



DUAL INDUCTION LOG

Company K-BAR OIL
Well KREBIEL #1
Field RICK
County BARTON
State KANSAS

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Well KREBIEL #1
Field RICK
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Date	6/13/2019	Permanent Datum	GROUND LEVEL	Elevation	1777'	Other Services	
Run Number	ONE	Log Measured From	KELLY BUSHING			K.B.	1782'
Depth Driller	3443'	Drilling Measured From	KELLY BUSHING			D.F.	N/A
Depth Logger	3442'					G.L.	1777'
Bottom Logged Interval	3441'						
Top Log Interval	300'						
Casing Driller	8.625" @ 326'						
Casing Logger	322'						
Bit Size	7.875"						
Type Fluid in Hole	CHEMICAL						
Salinity, ppm CL	10,000						
Density / Viscosity	8.8			47			
pH / Fluid Loss	9.6			11			
Source of Sample	FLOWLINE						
Rm @ Meas. Temp	0.30 @ 79						
Rmt @ Meas. Temp	0.23 @ 79						
Rmc @ Meas. Temp	0.41 @ 79						
Source of Rmf / Rmc	CHARTS						
Rm @ BHT	0.21 @ 110						
Operating Rig Time	3 HOURS						
Max Rec. Temp. F	110						
Equipment Number	P-24						
Location	HAYS						
Recorded By	IAN MABB						
Witnessed By	ROGER MOSES						

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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.

CLAFLIN, KS.
 1.5 MILES EAST TO NE 150 AVE,
 SOUTH 8.25 MILES, EAST INTO

Log Measured From: KELLY BUSHING 5 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES
www.pioneerenergy.com 785-625-3858

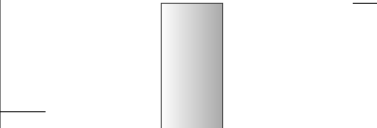
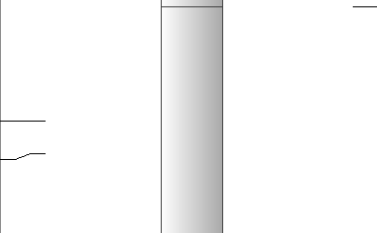
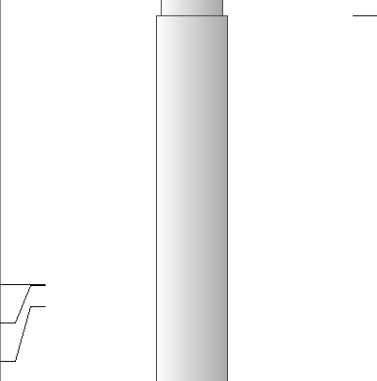
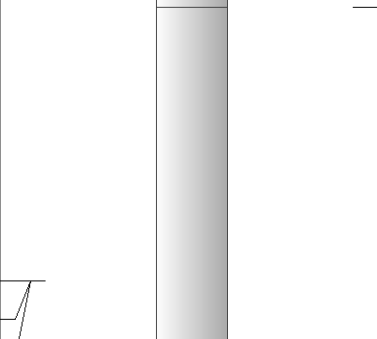
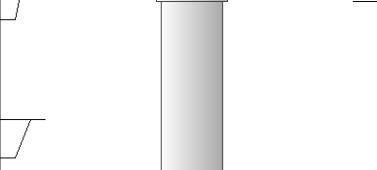
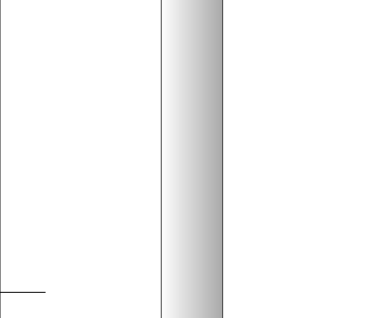
Your Pioneer Energy Services Crew Engineer: IAN MABB Operator: Operator: Operator:	This Log Record Was Witnessed By Primary Witness: ROGER MOSES Secondary Witness: Secondary Witness: Secondary Witness:
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Log Variables

DatabaseC:\ProgramData\Warrior\Data\k-bar_krebiel_1.db
 Dataset field/well/stackmel/pass3.1//_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	110	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	-26	-20	40	0	Off	3442

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (233-M&W)	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 (96-916)	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					
CILD	8.00		DIL-PSI HIGH TEMP (1039)	18.50	3.50	220.00

CILM 4.70

SP 0.20

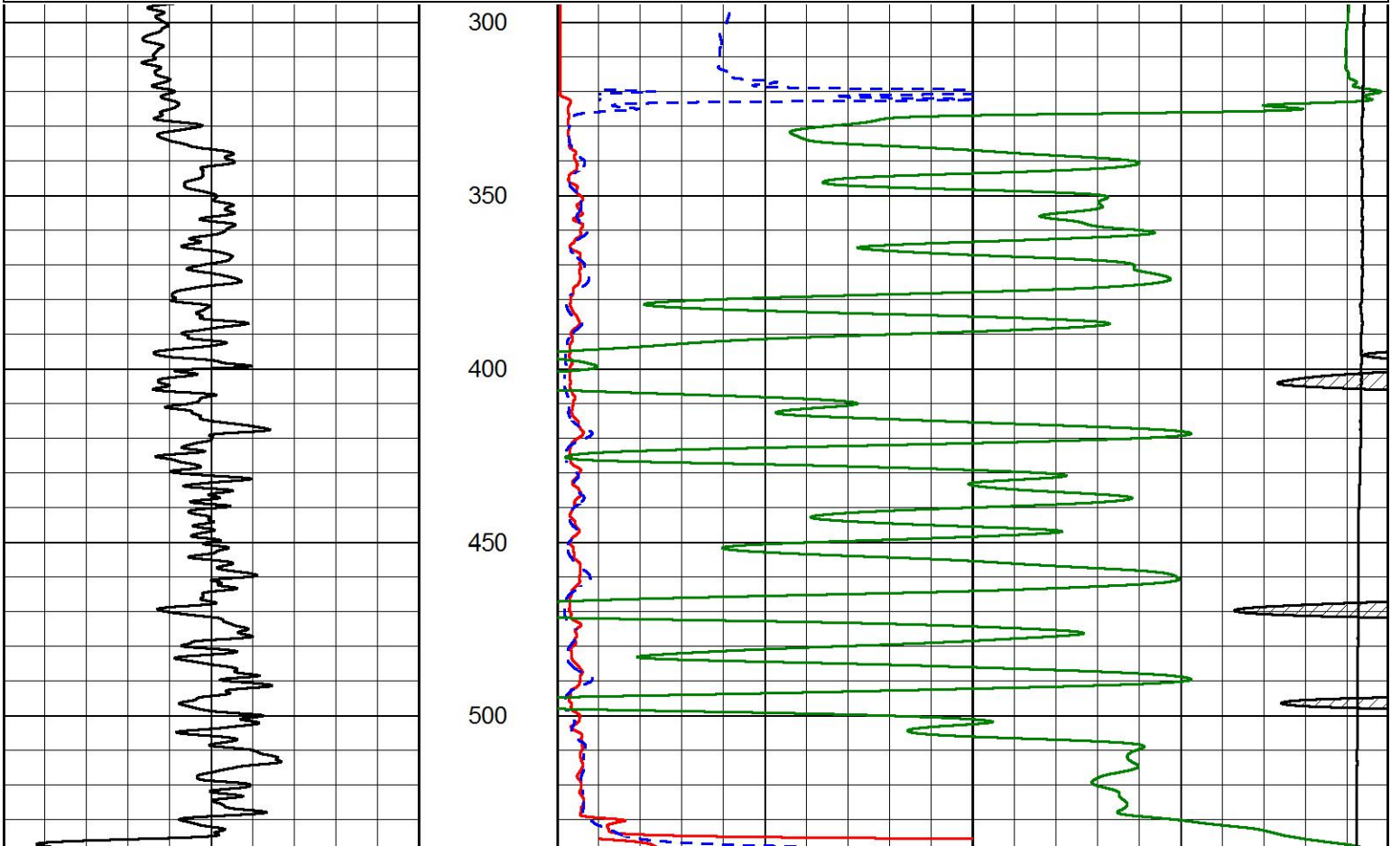
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 Total length: 43.08 ft
 Total weight: 685.00 lb
 O.D.: 4.00 in

