



**COMPLETION  
& PRODUCTION  
SERVICES CO.**

**DUAL INDUCTION  
LOG**

Company	CHIEFTAIN OIL COMPANY, INC.	Company	CHIEFTAIN OIL COMPANY, INC.
Well	ROARK #1	Well	ROARK #1
Field	WILDCAT	Field	WILDCAT
County	BARBER	County	BARBER
State	KANSAS	State	KANSAS
Location:	AP1 # : 15-007-23956-0000	Other Services	CDL/CNL/PE MEL
Permanent Datum	GROUND LEVEL	Elevation	1322
Log Measured From	KELLY BUSHING 13' A.G.L.	K.B.	1335
Drilling Measured From	KELLY BUSHING	D.F.	1333
	SEC 10 TWP 35S RGE 11W	G.L.	1322

Date	10/21/12
Run Number	ONE
Depth Driller	5545
Depth Logger	5546
Bottom Logged Interval	5544
Top Log Interval	00
Casing Driller	13 3/8"@334'
Casing Logger	334
Bit Size	7 7/8"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.2/60
pH / Fluid Loss	10.5/7.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.600@80F
Rmt @ Meas. Temp	.450280F
Rmc @ Meas. Temp	.720@80F
Source of Rmf / Rmc	MEASUREMENT
Rm @ BHT	.369@130F
Time Circulation Stopped	3 HOURS
Time Logger on Bottom	9:45 P.M.
Maximum Recorded Temperature	130F
Equipment Number	4010
Location	HAYS, KANSAS
Recorded By	JEFF LUEBBERS
Witnessed By	DAVE BARKER

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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**

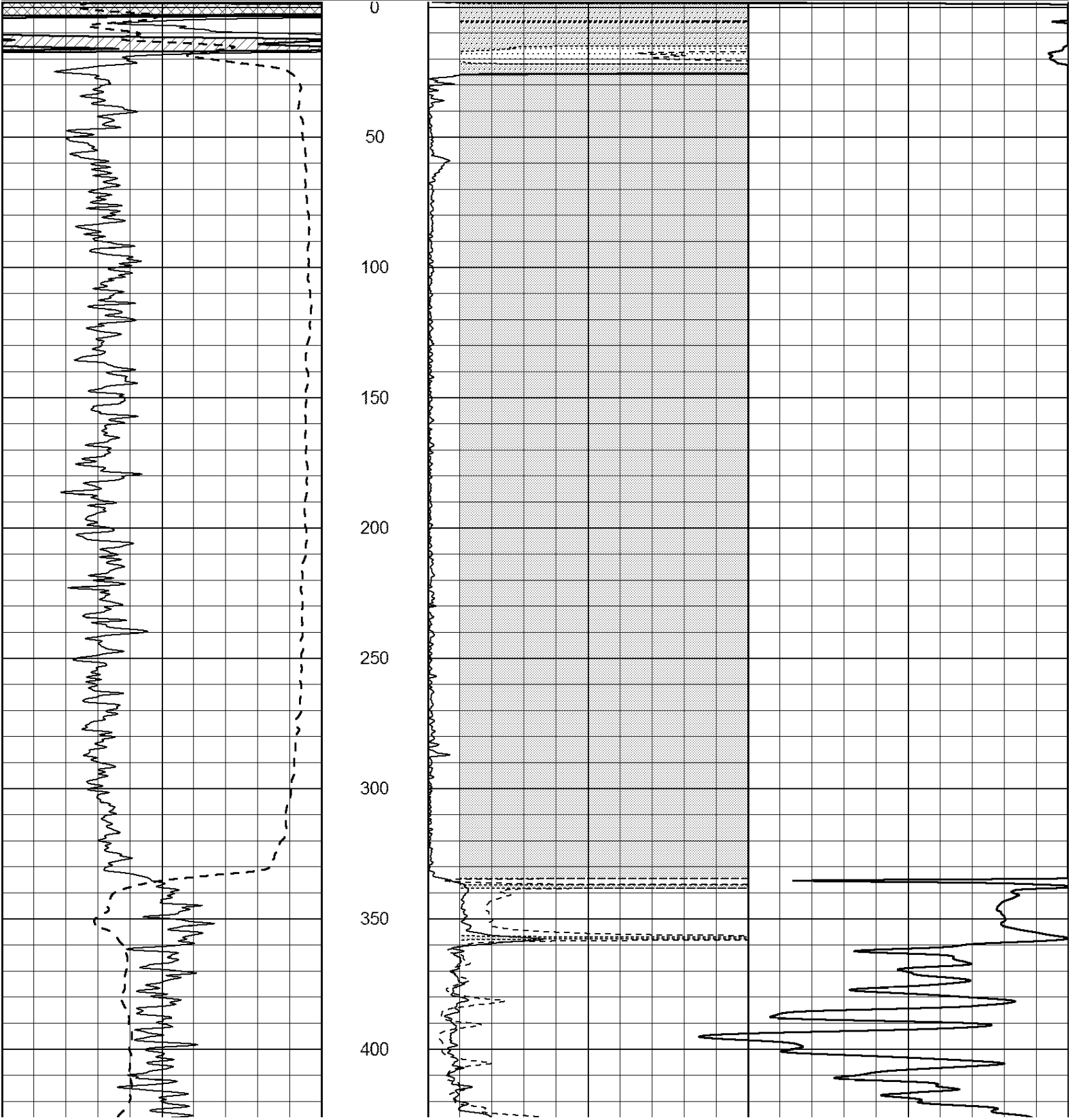
THANK YOU FOR USING "NABORS" HAYS, KS.(785) 628-6395  
DIRECTIONS  
KIOWA, KS. 1/2 W. ON HWY 2, @CURVE, 1S. ON "BARE RD.", W. INTO

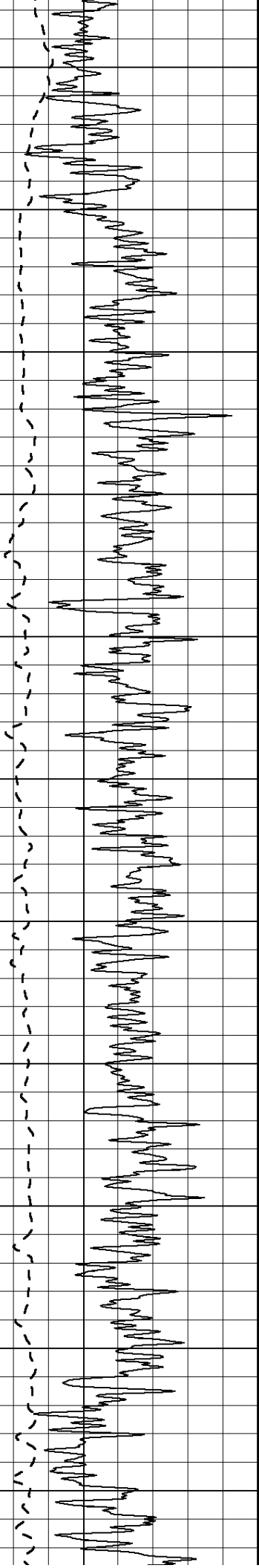


**MAIN SECTION**

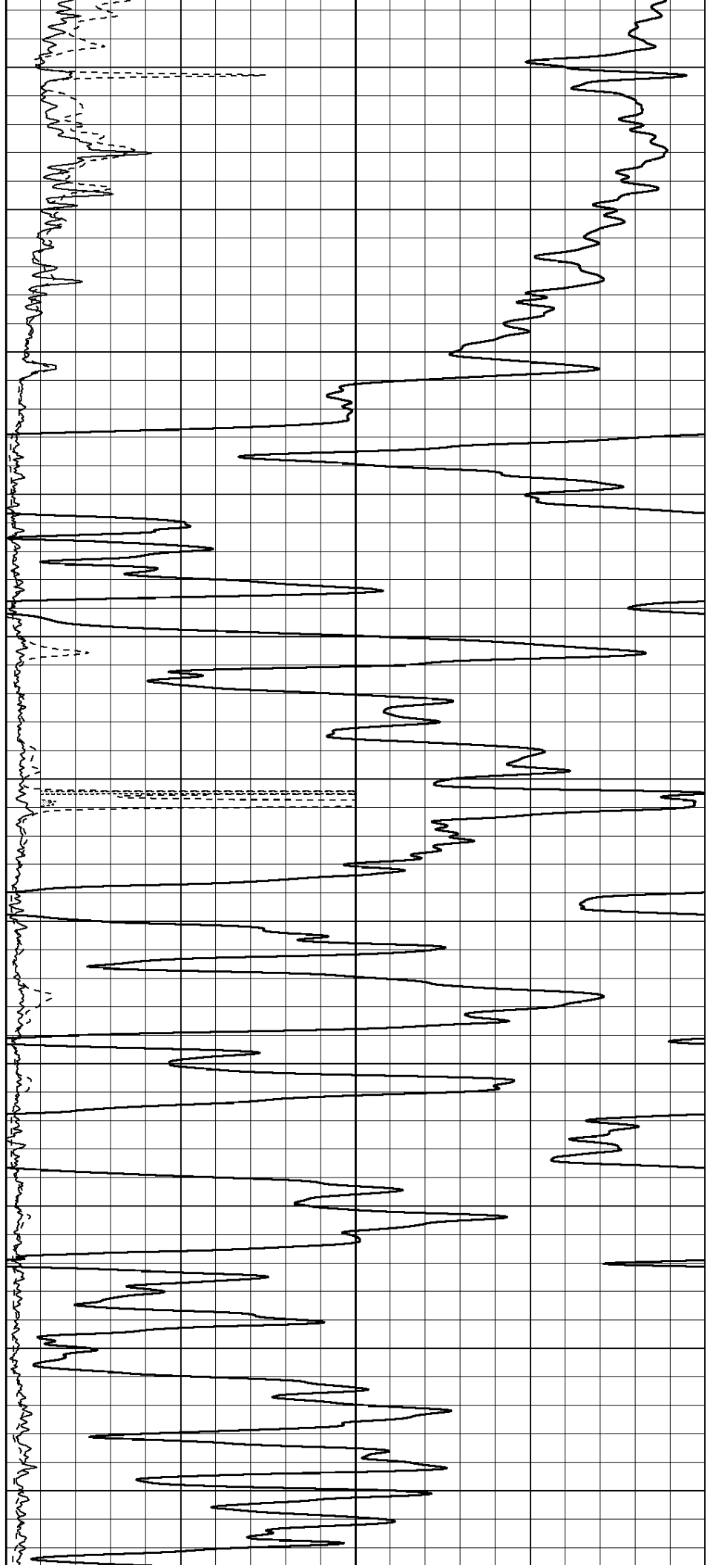
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 Dataset Pathname: pass3.8  
 Presentation Format: dil2  
 Dataset Creation: Mon Oct 22 00:38:56 2012  
 Charted by: Depth in Feet scaled 1:600

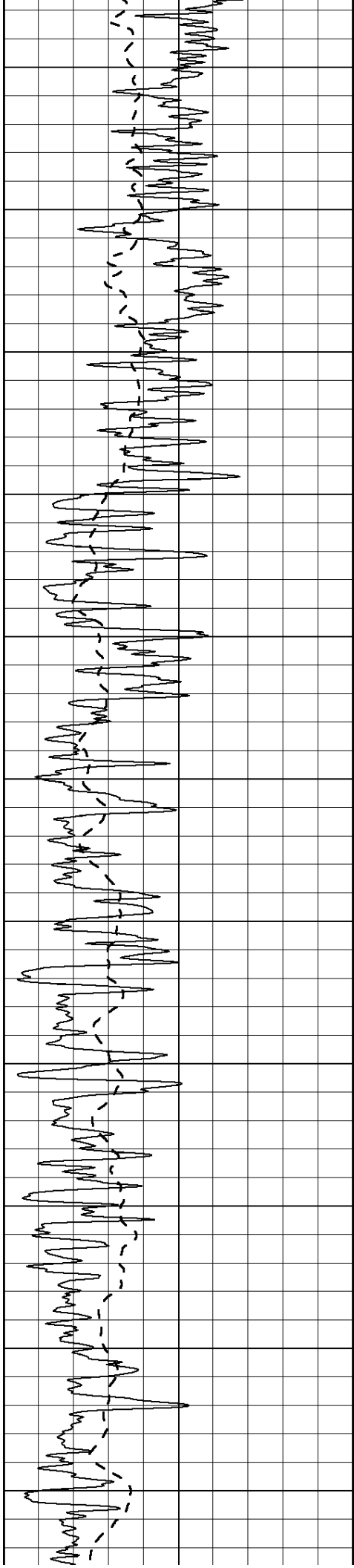
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-100	SP (mV)	100	0	RILD (Ohm-m)	50
-----			1000	CILD (mmho/m)	0
			50	RILD X10 (Ohm-m)	500
			50	RLL3 X10 (Ohm-m)	500



