SUPERIOR WELL SERVICES

SUPERIOR
Hays,
Kansas

DUAL INDUCTION LOG

Company	TENGASCO, INC.
Well	KU ENDOWMENT A #3
Field	RIFFE
County	ROOKS
State	KANSAS

Company TENGASCO, INC.

Well KU ENDOWMENT A #3

Field RIFFE

County ROOKS State KANSAS

Location: API # : 15-163-24035-0000

1650' FNL & 1650' FWL

SEC 30 TWP 7S RGE 17W

Permanent Datum	GROUND LEVEL	Elevation 1783	Other Services CDL/CNL PE/MEL
Log Measured From	KELLY BUSHING 7' A.G.L.		Elevation K.B. 1790
Drilling Measured From	KELLY BUSHING		D.F. 1788 G.L. 1783

Date	5/12/12			
Run Number	ONE			
Depth Driller	3370			
Depth Logger	3369			
Bottom Logged Interval	3367			
Top Log Interval	0			
Casing Driller	8 5/8"@1226'			
Casing Logger	1227			
Bit Size	7 7/8"			
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 2,400 PPM		
Density / Viscosity	9.3/55			
pH / Fluid Loss	10.5/7.2			
Source of Sample	FLOWLINE			
Rm @ Meas. Temp	0.90 @ 80F			
Rmf @ Meas. Temp	0.68@ 80F			
Rmc @ Meas. Temp	1.08 @ 80F			
Source of Rmf / Rmc	MEASUREMENT			
Rm @ BHT	0.65 @ 110F			
Time Circulation Stopped	2 HOURS			
Time Logger on Bottom				
Maximum Recorded Temperature	110F			
Equipment Number	4010			
Location	HAYS, KANSAS			
Recorded By	JEFF GRONEWEG			
Witnessed By	MIKE BAIR	KEITH KARLIN		

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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.

