



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

DUAL INDUCTION LOG

Company		EDISON OPERATING COMPANY, LLC.	
Well		#1-27 PAGE OWWO	
Field		ST. JOHN	
County		STAFFORD	
State		KANSAS	
Company		EDISON OPERATING COMPANY, LLC.	
Well		#1-27 PAGE OWWO	
Field		ST. JOHN	
County		STAFFORD	
State		KANSAS	
Location:		API # : 15-185-20563-0001	
Permanent Datum		GROUND LEVEL	
Log Measured From		KELLY BUSHING 5' A.G.L.	
Drilling Measured From		KELLY BUSHING	
SEC 27 TWP 24S RGE 13W		Elevation	
330' FSL & 330' FEL		K.B. 1930	
SE - SE - SE		D.F. 1928	
		G.L. 1925	
CDL/CNL/PE			
MEL			
Date		10/5/14	
Run Number		ONE	
Depth Driller		4218	
Depth Logger		4218	
Bottom Logged Interval		4216	
Top Log Interval		00	
Casing Driller		8 5/8"@320'	
Casing Logger		318	
Bit Size		7 7/8"	
Type Fluid in Hole		CHEMICAL MUD	
Density / Viscosity		9.0/40	
pH / Fluid Loss		7.0/N/A	
Source of Sample		FLOWLINE	
Rim @ Meas. Temp		.100@70F	
Rinf @ Meas. Temp		.075@70F	
Rmc @ Meas. Temp		.120@70F	
Source of Rmf / Rmc		MEASUREMENT	
Rim @ BHT		.059@118F	
Time Circulation Stopped		3 HOURS	
Time Logger on Bottom		11:45 P.M.	
Maximum Recorded Temperature		118F	
Equipment Number		4854	
Location		HAYS, KANSAS	
Recorded By		JEFF LUEBBERS	
Witnessed By		MARK ELSON	

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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, KANSAS (785) 628-6395
DIRECTIONS
(HWY 50 & 281 JUNCTION) S. OF ST. JOHN, KS., 2S. ON HWY 281, 7/8E., N. INTO



**COMPLETION
& PRODUCTION**

MAIN SECTION

Database File:

25890pe.db

Dataset Pathname:

pass3.5

Presentation Format:

dil2

Dataset Creation:

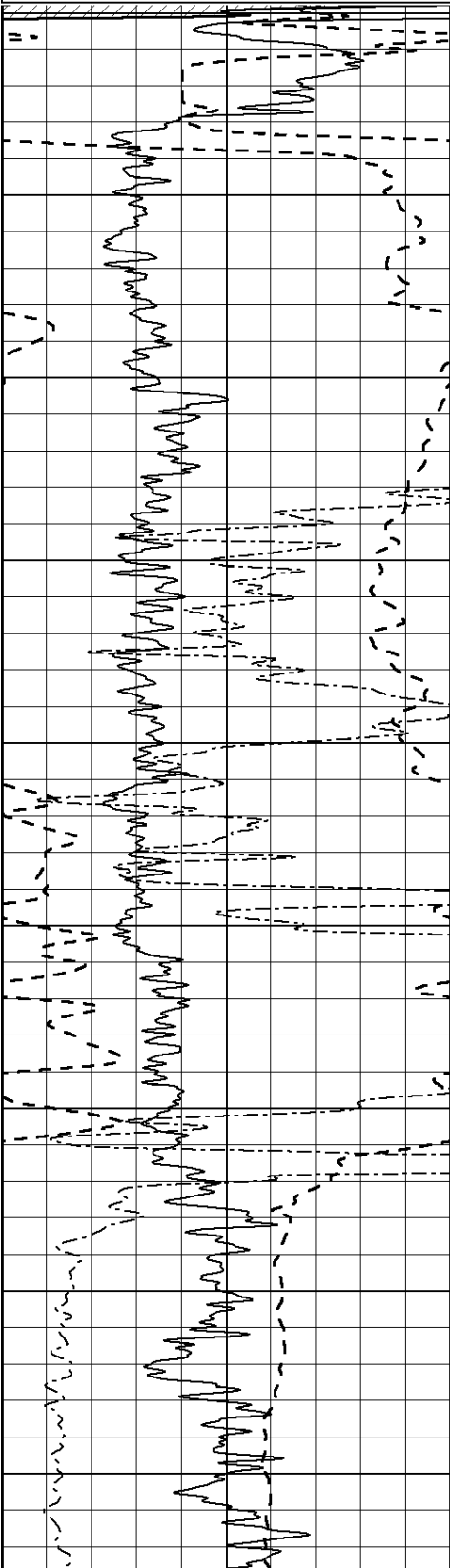
Mon Oct 06 01:31:20 2014 by Calc SOC 120430

Charted by:

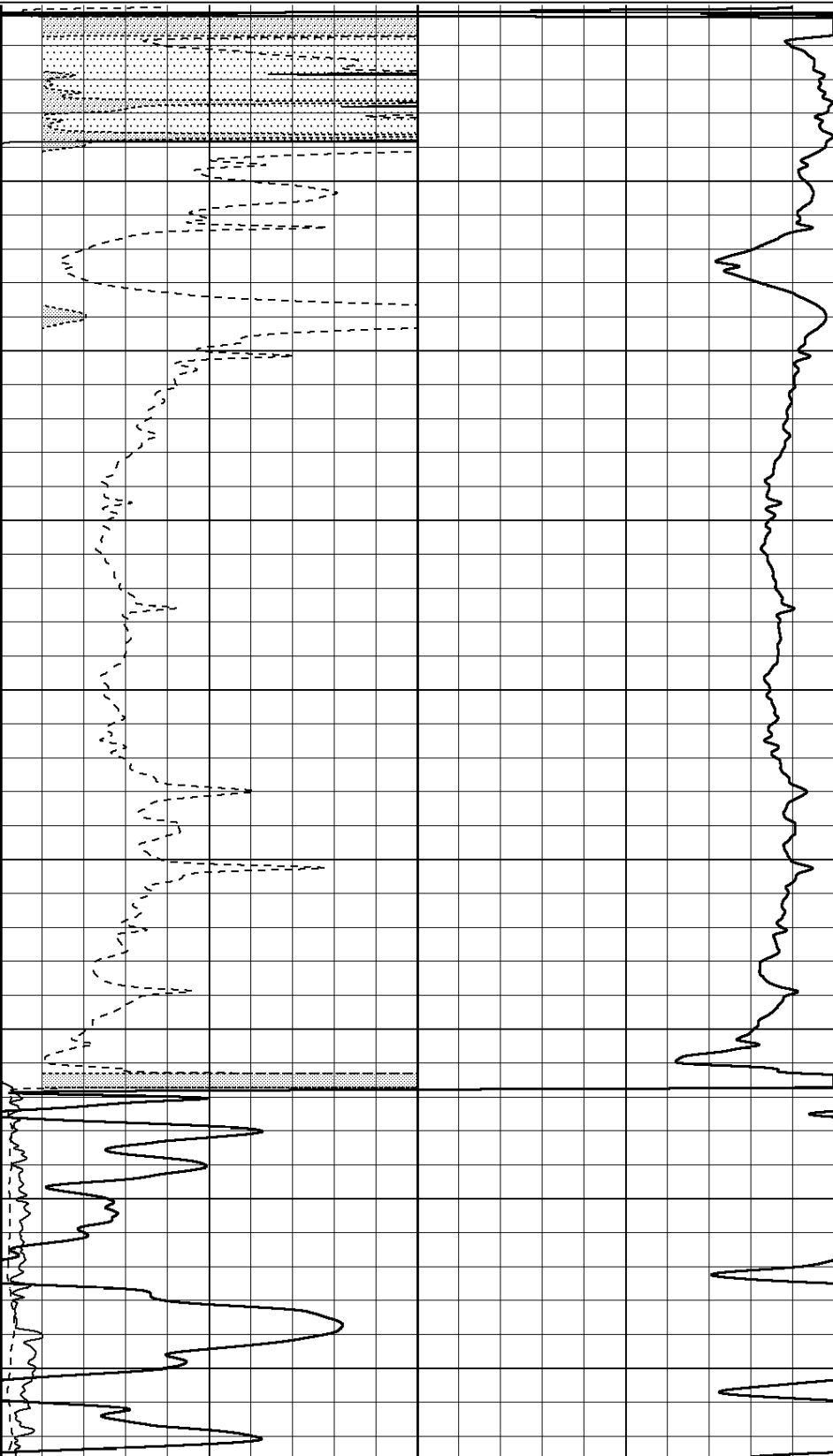
Depth in Feet scaled 1:600

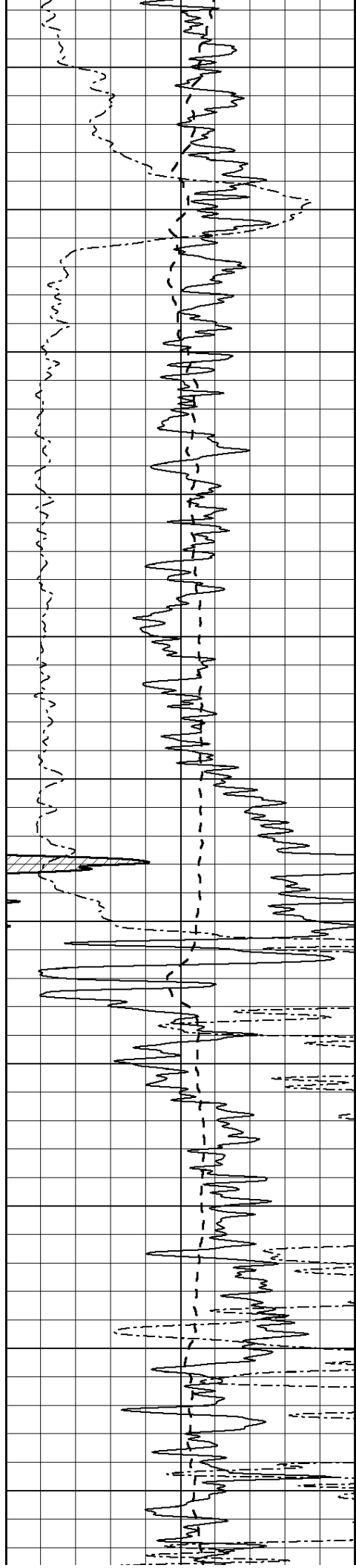
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-100	SP (mV)	100
0	RWA (Ohm-m)	1

