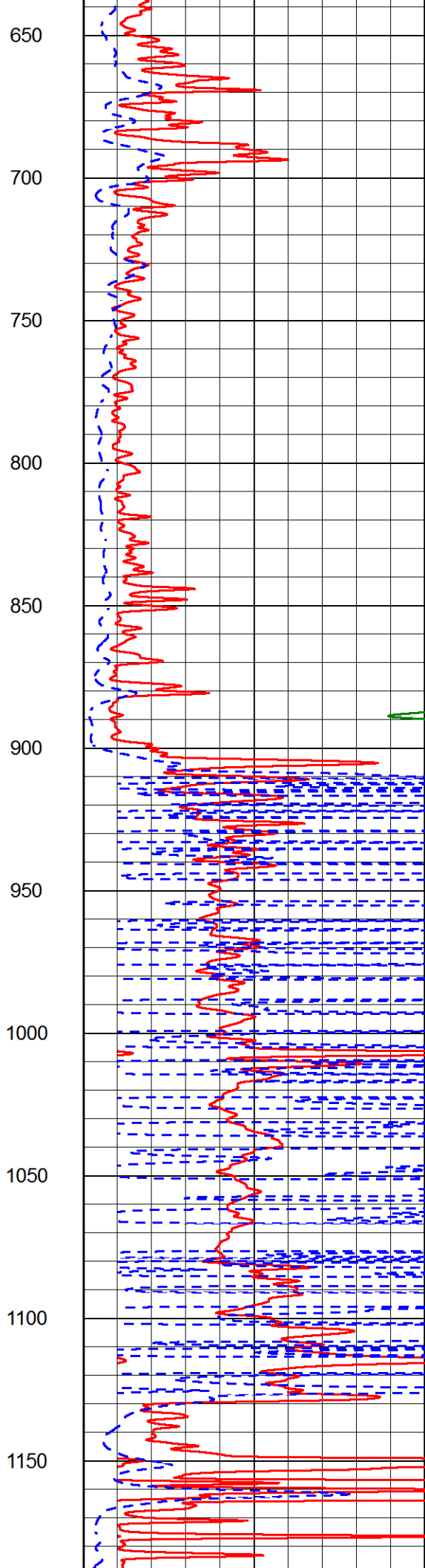
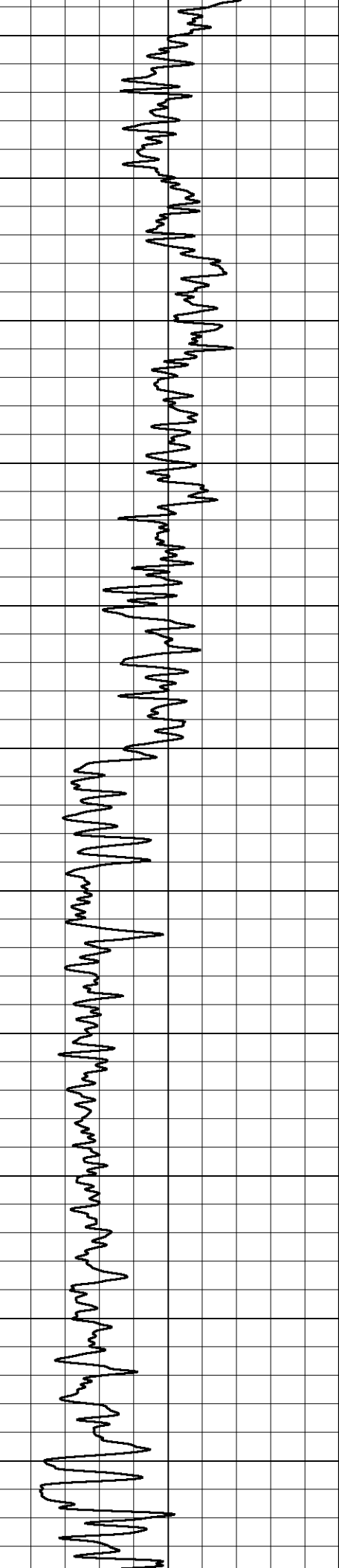


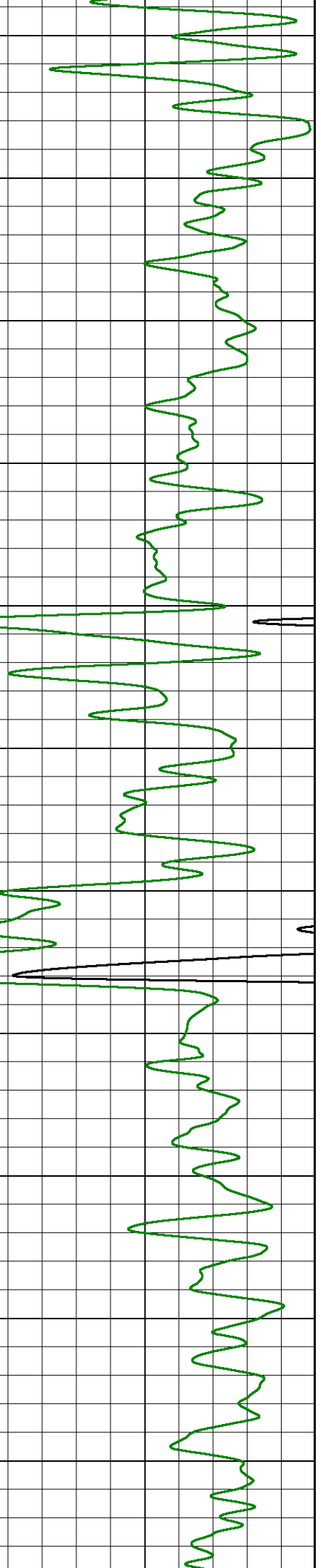
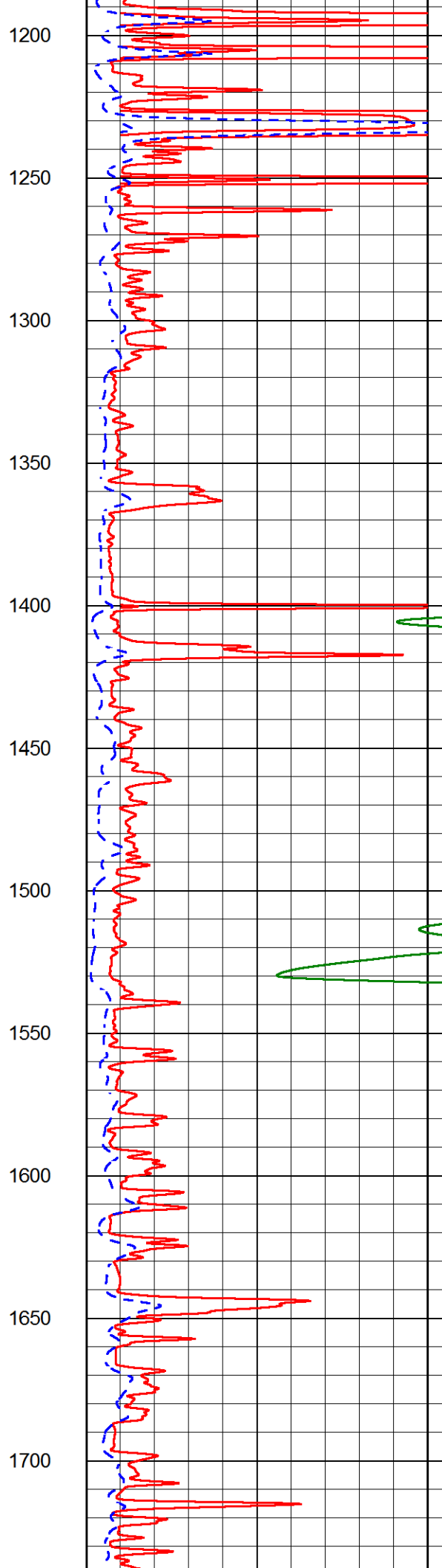
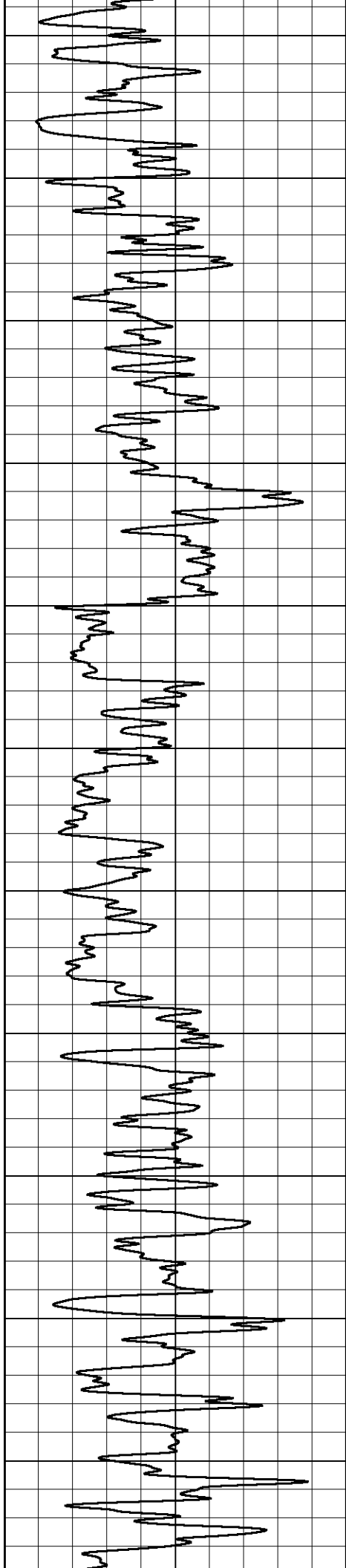
MAIN PASS

