



DUAL INDUCTION LOG

Company ELK ENERGY HOLDINGS, LLC.

Well F & J FARMS #1-18

Field WILDCAT

County THOMAS State KANSAS

Location: API #: 15-193-21078-0000

2304' FNL & 335' FWL
NE - SW - SW - NW

SEC 18 TWP 10S RGE 32W

Permanent Datum GROUND LEVEL Elevation 3096
Log Measured From KELLY BUSHING 5" A.G.L.
Drilling Measured From KELLY BUSHING

Other Services
CDL/CNL/PE
MEL
Elevation
K.B. 3101
D.F. 3099
G.L. 3096

Date	6/28/20
Run Number	ONE
Depth Driller	4703
Depth Logger	4704
Bottom Logged Interval	4702
Top Log Interval	00
Casing Driller	8 5/8"@300'
Casing Logger	306
Bit Size	7 7/8"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.4/59
pH / Fluid Loss	10.0/8.4
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.860@100F
Rmf @ Meas. Temp	.645@100F
Rmc @ Meas. Temp	1.03@100F
Source of Rmf / Rmc	MEASUREMENT
Rm @ BHT	.705@122F
Time Circulation Stopped	2.5 HOURS
Time Logger on Bottom	1:15 P.M.
Maximum Recorded Temperature	122F
Equipment Number	922339
Location	HAYS, KANSAS
Recorded By	JEFF LUEBBERS
Witnessed By	SEAN DEENIHAN

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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 E.L.I. WIRELINE SERVICES HAYS, KANSAS (785)628-6395
DIRECTIONS
OAKLEY, KS. & EXIT 70, 2S. TO "RD. C", 4W. TO "RD. 25" 1 1/2N., E. INTO

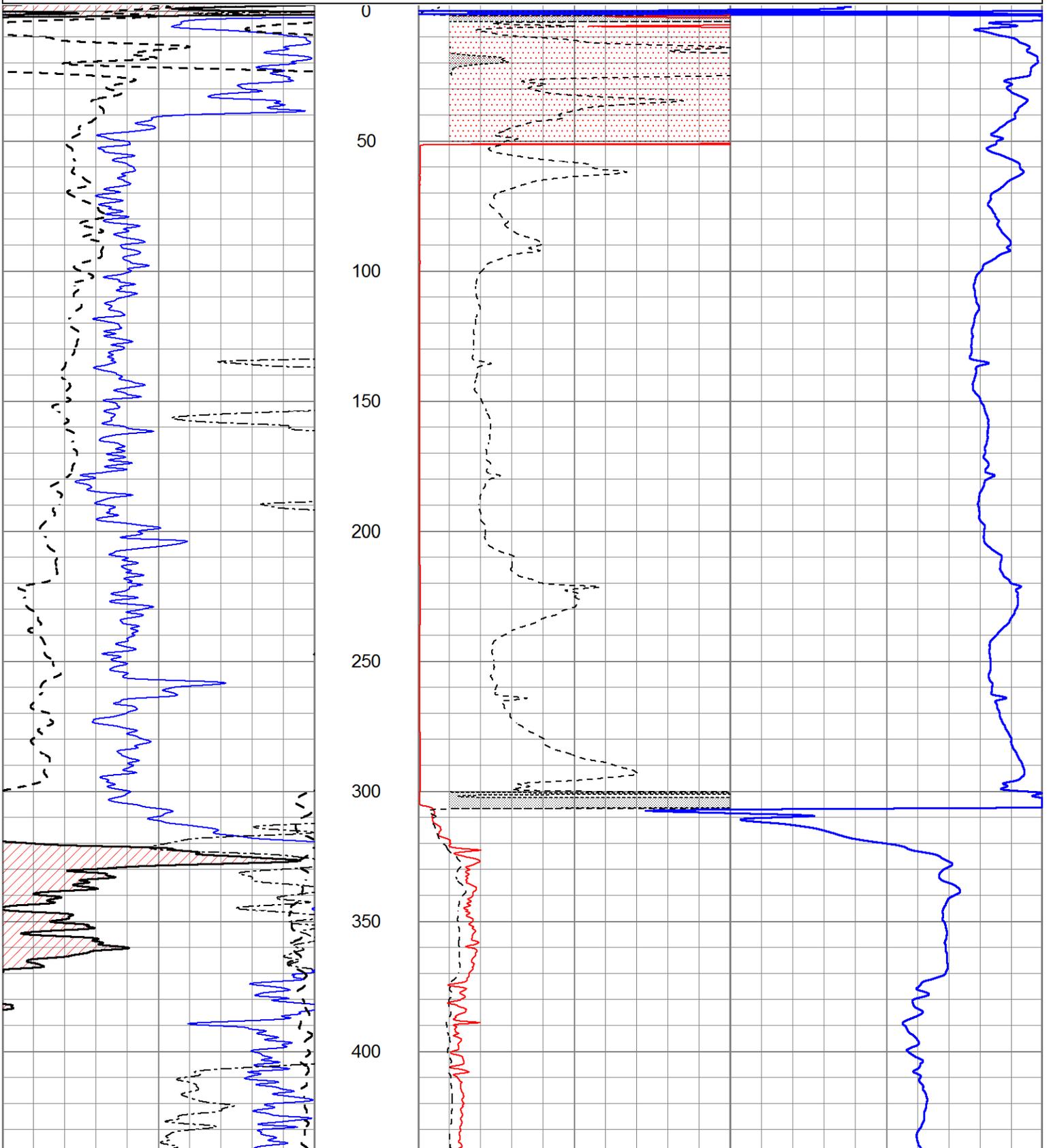


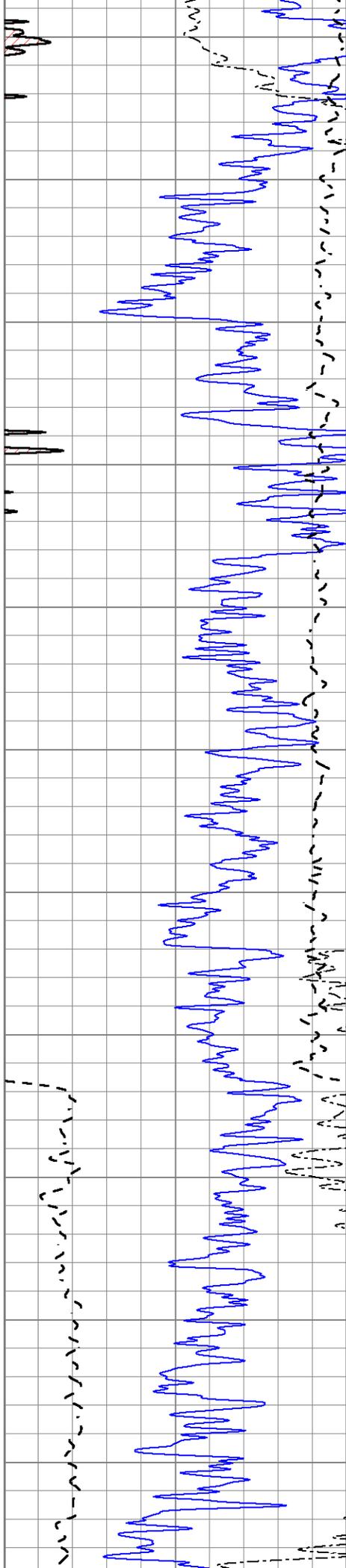
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Database File 4547pe.db
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 Presentation Format dil2
 Dataset Creation Sun Jun 28 14:48:19 2020
 Charted by Depth in Feet scaled 1:600

