NABORS COMPLETION & PRODUCTION SERVICES CO.

DUAL INDUCTION LOG

Company GATEWAY RESOURCES, LLC.
Well WORCESTER #3-17
Field
County GRAHAM
State KANSAS

Company GATEWAY RESOURCES, LLC.
Well WORCESTER #3-17
Field
County GRAHAM State KANSAS
Location: API # : 15-065-24079-0000
1717' FNL & 688' FEL
SEC 17 TWP 7S RGE 22W
Permanent Datum GROUND LEVEL Elevation 2335
Log Measured From KELLY BUSHING 10' A.G.L.
Drilling Measured From KELLY BUSHING

Other Services
CDL/CNL
MEL

Elevation
K.B. 2345
D.F. 2343
G.L. 2335

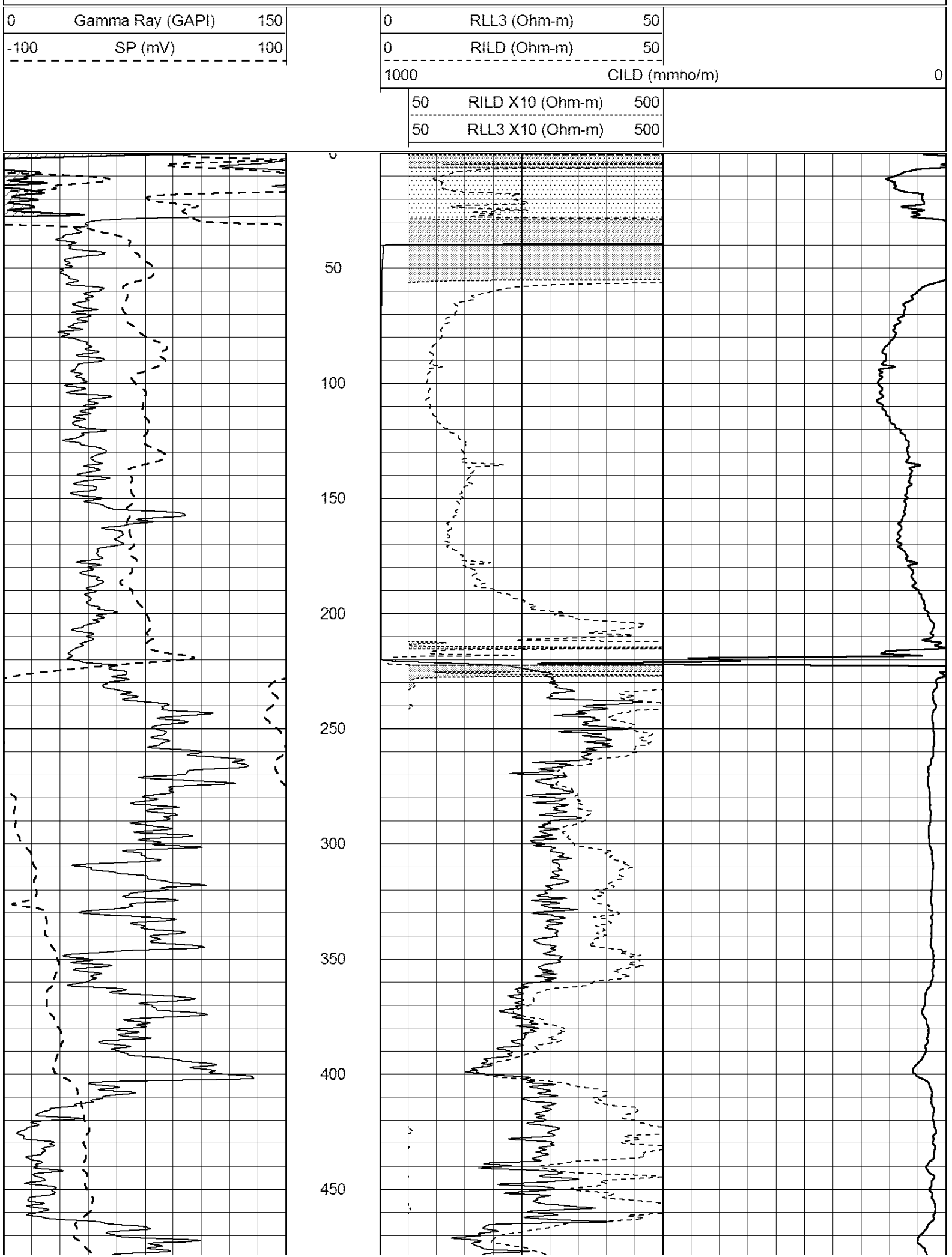
Date	11/3/14		
Run Number	ONE		
Depth Driller	3980		
Depth Logger	3978		
Bottom Logged Interval	3976		
Top Log Interval	0		
Casing Driller	8 5/8" @ 219		
Casing Logger	220		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 1300 PPM	
Density / Viscosity	9.2/55		
pH / Fluid Loss	11.0/8.4		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	1.20 @ 70F		
Rmf @ Meas. Temp	0.90 @ 70F		
Rmc @ Meas. Temp	1.44 @ 70F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	0.72 @ 116F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	116F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	JEFF GRONEWEG		
Witnessed By	GARY GENSCH		

<<< Fold Here >>>

Comments

THANK YOU FOR USING NABORS, HAYS, KS. (785) 628-6395
DIRECTIONS:
HILL CITY, KS - 5 MILES NORTH TO RD V - 2 1/2 MILES EAST - .8 MILES NORTH
EAST INTO FOLLOW RIGHT FORK IN LOCATION RD

