NABORS
COMPLETION & PRODUCTION SERVICES CO.

DUAL INDUCTION LOG

Company L. D. DRILLING, INC.
Well HEJNY #1-23
Field
County BARTON State KANSAS
Location: API # : 15-009-25855-00-00
990' FSL & 330' FEL
NE - SE - SE
SEC 23 TWP 16S RGE 15W
Permanent Datum GROUND LEVEL Elevation 1985
Log Measured From KELLY BUSHING 5' A.G.L.
Drilling Measured From KELLY BUSHING

Other Services: CNL/CDL MEL/SONIC

Elevation: K.B. 1990 D.F. 1988 G.L. 1985

Date	7/31/13		
Run Number	ONE		
Depth Driller	3565		
Depth Logger	3568		
Bottom Logged Interval	3566		
Top Log Interval	00		
Casing Driller	8 5/8" @ 468'		
Casing Logger	466		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD		
Density / Viscosity	9.5/55		
pH / Fluid Loss	9.5/9.6		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.44@ 83F		
Rmf @ Meas. Temp	0.33 @ 83F		
Rmc @ Meas. Temp	0.52 @ 83F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	0.33 @ 112F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	112F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	IAN MABB		
Witnessed By	KEITH REAVIS		

<<< 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

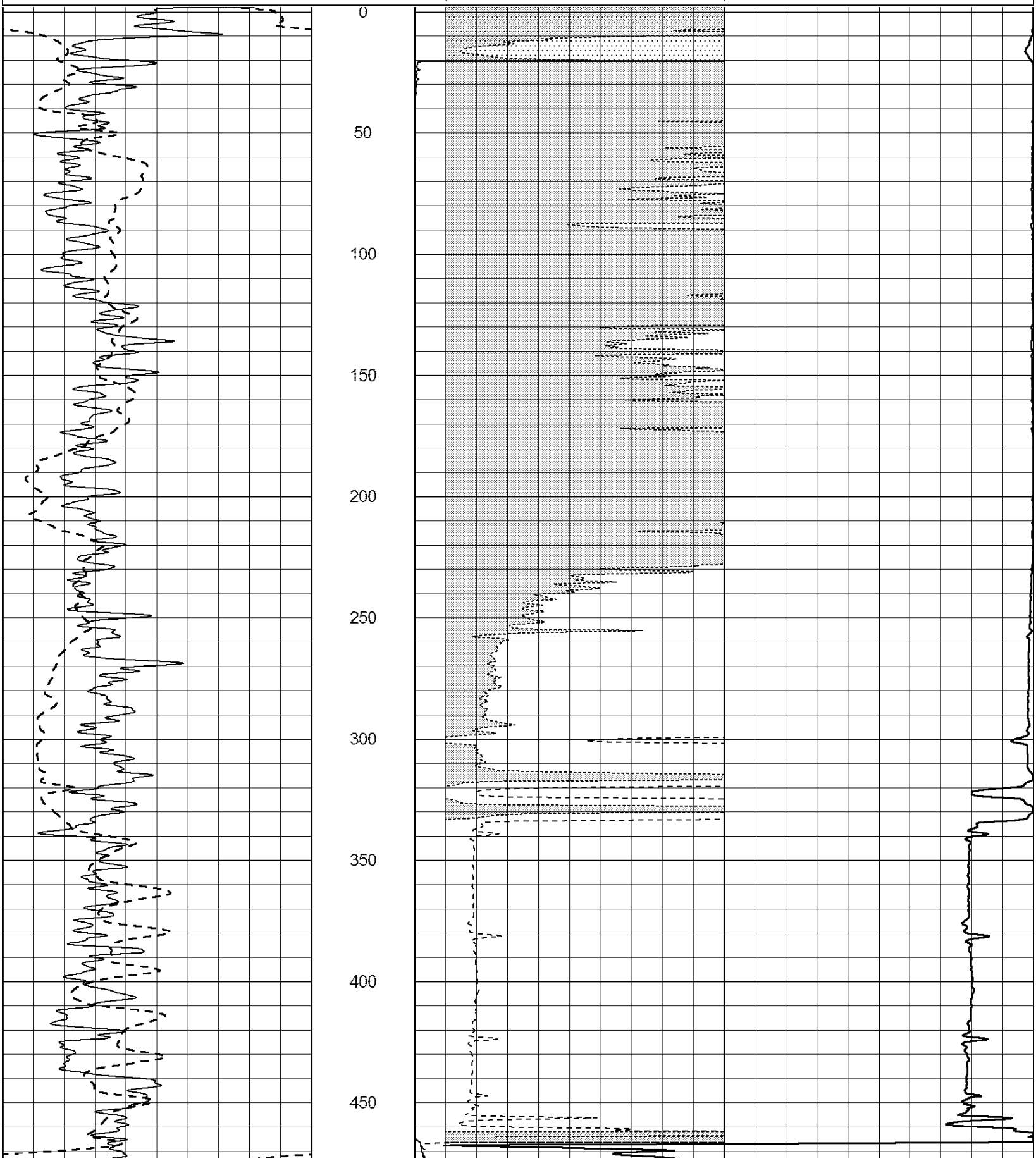
THANK YOU FOR USING NABORS, HAYS, KS. (785) 628-6395
DIRECTIONS: RUSSELL, KS. - SOUTH ON 281 TO NW 190 RD. - WES 5 MILES NORTH 1/2 - WEST INTO

