



# DUAL INDUCTION LOG

Company MULL DRILLING COMPANY, INC.  
 Well SNYDER #4-11  
 Field UTICA NORTHEAST  
 County NESS  
 State KANSAS

Company MULL DRILLING COMPANY, INC.  
 Well SNYDER #4-11  
 Field UTICA NORTHEAST  
 County NESS State KANSAS

Location: API #: 15-135-26163-0000  
 381' FNL & 1342' FWL  
 SW - NW - NE - NW  
 Permanent Datum GROUND LEVEL Elevation 2619  
 Log Measured From KELLY BUSHING 7' A.G.L.  
 Drilling Measured From KELLY BUSHING  
 SEC 11 TWP 16S RGE 26W  
 Other Services CDL/CNL/MEI SONIC/PE  
 Elevation K.B. 2612 D.F. 2610 G.L. 2619

Date	5/1/22
Run Number	ONE
Depth Driller	4650
Depth Logger	4647
Bottom Logged Interval	4645
Top Log Interval	00
Casing Driller	8 5/8"@223'
Casing Logger	223'
Bit Size	7 7/8"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.3/56
pH / Fluid Loss	10.0/6.0
Source of Sample	FLOWLINE
Rm @ Meas. Temp	1.60@72F
Rmf @ Meas. Temp	1.20@72F
Rmc @ Meas. Temp	1.92@72F
Source of Rmf / Rmc	MEASUREMENT
Rm @ BHT	.944@122F
Time Circulation Stopped	2.5 HOURS
Time Logger on Bottom	2:00 P.M.
Maximum Recorded Temperature	122F
Equipment Number	922339
Location	HAYS, KANSAS
Recorded By	JEFF LUEBBERS
Witnessed By	BLAKE MILLER
	COLE ROBBEN

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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.

15-135-26163-0000 Comments

THANK YOU FOR USING ELI WIRELINE HAYS, KANSAS (785) 628-6395  
 DIRECTIONS  
 UTICA, KS AND HIGHWAY 4, 3 NORTH ON RD D TO 290 RD. 1/4 E AND SOUTH INTO

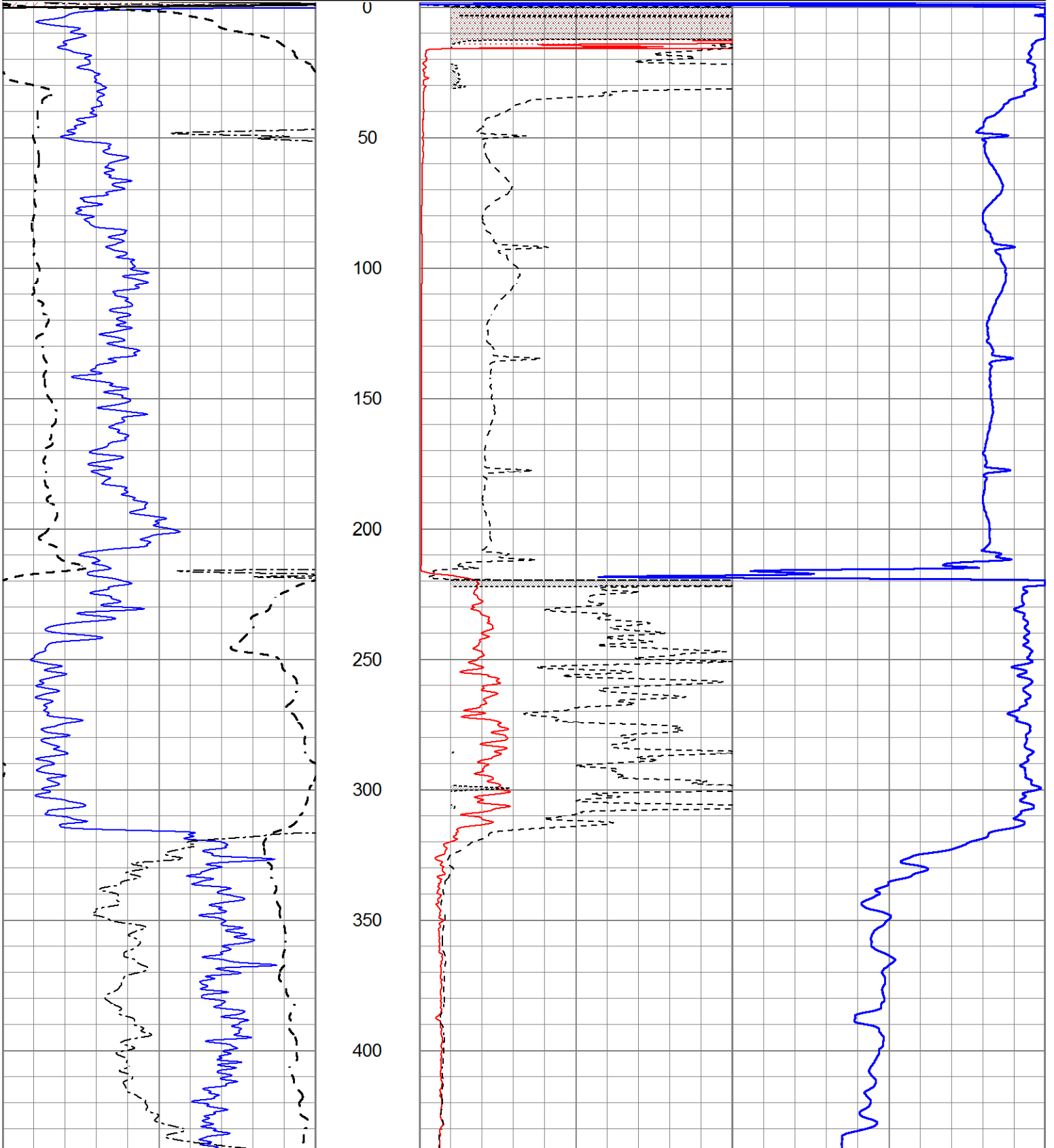


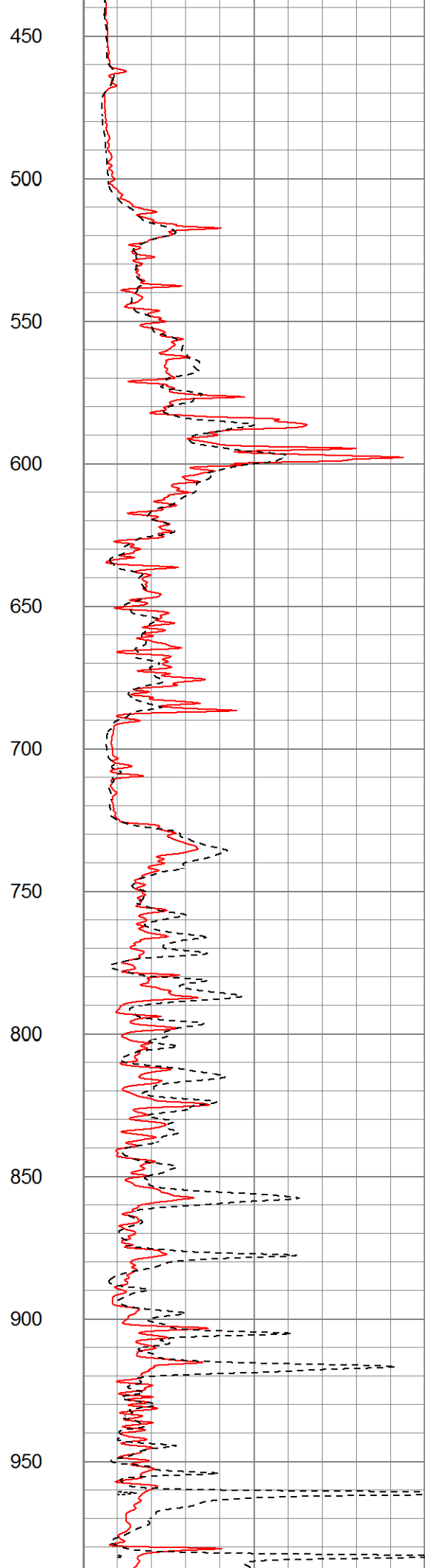
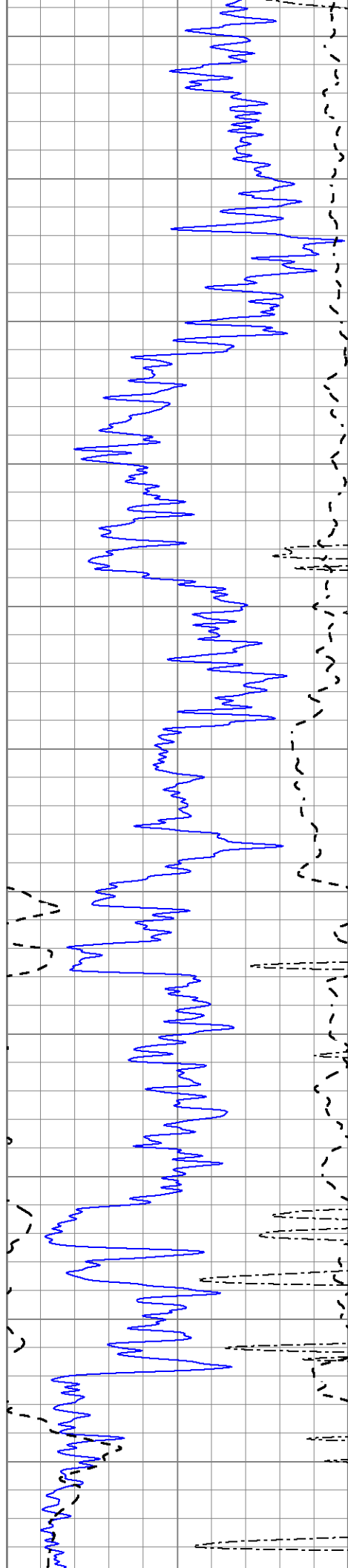
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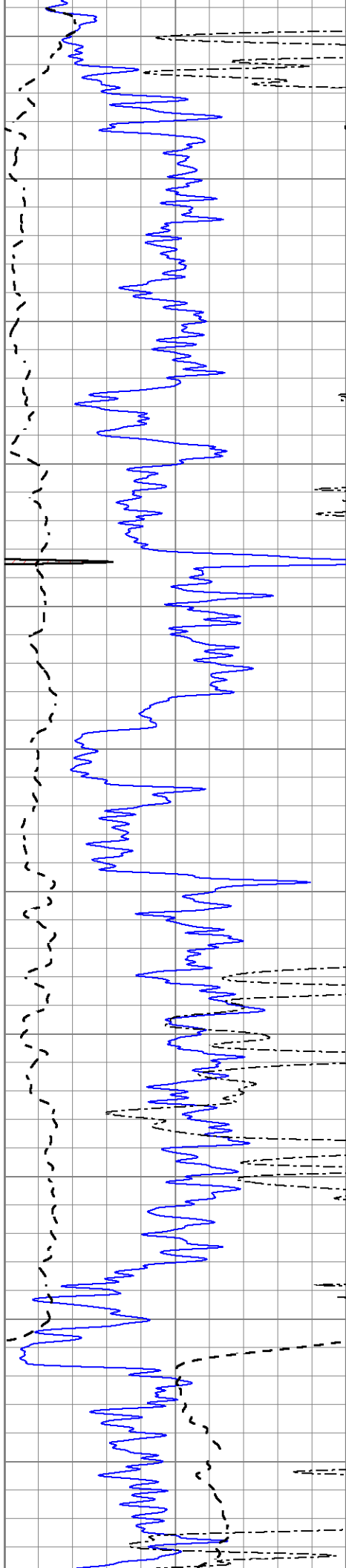
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 Presentation Format \_dil2  
 Dataset Creation Sun May 01 15:32:48 2022  
 Charted by Depth in Feet scaled 1:600

