



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

DUAL INDUCTION LOG

Company DEUTSCH OIL COMPANY		Company DEUTSCH OIL COMPANY	
Well BATMAN-MORRISON #1		Well BATMAN-MORRISON #1	
Field HAZEL		Field HAZEL	
County STAFFORD		County STAFFORD	
State KANSAS		State KANSAS	
Location: API # : 15-185-23855-0000		Other Services CDL/CNL MEL	
SEC 28 TWP 21S RGE 13W 1430' FNL & 1197' FEL		Elevation K.B. 1893 D.F. 1891 G.L. 1885	
Permanent Datum Log Measured From Drilling Measured From	GROUND LEVEL KELLY BUSHING 8' A.G.L. KELLY BUSHING	Elevation 1885	
Date	2/8/14		
Run Number	ONE		
Depth Driller	3800		
Depth Logger	3800		
Bottom Logged Interval	3798		
Top Log Interval	0		
Casing Driller	8 5/8" @ 348'		
Casing Logger	346'		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 10,200 PPM	
Density / Viscosity	9.1 / 47		
pH / Fluid Loss	10.0 / 10.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.70 @ 42F		
Rmt @ Meas. Temp	0.53 @ 42F		
Rmc @ Meas. Temp	0.84 @ 42F		
Source of Rmt / Rmc	MEASUREMENT		
Rm @ BHT	0.28 @ 114F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	114F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	JEFF GRONEWEG		
Witnessed By	ELDON SCHIERLING		

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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:
GREAT BEND, KS - 11 MILES SOUTH TO NE 170TH RD - 1/4 MILE WEST
SOUTH INTO

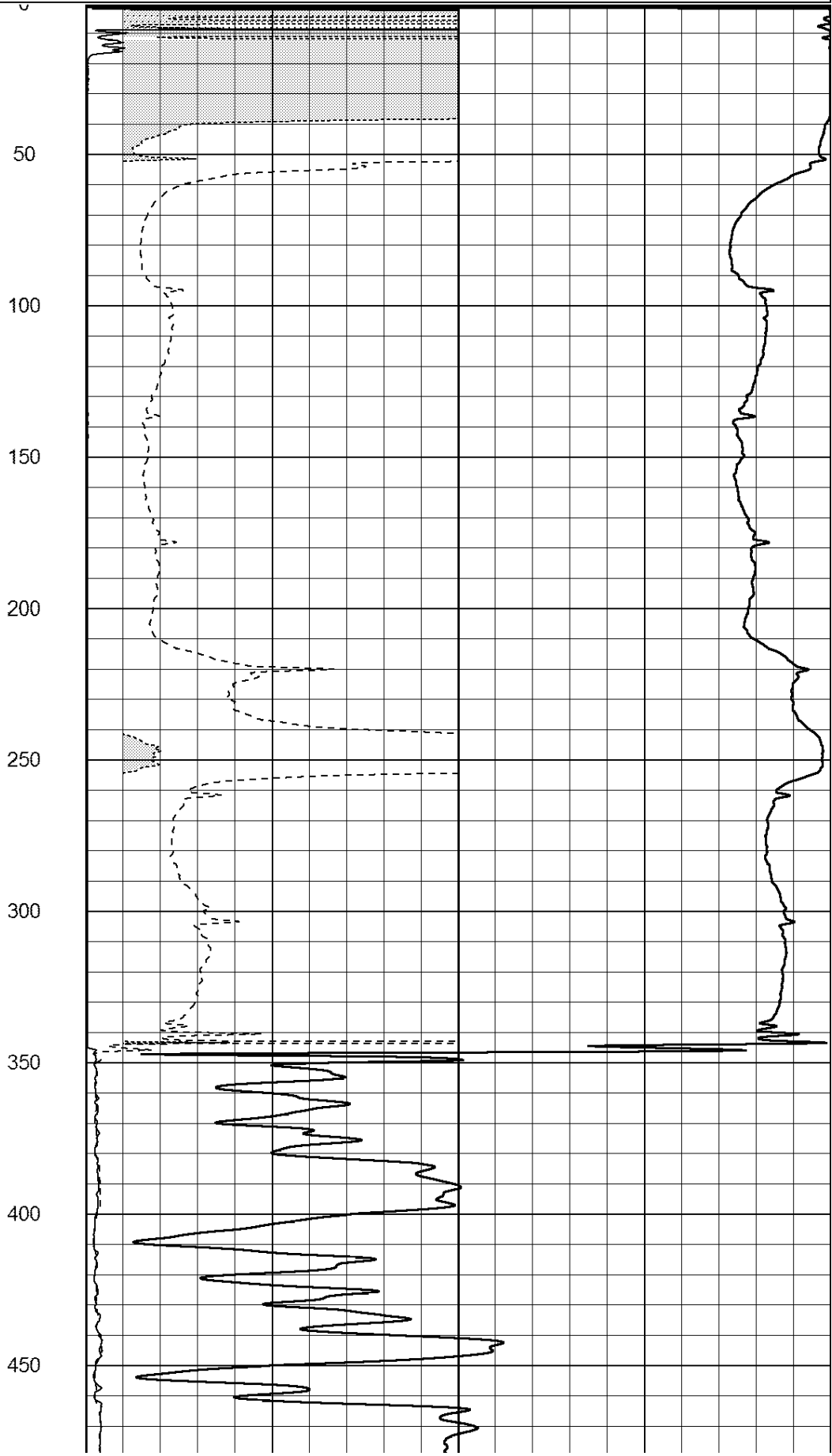
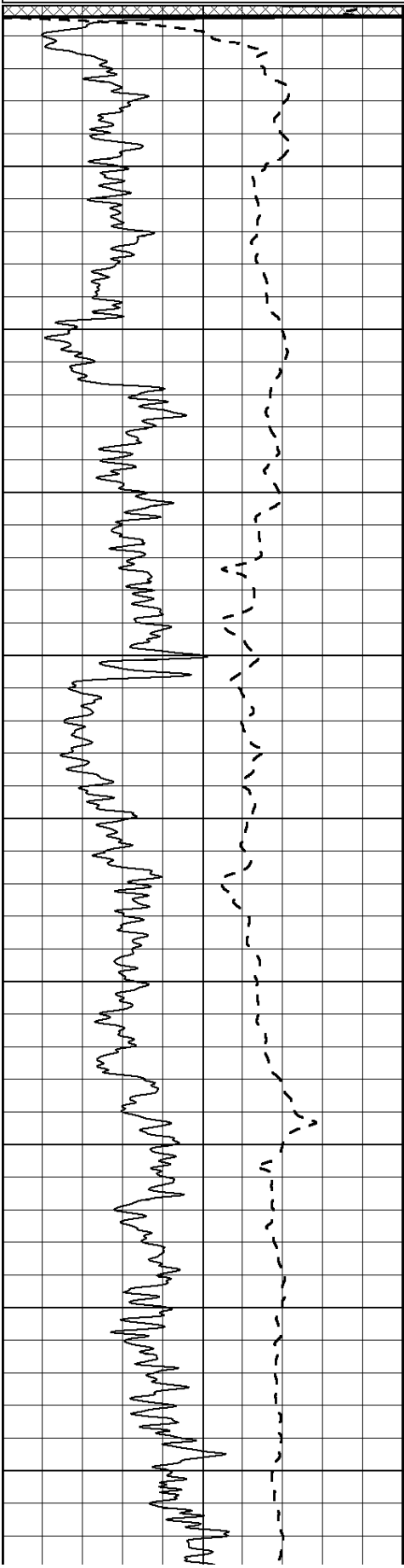
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Dataset Pathname: pass3.3
Presentation Format: _dil2
Dataset Creation: Sat Feb 08 12:43:20 2014 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:600