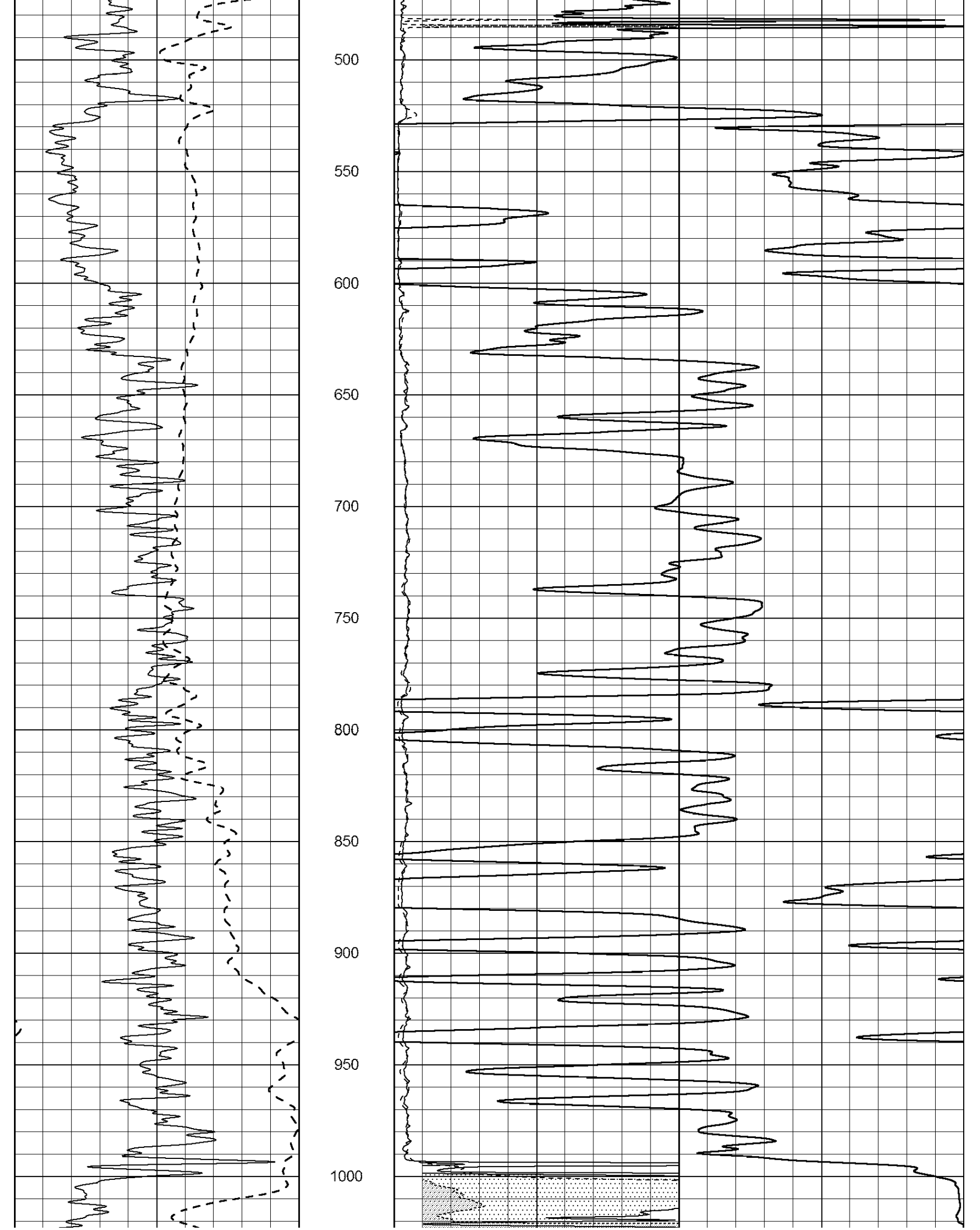
Database File: 011371ddn.db
Dataset Pathname: pass4.2
Presentation Format: _dil2
Dataset Creation: Thu Aug 01 09:41:38 2013

