



DUAL INDUCTION LOG

Company BLACK STONE PETROLEUM, LLC
 Well SWOB #1
 Field OTIS-ALBERT
 County RUSH
 State KANSAS

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 Well SWOB #1
 Field OTIS-ALBERT
 County RUSH State KANSAS

Location: API # : 15-165-22144-00-00
 405' FSL & 510' FWL
 SEC 26 TWP 18S RGE 16W
 Permanent Datum GROUND LEVEL Elevation 1962'
 Log Measured From KELLY BUSHING 9' A.G.L.
 Drilling Measured From KELLY BUSHING
 Other Services CDL/CNL/ML/EL SONIC
 Elevation K.B. 1971
 D.F. 1969
 G.L. 1962

Date	04/17/17
Run Number	ONE
Depth Driller	3619
Depth Logger	3595
Bottom Logged Interval	3593
Top Log Interval	00
Casing Driller	8 5/8" @ 374
Casing Logger	374
Bit Size	8 3/4"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.1/38
pH / Fluid Loss	9.8/6.9
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.10@70
Rmt @ Meas. Temp	.075@70
Rmc @ Meas. Temp	.12@70
Source of Rmf / Rmc	MEASURED
Rm @ BHT	.06@112
Time Circulation Stopped	2 HOURS
Time Logger on Bottom	///
Maximum Recorded Temperature	112F
Equipment Number	4010
Location	HAYS, KANSAS
Recorded By	GUS PFANENSTIEL
Witnessed By	BOB BAYER

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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
 96 HIGHWAY OUT OF RUSH CENTER EAST TO 380 RD.
 SOUTH 3/4 MILE
 EAST INTO.



MAIN PASS

Database File: 1462ddn.db
 Dataset Pathname: pass3DIL.1
 Presentation Format: _dil2
 Dataset Creation: Tue Apr 18 00:08:19 2017
 Charted by: Depth in Feet scaled 1:600