0	Gamma Ray (GAPI)	150
-100	SP (mV)	100
0	RWA (Ohm-m)	1

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





450

500

550

600

650

700

750

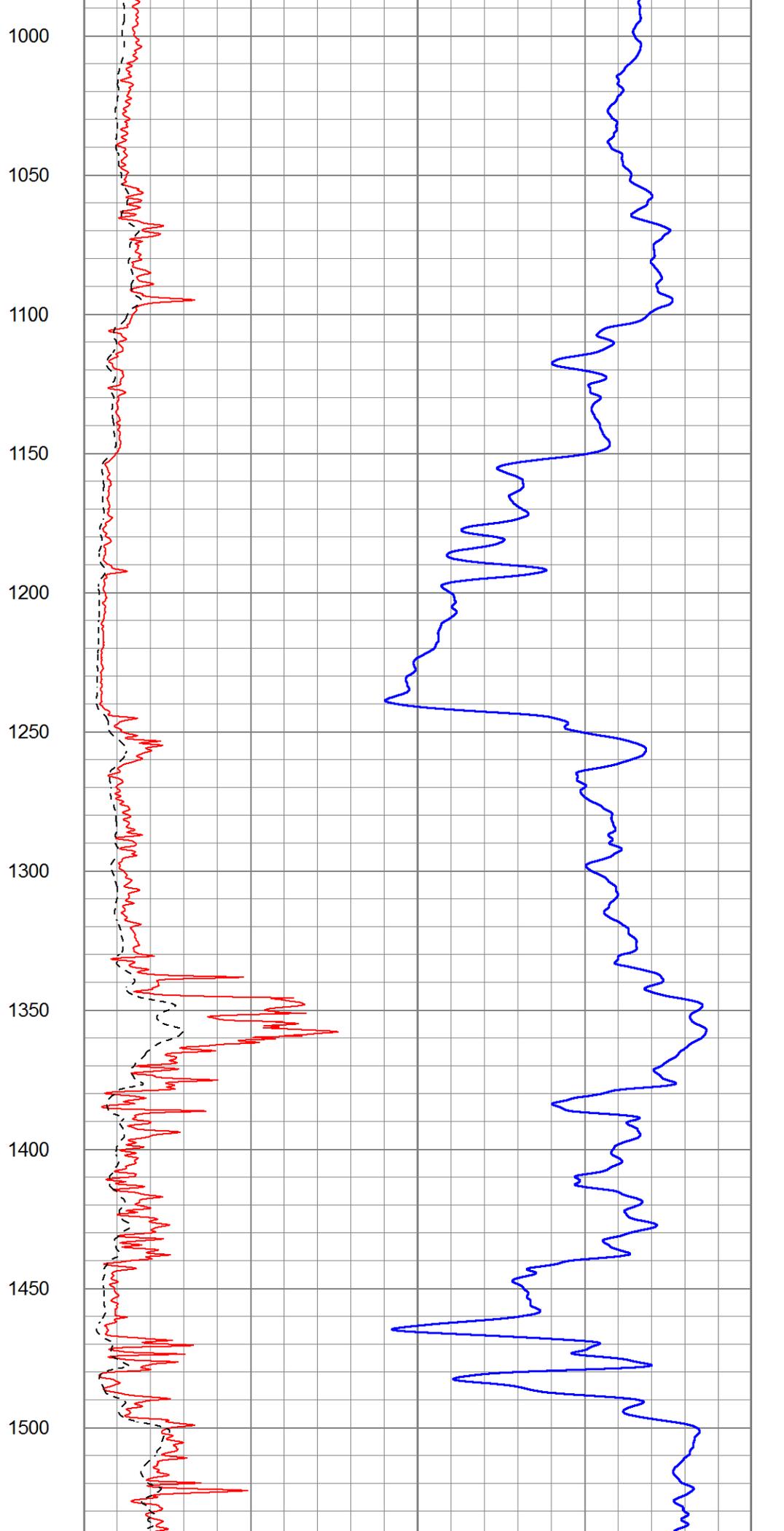
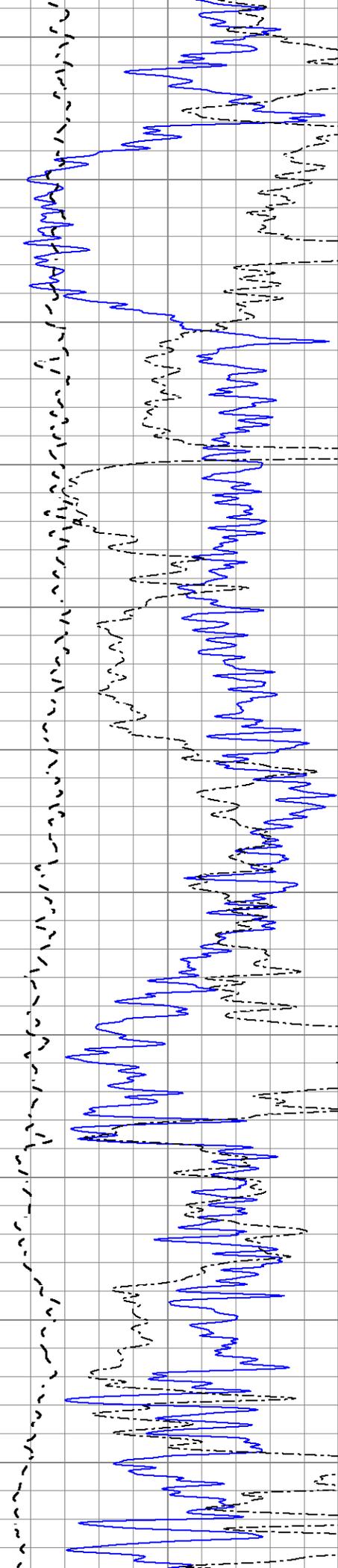
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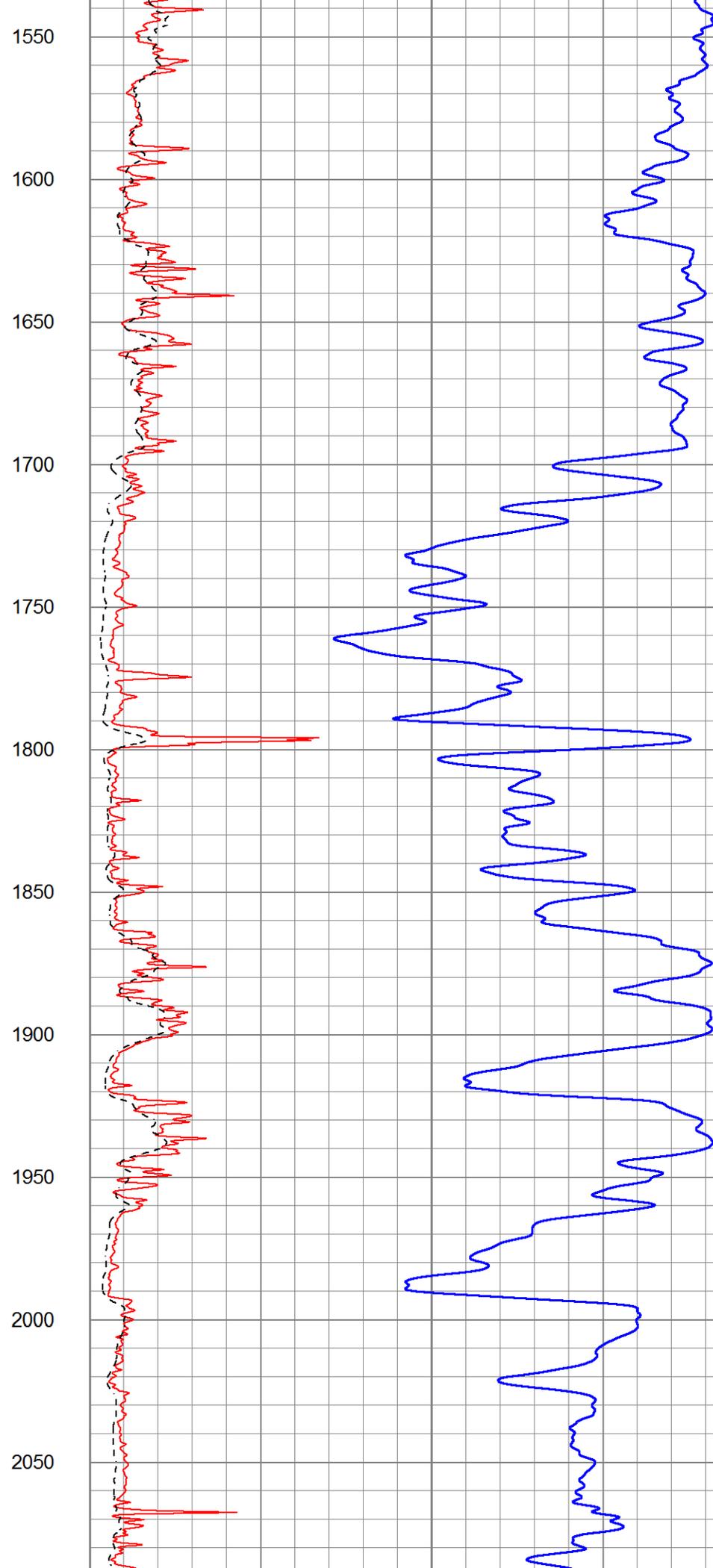
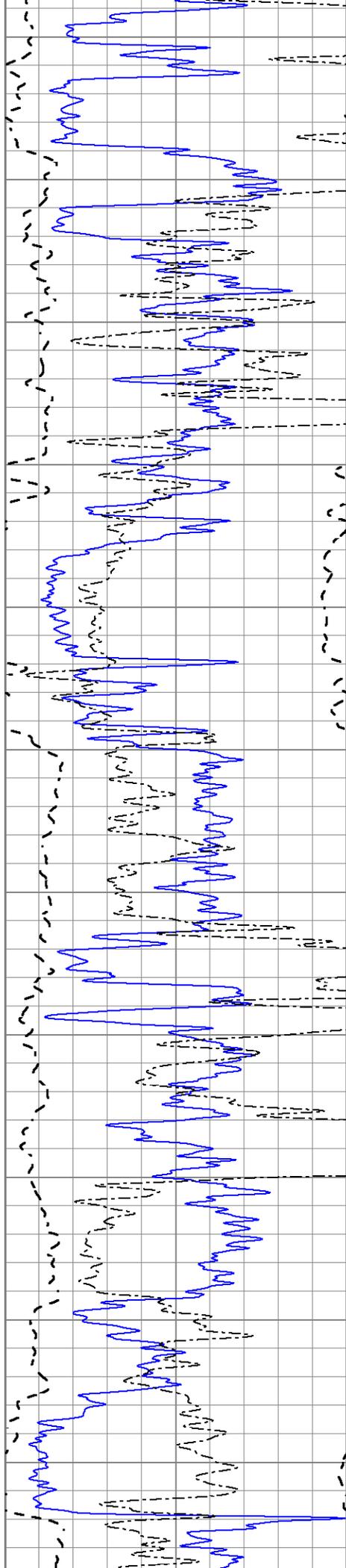
