Weatherford®

CML IMPULSE SHUTTLE COMPACT ARRAY INDUCTION LOG

COMPANY	SANDRIDGE EXPLORATION & PRODUCTIO
WELL	SALLY 3420 1-12H
FIELD	COLLIER FLATS
PROVINCE/COUNTY	COMANCHE
COUNTRY/STATE	USA / KANSAS
LOCATION	200' FNL & 660' FWL

40 Years of Wireline 1970 2010

SEC	TWP	RGE	Other Services
12	34S	20W	MDN/MPD

API Number 15-033-21647-01
Permit Number

Permanent Datum G.L., Elevation 1788 feet
Log Measured From KB
Drilling Measured From K.B.

Elevations:	feet
KB	1808.00
DF	1808.00
GL	1788.00

Date	09-AUG-2012			
Run Number	ONE			
Depth Driller	12182.00	feet		
Depth Logger	12164.00	feet		
First Reading	12158.00	feet		
Last Reading	5100.00	feet		
Casing Driller	5620.00	feet		
Casing Logger	5620.00	feet		
Bit Size	6.125	inches		
Hole Fluid Type	WATER			
Density / Viscosity	8.50 lb/USg	29.00 CP		
PH / Fluid Loss	9.50	60.00 ml/30Min		
Sample Source	FLOWLINE			
Rm @ Measured Temp	1.85 @ 75.0	ohm-m		
Rmf @ Measured Temp	1.48 @ 75.0	ohm-m		
Rmc @ Measured Temp	2.22 @ 75.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	1.0 @138.0	ohm-m		
Time Since Circulation	0 HOURS			
Max Recorded Temp	138.00	deg F		
Equipment Name	COMPACT			
Equipment / Base	18064	OKC		
Recorded By	C. GRIFFIN			
Witnessed By	K. GENTRY			
S.O.#/ AFE	3536655/DC12233			

BOREHOLE RECORD

Last Edited: 09-AUG-2012 06:29

Bit Size inches	Depth From feet	Depth To feet
6.125	5620.00	12182.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
INTERMED	7.000	0.00	5620.00	26.00

REMARKS

WLS SOFTWARE VERSION 13.02. 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 12078 FT.
AFTER DEPLOYMENT LOGGING TOOL WAS AT 12164 FT.

4.5 " PRODUCTION CASING USED TO CALCULATE ANNULAR HOLE VOLUMES.

OPERATORS: R. ROLLANS, C. HAWKINS
S.O. # 3536655
RIG: LARIAT 38

employees. These interpretations are also subject to our general terms and conditions in our price schedule.

DSC

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\Data\Sandridge\Sandridge Sally 3420 1-12H\MMS167 Depthlog.dta
System Versions: Processed with 12.02.4401 Plotted with 12.02.4401

