



**DUAL
INDUCTION
LOG**

Company **ABERCROMBIE ENERGY**
 Well **OWEN #8**
 Field **OWEN**
 County **LOGAN** State **KANSAS**

Location: **API # : 15-109-21559-0000**
2310' FSL & 330' FEL
 SEC 21 TWP 12S RGE 33W
 Permanent Datum **GROUND LEVEL Elevation 3104**
 Log Measured From **KELLY BUSHING 11' A.G.L**
 Drilling Measured From **KELLY BUSHING**
 Other Services **CDL/CNL MEL/SON**
 Elevation **K.B. 3115 D.F. 3113 G.L. 3104**

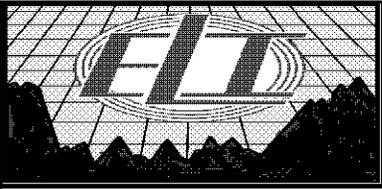
Date	8/14/18
Run Number	ONE
Depth Driller	4750
Depth Logger	4754
Bottom Logged Interval	4752
Top Log Interval	00
Casing Driller	8 5/8" @ 393'
Casing Logger	393
Bit Size	7 7/8
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.3/66
PH / Fluid Loss	10.0/8.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.60 @ 75F
Rmt @ Meas. Temp	.45 @ 75F
Rmc @ Meas. Temp	.72 @ 75F
Source of Rmf / Rmc	MEASUREMENT
Rm @ BHT	.36 @ 123F
Time Circulation Stopped	2 HOURS
Time Logger on Bottom	////
Maximum Recorded Temperature	123F
Equipment Number	3802
Location	HAYS, KANSAS
Recorded By	JASON CAPPELLUCCI
Witnessed By	GRANT GALYON
	KENT CRISLER

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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 SERVICES, HAYS, KS. (785) 628-6395
 DIRECTIONS
 OAKLEY, KS. - 9 SOUTH ON HWY 83 TO UTE RD. - 7 WEST TO 370 RD.
 1/2 NORTH - WEST INTO

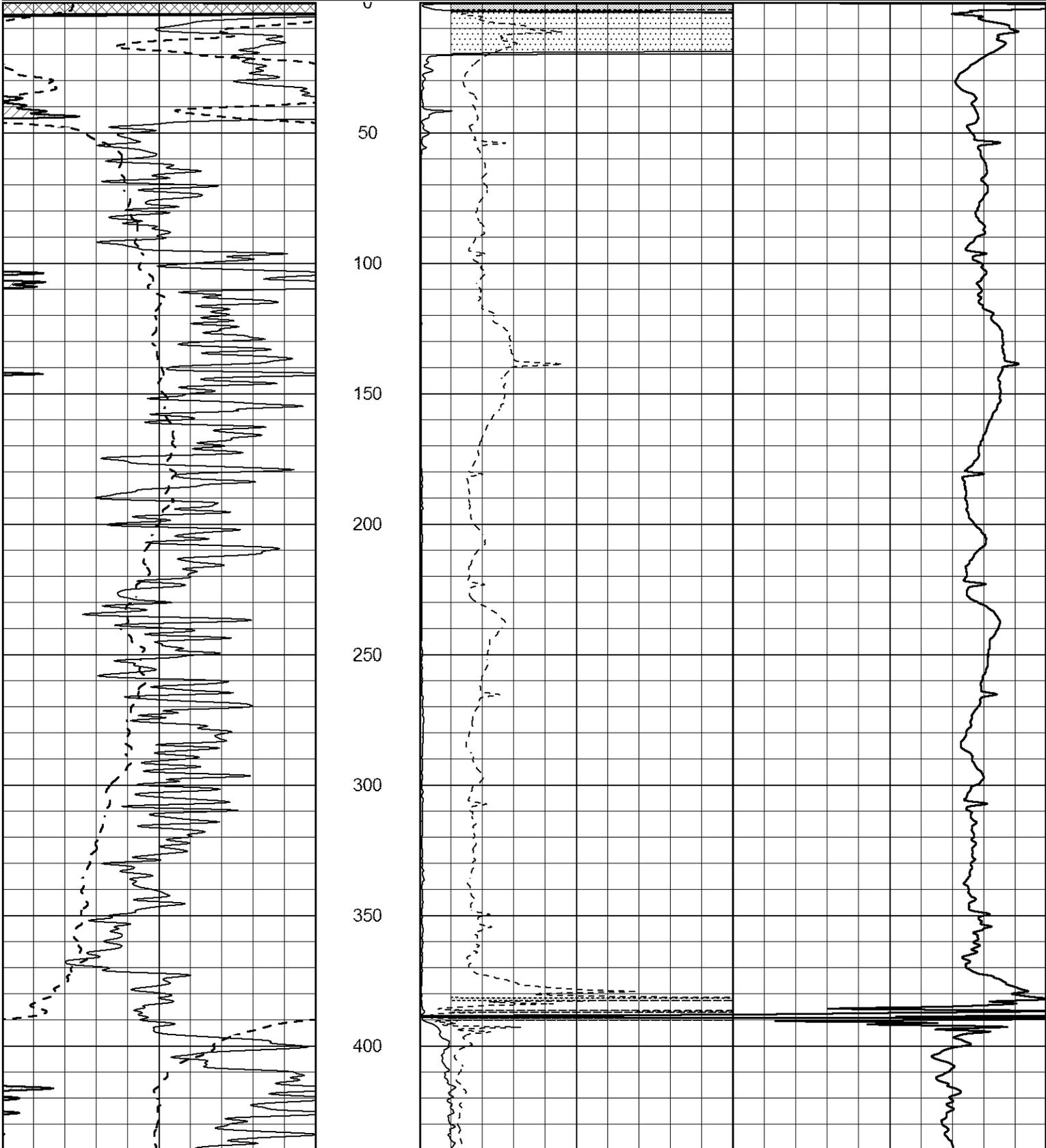


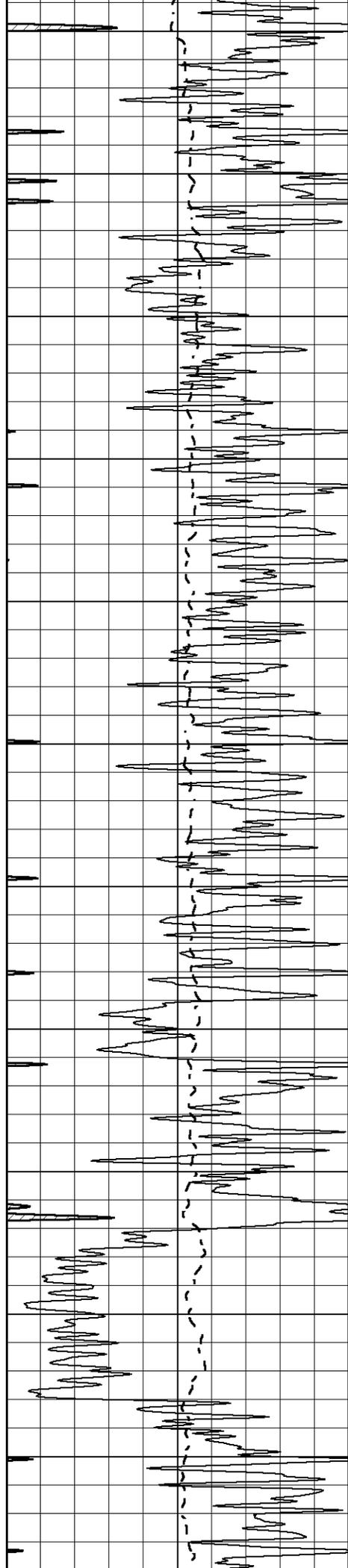
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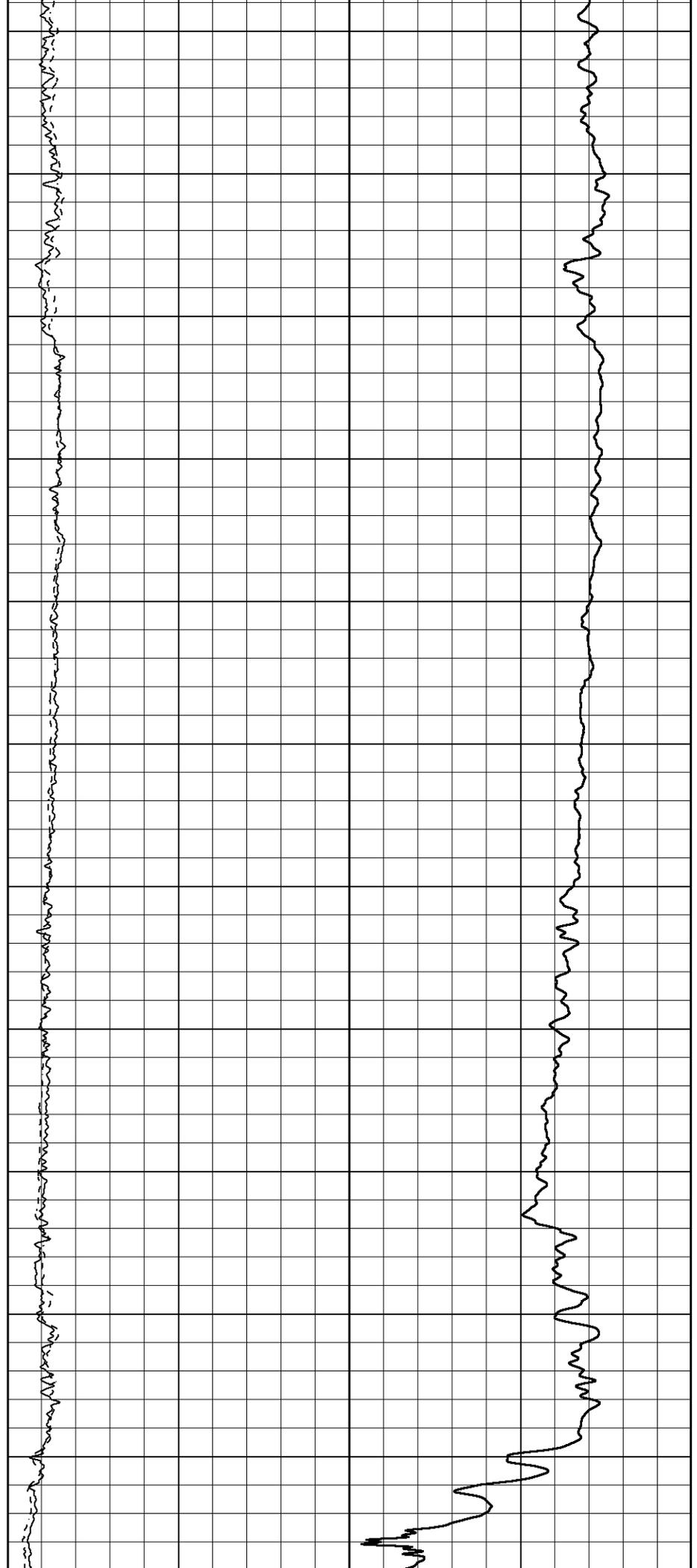
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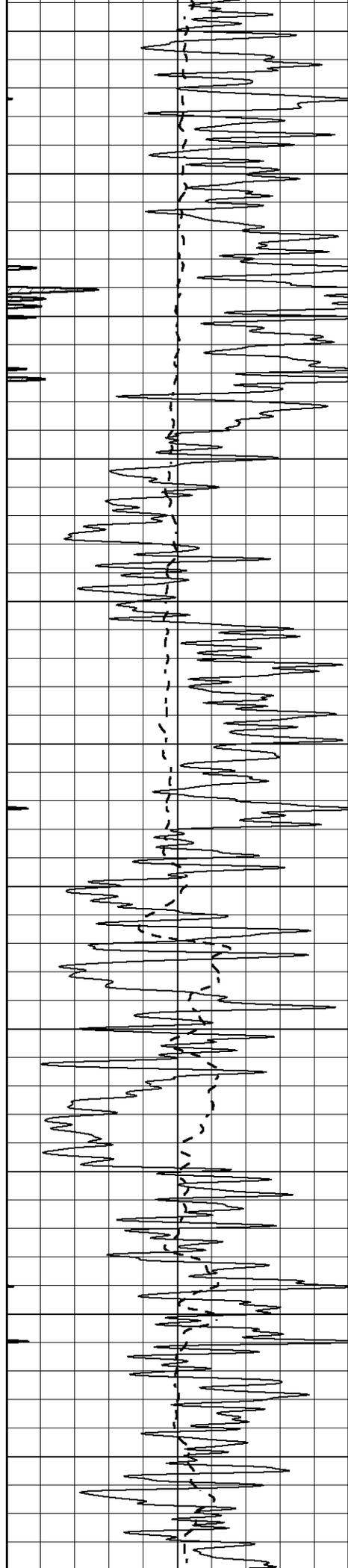
1000 CILD (mmho/m) 0
 0 RLL3 (Ohm-m) 50
 0 Deep Induction (Ohm-m) 50
 50 RILD X10 (Ohm-m) 500
 50 RLL3 X10 (Ohm-m) 500



