COMPACT WELL SHUTTLE
COMPACT PHOTO DENSITY
COMPENSATED DUAL NEUTRON LOG

Weatherford®

COMPANY	CMX INC.
WELL	GRINCH 1-8H
FIELD	STRANATHAN EAST
PROVINCE/COUNTY	BARBER
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	200' FNL & 765' FWL

40 Years of Wireline 1970 2010

SEC	TWP	RGE
8	35S	11W

Other Services
MAI
CMI

API Number 15-007-23722
Permit Number

Permanent Datum G.L., Elevation 1350 feet
Log Measured From D.F. 17 FEET above Permanent Datum
Drilling Measured From D.F.

Elevations:	feet
KB	1367.00
DF	1367.00
GL	1350.00

Date	09-JUL-2011		
Run Number	1		
Depth Driller	9315.00	feet	
Depth Logger	9276.00	feet	
First Reading	9216.00	feet	
Last Reading	5183.00	feet	
Casing Driller	5183.00	feet	
Casing Logger	5183.00	feet	
Bit Size	6.125	inches	
Hole Fluid Type	WATER BASED		
Density / Viscosity	8.35 g/c3	28.00 CP	
PH / Fluid Loss	8.00	74.00 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	1.43 @ 88.0	ohm-m	
Rmf @ Measured Temp	1.14 @ 88.0	ohm-m	
Rmc @ Measured Temp	1.71 @ 88.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.91 @138.0	ohm-m	
Time Since Circulation	.5 HOUR		
Max Recorded Temp	138.00	deg F	
Equipment Name	COMPACT		
Equipment / Base	18064	OKC	
Recorded By	C. GRIFFIN		
Witnessed By	L. KASTEN		
S.O. #	3531573		

Last Edited: 09-JUL-2011 11:12

BOREHOLE RECORD

Bit Size inches	Depth From feet	Depth To feet
6.125	5183.00	9315.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
INTERMED	7.000	0.00	5183.00	26.00

REMARKS

WLS SOFTWARE VERSION 11.01. USED.
TOOLS RUN ON DRILLPIPE USING COMPACT WELL SHUTTLE DEPLOYMENT TECHNIQUE.

DEPTH MEASURED USING ADVANTAGE RIG DEPTH CORRECTED TO PIPE TALLY.

TOOLS DEPLOYED WITH MULE SHOE SITTING AT 9175 FT.
AFTER DEPLOYMENT LOGGING TOOL WAS AT 9276 FT.

4.5 " PRODUCTION CASING USED TO CALCULATE ANNULAR HOLE VOLUMES.

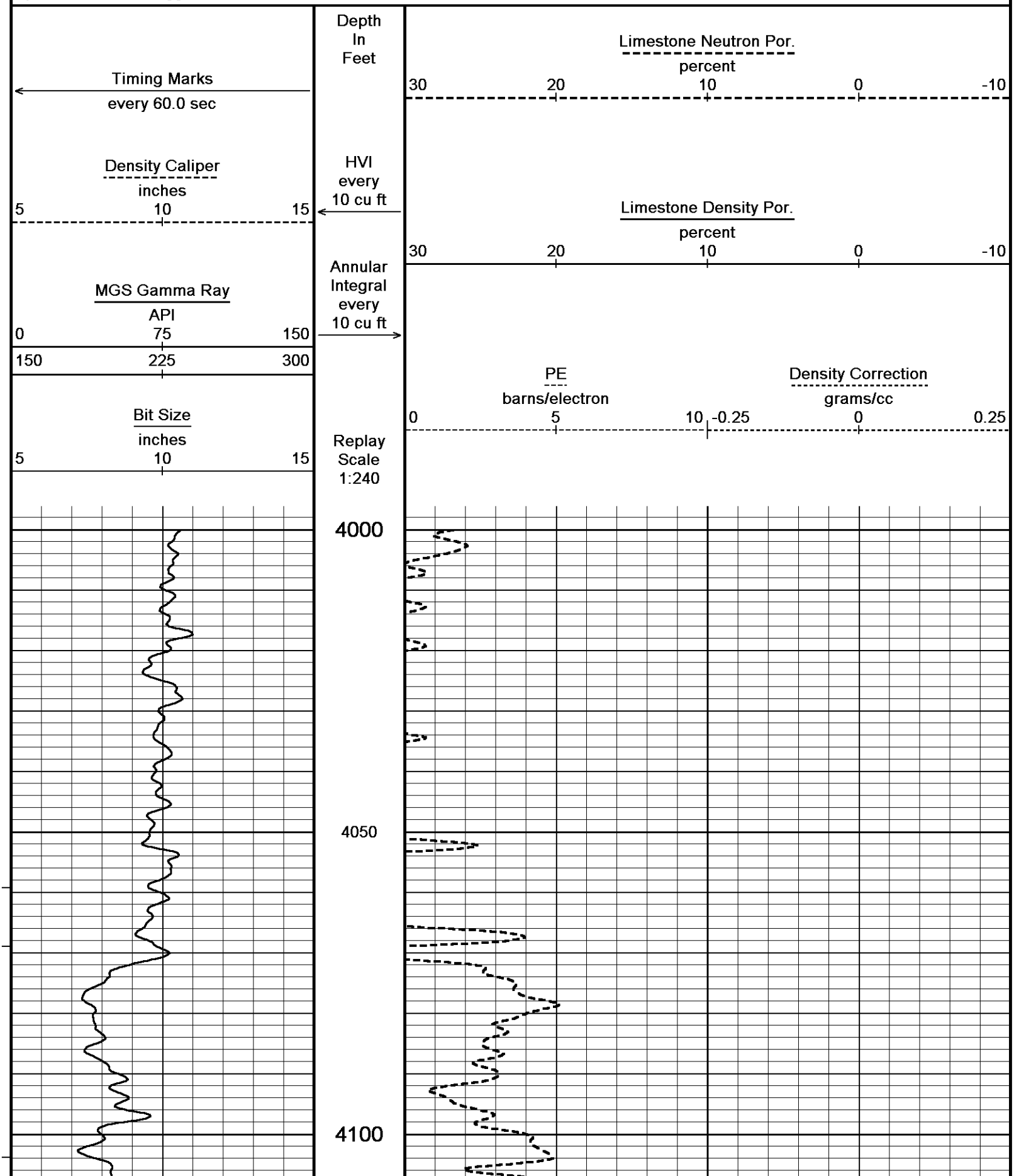
OPERATORS: S. WORLEY
S.O. # 3531573
RIG: DAN D RIG 5

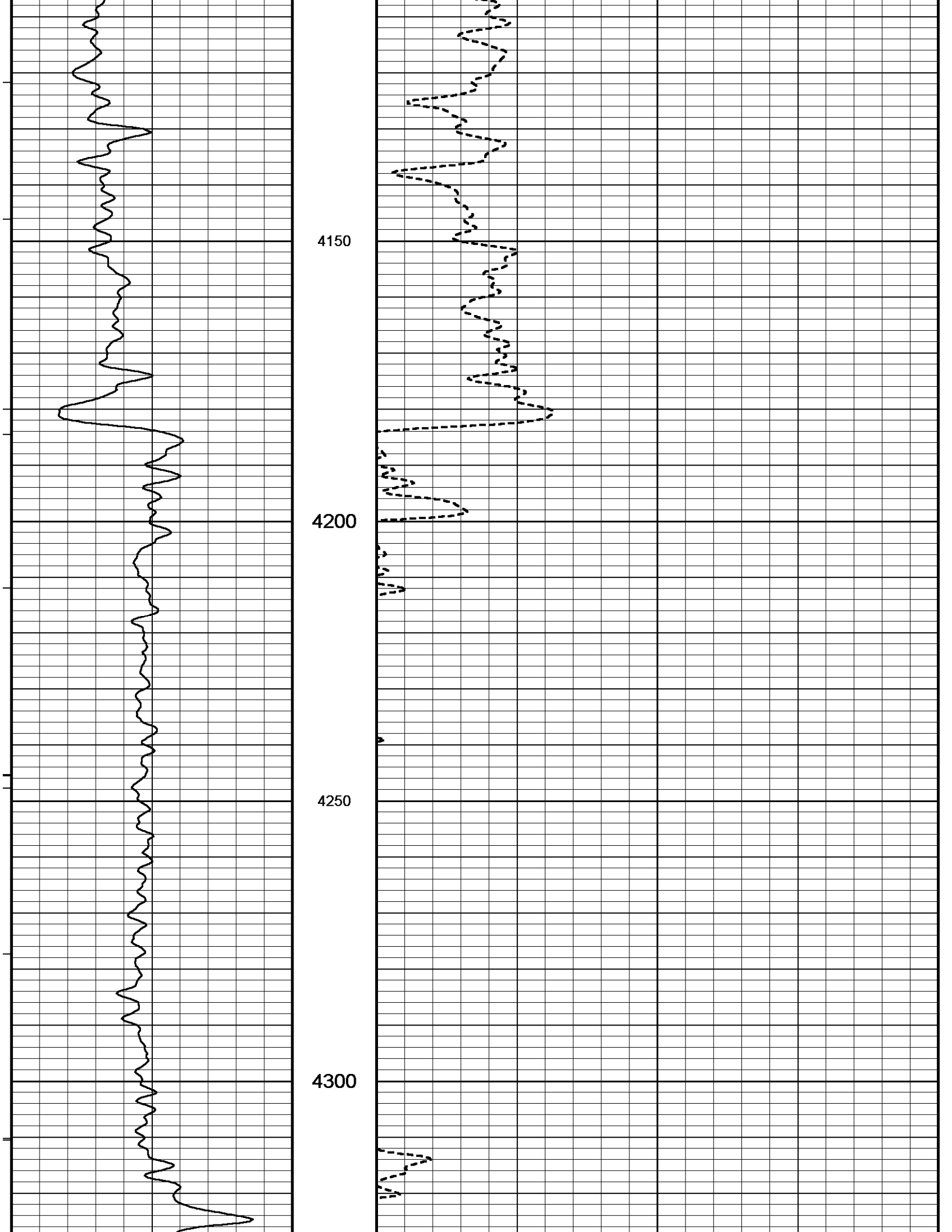
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, 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 in our price schedule.

5 INCH MAIN PASS DSC

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 09-JUL-2011 11:47
Filename: C:\Data\CMX\CMX Grinch 1-8H\MMS134 Depthlog RTAP.dta
Recorded on 09-JUL-2011 09:40
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.01.2198

