



MIDWEST WIRELINE

# DUAL INDUCTION LOG

Company **EPOC, LLC**  
 Well **Eck 'A' #2**  
 Field **Hazlett**  
 County **Butler** State **Kansas**

Location: API #: 15-015-24166-00-00  
 E/2 E/2 NW/NW  
 660 FNL & 1235 FWL  
 SEC 32 TWP 23S RGE 5E  
 Permanent Datum Ground Level Elevation 1480  
 Log Measured From Kelly Bushing  
 Drilling Measured From Kelly Bushing  
 Other Services  
 CNL/CDL  
 MEL  
 Elevation  
 K.B. 1486  
 D.F.  
 G.L. 1480

Date	9/11/2022
Run Number	One
Depth Driller	2552
Depth Logger	2552
Bottom Logged Interval	2551
Top Log Interval	200
Casing Driller	8.625 @ 212
Casing Logger	214
Bit Size	7.875
Type Fluid in Hole	Chemical
Salinity :ppm CL	
Density / Viscosity	
pH / Fluid Loss	
Source of Sample	Flowline
Rm @ Meas. Temp	1.10 @ 72
Rmt @ Meas. Temp	0.83 @ 72
Rmc @ Meas. Temp	1.49 @ 72
Source of Rmf / Rmc	Charts
Rm @ BHT	0.78 @ 102
Operating Rig Time	2 Hours
Max Rec. Temp. F	102
Equipment Number	P-24
Location	Hays
Recorded By	D. Schmidt
Witnessed By	Ray Gilbert

<<< Fold Here >>>

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.

Newton,  
 East on 1st St to Purity Springs Rd, South to 130, 1/4 East,  
 South 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: D. Schmidt	Operator:	Primary Witness: Ray Gilbert	Secondary Witness:
Operator:	Operator:	Secondary Witness:	Secondary Witness:
Operator:		Secondary Witness:	

Operator	Offset (ft)	Depth (ft)	Description	Length (ft)	C.D. (in)	Weight (lb)
----------	-------------	------------	-------------	-------------	-----------	-------------

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: epoc\_eck a 2.db: field/well/stkml/pass3.10  
 Total length: 42.33 ft  
 Total weight: 685.00 lb  
 O.D.: 4.00 in

# Log Variables

DatabaseC:\ProgramData\Warrior\Data\epoc\_eck a 2.db  
 Dataset field/well/stkml/pass3.10/\_vars\_

## Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	102	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	-38	70	Off	2552