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

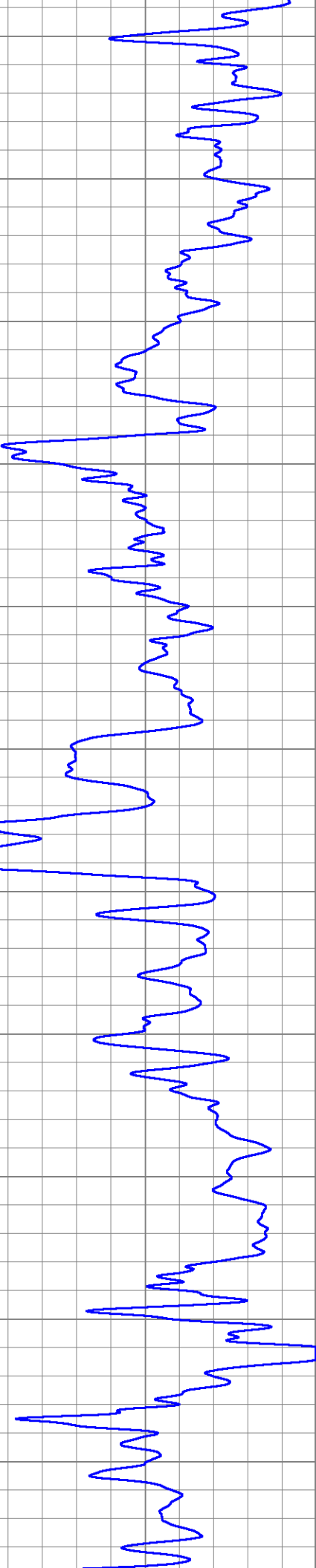
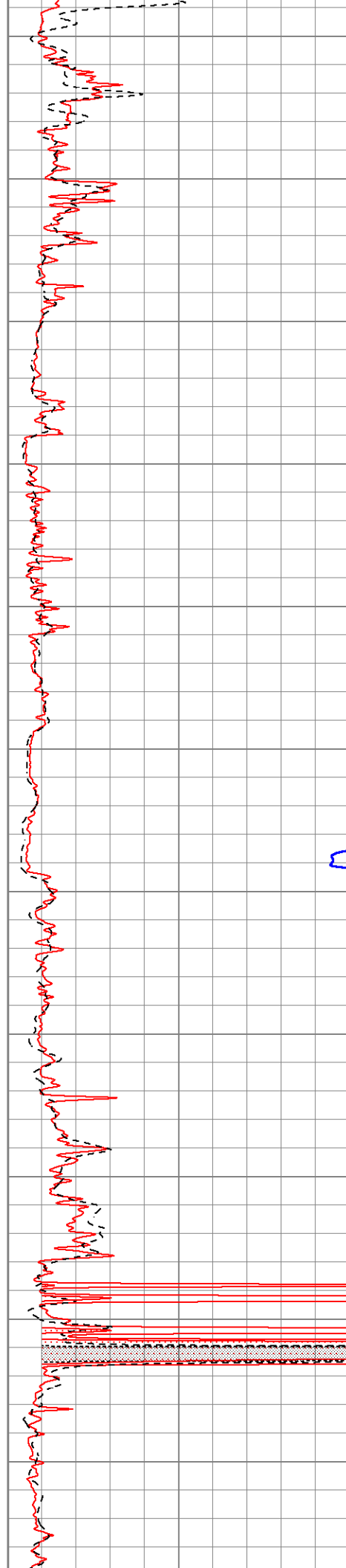
1000	CILD (mmho/m)	0
0	RLL3 (Ohm-m)	50
0	RILD (Ohm-m)	50
50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500

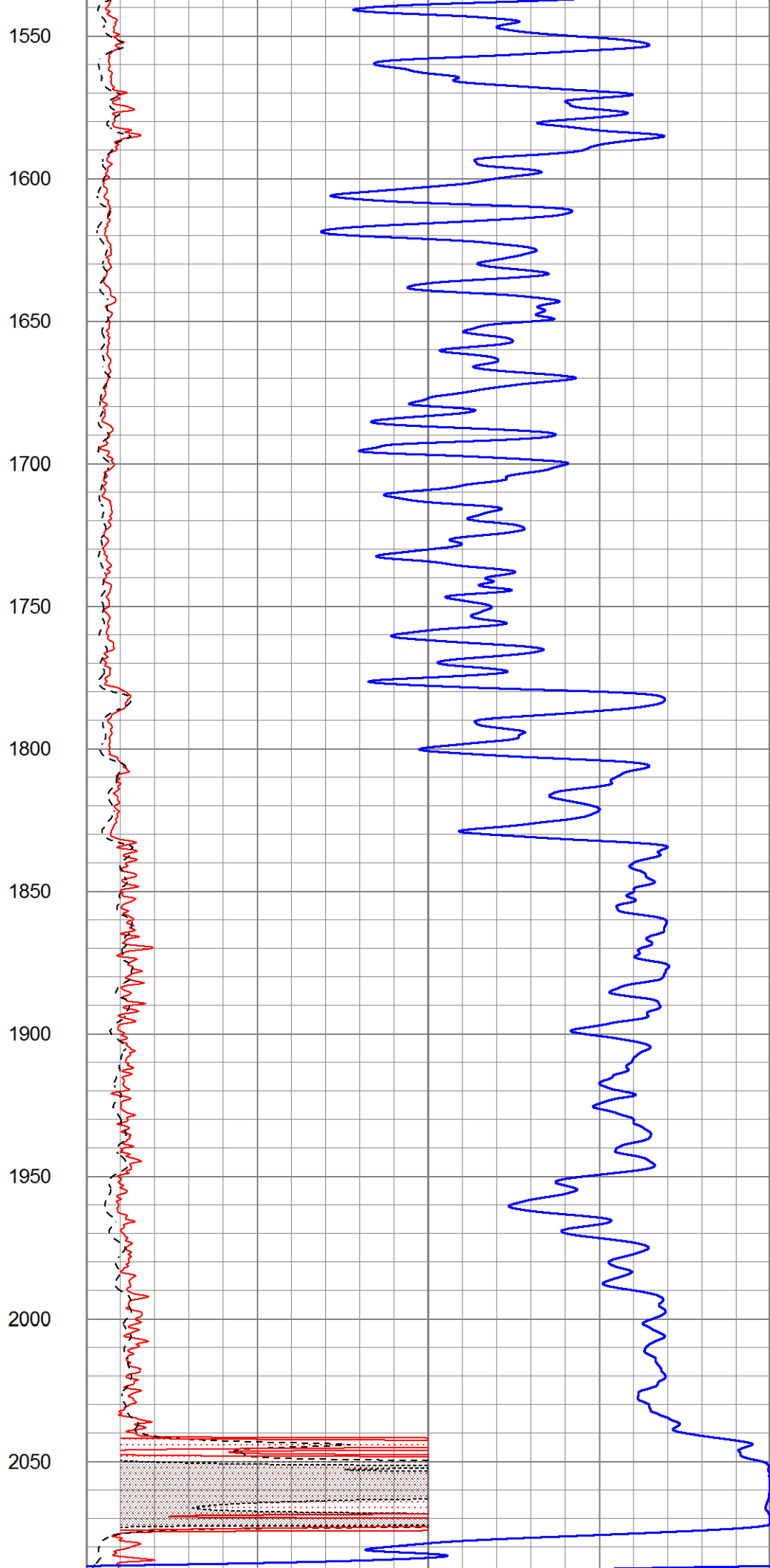
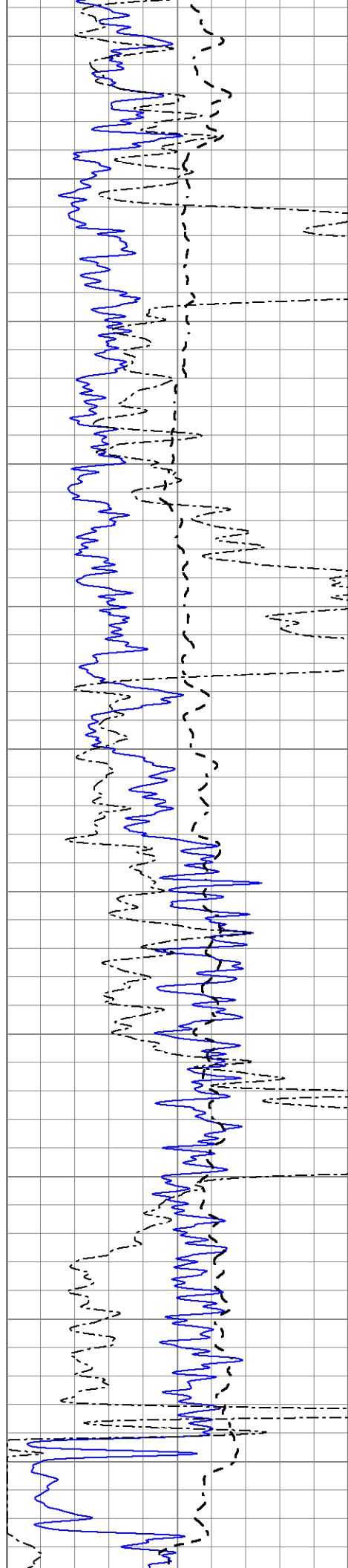