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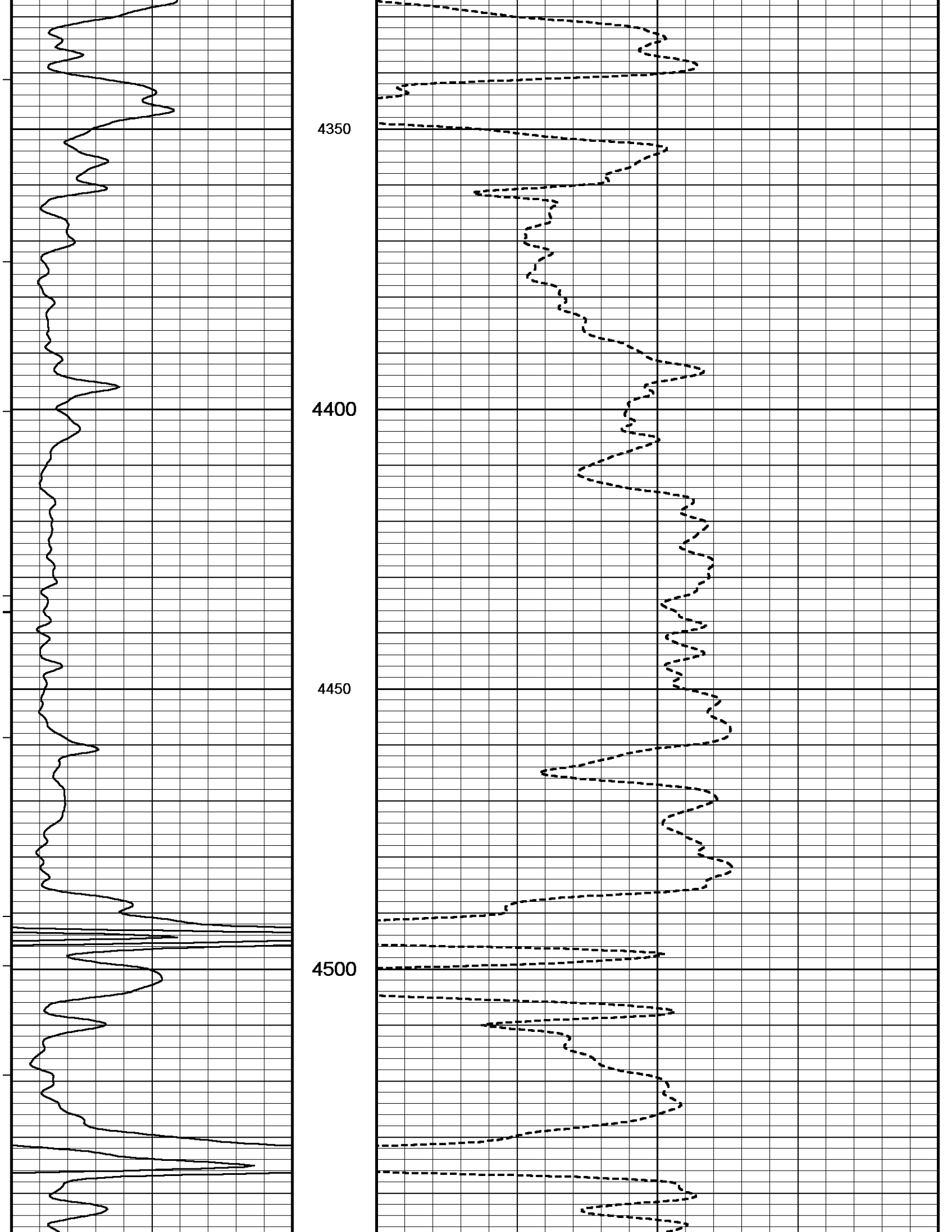
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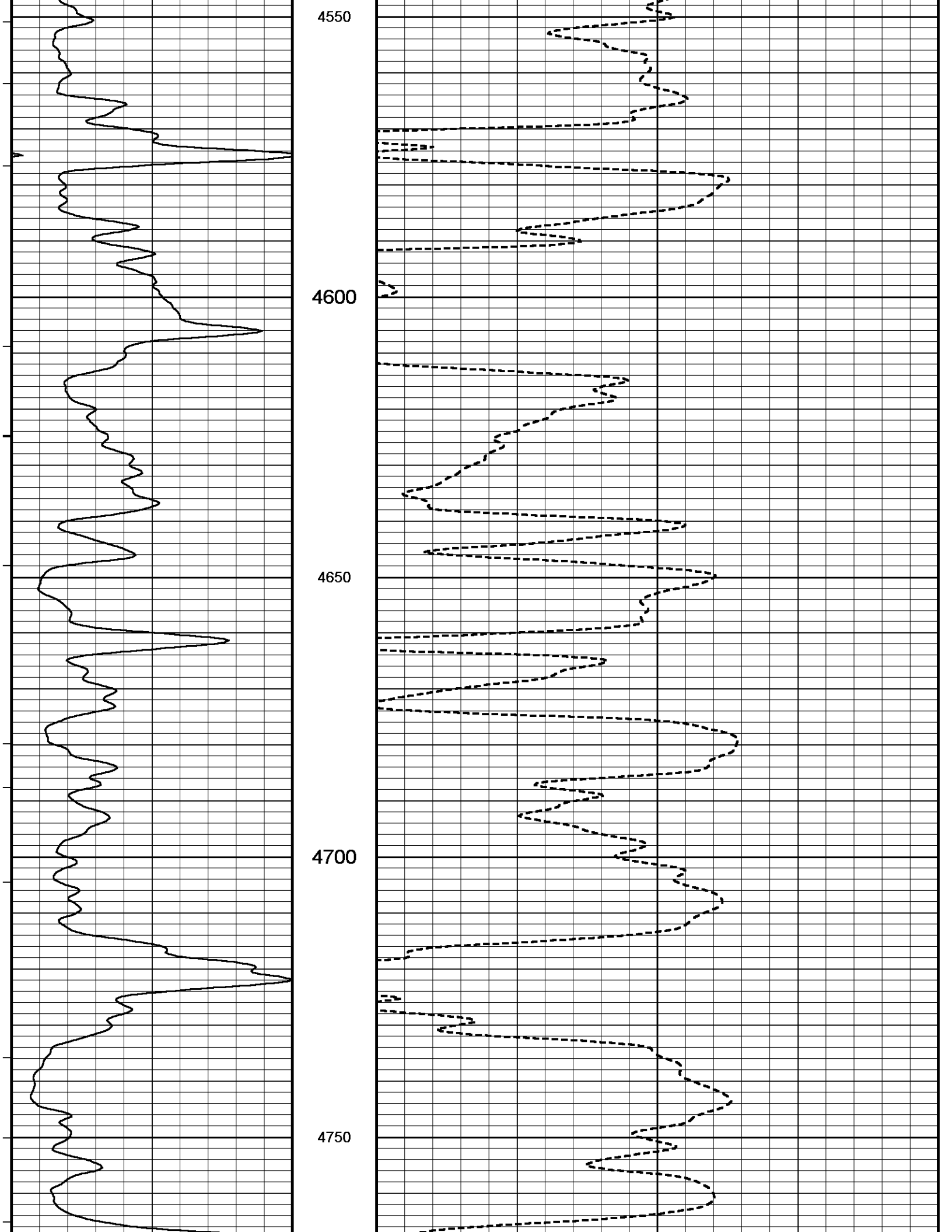
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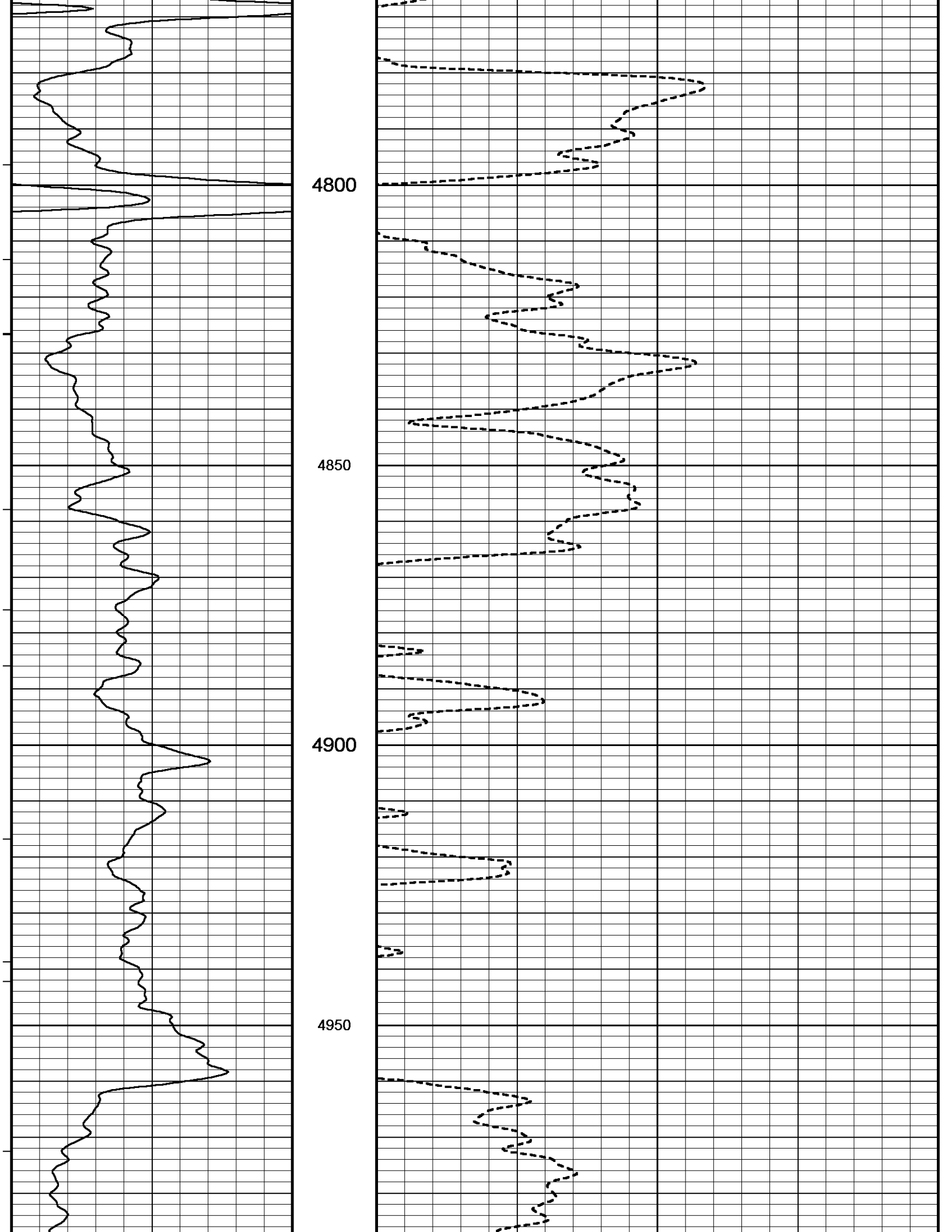
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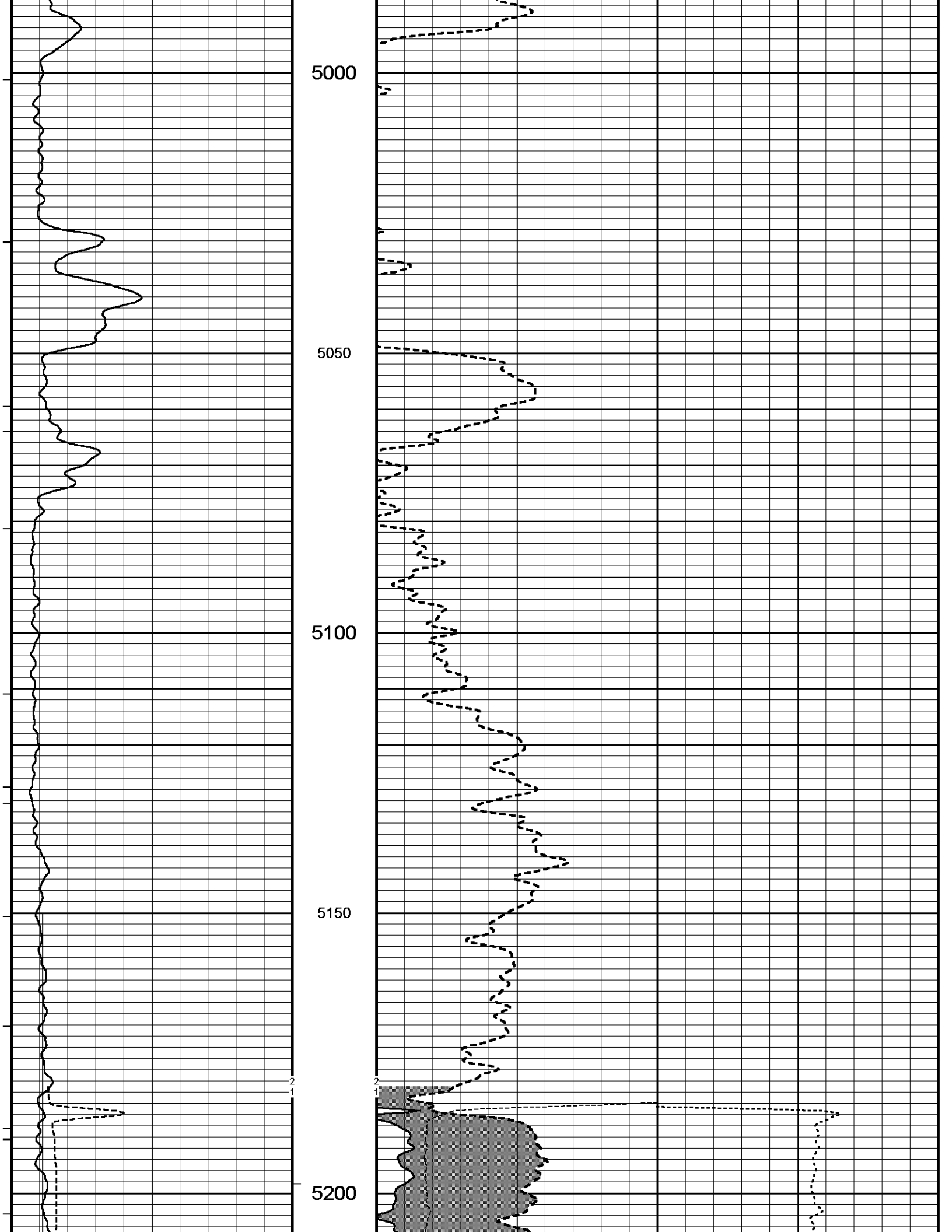
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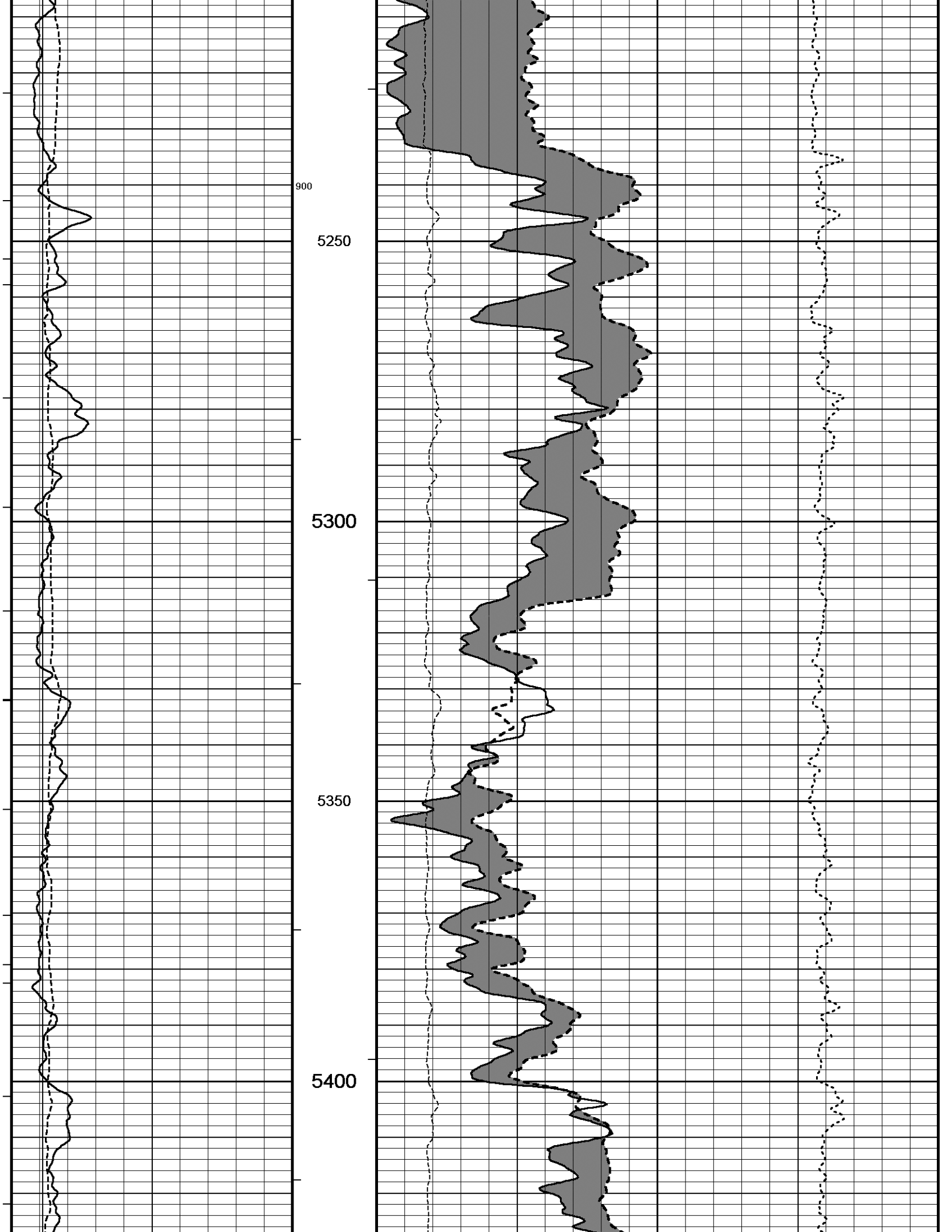
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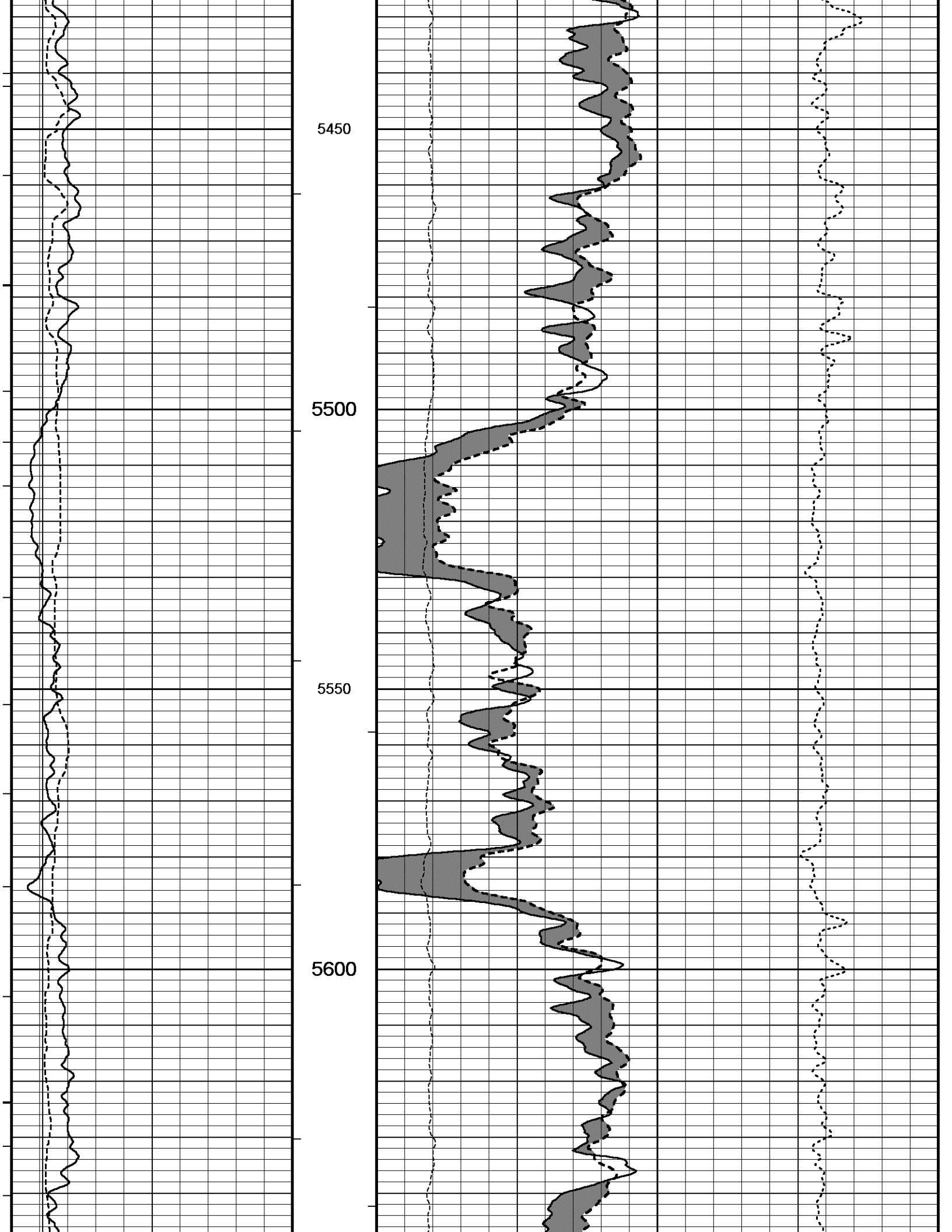
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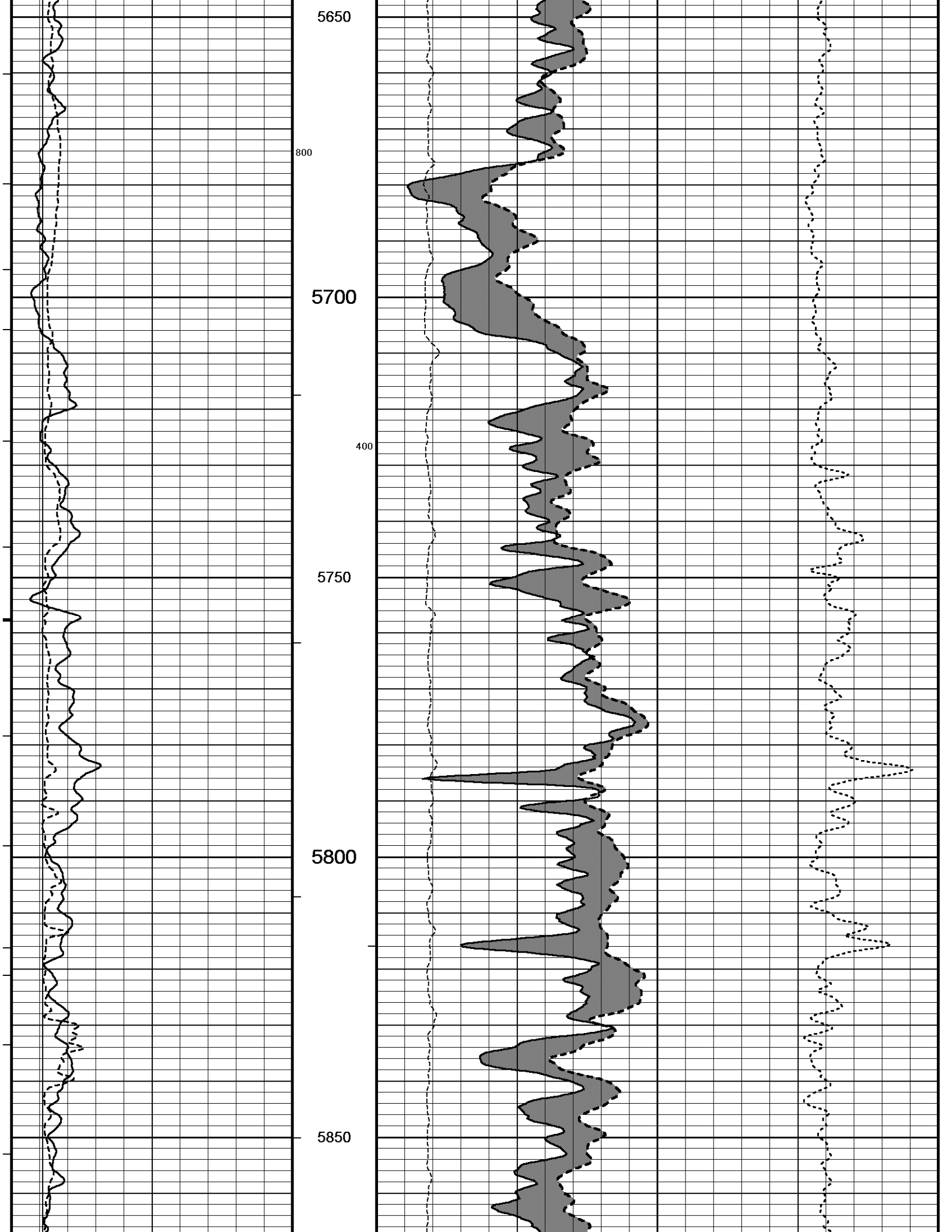
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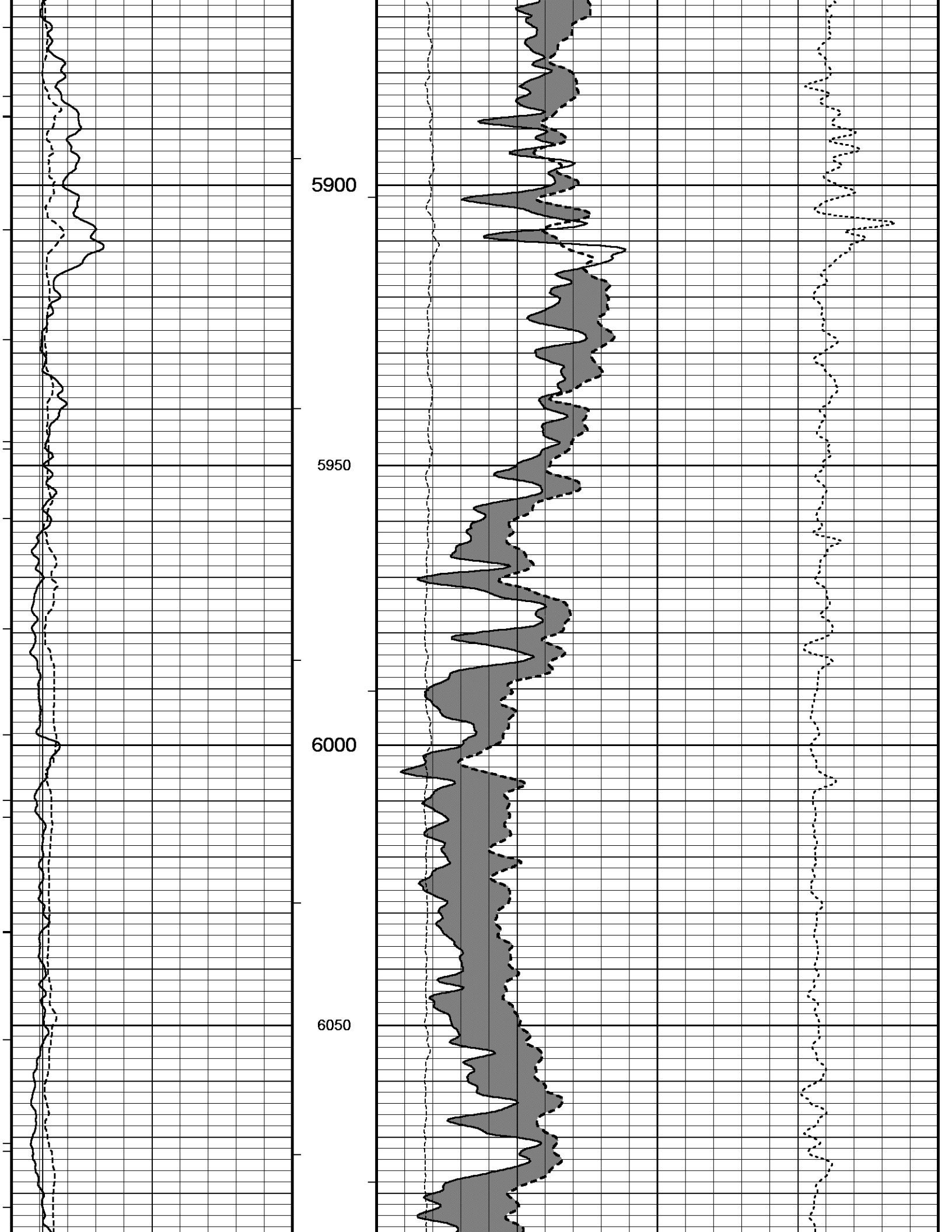
