

**NABORS****COMPLETION
& PRODUCTION
SERVICES CO.****DUAL INDUCTION
LOG**

Company	BLACK DIAMOND OIL, INC.		
Well	BELDEN UNIT #1		
Field	HANSEN ESTATE NW		
County	NORTON	State	KANSAS
Location:	APL # : 15-137-20682-0000		Other Services CDL/CNL MEL
Well	BELDEN UNIT #1		
Field	HANSEN ESTATE NW		
County	NORTON	State	KANSAS
Permanent Datum	GROUND LEVEL	Elevation	2236
Log Measured From	KELLY BUSHING 5' A.G.L.		
Drilling Measured From	KELLY BUSHING		
Date	2/19/14		
Run Number	ONE		
Depth Driller	3665		
Depth Logger	3668		
Bottom Logged Interval	3666		
Top Log Interval	00		
Casing Driller	8 5/8"@208'		
Casing Logger	208		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 750 PPM	
Density / Viscosity	9.3/52		
pH / Fluid Loss	10.0/6.8		
Source of Sample	FLOWLINE		
Rin @ Meas. Temp	1.50@80F		
Rinf @ Meas. Temp	1.13@80F		
Rinc @ Meas. Temp	1.80@80F		
Source of Rinf / Rinc	MEASUREMENT		
Rin @ BHT	1.06@113F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom	12:30 A.M.		
Maximum Recorded Temperature	113F		
Equipment Number	4854		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	HERB DEINES		

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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

EDMOND, KS. 1 1/2E. ON HWY 9 TO "RD. E5", 2 1/2N. TO TANK BATTERY, 1/2W. ON TRAIL, 1/2 N.
THROUGH GATE, TAKE RIGHT FORK N, & W.

**NABORS**
**COMPLETION
& PRODUCTION****MAIN SECTION**

Database File:

22255ddn.db

Dataset Pathname:

pass3.6

Presentation Format:

dil2

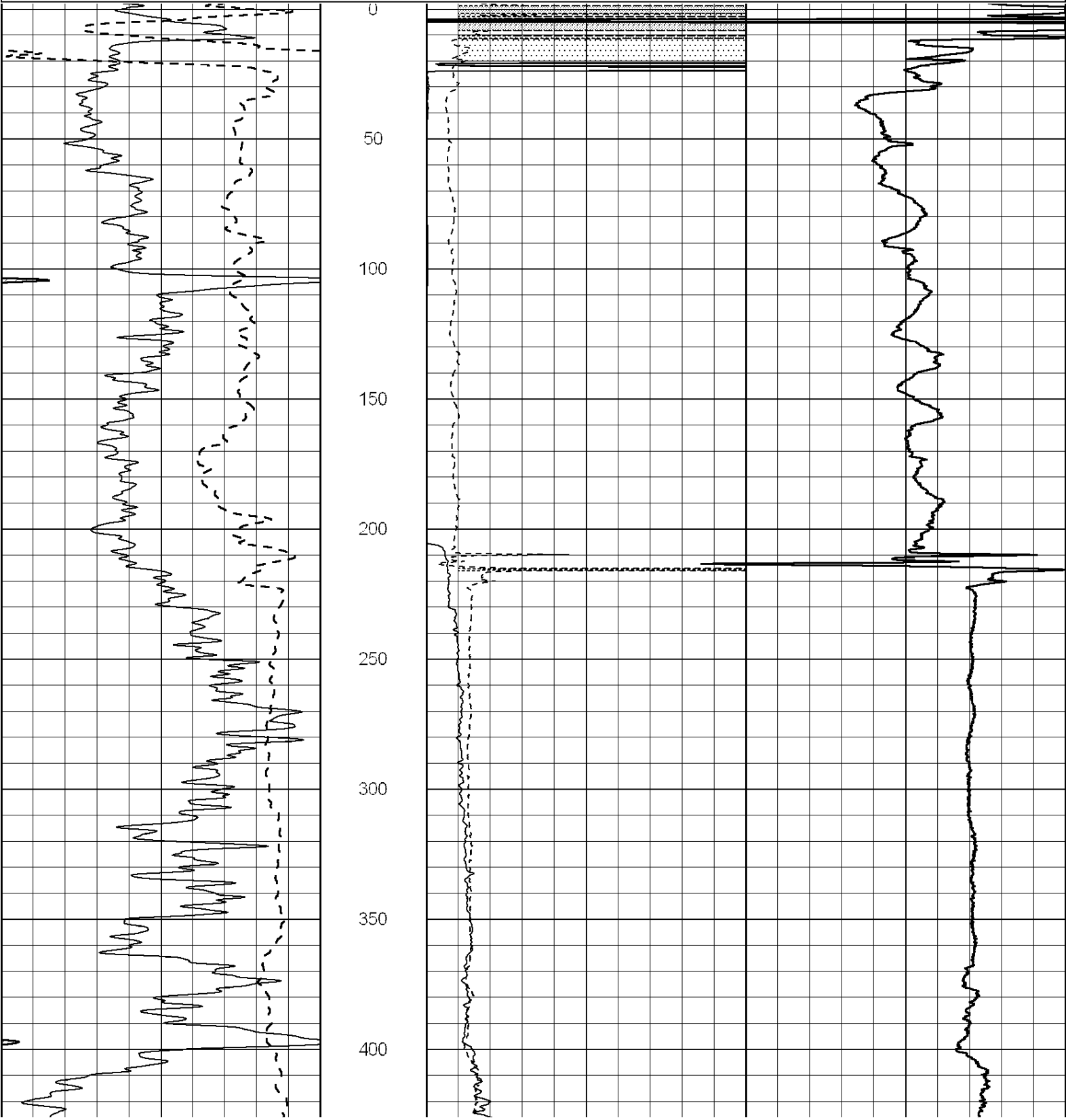
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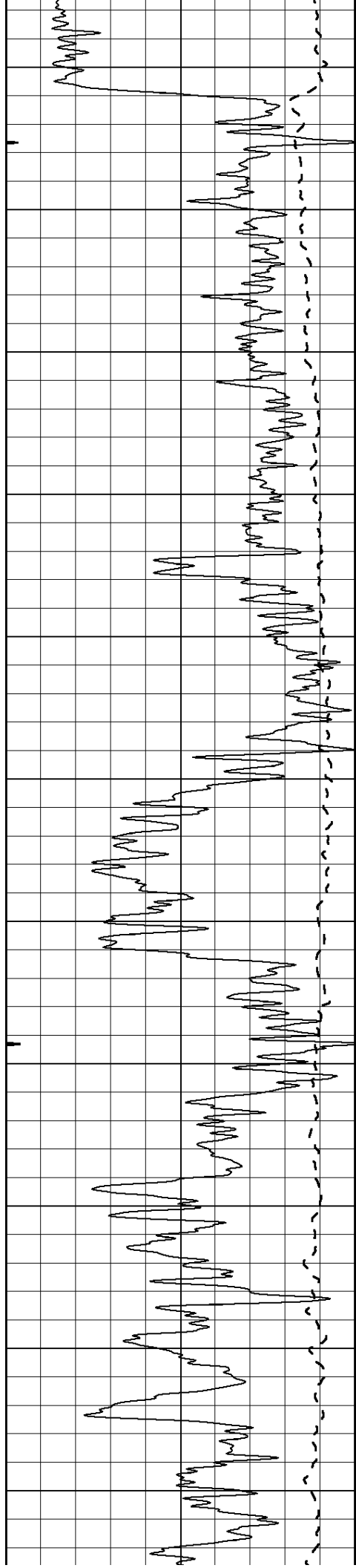
Thu Feb 20 01:59:00 2014

Charted by:

