



DUAL
INDUCTION
LOG

Company L.D. DRILLING, INC.

Well #1-36 HORN

Field J-MUR NORTHEAST

County LANE State KANSAS

Location: API #: 15-101-22631-0000

165' FSL & 1320' FEL

SEC 36 TWP 19S RGE 29W

Permanent Datum GROUND LEVEL Elevation 2816
Log Measured From KELLY BUSHING 5' A.G.L
Drilling Measured From KELLY BUSHING

Other Services
CDL/CNL
MEL

Elevation

K.B. 2821
D.F. 2819
G.L. 2816

Date	9/26/19
Run Number	ONE
Depth Driller	4747
Depth Logger	4748
Bottom Logged Interval	4746
Top Log Interval	00
Casing Driller	8 5/8" @ 303'
Casing Logger	303'
Bit Size	7 7/8
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.4/46
pH / Fluid Loss	9.0/8.0
Source of Sample	FLOWLINE
Rm @ Meas. Temp	1.0 @ 80F
Rmf @ Meas. Temp	.75 @ 80F
Rmc @ Meas. Temp	1.2 @ 80F
Source of Rmf / Rmc	MEASUREMENT
Rm @ BHT	.65 @ 123F
Time Circulation Stopped	2 HOURS
Time Logger on Bottom	////
Maximum Recorded Temperature	123F
Equipment Number	3802
Location	HAYS, KANSAS
Recorded By	JASON CAPPELLUCCI
Witnessed By	KIM SHOEMAKER

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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, 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. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

THANK YOU FOR USING ELI WIRELINE SERVICES, HAYS, KS. (785) 628-6395
DIRECTIONS
DIGHTON, KS. - 9 SOUTH TO RD. 60 - 1/4 WEST - NORTH INTO

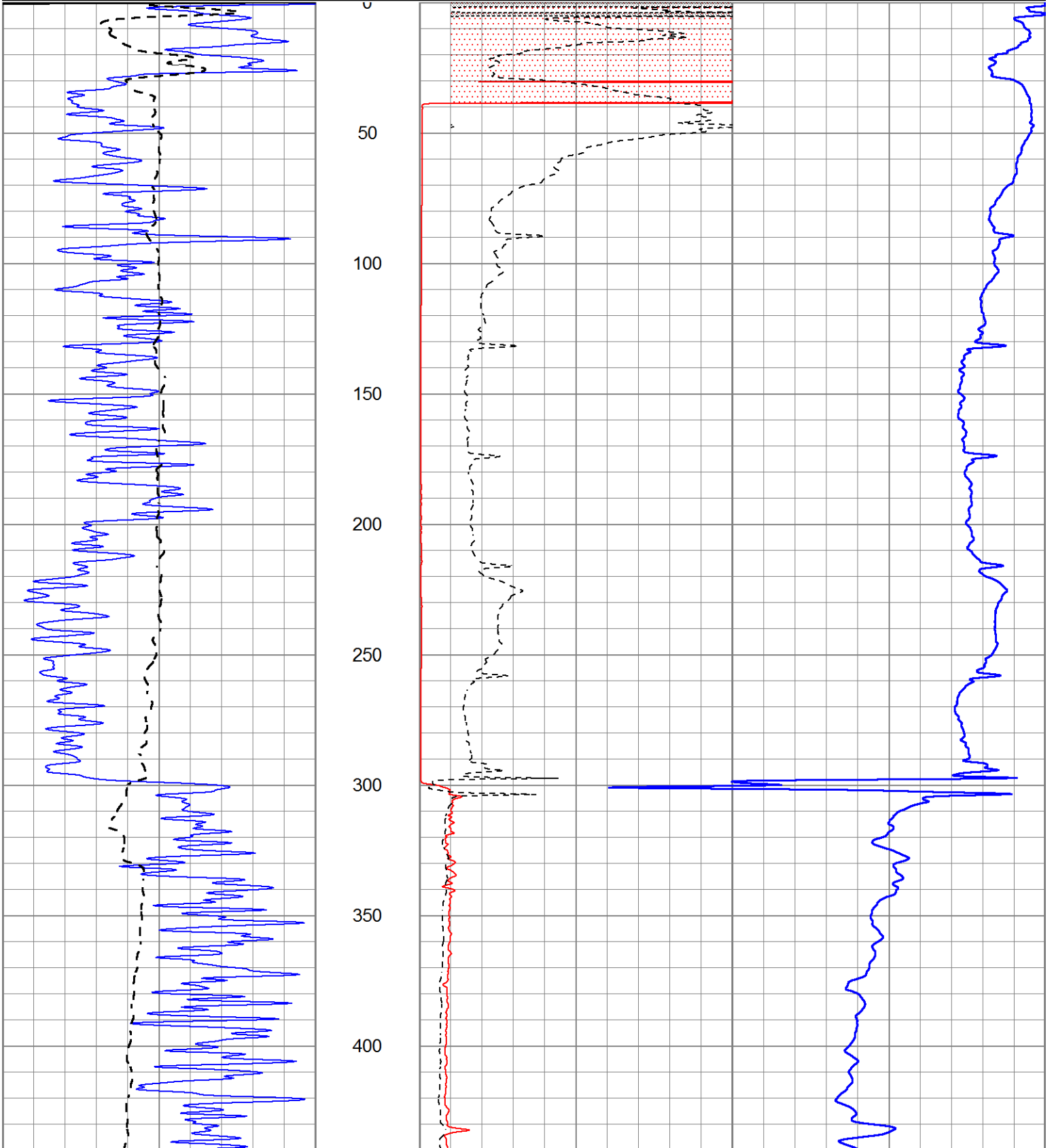


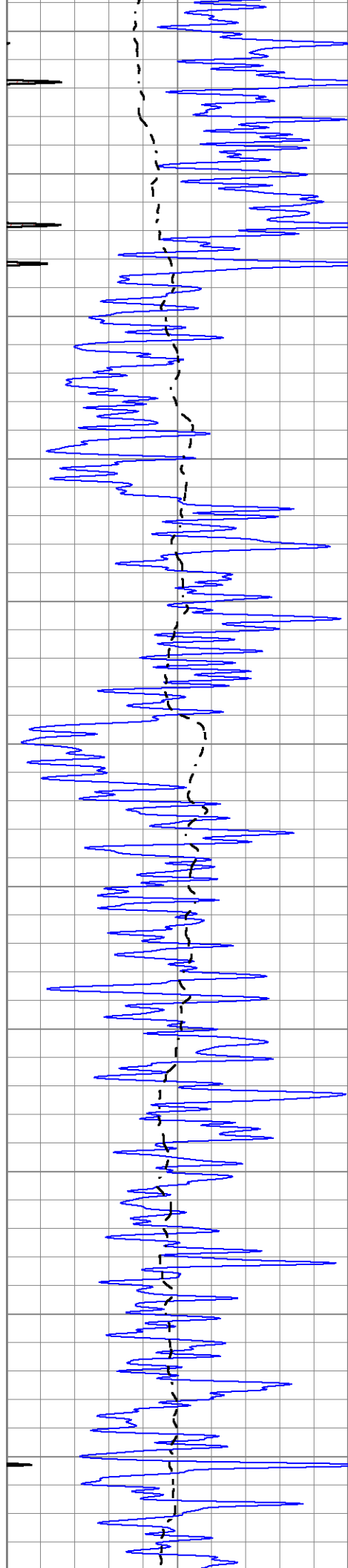
MAIN SECTION

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 Dataset Creation Thu Sep 26 02:33:37 2019
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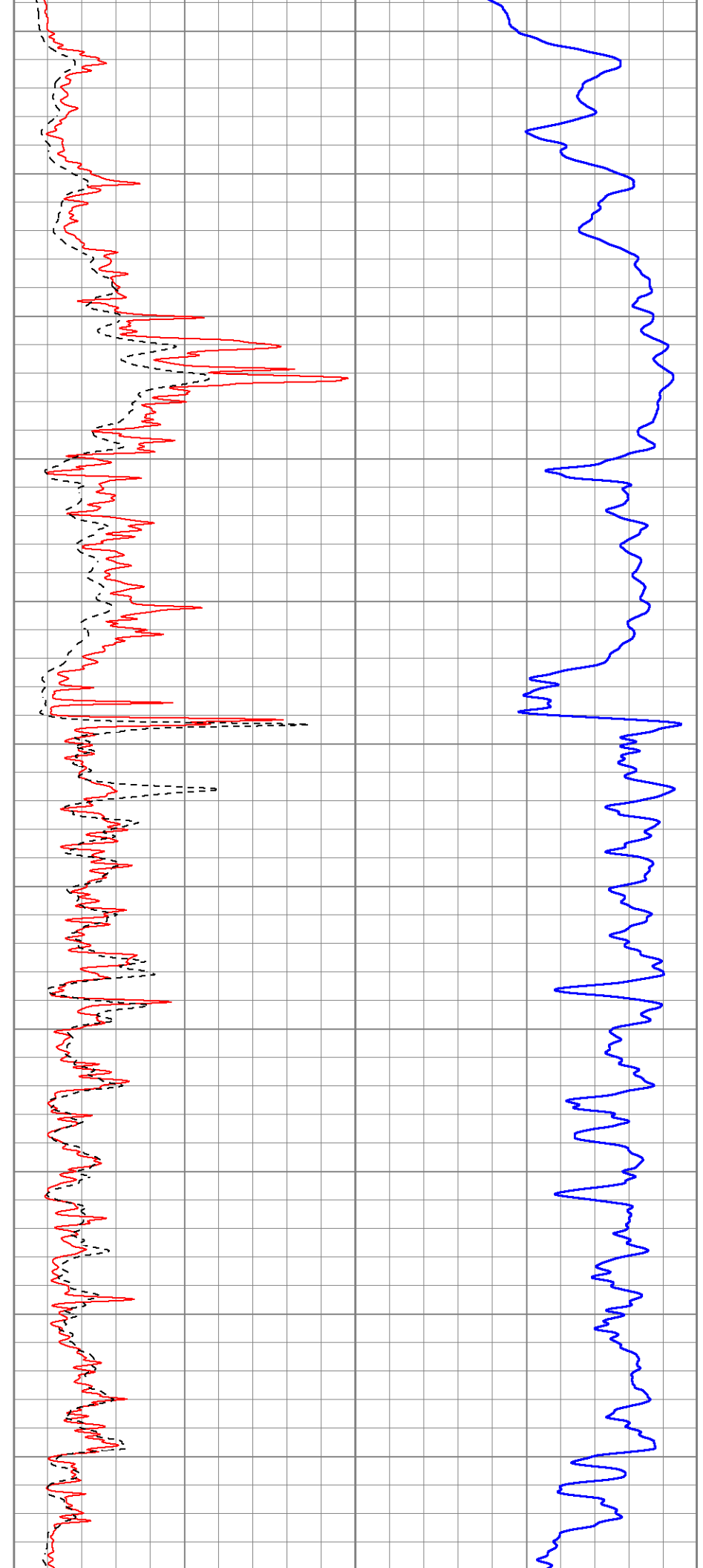
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-100	SP (mV)	100

