



NABORS

**COMPLETION
& PRODUCTION
SERVICES CO.**

**DUAL
INDUCTION
LOG**

Company		L.D. DRILLING INC.	
Well		BARNES #1-21	
Field		WILDCAT	
County		BARTON	
State		KANSAS	
Location:		APL # : 15-009-26044-00-00	
Permanent Datum		GROUND LEVEL Elevation 1926	
Log Measured From		KELLY BUSHING 5' A.G.L.	
Drilling Measured From		KELLY BUSHING	
SEC 21 TWP 18S RGE 14W		Other Services	
		CNL/CDL MEL/SON	
Elevation		K.B. 1931 D.F. 1929 G.L. 1926	
Date	11/10/14		
Run Number	ONE		
Depth Driller	3463		
Depth Logger	3457		
Bottom Logged Interval	3455		
Top Log Interval	00		
Casing Driller	8 5/8" @ 914'		
Casing Logger	914'		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 6000 PPM	
Density / Viscosity	9.2/5.1		
pH / Fluid Loss	10.0/8.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.80 @ 60F		
Rmt @ Meas. Temp	.60 @ 60F		
Rmc @ Meas. Temp	.96 @ 60F		
Source of Rmt / Rmc	MEASUREMENT		
Rm @ BHT	.43 @ 111F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	111F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	IAN MABB		
Witnessed By	KURT TALBOTT		

<<< Fold Here >>>

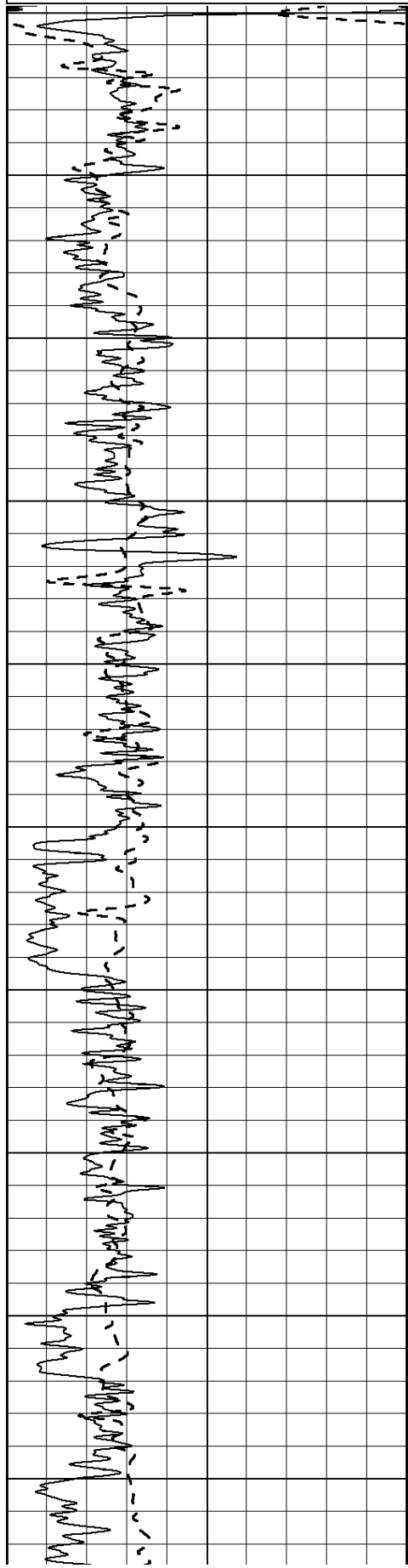
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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:
281 & HWY 4 - 4 MILES SOUTH - WEST 2 MILES - SOUTH 1/2 - EAST INTO

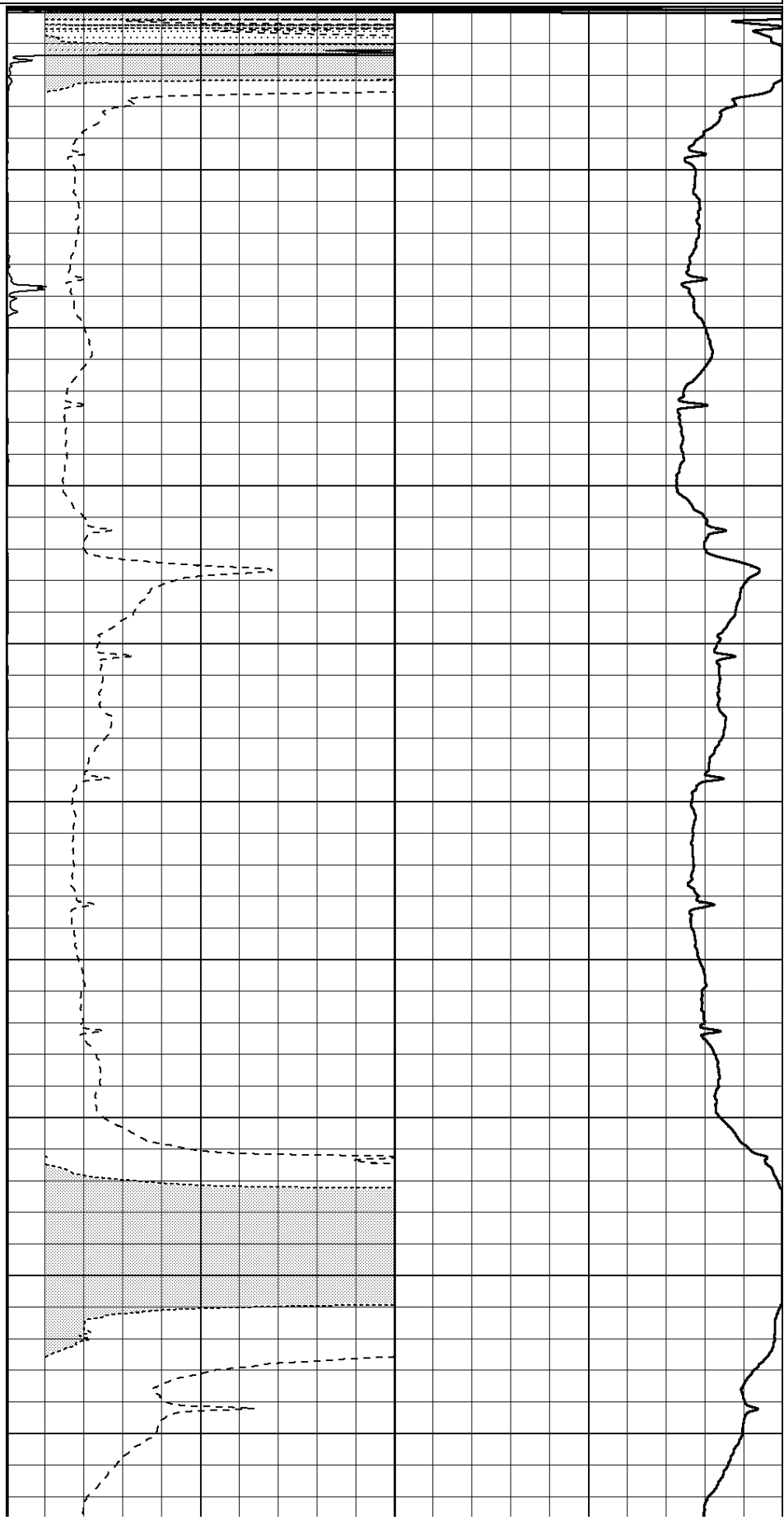
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Dataset Pathname: pass5.4
Presentation Format: _dil2
Dataset Creation: Mon Nov 10 23:05:19 2014
Charted by: Depth in Feet scaled 1:600

