



# DUAL INDUCTION LOG

**Company** CARMEN SCHMITT, INC.  
**Well** WERTH NO. 5  
**Field** WILDCAT  
**County** TREGO **State** KANSAS

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**Location:** 2250' FSL & 2000' FEL  
 SEC 7 TWP 14S RGE 25W  
**Permanent Datum** GROUND LEVEL Elevation 2411'  
**Log Measured From** KELLY BUSHING  
**Drilling Measured From** KELLY BUSHING  
**Other Services** CNL/CDL MEL  
**Elevation** 2416'  
**K.B.** N/A  
**D.F.** N/A  
**G.L.** 2411'

Date	9/19/2018
Run Number	ONE
Depth Driller	4338'
Depth Logger	4336'
Bottom Logged Interval	4335'
Top Log Interval	200'
Casing Driller	8.625" @ 218'
Casing Logger	220'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	8200
Density / Viscosity	9.3 59
pH / Fluid Loss	10.5 5.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.45 @ 74
Rmt @ Meas. Temp	.34 @ 74
Rmc @ Meas. Temp	.61 @ 74
Source of Rmf / Rmc	CHARTS
Rm @ BHT	.28 @ 119
Operating Rig Time	2 HOURS
Max Rec. Temp. F	119 DEGF
Equipment Number	108
Location	HAYS
Recorded By	J. HENRICKSON
Witnessed By	VERN SCHRAG

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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.  
 COLLYER KANSAS  
 SOUTH TO U ROAD, 1 WEST, NORTH 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

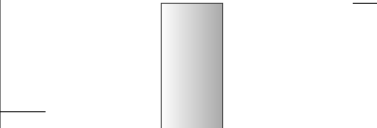
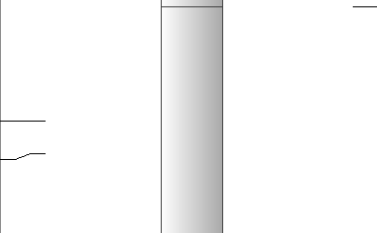
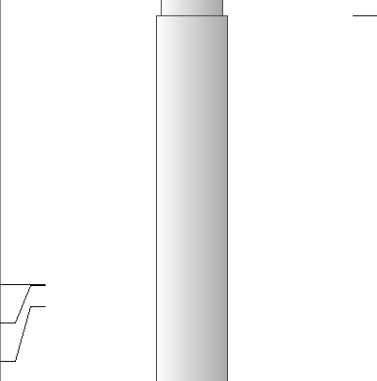
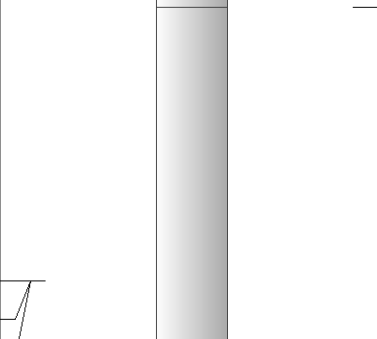
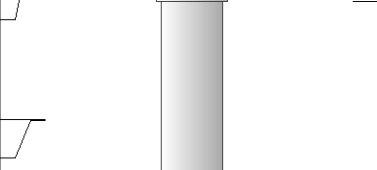
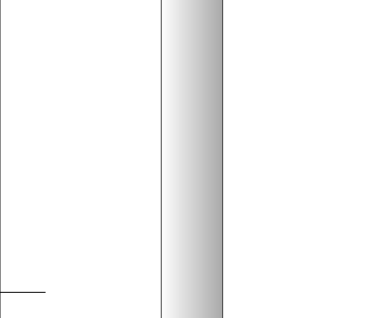
<b>Your Pioneer Energy Services Crew</b> Engineer: J. HENRICKSON Operator: Operator: Operator:	<b>This Log Record Was Witnessed By</b> Primary Witness: VERN SCHRAG Secondary Witness: Secondary Witness: Secondary Witness:
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# Log Variables

DatabaseC:\ProgramData\Warrior\Data\carmen\_schmitt\_werth\_5.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	119	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	-5	21	-245	91	Off	4336

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 (168-130)	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					
CILD	8.00		DIL-M&W (PSI 988)	18.50	3.50	220.00

CILM 4.70

SP 0.20

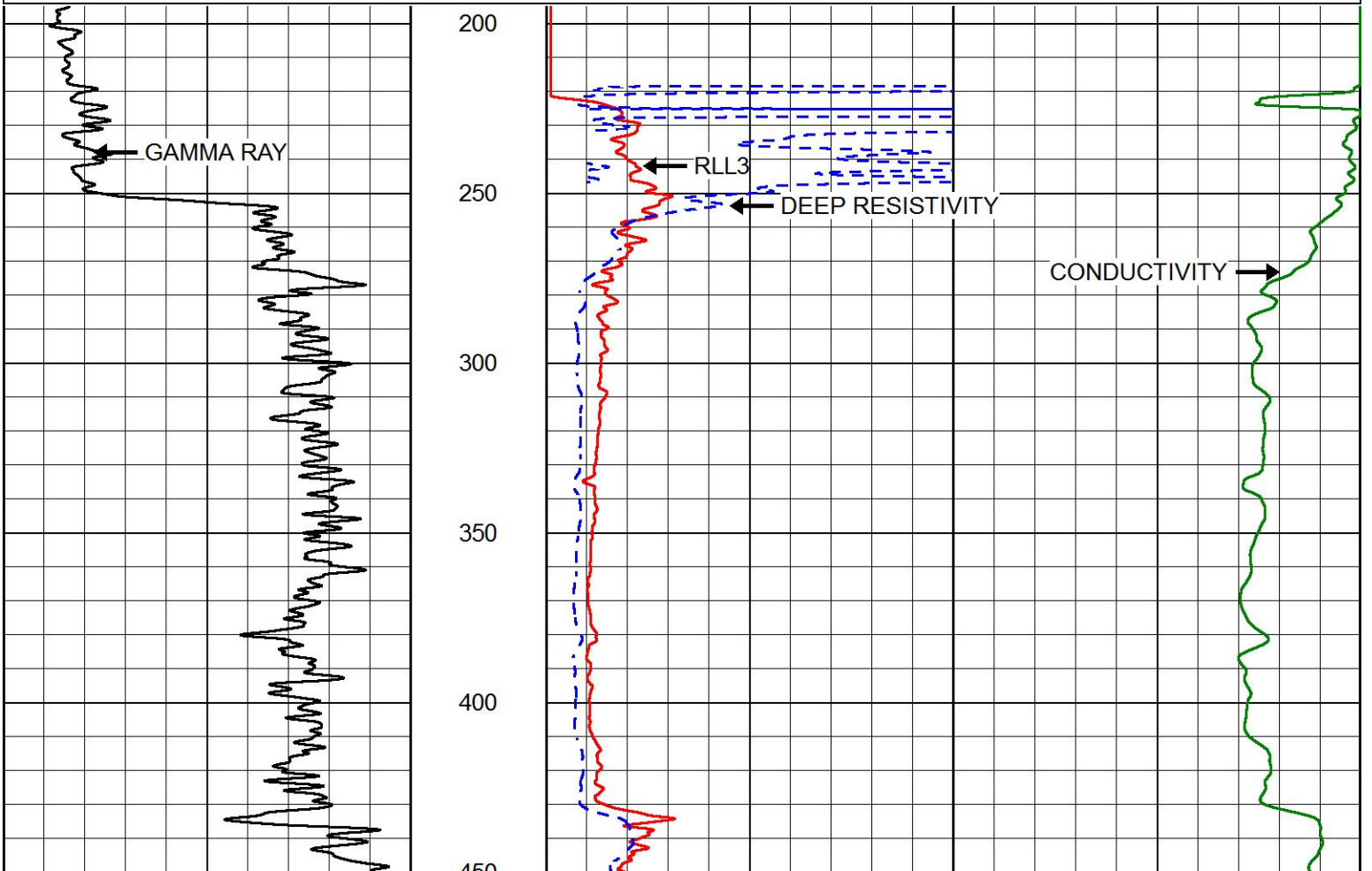
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 Total length: 43.08 ft  
 Total weight: 685.00 lb  
 O.D.: 4.00 in

