

DUAL INDUCTION LOG

Company	ARP OPERATING, LLC.	Company	ARP OPERATING, LLC.
Well	BRADSHAW #1-33	Well	BRADSHAW #1-33
Field	WILDCAT	Field	WILDCAT
County	THOMAS	County	THOMAS
State	KANSAS	State	KANSAS
Location:	API # : 15-193-21089-0000 500' FNL & 595' FWL SE - NW - NW - NW	Other Services CDL/CNL/PE MEL/SONIC	
Permanent Datum	GROUND LEVEL	Elevation	3026
Log Measured From	KELLY BUSHING 11' A.G.L.	K.B. 3037 D.F. 3035 G.L. 3026	
Drilling Measured From	KELLY BUSHING		
Date	11/3/21		
Run Number	ONE		
Depth Driller	4684		
Depth Logger	4670		
Bottom Logged Interval	4668		
Top Log Interval	00		
Casing Driller	8 5/8"@250'		
Casing Logger	250		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 2,200 PPM	
Density / Viscosity	9.5/50		
pH / Fluid Loss	11.0/8.0		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	1.20@82F		
Rmf @ Meas. Temp	.900@82F		
Rmc @ Meas. Temp	1.44@82F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	.807@122F		
Time Circulation Stopped	2.5 HOURS		
Time Logger on Bottom	11:30 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.

15-193-21089-0000

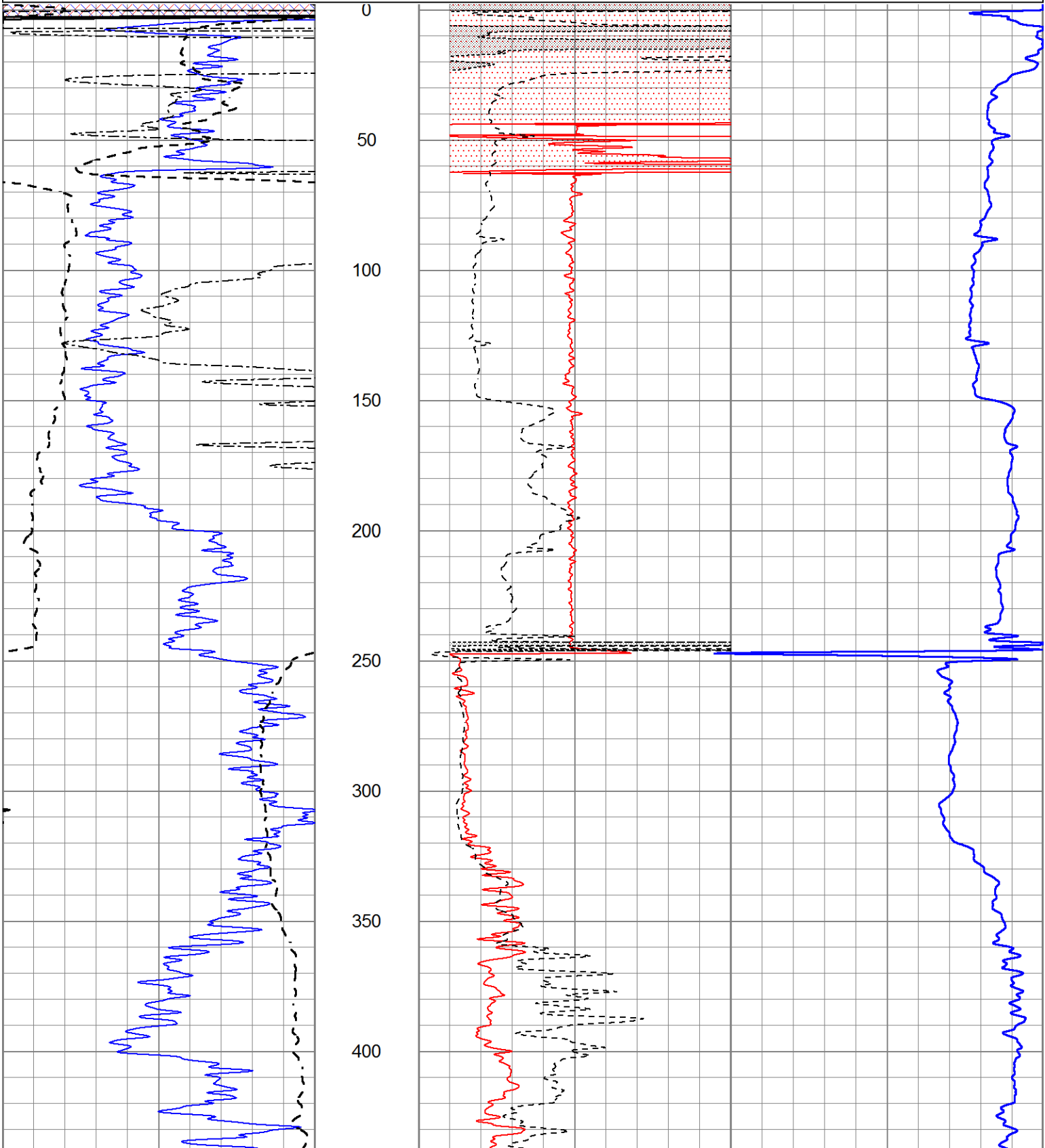
Comments

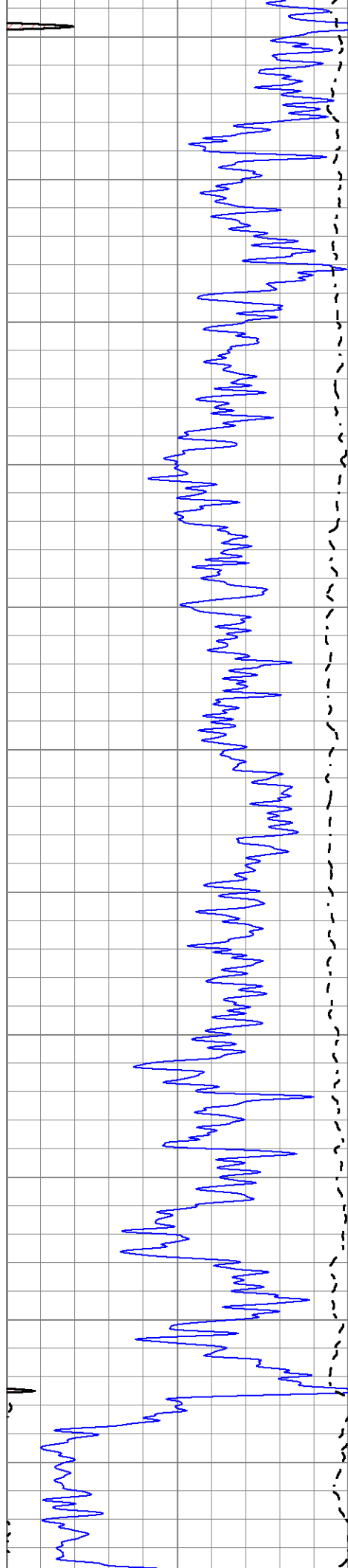
THANK YOU FOR USING ELI WIRELINE HAYS, KANSAS (785) 628-6395
DIRECTIONS
OAKLEY, KS., (I-70 & EXIT 70) 2S. TO "RD. C", 2W., 1S., E. INTO



MAIN SECTION

0	Gamma Ray (GAPI)	150	1000	CILD (mmho/m)	0
-100	SP (mV)	100	0	RLL3 (Ohm-m)	50
0	RWA (Ohm-m)	1	0	RILD (Ohm-m)	50
			50	RILD X10 (Ohm-m)	500
			50	RLL3 X10 (Ohm-m)	500