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

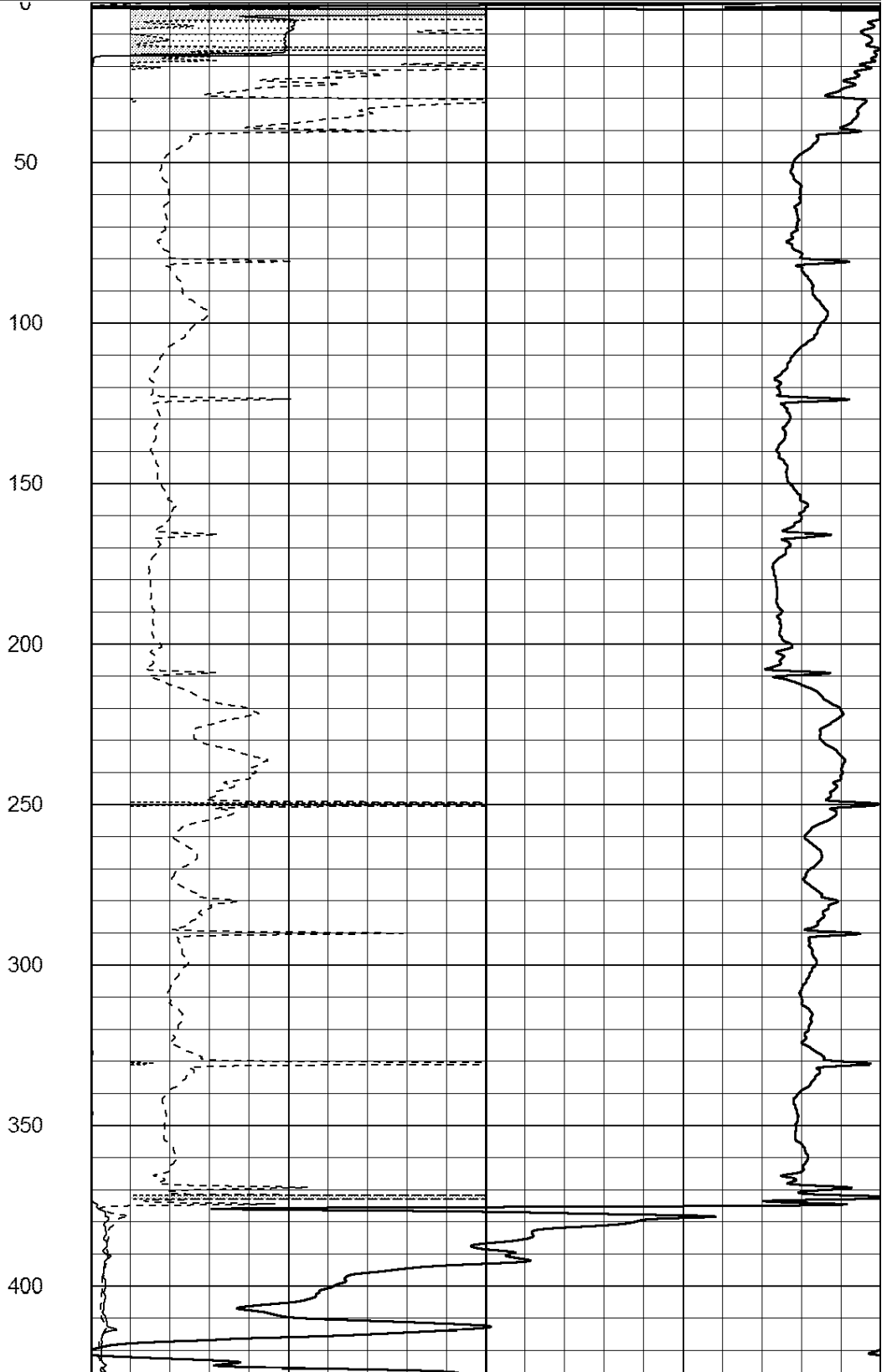
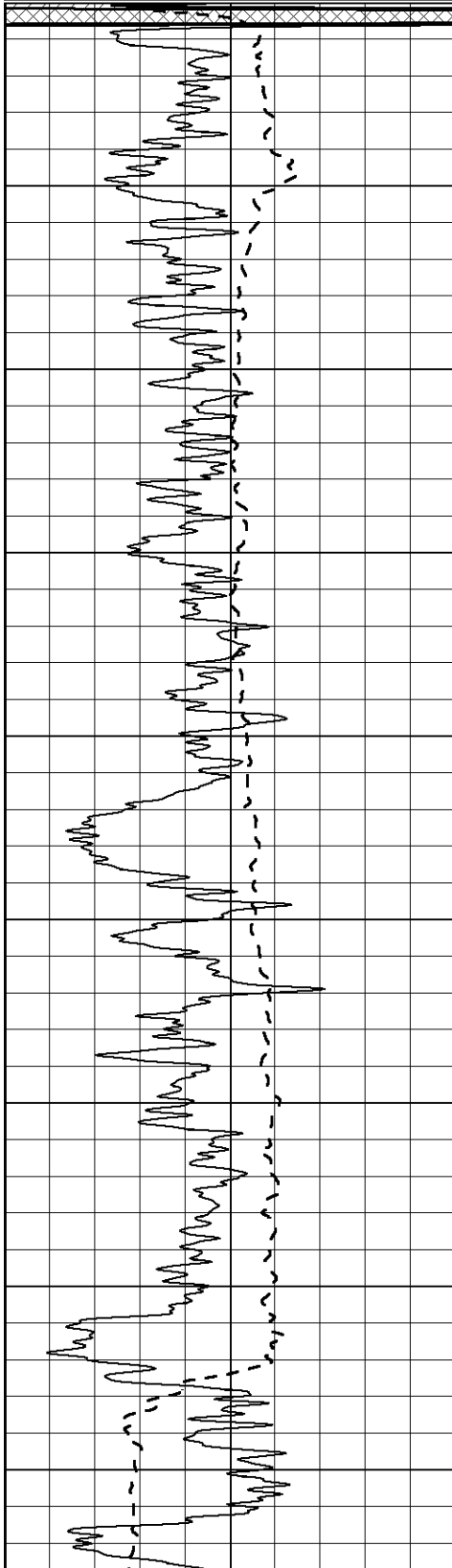
0	RLL3 (Ohm-m)	50
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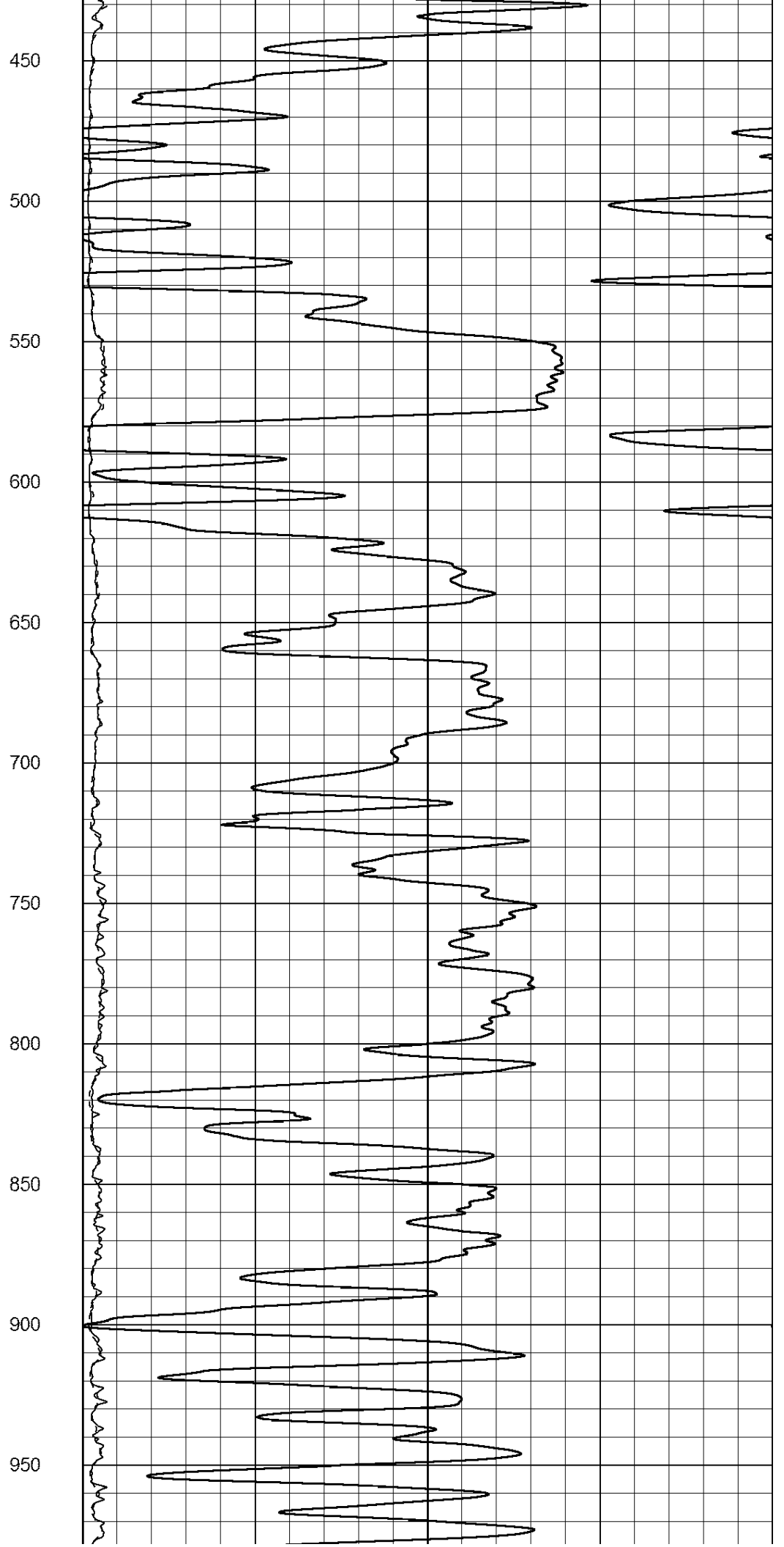
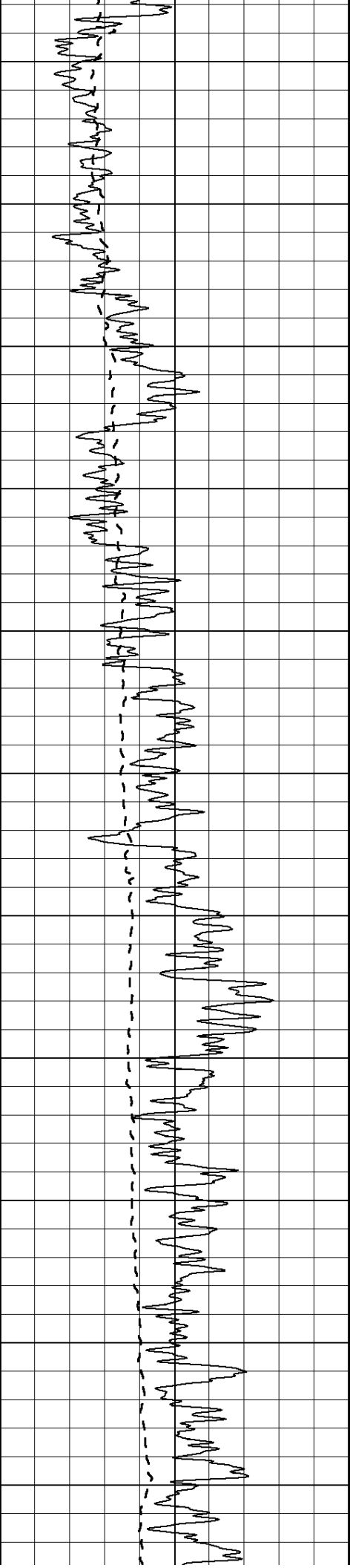
0	RILD (Ohm-m)	50
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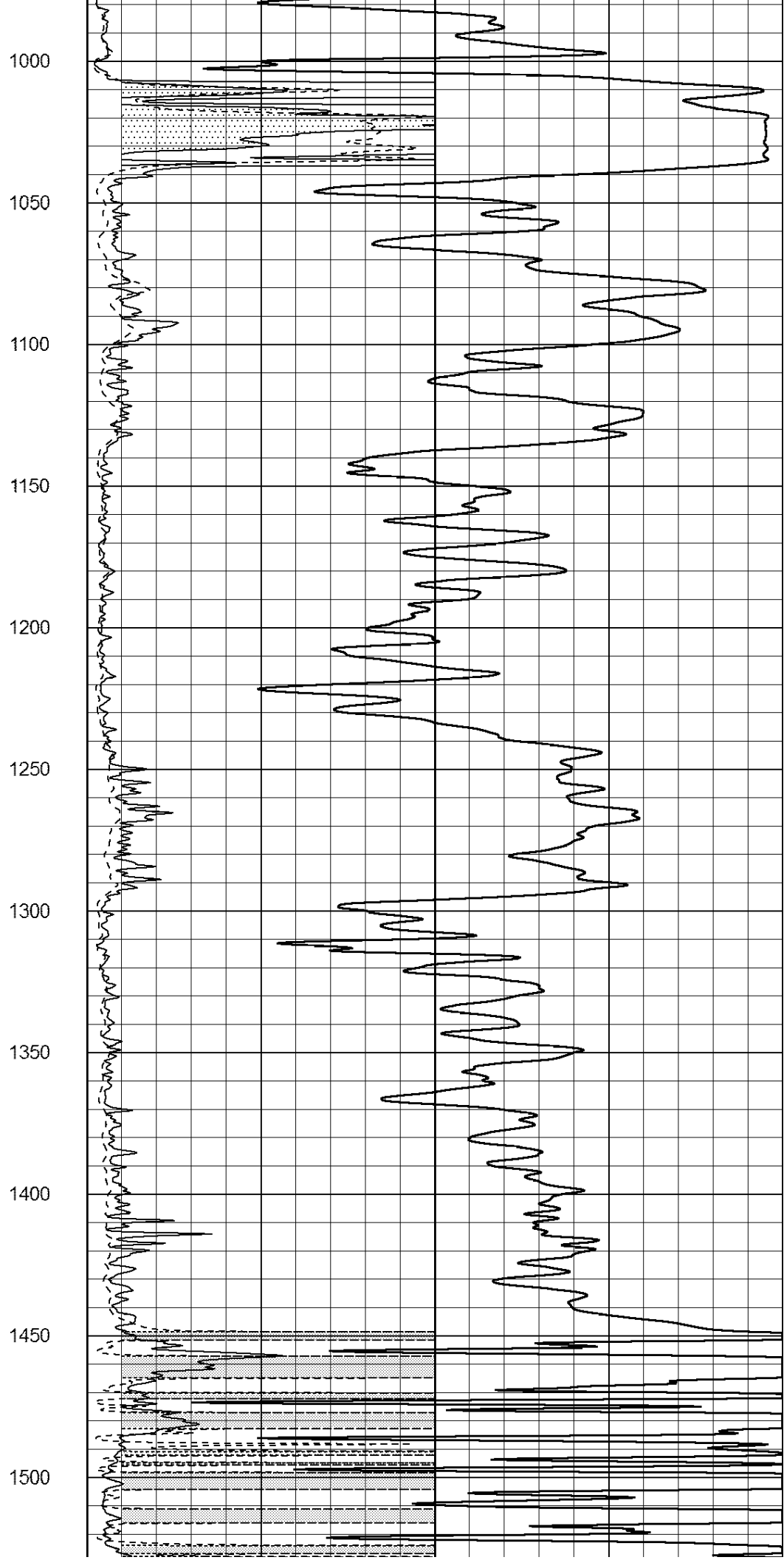
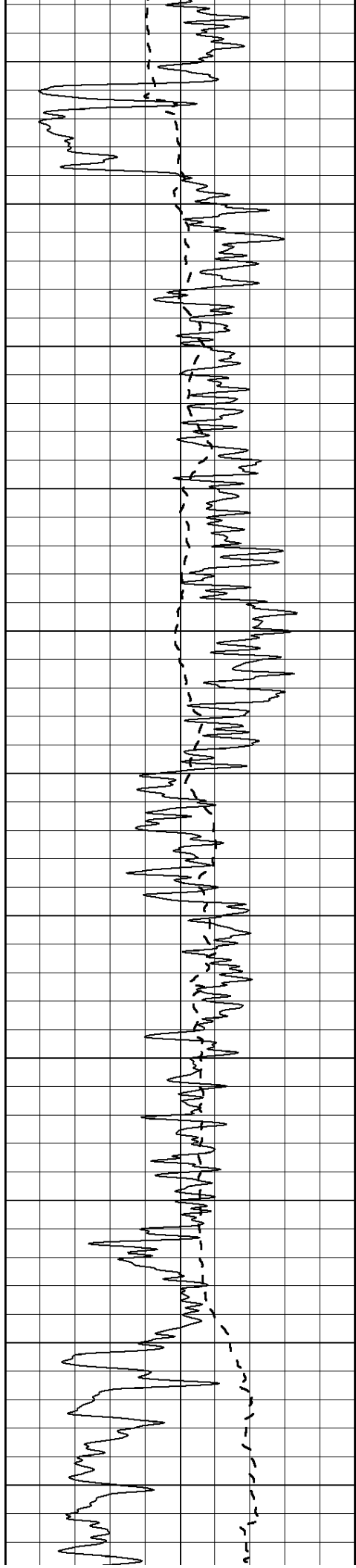
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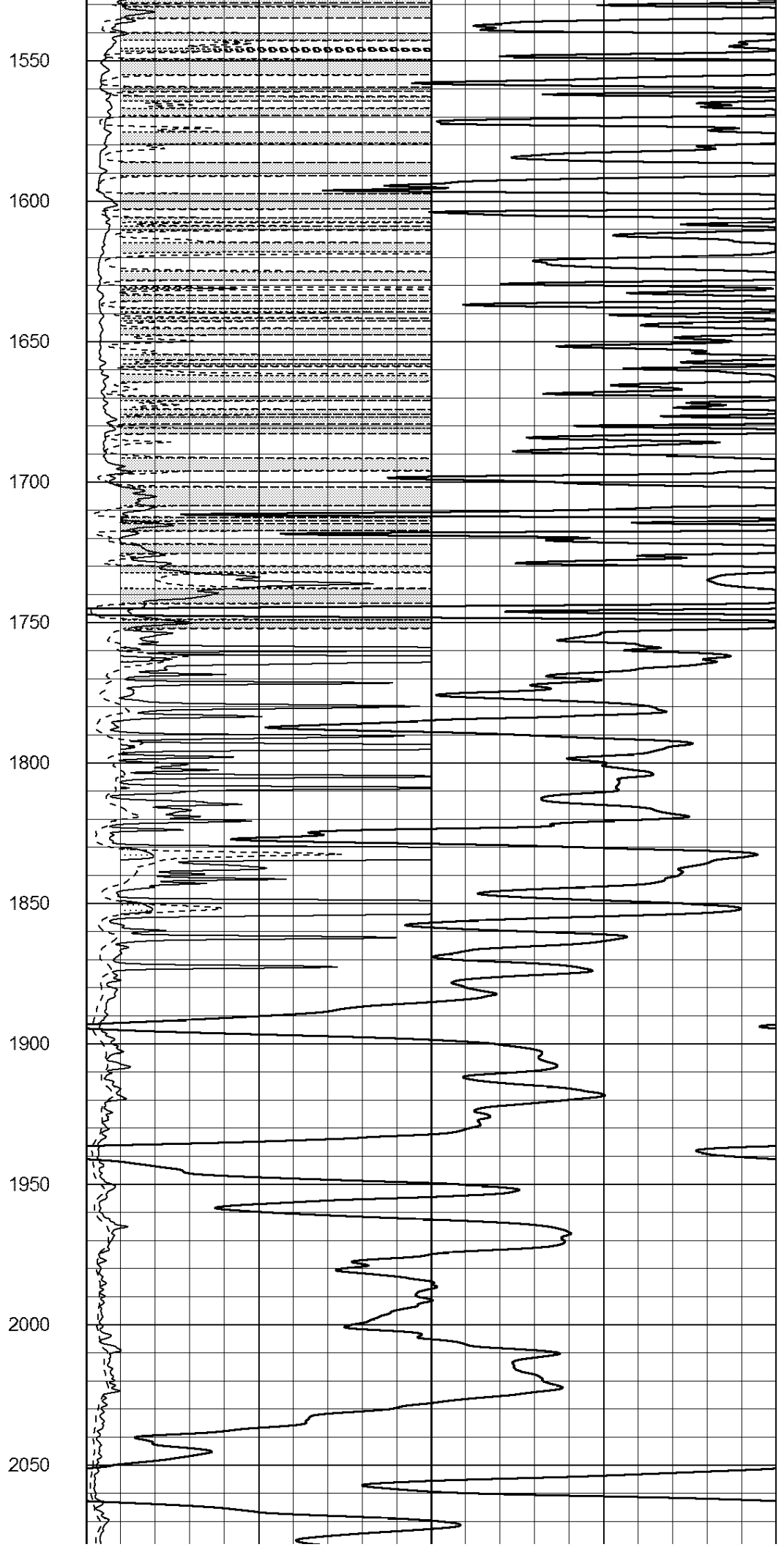
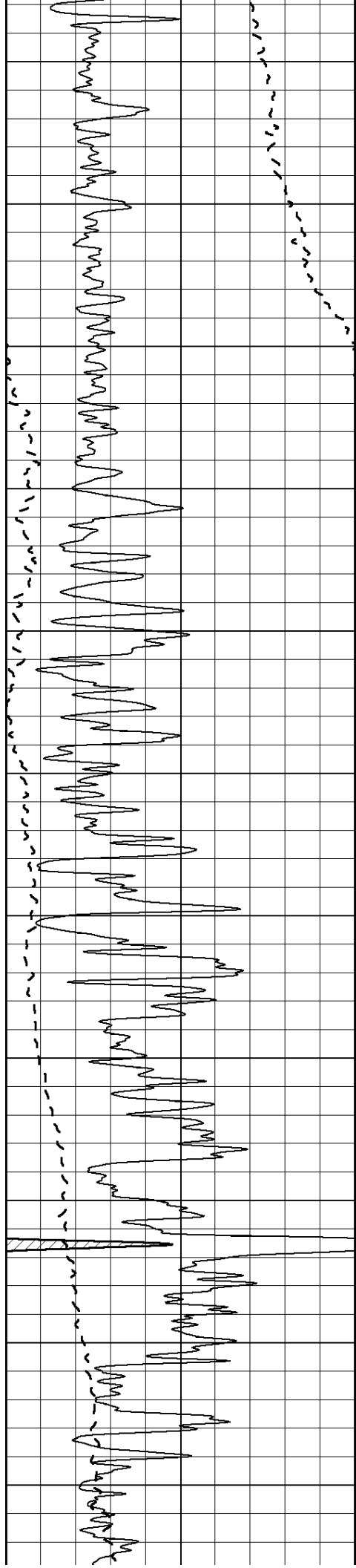
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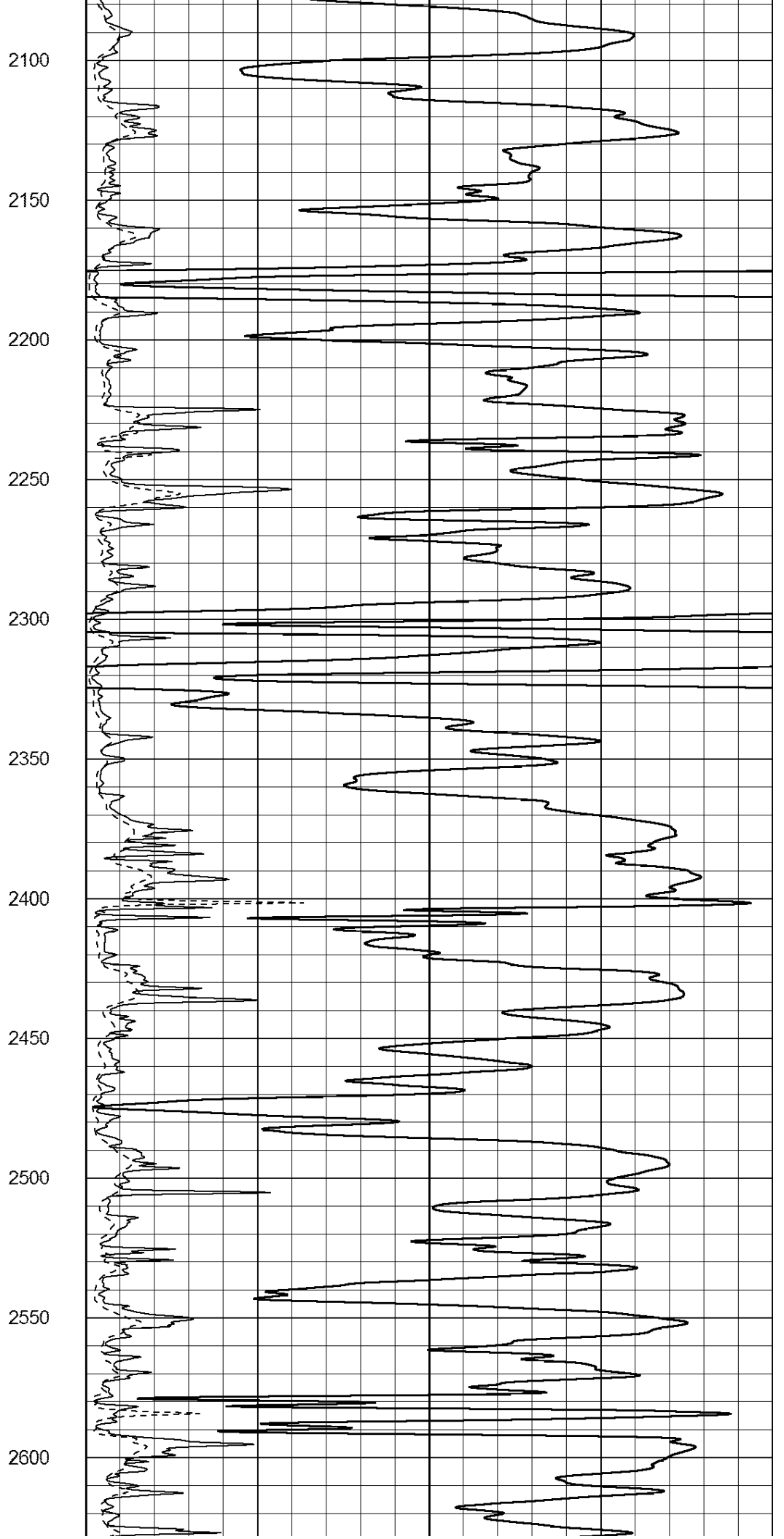
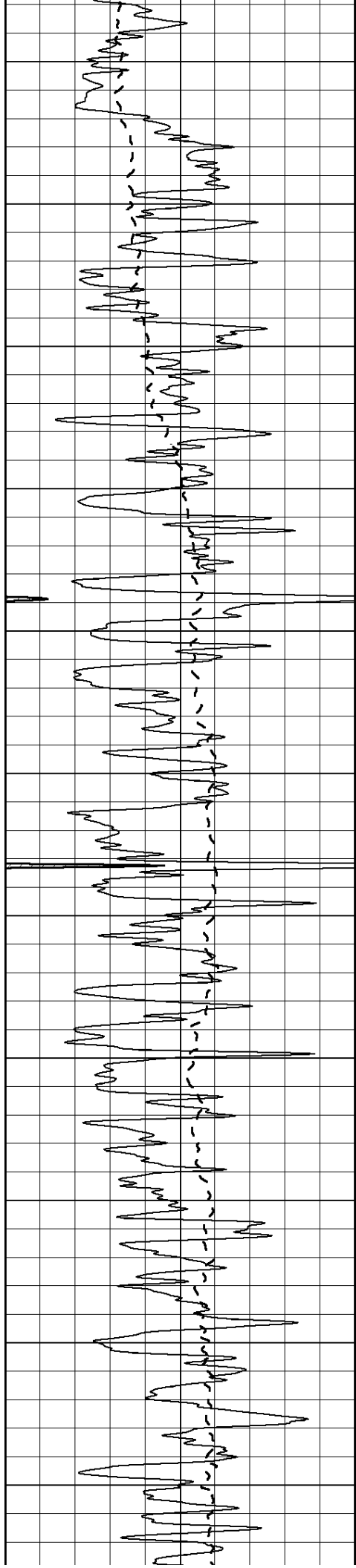
50	RLL3 X10 (Ohm-m)	500
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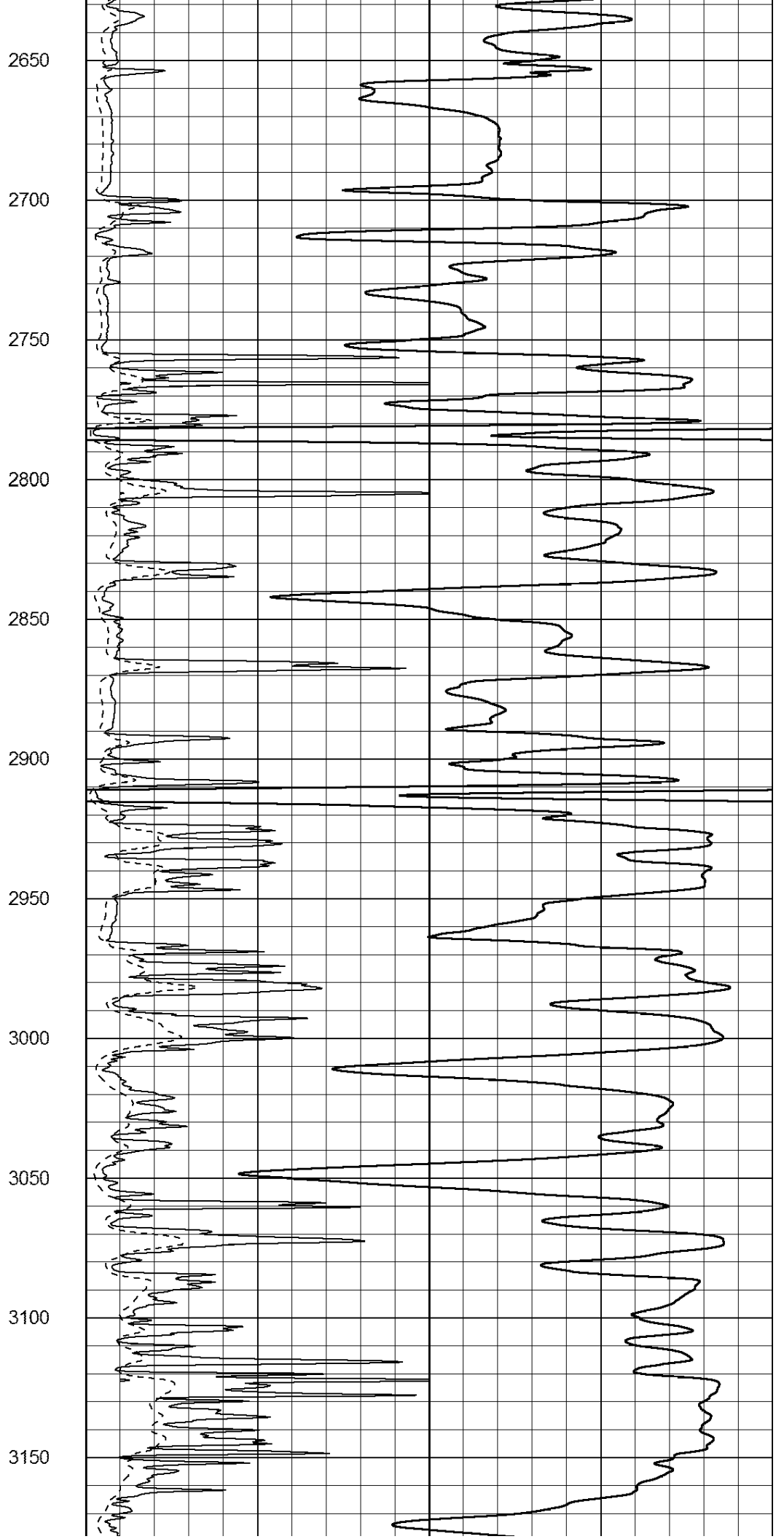
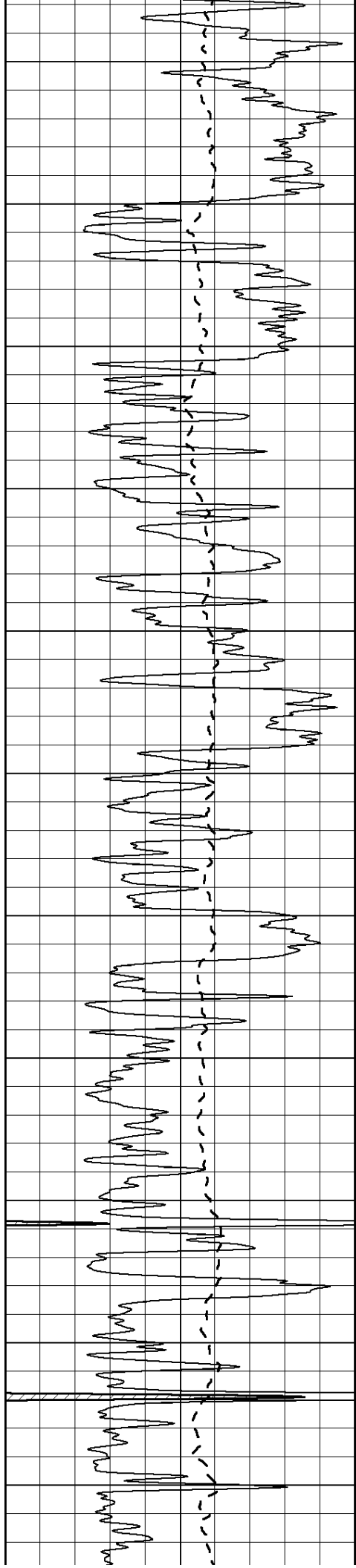