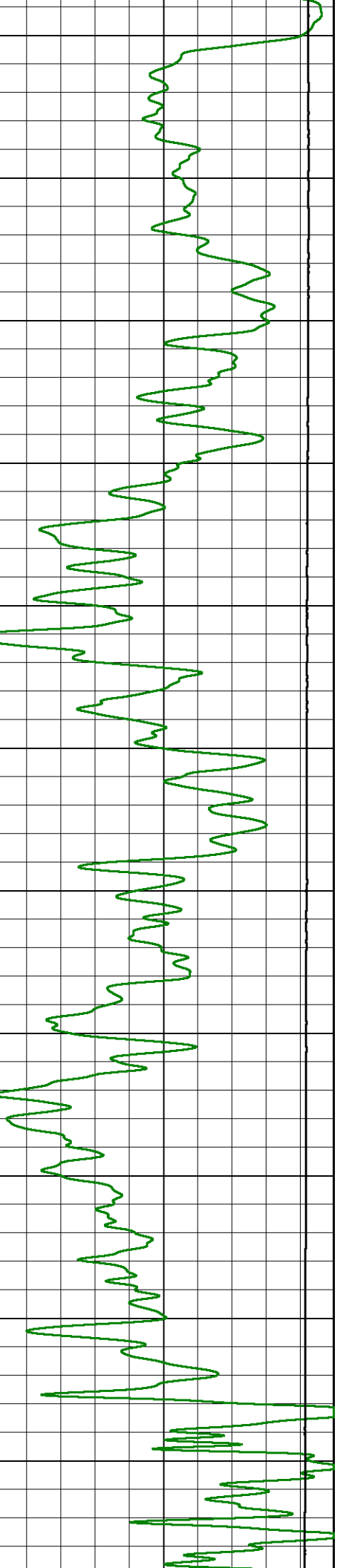
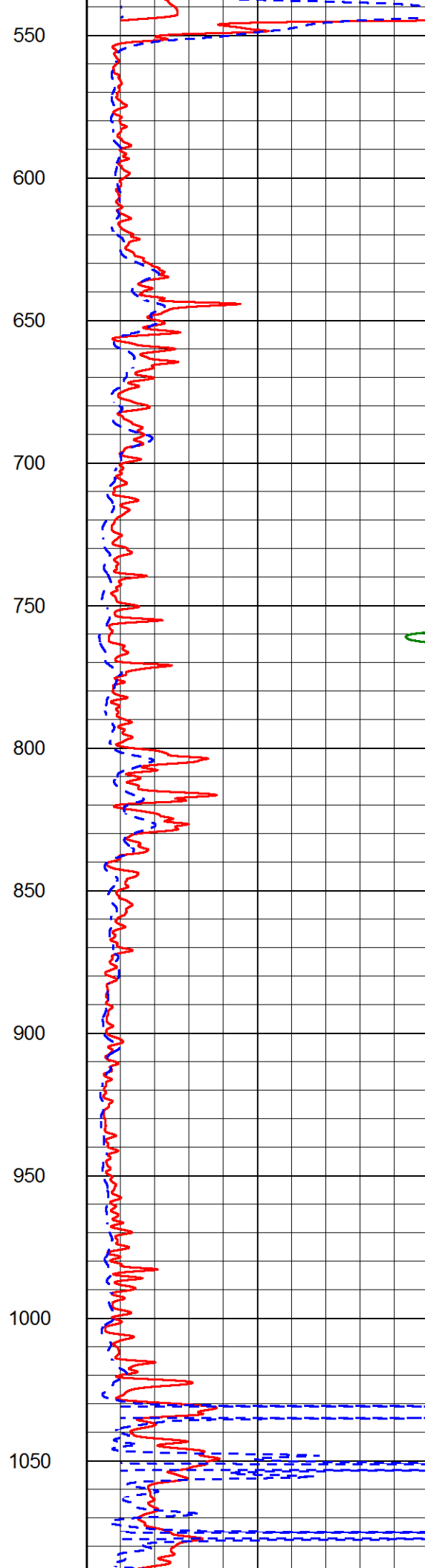
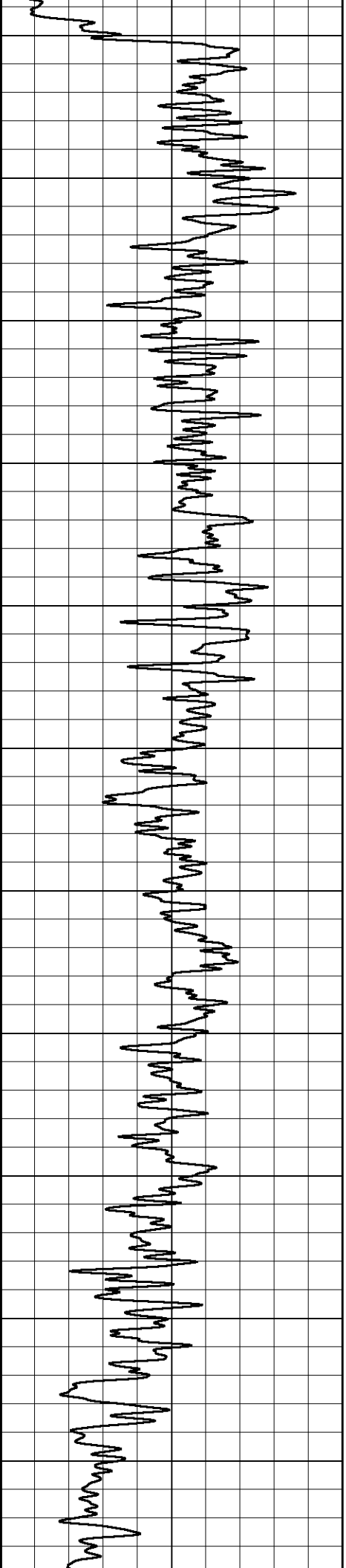


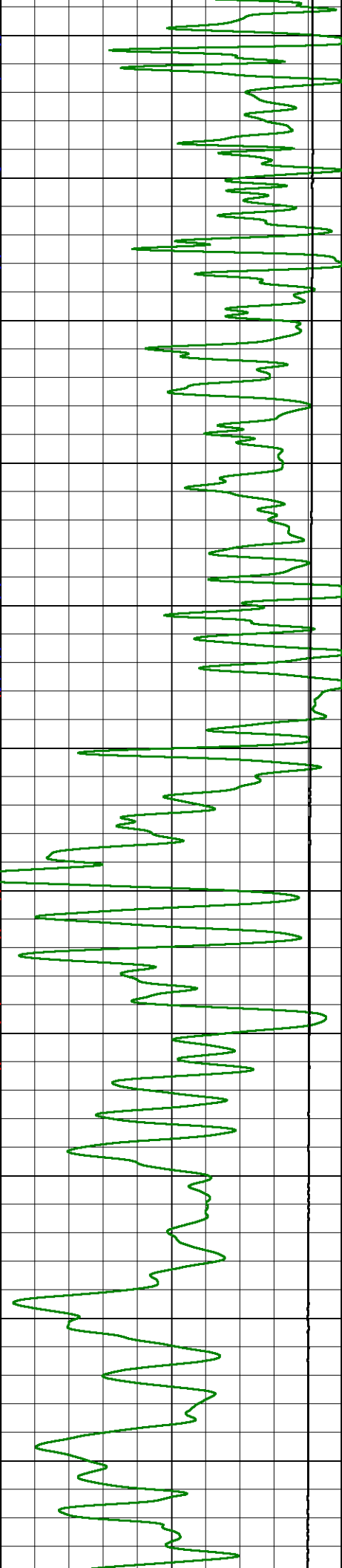
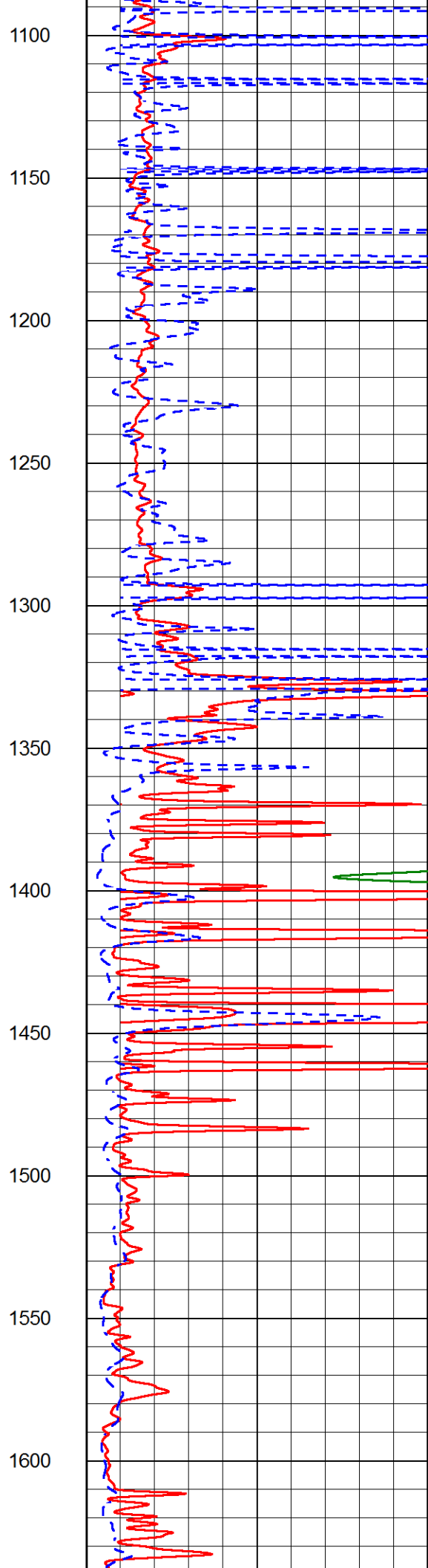
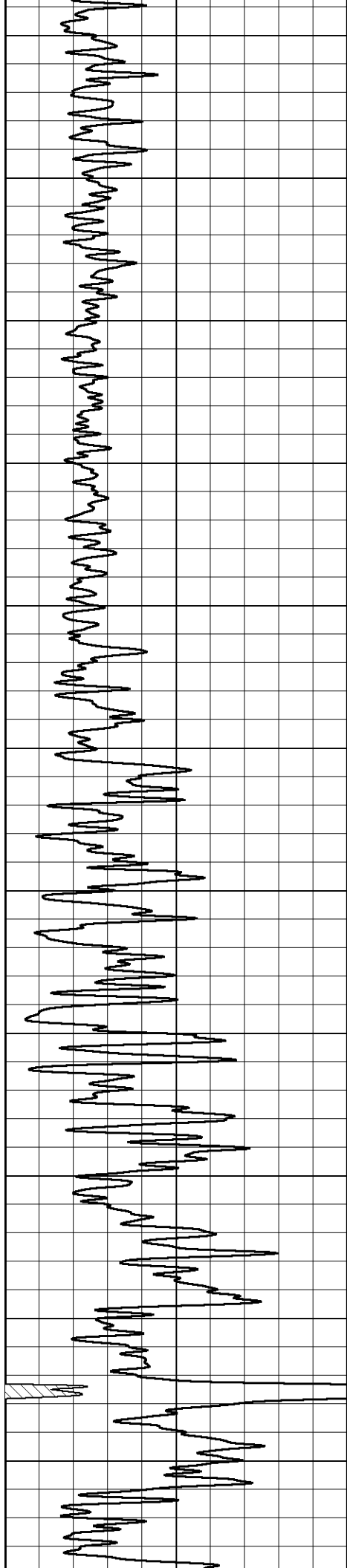
MAIN PASS

