SUPERIOR WELL SERVICES

SUPERIOR
Hays,
Kansas

DUAL INDUCTION LOG

Company GRAND MESA OPERATING COMPANY
Well PHELPS #3-17
Field DICKMAN
County NESS State KANSAS

Location: API # : 15-135-25336-0000
2263' FSL & 2310' FEL
S/2-NW-NW-SE
SEC 17 TWP 17S RGE 24W

Other Services
CDL/CNL/PE
MEL

Permanent Datum GROUND LEVEL Elevation 2461
Log Measured From KELLY BUSHING 5' A.G.L.
Drilling Measured From KELLY BUSHING

Elevation
K.B. 2466
D.F. 2464
G.L. 2461

Company GRAND MESA OPERATING COMPANY
Well PHELPS #3-17
Field DICKMAN
County NESS
State KANSAS

Date	1/12/12		
Run Number	ONE		
Depth Driller	4626		
Depth Logger	4631		
Bottom Logged Interval	4629		
Top Log Interval	00		
Casing Driller	8 5/8" @ 222		
Casing Logger	220		
Bit Size	7 7/8		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 6400 PPM	
Density / Viscosity	9.3/56		
pH / Fluid Loss	10.5/6.4		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	1.1 @ 53F		
Rmf @ Meas. Temp	.82 @ 53F		
Rmc @ Meas. Temp	1.32 @ 53F		
Source of Rmf / Rmc	MEASURED		
Rm @ BHT	.48 @ 121F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	121F		
Equipment Number	680		
Location	HAYS, KS.		
Recorded By	JASON CAPPELLUCCI		
Witnessed By	KENT MATSON		

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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.

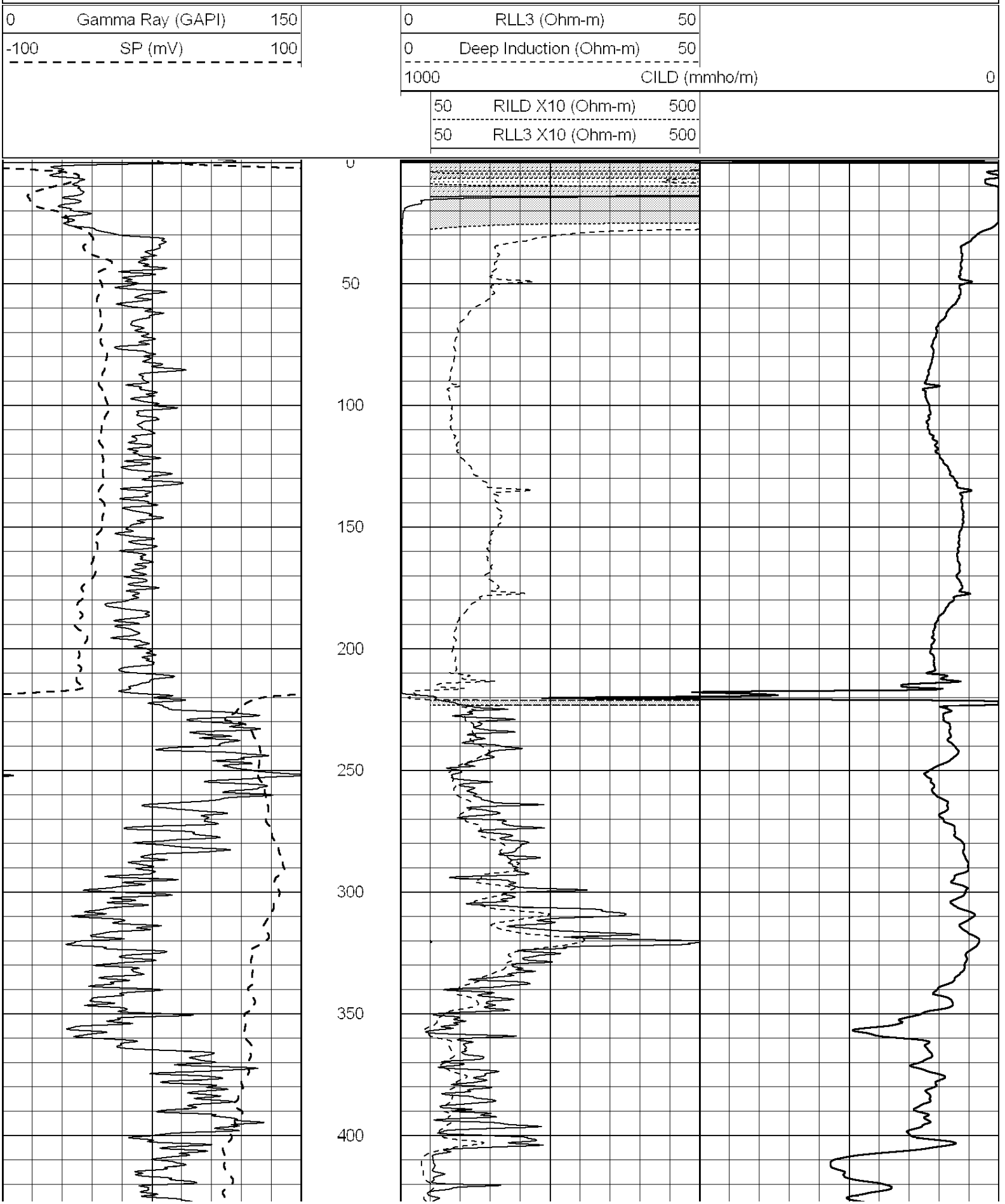
Comments

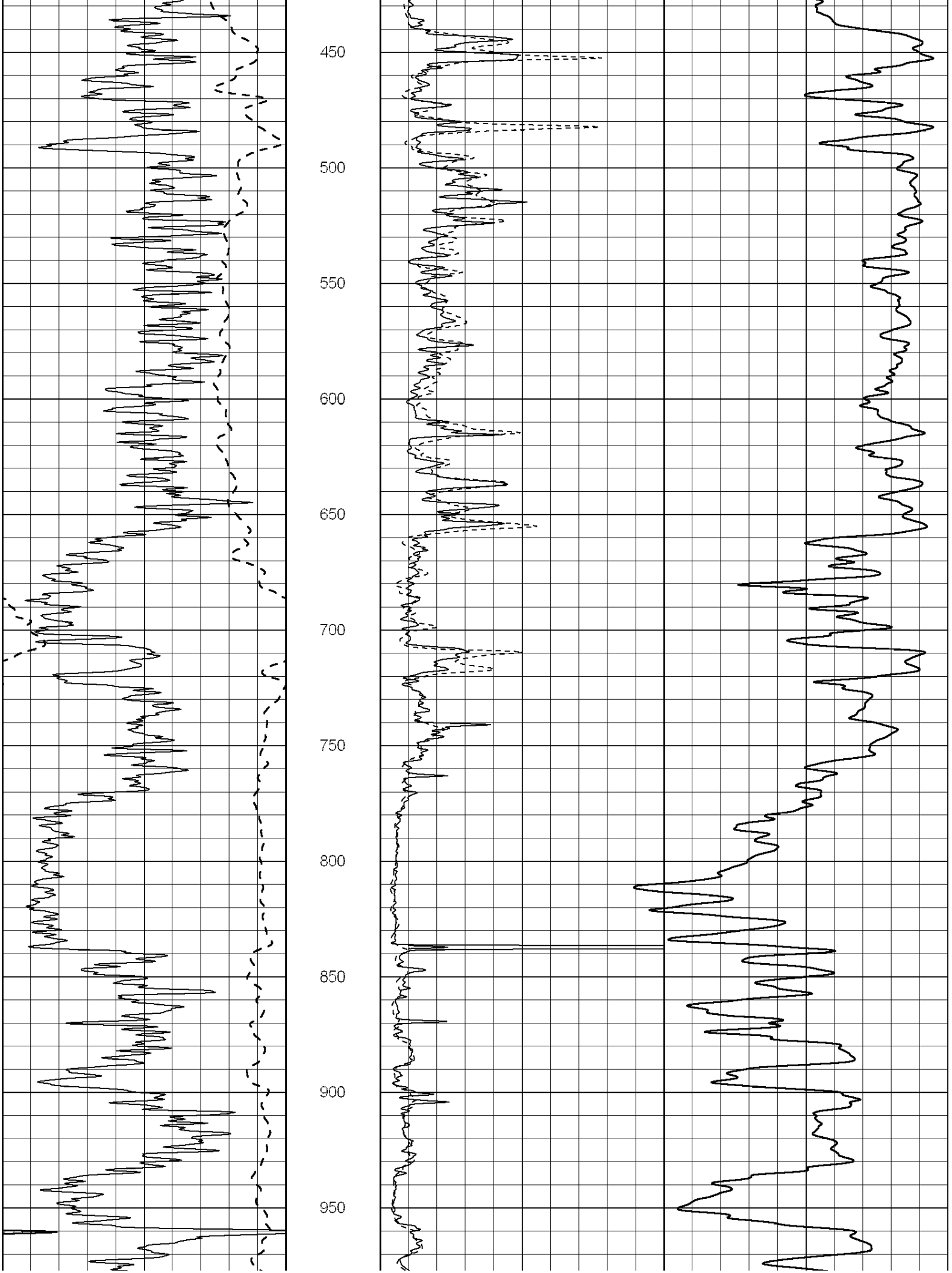
THANK YOU FOR USING SUPERIOR WELL SERVICE (785) 628-6395
DIRECTIONS
RANSOM, KS. - 3 W. TO N RD. - 4 S. - W. & S. INTO

