



MIDWEST WIRELINE

# DUAL INDUCTION LOG

Company Brehm Asset Management LLC  
 Well Dettmer-Wilkens #2-32  
 Field Slate East  
 County Rooks  
 State Kansas

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 Well Dettmer-Wilkens #2-32  
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Location: API #: 15-163-24457-00-00  
 NE SW SW NW  
 2298 FNL & 335 FWL  
 SEC 32 TWP 6S RGE 19W  
 Permanent Datum Ground Level Elevation 2049  
 Log Measured From Kelly Bushing  
 Drilling Measured From Kelly Bushing  
 Other Services  
 CNL/CDL  
 MEL  
 Elevation  
 K.B. 2057  
 D.F.  
 G.L. 2049

Date	8/16/2022
Run Number	One
Depth Driller	3590
Depth Logger	3591
Bottom Logged Interval	3590
Top Log Interval	200
Casing Driller	8.625 @ 224
Casing Logger	224
Bit Size	7.875
Type Fluid in Hole	Chemical
Salinity, ppm CL	1900
Density / Viscosity	8.9 57
pH / Fluid Loss	11.0 5.8
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	0.5 @ 112
Operating Rig Time	3.5 Hours
Max Rec. Temp. F	112
Equipment Number	P-24
Location	Hays
Recorded By	T. Martin
Witnessed By	Dwight Brehm
	Ken Keltner

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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.

Stockton, KS, W on Hwy 24  
 to Rd 8, 5.5 N, E into

Log Measured From: Kelly Bushing 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: Dwight Brehm	Secondary Witness: Ken Keltner
Operator:	Operator:	Secondary Witness:	Secondary Witness:
Operator:		Secondary Witness:	

Operator	Offset (ft)	Substrate	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	32.75		GR-M&W (106)	3.00	3.50	50.00
CNLSC CNSSC	29.65 28.90		CNT-M&W (207-MW)	5.00	3.50	100.00
LSD DCAL SSD	20.60 20.58 20.10		CDL-M&W (305-24)	8.50	4.00	250.00
RLL3F RLL3	15.50 15.50		DIL-M&W (507)	18.25	3.50	220.00
CILD	8.33					
CILM	4.50					
SP	0.20					

Dataset: brehm\_dettmer-wilkens #2-32.db: field/well/Stack/pass3.1  
 Total length: 34.75 ft  
 Total weight: 620.00 lb  
 O.D.: 4.00 in

# Log Variables

DatabaseC:\ProgramData\Warrior\Data\brehm\_dettmer-wilkens #2-32.db  
 Dataset field/well/Stack/pass3.1/\_vars\_

## Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	112	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	0	80	Off	3591

## 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



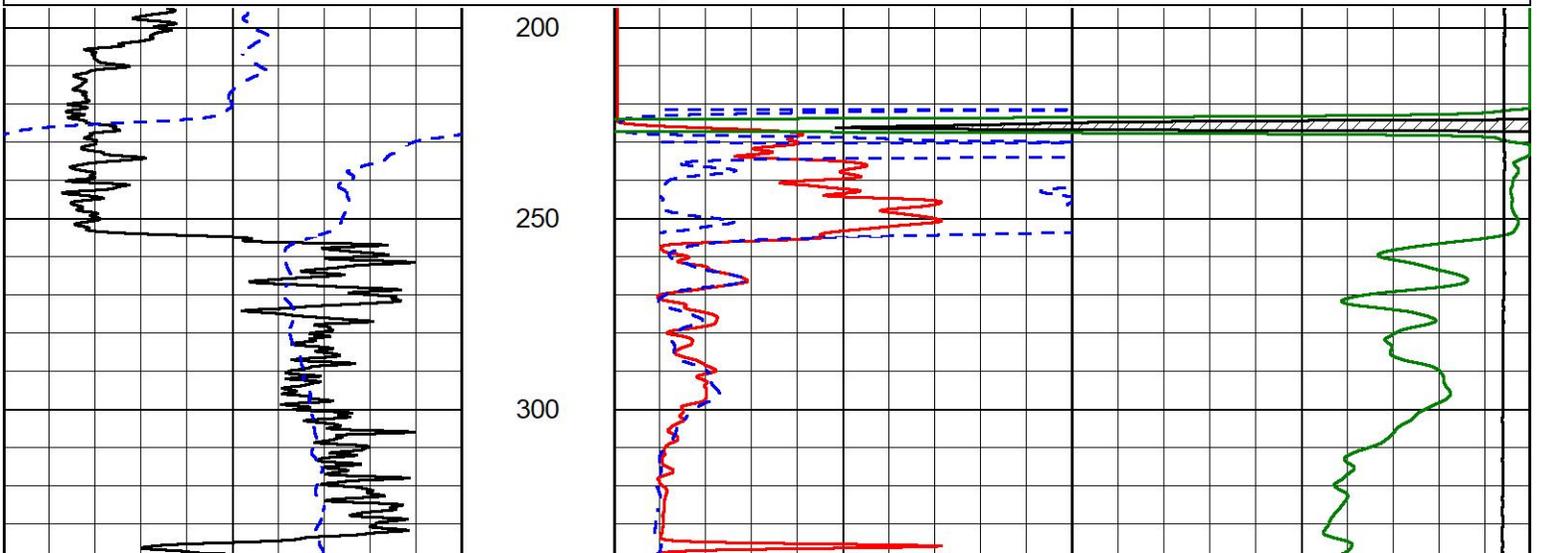
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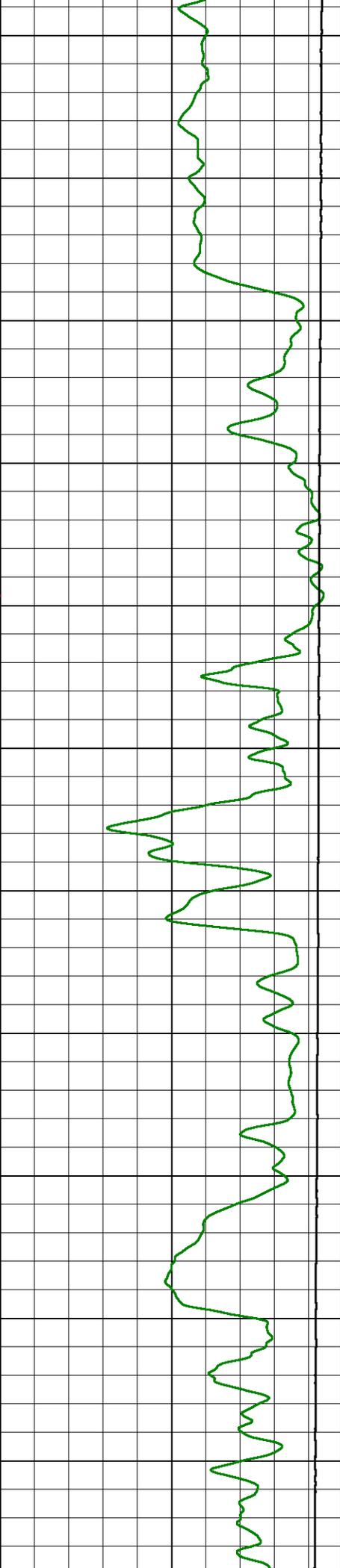
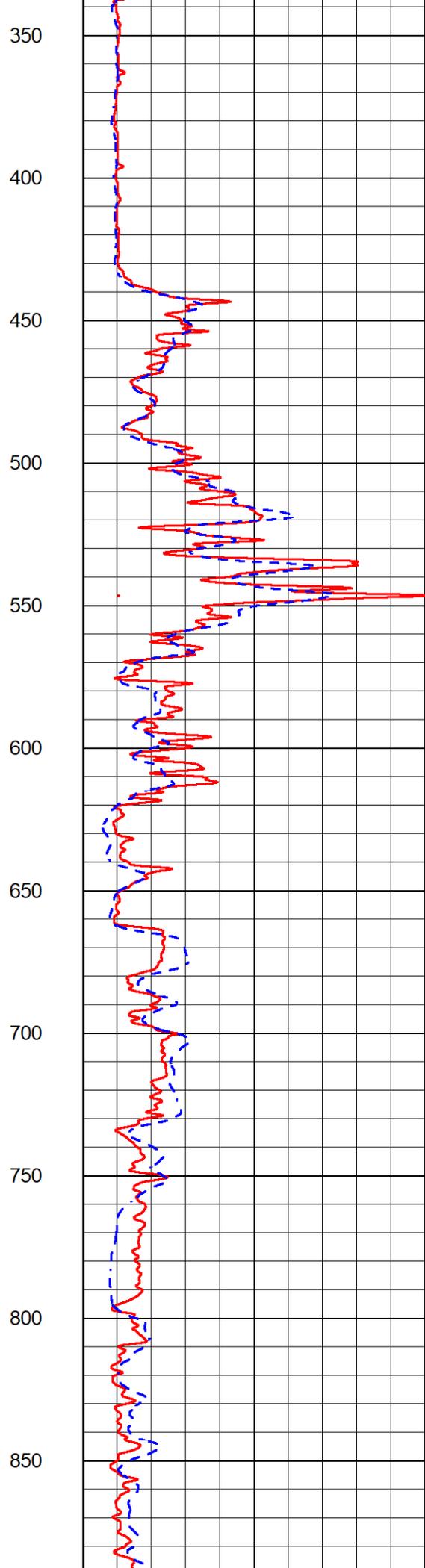
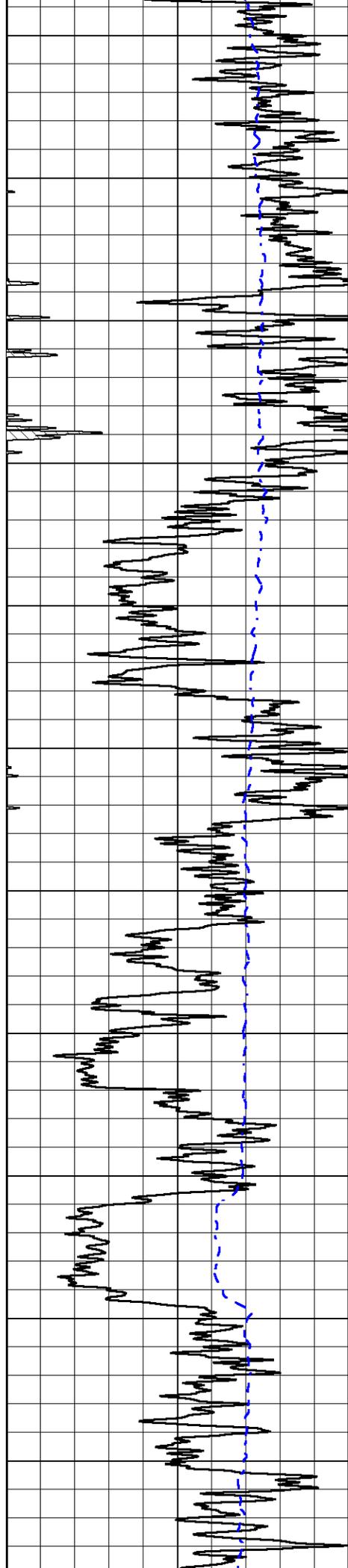
### MAIN PASS