Database File: 26222ddn.db
Dataset Pathname: pass3.3
Presentation Format: _dil2
Dataset Creation: Mon Nov 03 20:43:51 2014 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:600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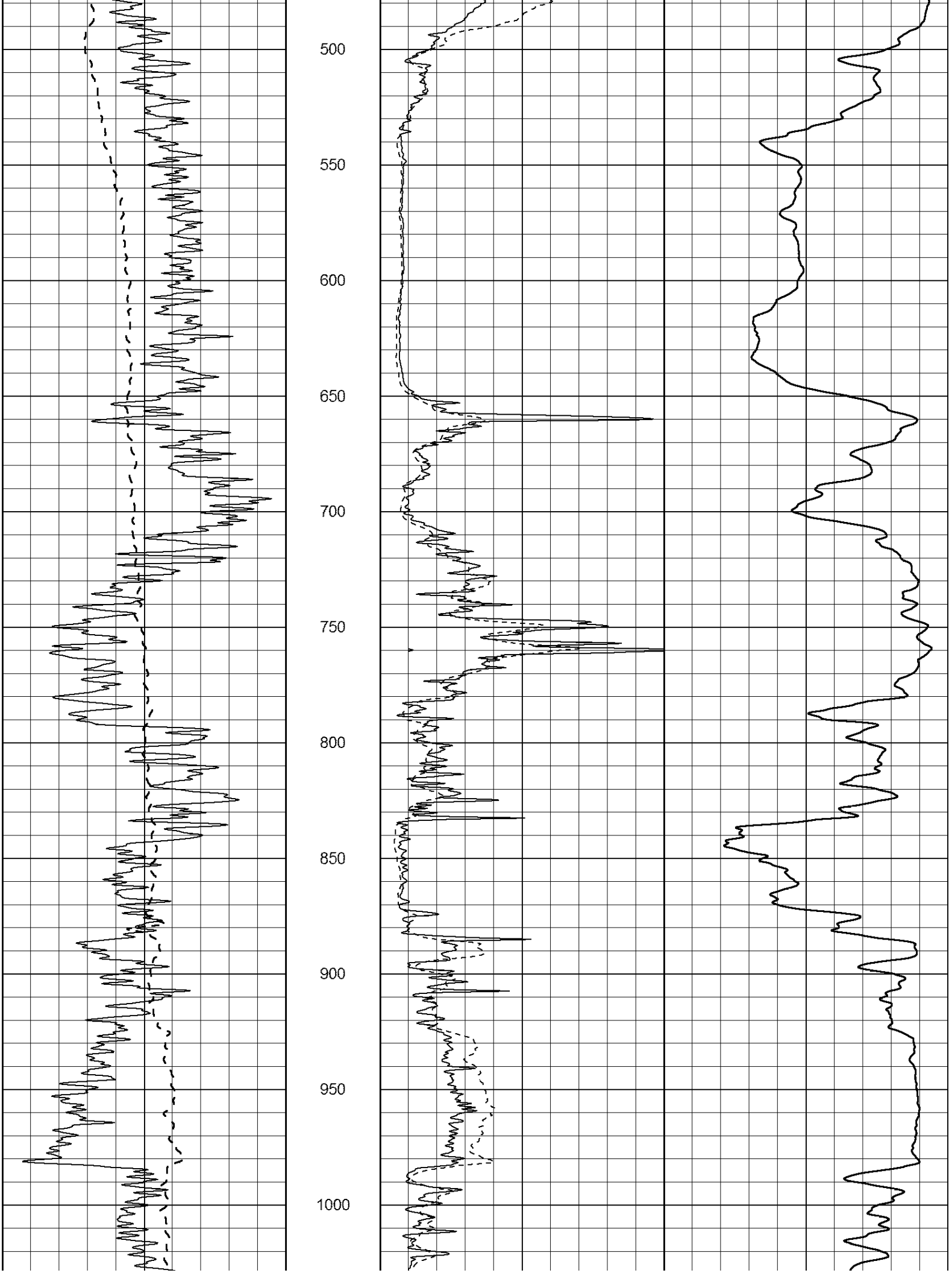
-100 SP (mV) 100
0 RLL3 (Ohm-m) 50
0 RILD (Ohm-m) 50
1000 CILD (mmho/m) 0
50 RILD X10 (Ohm-m) 500
50 RLL3 X10 (Ohm-m) 500
0
50
100
150
200
250
300
350
400
