



MIDWEST WIRELINE

DUAL INDUCTION LOG

Company TDI, Inc.
 Well Munsch #15
 Field Schoenchen
 County Ellis State Kansas

Company TDI, Inc.
 Well Munsch #15
 Field Schoenchen
 County Ellis
 State Kansas

Location: API #: 15-051-27035-00-00
 NW NW SE SE
 1152 FSL & 1270 FEL
 SEC 9 TWP 15S RGE 18W
 Permanent Datum Ground Level Elevation 2032
 Log Measured From Kelly Bushing
 Drilling Measured From Kelly Bushing
 Other Services
 CNL/CDL
 MEL
 Elevation
 K.B. 2042
 D.F.
 G.L. 2032

Date	9/26/2022
Run Number	One
Depth Driller	3750
Depth Logger	3752
Bottom Logged Interval	3751
Top Log Interval	200
Casing Driller	8:25 @ 226
Casing Logger	225
Bit Size	7.875
Type Fluid in Hole	Chemical
Salinity, ppm CL	6000
Density / Viscosity	9.3 52
pH / Fluid Loss	9.0 8.8
Source of Sample	Flowline
Rm @ Meas. Temp	0.8 @ 70
Rmt @ Meas. Temp	0.6 @ 70
Rmc @ Meas. Temp	1.08 @ 70
Source of Rmf / Rmc	Charts
Rm @ BHT	0.49 @ 114
Operating Rig Time	2 Hours
Max Rec. Temp. F	114
Equipment Number	P-24
Location	Hays
Recorded By	T. Martin
Witnessed By	Tom Denning

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All interpretations are opinions based on inferences from electrical or other measurements and Midwest Wireline LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Midwest Wireline 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.

Hays, KS, 7 S on 183 to Norfolk Rd,
 1/4 W, N into

Log Measured From: Kelly Bushing 10 Ft. Above Permanent Datum

THANK YOU FOR USING MIDWEST WIRELINE LLC
 785-625-3858

Your Midwest Wireline Crew		This Log Record Was Witnessed By	
Engineer: T. Martin	Operator:	Primary Witness: Tom Denning	Secondary Witness: Herb Deines
Operator:	Operator:	Secondary Witness:	Secondary Witness:

Operator	Offset (ft)	Depth	Description	Length (ft)	O.D. (in)	Weight (lb)
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Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.33		GR-M&W (106)	3.00	3.50	50.00
CNLSC CNSSC	37.23 36.48		CNT-M&W (207-MW)	5.00	3.50	100.00
LSD DCAL SSD	28.18 28.17 27.68		CDL-M&W (307-11)	8.50	4.00	250.00
MCAL MI MN	19.58 19.58 19.58		ML-PSIML (402)	7.58	4.00	65.00
RLL3F RLL3	15.50 15.50					
CILD	8.33		DIL-M&W (501 HT)	18.25	3.50	220.00
CILM	4.50					
SP	0.20					

Dataset: tdi_munsch #15.db: field/well/StkMI/pass3.1
 Total length: 42.33 ft
 Total weight: 685.00 lb
 O.D.: 4.00 in

Log Variables

DatabaseC:\ProgramData\Warrior\Data\tdi_munsch #15.db
 Dataset field/well/StkMI/pass3.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	114	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	0	610	70	Off	3752

Variable Description

A : Cement Factor (a)
 BOREID : Borehole I.D.
 BOTTEMP : Bottom Hole Temperature
 CASEOD : Casing O.D.
 CASETHCK : Casing Thickness
 FLUIDDEN : Fluid Density
 M : Cement Exp (m)
 MATRXDEN : Matrix Density

NPORSEL : Neutron Porosity Curve Select
 PERFS : Perforation Flag
 SNDERR : Deep Sonde Error Correction
 SNDERRM : Medium Sonde Error Correction
 SPSHIFT : S.P. Baseline Offset
 SRFTEMP : Surface Temperature
 SZCOR : CN Size Cor. ?
 TDEPTH : Total Depth

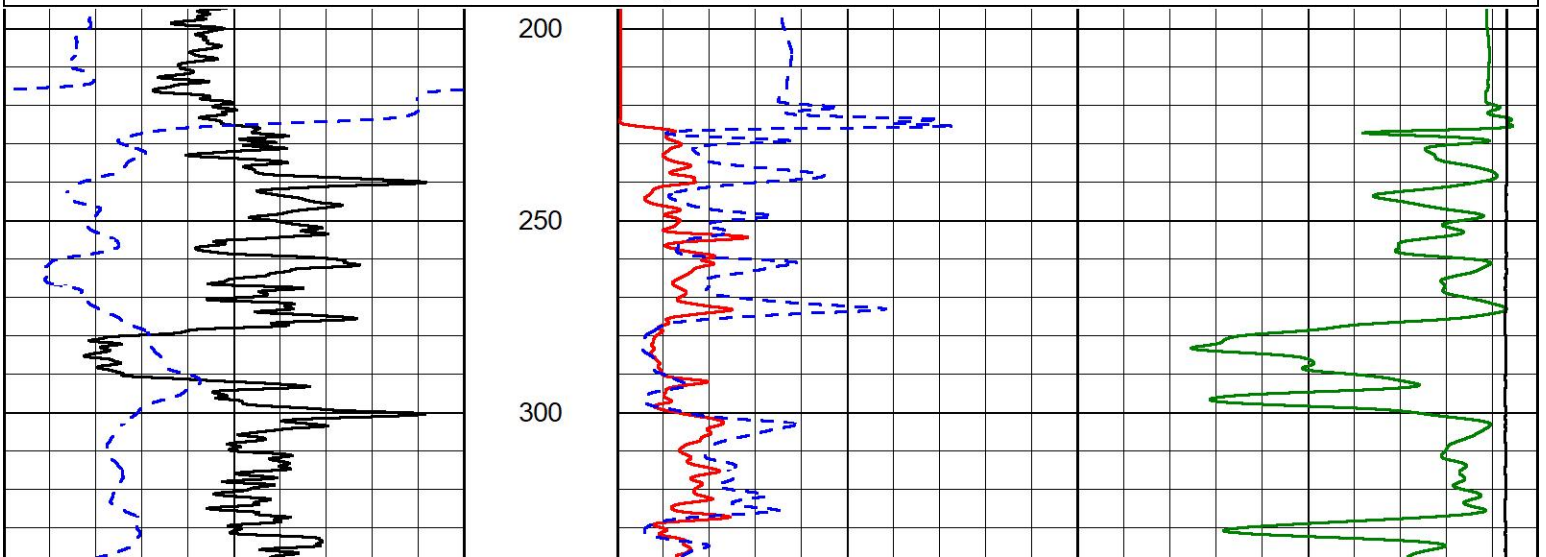


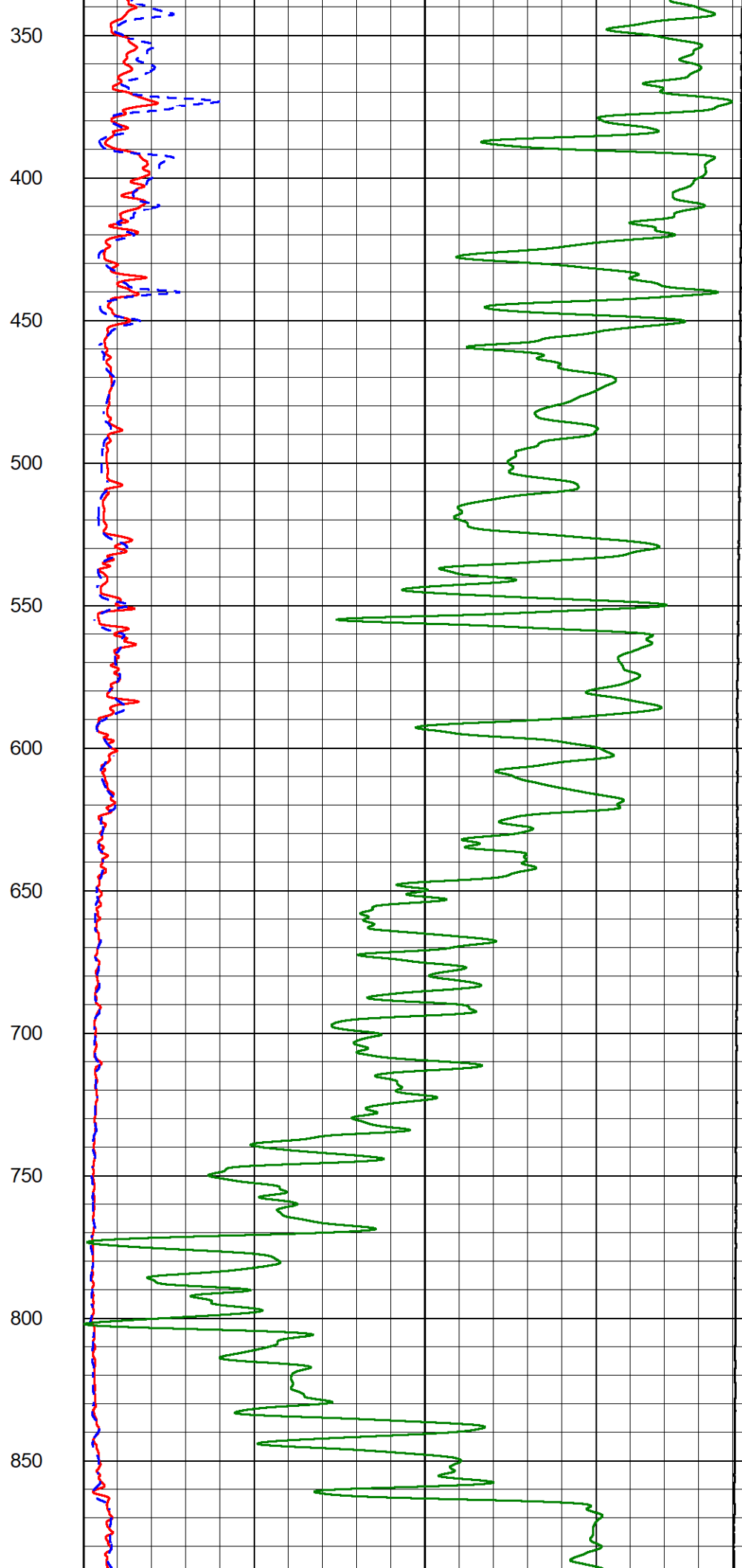
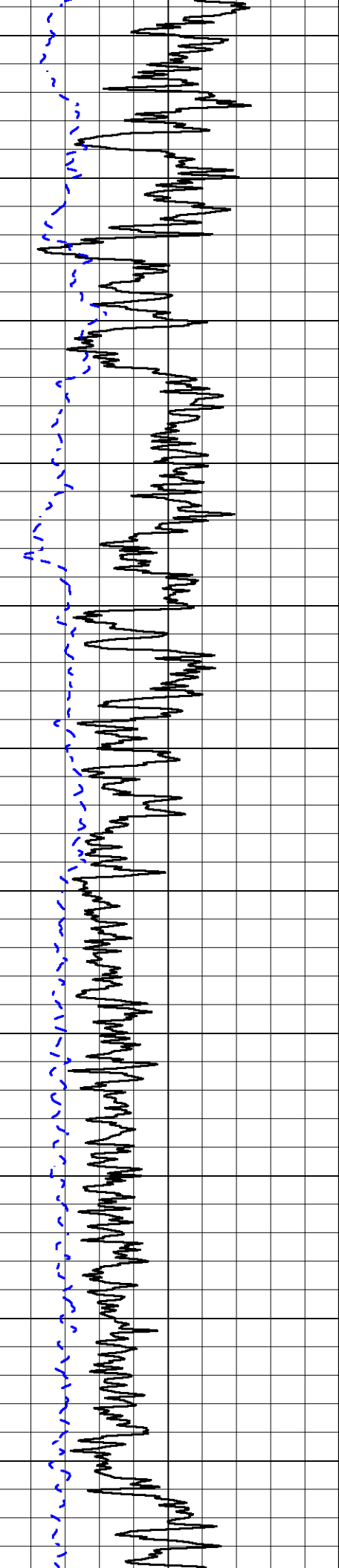
2" SCALE RESISTIVITY

