



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

**DUAL
INDUCTION
LOG**

Company MAI OIL OPERATION, INC. Well NUSS-RADKE #2 Field NUSS NORTHEAST County RUSSELL State KANSAS		Company MAI OIL OPERATIONS, INC. Well NUSS-RADKE #2 Field NUSS NORTHEAST County RUSSELL State KANSAS	
Location: API # : 15-167-23869-00-00 1150' FSL & 150' FWL NW - NW - SW - SW SEC 19 TWP 14S RGE 18W		Other Services CNL/CDL MEL	
Permanent Datum Log Measured From Drilling Measured From	GROUND LEVEL Elevation 1877 KELLY BUSHING 8' A.G.L. KELLY BUSHING		
Date	6/10/13		
Run Number	ONE		
Depth Driller	3410		
Depth Logger	3409		
Bottom Logged Interval	3407		
Top Log Interval	00		
Casing Driller	8 5/8"@478'		
Casing Logger	478		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 5,800 PPM	
Density / Viscosity	9.2/55		
pH / Fluid Loss	11.0/8.0		
Source of Sample	FLOWLINE		
Rim @ Meas. Temp	.900@80F		
Rmf @ Meas. Temp	0.675@80F		
Rmc @ Meas. Temp	1.08@80F		
Source of Rmf / Rmc	MEASUREMENT		
Rim @ BHT	.648@111F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	111F		
Equipment Number	4854		
Location	HAYS, KANSAS		
Recorded By	IAN MABB		
Witnessed By	WYATT URBAN		

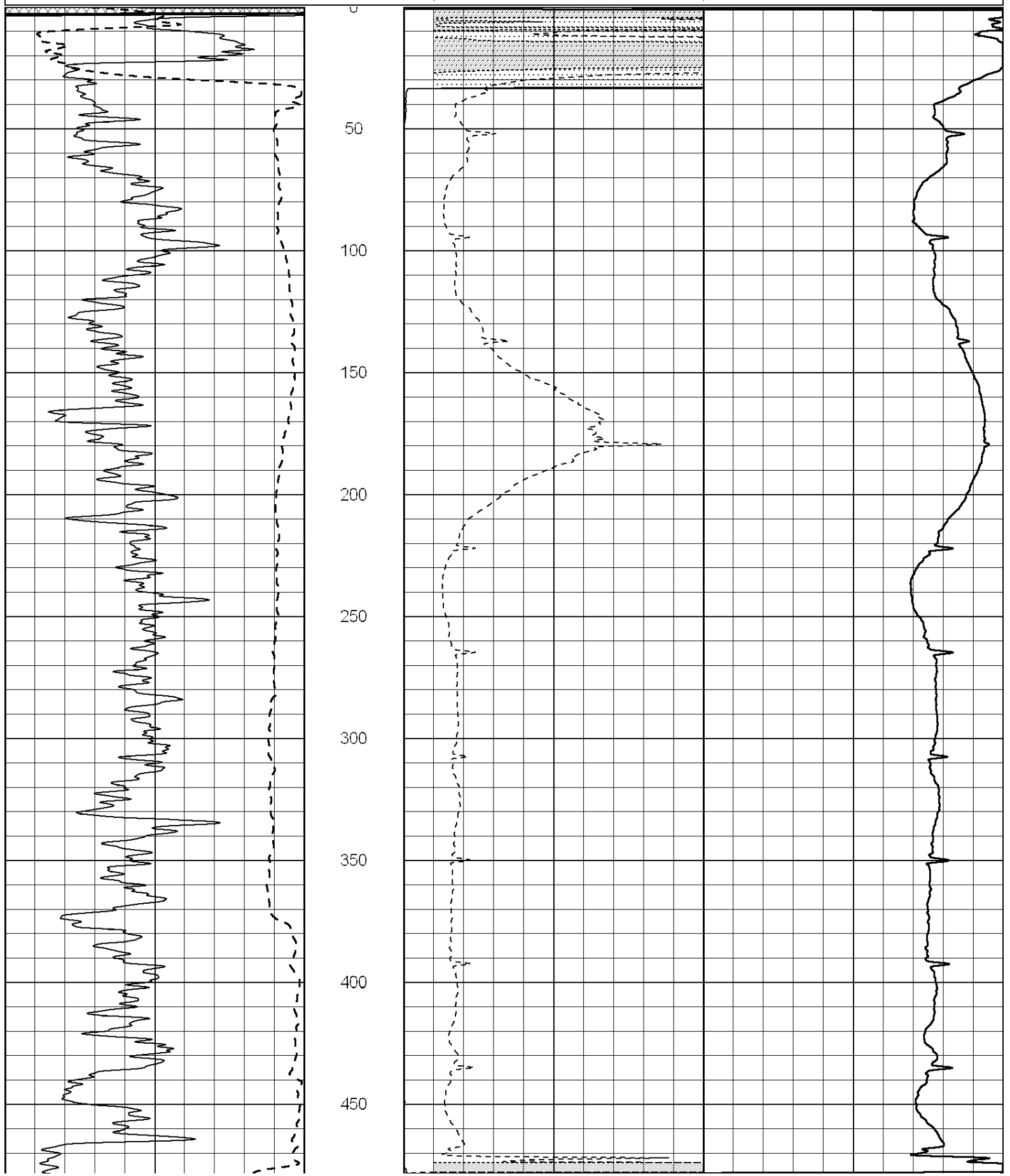
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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on 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.

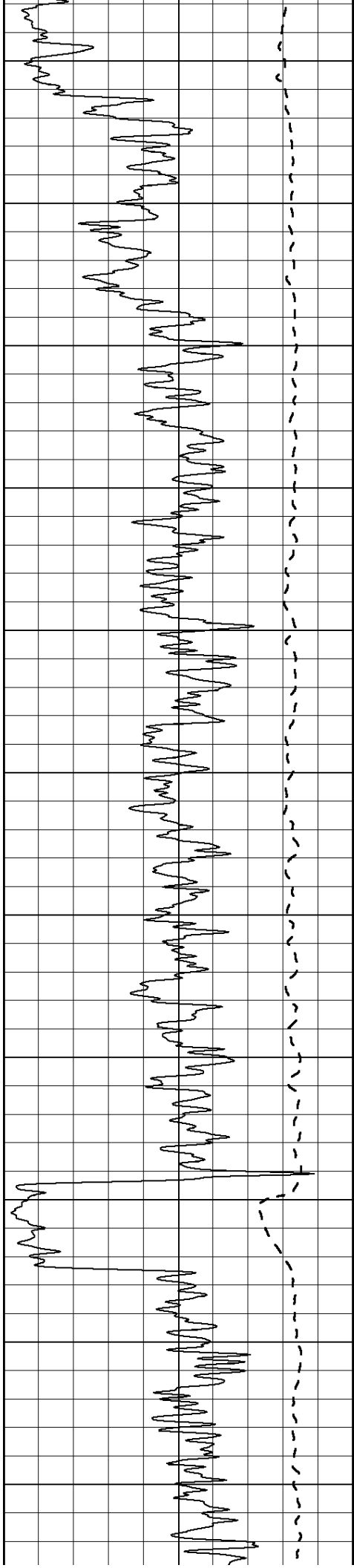
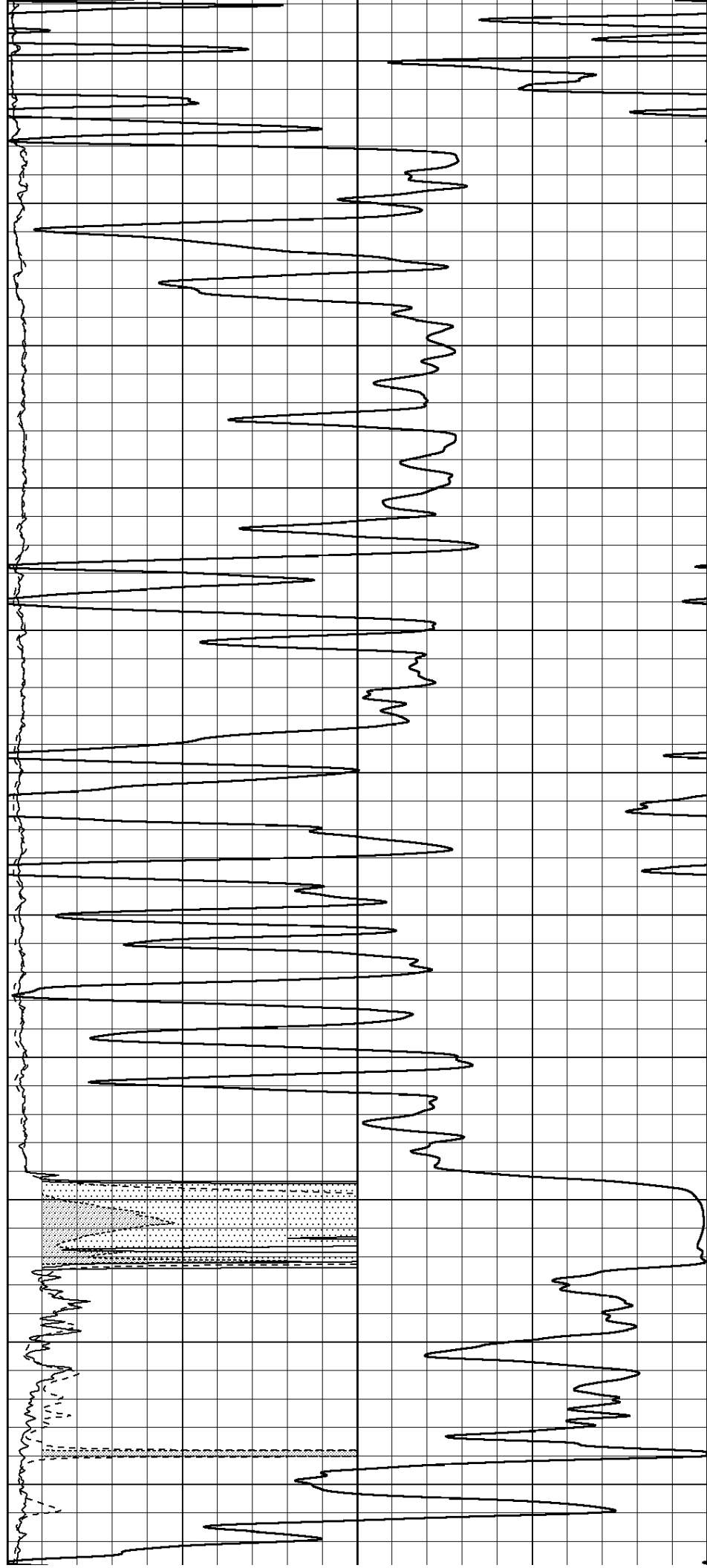
Comments