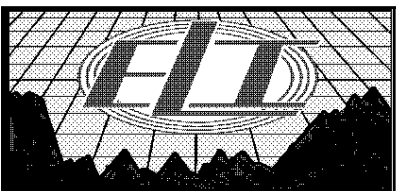
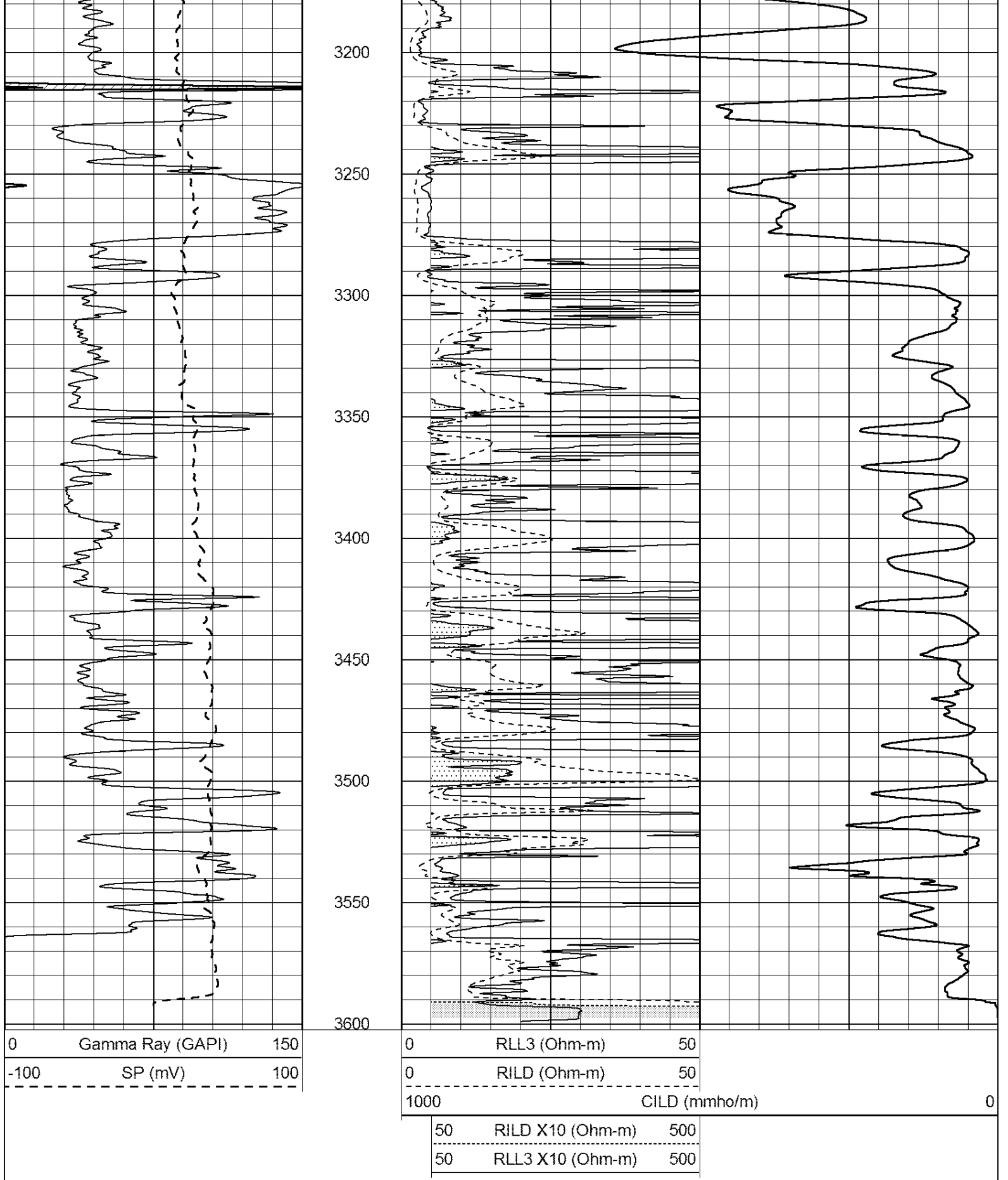