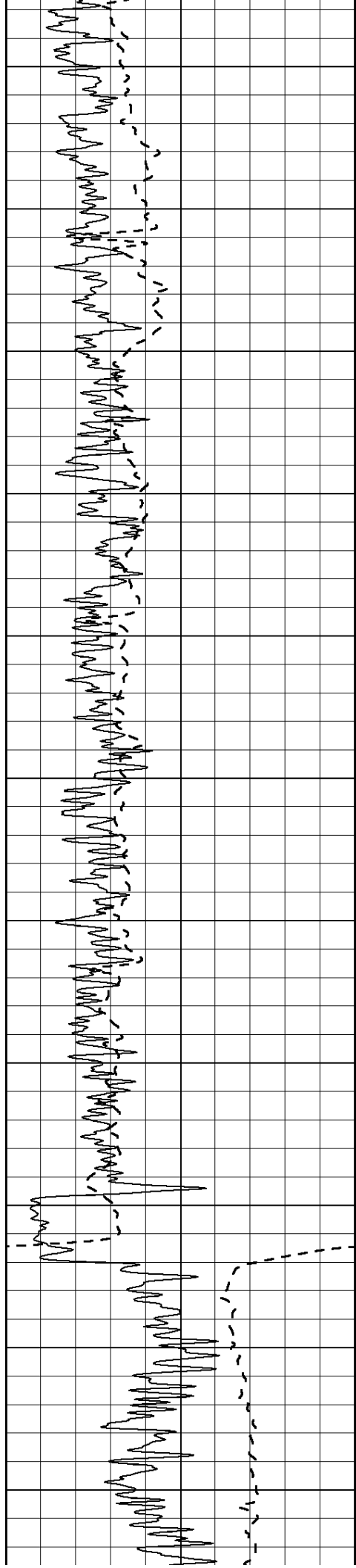
0	Gamma Ray (GAPI)	150
-100	SP (mV)	100



0
50
100
150
200
250
300
350
400
450

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





500

550

600

650

700

750

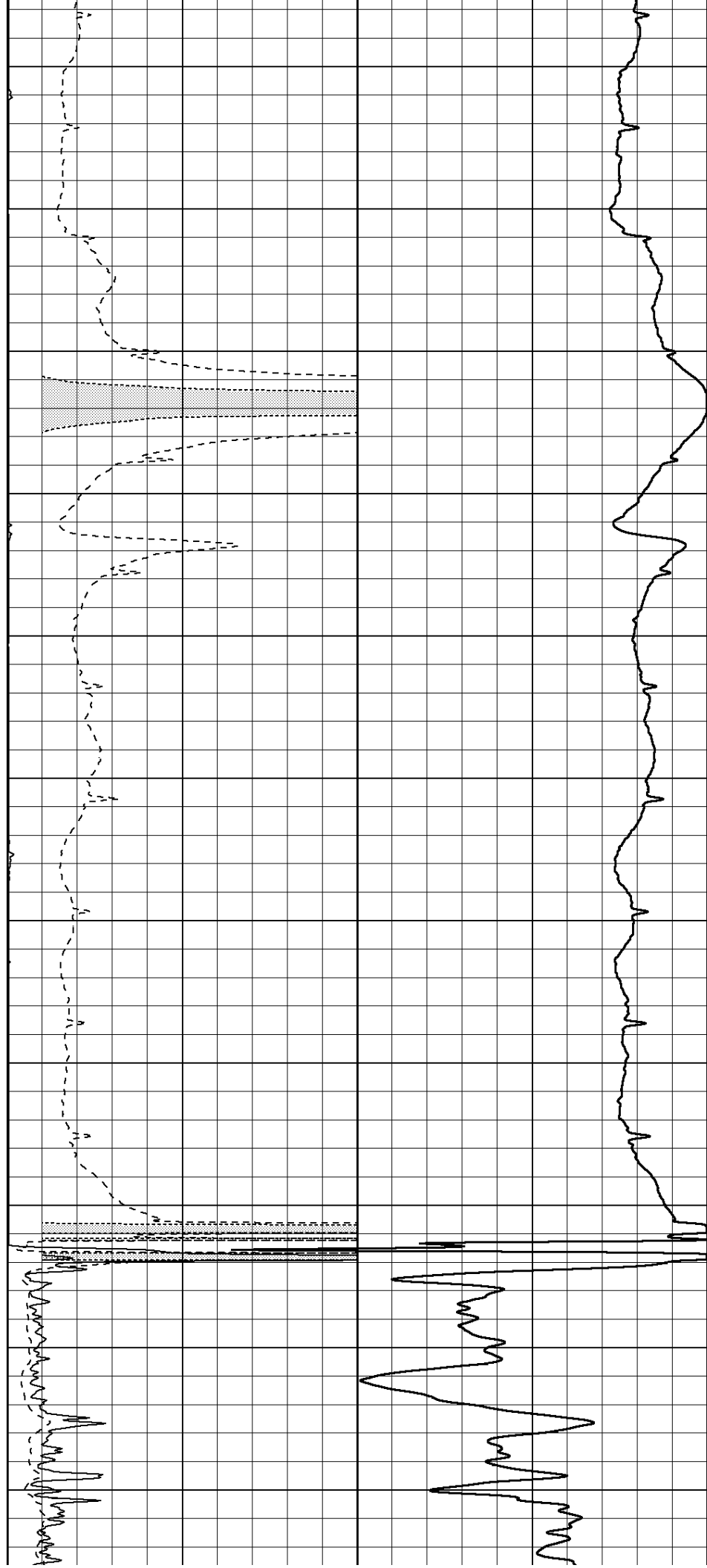
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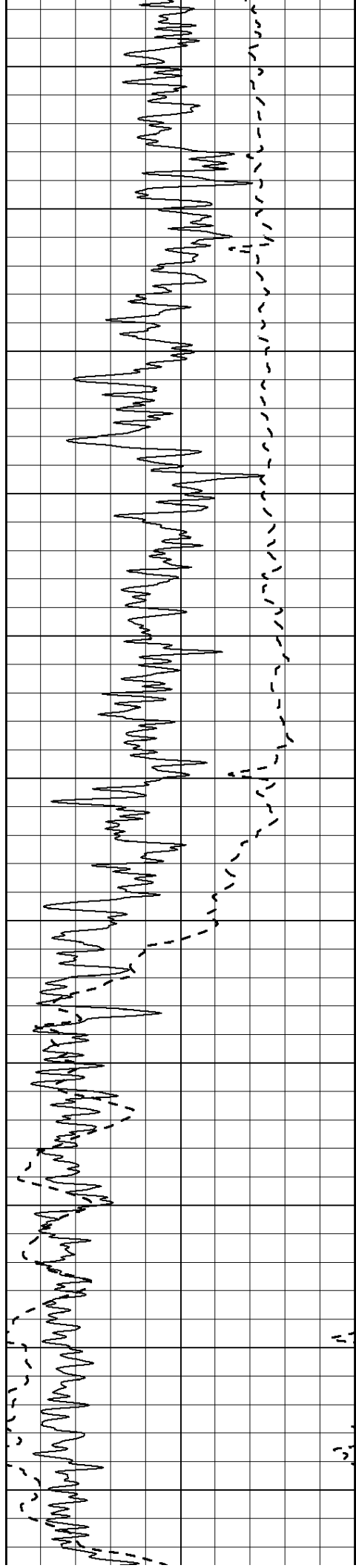
850