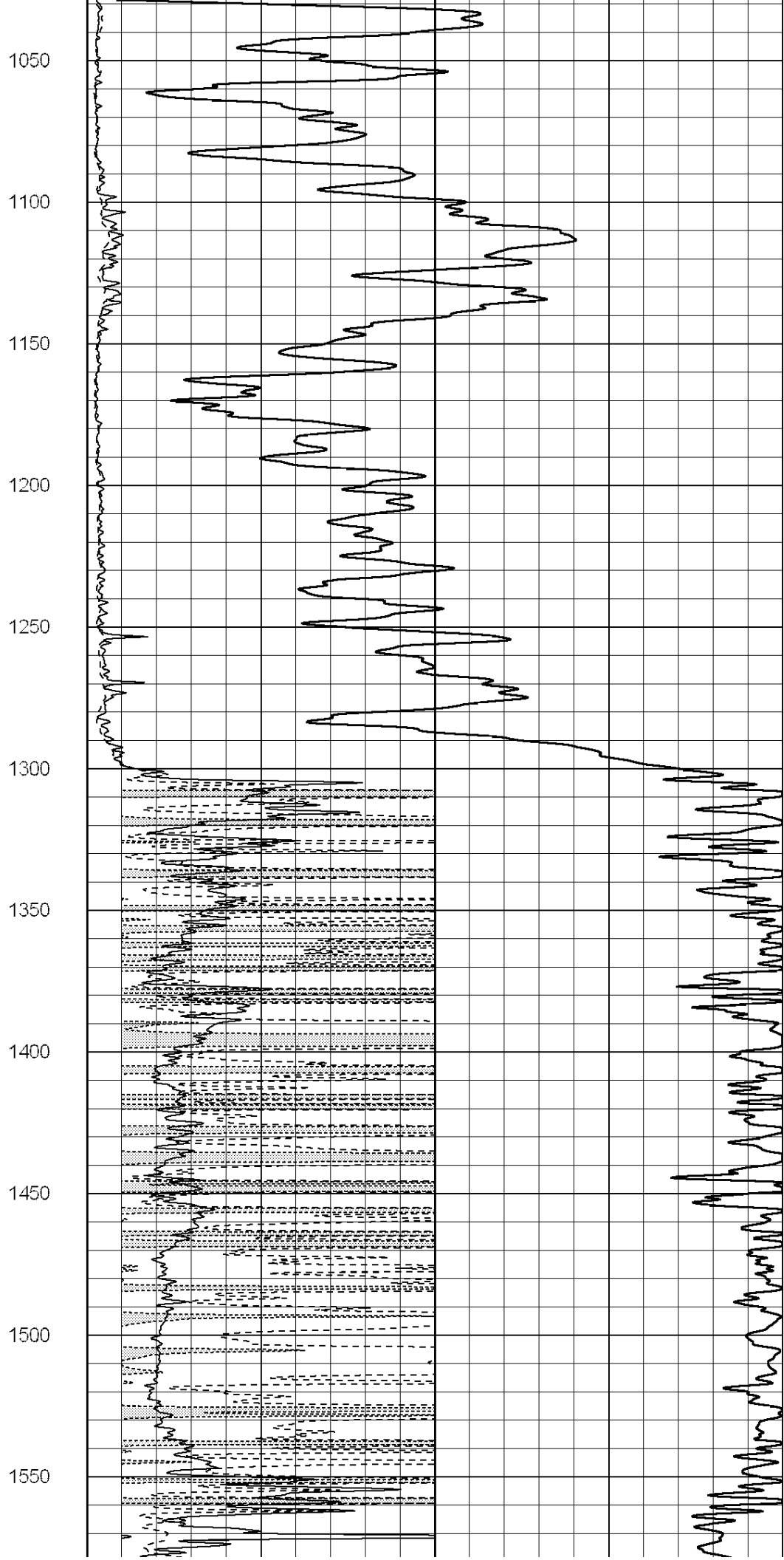
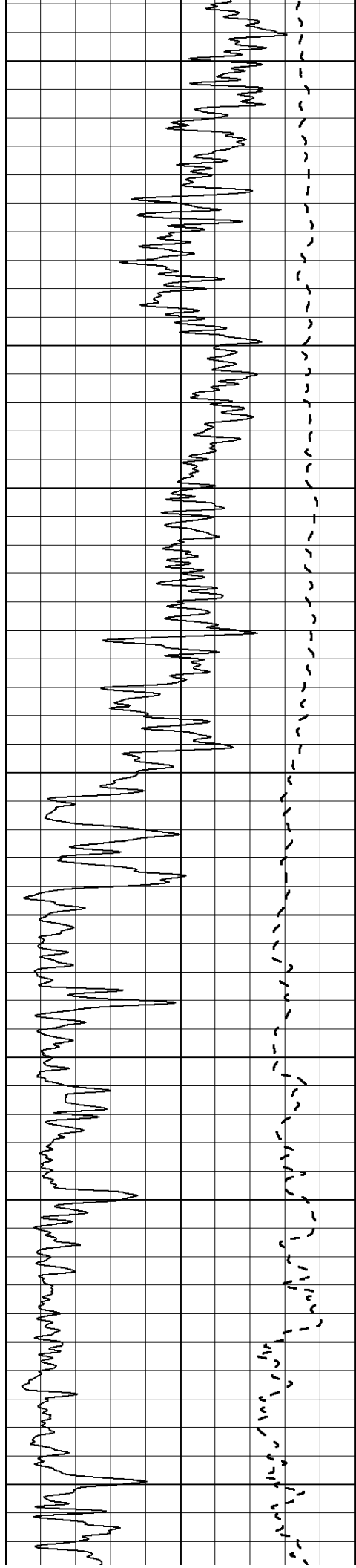
THANK YOU FOR USING "NABORS" HAYS, KANSAS (785) 628-6395
 DIRECTIONS
 RUSSELL, KS. - SOUTH ON 281 TO RADKE SIGN WEST 2 MILES SOUTH 1/2 MILE EAST INTO