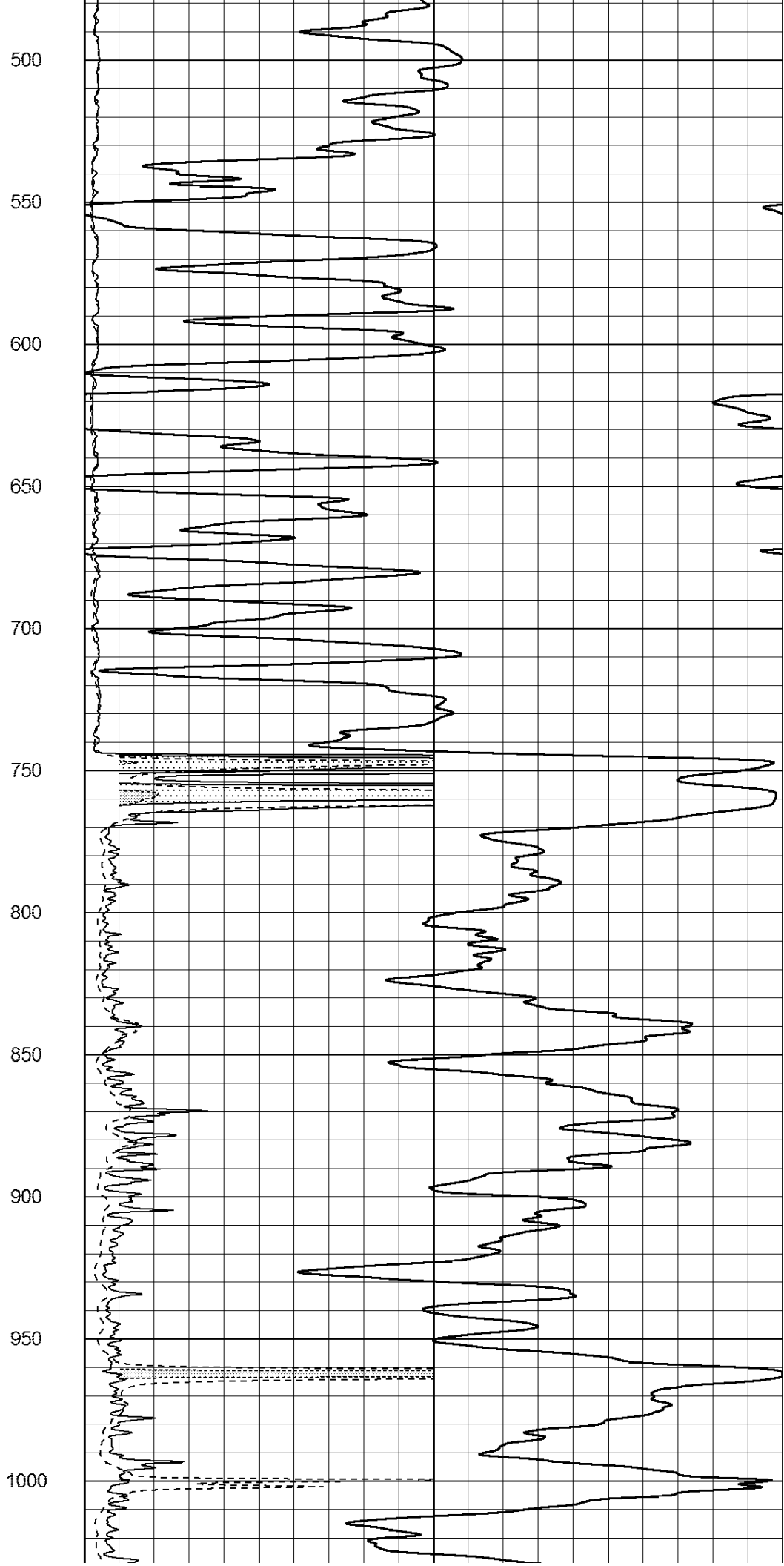
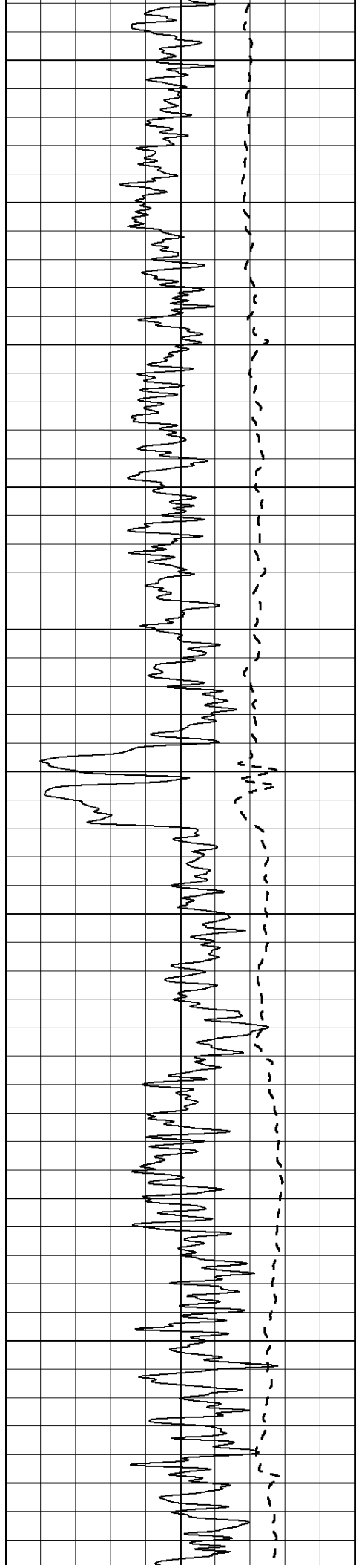
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-100	SP (mV)	100

