



PIONEER
Pioneer Energy Services

DUAL INDUCTION LOG

Company **LARSON ENGINEERING, INC.**

Well **BATT NO. 1-1**

Field **TRAPP**

County **BARTON**

State **KANSAS**

Location: **API #: 15-009-26256-00-00**

330' FSL & 2227' FEL

SEC 1 TWP 16S RGE 14W

Permanent Datum **GROUND LEVEL** Elevation **1910'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Other Services
**CNL/CDL
MEL**
Elevation
K.B. 1919'
D.F. N/A
G.L. 1910'

Date **4/8/2019**

Run Number **ONE**

Depth Driller **3430'**

Depth Logger **3429'**

Bottom Logged Interval **3428'**

Top Log Interval **400'**

Casing Driller **8.625" @ 431'**

Casing Logger **432'**

Bit Size **7.875"**

Type Fluid in Hole **CHEMICAL**

Salinity, ppm CL **7200**

Density / Viscosity **9.35 63**

pH / Fluid Loss **9.5 10.4**

Source of Sample **FLOWLINE**

Rm @ Meas. Temp **.75 @ 68**

Rmt @ Meas. Temp **.56 @ 68**

Rmc @ Meas. Temp **1.01 @ 68**

Source of Rmt / Rmc **CHARTS**

Rm @ BHT **.46 @ 110**

Operating Rig Time **2 HOURS**

Max Rec. Temp. F **110 DEGF**

Equipment Number **P-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.

RUSSELL KANSAS

SOUTH TO 220 RD, 1 1/2 EAST, NORTH INTO

Log Measured From: KELLY BUSHING

9 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: VERN SCHRAG

Secondary Witness:

Secondary Witness:

Secondary Witness:

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 110	in 5.5	in 0	g/cc 1	2	g/cc 2.71
NPORSEL	PERFS	SNDERR	SNDERRM	SPSHIFT	SRFTEMP	SZCOR	TDEPTH
Limestone	0	mmho/m 0	mmho/m 0	mV 145	degF 45	Off	ft 3429

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	37.48			CNT-M&W (tk10-MW)	5.50	3.50	100.00
CNSSC	36.73						
LSD	28.43			CDL-M&W (144-84)	8.50	4.00	250.00
DCAL	28.42			ML-PSI STKBL ML (PSI-01) Stackable Microlog Tools	7.58	4.00	65.00
SSD	27.93						
MCAL	19.83						
MI	19.83						
MN	19.83						
RLL3	15.80						
RLL3F	15.79			DIL-M&W (PSI 988)	18.50	3.50	220.00
CILD	8.00						

CILM

4.70

SP

0.20

Dataset: laron_batt_1_1.db: field/well/stackml/pass3.1
Total length: 43.08 ft
Total weight: 685.00 lb
O.D.: 4.00 in