MAIN SECTION

SUPERIOR WELL SERVICES
SUPERIOR
Hays,
Kansas

Database File:	008671pe.db
Dataset Pathname:	pass3.2
Presentation Format:	_dil2
Dataset Creation:	Thu Jan 12 12:14:30 2012 by Calc Open-Cased 090629
Charted by:	Depth in Feet scaled 1:600

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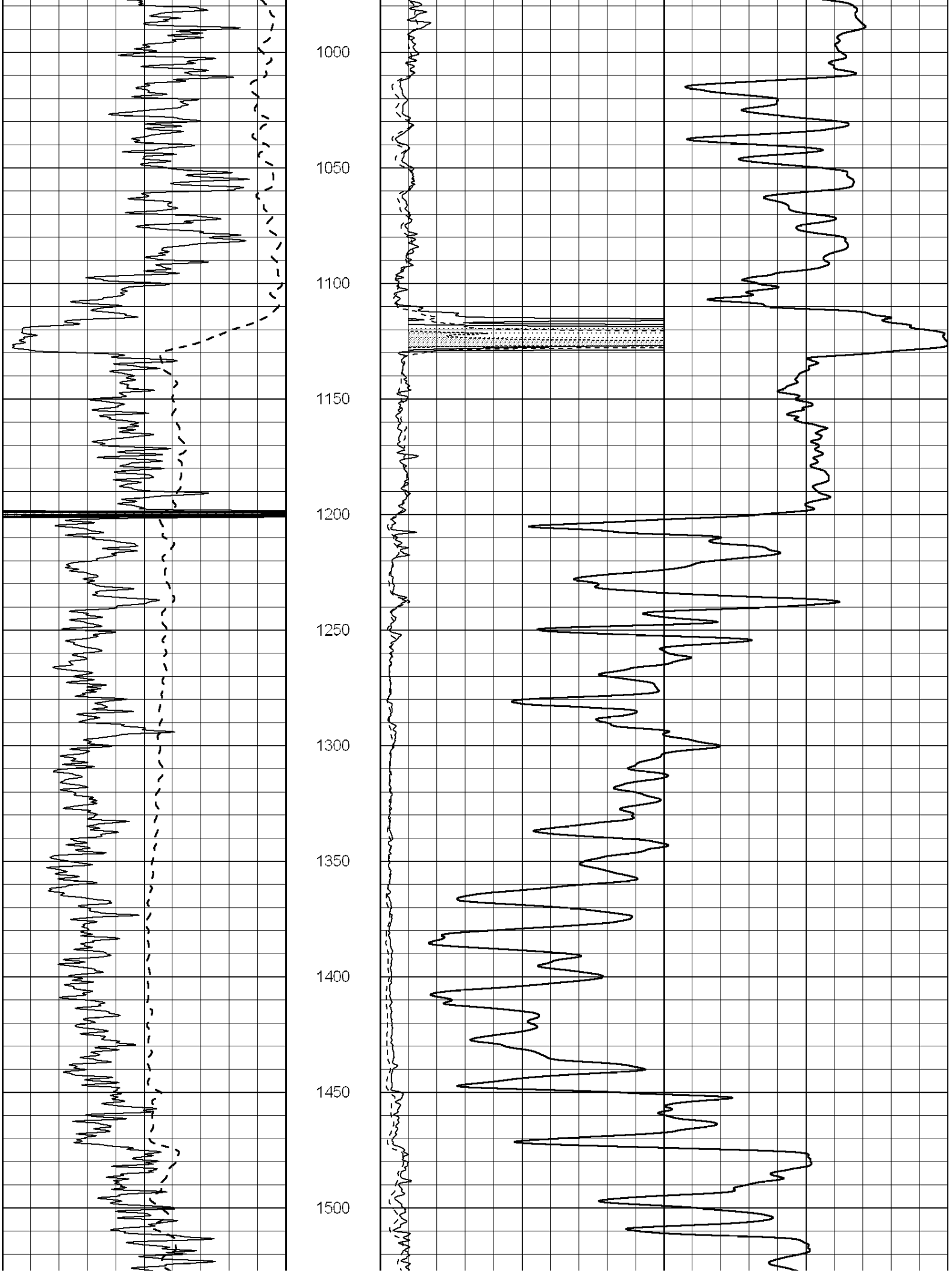