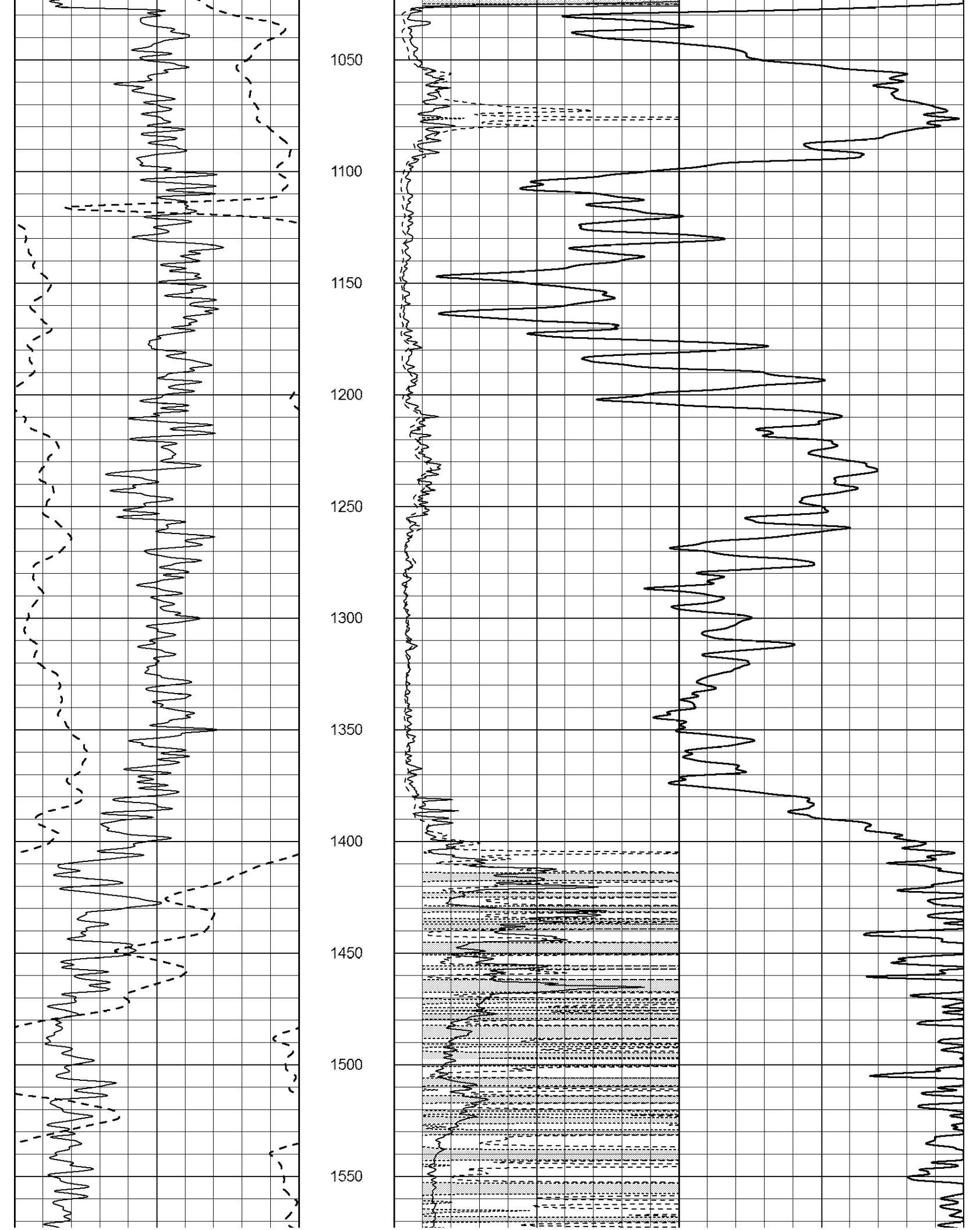
Charted by: Depth in Feet scaled 1:600

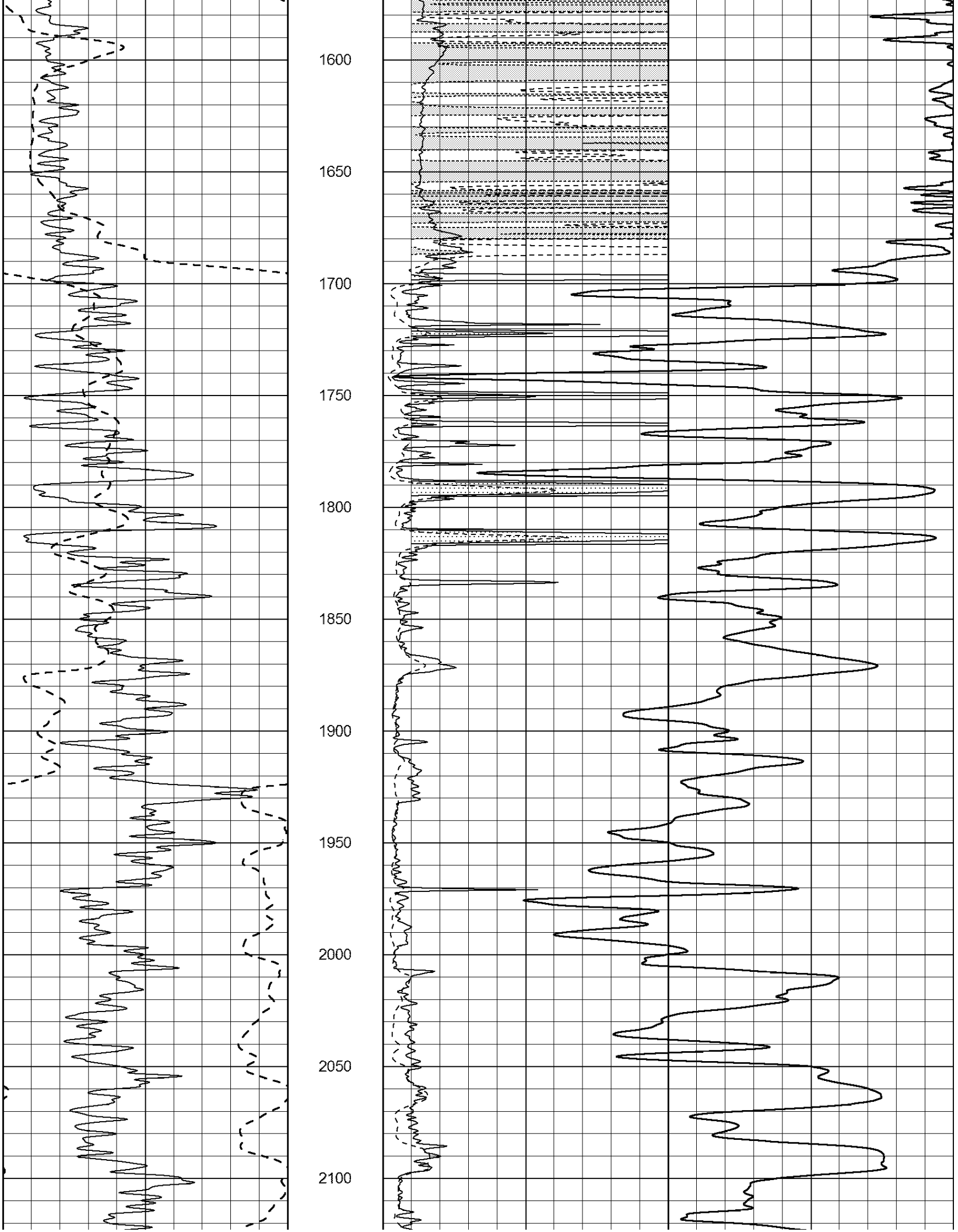
0	Gamma Ray (GAPI)	150
-100	SP (mV)	100

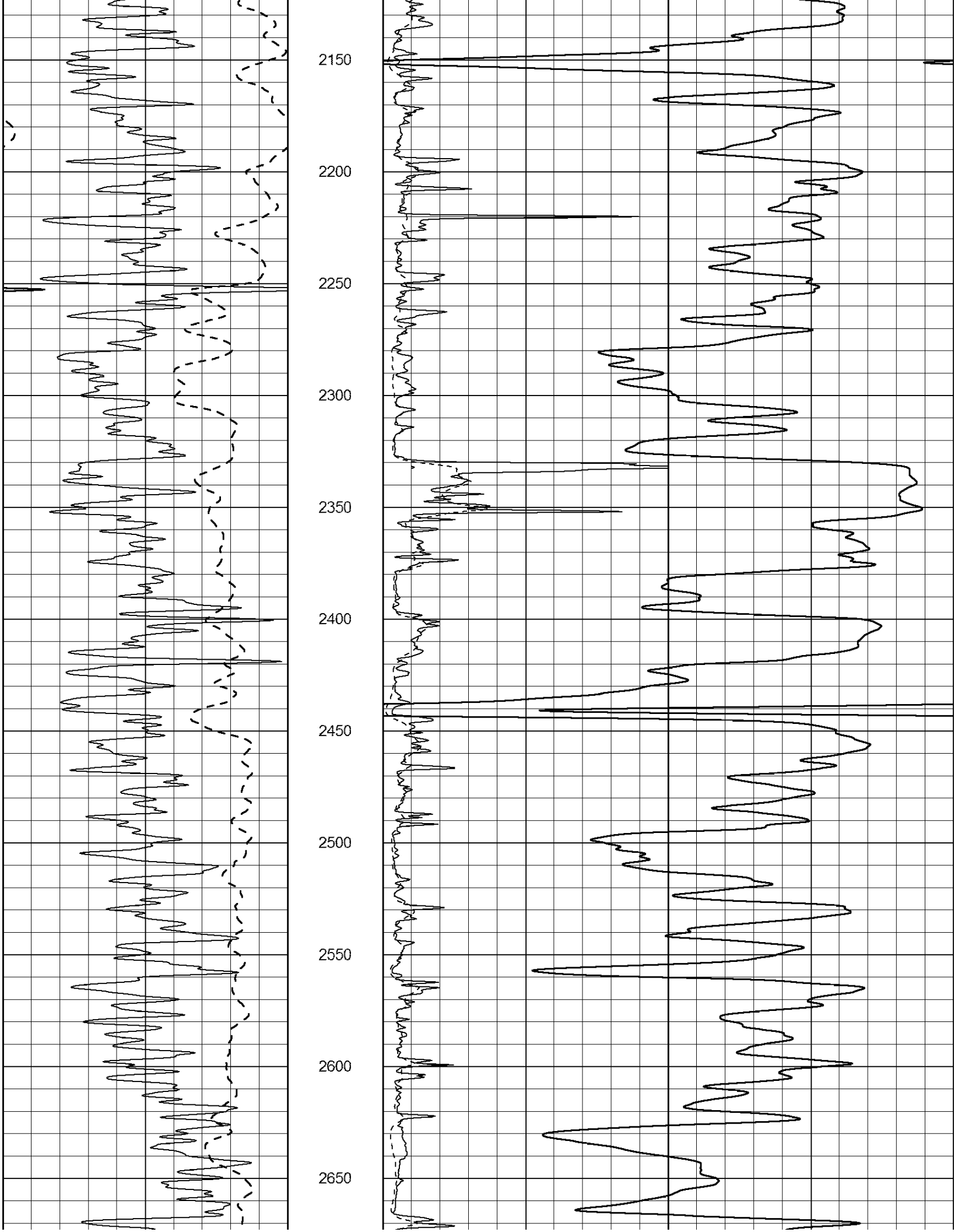
0	RLL3 (Ohm-m)	50
0	RILD (Ohm-m)	50
1000	CILD (mmho/m)	0
50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500

