



DUAL INDUCTION LOG

Company NORSTAR PETROLEUM, INC.		Company NORSTAR PETROLEUM, INC.	
Well HINEMAN UNIT #1-16		Well HINEMAN UNIT #1-16	
Field		Field	
County LANE		County LANE	
State KANSAS		State KANSAS	
Location:		API # : 15-101-22586-00-00	
1222' FSL & 1086' FEL		Other Services CDL/CNL/PE MEL/SON	
SEC 16 TWP 19S RGE 27W		Elevation	
Permanent Datum		GROUND LEVEL Elevation 2702	
Log Measured From		KELLY BUSHING 7' A.G.L	
Drilling Measured From		KELLY BUSHING	
Date		2/23/17	
Run Number		ONE	
Depth Driller		4718	
Depth Logger		4722	
Bottom Logged Interval		4720	
Top Log Interval		00	
Casing Driller		8 5/8" @ 290	
Casing Logger		290	
Bit Size		7 7/8	
Type Fluid in Hole		CHEMICAL MUD	
Density / Viscosity		9.4/59	
PH / Fluid Loss		10.5/7.6	
Source of Sample		FLOWLINE	
Rm @ Meas. Temp		1.60 @ 79F	
Rmt @ Meas. Temp		1.20 @ 79F	
Rmc @ Meas. Temp		1.92 @ 79F	
Source of Rmf / Rmc		MEASUREMENT	
Rm @ BHT		1.03 @ 122F	
Time Circulation Stopped		2 HOURS	
Time Logger on Bottom			
Maximum Recorded Temperature		122F	
Equipment Number		3802	
Location		HAYS, KANSAS	
Recorded By		JASON CAPPELLUCCI	
Witnessed By		WES HANSEN	

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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
ALAMOTA, KS. - 6 SOUTH ON TURKEY RED RD. TO 90 RD. - 1/4 WEST - NORTH INTO



MAIN SECTION

Database File 1121ddn8.db
Dataset Pathname pass4.3
Presentation Format _dil2
Dataset Creation Thu Feb 23 11:22:41 2017
Charted by Depth in Feet scaled 1:600

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

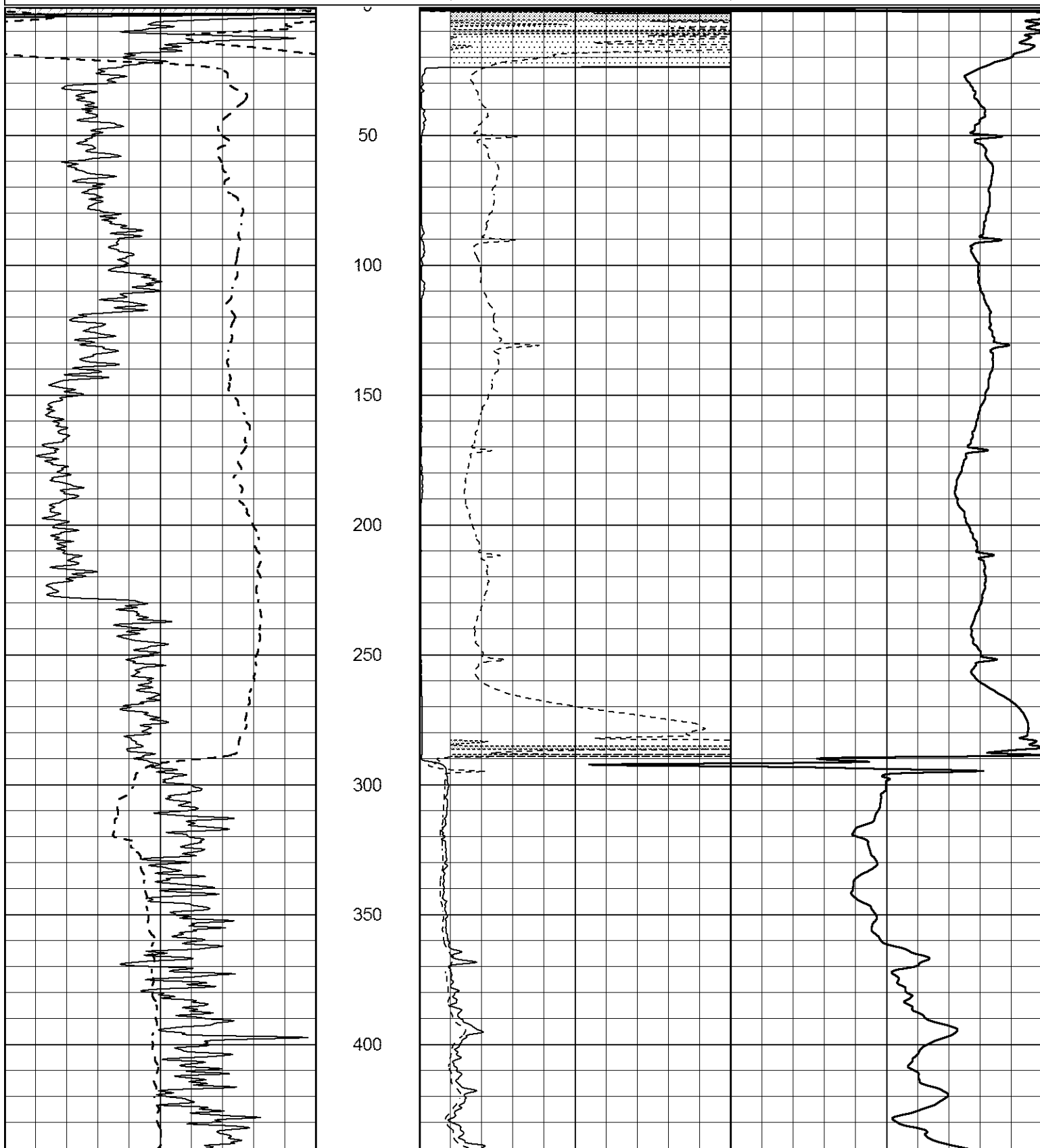
1000 CILD (mmho/m) 0

0 RLL3 (Ohm-m) 50

0 Deep Induction (Ohm-m) 50

50 RILD X10 (Ohm-m) 500

50 RLL3 X10 (Ohm-m) 500



450

500

550

600

650

700

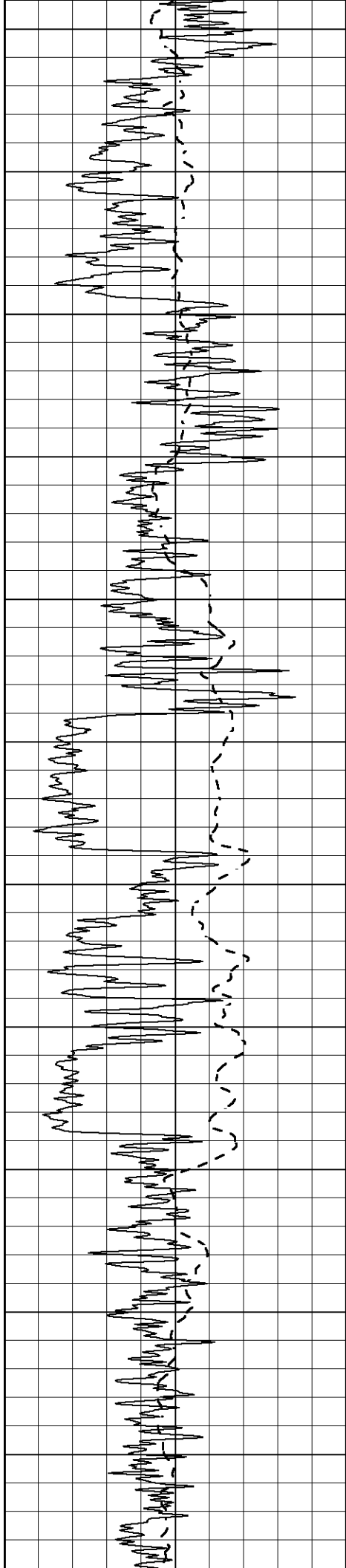
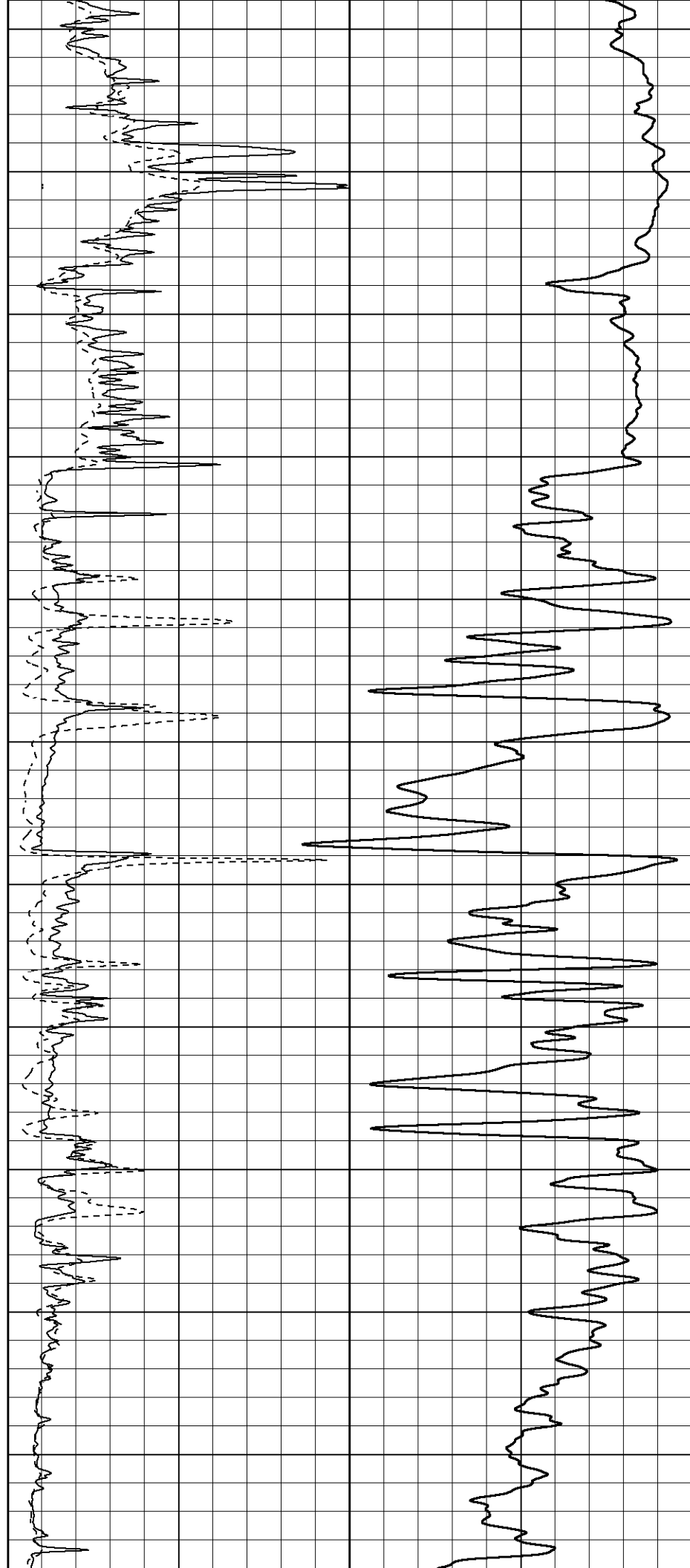
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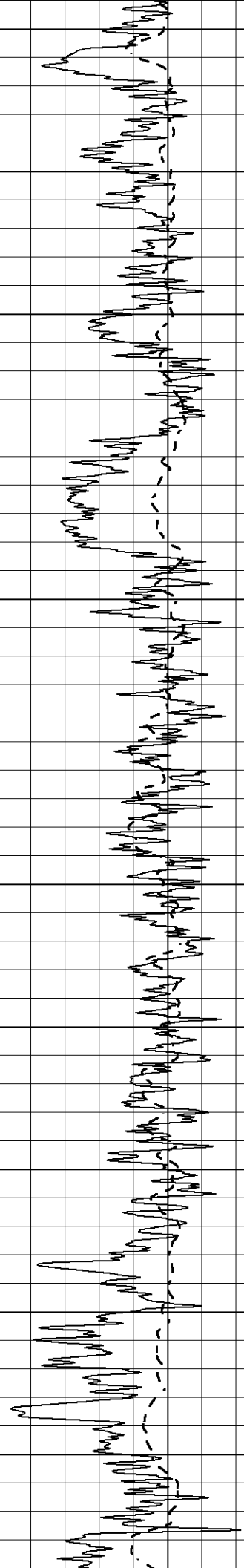
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850

