



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

DUAL INDUCTION LOG

Company		DOWNING - NELSON OIL COMPANY, INC.	
Well	TAMMY "A" UNIT #1		
Field	WAKEENEY		
County	TREGO	State	KANSAS
Location:	API # : 15-195-22855-0000		Other Services CDL/CNL MEL/SONIC
Permanent Datum	GROUND LEVEL	Elevation	2382
Log Measured From	KELLY BUSHING 8' A.G.L.		
Drilling Measured From	KELLY BUSHING		
Date	3/22/13		
Run Number	ONE		
Depth Driller	4150		
Depth Logger	4150		
Bottom Logged Interval	4148		
Top Log Interval	00		
Casing Driller	8 5/8"@221'		
Casing Logger	221		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 4,000 PPM	
Density / Viscosity	9.2/50		
pH / Fluid Loss	9.5/7.6		
Source of Sample	FLOWLINE		
Rim @ Meas. Temp	.950@74F		
Rmf @ Meas. Temp	.713@74F		
Rmc @ Meas. Temp	1.14@74F		
Source of Rmf / Rmc	MEASUREMENT		
Rim @ BHT	.601@117F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom	7:45 A.M.		
Maximum Recorded Temperature	117F		
Equipment Number	4854		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	RON NELSON		

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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, KANSAS (785) 628-6395
DIRECTIONS
WAKEENEY, KS. (N. EDGE) TO HIXON RD., "H RD.", 1E. TO "270TH RD.", 2 1/2N., 1/2 E. INTO

Database File:

010729ddn.db

Dataset Pathname:

pass4.8

Presentation Format:

dil2

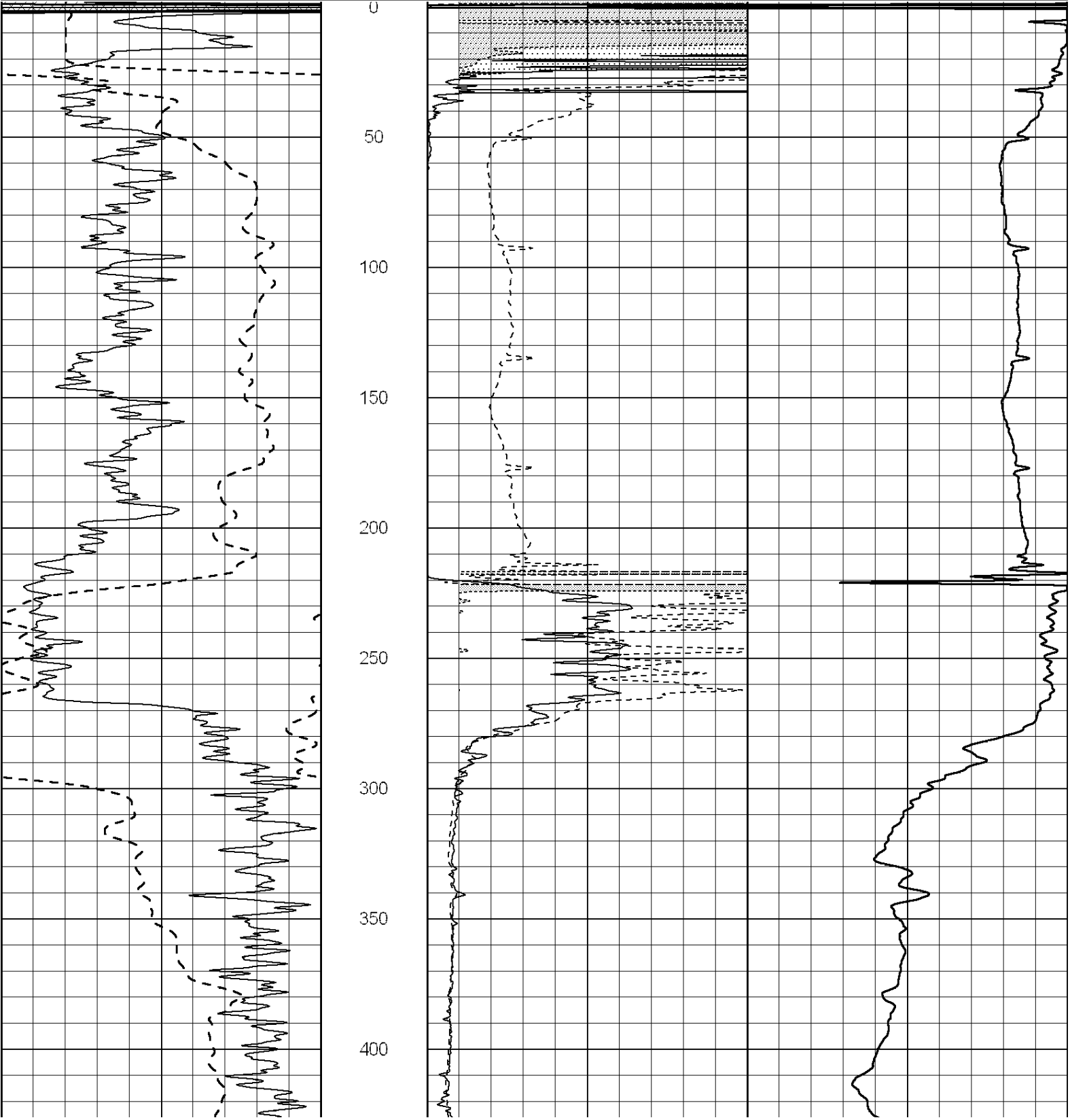
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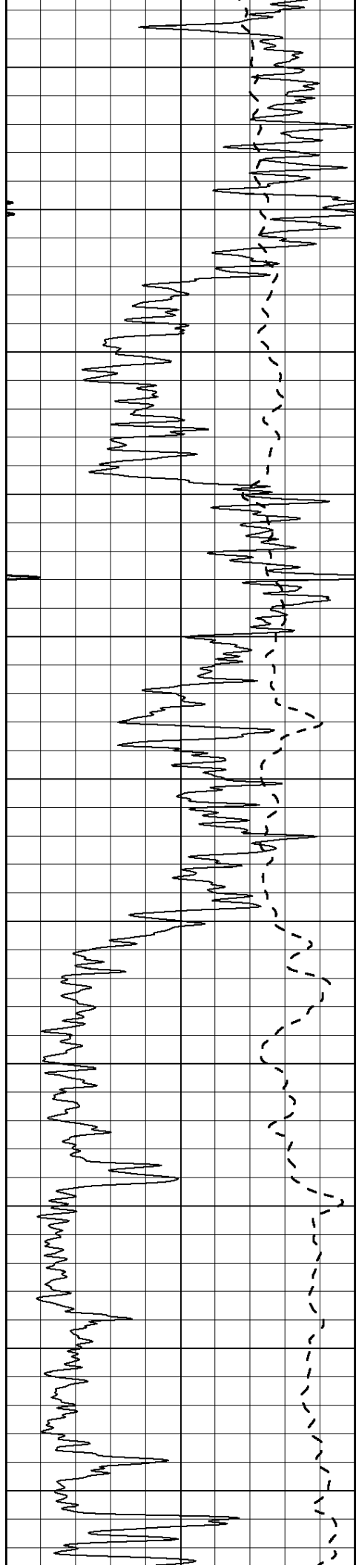
Fri Mar 22 09:13:19 2013 by Calc SOC 120430

Charted by:

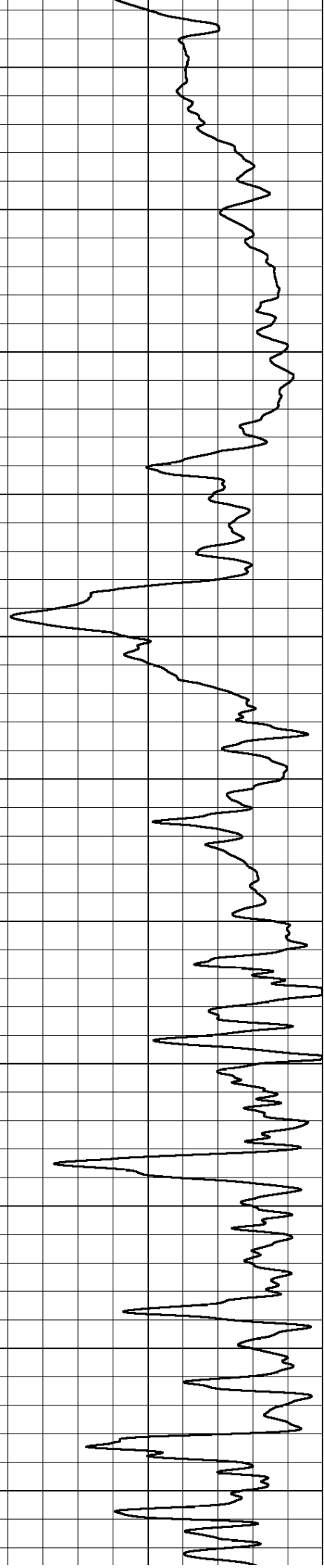
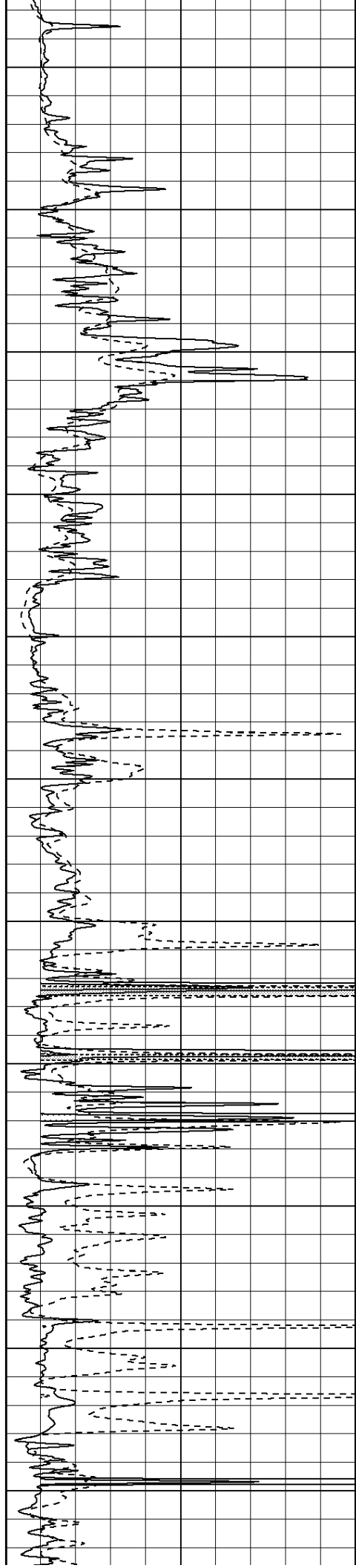
Depth in Feet scaled 1:600