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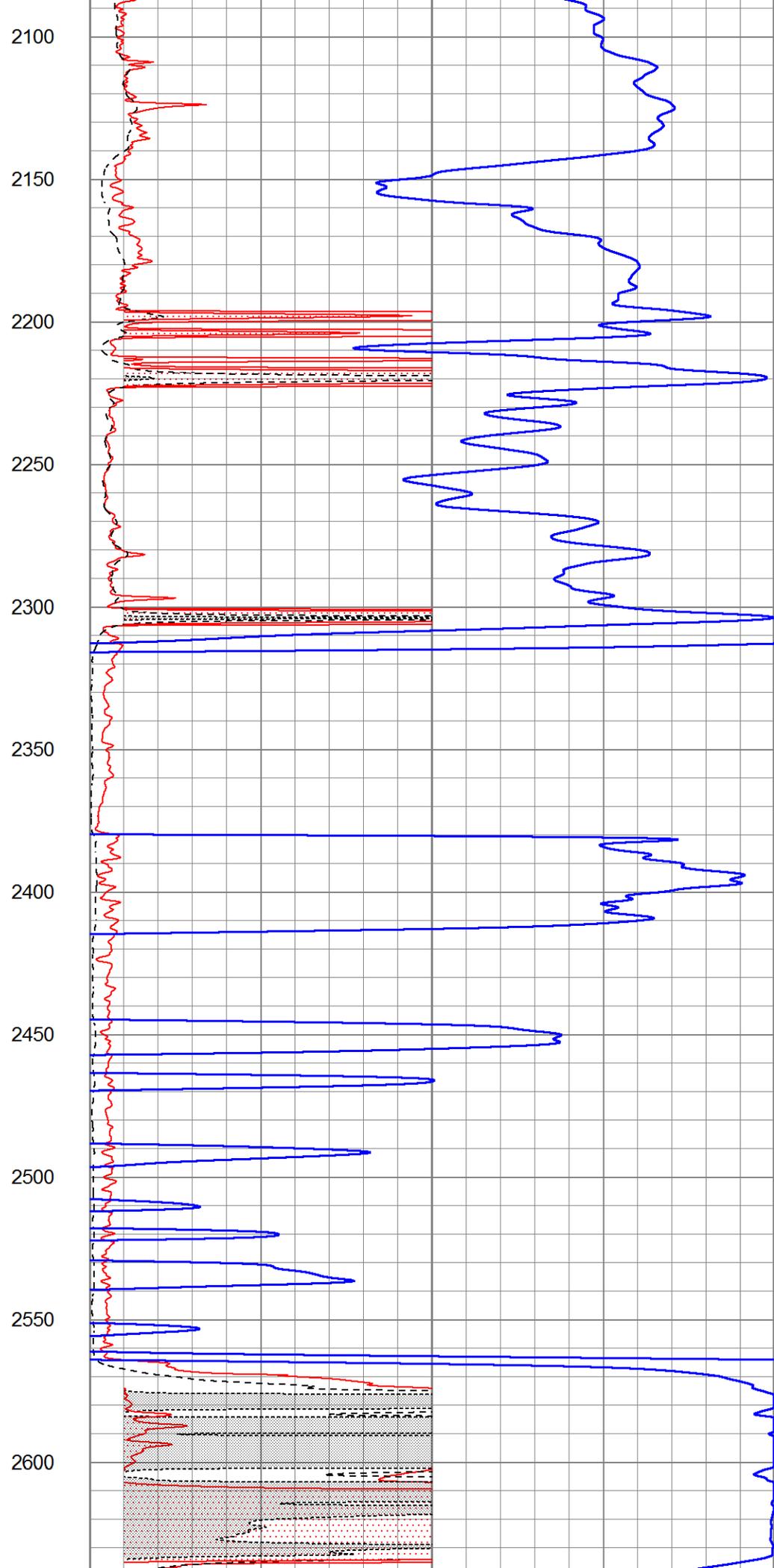
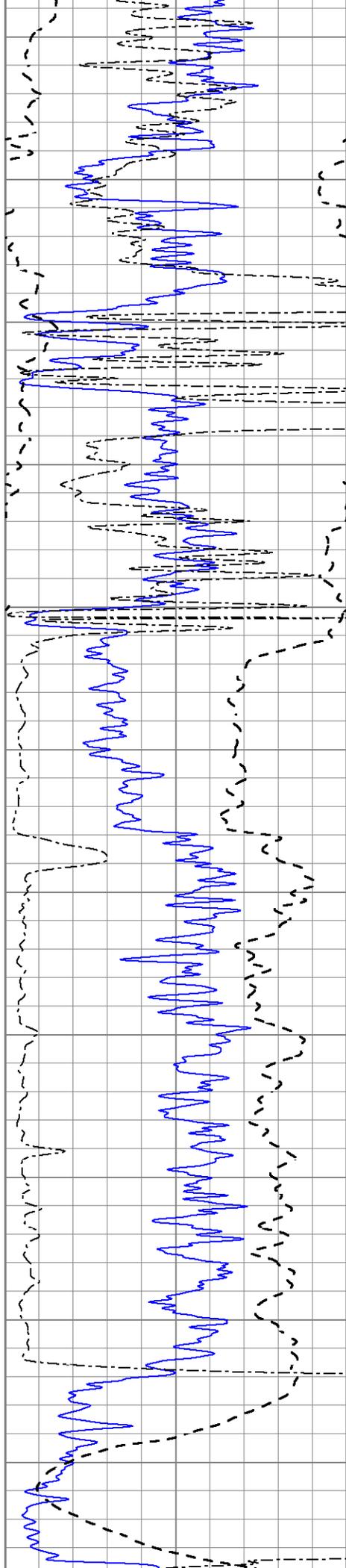
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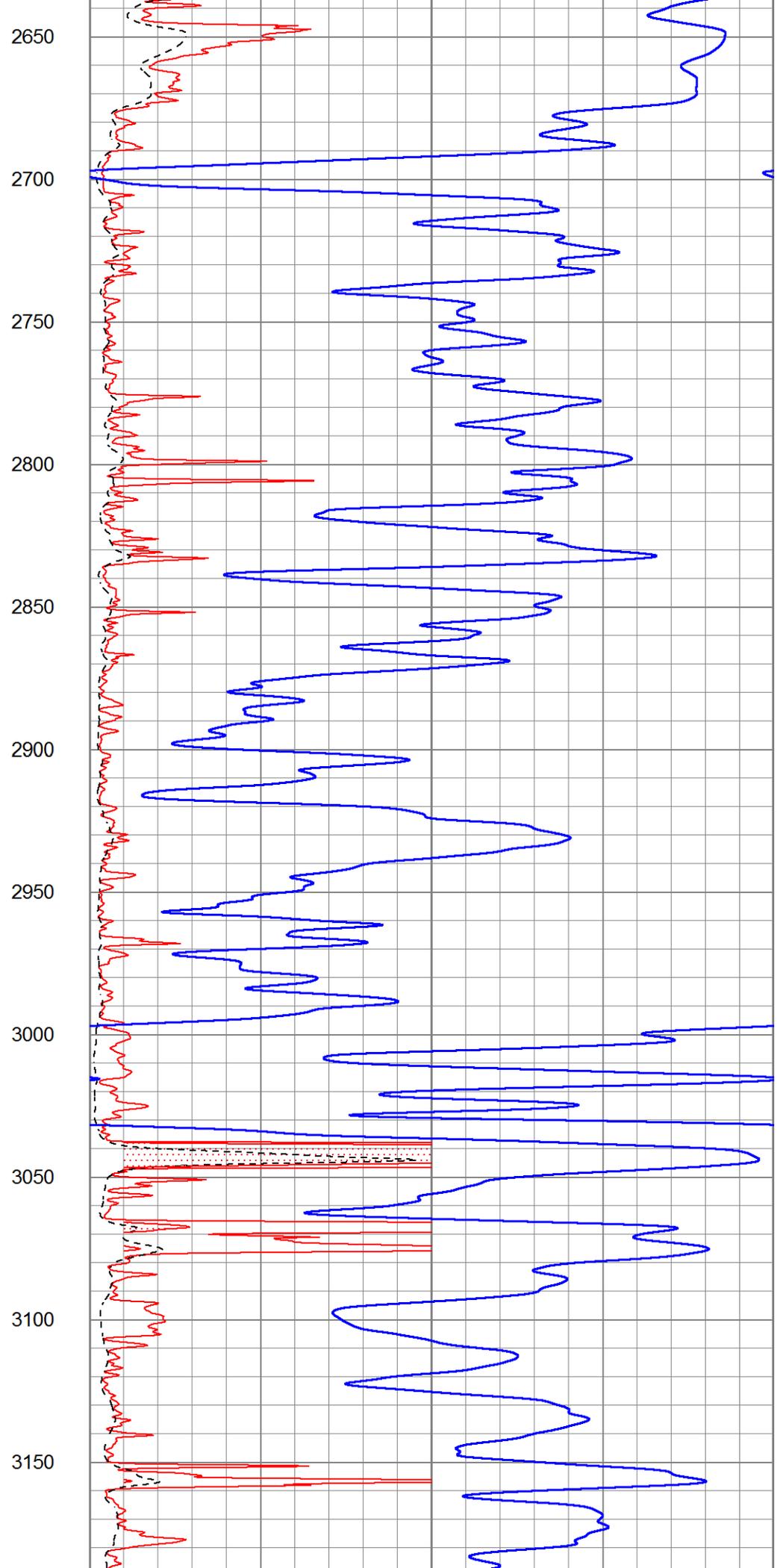
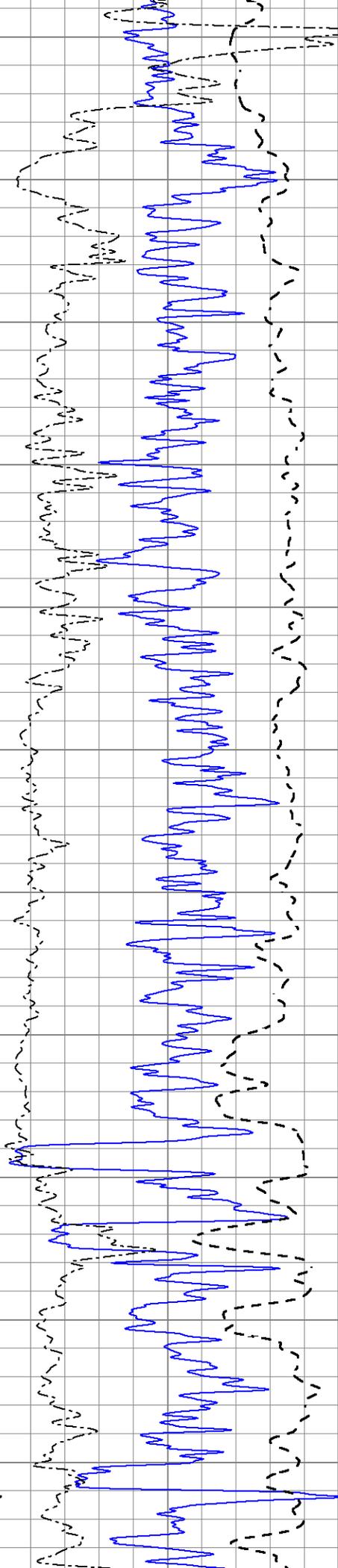
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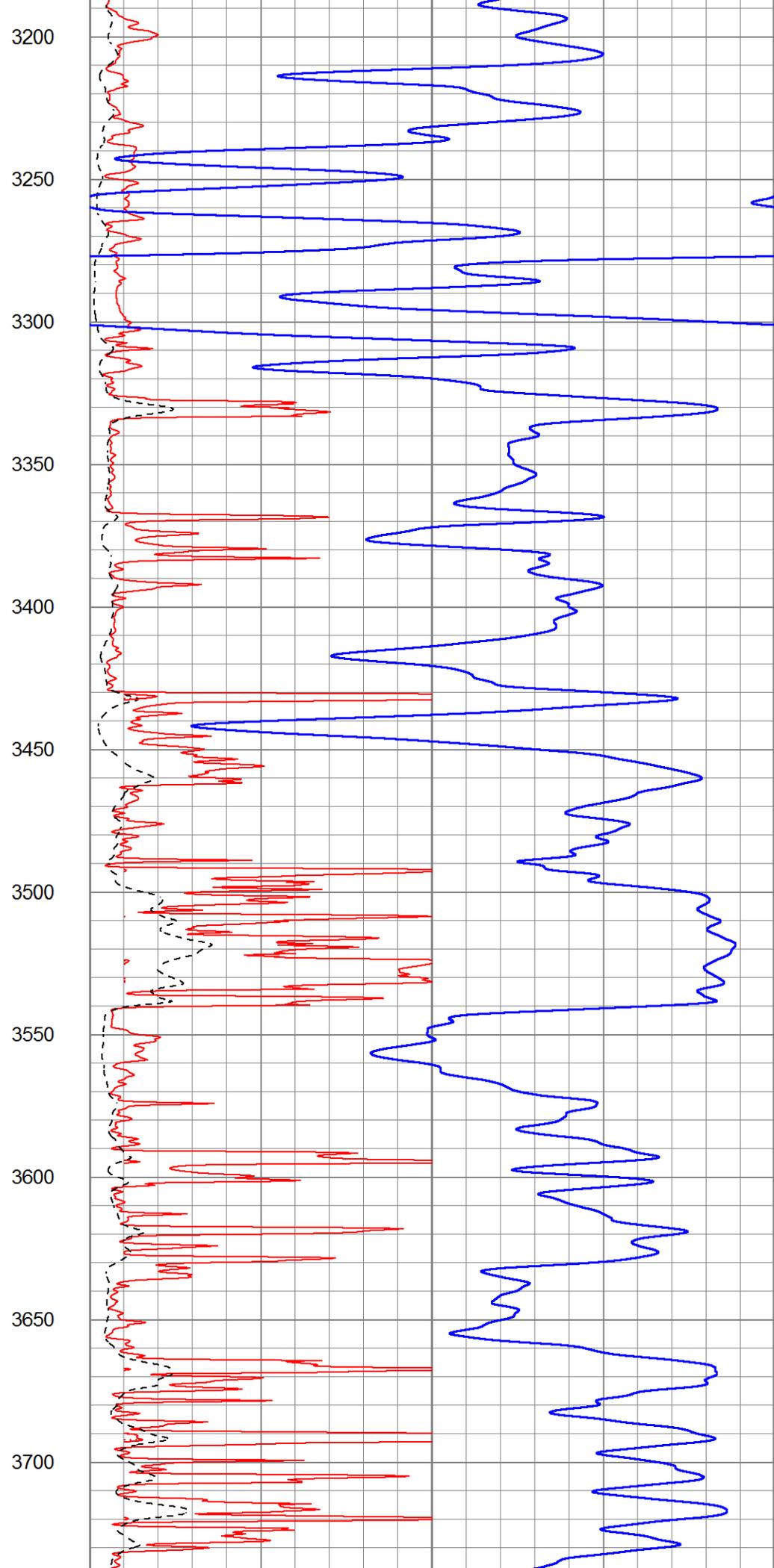
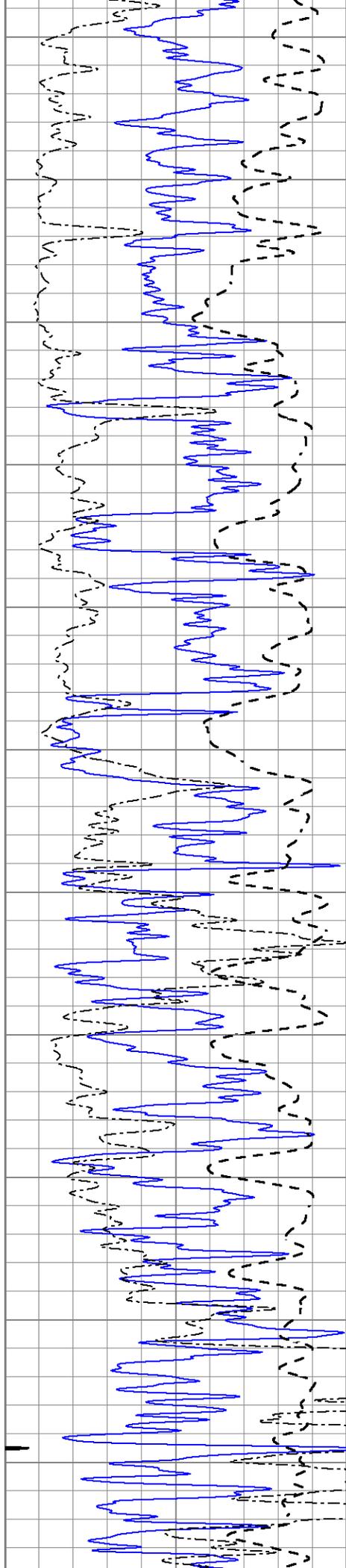