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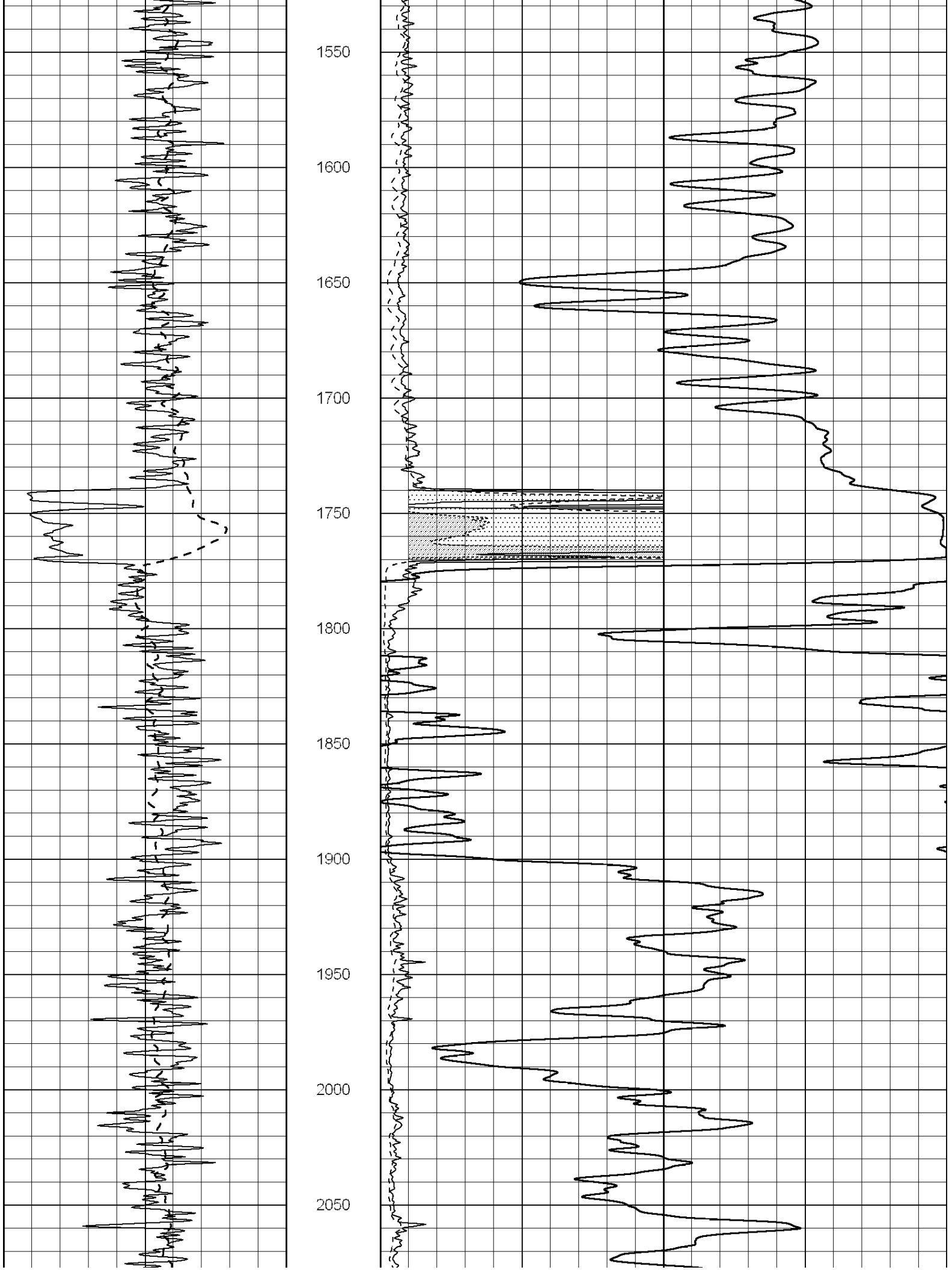
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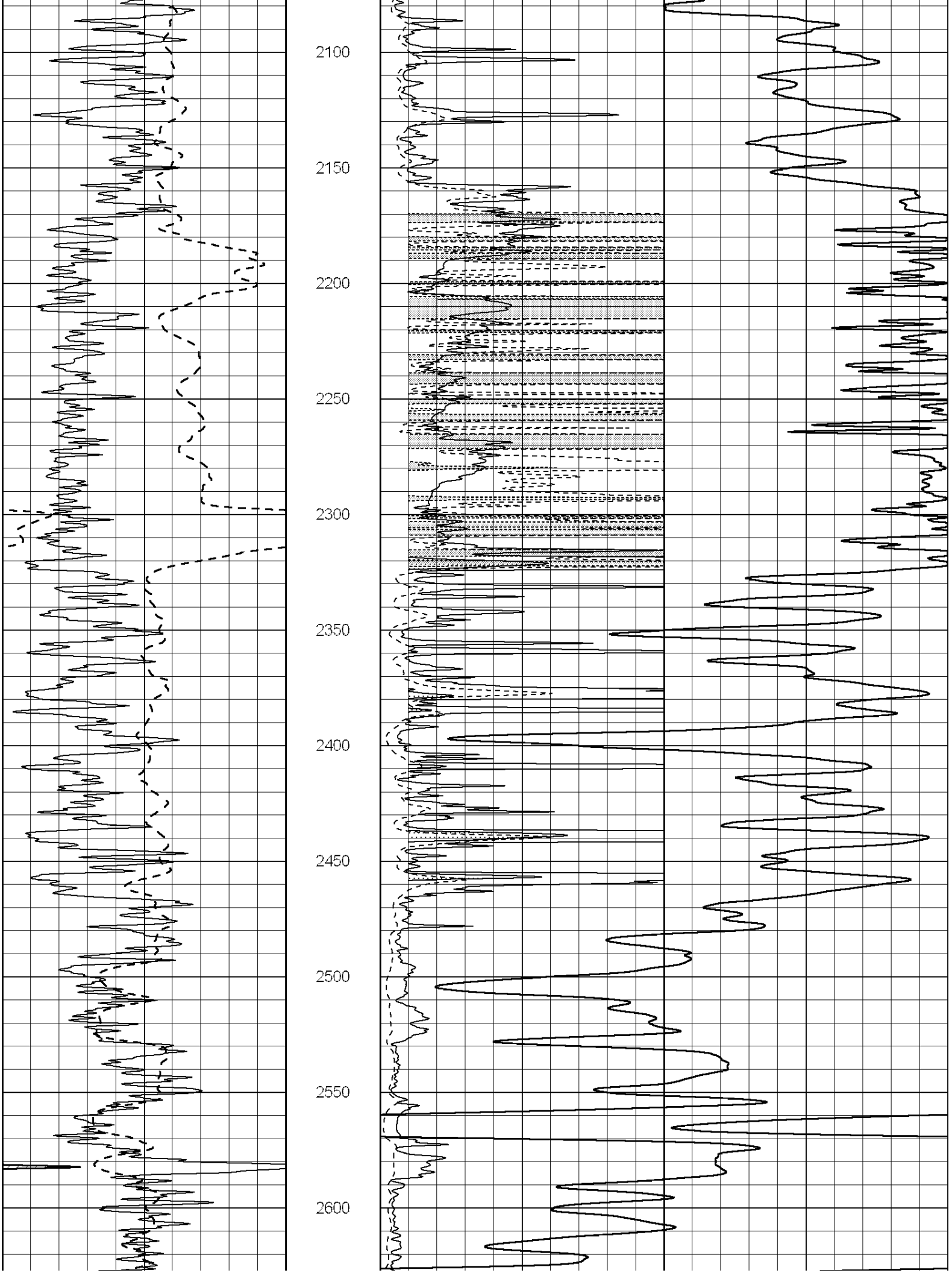
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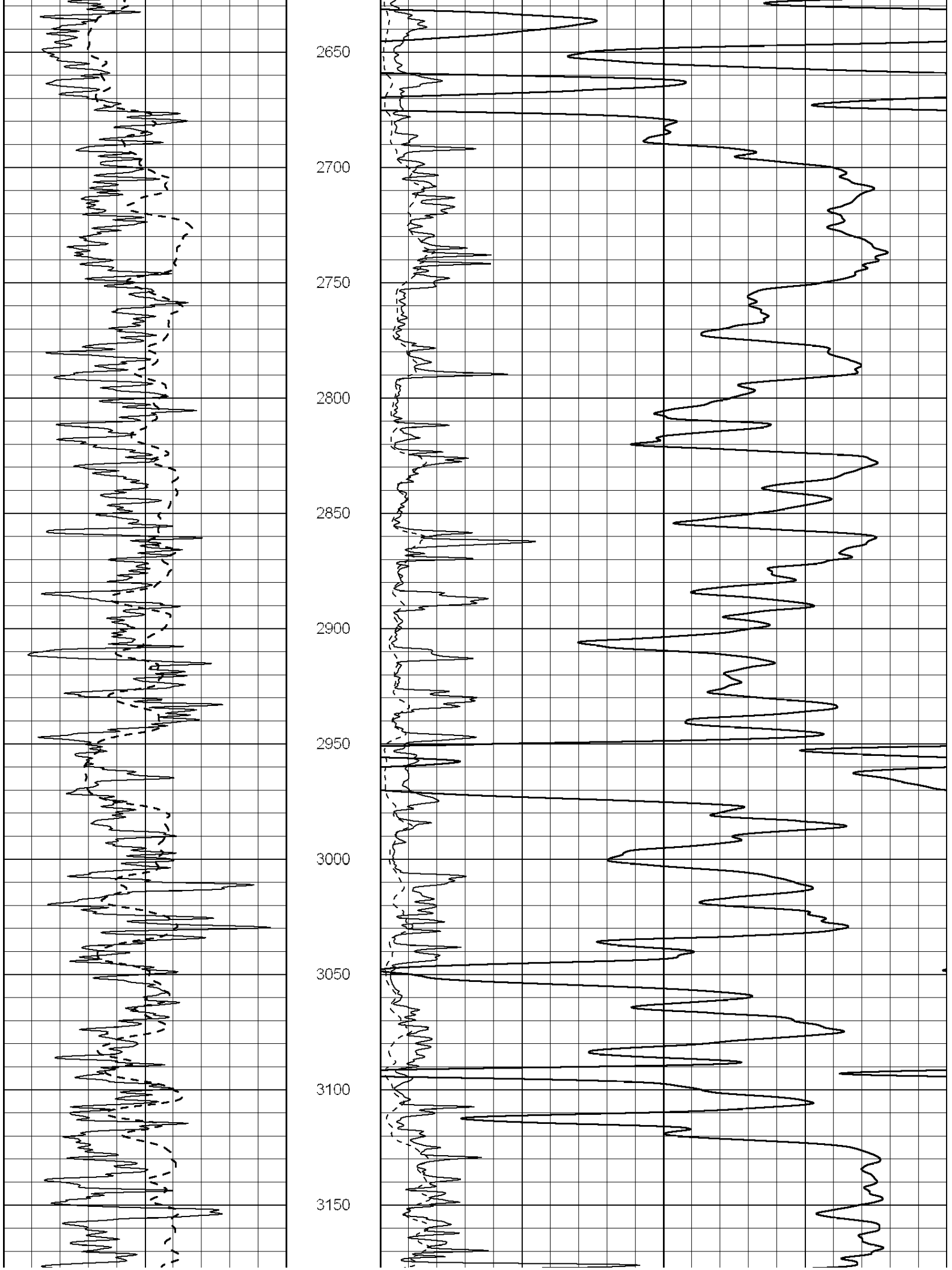
