



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

DUAL INDUCTION LOG

Company	HUTCHINSON OIL COMPANY		
Well	ALAN NW #1		
Field	SHEPHERD SOUTH		
County	STAFFORD	State	KANSAS
Location:	AP1 # : 15-185-23828-0000 1050' FNL & 1490' FWL		Other Services CDL/CNL MEL
Permanent Datum	SEC 21 TWP 22S RGE 11W	GROUND LEVEL	Elevation 1809
Log Measured From		KELLY BUSHING 13' A.G.L.	
Drilling Measured From		KELLY BUSHING	
Date	9/18/13		
Run Number	ONE		
Depth Driller	3699		
Depth Logger	3700		
Bottom Logged Interval	3698		
Top Log Interval	00		
Casing Driller	8 5/8" @ 337		
Casing Logger	333		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 5000 PPM	
Density / Viscosity	9.0/60		
pH / Fluid Loss	9.0/8.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.60 @ 87F		
Rmt @ Meas. Temp	.45 @ 87F		
Rmc @ Meas. Temp	.72 @ 87F		
Source of Rmt / Rmc	MEASUREMENT		
Rm @ BHT	.46 @ 113F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	113F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	JASON CAPPELLUCCI		
Witnessed By	JEFF BURK		

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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:
HUDSON, KS. - E. TO T IN THE ROAD - 1/2 N. - 1 E. - 3/4 N. - N & E. INTO

Database File: 011783ddn.db
 Dataset Pathname: pass3.3
 Presentation Format: _dil2
 Dataset Creation: Wed Sep 18 04:30:48 2013 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:600

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

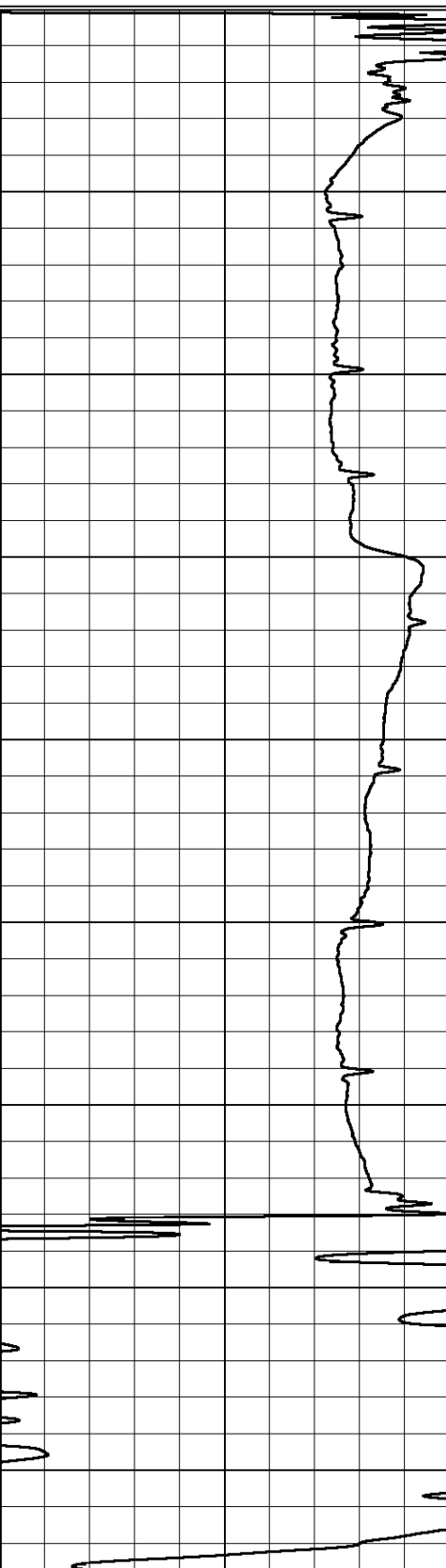
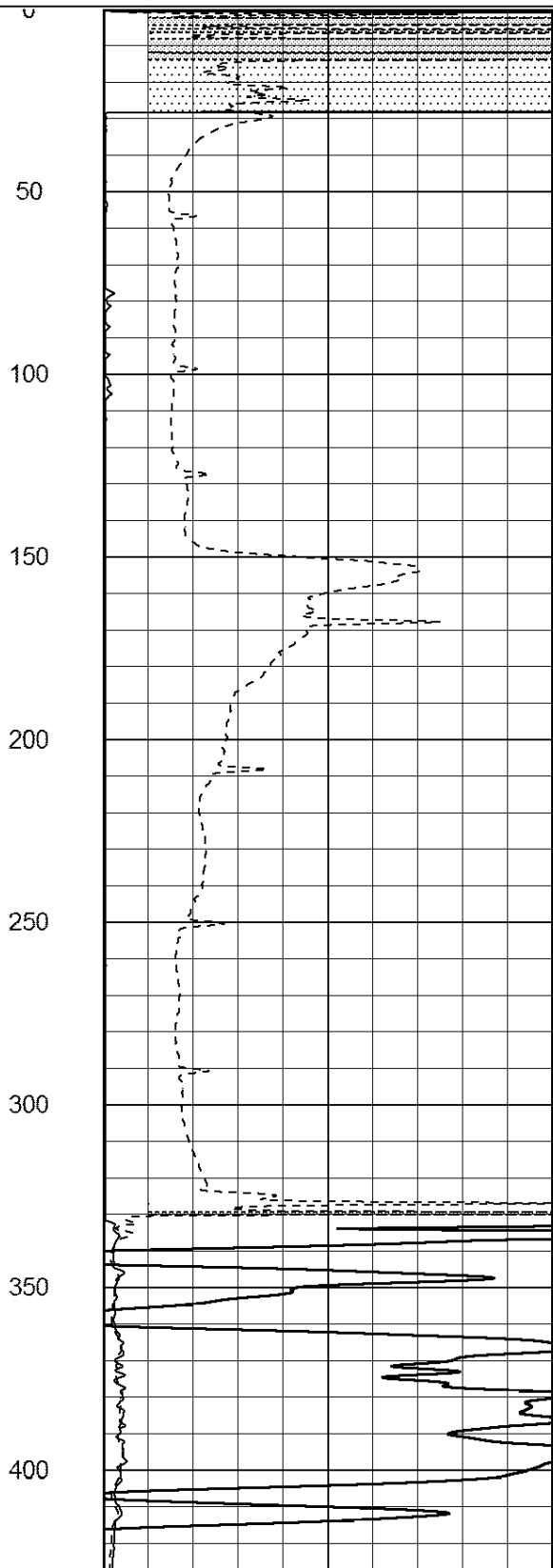
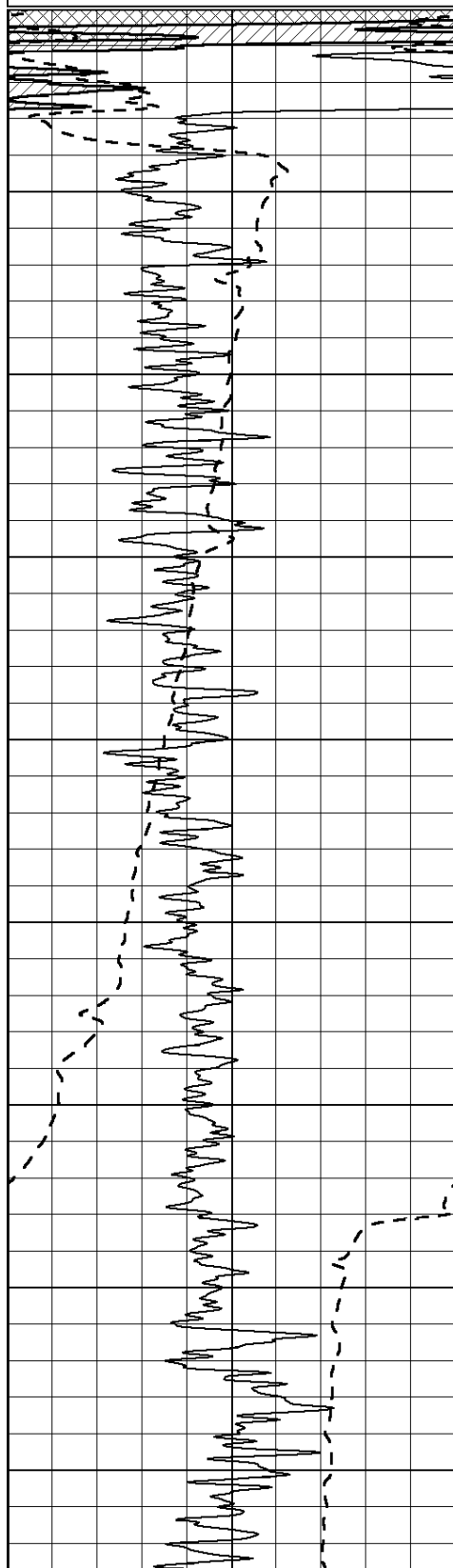
0 RLL3 (Ohm-m) 50

