



PIONEER
Pioneer Energy Services

DUAL INDUCTION LOG

Company **HERTEL OIL COMPANY LLC**
Well **REICHERT #1**
Field **REICHERT**
County **ELLIS** State **KANSAS**

Location: API #: 15-051-26912-00-00

Other Services
CNL/CDL
MEL

SEC 9 TWP 15S RGE 19W
1700' FNL & 450' FEL

Permanent Datum **GROUND LEVEL** Elevation **2038'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Elevation
K.B. 2046'
D.F. N/A
G.L. 2038'

Date 05/22/2018

Run Number	ONE		
Depth Driller	3717'		
Depth Logger	3720'		
Bottom Logged Interval	3719'		
Top Log Interval	200'		
Casing Driller	8.625" @ 220'		
Casing Logger	219'		
Bit Size	7.875"		
Type Fluid in Hole	CHEMICAL		
Salinity, ppm CL	5000		
Density / Viscosity	9.4 60		
pH / Fluid Loss	10.5 6.4		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.30 @ 71		
Rmt @ Meas. Temp	0.23 @ 71		
Rmc @ Meas. Temp	0.41 @ 71		
Source of Rmt / Rmc	CHARTS		
Rm @ BHT	0.19 @ 113		
Operating Rig Time	3 HOURS		
Max Rec. Temp. F	113		
Equipment Number	91		
Location	HAYS		
Recorded By	C. PFEIFER		
Witnessed By	HERB DEINES		

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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.

HAYS, KANSAS
240TH AVE. SOUTH TO ANTONINO ROAD,
WEST TO YOCEMENTO ROAD, 1 1/2 SOUTH,
WEST 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: C. PFEIFER
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: HERB DEINES
Secondary Witness:
Secondary Witness:
Secondary Witness:

Top - Bottom

M	A	SZCOR	NPORSEL	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	SNDERRM mmho/m
2	1	Off	Limestone	1	2.71	-28	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	88	0	5.5	0	3720	113	7.875

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (207-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (817-947)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSIML (PSI-01) GO Micro log tools converted to Simplec electronics	7.58	4.00	65.00
RLL3F RLL3	15.80 15.80					

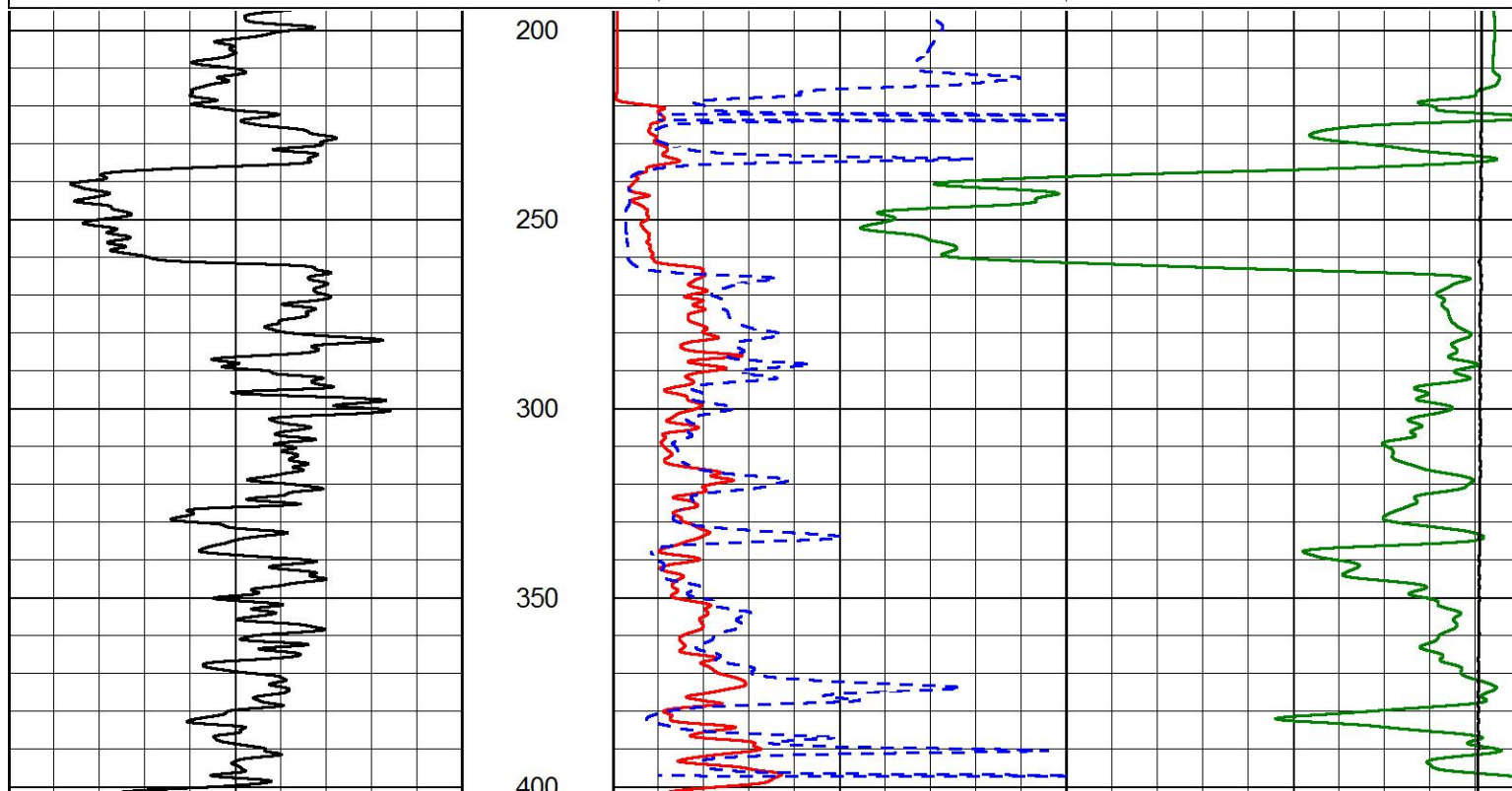
				DIL-PSI HIGH TEMP (PSI 971 HT)	18.50	3.50	220.00
CILD	8.00						
CILM	4.70						
SP	0.20						
Dataset: herteloilco_reichert_1.db: field/well/STKML/pass3.1 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in							

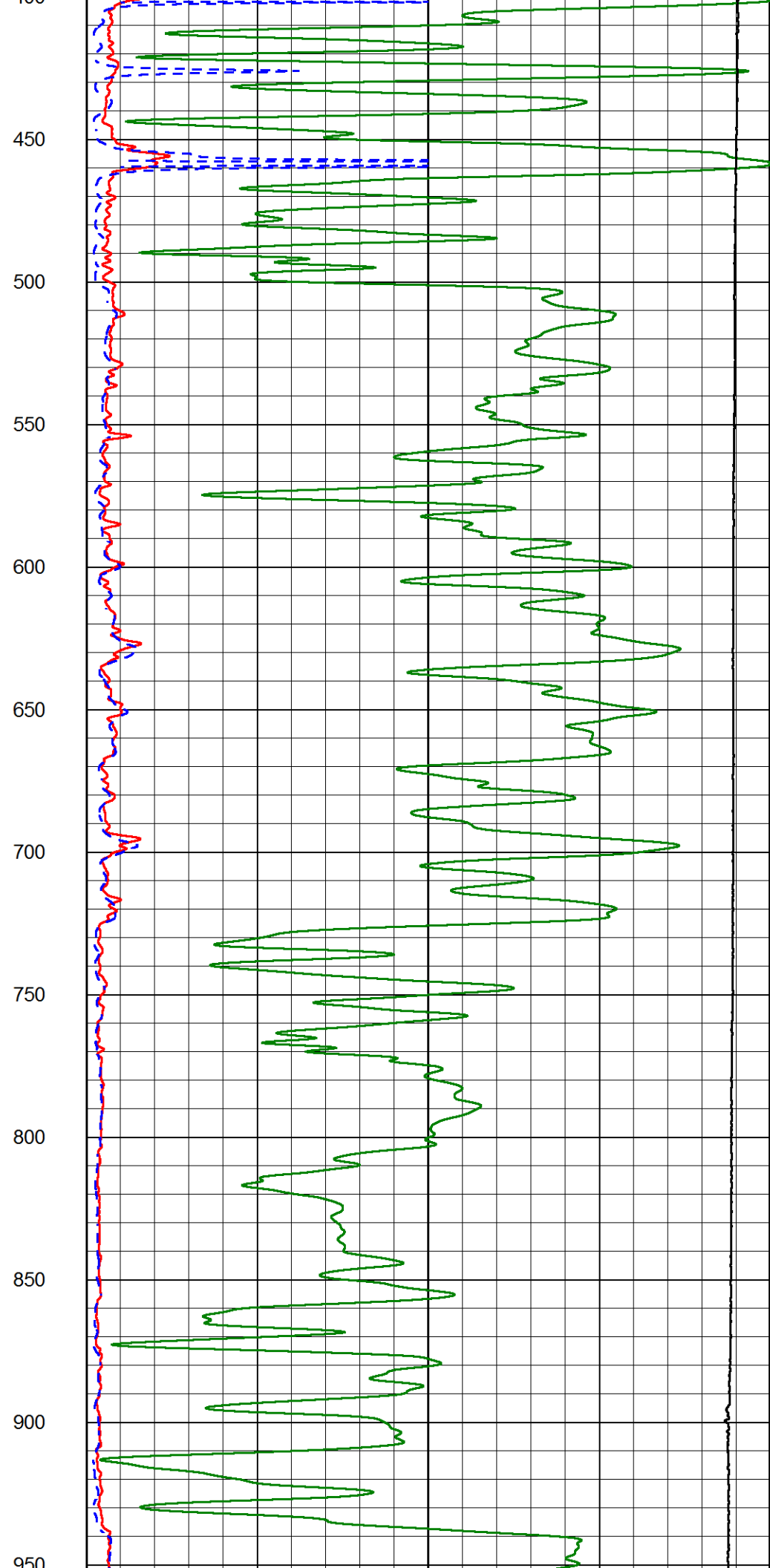
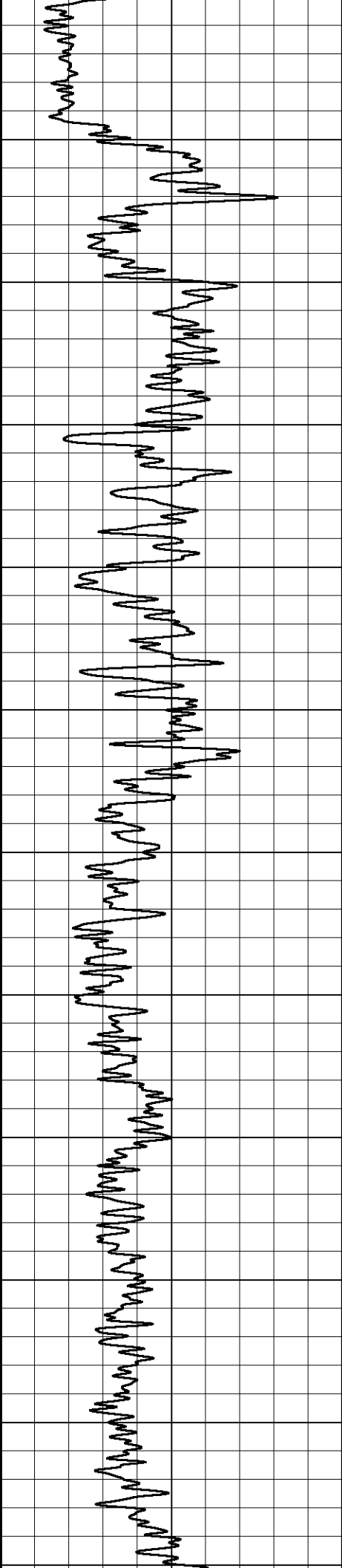


