



PIONEER
Pioneer Energy Services

DUAL INDUCTION LOG

Company PICKRELL DRILLING COMPANY, INC.
Well STARRETT B #5
Field START
County NESS
State KANSAS

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Location: API #: 15-135-26044-00-00

1760' FNL & 2310' FEL

SEC 12 TWP 17S RGE 21W

Permanent Datum GROUND LEVEL Elevation 2168'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 2175'
D.F. N/A
G.L. 2168'

Date 1/26/2019

Run Number ONE

Depth Driller 4150'

Depth Logger 4120'

Bottom Logged Interval 4119'

Top Log Interval 400'

Casing Driller 8.625" @ 430'

Casing Logger 429'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 7000

Density / Viscosity 8.6 54

pH / Fluid Loss 10.0 12.4

Source of Sample FLOWLINE

Rm @ Meas. Temp .58 @ 71

Rmt @ Meas. Temp .44 @ 71

Rmc @ Meas. Temp .78 @ 71

Source of Rmt / Rmc CHARTS

Rm @ BHT .35 @ 118

Operating Rig Time 2 HOURS

Max Rec. Temp. F 118 DEGF

Equipment Number 108

Location HAYS

Recorded By J. HENRICKSON

Witnessed By AARON YOUNG

<<< Fold Here >>>

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.

MCCRACKEN KANSAS

1 WEST ON ASH, 1/4 NORTH, 1/2 WEST, NORTH INTO

Log Measured From: KELLY BUSHING 7 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew

Engineer: J. HENRICKSON
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: AARON YOUNG
Secondary Witness:
Secondary Witness:
Secondary Witness:

DatabaseC:\ProgramData\Warrior\Data\pickrell_starrett_b_5.db
Dataset field/well/stackml/pass2.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	118	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	110	43	Off	4120

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC	37.48		CNT-M&W (tk10-MW)	5.50	3.50	100.00
CNSSC	36.73					
LSD	28.43		CDL-M&W (144-84)	8.50	4.00	250.00
DCAL	28.42					
SSD	27.93					
MCAL	19.83		ML-PSI STKBL ML (PSI-01) Stackable Microlog Tools	7.58	4.00	65.00
MI	19.83					
MN	19.83					
RLL3	15.80		DIL-M&W (PSI 988)	18.50	3.50	220.00
RLL3F	15.79					
CILD	8.00					

CILM

4.70

SP

0.20

Dataset: pickrell_starrett_b_5.db: field/well/stackml/pass2.1
Total length: 43.08 ft
Total weight: 685.00 lb
O.D.: 4.00 in



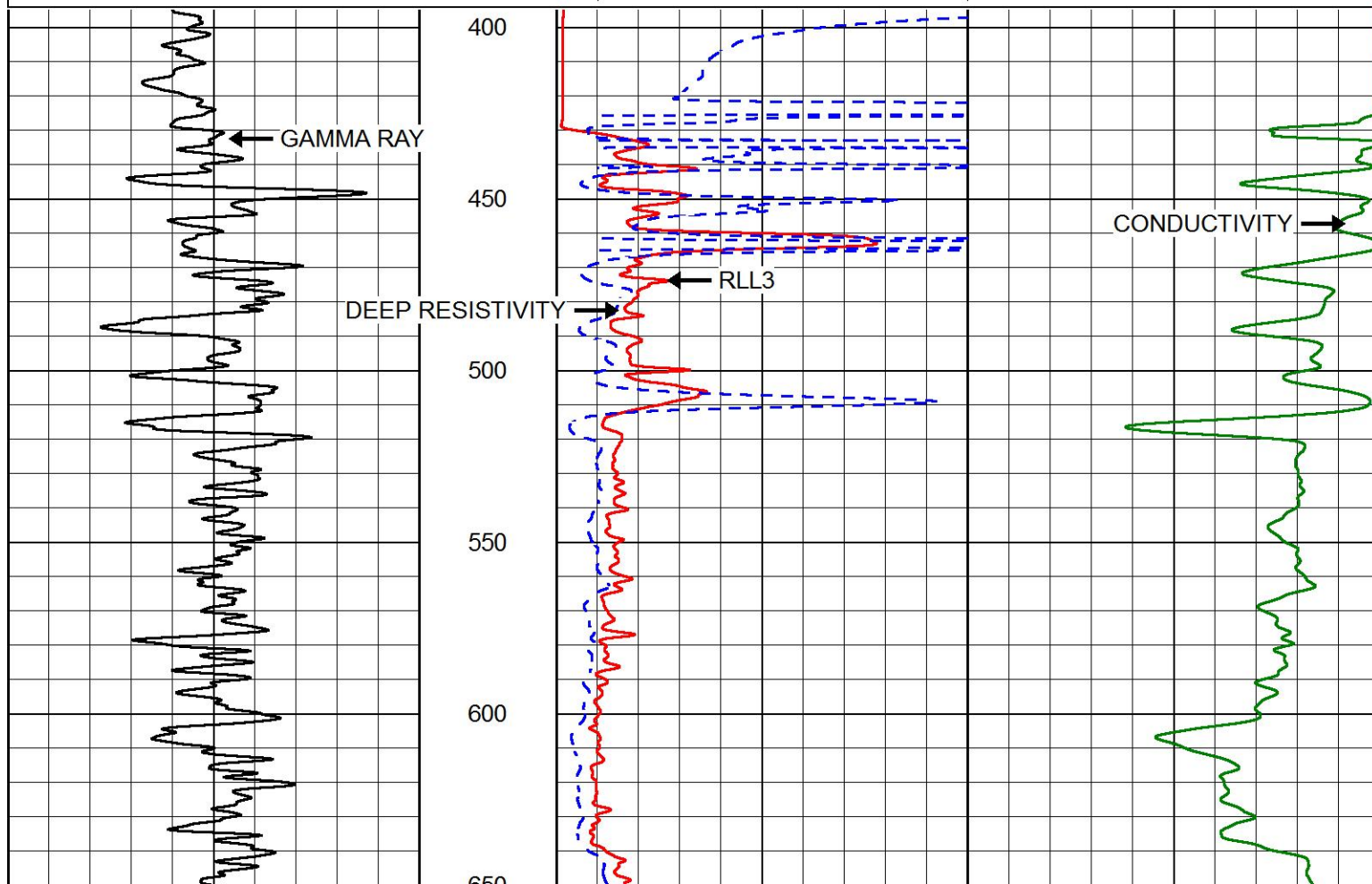
MAIN PASS

Database File pickrell_starrett_b_5.db
Dataset Pathname stackml/pass2.1
Presentation Format dil2in
Dataset Creation Sat Jan 26 12:53:03 2019
Charted by Depth in Feet scaled 1:600

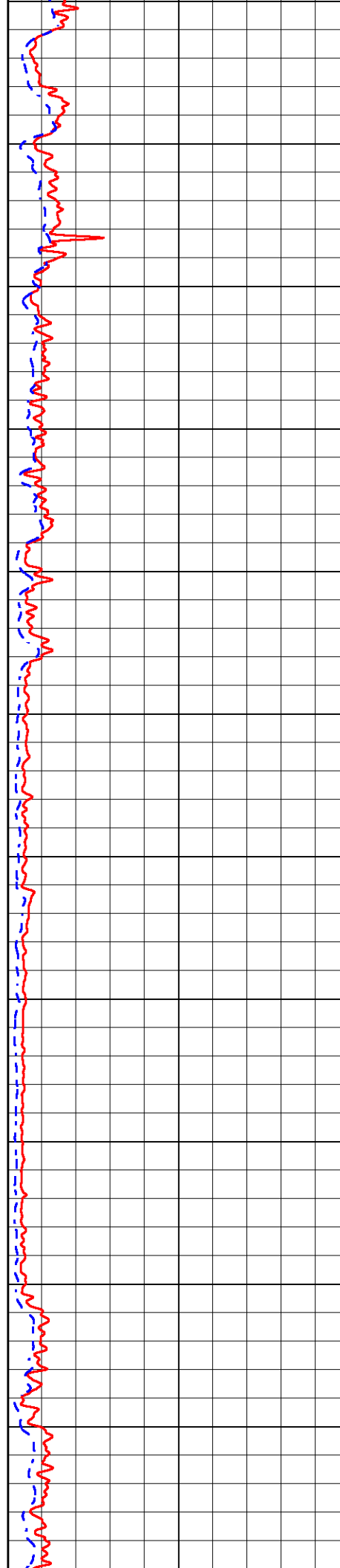
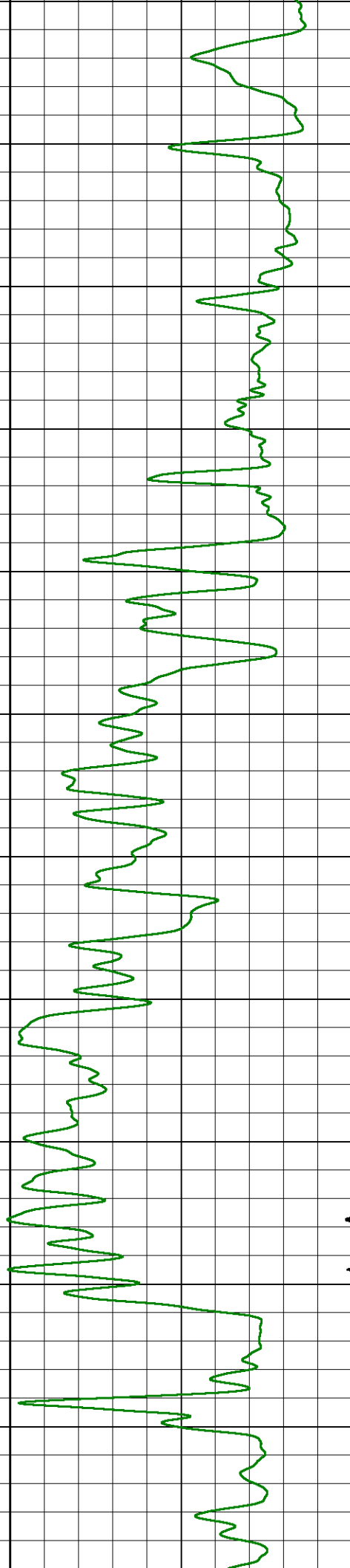
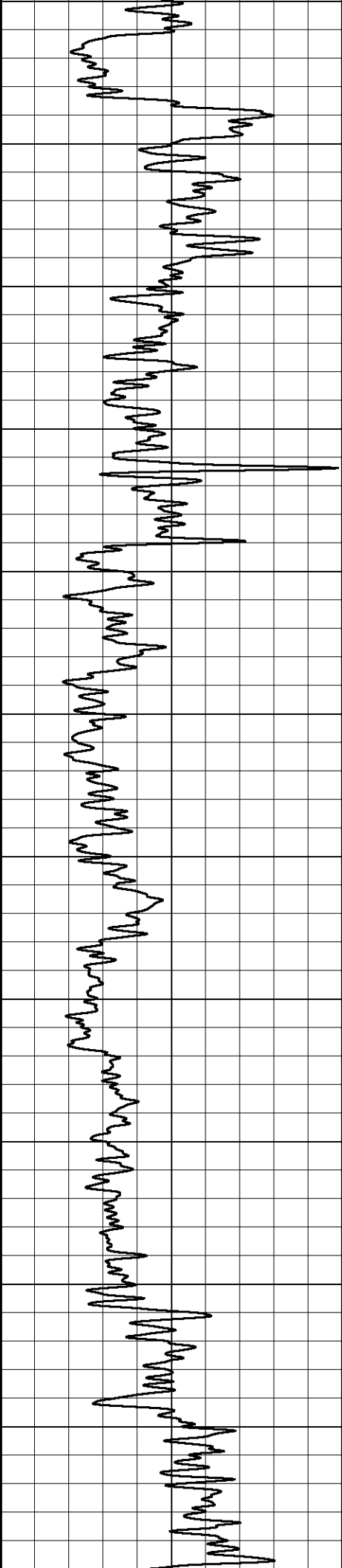
0 GAMMA RAY (GAPI) 150

