



PIONEER
Pioneer Energy Services

DUAL INDUCTION LOG

Company **BRUCE OIL COMPANY, LLC**
Well **THIBAUT #3**
Field **KILL CREEK**
County **OSBORNE** State **KANSAS**

Location: API #: 15-141-20477-00-00

Other Services

SEC 22 TWP 8S RGE 14W
1585' FNL & 459' FEL

Permanent Datum GROUND LEVEL Elevation 1870'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING

Elevation
K.B. 1876'
D.F. N/A
G.L. 1870'

Date 5/26/2018

Run Number ONE

Depth Driller 2900'

Depth Logger 2901'

Bottom Logged Interval 2900'

Top Log Interval 800'

Casing Driller 8.625" @ 805'

Casing Logger 804'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 2800

Density / Viscosity 9.1 57

pH / Fluid Loss 11.0 6.0

Source of Sample FLOWLINE

Rm @ Meas. Temp 0.80 @ 88

Rmf @ Meas. Temp 0.60 @ 88

Rmc @ Meas. Temp 1.08 @ 88

Source of Rmf / Rmc CHARTS

Rm @ BHT 0.67 @ 105

Operating Rig Time 3 HOURS

Max Rec. Temp. F 105

Equipment Number 91

Location HAYS

Recorded By D. SCHMIDT

Witnessed By LONNY BRUCE

BOB PETERSEN

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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.

NATOMA,
1/2 EAST TO 657 RD, 11 NORTH TO CURVE,
1 EAST, 1 NORTH, 1 EAST TO CURVE, CONTINUE 5 EAST TO NEXT CURVE,
1 NORTH, 1 EAST, 2 SOUTH,
SOUTH INTO AT TB

Log Measured From: KELLY BUSHING 6 Ft. Above Permanent Datum

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

Your Pioneer Energy Services Crew

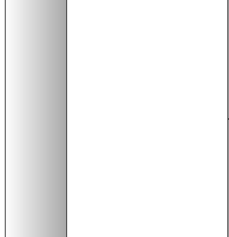
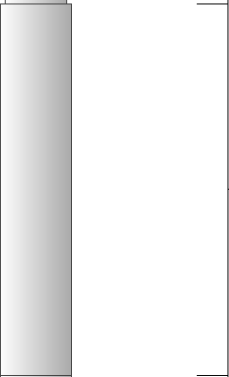
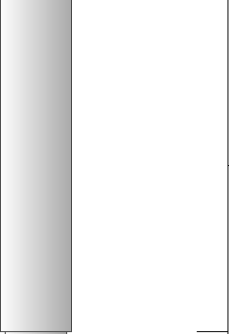
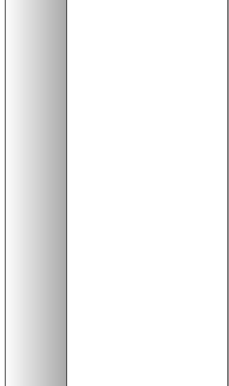
Engineer: D. SCHMIDT
Operator:
Operator:
Operator:

This Log Record Was Witnessed By

Primary Witness: LONNY BRUCE
Secondary Witness: BOB PETERSEN
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	40	0
SNDERR mmho/m	SRFTEMP degF	CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in
0	90	0	5.5	0	2901	105	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					

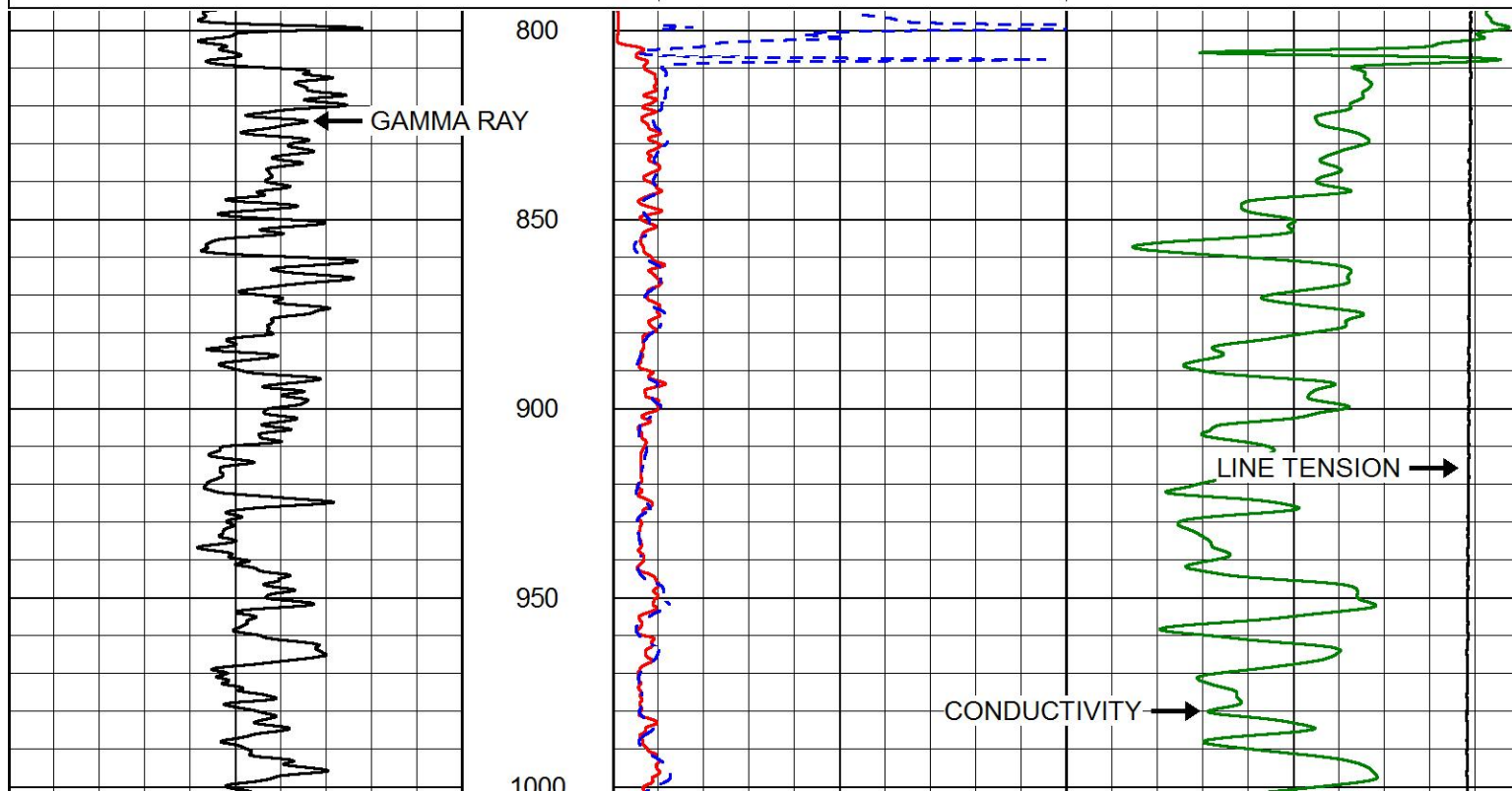
		DIL-PSI HIGH TEMP (PSI 971 HT)		18.50	3.50	220.00
CILD	8.00					
CILM	4.70					
SP	0.20					
Dataset: bruce_thibault 3.db: field/well/STKML/pass3.5 Total length: 43.08 ft Total weight: 685.00 lb O.D.: 4.00 in						