450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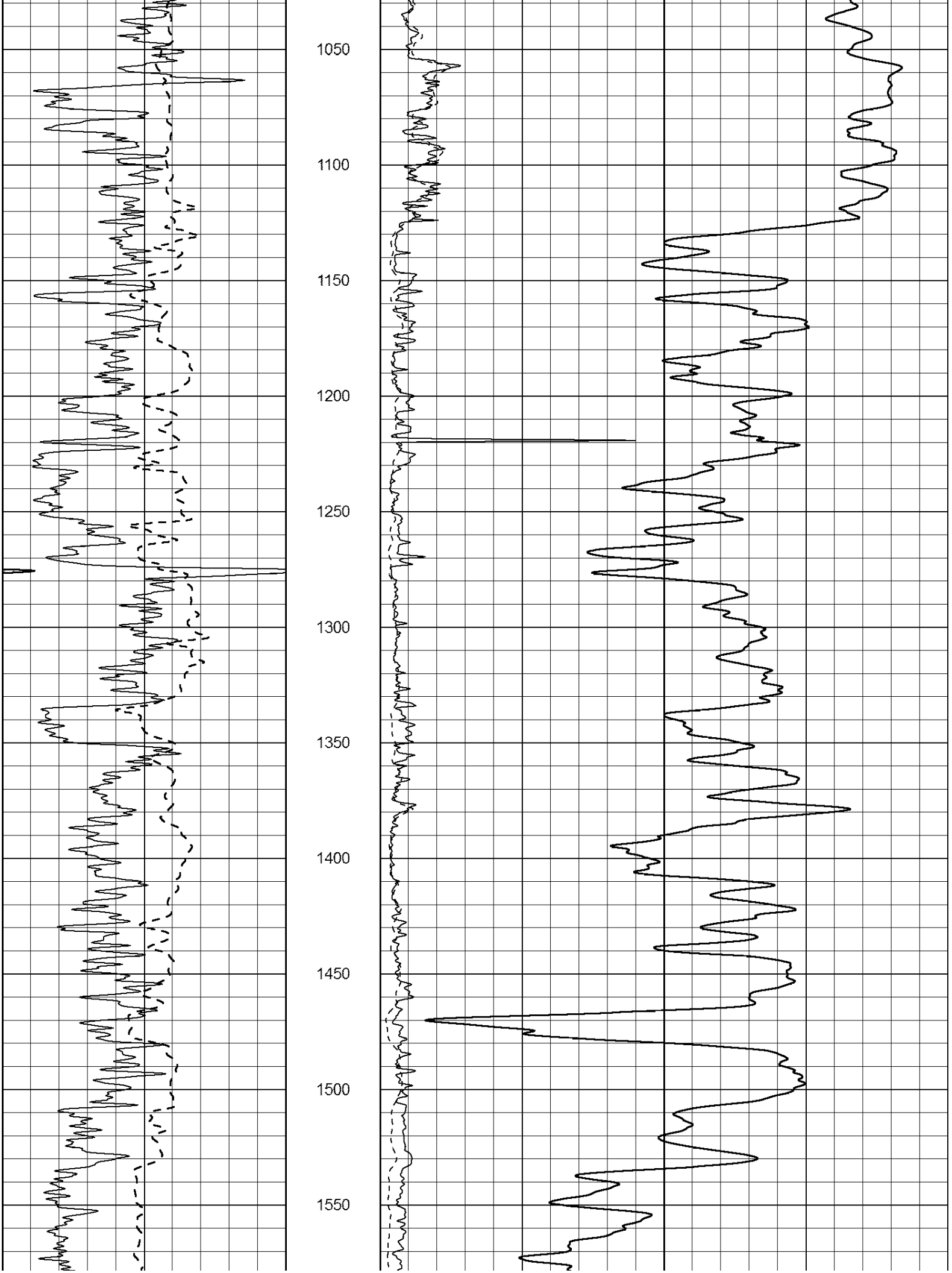
550
600
650
700
750
800
850
900
950
1000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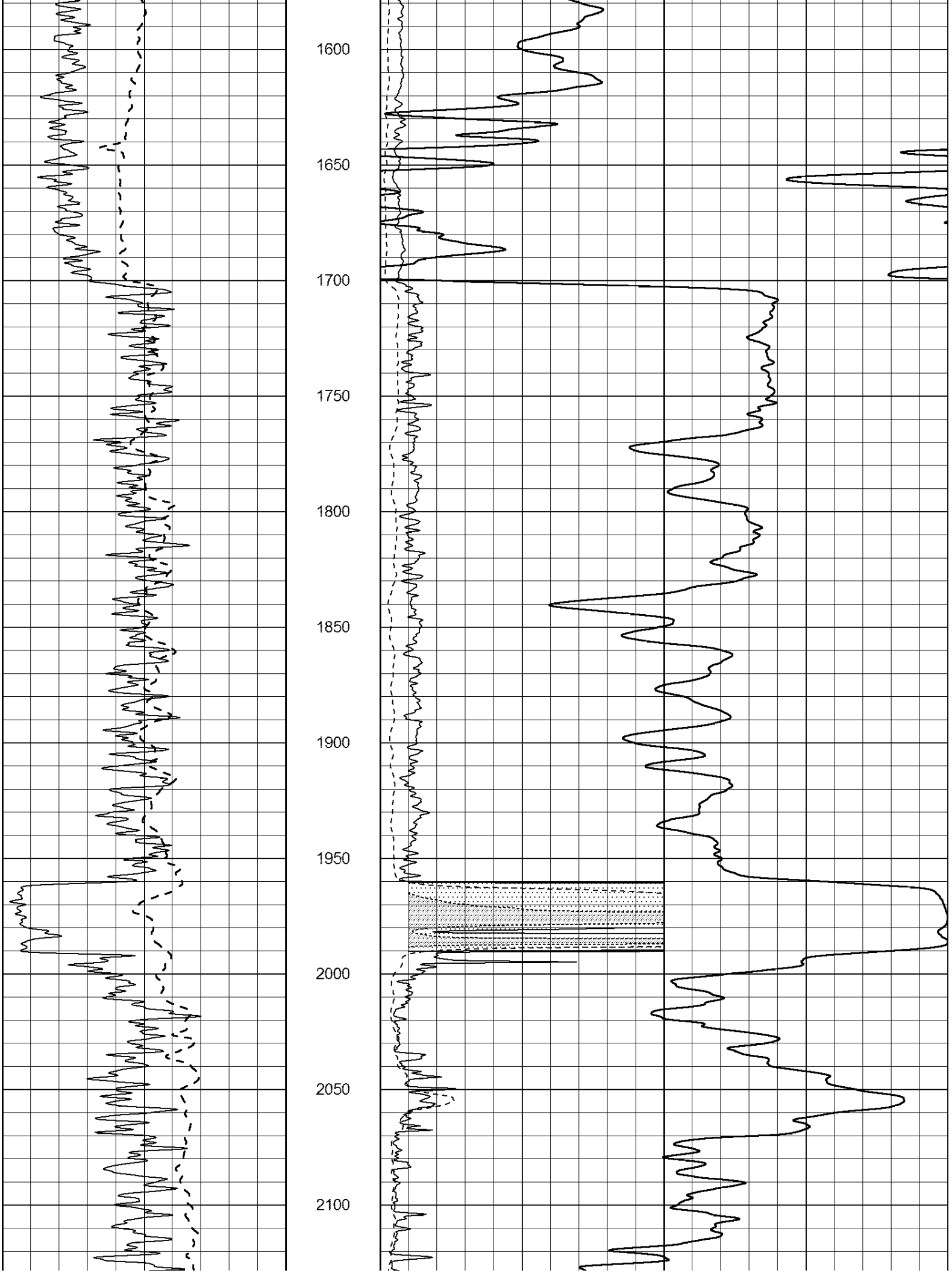
1100
1150
1200
1250
1300
1350
1400
1450
1500
1550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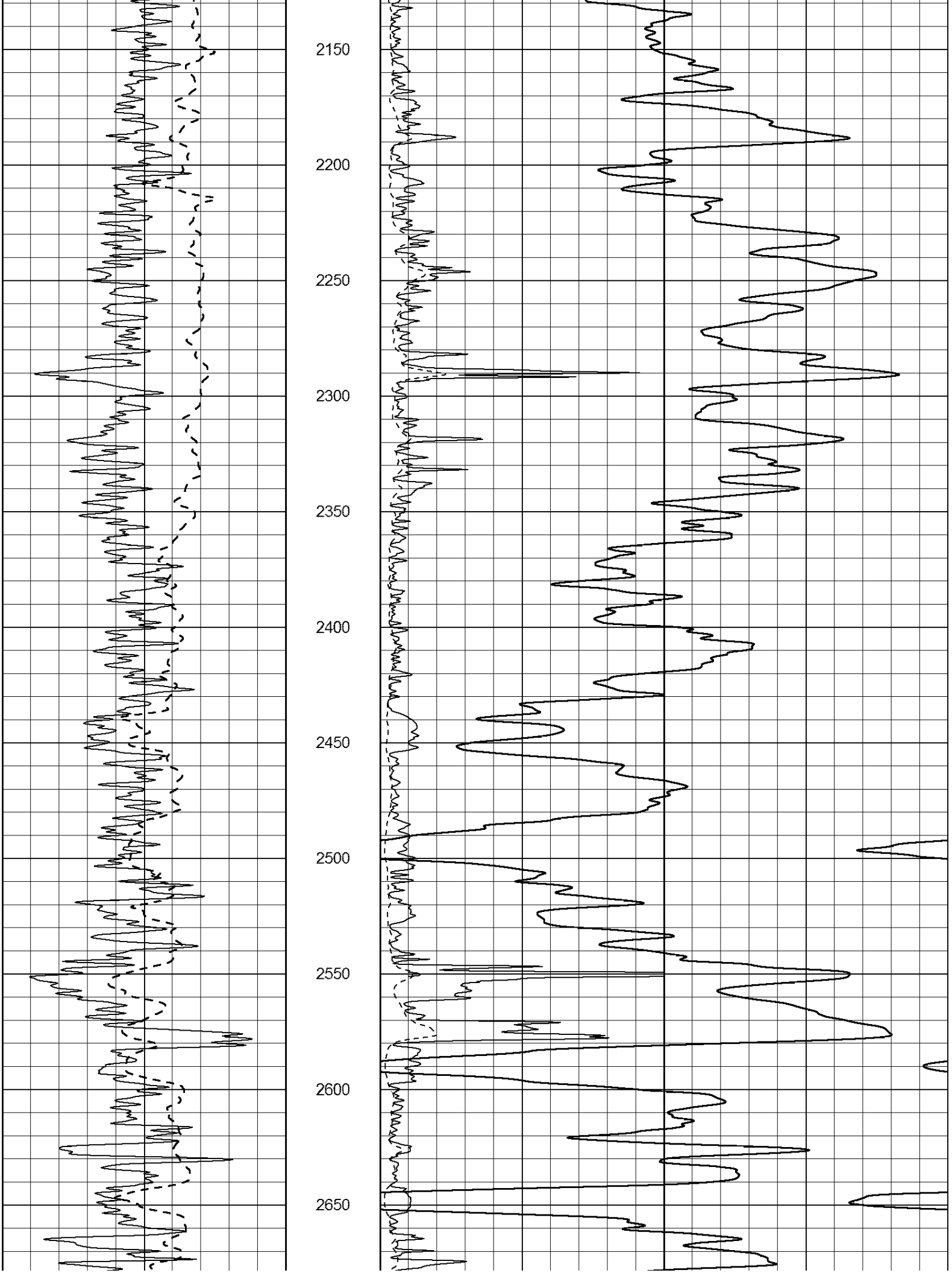
1650
1700
1750
1800
1850
1900
1950
2000
2050
2100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2400
2450