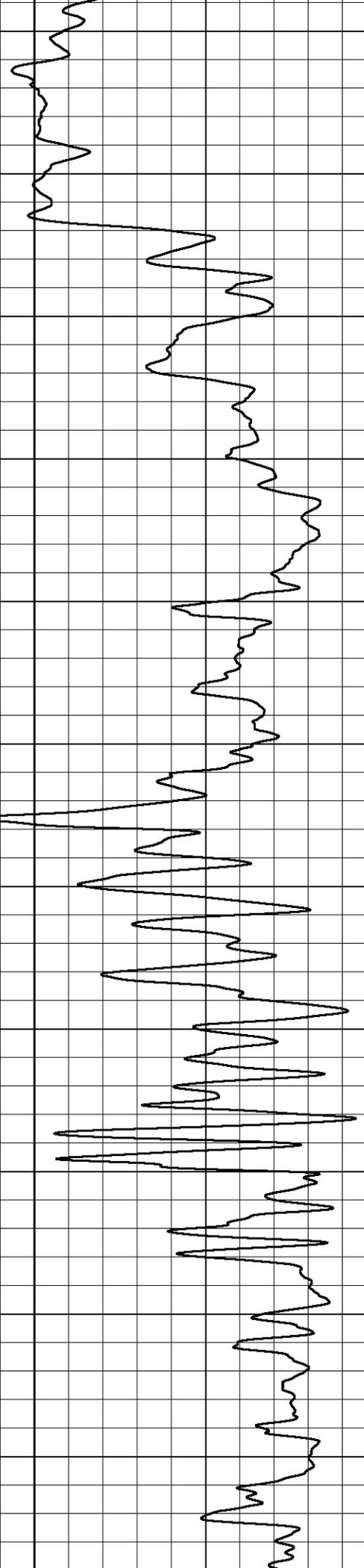
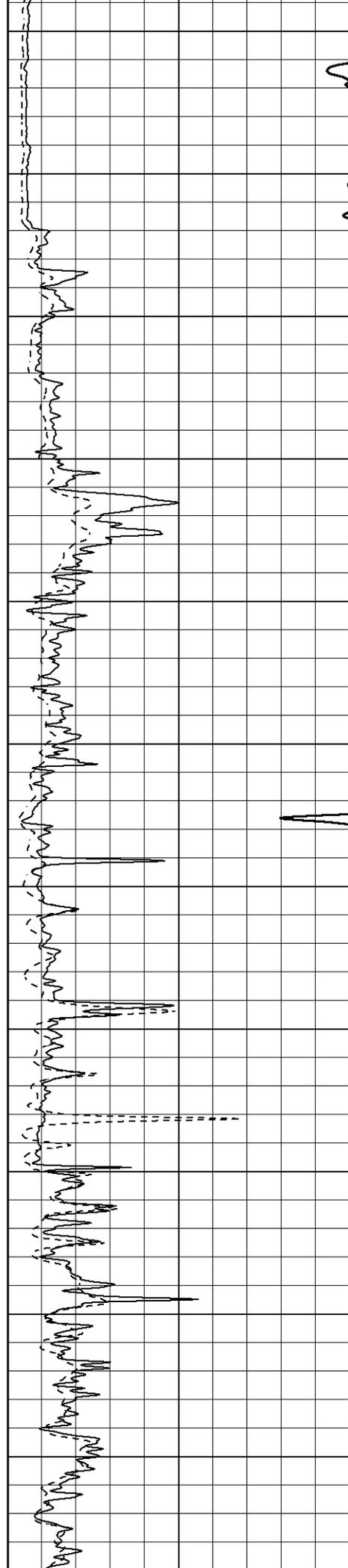


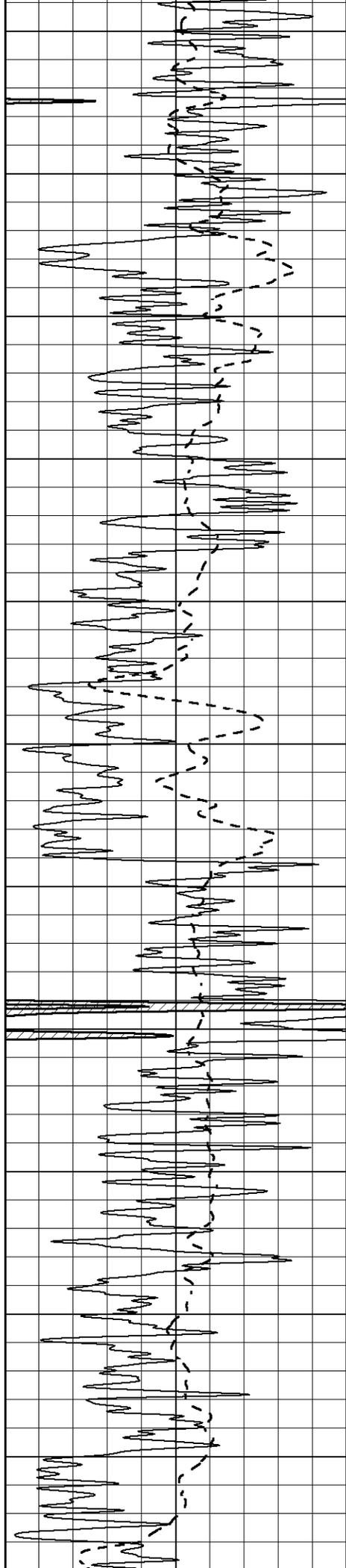
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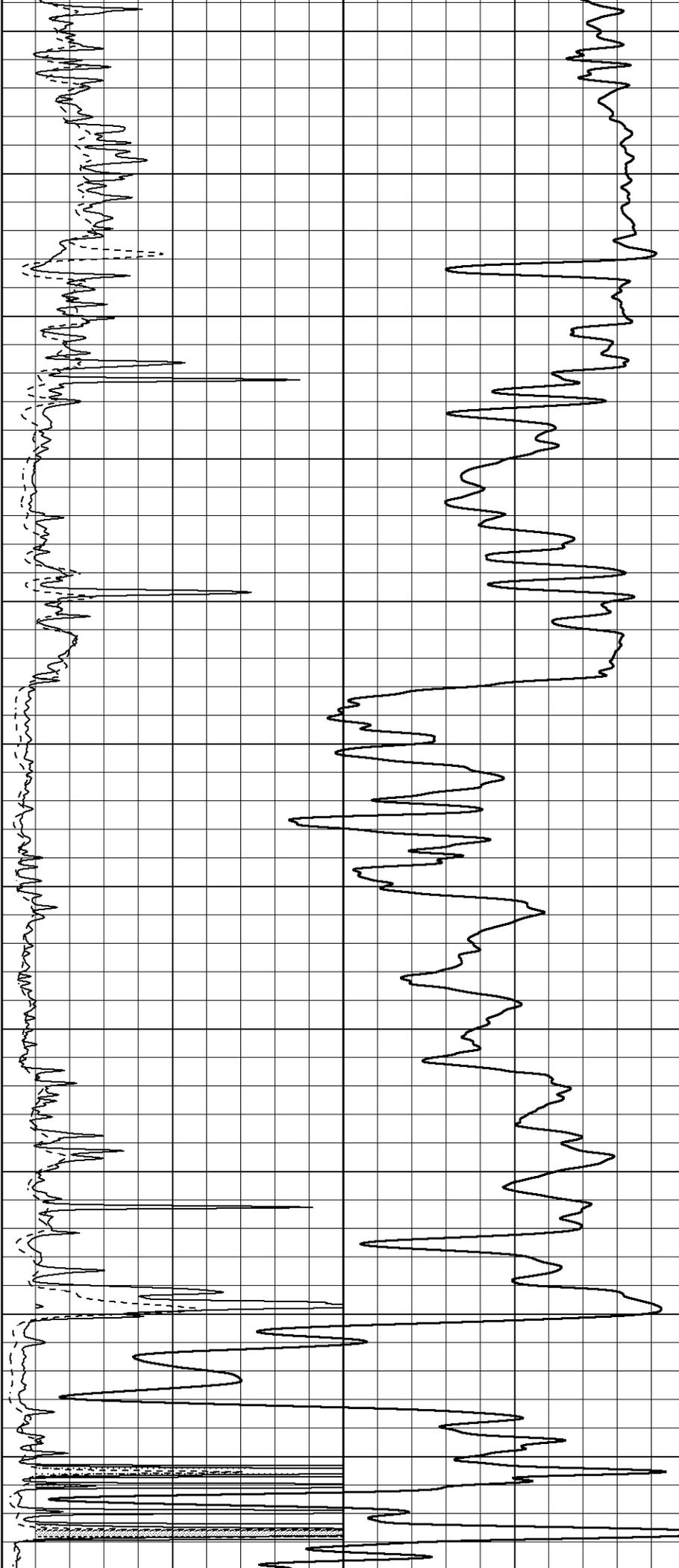


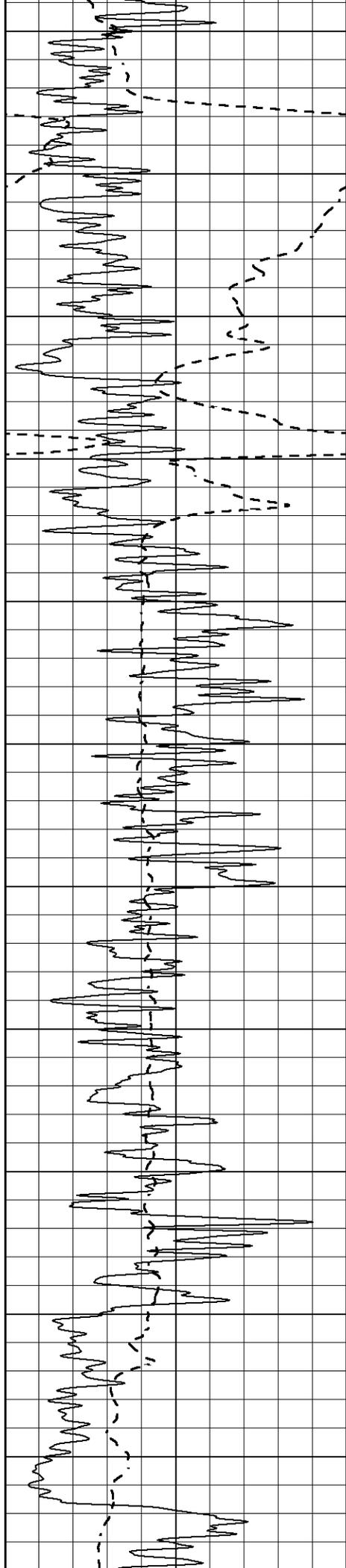
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1450
1500