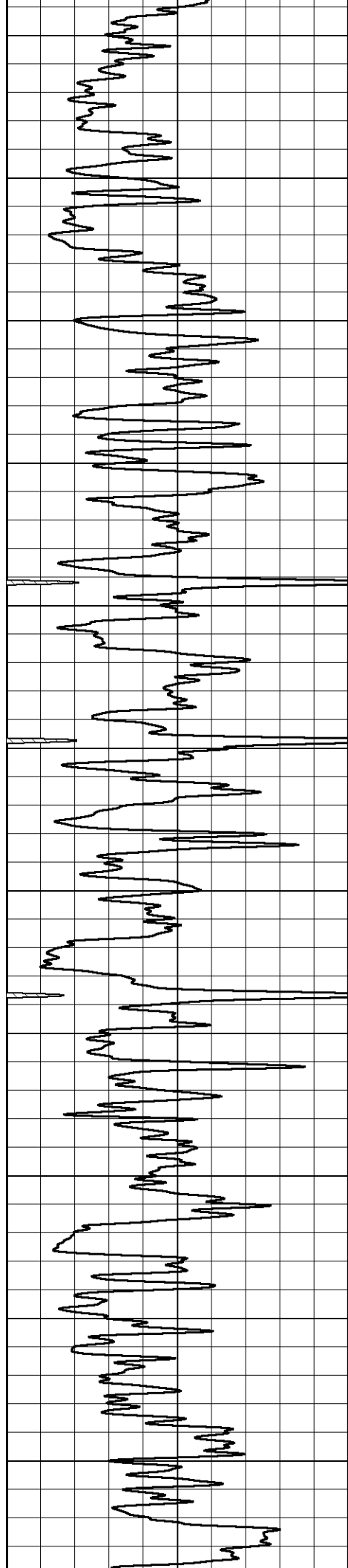
Database File k-bar_krebiel_1.db
 Dataset Pathname stackmel/pass4.1
 Presentation Format _dil2in
 Dataset Creation Thu Jun 13 18:52:51 2019
 Charted by Depth in Feet scaled 1:600

GAMMA RAY		1000	CONDUCTIVITY (mmho/m)	0	
		15000	Line Tension (lb)	0	
0	(GAPI)	150	0	RLL3 (Ohm-m)	50
6	DCAL (in)	16	0	DEEP RESISTIVITY (Ohm-m)	50
-----			50	RLL3 (Ohm-m)	500
			50	Deep Resistivity (Ohm-m)	500

