



DUAL INDUCTION LOG

Company	BEAR PETROLEUM	Company	BEAR PETROLEUM
Well	THOMPSON A#1	Well	THOMPSON A#1
Field	N/A	Field	N/A
County	PAWNEE	County	PAWNEE
State	KANSAS	State	KANSAS
Location:	API # : 15-145-21834-00-00	Other Services	CDL/CNL/MEL SONIC
Permanent Datum	660 FNL & 1605 FEL	Elevation	
Log Measured From	GROUND LEVEL	K.B. 2192	
Drilling Measured From	KELLY BUSHING 6' A.G.L. KELLY BUSHING	D.F. 2190	
		G.L. 2186	
Date	07/05/18		
Run Number	ONE		
Depth Driller	4580		
Depth Logger	4581		
Bottom Logged Interval	4580		
Top Log Interval	50		
Casing Driller	8 5/8" @ 1278		
Casing Logger	1278		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 6800 PPM	
Density / Viscosity	9.3/52		
pH / Fluid Loss	9.0/10.4		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.60@82		
Rmt @ Meas. Temp	.45@82		
Rmc @ Meas. Temp	.72@82		
Source of Rmt / Rmc	MEASURED		
Rm @ BHT	.40@121		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	122F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	GUS PFANENSTIEL		
Witnessed By	ROD ANDERSON		

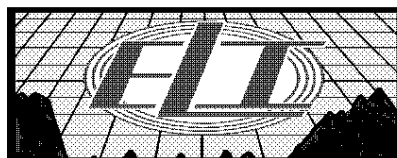
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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on 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

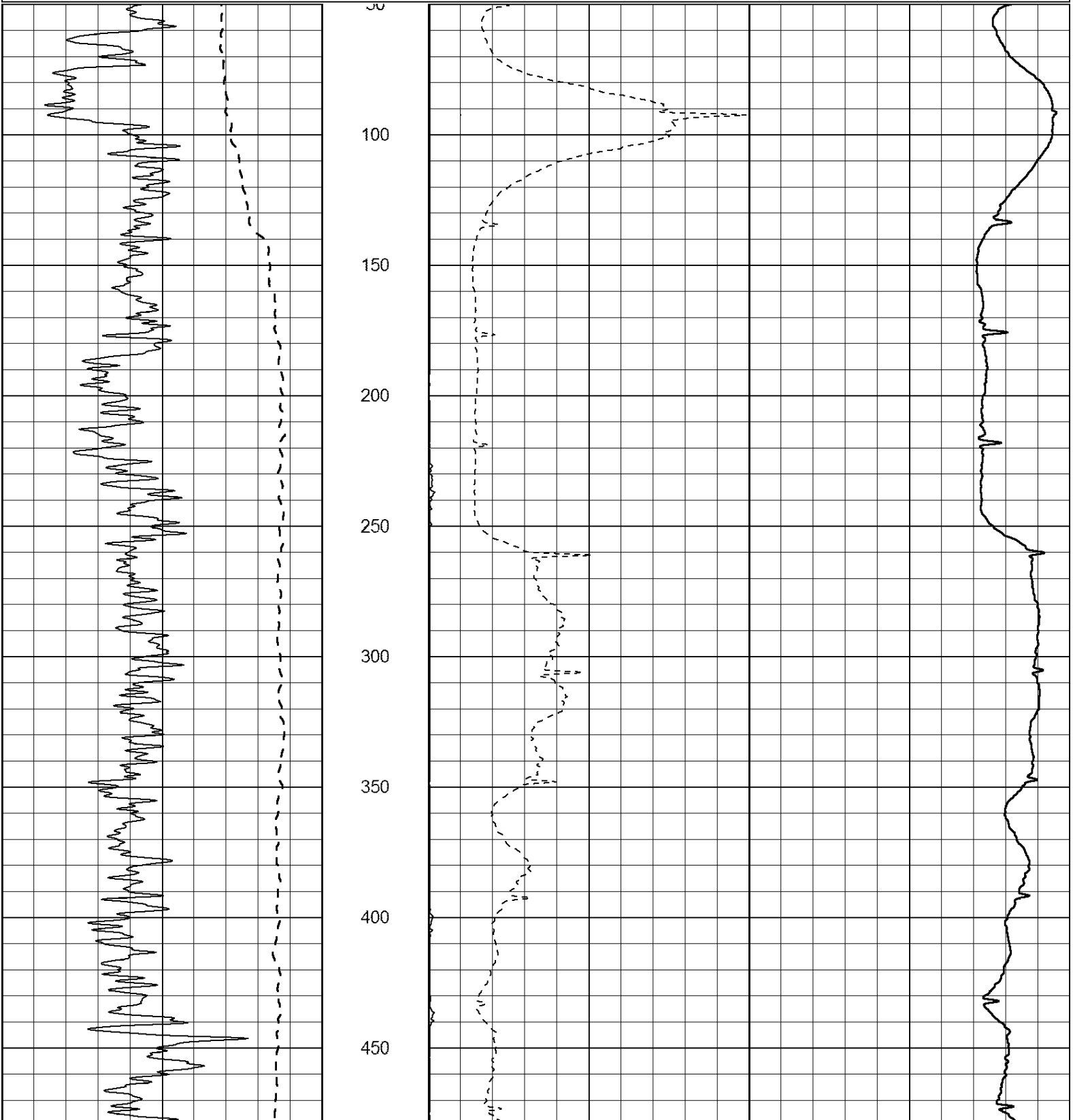
DIRECTIONS
BURDETT EAST TO 340 SOUTH TO K RD.
WEST INTO.

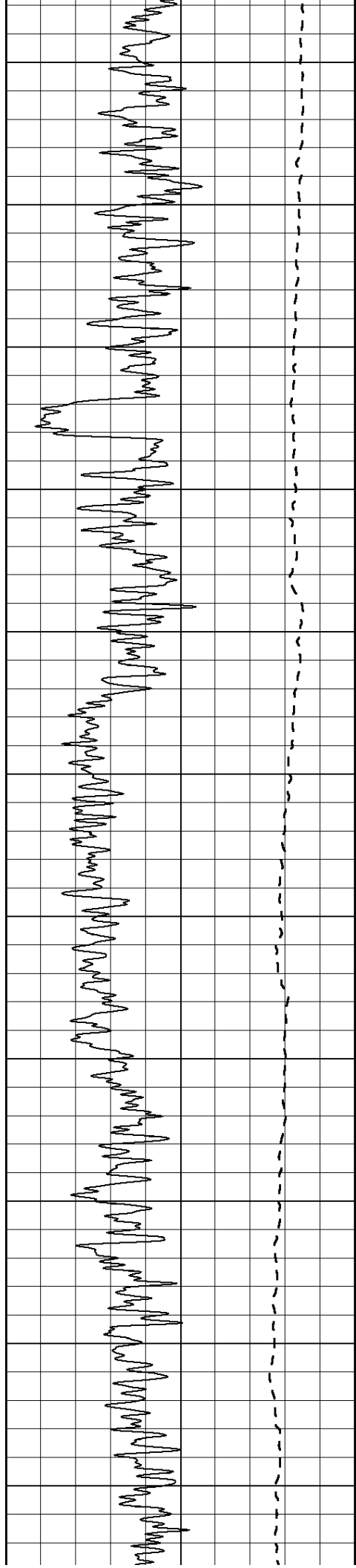


MAIN PASS

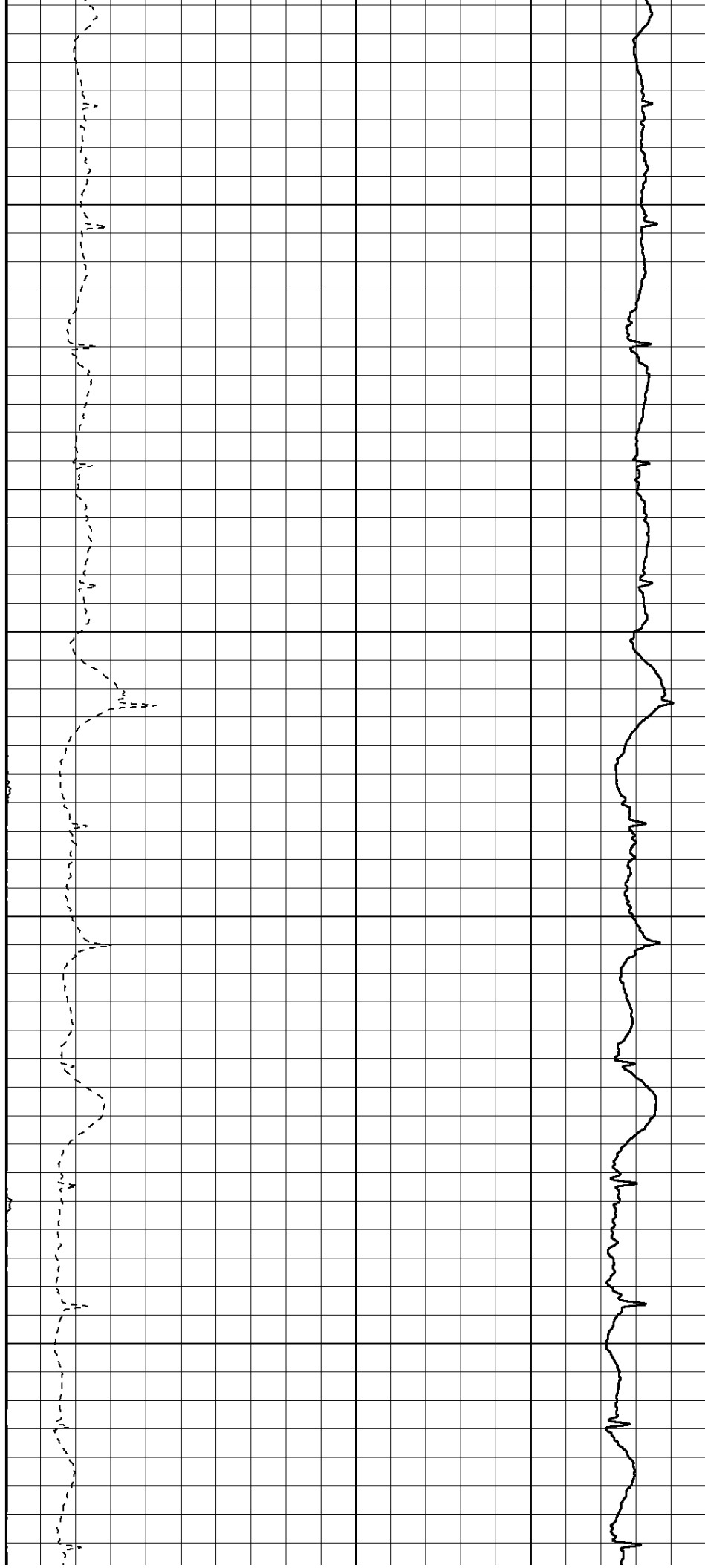
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Dataset Pathname: pass3.1
Presentation Format: _dil2
Dataset Creation: Thu Jul 05 10:08:28 2018 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:600

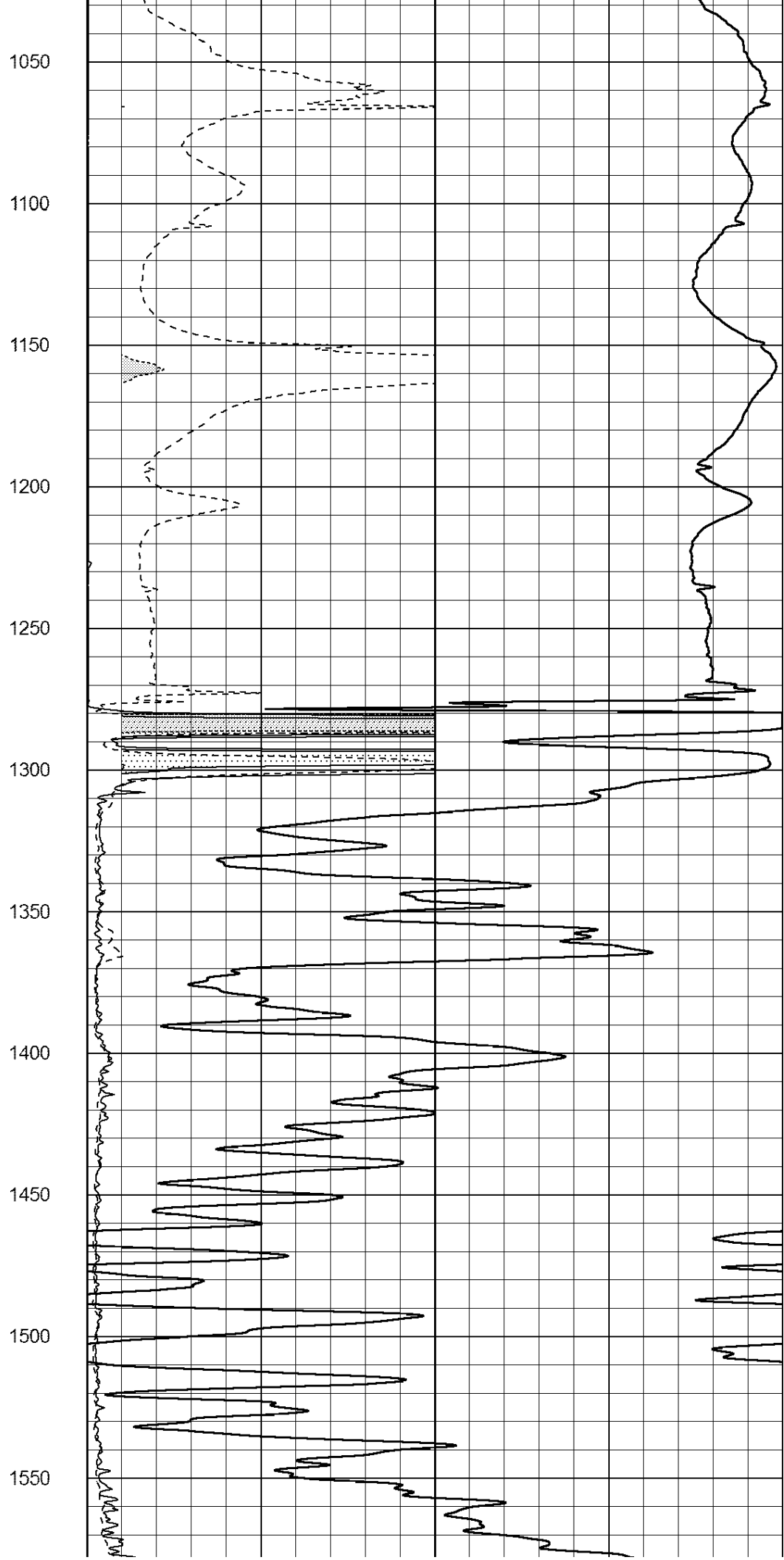
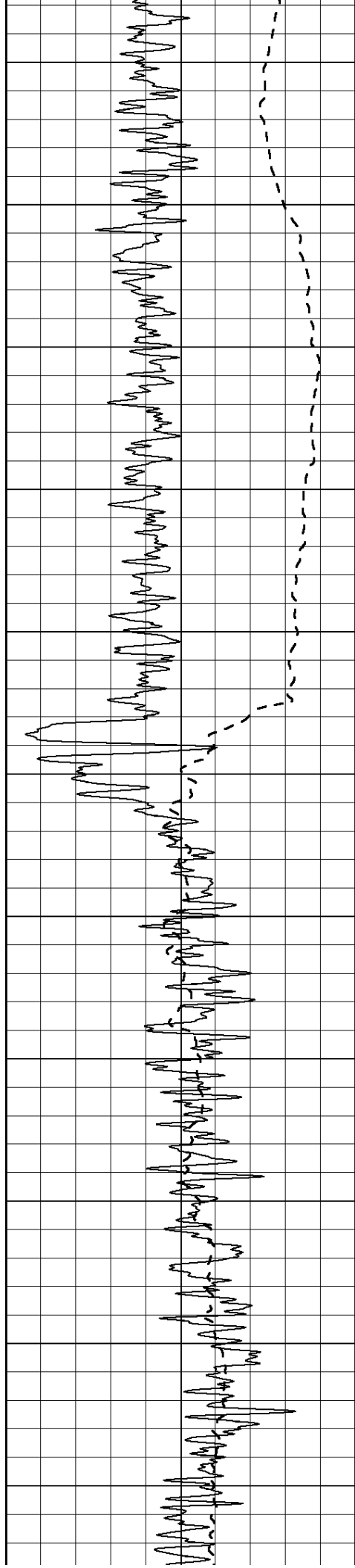
0	Gamma Ray (GAPI)	150	0	RLL3 (Ohm-m)	50	
-100	SP (mV)	100	0	RILD (Ohm-m)	50	
-----			1000	CILD (mmho/m)		0
			50	RILD X10 (Ohm-m)	500	
			50	RLL3 X10 (Ohm-m)	500	