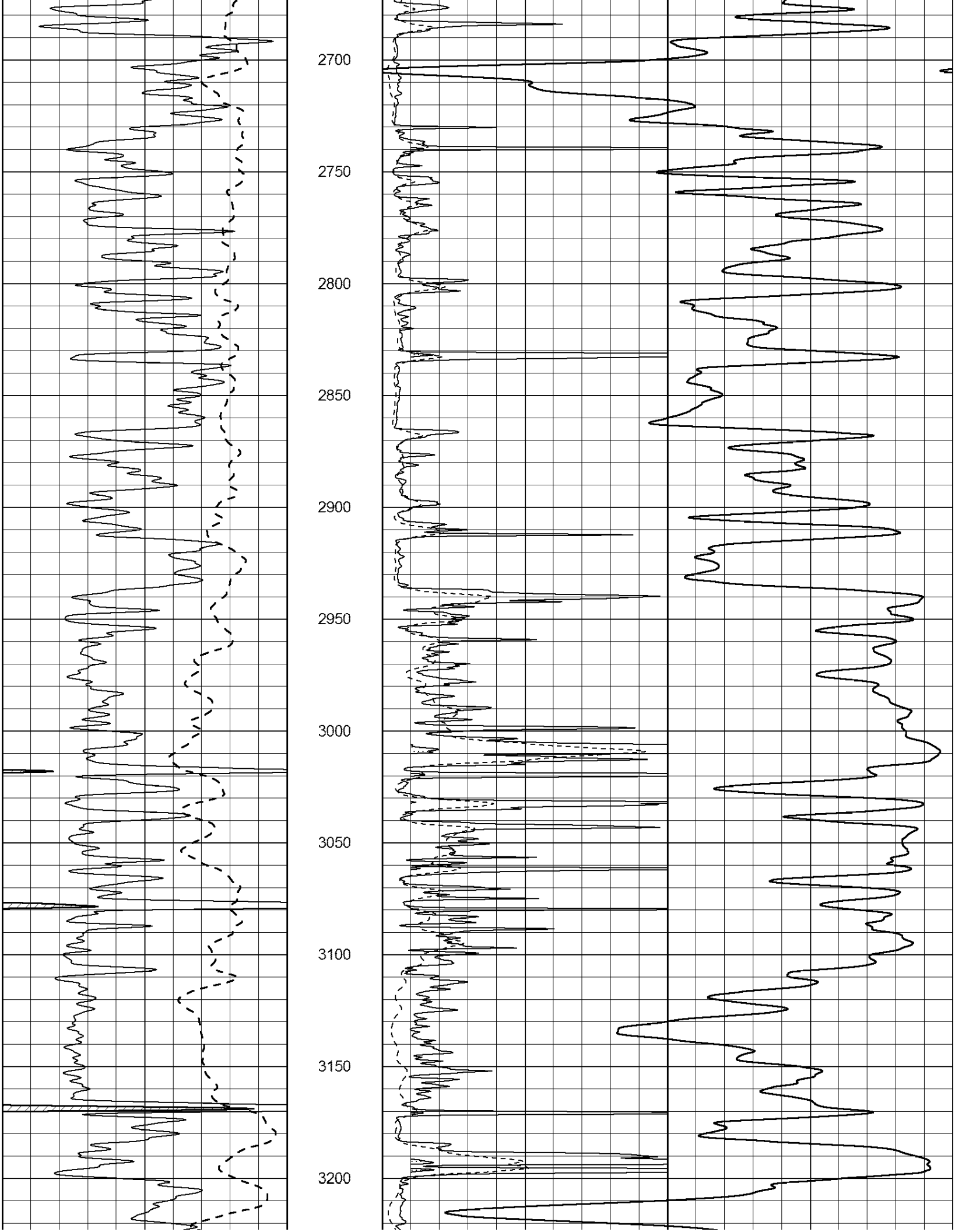


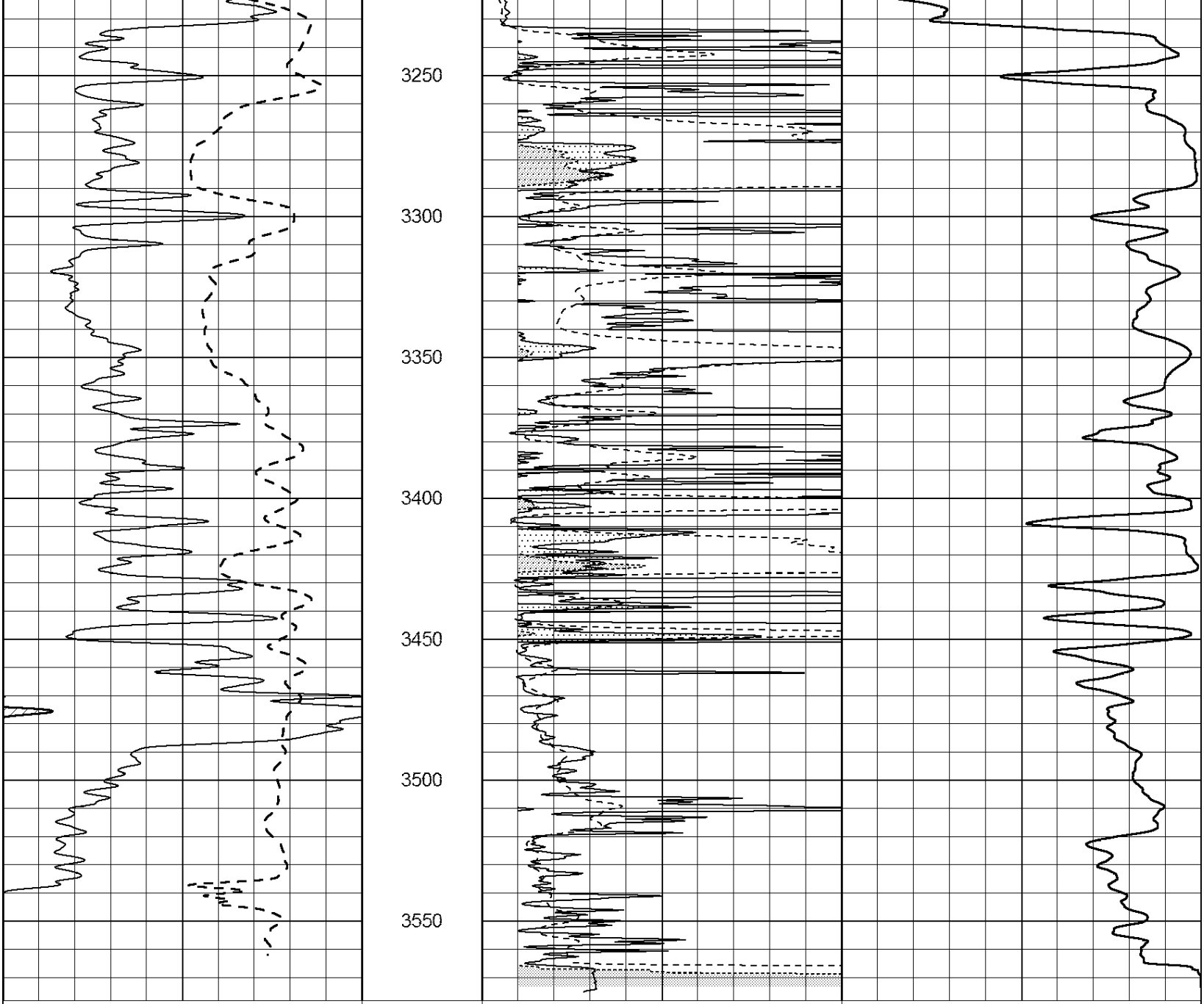

500
550
600
650
700
750
800
850
900
950
1000


1050
1100
1150
1200
1250
1300
1350
1400
1450
1500
1550


1600
1650
1700
1750
1800
1850
1900
1950
2000
2050
2100


2150
2200
2250
2300
2350
2400
2450
2500
2550
2600
2650


2700
2750
2800
2850
2900
2950
3000
3050
3100
3150
3200

