



PIONEER
Pioneer Energy Services

**DUAL INDUCTION
LOG**

Company **CASTLE RESOURCES, INC.**
Well **STEINSHOUER #3**
Field **HOXIE WEST**
County **SHERIDAN**
State **KANSAS**

Company **CASTLE RESOURCES, INC.**
Well **STEINSHOUER #3**
Field **HOXIE WEST**
County **SHERIDAN** State **KANSAS**

Location: API #: 15-179-21437-00-00

Other Services

SE NE
1980' FNL & 660' FEL
SEC 34 TWP 8S RGE 29W

CNL/CDL
MEL

Permanent Datum **GROUND LEVEL Elevation 2817'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**

Elevation
K.B. 2823'
D.F. N/A
G.L. 2817'

Date 9/30/2017

Run Number ONE

Depth Driller 4525'

Depth Logger 4523'

Bottom Logged Interval 4522'

Top Log Interval 250'

Casing Driller 8.625" @ 276'

Casing Logger 275'

Bit Size 7.875"

Type Fluid in Hole CHEMICAL

Salinity, ppm CL 4000

Density / Viscosity 9.6 60

pH / Fluid Loss 9.0 12.8

Source of Sample FLOWLINE

Rim @ Meas. Temp 0.6 @ 77

Rimf @ Meas. Temp 0.45 @ 77

Rmc @ Meas. Temp 0.81 @ 77

Source of Rimf / Rmc CHARTS

Rim @ BHT 0.38 @ 121

Operating Rig Time 3 HOURS

Max Rec. Temp. F 121 DEG F

Equipment Number 108

Location HAYS

Recorded By T. MARTIN

Witnessed By JERRY GREEN

<<< 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.

HOXIE, KS, 2 S TO 30S, 5 W, 1/4 S, W INTO

Log Measured From: KELLY BUSHING

Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES

www.pioneerenergy.com

785-625-3858

Your Pioneer Energy Services Crew

This Log Record Was Witnessed By

Engineer: T. MARTIN

Operator:

Operator:

Operator:

Primary Witness: JERRY GREEN

Secondary Witness:

Secondary Witness:

Secondary Witness:

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 DCAL SSD	28.43			CDL-M&W (168-986)	8.50	4.00	250.00
	28.42						
	27.93						
MCAL MI MN	19.83			ML-PSI STKBL ML (PSI-02) Stackable Microlog Tools	7.58	4.00	65.00
	19.83						
	19.83						
RLL3	15.80			DIL-M&W (1987)	18.50	3.50	220.00
RLL3F	15.79						
CILD	8.00						
CILM	4.70						
SP	0.20						
Dataset: castle_steinshouer_#3.db: field/well/stkml/pass3.1							
Total length: 43.08 ft							
Total weight: 685.00 lb							
O.D.: 4.00 in							

Log Variables

Database C:\ProgramData\Warrior\Data\castle_steinshouer_#3.db
Dataset field/well/stkml/pass3.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	121	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	-160	60	Off	4523

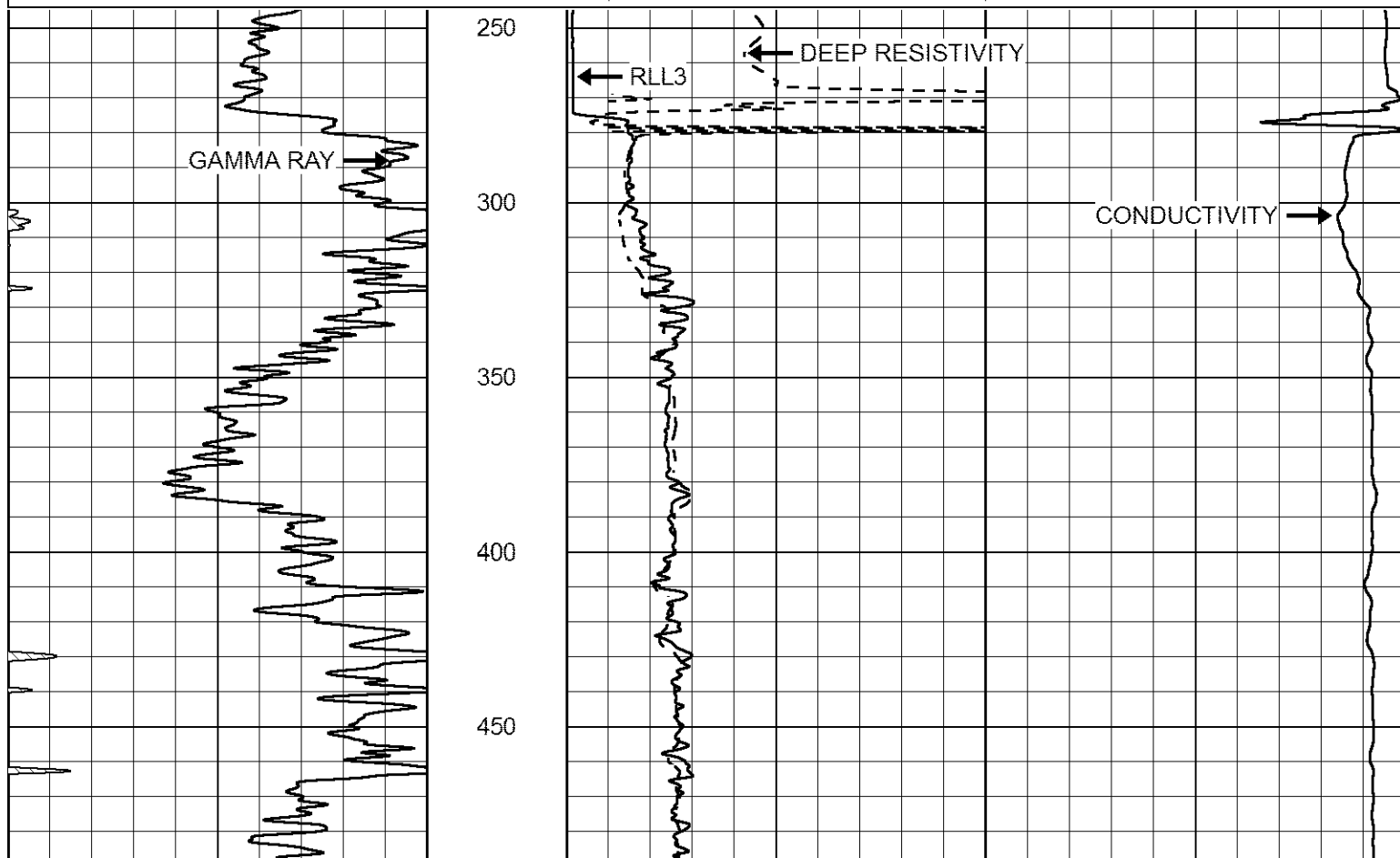


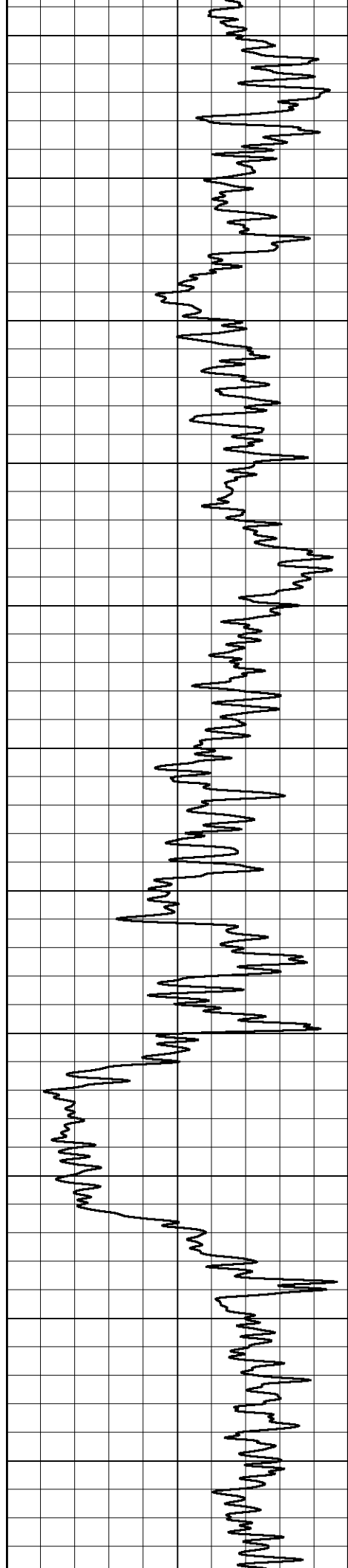
2" SCALE RESISTIVITY

MAIN PASS

Database File castle_steinshouer_#3.db
Dataset Pathname stkml/pass3.2
Presentation Format dil2in
Dataset Creation Sun Oct 01 01:50:10 2017
Charted by Depth in Feet scaled 1:600

0	GAMMA RAY (GAPI)	150	2000	CONDUCTIVITY (mmho/m)	0
			0	RLL3 (Ohm-m)	50
			0	DEEP RESISTIVITY (Ohm-m)	50
			50	RLL3 (Ohm-m)	500
				DEEP RESISTIVITY	
			50	(Ohm-m)	500





