

DUAL INDUCTION LOG

Company	MULL DRILLING CO.,INC.	
Well	FAGEN#1-30	
Field	WILDCAT	
County	HODGEMAN	
State	KANSAS	
Company	MULL DRILLING CO.,INC.	
Well	FAGEN#1-30	
Field	WILDCAT	
County	HODGEMAN	
State	KANSAS	
Location:	API # : 15-083-21948-00-00 1650' FSL & 1637' FEL	
Permanent Datum	GROUND LEVEL	
Log Measured From	KELLY BUSHING 5' A.G.L.	
Drilling Measured From	KELLY BUSHING	
SEC 30	TWP 24S	RGE 23W
Elevation	2412	Other Services CDL/CNL/MEL SONIC
Date	05/16/18	KB. 2417 D.F. 2415 G.L. 2412
Run Number	ONE	
Depth Driller	4875	
Depth Logger	4879	
Bottom Logged Interval	4878	
Top Log Interval	00	
Casing Driller	8 5/8" @ 218	
Casing Logger	218	
Bit Size	7 7/8"	
Type Fluid in Hole	CHEMICAL MUD	
Density / Viscosity	9.1/54	
pH / Fluid Loss	11.0/7.6	
Source of Sample	FLOWLINE	
Rm @ Meas. Temp	.70@74	
Rmt @ Meas. Temp	.53@74	
Rmc @ Meas. Temp	.84@74	
Source of Rmt / Rmc	MEASURED	
Rm @ BHT	.42@123	
Time Circulation Stopped	2 HOURS	
Time Logger on Bottom	///	
Maximum Recorded Temperature	123F	
Equipment Number	1523	
Location	HAYS, KANSAS	
Recorded By	GUS PFANENSTIEL	
Witnessed By	PHIL ASKEY	

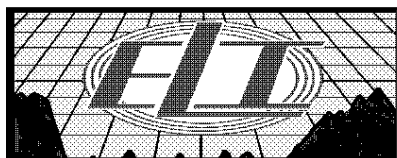
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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on 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
SOUTH OF JETMORE TO B RD.(11 MILES)
1/2 MILE EAST, NORTH INTO.



MAIN PASS

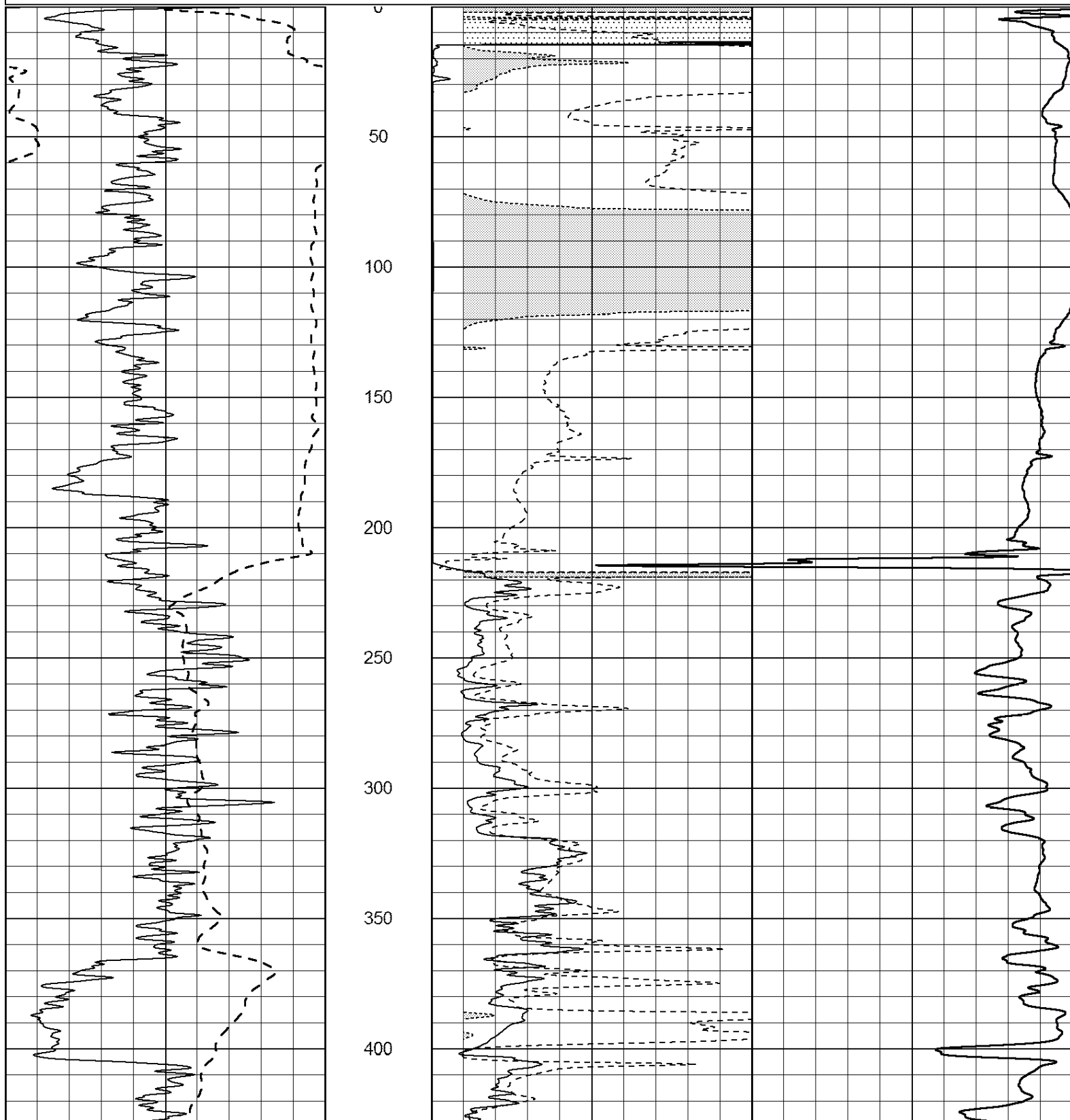
Database File: 2677pe.db
 Dataset Pathname: pass4.1
 Presentation Format: _dil2
 Dataset Creation: Wed May 16 16:37:34 2018 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:600

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

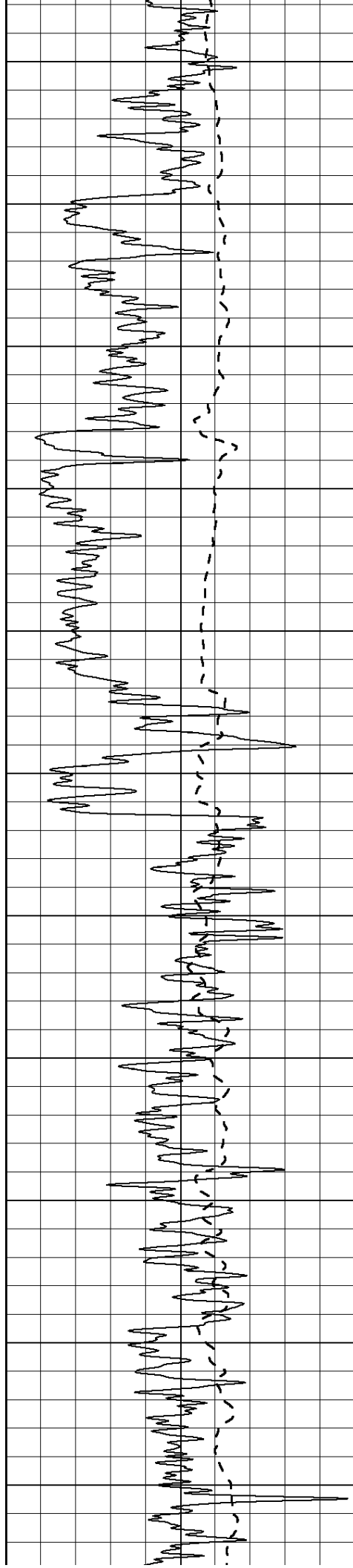
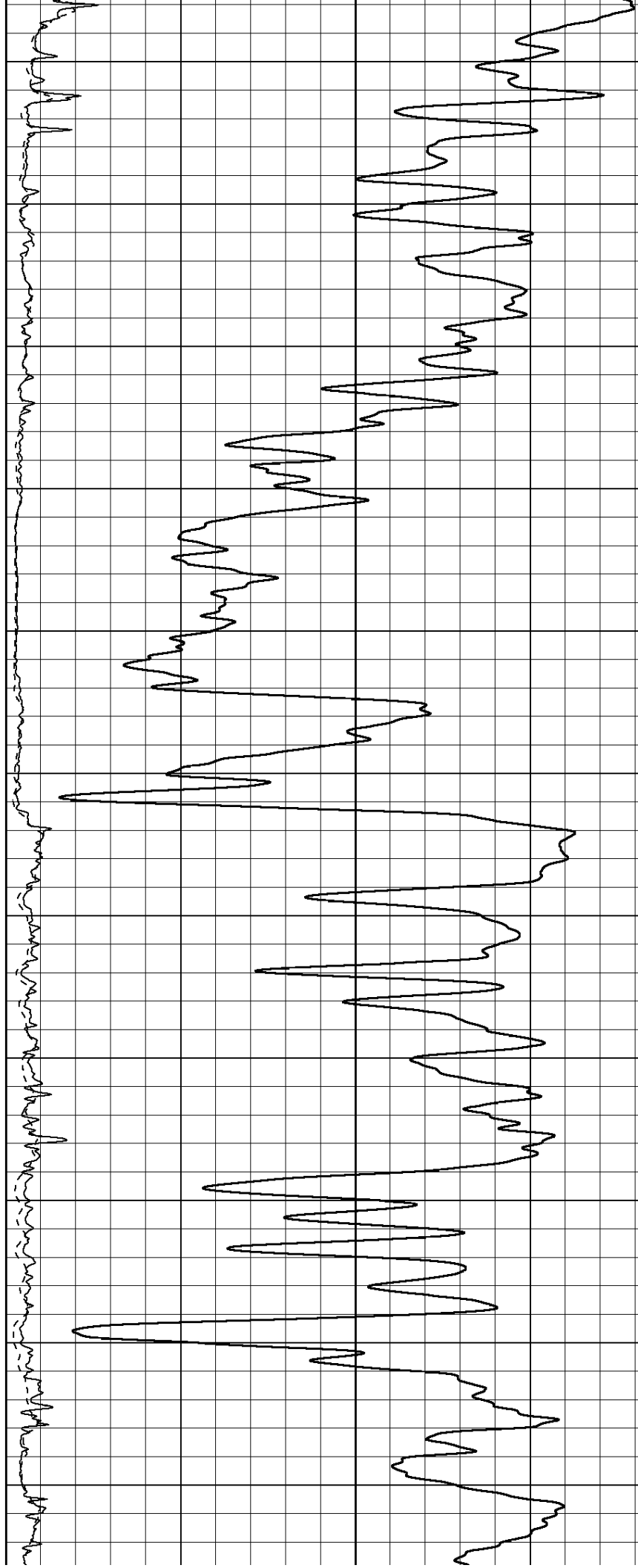
0	RLL3 (Ohm-m)	50
0	RILD (Ohm-m)	50