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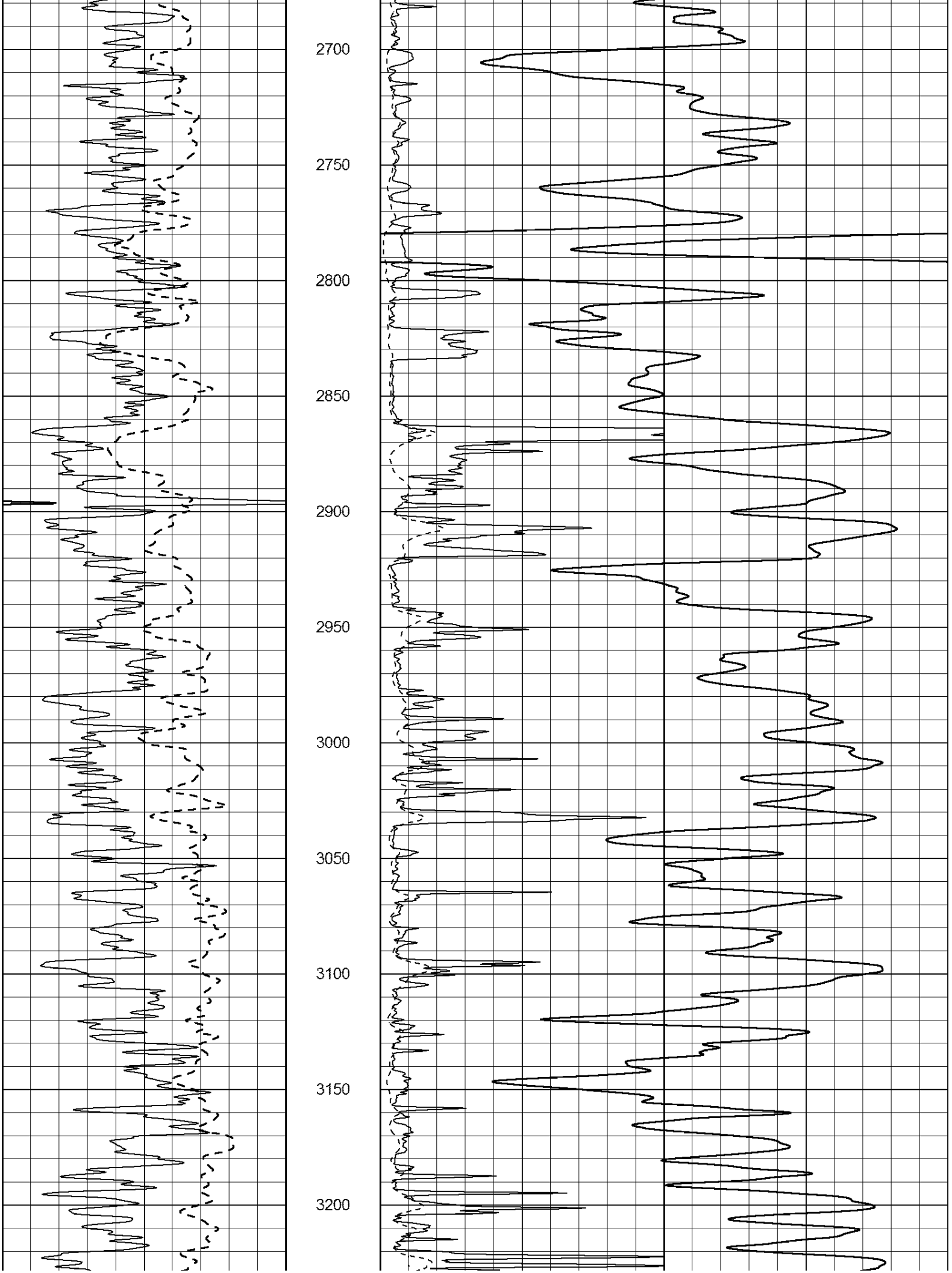
2550
2600
2650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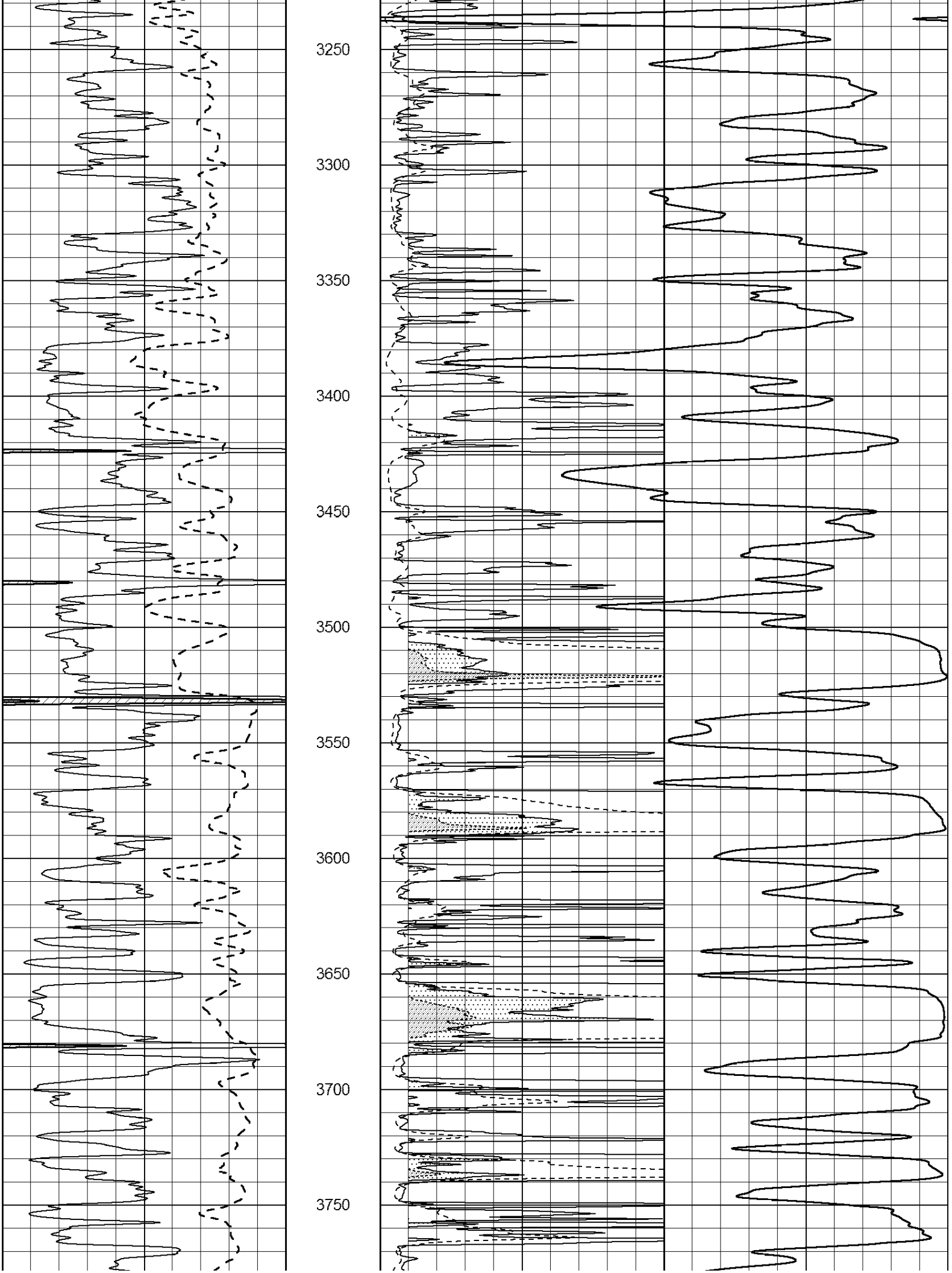
2900
2950
3000
3050
3100
3150
3200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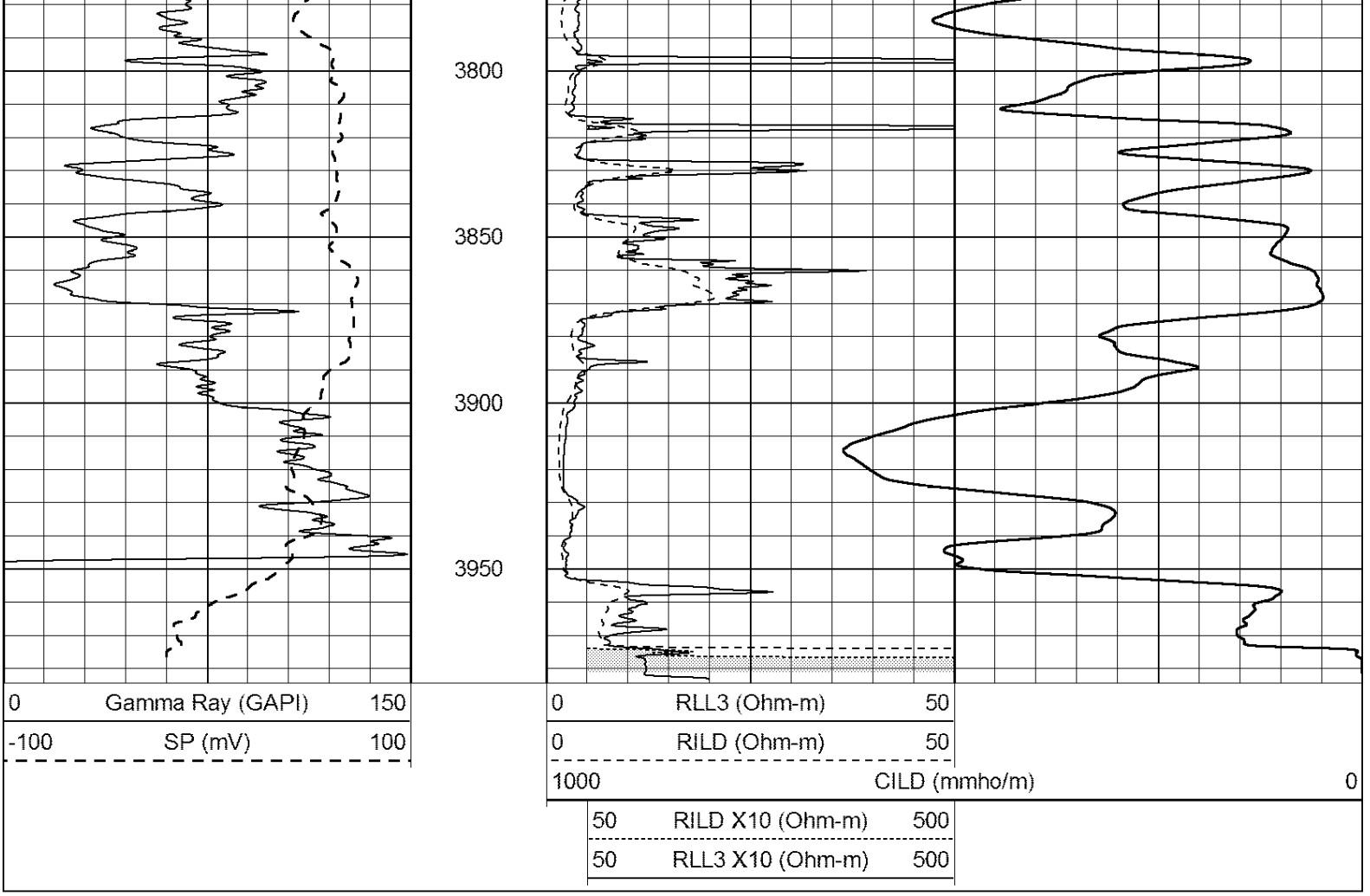
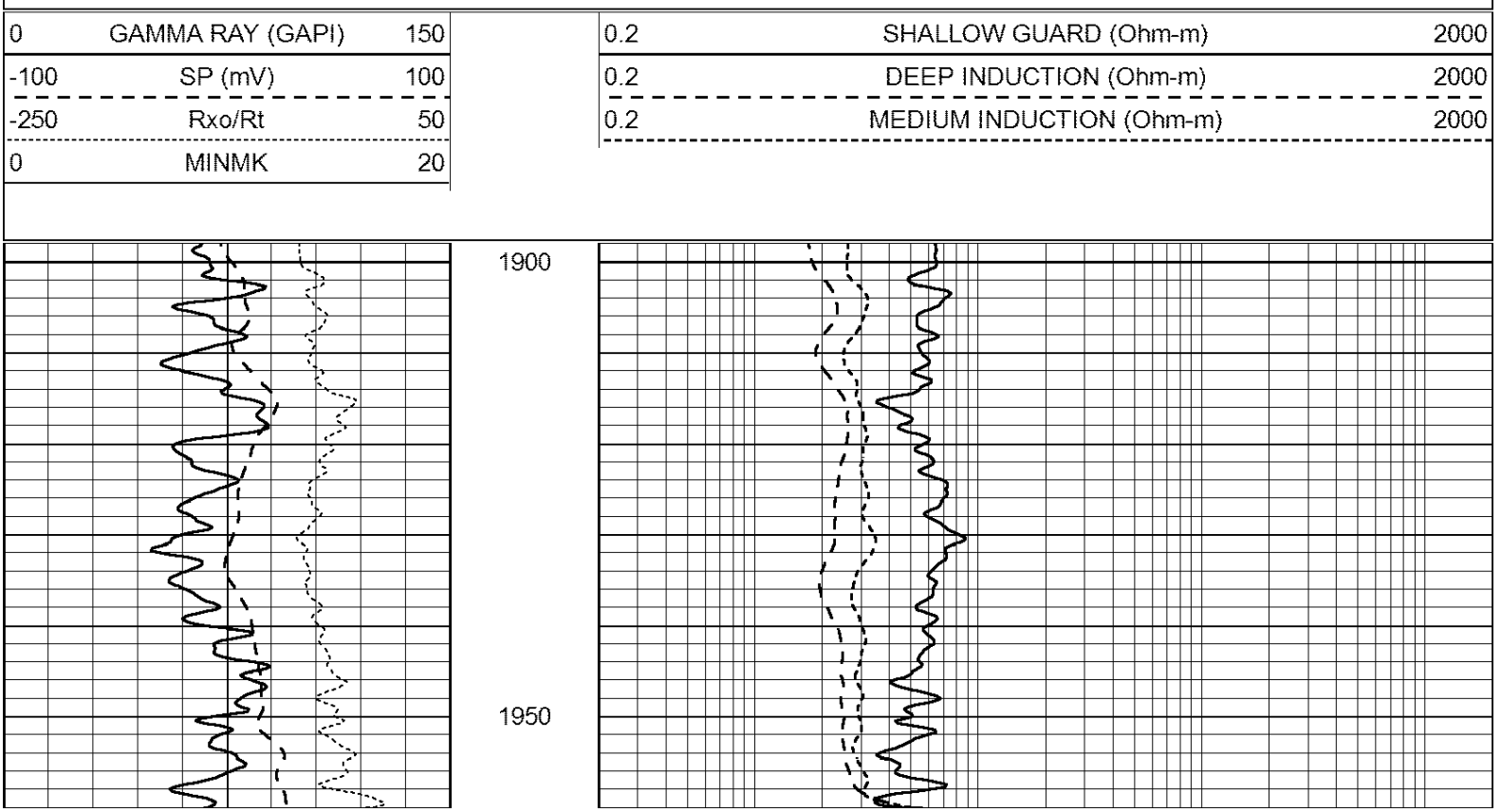
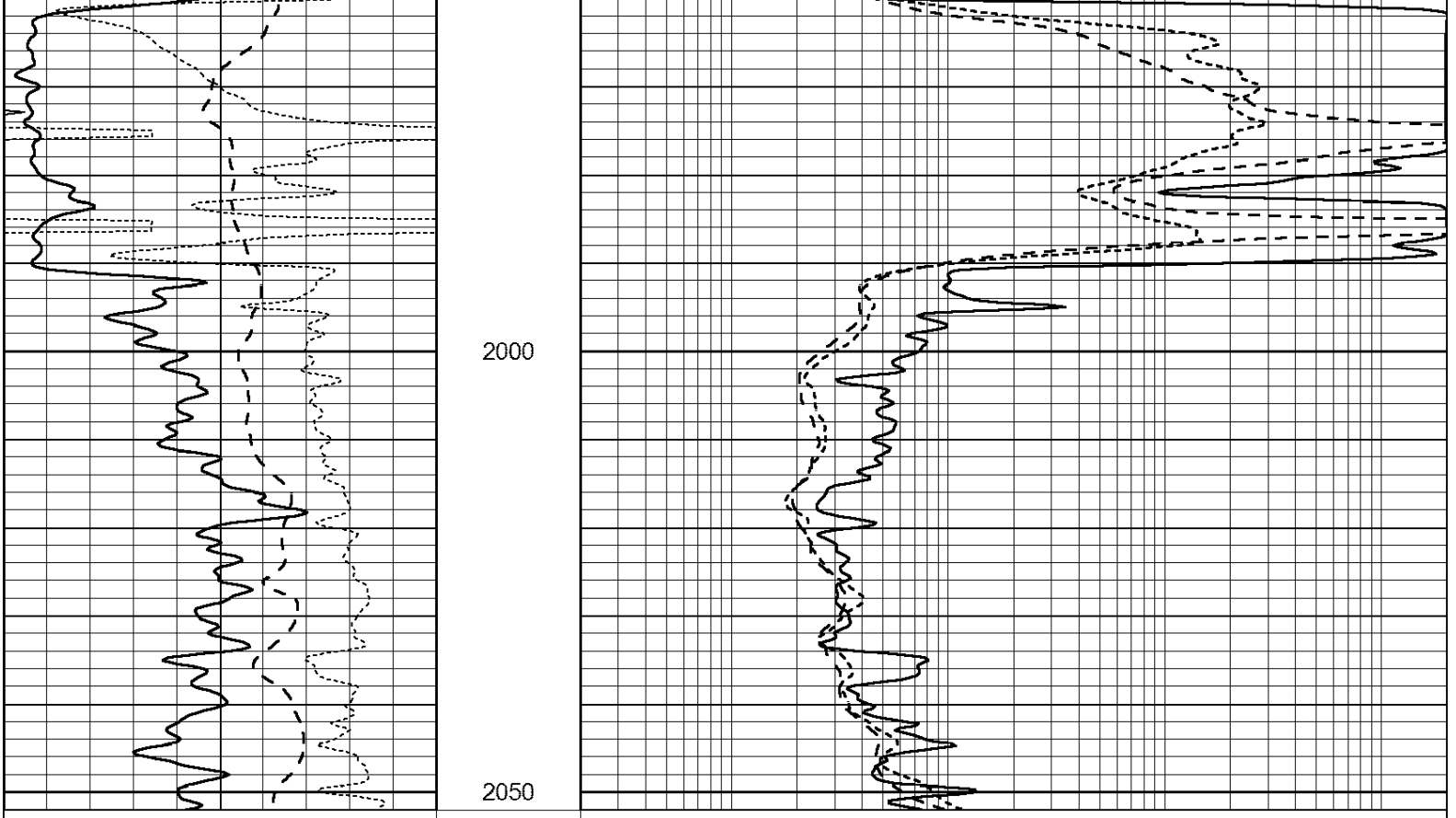
3300
3350
3400
3450
3500
3550
3600
3650
3700
3750