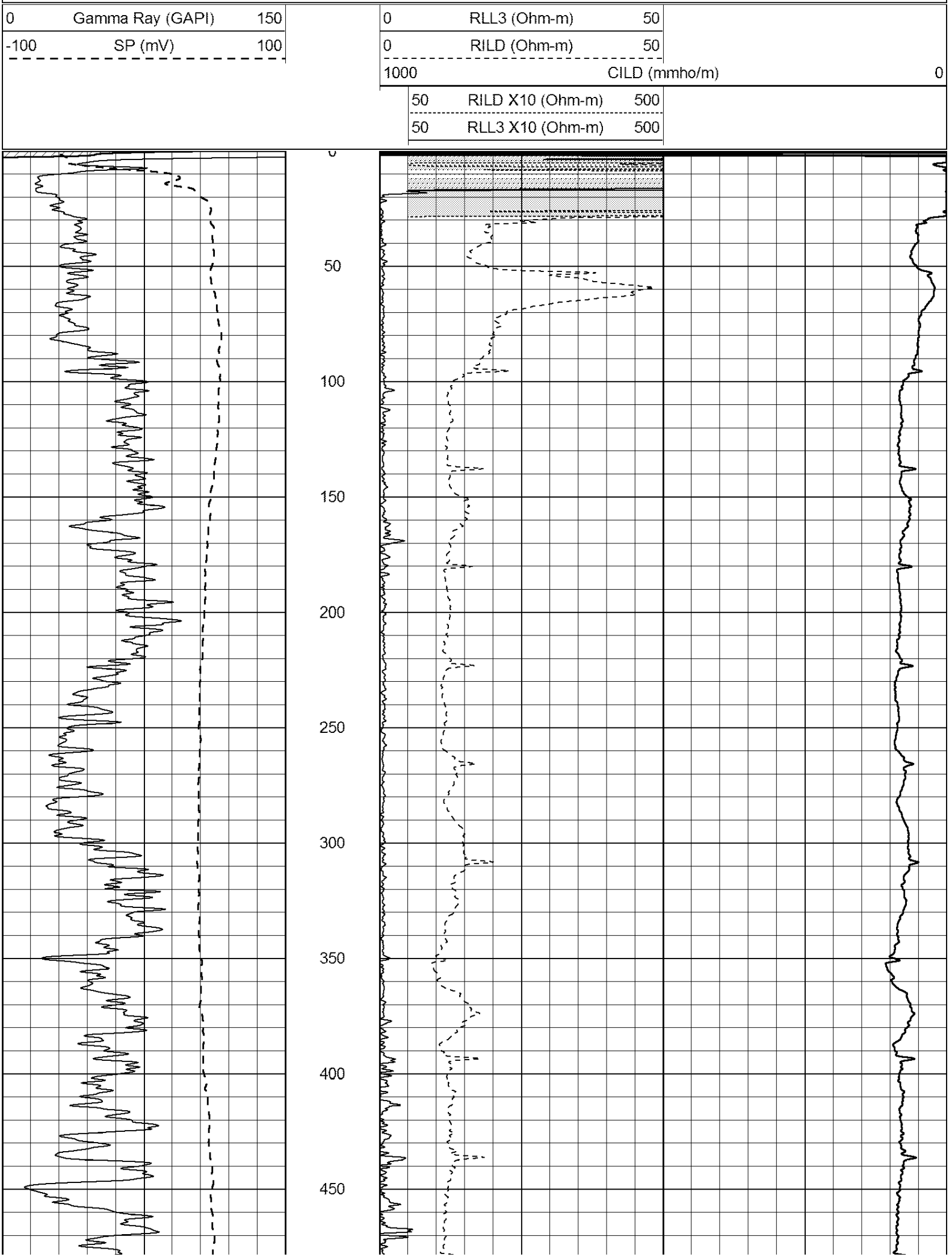
Comments

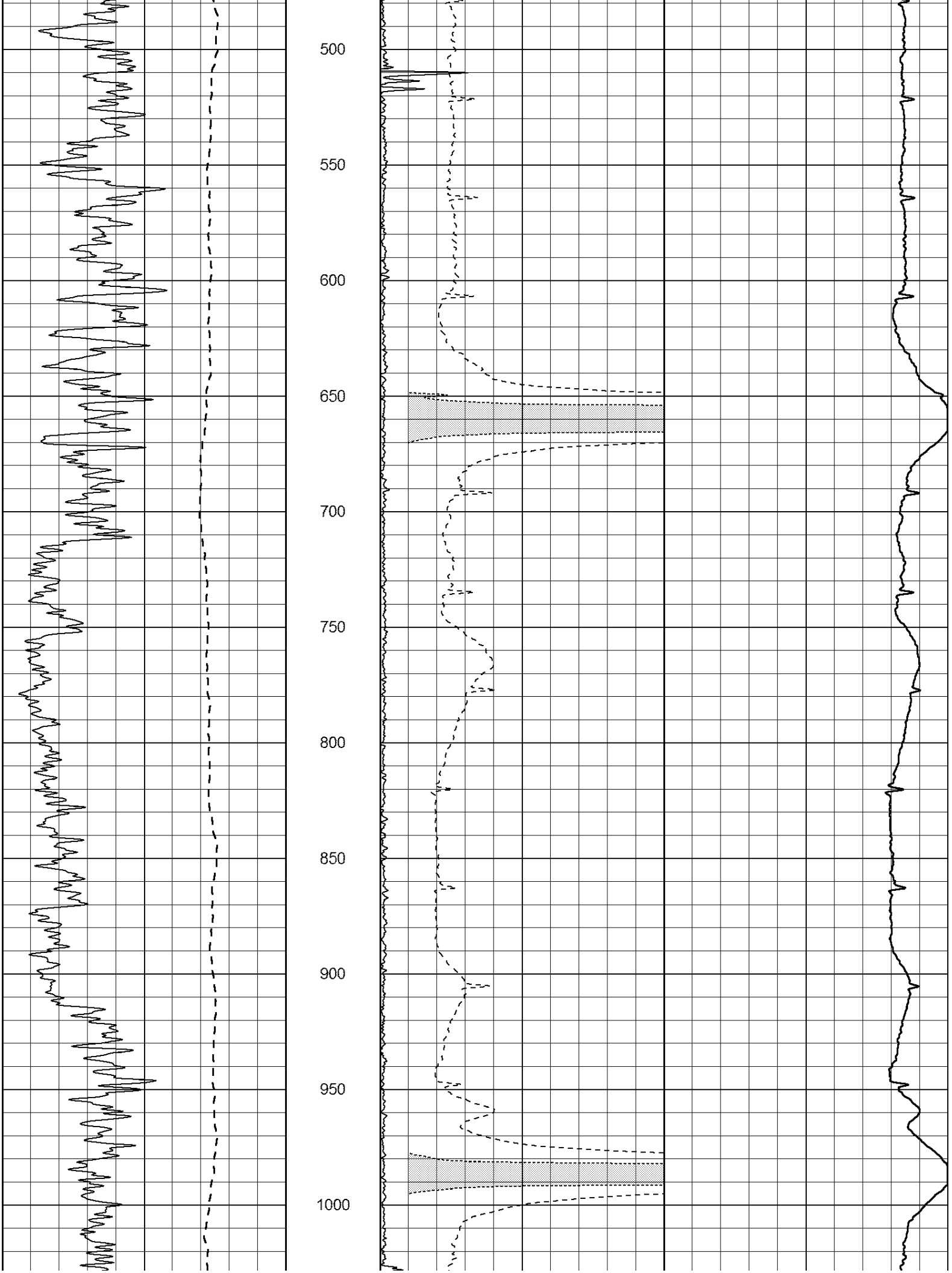
THANK YOU FOR USING SUPERIOR WELL SERVICE HAYS, KANSAS (785) 628-6395

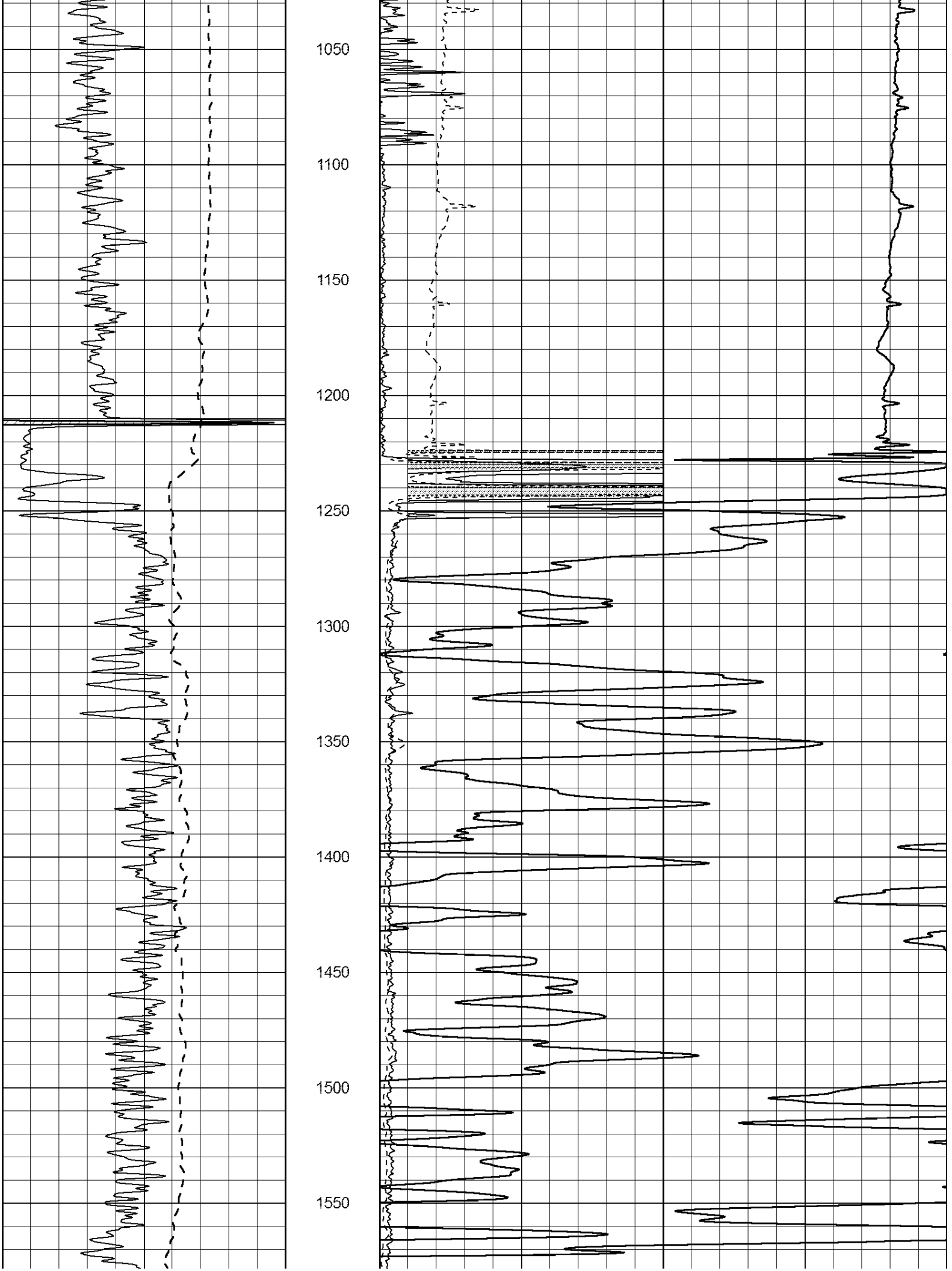
DIRECTIONS

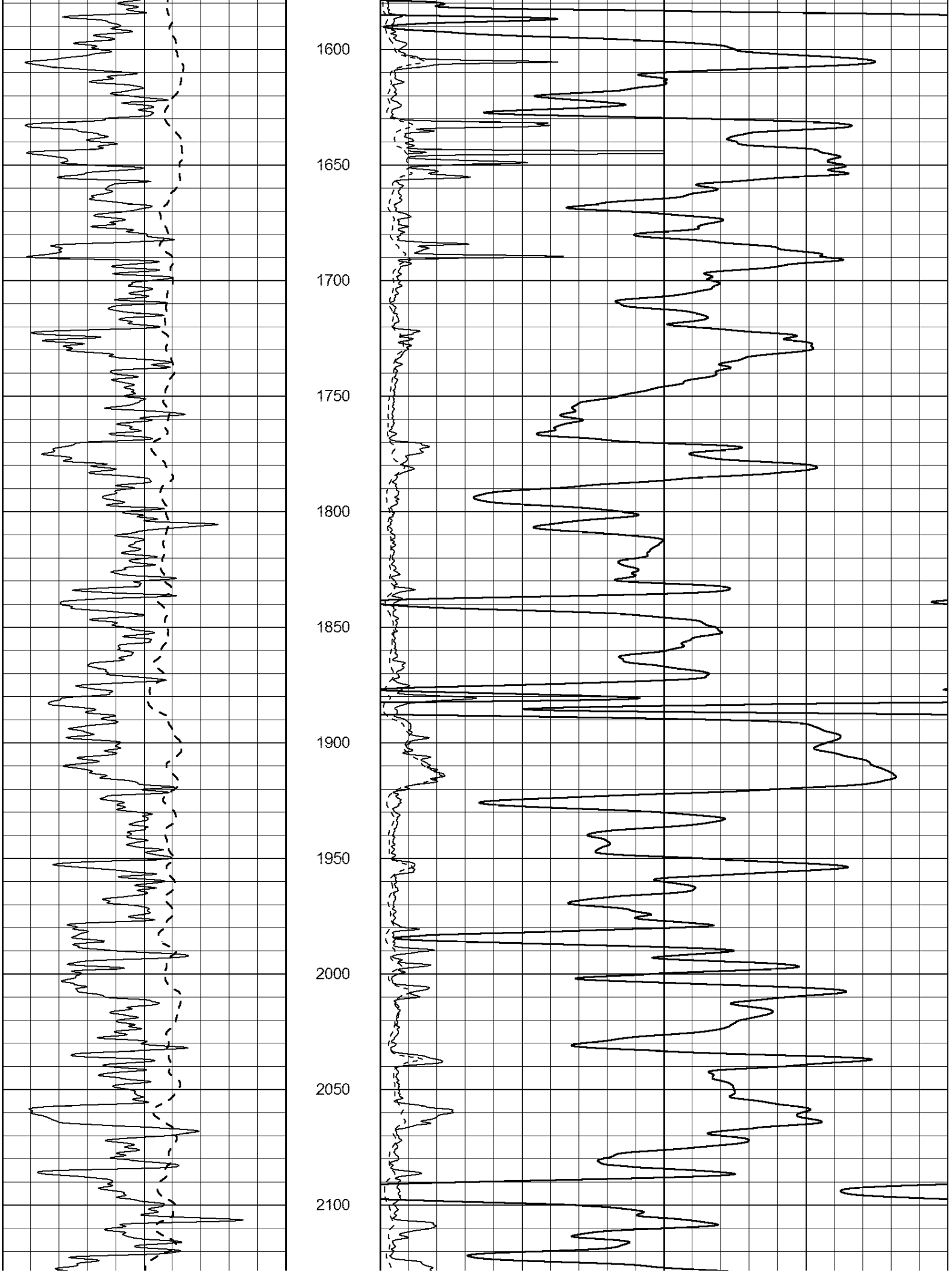