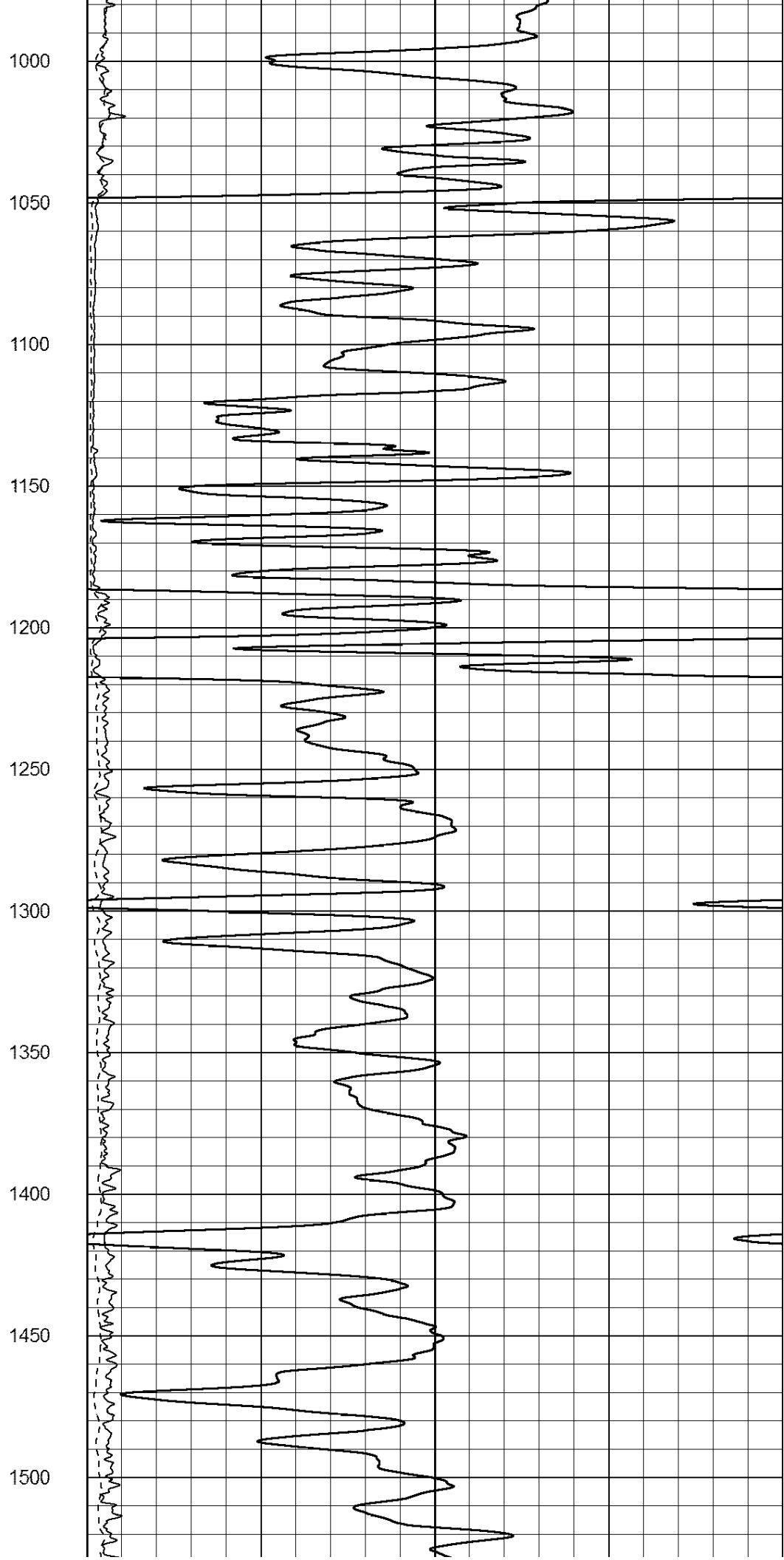
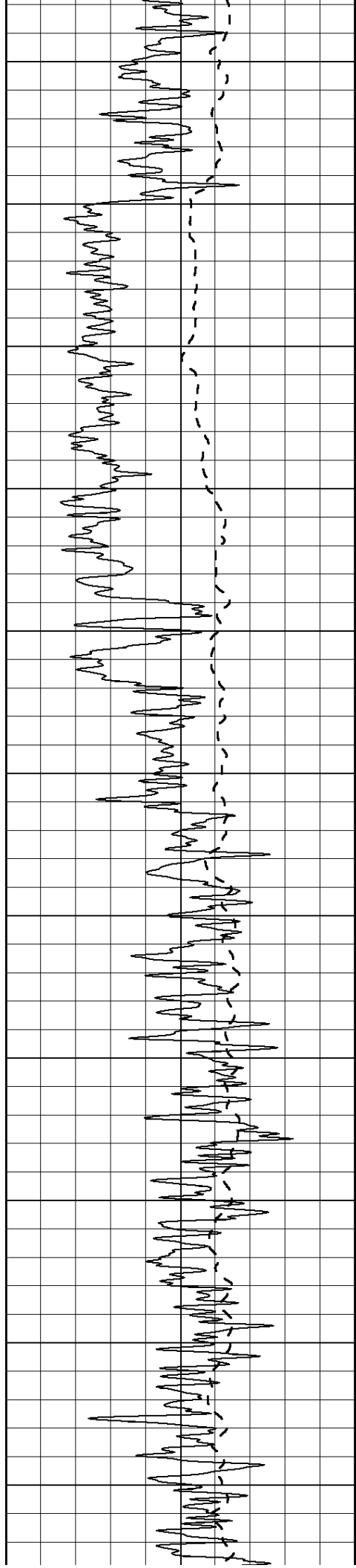
1000	CILD (mmho/m)	0
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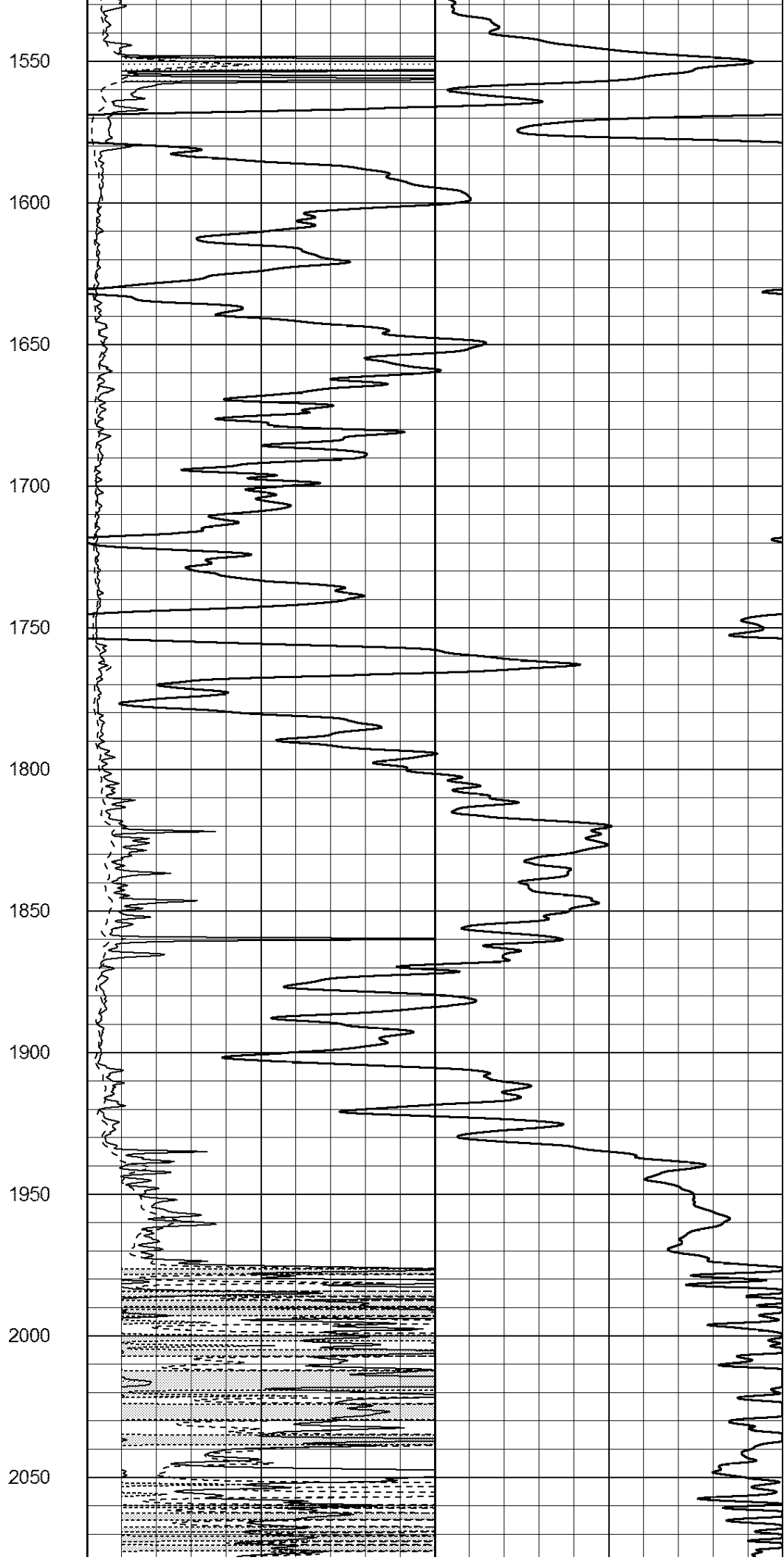
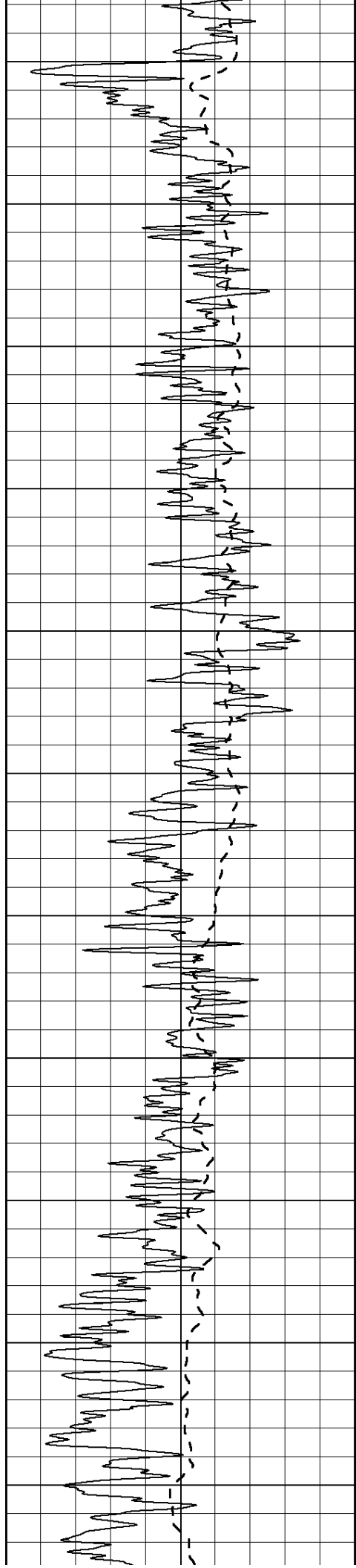
50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500