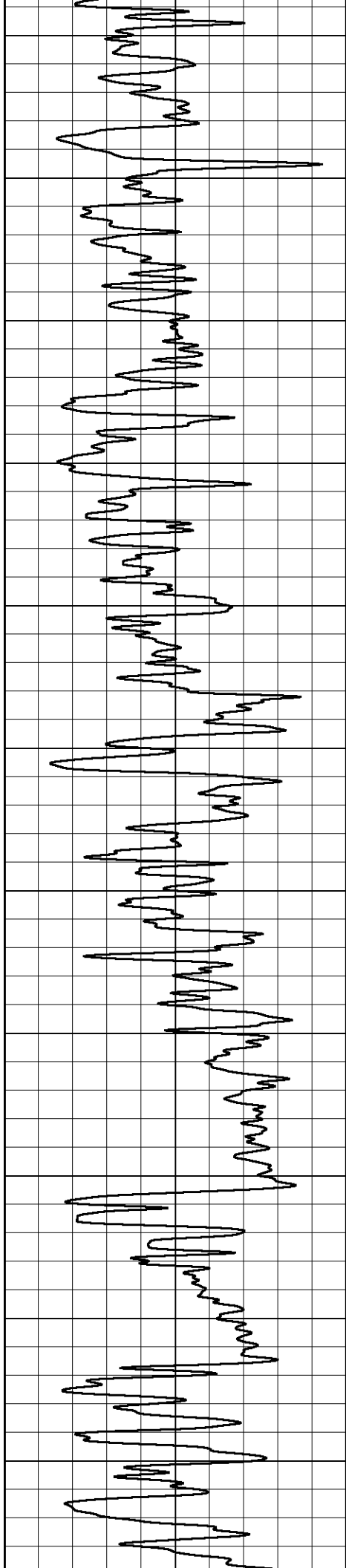
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 Dataset Pathname stackml/pass3.1
 Presentation Format dil2in
 Dataset Creation Sun Mar 11 21:19:25 2018
 Charted by Depth in Feet scaled 1:600

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









1750

1800

1850

1900

1950

2000

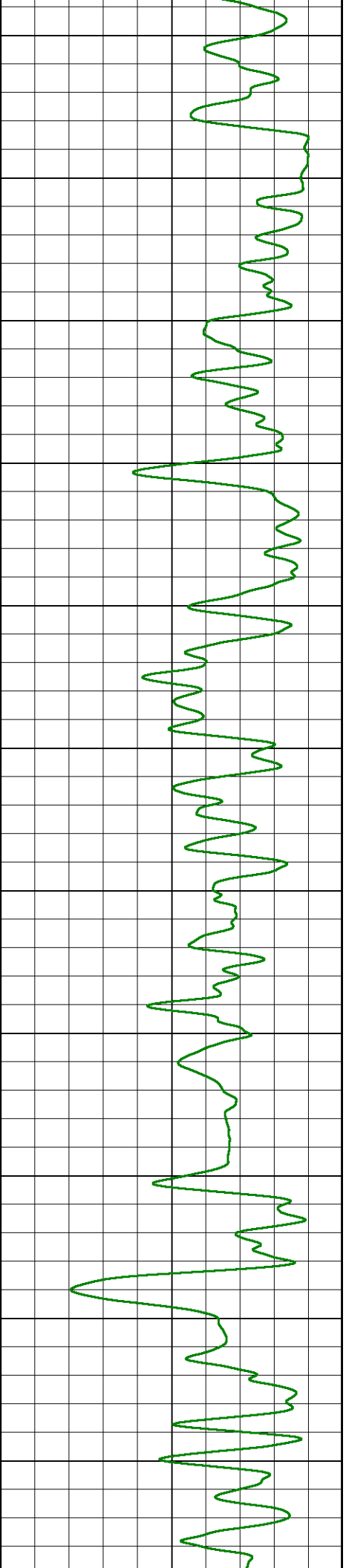
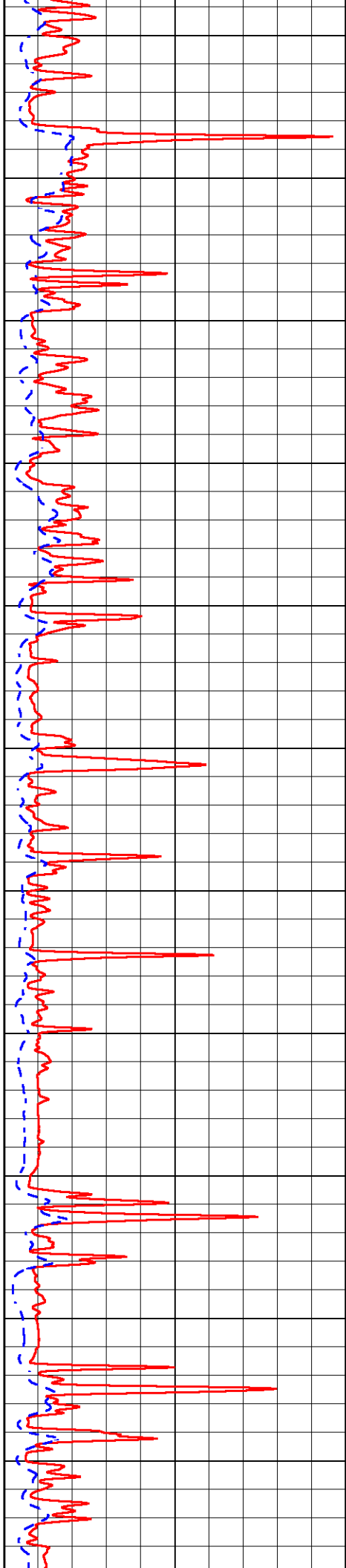
2050