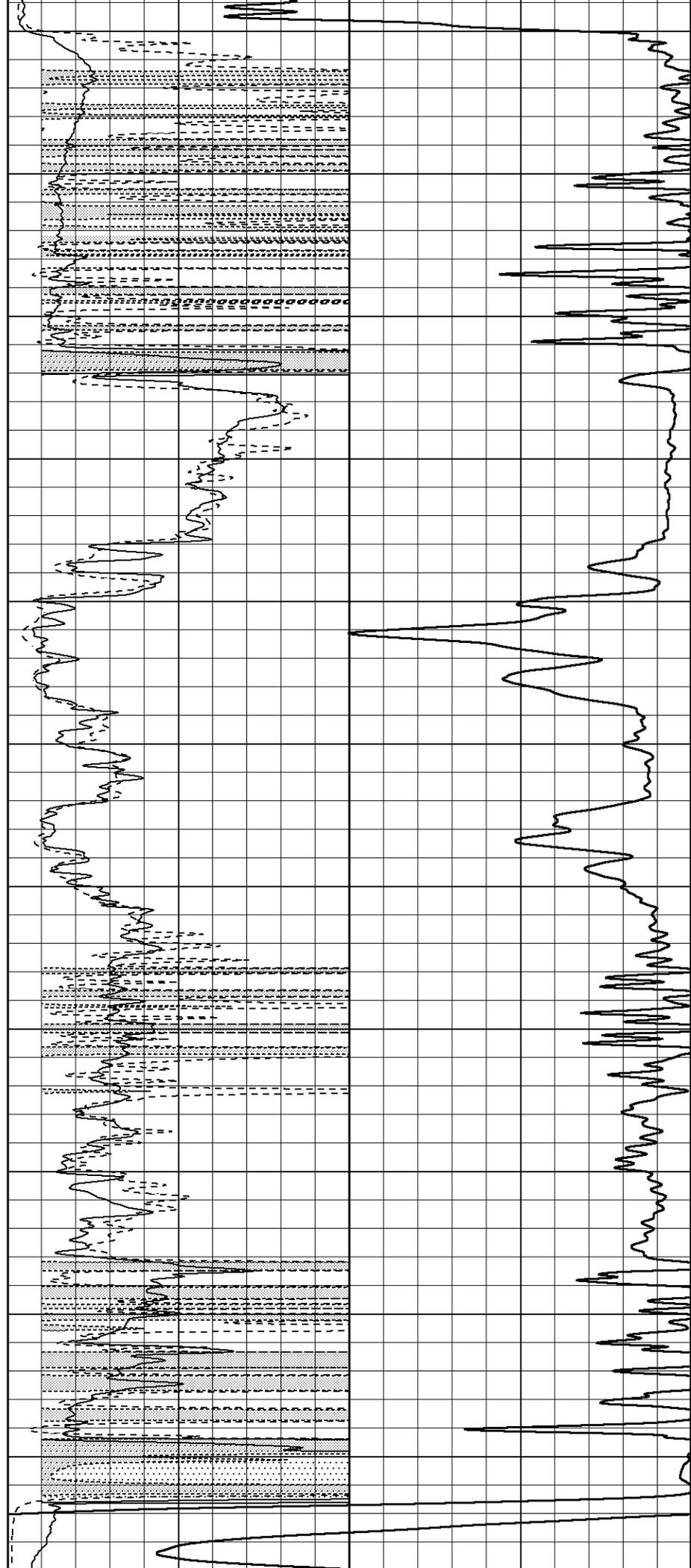


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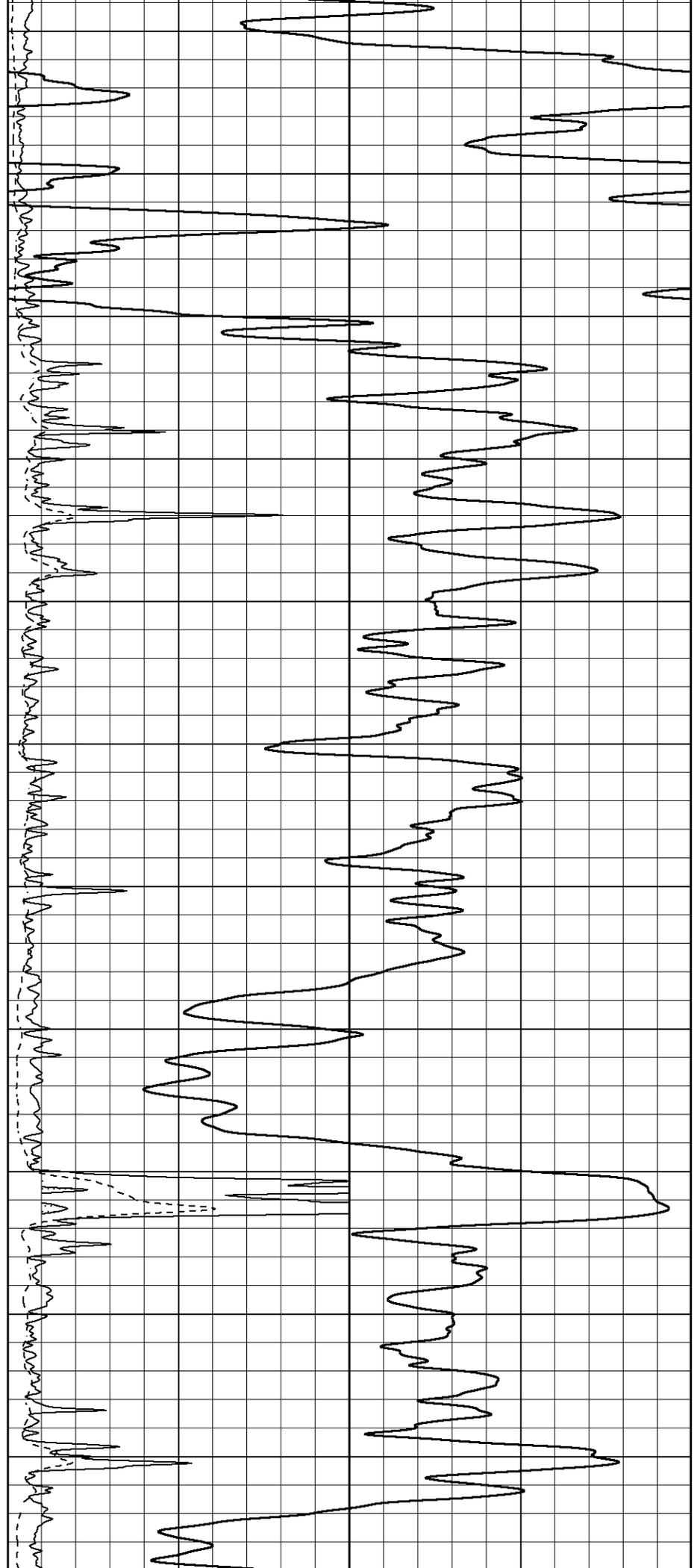
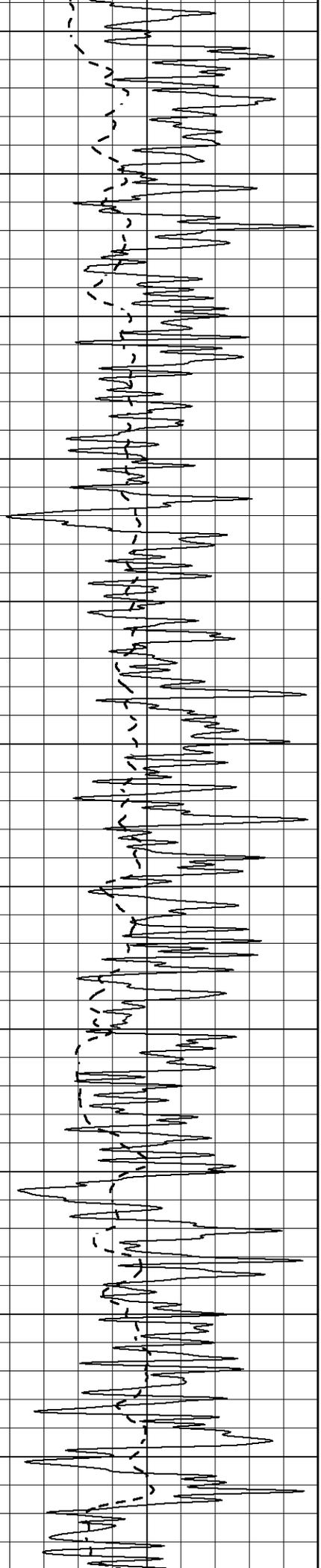