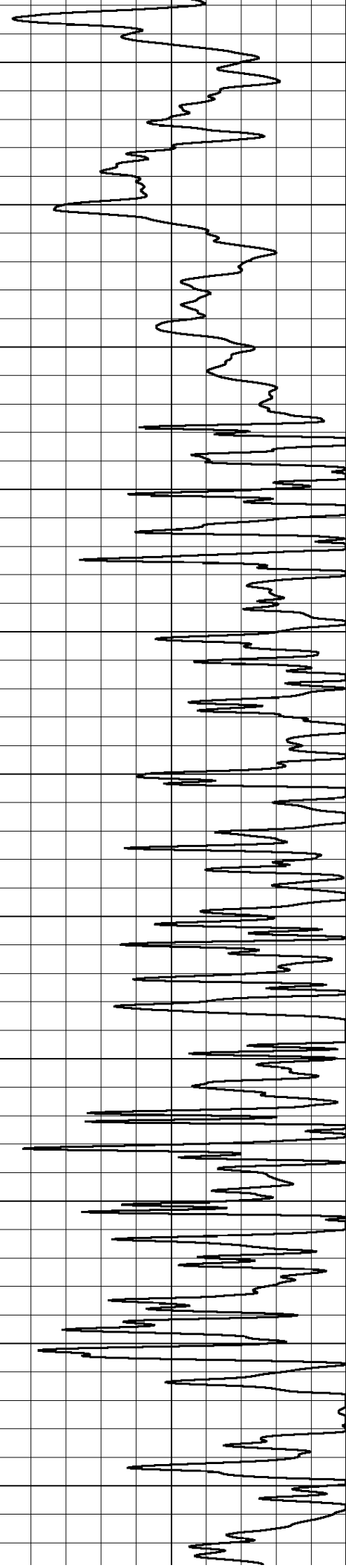
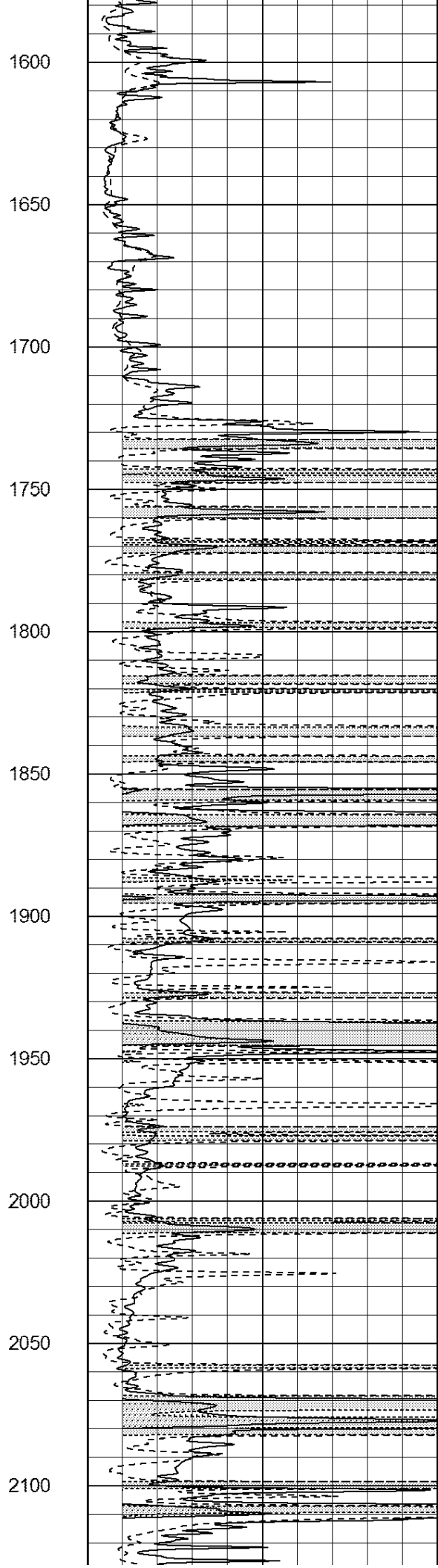
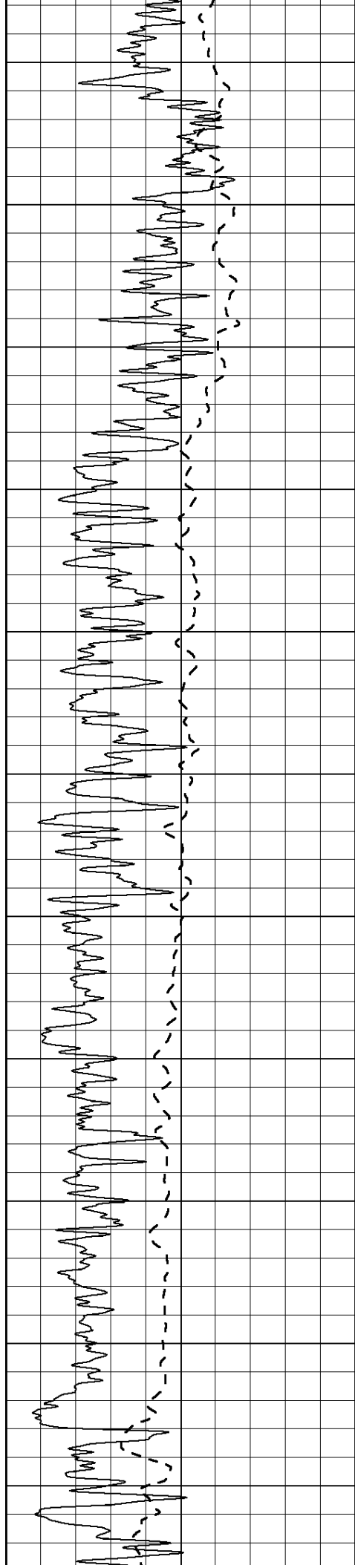


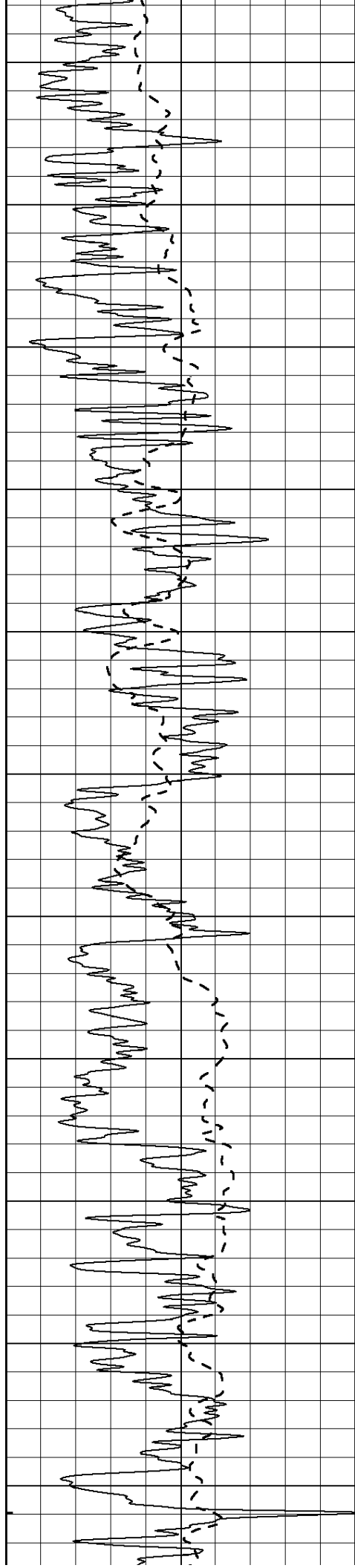


500
550
600
650
700
750
800
850
900
950
1000









2150

2200

2250

2300

2350

2400

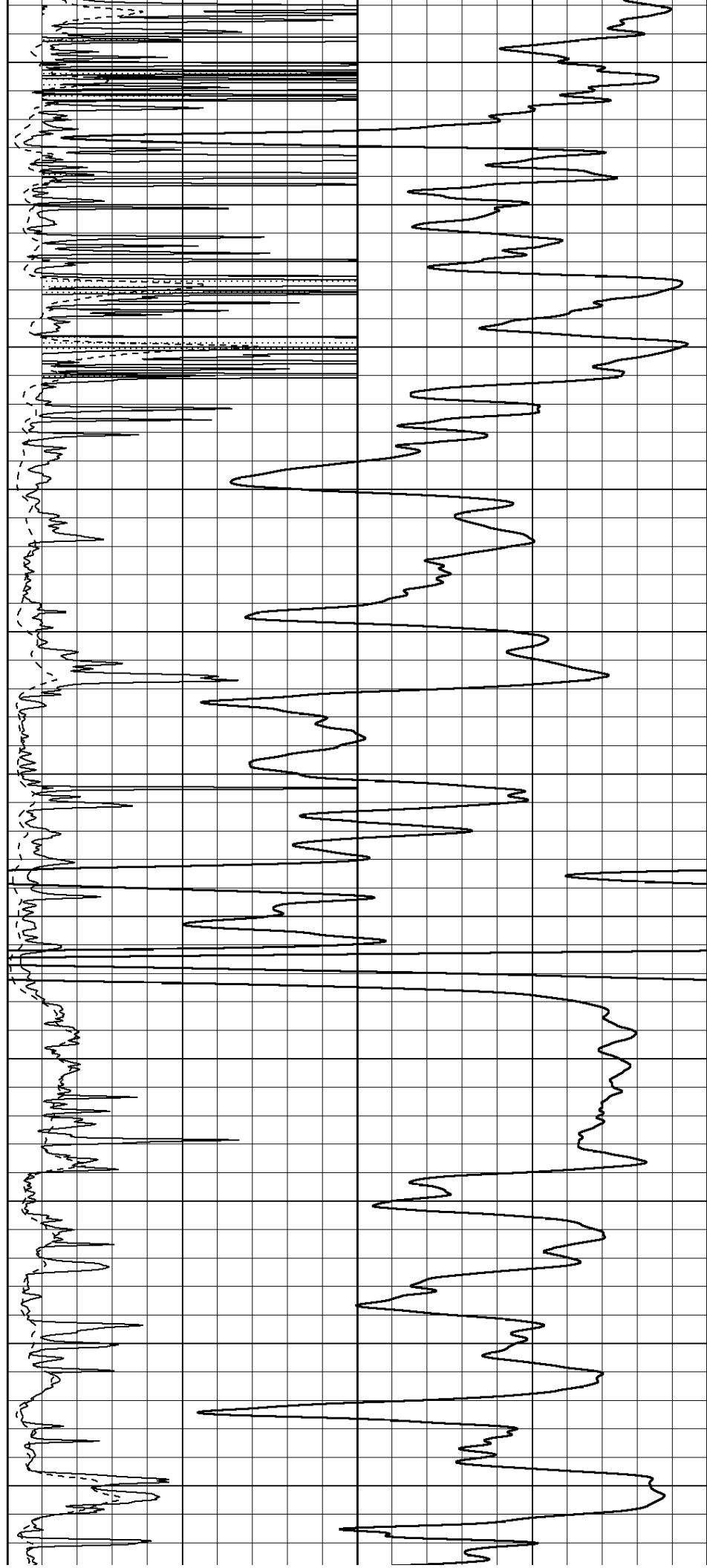
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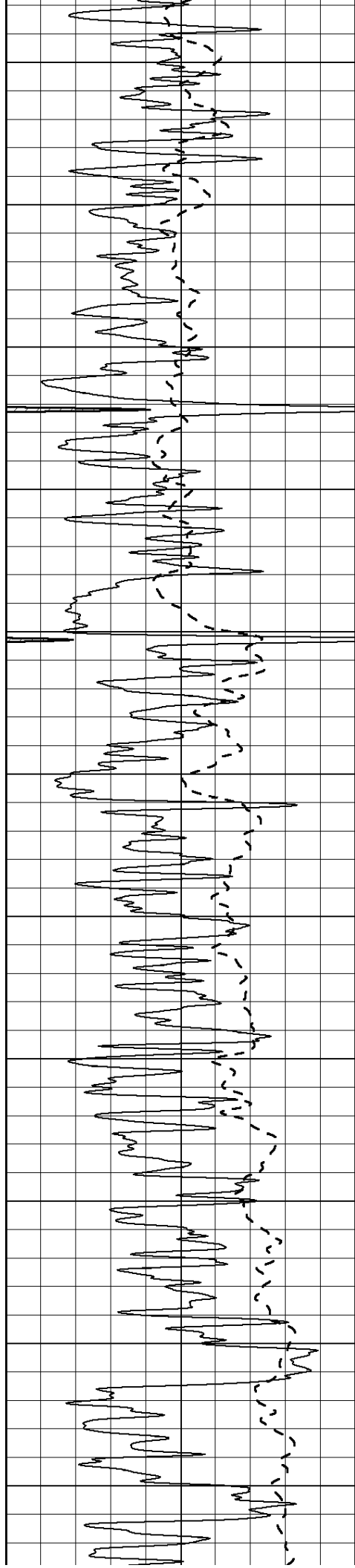
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2600