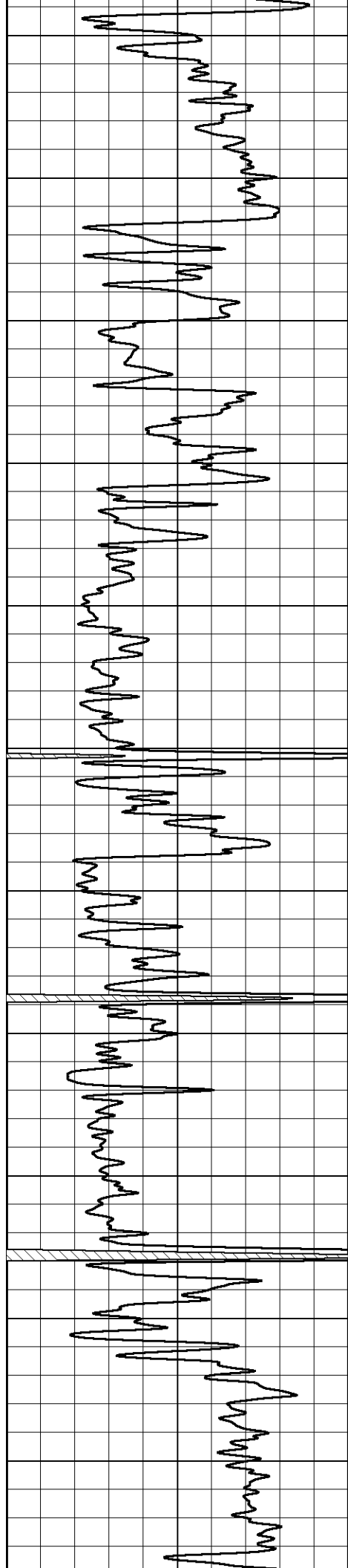
2100

2150

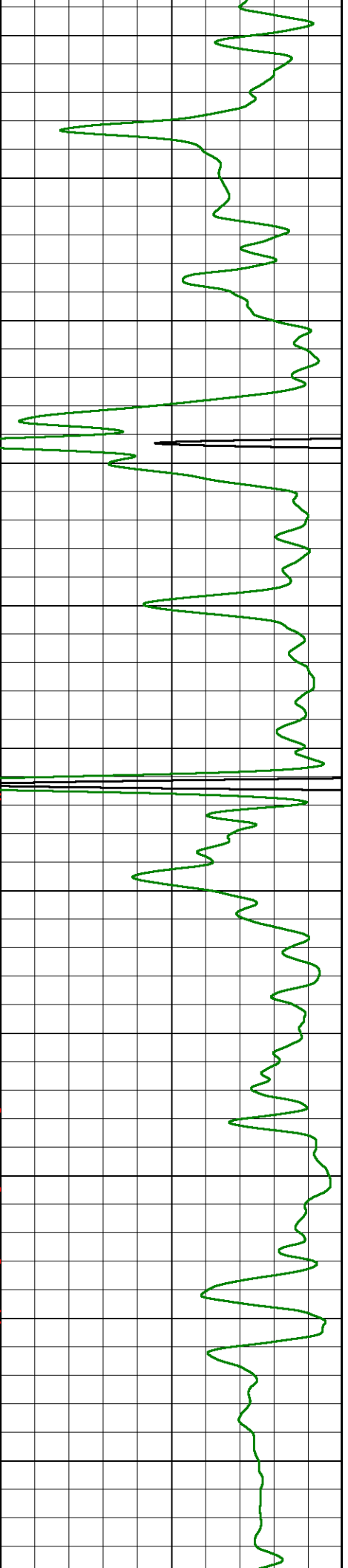
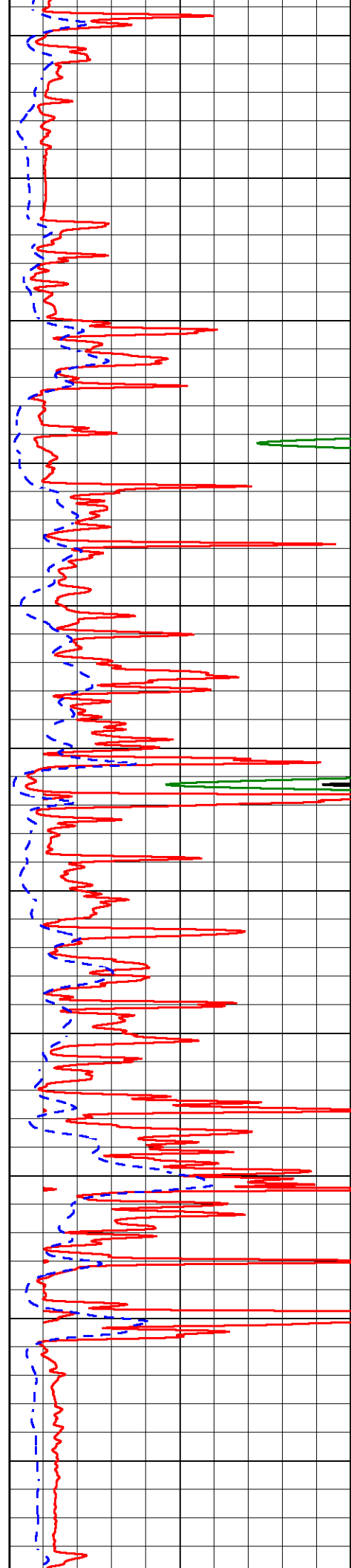
2200