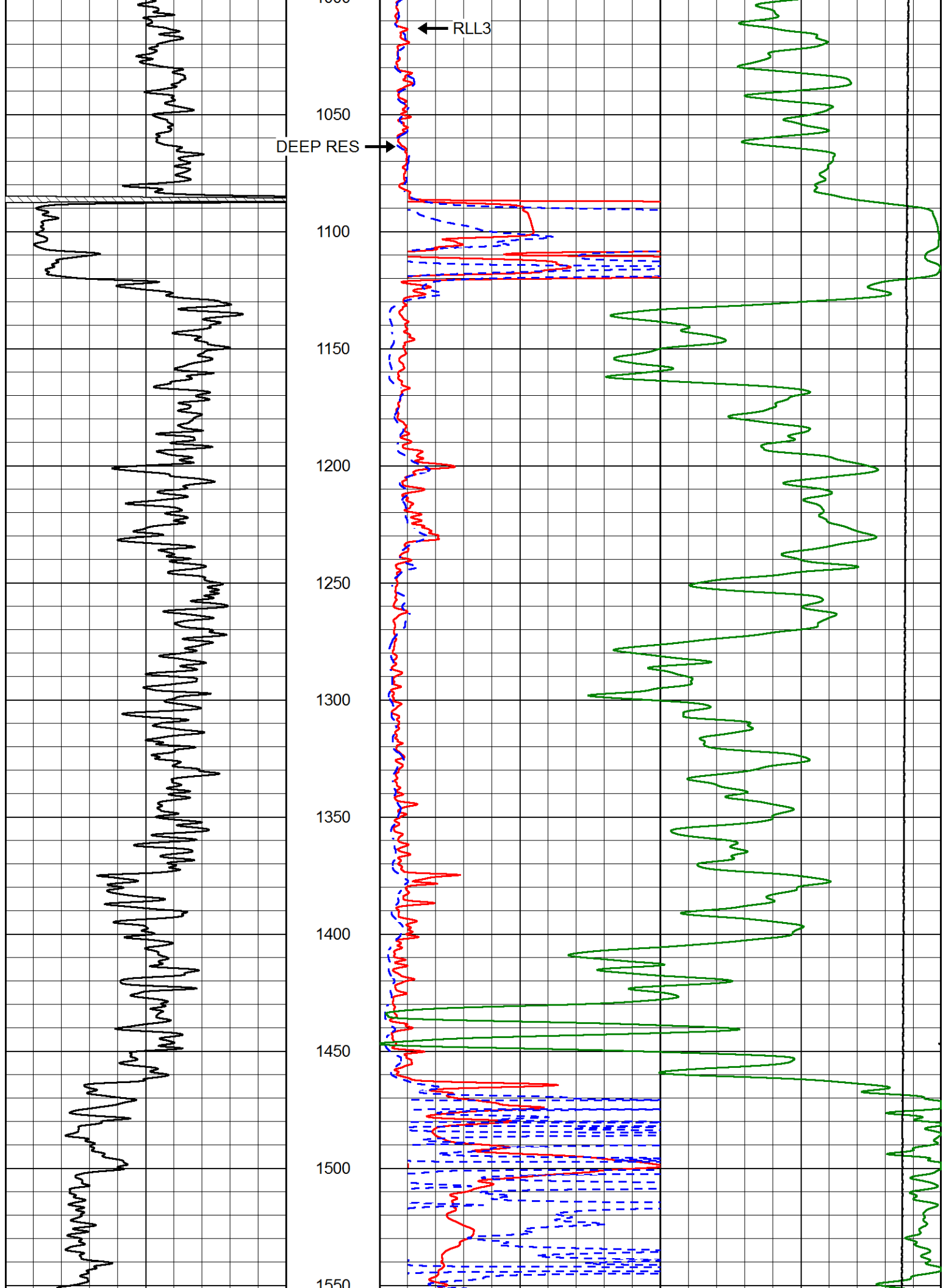


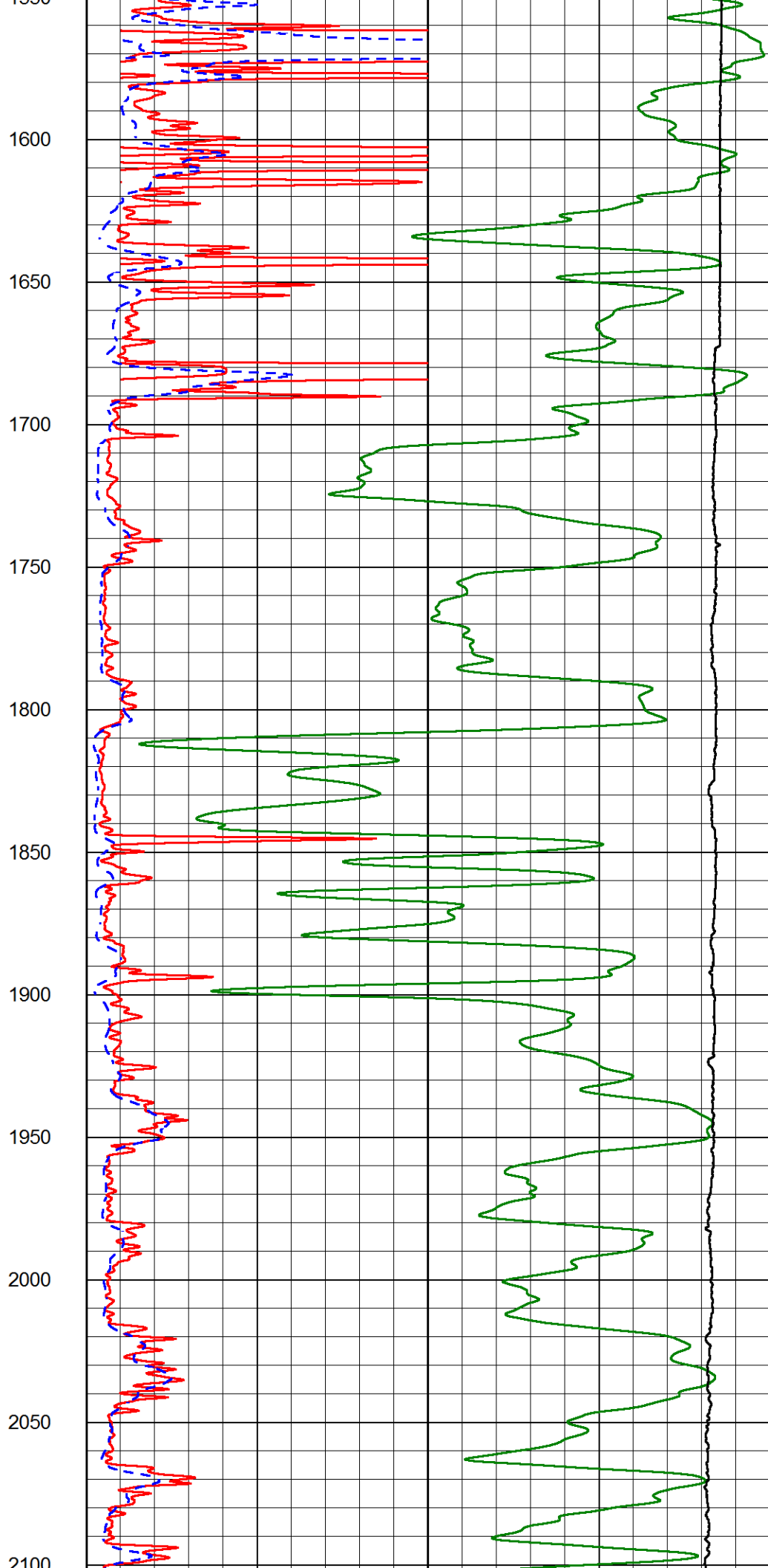
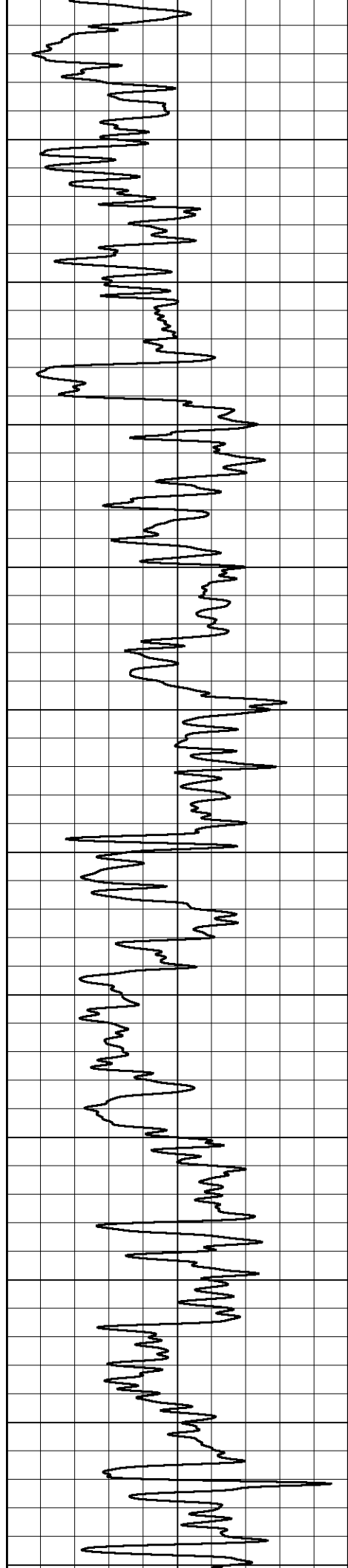
MAIN PASS