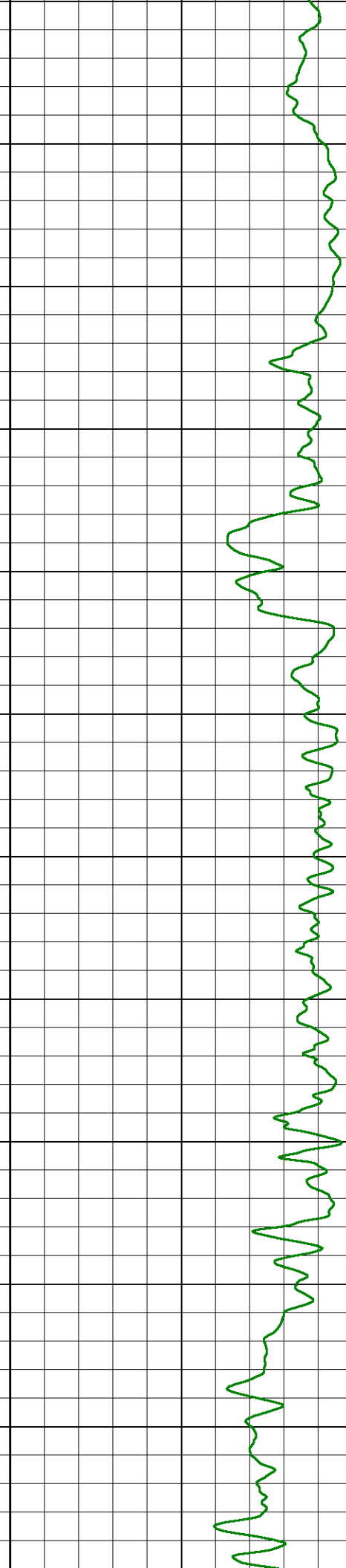
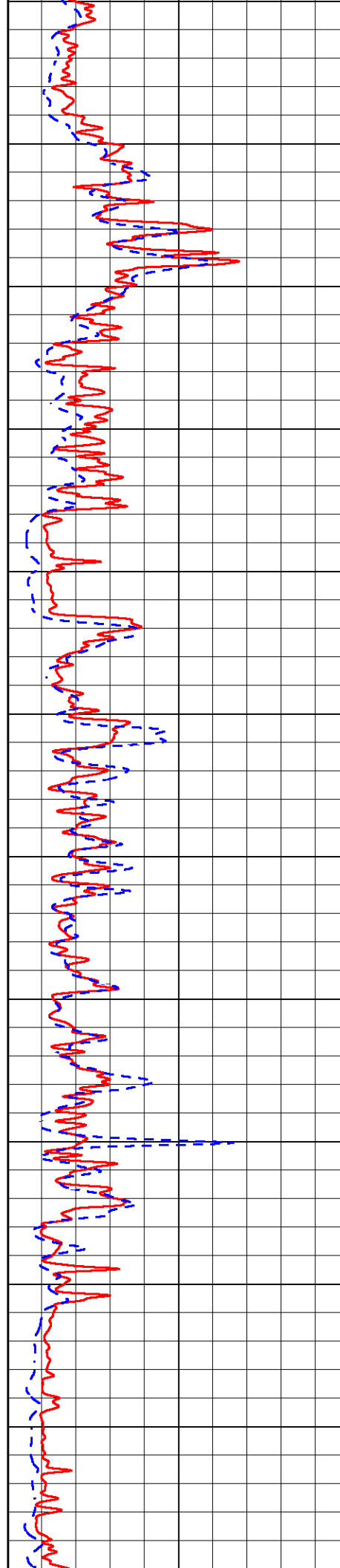
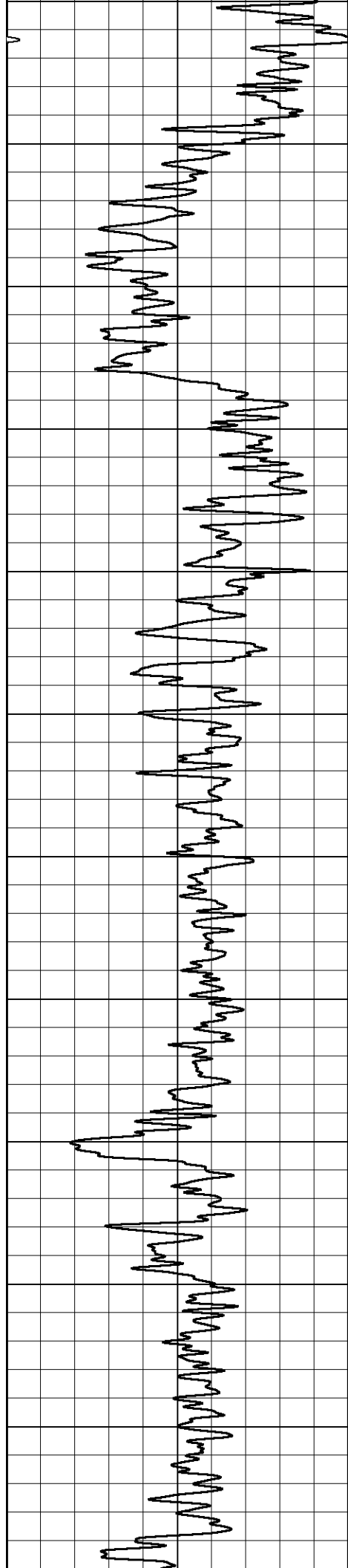


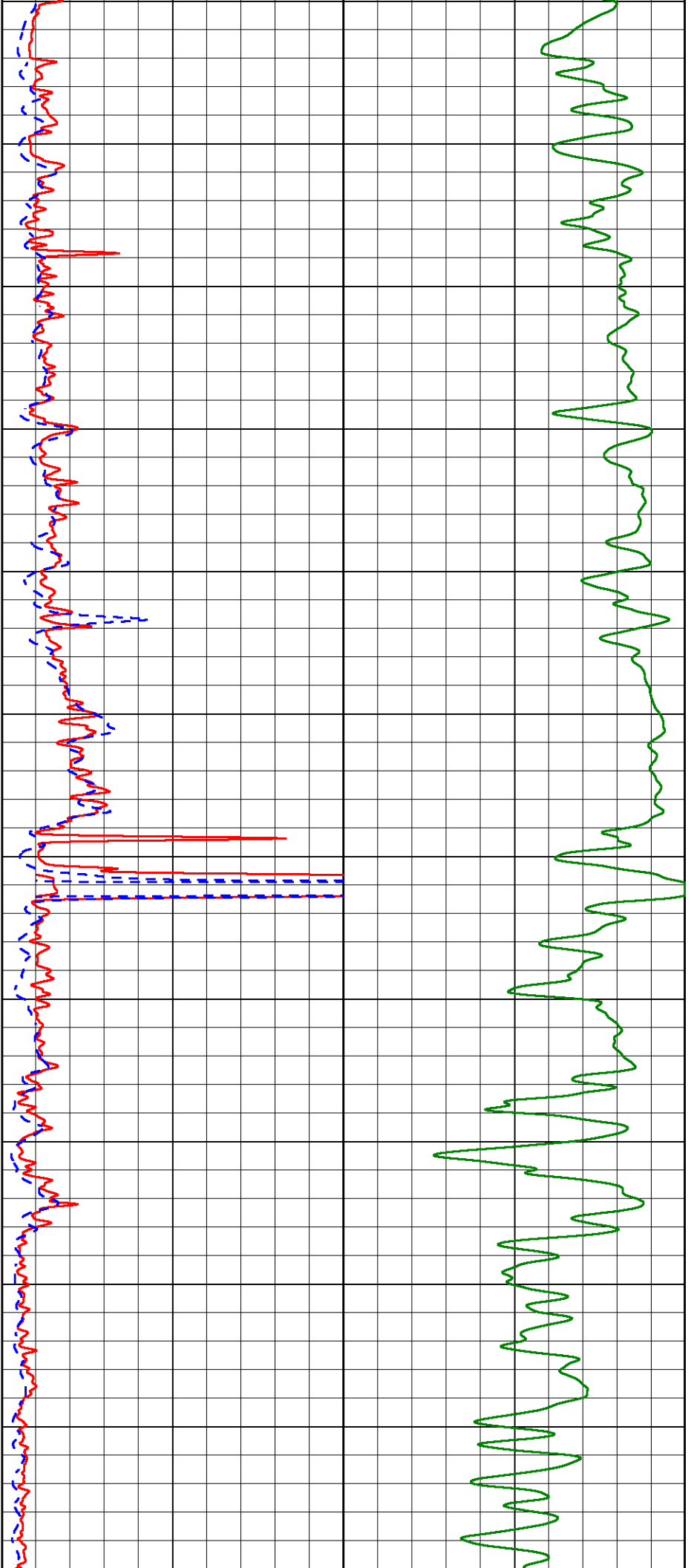
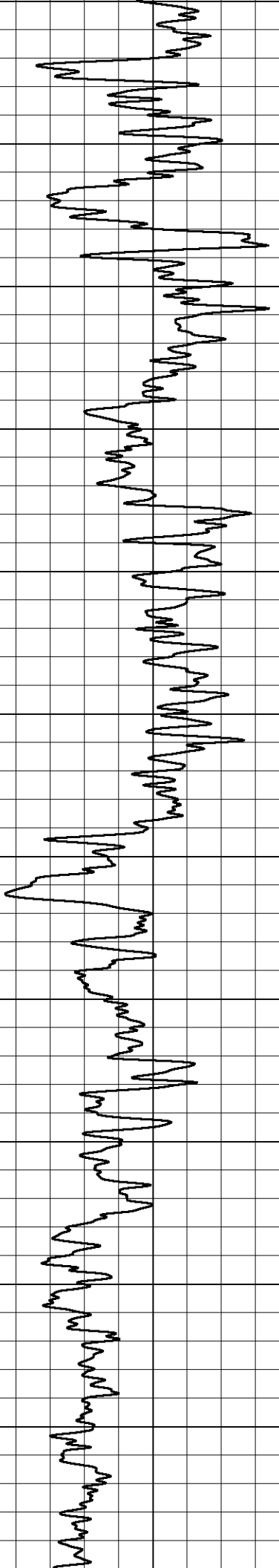
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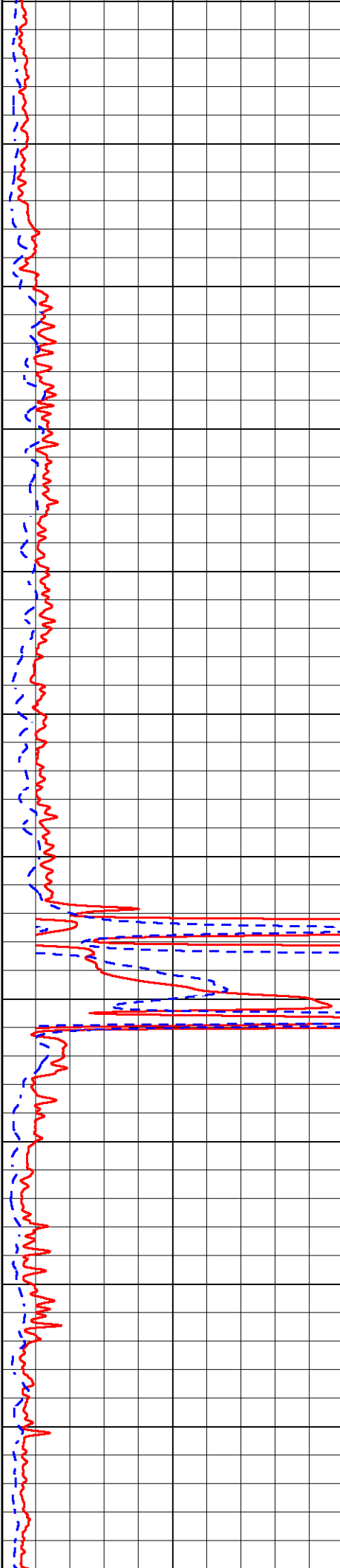
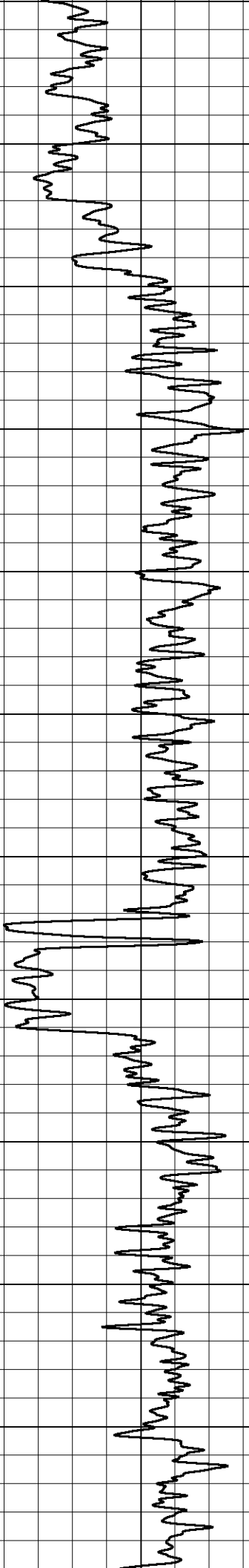
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 Dataset Pathname stackml/pass3.1  
 Presentation Format dil2in  
 Dataset Creation Wed Sep 19 18:11:09 2018  
 Charted by Depth in Feet scaled 1:600