2000 CILD (mmho/m) 0

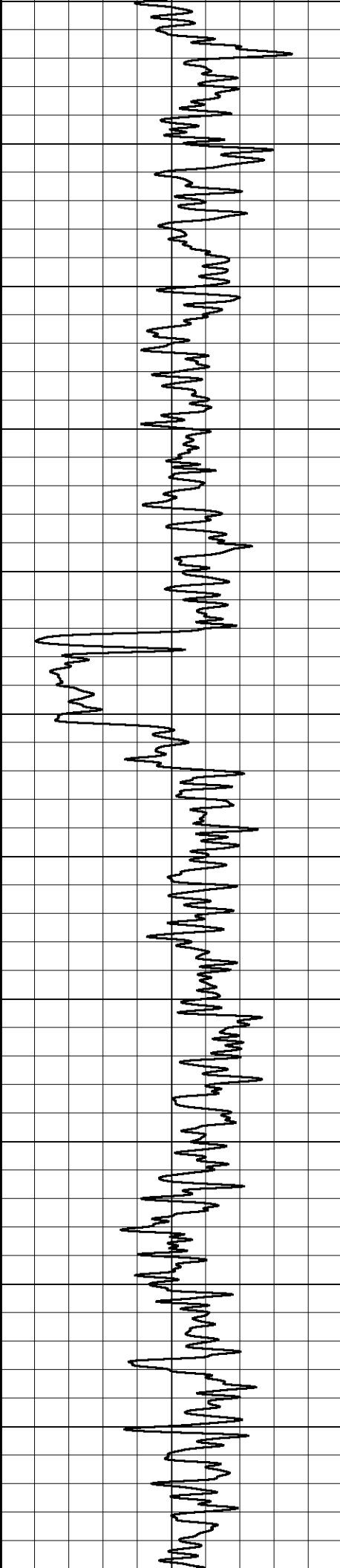
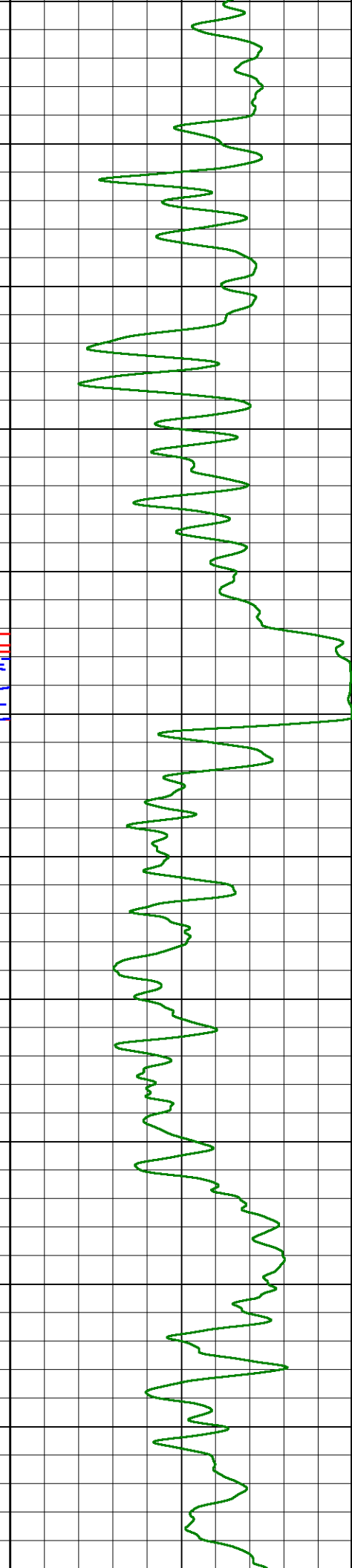
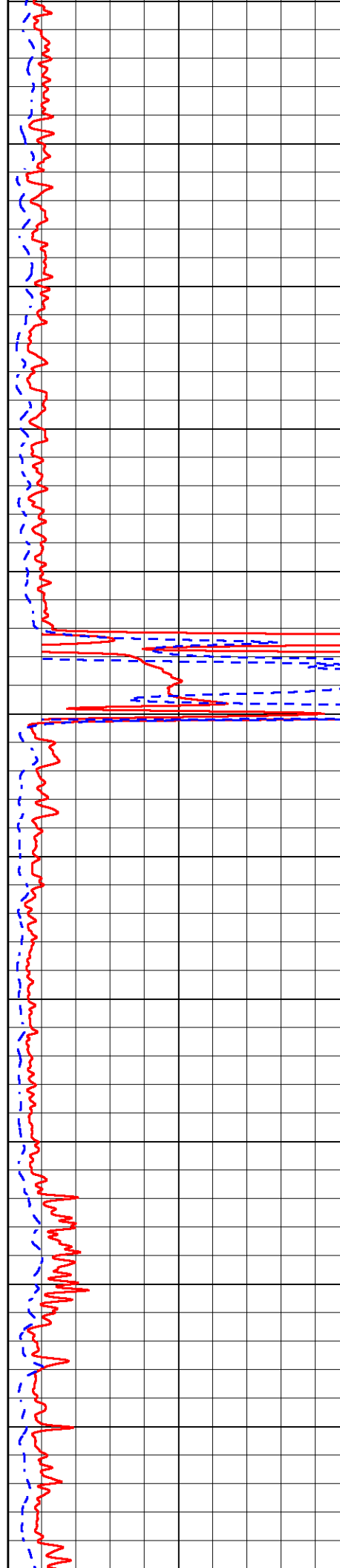
0	RLL3 (Ohm-m)	50
0	DEEP RESISTIVITY (Ohm-m)	50
50	RLL3 (Ohm-m)	200
50	RILD (Ohm-m)	200