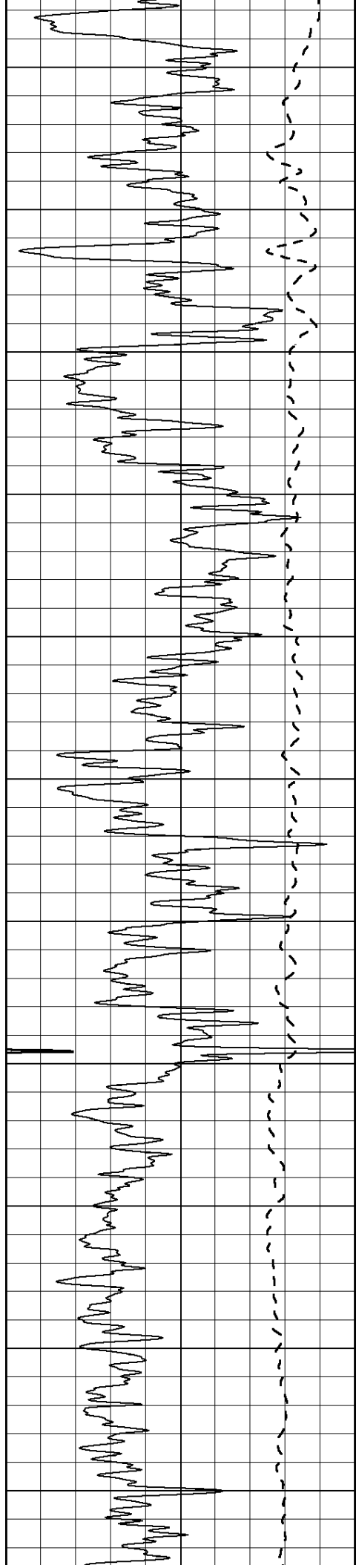
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-100	SP (mV)	100	0	RILD (Ohm-m)	50	
-----			1000			CILD (mmho/m)
			50	RILD X10 (Ohm-m)	500	
			50	RLL3 X10 (Ohm-m)	500	



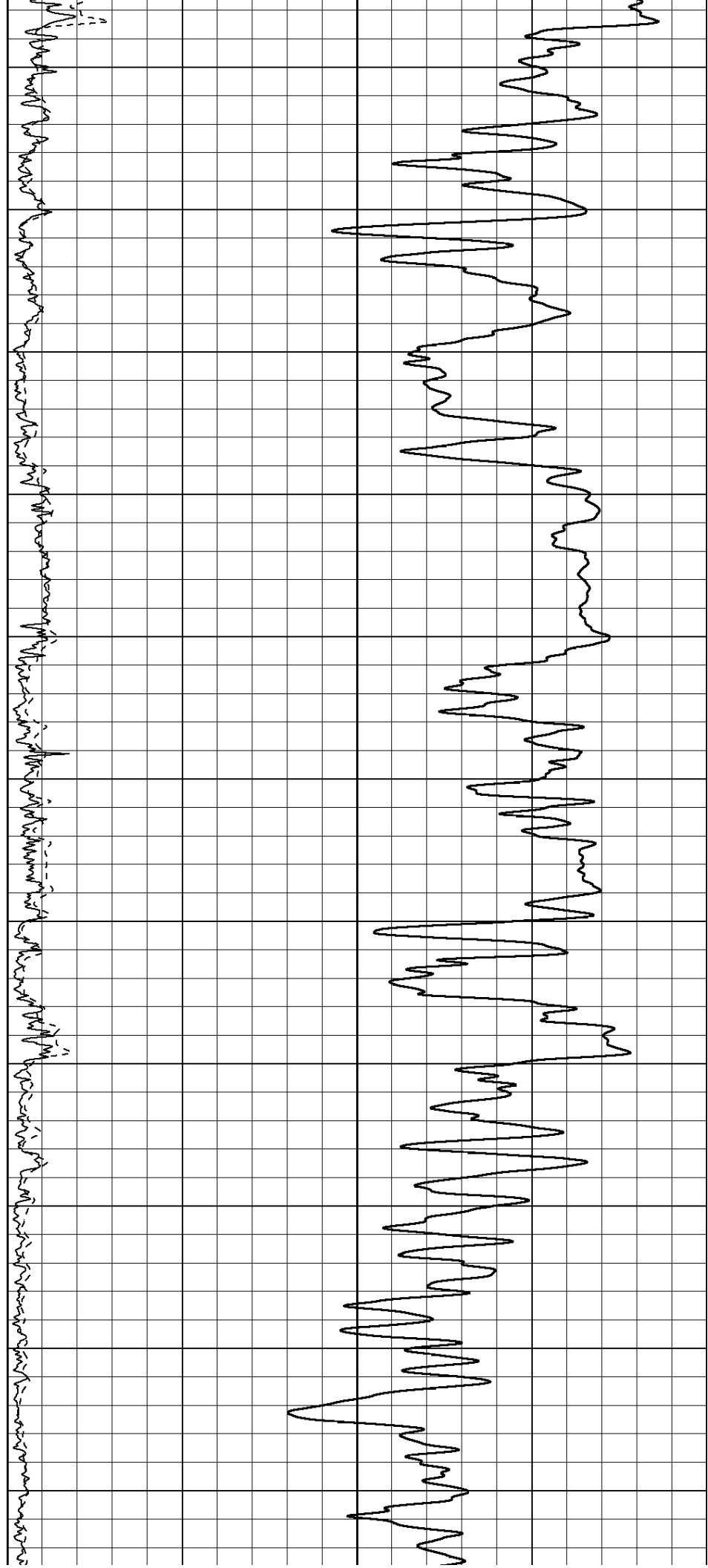


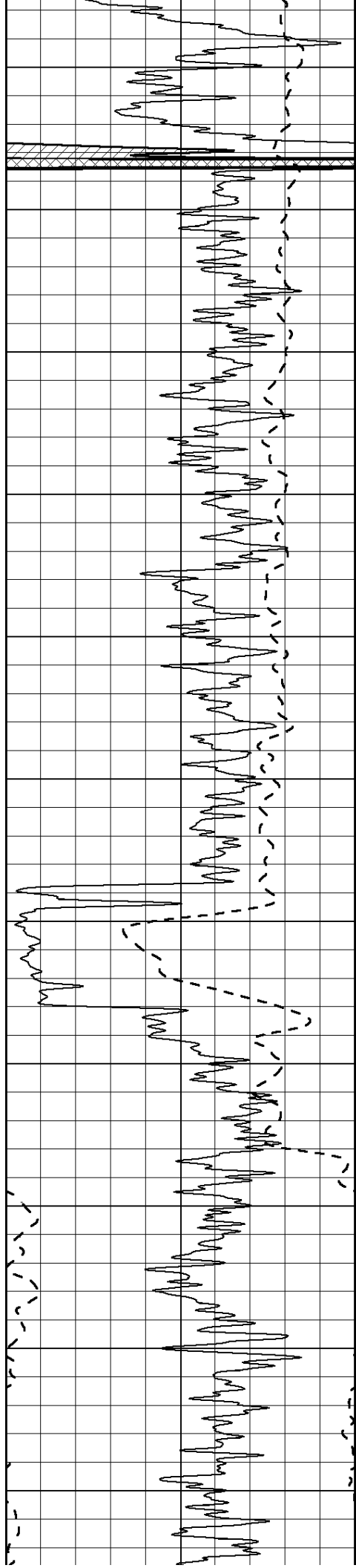
450
500
550
600
650
700
750
800
850
900
950