500

550

600

650

700

750

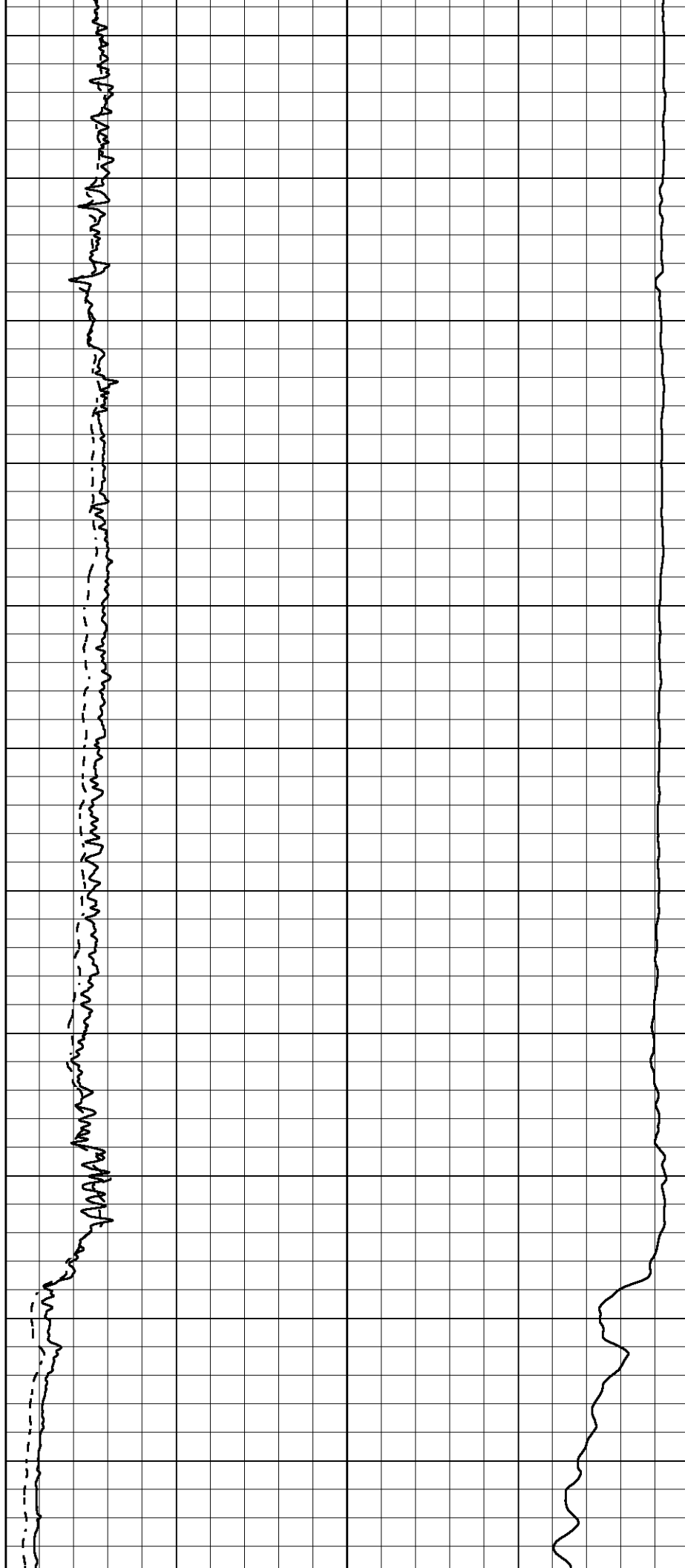
800

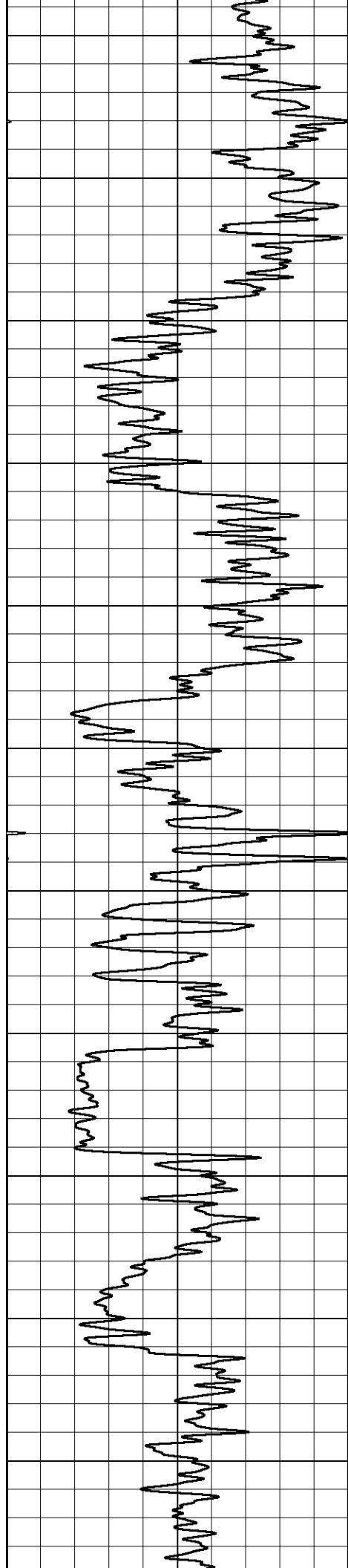
850

900

950

1000





1050

1100

1150

1200

1250

1300

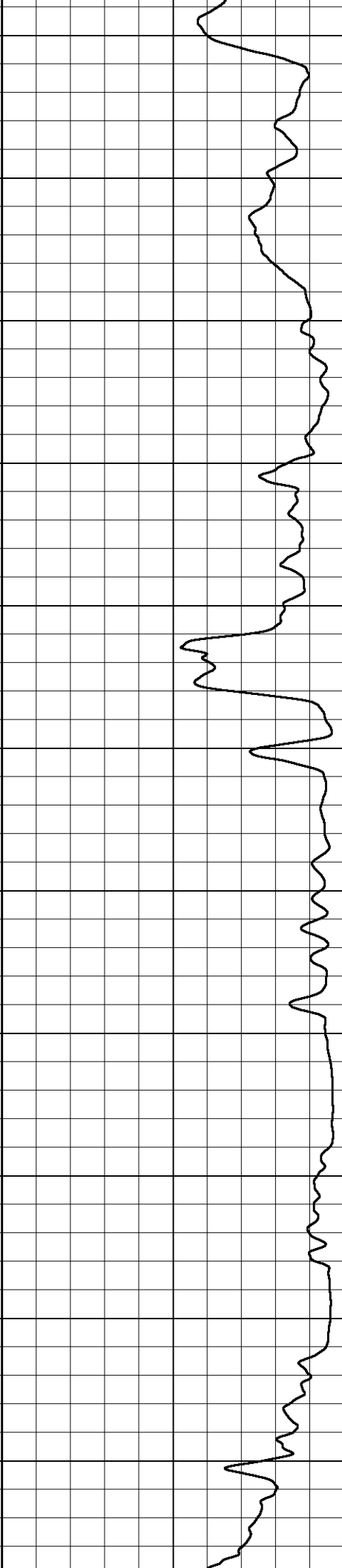
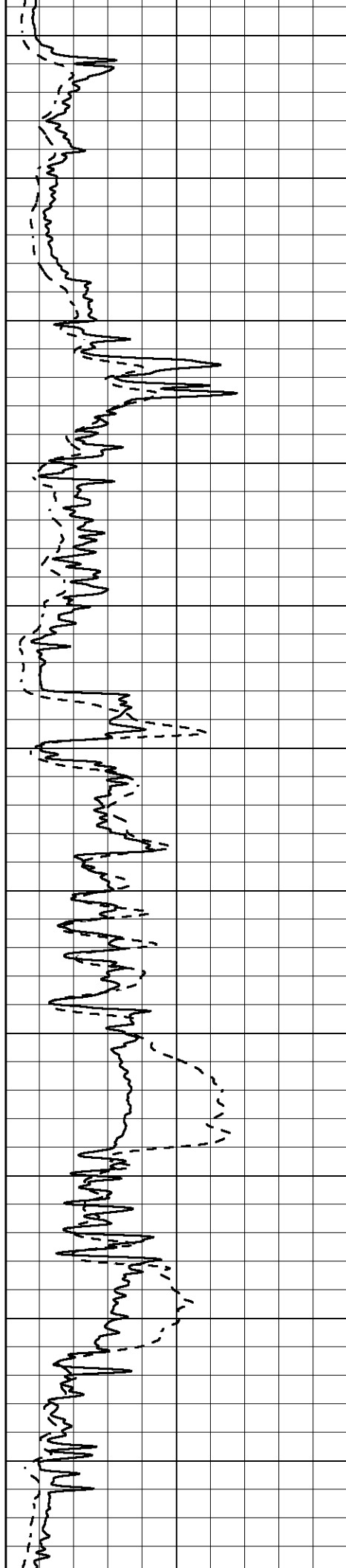
1350