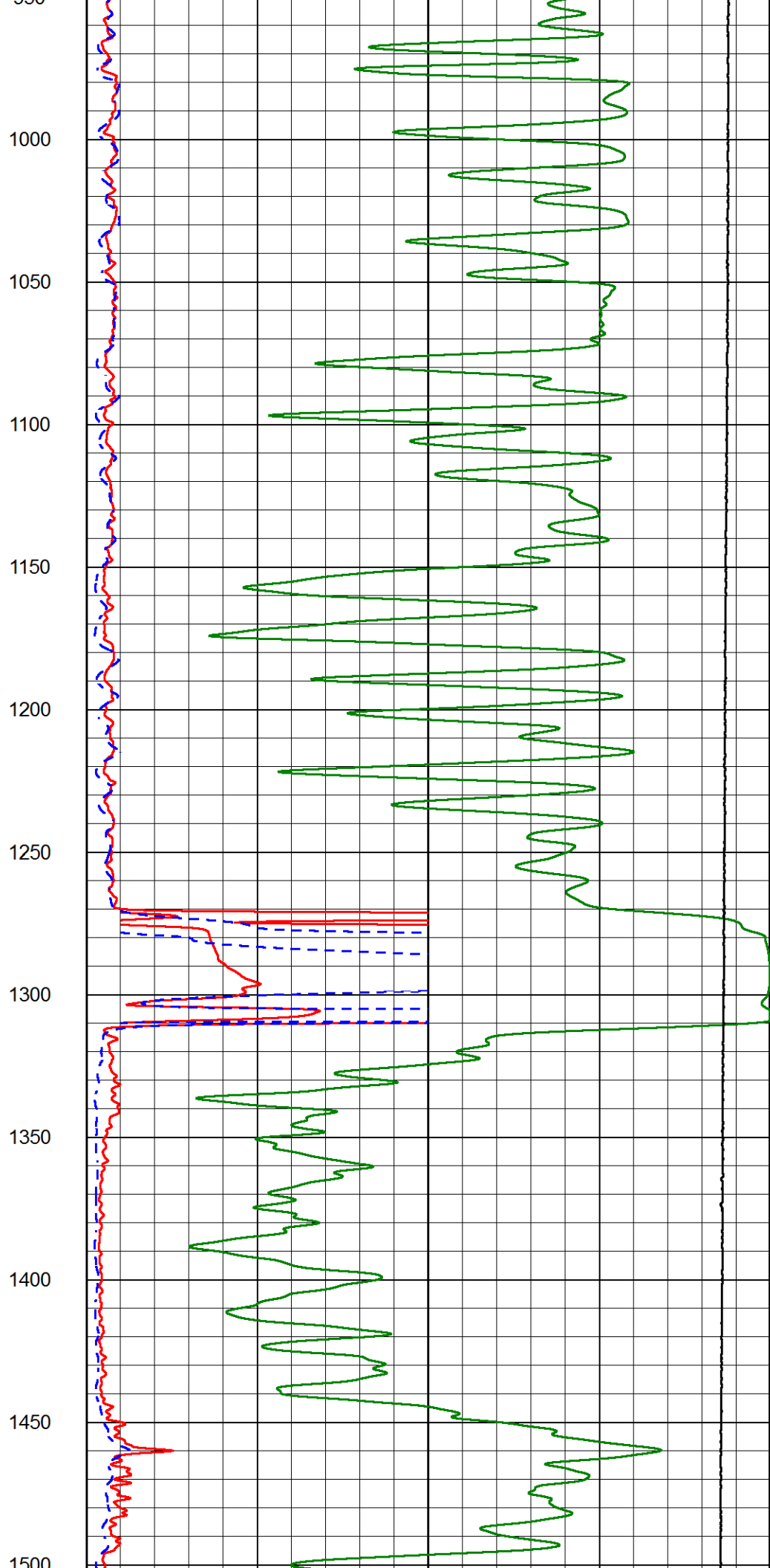
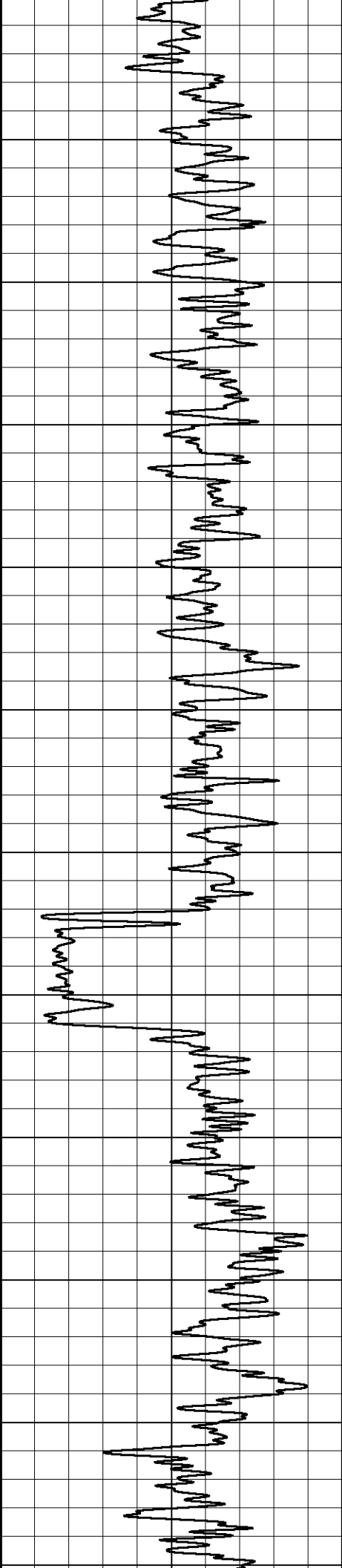
MAIN PASS

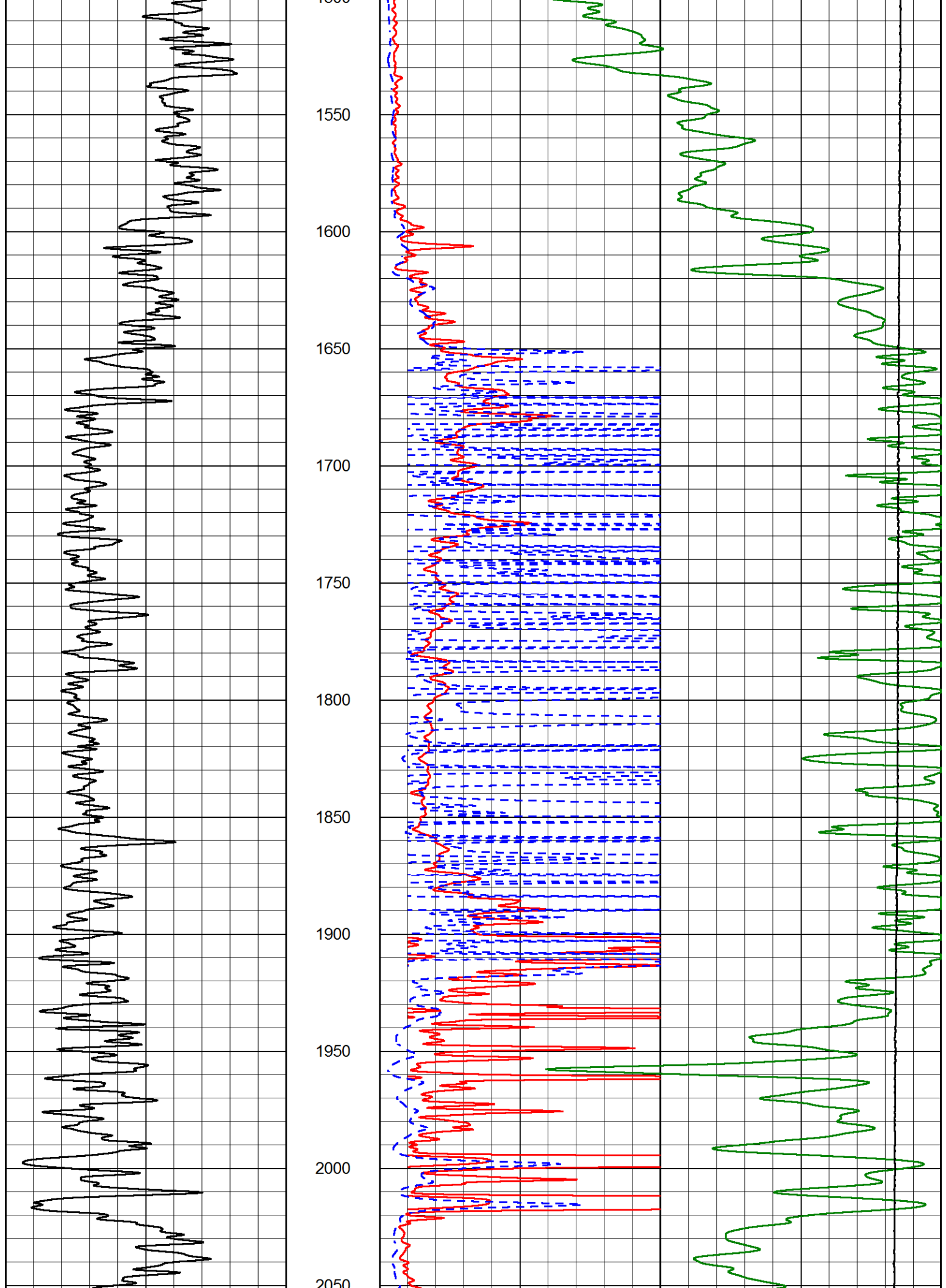
Database File	herteloilco_reichert_1.db
Dataset Pathname	STKML/pass4.1
Presentation Format	dil2in
Dataset Creation	Tue May 22 17:57:34 2018
Charted by	Depth in Feet scaled 1:600