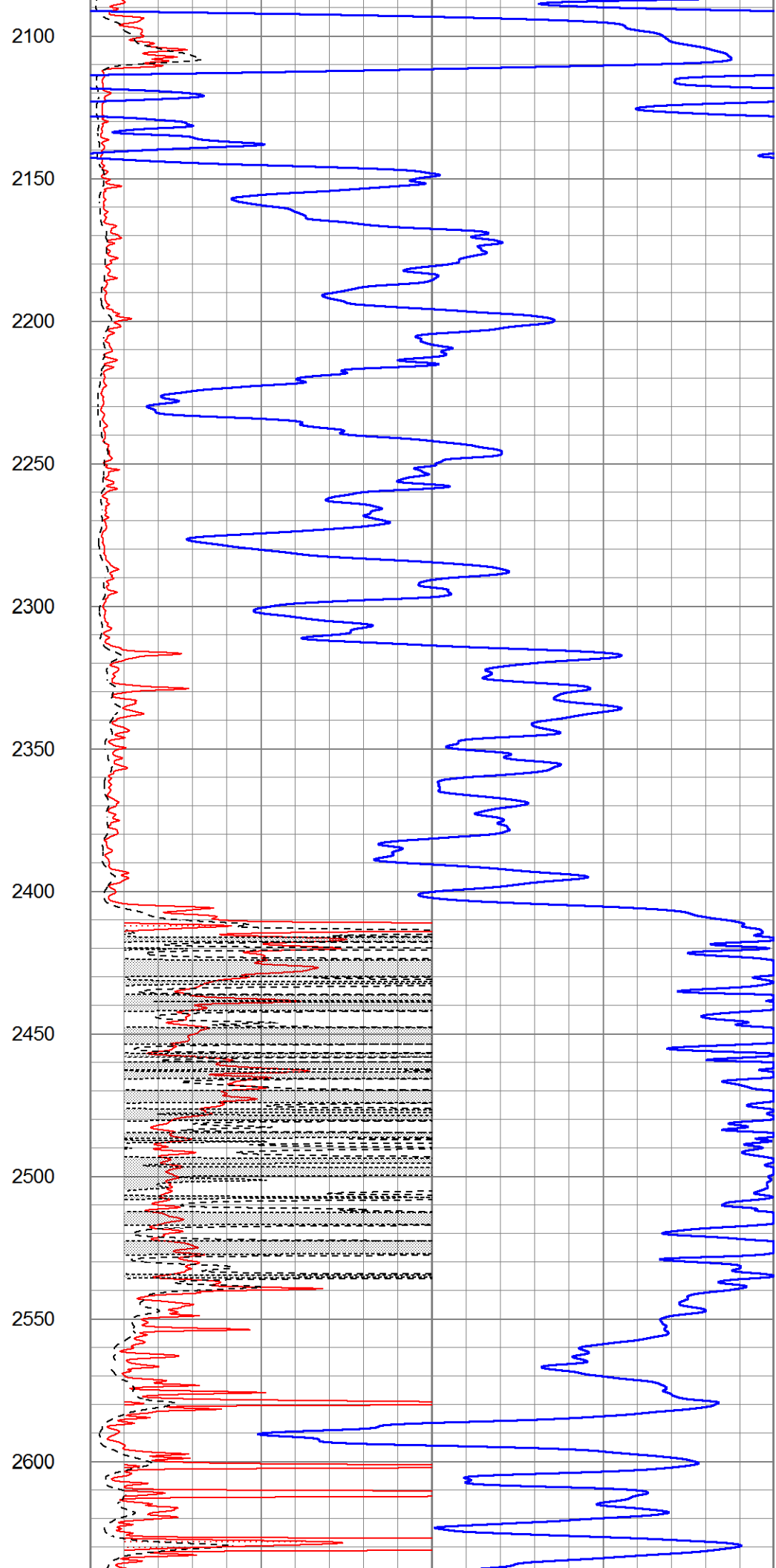
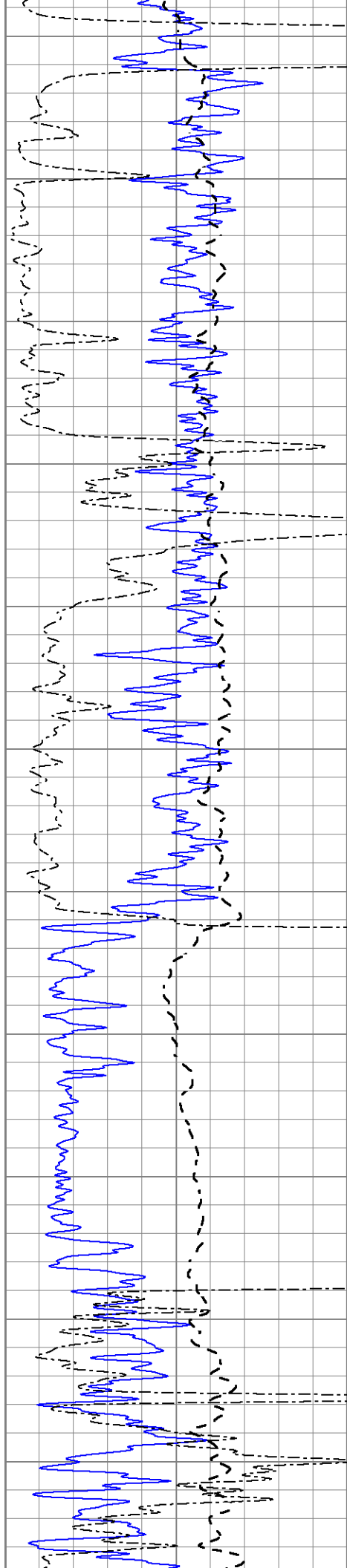


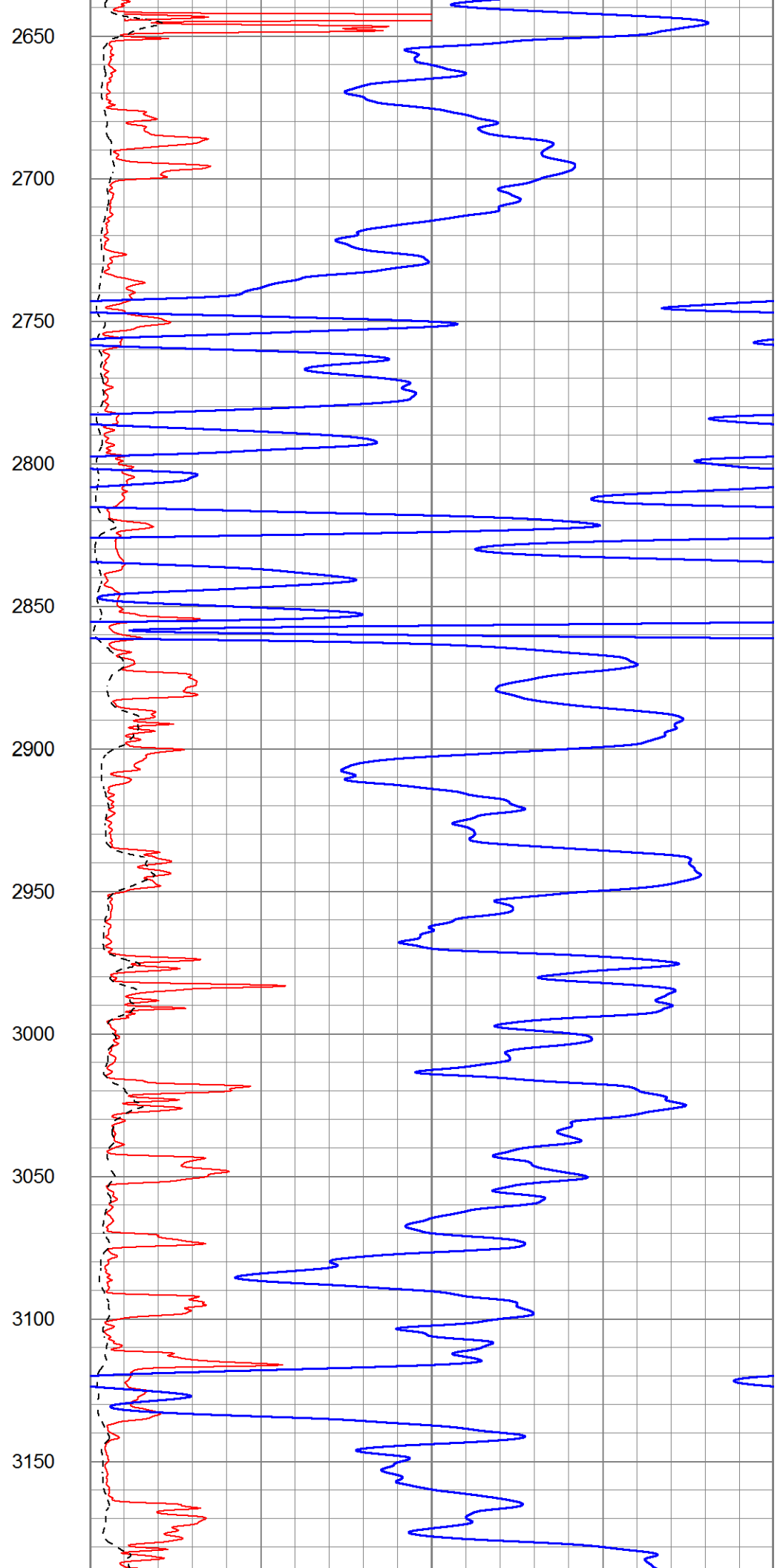
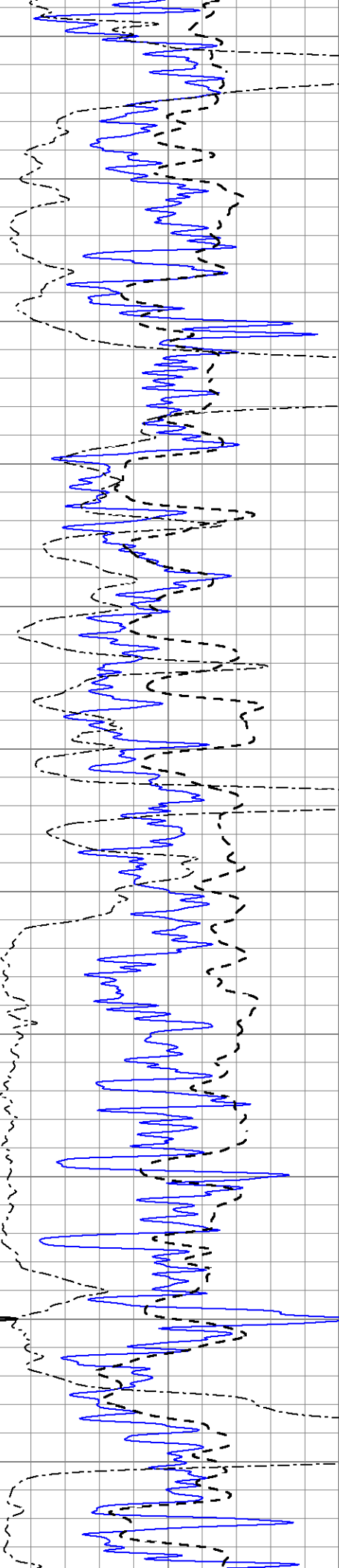