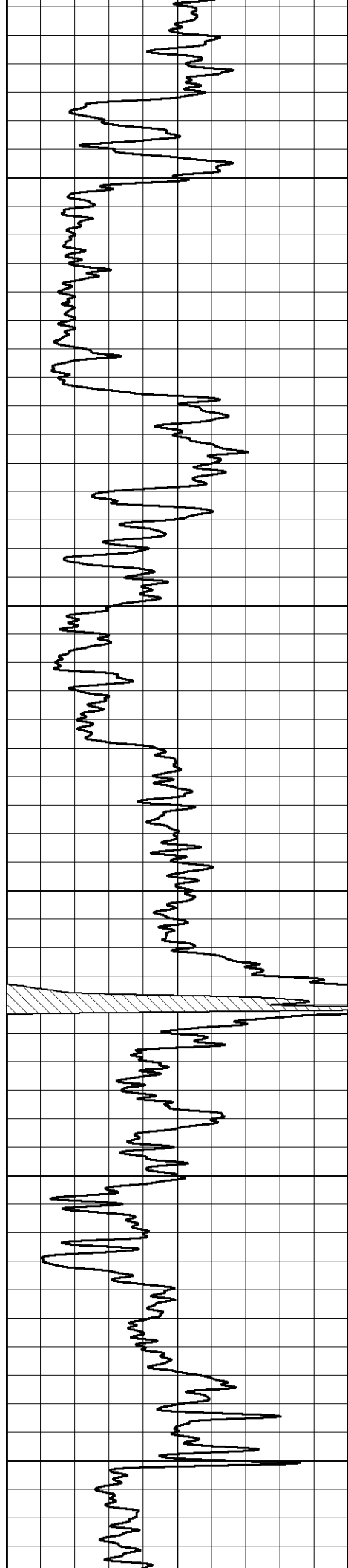
1400

1450

1500

1550





1600

1650

1700

1750

1800

1850

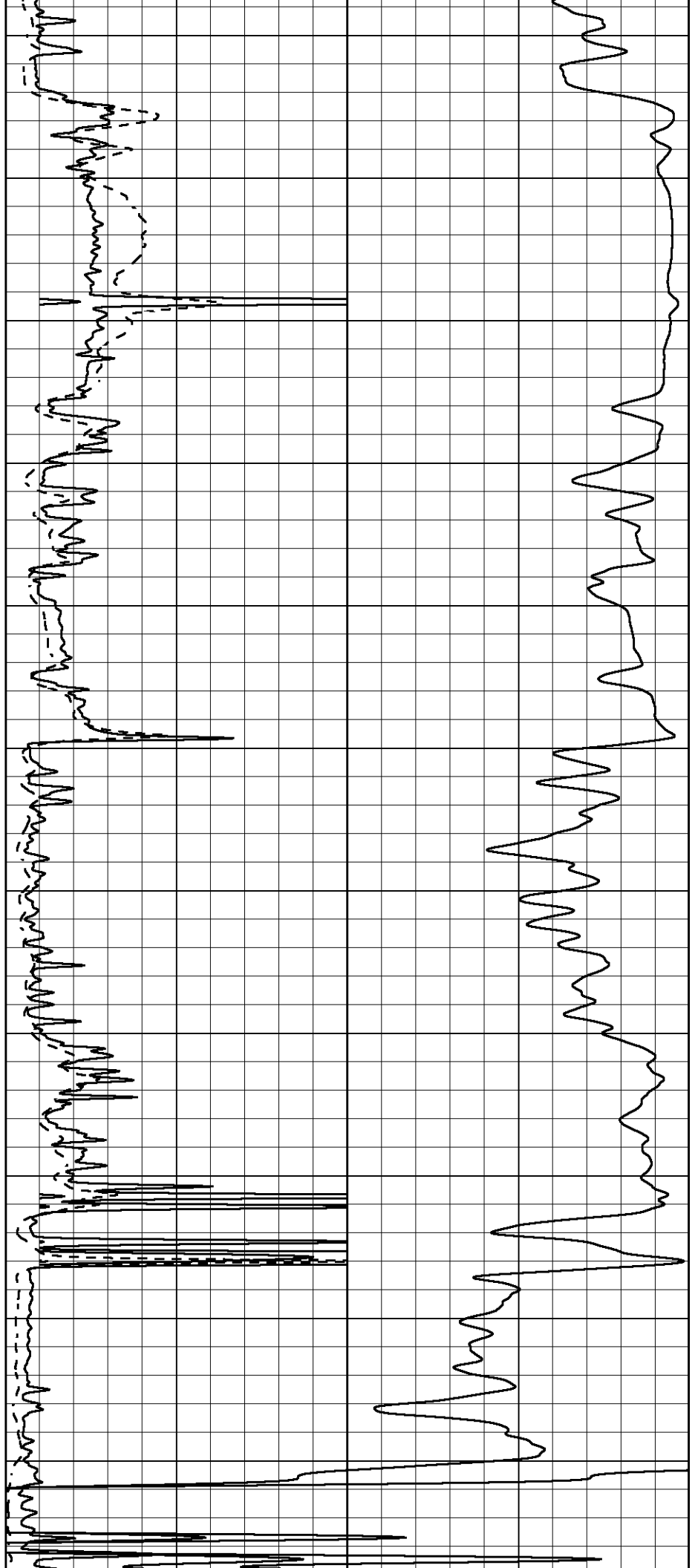
1900

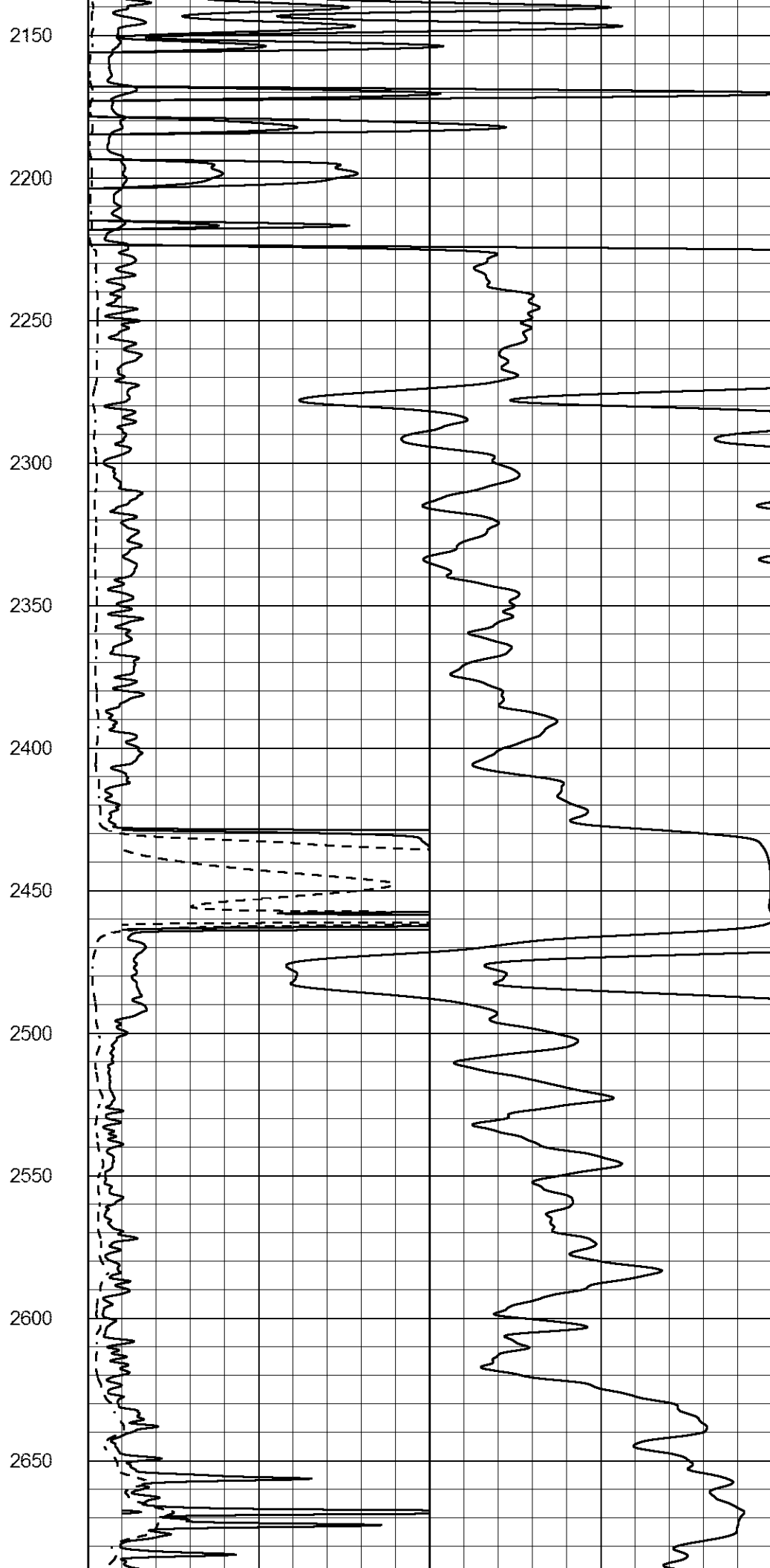
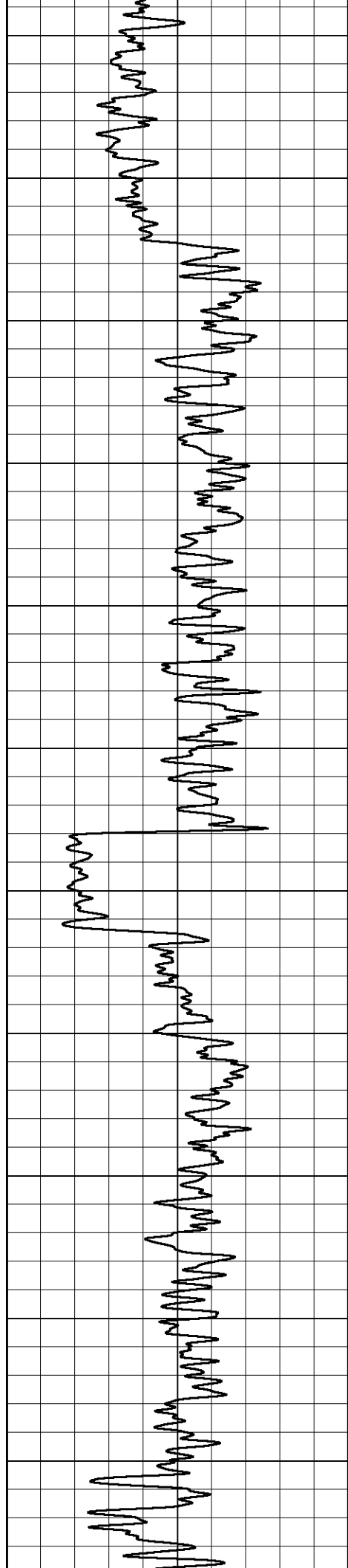
1950

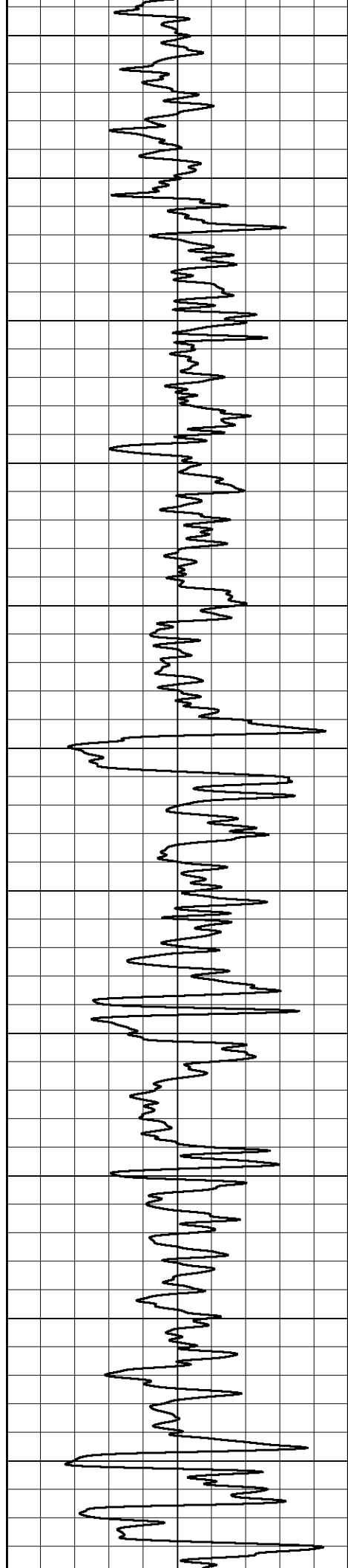
2000

2050

2100







2700

2750

2800

2850

2900

2950

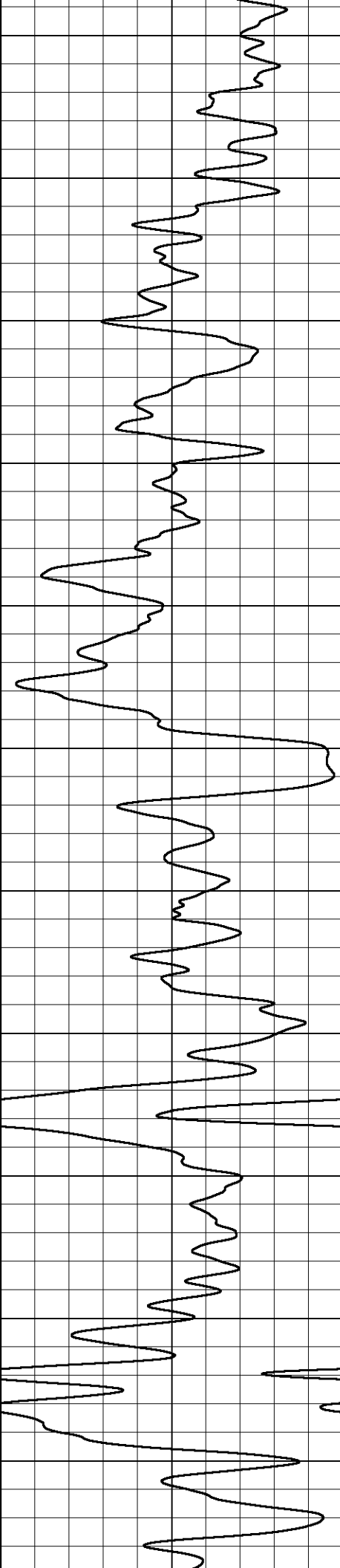
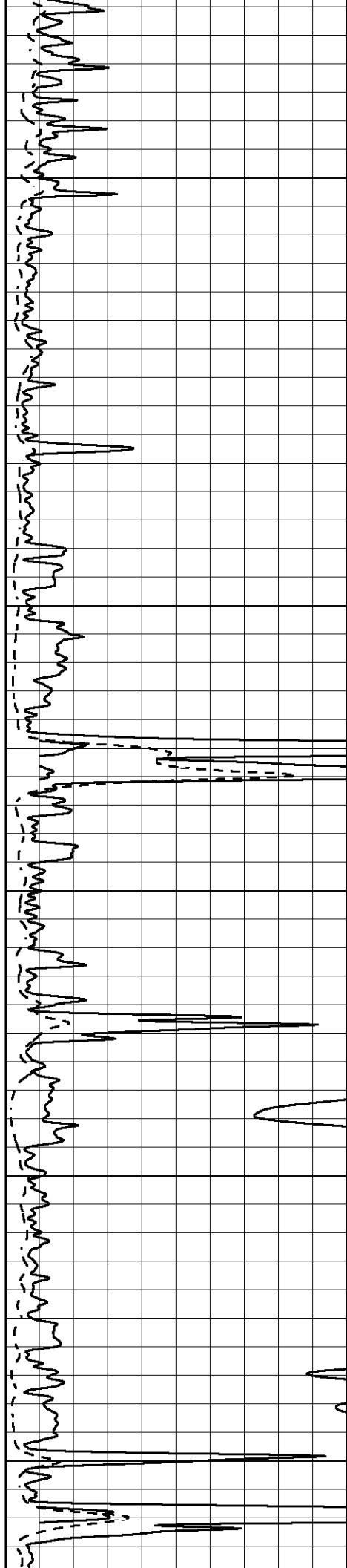
3000