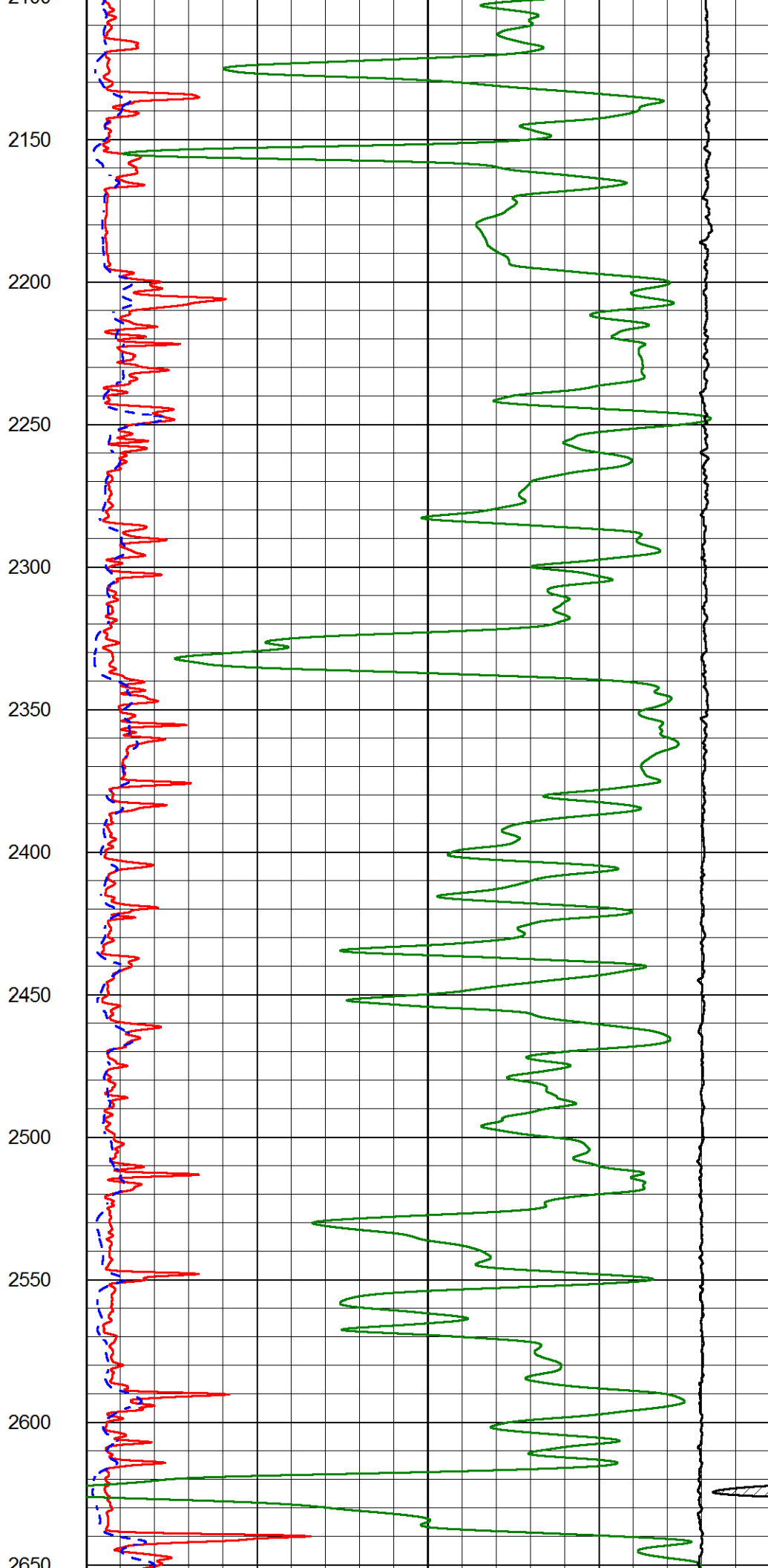
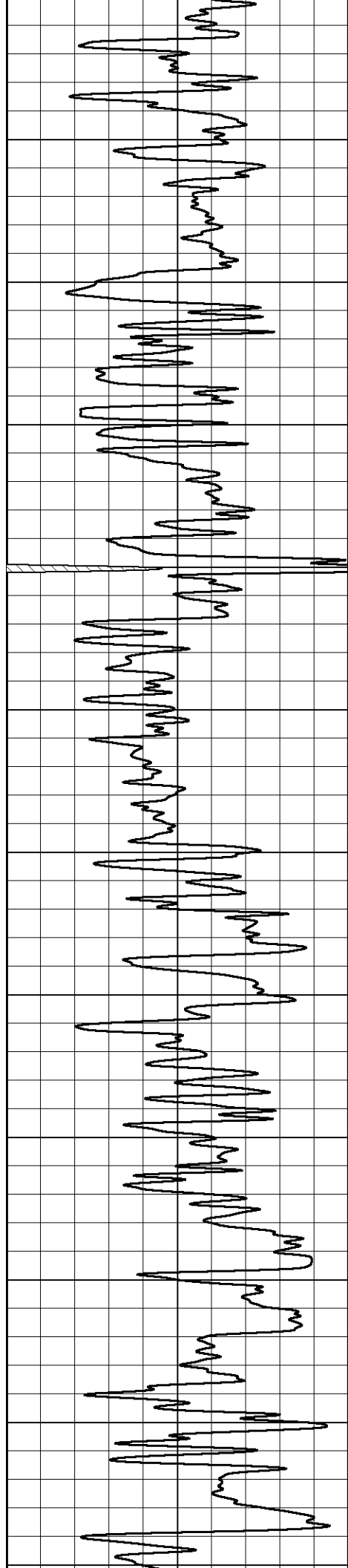
Database File	bruce_thibault 3.db
Dataset Pathname	STKML/pass4.1
Presentation Format	dil2in
Dataset Creation	Sat May 26 19:24:54 2018
Charted by	Depth in Feet scaled 1:600

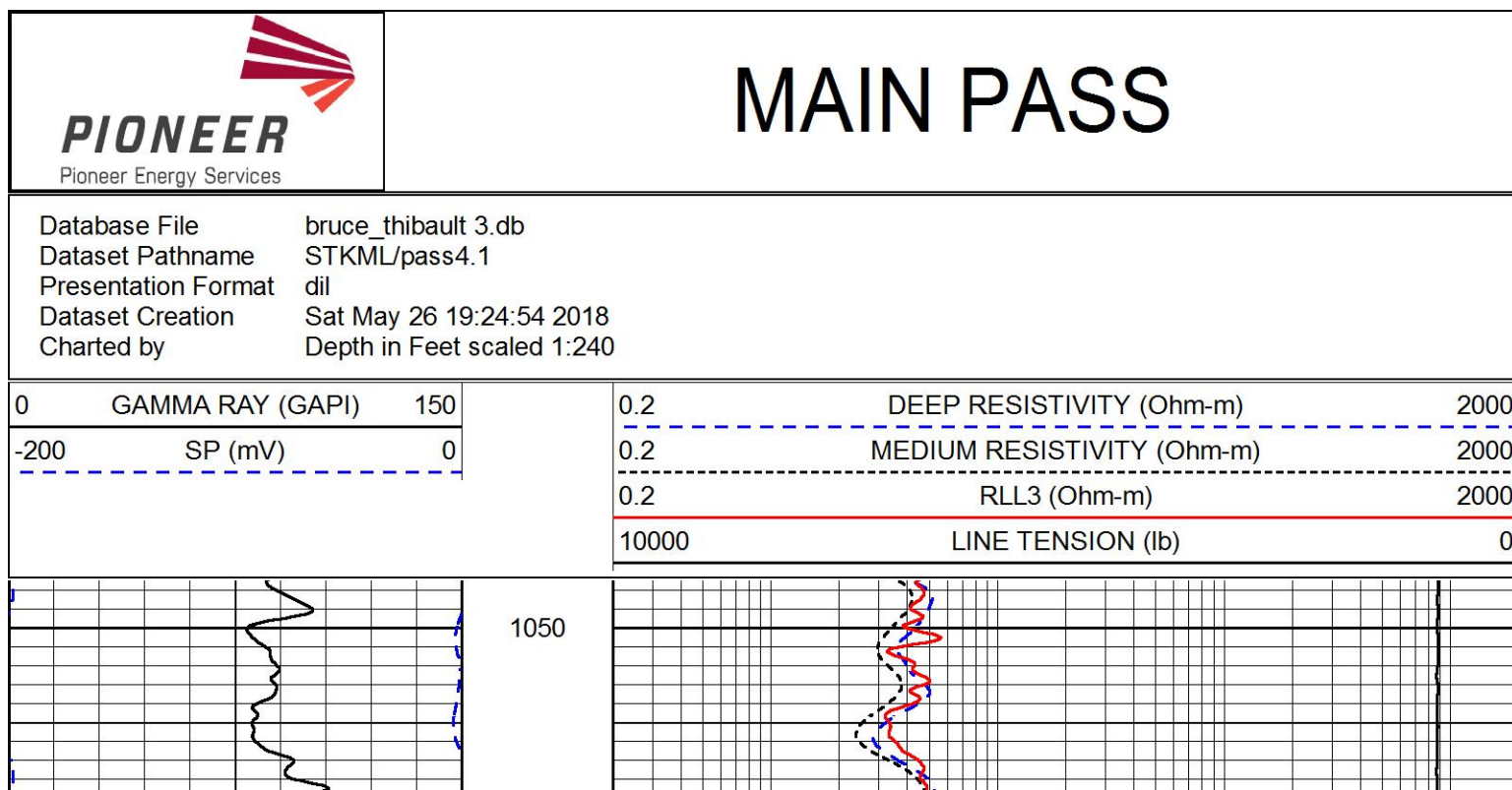
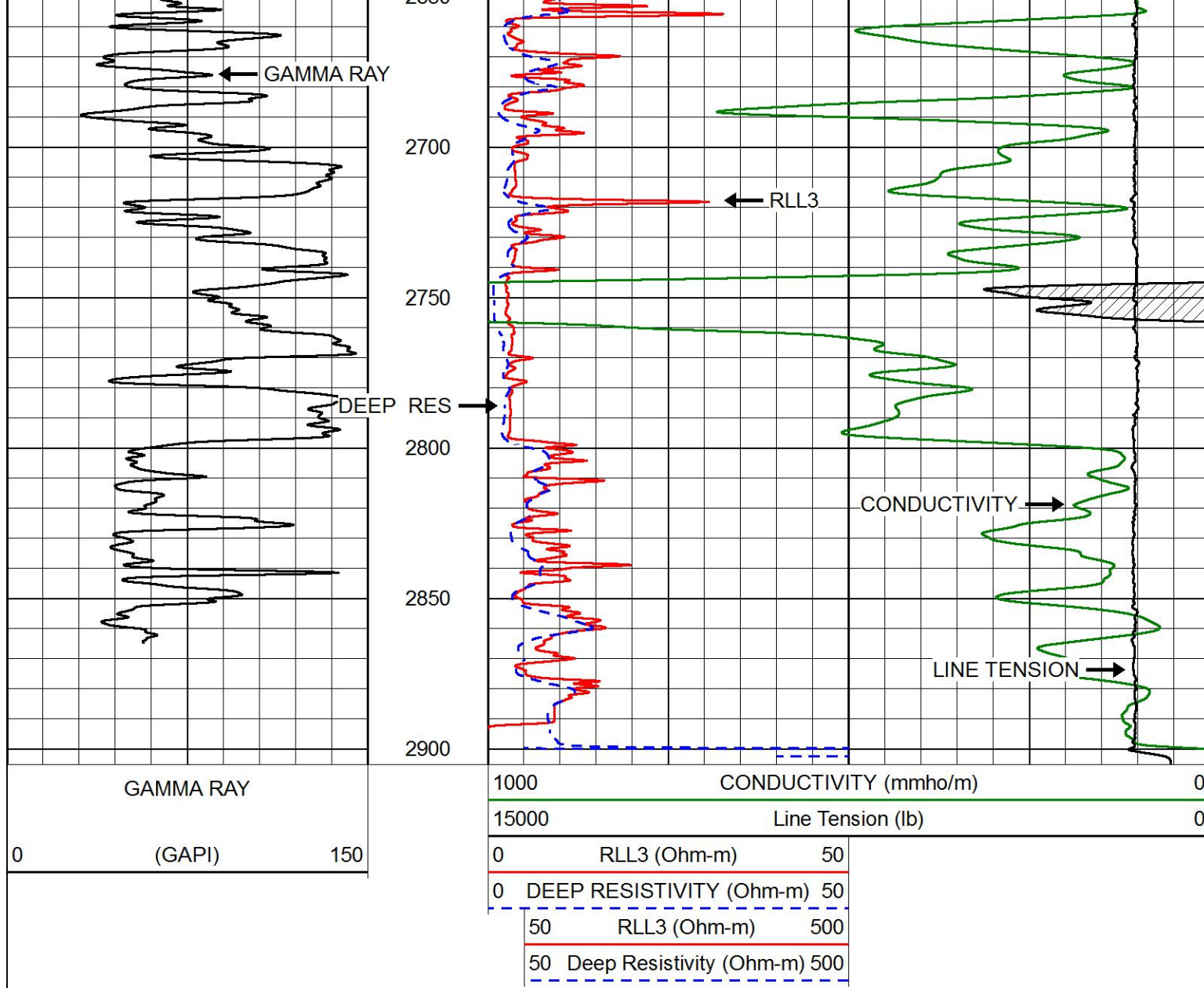
GAMMA RAY 0 (GAPI) 150	1000	CONDUCTIVITY (mmho/m)	0
	15000	Line Tension (lb)	0
	0	RLL3 (Ohm-m)	50
	0	DEEP RESISTIVITY (Ohm-m)	50
	50	RLL3 (Ohm-m)	500
	50	Deep Resistivity (Ohm-m)	500