Plotted on 10-AUG-2012 01:10
Recorded on 10-AUG-2012 00:29

Timing Marks
every 60.0 sec

MGS Gamma Ray
API
0 75 150
150 225 300

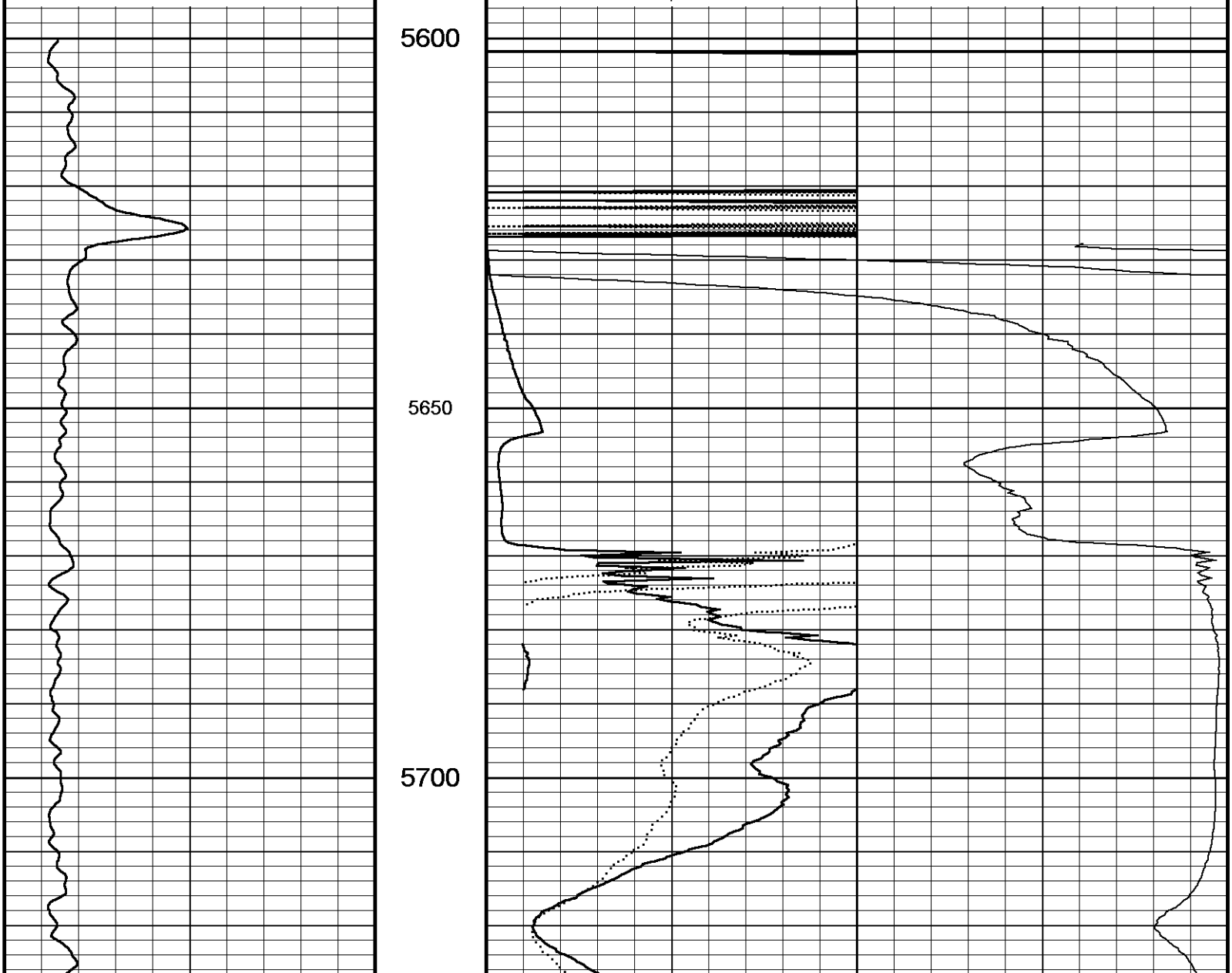
Depth In Feet

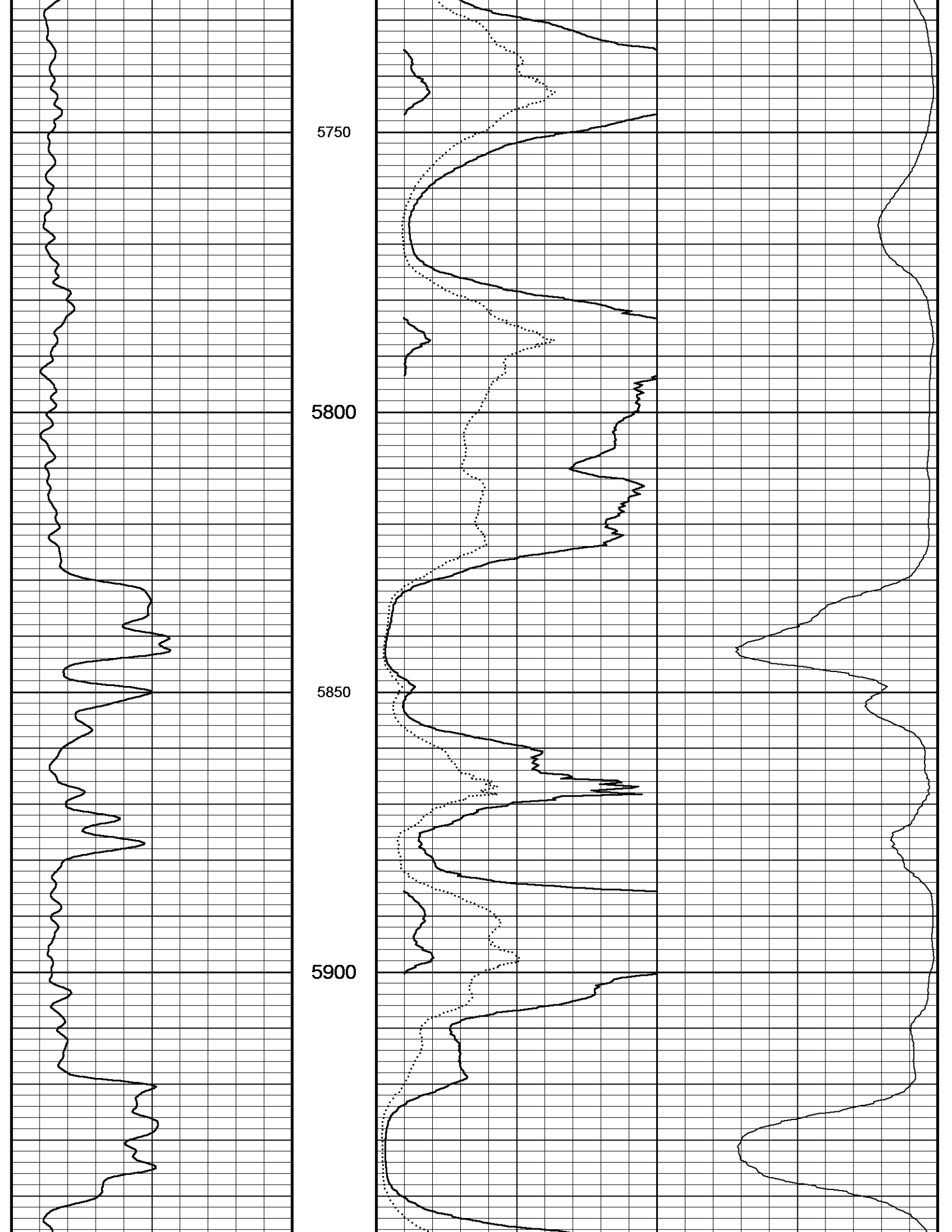
Replay Scale 1:240

Array Ind. Six Cond Ct
mmhos
400 300 200 100 0
800 700 600 500 400

Array Ind. Six Res 20
ohm metres
0 100 200
0 1000 2000

Array Ind. Six Res Rt
ohm metres
0 100 200
0 1000 2000

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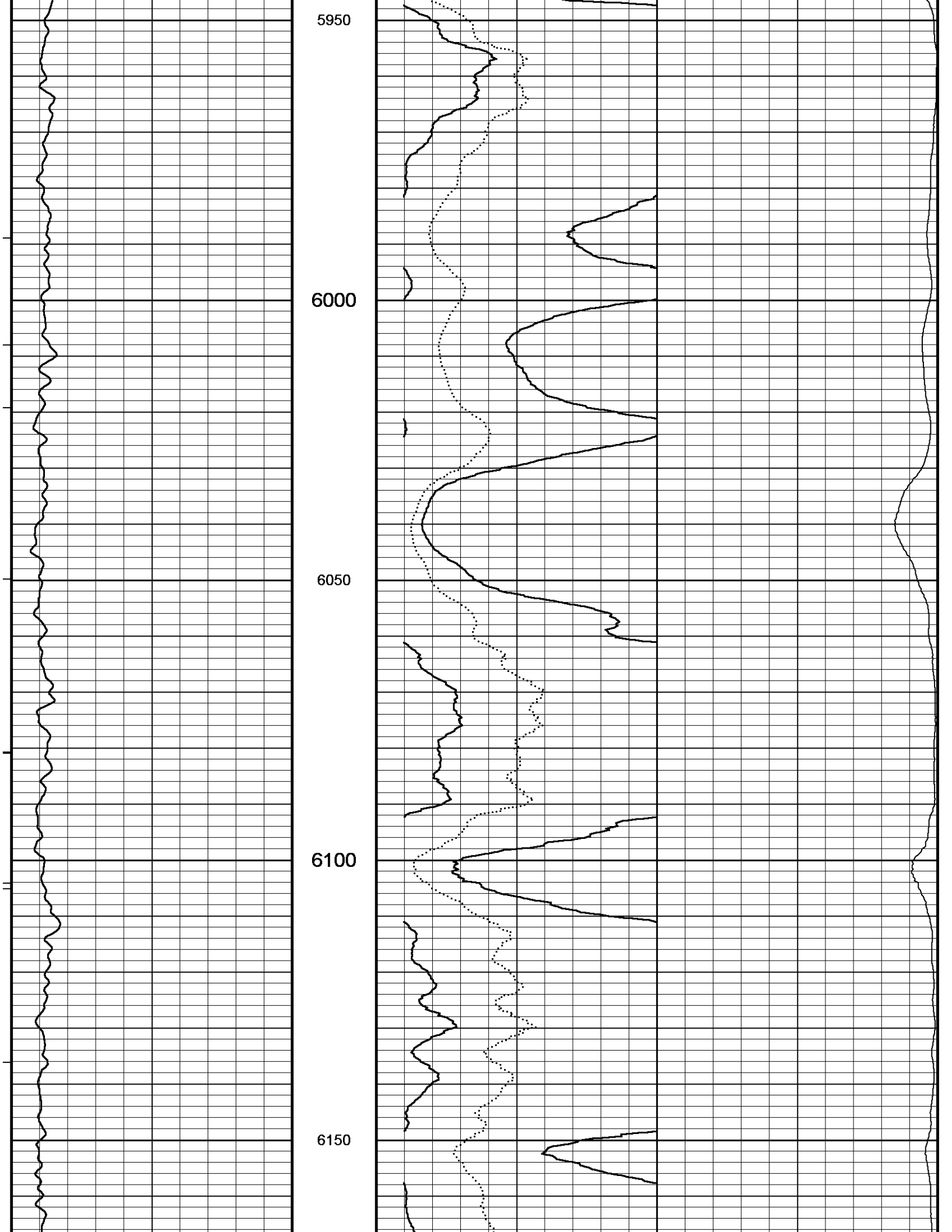