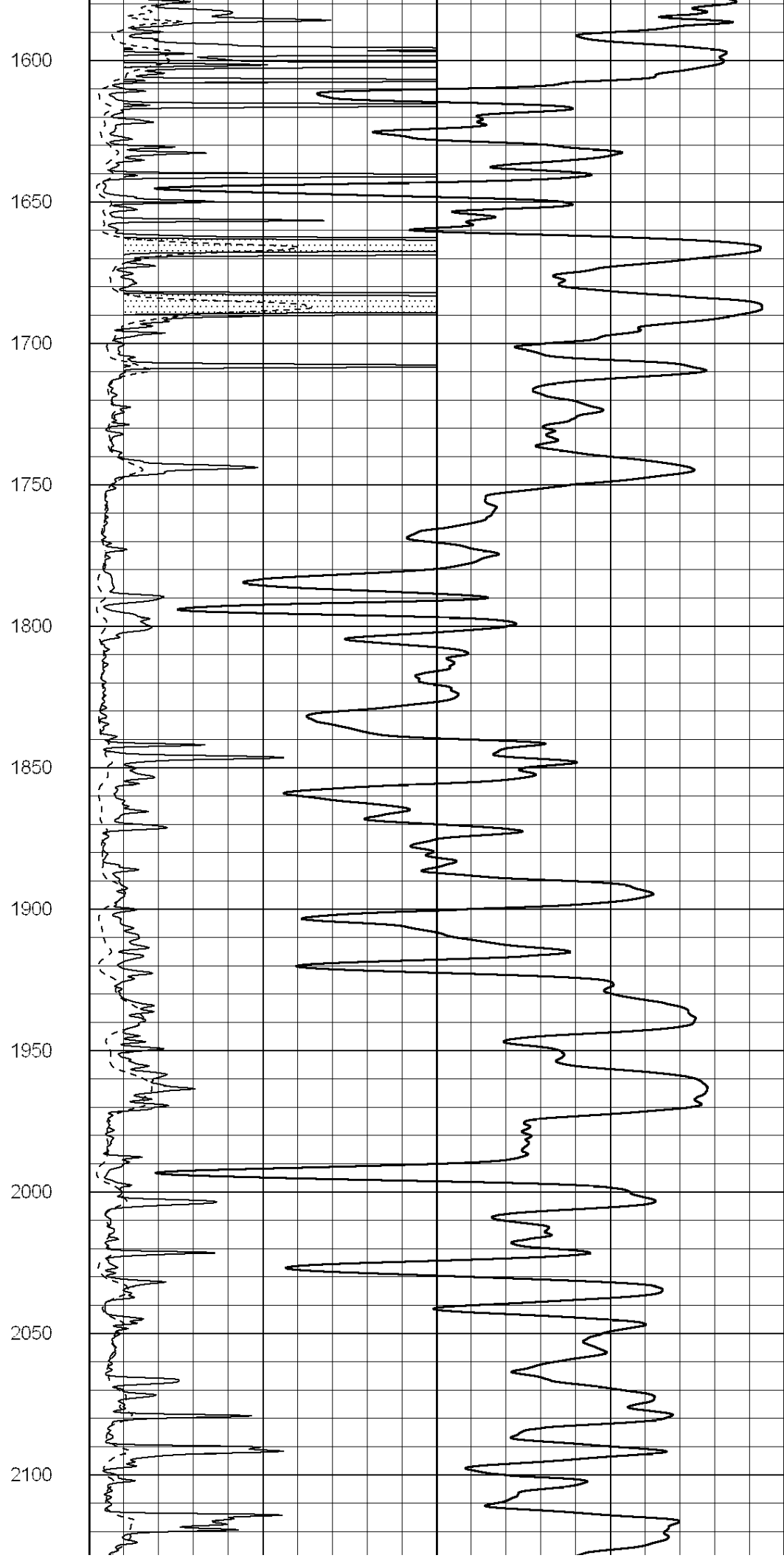
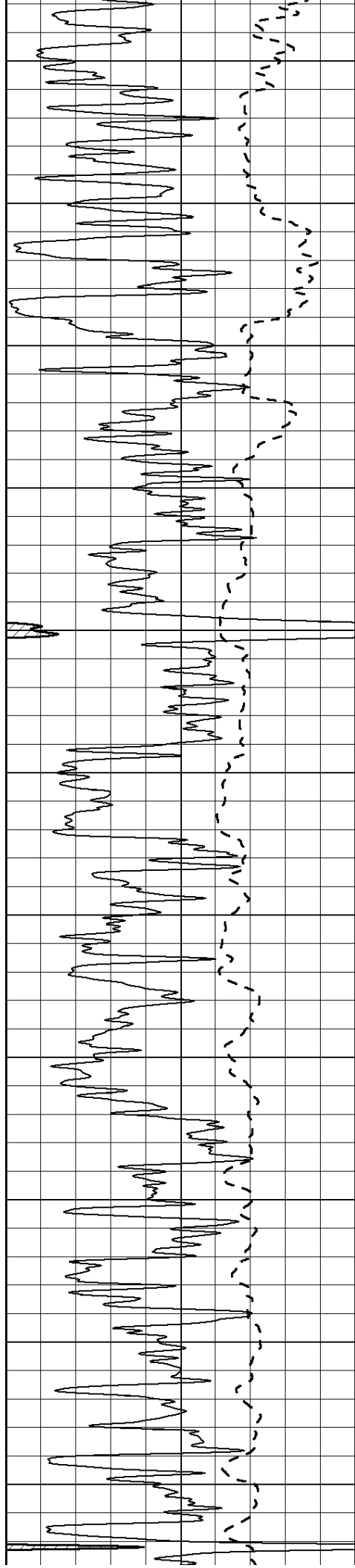
Charted by: Depth in Feet scaled 1:600					
0	Gamma Ray (GAPI)	150	0	RLL3 (Ohm-m)	50
-100	SP (mV)	100	0	RILD (Ohm-m)	50
-----			-----		
			1000	CILD (mmho/m)	0
			50	RILD X10 (Ohm-m)	500
			50	RLL3 X10 (Ohm-m)	500