900

950

1000





1050

1100

1150

1200

1250

1300

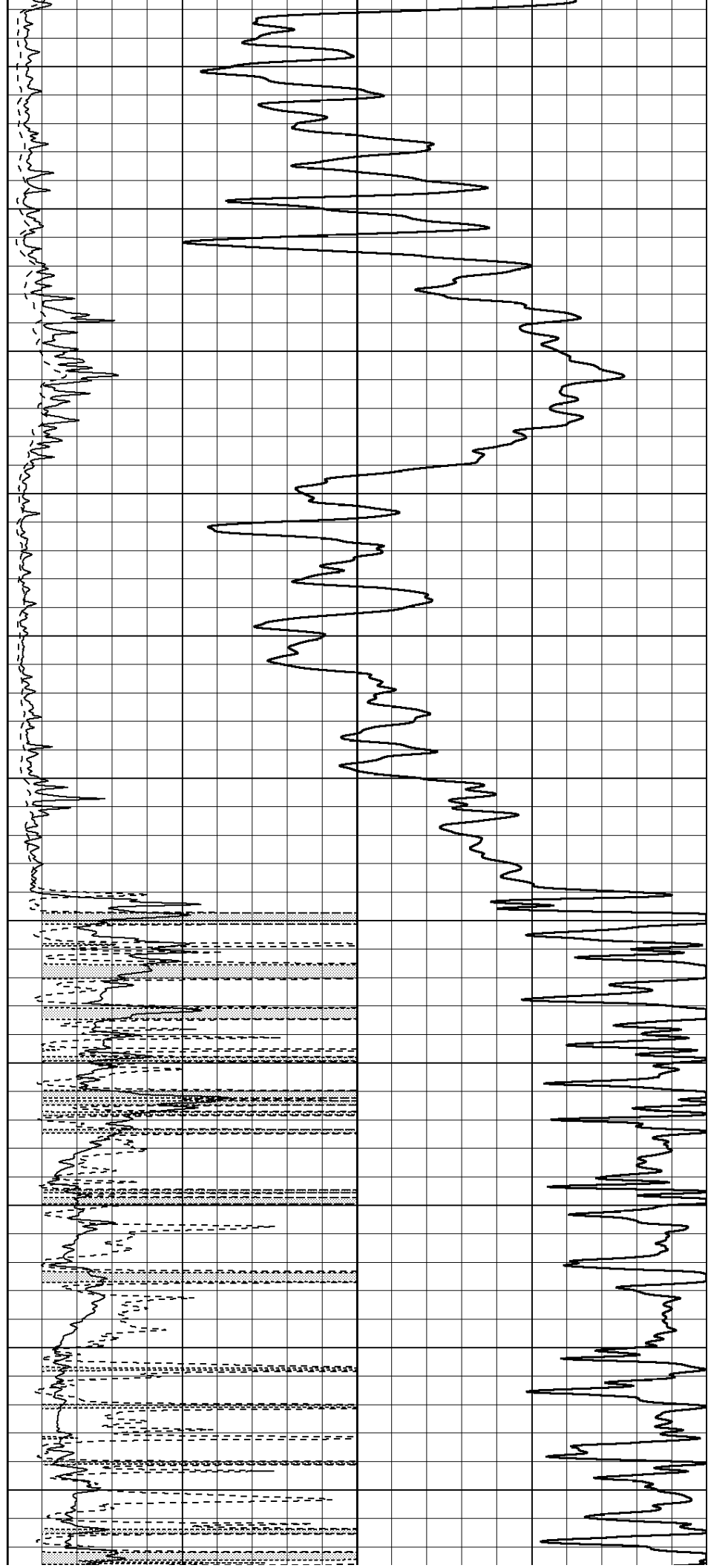
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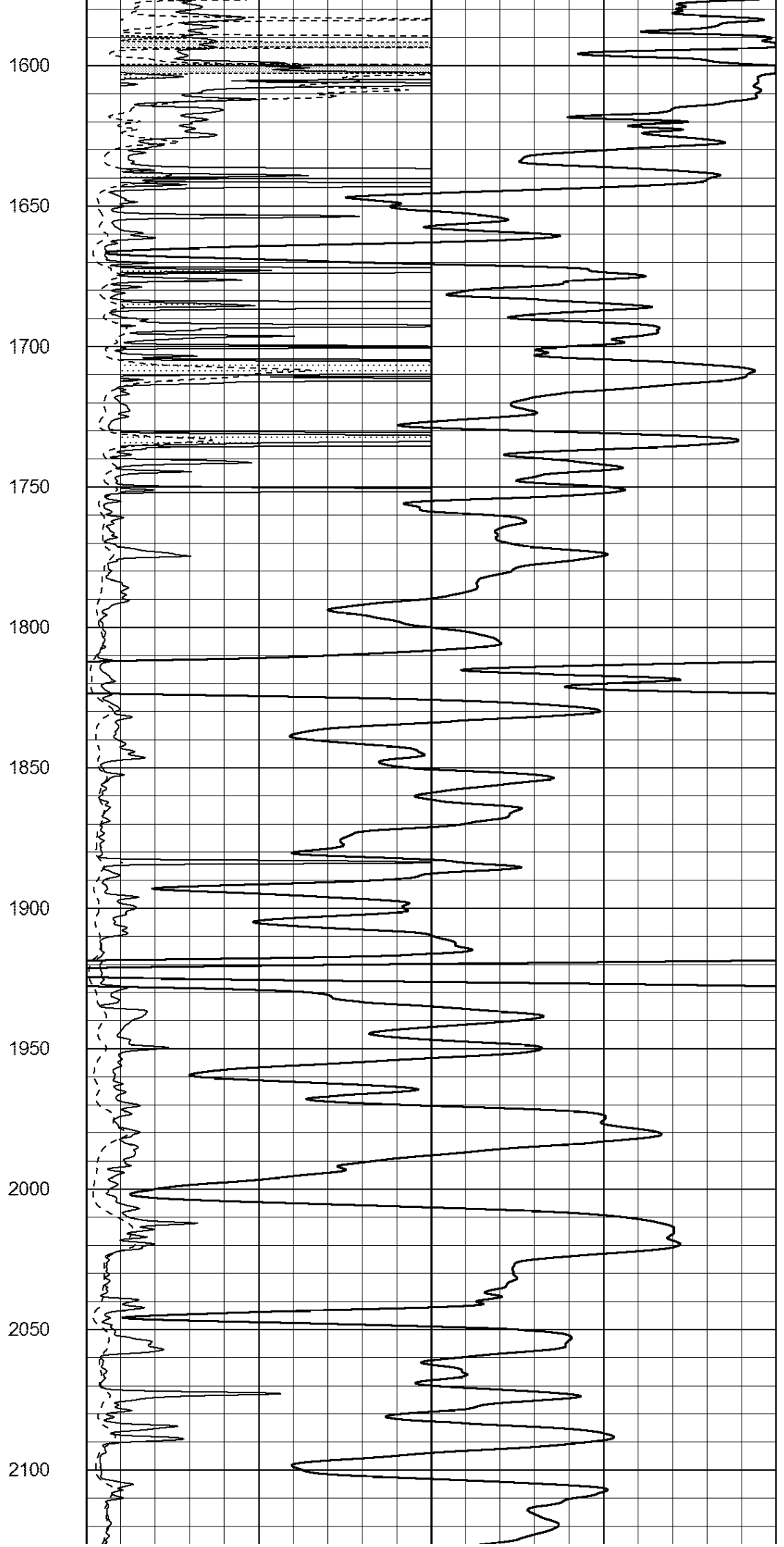
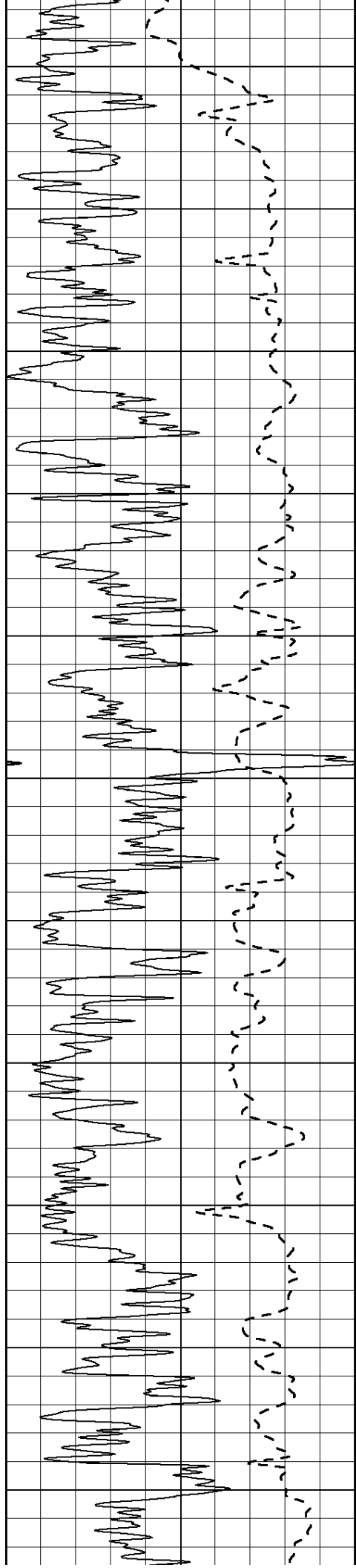
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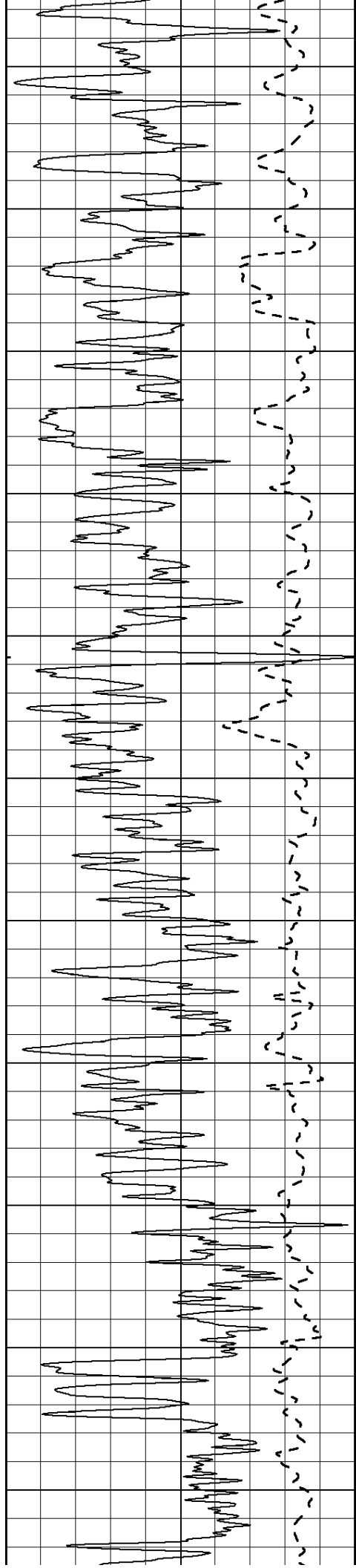
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1500