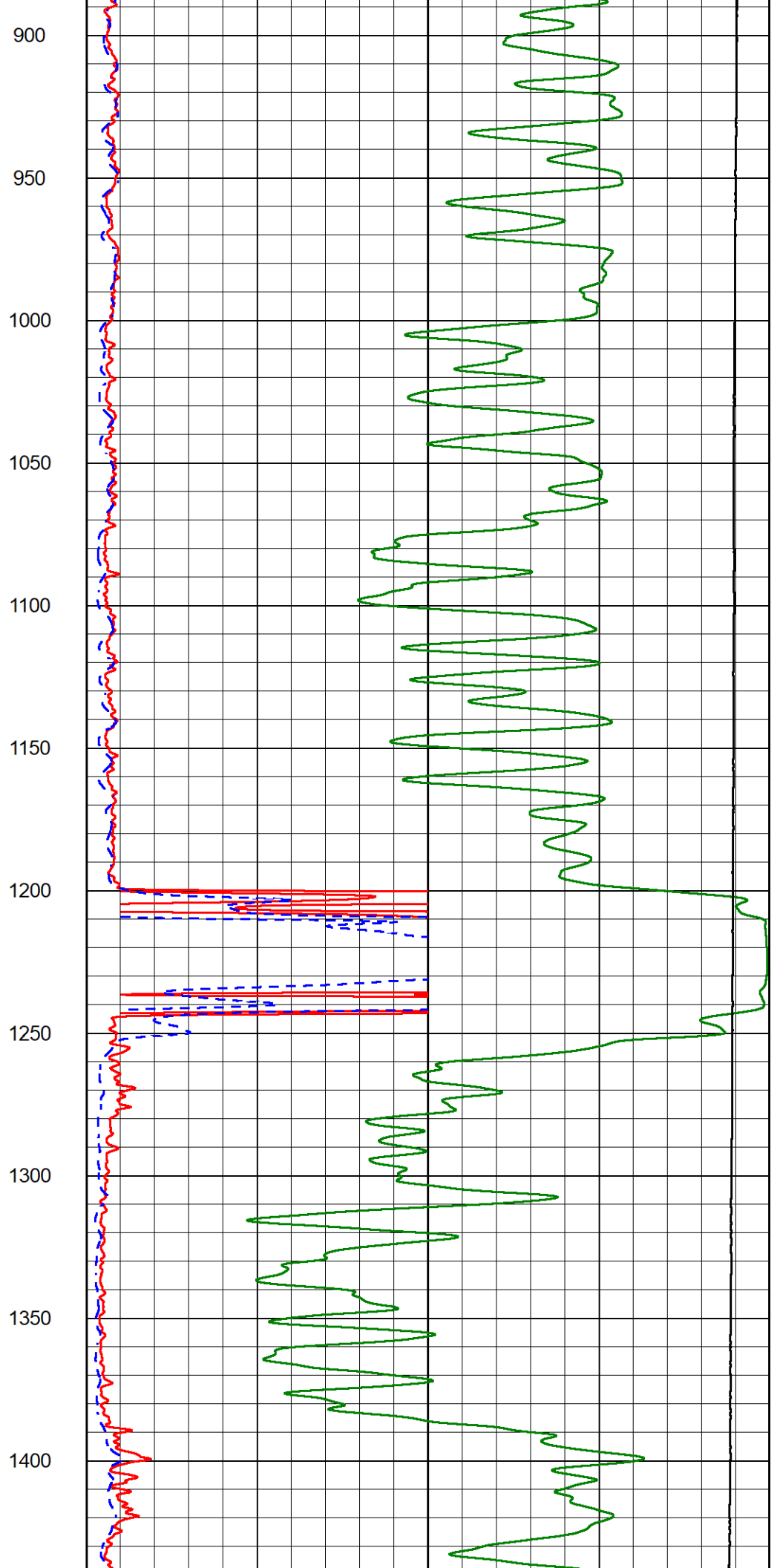
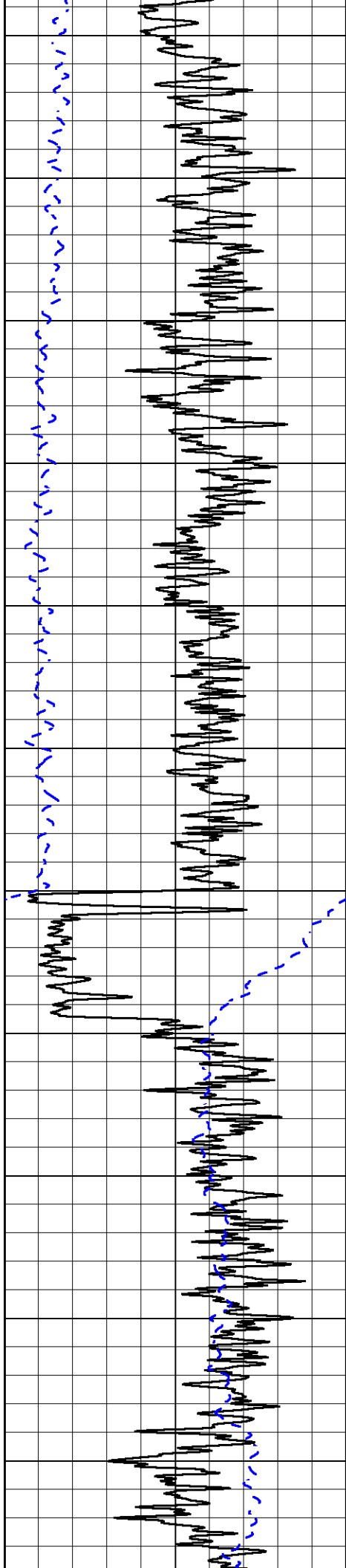
MAIN PASS

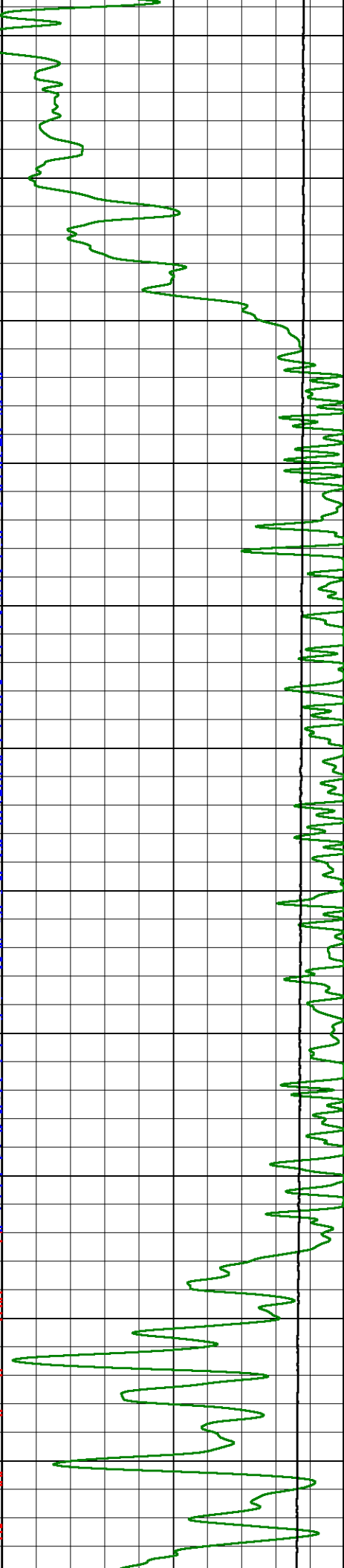
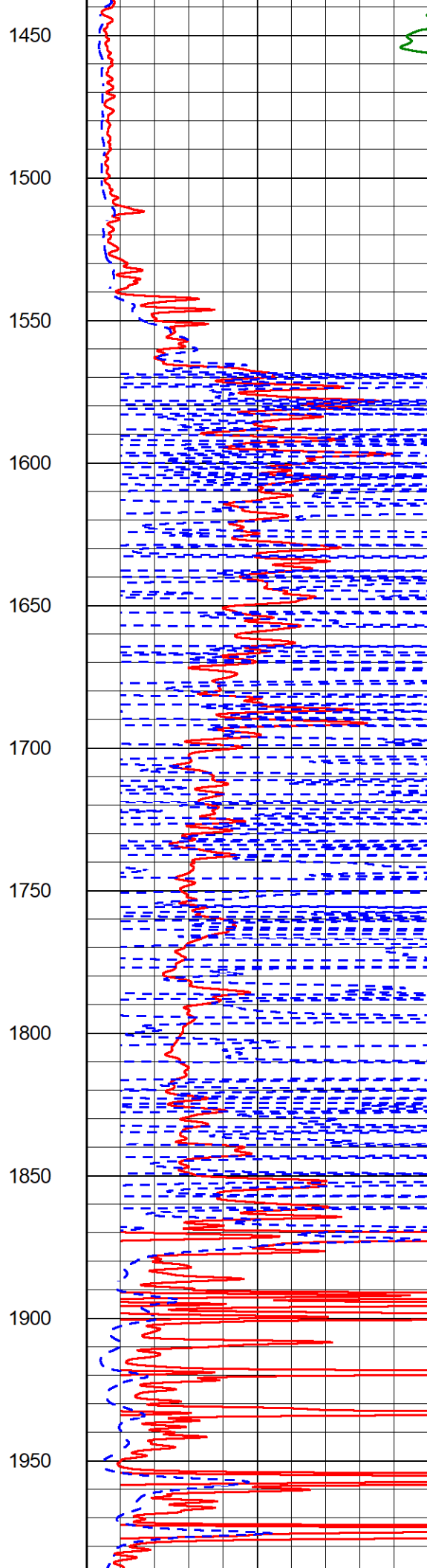
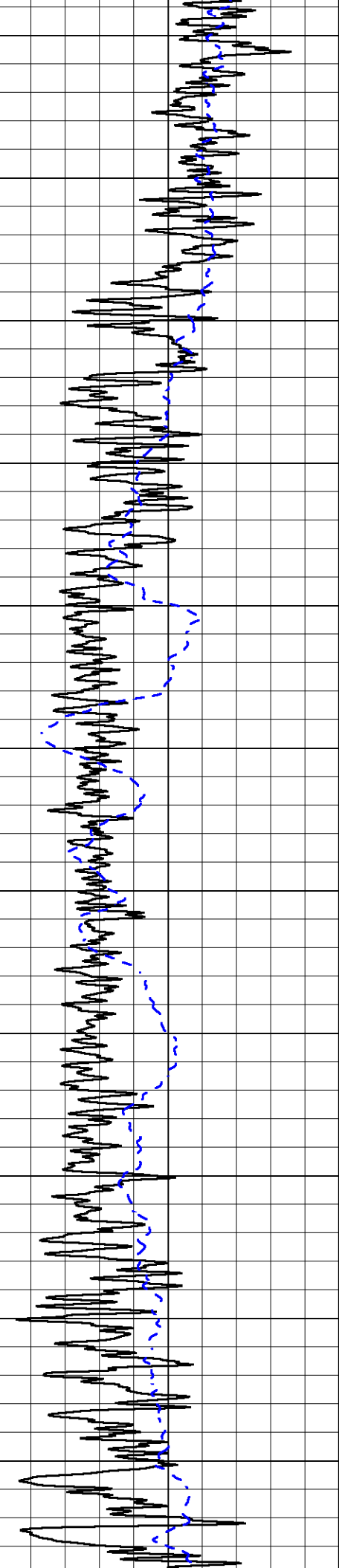
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 Dataset Creation Mon Sep 26 13:26:43 2022
 Charted by Depth in Feet scaled 1:600