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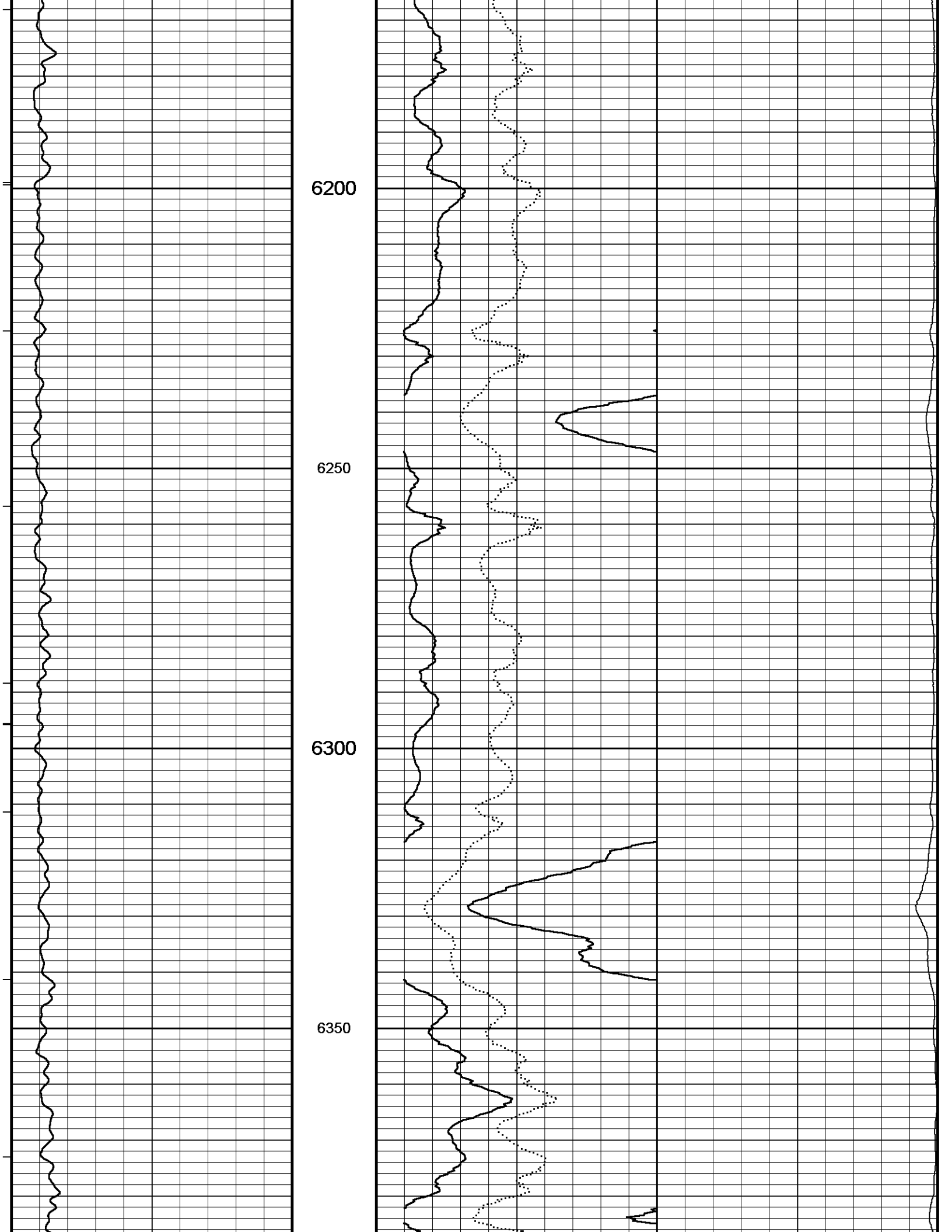
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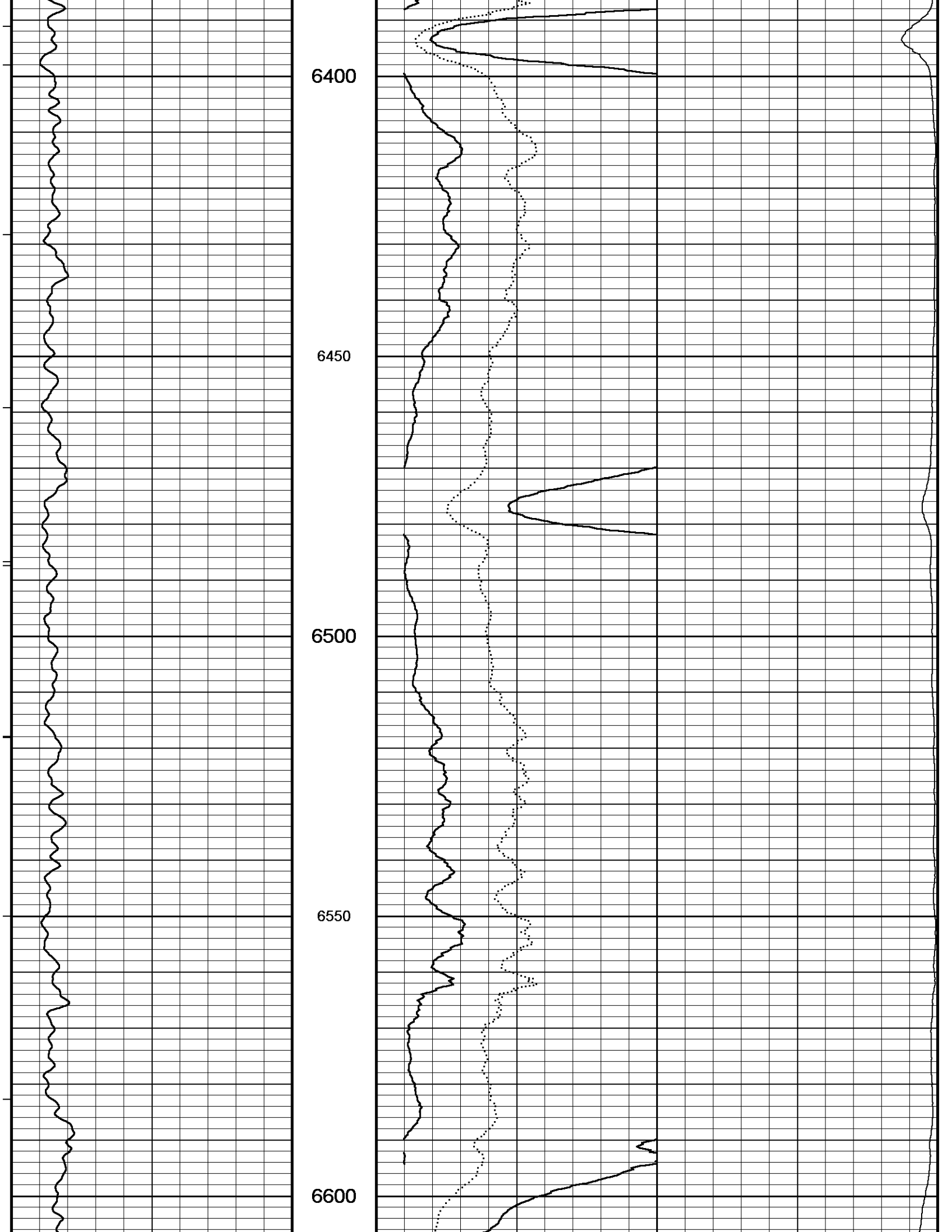
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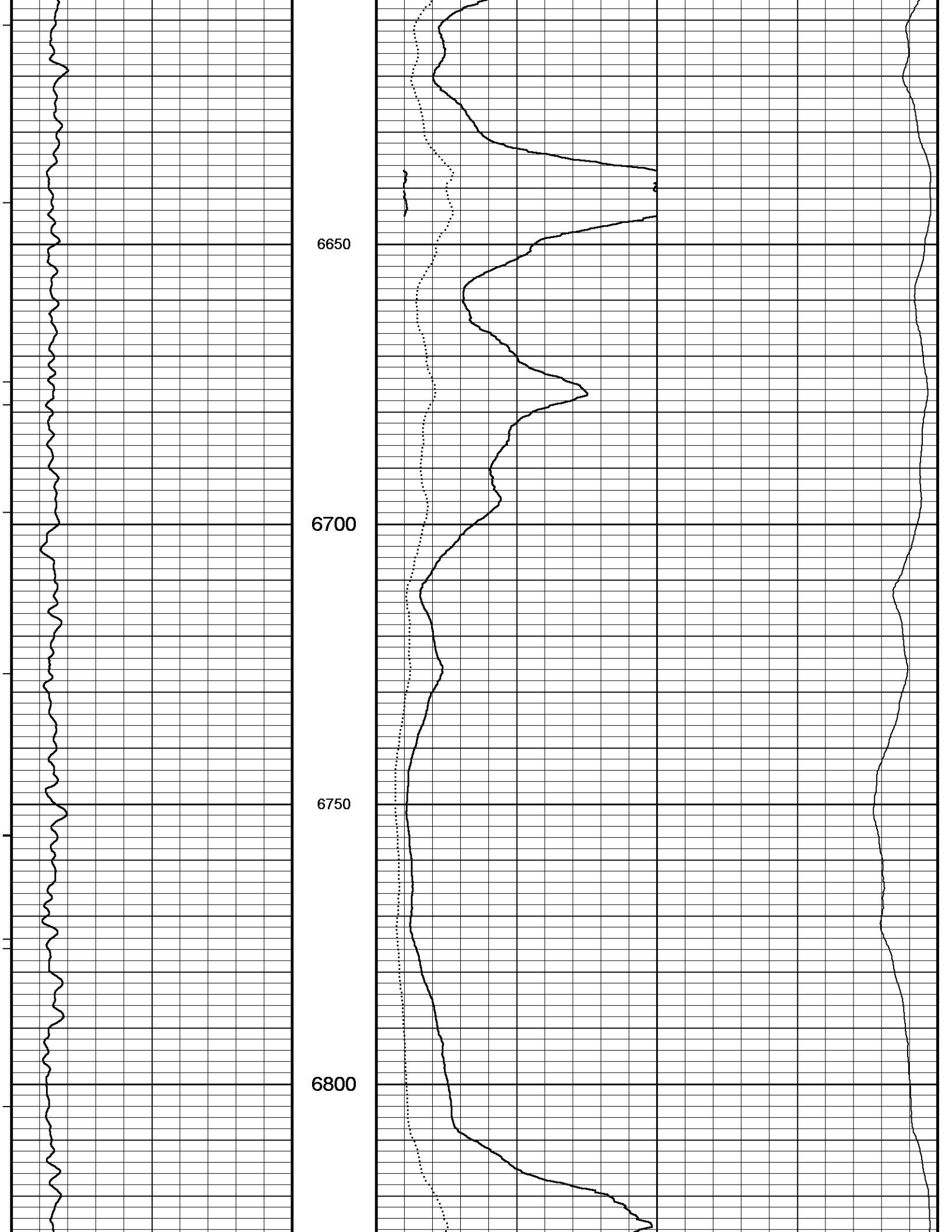
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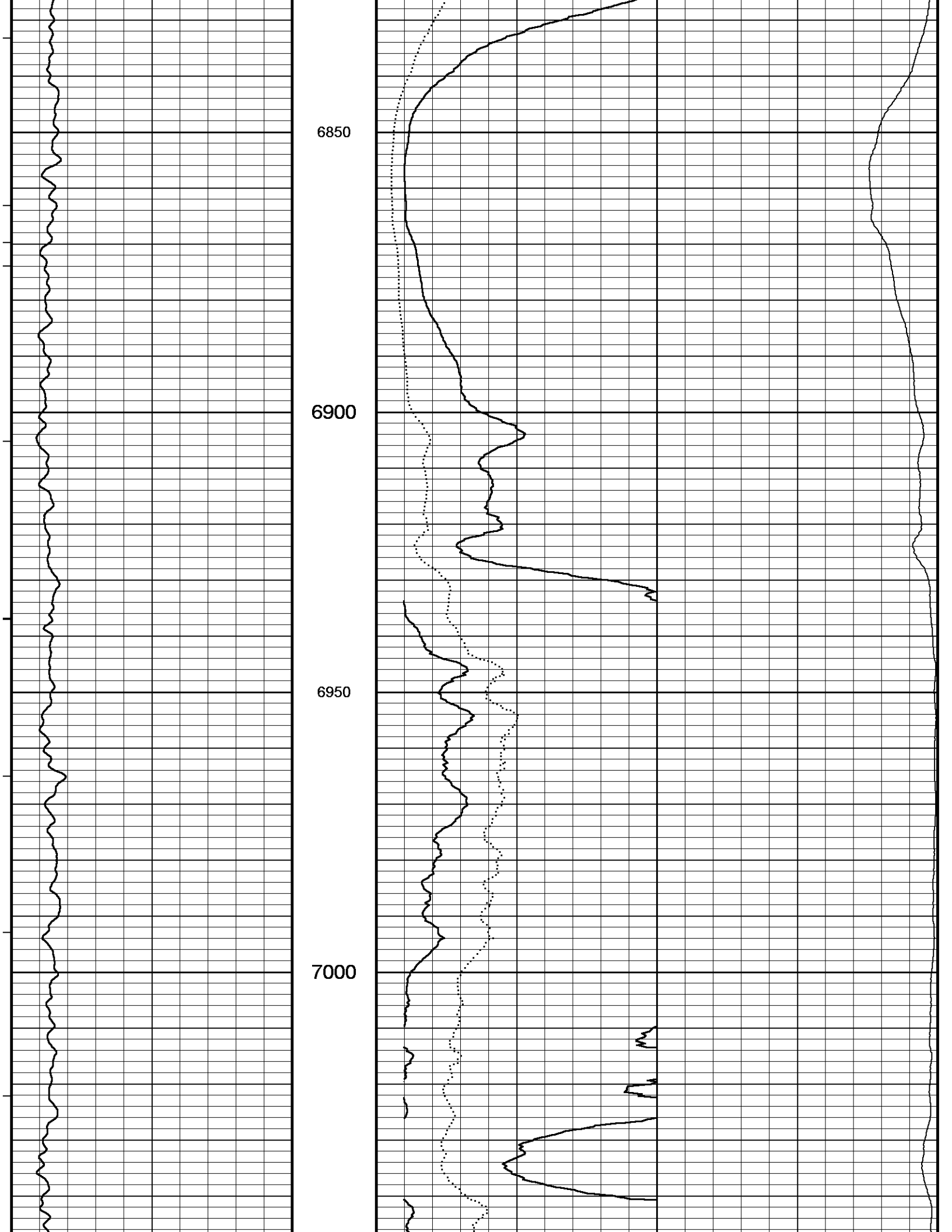
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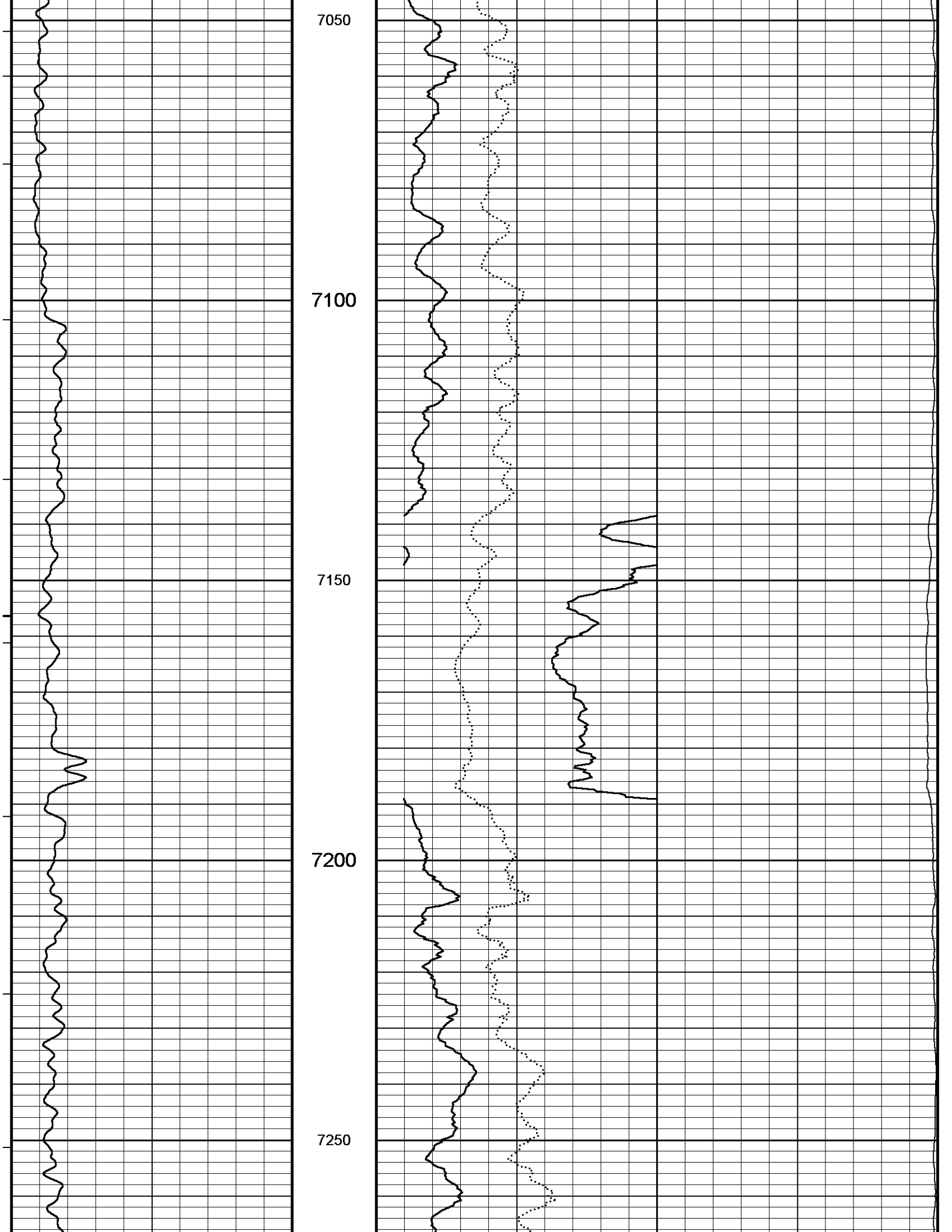
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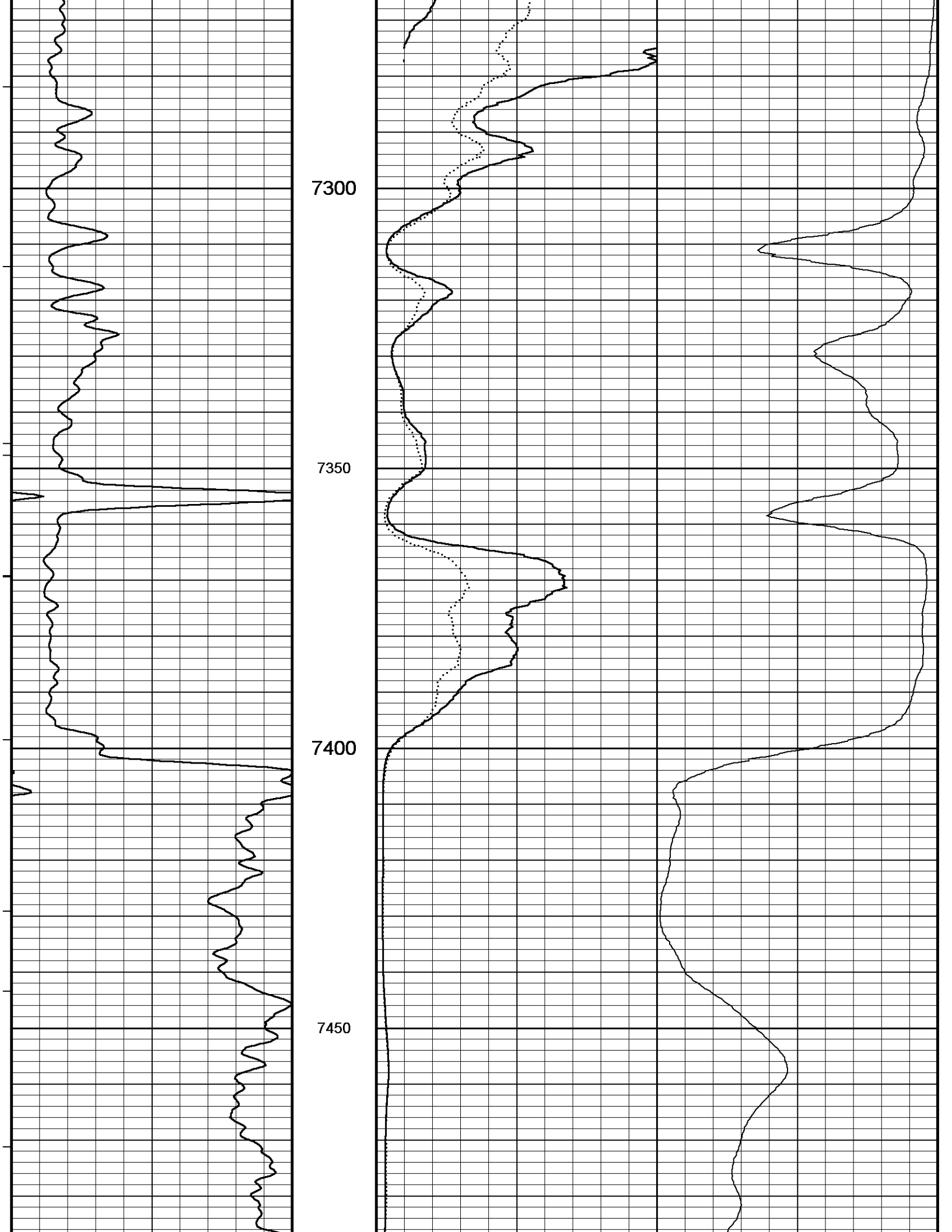