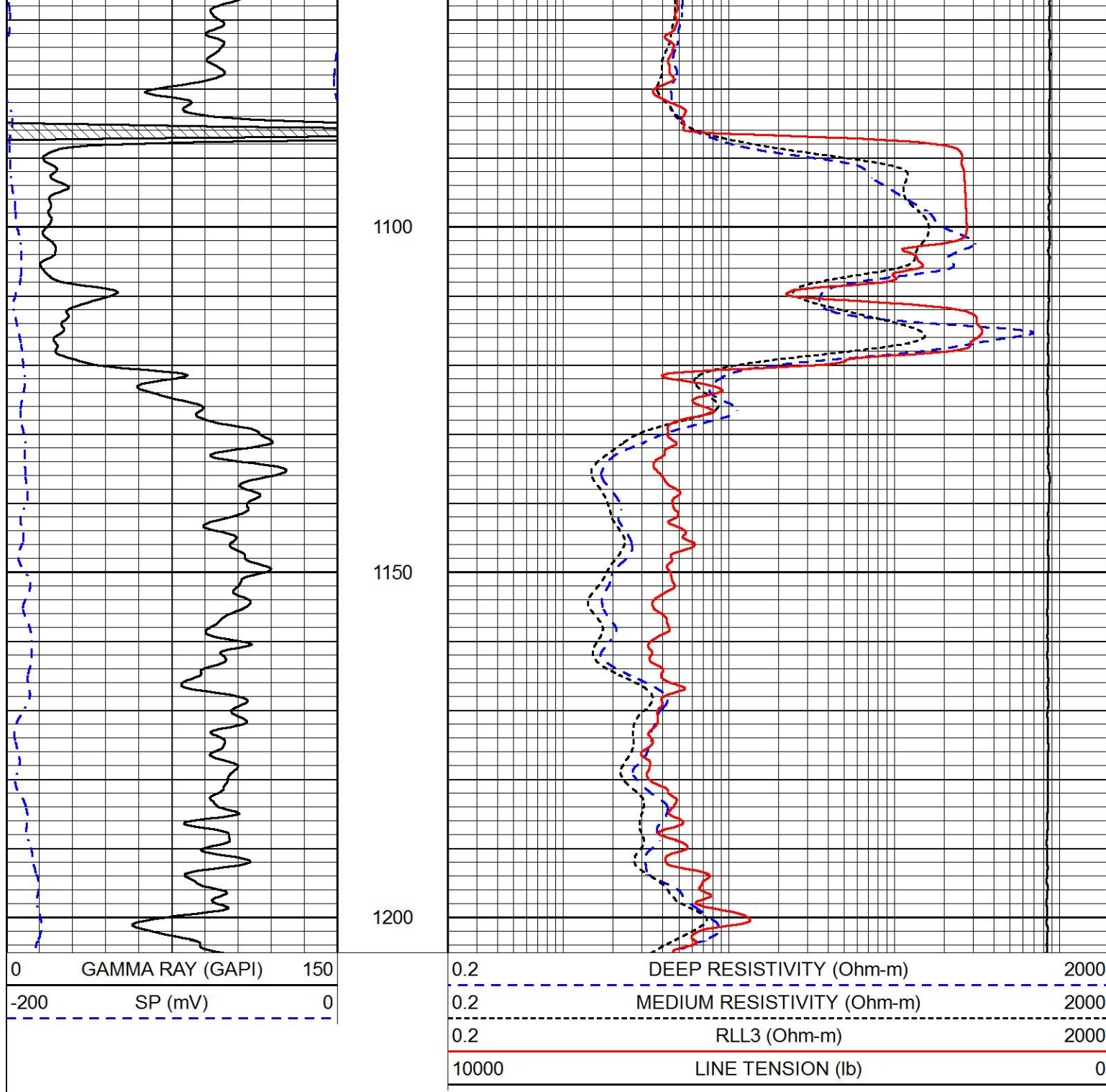






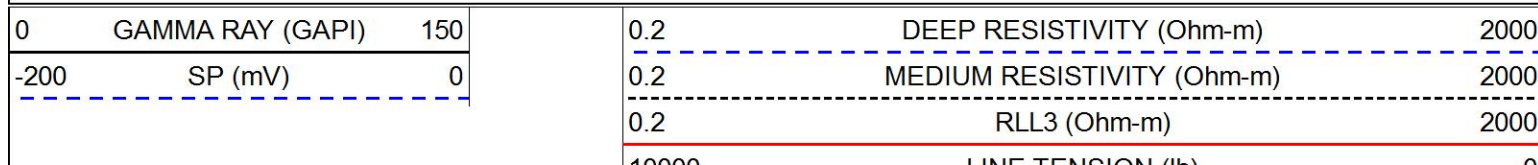


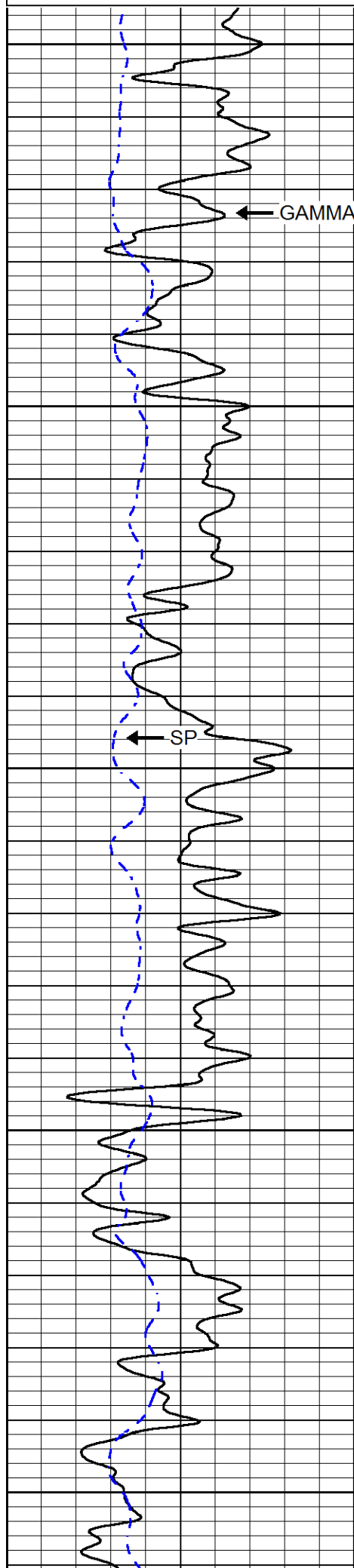




MAIN PASS

Database File bruce_thibault 3.db
 Dataset Pathname STKML/pass3.1
 Presentation Format dil
 Dataset Creation Sat May 26 18:50:00 2018
 Charted by Depth in Feet scaled 1:240