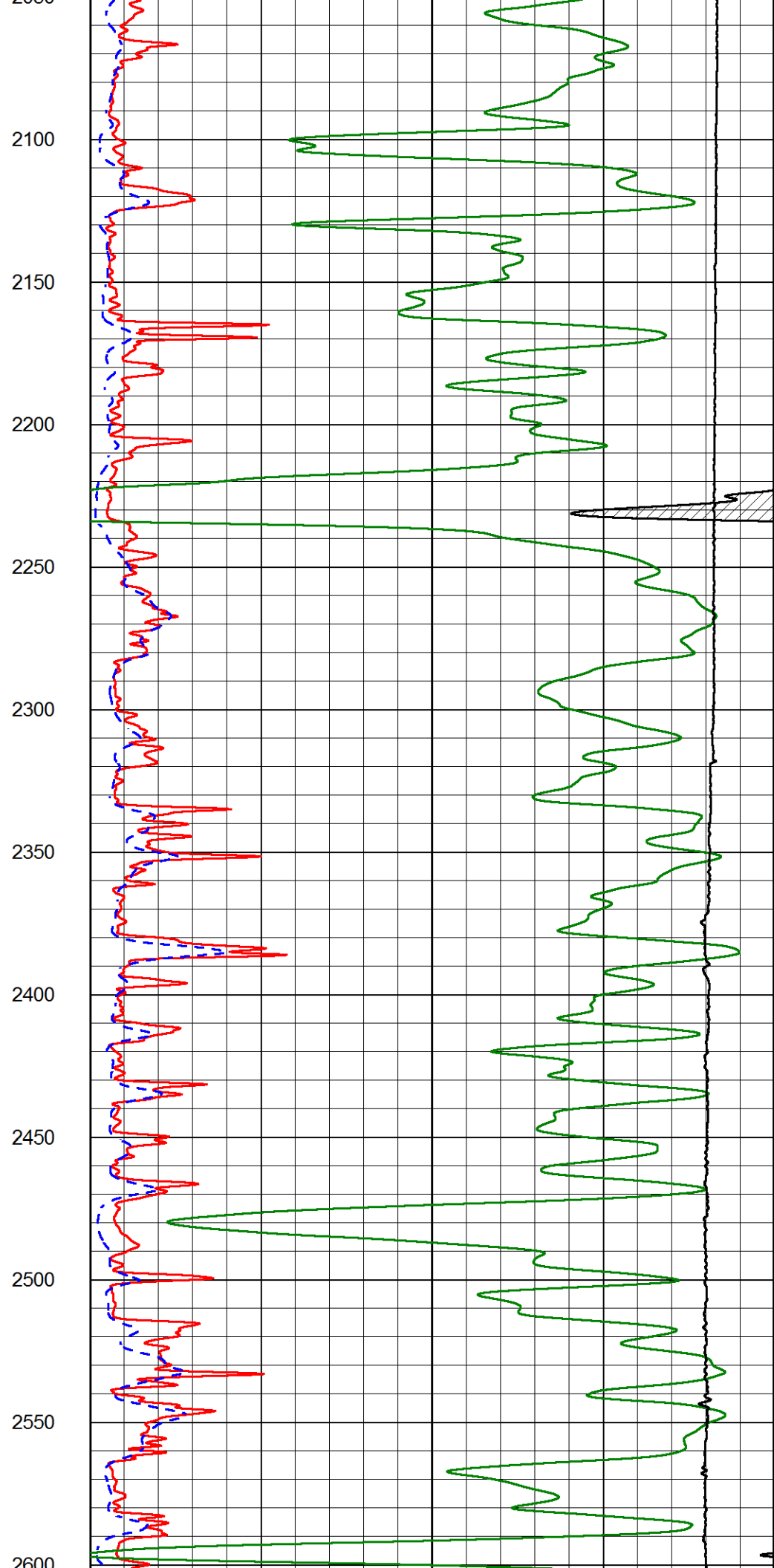
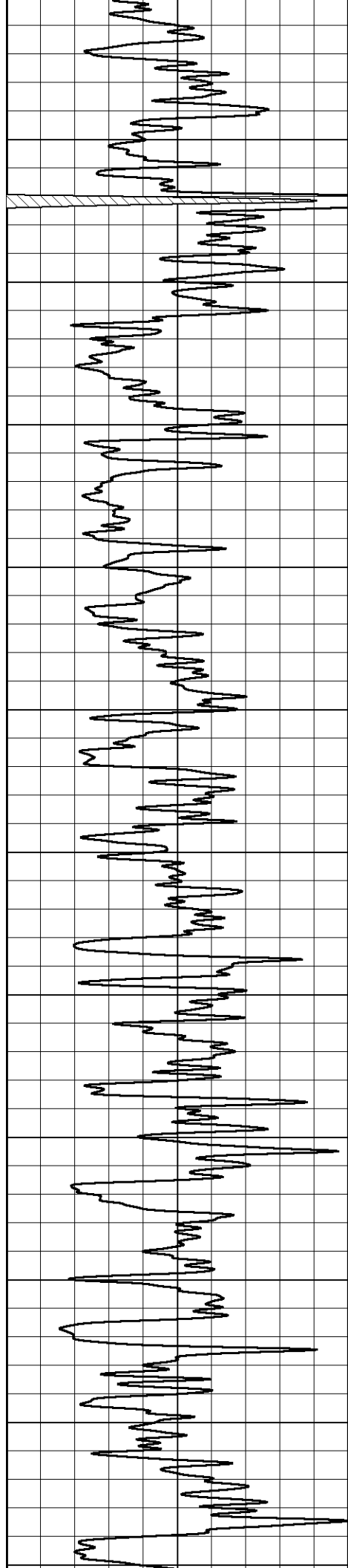
GAMMA RAY 0 (GAPI) 150	1000 CONDUCTIVITY (mmho/m) 0	
	15000 Line Tension (lb) 0	
	0 RLL3 (Ohm-m) 50	
	0 DEEP RESISTIVITY (Ohm-m) 50	
	50 RLL3 (Ohm-m) 500	
	50 Deep Resistivity (Ohm-m) 500	