1550







2150

2200

2250

2300

2350

2400

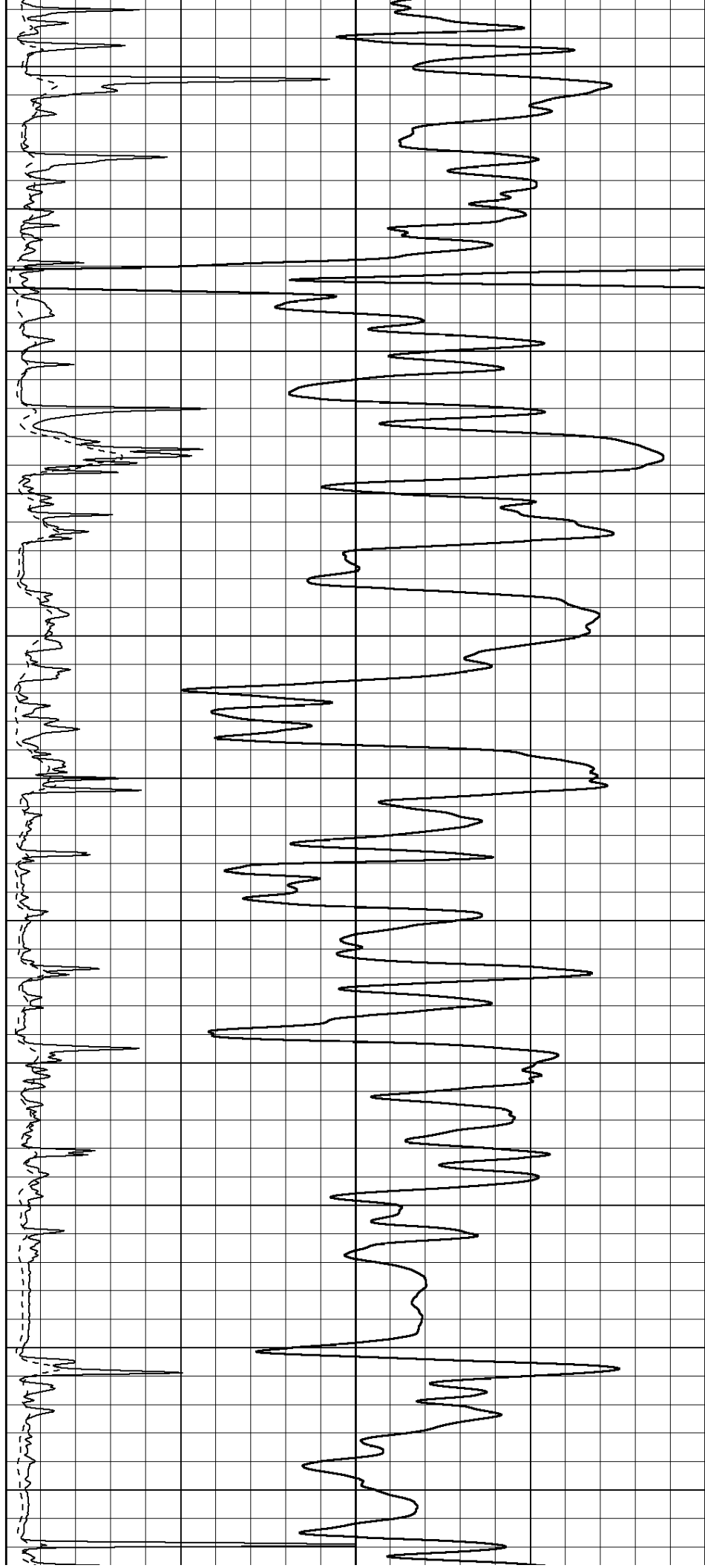
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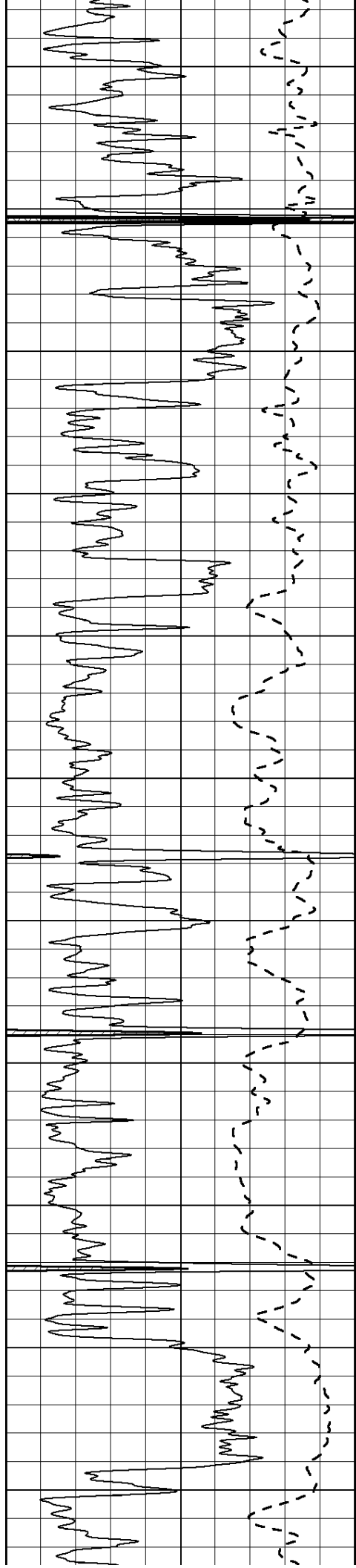
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2550

2600

2650





2700

2750

2800

2850

2900

2950

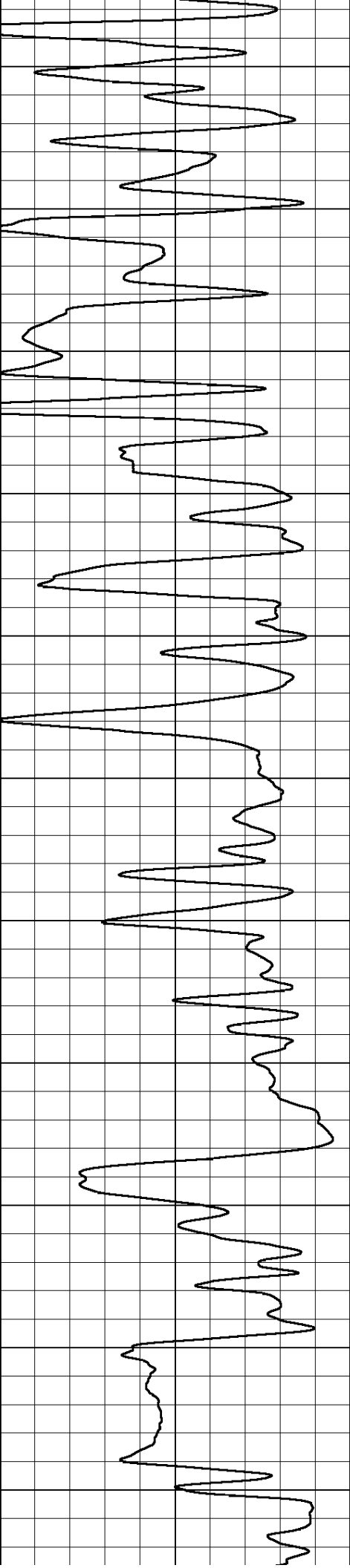
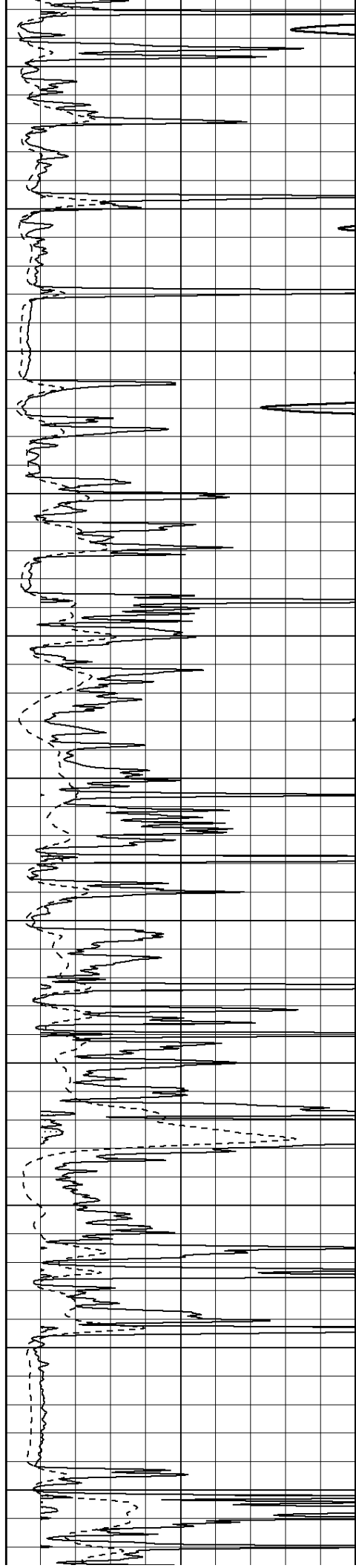
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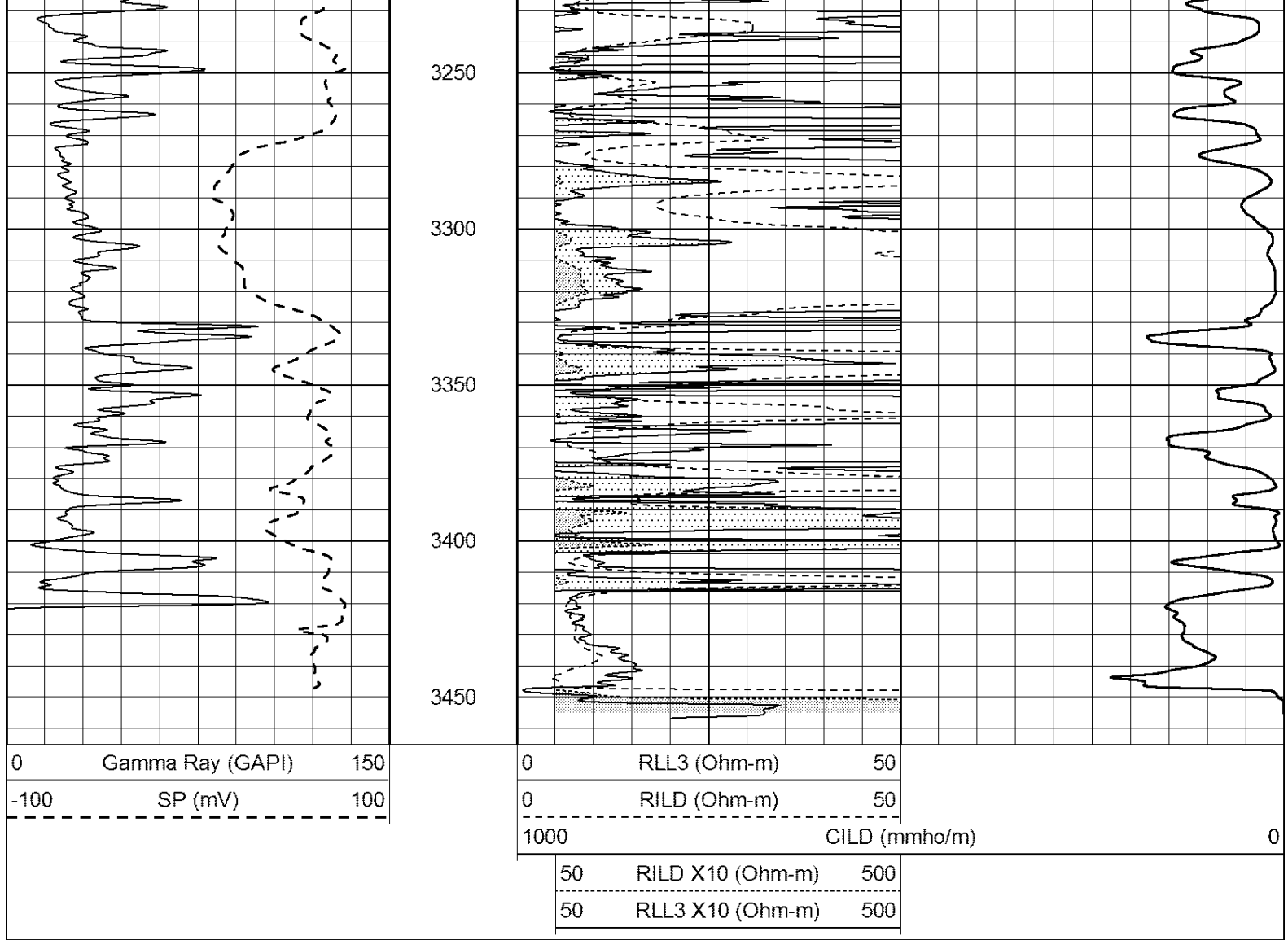
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3100