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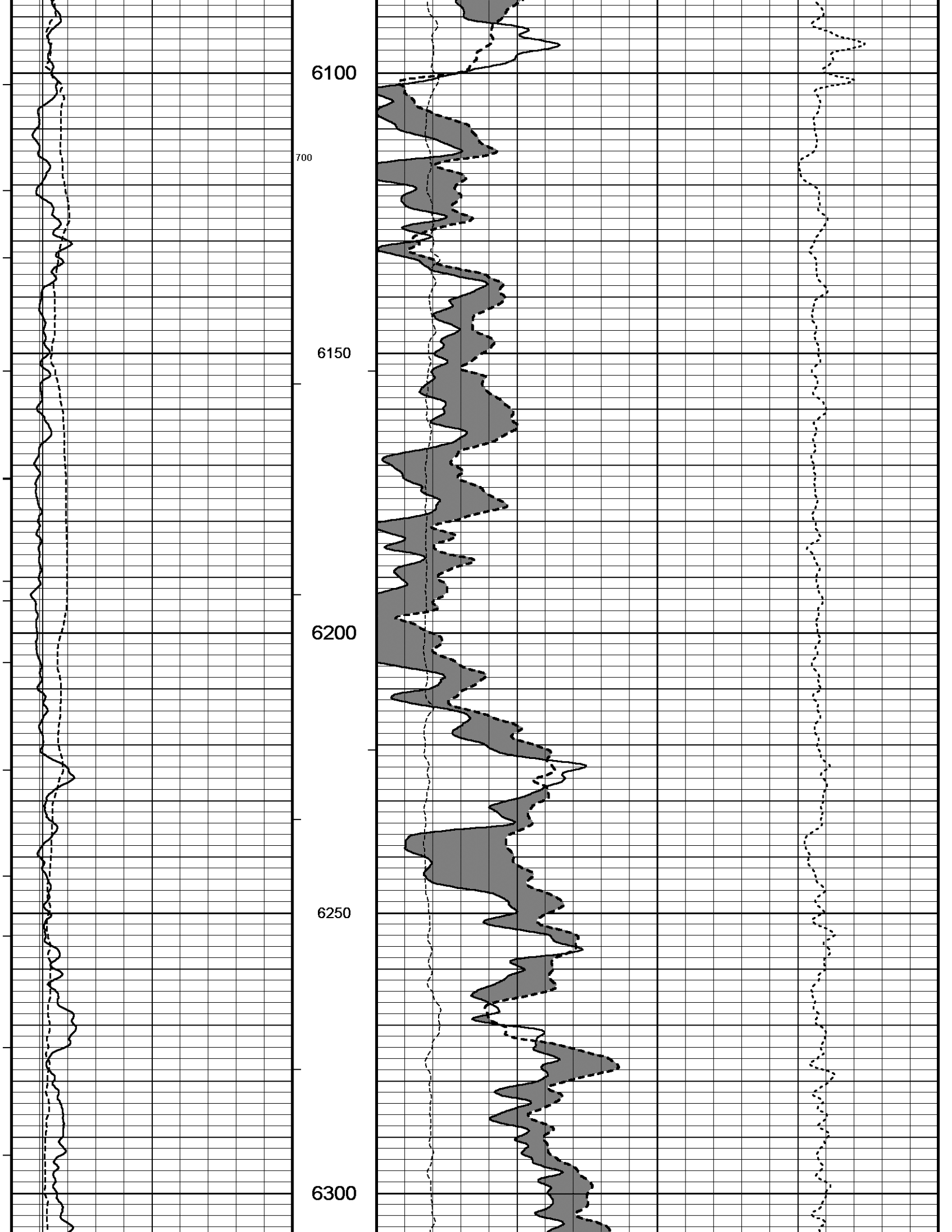
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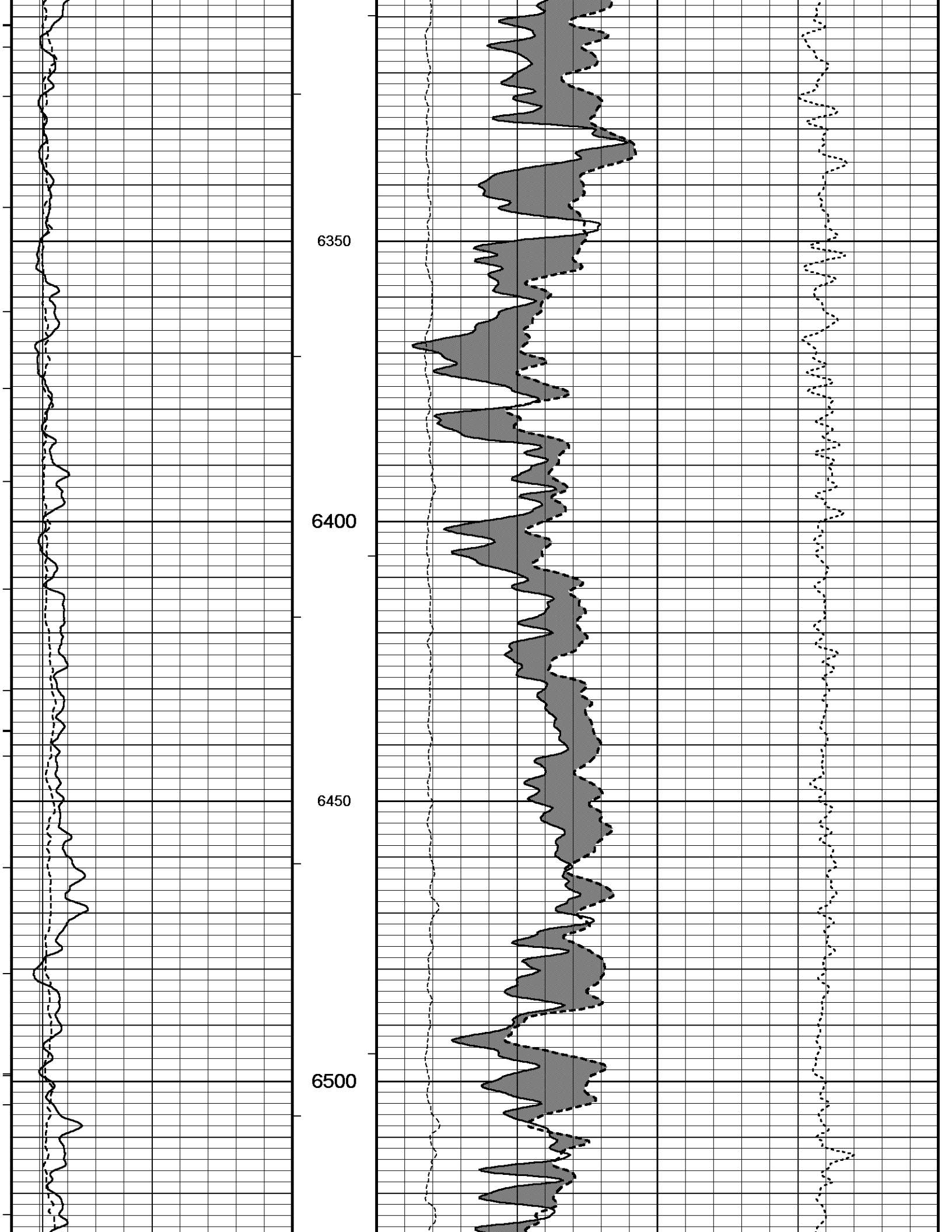
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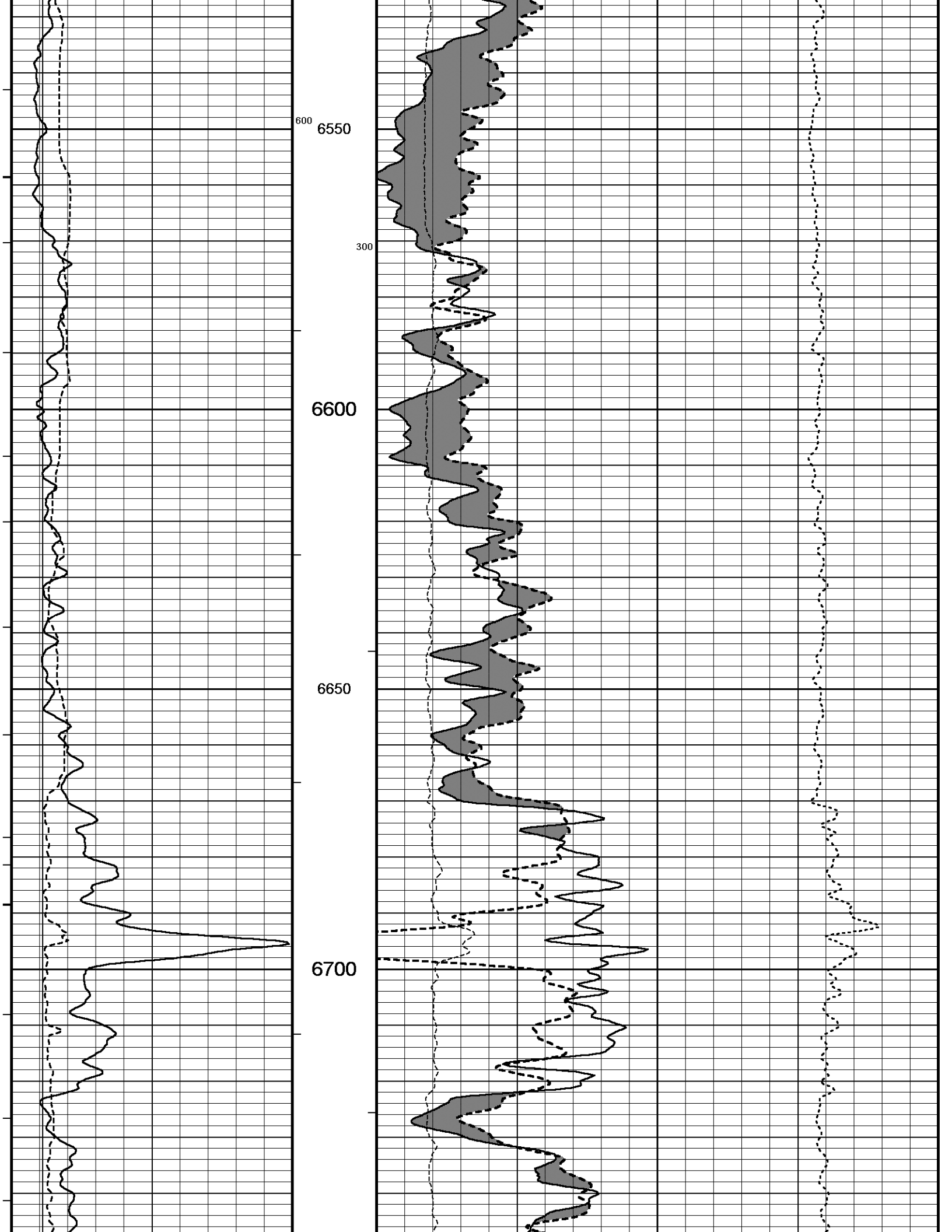
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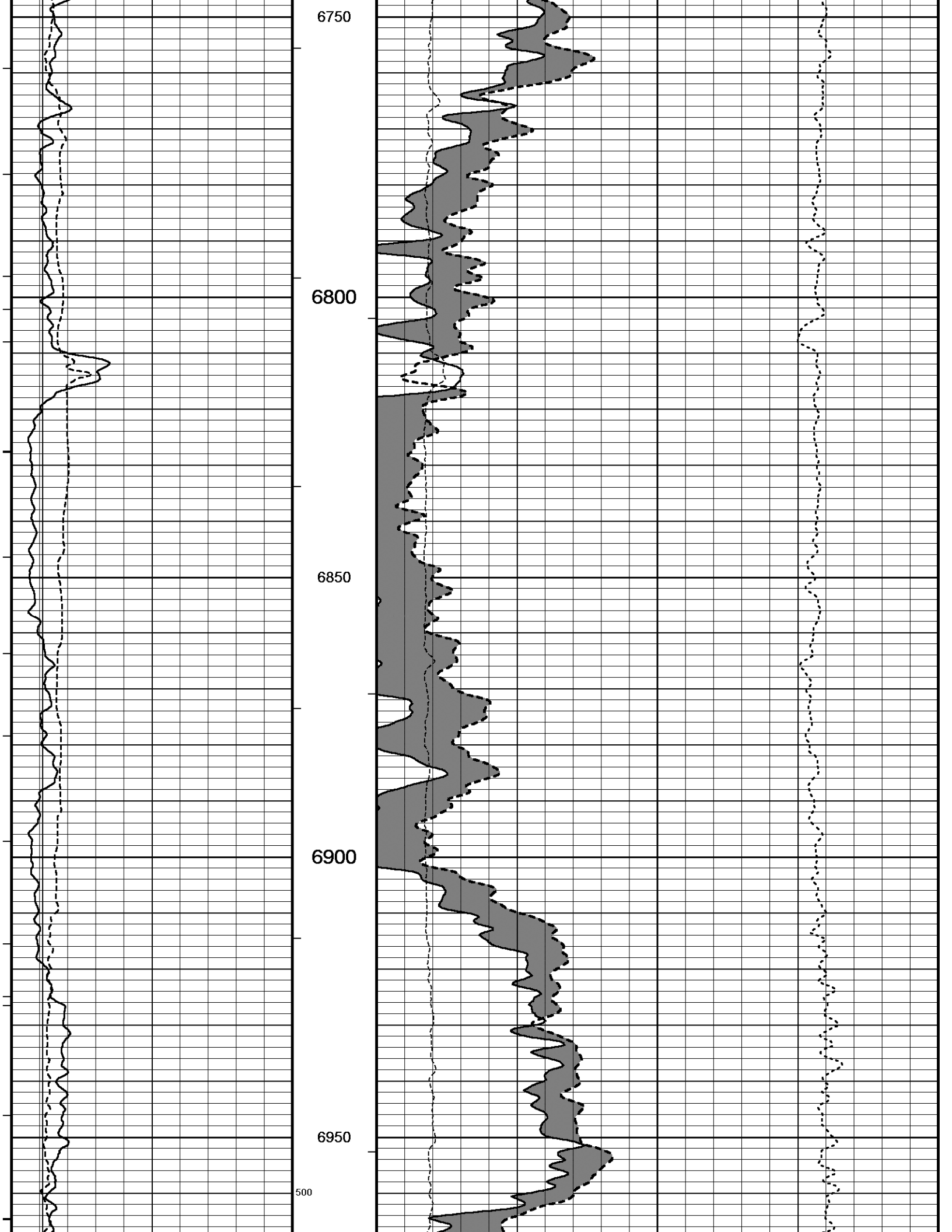
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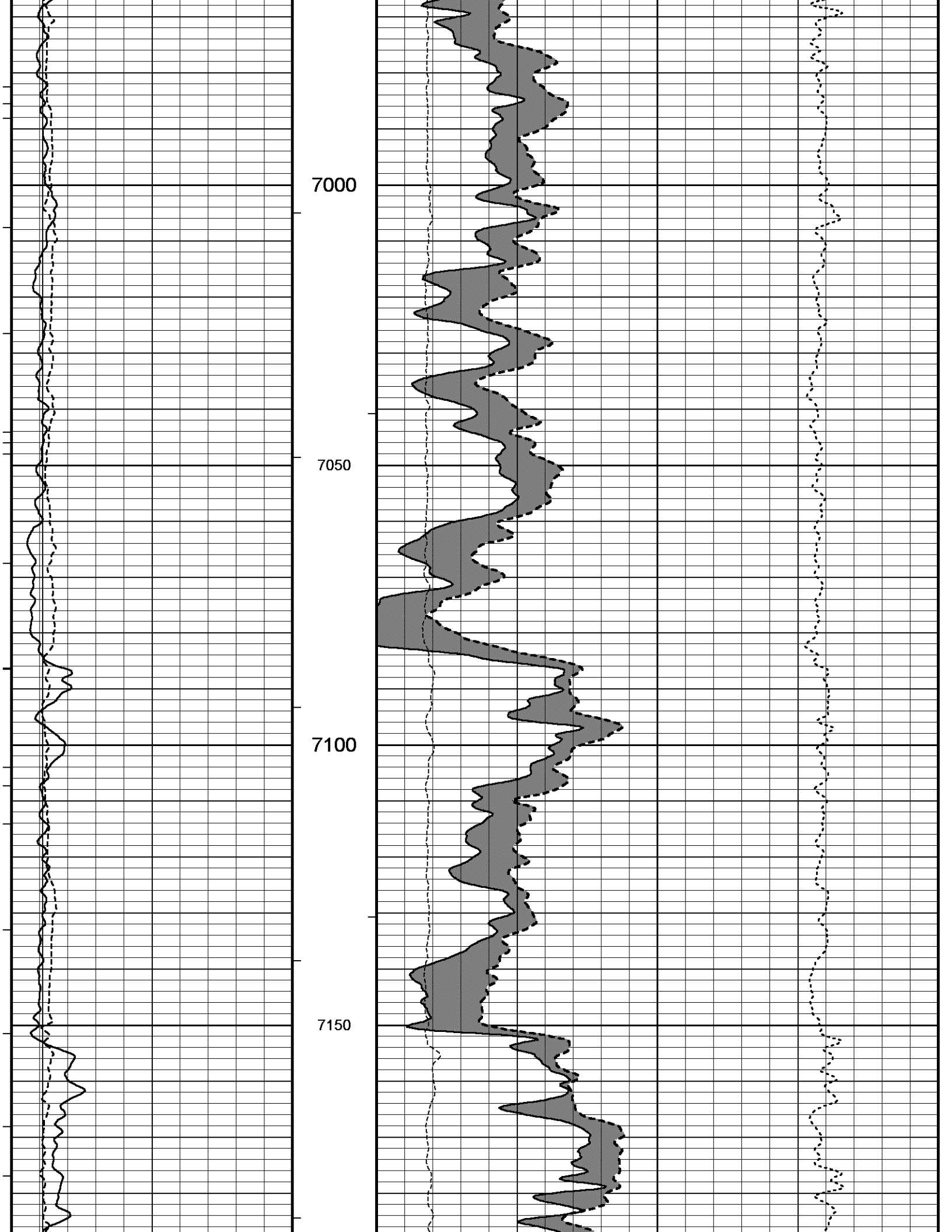
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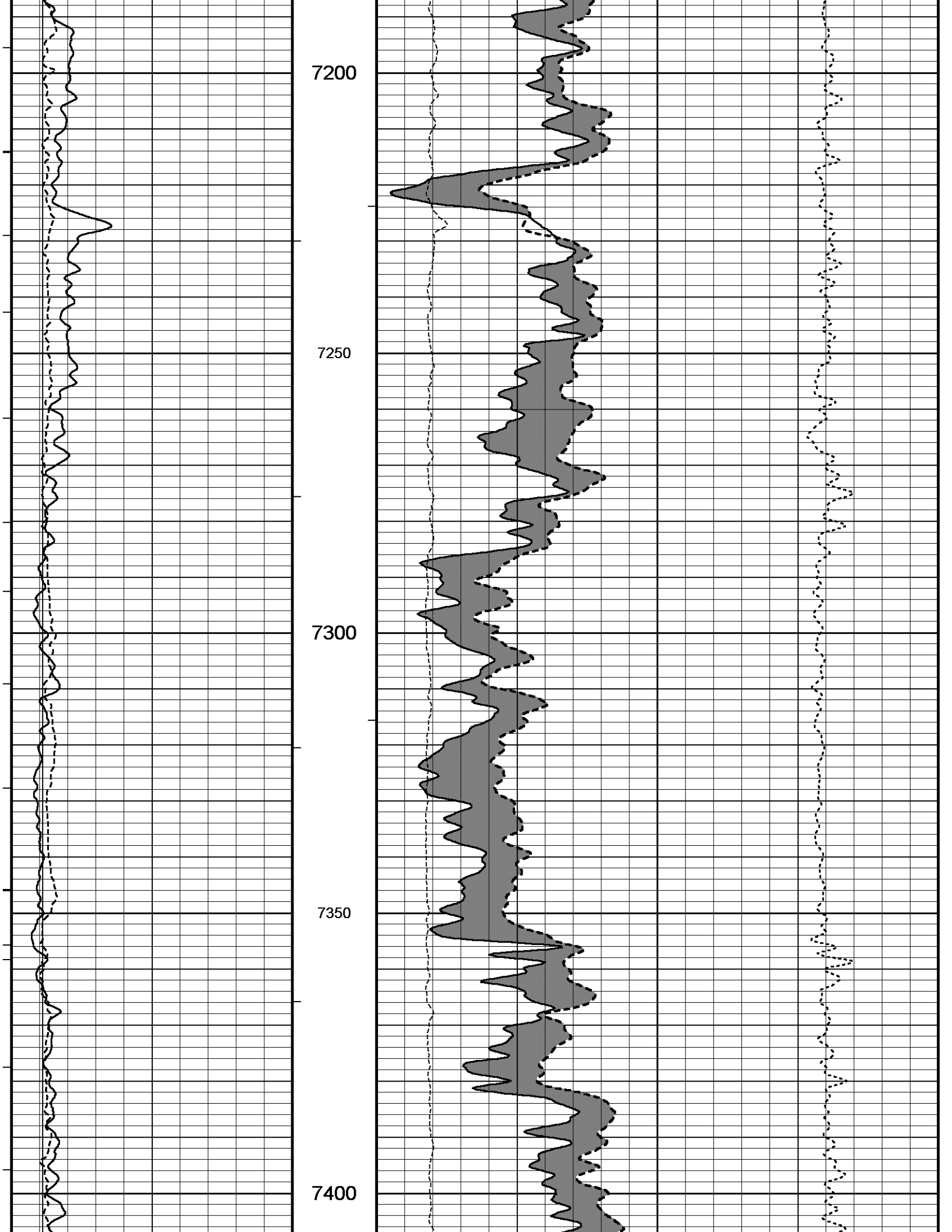
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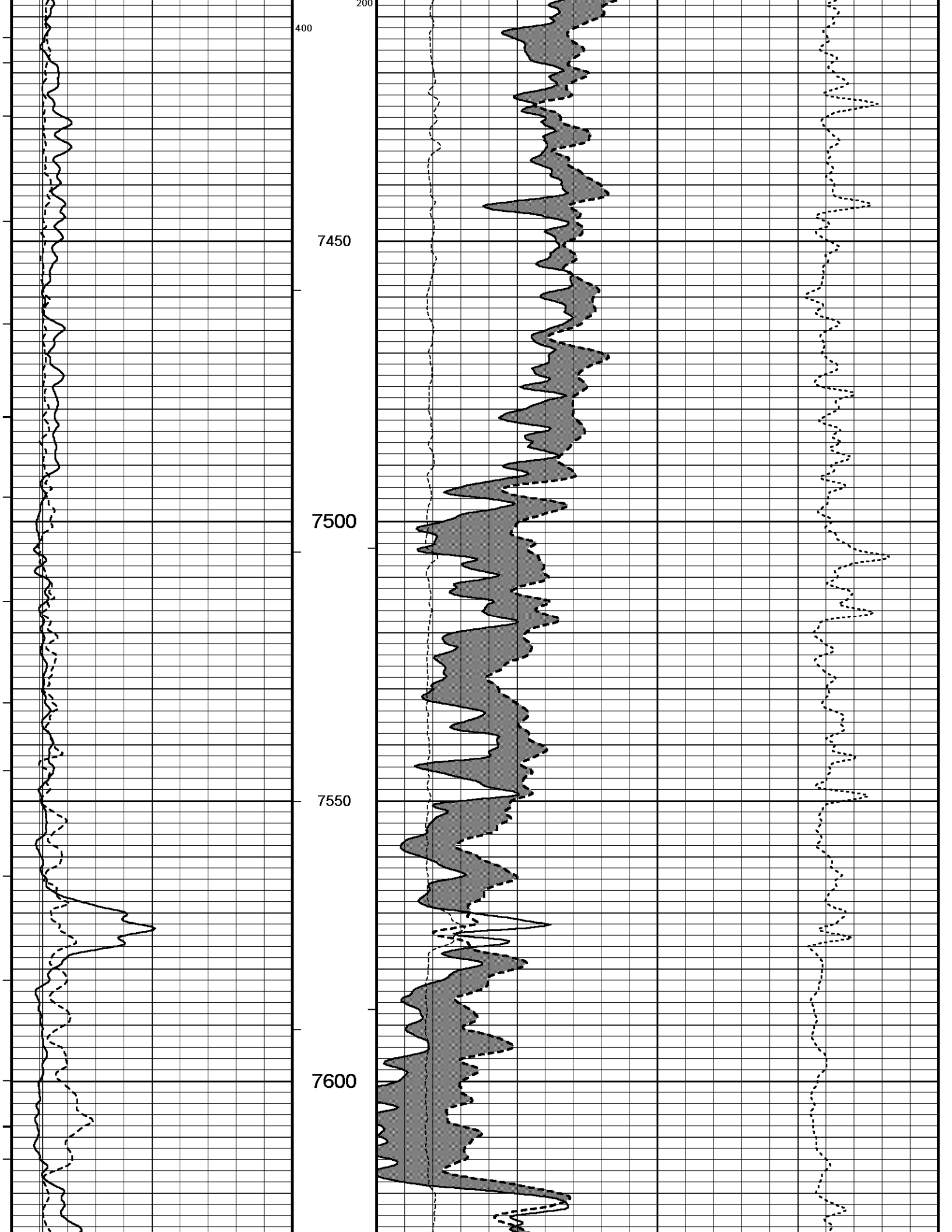