1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500





1550

1600

1650

1700

1750

1800

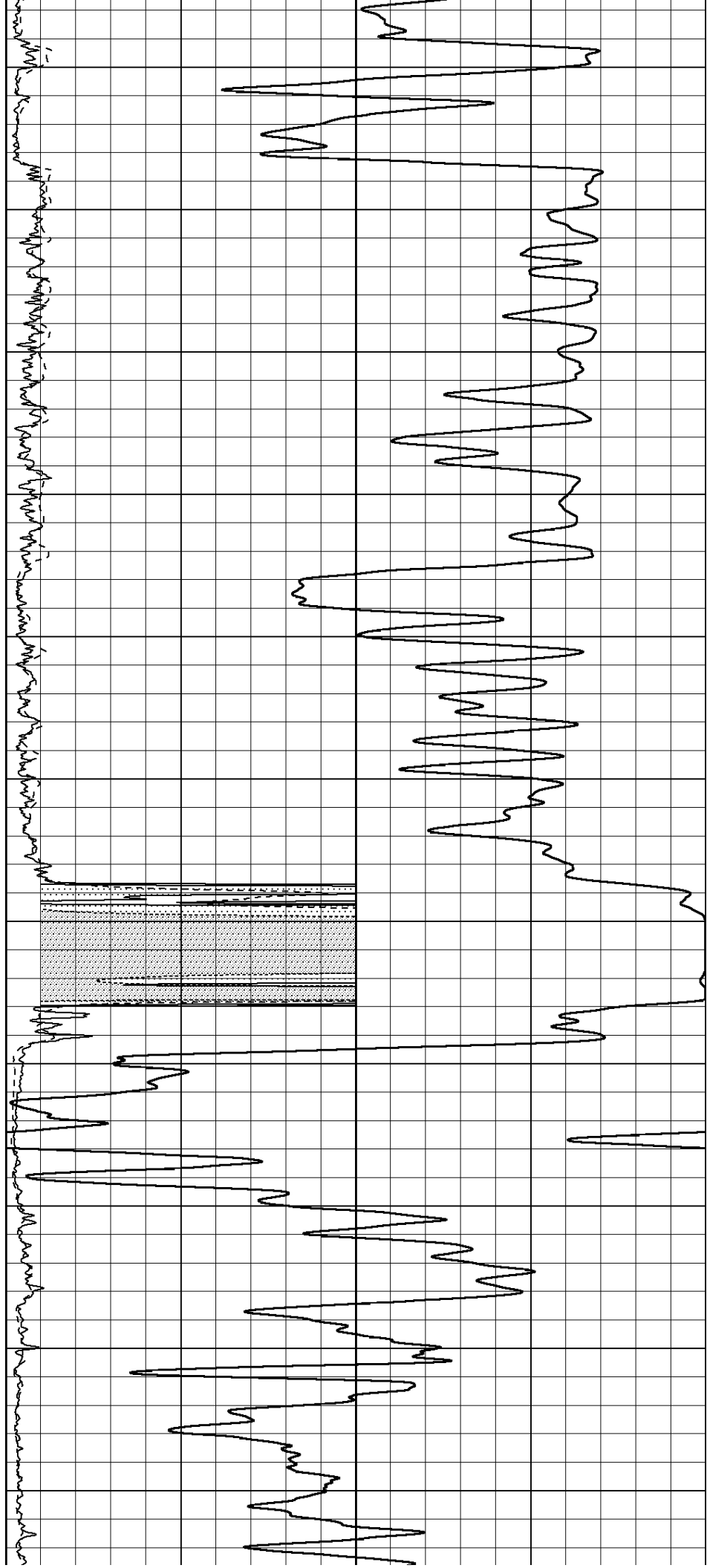
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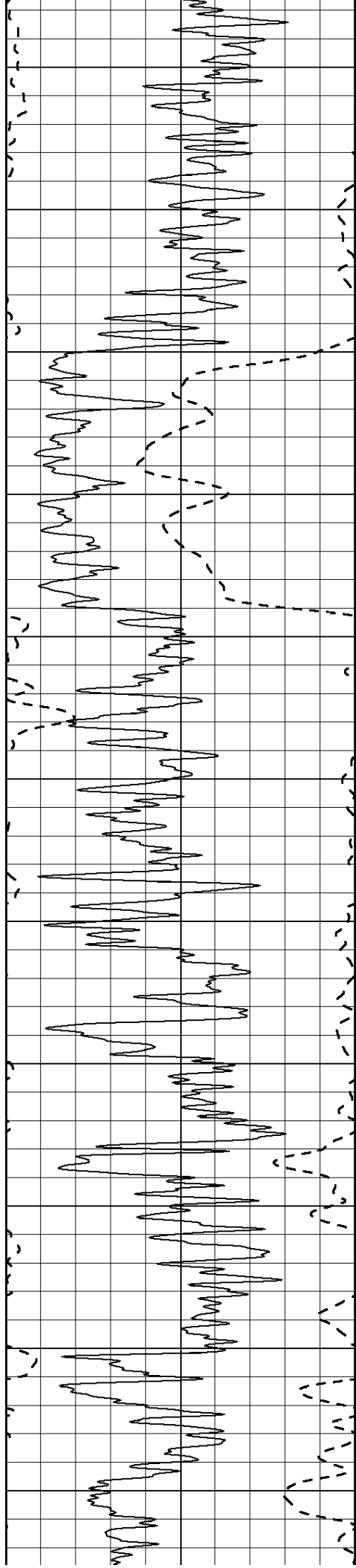
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1950

2000

2050





2100

2150

2200

2250

2300

2350

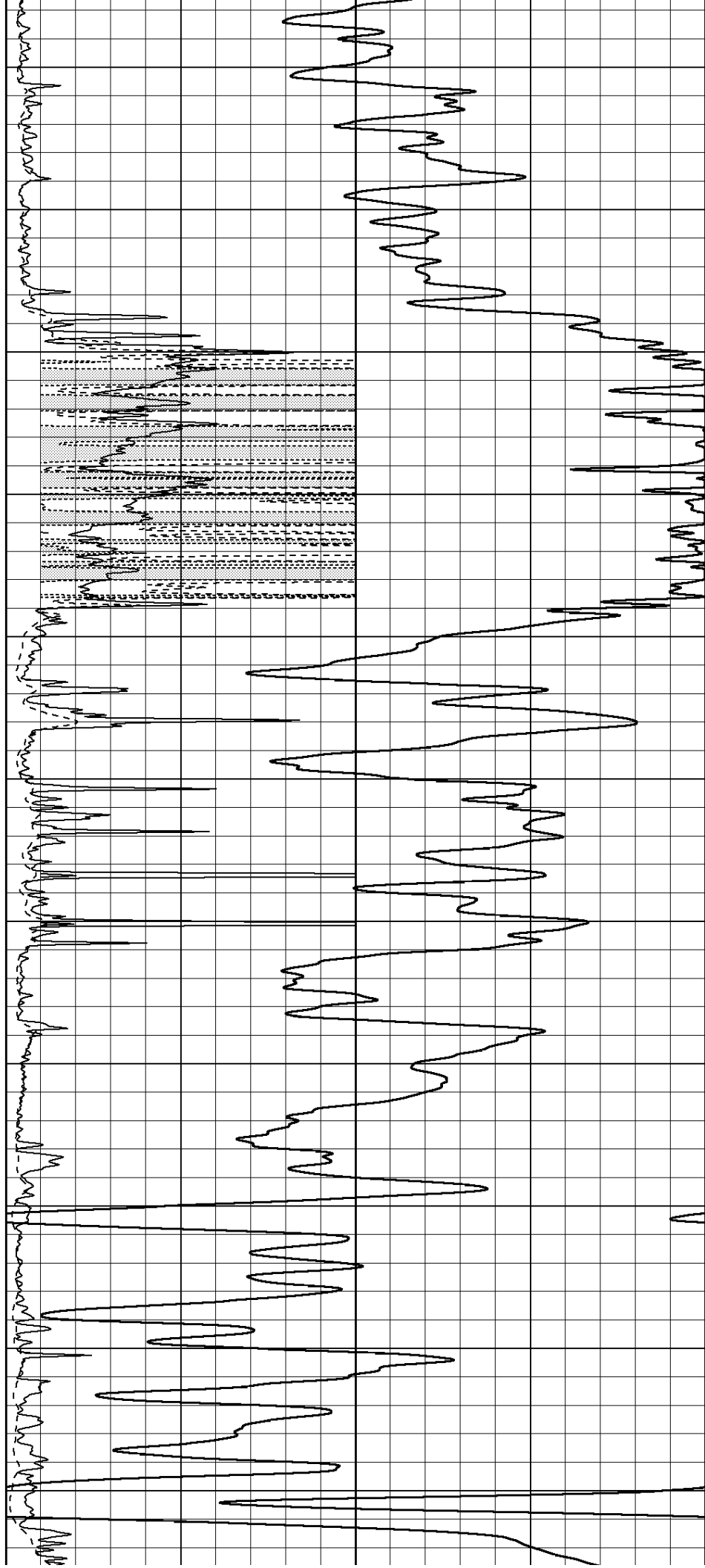
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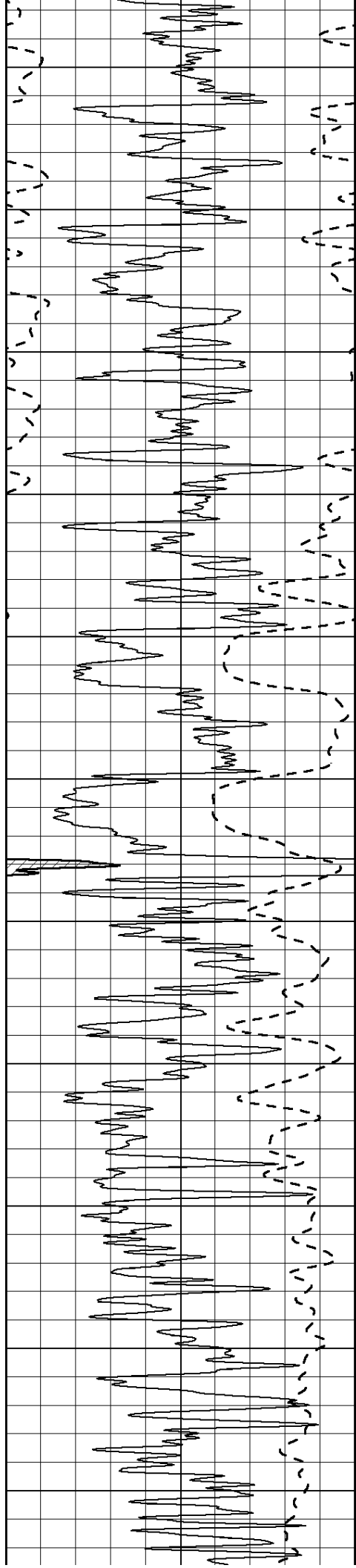
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2500