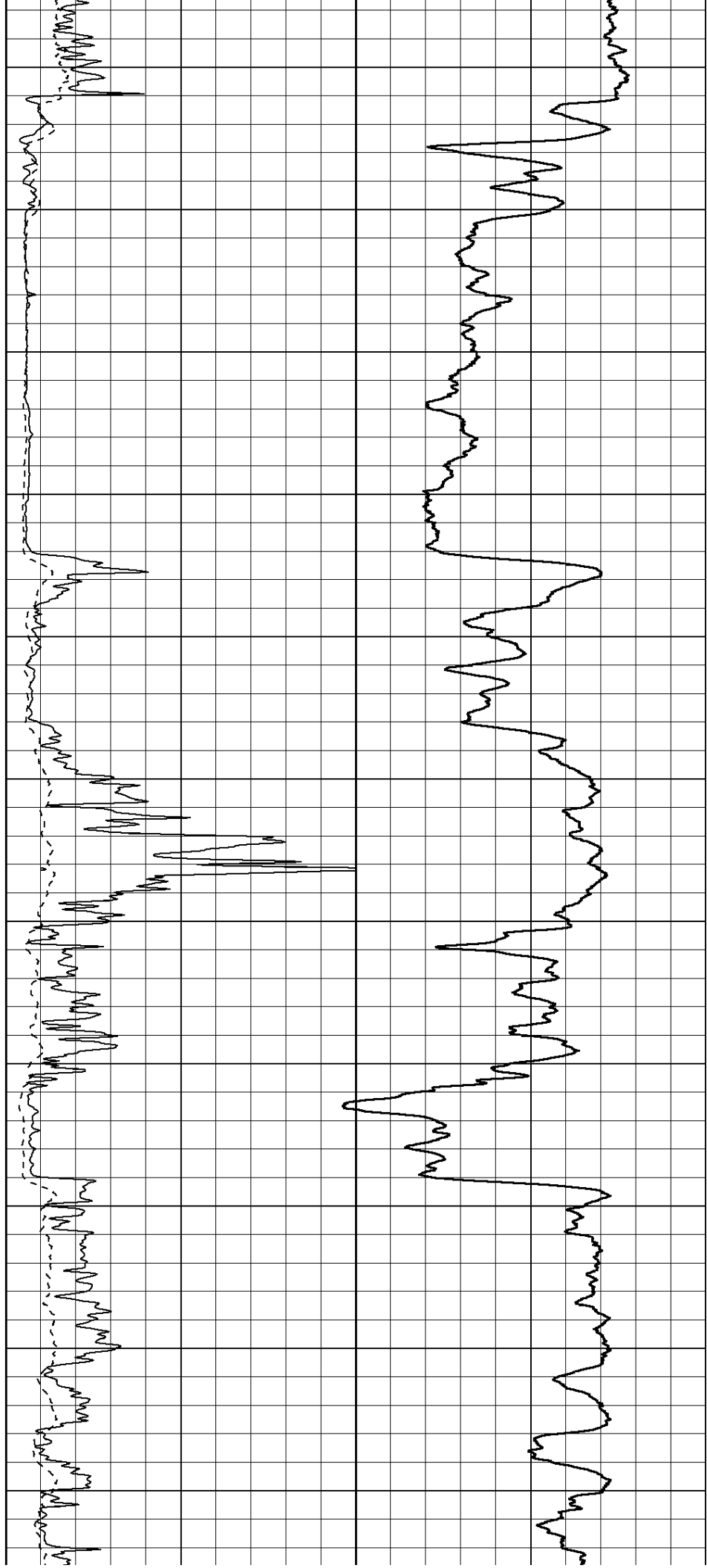
Depth in Feet scaled 1:600

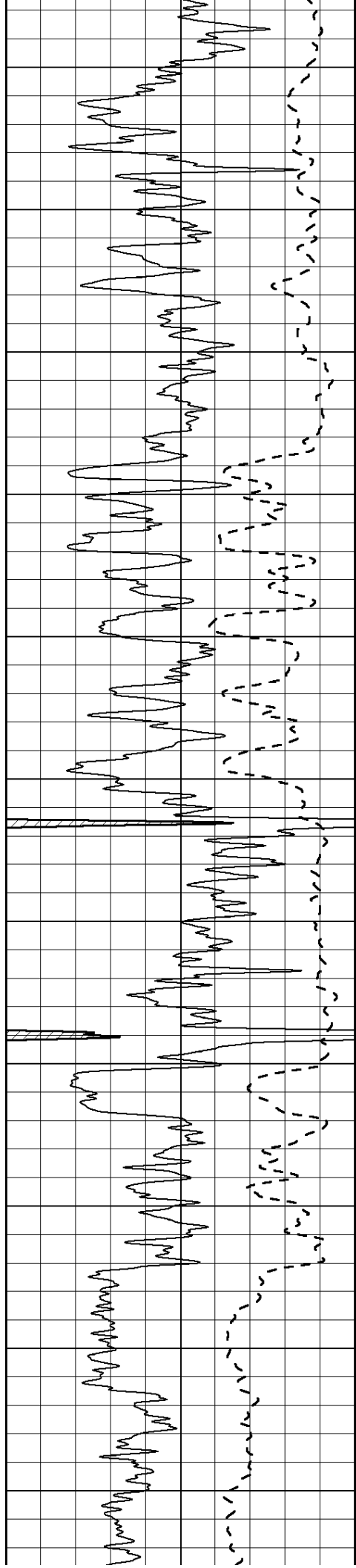
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-100	SP (mV)	100	0	RILD (Ohm-m)	50	
-----			1000	CILD (mmho/m)		0
			50	RILD X10 (Ohm-m)	500	
			50	RLL3 X10 (Ohm-m)	500	





450
500
550
600
650
700
750
800
850
900
950





1000

1050

1100

1150

1200

1250

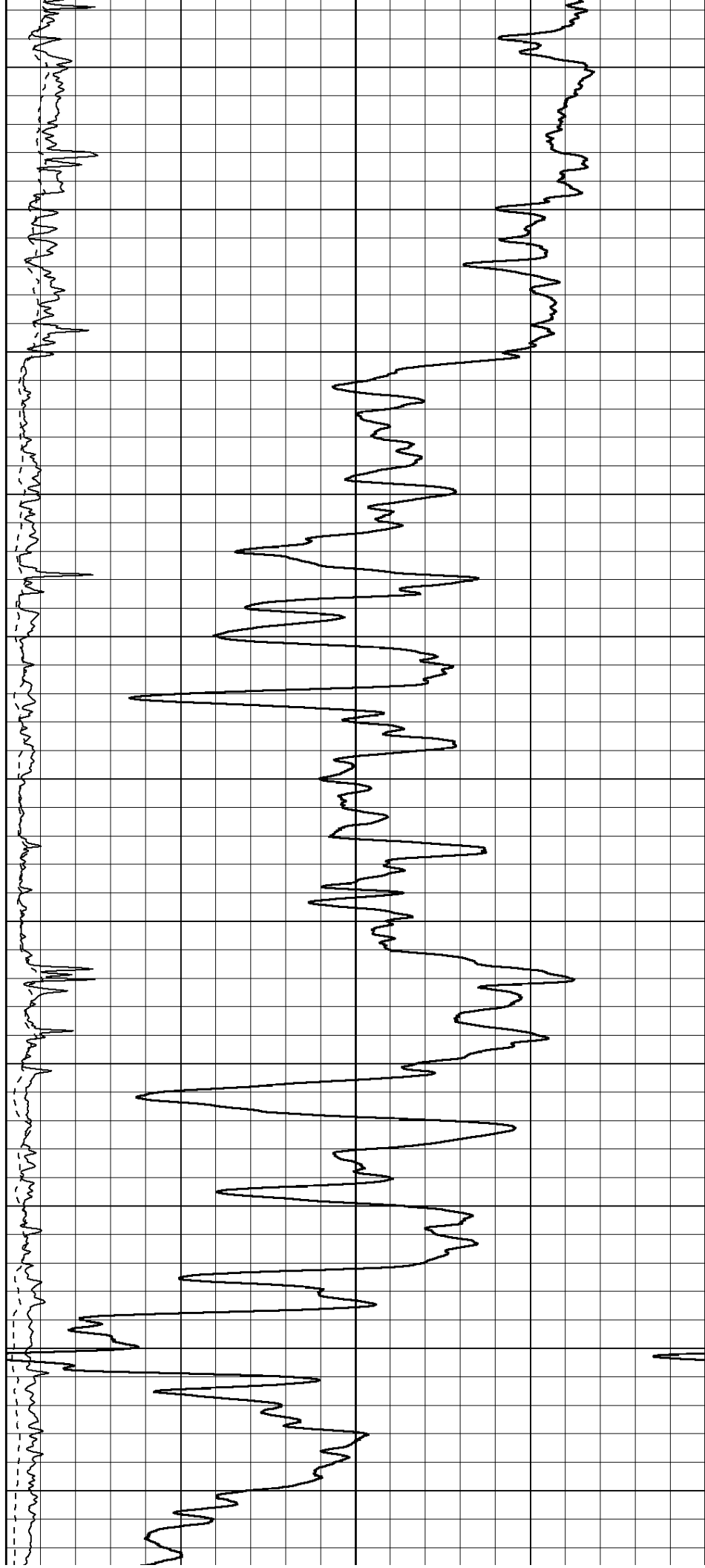
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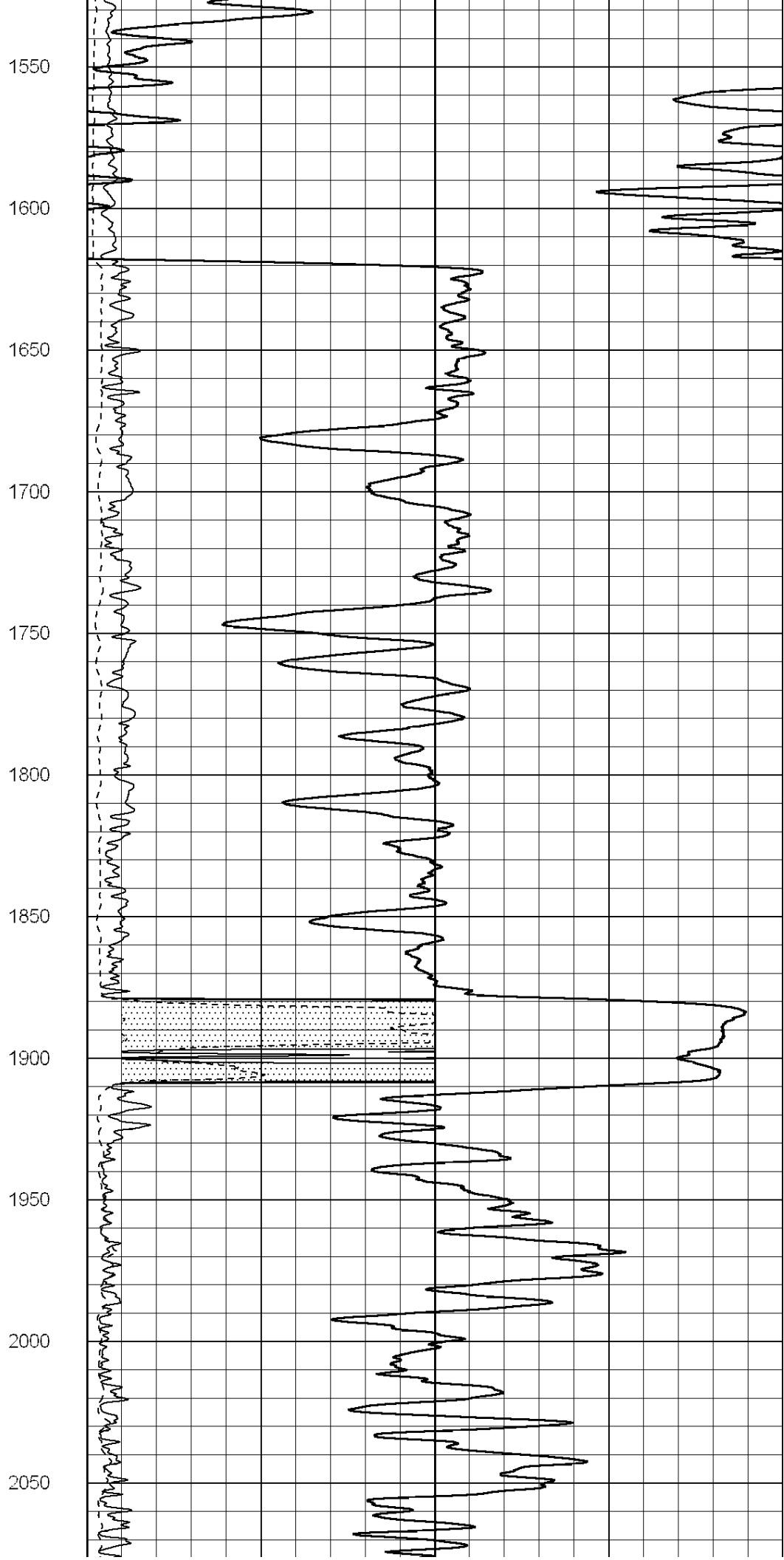
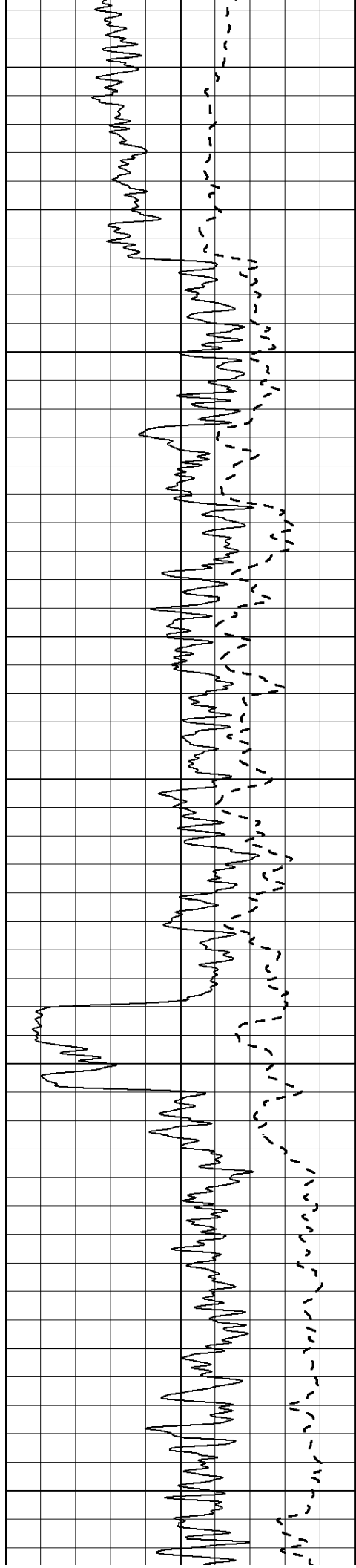
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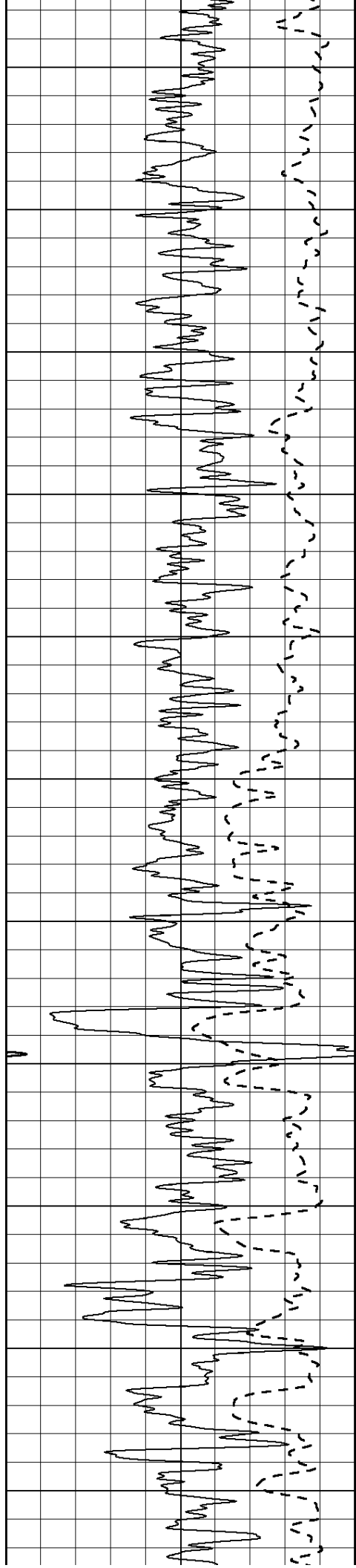
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1450