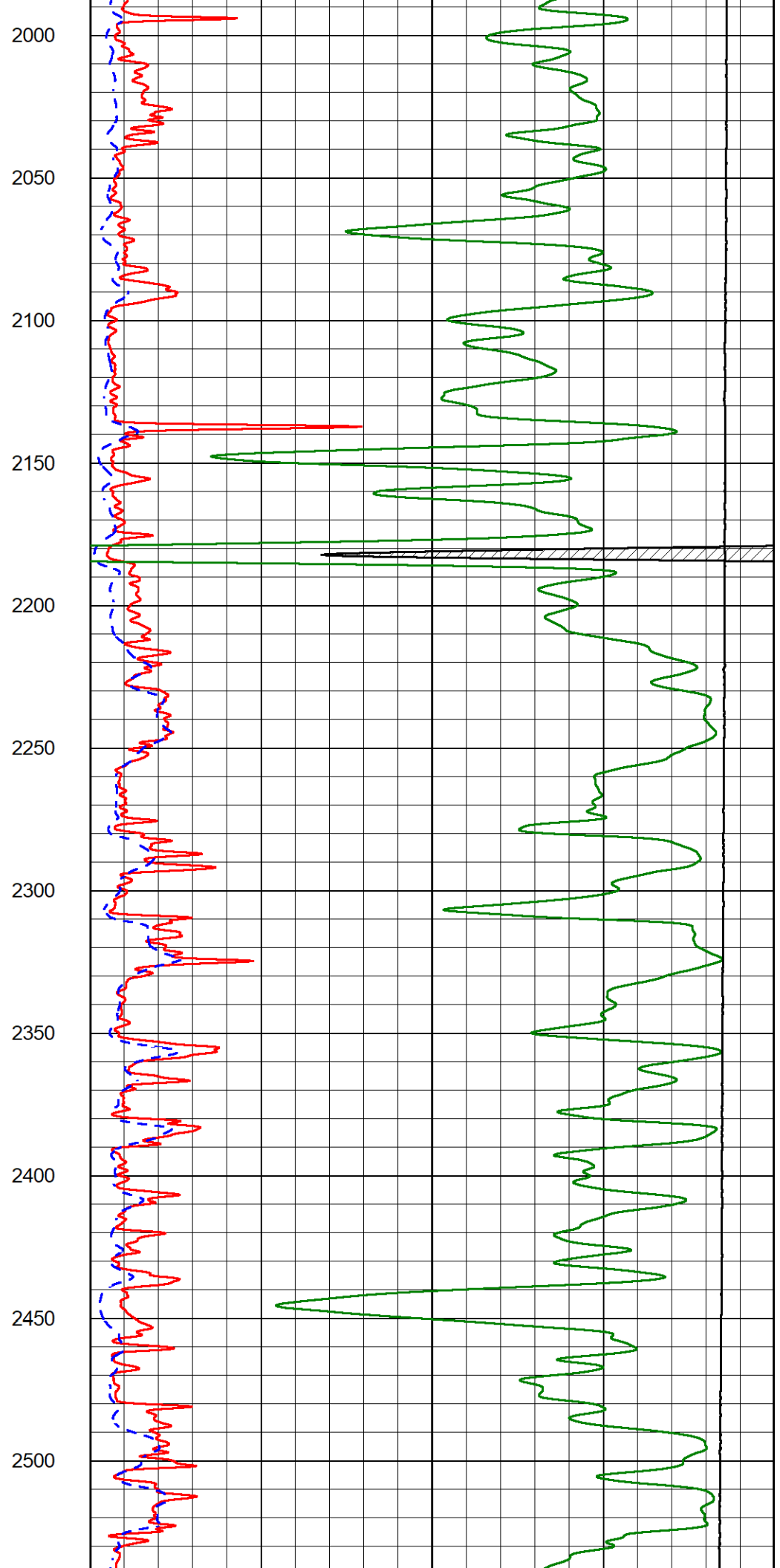
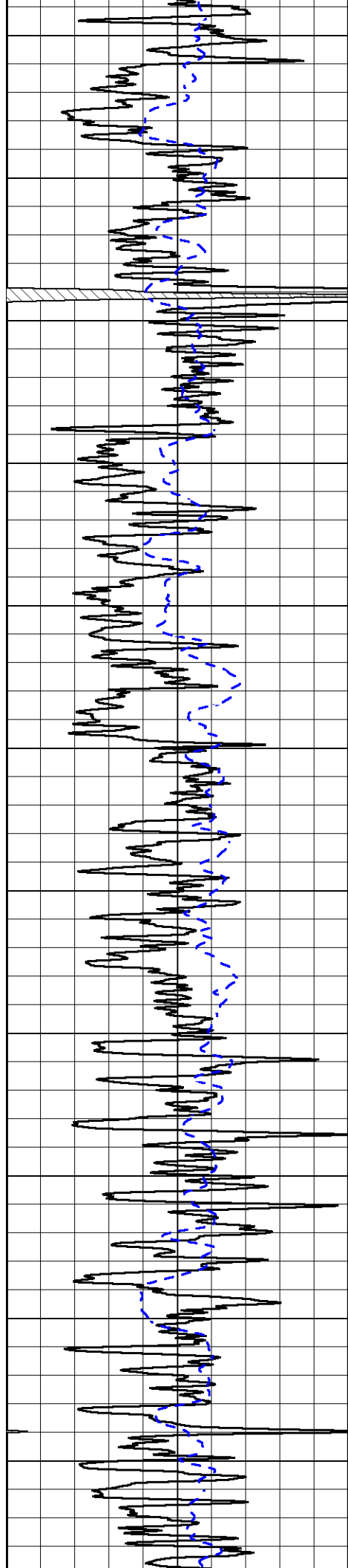
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-200	SP (mV)	0	15000	Line Tension (lb)	0
		0		Shallow Resistivity (Ohm-m)	50
		0		Deep Resistivity (Ohm-m)	50
		Shallow Resistivity			
		50	(Ohm-m)	200	
		50		Deep Resistivity (Ohm-m)	200