STOCKTON, KS - SOUTH ACROSS BRIDGE - EAST ON K TERRACE RD 3/4 MILE SOUTH INTO

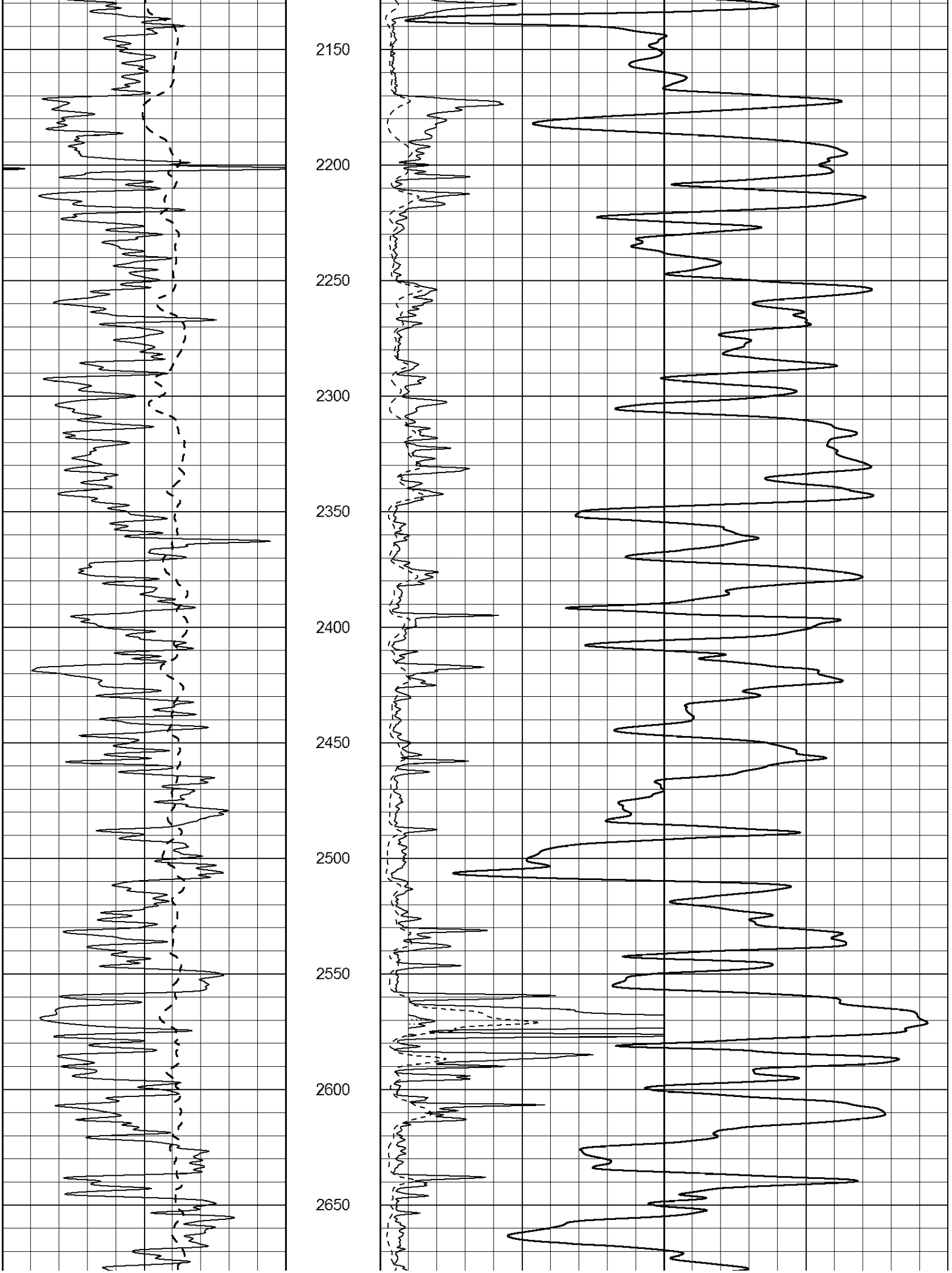
Database File:	408766pe.db
Dataset Pathname:	pass3.2
Presentation Format:	_dil2
Dataset Creation:	Sat May 12 12:18:00 2012 by Calc Open-Cased 110302
Charted by:	Depth in Feet scaled 1:600

