



PIONEER
Pioneer Energy Services

**DUAL INDUCTION
LOG**

Company **AMERICAN WARRIOR, INC.**

Well **KT NO. 1-25**

Field **WILDCAT**

County **NESS** State **KANSAS**

Location: API #: 15-135-25978-00-00

1800' FNL & 1200' FEL

CNL/CDL

SEC 25 TWP 20S RGE 22W

Permanent Datum GROUND LEVEL Elevation 2181'

Log Measured From KELLY BUSHING

Drilling Measured From KELLY BUSHING

Elevation
K.B. 2189'
D.F. N/A
G.L. 2181'

Date 11/17/2017

Run Number ONE

Depth Driller 4336'

Depth Logger 4333'

Bottom Logged Interval 4332'

Top Log Interval 200'

Casing Driller 8.625" @ 217'

Casing Logger 211'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 8000

Density / Viscosity 9.3 52

pH / Fluid Loss 8.5 7.6

Source of Sample FLOWLINE

Rm @ Meas. Temp .35 @ 62

Rmf @ Meas. Temp .26 @ 62

Rmc @ Meas. Temp .47 @ 62

Source of Rmf / Rmc CHARTS

Rm @ BHT .18 @ 119

Operating Rig Time 2 HOURS

Max Rec. Temp. F 119 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.

BAZINE KANSAS
WEST END OF TOWN, 11 SOUTH TO CURVE
1/8 WEST, SOUTH INTO

Log Measured From: KELLY BUSHING 8 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:

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 119	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 -150	degF 0	Off	ft 4333

Sensor	Offset (ft)	Schematic		Description	Length (ft)	O.D. (in)	Weight (lb)
GR	33.00			GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC CNSSC	29.90			CNT-M&W (tk10-MW)	5.50	3.50	100.00
	29.15						
LSD DCAL SSD	20.85			CDL-M&W (168-986)	8.50	4.00	250.00
	20.83						
	20.35						
RLL3 RLL3F	15.80						
	15.79						
CILD	8.00			DIL-M&W (1987)	18.50	3.50	220.00

CILM 4.70

SP 0.20

Dataset: american_warrior_kt_1_25.db: field/well/stack/pass3.1
Total length: 35.50 ft
Total weight: 620.00 lb
O.D.: 4.00 in



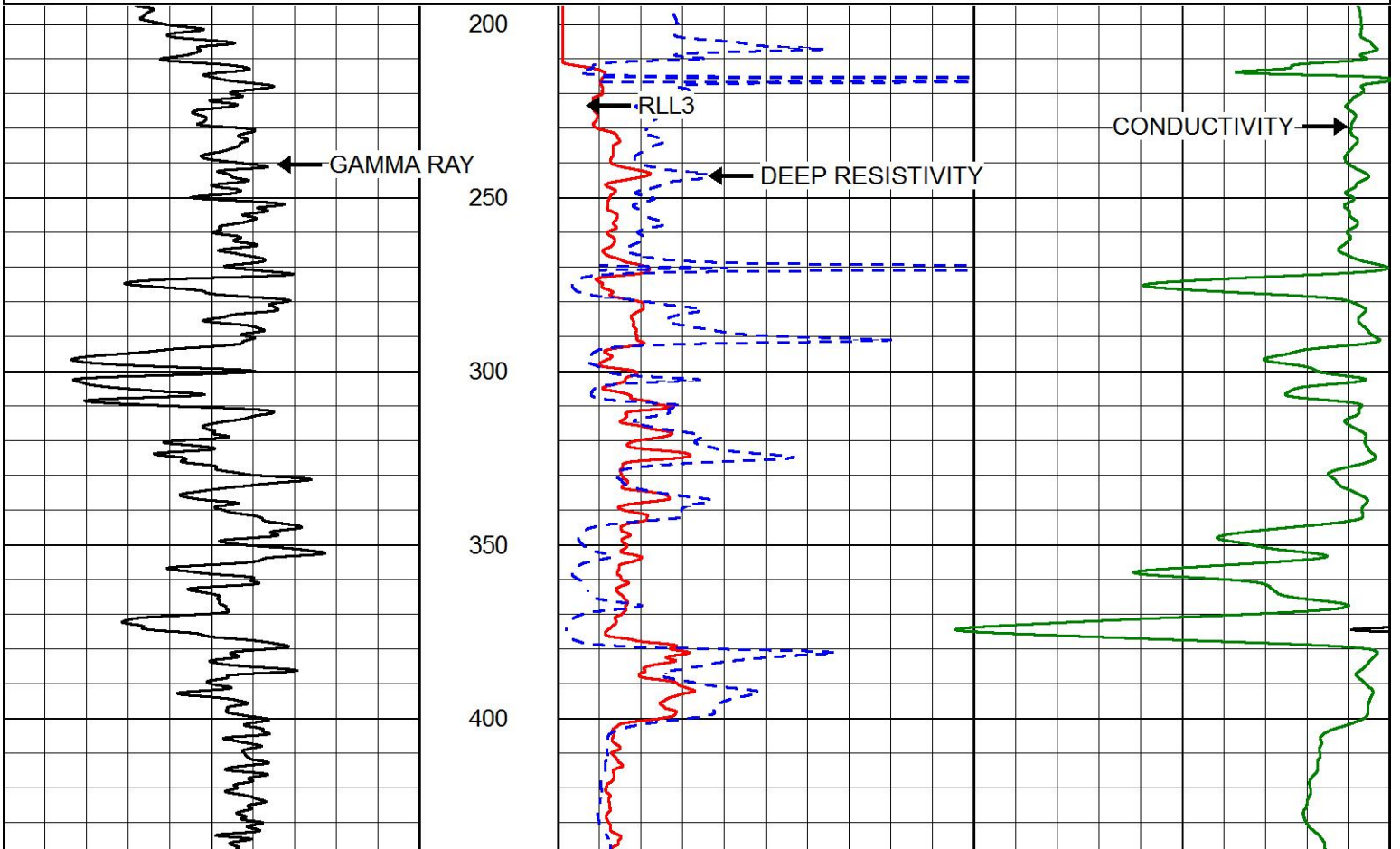
MAIN PASS

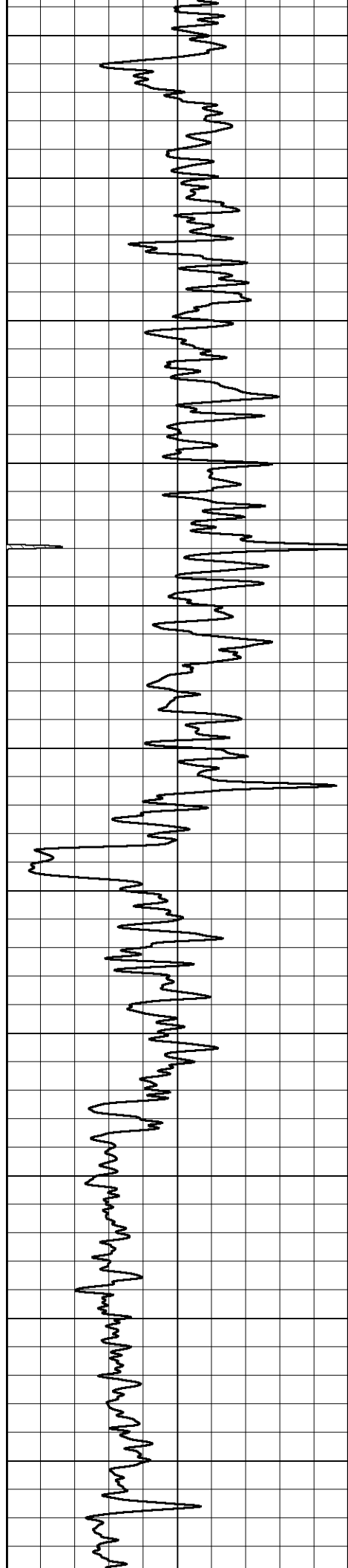
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Dataset Pathname stack/pass3.1
Presentation Format dil2in
Dataset Creation Fri Nov 17 05:07:02 2017
Charted by Depth in Feet scaled 1:600

0 GAMMA RAY (GAPI) 150

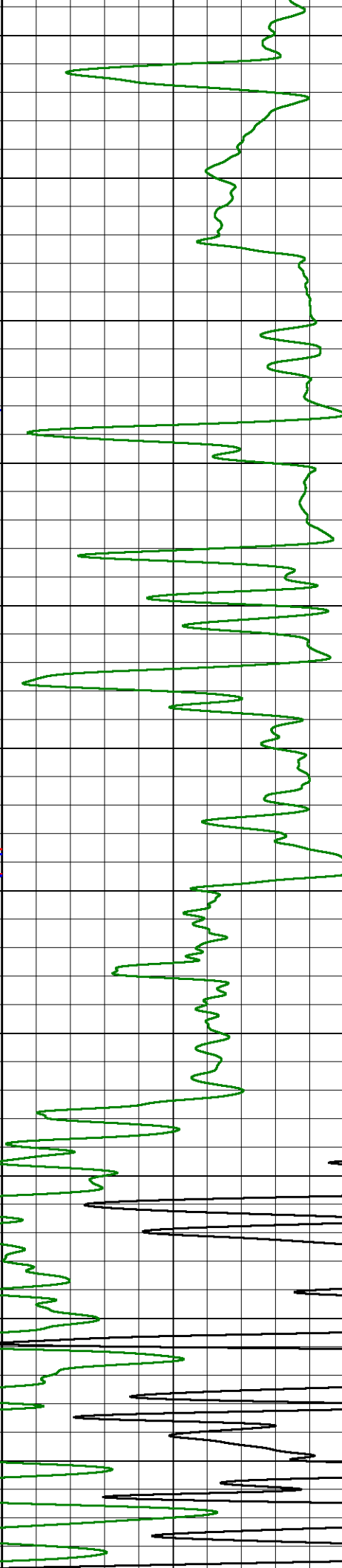
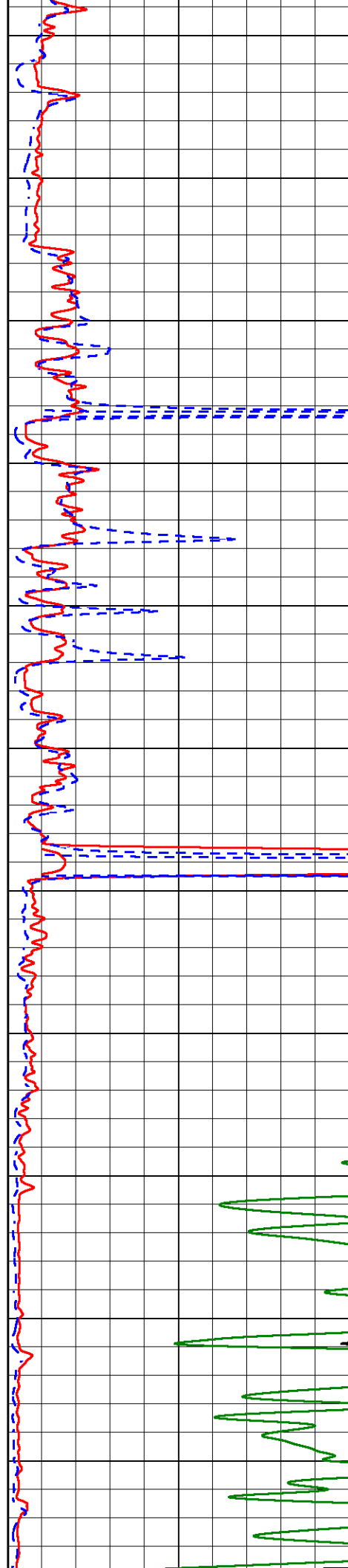
2000 CONDUCTIVITY (mmho/m) 0