Database File: 26222ddn.db
Dataset Pathname: pass3.3
Presentation Format: _dil
Dataset Creation: Mon Nov 03 20:43:51 2014 by Calc Open-Cased 090629
Charted by: Depth in Feet scaled 1:240





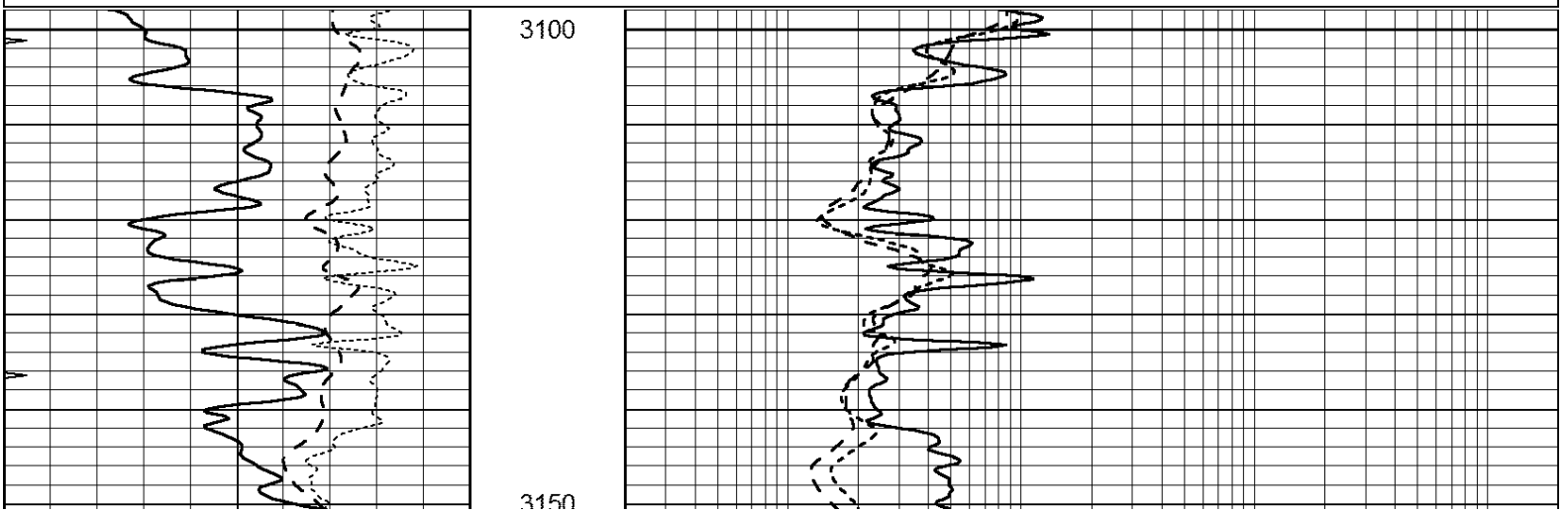
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