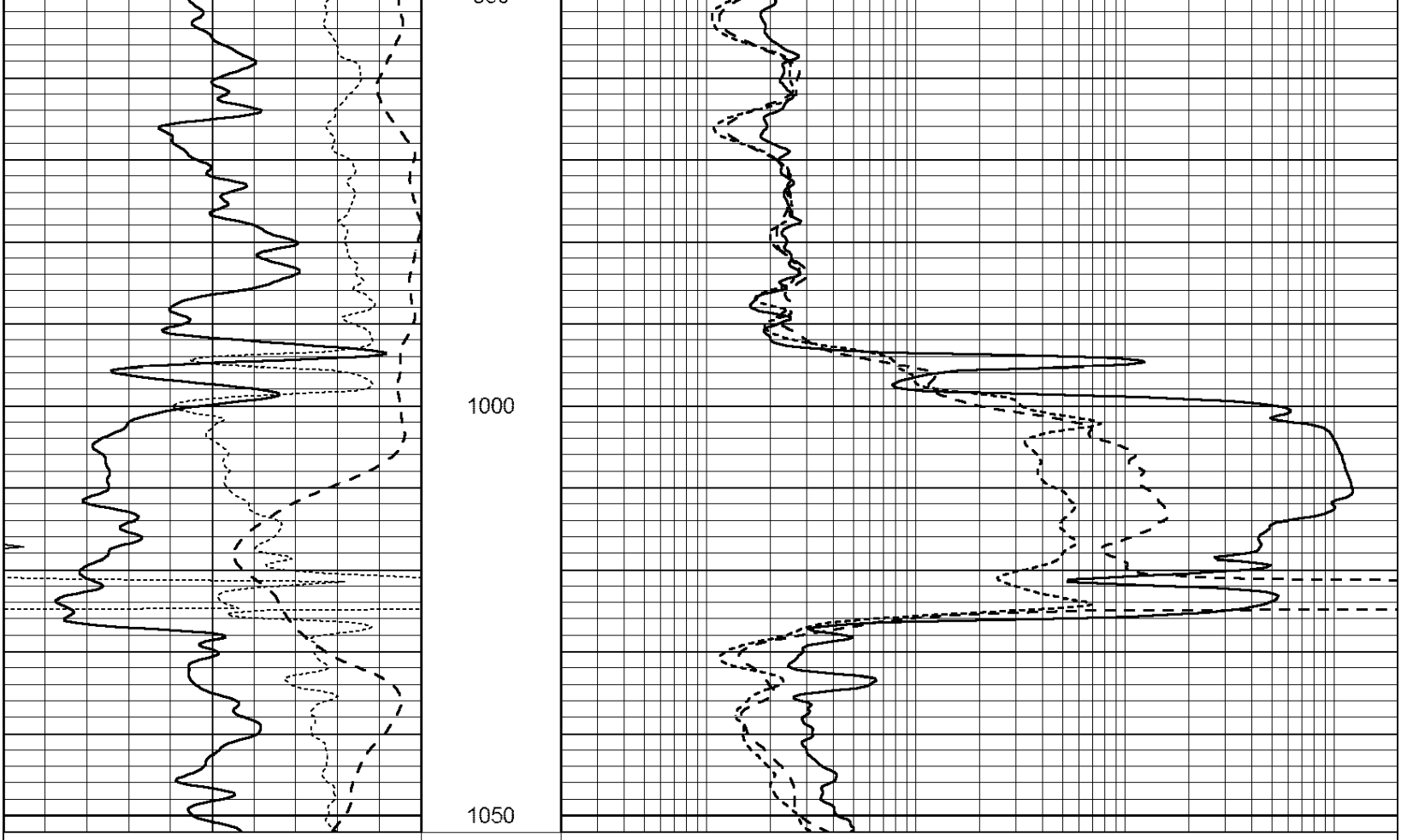


Database File:	011371ddn.db
Dataset Pathname:	pass4.2
Presentation Format:	_dil
Dataset Creation:	Thu Aug 01 09:41:38 2013
Charted by:	Depth in Feet scaled 1:240

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





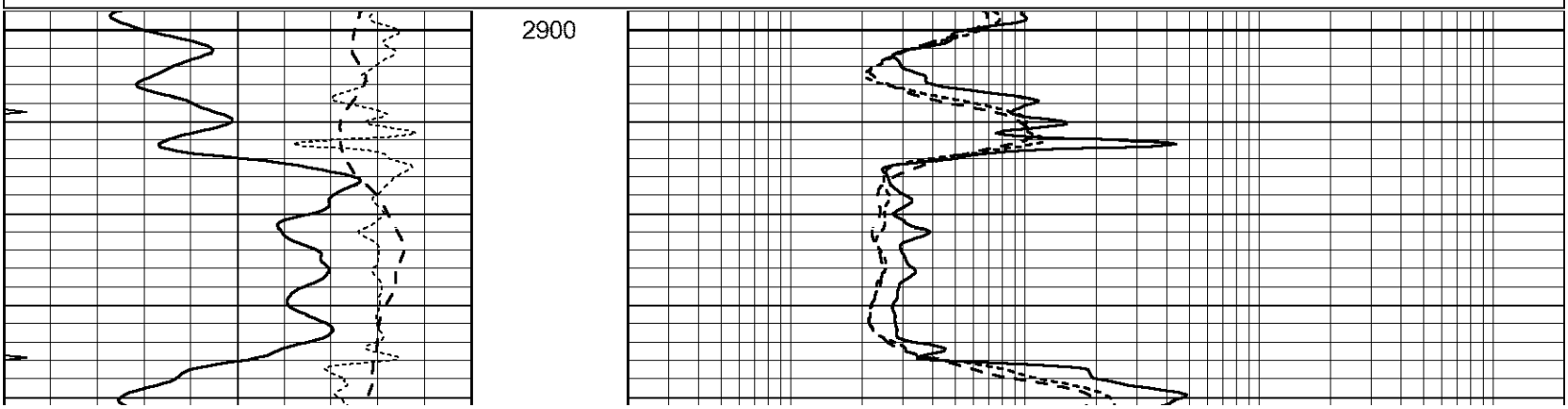
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