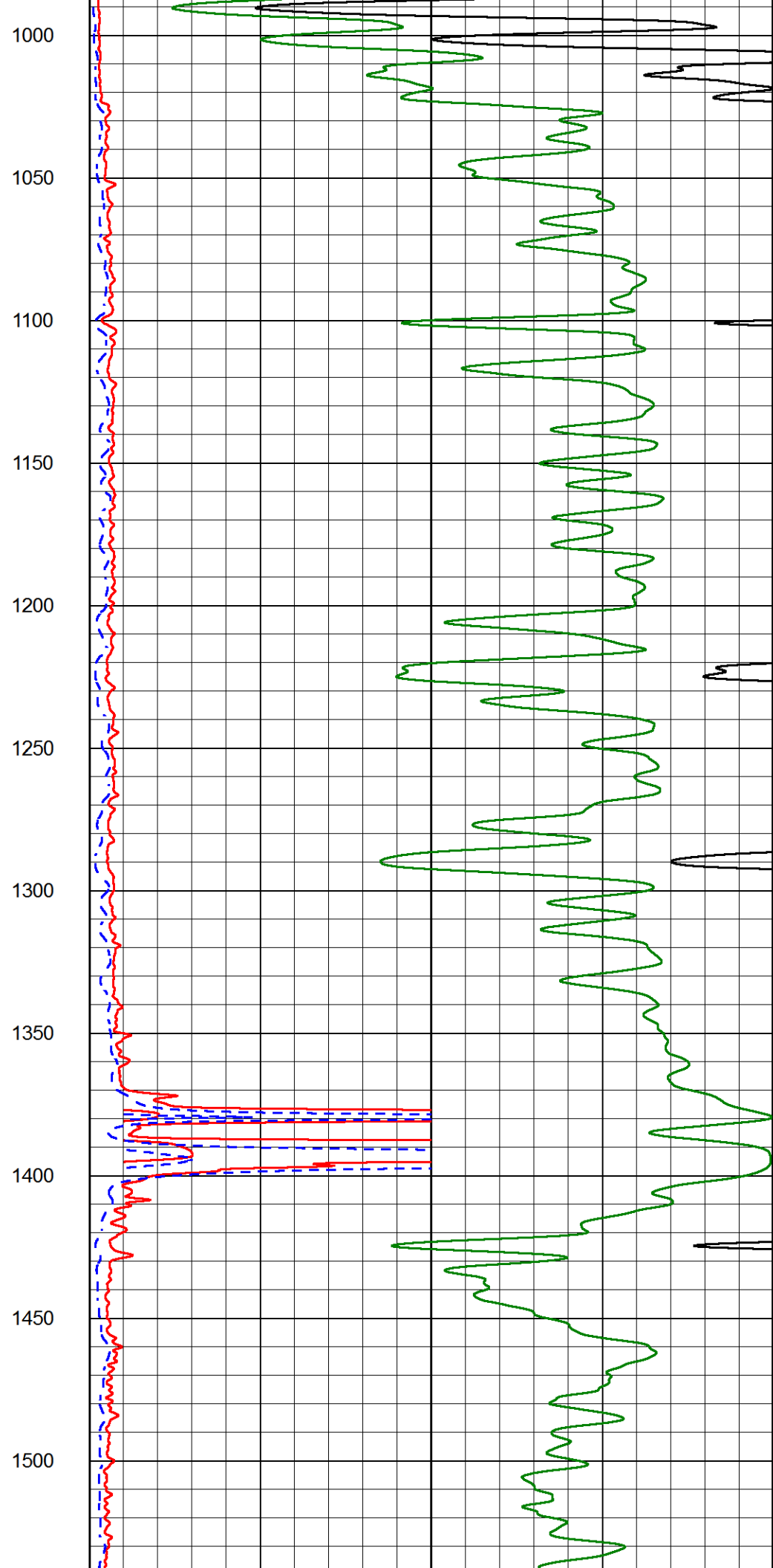
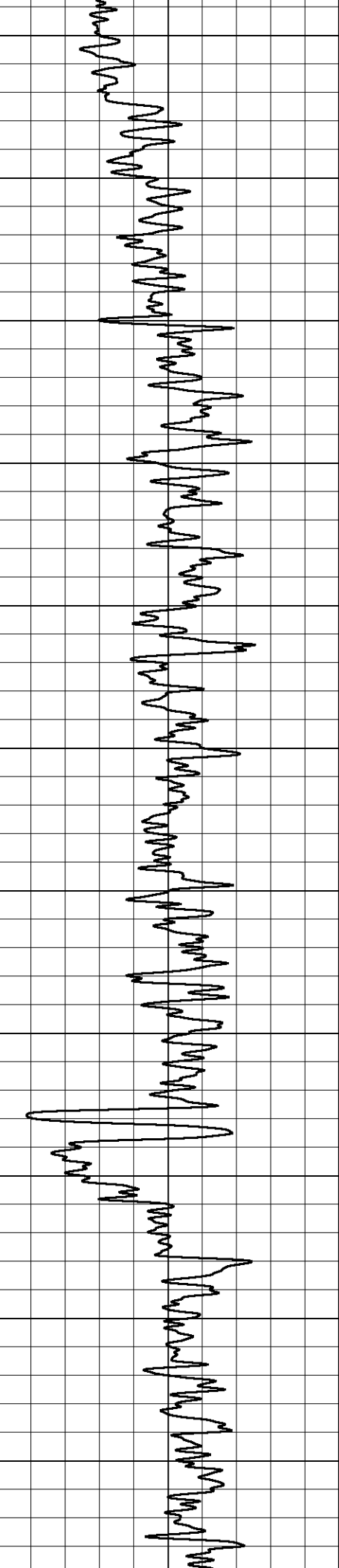
0 RLL3 (Ohm-m) 50
0 DEEP RESISTIVITY (Ohm-m) 50
50 RLL3 (Ohm-m) 500
DEEP RESISTIVITY
50 (Ohm-m) 500

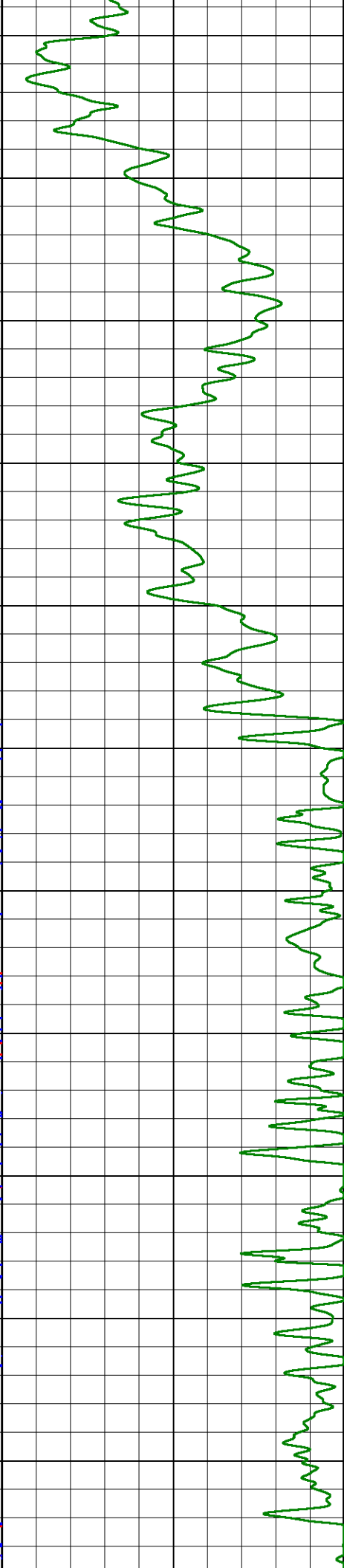
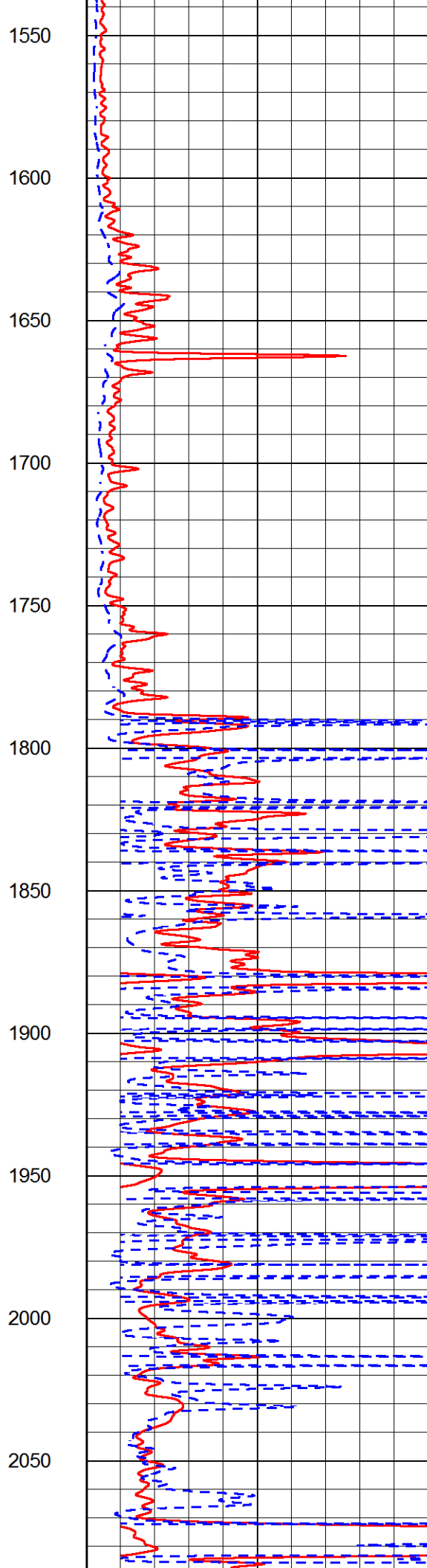
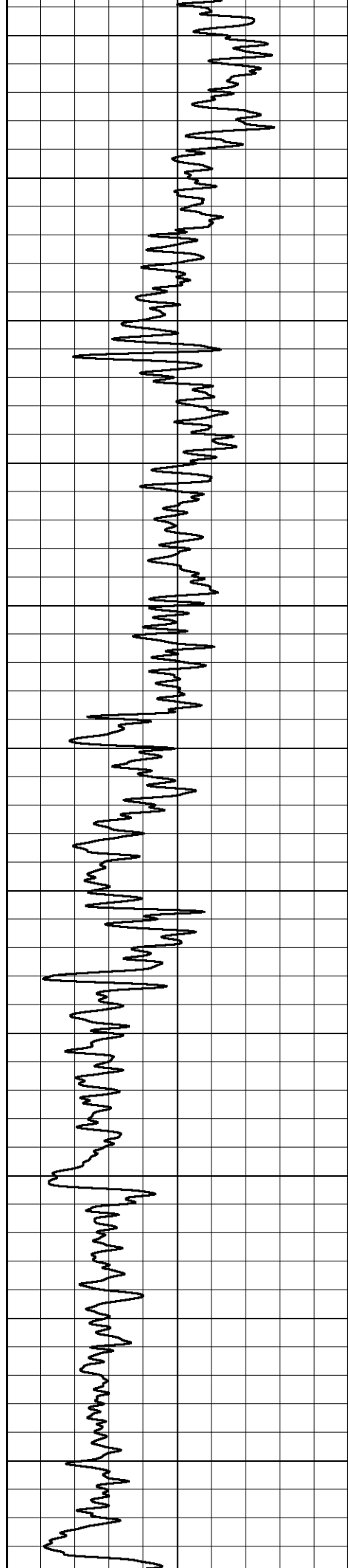