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



0
50
100
150
200
250
300
350
400





450

500

550

600

650

700

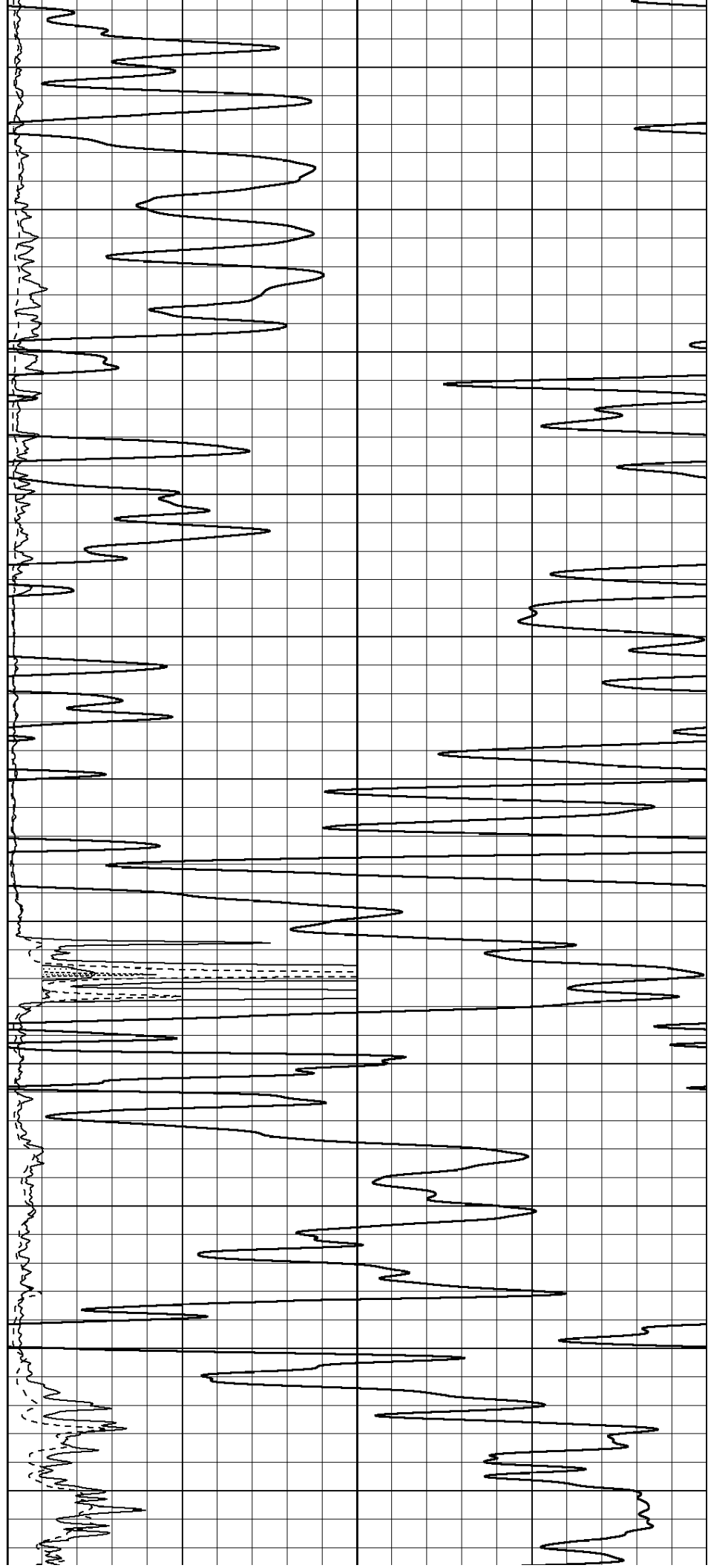
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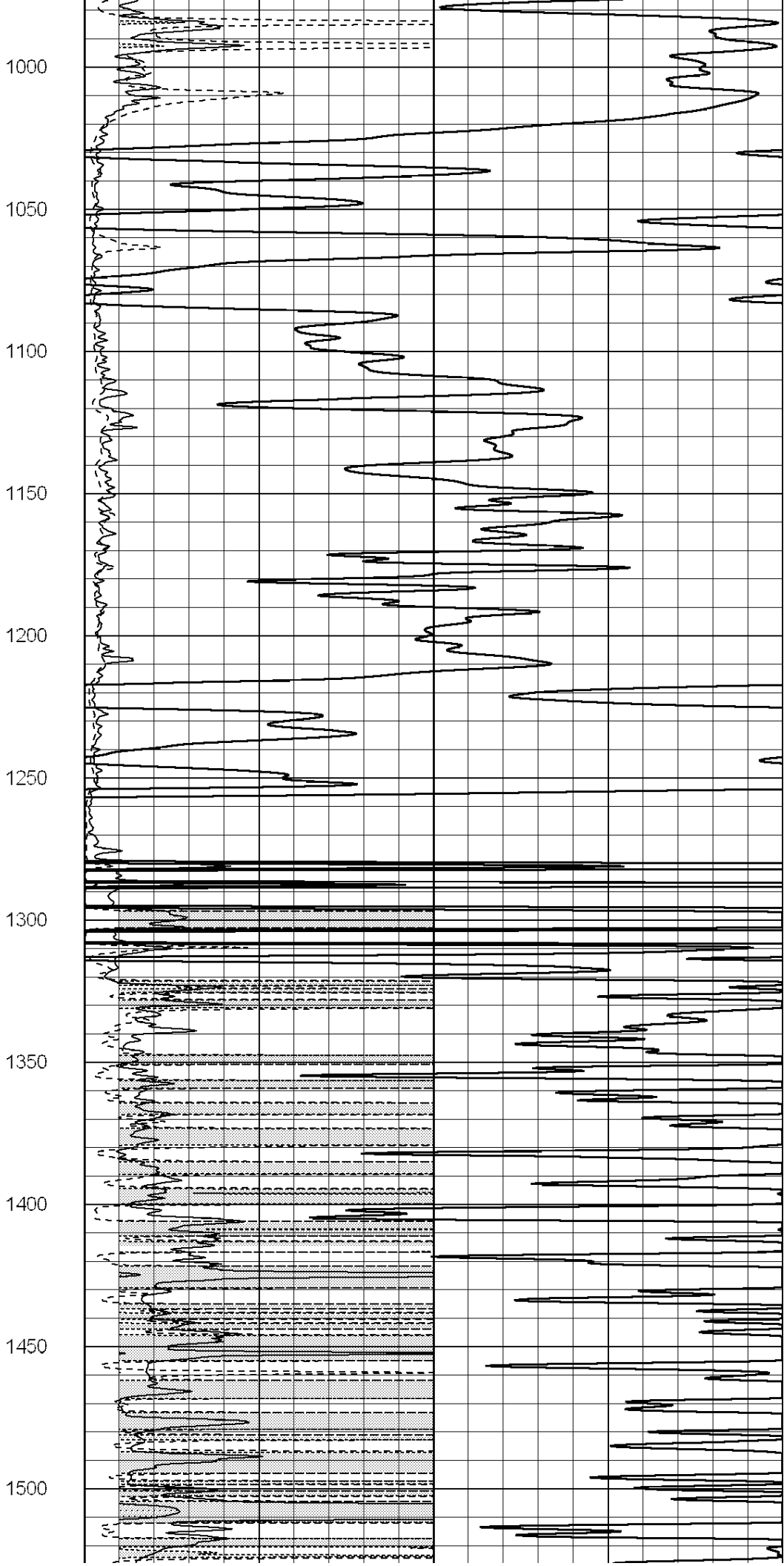
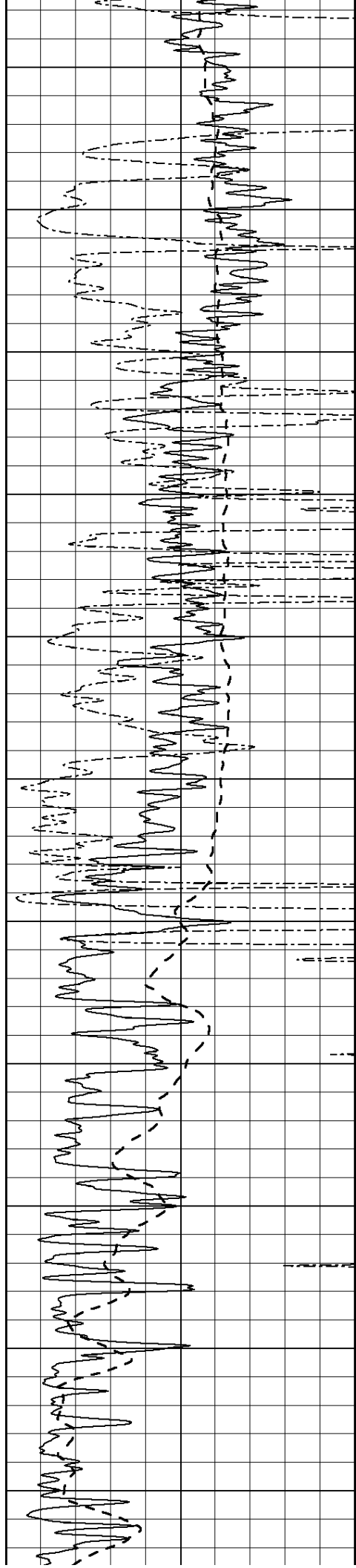
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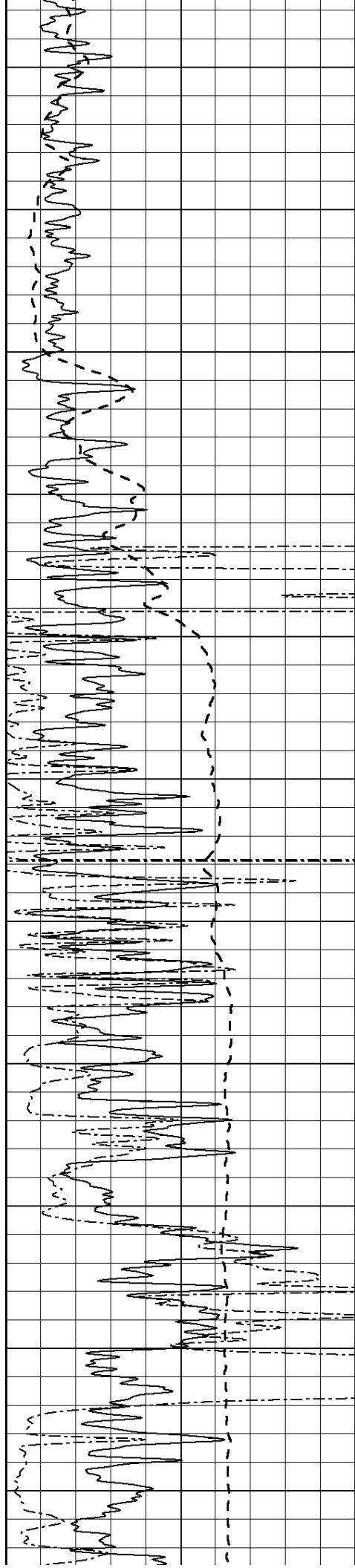
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900