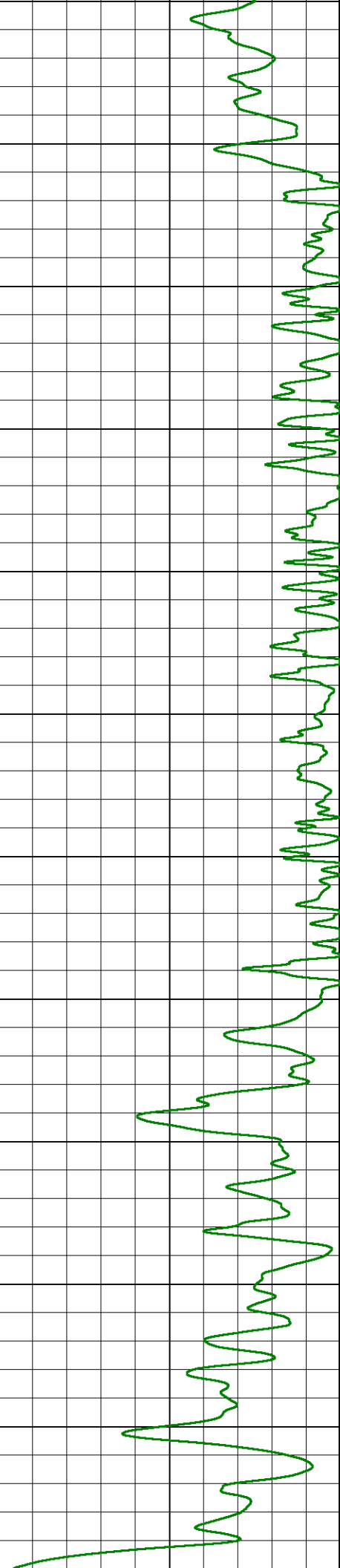
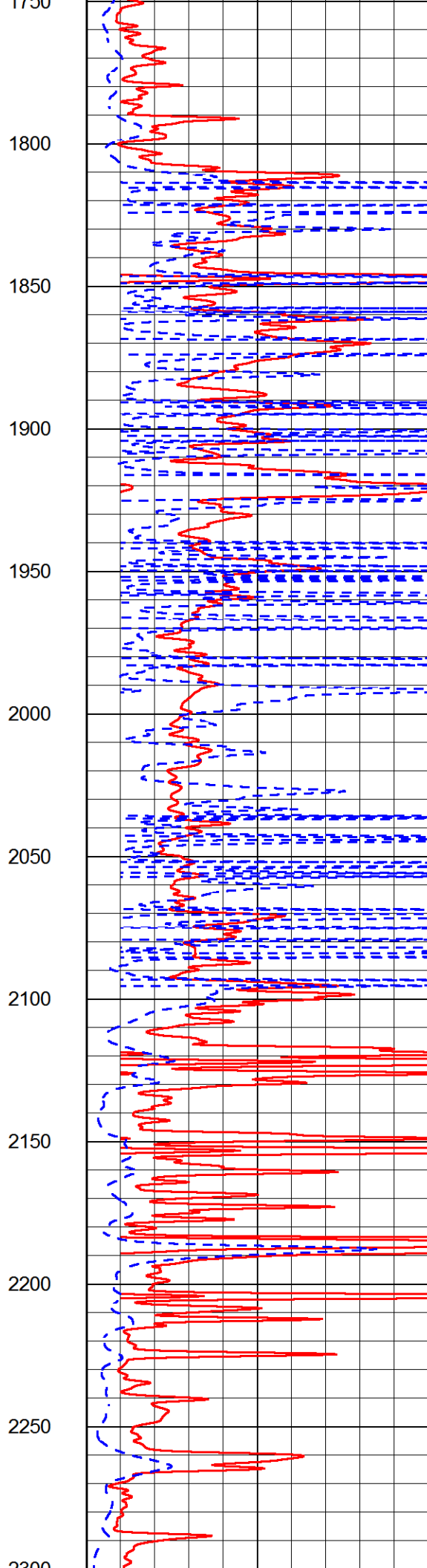
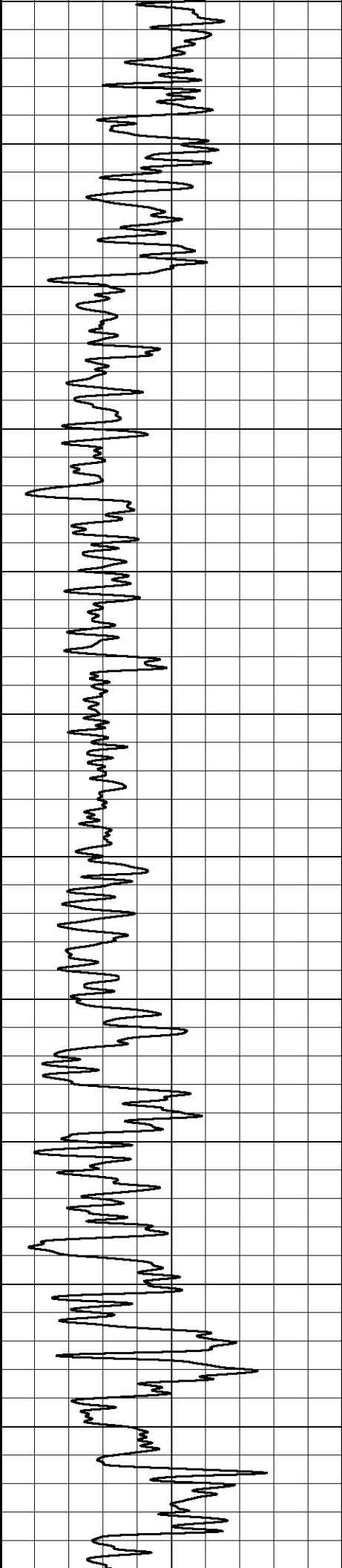


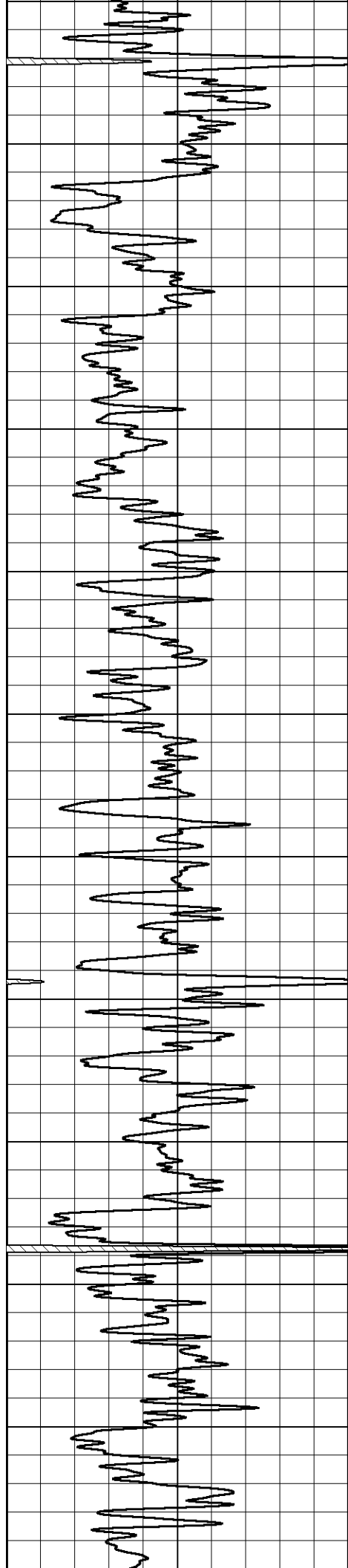
650
700
750
800
850
900
950
1000
1050
1100
1150
1200



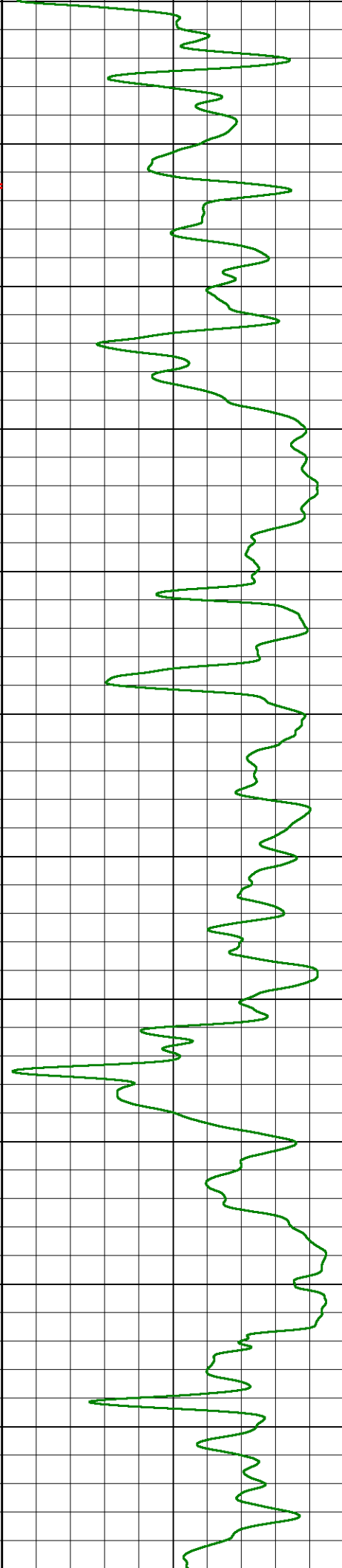
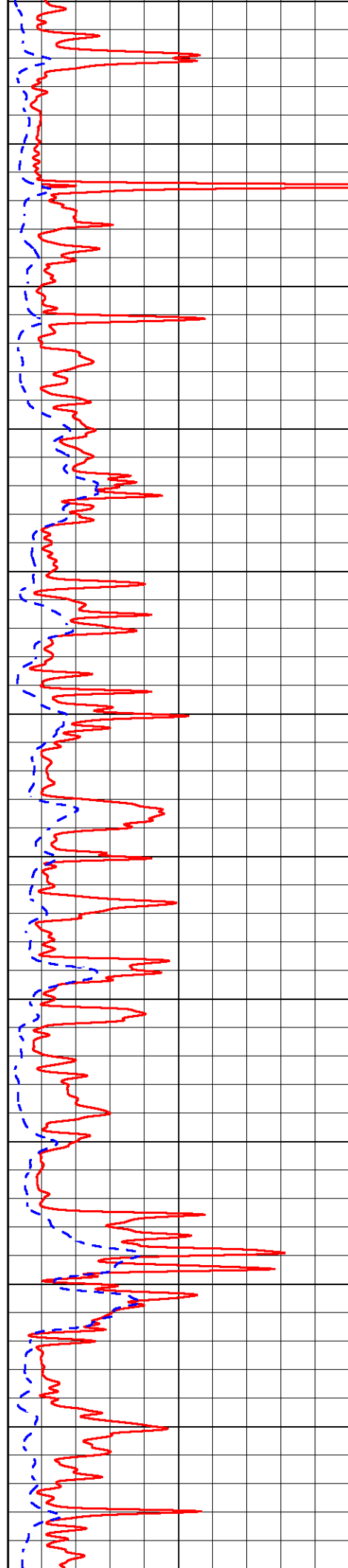
1200
1250
1300
1350
1400
1450
1500
1550
1600
1650
1700
1750