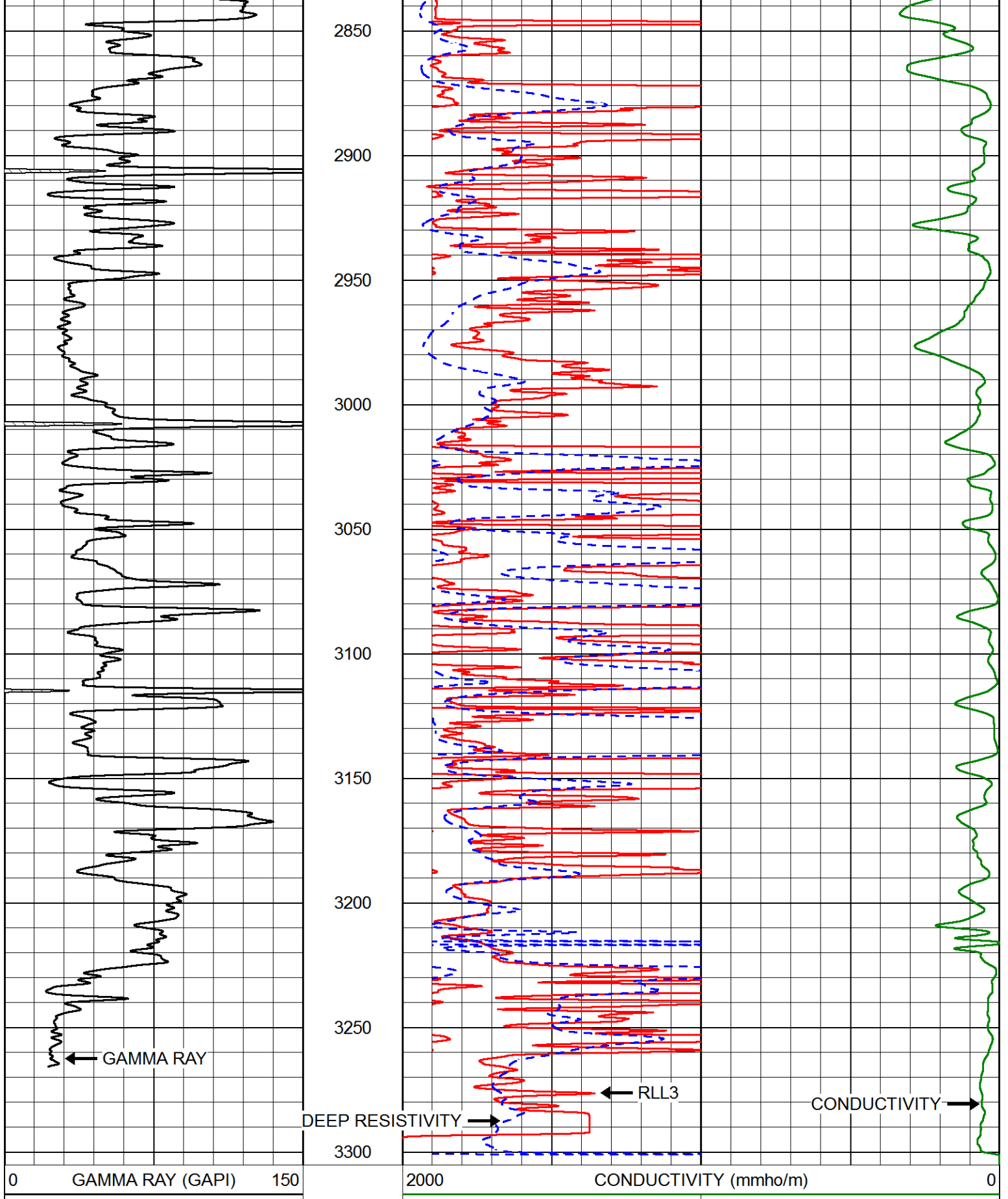
2250





2300
2350
2400
2450
2500
2550
2600
2650
2700
2750
2800





DEEP RESISTIVITY →

← RLL3

CONDUCTIVITY →

0 GAMMA RAY (GAPI) 150

2000 CONDUCTIVITY (mmho/m) 0

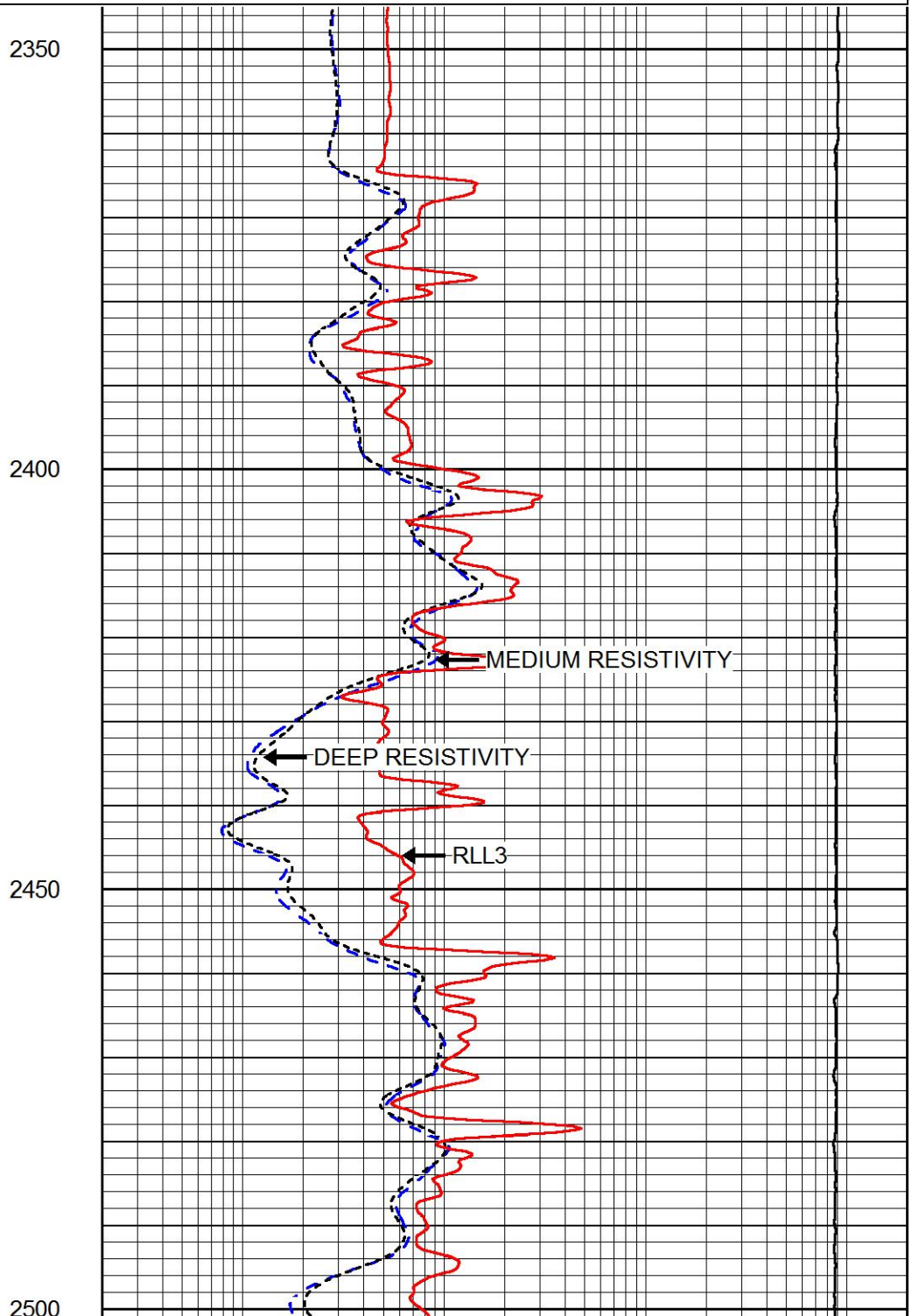
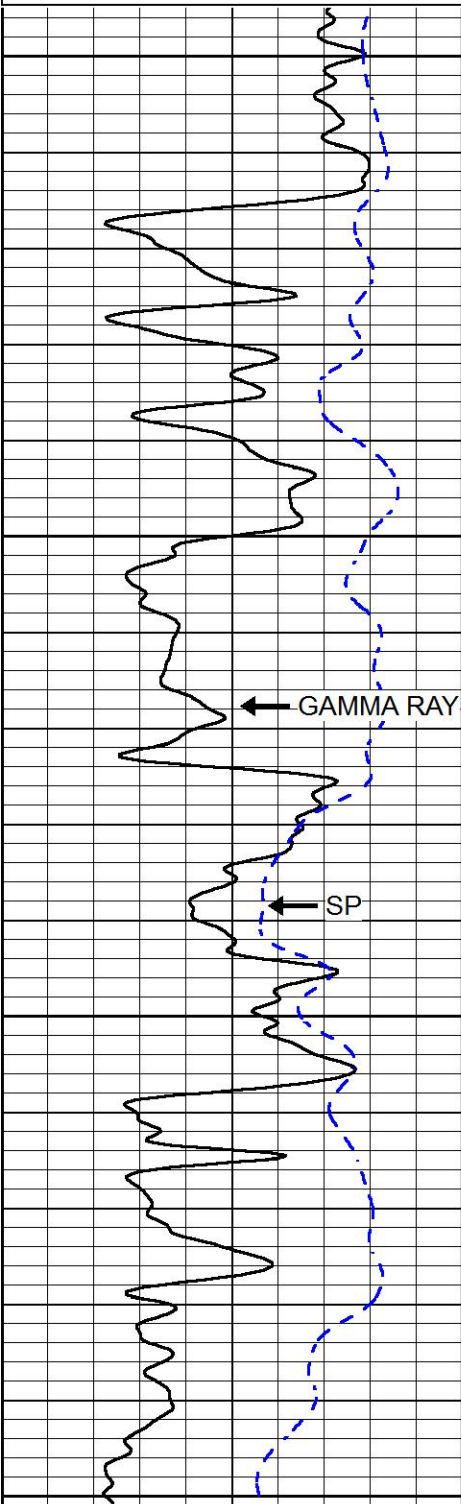
0	RLL3 (Ohm-m)	50
0	DEEP RESISTIVITY (Ohm-m)	50
50	RLL3 (Ohm-m)	500
	DEEP RESISTIVITY	
50	(Ohm-m)	500