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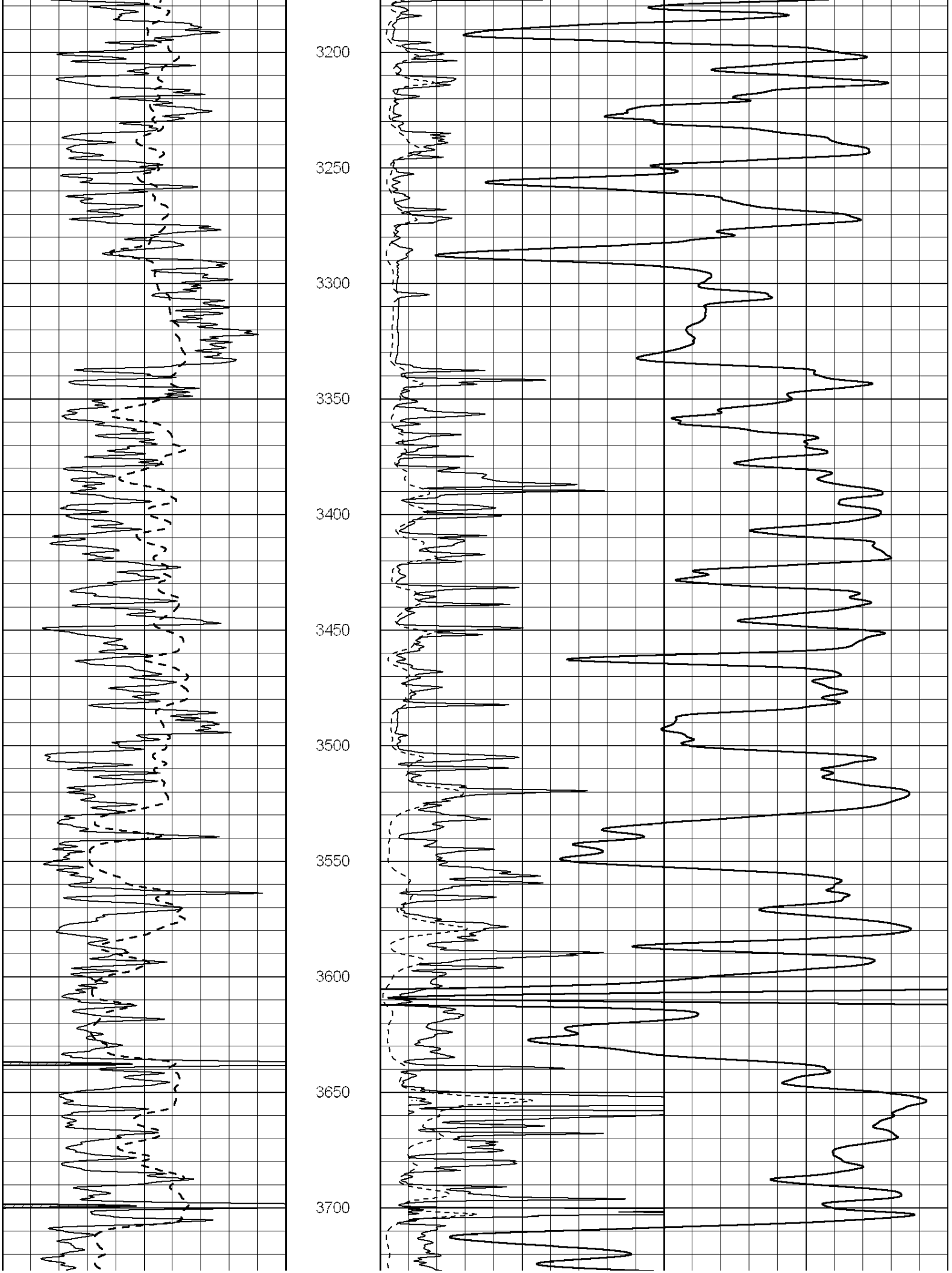
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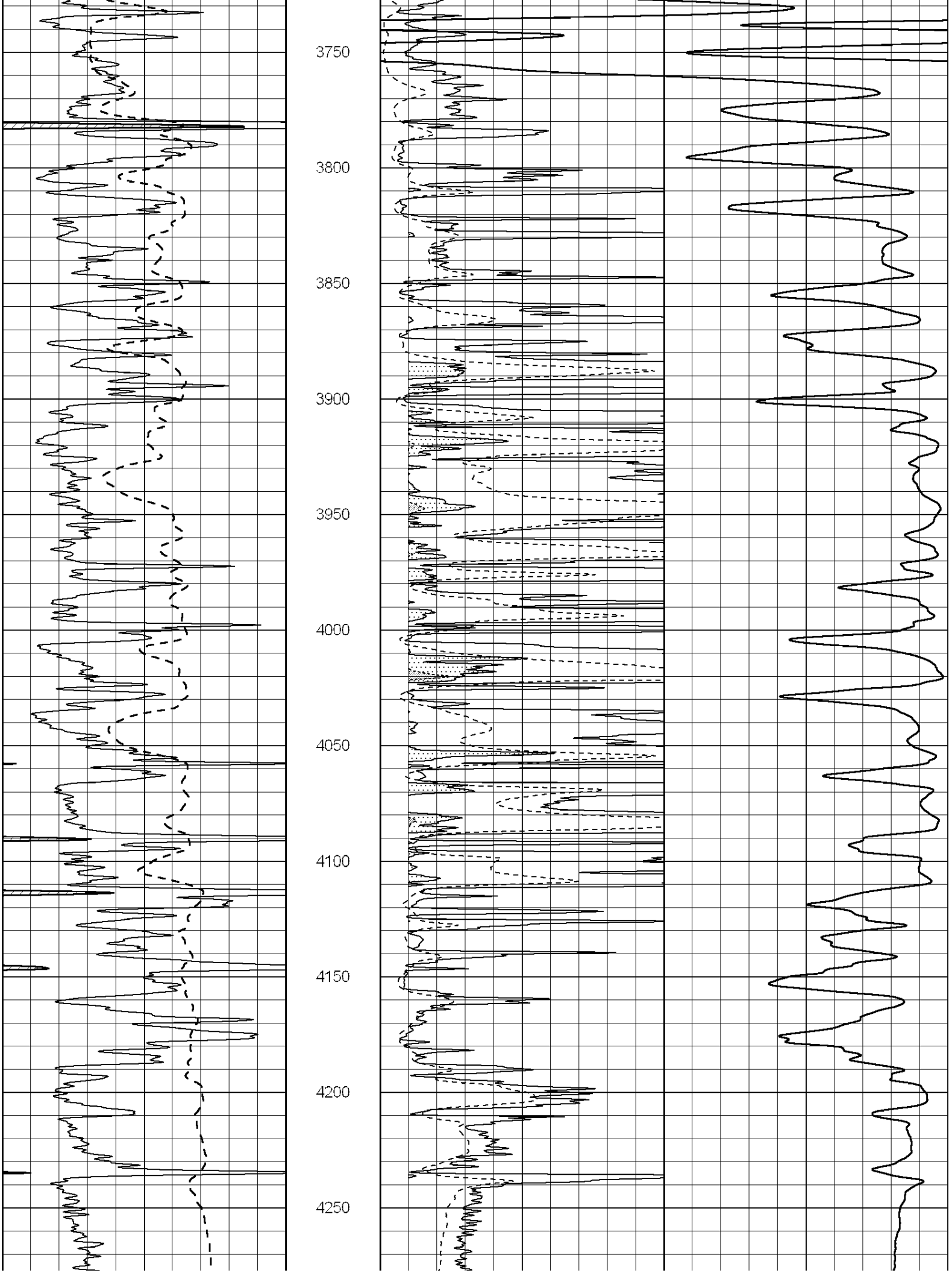
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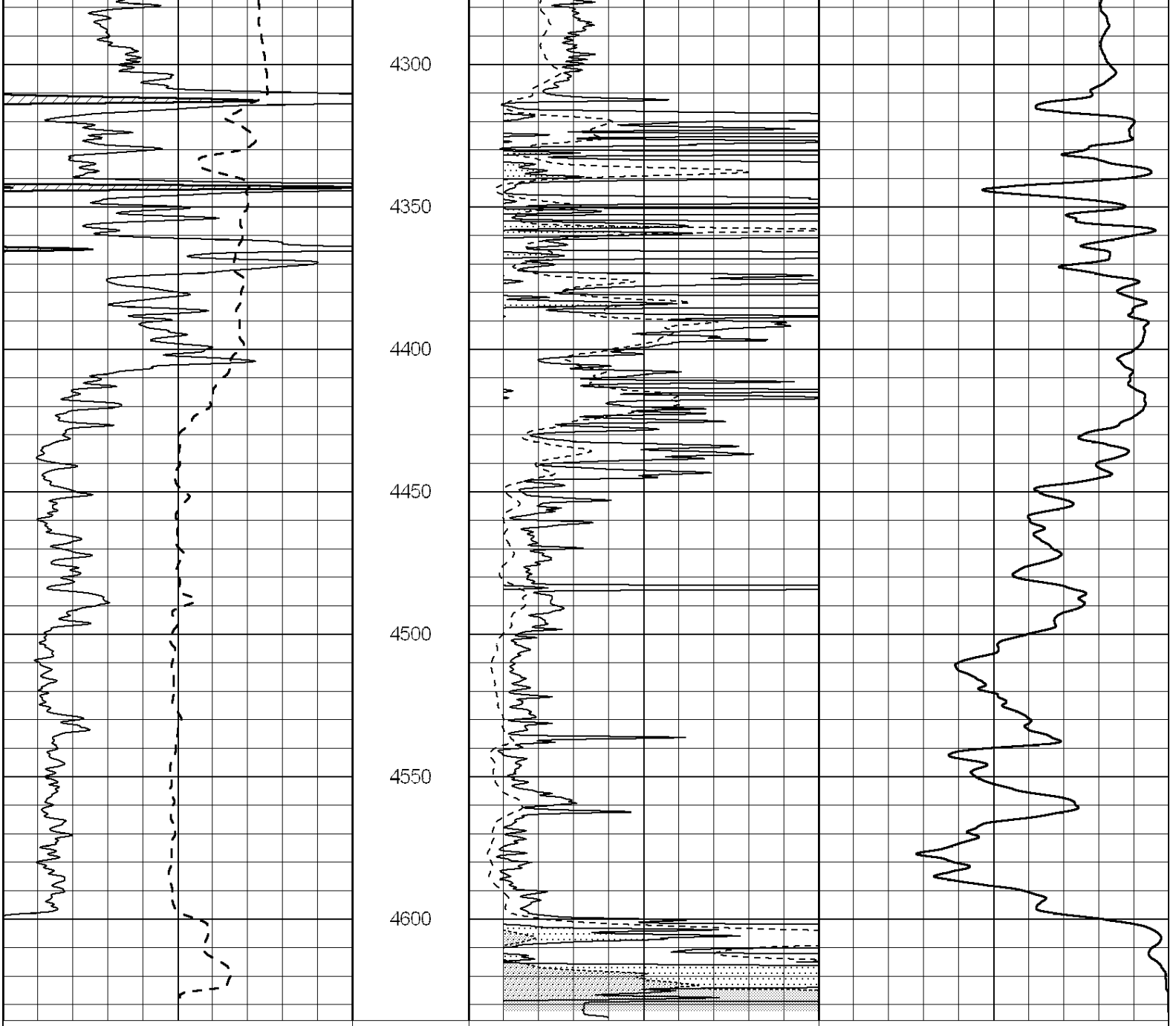