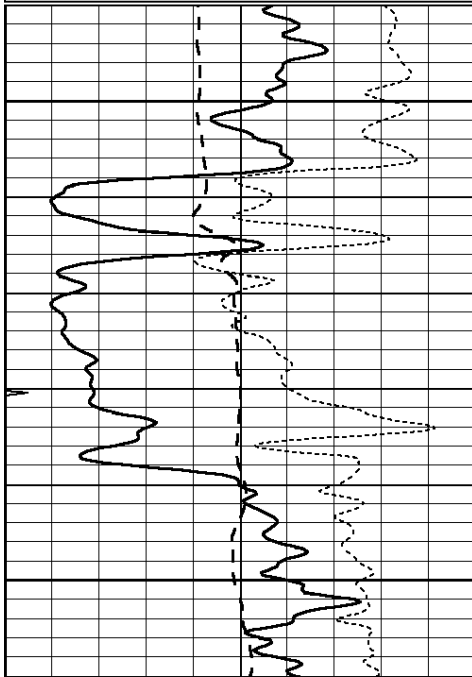


MAIN PASS

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 Dataset Pathname: pass3DIL.1
 Presentation Format: _dil
 Dataset Creation: Tue Apr 18 00:08:19 2017
 Charted by: Depth in Feet scaled 1:240

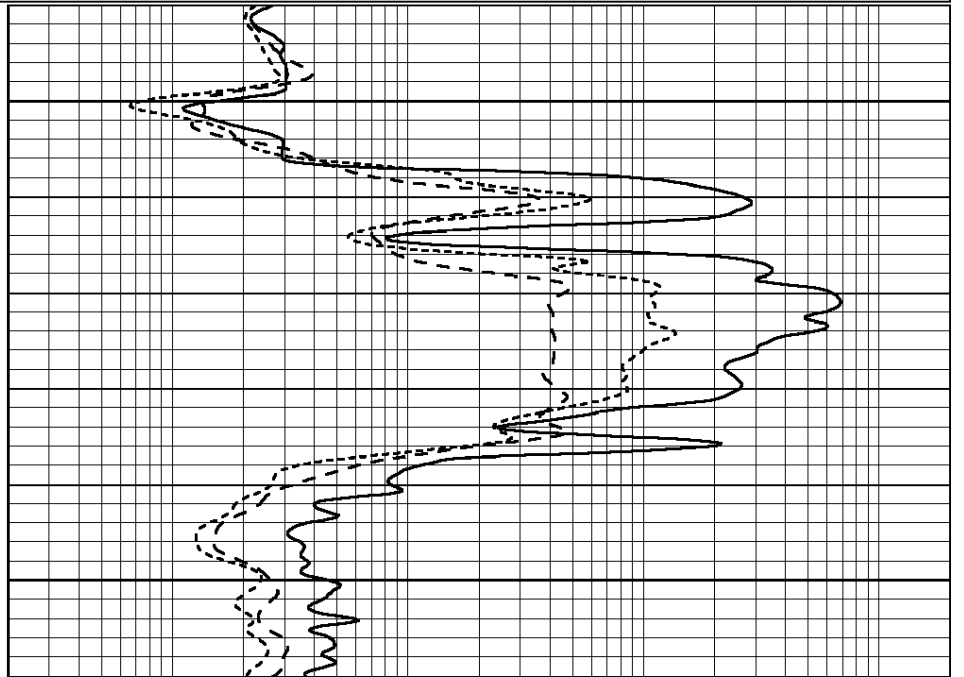
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



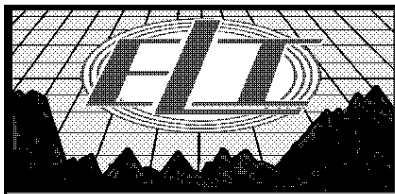
1000

1050



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

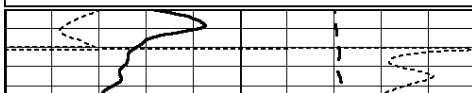


MAIN PASS

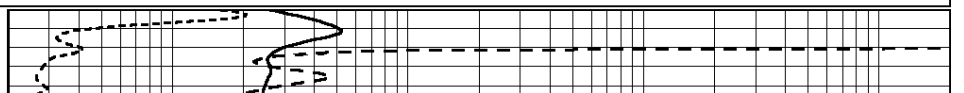
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 Charted by: Depth in Feet scaled 1:240

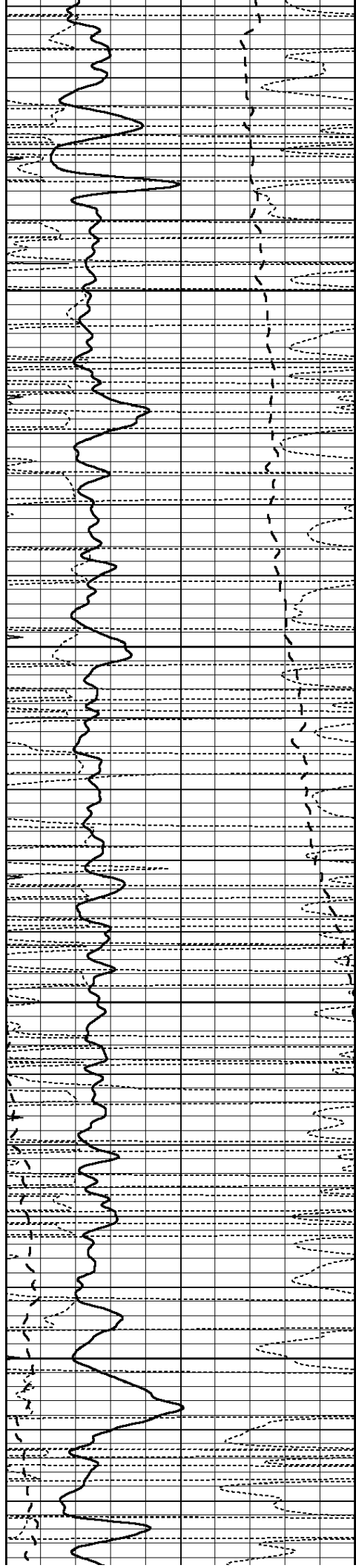
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



1500



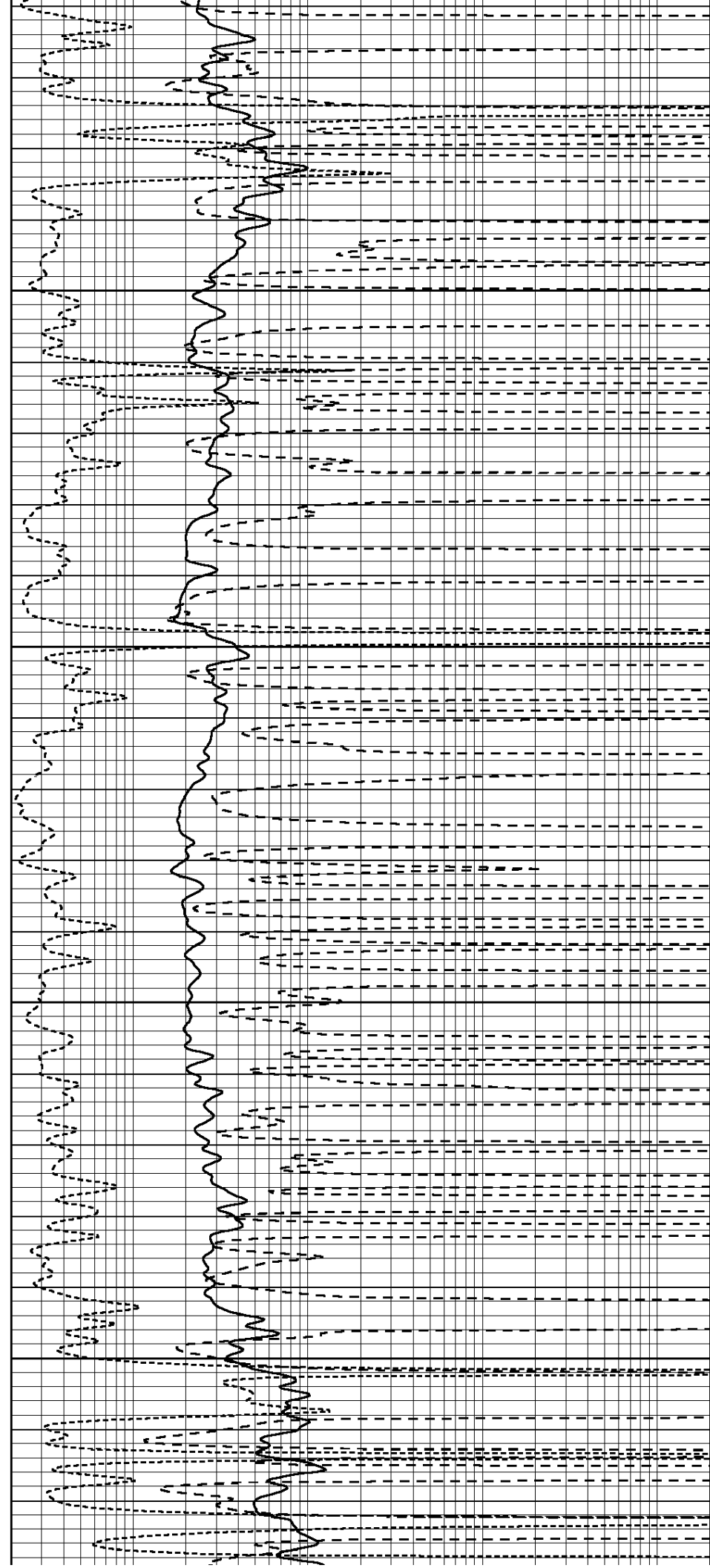


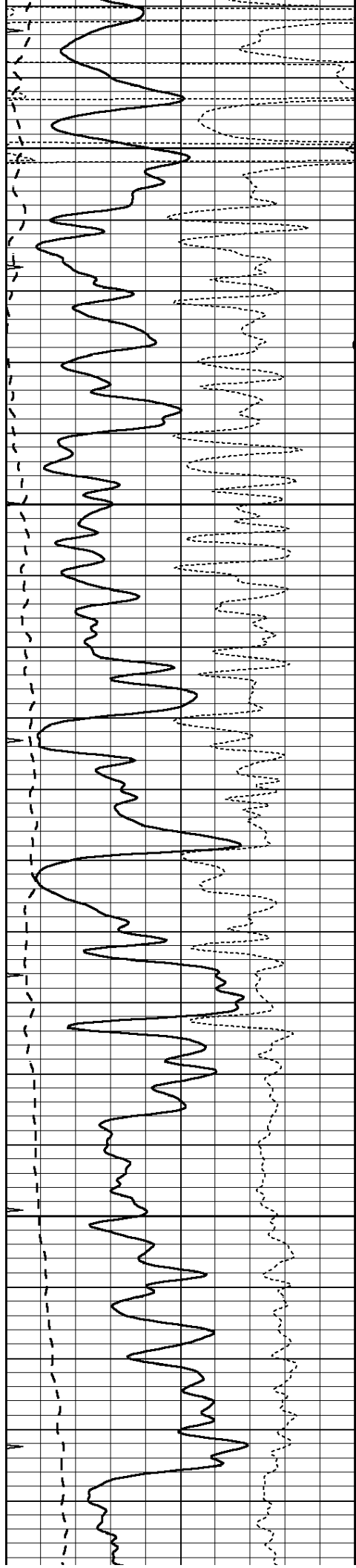
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1600