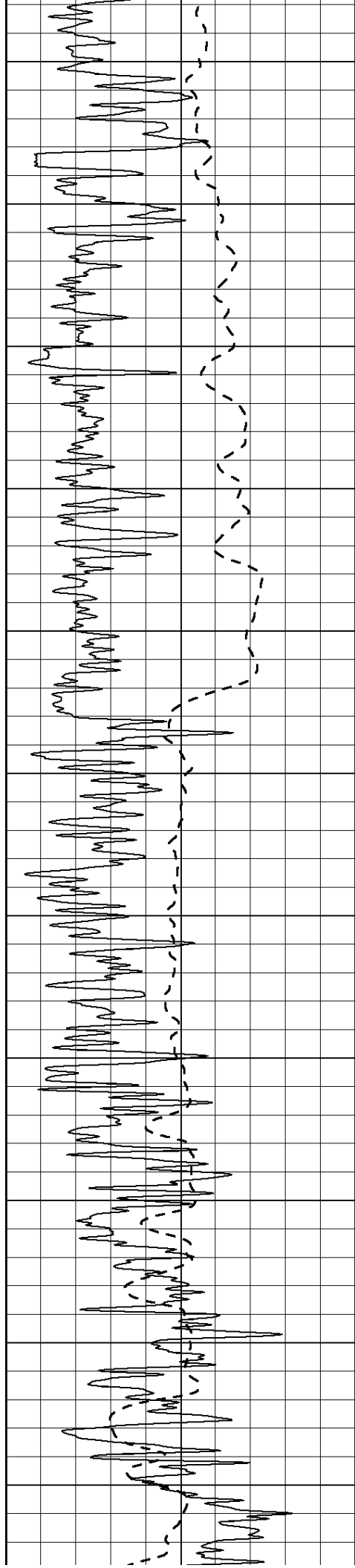


450 500 550 600 650 700 750 800 850 900 950









2100

2150

2200

2250

2300

2350

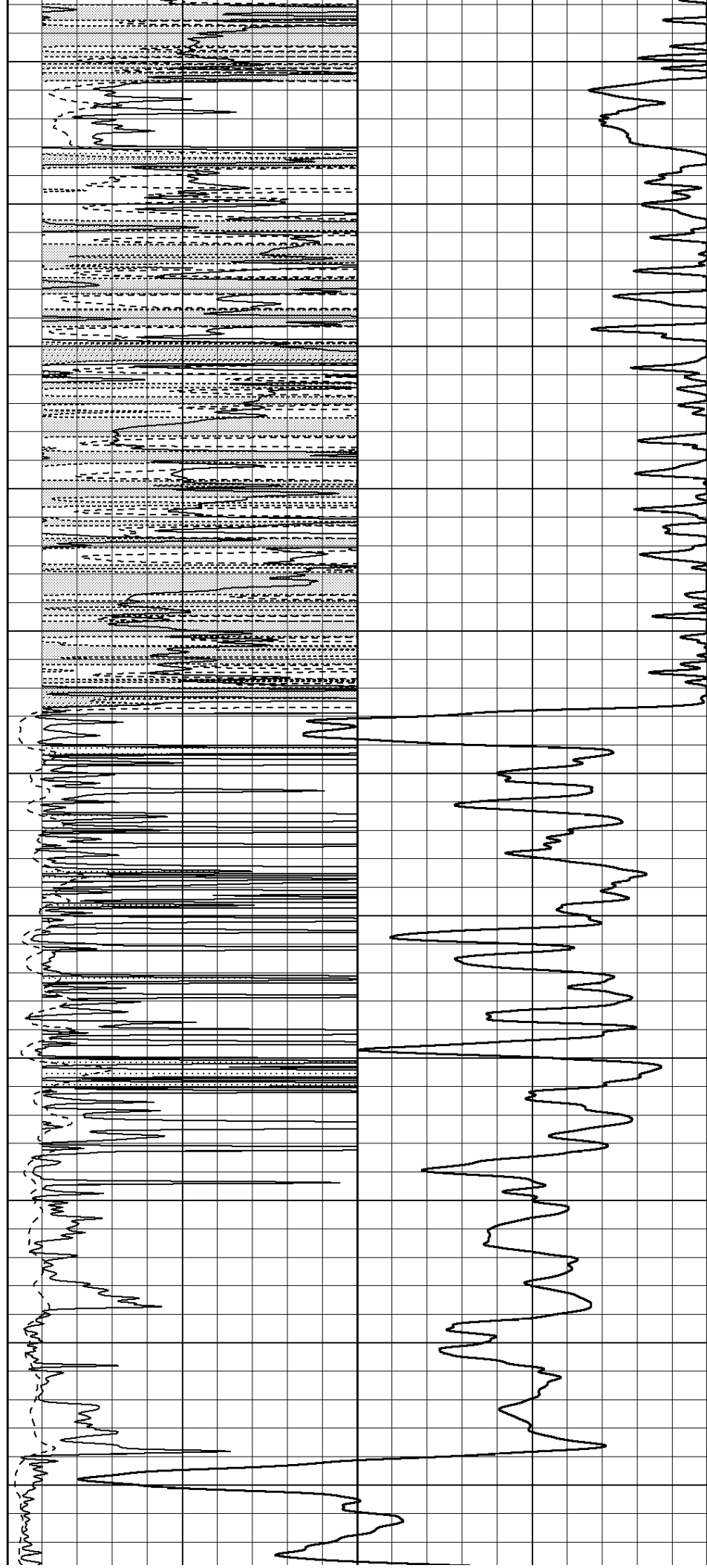
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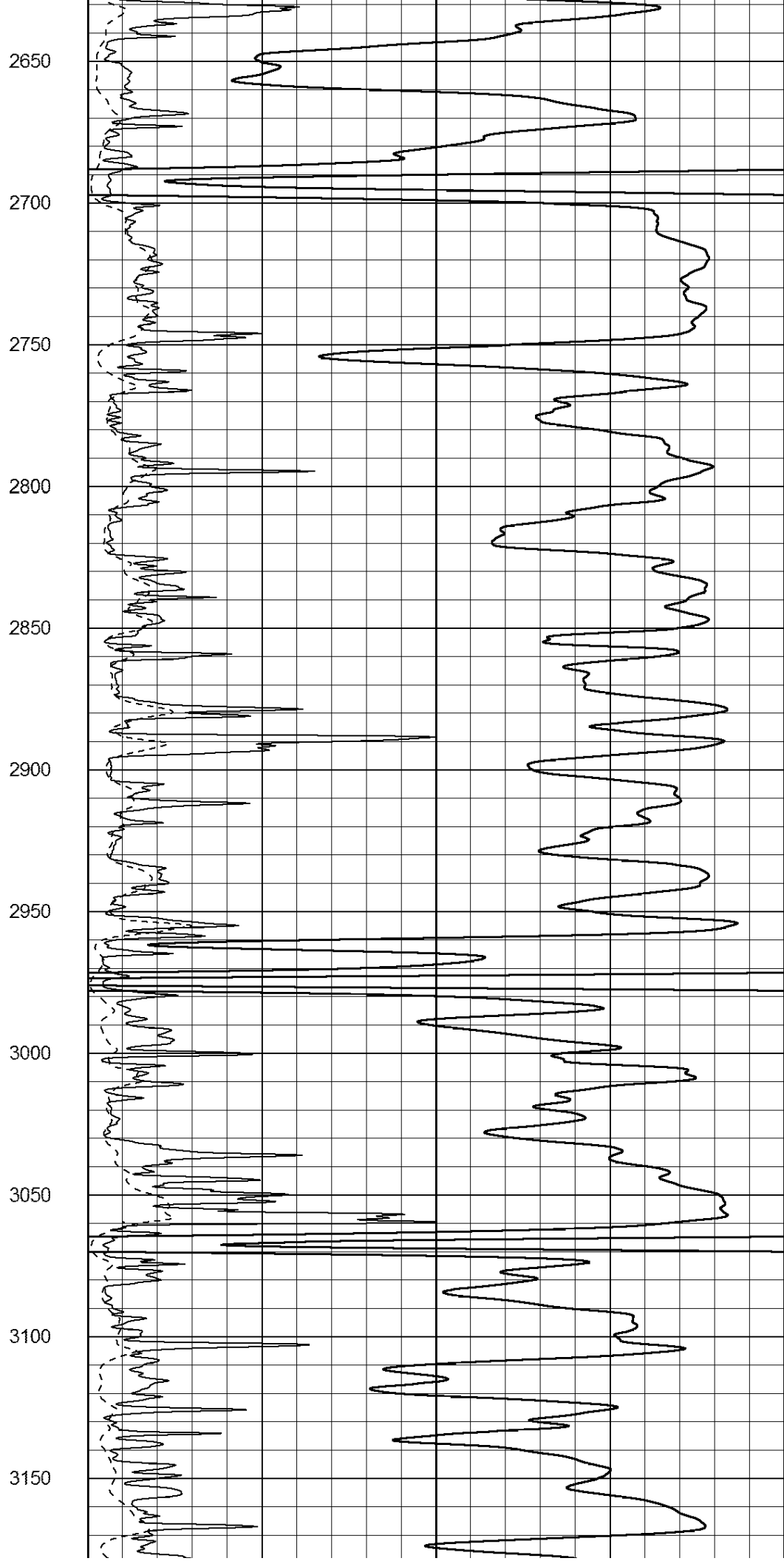
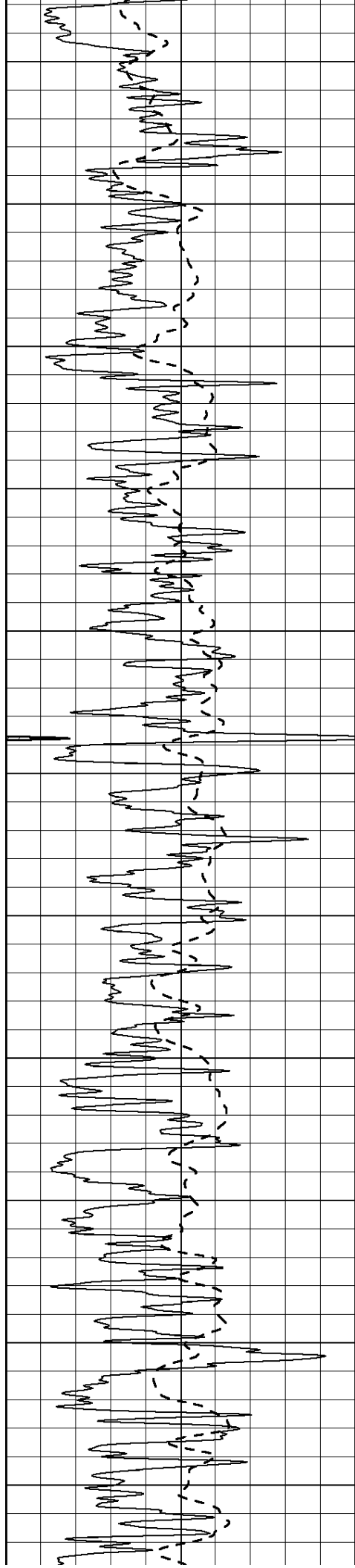
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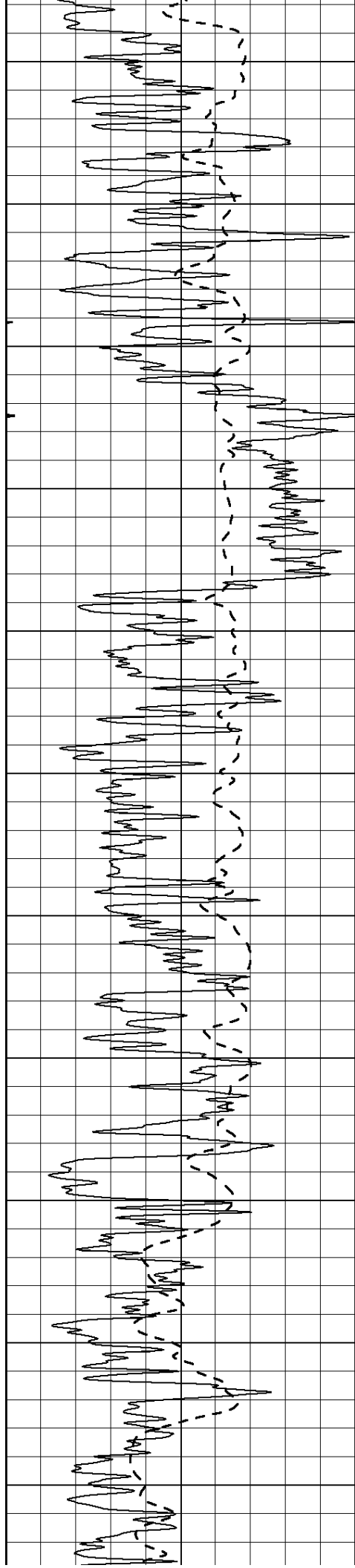
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2550