1000  
1050  
1100  
1150  
1200  
1250  
1300  
1350  
1400  
1450  
1500

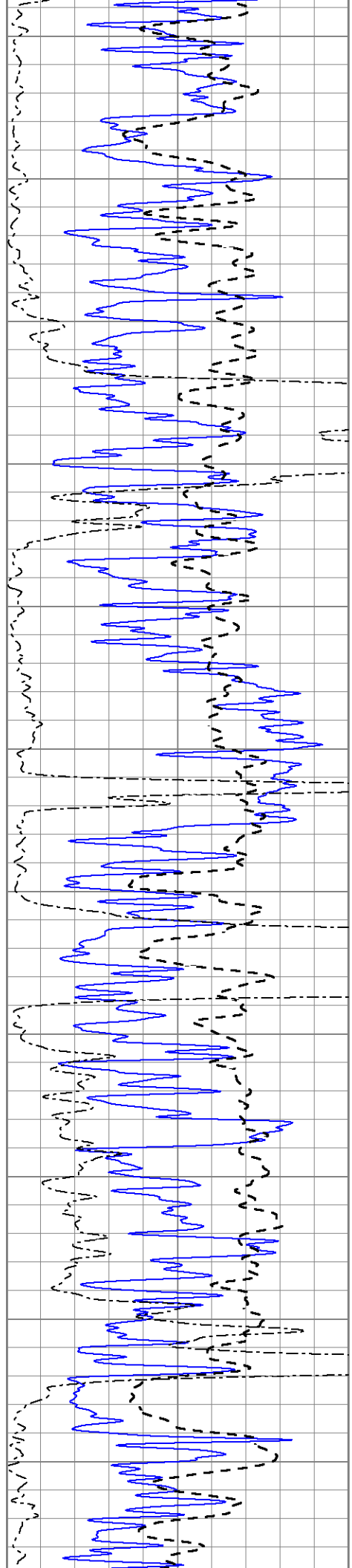
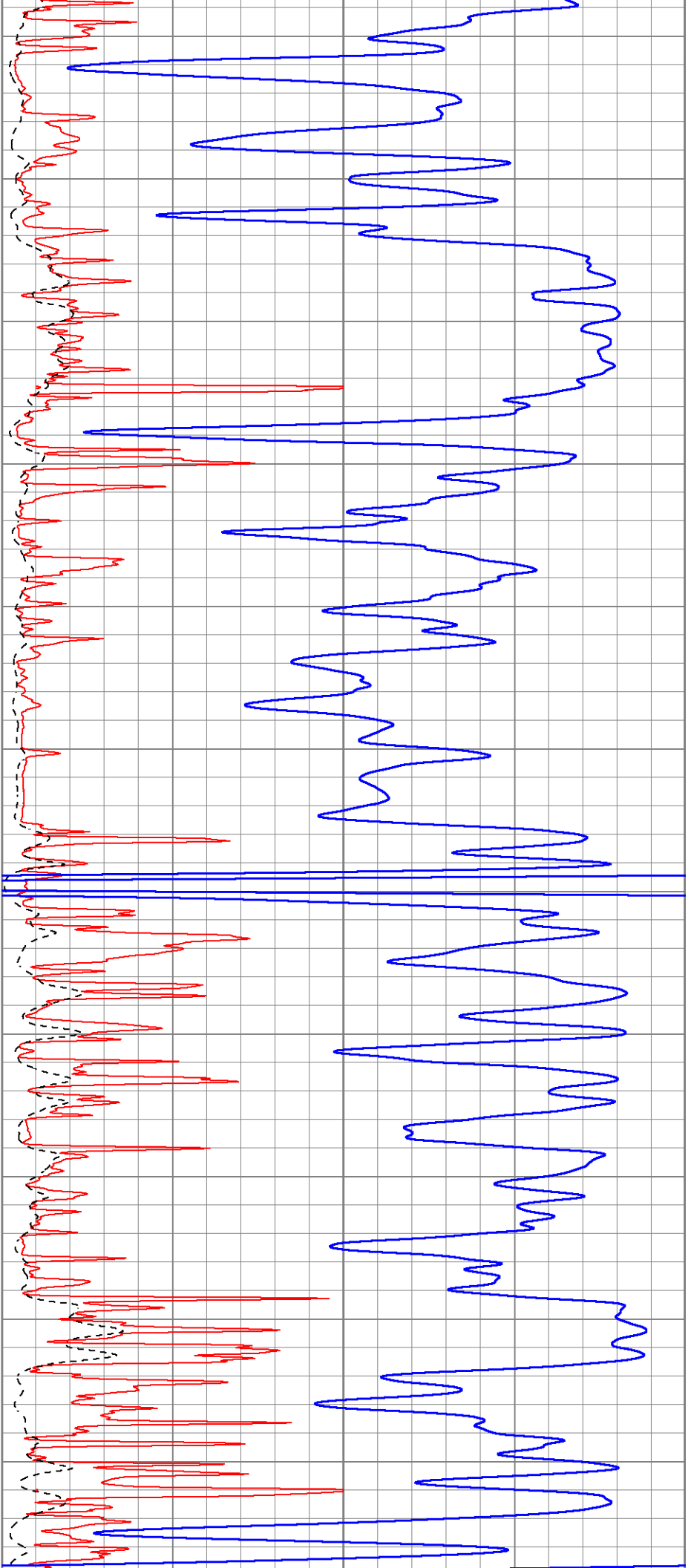