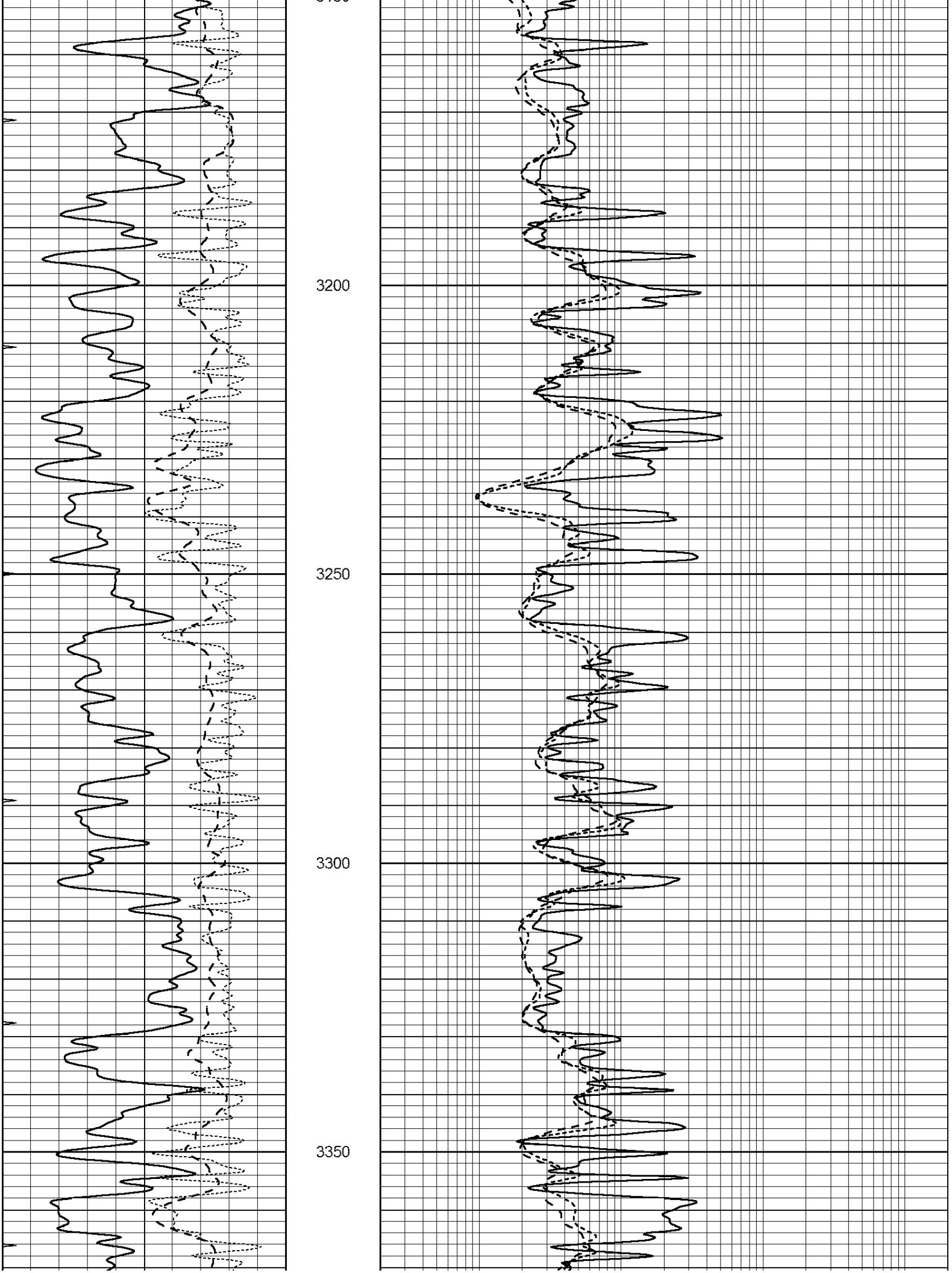
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