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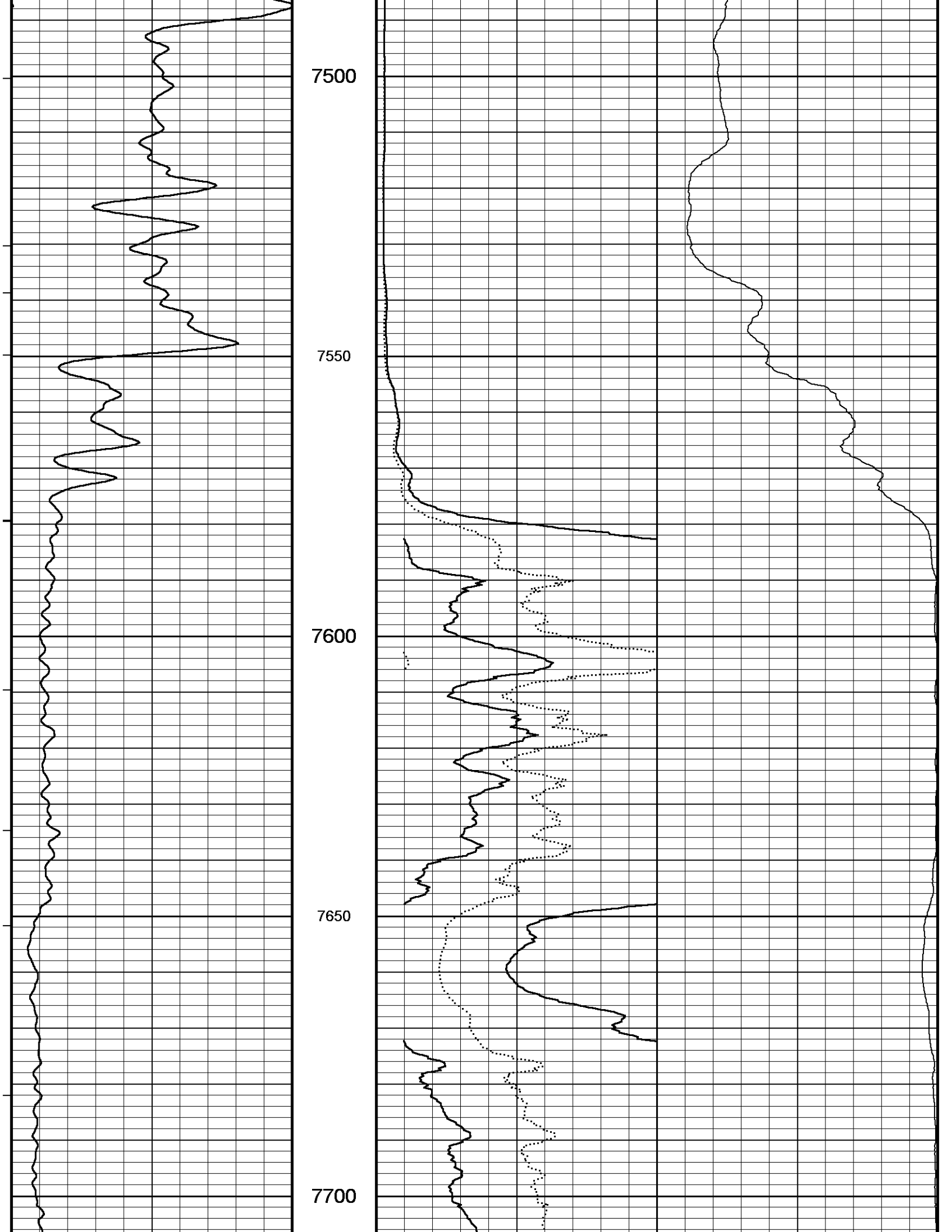
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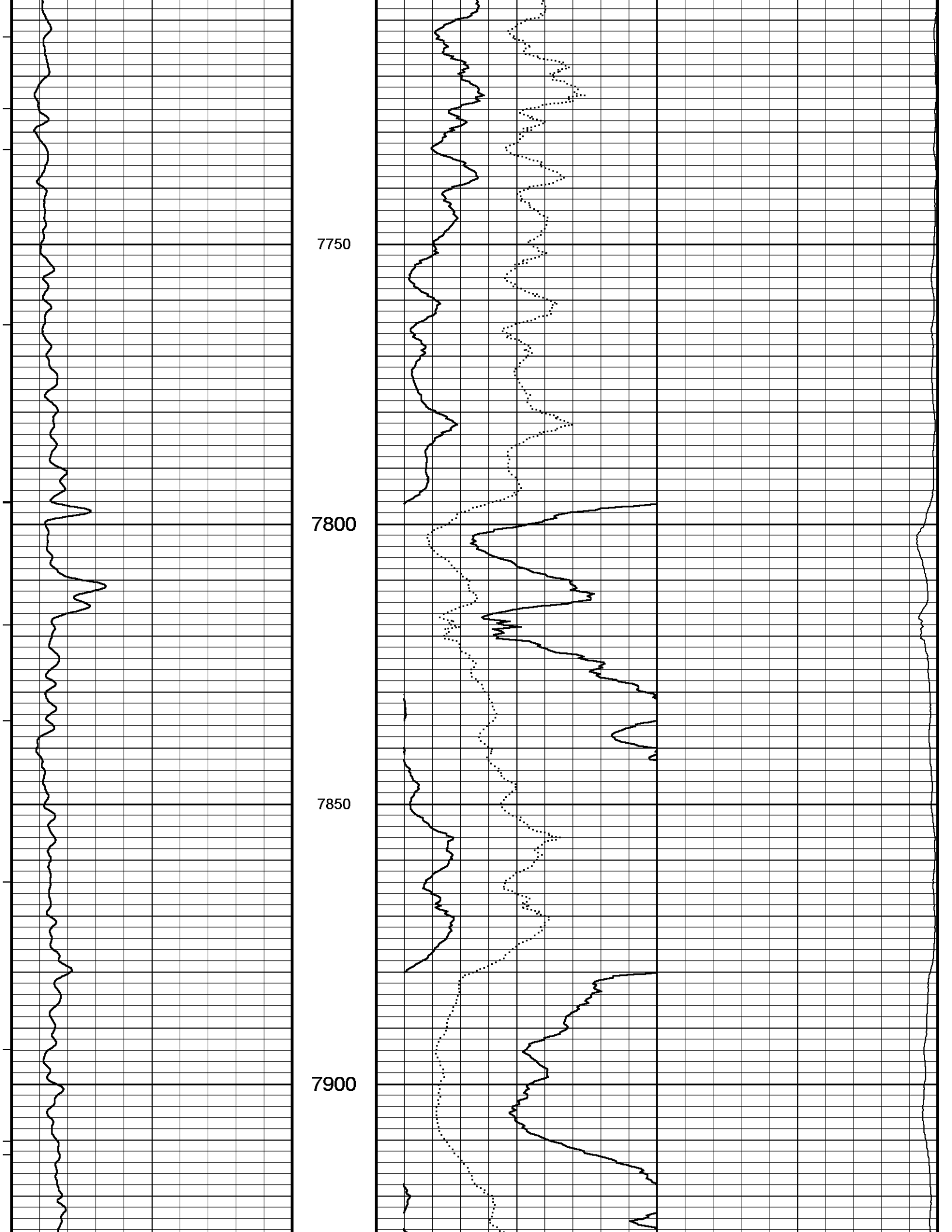
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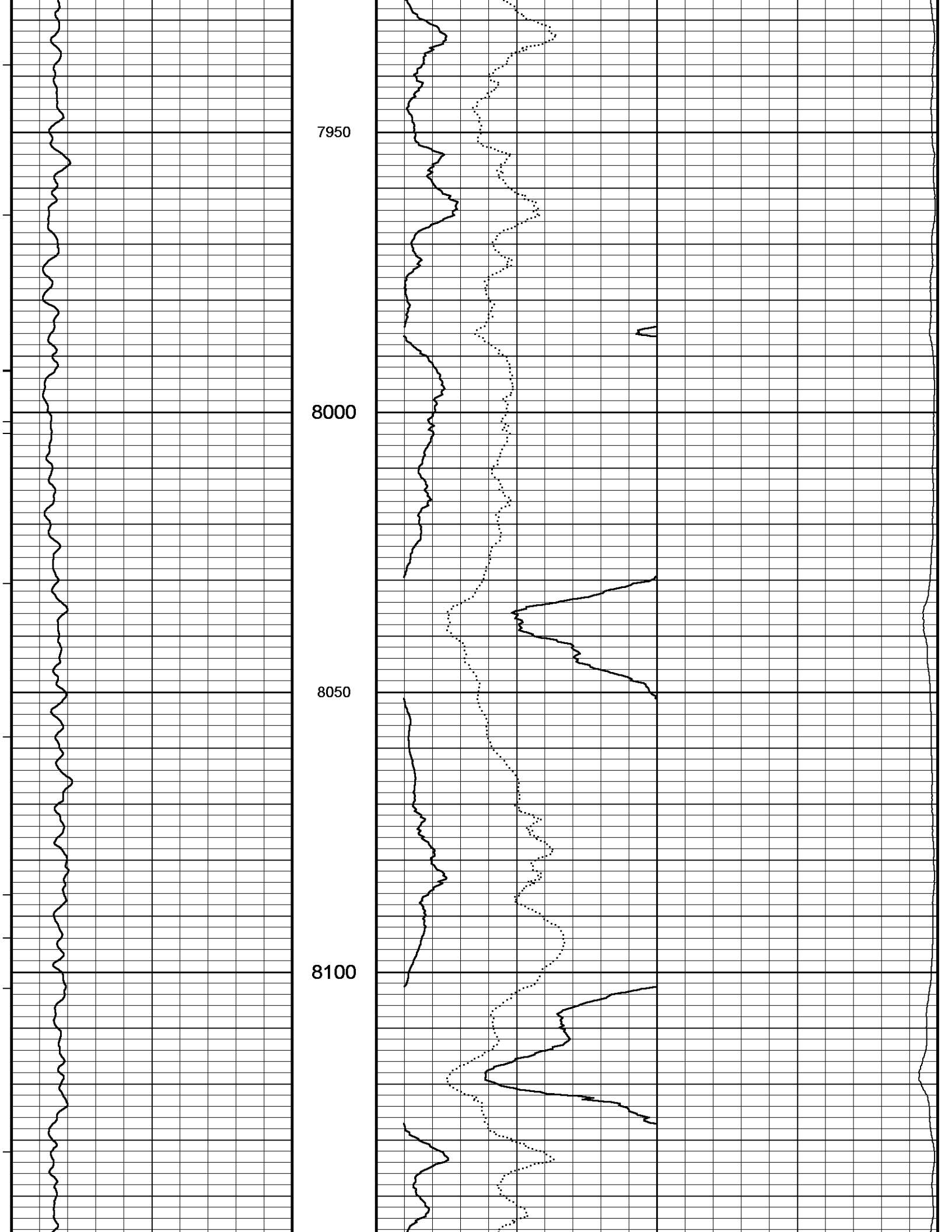
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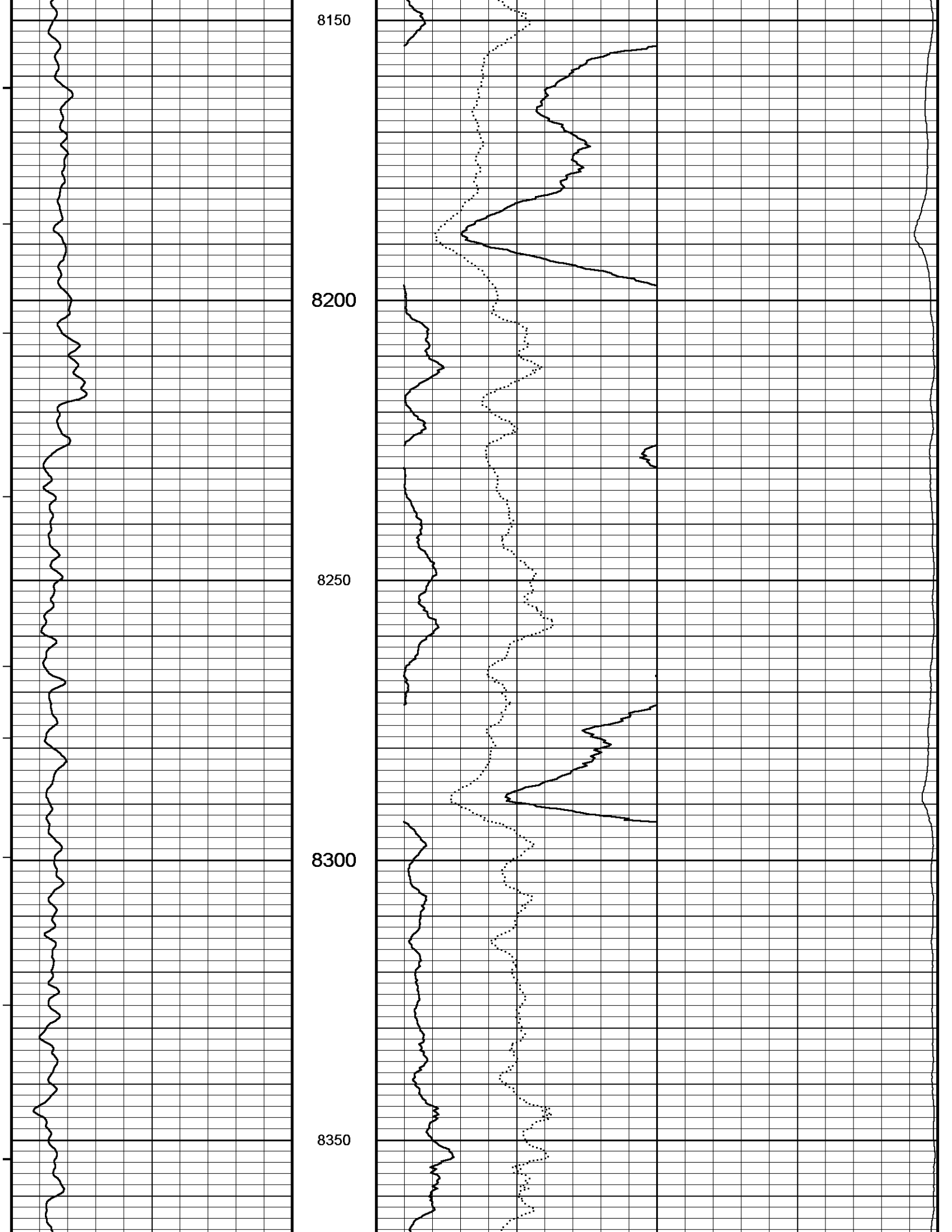
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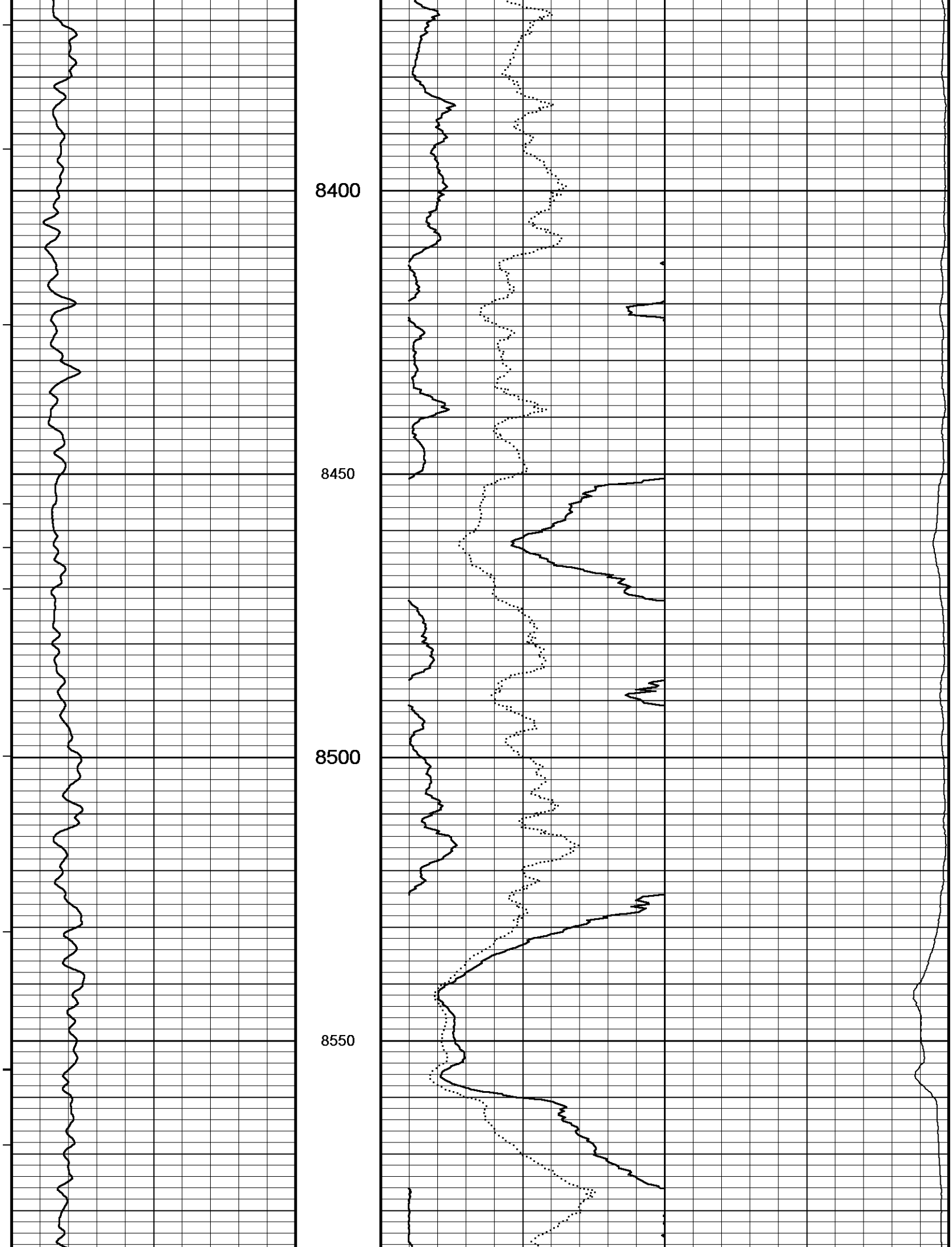
