



PIONEER
Pioneer Energy Services

DUAL INDUCTION LOG

Company **DARRAH OIL**
Well **BRONLEEWE NO. 2-22**
Field **RICKARD**
County **RICE** State **KANSAS**

Location: API #: 15-159-22860-00-00

981' FNL & 581' FEL

SEC 22 TWP 18S RGE 9W

Permanent Datum **GROUND LEVEL** Elevation **1727'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Other Services
CNL/CDL
MEL/BHCS
Elevation
K.B. 1732'
D.F. N/A
G.L. 1727'

Date	11/6/2018
Run Number	ONE
Depth Driller	3330'
Depth Logger	3330'
Bottom Logged Interval	3329'
Top Log Interval	250'
Casing Driller	8.625" @ 293'
Casing Logger	299'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	N/A
Density / Viscosity	9.0 54
pH / Fluid Loss	N/A N/A
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.65 @ 67
Rmt @ Meas. Temp	.49 @ 67
Rmc @ Meas. Temp	.88 @ 67
Source of Rmt / Rmc	CHARTS
Rm @ BHT	.40 @ 109
Operating Rig Time	4 HOURS
Max Rec. Temp. F	109 DEGF
Equipment Number	108
Location	HAYS
Recorded By	J. HENRICKSON
Witnessed By	SETH EVENSON

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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.

HWY 4 & CHASE BLACKTOP
SOUTH TO AVE D, 3 EAST, 1/8 SOUTH, WEST INTO

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: SETH EVENSON
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 109	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 12	mmho/m 0	mV 270	degF 47	Off	ft 3330

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 20.83 20.35			CDL-M&W (168-130)	8.50	4.00	250.00
RLL3 RLL3F	15.80 15.79						
CILD	8.00			DIL-M&W (1987)	18.50	3.50	220.00

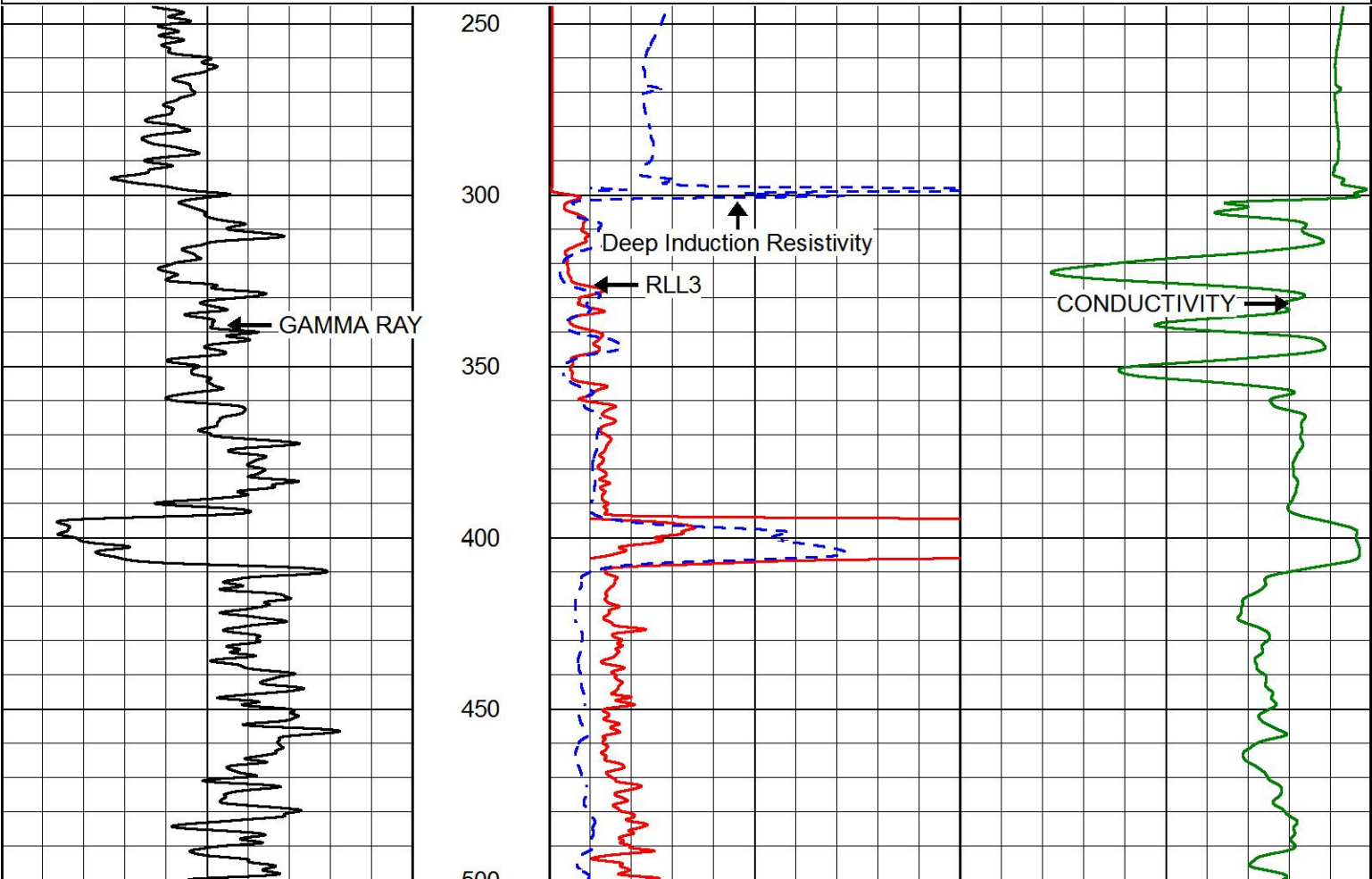
CILM	4.70								
SP	0.20								
Dataset: darrah_bronleewe_2_22.db: field/well/stack/pass5.1 Total length: 35.50 ft Total weight: 620.00 lb O.D.: 4.00 in									

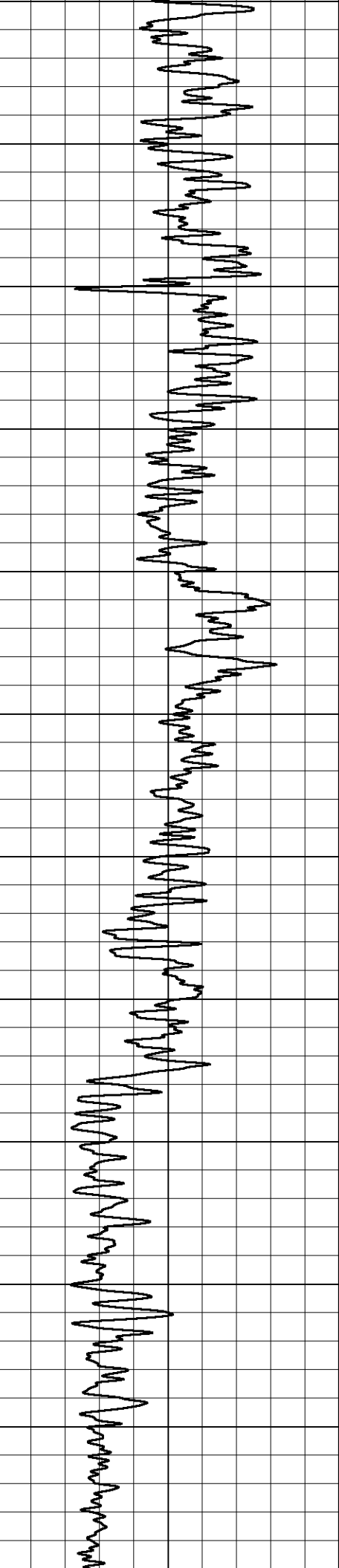
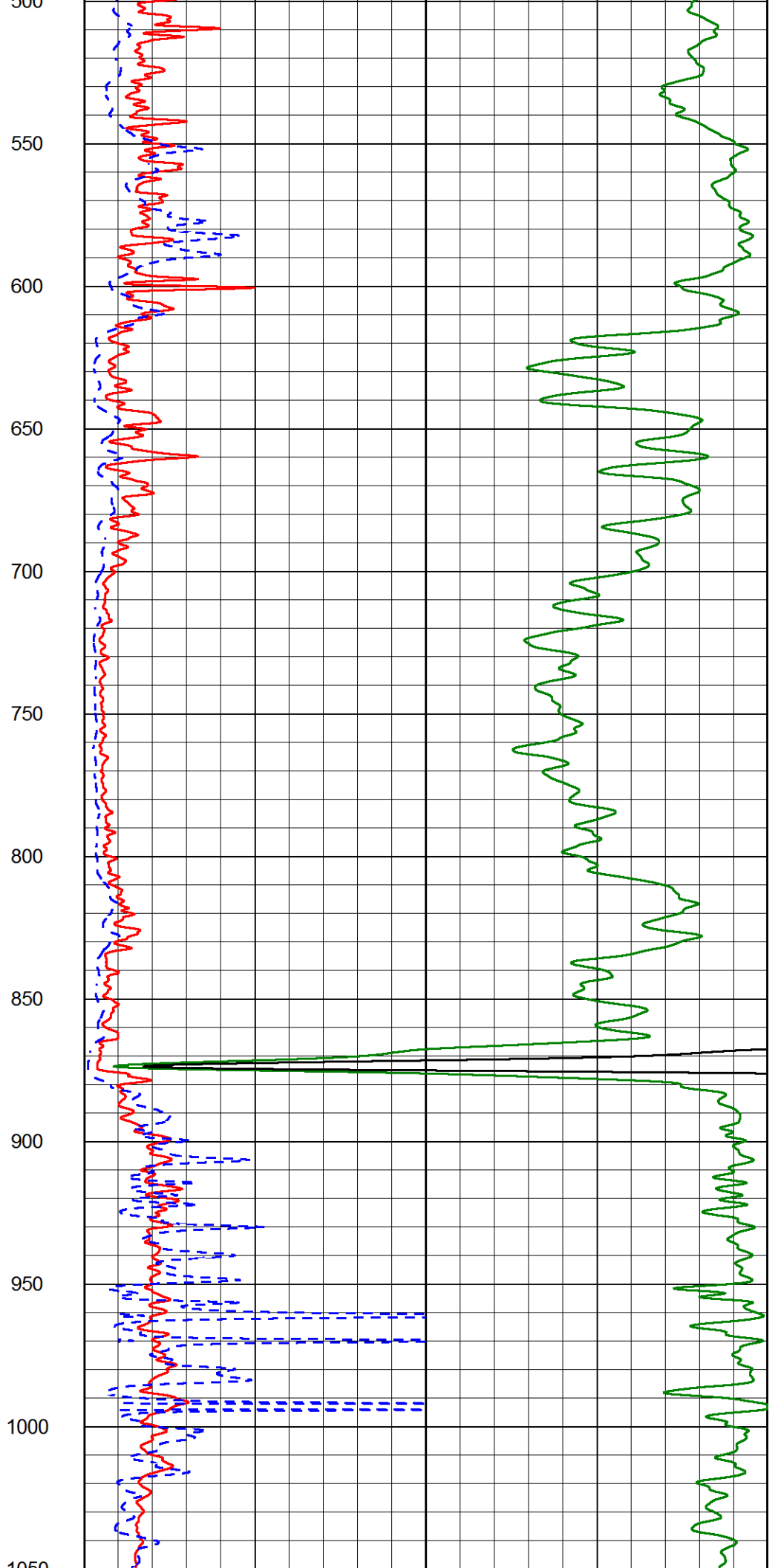