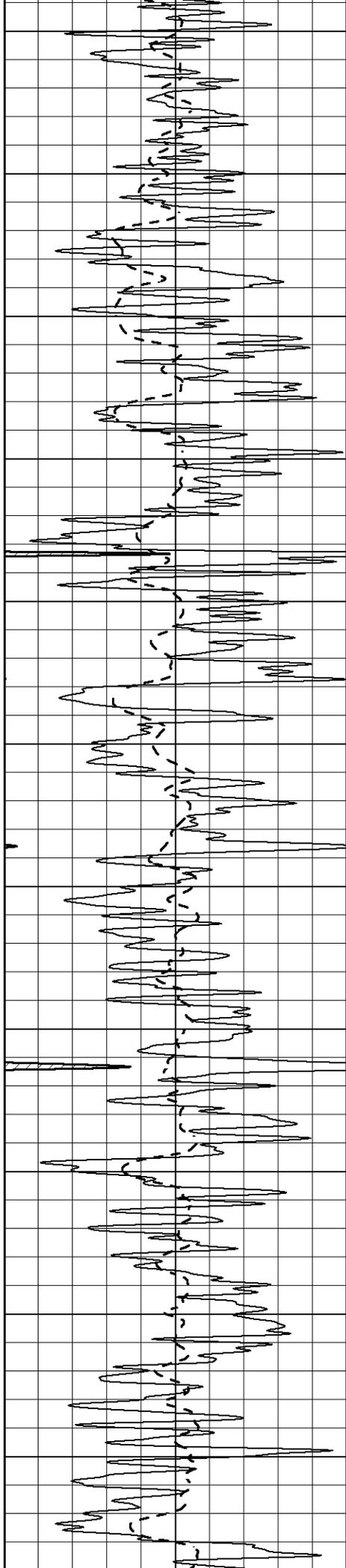


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2600

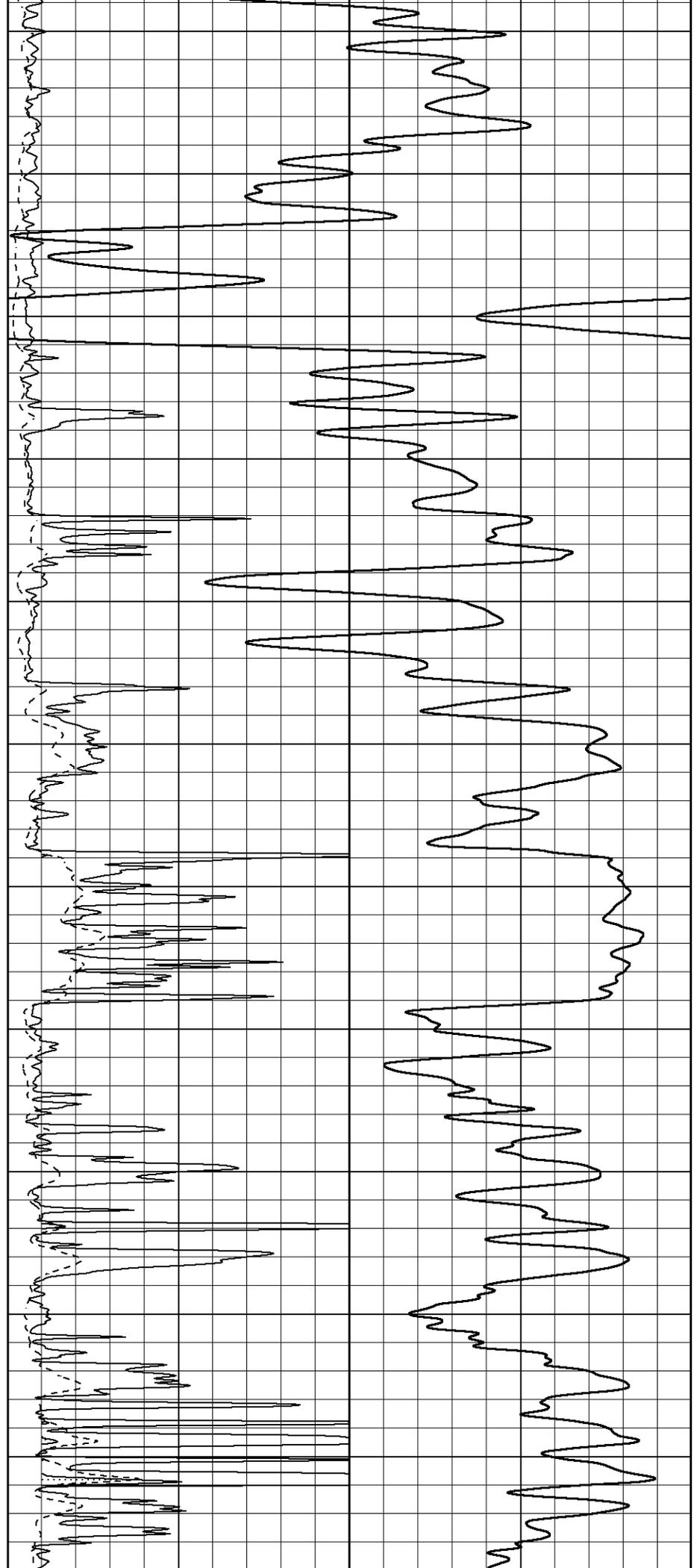


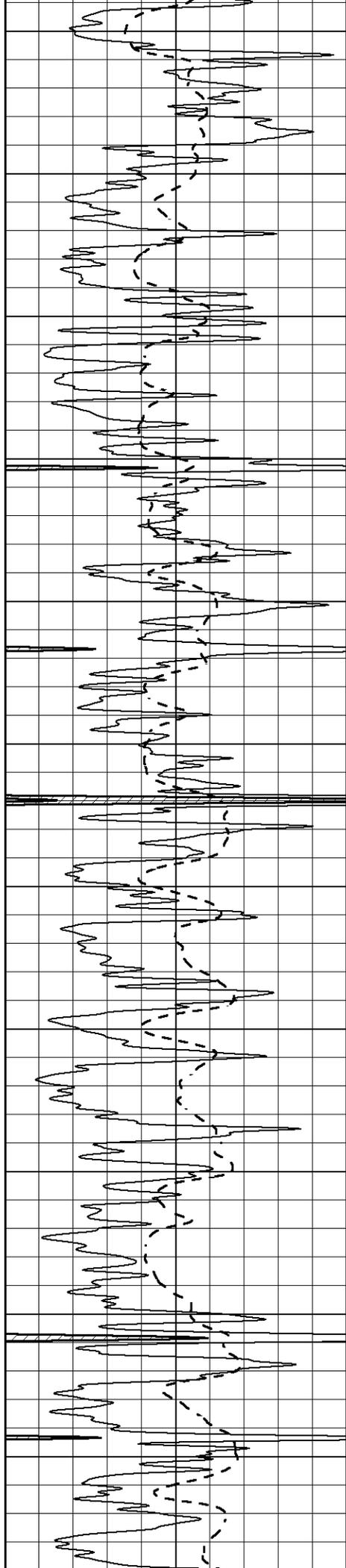
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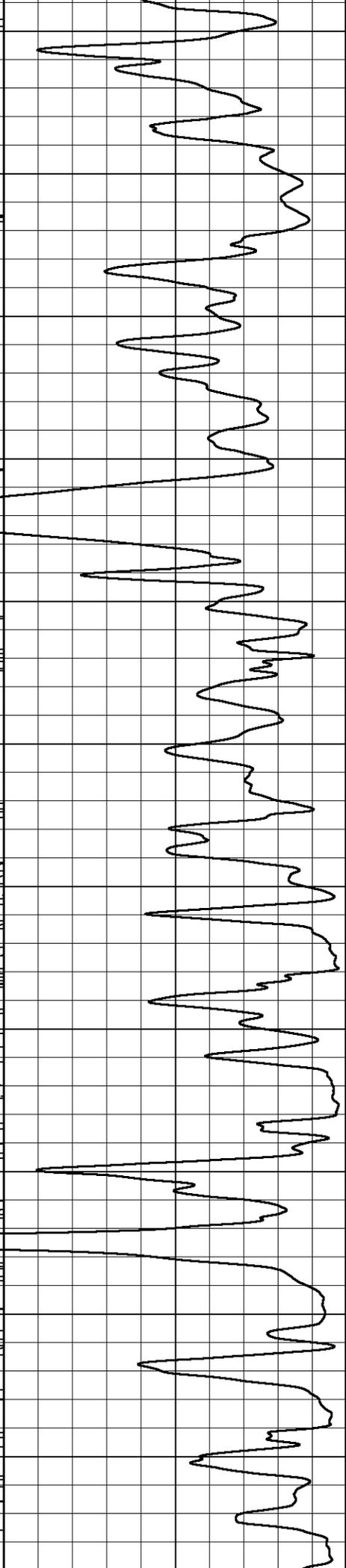
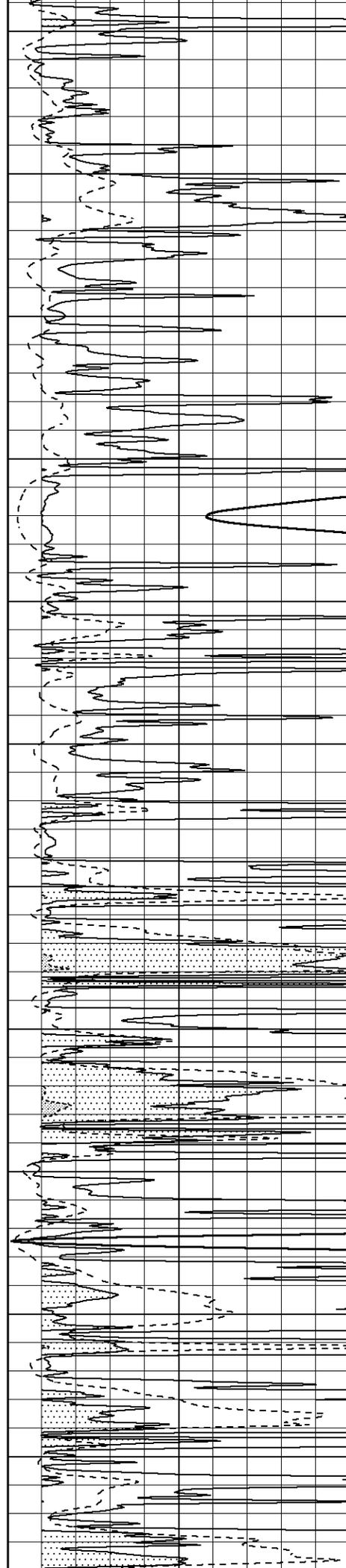
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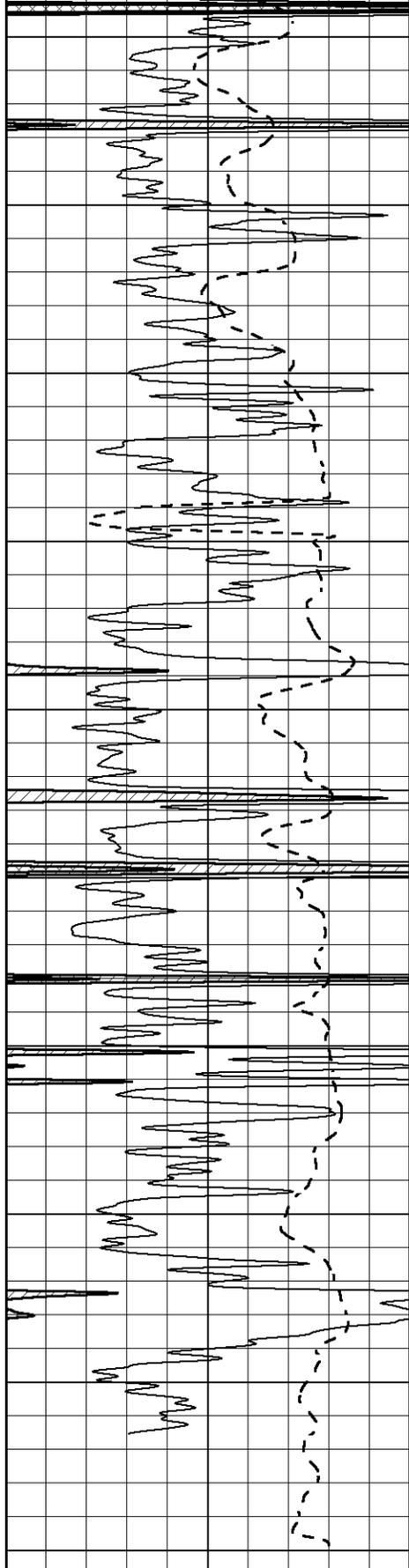
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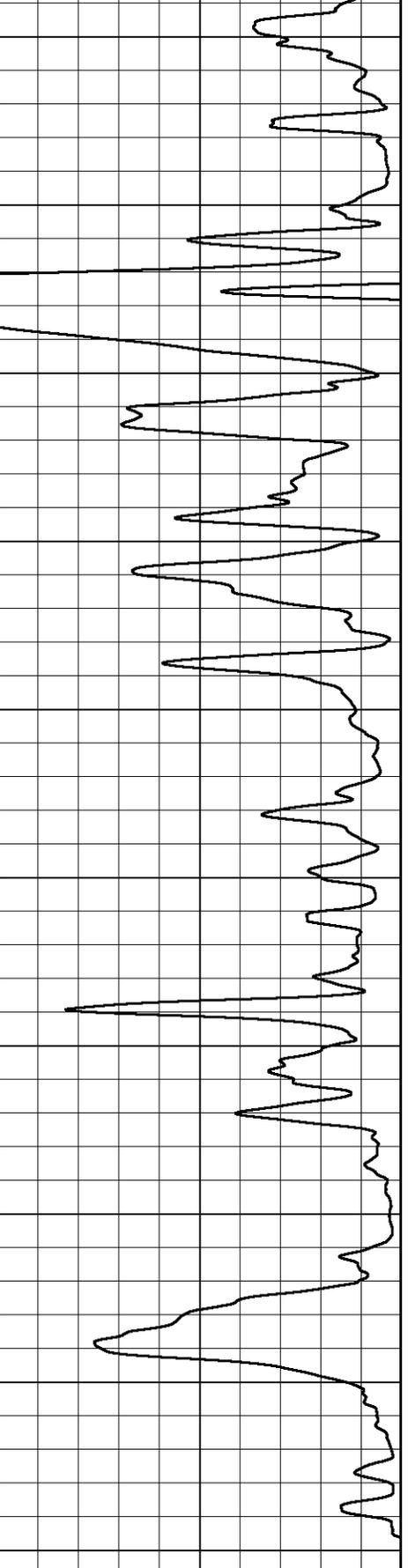
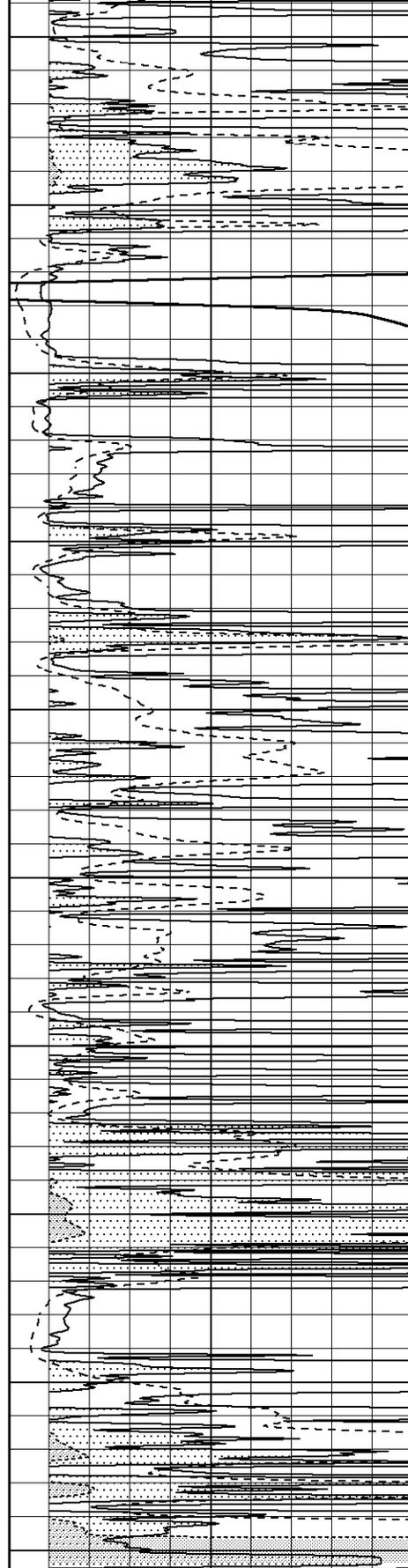
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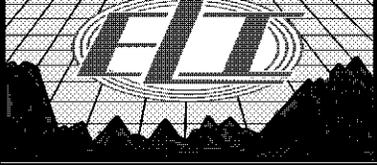
0 Gamma Ray (GAPI) 150
-100 SP (mV) 100



