



**COMPLETION
& PRODUCTION
SERVICES CO.**

**DUAL
INDUCTION
LOG**

Company MAI OIL OPERATIONS, INC.
Well F.A. KRUG #5
Field TRAPP
County RUSSELL
State KANSAS

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Well F.A. KRUG #5
Field TRAPP
County RUSSELL State KANSAS

Location: API # : 15-167-24020-0000
330' FSL & 330' FEL
SEC 15 TWP 15S RGE 14W
Permanent Datum GROUND LEVEL Elevation 1895
Log Measured From KELLY BUSHING 8' A.G.L.
Drilling Measured From KELLY BUSHING
Other Services
CDL/CNL
MEL
Elevation
K.B. 1903
D.F. 1901
G.L. 1895

Date	12/10/14		
Run Number	ONE		
Depth Driller	3408		
Depth Logger	3408		
Bottom Logged Interval	3406		
Top Log Interval	00		
Casing Driller	8 5/8" @ 515		
Casing Logger	515		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 6800 PPM	
Density / Viscosity	9.3/58		
pH / Fluid Loss	9.5/9.6		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.85 @ 60F		
Rmt @ Meas. Temp	.63 @ 60F		
Rmc @ Meas. Temp	1.02 @ 60F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	.45 @ 111F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	111F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	JASON CAPPELLUCCI		
Witnessed By	CLINT 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:
RUSSELL, KS. - 7 SOUTH TO WINTERSET RD. - 1/2 WEST - NORTH & EAST INTO



MAIN SECTION

Database File: 26415ddn.db
 Dataset Pathname: pass3.3
 Presentation Format: _dil2
 Dataset Creation: Wed Dec 10 12:06:15 2014 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:600