2550

2600





2650

2700

2750

2800

2850

2900

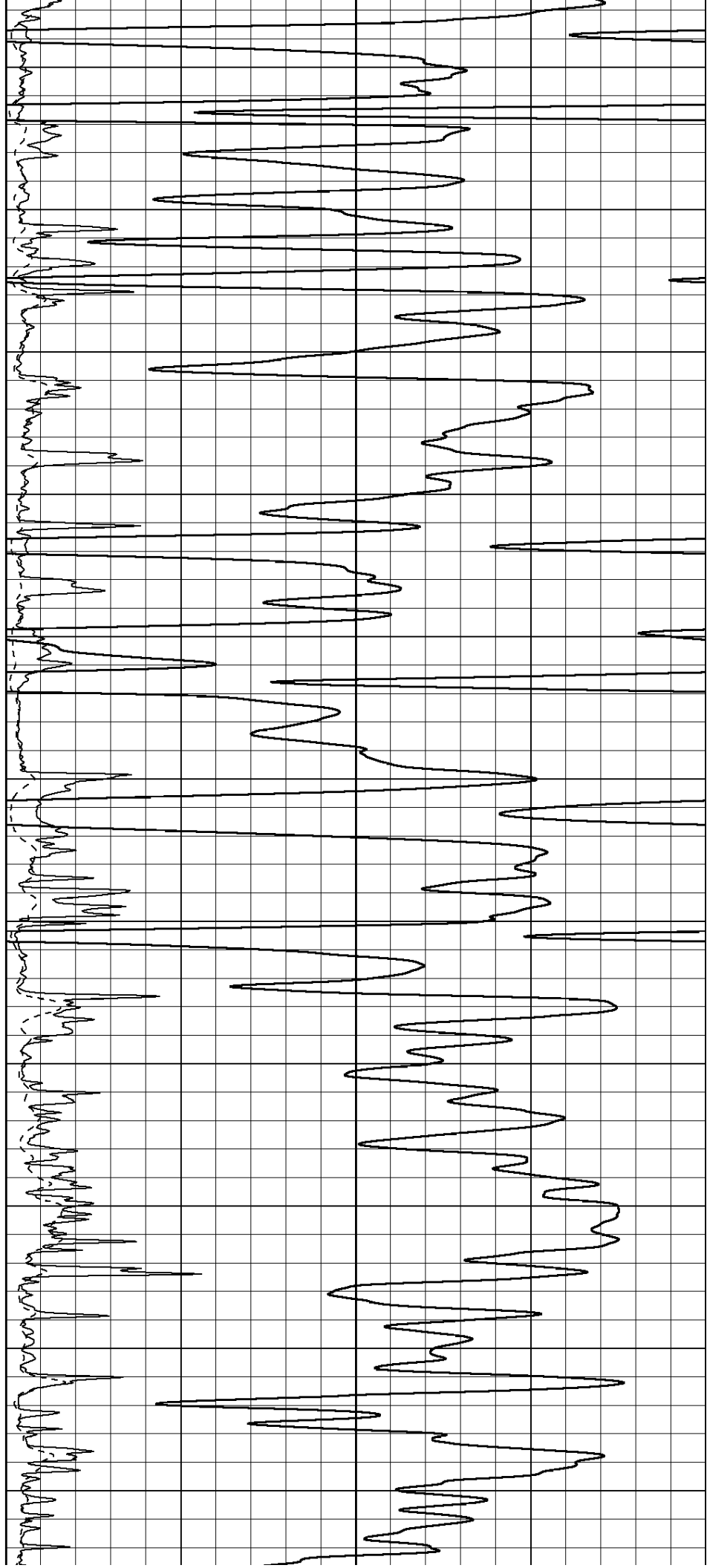
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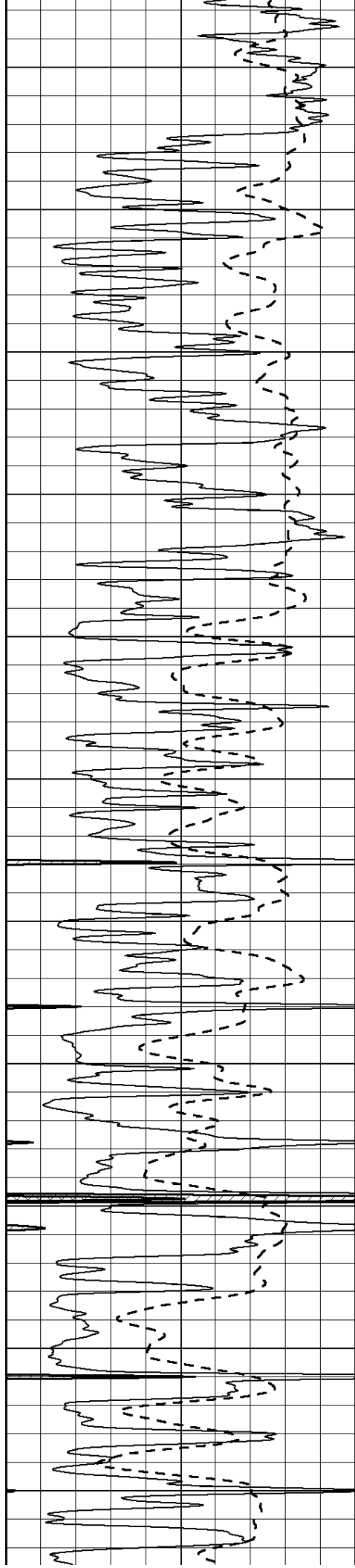
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3050

3100

3150





3200

3250

3300

3350

3400

3450

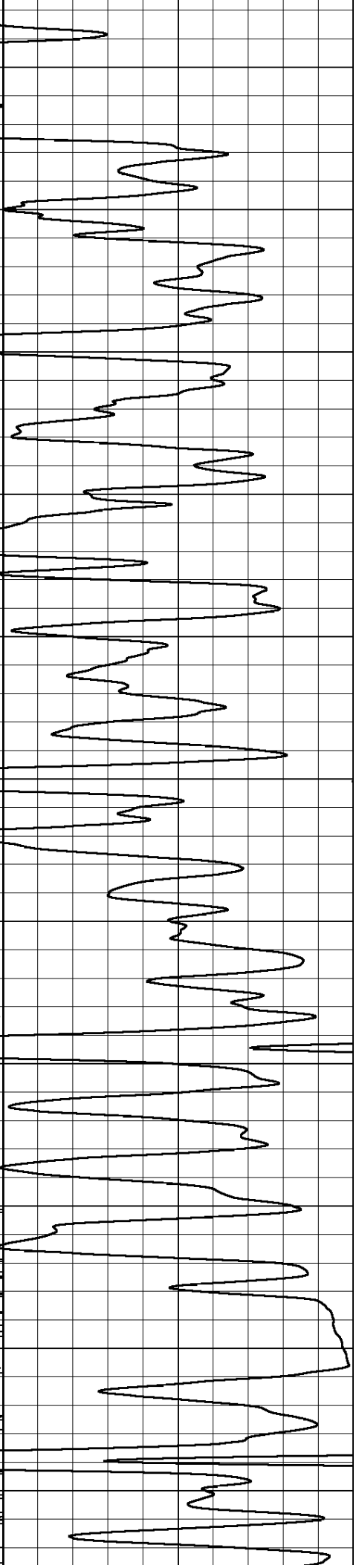
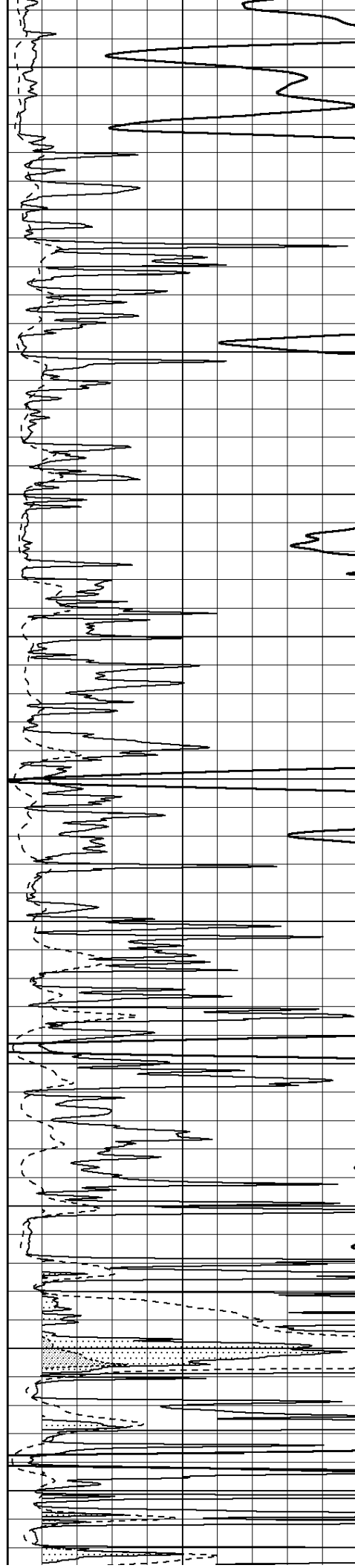
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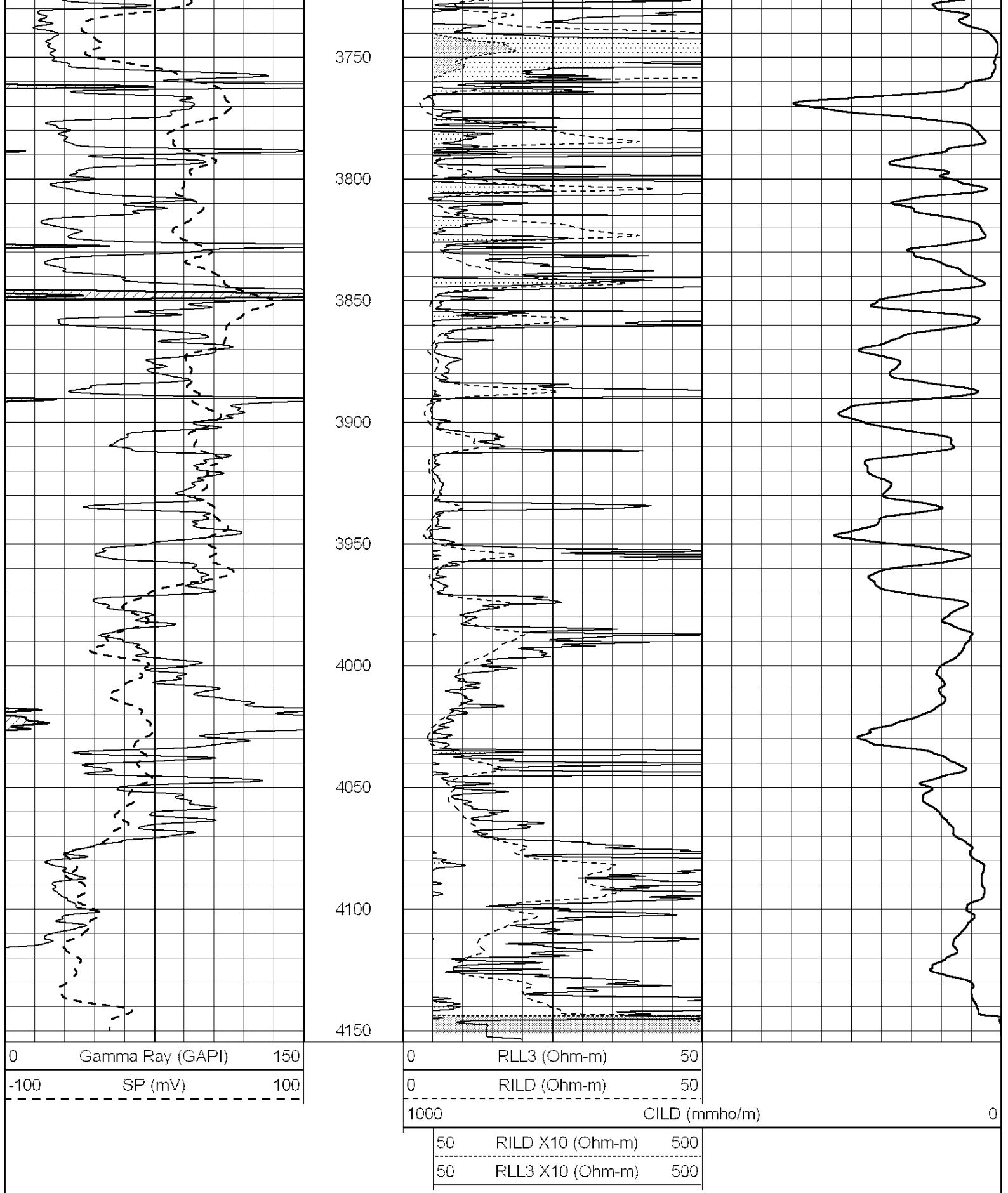
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3600