0 RILD (Ohm-m) 50

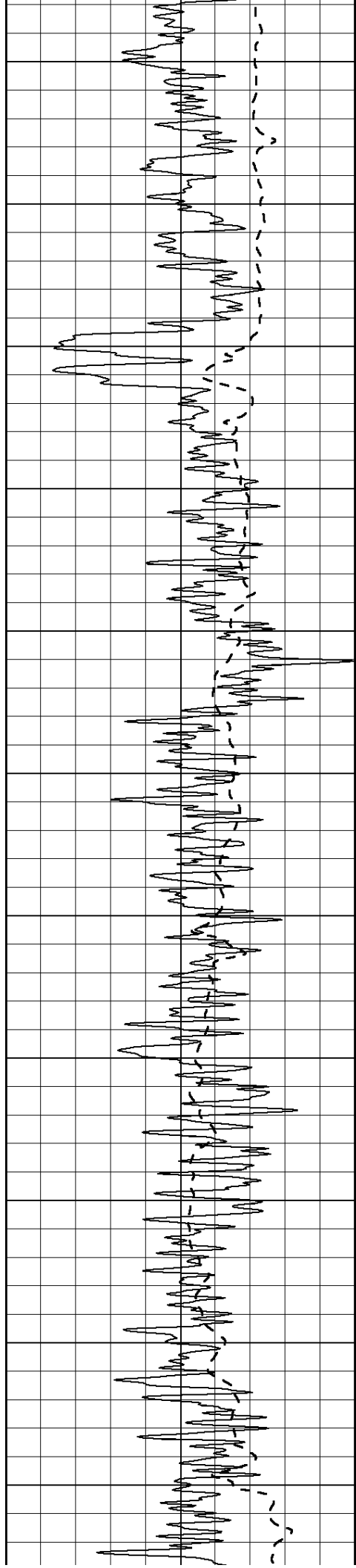
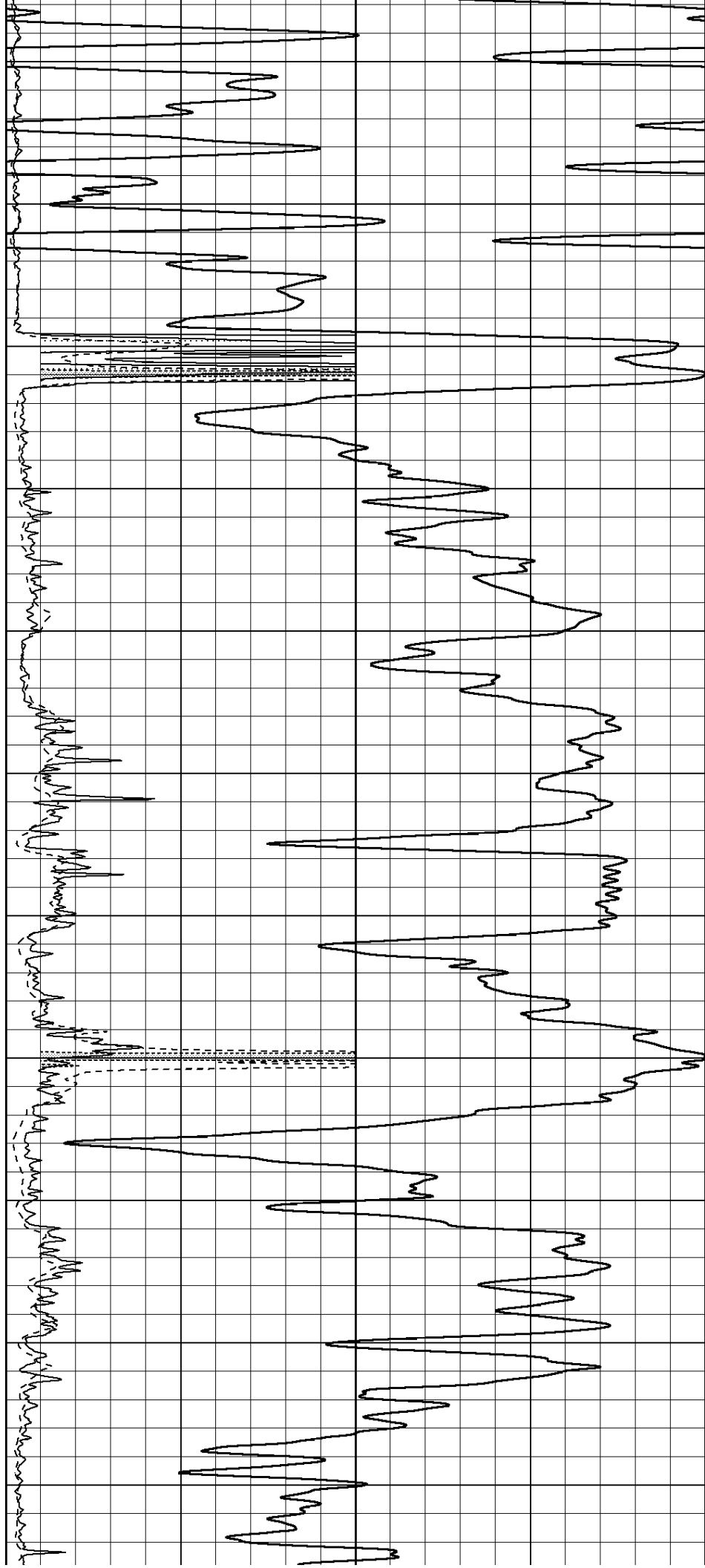
1000 CILD (mmho/m) 0