## 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

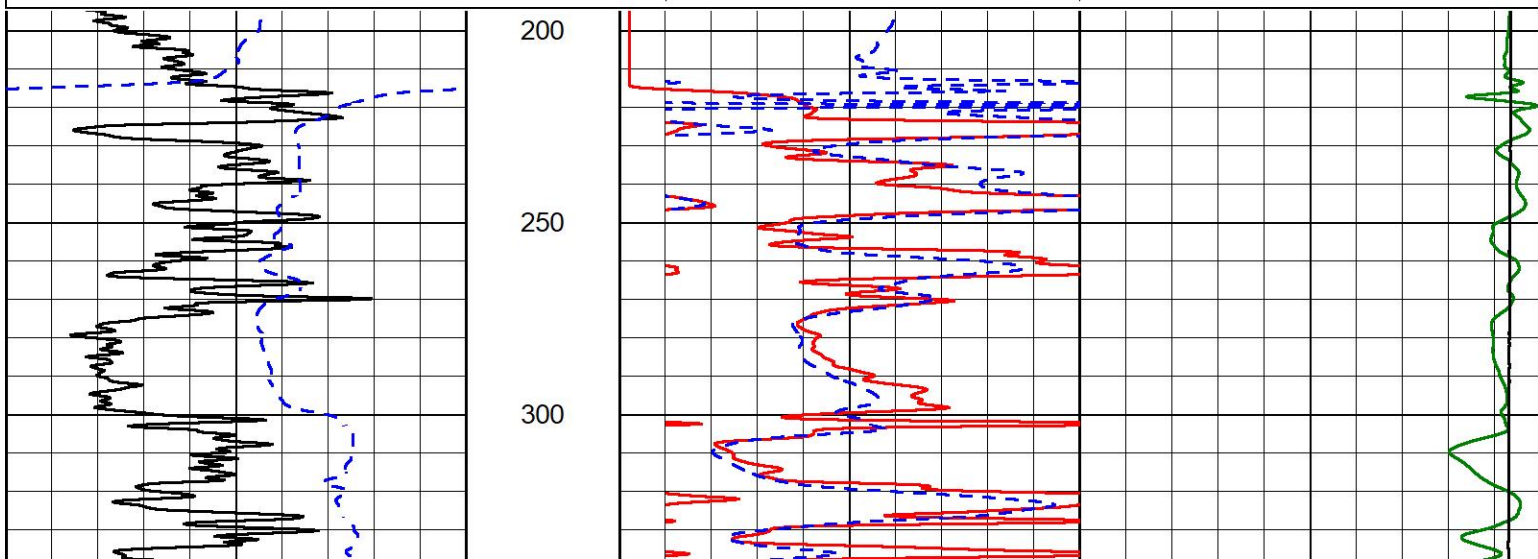


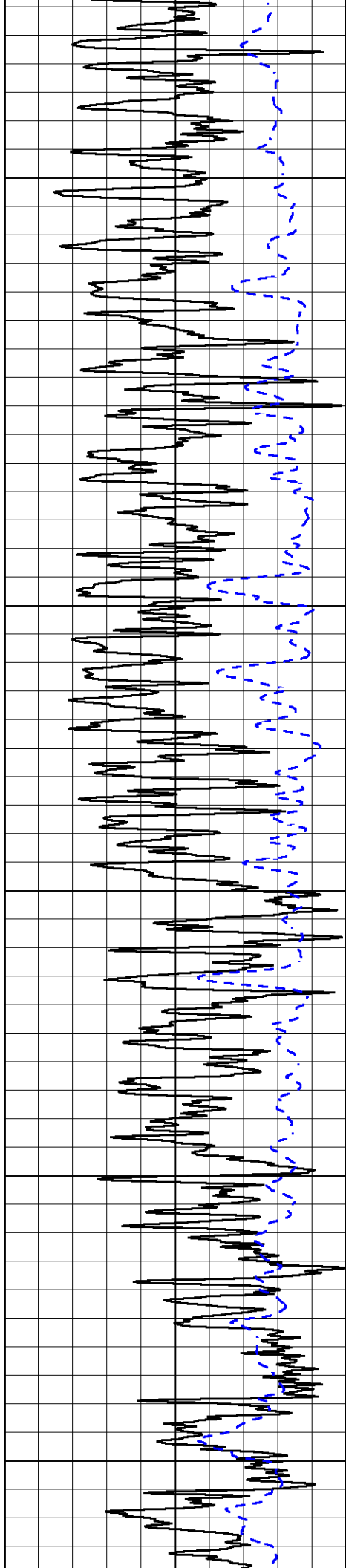
## 2" SCALE RESISTIVITY

### MAIN PASS

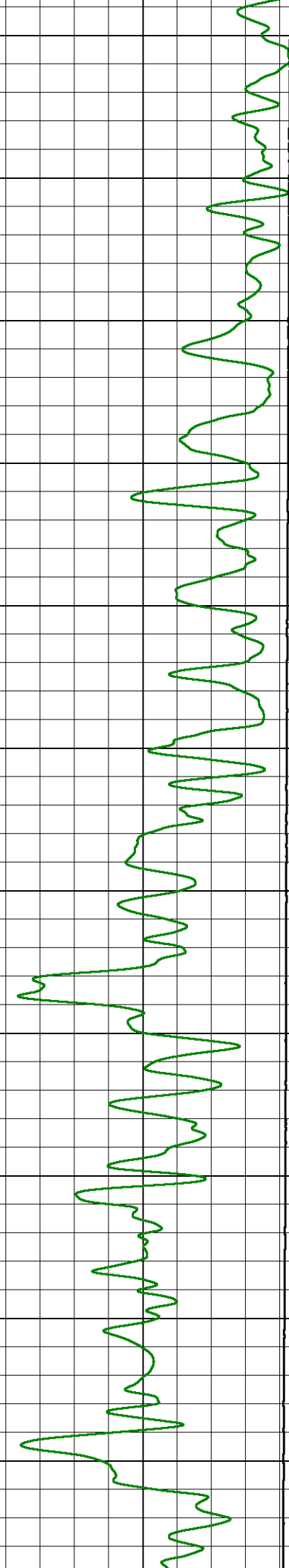
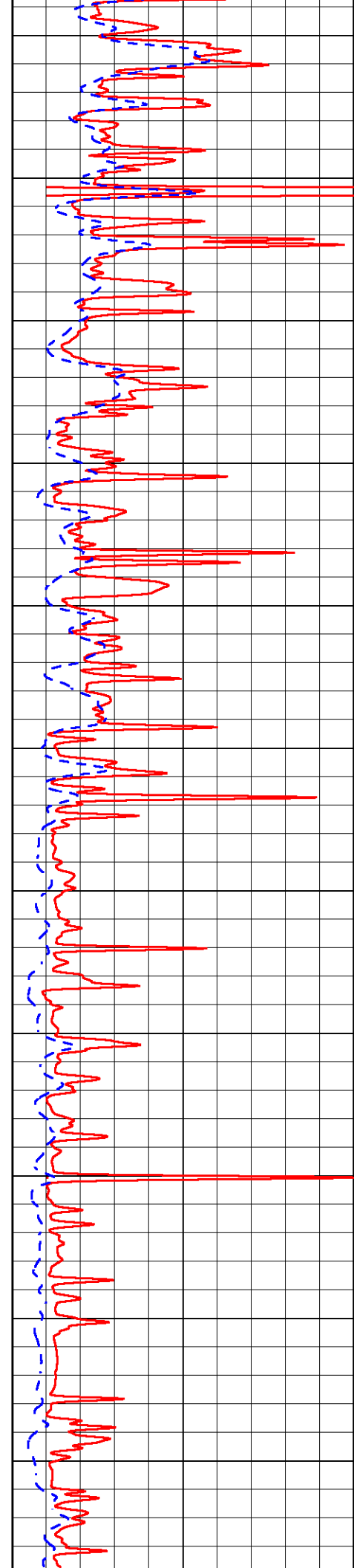
Database File epoc\_eck a 2.db  
 Dataset Pathname stkml/pass3.3  
 Presentation Format \_dil2in  
 Dataset Creation Sun Sep 11 12:22:40 2022  
 Charted by Depth in Feet scaled 1:600

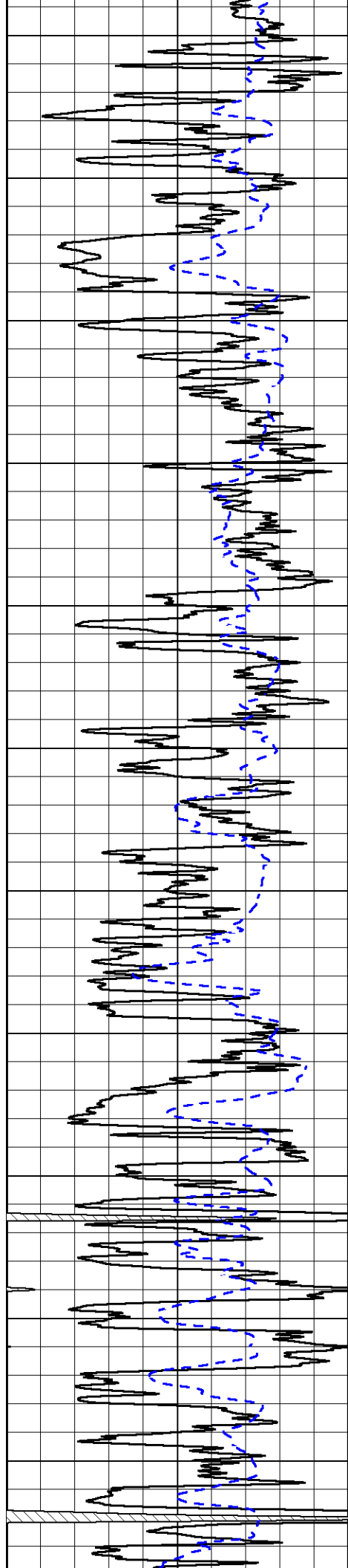
0	Gamma Ray (GAPI)	150	1000	Conductivity (mmho/m)	0
-200	SP (mV)	0	15000	Line Tension (lb)	0
		0	Shallow Resistivity (Ohm-m)	50	
		0	Deep Resistivity (Ohm-m)	50	
		Shallow Resistivity			
		50	(Ohm-m)	200	
		50	Deep Resistivity (Ohm-m)	200	



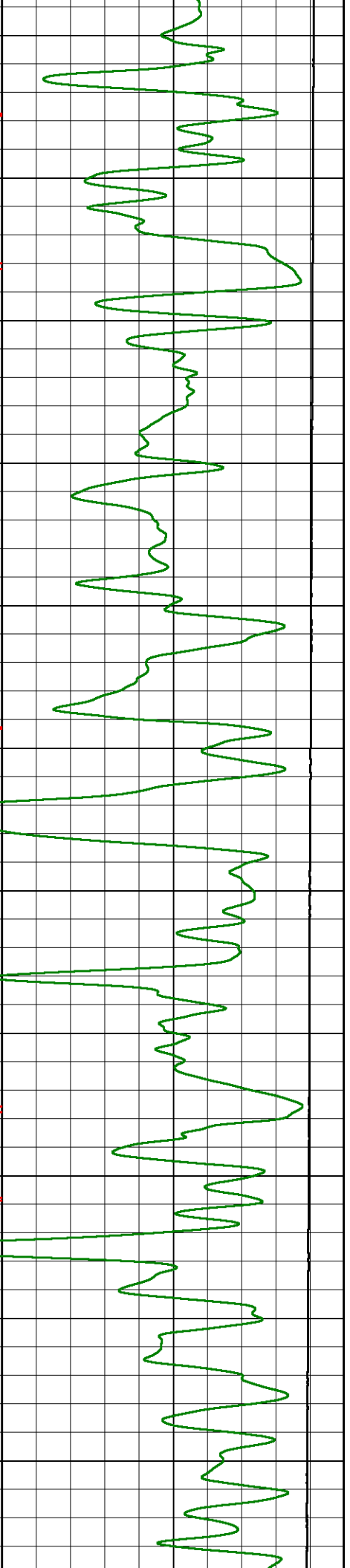
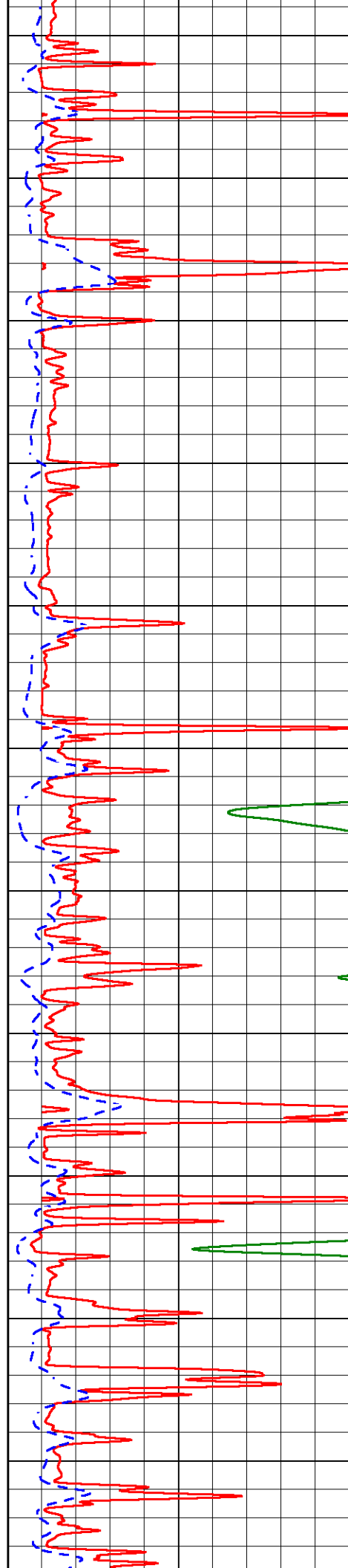