450

500

550

600

650

700

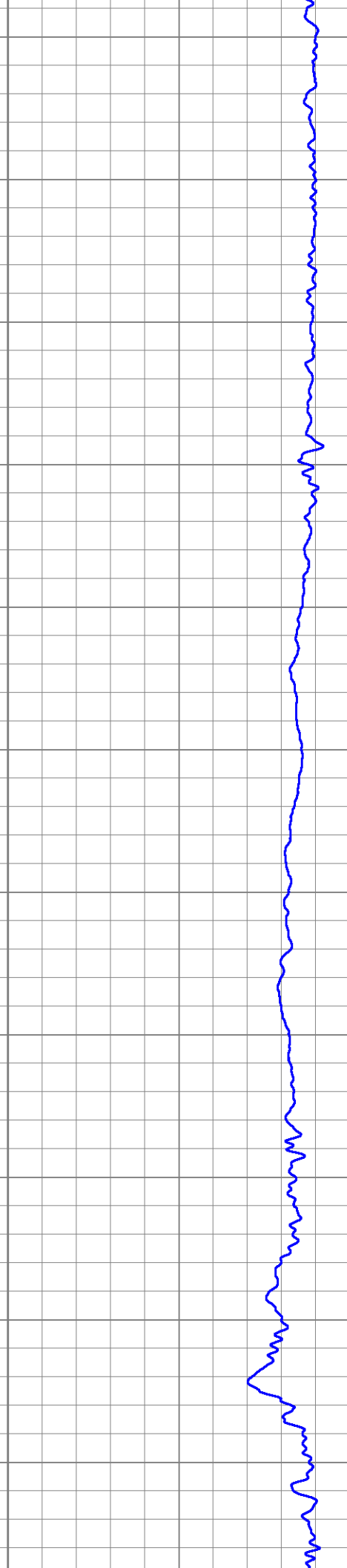
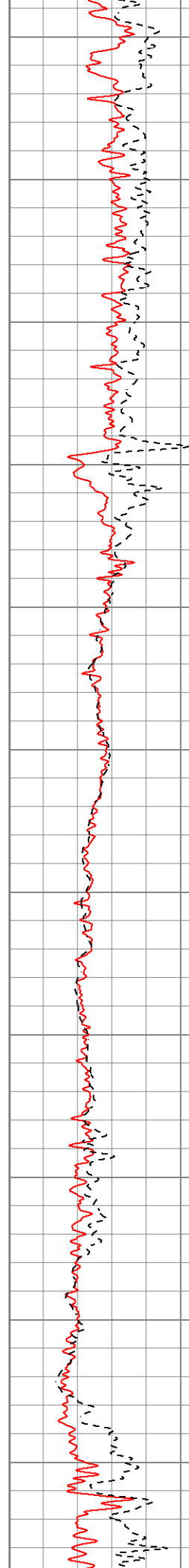
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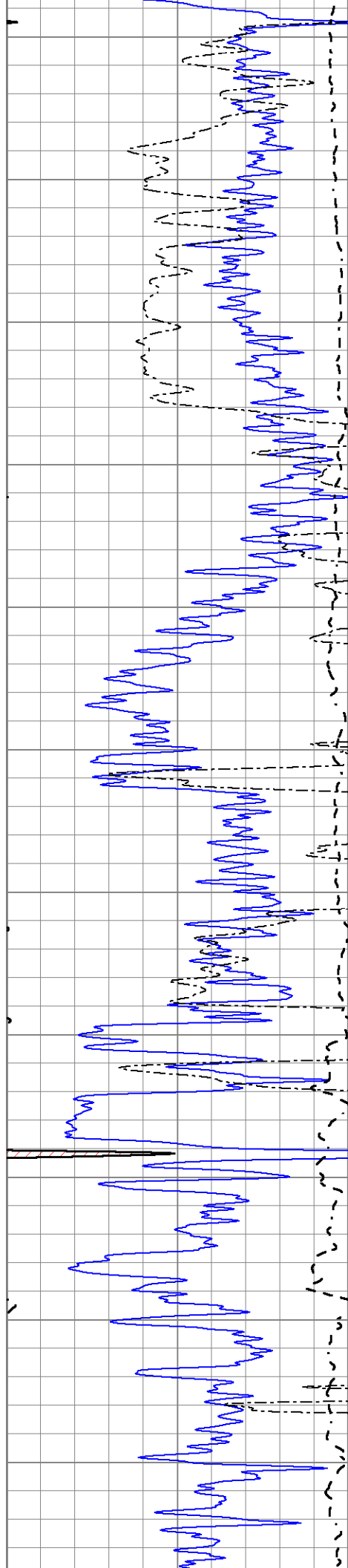
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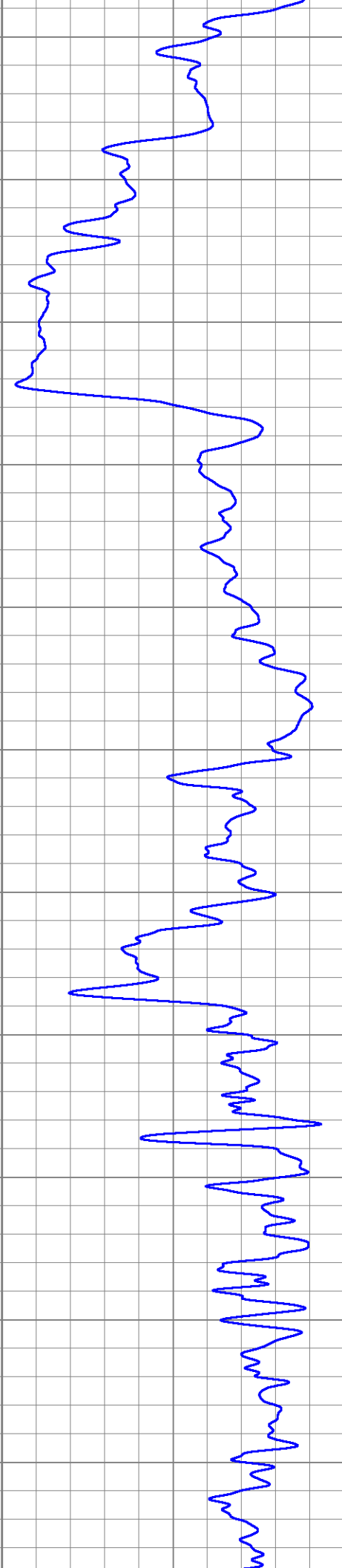
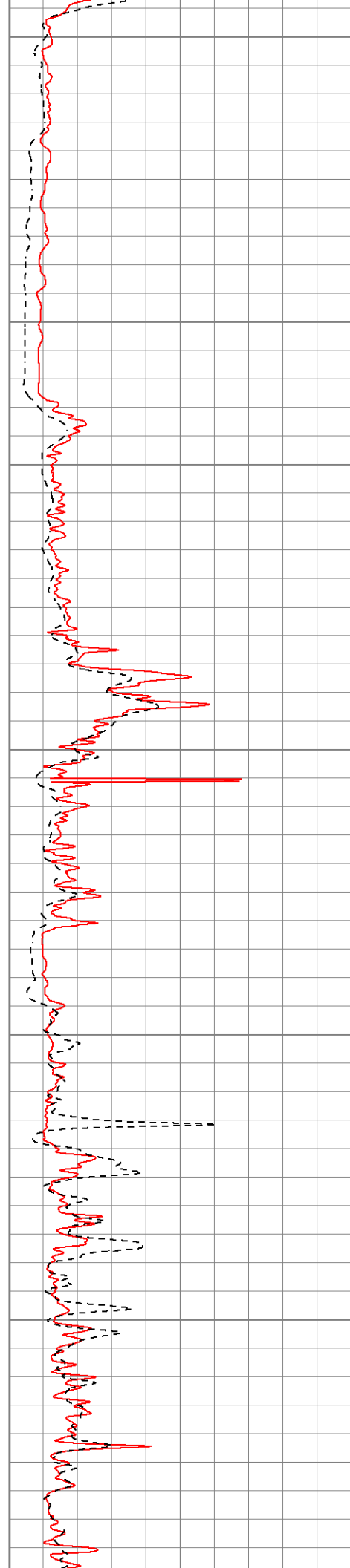
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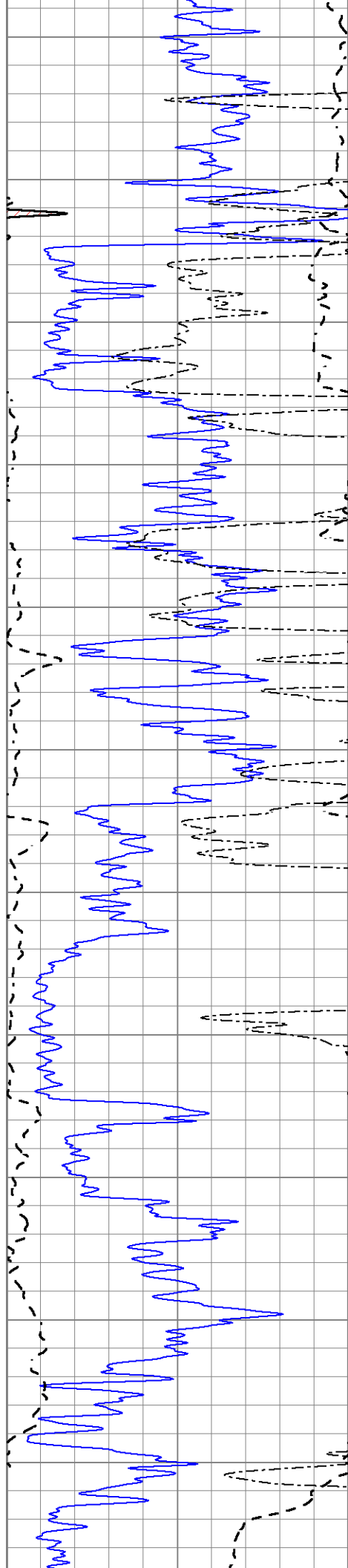
950





1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500





1550

1600

1650

1700

1750

1800

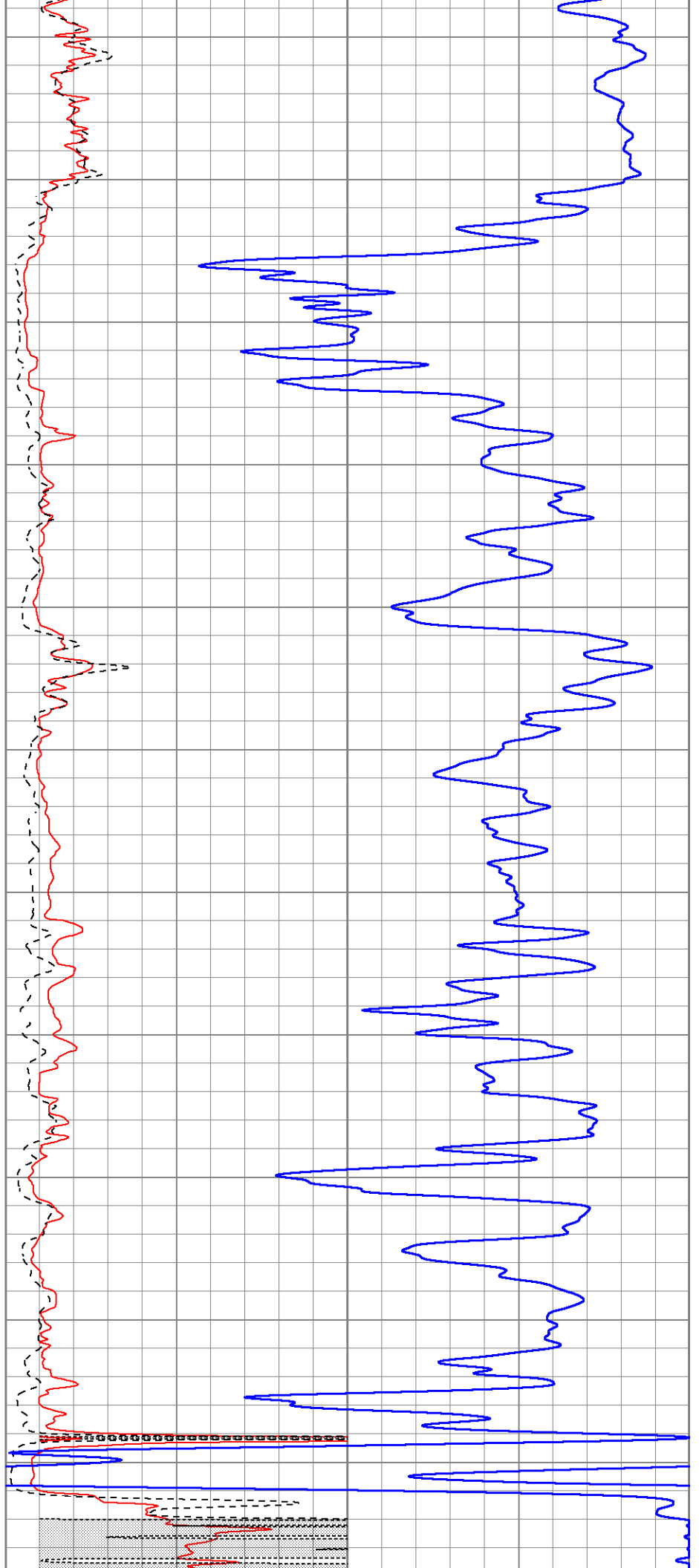
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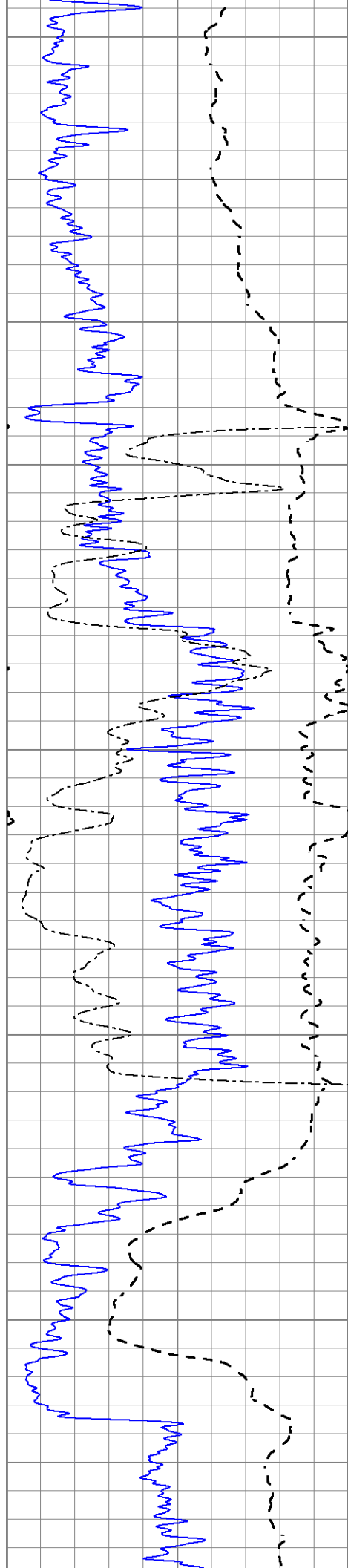
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1950