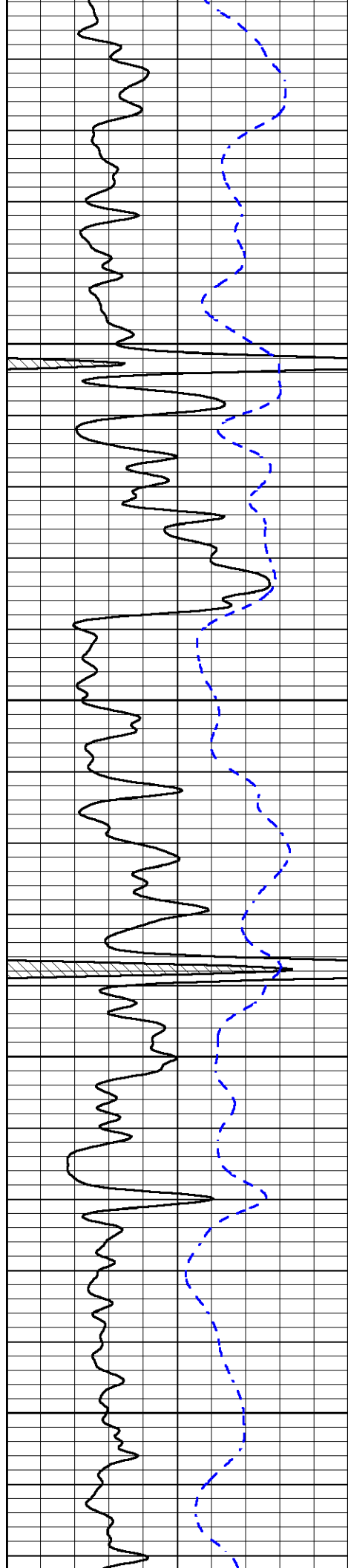
MAIN PASS

Database File stratakan_bonnewell_18_1.db
 Dataset Pathname stackml/pass3.1
 Presentation Format dil
 Dataset Creation Sun Mar 11 21:19:25 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