2600







3200

3250

3300

3350

3400

3450

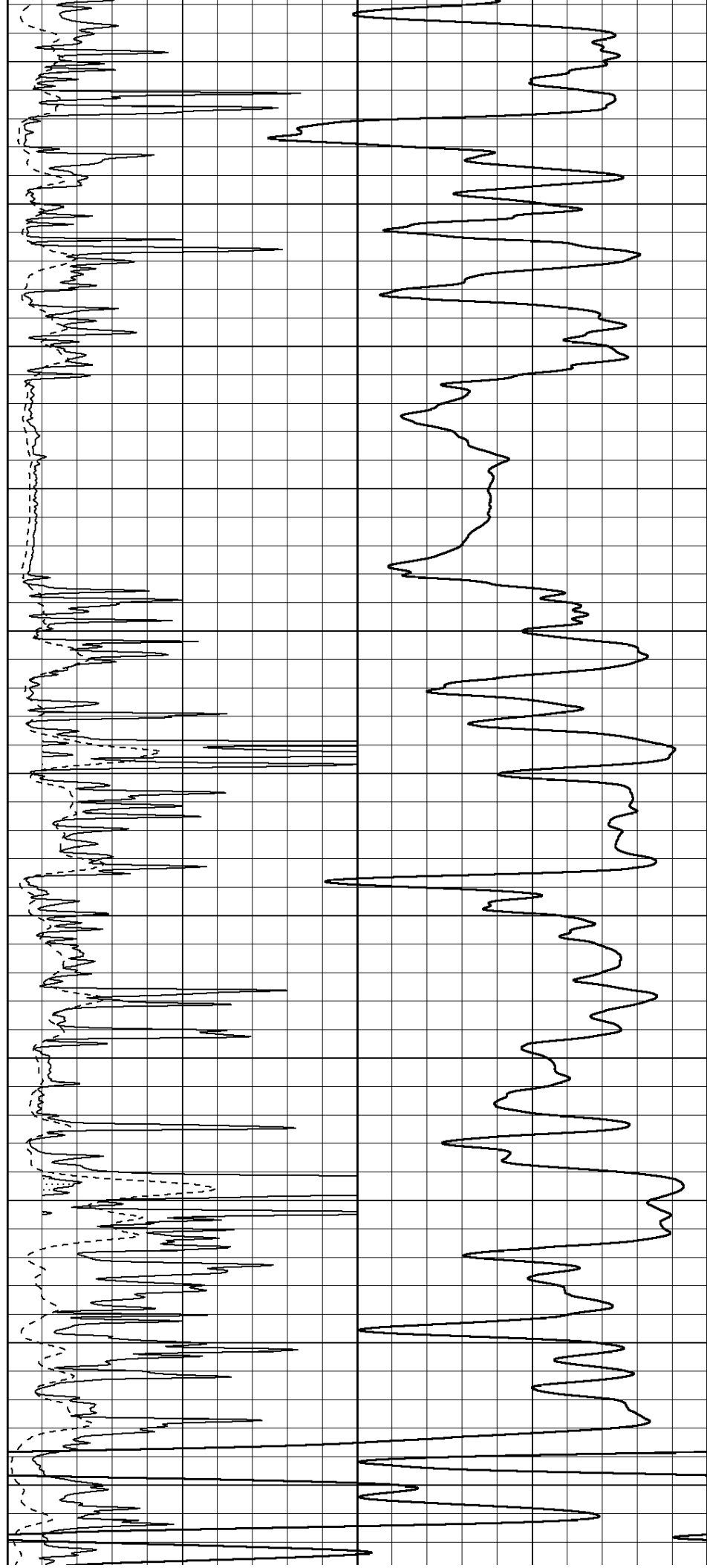
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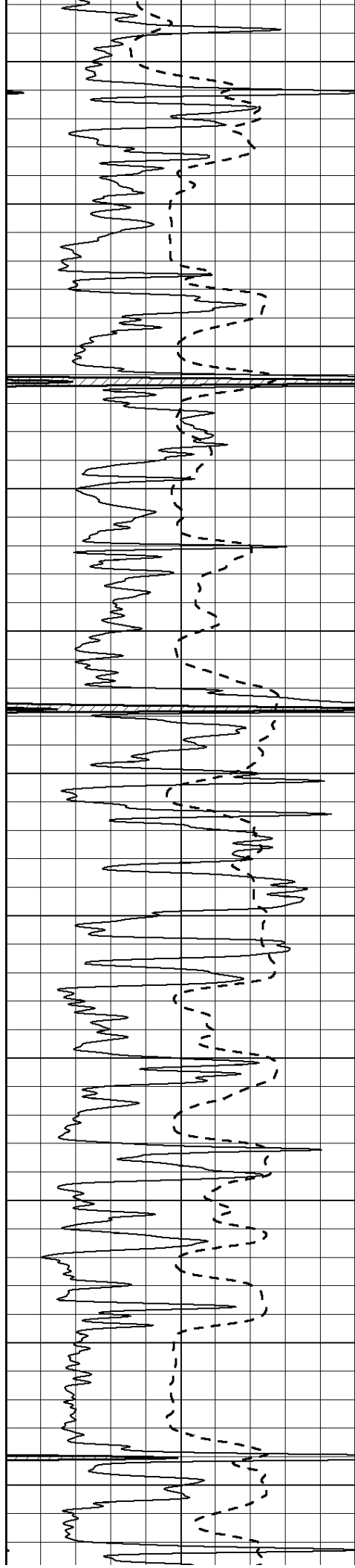
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3650

3700





3750

3800

3850

3900

3950

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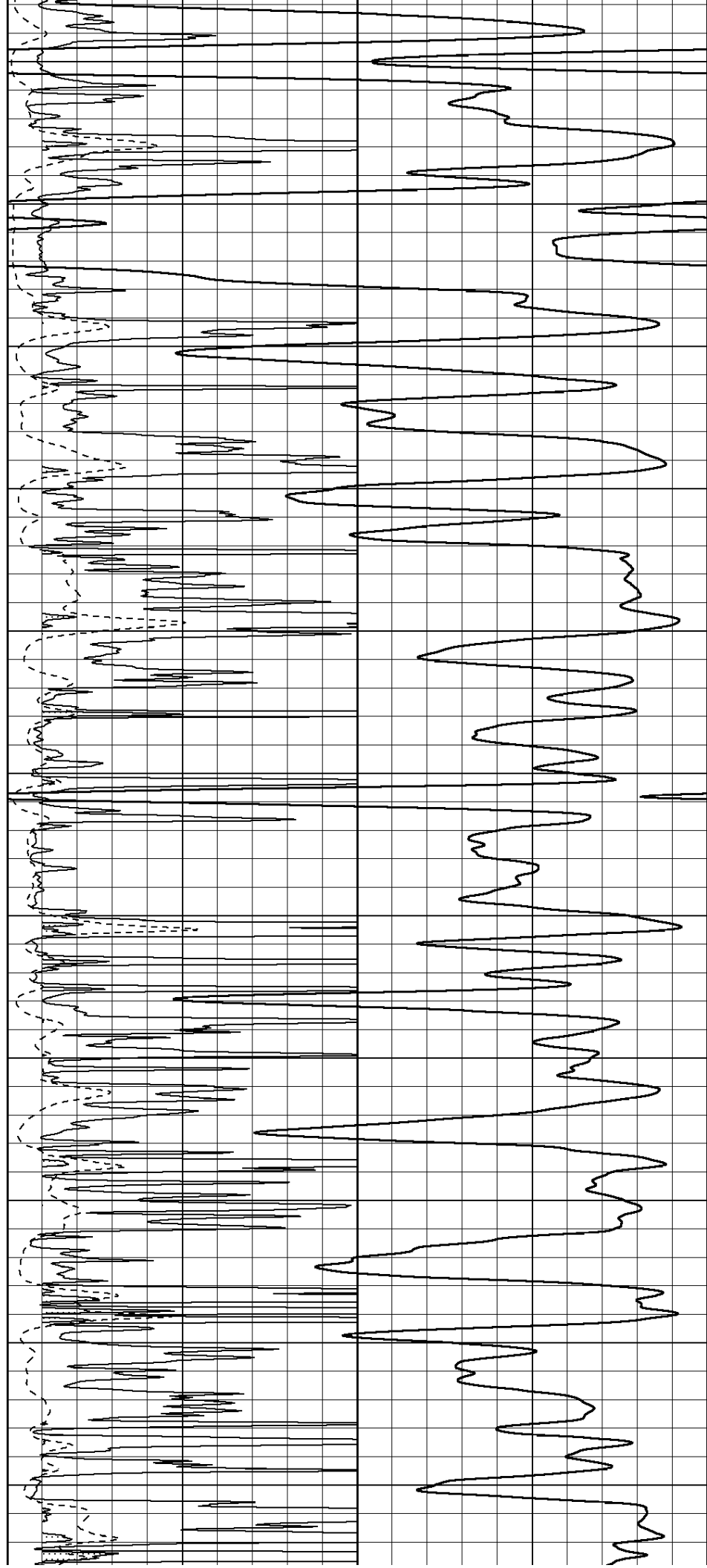
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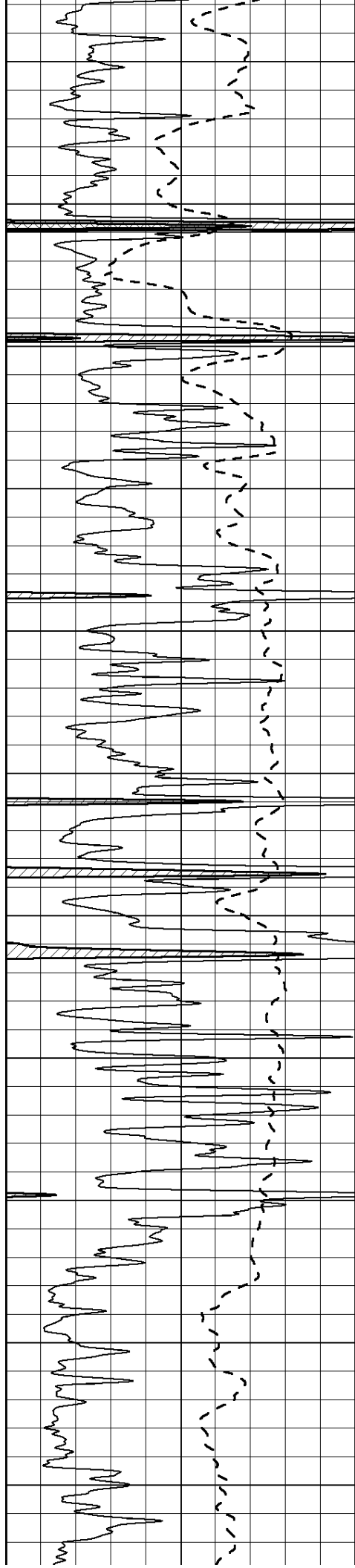
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4150