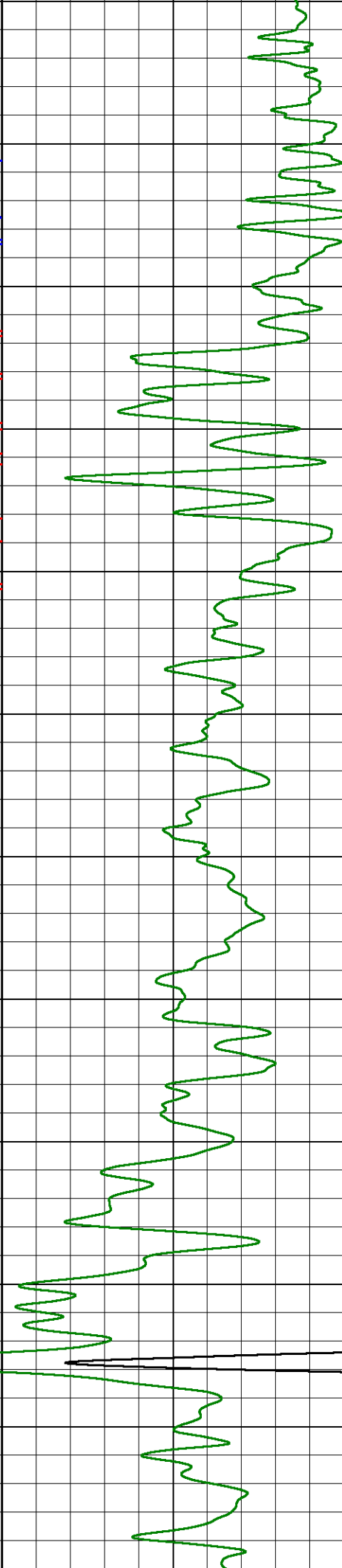
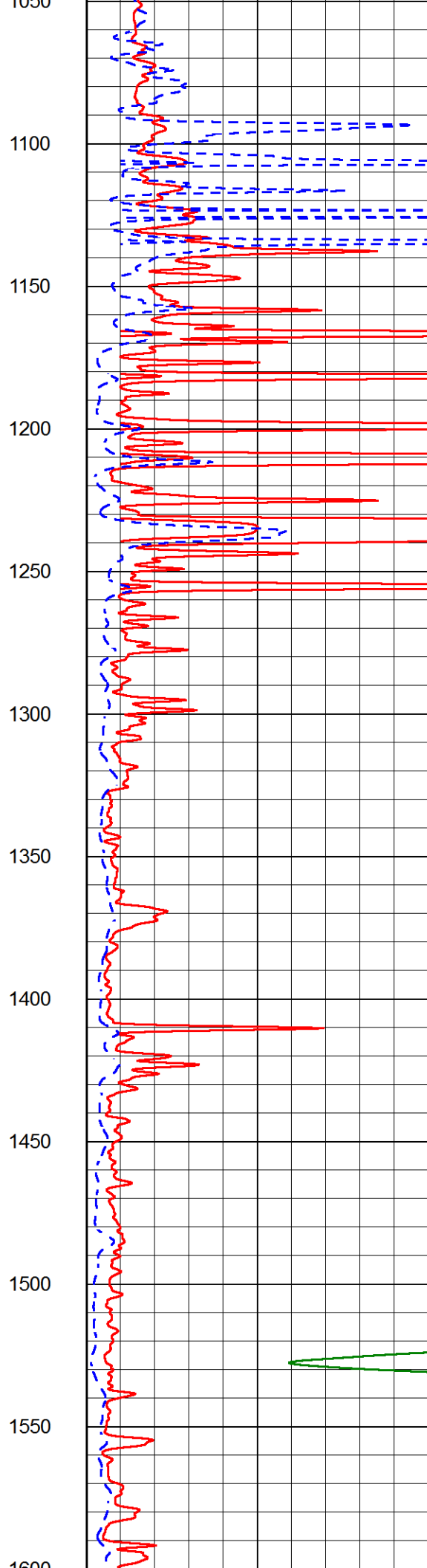
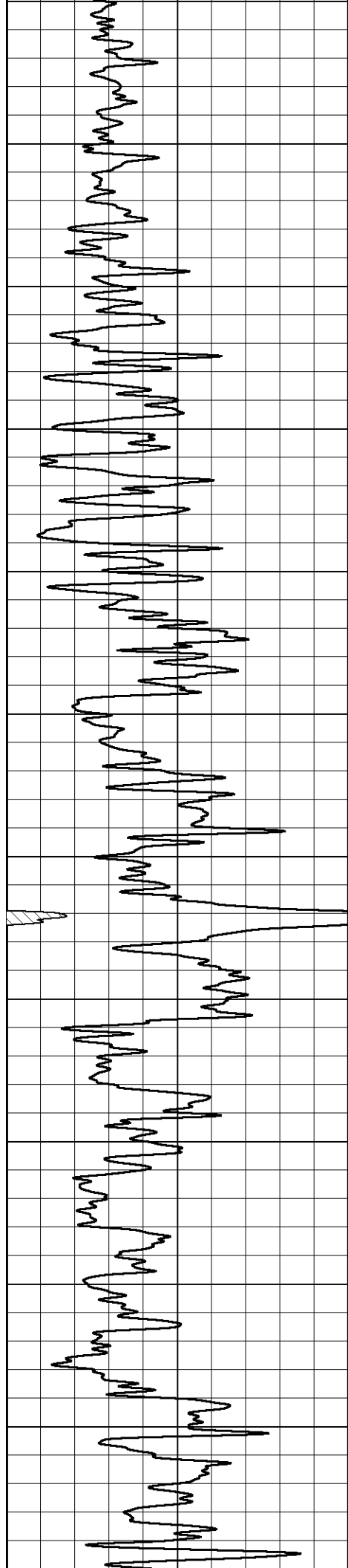
MAIN PASS

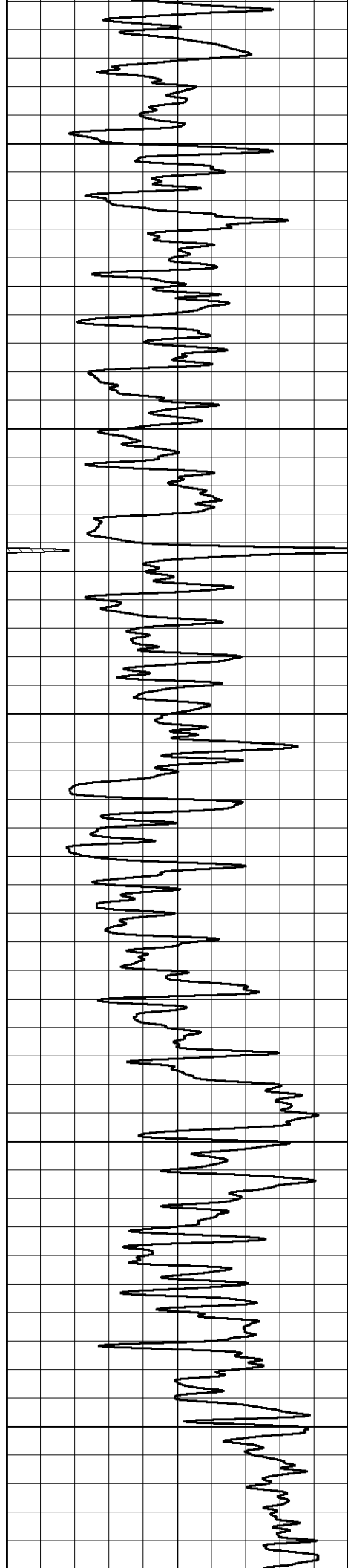
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Dataset Pathname	stack/pass5.1
Presentation Format	dil2in
Dataset Creation	Tue Nov 06 13:03:25 2018
Charted by	Depth in Feet scaled 1:600

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

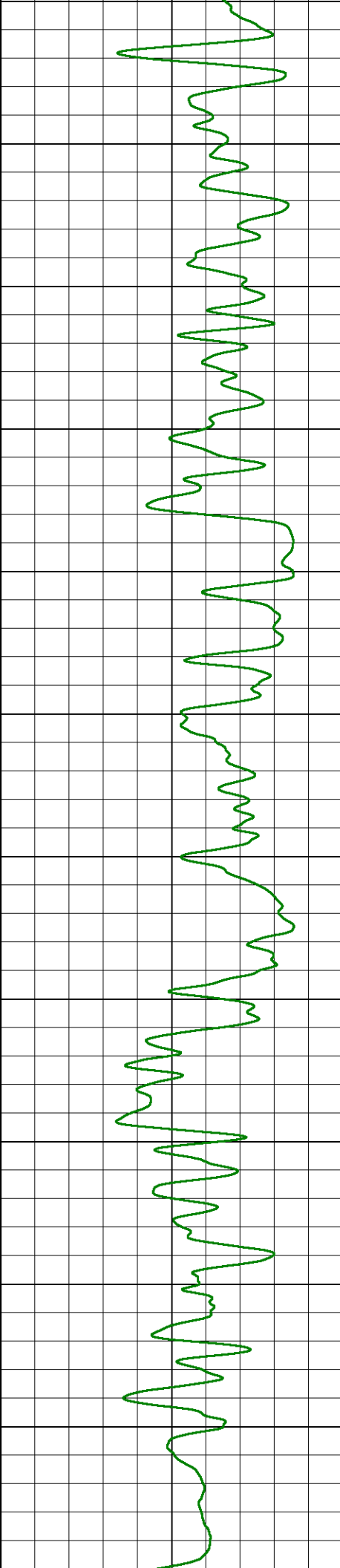
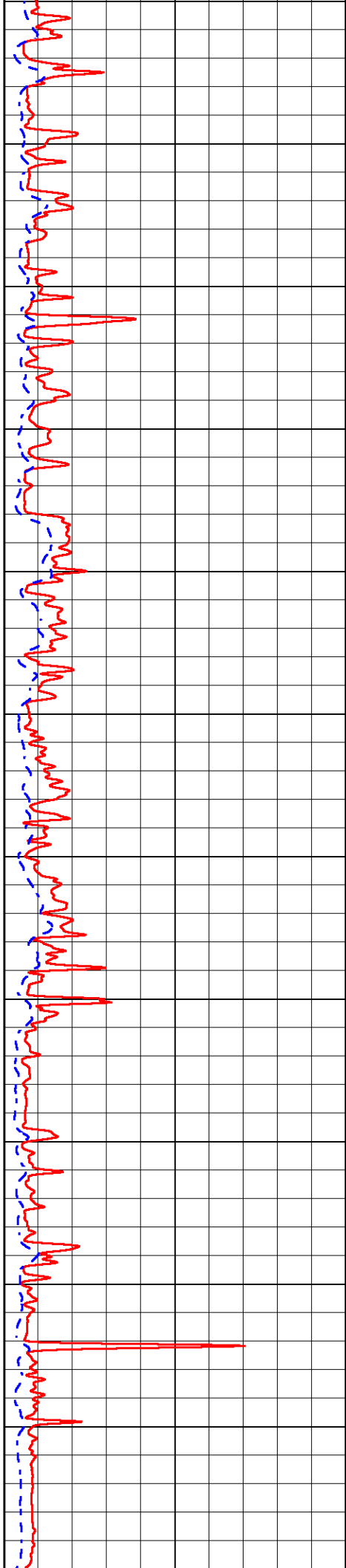