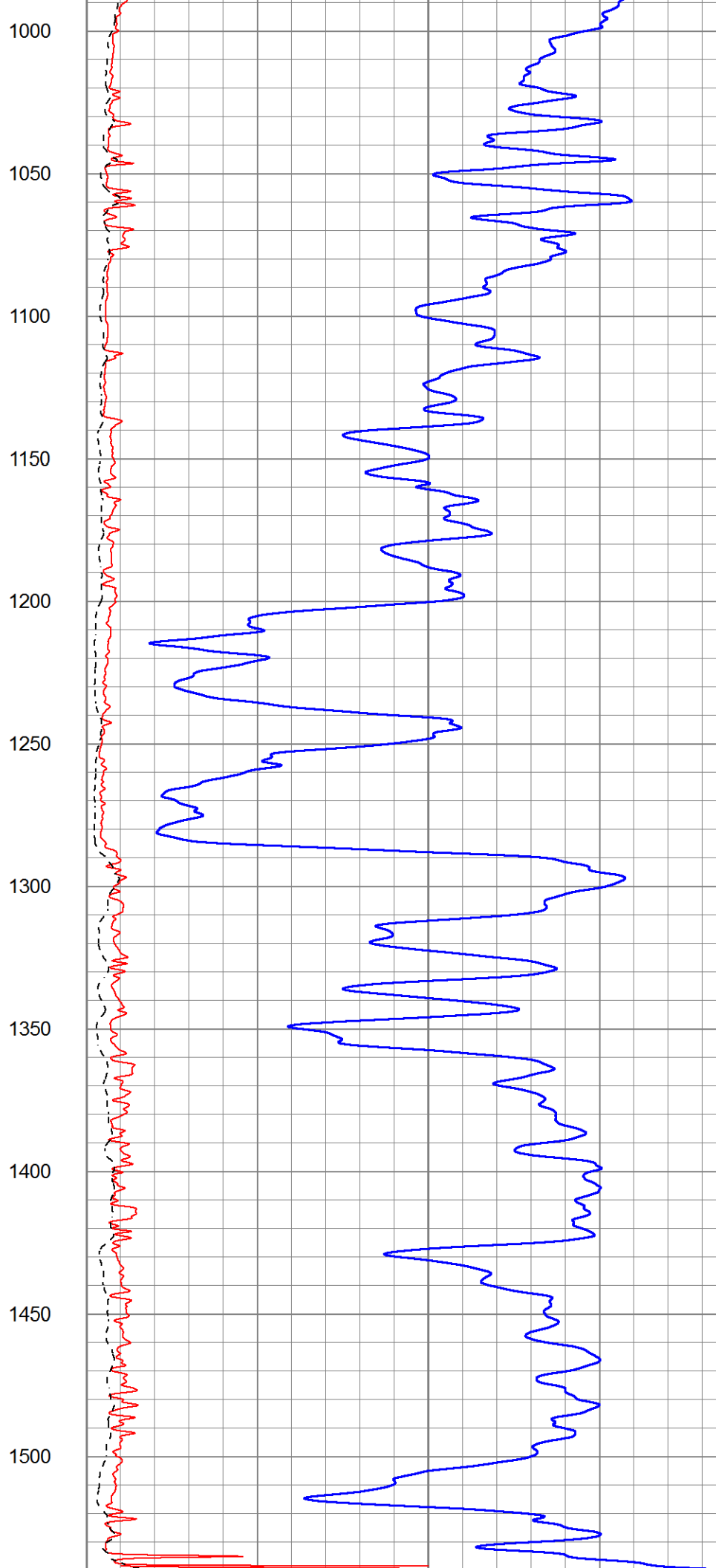
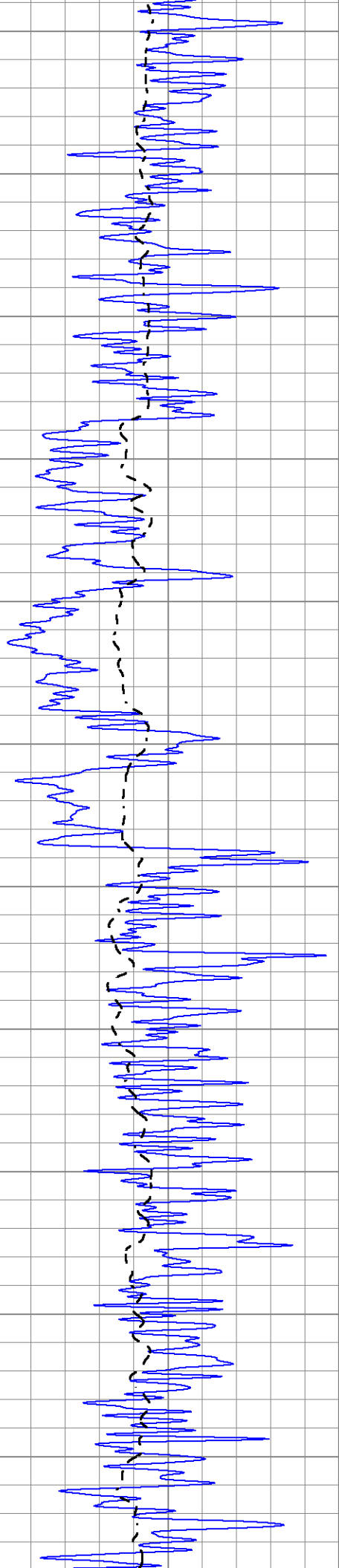
1000	CILD (mmho/m)	0
0	RLL3 (Ohm-m)	50
0	Deep Induction (Ohm-m)	50
50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500

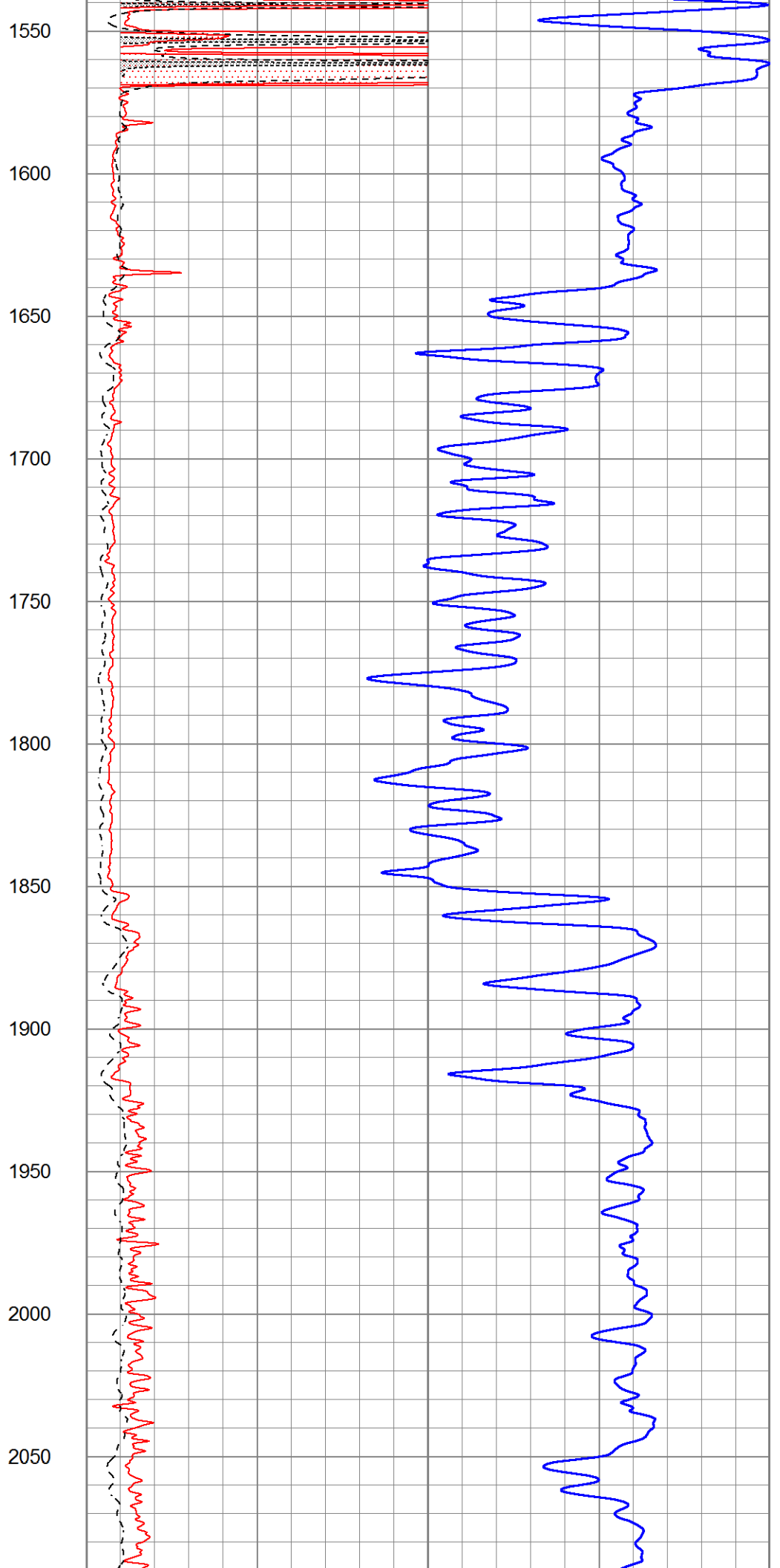
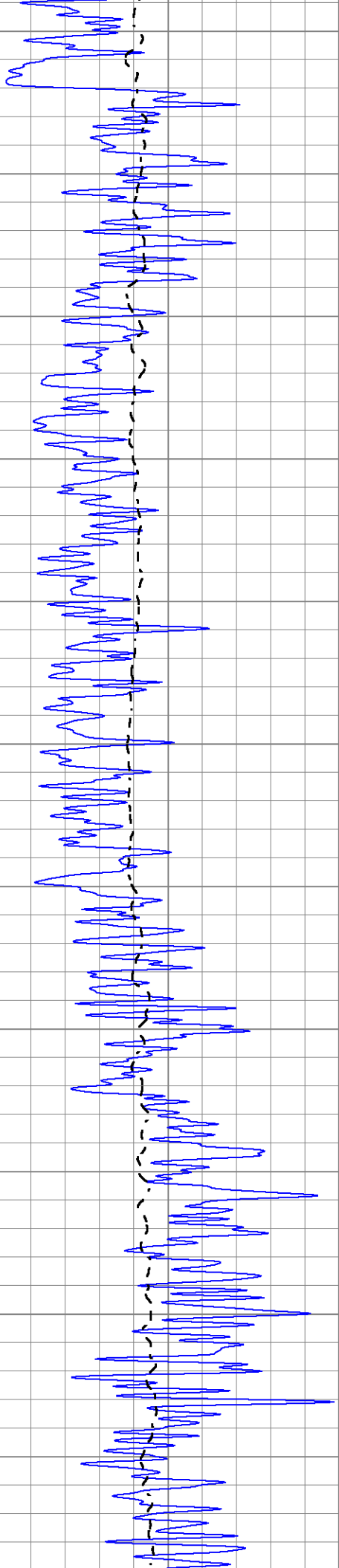