3650

3700

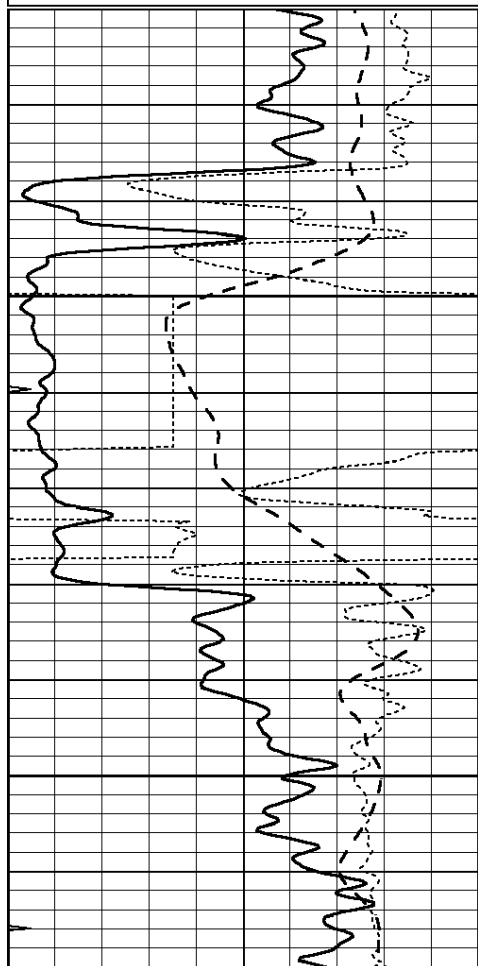




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Dataset Pathname: pass4.9
Presentation Format: _dil
Dataset Creation: Fri Mar 22 09:13:36 2013 by Calc SOC 120430
Charted by: Depth in Feet scaled 1:240

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

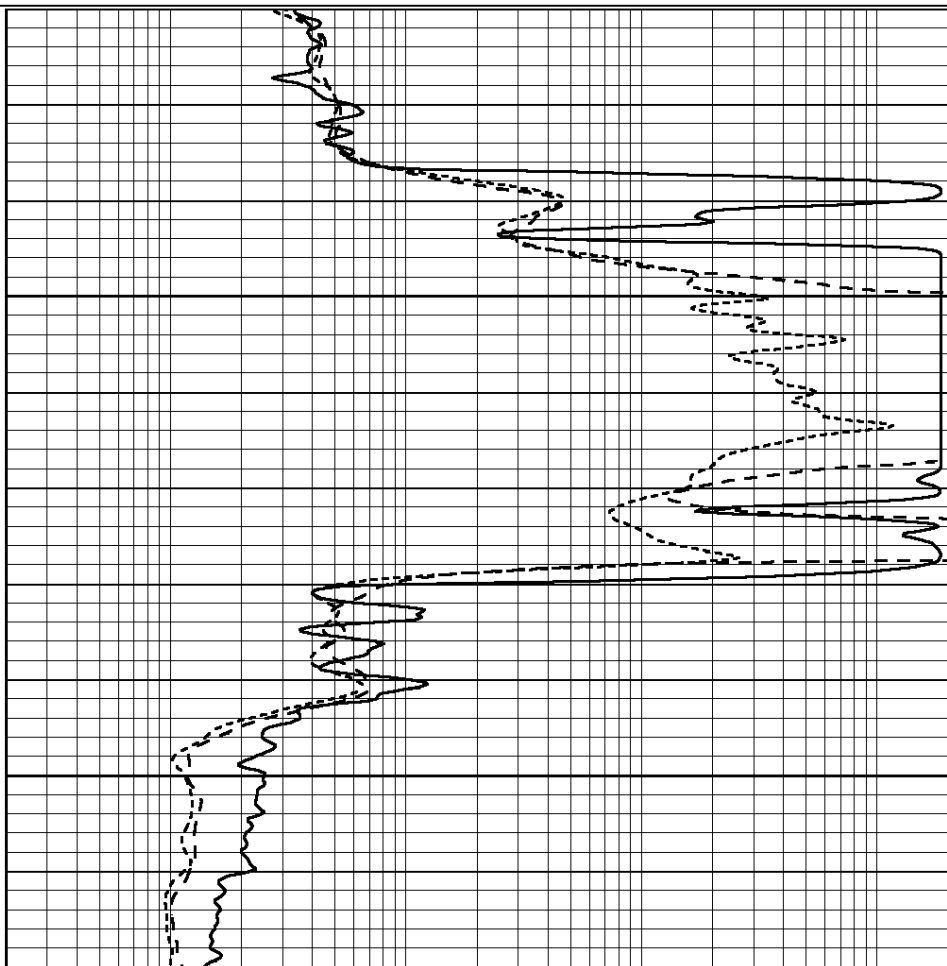
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



1850

1900

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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MAIN SECTION

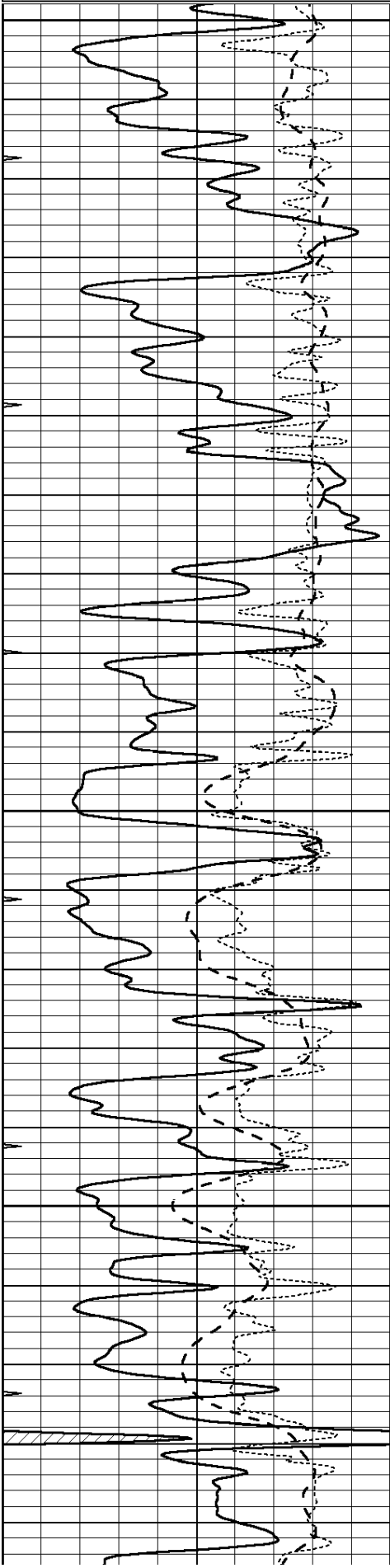
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Dataset Pathname: pass4.8
Presentation Format: _dil
Dataset Creation: Fri Mar 22 09:13:19 2013 by Calc SOC 120430
Charted by: Depth in Feet scaled 1:240