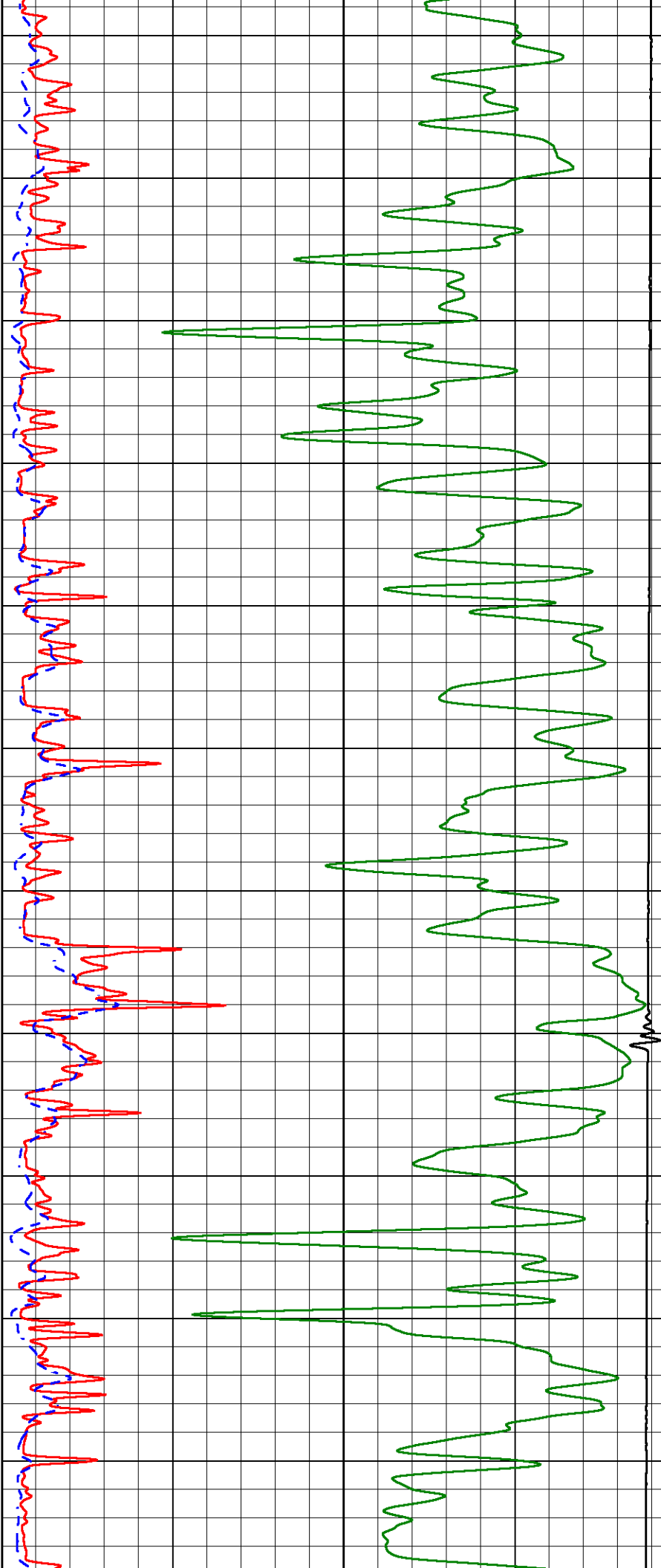


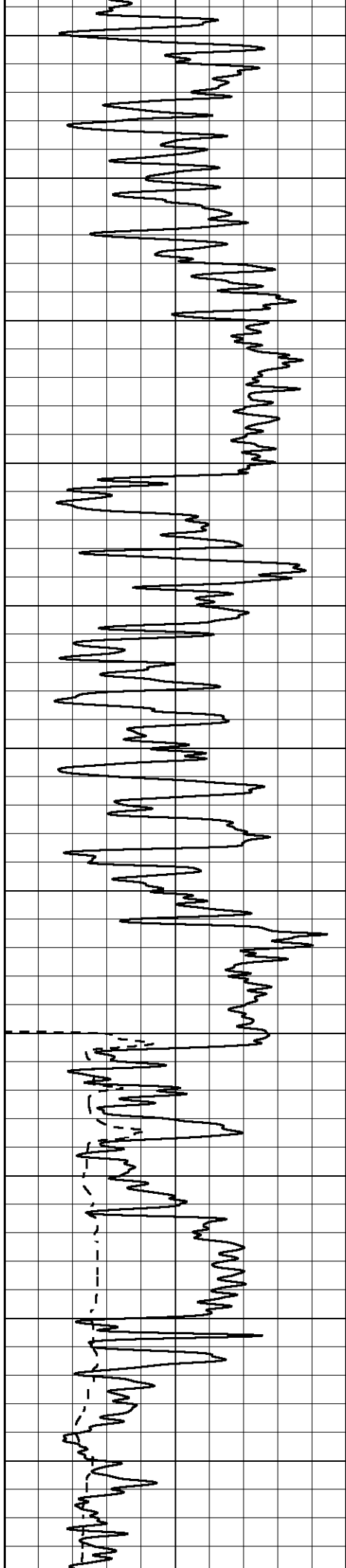






1650
1700
1750
1800
1850
1900
1950
2000
2050
2100
2150





2200

2250

2300

2350

2400

2450

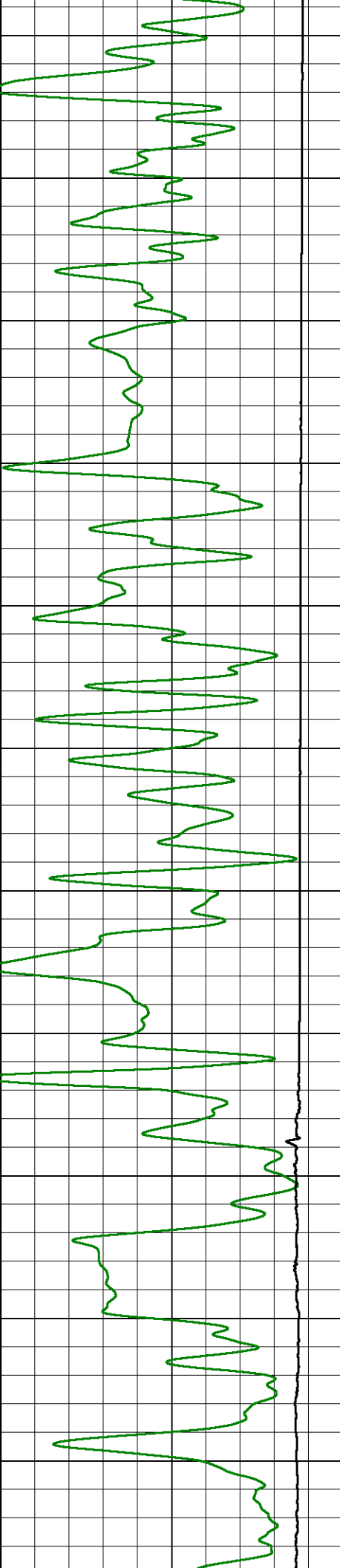
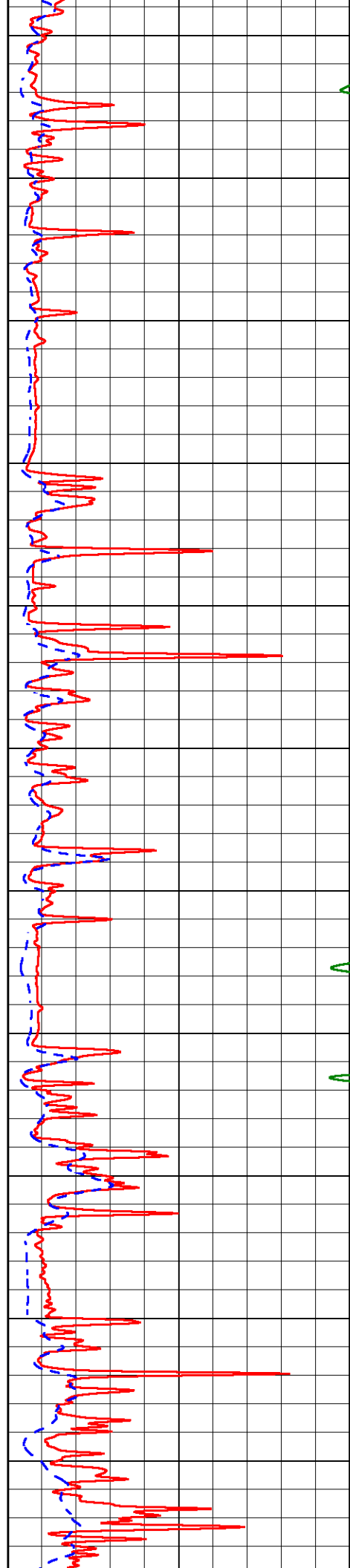
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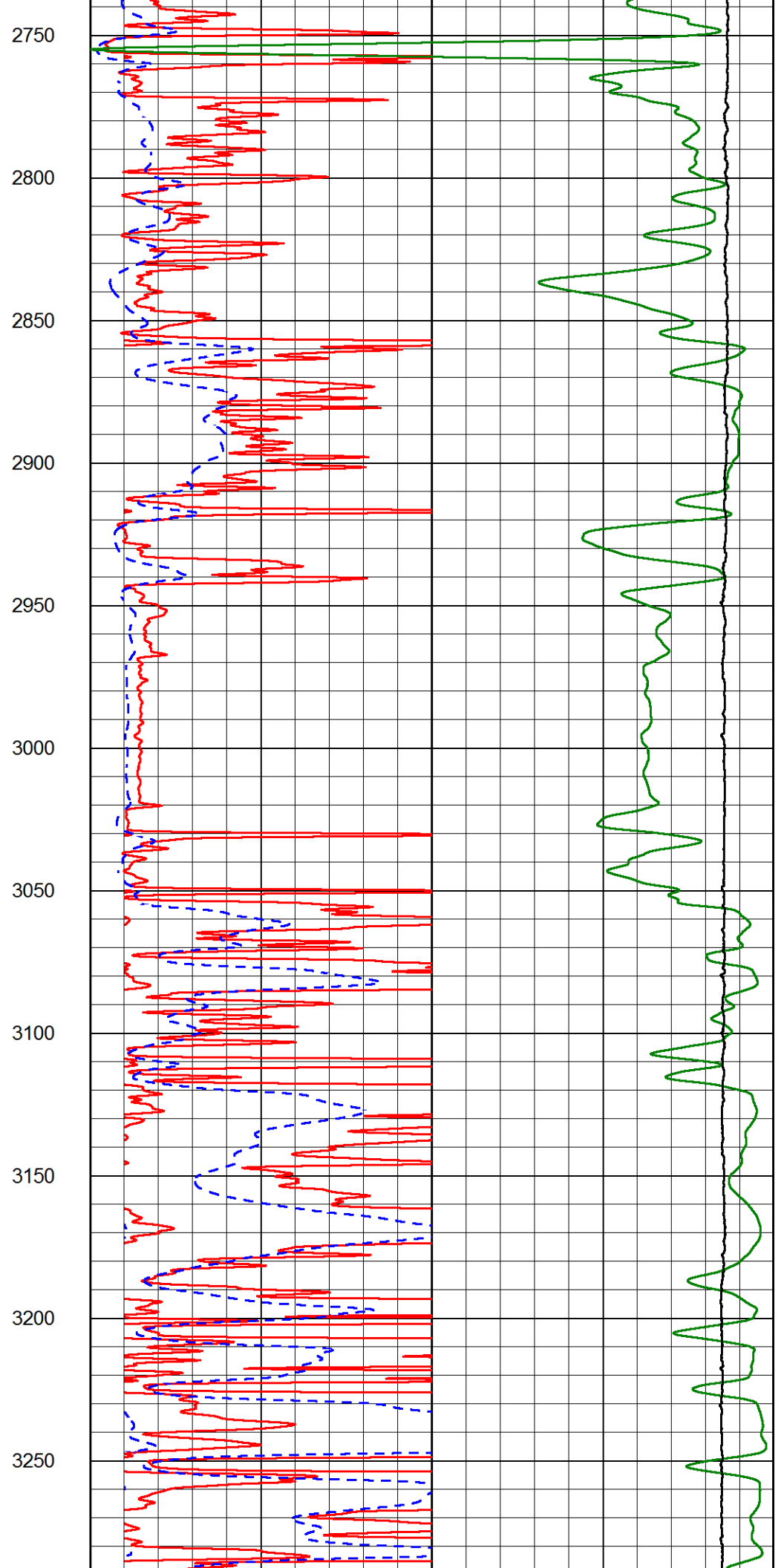
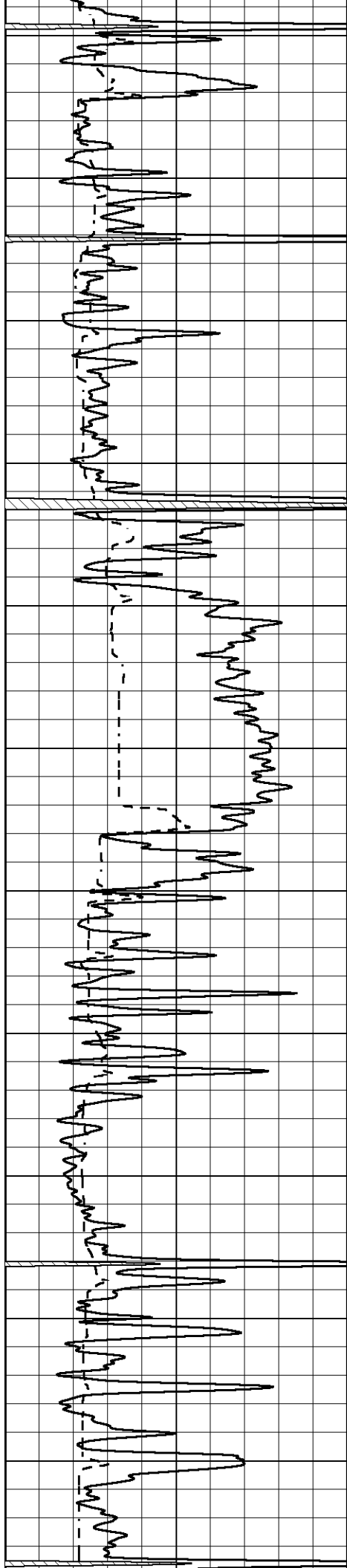
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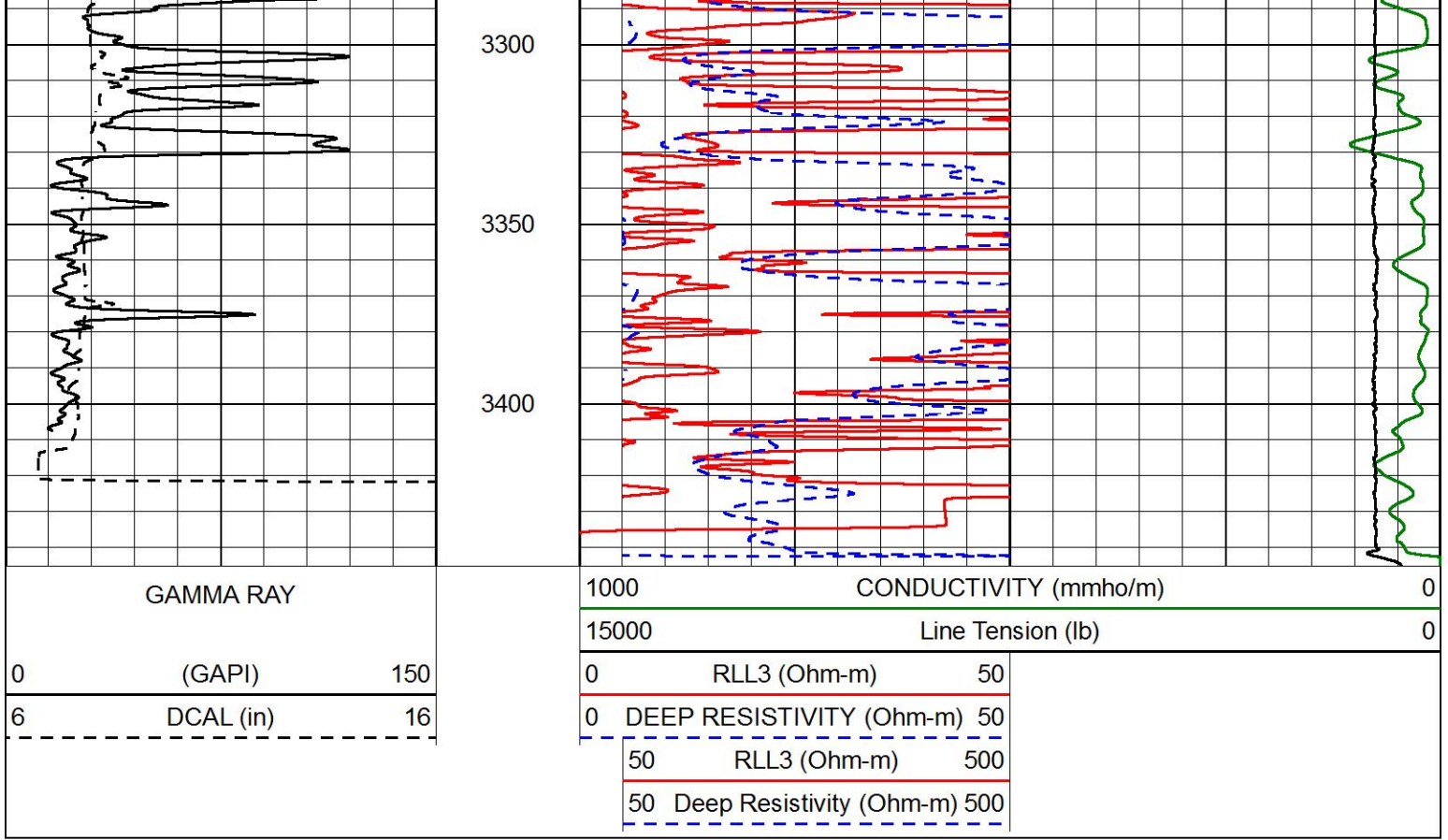
2600