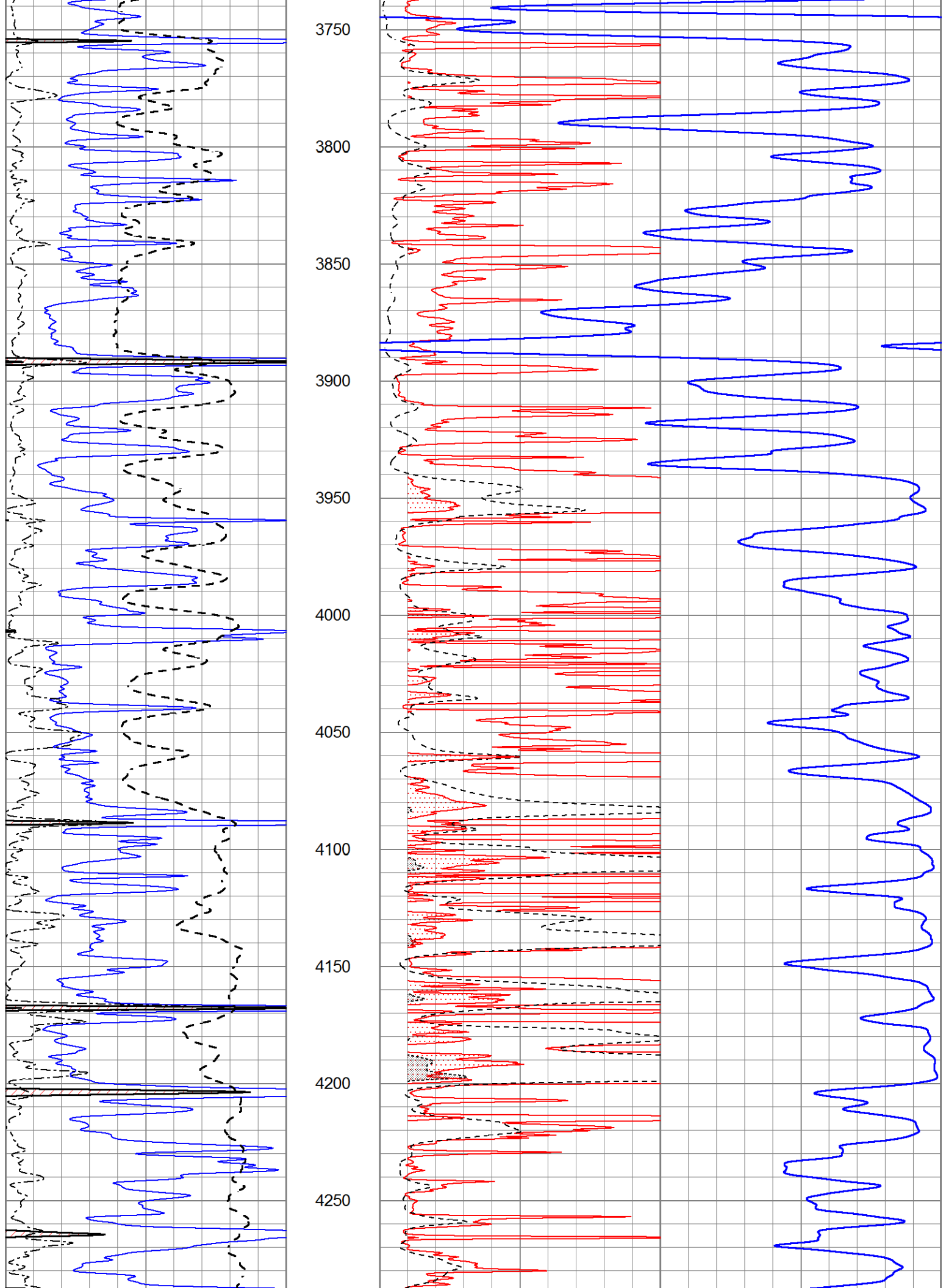


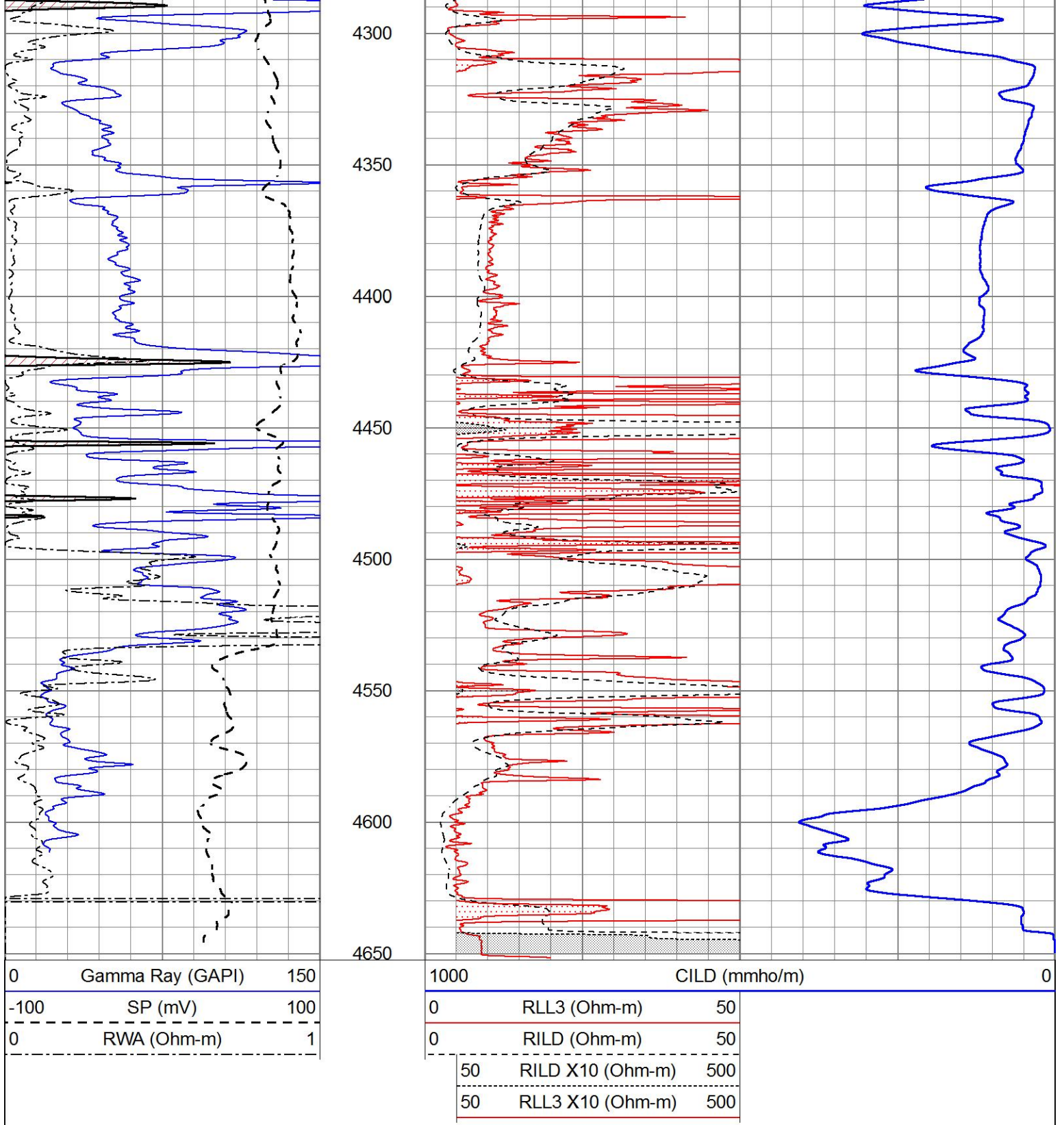




3200  
3250  
3300  
3350  
3400  
3450  
3500  
3550  
3600  
3650  
3700







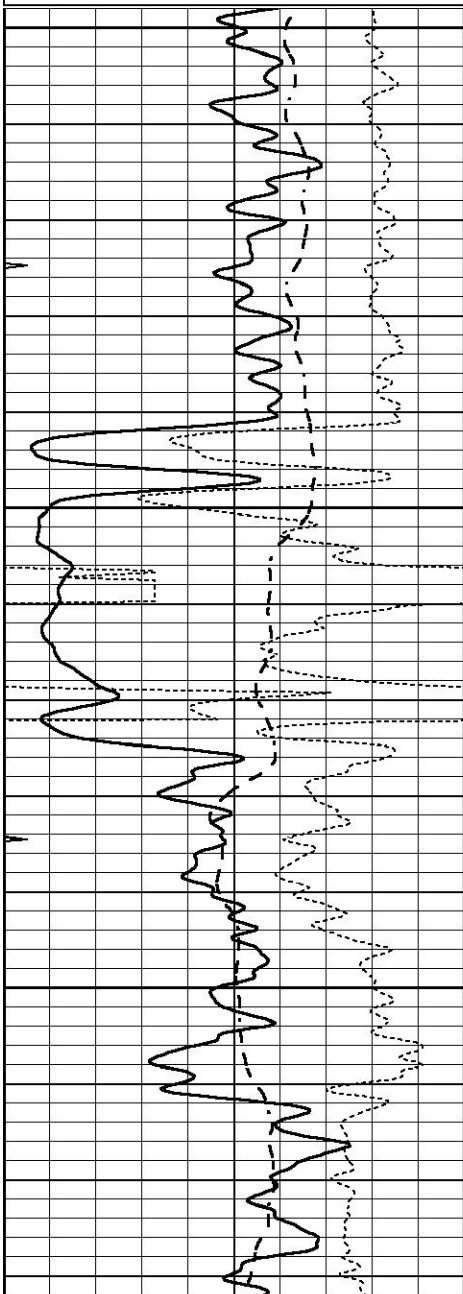
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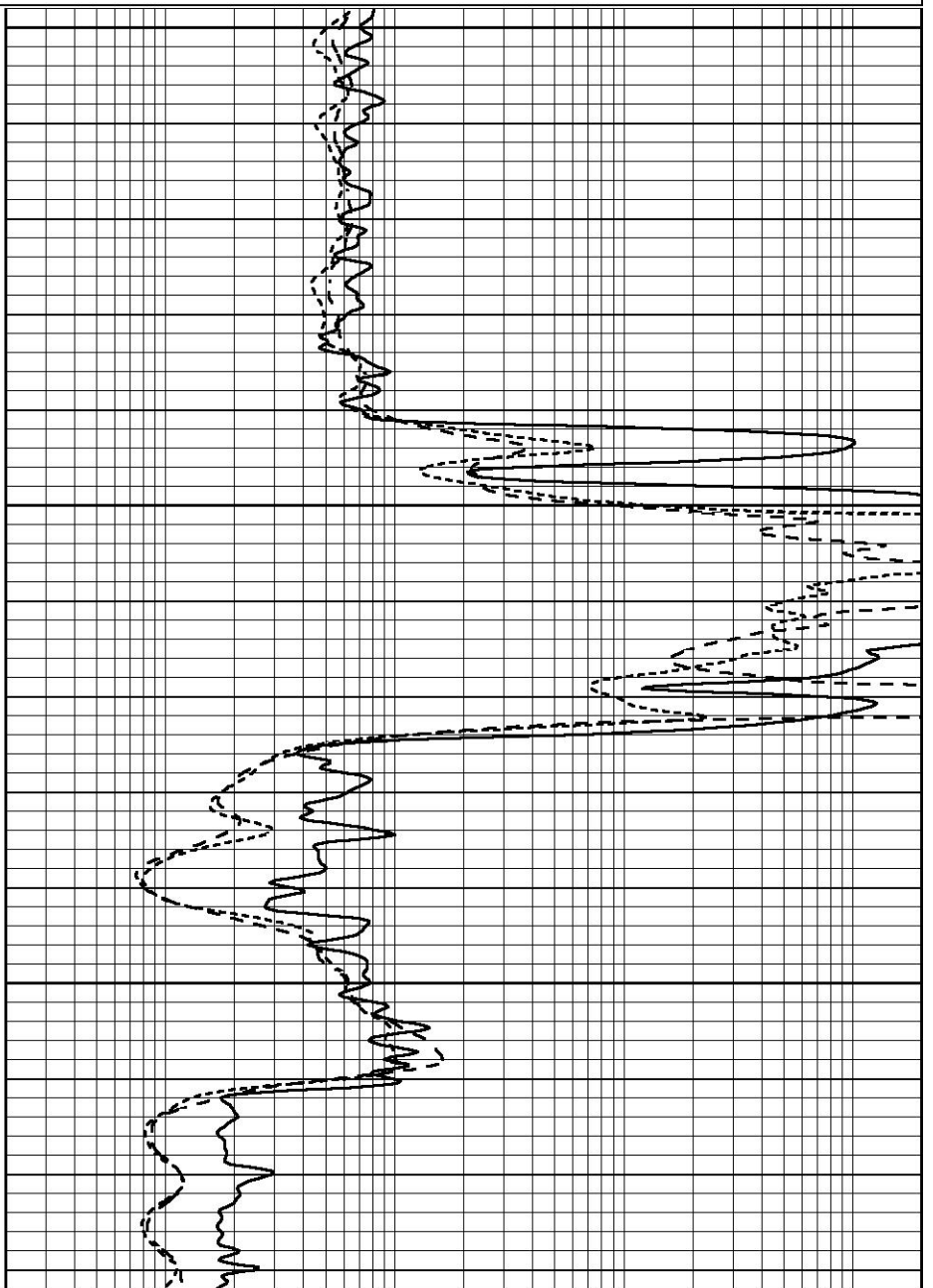


-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



2000  
2050  
2100



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

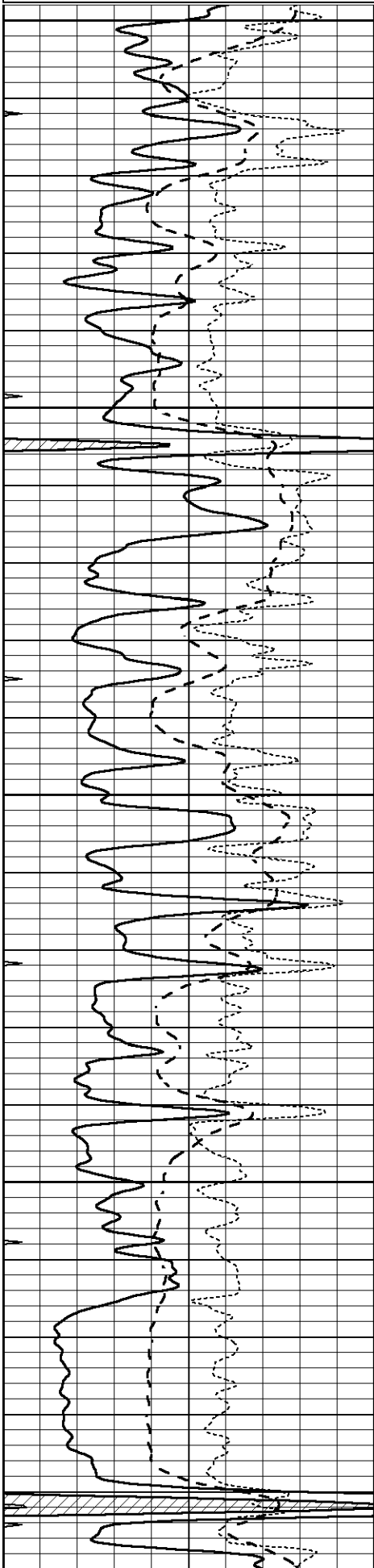
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0	GAMMA RAY (GAPI)	150
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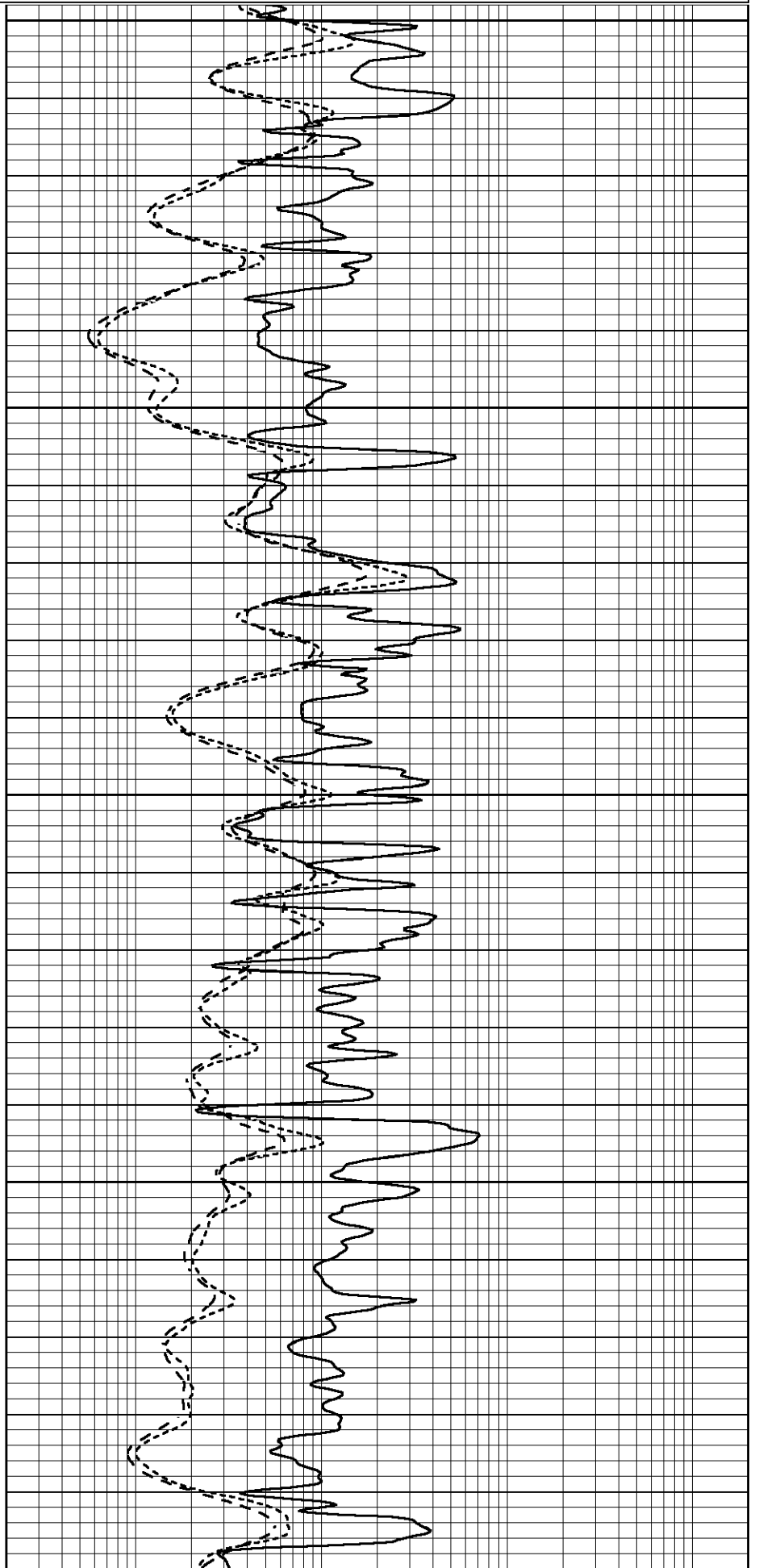
0.2	SHALLOW GUARD (Ohm-m)	2000
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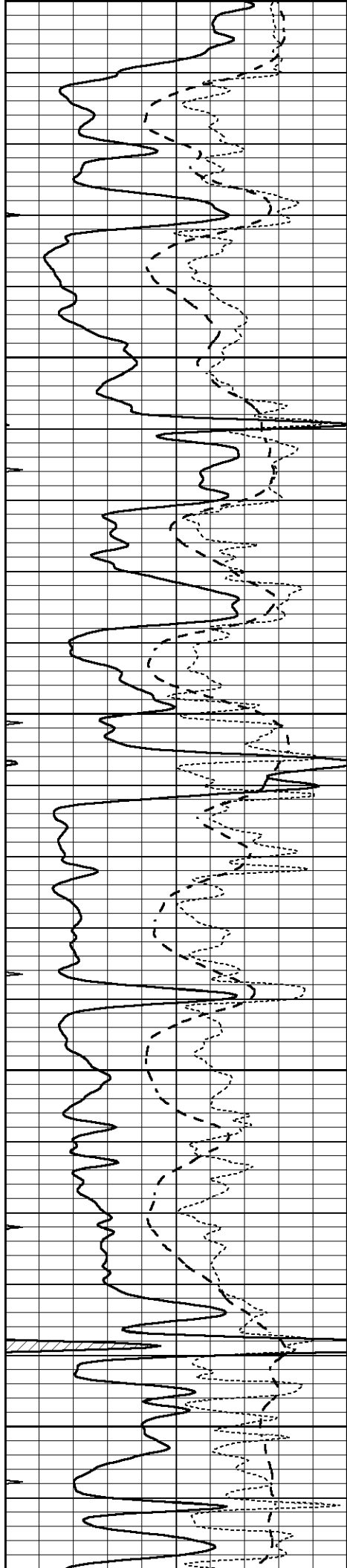
SP (mV)	100
Rxo/Rt	50
MINMK	20