2000

2050





2100

2150

2200

2250

2300

2350

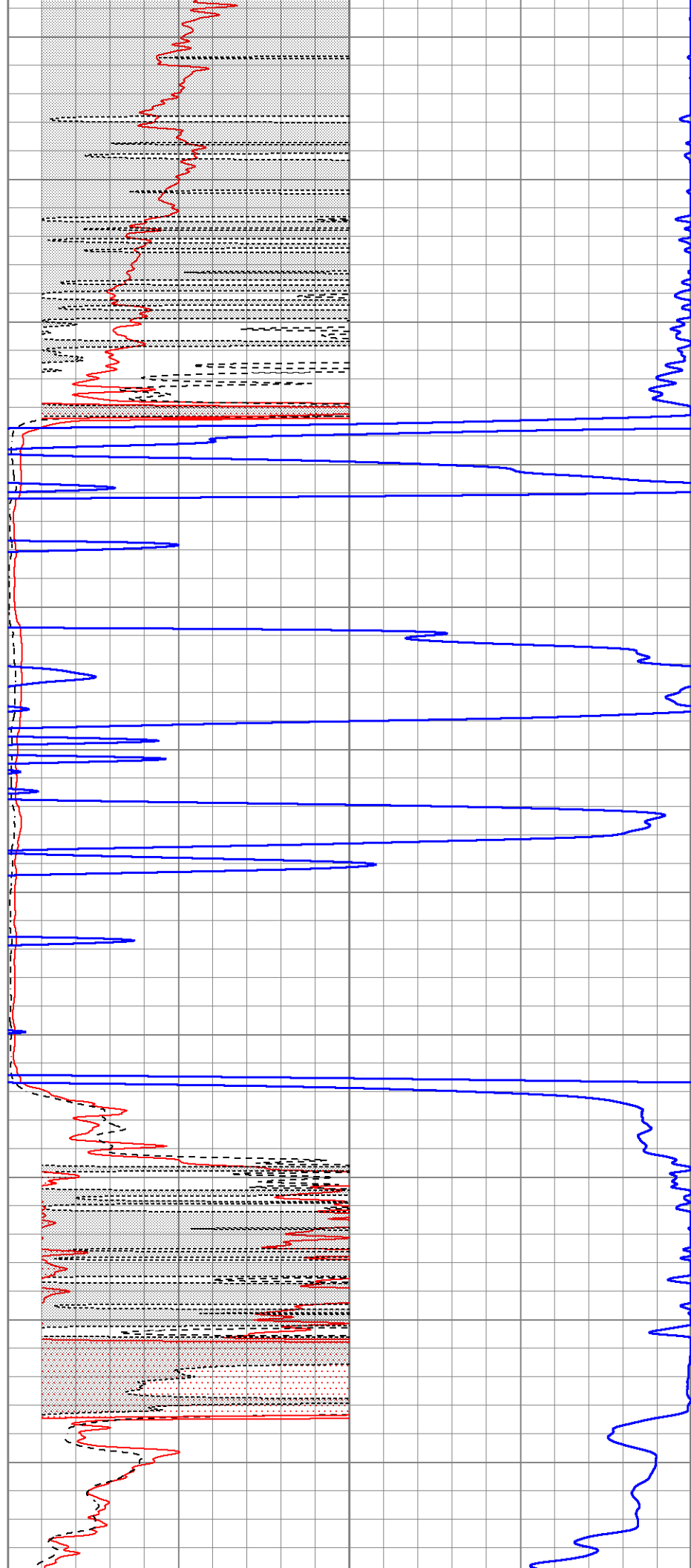
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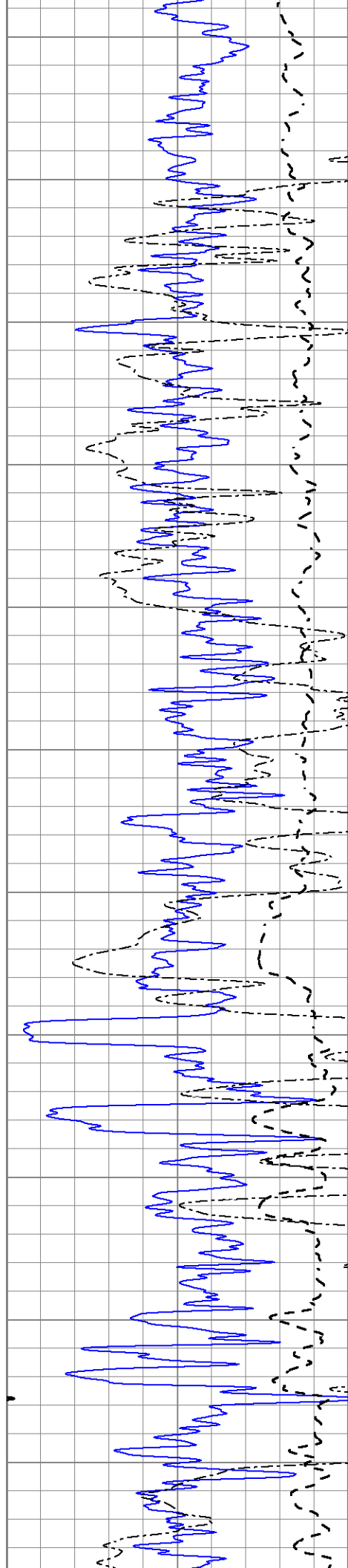
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2500