950







1550

1600

1650

1700

1750

1800

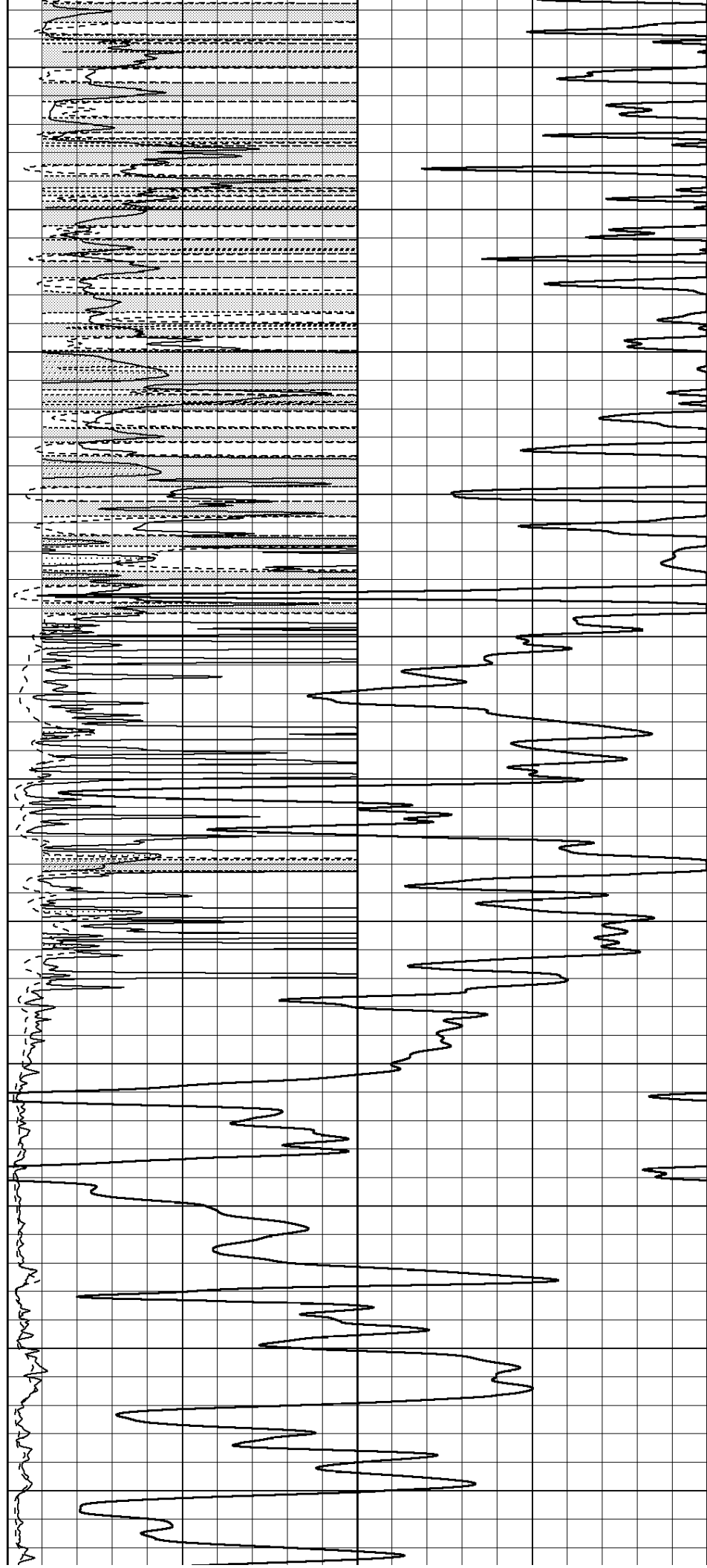
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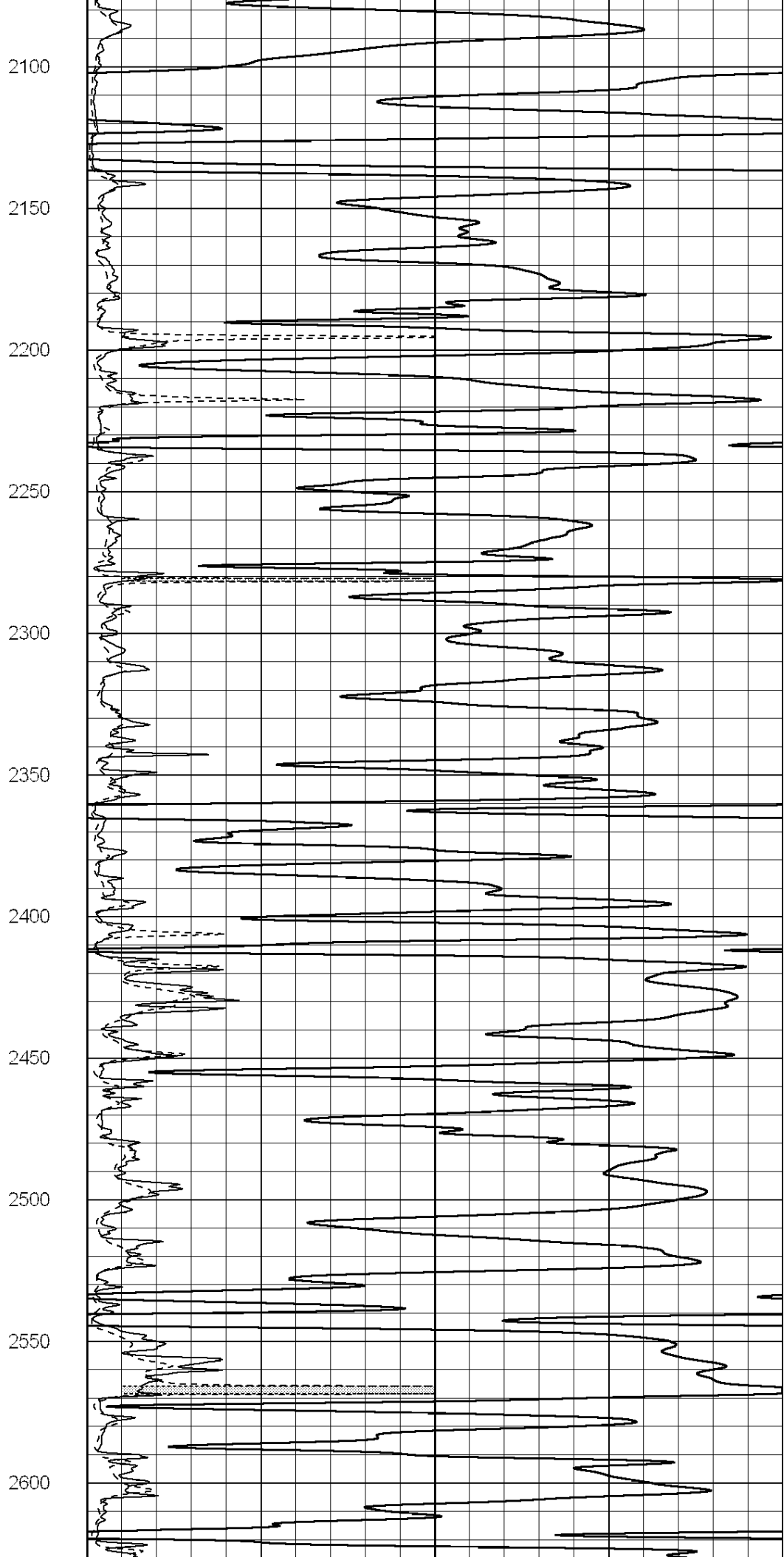
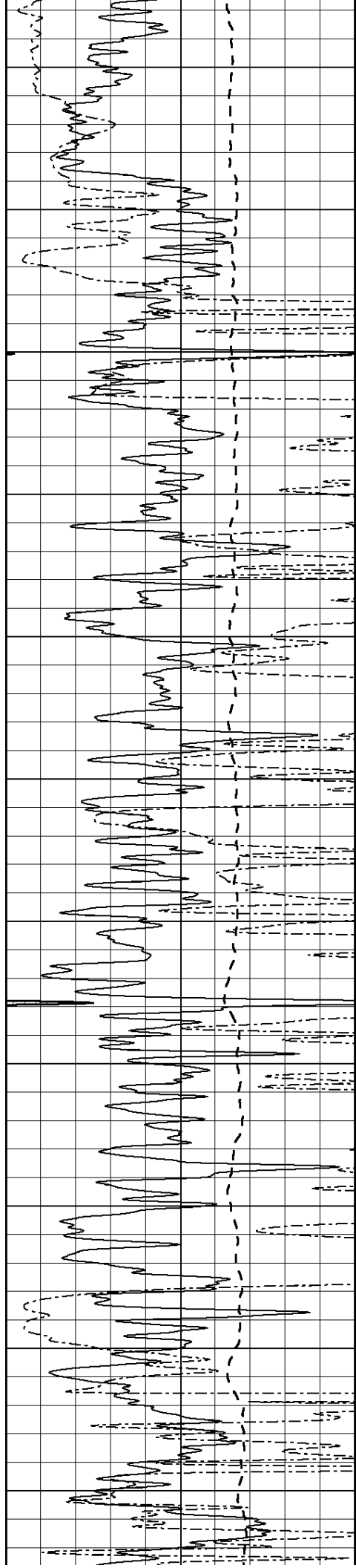
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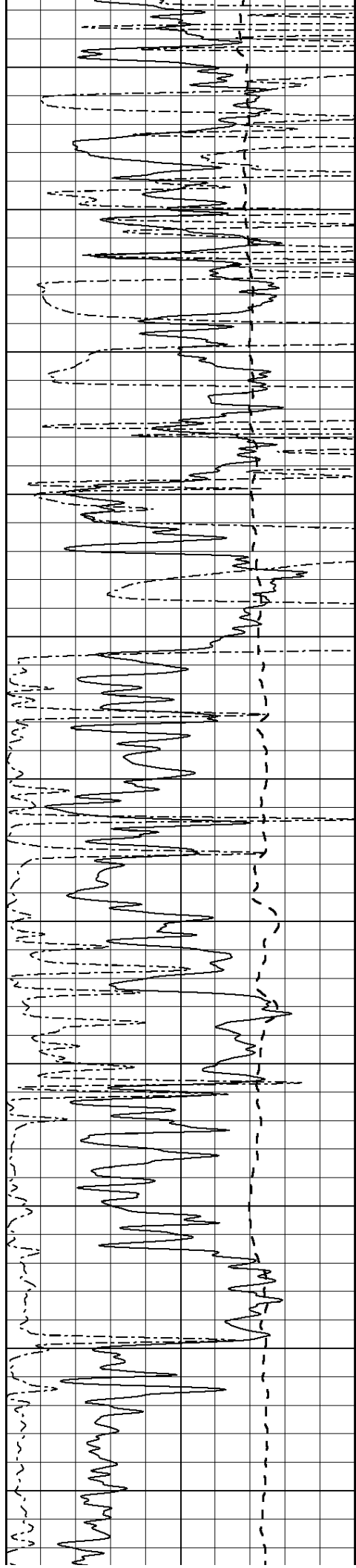
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2000

2050







2650

2700

2750

2800

2850

2900

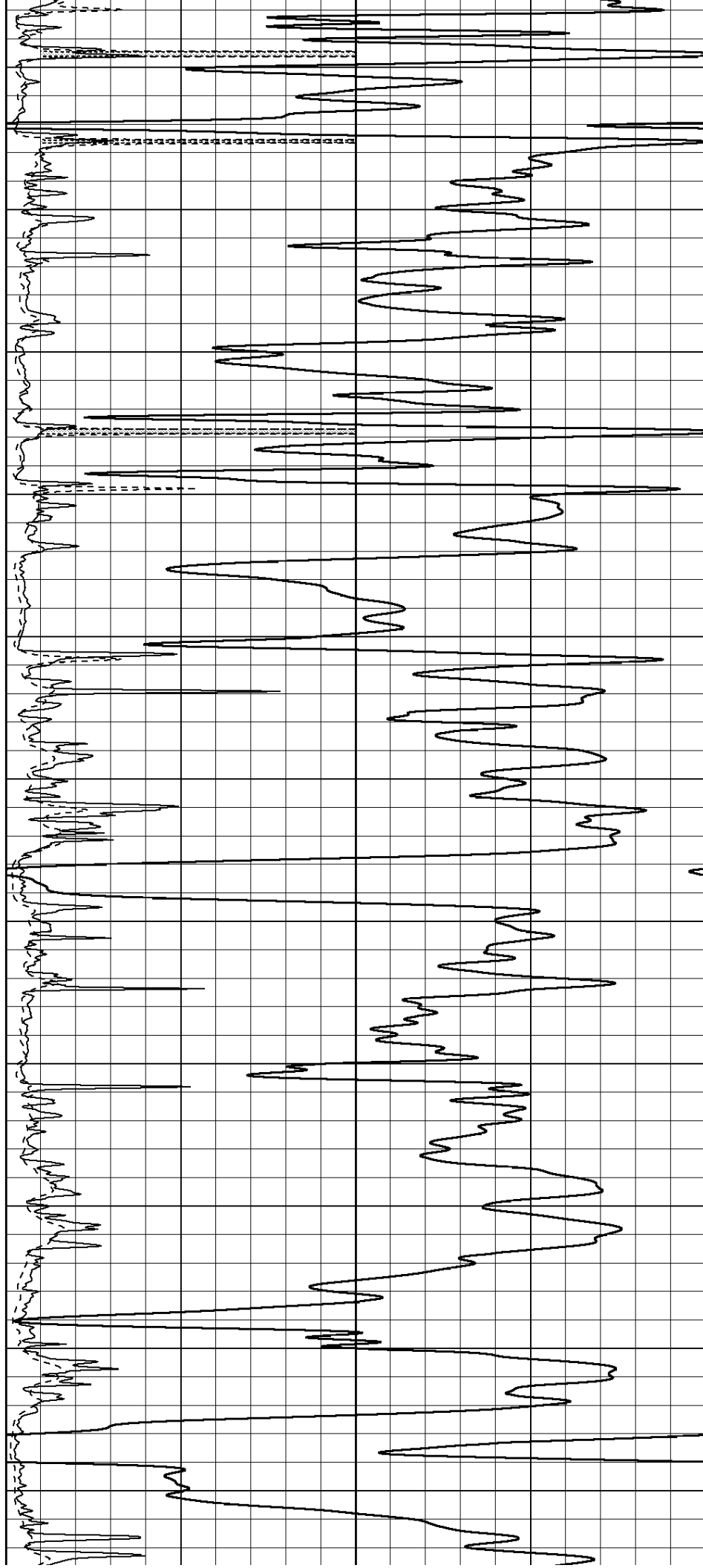
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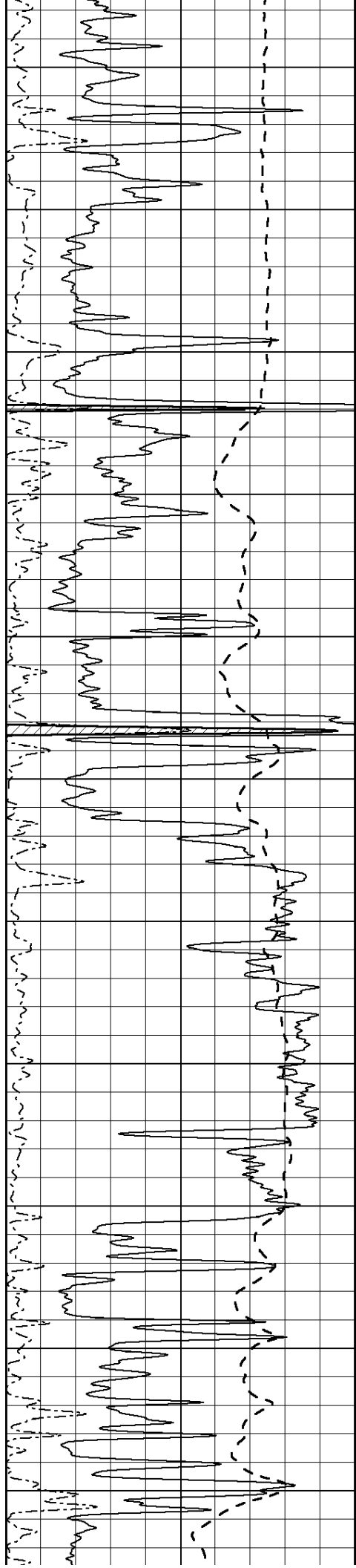
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3050