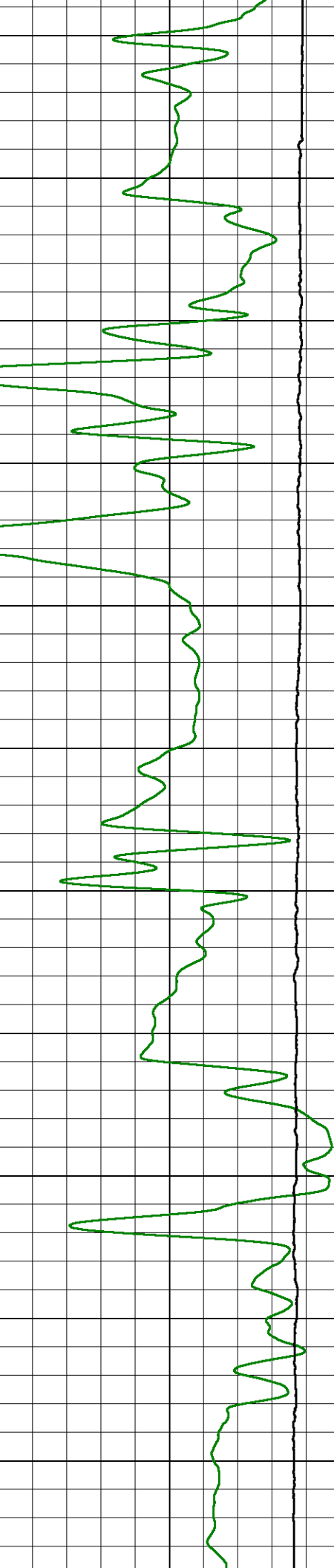
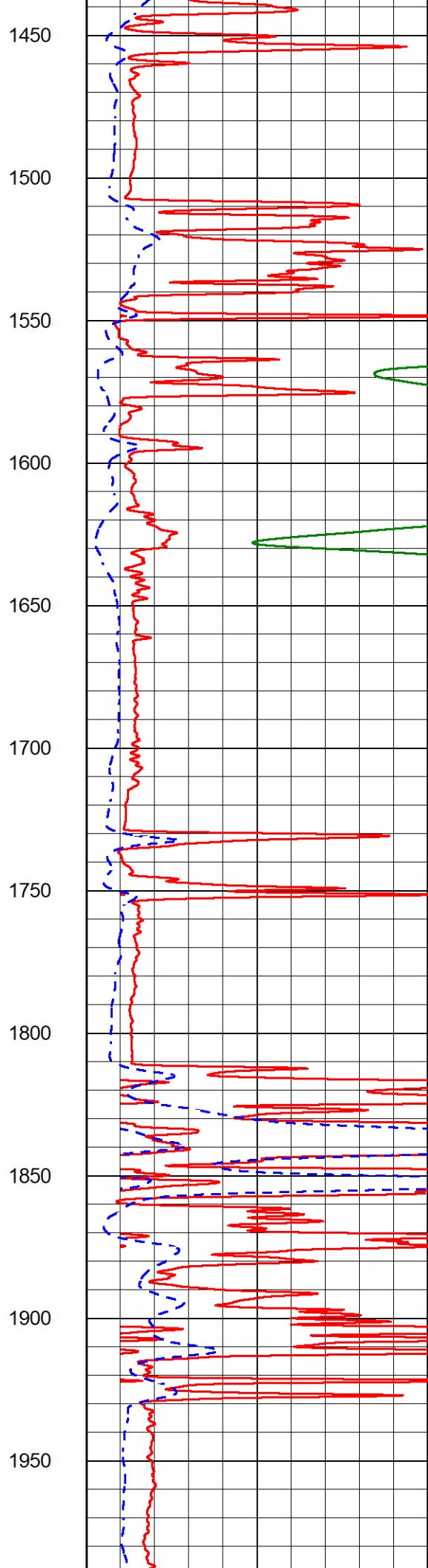
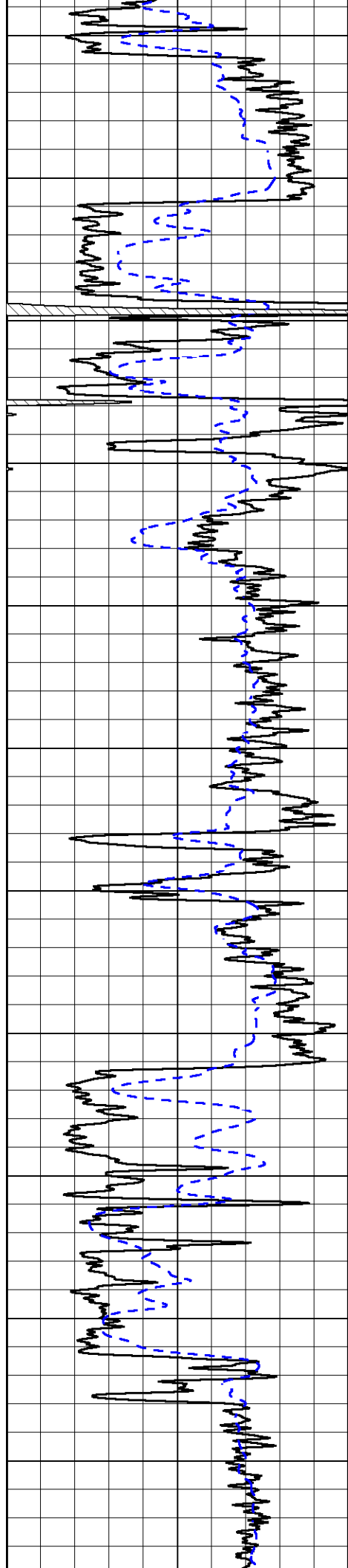
350  
400  
450  
500  
550  
600  
650  
700  
750  
800  
850