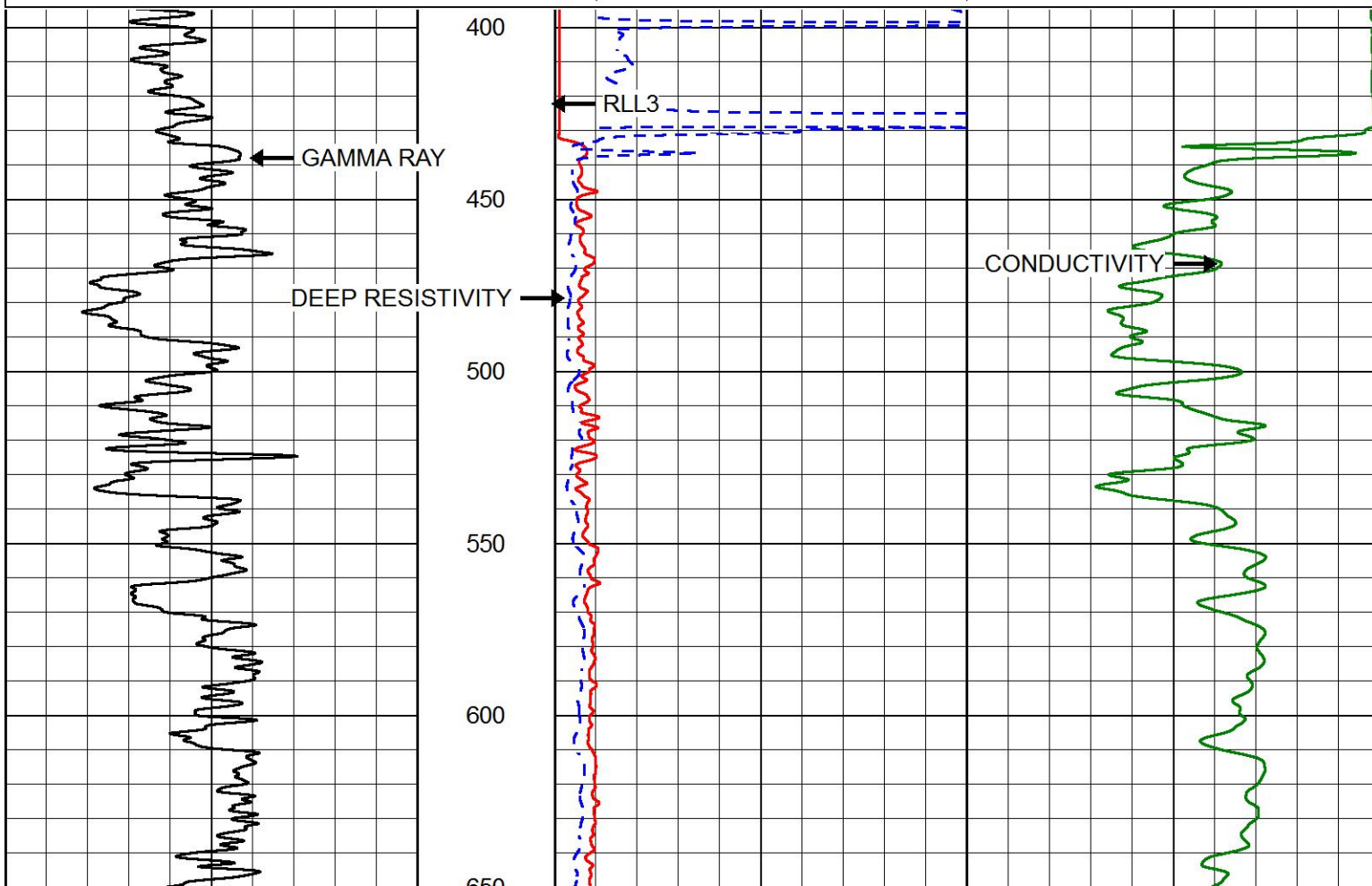
MAIN PASS

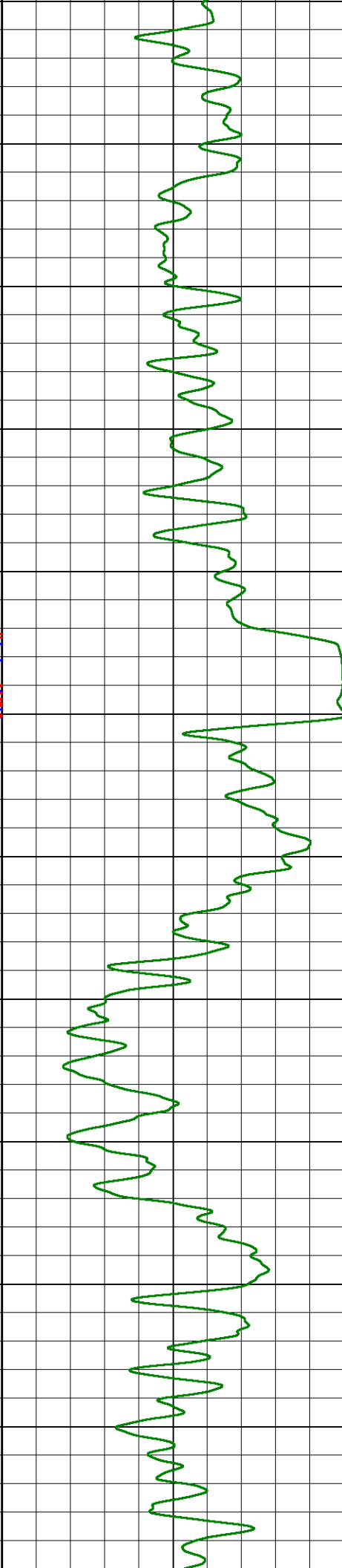
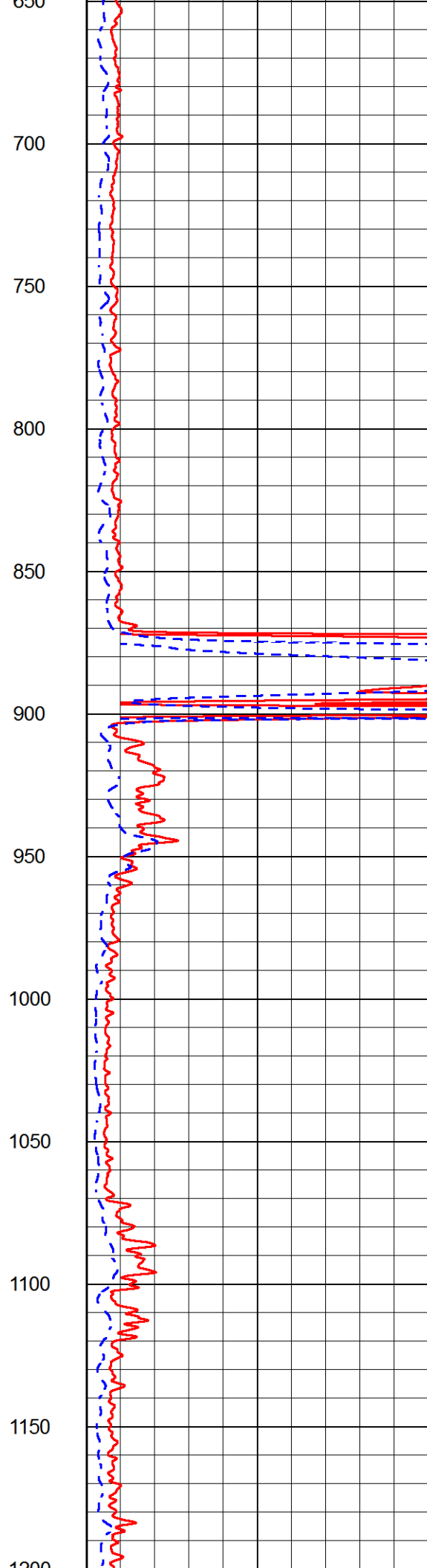
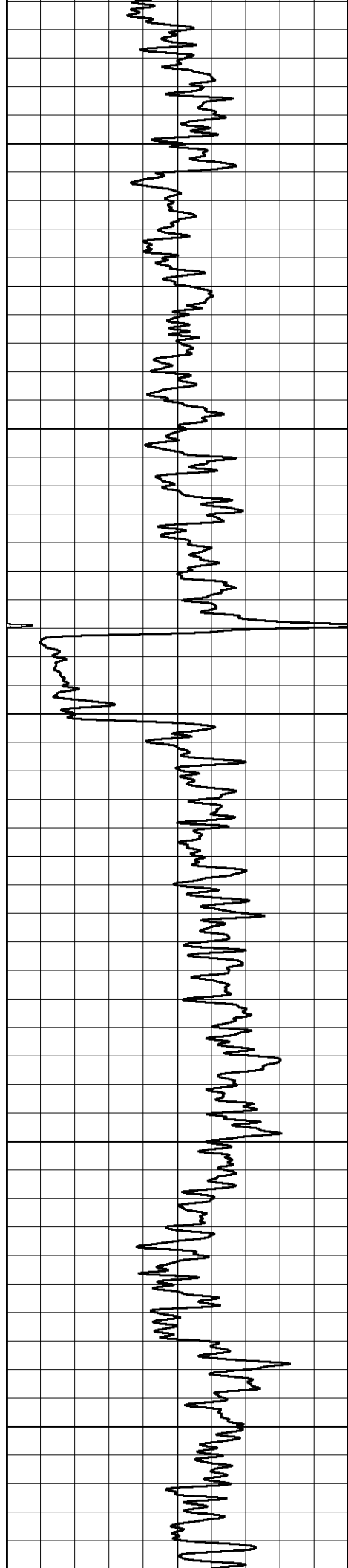
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Presentation Format dil2in
Dataset Creation Mon Apr 08 03:32:03 2019
Charted by Depth in Feet scaled 1:600

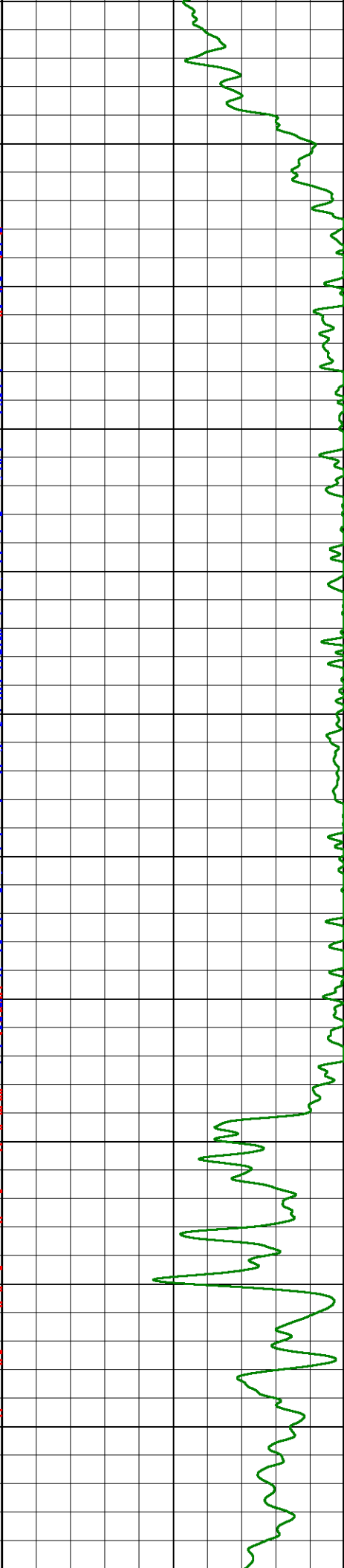
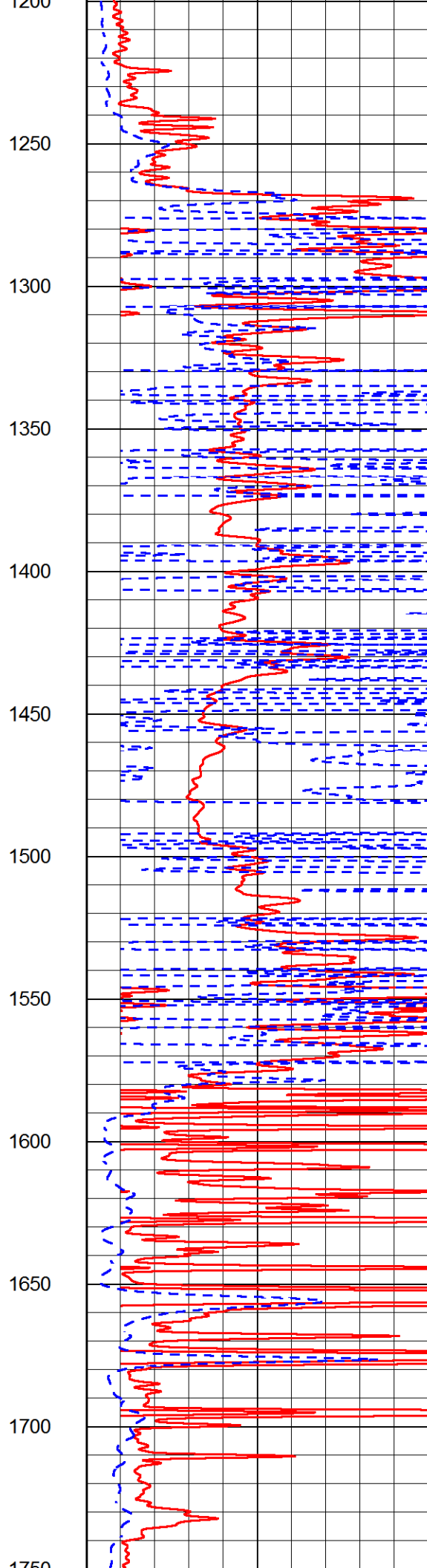
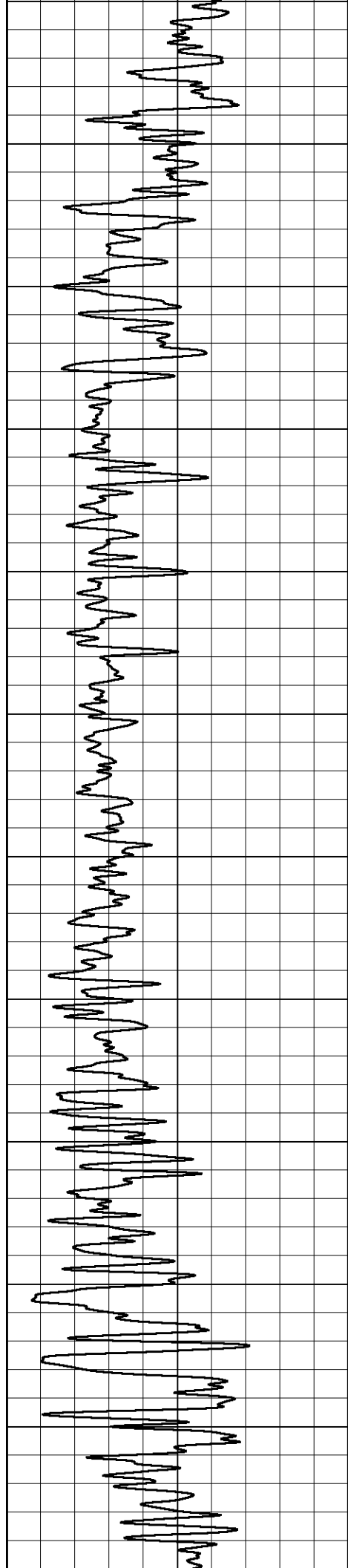
0 GAMMA RAY (GAPI) 150