2550

2600





2650

2700

2750

2800

2850

2900

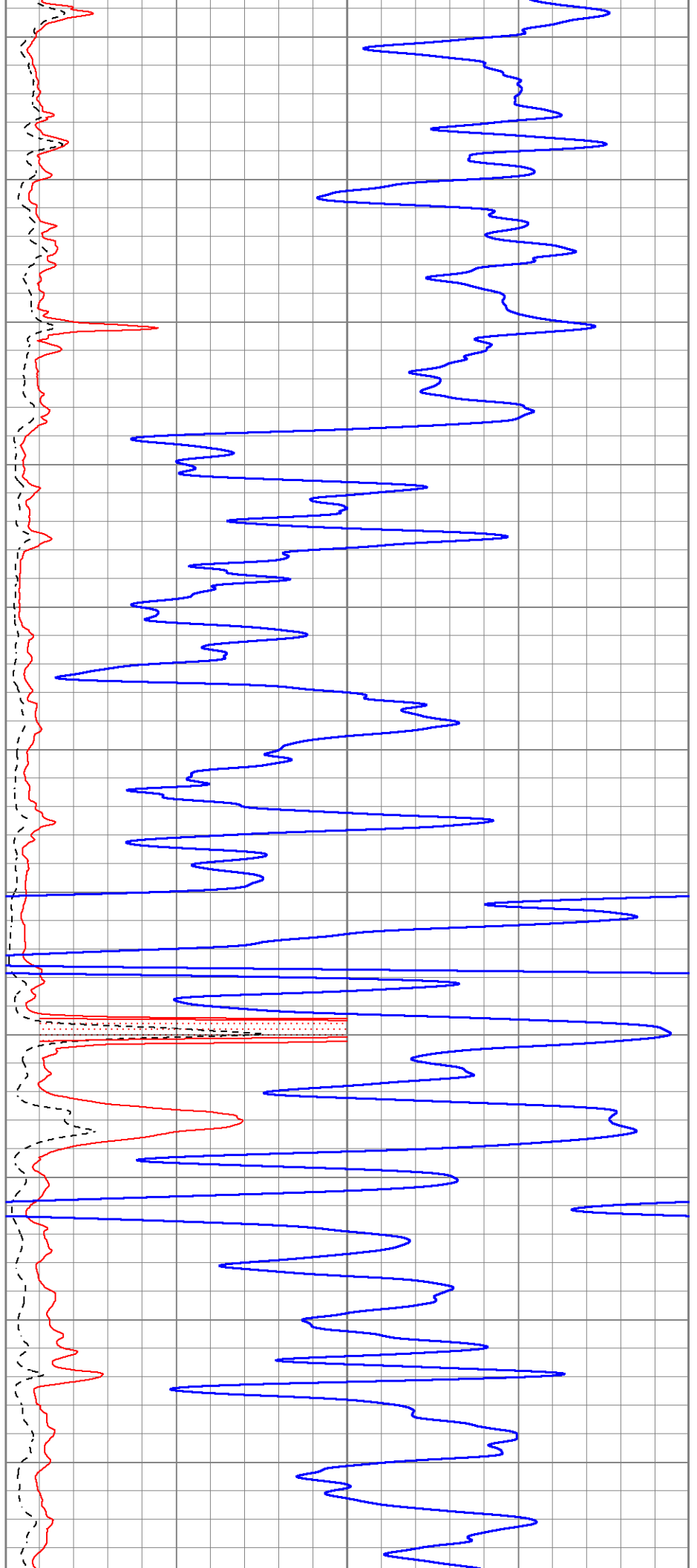
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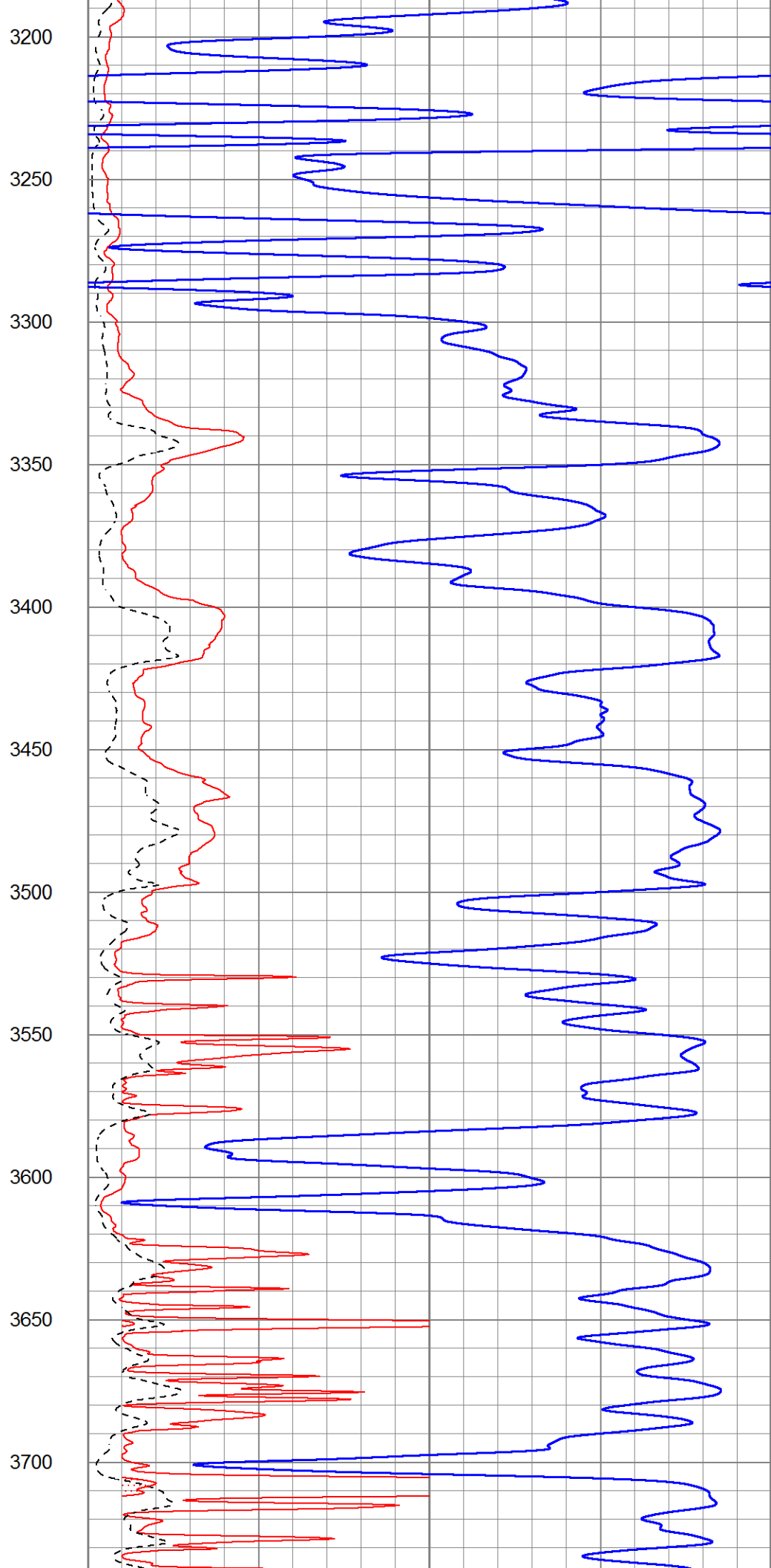
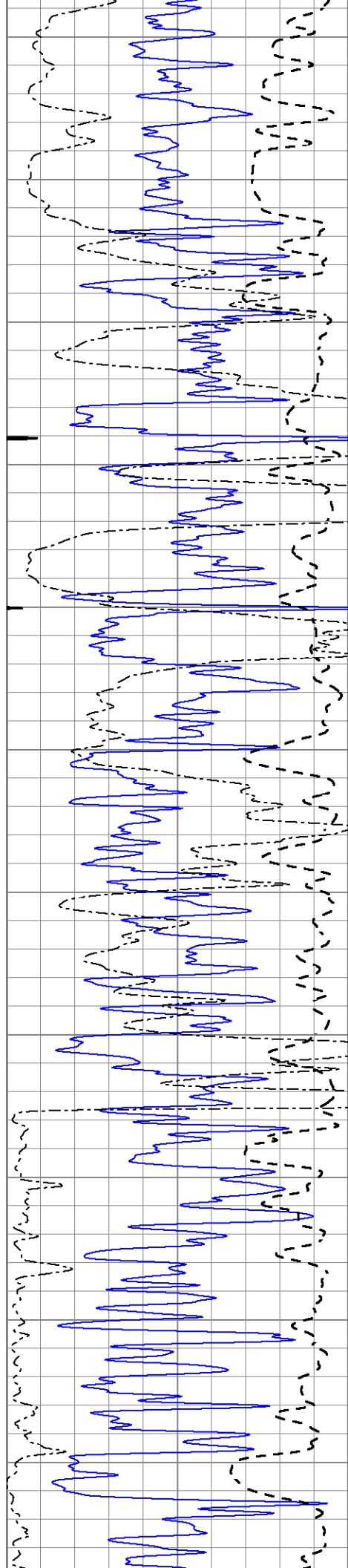
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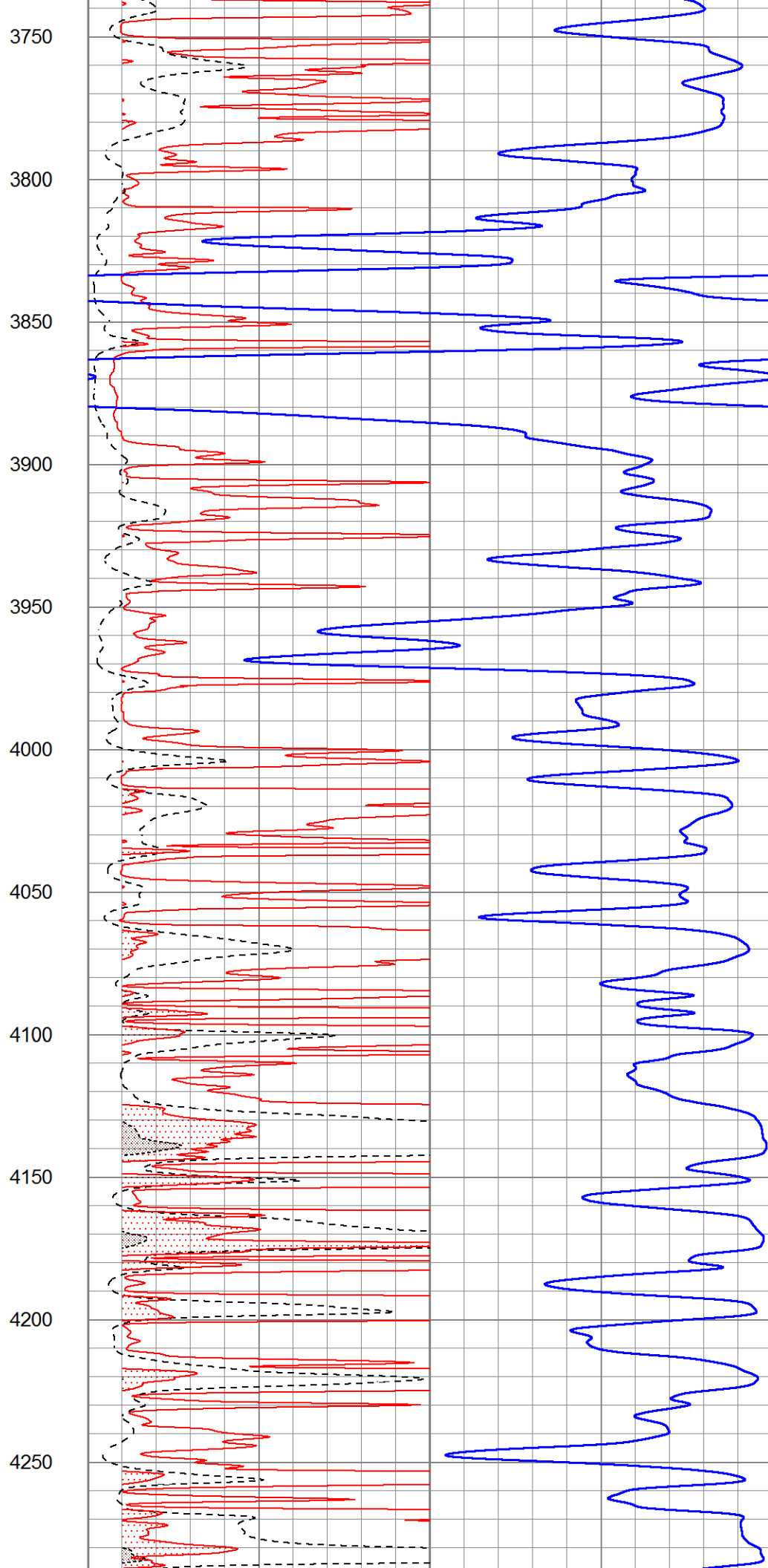
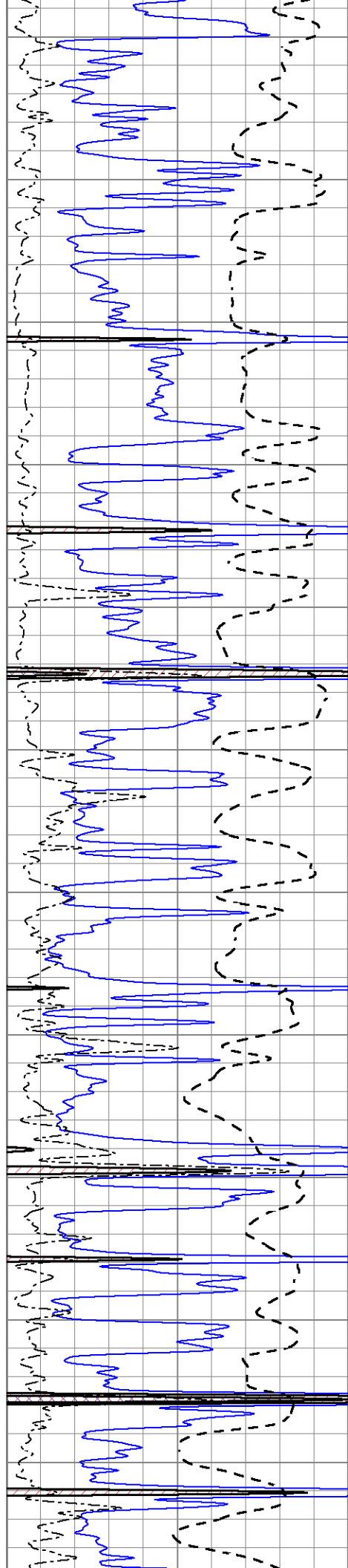
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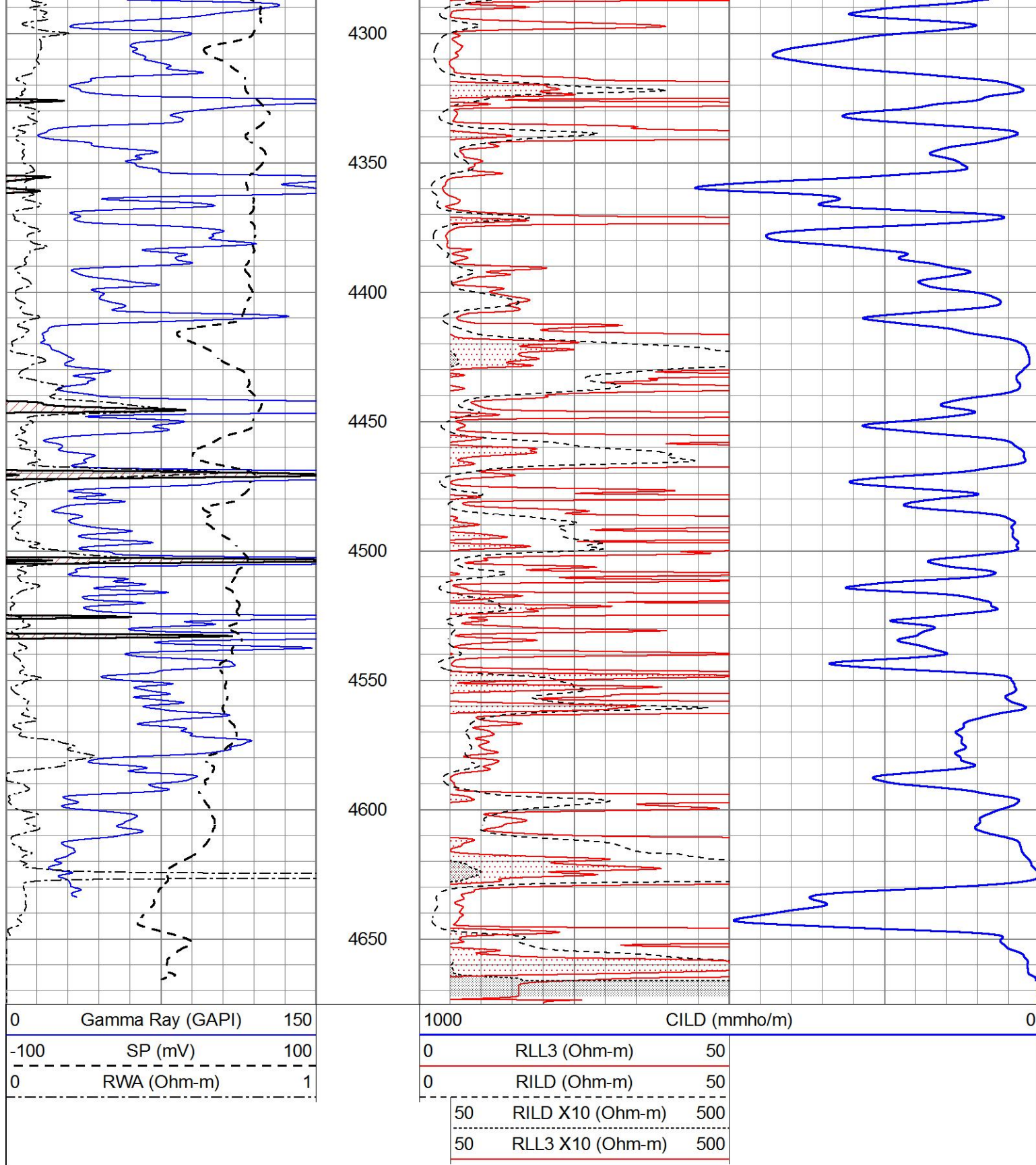
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3150