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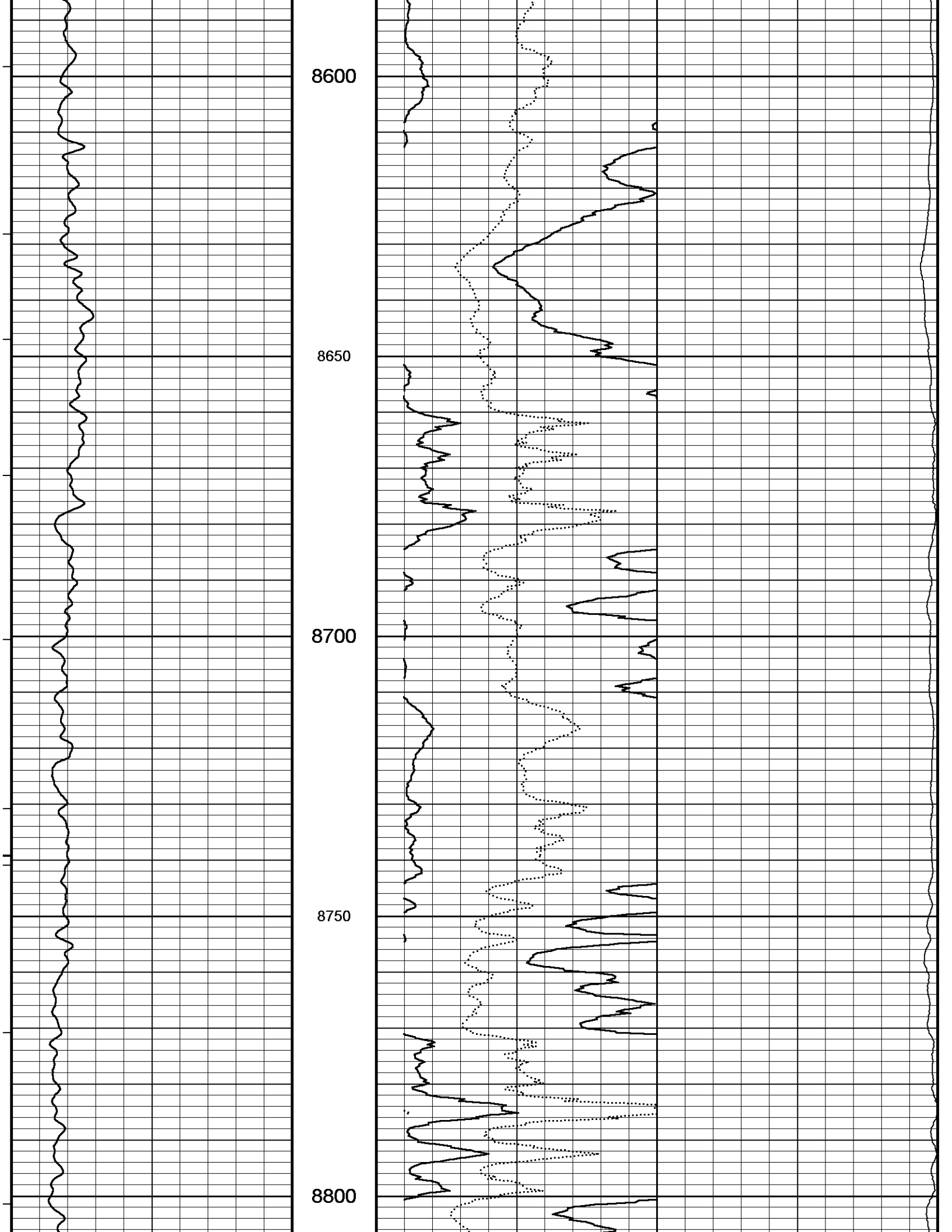
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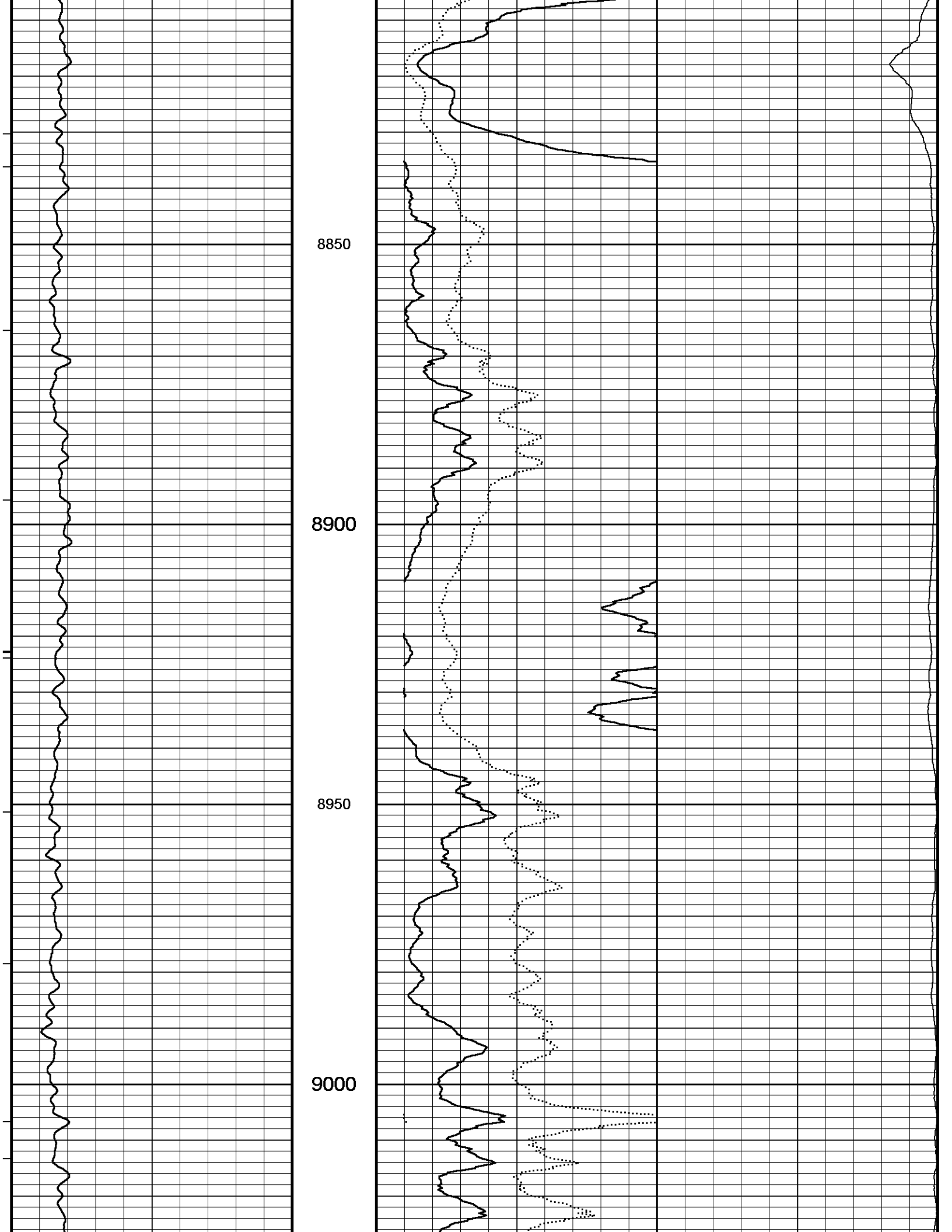
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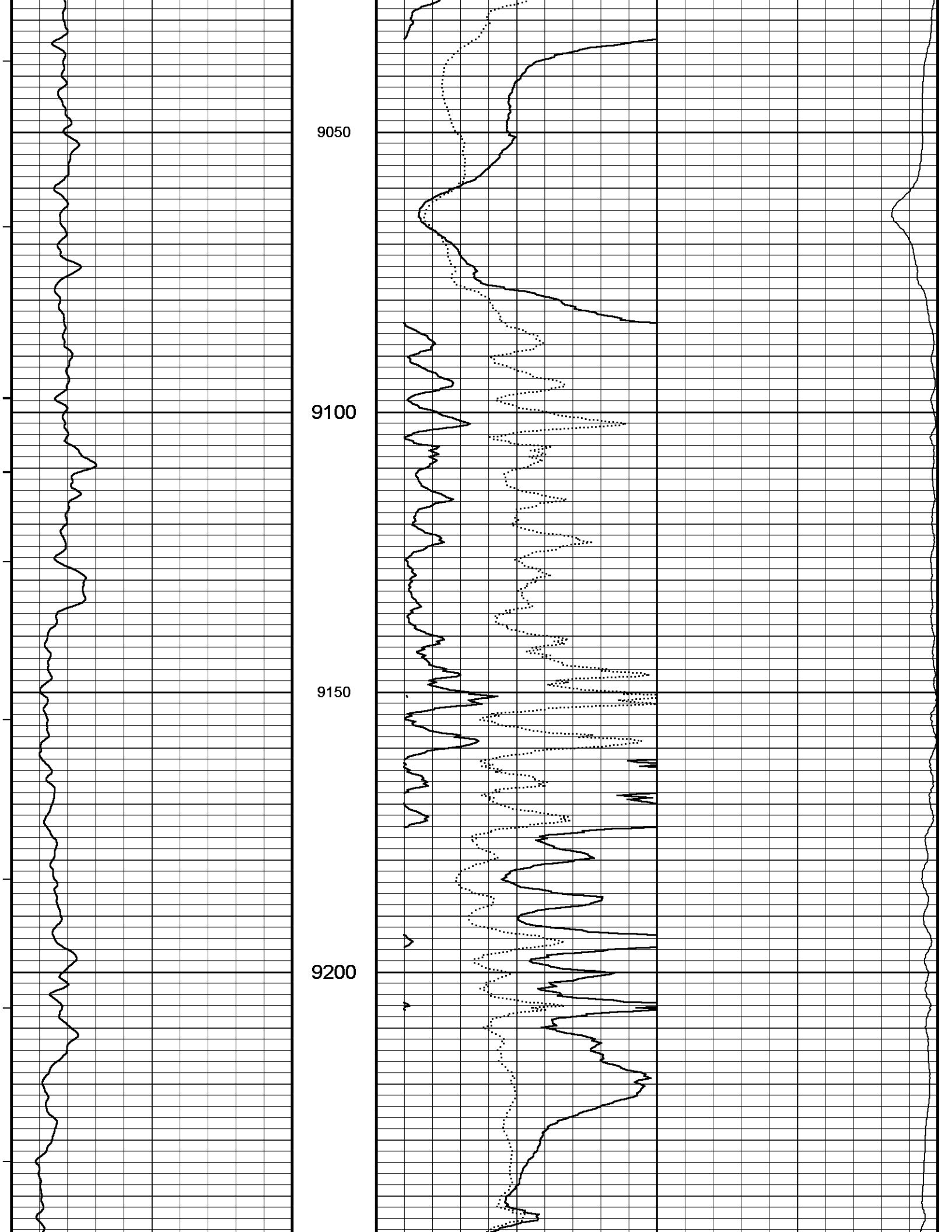
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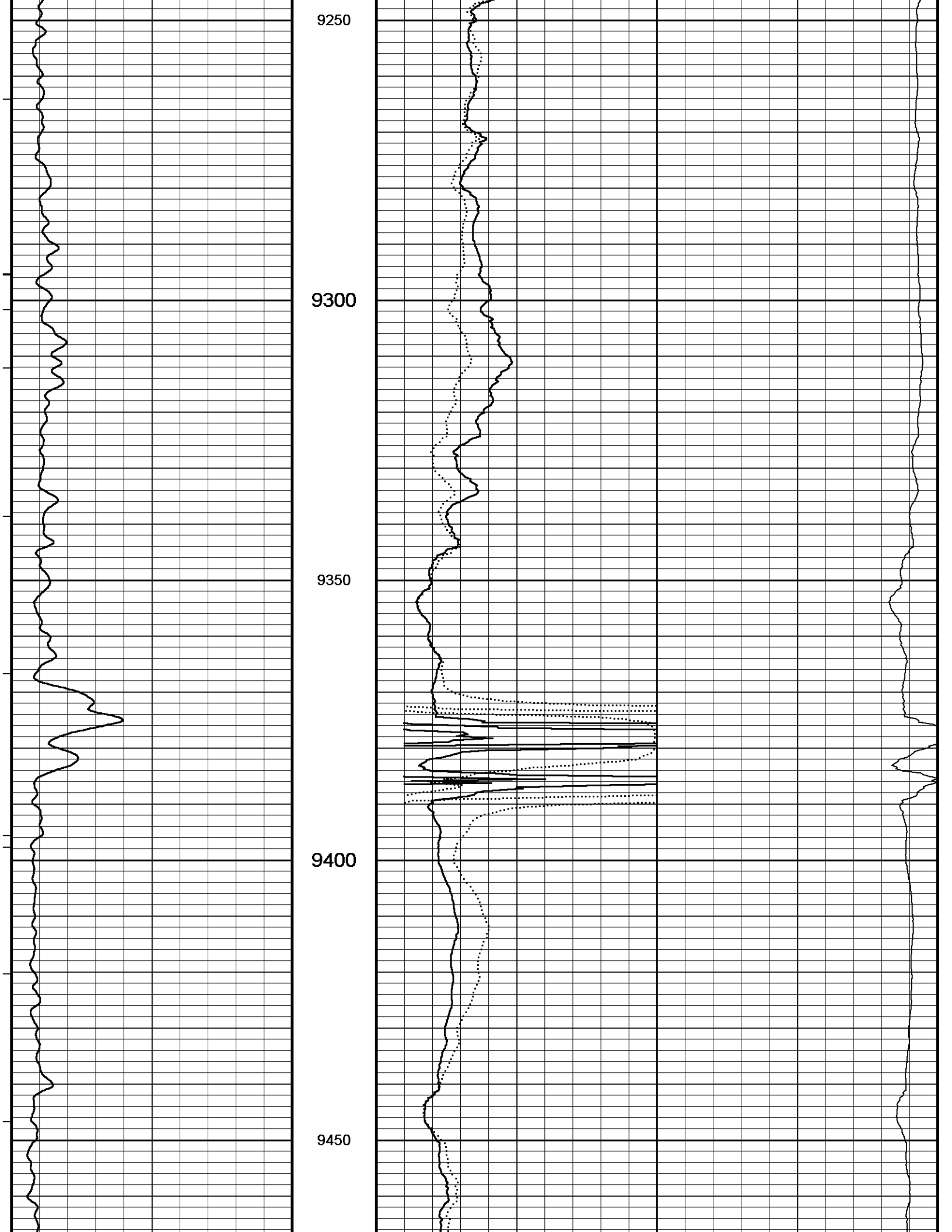
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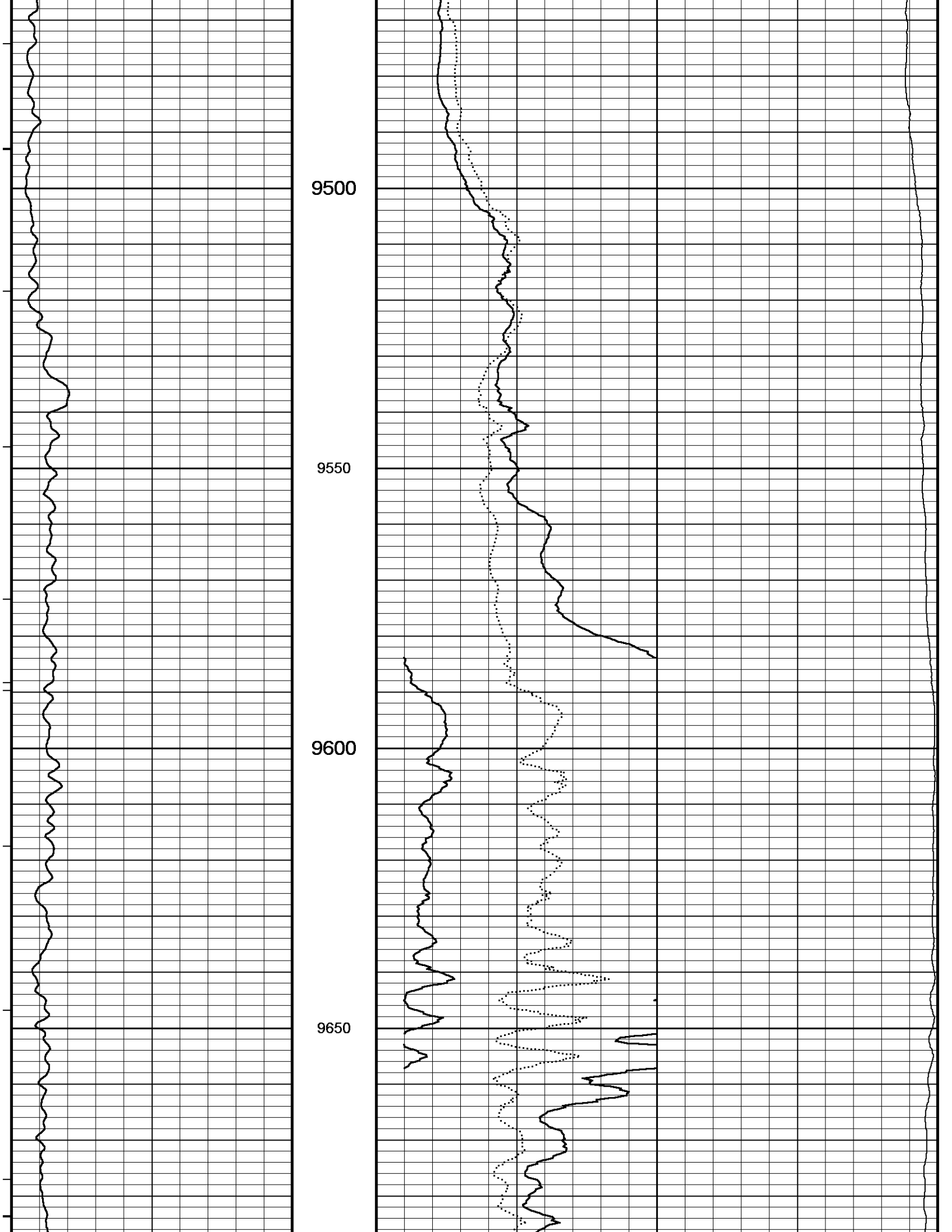
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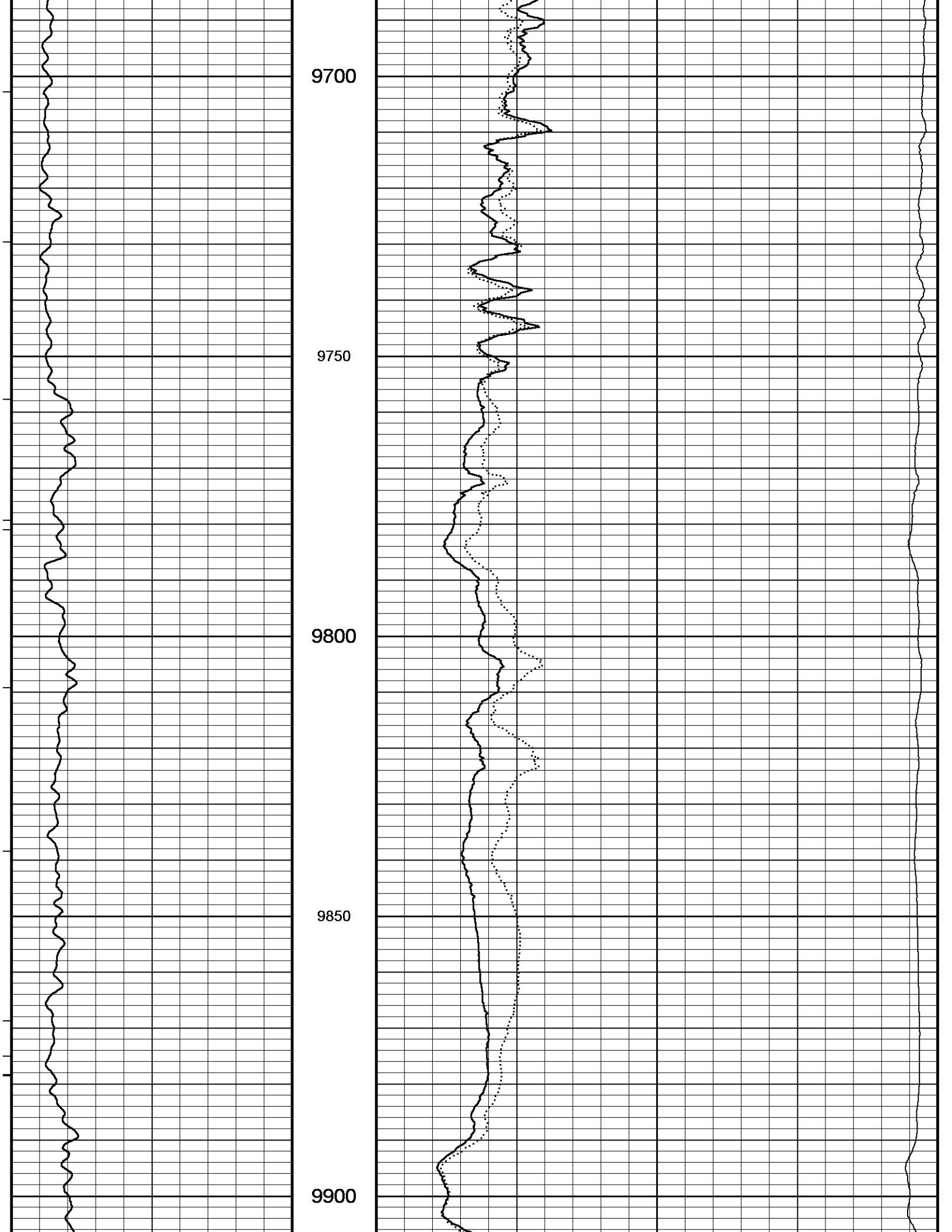