2650





2700

2750

2800

2850

2900

2950

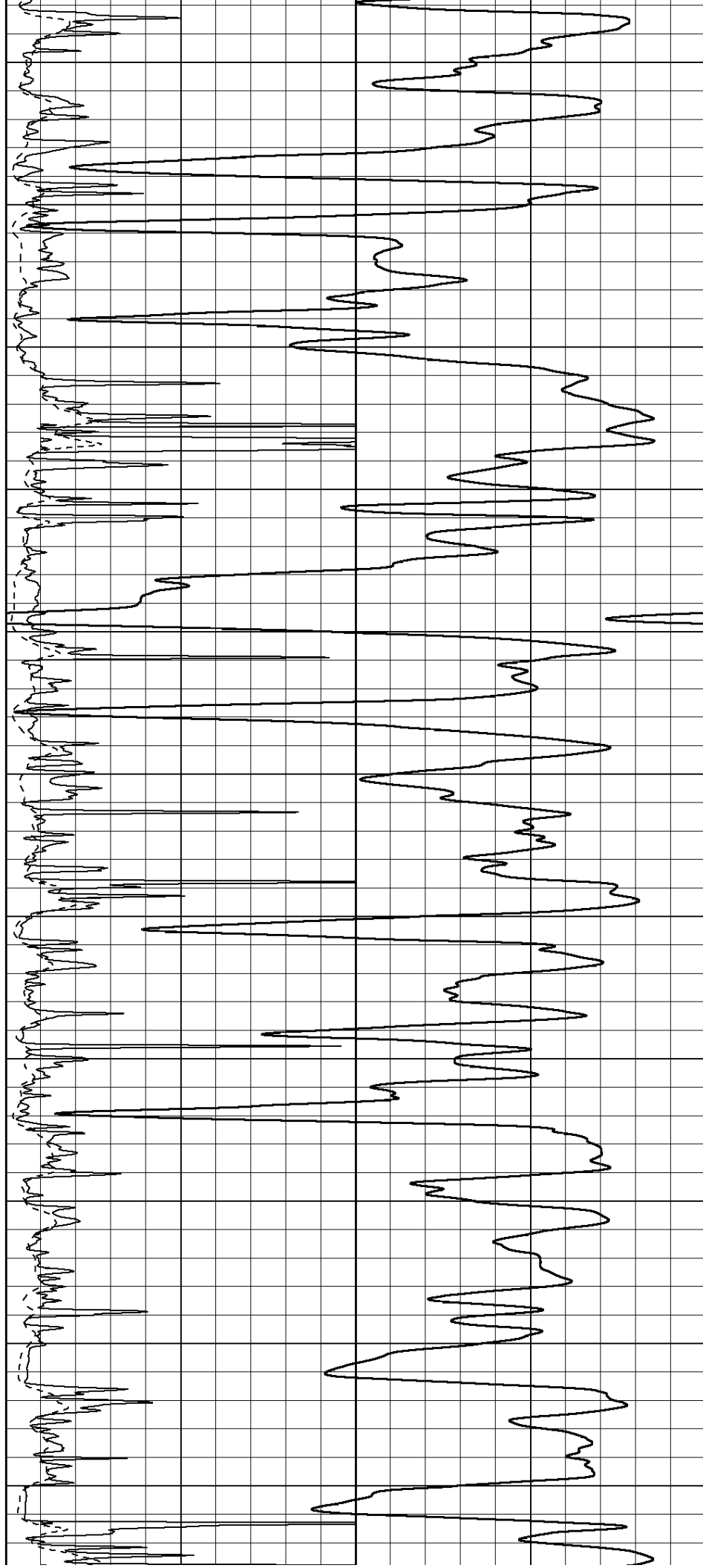
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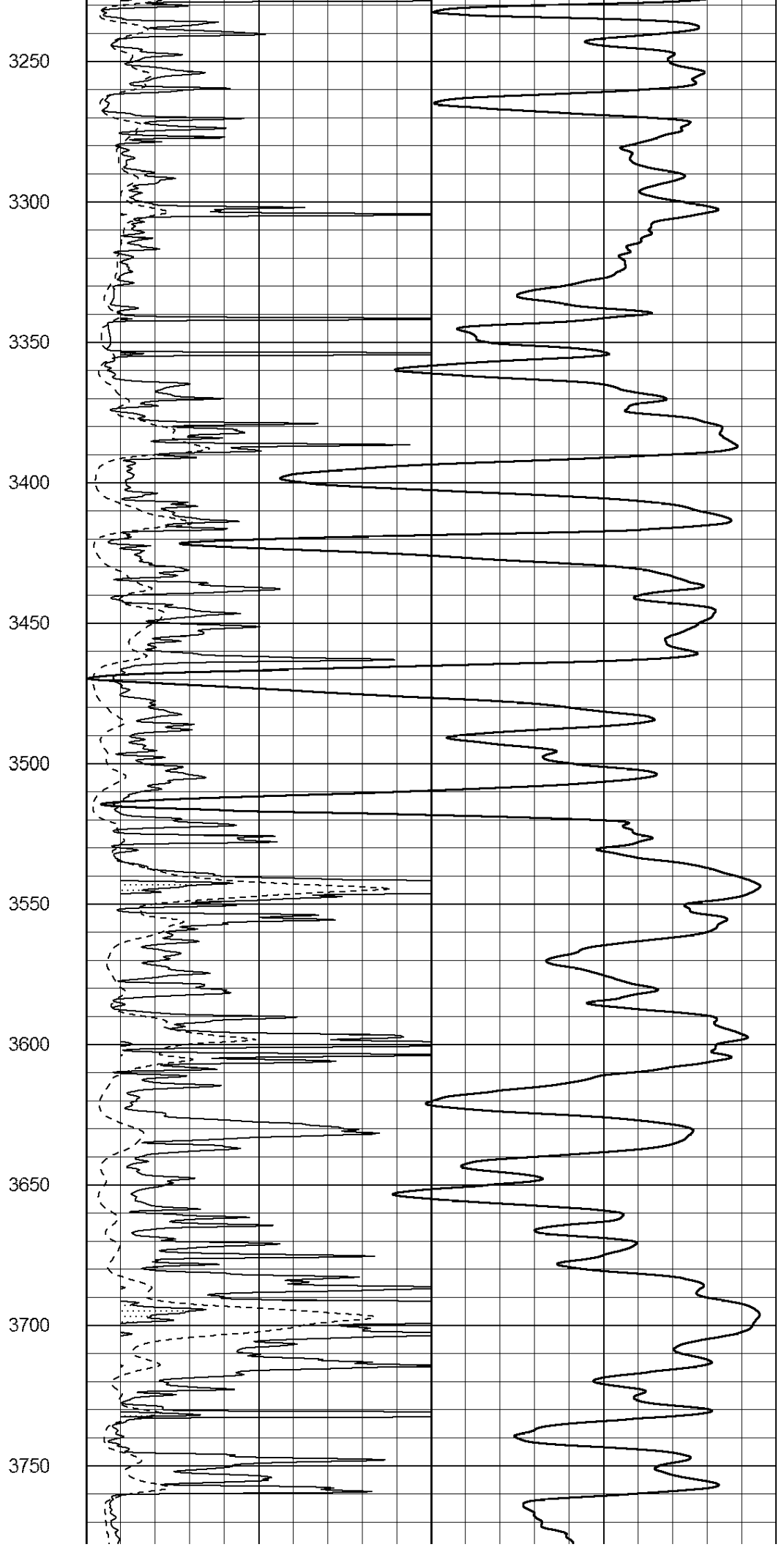
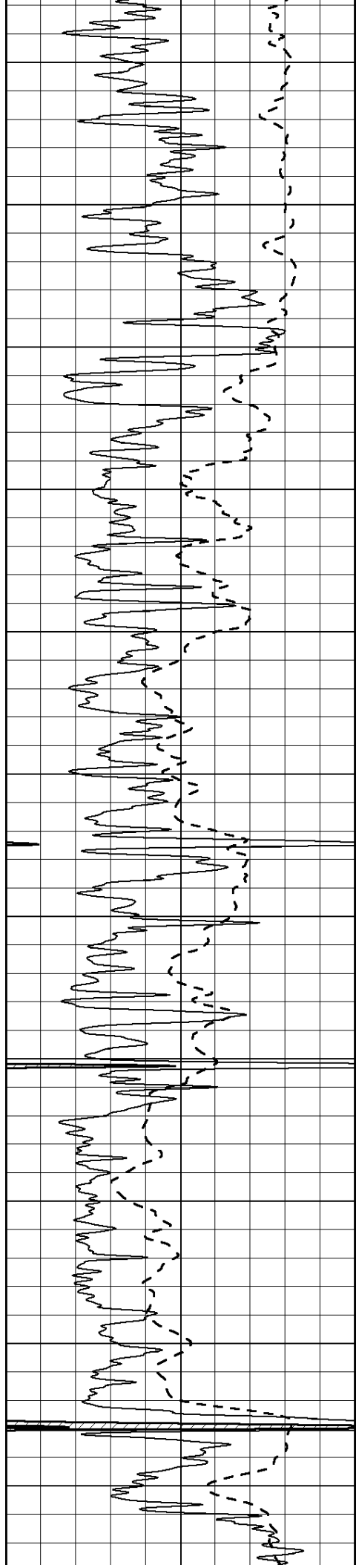
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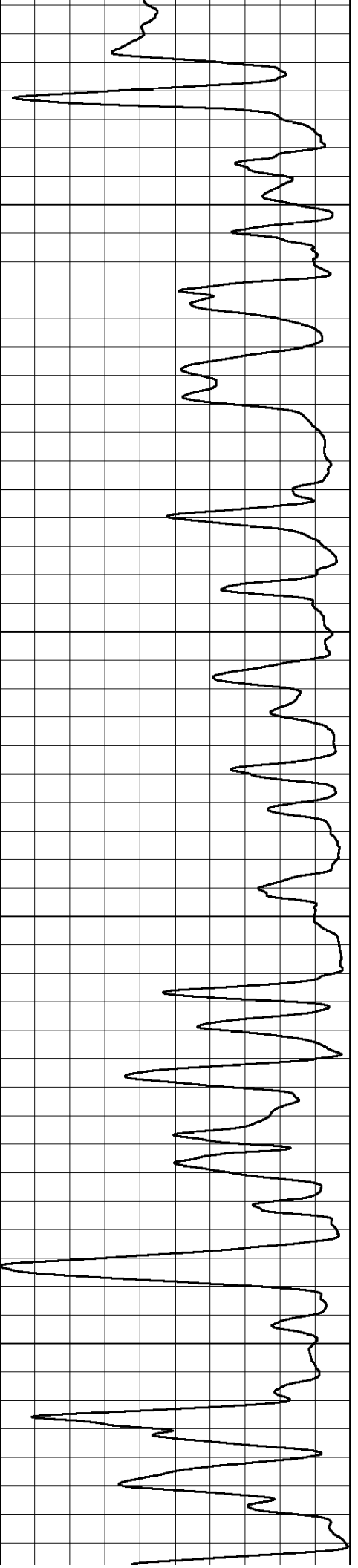
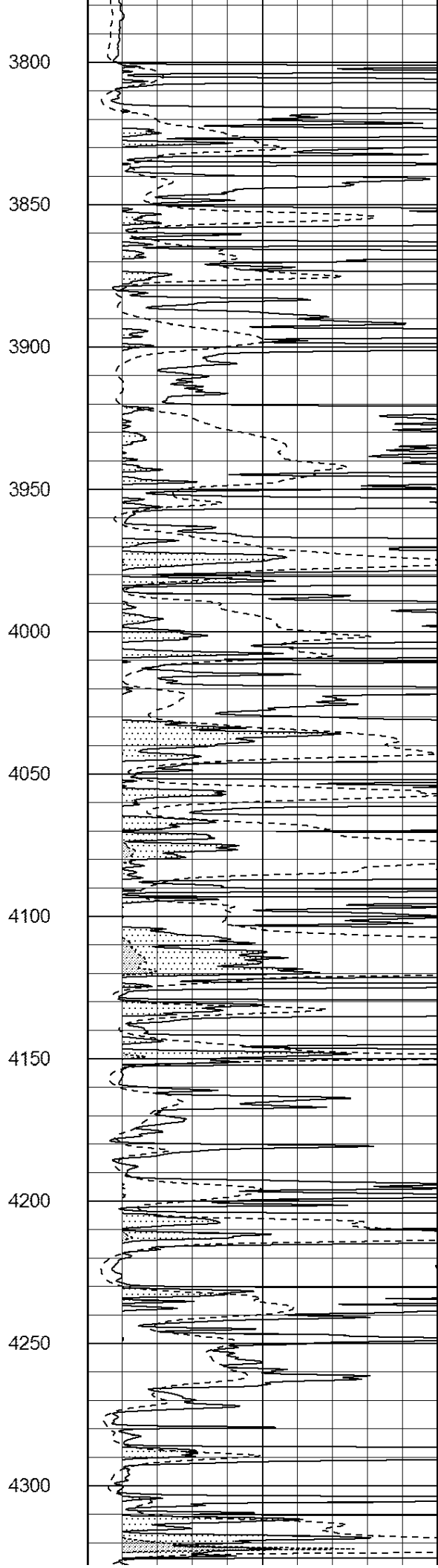
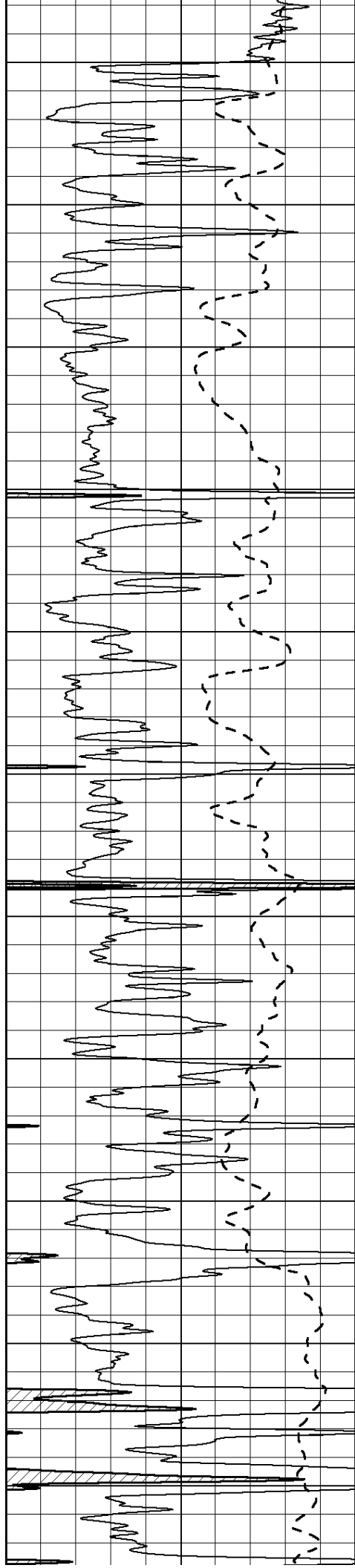
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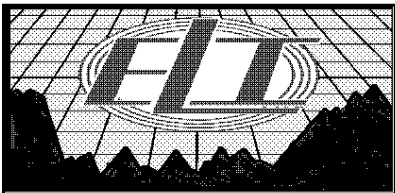
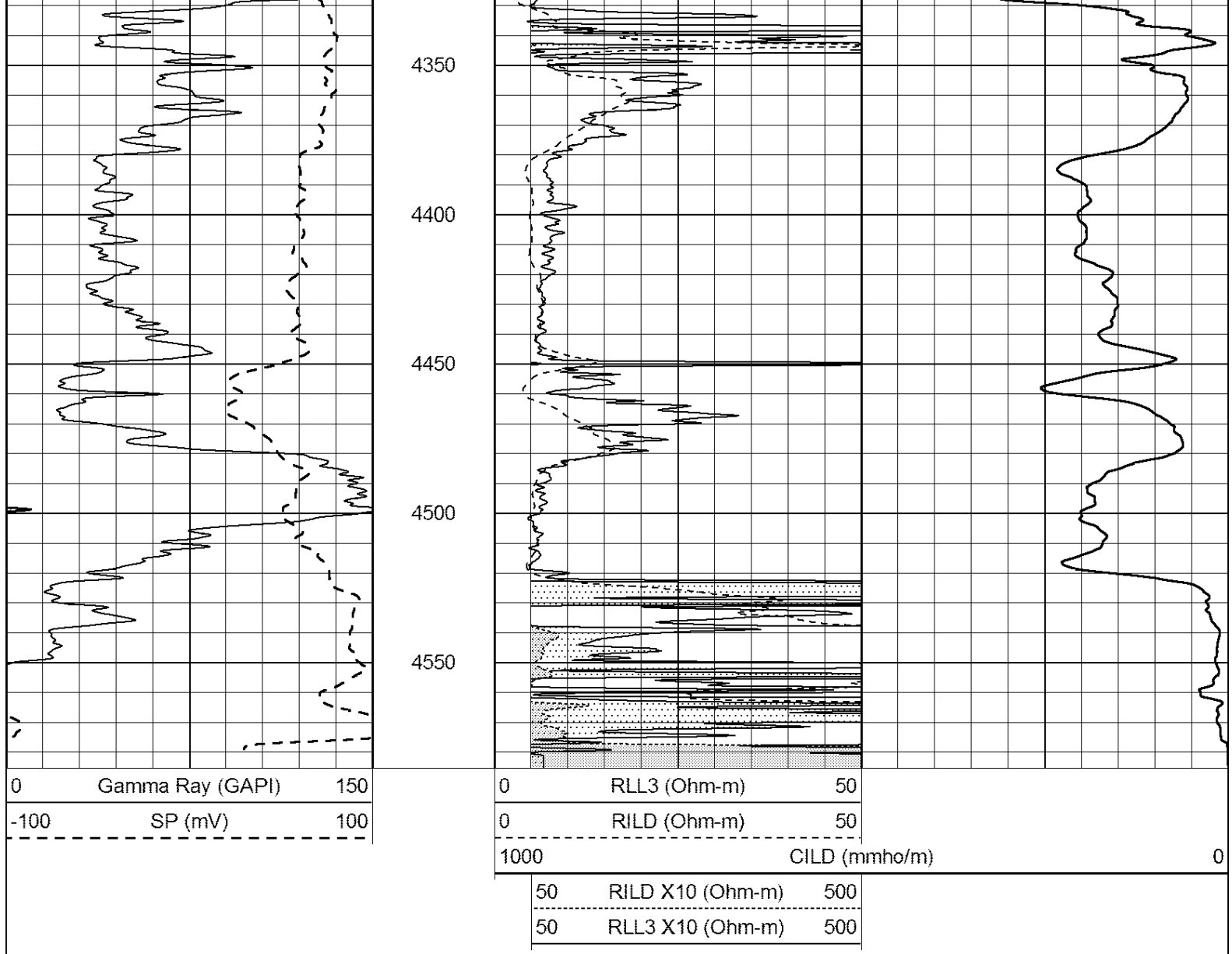
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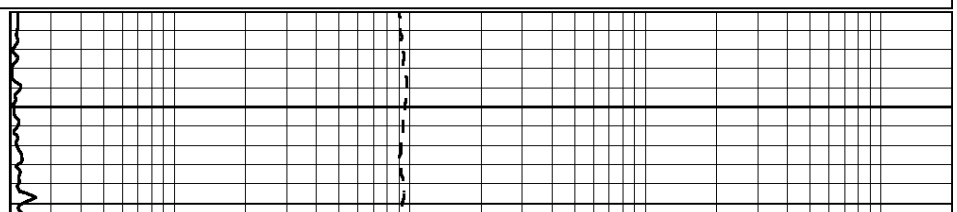
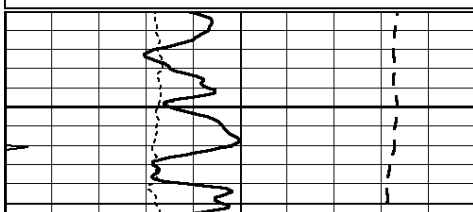