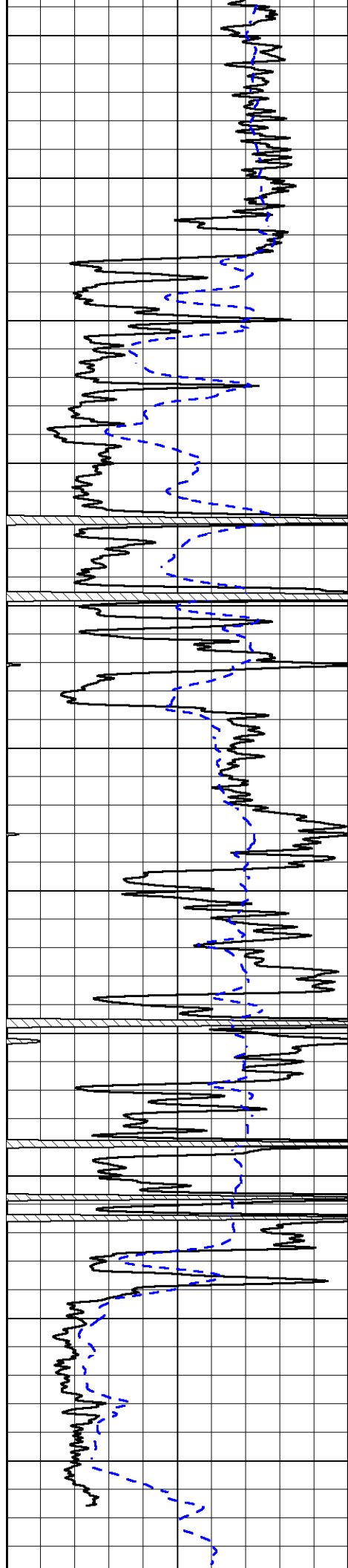




900  
950  
1000  
1050  
1100  
1150  
1200  
1250  
1300  
1350  
1400







2000

2050

2100

2150

2200

2250

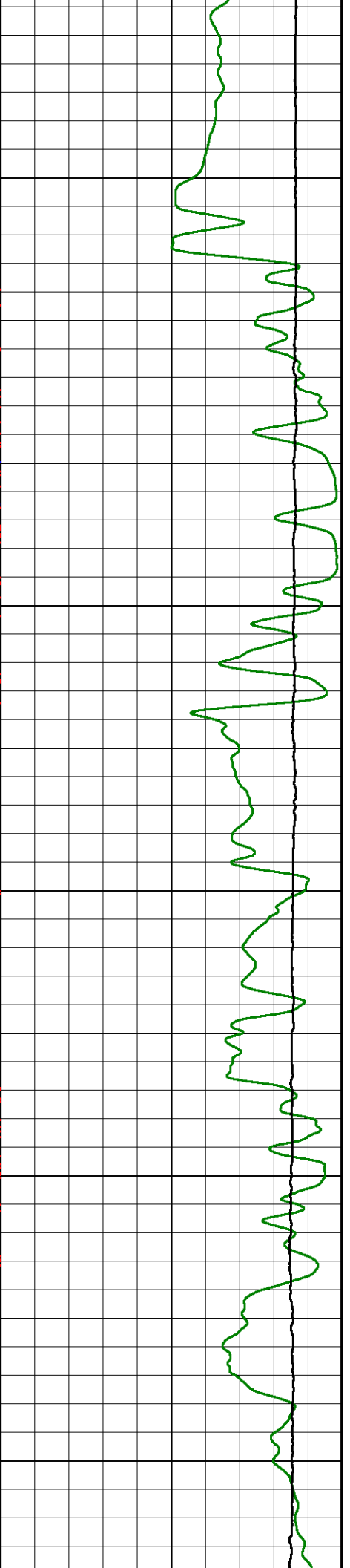
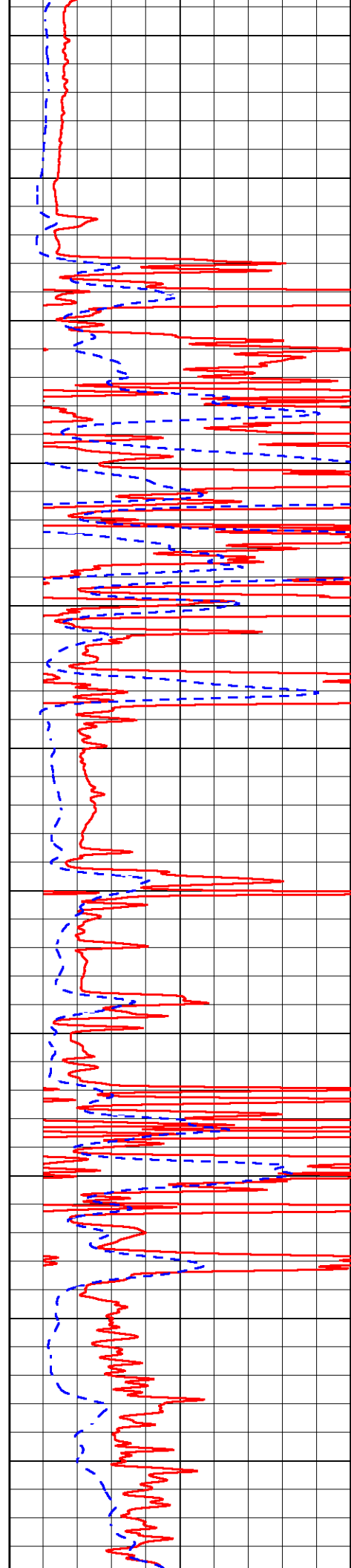
2300

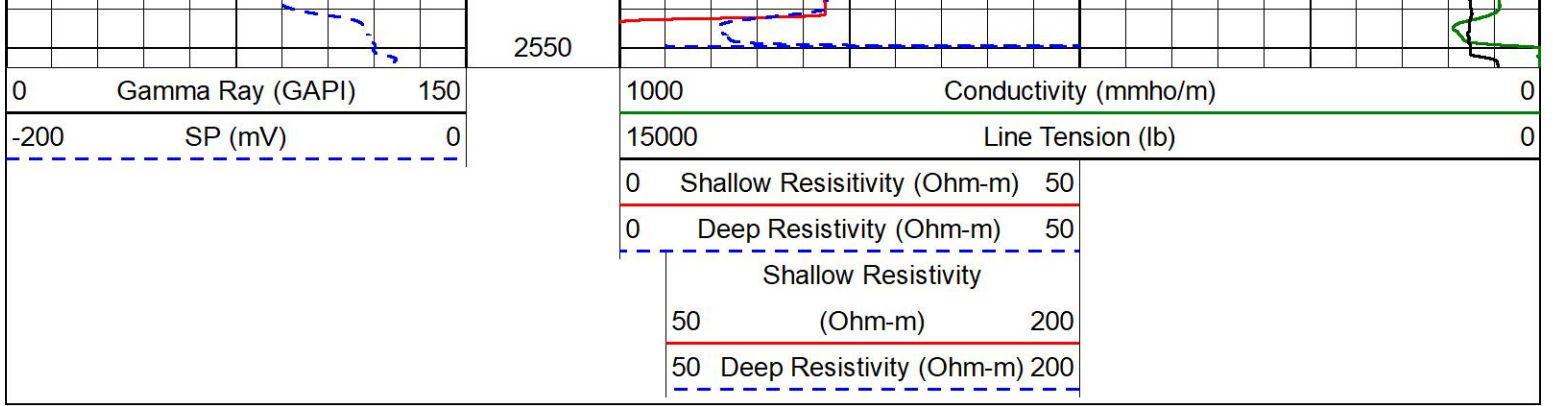
2350

2400

2450

2500

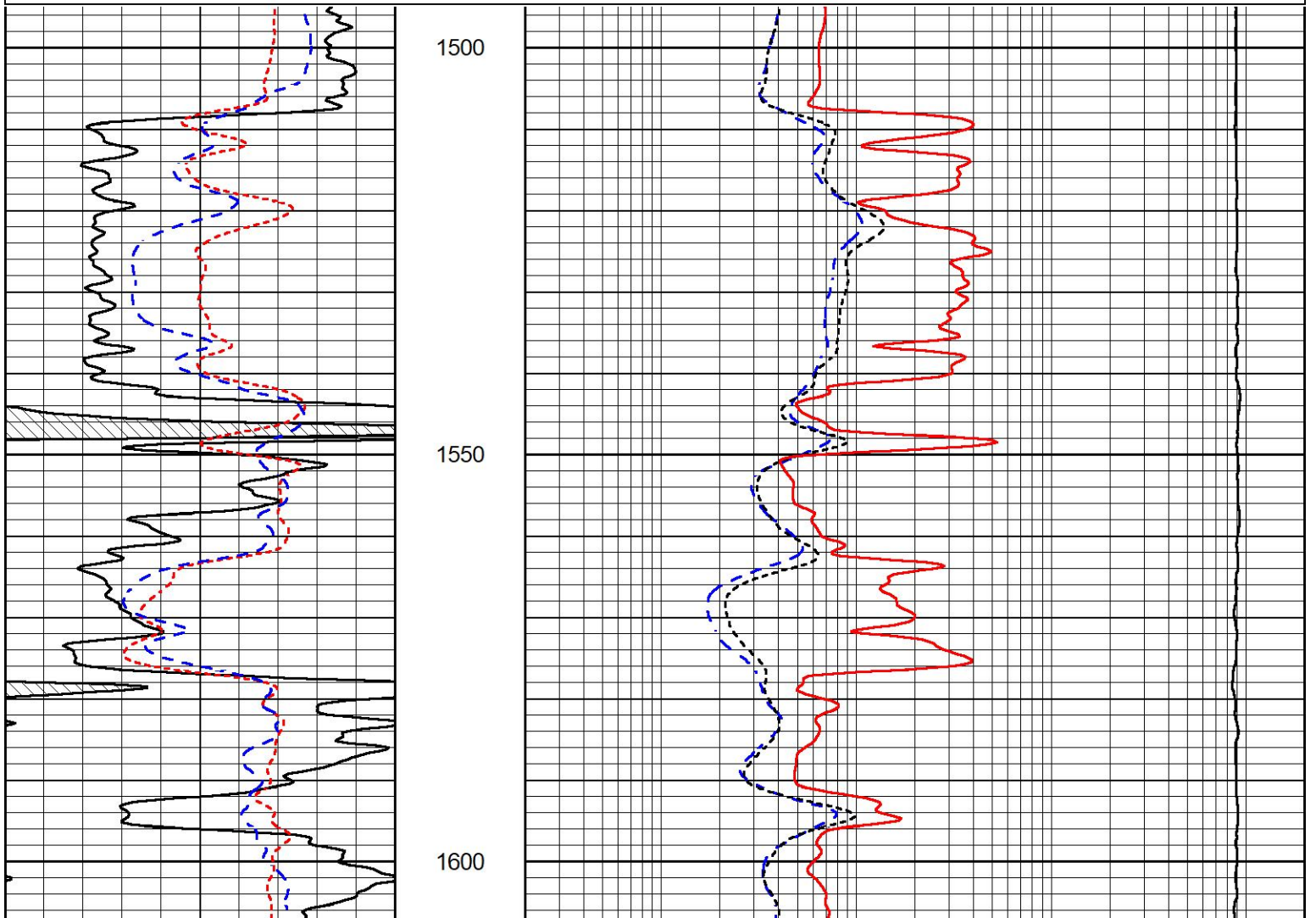
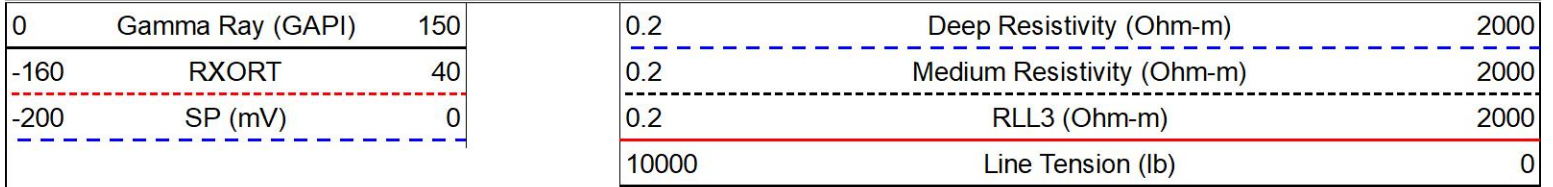