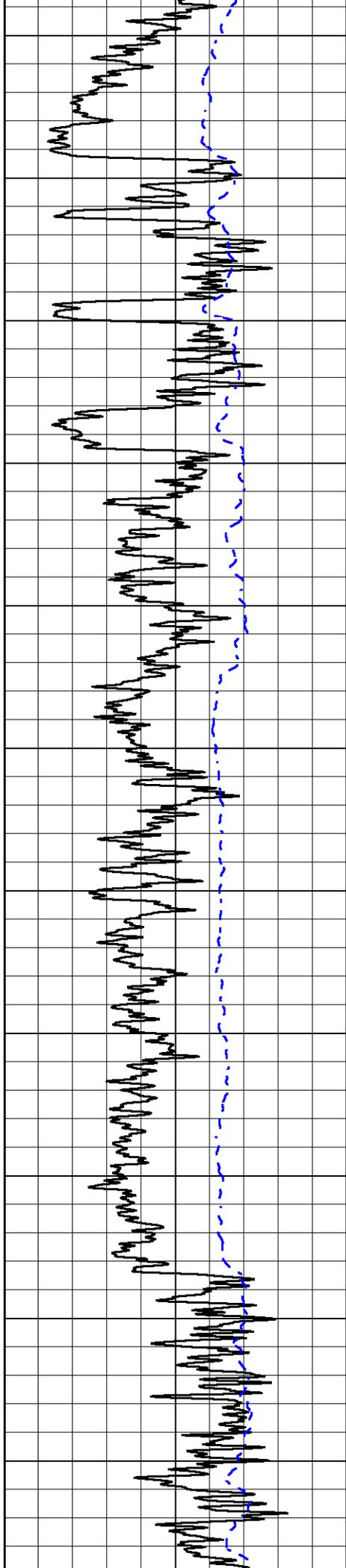
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 Dataset Pathname Stack/pass3.2  
 Presentation Format \_dil2in  
 Dataset Creation Tue Aug 16 04:13:07 2022  
 Charted by Depth in Feet scaled 1:600