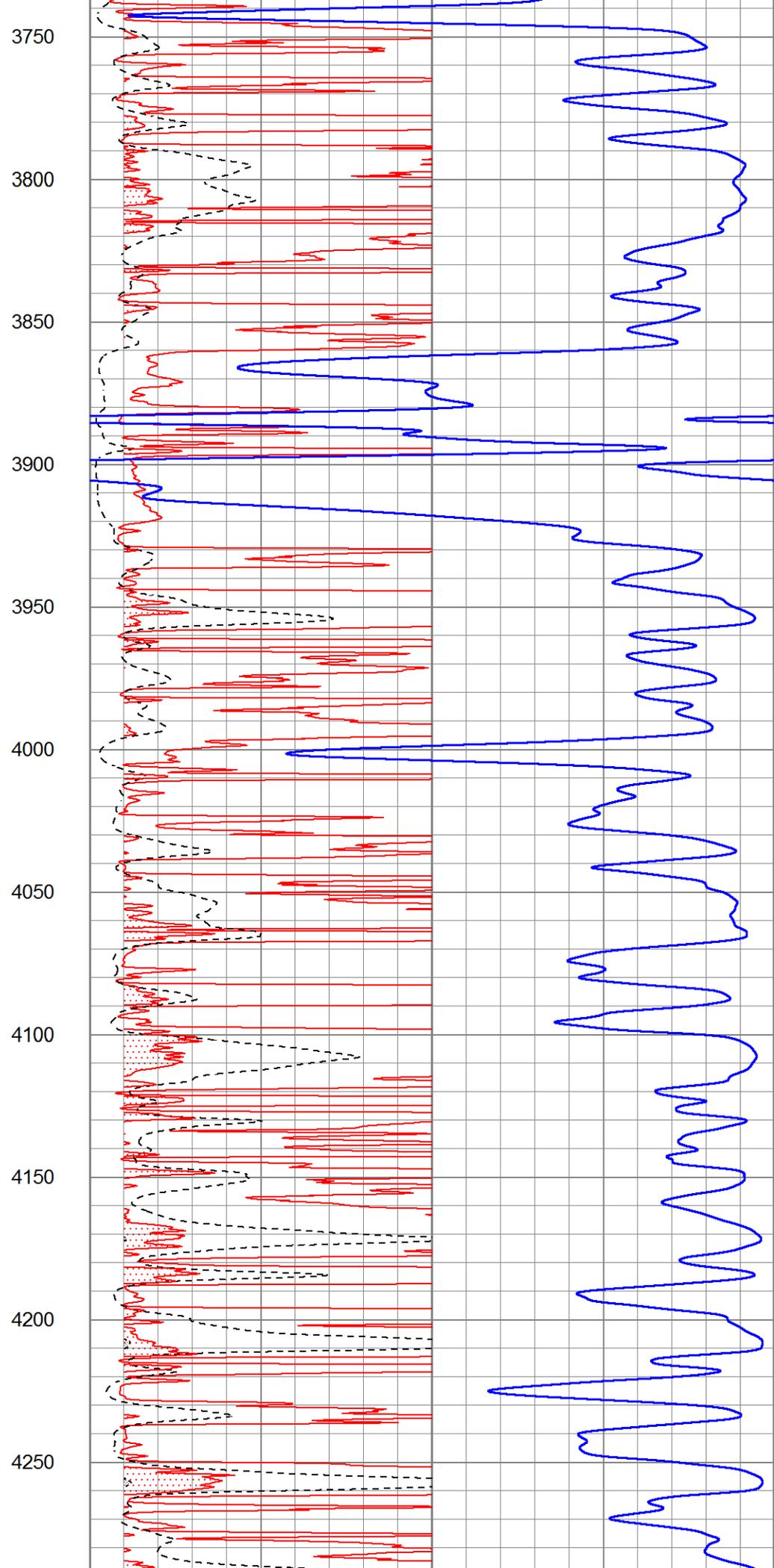
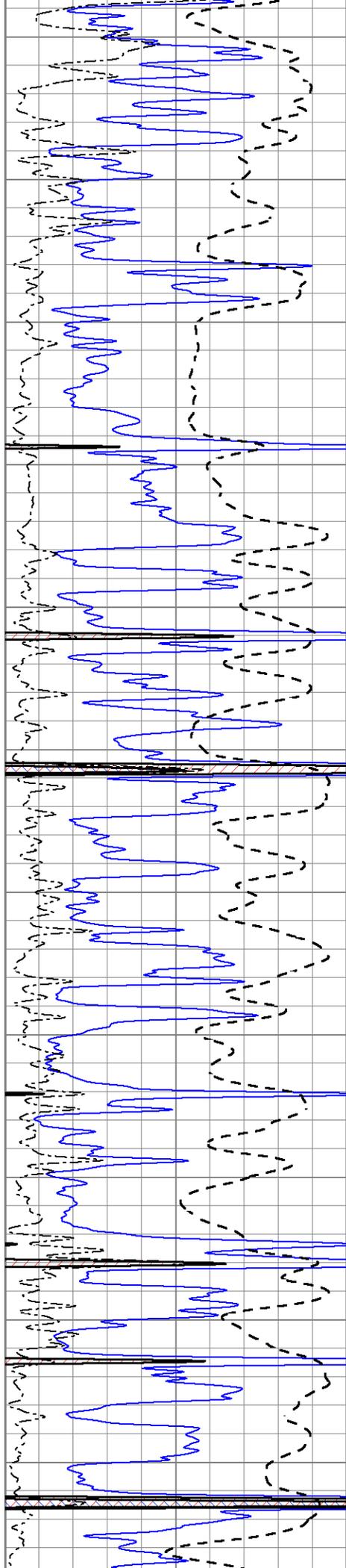