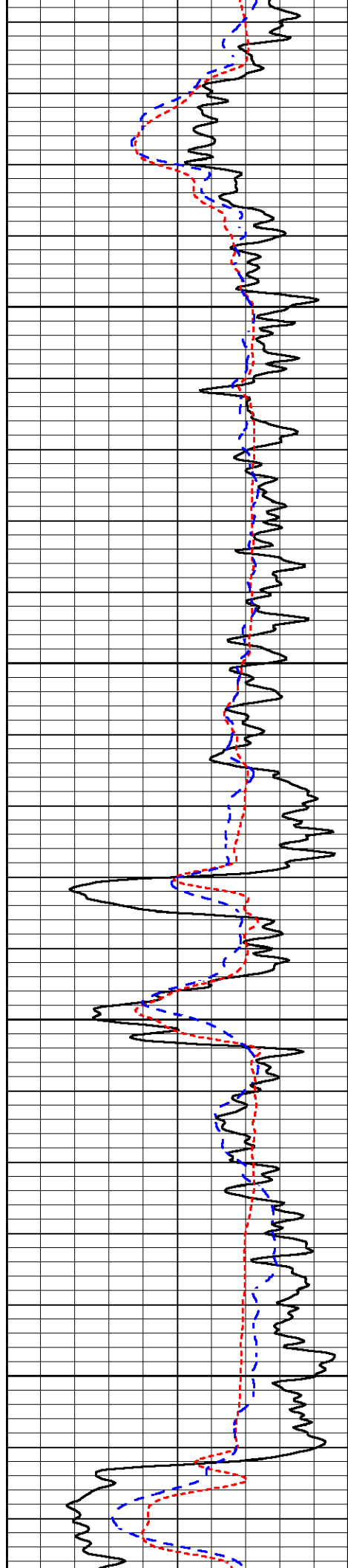


# DETAIL SECTION

## MAIN PASS

Database File: epoc\_eck a 2.db  
 Dataset Pathname: stkml/pass3.1  
 Presentation Format: \_dil  
 Dataset Creation: Sun Sep 11 12:22:30 2022  
 Charted by: Depth in Feet scaled 1:240