4200

4250





4300

4350

4400

4450

4500

4550

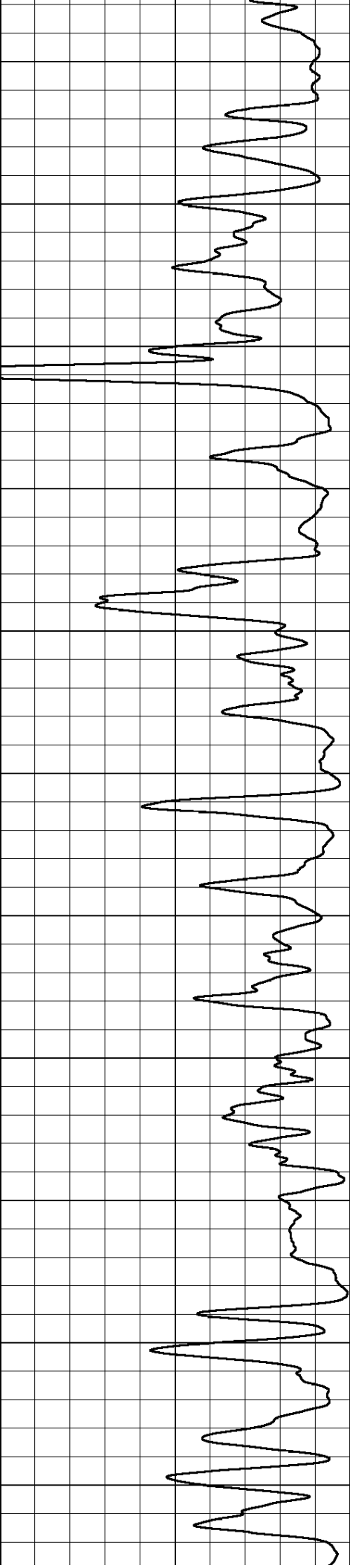
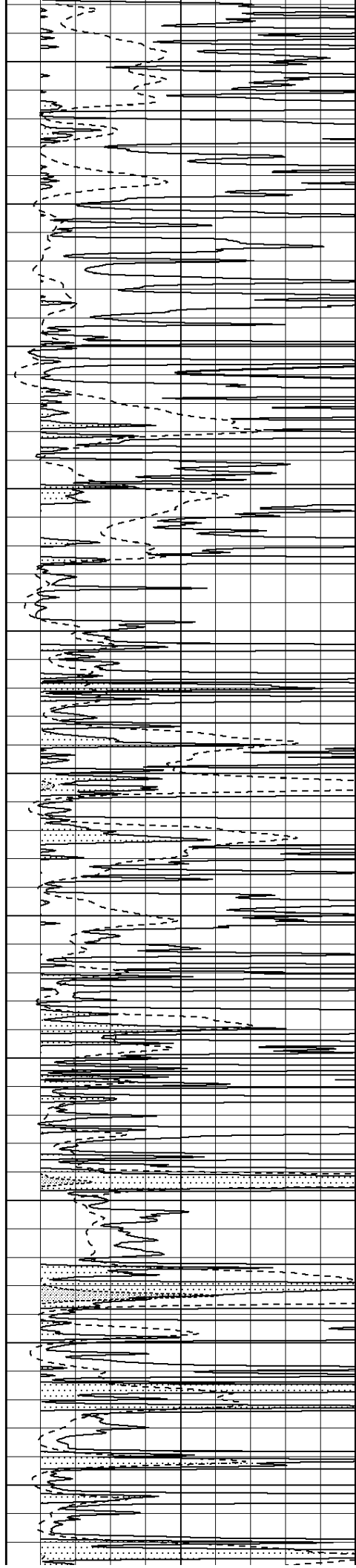
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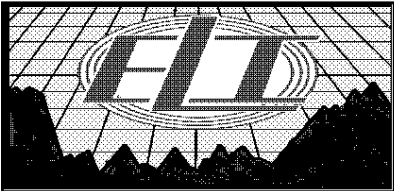
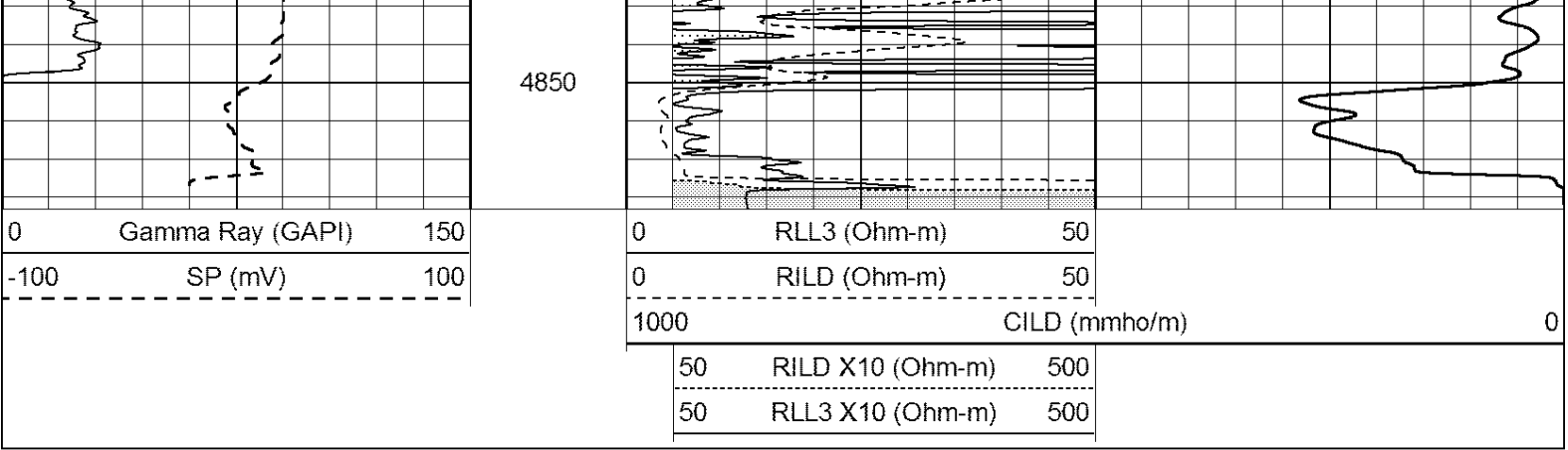
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4800

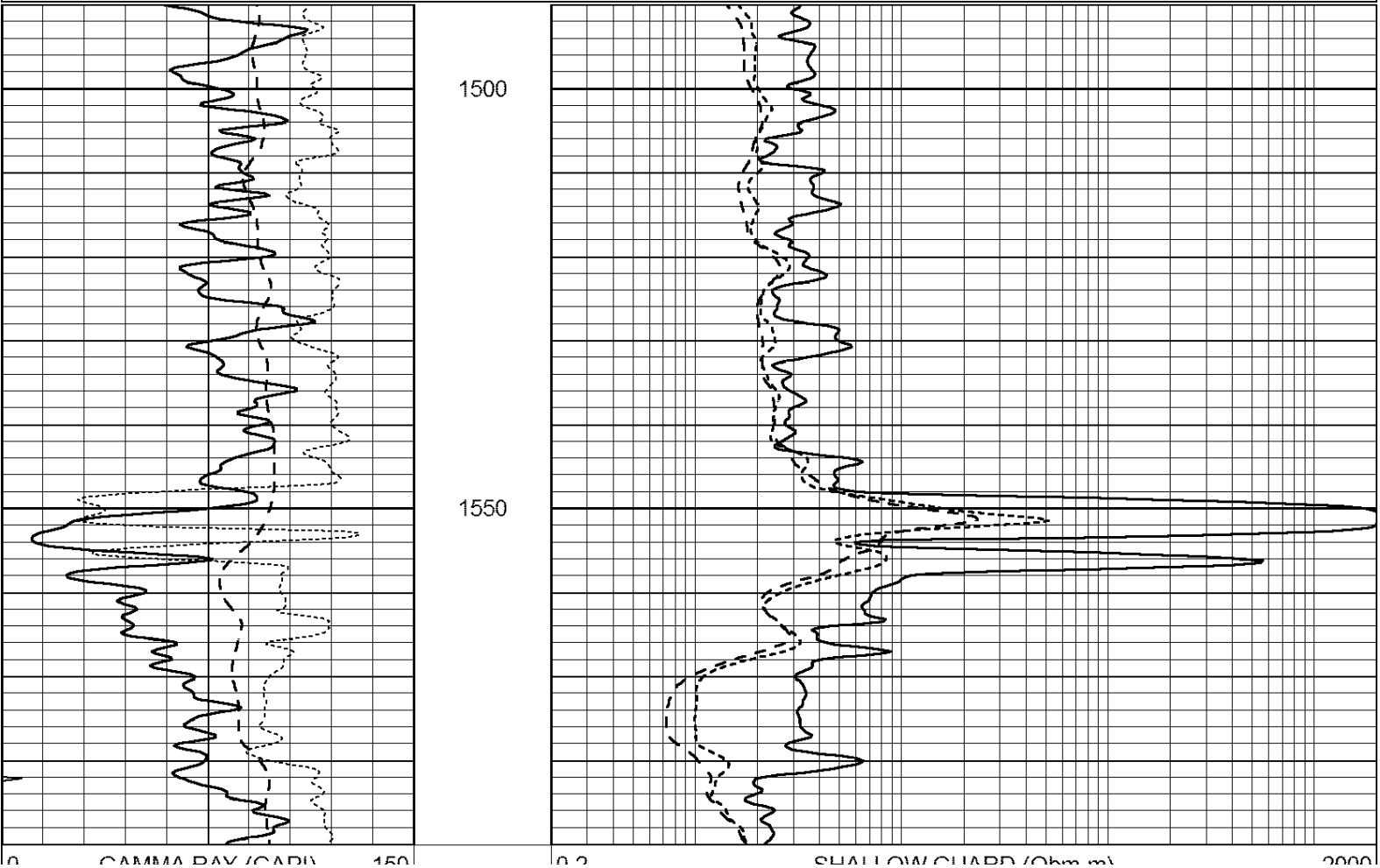




MAIN PASS

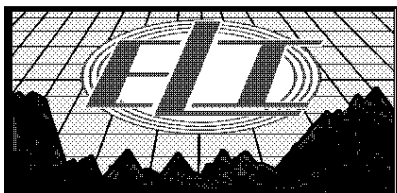
Database File: 2677pe.db
Dataset Pathname: pass4.1
Presentation Format: _dil
Dataset Creation: Wed May 16 16:37:34 2018 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:240

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			



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

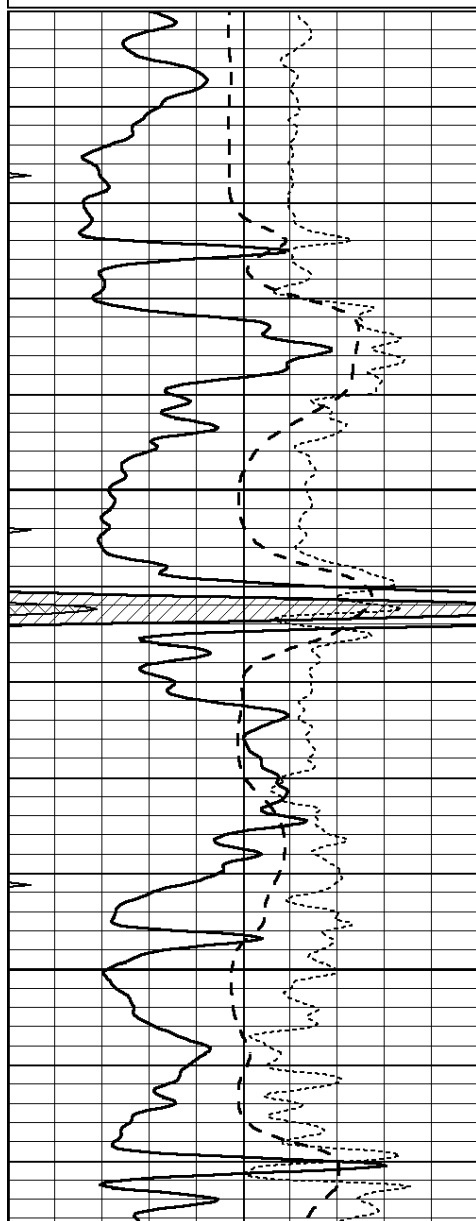


MAIN PASS

Database File: 2677pe.db
 Dataset Pathname: pass4.1
 Presentation Format: _dil
 Dataset Creation: Wed May 16 16:37:34 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

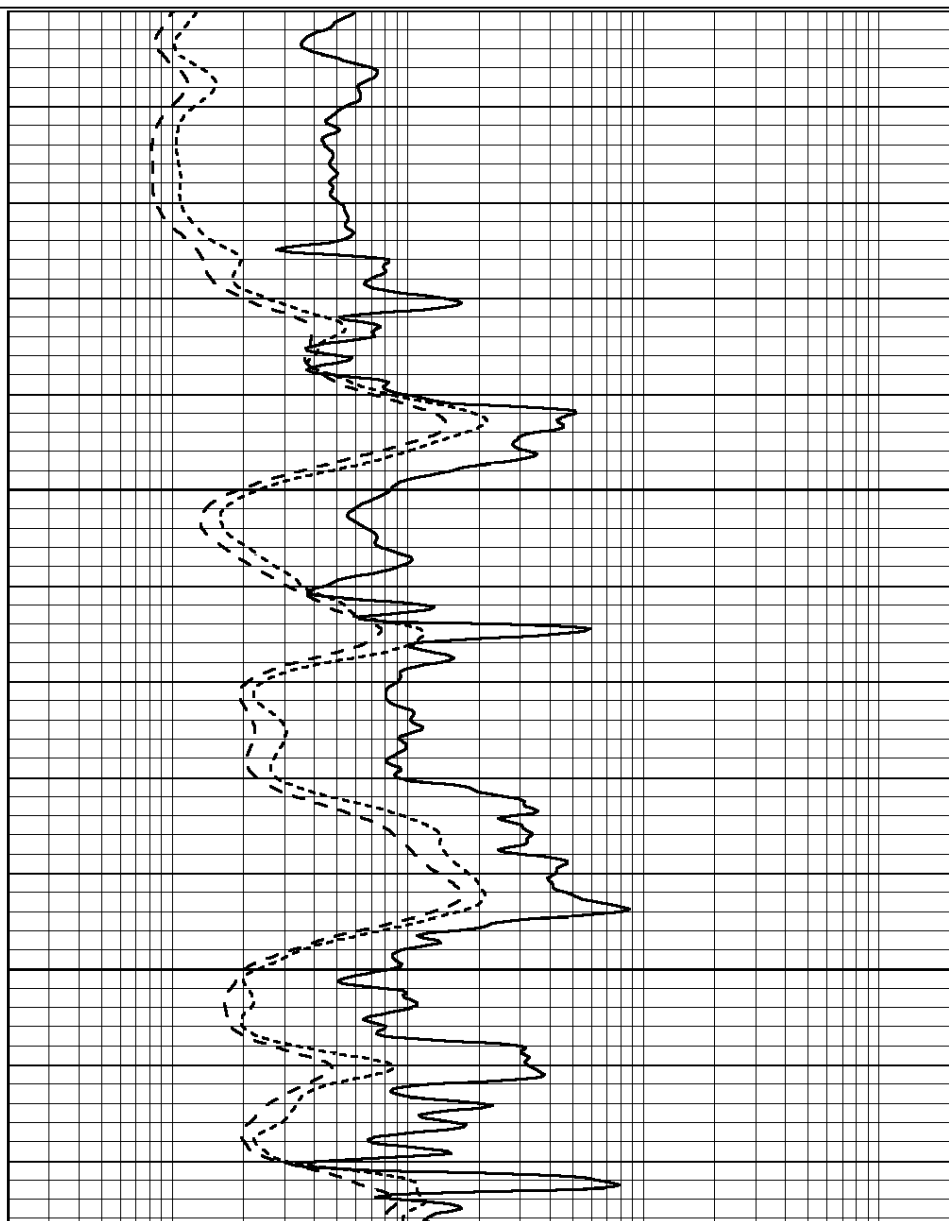
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0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