2650

2700



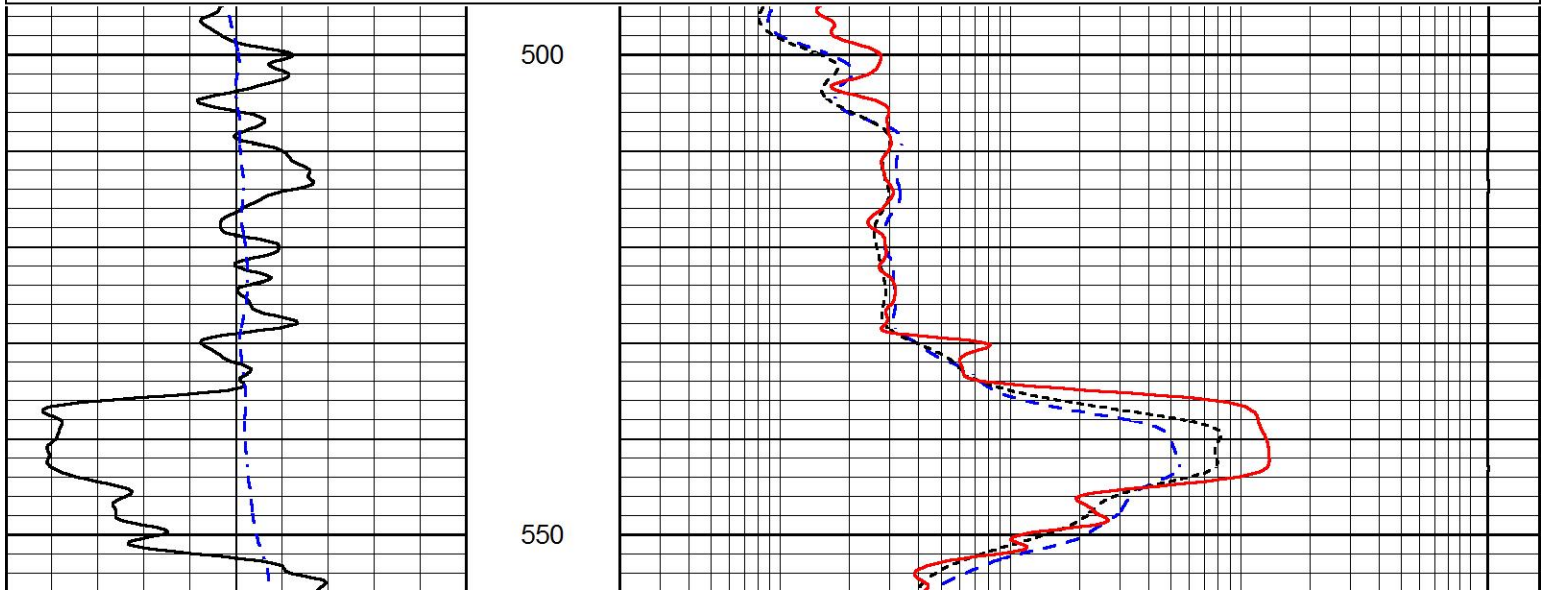


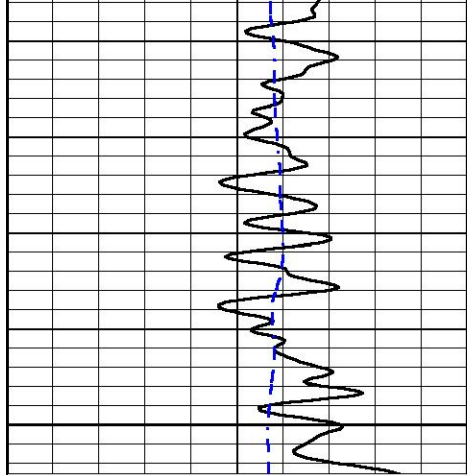


MAIN PASS

Database File k-bar_krebiel_1.db
 Dataset Pathname stackmel/pass4.1/
 Presentation Format _dil
 Dataset Creation Thu Jun 13 18:52:51 2019
 Charted by Depth in Feet scaled 1:240

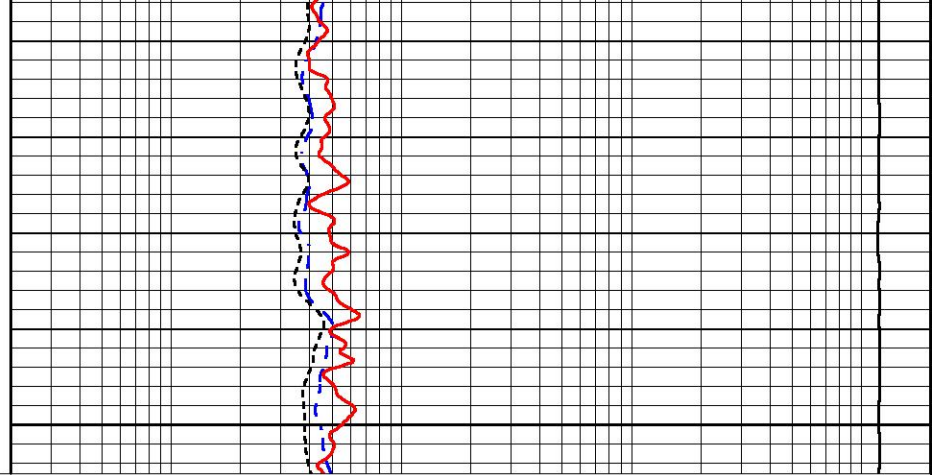
0	GAMMA RAY (GAPI)	150	0.2	DEEP RESISTIVITY (Ohm-m)	2000
-200	SP (mV)	0	0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
			0.2	RLL3 (Ohm-m)	2000
			10000	LINE TENSION (lb)	0





600

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

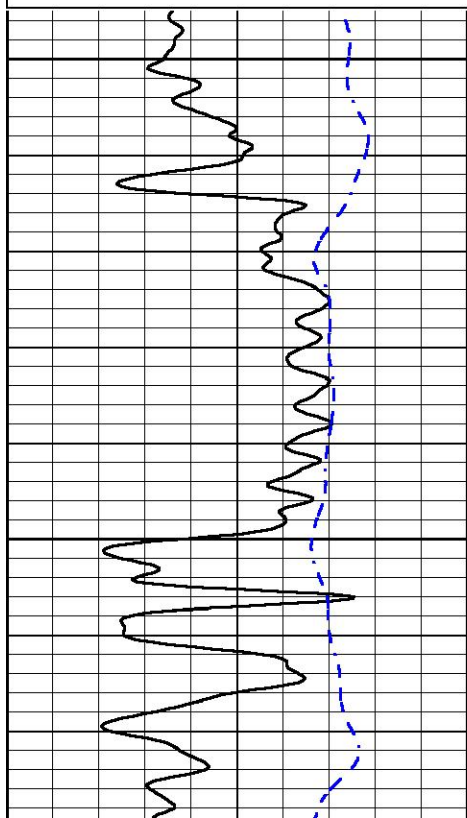


MAIN PASS

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 Dataset Pathname stackmel/pass3.1
 Presentation Format _dil
 Dataset Creation Thu Jun 13 18:25:03 2019
 Charted by Depth in Feet scaled 1:240

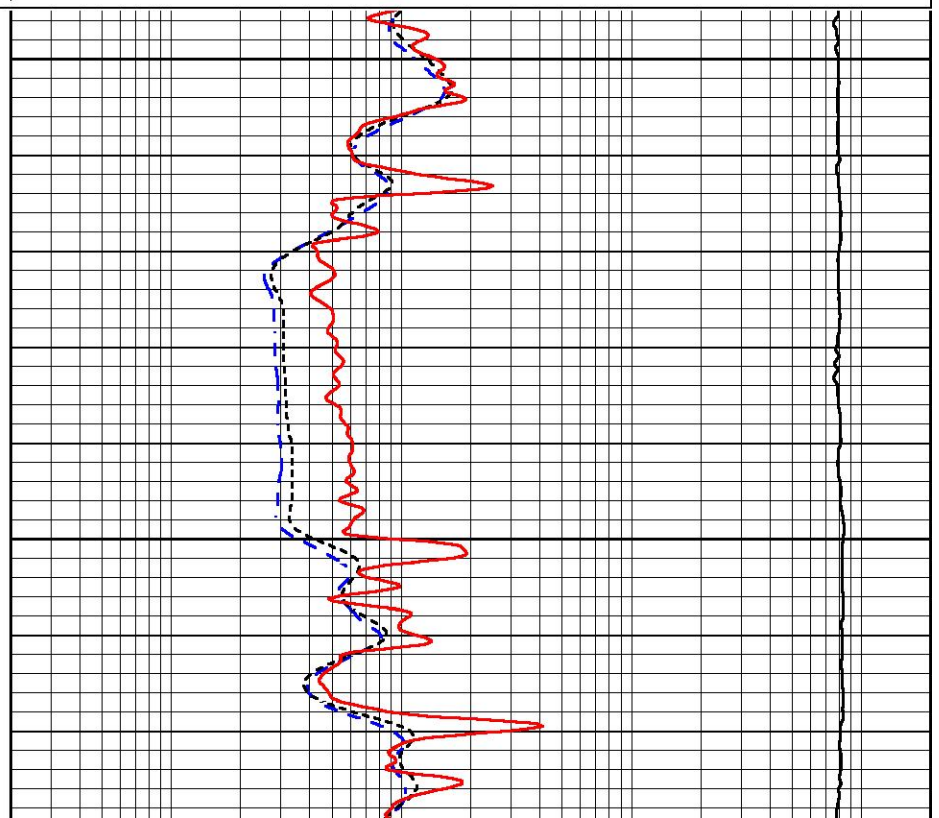
0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