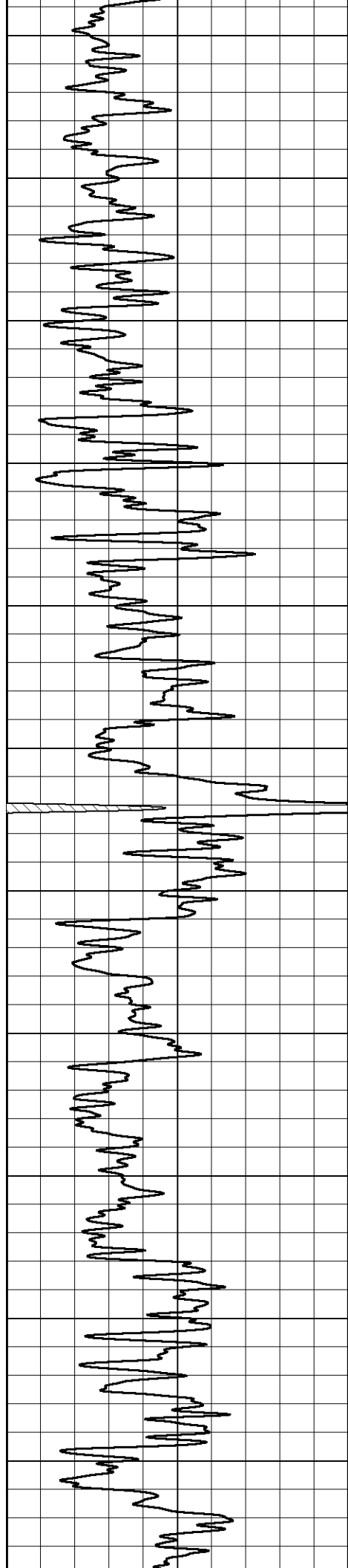


450
500
550
600
650
700
750
800
850
900
950









2100

2150

2200

2250

2300

2350

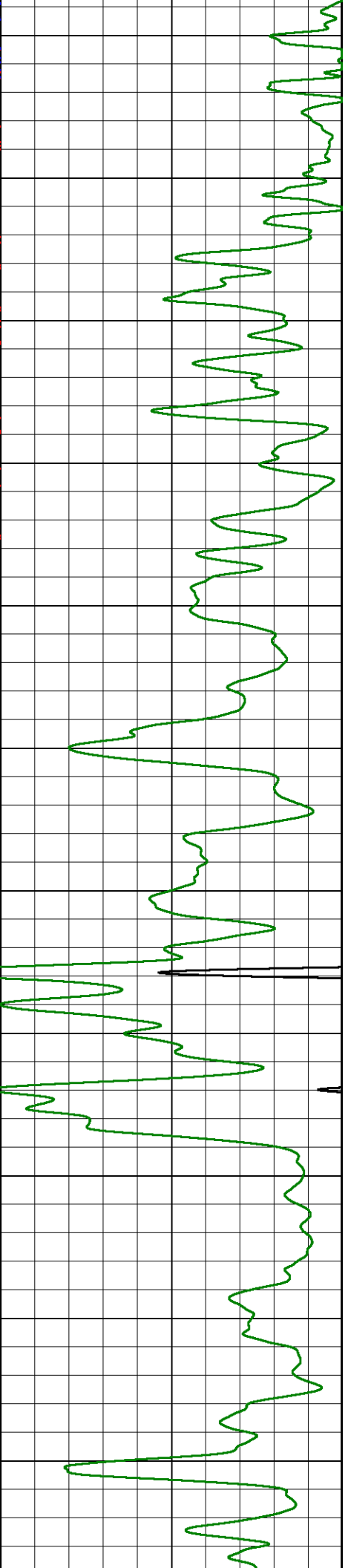
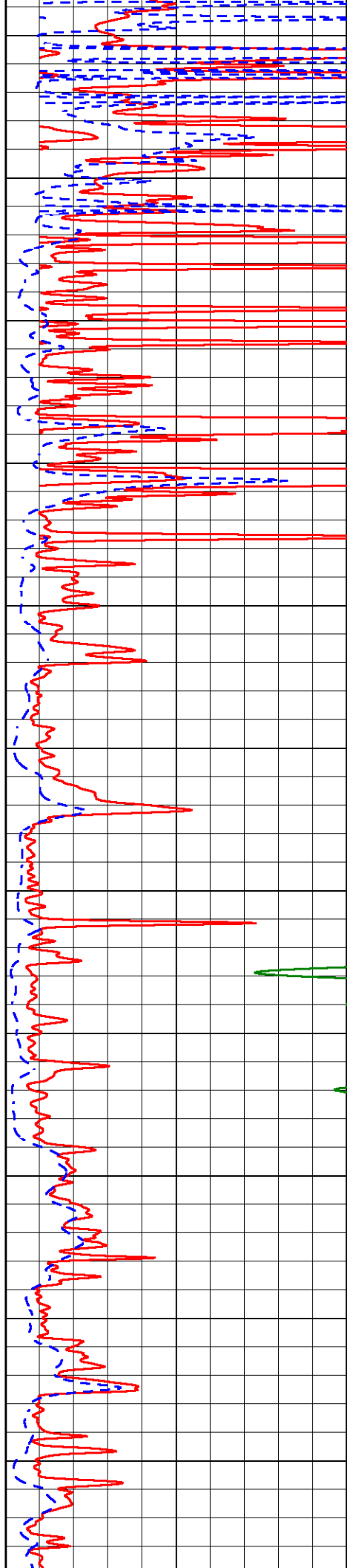
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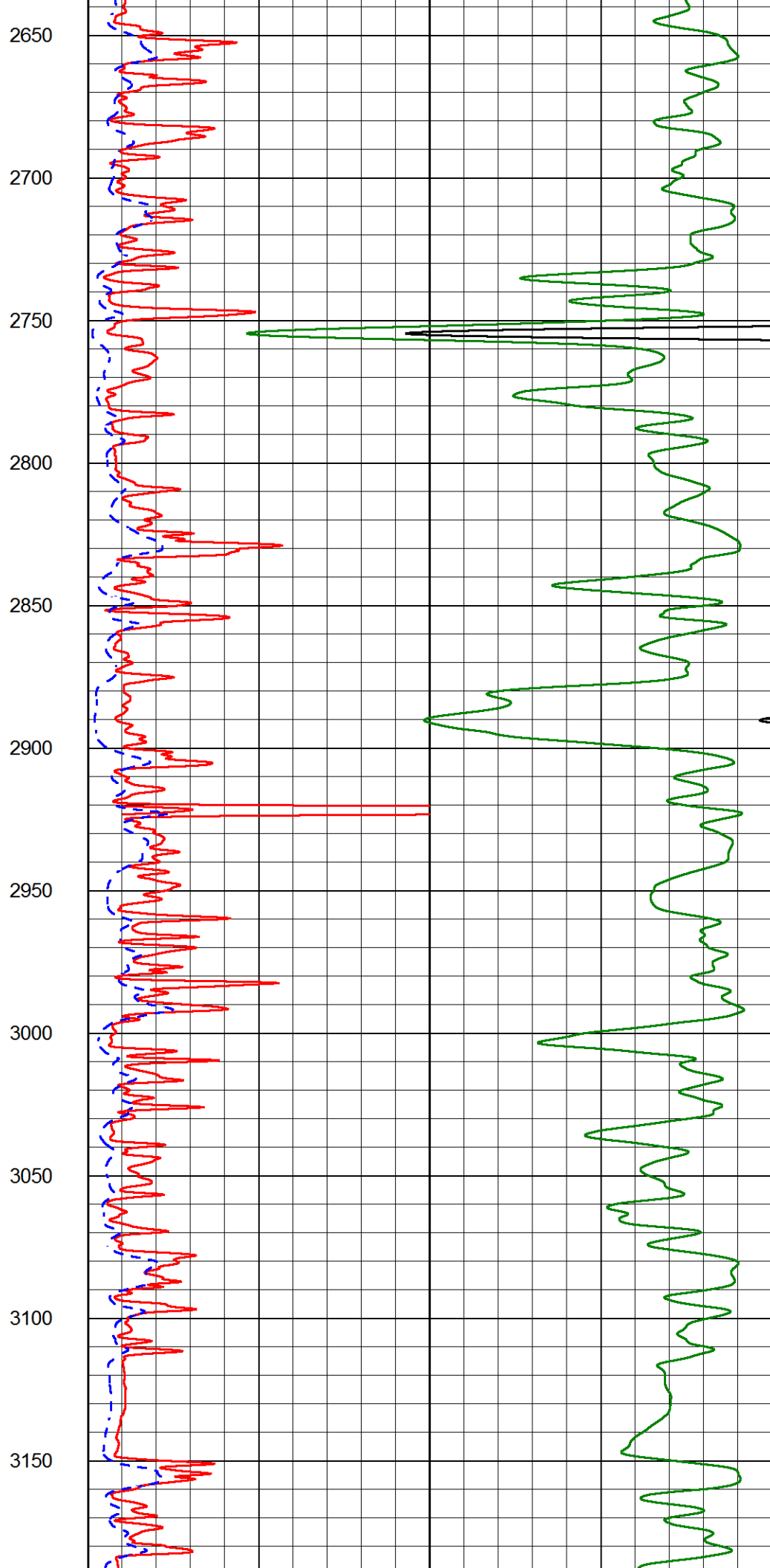
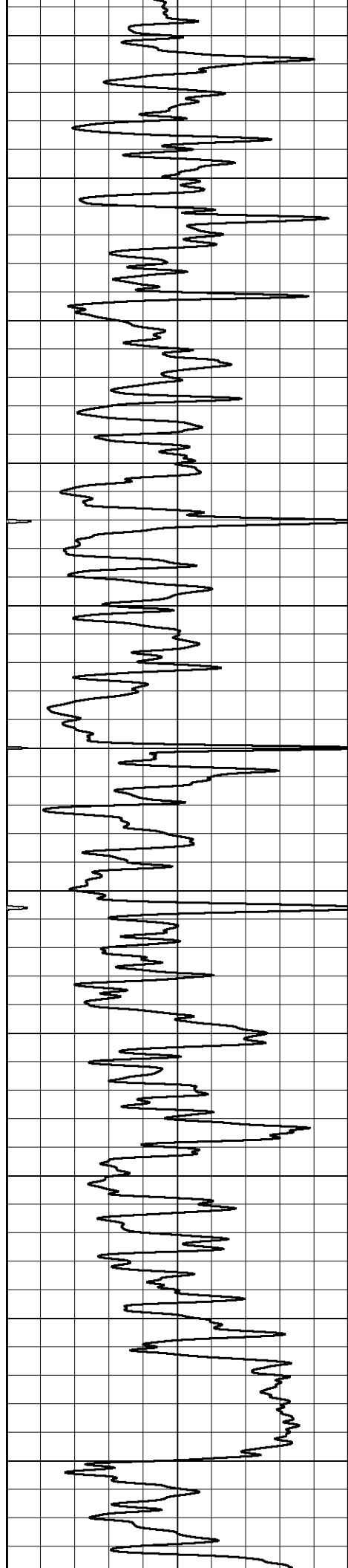