0	Gamma Ray (GAPI)	150
-200	SP (mV)	0

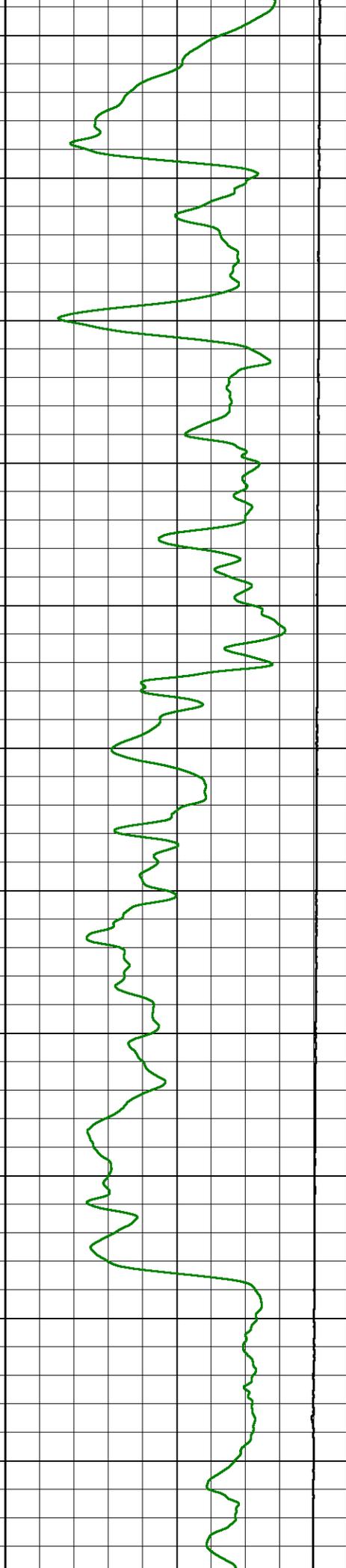
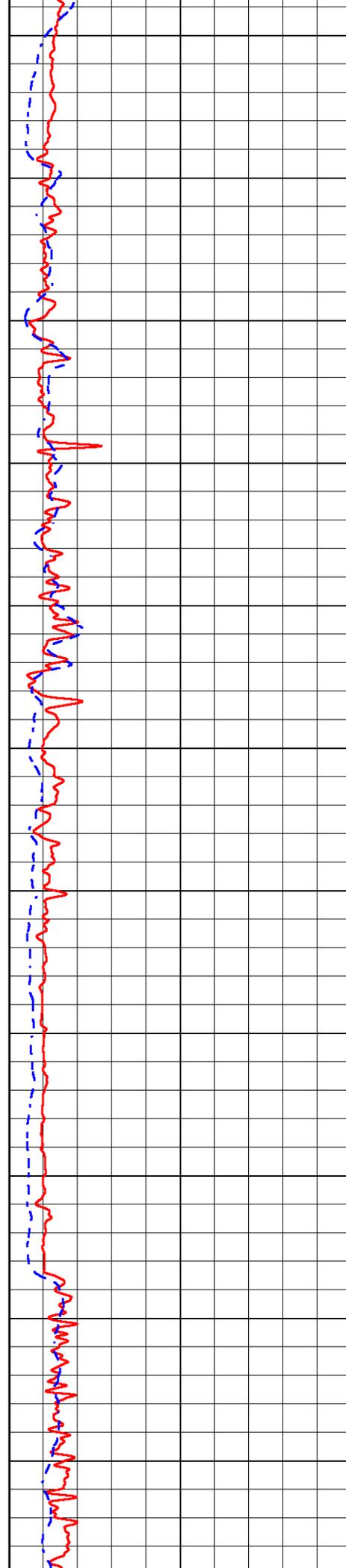
1000	Conductivity (mmho/m)	0
15000	Line Tension (lb)	0
0	Shallow Resistivity (Ohm-m)	50
0	Deep Resistivity (Ohm-m)	50
50	Shallow Resistivity (Ohm-m)	200
50	Deep Resistivity (Ohm-m)	200

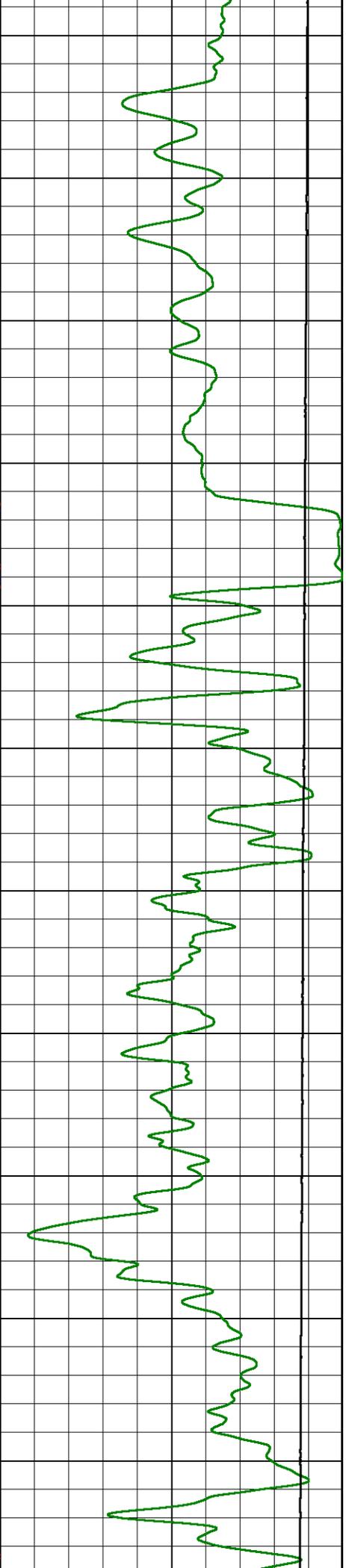
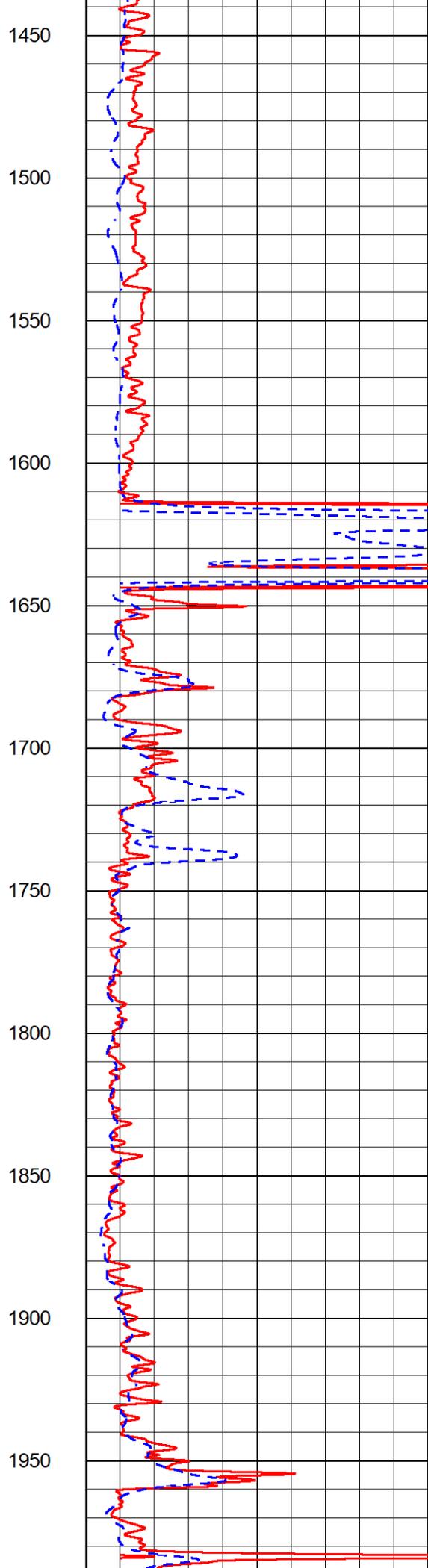
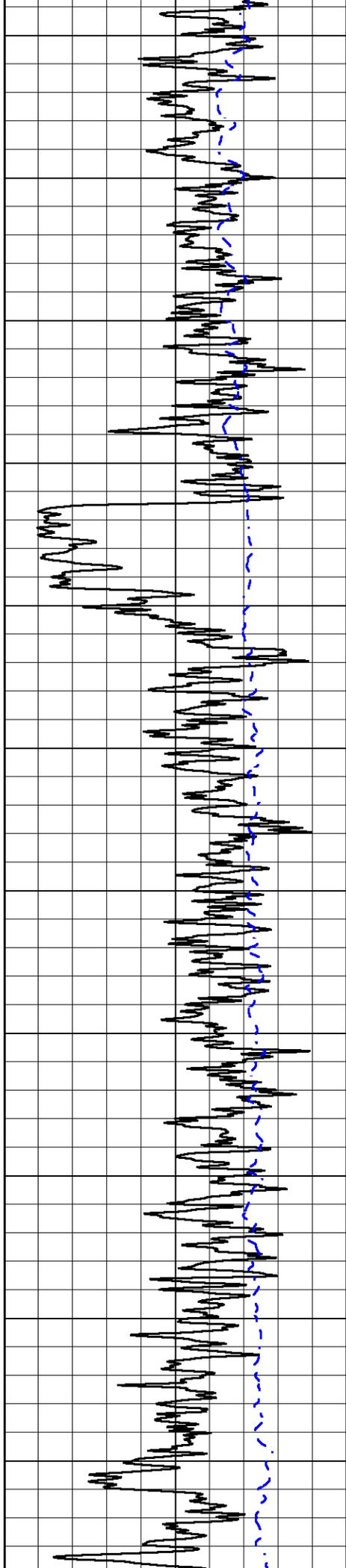