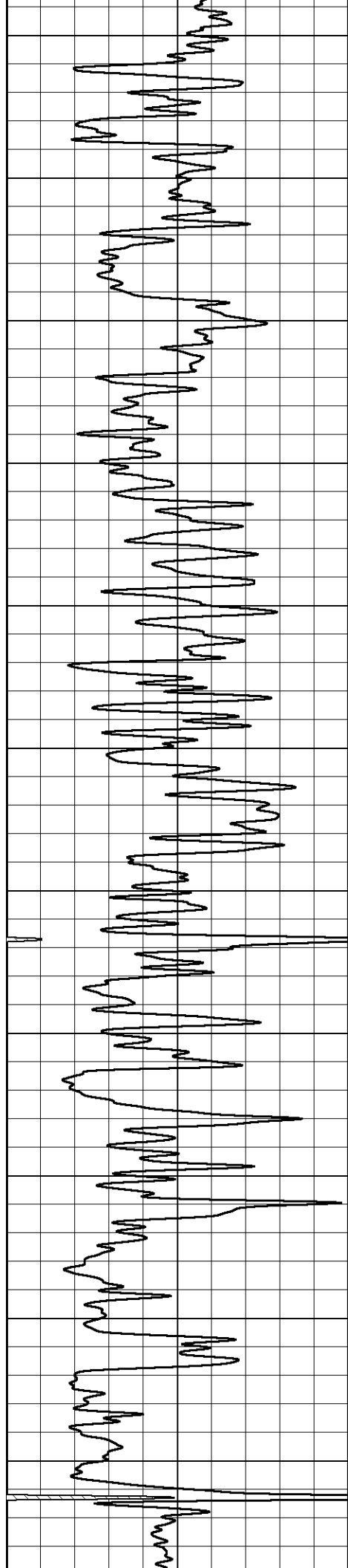
3050

3100

3150

3200





3250

3300

3350

3400

3450

3500

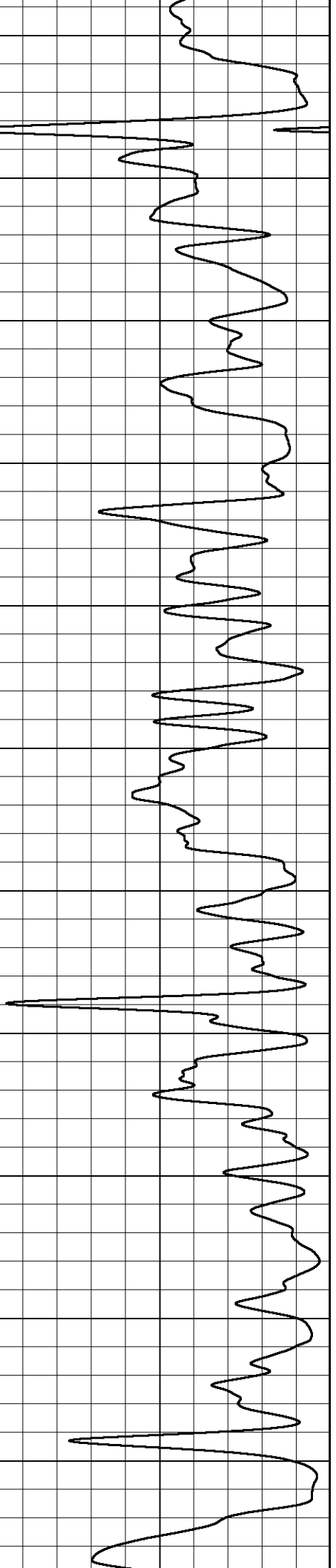
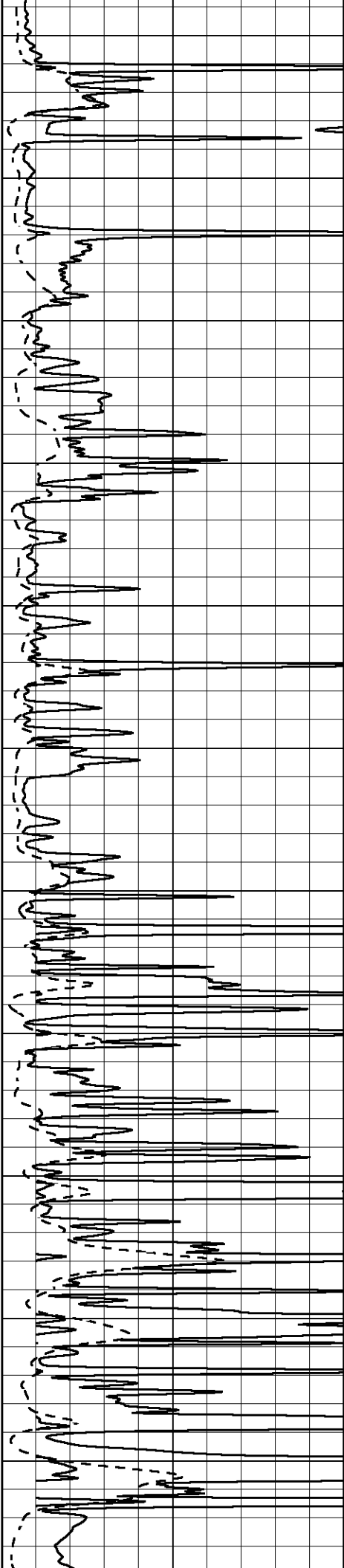
3550

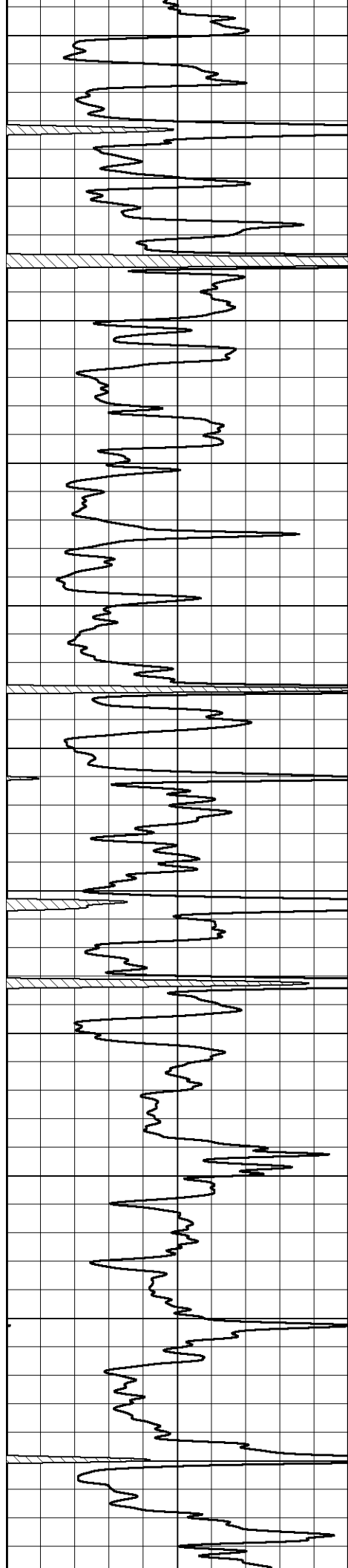
3600

3650

3700

3750





3800

3850

3900

3950

4000

4050

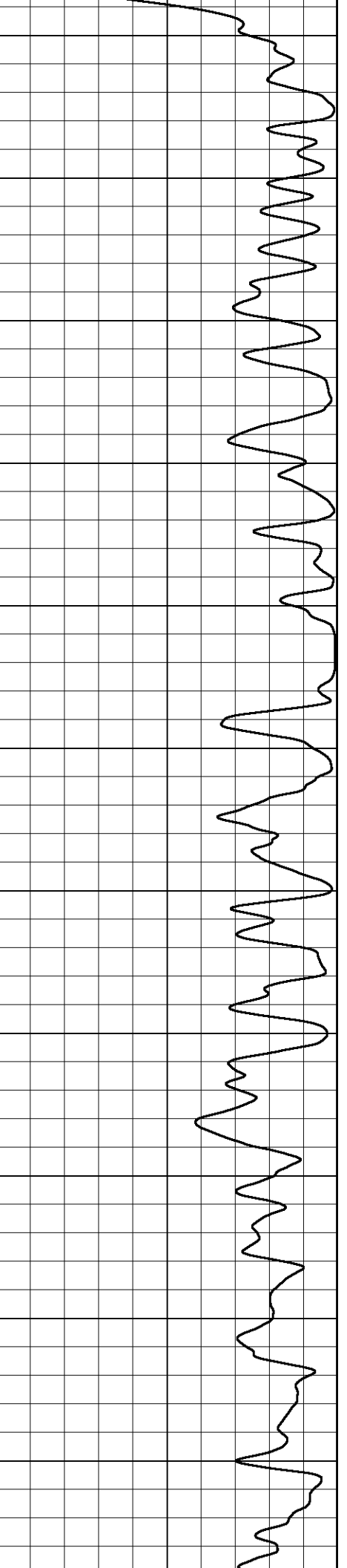
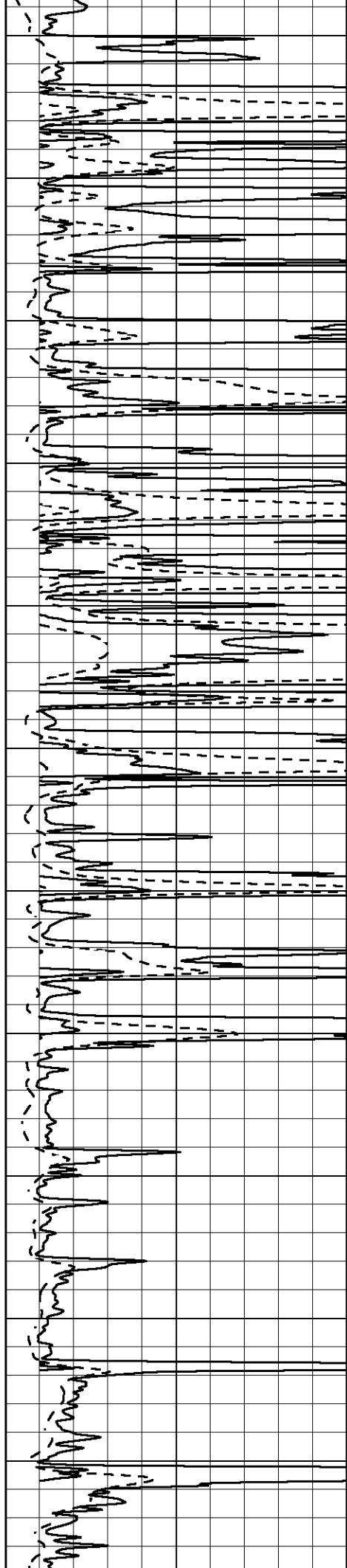
4100