SUPERIOR
Hays,
Kansas

ANHYDRITE

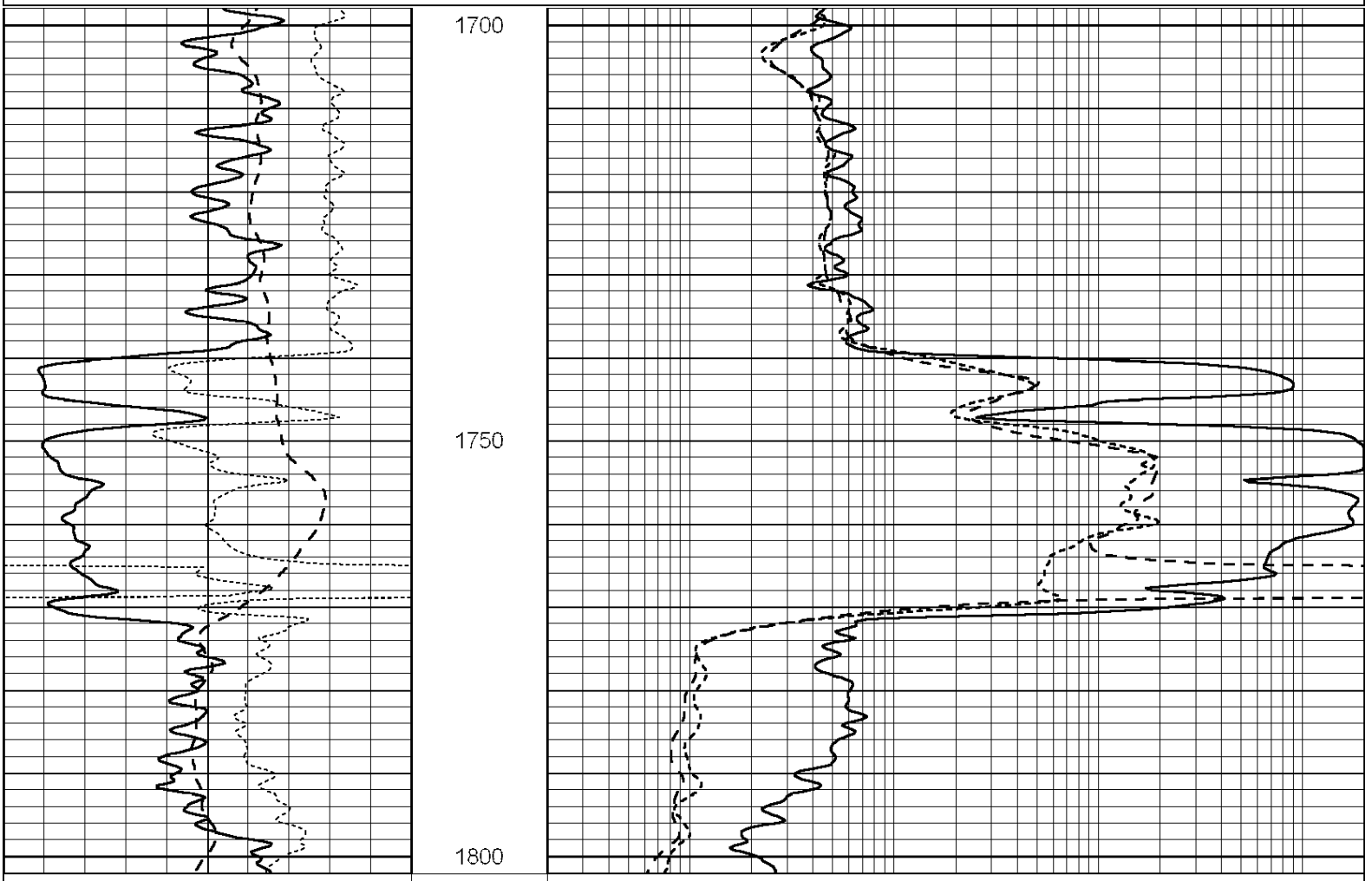
Database File:	008671pe.db
Dataset Pathname:	pass3.3
Presentation Format:	_dil
Dataset Creation:	Thu Jan 12 11:35:39 2012 by Calc Open-Cased 090629
Charted by:	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150

