



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

**DUAL
INDUCTION
LOG**

Company	L.D. DRILLING, INC.		
Well	BARNES #2-21		
Field			
County	BARTON	State	KANSAS
Location:	AP1 # : 15-009-26087-0000		Other Services CDL/CNL MEL/SON
Well	BARNES #2-21		
Field			
County	BARTON	State	KANSAS
Permanent Datum	900' FNL & 330' FWL N/2 SW NW NW		Elevation K.B. 1934 D.F. 1932 G.L. 1929
Log Measured From	SEC 21 TWP 18S RGE 14W		
Drilling Measured From	GROUND LEVEL		
	KELLY BUSHING 5' A.G.L.		
	KELLY BUSHING		
Date	4/7/15		
Run Number	ONE		
Depth Driller	3560		
Depth Logger	3566		
Bottom Logged Interval	3564		
Top Log Interval	00		
Casing Driller	8 5/8" @ 938		
Casing Logger	933		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 9500 PPM	
Density / Viscosity	9.3/59		
pH / Fluid Loss	11.0/10.0		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.50 @ 68F		
Rmt @ Meas. Temp	.37 @ 68F		
Rmc @ Meas. Temp	1.59 @ 68F		
Source of Rmt / Rmc	MEASUREMENT		
Rm @ BHT	.30 @ 112F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	112F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	JASON CAPPELLUCCI		
Witnessed By	JIM MUSGROVE		

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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:

FROM HWY 281 & HWY 4 GO 4 MILES SOUTH TO CURVE - 2 WEST - 1/4 SOUTH - EAST INTO

Database File:

26550ddn.db

Dataset Pathname:

pass3.3

Presentation Format:

_dil2

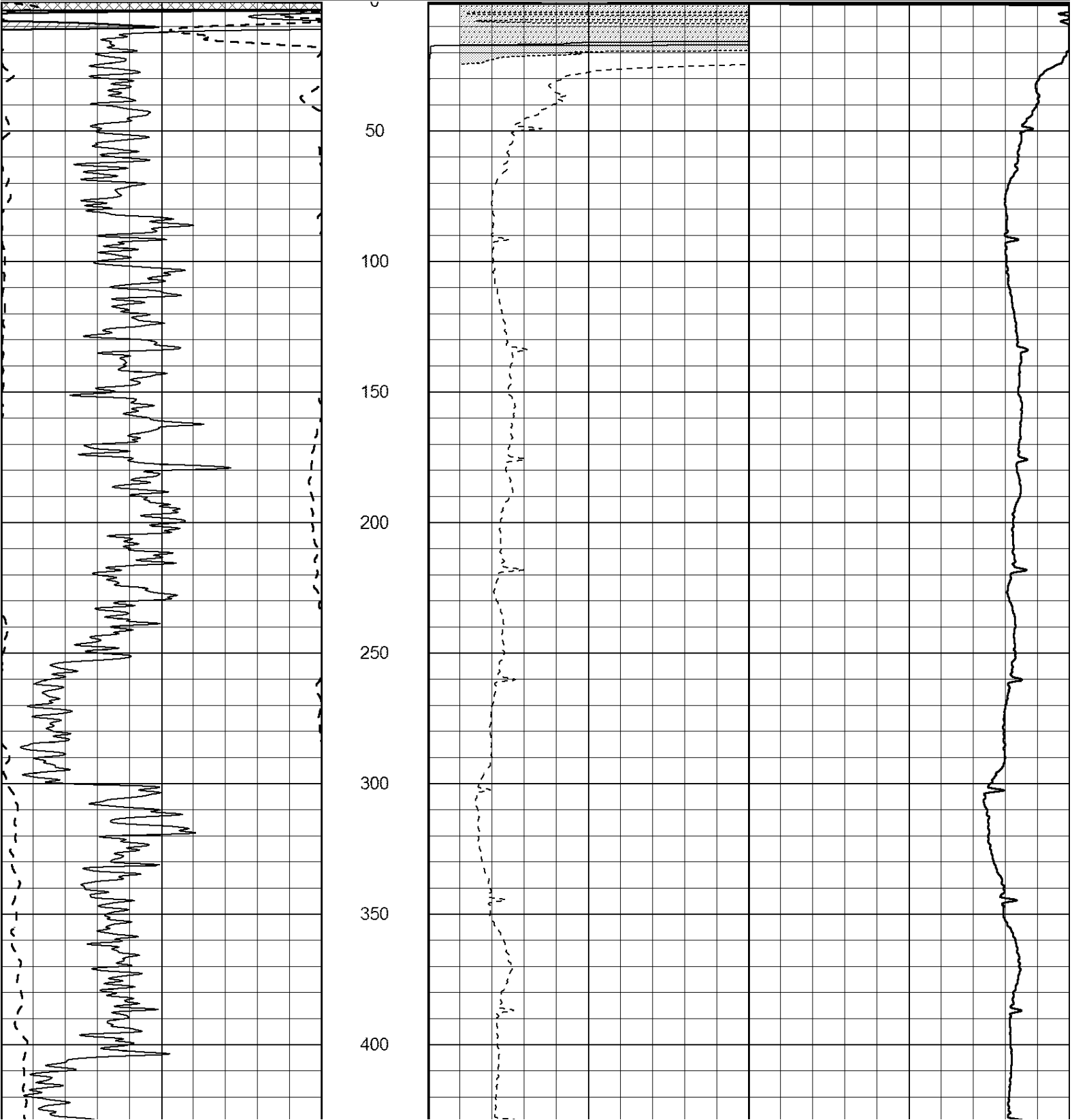
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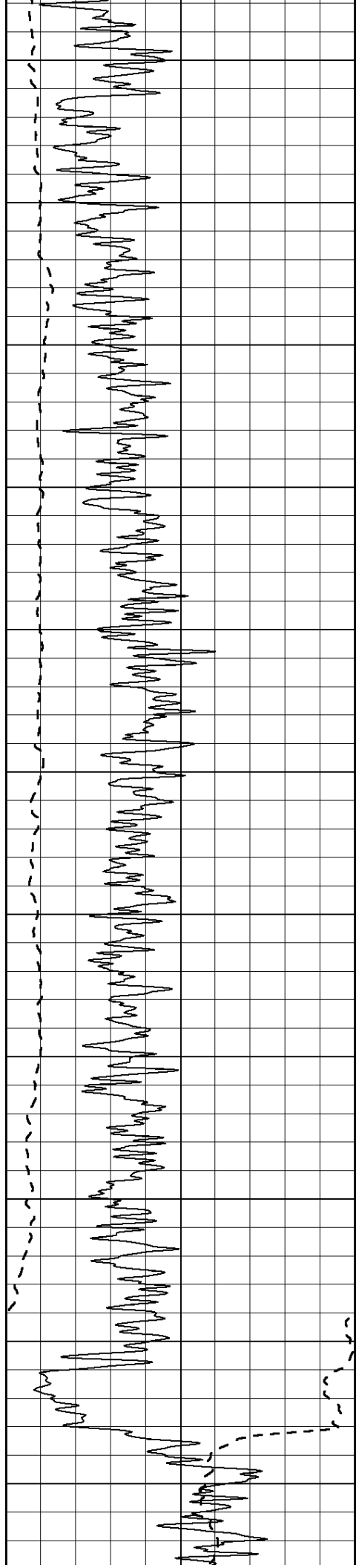
Tue Apr 07 11:30:14 2015 by Calc Open-Cased 090629