900

950





1000

1050

1100

1150

1200

1250

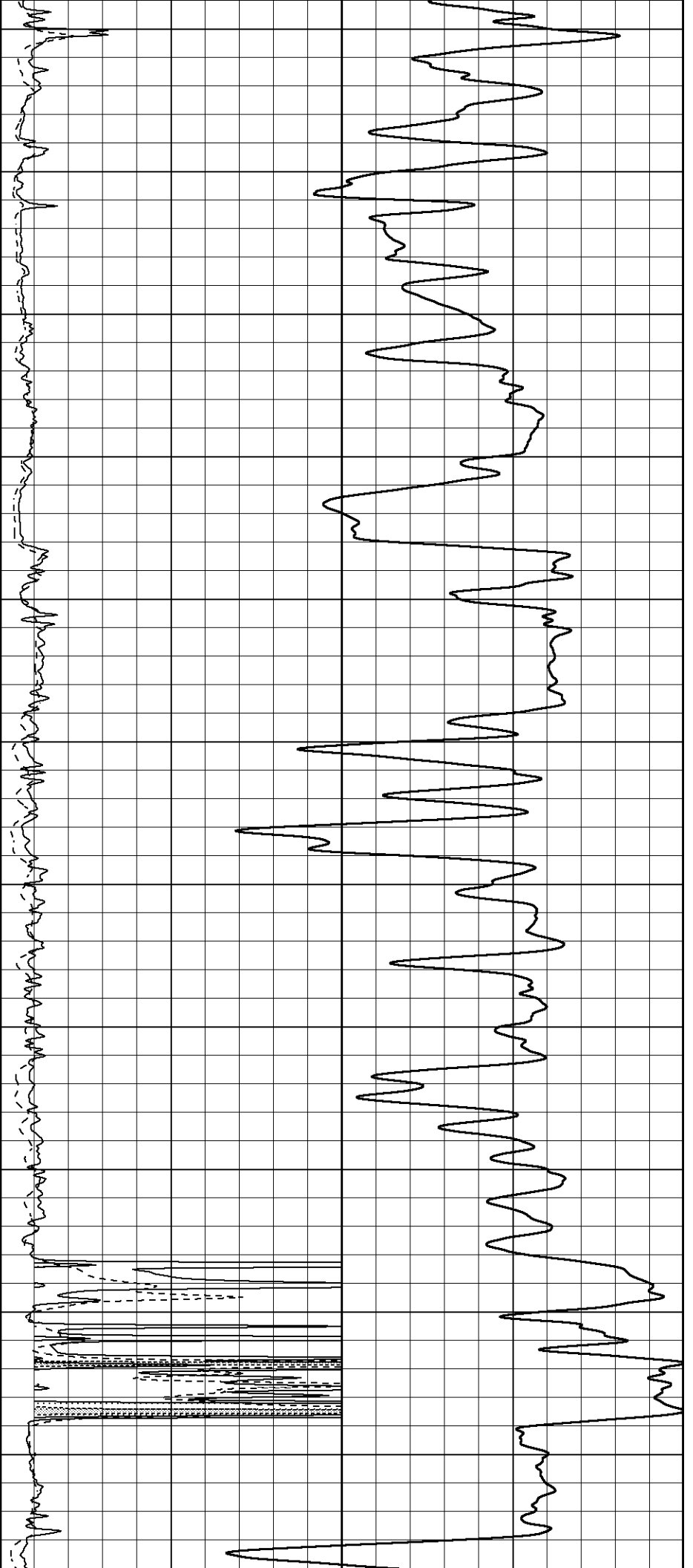
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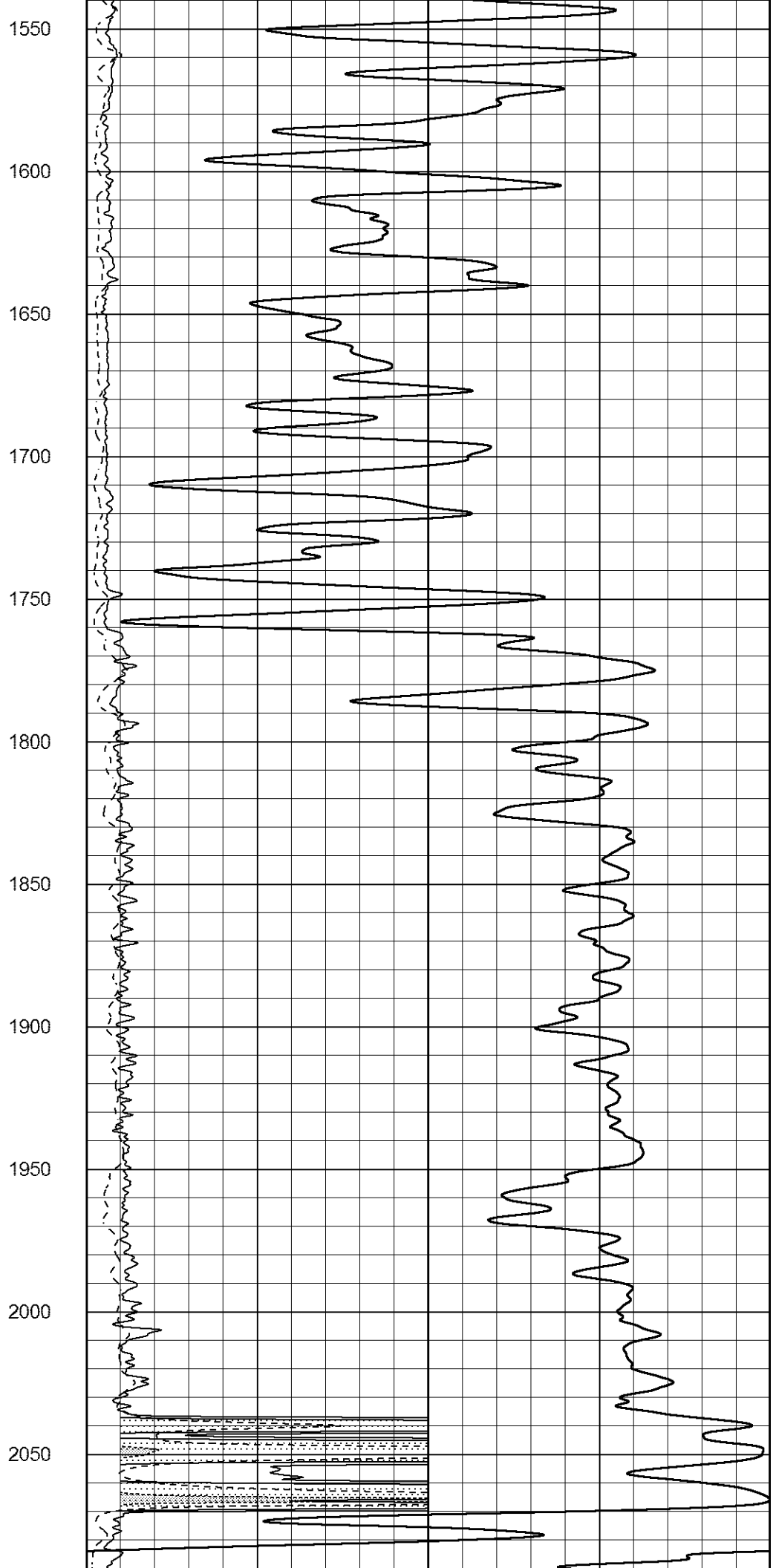
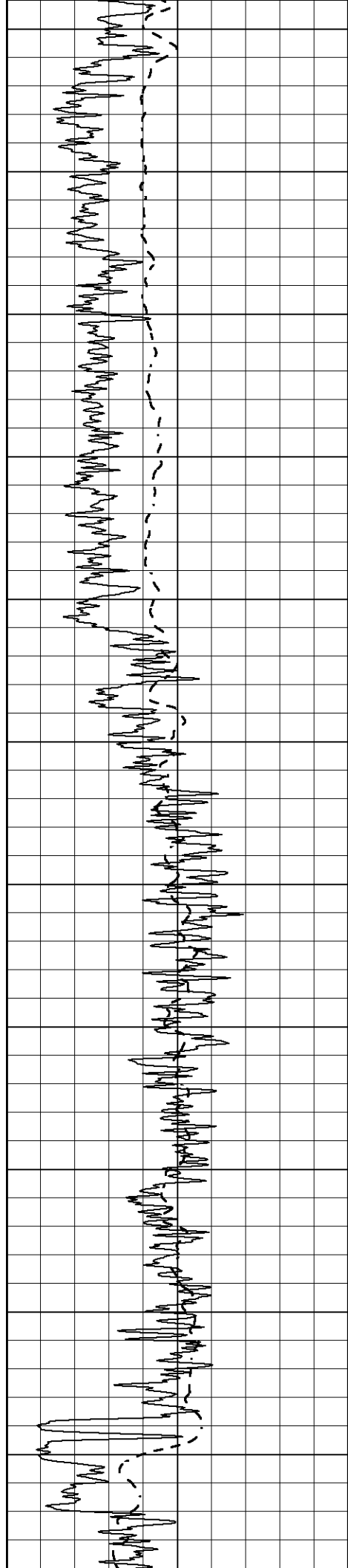
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1400

