

DUAL INDUCTION LOG

Company	ARP OPERATING, LLC.	Company	ARP OPERATING, LLC.
Well	CLOSE IMPLEMENT #1	Well	CLOSE IMPLEMENT #1
Field	UNNAMED	Field	UNNAMED
County	THOMAS	County	THOMAS
State	KANSAS	State	KANSAS
Location:	API # : 15-193-21113-0000	Permanent Datum	GROUND LEVEL Elevation 3136
		Log Measured From	KELLY BUSHING 9' A.G.L.
		Drilling Measured From	KELLY BUSHING
		SEC 36 TWP 10S RGE 33W	
		Elevation	K.B. 3145 D.F. 3143 G.L. 3136
Date	3/16/23		
Run Number	ONE		
Depth Driller	4777		
Depth Logger	4762		
Bottom Logged Interval	4760		
Top Log Interval	00		
Casing Driller	8 5/8"@311'		
Casing Logger	311		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES: 2,400 PPM	
Density / Viscosity	9.2/62		
pH / Fluid Loss	11.0/7.2		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	1.00@72F		
Rmf @ Meas. Temp	.750@72F		
Rmc @ Meas. Temp	1.20@@72F		
Source of Rmf / Rmc	MEASURED		
Rm @ BHT	.585@123F		
Time Circulation Stopped	3 HOURS		
Time Logger on Bottom	10:45 A.M.		
Maximum Recorded Temperature	123F		
Equipment Number	8916		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	SEAN DEENIHAN	RICH TABAKA	

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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

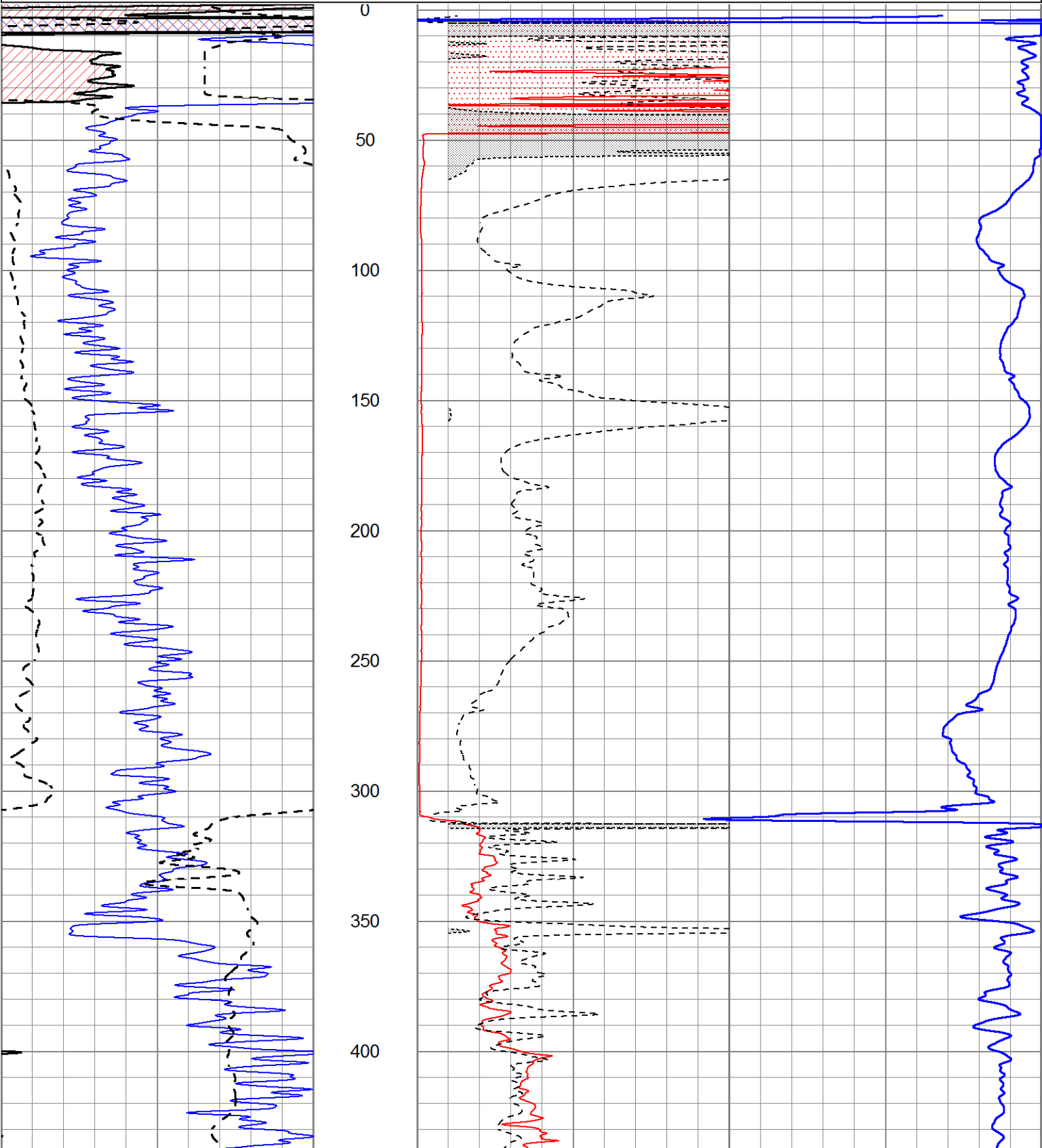
THANK YOU FOR USING ELI WIRELINE, HAYS, KS. (785) 628-6395
DIRECTIONS:
OAKLEY, KS. & SECOND I-70 EXIT, S. TO "RD. A" (FORT FOX RD.) W. TO RD. "380", N. INTO

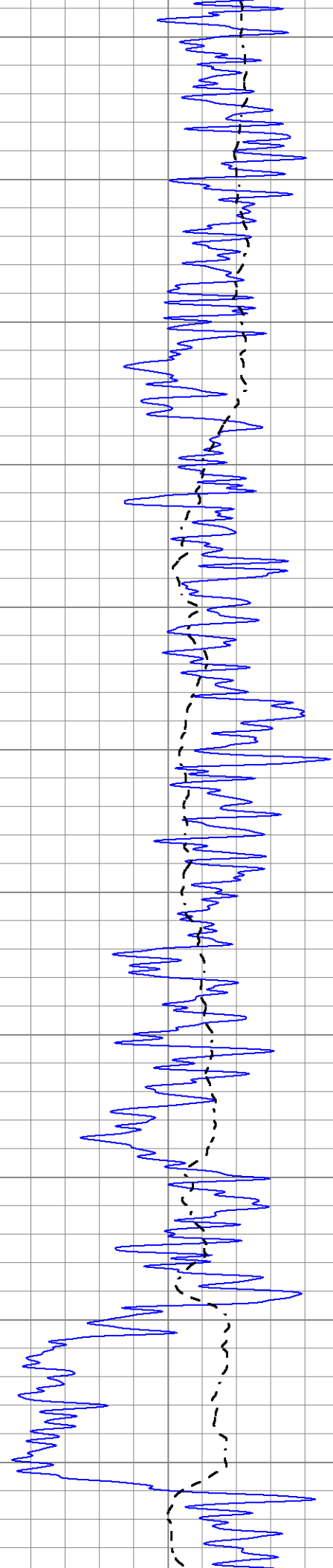


MAIN SECTION

Database File	7576pe.db
Dataset Pathname	pass3.1M
Presentation Format	_dil2
Dataset Creation	Thu Mar 16 12:23:05 2023
Charted by	Depth in Feet scaled 1:600

0	Gamma Ray (GAPI)	150	1000	CILD (mmho/m)	0
-100	SP (mV)	100	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

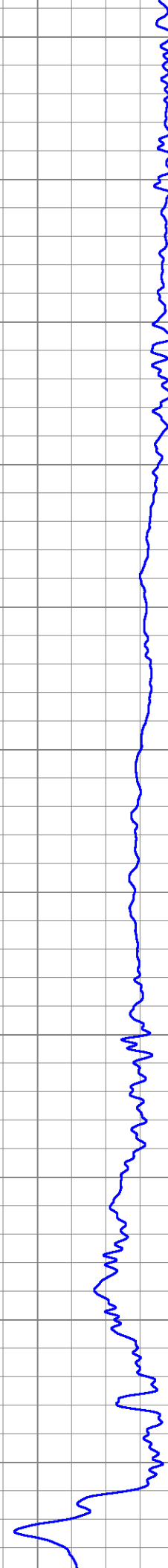
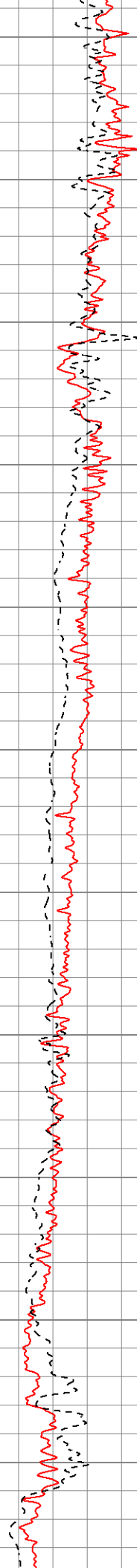
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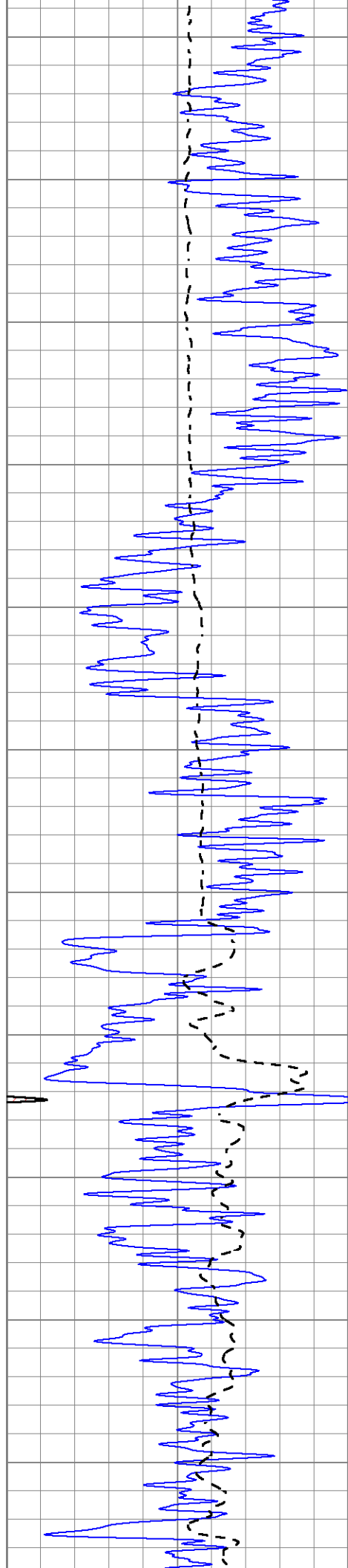
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850