3100

3150





3200

3250

3300

3350

3400

3450

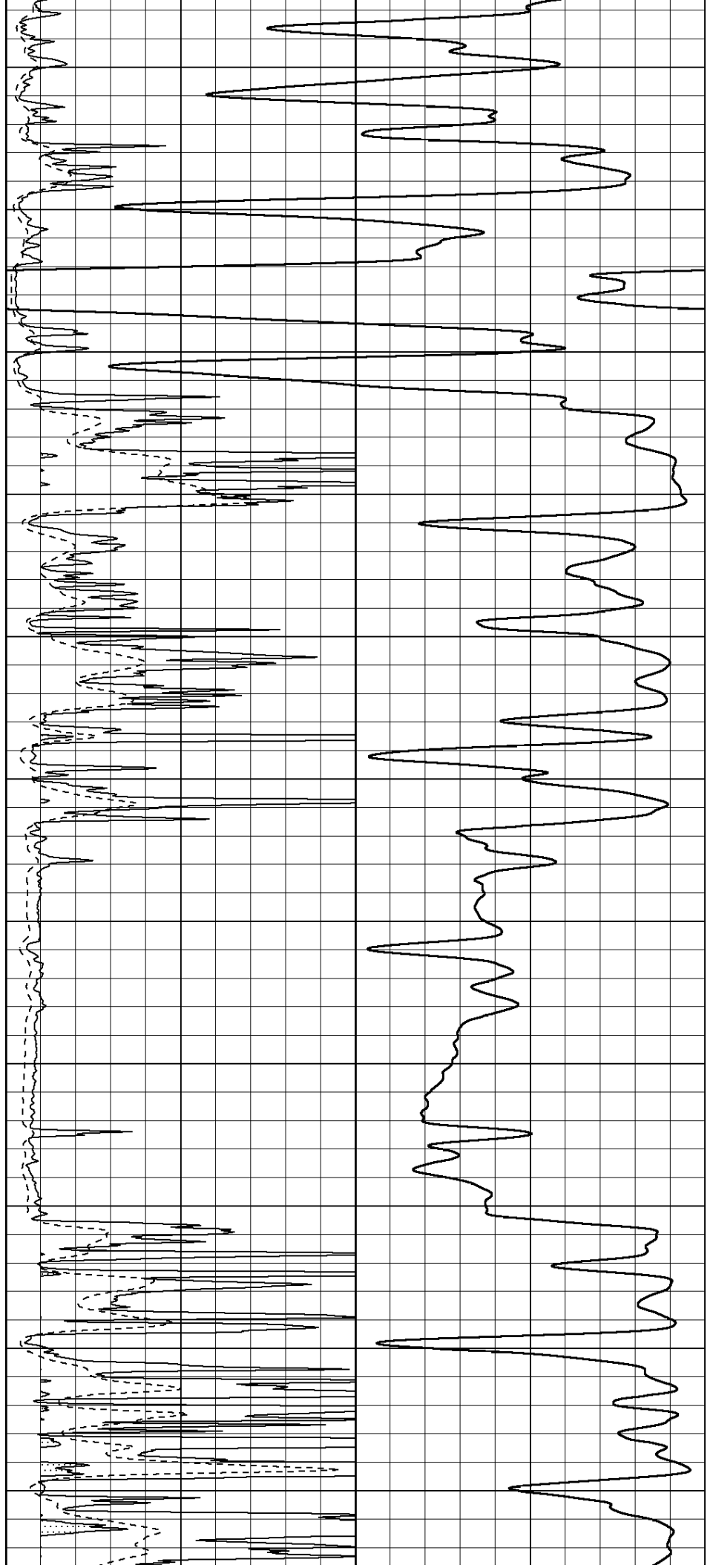
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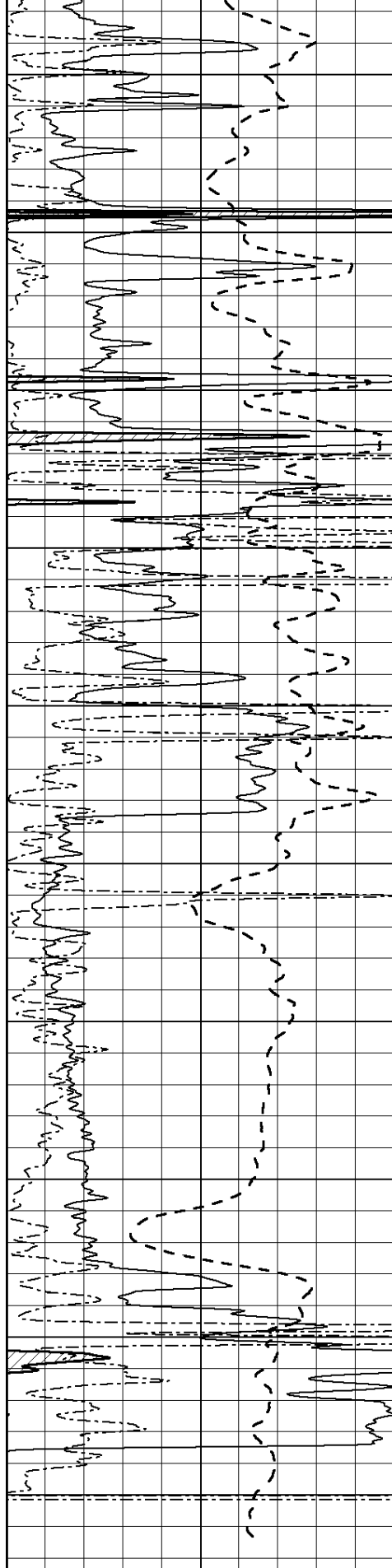
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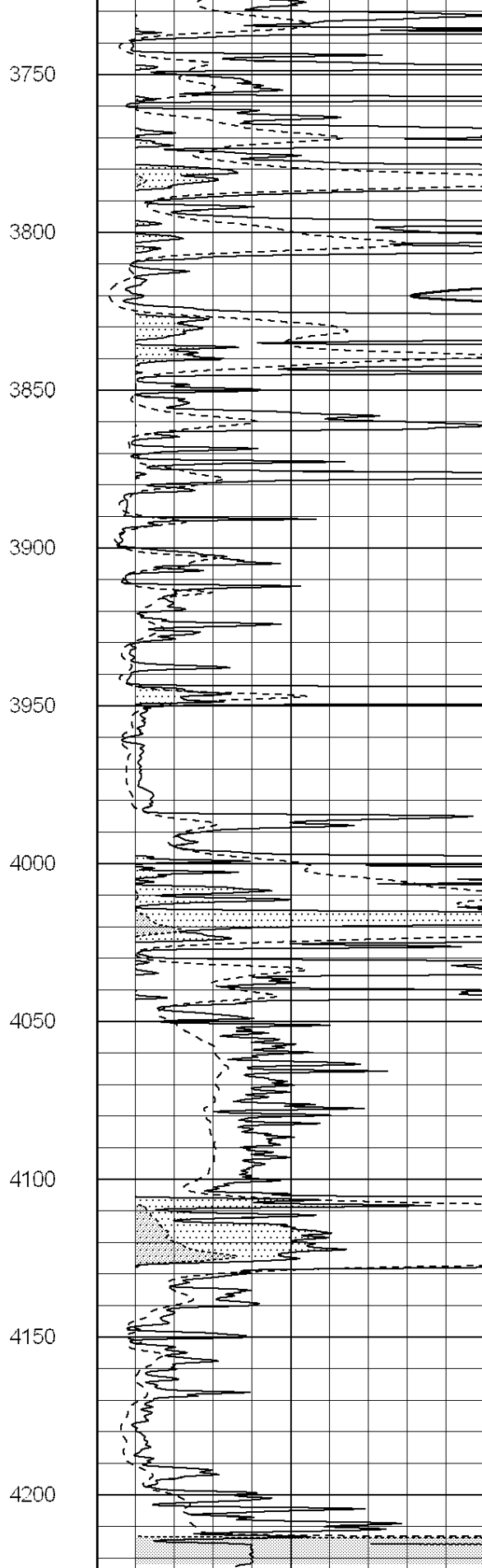
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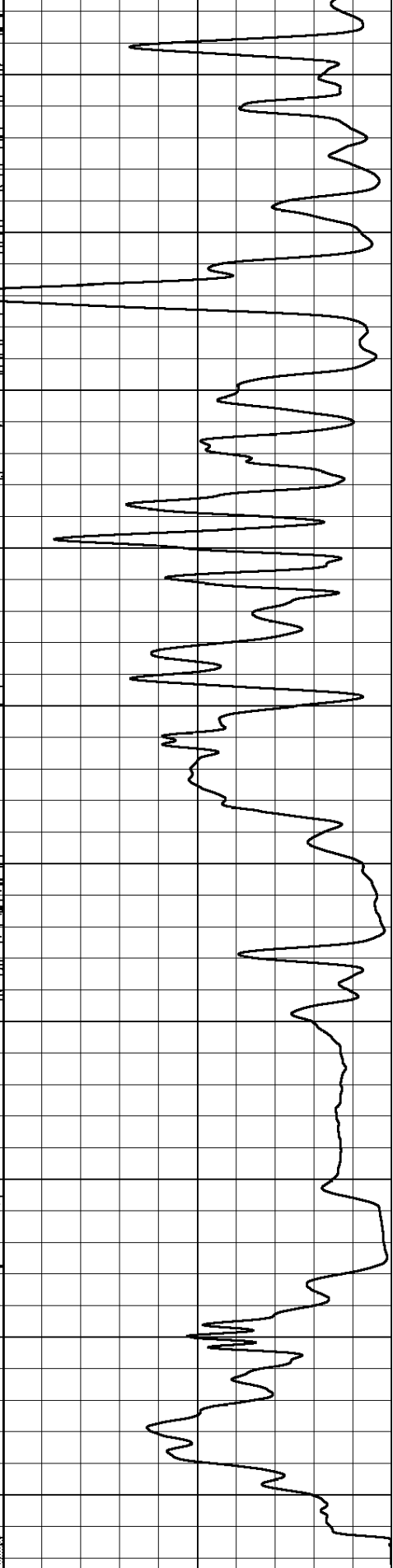