1450

1500





2100

2150

2200

2250

2300

2350

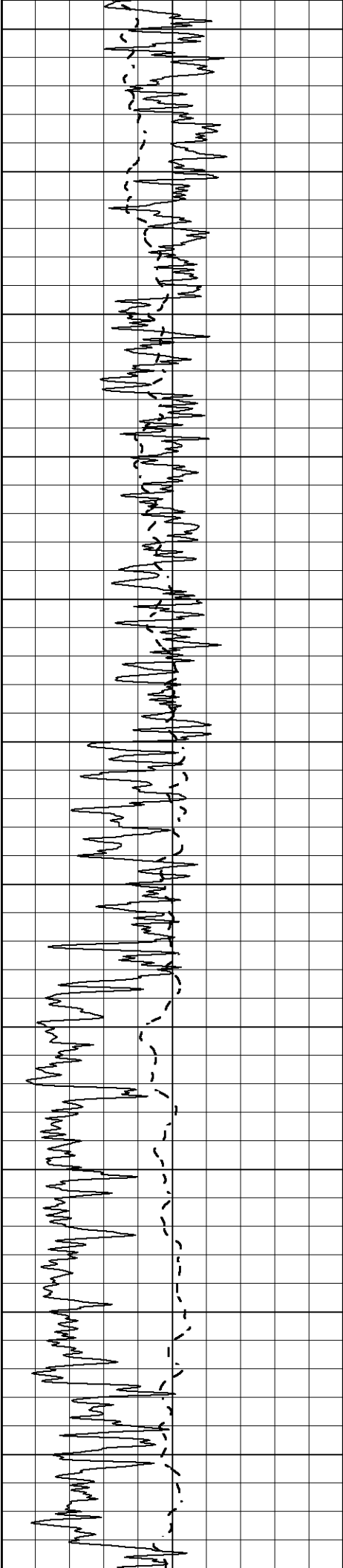
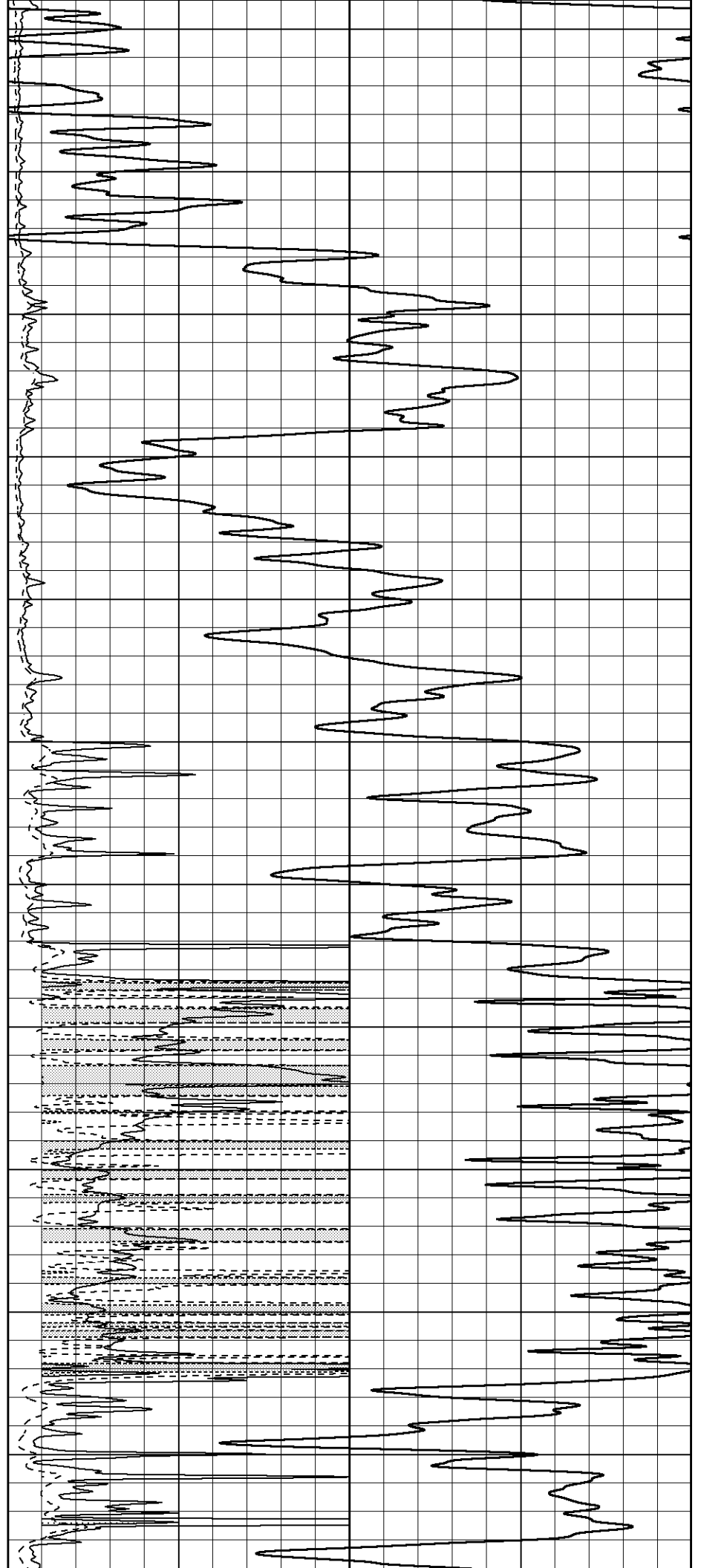
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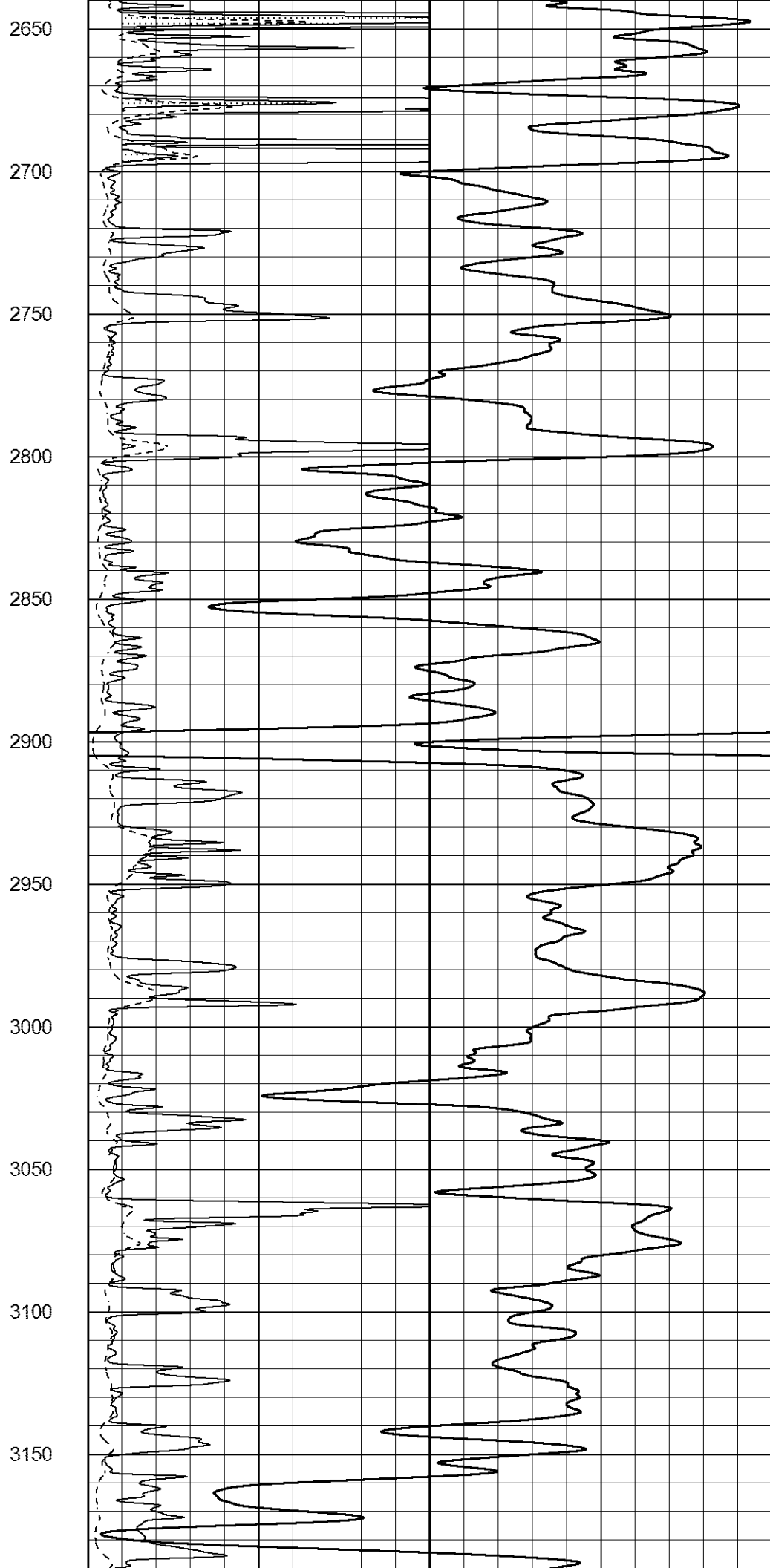
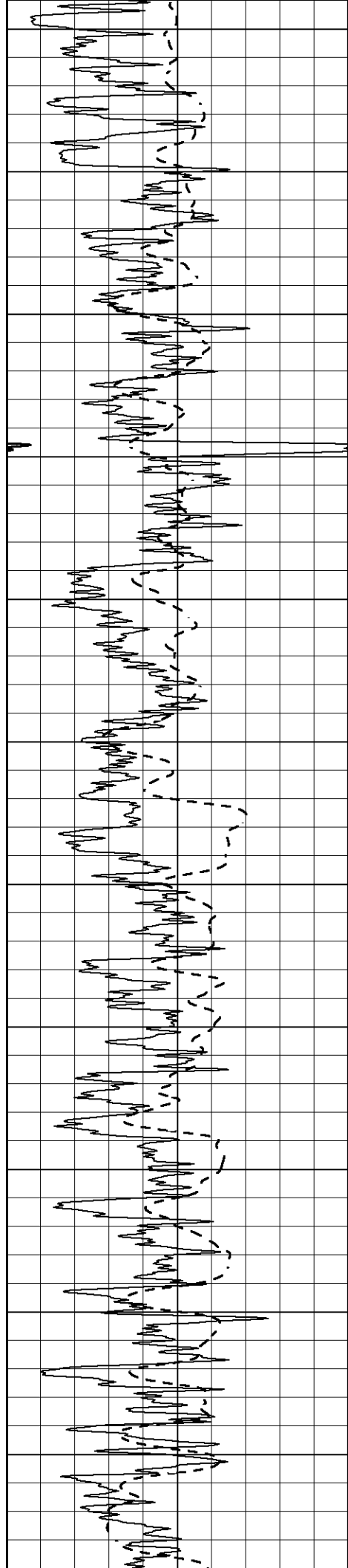
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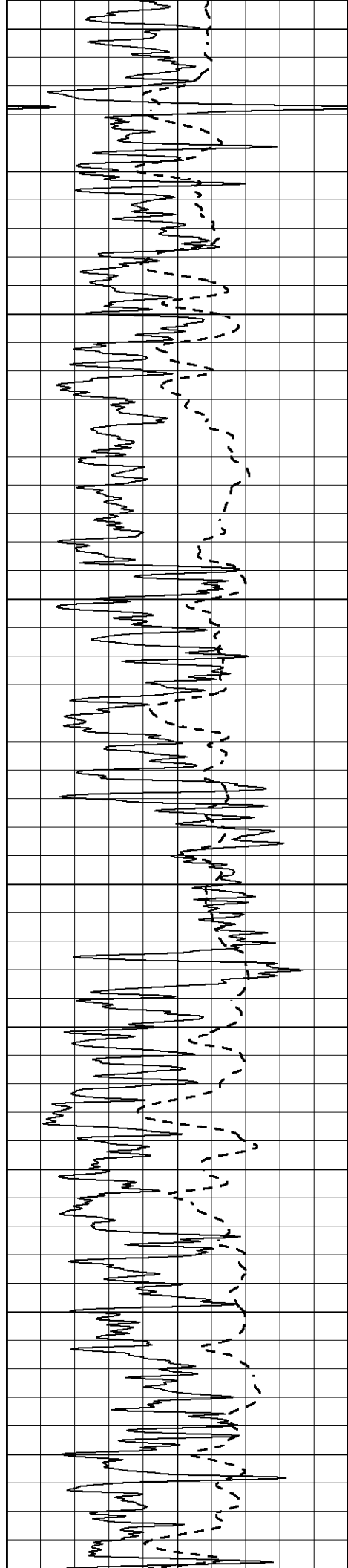
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2550