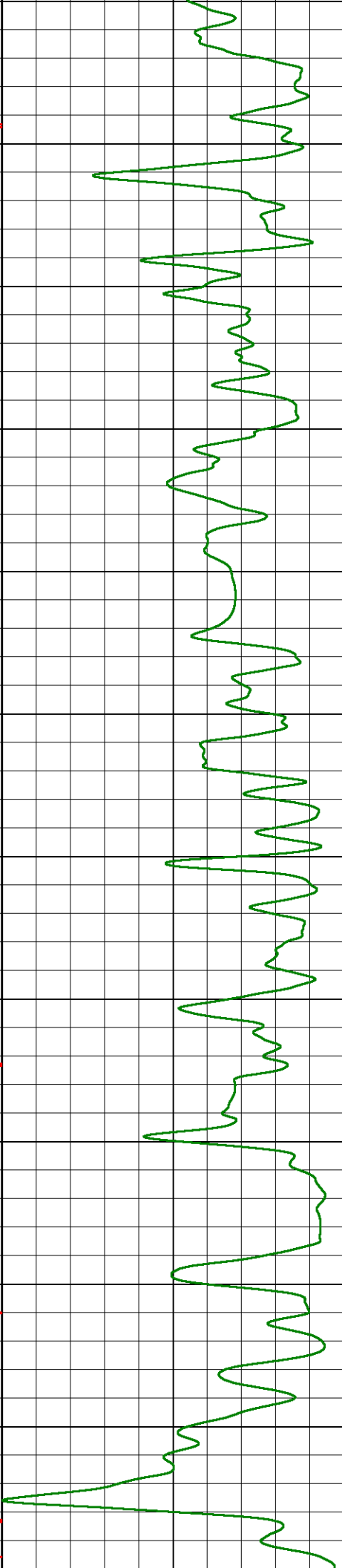
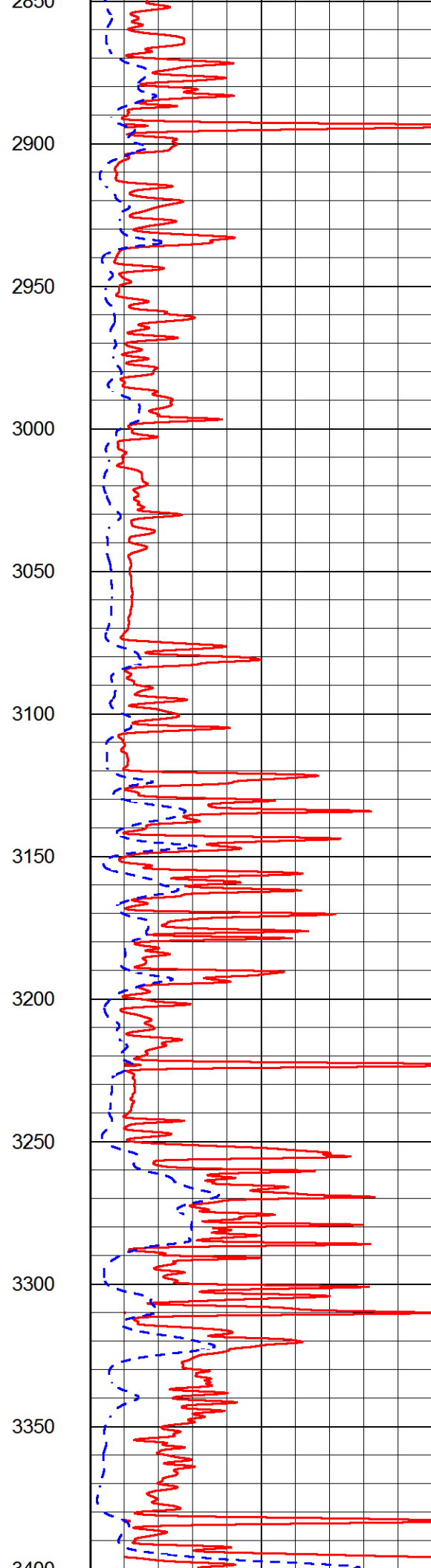
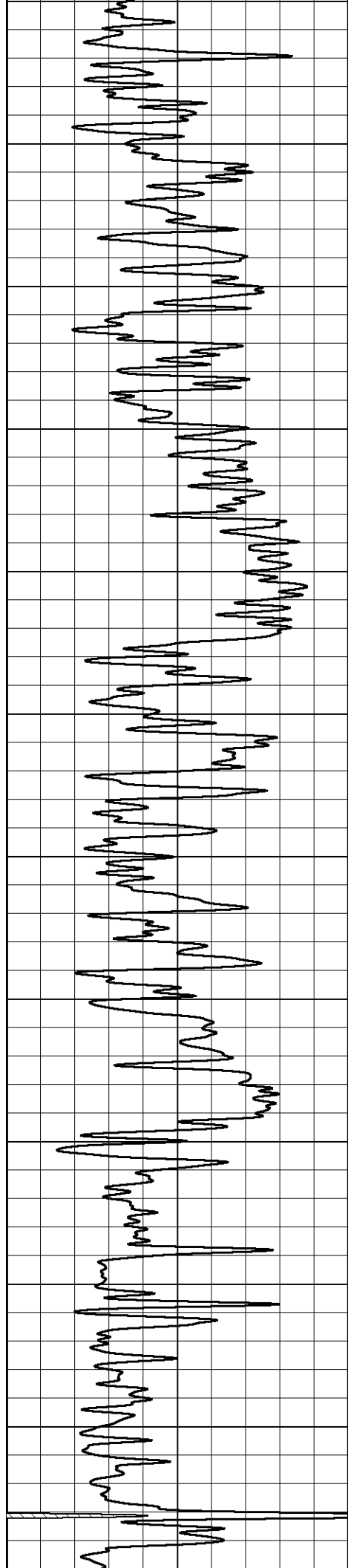


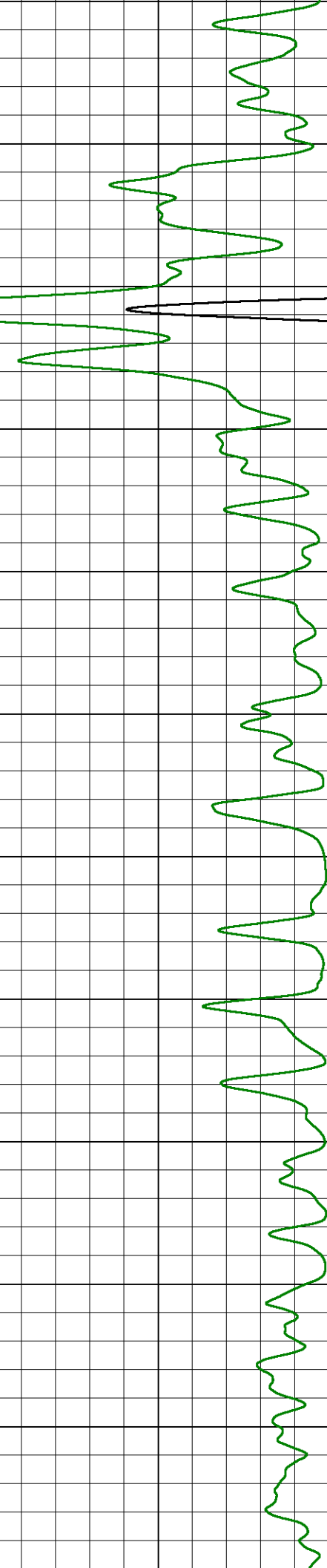
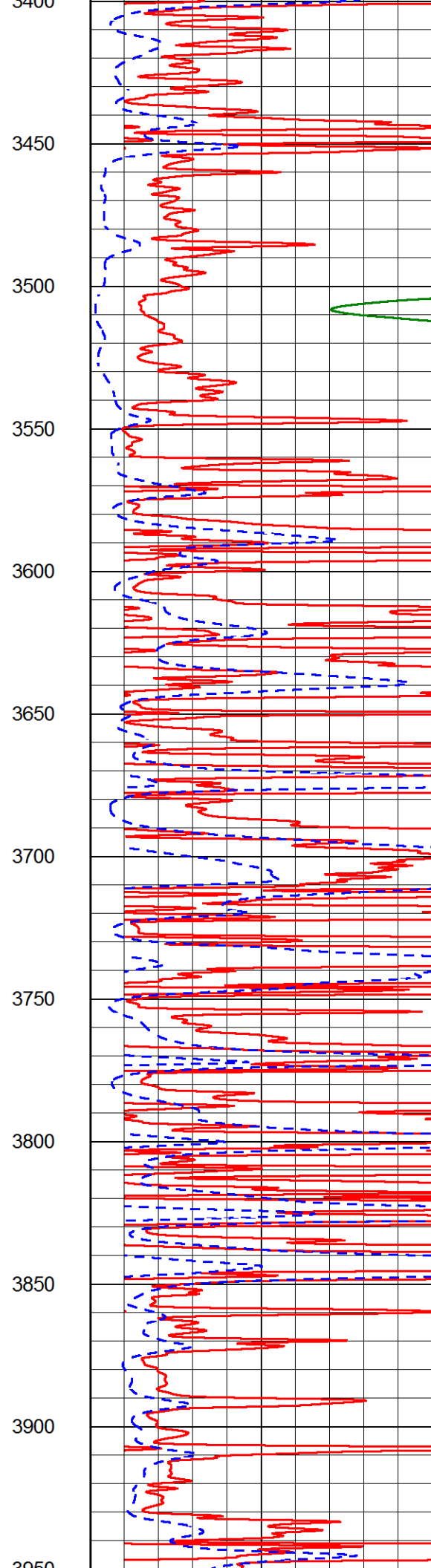
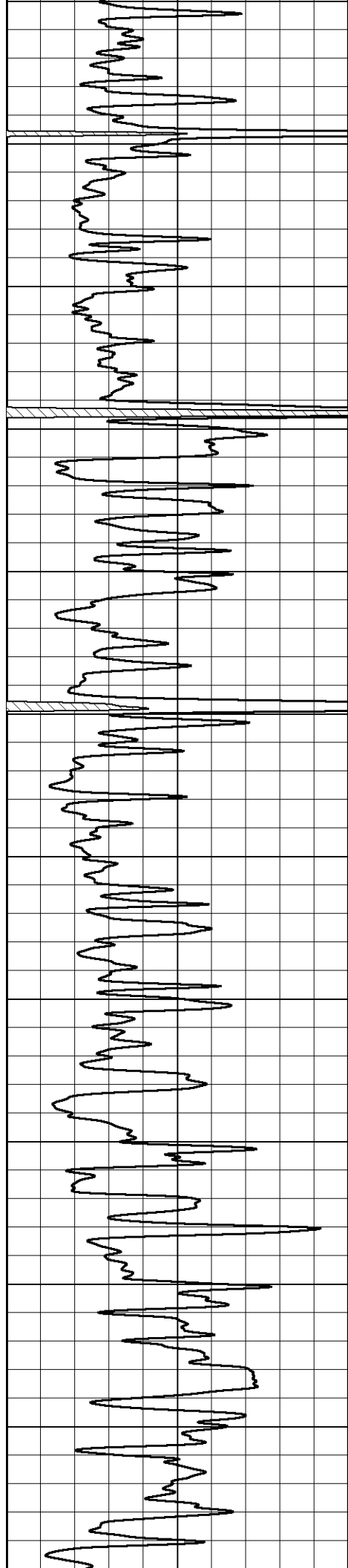