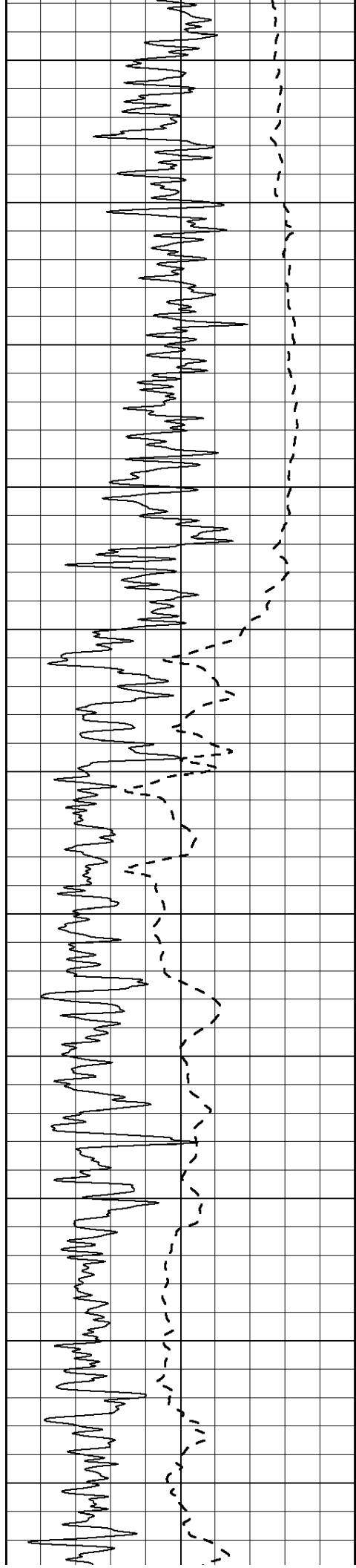
0	RLL3 (Ohm-m)	50
0	RILD (Ohm-m)	50

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







1050

1100

1150

1200

1250

1300

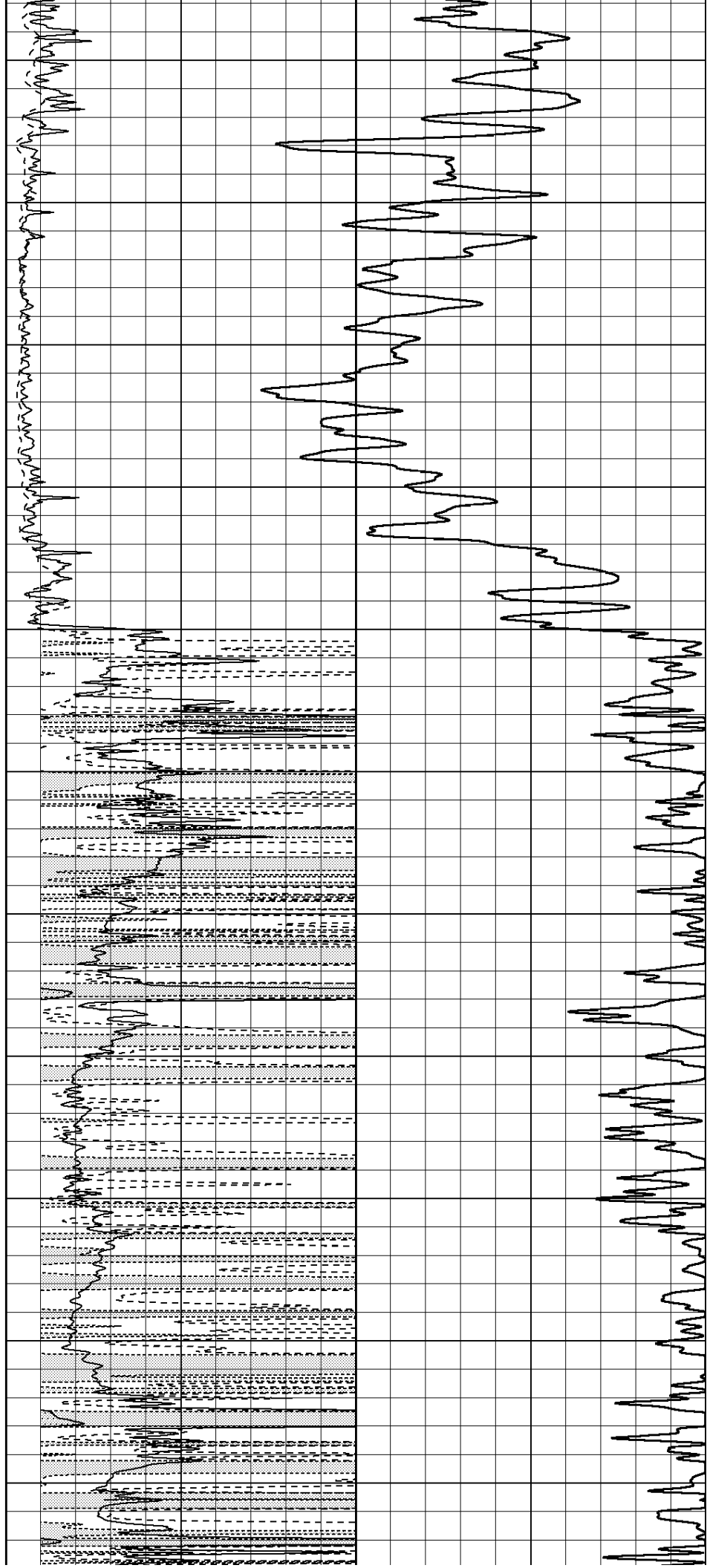
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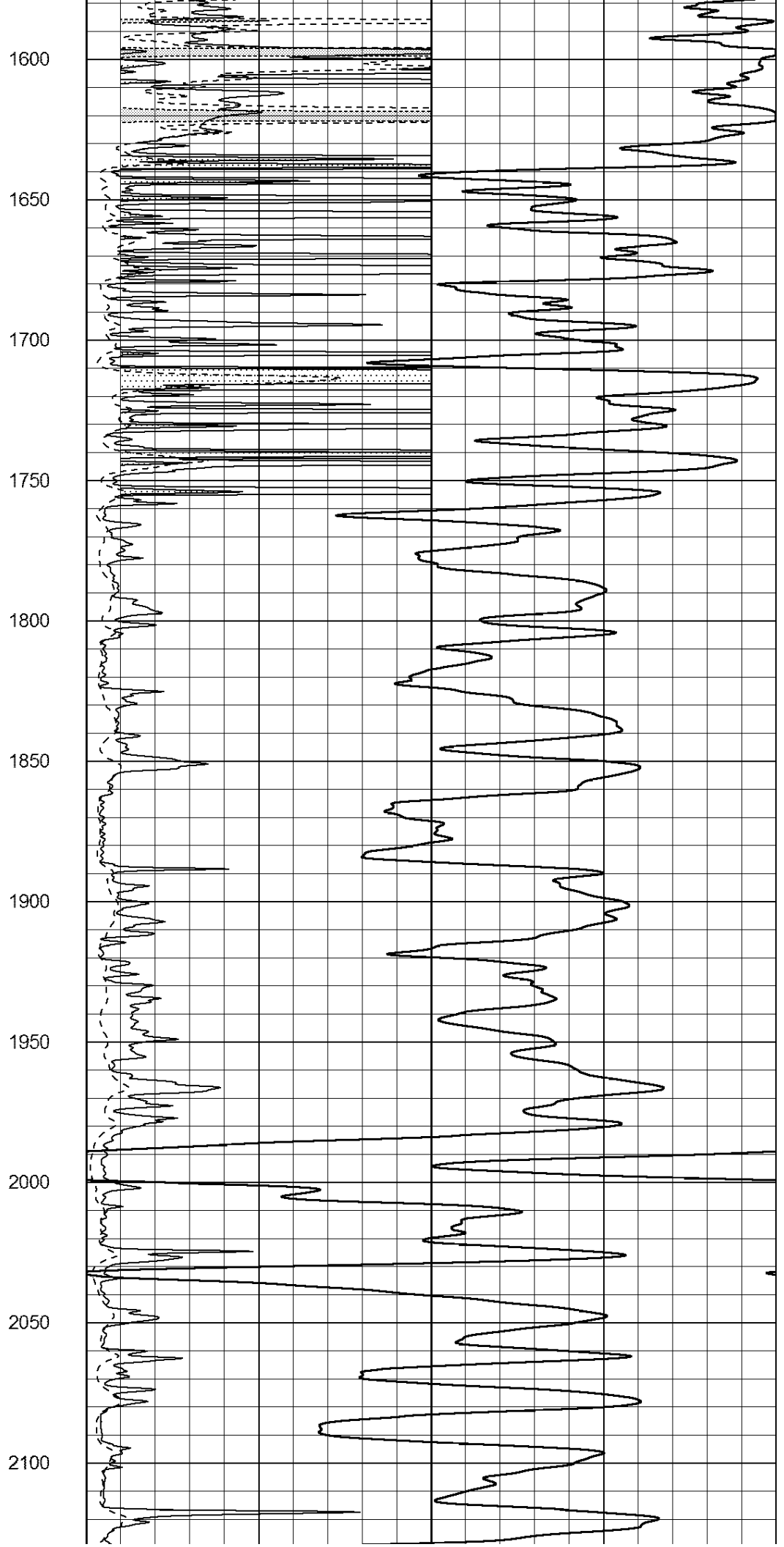
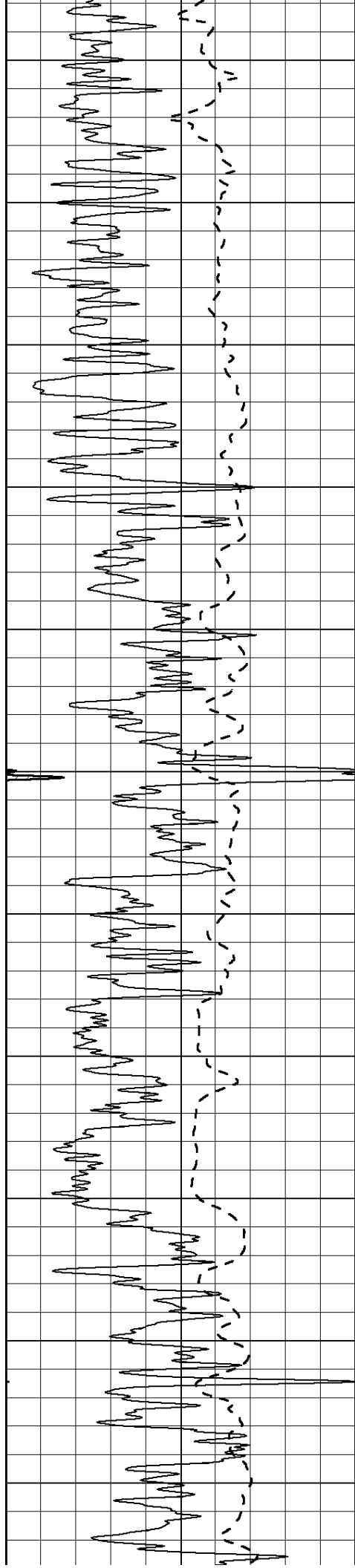
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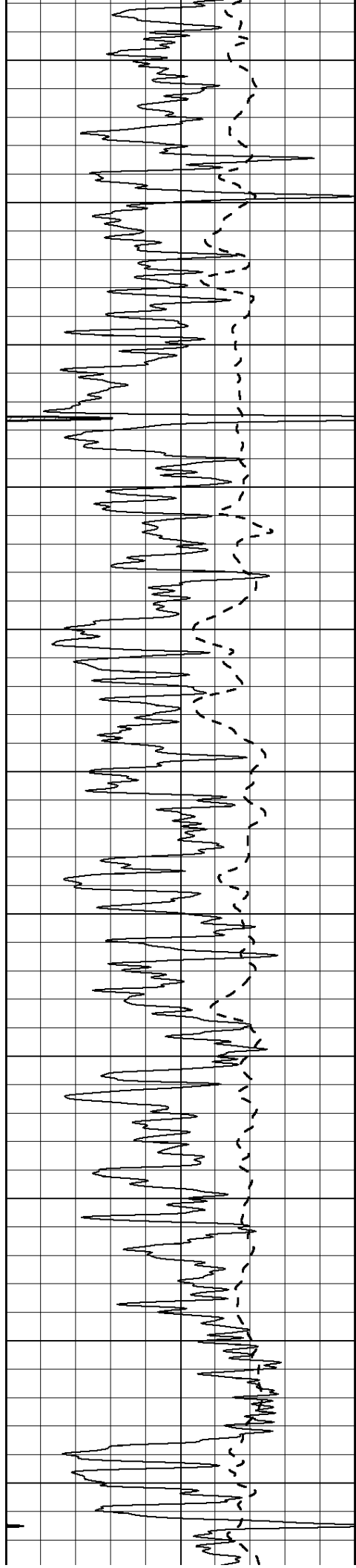
1450