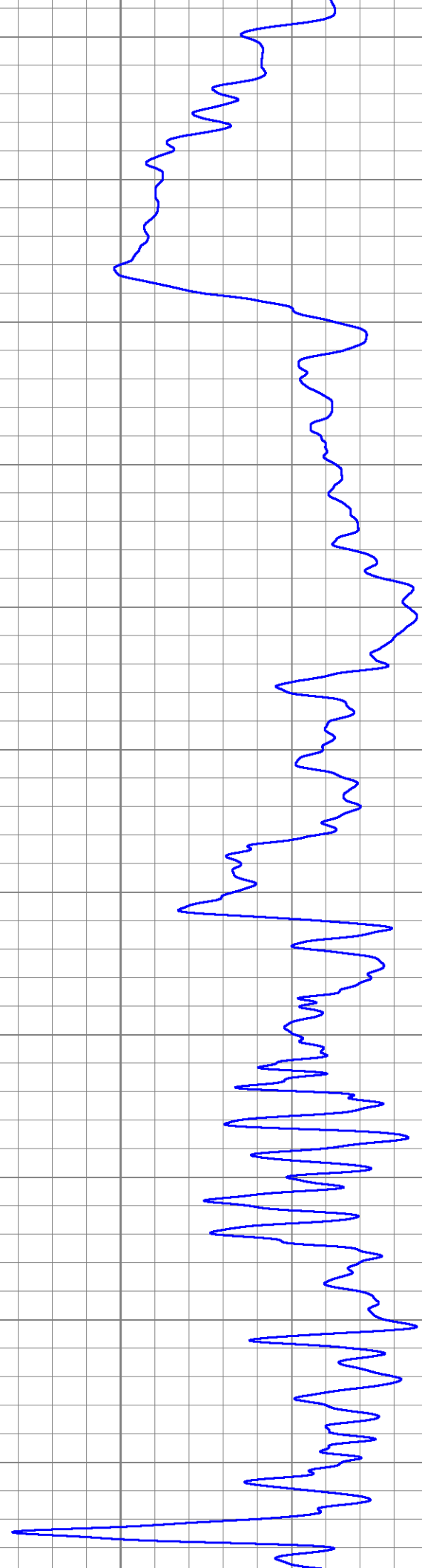
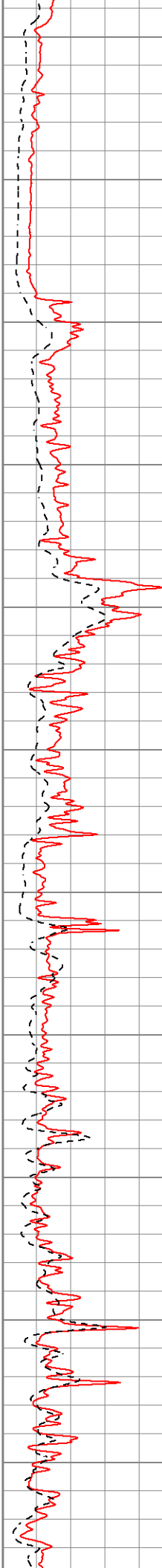
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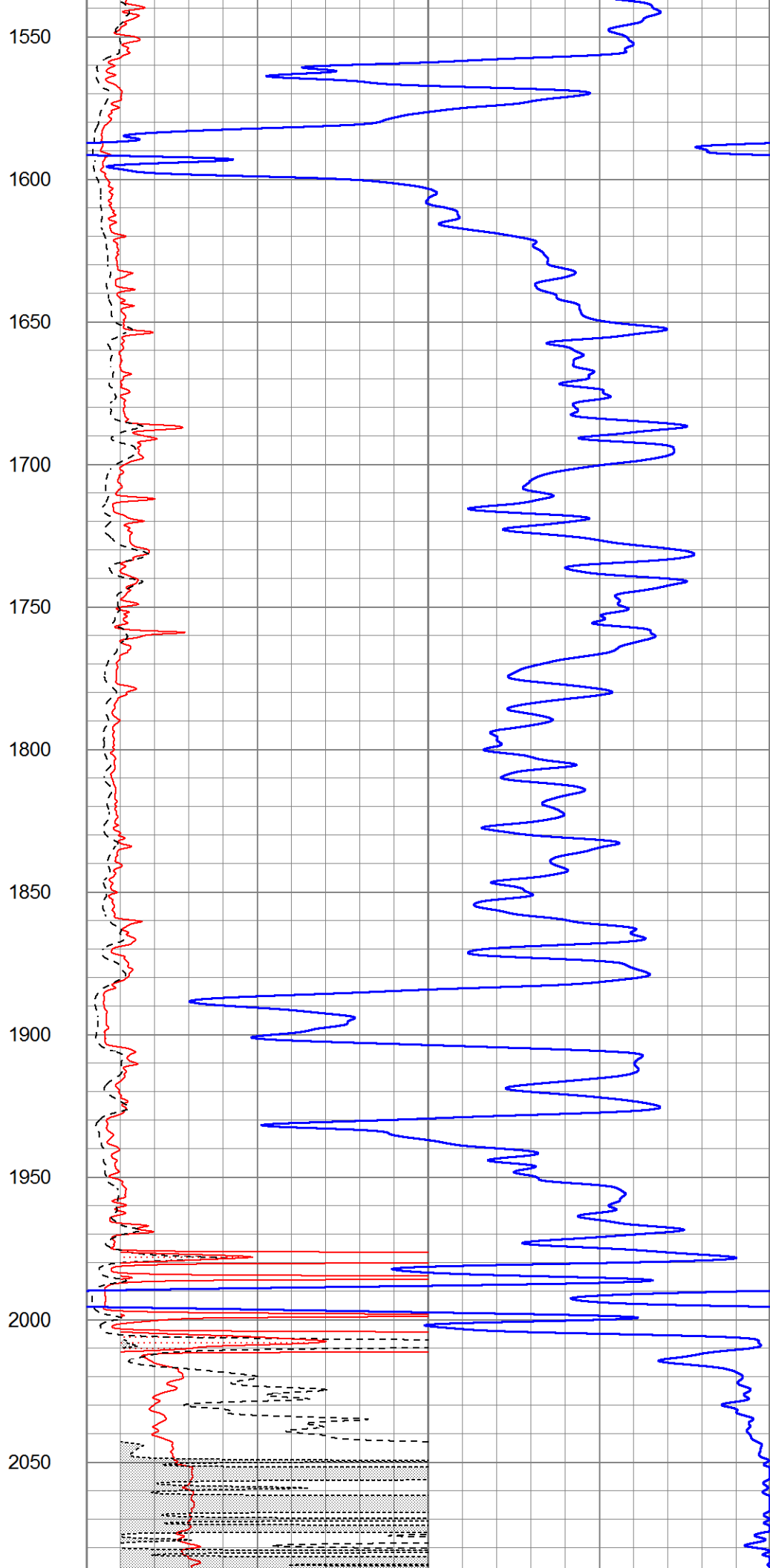
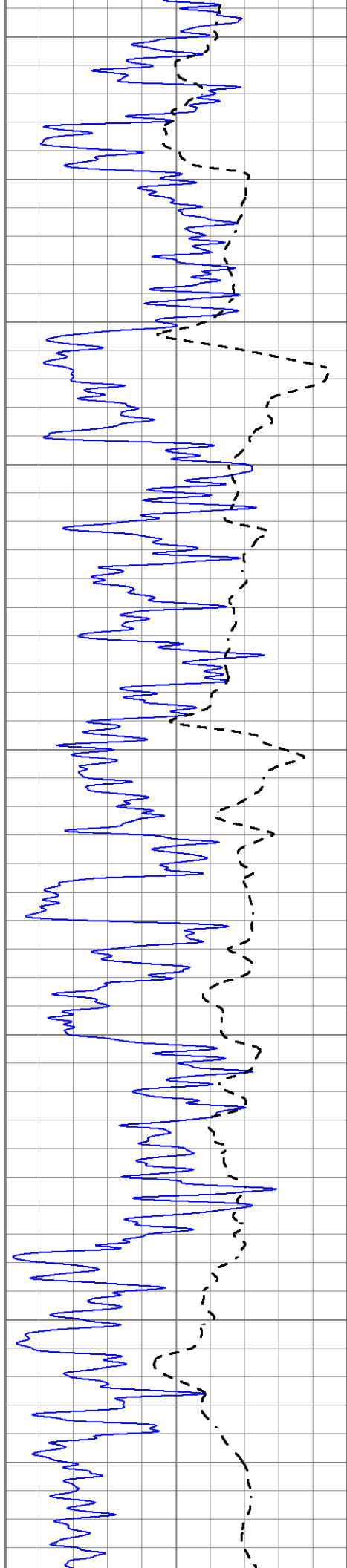
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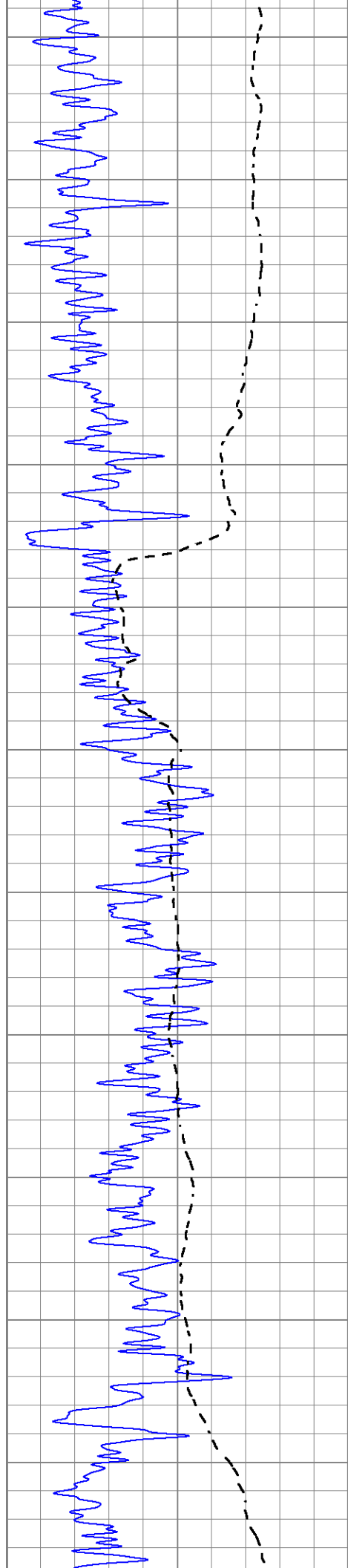