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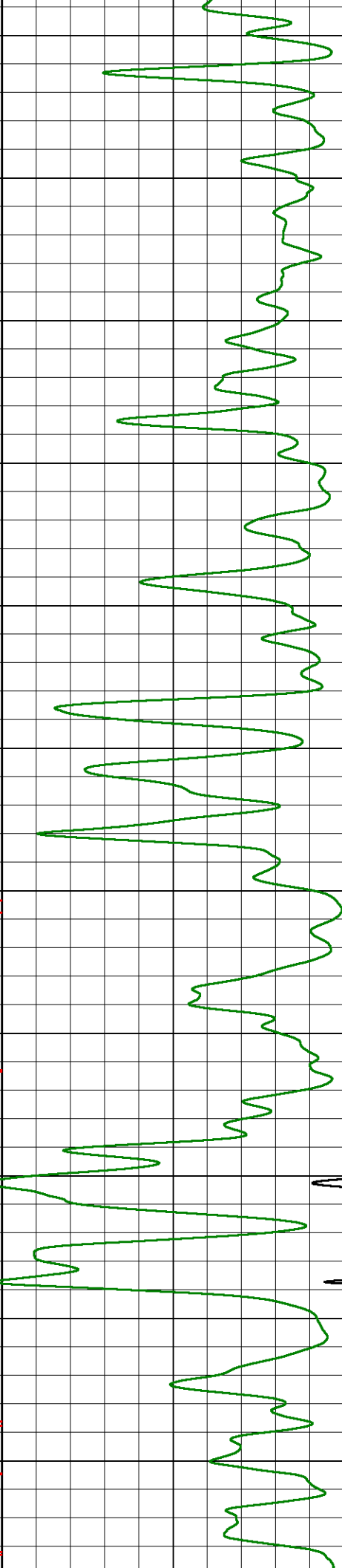
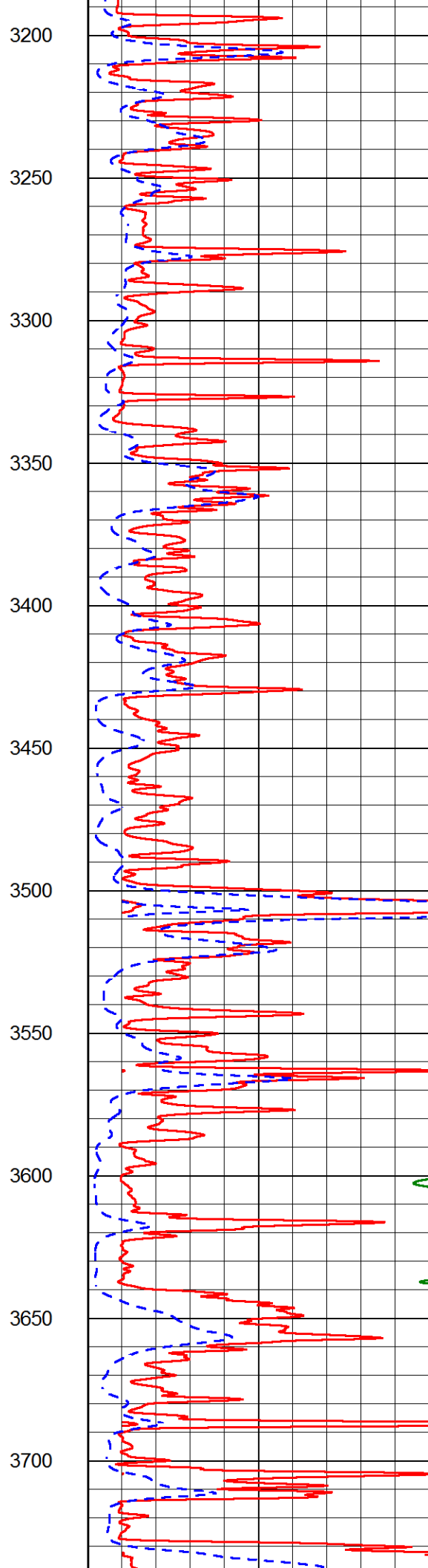
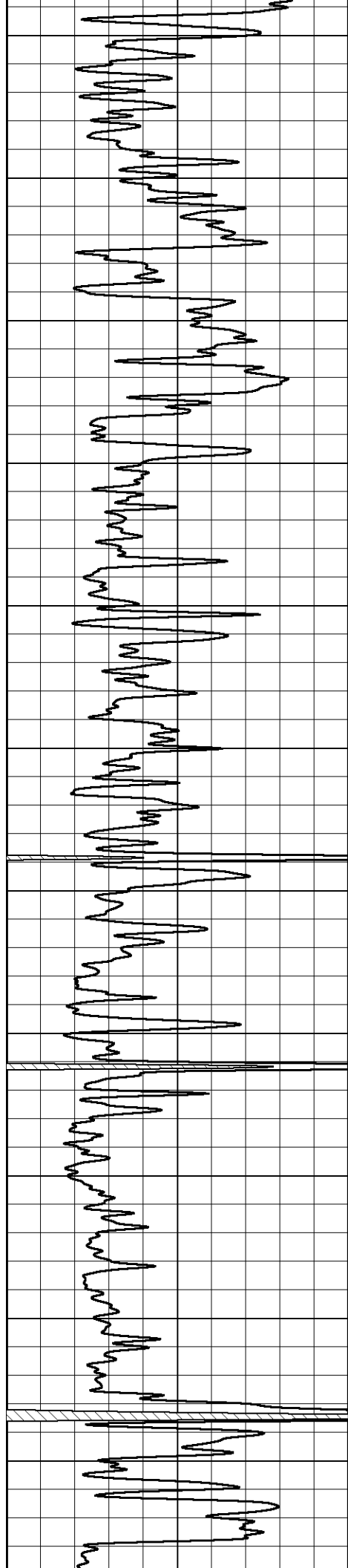
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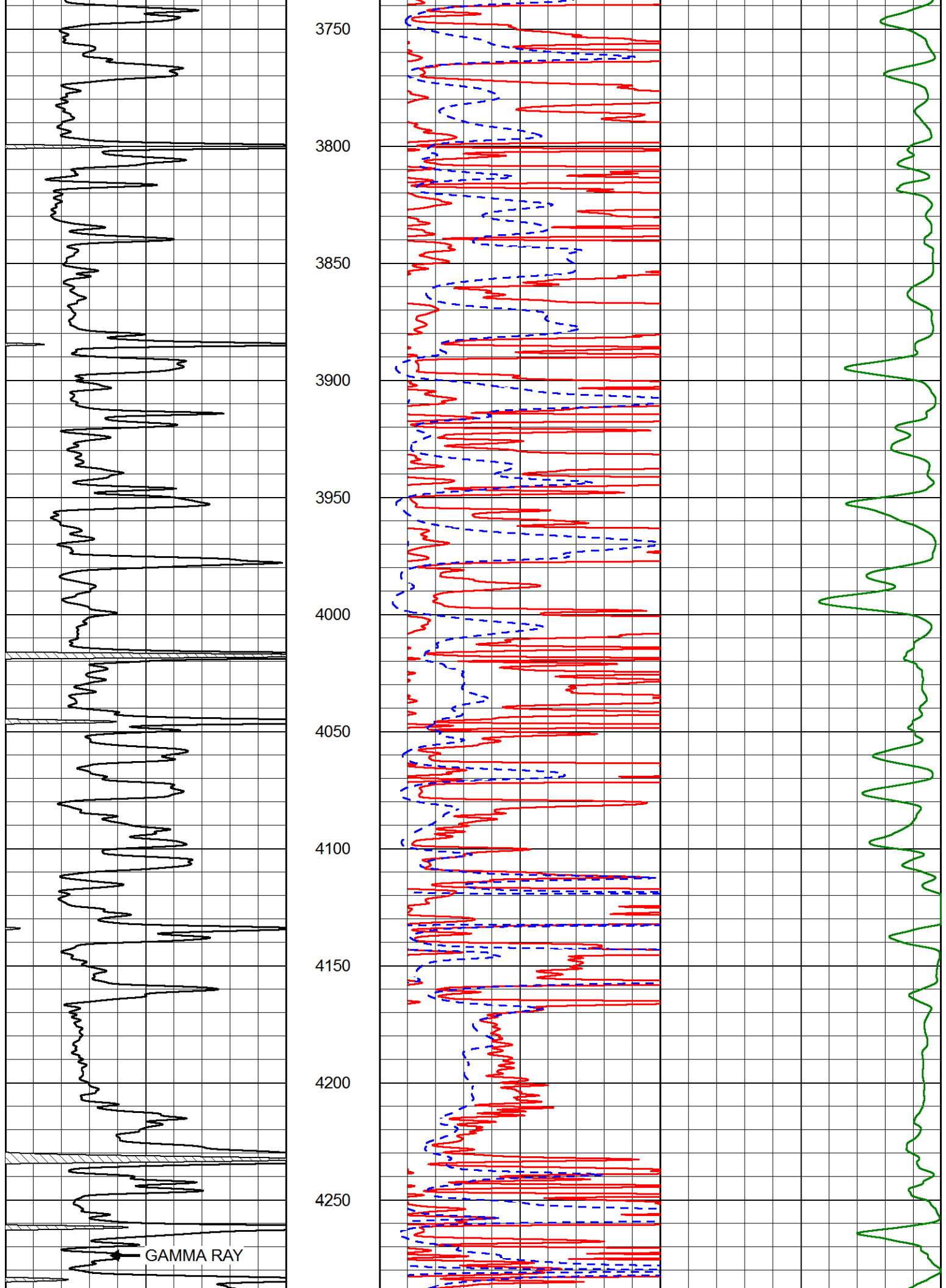
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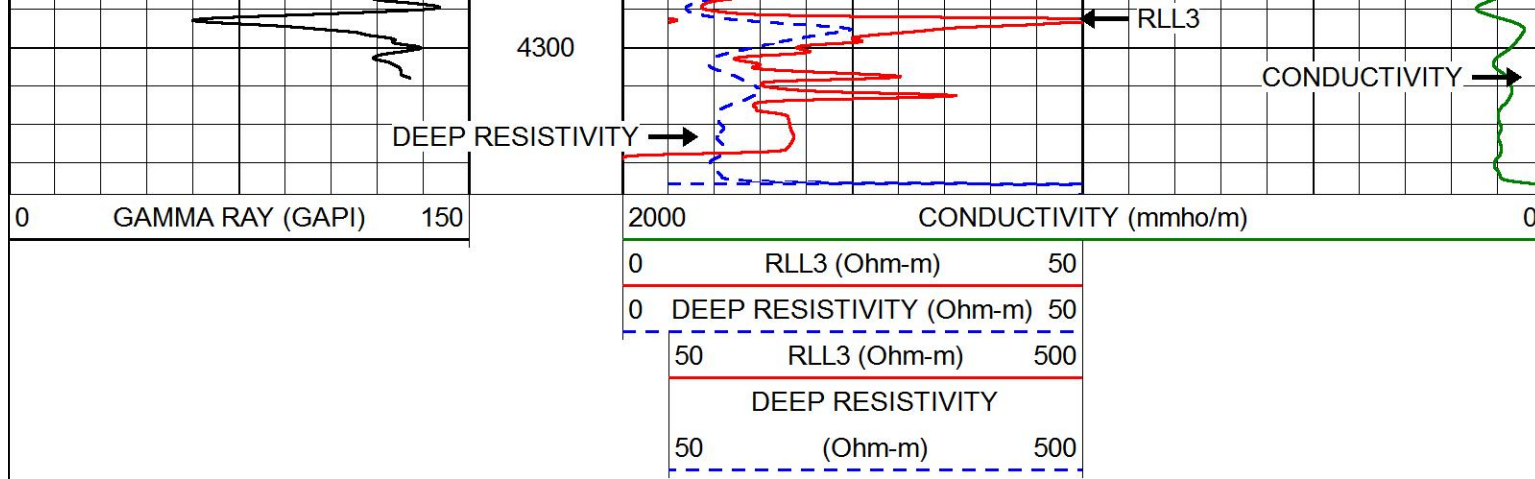
2600