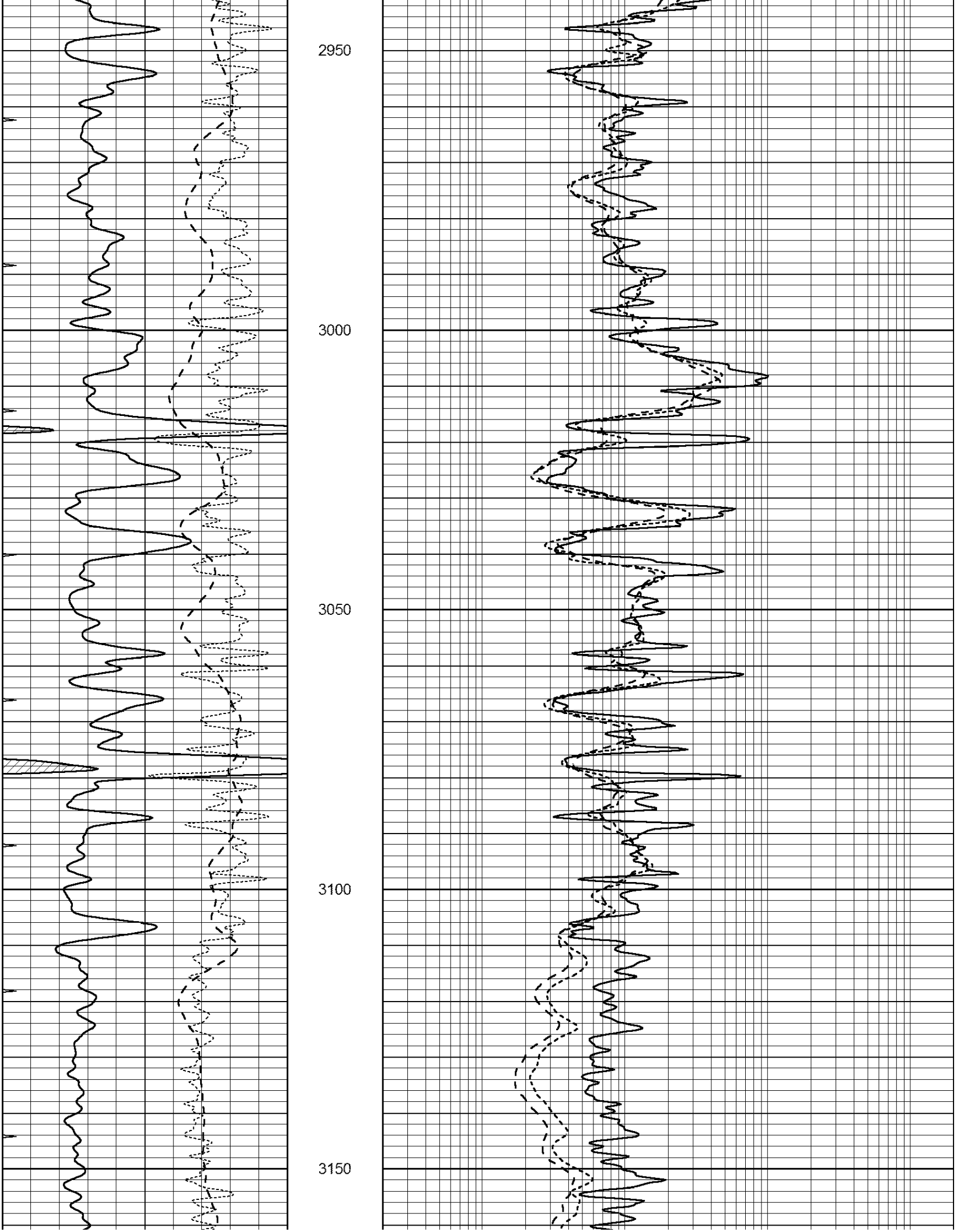
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

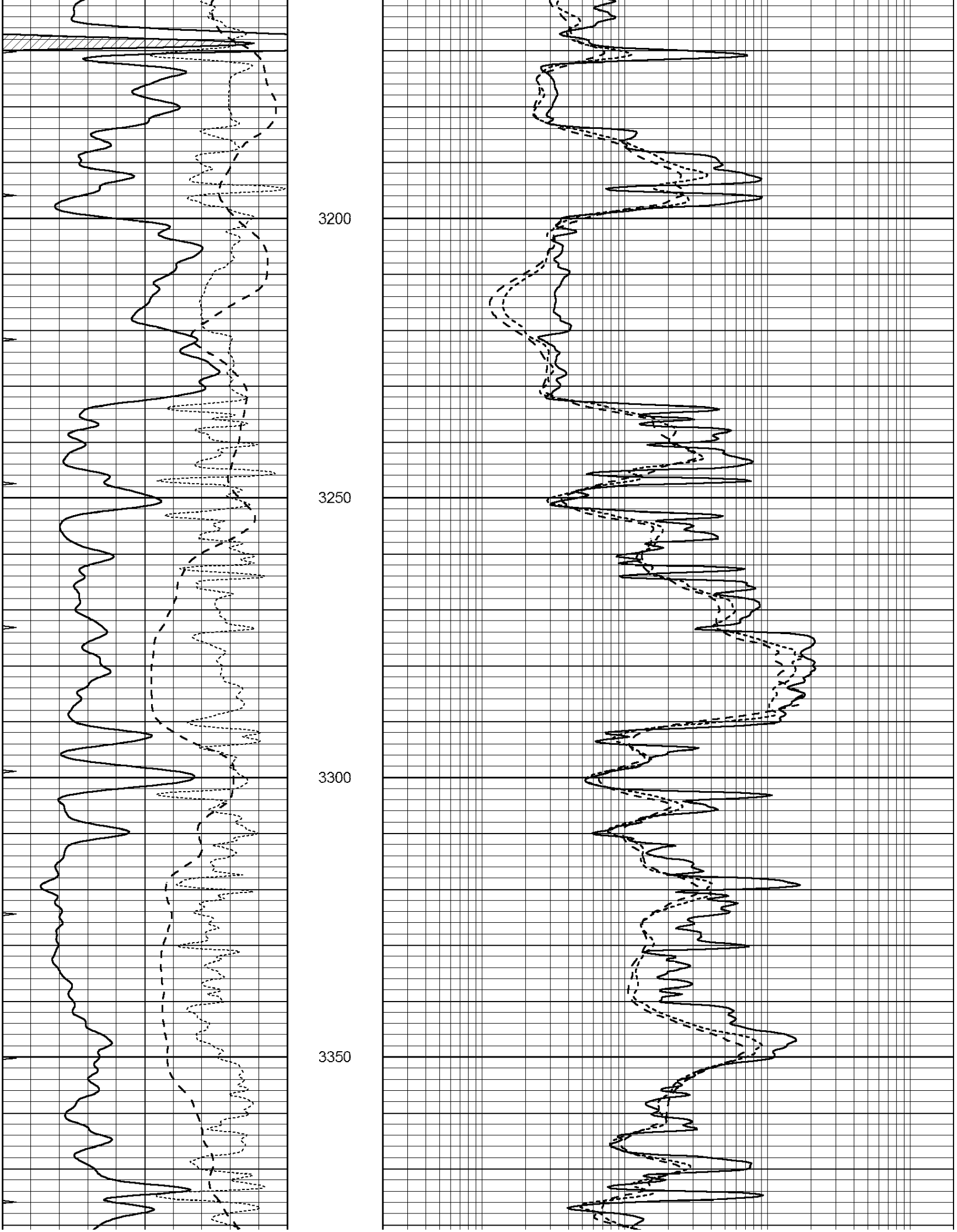
Database File:	011371ddn.db
Dataset Pathname:	pass4.2
Presentation Format:	_dil
Dataset Creation:	Thu Aug 01 09:41:38 2013
Charted by:	Depth in Feet scaled 1:240