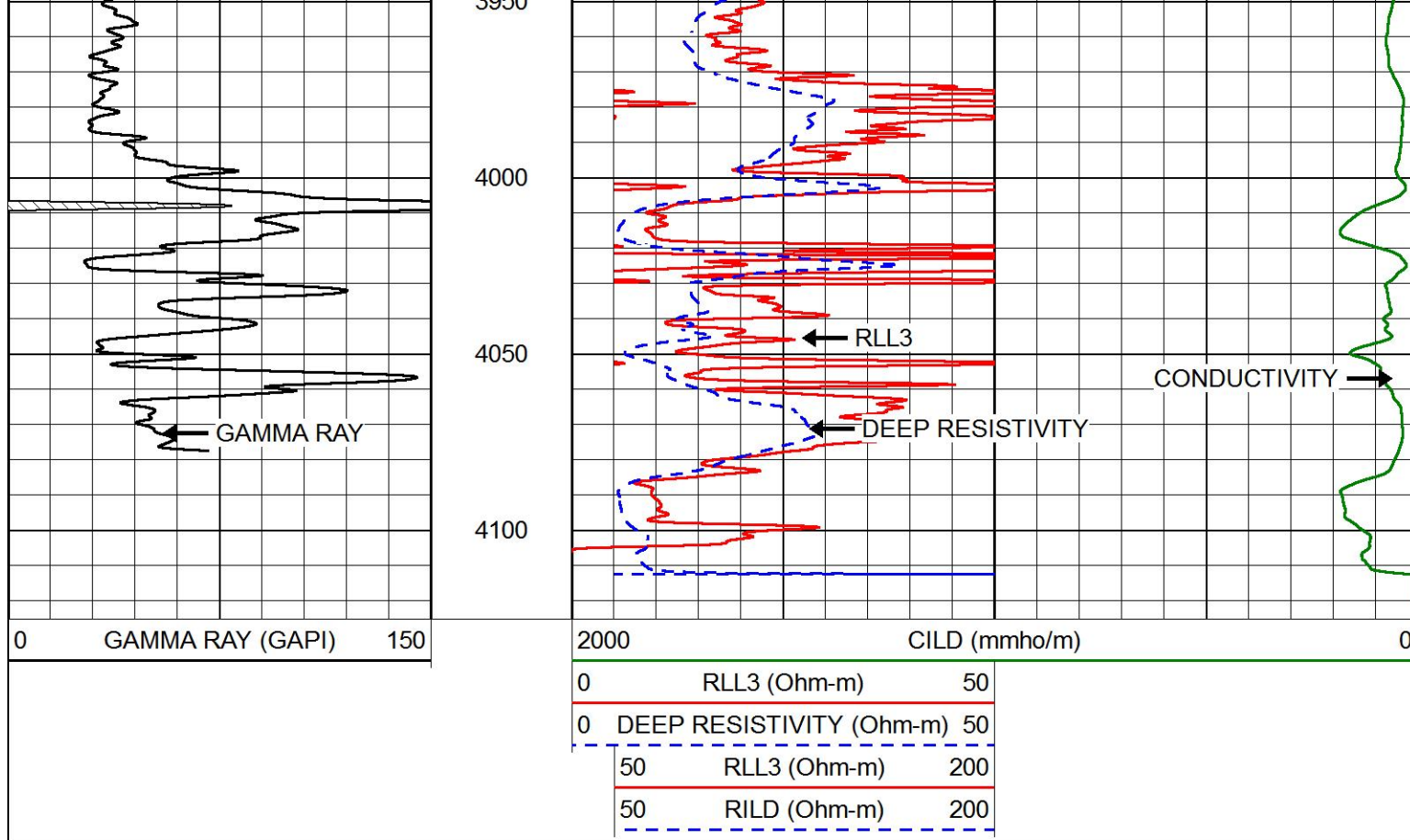


2300
2350
2400
2450
2500
2550
2600
2650
2700
2750
2800
2850





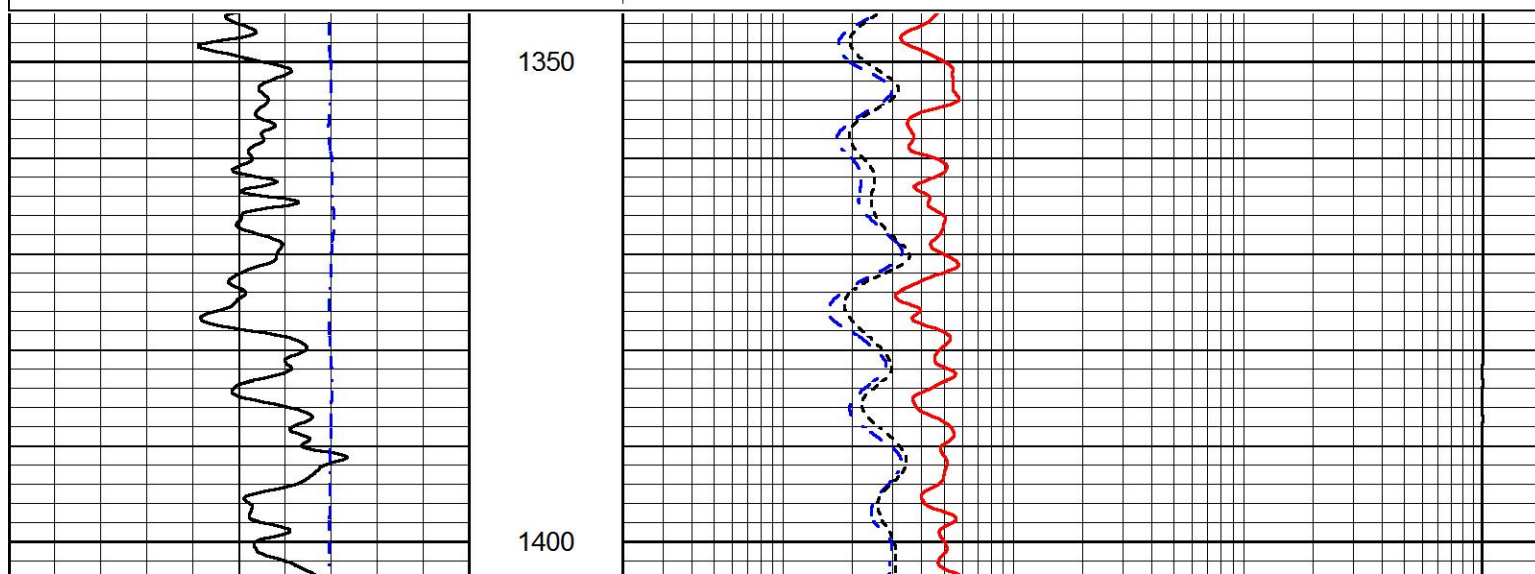


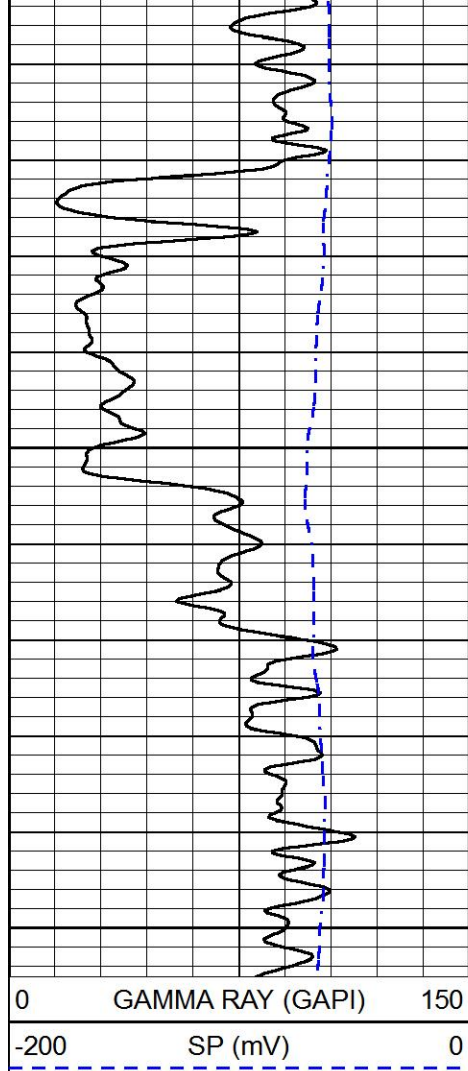


MAIN PASS

Database File: pickrell_starrett_b_5.db
 Dataset Pathname: stackml/pass2.1
 Presentation Format: dil
 Dataset Creation: Sat Jan 26 12:53:03 2019
 Charted by: Depth in Feet scaled 1:240