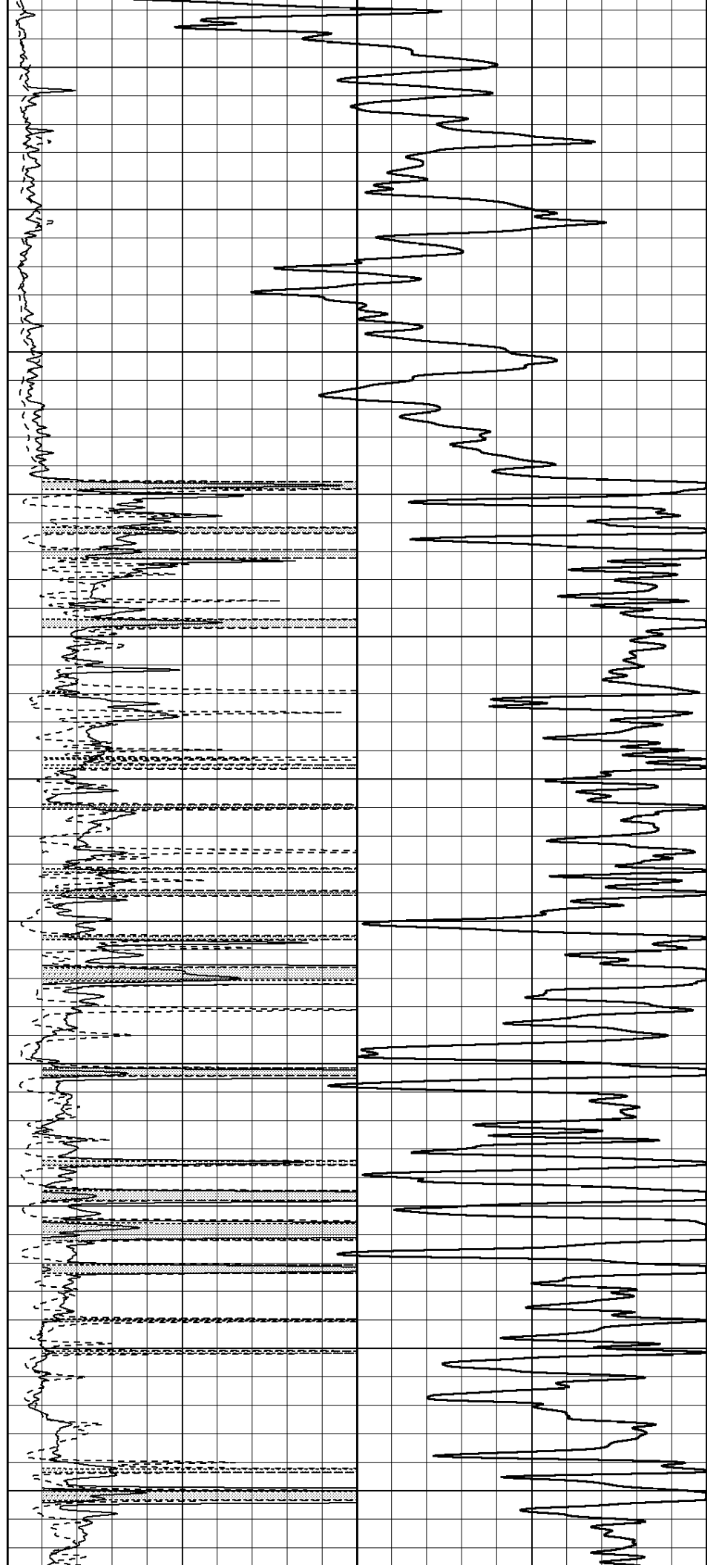


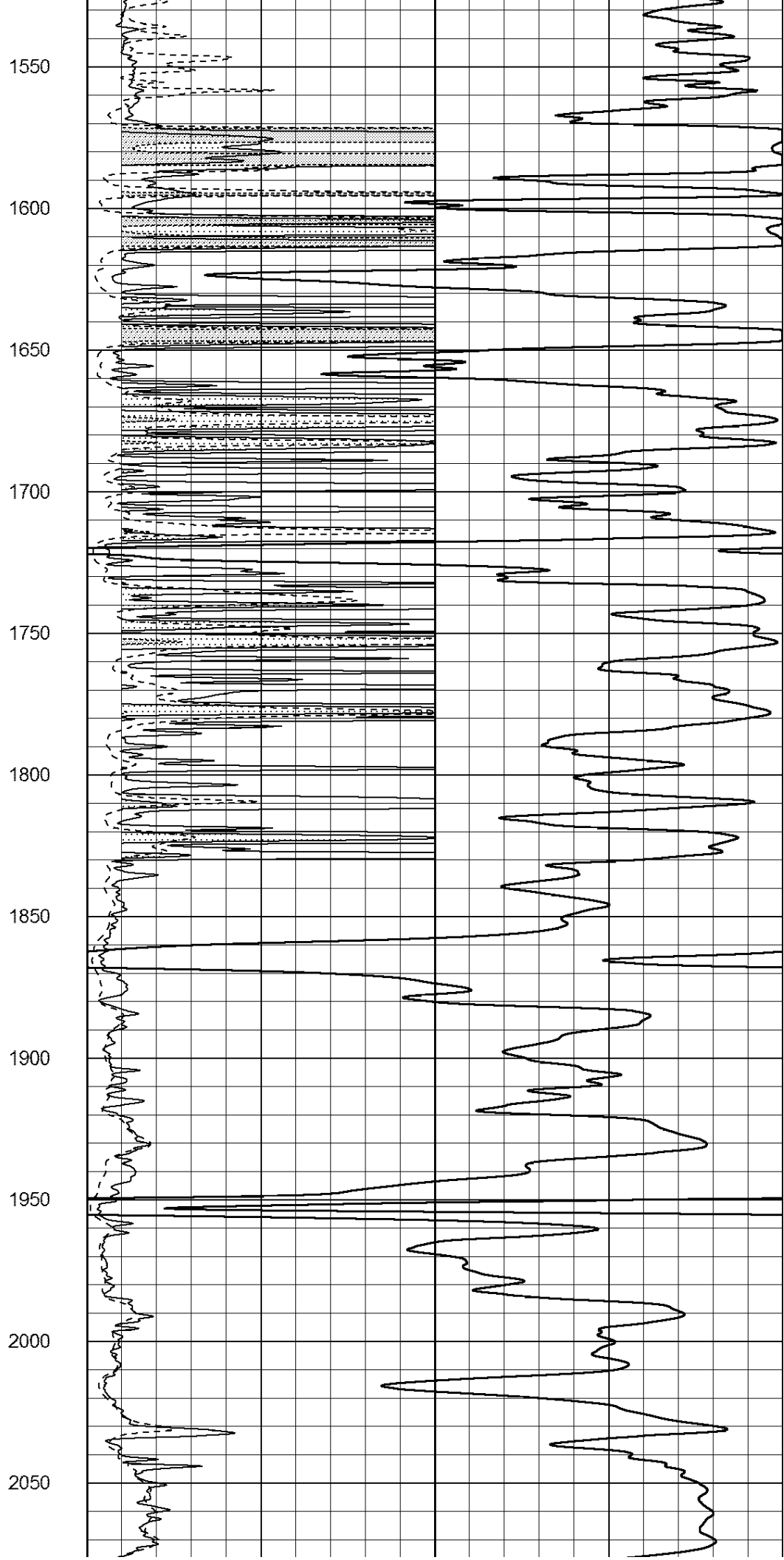
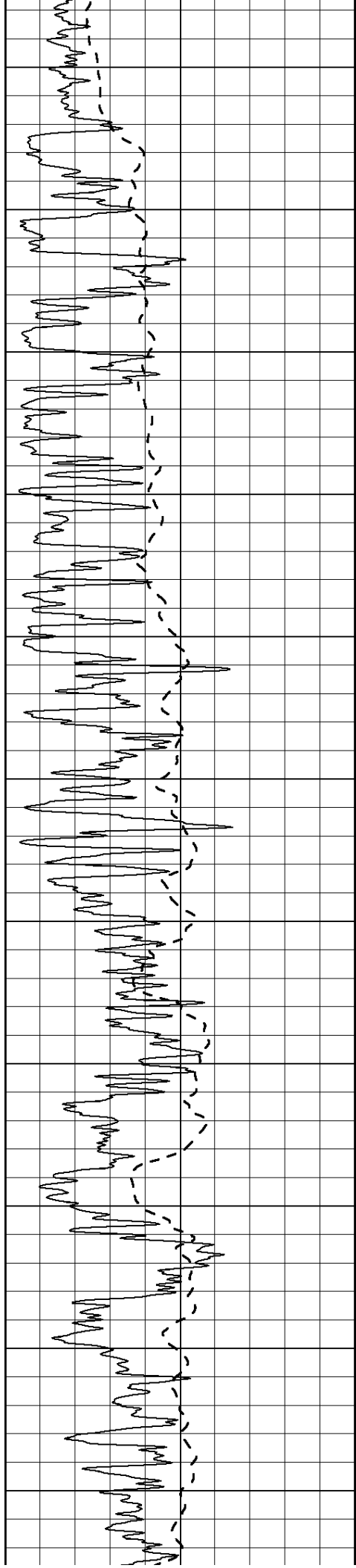
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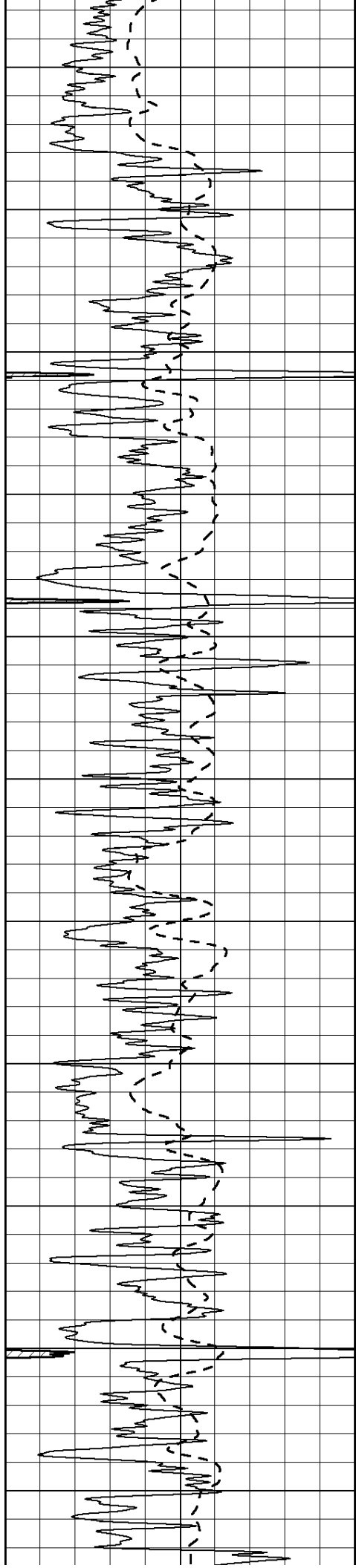




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1100  
1150  
1200  
1250  
1300  
1350  
1400  
1450  
1500







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2150

2200

2250

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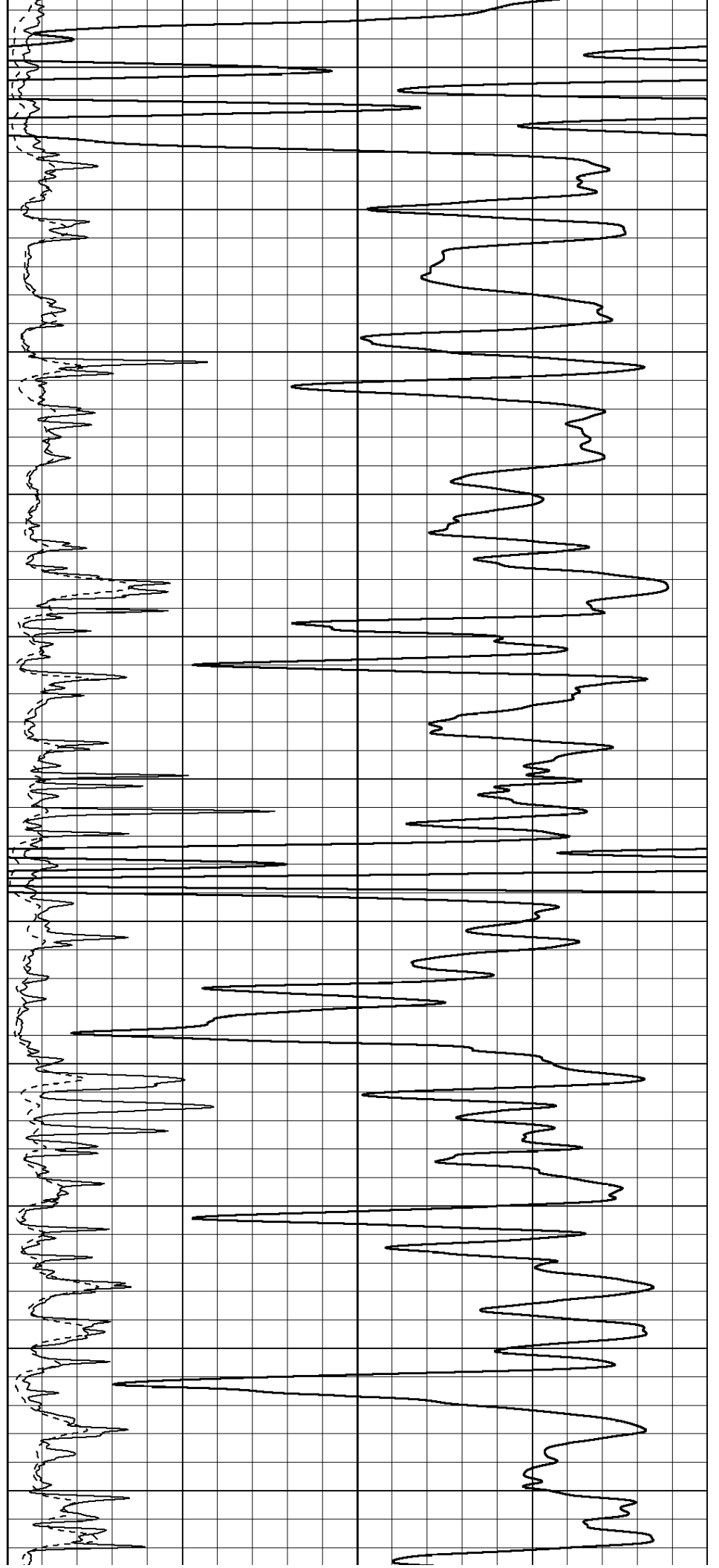
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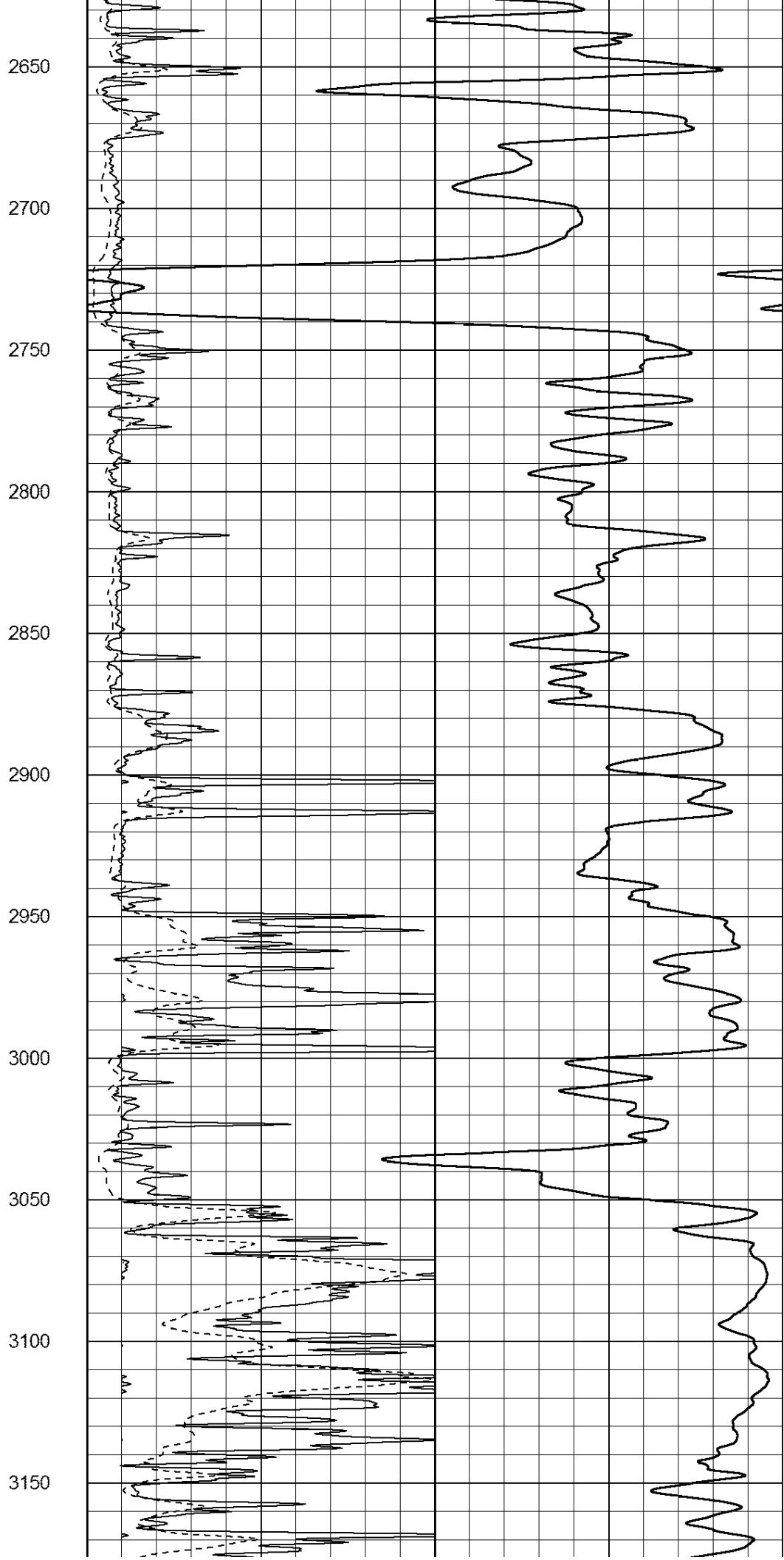
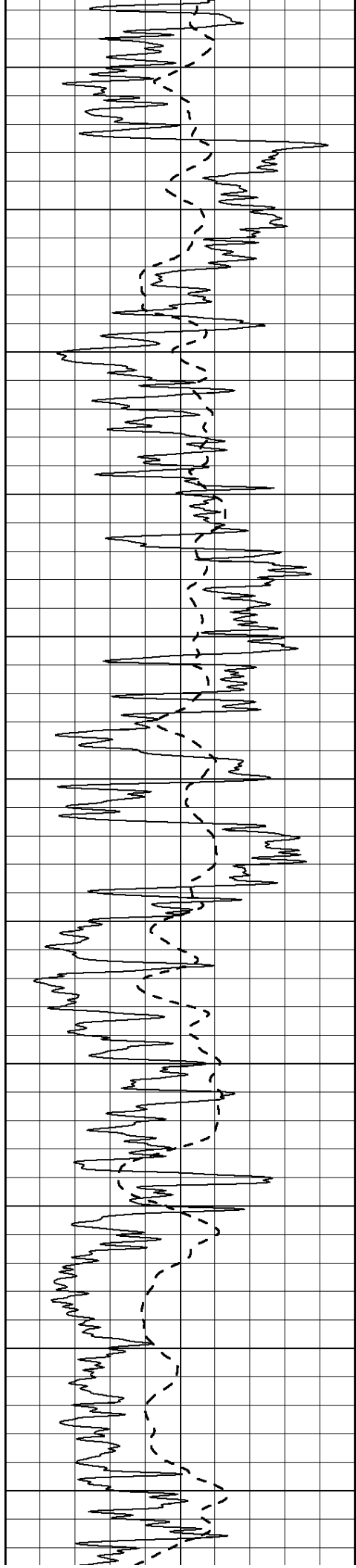
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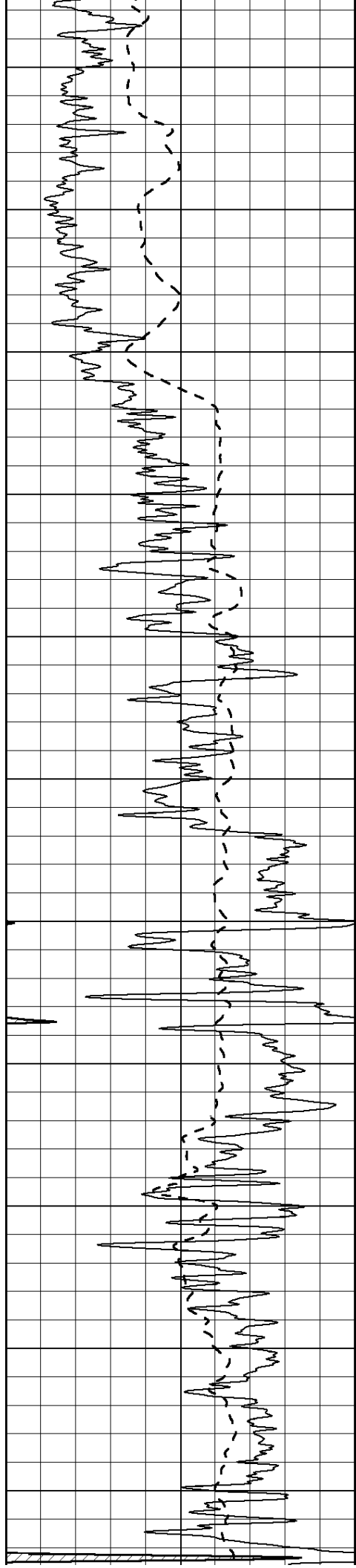
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2600