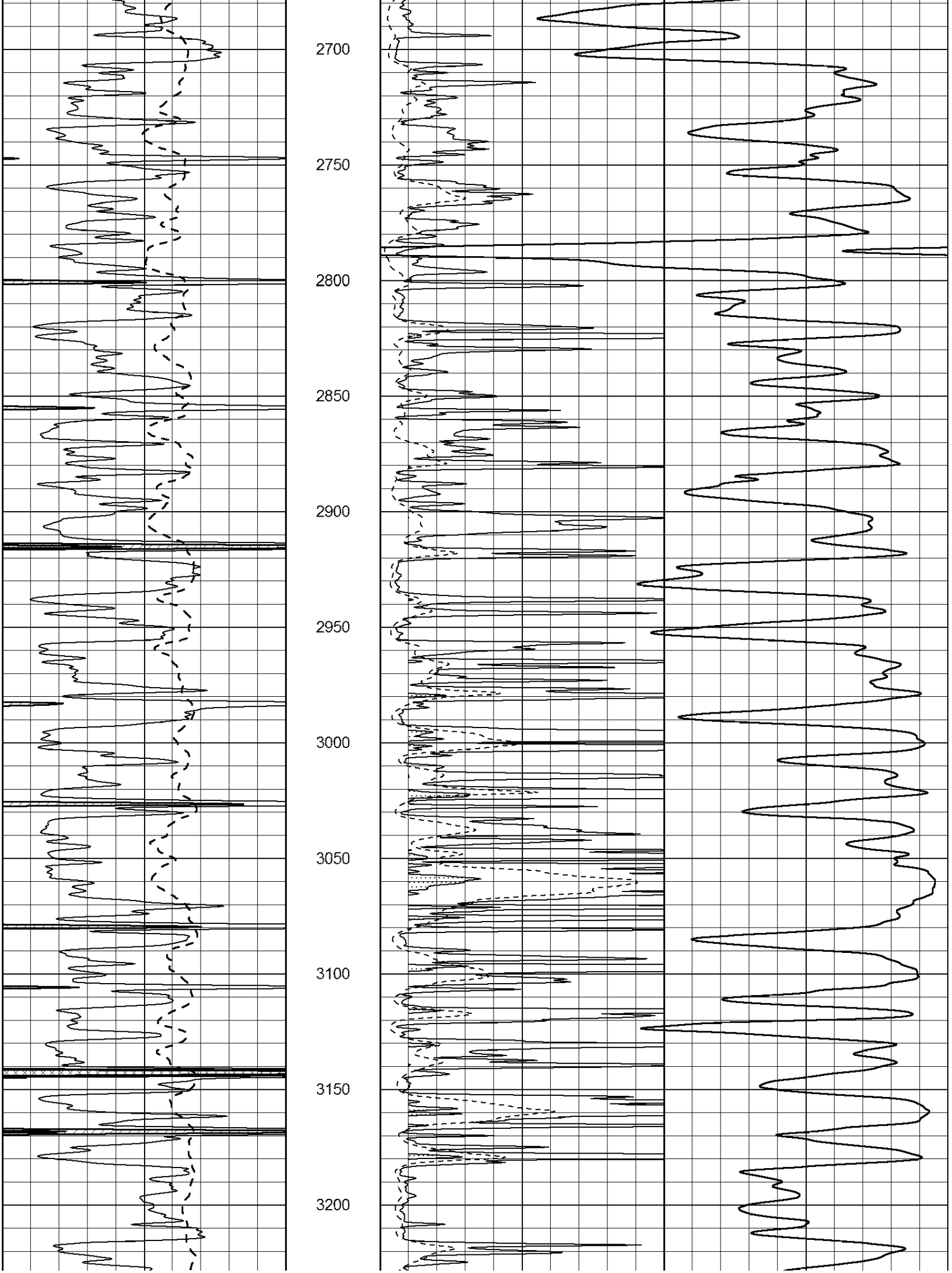

0 Gamma Ray (GAPI) 150
-100 SP (mV) 100
0 RLL3 (Ohm-m) 50
0 RILD (Ohm-m) 50
1000 CILD (mmho/m) 0
50 RILD X10 (Ohm-m) 500
50 RLL3 X10 (Ohm-m) 500
0
50
100
150
200
250
300
350
400
450

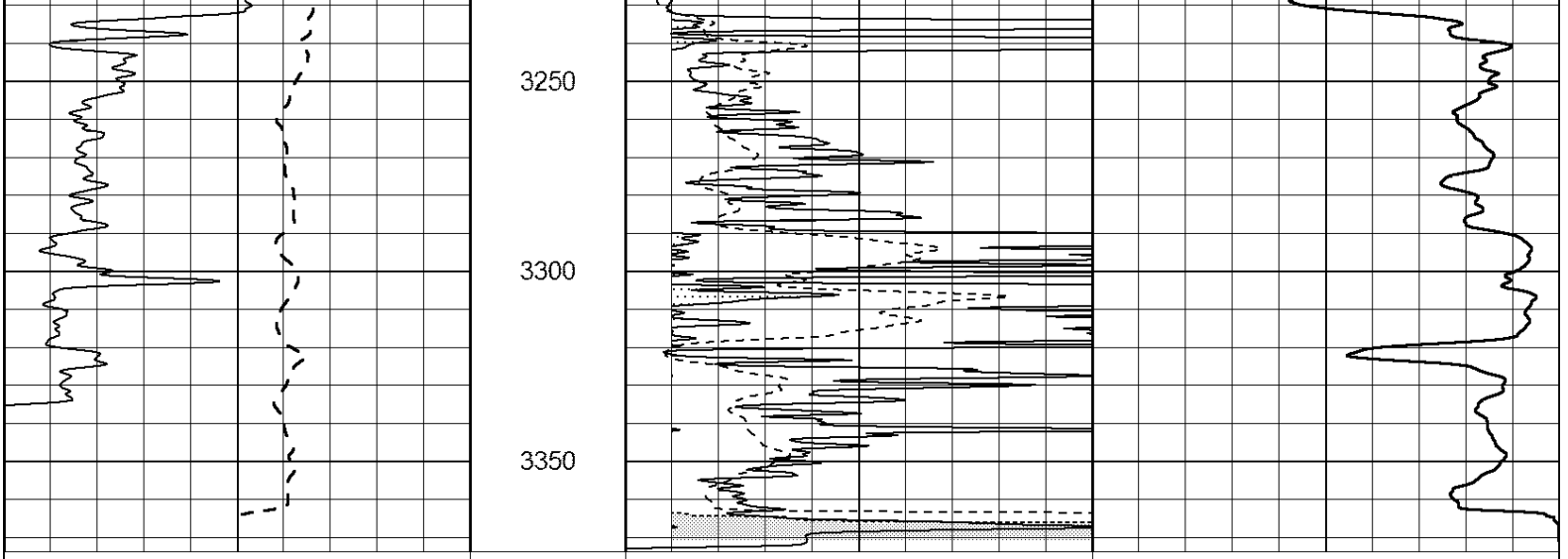

500
550
600
650
700
750
800
850
900
950
1000


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
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3000
3050
3100
3150
3200