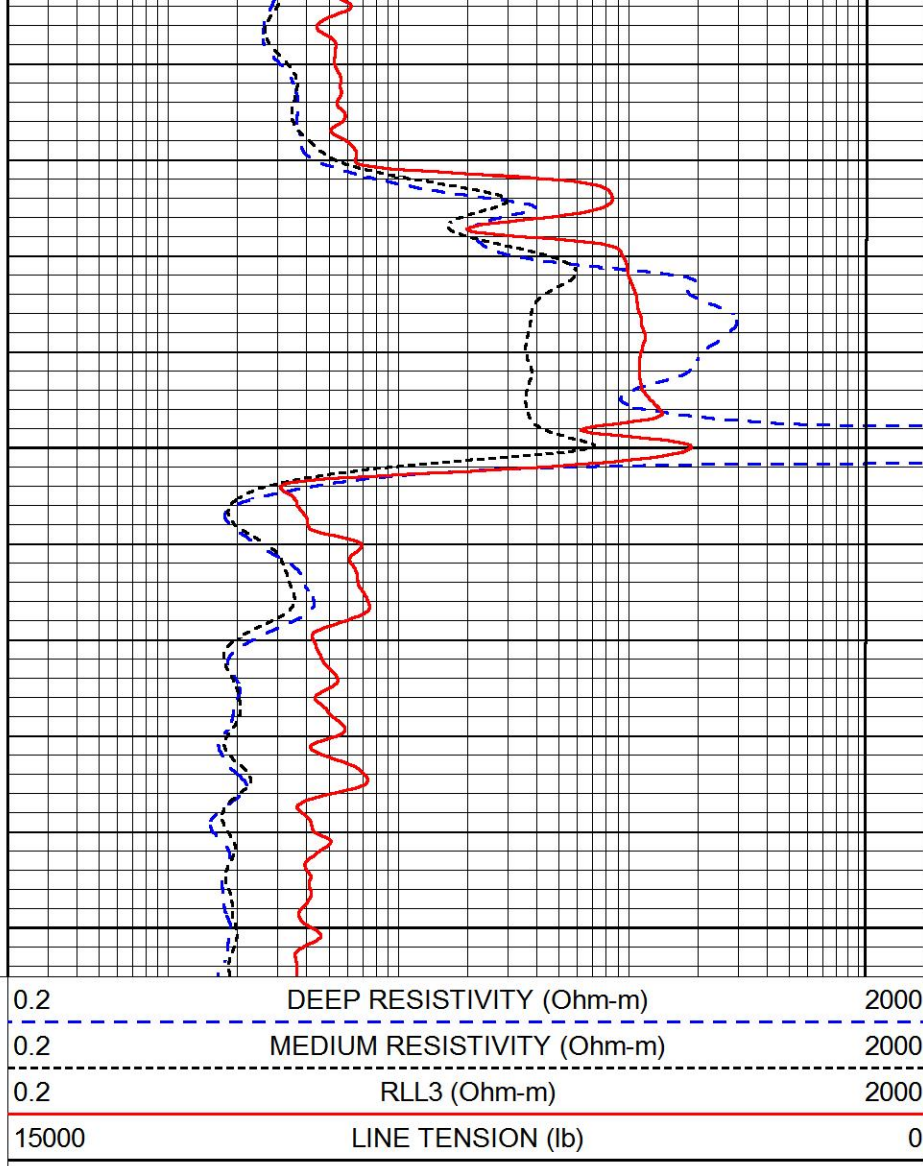
0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0
0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0





1450

1500

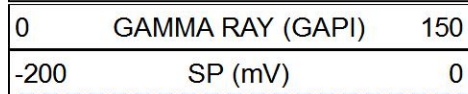


PIONEER

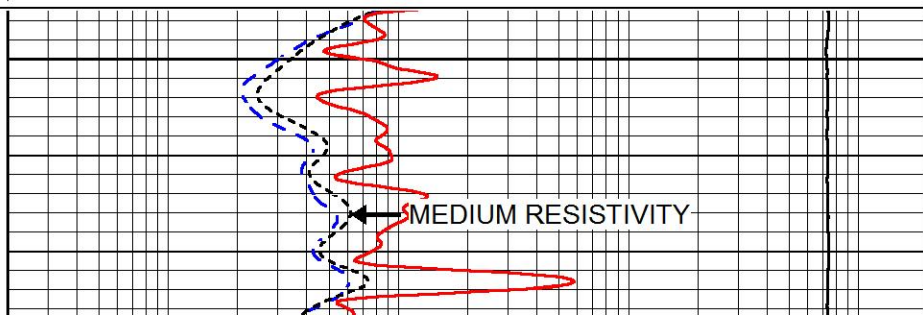
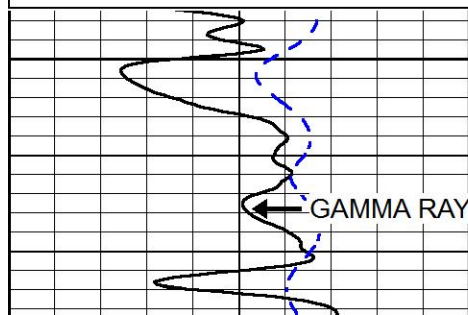
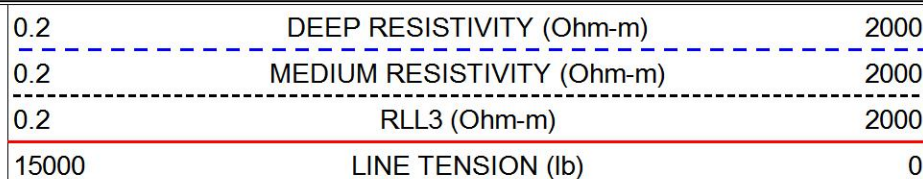
Pioneer Energy Services

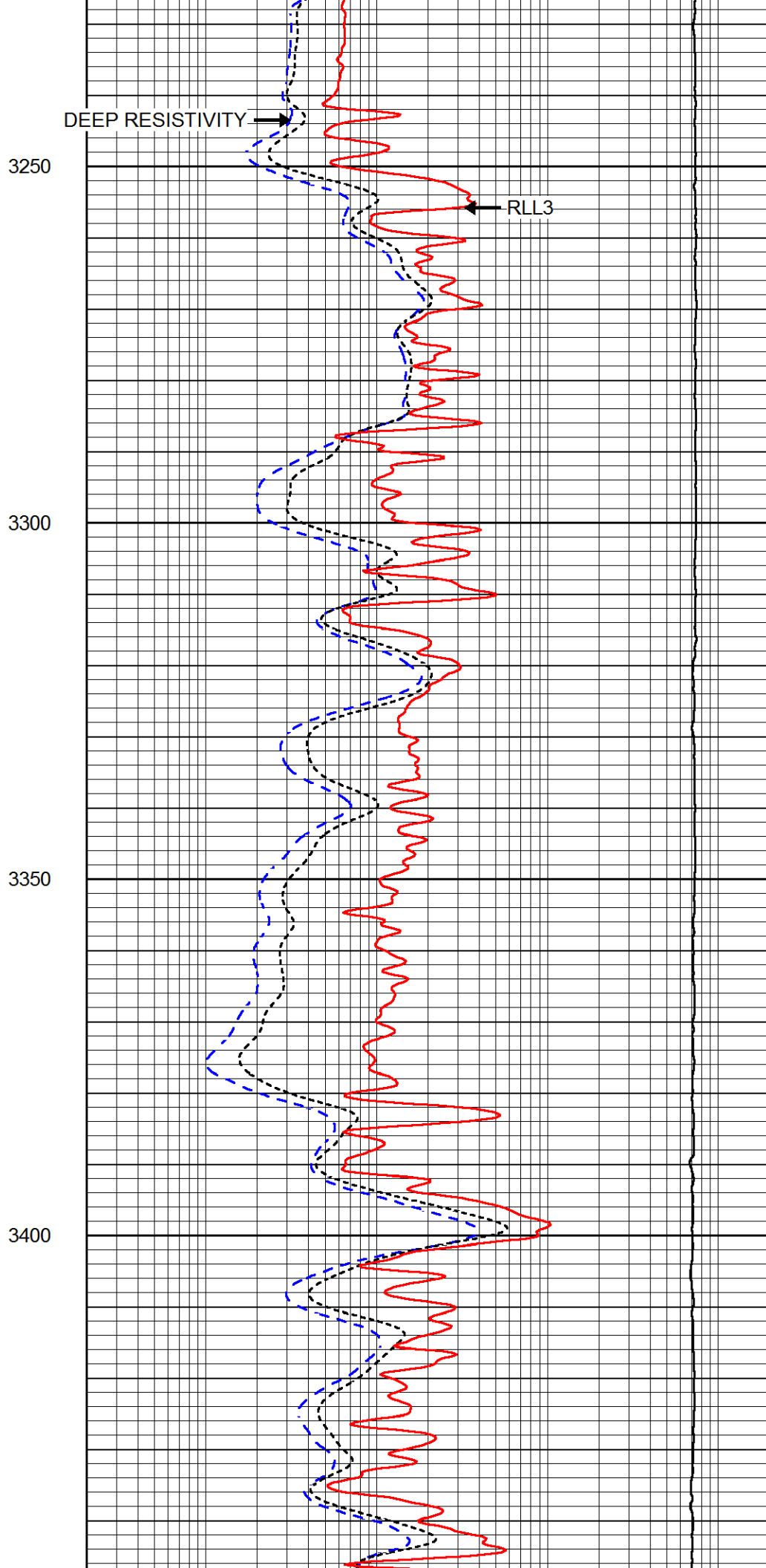
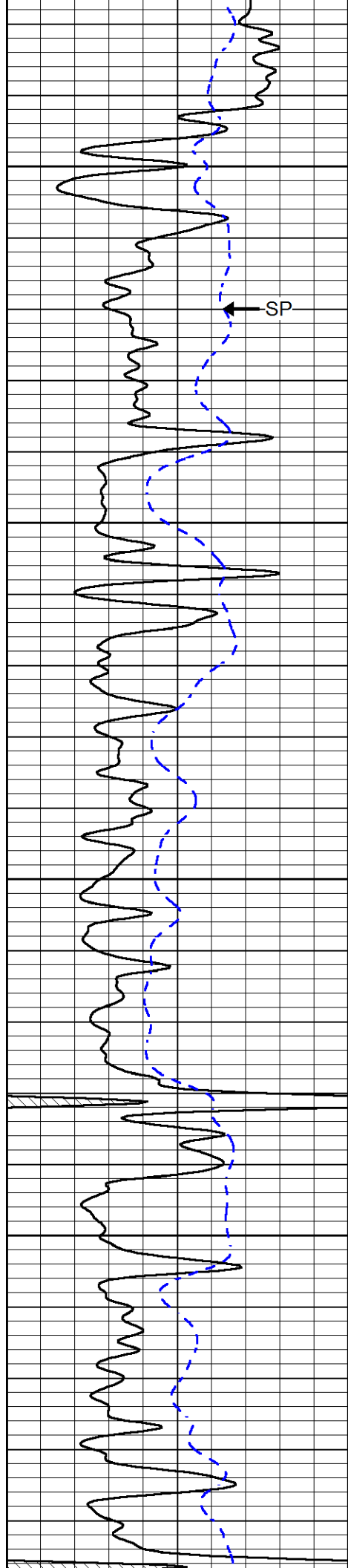
MAIN PASS