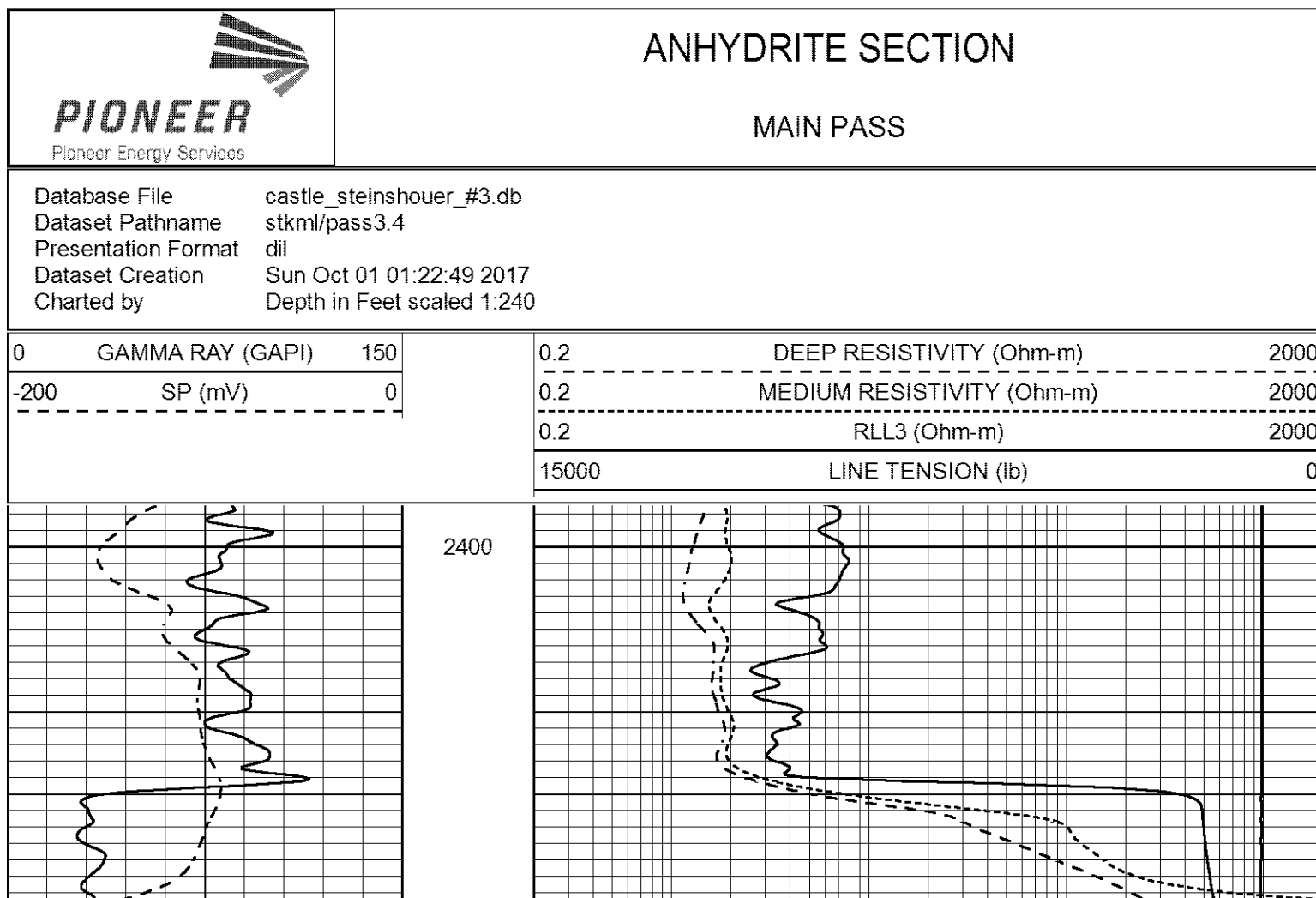
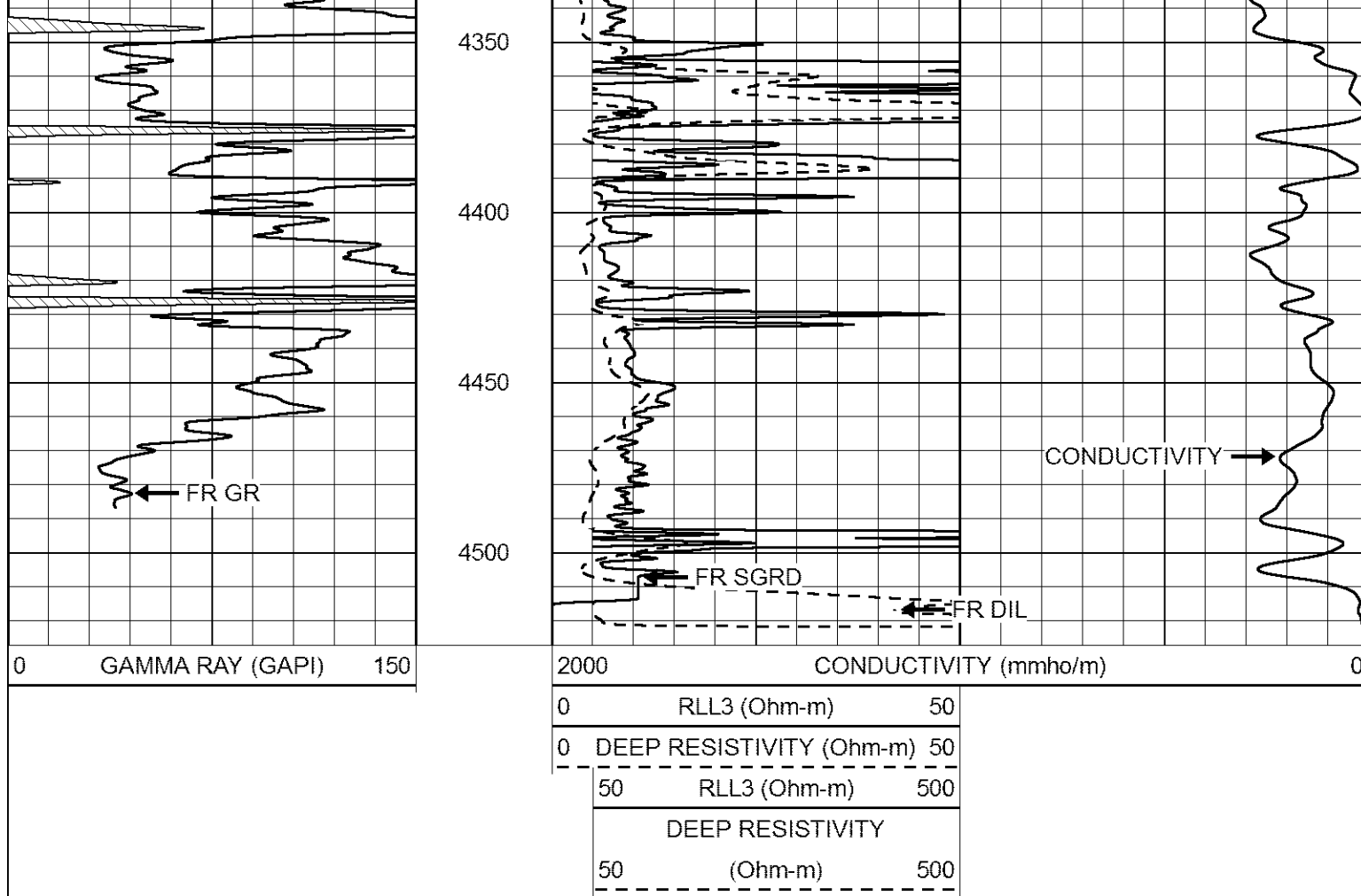
4150

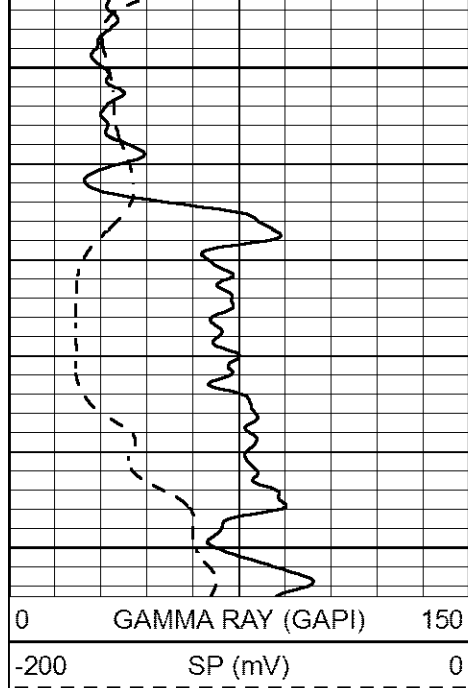
4200

4250

4300

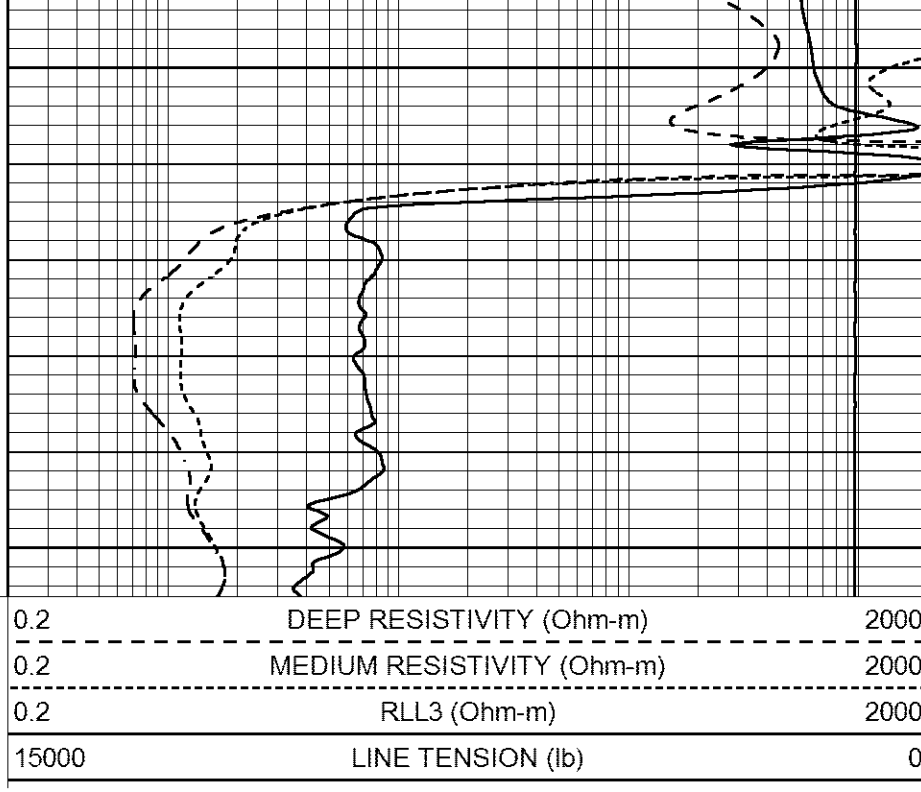






2450

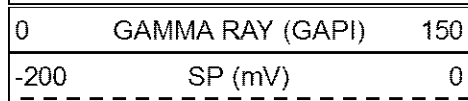
2500



PIONEER
Pioneer Energy Services

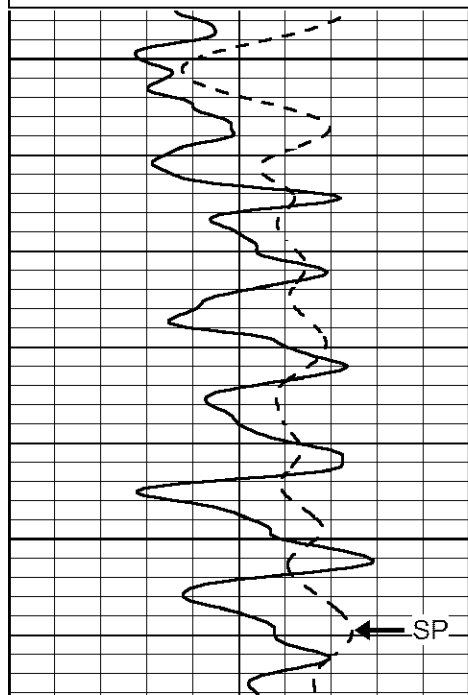
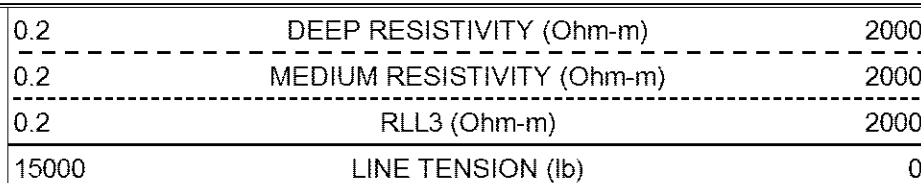
MAIN PASS

Database File castle_steinshouer_#3.db
Dataset Pathname stkml/pass3.1
Presentation Format dil
Dataset Creation Sun Oct 01 01:50:00 2017
Charted by Depth in Feet scaled 1:240