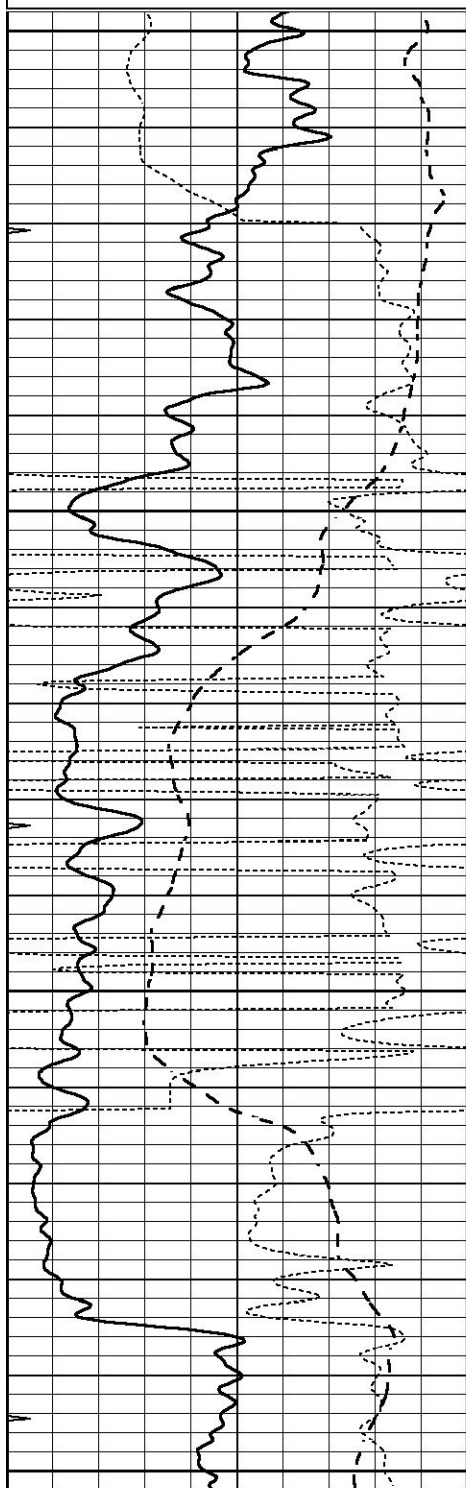
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Database File 5830pe.db
 Dataset Pathname pass3.1A
 Presentation Format _dil
 Dataset Creation Thu Nov 04 01:27:53 2021

Charted by

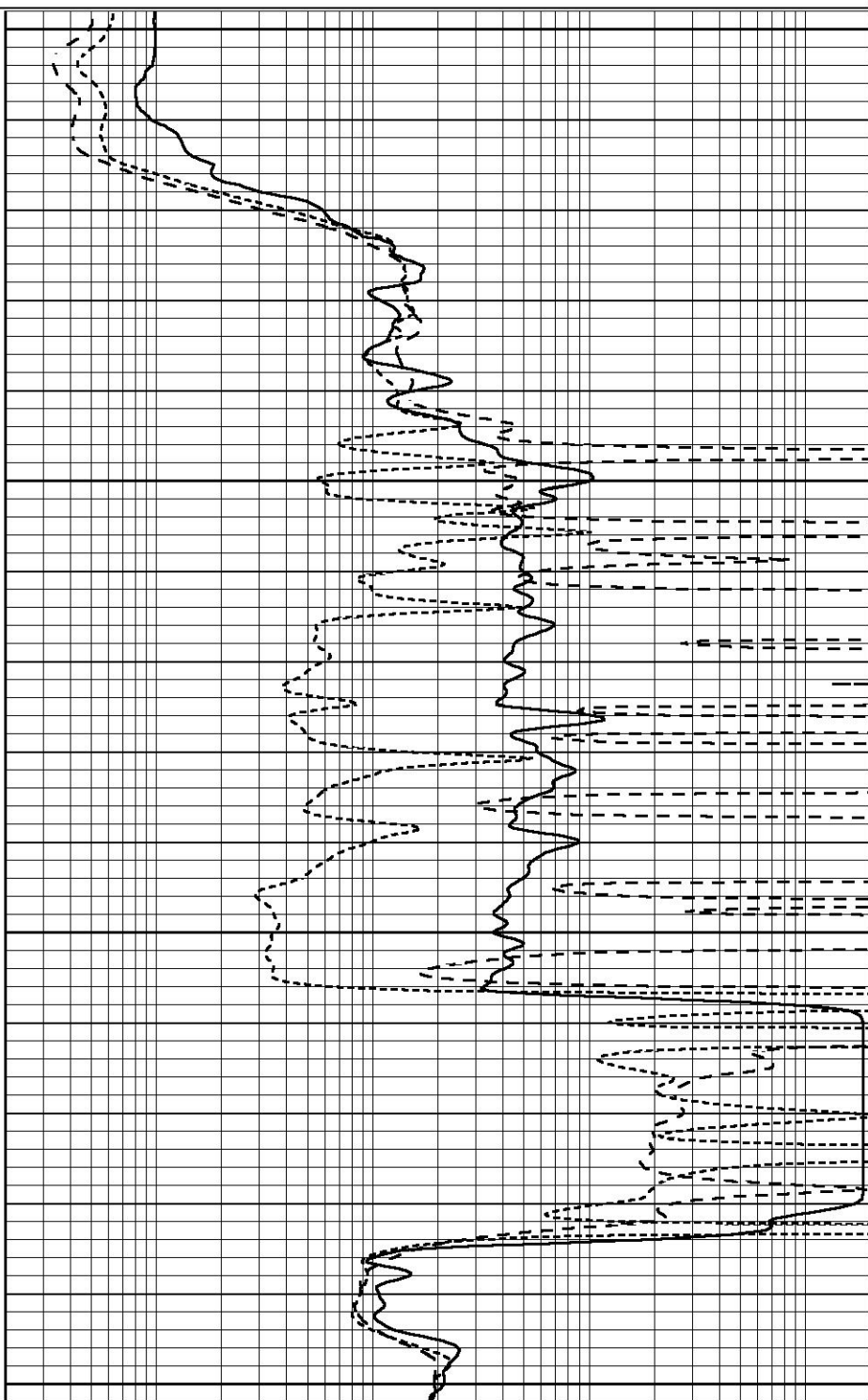
Depth in Feet scaled 1:240

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



0	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



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

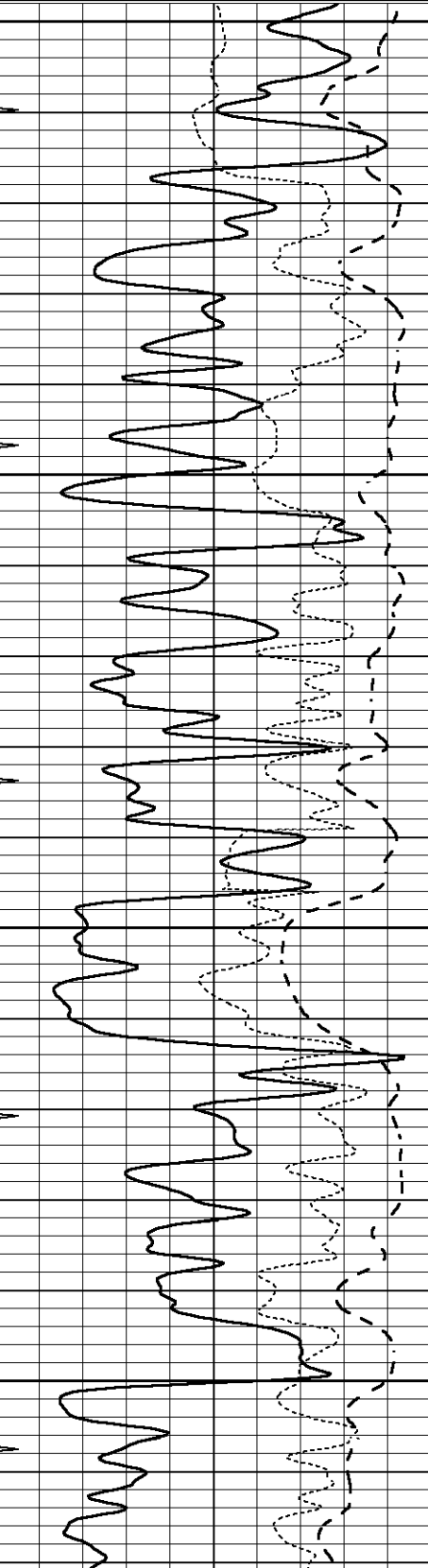


MAIN SECTION

Database File 5830pe.db
Dataset Pathname pass3.1M
Presentation Format _dil
Dataset Creation Thu Nov 04 01:21:08 2021
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