1500

1550







2150

2200

2250

2300

2350

2400

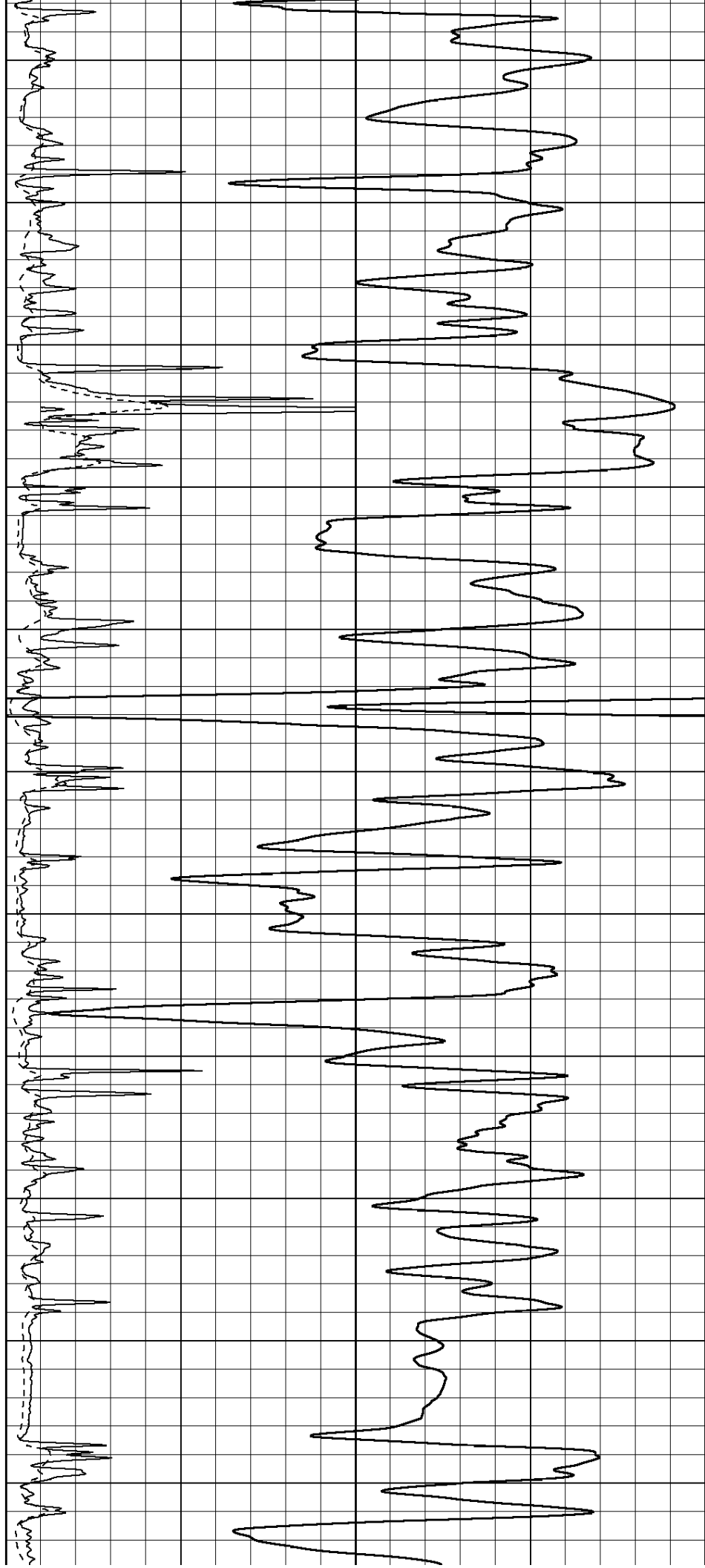
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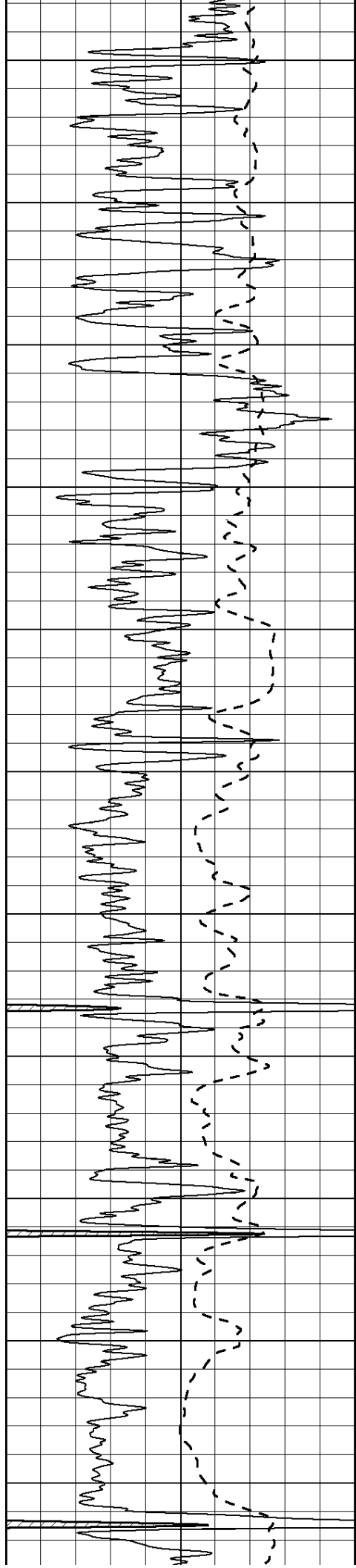
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2550

2600

2650





2700

2750

2800

2850

2900

2950

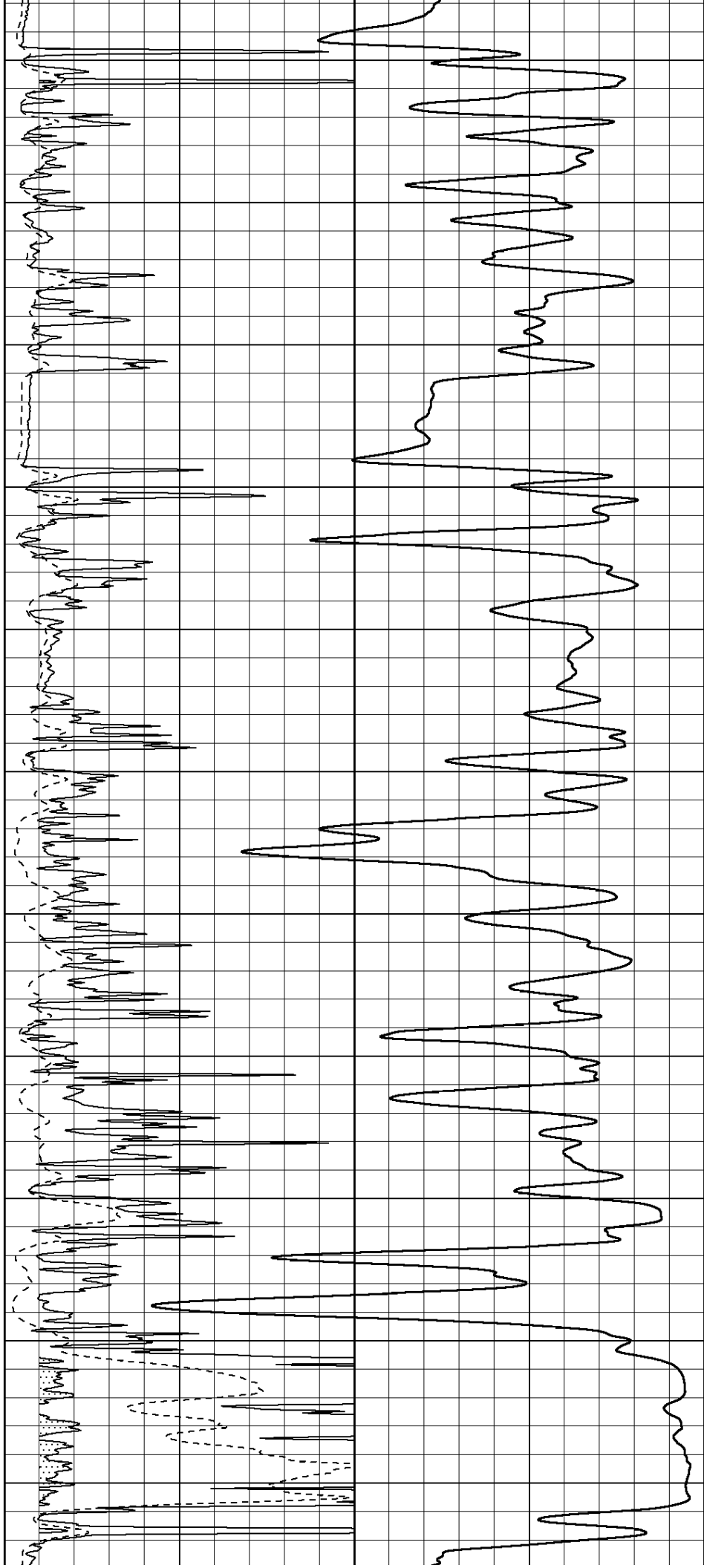
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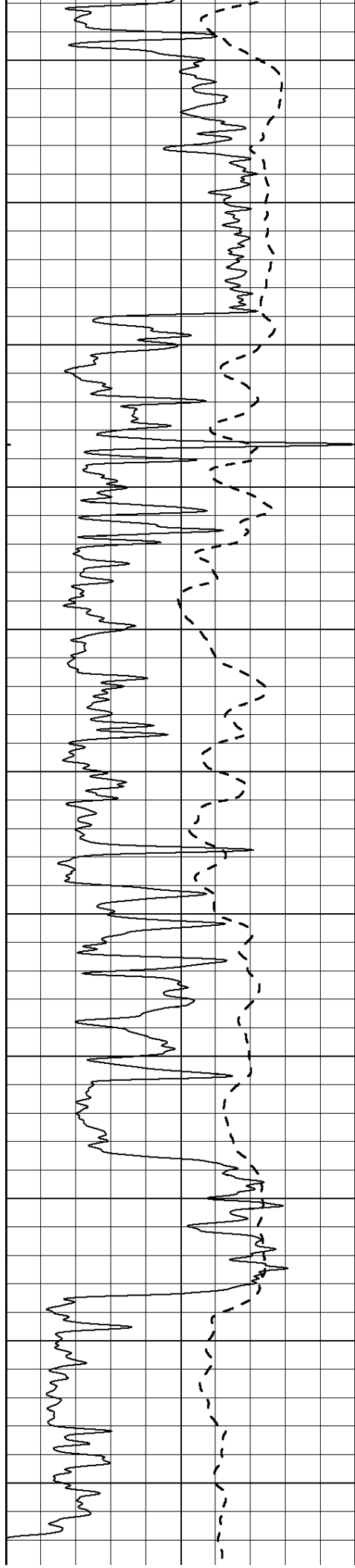
3050