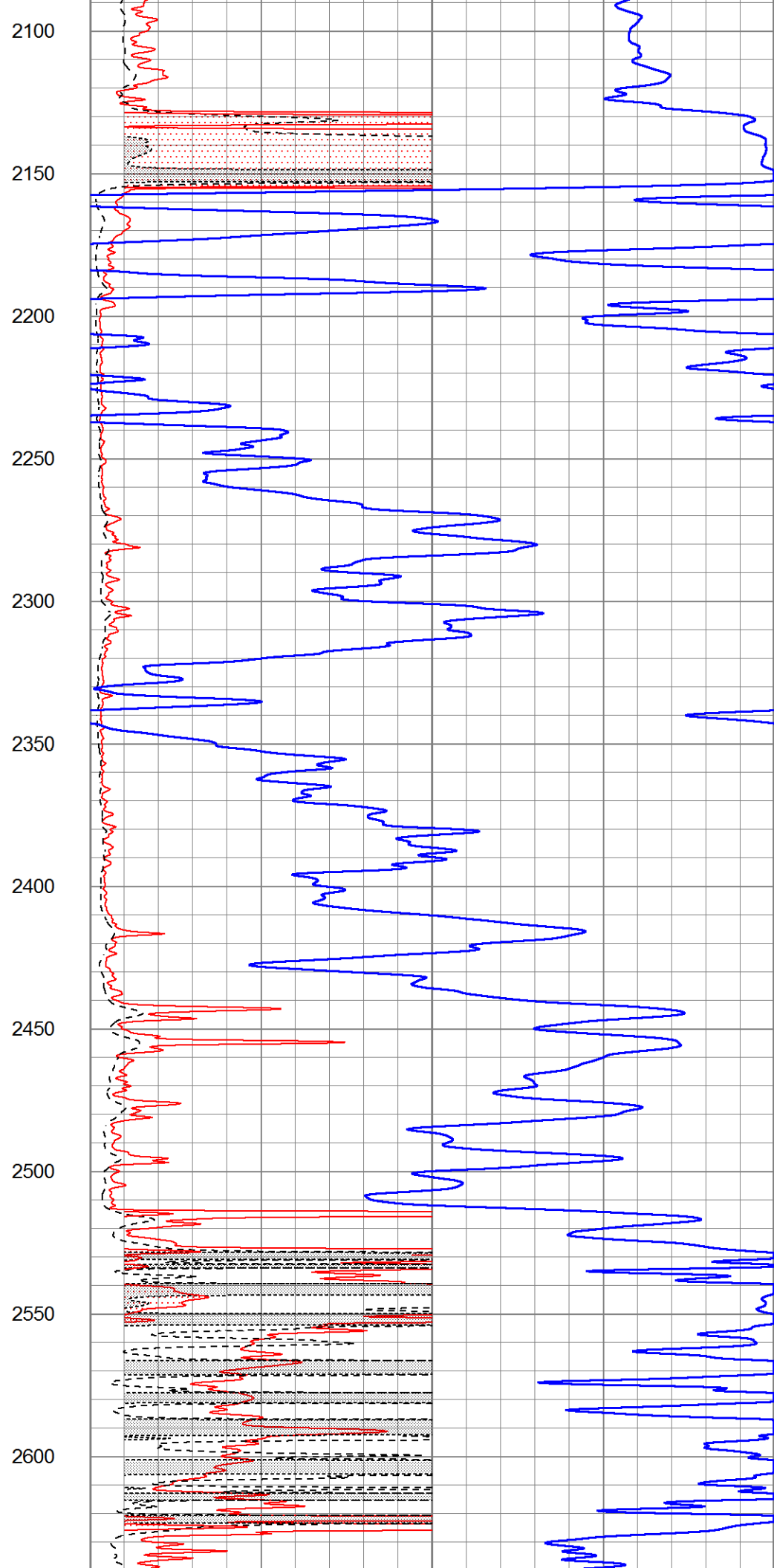
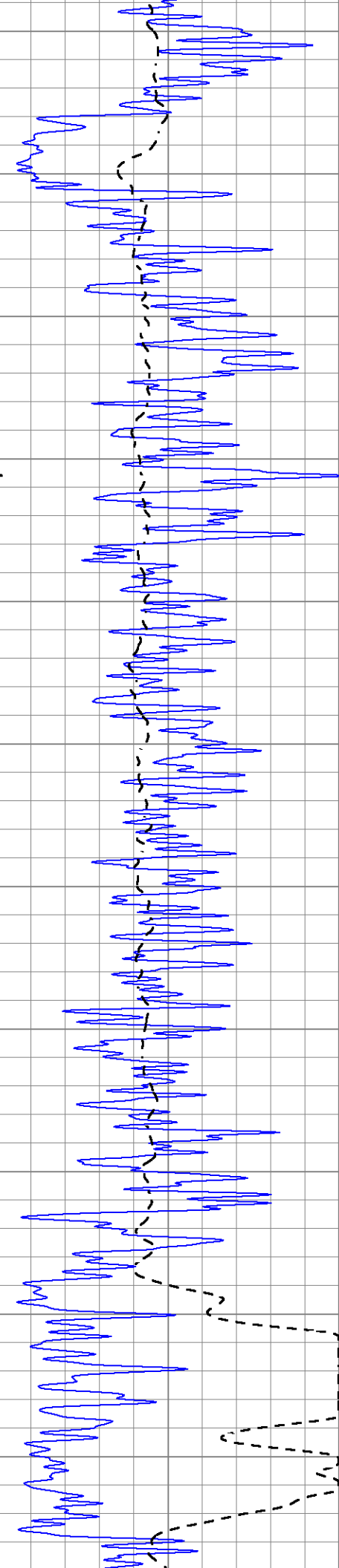


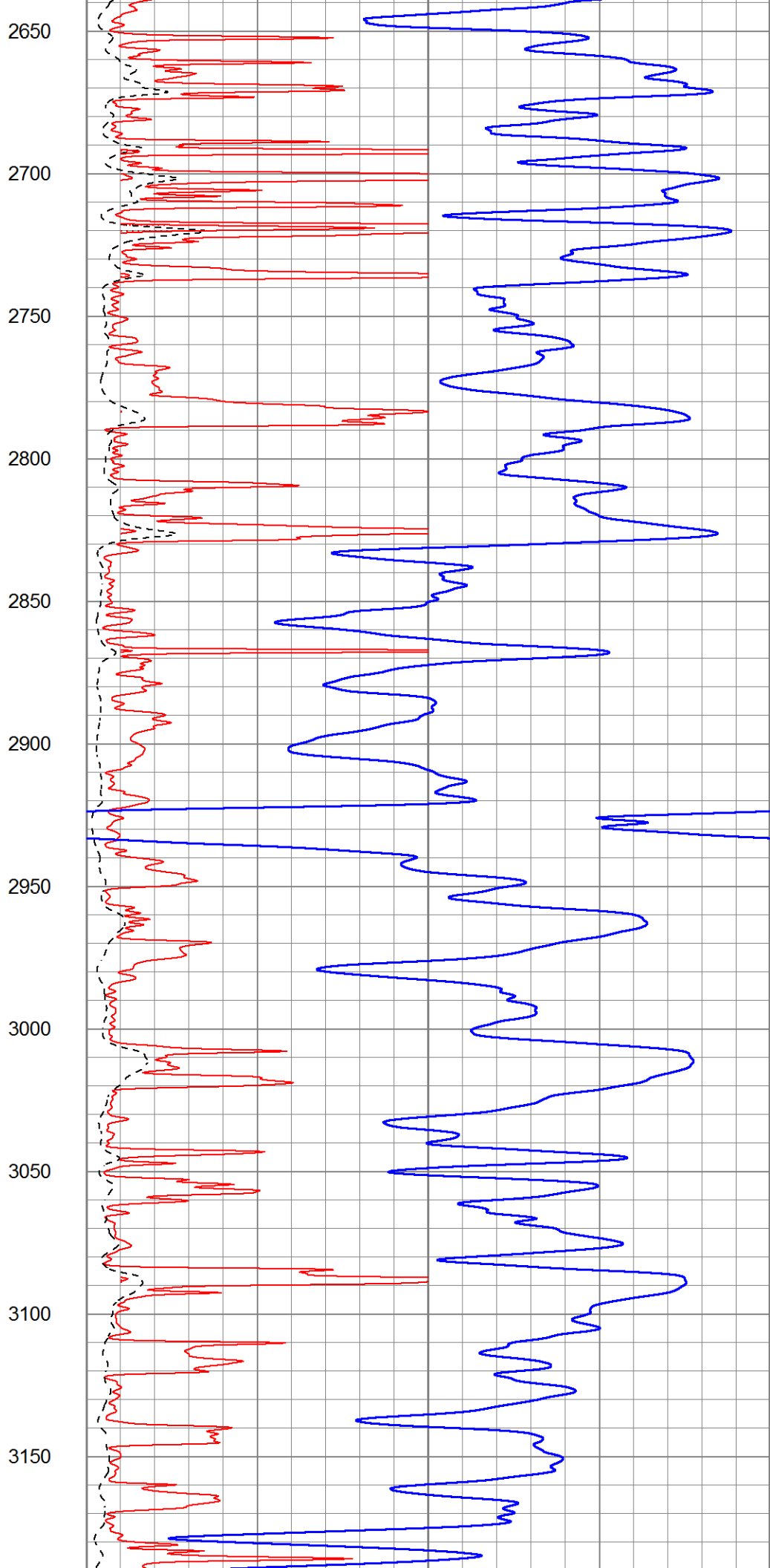
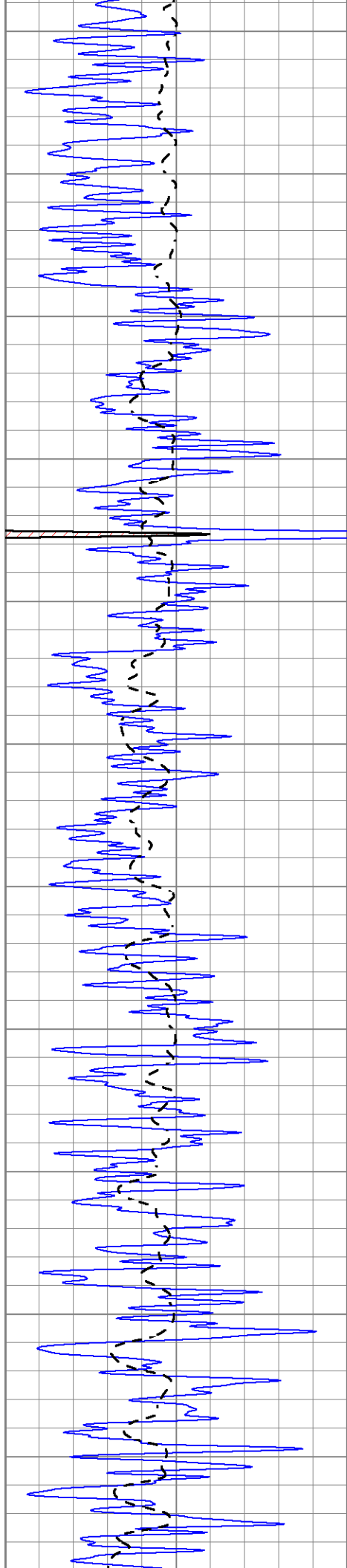
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750
800
850
900
950