1650

1700



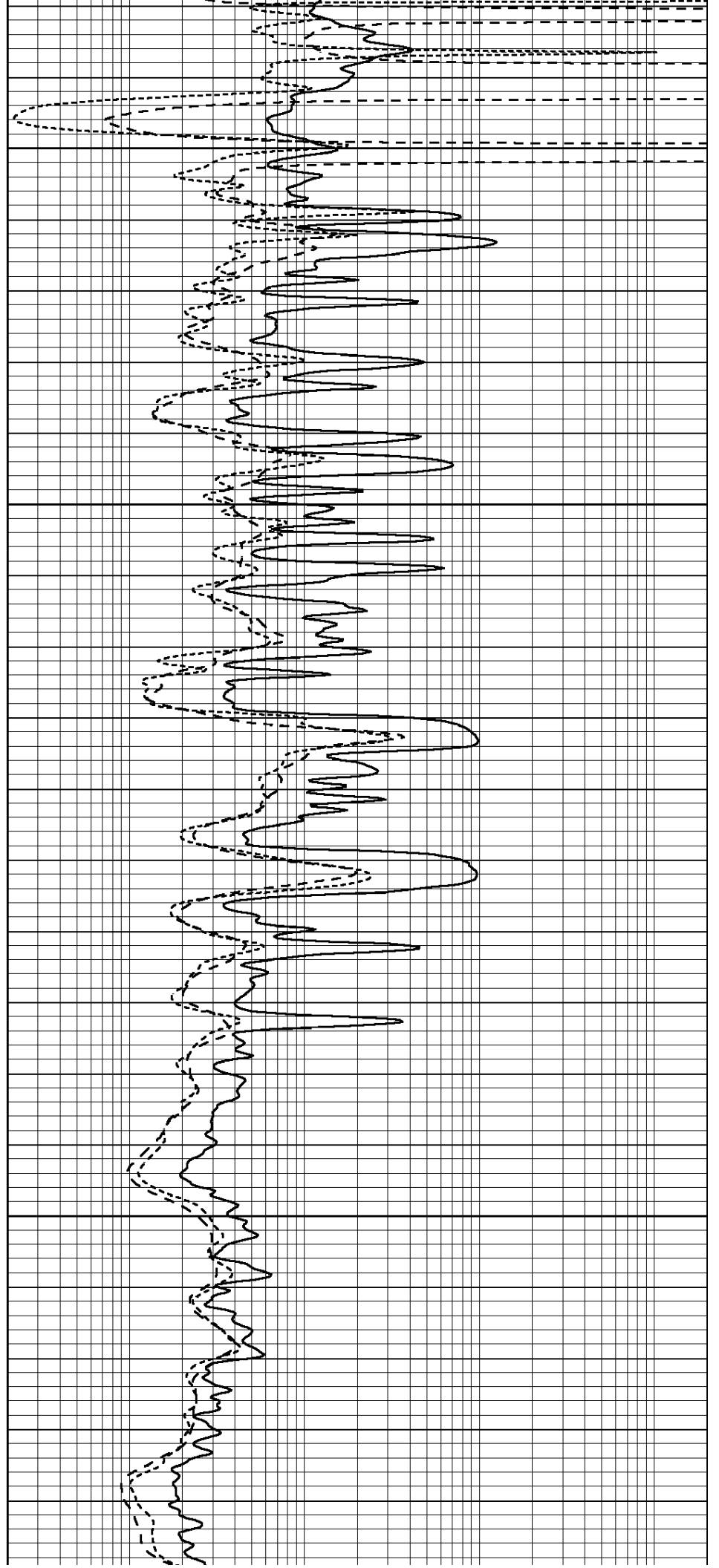


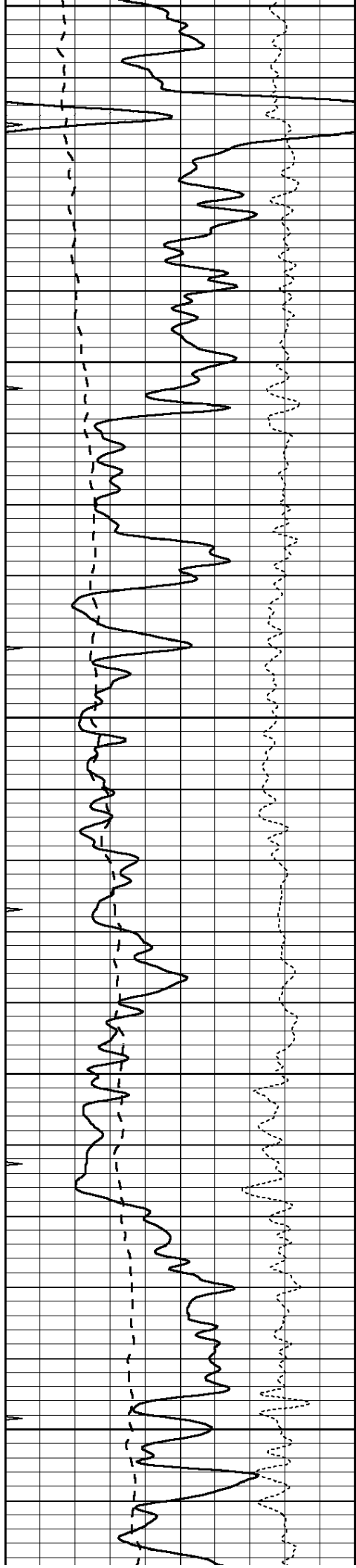
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1800

1850

1900





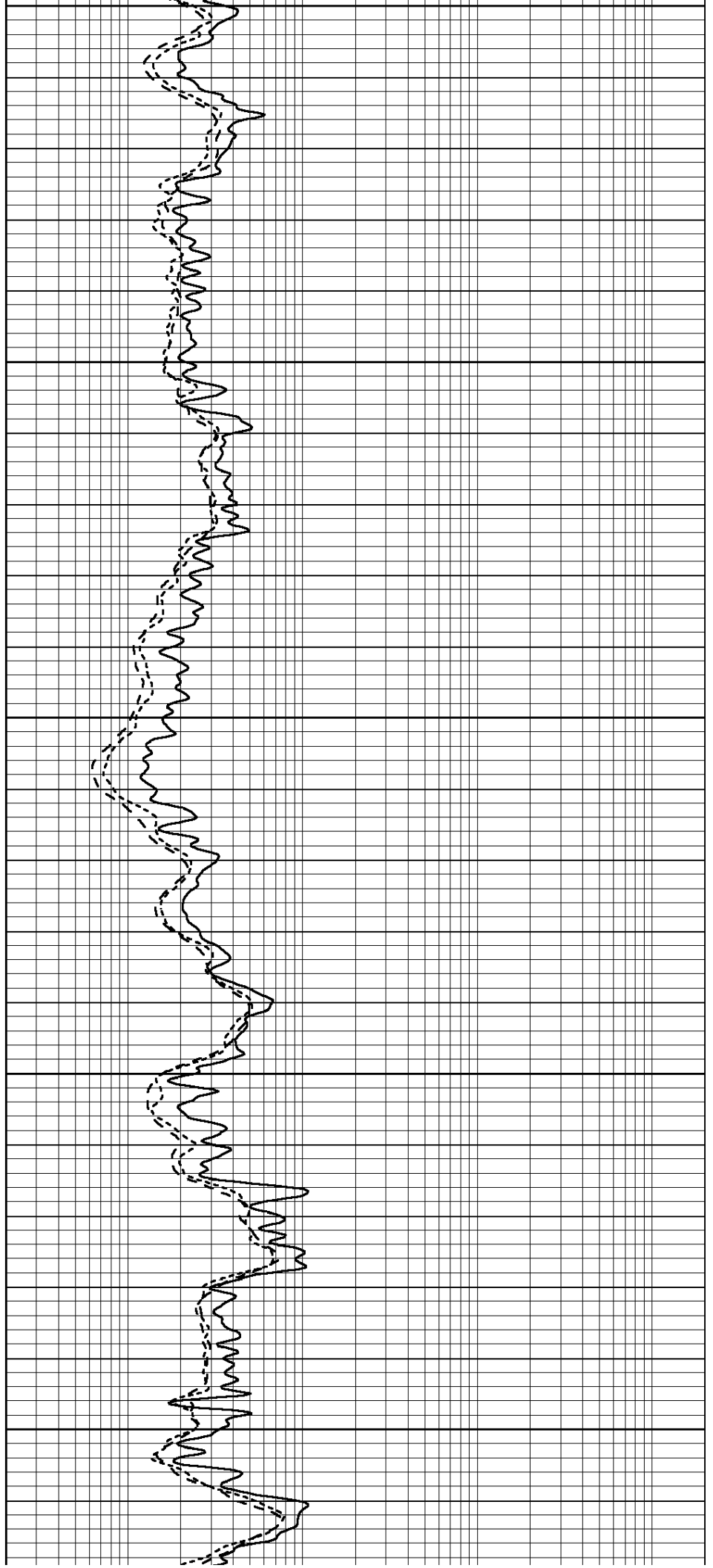
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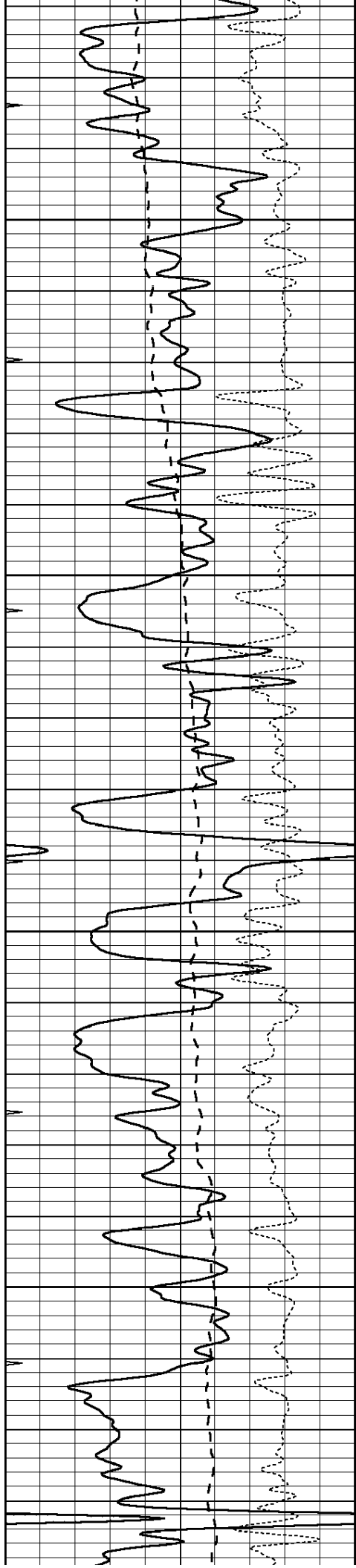
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2050

2100

2150



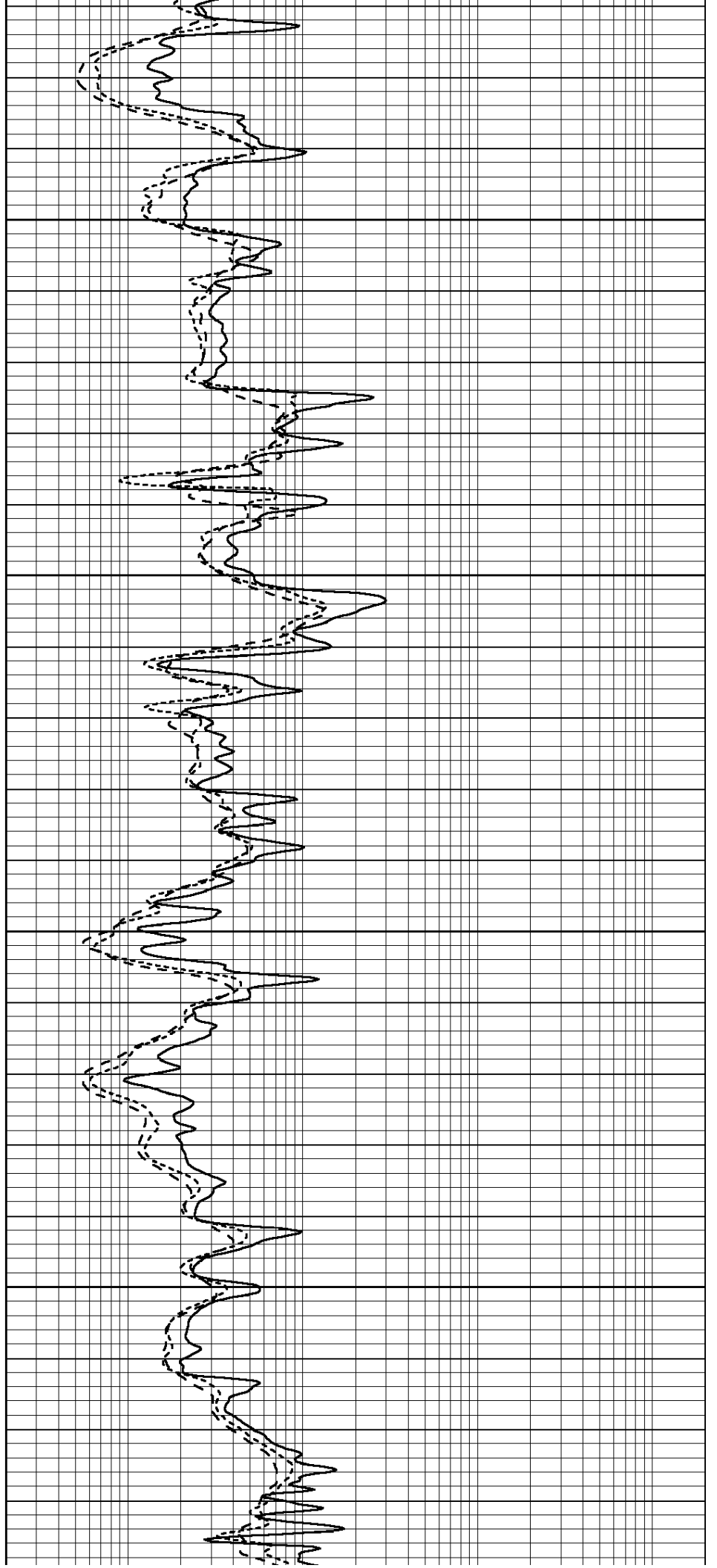


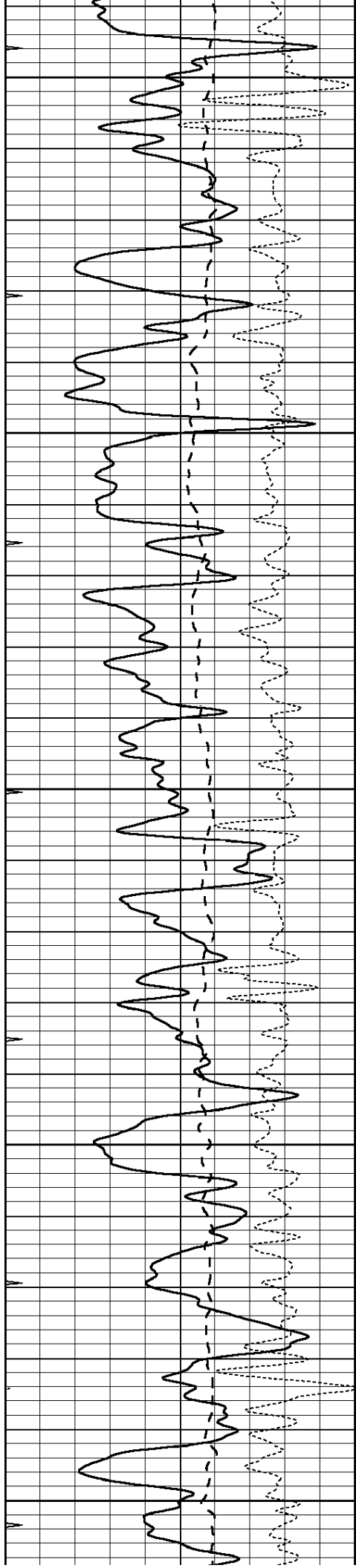
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2250