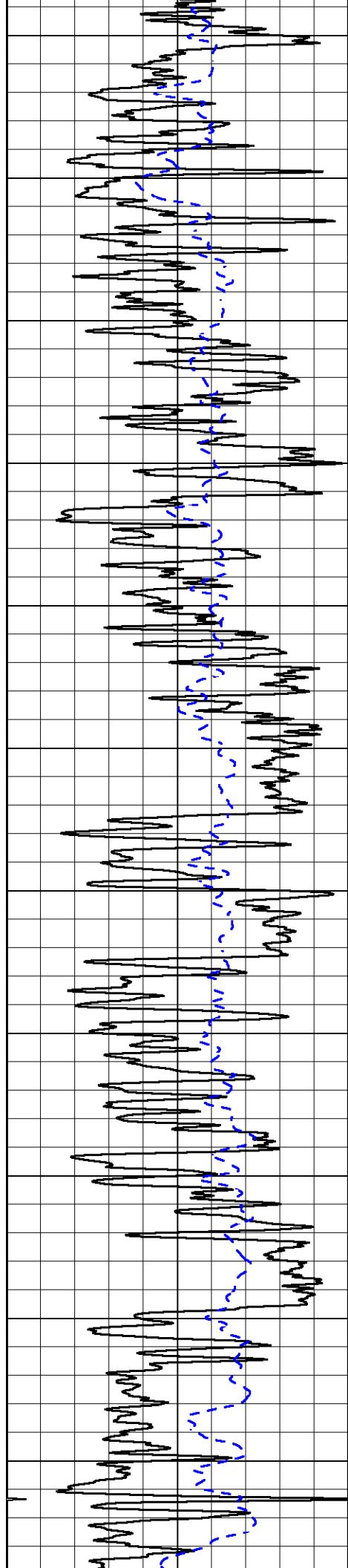




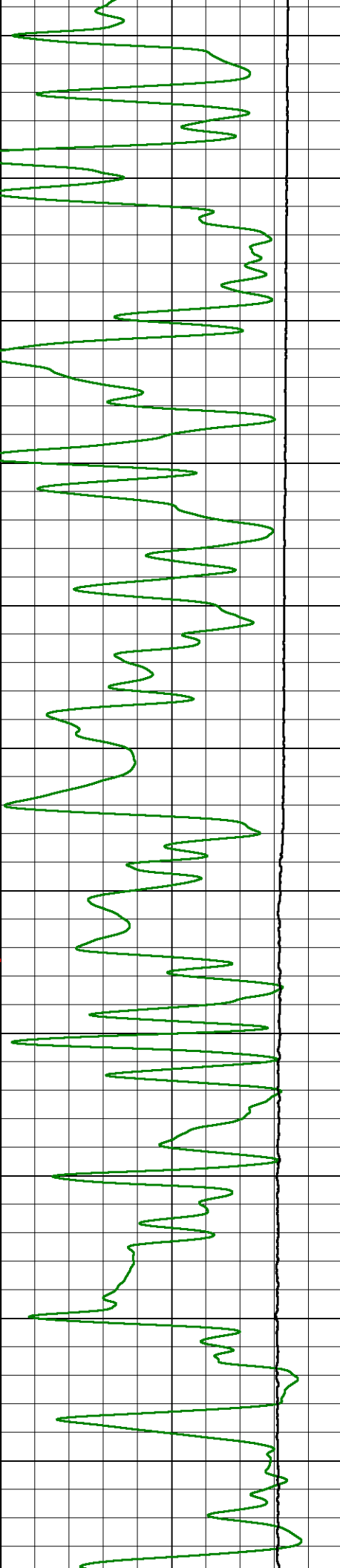
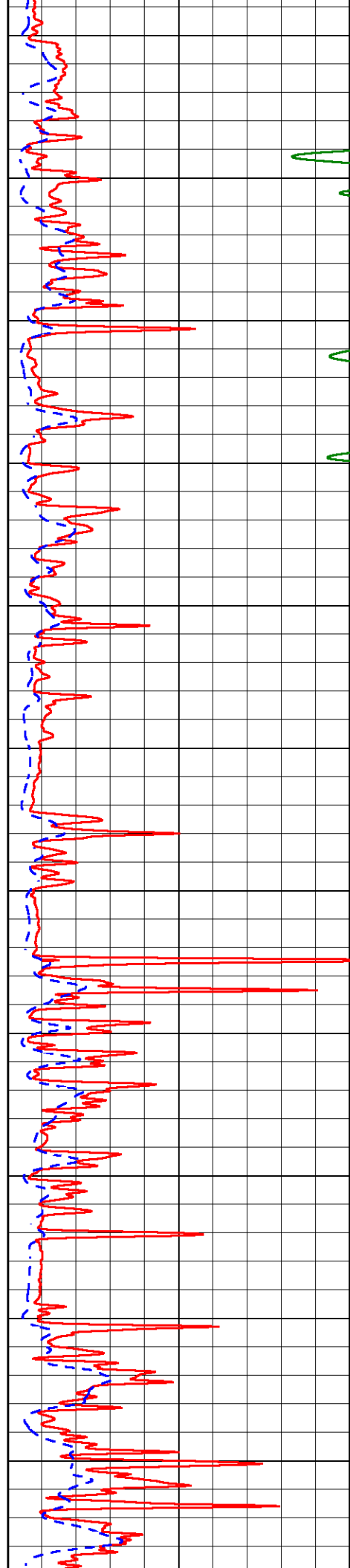


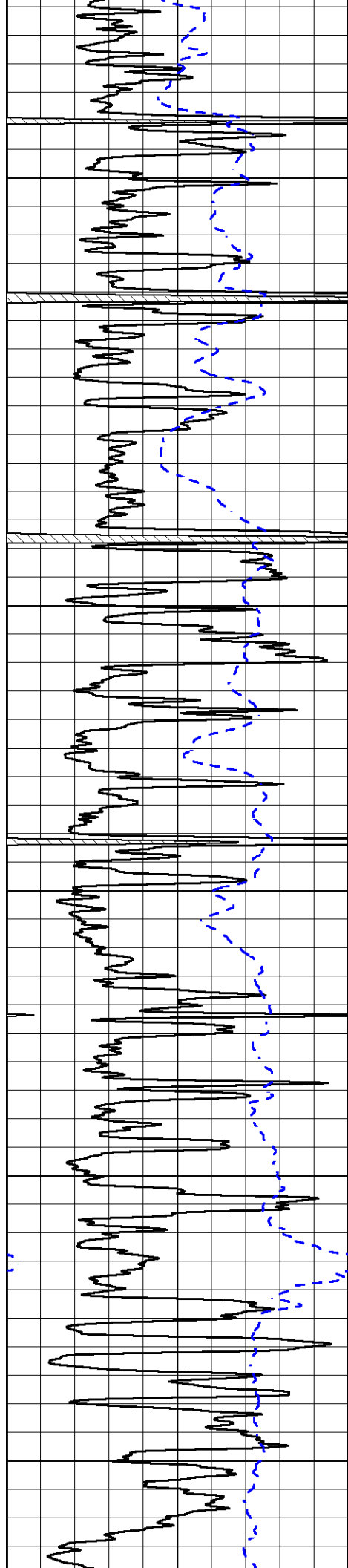






2550
2600
2650
2700
2750
2800
2850
2900
2950
3000
3050





3100

3150

3200

3250

3300

3350

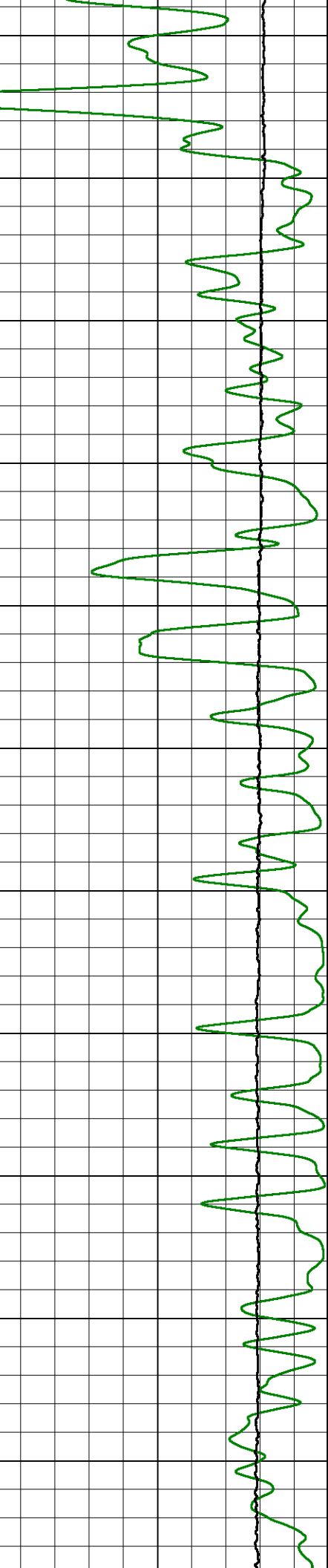
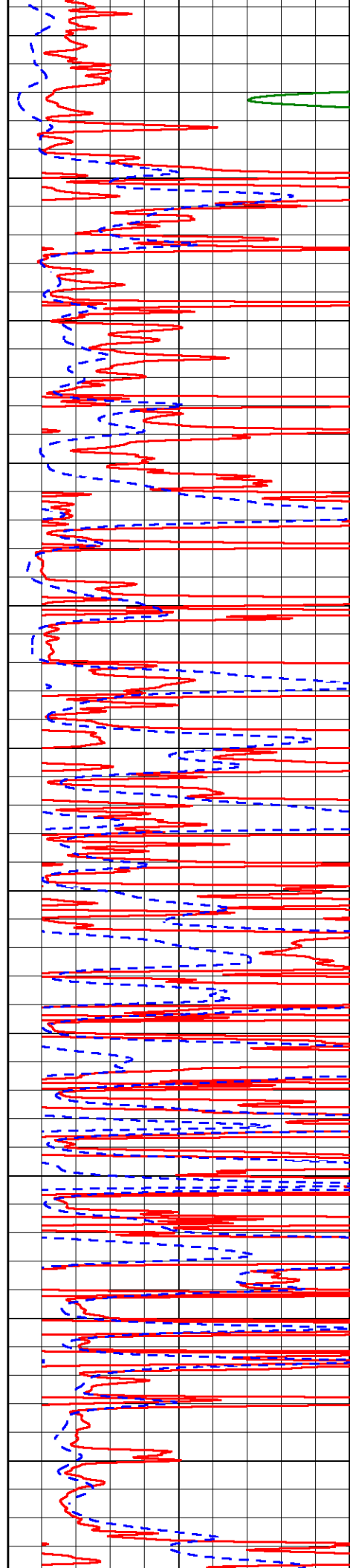
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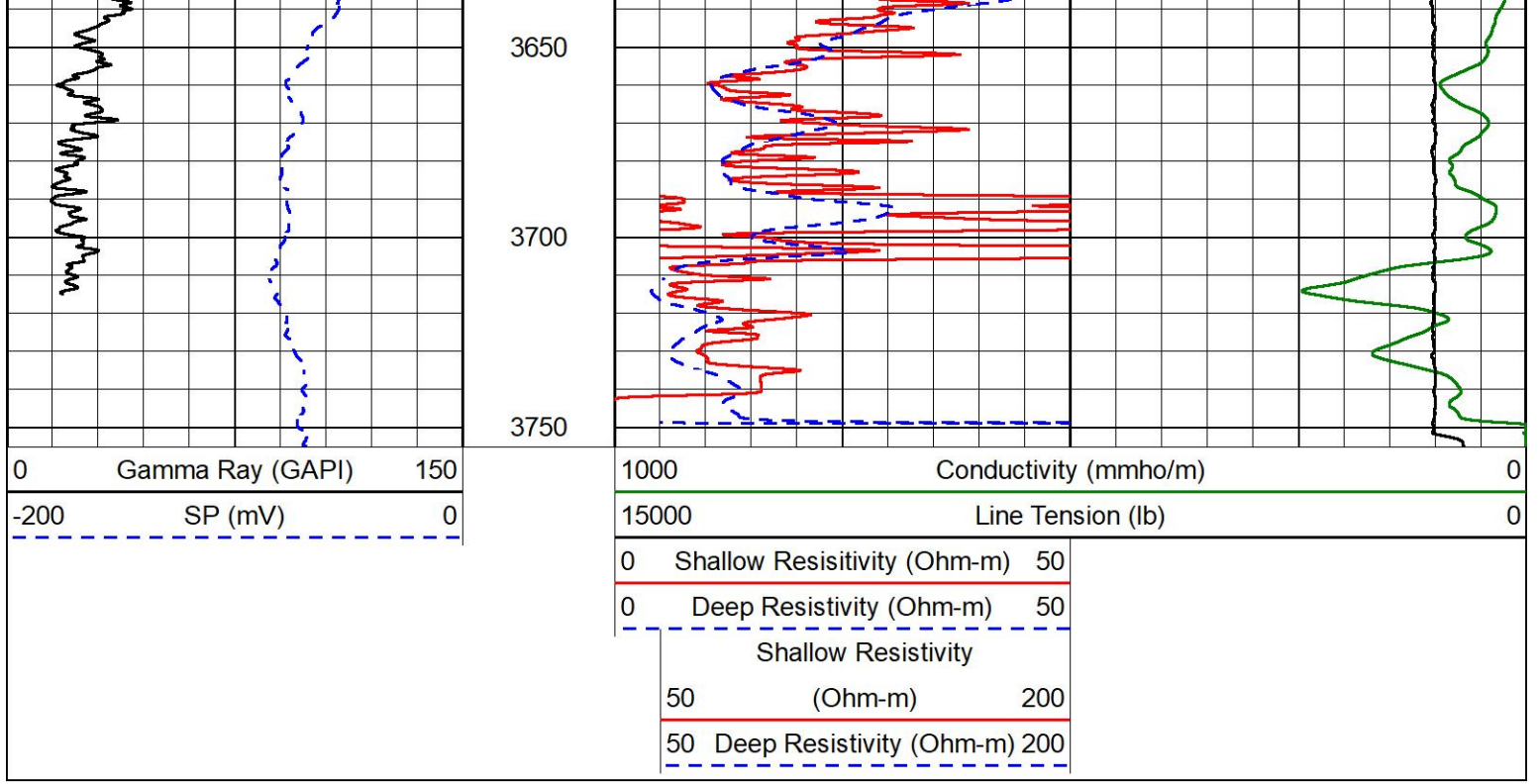
3450