1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500







2100

2150

2200

2250

2300

2350

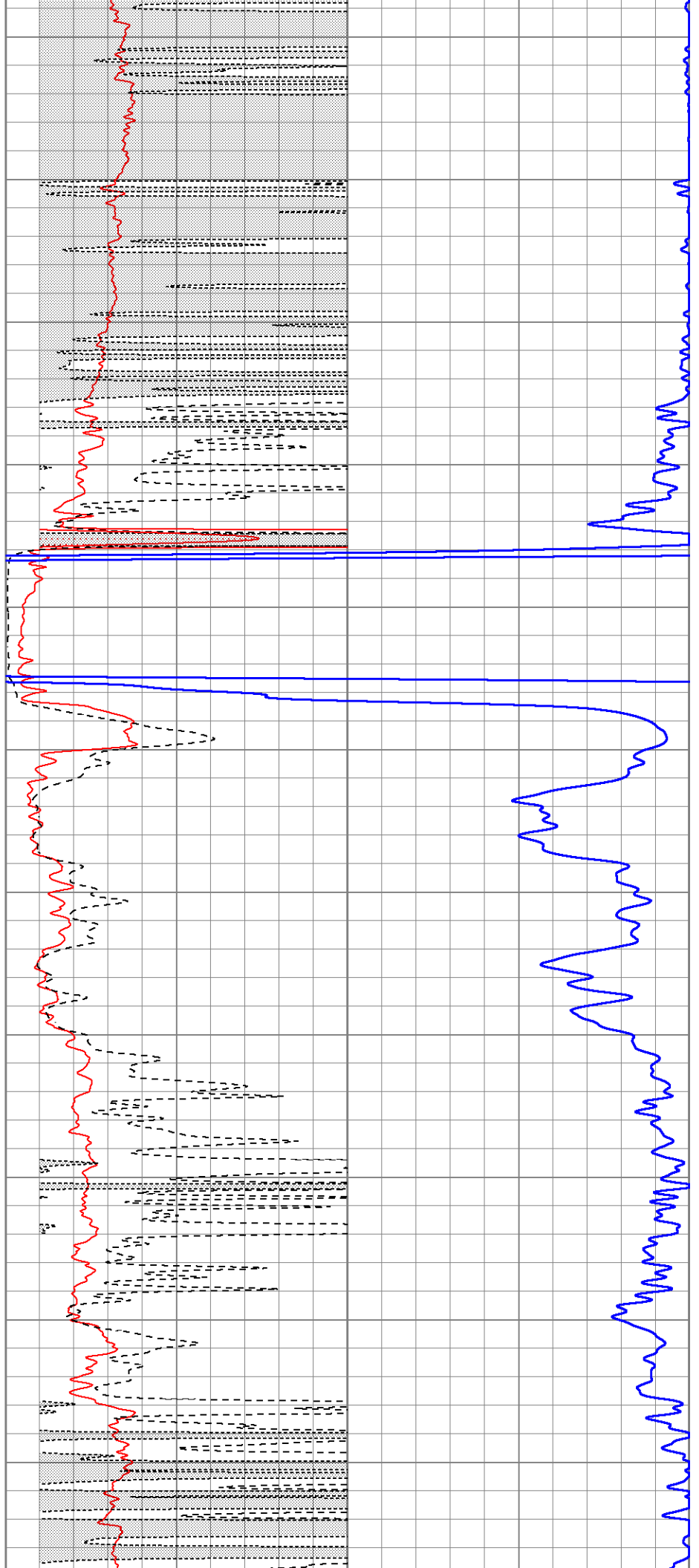
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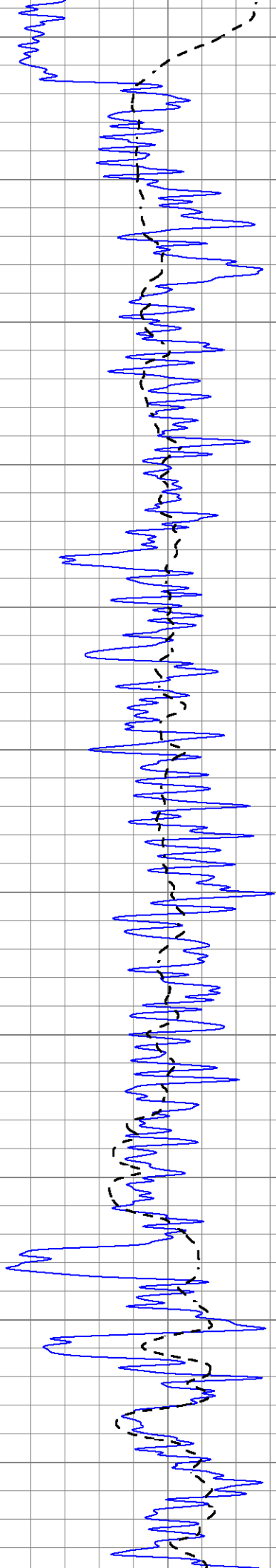
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2500

2550

2600





2650

2700

2750

2800

2850

2900

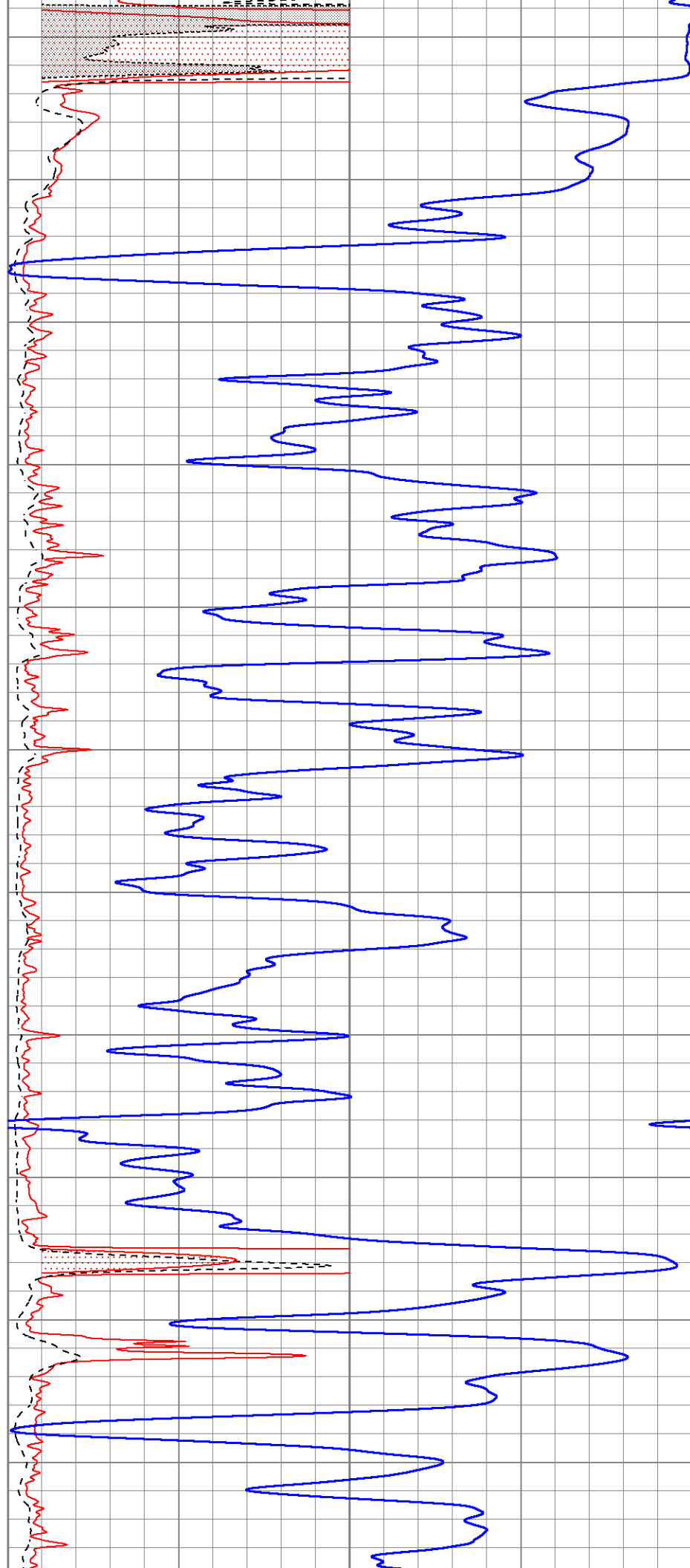
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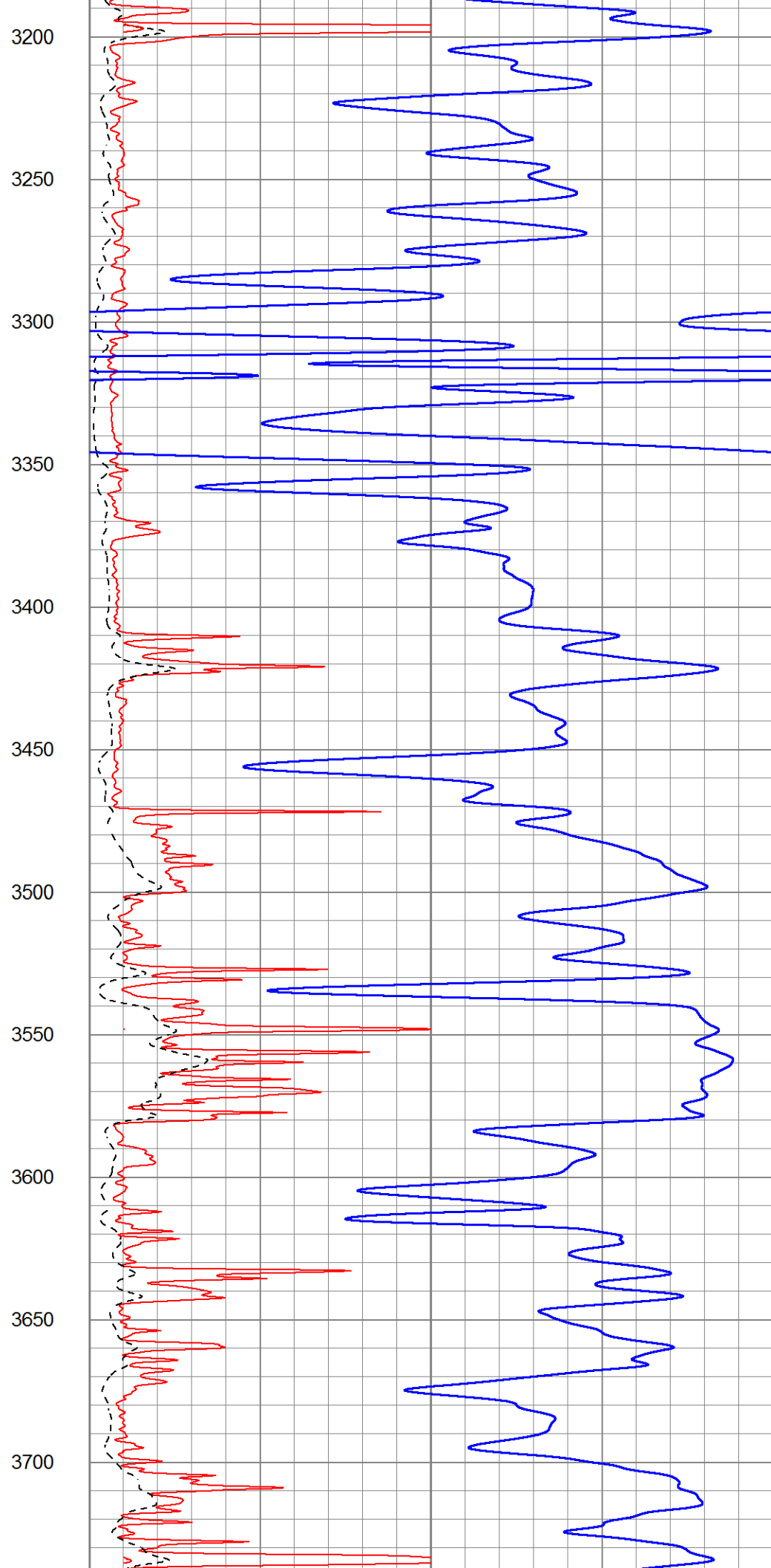
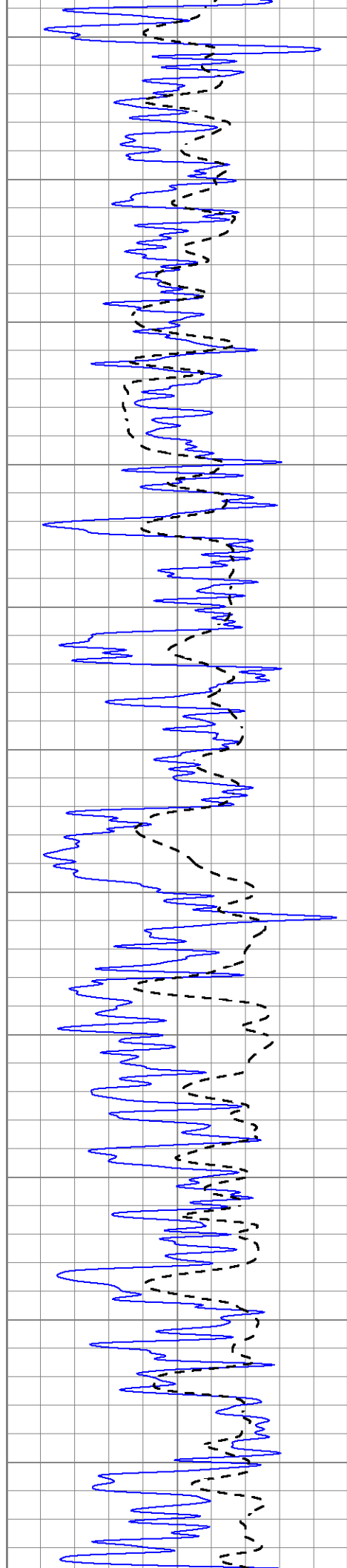
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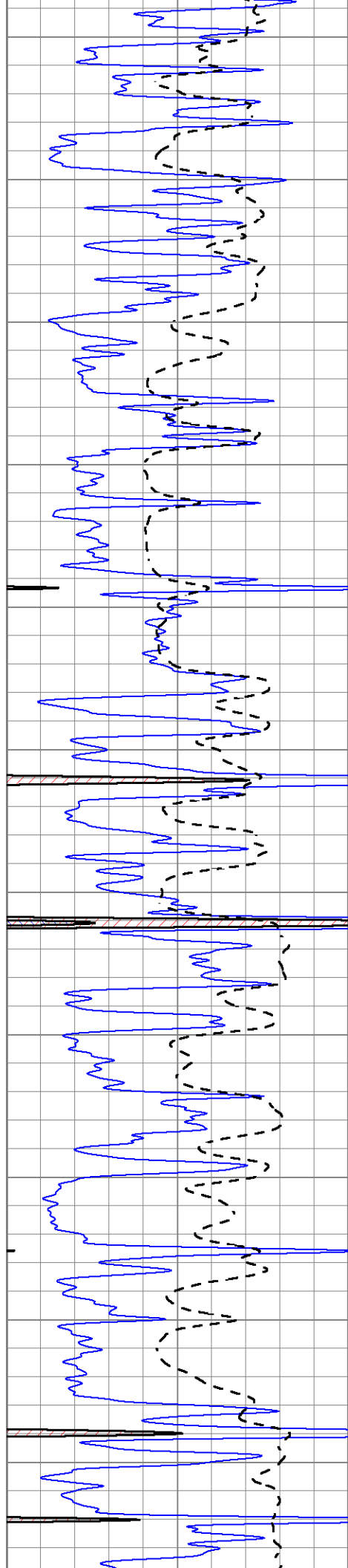
3050