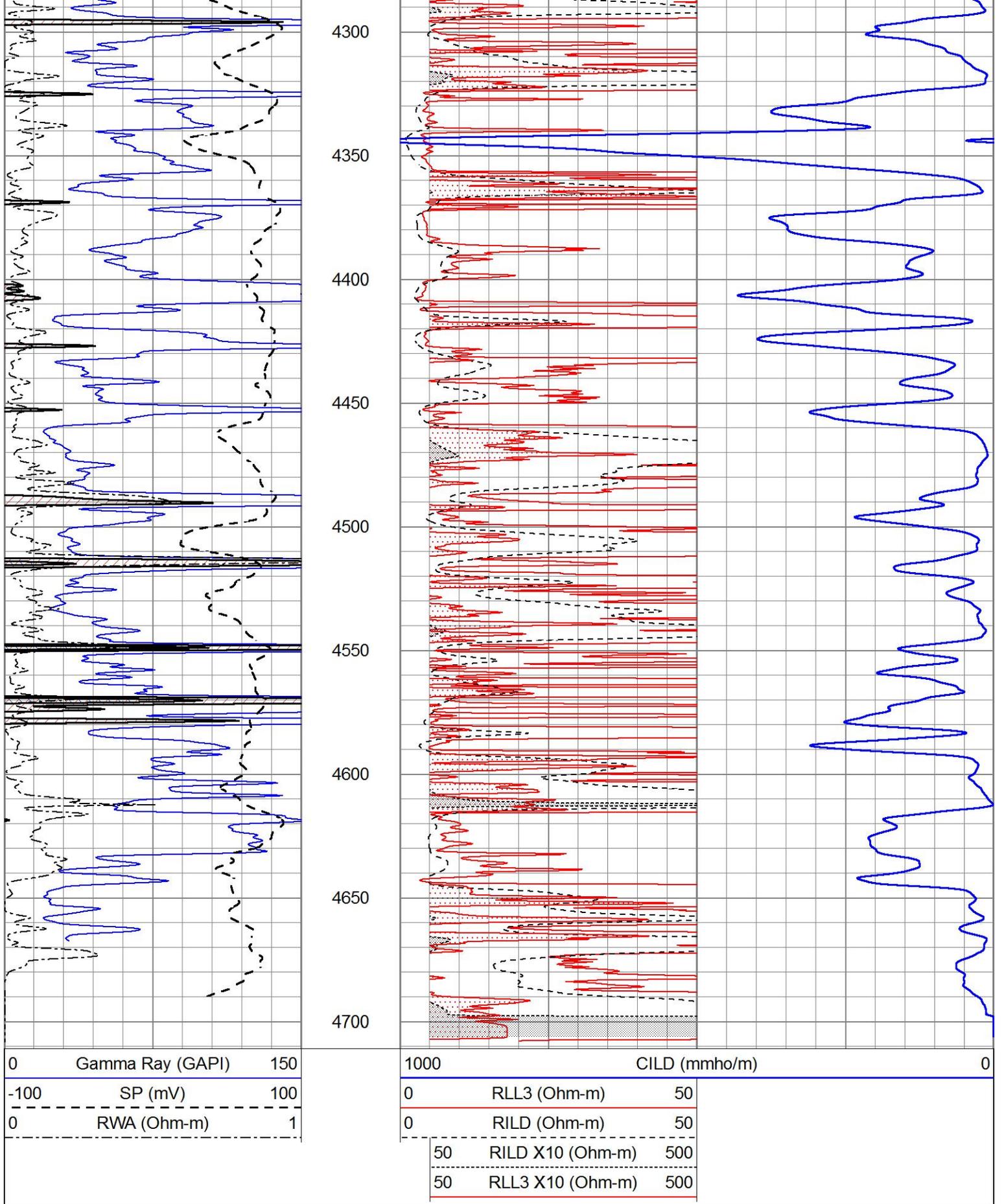










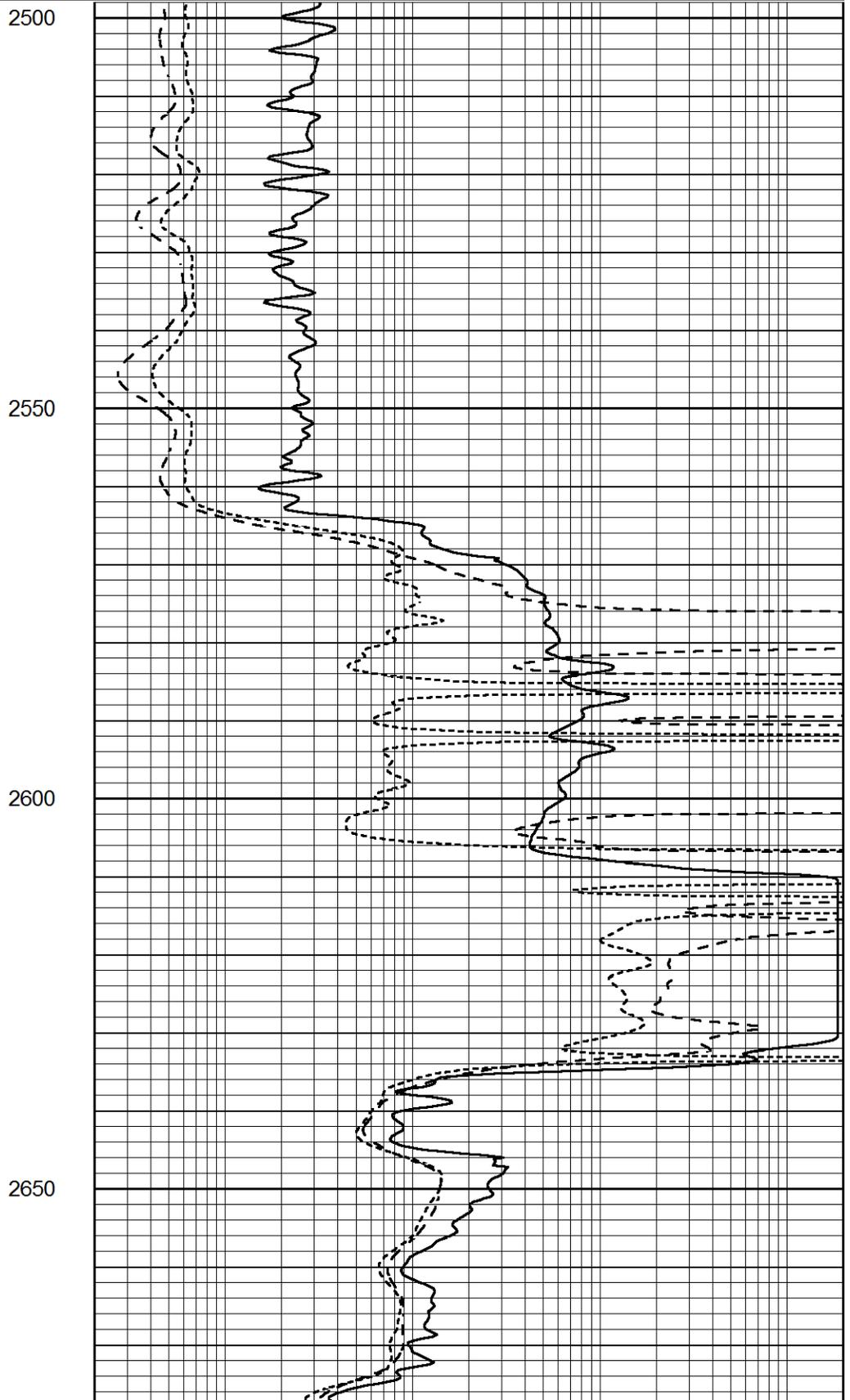
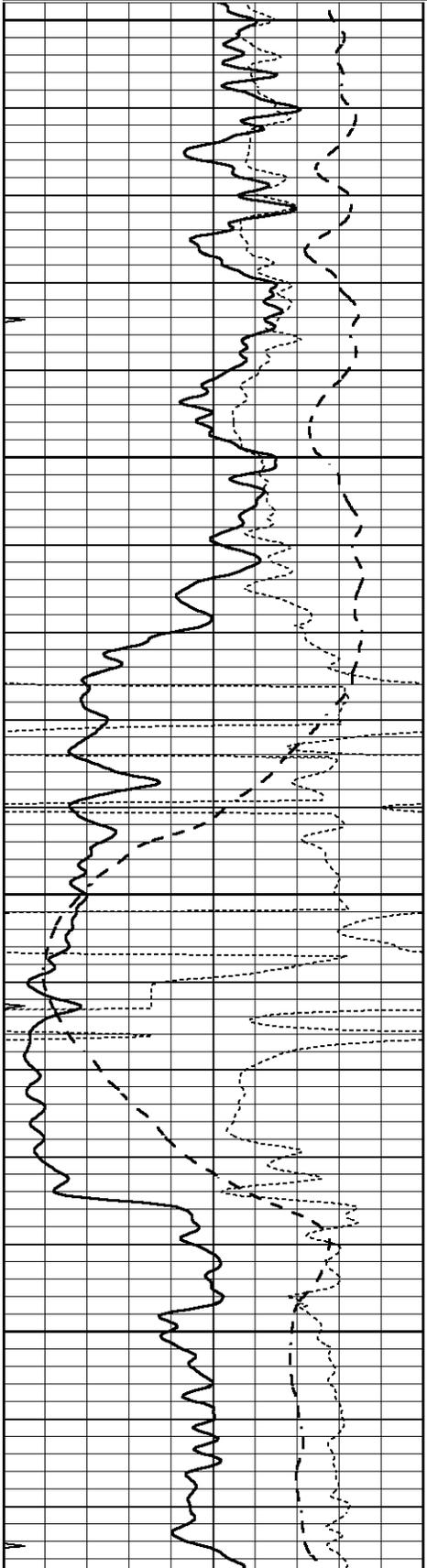


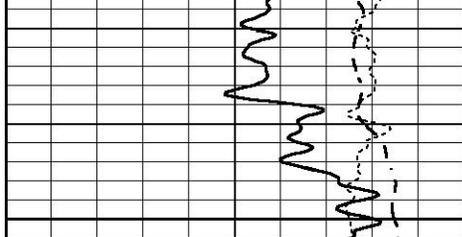
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 Dataset Creation Sun Jun 28 14:48:29 2020
 Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

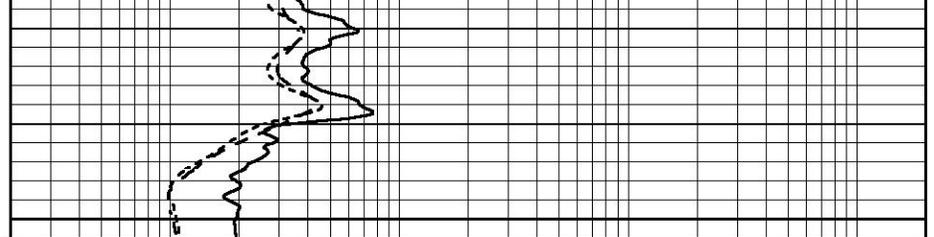
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000





2700

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20



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

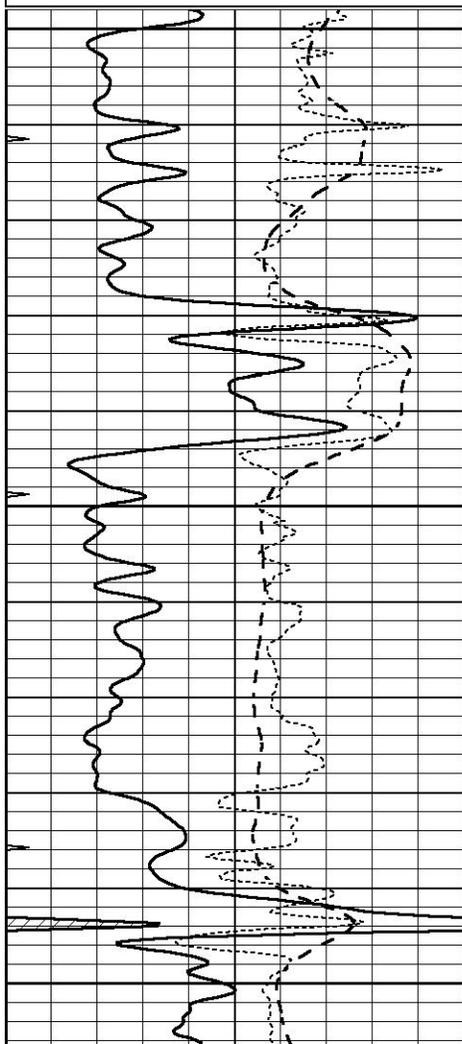


MAIN SECTION

Database File 4547pe.db
 Dataset Pathname pass3.7M
 Presentation Format _dil
 Dataset Creation Sun Jun 28 14:48:19 2020
 Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