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





450

500

550

600

650

700

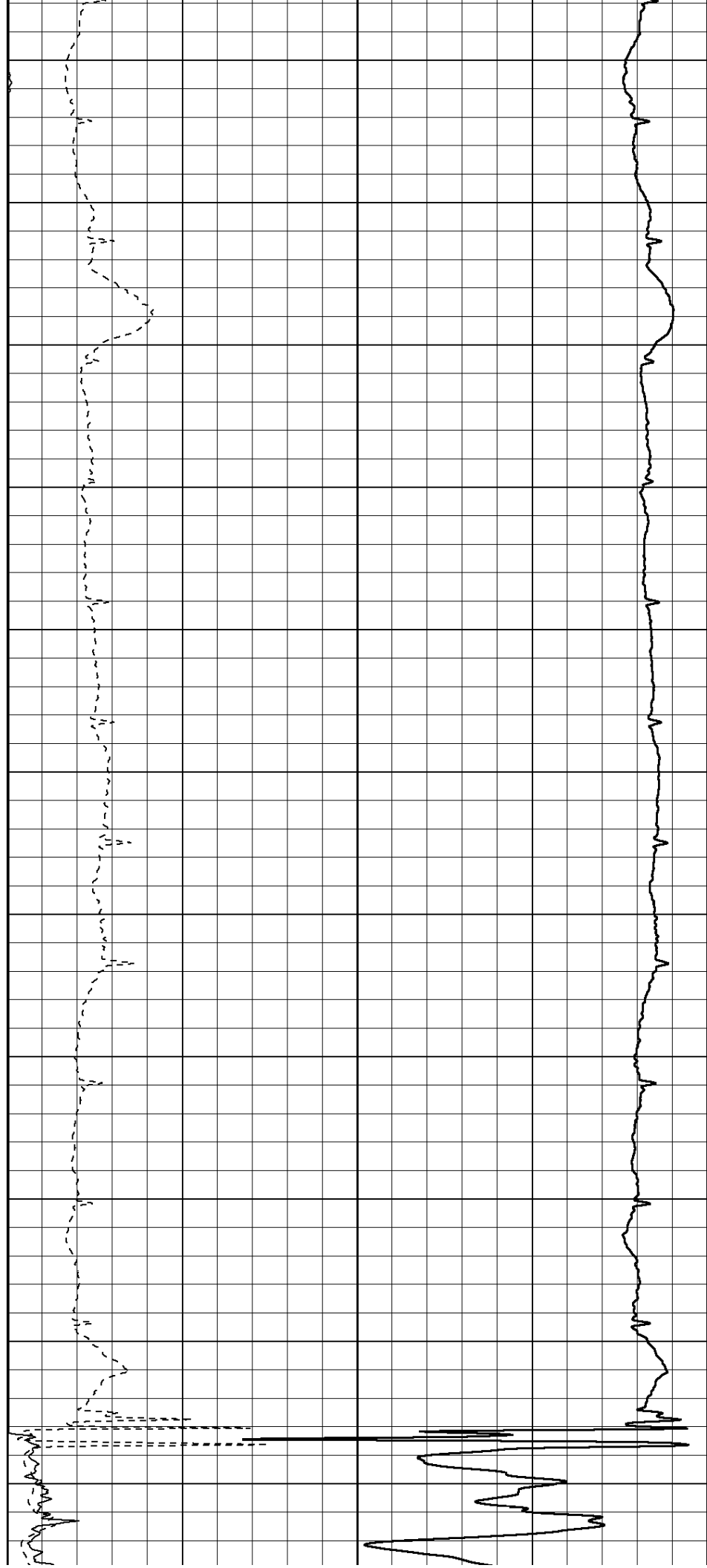
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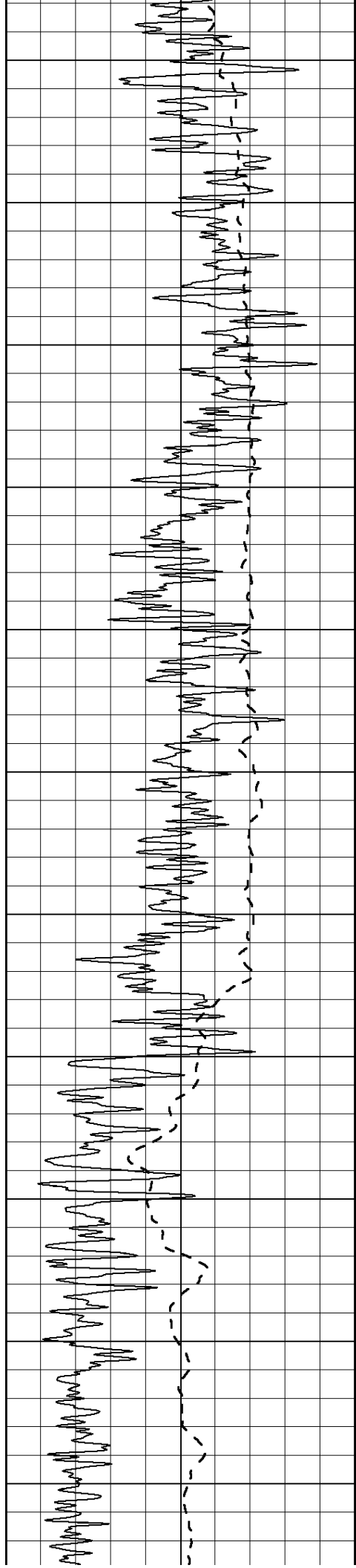
800

850

900

950





1000

1050

1100

1150

1200

1250

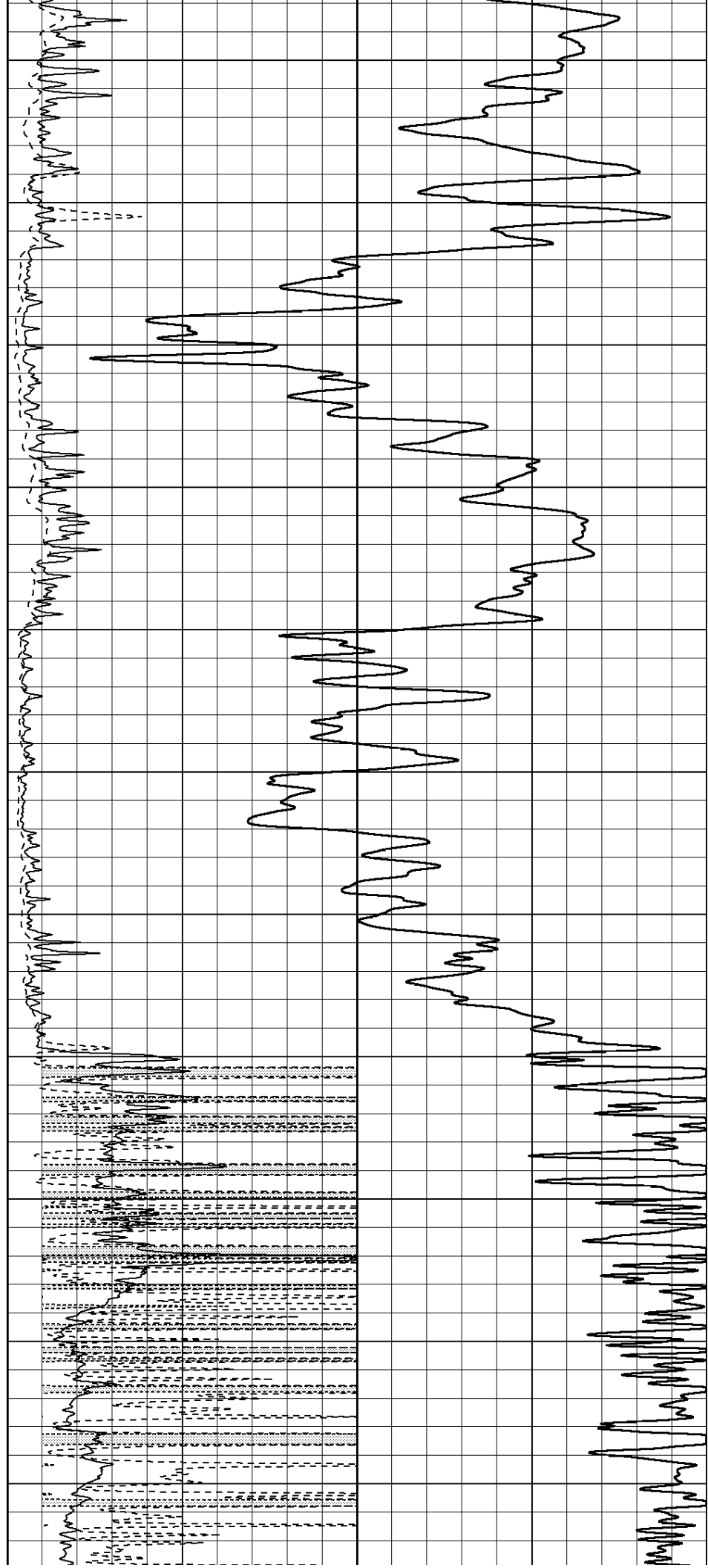
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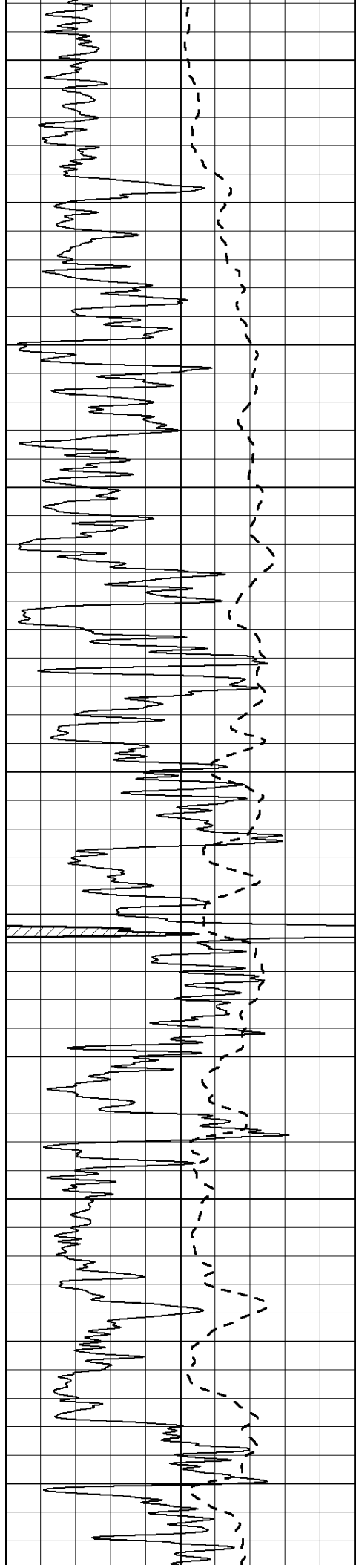
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1400