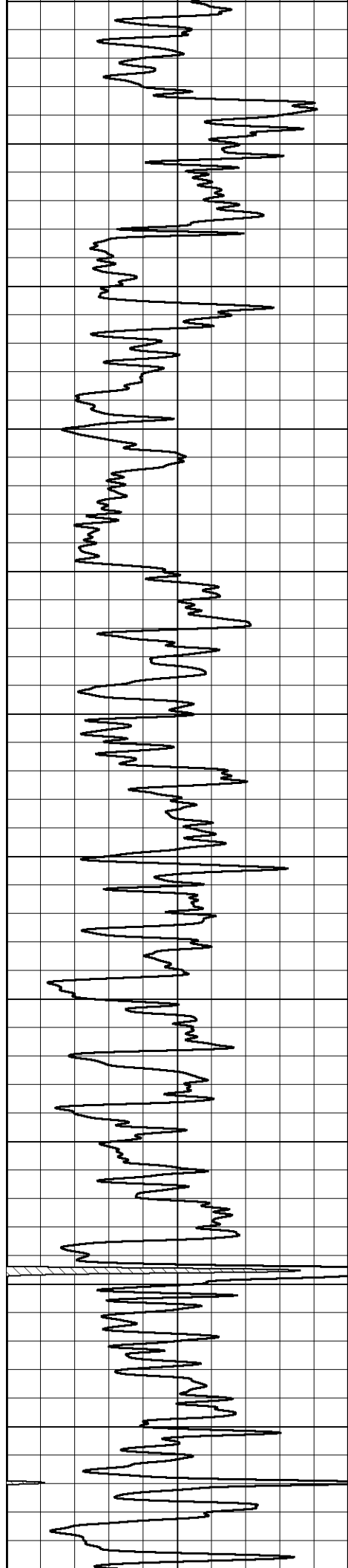
2000 CILD (mmho/m) 0

0	RLL3 (Ohm-m)	50
0	DEEP RESISTIVITY (Ohm-m)	50
50	RLL3 (Ohm-m)	200
50	RILD (Ohm-m)	200

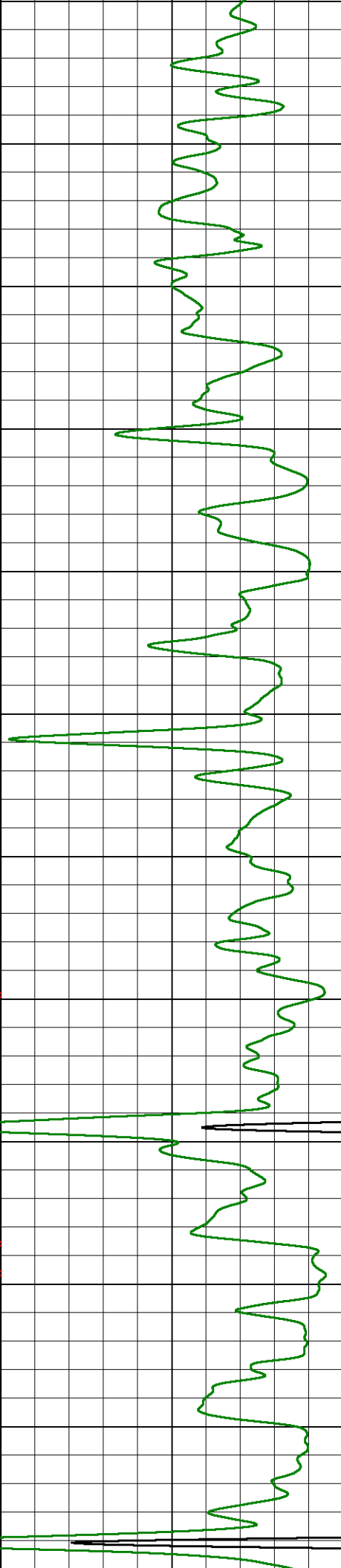
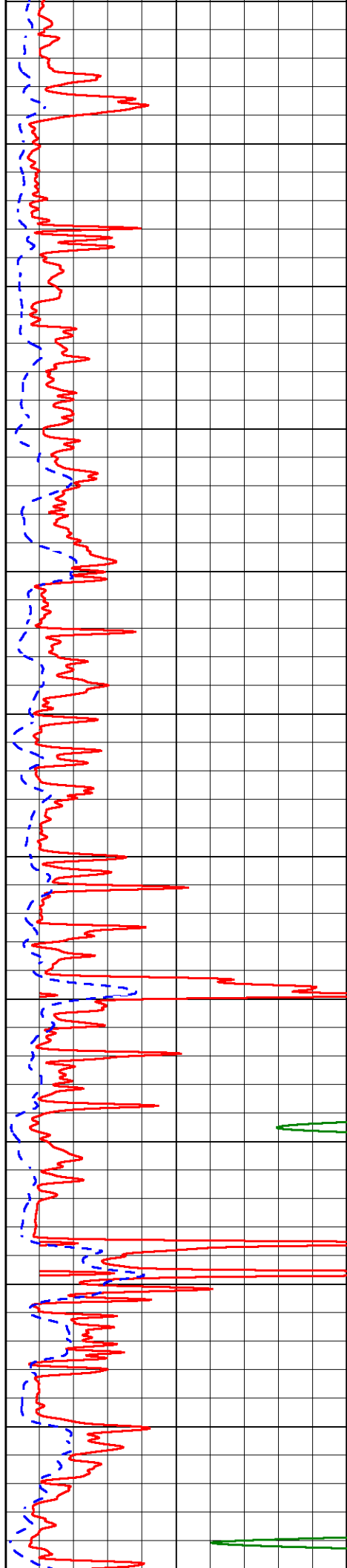