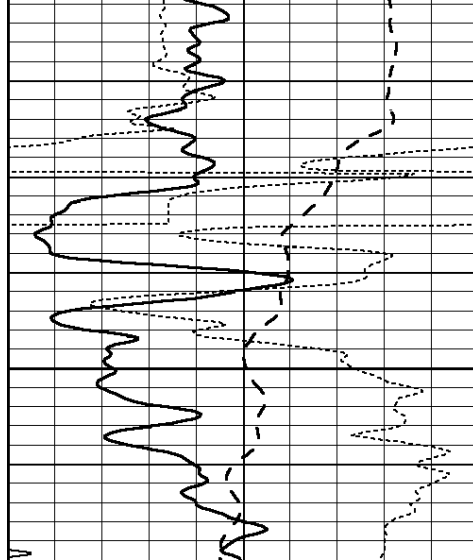
MAIN PASS

Database File: 2689ddn.db
 Dataset Pathname: pass3.1
 Presentation Format: _dil
 Dataset Creation: Thu Jul 05 10:08:28 2018 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

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

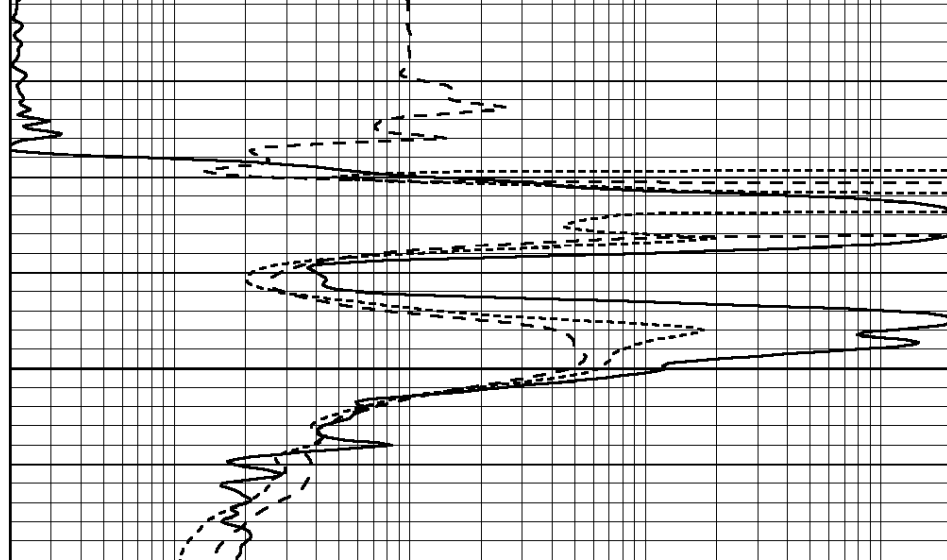
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0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



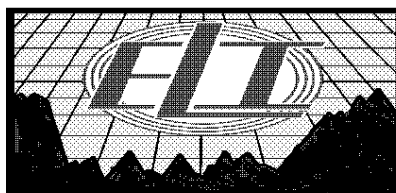


0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

1300



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

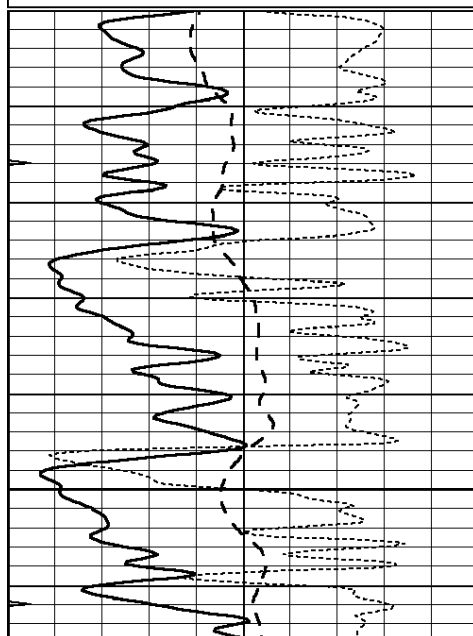


MAIN PASS

Database File: 2689ddn.db
 Dataset Pathname: pass3.1
 Presentation Format: _dil
 Dataset Creation: Thu Jul 05 10:08:28 2018 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

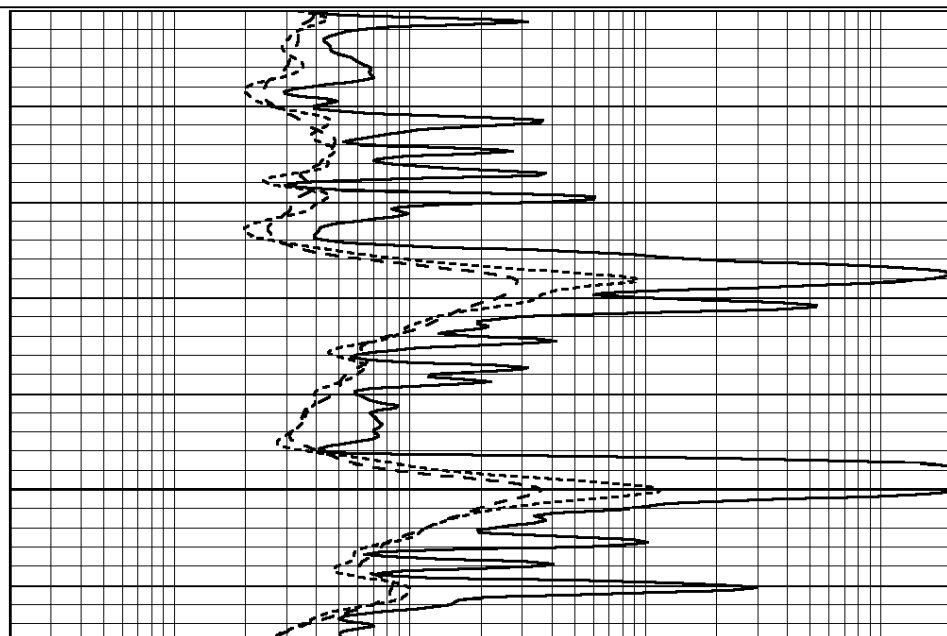
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-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

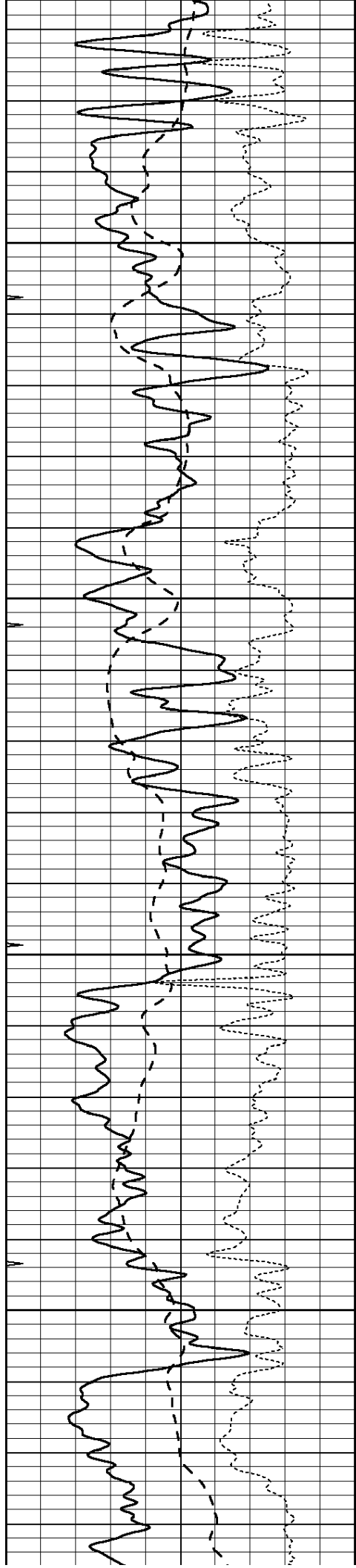
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