0	Gamma Ray (GAPI)	150
-100	SP (mV)	100
0	RWA (Ohm-m)	1



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



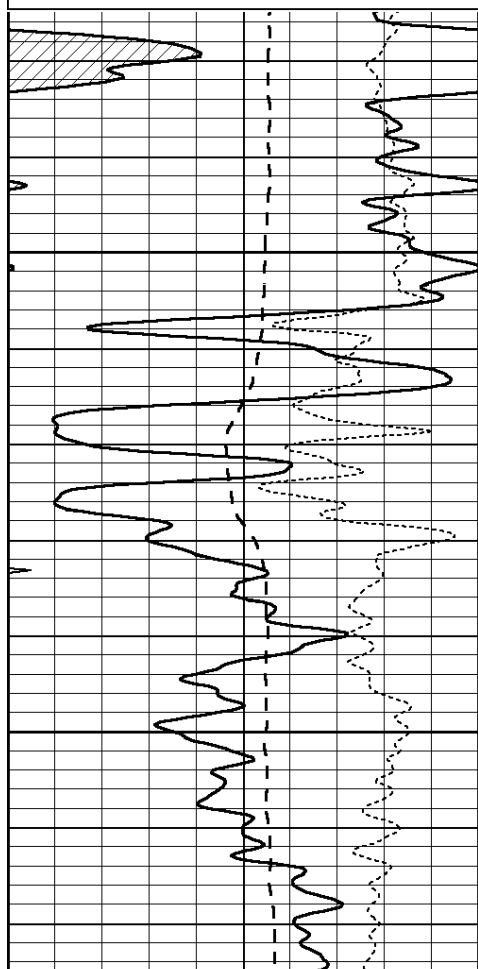
50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500

ANHYDRITE

Database File: 25890pe.db
Dataset Pathname: pass3.6
Presentation Format: _dil
Dataset Creation: Mon Oct 06 01:32:46 2014 by Calc SOC 120430
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



750

800

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

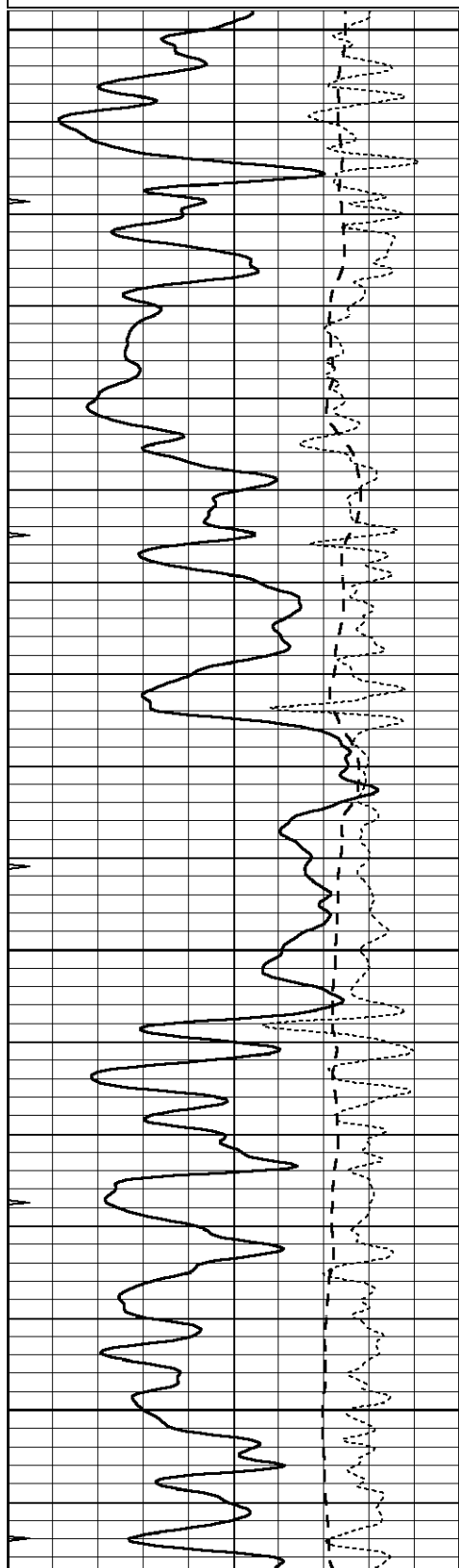
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

SERVICES CO.

Database File: 25890pe.db
 Dataset Pathname: pass3.5
 Presentation Format: _dil
 Dataset Creation: Mon Oct 06 01:31:20 2014 by Calc SOC 120430
 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