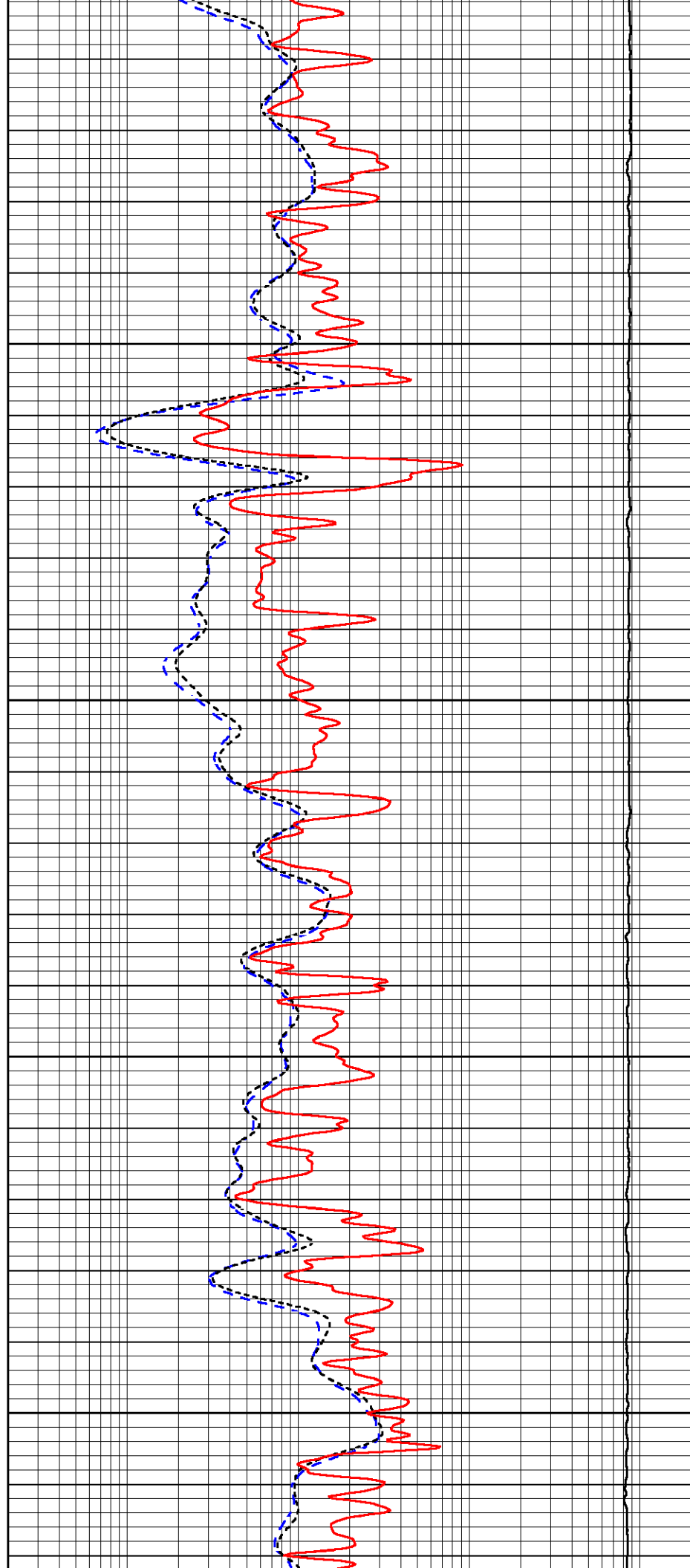


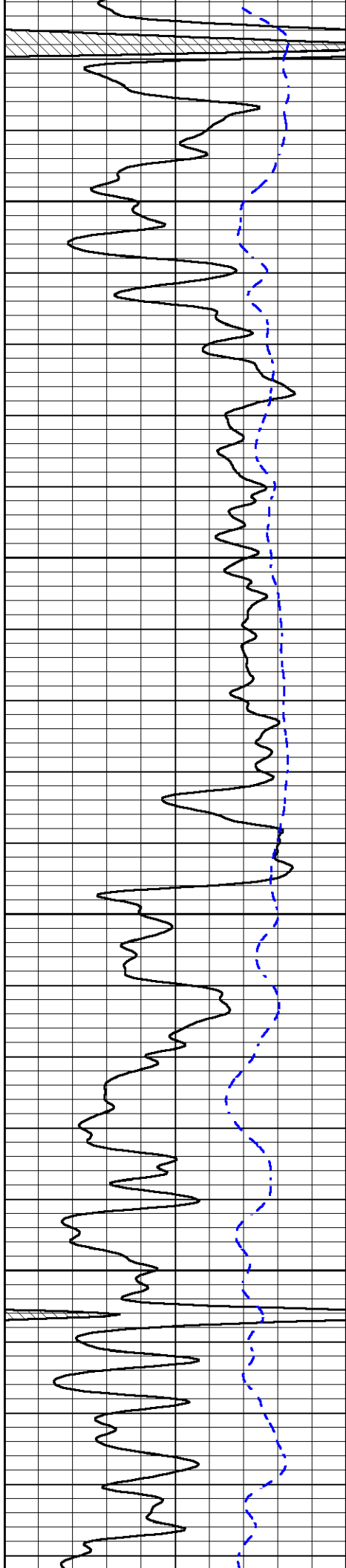
2550

2600

2650

2700



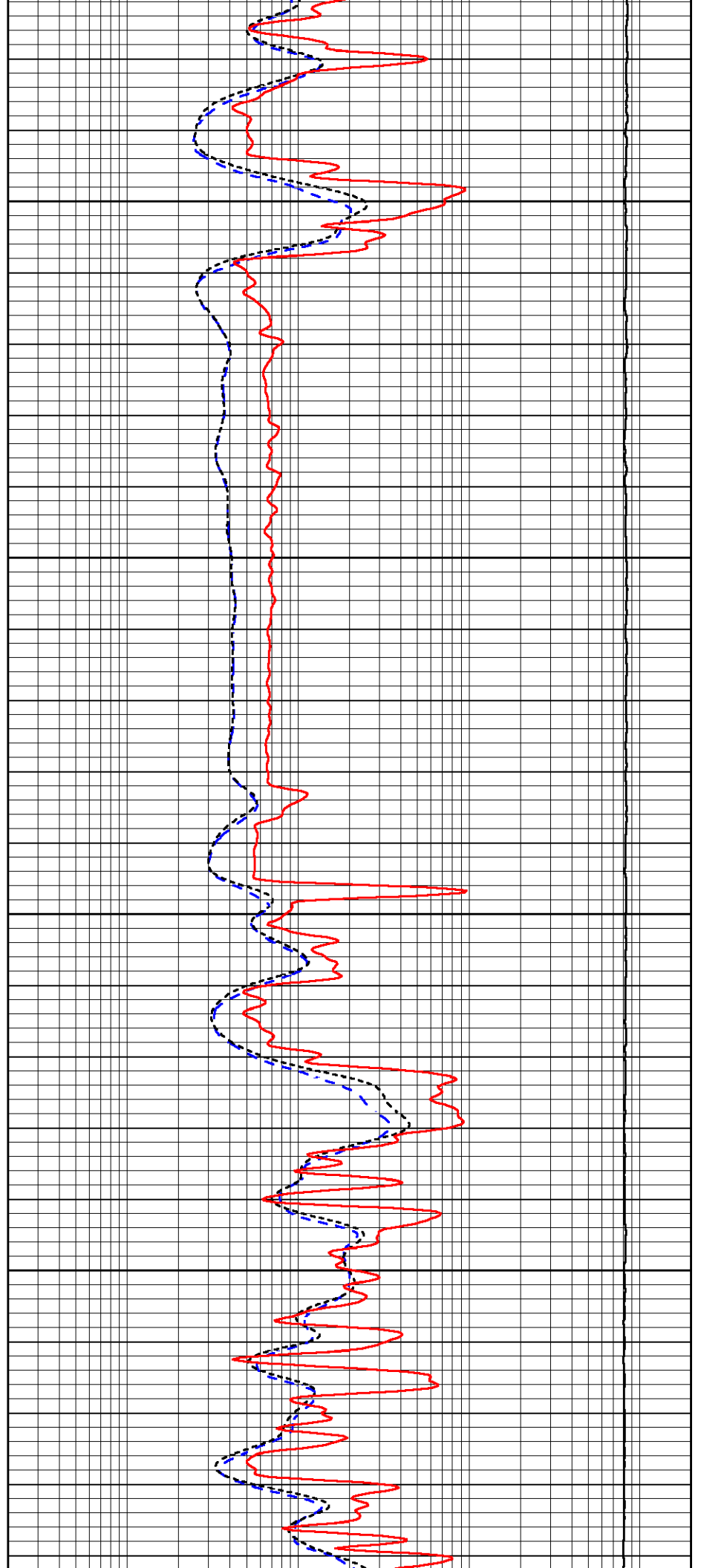


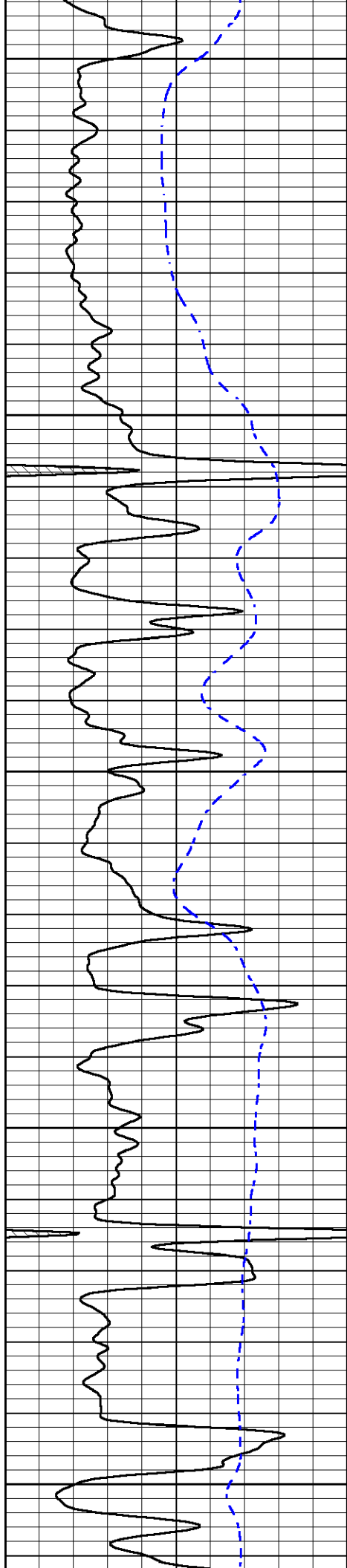