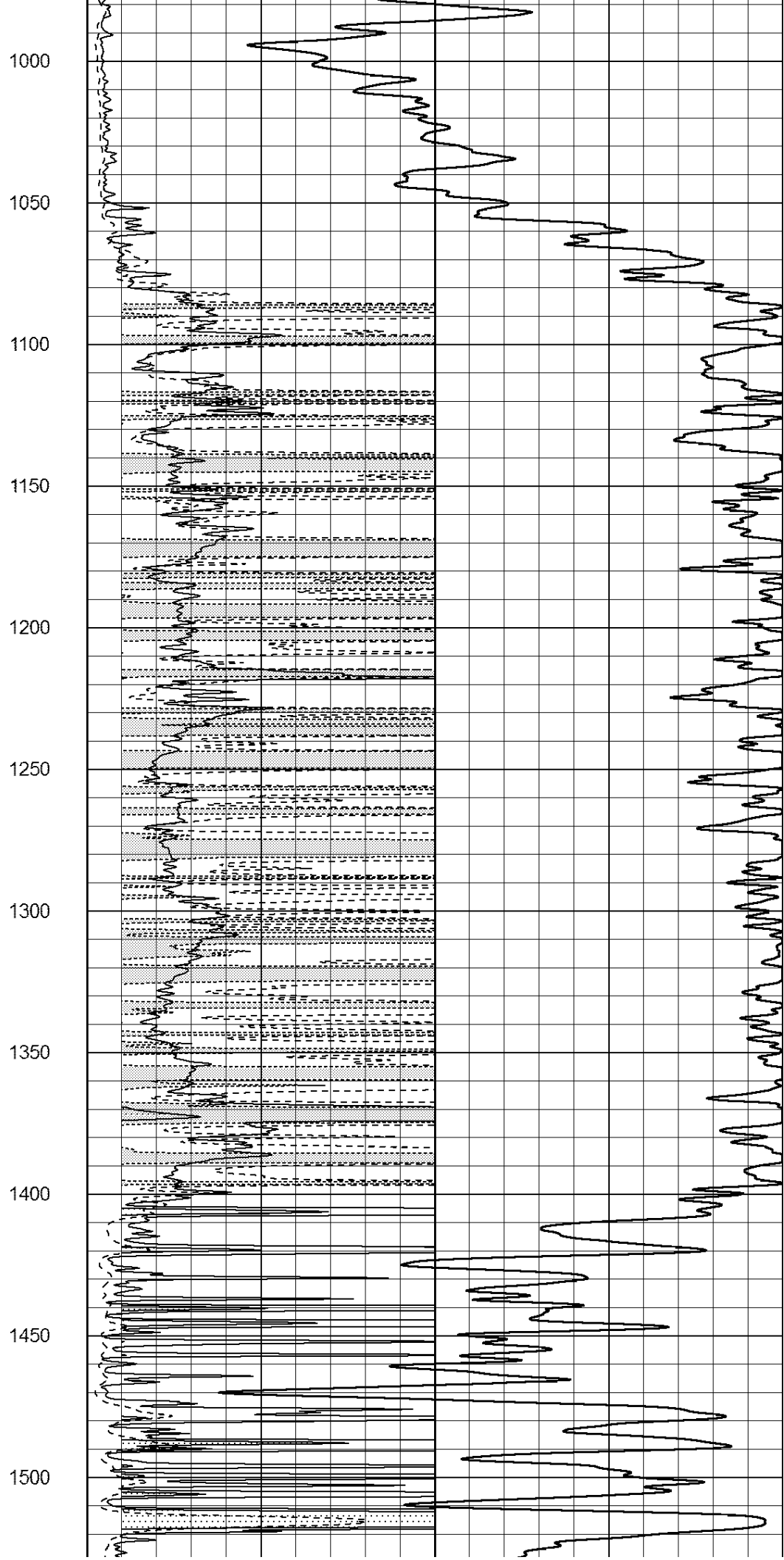
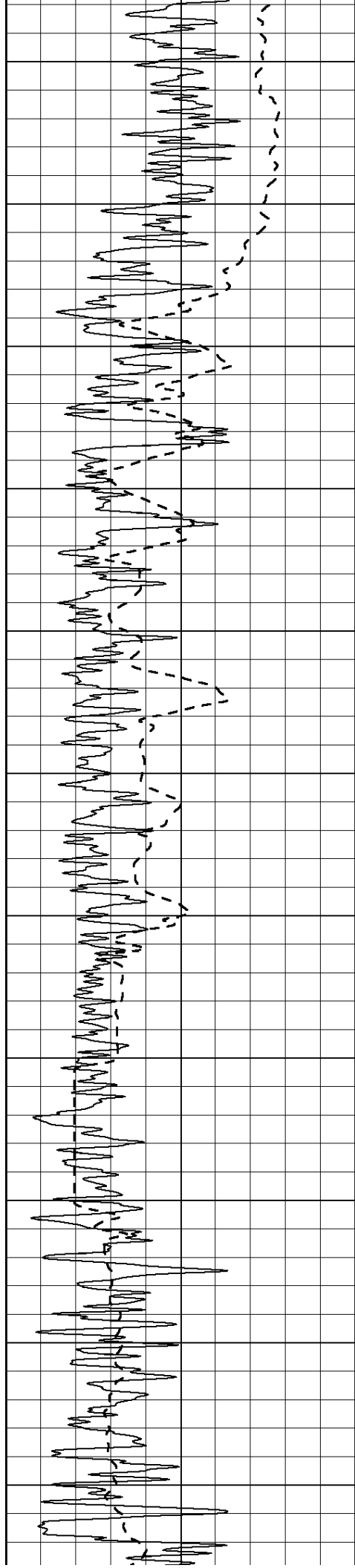
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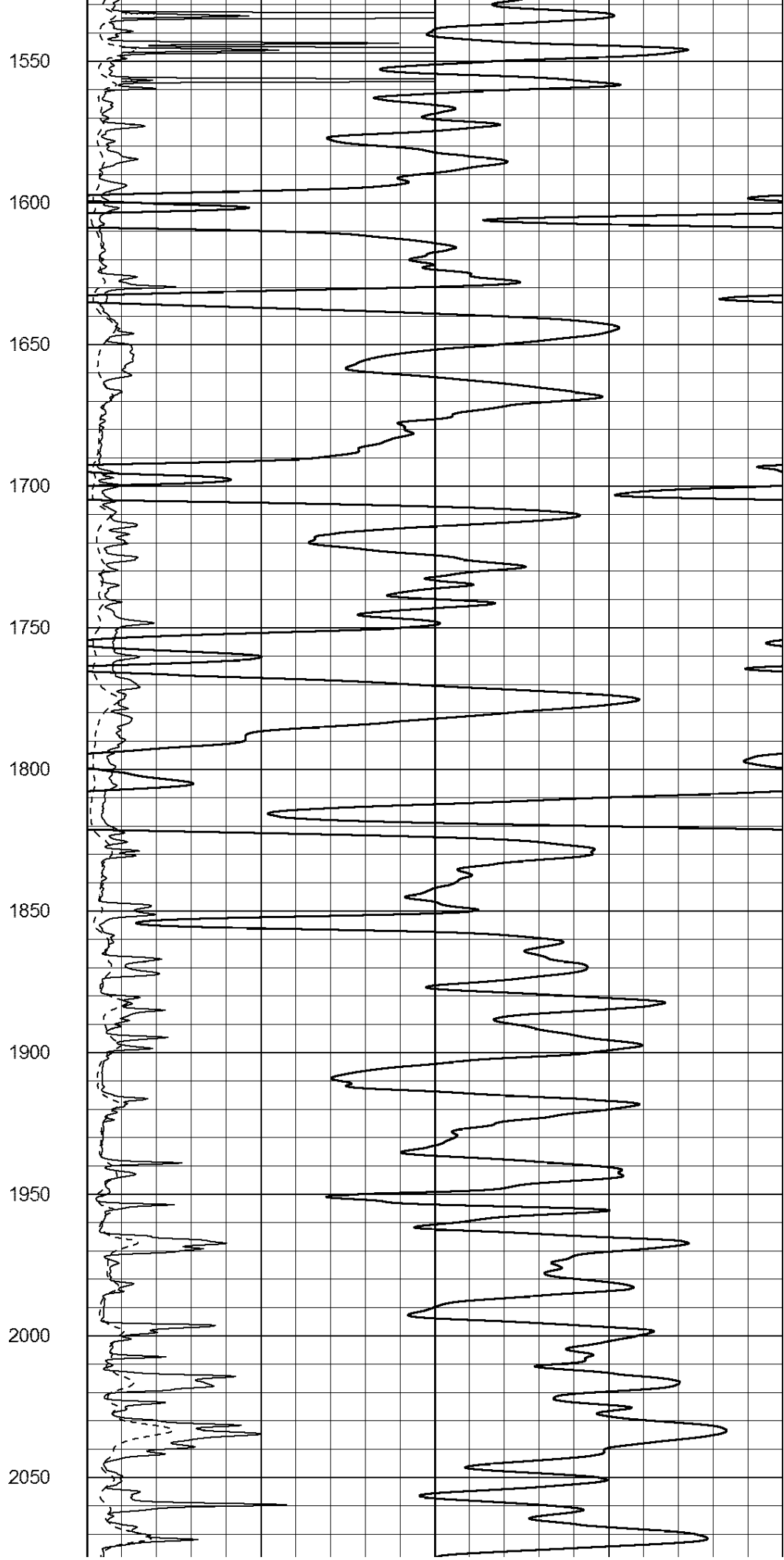
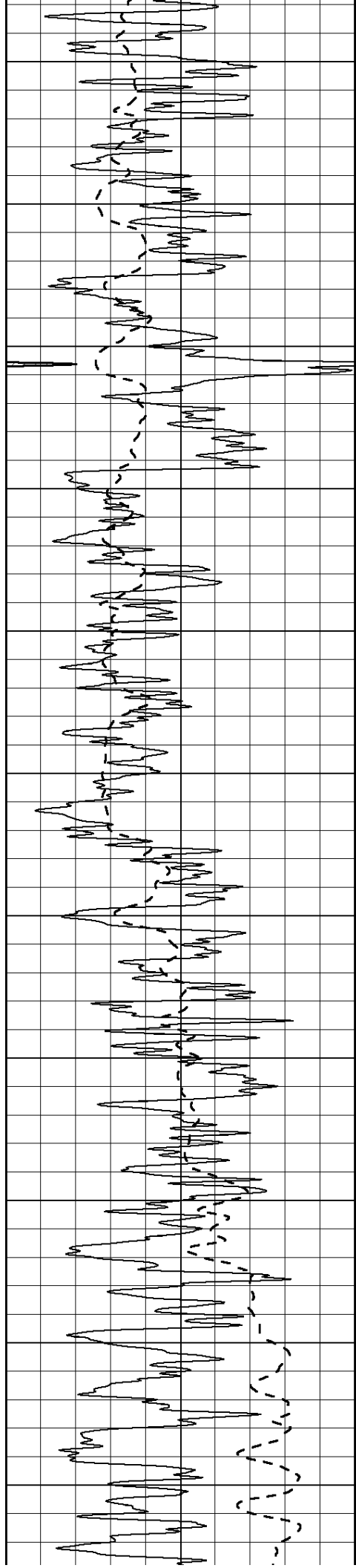
50 RLL3 X10 (Ohm-m) 500