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

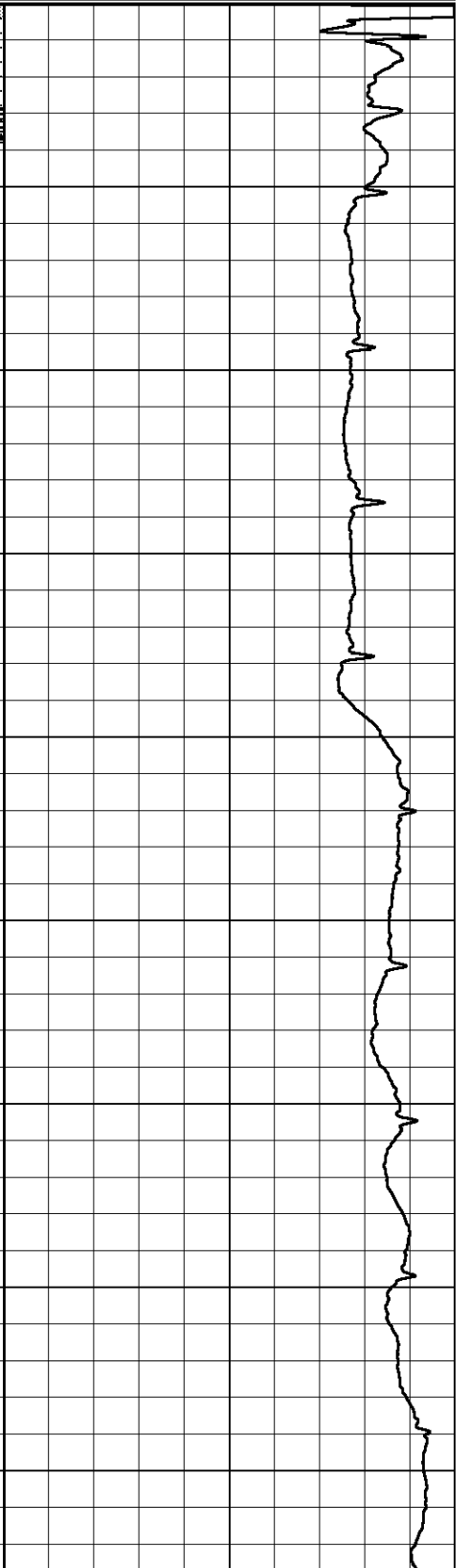
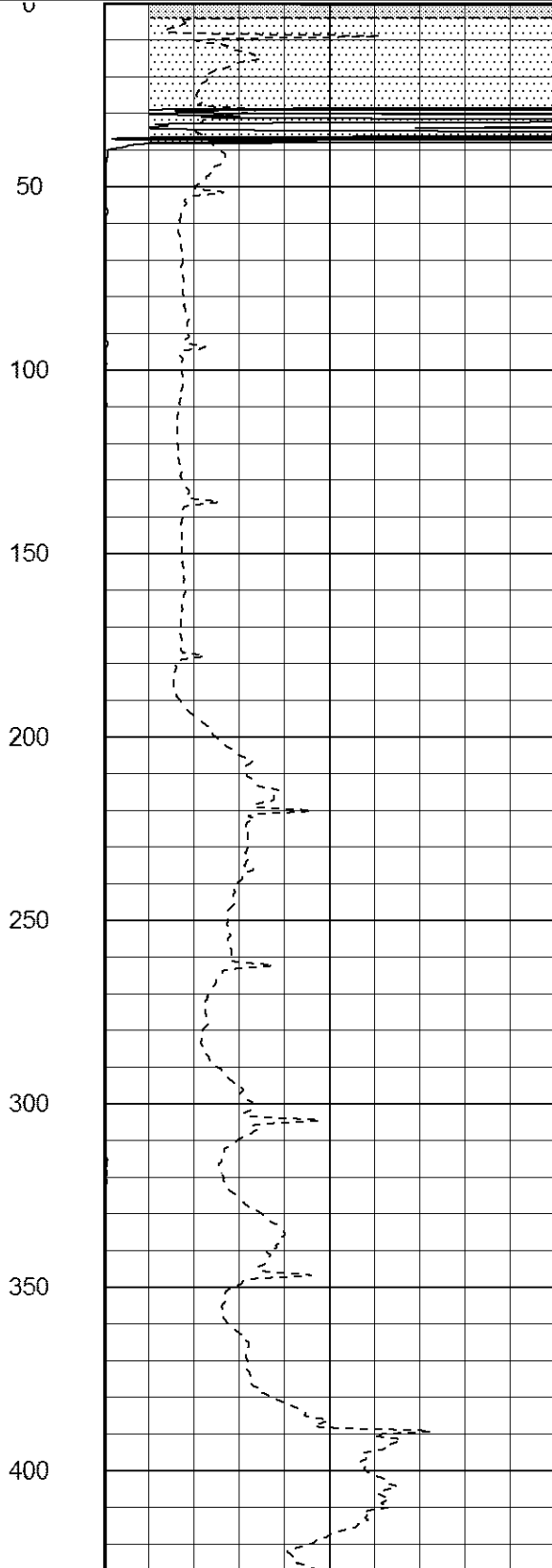
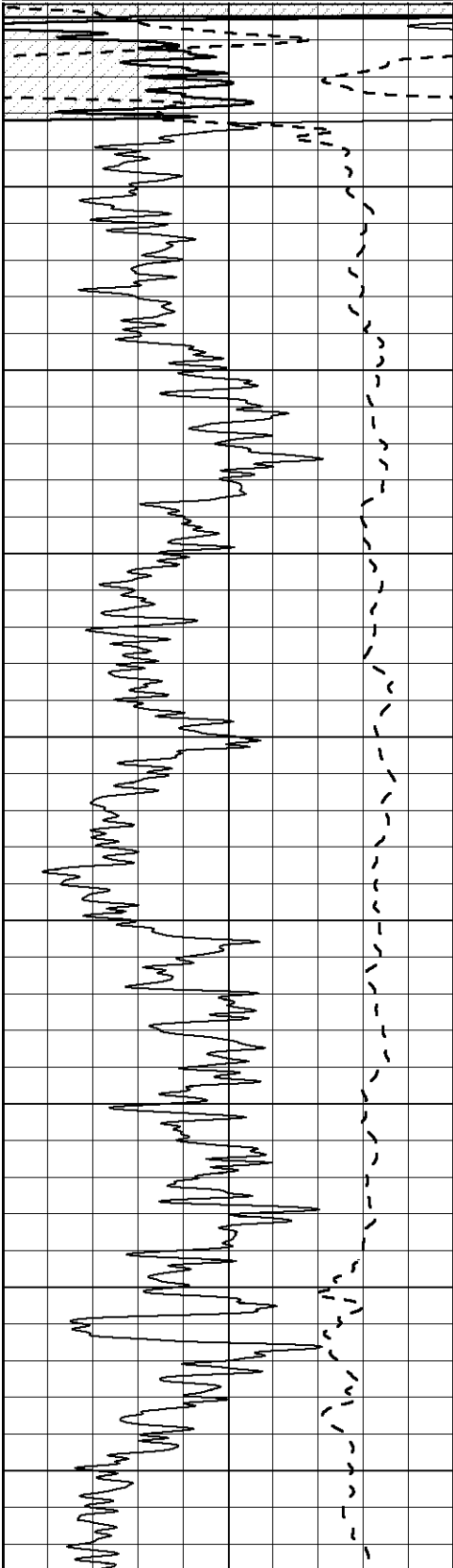
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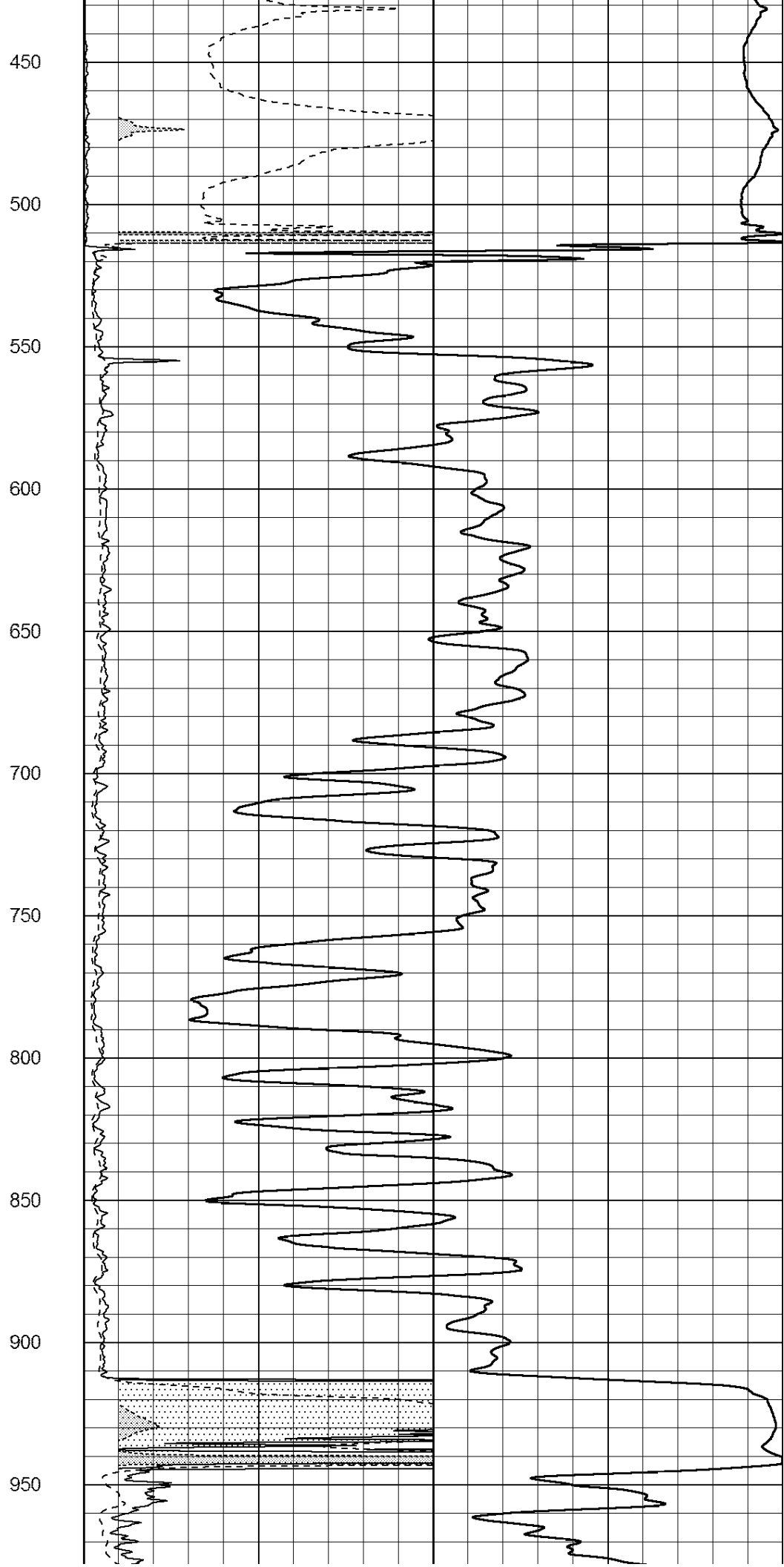
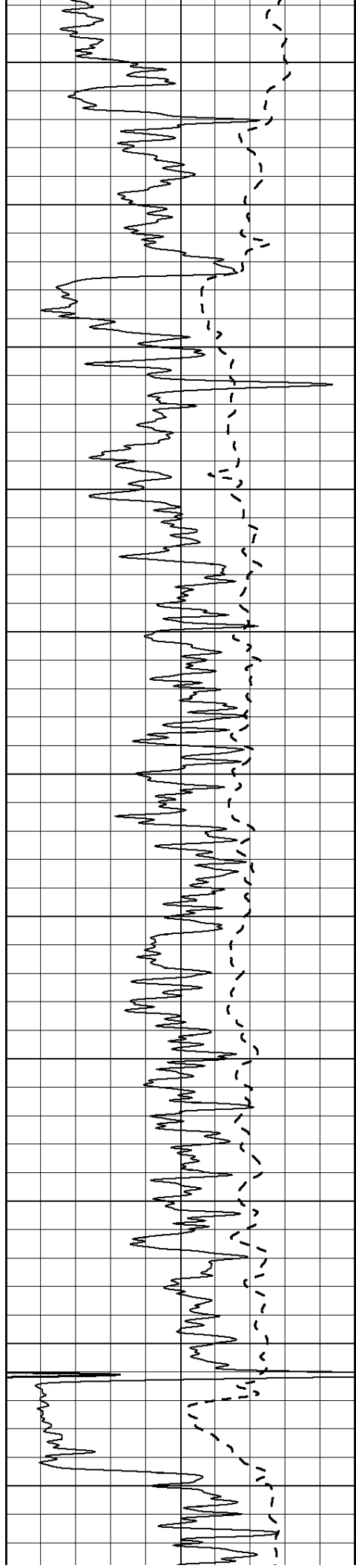