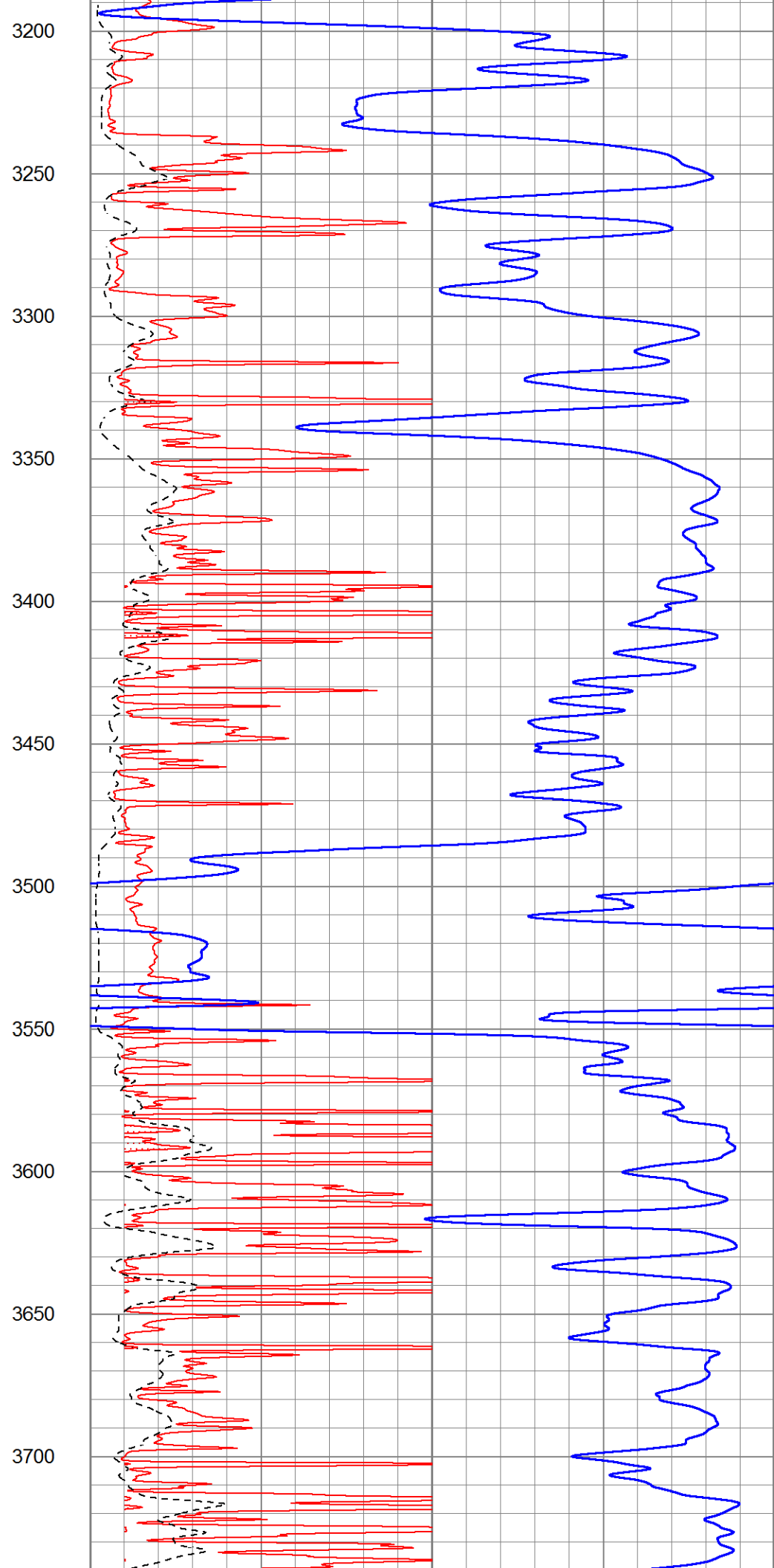
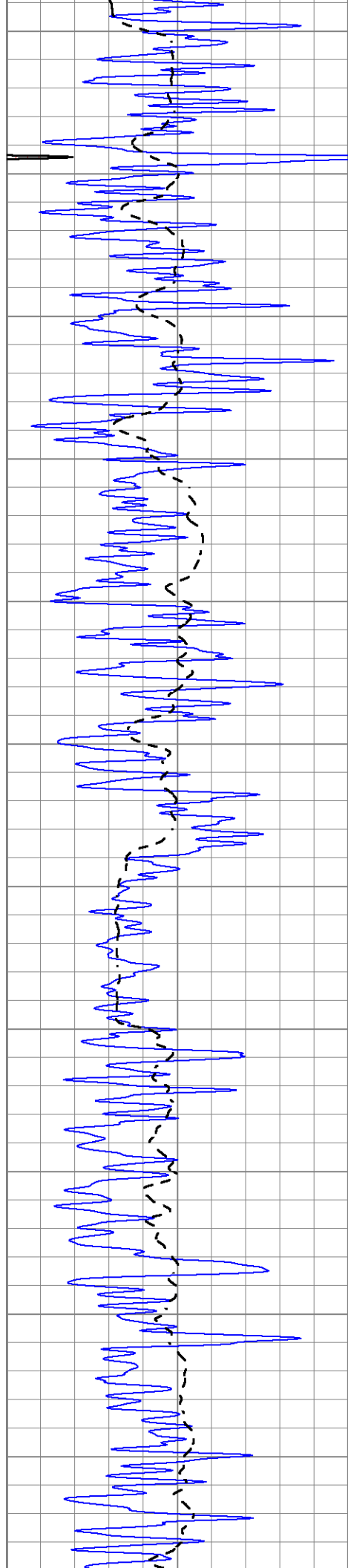


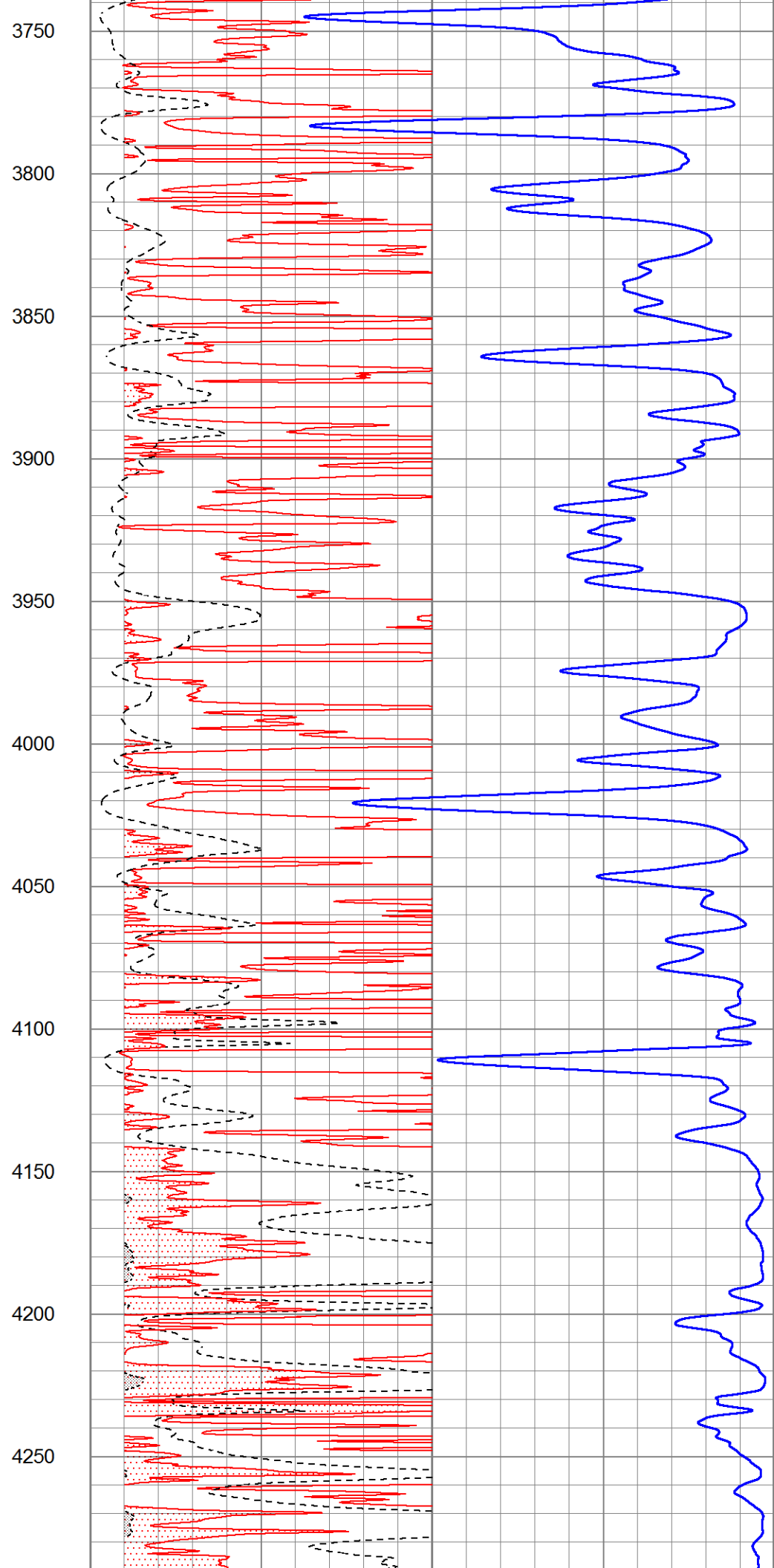
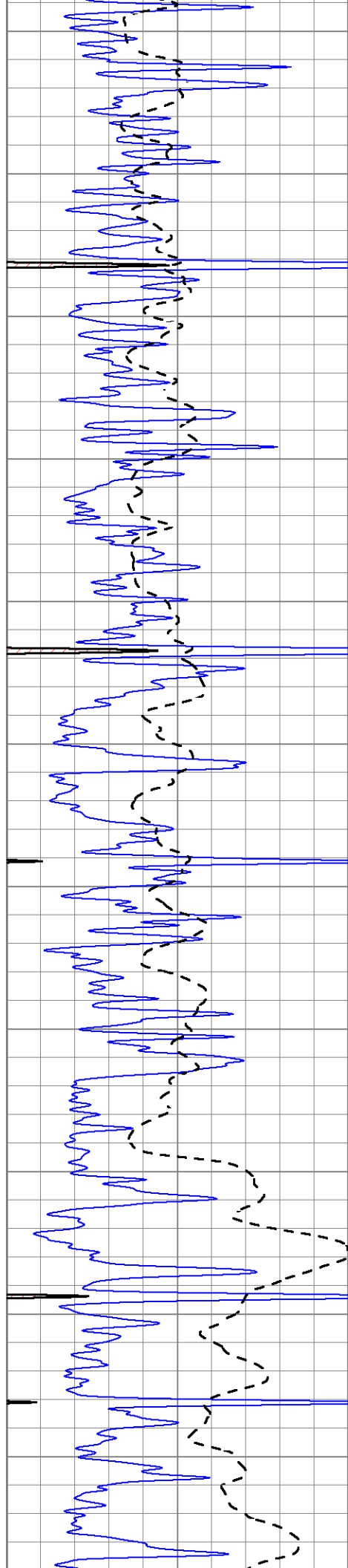