3150

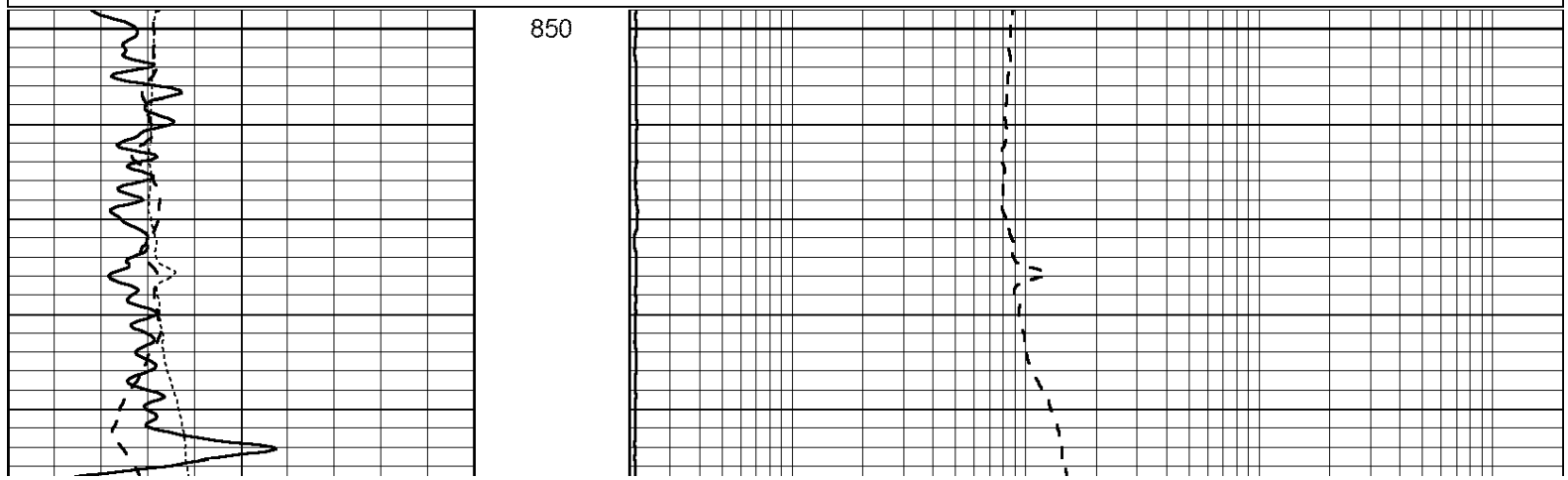
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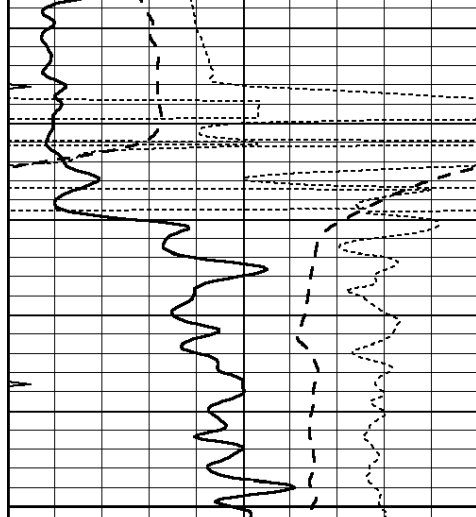




Database File: 26403ddn.db
Dataset Pathname: pass5.4
Presentation Format: _dil
Dataset Creation: Mon Nov 10 23:05:19 2014
Charted by: Depth in Feet scaled 1:240

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

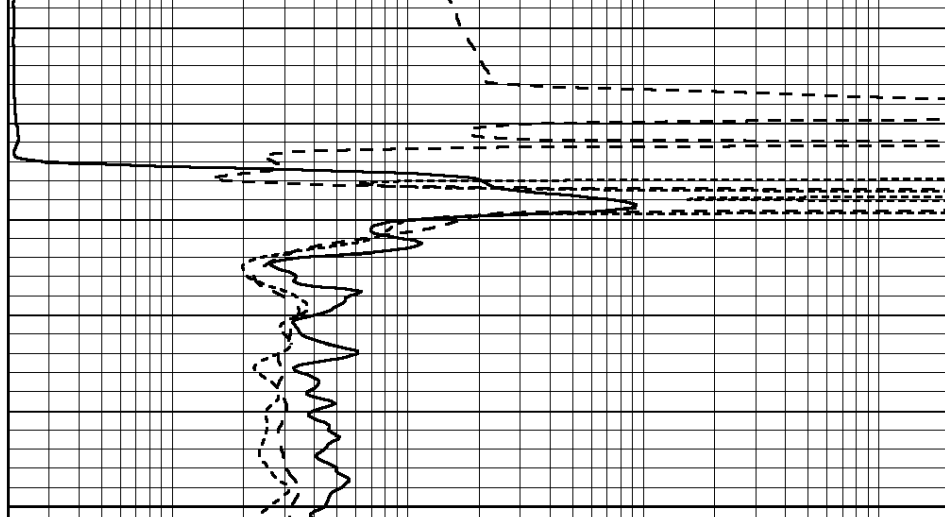




0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

900

950

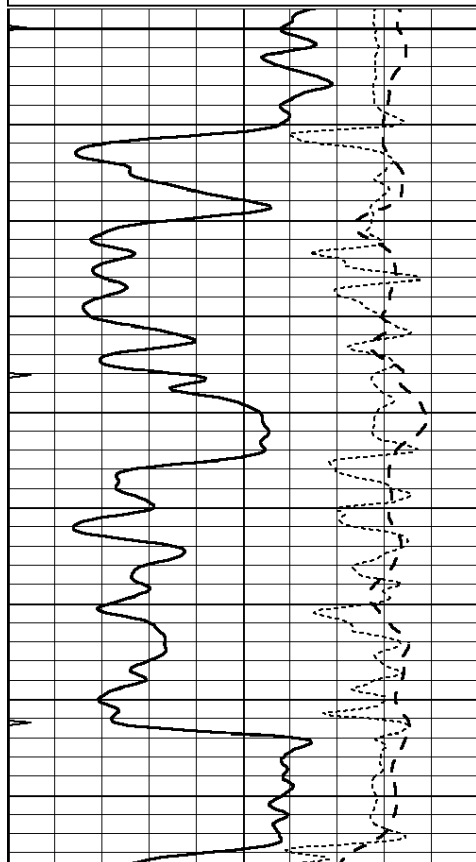


0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

Database File: 26403ddn.db
 Dataset Pathname: pass5.4
 Presentation Format: _dil
 Dataset Creation: Mon Nov 10 23:05:19 2014
 Charted by: Depth in Feet scaled 1:240