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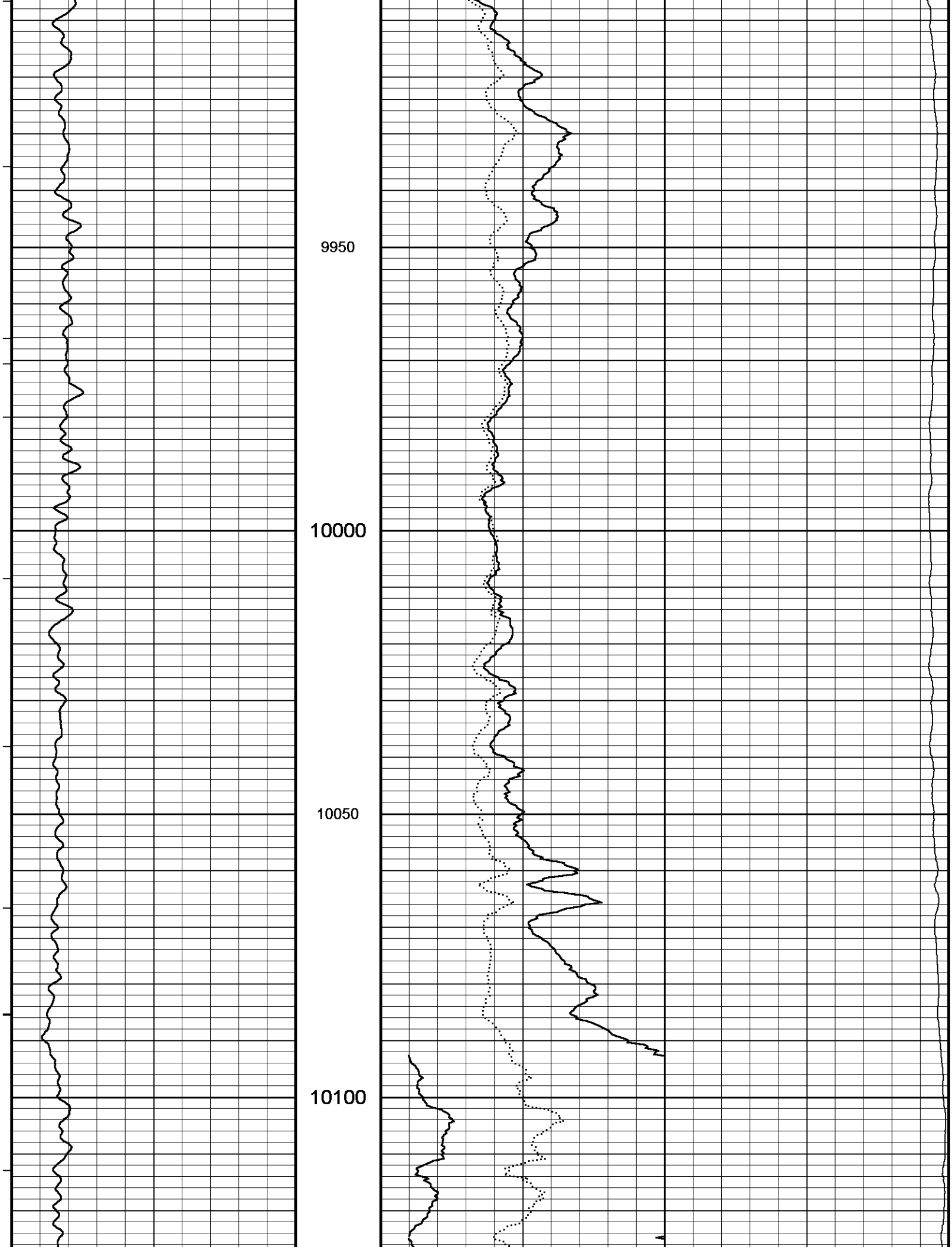
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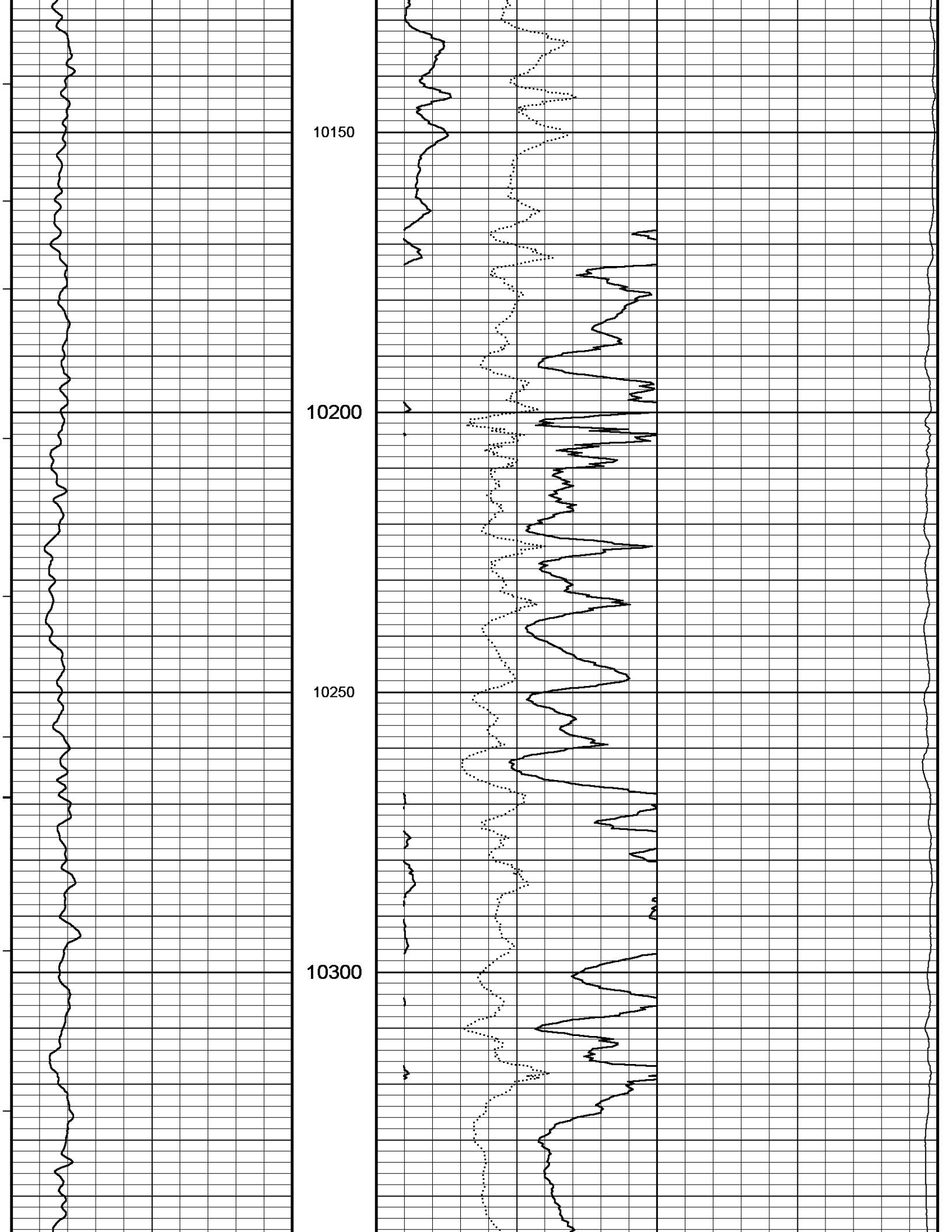
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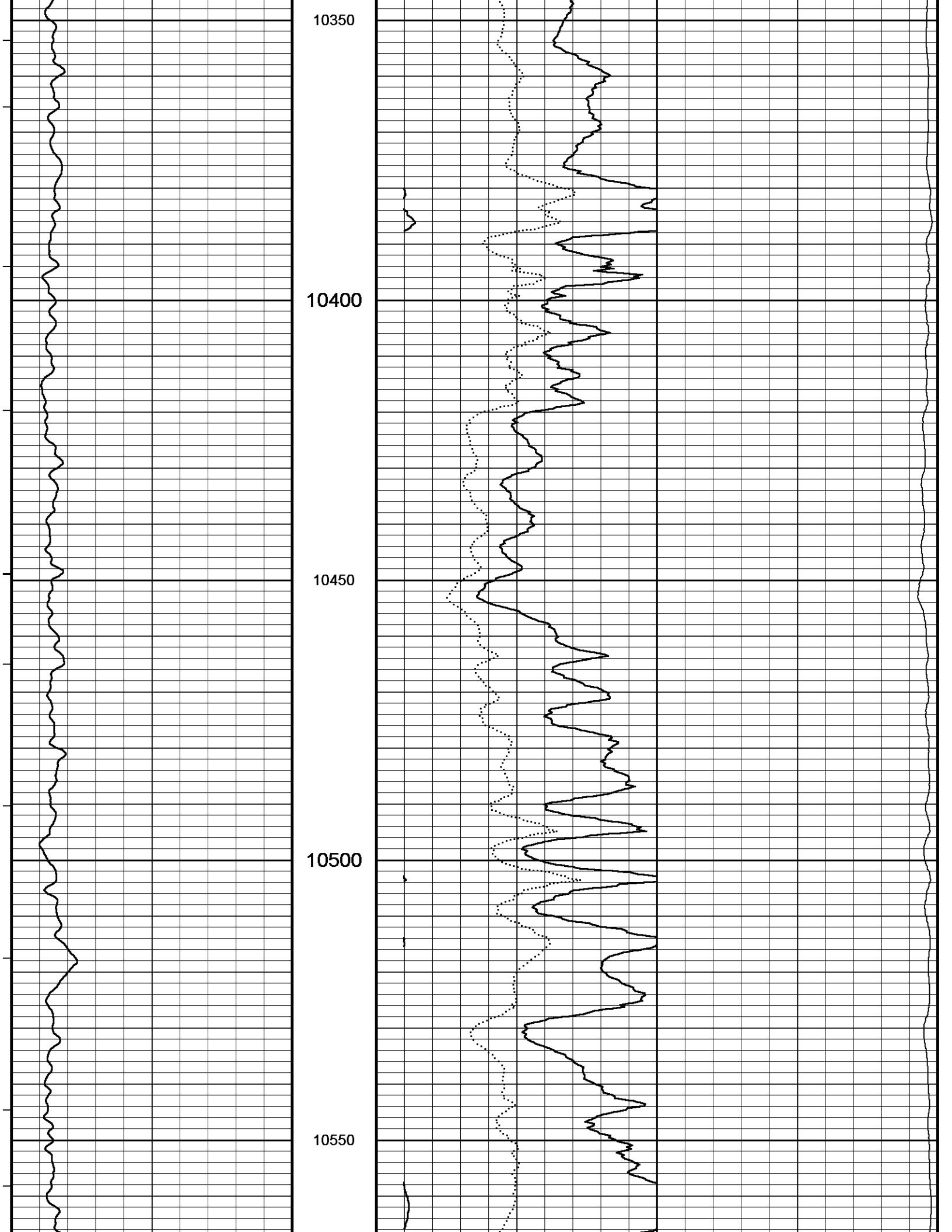
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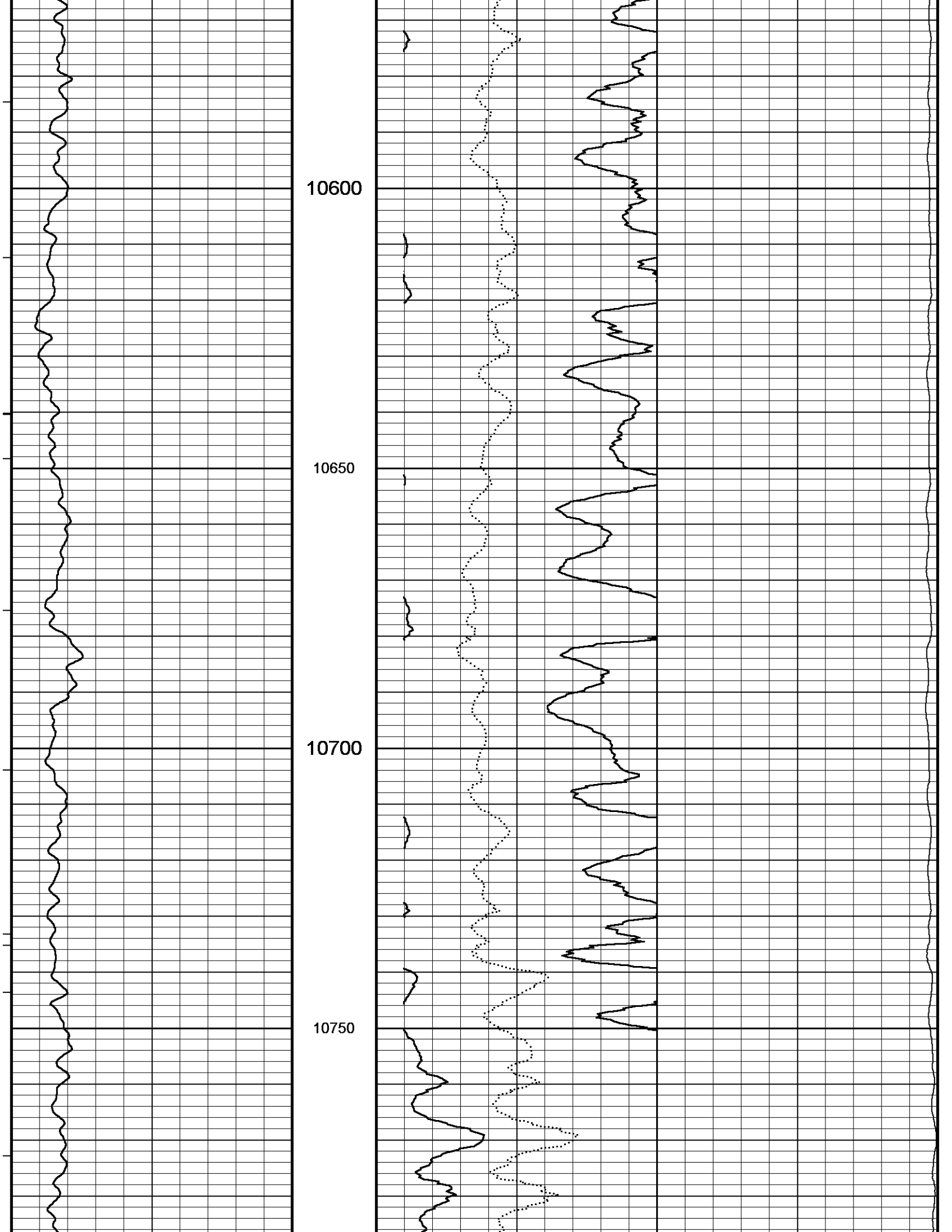
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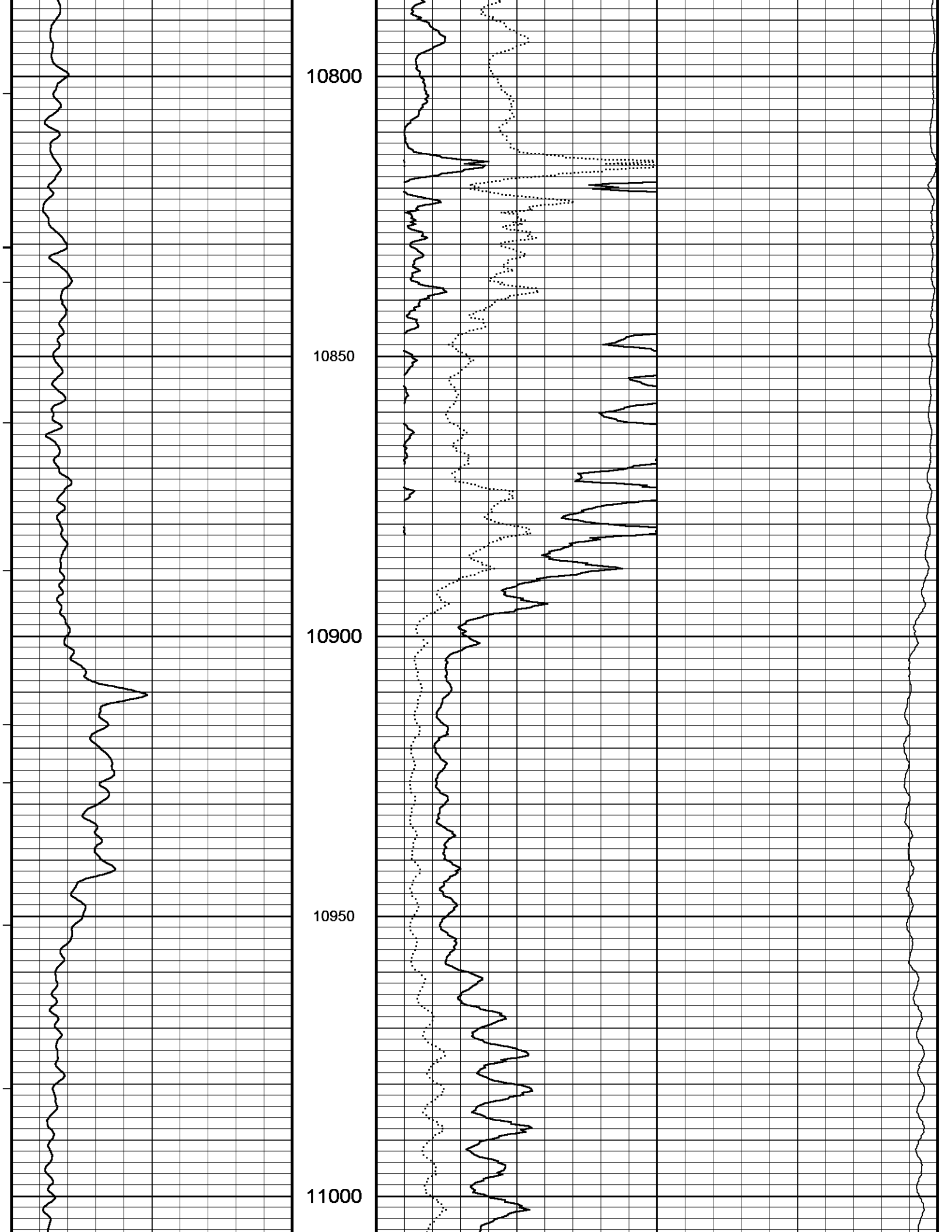