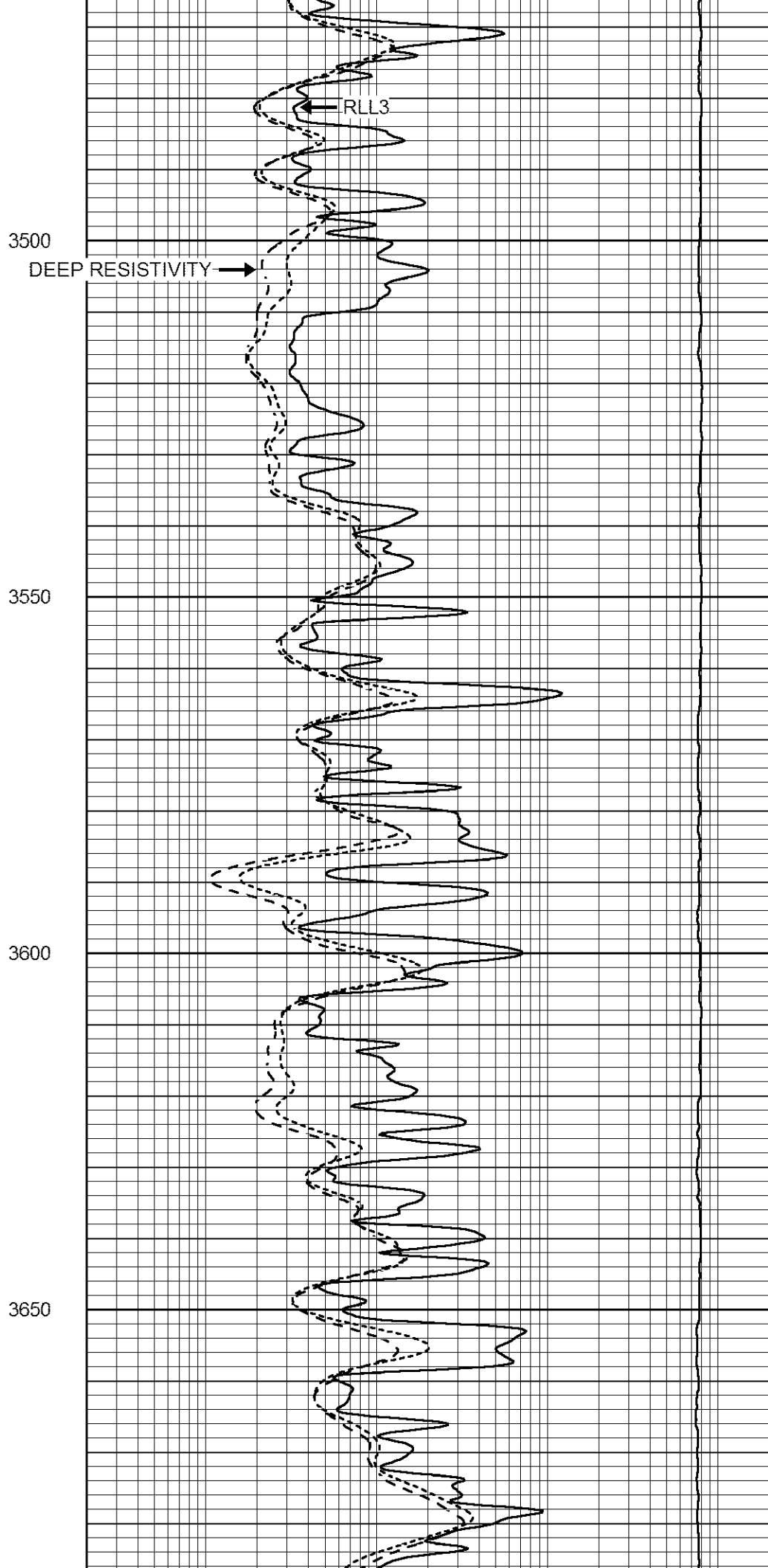
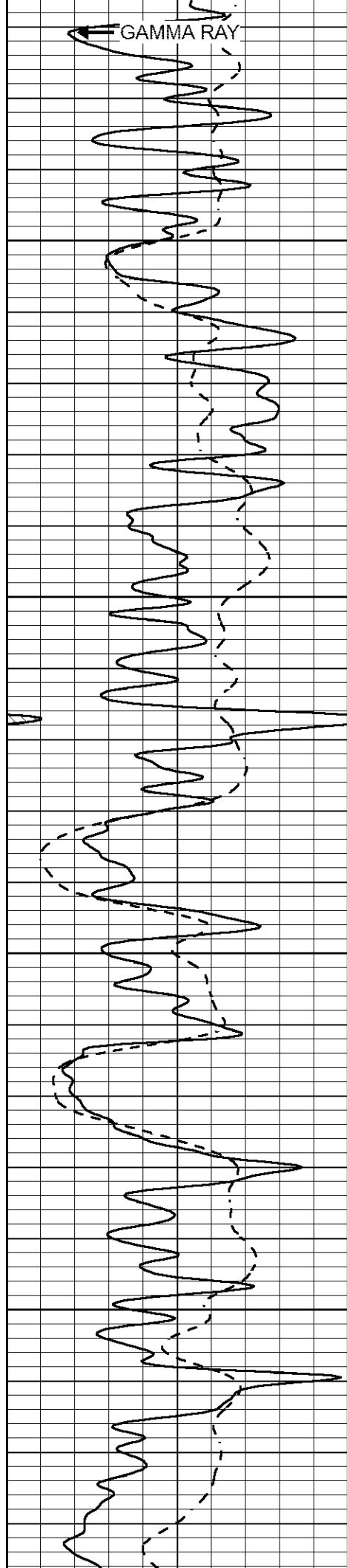
3400