3500

3550

3600

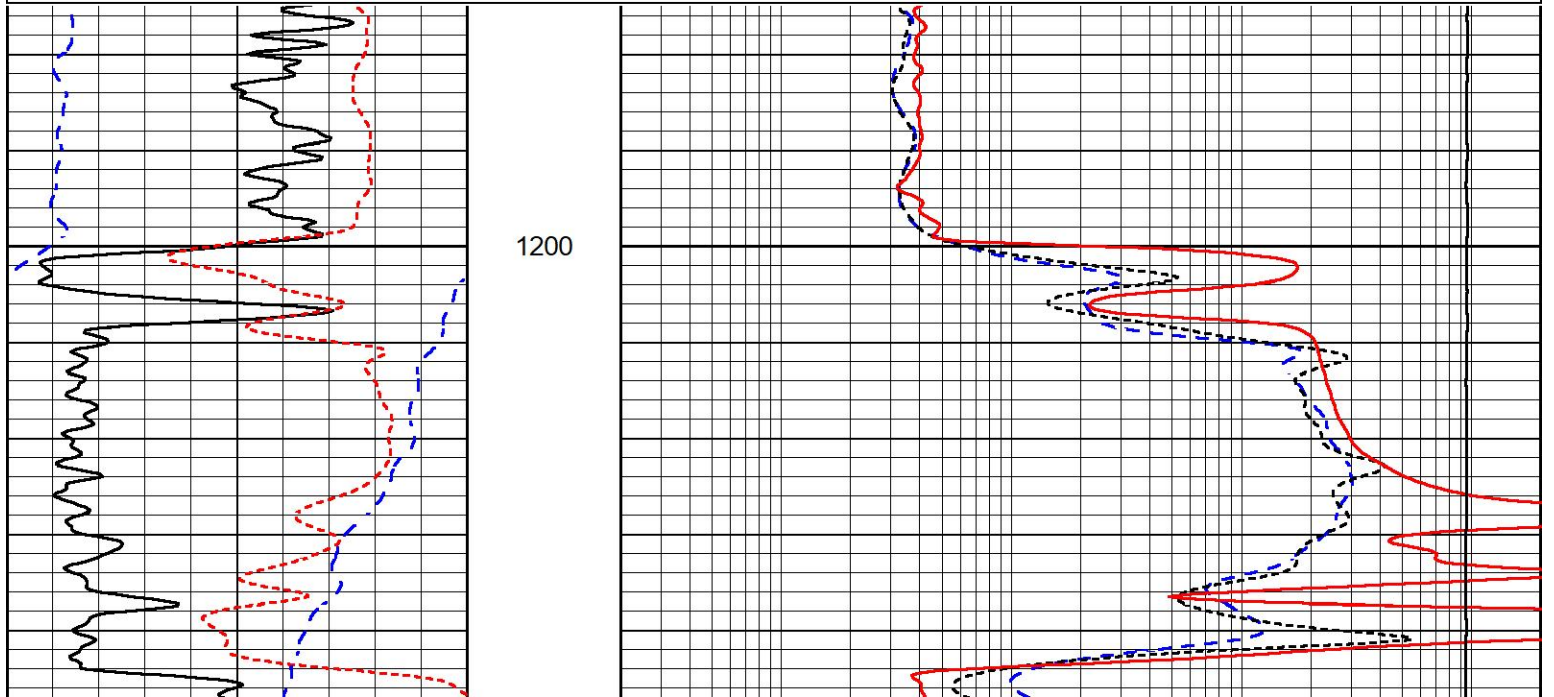
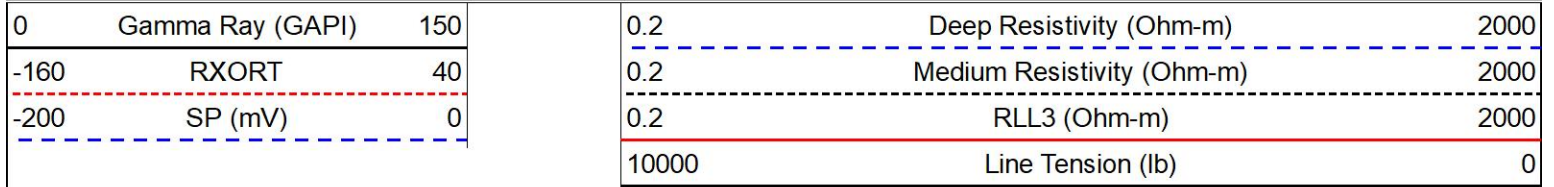


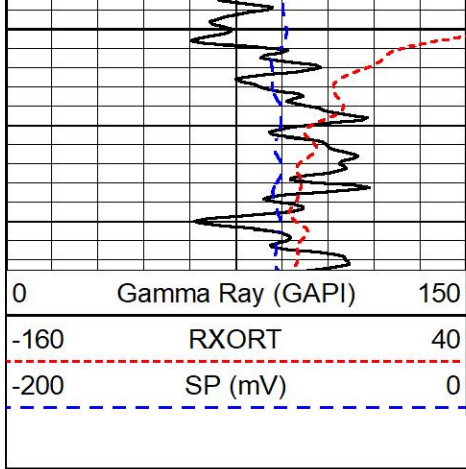


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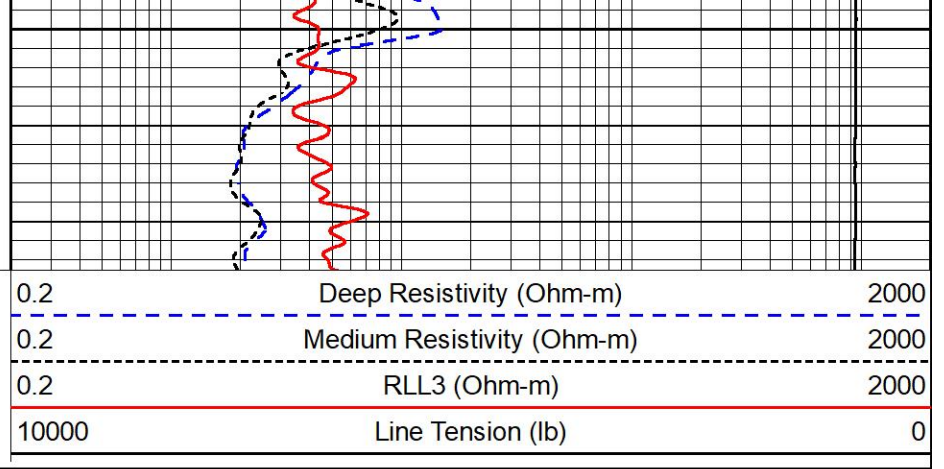
MAIN PASS

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 Presentation Format _dil
 Dataset Creation Mon Sep 26 13:14:51 2022
 Charted by Depth in Feet scaled 1:240





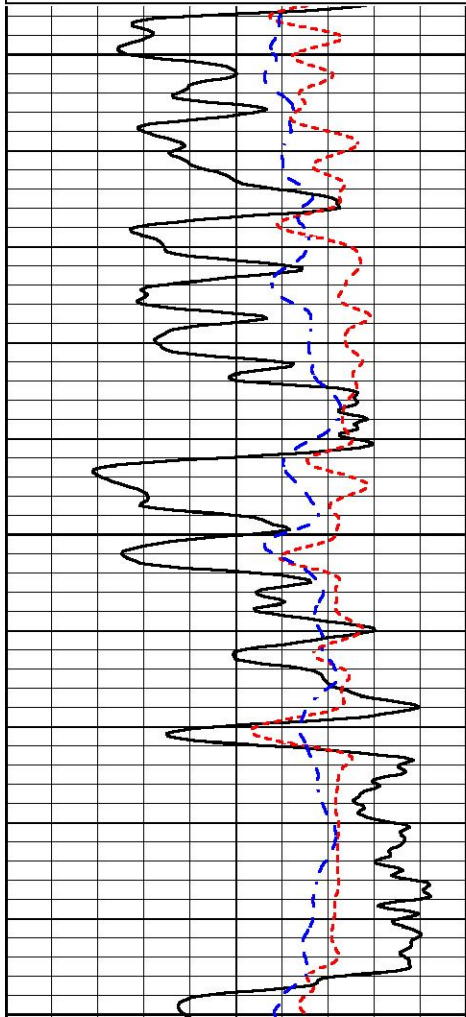
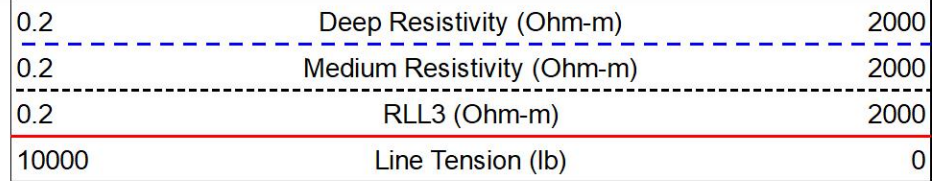
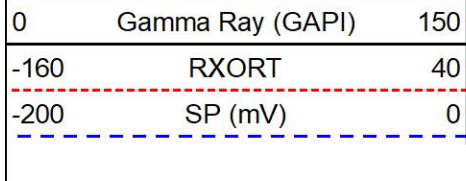
1250