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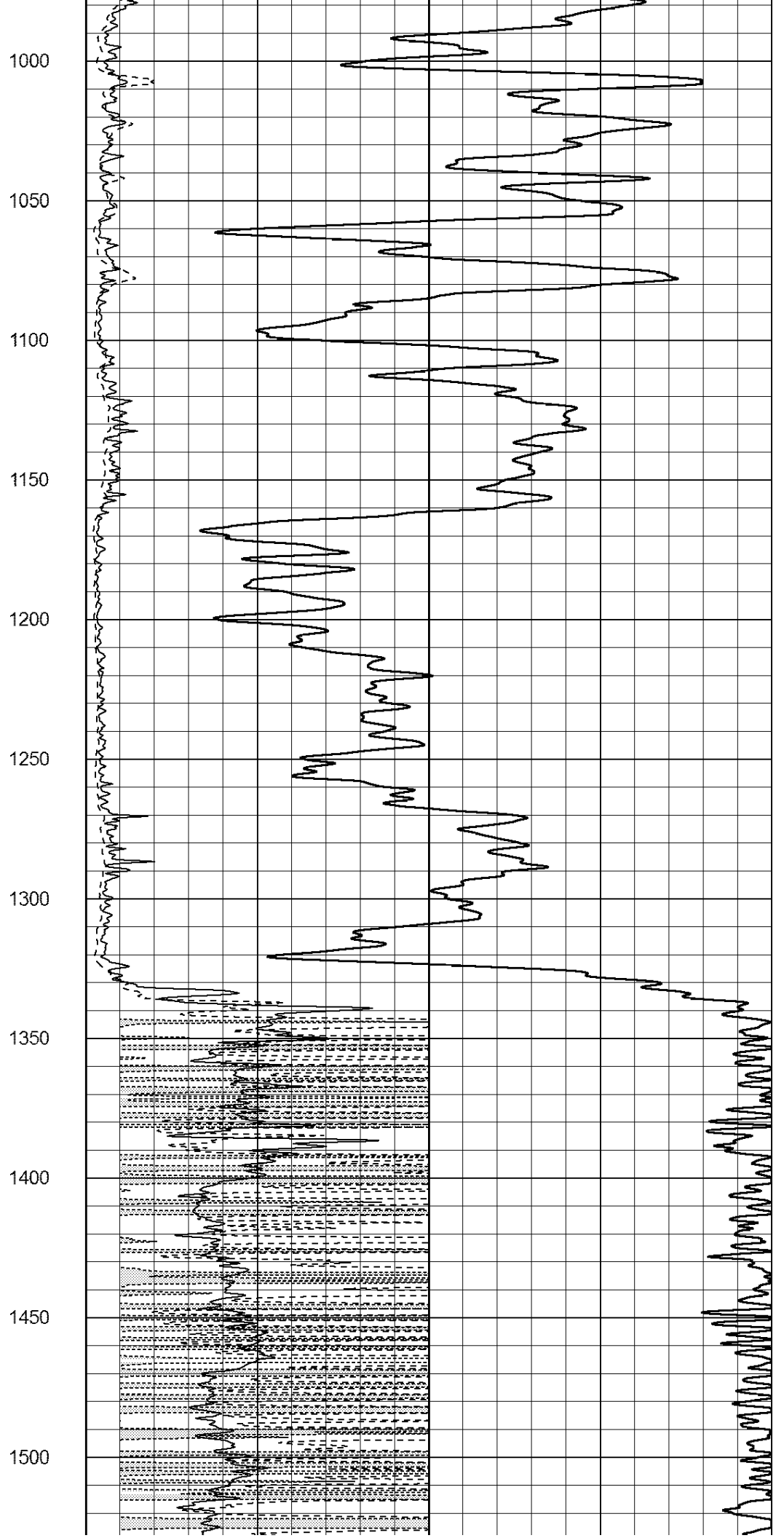
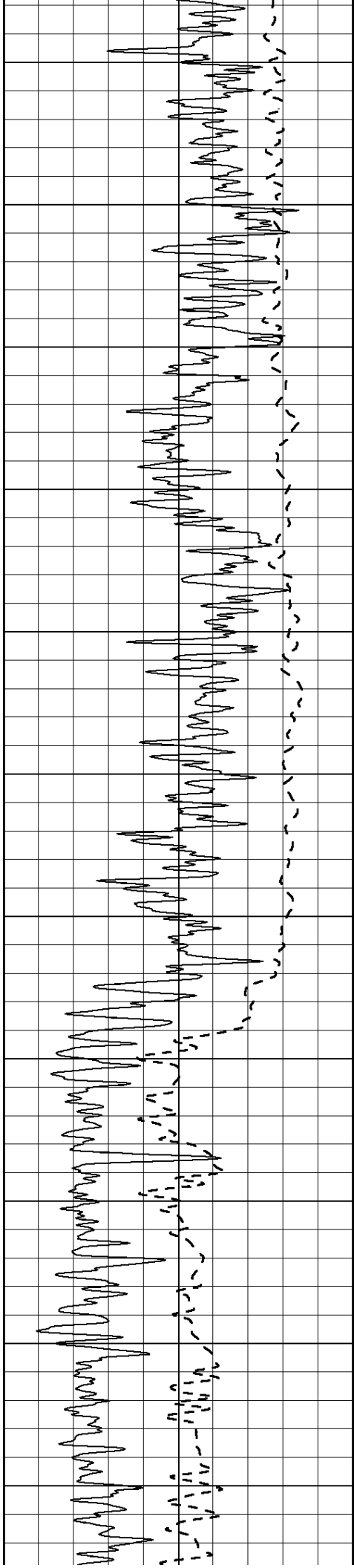
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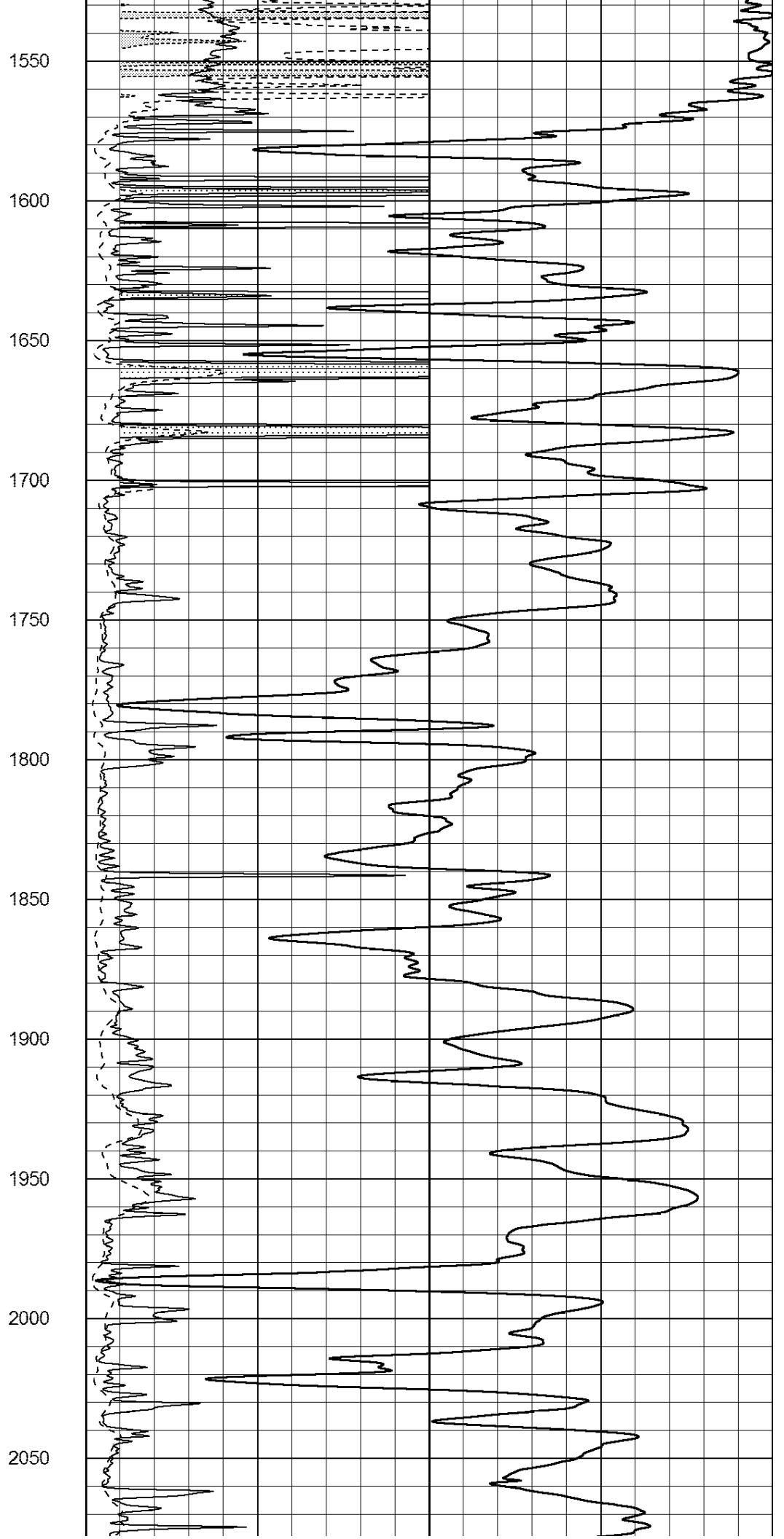
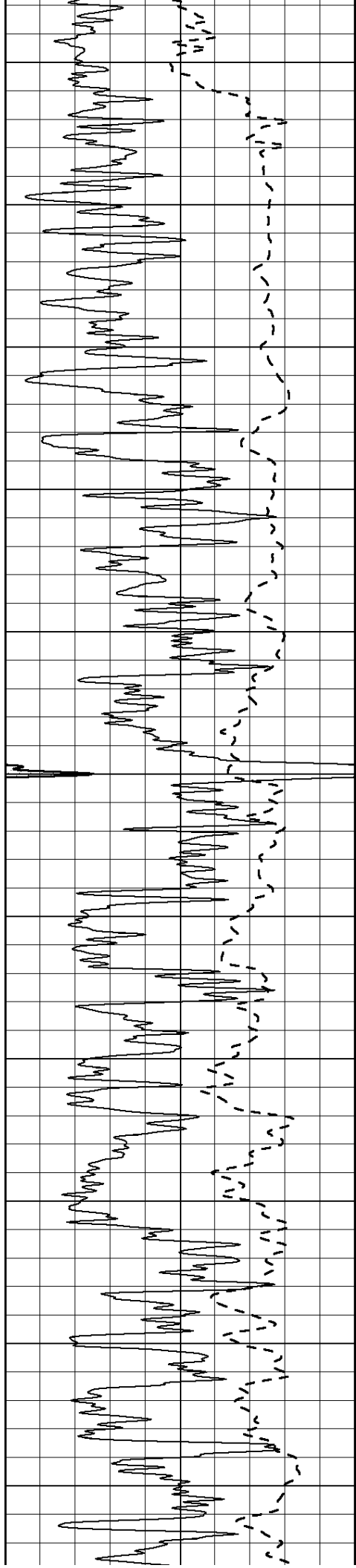
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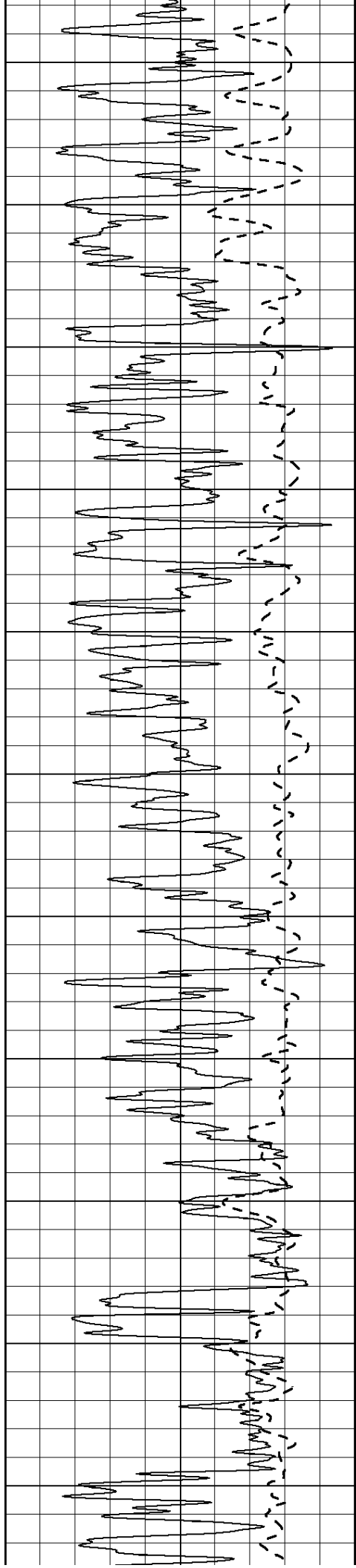
50 RLL3 X10 (Ohm-m) 500