2300

2350





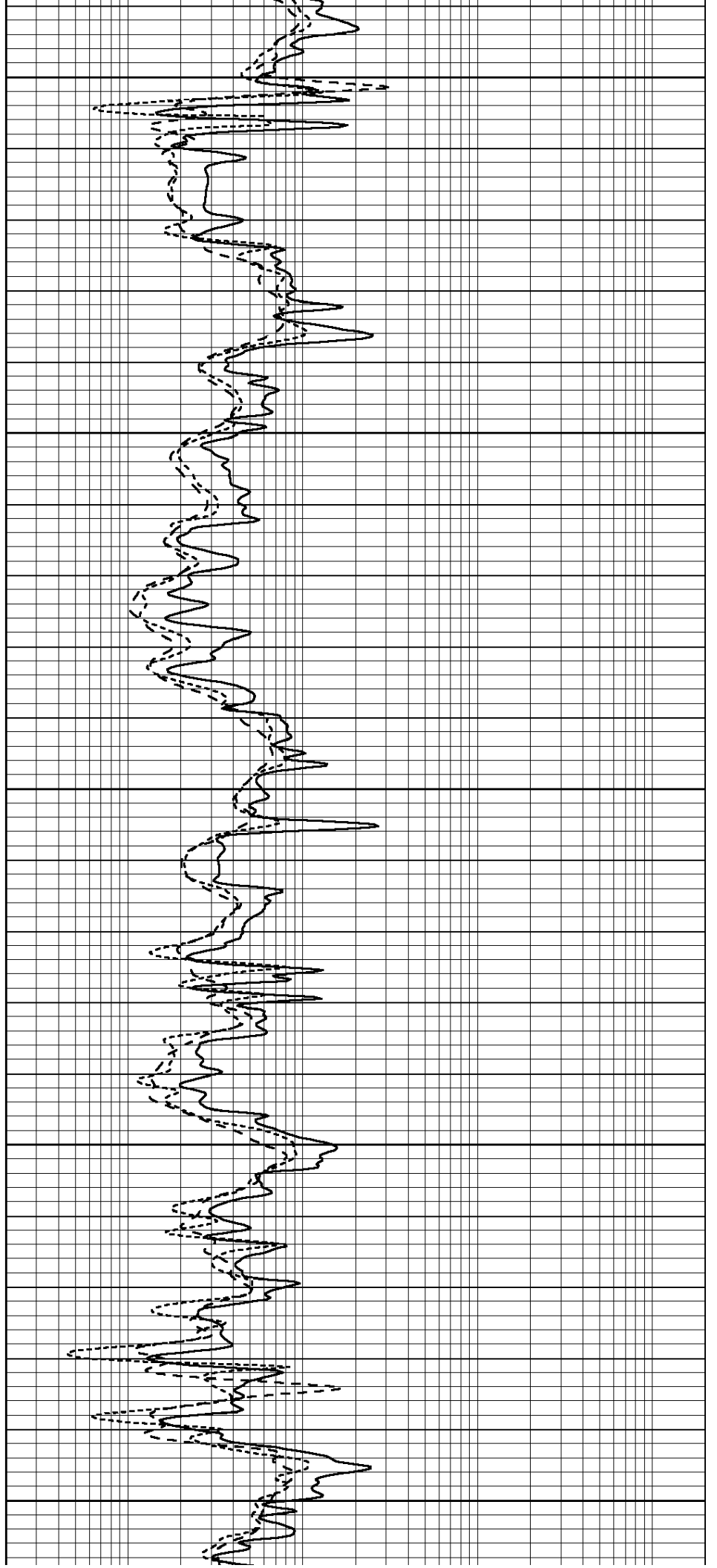
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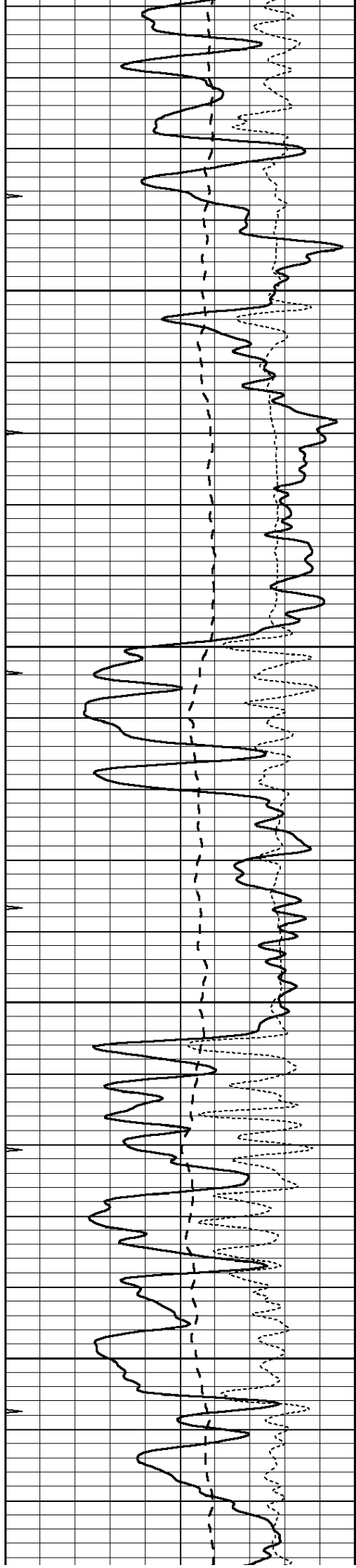
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2500

2550

2600



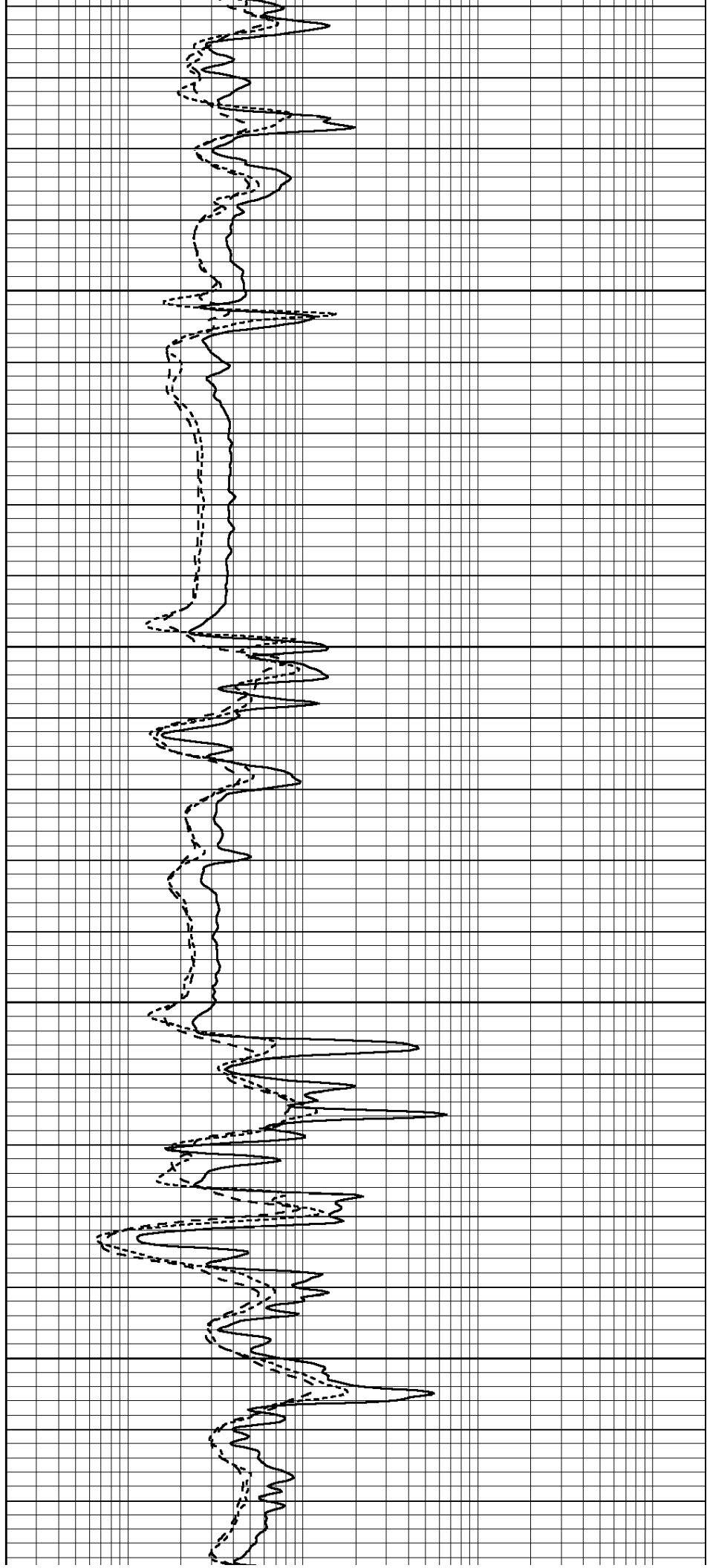


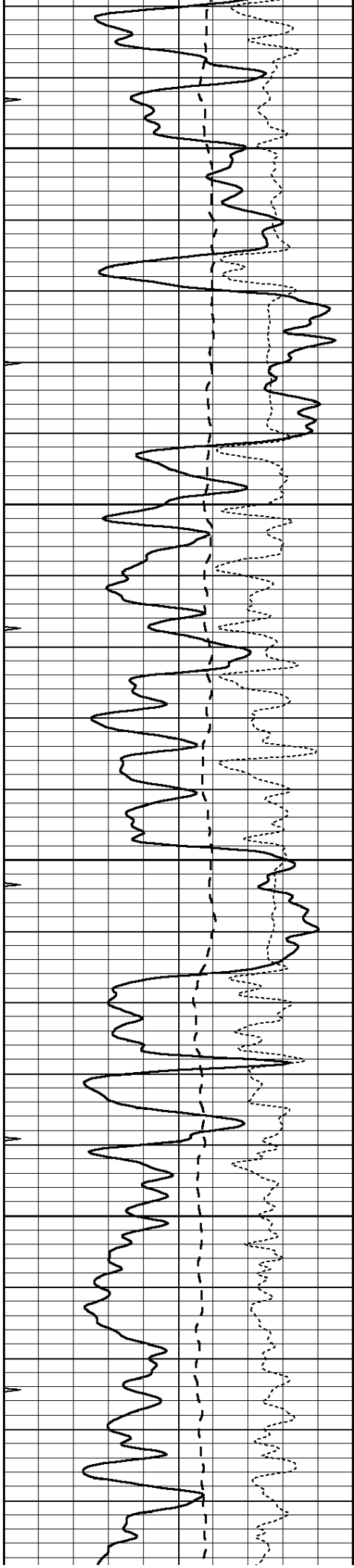
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2700