3100

3150

3200





3250

3300

3350

3400

3450

3500

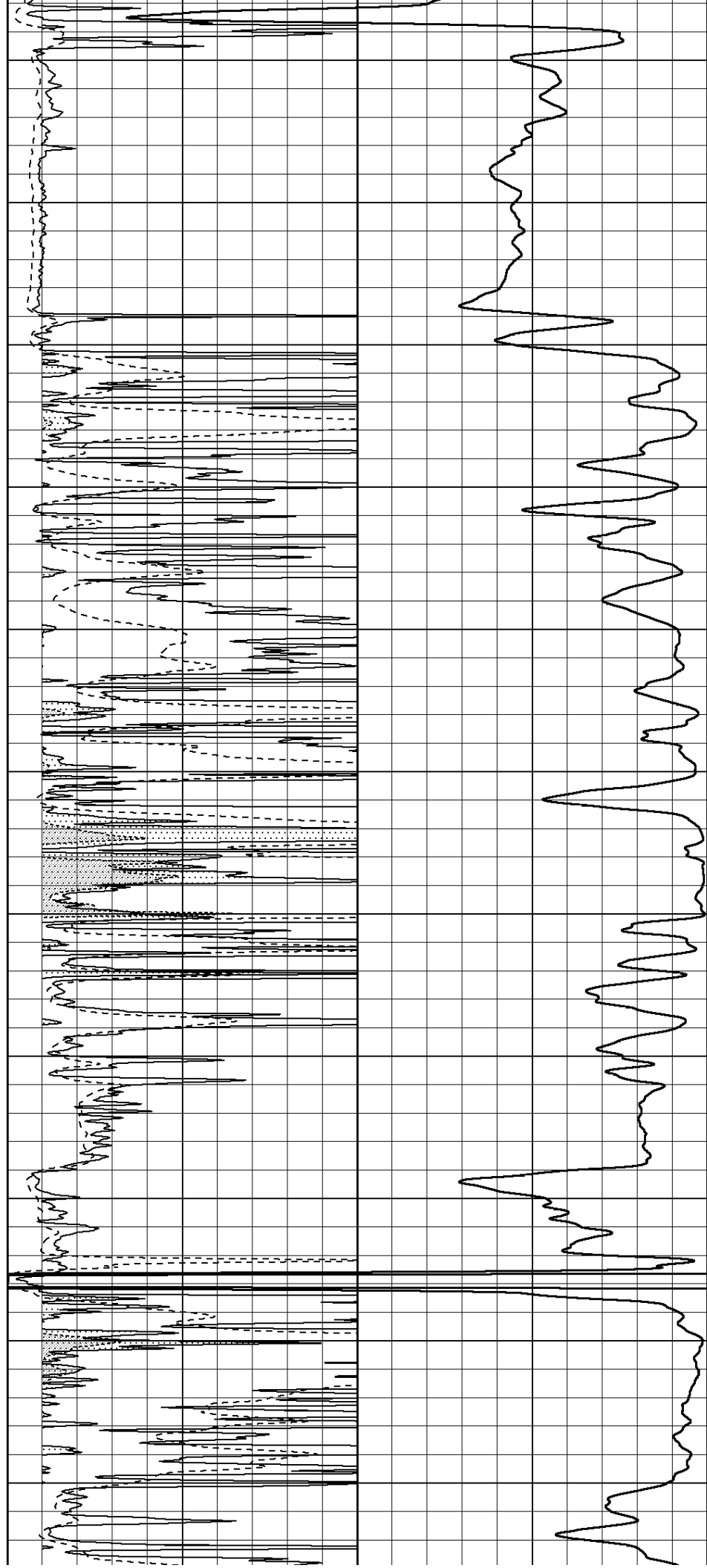
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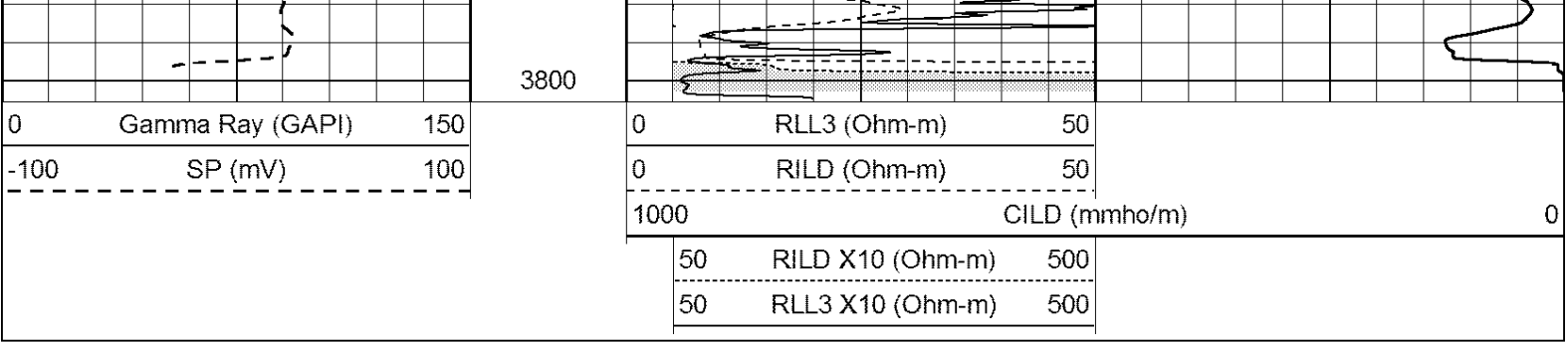
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3650

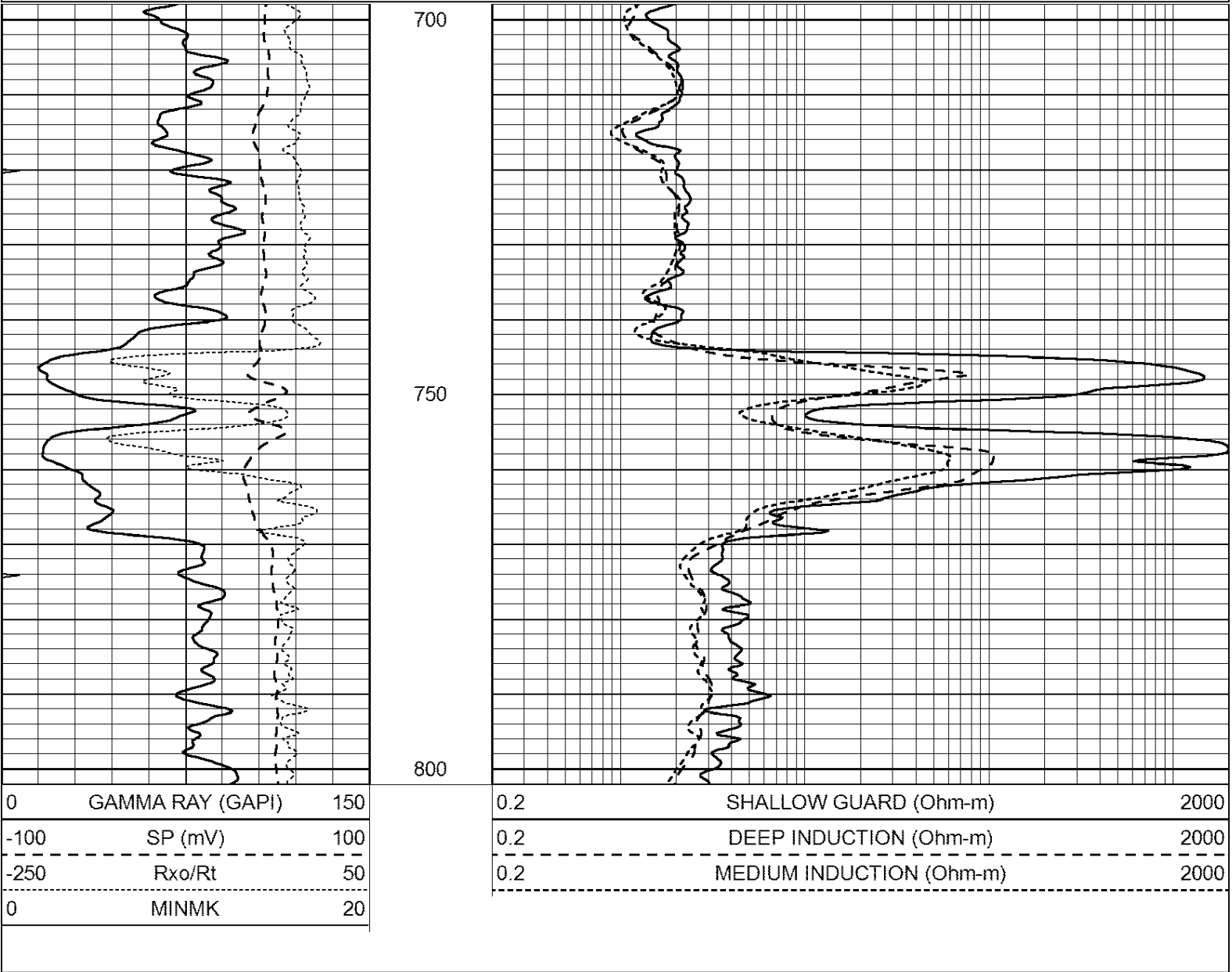
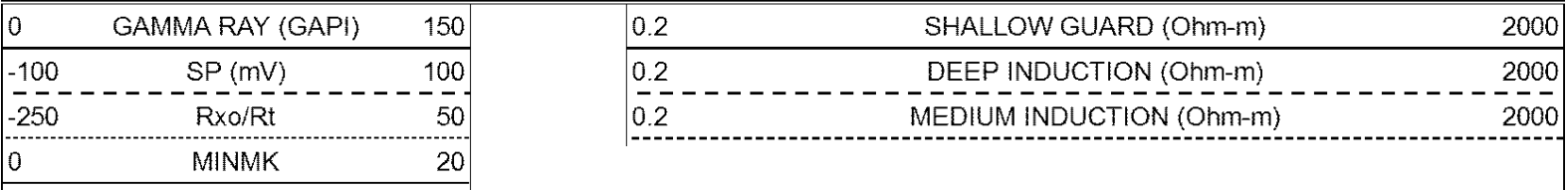
3700