1500







2100

2150

2200

2250

2300

2350

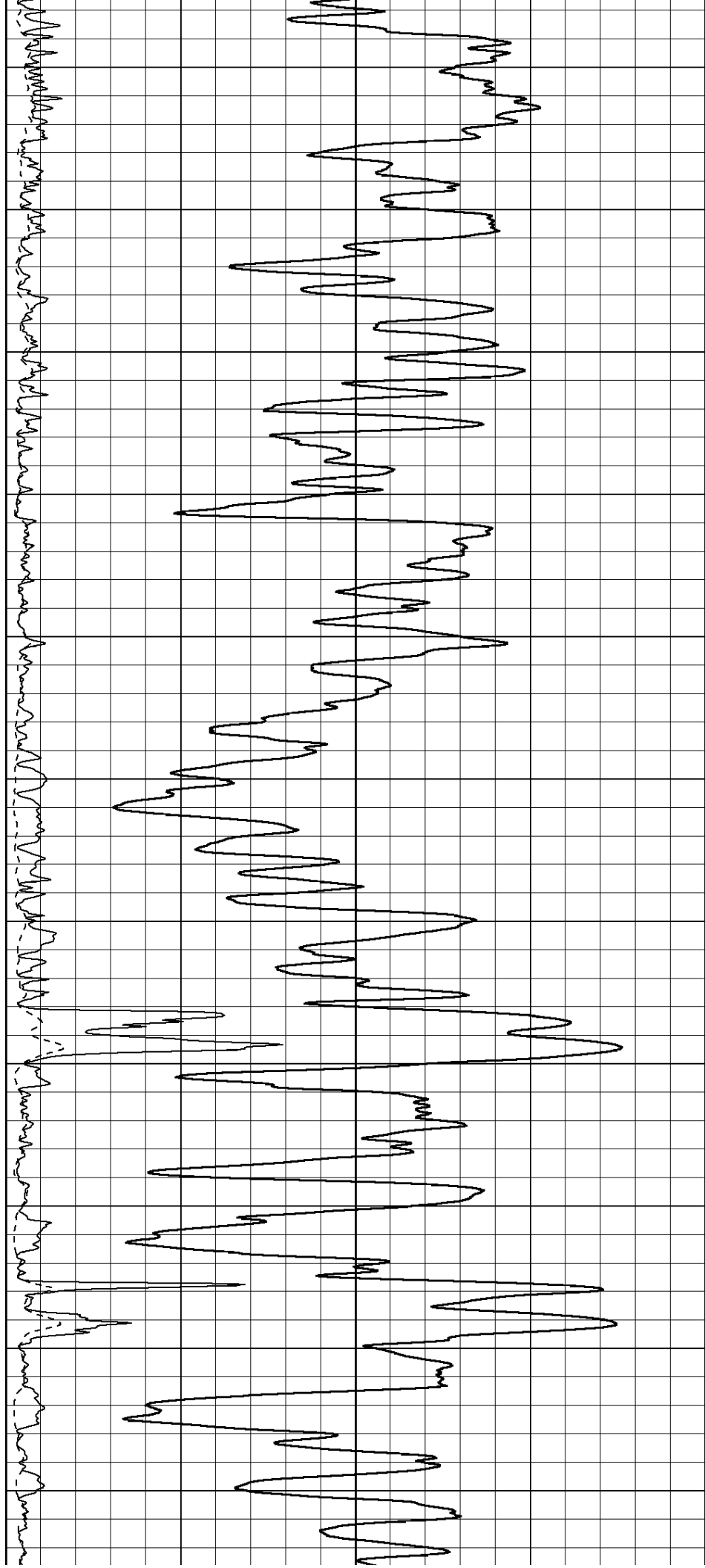
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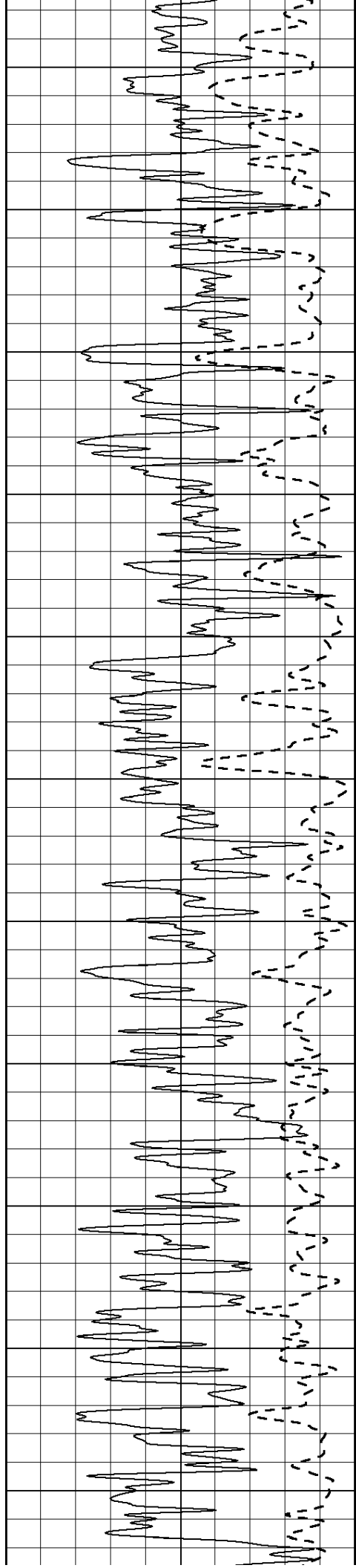
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2500