0.2	SHALLOW GUARD (Ohm-m)	2000

-100	SP (mV)	100
-250	Rxo/Rt	50

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



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

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

SUPERIOR
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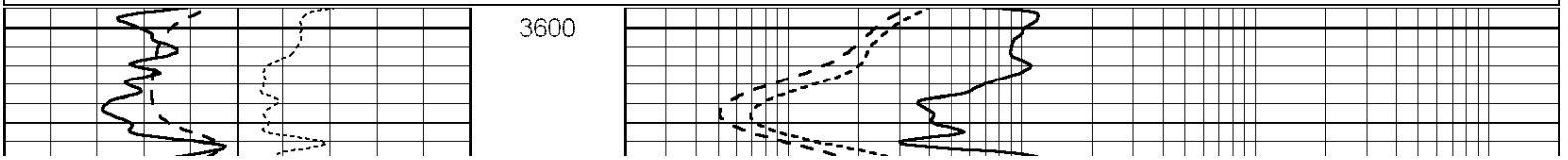
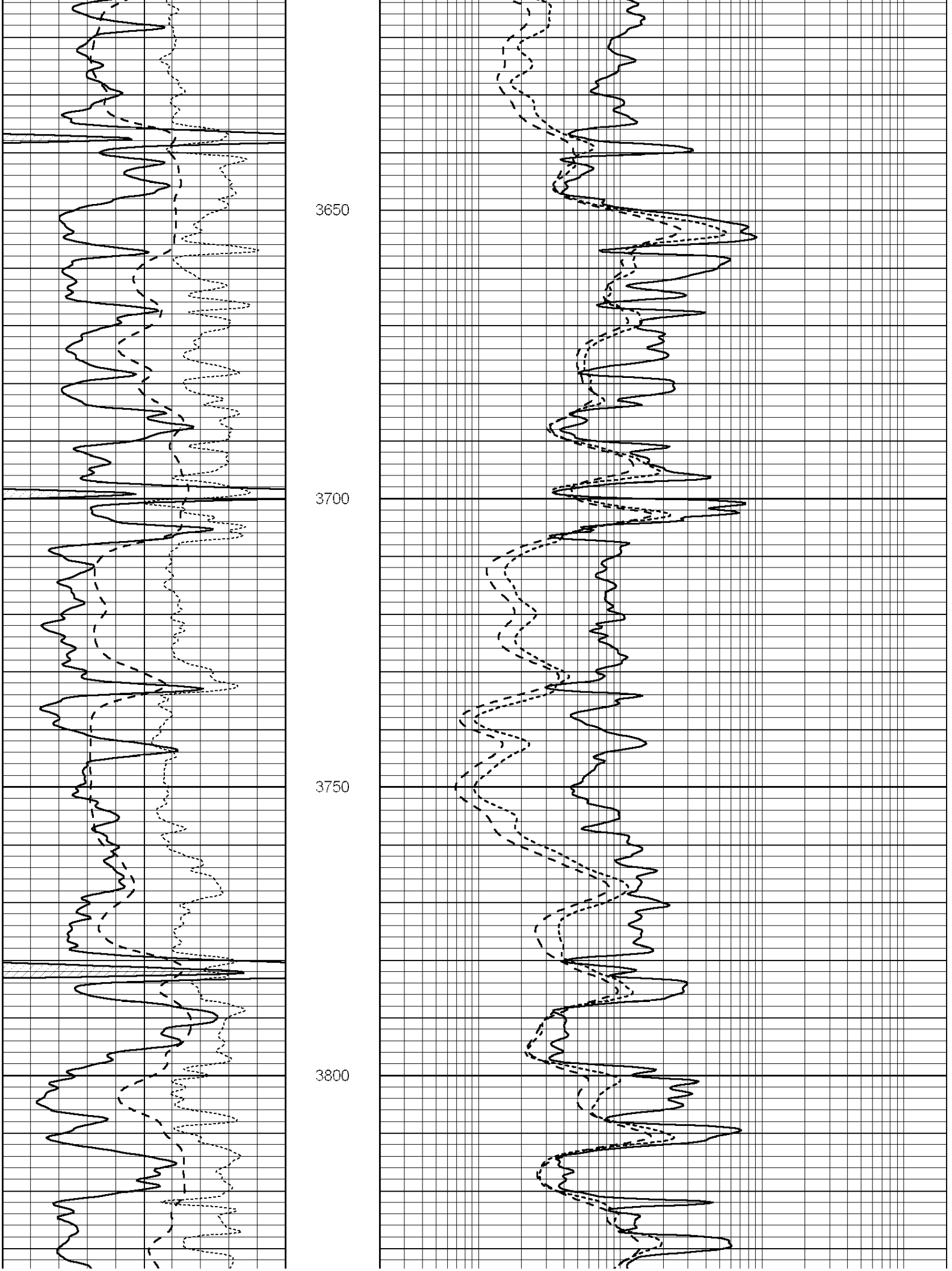
MAIN SECTION

Database File:	008671pe.db
Dataset Pathname:	pass3.1
Presentation Format:	_dil
Dataset Creation:	Thu Jan 12 11:13:28 2012 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	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000