1450

1500





1550

1600

1650

1700

1750

1800

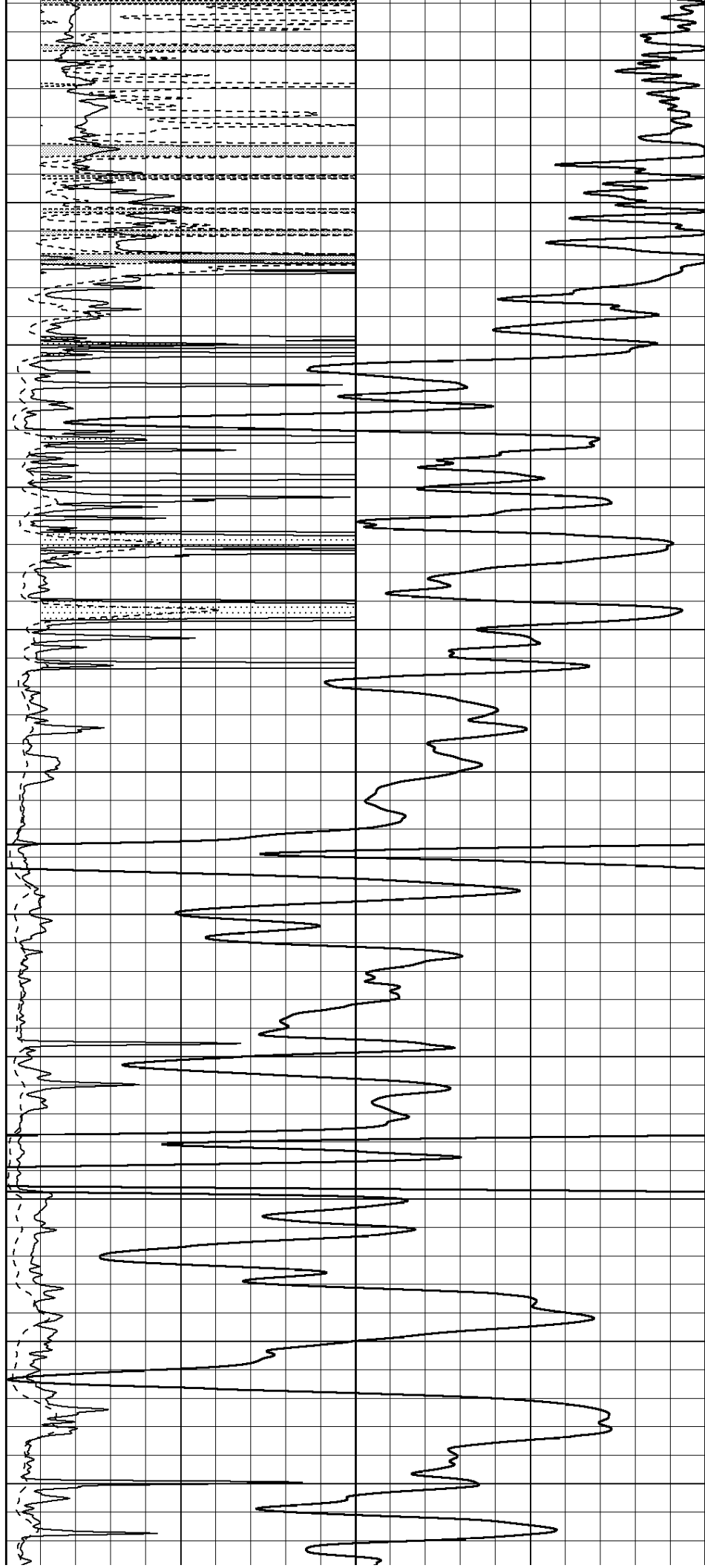
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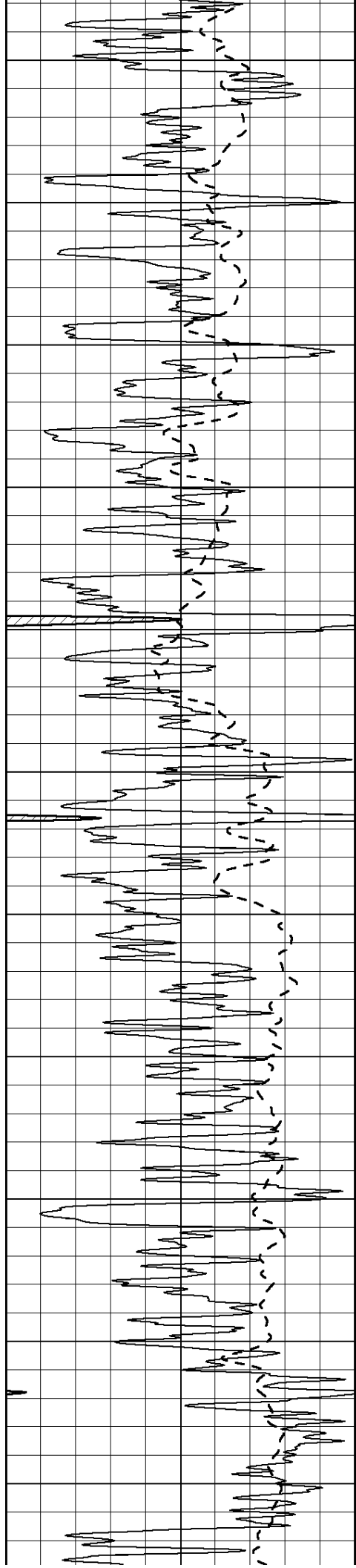
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1950

2000

2050





2100

2150

2200

2250

2300

2350

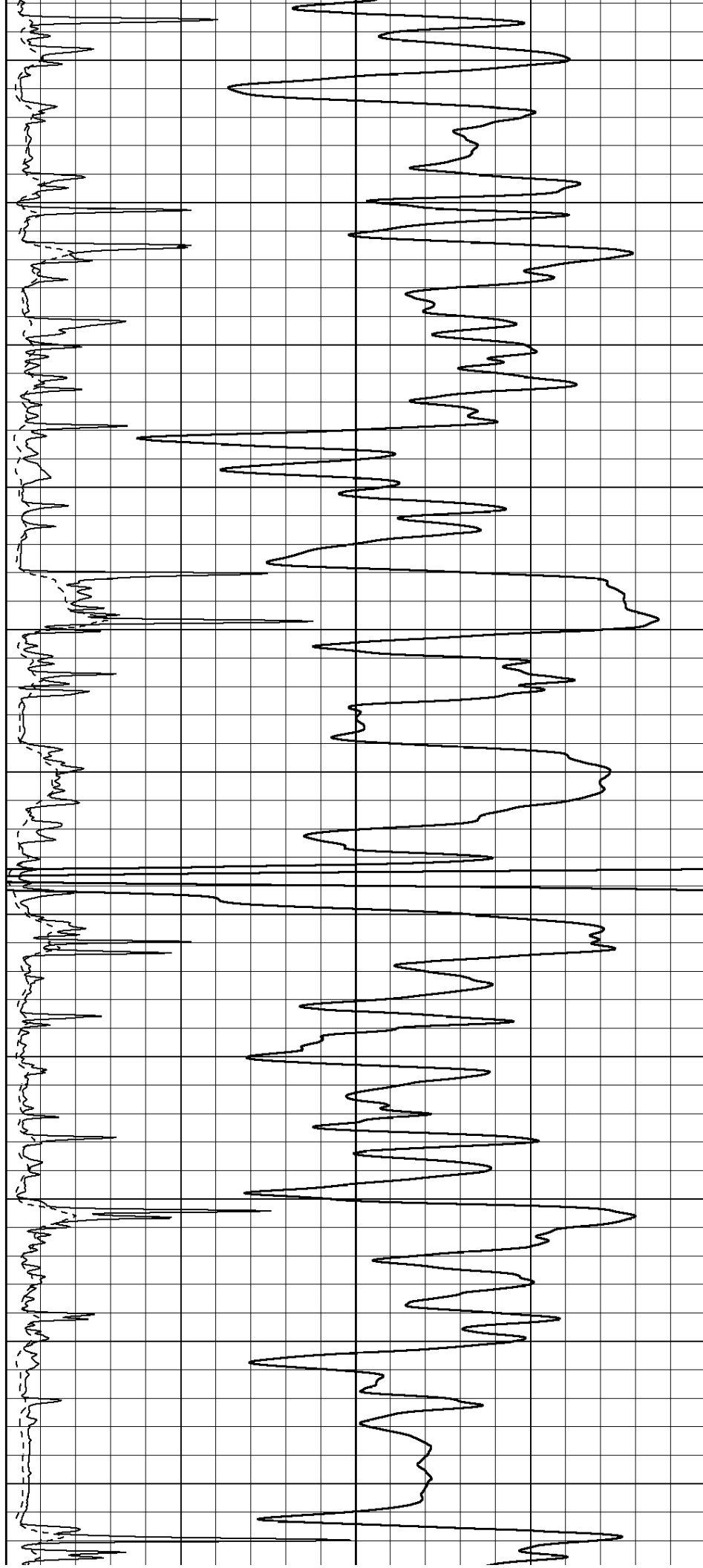
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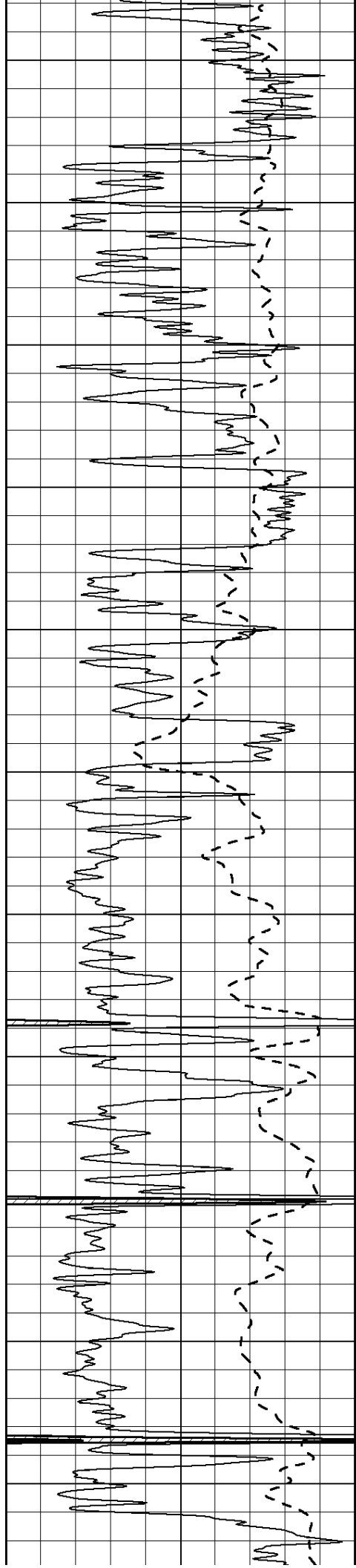
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2500