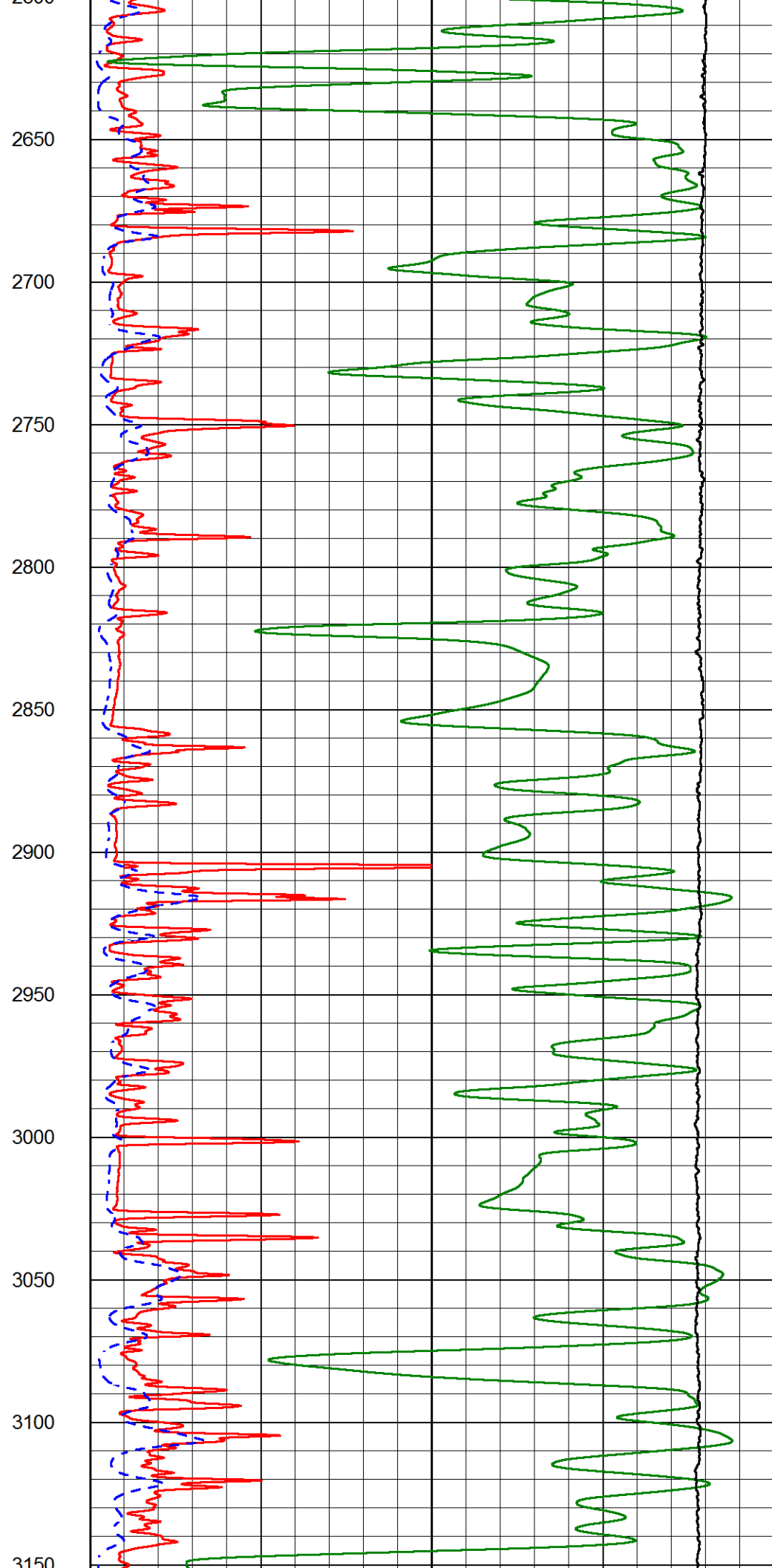
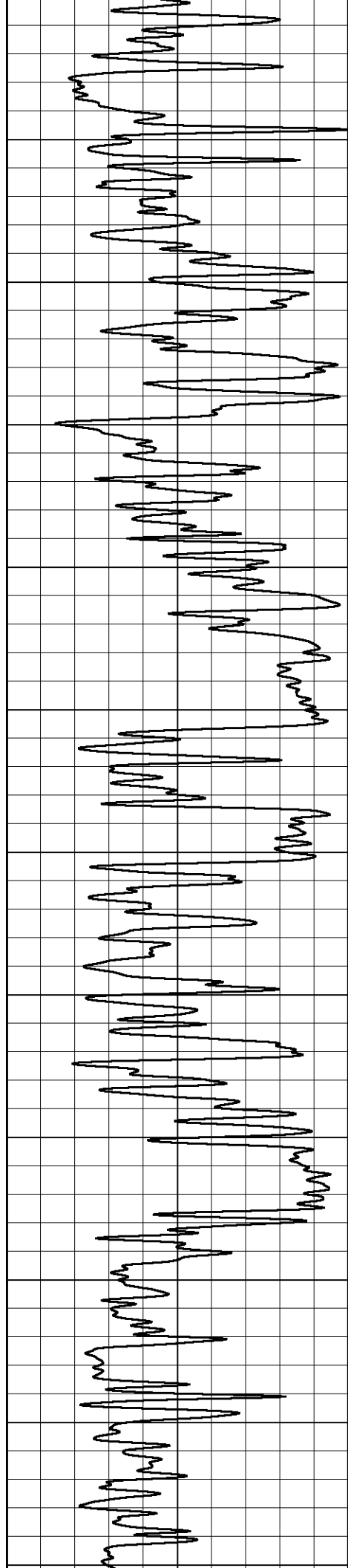