2100

2150

2200

2250

2300

2350

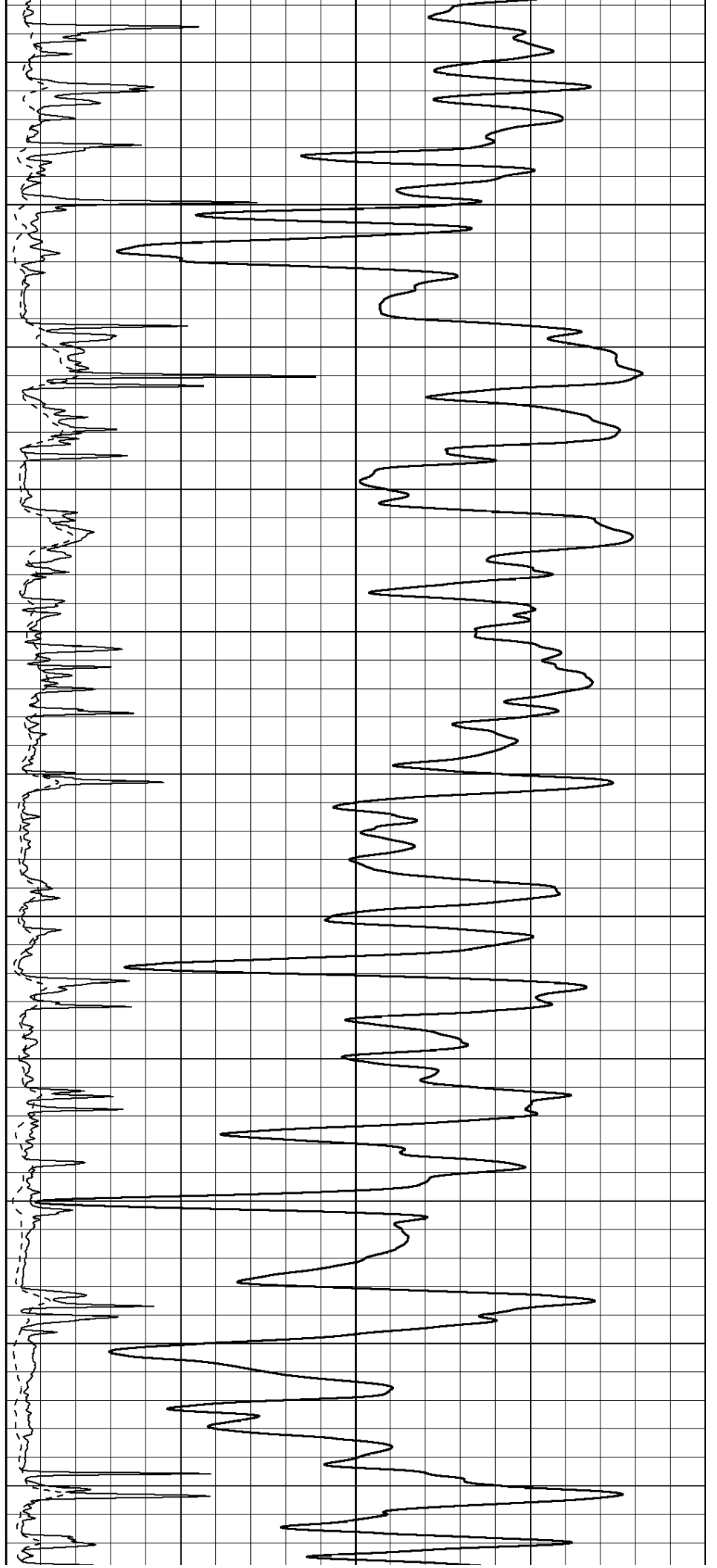
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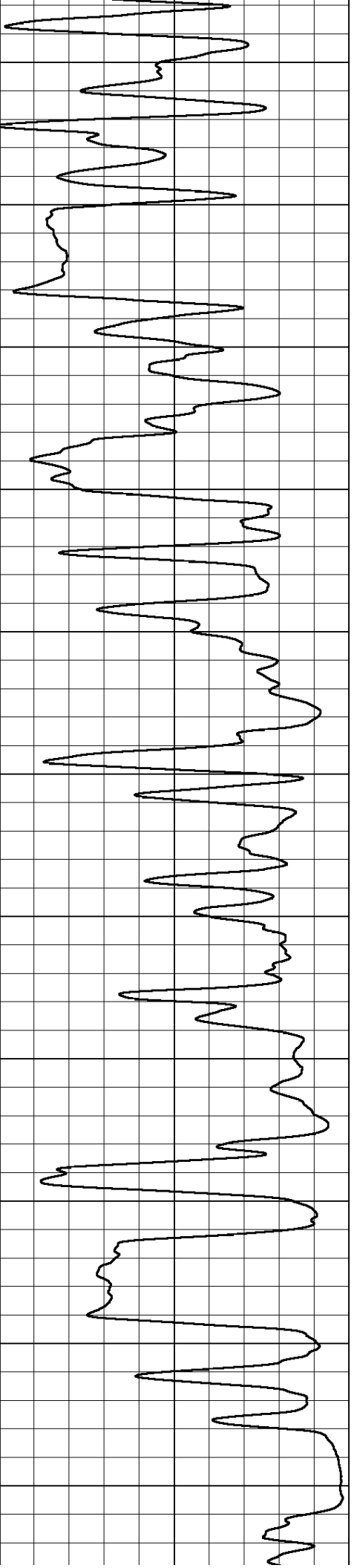
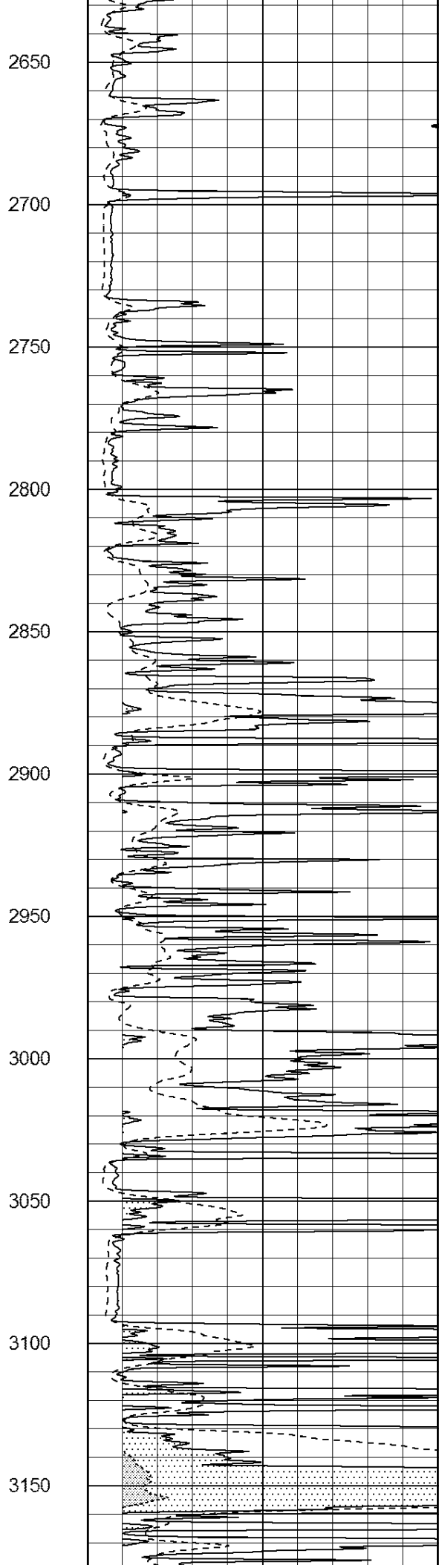
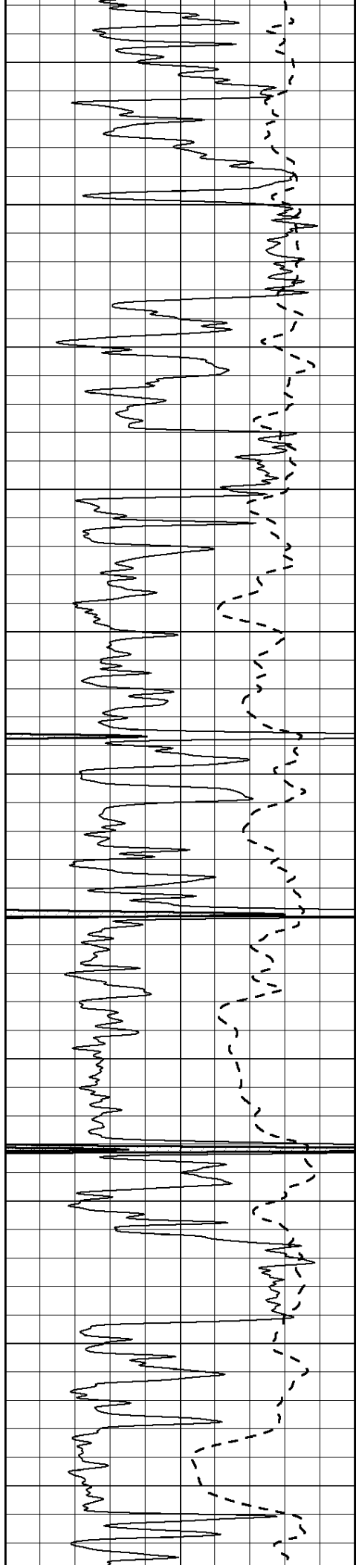
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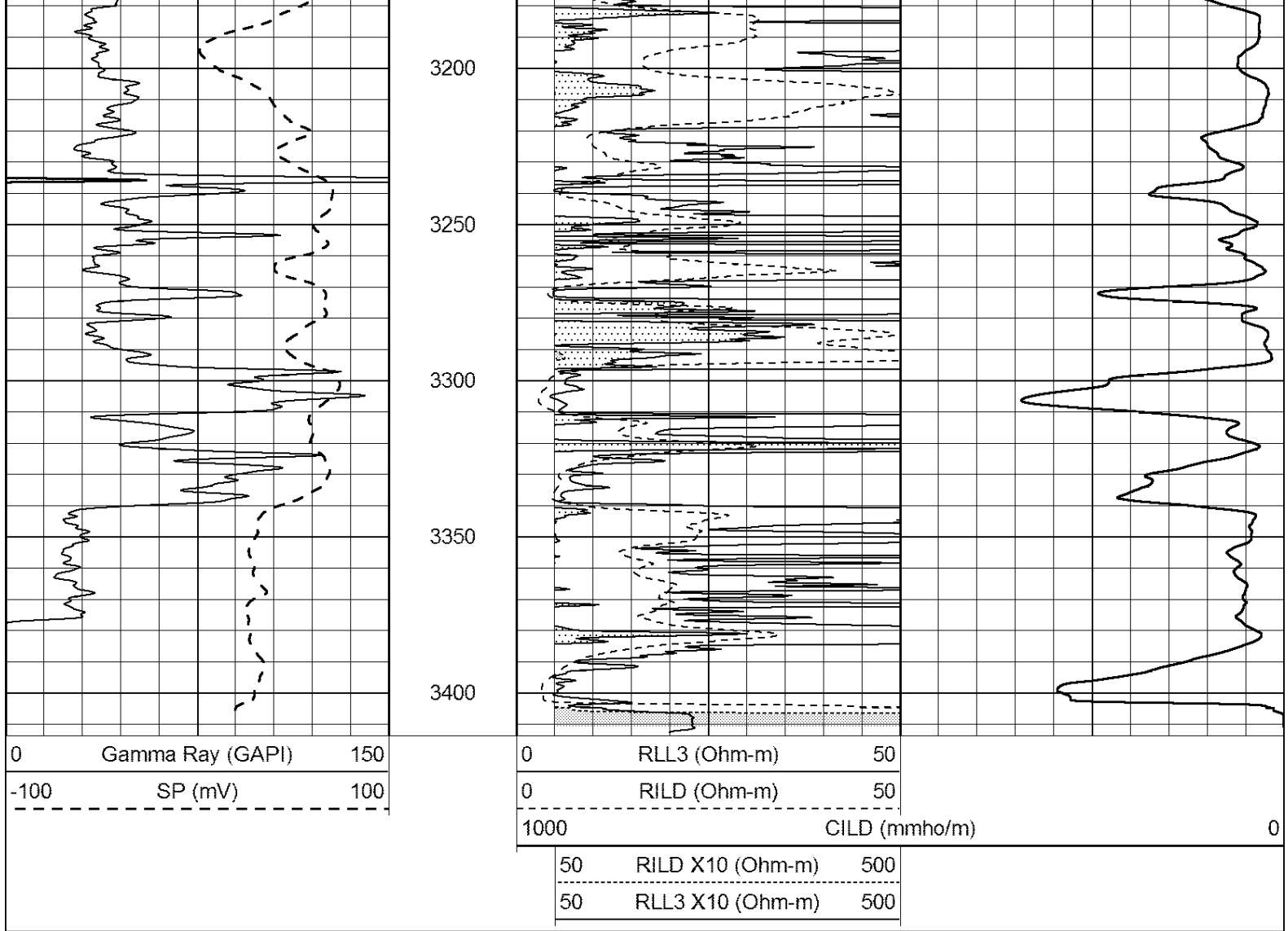
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2550

2600



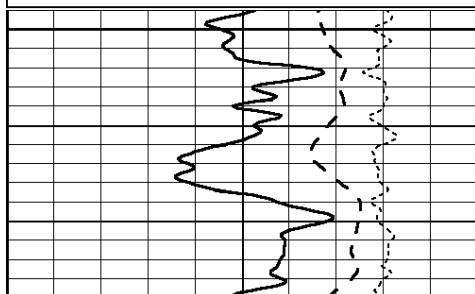




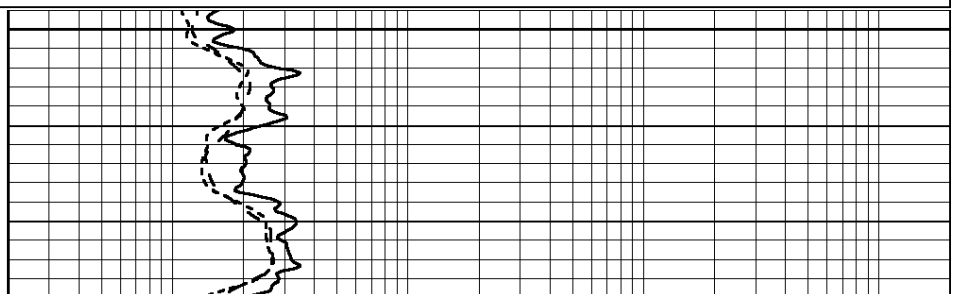
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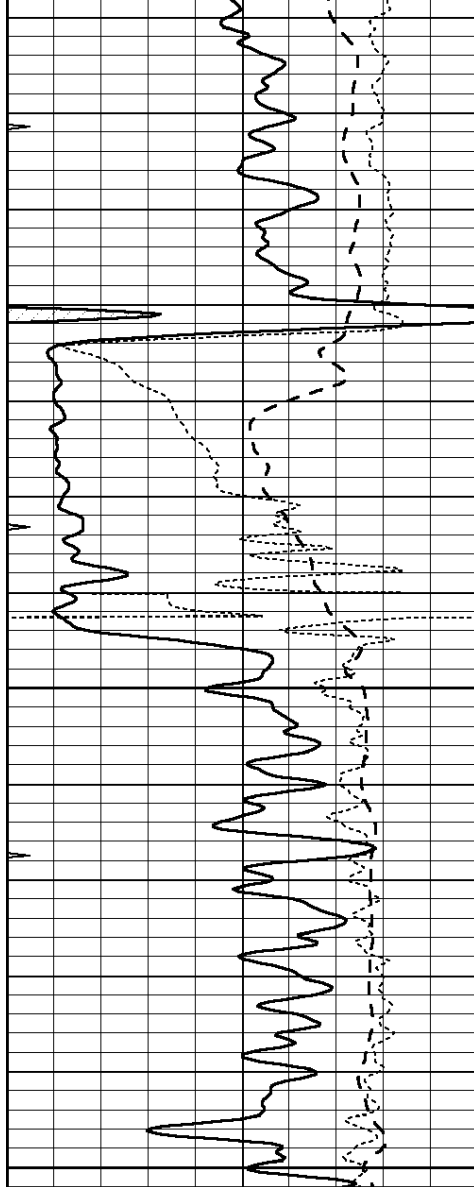
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 Dataset Pathname: pass3.2
 Presentation Format: _dil
 Dataset Creation: Wed Dec 10 11:40:46 2014 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