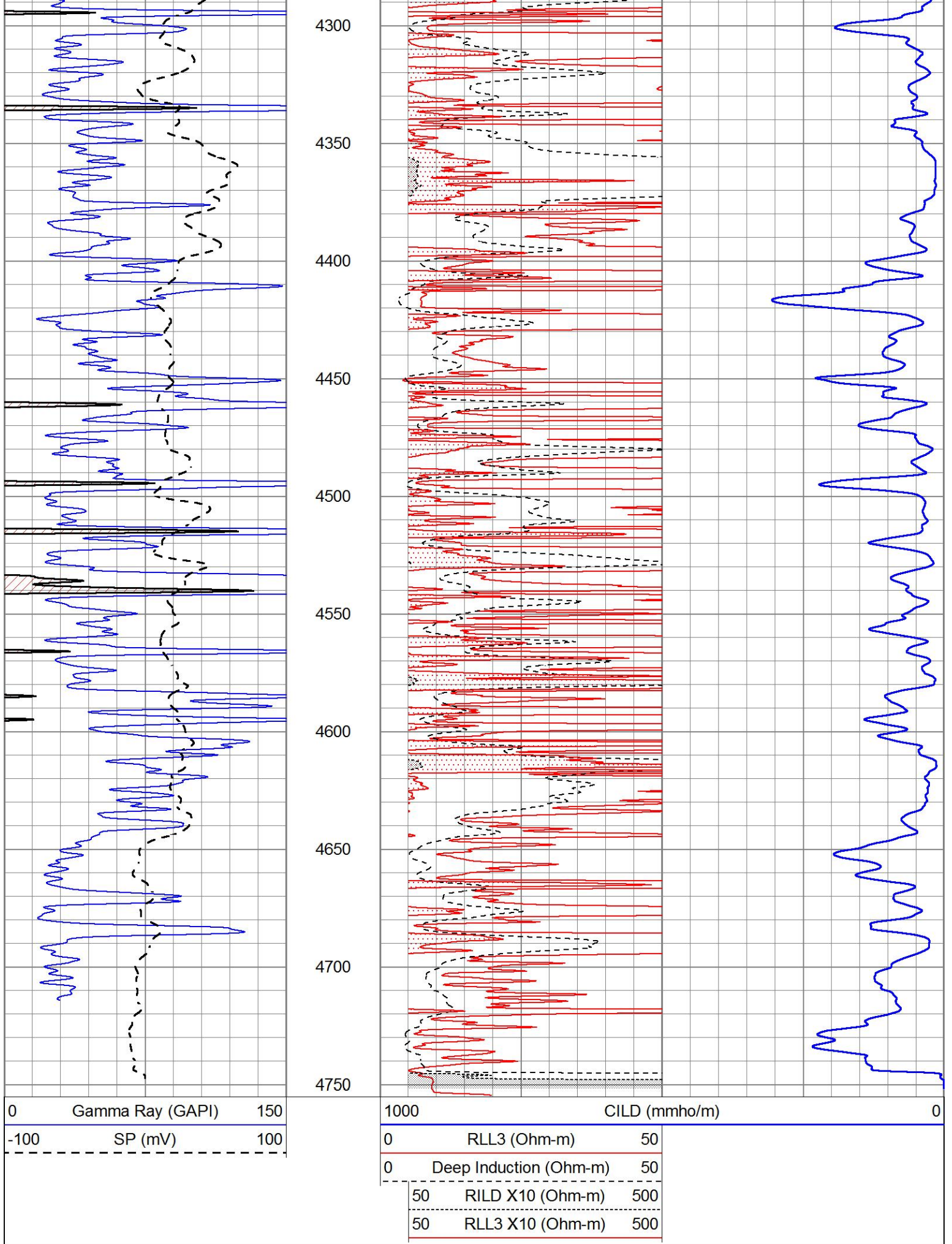












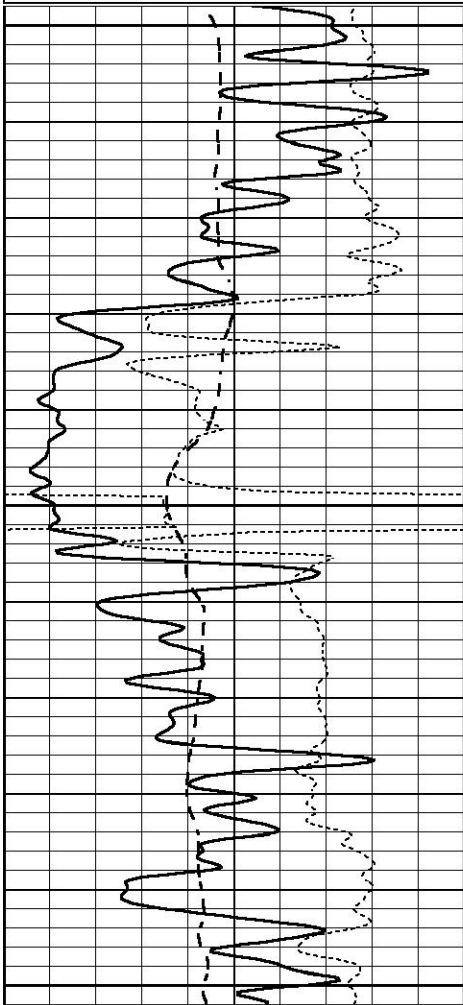


ANHYDRITE

Database File 3995ddn8.db
 Dataset Pathname pass3.2
 Presentation Format _dil
 Dataset Creation Thu Sep 26 01:57:56 2019
 Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50

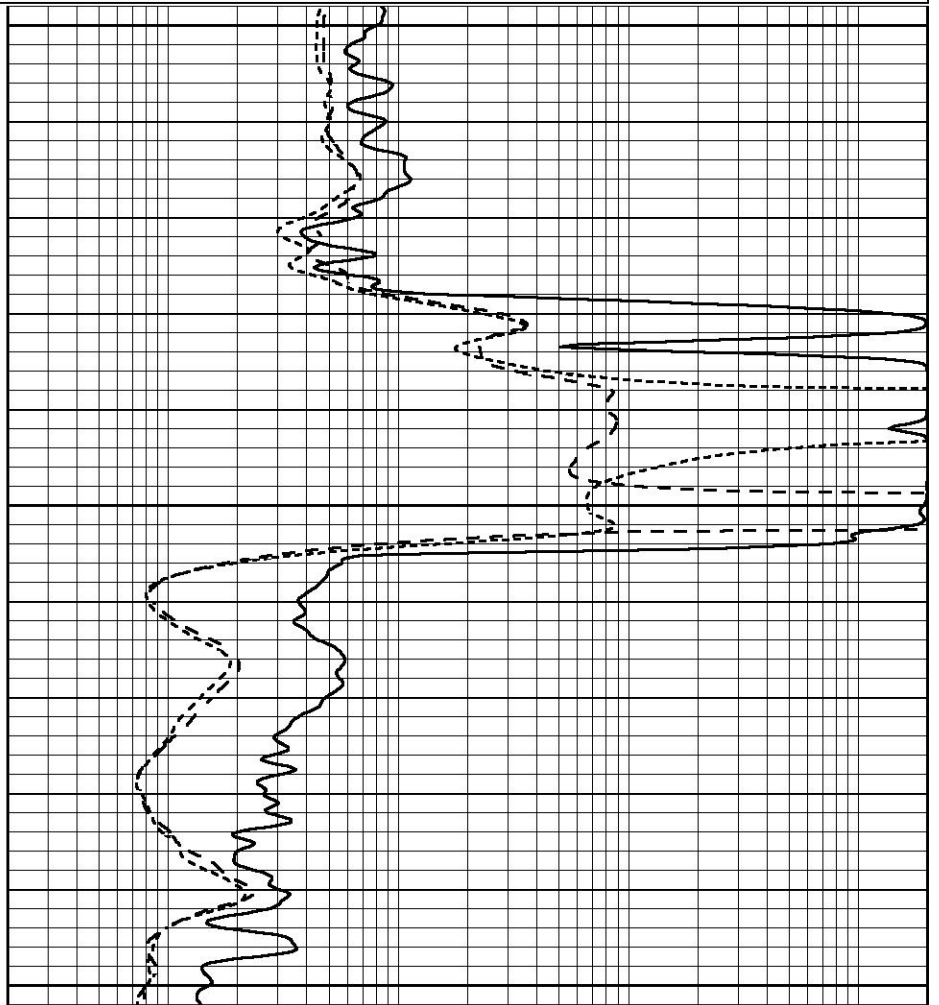
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000



2100

2150

2200



0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000



MAIN SECTION

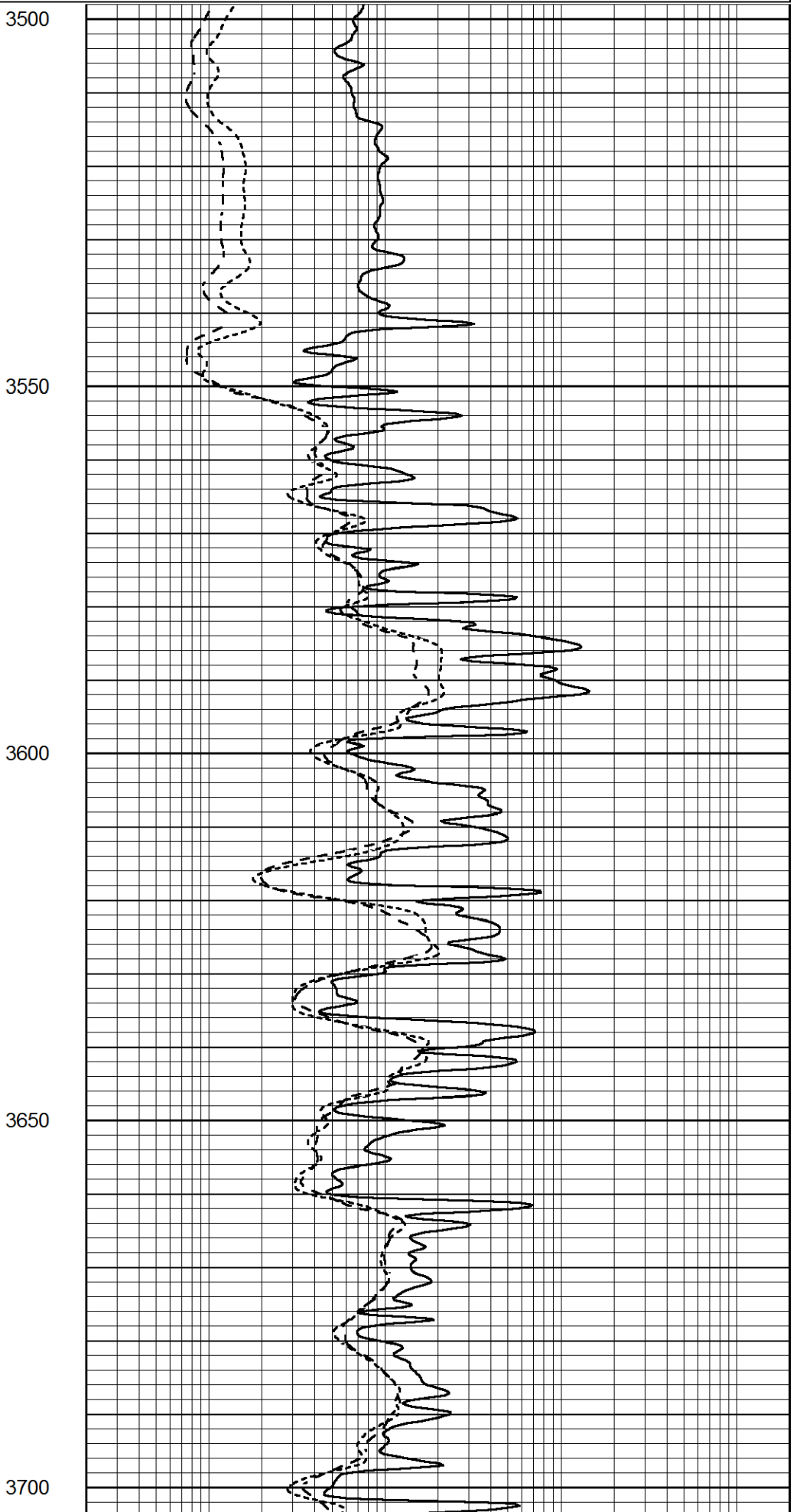
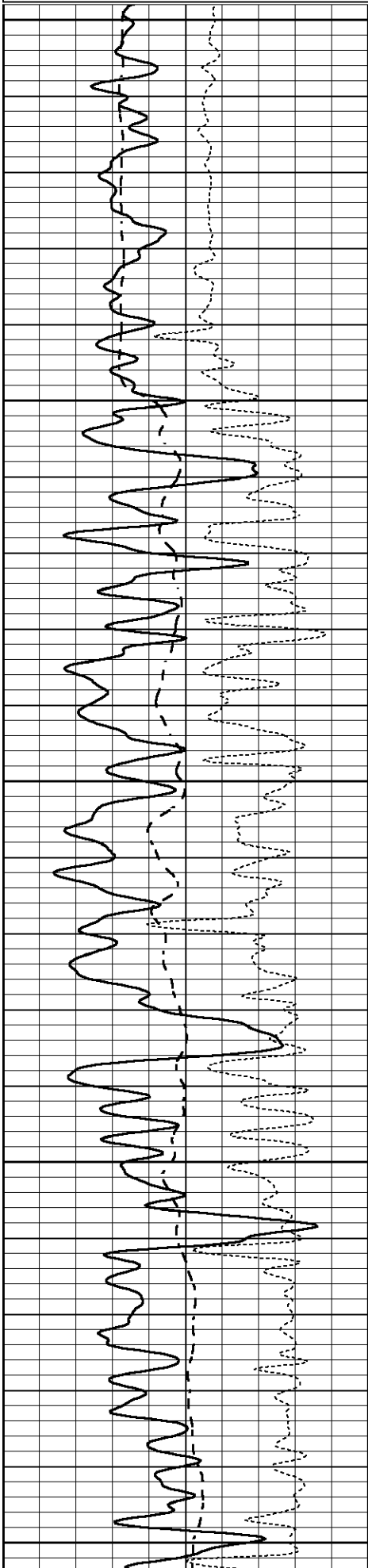
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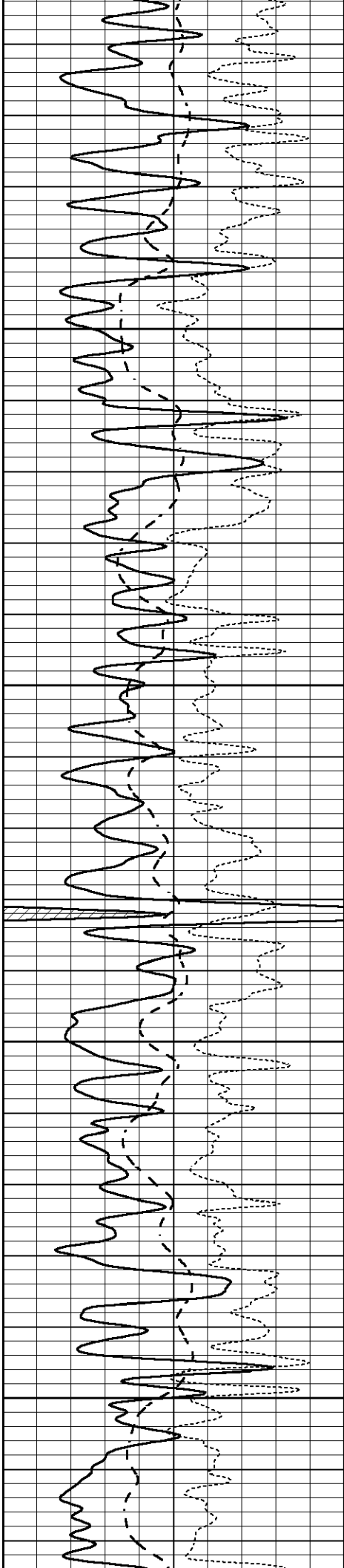
0	GAMMA RAY (GAPI)	150
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0.2	SHALLOW GUARD (Ohm-m)	2000
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0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000