2750

2800

2850

2900





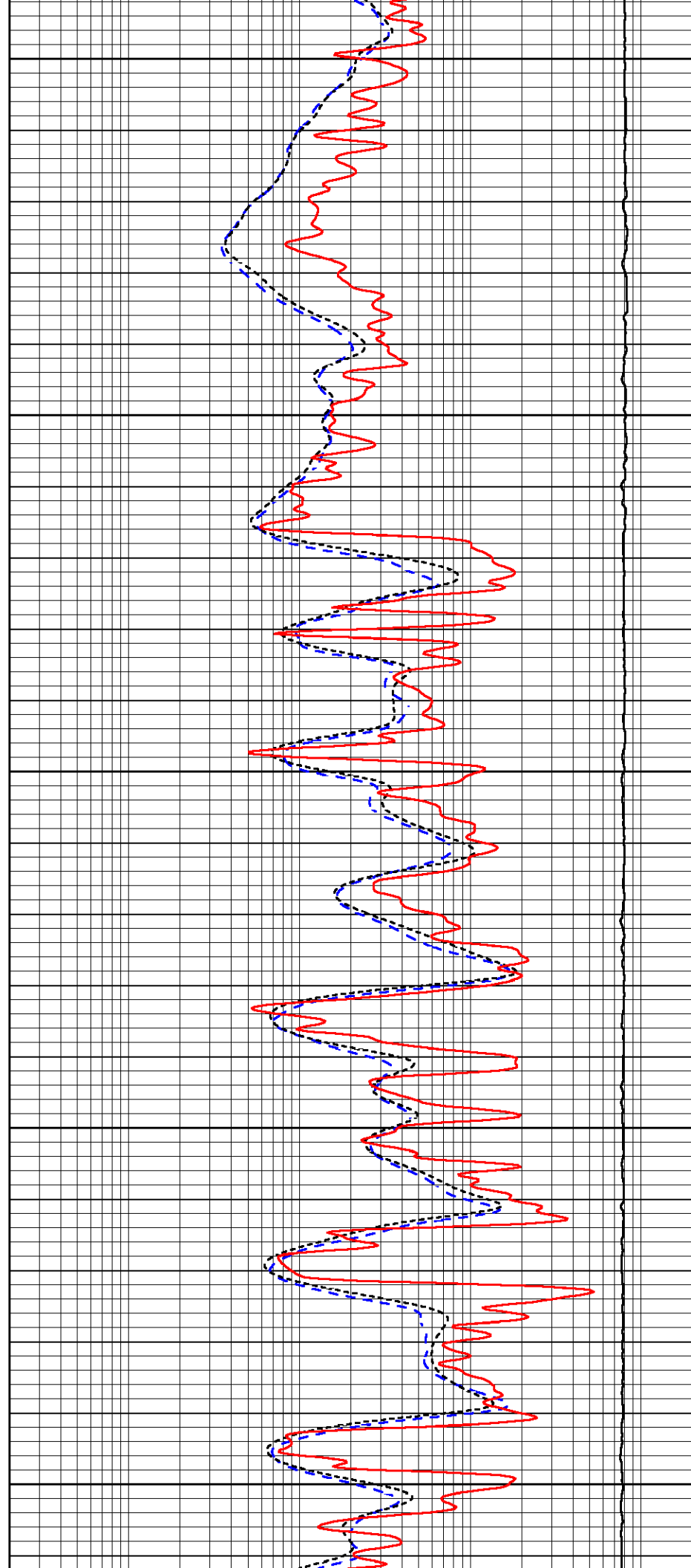
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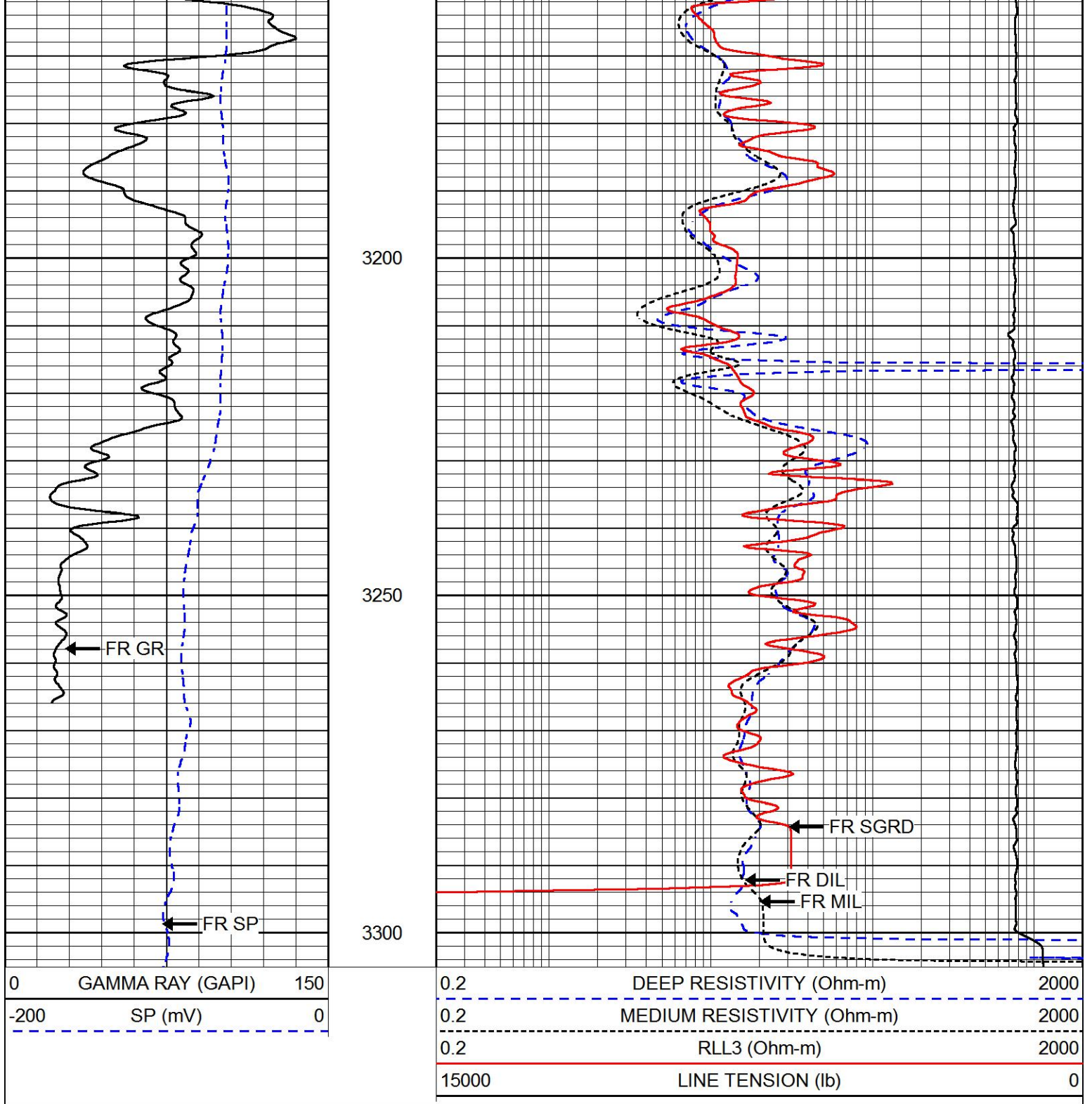
3000