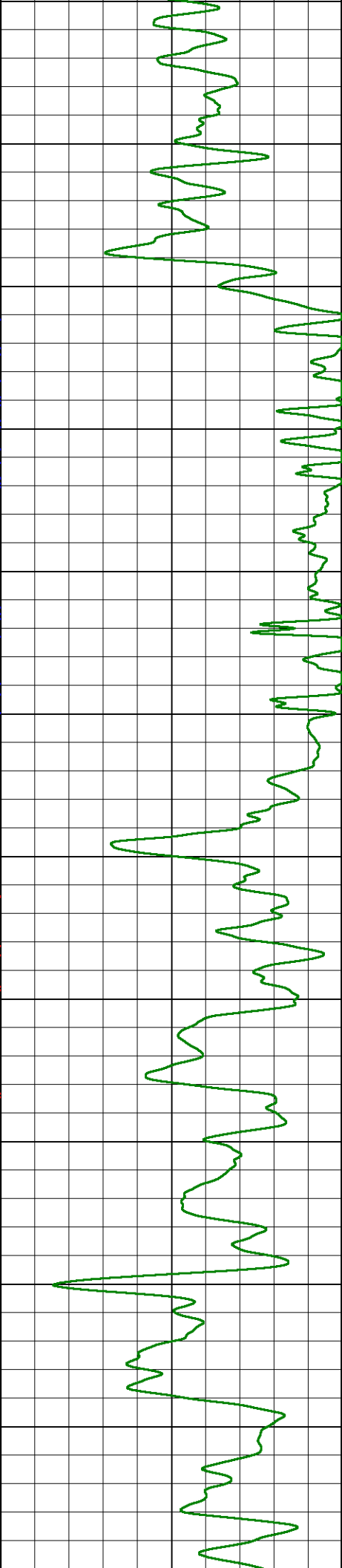
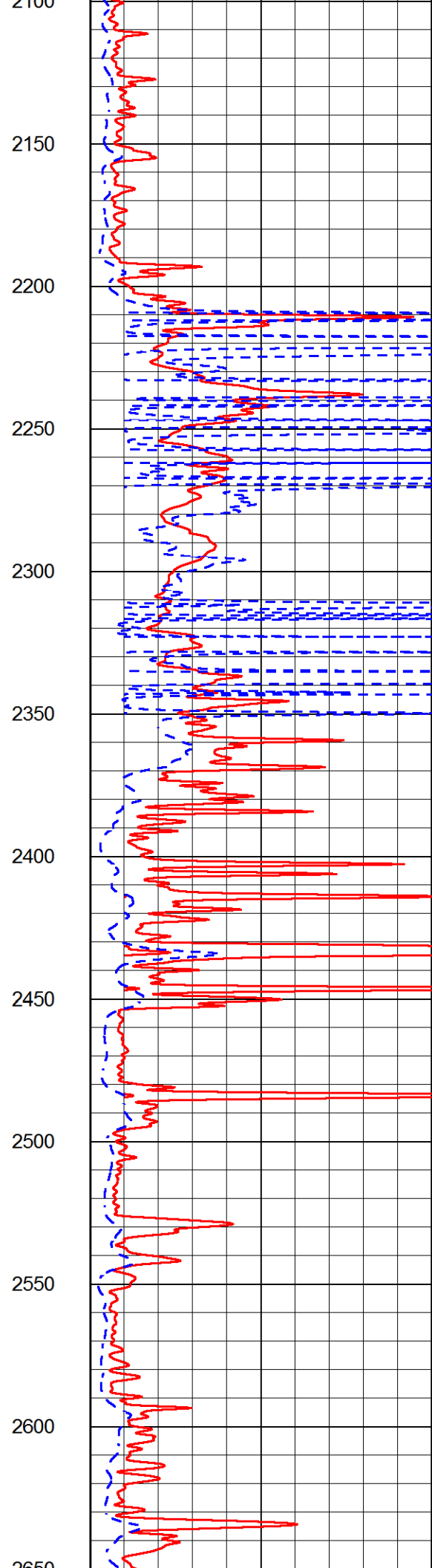
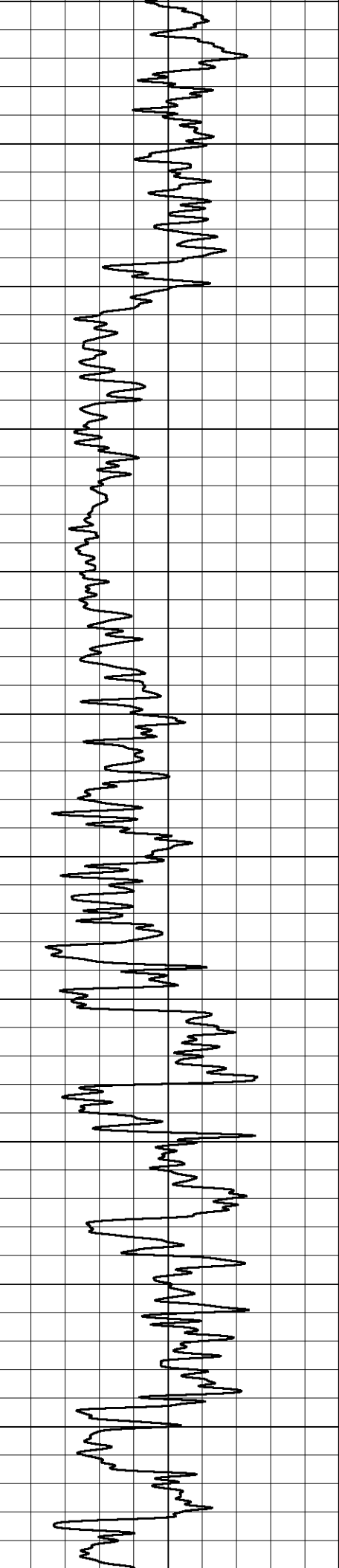
0	GAMMA RAY (GAPI)	150	2000	CILD (mmho/m)	0
			0	RLL3 (Ohm-m)	50
			0	DEEP RESISTIVITY (Ohm-m)	50
			50	RLL3 (Ohm-m)	500
			50	RILD (Ohm-m)	500