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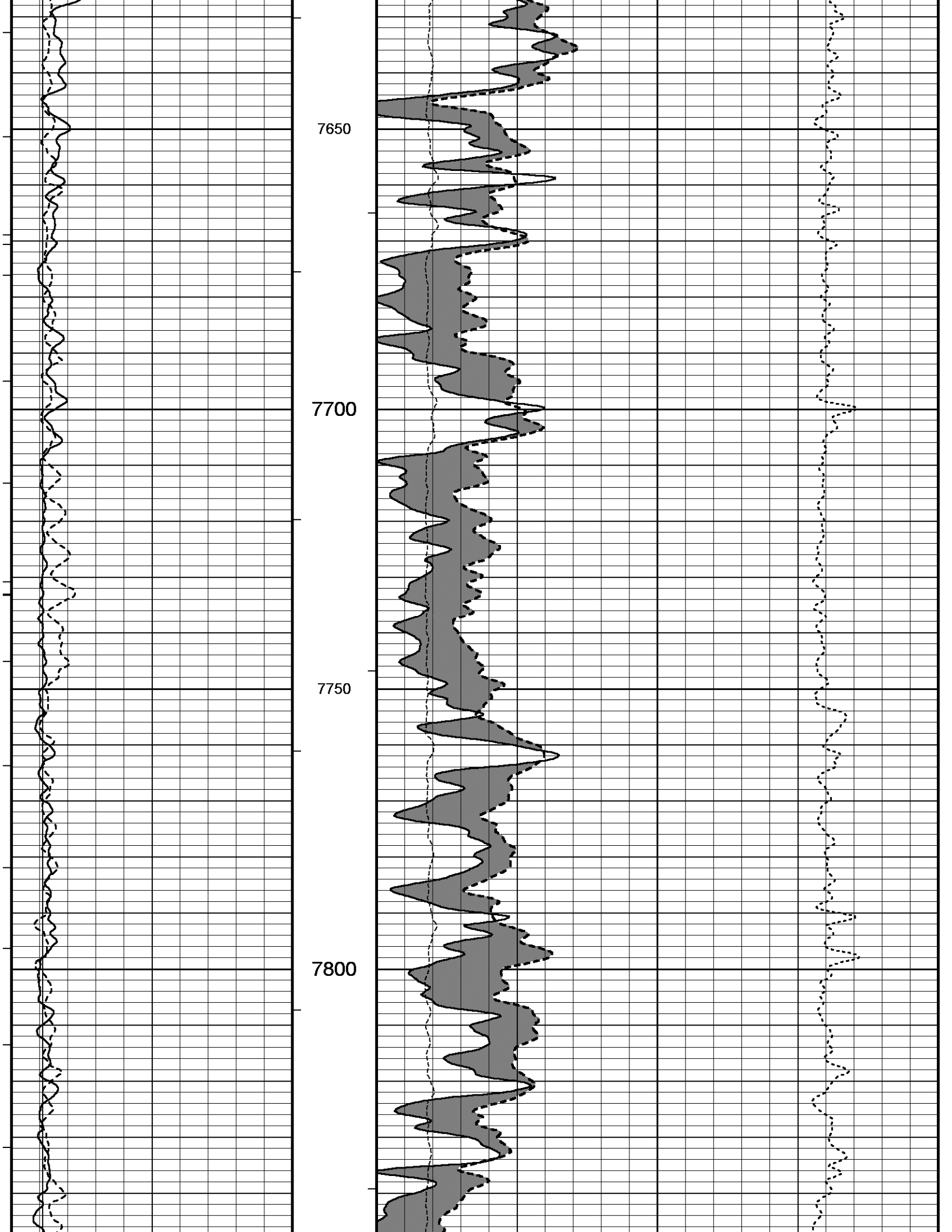
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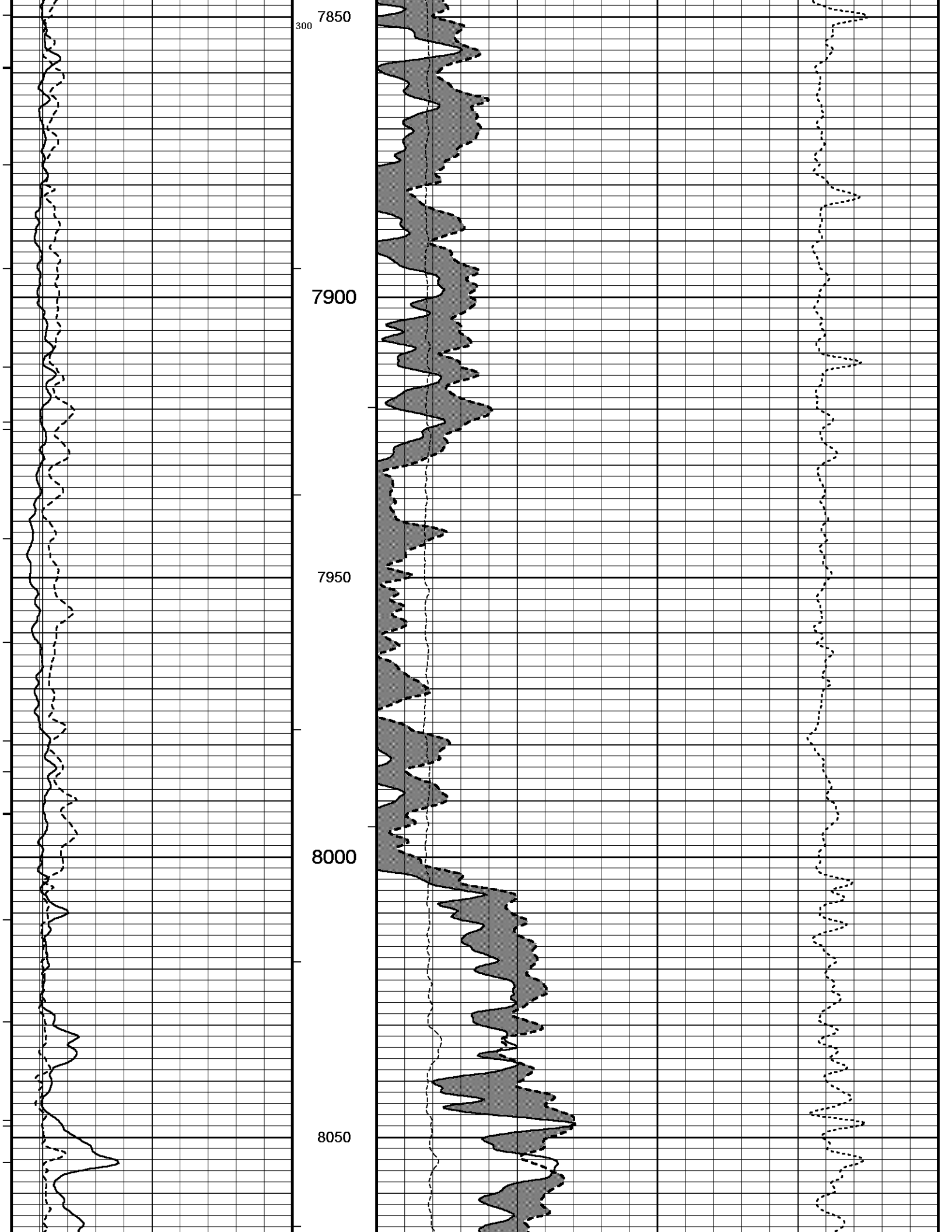
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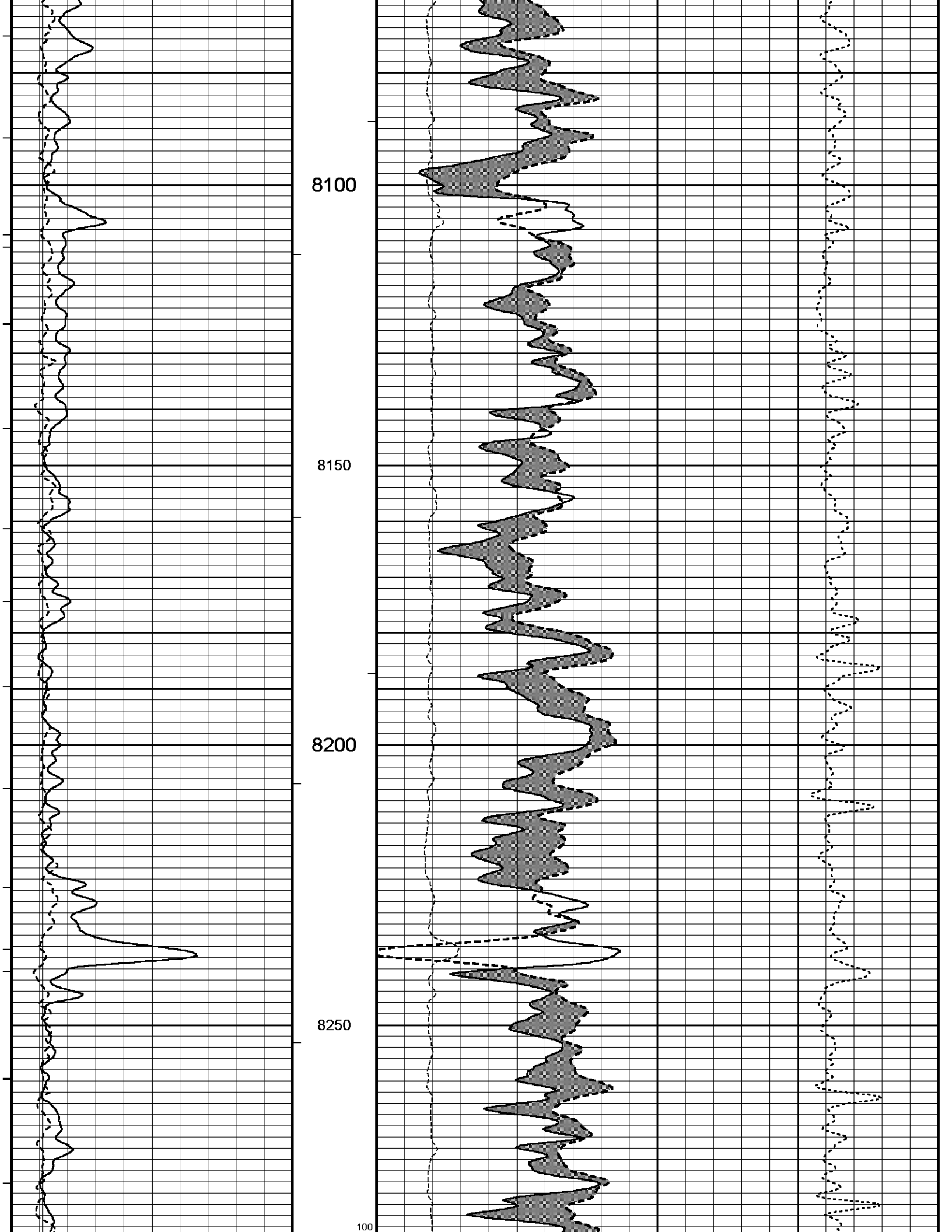
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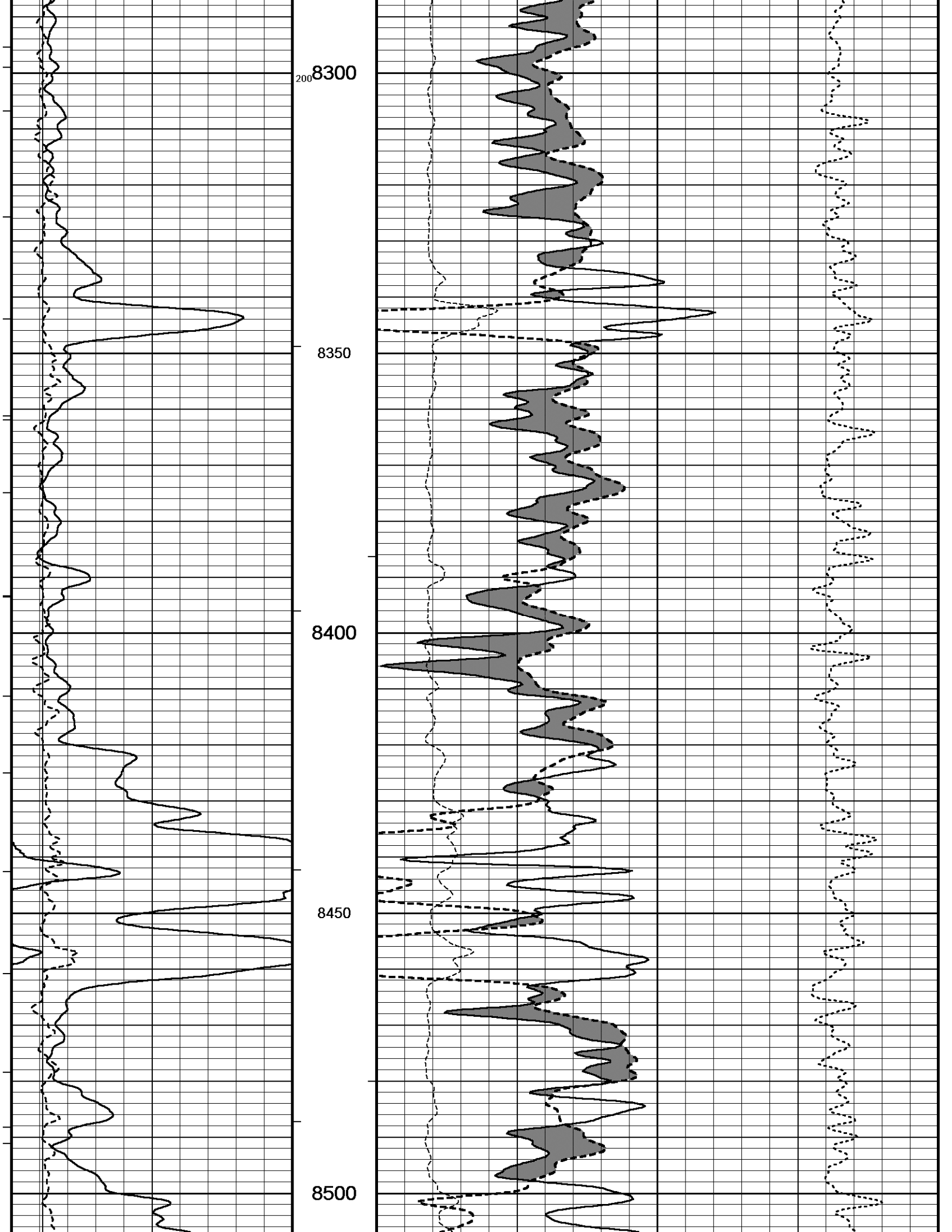
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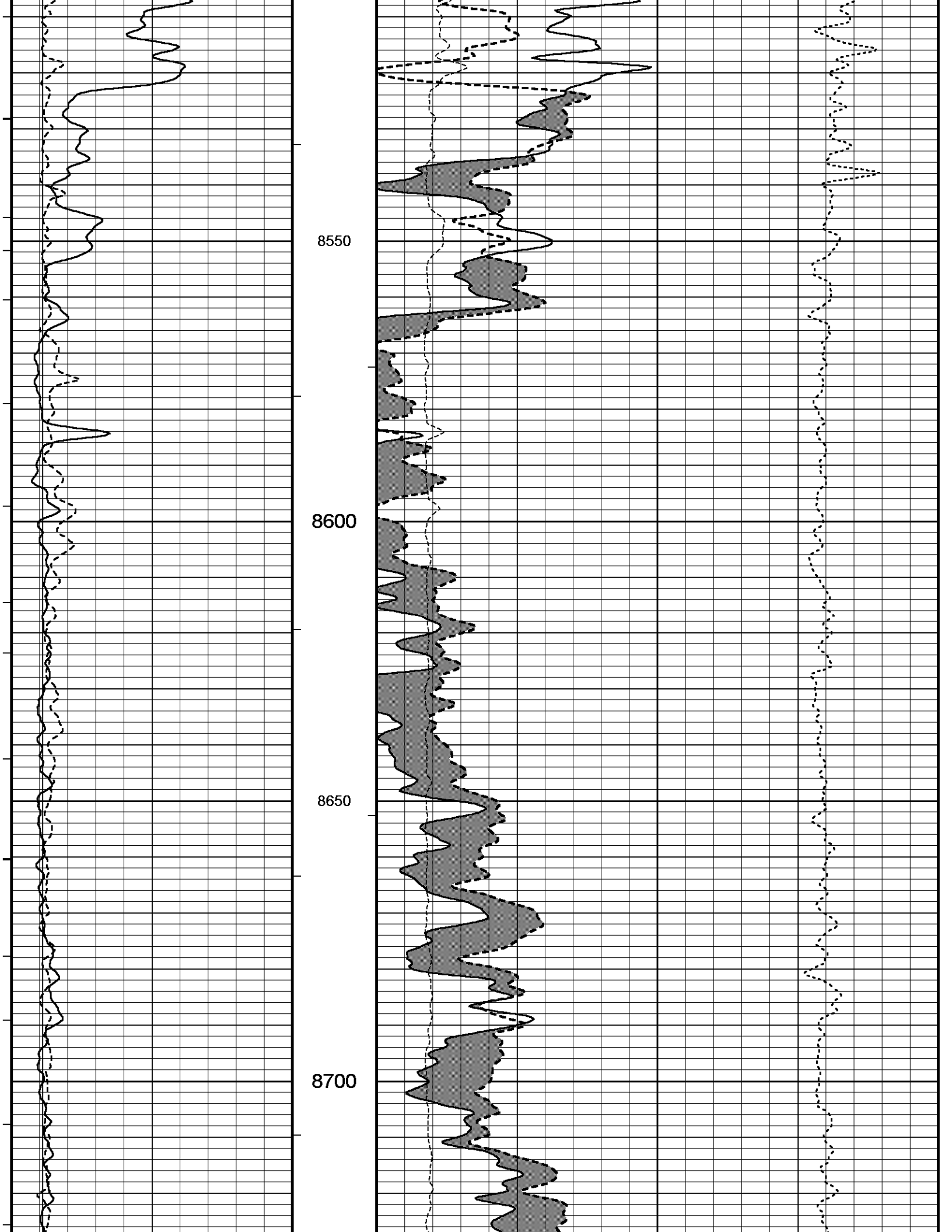
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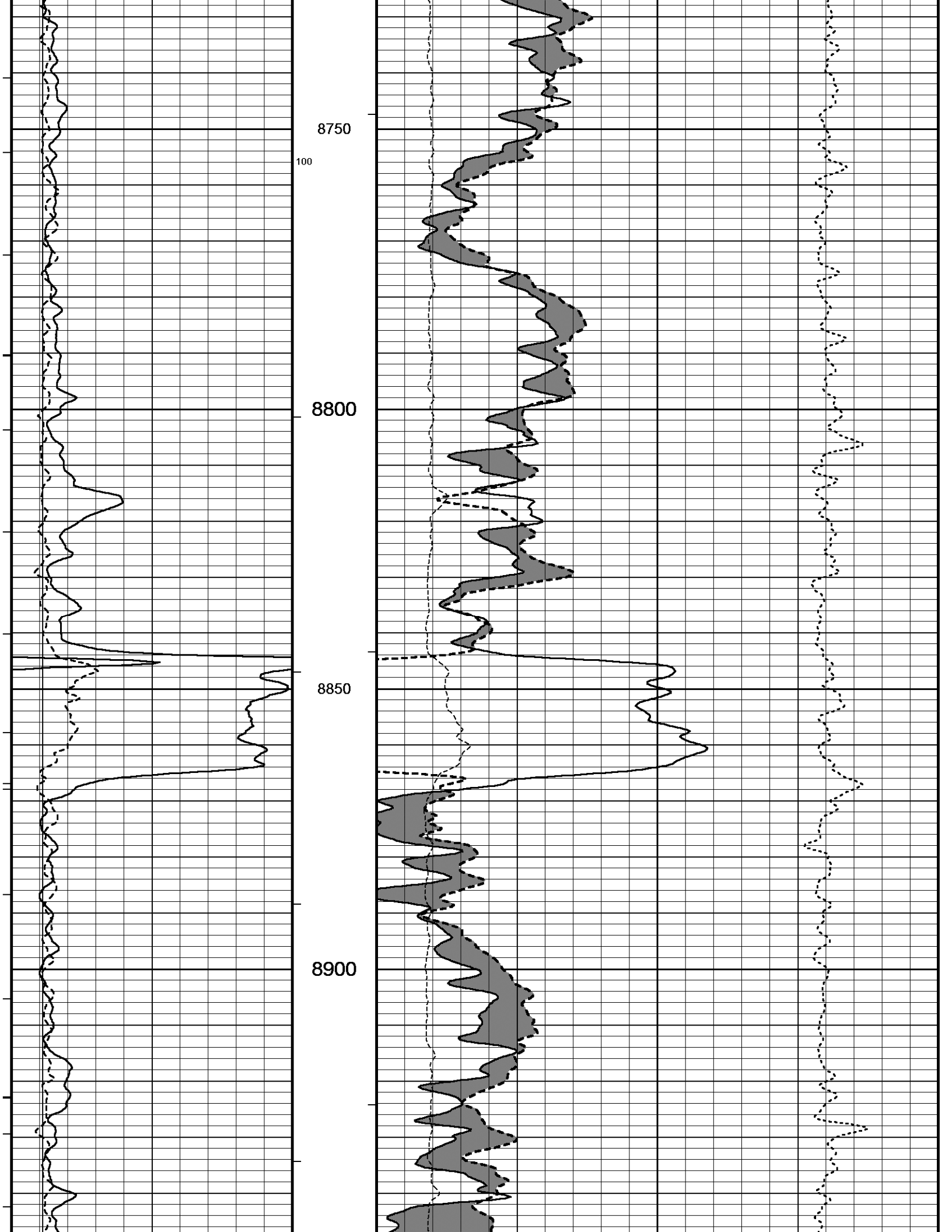
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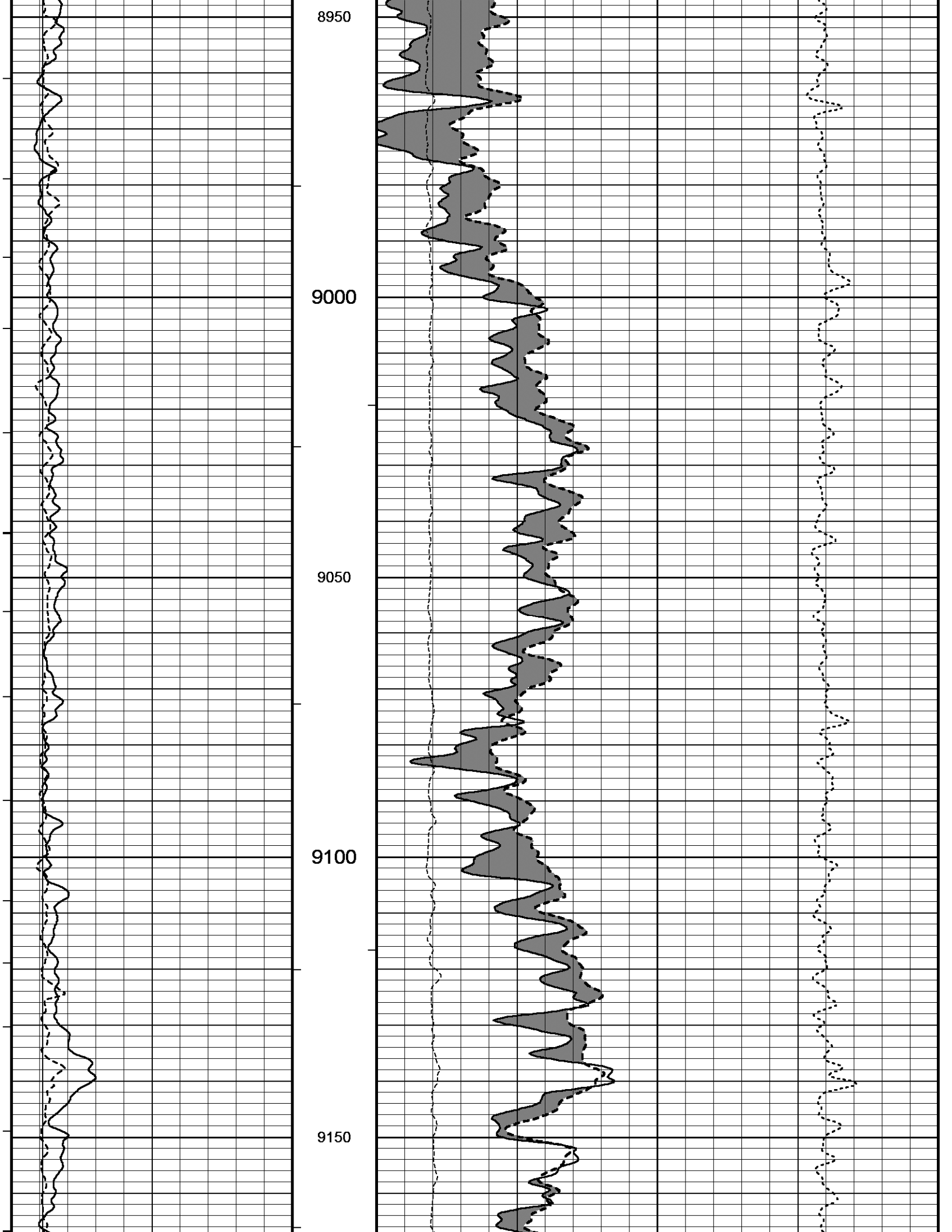
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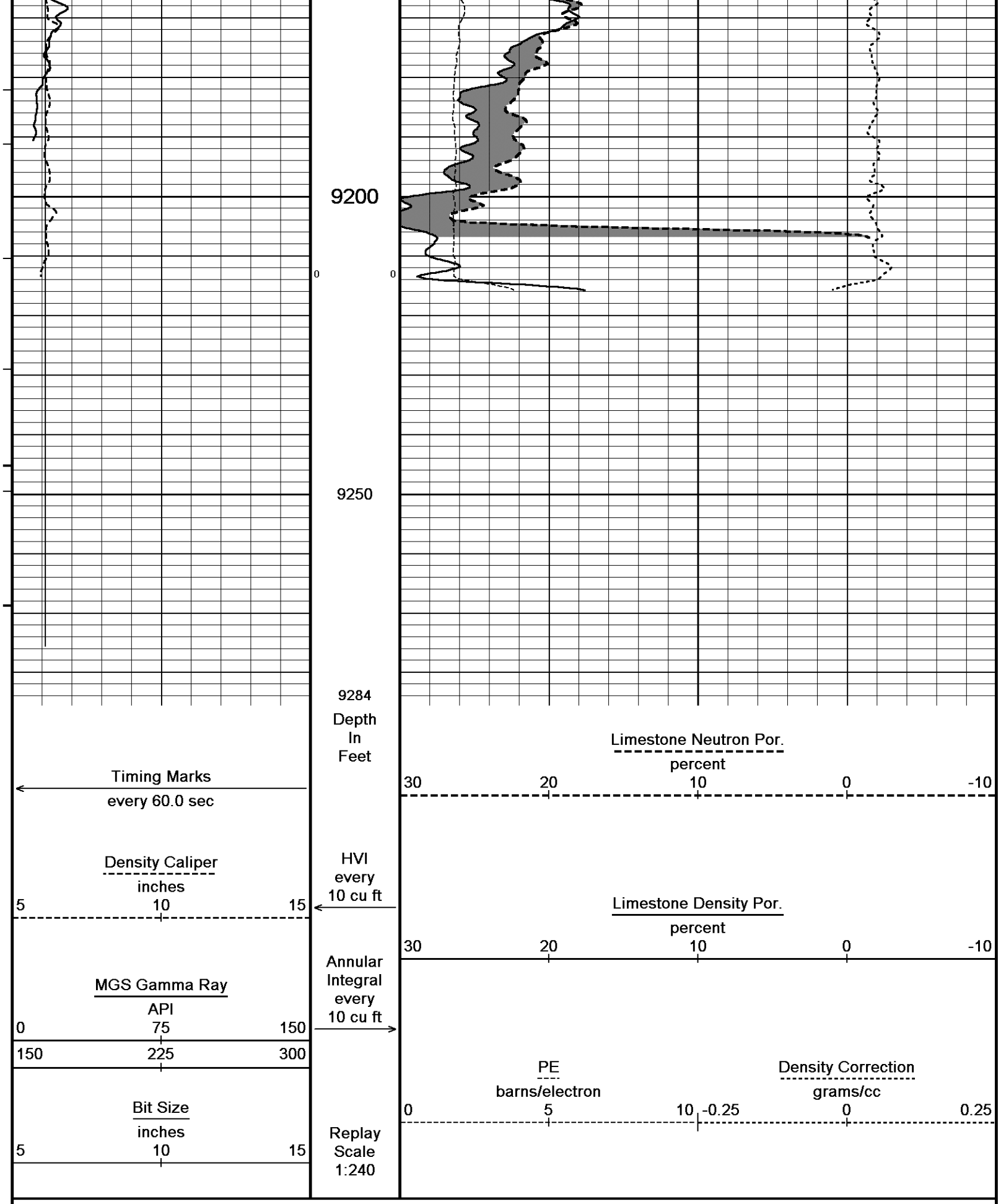


Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 09-JUL-2011 11:47

Filename: C:\Data\CMX\CMX Grinch 1-8H\MMS134 Depthlog RTAP.dta

Recorded on 09-JUL-2011 09:40

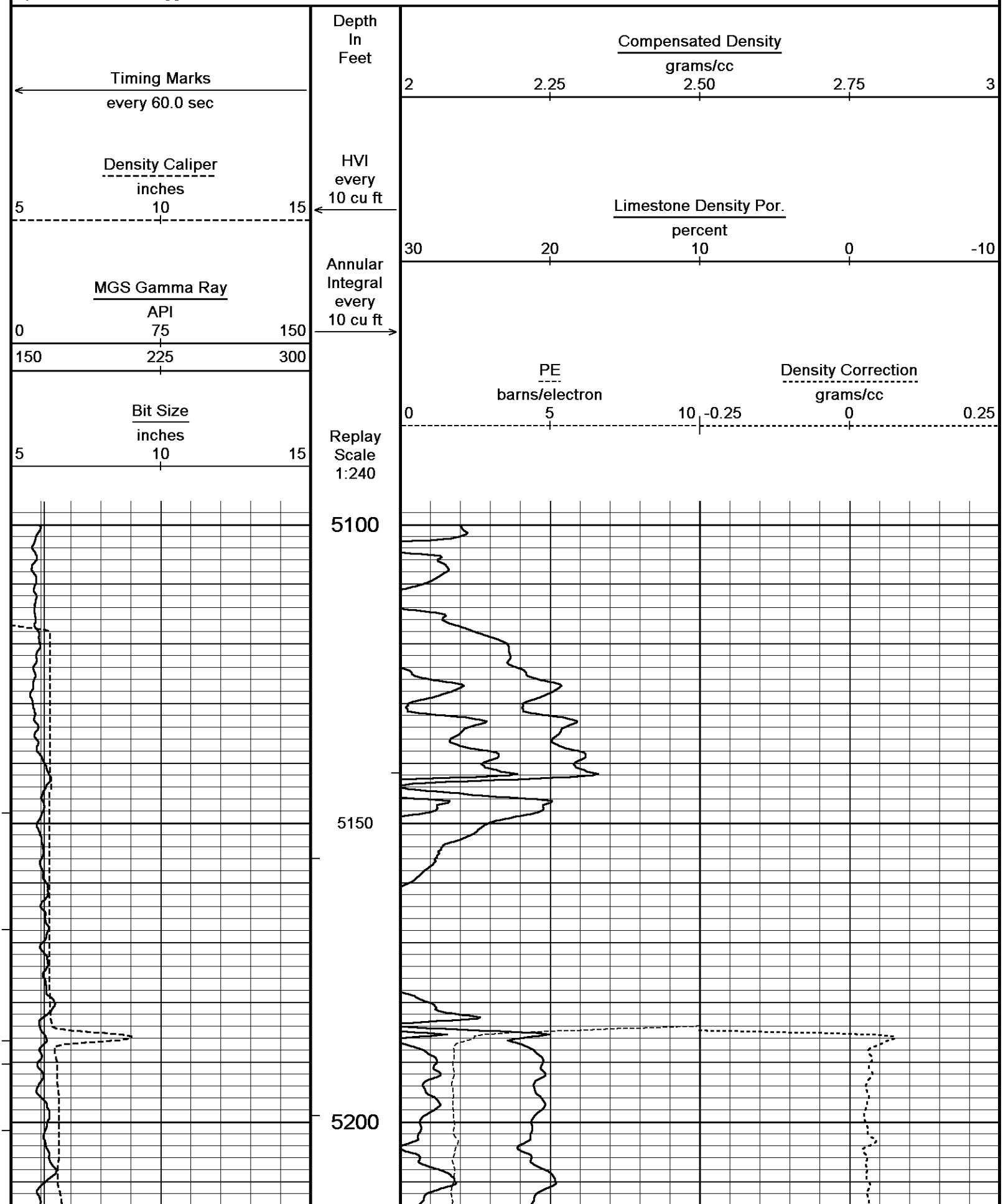
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.01.2198

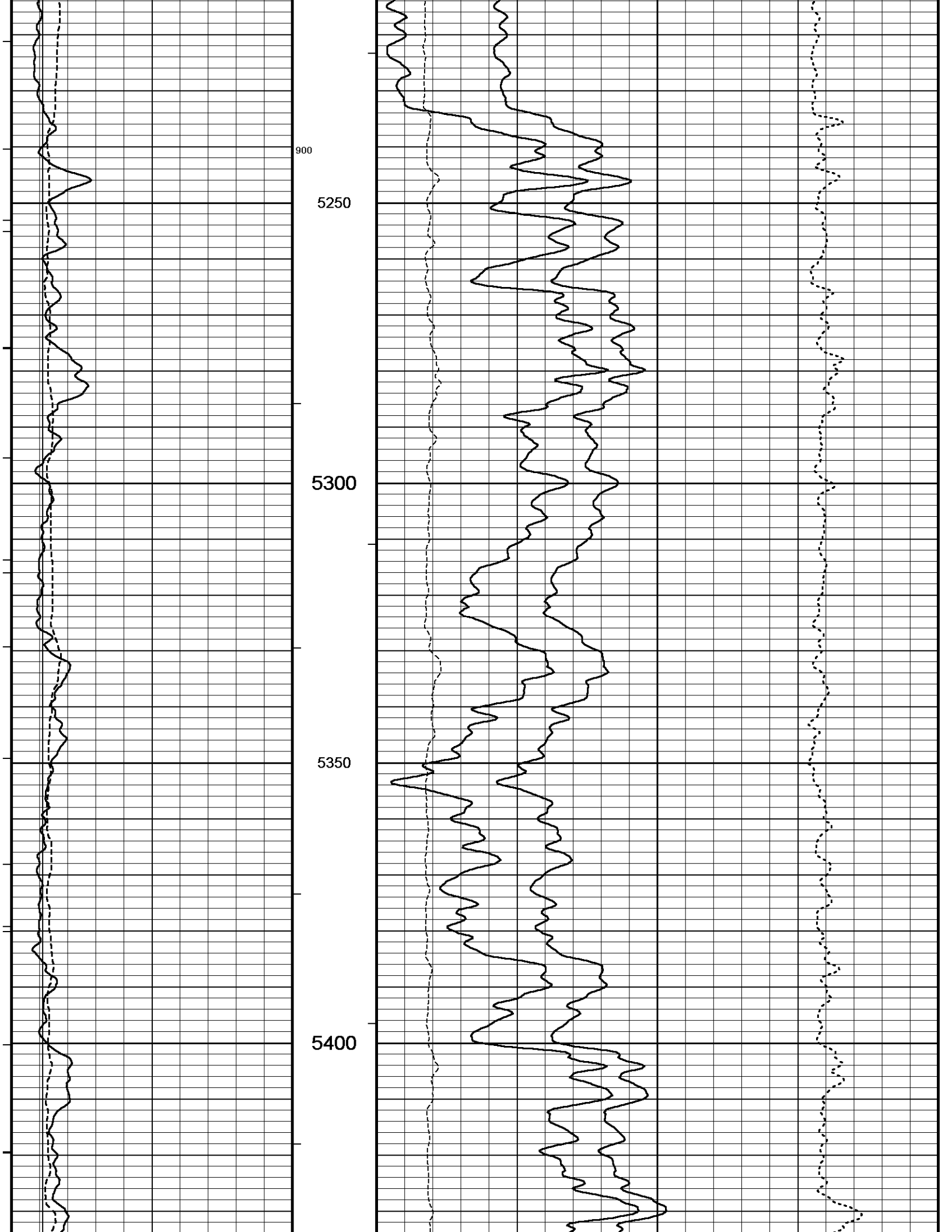
5 INCH MAIN PASS DSC

5 INCH BULK DENSITY DSC

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Data\CMX\CMX Grinch 1-8H\MMS134 Depthlog RTAP.dta
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.01.2198