3050

3100

3150





REPEAT SECTION

Database File stratakan_bonnewell_18_1.db
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 Presentation Format dil
 Dataset Creation Sun Mar 11 21:19:36 2018
 Charted by Depth in Feet scaled 1:240



0.2

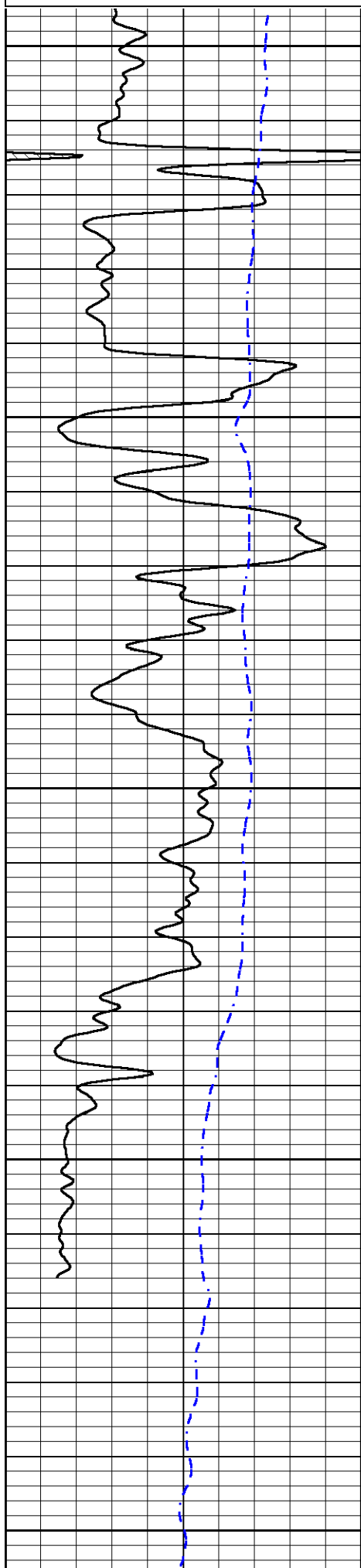
RLL3 (Ohm-m)

2000

15000

LINE TENSION (lb)

0



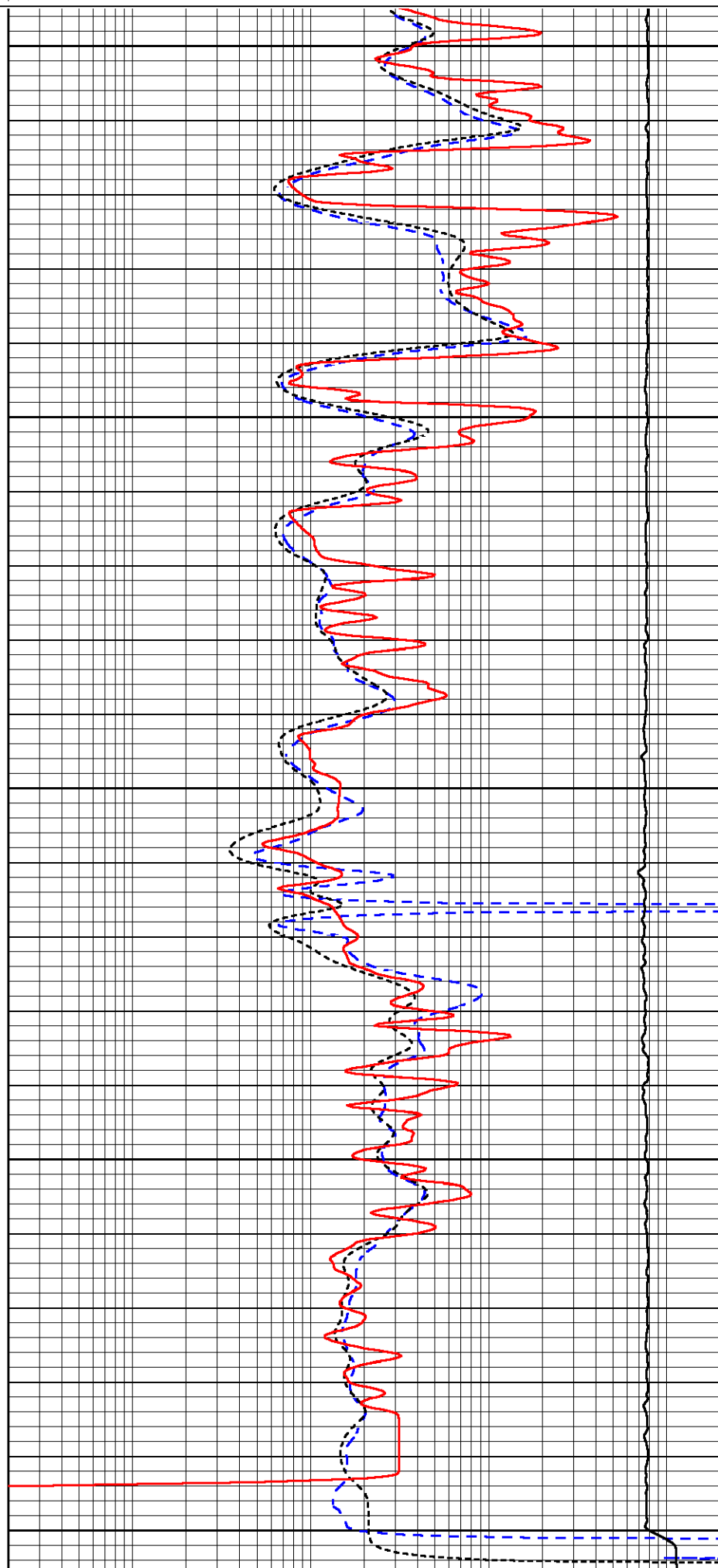
3100

3150

3200

3250

3300



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

Calibration Report

Database File stratakan_bonnewell_18_1.db
Dataset Pathname stackml/pass3.1
Dataset Creation Sun Mar 11 21:19:25 2018

Dual Induction Calibration Report

Serial-Model: PSI 978-M&W
Calibration Performed: Sun Feb 04 11:50:02 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.570	-40.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.400	-37.000

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	22000.0000	-0.5000
Inverse	0.0000	0.0013	0.0000	10.0000	Ohm-m	20000.0000	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	2.695	g/cc	859.57	3020.22	cps
Spine Angle = 74.61			Density/Spine Ratio = 0.534		
	Size		Reading		
Small Ring	4.00	in	1.00		
Large Ring	14.00	in	1.20		


Compensated Neutron Calibration Report

Serial Number: tk10-MW
Tool Model: M&W

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	

 <p>PIONEER Pioneer Energy Services</p>	Company	STRATAKAN EXPLORATION, INC.
	Well	BONNEWELL NO. 18-1
	Field	FARMER NORTH
	County	RICE
	State	KANSAS