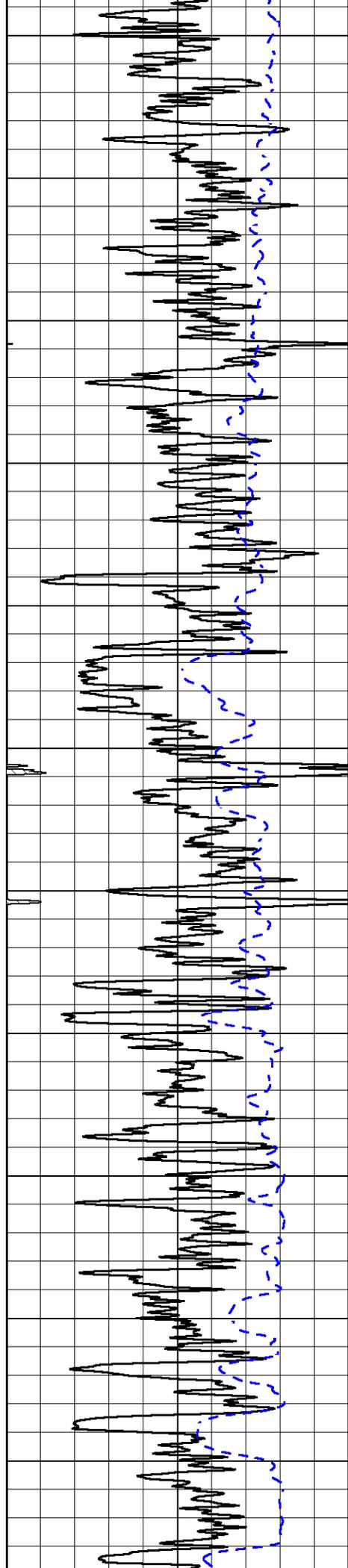




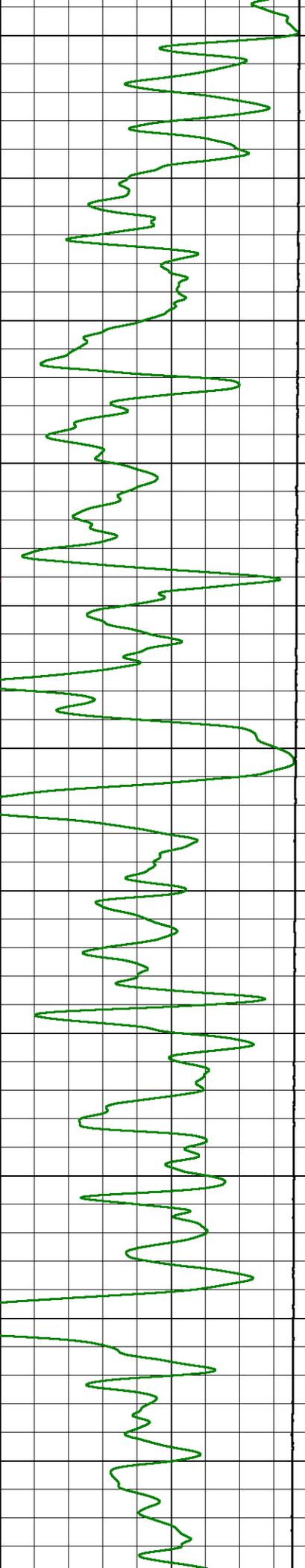
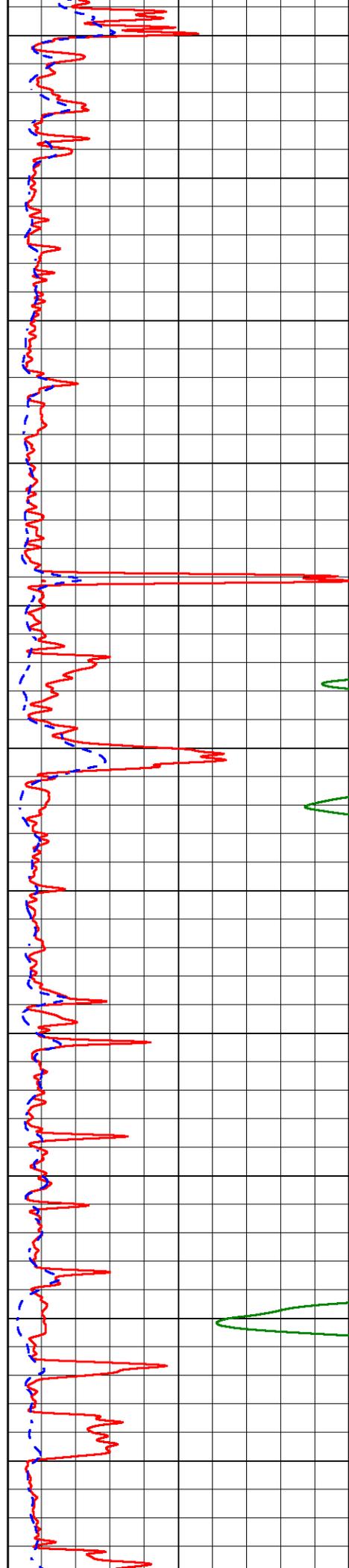
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950  
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1050  
1100  
1150  
1200  
1250  
1300  
1350  
1400