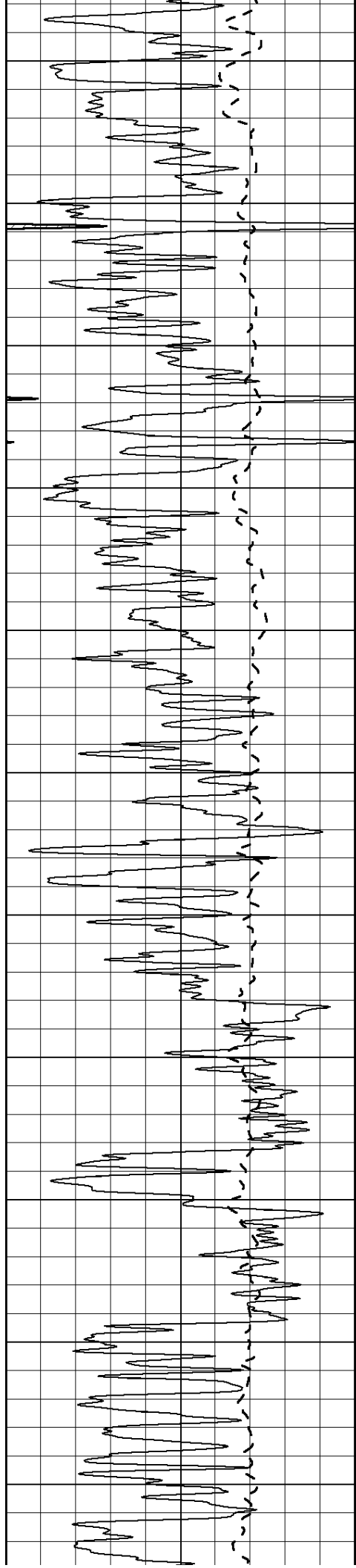


500
550
600
650
700
750
800
850
900
950
1000









2150

2200

2250

2300

2350

2400

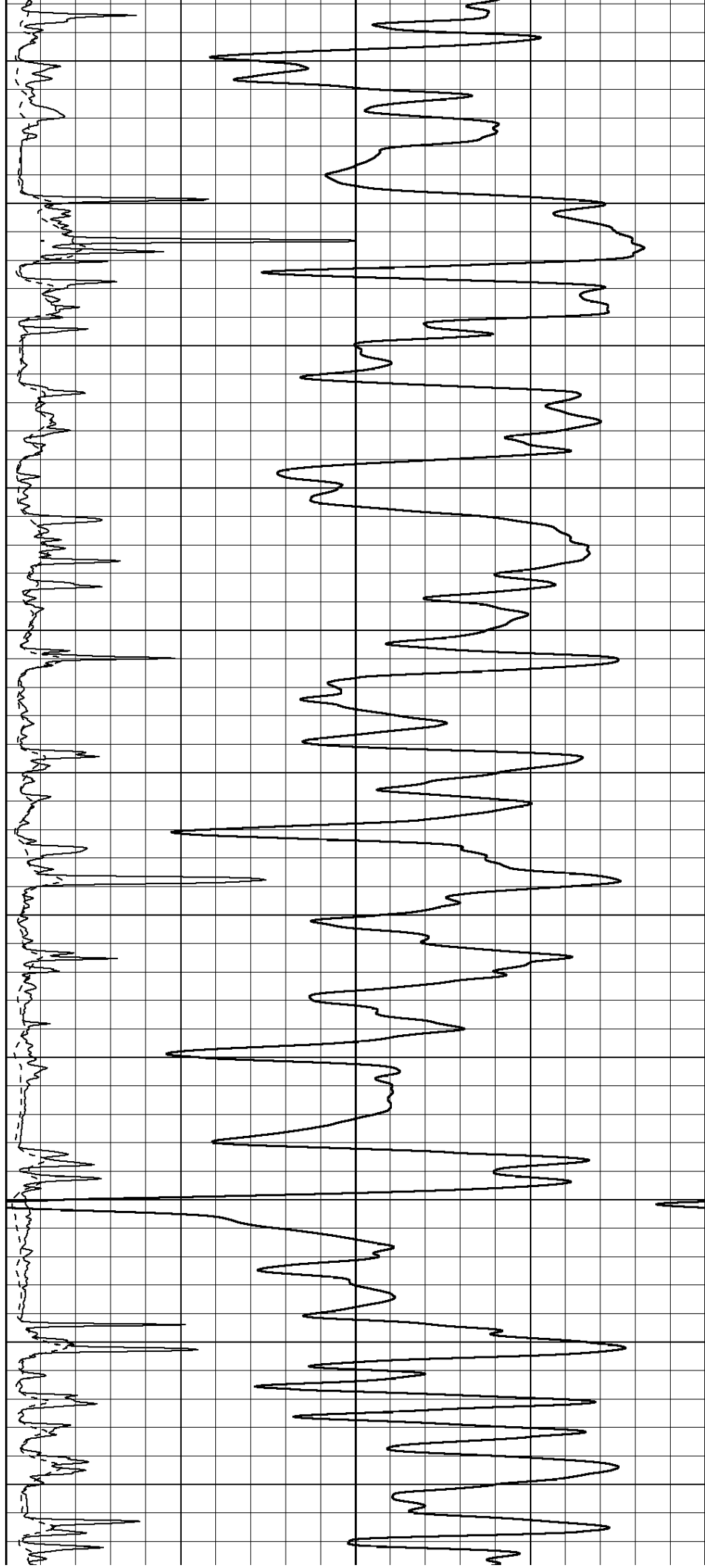
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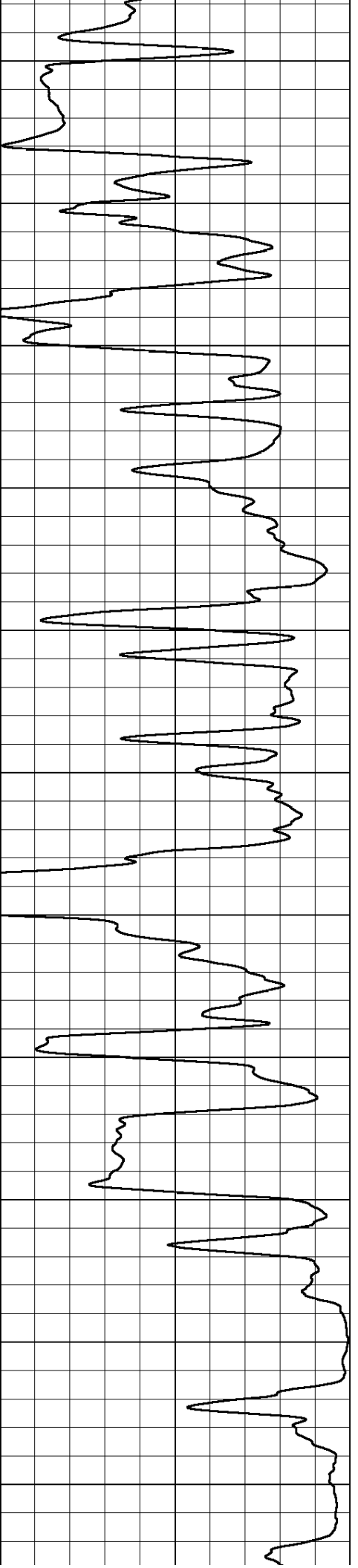
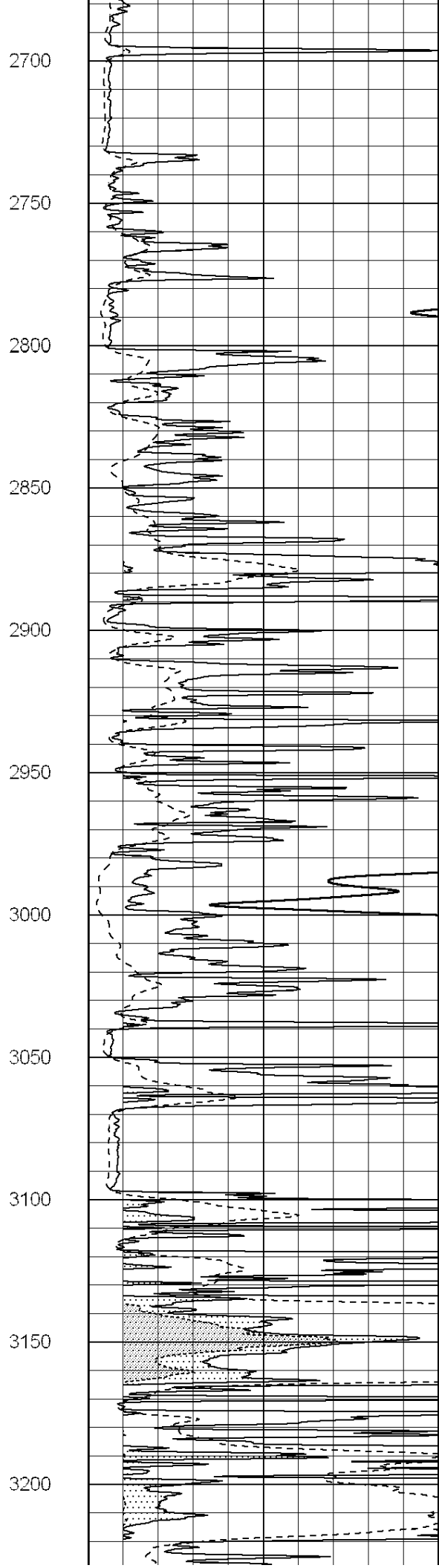
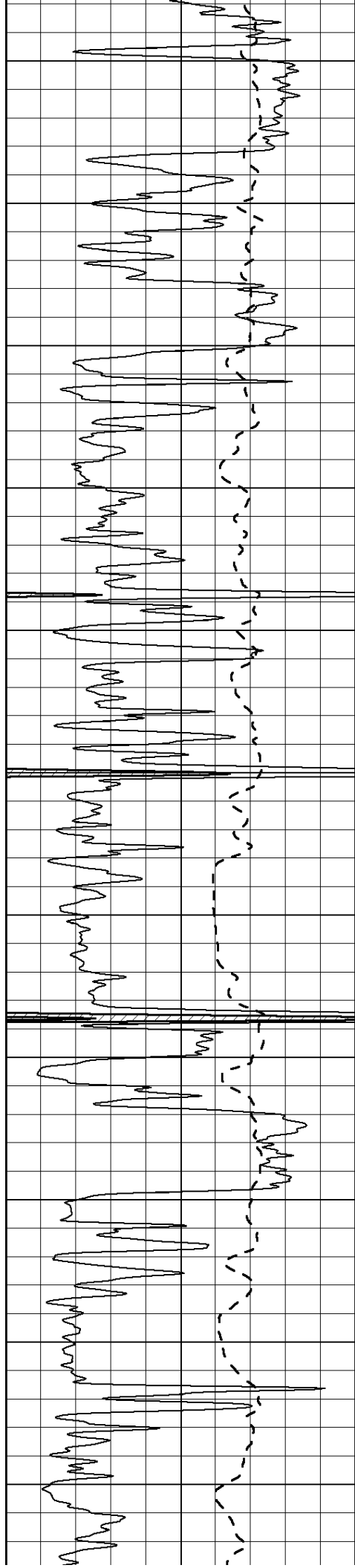
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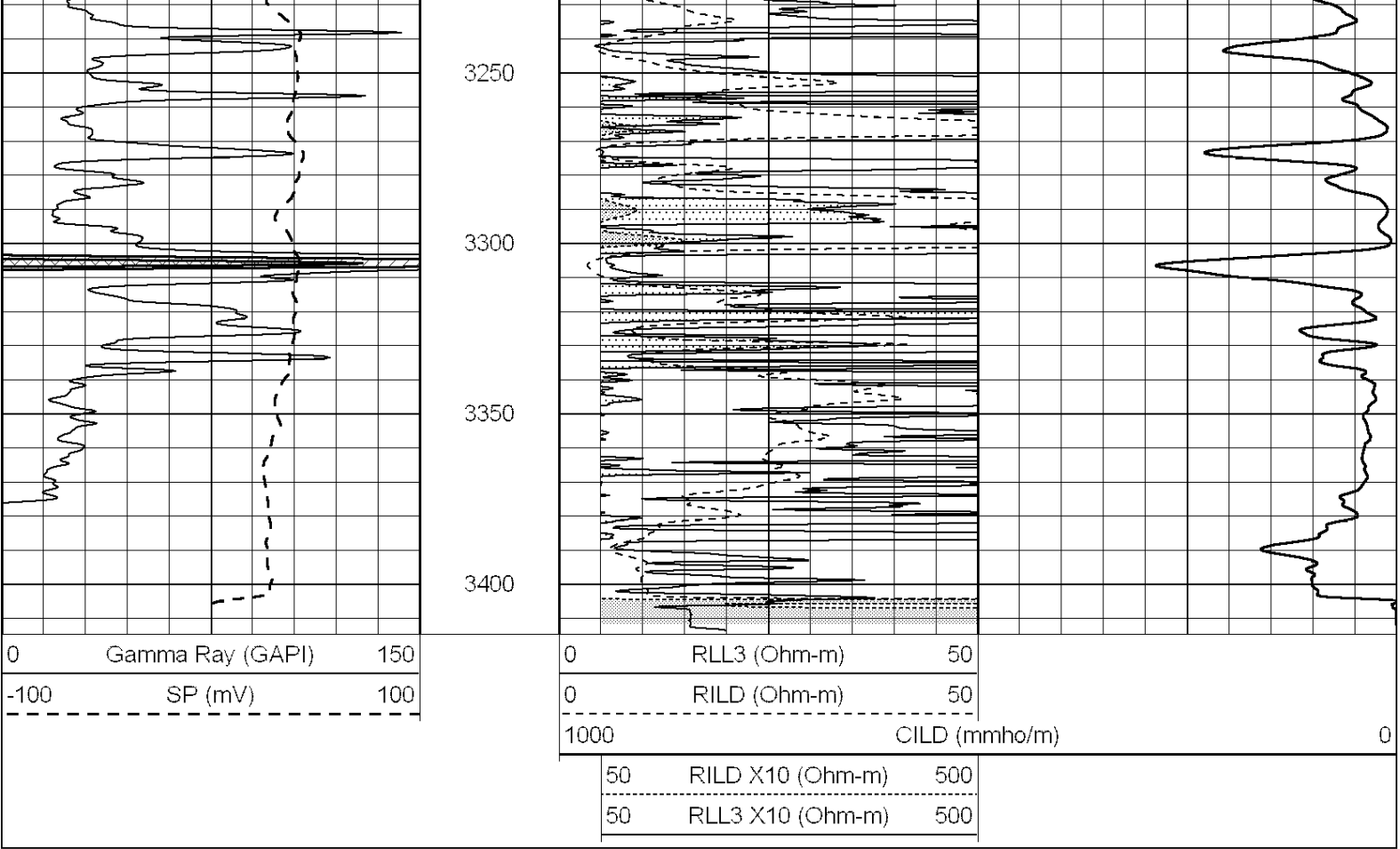
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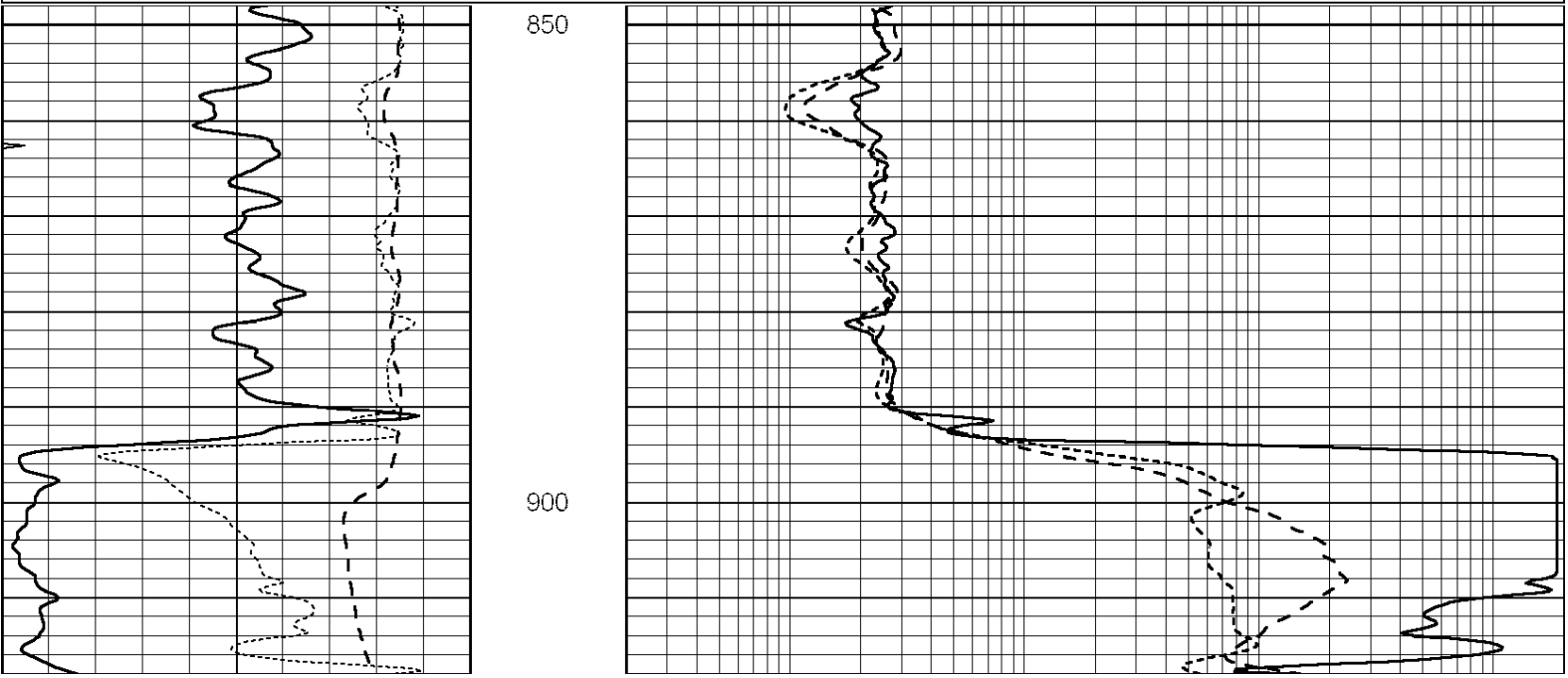
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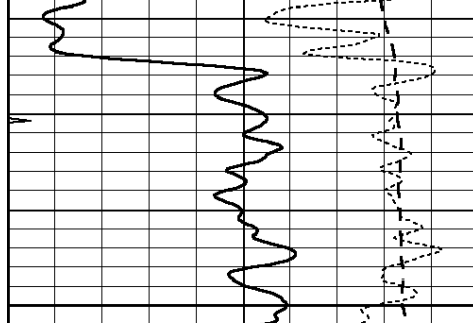