1000 CILD (mmho/m) 0

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



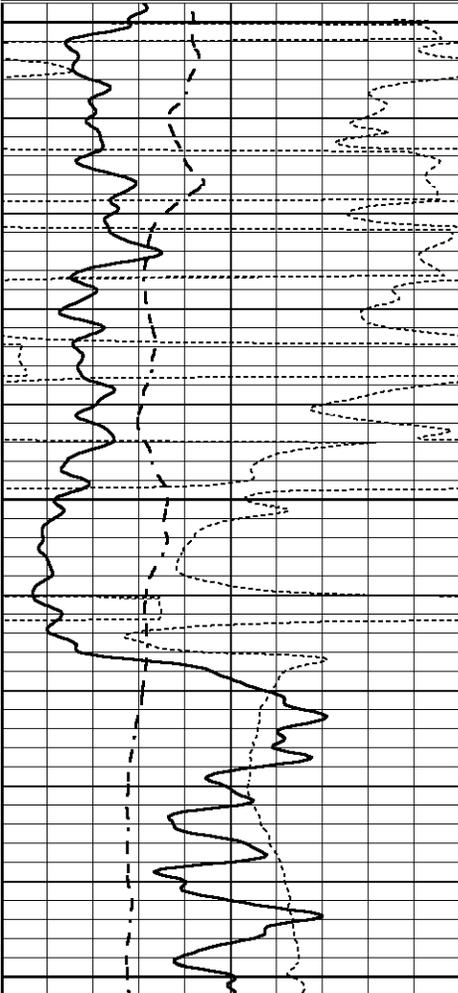


ANHYDRITE

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 Presentation Format _dil
 Dataset Creation Tue Aug 14 09:00:54 2018
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-100	SP (mV)	100
-250	Rxo/Rt	50

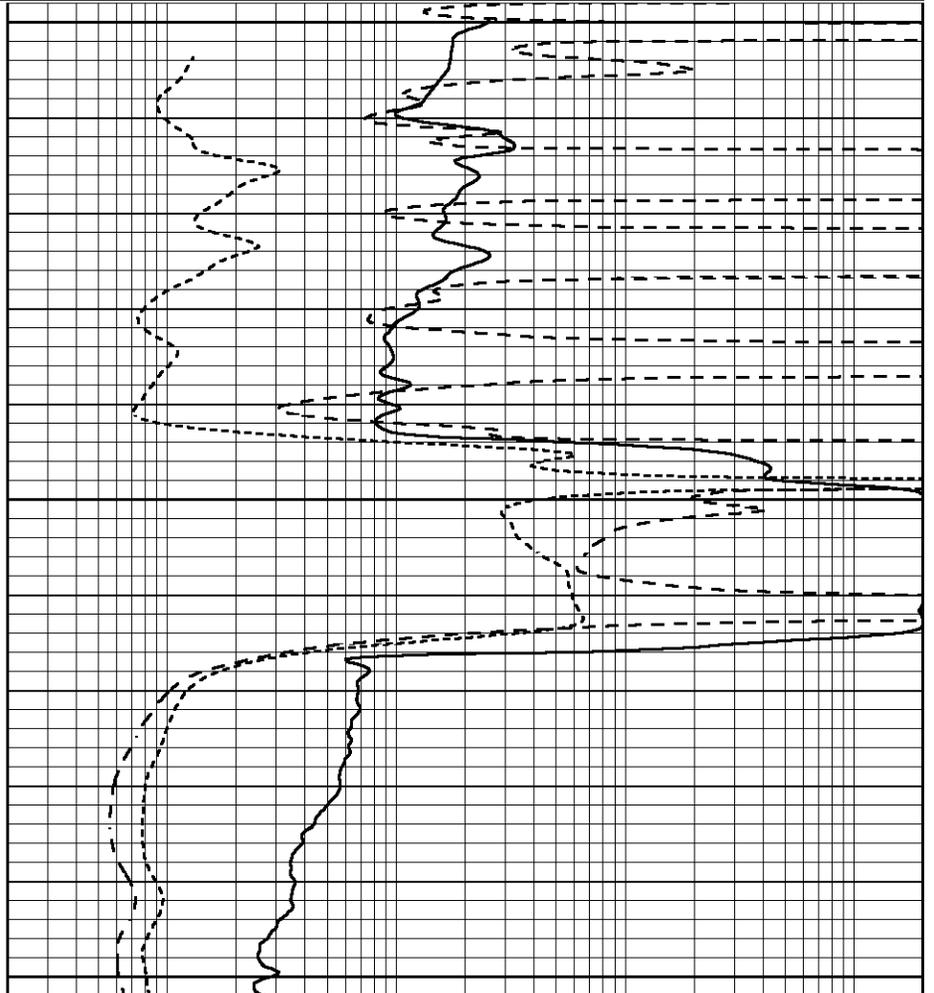
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000



2550

2600

2650



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

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



MAIN SECTION

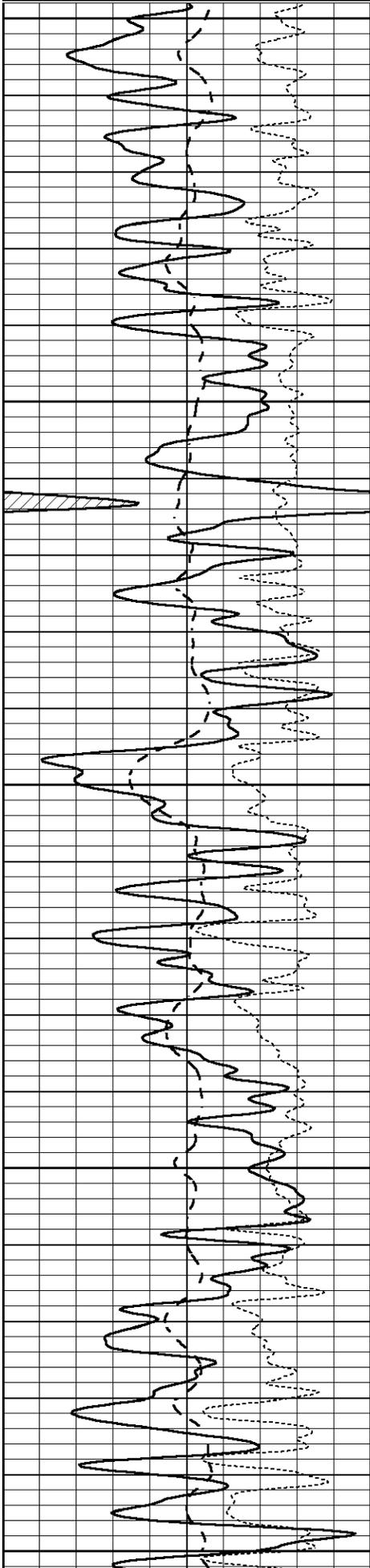
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0	GAMMA RAY (GAPI)	150
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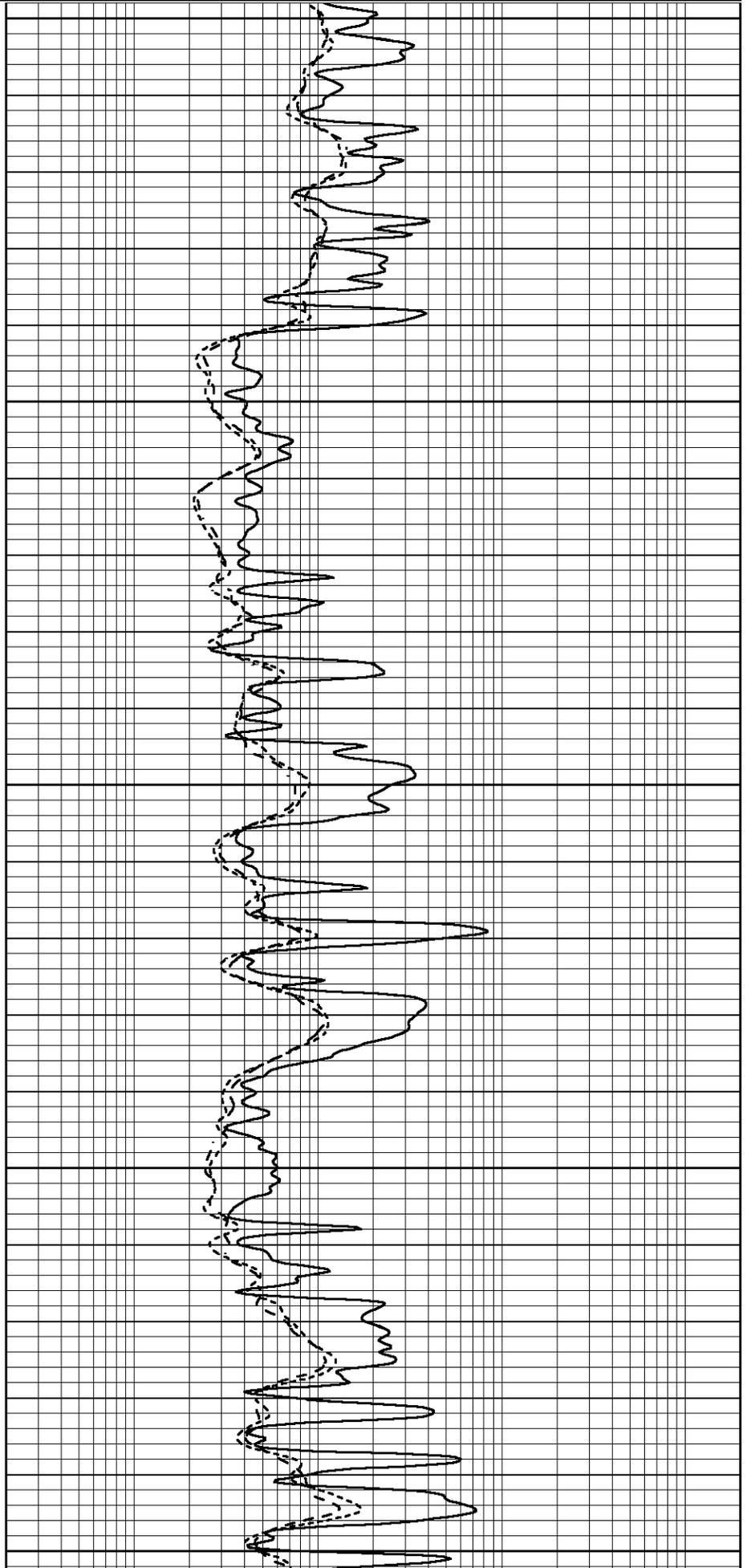
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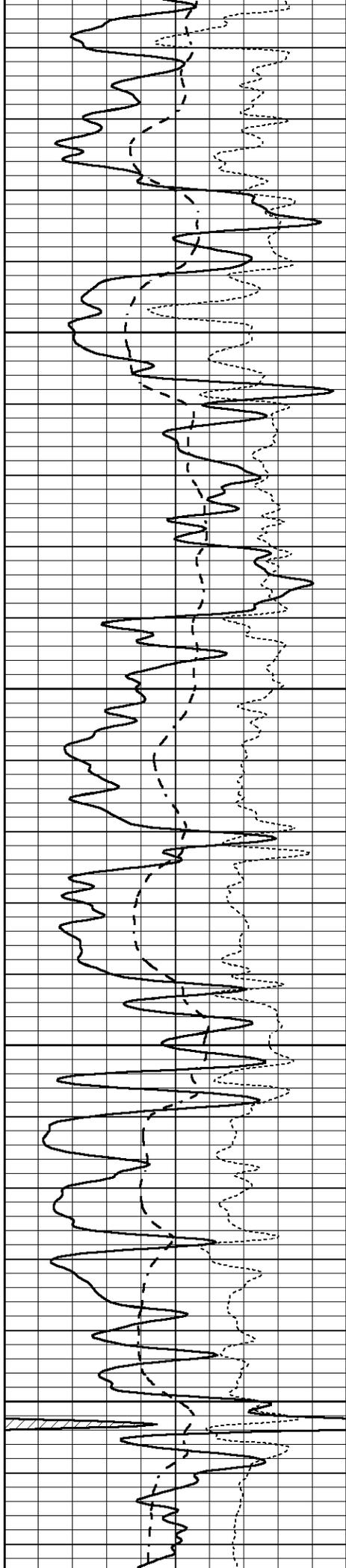
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50