3200

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3300

3350

3400

3450

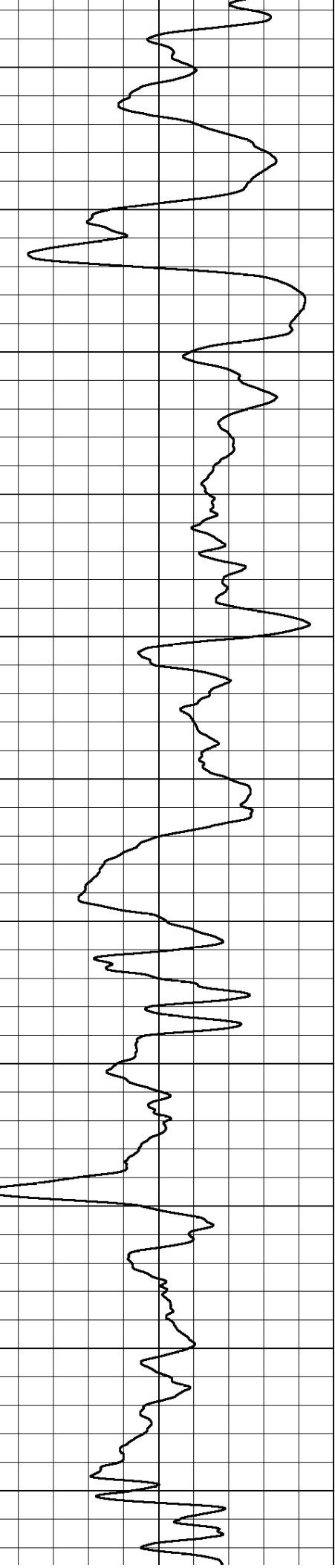
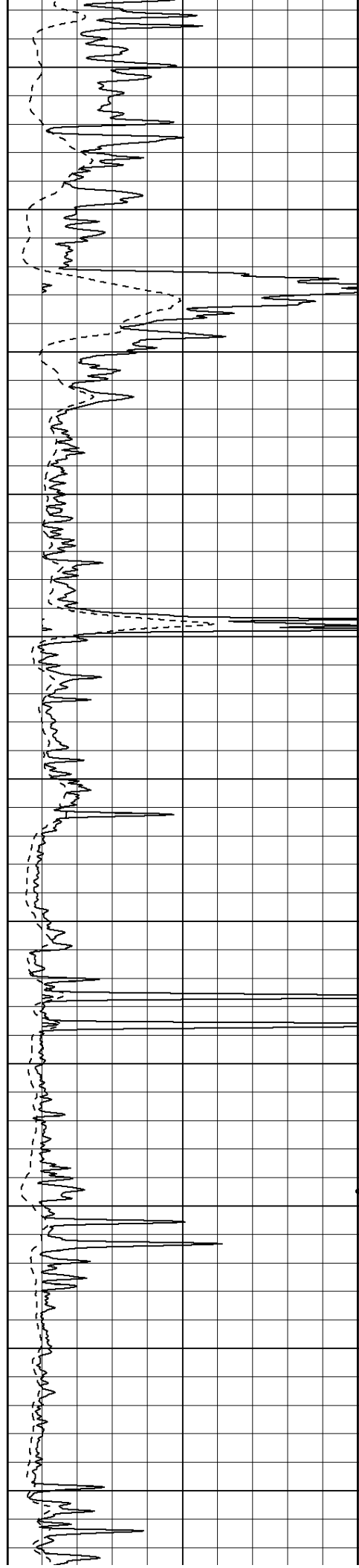
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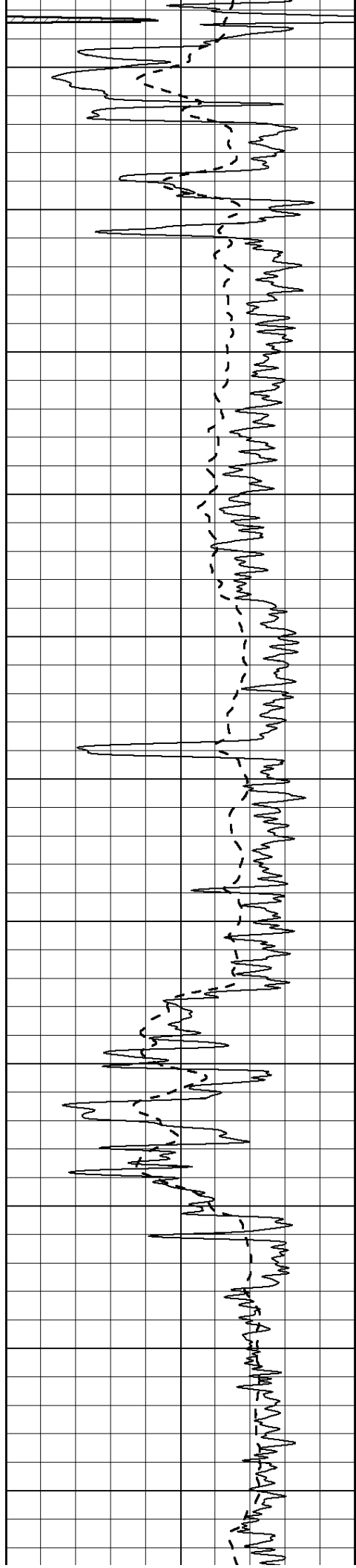
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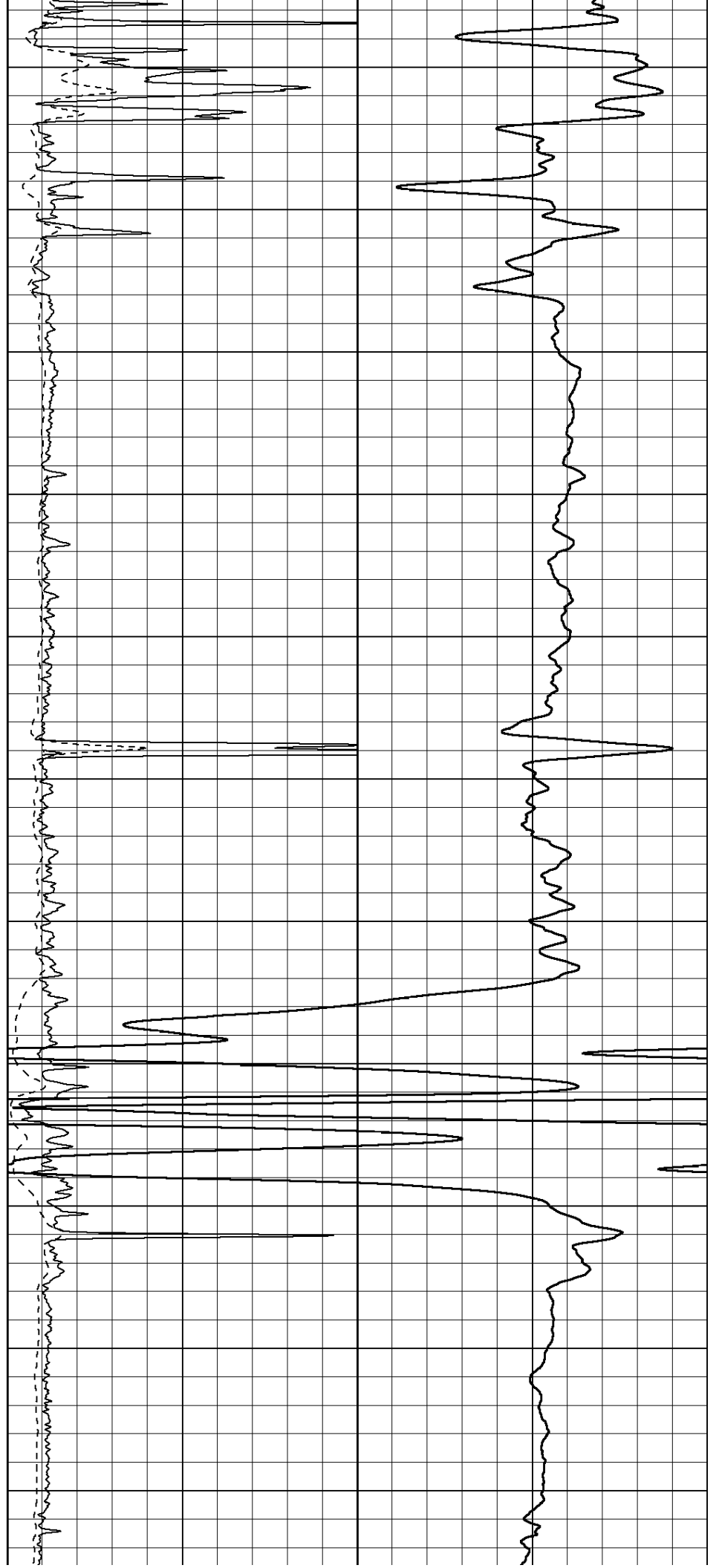
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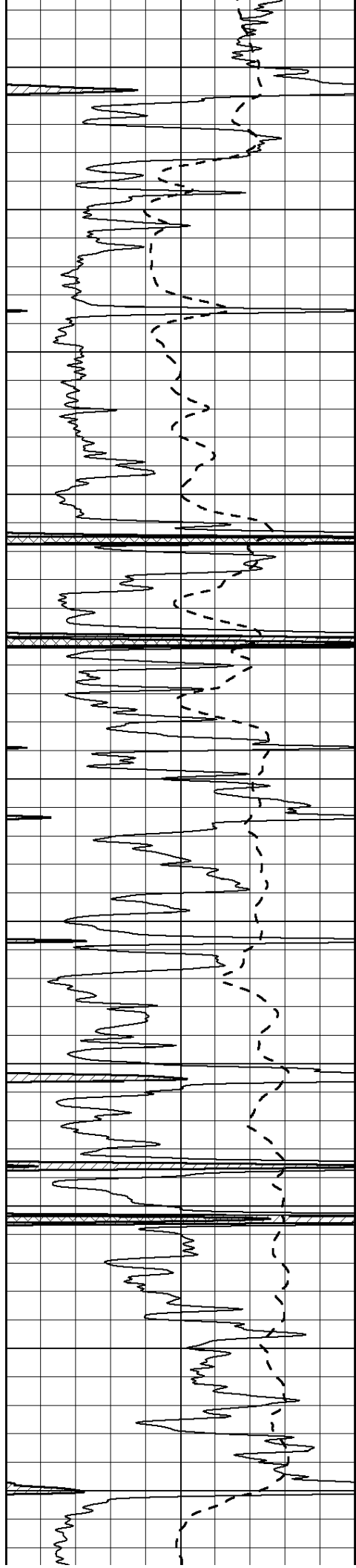
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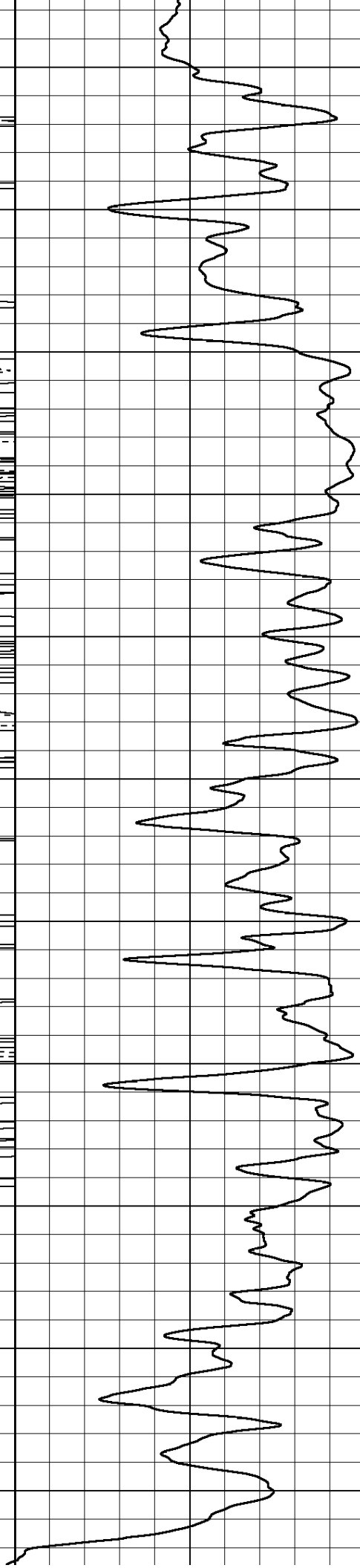
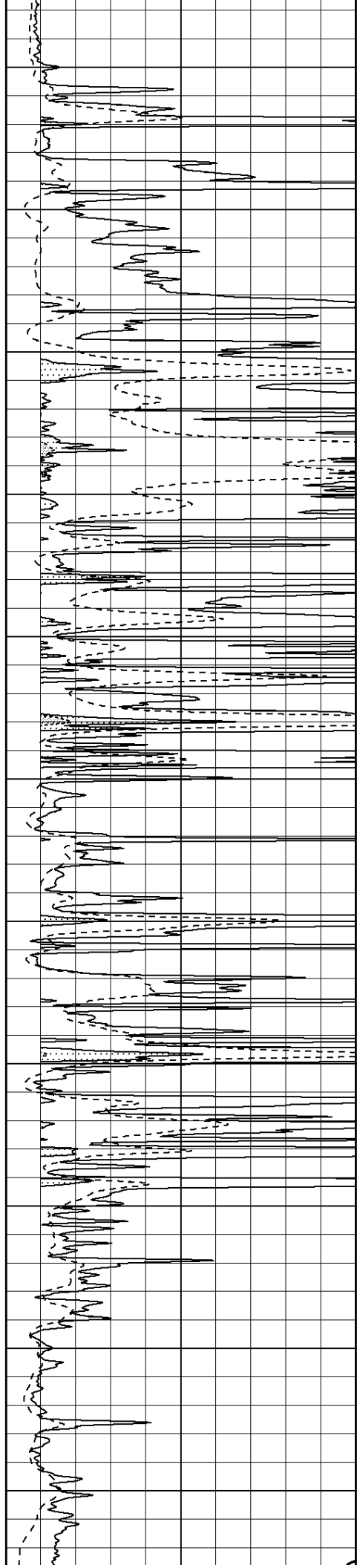
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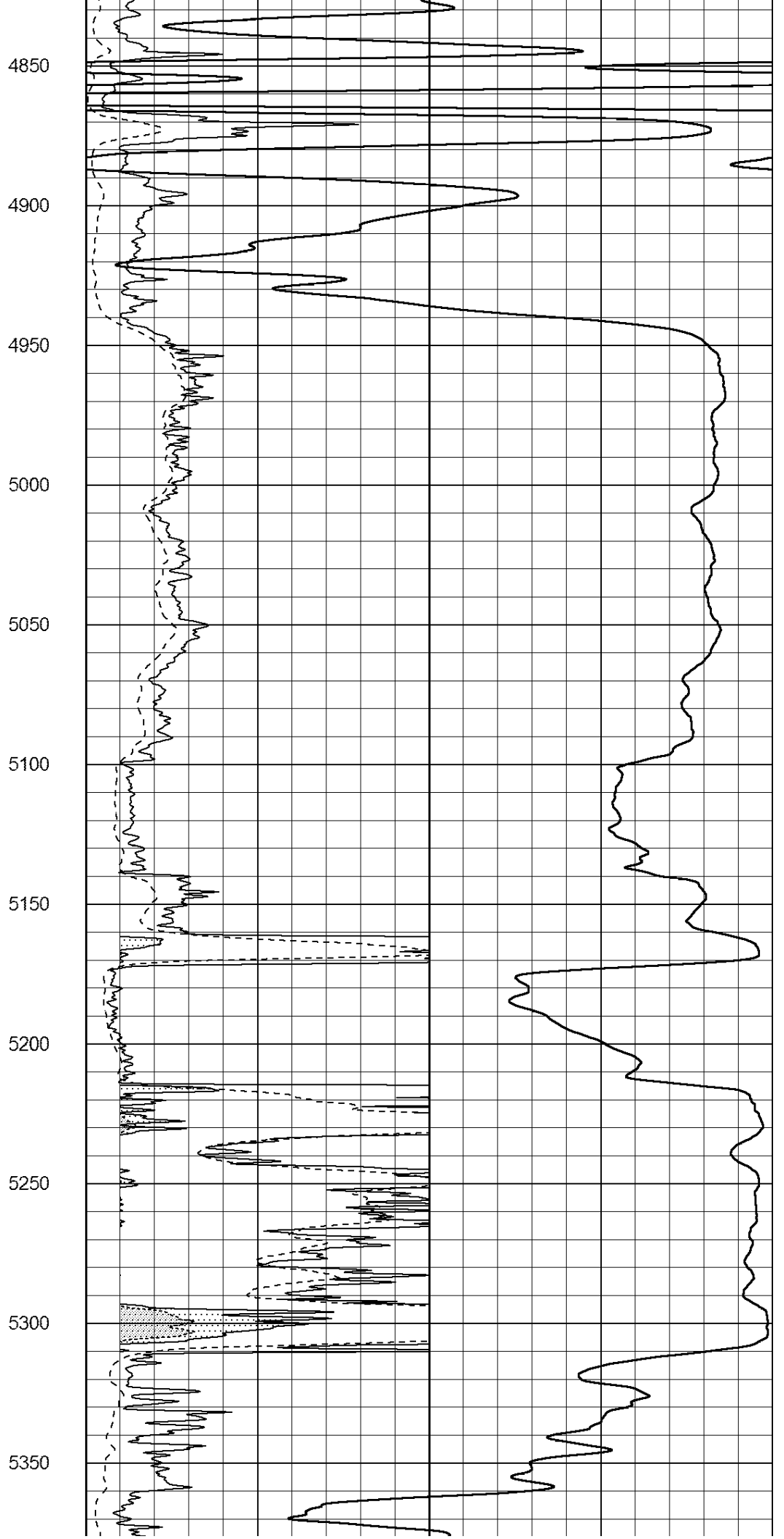