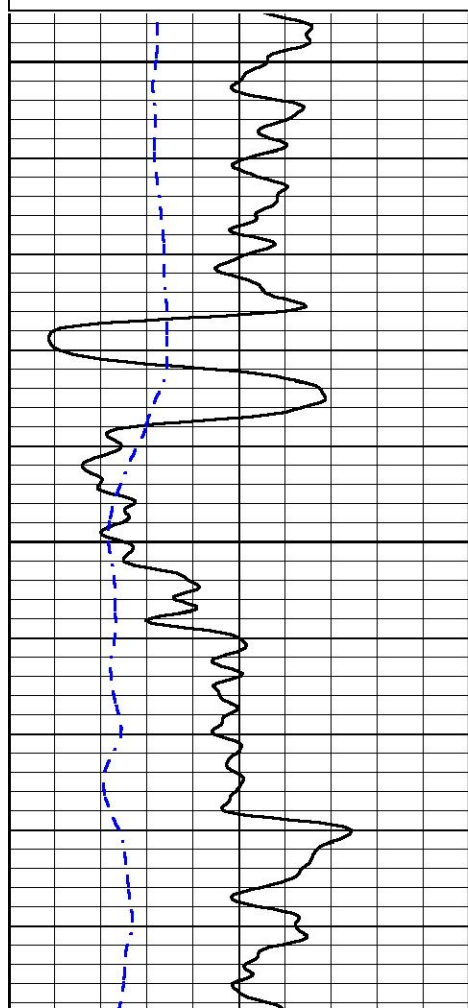
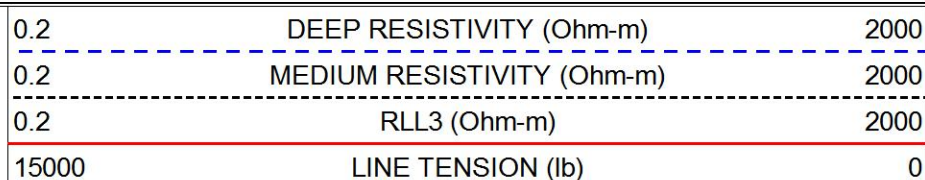
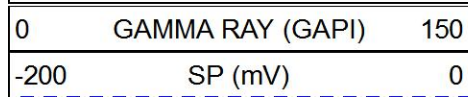


PIONEER

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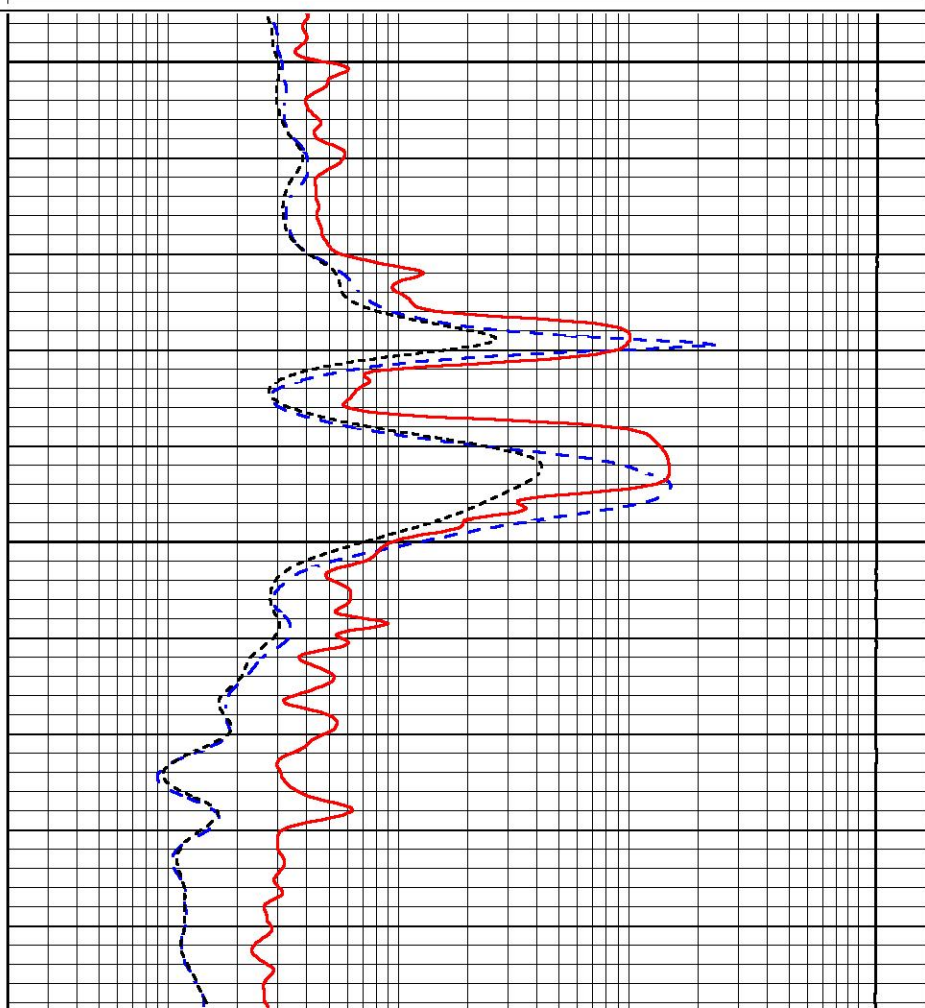
MAIN PASS