2550

2600





2650

2700

2750

2800

2850

2900

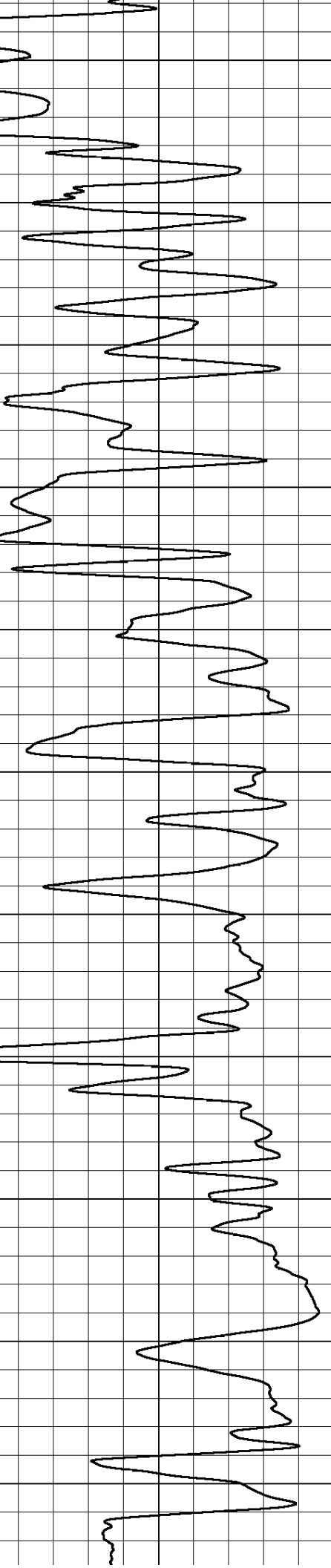
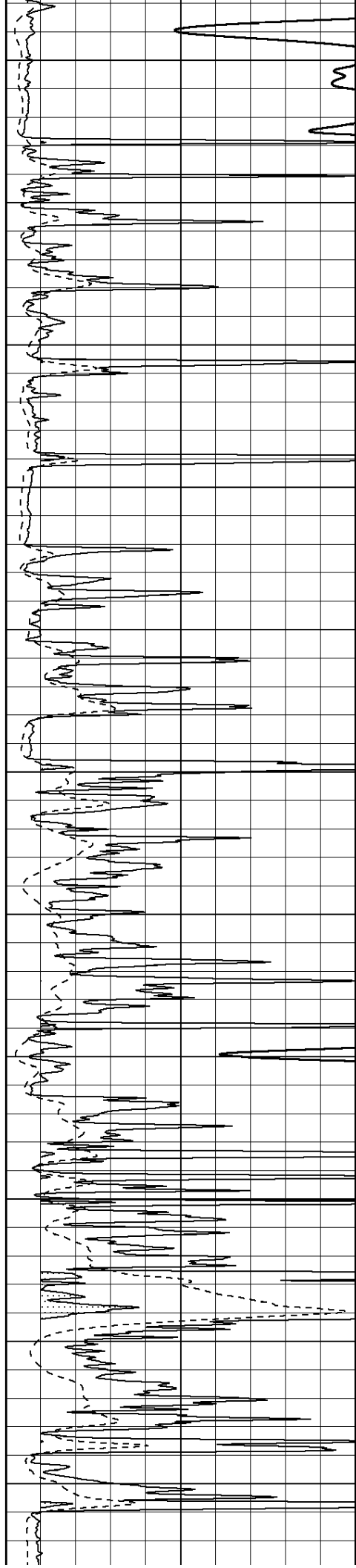
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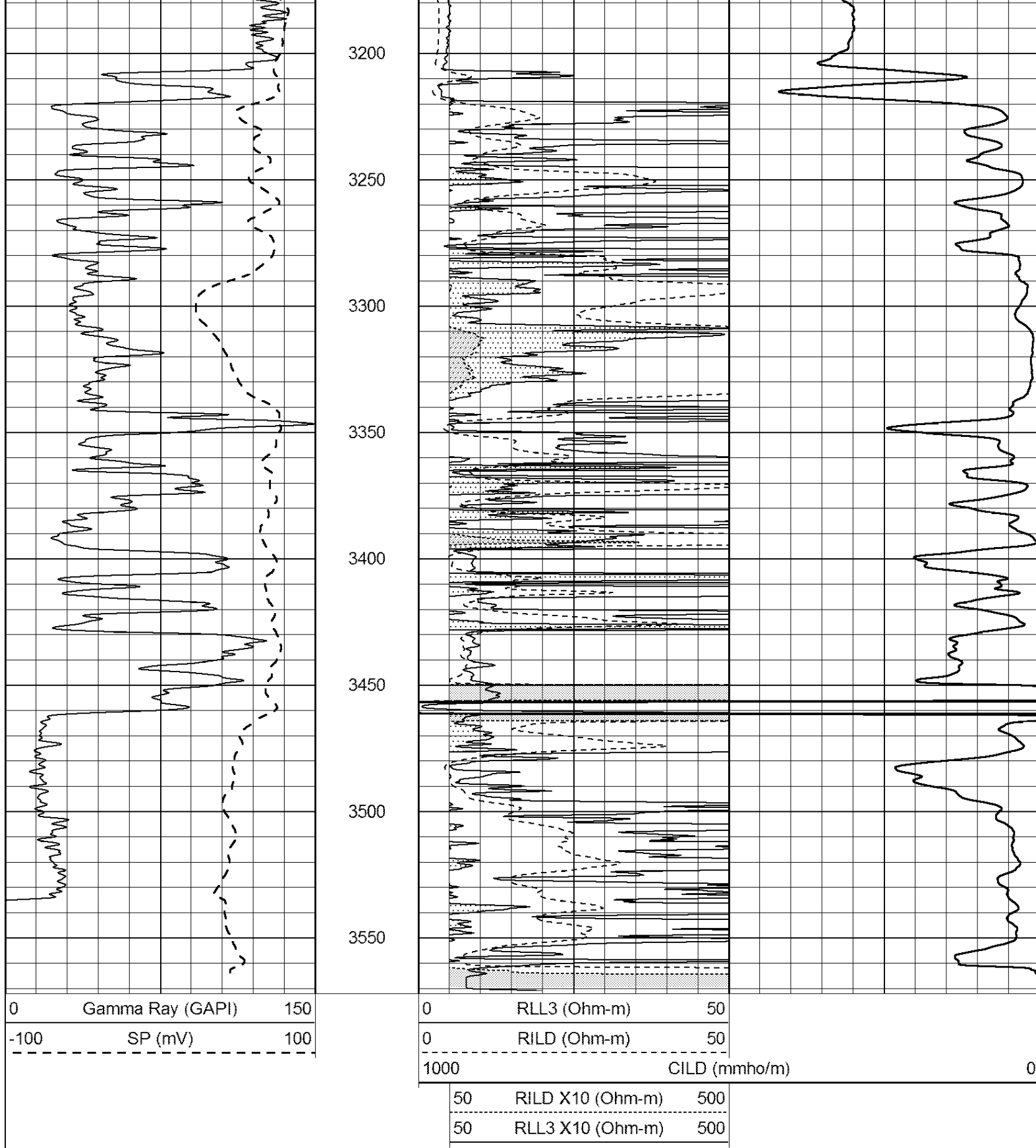
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3050