3100

3150







3750

3800

3850

3900

3950

4000

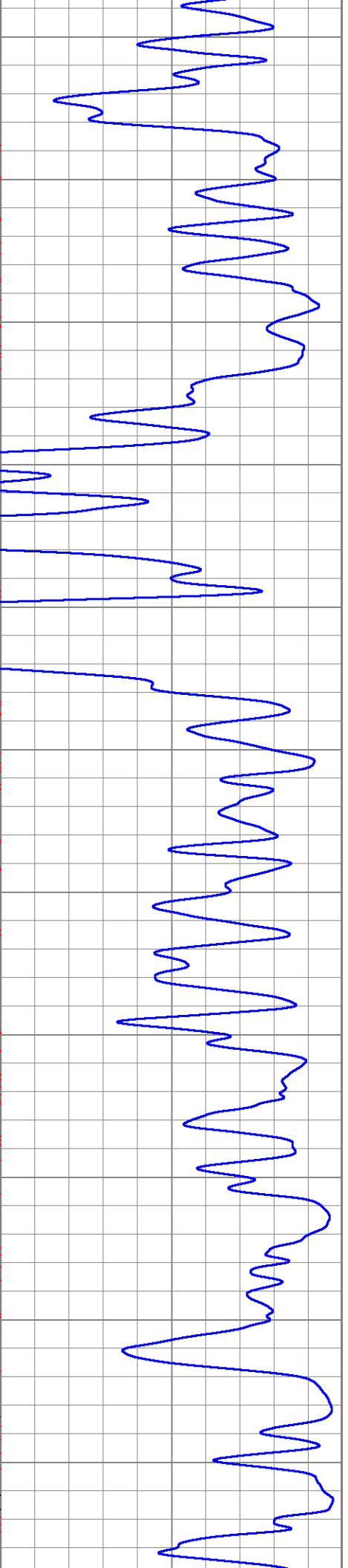
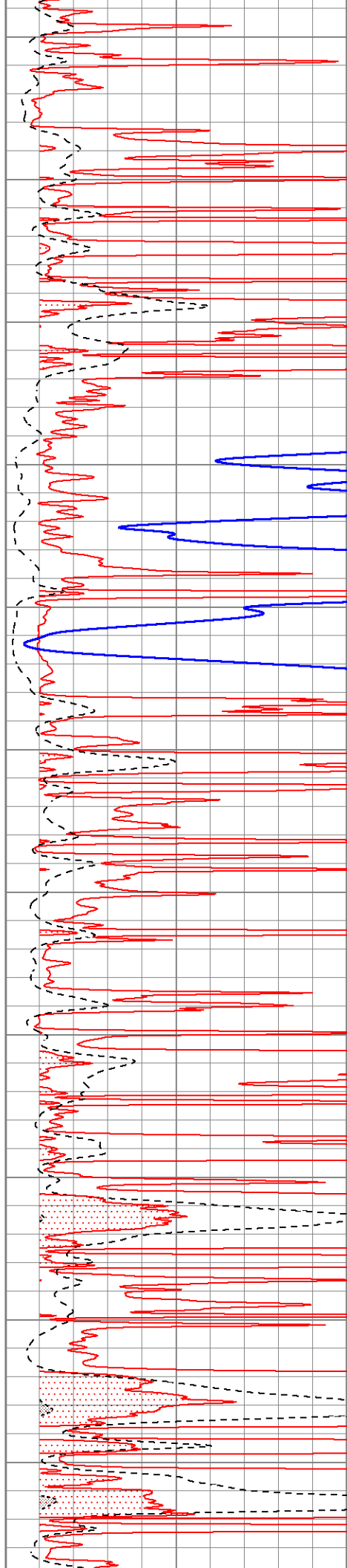
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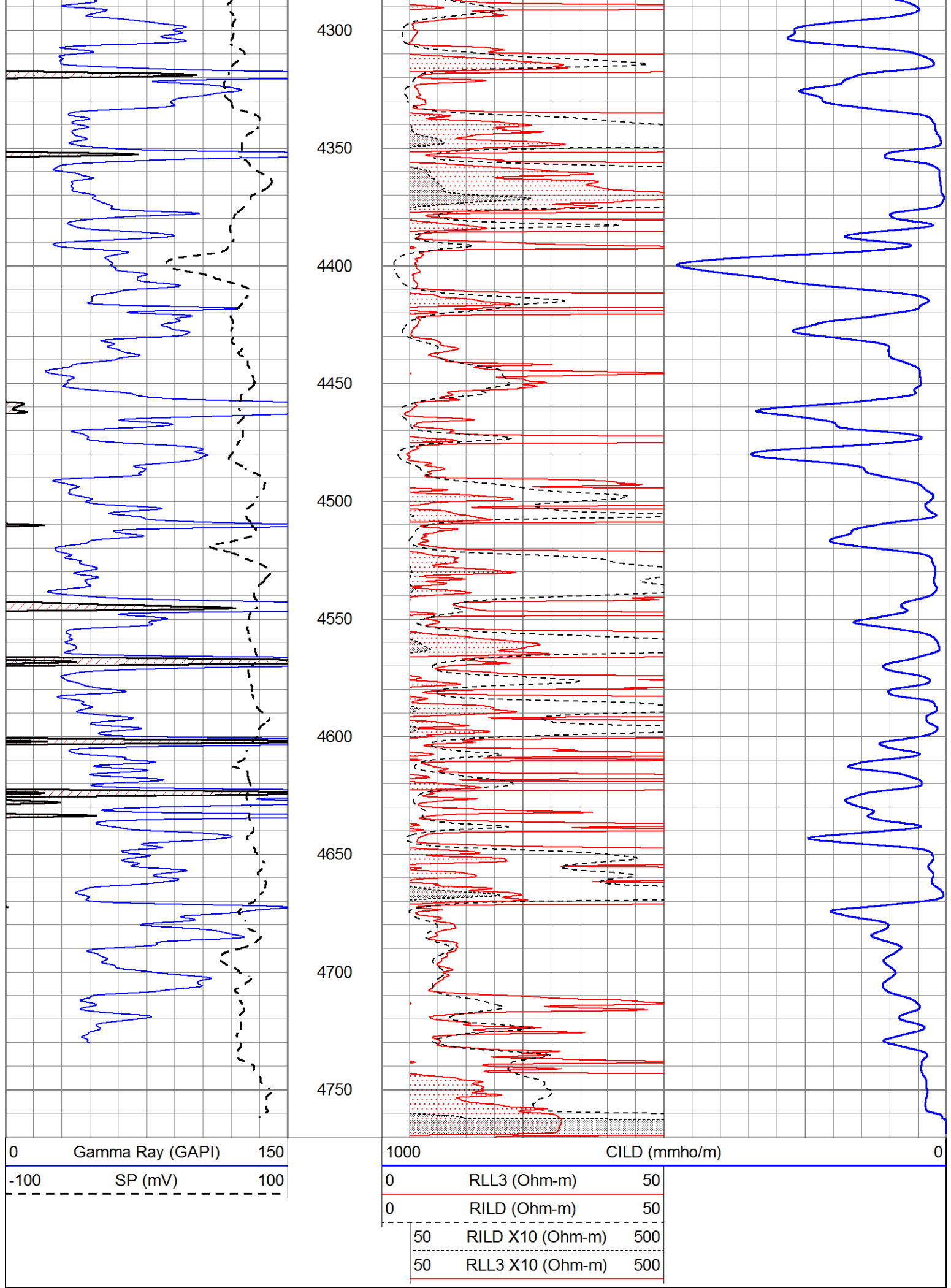
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4150

4200

4250





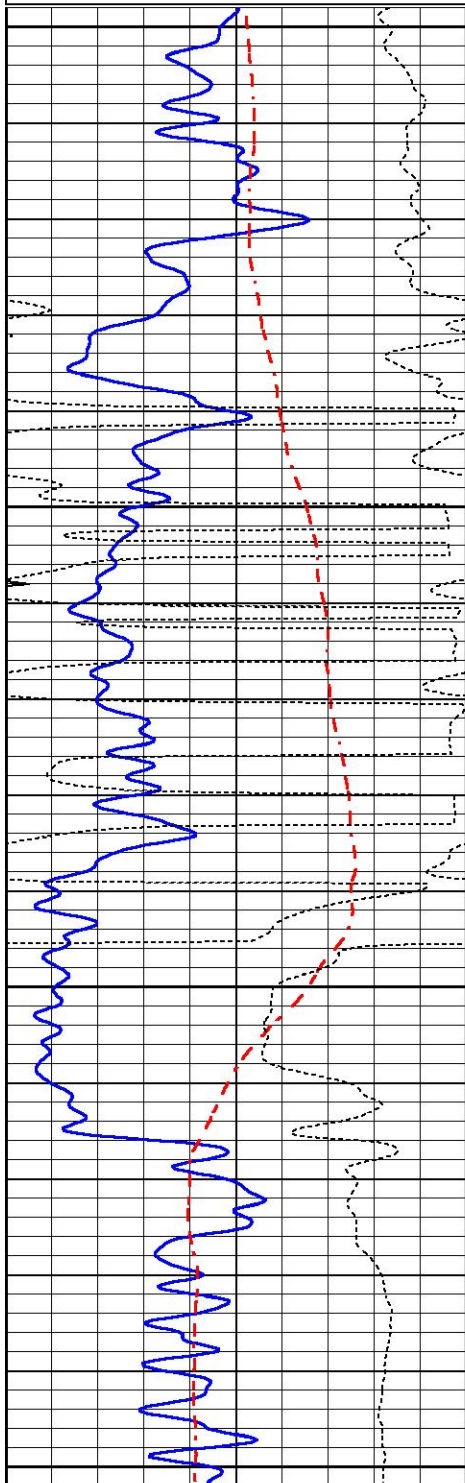


ANHYDRITE

Database File 7576pe.db
Dataset Pathname pass3.1A
Presentation Format _dil
Dataset Creation Thu Mar 16 12:24:02 2023
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