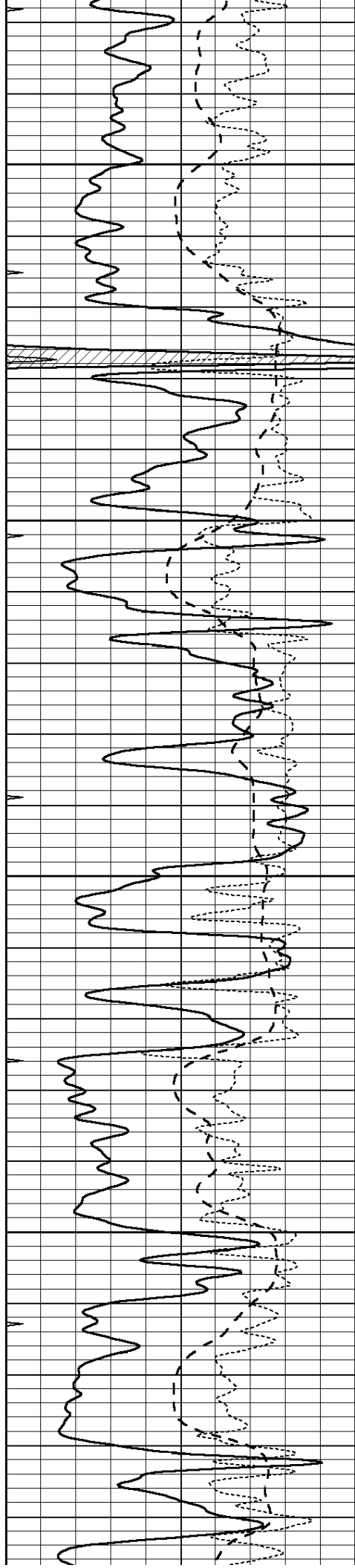


3800

3850

3900



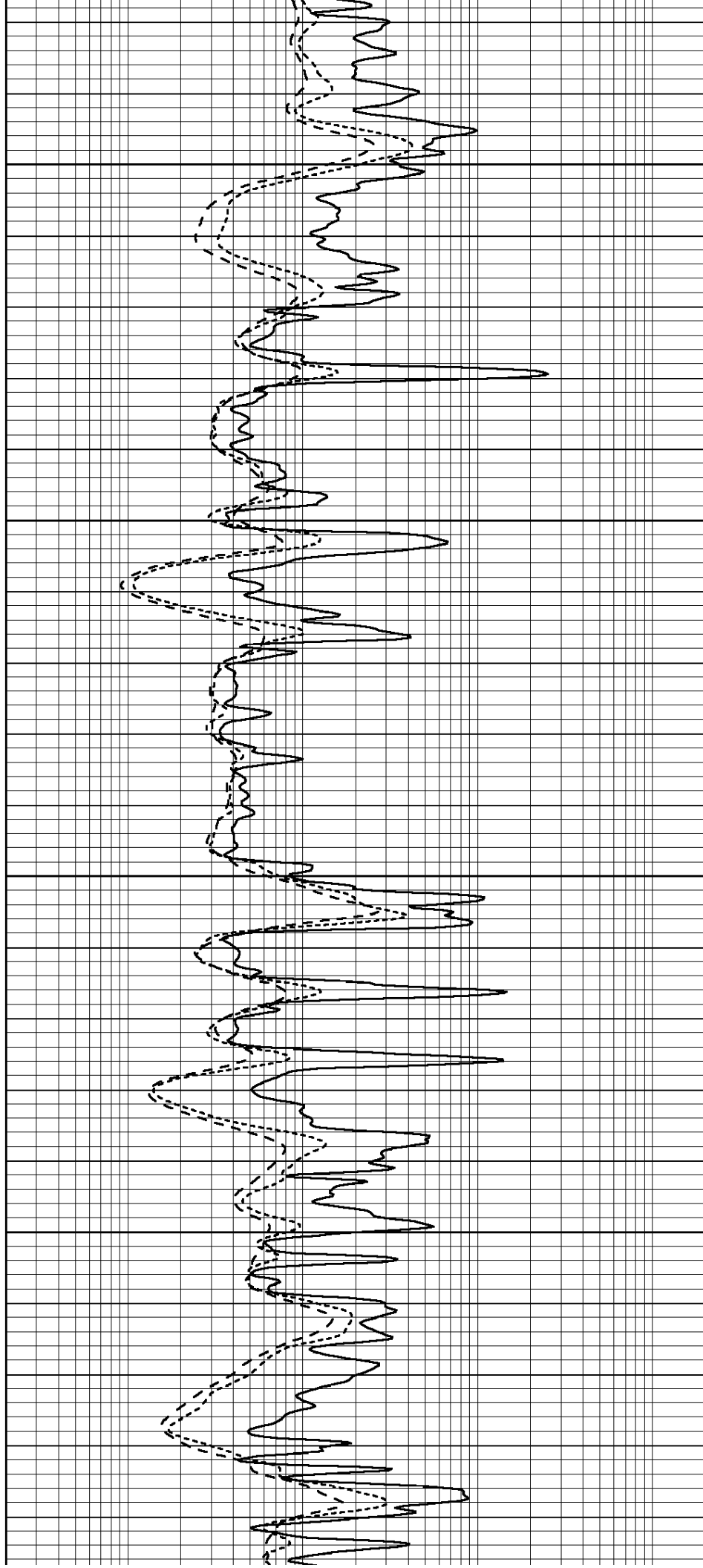


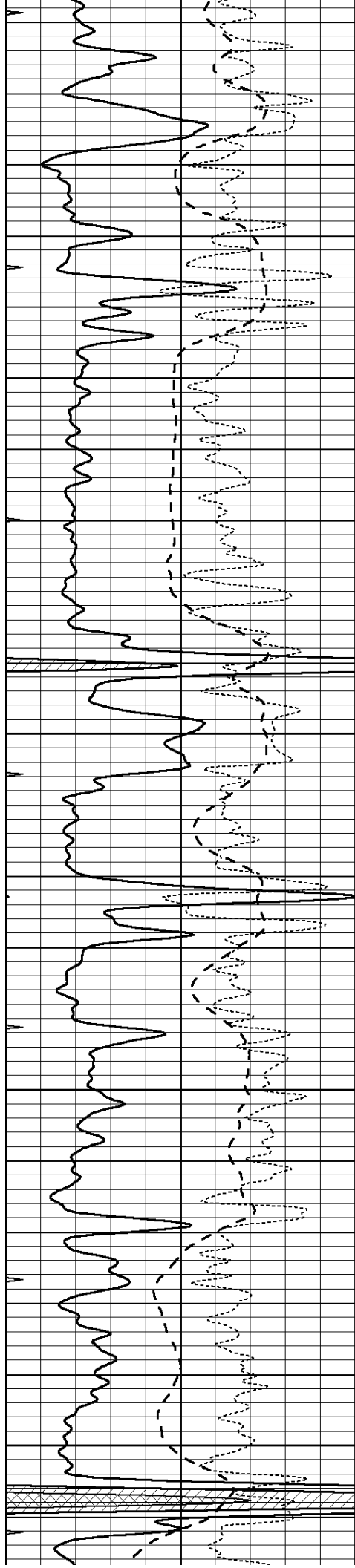
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4000

4050

4100





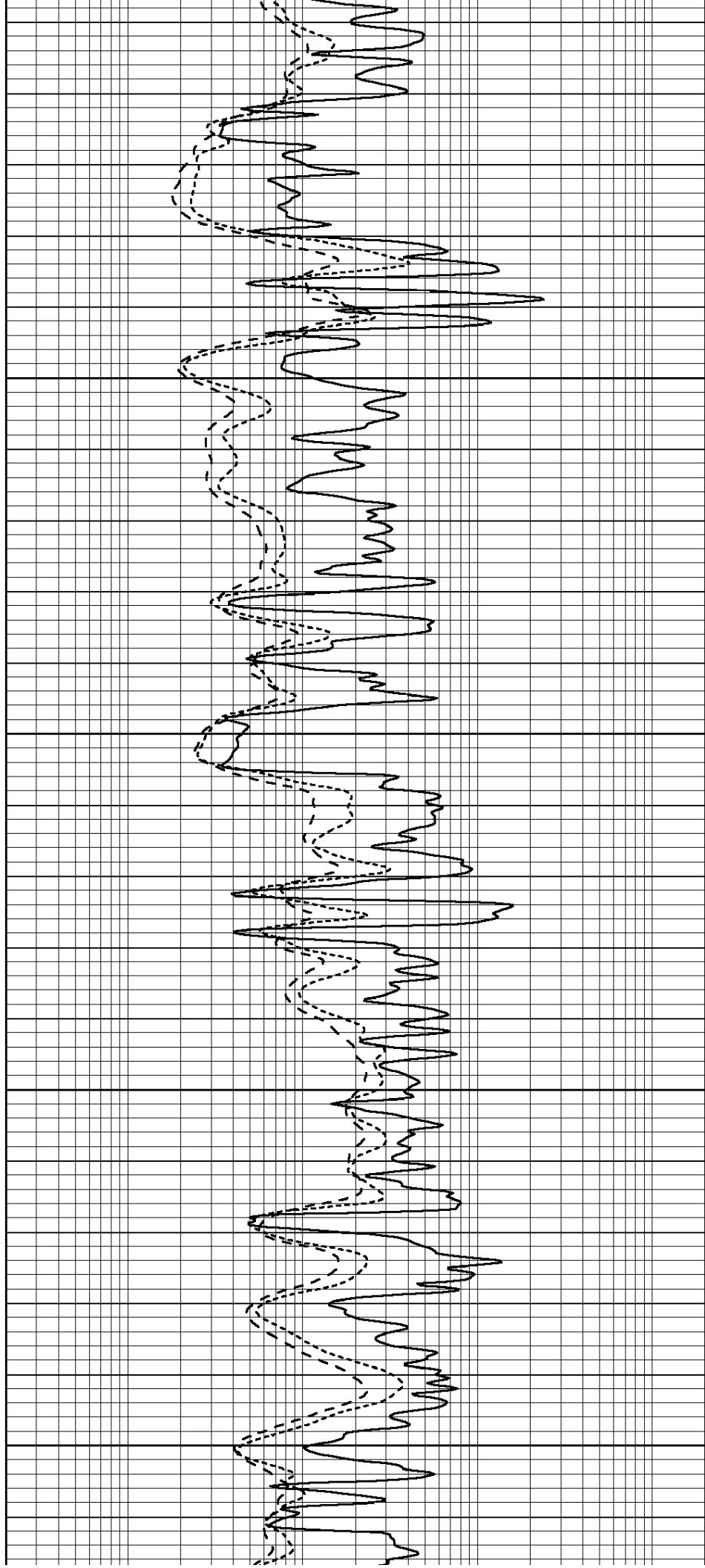
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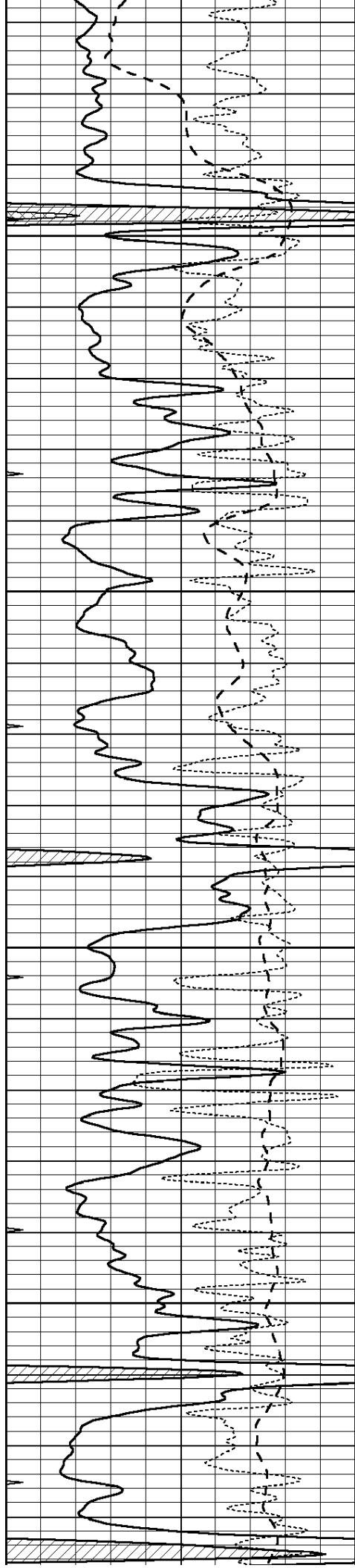
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4250