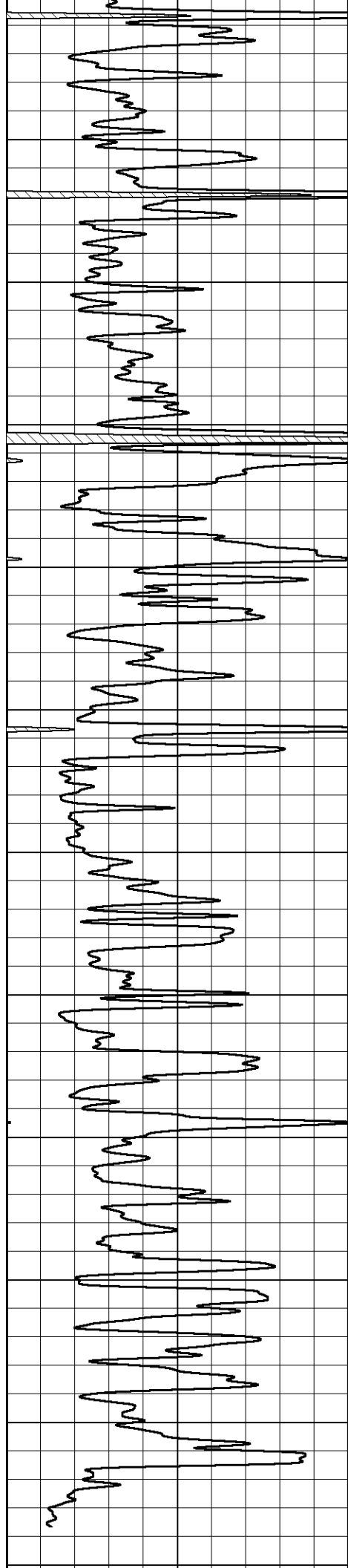




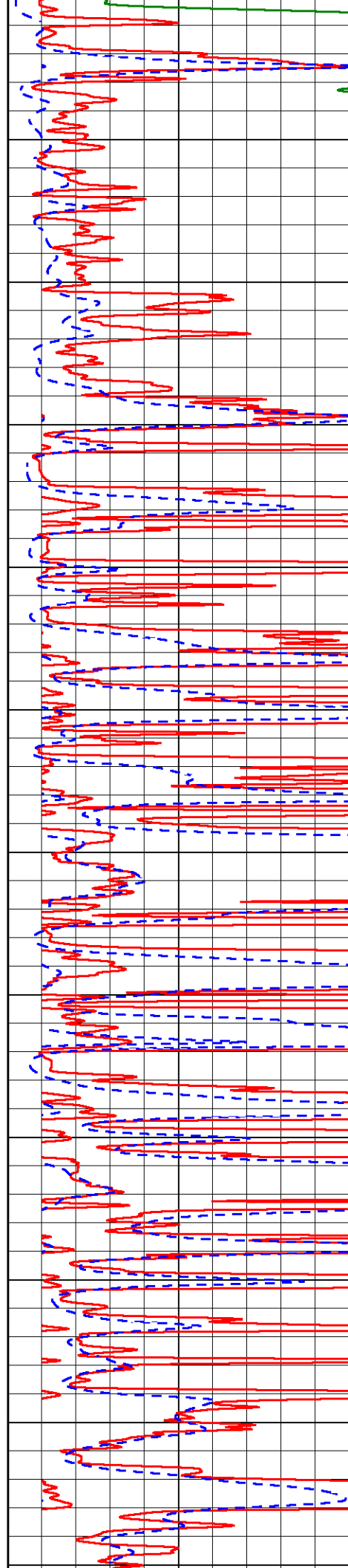


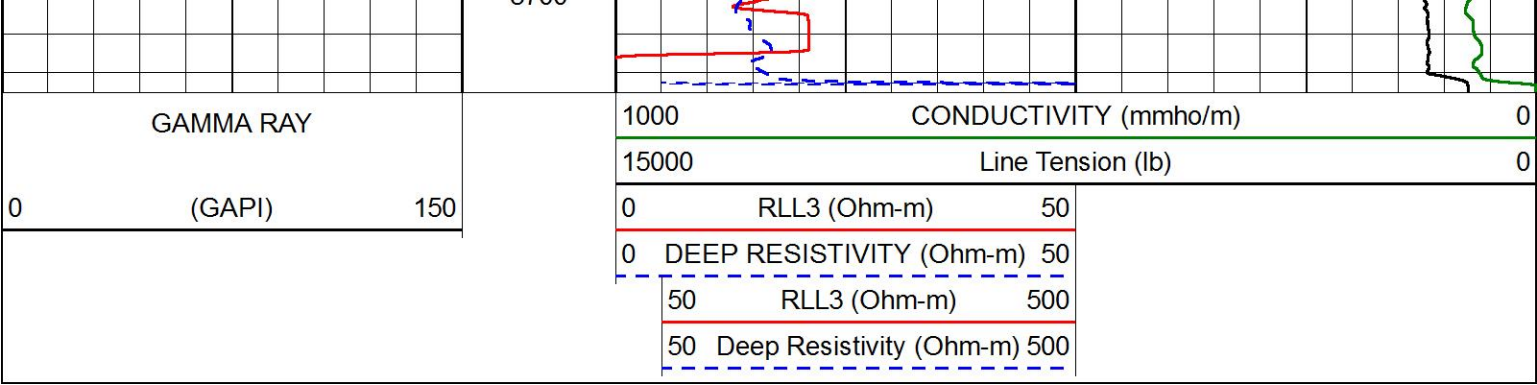






3100
3200
3250
3300
3350
3400
3450
3500
3550
3600
3650
3700

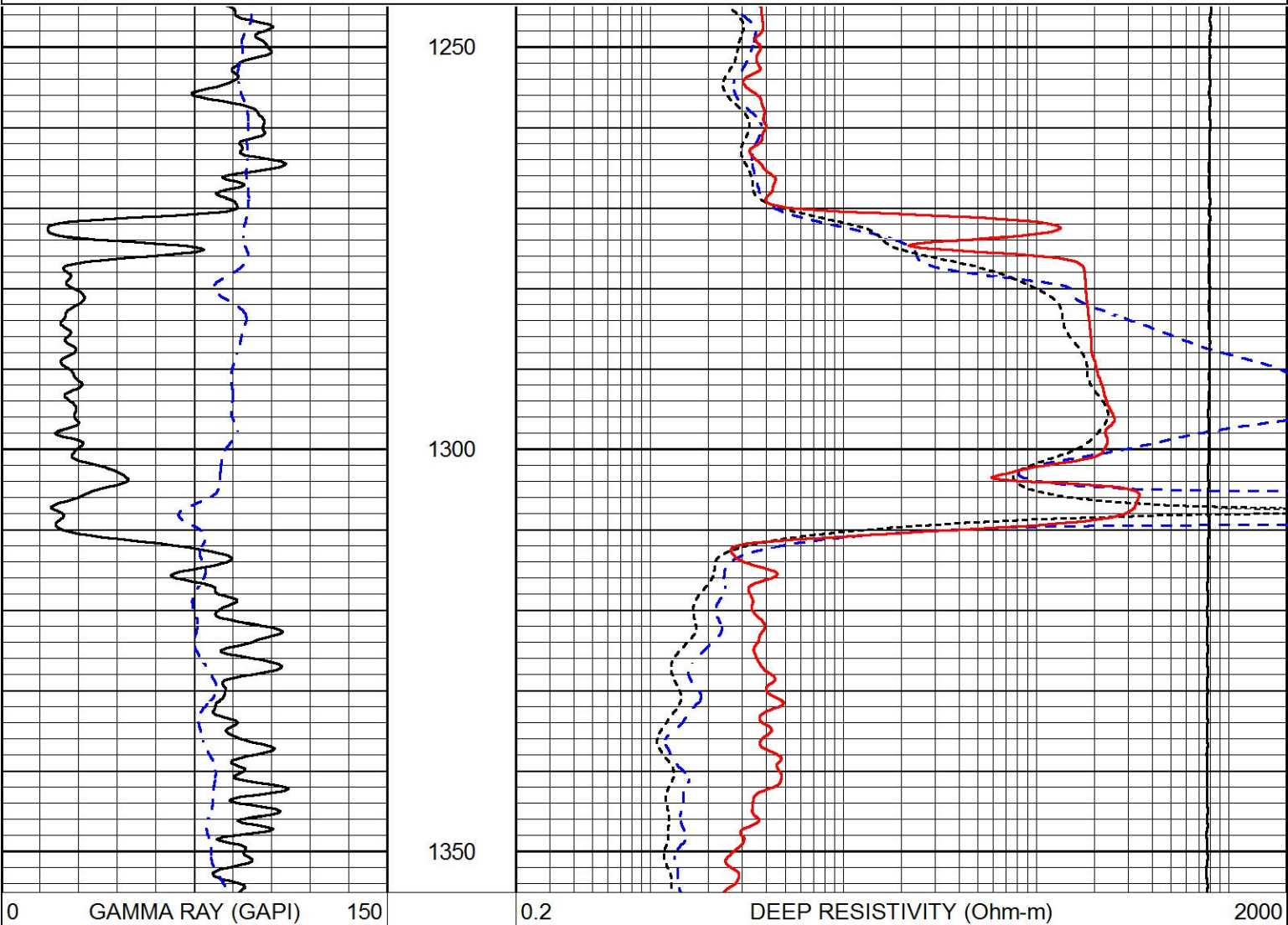
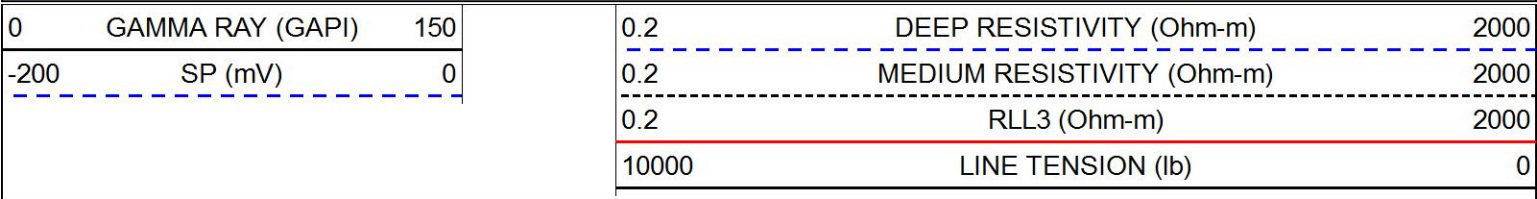






MAIN PASS

Database File	herteloilco_reichert_1.db
Dataset Pathname	STKML/pass4.1
Presentation Format	dil
Dataset Creation	Tue May 22 17:57:34 2018
Charted by	Depth in Feet scaled 1:240



-200	SP (mV)	0

0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	LINE TENSION (lb)	0

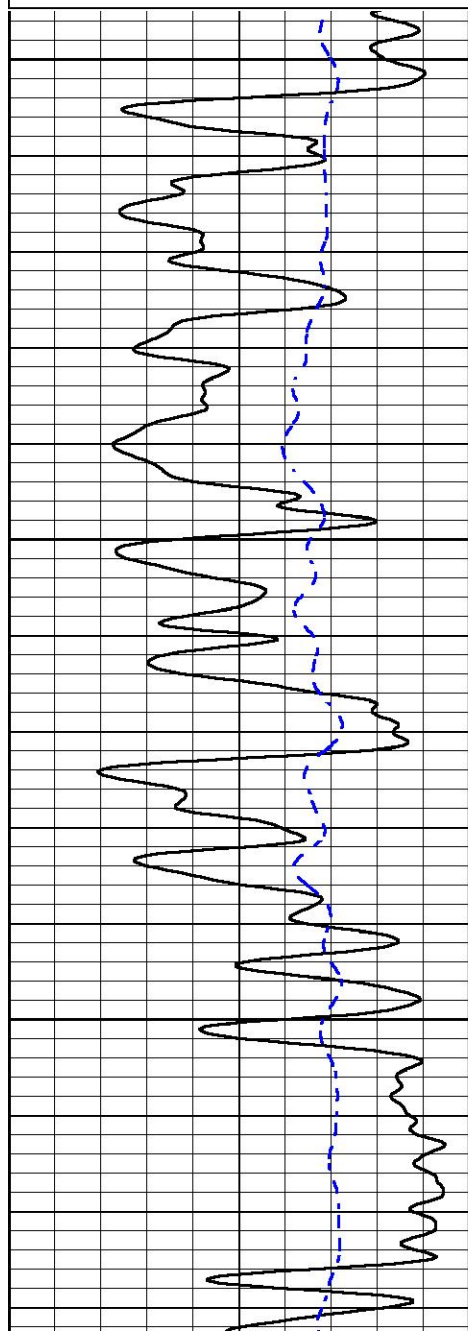


MAIN PASS

Database File herteloilco_reichert_1.db
Dataset Pathname STKML/pass4.1
Presentation Format dil
Dataset Creation Tue May 22 17:57:34 2018
Charted by Depth in Feet scaled 1:240

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

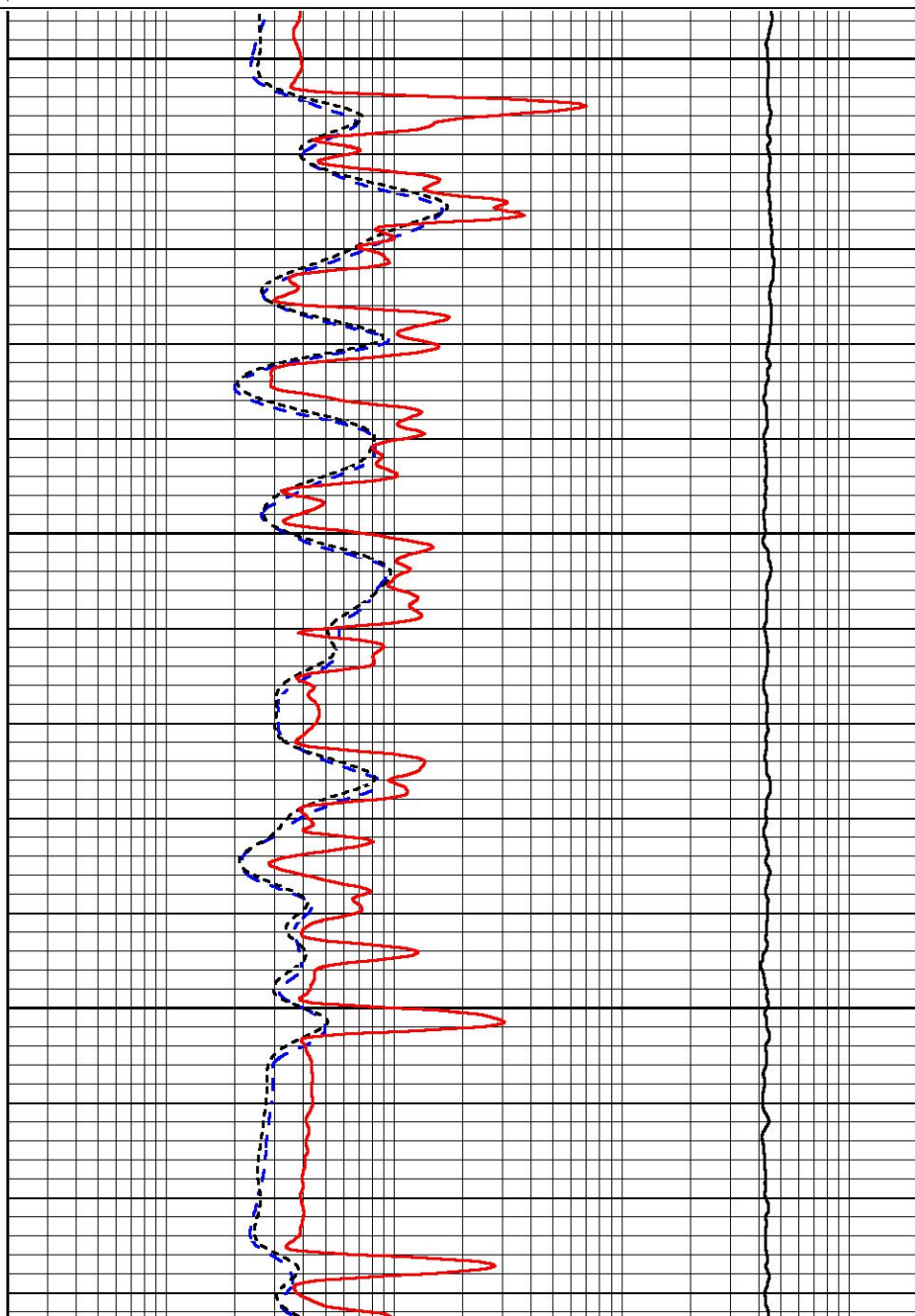
0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	LINE TENSION (lb)	0