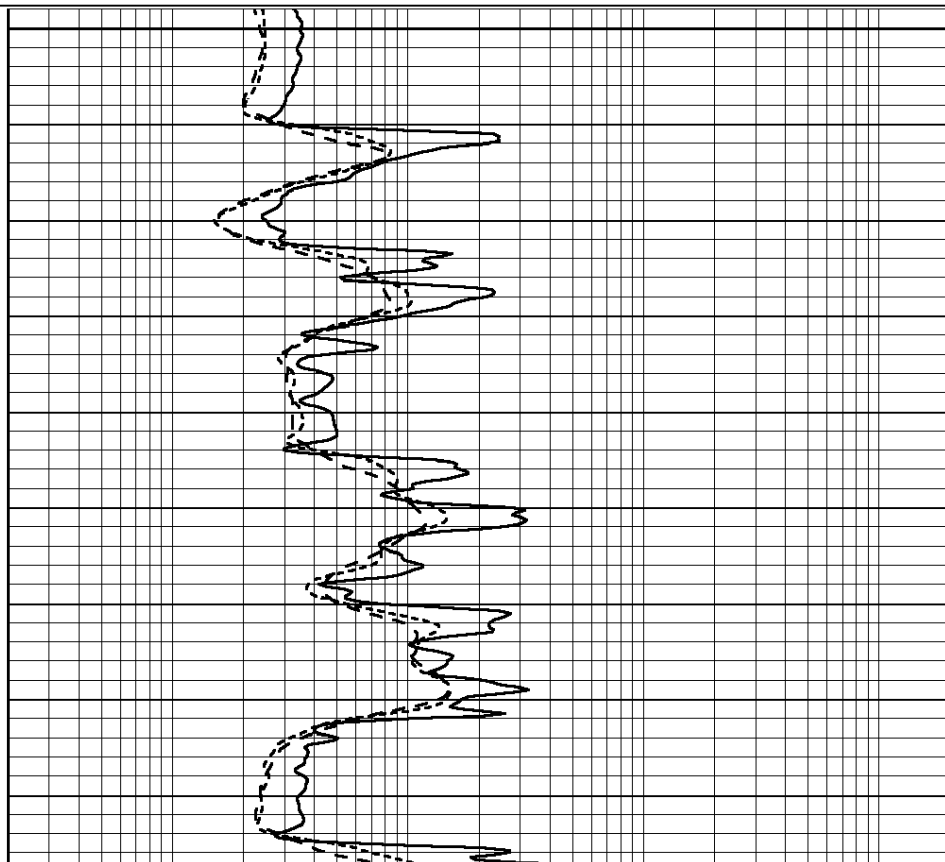
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-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

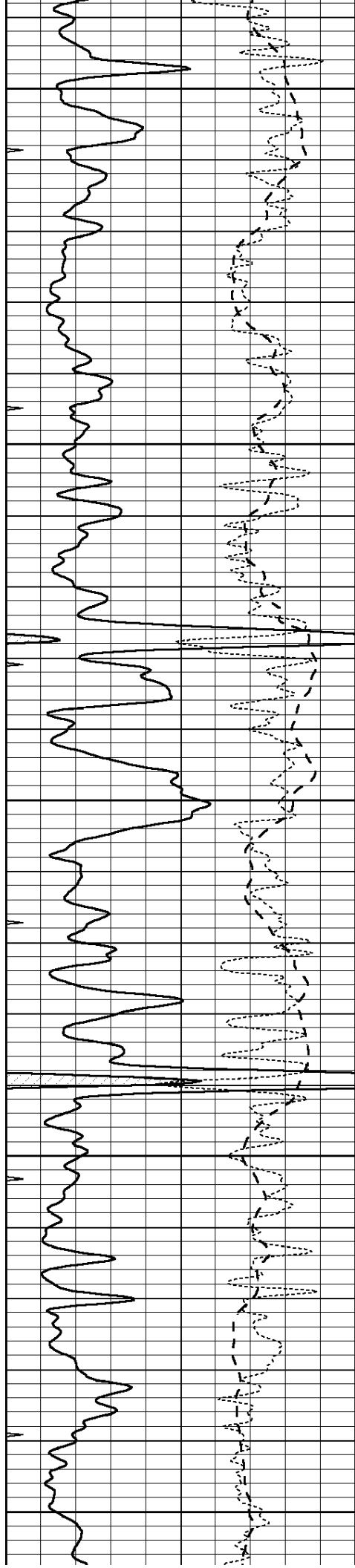
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



2800

2850





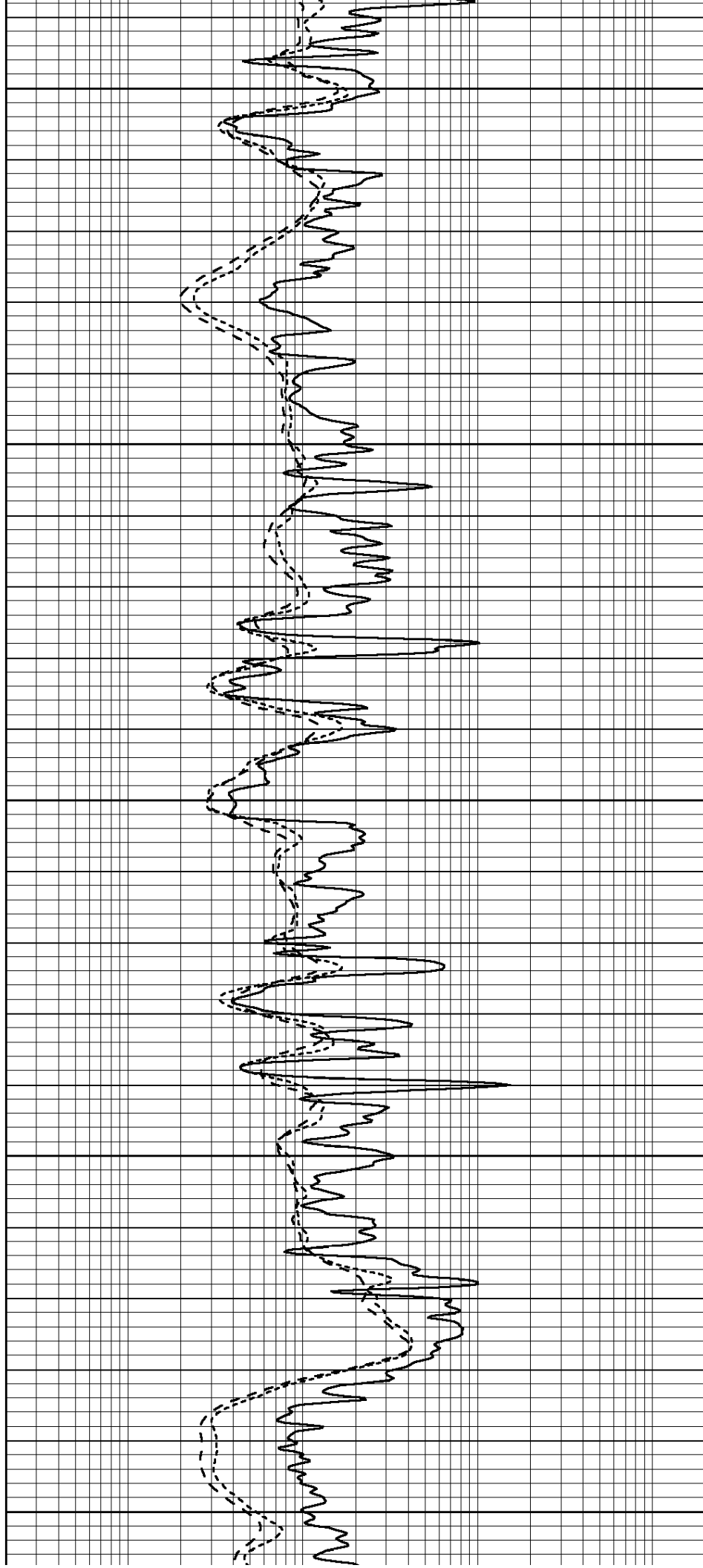
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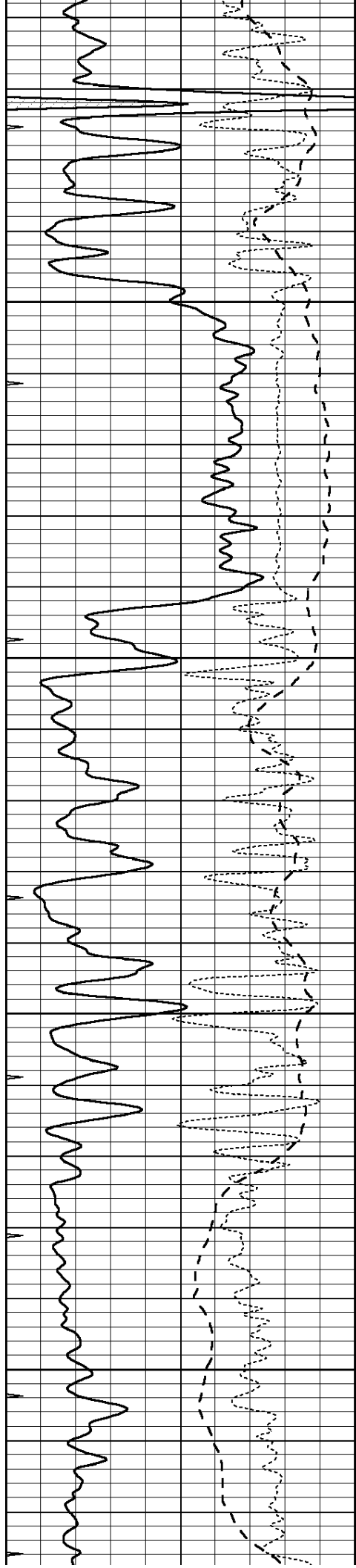
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3000