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			



850



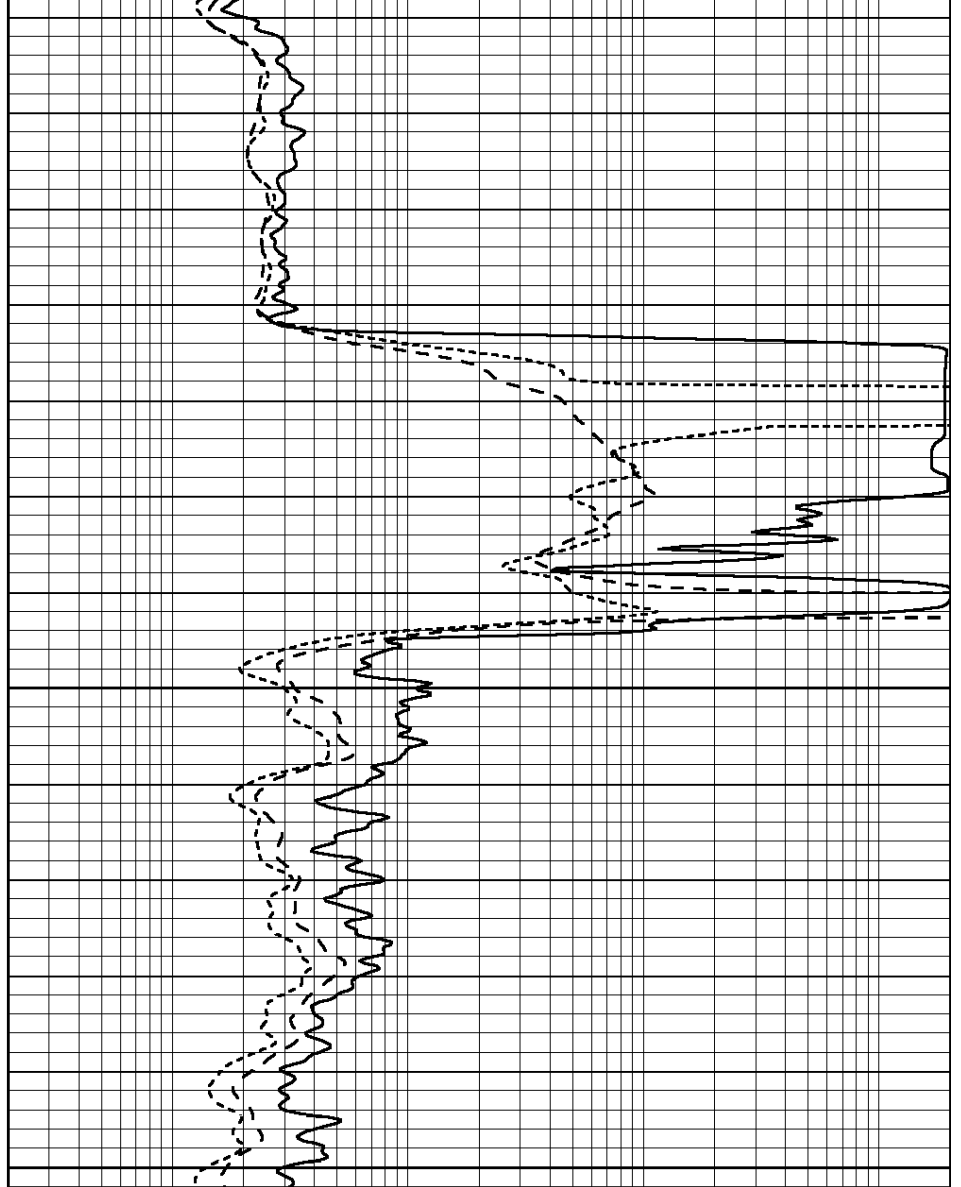


900

950

1000

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

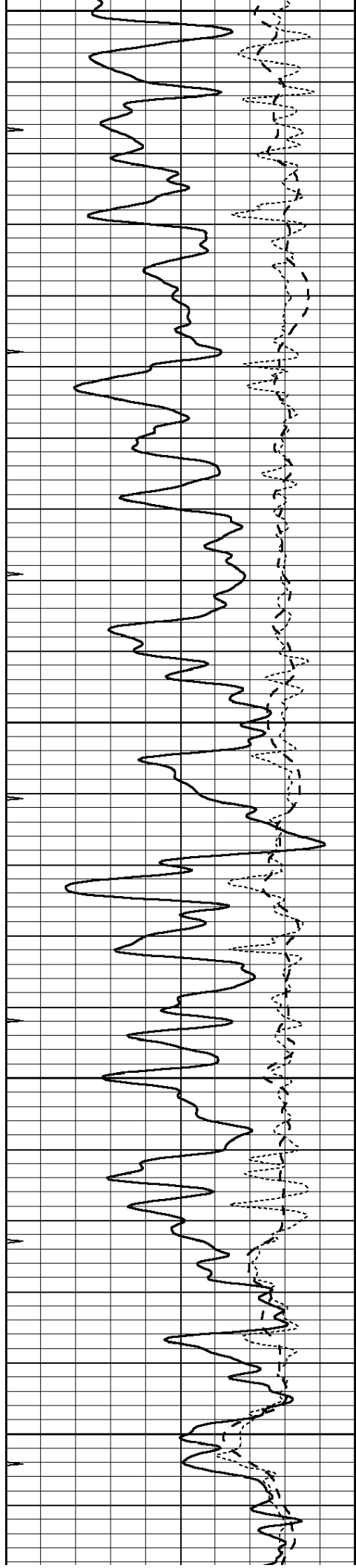


MAIN SECTION

Database File: 26415ddn.db
 Dataset Pathname: pass3.1
 Presentation Format: _dil
 Dataset Creation: Wed Dec 10 11:23:44 2014 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



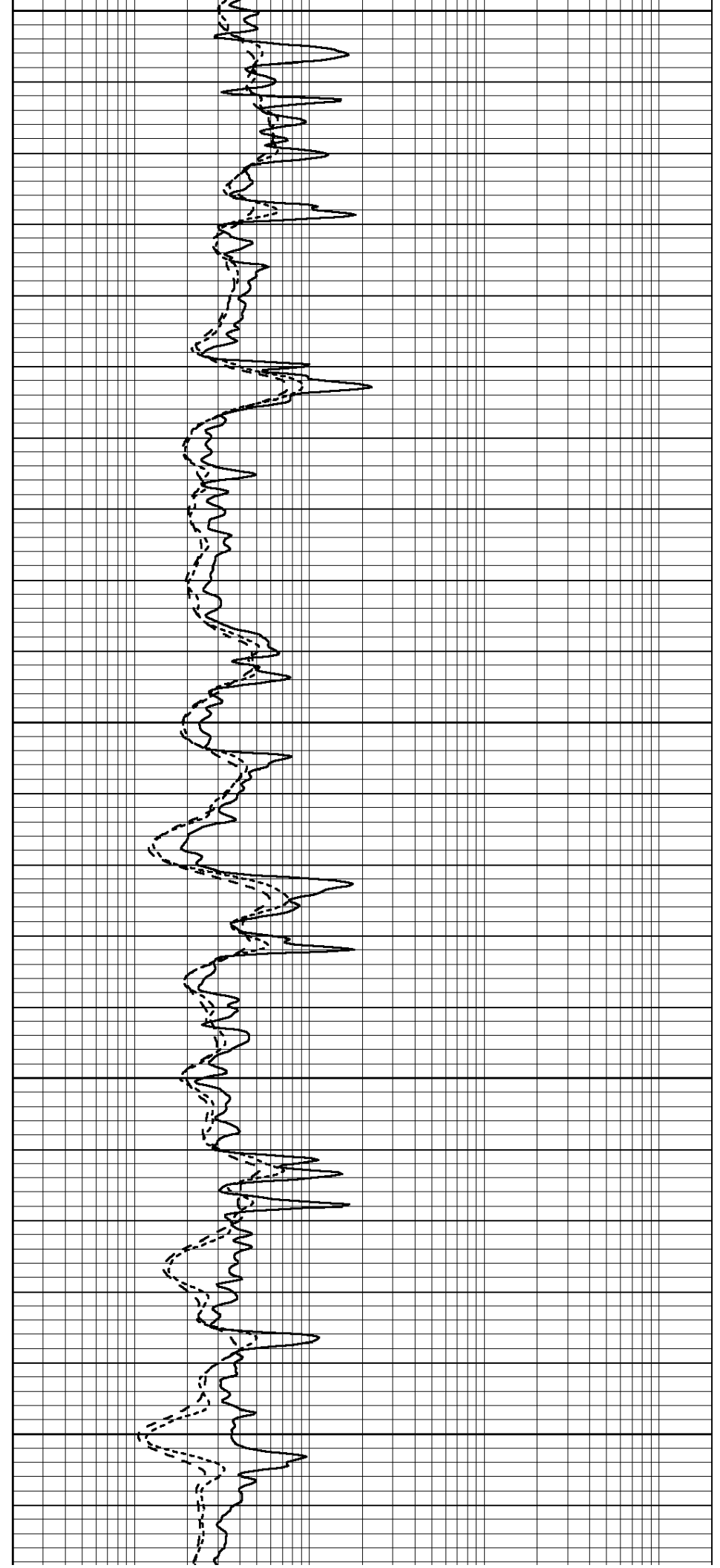
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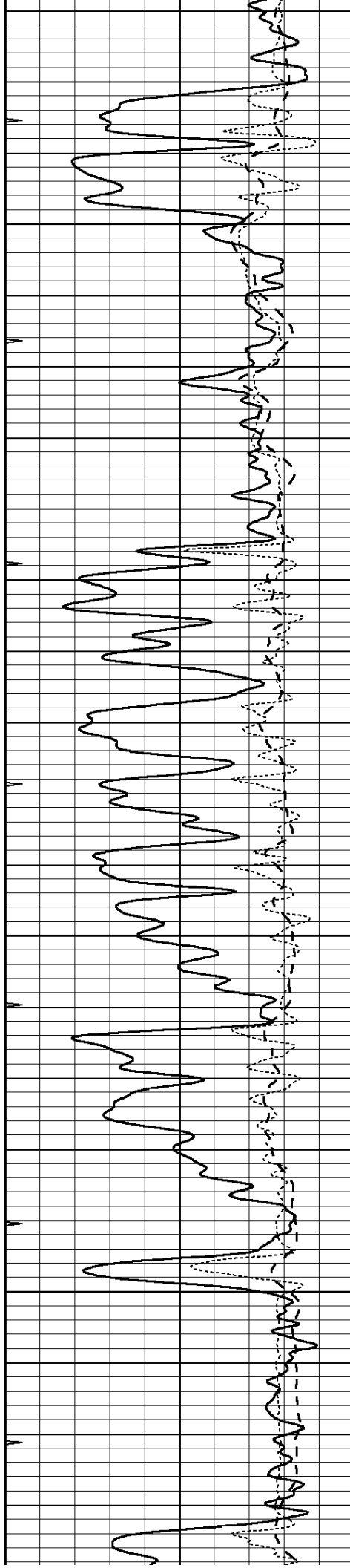
2350