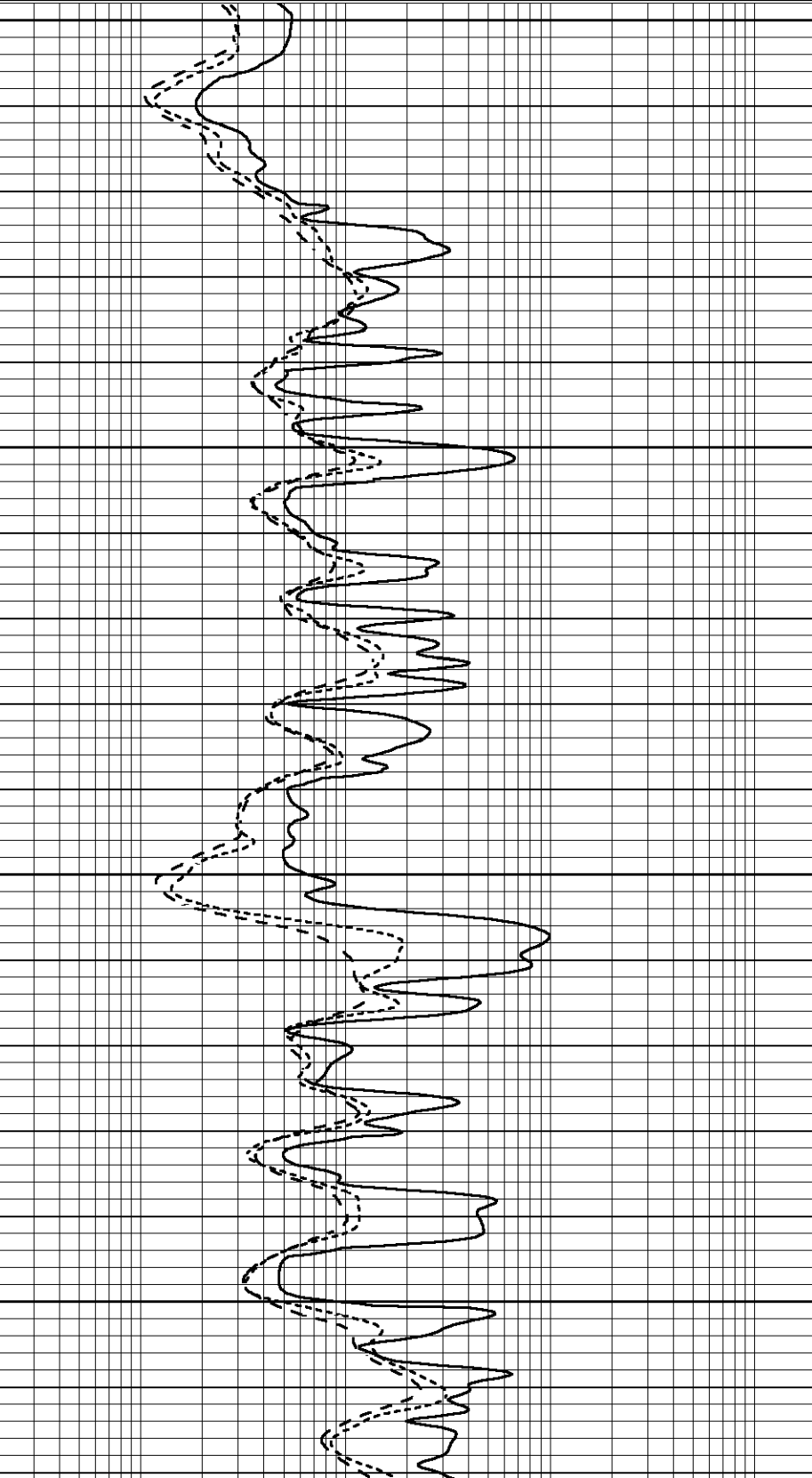


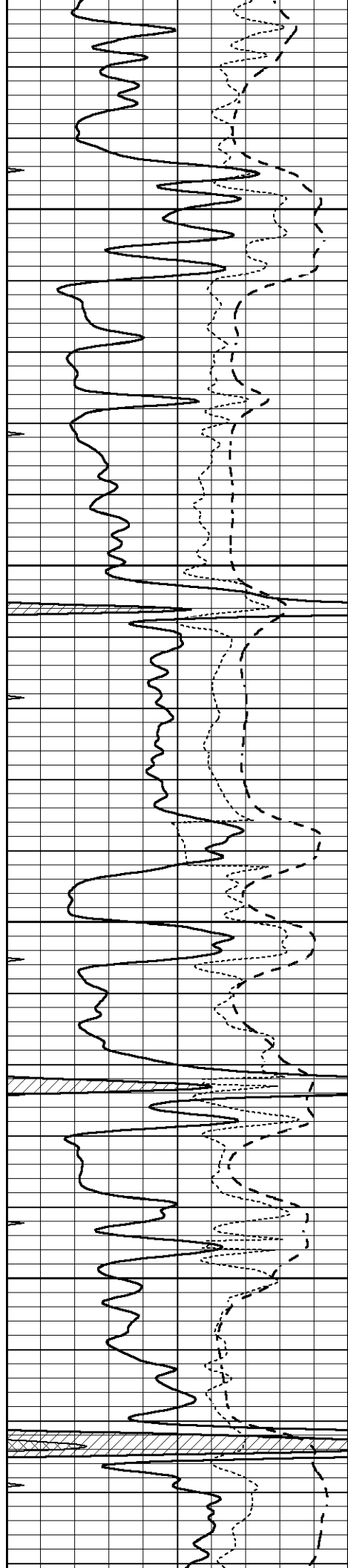
3600

3650

3700

3750



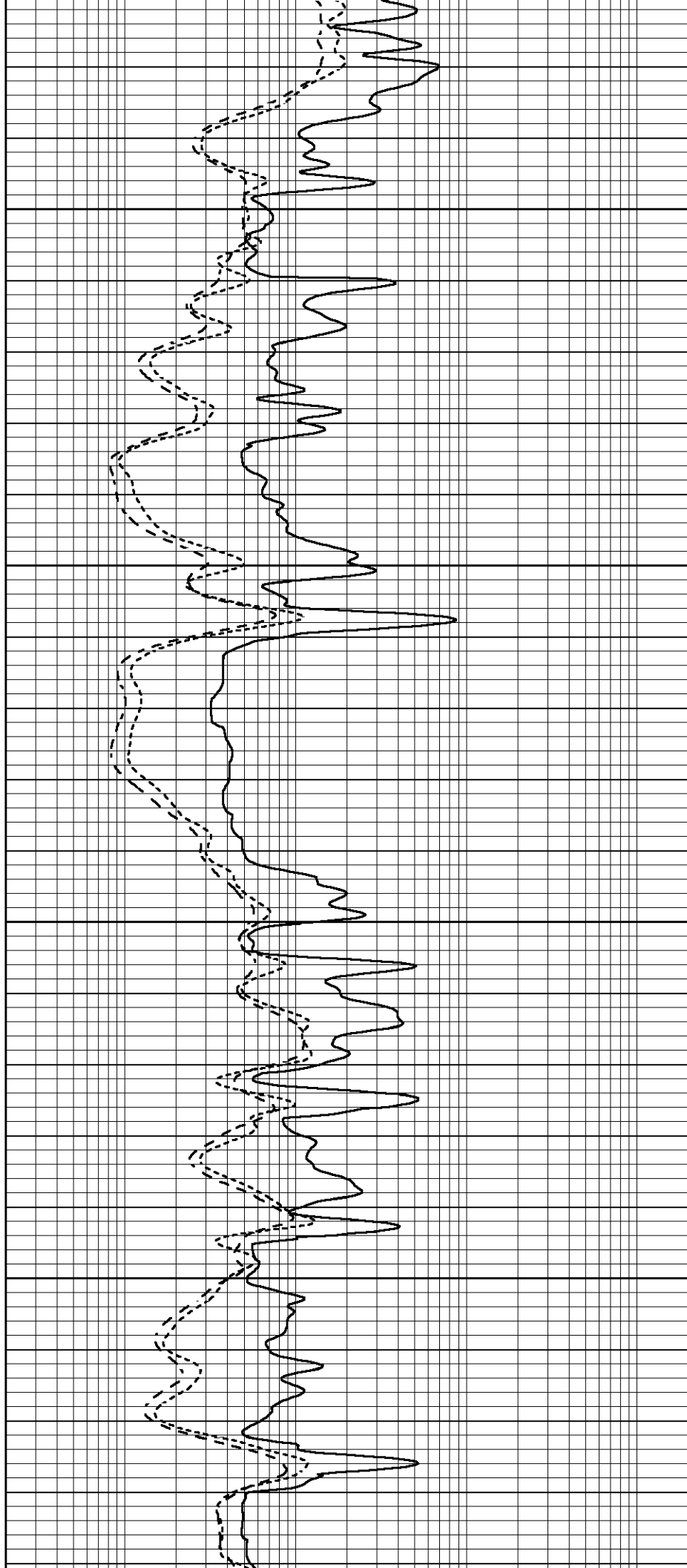


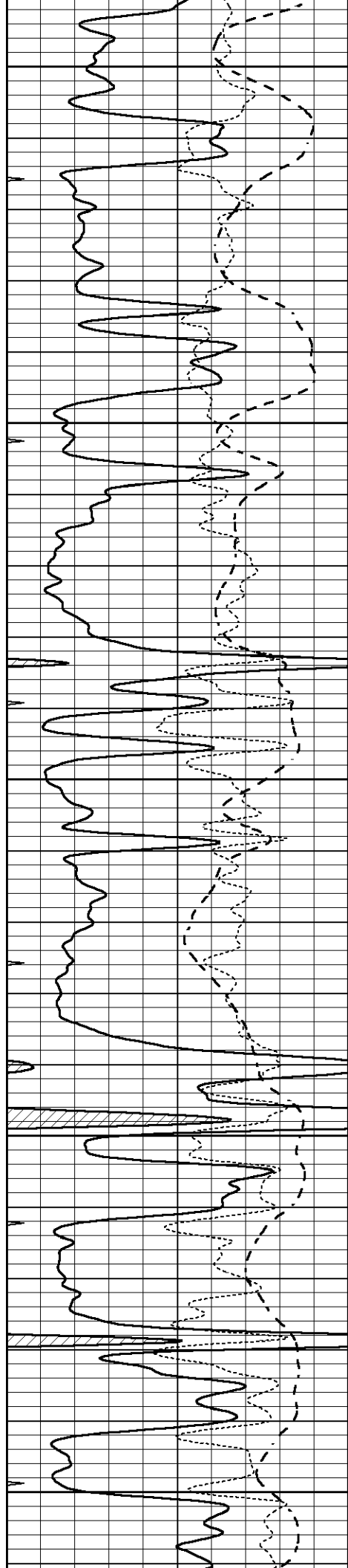
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3900

3950





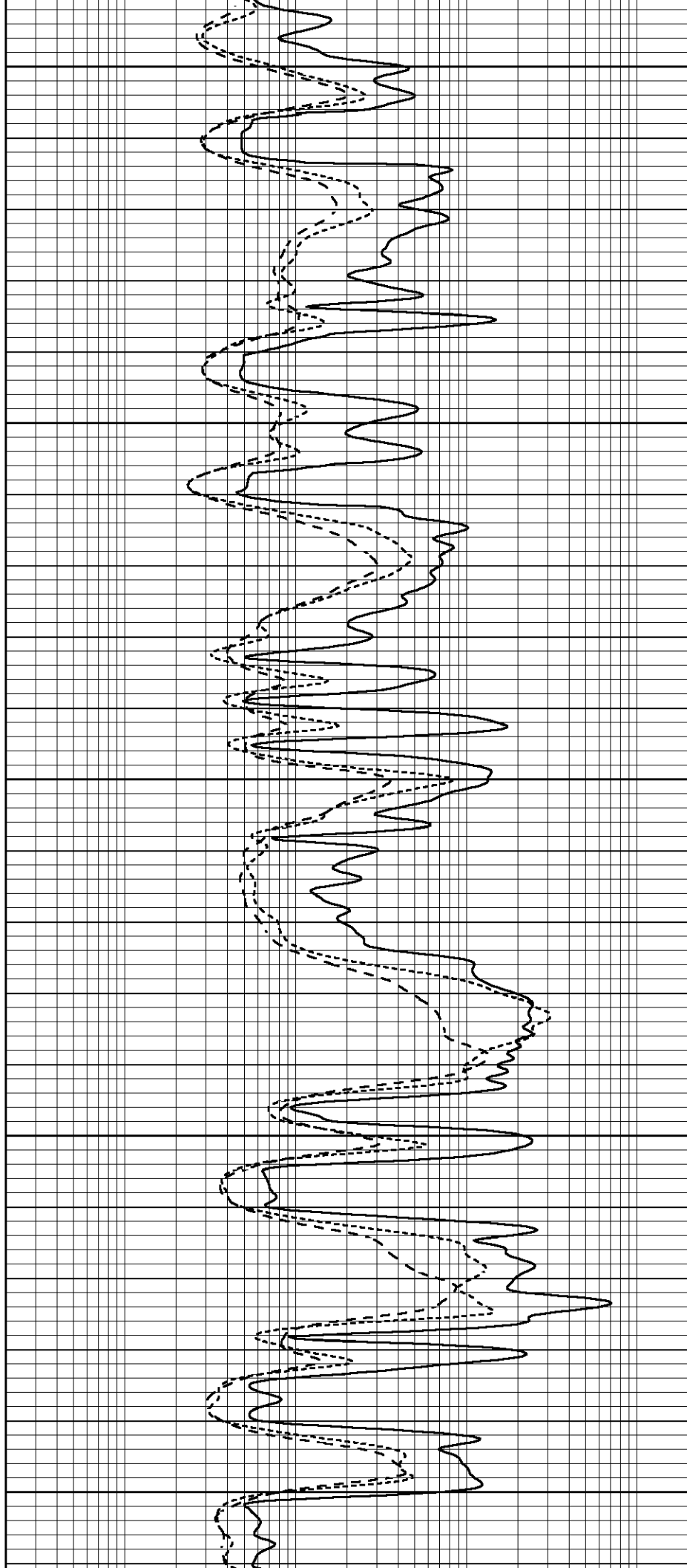
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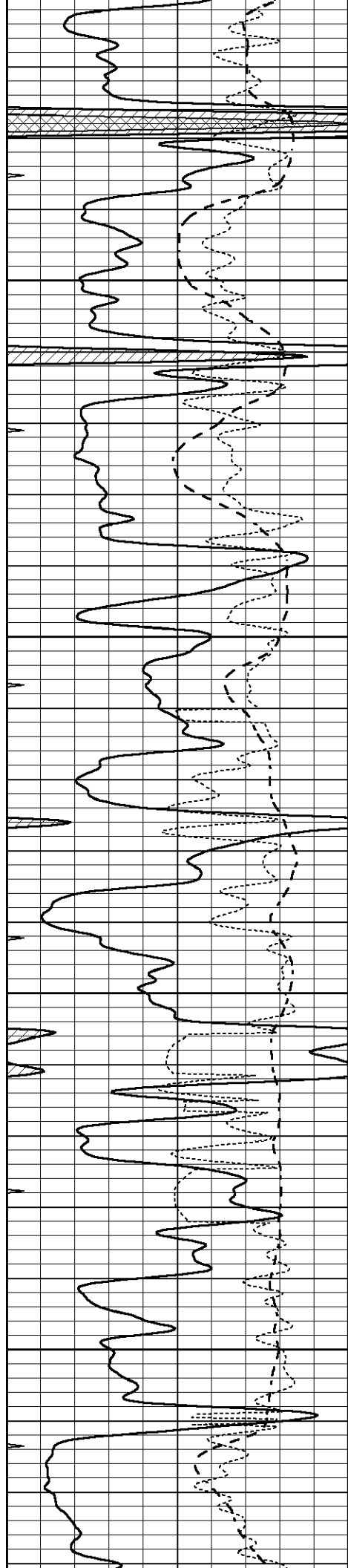
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4100