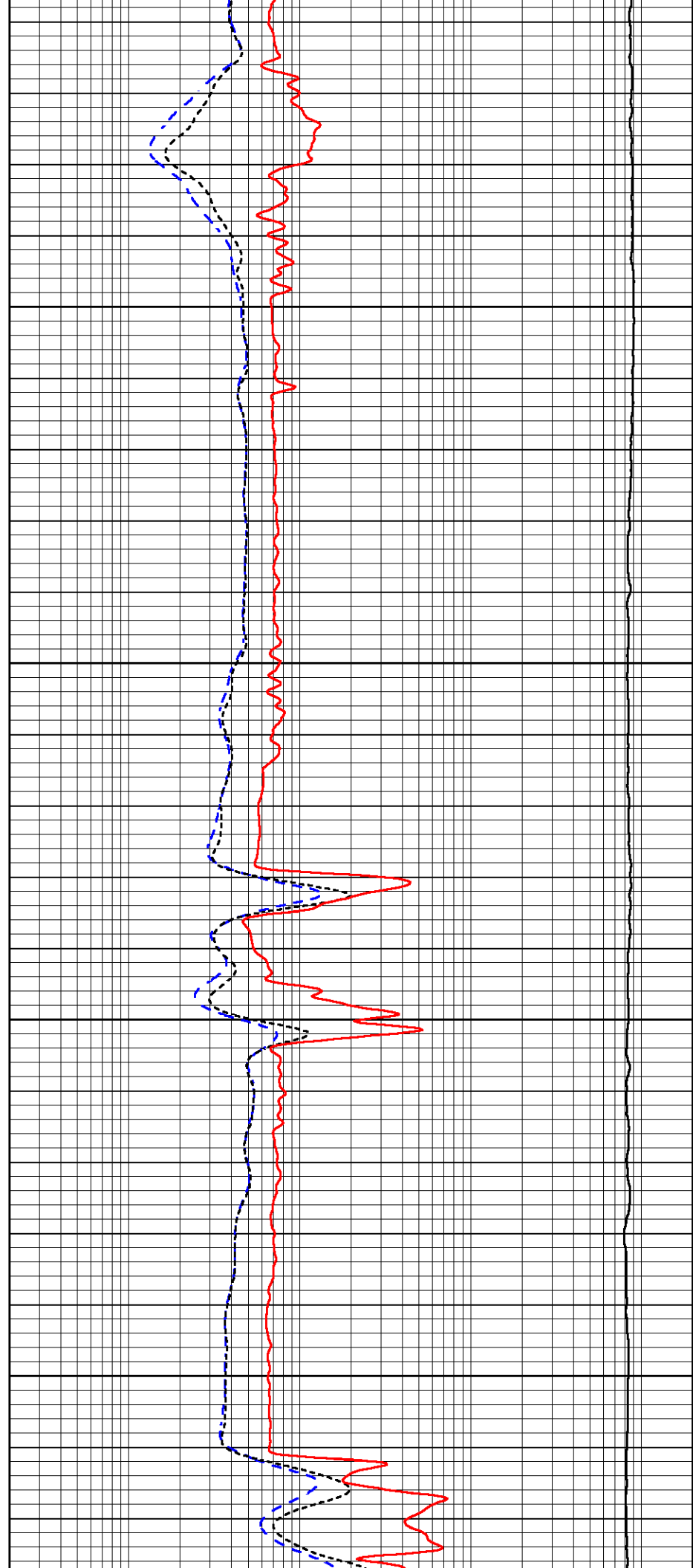


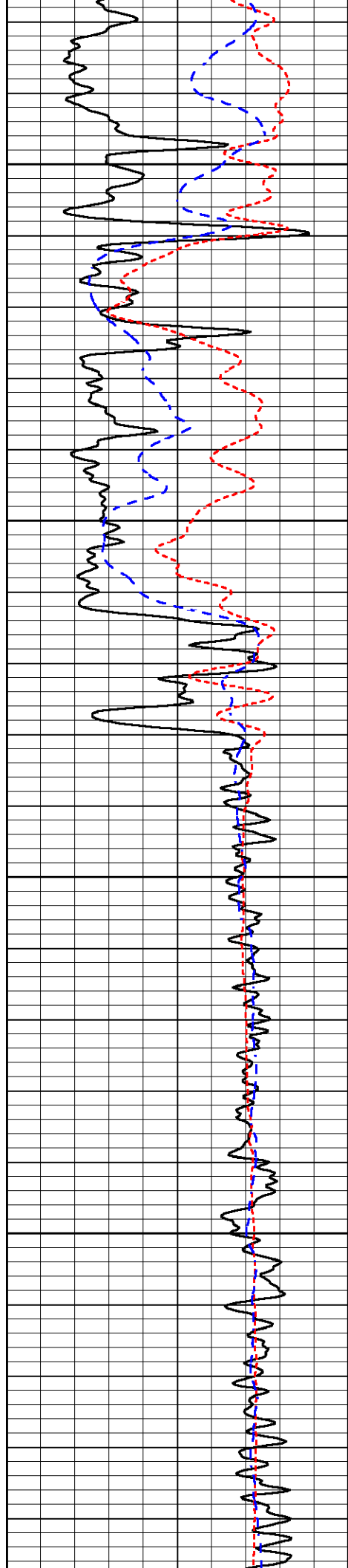
1650

1700

1750

1800



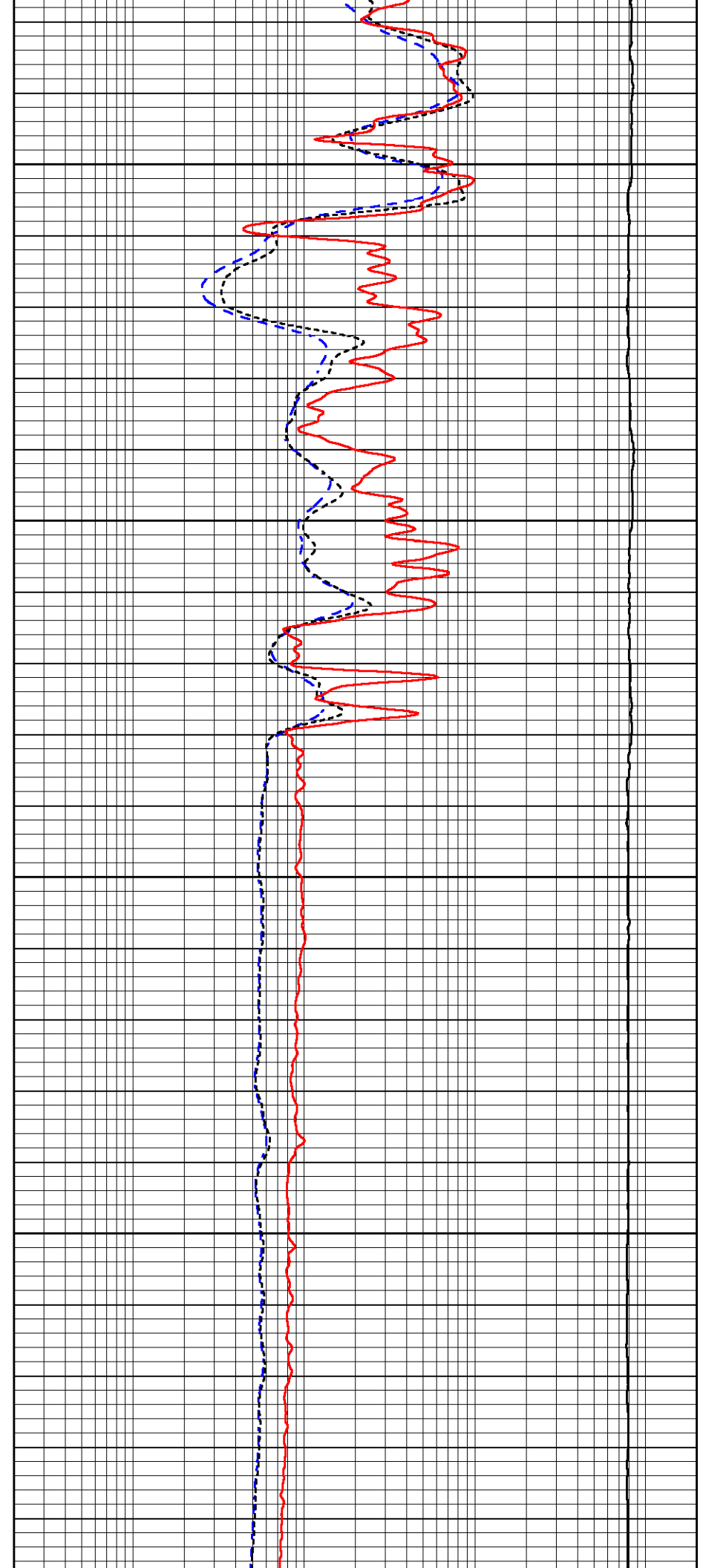


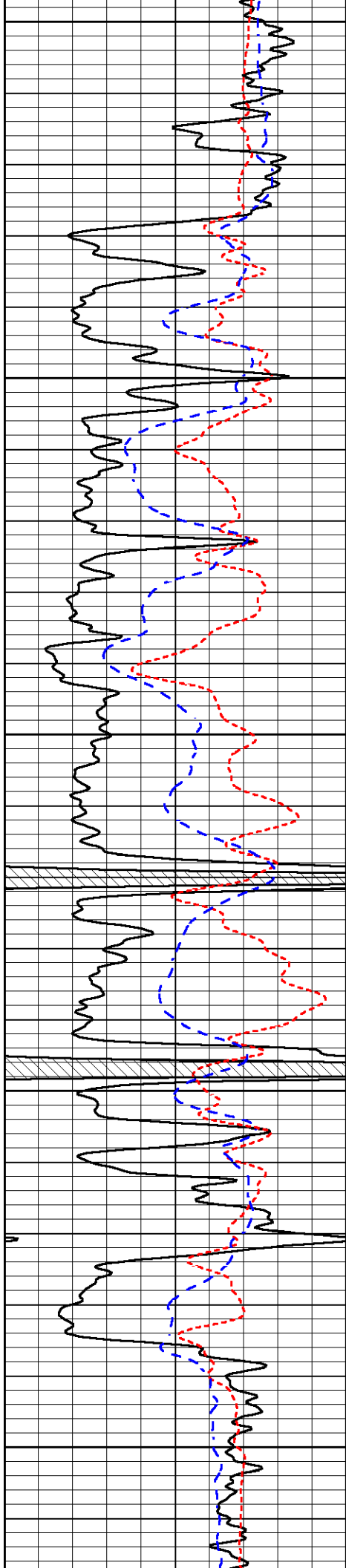
1850

1900

1950

2000





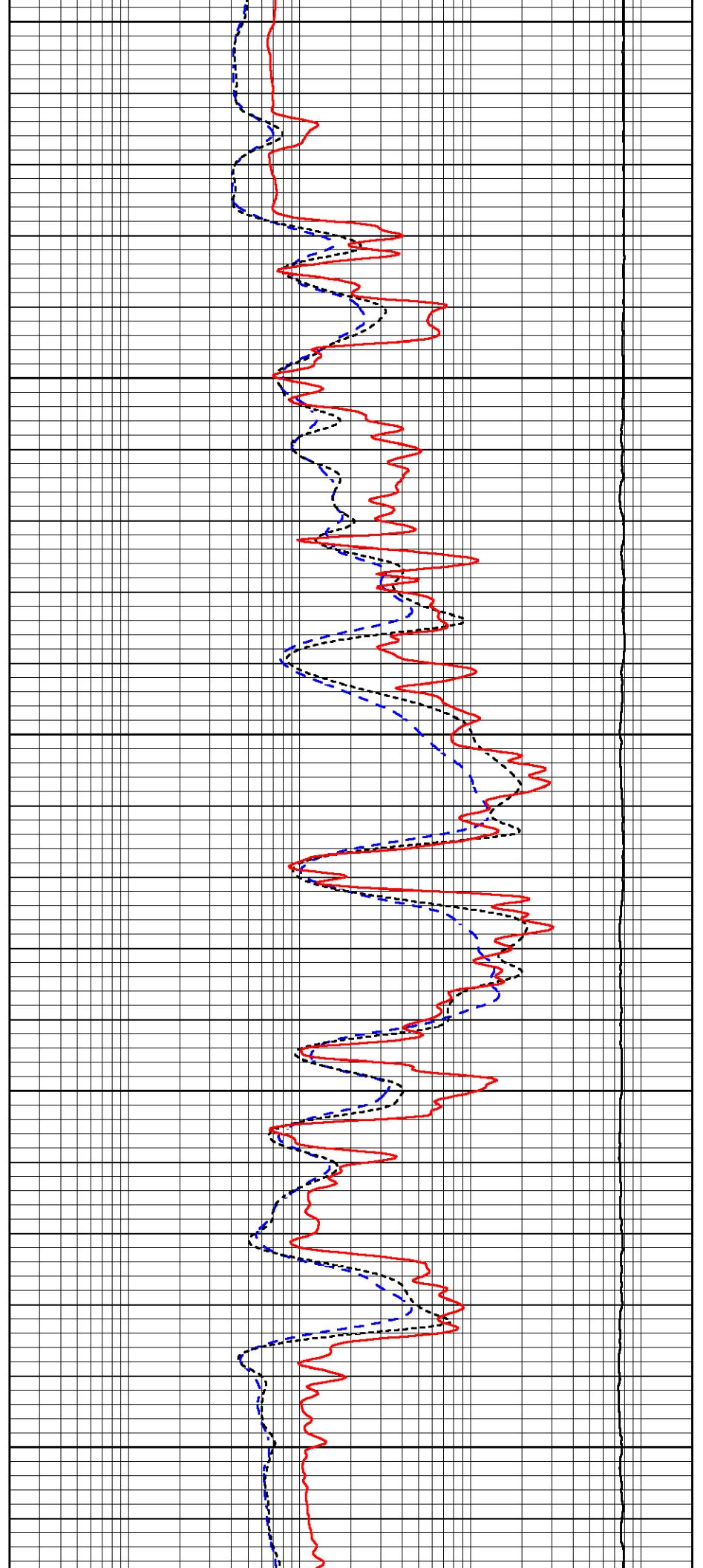
2050

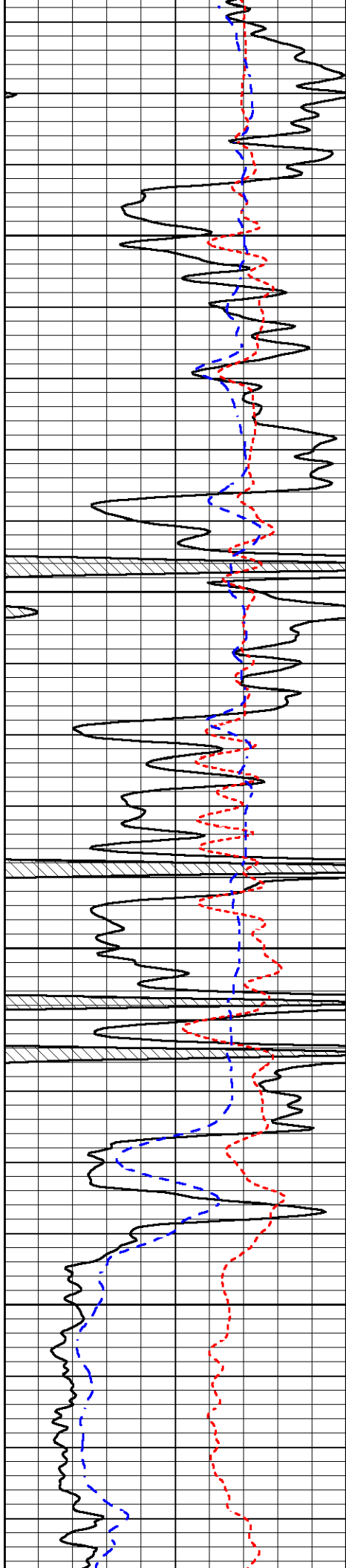
2100

2150

2200

2250



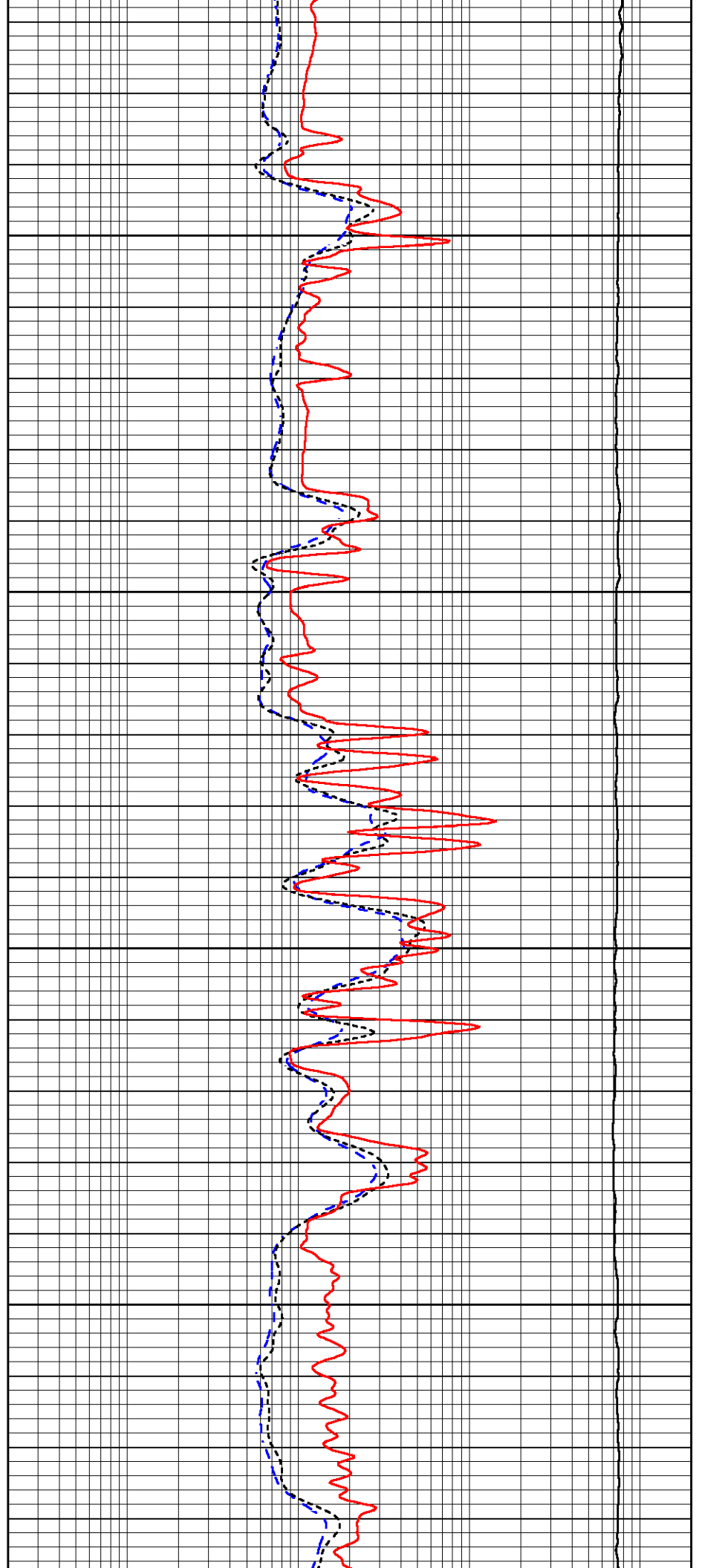


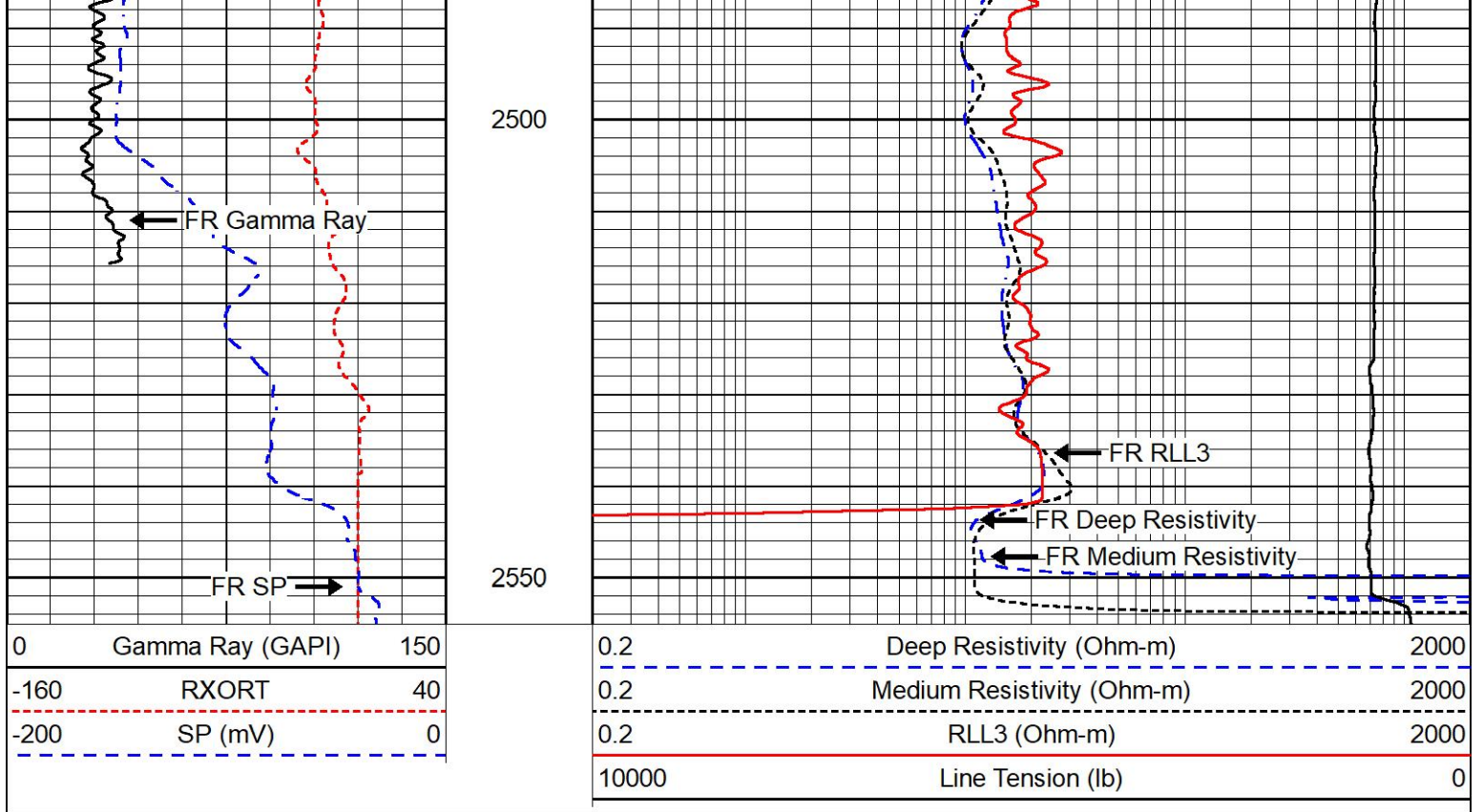
2300

2350

2400

2450

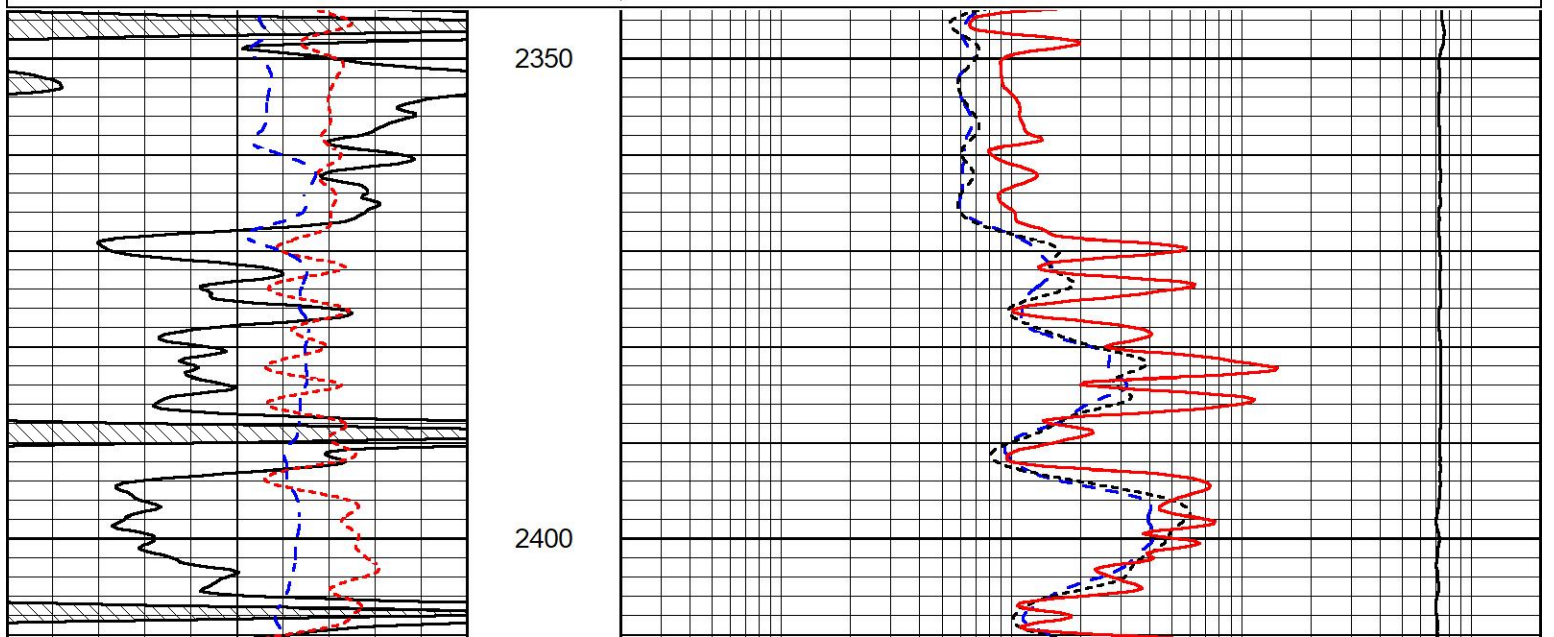