Plotted on 09-JUL-2011 11:47
Recorded on 09-JUL-2011 09:40

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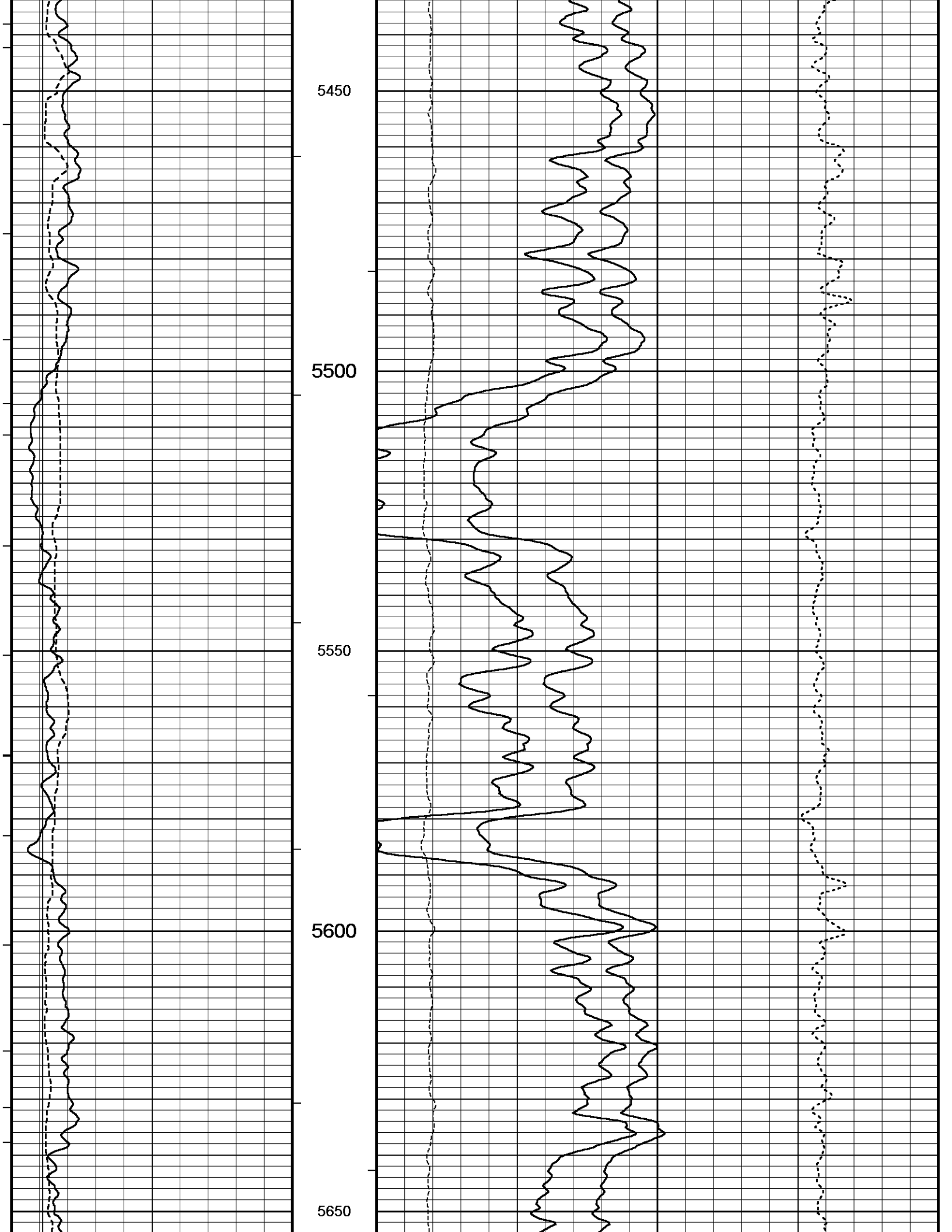
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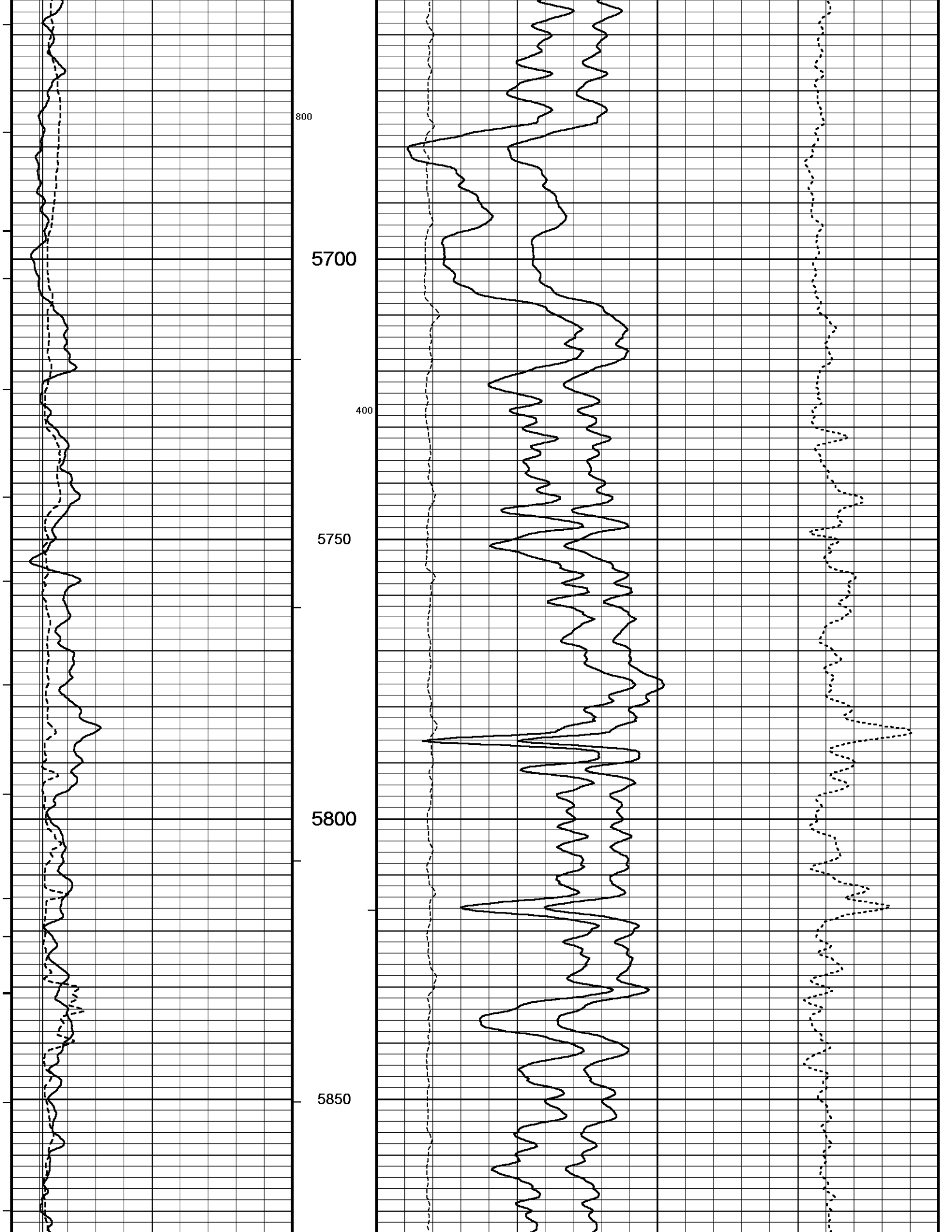
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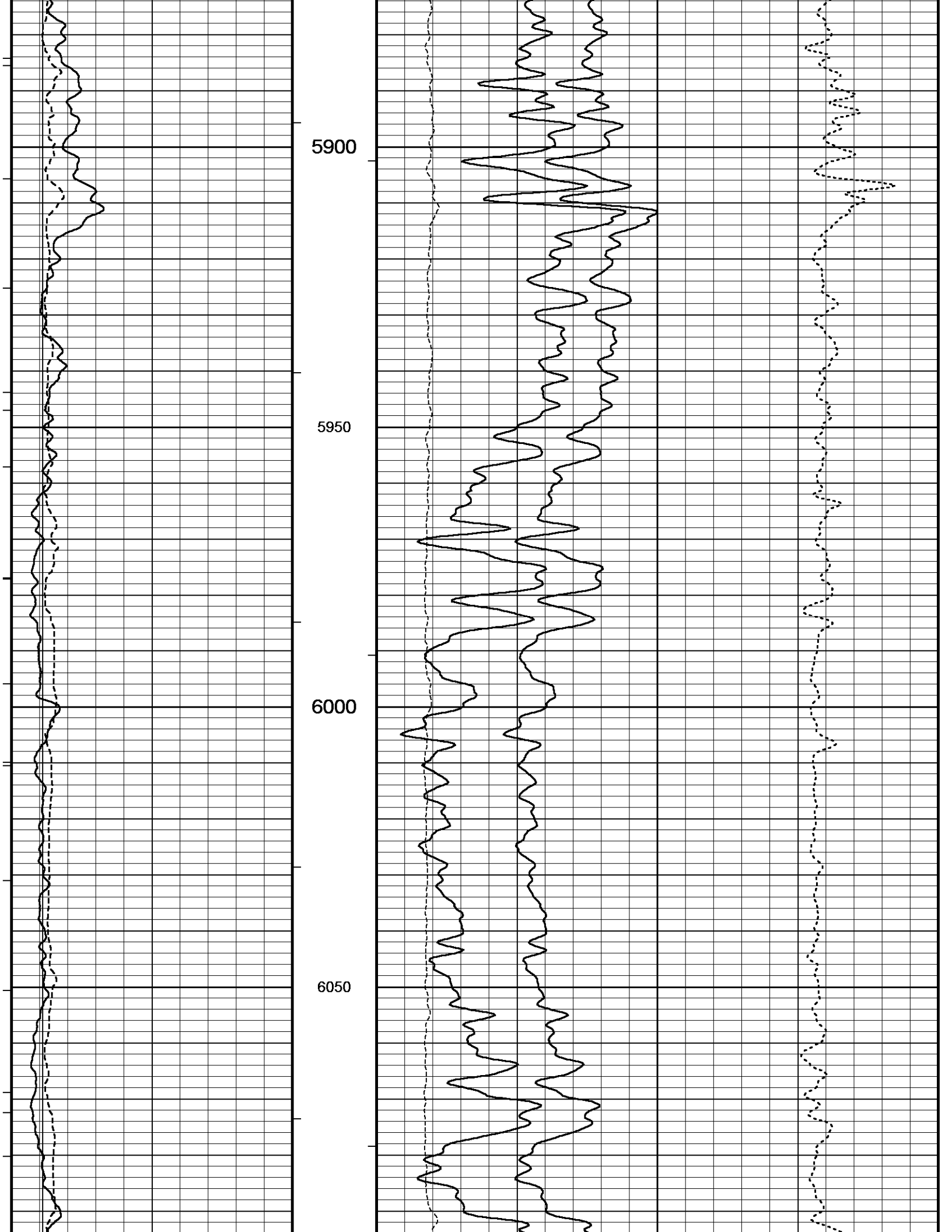
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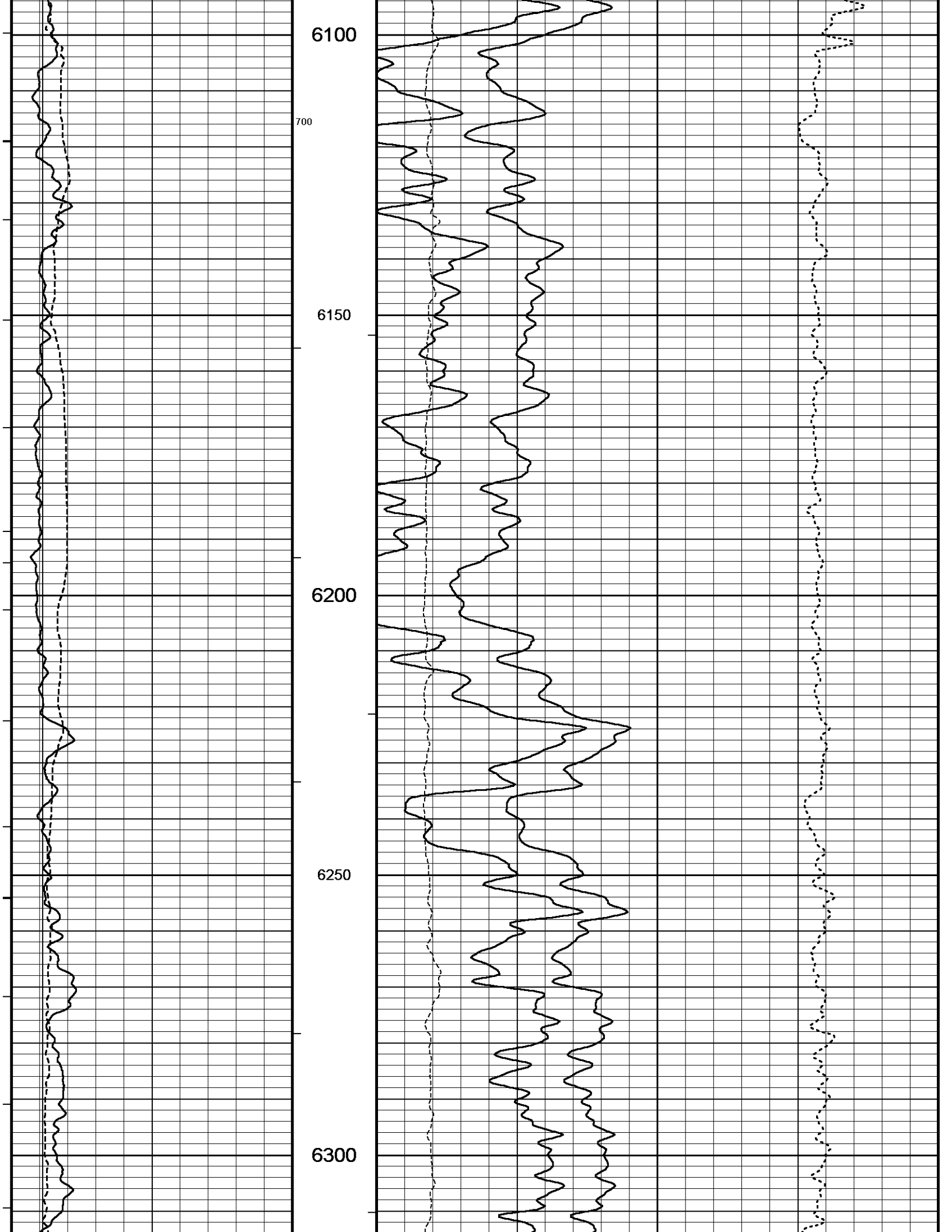
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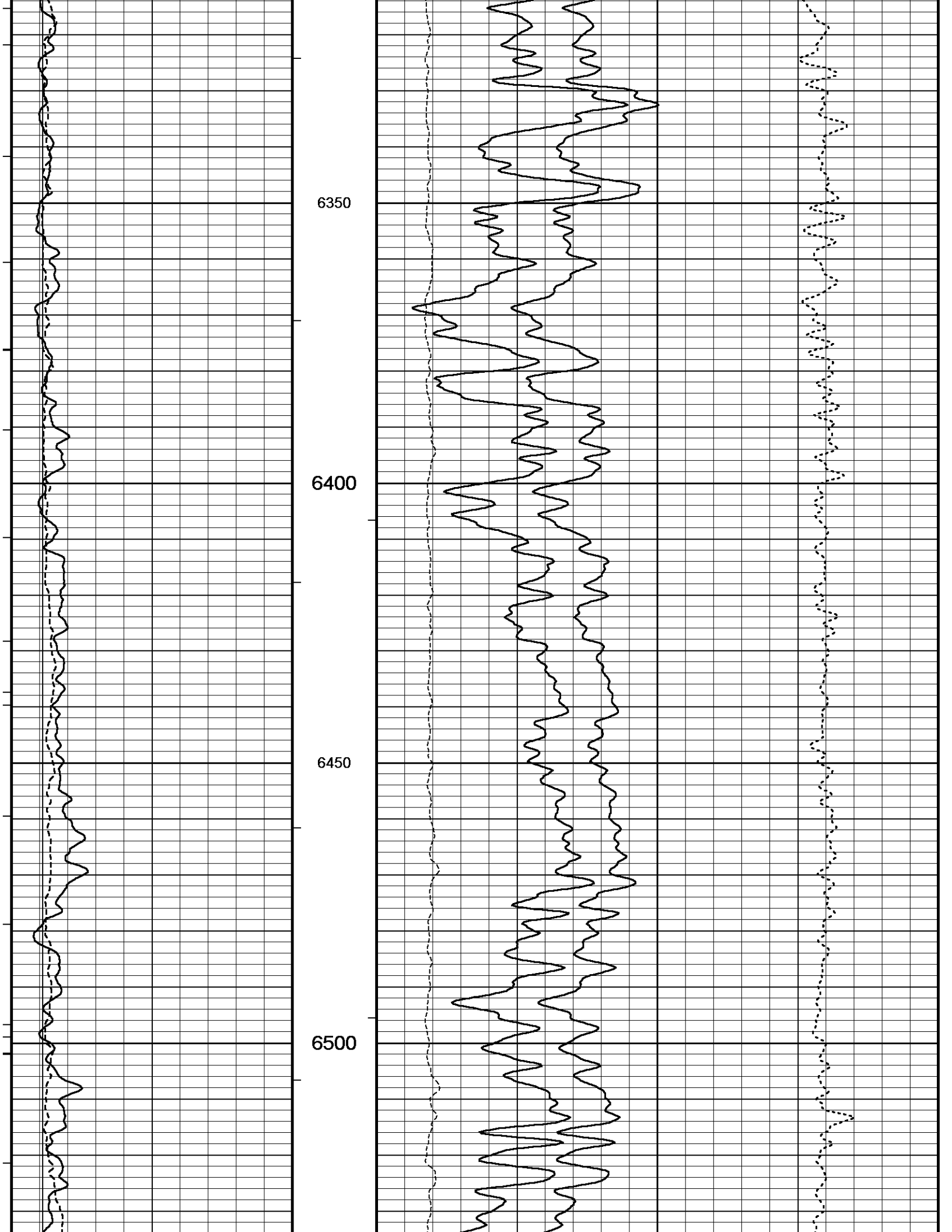
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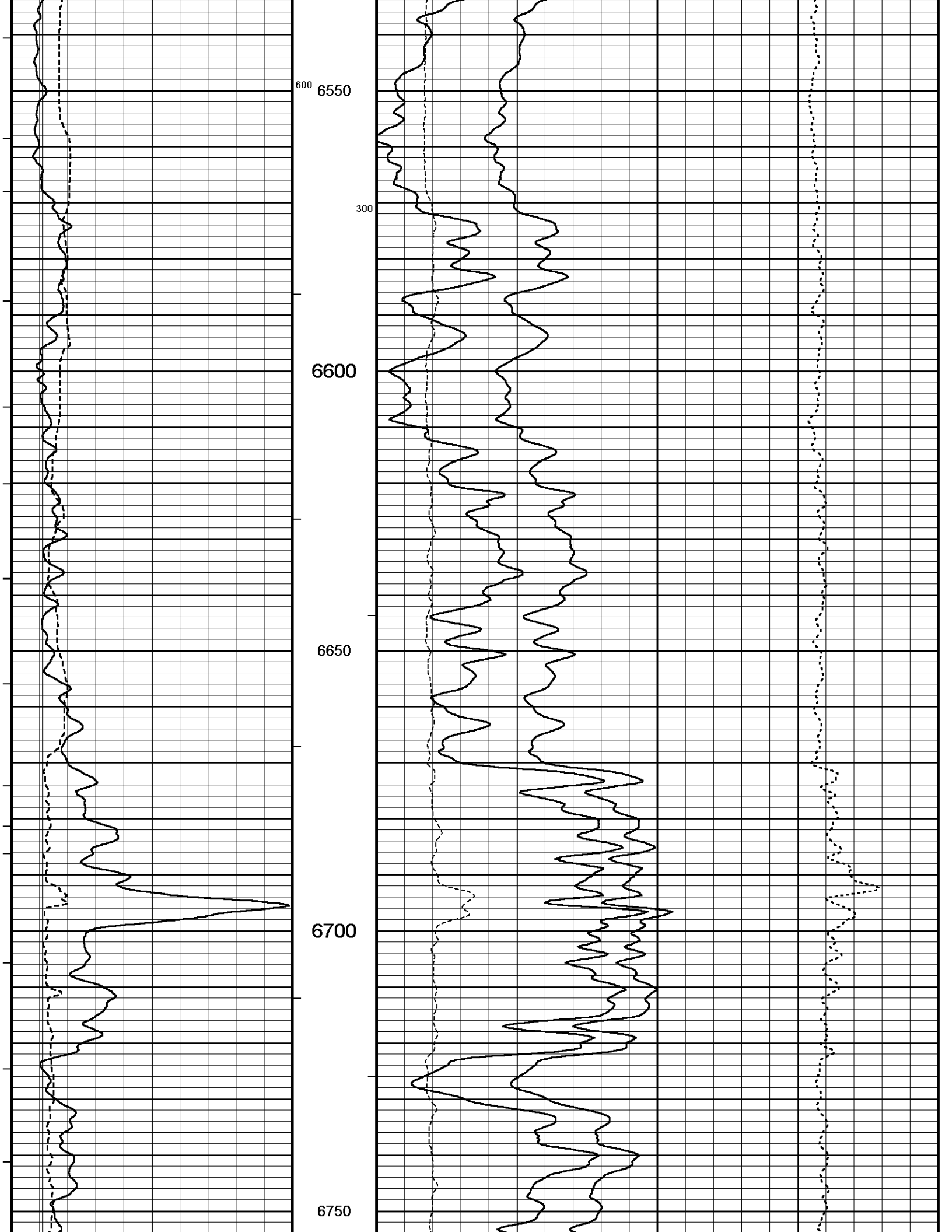
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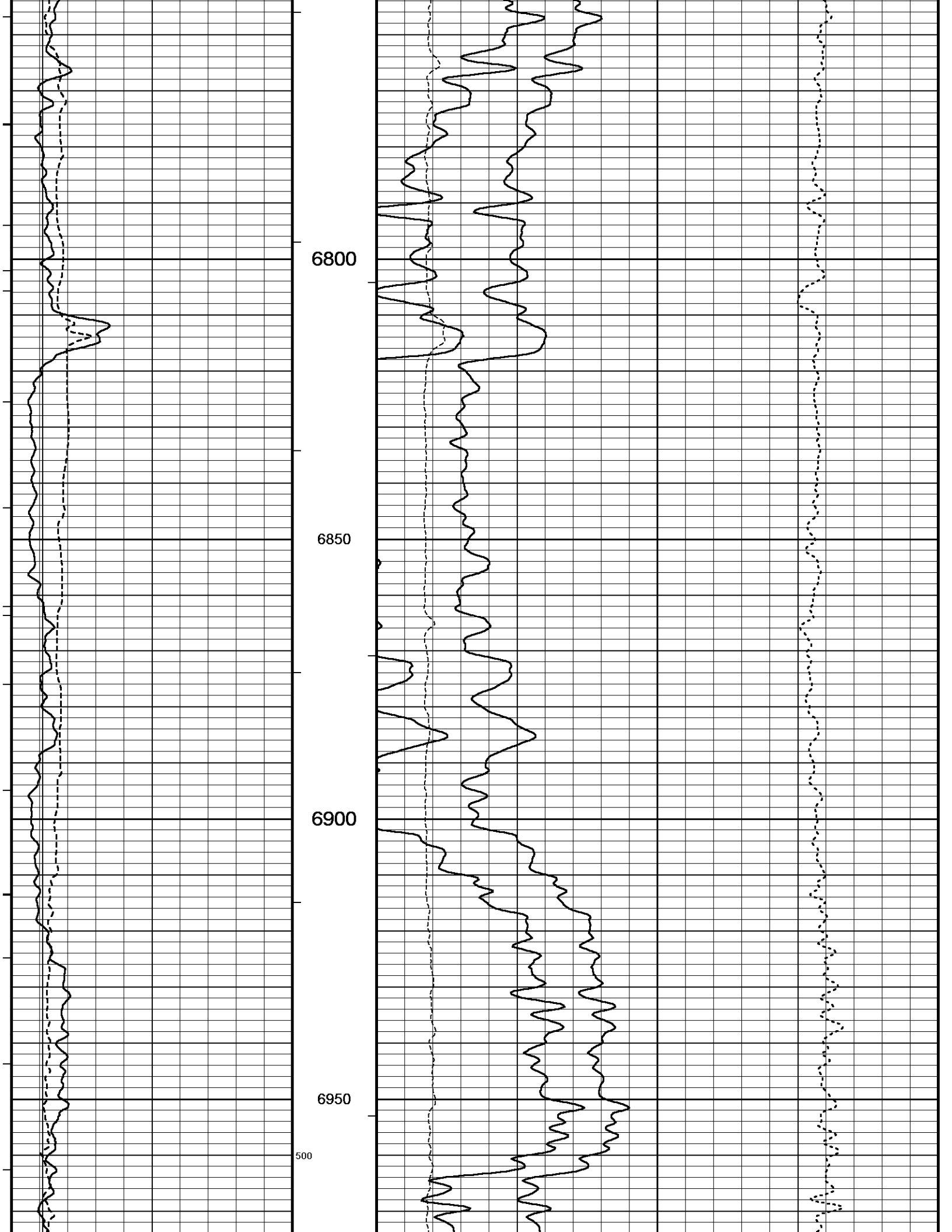
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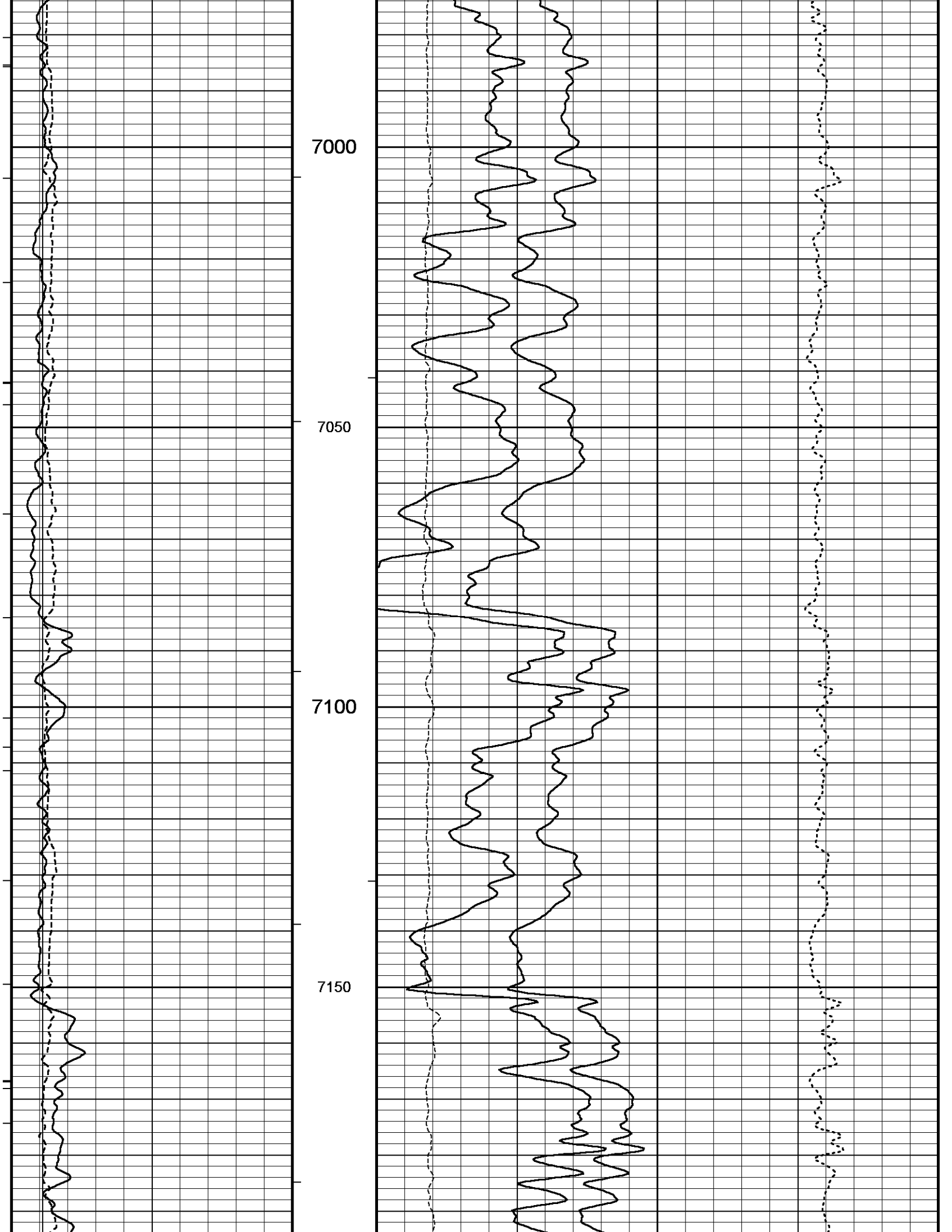
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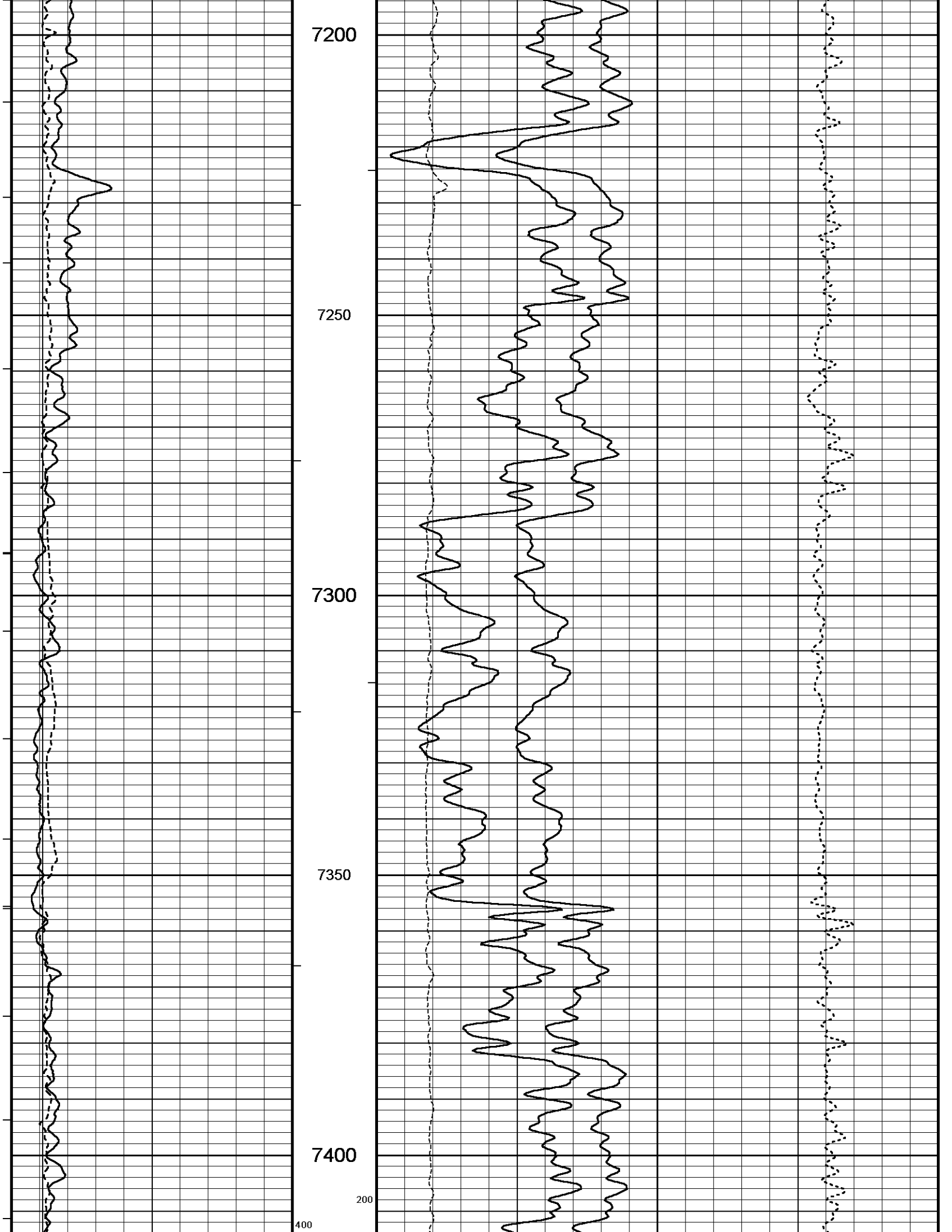