Database File: 26222ddn.db
Dataset Pathname: pass3.2
Presentation Format: _dil
Dataset Creation: Mon Nov 03 19:20:36 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	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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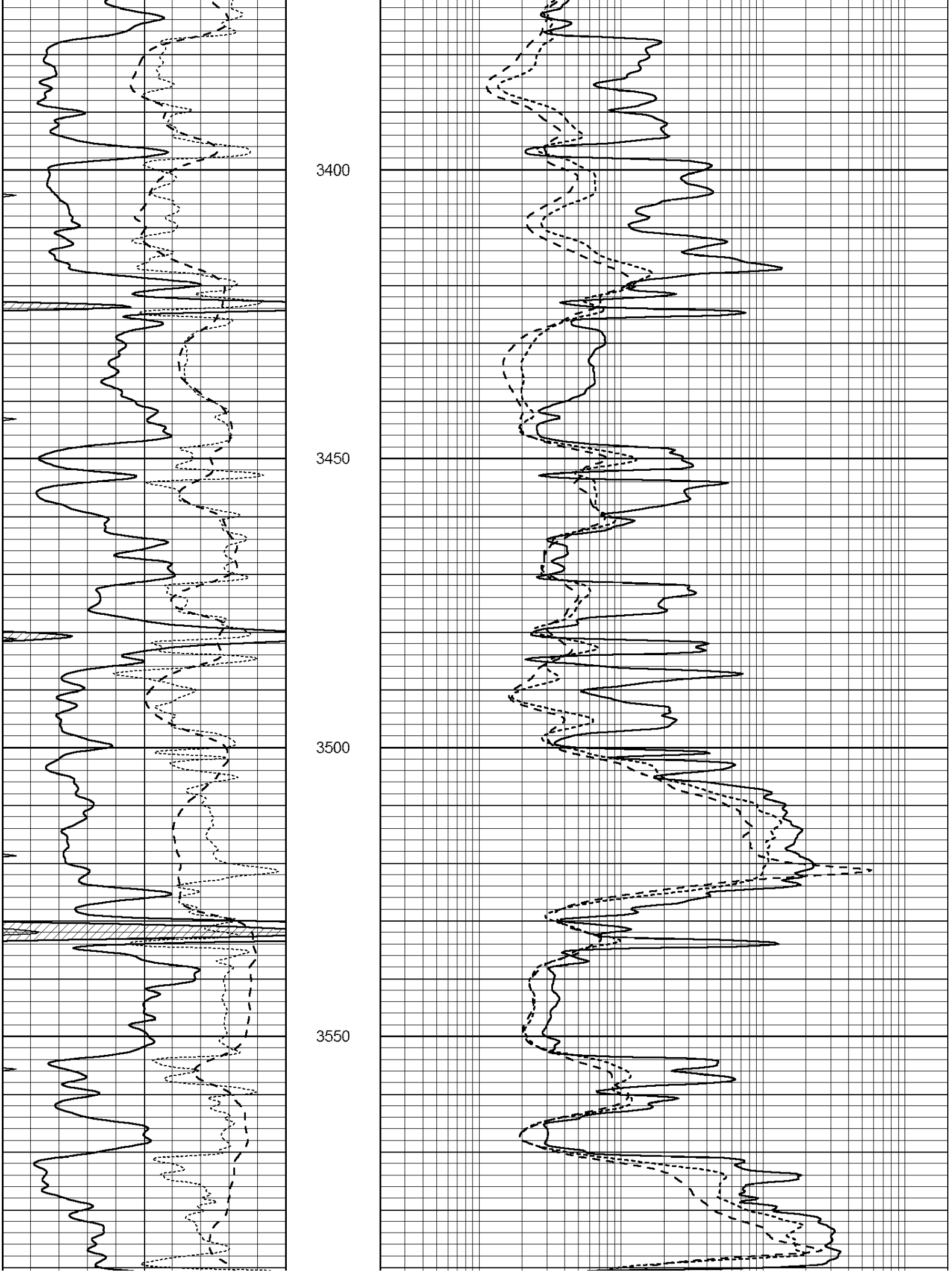
3350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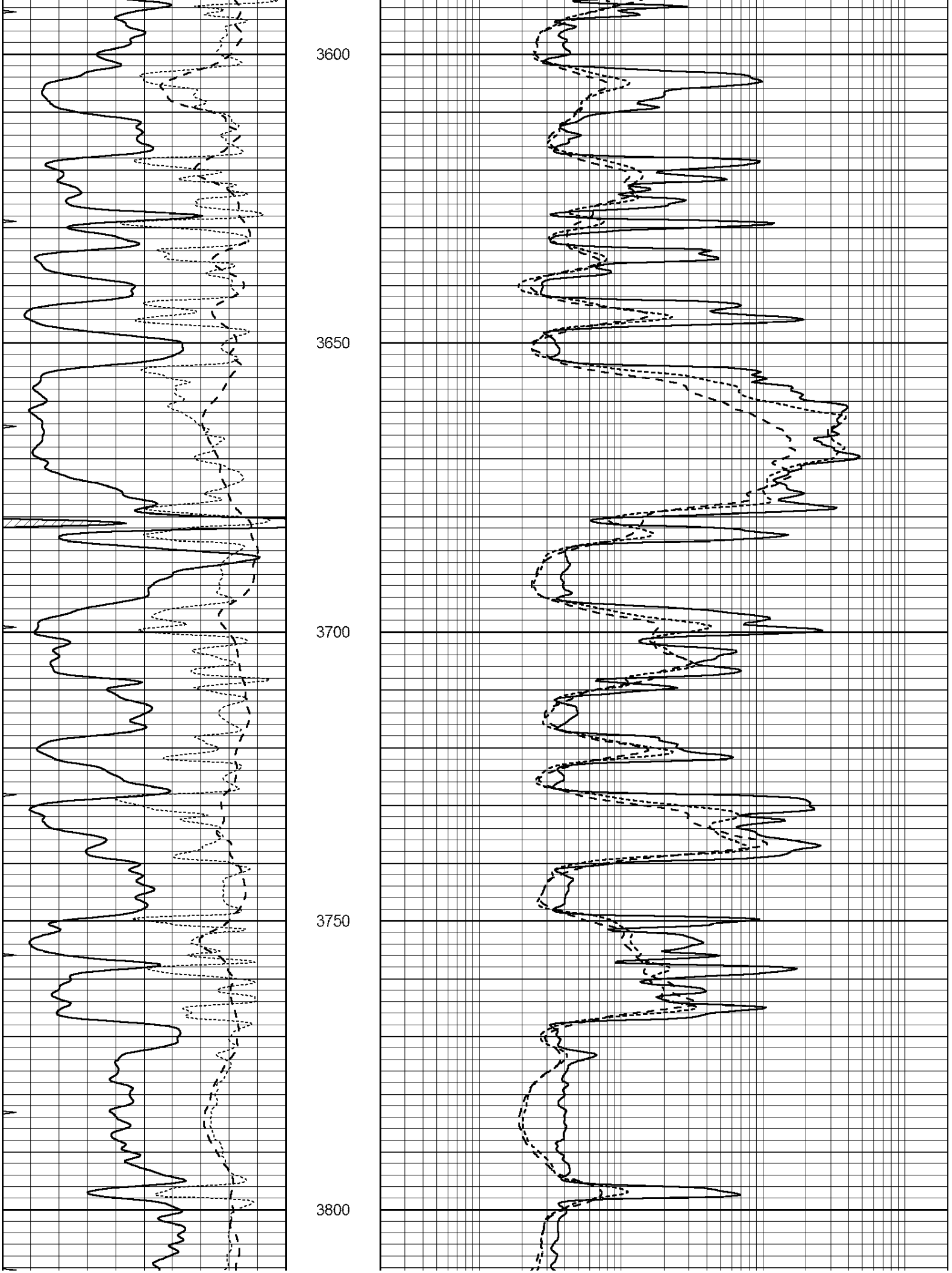
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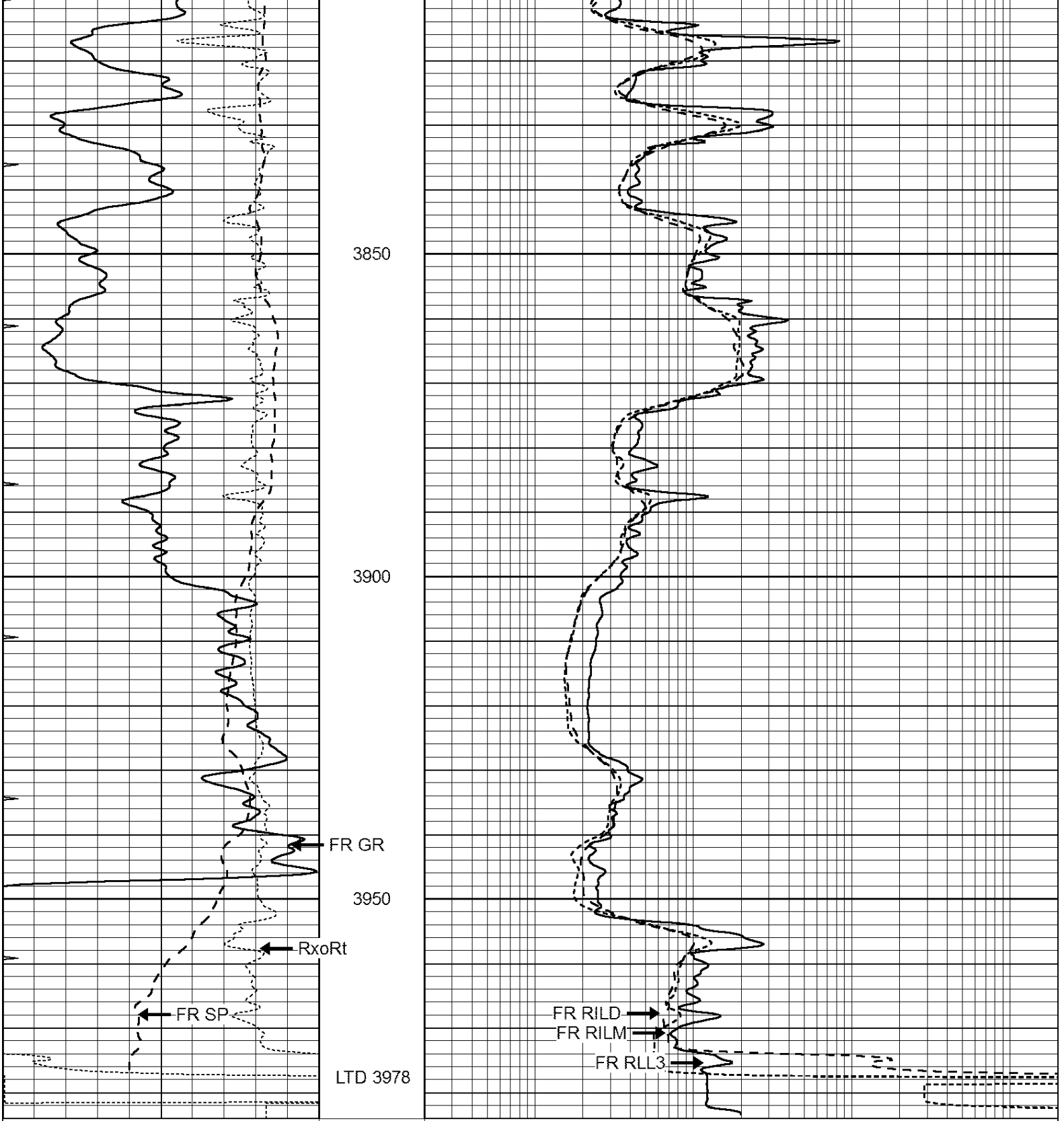