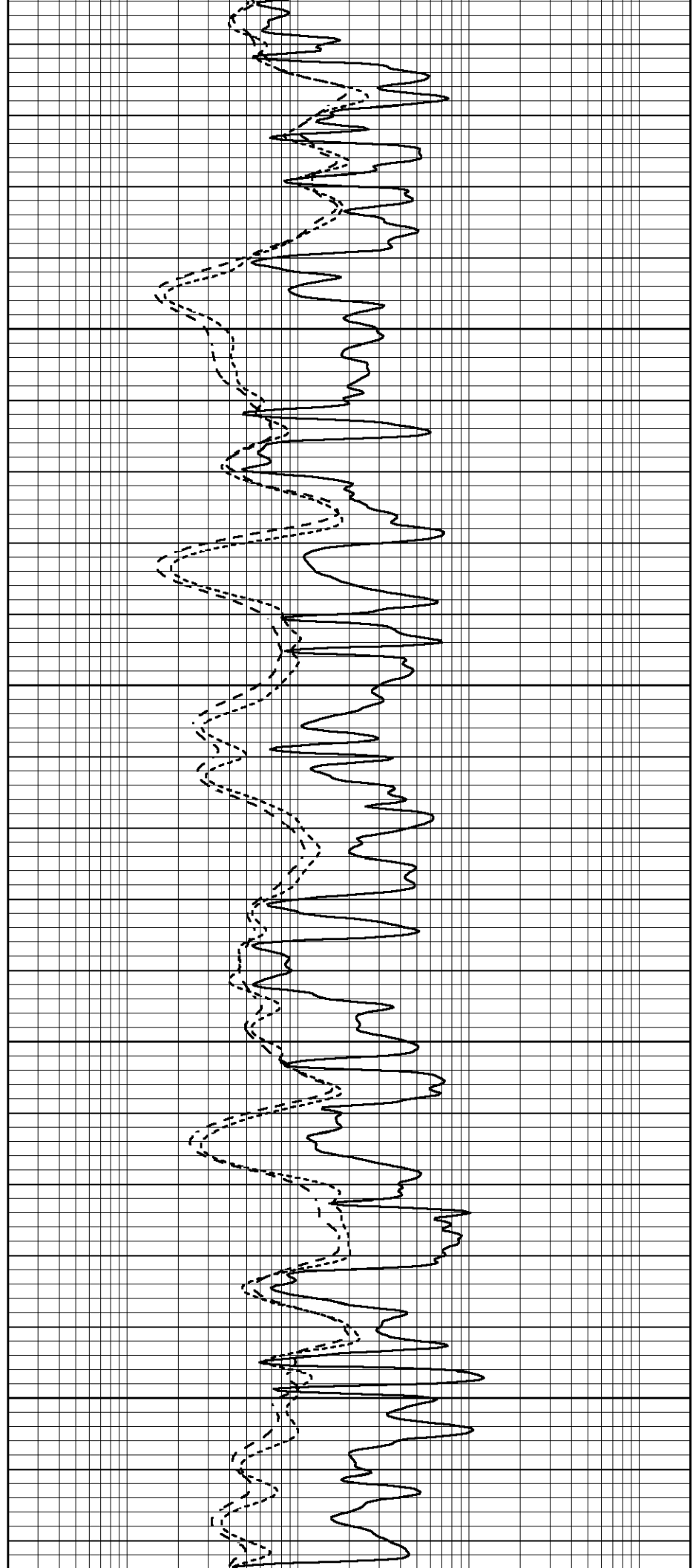


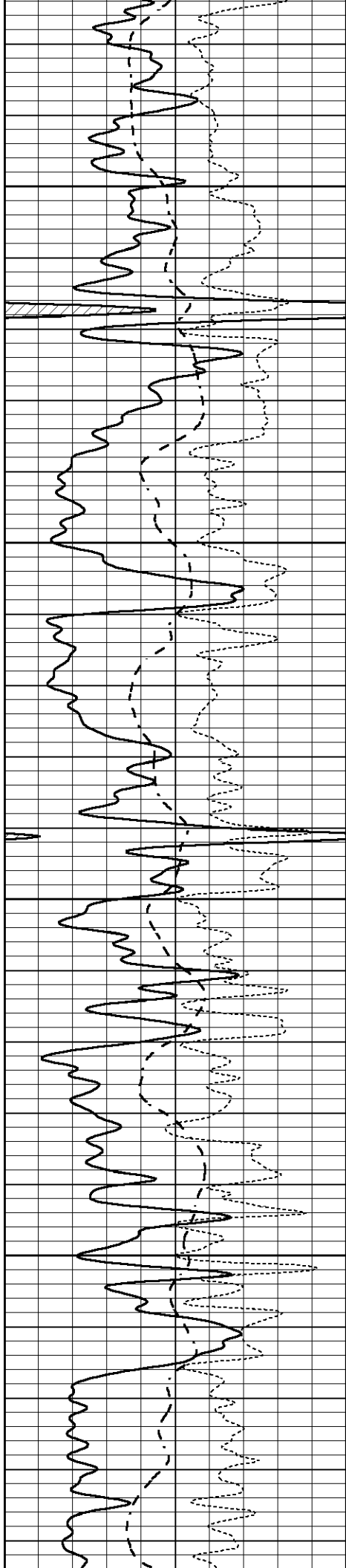
3750

3800

3850

3900



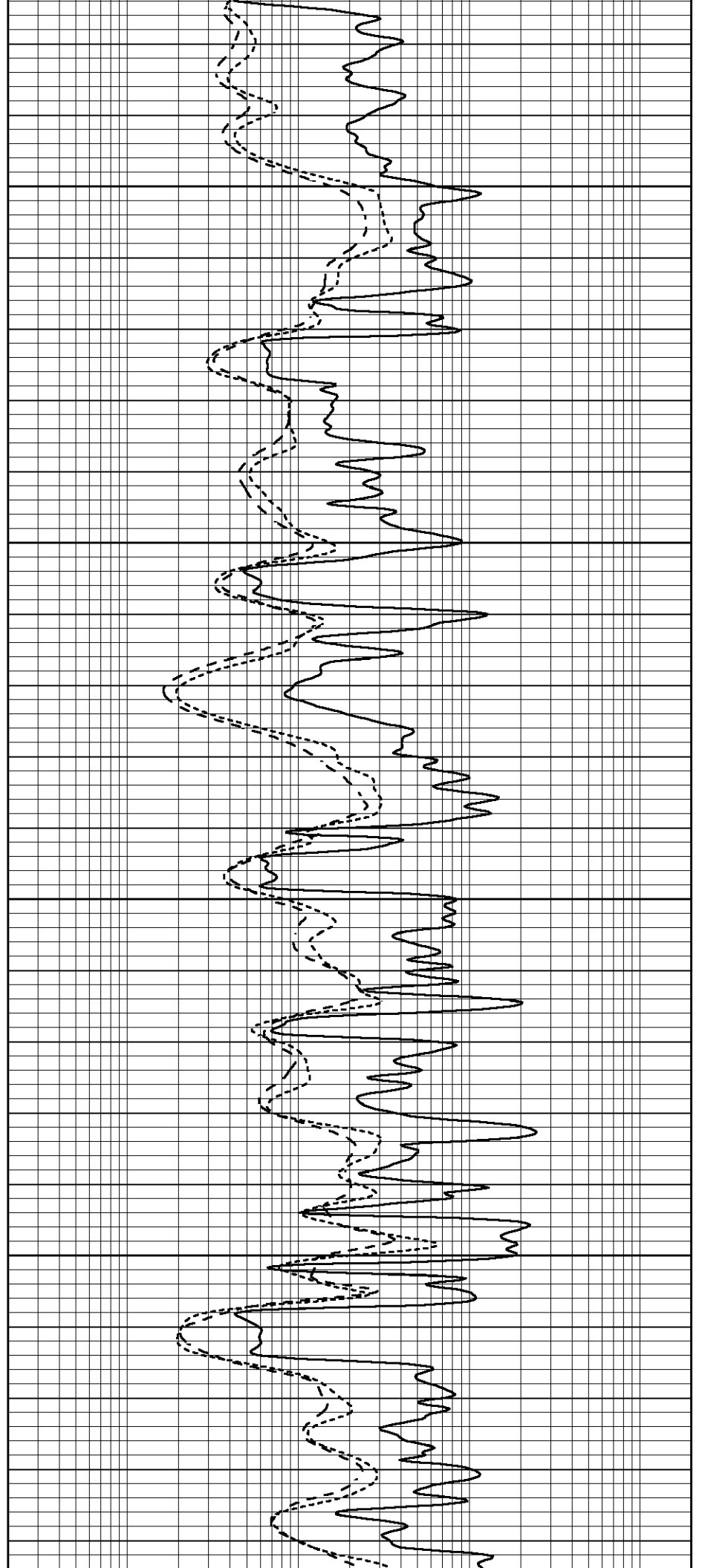


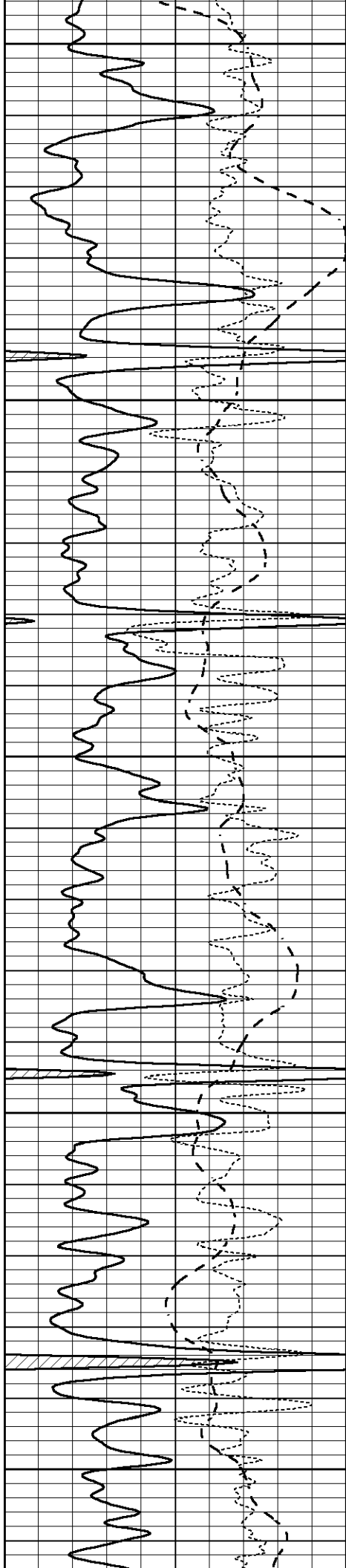
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4000