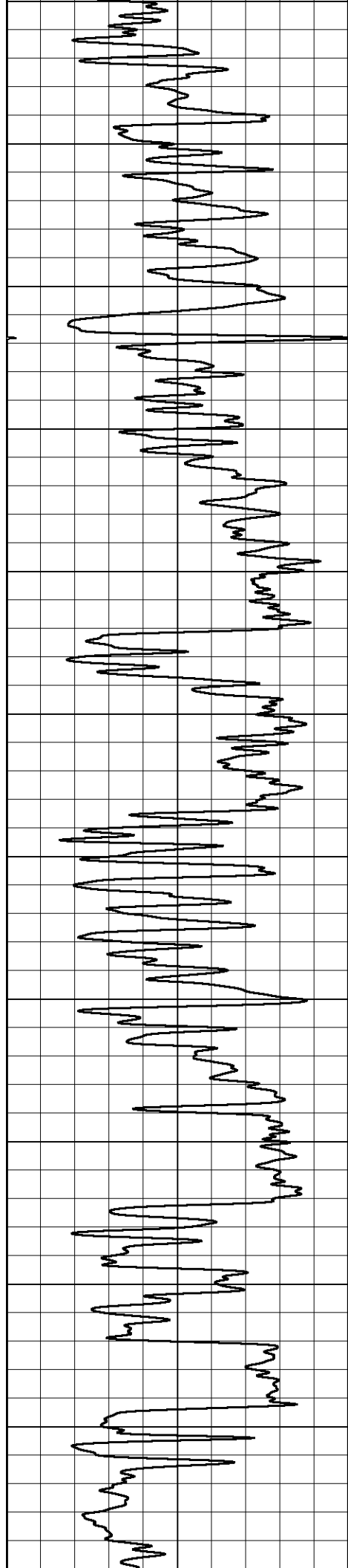




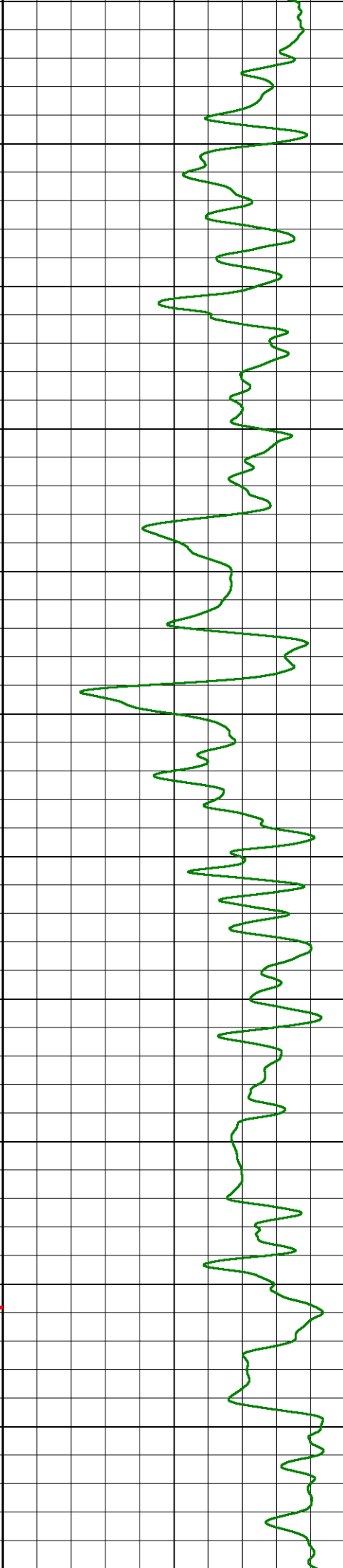
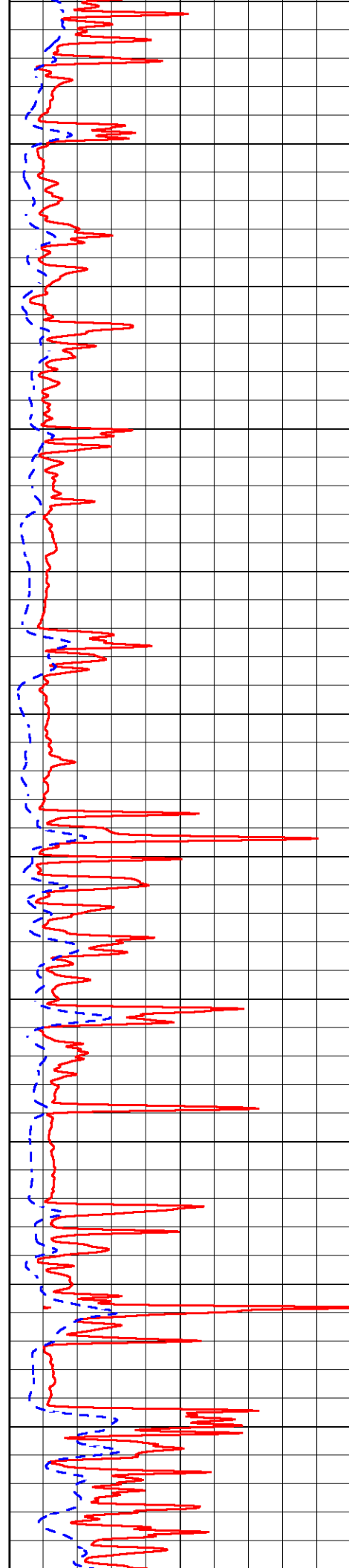


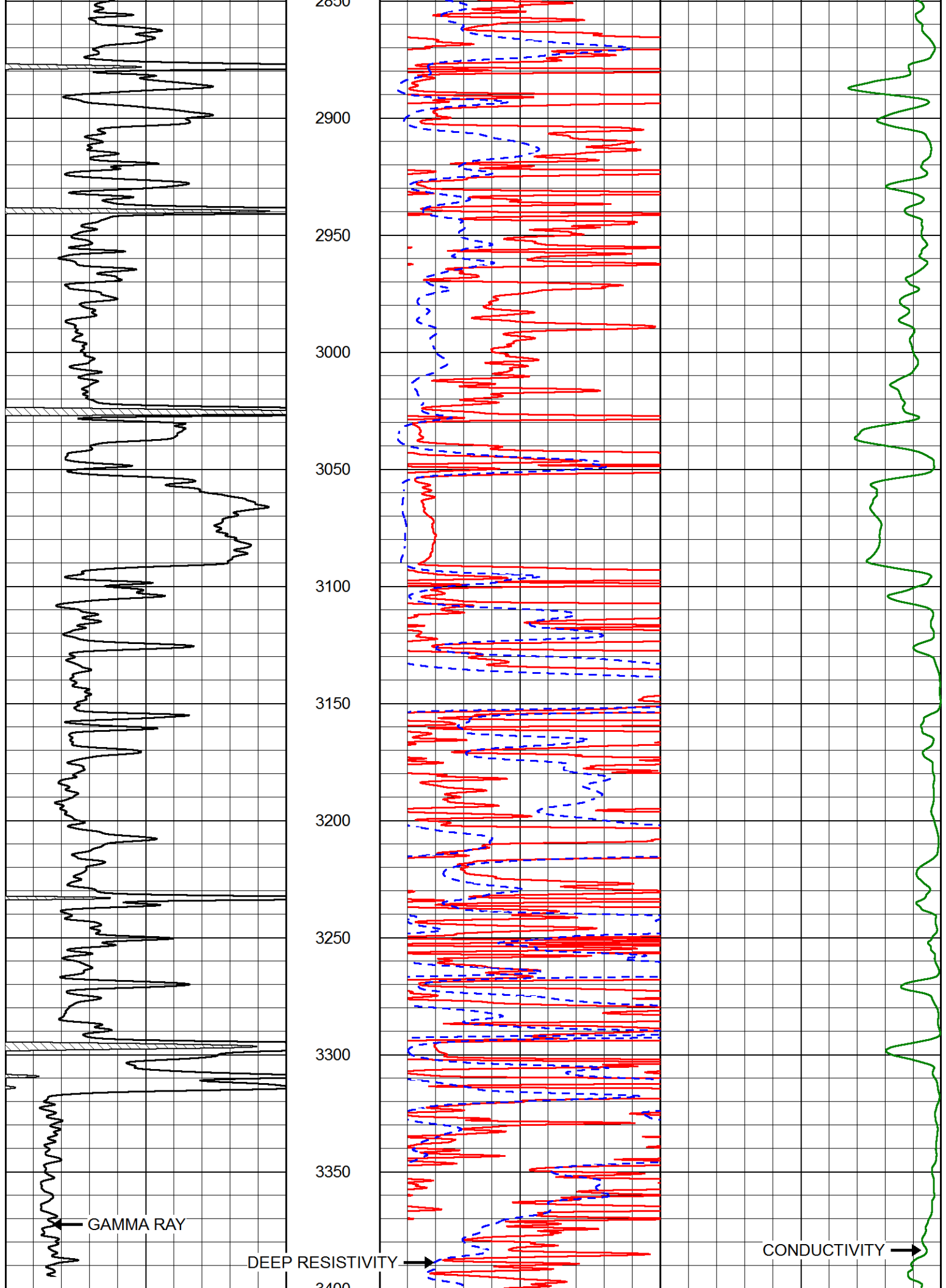
1750
1800
1850
1900
1950
2000
2050
2100
2150
2200
2250
2300