4150

4200



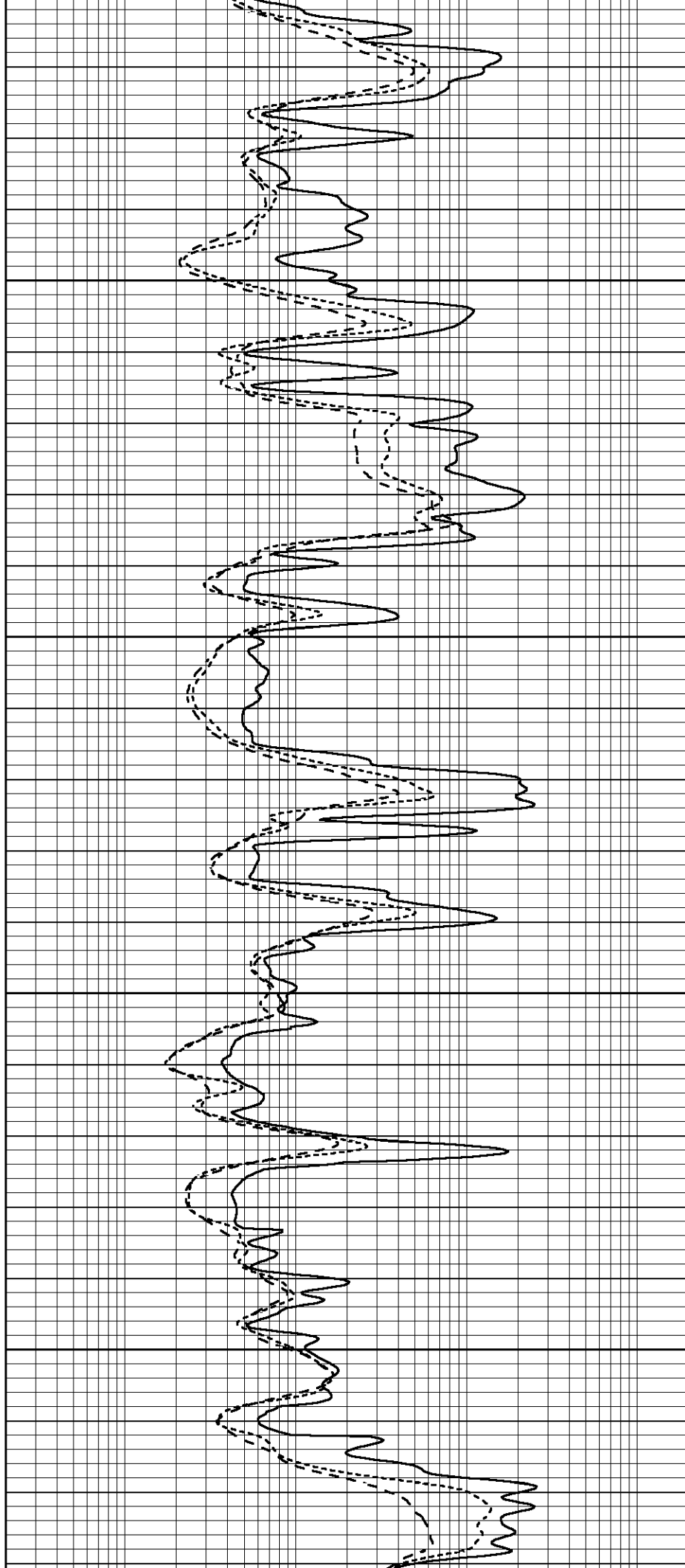


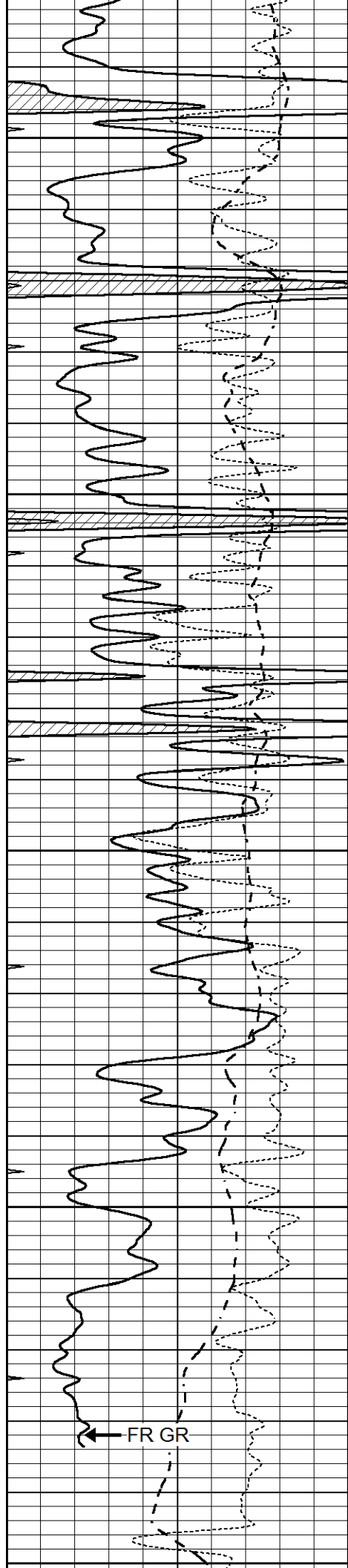
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4300

4350

4400





4450

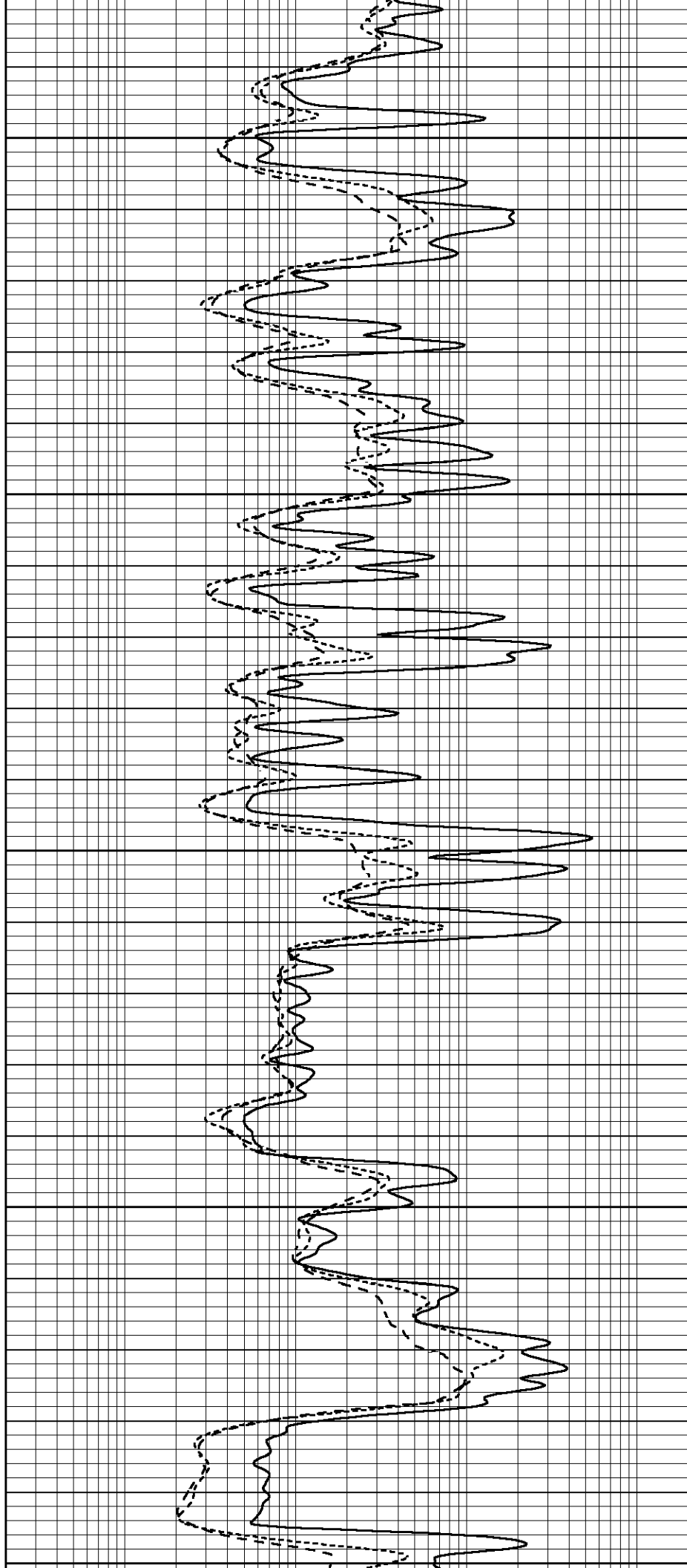
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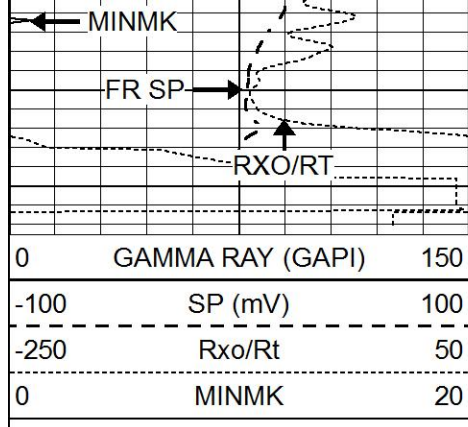
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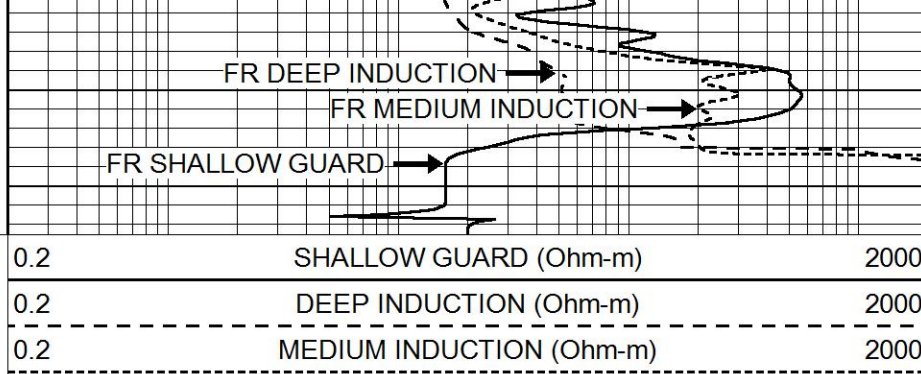
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FR GR