3100

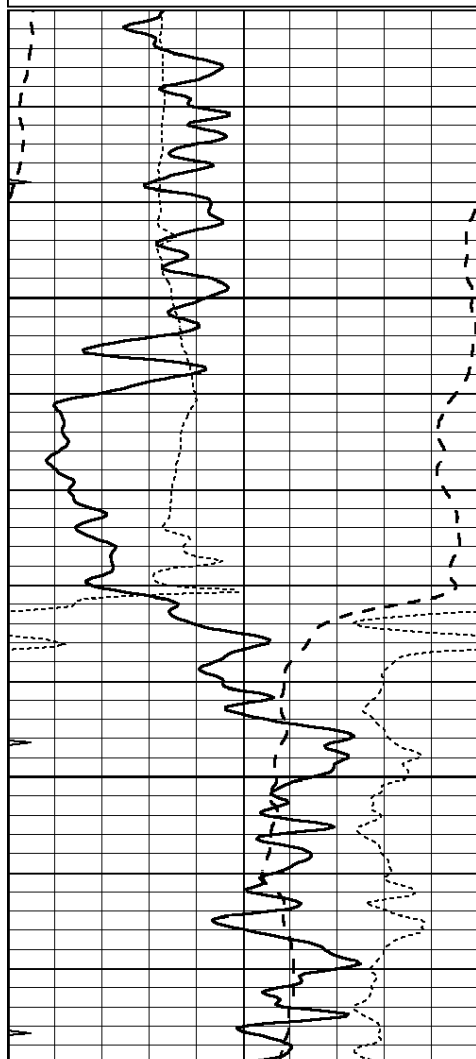
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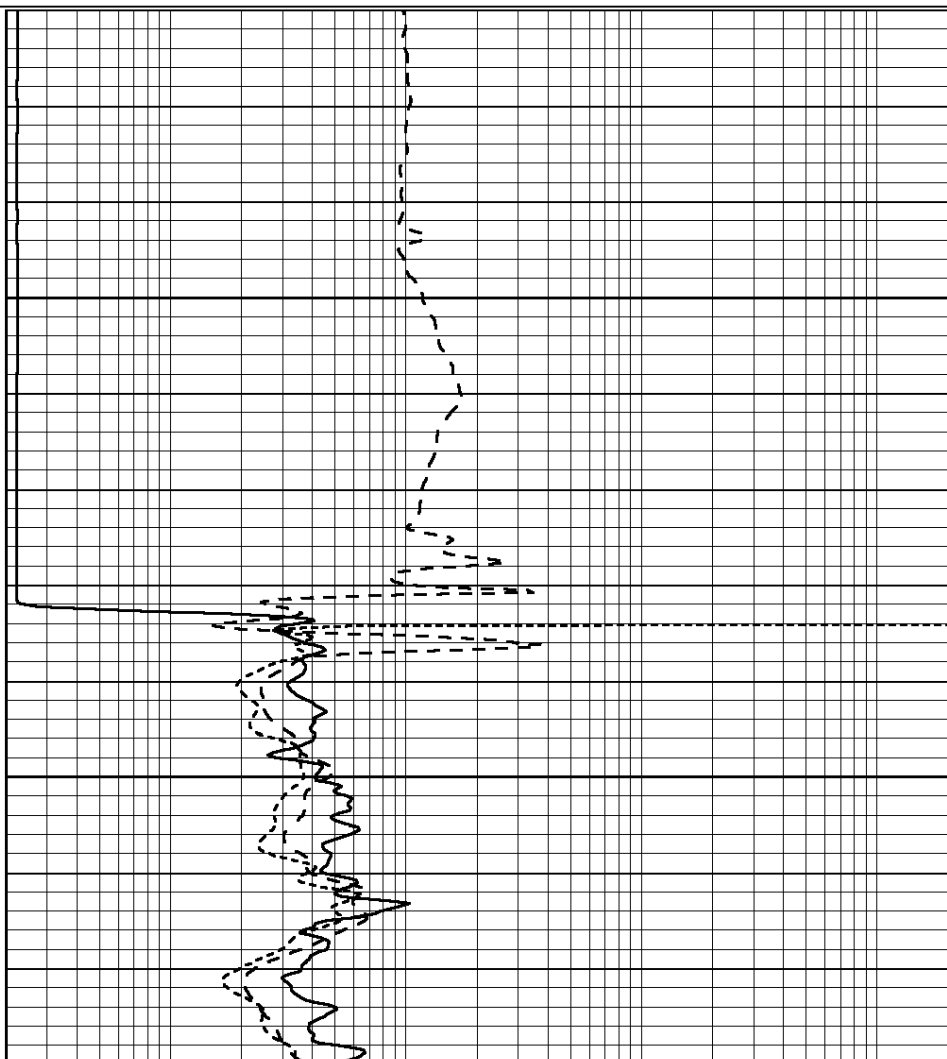
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-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



900

950



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 SECTION

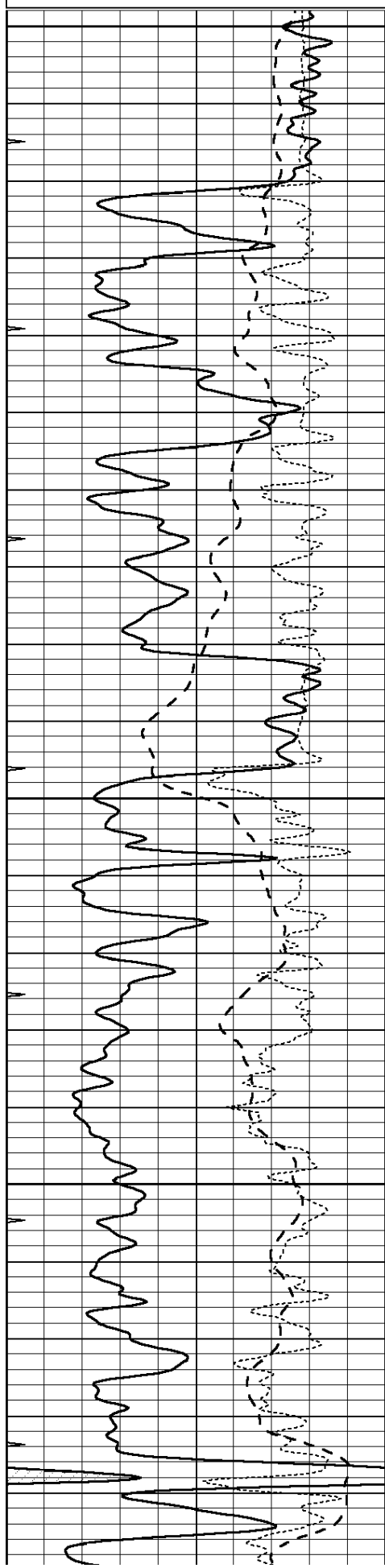
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 Dataset Pathname: pass3.1
 Presentation Format: _dil
 Dataset Creation: Tue Apr 07 10:08:32 2015 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