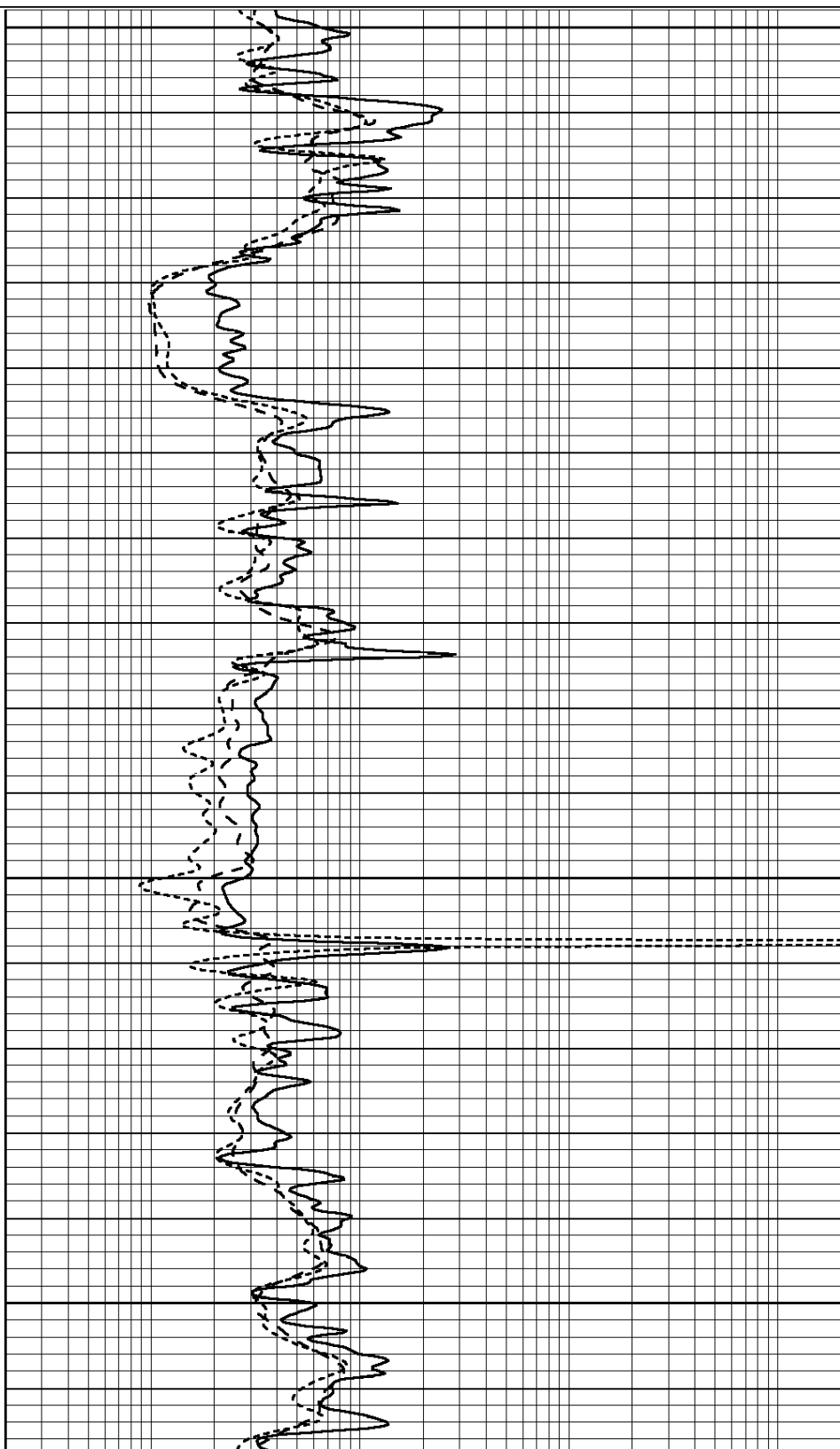


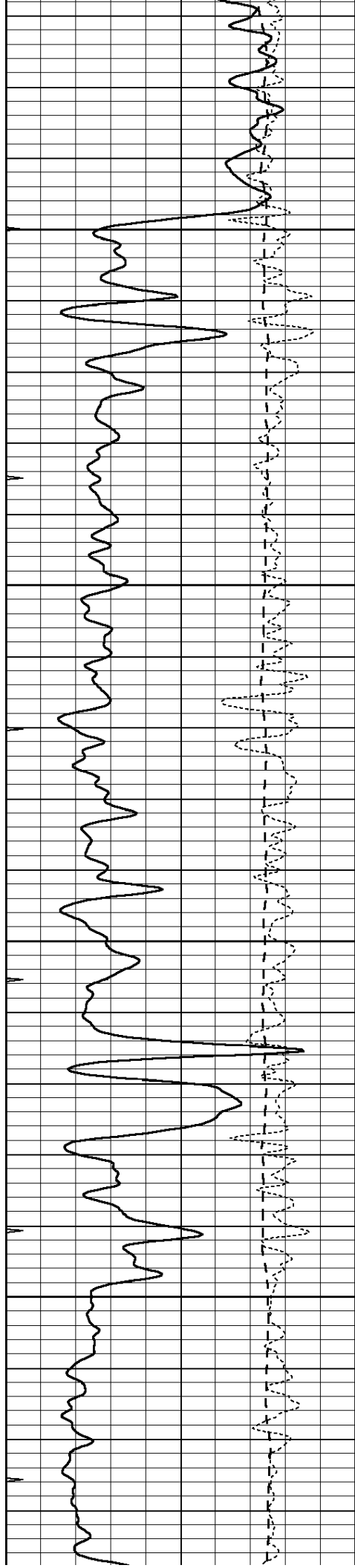
2900

2950

3000

3050



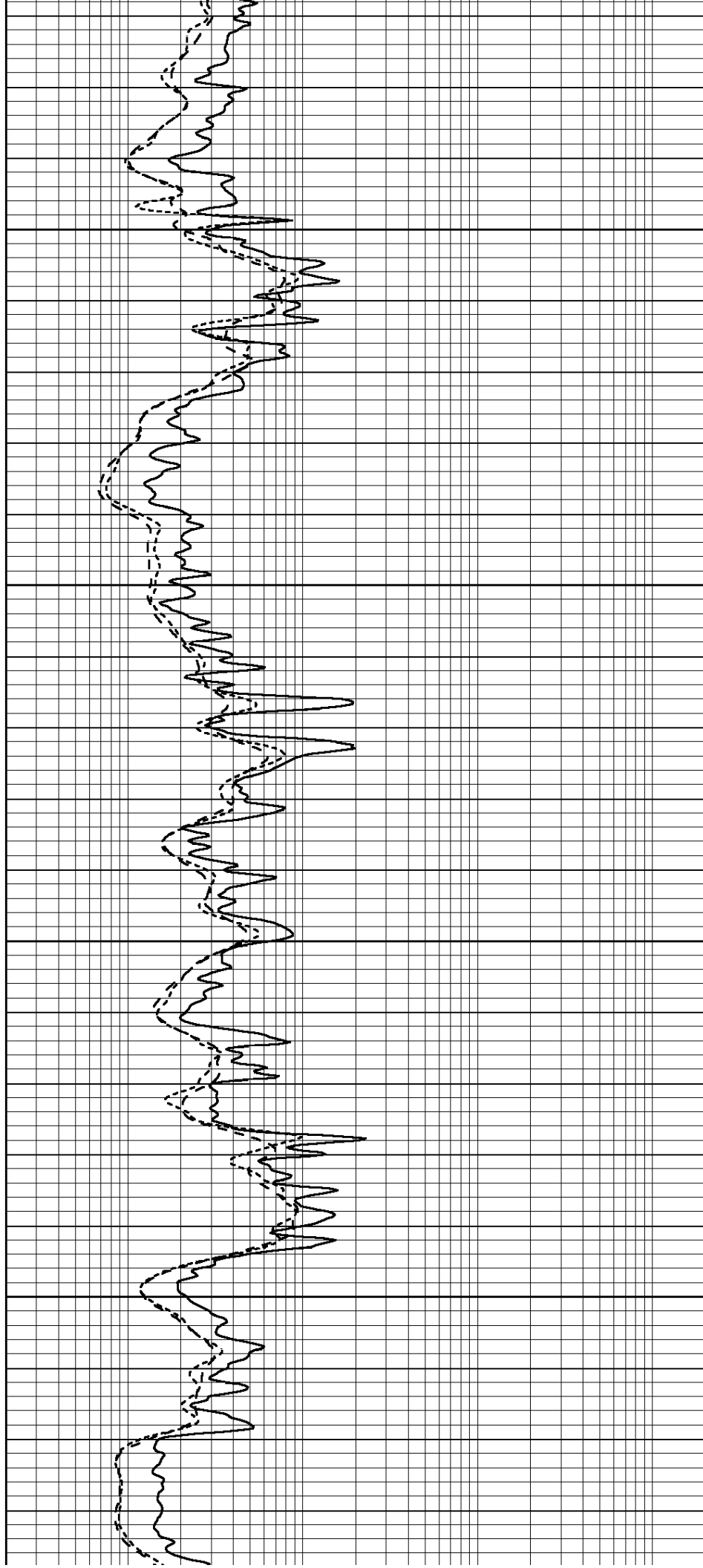


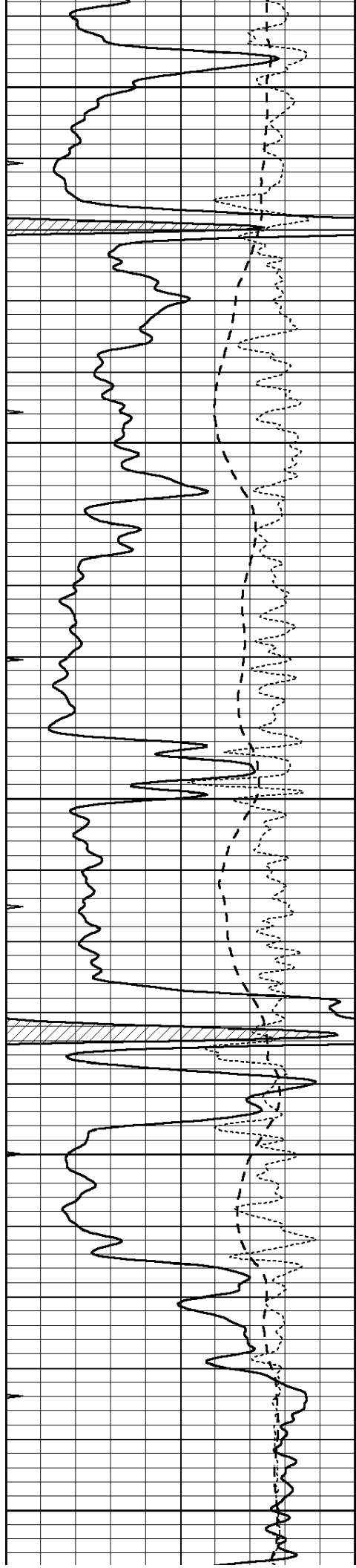
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3150