2600







3200

3250

3300

3350

3400

3450

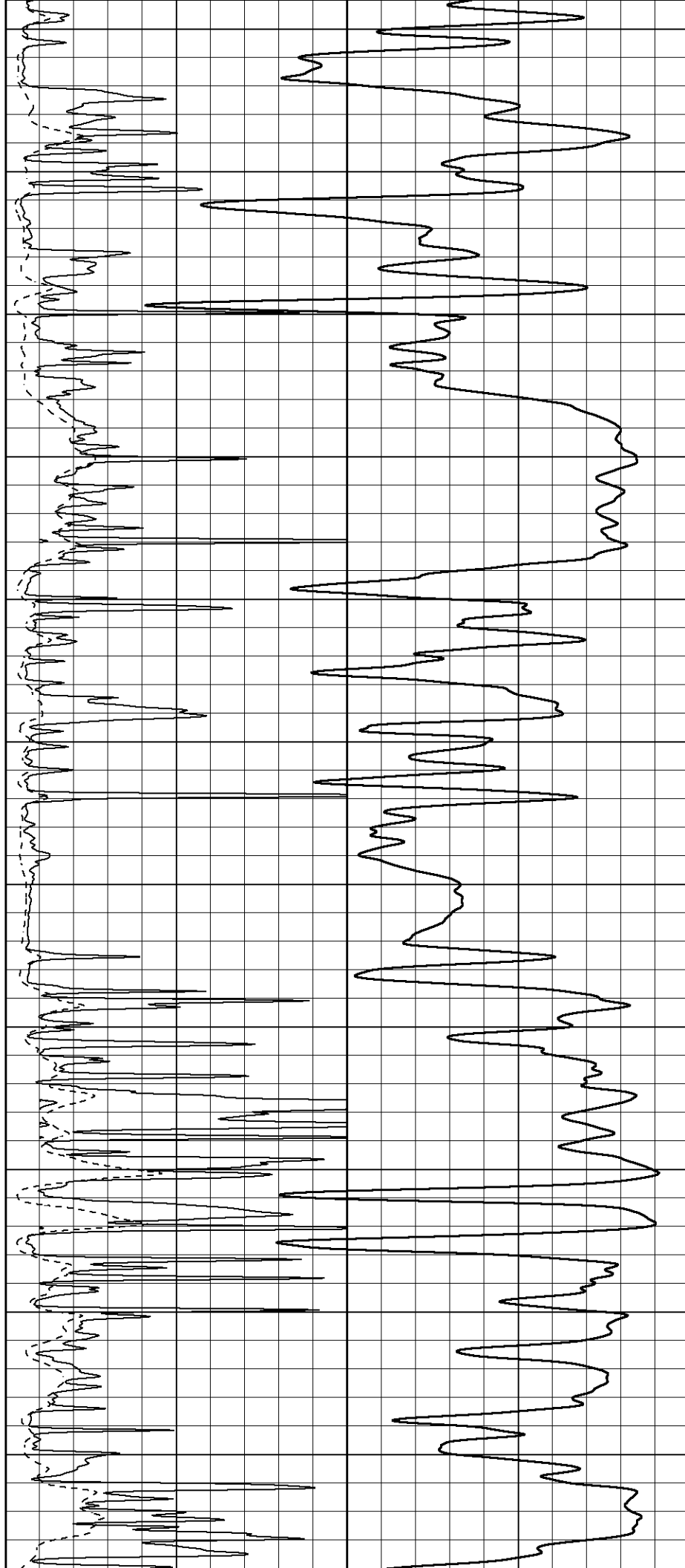
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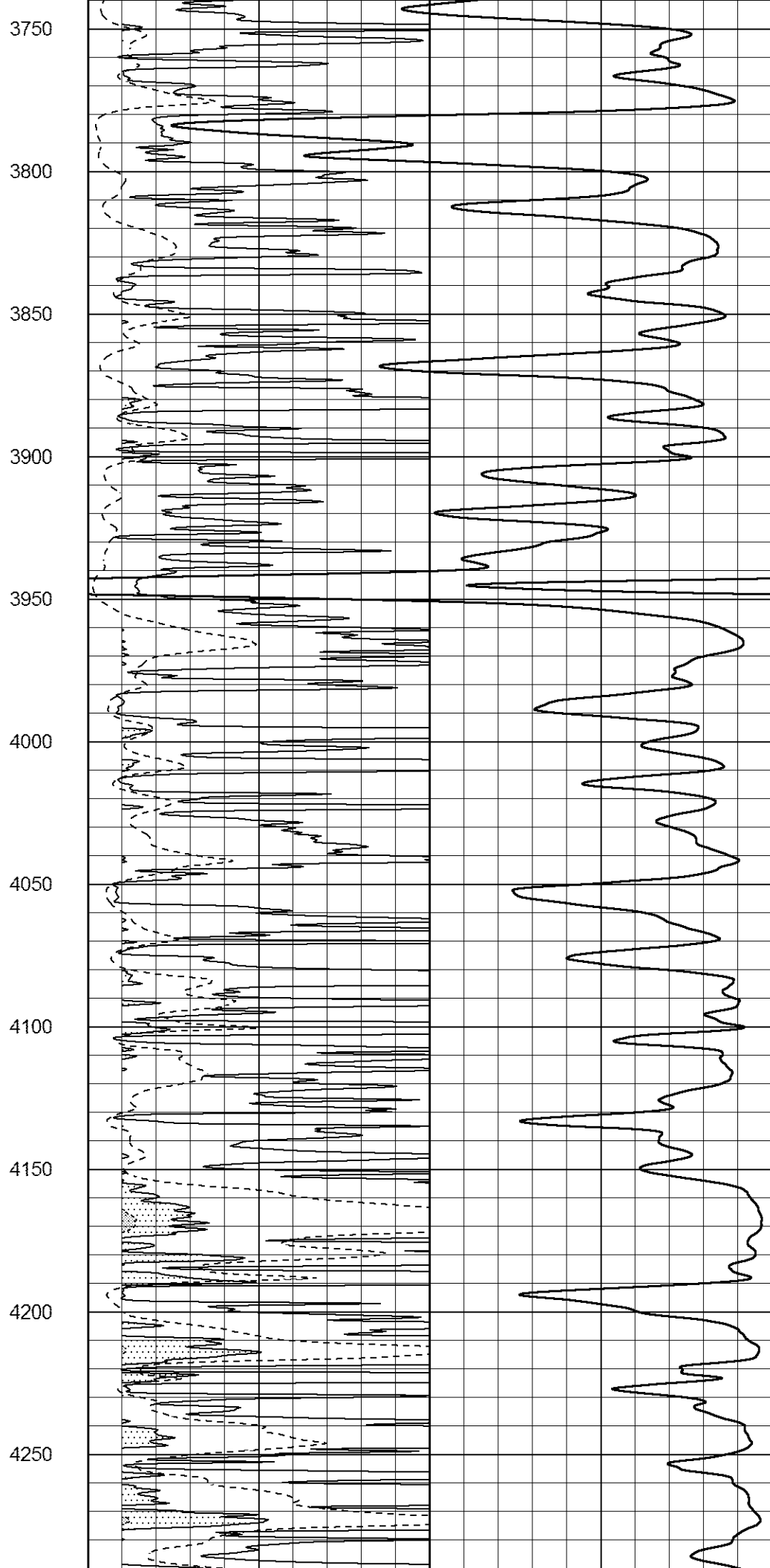
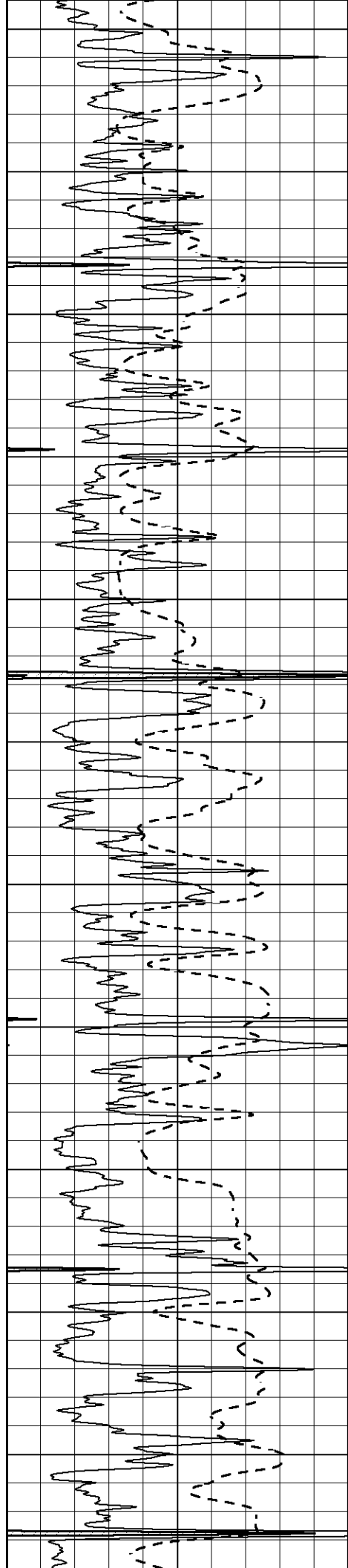
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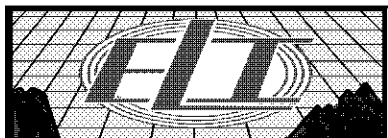
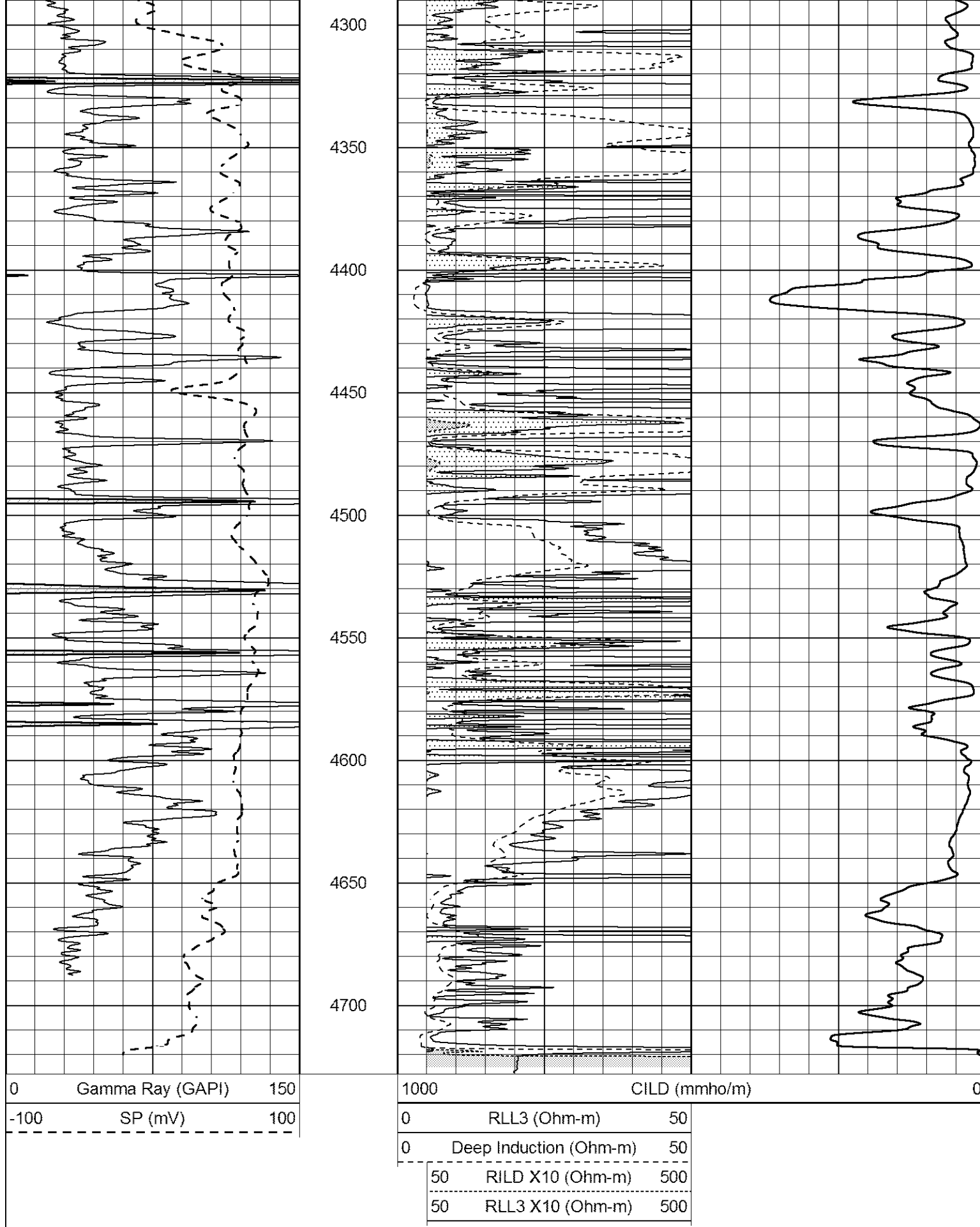
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3650