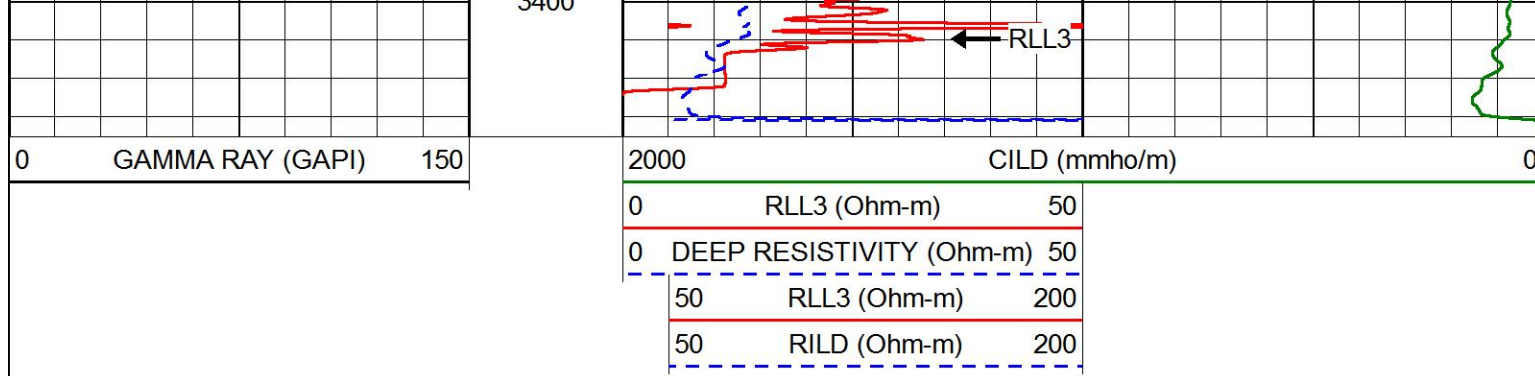




2300
2350
2400
2450
2500
2550
2600
2650
2700
2750
2800
2850



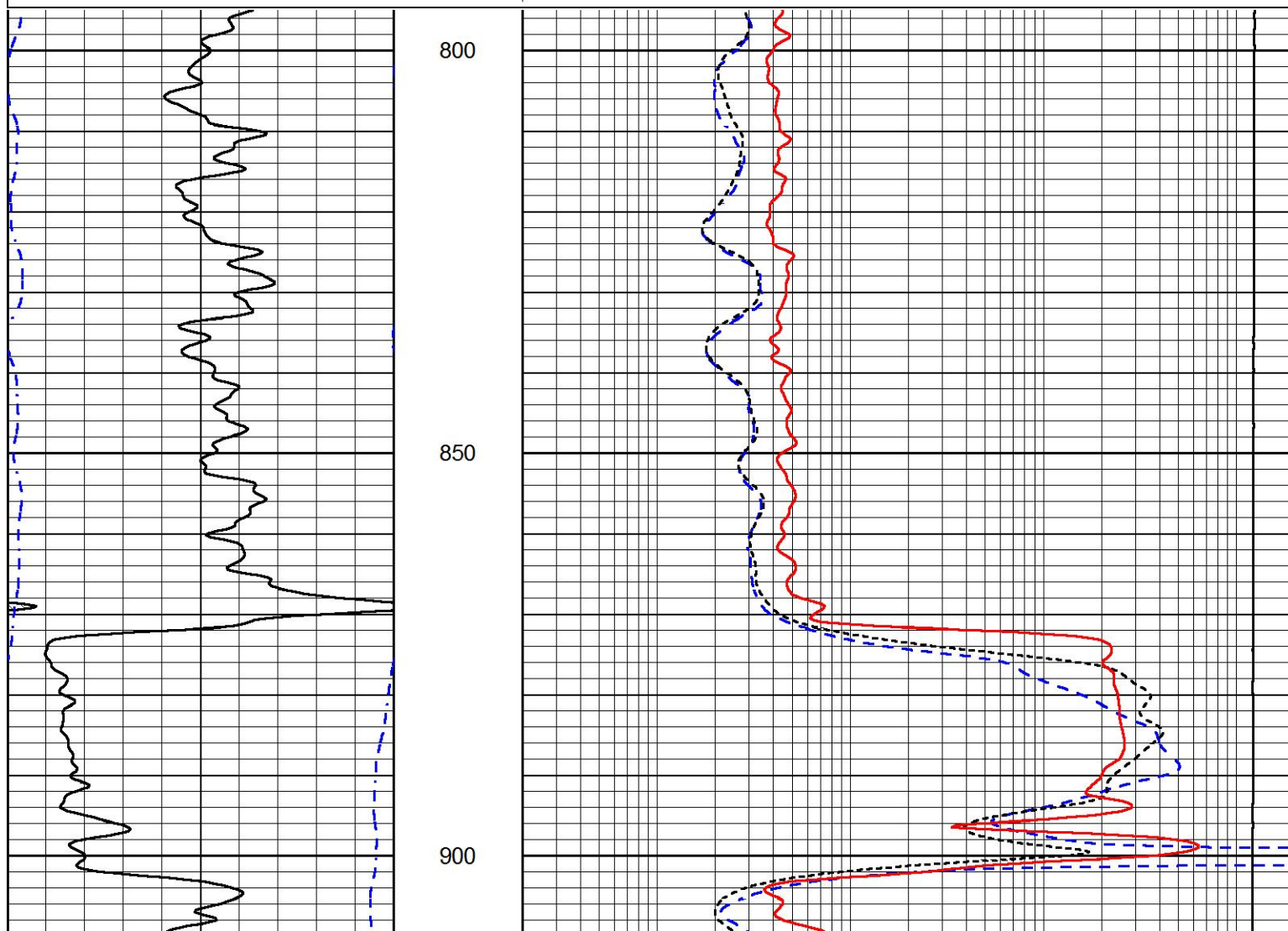


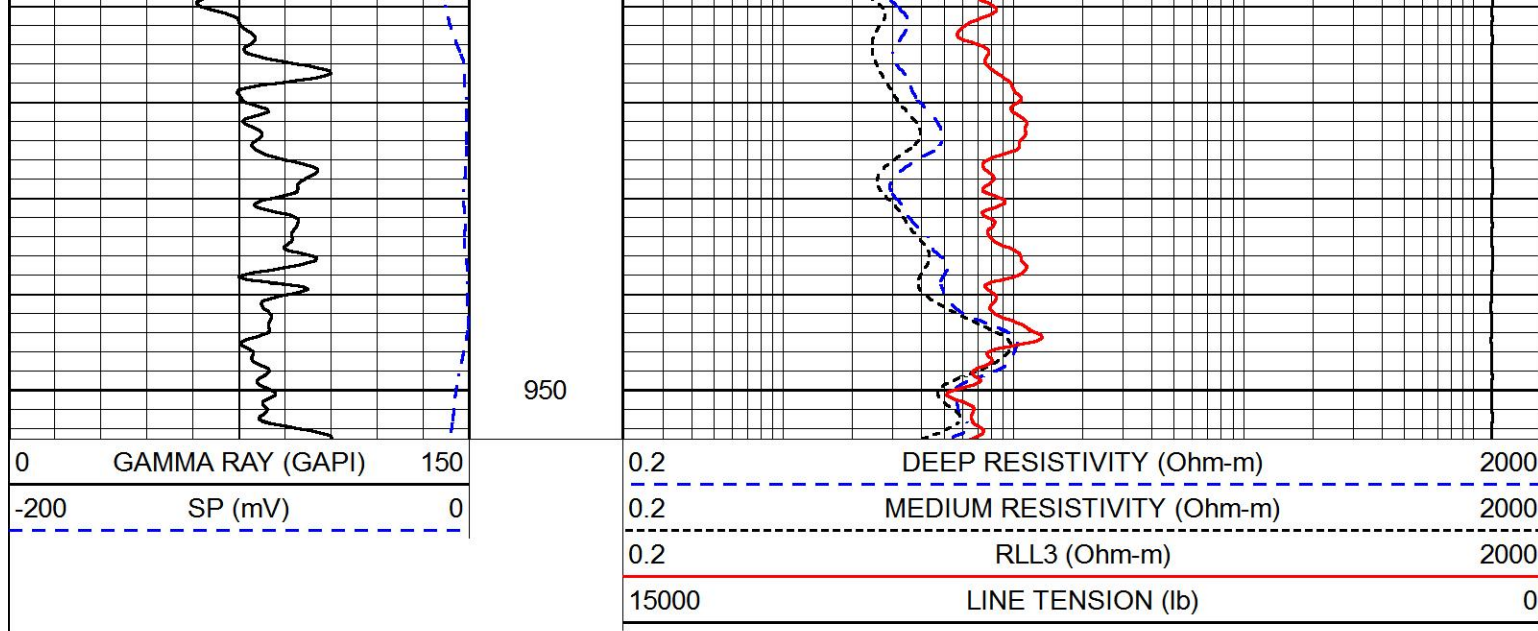


MAIN PASS

Database File laron_batt_1_1.db
 Dataset Pathname stackml/pass3.1
 Presentation Format dil
 Dataset Creation Mon Apr 08 03:32:03 2019
 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