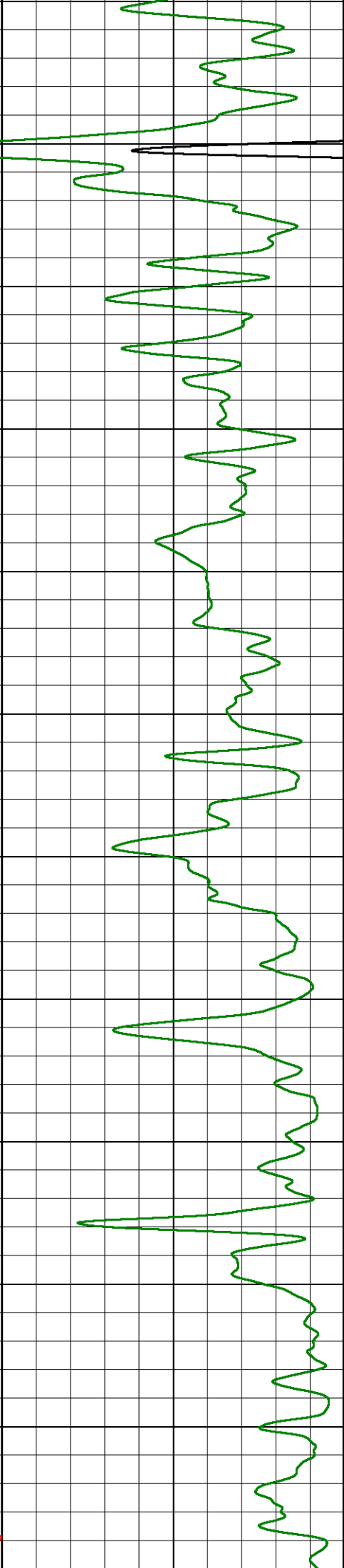
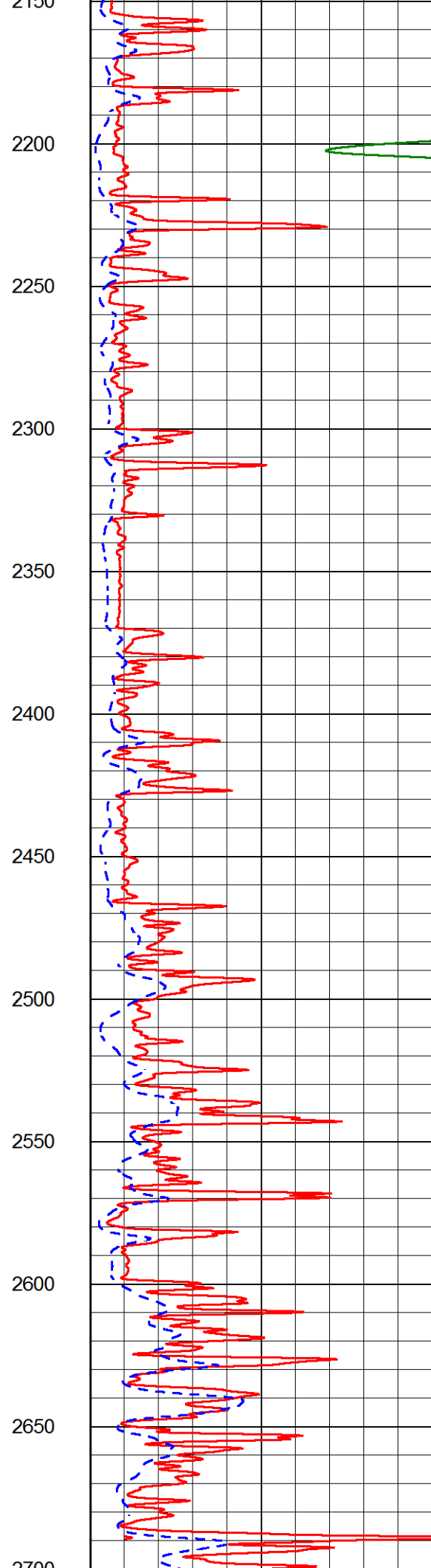
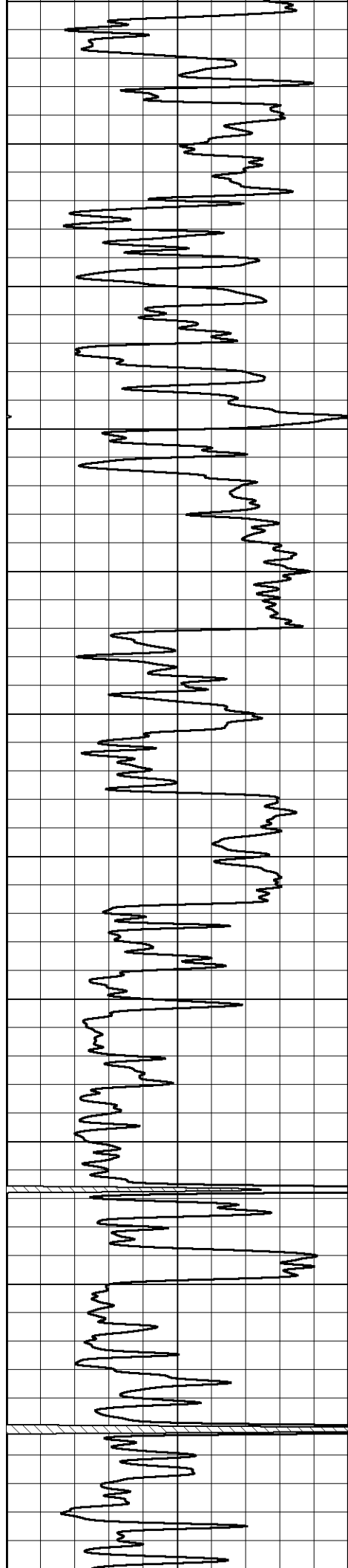


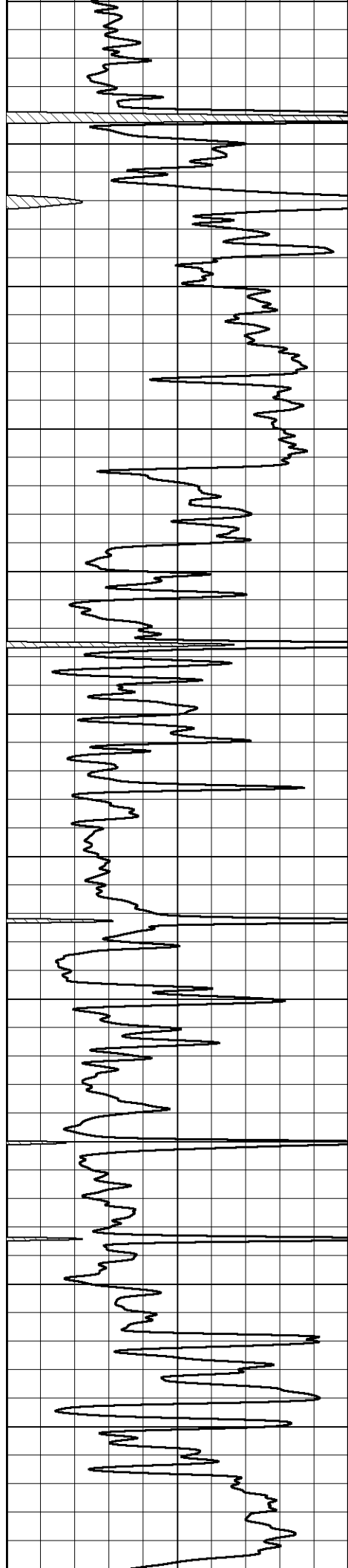




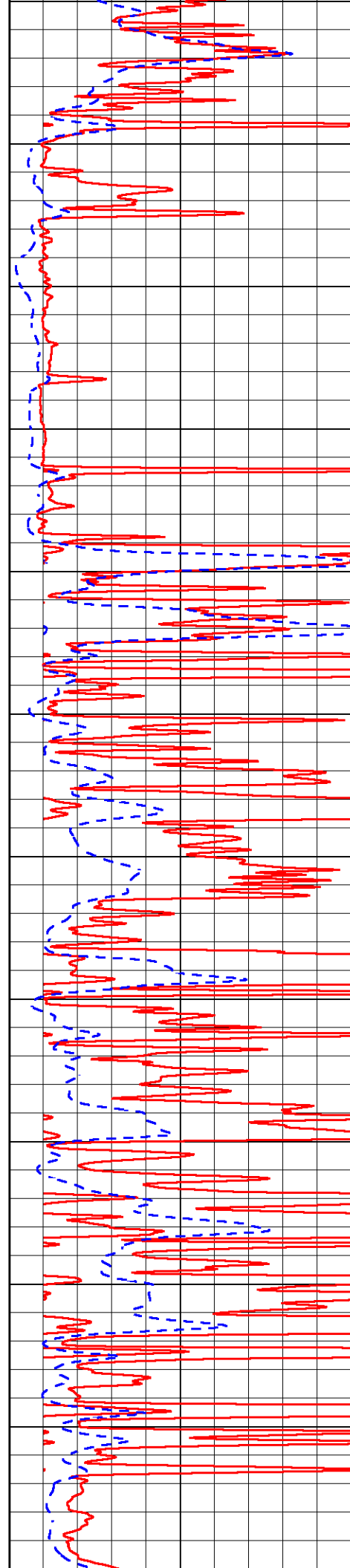
1600
1650
1700
1750
1800
1850
1900
1950
2000
2050
2100
2150





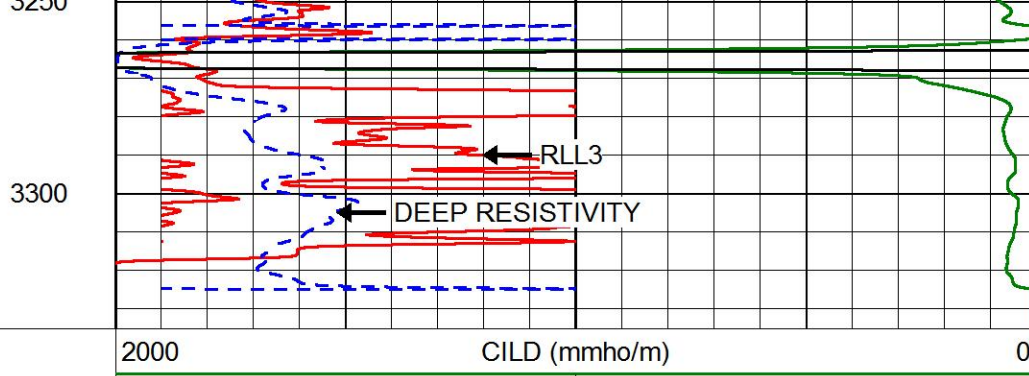
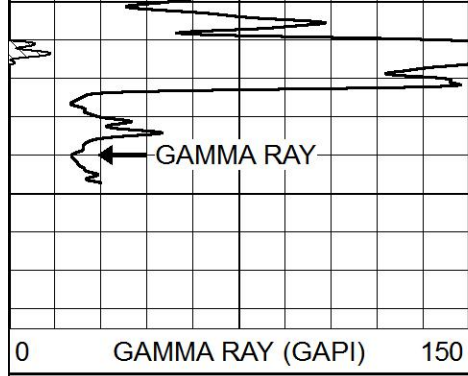