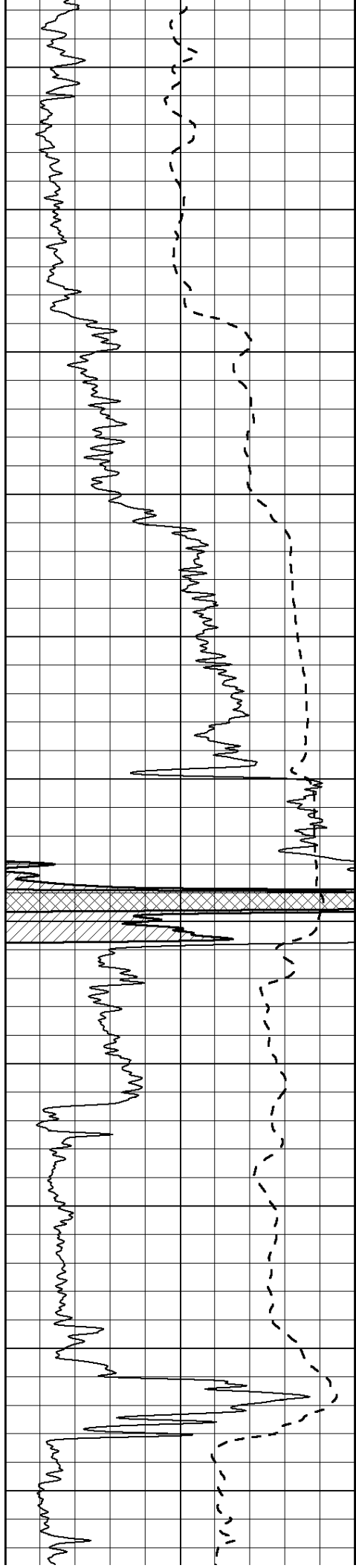
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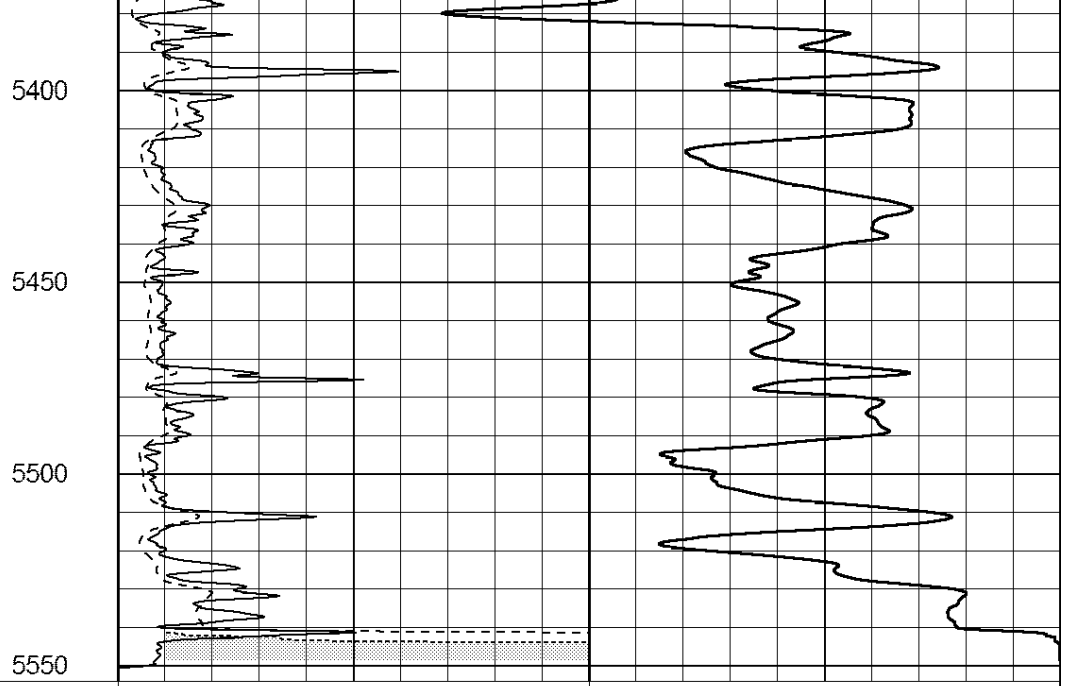
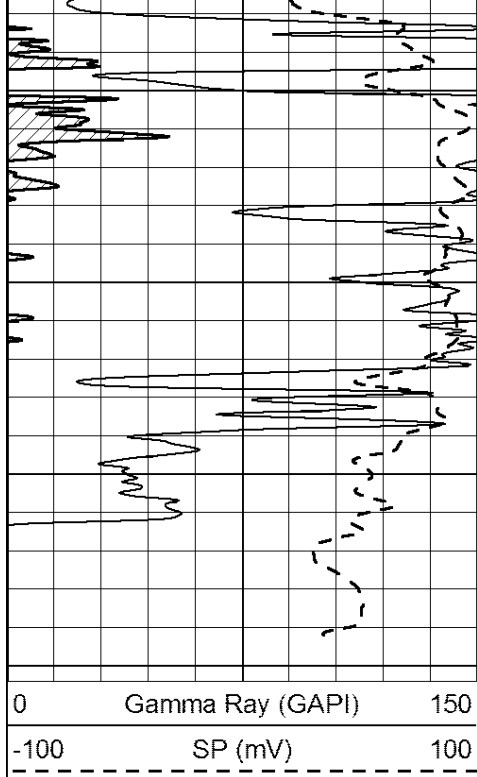
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4750

4800







0      Gamma Ray (GAPI)      150  
 -100      SP (mV)      100

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

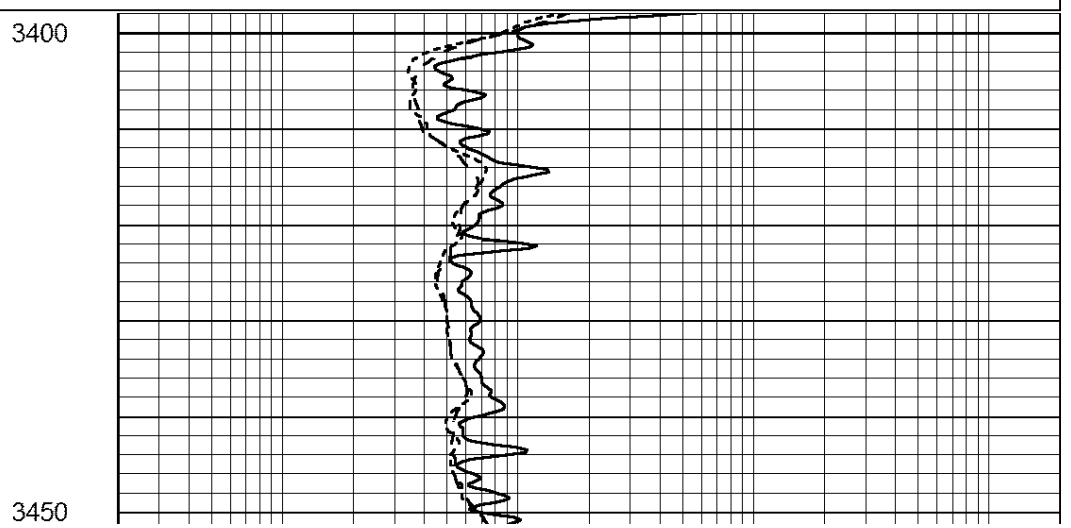
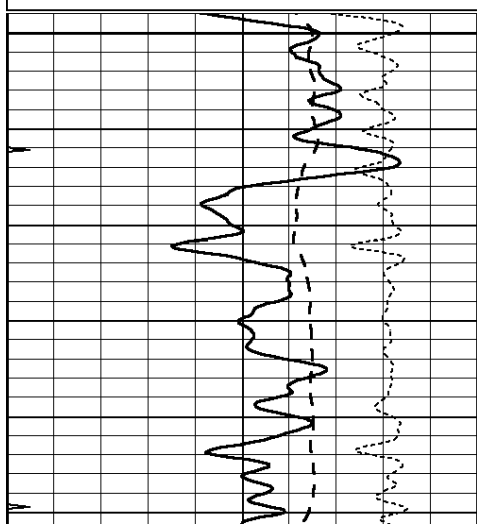
**NABORS**  
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# MAIN SECTION

Database File: 409698pe.db  
 Dataset Pathname: pass3.8  
 Presentation Format: dil  
 Dataset Creation: Mon Oct 22 00:38:56 2012  
 Charted by: Depth in Feet scaled 1:240