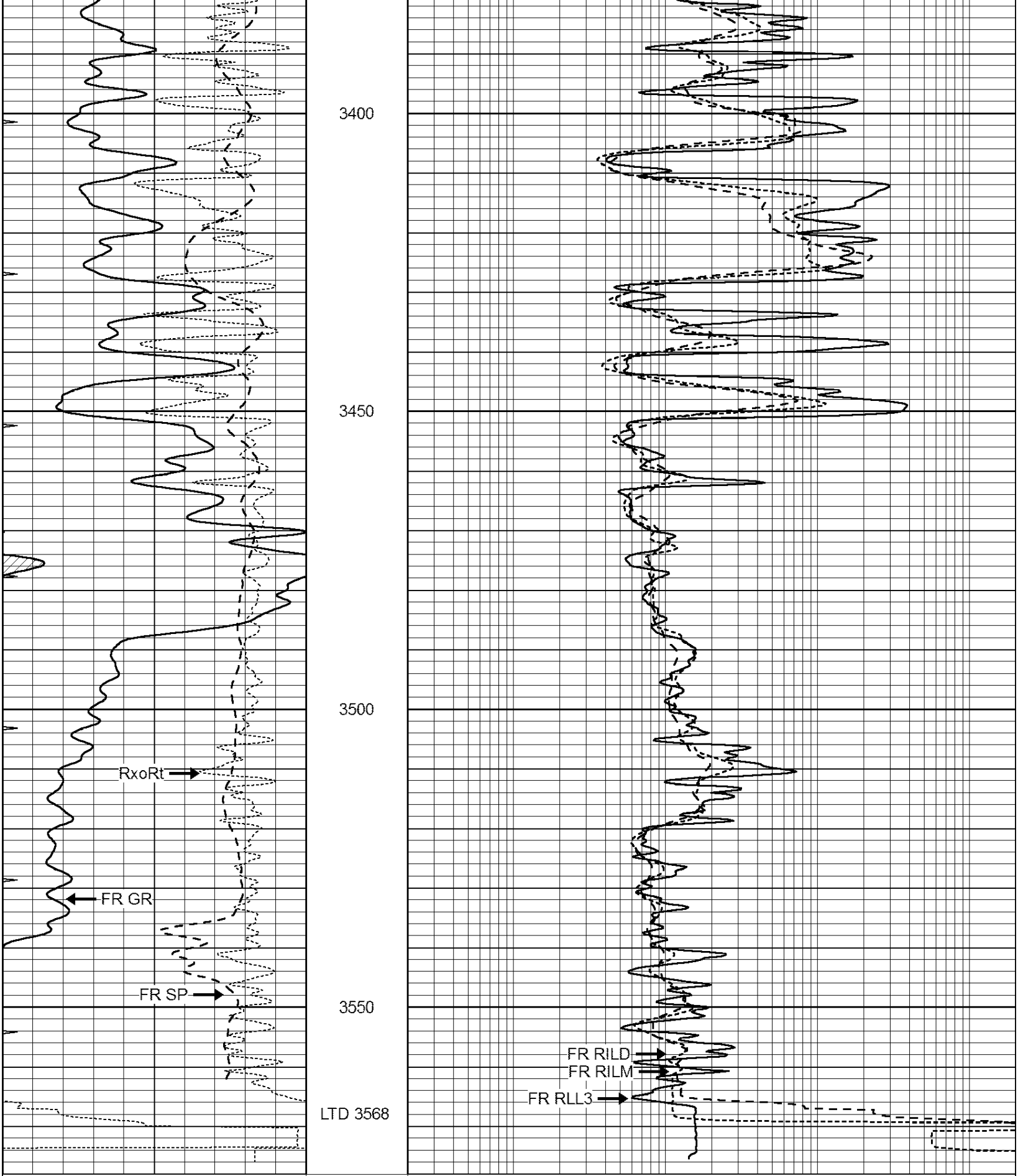
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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




2950
3000
3050
3100
3150


3200
3250
3300
3350



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

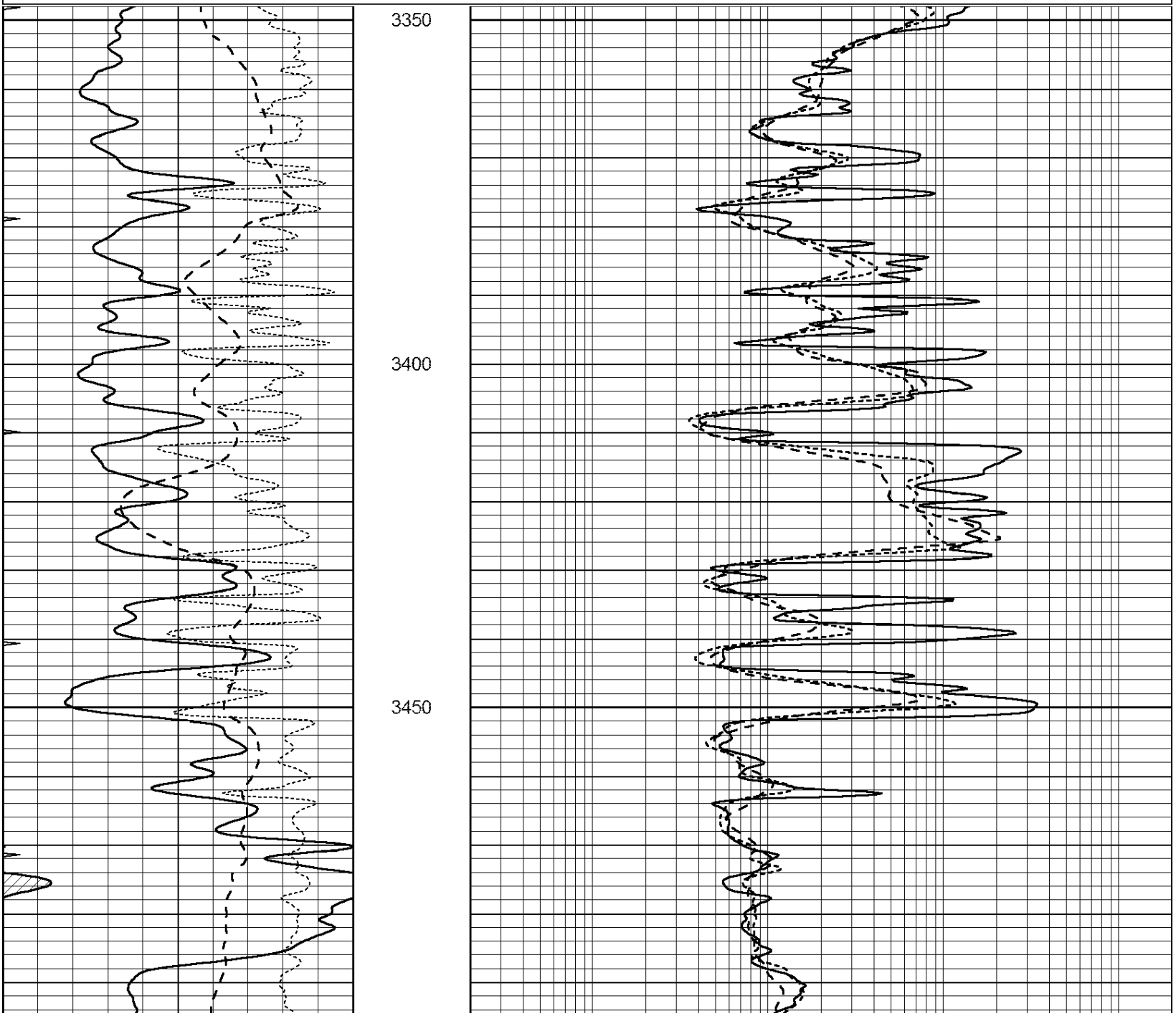
NABORS
COMPLETION & PRODUCTION SERVICES CO.