2700
2750
2800
2850
2900
2950
3000
3050
3100
3150
3200
3250



CONDUCTIVITY →





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

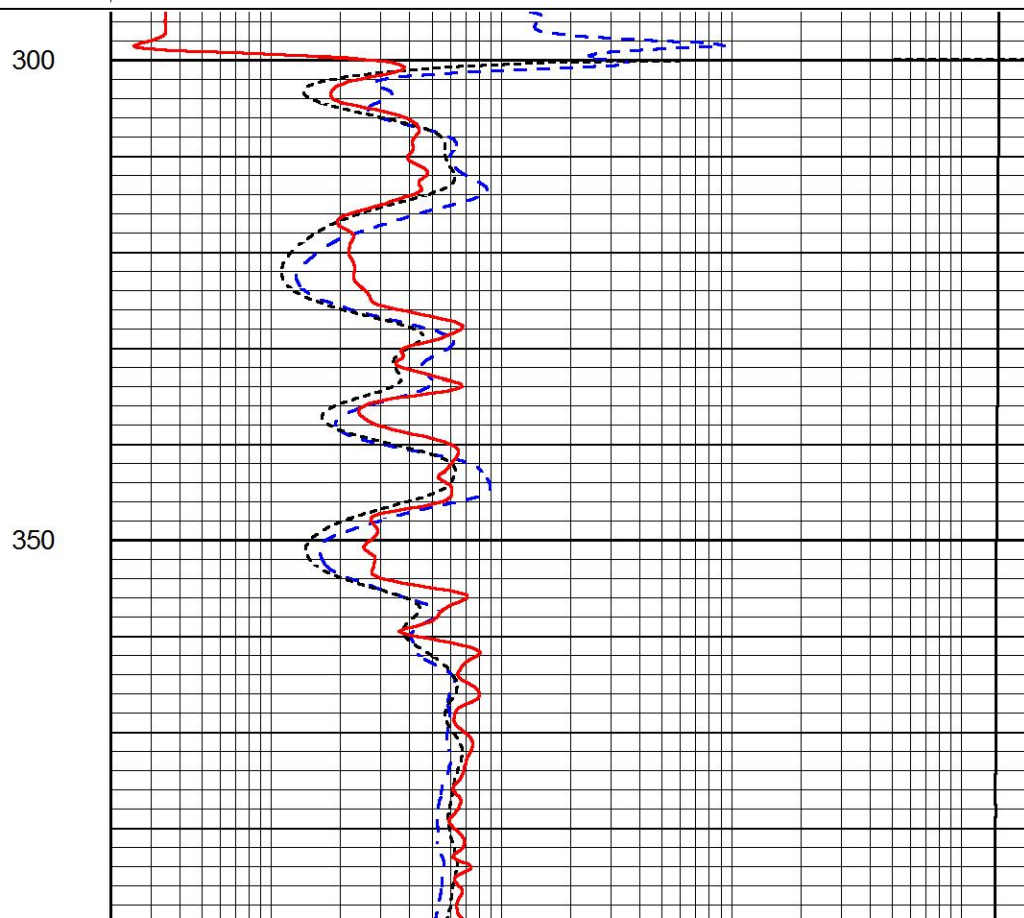
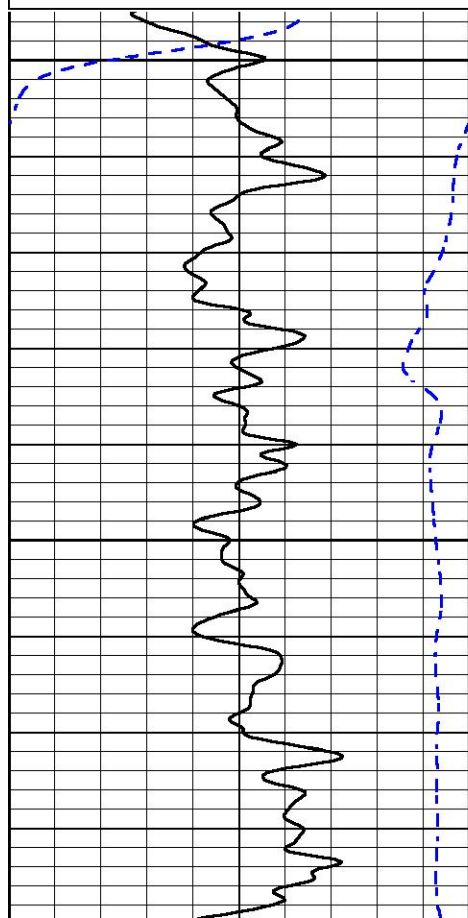


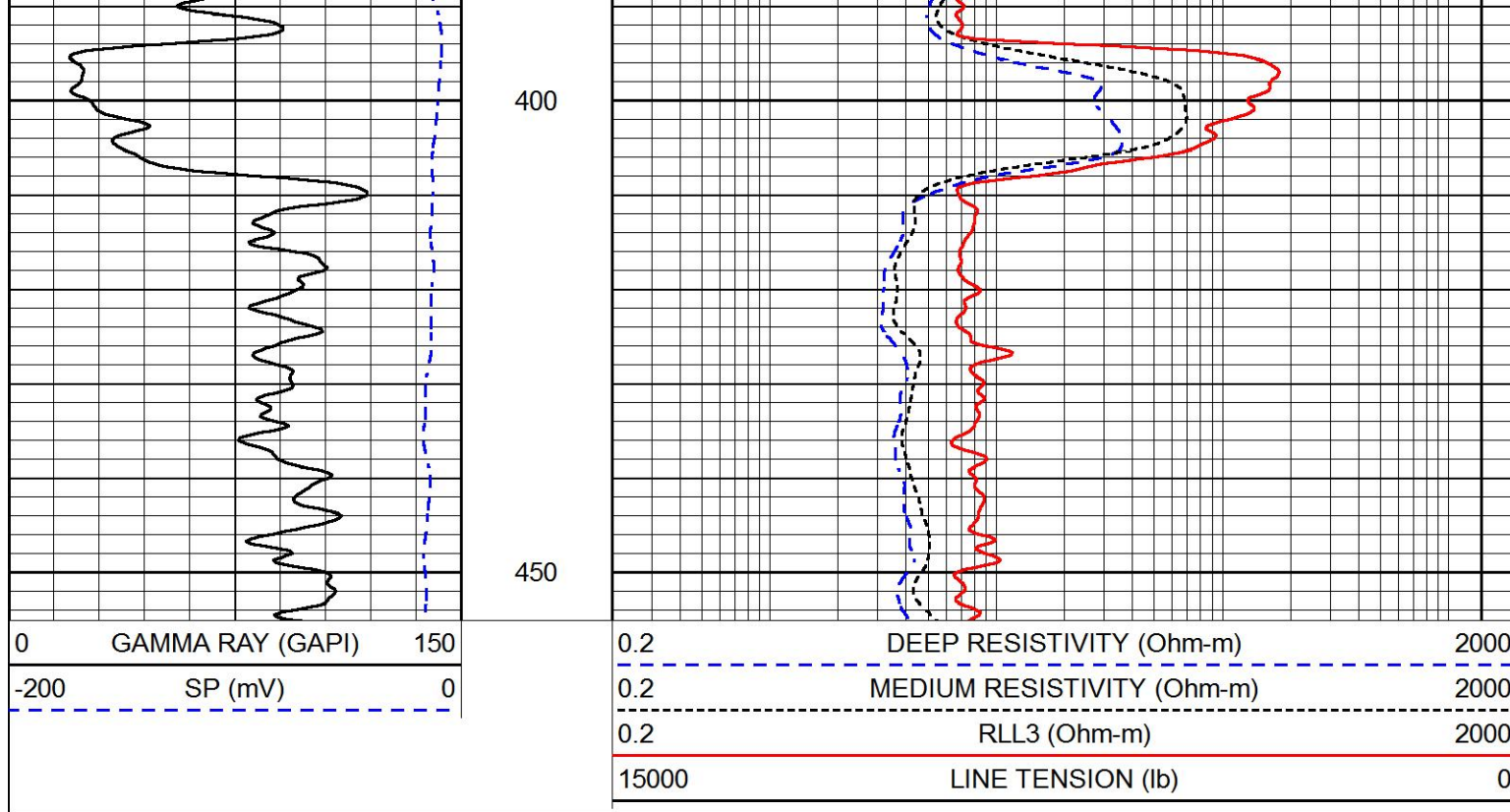
MAIN PASS

Database File darrah_bronleewe_2_22.db
 Dataset Pathname stack/pass5.1
 Presentation Format dil
 Dataset Creation Tue Nov 06 13:03:25 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



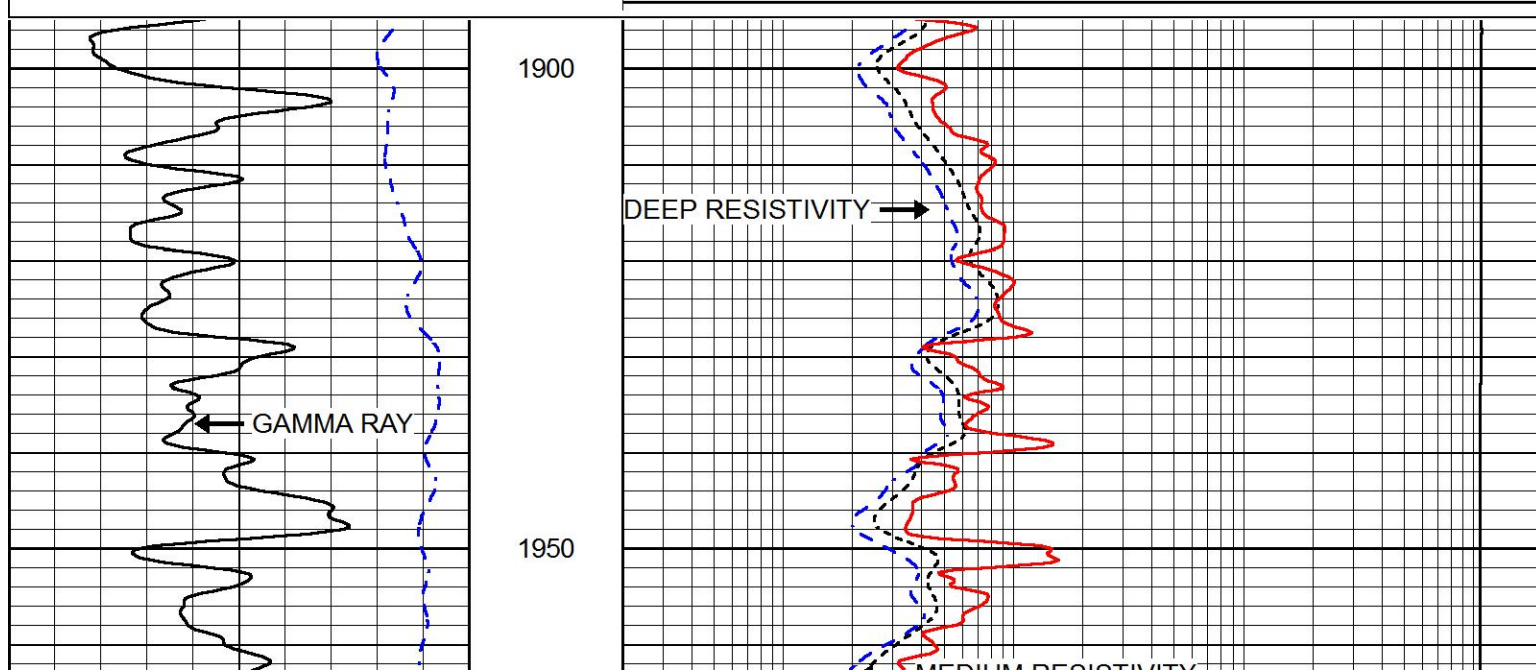
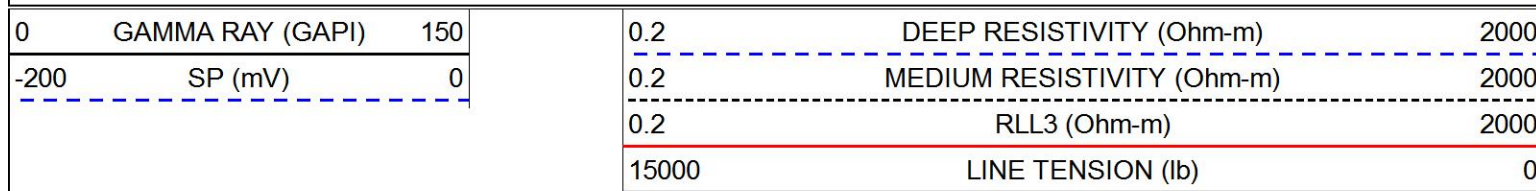