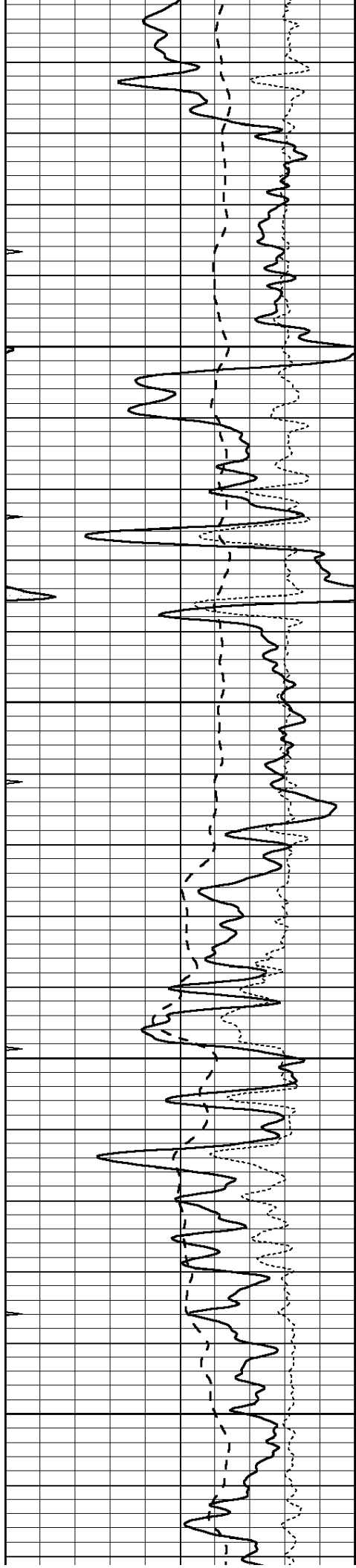
0      GAMMA RAY (GAPI)      150  
 -100      SP (mV)      100  
 -250      Rxo/Rt      50  
 0      MINMK      20

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



3400

3450

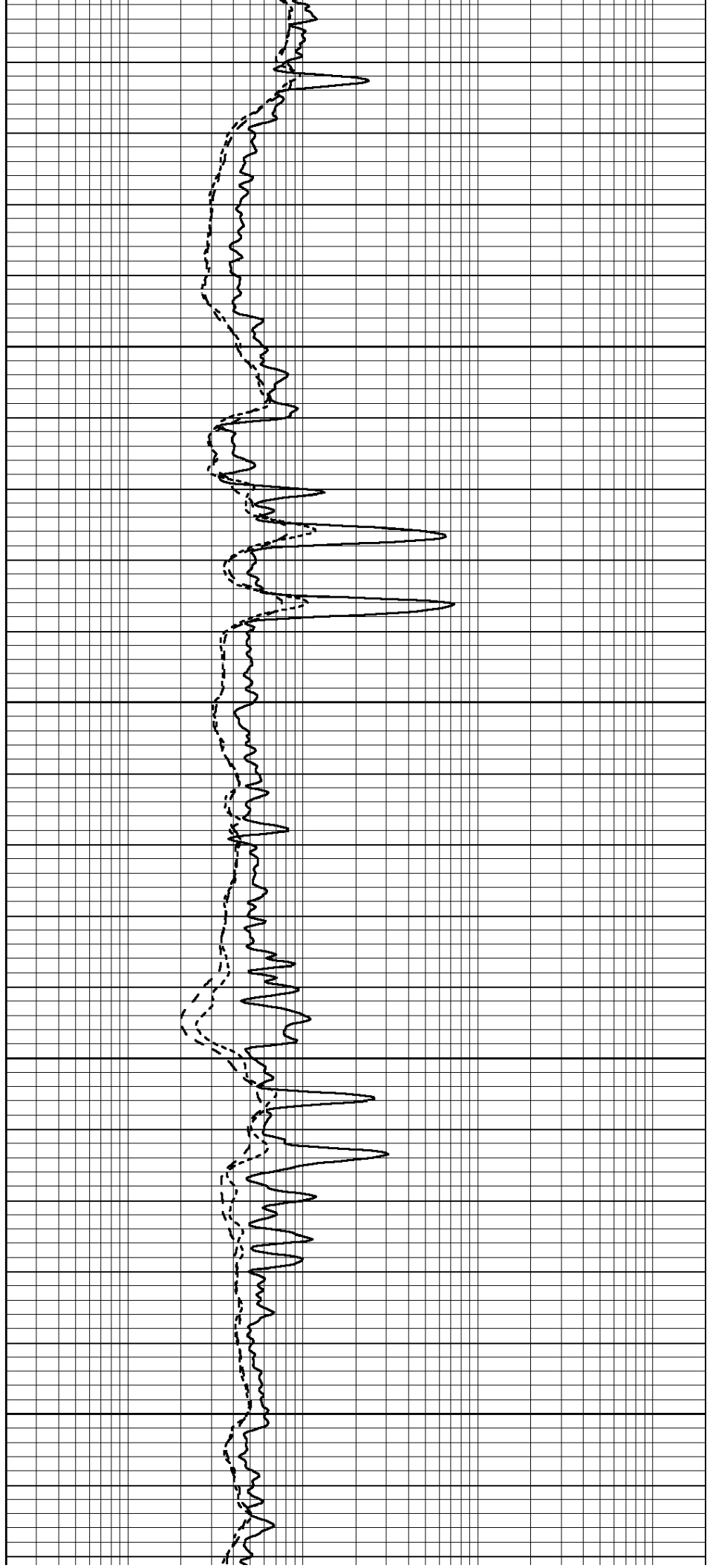


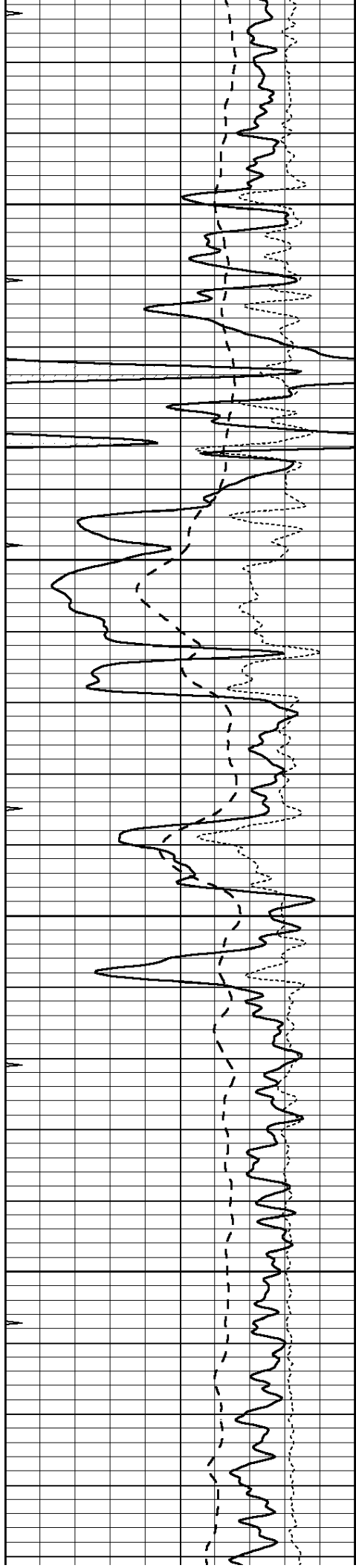
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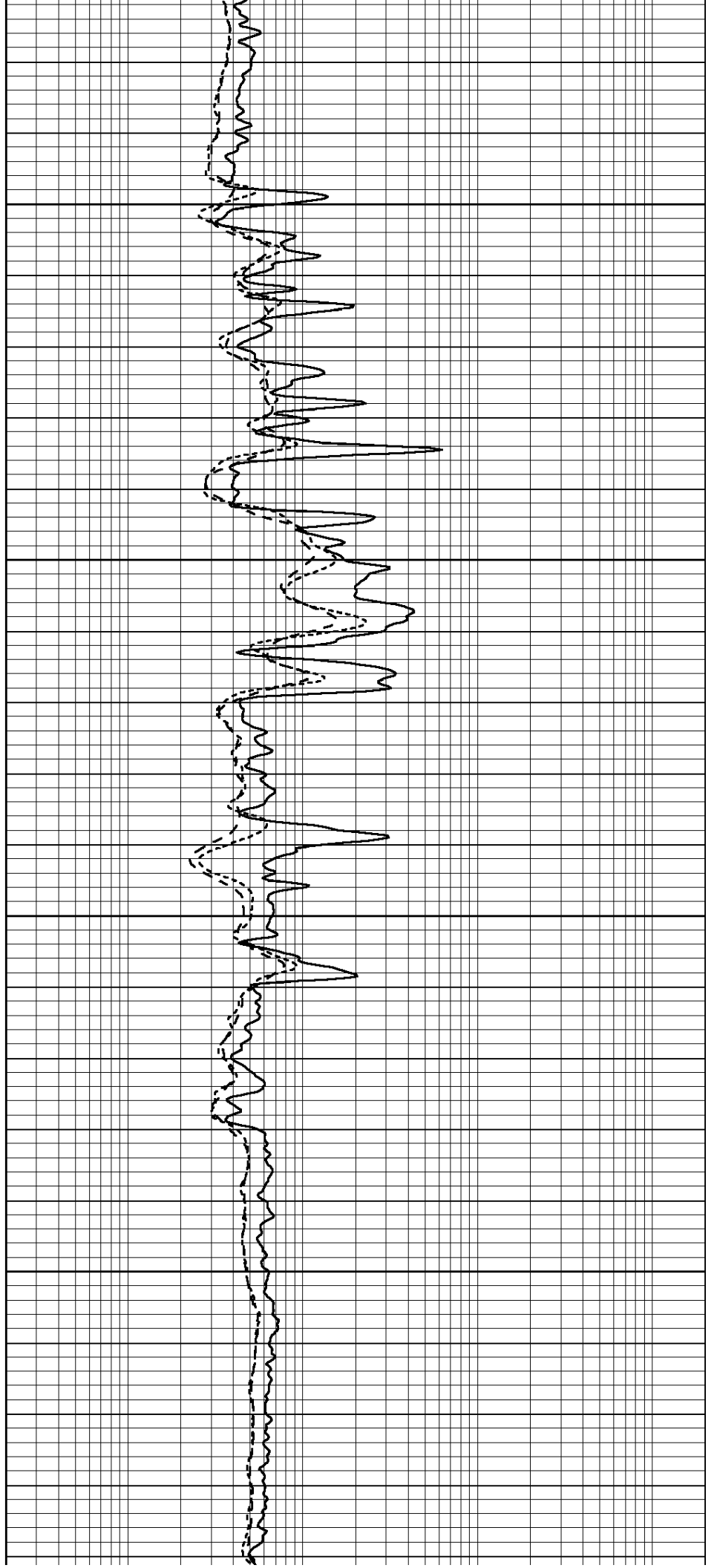