0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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

NABORS
COMPLETION & PRODUCTION

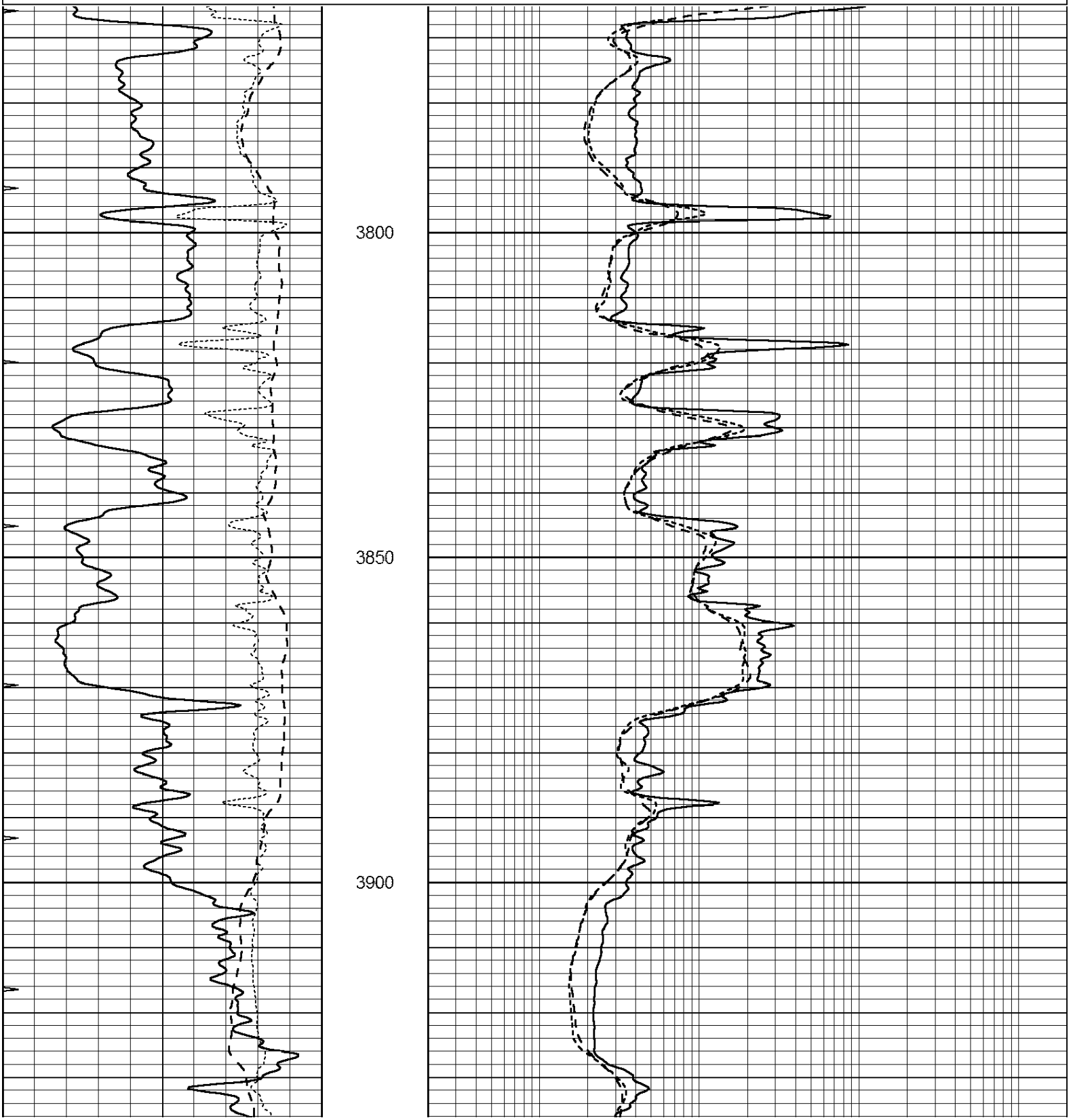
REPEAT SECTION

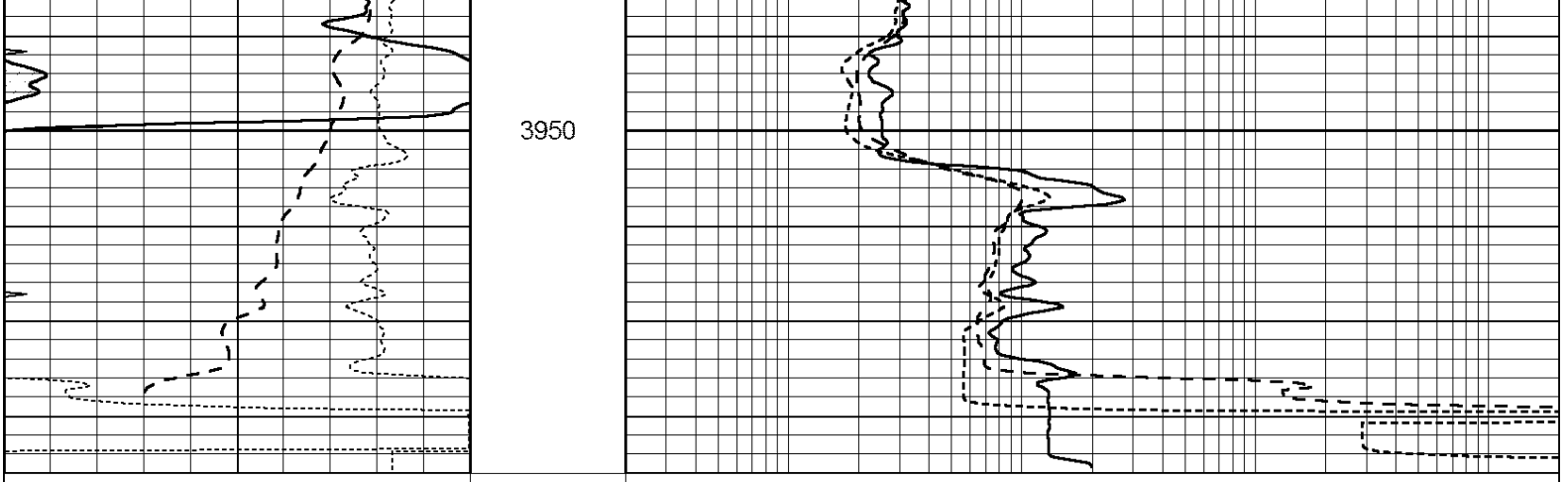
SERVICES CO.

Database File: 26222ddn.db
Dataset Pathname: pass2.2
Presentation Format: _dil
Dataset Creation: Mon Nov 03 19:25:40 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	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: 26222ddn.db
Dataset Pathname: pass3.3
Dataset Creation: Mon Nov 03 20:43:51 2014 by Calc Open-Cased 090629

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