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



3500
3550
3600
3650
3700



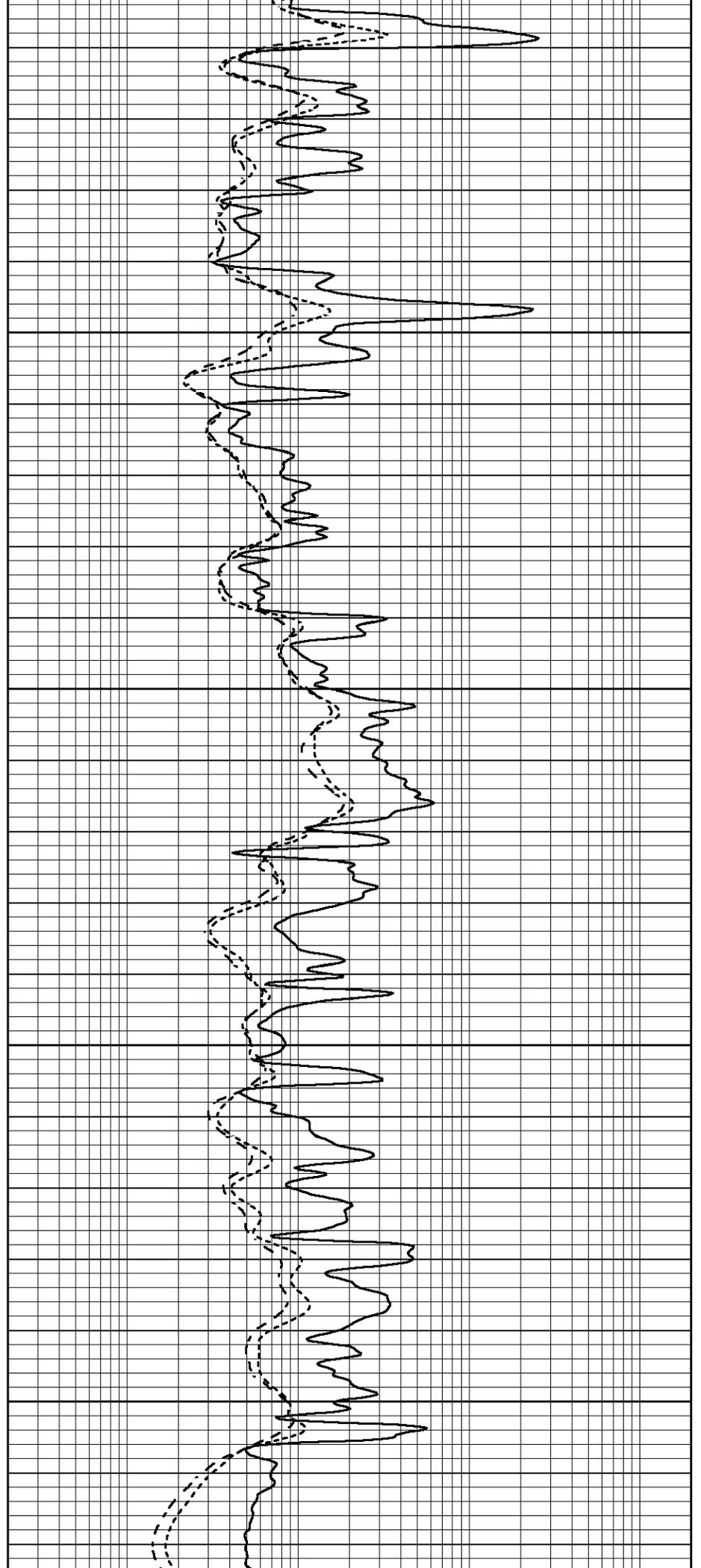


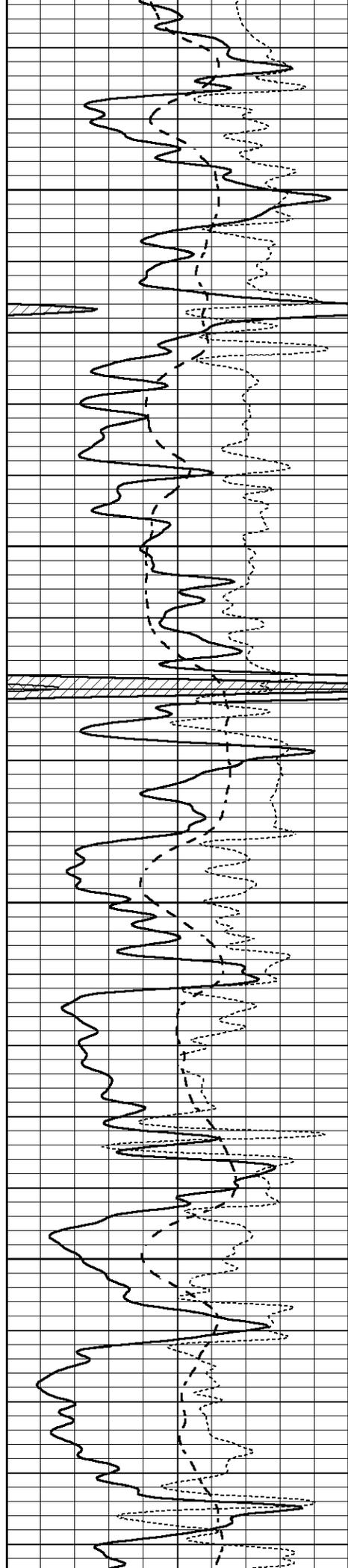
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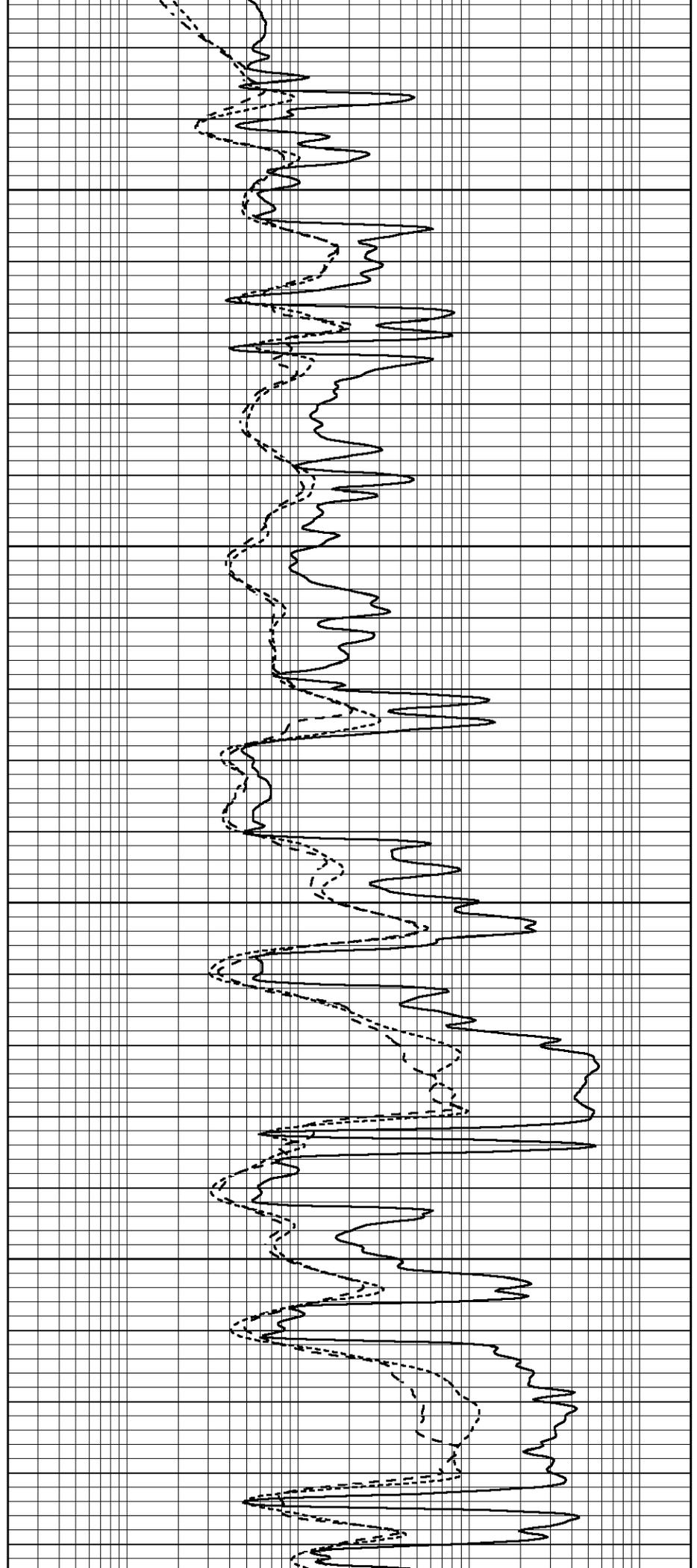