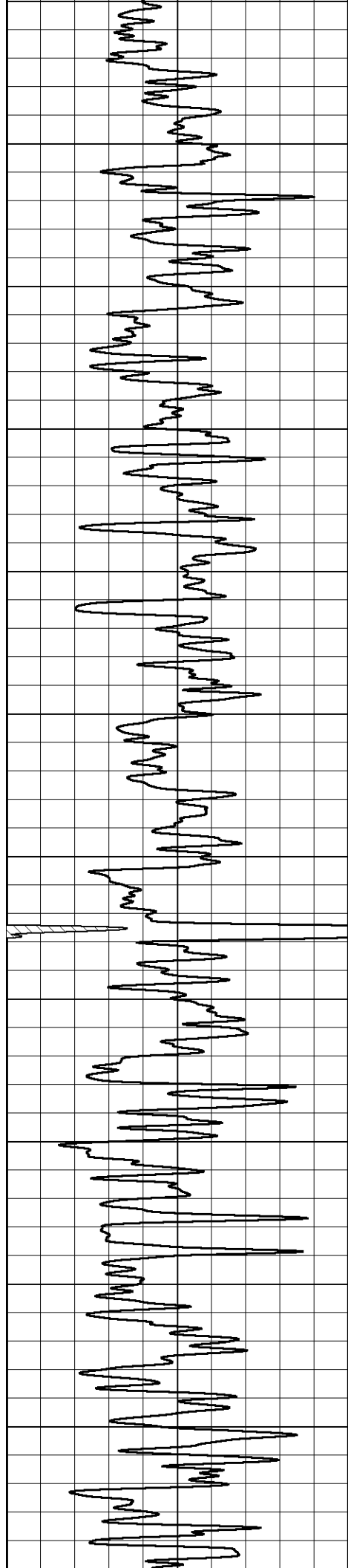




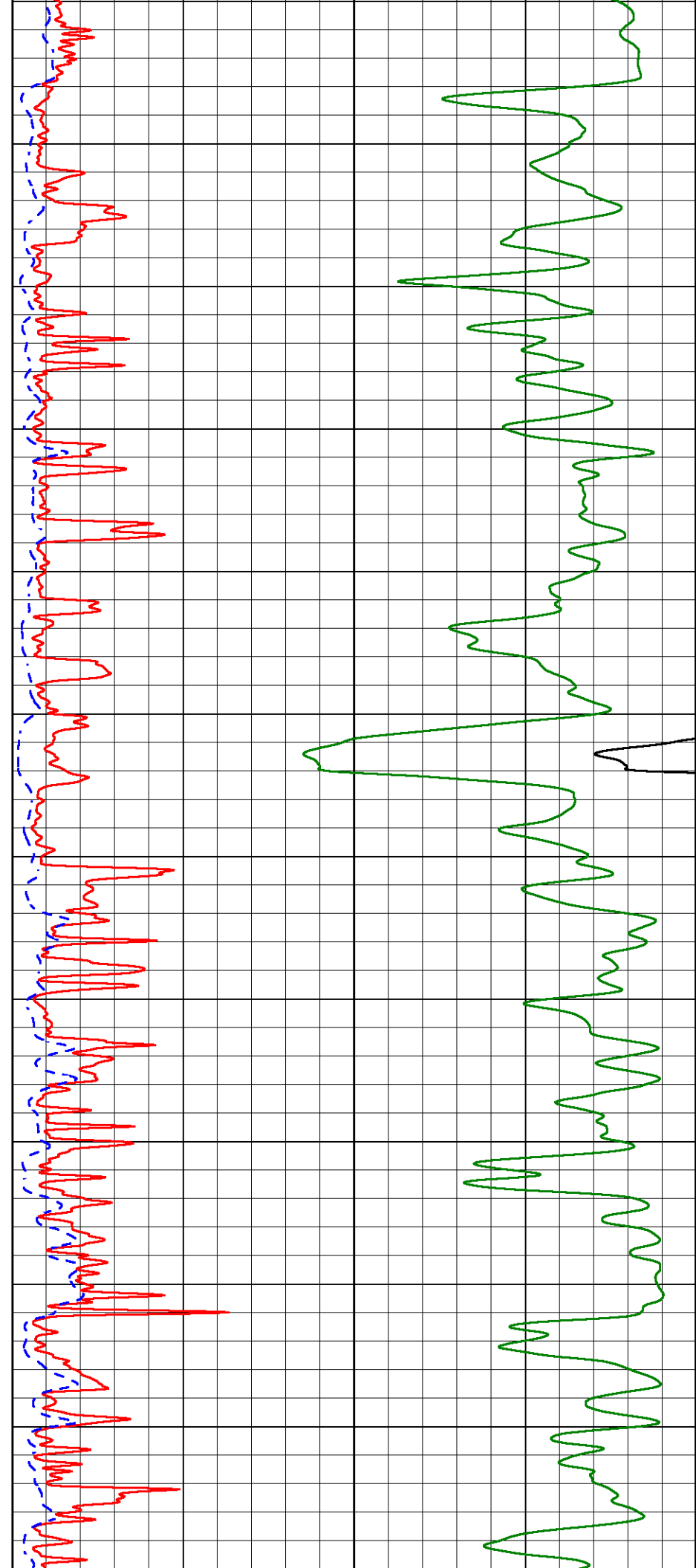


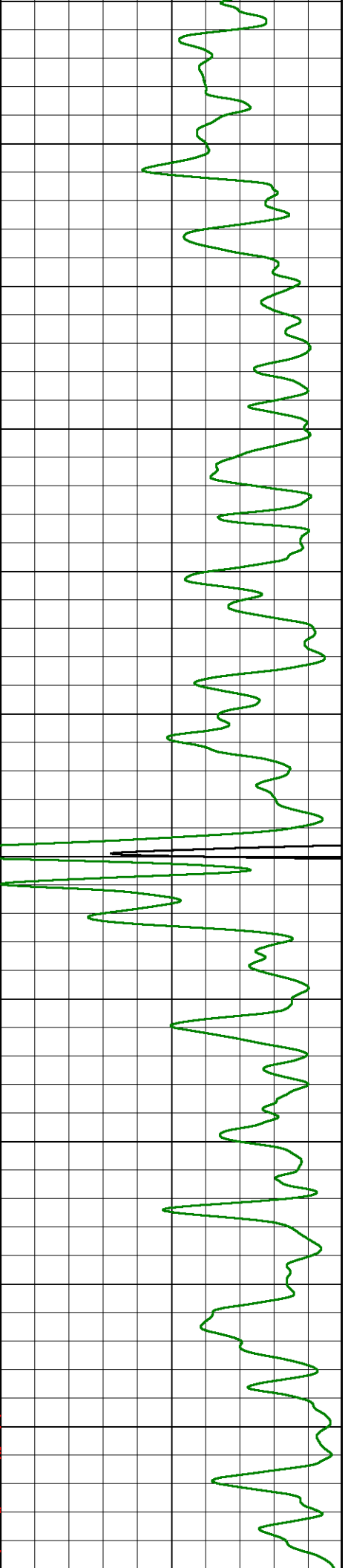
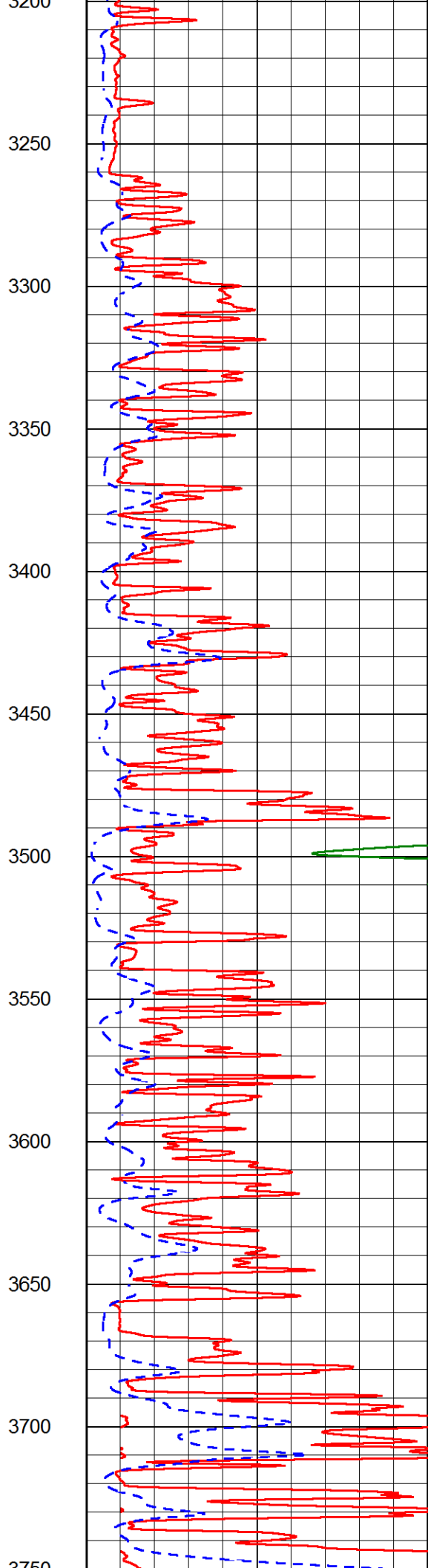
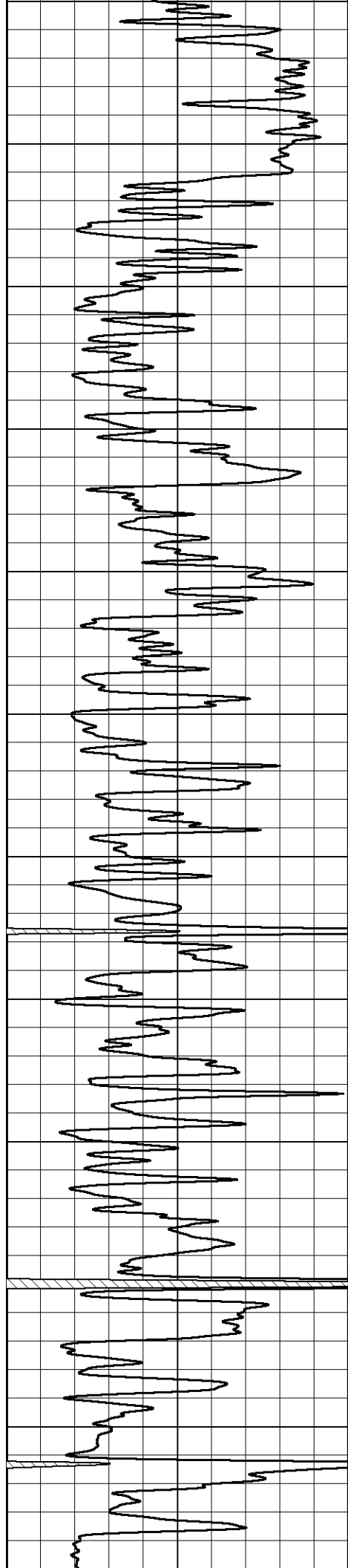