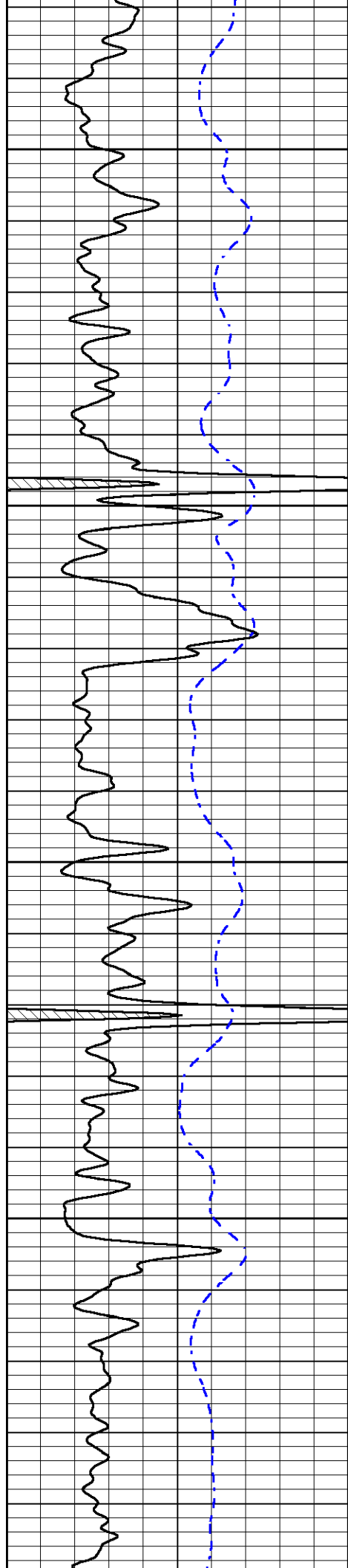
0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
10000	LINE TENSION (lb)	0



2600

2650





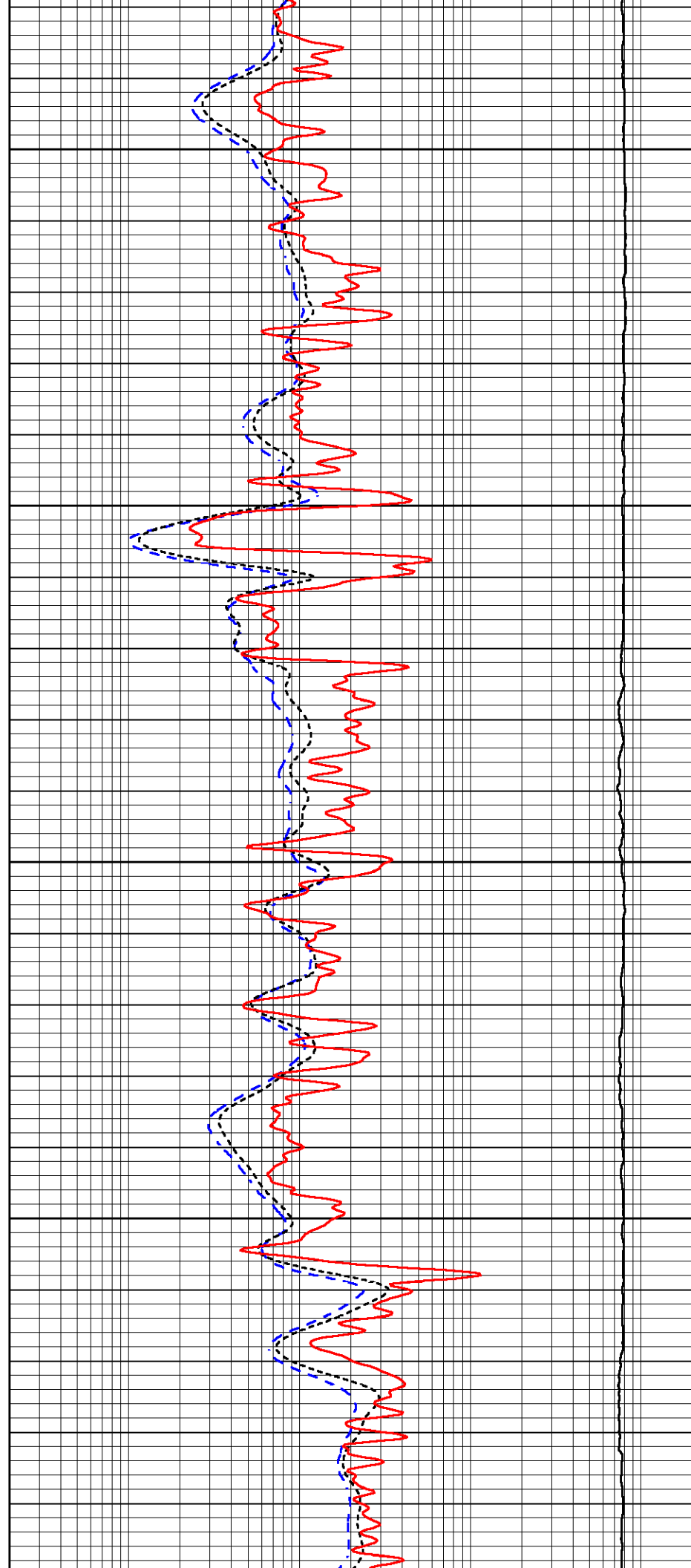
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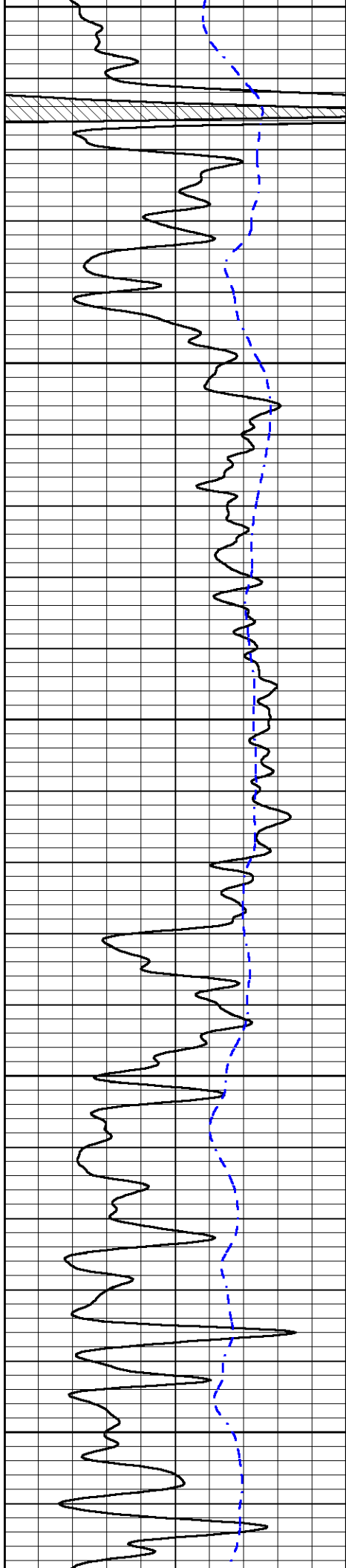
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2800