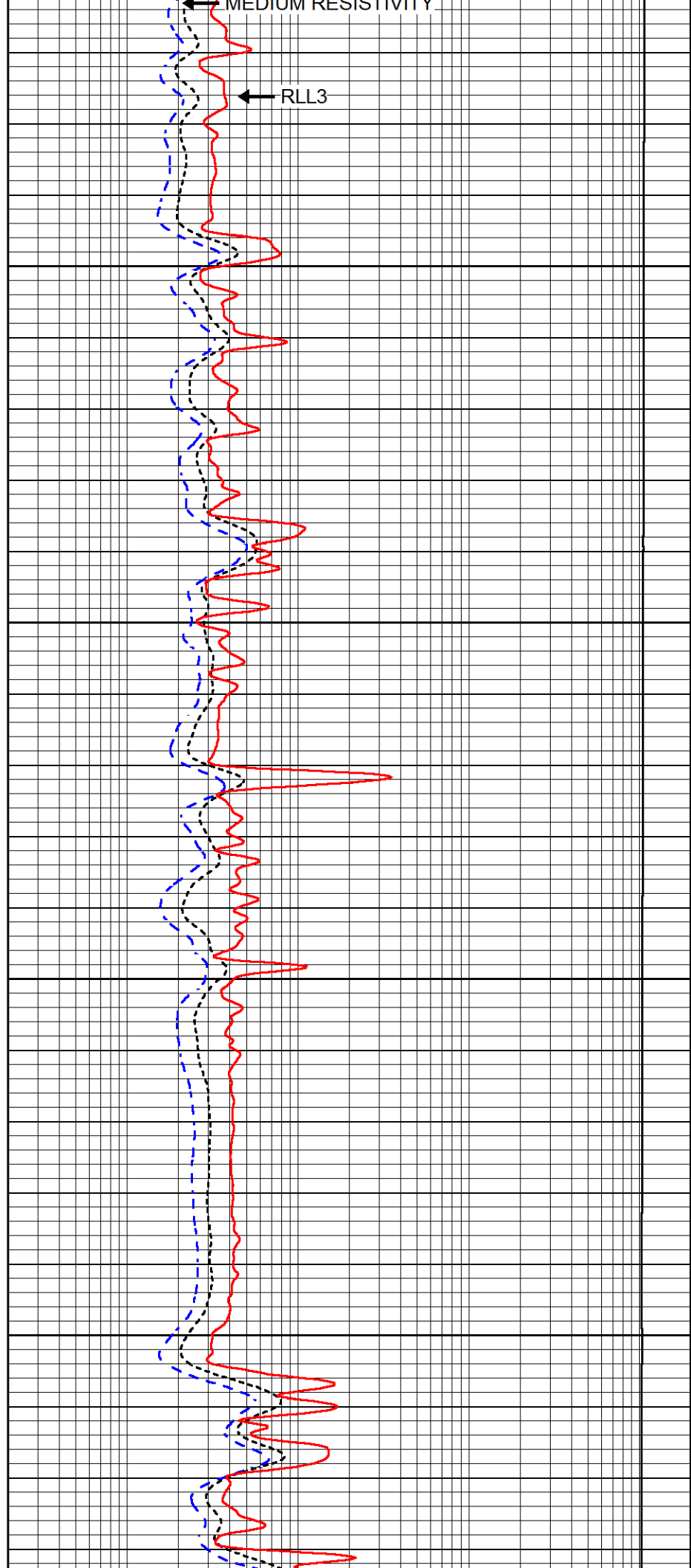
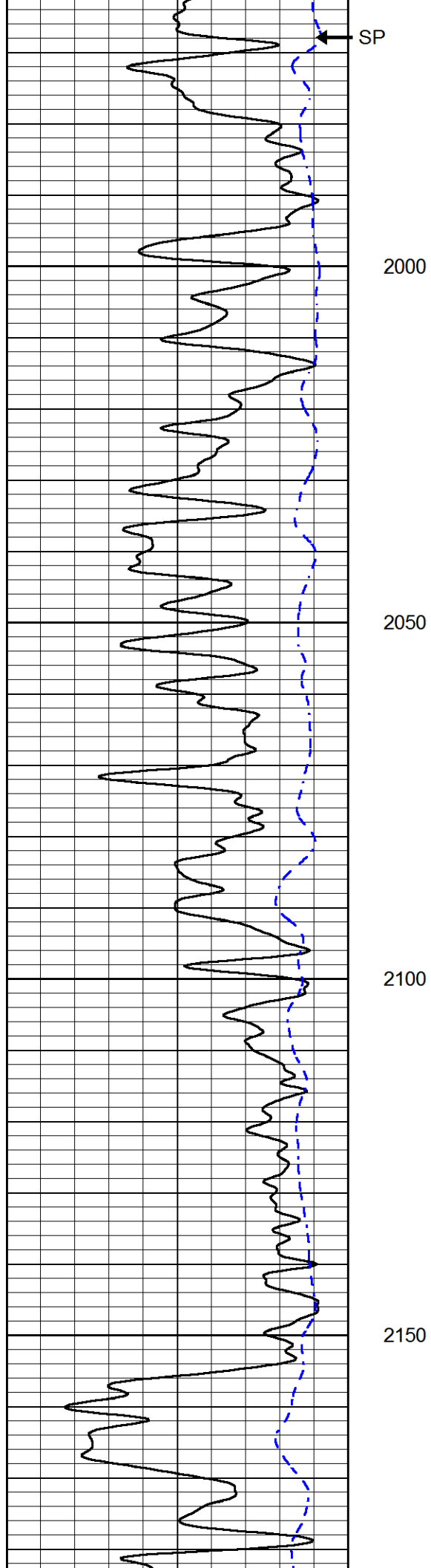


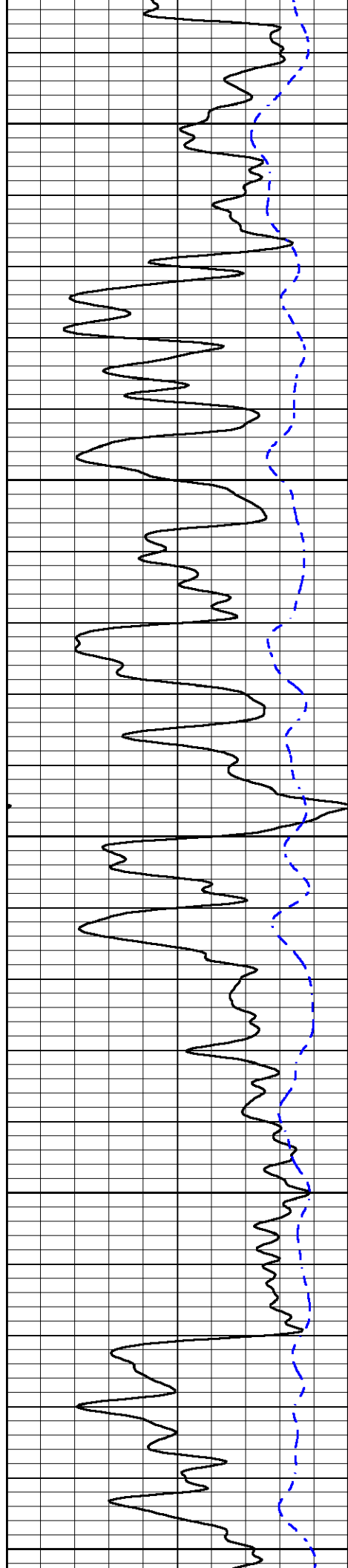
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MAIN PASS

Database File	darrah_bronleewe_2_22.db
Dataset Pathname	stack/pass5.1
Presentation Format	dil
Dataset Creation	Tue Nov 06 13:03:25 2018
Charted by	Depth in Feet scaled 1:240







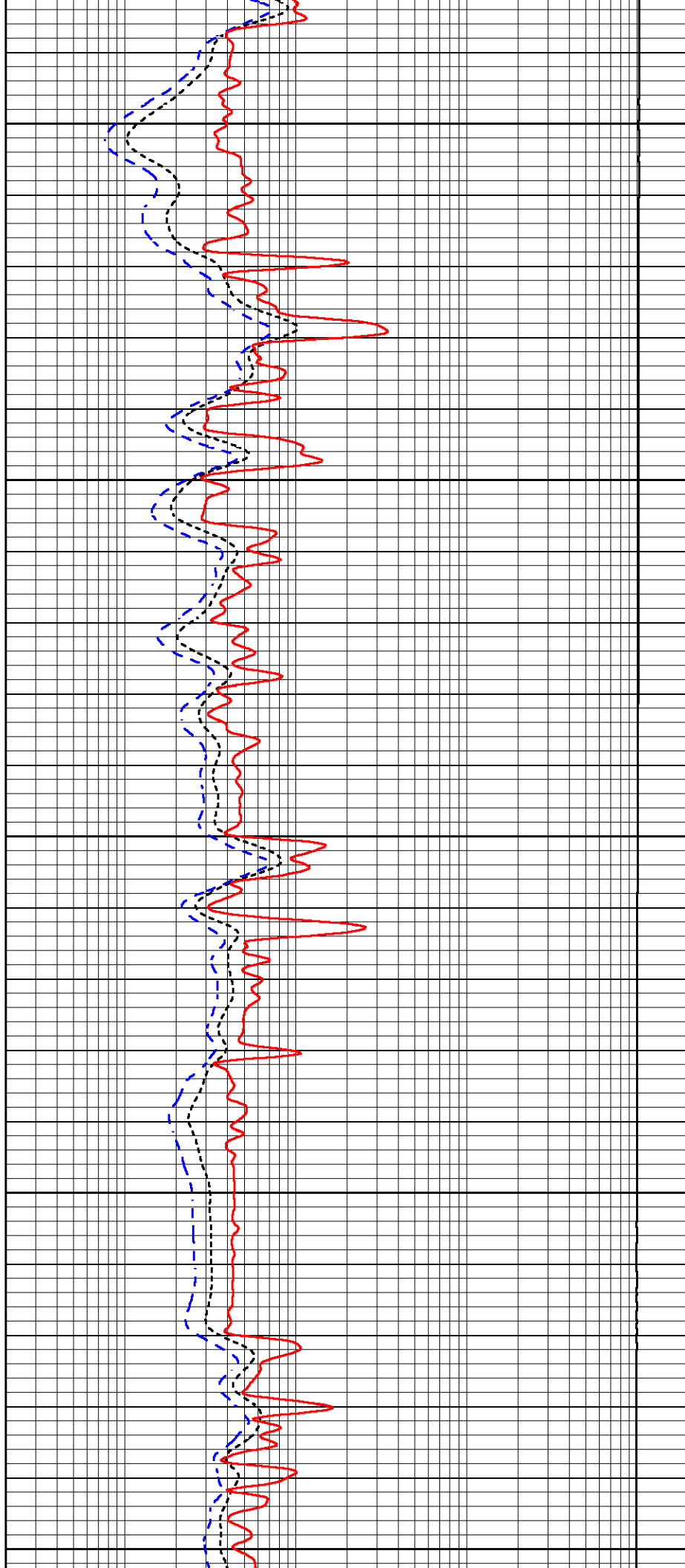
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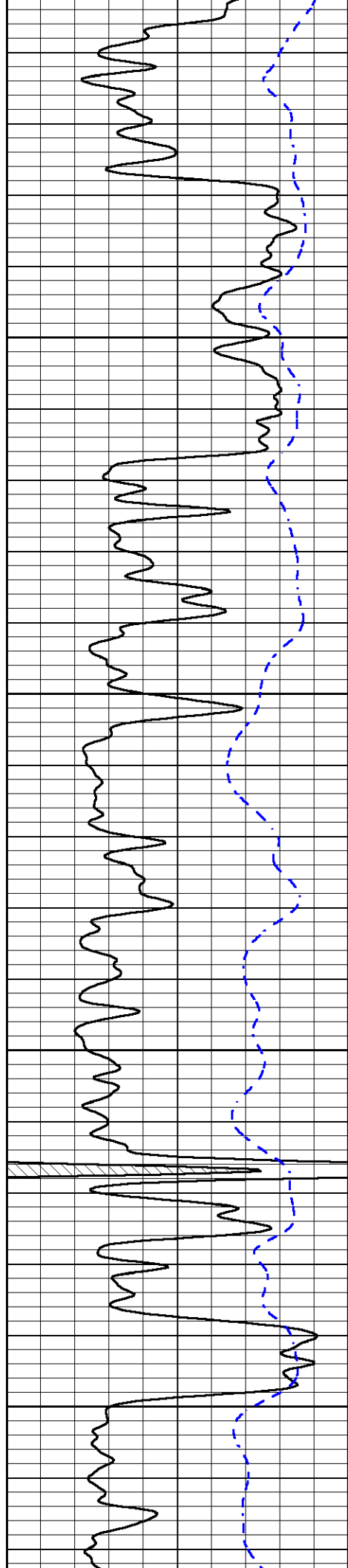
2250