2400

2450

2500



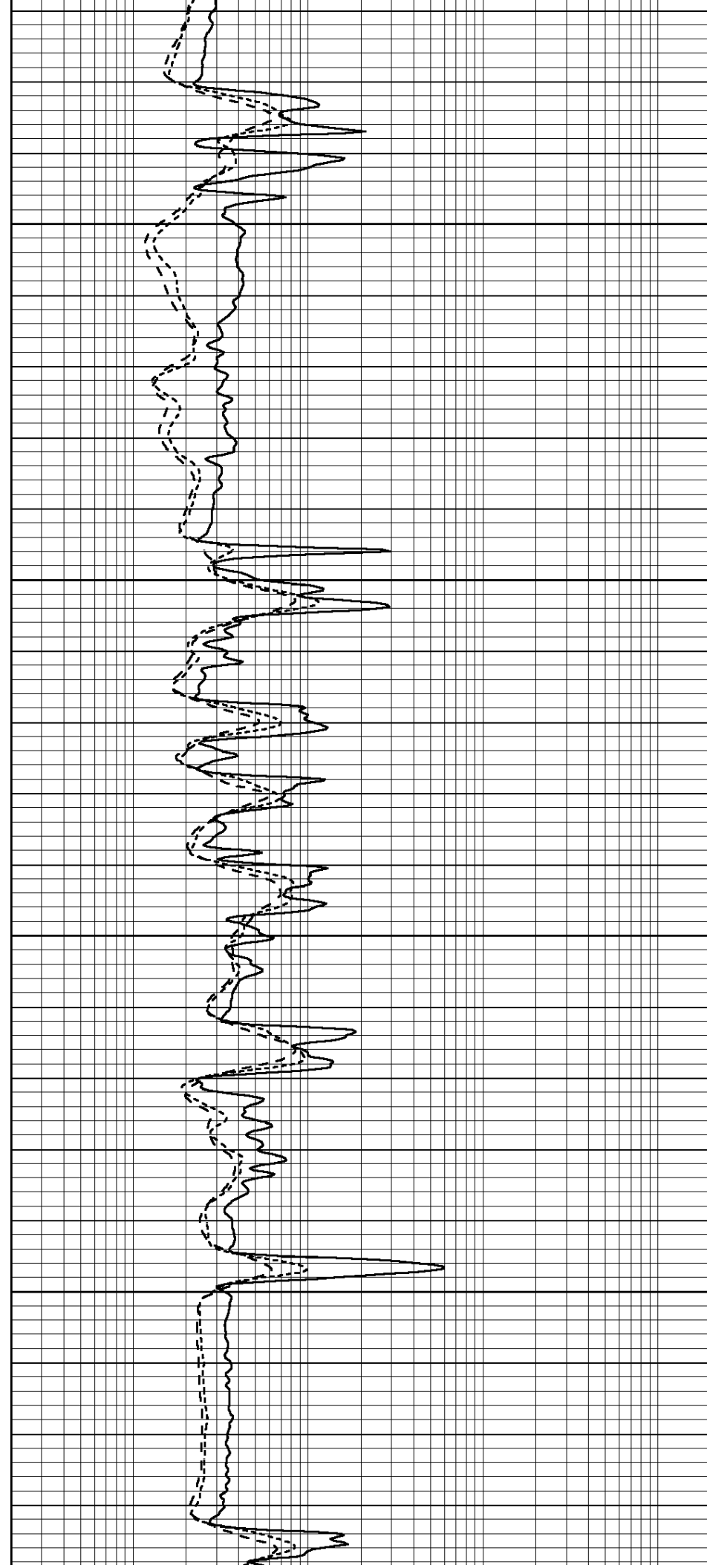


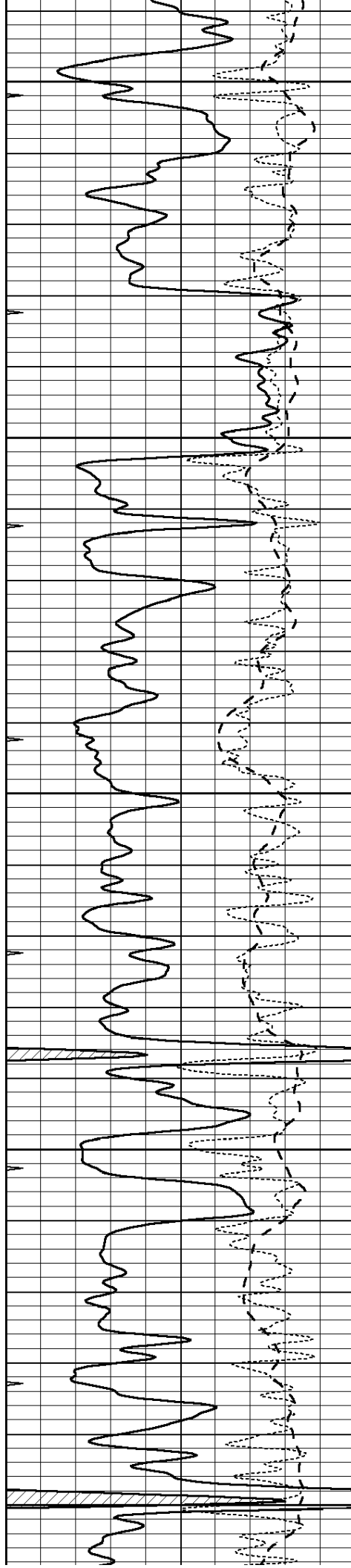
2550

2600

2650

2700





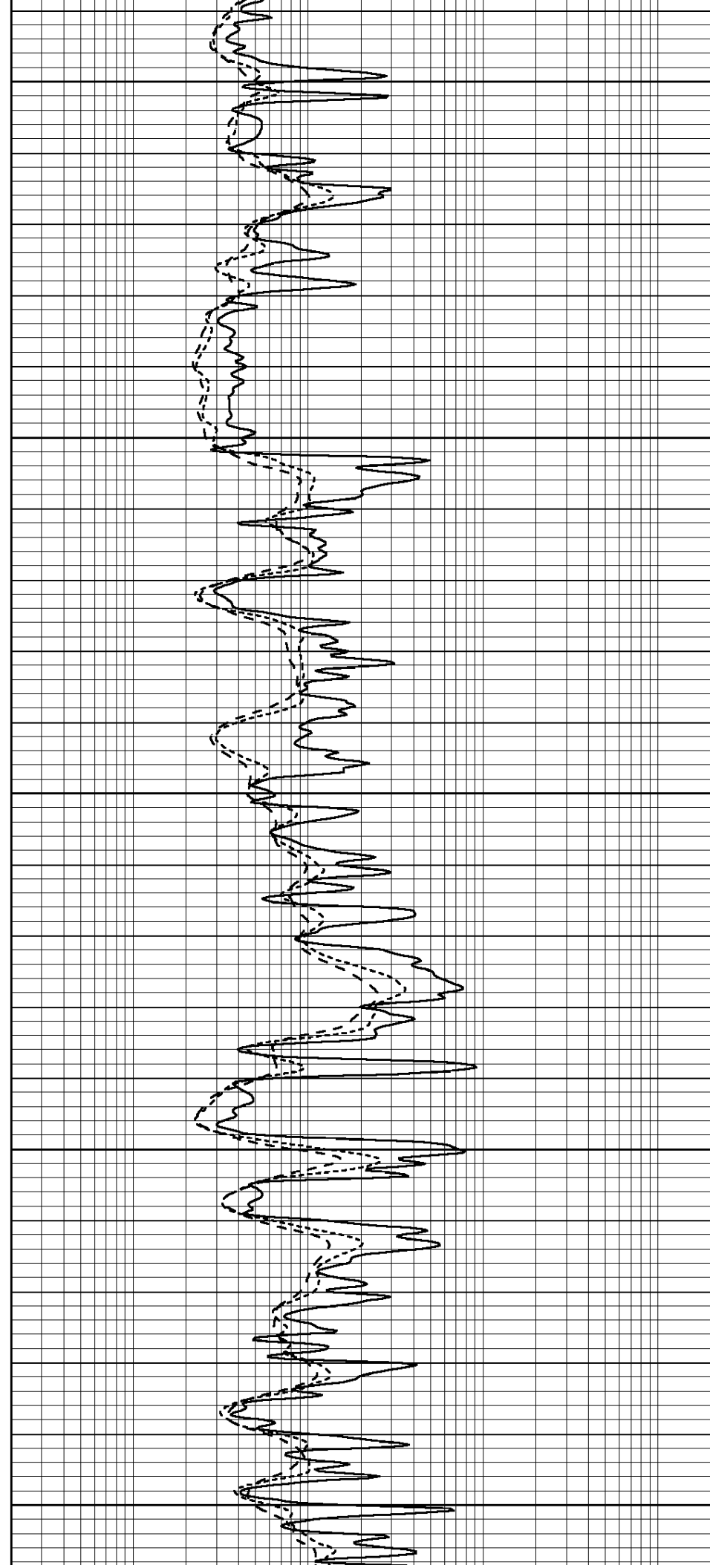
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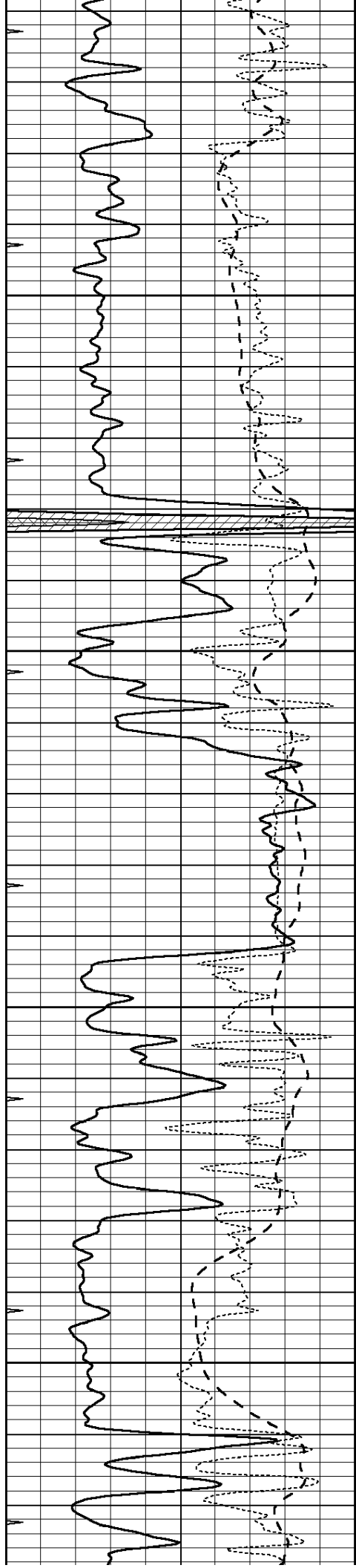
2800