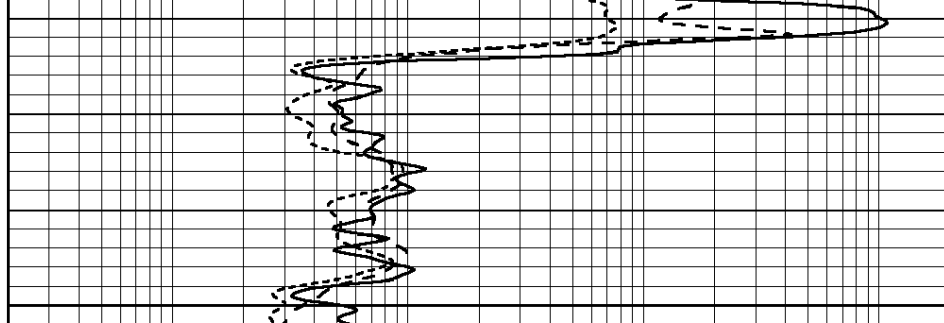
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Dataset Pathname: pass3.3			
Presentation Format: _dil			
Dataset Creation: Mon Jun 10 12:56:43 2013 by Calc SOC 120430			
Charted by: Depth in Feet scaled 1:240			
0	GAMMA RAY (GAPI)	150	
-100	SP (mV)	100	
-250	Rxo/Rt	50	
0	MINMK	20	
0.2	SHALLOW GUARD (Ohm-m)	2000	
0.2	DEEP INDUCTION (Ohm-m)	2000	
0.2	MEDIUM INDUCTION (Ohm-m)	2000	





950

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

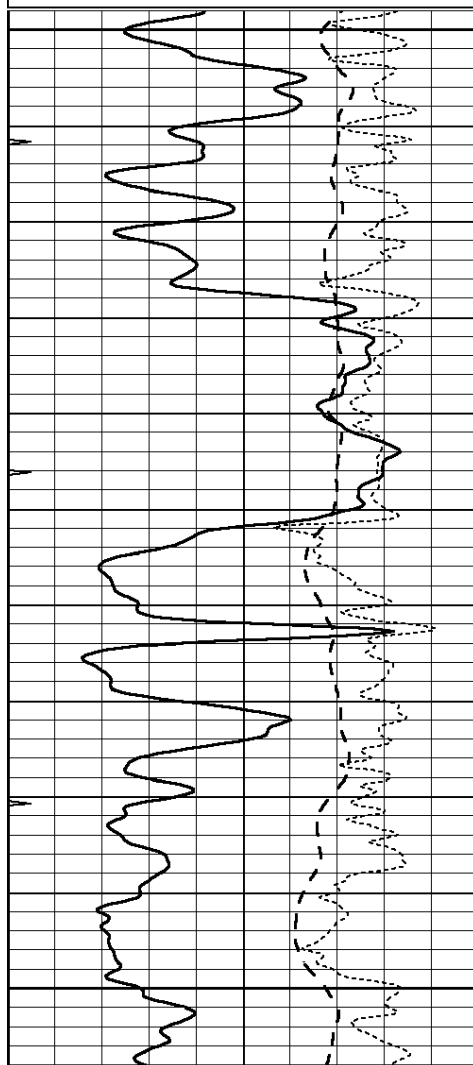


0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

Database File: 010921ddn.db
 Dataset Pathname: pass3.2
 Presentation Format: _dil
 Dataset Creation: Mon Jun 10 11:55:46 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