3200

3250





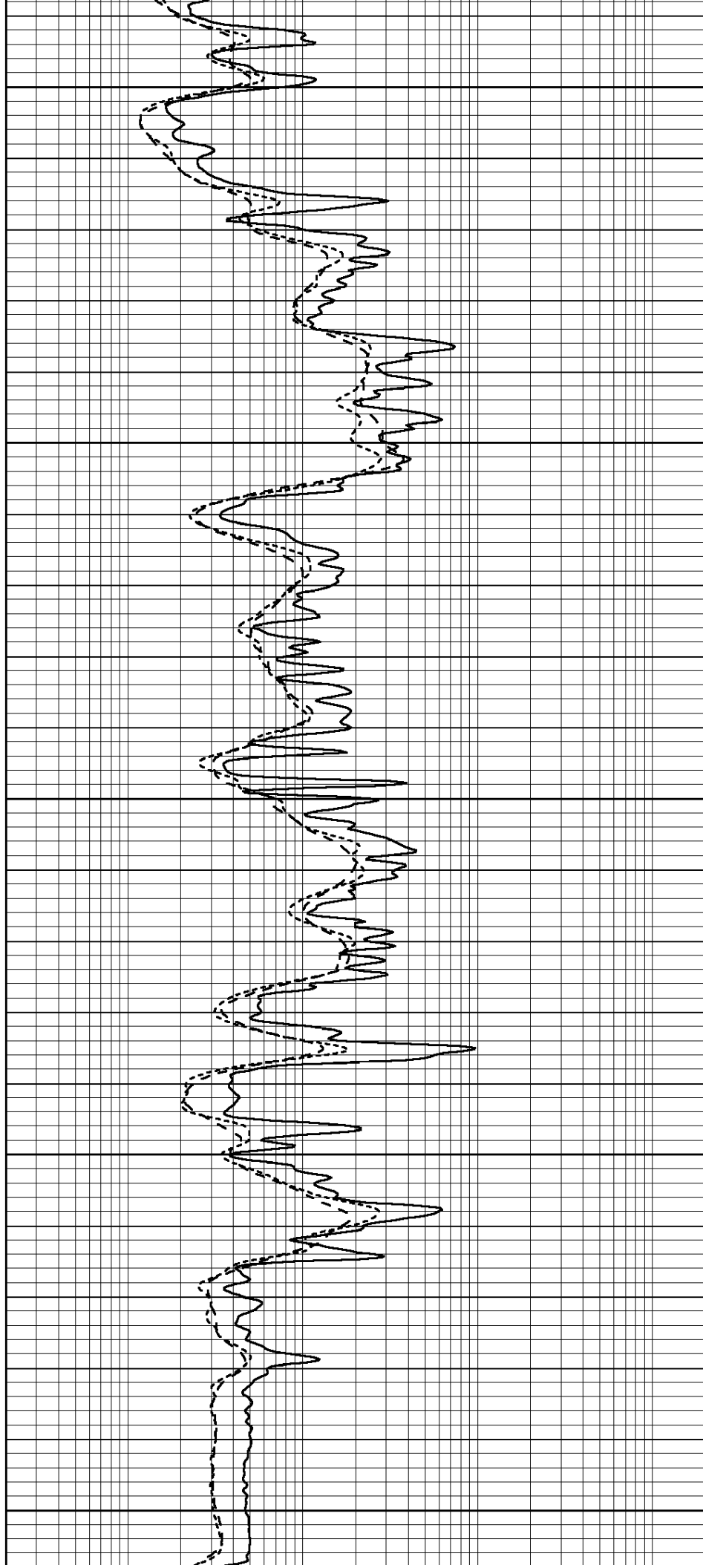
3300

3350

3400

3450

3500



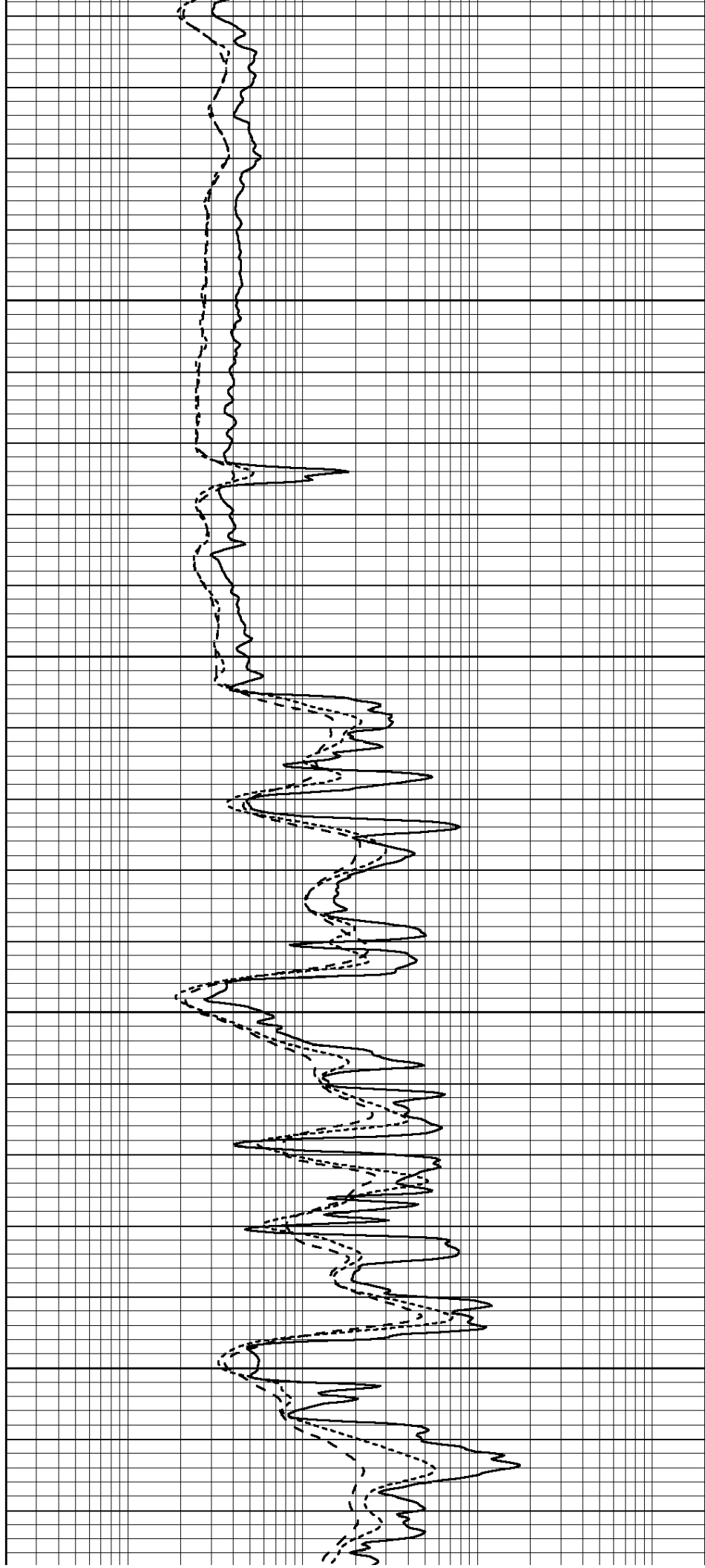


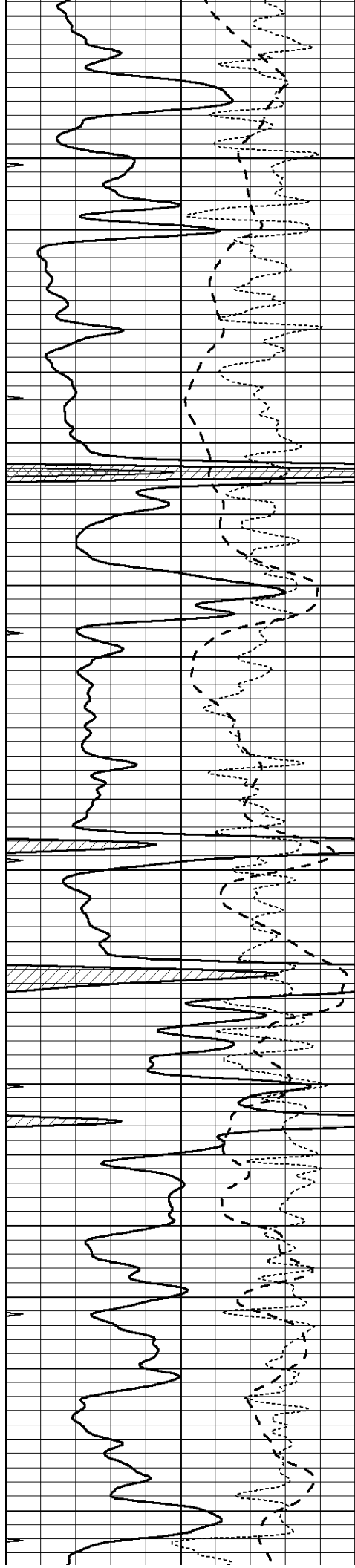
3550

3600

3650

3700



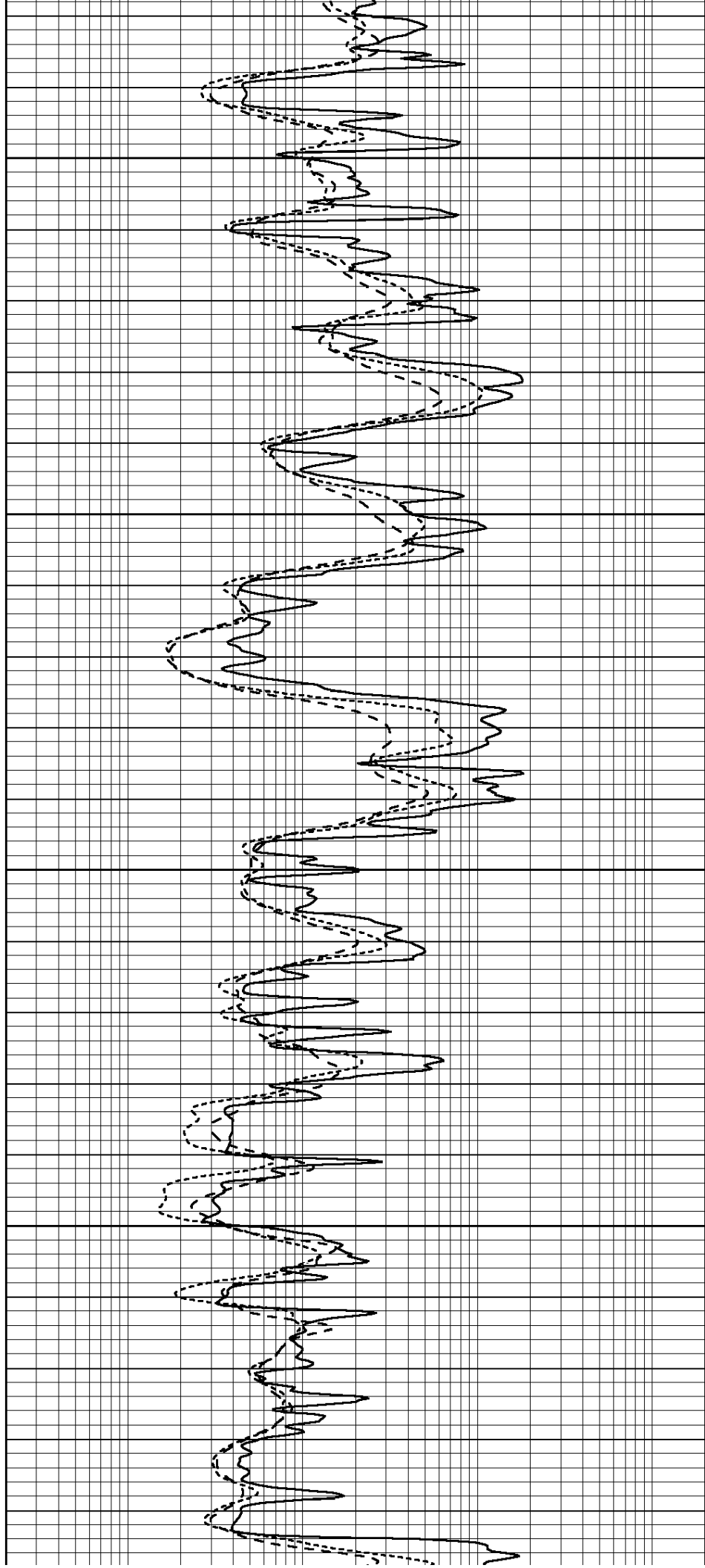


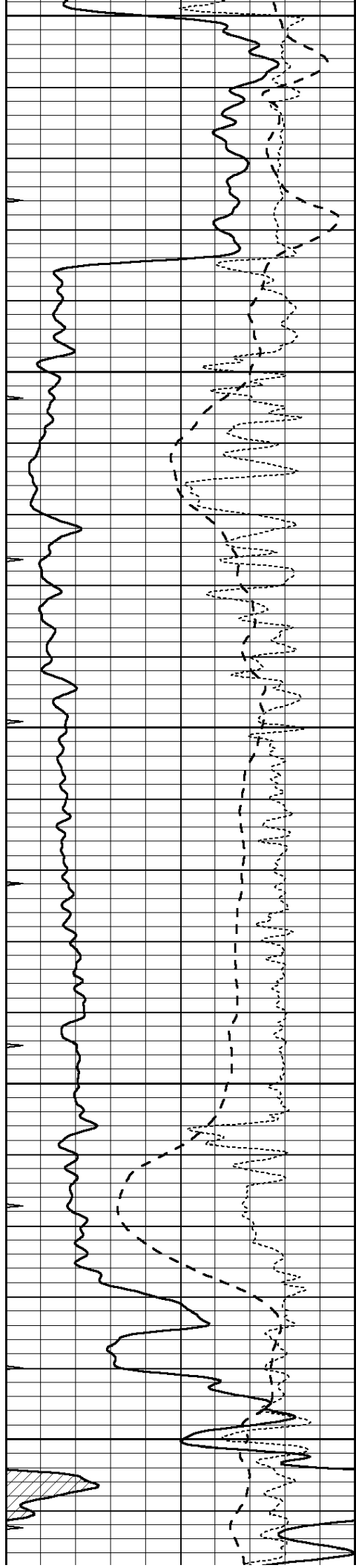
3750

3800

3850

3900





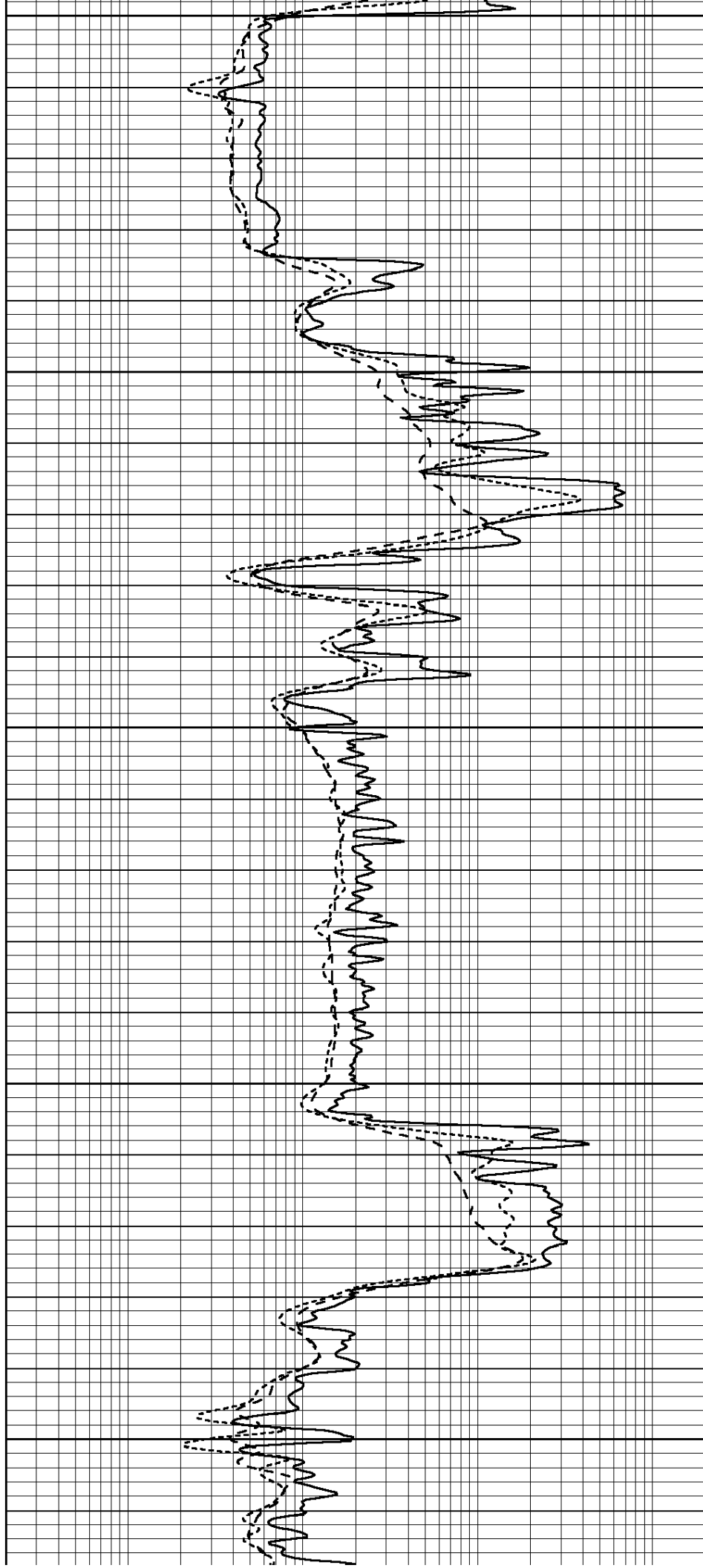
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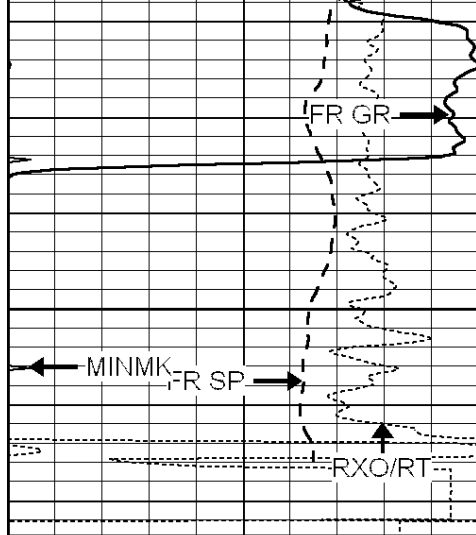
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4050