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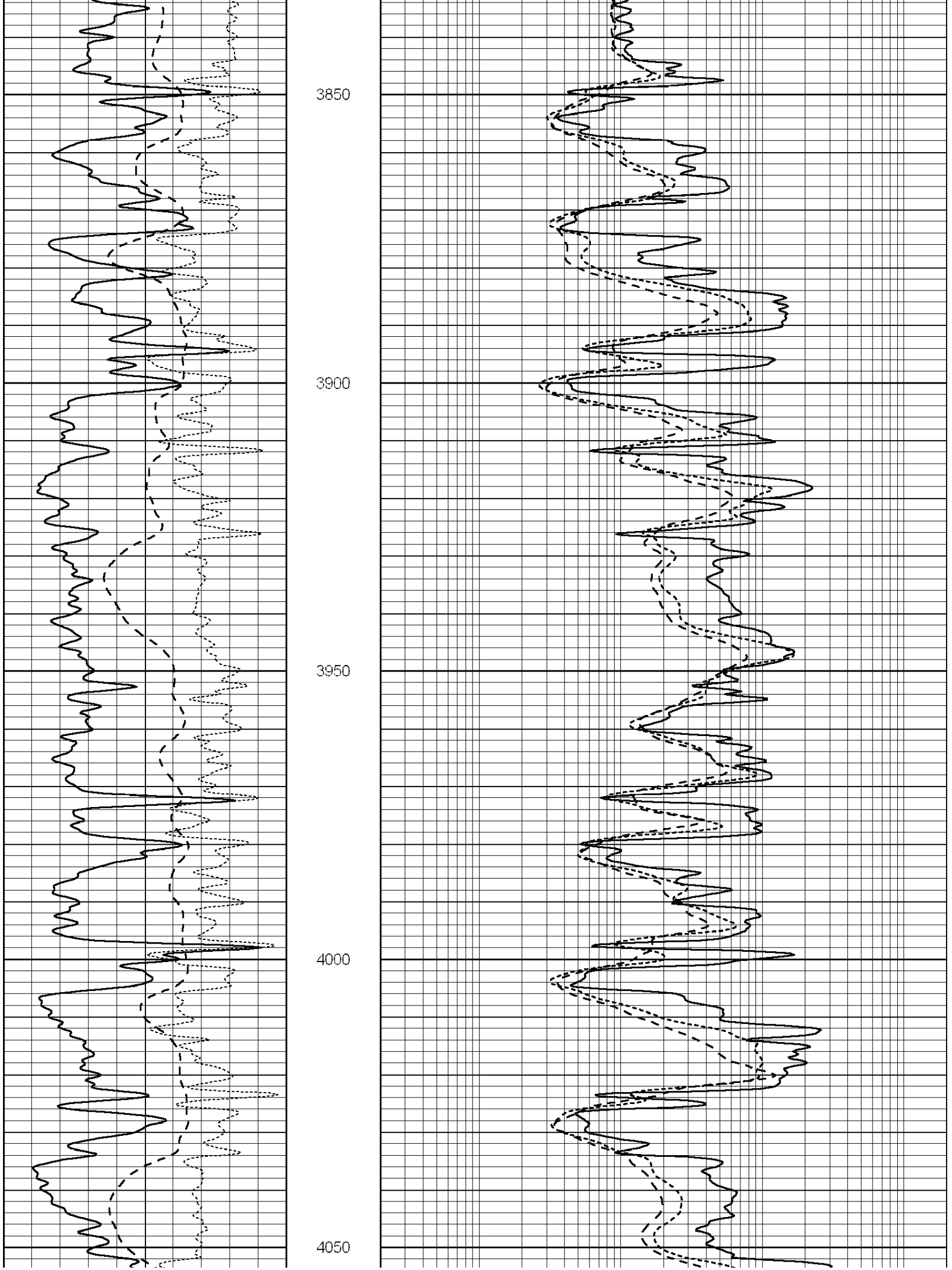
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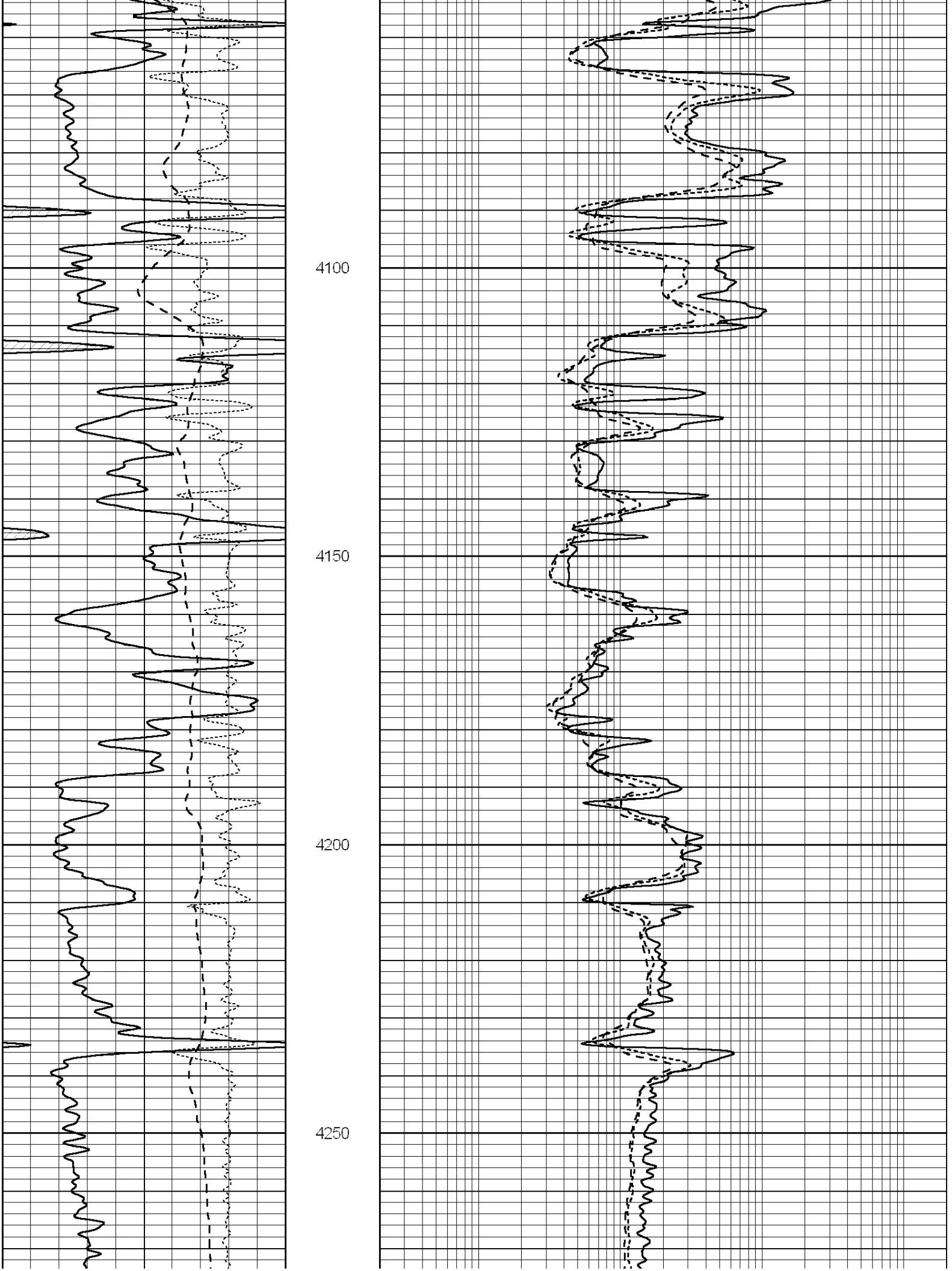
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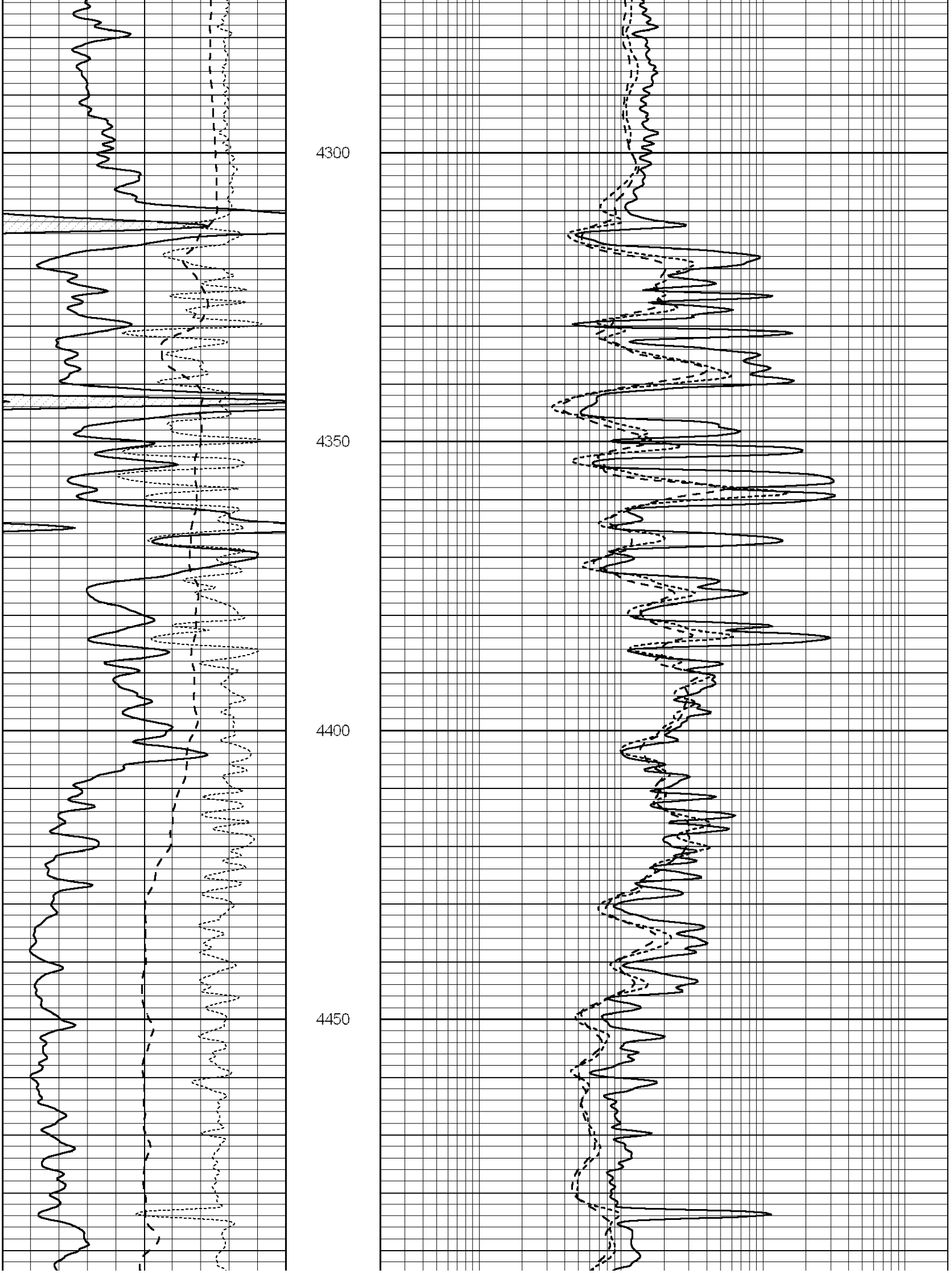
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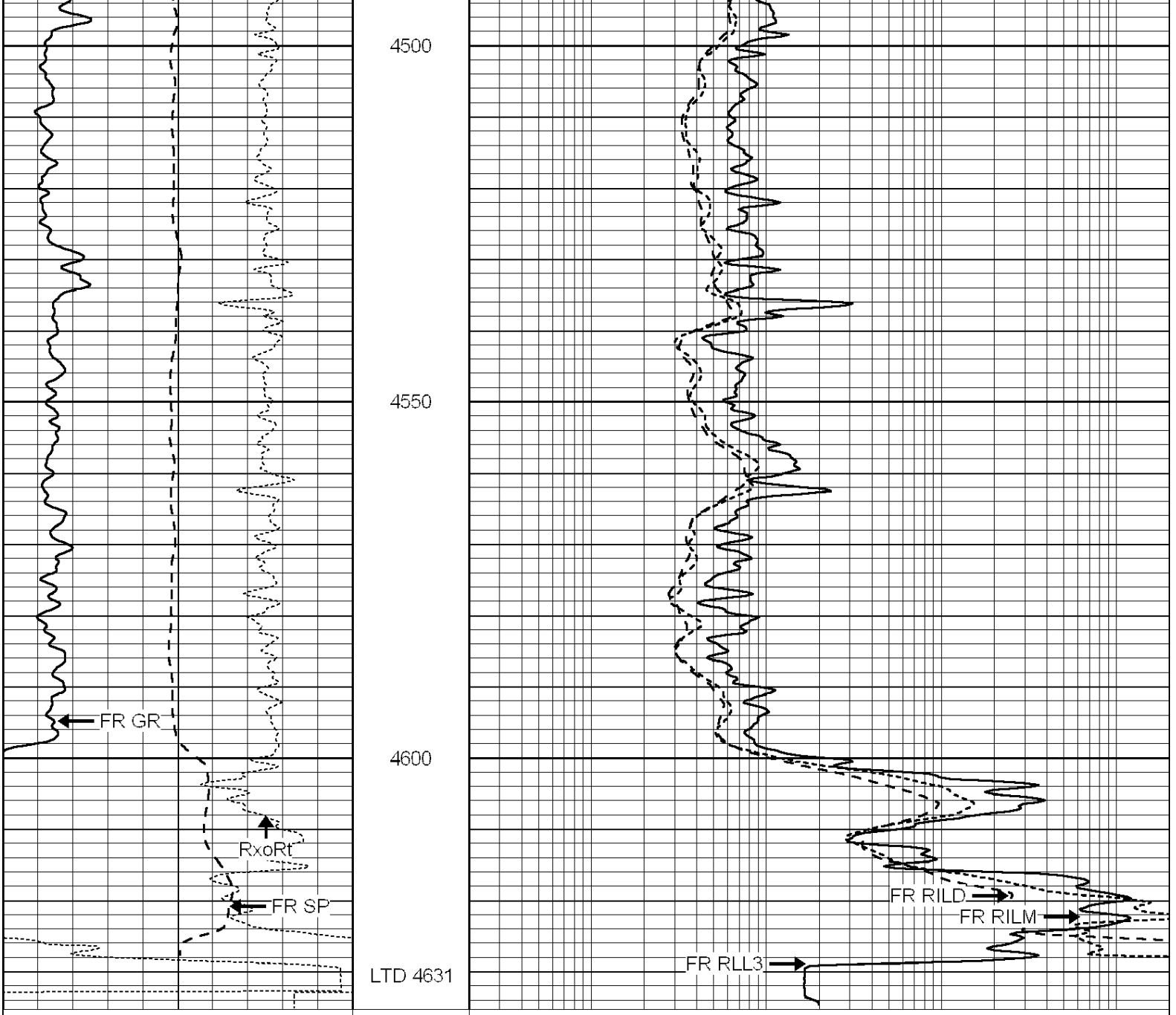