2200

2250



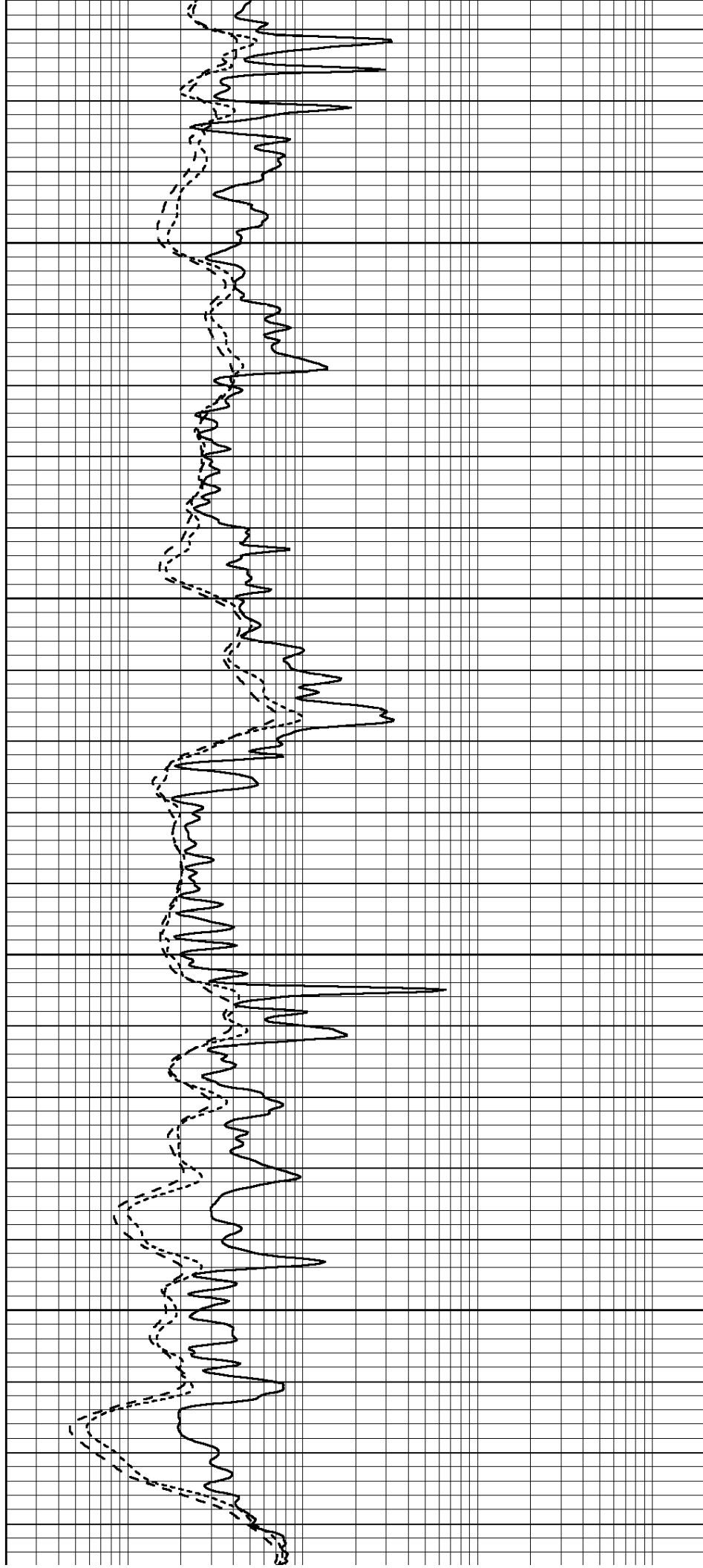


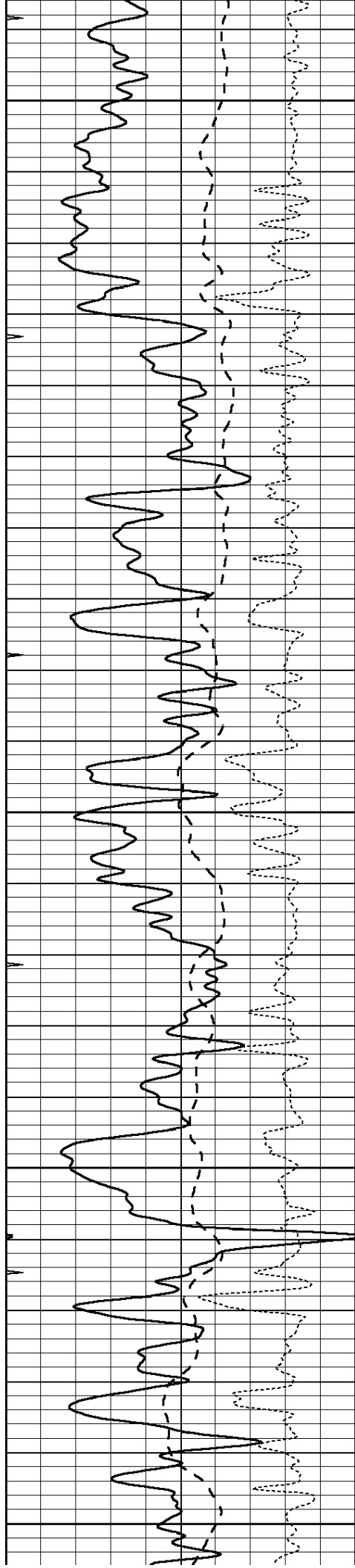
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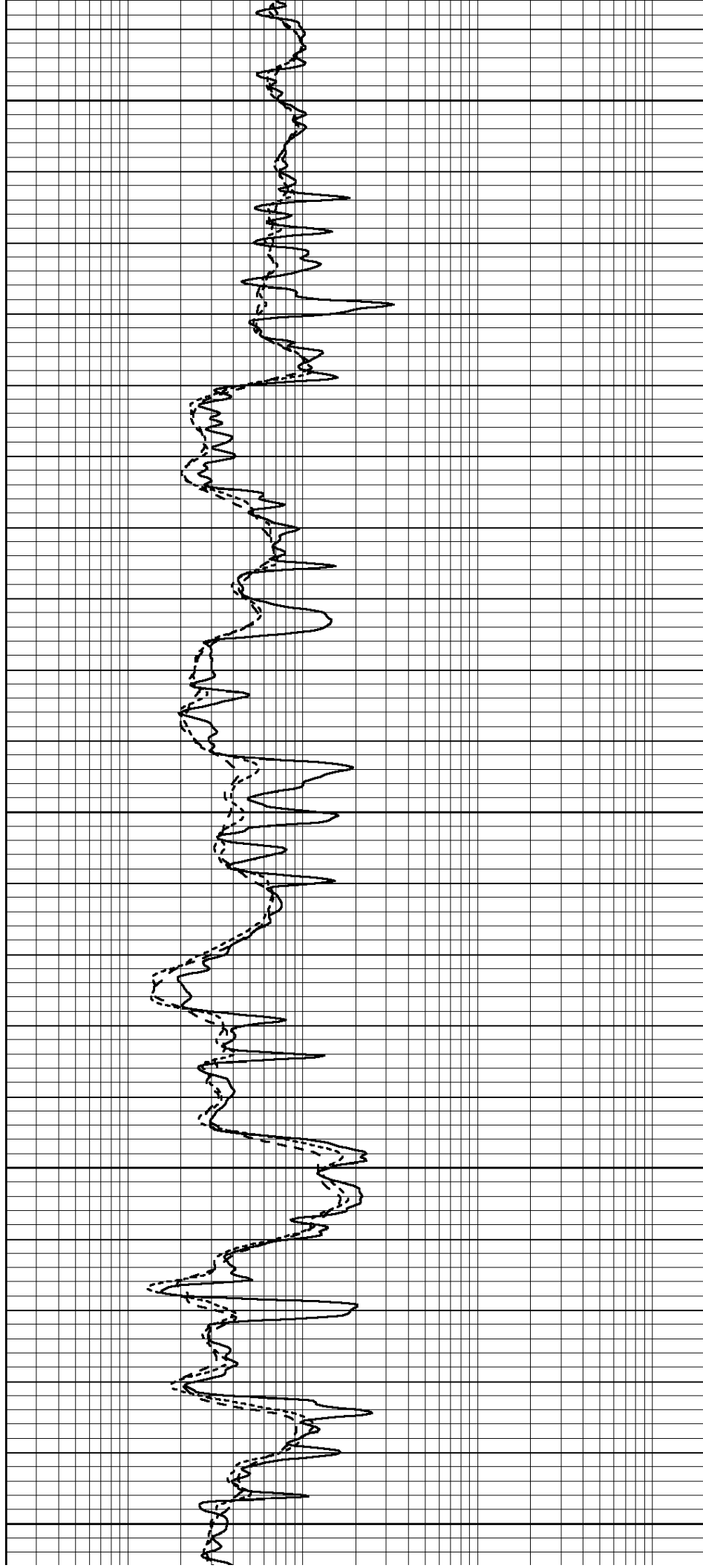
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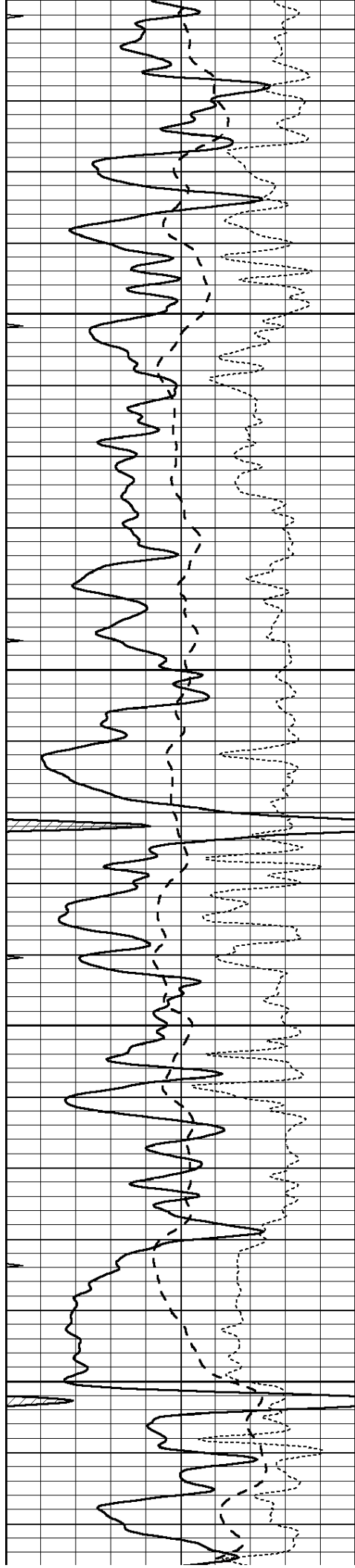
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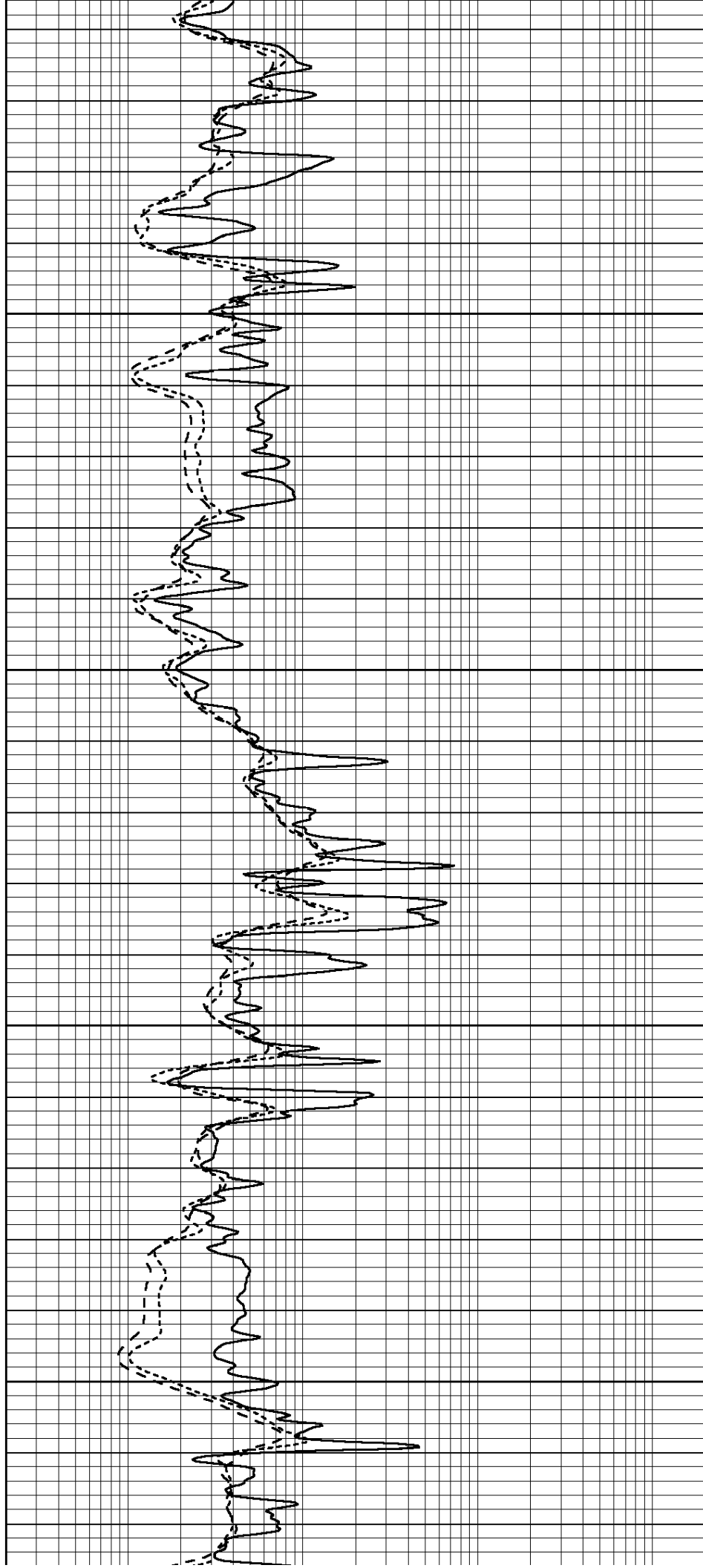


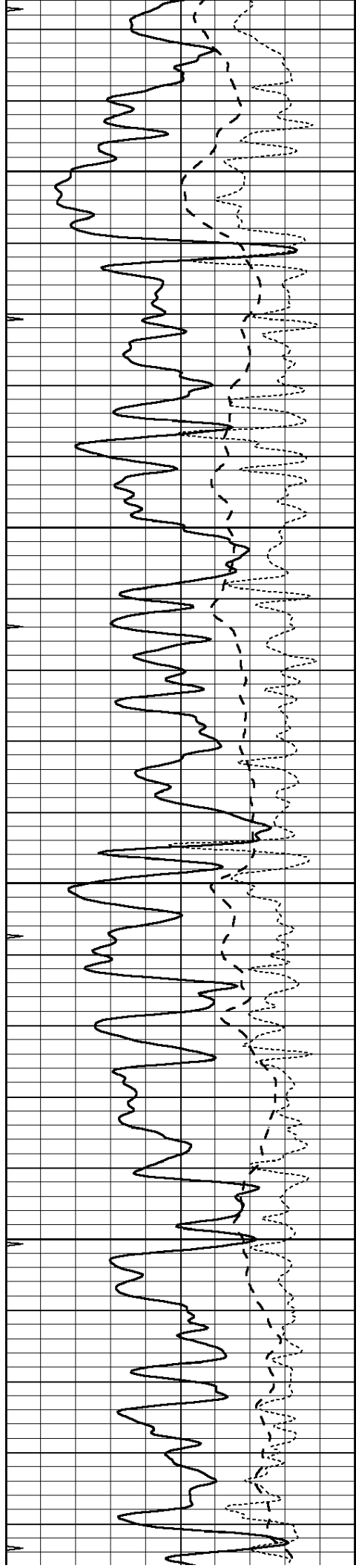
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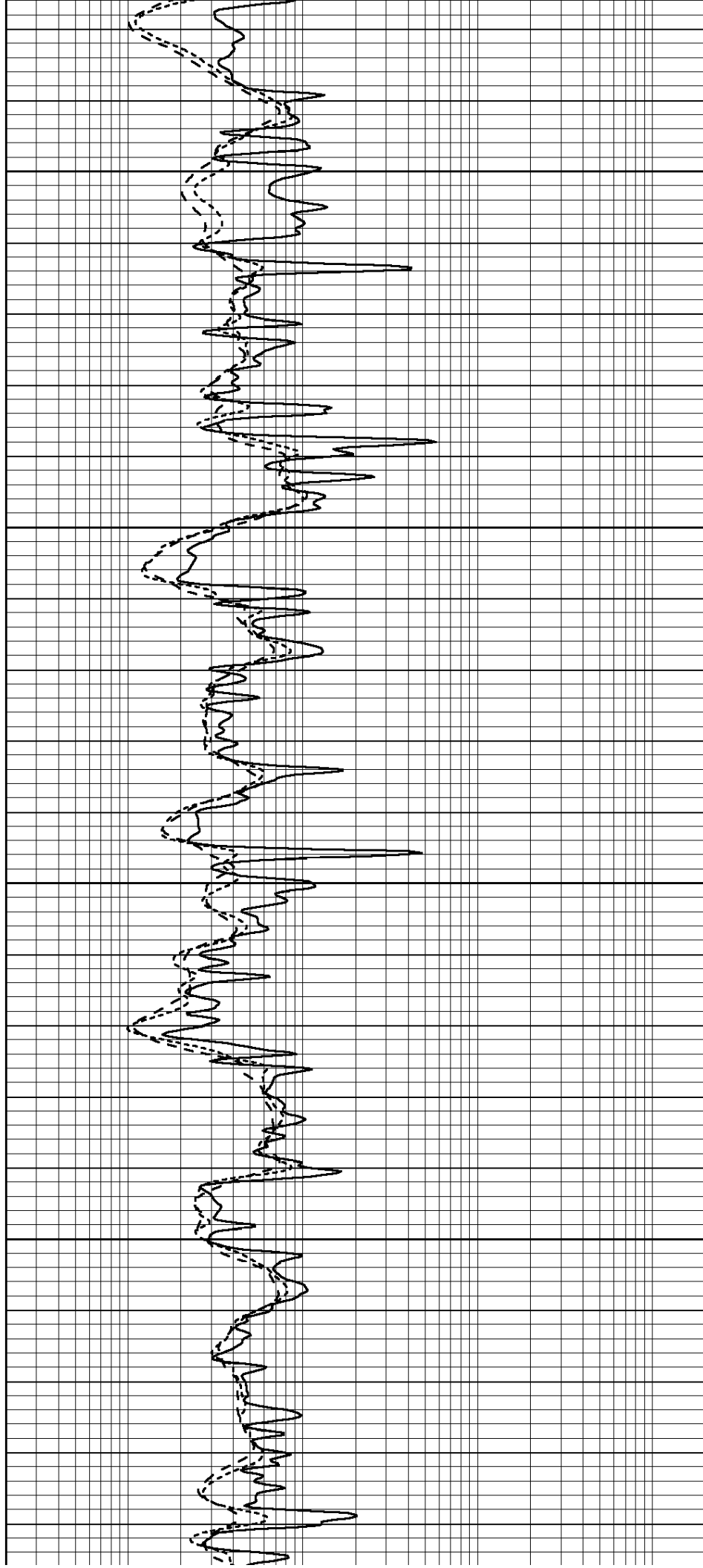