2550

2600





2650

2700

2750

2800

2850

2900

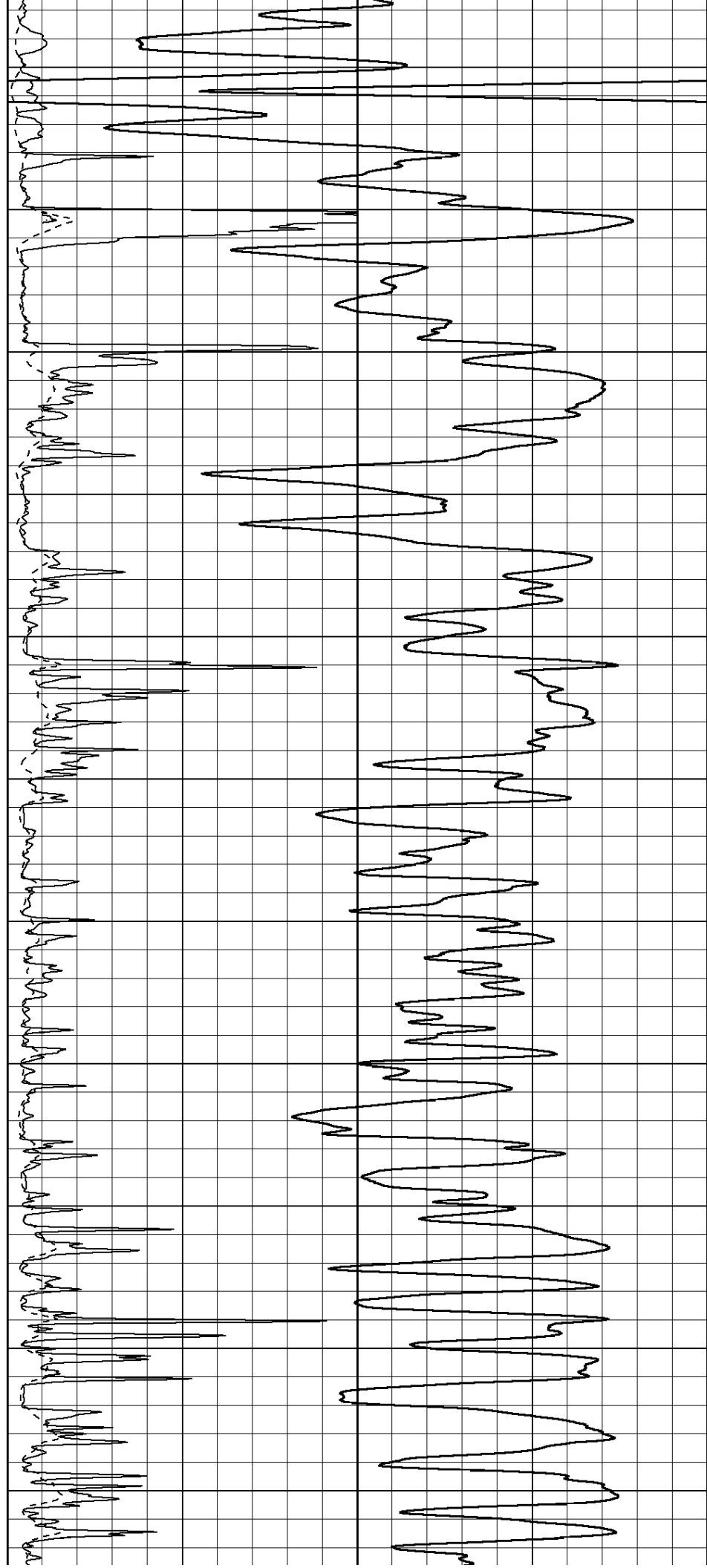
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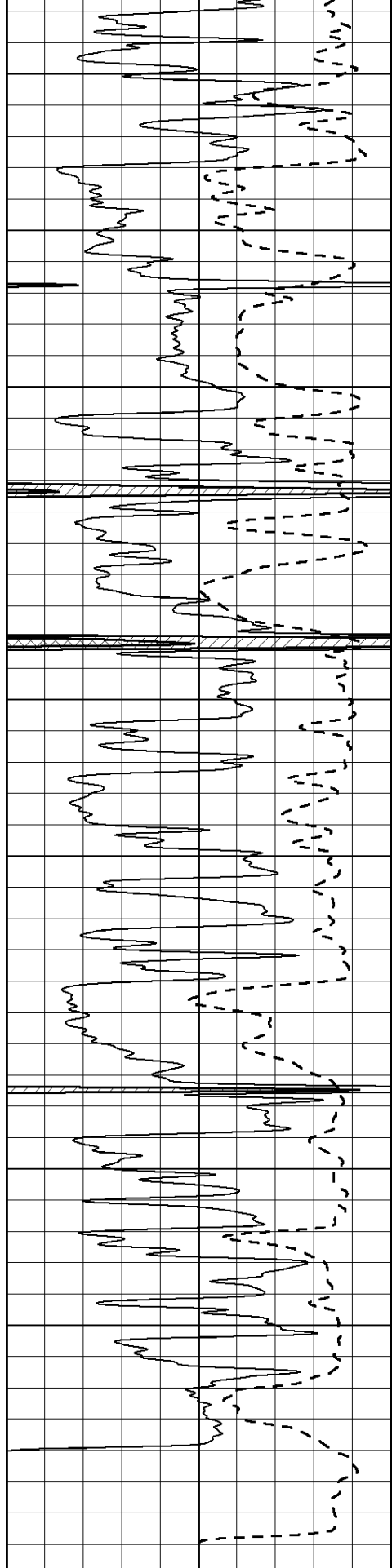
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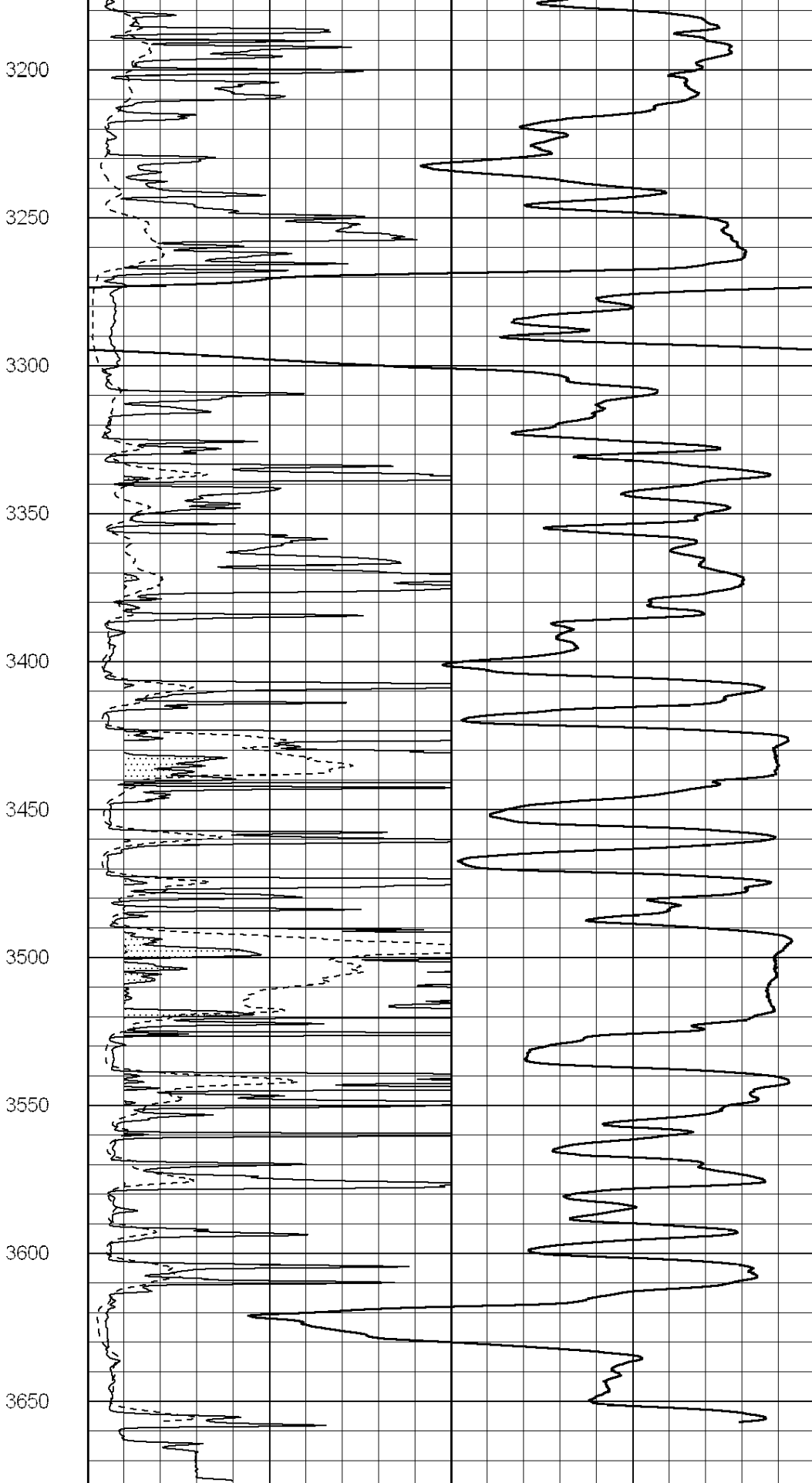
3100