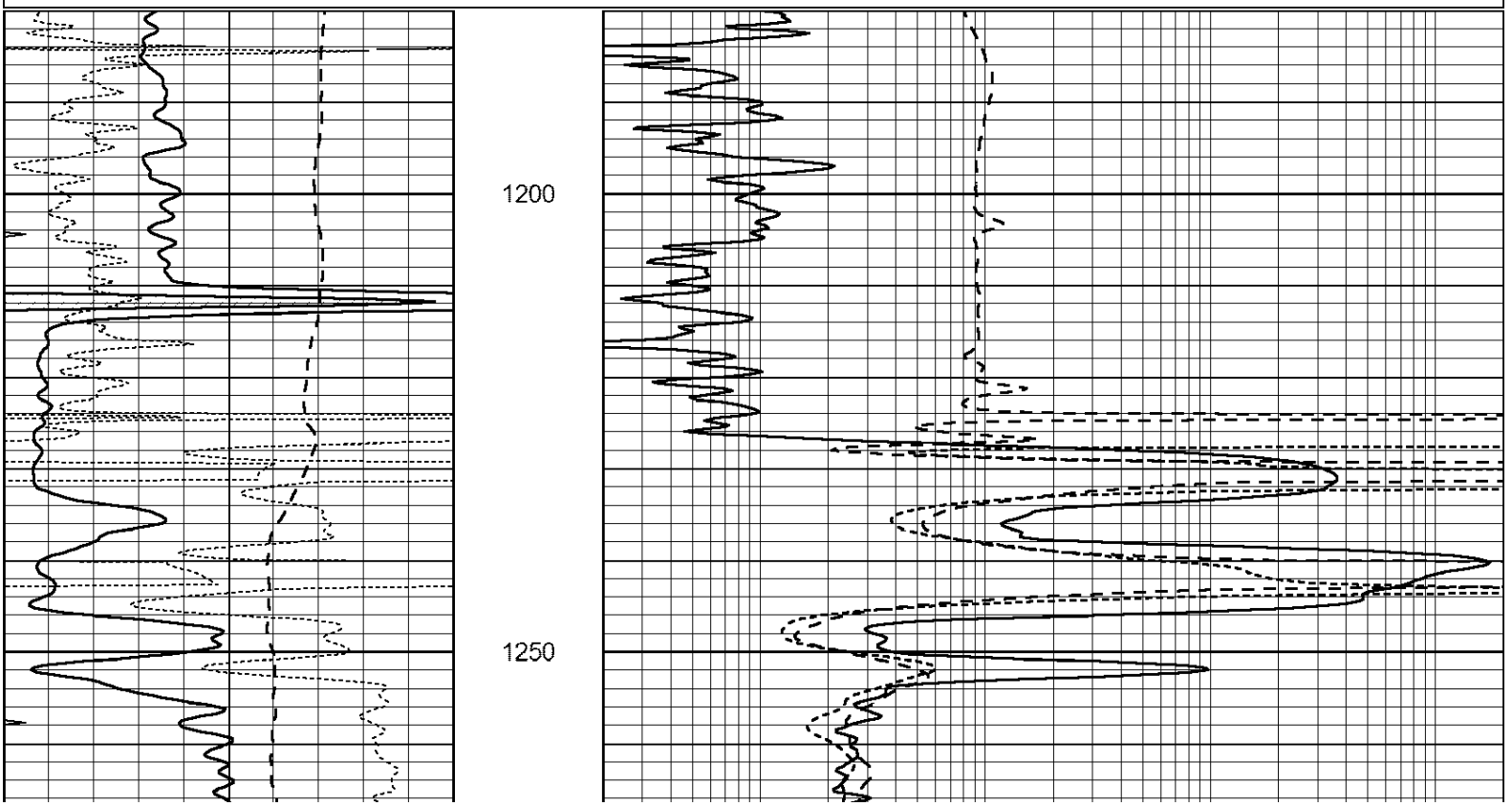
0	Gamma Ray (GAPI)	150
-100	SP (mV)	100

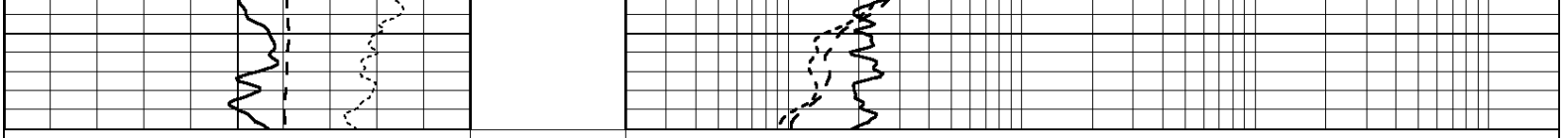
0	RLL3 (Ohm-m)	50
0	RILD (Ohm-m)	50
1000	CILD (mmho/m)	0
50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500

Database File: 408766pe.db
Dataset Pathname: pass3.2
Presentation Format: _dil
Dataset Creation: Sat May 12 12:18:00 2012 by Calc Open-Cased 110302
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





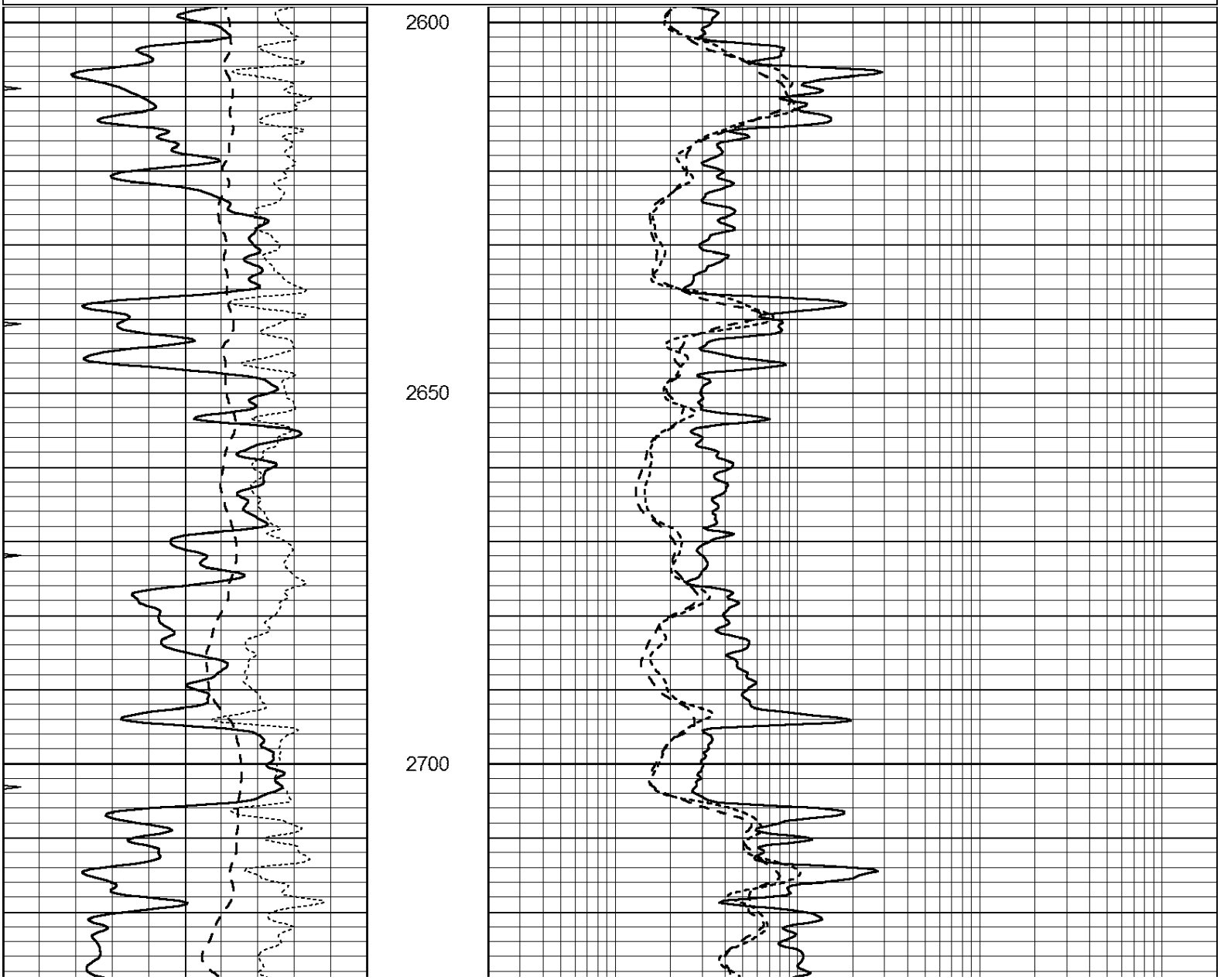
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