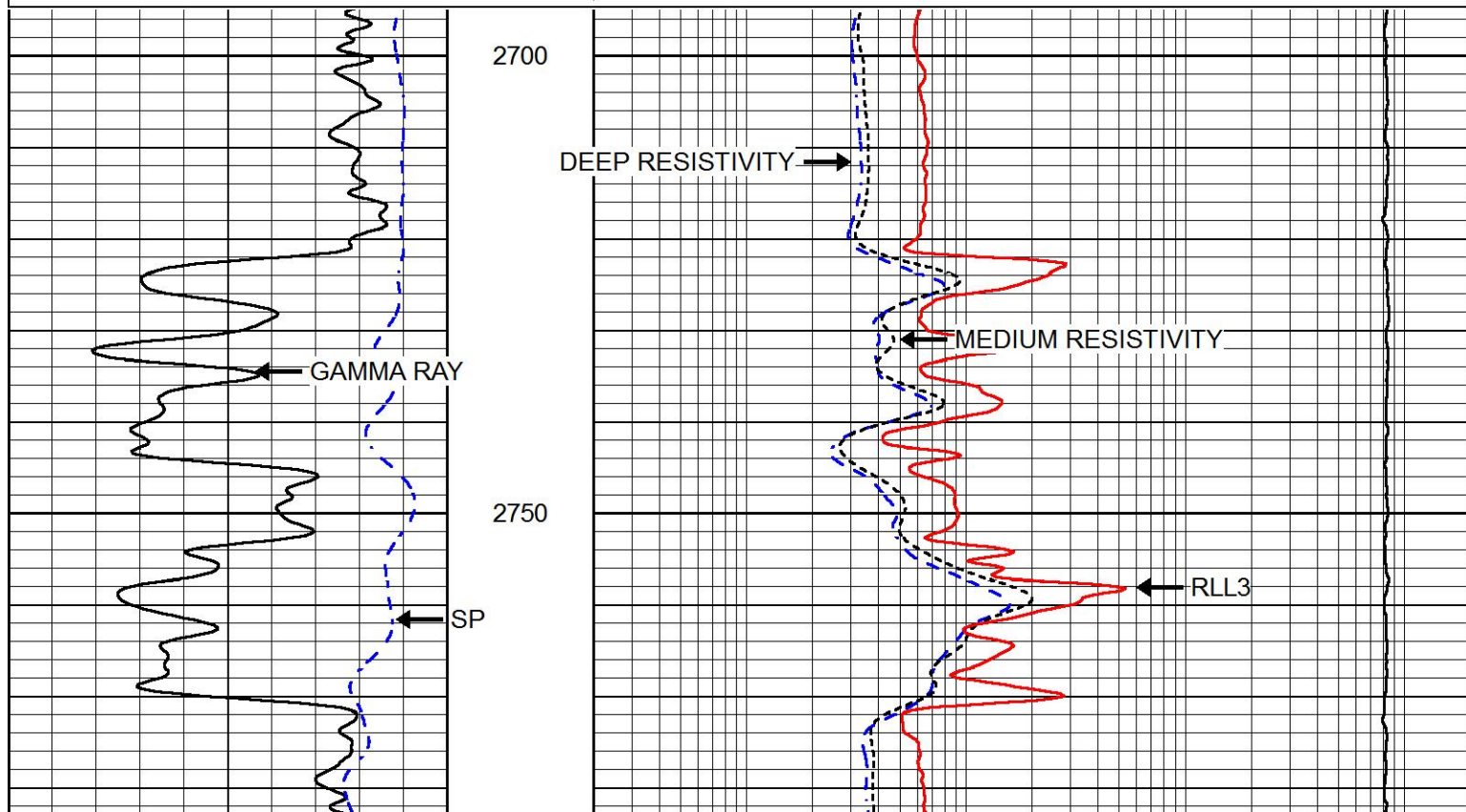
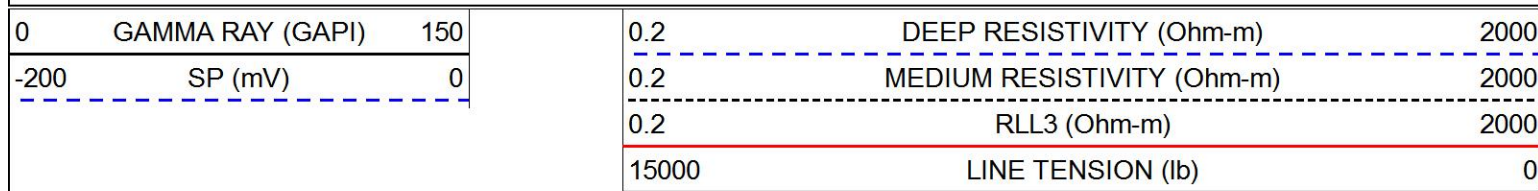


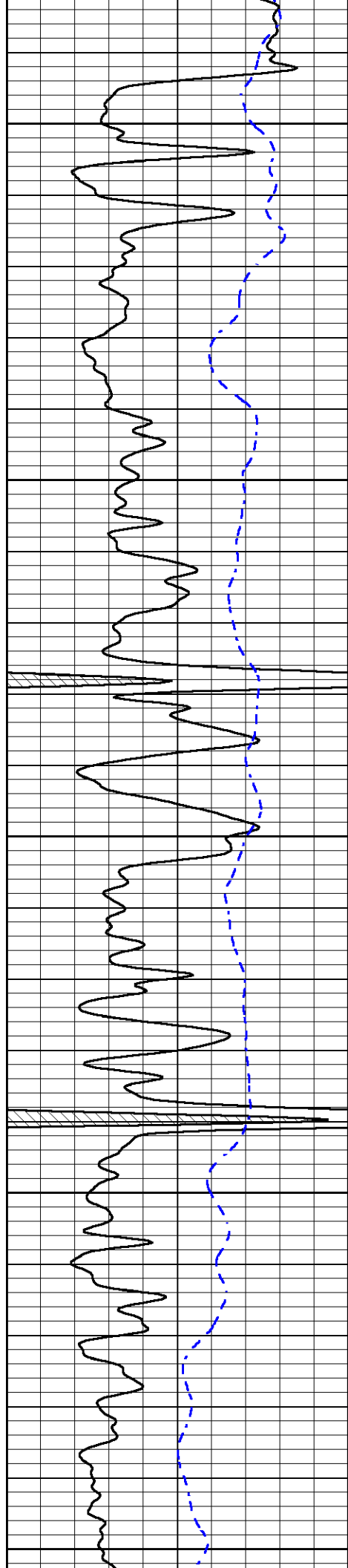


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MAIN PASS

Database File laron_batt_1_1.db
Dataset Pathname stackml/pass3.1
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Dataset Creation Mon Apr 08 03:32:03 2019
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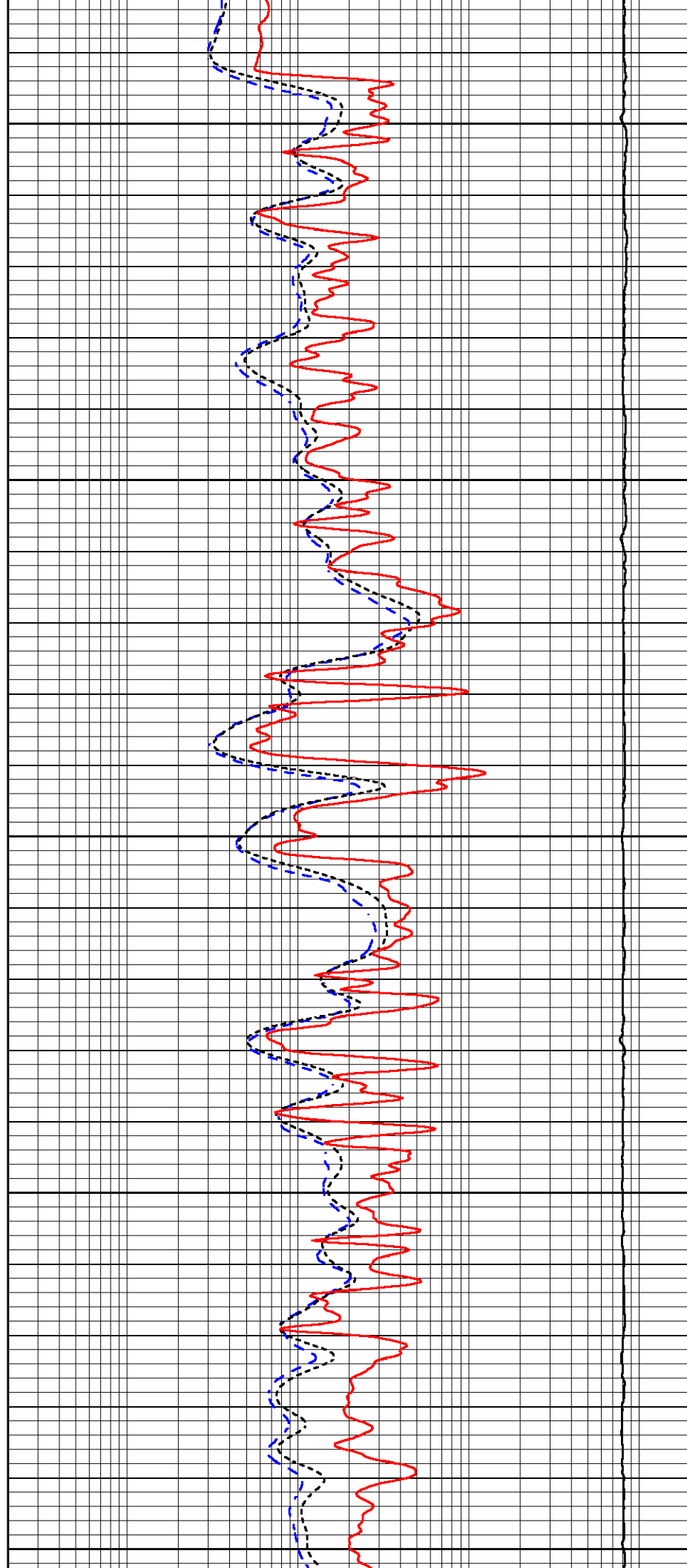
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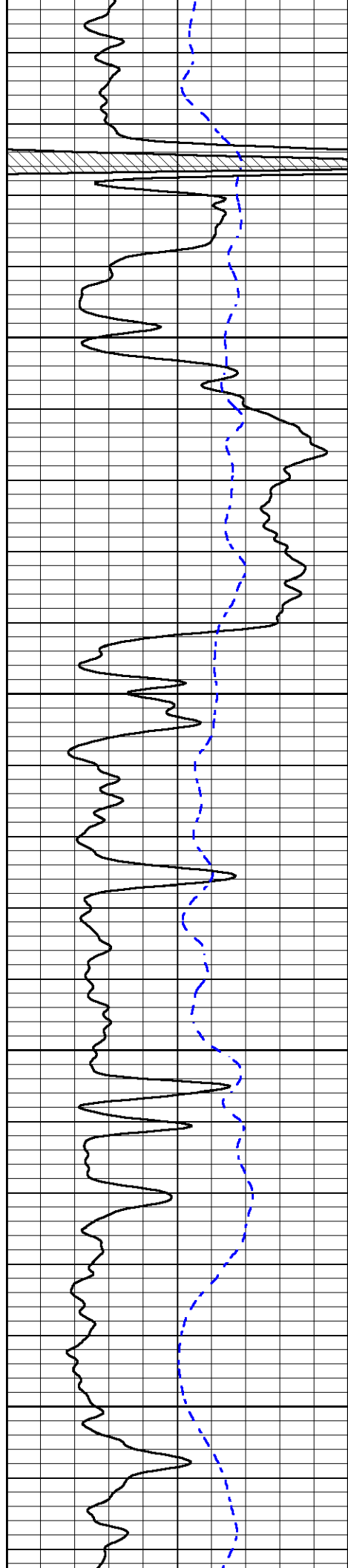
2850