3150





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



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



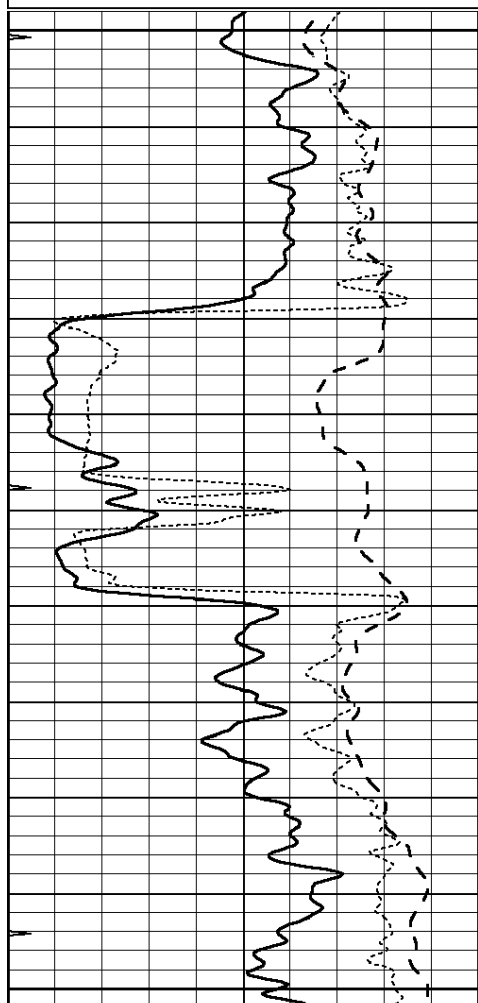
**COMPLETION
& PRODUCTION
SERVICES CO.**

ANHYDRITE

Database File: 22255ddn.db
Dataset Pathname: pass3.7
Presentation Format: _dil
Dataset Creation: Thu Feb 20 01:59:49 2014
Charted by: Depth in Feet scaled 1:240

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

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

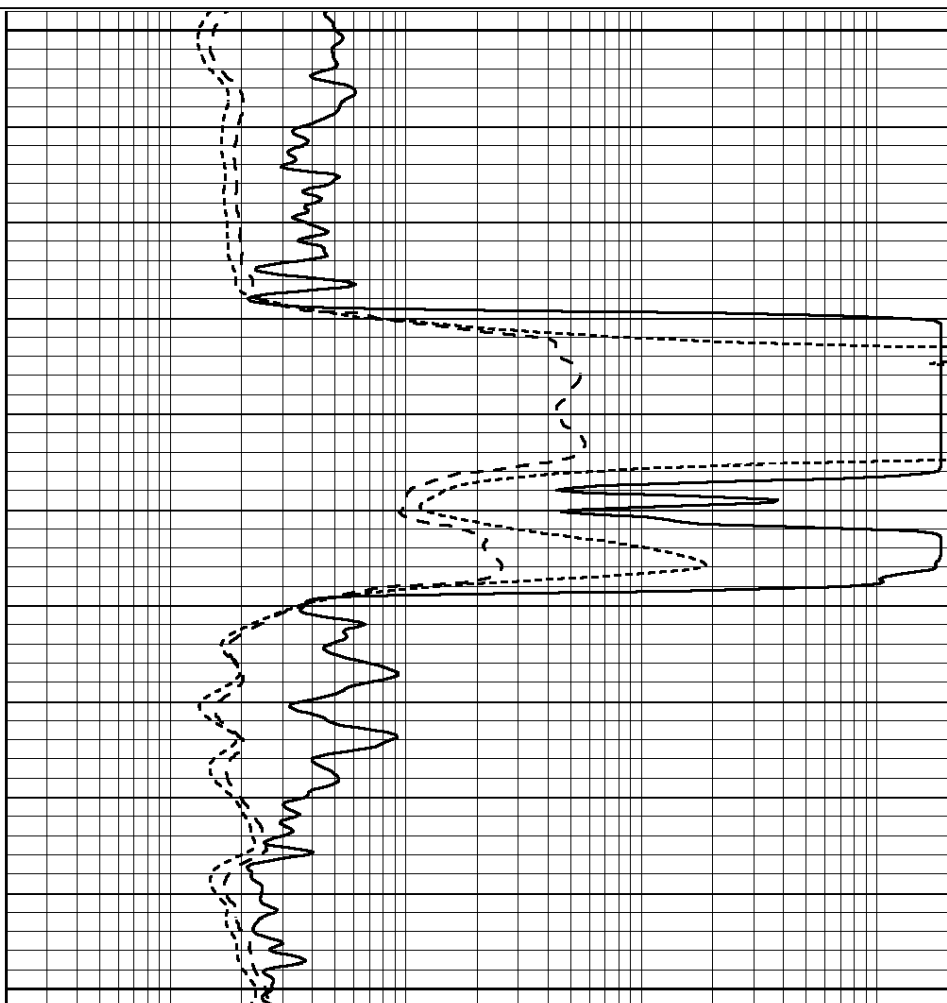


1850

1900

1950

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



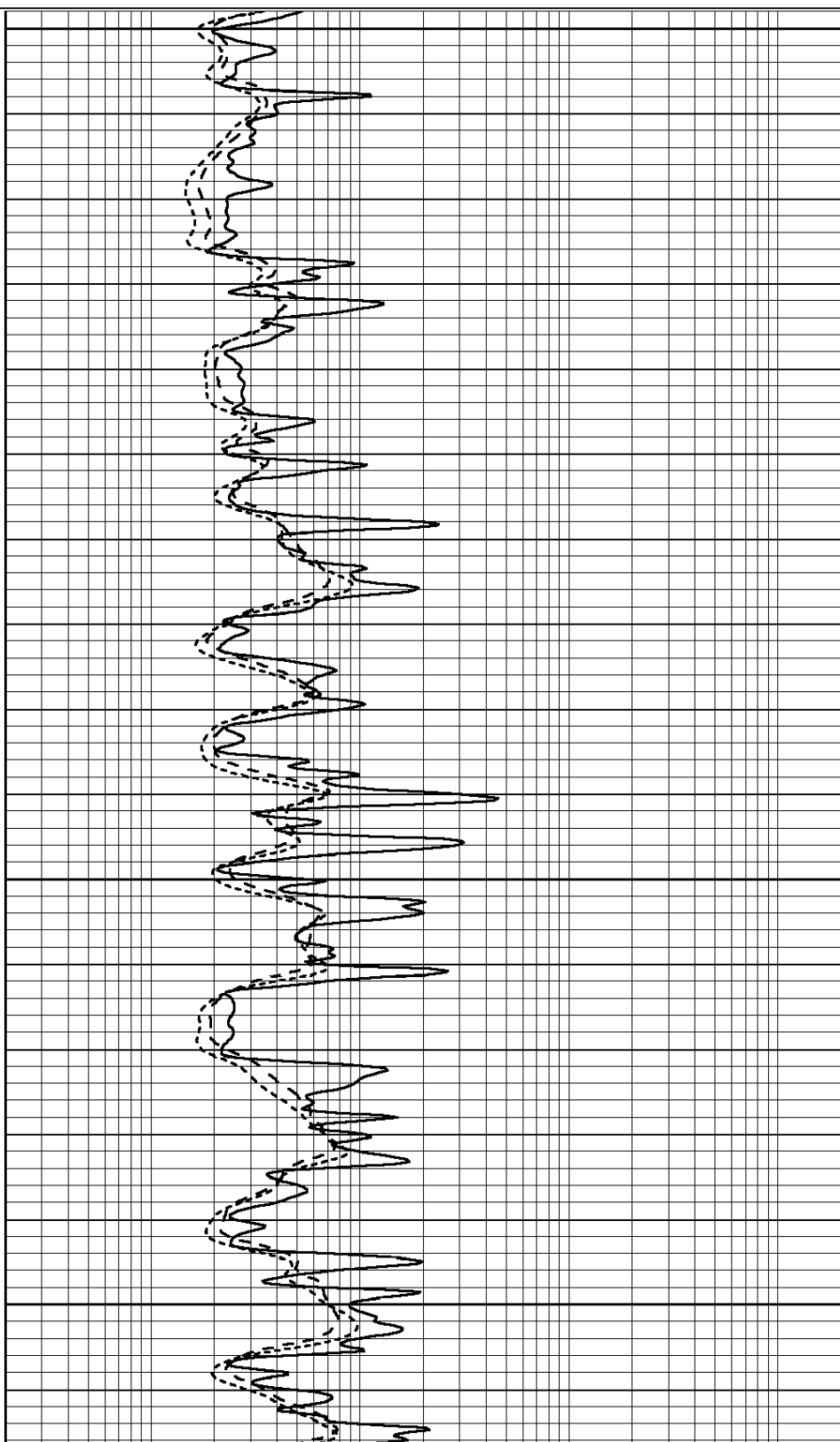
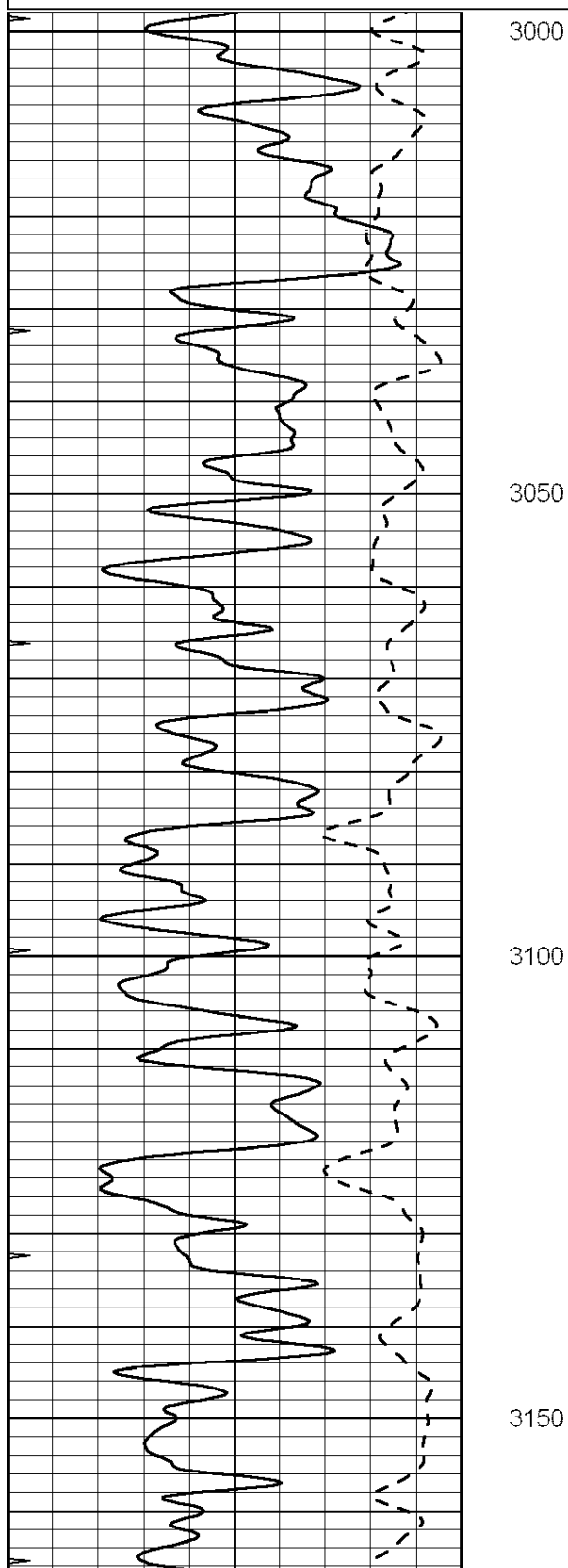
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