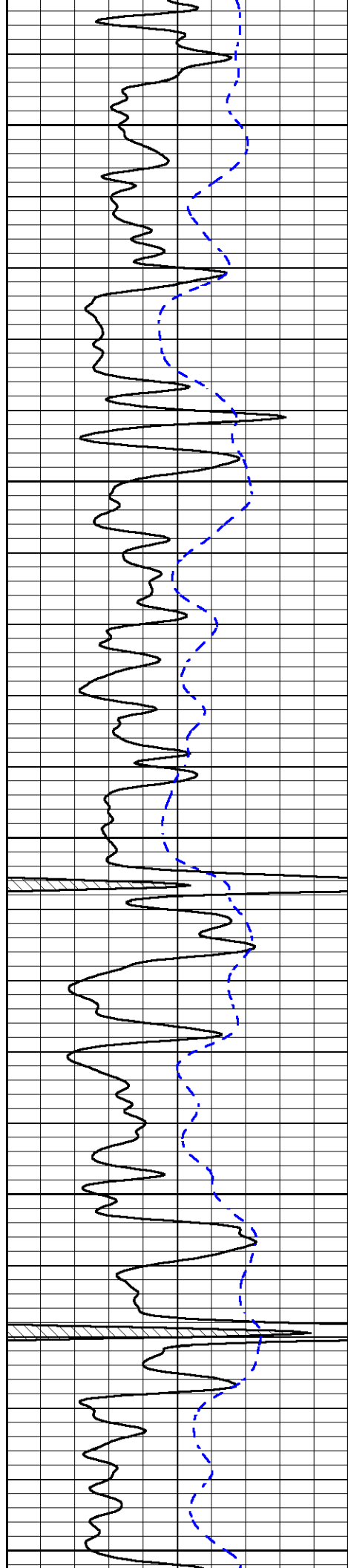


2900

2950

3000





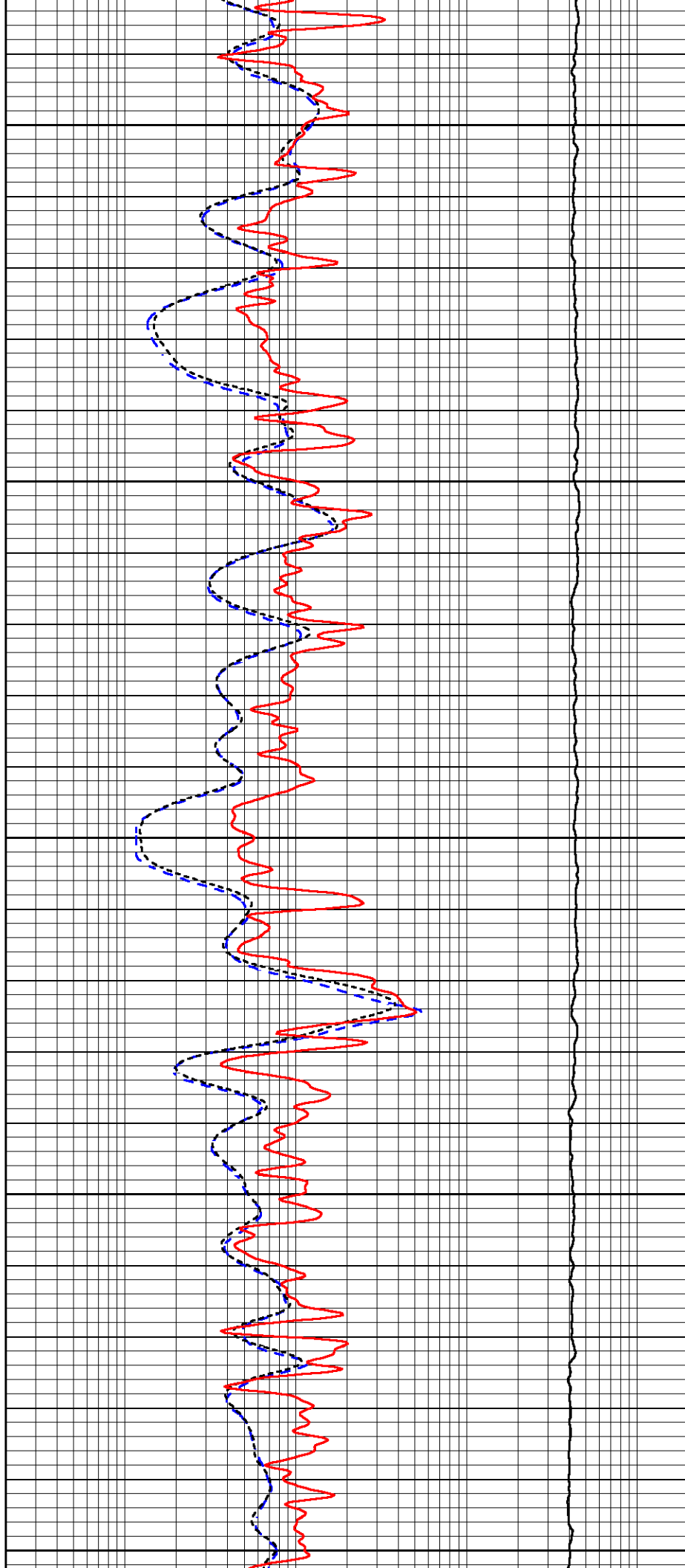
3050

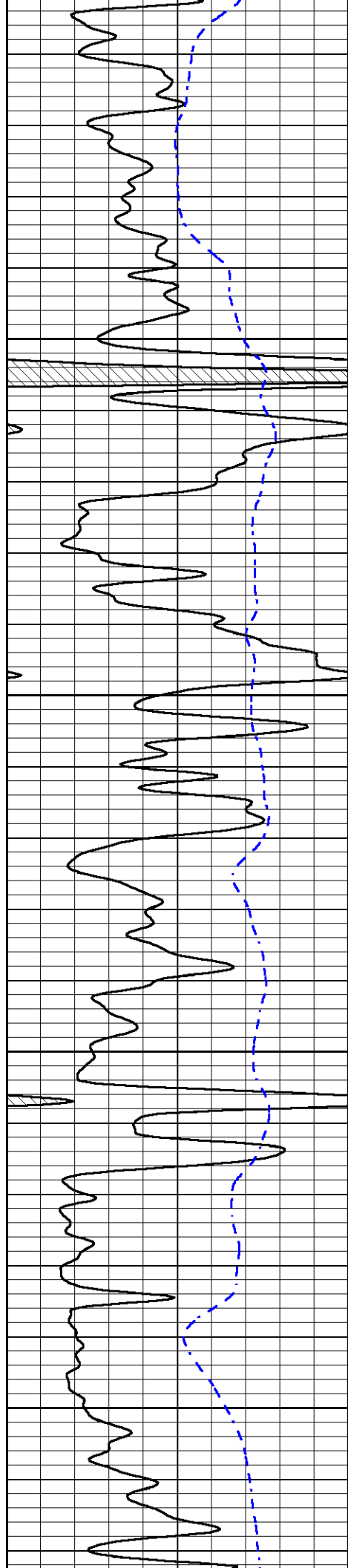
3100

3150

3200

3250



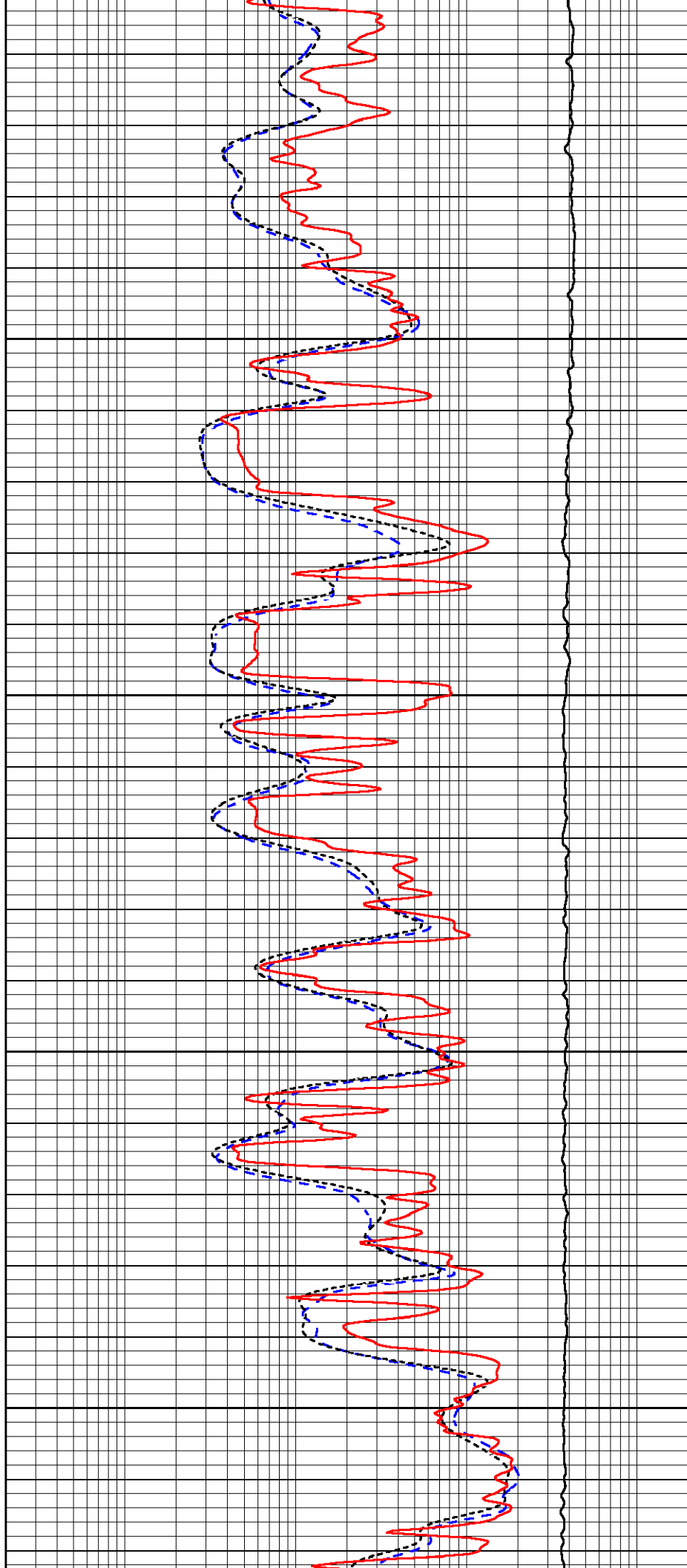


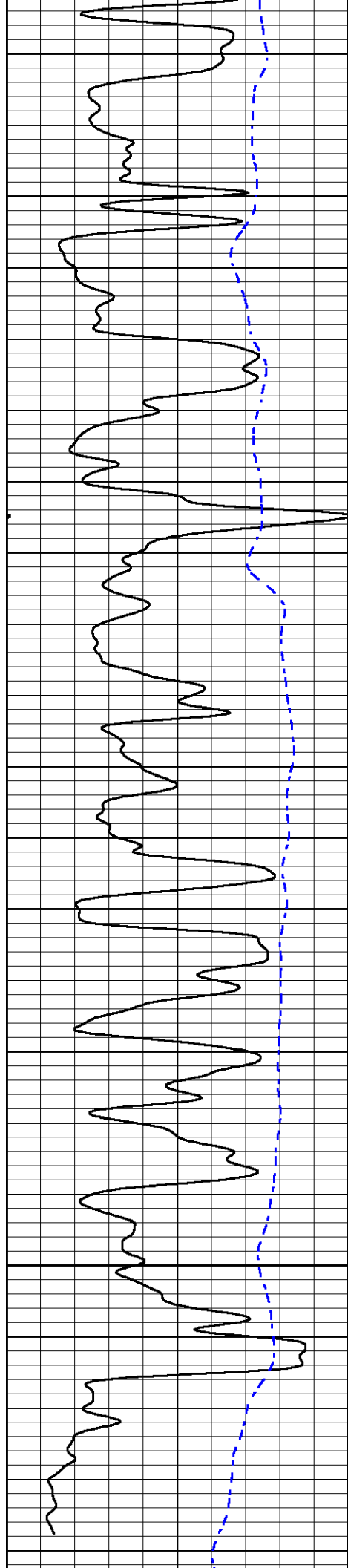
3300

3350

3400

3450



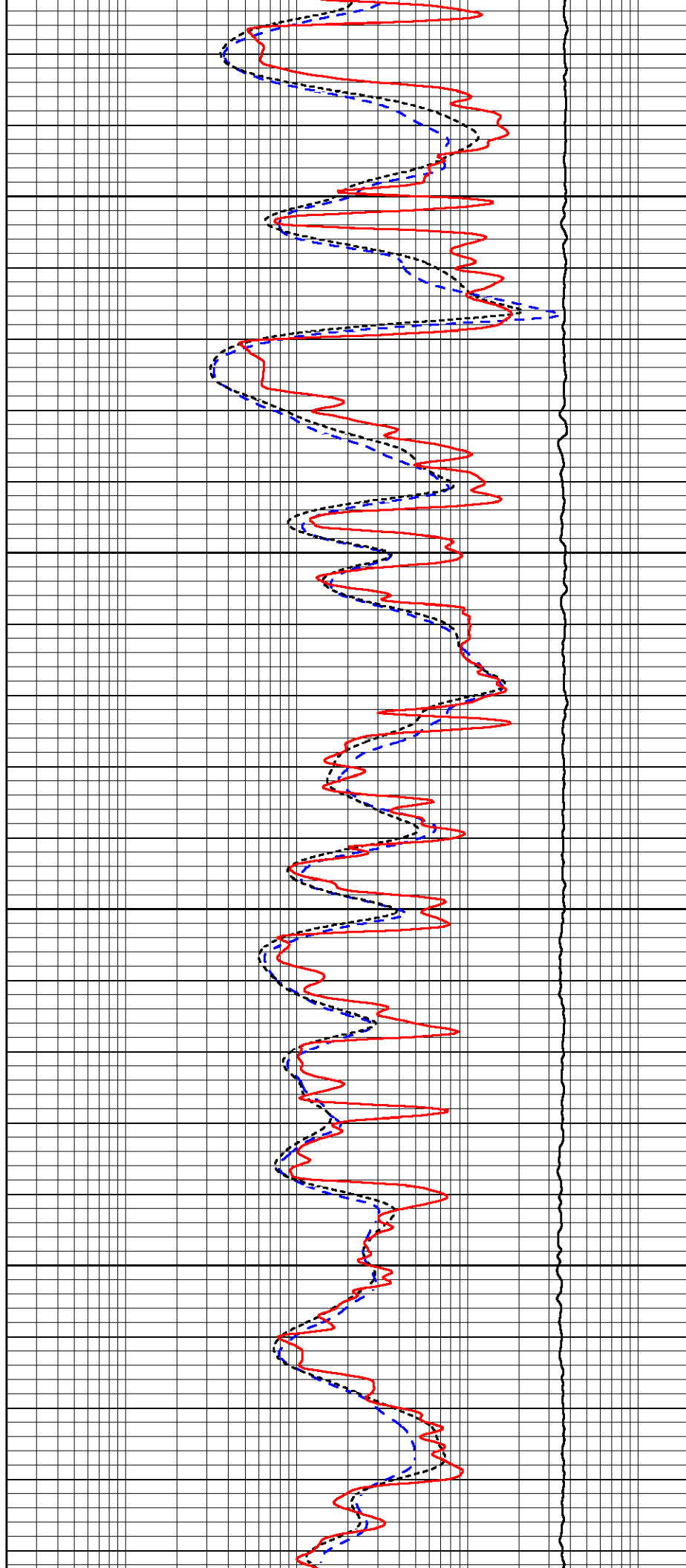


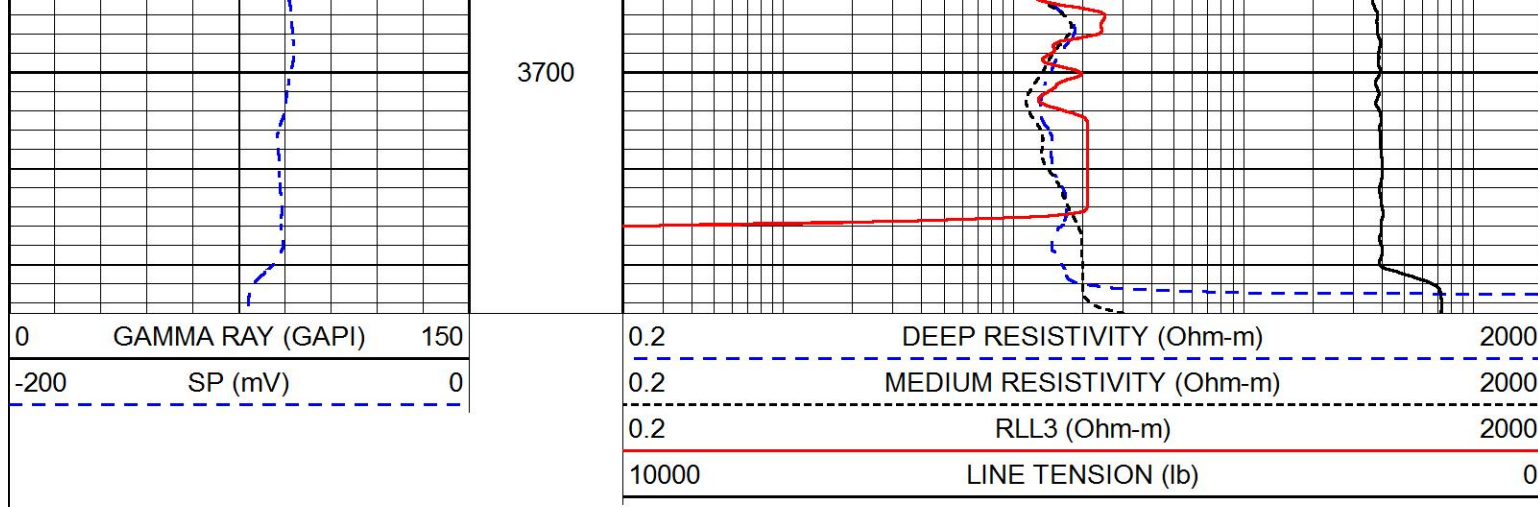
3500

3550

3600

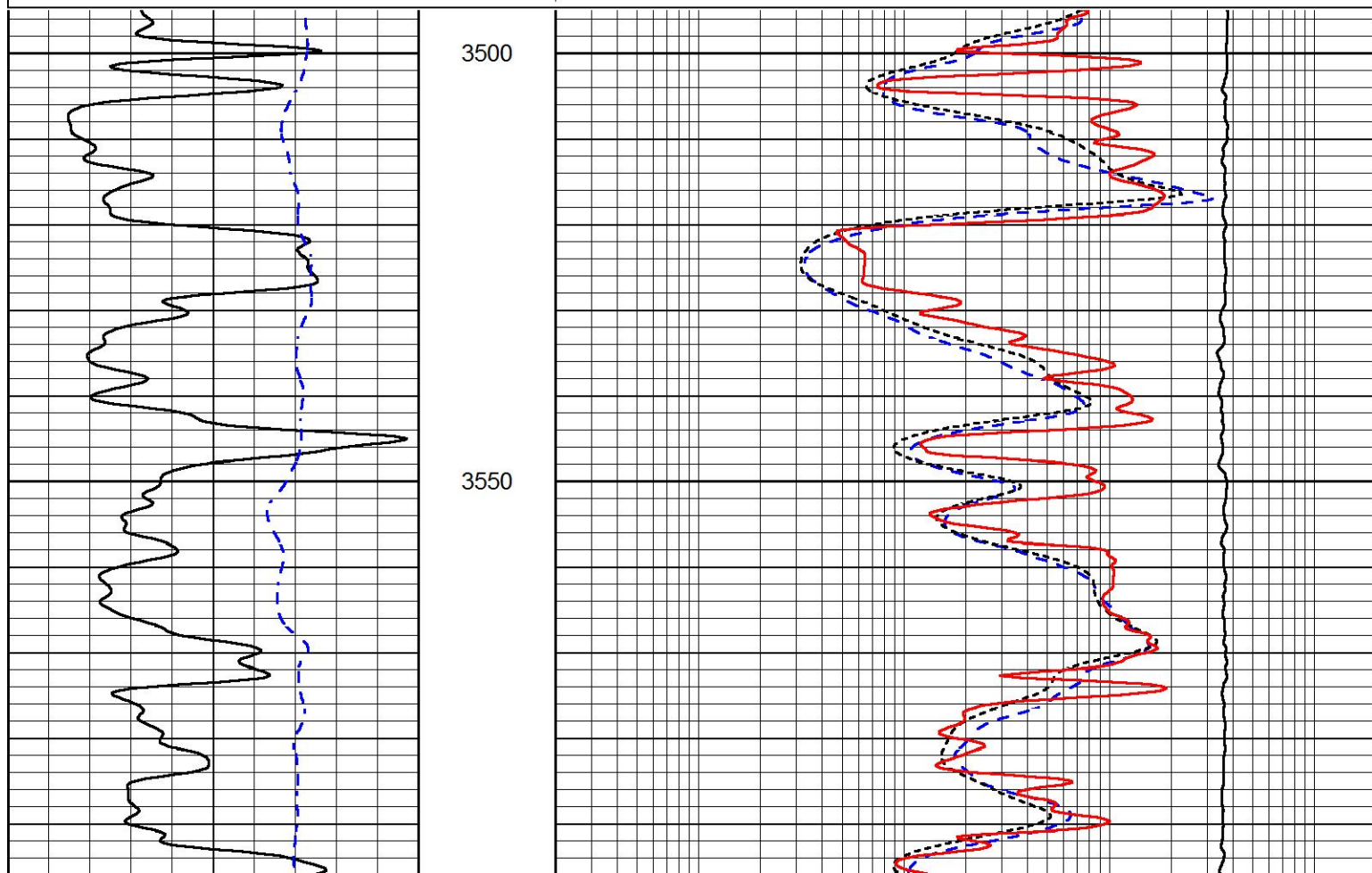
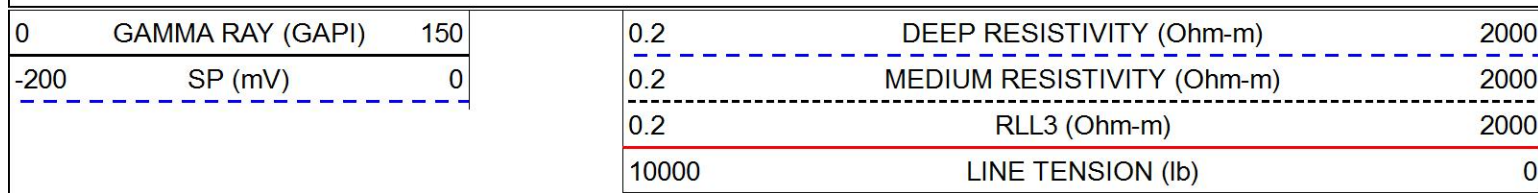
3650

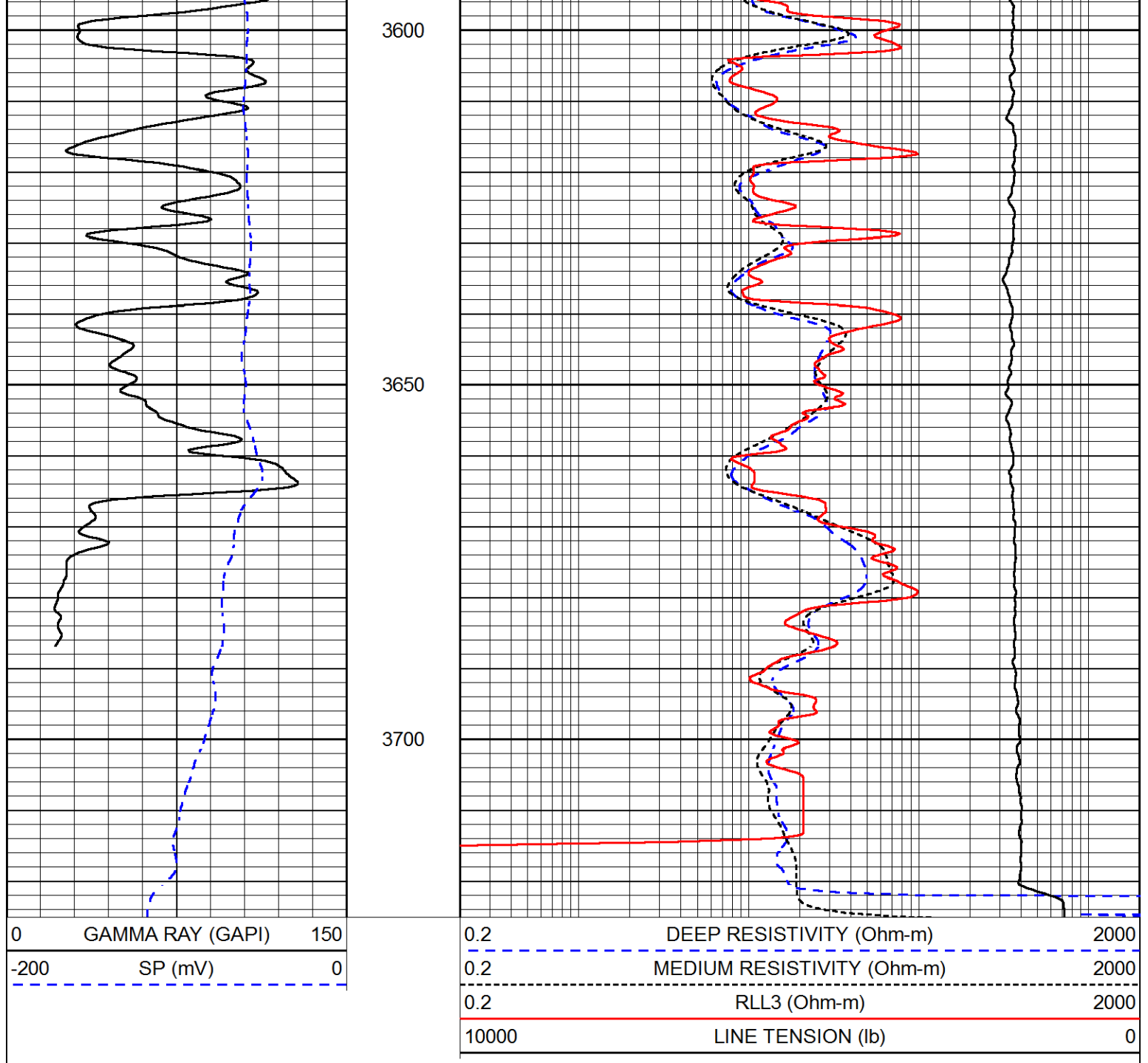




REPEAT SECTION

Database File herteloilco_reichert_1.db
 Dataset Pathname STKML/pass2.1
 Presentation Format dil
 Dataset Creation Tue May 22 17:28:28 2018
 Charted by Depth in Feet scaled 1:240





Calibration Report