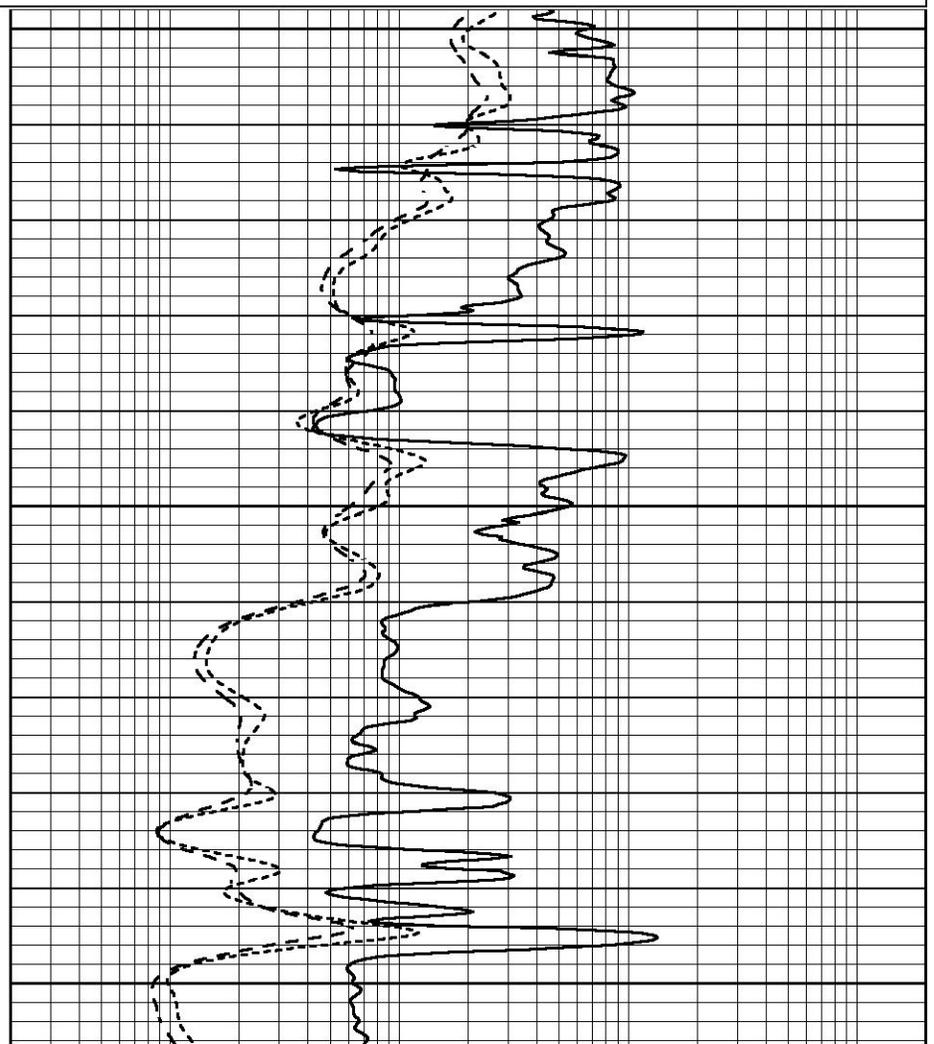
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

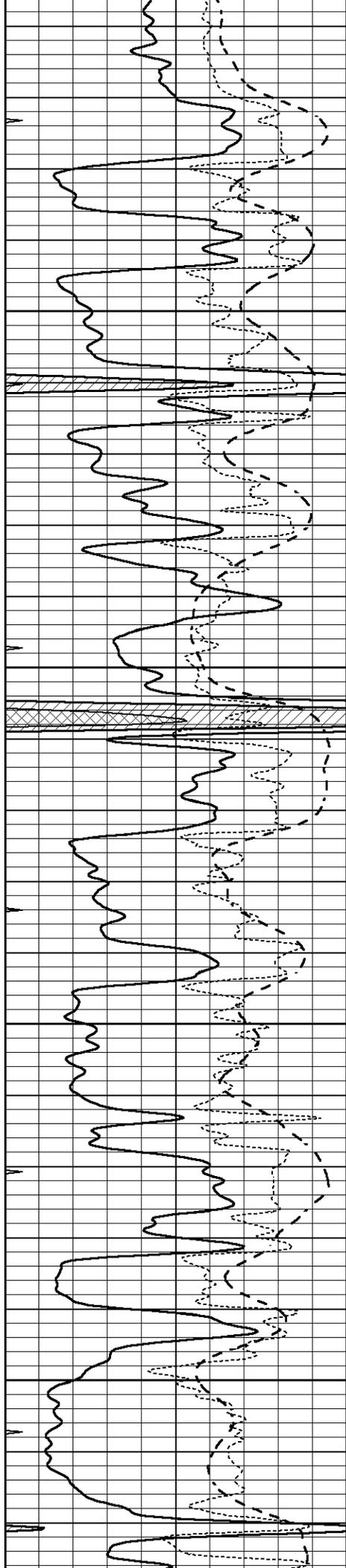


3800

3850

3900



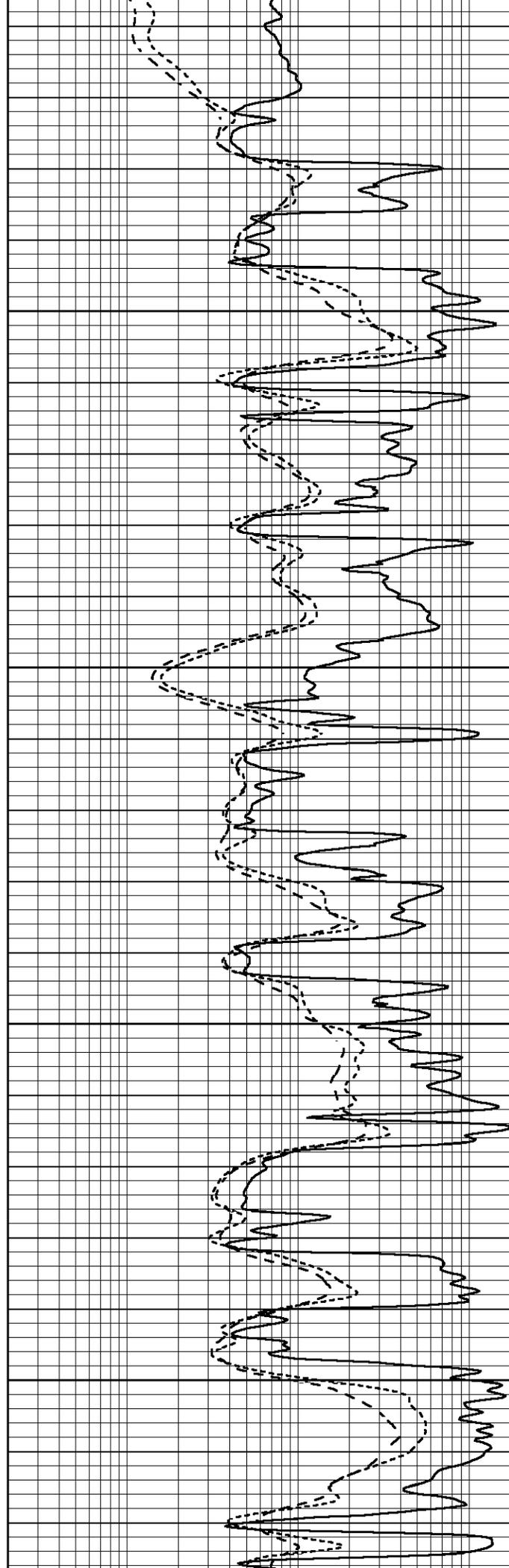


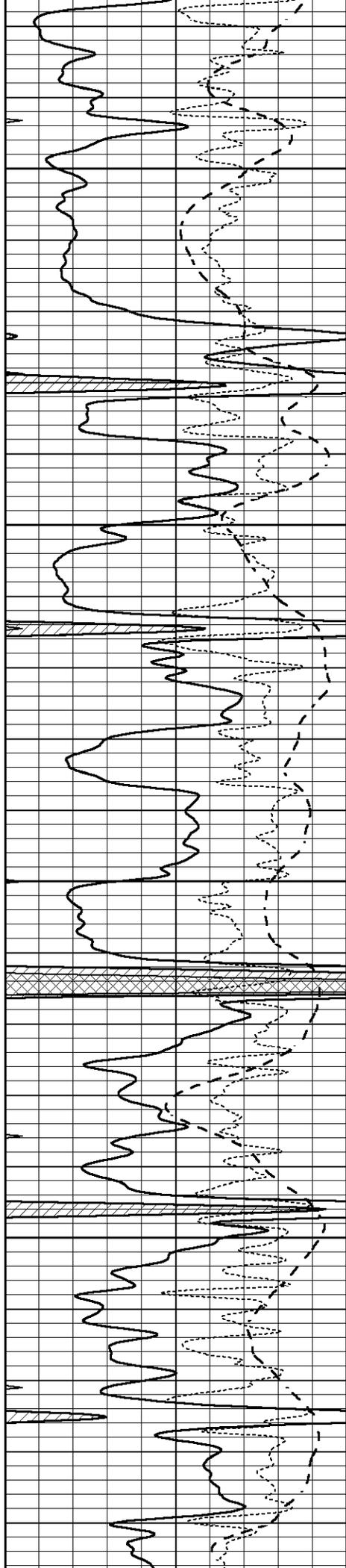
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4000