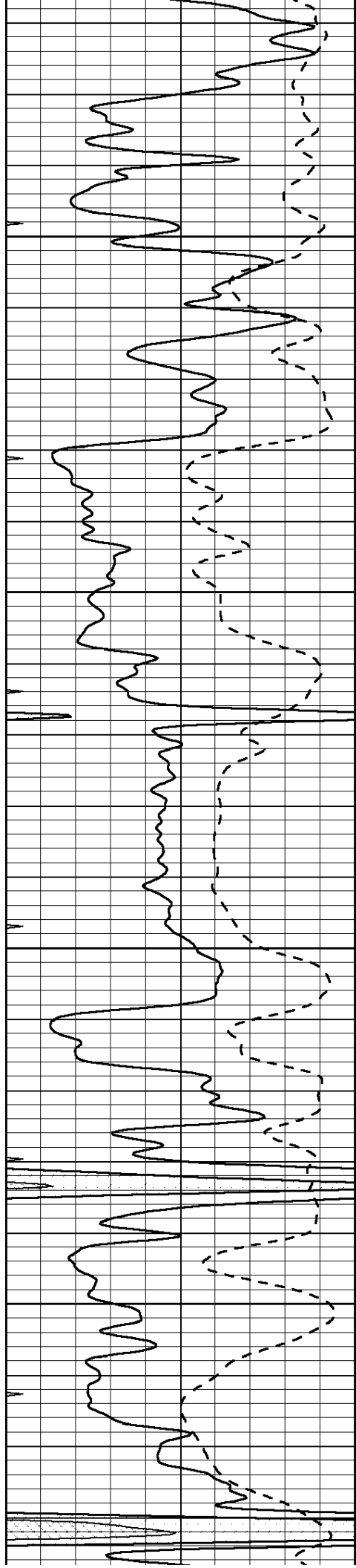


Database File: 22255ddn.db
Dataset Pathname: pass3.6
Presentation Format: dil
Dataset Creation: Thu Feb 20 01:59:00 2014
Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
0	MINMK	20