2900

2950

3000



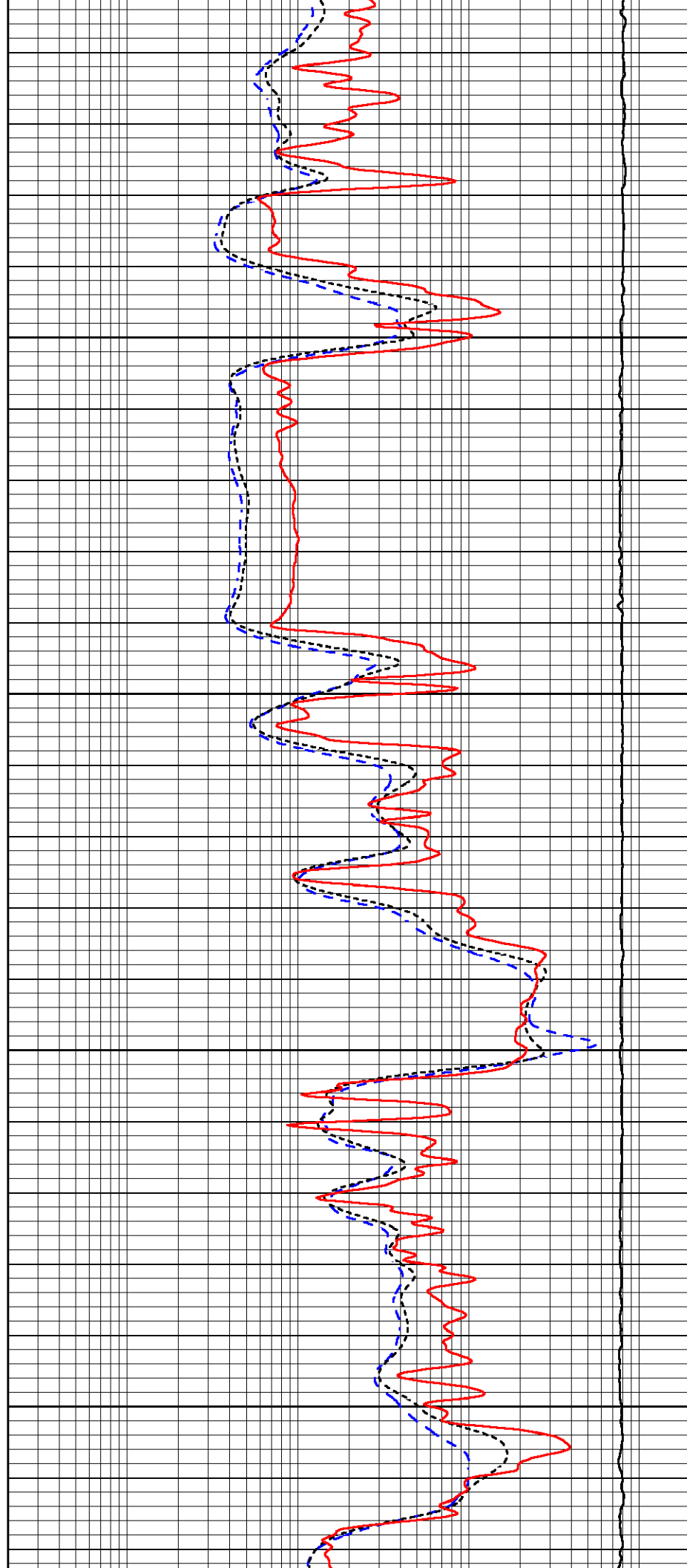


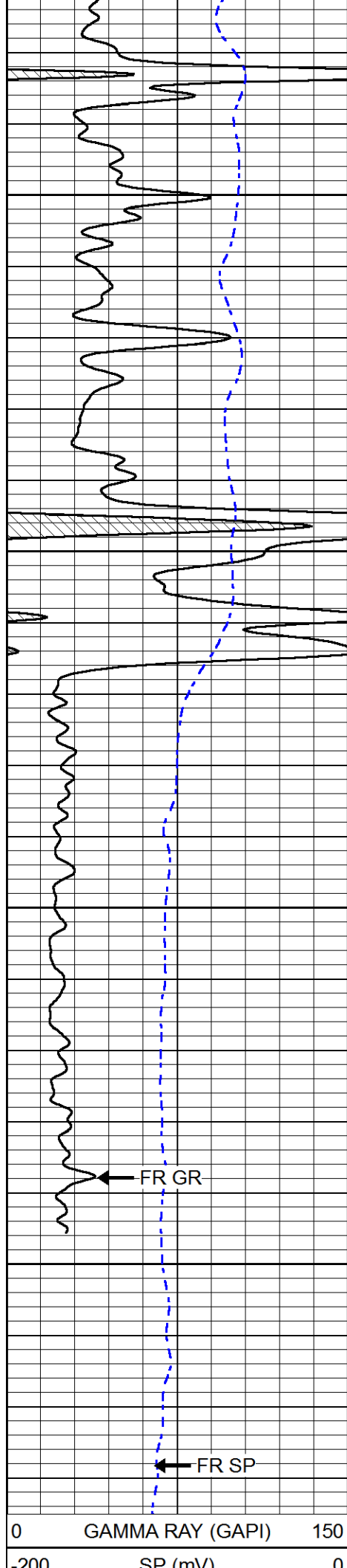
3050

3100

3150

3200



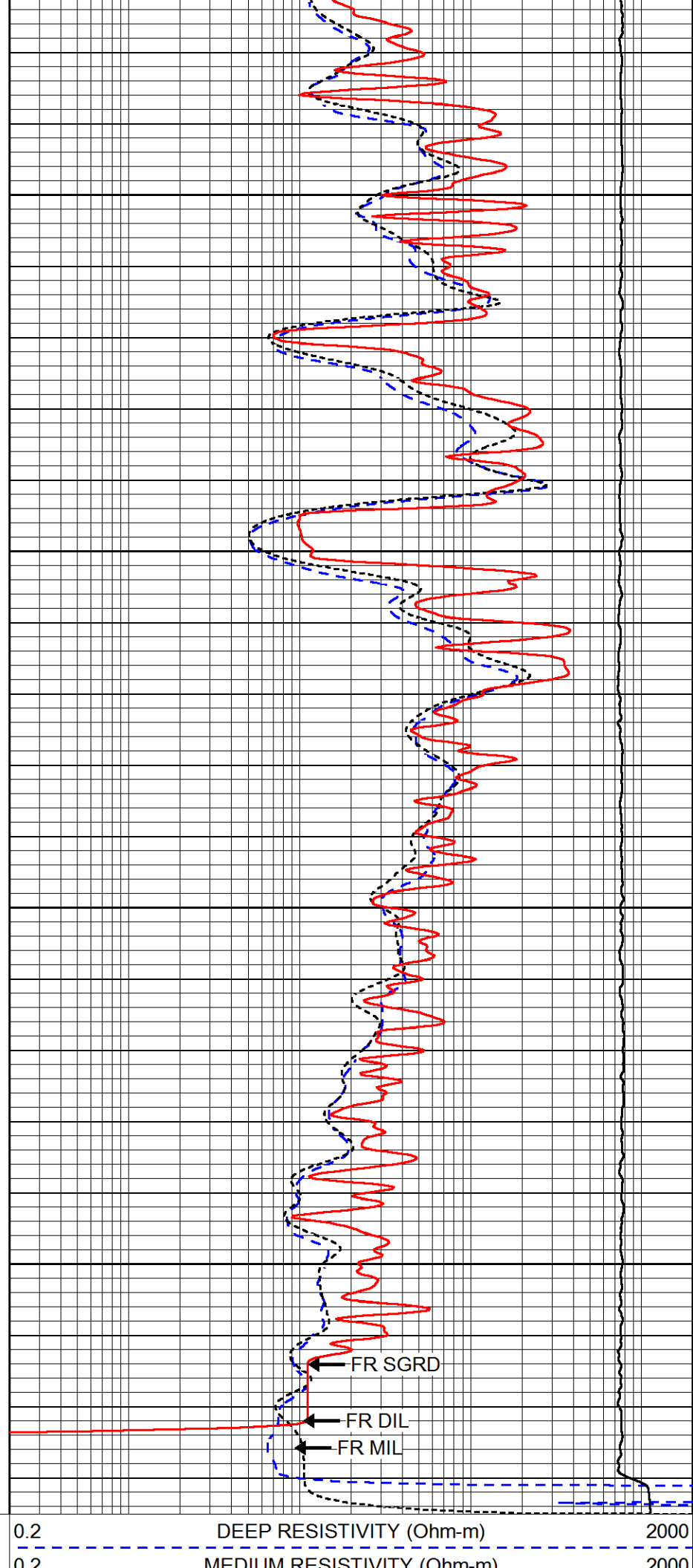


3250

3300

3350

3400



200	SP (mV)	0
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0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0