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

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

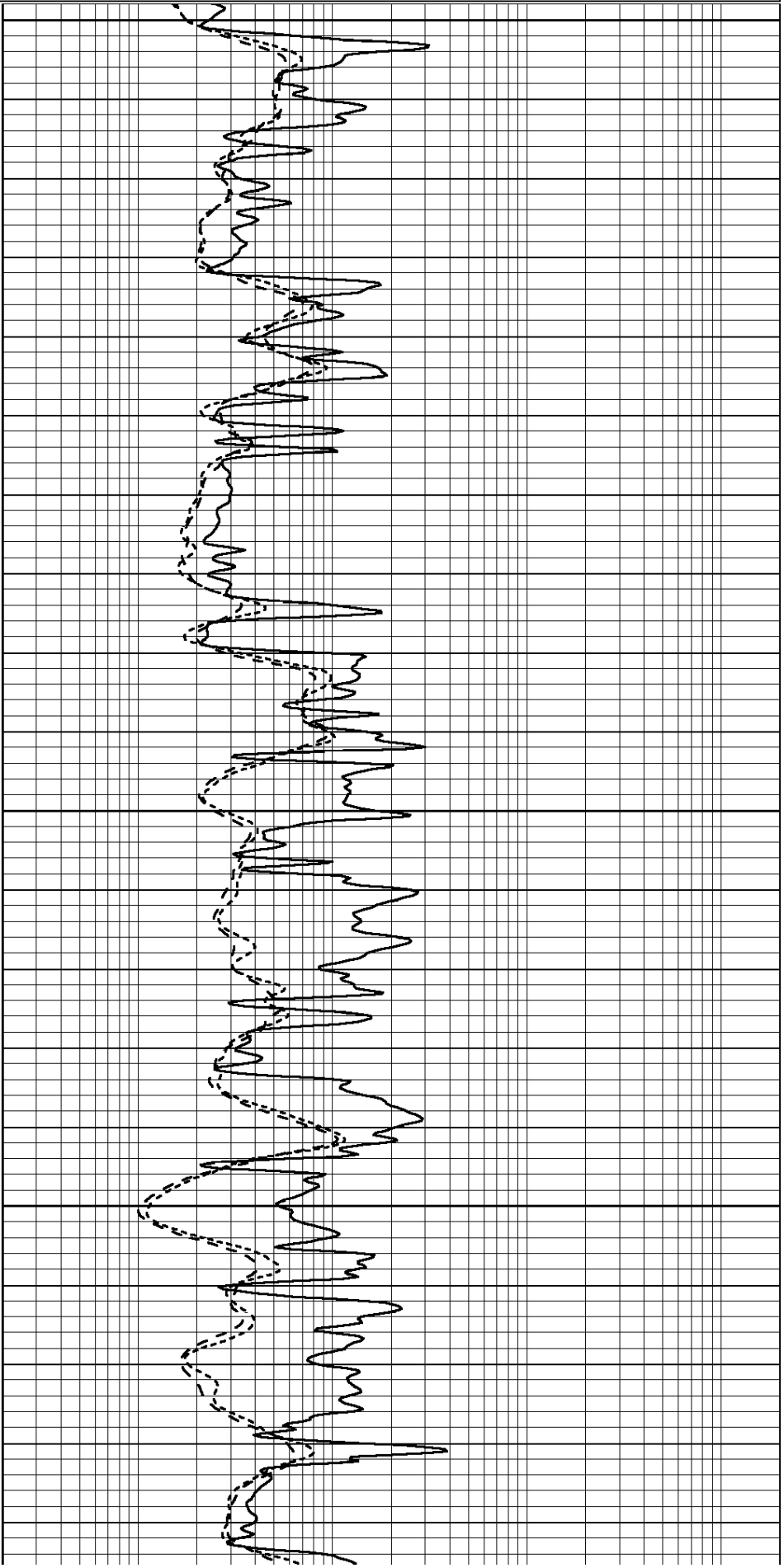


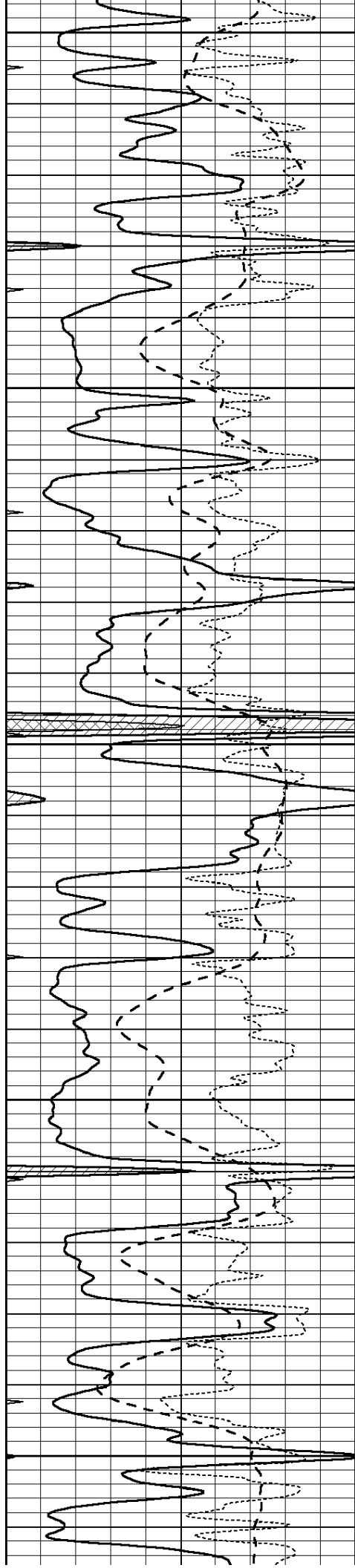
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3350

3400

3450





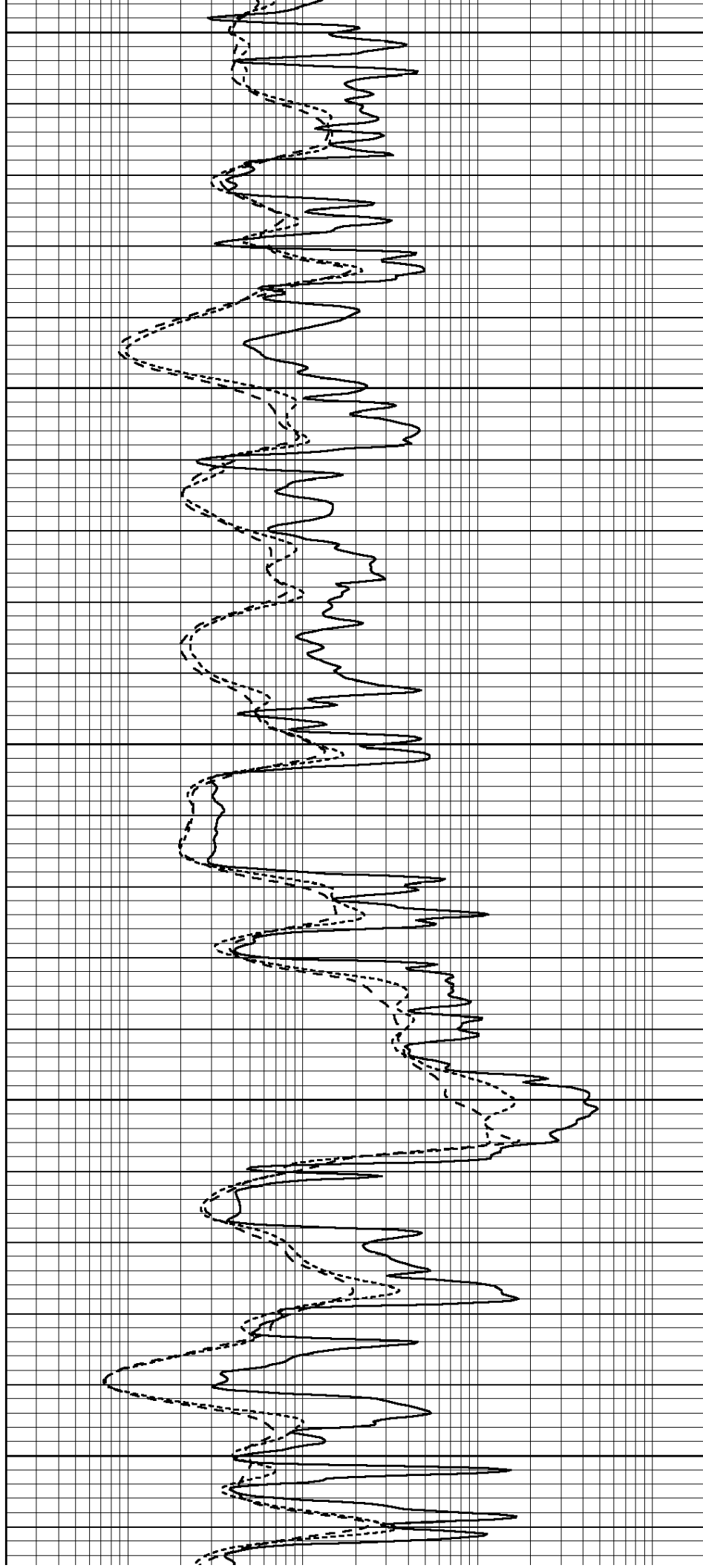
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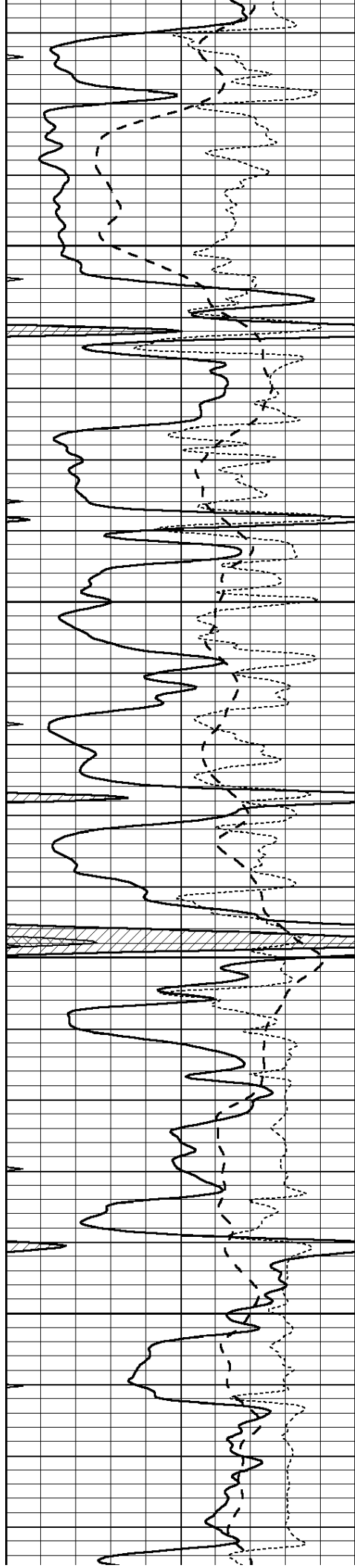
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3600