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



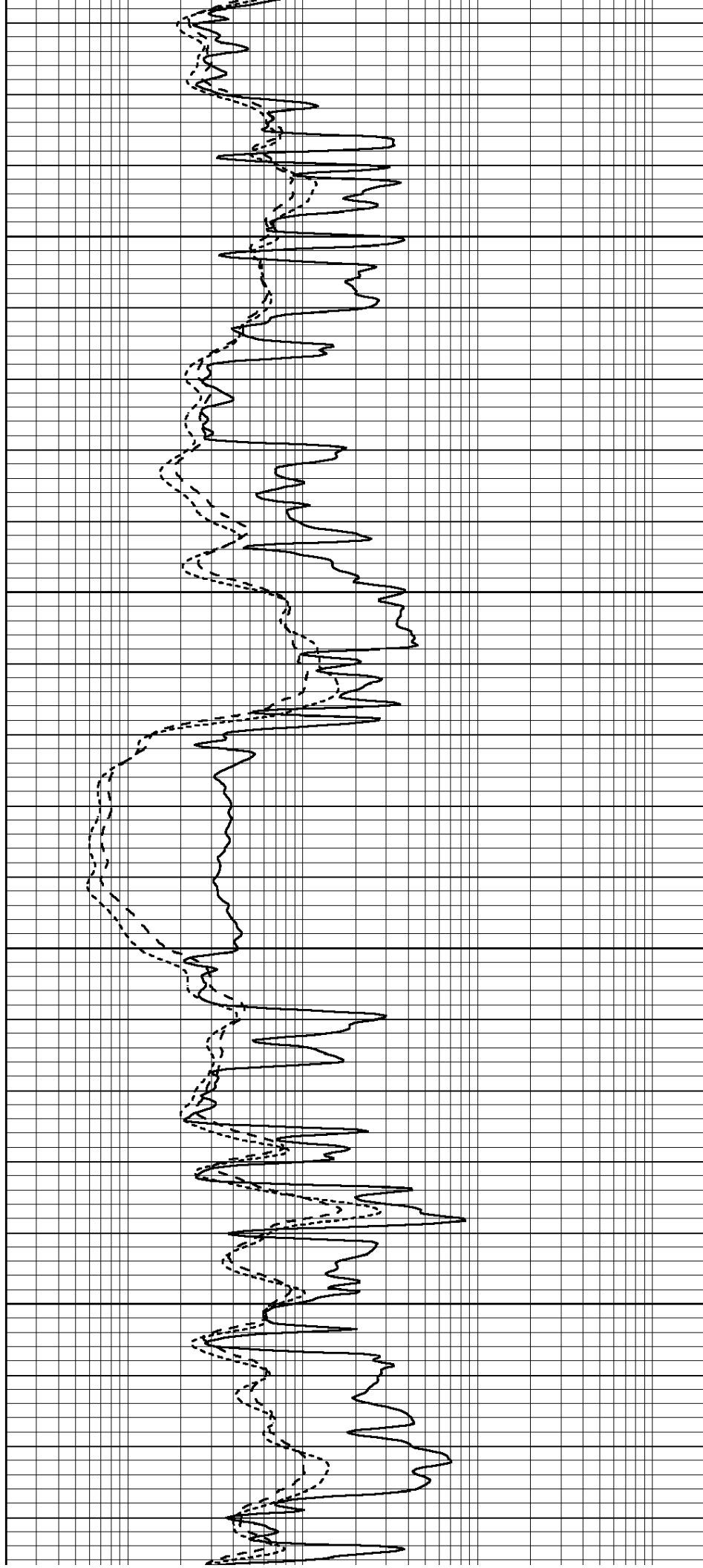


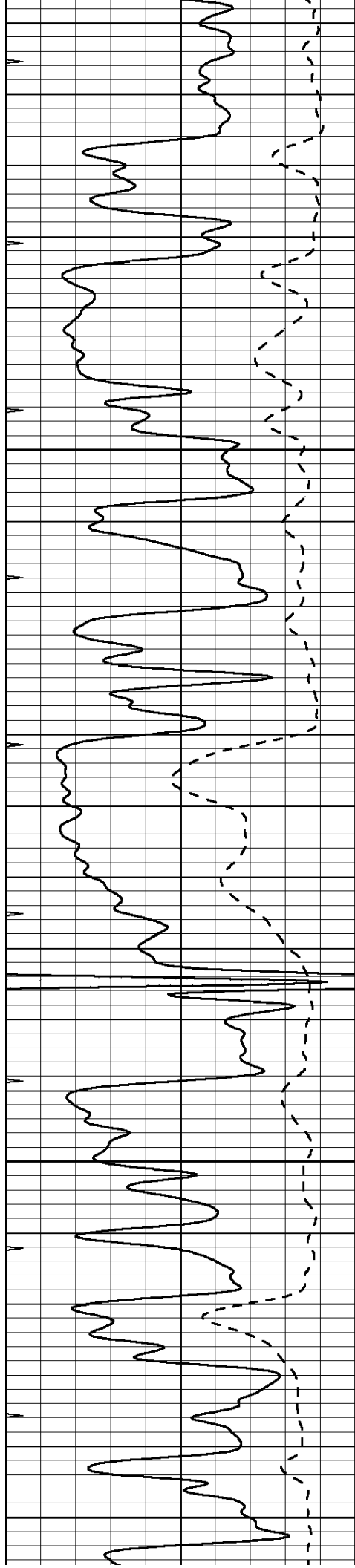
3200

3250

3300

3350





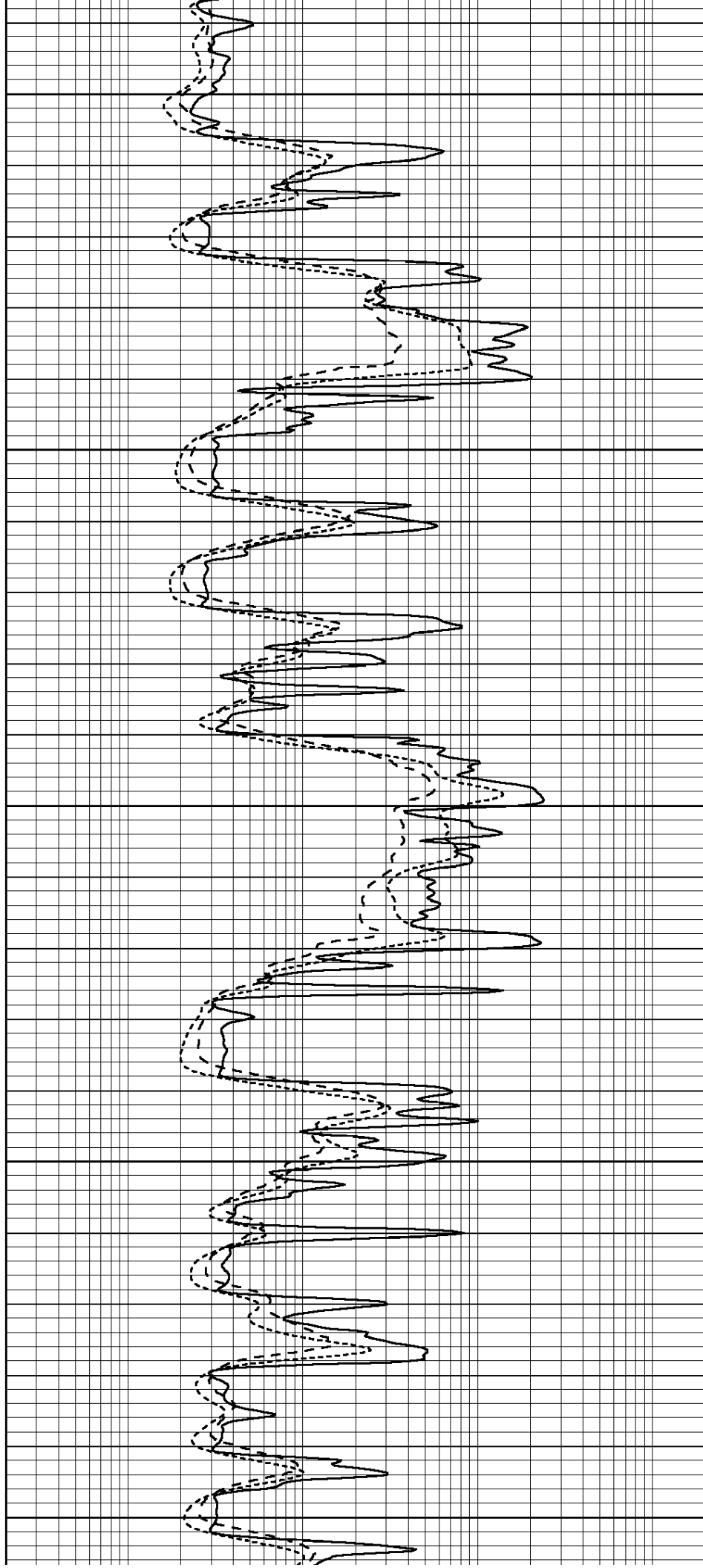
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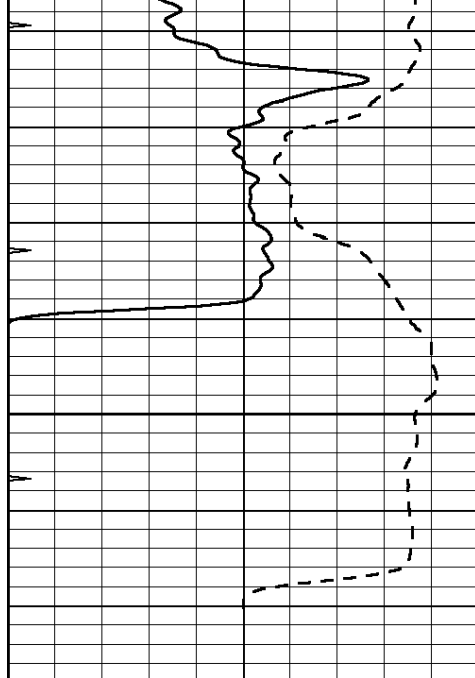
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3500

3550

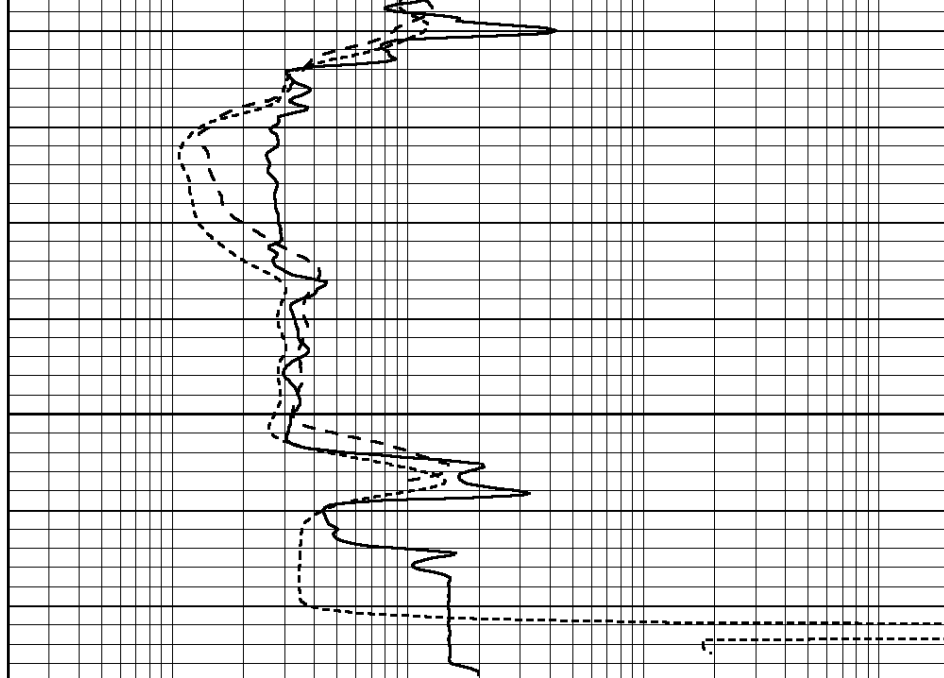
3600





0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
0	MINMK	20

3650



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



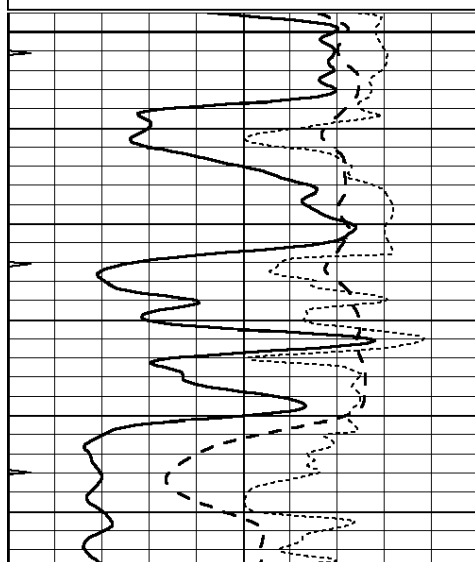
REPEAT SECTION

Database File: 22255ddn.db
 Dataset Pathname: pass2.14
 Presentation Format: _dil
 Dataset Creation: Thu Feb 20 01:02:08 2014
 Charted by: Depth in Feet scaled 1:240

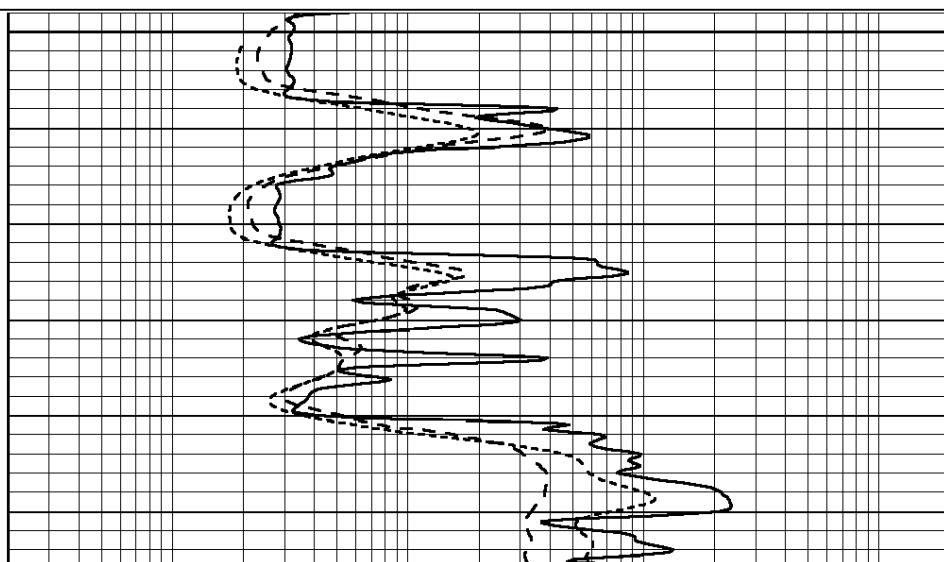
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-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