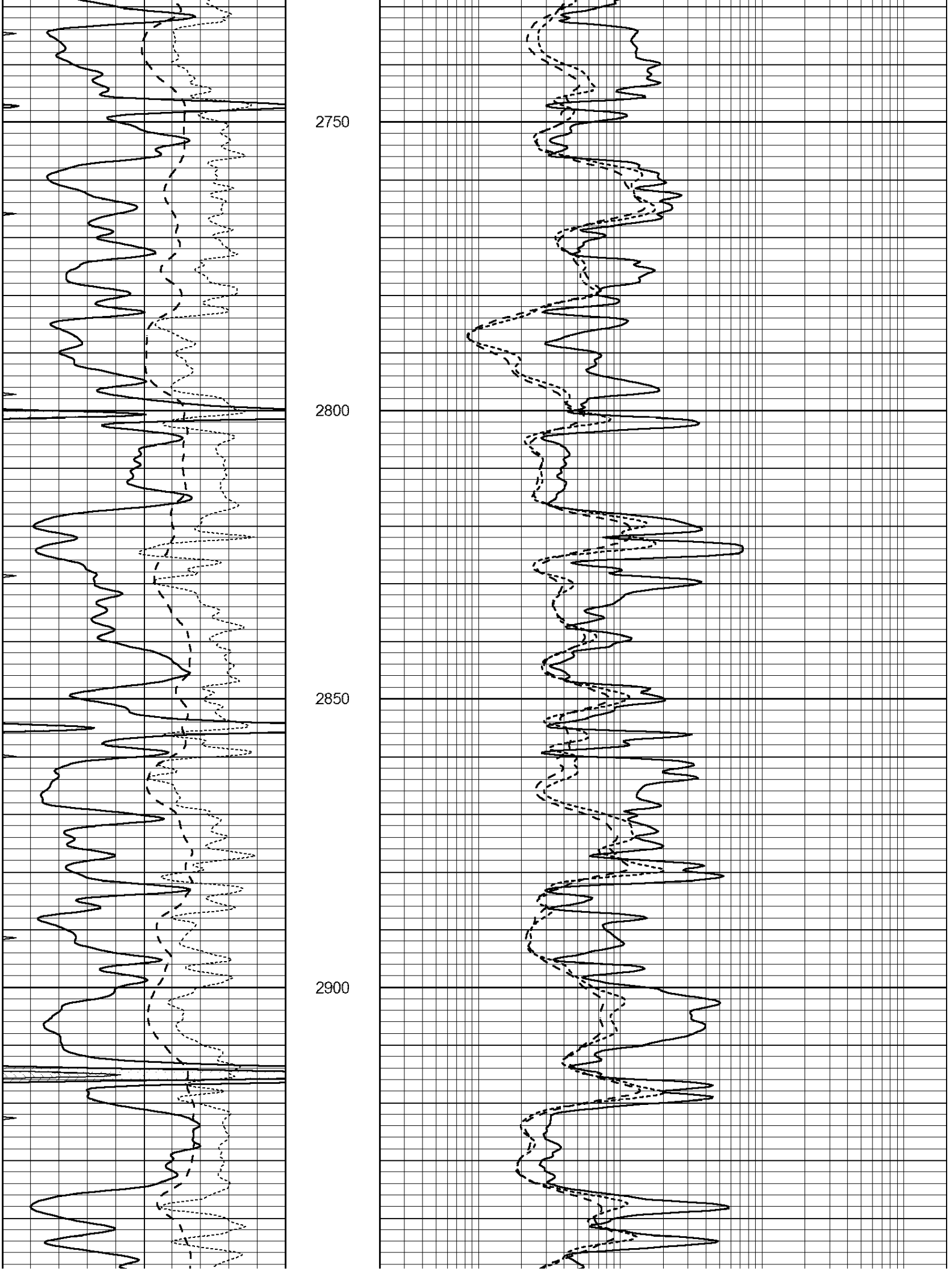
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

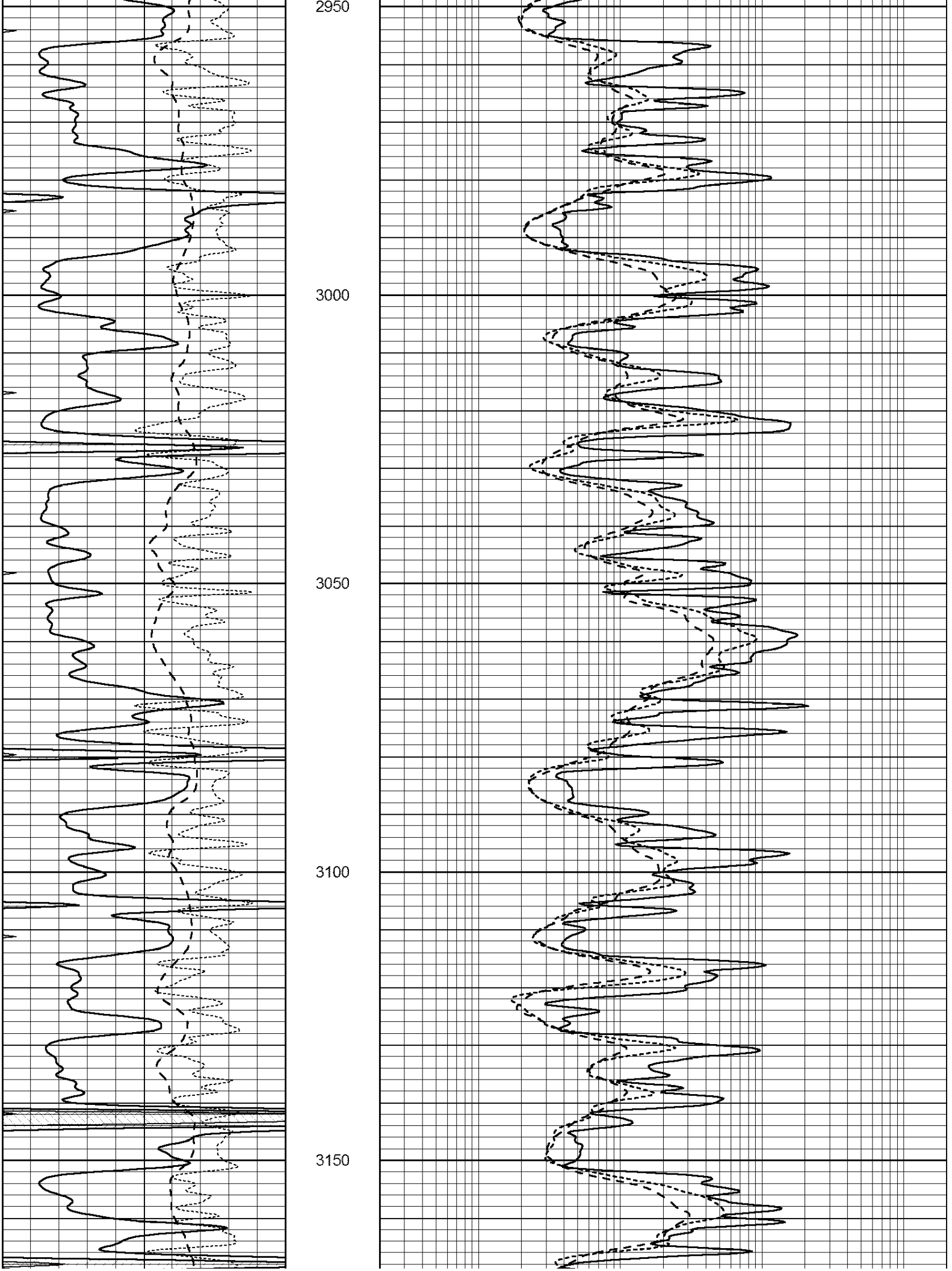
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Dataset Pathname: pass3.1
Presentation Format: _dil
Dataset Creation: Sat May 12 10:53:18 2012 by Calc Open-Cased 110302
Charted by: Depth in Feet scaled 1:240