4300

4350



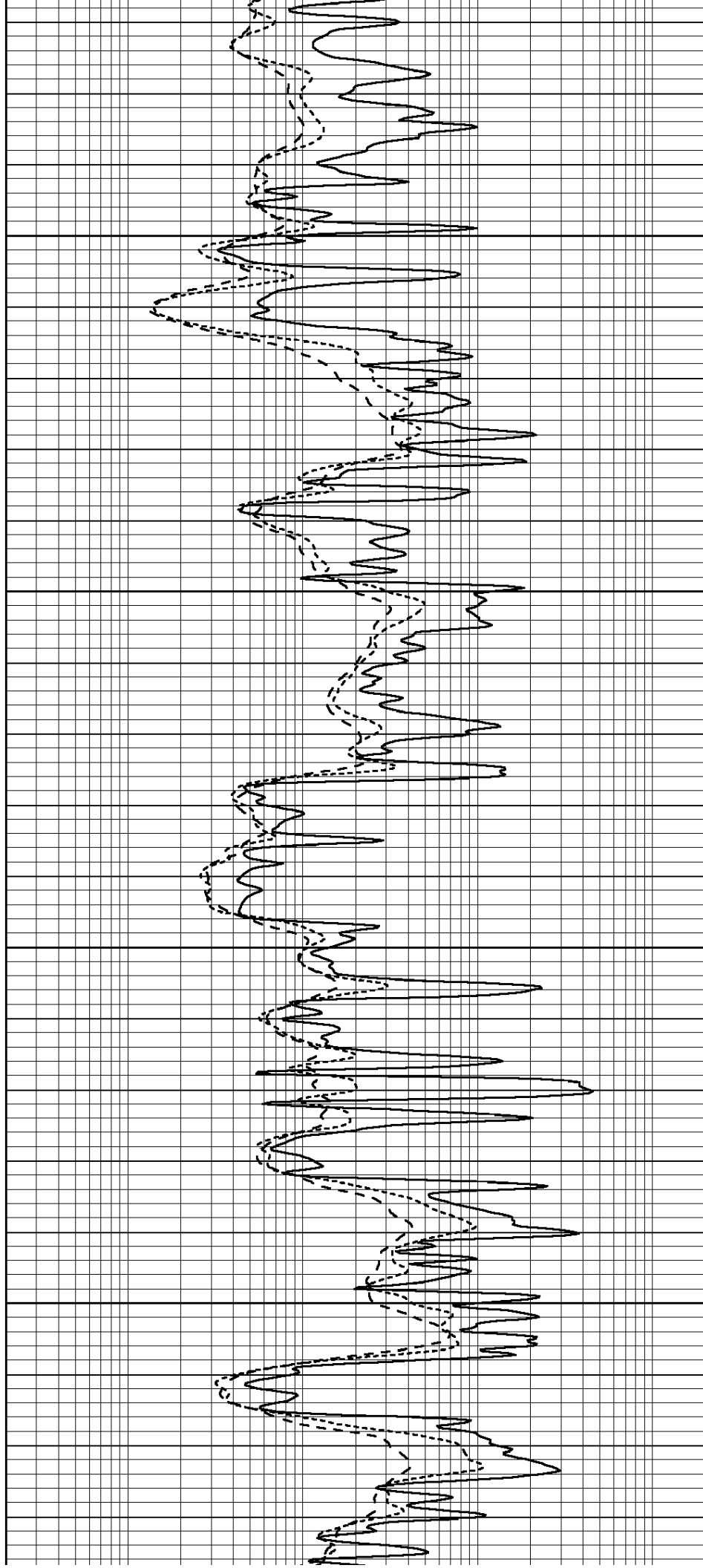


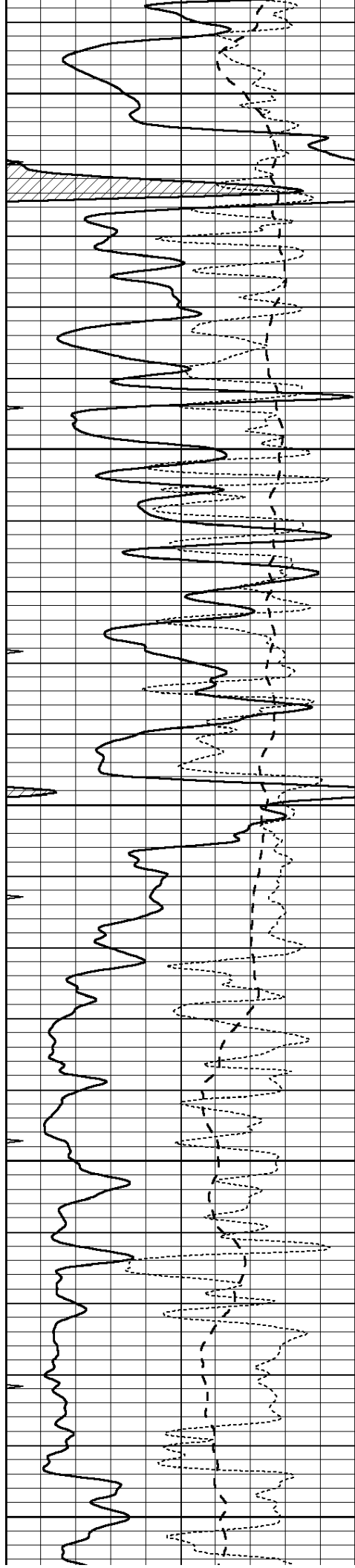
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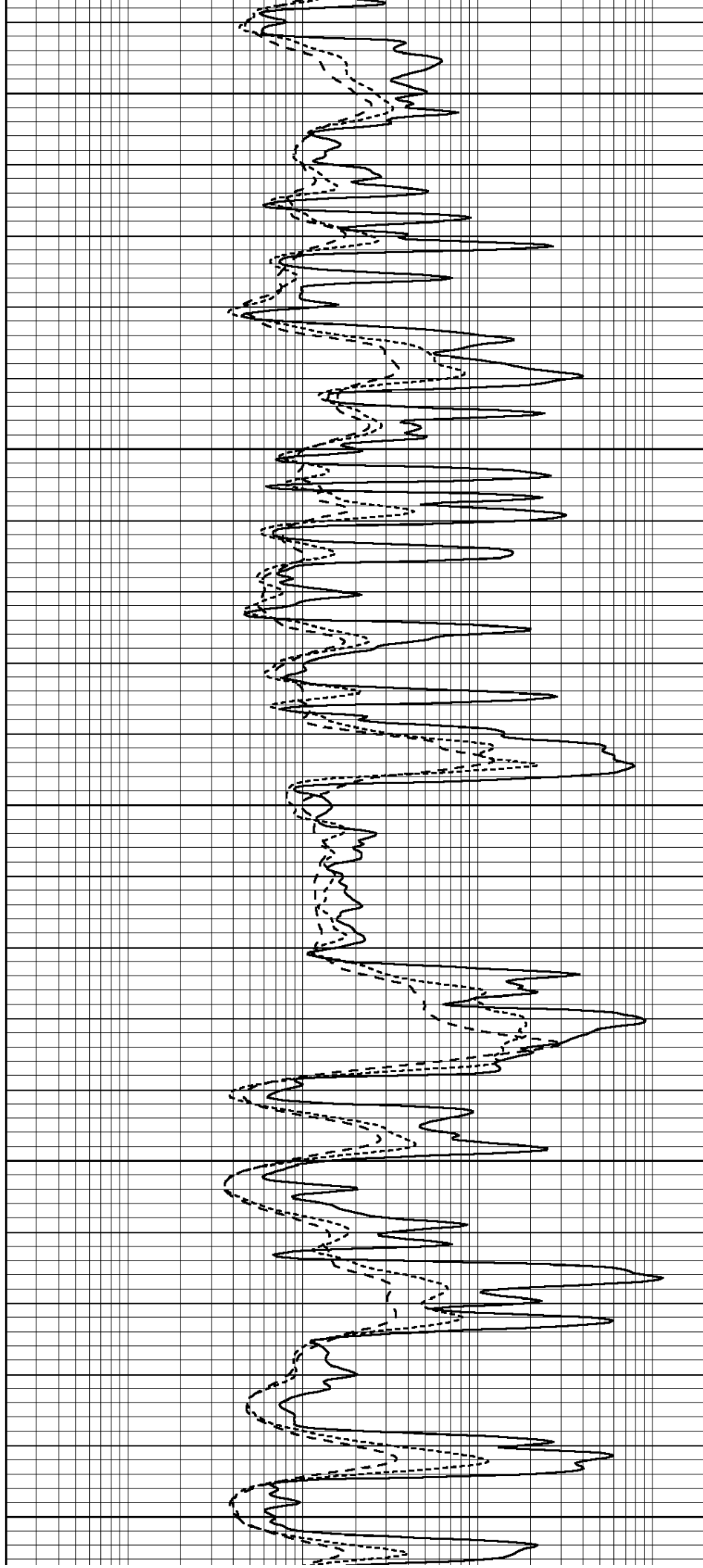
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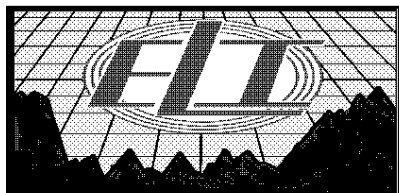
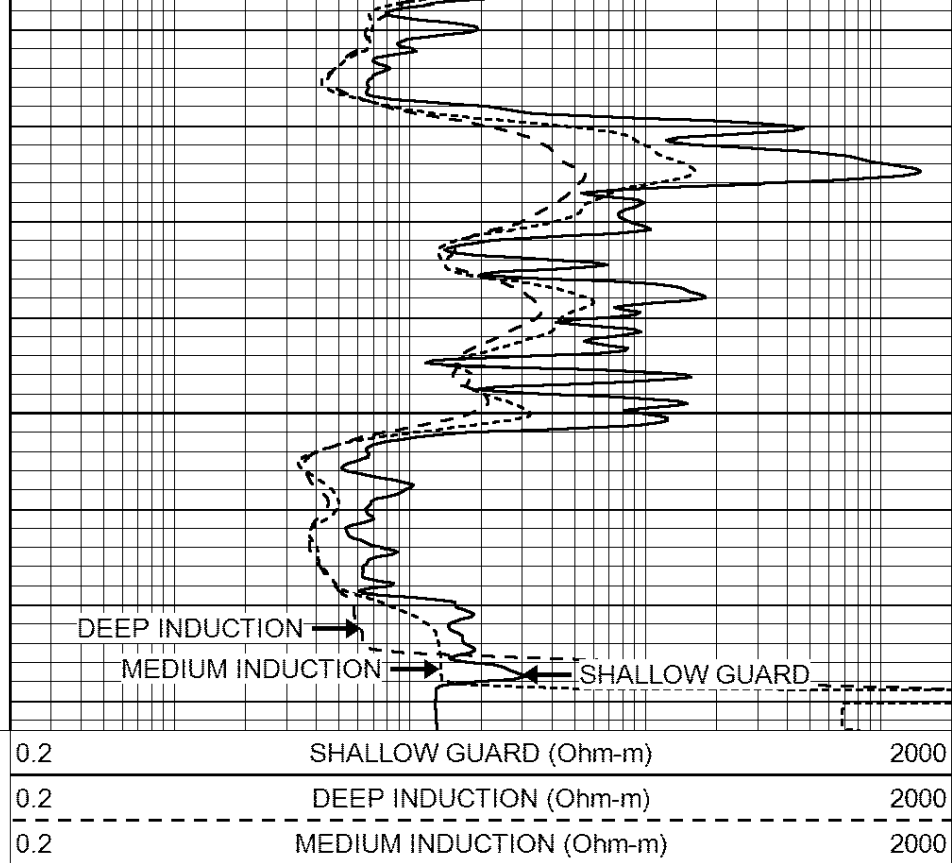
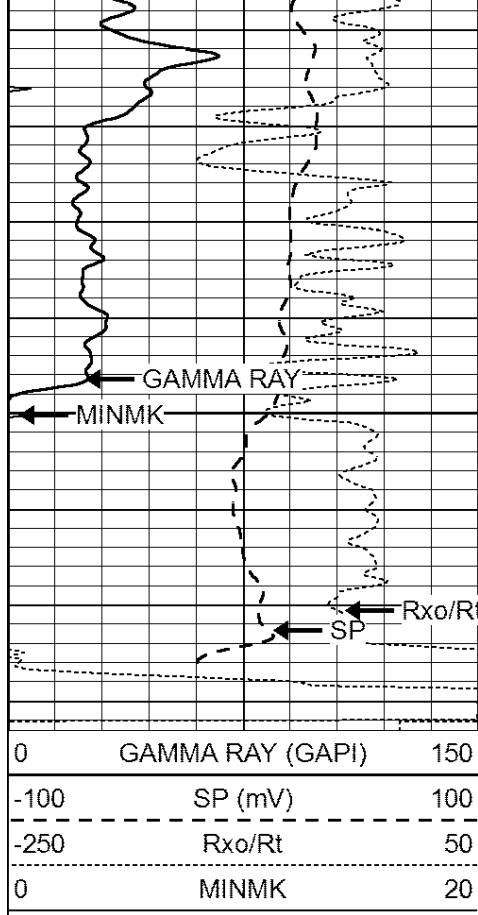
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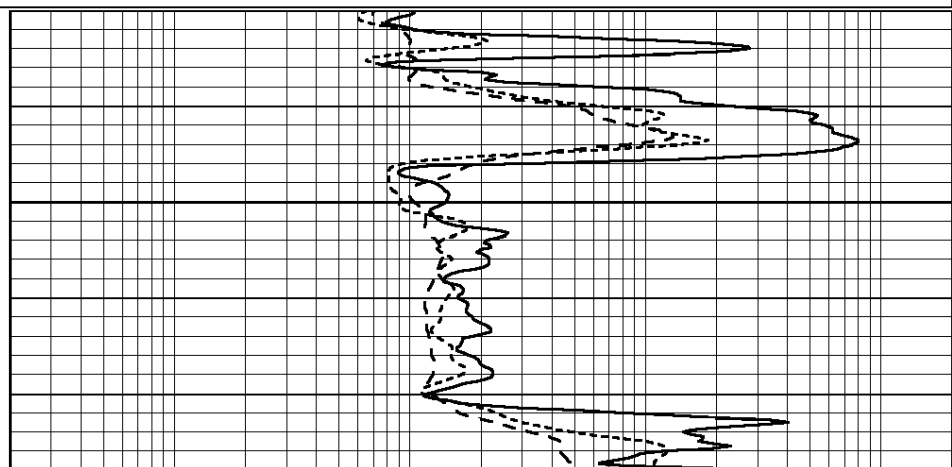
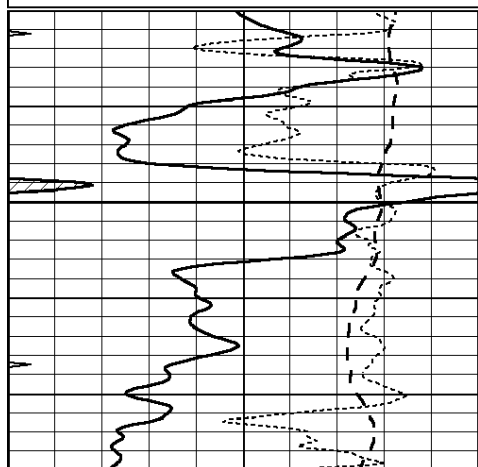
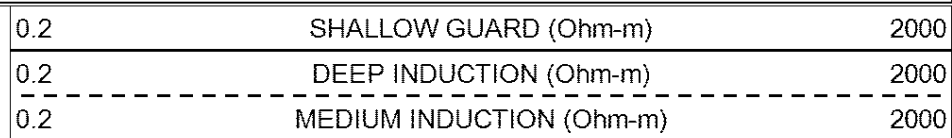
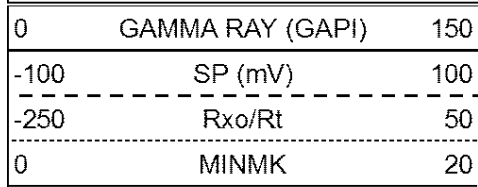