DETAIL SECTION

MAIN PASS

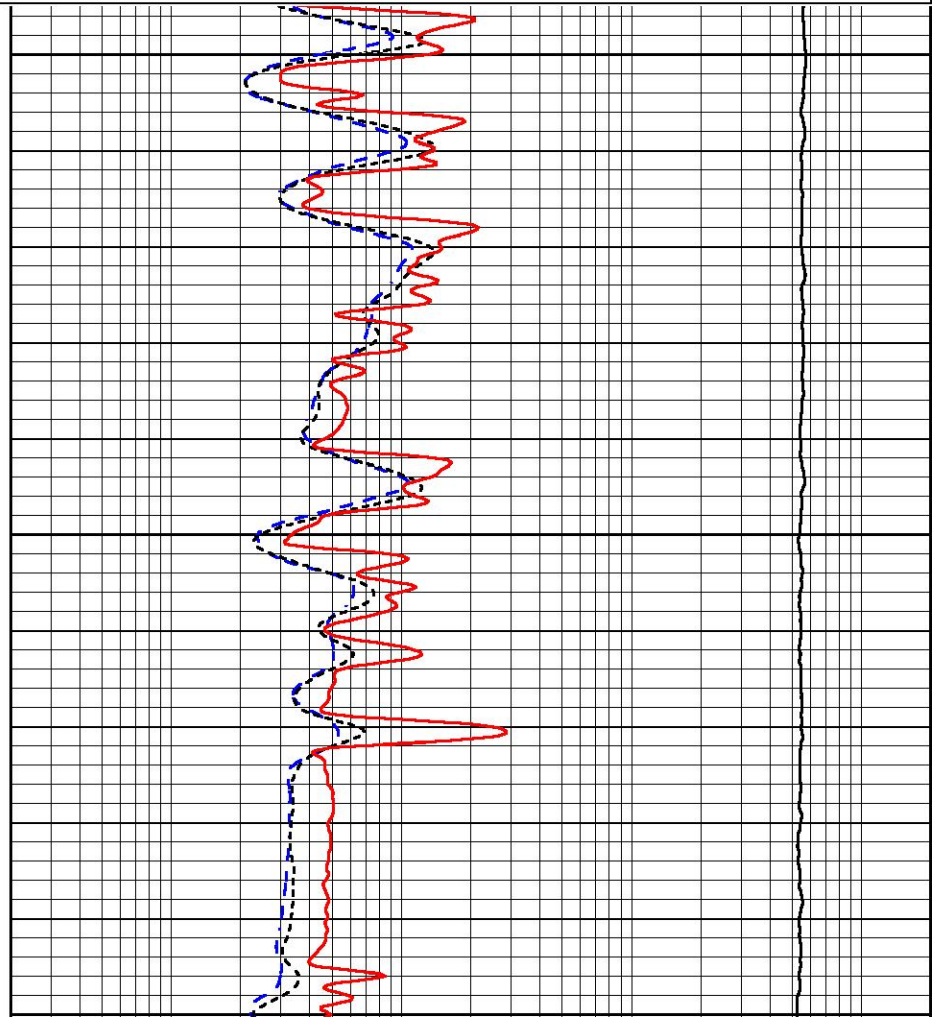
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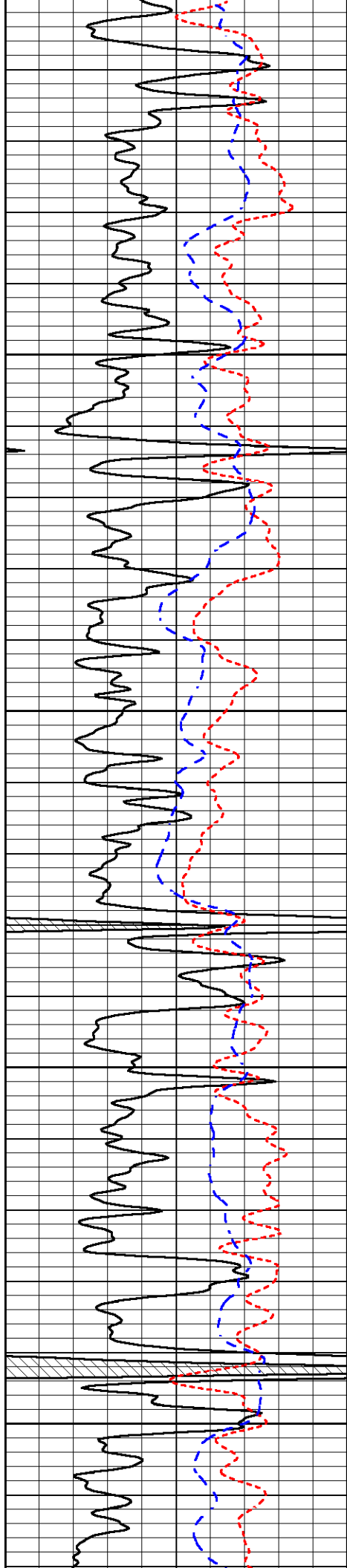


2900

2950

3000





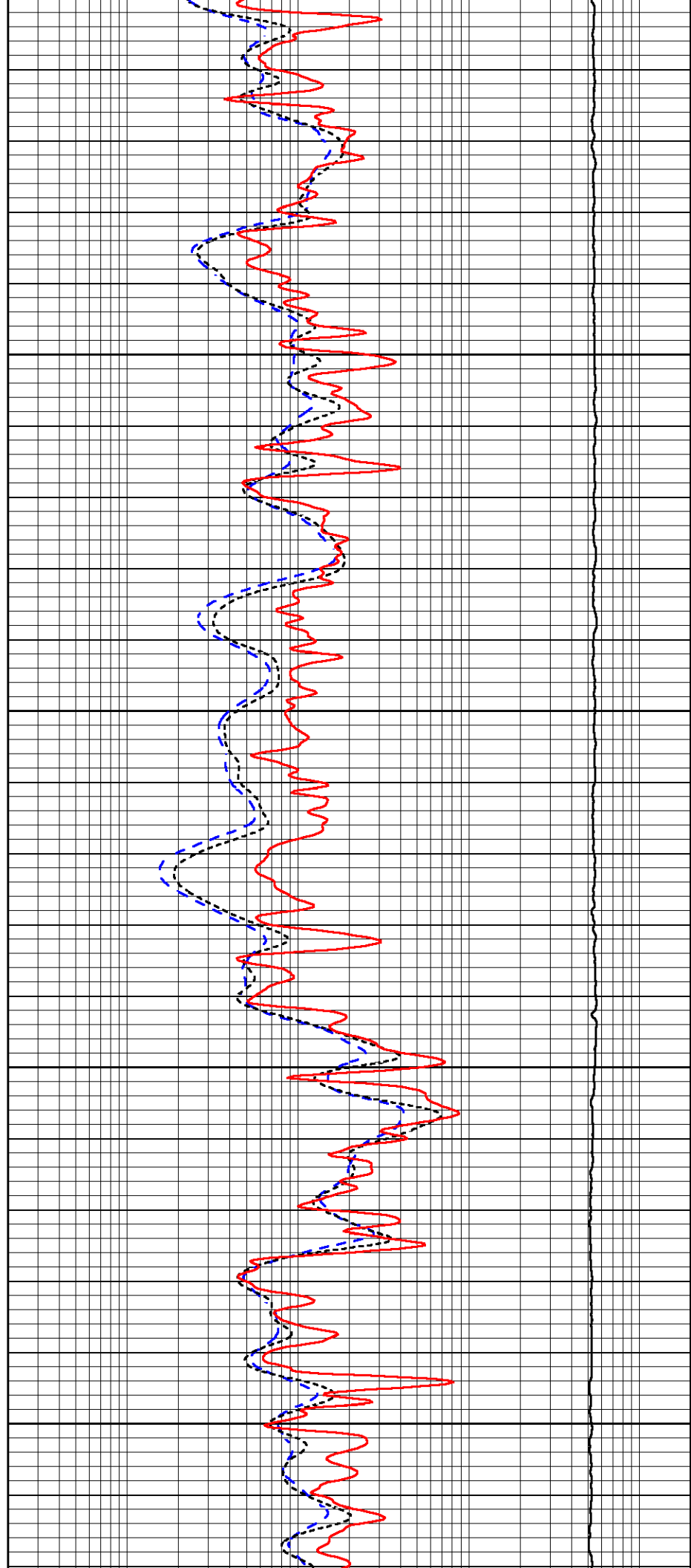
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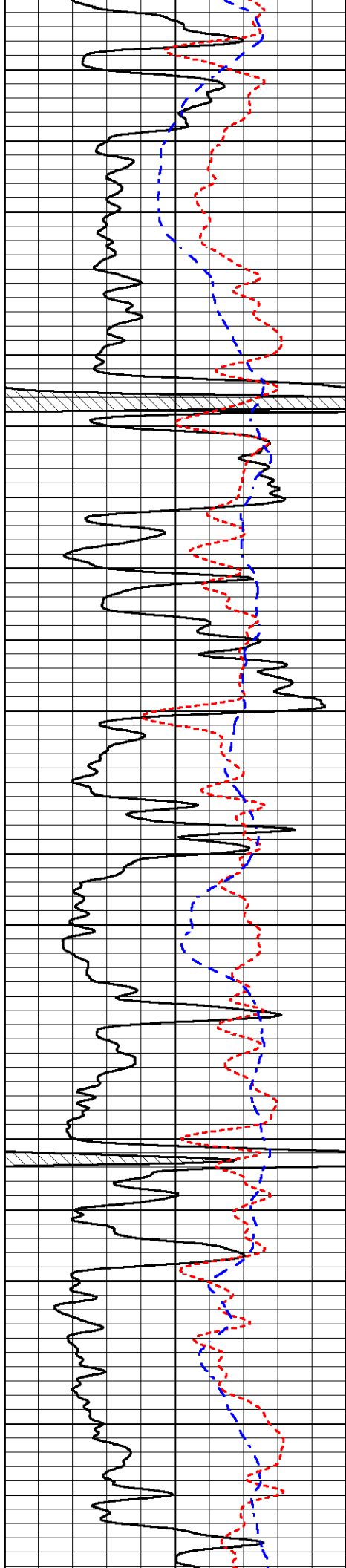
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3100