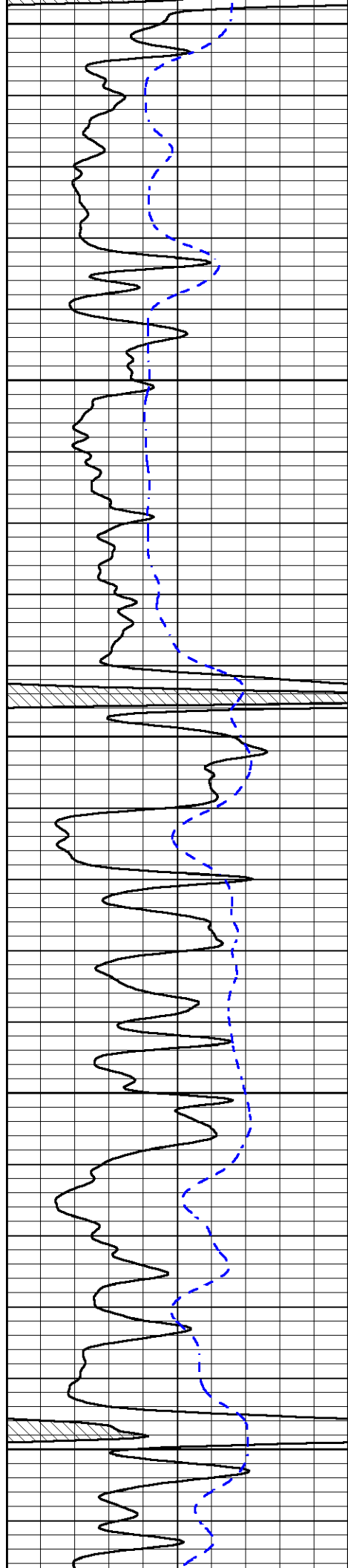
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Dataset Pathname stackml/pass2.1
Presentation Format dil
Dataset Creation Sat Jan 26 12:53:03 2019
Charted by Depth in Feet scaled 1:240



3200







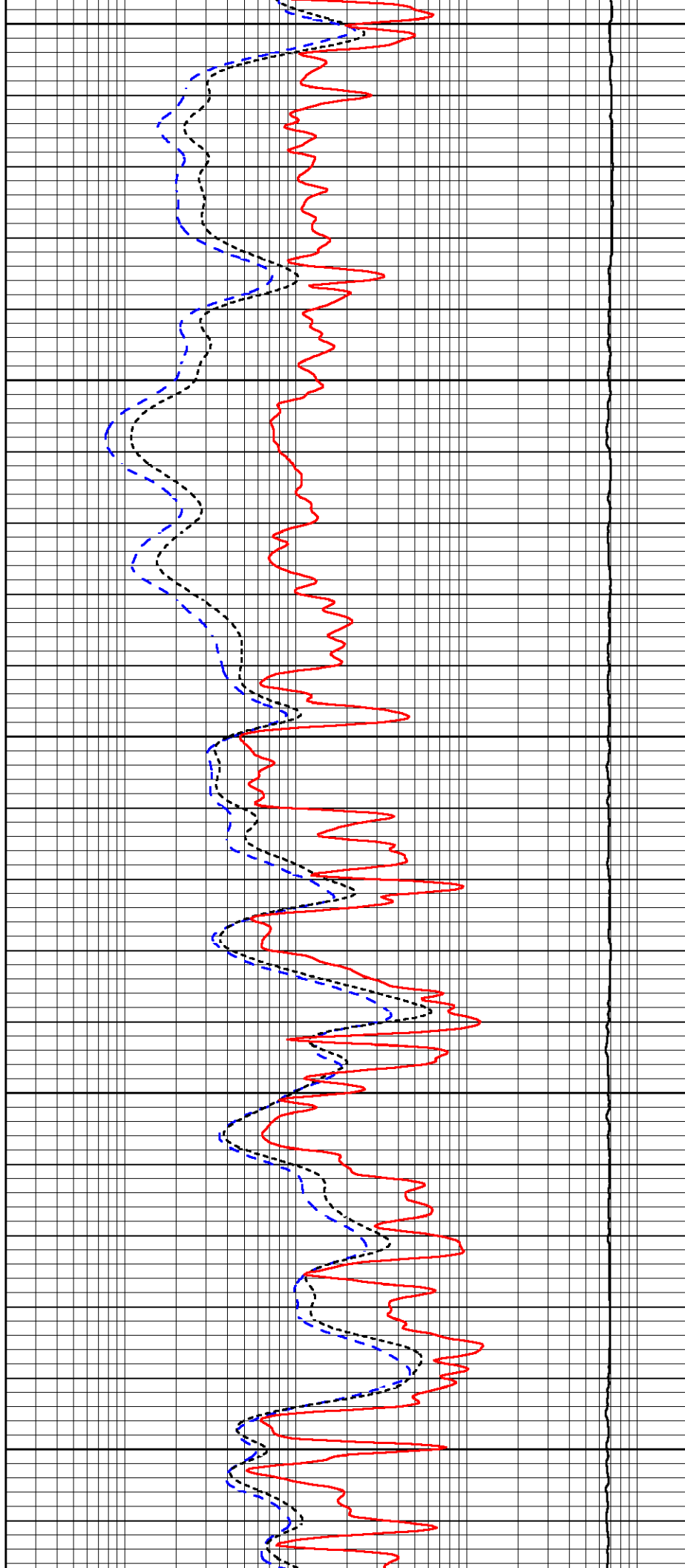
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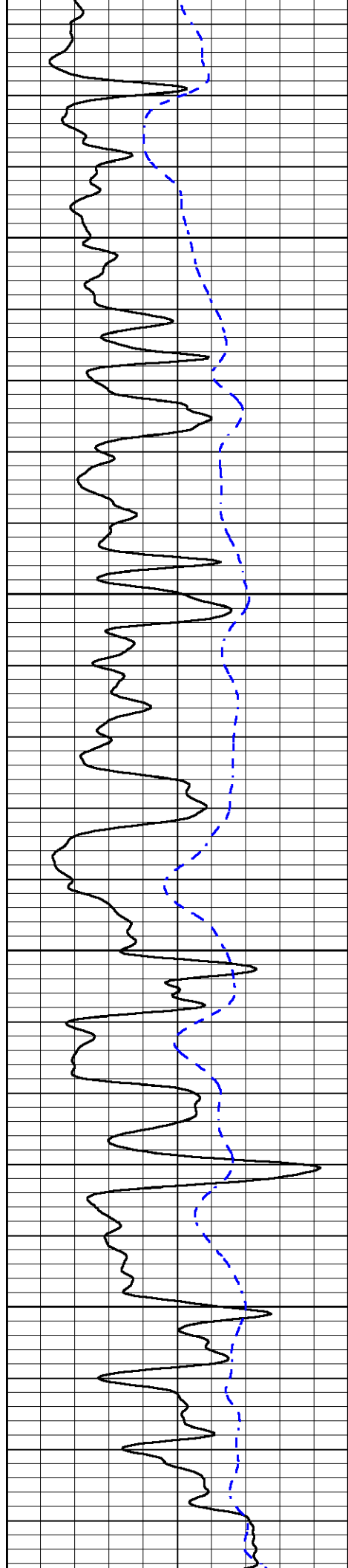
3500