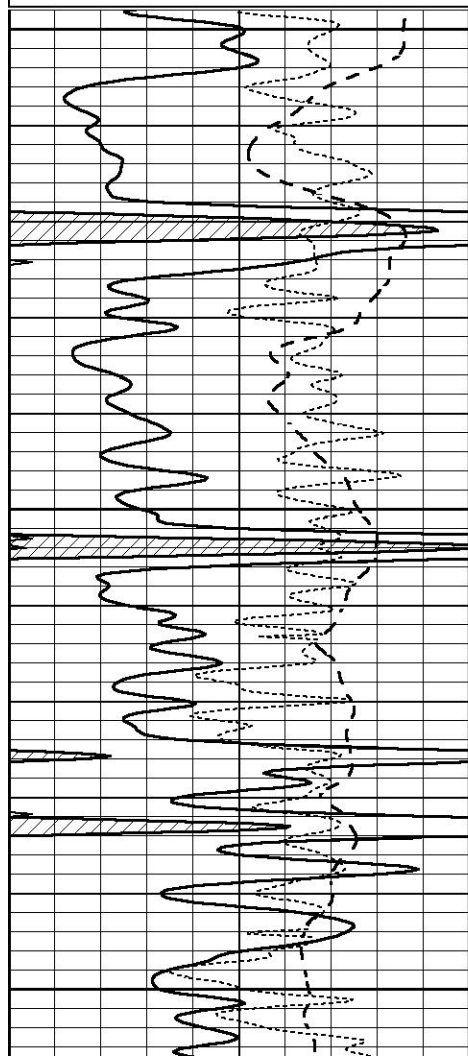
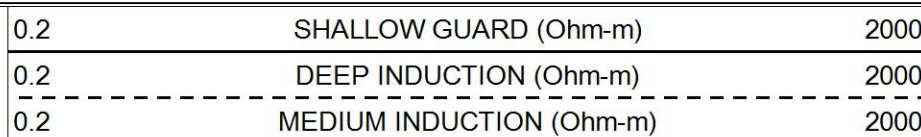
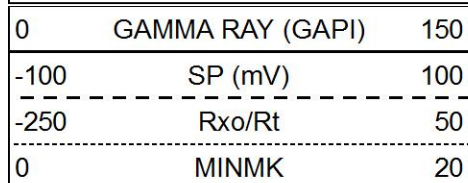


LTD 4670



REPEAT SECTION

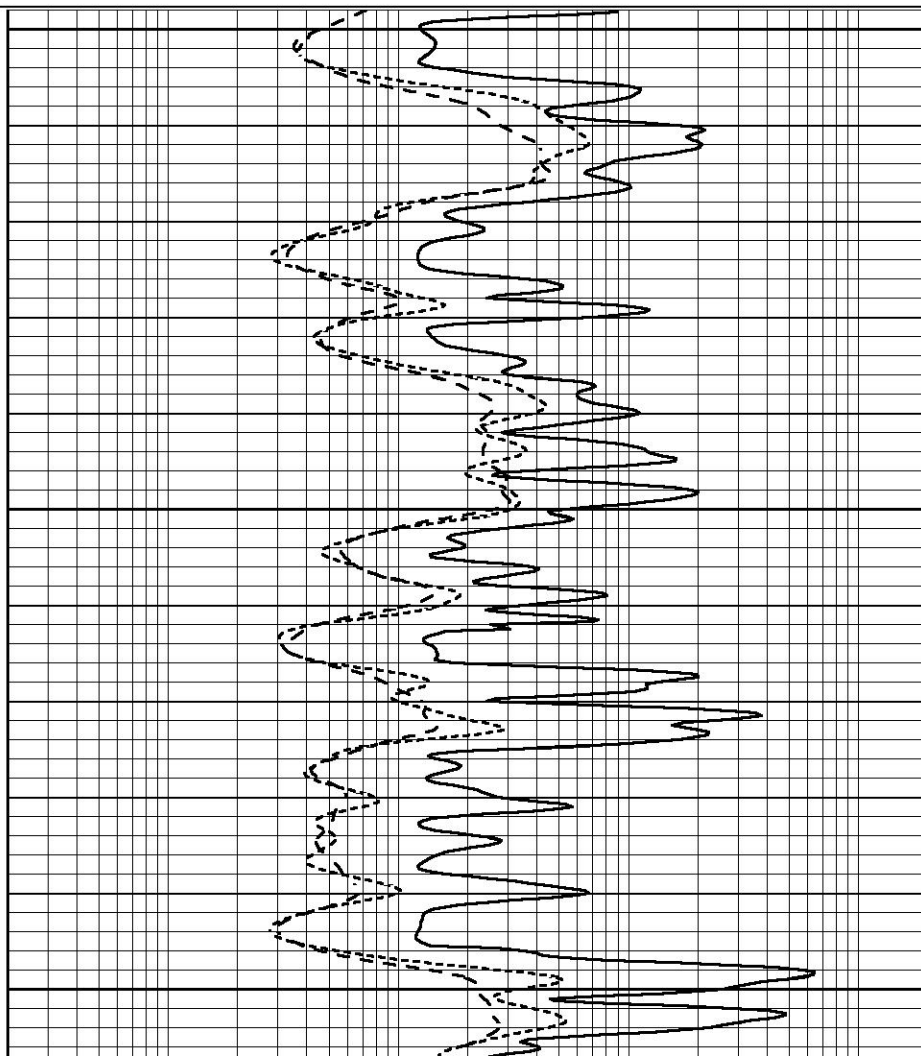
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 Dataset Pathname pass2.1R
 Presentation Format _dil
 Dataset Creation Wed Nov 03 23:51:48 2021
 Charted by Depth in Feet scaled 1:240

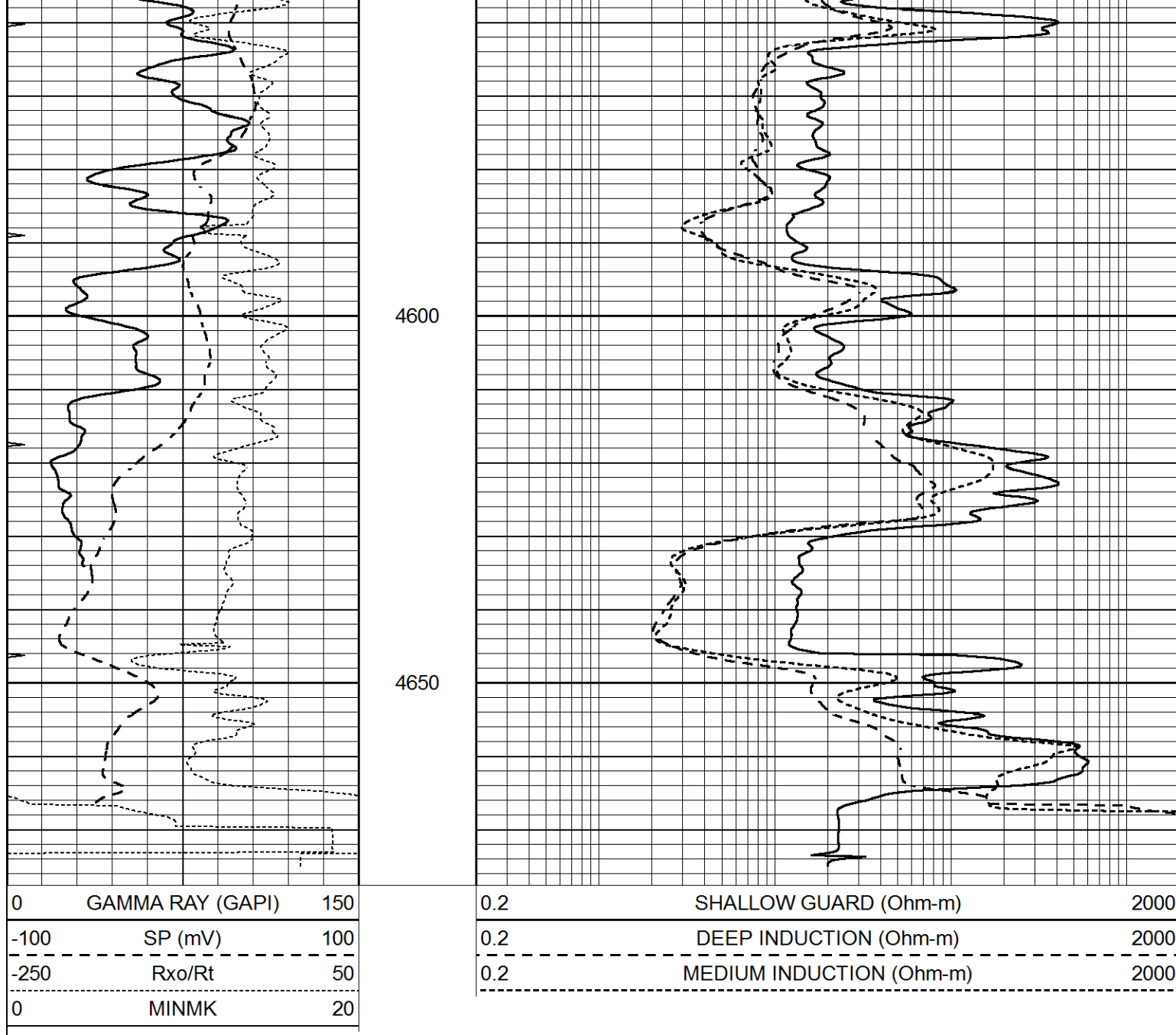


4450

4500

4550





Calibration Report									
Database File		5830pe.db							
Dataset Pathname		pass3.1M							
Dataset Creation		Thu Nov 04 01:21:08 2021							
Dual Induction Calibration Report									
Serial-Model:					PROBE7-DILG				
Surface Cal Performed:					Wed Nov 03 23:37:20 2021				
Downhole Cal Performed:					Thu Mar 12 11:45:10 2020				
After Survey Verification Performed:					Thu Mar 12 11:45:00 2020				
Surface Calibration									
Readings				References			Results		
Loop:	Air	Loop		Air	Loop		m	b	
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	650.000	5.000	
Medium	0.039	0.728	V	0.000	464.000	mmho/m	680.000	-40.000	
Internal:	Zero	Cal		Zero	Cal		m	b	
Deep	0.014	0.619	V	0.000	400.000	mmho/m	657.105	7.050	
Medium	0.039	0.728	V	0.000	464.000	mmho/m	680.000	-40.000	

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		Zero	Cal		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		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		
		0.000	mmho-m		4000.000	mmho-m		
Litho Density Calibration Report Serial: 003 Model: PRB								
Master Calibration			Performed Fri Mar 05 10:51:07 2021					
	Background	Magnesium		Aluminum		Aluminum+Fe		
Window 1	1570.6	10682.1		3457.0		3096.9		cps
Window 2	1451.7	9432.7		3101.4		2816.5		cps
Window 3	1334.0	7160.6		2532.0		2369.3		cps
Window 4	370.4	373.1		366.4		370.9		cps
Long Space	0.0	7981.0		1649.7		1364.8		cps
Short Space	2.8	3522.0		2211.0		1823.6		cps
Rho		1.7100		2.5900		0.0000		g/cc
Pe		2.0000		2.7500		5.7900		
Rib Angle	: 43.5	Rib Slope	: 0.951	Density/Spine Ratio			: 0.535	
Spine Angle	: 73.5	Spine Slope	: 3.386	Spine Intercept			: -18.7	
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	cps
Measured Rho		0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	g/cc
Measured Pe			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:	Fri Sep 03 05:25:49 2021			
Calibrator Value:	1.0	GAPI		
Background Reading:	0.0	cps		
Calibrator Reading:	1.0	cps		
Sensitivity:	0.2800	GAPI/cps		