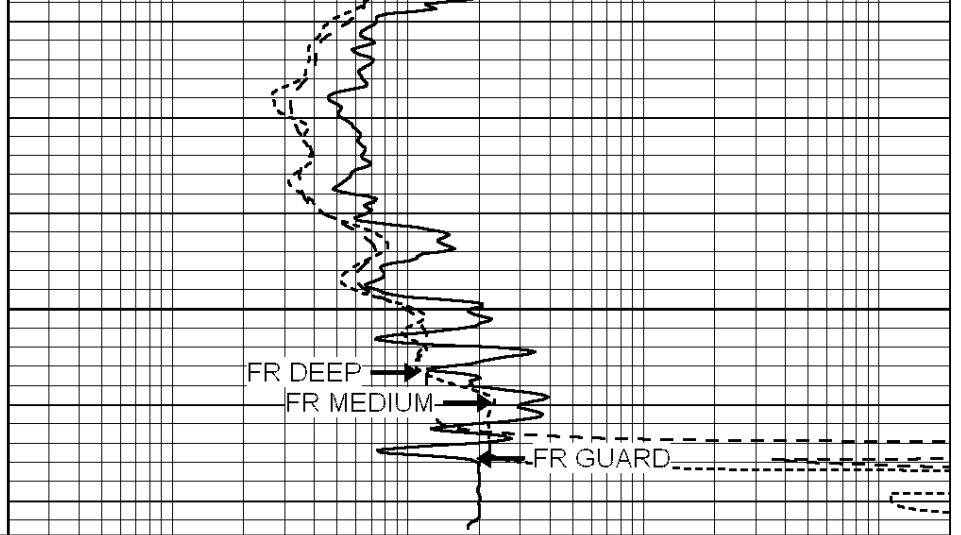
4100

4150





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

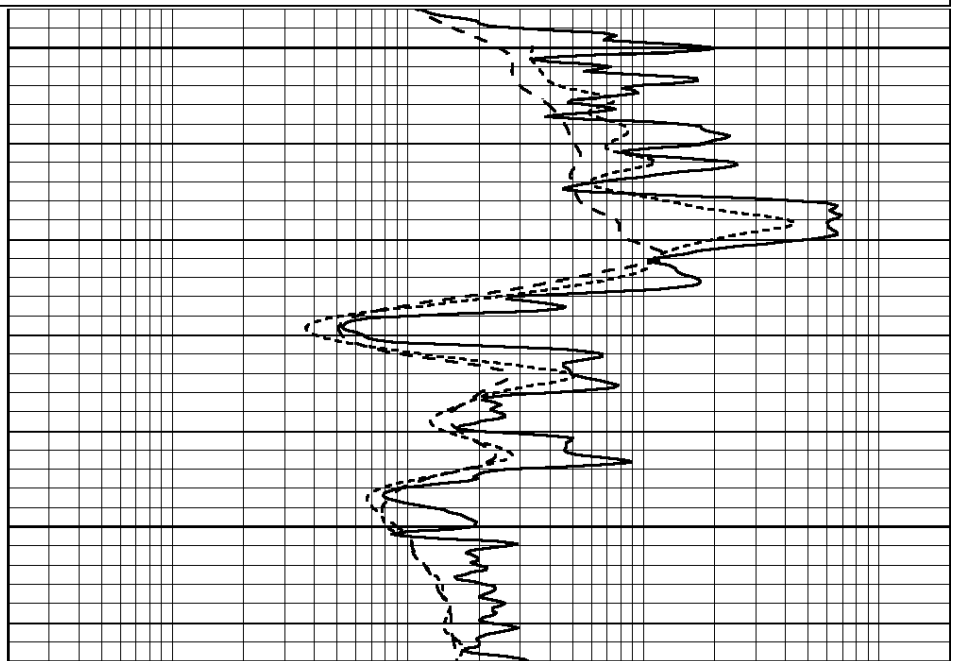
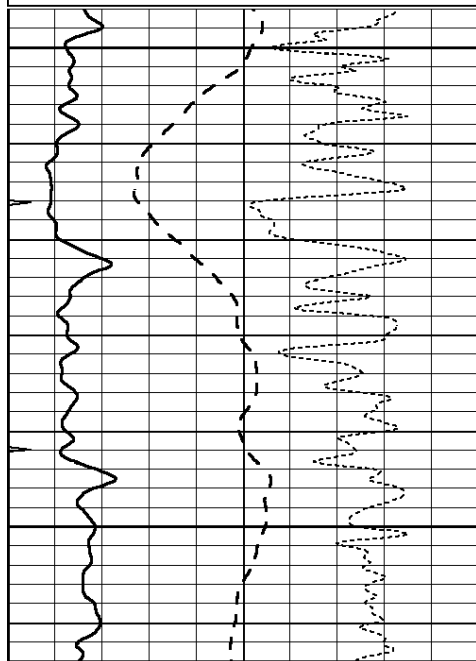


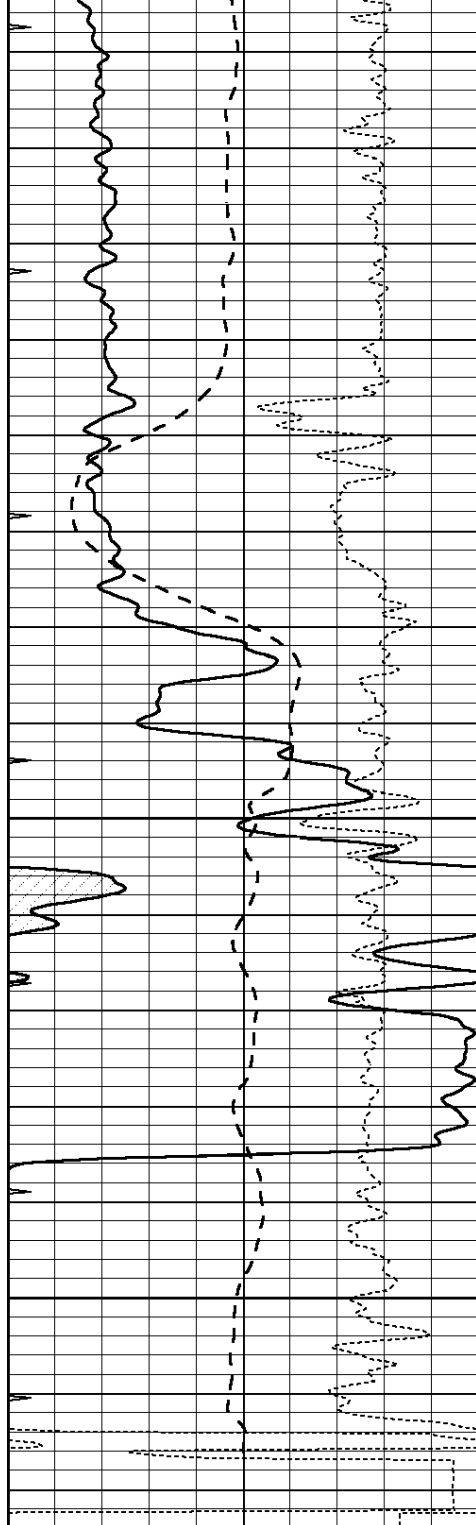
REPEAT SECTION

Database File: 25890pe.db
 Dataset Pathname: pass2.3
 Presentation Format: _dil
 Dataset Creation: Mon Oct 06 01:43:00 2014 by Calc SOC 120430
 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



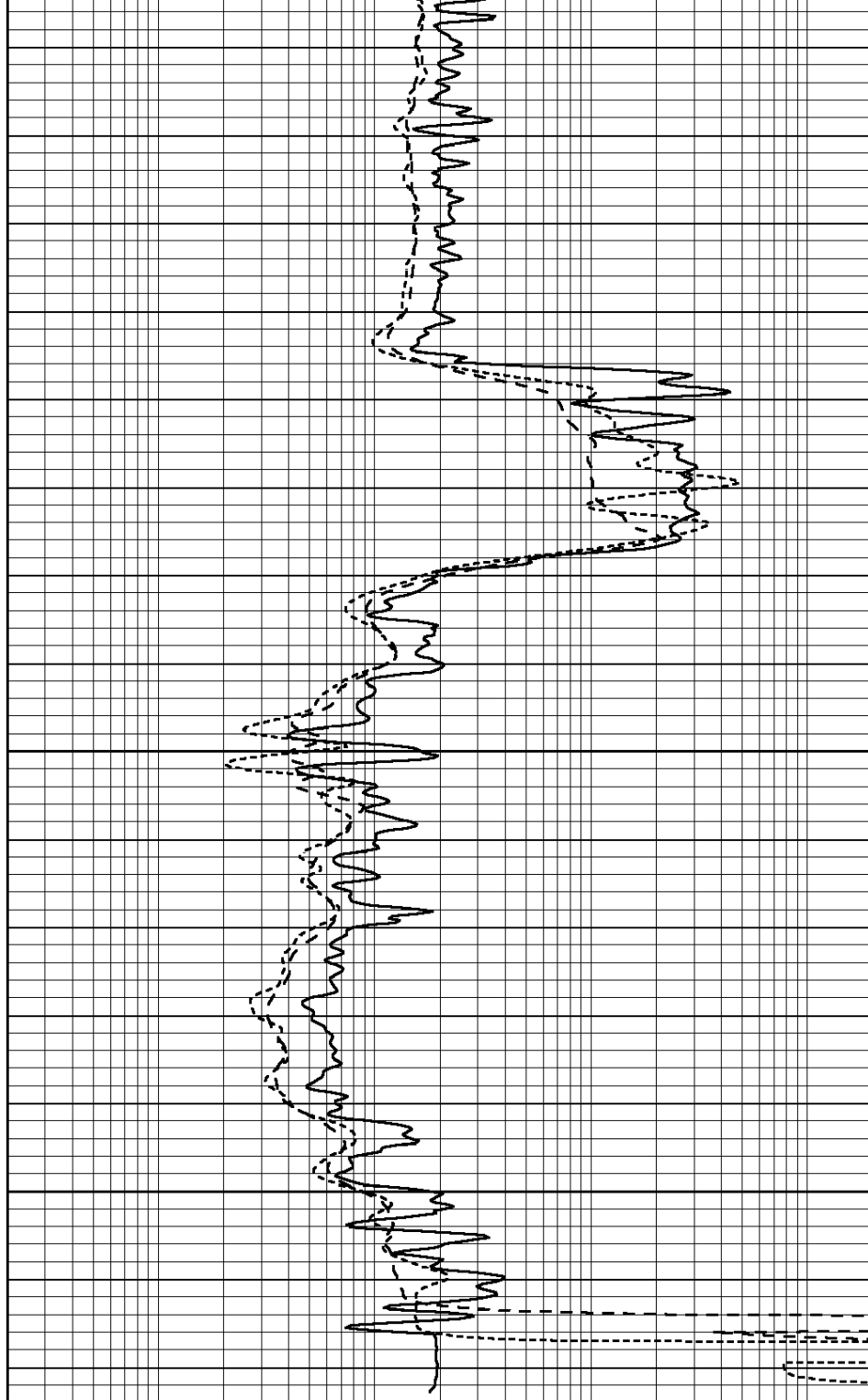


4100

4150

4200

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

Calibration Report

Database File: 25890pe.db
 Dataset Pathname: pass3.5
 Dataset Creation: Mon Oct 06 01:31:20 2014 by Calc SOC 120430

Dual Induction Calibration Report

Serial-Model:
 Surface Cal Performed:

PROBE9-DILG
 Fri Sep 26 22:43:29 2014

Surface Calibration								
Readings				References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	670.000	-13.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	670.000	-27.000
Internal:	Zero	Cal		Zero	Cal		m	b
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		
		1.000	mmho-m		1.000	mmho-m		

Litho Density Calibration Report								
Serial: 003N				Model: PRB				

Master Calibration					Performed Tue Sep 08 14:14:44 2009			
	Background	Magnesium	Aluminum	Sandstone				
Window 1	2042.6	12312.8	4225.8	13758.4				cps
Window 2	1855.8	10134.7	3624.2	11113.1				cps
Window 3	1639.4	6760.2	2716.3	7260.3				cps
Window 4	466.4	469.2	466.1	476.5				cps
Long Space	0.0	8278.9	1768.4	9257.4				cps
Short Space	2.2	2377.3	1544.1	2574.2				cps
Rho		1.7100	2.5900	1.3800				g/cc
Pe		0.0000	2.5700	1.5500				
Rib Angle	: 44.4	Rib Slope	: 0.979	Density/Spine Ratio			: 0.549	
Spine Angle	: 74.4	Spine Slope	: 3.577	Spine Intercept			: -18.8	

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 Correction:	0.0000	0.0000	0.0000	g/cc	
Measured Pe					
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	
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:	070558				
Tool Model:	OPEN_GR				
Performed:	Mon Jun 30 21:53:39 2014				
Calibrator Value:	1.0	GAPI			
Background Reading:	0.0	cps			
Calibrator Reading:	1.0	cps			
Sensitivity:	0.2800	GAPI/cps			