SHALLOW COARD (Ohm-m)	2000
DEEP INDUCTION (Ohm-m)	2000
MEDIUM INDUCTION (Ohm-m)	2000



3700  
3750  
3800  
3850  
3900





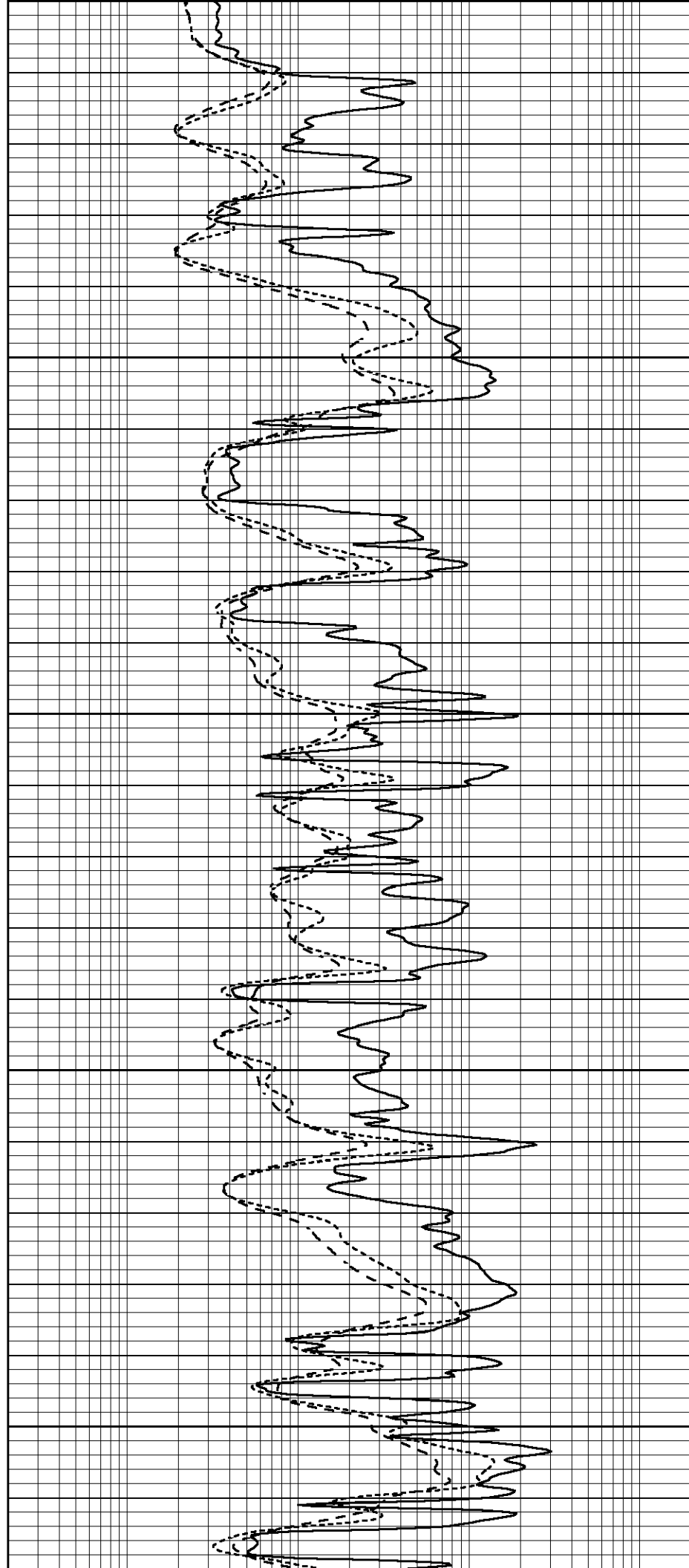
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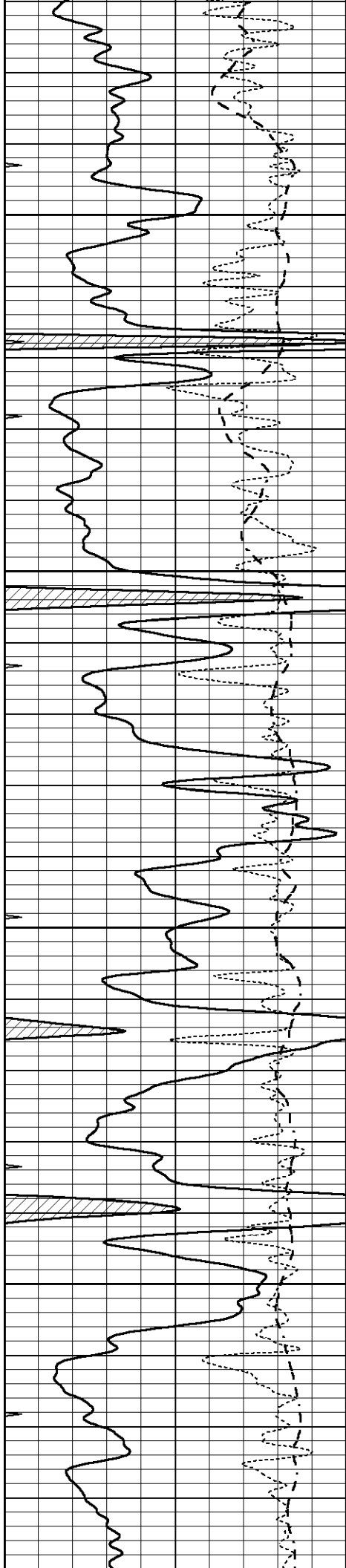
3950