SUPERIOR WELL SERVICES

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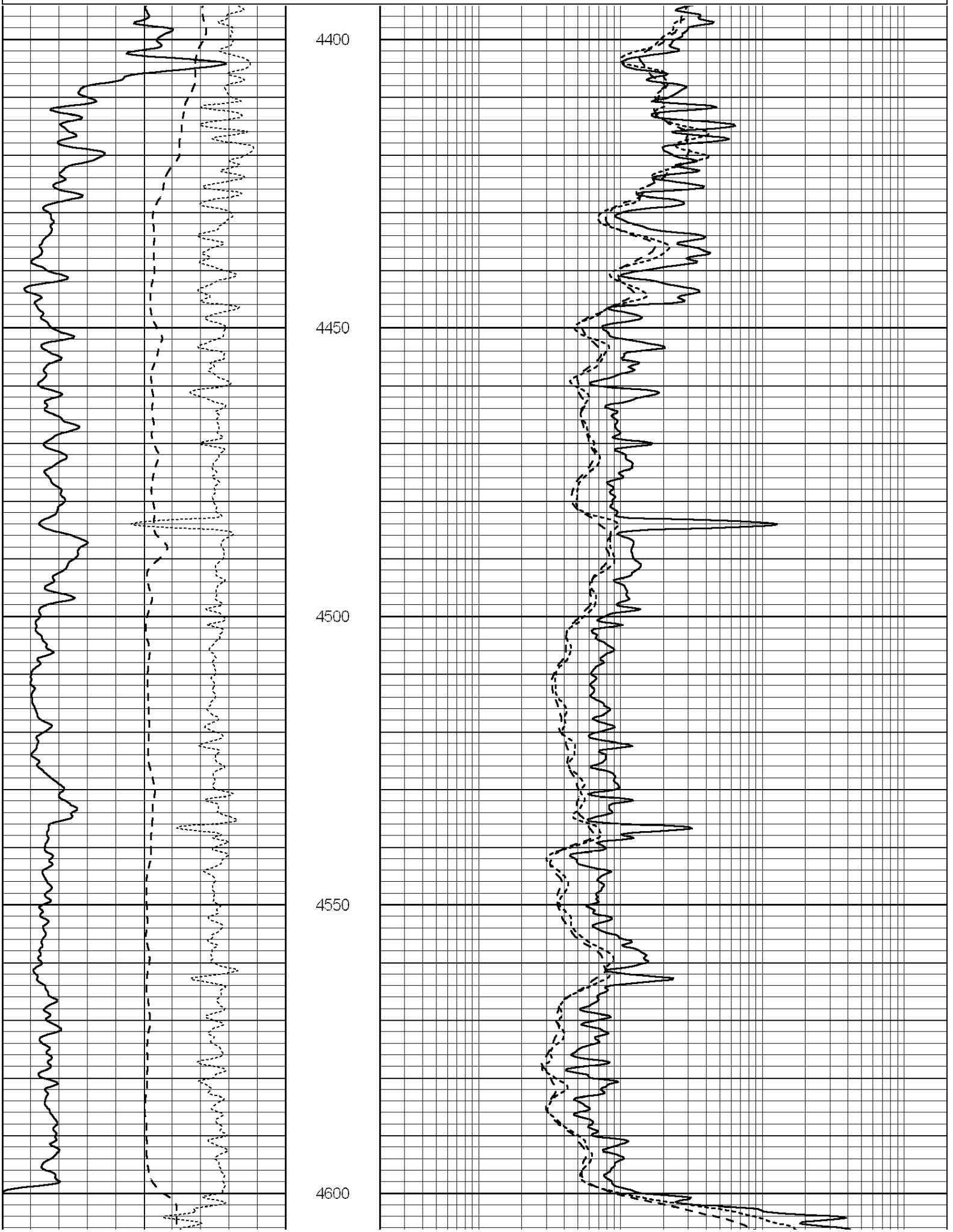
Hays,
Kansas

REPEAT SECTION

Database File:	008671pe.db
Dataset Pathname:	pass2.1
Presentation Format:	_dil
Dataset Creation:	Thu Jan 12 11:00:45 2012 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	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000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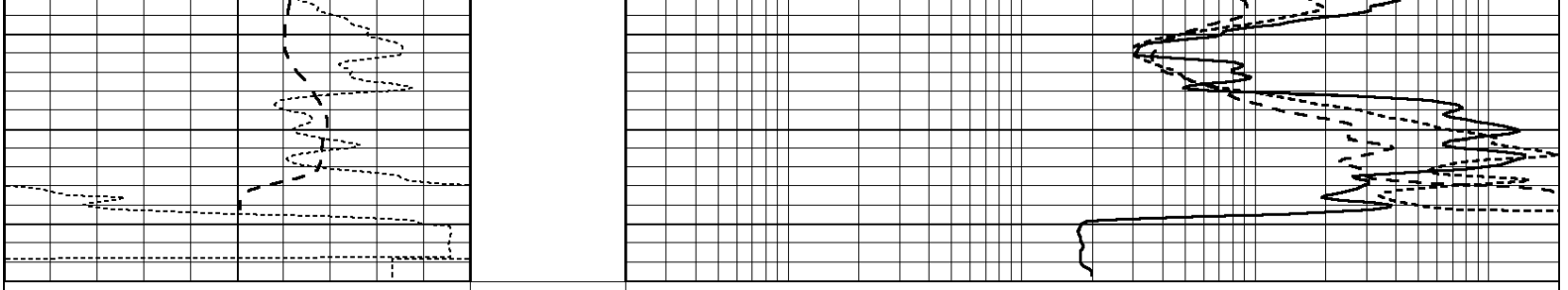

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50

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

Calibration Report

Database File: 008671pe.db
Dataset Pathname: pass3.1
Dataset Creation: Thu Jan 12 11:13:28 2012 by Calc Open-Cased 090629

Dual Induction Calibration Report

Serial-Model:	PROBE8-DILG
Surface Cal Performed:	Fri Aug 01 06:33:19 2008
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	632.616	-9.730
Medium	0.029	0.796	V	0.000	464.000	mmho/m	605.049	-17.680
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		

Litho Density Calibration Report

Serial: 002 Model: PRB
Performed Mon Oct 29 15:40:49 2007

Litho Density Calibration

Litho Density Calibration

	Background	Magnesium	Aluminum	Sandstone	
Window 1	1056.3	9118.0	2809.7	10378.4	cps
Window 2	969.9	7671.9	2431.6	8565.8	cps
Window 3	683.8	2939.8	1161.0	3161.8	cps
Window 4	231.4	231.6	226.7	230.8	cps
Long Space	0.0	6702.0	1461.7	7595.9	cps
Short Space	1.2	1433.6	959.4	1568.6	cps
Rho		1.7100	2.5900	1.3800	g/cc
Pe			2.5700	1.5500	

Rib Angle	: 45.2	Rib Slope	: 1.008	Density/Spine Ratio	: 0.559
Spine Angle	: 75.2	Spine Slope	: 3.791	Spine Intercept	: -18.7

Caliper

	Readings	Reference
Low Ref	3.7	8.0
High Ref	6.1	14.0
	Gain: 2.5	Offset: -1.4

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

Gamma Ray Calibration Report

Serial Number: #8
Tool Model: OPEN
Performed: Mon Jun 13 16:56:43 2011

Calibrator Value: 150.0 GAPI

Background Reading: 0.0 cps
Calibrator Reading: 175.0 cps

Sensitivity: 0.8371 GAPI/cps