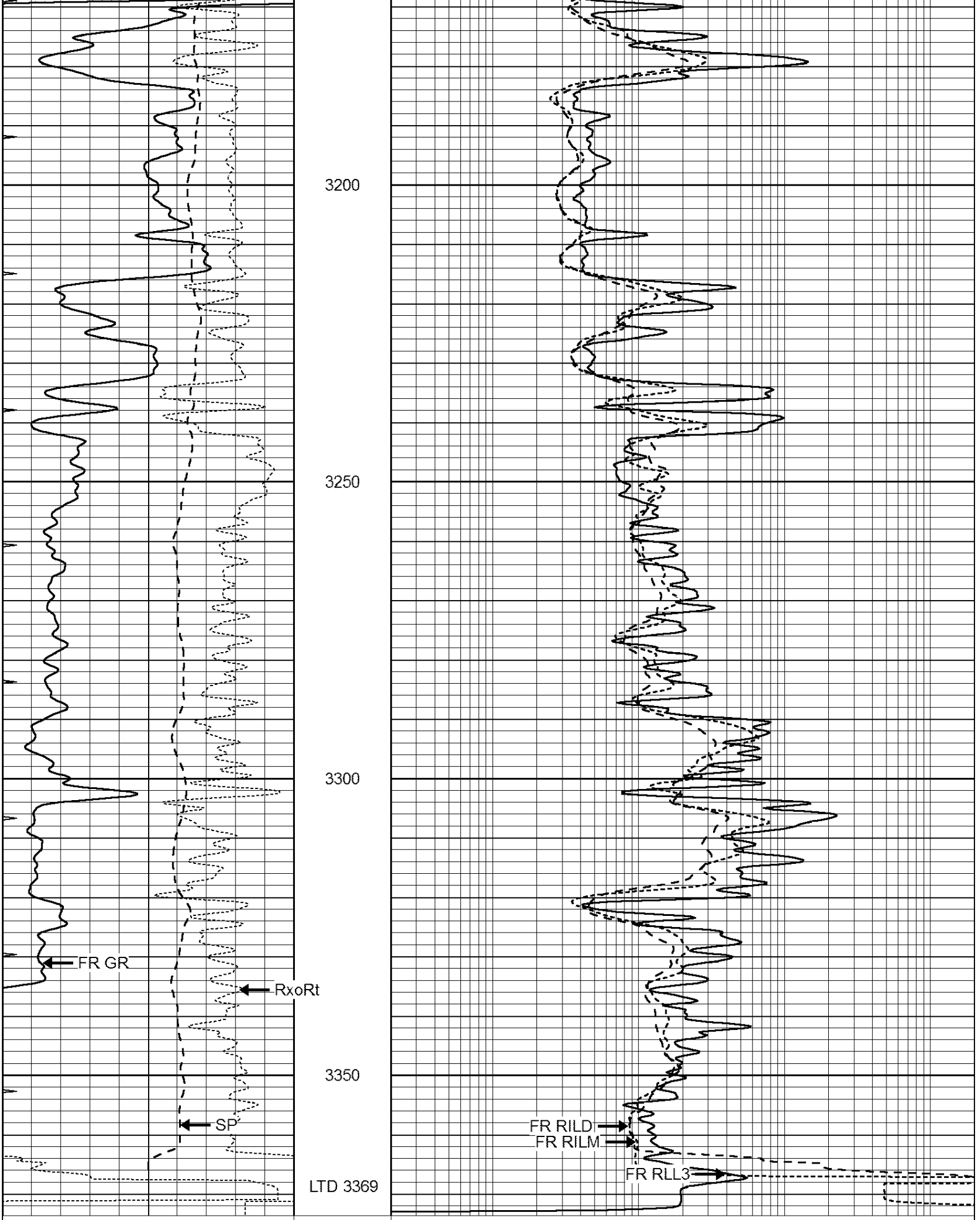
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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
FR GR
RxoRt
SP
LTD 3369
FR RILD
FR RILM
FR RLL3
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