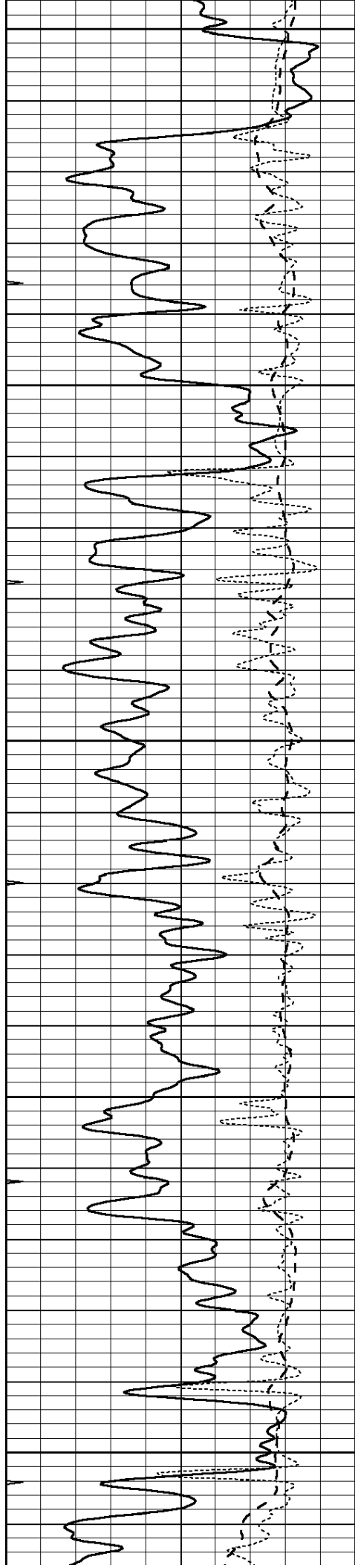
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3050

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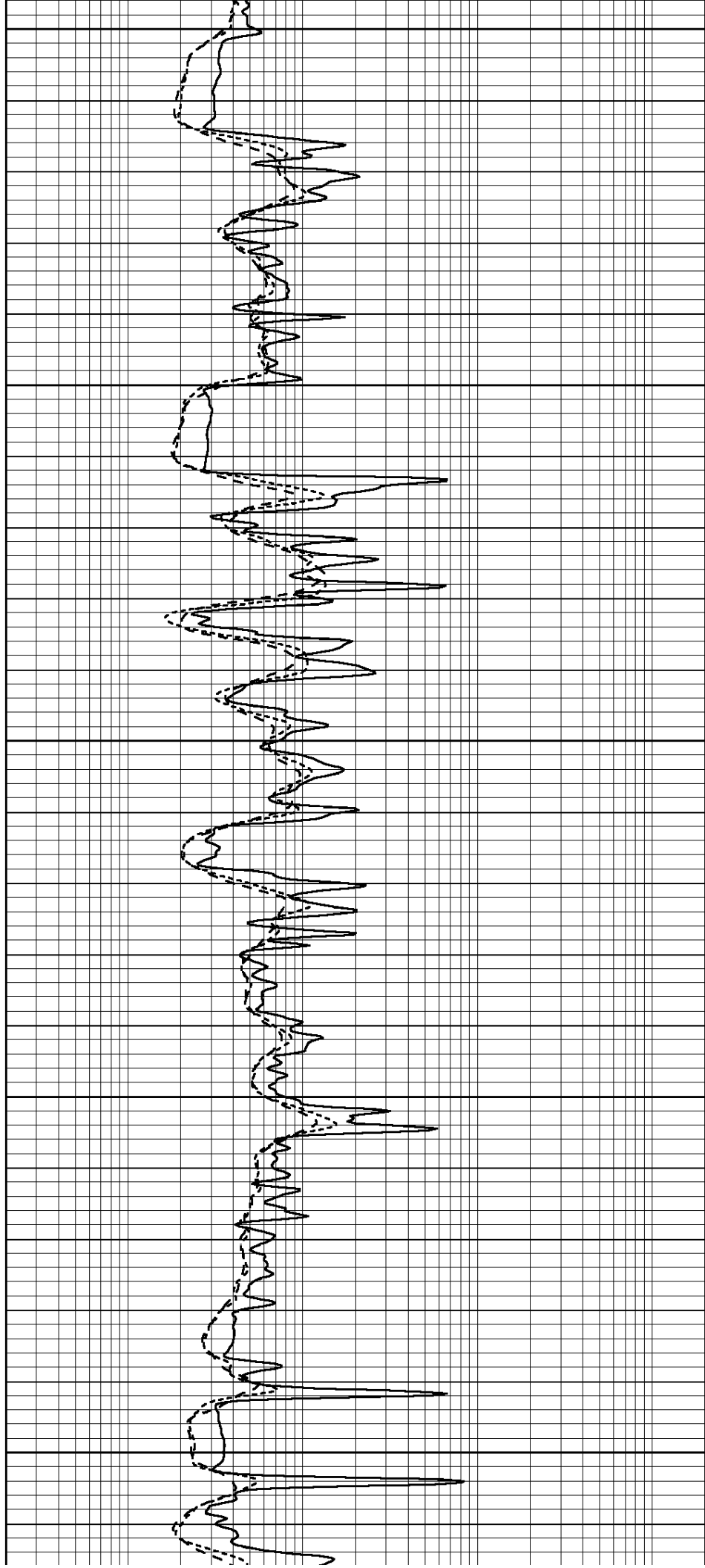
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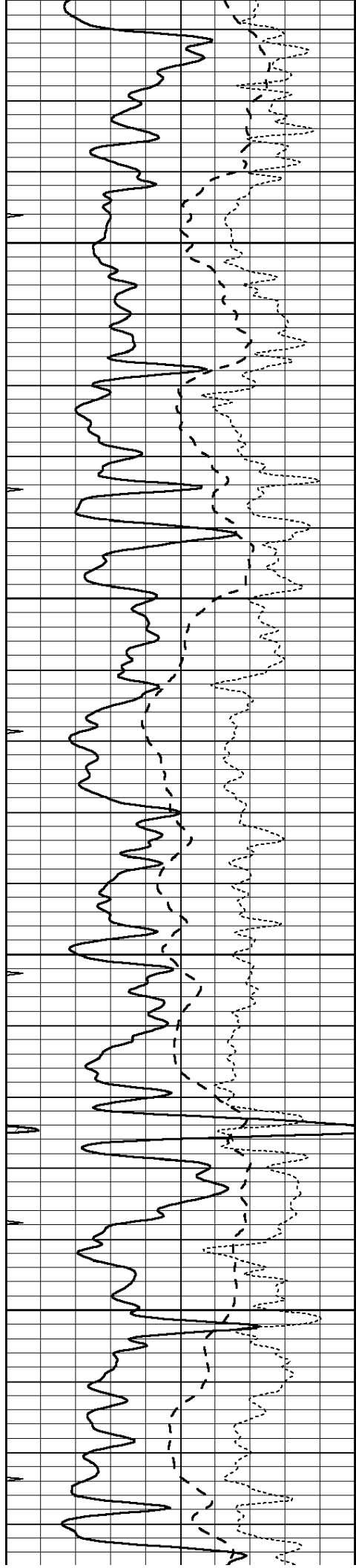
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3250

3300

3350



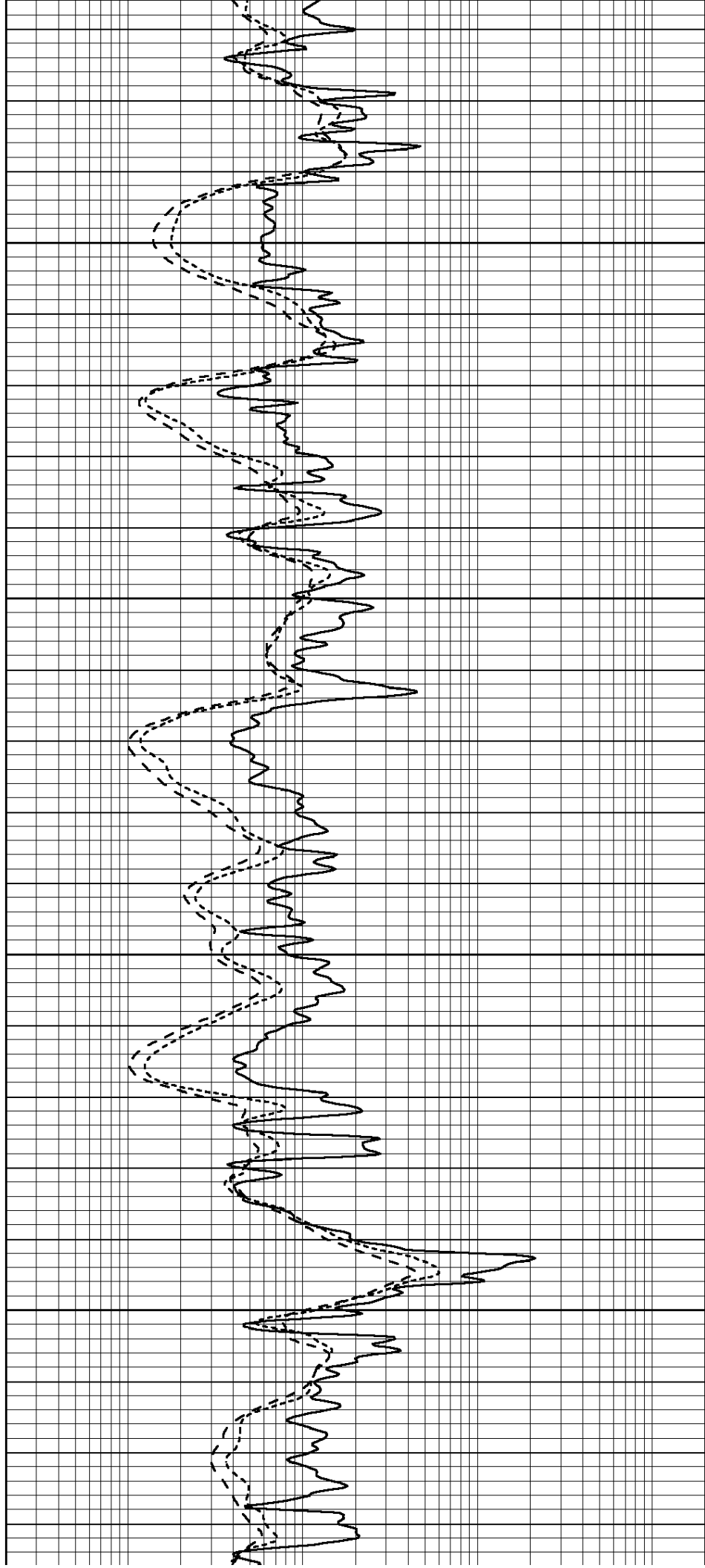


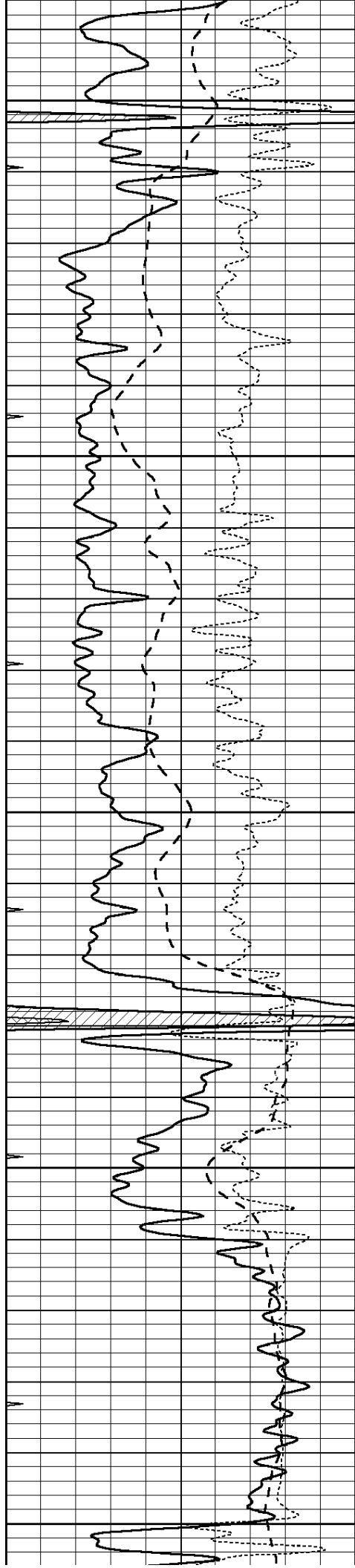
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3500