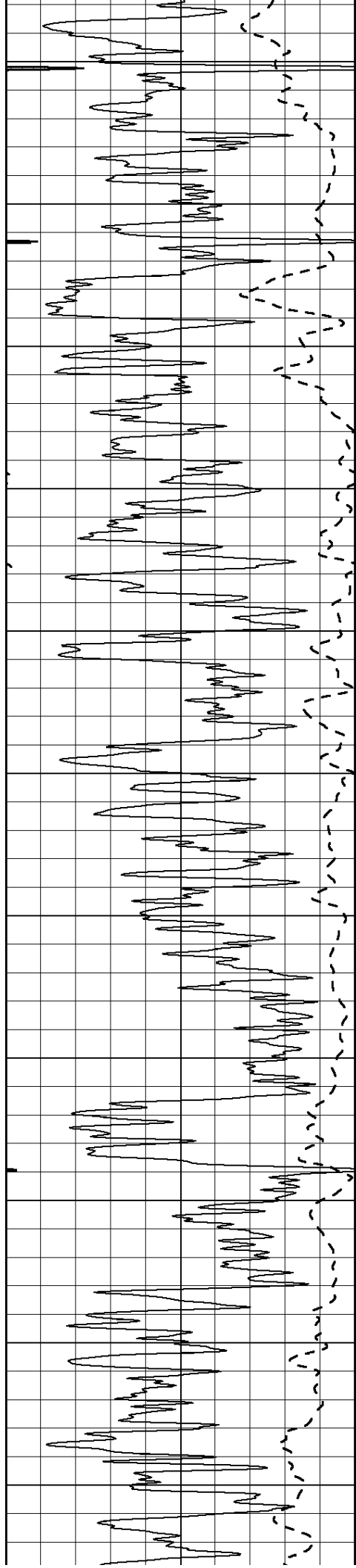


450
500
550
600
650
700
750
800
850
900
950









2100

2150

2200

2250

2300

2350

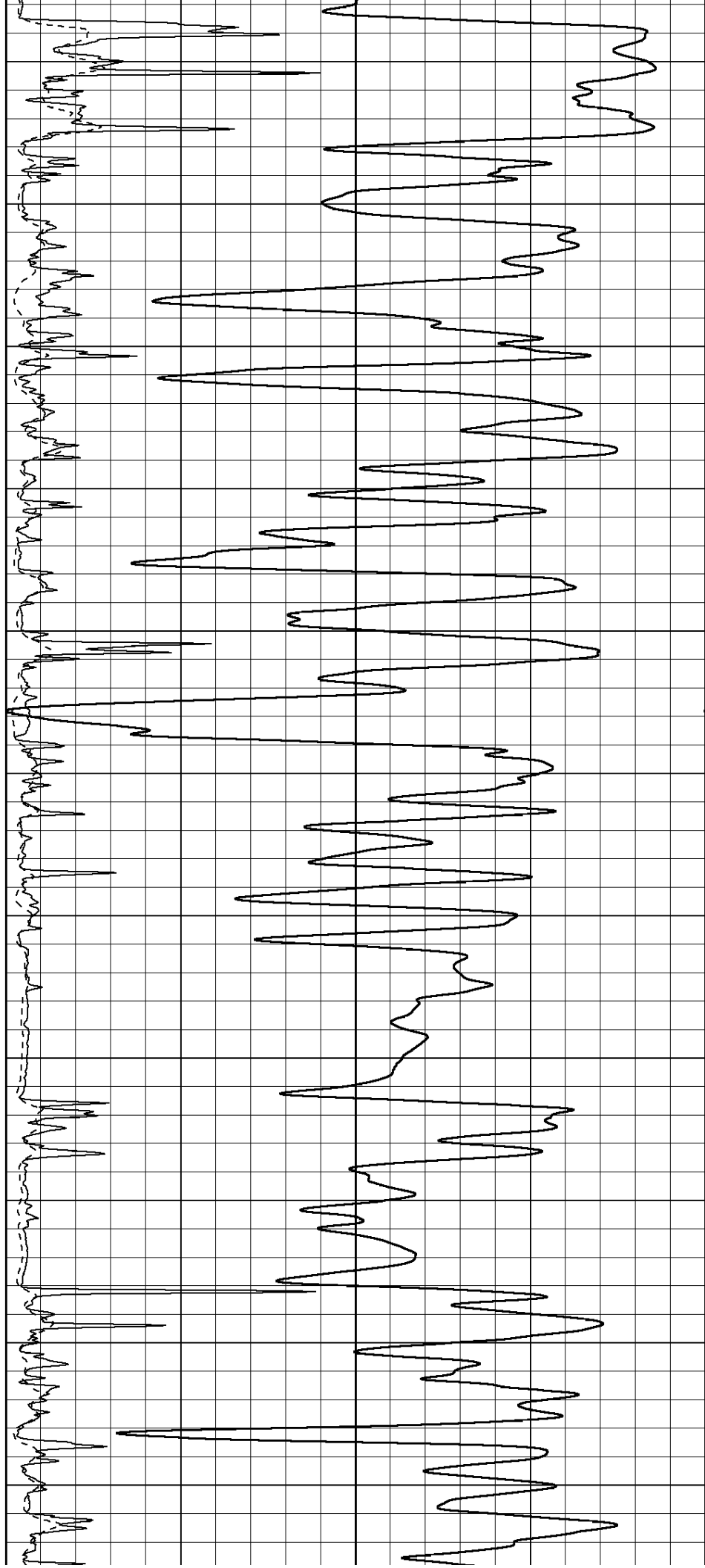
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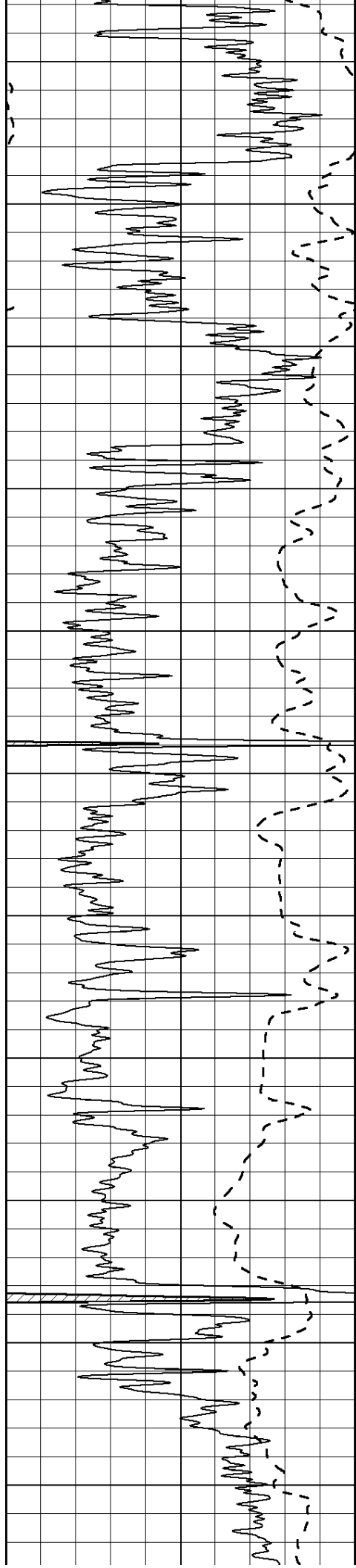
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2500

2550

2600





2650

2700

2750

2800

2850

2900

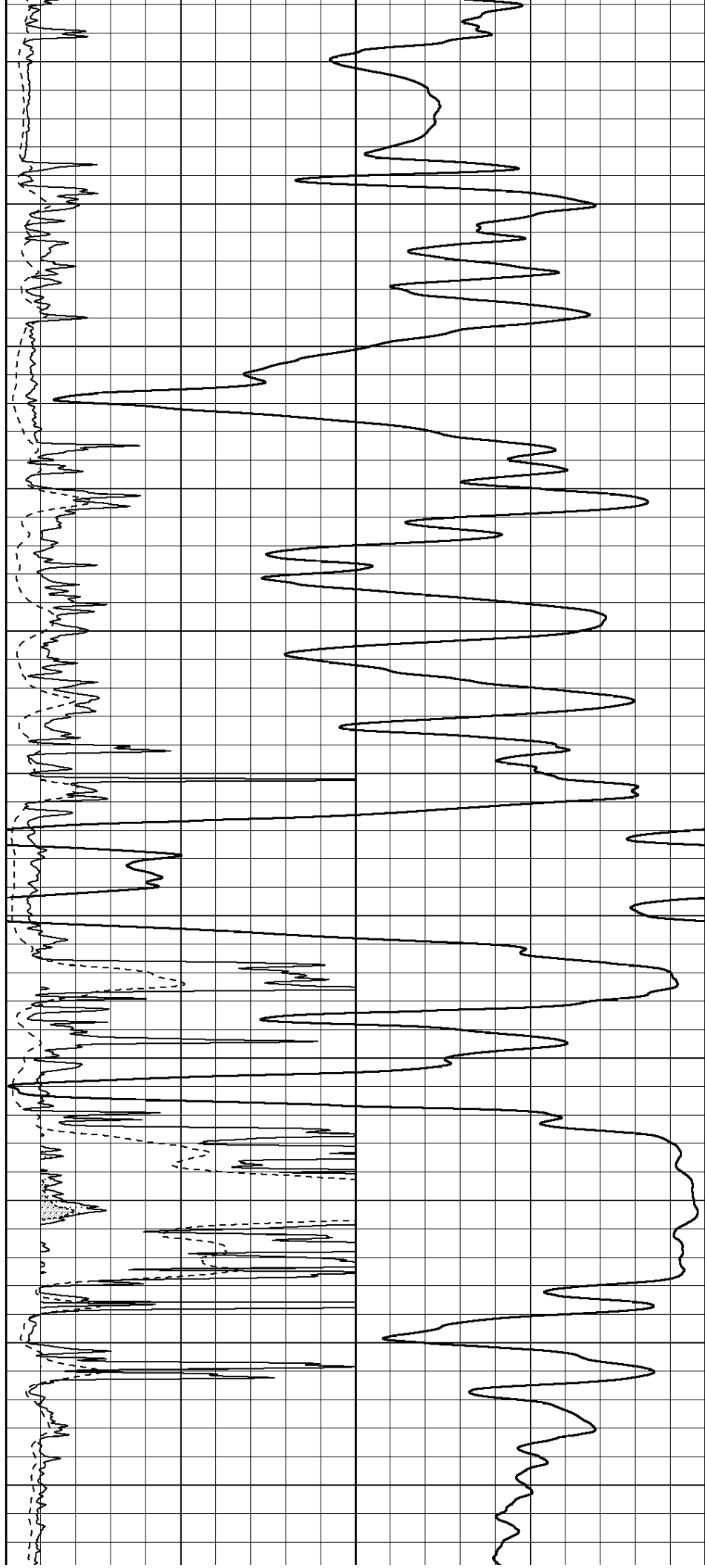
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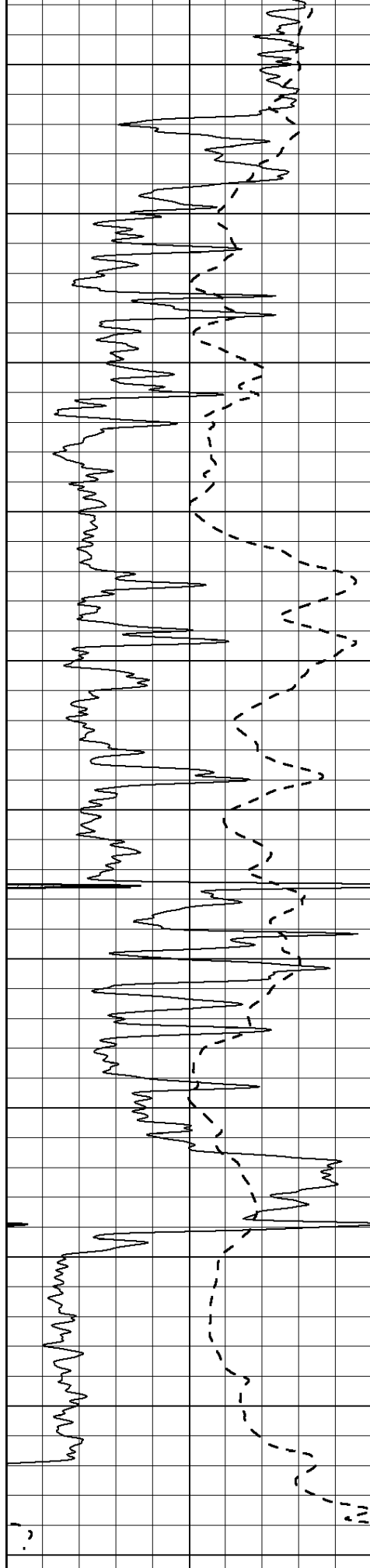
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3050