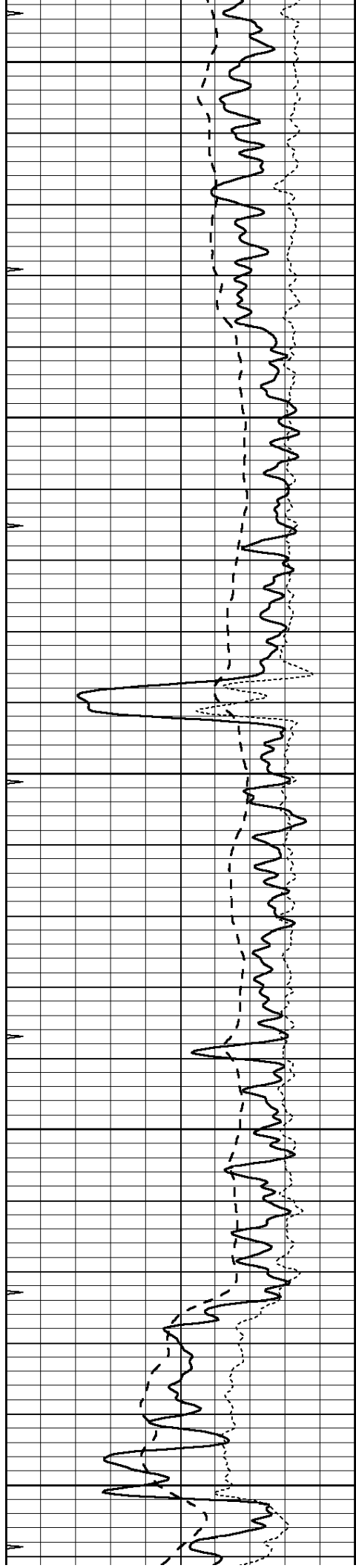
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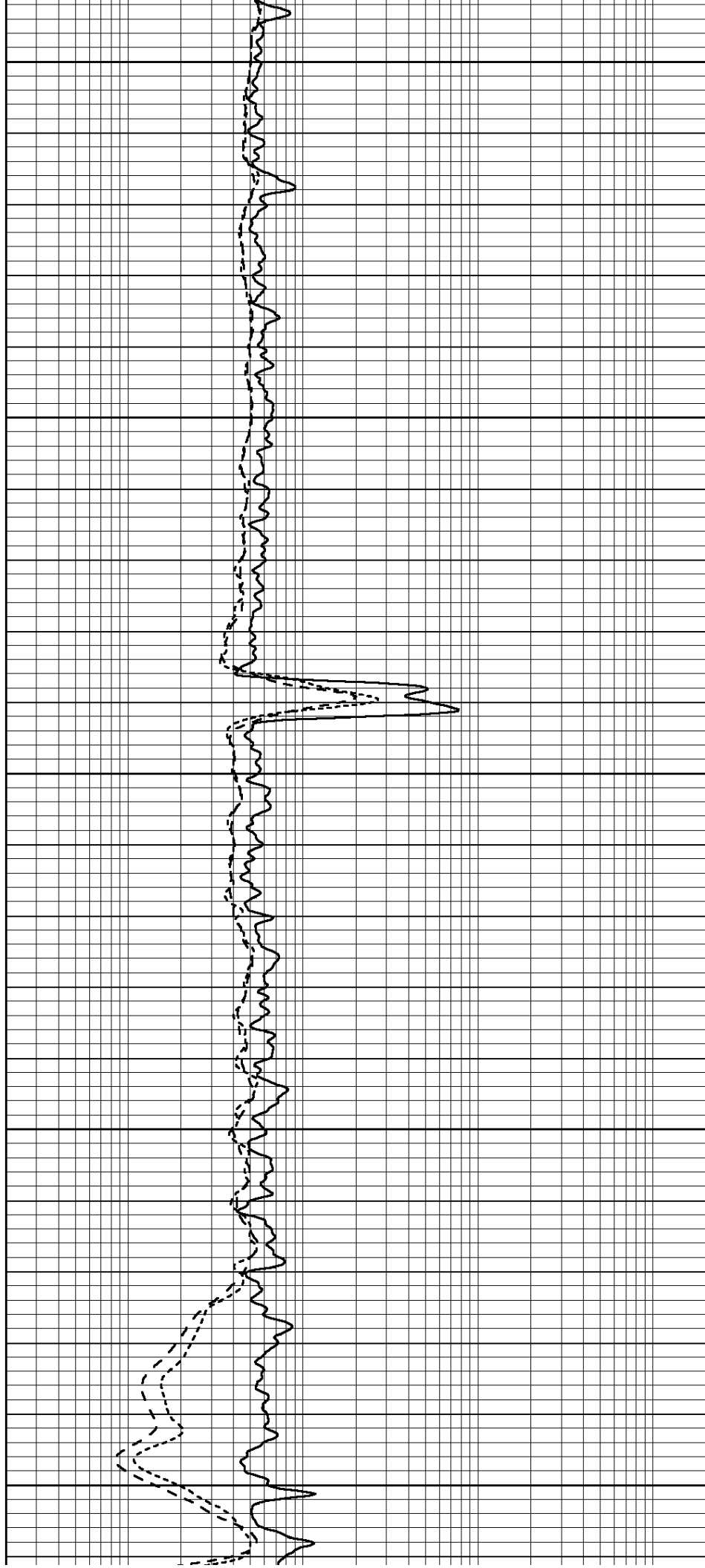
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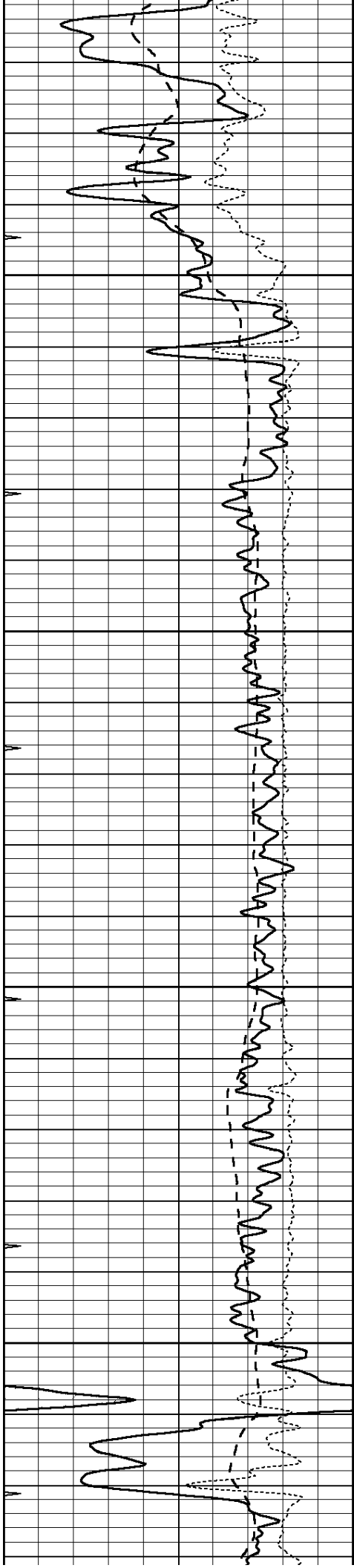
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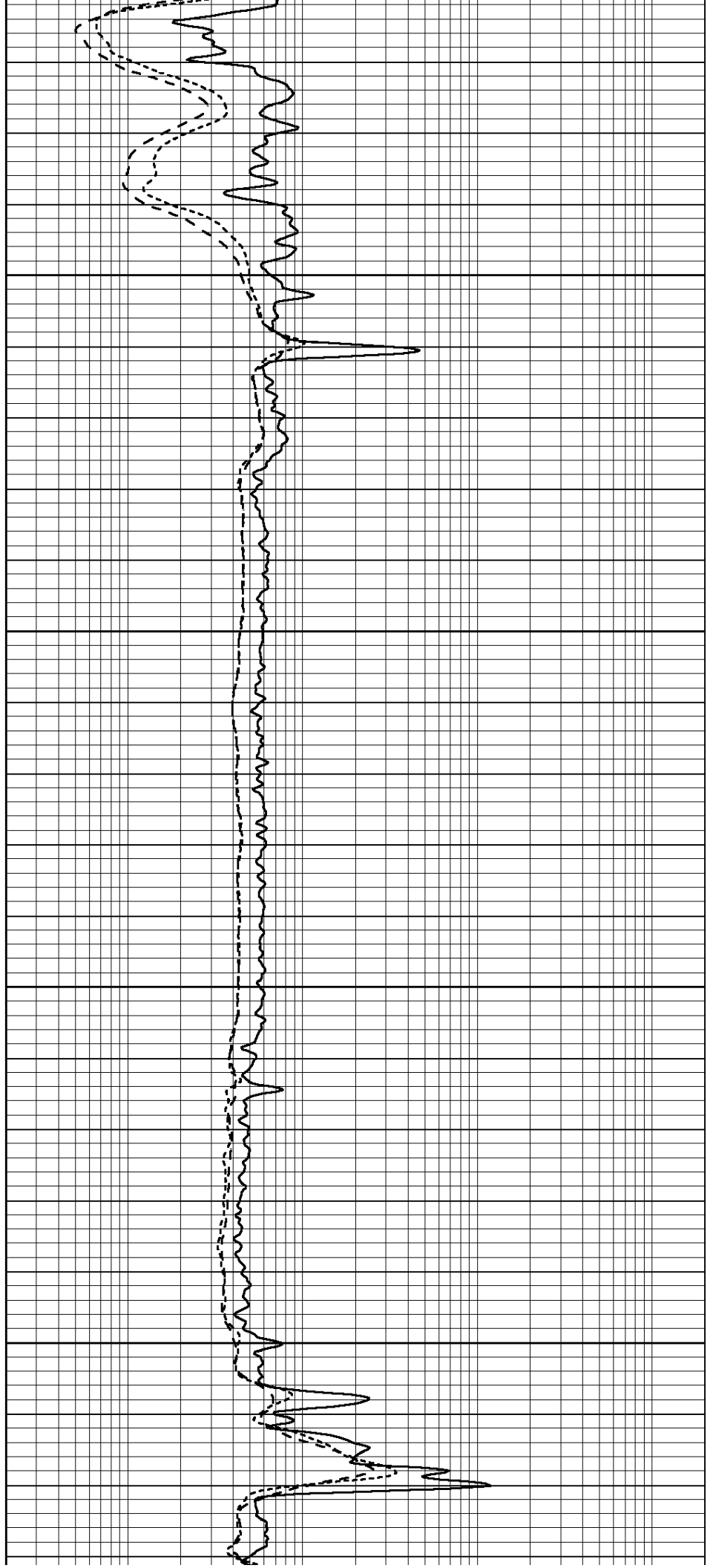


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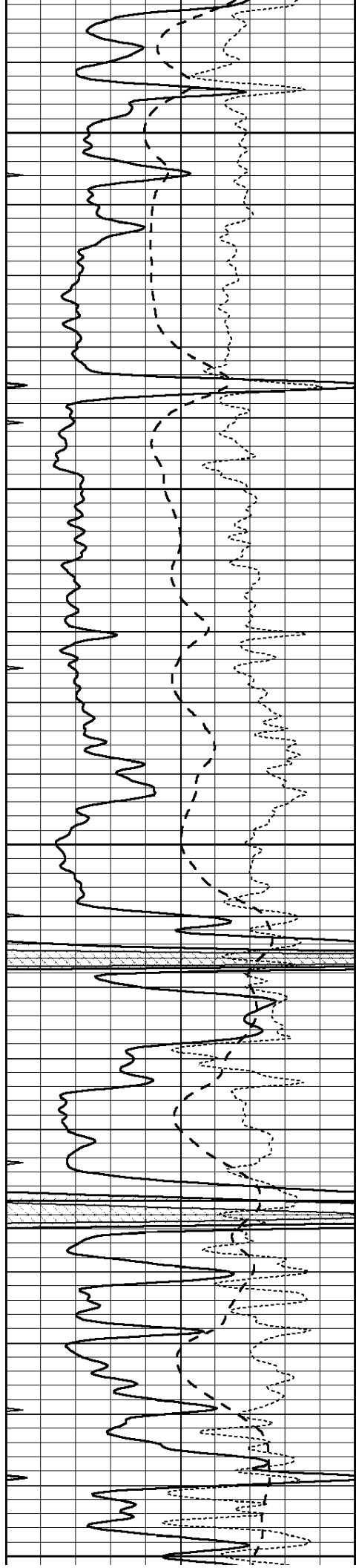
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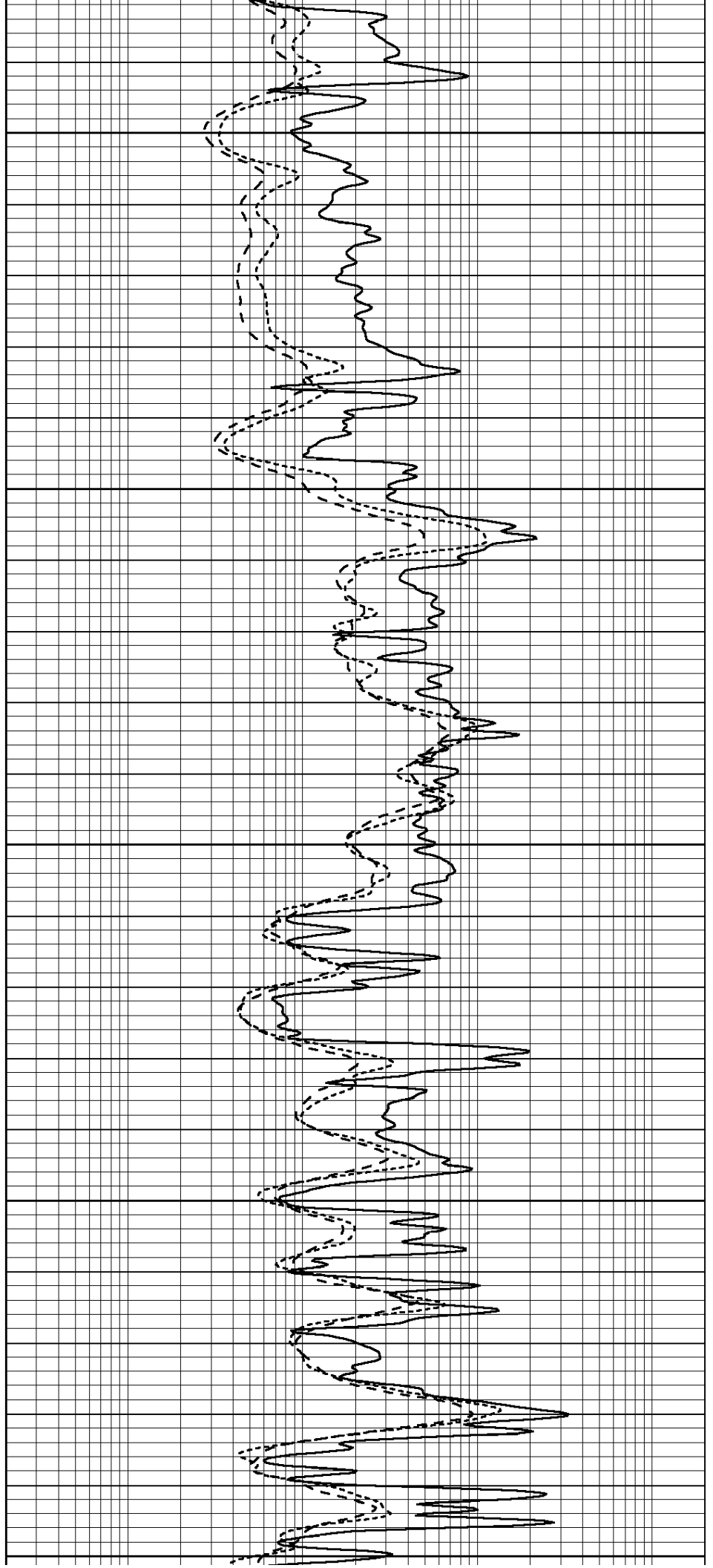
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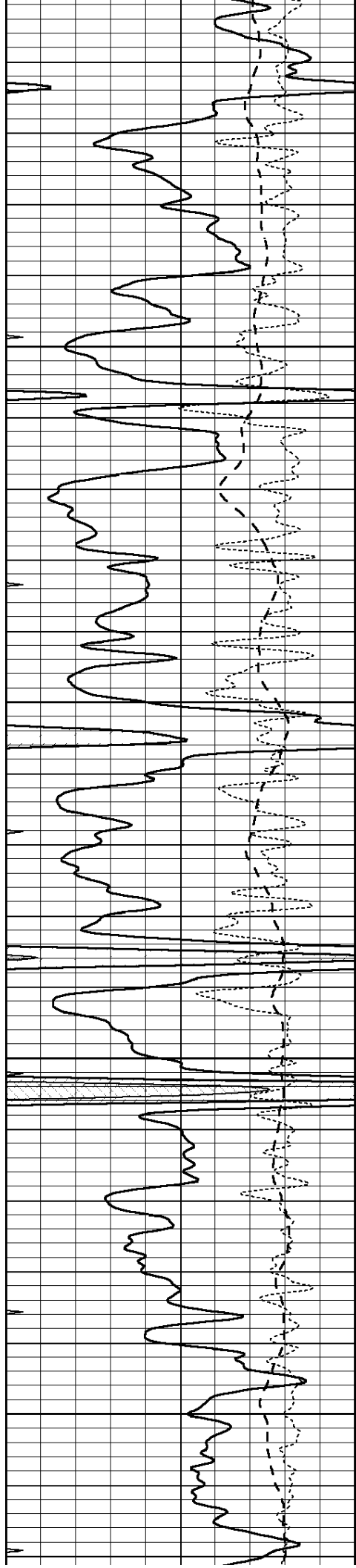
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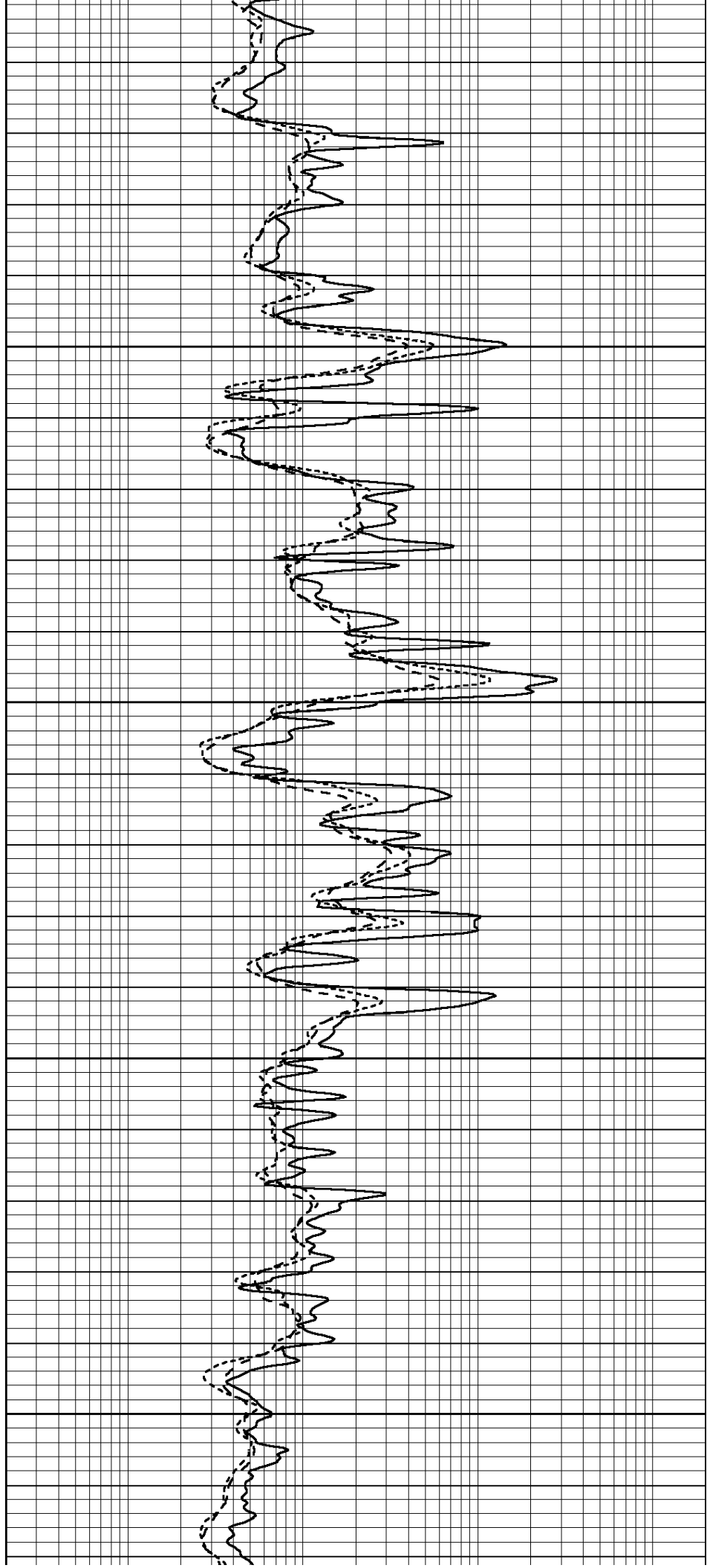