1700

GAMMA RAY

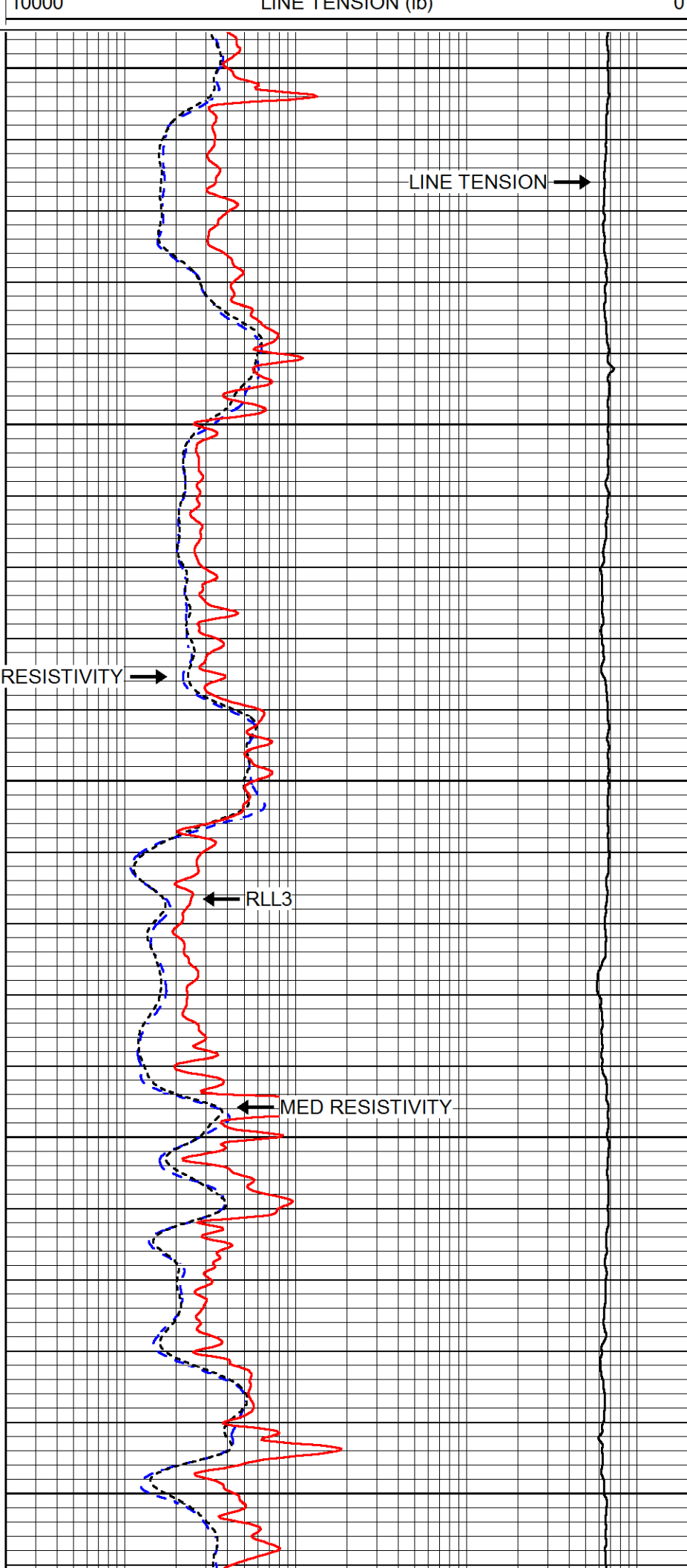
SP

1750

1800

1850

1900



10000

LINE TENSION (lb)

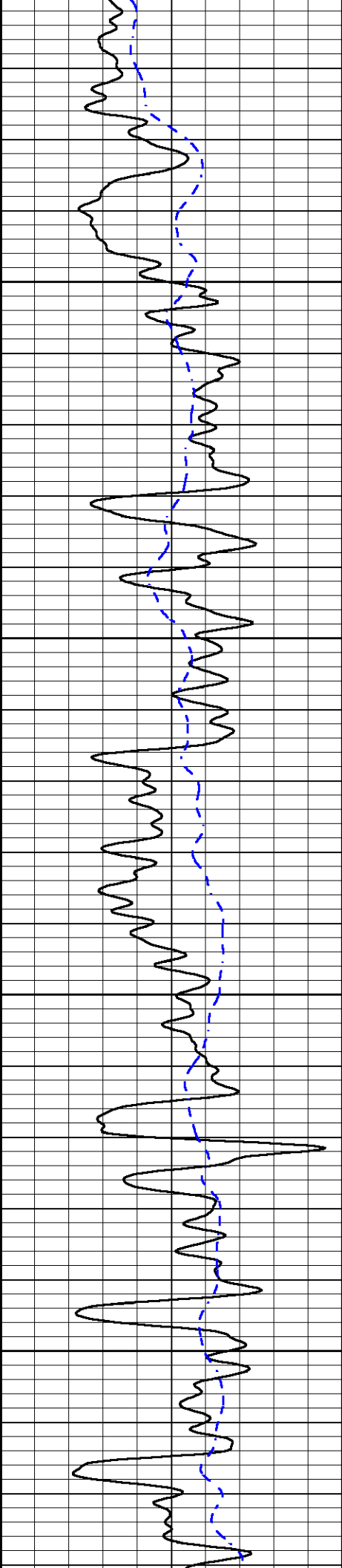
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LINE TENSION