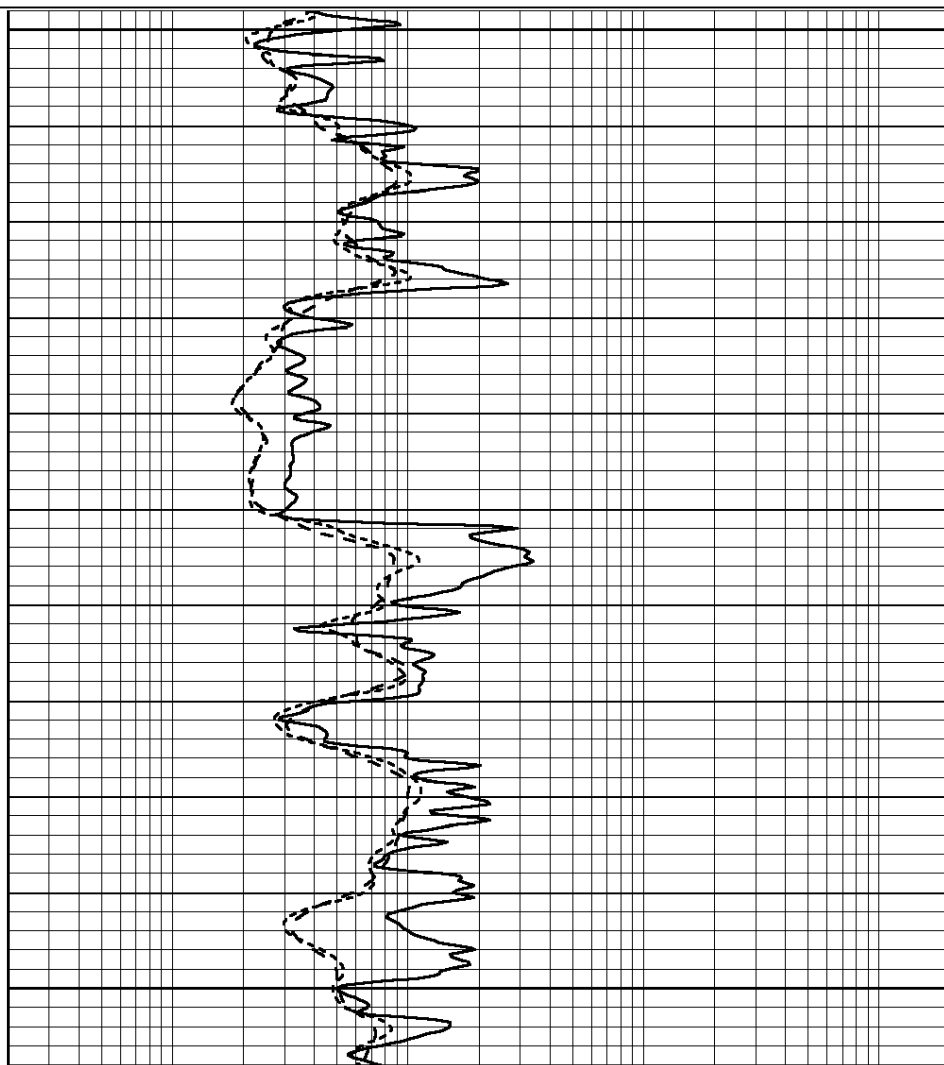
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