3700



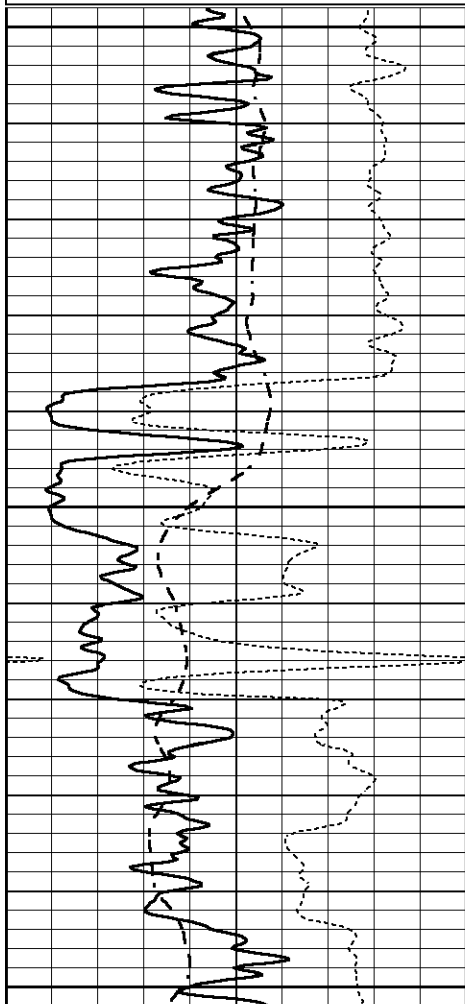




ANHYDRITE

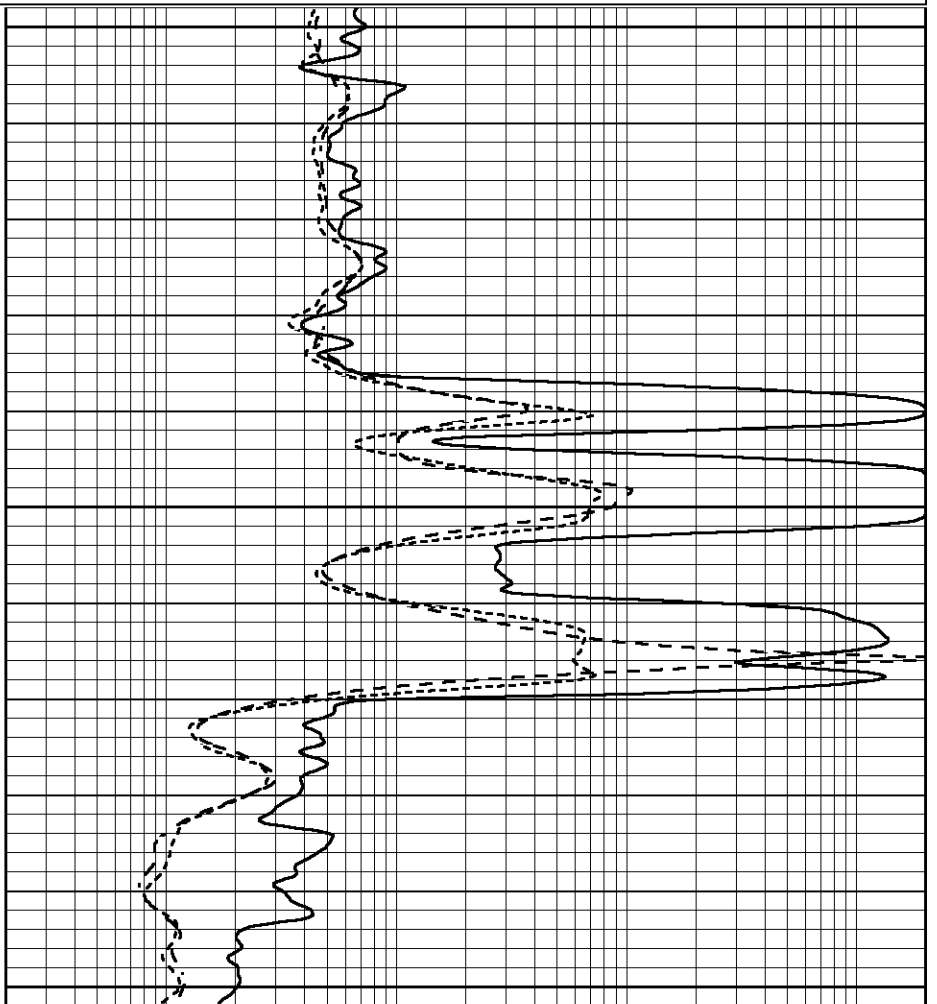
Database File 1121ddn8.db
 Dataset Pathname pass4.2
 Presentation Format _dil
 Dataset Creation Thu Feb 23 10:38:45 2017
 Charted by Depth in Feet scaled 1:240

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



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



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

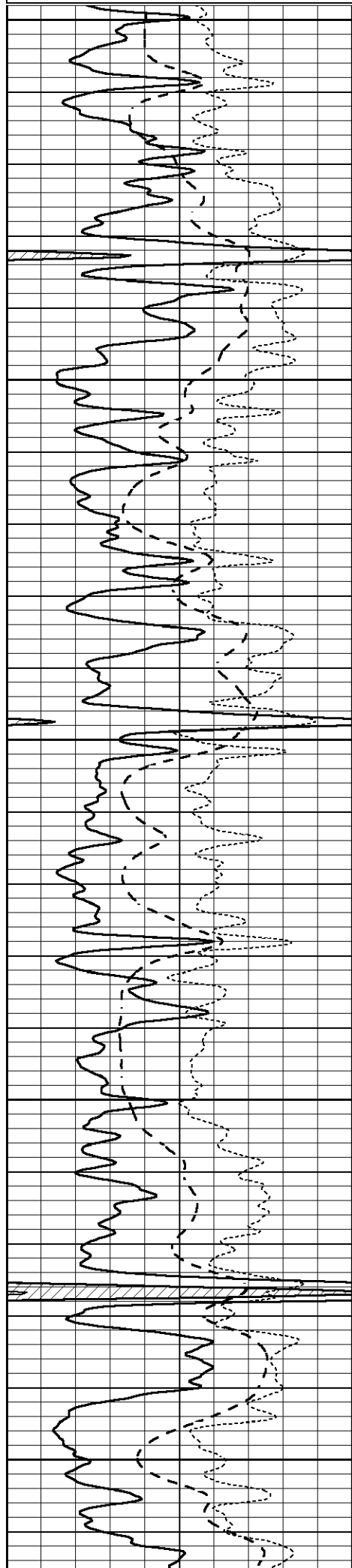


MAIN SECTION

Database File 1121ddn8.db
 Dataset Pathname pass4.1
 Presentation Format _dil
 Dataset Creation Thu Feb 23 10:22:50 2017
 Charted by Depth in Feet scaled 1:240