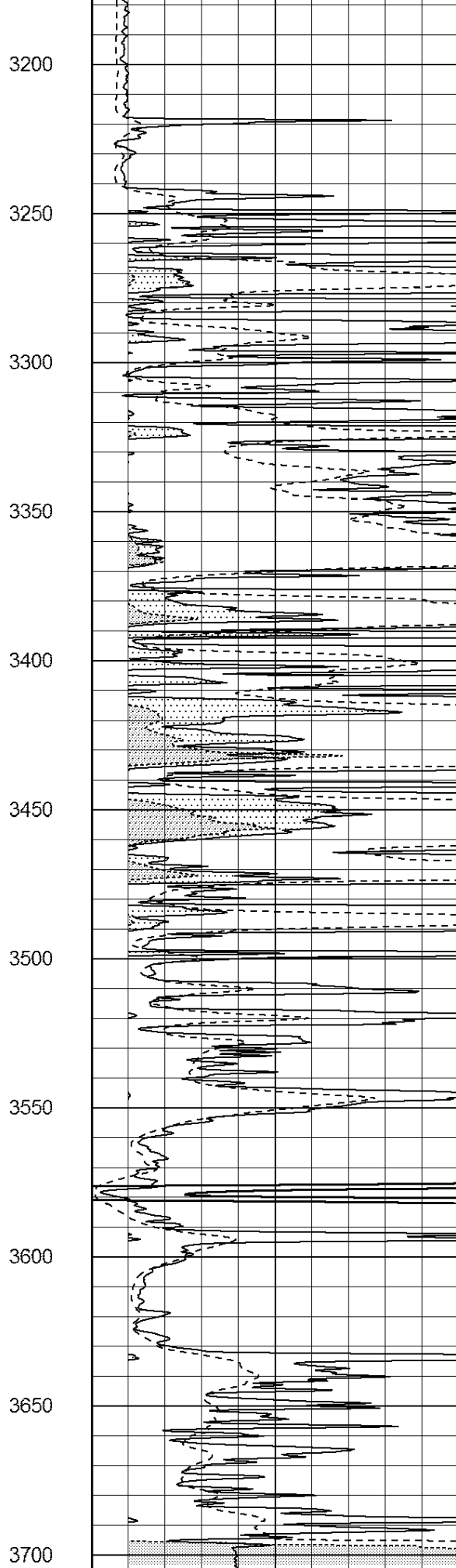
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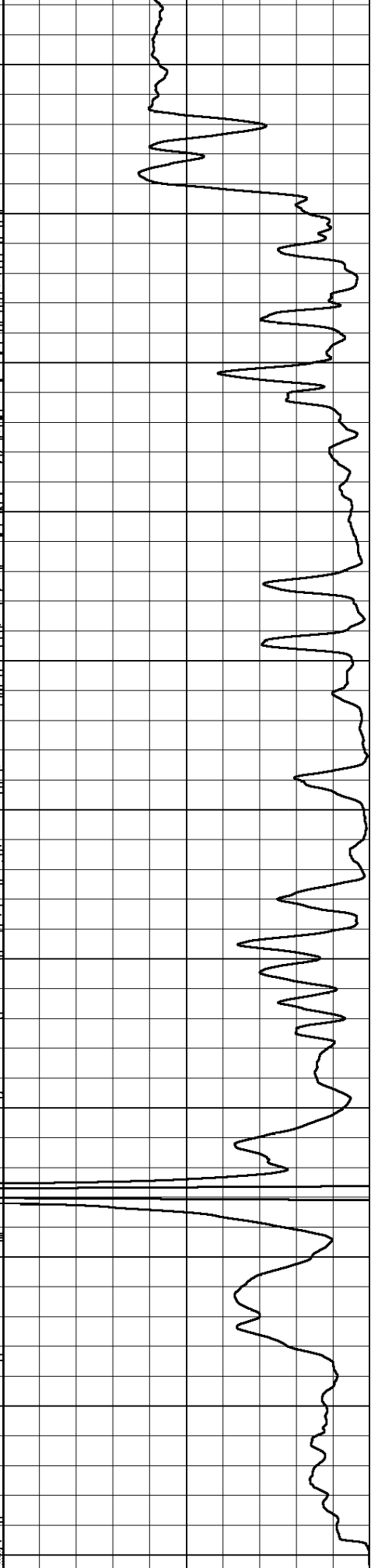




0 Gamma Ray (GAPI) 150
-100 SP (mV) 100



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



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

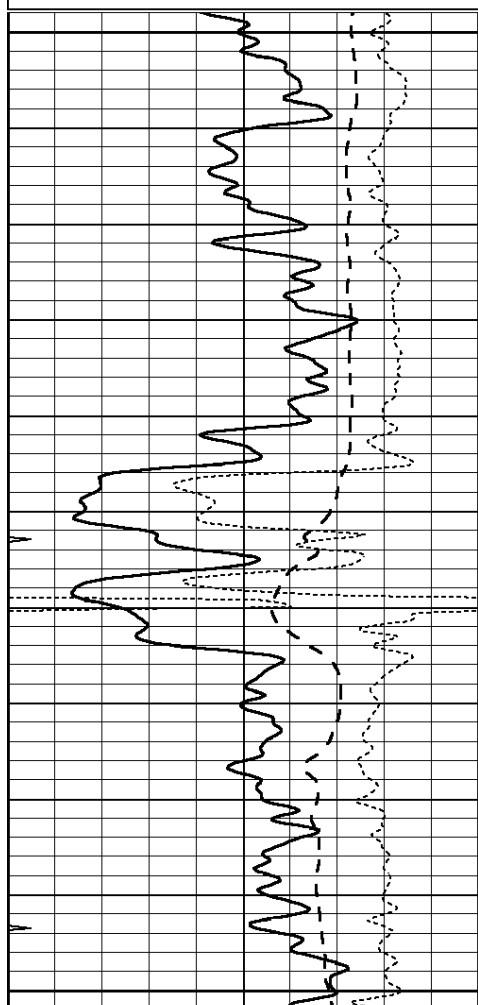


ANHYDRITE

Database File: 011783ddn.db
 Dataset Pathname: pass3.2
 Presentation Format: _dil
 Dataset Creation: Wed Sep 18 03:57:41 2013 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

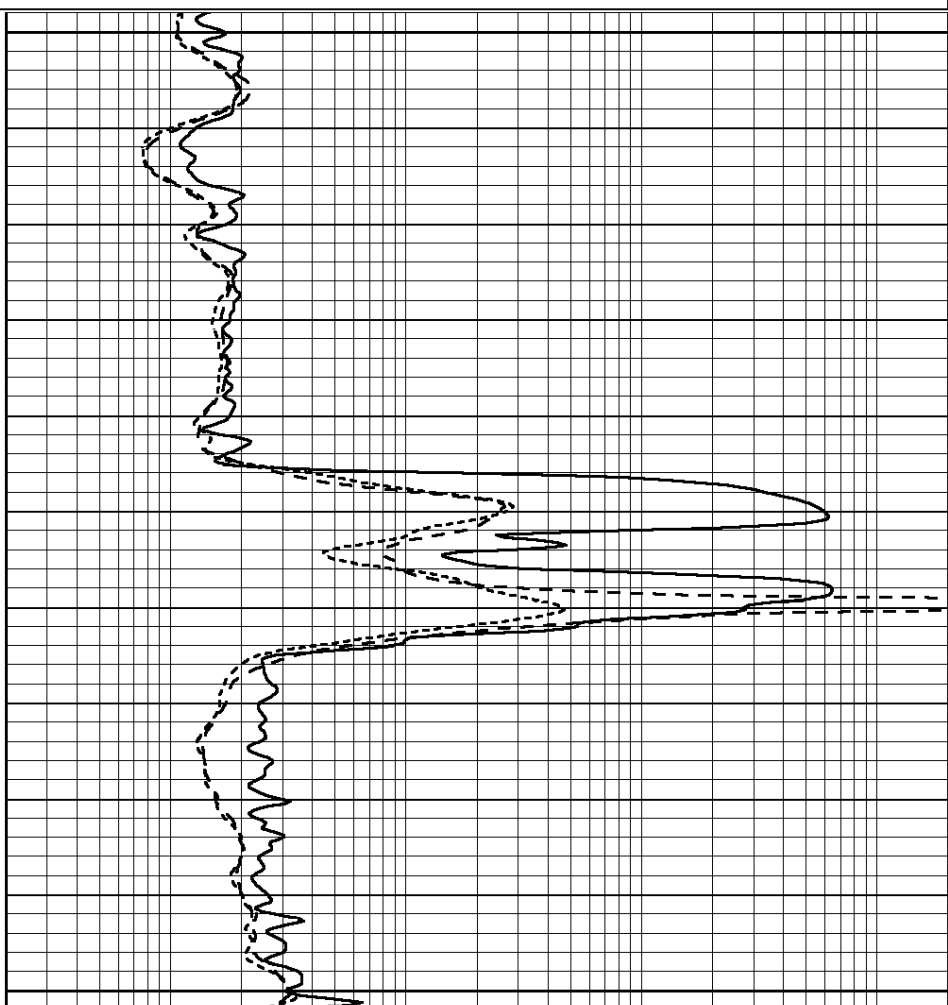
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