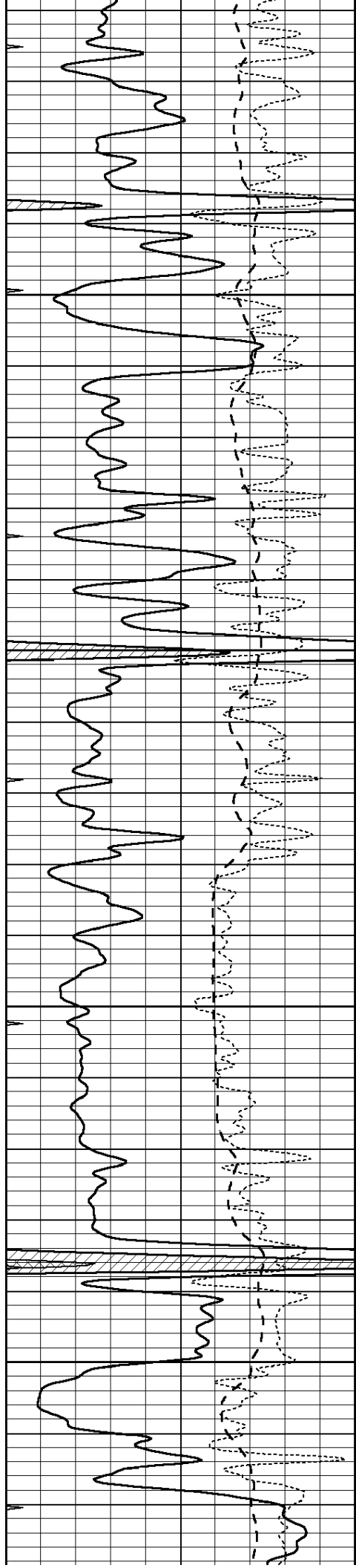


2750

2800

2850



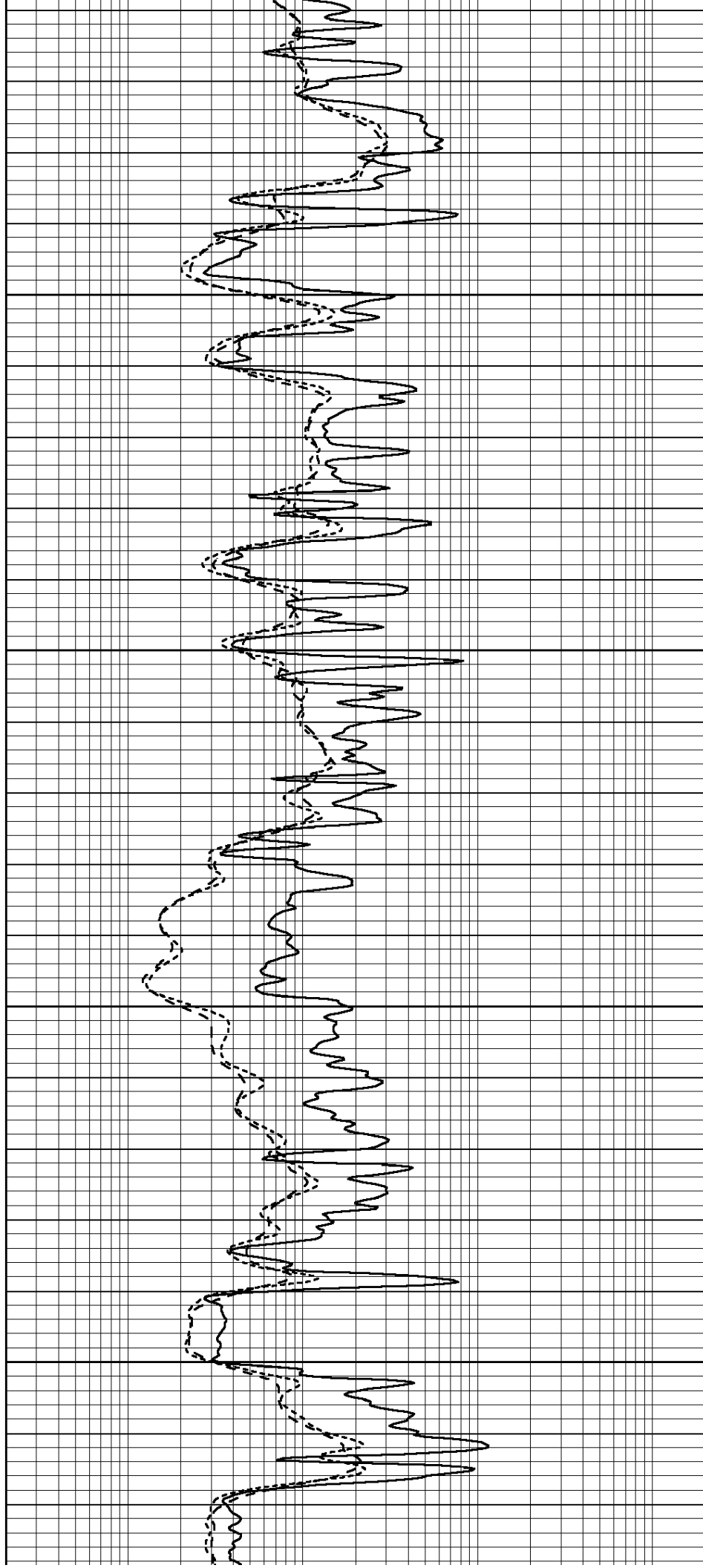


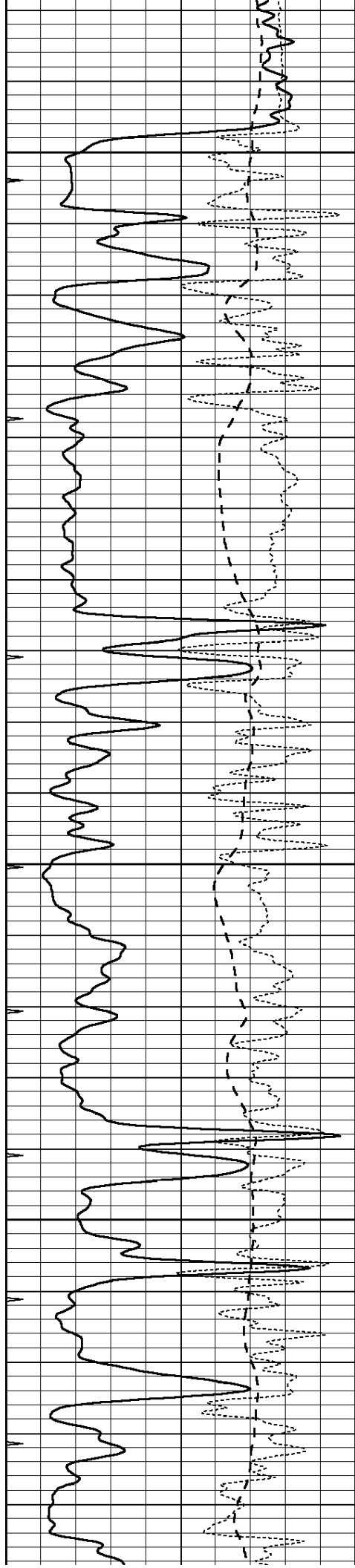
2900

2950

3000

3050



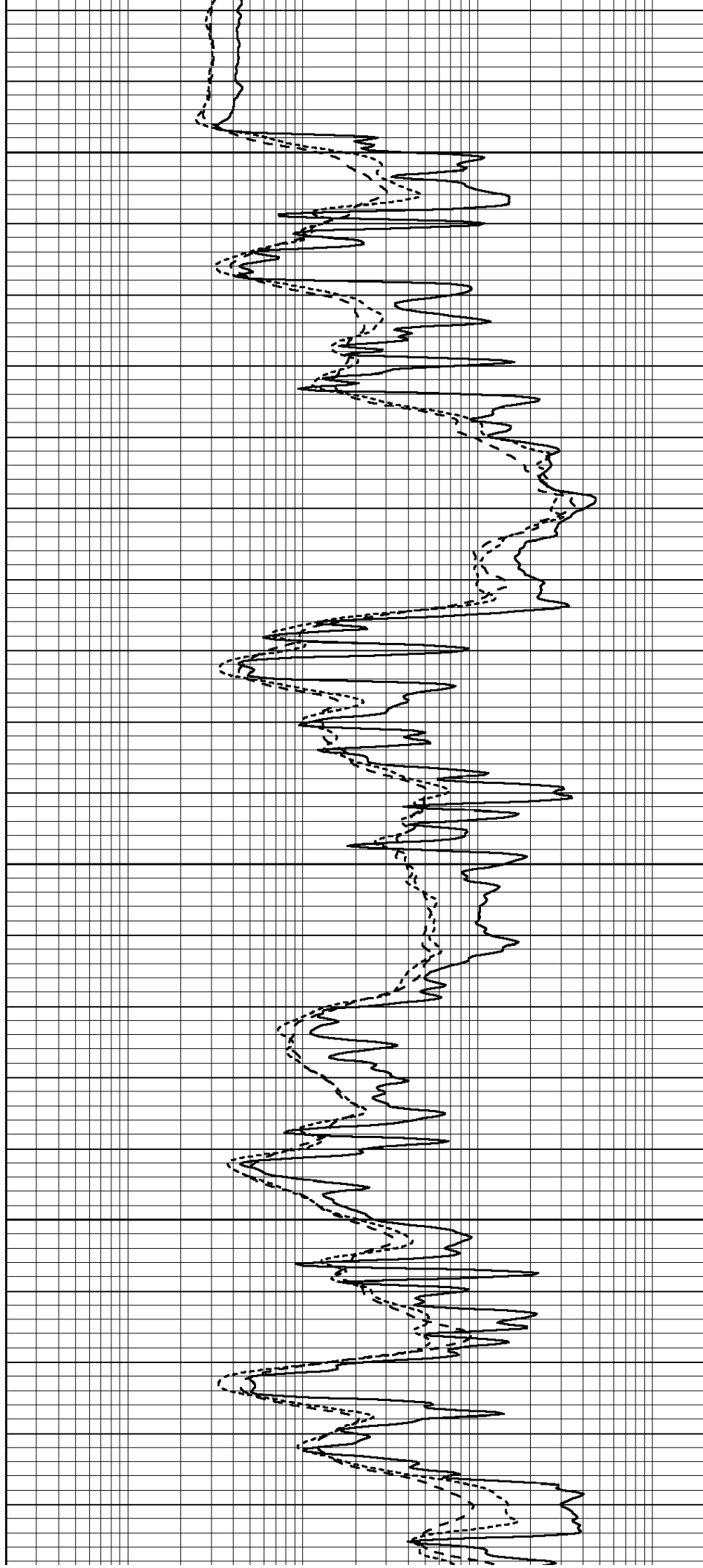


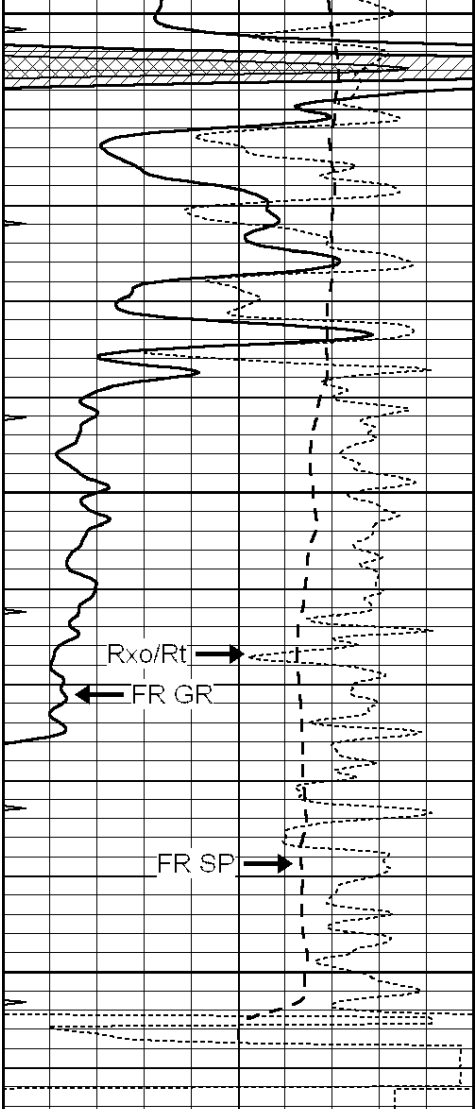
3100

3150

3200

3250





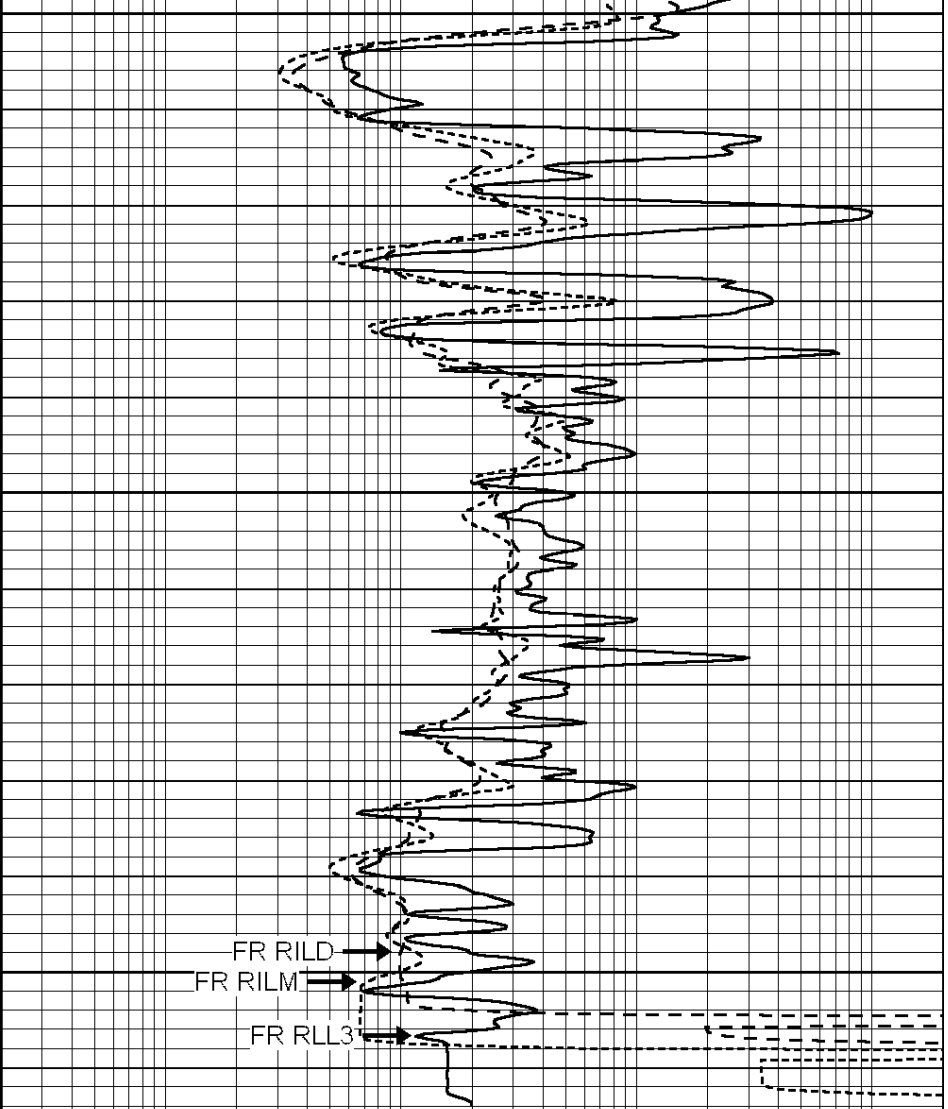
3300

3350

3400

LTD 3409

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

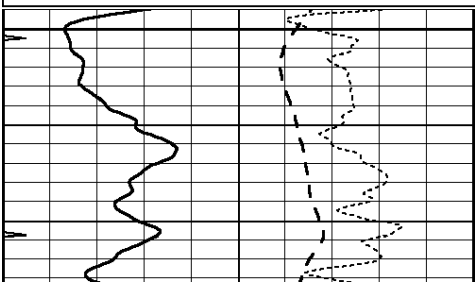


0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

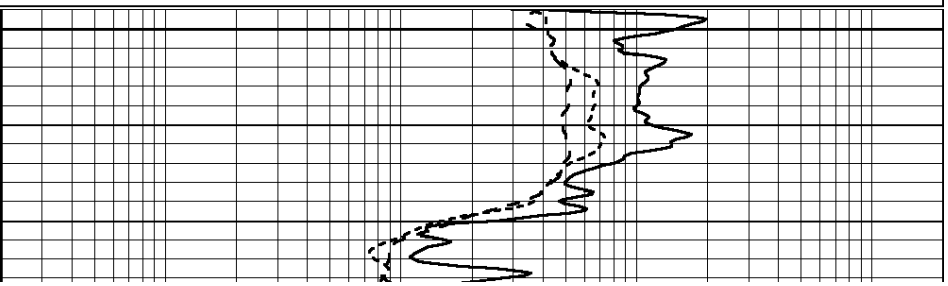
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 Charted by: Depth in Feet scaled 1:240

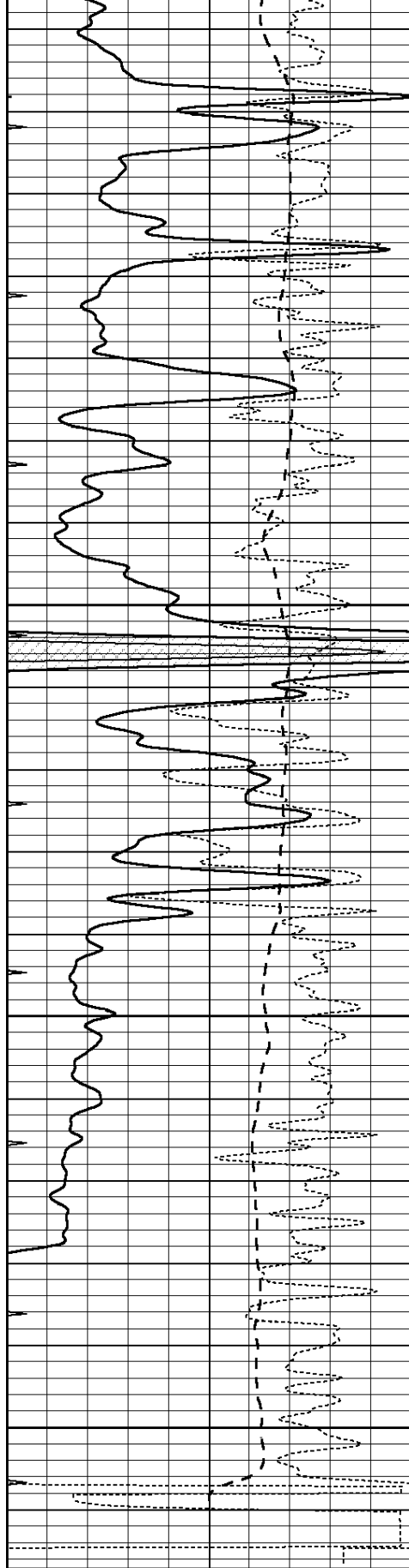
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



3200





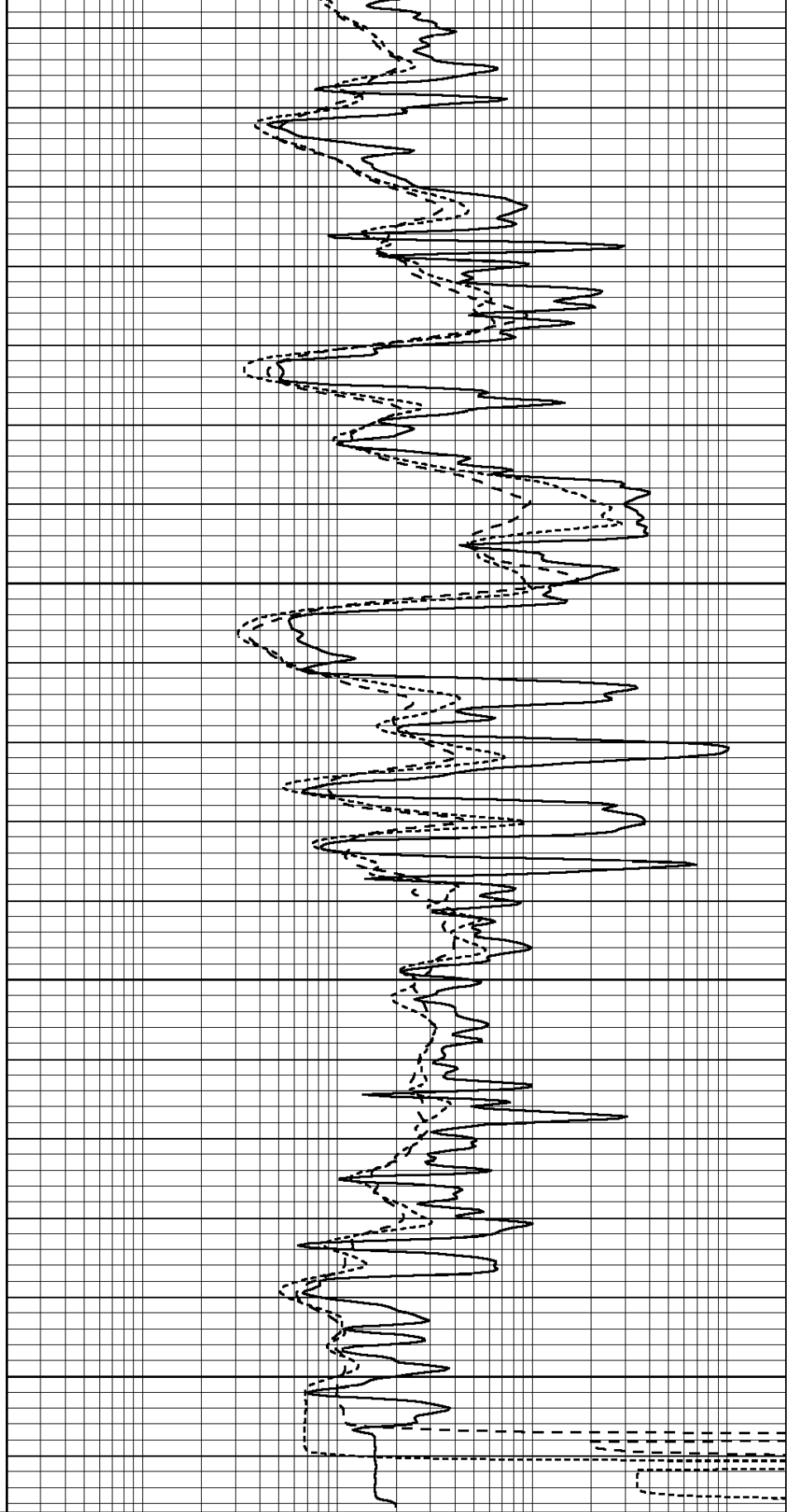
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

3250

3300

3350

3400



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: 010921ddn.db
Dataset Pathname: pass3.3
Dataset Creation: Mon Jun 10 12:56:43 2013 by Calc SOC 120430

Dual Induction Calibration Report

Serial-Model: PROBE9-DILG
Surface Cal Performed: Sat Jun 08 11:36:08 2013
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	621.923	-10.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	640.000	-15.000