3750





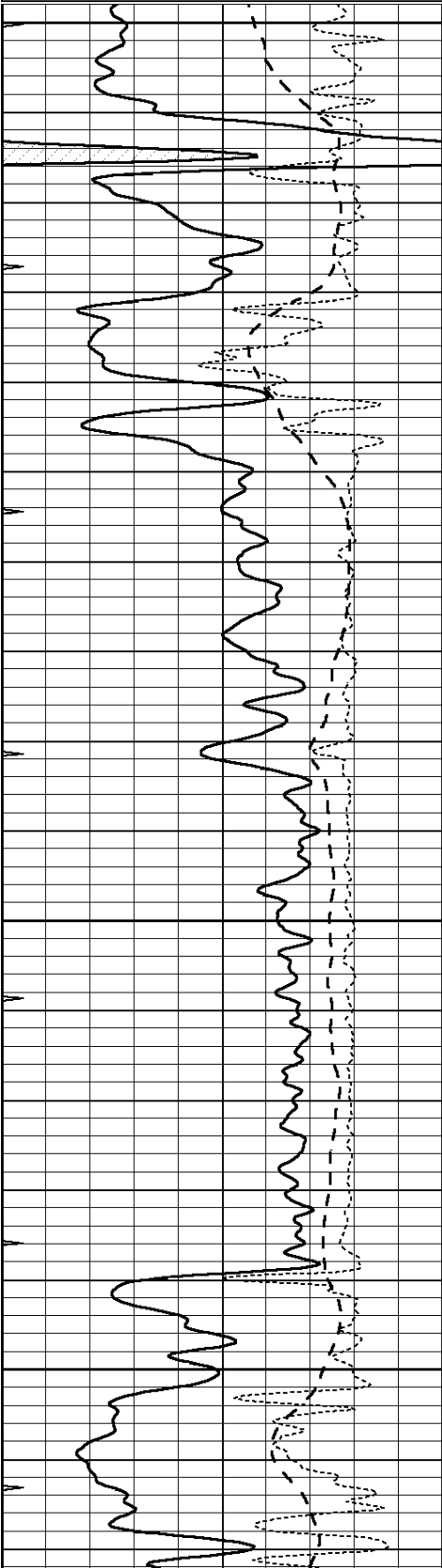
Database File: 23889ddn.db
Dataset Pathname: pass3.3
Presentation Format: _dil
Dataset Creation: Sat Feb 08 12:43:20 2014 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:240



Database File: 23889ddn.db
Dataset Pathname: pass3.2
Presentation Format: _dil
Dataset Creation: Sat Feb 08 11:36:02 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