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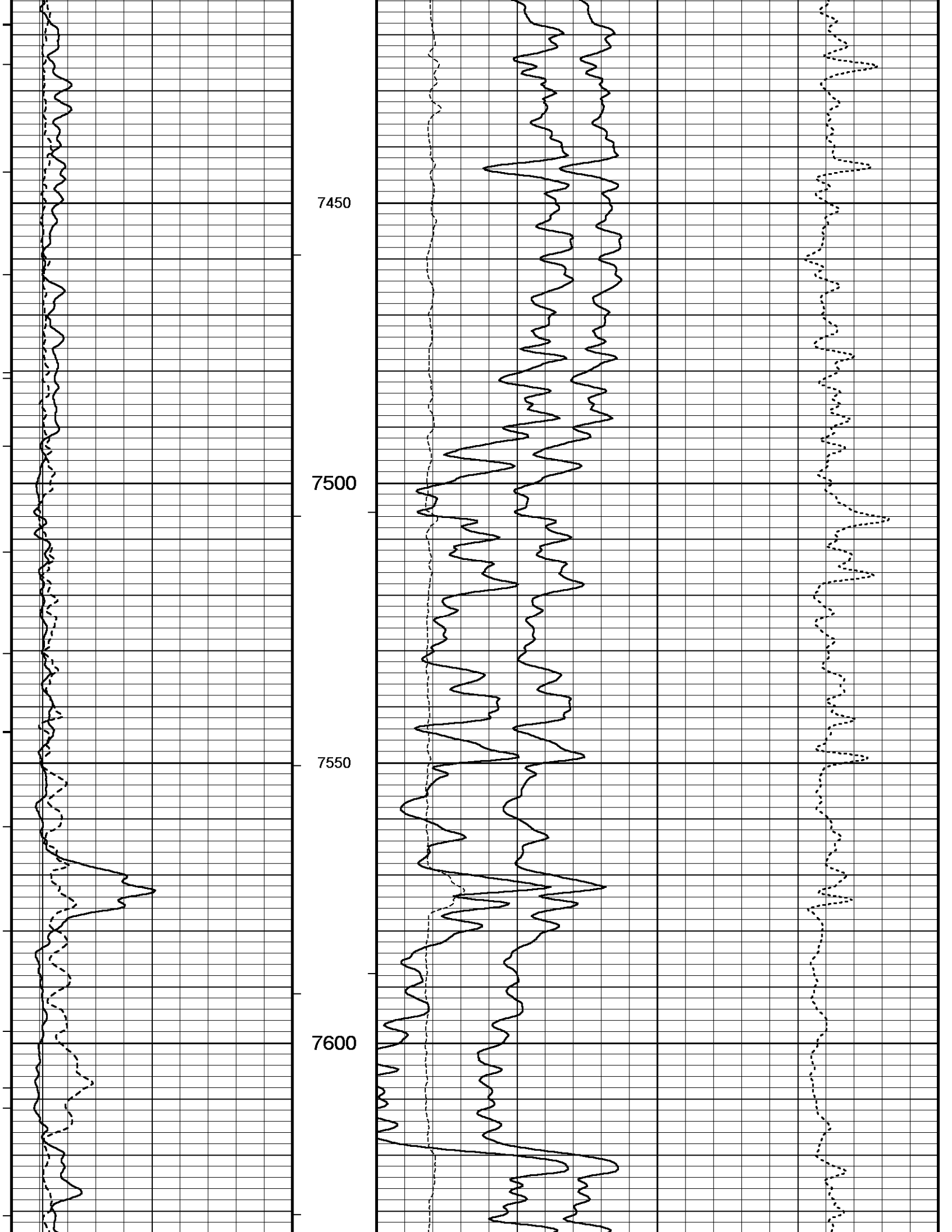
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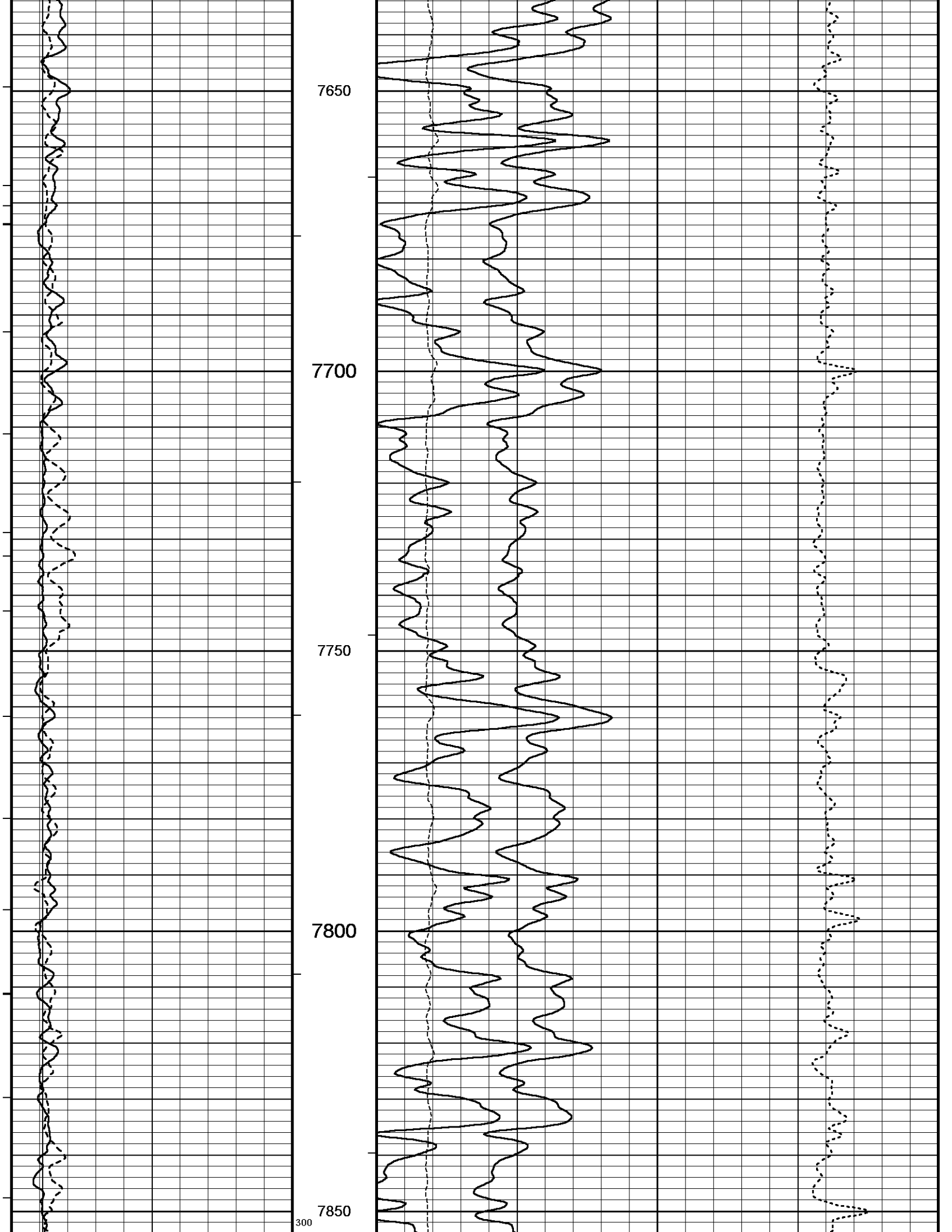
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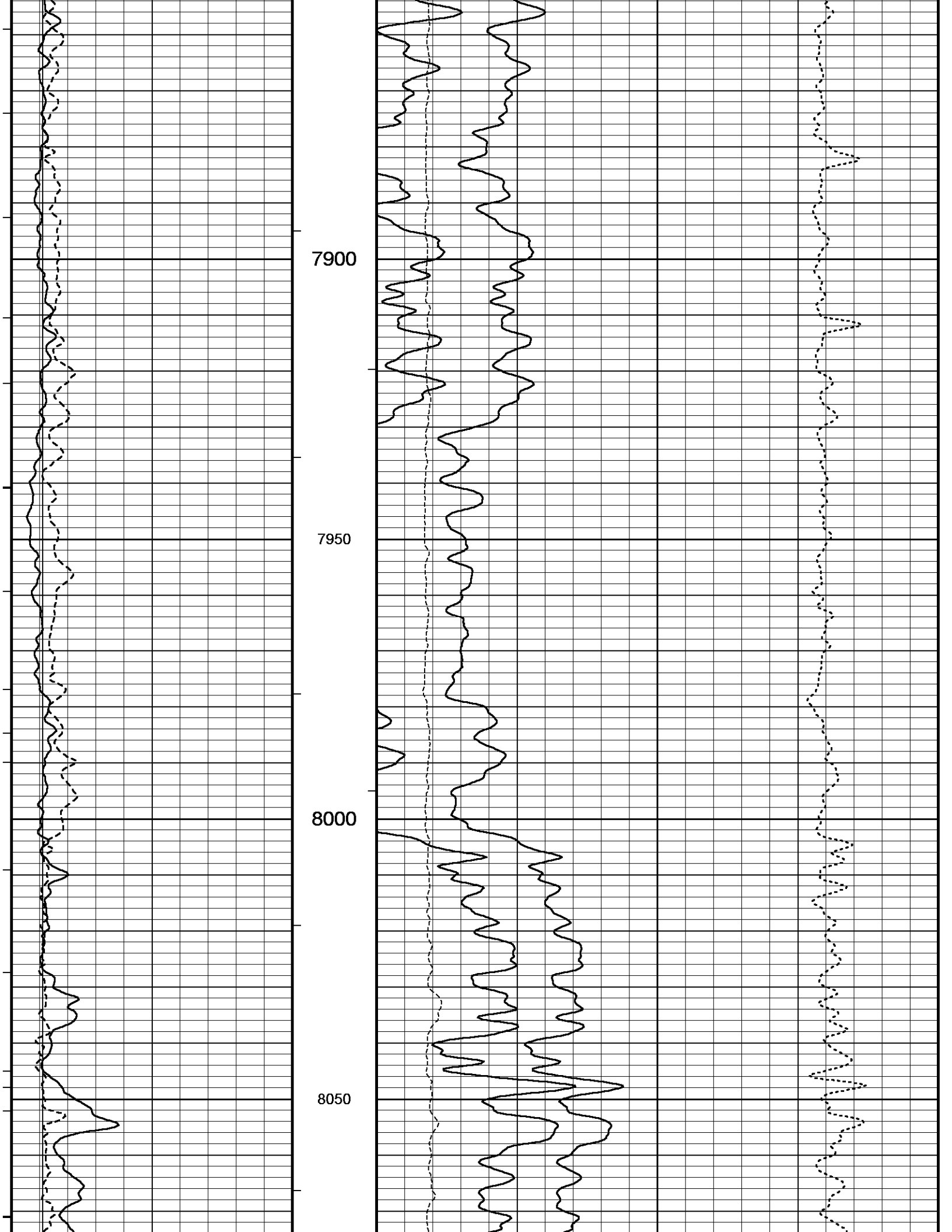
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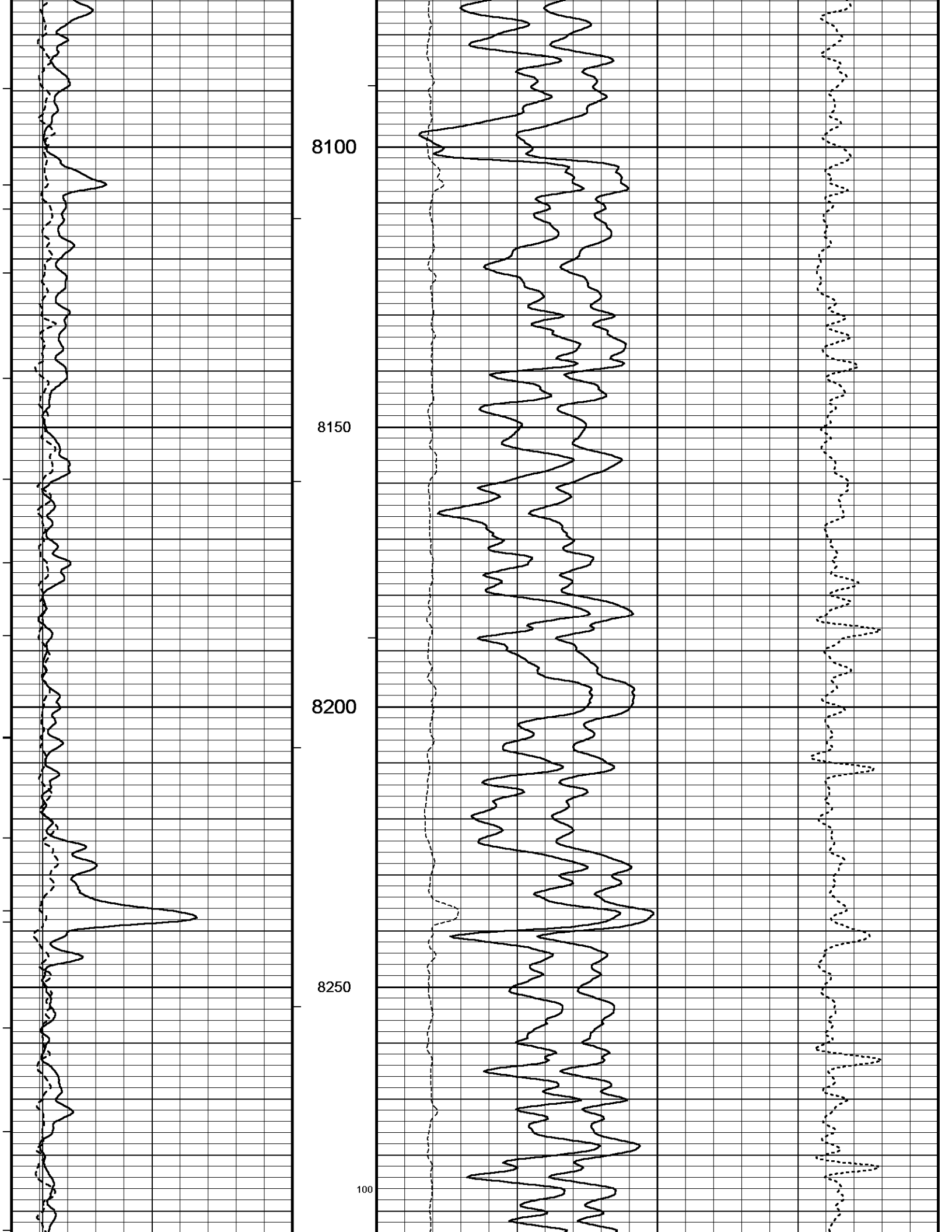
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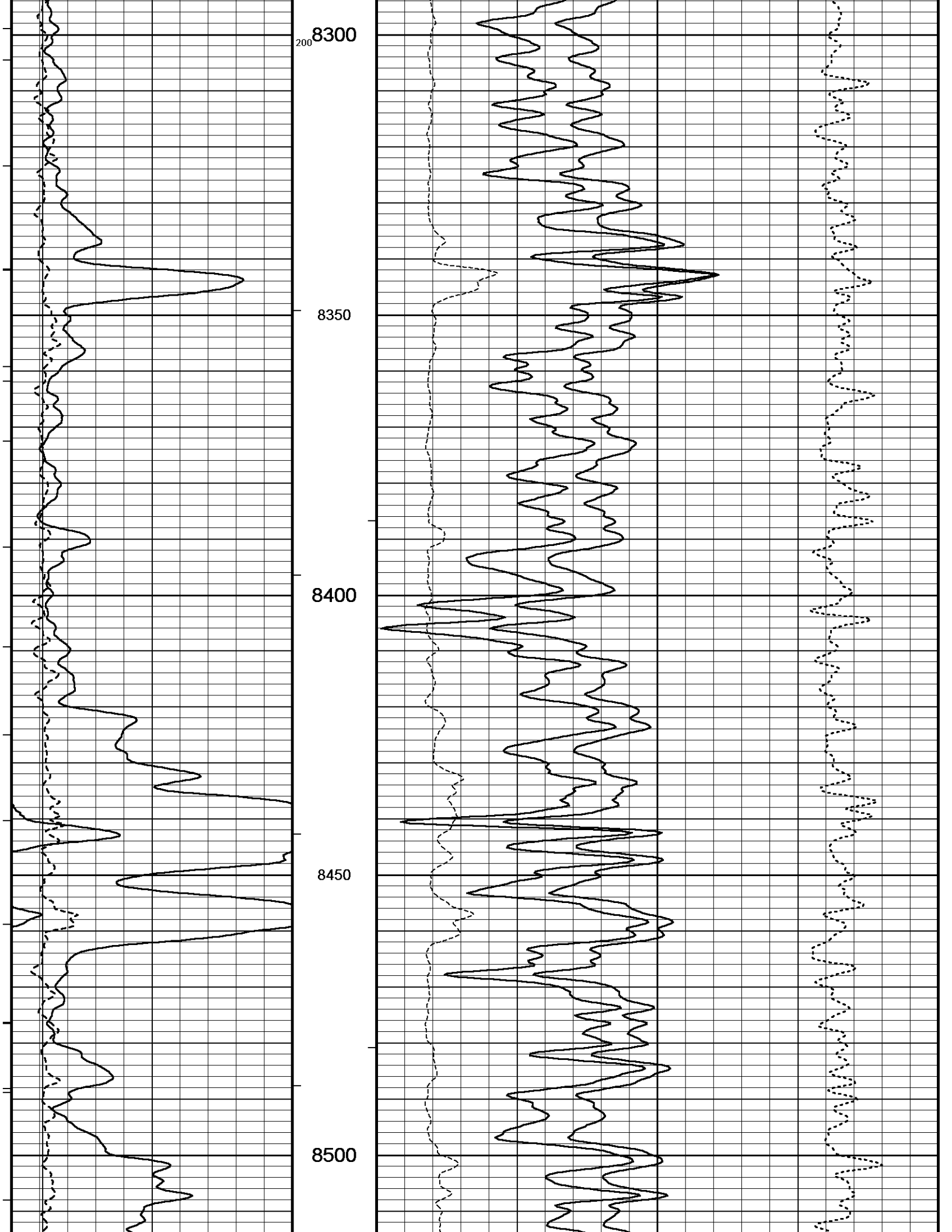
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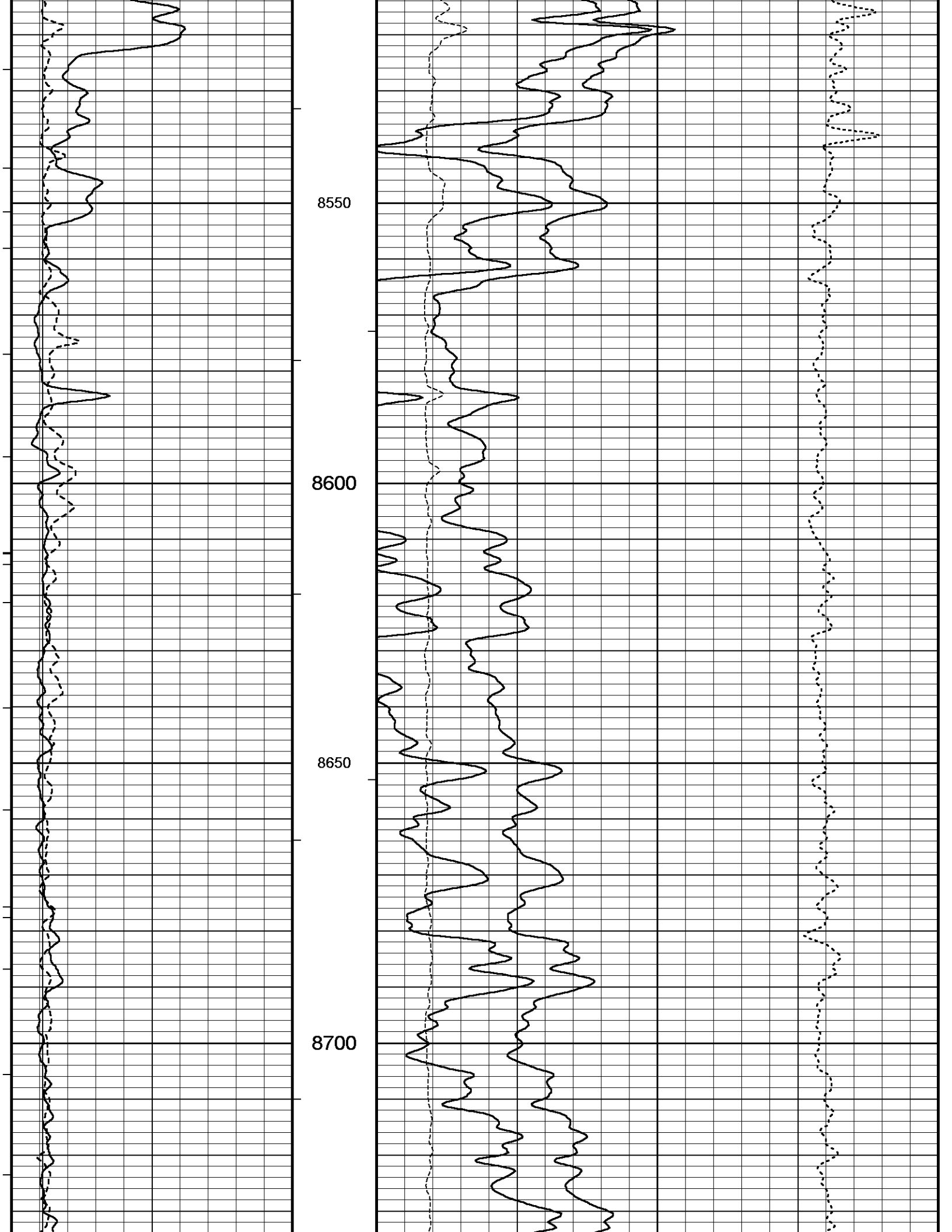
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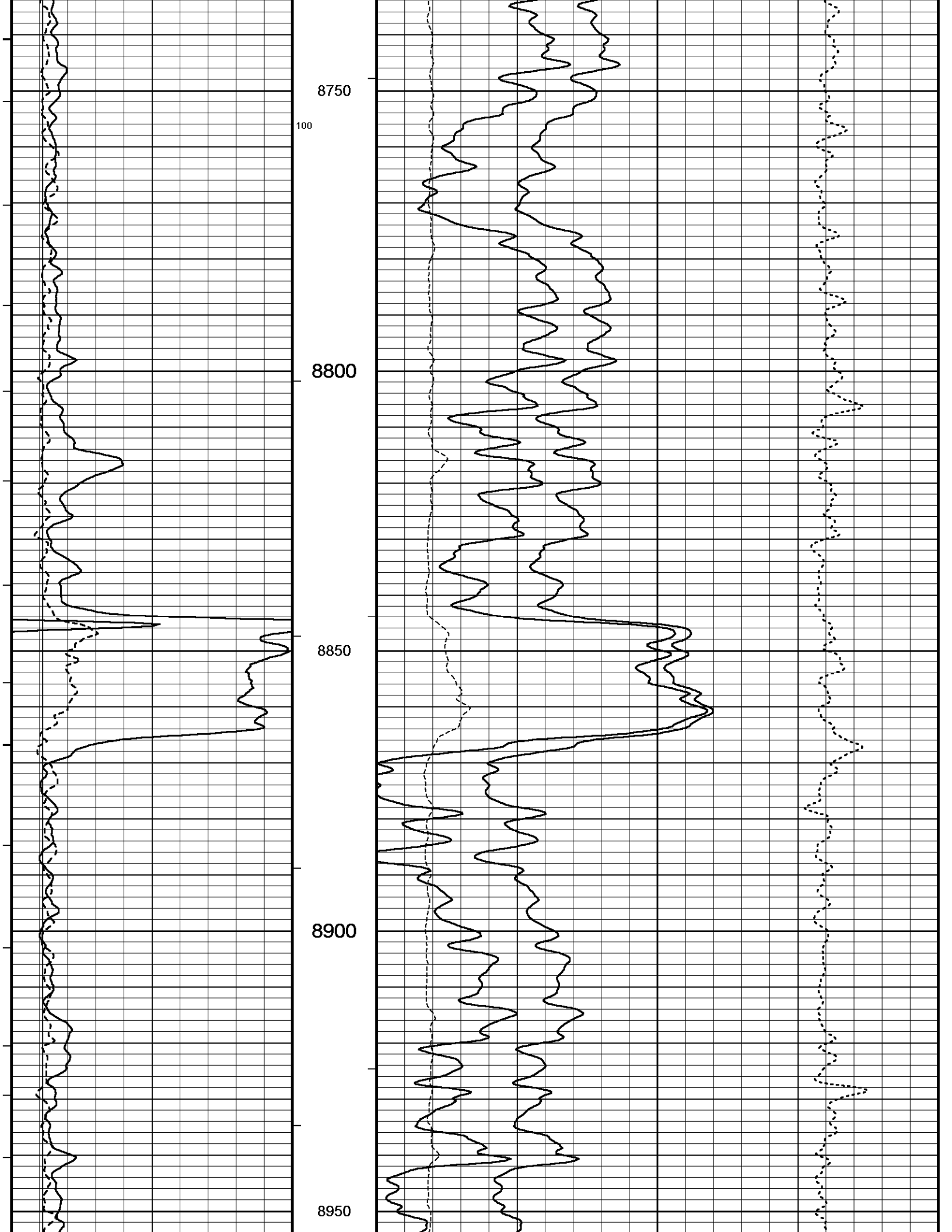
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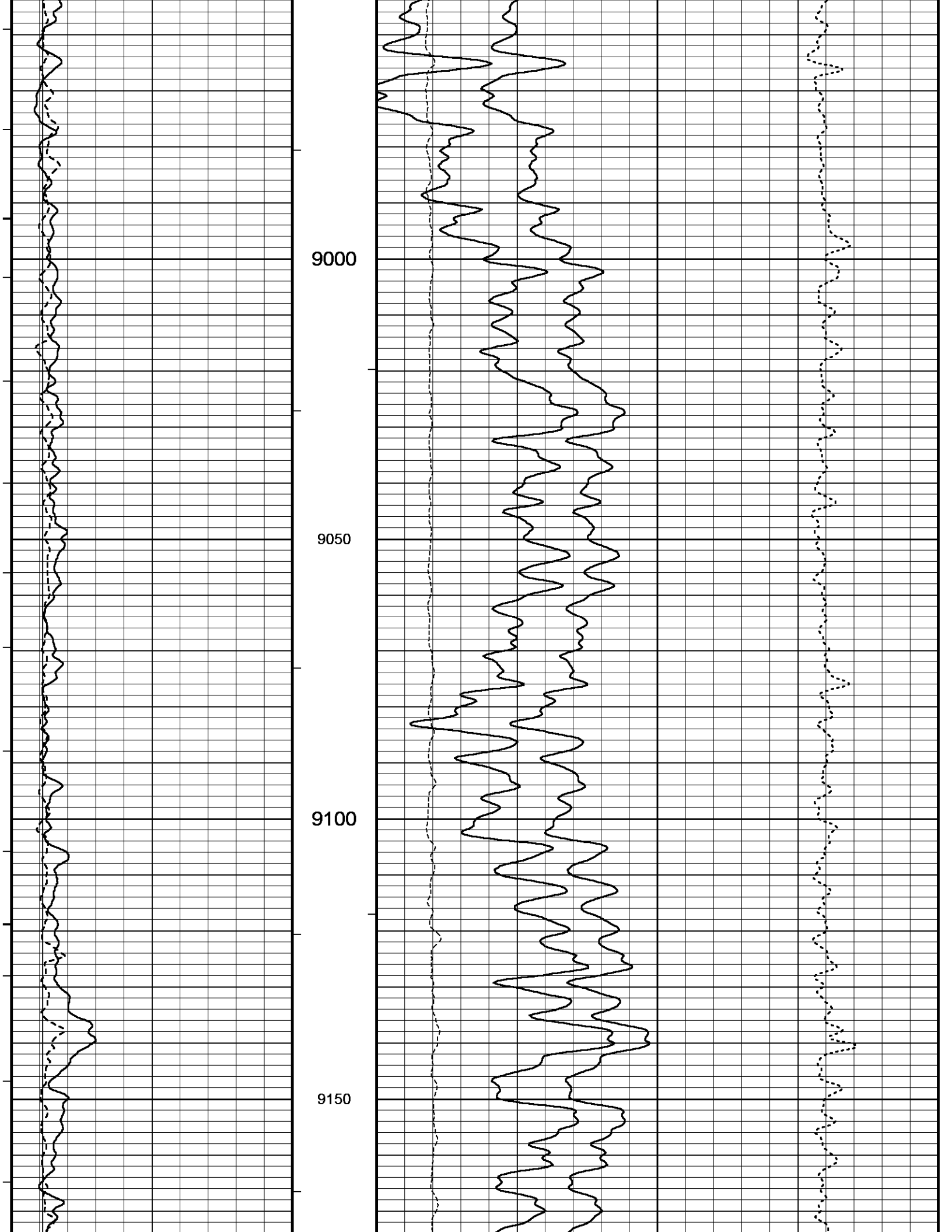
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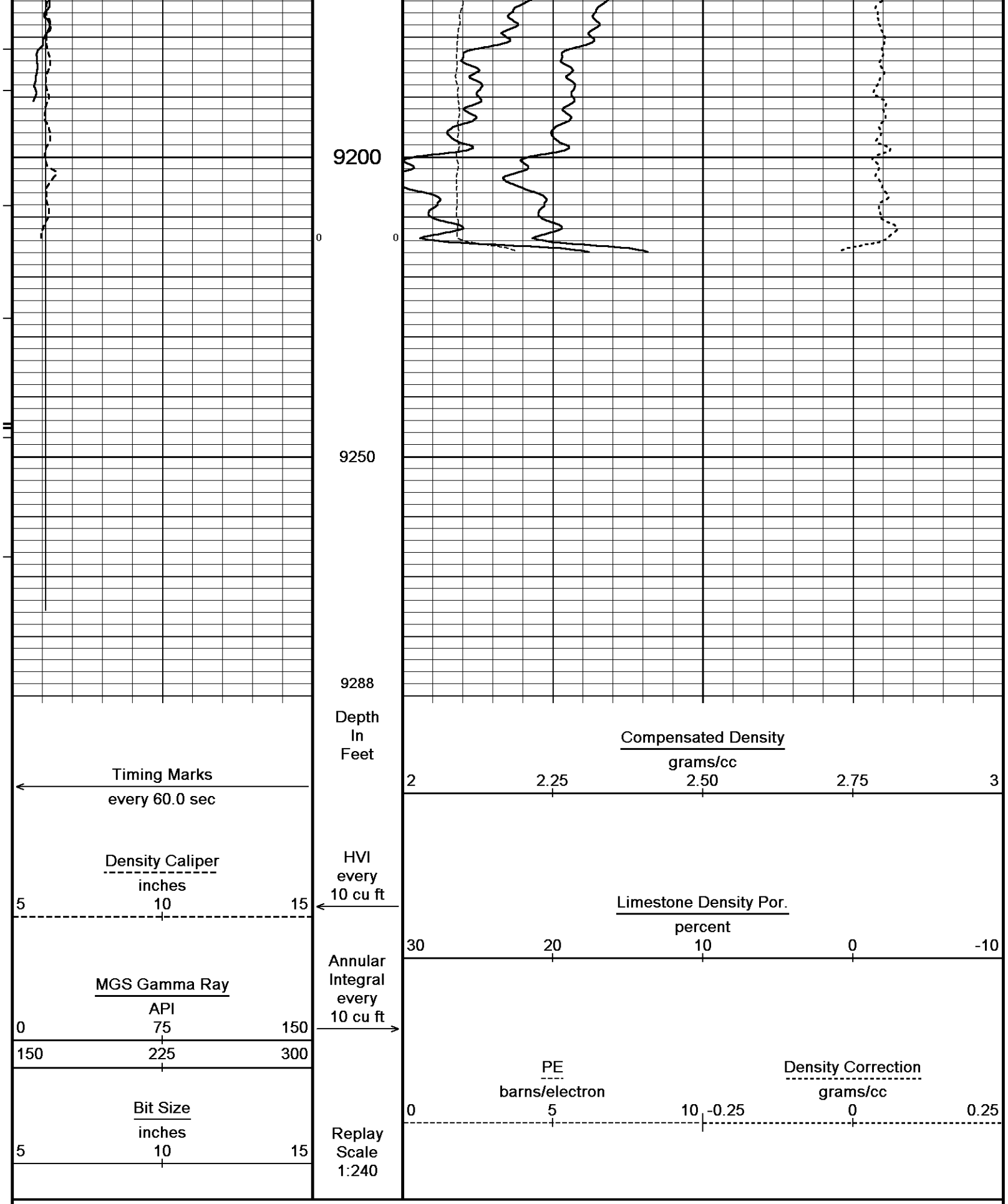


Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 09-JUL-2011 11:47

Filename: C:\Data\CMX\CMX Grinch 1-8H\MMS134 Depthlog RTAP.dta

Recorded on 09-JUL-2011 09:40

System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.01.2198

5 INCH BULK DENSITY DSC

BEFORE SURVEY CALIBRATION

C:\Data\CMX\CMX Grinch 1-8H\MMS134 Depthlog RTAP.dta

General Constants All 000

Last Edited on 08-JUL-2011,09:53

General Parameters		
Mud Resistivity	1.800	ohm-metres
Mud Resistivity Temperature	83.000	degrees F
Water Level	0.000	feet
Density/Neutron Processing	Wet Hole	
Hole/Annular Volume and Differential Caliper Parameters		
HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	4.500	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	Limestone Density Por.	
Resistivity used	Deep Induction	
RWA Constant A	0.610	
RWA Constant M	2.150	

Down-hole Tension Calibration SMS 0

Field Calibration on 27-APR-2009 11:57

Reading No	Measured	Calibrated (lbs)
1	15257.84	0.00
2	16706.18	410.00

Gamma Calibration MGS-C.J 134

Field Calibration on 08-JUL-2011,09:54

	Measured	Calibrated (API)
Background	35	23
Calibrator (Gross)	1357	880
Calibrator (Net)	1321	857

Gamma Constants MGS-C.J 134

Last Edited on 09-JUL-2011,09:38

Gamma Calibrator Number		
Mud Density	1.00	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Centred	
Concentration of KCl	0.00	kppm

High Resolution Temperature Constants MGS-C.J 134

Last Edited on

Pre-filter Length	11

Neutron Calibration MDN-A.B 55

Base Calibration on 11-NOV-2010,13:49
Field Check on 08-JUL-2011,09:55

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3028	92	3714	110
Ratio	32.967		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	2192	3235
Ratio	0.678	

Field Check

	Calibrated (cps)	
	2187	3232
Ratio	0.677	

Neutron Constants MDN-A.B 55

Last Edited on 05-JUL-2011,04:47

Neutron Source Id		
Neutron Jig Number		
Epithermal Neutron	No	
Caliper Source for Processing	Density Caliper	
Stand-off	0.00	inches

Mud Density	1.00	gm/cc
Limestone Sigma	7.10	cu
Sandstone Sigma	4.26	cu
Dolomite Sigma	4.70	cu
Formation Pressure Source	Constant Value	
Formation Pressure	0.00	kpsi
Temperature Source	Constant Value	
Temperature	68.00	degrees F
Mud Salinity	0.00	kppm
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	

Caliper Calibration MIE-A.A 157

Base Calibration on 15-JUN-2011,18:31
Field Calibration on

Base Calibration

Reading No	Pads 1-5 Meas.	Pads 3-7 Meas.	Calibrator Size (in)
1	27578	24953	5.96
2	37593	35378	7.97
3	46718	45437	9.84
4	54728	56674	11.91
5	0	0	0.00

Reading No	Pad 2 Meas.	Pad 4 Meas.	Pad 6 Meas.	Pad 8 Meas.	Calibrator Size (in)
1	24977	25834	24670	24710	5.96
2	33477	34464	33758	33253	7.97
3	41570	42948	42651	41381	9.84
4	48808	53947	54271	49710	11.91
5	0	0	0	0	0.00

Field Calibration

Measured Pads 1-5 Caliper(in)	Measured Pads 3-7 Caliper(in)	Actual Caliper(in)
0.00	0.00	0.00

Measured Pad 2 Caliper(in)	Measured Pad 4 Caliper(in)	Measured Pad 6 Caliper(in)	Measured Pad 8 Caliper(in)	Actual Caliper(in)
0.00	0.00	0.00	0.00	0.00

Caliper Constants MIE-A.A 157

Last Edited on 15-JUN-2011,16:35

Caliper Difference for BRKT	0.120	inches

Accelerometer Parameters MIE-A.A 157

Date Of Last Accelerometer Calibration 15-JUN-2011,18:26

	X Accelerometer	Y Accelerometer	Z Accelerometer
Slope	-1.100420	-1.112970	-1.103290
Offset	0.010030	0.006058	0.004528

Accelerometer Constants MIE-A.A 157

Last Edited on

Accelerometer Calibrator Number 000

Accelerometer Temperature Characterisation

X Accelerometer

Serial Number	0			
Calibration Date	01-Jan-1998			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	0.00000e+000	0.00000e+000	0.00000e+000
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	0.00000e+000	0.00000e+000	0.00000e+000	0.00000e+000

Y Accelerometer

Serial Number	0			
Calibration Date	01-Jan-1998			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	0.00000e+000	0.00000e+000	0.00000e+000
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	0.00000e+000	0.00000e+000	0.00000e+000	0.00000e+000

Z Accelerometer

Serial Number	0

Calibration Date	01-Jan-1998			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	0.00000e+000	0.00000e+000	0.00000e+000
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	0.00000e+000	0.00000e+000	0.00000e+000	0.00000e+000

Magnetometer Parameters MIE-A.A 157

Date Of Last Magnetometer Calibration 15-JUN-2011,18:20

	X Magnetometer	Y Magnetometer	Z Magnetometer
Slope	-1.000000	-1.010900	-0.991300
Offset	0.009075	-0.017800	0.012725

Magentometer Constants MIE-A.A 157

Last Edited on

Magnetometer Calibrator Number 000

Navigation Constants MIE-A.A 157

Last Edited on 15-JUN-2011,18:17

Magnetic Declination	4.16	degrees	East

Imager Pad Check MIE-A.A 157

Field Check on

Pad 1	Pad Not Tested	Pad 5	Pad Not Tested
Pad 2	Pad Not Tested	Pad 6	Pad Not Tested
Pad 3	Pad Not Tested	Pad 7	Pad Not Tested
Pad 4	Pad Not Tested	Pad 8	Pad Not Tested

Compact Micro Imager Constants MIE-A.A 157

Last Edited on 16-JUN-2011,15:55

Centre Pad 1 Rotational Offset	0.00	degrees
Image/Borehole Ovality Reference	Relative Bearing	
Non Active Buttons	Omit	
Search Angle	0.00	degrees
Correlation Interval	3.28	feet
Correlation Step	1.64	feet
Current Offset	0.0000	mAmp
Squasher Start	0.0500	mAmp
Image Processing	Disabled	

High Resolution Temperature Calibration MAI-B.J 391

Field Calibration on 13-SEP-2010,09:14

	Measured	Calibrated(Deg C)
Lower	10.00	10.00
Upper	100.00	100.00

High Resolution Temperature Constants MAI-B.J 391

Last Edited on

Pre-filter Length 11

Induction Calibration MAI-B.J 391

Base Calibration on 13-SEP-2010,09:14
Field Check on 08-JUL-2011 09:52

Base Calibration

Test Loop Calibration

Channel	Measured Low	Measured High	Calibrated (mmho/m) Low	Calibrated (mmho/m) High
1	17.1	473.5	9.3	966.2
2	6.0	381.9	7.6	821.4
3	3.8	262.4	5.2	566.0
4	2.3	133.8	2.6	279.2

Array Temperature 76.6 Deg F

Channel	Base Check (mmho/m) Low	Base Check (mmho/m) High	Field Check (mmho/m) Low	Field Check (mmho/m) High
1	0.0	0.0	15.3	3826.0
2	0.0	0.0	31.0	3518.2
3	0.0	0.0	27.9	3010.7
4	0.0	0.0	18.9	2064.0
Deep	0.0	0.0	15.9	1957.2
Medium	0.0	0.0	41.1	3960.0
Shallow	0.0	0.0	48.1	5215.5

Array Temperature 0.0 100.2 Deg F

Induction Constants MAI-B.J 391

Last Edited on 09-JUL-2011,09:43

Induction Model	RtAP-WBM	
Caliper for Borehole Corr.	Density Caliper	
Hole Size for Borehole Correction	N/A	inches
Tool Centred	No	
Stand-off Type	Fins	
Stand-off	0.50	inches
Number of Fins on Stand-off	6.0000	
Stand-off Fin Angle	60.00	degrees
Stand-off Fin Width	0.5000	inches
Borehole Corr. Rm Source	Constant Value	
Temp. for Rm Corr.	N/A	
Squasher Start	0.0050	mhos/metre
Squasher Offset	N/A	mhos/metre

Borehole Normalisation

DRM1	0.0000	DRC1	0.0000
DRM2	0.0000	DRC2	0.0000
MRM1	0.0000	MRC1	0.0000
MRM2	0.0000	MRC2	0.0000
SRM1	0.0000	SRC1	0.0000
SRM2	0.0000	SRC2	0.0000

Calibration Site Corrections

Channel 1	0.00	mmhos/metre
Channel 2	0.00	mmhos/metre
Channel 3	0.00	mmhos/metre
Channel 4	0.00	mmhos/metre

Apparent Porosity and Water Saturation Constants

Archie Constant (A)	1.00	
Cementation Exponent (M)	2.00	
Saturation Exponent (N)	2.00	
Saturation of Water for Apor	100.00	percent
Resistivity of Water for Apor and Sw	0.05	ohm-m
Resistivity of Mud Filtrate for Sw	0.00	ohm-m
Source for Rt	0.00	
Source for Rxo	0.00	

Caliper Calibration MPD-B 120

Base Calibration on 20-MAY-2011 09:03
Field Calibration on 08-JUL-2011 10:01

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	16352	3.99
2	24641	5.97
3	33332	7.99
4	41400	9.86
5	50698	11.93
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
5.96	5.97

Photo Density Calibration MPD-B 120

Base Calibration on 08-APR-2011 13:26
Field Check on 08-JUL-2011 09:59

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	56043	29511	60364	31945
Reference 2	23035	2621	25079	2547

Field Check at Base

1047.4	1325.2

Field Check

1046.9	1322.9

PE Calibration

Base Calibration Measured Calibrated

Base Calibration	WS	Measured WH	Ratio	Calibrated Ratio
Background	184	913		
Reference 1	22023	55841	0.398	0.399
Reference 2	5988	22891	0.264	0.273
Field Check at Base	184.4	913.4		
Field Check	184.8	912.7		

Density Constants MPD-B 120

Last Edited on 05-JUL-2011,04:49

Density Source Id	246	
Nylon Calibrator Number	DNCE603	
Aluminium Calibrator Number	DACA509	
Density Shoe Profile	4 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	0.97	gm/cc
Mud Density Z/A Multiplier	1.11	
Mud Filtrate Density	1.00	gm/cc
Dry Hole Mud Filtrate Density	1.00	gm/cc
DNCT	0.00	gm/cc
CRCT	0.00	gm/cc
Density Z/A Correction	Hybrid	

Matrix Density (gm/cc)	Depth (ft)
2.71	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00

DOWNHOLE EQUIPMENT

C:\Data\CMX\CMX Grinch 1-8H\MMS134 Depthlog RTAP.dta

SRT Post Deployment
MLK-A 1 LG: 4.87 ft WT: 30.9 lb OD: 2.24 in

Empty Battery
MLK-A 3 LG: 14.17 ft WT: 30.9 lb OD: 2.24 in

Empty Battery
MLK-A 2 LG: 14.17 ft WT: 30.9 lb OD: 2.24 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 48 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MBS-F.A 200v Compact Battery Sub
MBS-F.A 71 LG: 17.06 ft WT: 123.5 lb OD: 2.24 in

Compact Memory Sub E.B
MMS-E.B 134 LG: 5.20 ft WT: 37.5 lb OD: 2.24 in

Compact Tool Isolator sub.
MTI-B.A 61 LG: 1.54 ft WT: 13.2 lb OD: 2.24 in

Compact Short Gamma
MGS-C.J 134 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint

SKJ-E.B 472 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-F Compact Swivel Head Adaptor
SHA-F 50 LG: 2.74 ft WT: 26.5 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 510 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron
MDN-A.B 55 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-B 120 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 604 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 430 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 467 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-E.B Compact Inline Standoff sub
MIS-E.B 572 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 207 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 590 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact MMI Memory Section
MIM-A.A 209 LG: 4.65 ft WT: 26.5 lb OD: 2.24 in

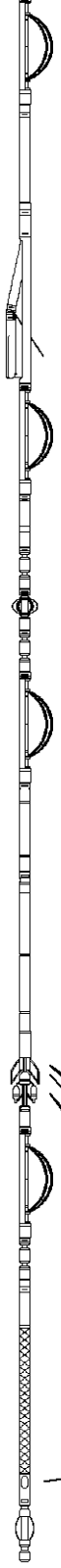
Compact MMI Electrode Section
MIE-A.A 157 LG: 13.96 ft WT: 99.2 lb OD: 4.10 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 596 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 473 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Compact Induction
MAI-B.J 391 LG: 12.52 ft WT: 48.5 lb OD: 2.24 in

Total Length: 146.98 ft Weight: 923.7 lb



COMPANY	CMX INC.
WELL	GRINCH 1-8H
FIELD	STRANATHAN EAST
PROVINCE/COUNTY	BARBER
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	1367.00	feet	First Reading	9216.00	feet
Elevation Drill Floor	1367.00	feet	Depth Driller	9315.00	feet
Elevation Ground Level	1350.00	feet	Depth Logger	9276.00	feet

COMPACT WELL SHUTTLE

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