2850

2900

2950



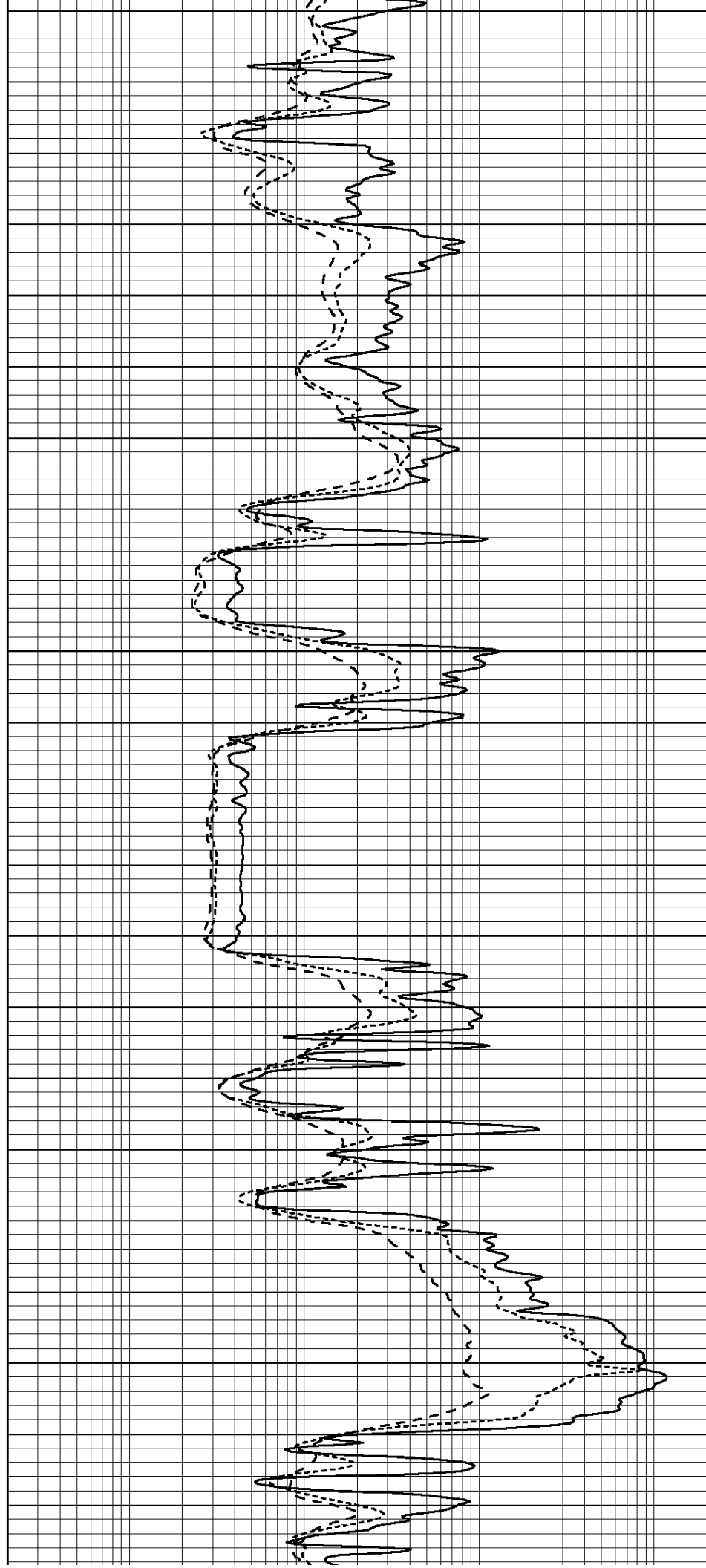


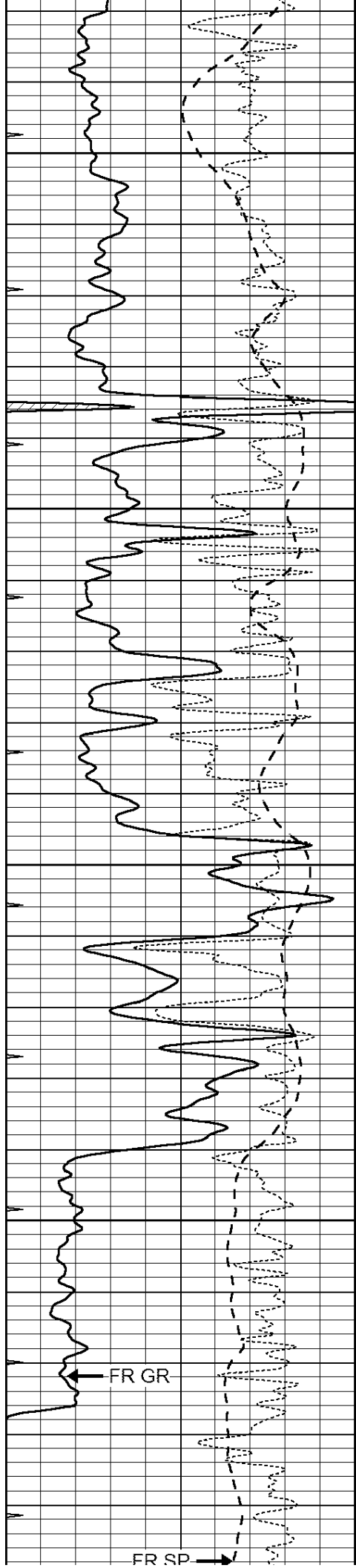
3000

3050

3100

3150



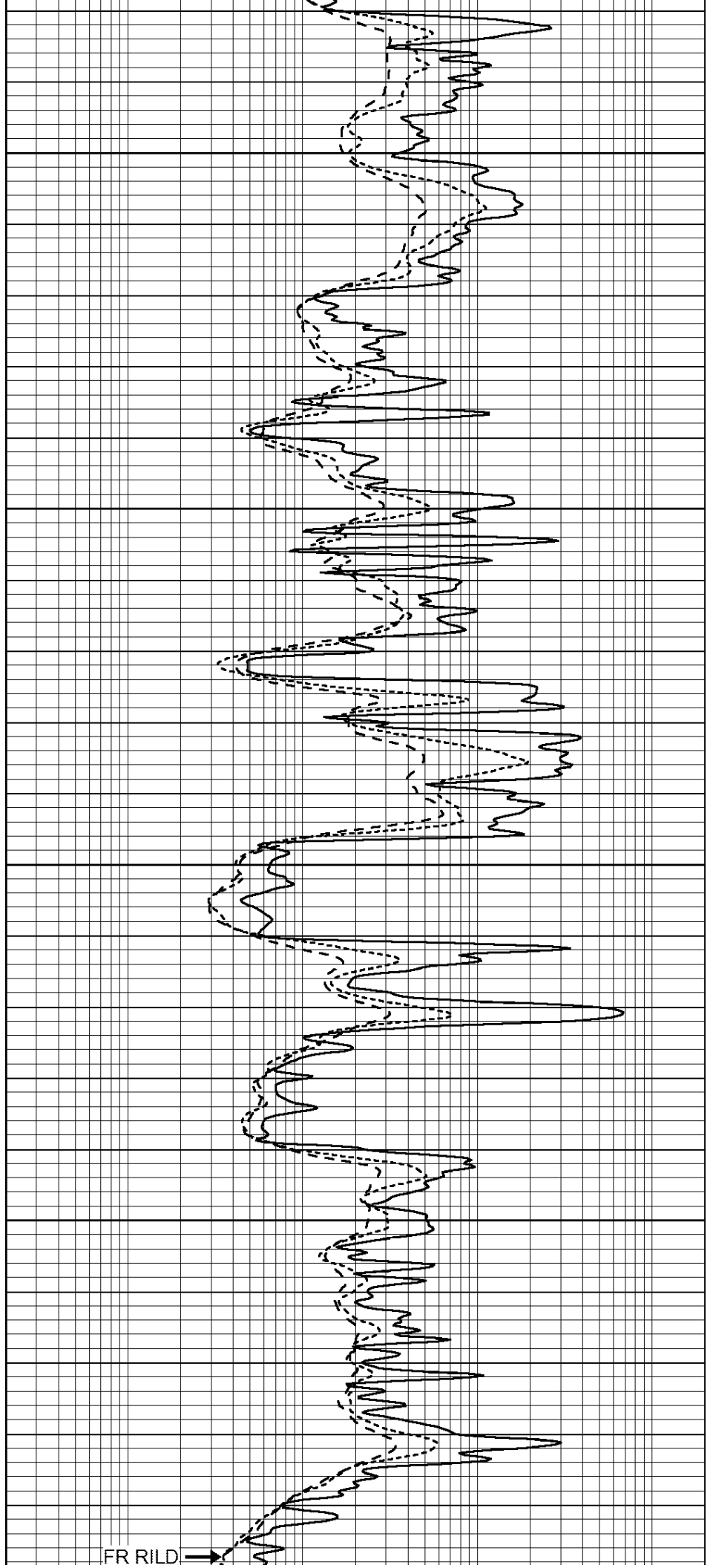


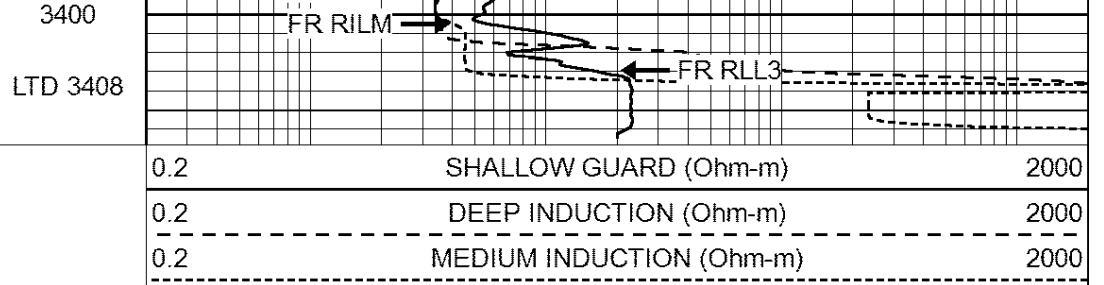
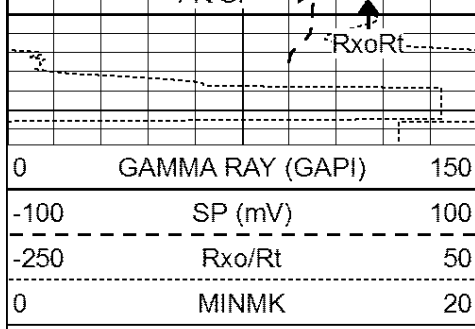
3200