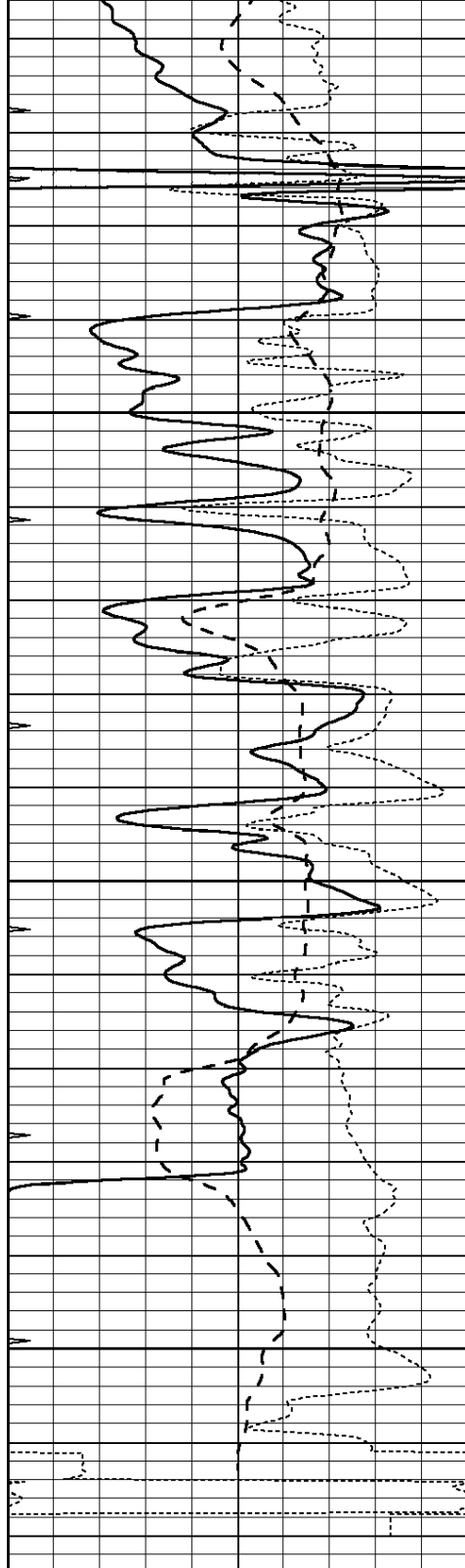
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

3450



3500



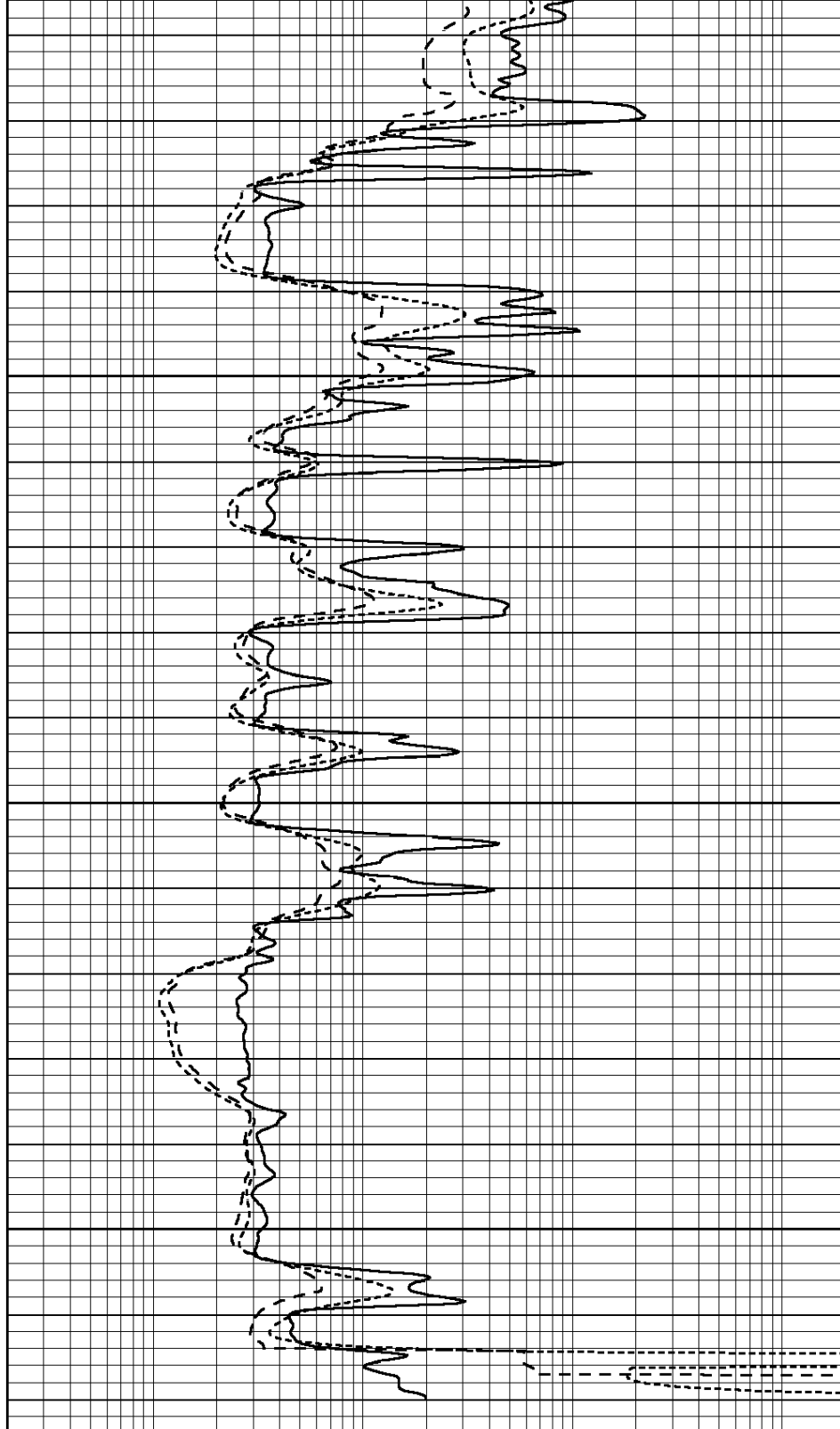


0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

3550

3600

3650



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: 22255ddn.db
 Dataset Pathname: pass3.6
 Dataset Creation: Thu Feb 20 01:59:00 2014

Serial-Model:
Surface Cal Performed:
Downhole Cal Performed:
After Survey Verification Performed:

PROBE9-DILG
Thu Feb 20 00:34:41 2014
Mon Jul 28 12:02:56 2008
Mon Jul 28 12:02:56 2008

Surface Calibration

Readings			References				Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	650.000	50.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	660.000	-23.000
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		
		-7.200	V		4000.000	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: 004N Model: PRB

Master Calibration

Performed Mon Jun 03 09:36:56 2013

	Background	Magnesium	Aluminum	Sandstone	
Window 1	1417.6	10391.4	3464.6	11537.5	cps
Window 2	1295.0	8959.7	3050.1	9816.4	cps
Window 3	1105.1	5464.2	2051.0	5838.8	cps
Window 4	315.0	317.7	312.9	319.8	cps
Long Space	0.0	7664.6	1755.0	8521.3	cps
Short Space	1.8	1582.4	1040.8	1699.4	cps
Rho		1.7100	2.5900	1.3800	g/cc
Pe		0.0000	2.5700	1.5500	
Rib Angle	: 44.1	Rib Slope	: 0.970	Density/Spine Ratio	: 0.574
Spine Angle	: 74.1	Spine Slope	: 3.519	Spine Intercept	: -17.0

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:		070558			
Tool Model:		OPEN_GR			
Performed:		Wed Feb 19 23:54:43 2014			
Calibrator Value:		1.0	GAPI		
Background Reading:		0.0	cps		
Calibrator Reading:		1.0	cps		
Sensitivity:		0.2200	GAPI/cps		

Calibration Report			
Database File:	22255ddn.db		
Dataset Pathname:	pass3.6		
Dataset Creation:	Thu Feb 20 01:59:00 2014		
Dual Induction Calibration Report			
Serial-Model:	PROBE9-DILG		
Surface Cal Performed:	Thu Feb 20 00:34:41 2014		
Downhole Cal Performed:	Mon Jul 28 12:02:56 2008		
After Survey Verification Performed:	Mon Jul 28 12:02:56 2008		
Surface Calibration	Readings	References	Results

Loop:	Air	Loop		Air	Loop		m	b
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	650.000	50.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	660.000	-23.000
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		
		-7.200	V		4000.000	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: 004N Model: PRB								

Master Calibration					Performed Mon Jun 03 09:36:56 2013			
	Background		Magnesium		Aluminum		Sandstone	
Window 1	1417.6		10391.4		3464.6		11537.5	cps
Window 2	1295.0		8959.7		3050.1		9816.4	cps
Window 3	1105.1		5464.2		2051.0		5838.8	cps
Window 4	315.0		317.7		312.9		319.8	cps
Long Space	0.0		7664.6		1755.0		8521.3	cps
Short Space	1.8		1582.4		1040.8		1699.4	cps
Rho			1.7100		2.5900		1.3800	g/cc
Pe			0.0000		2.5700		1.5500	
Rib Angle	: 44.1		Rib Slope	: 0.970	Density/Spine Ratio			: 0.574
Spine Angle	: 74.1		Spine Slope	: 3.519	Spine Intercept			: -17.0

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			
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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:		070558			
Tool Model:		OPEN_GR			
Performed:		Wed Feb 19 23:54:43 2014			
Calibrator Value:		1.0	GAPI		
Background Reading:		0.0	cps		
Calibrator Reading:		1.0	cps		
Sensitivity:		0.2200	GAPI/cps		