DEEP RESISTIVITY

RLL3

MED RESISTIVITY

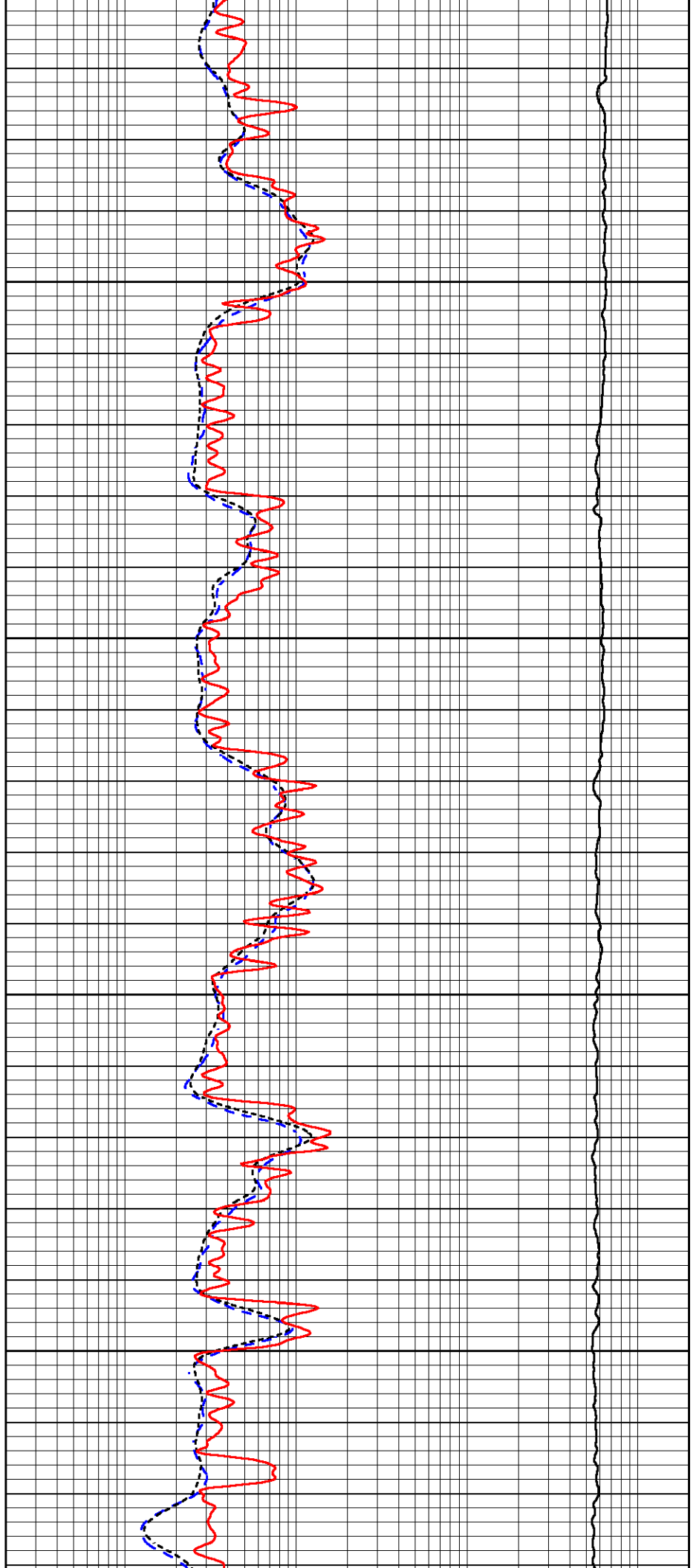


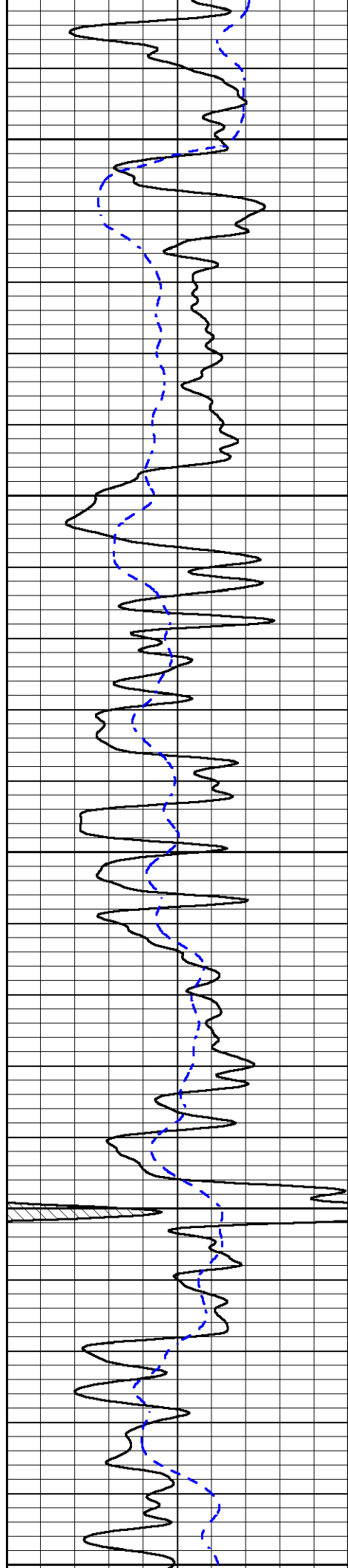
1950

2000

2050

2100





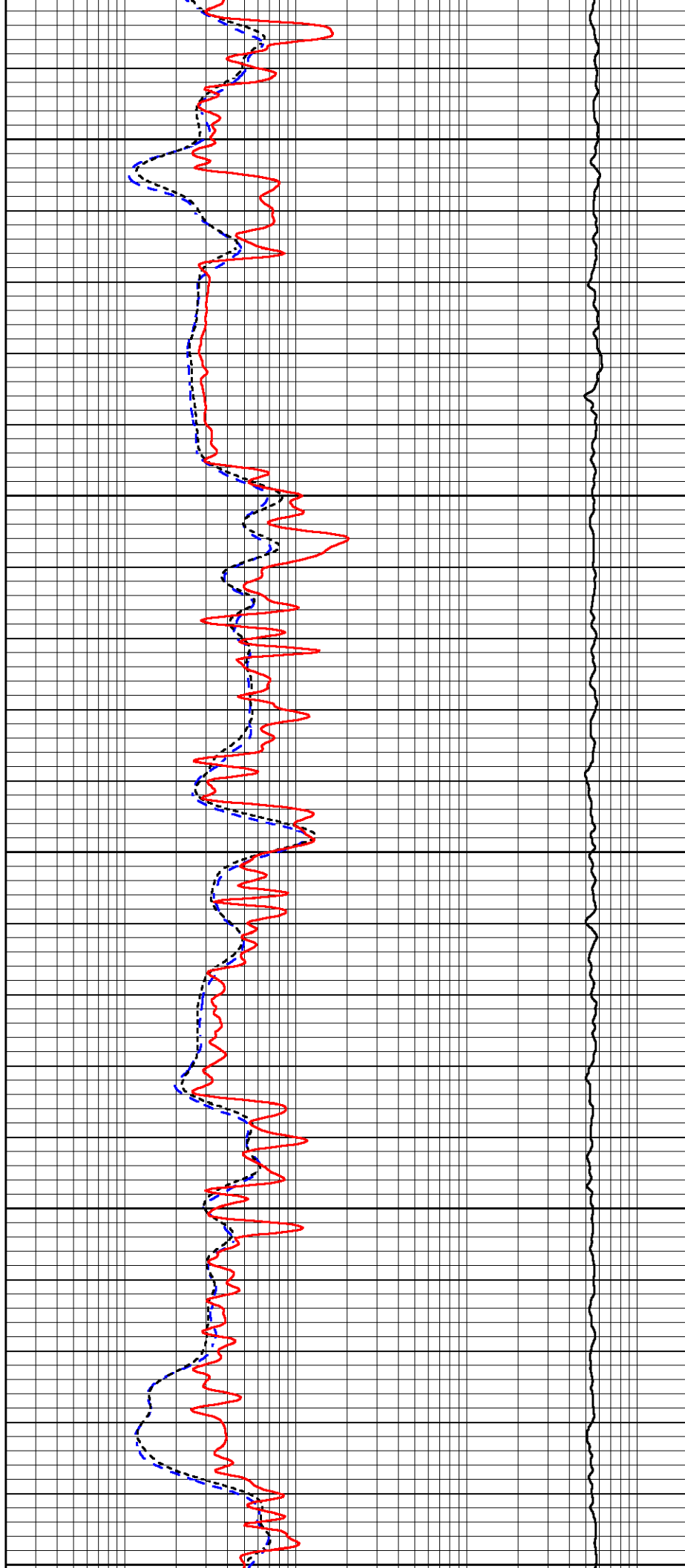
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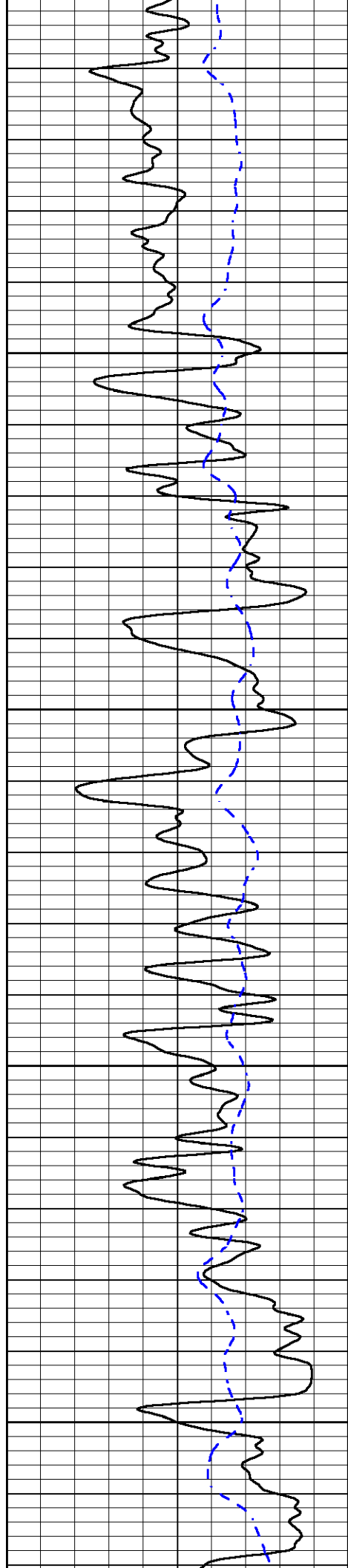
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2250