3650

3700



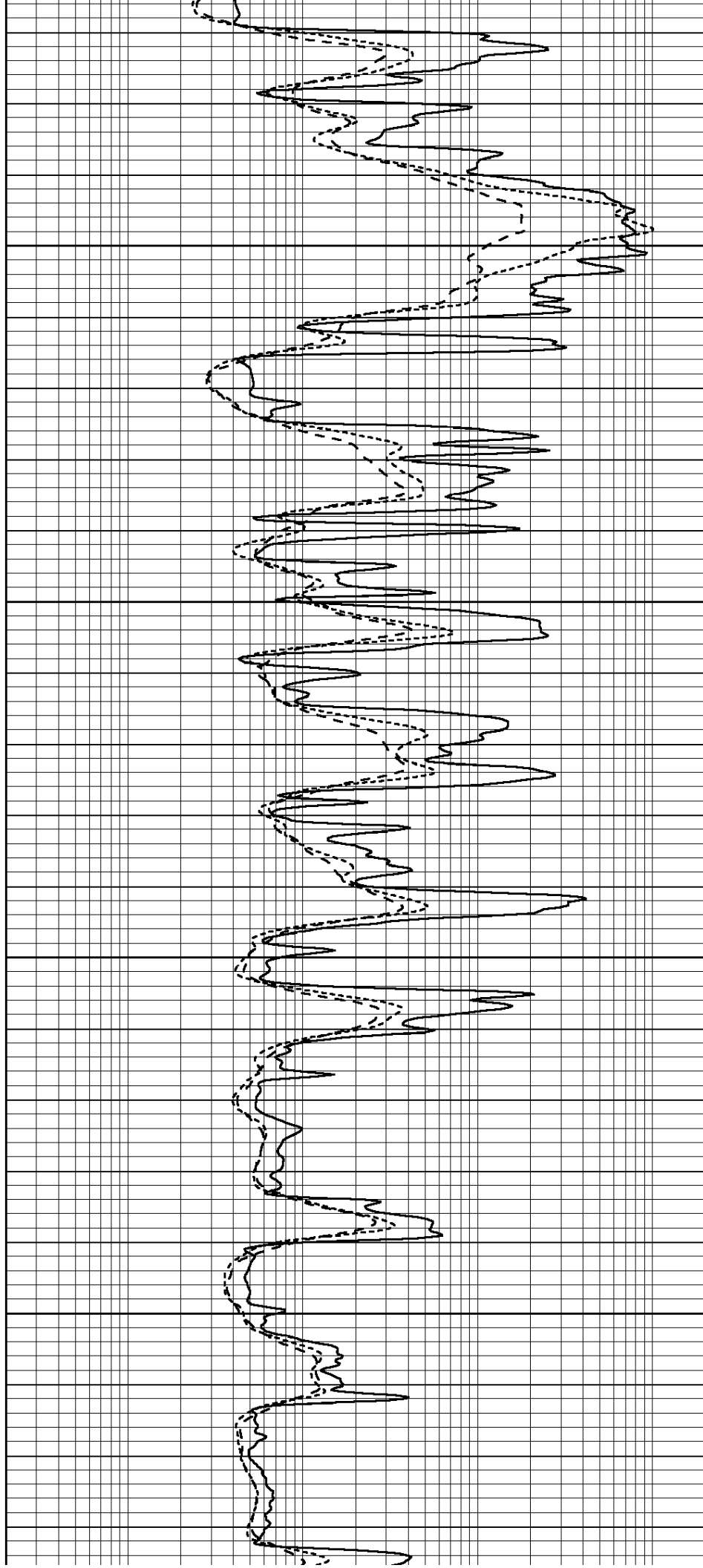


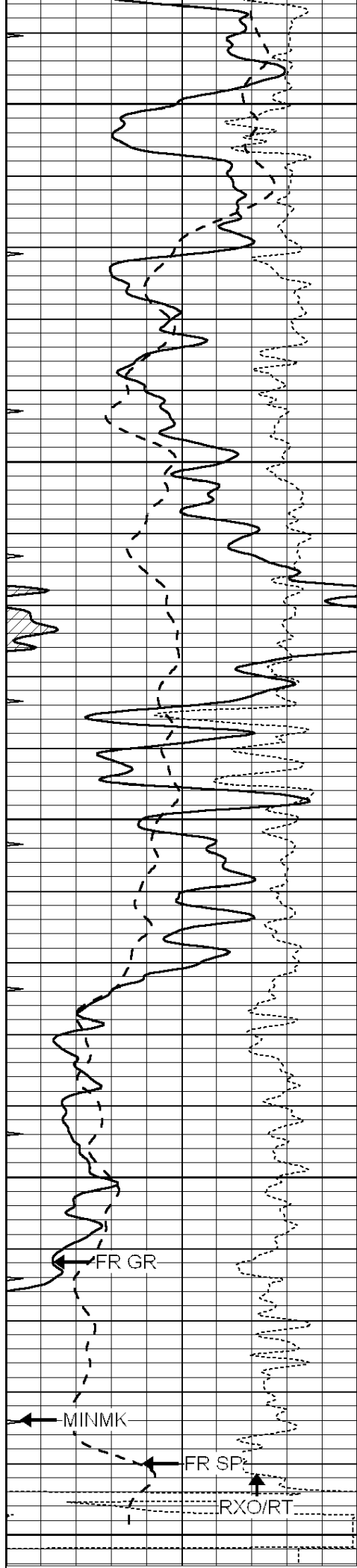
3750

3800

3850

3900





3950

4000

4050

4100

4150

FR GR

MINMK

FR SP

RXO/RT

FR DEEP

FR MEDIUM

FR GUARD

LTD 4150

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



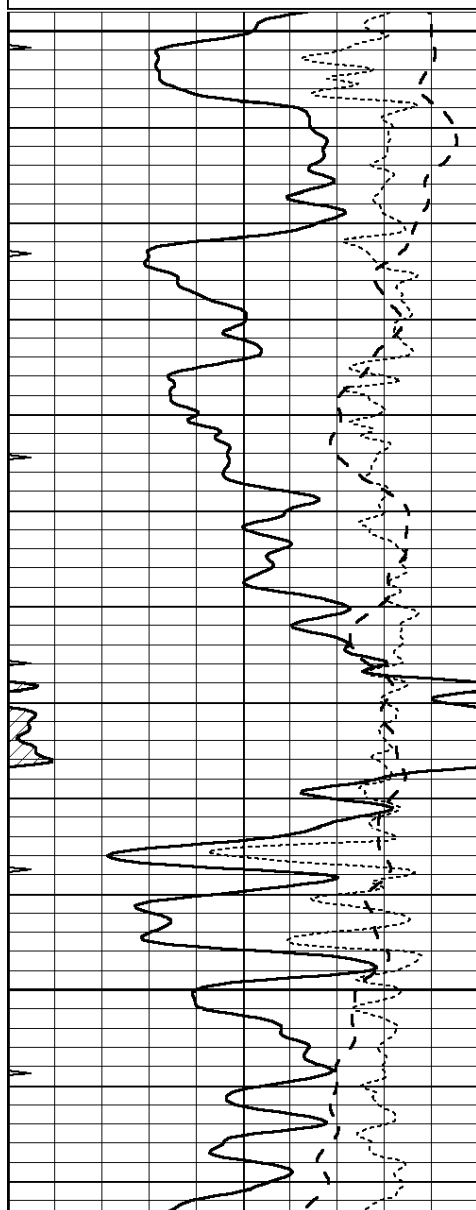
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REPEAT SECTION

Database File: 010729ddn.db
Dataset Pathname: pass2.3
Presentation Format: _dil
Dataset Creation: Fri Mar 22 07:51:52 2013 by Calc SOC 120430
Charted by: Depth in Feet scaled 1:240