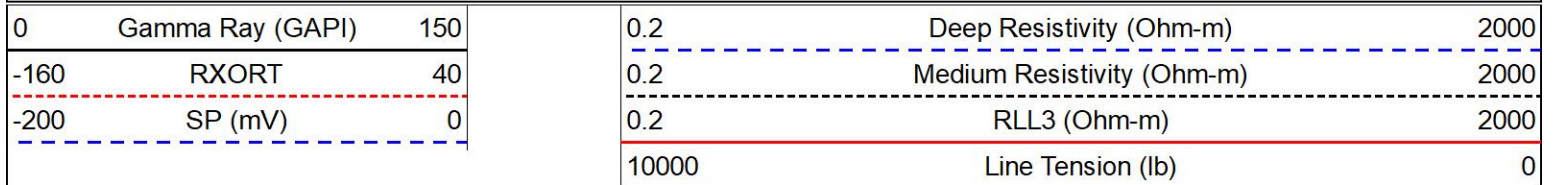




## REPEAT SECTION

### REPEAT PASS

Database File epoc\_eck a 2.db  
 Dataset Pathname stkml/pass2.10  
 Presentation Format \_dil  
 Dataset Creation Sun Sep 11 12:04:14 2022  
 Charted by Depth in Feet scaled 1:240





Deep	83.639	487.104	0.000	183.000	mmho/m	0.455	-39.000
Medium	113.335	1585.690	0.000	442.000	mmho/m	0.305	-35.000

Microlog Calibration Report

Serial-Model: Performed:	402-PSIML Fri Sep 9 11:18:26 2022
-----------------------------	--------------------------------------

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	9000.0000	-1.5000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	9000.0000	-1.0000
Caliper	1.0052	1.0858	5.0000	16.5000	in	80.0000	-74.6800

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	cps		
	Long Space	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



Company	EPOC, LLC
Well	Eck 'A' #2
Field	Hazlett
County	Butler
State	Kansas