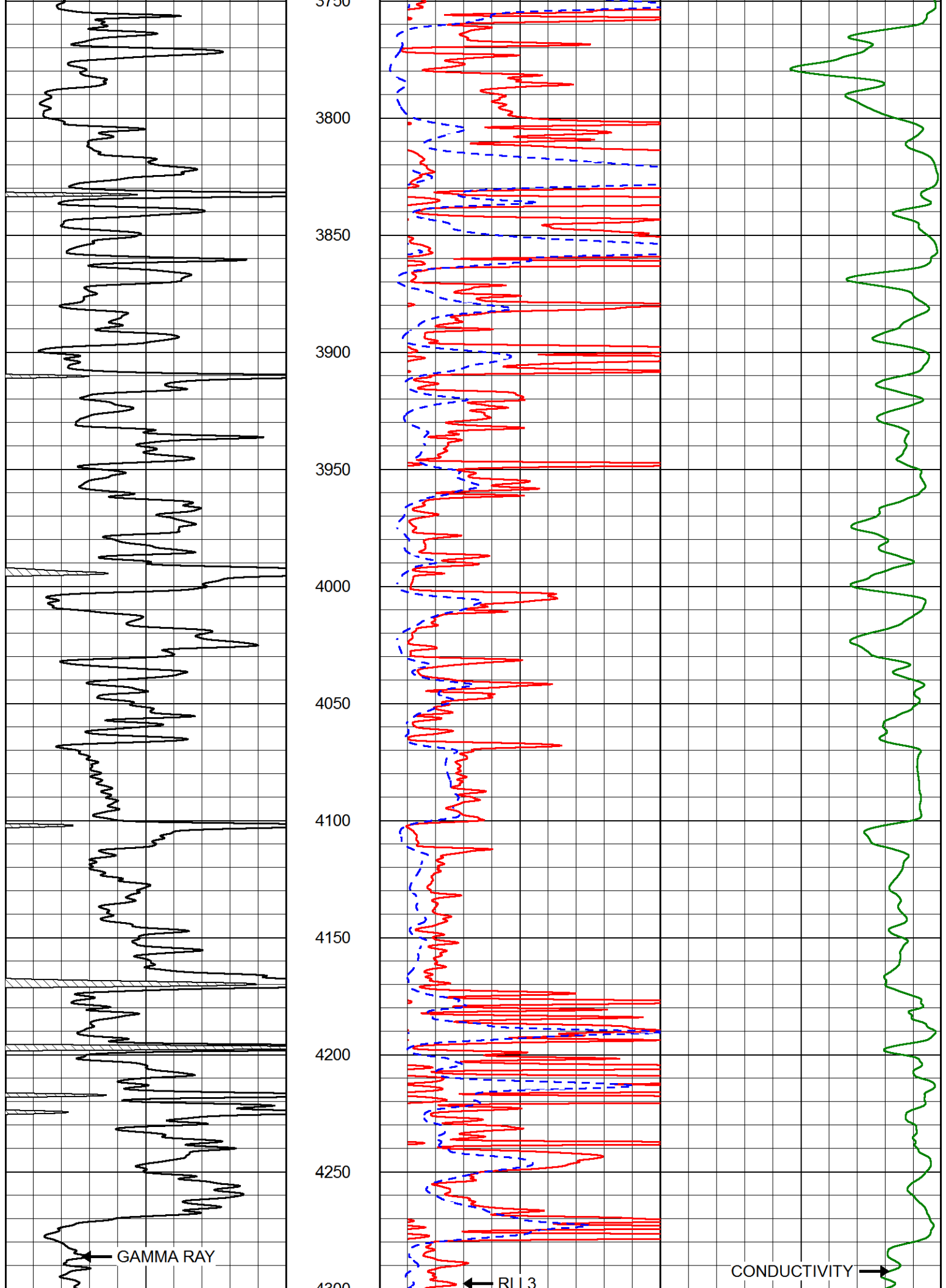


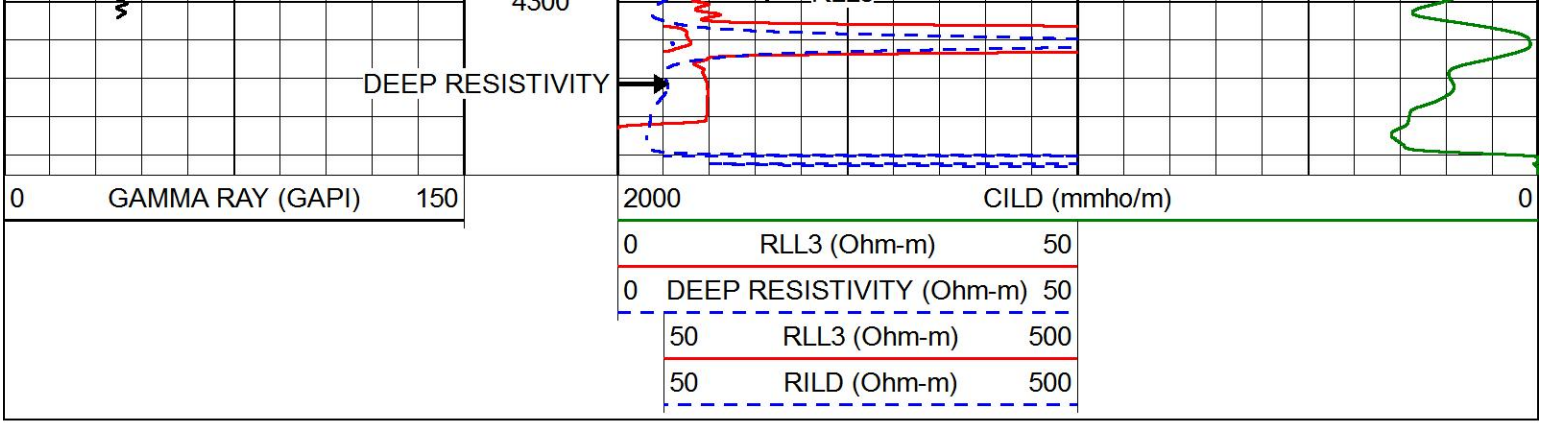


2650  
2700  
2750  
2800  
2850  
2900  
2950  
3000  
3050  
3100  
3150  
3200





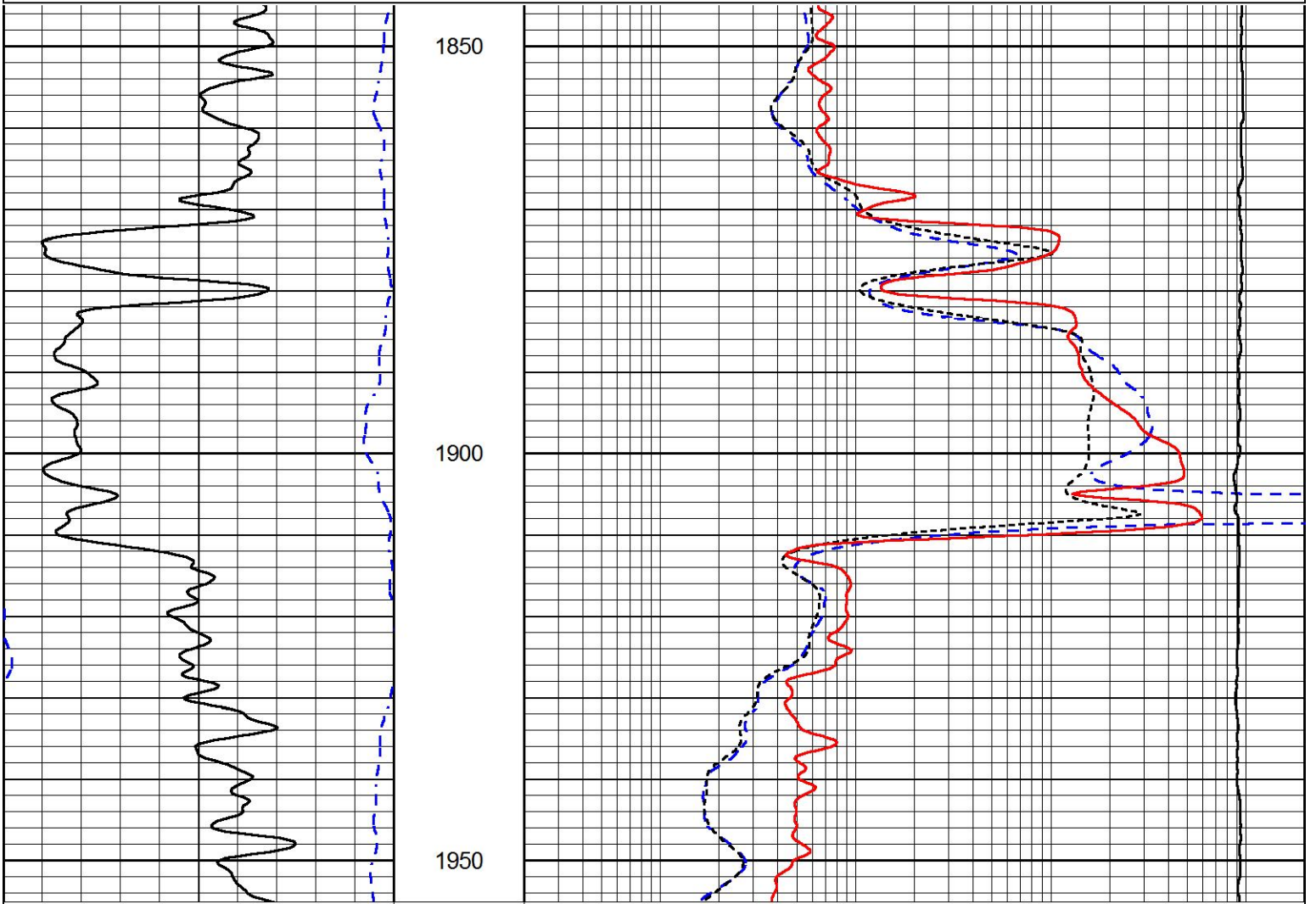




# MAIN PASS

Database File: carmen\_schmitt\_werth\_5.db  
 Dataset Pathname: stackml/pass3.1  
 Presentation Format: dil  
 Dataset Creation: Wed Sep 19 18:11:09 2018  
 Charted by: Depth in Feet scaled 1:240