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

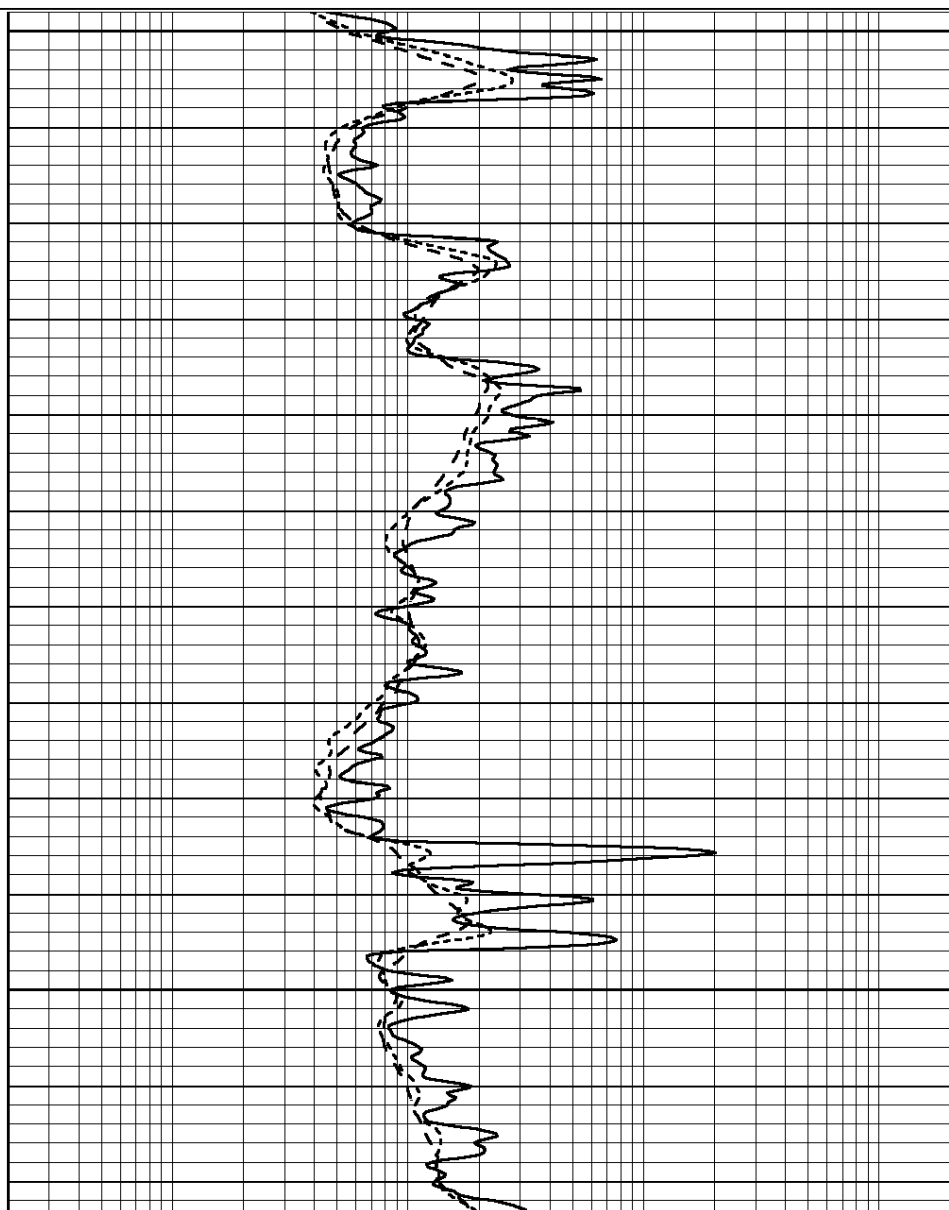
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

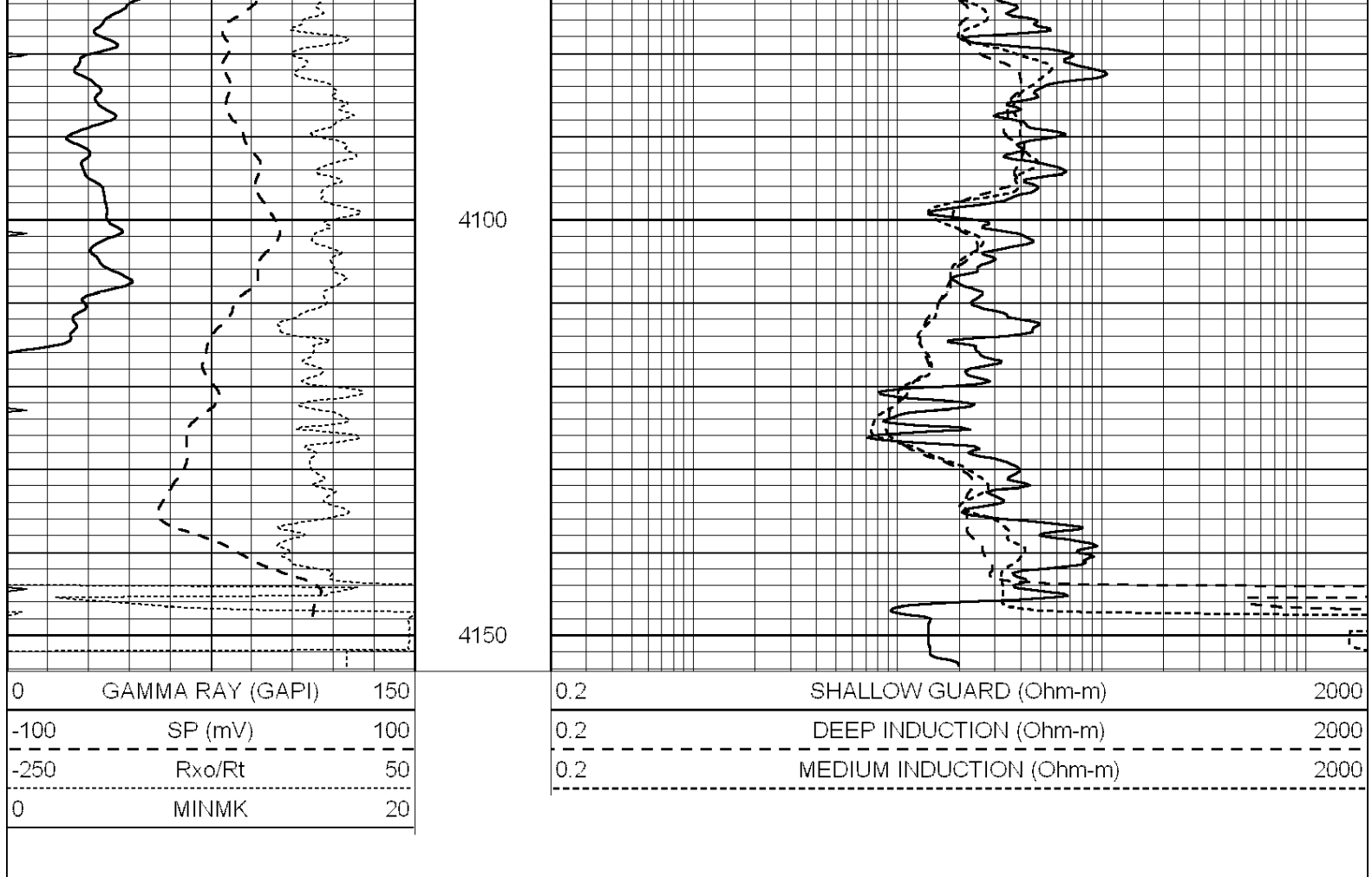


3950

4000

4050





Calibration Report

Database File: 010729ddn.db
 Dataset Pathname: pass4.8
 Dataset Creation: Fri Mar 22 09:13:19 2013 by Calc SOC 120430

Dual Induction Calibration Report

Serial-Model: PROBE9-DILG
 Surface Cal Performed: Sun Mar 10 00:44:14 2013
 Downhole Cal Performed: Mon Jul 28 12:02:56 2008
 After Survey Verification Performed: Mon Jul 28 12:02:56 2008

Surface Calibration

Loop:	Readings			References			Results	
	Air	Loop		Air	Loop		m	b
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	621.923	-10.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	640.000	-13.500
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.011	0.610	V	0.000	400.000	mmho/m	667.135	-7.256
Medium	0.005	0.712	V	0.000	464.000	mmho/m	655.677	-3.102

Downhole Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	14.508	388.384	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	166.367	504.400	mmho/m	1.000	0.000
LL3		7.500	V		1400.000	Ohm-m		
		0.000	V		20.000	Ohm-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: 003N			Model: PRB					

Master Calibration			Performed Tue Sep 08 14:14:44 2009					
	Background	Magnesium		Aluminum		Sandstone		
Window 1	2042.6	12312.8		4225.8		13758.4		cps
Window 2	1855.8	10134.7		3624.2		11113.1		cps
Window 3	1639.4	6760.2		2716.3		7260.3		cps
Window 4	466.4	469.2		466.1		476.5		cps
Long Space	0.0	8278.9		1768.4		9257.4		cps
Short Space	2.2	2377.3		1544.1		2574.2		cps
Rho		1.7100		2.5900		1.3800		g/cc
Pe		0.0000		2.5700		1.5500		
Rib Angle	: 44.4	Rib Slope	: 0.979	Density/Spine Ratio			: 0.549	
Spine Angle	: 74.4	Spine Slope	: 3.577	Spine Intercept			: -18.8	

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:			070808					
Tool Model:			Probe					

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:	070559		
Tool Model:	OPEN_GR		
Performed:	Sun Mar 10 00:43:54 2013		
Calibrator Value:	1.0	GAPI	
Background Reading:	0.0	cps	
Calibrator Reading:	1.0	cps	
Sensitivity:	0.3500	GAPI/cps	