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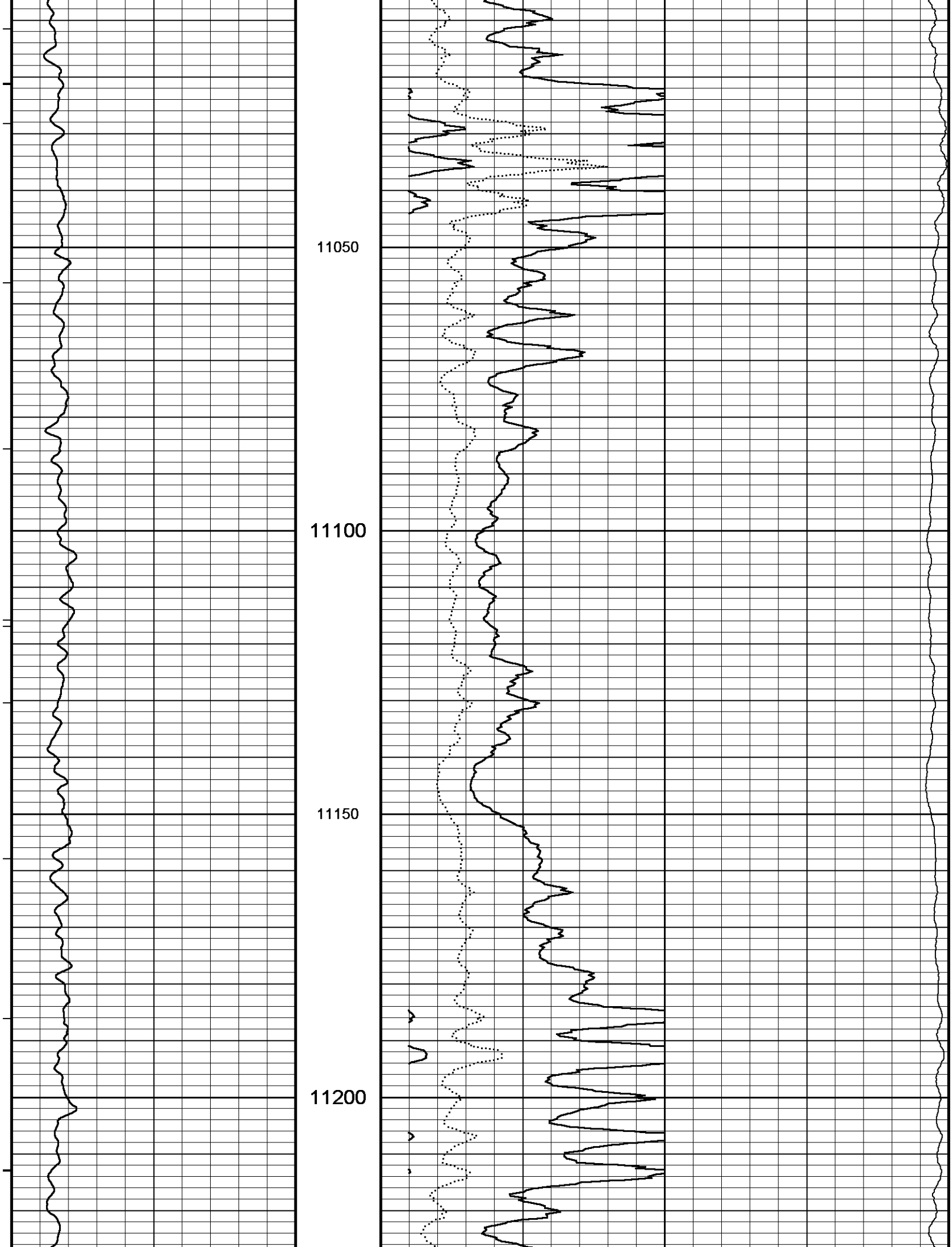
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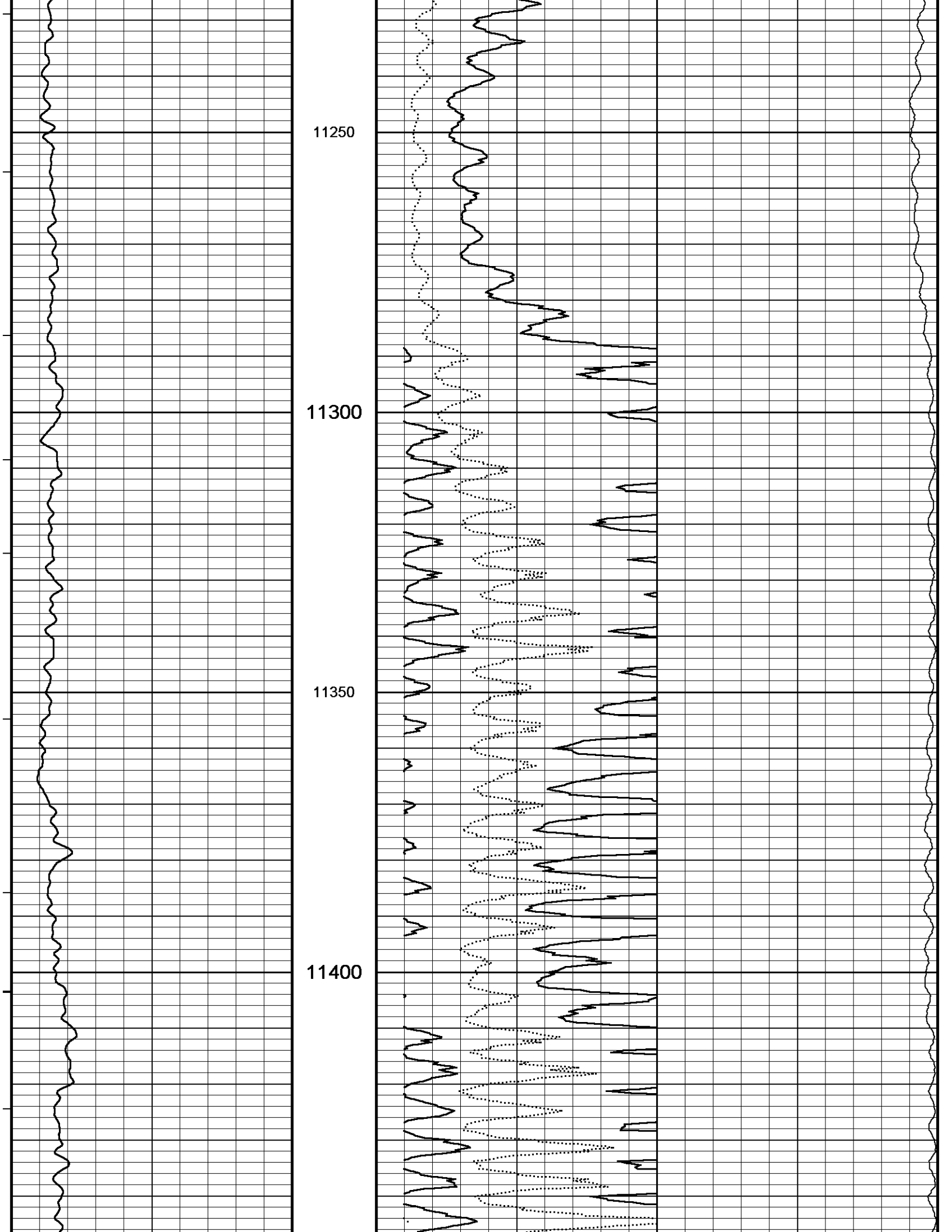
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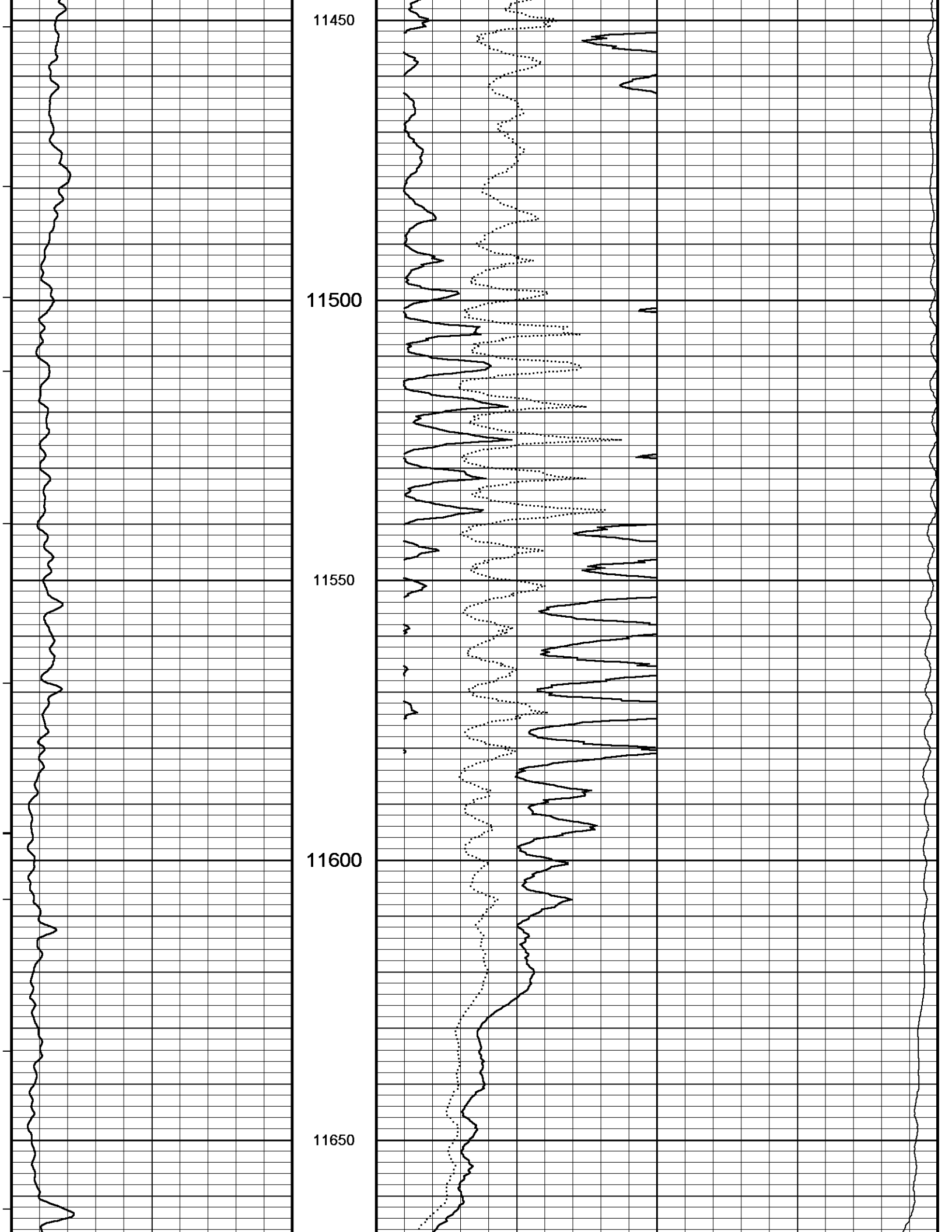
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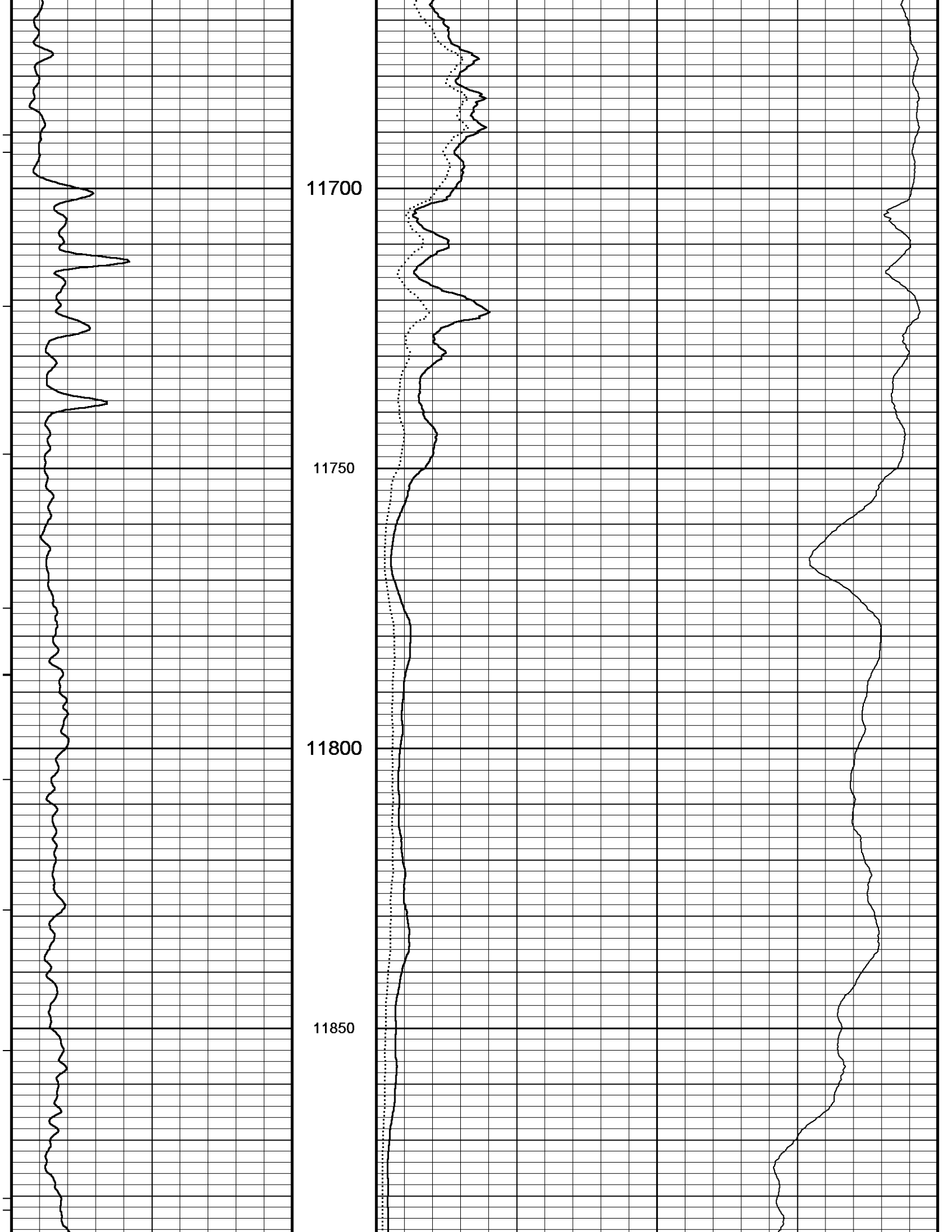
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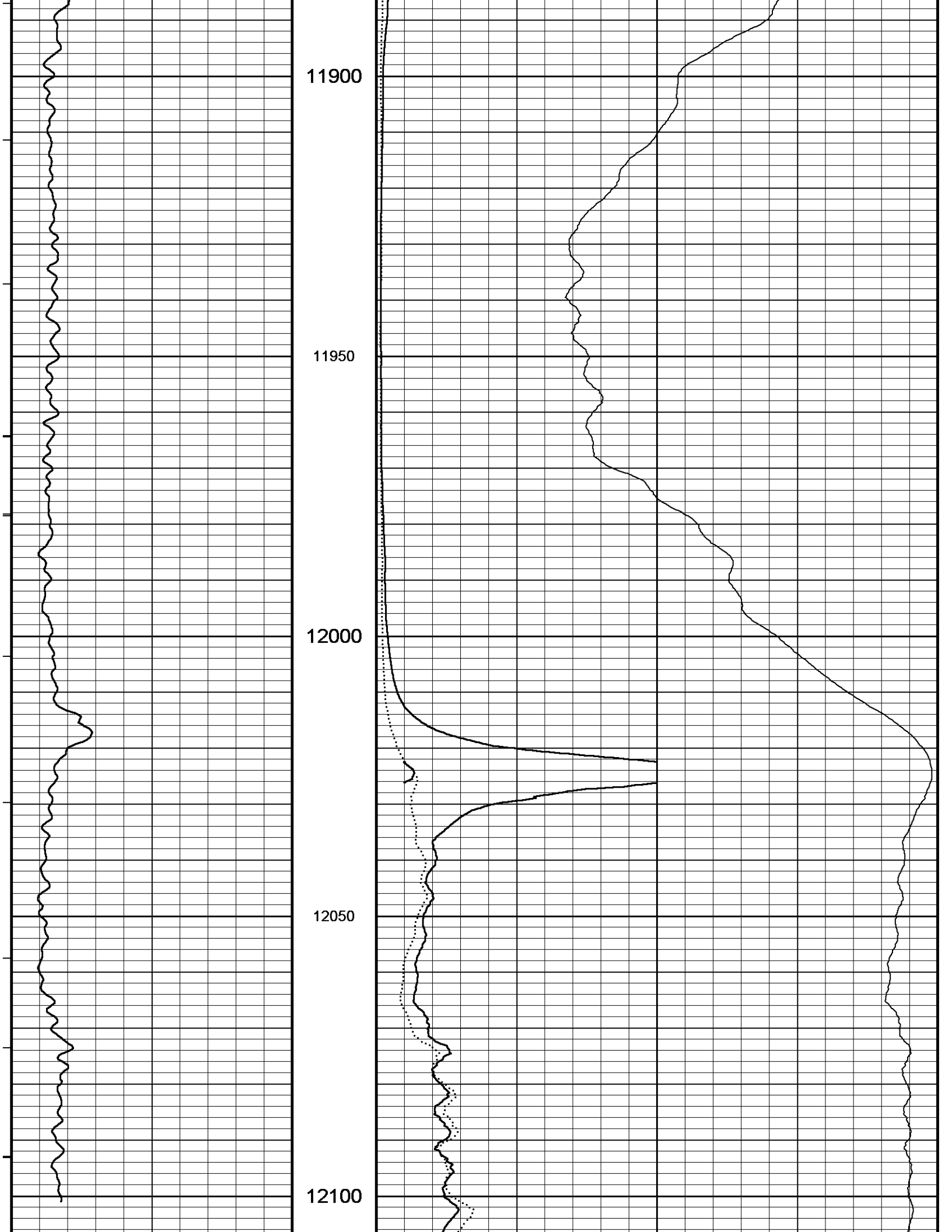
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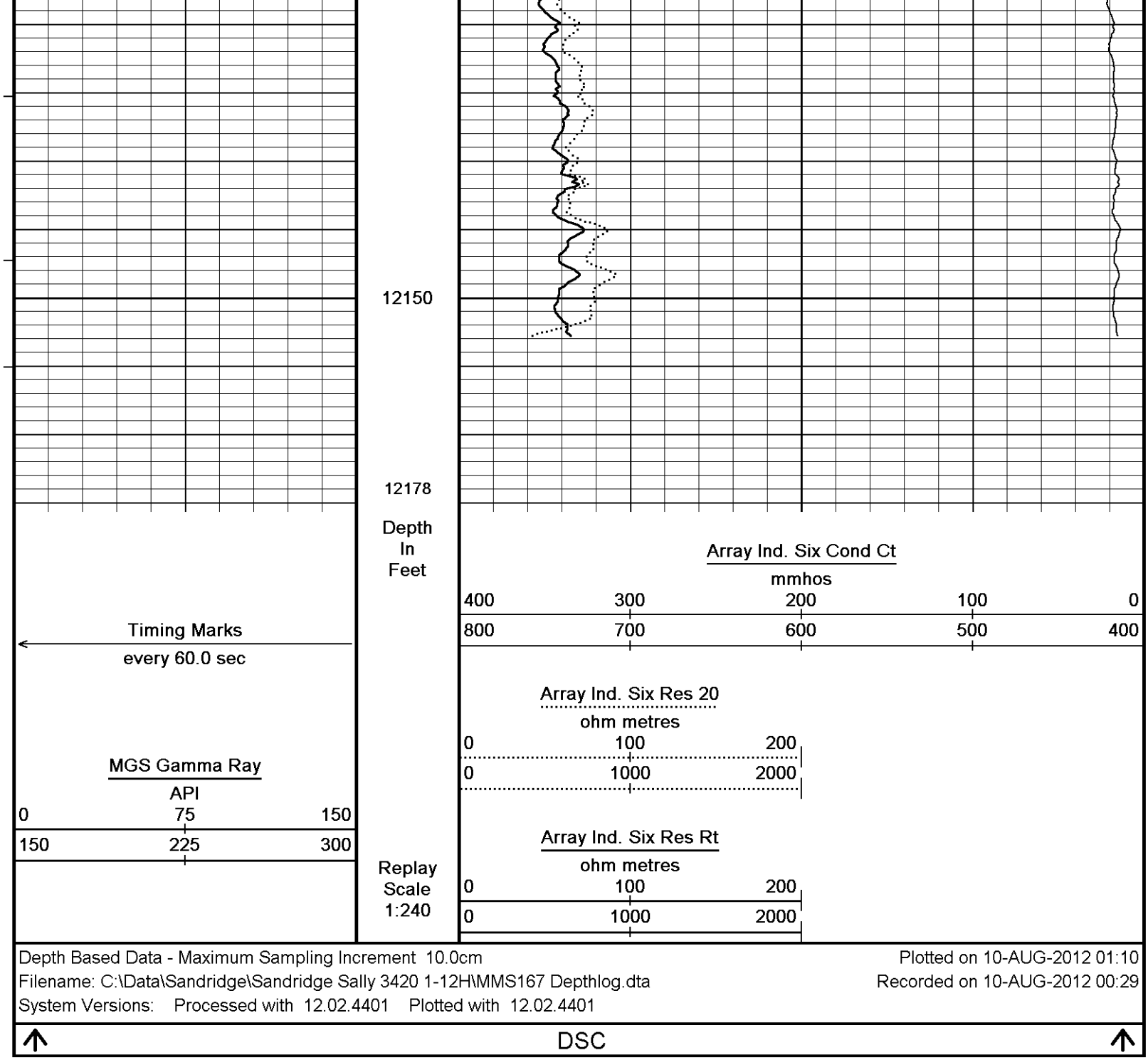