Database File herteloilco_reichert_1.db
 Dataset Pathname STKML/pass3.1
 Dataset Creation Tue May 22 17:22:30 2018

Dual Induction Calibration Report

Serial-Model: PSI 971 HT-PSI HIGH TEMP
 Calibration Performed: Tue May 22 14:26:24 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.435	-30.000
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.390	-32.000

Serial-Model:
Performed:PSI-01-PSIML
Mon Apr 16 11:11:21 2018

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	29000.0000	-1.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	34000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.9500

Compensated Density Calibration Report

Serial-Model:
Source / Verifier:
Master Calibration Performed:817-947-M&W
16955B / 2ci
Tue May 01 14:00:17 2018

Master Calibration

	Density			Far Detector		Near Detector	
Magnesium	1.755	g/cc		6127.15		5922.31	cps
Aluminum	2.660	g/cc		1141.85		3762.09	cps
Spine Angle = 74.89				Density/Spine Ratio = 0.520			
	Size			Reading			
Small Ring	4.50	in		1.02			
Large Ring	15.00	in		1.15			

Compensated Neutron Calibration Report

Serial Number: 207-MW
Tool Model: M&W
Calibration Performed: MON APR 16 10:30:30 2018

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
Tool Model: M&W
Calibration Performed: Mon Jan 15 11:20:44 2018

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Sensitivity: 0.6000 GAPI/cps



Company HERTEL OIL COMPANY LLC
Well REICHERT #1
Field REICHERT

PIONEER

Pioneer Energy Services

County

ELLIS

State

KANSAS