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

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

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

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

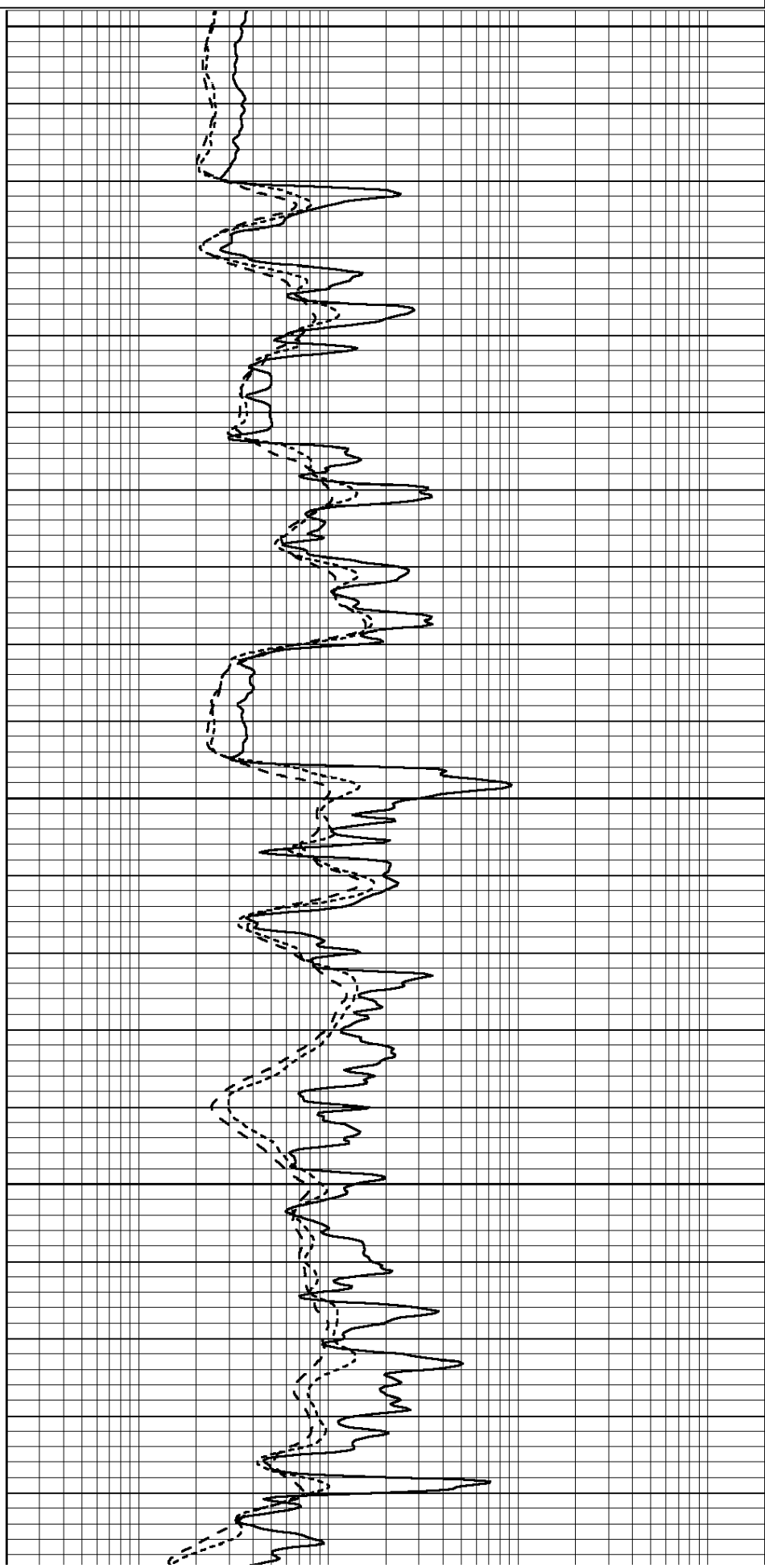


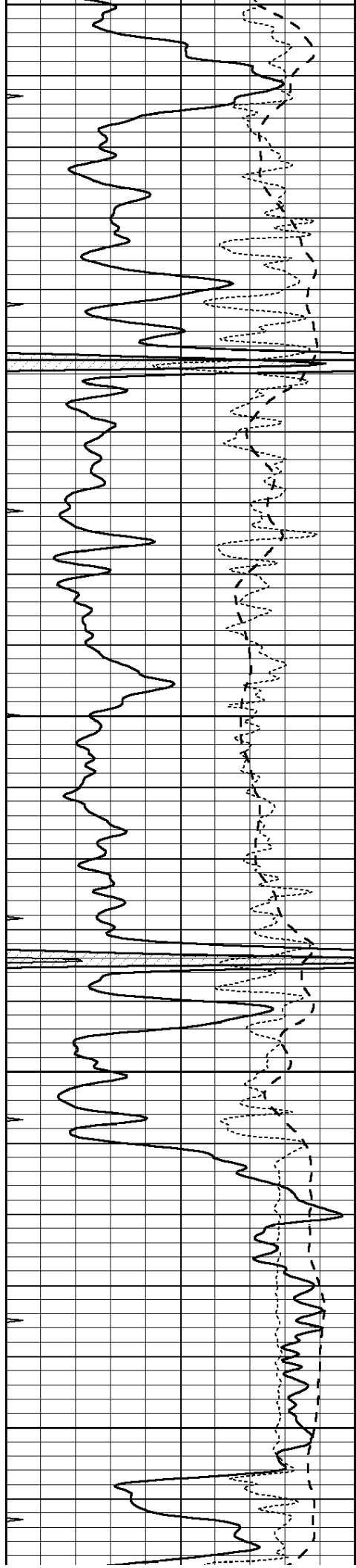
2800

2850

2900

2950





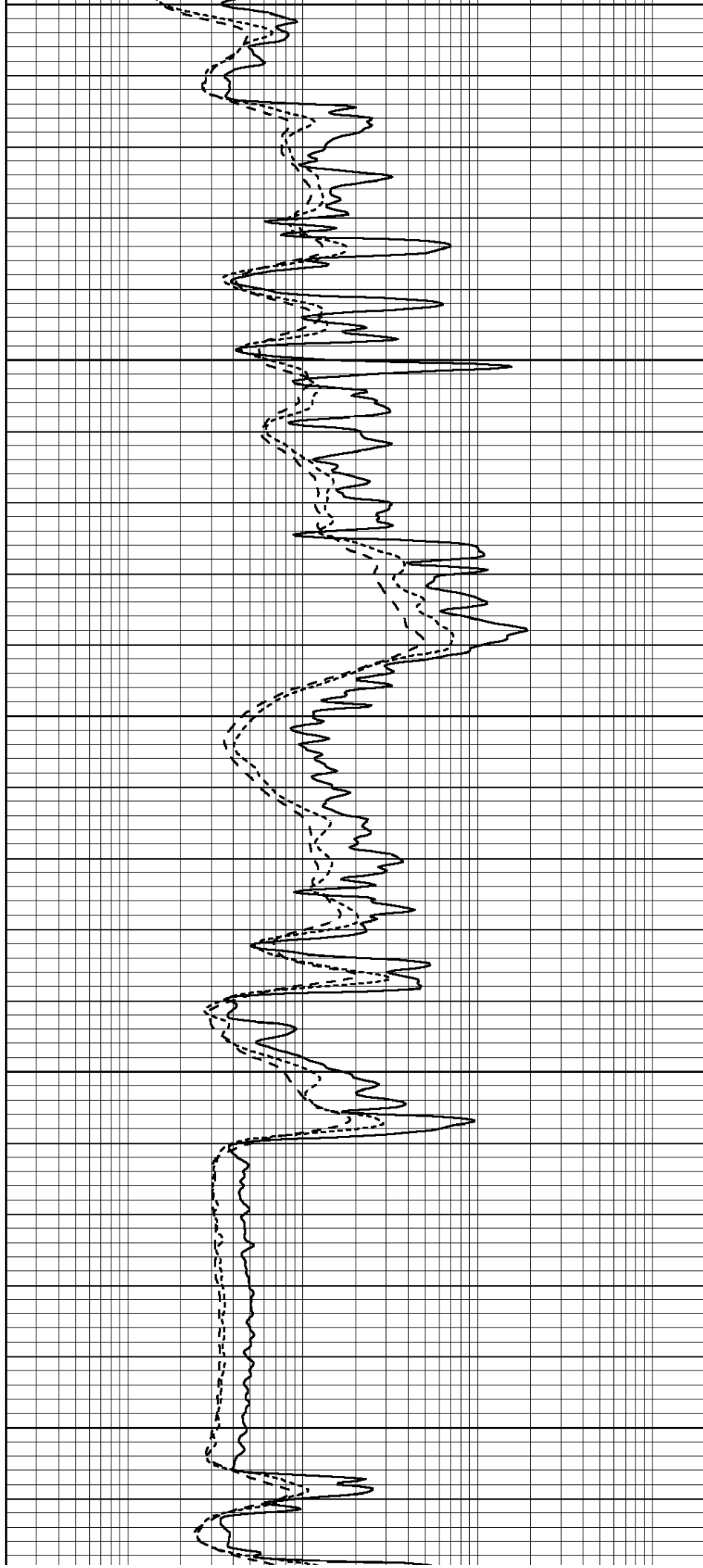
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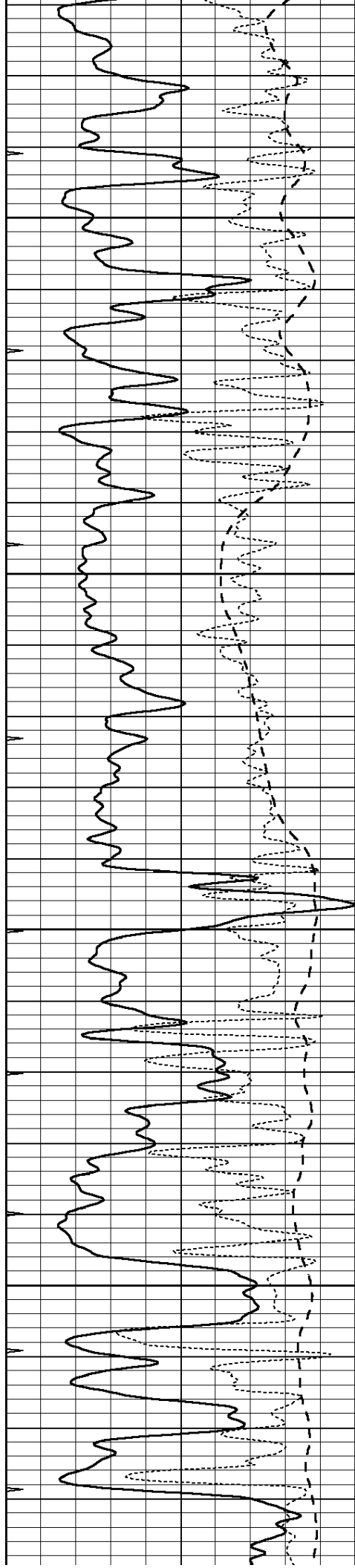
3050