4050

4100





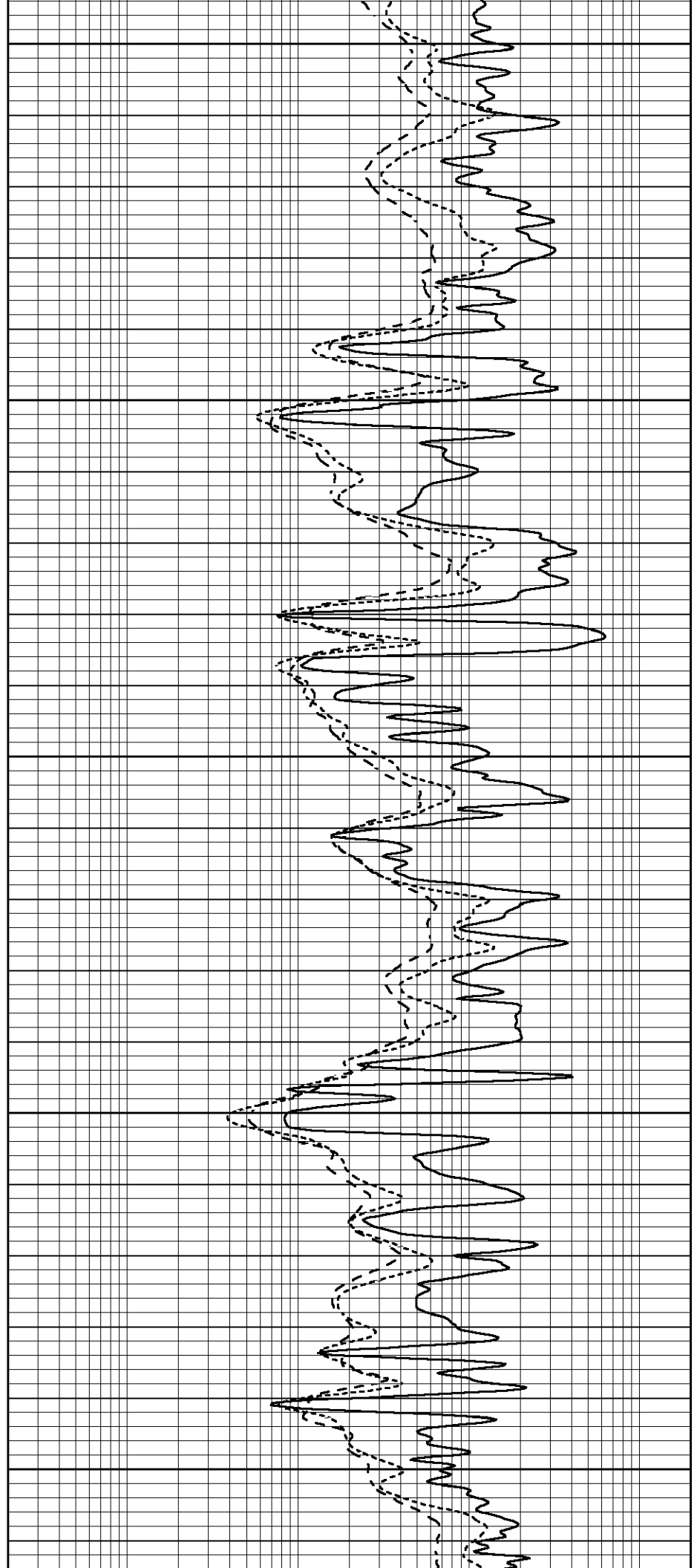
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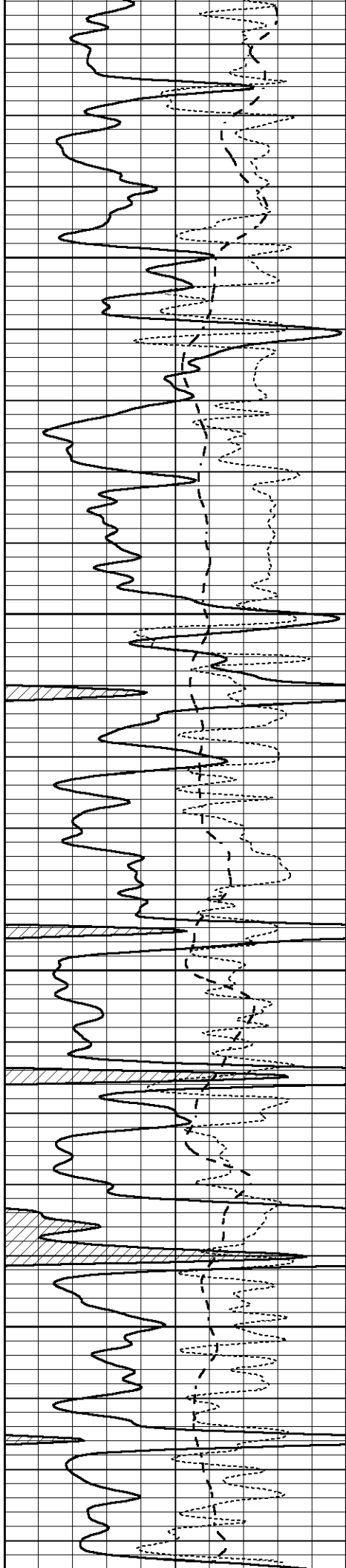
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4250

4300

4350



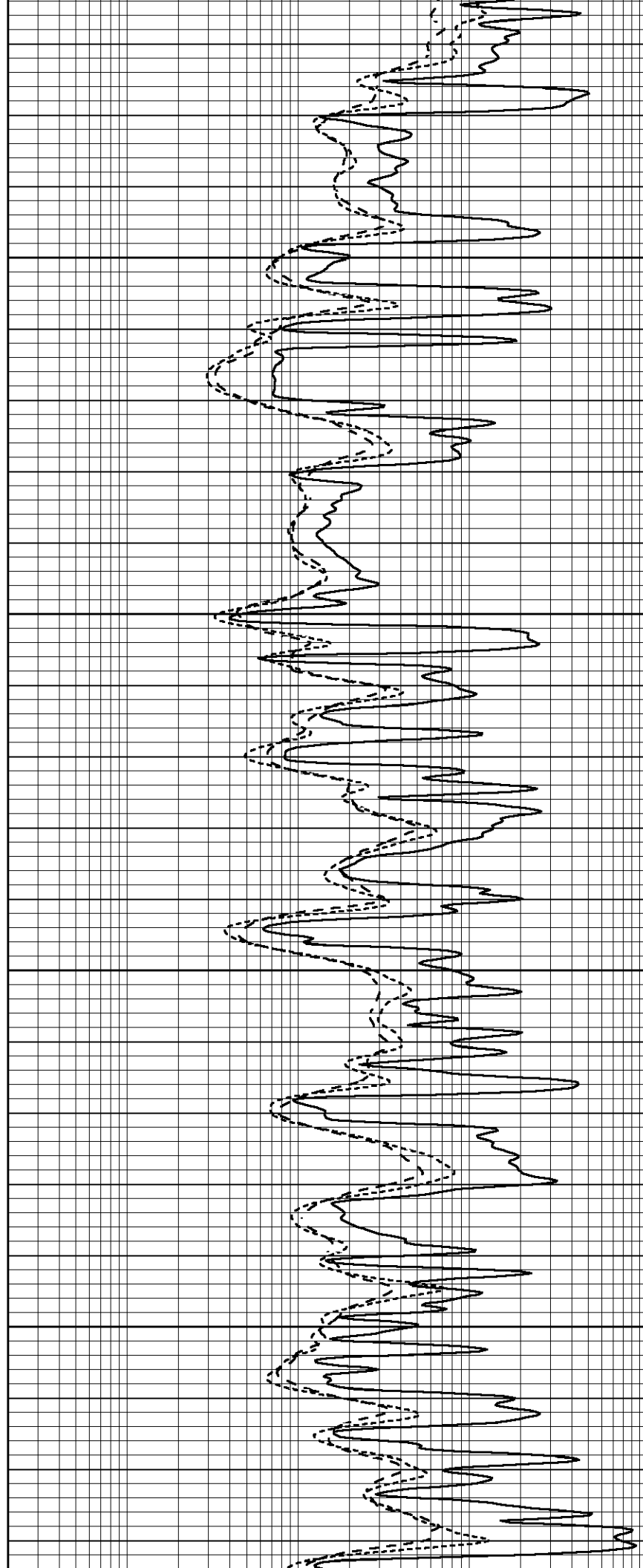


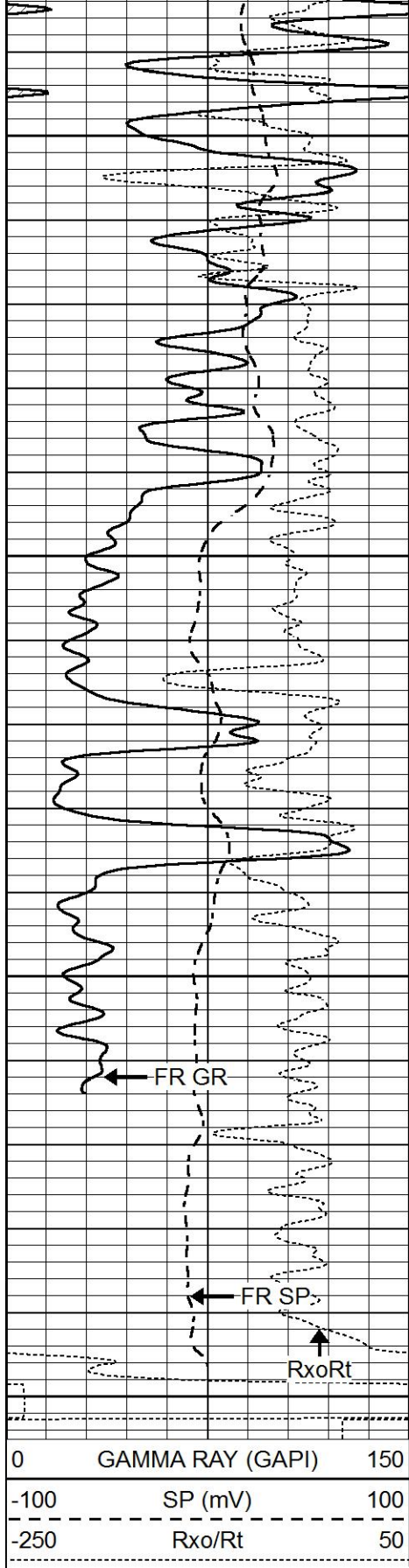
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4450