0	MINMK	20

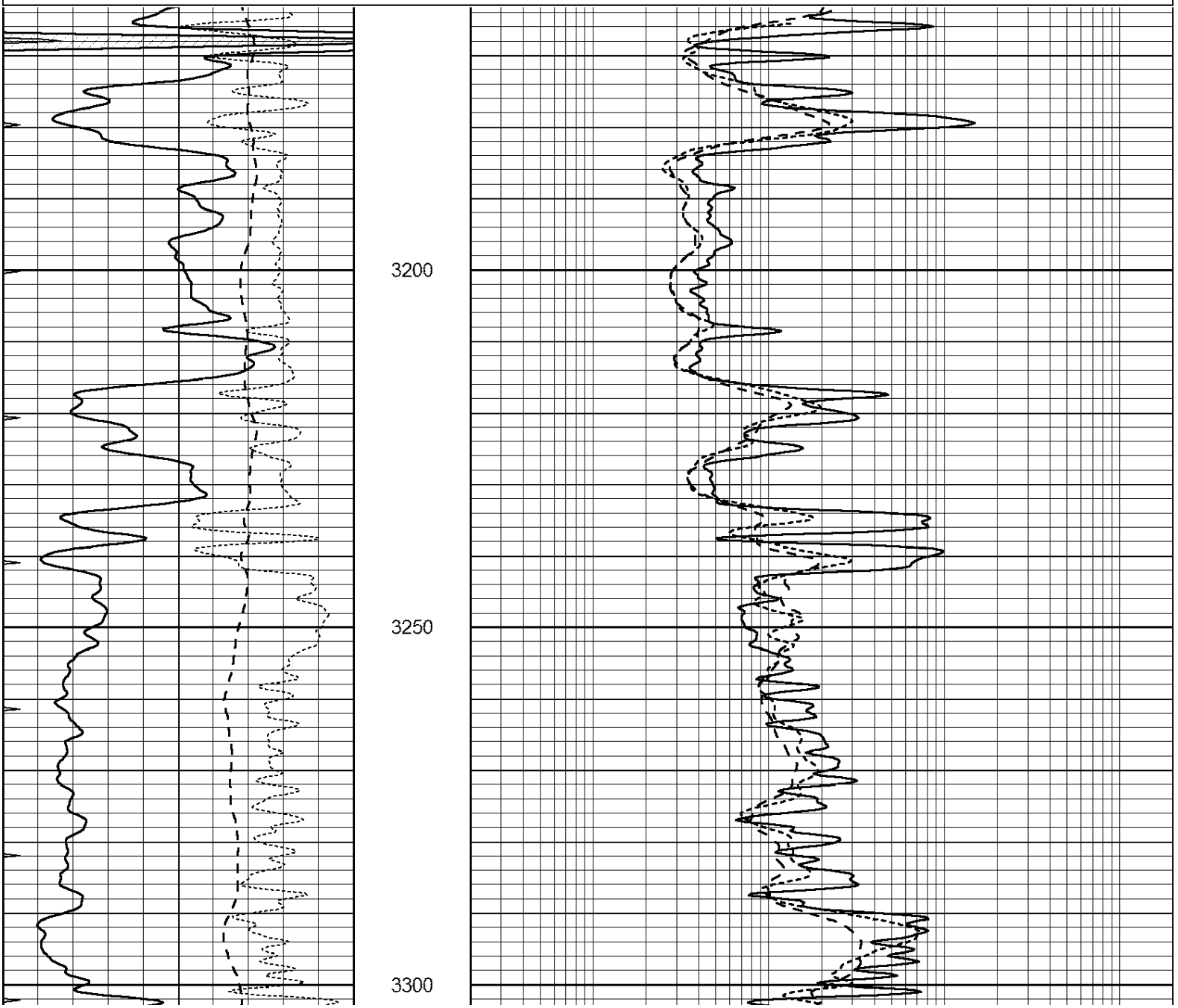
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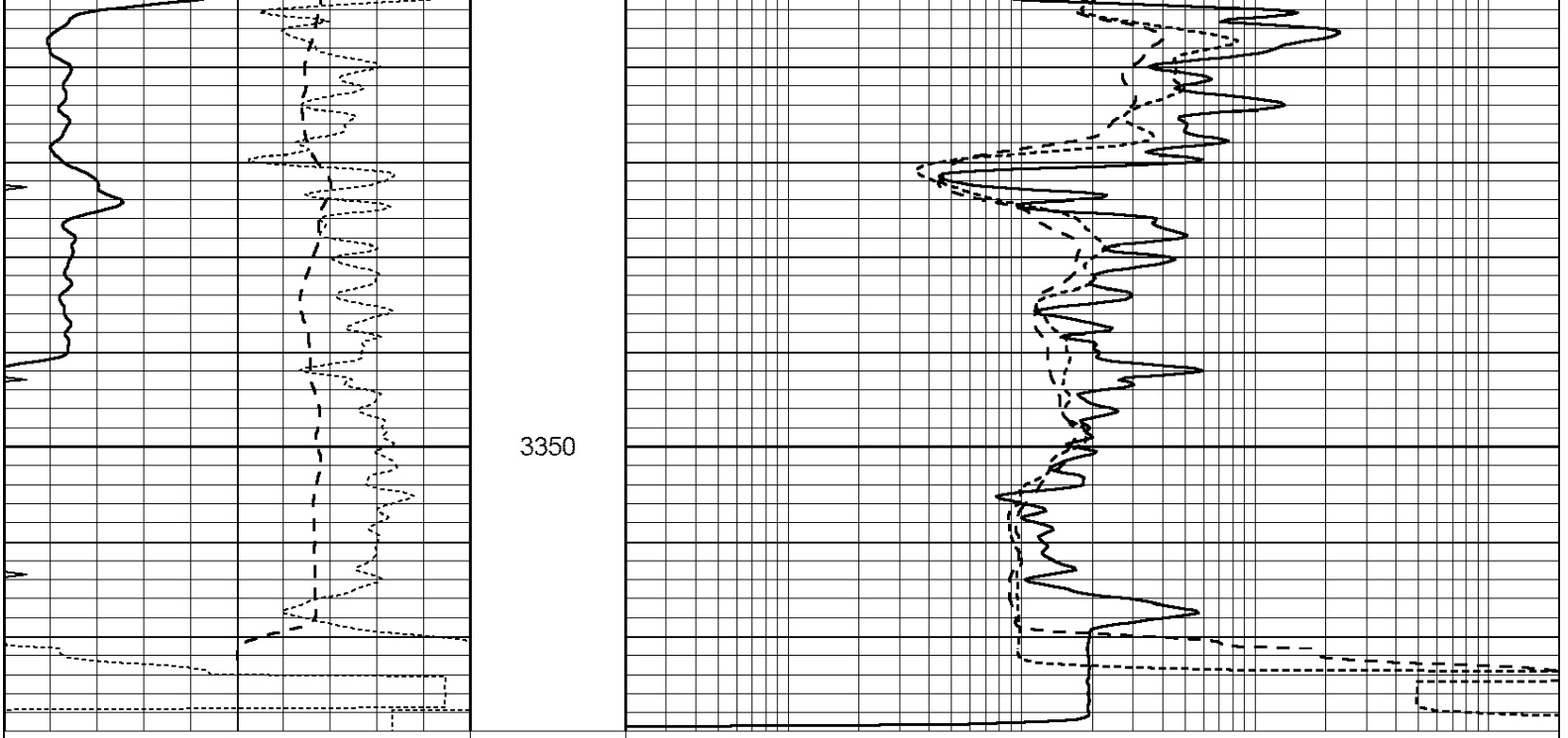
REPEAT SECTION

Database File: 408766pe.db
Dataset Pathname: pass2
Presentation Format: _dil
Dataset Creation: Sat May 12 10:10:46 2012 by Log Open-Cased 110302
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: 408766pe.db
Dataset Pathname: pass3.2
Dataset Creation: Sat May 12 12:18:00 2012 by Calc Open-Cased 110302

Dual Induction Calibration Report

Serial-Model: DIL3-GEAR
Performed: Sat Apr 28 06:22:47 2012

	Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.011	0.656	V	0.000	400.000	mmho/m	640.000	8.000
Medium	0.013	0.740	V	0.000	462.500	mmho/m	700.000	-8.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.002	0.645	V	0.000	400.000	mmho/m	622.059	-1.071
Medium	0.007	0.740	V	0.000	462.500	mmho/m	631.393	-4.555

Litho Density Calibration Report

Serial: 006 Model: PRB
Performed Sun Aug 15 09:48:41 2010

Litho Density Calibration

	Background	Magnesium	Aluminum	Sandstone	
Window 1	1686.6	11612.8	3932.0	12718.8	cps
Window 2	1531.4	9204.7	3267.8	9851.9	cps
Window 3	1198.3	4733.6	1952.5	4920.6	cps
Window 4	317.3	321.2	325.9	303.6	cps
Long Space	0.0	7673.3	1736.4	8320.4	cps

Short Space	1.7	2548.5	1657.2	2628.8	cps
Rho		1.7100	2.5900	1.3800	g/cc
Pe			2.5700	1.5500	

Rib Angle	: 43.8	Rib Slope	: 0.961	Density/Spine Ratio	: 0.569
Spine Angle	: 73.8	Spine Slope	: 3.453	Spine Intercept	: -18.1

Caliper

	Readings	Reference
Low Ref	4.0	8.4
High Ref	5.9	15.0
	Gain: 3.4	Offset: -5.2

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:	Wed May 09 19:59:59 2012	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.3000	GAPI/cps