2750

2800



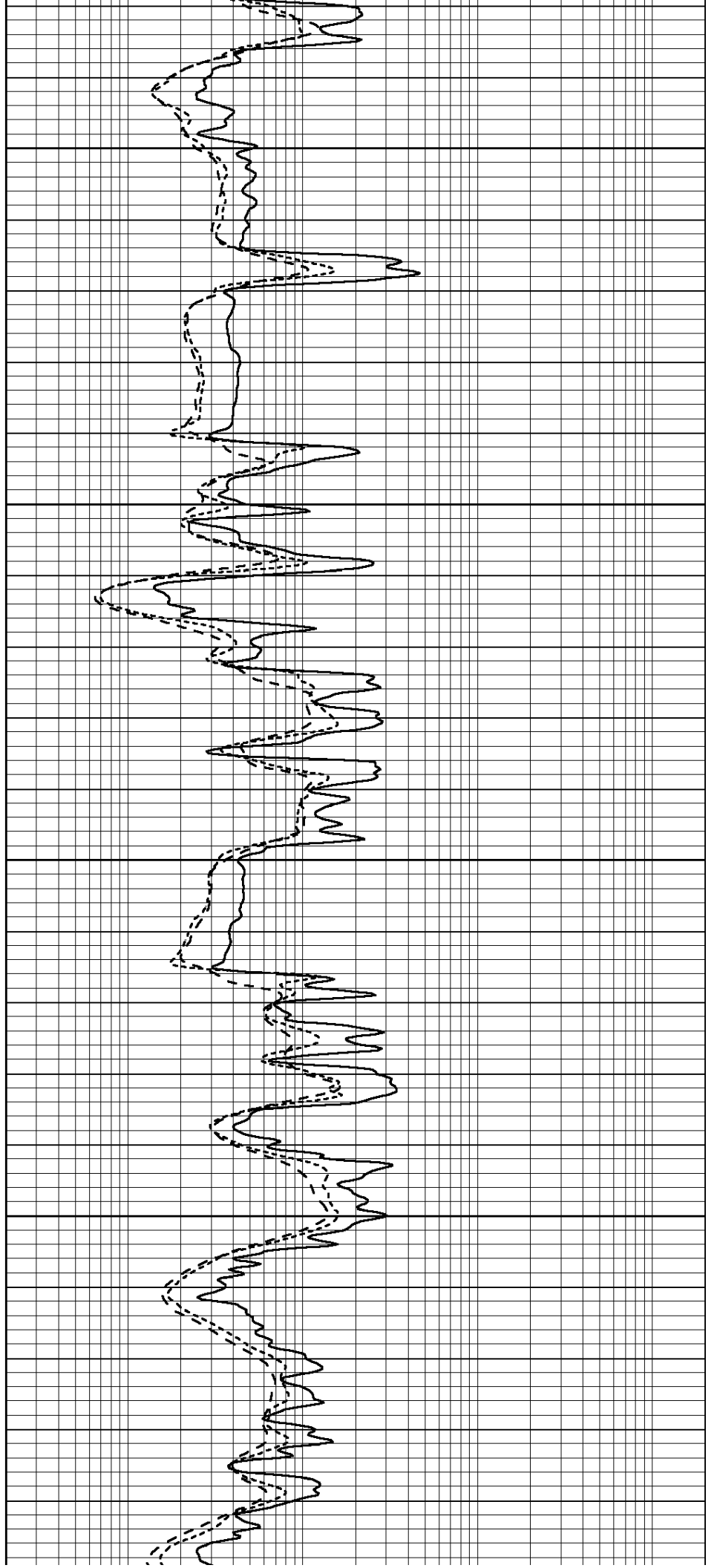


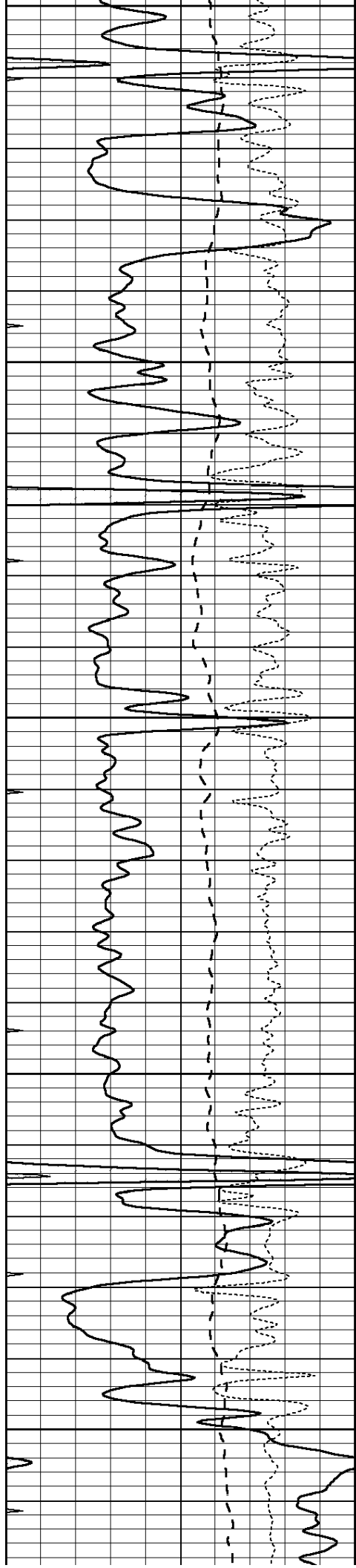
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2900

2950

3000





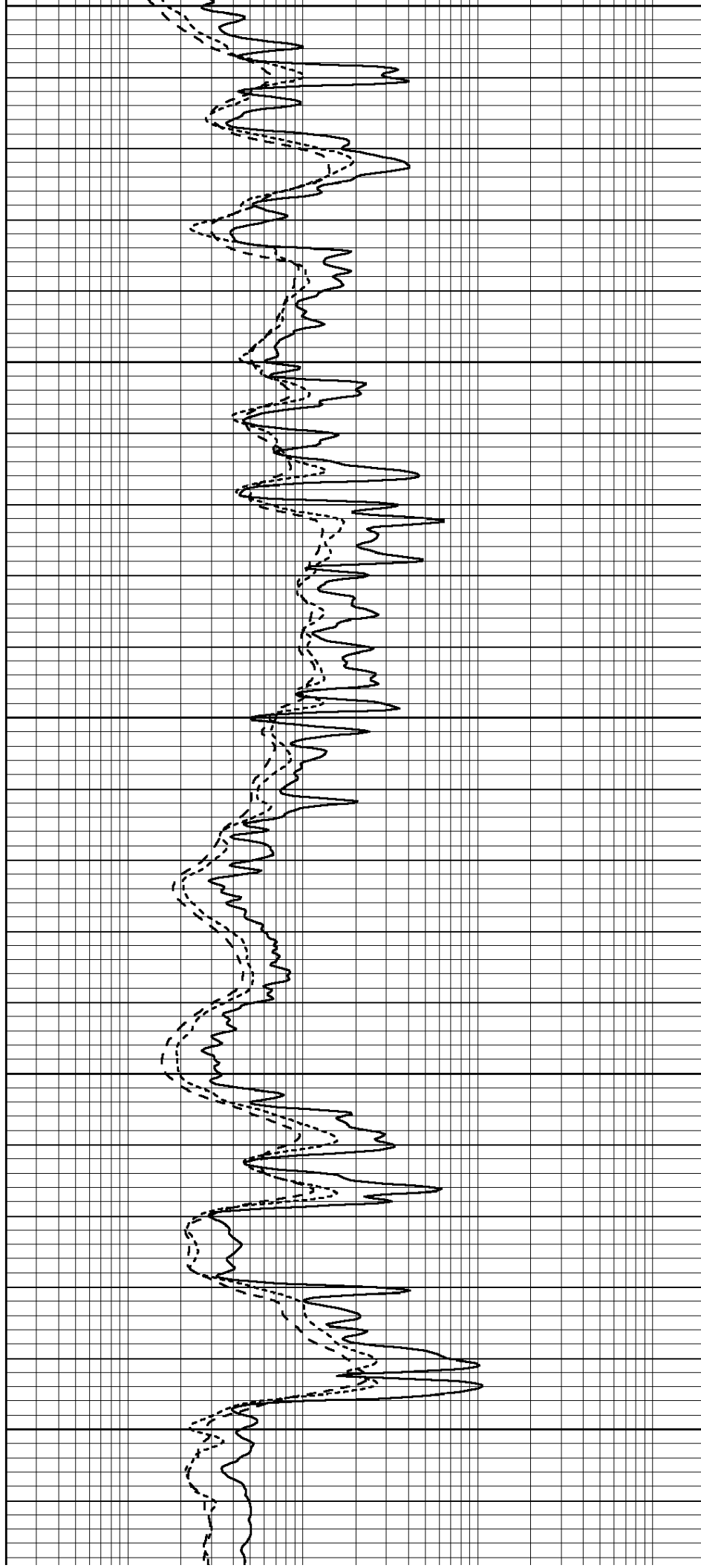
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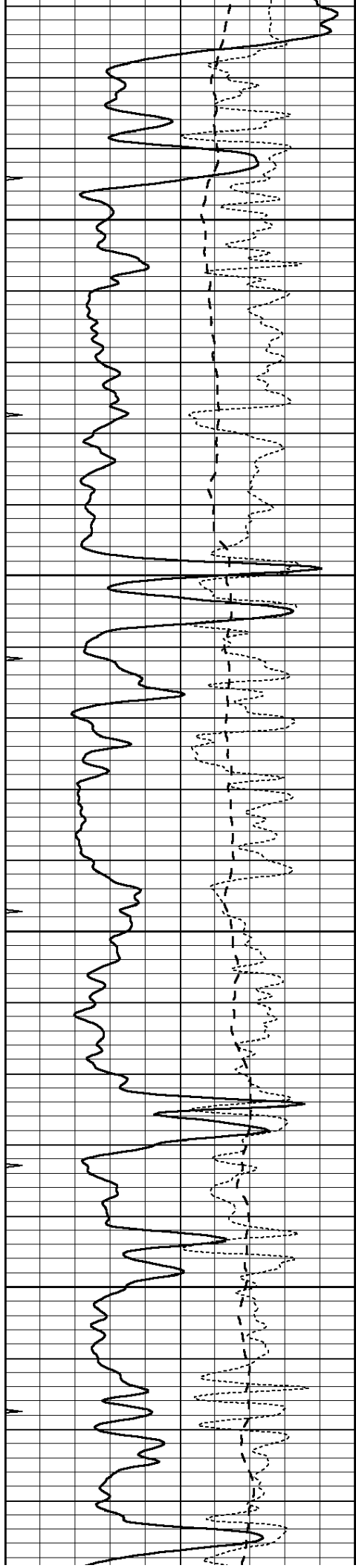
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3150