2300

2350

2400



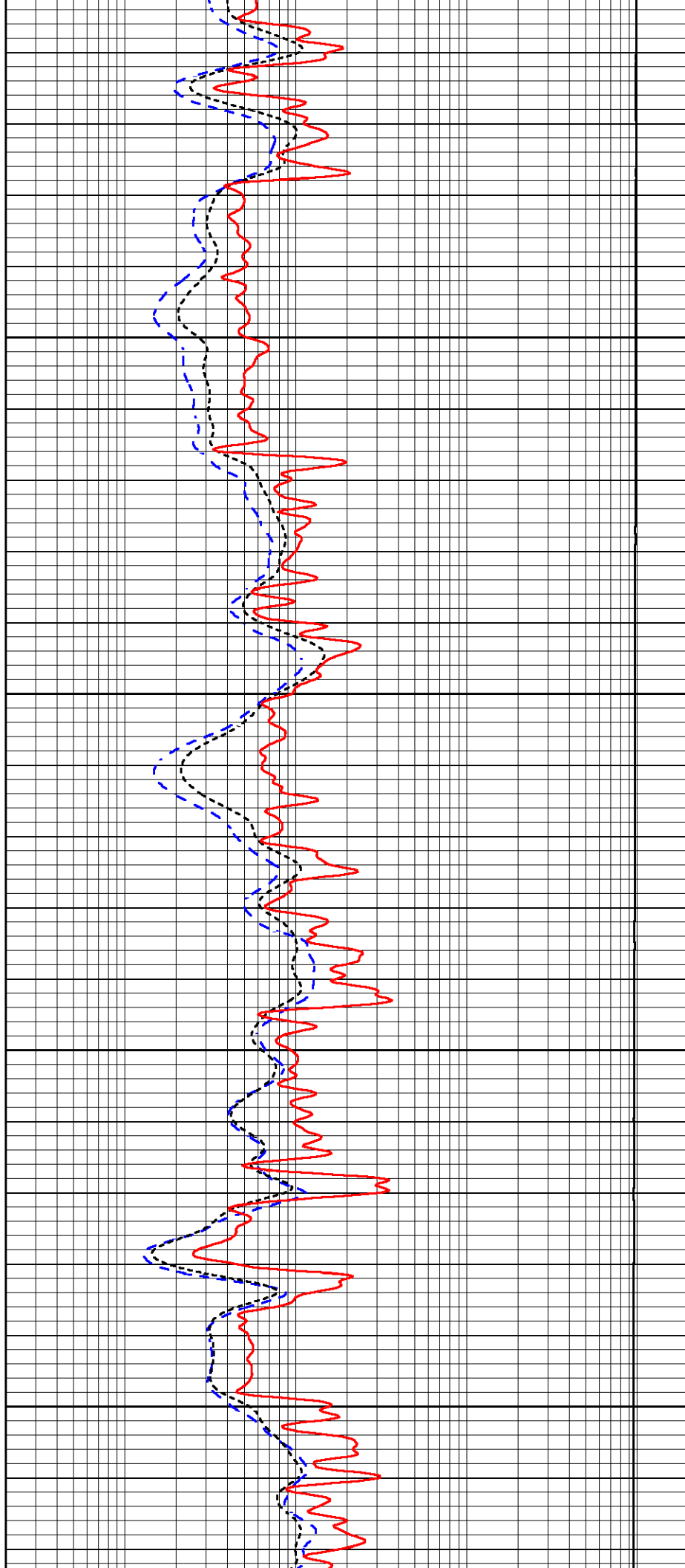


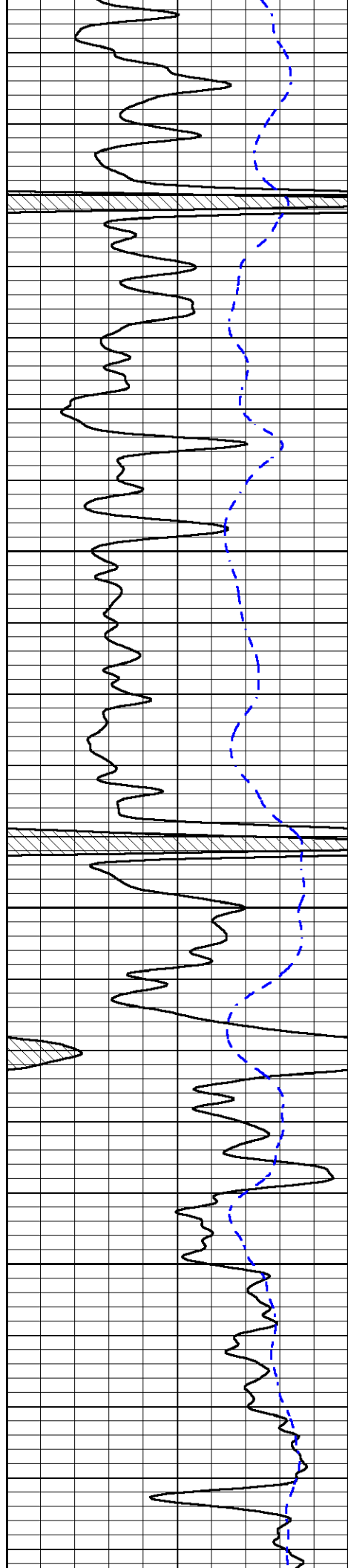
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2500