3550

3600

3650



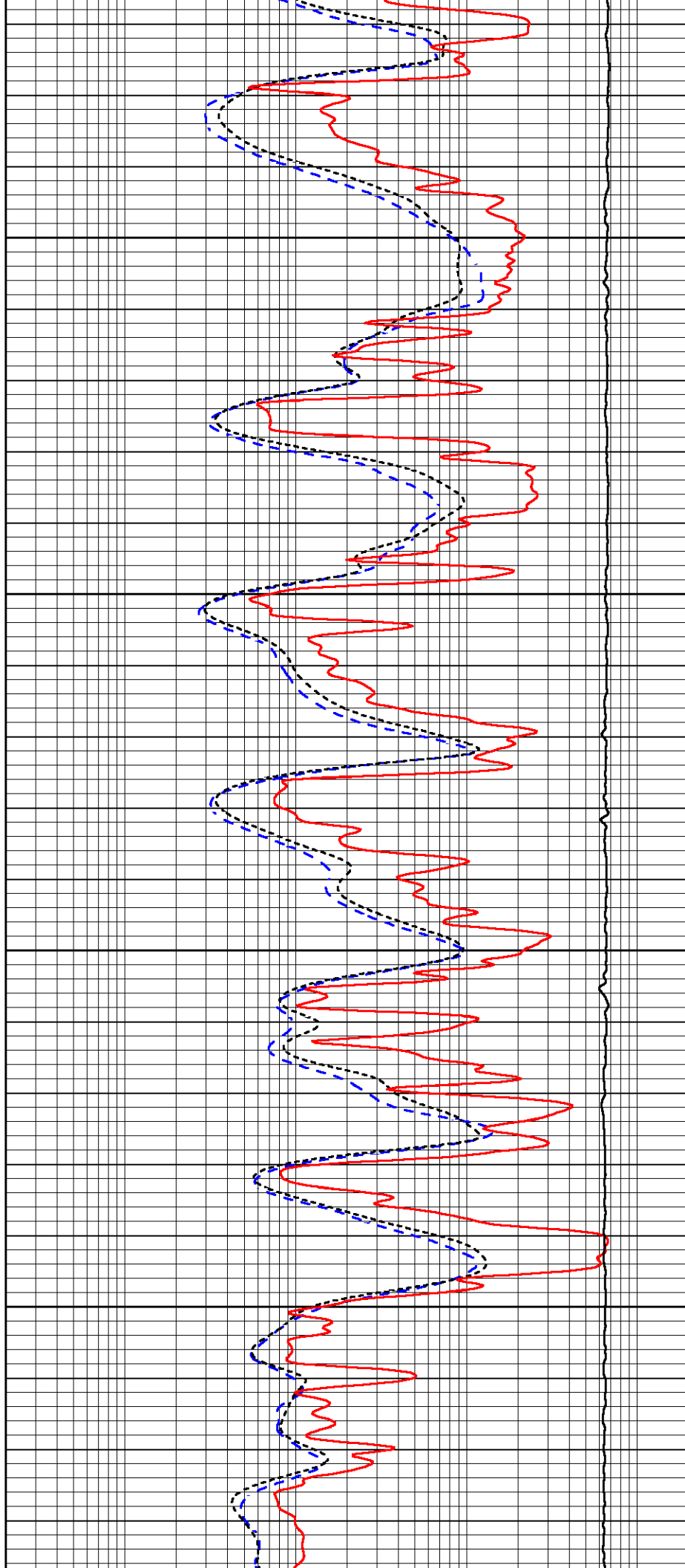


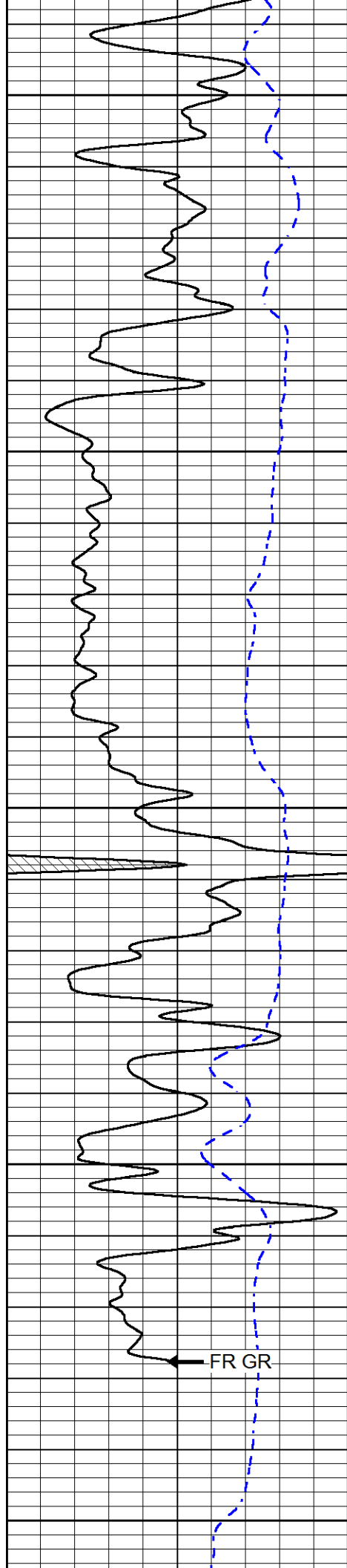
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3750

3800

3850





3900

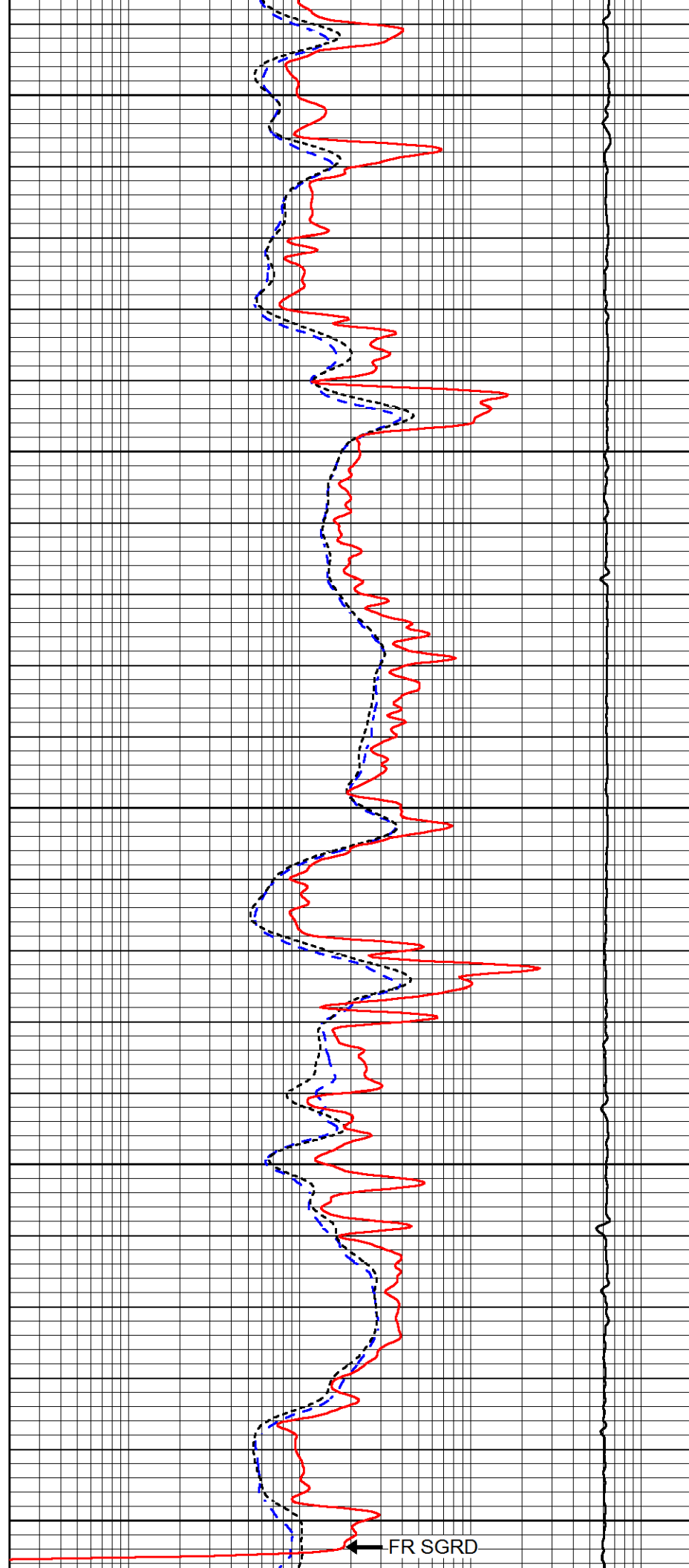
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4000

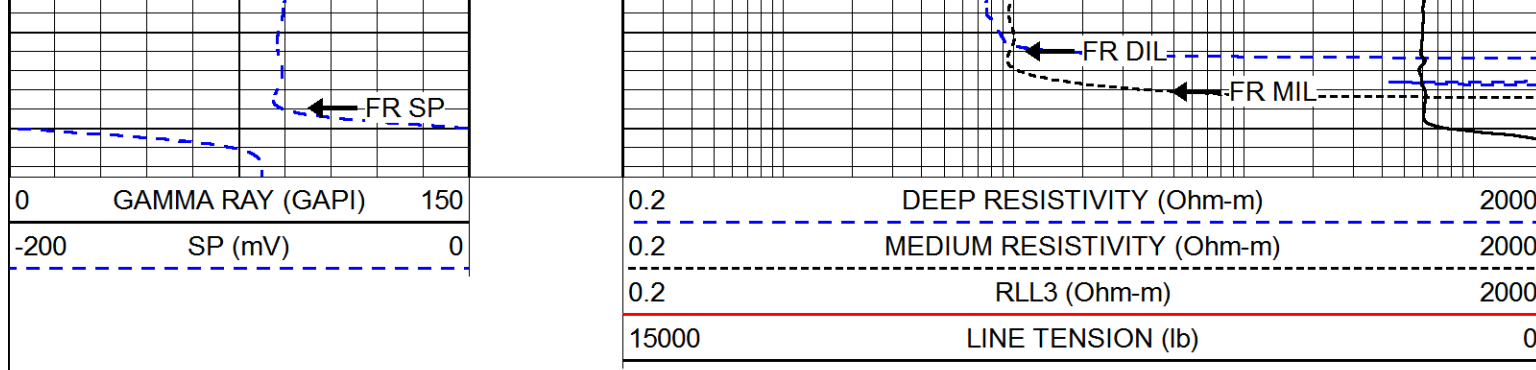
4050

4100

FR GR



FR SGRD



Calibration Report

Database File pickrell_starrett_b_5.db
Dataset Pathname stackml/pass2.1
Dataset Creation Sat Jan 26 12:53:03 2019

Dual Induction Calibration Report

Serial-Model: PSI 988-M&W
Calibration Performed: Tue Nov 20 10:50:19 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.525	-44.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.380	-17.000

Microlog Calibration Report

Serial-Model: PSI-01-PSI STKBL ML
Performed: Thu Mar 31 18:14:32 2016

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	20500.0000	-1.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	23500.0000	-0.7000
Caliper	1.0001	1.1397	6.5000	18.5000	in	86.0000	-82.6000

Compensated Density Calibration Report

Serial-Model: 144-84-M&W
Source / Verifier: /
Master Calibration Performed: Mon Jan 07 15:00:31 2019

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4315.49	5309.89	cps
Aluminum	2.675	g/cc	825.26	3443.46	cps
Spine Angle = 75.33			Density/Spine Ratio = 0.538		
	Size		Reading		
Small Ring	4.00	in	0.69		
Large Ring	14.00	in	0.04		

Compensated Neutron Calibration Report

Serial Number: tk10-MW
Tool Model: M&W
Calibration Performed: Wed Nov 16 11:21:36 2016

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-M&W
Tool Model: M&W
Calibration Performed: Tue Apr 11 17:08:01 2017

Calibrator Value: 1000.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 6.2 cps

Sensitivity: 0.5200 GAPI/cps



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