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



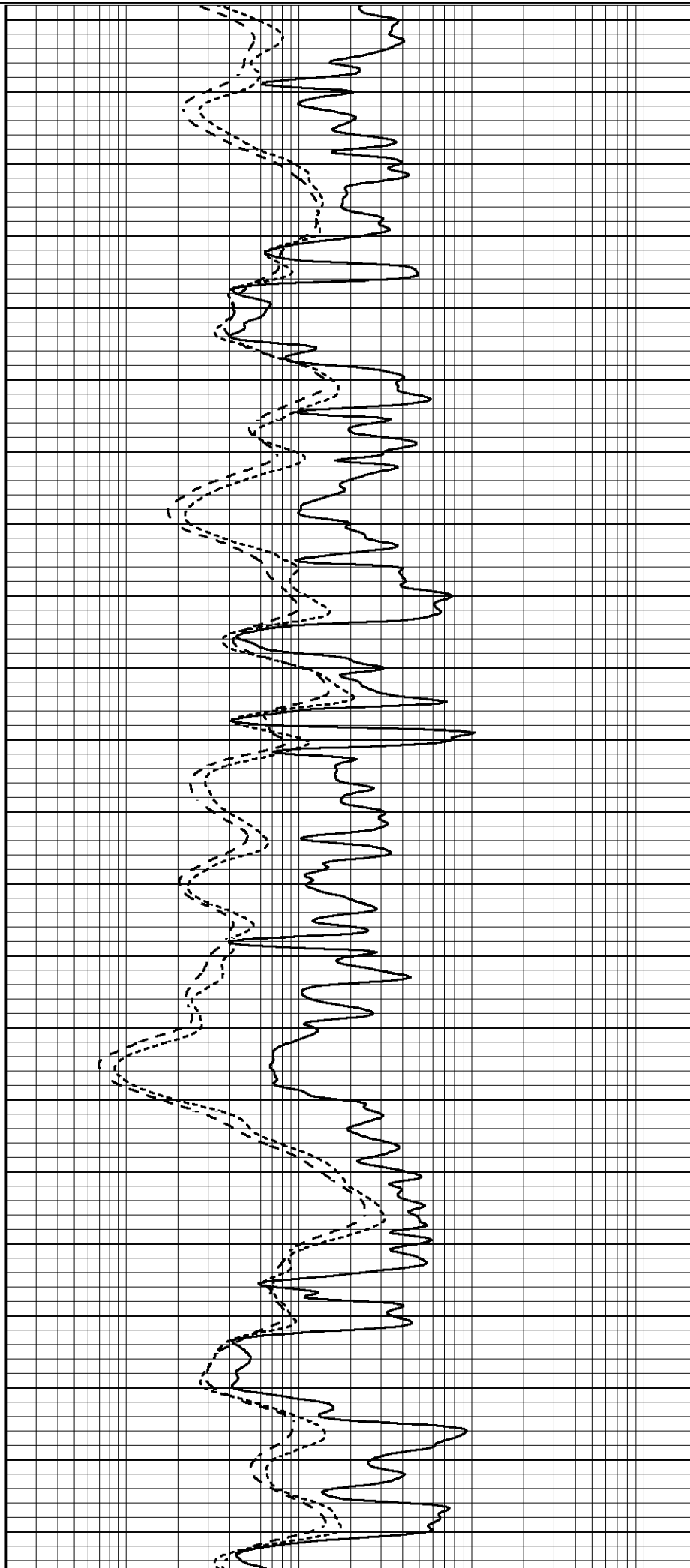
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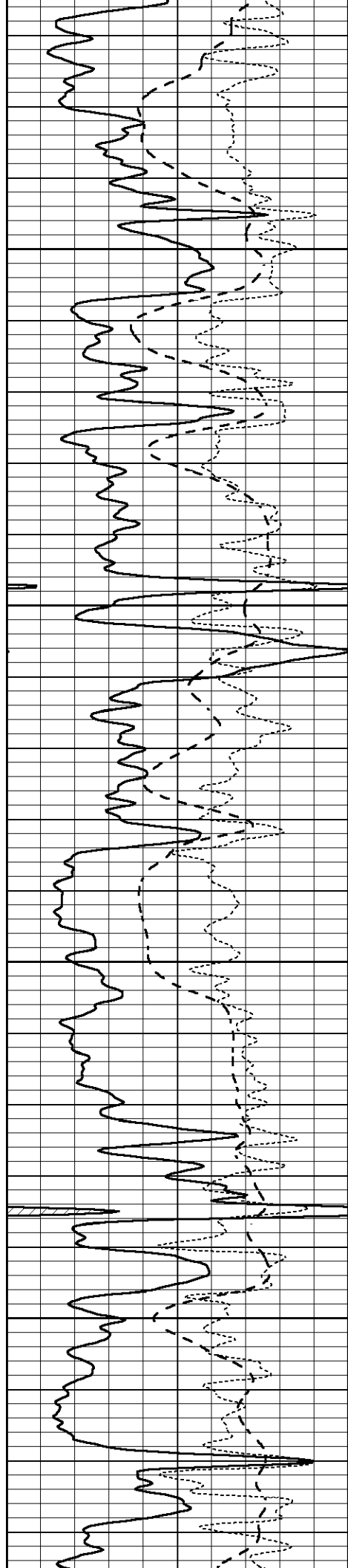
3850

3900

3950

4000



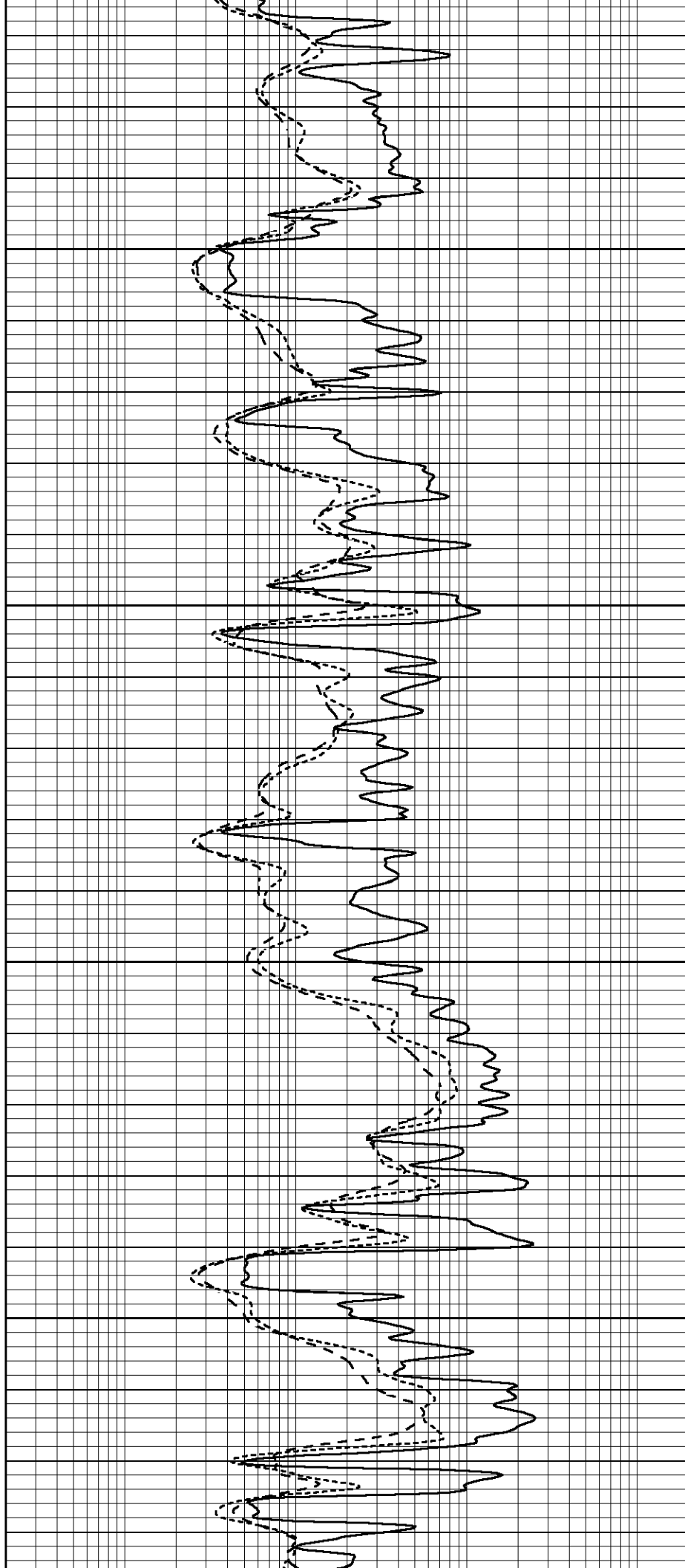


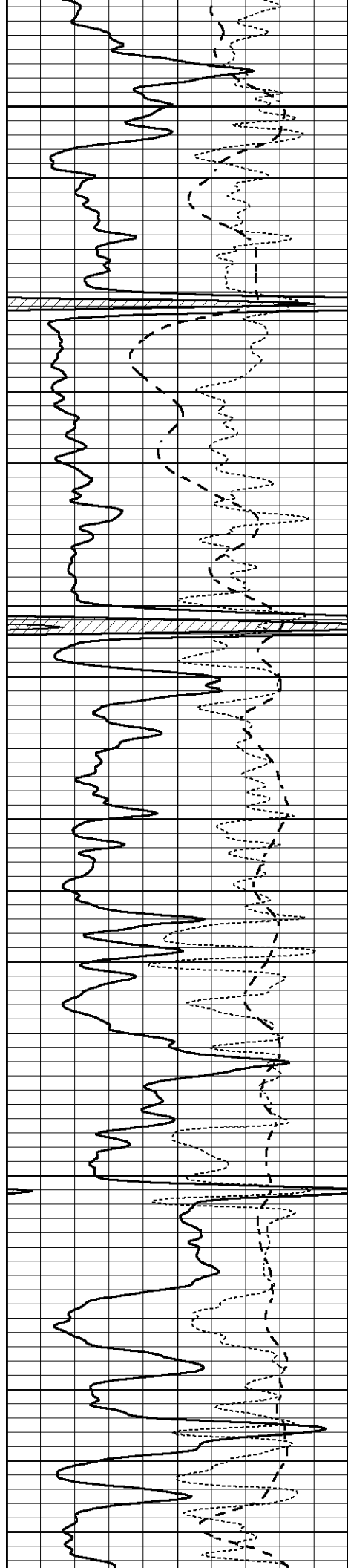
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4100