3050

3100



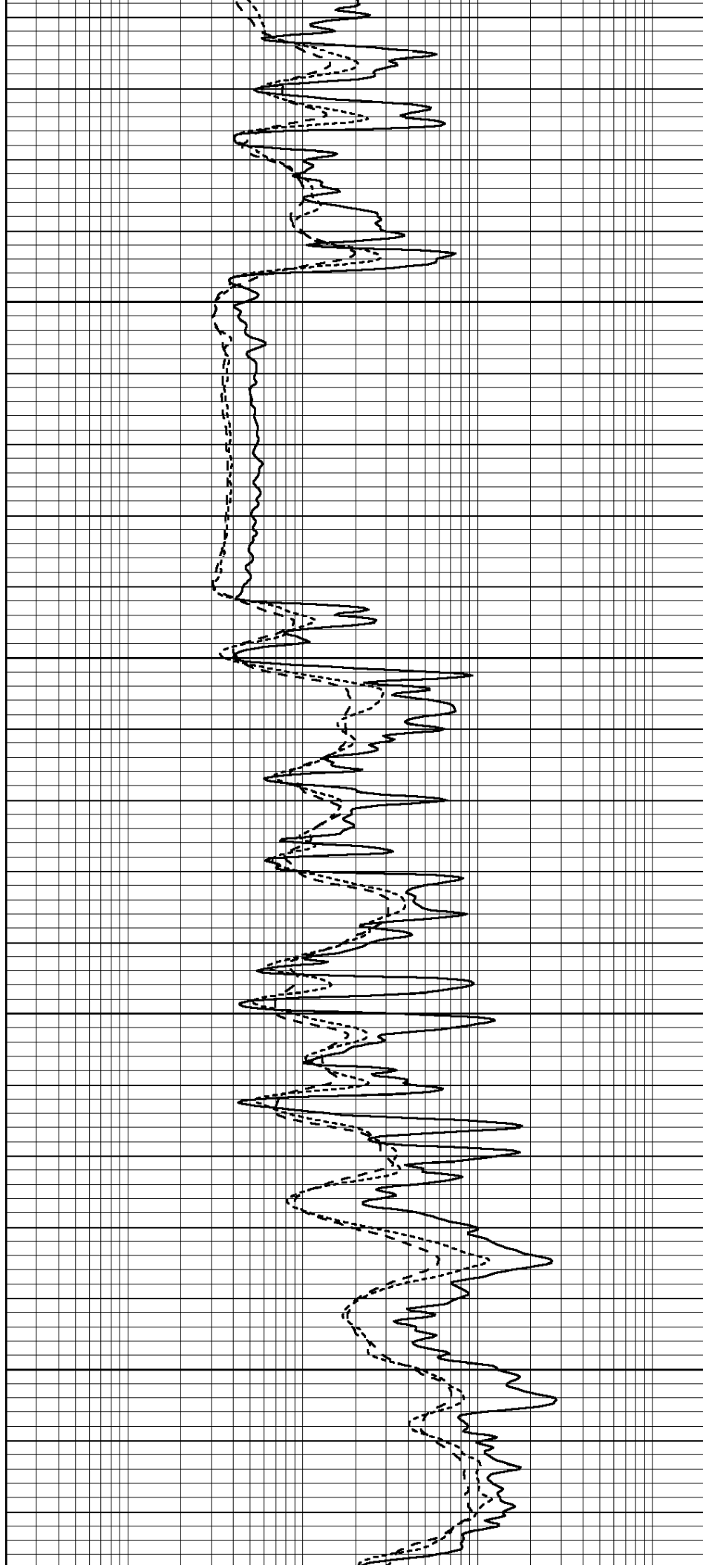


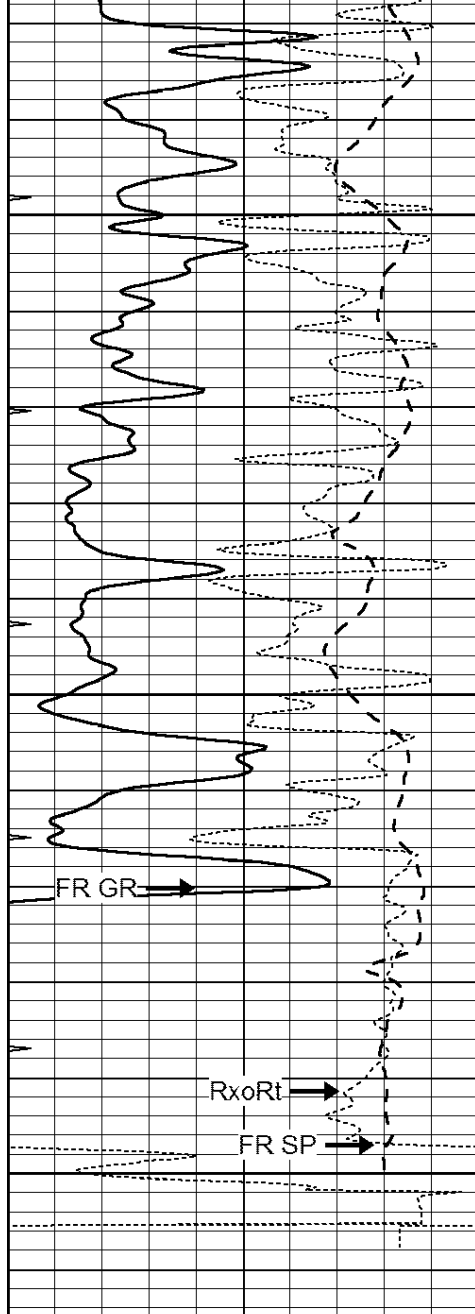
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3200