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



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

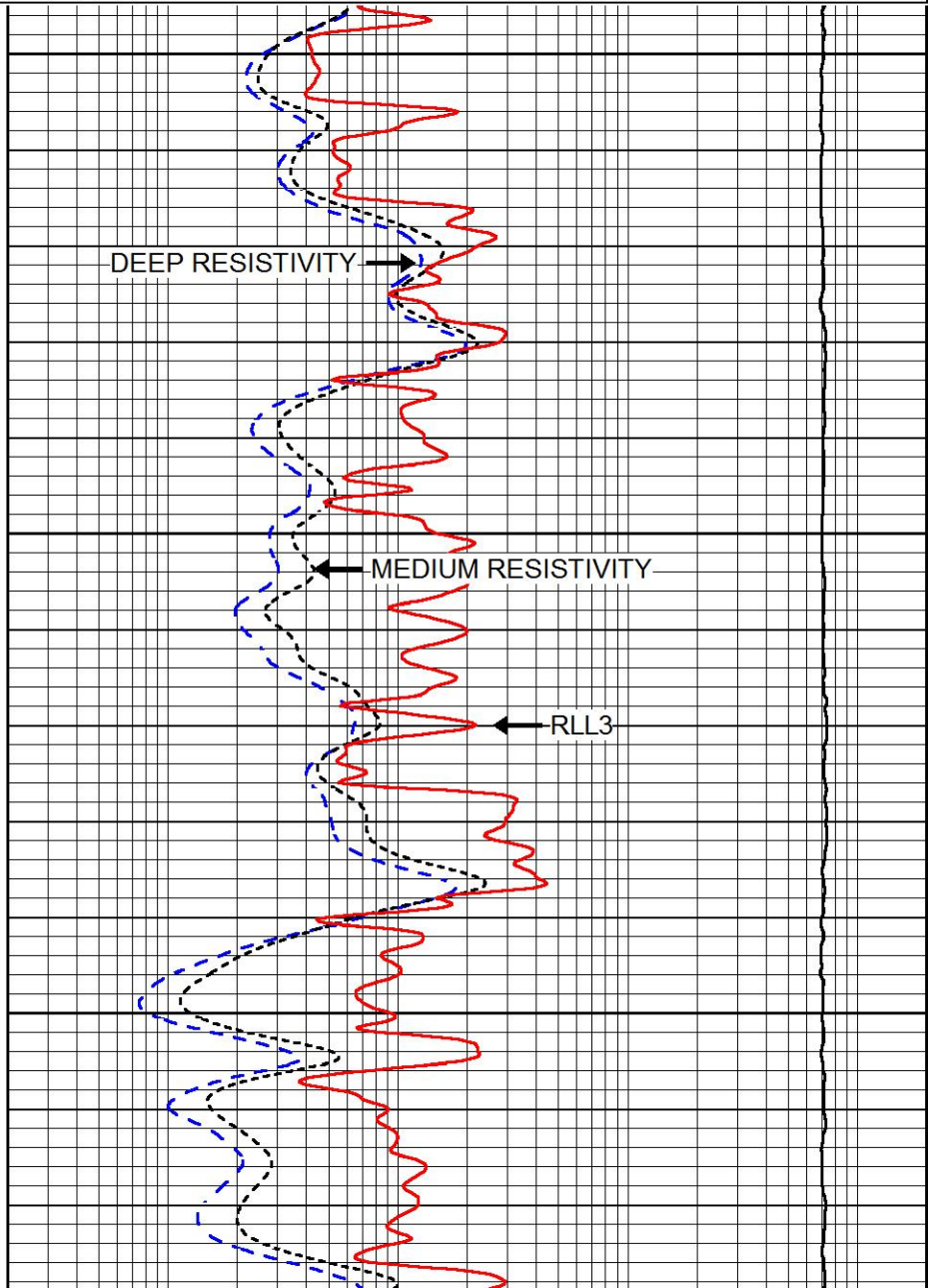
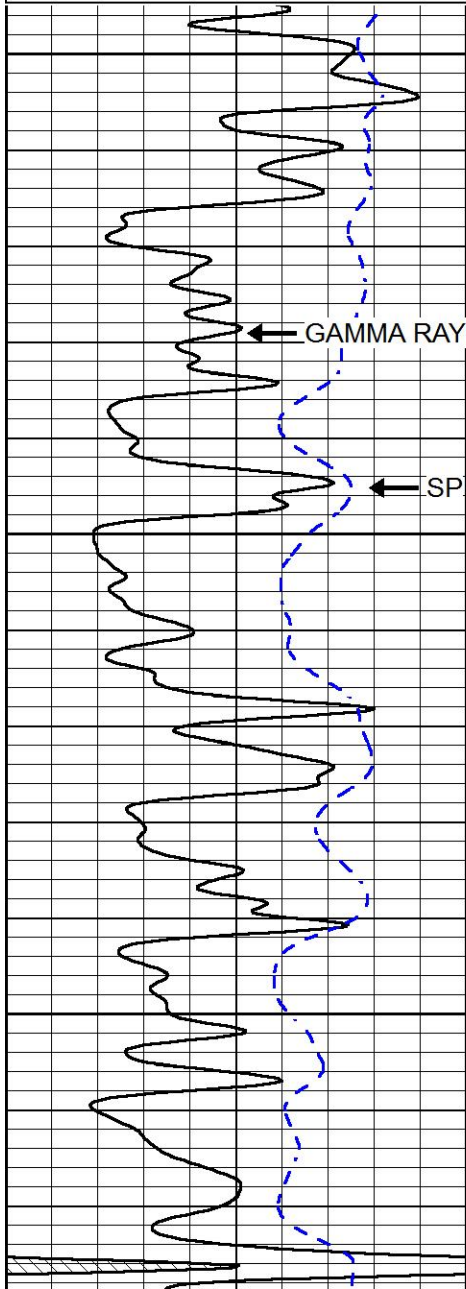


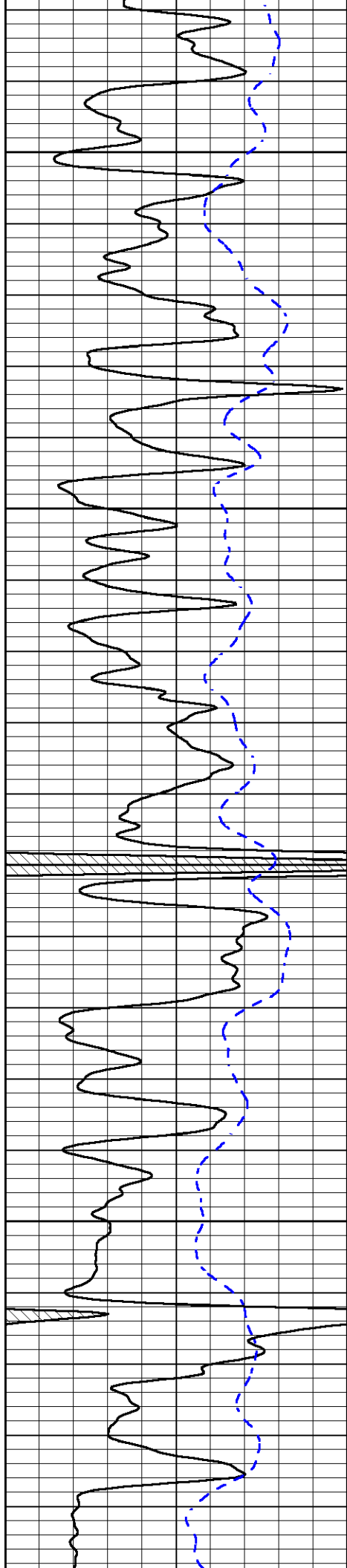
# MAIN PASS

Database File	carmen_schmitt_werth_5.db
Dataset Pathname	stackml/pass3.1
Presentation Format	dil
Dataset Creation	Wed Sep 19 18:11:09 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