2550

2600



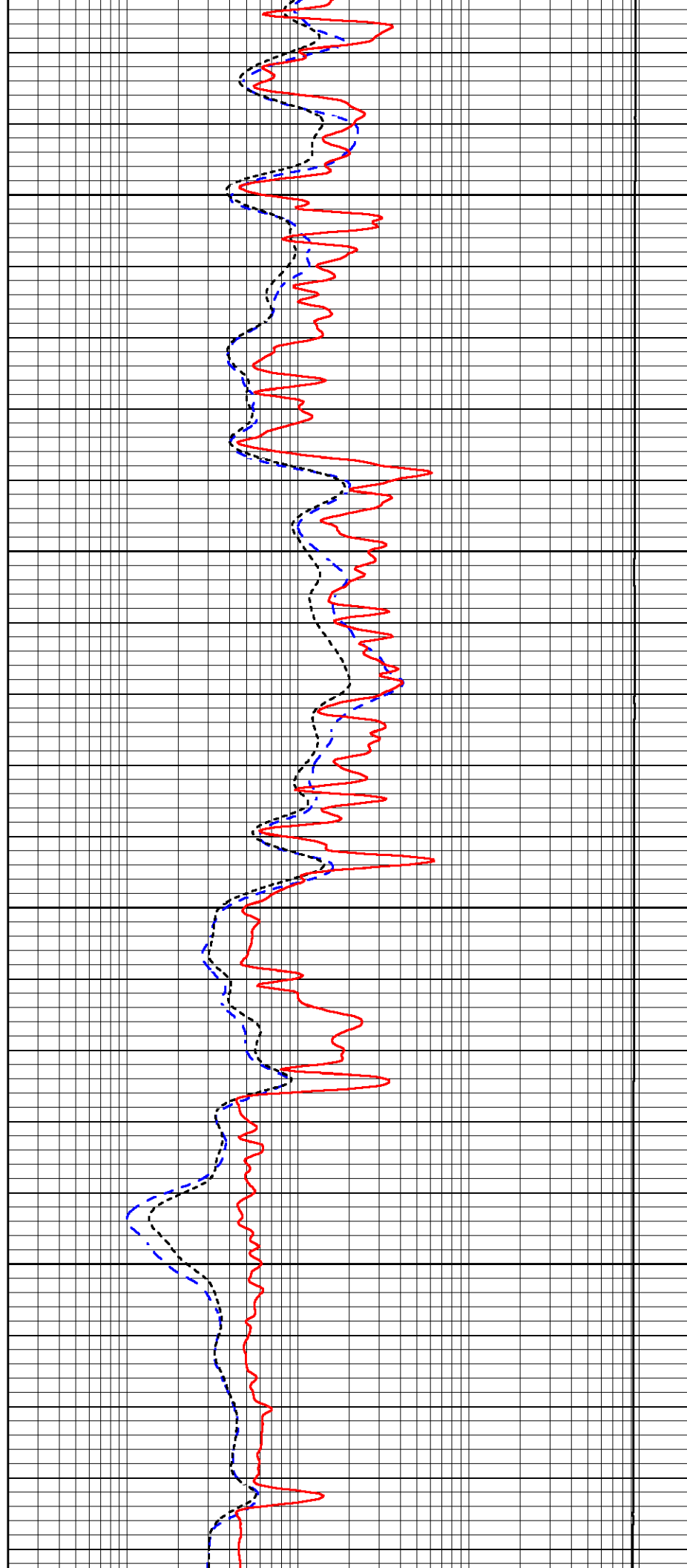


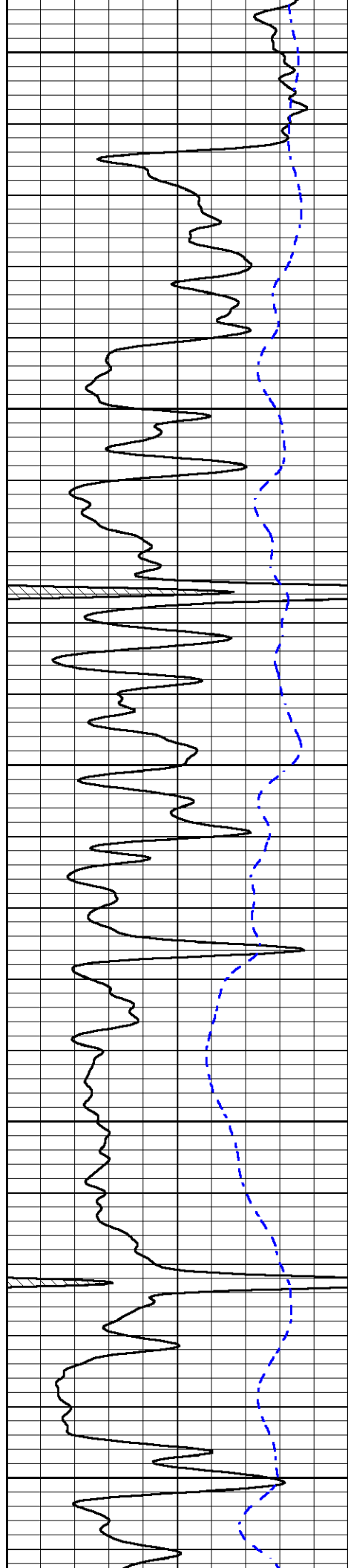
2650

2700

2750

2800





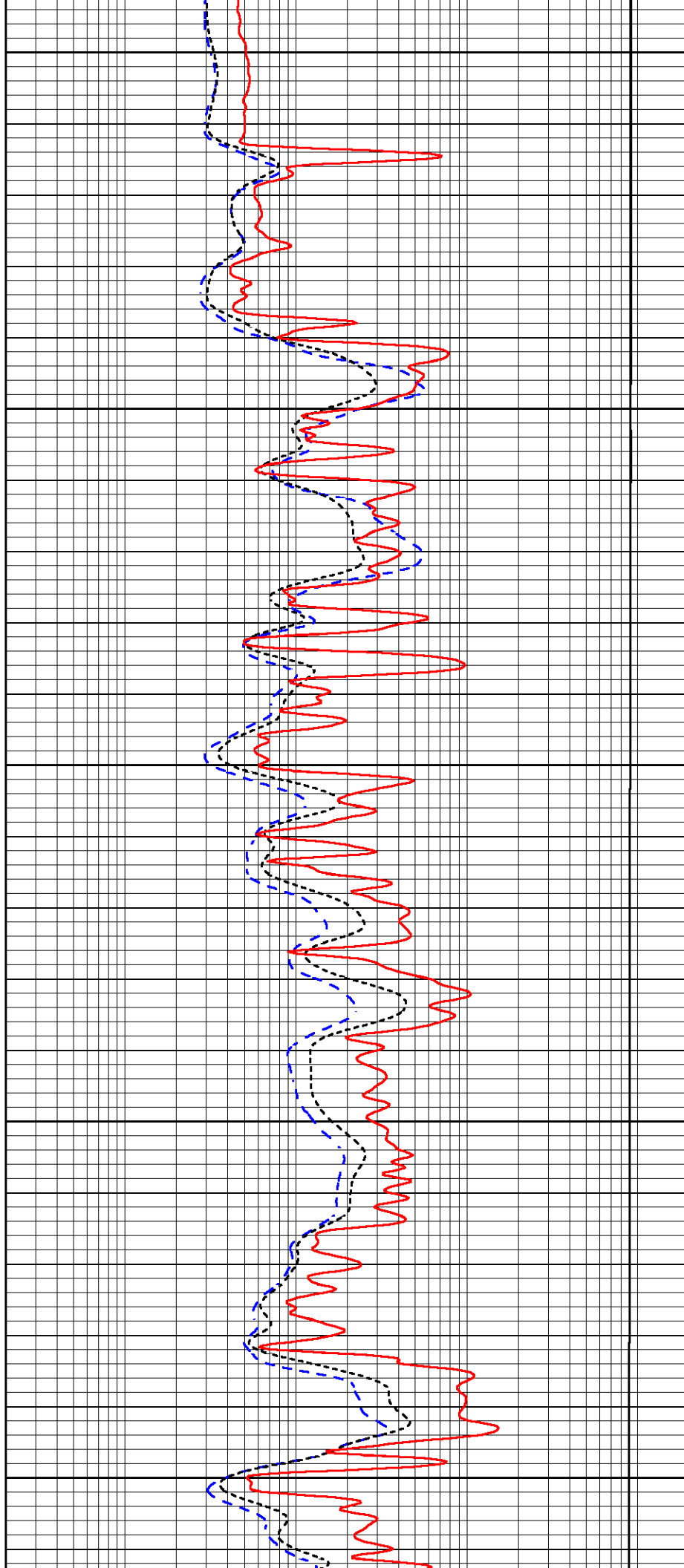
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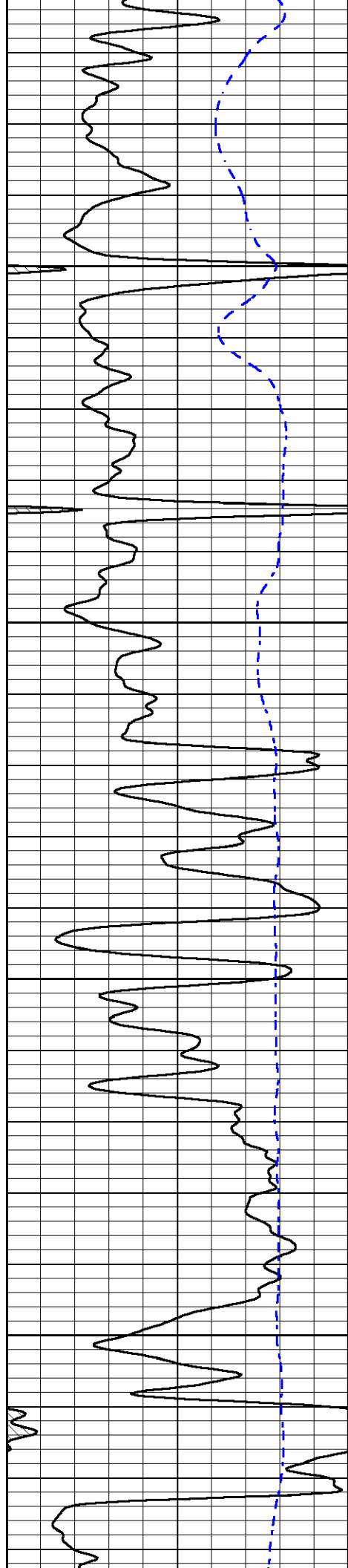
2900