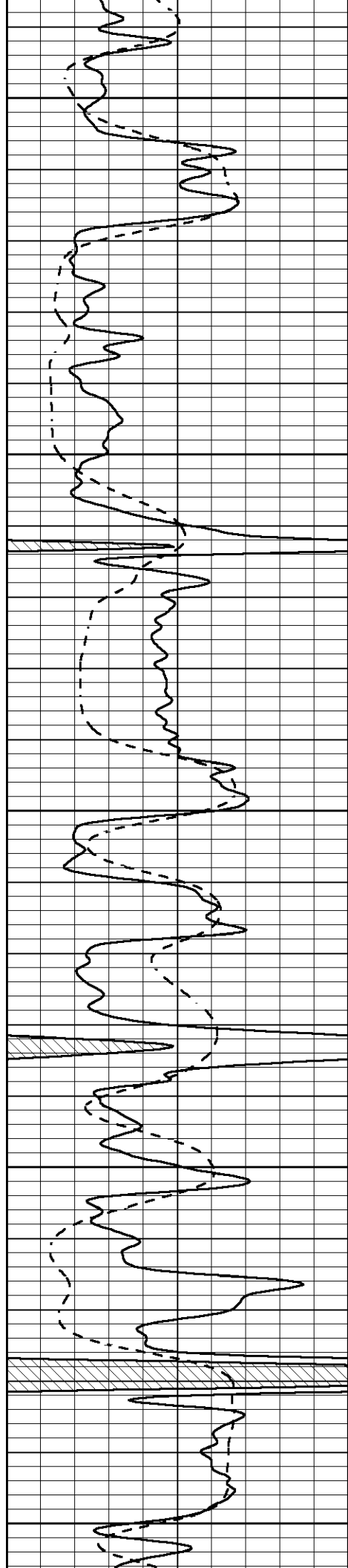
3450



LINE TENSION →

← MEDIUM RESISTIVITY





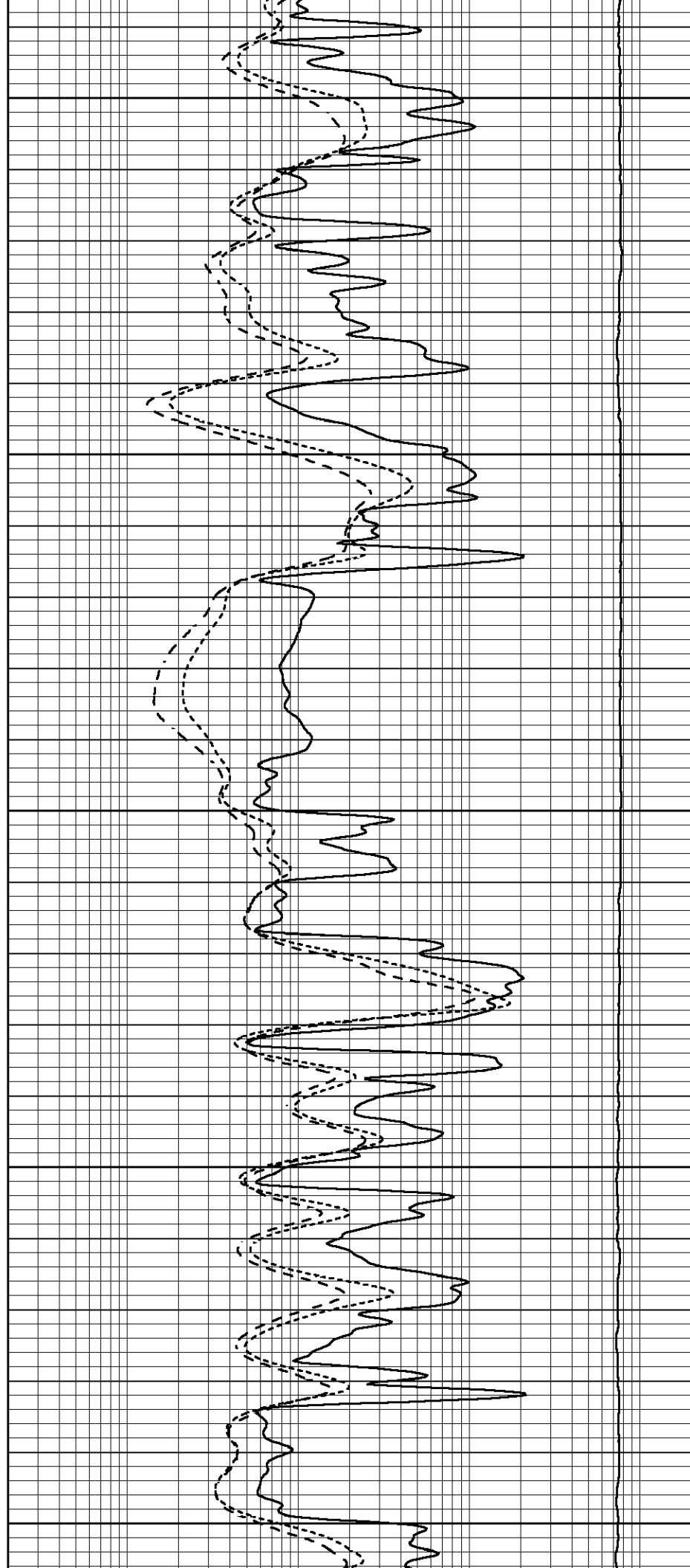
3700

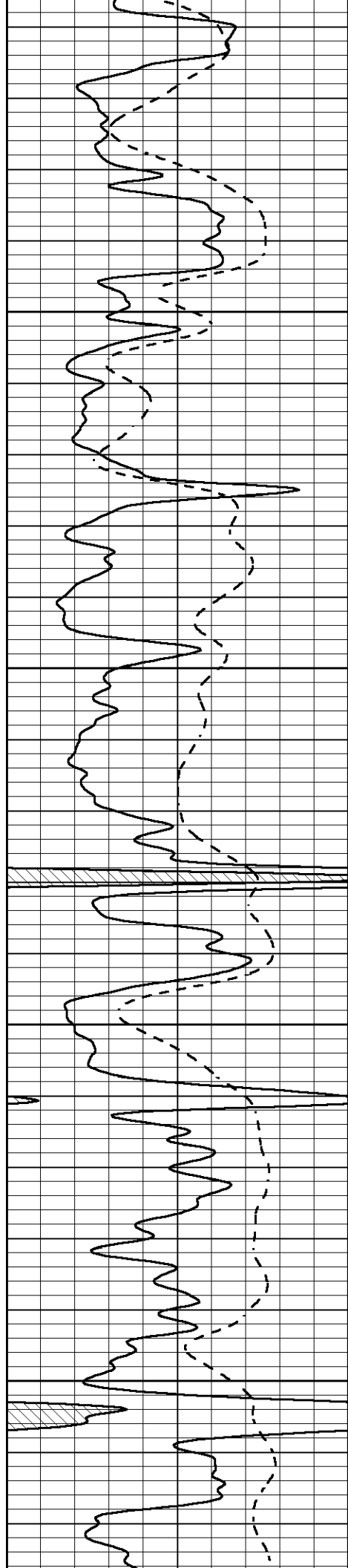
3750

3800

3850

3900



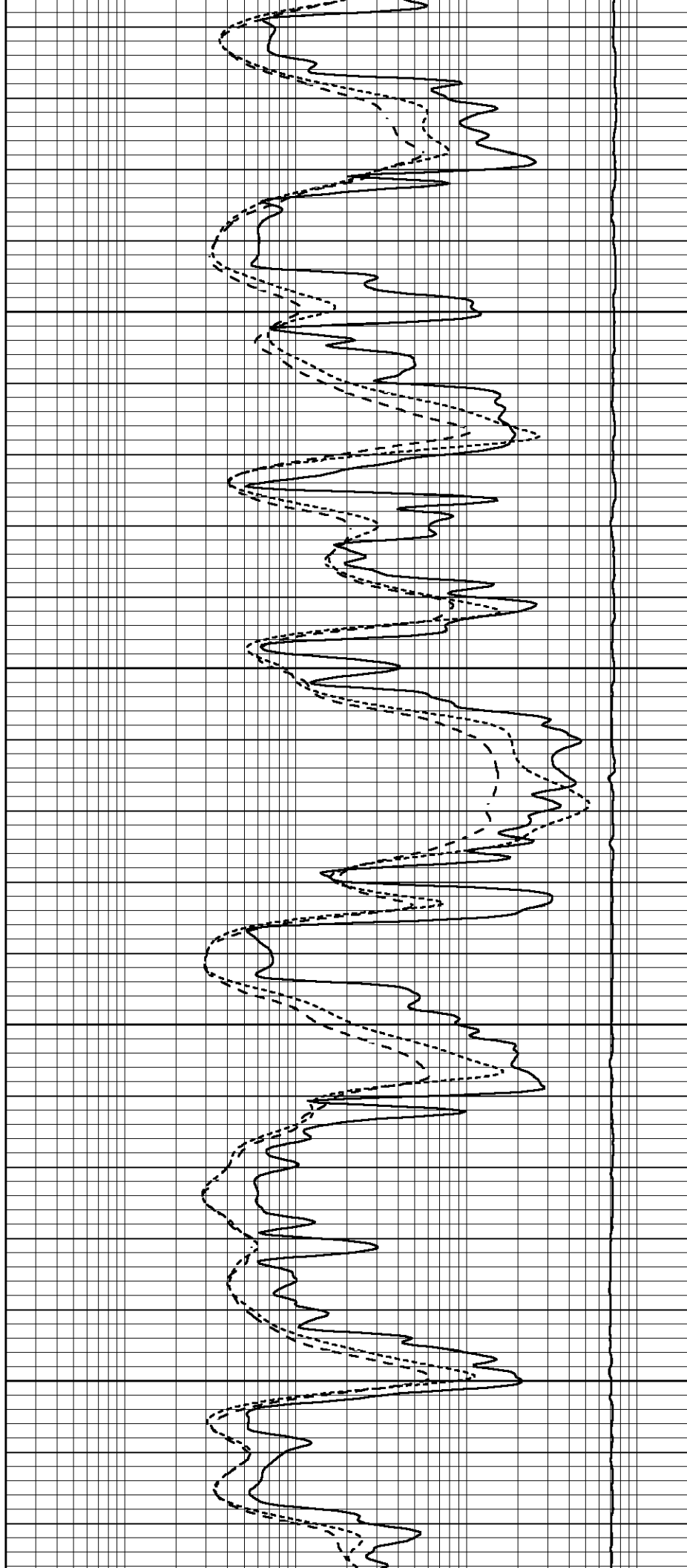


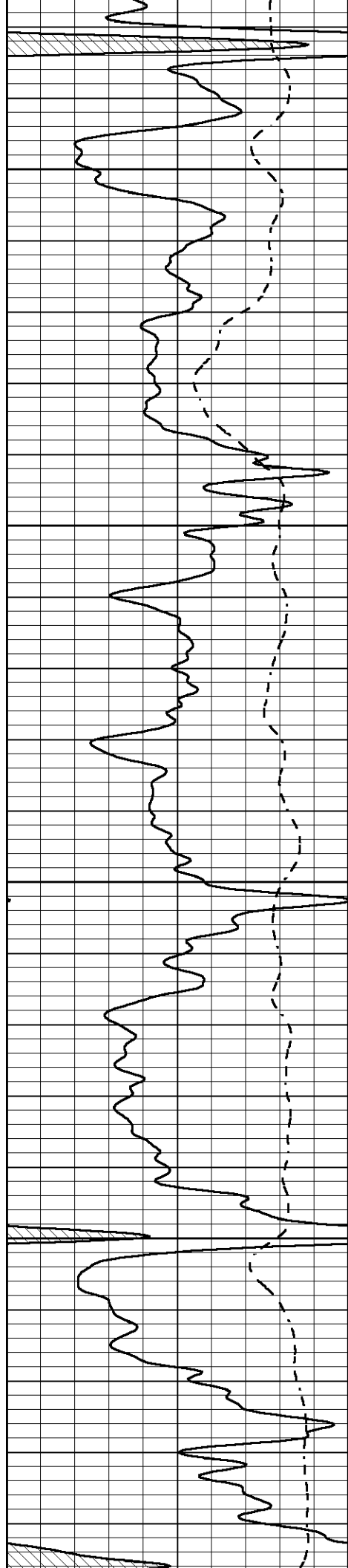
3950

4000

4050

4100



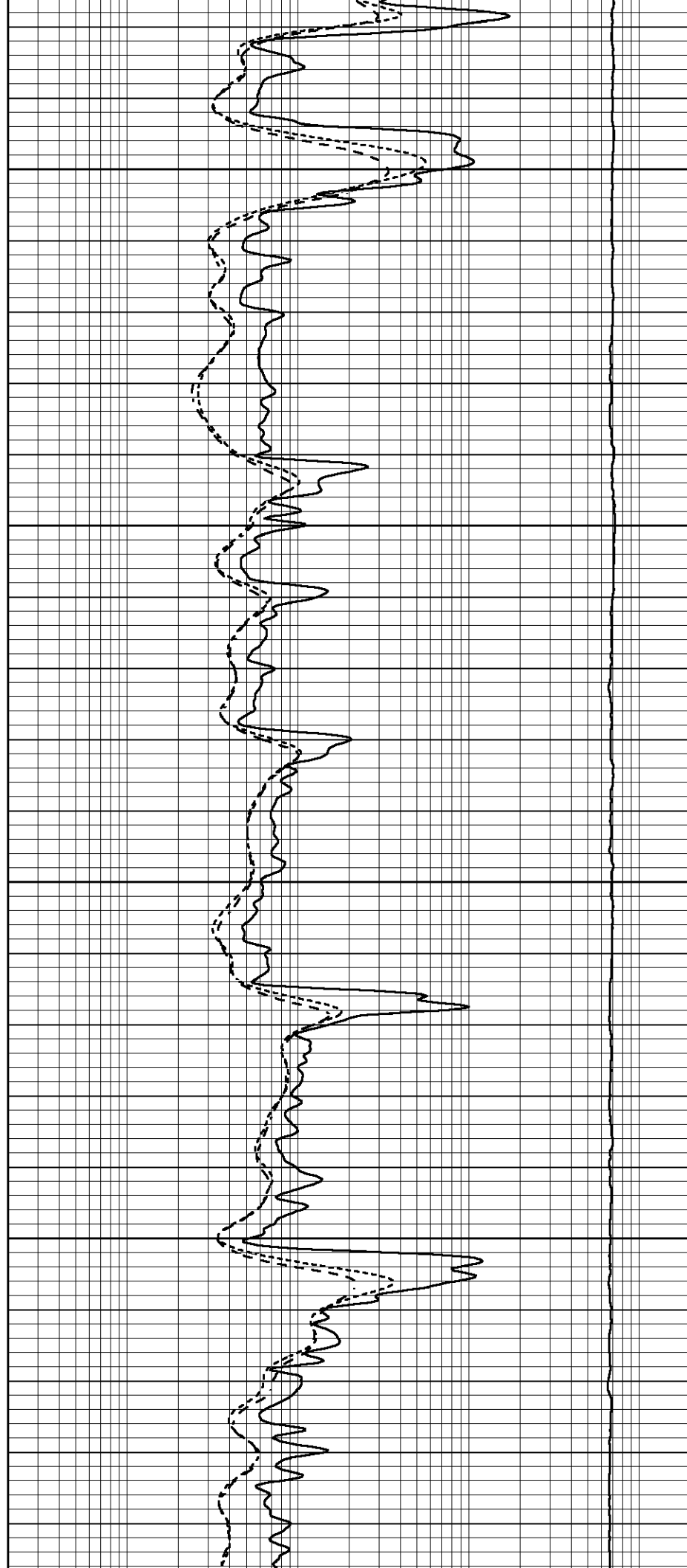


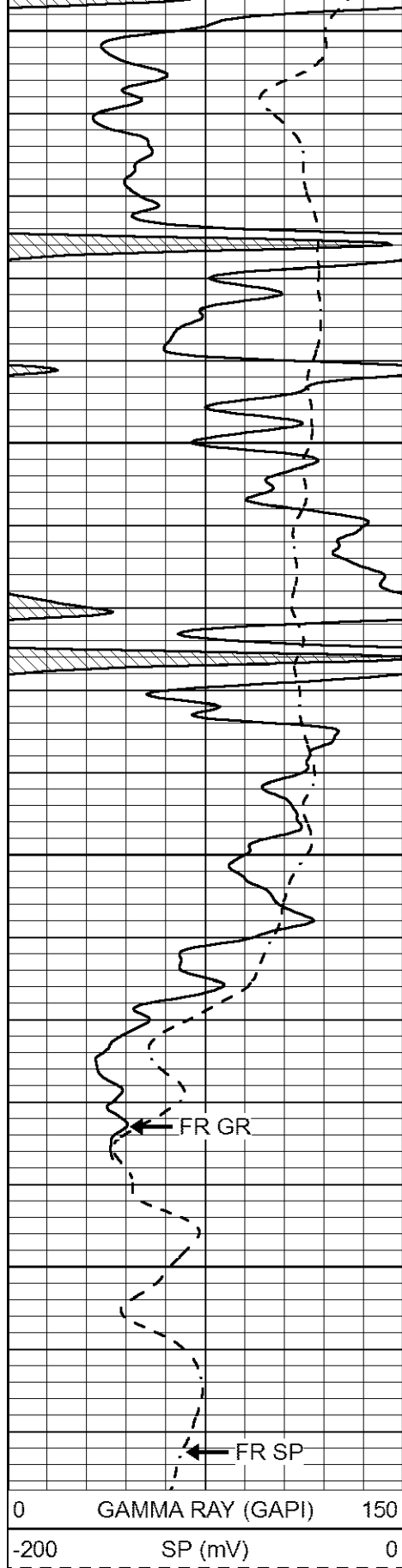
4150

4200

4250

4300



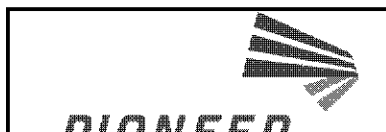
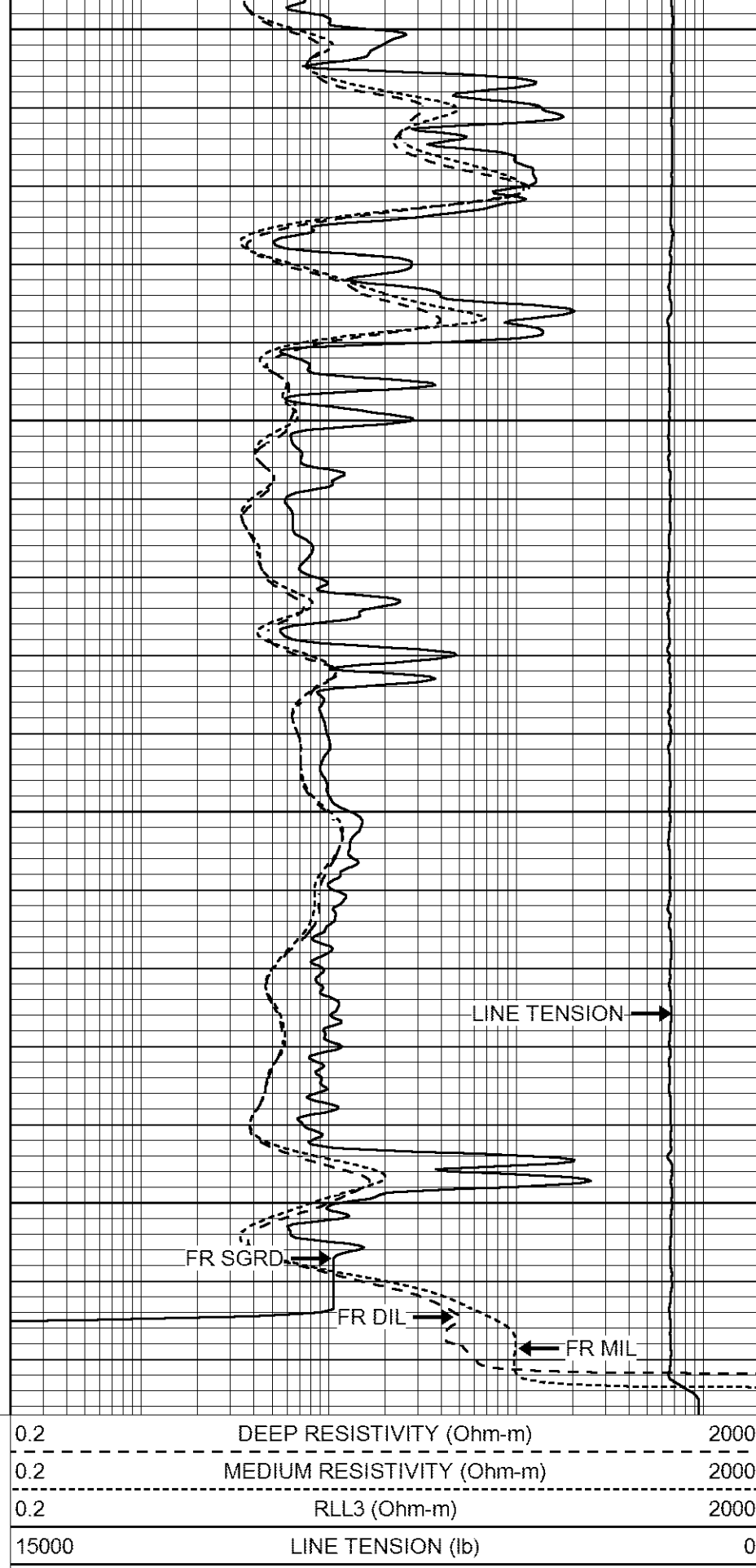


4350

4400

4450

4500



REPEAT SECTION

Database File castle_steinshouer_#3.db
Dataset Pathname stkml/pass2.1
Presentation Format dil
Dataset Creation Sun Oct 01 01:25:56 2017
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

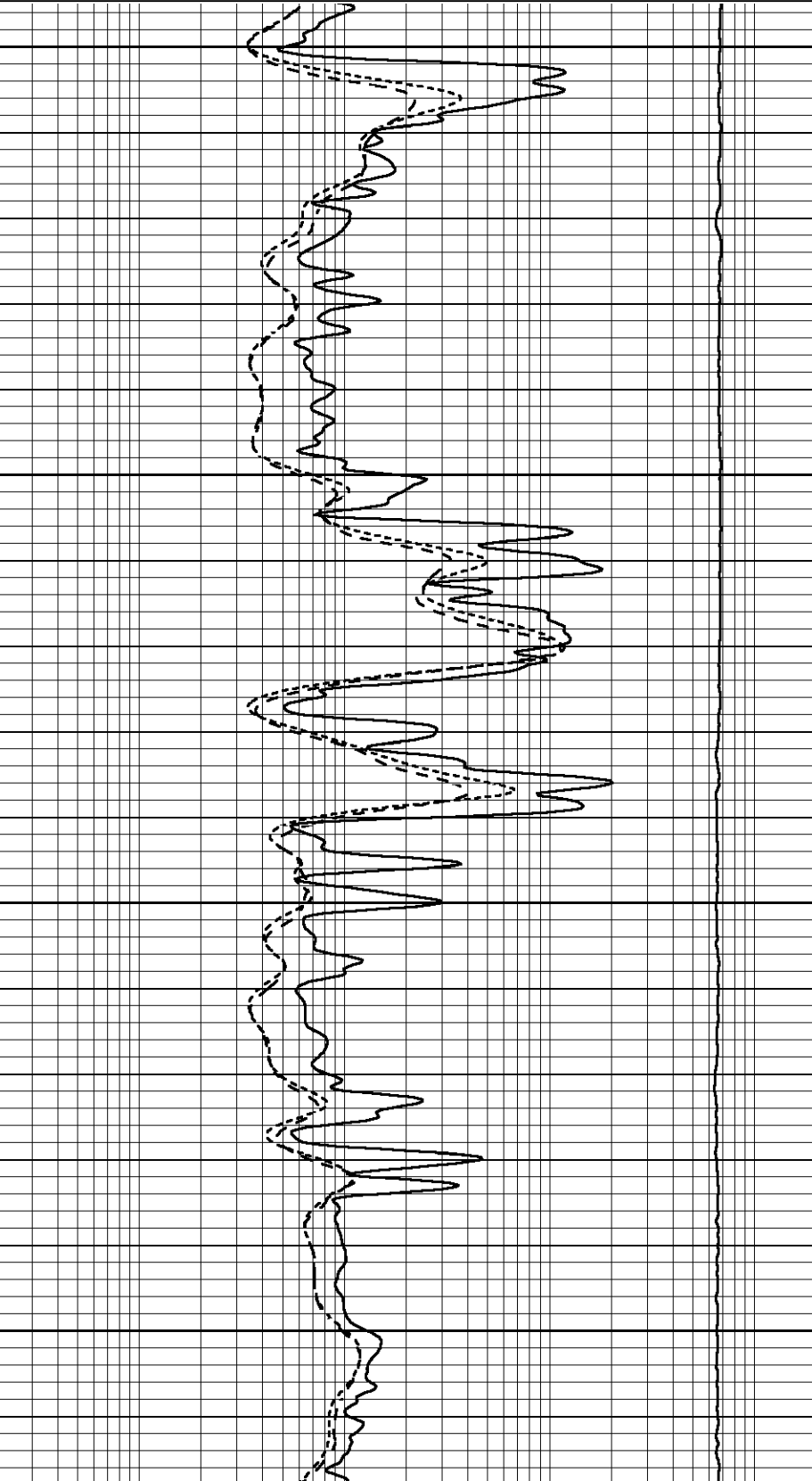


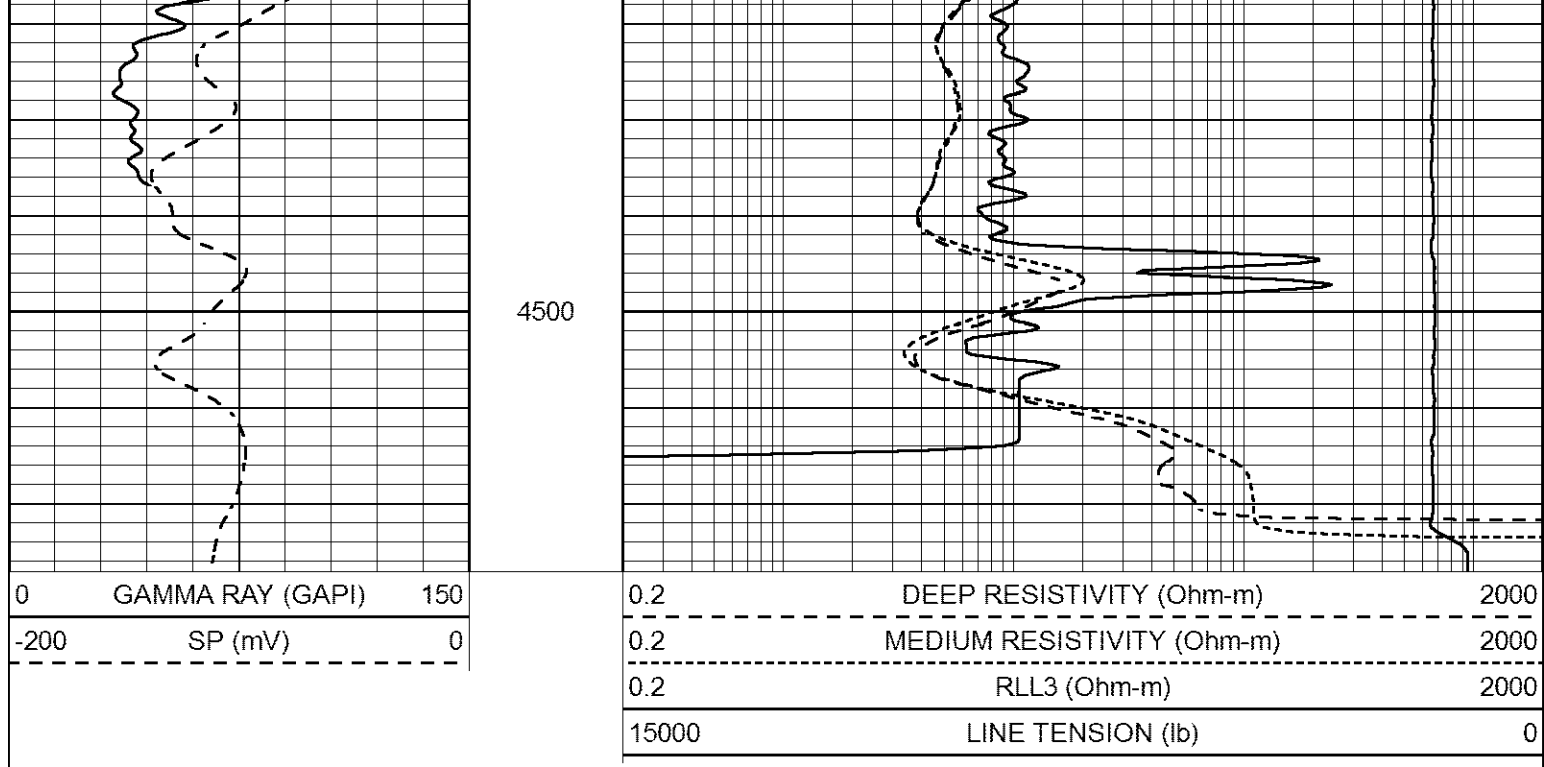
4300

4350

4400

4450





Calibration Report

Database File: castle_steinshouer_#3.db
 Dataset Pathname: stkml/pass3.1
 Dataset Creation: Sun Oct 01 01:50:00 2017

Dual Induction Calibration Report

Serial-Model: 1987-M&W
 Calibration Performed: Tue Apr 11 16:07:38 2017