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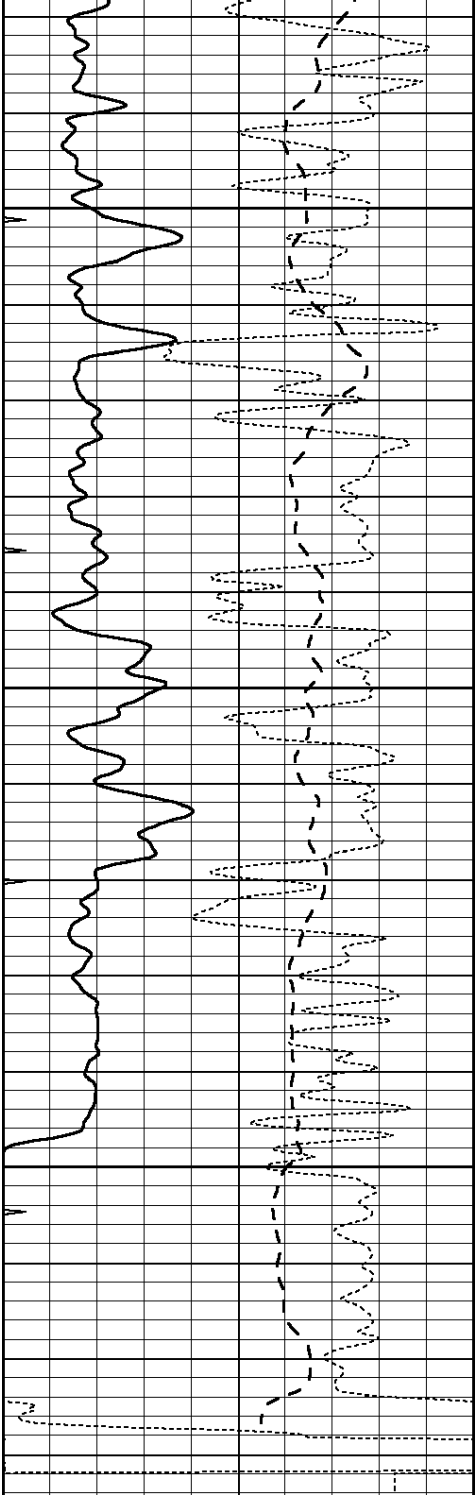




REPEAT SECTION

Database File: 2677pe.db
 Dataset Pathname: pass3.1
 Presentation Format: _dil
 Dataset Creation: Wed May 16 15:56:38 2018 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240



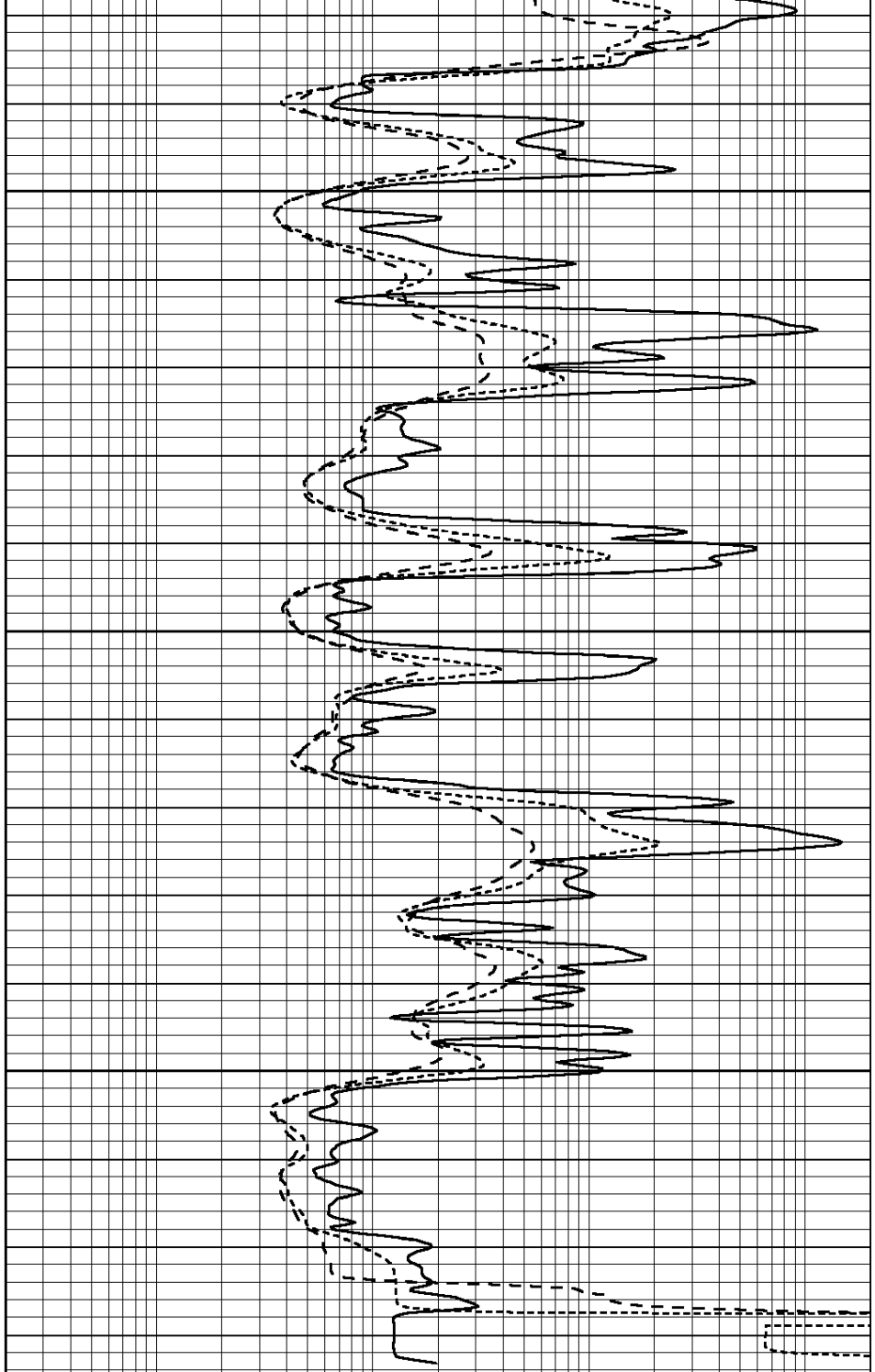


4750

4800

4850

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: 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

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	

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:	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