4000

4050

4100



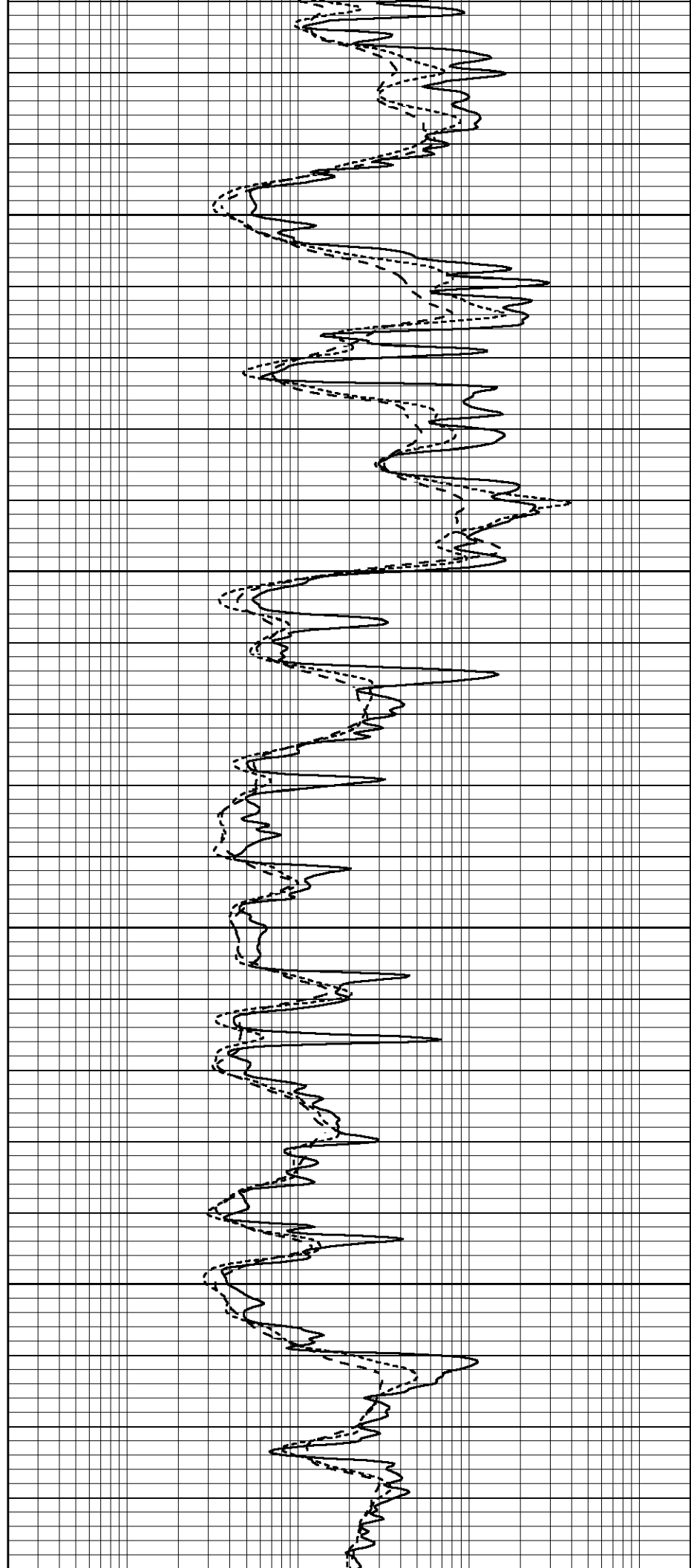


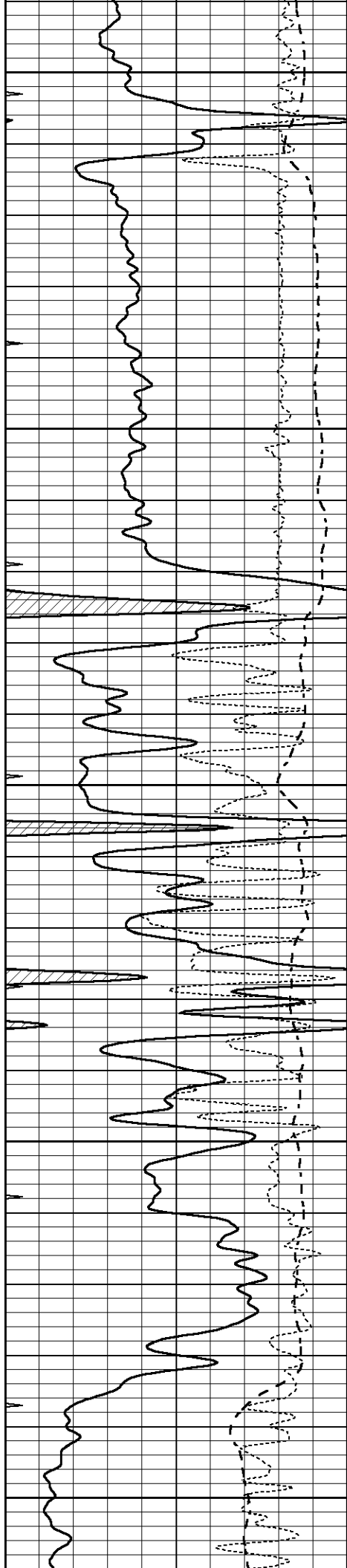
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4200

4250

4300





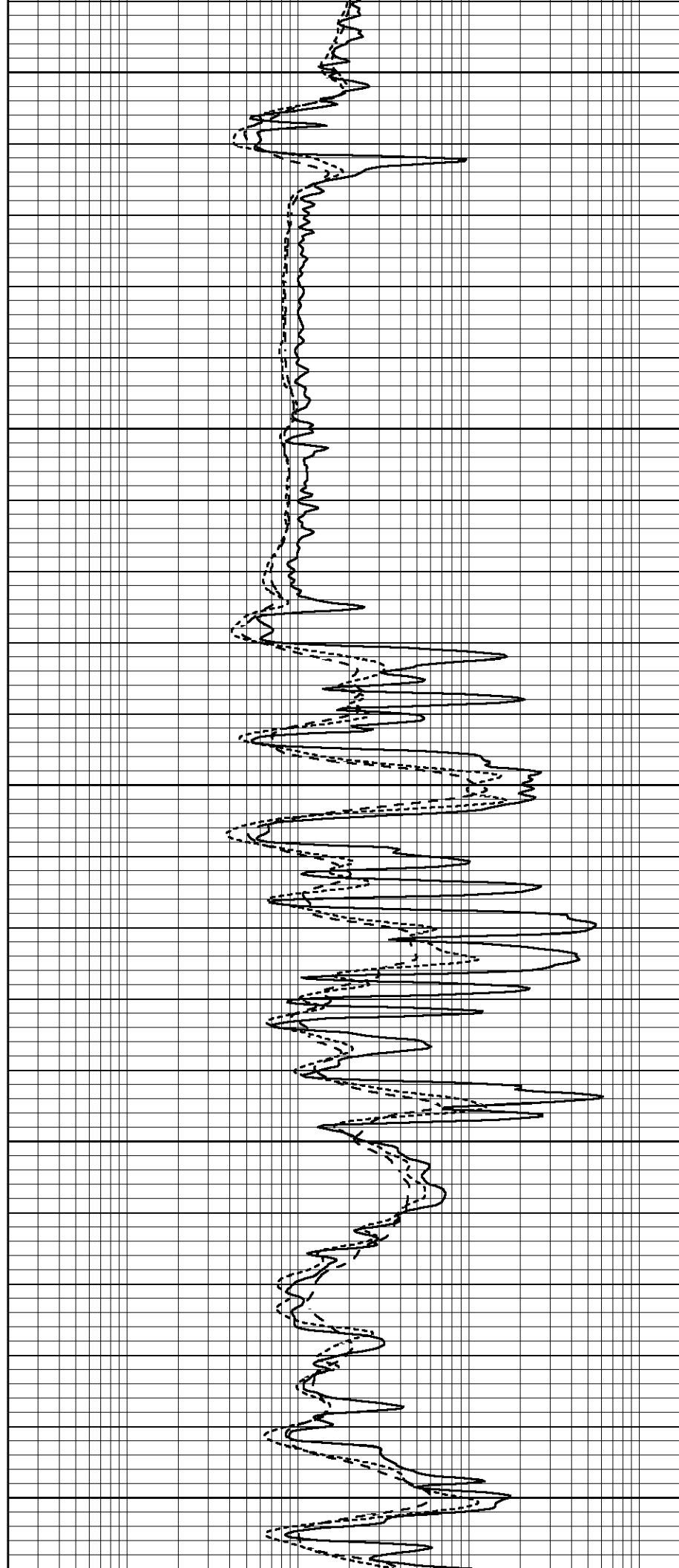
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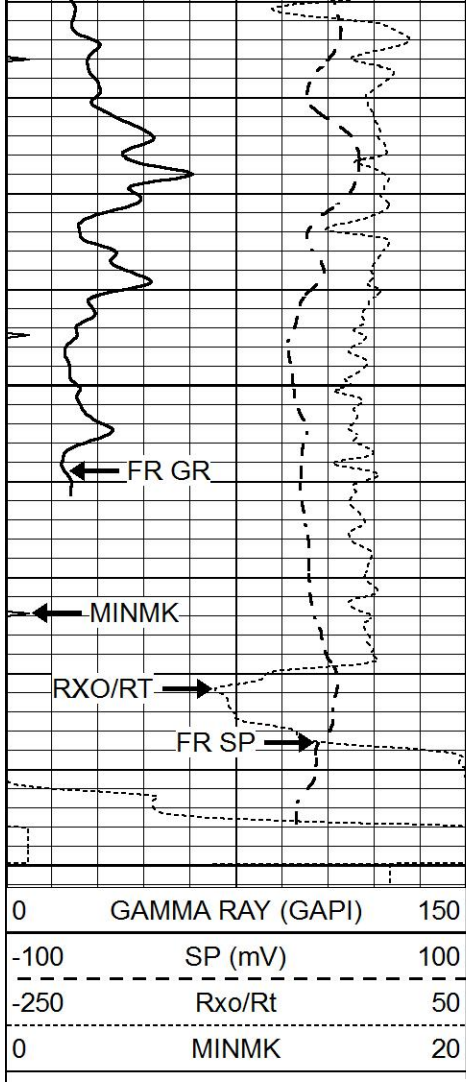
4400

4450

4500

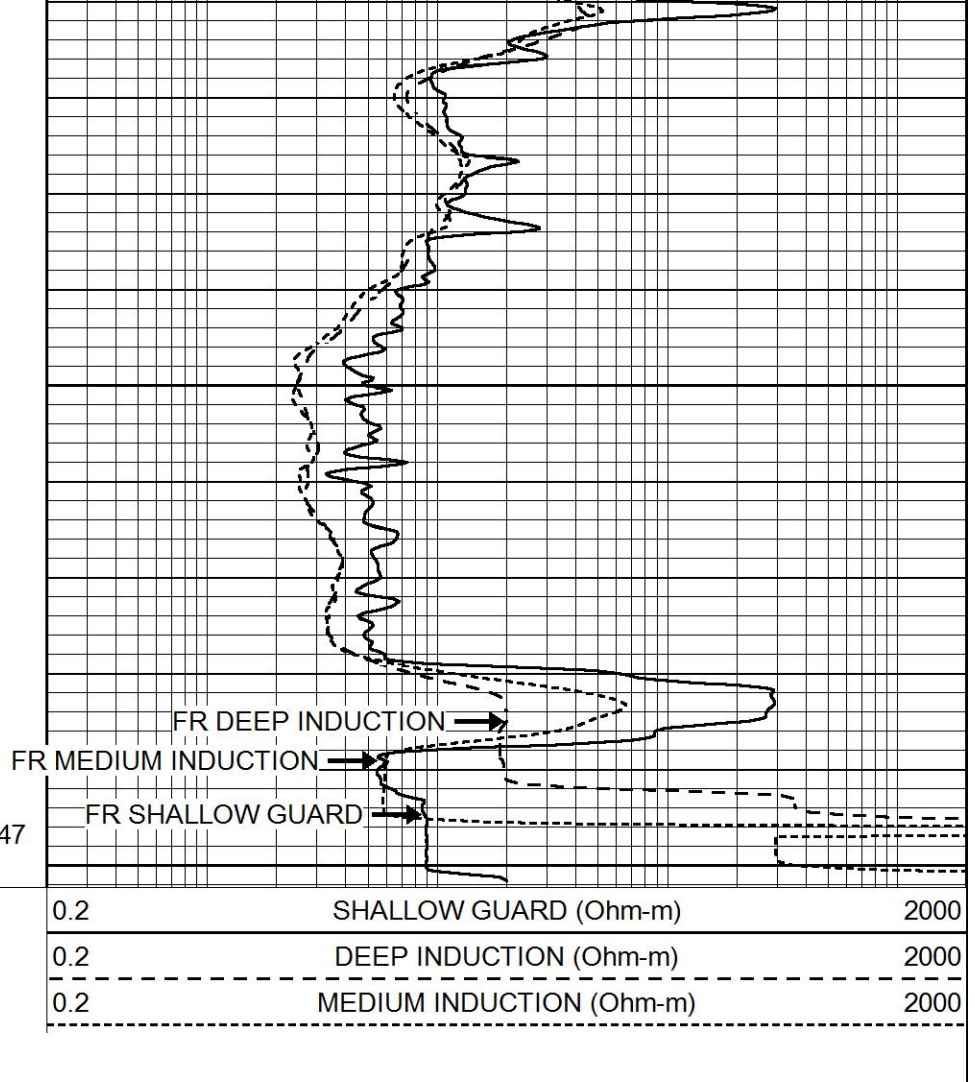
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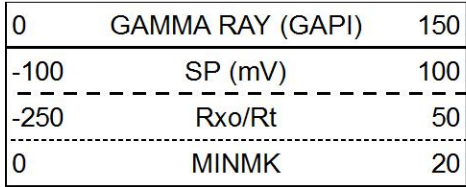
4600