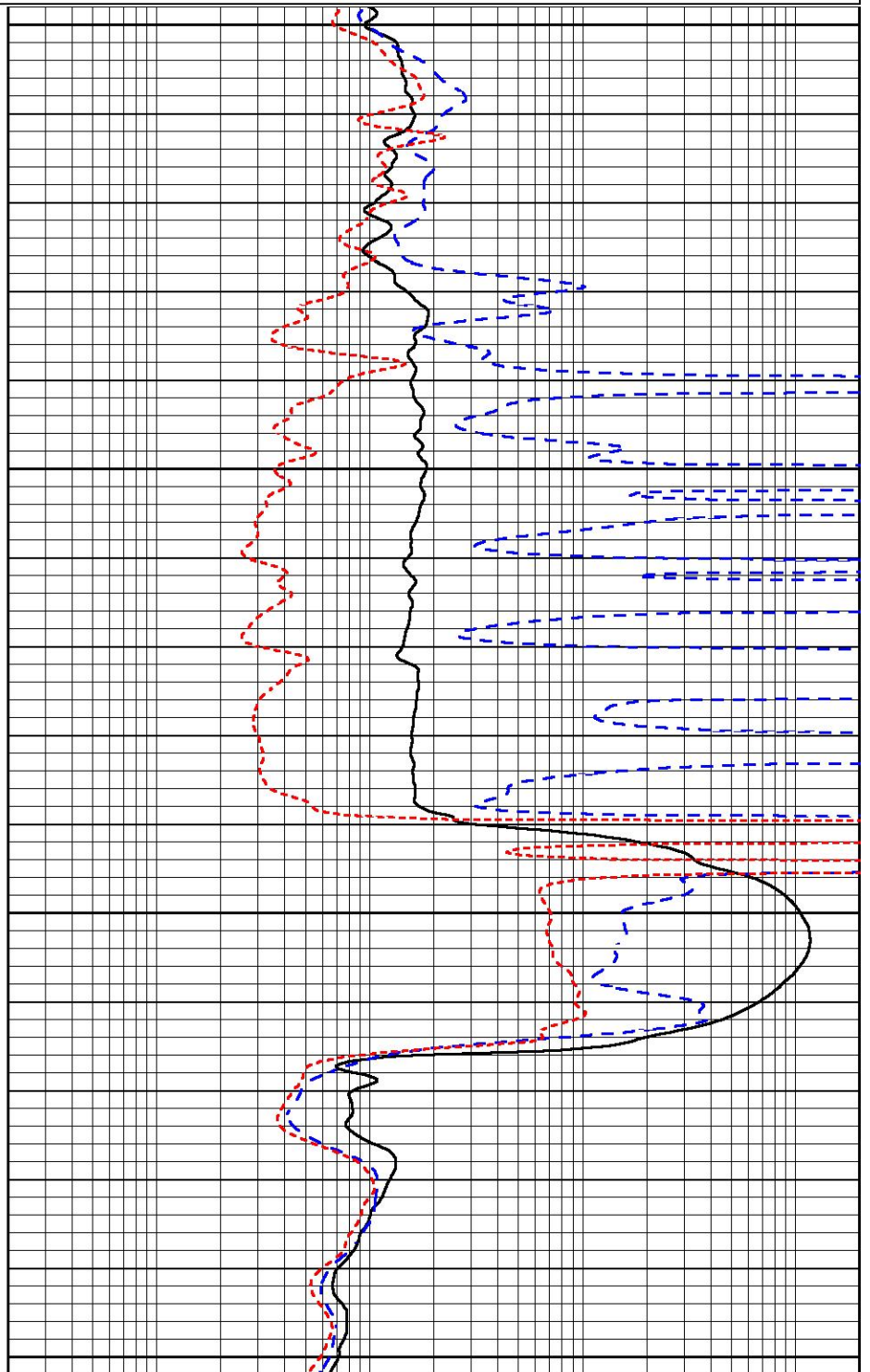


2550

2600

2650

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

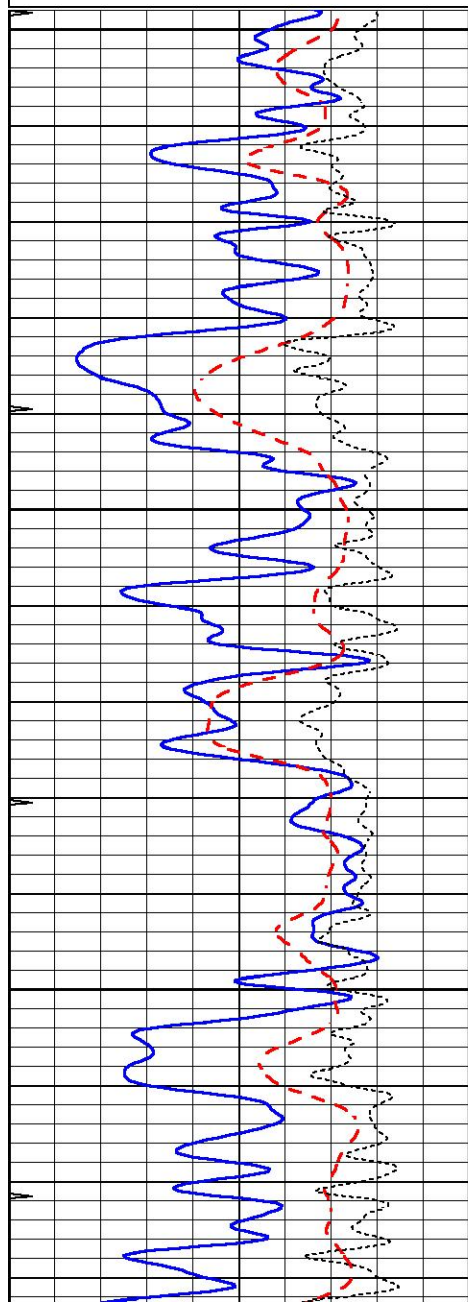


MAIN SECTION

Database File 7576pe.db
 Dataset Pathname pass3.1M
 Presentation Format _dil
 Dataset Creation Thu Mar 16 12:23:05 2023
 Charted by Depth in Feet scaled 1:240

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

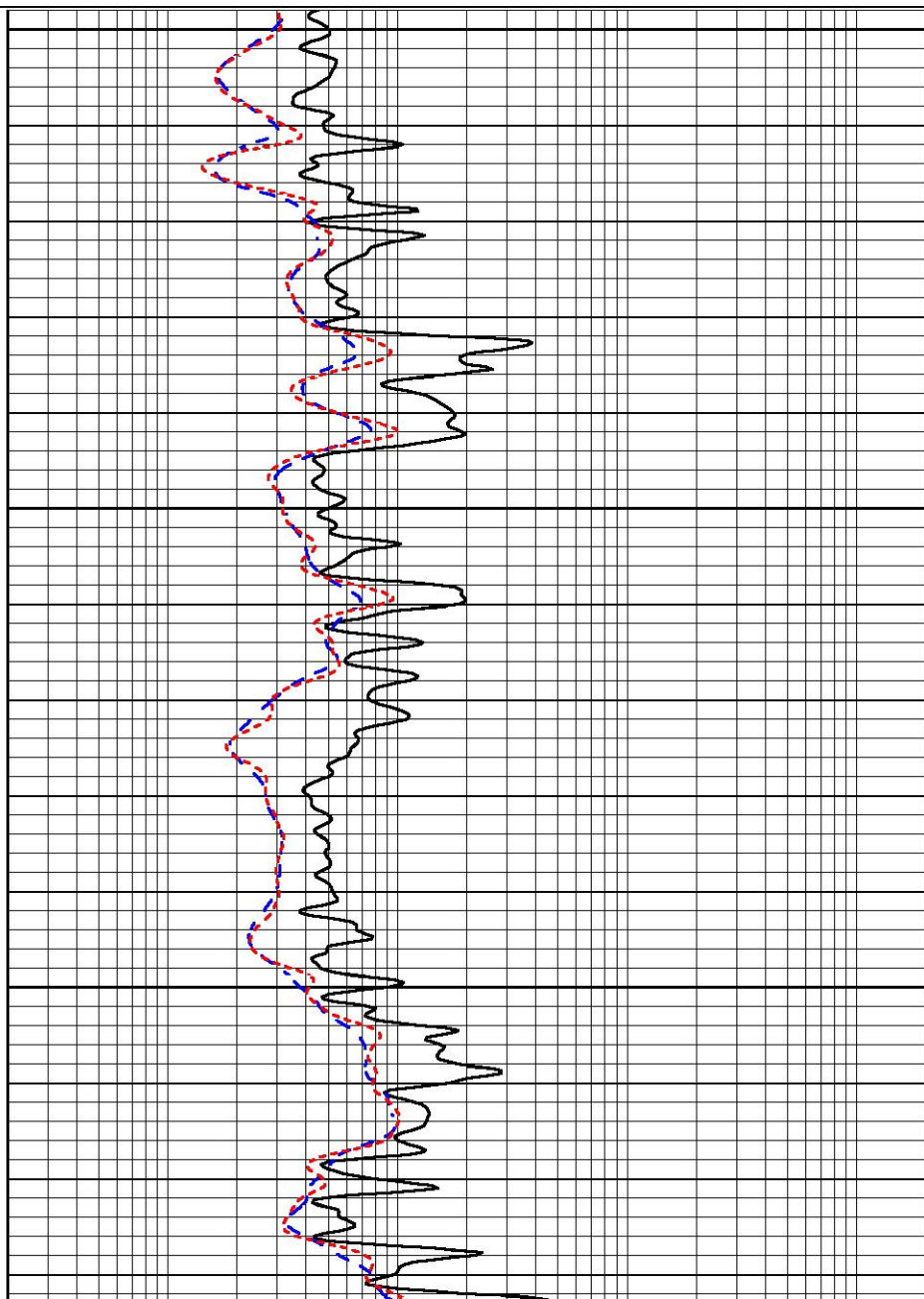
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