3250

3300

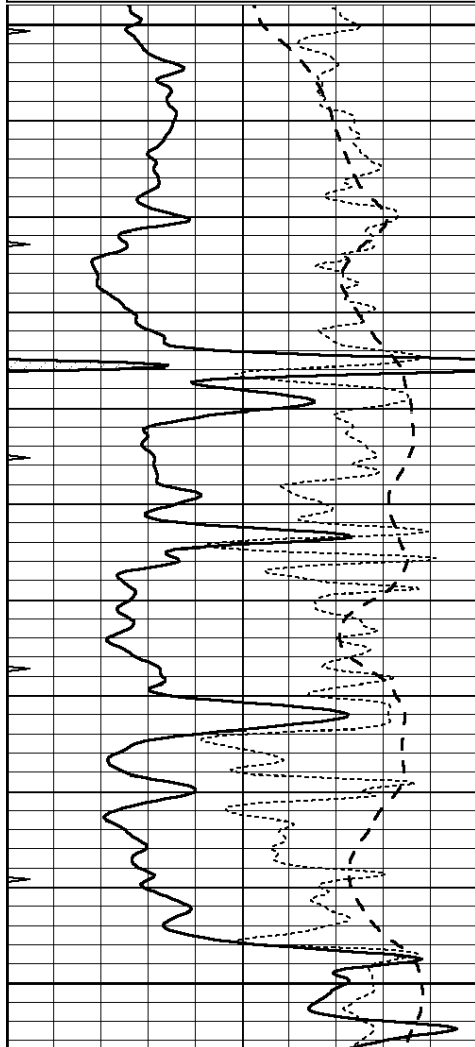
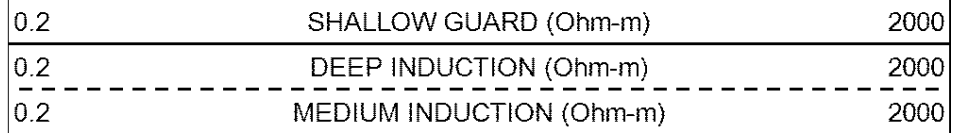
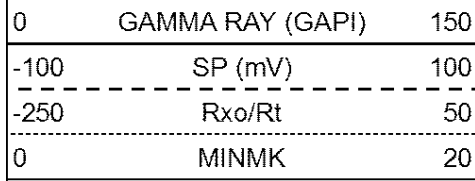
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REPEAT SECTION

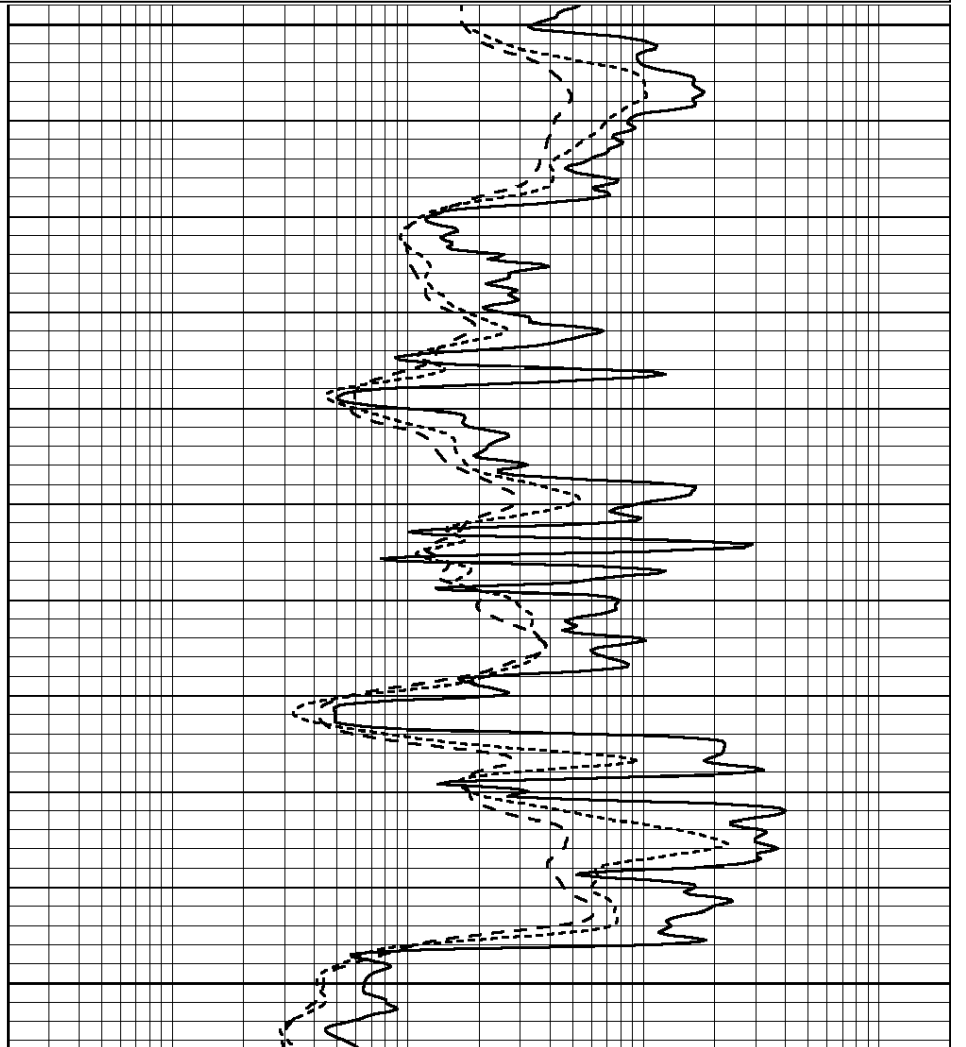
Database File: 26415ddn.db
 Dataset Pathname: pass2.1
 Presentation Format: _dil
 Dataset Creation: Wed Dec 10 11:22:57 2014 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

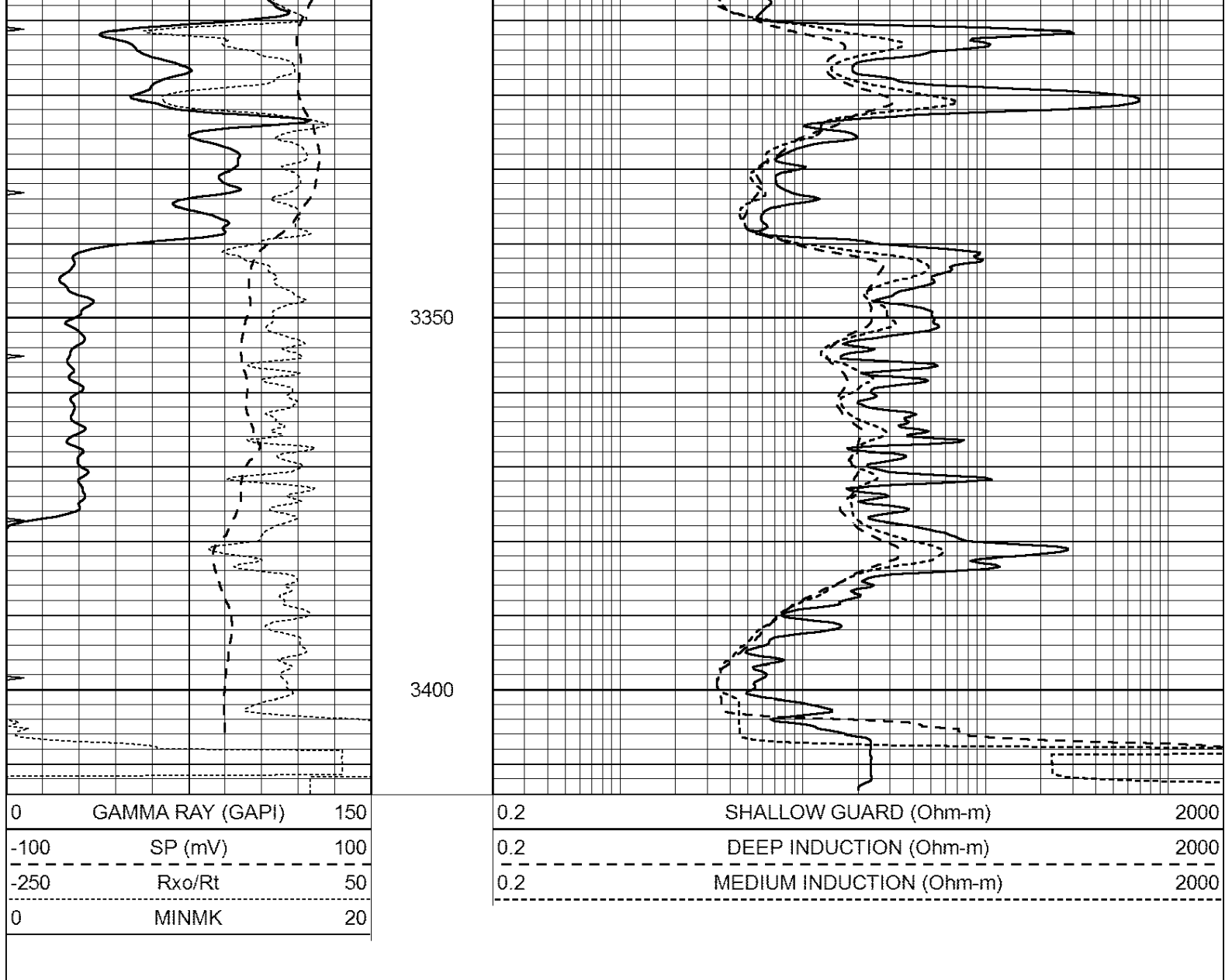


3200

3250

3300





Calibration Report

Database File: 26415ddn.db
 Dataset Pathname: pass2.1
 Dataset Creation: Wed Dec 10 11:22:57 2014 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

Loop:	Readings				References		Results	
	Air	Loop	V		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		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

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		

Compensated Density Calibration Report

Serial-Model:	GEAR4-GEARHART
Source / Verifier:	143 / 143
Master Calibration Performed:	Wed Sep 18 03:03:09 2013
Before Survey Verification Performed:	
After Survey Verification Performed:	

Master Calibration						
	Density		Far Detector	Near Detector		
Magnesium	1.710	g/cc	1075.98	532.39	cps	
Aluminum	2.560	g/cc	286.51	422.88	cps	
Spine Angle = 80.13			Density/Spine Ratio = 0.633			
	Size	Reading				
Small Ring	8.00	in	3.21	V		
Large Ring	14.00	in	5.46	V		

Before Survey Verification					
	Target	Measured			
		g/cc		g/cc	
		g/cc		g/cc	
		g/cc		g/cc	

After Survey Verification					
	Target	Measured			
		g/cc		g/cc	
		g/cc		g/cc	
		g/cc		g/cc	

Compensated Neutron Calibration Report

Serial Number:	61
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 Long Space	cps cps	pu	pu
2)	Short Space Long Space	cps cps	pu	
3)	Short Space Long Space	cps cps	pu	

POST-SURVEY VERIFICATION

	Detector	Readings	Measured	Target
1)	Short Space Long Space	cps 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:	Wed Dec 10 09:57:32 2014	
Calibrator Value:	150.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	276.0	cps
Sensitivity:	0.8000	GAPI/cps