3550





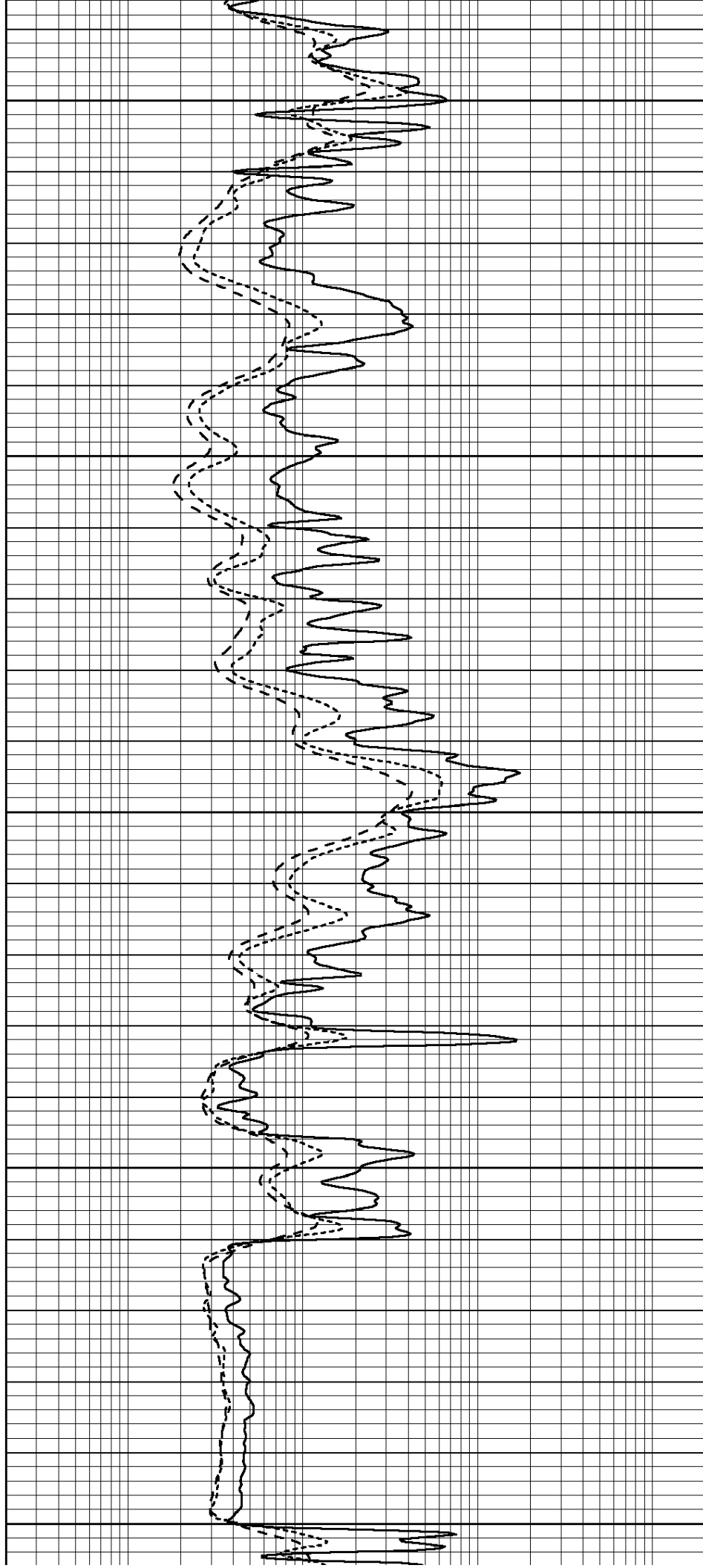
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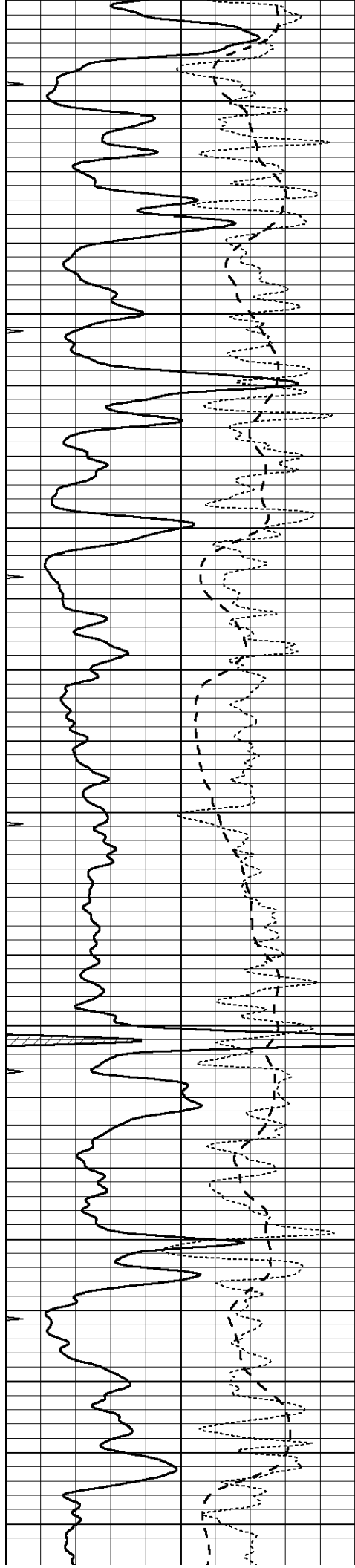
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3700

3750

3800



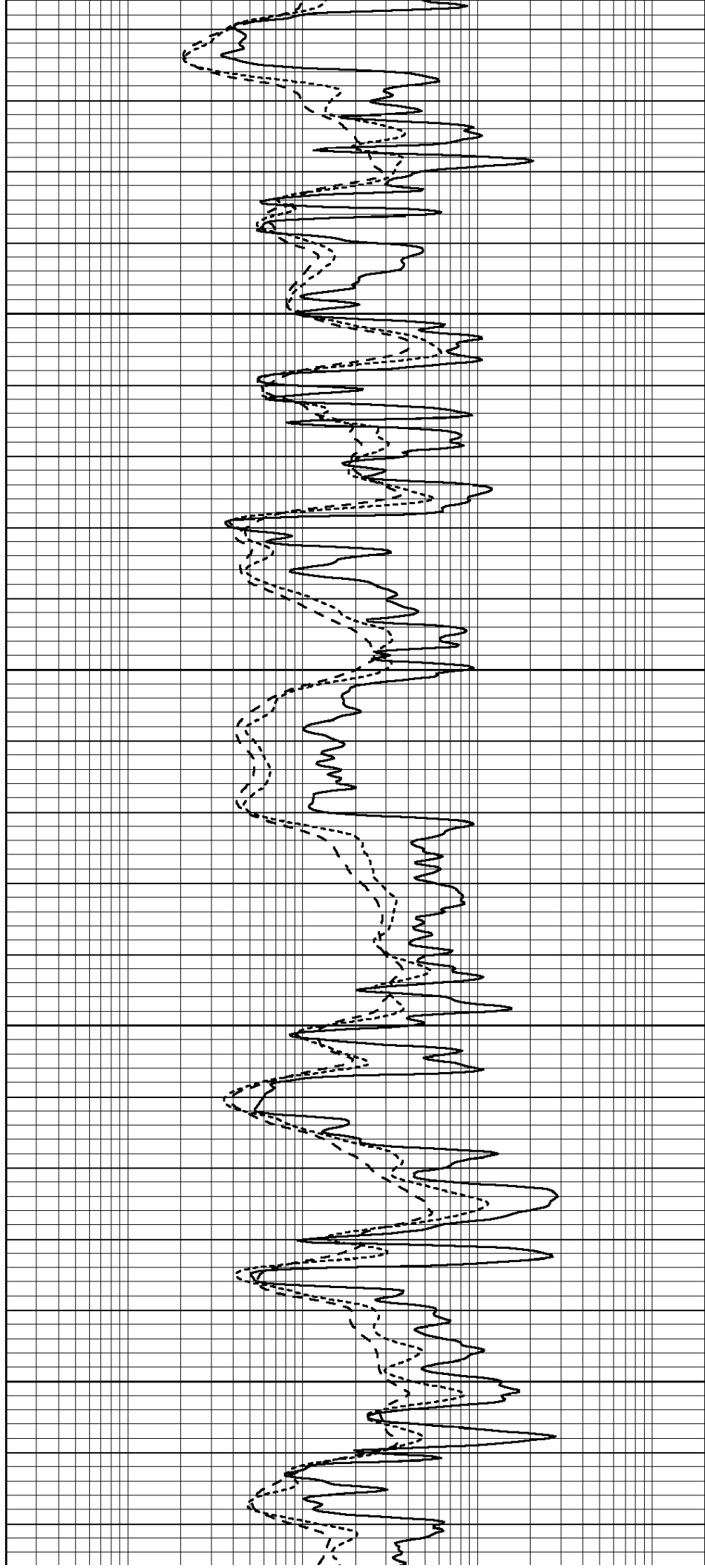


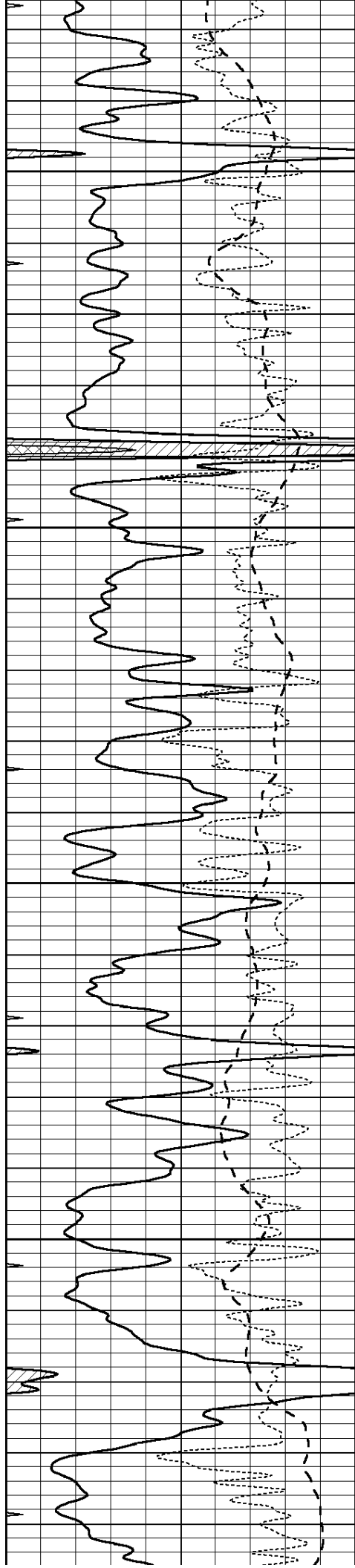
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3900

3950

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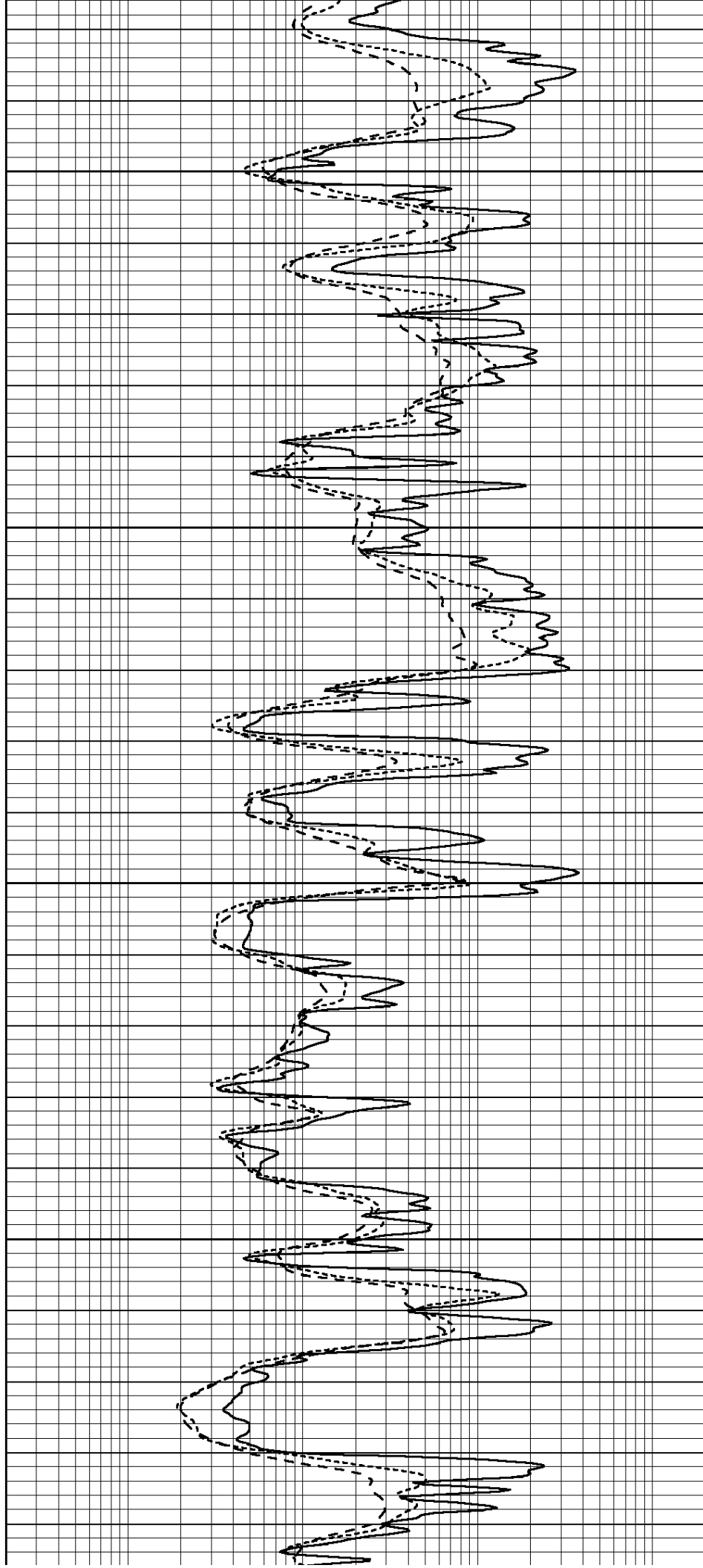


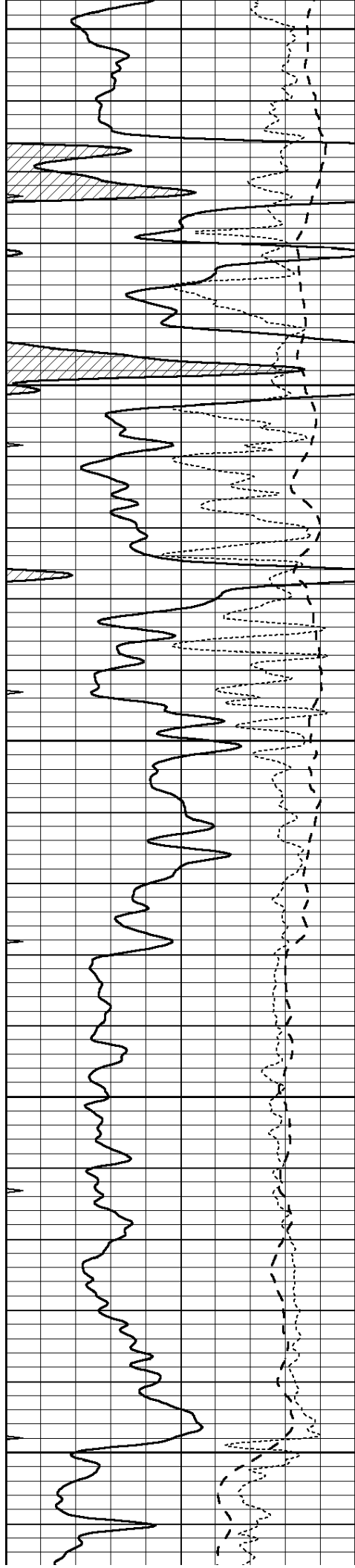
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4100