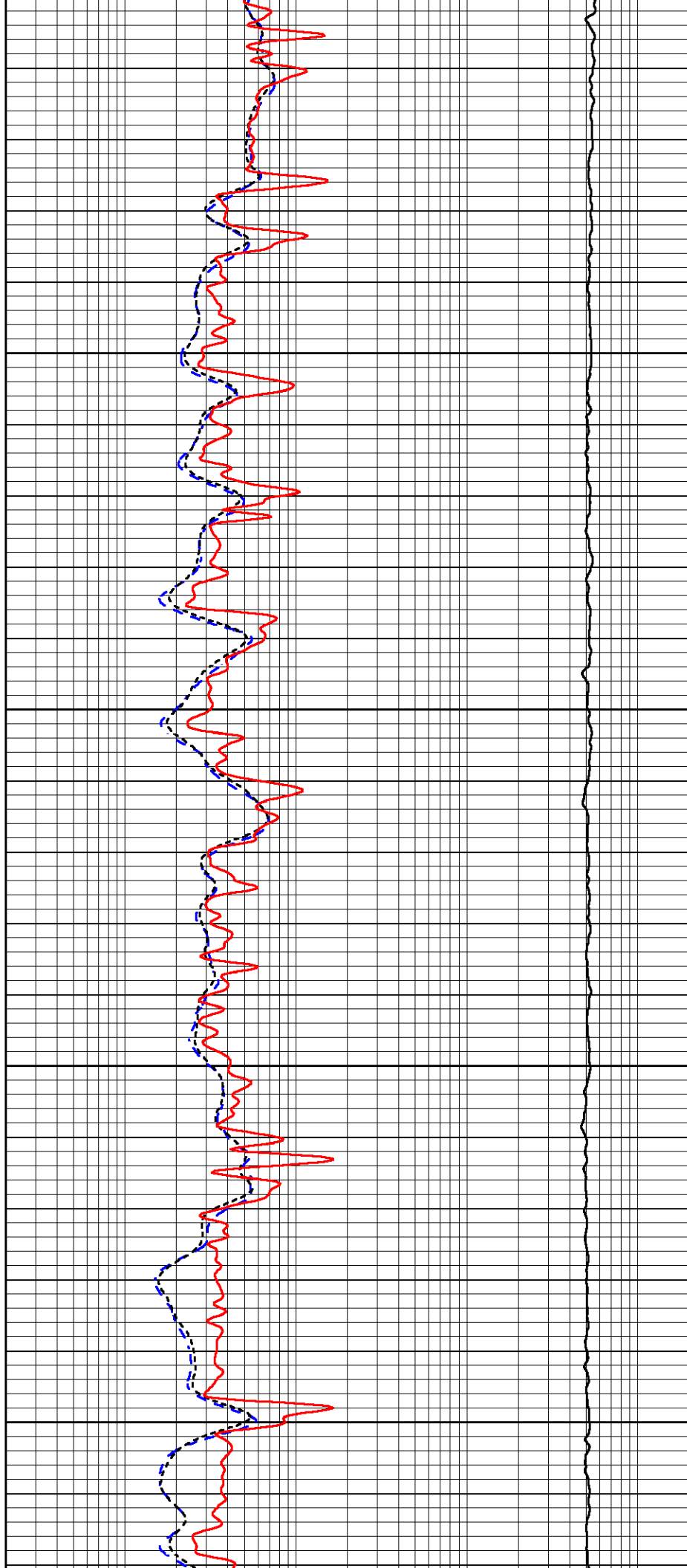
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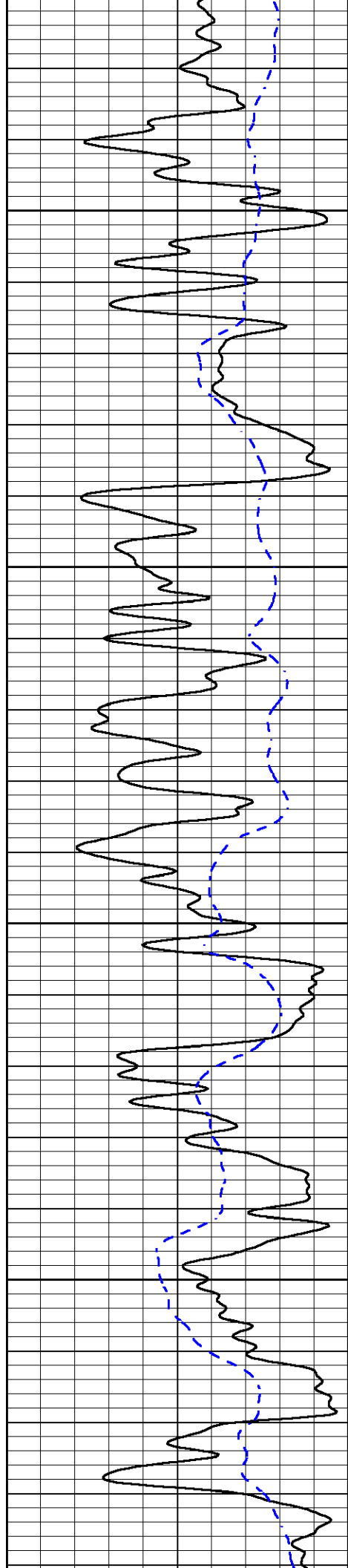
2350