500

550

600



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



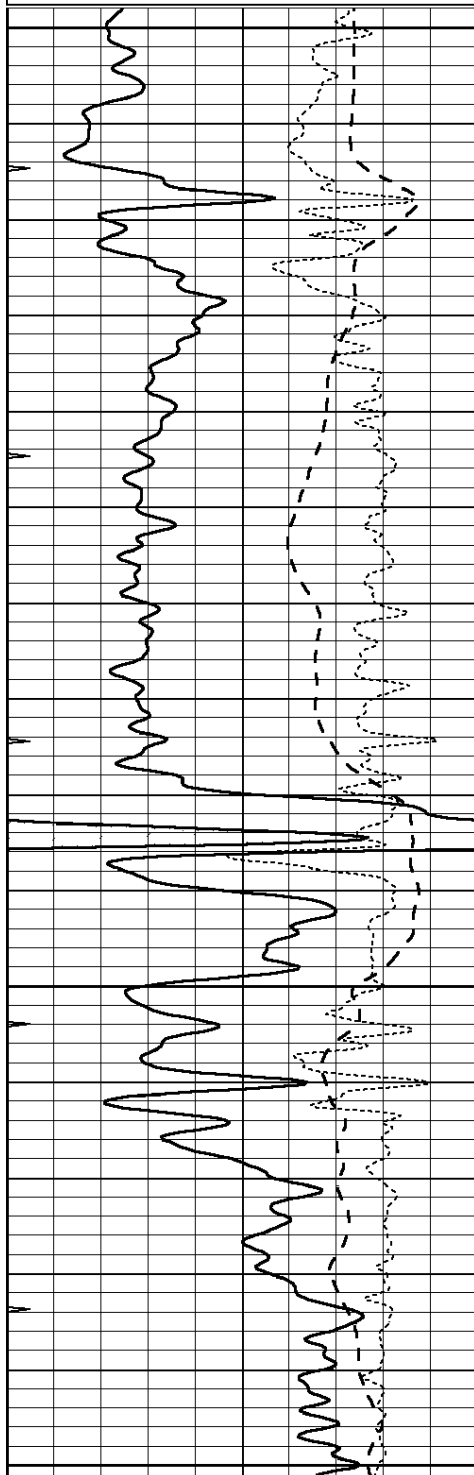
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MAIN SECTION

Database File: 011783ddn.db
Dataset Pathname: pass3.1
Presentation Format: _dil
Dataset Creation: Wed Sep 18 03:34:30 2013 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