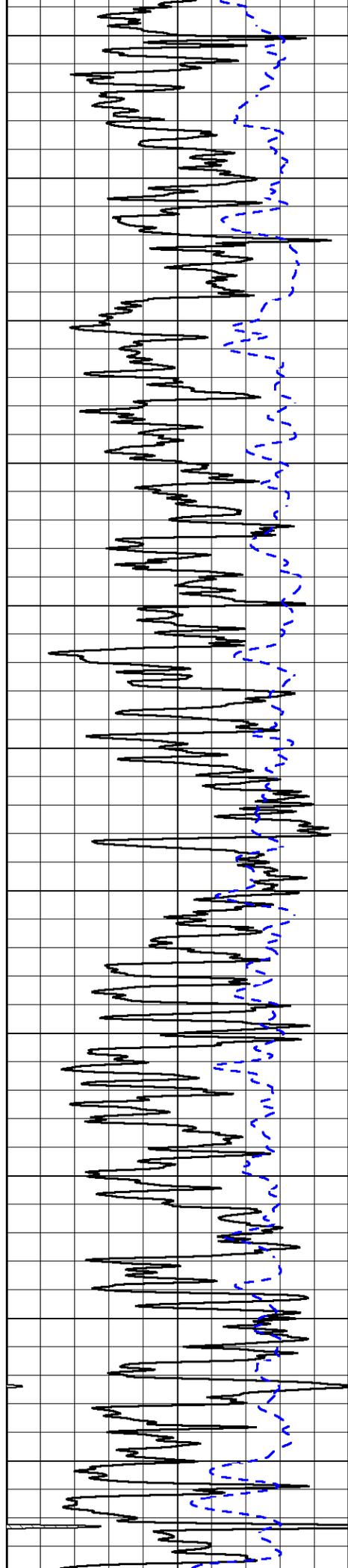




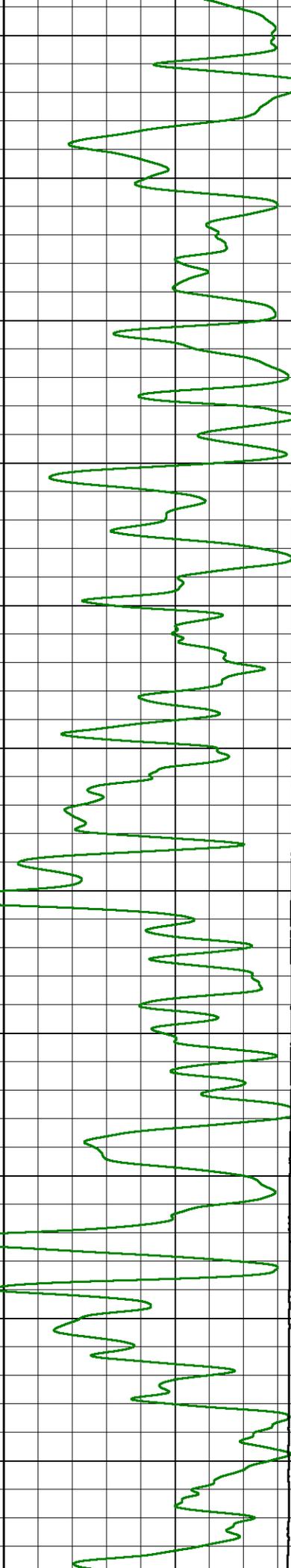
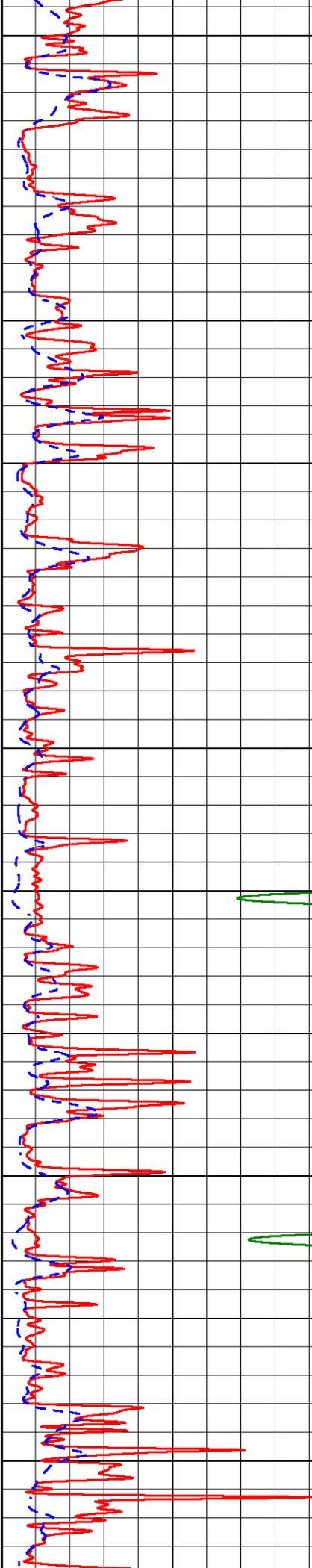


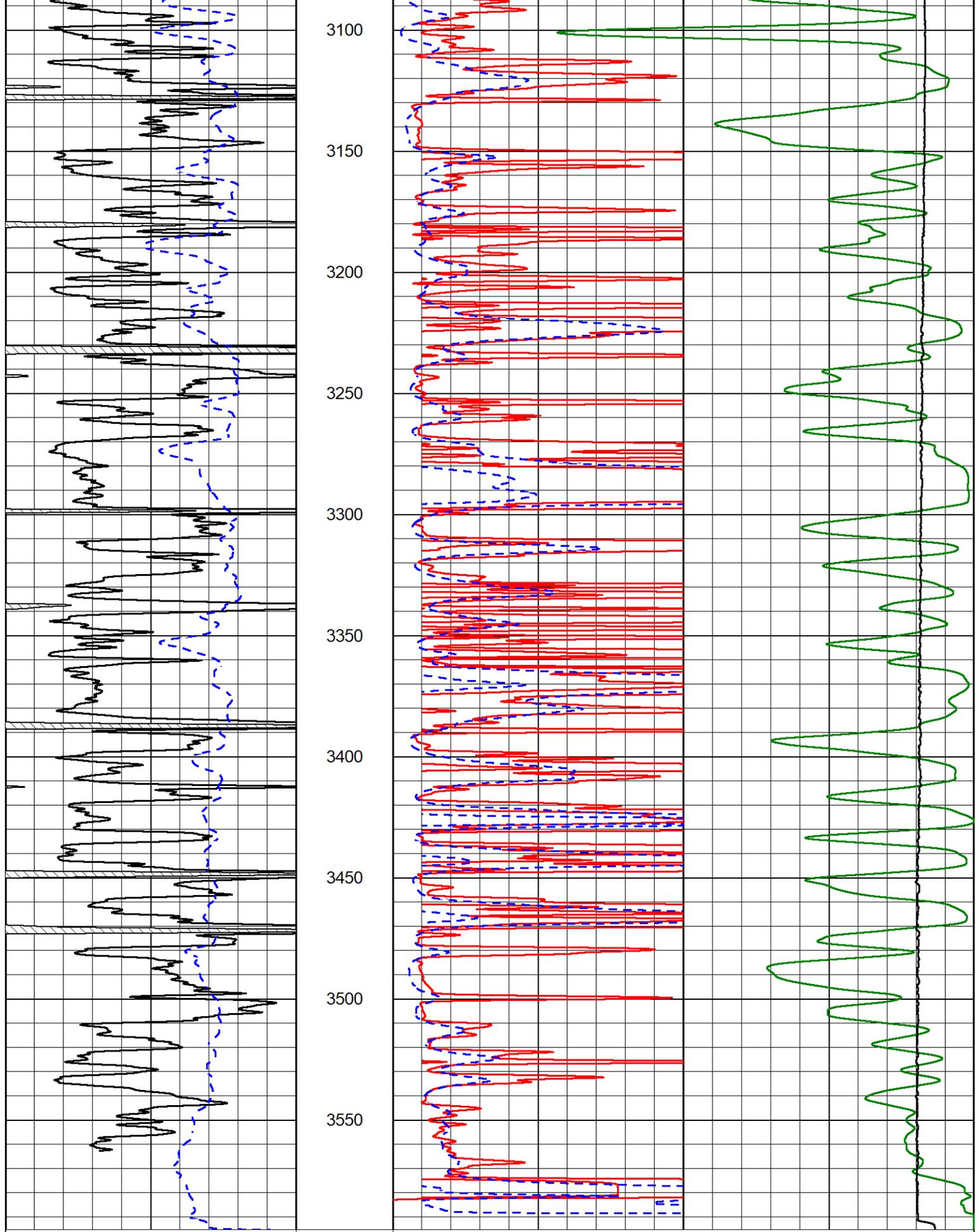
2000  
2050  
2100  
2150  
2200  
2250  
2300  
2350  
2400  
2450  
2500