4150

4200





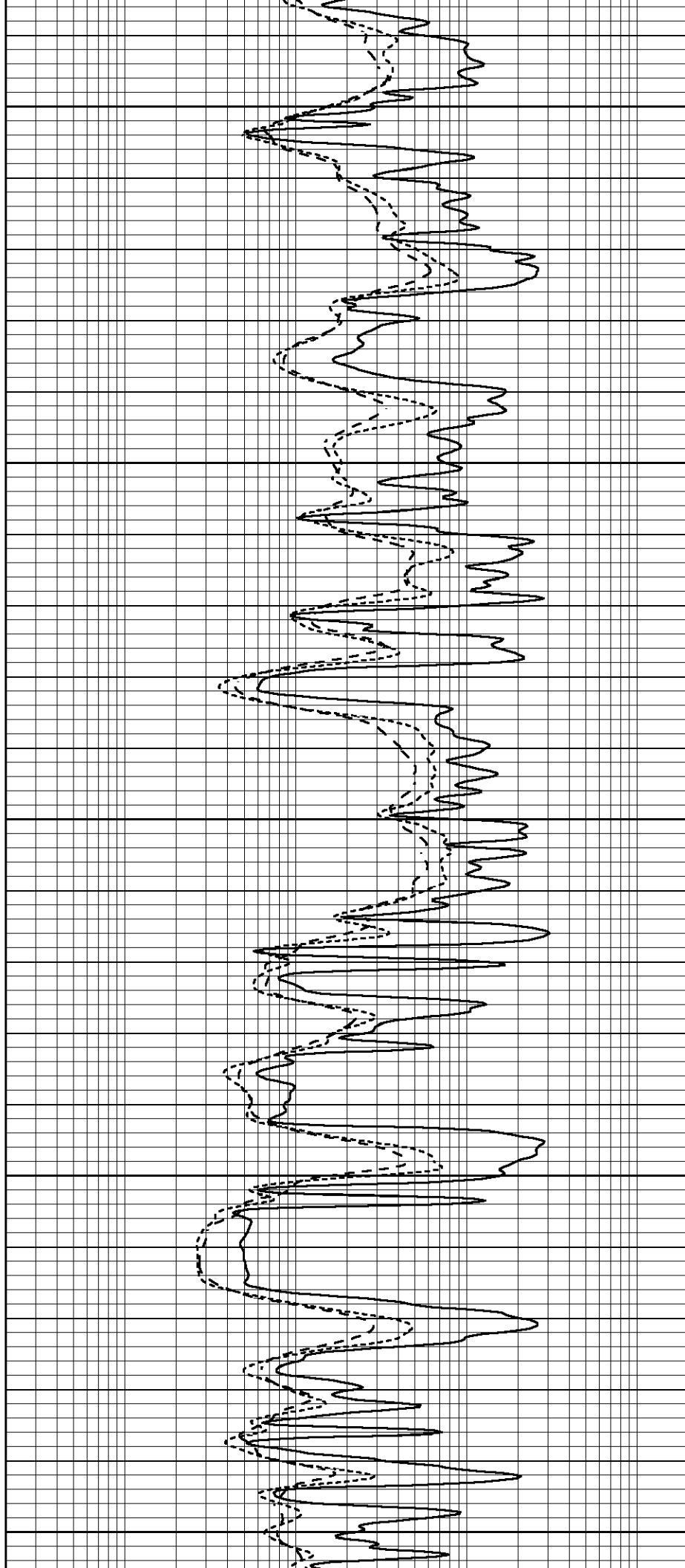
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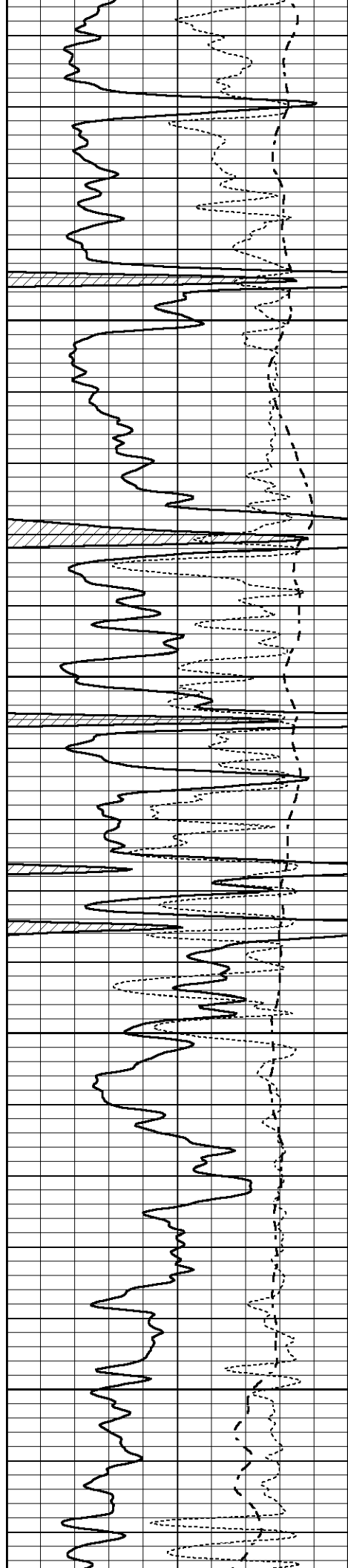
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4350

4400

4450



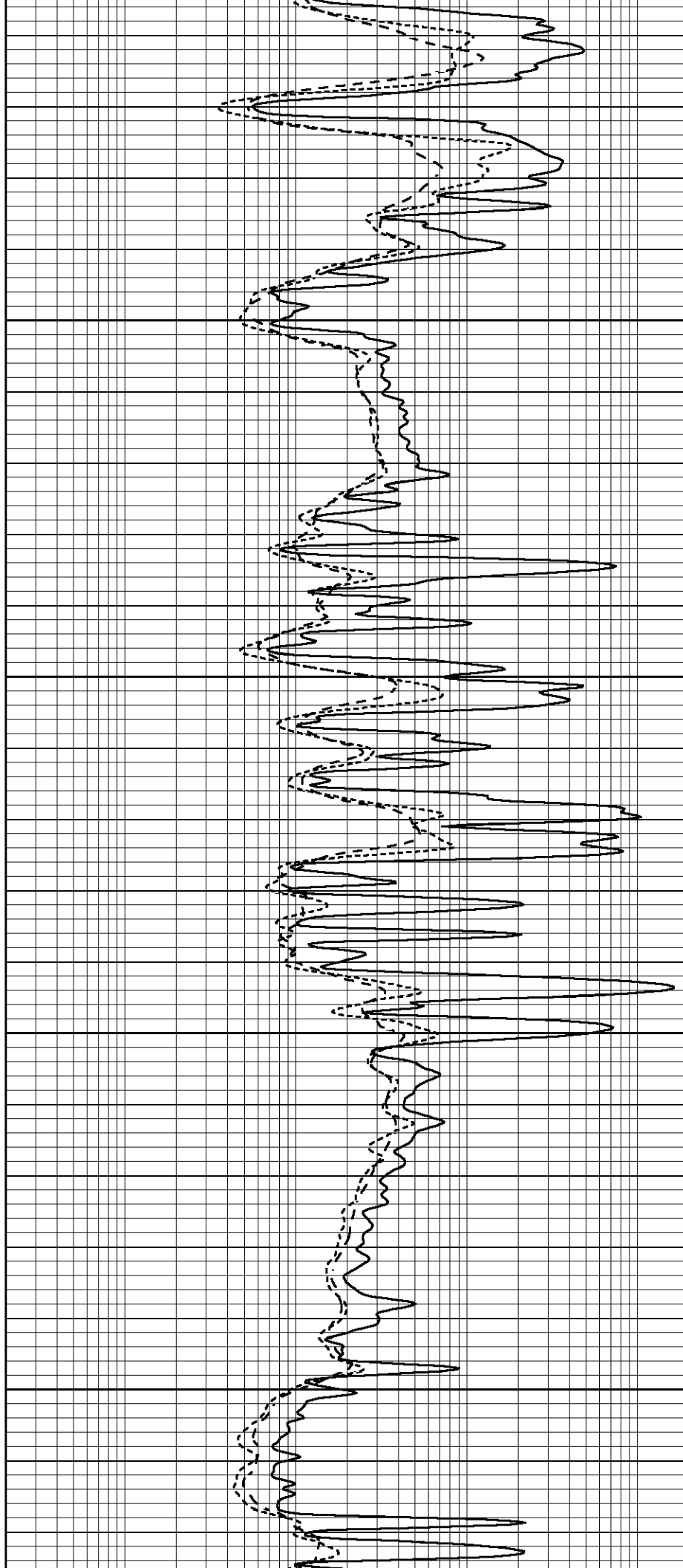


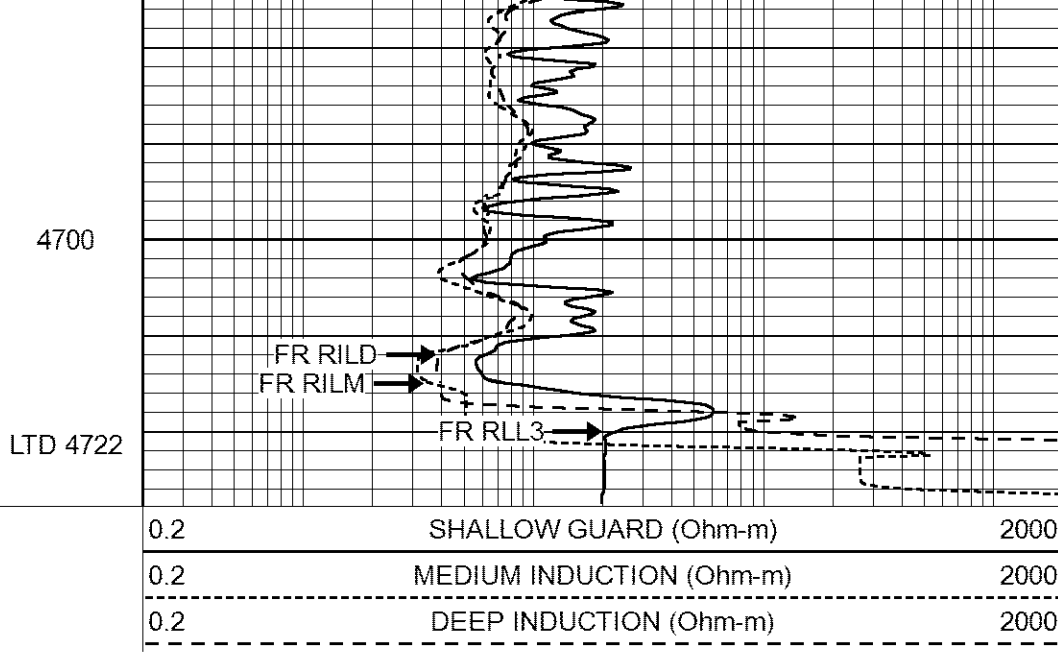
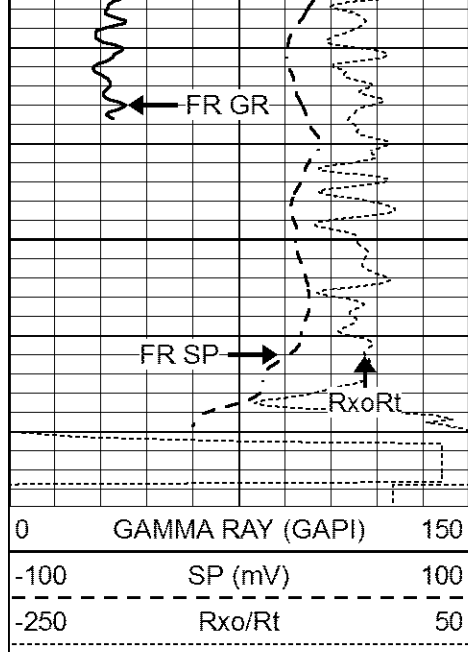
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4600