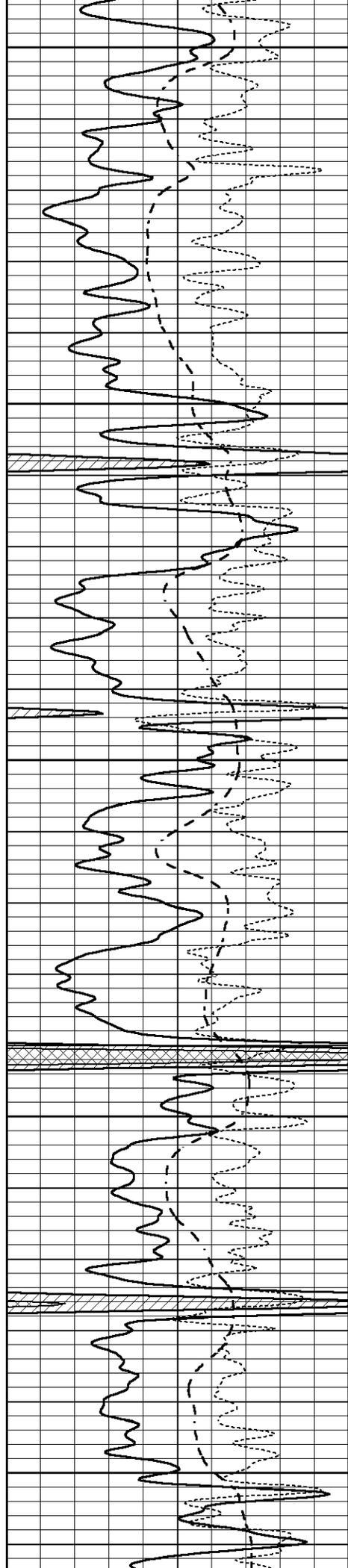
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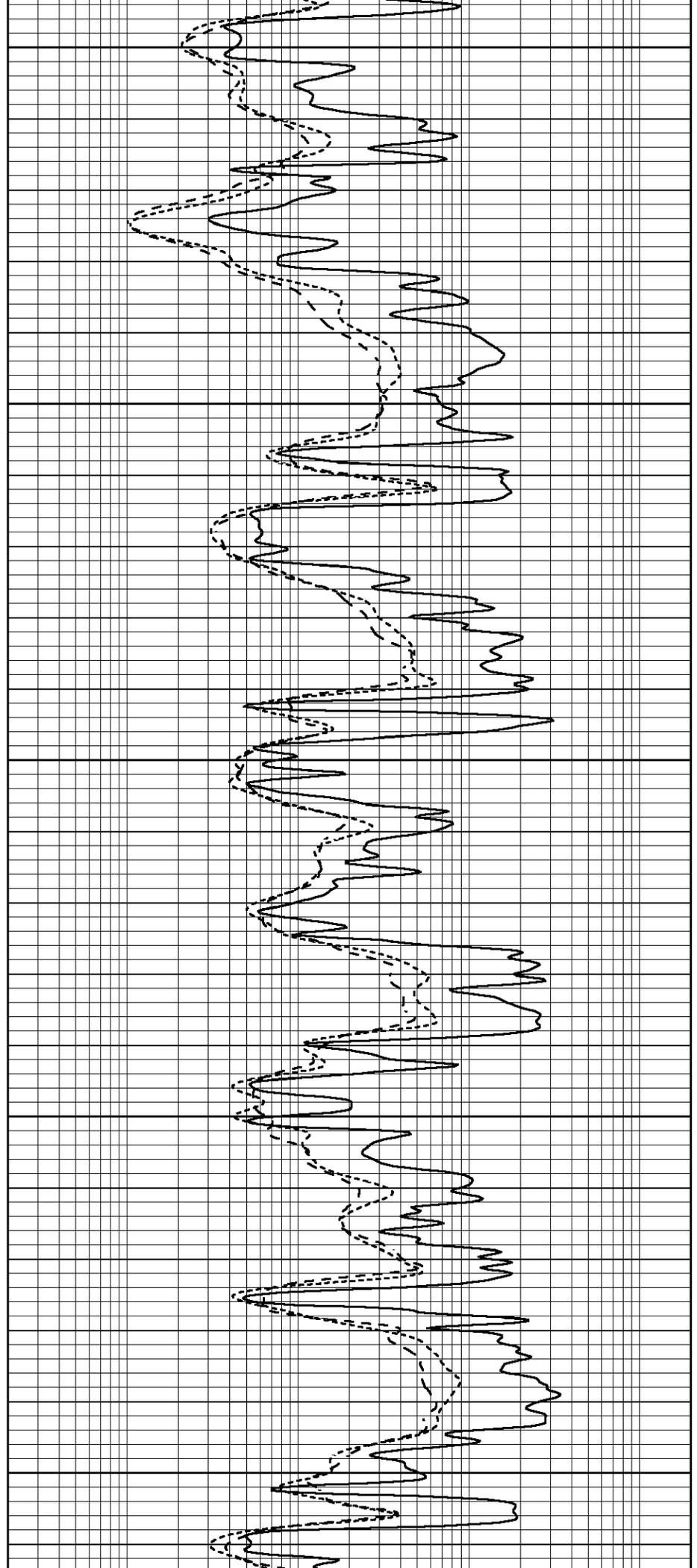
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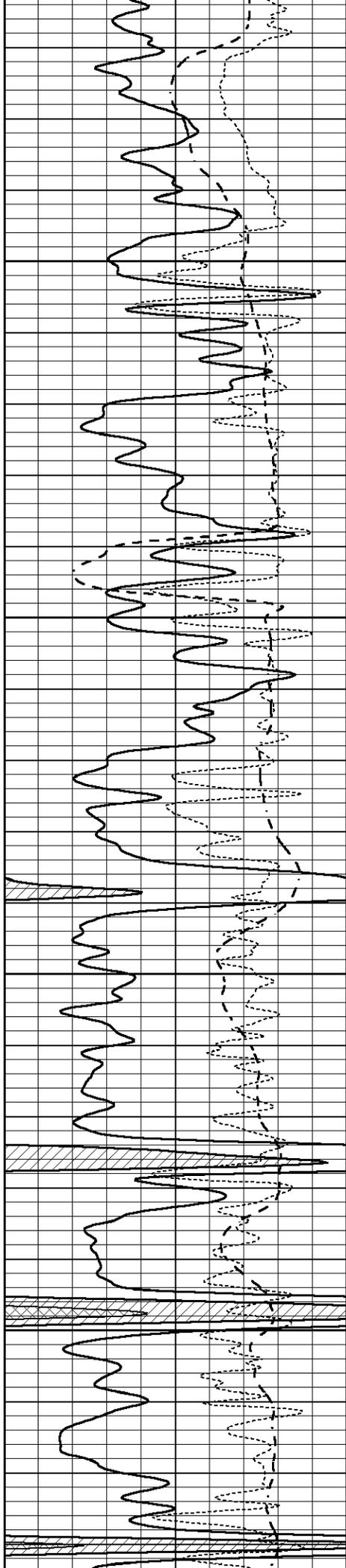
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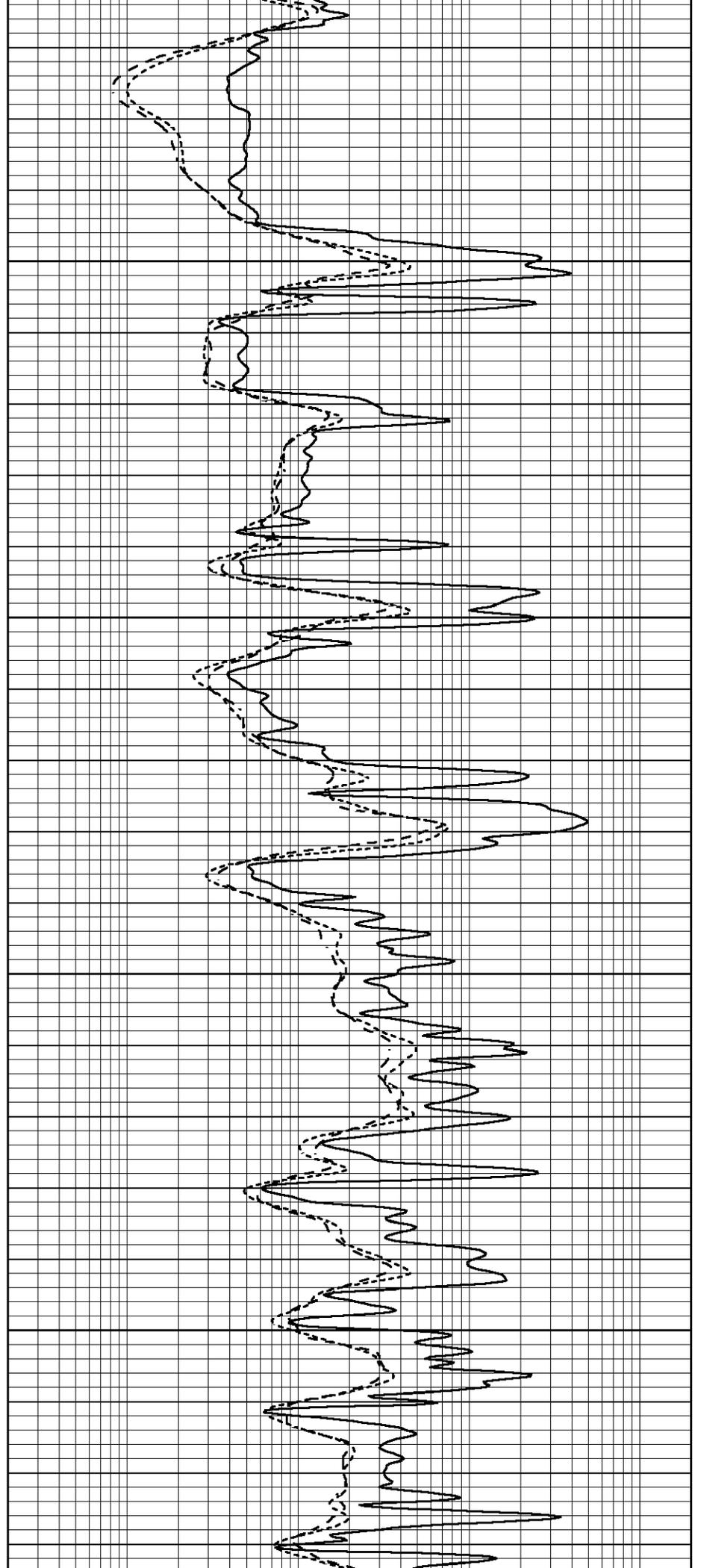