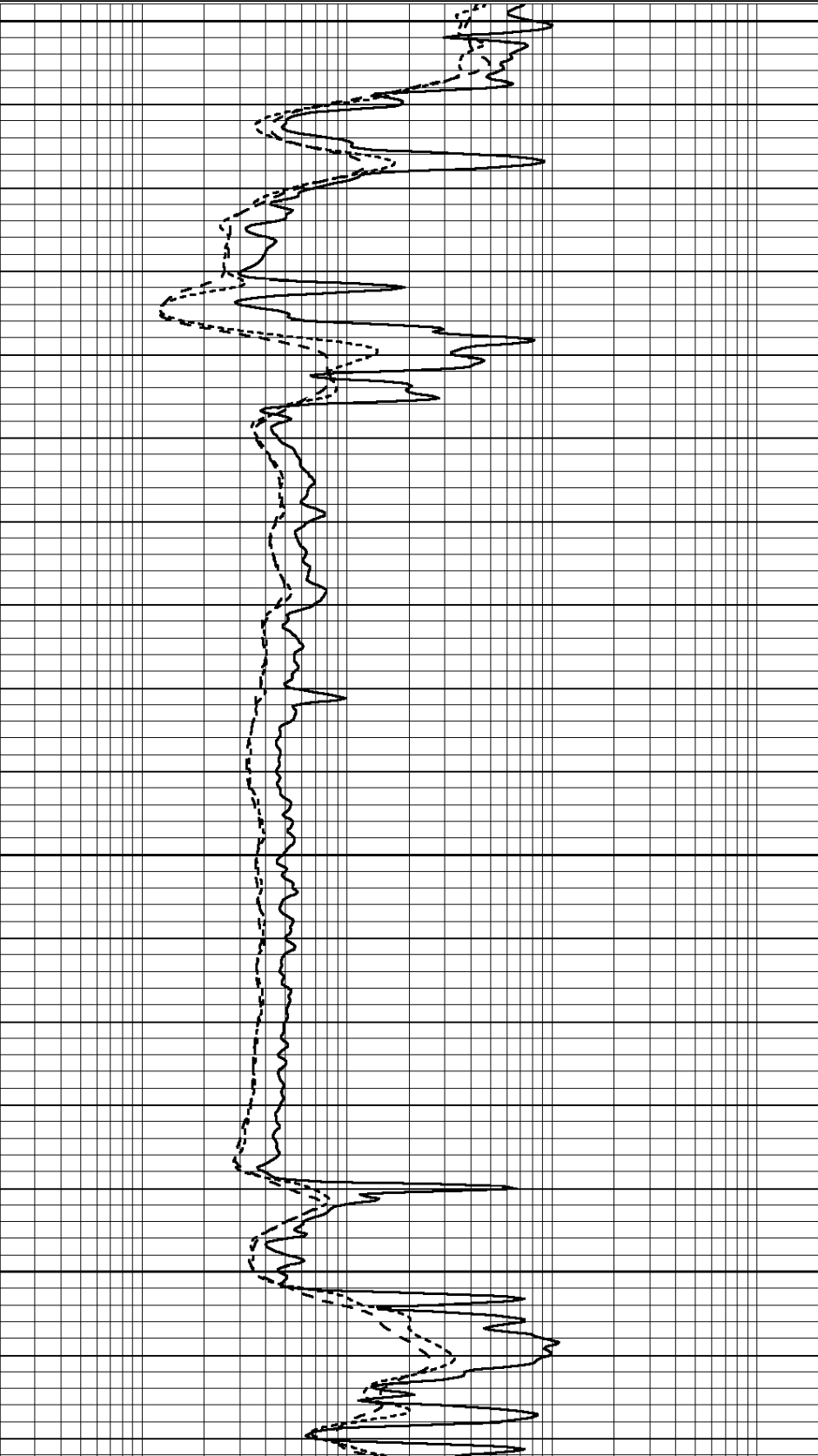


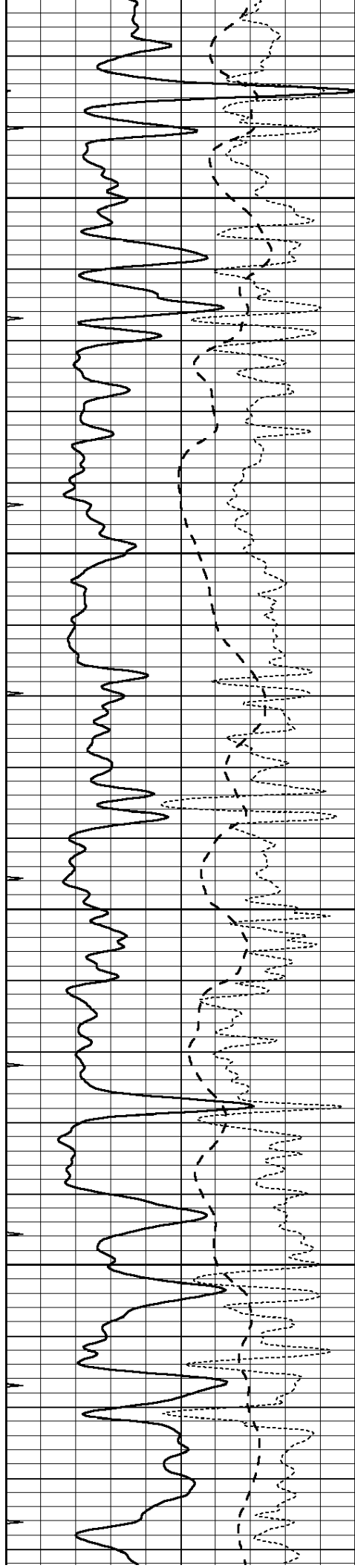
3200

3250

3300

3350



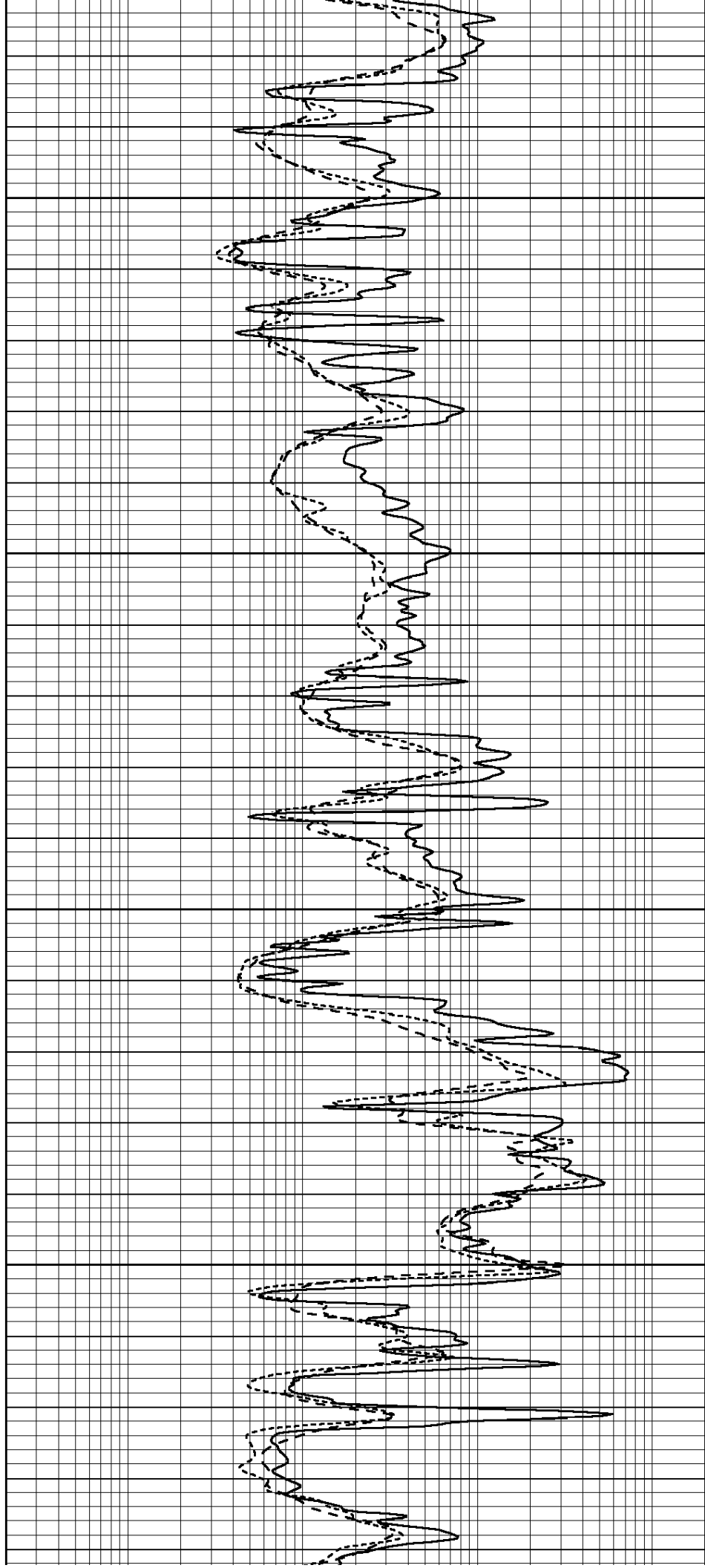


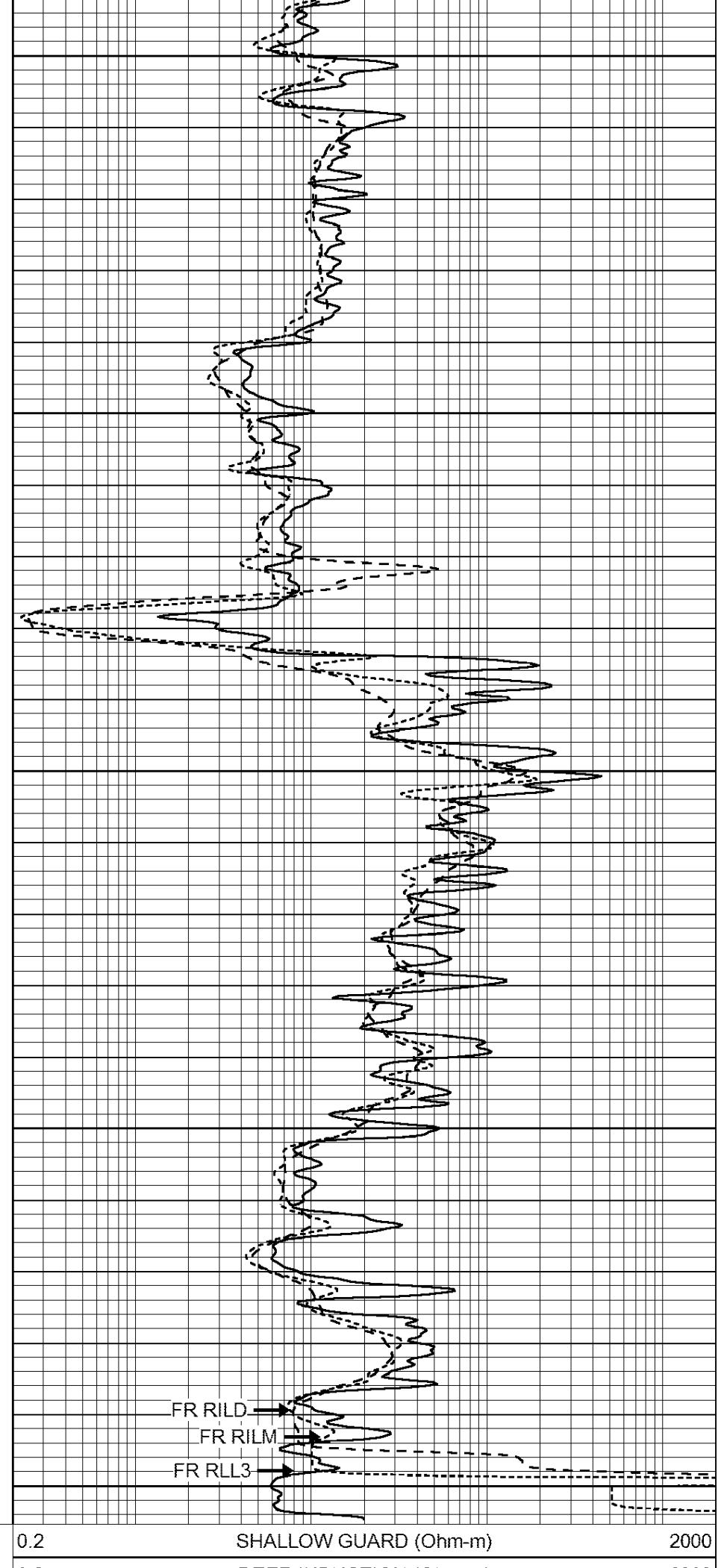
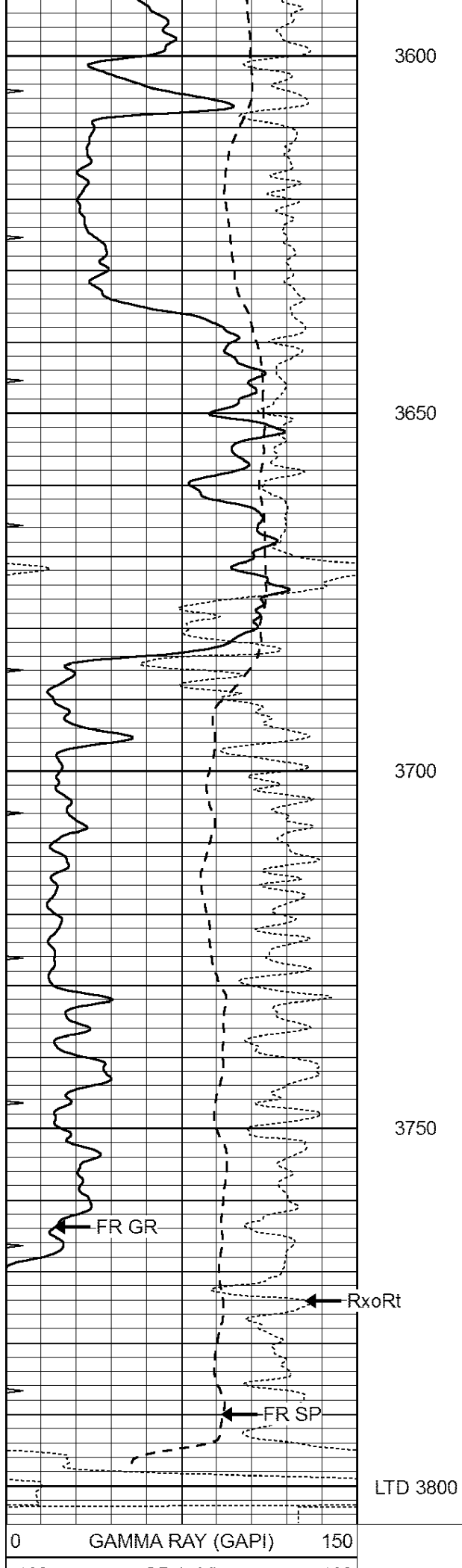
3400

3450

3500

3550





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

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

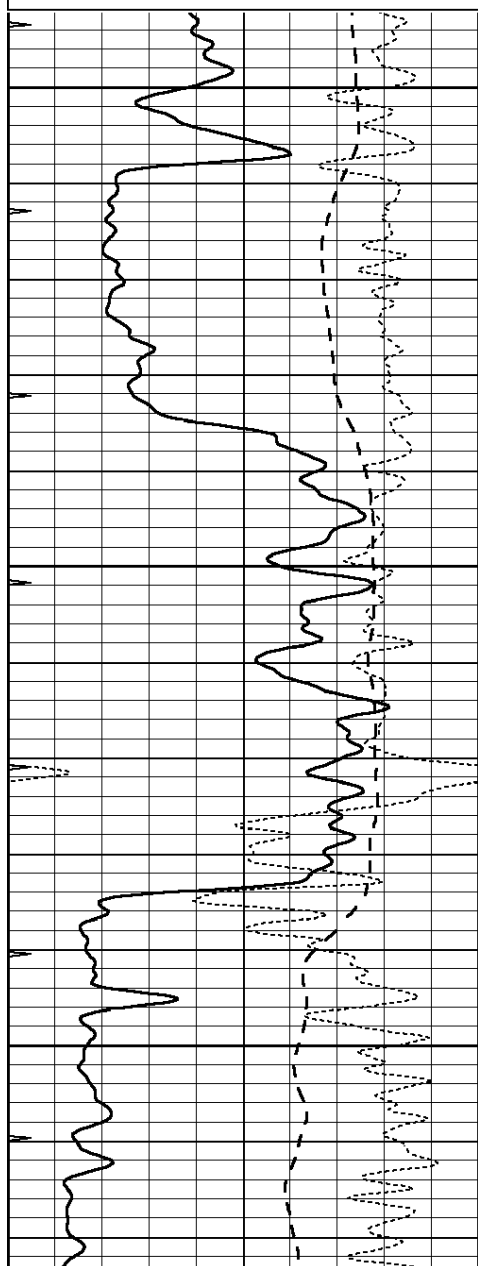


REPEAT SECTION

Database File: 23889ddn.db
 Dataset Pathname: pass2.2
 Presentation Format: _dil
 Dataset Creation: Sat Feb 08 11:40:45 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