3150

3200



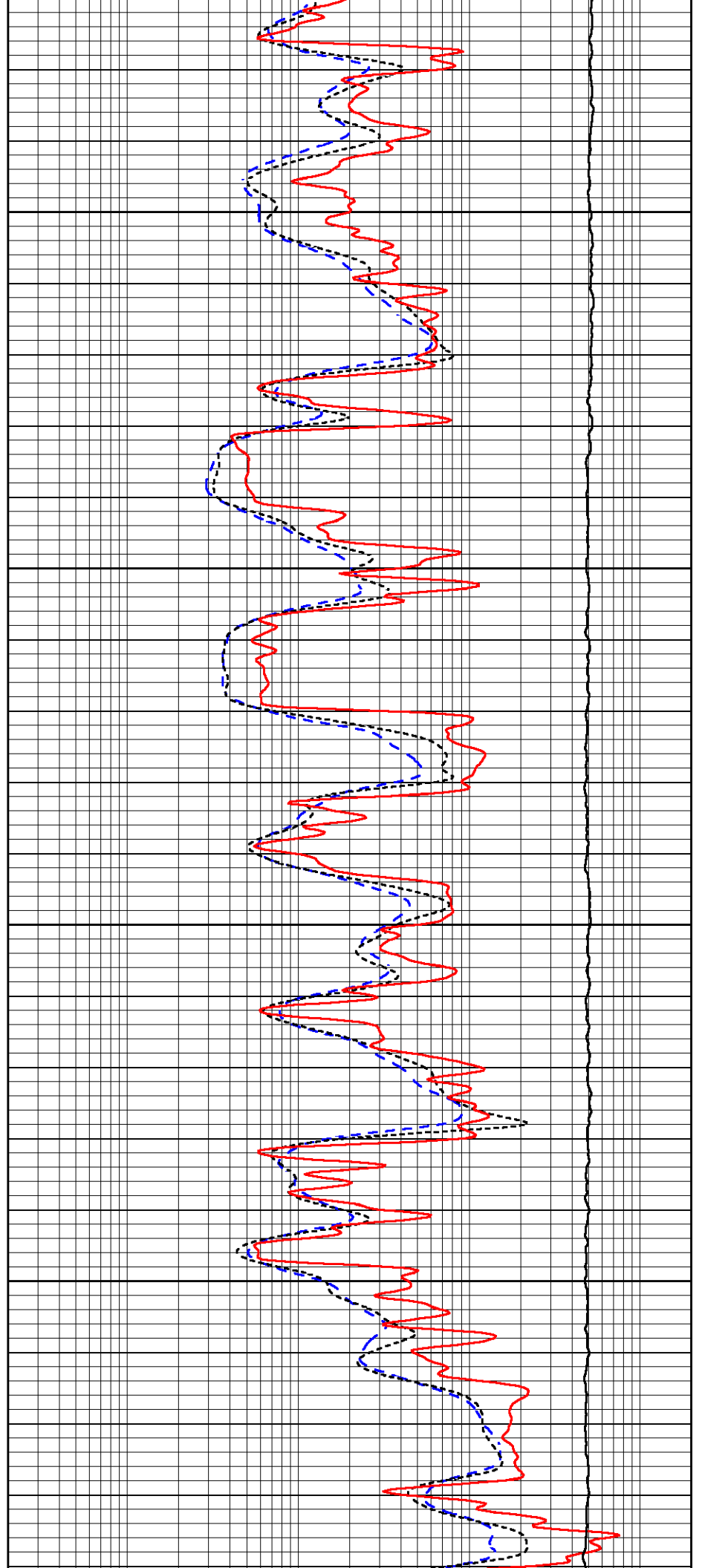


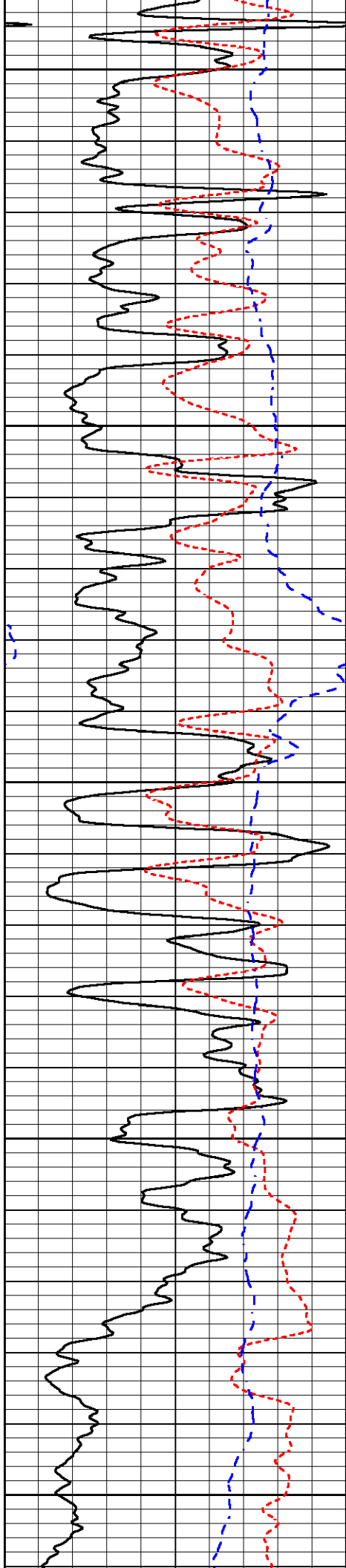
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3300

3350

3400





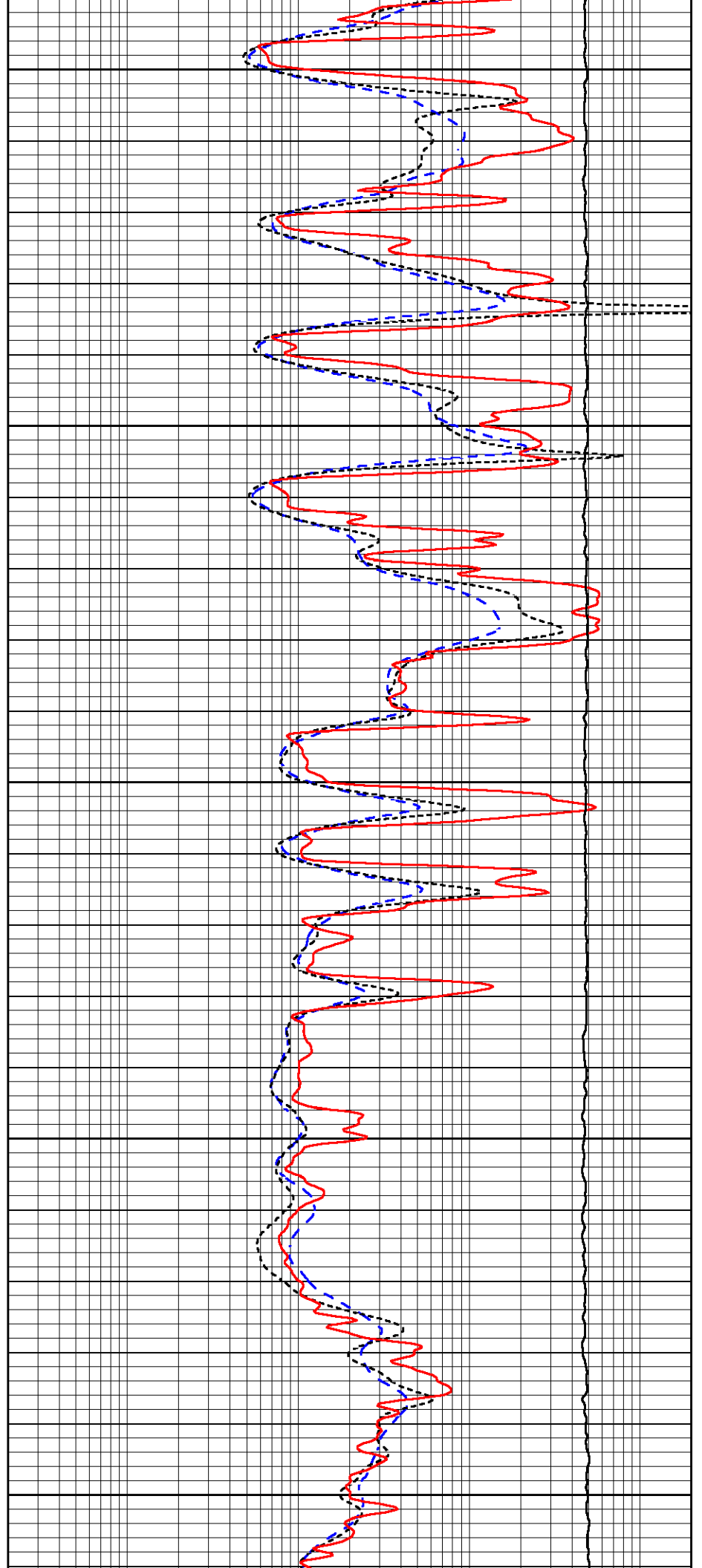
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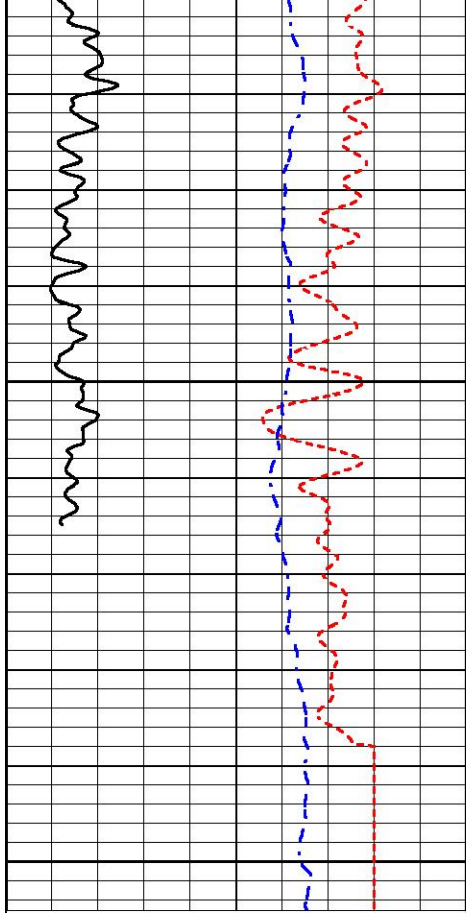
3500