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: 001 Model: PRB

Master Calibration

Performed Tue May 28 08:54:22 2013

	Background	Magnesium	Aluminum	Sandstone	
Window 1	1890.3	12786.5	4236.7	13497.2	cps
Window 2	1764.1	11051.7	3765.5	11456.4	cps
Window 3	1442.8	5894.4	2376.2	5911.4	cps
Window 4	428.0	428.9	420.8	426.5	cps
Long Space	0.0	9287.6	2001.3	9692.3	cps
Short Space	3.2	3351.1	2186.8	3398.0	cps
Rho		1.7100	2.5900	1.3800	g/cc
Pe		0.0000	2.5700	1.5500	
Rib Angle	: 44.5	Rib Slope	: 0.981	Density/Spine Ratio	: 0.552
Spine Angle	: 74.5	Spine Slope	: 3.596	Spine Intercept	: -20.1

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 1	0.0	0.0	0.0	0.0	cps
Window 2	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 3	0.0	0.0	0.0	0.0	cps
Window 4	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	Long Space	0.0	0.0	0.0	0.0	cps
Short 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 Rho		0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	g/cc	Measured Correction		0.0000	0.0000	0.0000	g/cc
Measured Pe			0.0000	0.0000		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:		Mon Apr 15 10:30:52 2013			
Calibrator Value:		1.0	GAPI		
Background Reading:		0.0	cps		
Calibrator Reading:		1.0	cps		
Sensitivity:		0.3300	GAPI/cps		