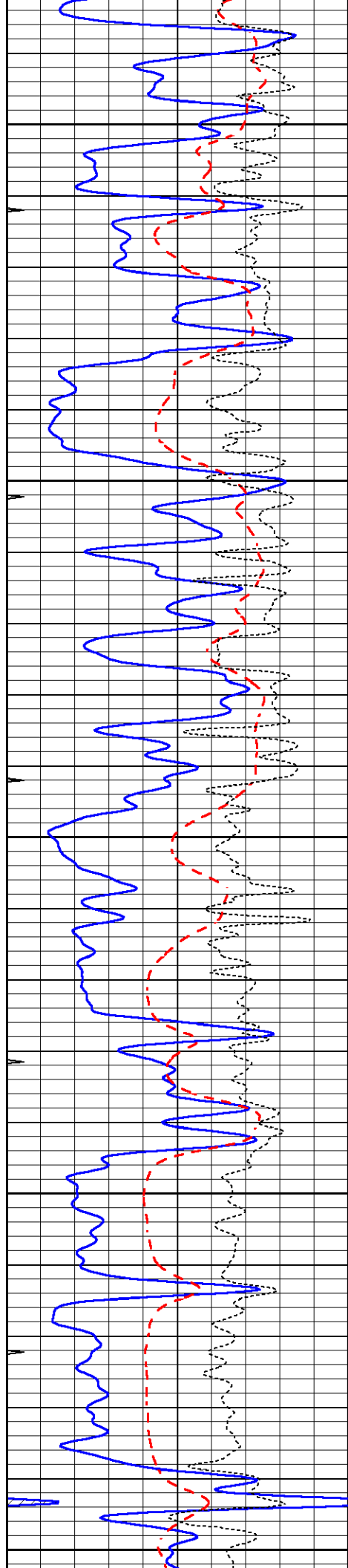


3600

3650

3700





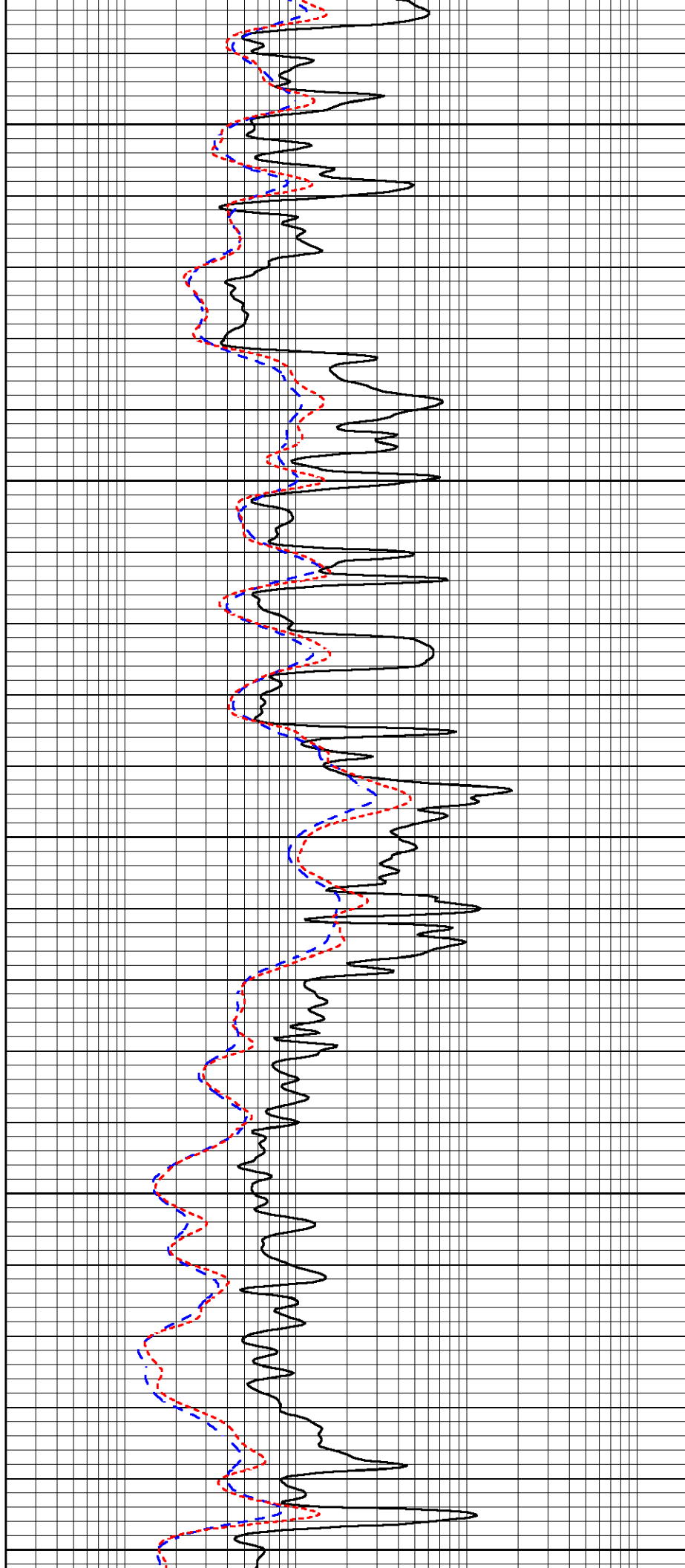
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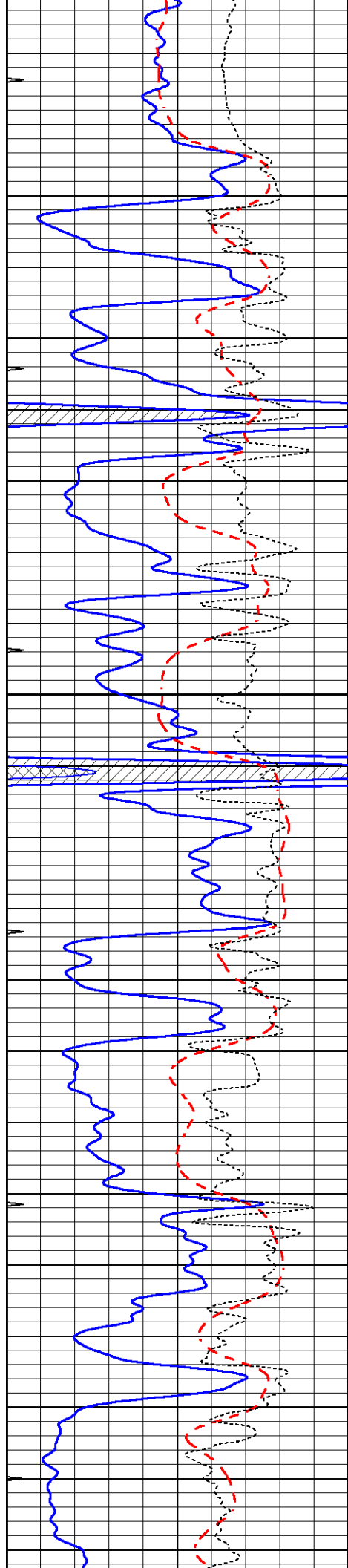
3800