4050

4100



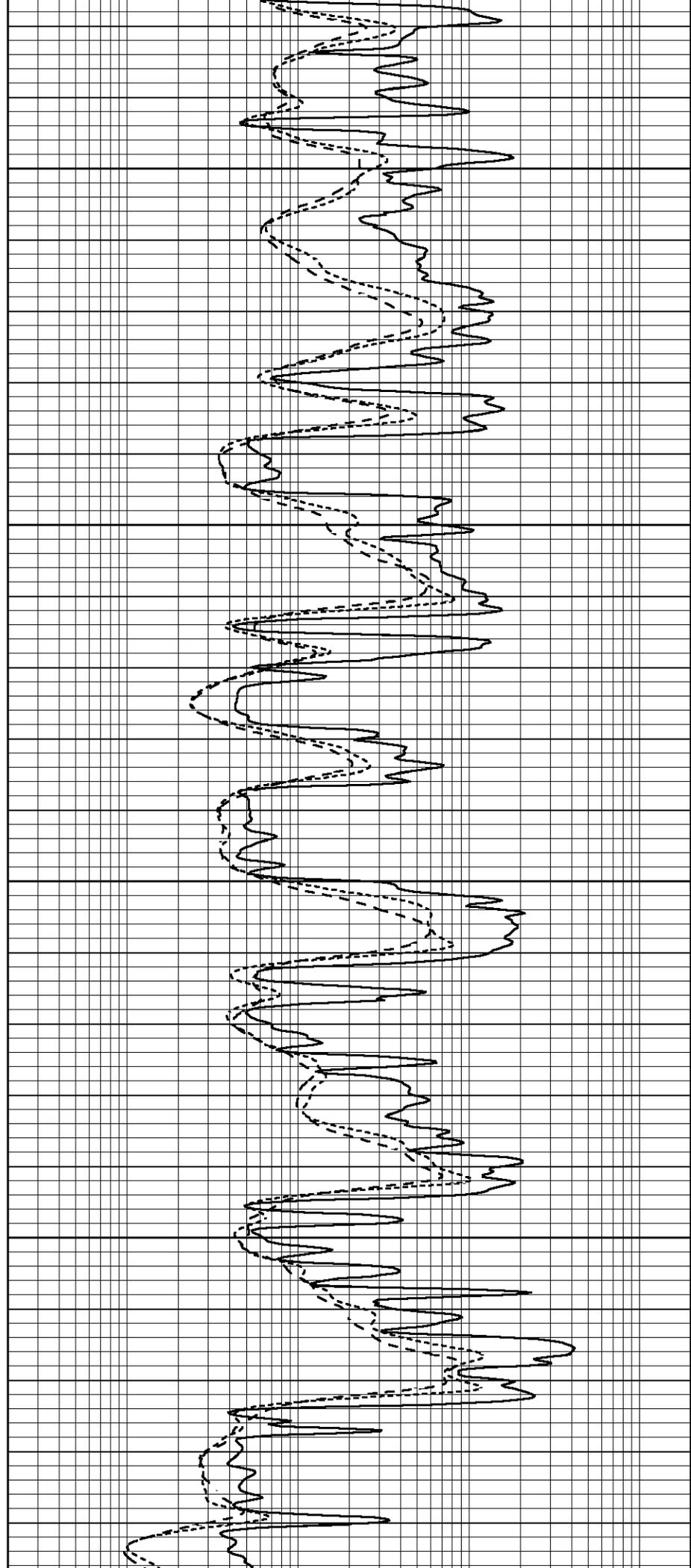


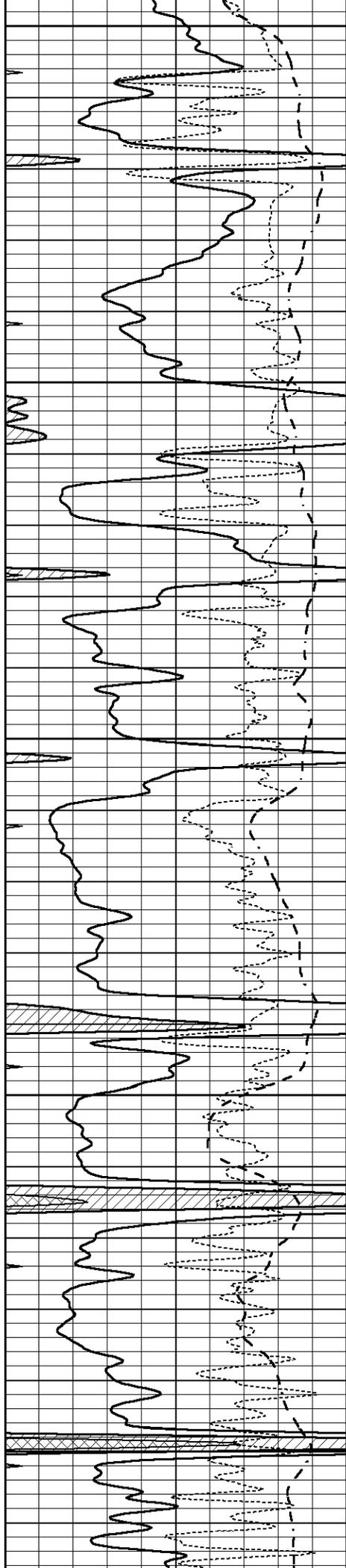
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4200

4250

4300





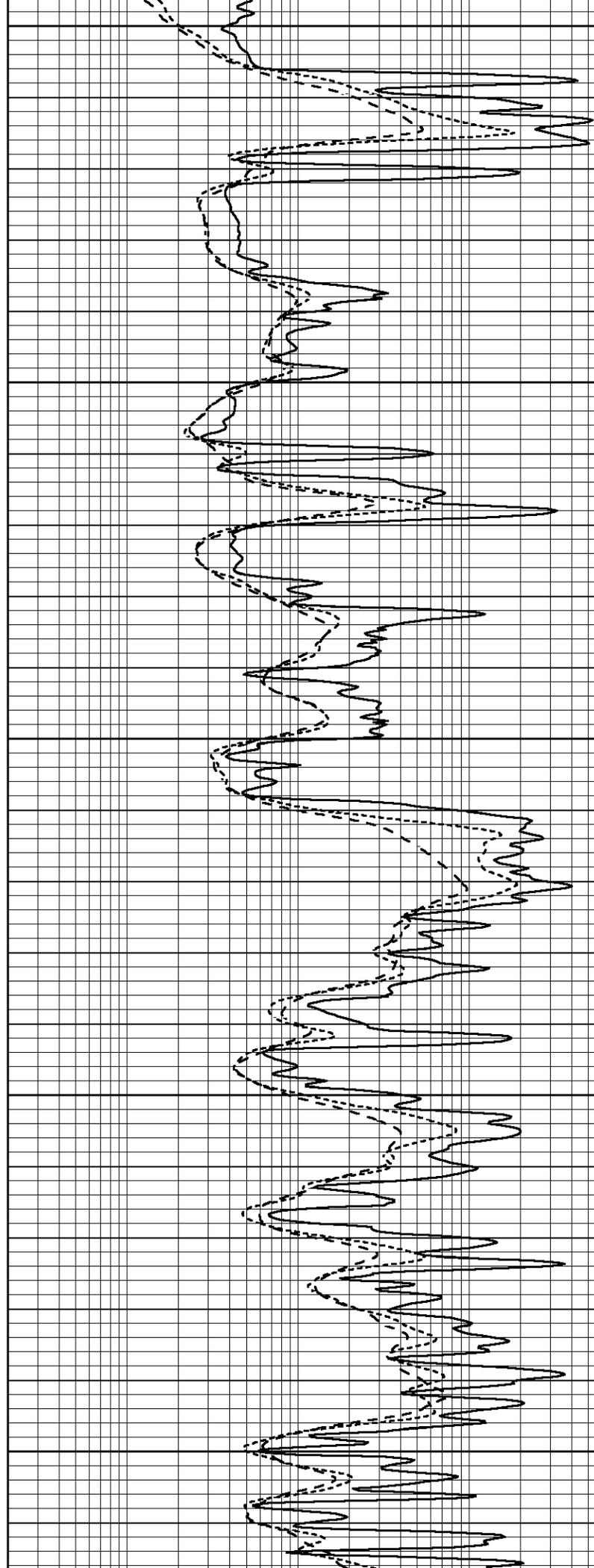
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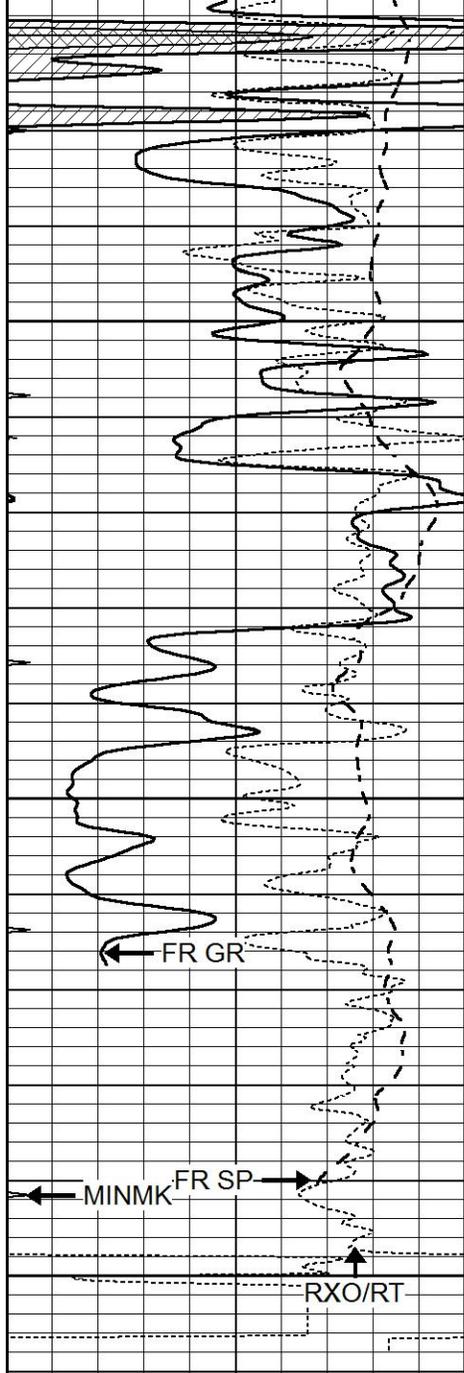
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4450