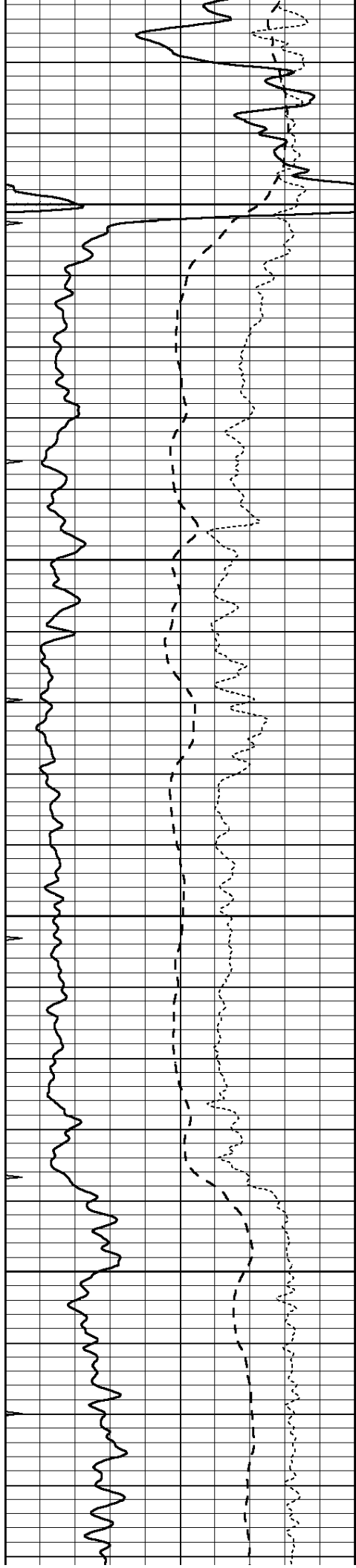
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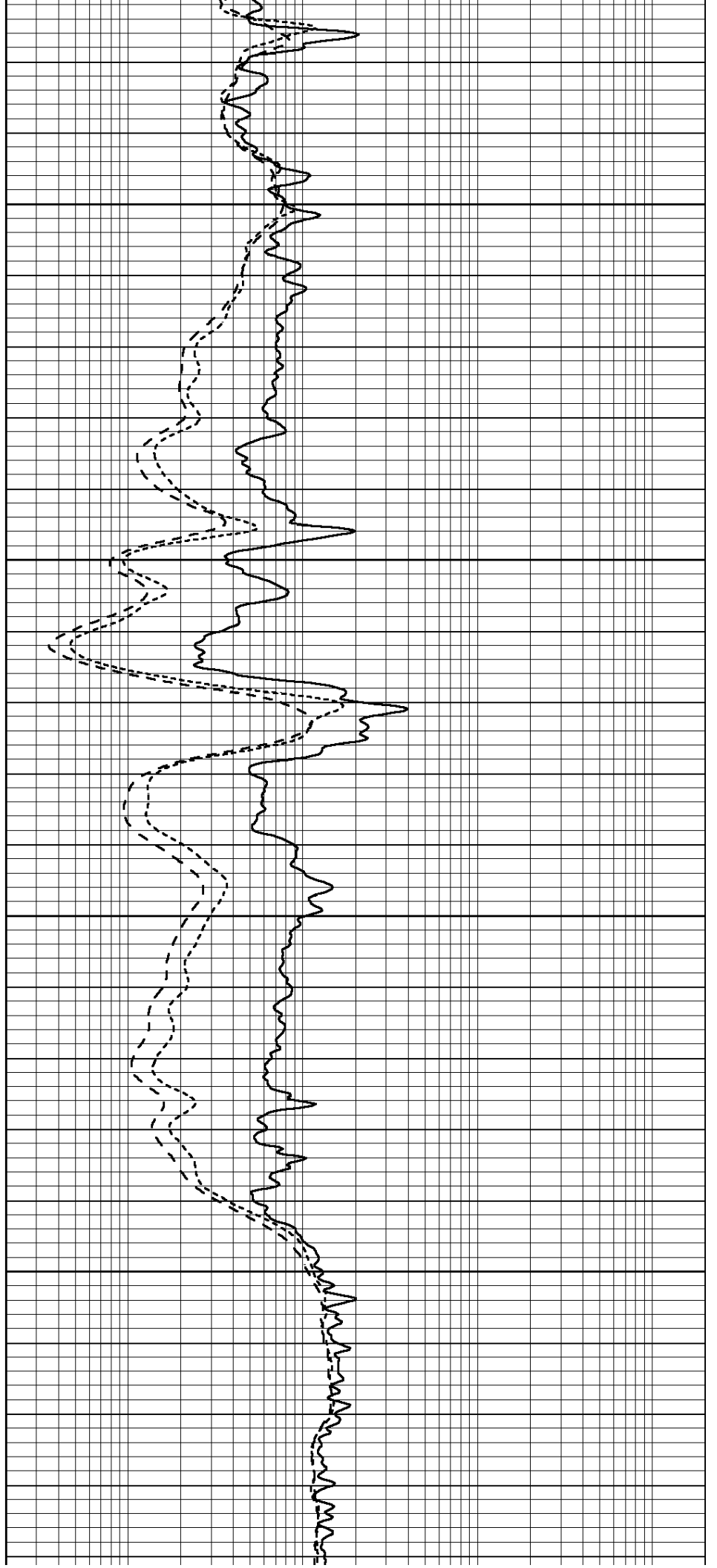


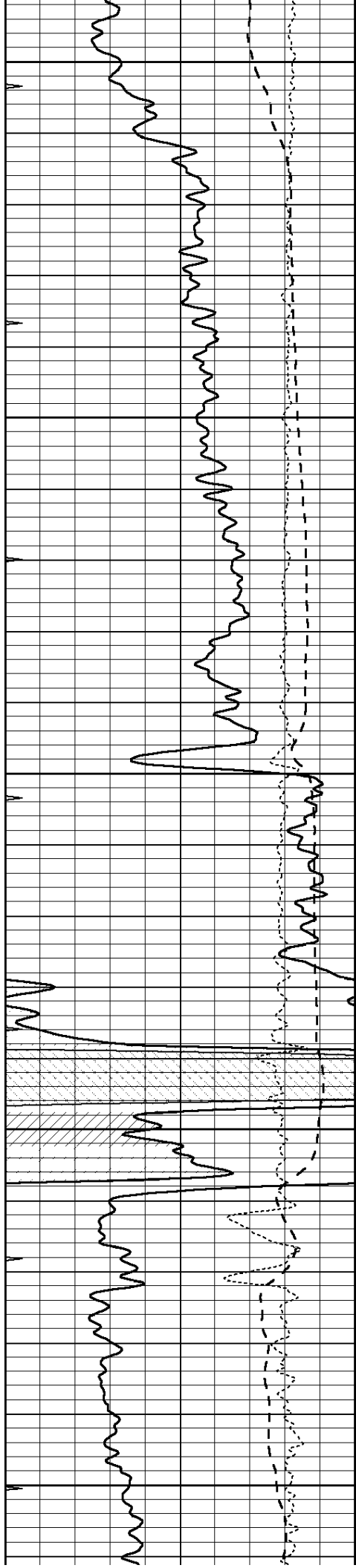
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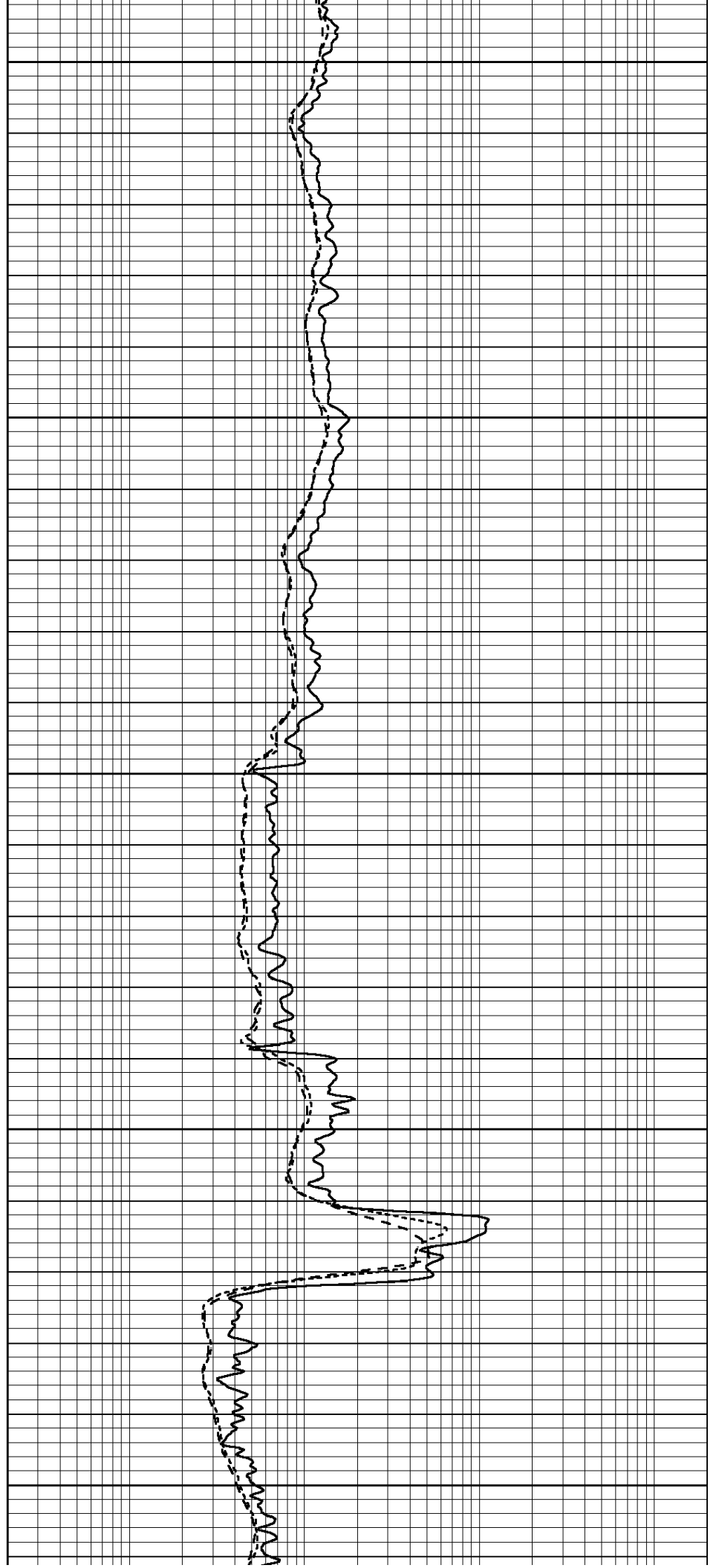
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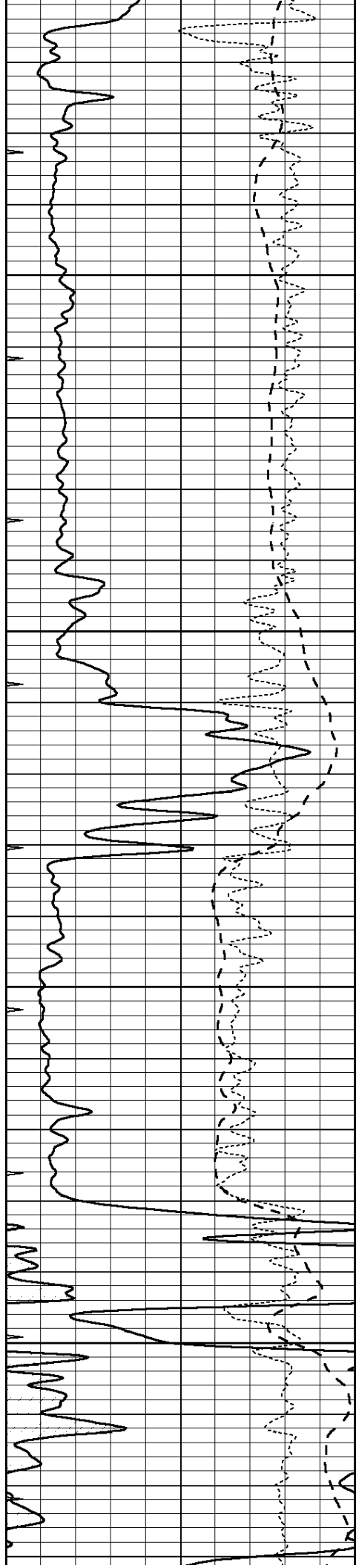
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5200