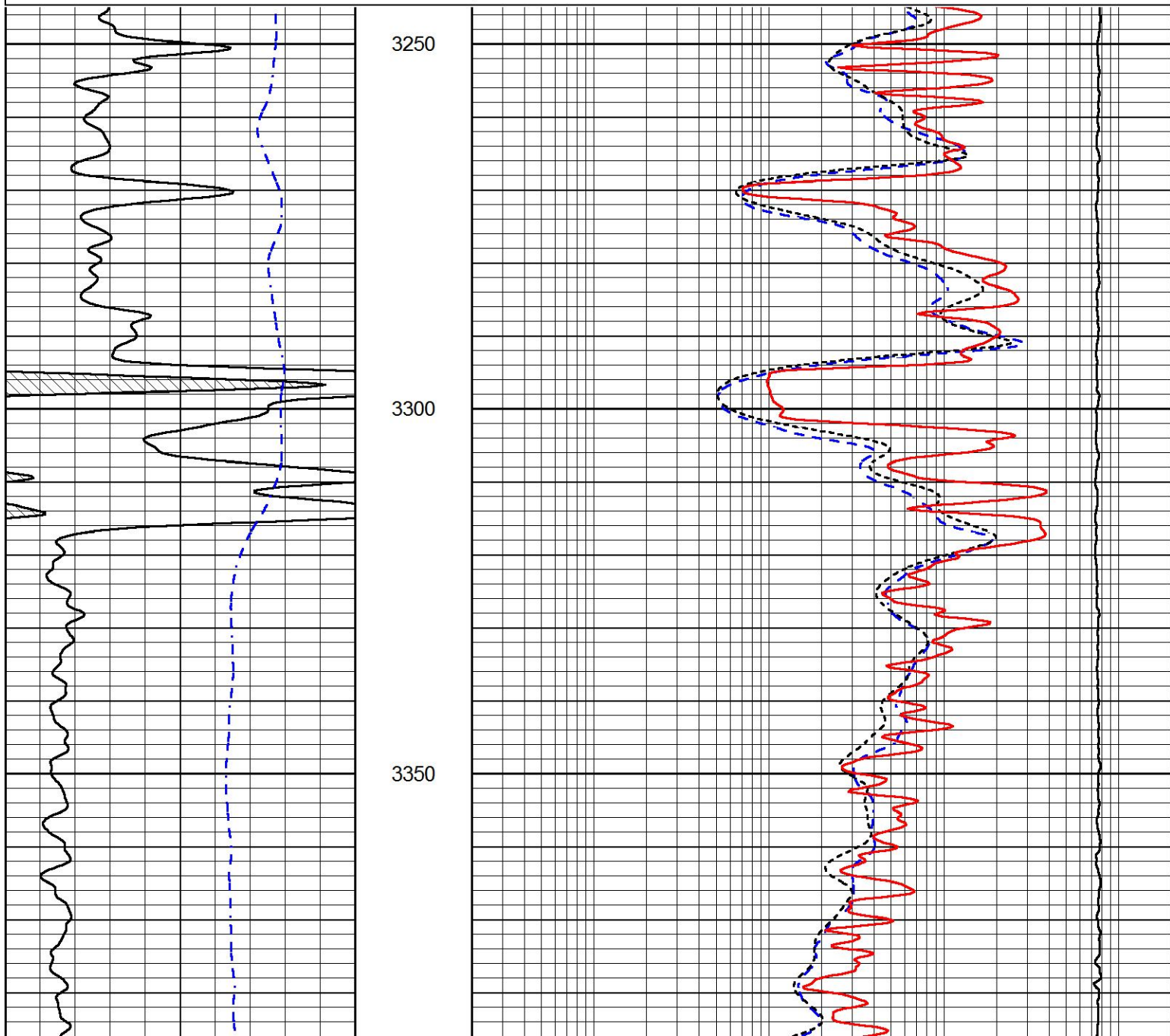


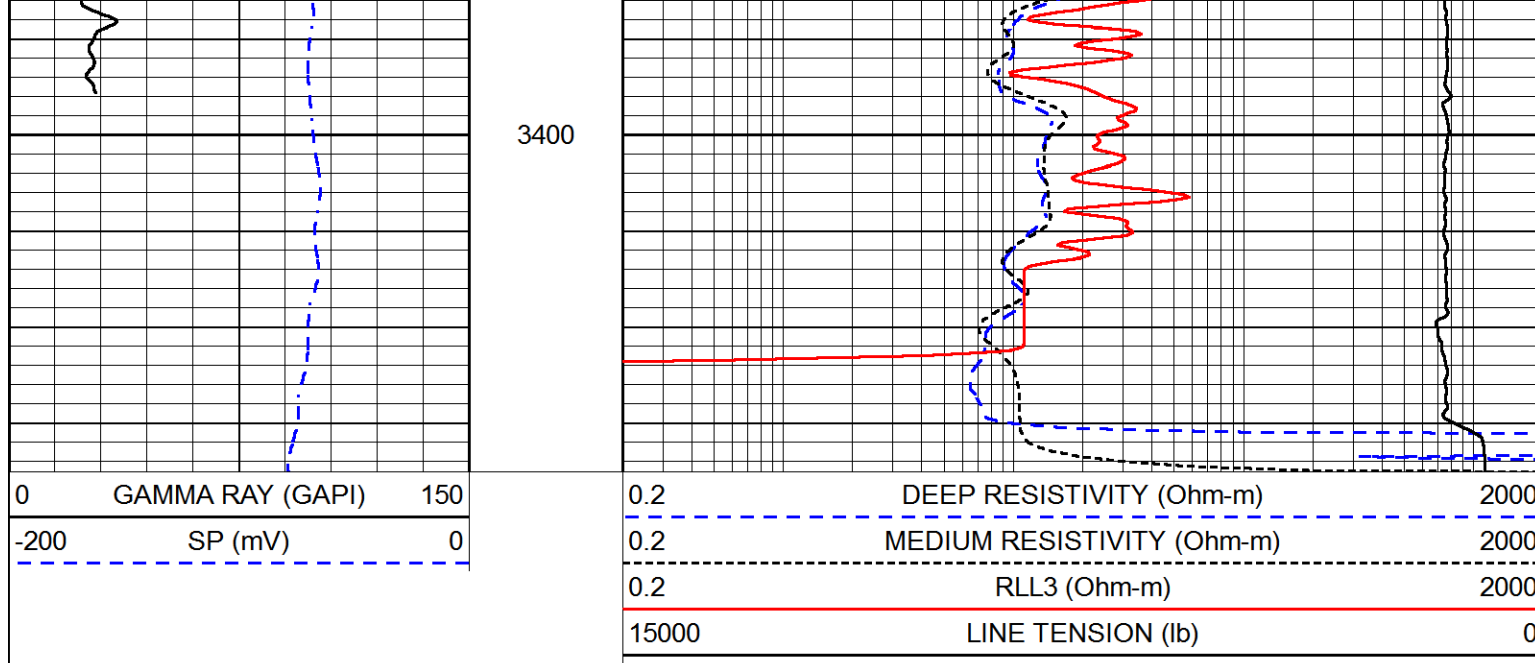
REPEAT SECTION

Database File	larson_batt_1_1.db
Dataset Pathname	stackml/pass2.1
Presentation Format	dil
Dataset Creation	Mon Apr 08 03:00:28 2019
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





Calibration Report

Database File larson_batt_1_1.db
 Dataset Pathname stackml/pass3.1
 Dataset Creation Mon Apr 08 03:32:03 2019

Dual Induction Calibration Report

Serial-Model: PSI 988-M&W
 Calibration Performed: Tue Nov 20 10:50:19 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.525	-44.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.380	-17.000

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	29500.0000	-1.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	42500.0000	-1.0000
Caliper	1.0001	1.1397	6.5000	18.5000	in	86.0000	-82.4800

Compensated Density Calibration Report

Serial-Model: 144-84-M&W
 Source / Verifier: /
 Master Calibration Performed: Mon Jan 07 15:00:31 2019

Master Calibration

Density

Far Detector

Near Detector

Magnesium	1.755	g/cc	4315.49	5309.89	cps
Aluminum	2.675	g/cc	825.26	3443.46	cps

Spine Angle = 75.33

Density/Spine Ratio = 0.538

	Size		Reading
Small Ring	4.00	in	0.69
Large Ring	14.00	in	0.04

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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