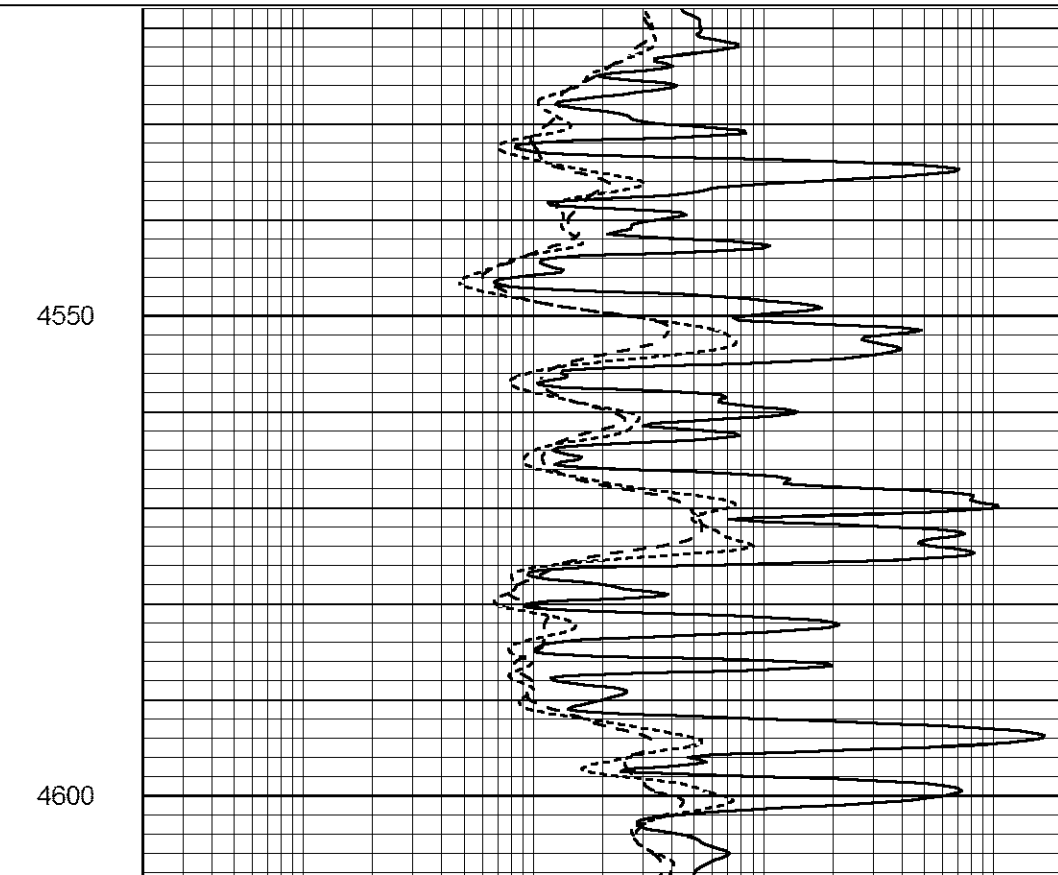
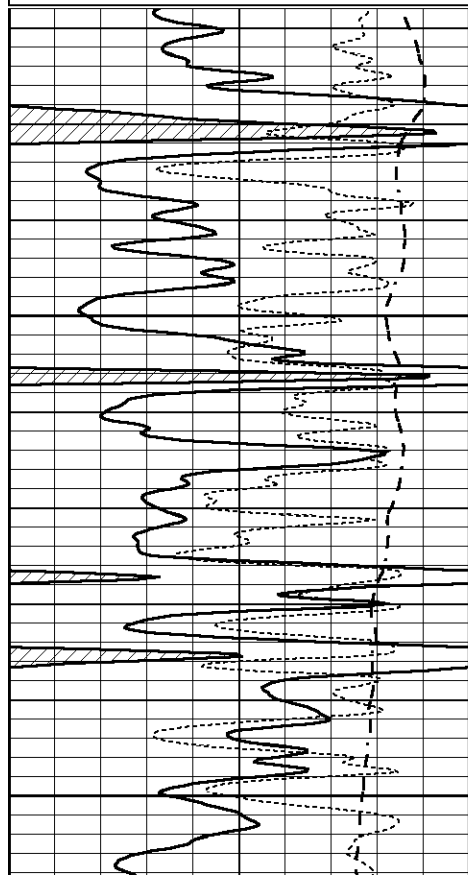
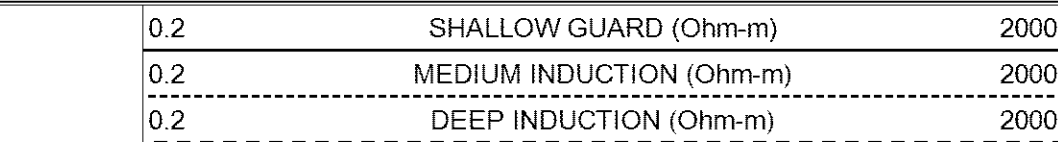
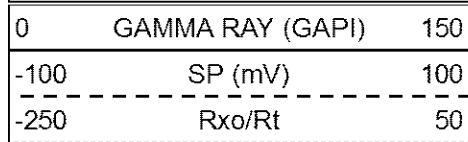
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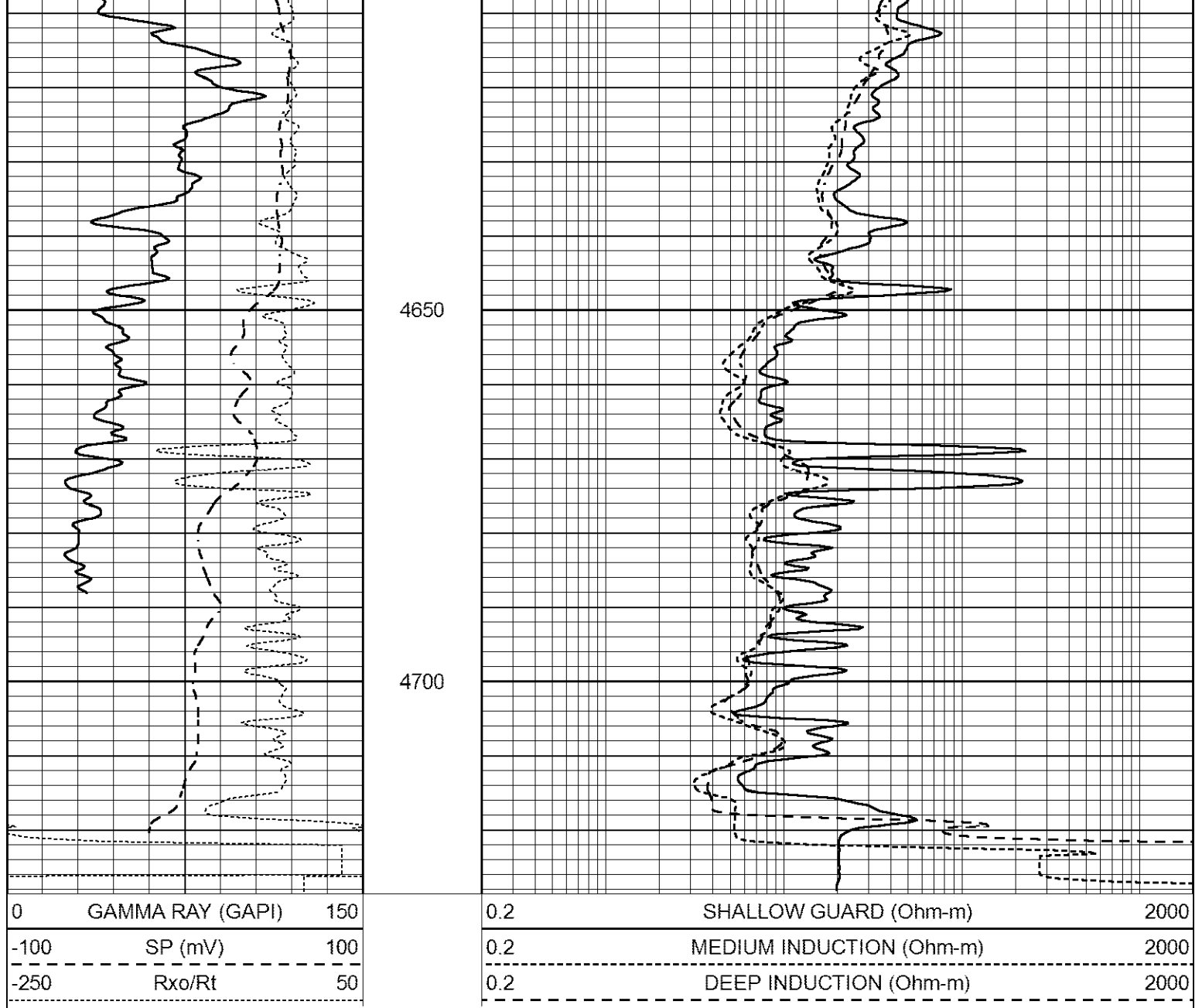




REPEAT SECTION

Database File 1121ddn8.db
 Dataset Pathname pass3.1
 Presentation Format _dil
 Dataset Creation Thu Feb 23 10:32:02 2017
 Charted by Depth in Feet scaled 1:240





Calibration Report									
Database File	1121ddn8.db								
Dataset Pathname	pass3.1								
Dataset Creation	Thu Feb 23 10:32:02 2017								
Dual Induction Calibration Report									
Serial-Model:					FW1410-55-Probe				
Surface Cal Performed:					Thu Mar 12 09:27:11 2015				
Downhole Cal Performed:					Thu Mar 12 09:29:20 2015				
After Survey Verification Performed:					Thu Mar 12 09:29:20 2015				
Surface Calibration									
Readings				References			Results		
Loop:	Air	Loop		Air	Loop		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		Zero	Cal		m'	b'
Deep	-0.824	395.917	mmho/m	-0.976	397.550	mmho/m	1.004	-0.149
Medium	3.565	471.327	mmho/m	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		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	-0.824	395.917	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	3.565	471.327	mmho/m	1.000	0.000
LL3		0.000	Ohm-m		1500.000	Ohm-m		
		0.000	Ohm-m		20.000	Ohm-m		
		0.000	mmho-m		3745.000	mmho-m		

Litho Density Calibration Report Serial: 140704 Model: V4_10P Source Number: 74GBq-19								
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Master Calibration				Performed: Wed Feb 11 18:53:41 2015				
	Background	Aluminum	Magnesium					
Window 1	613.01	6027.40	27508.60	cps				
Window 2	48.21	1424.77	7132.66	cps				
Window 4	266.48	1373.19	5767.15	cps				
Window 5	622.07	10090.30	18937.90	cps				
Window 6	49.07	1682.84	3271.18	cps				
Window 8	298.04	3248.38	5980.58	cps				
Bulk Density	-	2.6020	1.6830	g/cc				
Pe	-	3.0000	2.5070	b/e				
LS Alpha:	: -1.8451	SS Alpha:	: -0.7542	LS CPE:		: 1.0882		
LS Beta:	: 138648.8473	SS Beta:	: 21960.9250	SS CPE:		: 1.5181		

Before Survey Background Counts Verification				Performed: Wed Dec 31 18:00:00 1969				
Window 1	0.00	cps						
Window 2	0.00	cps						
Window 4	0.00	cps						
Window 5	0.00	cps						
Window 6	0.00	cps						
Window 8	0.00	cps						

After Survey Background Counts Verification				Performed: Wed Dec 31 18:00:00 1969				
Window 1	0.00	cps						
Window 2	0.00	cps						
Window 4	0.00	cps						
Window 5	0.00	cps						
Window 6	0.00	cps						
Window 8	0.00	cps						

Lithodensity Caliper Calibration				Performed: Wed Feb 11 18:53:41 2015				
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Results	Readings		References (in)		Gain	Offset
	Low	High	Low	High		
	5123.0	9461.6	8.5	14.0		
Before Survey Caliper Verification			Performed:			
	Reference	Reading				
Caliper (in)	_____	_____				
After Survey Caliper Verification			Performed:			
	Reference	Reading				
Caliper (in)	_____	_____				
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:	070558				
	Tool Model:	Probe1				
	Performed:	Wed Jun 29 08:29:10 2016				
	Calibrator Value:	1.0	GAPI			
	Background Reading:	0.0	cps			
	Calibrator Reading:	1.0	cps			
	Sensitivity:	0.3000	GAPI/cps			