2850

2900





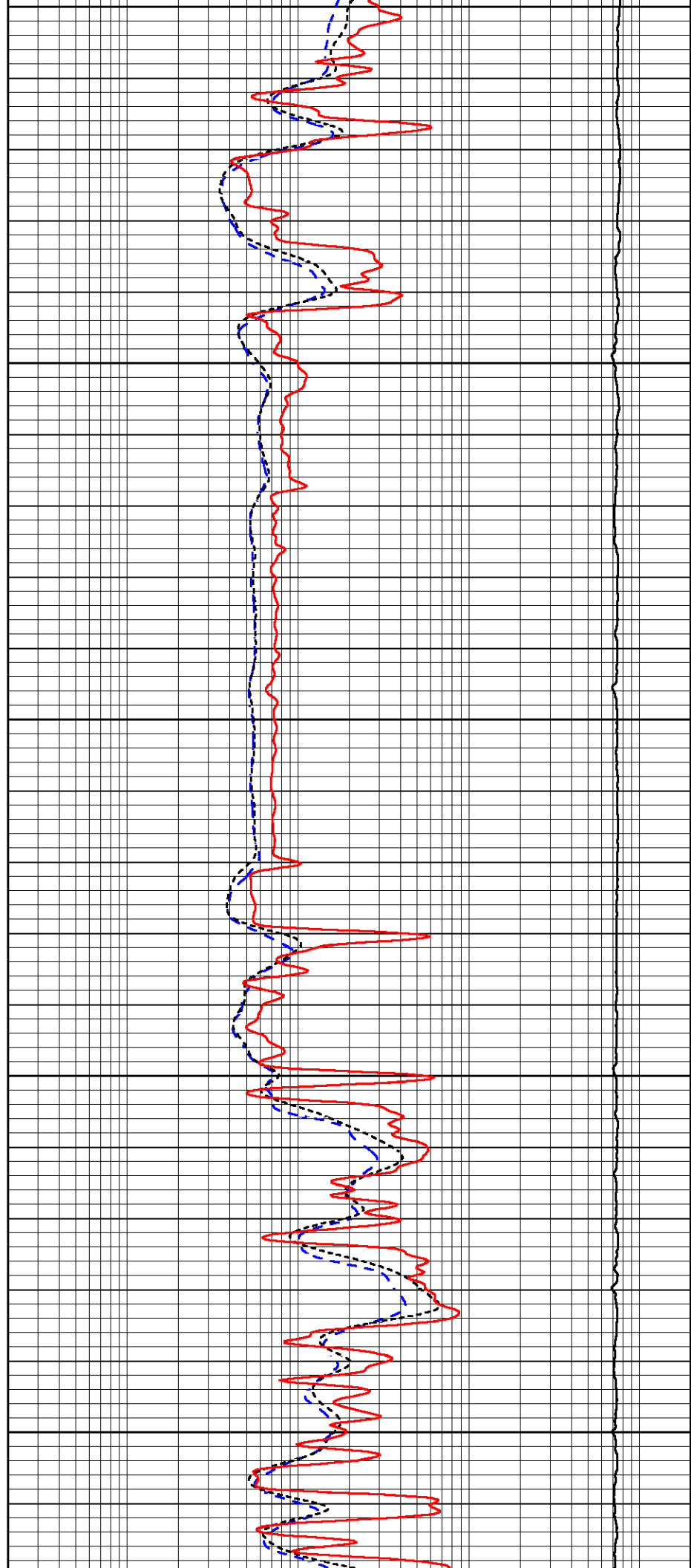
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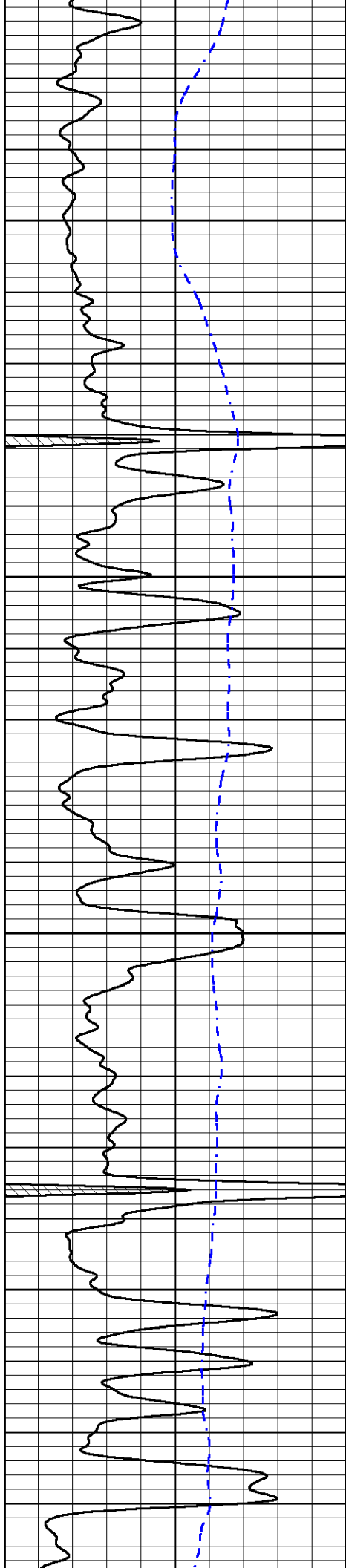
2950

3000

3050

3100





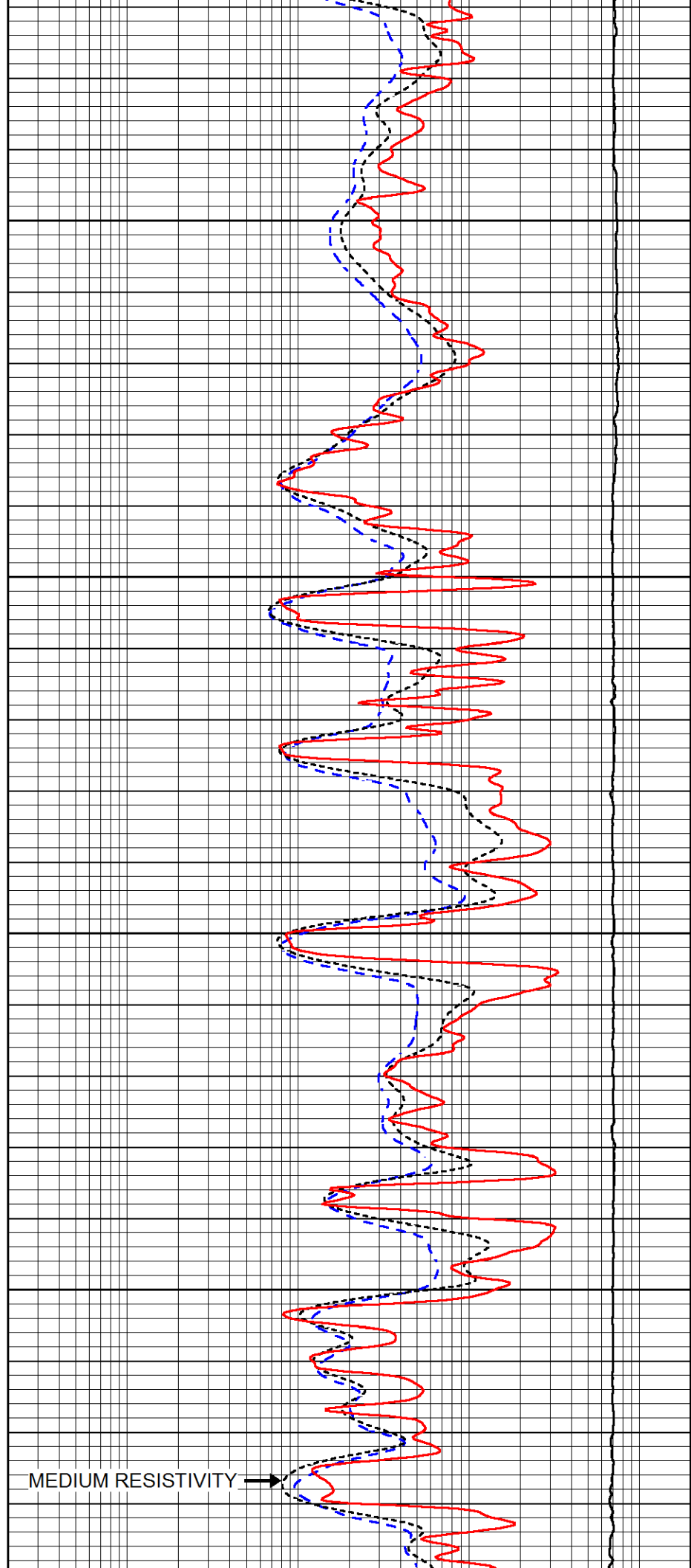
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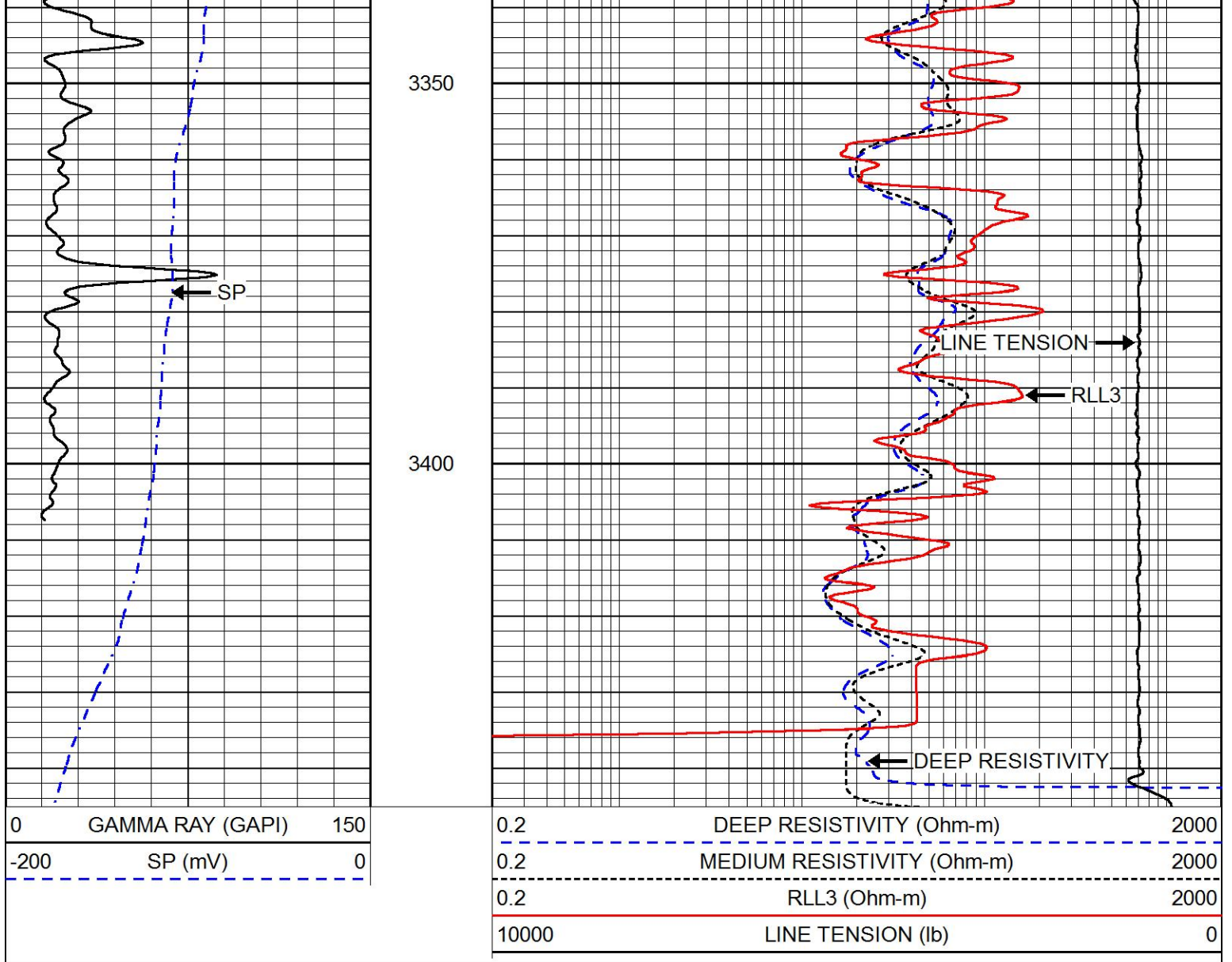
3200