LTD 4647  
4650

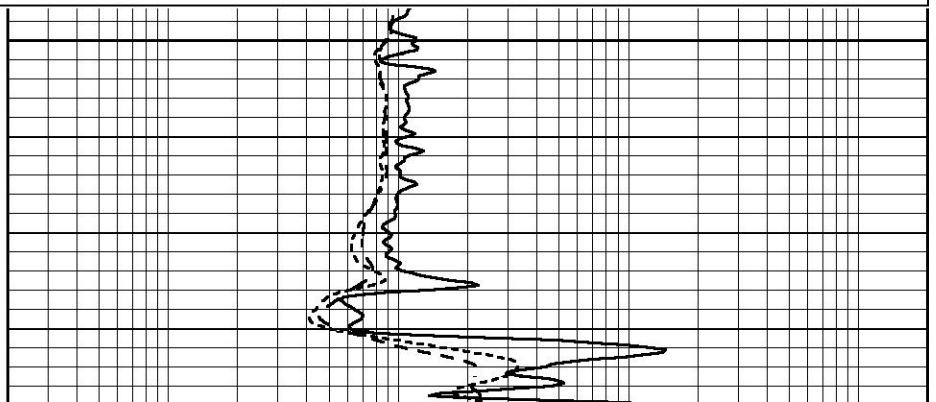
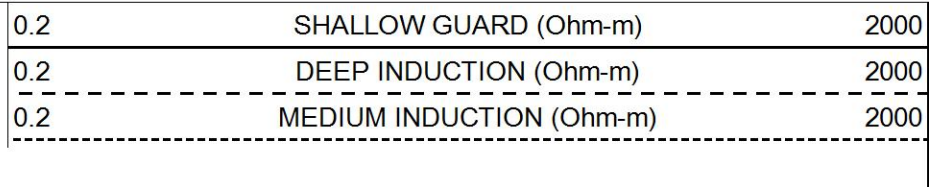
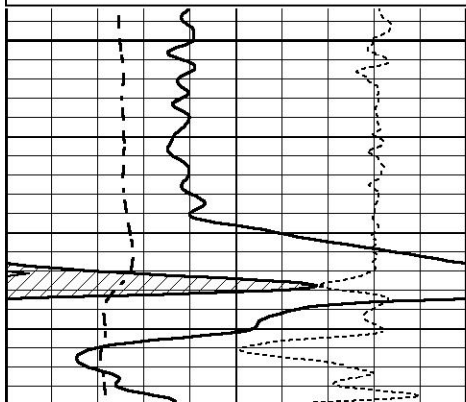


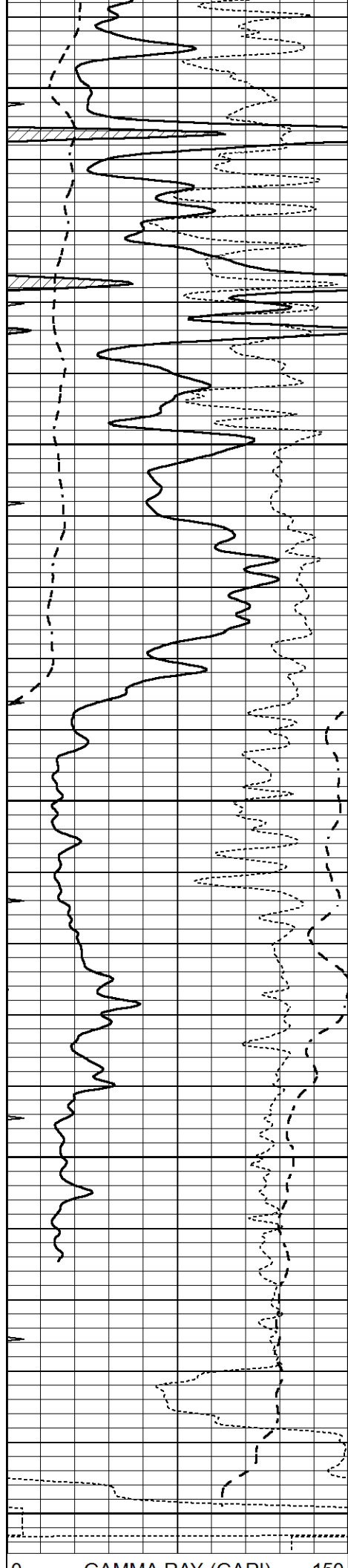
# REPEAT SECTION

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 Charted by Depth in Feet scaled 1:240



4400





4450

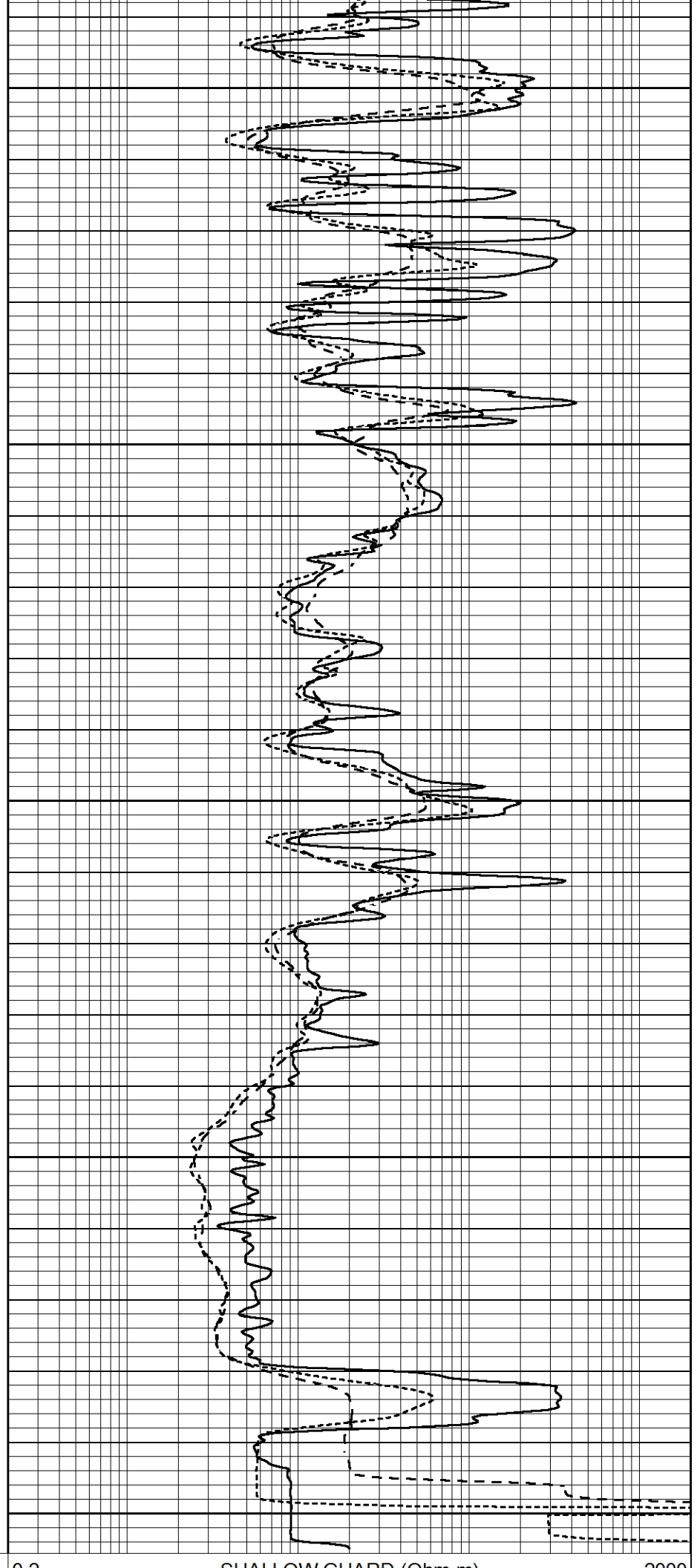
4500

4550

4600

4650

GAMMA RAY (GAPI) 150



0.2

SHALLOW SPHER (SHP) 2000

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

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

**Calibration Report**

Database File 6338pe.db  
 Dataset Pathname pass3.1M  
 Dataset Creation Sun May 01 15:32:48 2022

**Dual Induction Calibration Report**

Serial-Model: PROBE8-DILG  
 Surface Cal Performed: Sat Apr 30 13:40:56 2022  
 Downhole Cal Performed: Mon Jul 28 11:08:27 2008  
 After Survey Verification Performed: Mon Jul 28 11:08:27 2008

**Surface Calibration**

Loop:	Readings			References			Results	
	Air	Loop		Air	Loop		m	b
Deep	0.015	0.648	V	0.000	400.000	mmho/m	640.000	0.000
Medium	0.029	0.796	V	0.000	464.000	mmho/m	650.000	-11.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.017	0.657	V	0.000	400.000	mmho/m	625.153	-10.619
Medium	0.016	0.757	V	0.000	464.000	mmho/m	625.992	-9.739

**Downhole Calibration**

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	2.011	405.777	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	7.590	503.393	mmho/m	1.000	0.000
LL3		7.500	V		1500.000	Ohm-m		
		0.000	V		20.000	Ohm-m		
		-7.200	V		3800.000	mmho-m		

**After Survey Verification**

	Readings			Targets			Results	
	Zero	Cal		Zero	Cal		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		
		1.000	mmho-m		1.000	mmho-m		

**Litho Density Calibration Report**

Serial: 001 Model: PRB

**Master Calibration**

Performed Mon May 11 11:33:29 2020

	Background	Magnesium	Aluminum	Aluminum+Fe	
Window 1	1593.8	10211.9	3449.0	3132.1	cps
Window 2	1486.7	8824.2	3065.6	2829.4	cps
Window 3	1206.8	4705.7	1944.6	1871.7	cps
Window 4	361.0	367.9	364.8	363.1	cps
Long Space	0.0	7337.5	1578.9	1342.7	cps
Short Space	2.7	2543.4	1657.9	1382.7	cps
Rho		1.7100	2.5900	0.0000	g/cc

Rho		1.7100		2.5500		0.0000		g/cc
Pe		2.0000		2.7500		5.7900		
Rib Angle	: 44.4	Rib Slope	: 0.980	Density/Spine Ratio		: 0.552		
Spine Angle	: 74.4	Spine Slope	: 3.590	Spine Intercept		: -19.2		

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: Sat Apr 23 03:38:55 2022

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps  
Calibrator Reading: 1.0 cps

Sensitivity: 0.2800 GAPI/cps