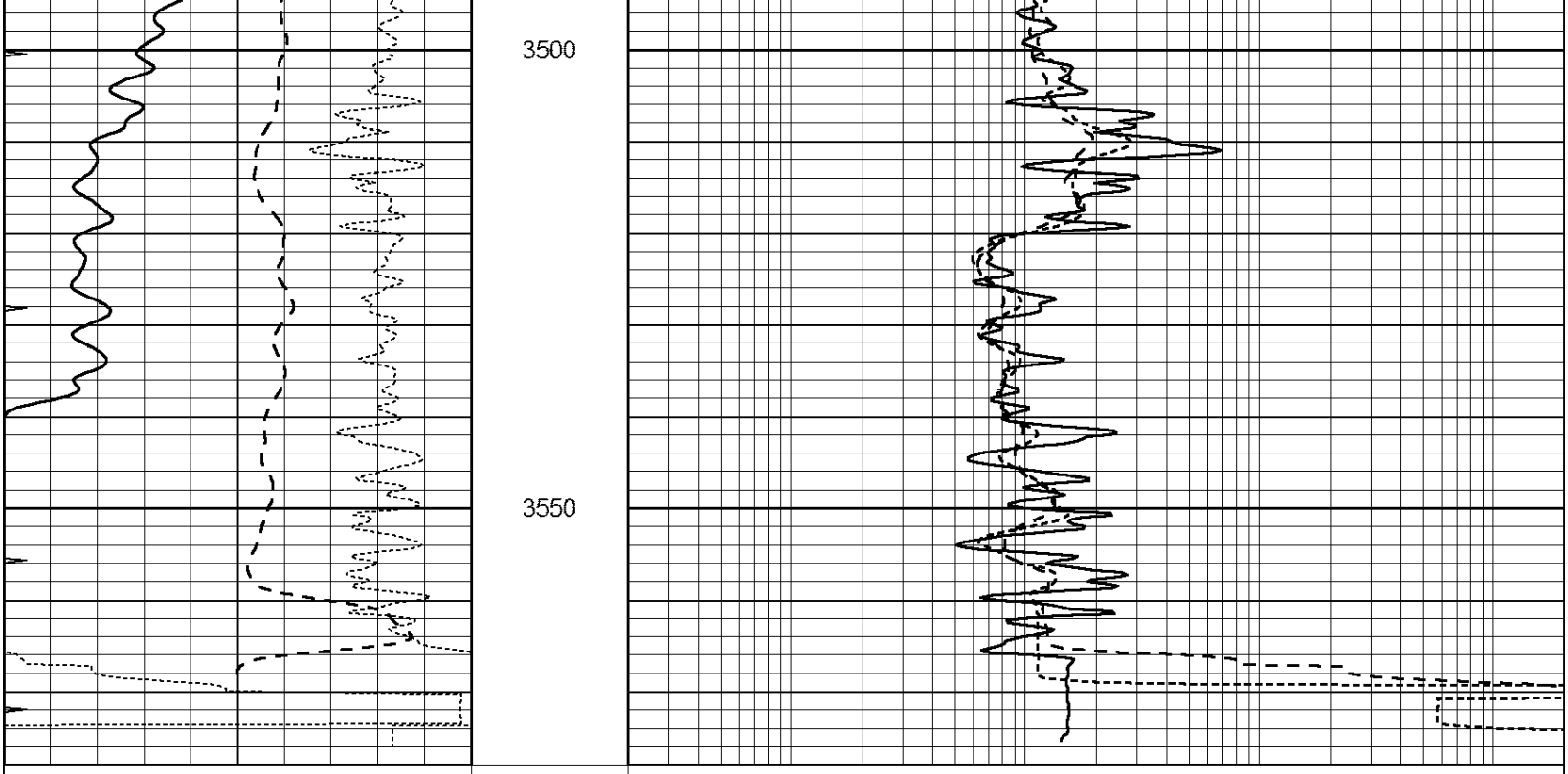
REPEAT SECTION

Database File:	011371ddn.db
Dataset Pathname:	pass2.3
Presentation Format:	_dil
Dataset Creation:	Thu Aug 01 10:12:10 2013
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





Calibration Report

Database File: 011371ddn.db
Dataset Pathname: pass4.2
Dataset Creation: Thu Aug 01 09:41:38 2013

Dual Induction Calibration Report

Serial-Model:	PROBE7-DILG
Surface Cal Performed:	Mon Jul 01 07:10:41 2013
Downhole Cal Performed:	Sat Jan 19 19:51:38 2013
After Survey Verification Performed:	Sat Jan 19 19:51:38 2013

Surface Calibration

	Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.793	0.790	V	0.000	400.000	mmho/m	620.000	22.000
Medium	0.992	1.002	V	0.000	464.000	mmho/m	660.000	-30.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.041	0.642	V	0.000	400.000	mmho/m	664.874	-27.011
Medium	0.035	0.802	V	0.000	464.000	mmho/m	604.936	-21.367

Downhole Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	135384.000	27094.500	mmho/m	135400.000	27082.400	mmho/m	1.000	-19.259
Medium	-47330.100	-9381.740	mmho/m	-47327.100	-9389.280	mmho/m	1.000	-10.154
LL3		7.322	V		1400.000	Ohm-m		

	0.038	V	20.000	Ohm-m	
	-7.273	V	4000.000	mmho-m	

After Survey Verification

	Readings			Targets			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	135384.000	27094.500	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	-47330.100	-9381.740	mmho/m	1.000	0.000
LL3		0.000	Ohm-m		1400.000	Ohm-m		
		0.000	Ohm-m		20.000	Ohm-m		
		0.000	mmho-m		4000.000	mmho-m		

Compensated Density Calibration Report

Serial-Model:	GEAR2-GEARHART
Source / Verifier:	147 / 147
Master Calibration Performed:	Wed Jul 31 01:43:38 2013
Before Survey Verification Performed:	
After Survey Verification Performed:	

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.710	g/cc	923.76	475.45	cps
Aluminum	2.580	g/cc	205.31	331.69	cps

Spine Angle = 76.54 Density/Spine Ratio = 0.563

	Size		Reading	
Small Ring	8.40	in	5.48	V
Large Ring	14.00	in	7.58	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:	NEU_4I
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:	GR5	
Tool Model:	OPEN	
Performed:	Wed Jul 31 01:28:27 2013	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	1.2000	GAPI/cps