3250

3300

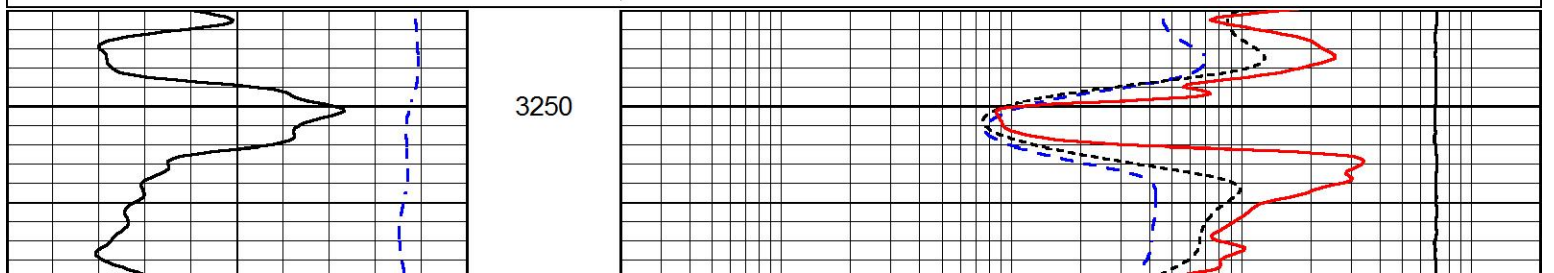
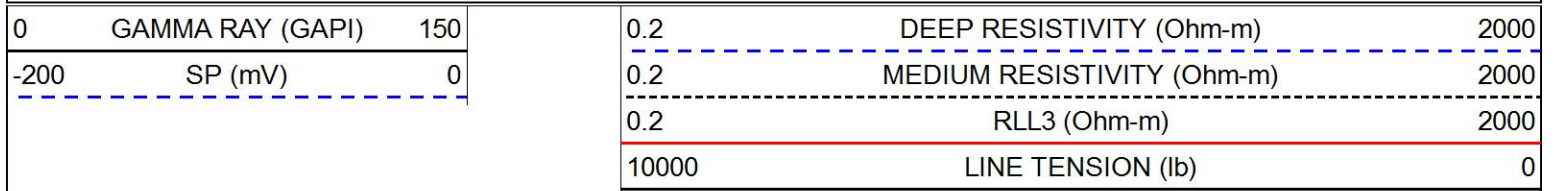
MEDIUM RESISTIVITY →

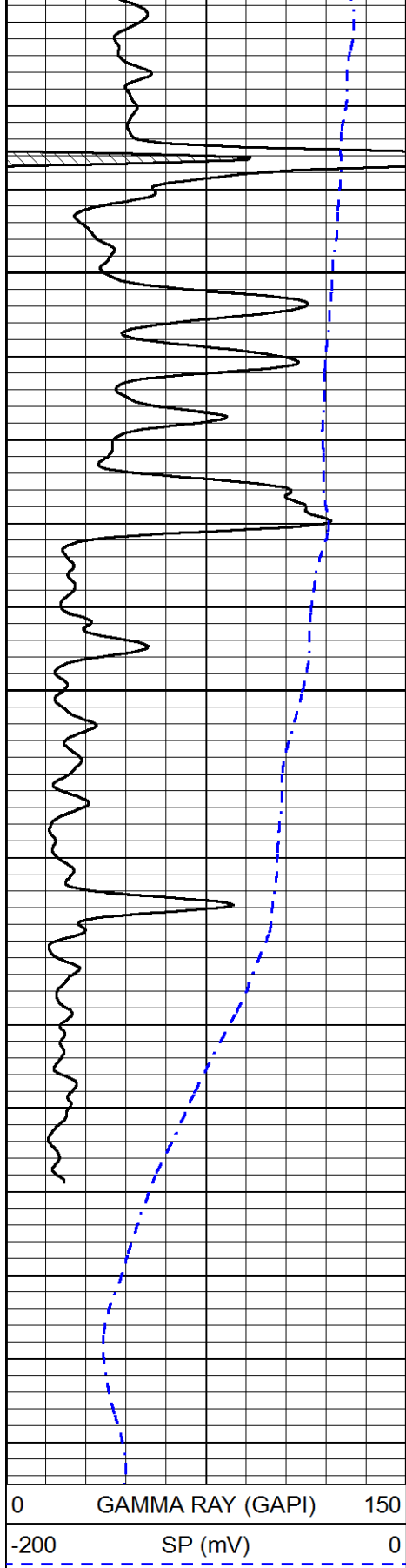




REPEAT SECTION

Database File k-bar_krebiel_1.db
 Dataset Pathname stackmel/pass2.1
 Presentation Format _dil
 Dataset Creation Thu Jun 13 18:29:13 2019
 Charted by Depth in Feet scaled 1:240



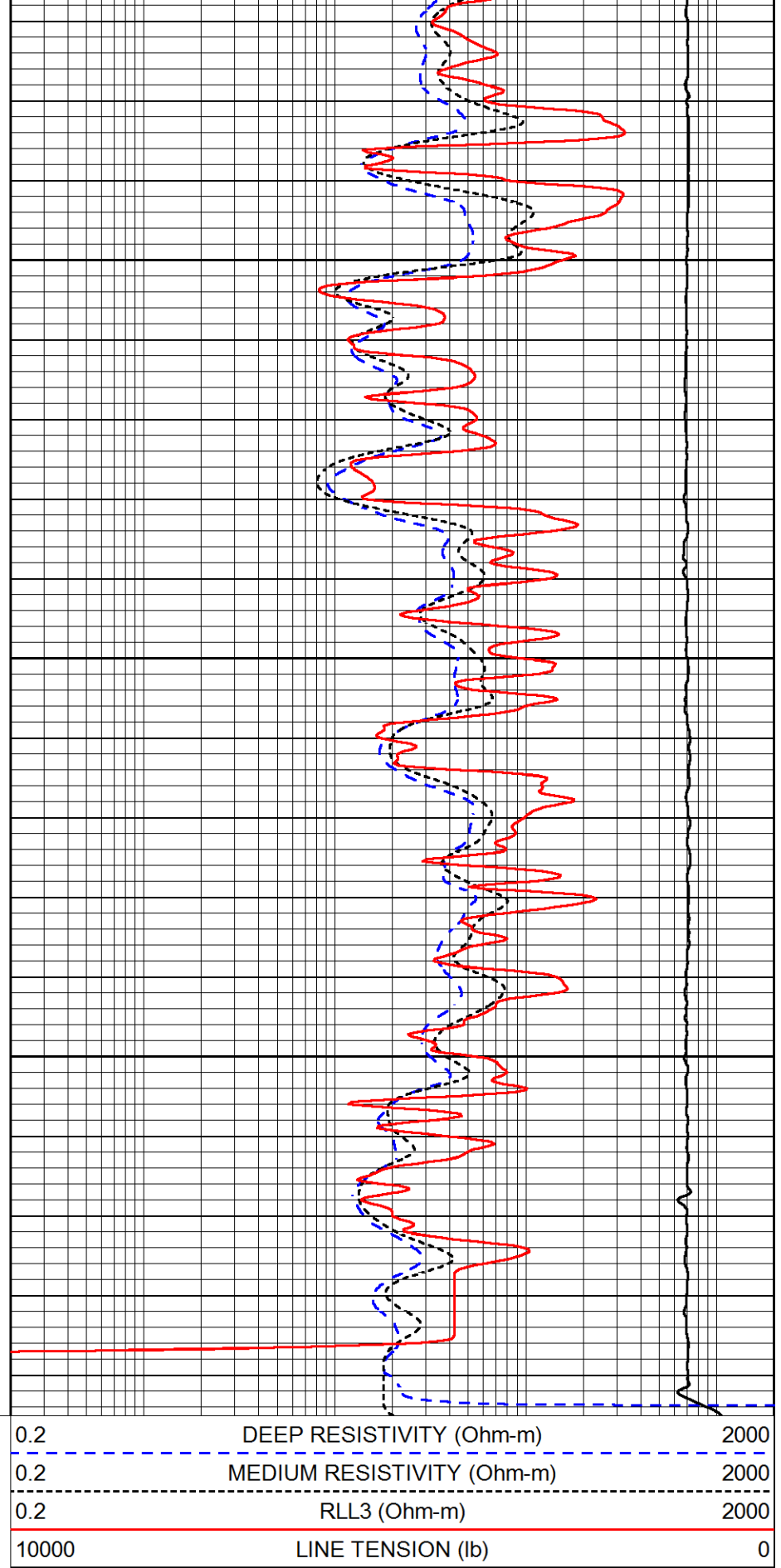


3300

3350

3400

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

Calibration Report

Database File k-bar_krebiel_1.db
 Dataset Pathname stackmel/pass3.1/
 Dataset Creation Thu Jun 13 18:25:03 2019

Dual Induction Calibration Report

Serial-Model: 1039-PSI HIGH TEMP
 Calibration Performed: Fri Apr 12 09:39:54 2019

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.460	-17.500
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.400	-40.000

Microlog Calibration Report

Serial-Model: PSI-01-PSIML
 Performed: Sun Feb 24 09:53:40 2019

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	76000.0000	-3.5000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	63000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.9000

Compensated Density Calibration Report

Serial-Model: 96-916-M&W
 Source / Verifier: 16955B / 2ci
 Master Calibration Performed: Wed Mar 27 11:00:53 2019

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	8943.64	10054.60	cps
Aluminum	2.655	g/cc	1595.61	6242.82	cps
Spine Angle = 74.54			Density/Spine Ratio = 0.503		
	Size		Reading		
Small Ring	6.00	in	1.75		
Large Ring	16.00	in	1.46		

Compensated Neutron Calibration Report

Serial Number: 207-MW
 Tool Model: M&W
 Calibration Performed: WED FEB 13 10:30:30 2019

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: 233-M&W
 Tool Model: M&W
 Calibration Performed: Fri Feb 07 01:42:40 2014

Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.5500	GAPI/cps



PIONEER

Pioneer Energy Services

Company	K-BAR OIL
Well	KREBIEL #1
Field	RICK
County	BARTON
State	KANSAS