3100

3150

3200



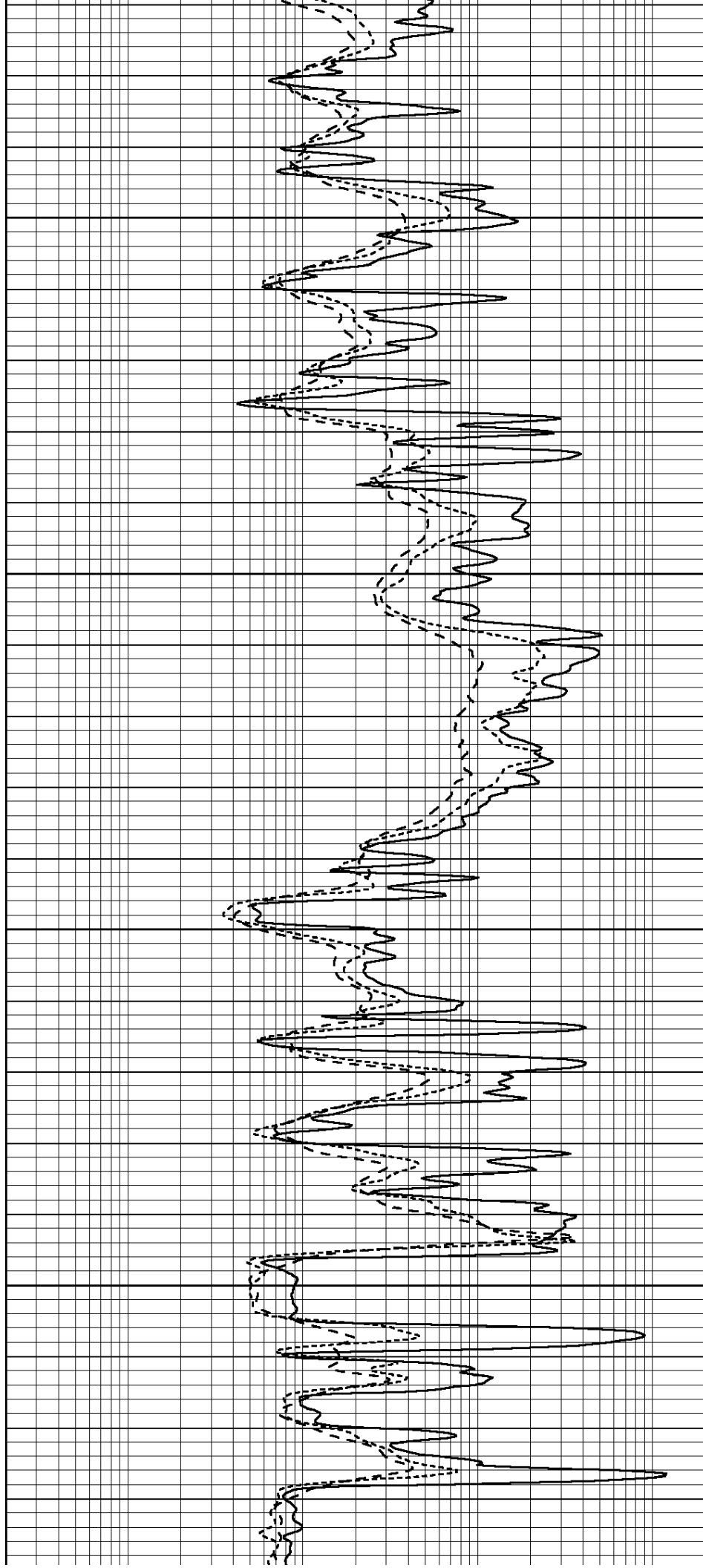


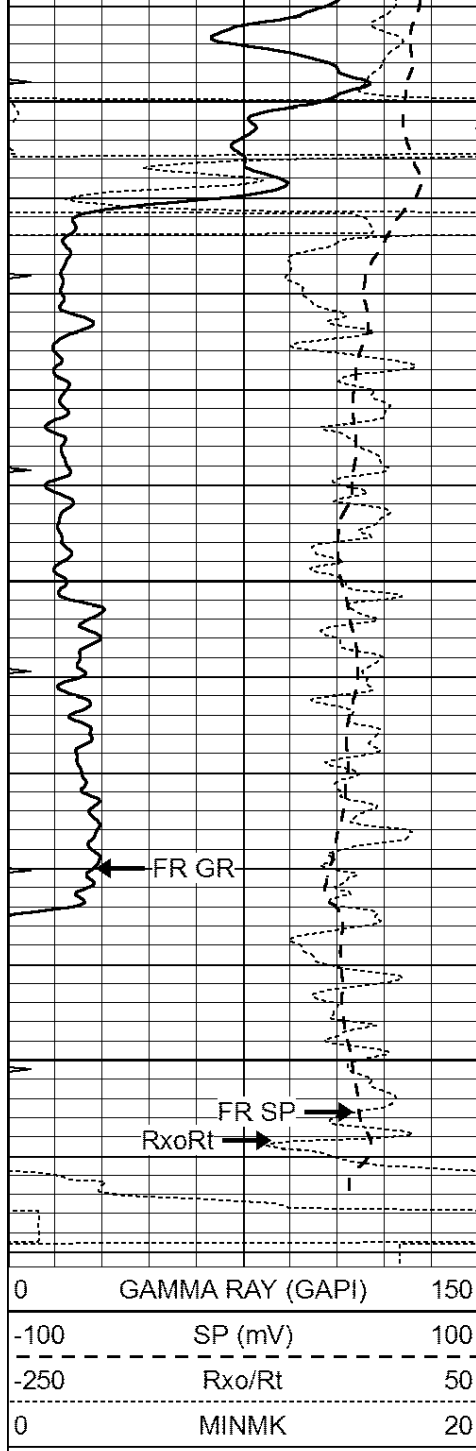
3250

3300

3350

3400



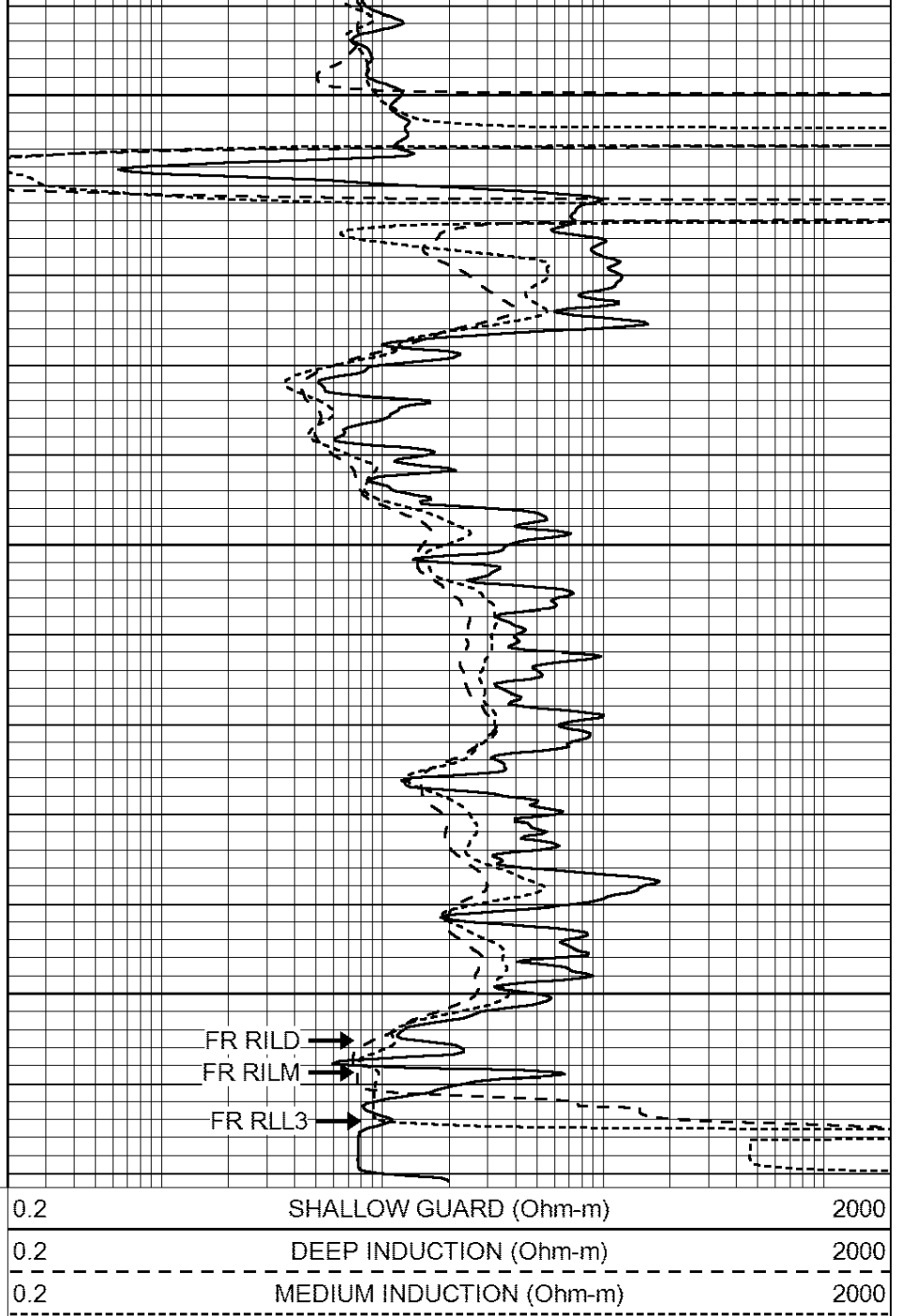


3450

3500

3550

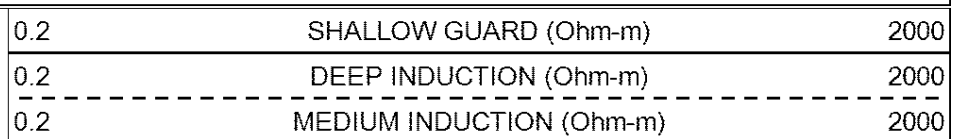
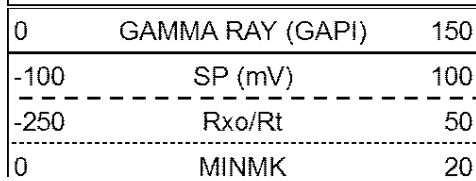
LTD 3566