4500

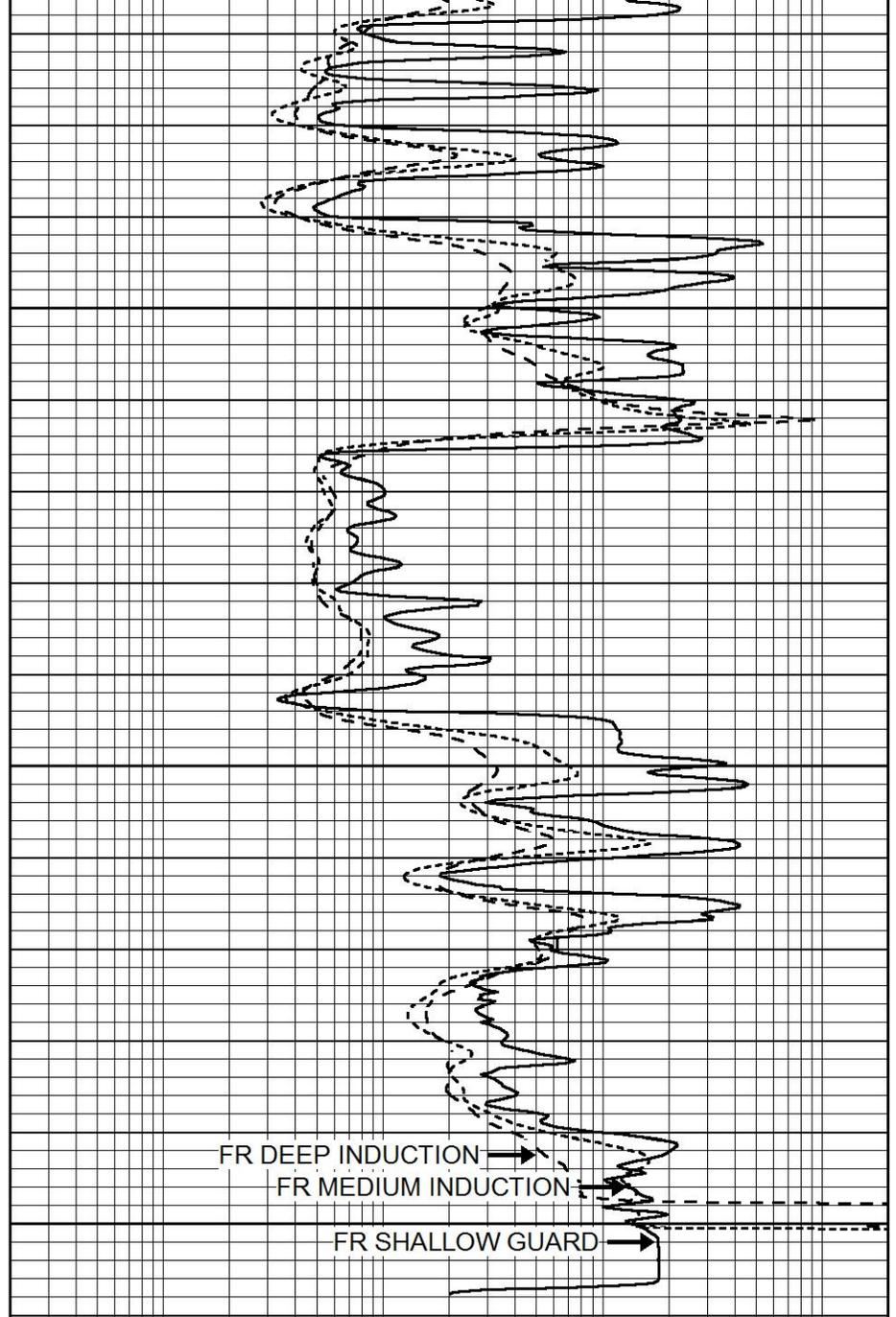
4550





4600
4650
4700
LTD 4704

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20



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



REPEAT SECTION

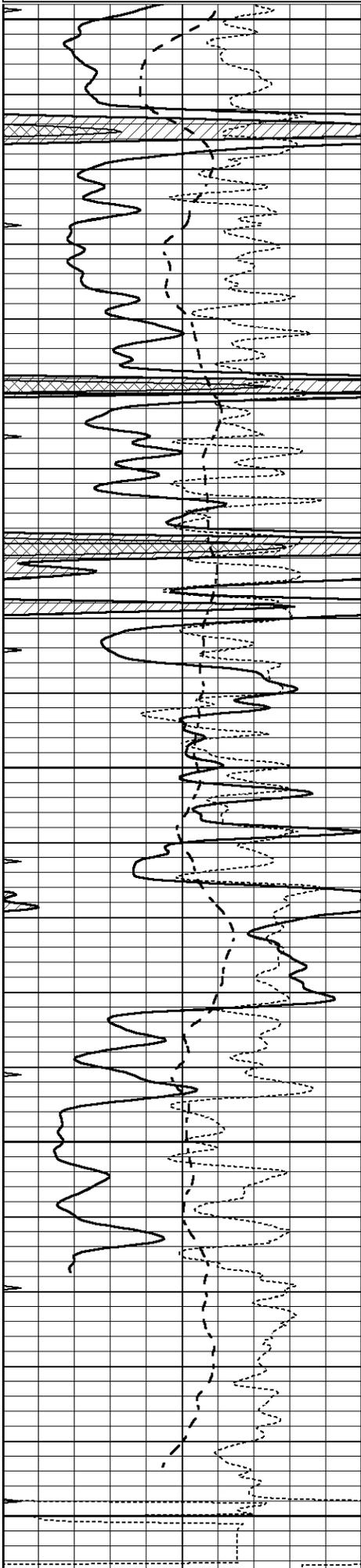
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 Charted by Depth in Feet scaled 1:240

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-100	SP (mV)	100

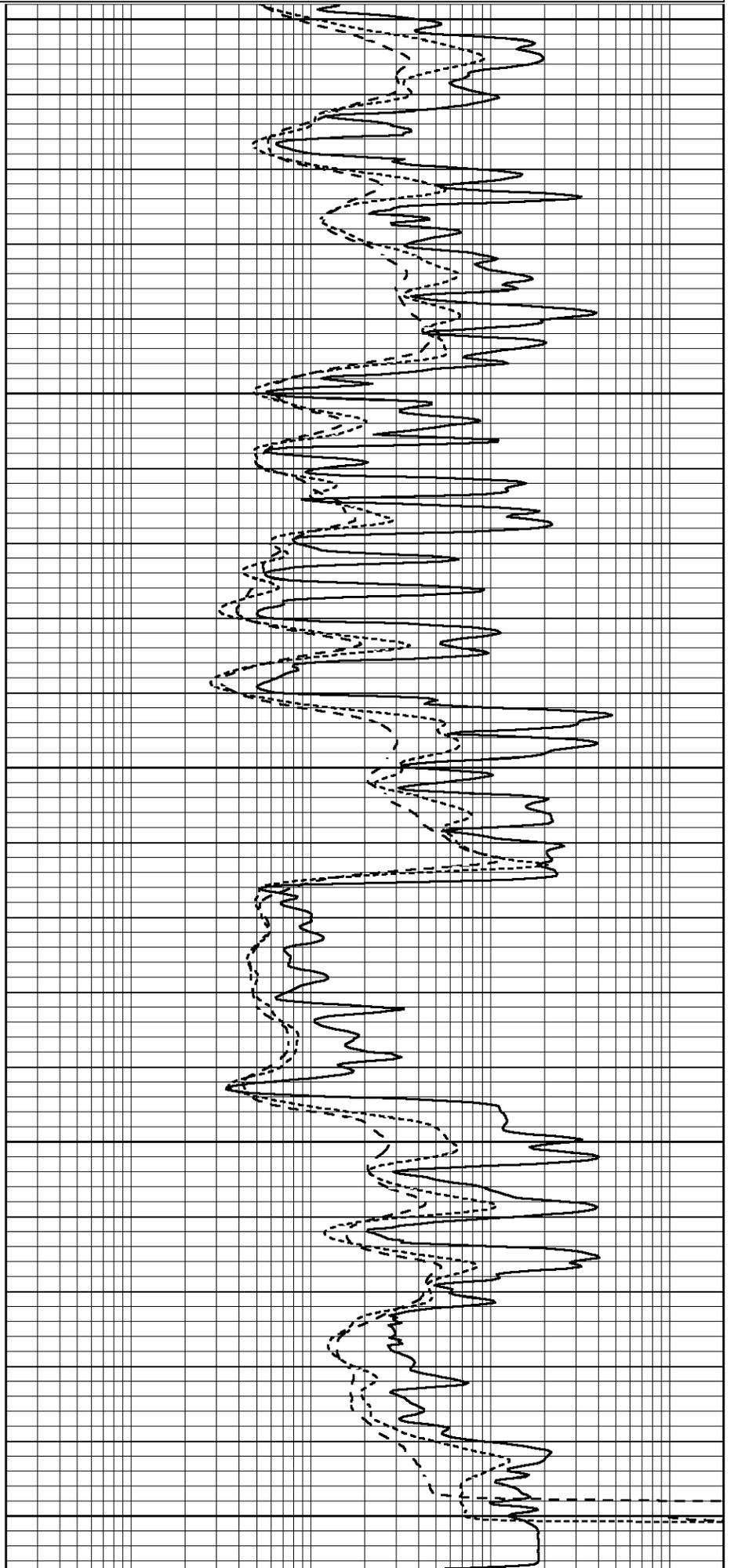
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000

-250 Rxo/Rt 50
0 MINMK 20

0.2 MEDIUM INDUCTION (Ohm-m) 2000



4500
4550
4600
4650
4700



0	GAMMA RAY (GAPI)	150	0.2	SHALLOW GUARD (Ohm-m)	2000
-100	SP (mV)	100	0.2	DEEP INDUCTION (Ohm-m)	2000
-250	Rxo/Rt	50	0.2	MEDIUM INDUCTION (Ohm-m)	2000
0	MINMK	20			

Calibration Report

Database File 4547pe.db
 Dataset Pathname pass3.7M
 Dataset Creation Sun Jun 28 14:48:19 2020

Dual Induction Calibration Report

Serial-Model: PROBE7-DILG
 Surface Cal Performed: Sun Jun 28 13:26:17 2020
 Downhole Cal Performed: Thu Mar 12 11:45:10 2020
 After Survey Verification Performed: Thu Mar 12 11:45:00 2020

Surface Calibration

Loop:	Readings				References			Results	
	Air	Loop	V		Air	Loop	mmho/m	m	b
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	620.000	-15.000	
Medium	0.039	0.728	V	0.000	464.000	mmho/m	675.000	-72.000	
Internal:	Zero	Cal		Zero	Cal		m	b	
Deep	0.011	0.610	V	0.000	400.000	mmho/m	667.135	-7.256	
Medium	0.005	0.712	V	0.000	464.000	mmho/m	655.677	-3.102	

Downhole Calibration

	Readings				References			Results	
	Zero	Cal	mmho/m		Zero	Cal	mmho/m	m'	b'
Deep	0.000	0.000	mmho/m	14.508	388.384	mmho/m	1.000	0.000	
Medium	0.000	0.000	mmho/m	166.367	504.400	mmho/m	1.000	0.000	
LL3		7.500	V		1400.000	Ohm-m			
		0.000	V		20.000	Ohm-m			
		-7.200	V		4000.000	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	0.000	0.000	mmho/m	0.000	0.000	
Medium	0.000	0.000	mmho/m	0.000	0.000	mmho/m	0.000	0.000	
LL3		1.000	Ohm-m		1.000	Ohm-m			
		0.000	Ohm-m		0.000	Ohm-m			
		0.000	mmho-m		4000.000	mmho-m			

Litho Density Calibration Report

Serial: 004 Model: PRB

Master Calibration

Performed Mon May 11 10:45:58 2020

	Background	Magnesium	Aluminum	Aluminum+Fe	
Window 1	1199.7	10039.4	3208.4	2838.9	cps
Window 2	1096.3	8590.5	2806.1	2527.9	cps
Window 3	934.1	5176.2	1855.7	1739.5	cps
Window 4	267.0	271.6	264.8	264.9	cps
Long Space	0.0	7494.2	1709.8	1431.6	cps

Long Space	1.1	1784.3	1183.7	971.1	cps
Short Space		1.7100	2.5900	0.0000	g/cc
Rho		2.0000	2.7500	5.7900	
Pe					

Rib Angle	: 44.5	Rib Slope	: 0.982	Density/Spine Ratio	: 0.574
Spine Angle	: 74.5	Spine Slope	: 3.601	Spine Intercept	: -18.0

Before Survey Verification

Performed Wed Dec 31 18:00:00 1969

Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	g/cc
Measured Pe			0.0000	0.0000	

After Survey Verification

Performed Wed Dec 31 18:00:00 1969

Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	g/cc
Measured Pe			0.0000	0.0000	

Compensated Neutron Calibration Report

Serial Number: 070808PMC
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: 070558
Tool Model: OPEN_GR
Performed: Wed Jul 03 10:25:53 2019

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 1.0 cps

Sensitivity:

0.3000

GAPI/cps