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.530	-38.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.440	-110.500

Microlog Calibration Report

Serial-Model: PSI-02-PSI STKBL ML
 Performed: Fri Jun 23 00:25:19 2017

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0031	0.0043	0.0000	10.0000	Ohm-m	16000.0000	0.0000
Inverse	0.0000	0.0013	0.0000	10.0000	Ohm-m	18000.0000	0.0000
Caliper	1.0020	1.0834	5.5000	16.5000	in	135.1560	-131.5000

Compensated Density Calibration Report

Serial-Model: 168-986-M&W
 Source / Verifier: /
 Master Calibration Performed: Tue Apr 11 16:07:47 2017

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	4691.86	4818.19	cps
Aluminum	2.675	g/cc	859.57	3020.22	cps
Spine Angle = 74.61			Density/Spine Ratio = 0.523		
	Size		Reading		
Small Ring	4.00	in	1.03		
Large Ring	14.00	in	1.23		

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 16:08:01 2017

Calibrator Value: 1000.0 GAPI

Background Reading: 0.0 cps
 Calibrator Reading: 6.2 cps

Sensitivity: 0.5200 GAPI/cps



Company CASTLE RESOURCES, INC.
 Well STEINSHOUER #3
 Field HOXIE WEST
 County SHERIDAN
 State KANSAS