2550  
2600  
2650  
2700  
2750  
2800  
2850  
2900  
2950  
3000  
3050





0      Gamma Ray (GAPI)      150  
 -200      SP (mV)      0

1000      Conductivity (mmho/m)      0  
 15000      Line Tension (lb)      0

0      Shallow Resistivity (Ohm-m)      50  
 0      Deep Resistivity (Ohm-m)      50

0	Deep Resistivity (Ohm-m)	50
	Shallow Resistivity	
50	(Ohm-m)	200
50	Deep Resistivity (Ohm-m)	200



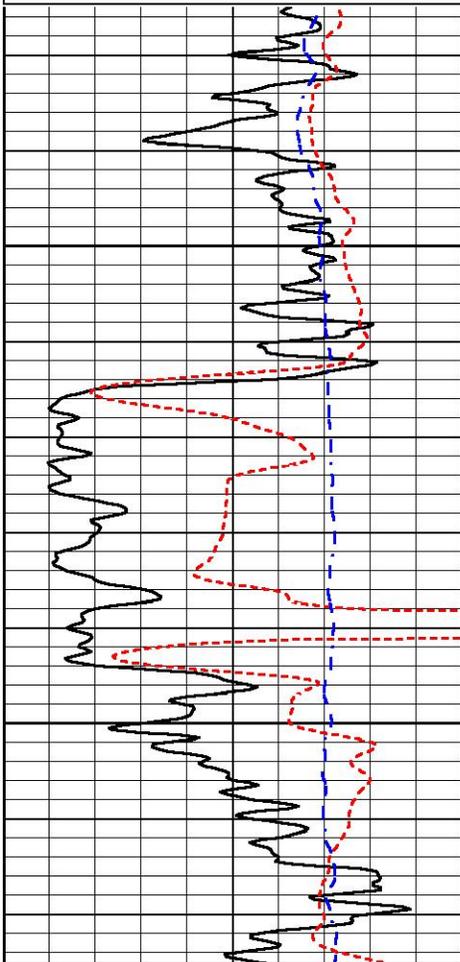
# ANHYDRITE SECTION

## MAIN PASS

Database File      brehm\_dettmer-wilkens #2-32.db  
 Dataset Pathname    Stack/pass3.4  
 Presentation Format    \_dil  
 Dataset Creation      Tue Aug 16 03:58:29 2022  
 Charted by            Depth in Feet scaled 1:240

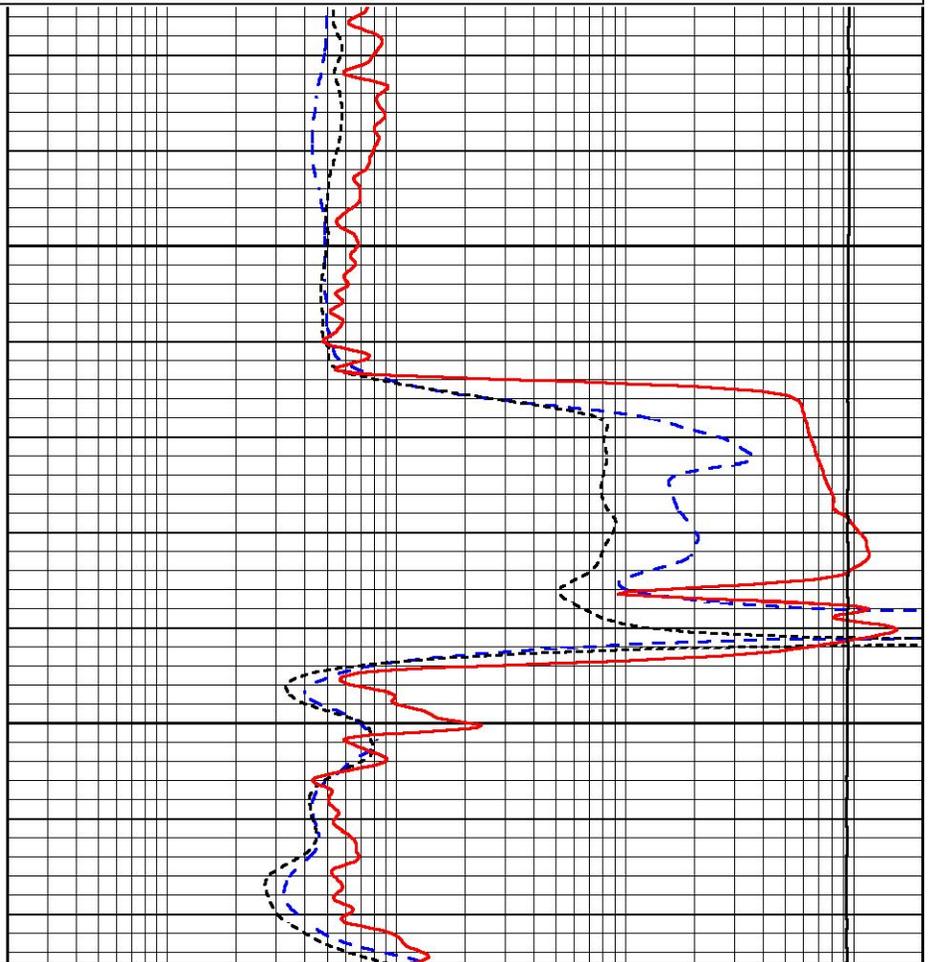
0	Gamma Ray (GAPI)	150
-160	RXORT	40
-200	SP (mV)	0

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



1600

1650



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

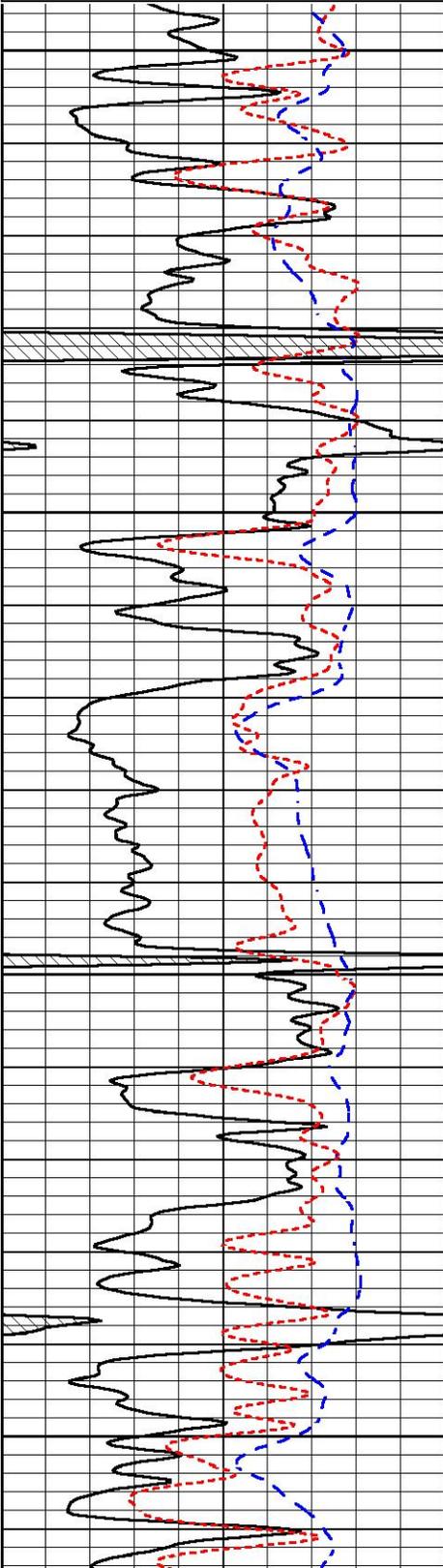


# DETAIL SECTION

Database File      brehm\_dettmer-wilkens #2-32.db  
 Dataset Pathname    Stack/pass3.1  
 Presentation Format    \_dil  
 Dataset Creation      Tue Aug 16 04:13:17 2022  
 Charted by            Depth in Feet scaled 1:240