3200

3250



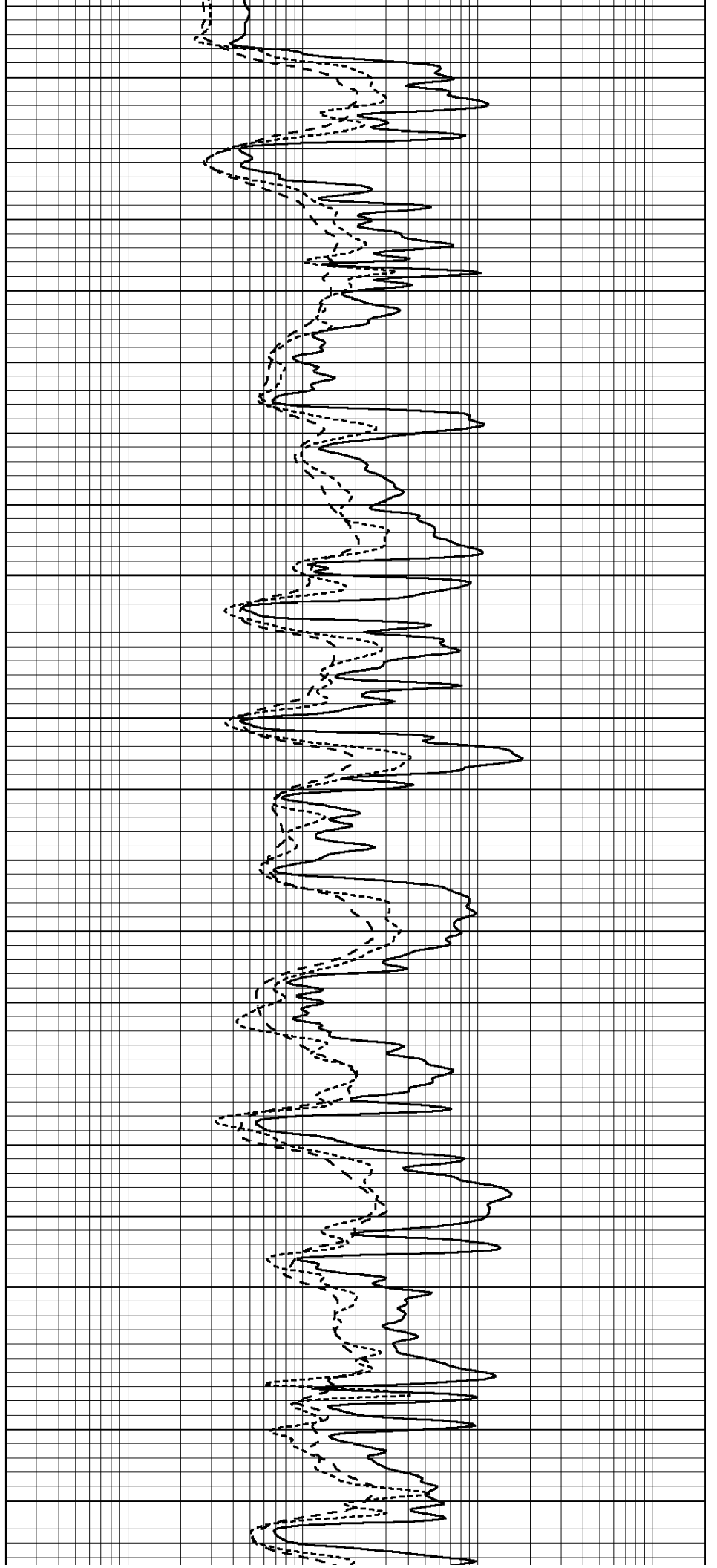


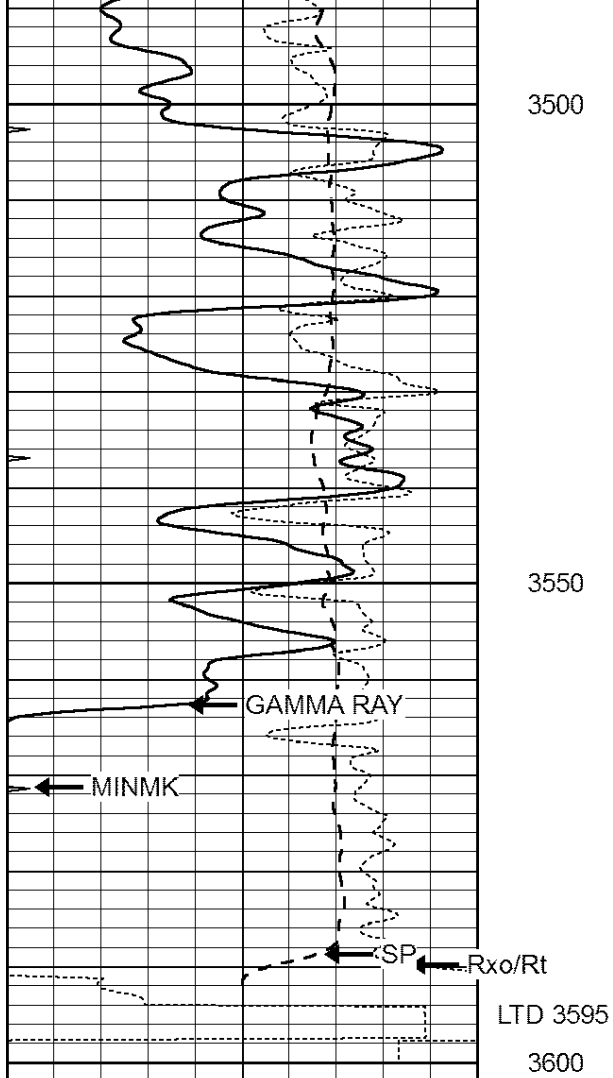
3300

3350

3400

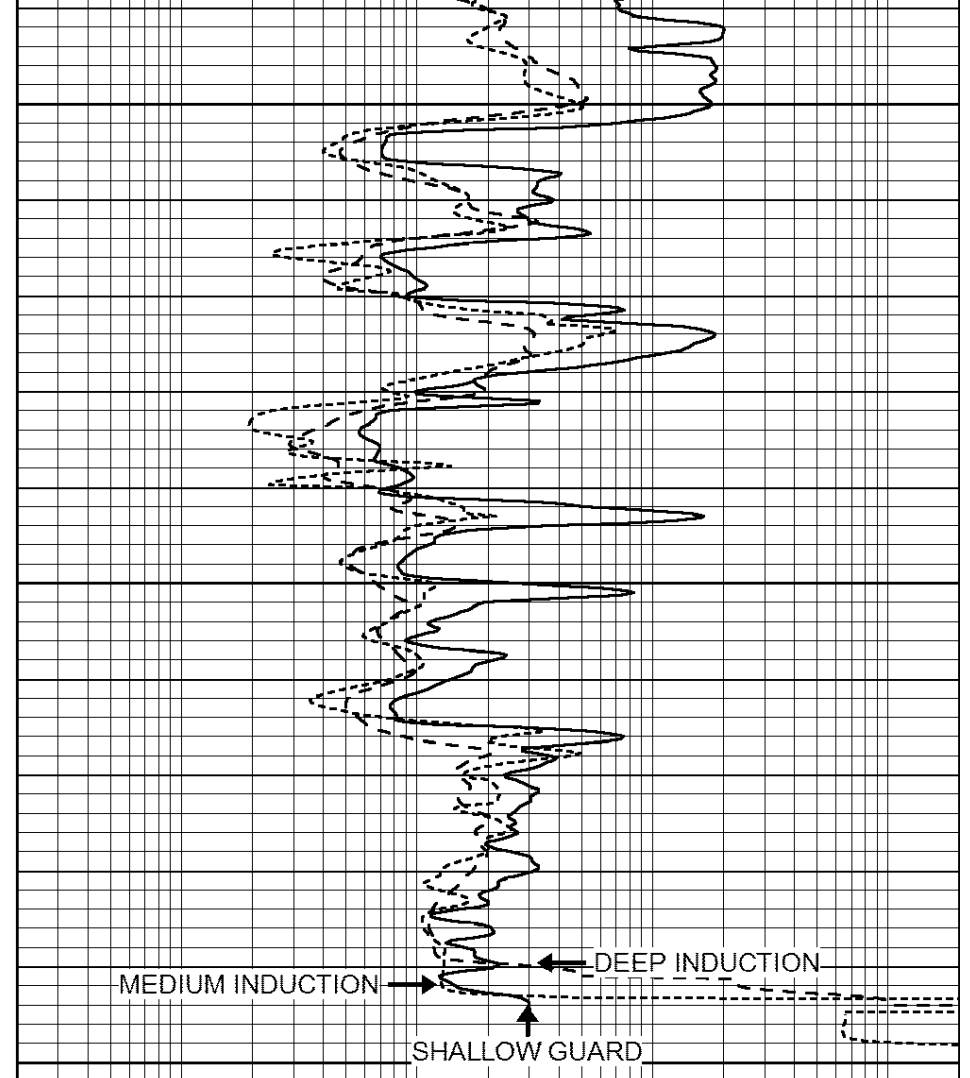
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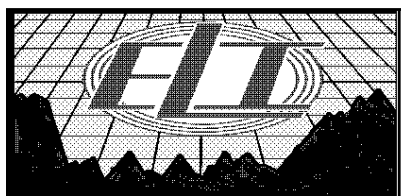


0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

LTD 3595
3600



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

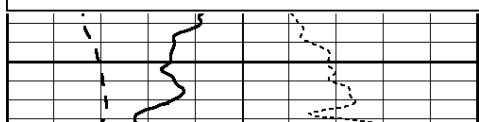


REPEAT SECTION

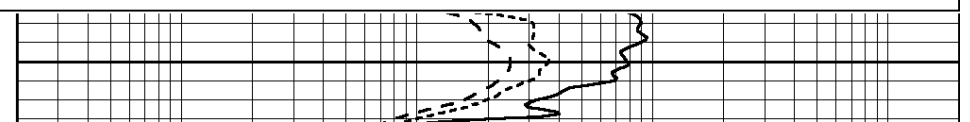
Database File: 1462ddn.db
 Dataset Pathname: pass1DIL
 Presentation Format: _dil
 Dataset Creation: Tue Apr 18 00:17:48 2017
 Charted by: Depth in Feet scaled 1:240

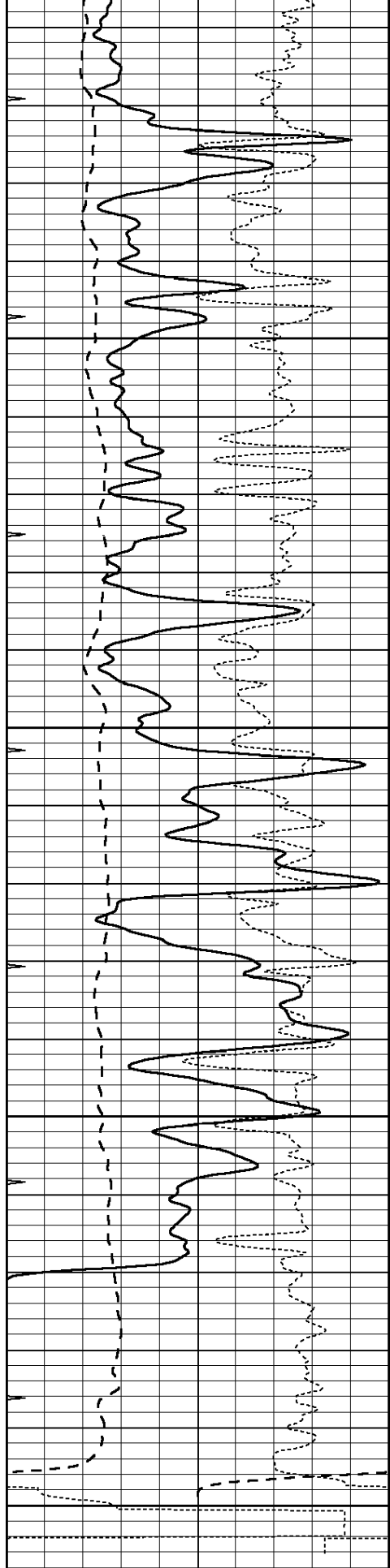
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



3400





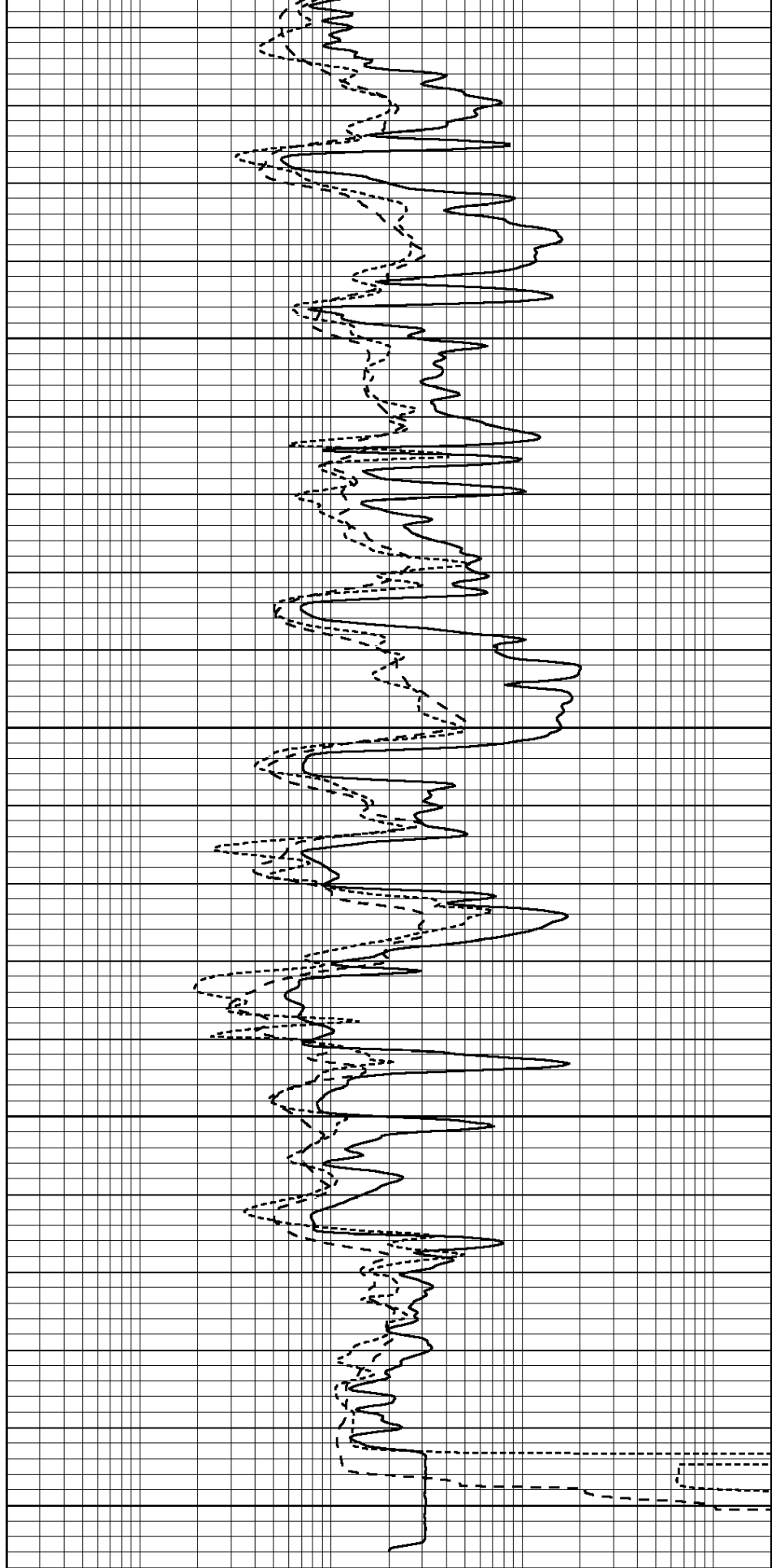
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

3450

3500

3550

3600



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: 1462ddn.db
 Dataset Pathname: pass2DIL
 Dataset Creation: Tue Apr 18 00:13:21 2017 by Calc Open-Cased 090629

Dual Induction Calibration Report

Serial-Model: PROBE8-DILG
 Surface Cal Performed: Tue Mar 21 18:55:38 2017
 Downhole Cal Performed: Tue Mar 21 18:55:43 2017
 After Survey Verification Performed: Tue Mar 21 18:55:45 2017

Surface Calibration

Loop:	Readings			References			Results	
	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		

Compensated Density Calibration Report

Serial-Model: GEAR5-GEARHART
 Source / Verifier: /
 Master Calibration Performed: Tue Mar 21 18:56:14 2017
 Before Survey Verification Performed:
 After Survey Verification Performed:

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.710	g/cc	798.83	465.02	cps
Aluminum	2.570	g/cc	178.16	318.19	cps
Spine Angle = 75.81			Density/Spine Ratio = 0.556		
	Size		Reading		

Small Ring	7.15	in	1.47	V
Large Ring	14.00	in	3.01	V

Before Survey Verification				
	<u>Target</u>		<u>Measured</u>	
		g/cc		g/cc
		g/cc		g/cc
		g/cc		g/cc

After Survey Verification				
	<u>Target</u>		<u>Measured</u>	
		g/cc		g/cc
		g/cc		g/cc
		g/cc		g/cc

Compensated Neutron Calibration Report

Serial Number:	6l
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:	Tue Mar 21 18:56:51 2017
Calibrator Value:	150.0
	GAPI
Background Reading:	0.0
Calibrator Reading:	276.0
	cps
	cps
Sensitivity:	0.6000
	GAPI/cps