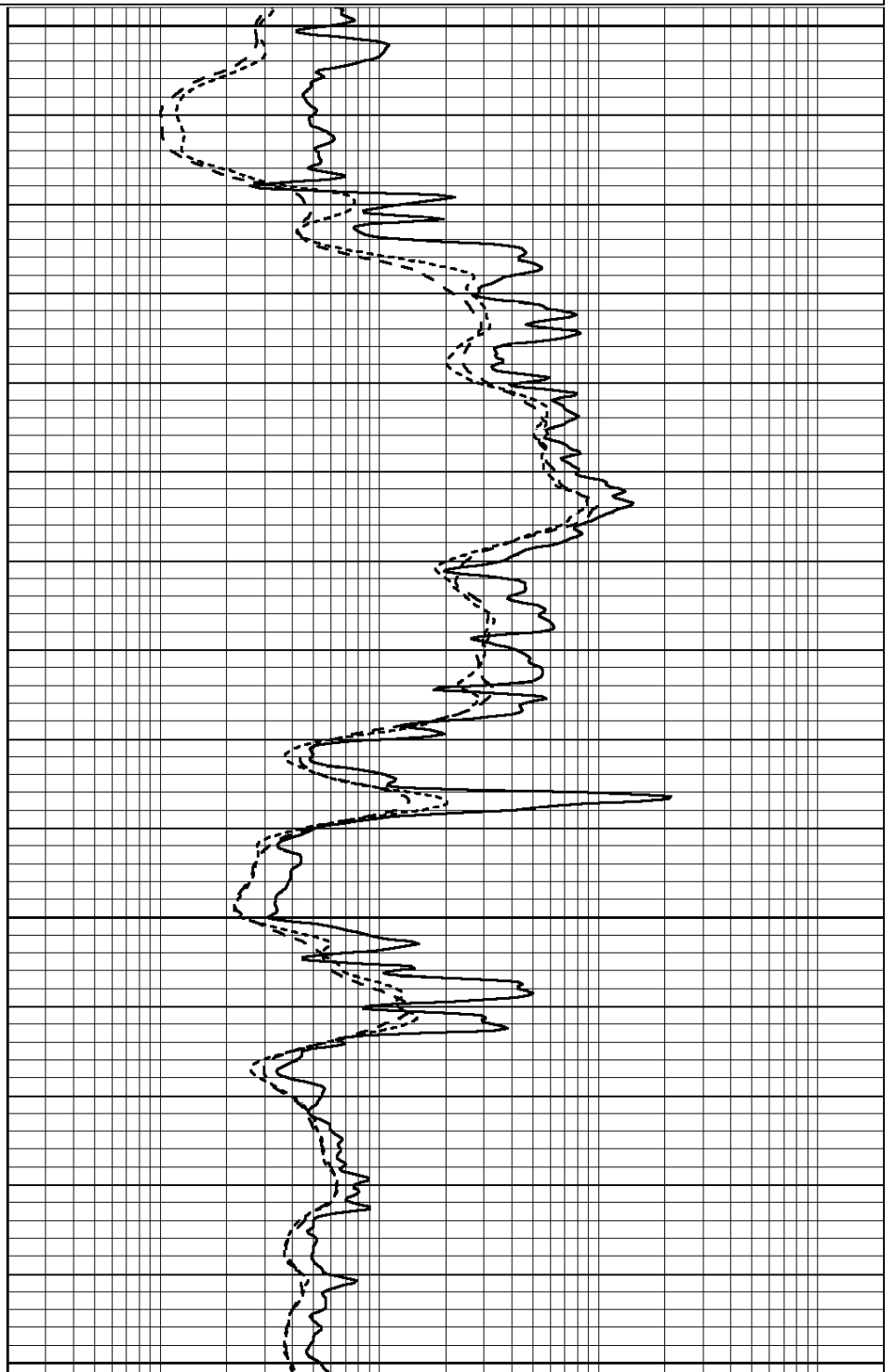


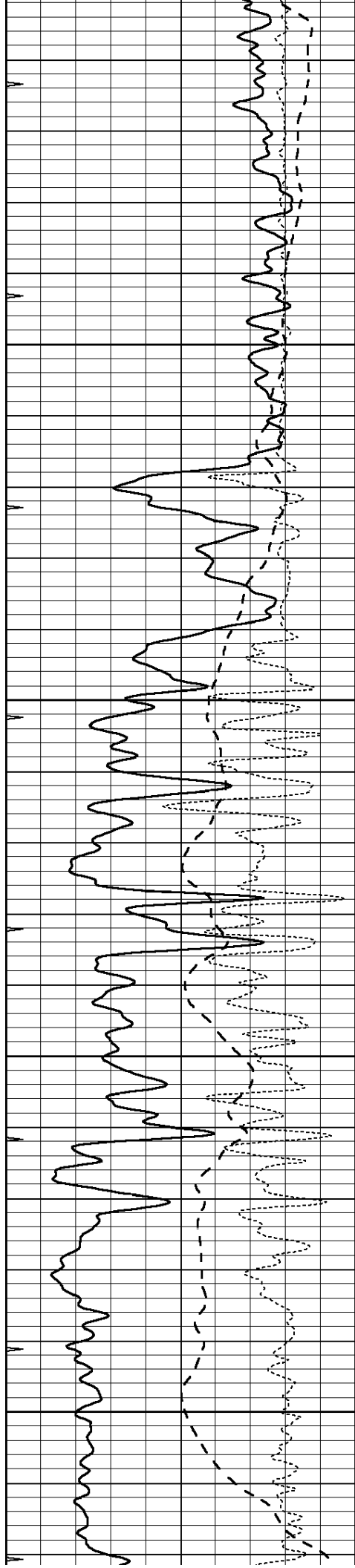
3000

3050

3100

3150



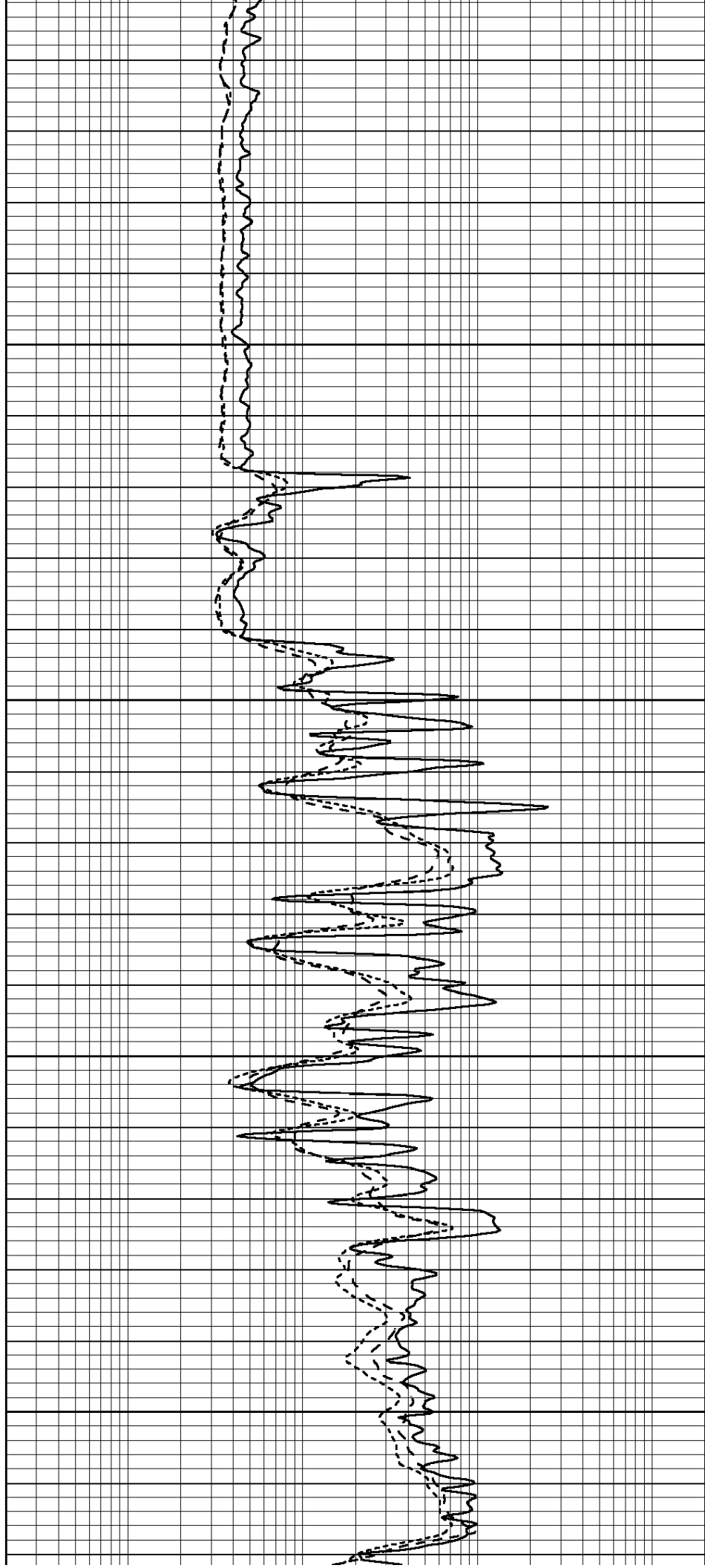


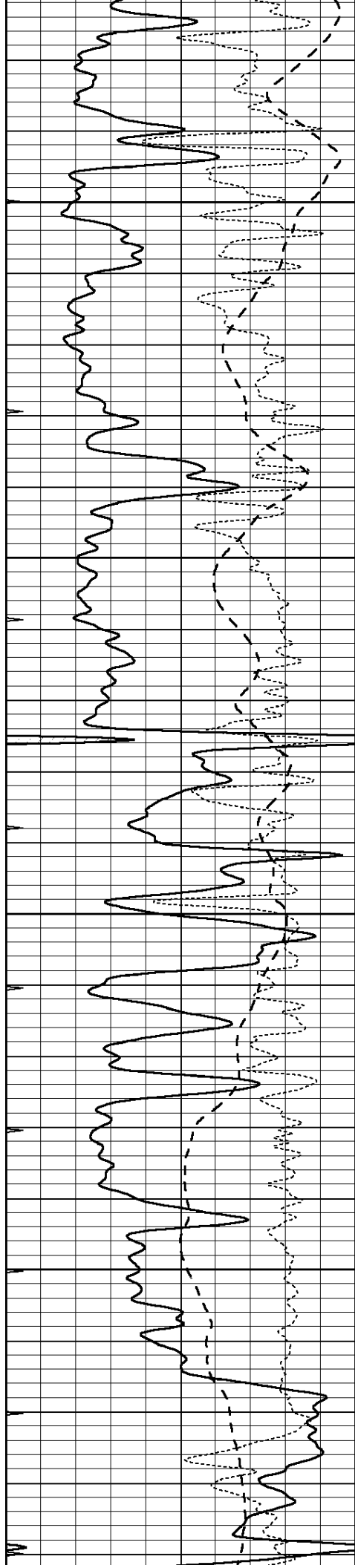
3200

3250

3300

3350



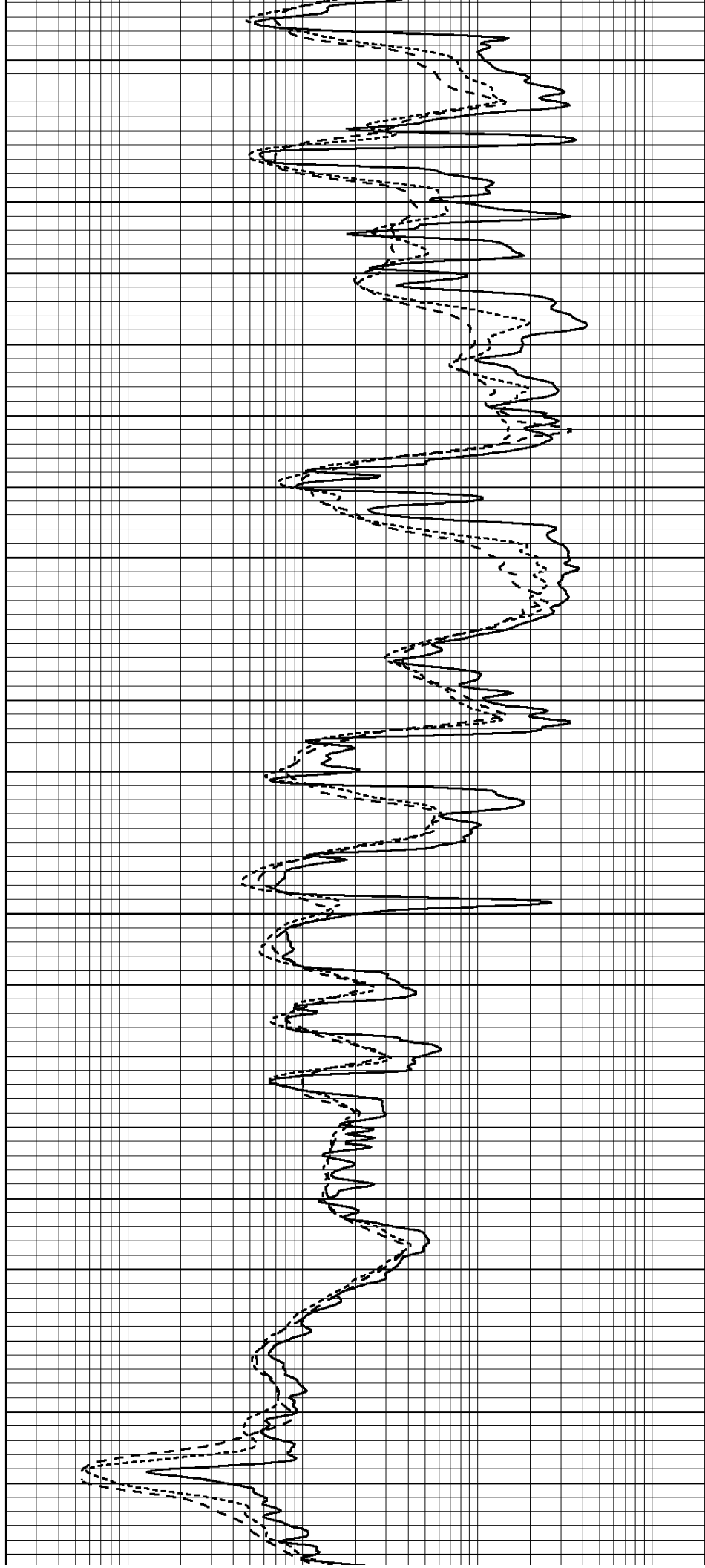


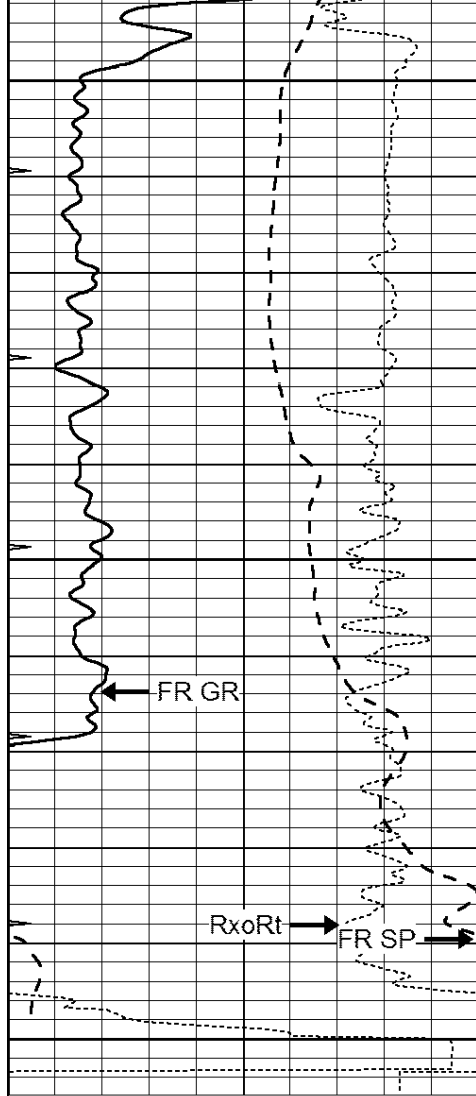
3400

3450

3500

3550



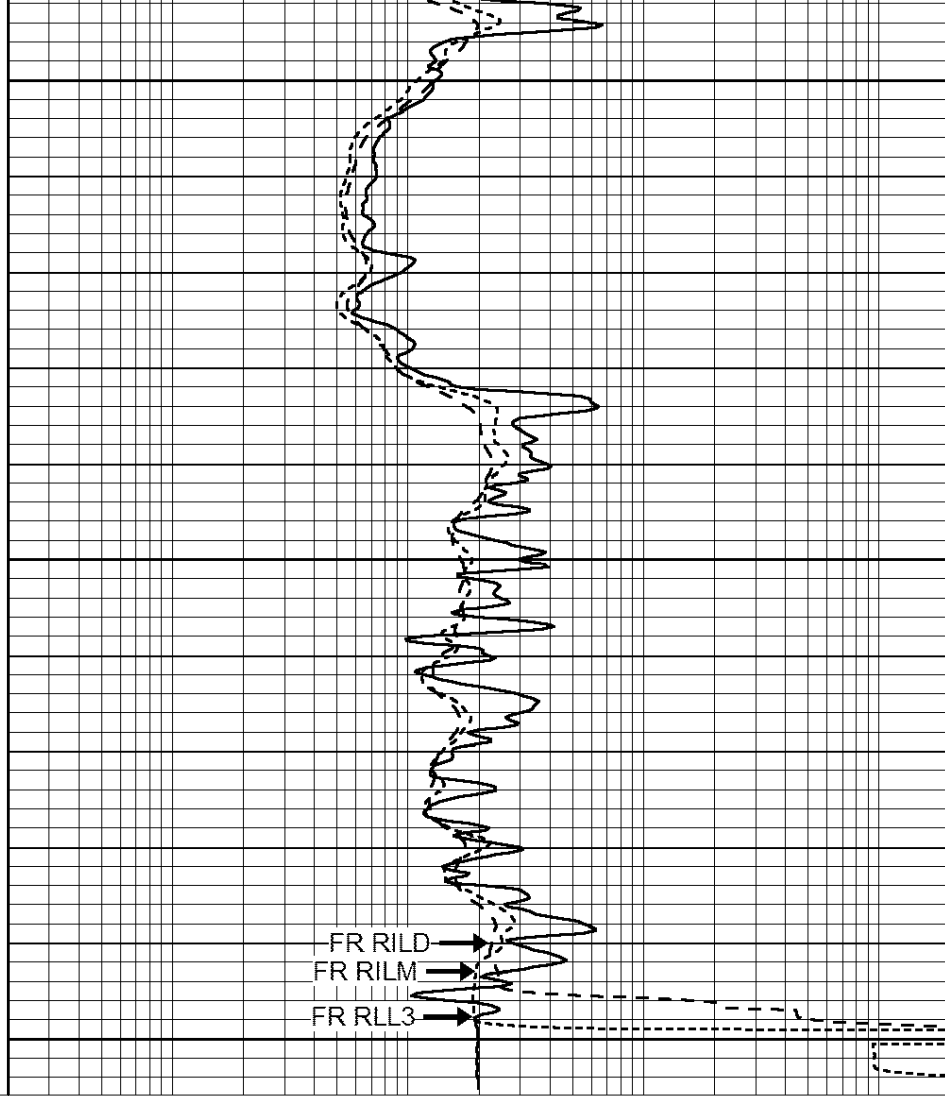


0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

3600

3650

LTD 3700



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

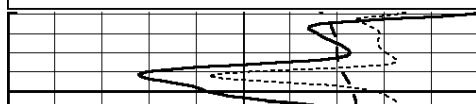


REPEAT SECTION

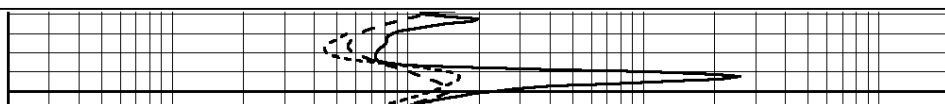
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 Presentation Format: _dil
 Dataset Creation: Wed Sep 18 03:22:19 2013 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

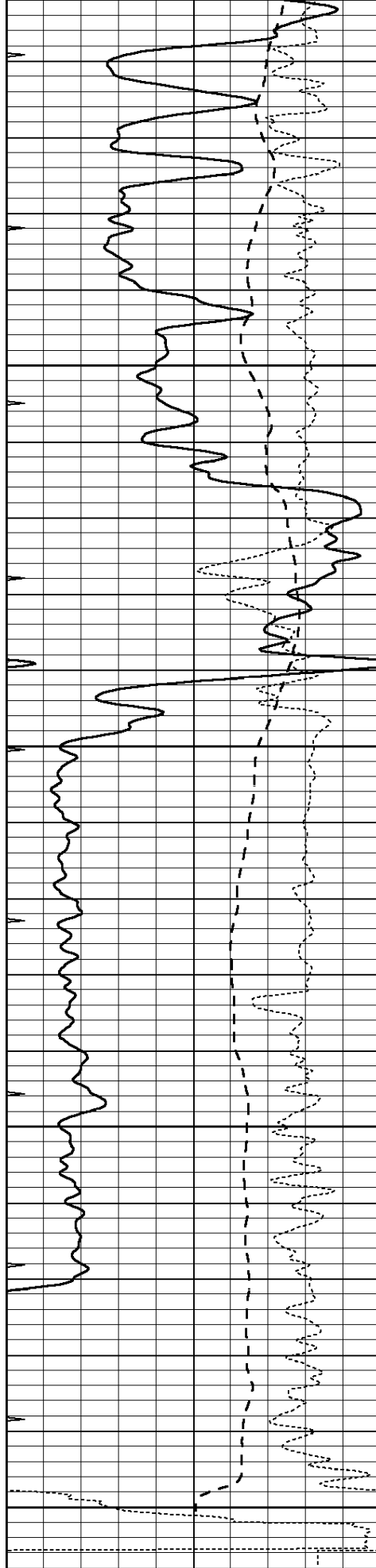
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



3500





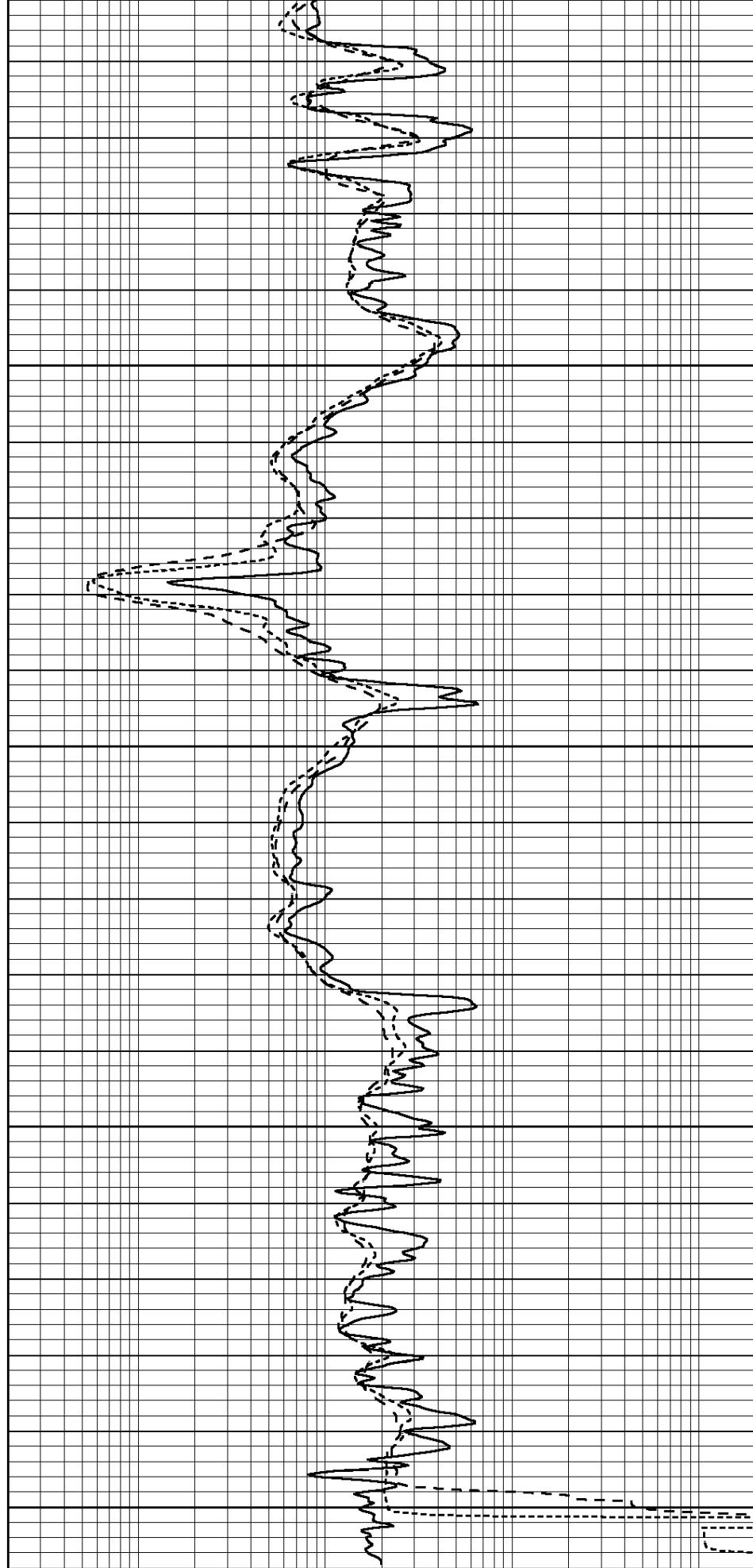
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50

3550

3600

3650

3700



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

0	MINMK	20
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Calibration Report

Database File: 011783ddn.db
Dataset Pathname: pass2.1
Dataset Creation: Wed Sep 18 03:22:19 2013 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		
		-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: Tue Jun 18 20:13:29 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:		6l	
			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		cps			
	Long Space		cps	pu		
3)	Short Space		cps			
	Long Space		cps	pu		
POST-SURVEY VERIFICATION						
Detector		Readings		Measured		Target
1)	Short Space		cps			
	Long Space		cps	pu		pu
2)	Short Space		cps			
	Long Space		cps	pu		pu
3)	Short Space		cps			
	Long Space		cps	pu		pu
Gamma Ray Calibration Report						
Serial Number:			#8			
Tool Model:			OPEN			
Performed:			Tue Jun 18 19:34:11 2013			
Calibrator Value:			150.0	GAPI		
Background Reading:			0.0	cps		
Calibrator Reading:			175.0	cps		