2950

3000

3050



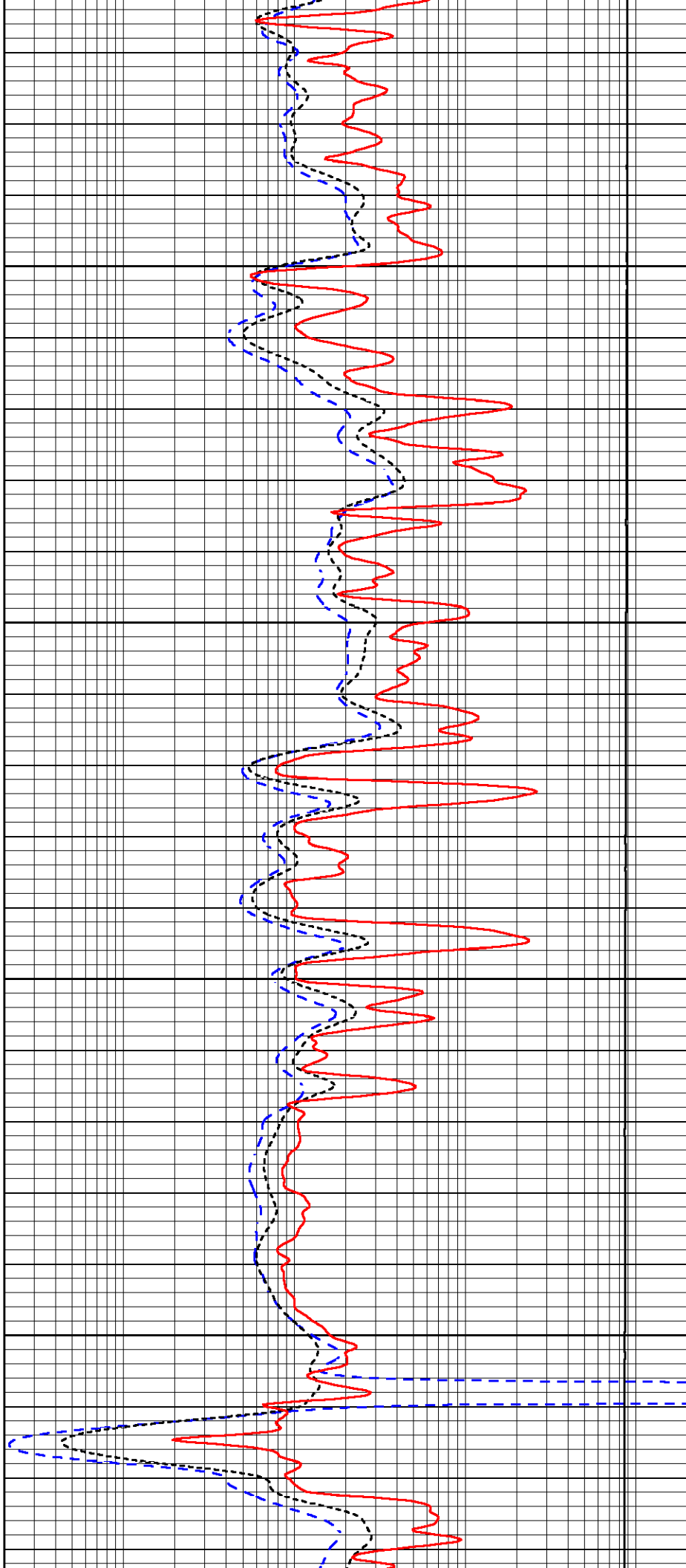


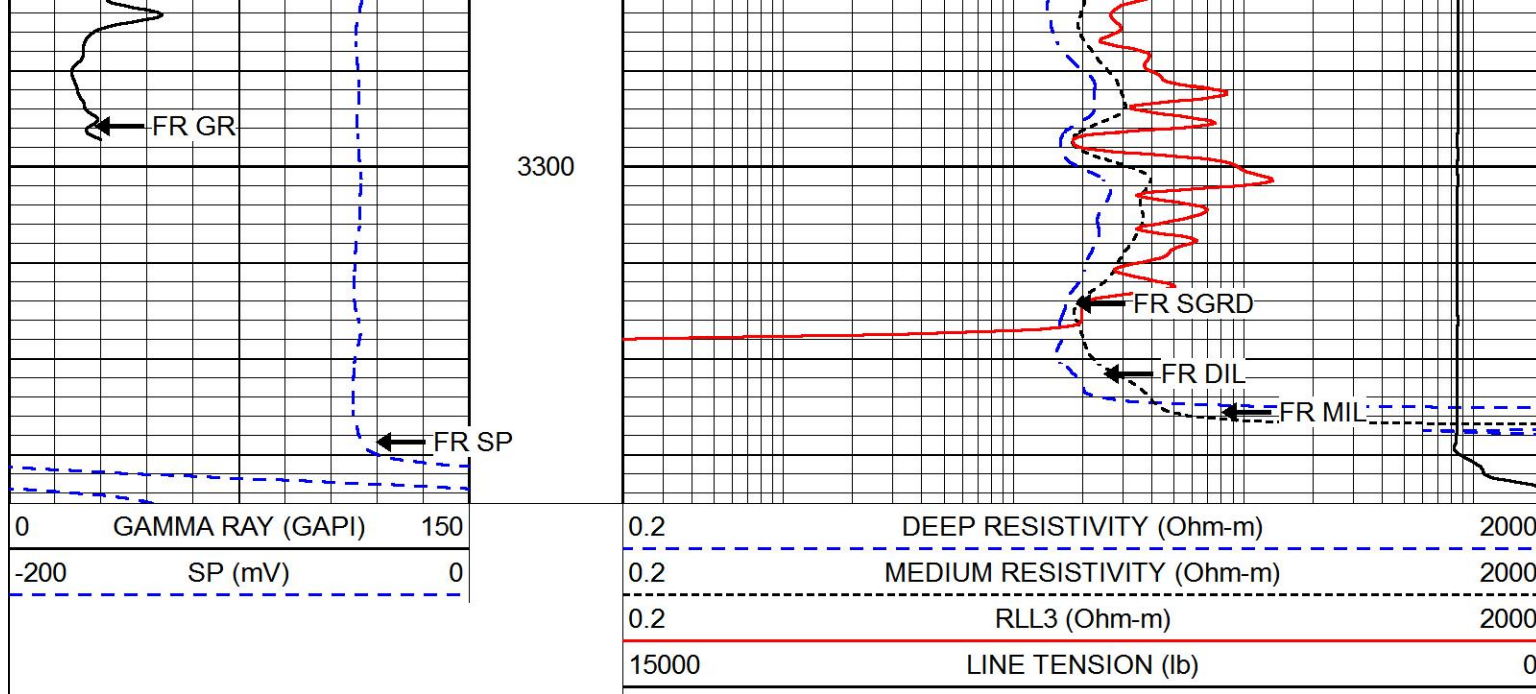
3100

3150

3200

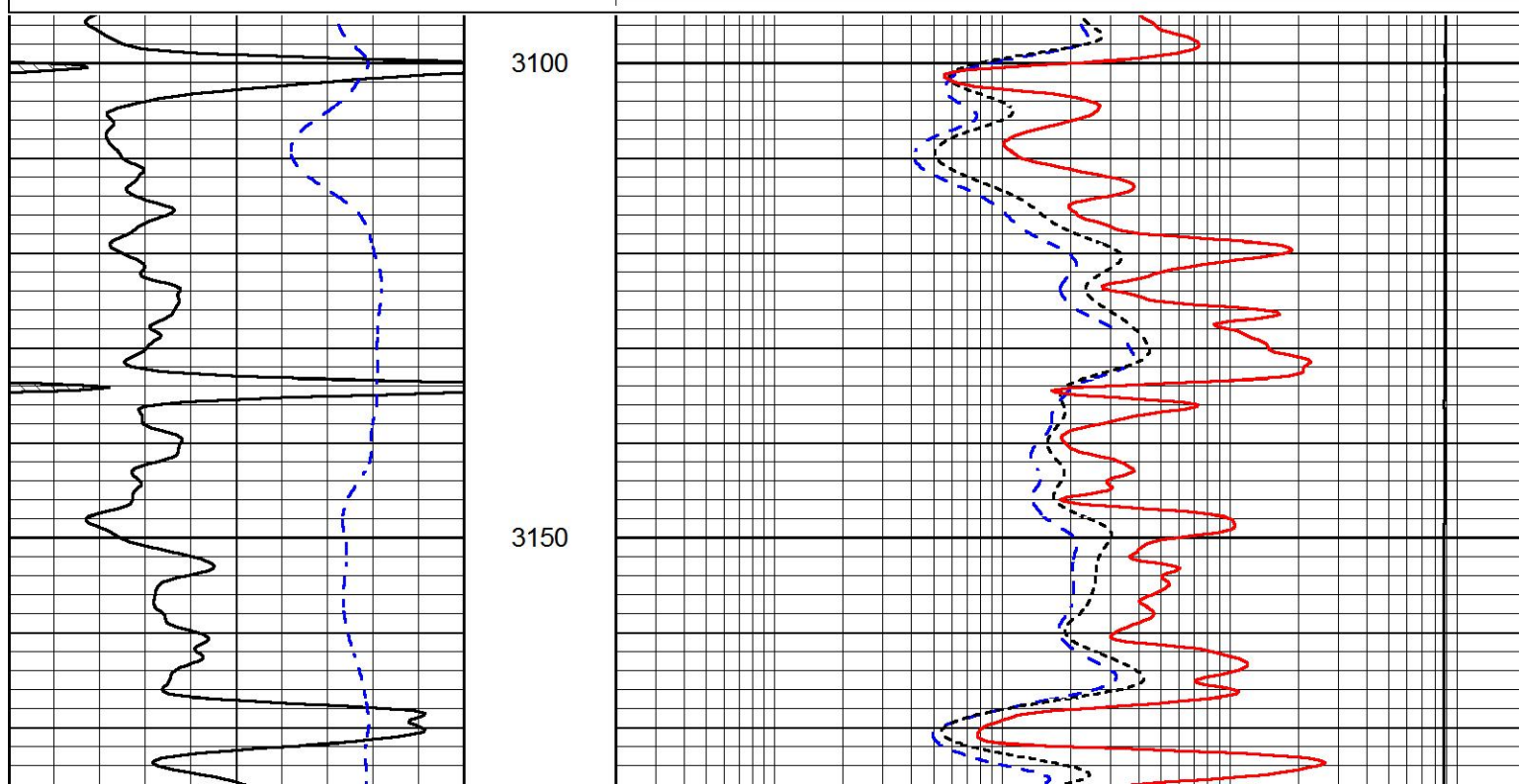
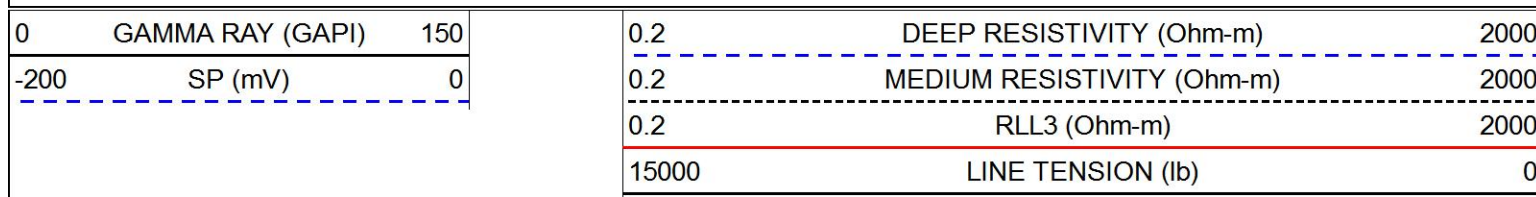
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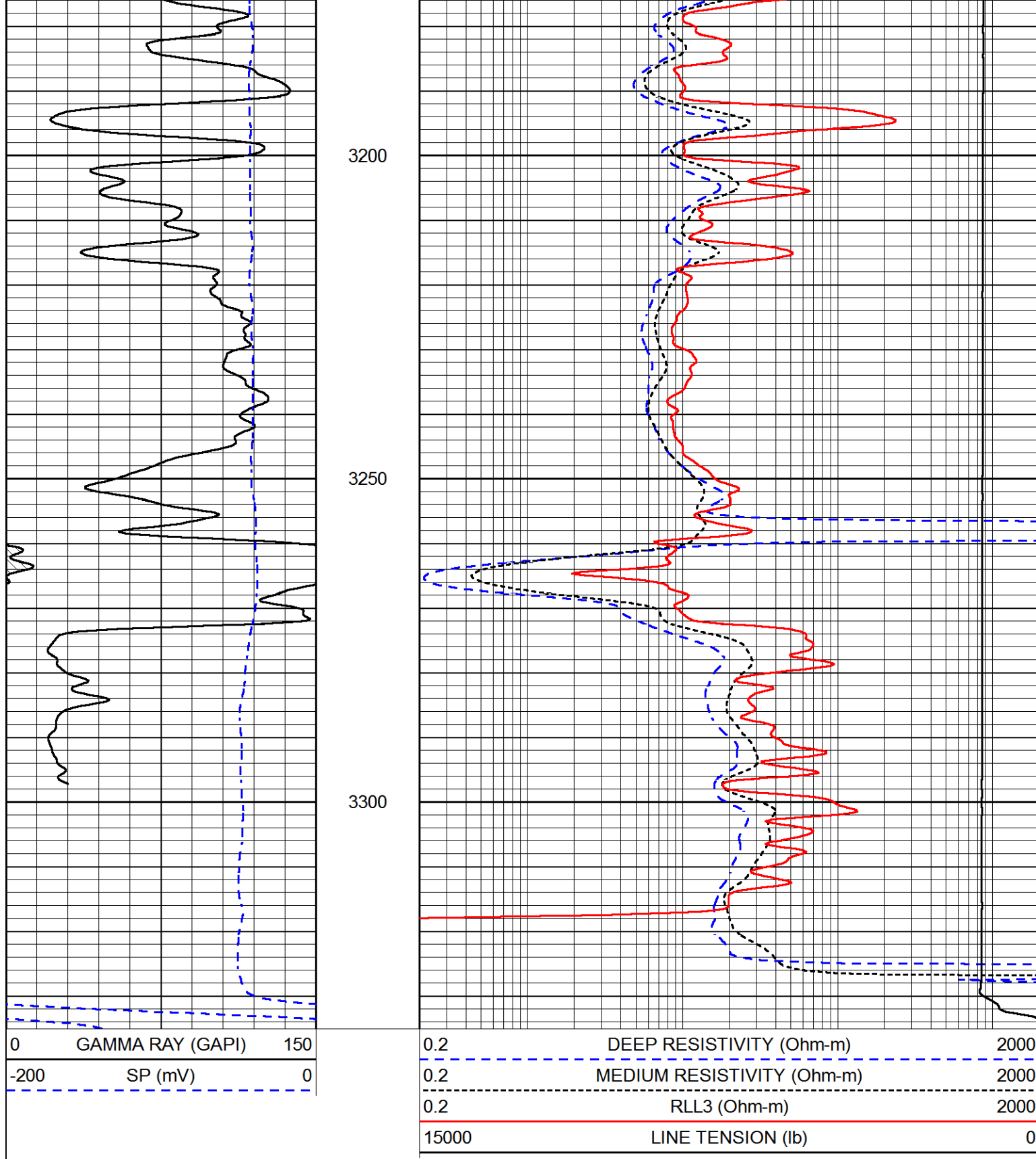




REPEAT SECTION

Database File darrah_bronleewe_2_22.db
 Dataset Pathname stack/pass2.1
 Presentation Format dil
 Dataset Creation Tue Nov 06 13:30:30 2018
 Charted by Depth in Feet scaled 1:240





Calibration Report

Database File darrah_bronleewe_2_22.db
Dataset Pathname stack/pass5.1
Dataset Creation Tue Nov 06 13:03:25 2018

Dual Induction Calibration Report

Serial-Model: 1987-M&W
Calibration Performed: Thu Aug 09 22:42:18 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.550	-36.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.400	-110.500

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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