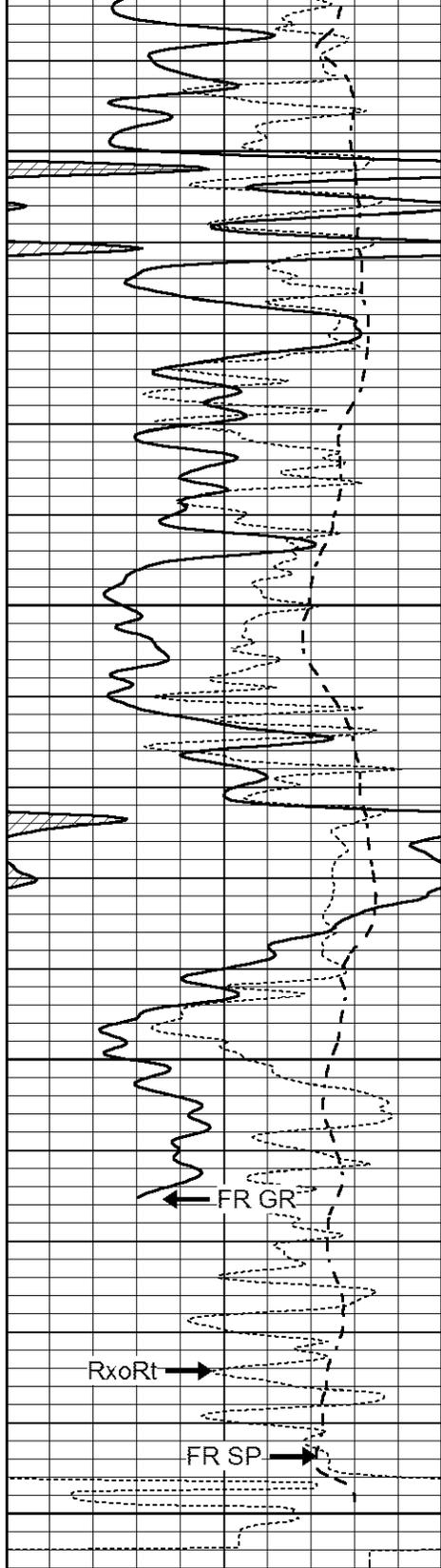
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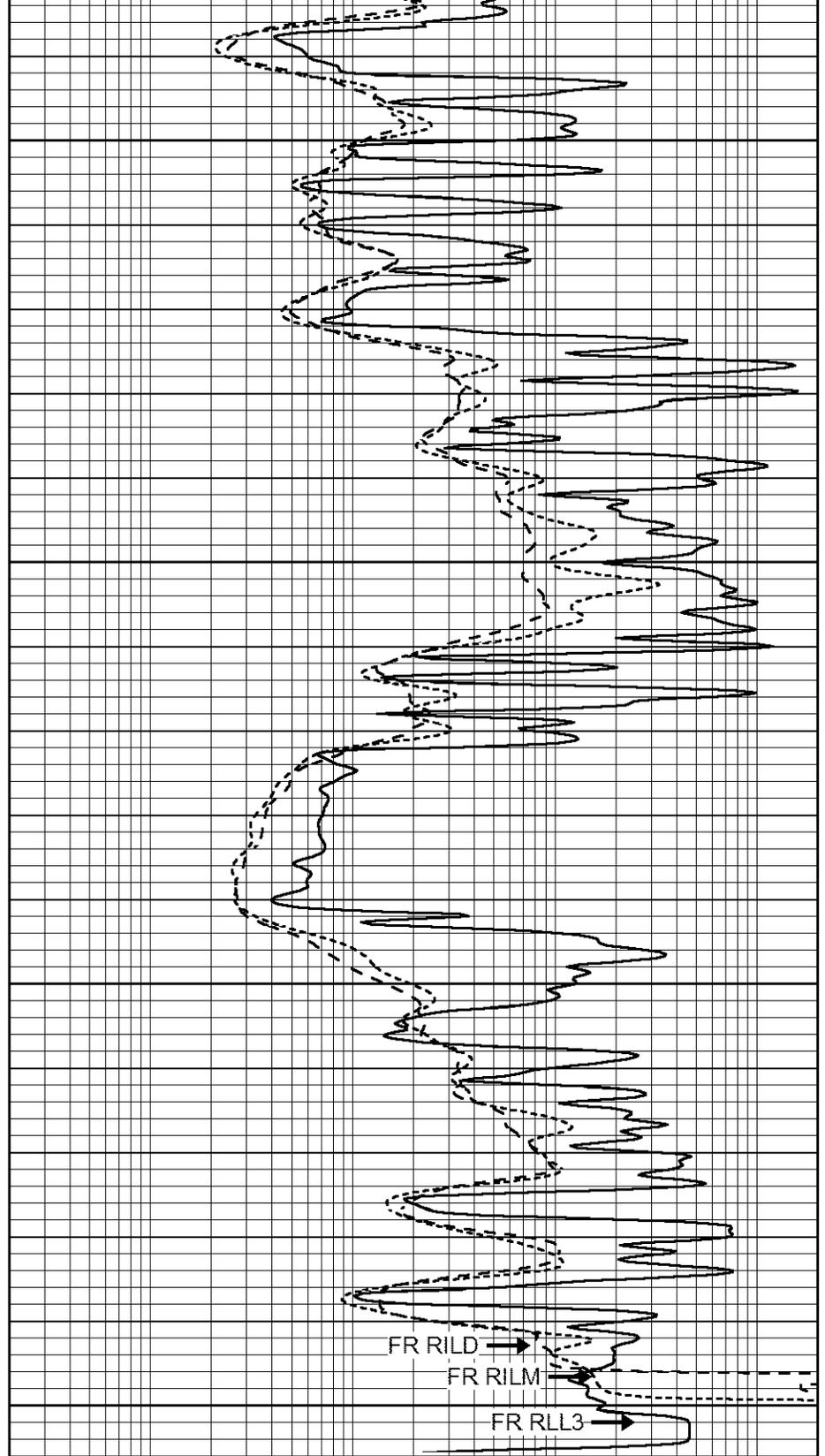
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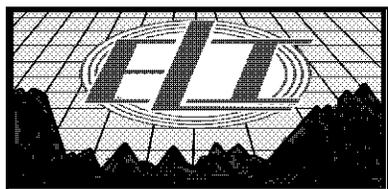
4700

4750
LTD 4754

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



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

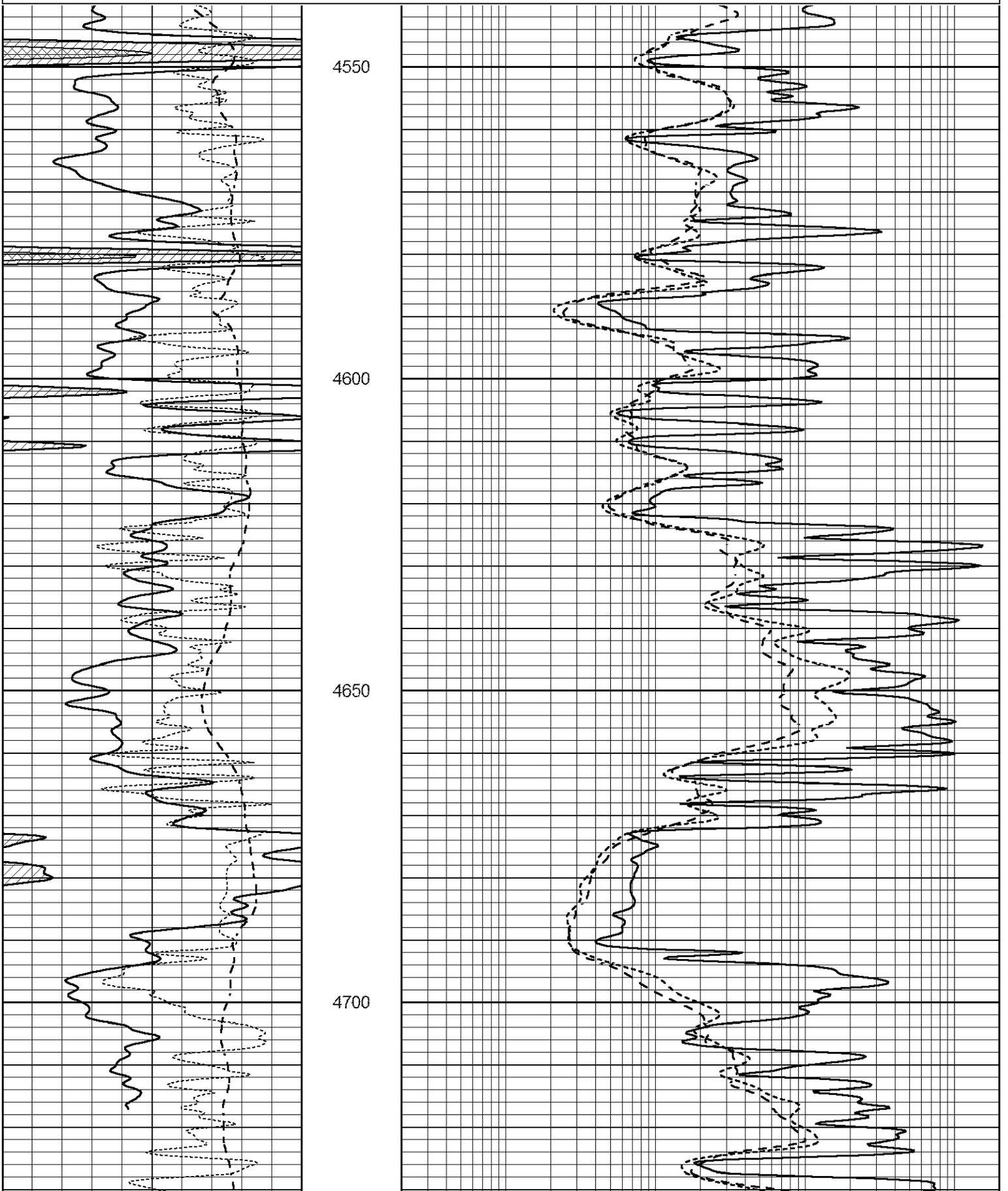


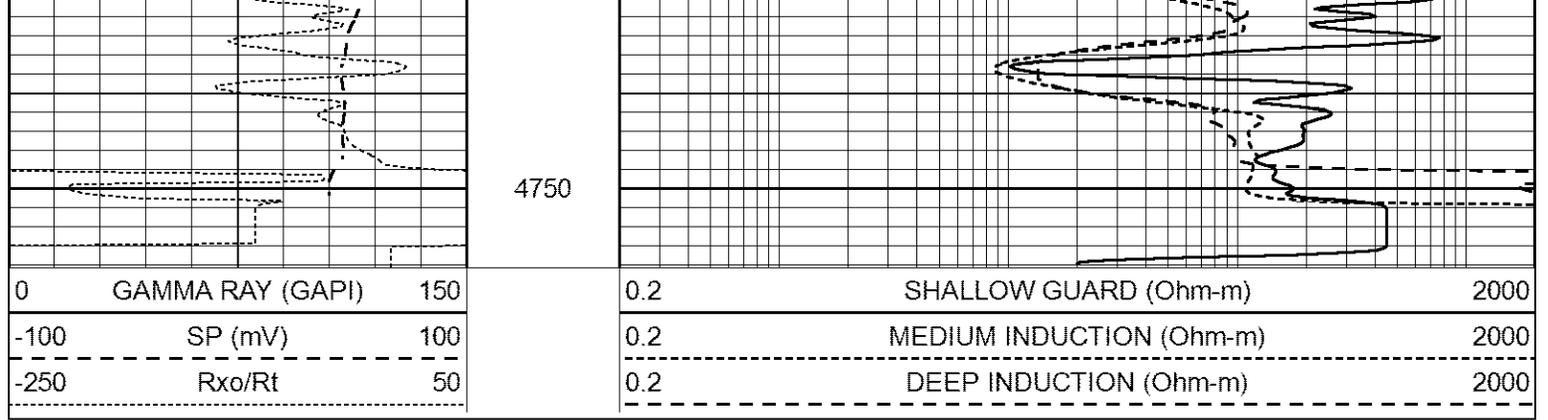
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-100	SP (mV)	100
-250	Rxo/Rt	50

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





Calibration Report

Database File 2520pe8.db
 Dataset Pathname pass2.1
 Dataset Creation Tue Aug 14 08:32:36 2018

Dual Induction Calibration Report

Serial-Model: FW1410-55-Probe
 Surface Cal Performed: Mon May 22 14:23:32 2017
 Downhole Cal Performed: Thu Mar 12 09:29:20 2015
 After Survey Verification Performed: Thu Mar 12 09:29:20 2015

Surface Calibration

Loop:	Readings			References			Results	
	Air	Loop	V	Air	Loop	mmho/m	m	b
Deep	0.011	0.656	V	1.000	400.000	mmho/m	618.595	-5.524
Medium	-0.000	0.731	V	1.000	464.000	mmho/m	632.856	1.197
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.007	0.649	V	0.000	400.000	mmho/m	623.784	-4.595
Medium	0.004	0.743	V	0.000	464.000	mmho/m	627.284	-2.251

Downhole Calibration

	Readings			References			Results	
	Zero	Cal	V	Zero	Cal	mmho/m	m'	b'
Deep	-0.824	395.917	V	-0.976	397.550	mmho/m	1.004	-0.149
Medium	3.565	471.327	V	3.468	471.590	mmho/m	1.001	-0.099
LL3		7.503	V		1500.000	Ohm-m		
		0.001	V		20.000	Ohm-m		
		-7.481	V		3745.000	mmho-m		

After Survey Verification

	Readings			Targets			Results	
	Zero	Cal	V	Zero	Cal	mmho/m	m'	b'
Deep	0.000	0.000	V	-0.824	395.917	mmho/m	1.000	0.000
Medium	0.000	0.000	V	3.565	471.327	mmho/m	1.000	0.000
LL3		0.000	V		1500.000	Ohm-m		
		0.000	V		20.000	Ohm-m		
		0.000	V		3745.000	mmho-m		

Compensated Neutron Calibration Report

Serial Number: 080621PMC
 Tool Model: NABORS

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:	7	
Tool Model:	Probe1	
Performed:	Wed Jun 29 11:10:58 2016	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.4300	GAPI/cps