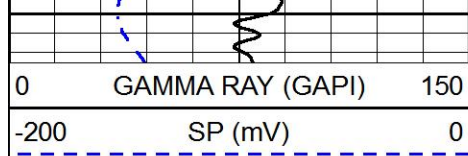
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 Presentation Format dil
 Dataset Creation Fri Nov 17 05:07:02 2017
 Charted by Depth in Feet scaled 1:240



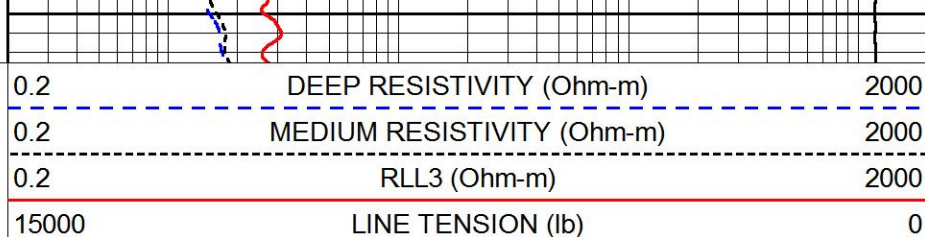
1350

1400



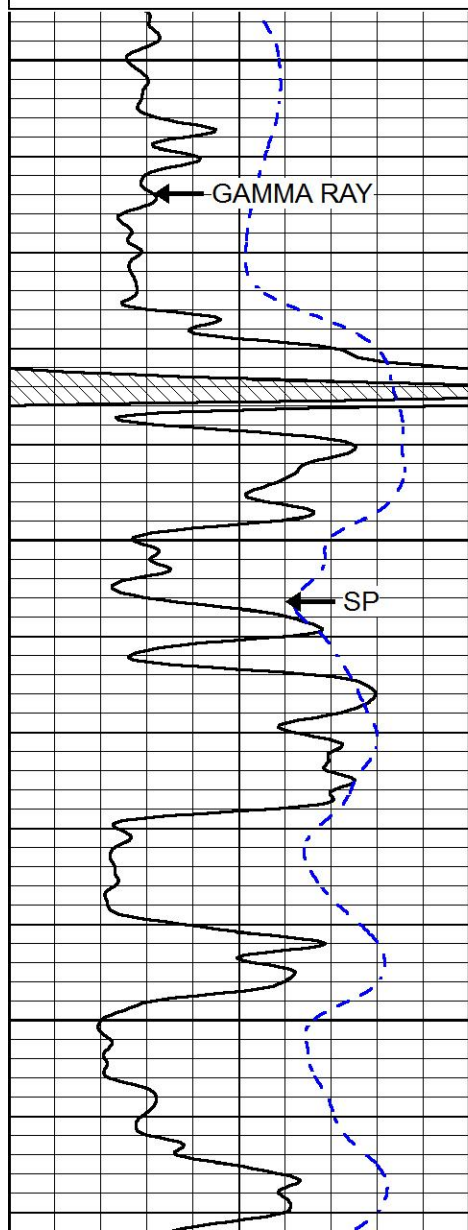
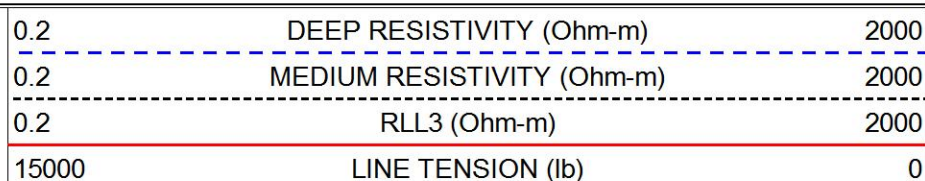
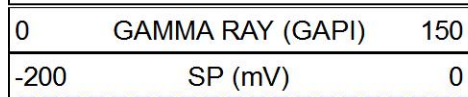


1450



MAIN PASS

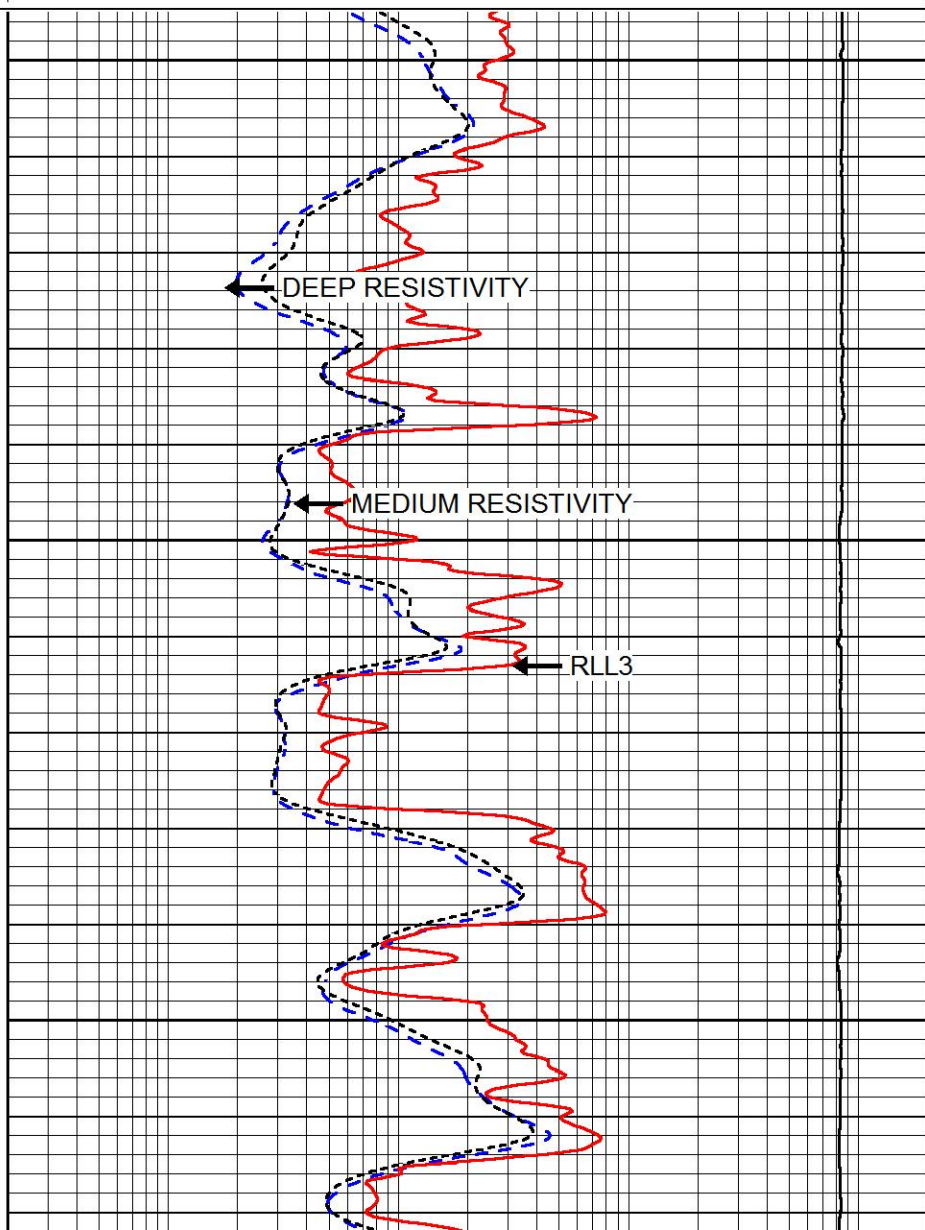
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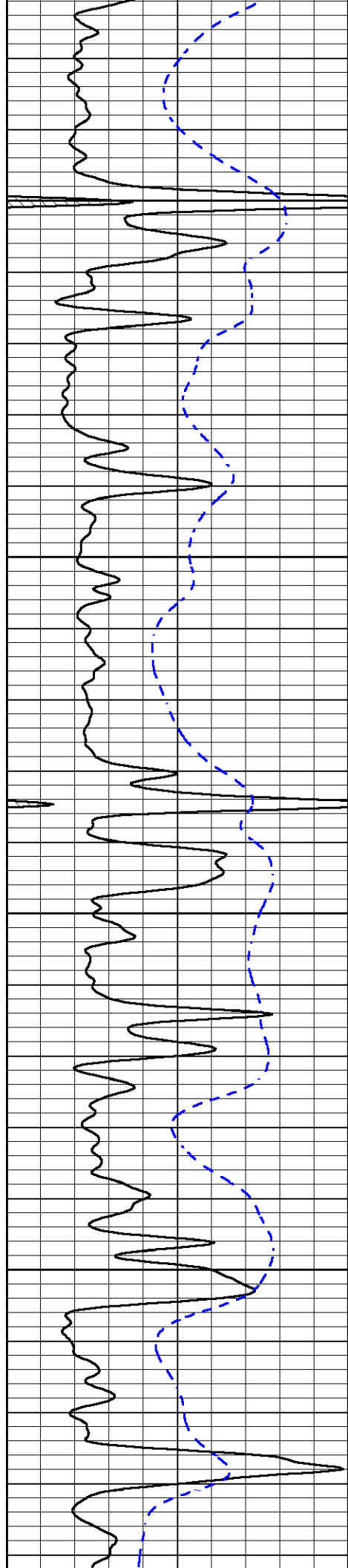