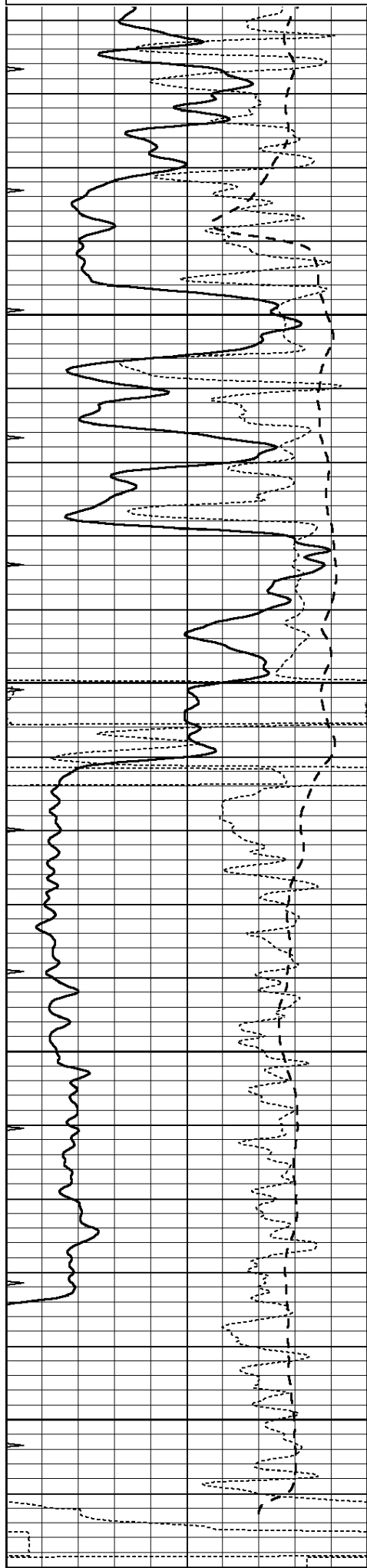


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REPEAT SECTION

Database File: 26550ddn.db
Dataset Pathname: pass2.1
Presentation Format: _dil
Dataset Creation: Tue Apr 07 10:11:23 2015 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:240



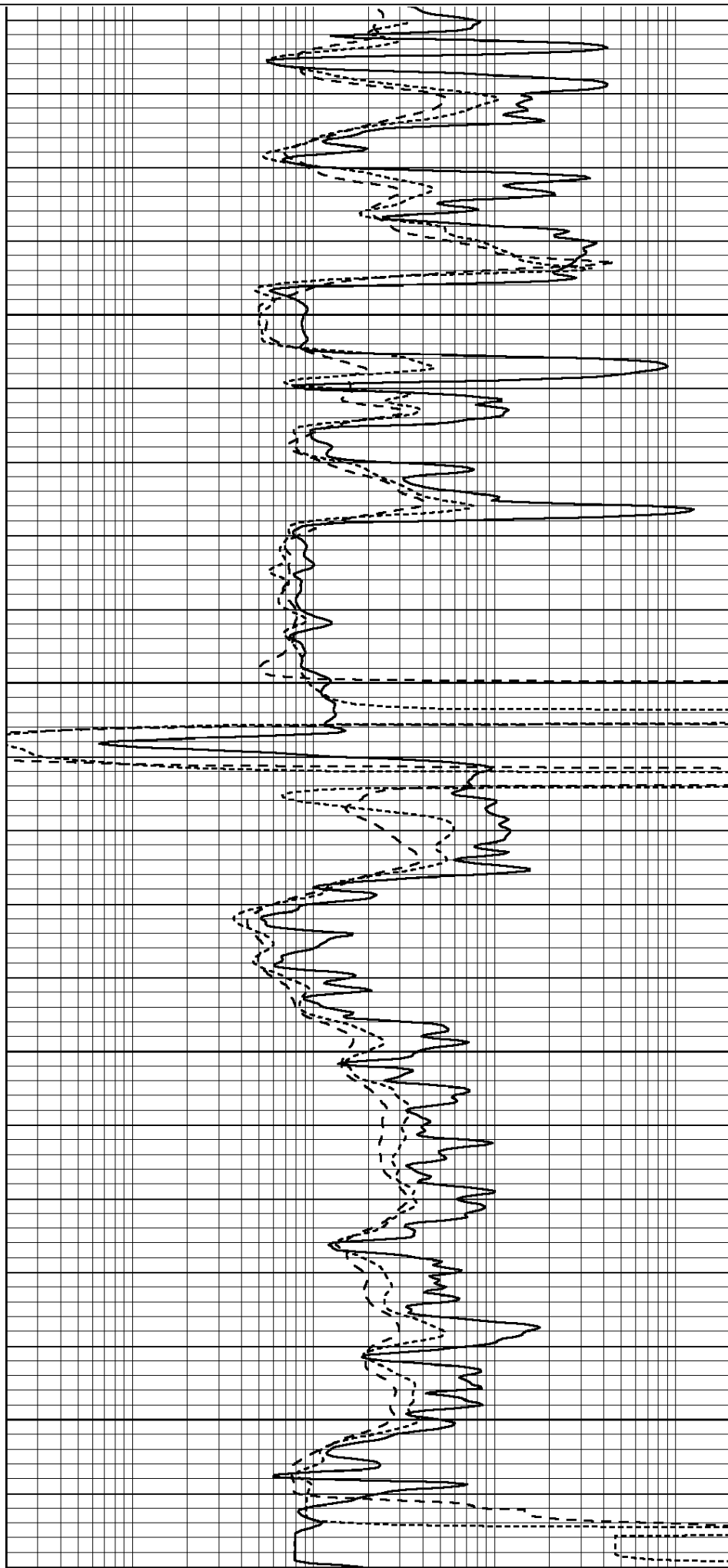


3400

3450

3500

3550



0	GAMMA RAY (GAPI)	150	0.2	SHALLOW GUARD (Ohm-m)	2000
-100	SP (mV)	100	0.2	DEEP INDUCTION (Ohm-m)	2000
-250	Rxo/Rt	50	0.2	MEDIUM INDUCTION (Ohm-m)	2000
0	MINMK	20			

Calibration Report					
Database File:	26550ddn.db				
Dataset Pathname:	pass2.1				
Dataset Creation:	Tue Apr 07 10:11:23 2015 by Calc Open-Cased 090629				

Dual Induction Calibration Report					
Serial-Model:			PROBE8-DILG		
Surface Cal Performed:			Sun Aug 17 08:09:53 2014		
Downhole Cal Performed:			Mon Jul 28 11:08:27 2008		
After Survey Verification Performed:			Mon Jul 28 11:08:27 2008		

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	-2.000
Medium	0.029	0.796	V	0.000	464.000	mmho/m	590.000	-16.000
Internal:				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: 006			Model: PRB		

Master Calibration					Performed Wed Mar 12 14:26:38 2014				
	Background		Magnesium		Aluminum		Sandstone		
Window 1	1296.6		7199.0		2625.4		7833.2		cps
Window 2	1218.8		5956.6		2257.8		6372.0		cps
Window 3	926.7		2990.0		1318.7		3107.7		cps
Window 4	314.3		319.6		320.3		326.2		cps
Long Space	0.0		4737.9		1039.0		5153.3		cps

Short Space	1.3	1655.6	1074.2	1728.4	cps
Rho		1.7100	2.5960	1.3800	g/cc
Pe		0.0000	2.5700	1.5500	
Rib Angle	: 44.1	Rib Slope	: 0.969	Density/Spine Ratio	: 0.562
Spine Angle	: 74.1	Spine Slope	: 3.507	Spine Intercept	: -17.5
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	
Compensated Neutron Calibration Report					
Serial Number:		6I			
Tool Model:		G			
CALIBRATION					
Detector		Readings		Target	
				Normalization	
Short Space		1.00	cps	1.00	cps
Long Space		1.00	cps	1.00	cps
				1.0000	
				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 Long Space	cps cps	pu	pu
3)	Short Space Long Space	cps cps	pu	pu
Gamma Ray Calibration Report				
	Serial Number:	GR6		
	Tool Model:	OPEN		
	Performed:	Sun Mar 08 22:55:40 2015		
	Calibrator Value:	150.0	GAPI	
	Background Reading:	0.0	cps	
	Calibrator Reading:	276.0	cps	
	Sensitivity:	0.8000	GAPI/cps	