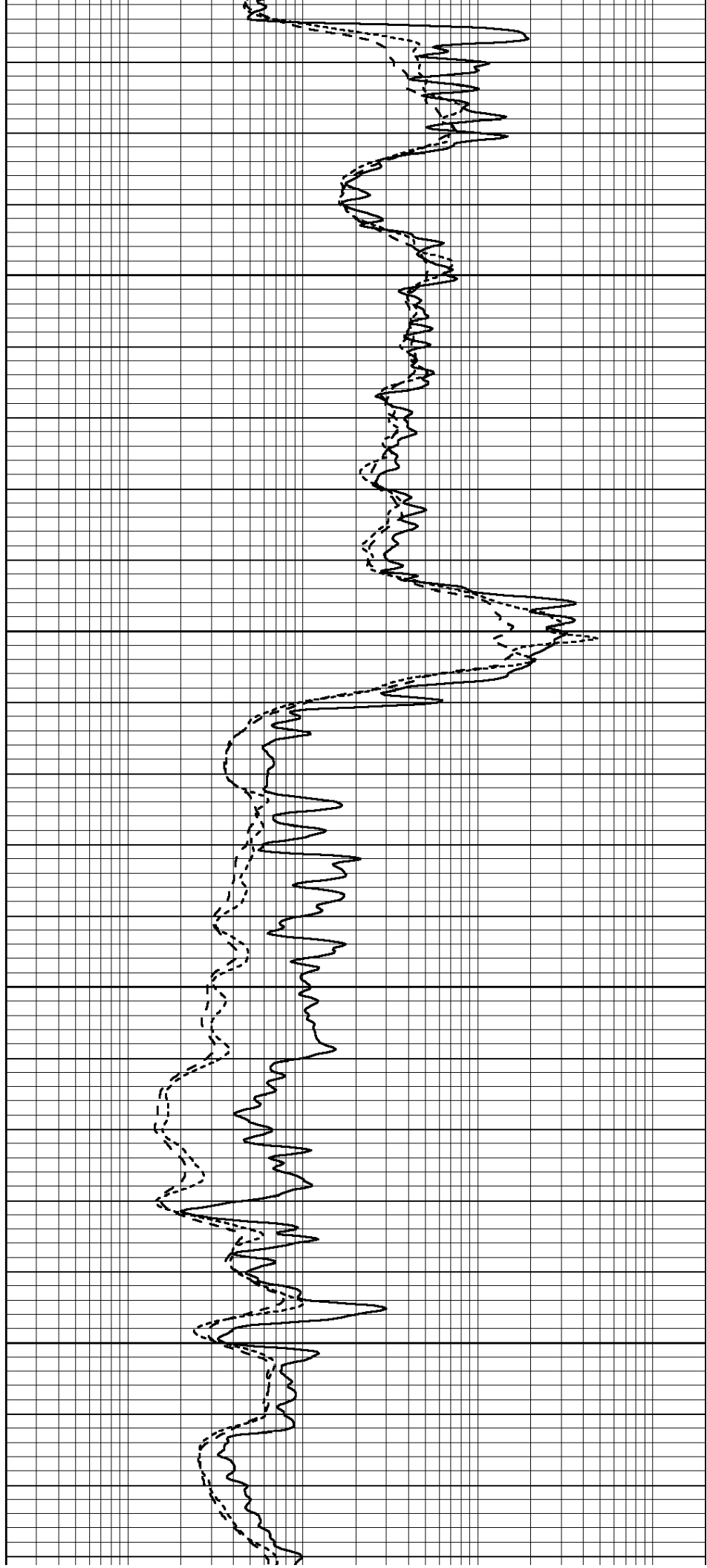


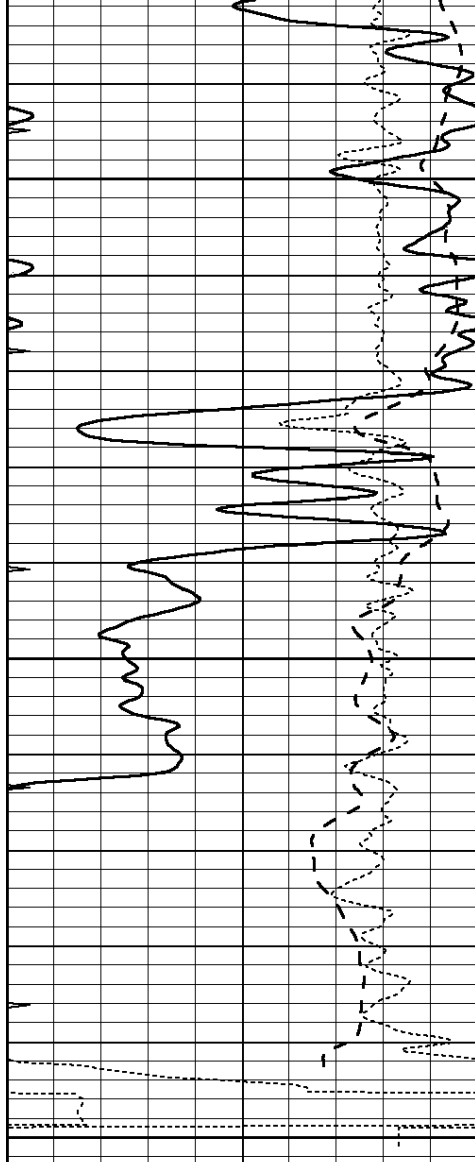
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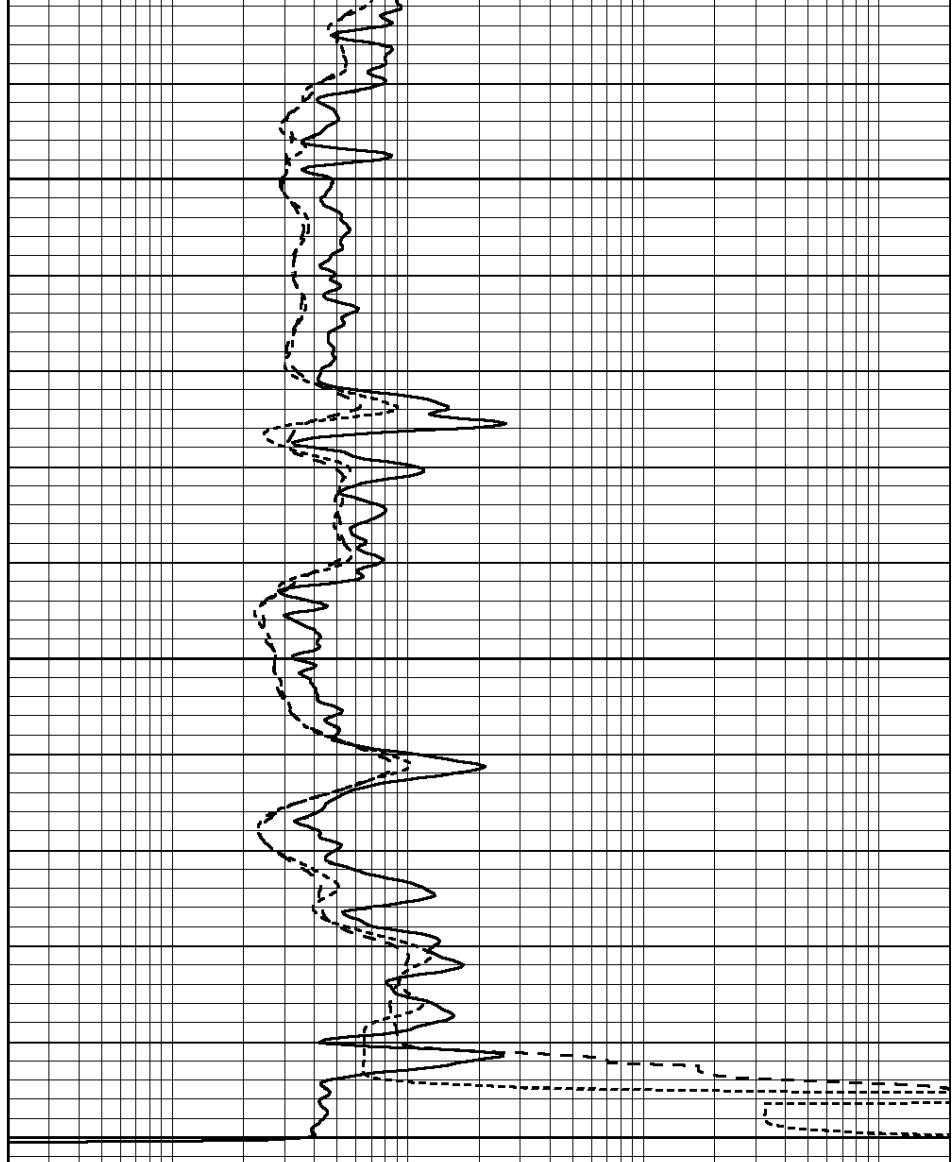


5450

5500

5550

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

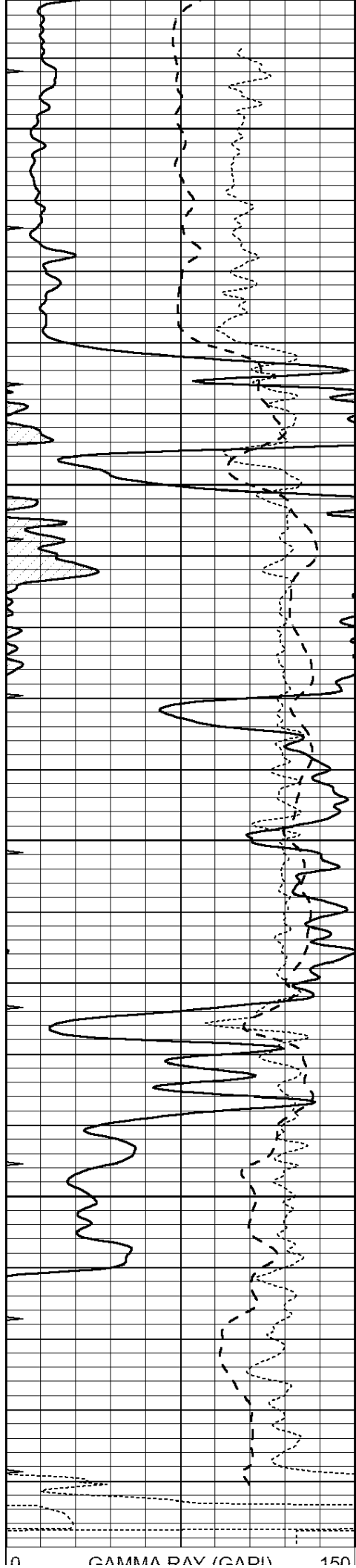


# REPEAT SECTION

Database File: 409698pe.db  
 Dataset Pathname: pass2.3  
 Presentation Format: dil  
 Dataset Creation: Mon Oct 22 00:08:36 2012 by Calc Open-Cased 110302  
 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



5350

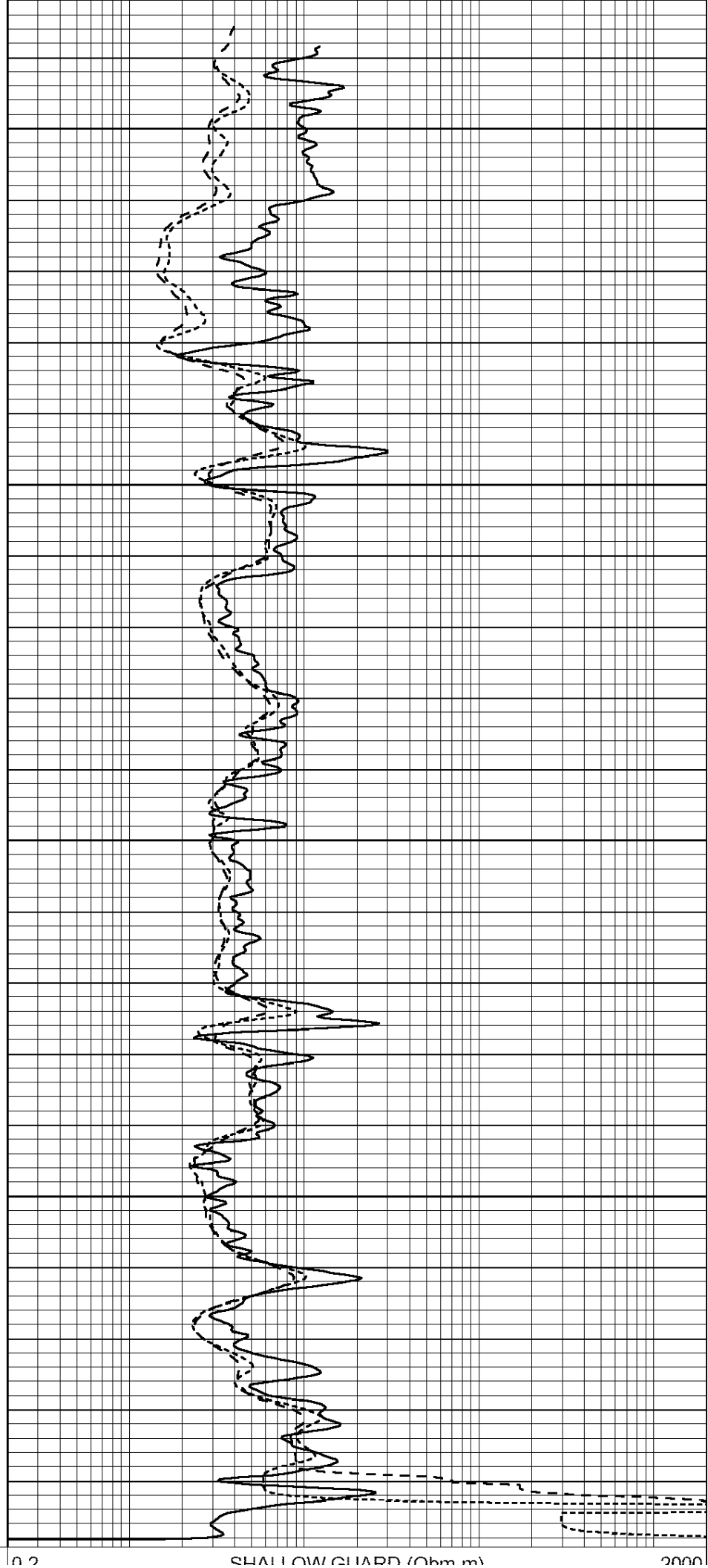
5400

5450

5500

GAMMA RAY (GAPI)

150



0 2

SHALLOW OHM (Ohm m)

2000

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

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

Calibration Report

Database File: 409698pe.db  
 Dataset Pathname: pass3.8  
 Dataset Creation: Mon Oct 22 00:38:56 2012

Dual Induction Calibration Report

Serial-Model: DIL3-GEAR  
 Performed: Mon Oct 01 18:43:03 2012

Loop:	Readings			References			Results	
	Air	Loop		Air	Loop		m	b
Deep	0.011	0.656	V	0.000	400.000	mmho/m	640.000	8.000
Medium	0.013	0.740	V	0.000	462.500	mmho/m	700.000	-7.500
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.002	0.645	V	0.000	400.000	mmho/m	622.059	-1.071
Medium	0.007	0.740	V	0.000	462.500	mmho/m	631.393	-4.555

Litho Density Calibration Report  
 Serial: 006 Model: PRB  
 Performed Sun Aug 15 09:48:41 2010

Litho Density Calibration

	Background	Magnesium	Aluminum	Sandstone	
Window 1	1686.6	11612.8	3932.0	12718.8	cps
Window 2	1531.4	9204.7	3267.8	9851.9	cps
Window 3	1198.3	4733.6	1952.5	4920.6	cps
Window 4	317.3	321.2	325.9	303.6	cps
Long Space	0.0	7673.3	1736.4	8320.4	cps
Short Space	1.7	2548.5	1657.2	2628.8	cps
Rho		1.7100	2.5900	1.3800	g/cc
Pe			2.5700	1.5500	
Rib Angle	: 43.8	Rib Slope	: 0.961	Density/Spine Ratio	: 0.569
Spine Angle	: 73.8	Spine Slope	: 3.453	Spine Intercept	: -18.1

Caliper

	Readings	Reference
Low Ref	3.5	6.7
High Ref	5.5	15.0
	Gain: 4.3	Offset: -8.6

Compensated Neutron Calibration Report

Serial Number: 070808  
 Tool Model: Probe

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:	070559	
Tool Model:	OPEN_GR	
Performed:	Wed Sep 19 15:58:00 2012	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.3000	GAPI/cps