3650

3700

3750



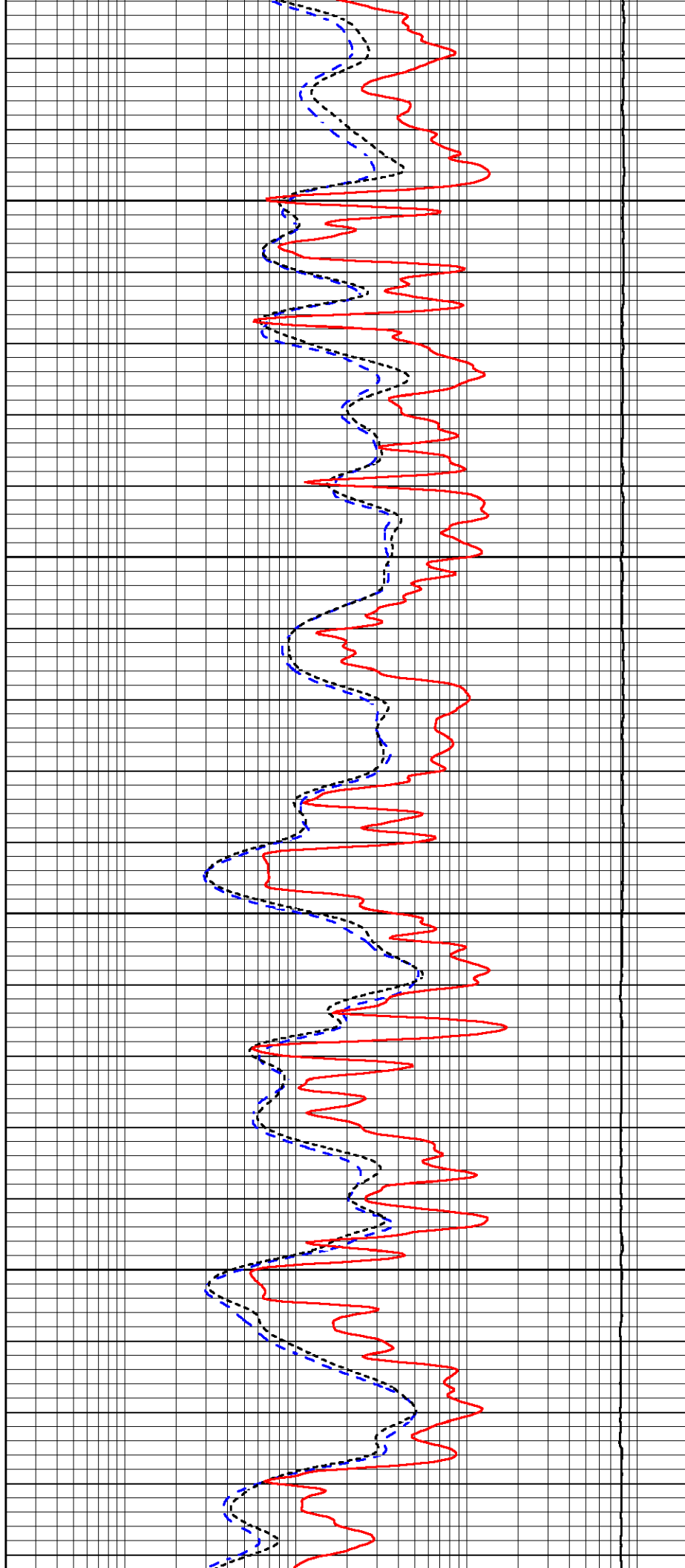


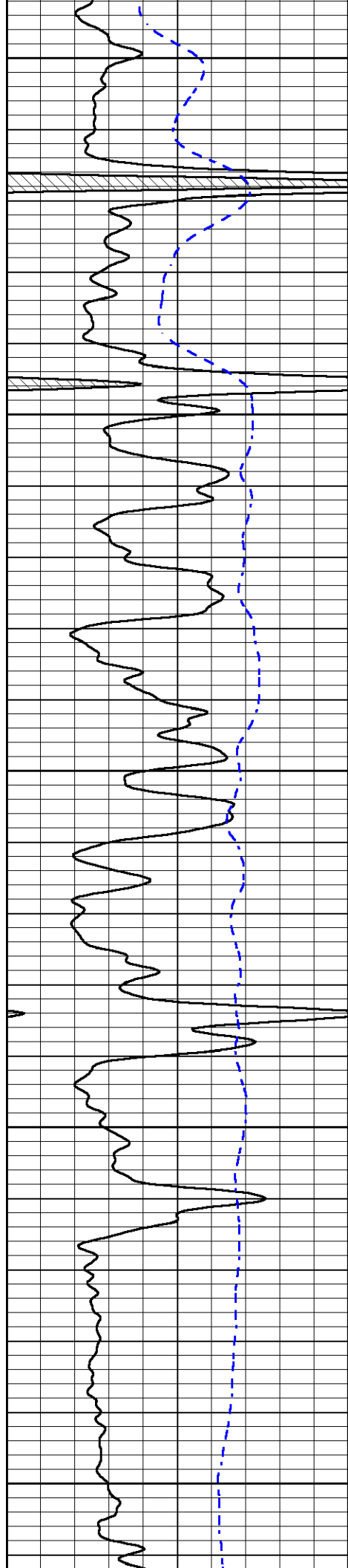
3800

3850

3900

3950





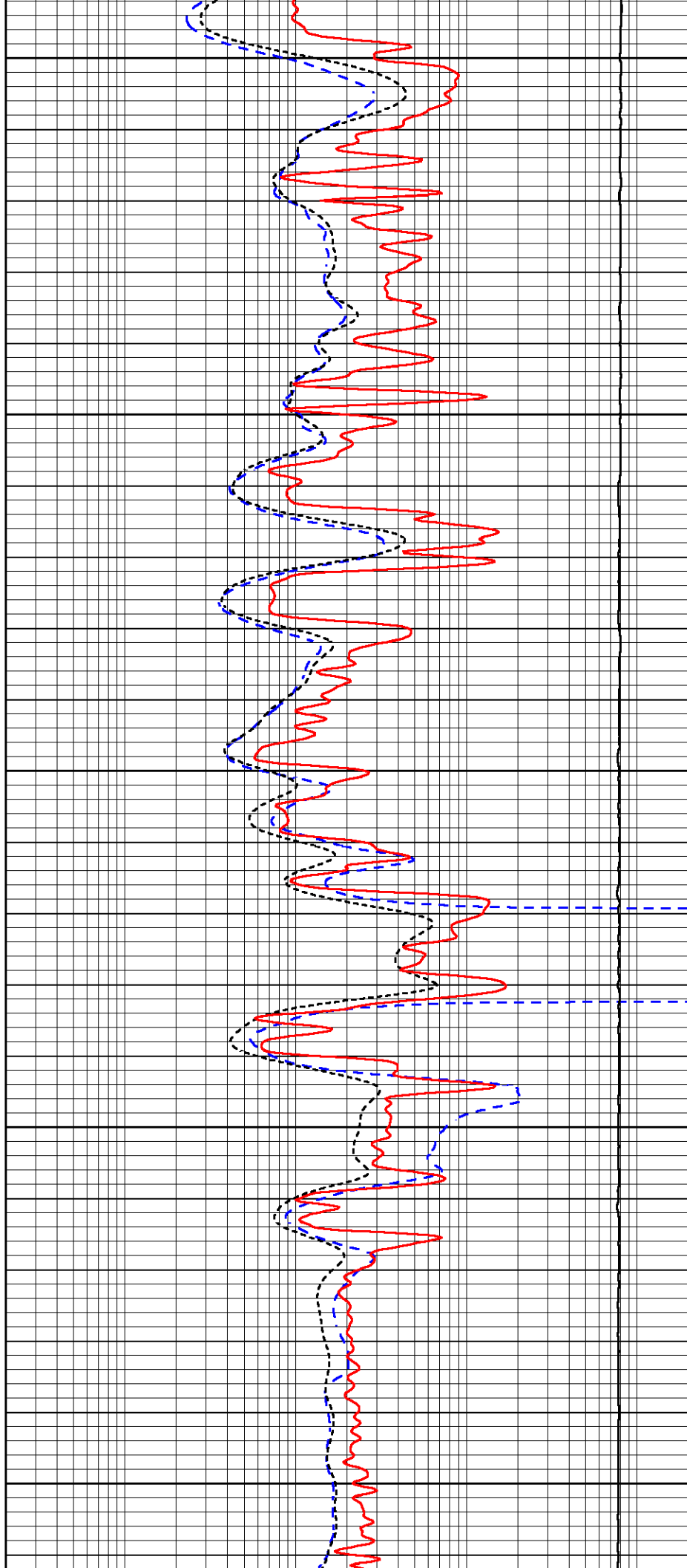
4000

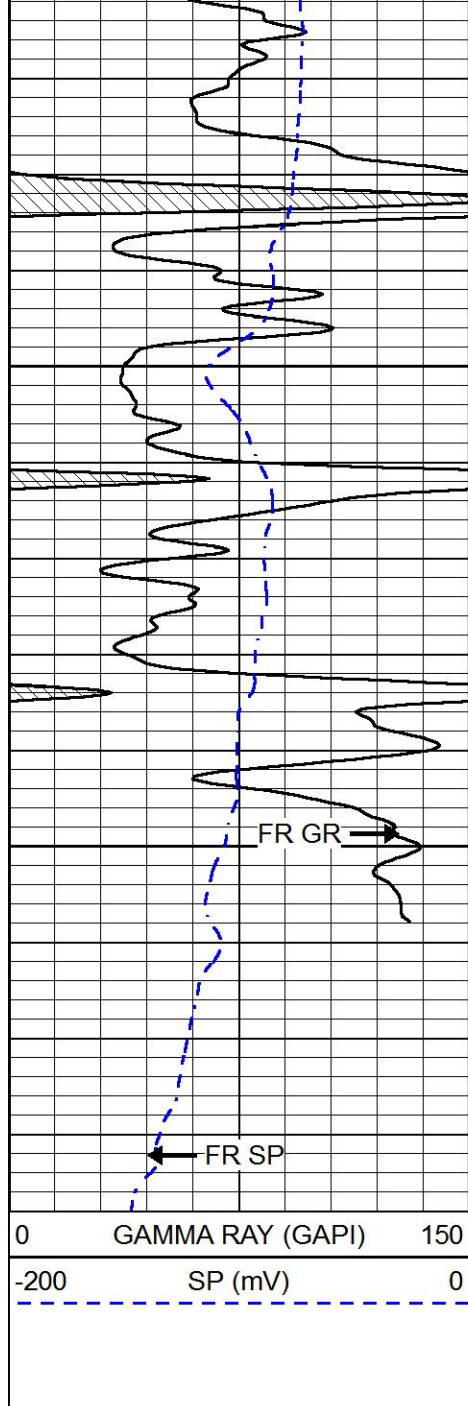
4050

4100

4150

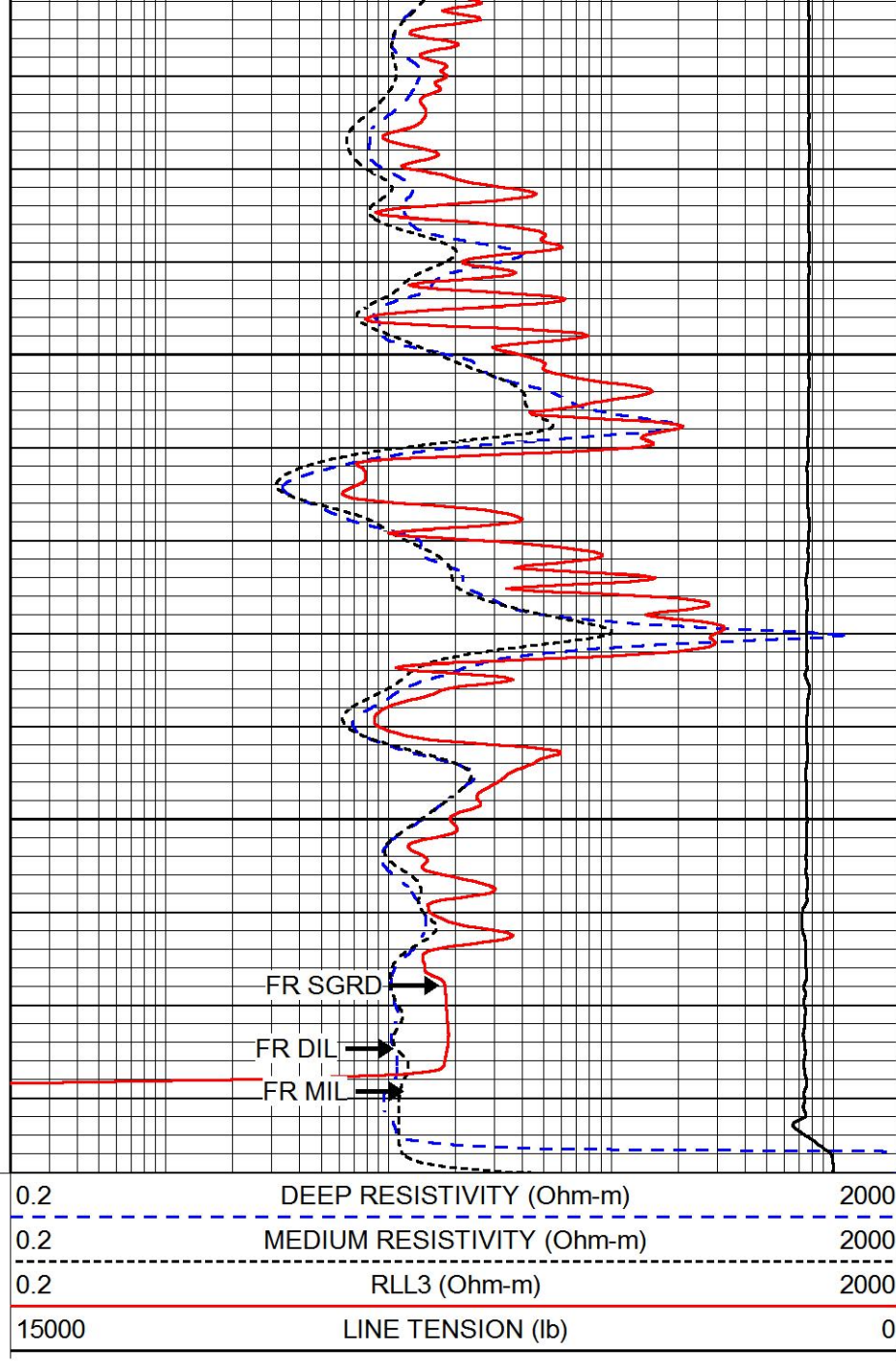
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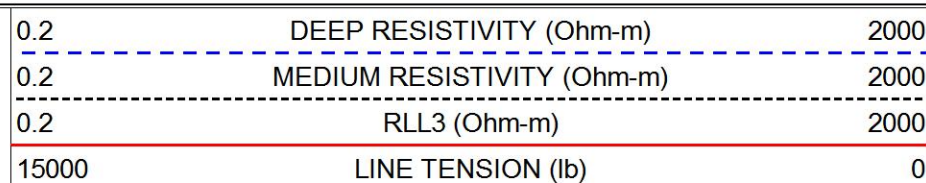
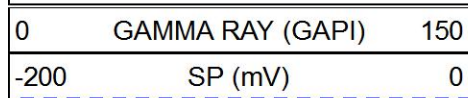
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4300

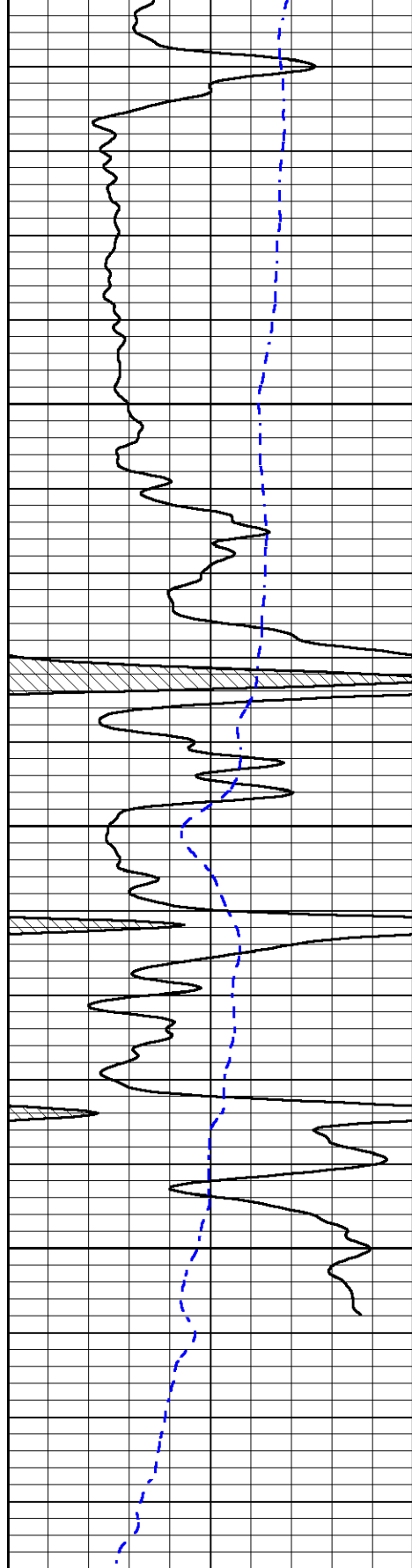


REPEAT SECTION

Database File american_warrior_kt_1_25.db
Dataset Pathname stack/pass2.1
Presentation Format dil