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

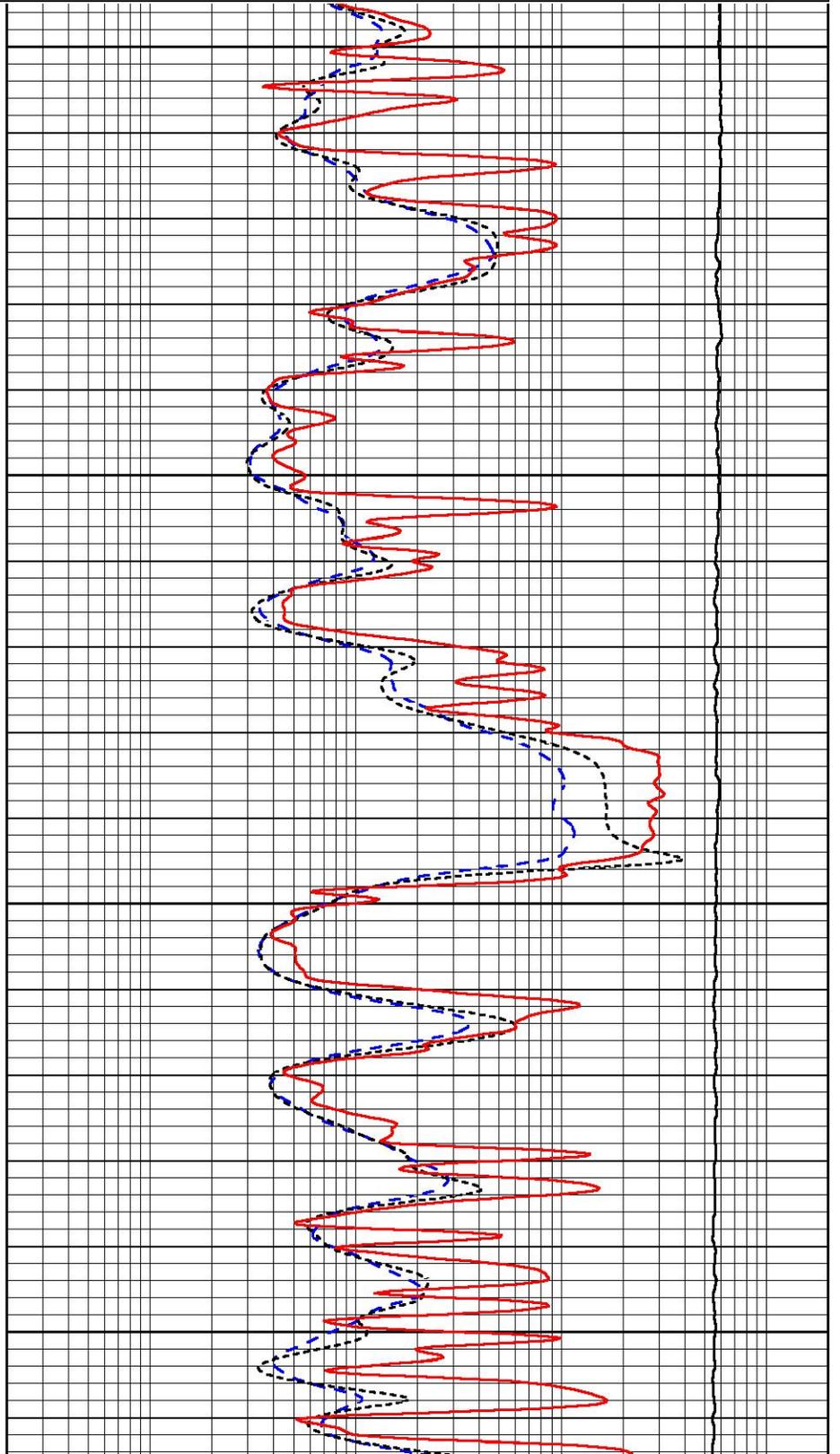


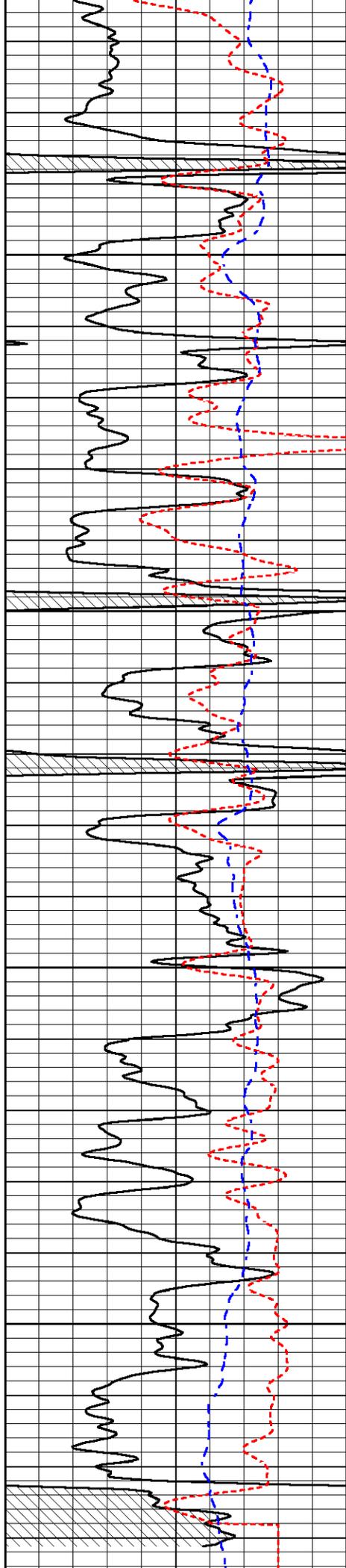
3200

3250

3300

3350



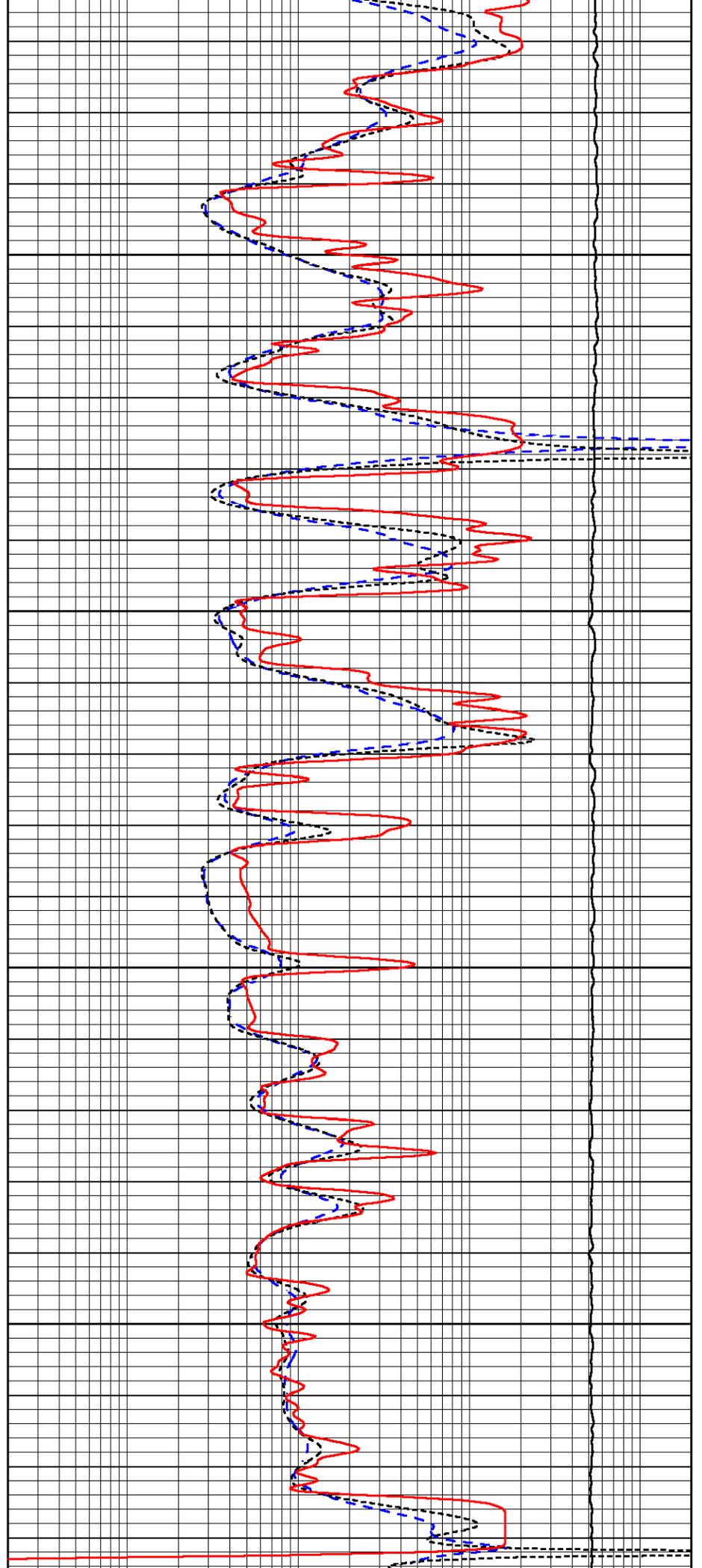


3400

3450

3500

3550



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



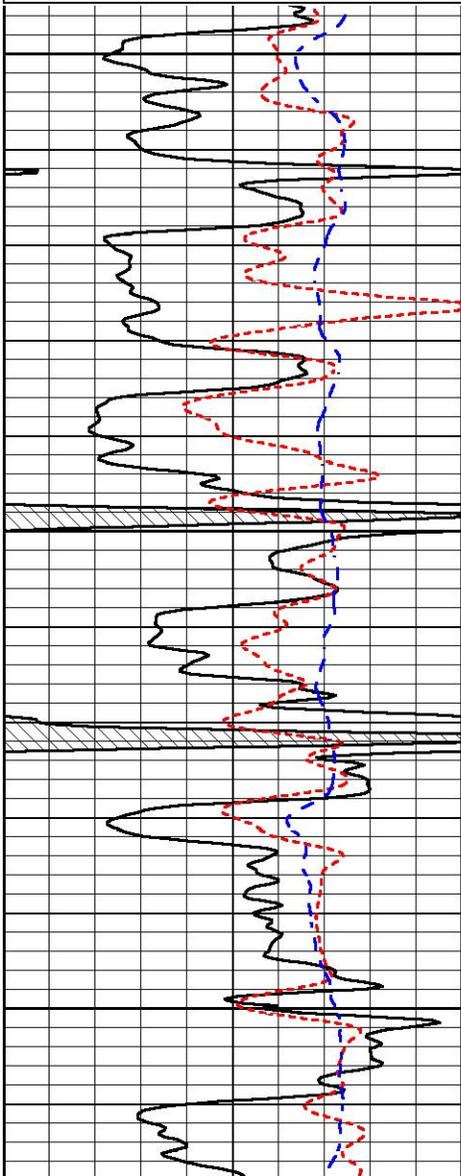
# REPEAT SECTION

## REPEAT PASS

Database File      brehm\_dettmer-wilkens #2-32.db  
 Dataset Pathname    Stack/pass2.1  
 Presentation Format    \_dil  
 Dataset Creation    Tue Aug 16 03:46:03 2022  
 Charted by          Depth in Feet scaled 1:240

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

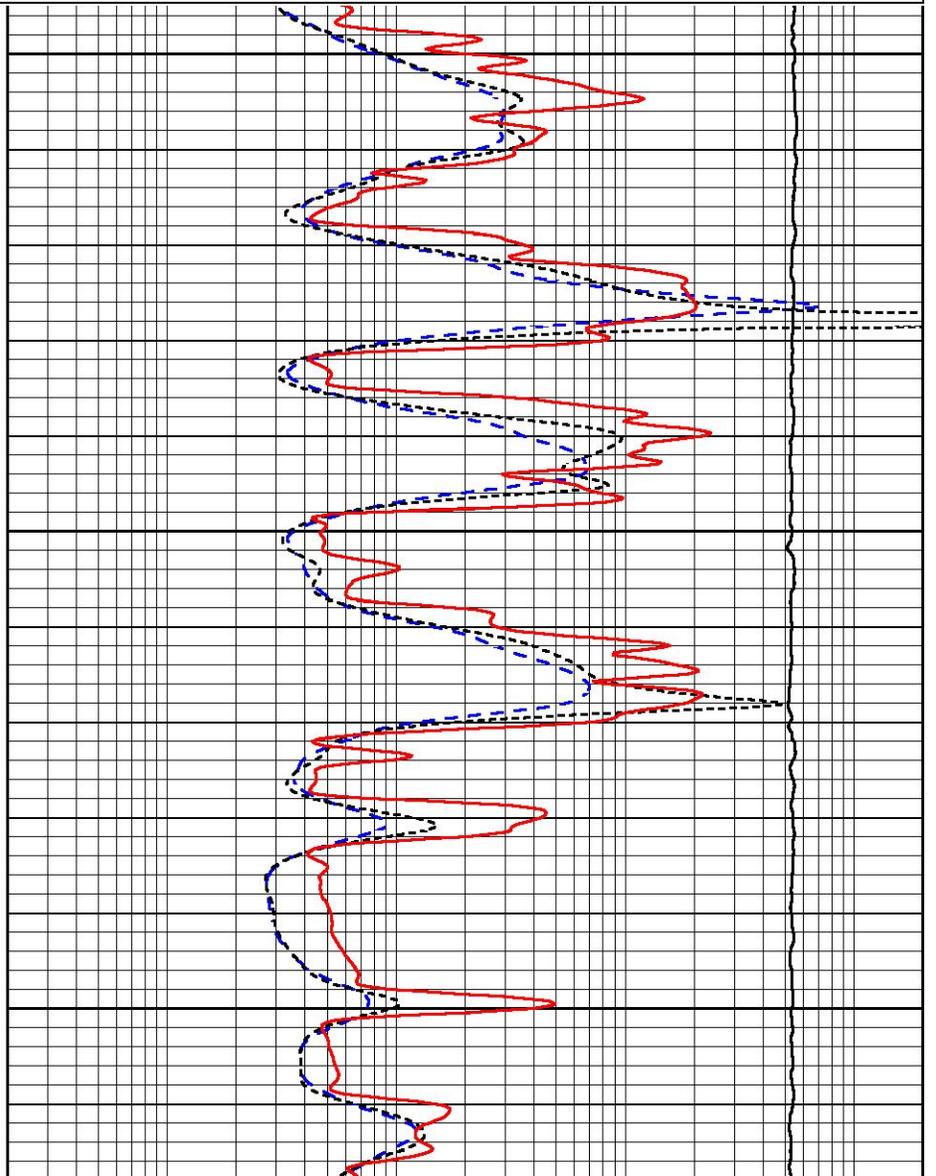
0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	Line Tension (lb)	0



3400

3450

3500





	Size		Reading	
Small Ring	4.00	in	1.74	
Large Ring	14.00	in	1.38	

**Compensated Neutron Calibration Report**

Serial Number:	207-MW
Tool Model:	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	cps		
Long Space	cps	pu	

**POST-SURVEY VERIFICATION**

Detector	Readings	Measured	Target
1) Short Space	cps		
Long Space	cps	pu	pu
2) Short Space	cps		
Long Space	cps	pu	pu
3) Short Space	cps		
Long Space	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><b>MIDWEST WIRELINE</b></p>	<b>Company</b>	Brehm Asset Management LLC
	<b>Well</b>	Dettmer-Wilkens #2-32
	<b>Field</b>	Slate East
	<b>County</b>	Rooks
	<b>State</b>	Kansas