3850

3900

3950



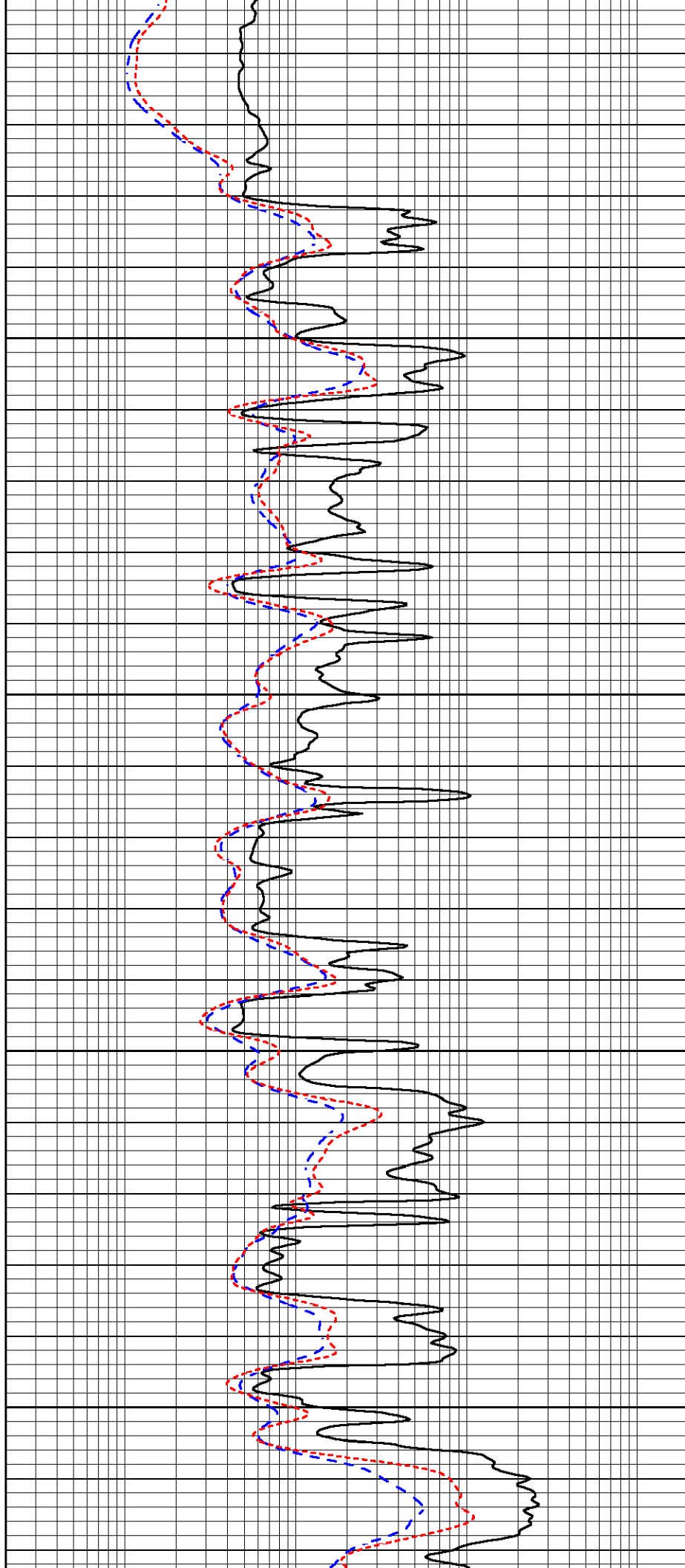


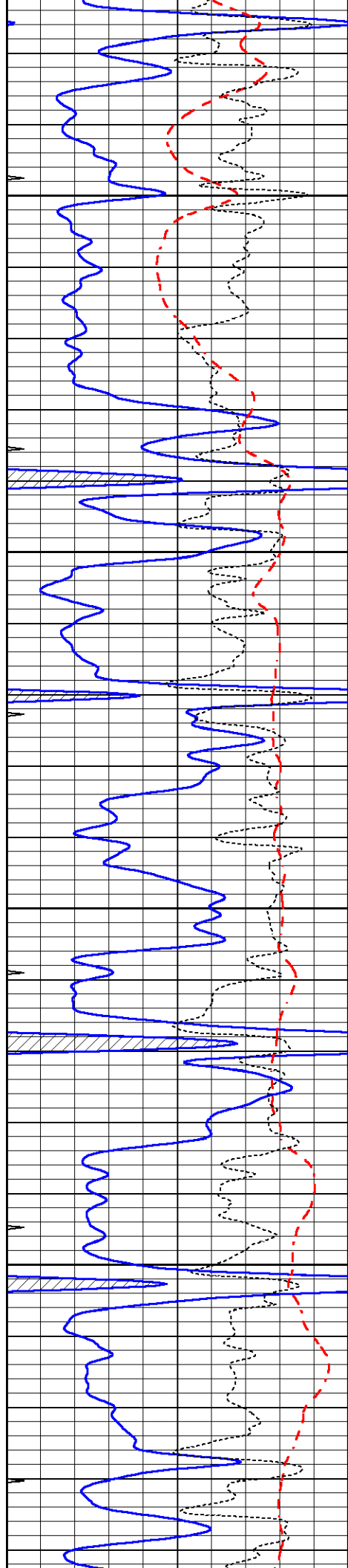
4000

4050

4100

4150



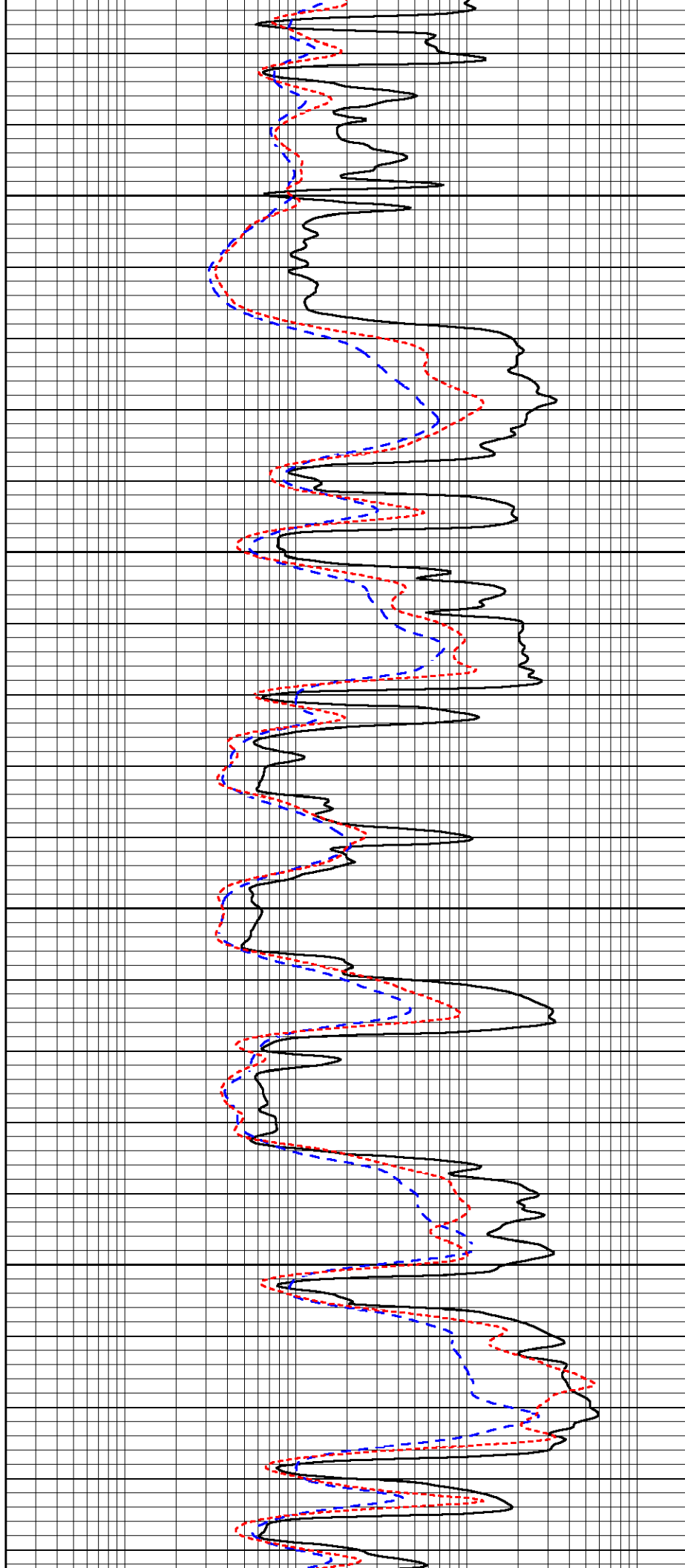


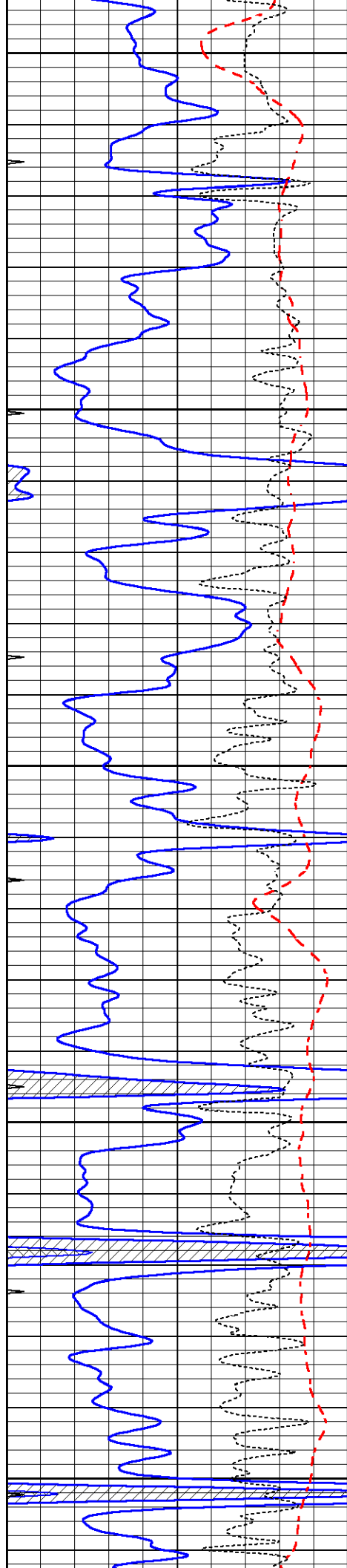
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4250

4300

4350





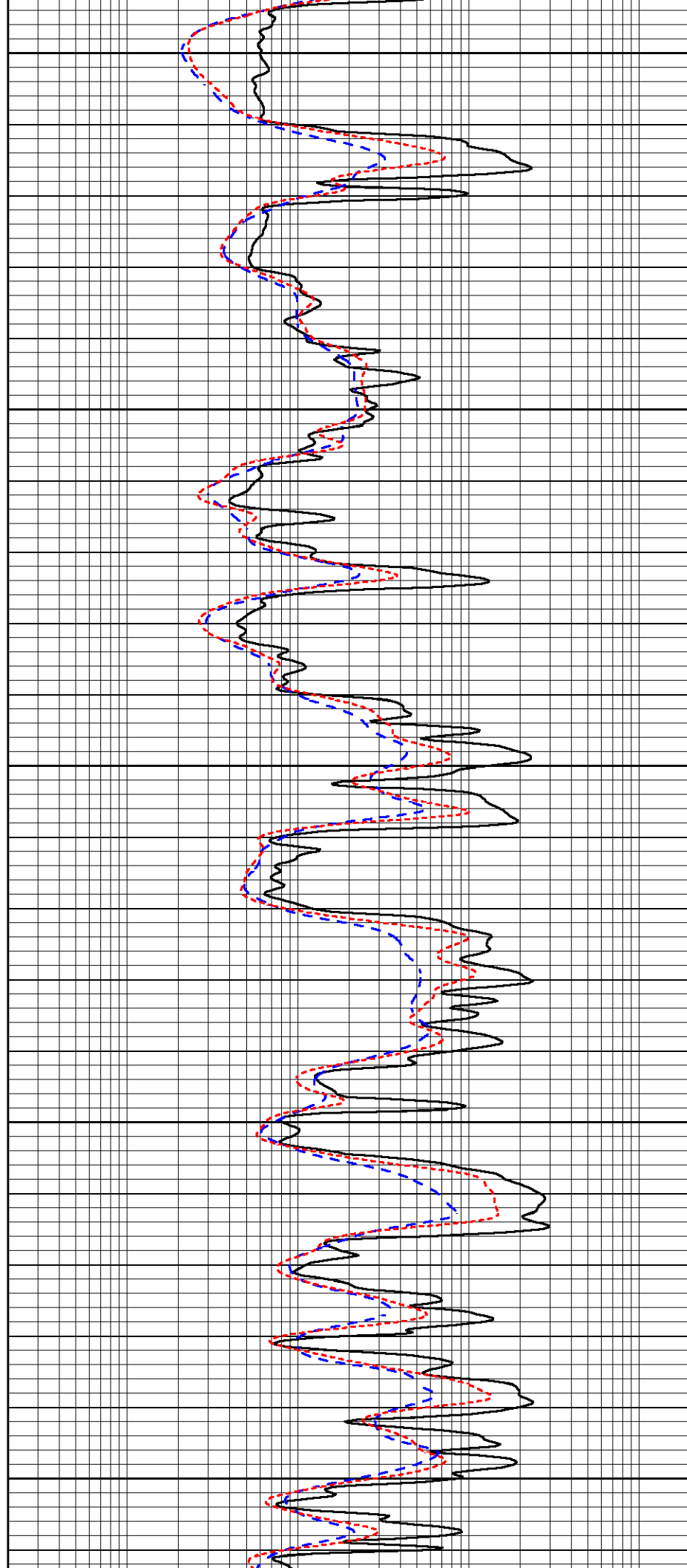
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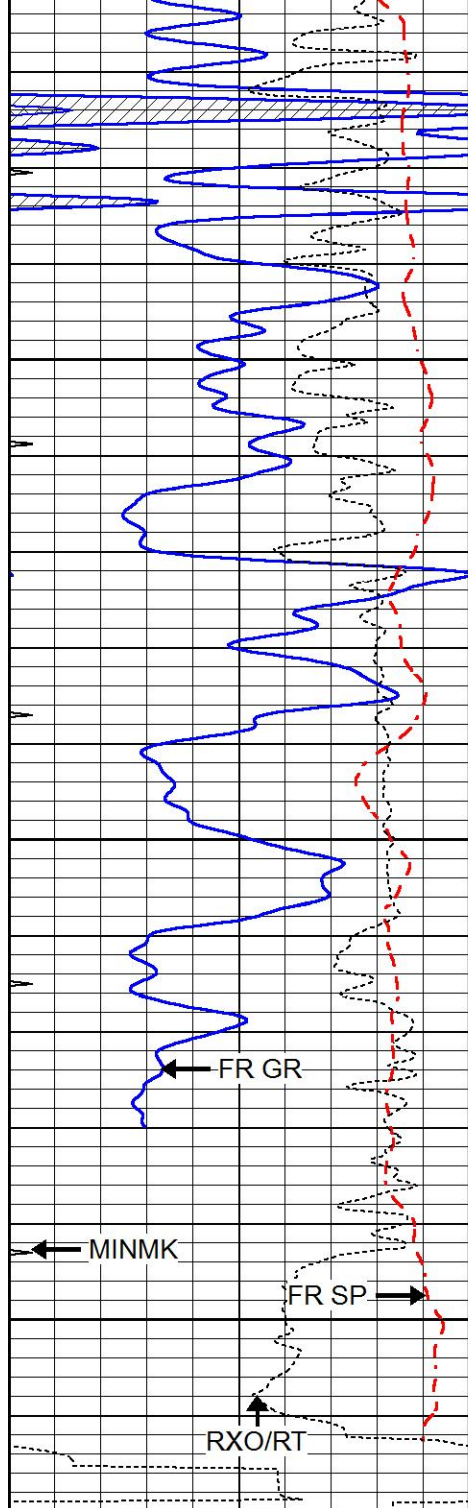
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4500

4550

4600





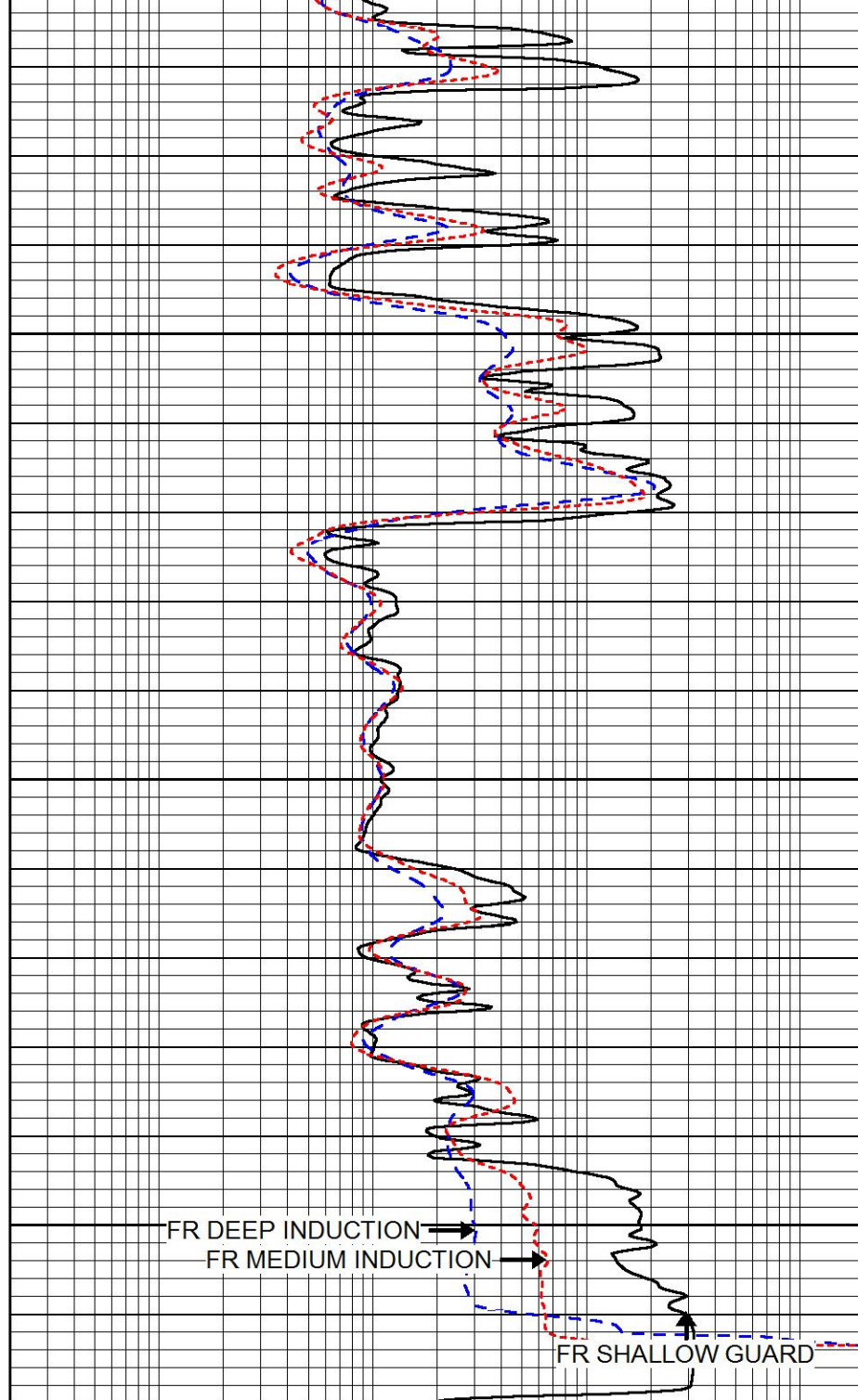
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