4150

4200





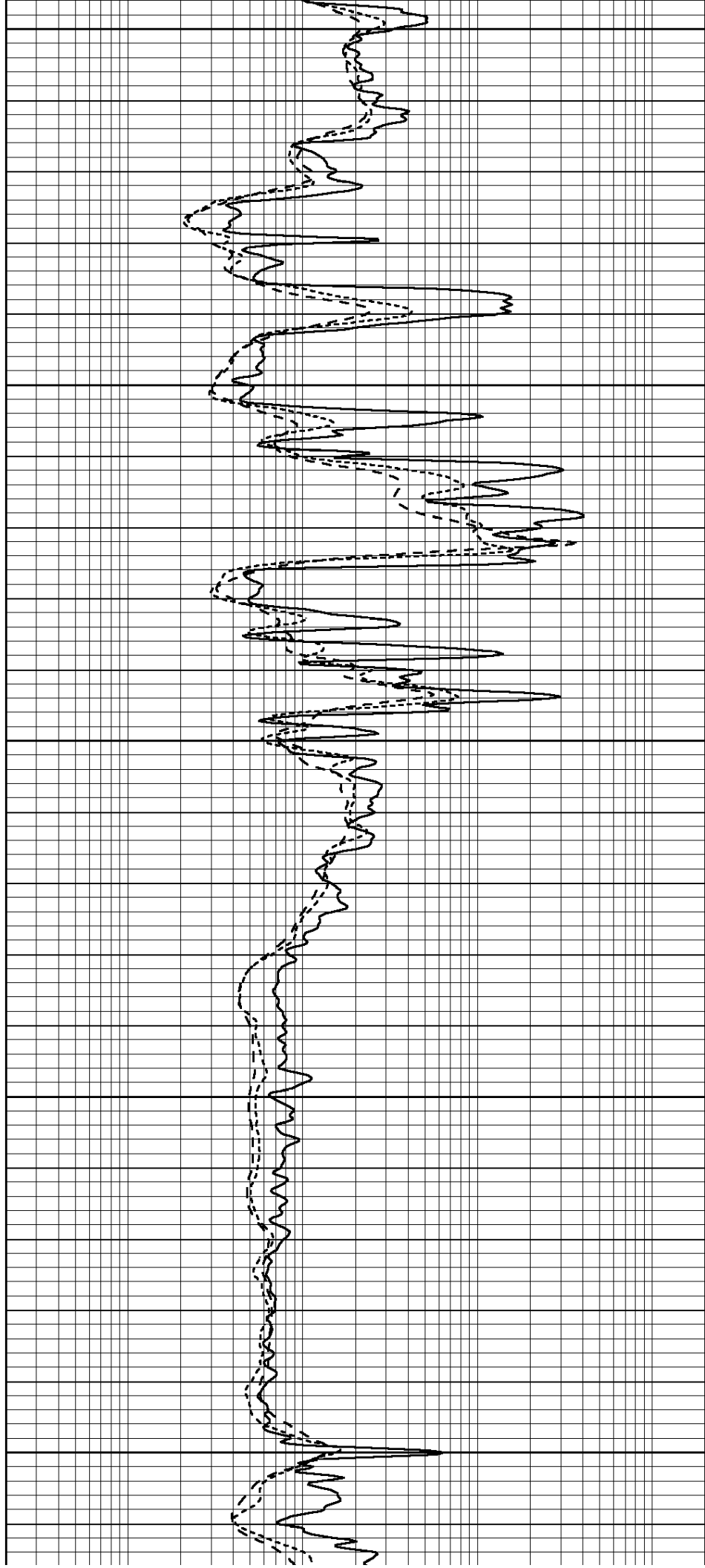
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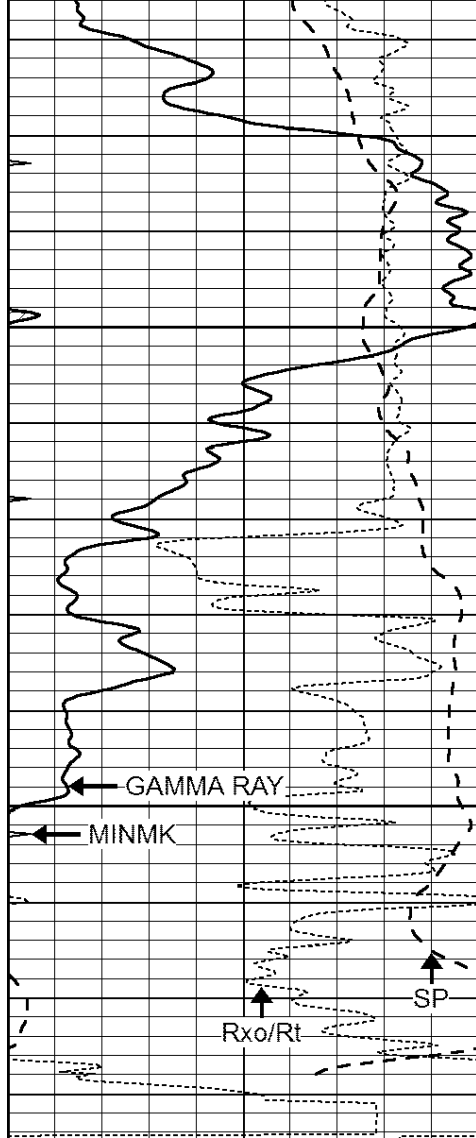
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4400

4450



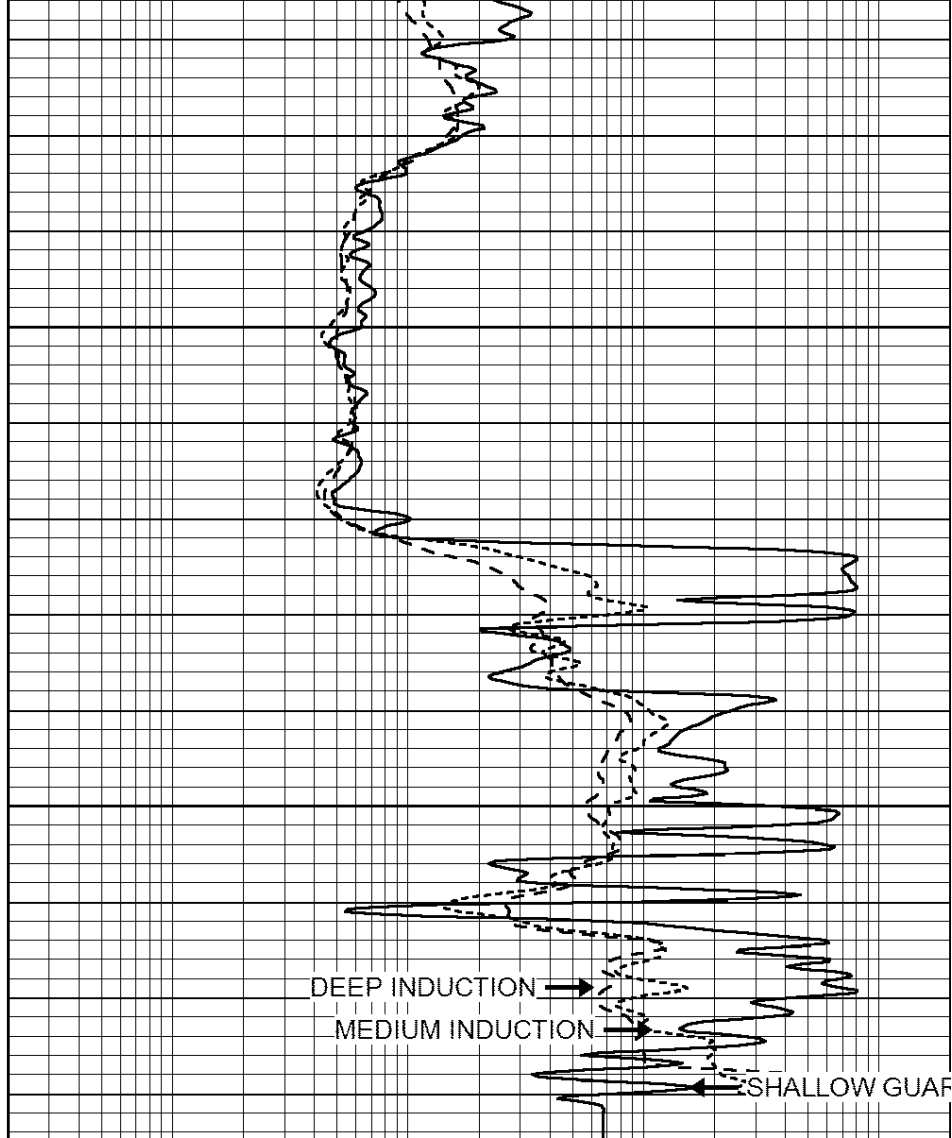


4500

4550

LTD 4581

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

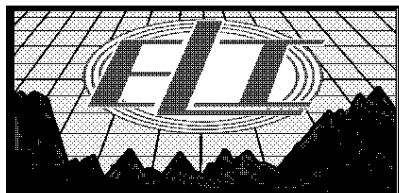


DEEP INDUCTION

MEDIUM INDUCTION

SHALLOW GUARD

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

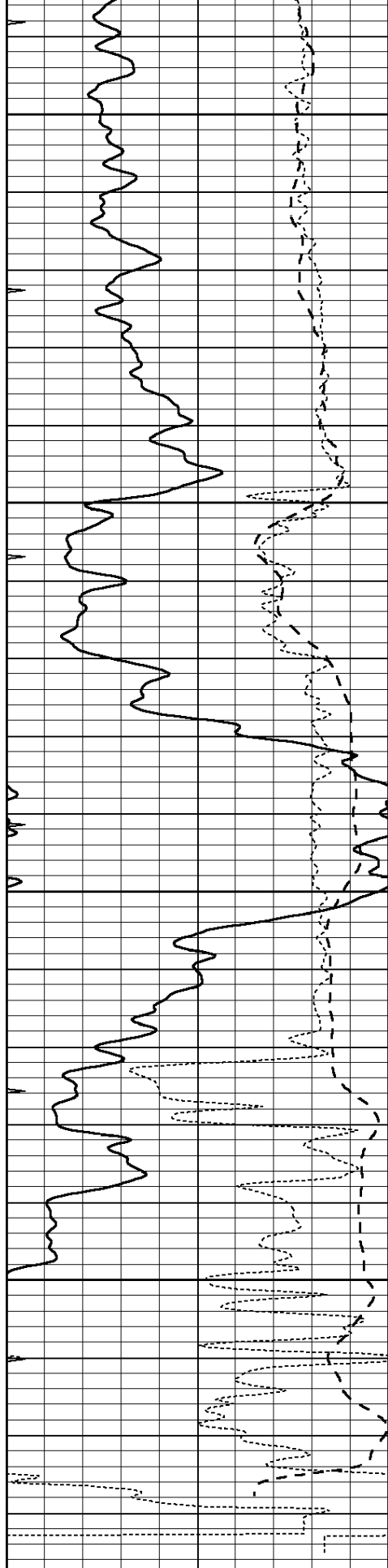


REPEAT SECTION

Database File: 2689ddn.db
 Dataset Pathname: pass2.1
 Presentation Format: _dil
 Dataset Creation: Thu Jul 05 10:04:58 2018
 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



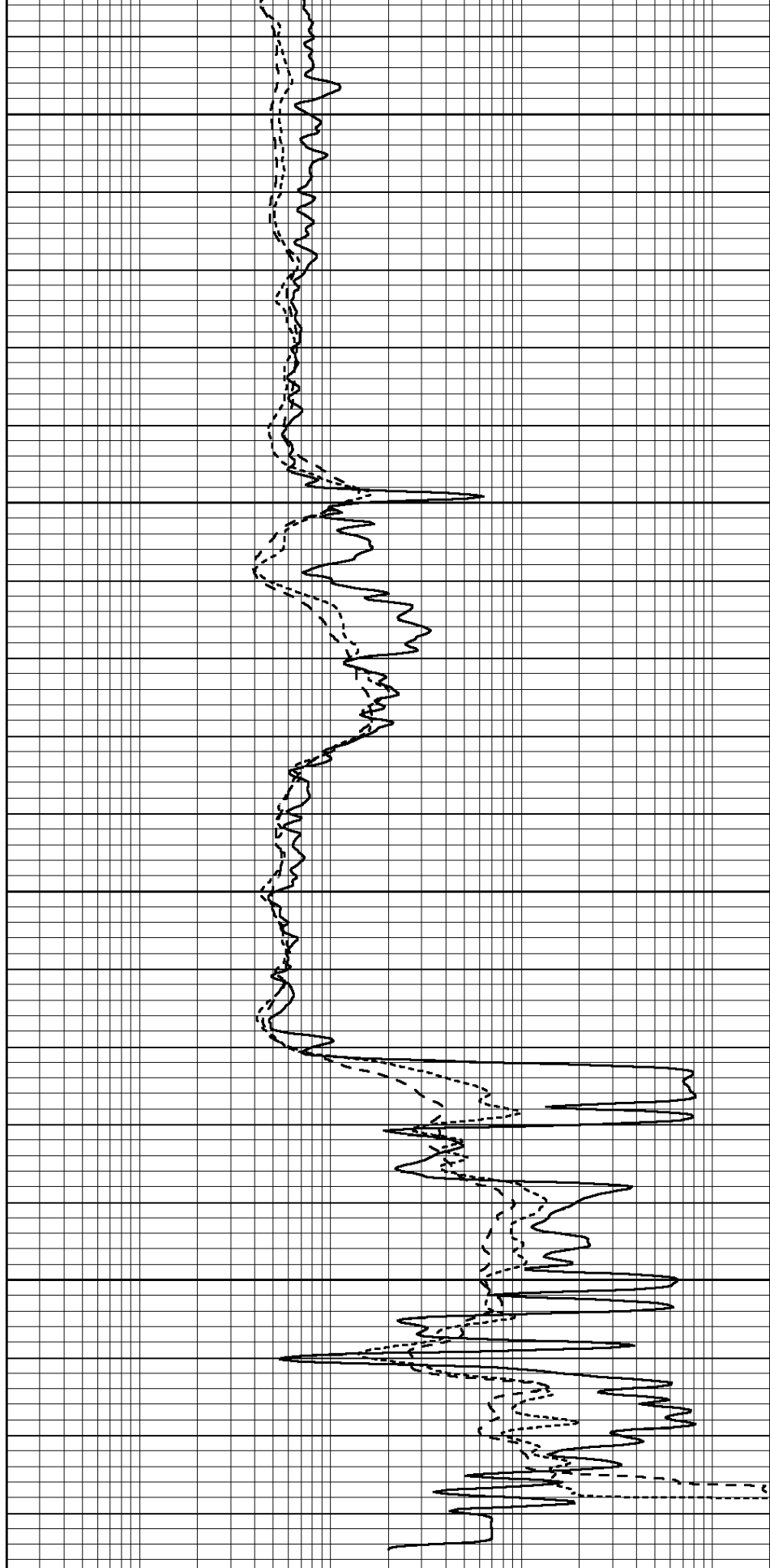
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

4400

4450

4500

4550



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: pe2.db
Dataset Pathname: pass2
Dataset Creation: Mon Aug 21 11:58:02 2017 by Log Open-Cased 090629

Dual Induction Calibration Report

Serial-Model: PROBE8-DILG
Surface Cal Performed: Mon Aug 21 11:58:18 2017
Downhole Cal Performed: Mon Aug 21 11:58:21 2017
After Survey Verification Performed: Mon Aug 21 11:58:23 2017

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	0.000
Medium	0.029	0.796	V	0.000	464.000	mmho/m	590.000	-12.000
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: 002 Model: PRB

Master Calibration

Performed Mon Aug 21 11:56:41 2017

	Background	Magnesium	Aluminum	Sandstone	
Window 1	833.6	7394.2	2287.3	8111.8	cps
Window 2	768.9	6322.3	1995.6	6800.0	cps
Window 3	621.5	3261.9	1186.4	3380.9	cps
Window 4	184.2	185.7	184.9	184.8	cps
Long Space	0.0	5553.4	1226.6	6031.1	cps
Short Space	1.2	1307.5	903.9	1387.7	cps
Rho		1.7100	2.5900	1.3800	g/cc
Pe		0.0000	2.5700	1.5500	
Rib Angle	: 46.3	Rib Slope	: 1.045	Density/Spine Ratio	: 0.566
Spine Angle	: 76.3	Spine Slope	: 4.090	Spine Intercept	: -20.7

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	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	

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Compensated Neutron Calibration Report					
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Serial Number:		6I			
Tool Model:		G			

CALIBRATION					
Detector		Readings		Target	Normalization
Short Space		1.00	cps	1.00	1.0000
Long Space		1.00	cps	1.00	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:	Mon Aug 21 11:59:01 2017	
Calibrator Value:	150.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	276.0	cps
Sensitivity:	0.5500	GAPI/cps