3250

3300





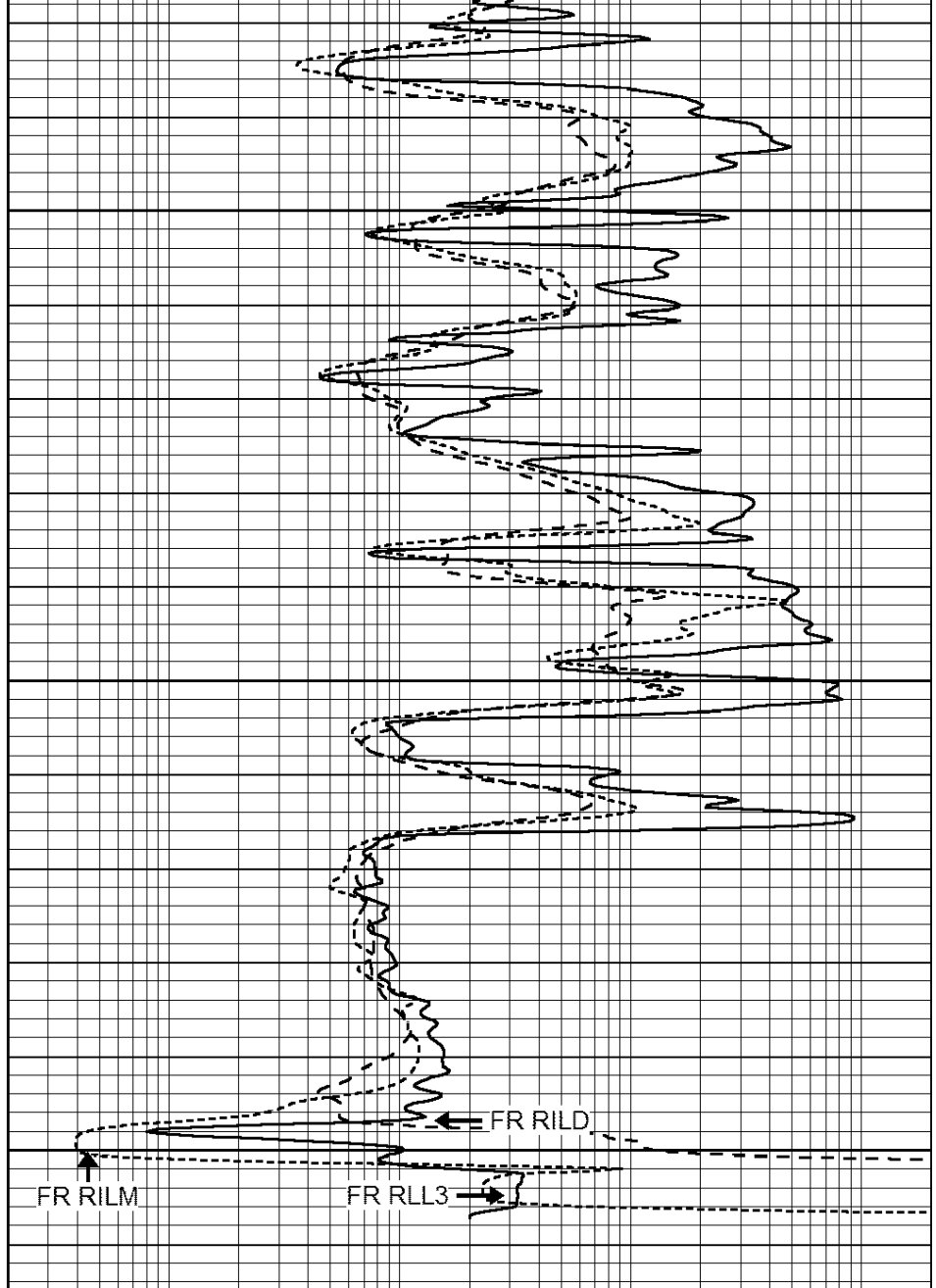
3350

3400

3450

LTD 3457

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

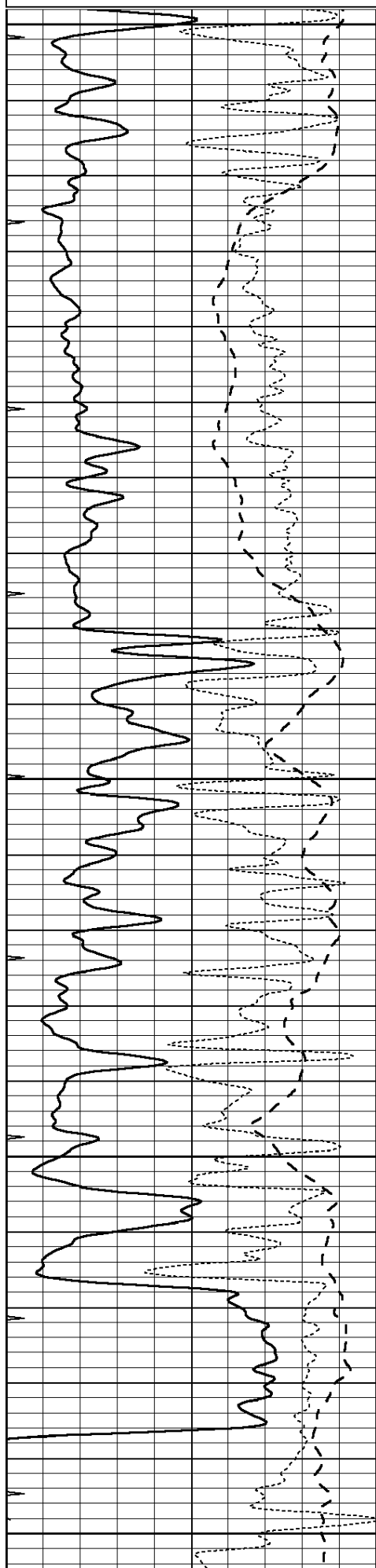


REPEAT SECTION

Database File: 26403ddn.db
 Dataset Pathname: pass4.1
 Presentation Format: _dil
 Dataset Creation: Mon Nov 10 21:50:01 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

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



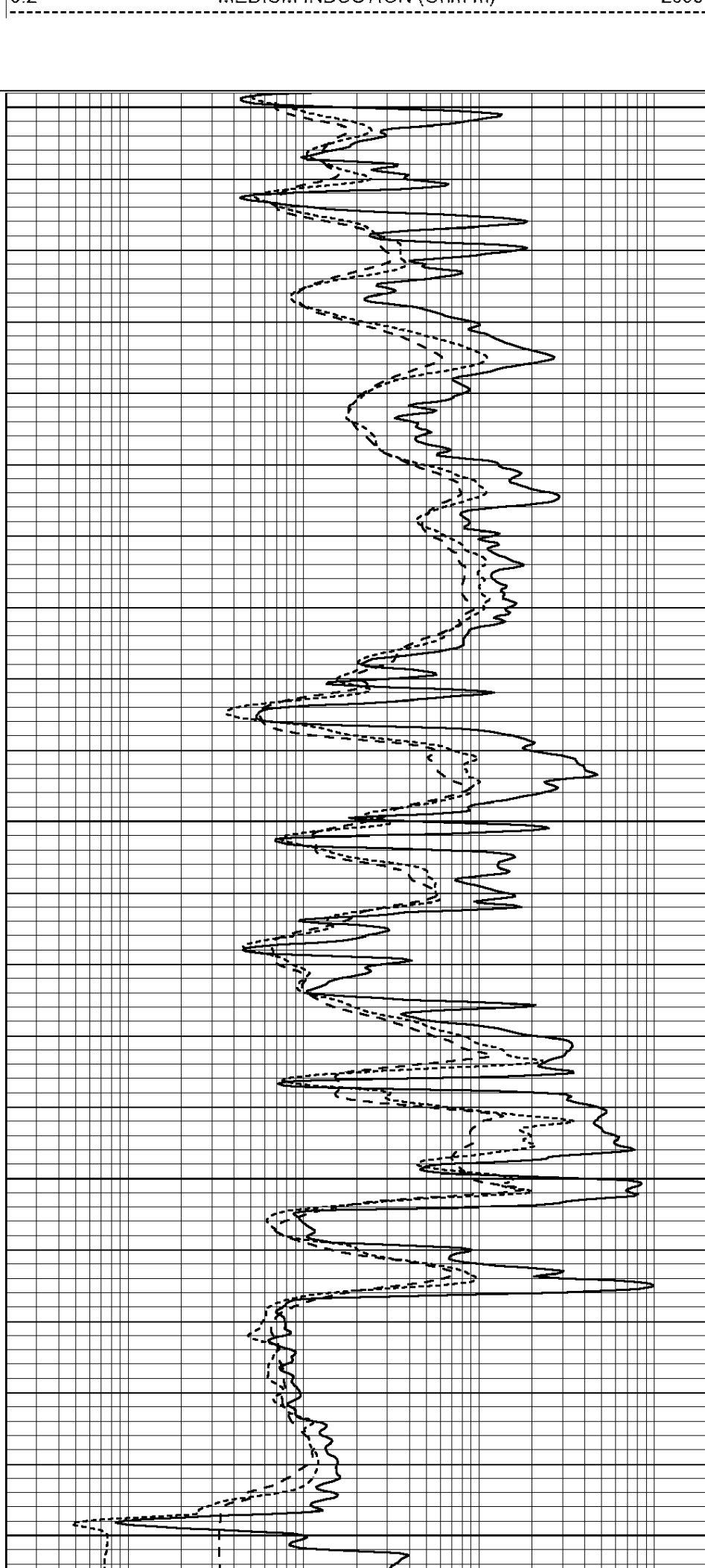
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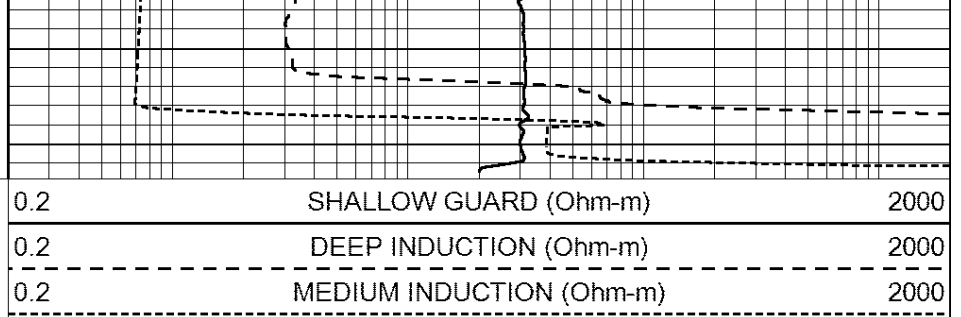
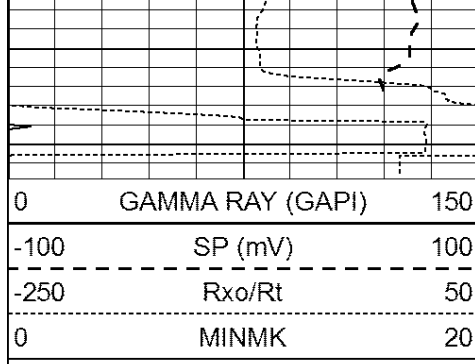
3300

3350

3400

3450





Calibration Report

Database File: 26403ddn.db
 Dataset Pathname: pass5.4
 Dataset Creation: Mon Nov 10 23:05:19 2014

Dual Induction Calibration Report

Serial-Model: PROBE8-DILG
 Surface Cal Performed: Sun Aug 17 08:09:53 2014
 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	620.000	-2.000
Medium	0.029	0.796	V	0.000	464.000	mmho/m	590.000	-16.000
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: 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		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: GR6
 Tool Model: OPEN
 Performed: Sun Aug 17 15:23:09 2014

Calibrator Value: 150.0 GAPI

Background Reading: 0.0 cps
 Calibrator Reading: 276.0 cps

Sensitivity: 0.7000 GAPI/cps