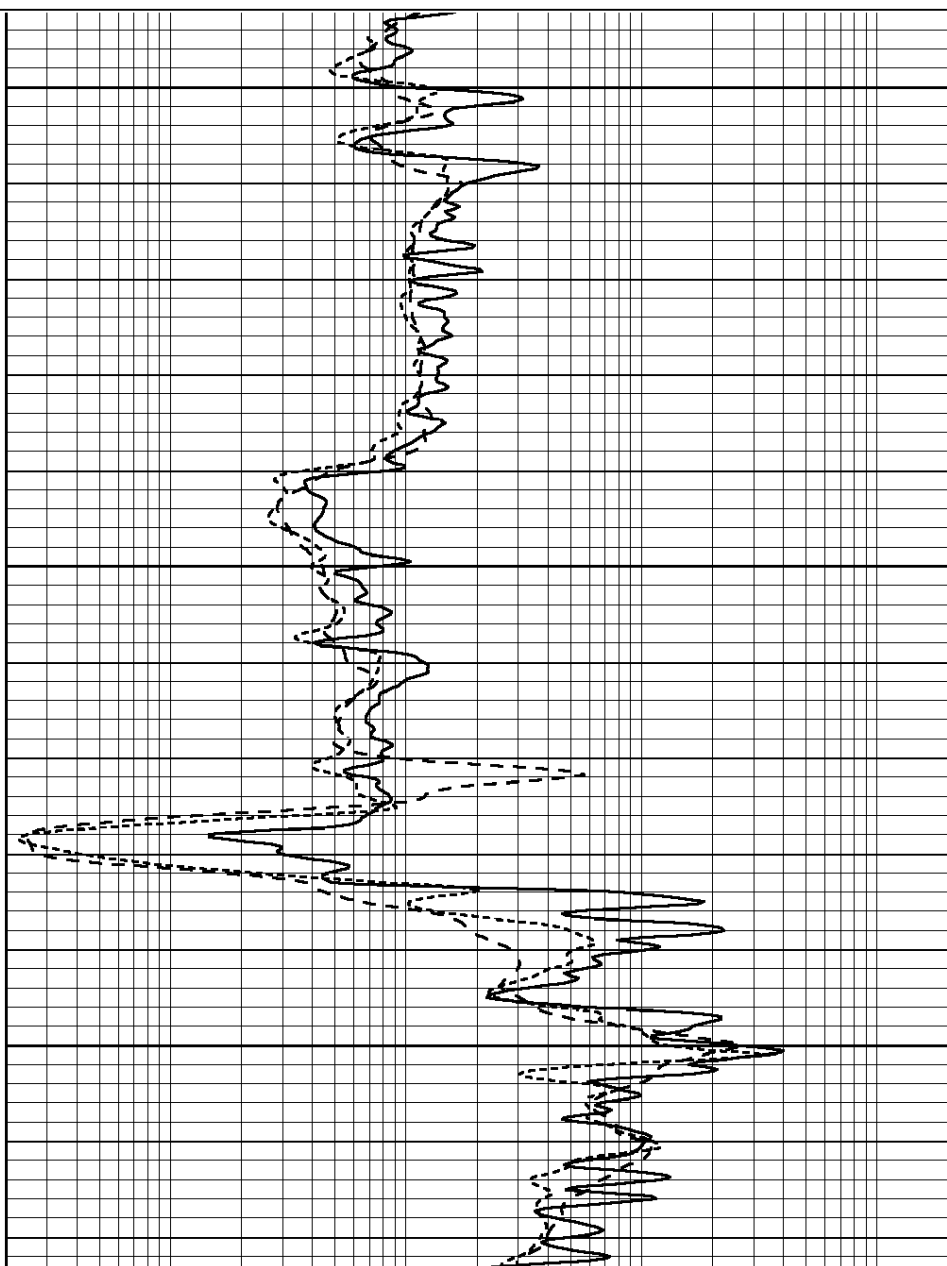
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

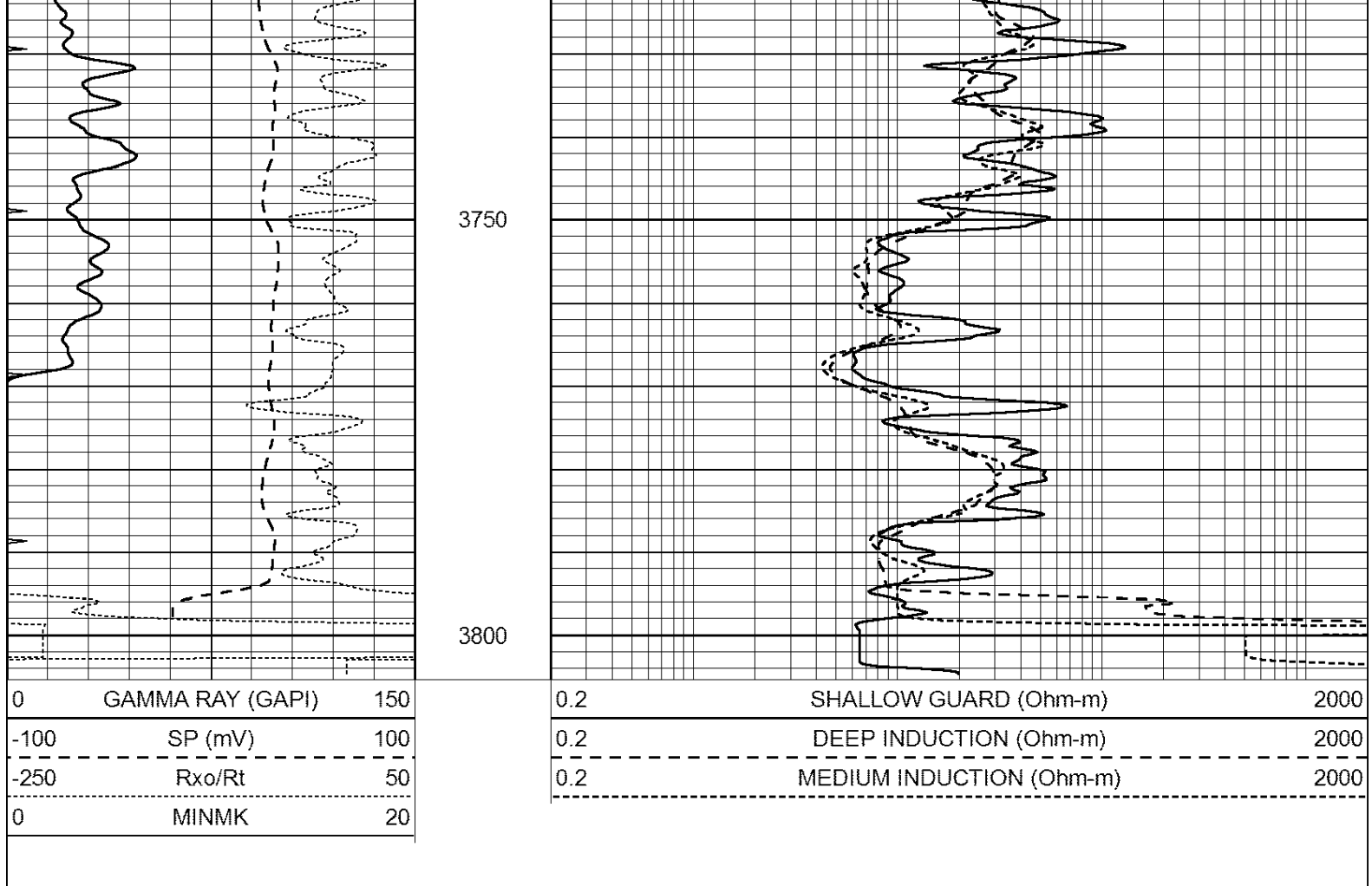


3600

3650

3700





Calibration Report									
Database File:	23889ddn.db								
Dataset Pathname:	pass3.3								
Dataset Creation:	Sat Feb 08 12:43:20 2014 by Calc Open-Cased 090629								
Dual Induction Calibration Report									
Serial-Model:			PROBE8-DILG						
Surface Cal Performed:			Fri Aug 01 06:33:19 2008						
Downhole Cal Performed:			Mon Jul 28 11:08:27 2008						
After Survey Verification Performed:			Mon Jul 28 11:08:27 2008						
Surface Calibration									
Readings				References			Results		
Loop:	Air	Loop		Air	Loop		m	b	
Deep	0.015	0.648	V	0.000	400.000	mmho/m	632.616	-9.730	
Medium	0.029	0.796	V	0.000	464.000	mmho/m	605.049	-17.680	
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									
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			

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:			6I					
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	cps						
	Long Space	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:		Fri Nov 29 08:34:37 2013		
Calibrator Value:		150.0	GAPI	
Background Reading:		0.0	cps	
Calibrator Reading:		276.0	cps	
Sensitivity:		0.6035	GAPI/cps	