4650

4700

4750

LTD 4762



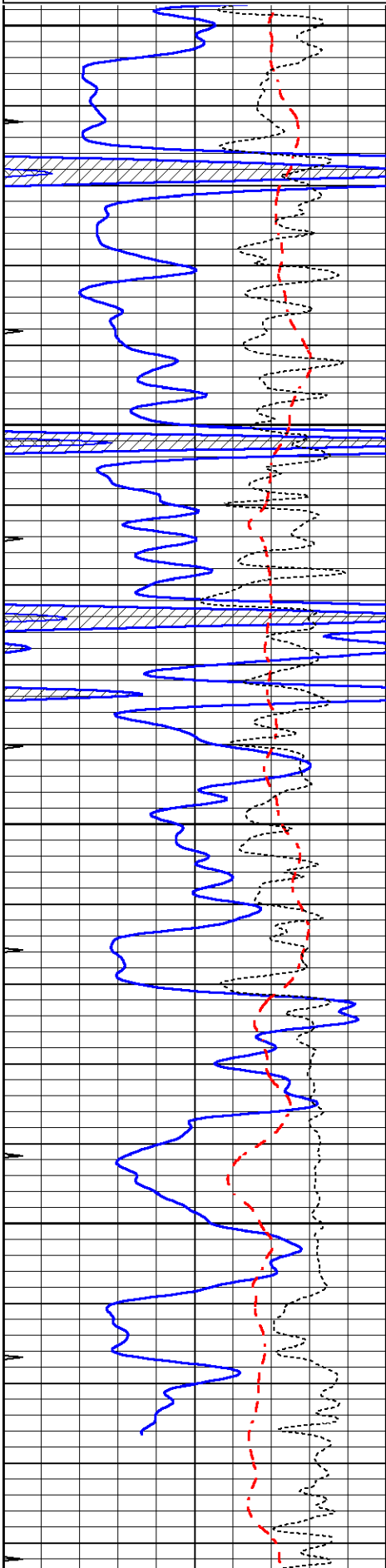
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



REPEAT SECTION

Database File 7576pe.db
 Dataset Pathname pass2.1R
 Presentation Format _dil
 Dataset Creation Thu Mar 16 12:31:18 2023
 Charted by Depth in Feet scaled 1:240

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



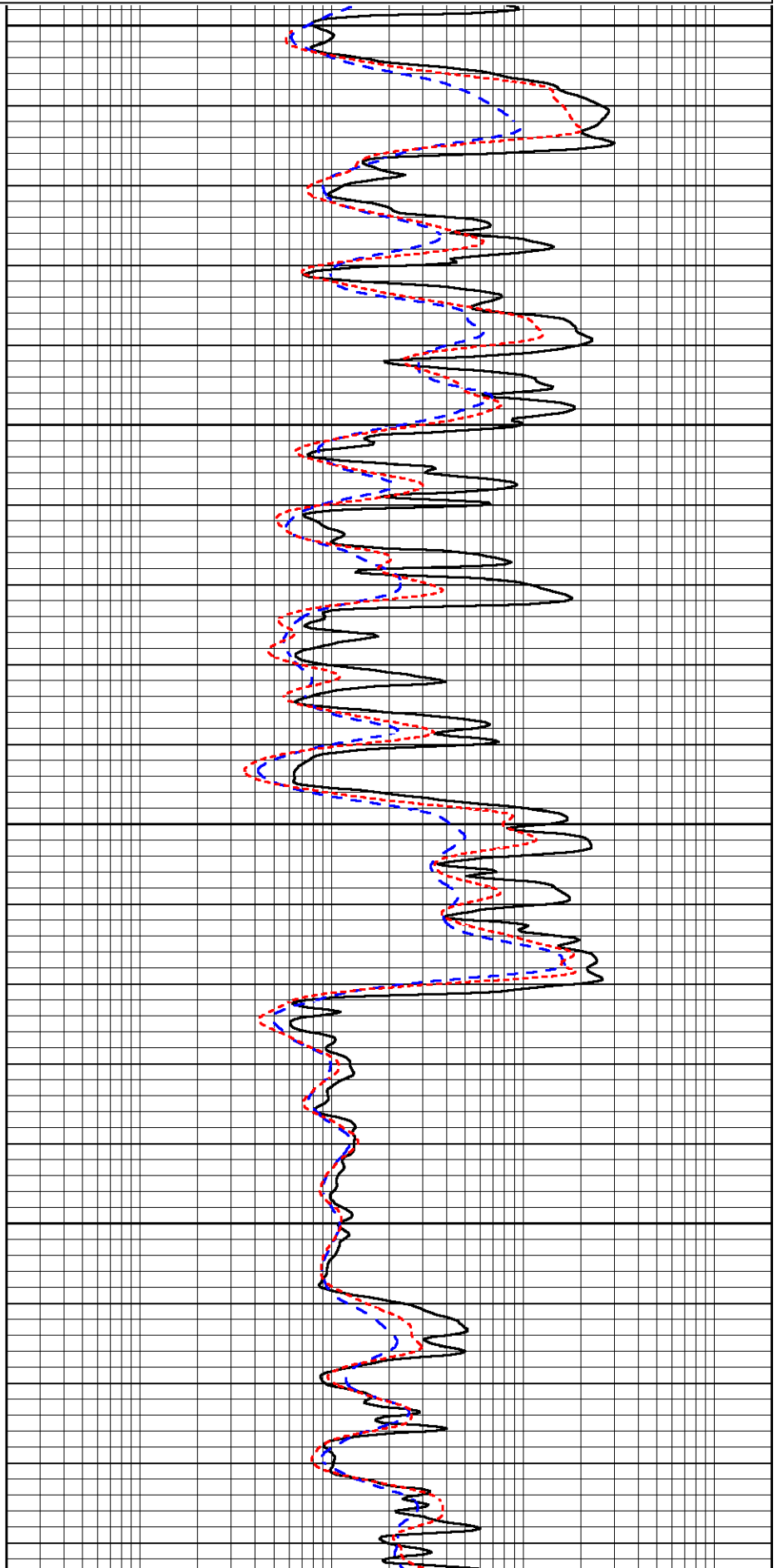
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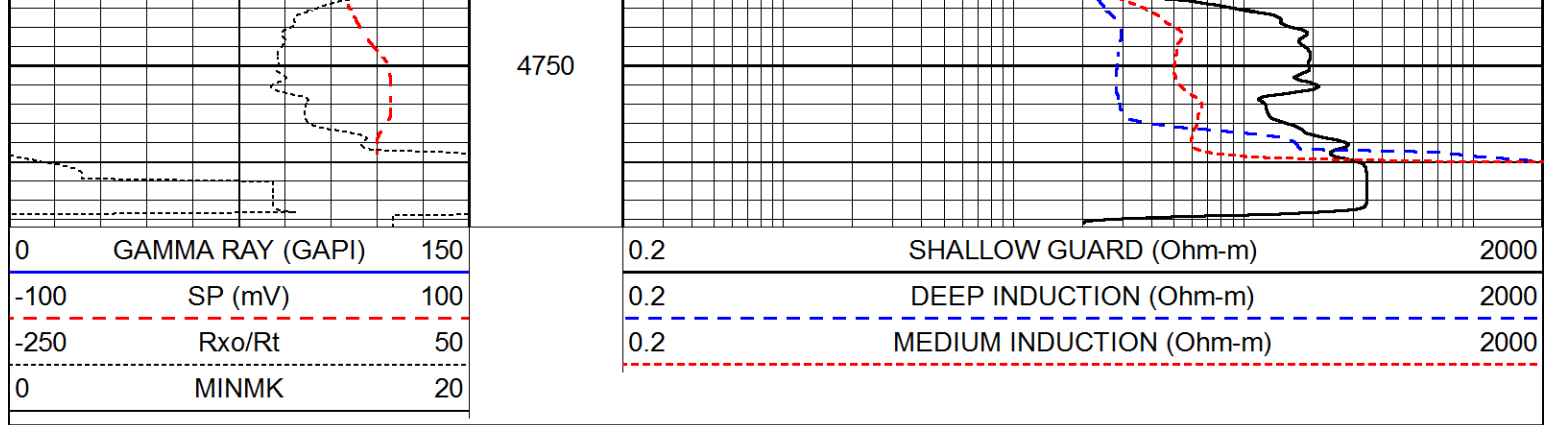
4600

4650

4700

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





Calibration Report									
Database File	7576pe.db								
Dataset Pathname	pass3.1M								
Dataset Creation	Thu Mar 16 12:23:05 2023								
Dual Induction Calibration Report									
Serial-Model:					PROBE8-DILG				
Surface Cal Performed:					Thu Mar 16 11:09:55 2023				
Downhole Cal Performed:					Mon Sep 10 14:28:38 2018				
After Survey Verification Performed:					Mon Sep 10 14:28:40 2018				
Surface Calibration									
		Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b	
Deep	0.015	0.648	V	0.000	400.000	mmho/m	620.000	5.000	
Medium	0.029	0.796	V	0.000	464.000	mmho/m	620.000	-9.000	
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: 004					Model: PRB				
Master Calibration					Performed Fri Nov 04 15:19:59 2022				
Background		Magnesium		Aluminum		Aluminum+Fe			

Background		Magnesium		Aluminum		Aluminum + Fe		
Window 1	1153.2		7232.1		2536.8		2279.5	cps
Window 2	1055.6		6225.5		2222.3		2030.5	cps
Window 3	902.5		3849.3		1546.4		1462.0	cps
Window 4	254.4		258.2		253.1		253.9	cps
Long Space	0.0		5169.9		1166.7		974.9	cps
Short Space	4.7		1383.0		950.5		792.1	cps
Rho			1.7100		2.5900		0.0000	g/cc
Pe			2.0000		2.7500		5.7900	
Rib Angle	: 45.9	Rib Slope	: 1.031	Density/Spine Ratio				: 0.573
Spine Angle	: 75.9	Spine Slope	: 3.970	Spine Intercept				: -20.2
Before Survey Verification				Performed Wed Dec 31 18:00:00 1969				
Window 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	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	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	g/cc
Measured Pe				0.0000		0.0000		
Compensated Neutron Calibration Report								
Serial Number:				6I				
Tool Model:				G				
CALIBRATION								
Detector		Readings		Target		Normalization		
Short Space		1.00	cps	1.00	cps	1.0000		
Long Space		1.00	cps	1.00	cps	1.0000		
PRE-SURVEY VERIFICATION								
Detector		Readings		Measured		Target		
1)	Short Space	cps						
	Long Space	cps		pu		pu		
2)	Short Space	cps						
	Long Space	cps		pu				
3)	Short Space	cps						

Long Space		cps	pu
POST-SURVEY VERIFICATION			
	Detector	Readings	Measured Target
1)	Short Space	cps	
	Long Space	cps	pu pu
2)	Short Space	cps	
	Long Space	cps	pu pu
3)	Short Space	cps	
	Long Space	cps	pu pu
Gamma Ray Calibration Report			
Serial Number:		GR6	
Tool Model:		OPEN	
Performed:		Sat Mar 04 17:44:01 2023	
Calibrator Value:		150.0	GAPI
Background Reading:		0.0	cps
Calibrator Reading:		276.0	cps
Sensitivity:		0.9000	GAPI/cps