3550

3600

3650

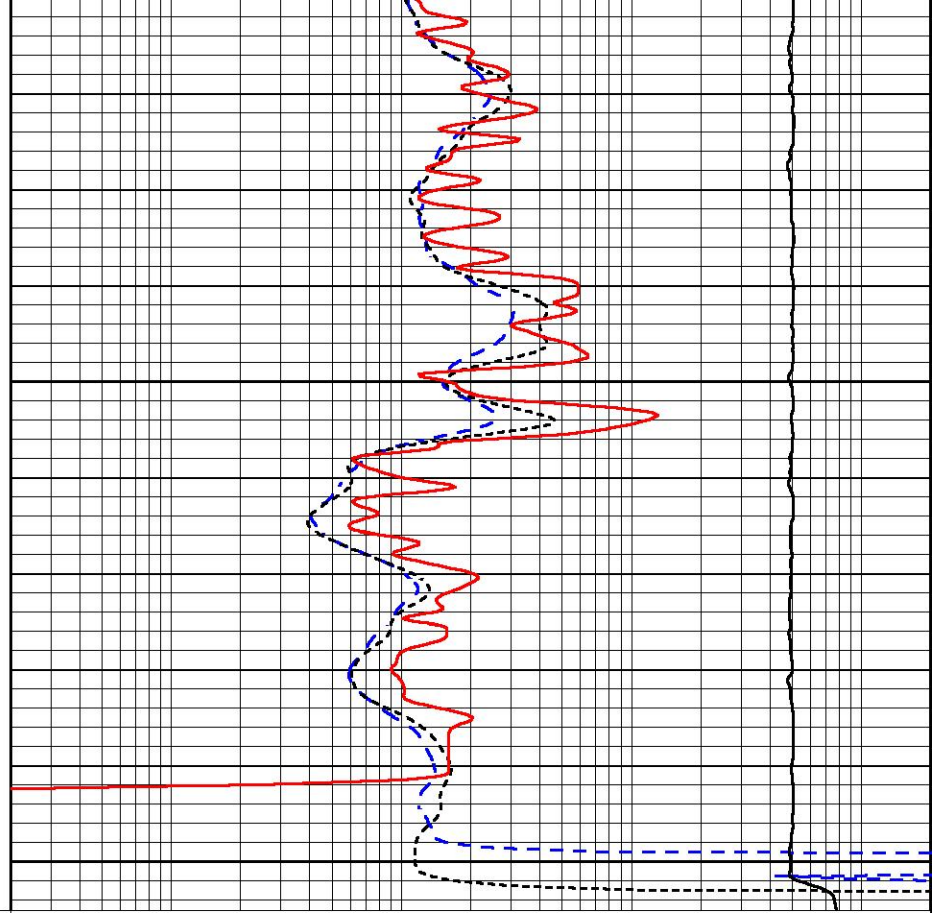




3700

3750

0	Gamma Ray (GAPI)	150
-160	RXORT	40
-200	SP (mV)	0



0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	Line Tension (lb)	0



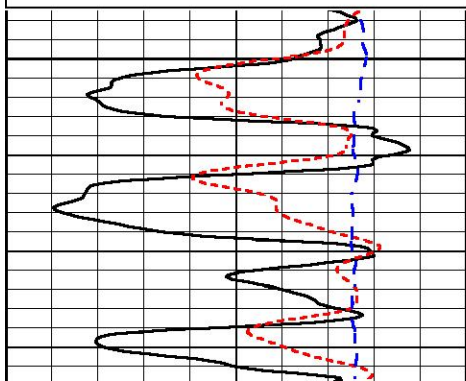
REPEAT SECTION

REPEAT PASS

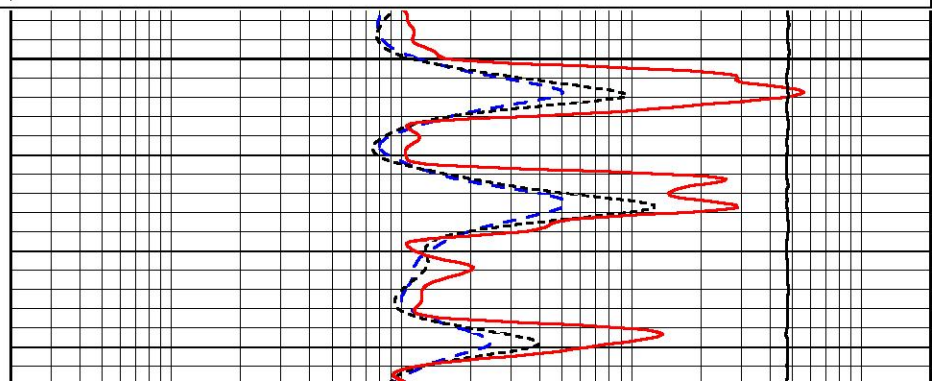
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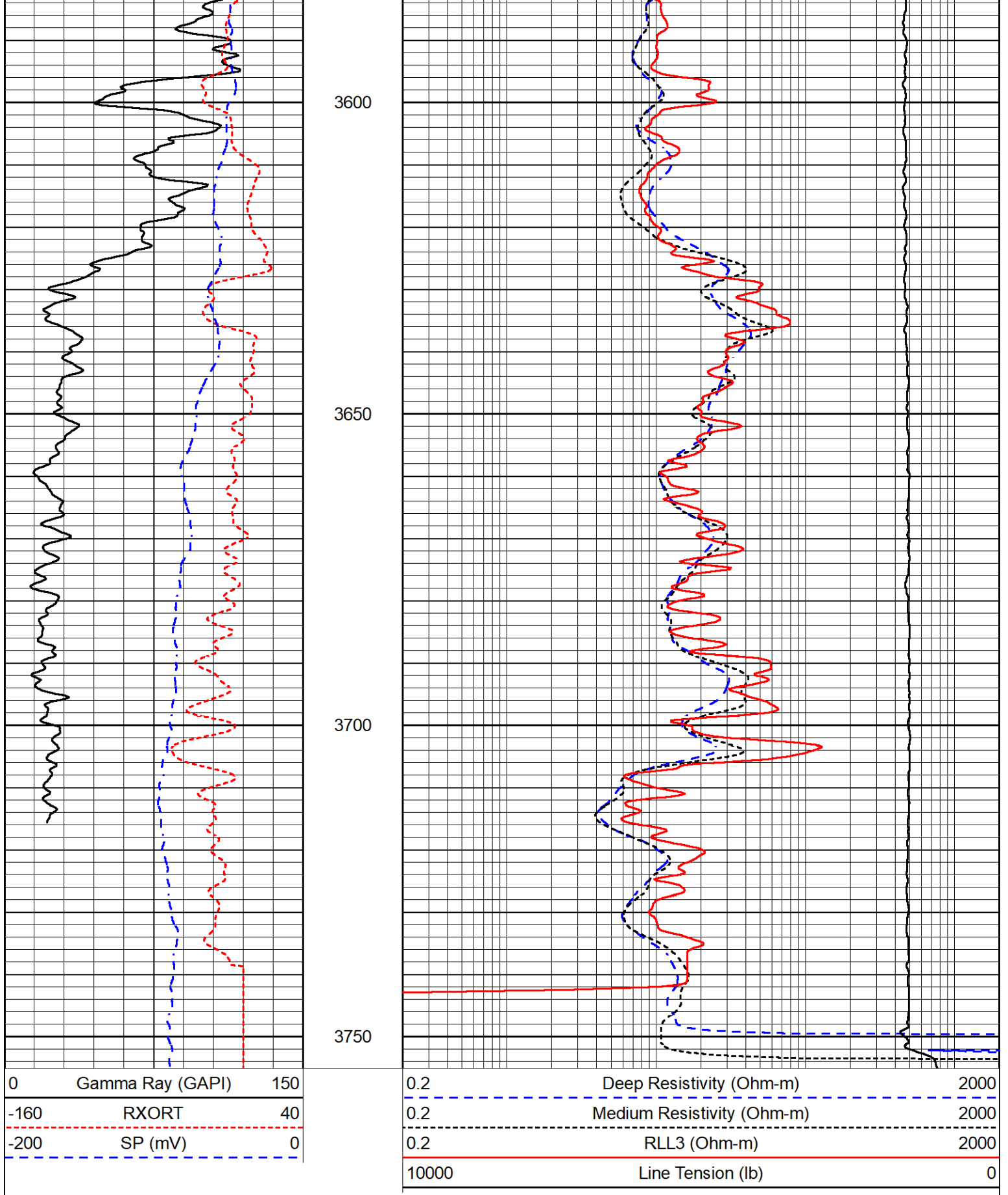
0	Gamma Ray (GAPI)	150
-160	RXORT	40
-200	SP (mV)	0

0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	Line Tension (lb)	0



3550





Calibration Report

Database File tdi_munsch #15.db
 Dataset Pathname StkMI/pass3.1
 Dataset Creation Mon Sep 26 13:26:53 2022

Serial-Model:
Surface Cal Performed:

501 HT-M&W
Thu Sep 22 17:20:27 2022

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		m	b
Deep	83.639	487.104	0.000	183.000	mmho/m	0.455	-35.000
Medium	113.335	1585.690	0.000	442.000	mmho/m	0.305	-33.000

Microlog Calibration Report

Serial-Model:
Performed:

402-PSIML
Thu Sep 22 17:20:33 2022

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	12000.0000	-1.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	14000.0000	-0.7000
Caliper	1.0052	1.0858	5.0000	16.5000	in	120.0000	-115.8000

Compensated Density Calibration Report

Serial-Model:
Source #:
Master Calibration Performed:

307-11-M&W
20762B
Sat Aug 27 10:20:16 2022

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	3600.52	4768.22	cps
Aluminum	2.670	g/cc	693.98	3106.20	cps
Spine Angle = 75.41			Density/Spine Ratio = 0.538		
	Size		Reading		
Small Ring	6.00	in	1.16		
Large Ring	18.00	in	1.01		

Compensated Neutron Calibration Report

Serial Number:
Tool Model:

207-MW
M&W

CALIBRATION

Detector	Readings	Target	Normalization
Short Space	6240.00 cps	1000.00 cps	1.6025
Long Space	460.00 cps	1000.00 cps	1.9500

PRE-SURVEY VERIFICATION

	Detector	Readings	Measured	Target
1)	Short Space	cps		
	Long Space	cps	pu	pu
2)	Short Space	cps		


	Long Space	cps	pu
3)	Short Space Long Space	cps cps	pu

POST-SURVEY VERIFICATION

	Detector	Readings	Measured	Target
1)	Short Space Long Space	cps cps	pu	pu
2)	Short Space Long Space	cps cps	pu	pu
3)	Short Space Long Space	cps cps	pu	pu

Gamma Ray Calibration Report

Serial Number:	106	
Tool Model:	M&W	
Performed:	Fri Dec 3 15:10:46 2021	
Calibrator Value:	500.0	GAPI
Background Reading:	24.0	cps
Calibrator Reading:	637.0	cps
Sensitivity:	0.5500	GAPI/cps

 <p>MIDWEST WIRELINE</p>	Company	TDI, Inc.
	Well	Munsch #15
	Field	Schoenchen
	County	Ellis
	State	Kansas