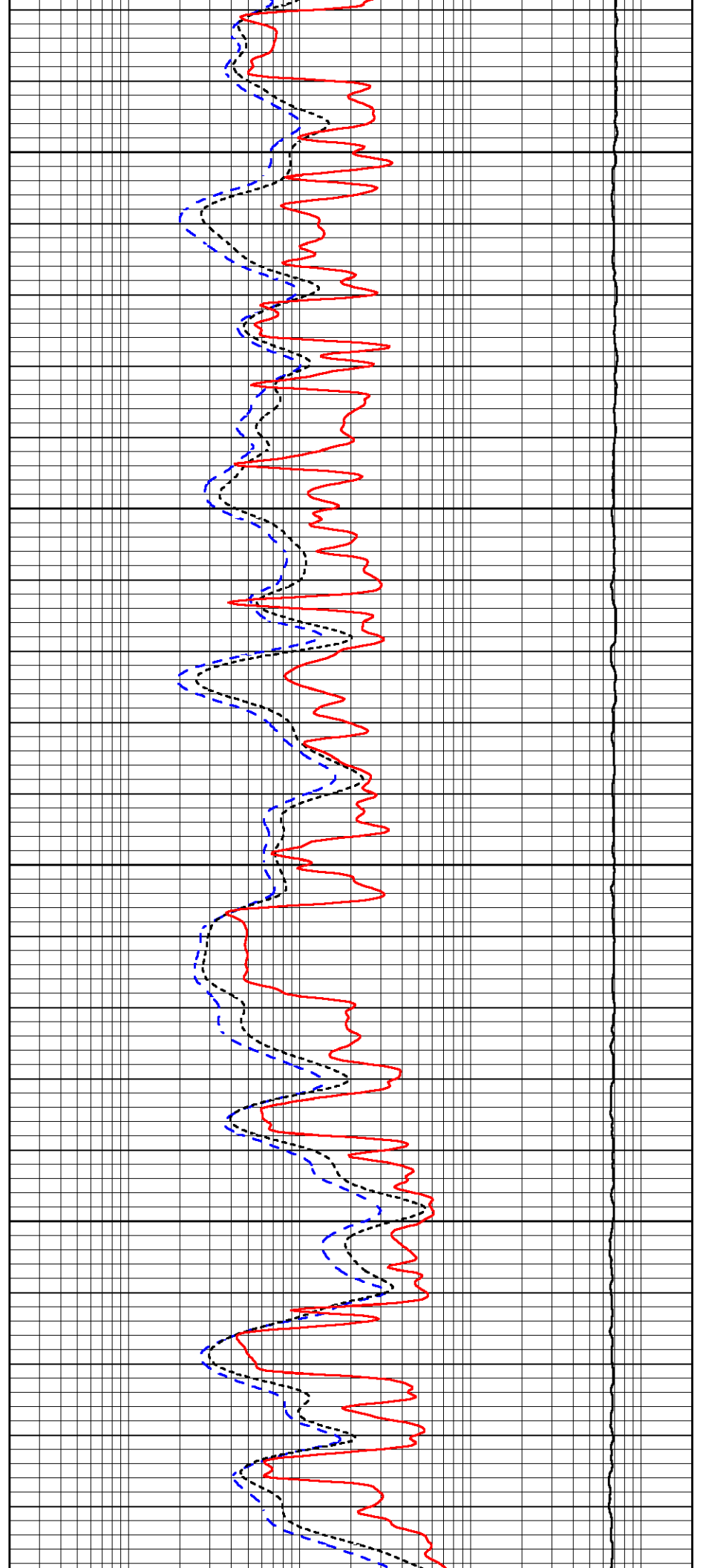


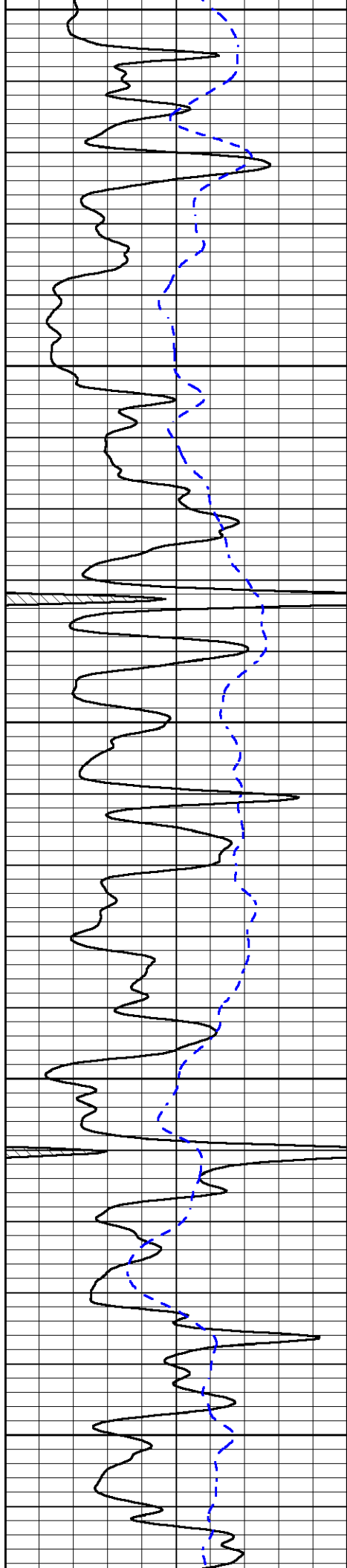
3550

3600

3650

3700





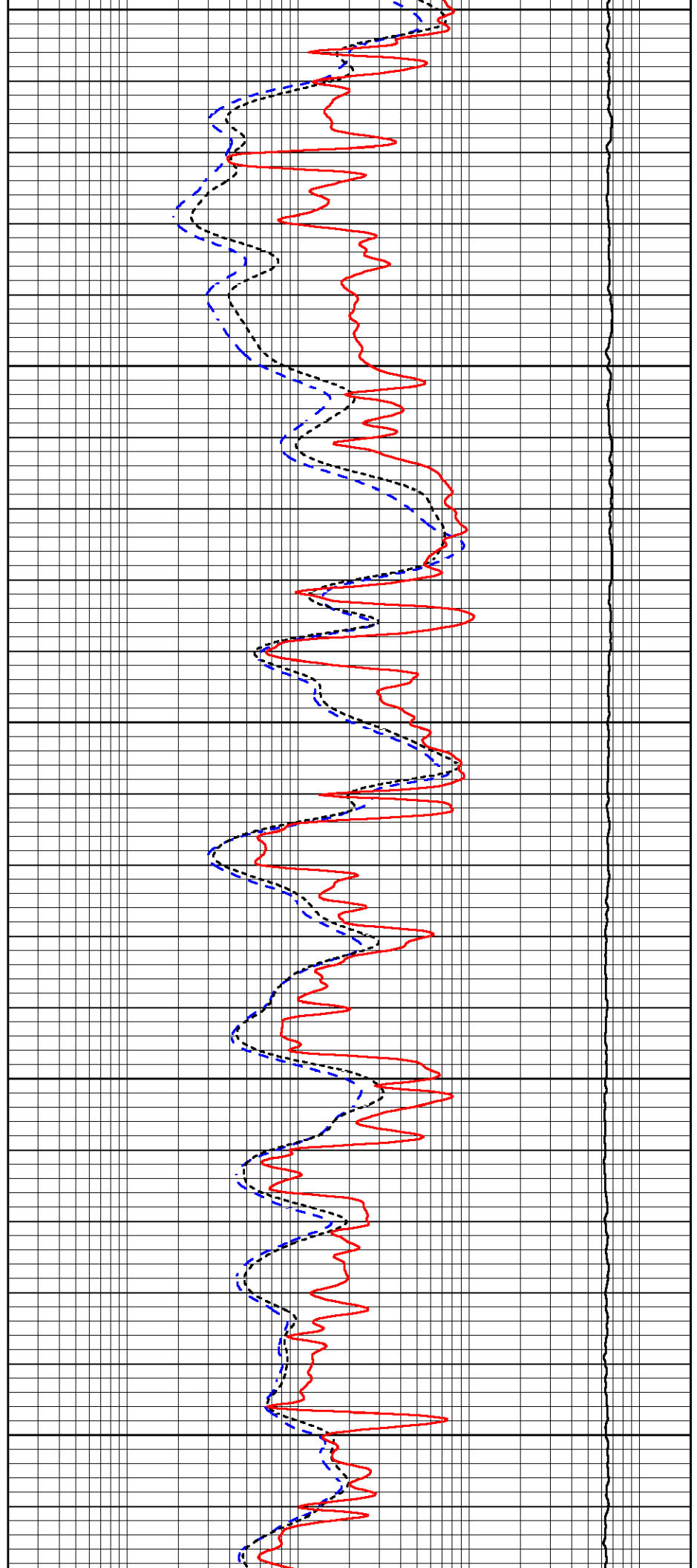
3750

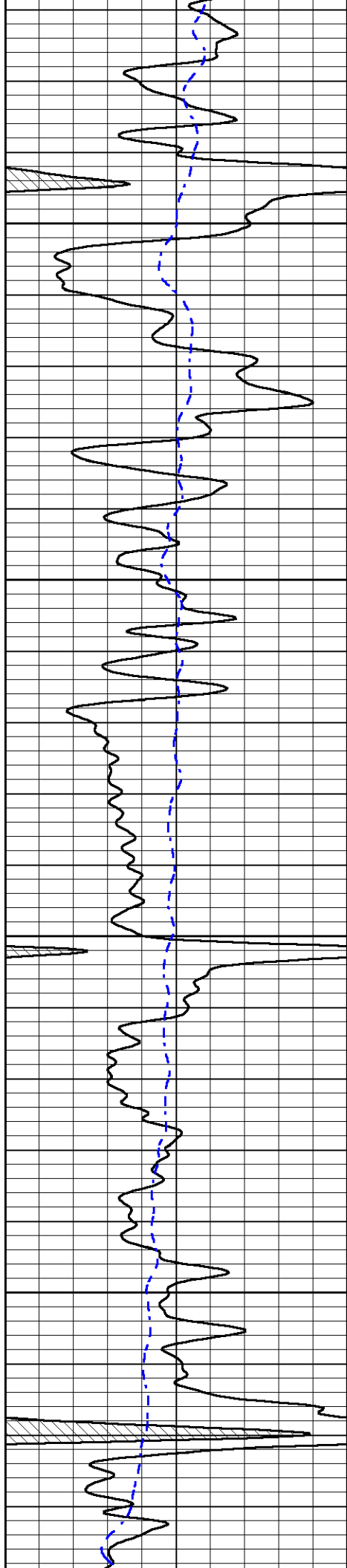
3800

3850

3900

3950



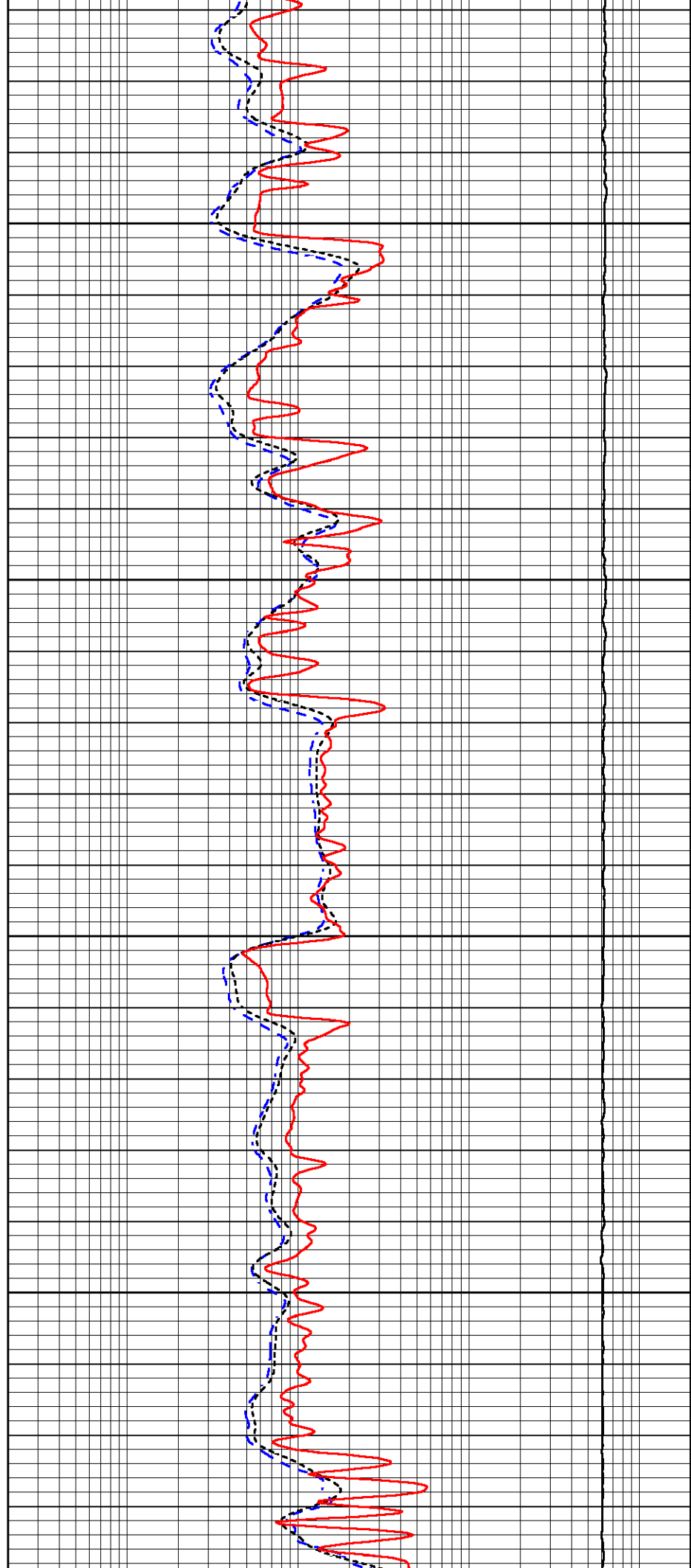


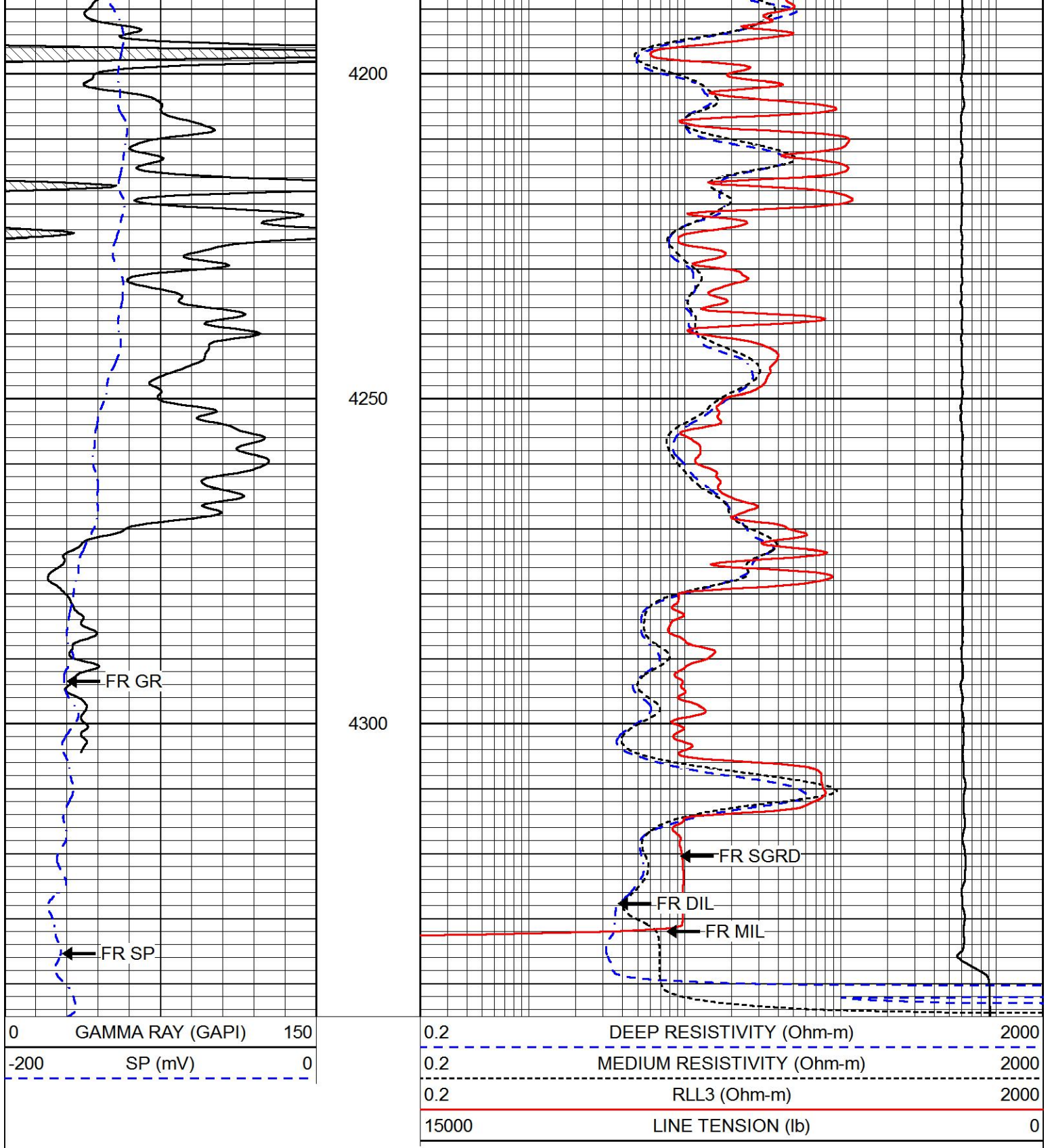
4000

4050

4100

4150



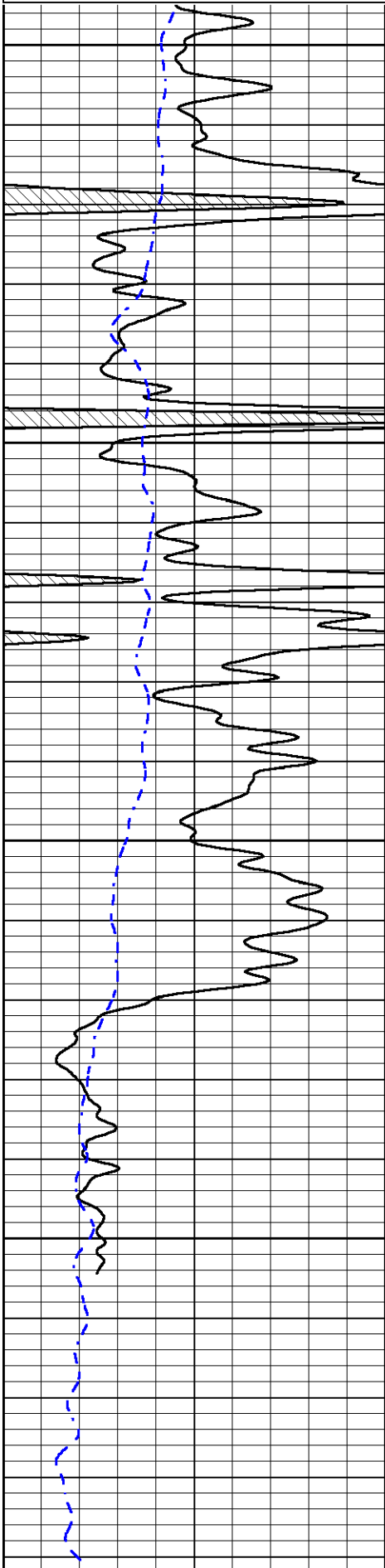


# REPEAT SECTION

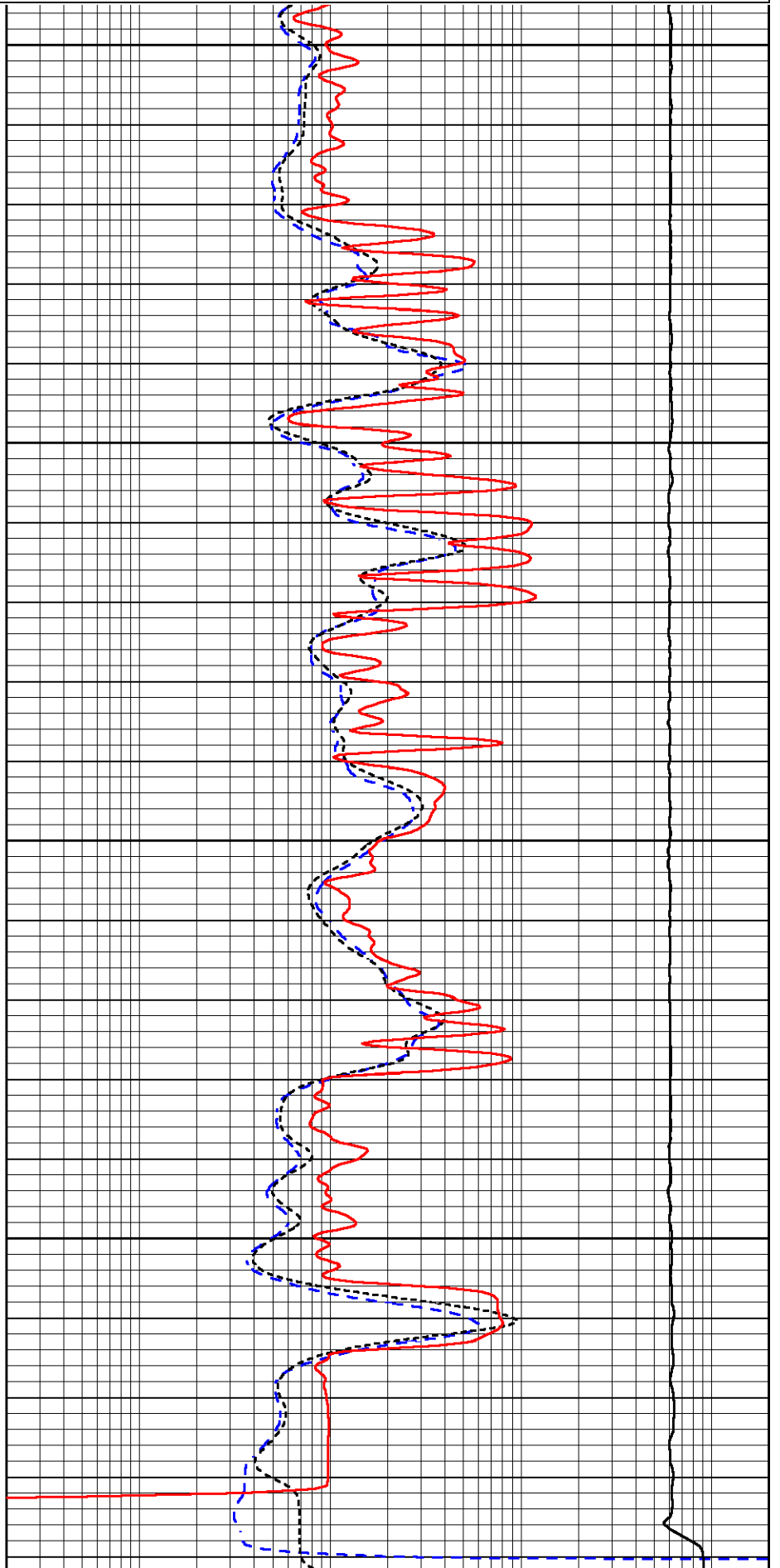
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 Dataset Pathname stackml/pass2.1  
 Presentation Format dil  
 Dataset Creation Wed Sep 19 18:11:19 2018  
 Charted by Depth in Feet scaled 1:240

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



4150  
4200  
4250  
4300



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 carmen\_schmitt\_werth\_5.db  
Dataset Pathname stackml/pass3.1  
Dataset Creation Wed Sep 19 18:11:09 2018

### Dual Induction Calibration Report

Serial-Model: PSI 988-M&W  
Calibration Performed: Thu Sep 06 14:52:38 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-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	12500.0000	-1.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	15500.0000	-1.0000
Caliper	1.0001	1.1397	6.5000	18.5000	in	86.0000	-80.7000

### Compensated Density Calibration Report

Serial-Model: 168-130-M&W  
Source / Verifier: /  
Master Calibration Performed: Thu Aug 09 22:42:28 2018

#### Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4659.47	5064.14	cps
Aluminum	2.680	g/cc	853.93	3180.74	cps
Spine Angle = 74.67			Density/Spine Ratio = 0.526		
	Size		Reading		
Small Ring	4.00	in	0.90		
Large Ring	14.00	in	0.21		

### 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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