2300
2400
2450
2500
2550



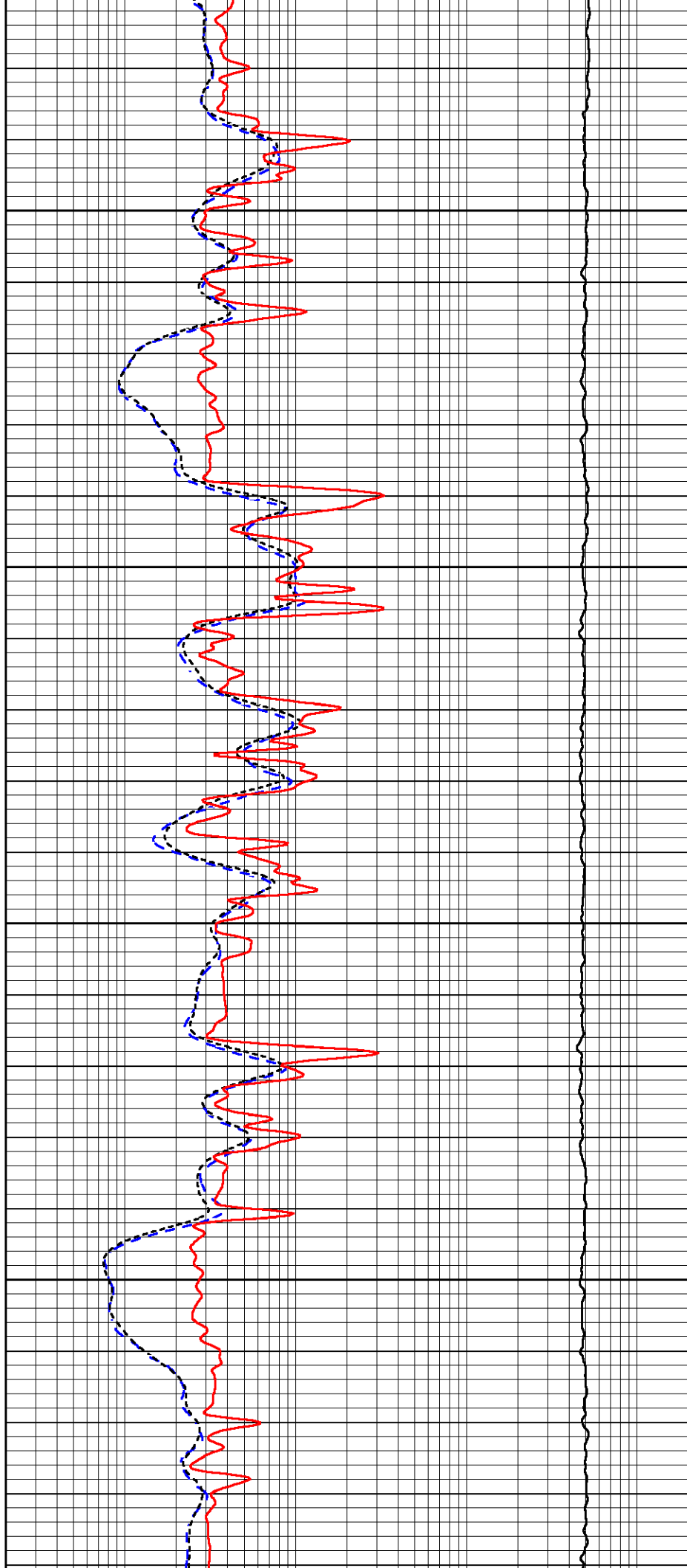


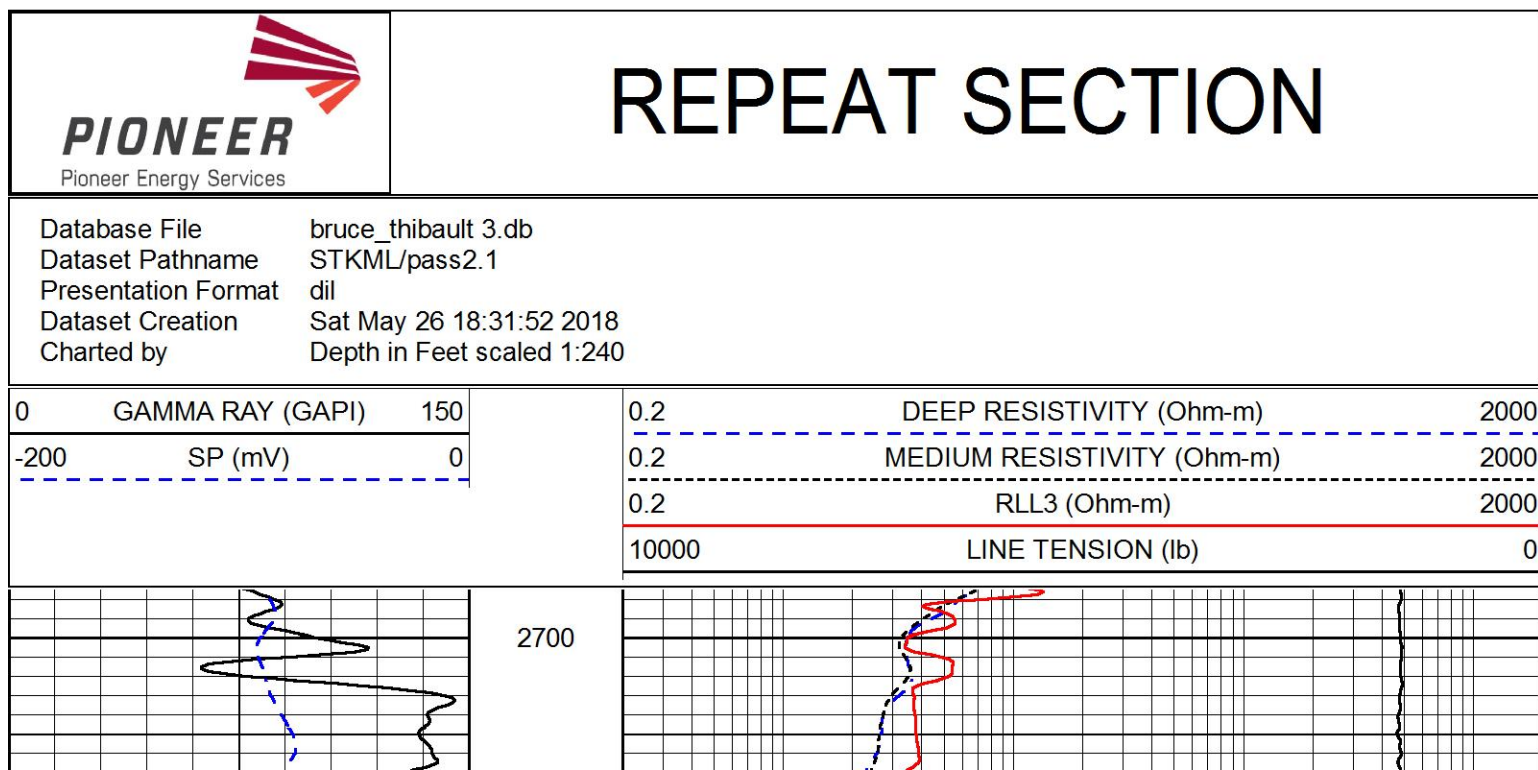
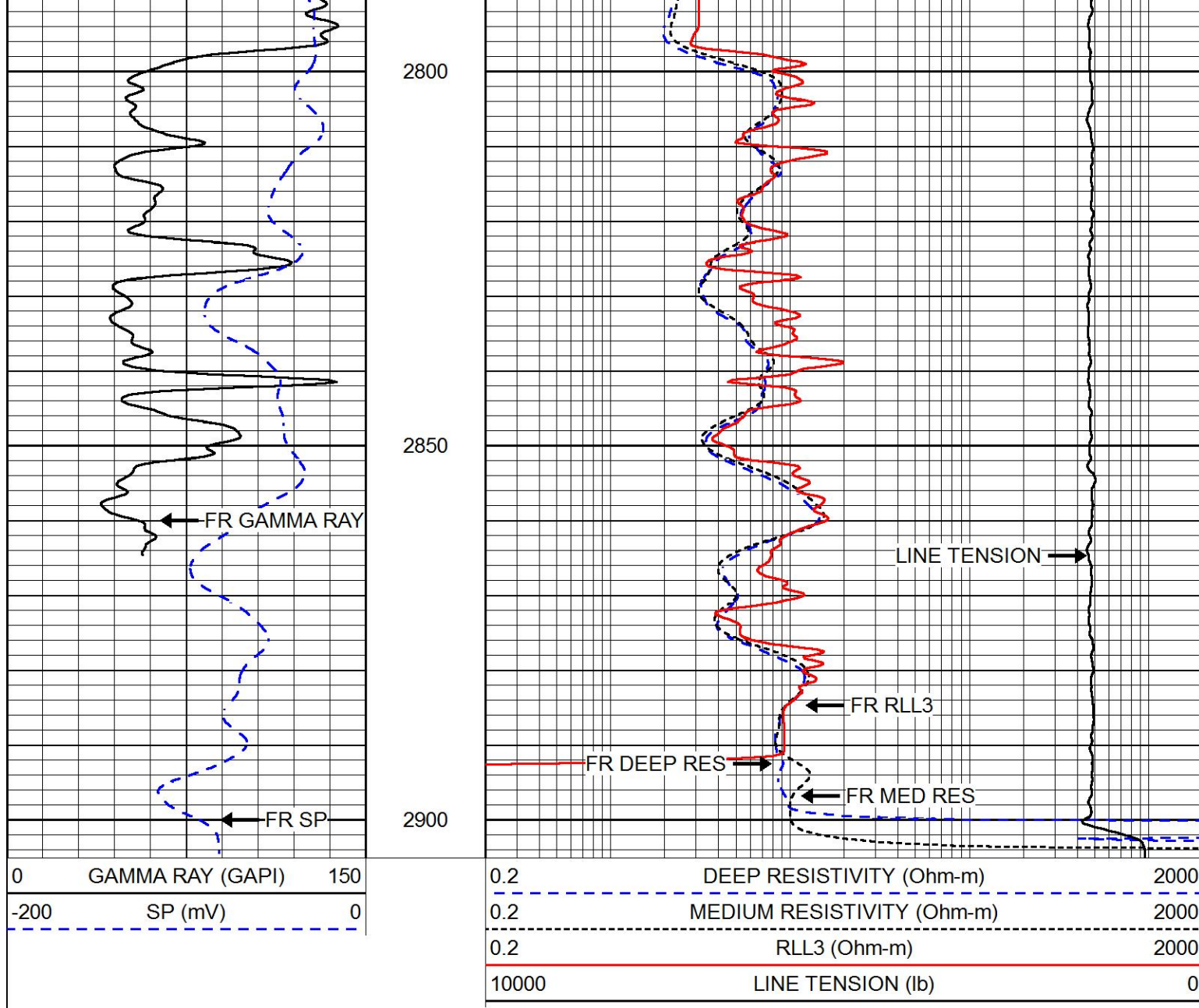
2600

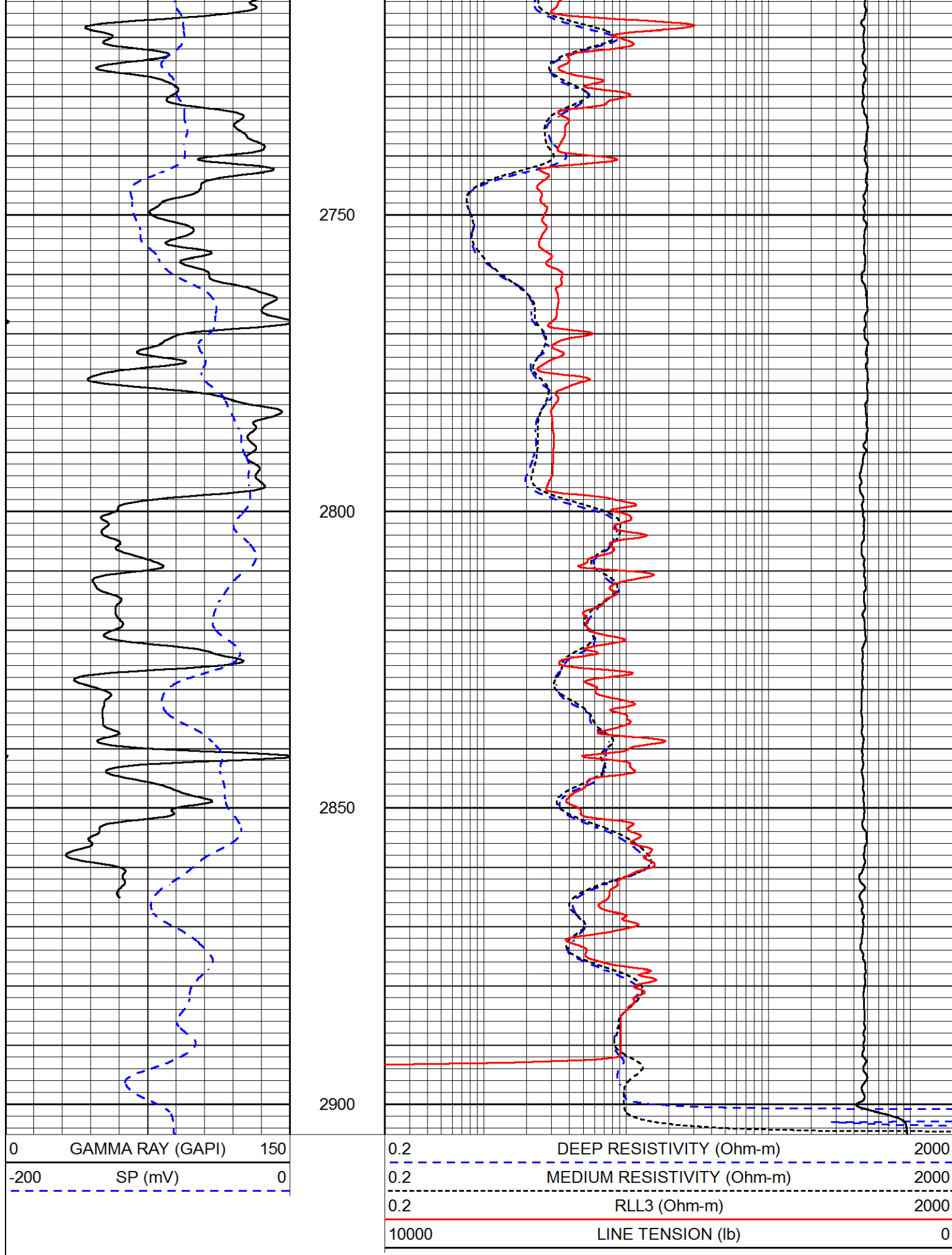
2650

2700

2750







Calibration Report

Database File bruce_thibault 3.db
 Dataset Pathname STKML/pass3.1
 Dataset Creation Sat May 26 18:50:00 2018

Dual Induction Calibration Report

Serial-Model: PSI 971 HT-PSI HIGH TEMP
 Calibration Performed: Tue May 22 18:36:42 2018

	Readings		References			Results	
Loop:	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.425	-30.000
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.370	-30.000

Microlog Calibration Report

Serial-Model: PSI-01-PSIML
 Performed: 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	43000.0000	-1.3000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	40000.0000	-0.6000
Caliper	1.0001	1.1397	6.5000	18.5000	in	70.0000	-65.8500

Compensated Density Calibration Report

Serial-Model: 817-947-M&W
 Source / Verifier: 16955B / 2ci
 Master Calibration Performed: 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	2.650	g/cc	1141.85	3762.09 cps
Spine Angle = 74.89			Density/Spine Ratio = 0.514	
	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	BRUCE OIL COMPANY, LLC
Well	THIBAUT #3
Field	KILL CREEK
County	OSBORNE
State	KANSAS