Dataset Creation Fri Nov 17 05:07:23 2017
Charted by Depth in Feet scaled 1:240



4150

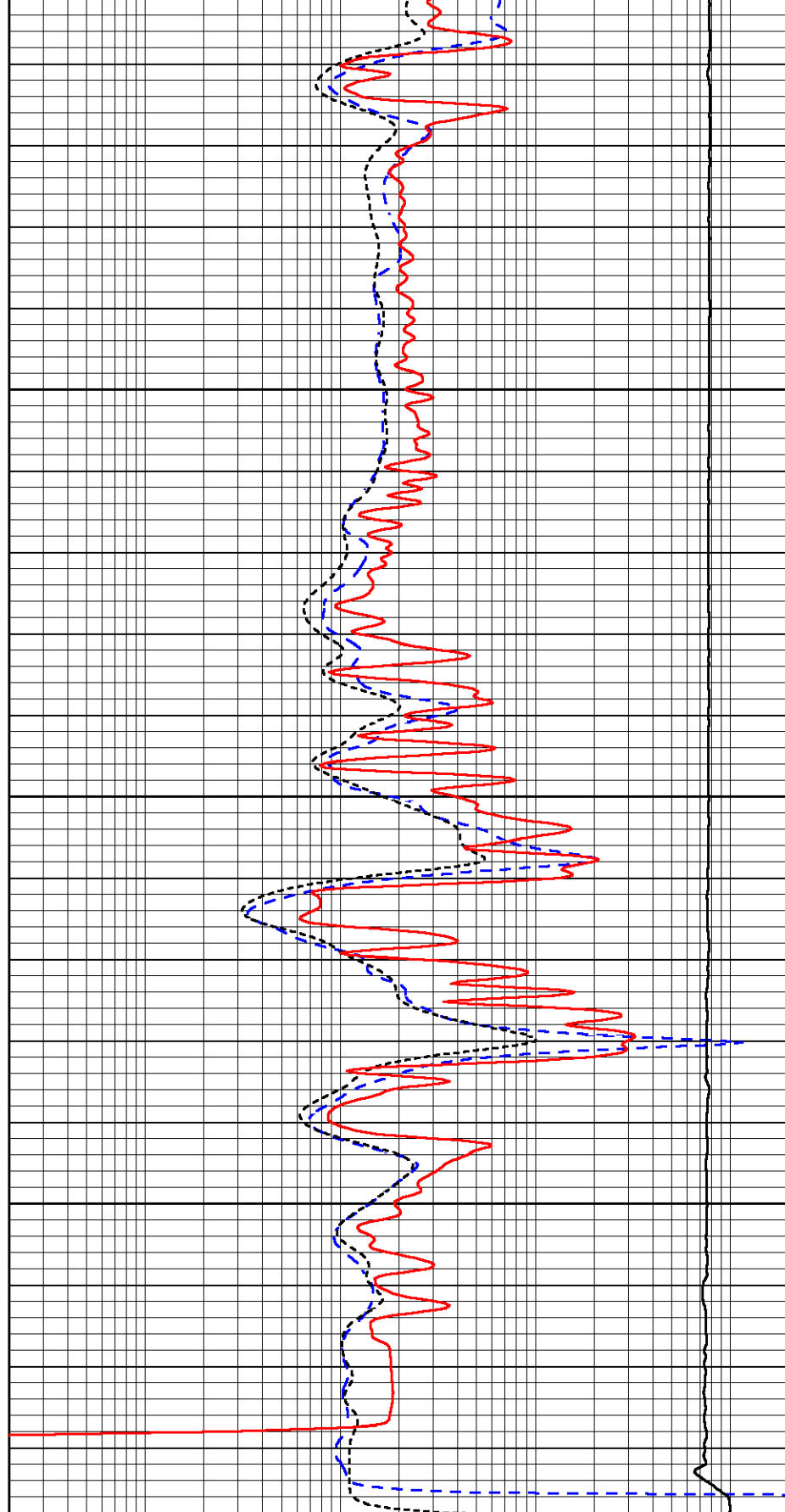


0 GAMMA RAY (GAPI) 150
-200 SP (mV) 0

4200

4250

4300



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

Dual Induction Calibration Report

Serial-Model: 1987-M&W
Calibration Performed: Tue Apr 11 17:07:38 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	0.440	-110.500

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	2.675	g/cc	859.57	3020.22	cps
Spine Angle = 74.61			Density/Spine Ratio = 0.523		
	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





Well	KT NO. 1-25
Field	WILDCAT
County	NESS
State	KANSAS