4500

4550



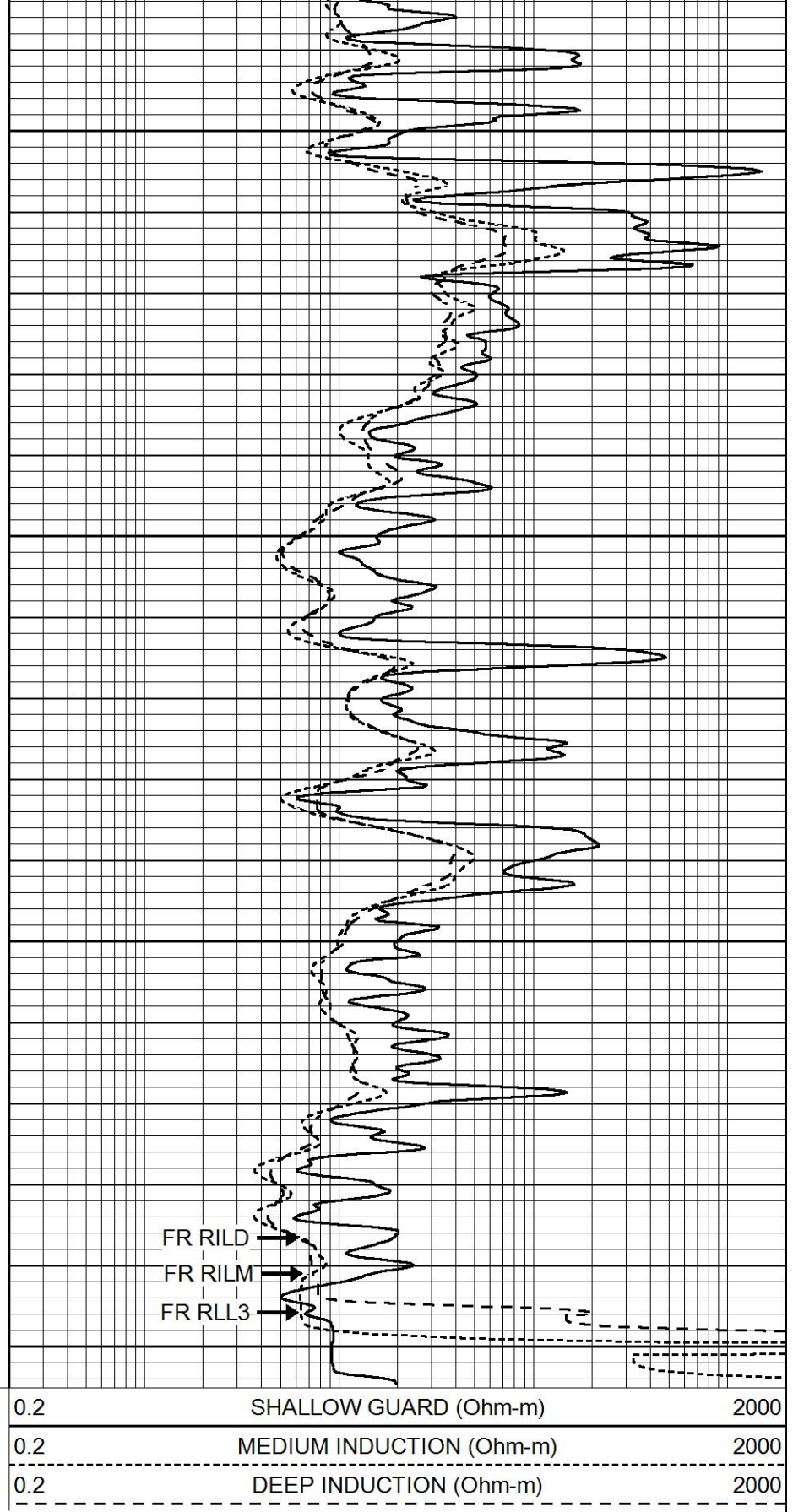


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4650

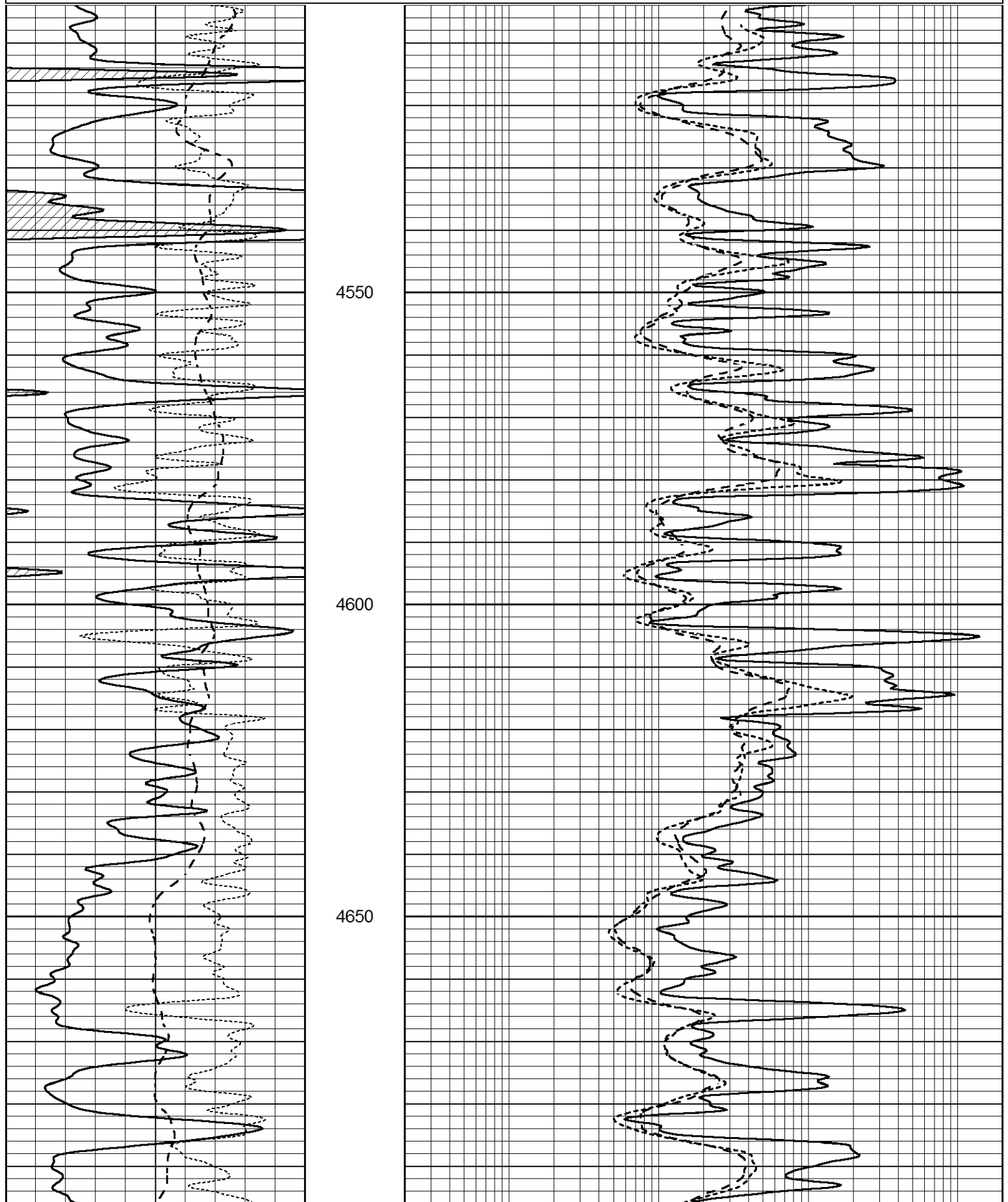
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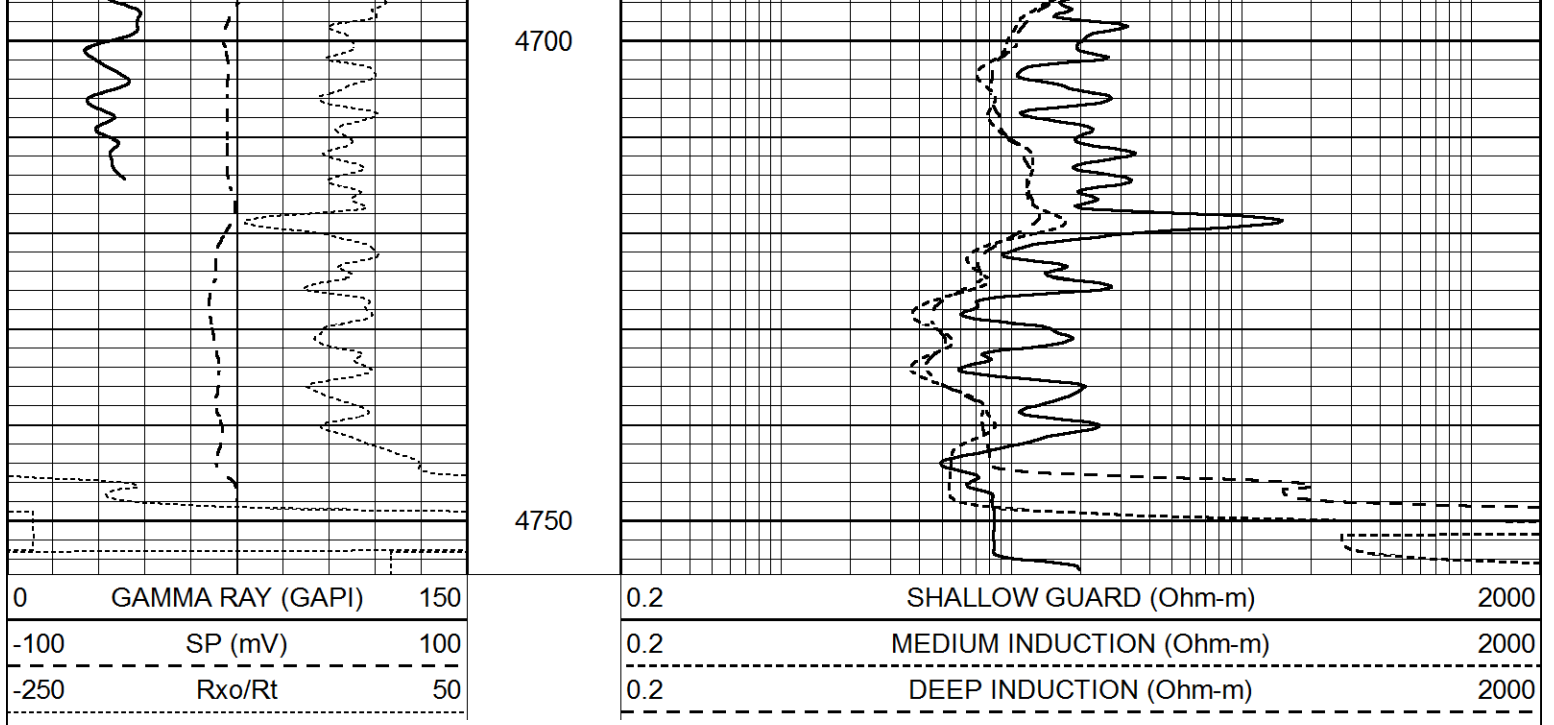
LTD 4748
4750



REPEAT SECTION

0	GAMMA RAY (GAPI)	150	0.2	SHALLOW GUARD (Ohm-m)	2000
-100	SP (mV)	100	0.2	MEDIUM INDUCTION (Ohm-m)	2000
-250	Rxo/Rt	50	0.2	DEEP INDUCTION (Ohm-m)	2000





Calibration Report

Database File 3995ddn8.db
 Dataset Pathname pass2.1
 Dataset Creation Thu Sep 26 01:36:51 2019

Dual Induction Calibration Report

Serial-Model: FW1410-55-Probe
 Surface Cal Performed: Tue Feb 19 11:44:18 2019
 Downhole Cal Performed: Tue Feb 19 11:44:24 2019
 After Survey Verification Performed: Tue Feb 19 11:44:27 2019

Surface Calibration

Loop:	Readings			References			Results	
	Air	Loop	V	Air	Loop	mmho/m	m	b
Deep	0.011	0.656	V	1.000	400.000	mmho/m	618.595	-5.524
Medium	-0.000	0.731	V	1.000	464.000	mmho/m	632.856	1.197
Internal:	Zero	Cal	V	Zero	Cal	mmho/m	m	b
Deep	0.007	0.649	V	0.000	400.000	mmho/m	623.784	-4.595
Medium	0.004	0.743	V	0.000	464.000	mmho/m	627.284	-2.251

Downhole Calibration

	Readings			References			Results	
	Zero	Cal	V	Zero	Cal	mmho/m	m'	b'
Deep	-0.824	395.917	V	-0.976	397.550	mmho/m	1.004	-0.149
Medium	3.565	471.327	V	3.468	471.590	mmho/m	1.001	-0.099
LL3		7.503	V		1500.000	Ohm-m		
		0.001	V		20.000	Ohm-m		
		-7.481	V		3745.000	mmho-m		

After Survey Verification

	Readings			Targets			Results	
	Zero	Cal	mmho/m	Zero	Cal	mmho/m	m'	b'
Deep	0.000	0.000	mmho/m	-0.824	395.917	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	3.565	471.327	mmho/m	1.000	0.000

LL3	0.000	Ohm-m	1500.000	Ohm-m
	0.000	Ohm-m	20.000	Ohm-m
	0.000	mmho-m	3745.000	mmho-m

Compensated Neutron Calibration Report

Serial Number:	080621PMC
Tool Model:	NABORS

PRE-SURVEY VERIFICATION

Detector	Readings	Measured	Target
Short Space	cps		
Long Space	cps	pu	pu

POST-SURVEY VERIFICATION

Detector	Readings	Measured	Target
Short Space	cps		
Long Space	cps	pu	pu

Gamma Ray Calibration Report

Serial Number:	7	
Tool Model:	Probe1	
Performed:	Tue Feb 19 11:45:10 2019	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.4300	GAPI/cps