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 10-AUG-2012 01:10
Filename: C:\Data\Sandridge\Sandridge Sally 3420 1-12H\MMS167 Depthlog.dta
Recorded on 10-AUG-2012 00:29
System Versions: Processed with 12.02.4401 Plotted with 12.02.4401

DSC

DSC

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 10-AUG-2012 01:10
Filename: C:\Data\Sandridge\Sandridge Sally 3420 1-12H\MMS167 Depthlog.dta
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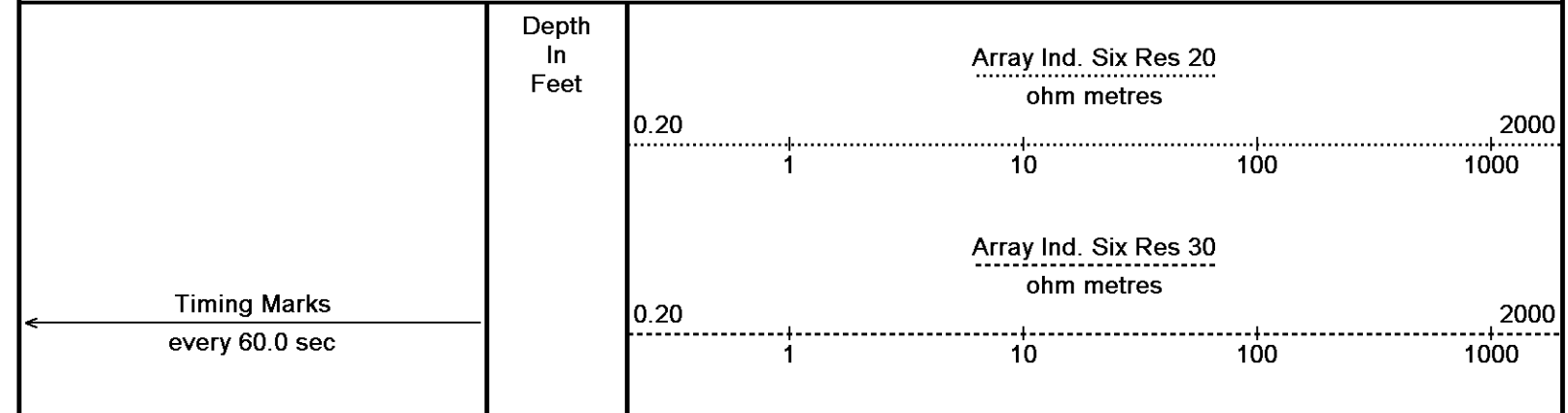

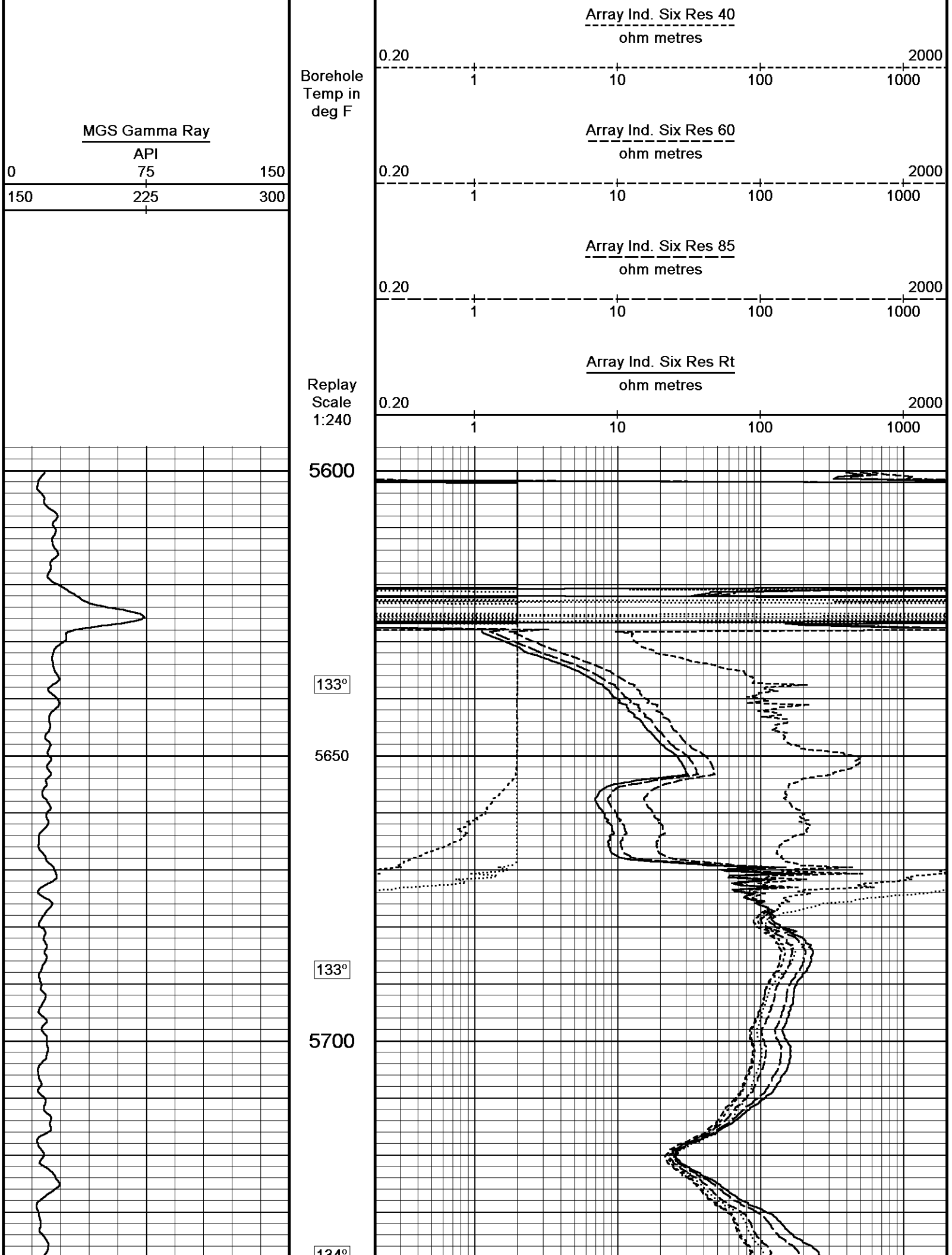
MGS Gamma Ray
API
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75
150
150
225
300
Borehole Temp in deg F
Array Ind. Six Res 40
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0.20
2000
1
10
100
1000
Array Ind. Six Res 60
ohm metres
0.20
2000
1
10
100
1000
Array Ind. Six Res 85
ohm metres
0.20
2000
1
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100
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Array Ind. Six Res Rt
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133°
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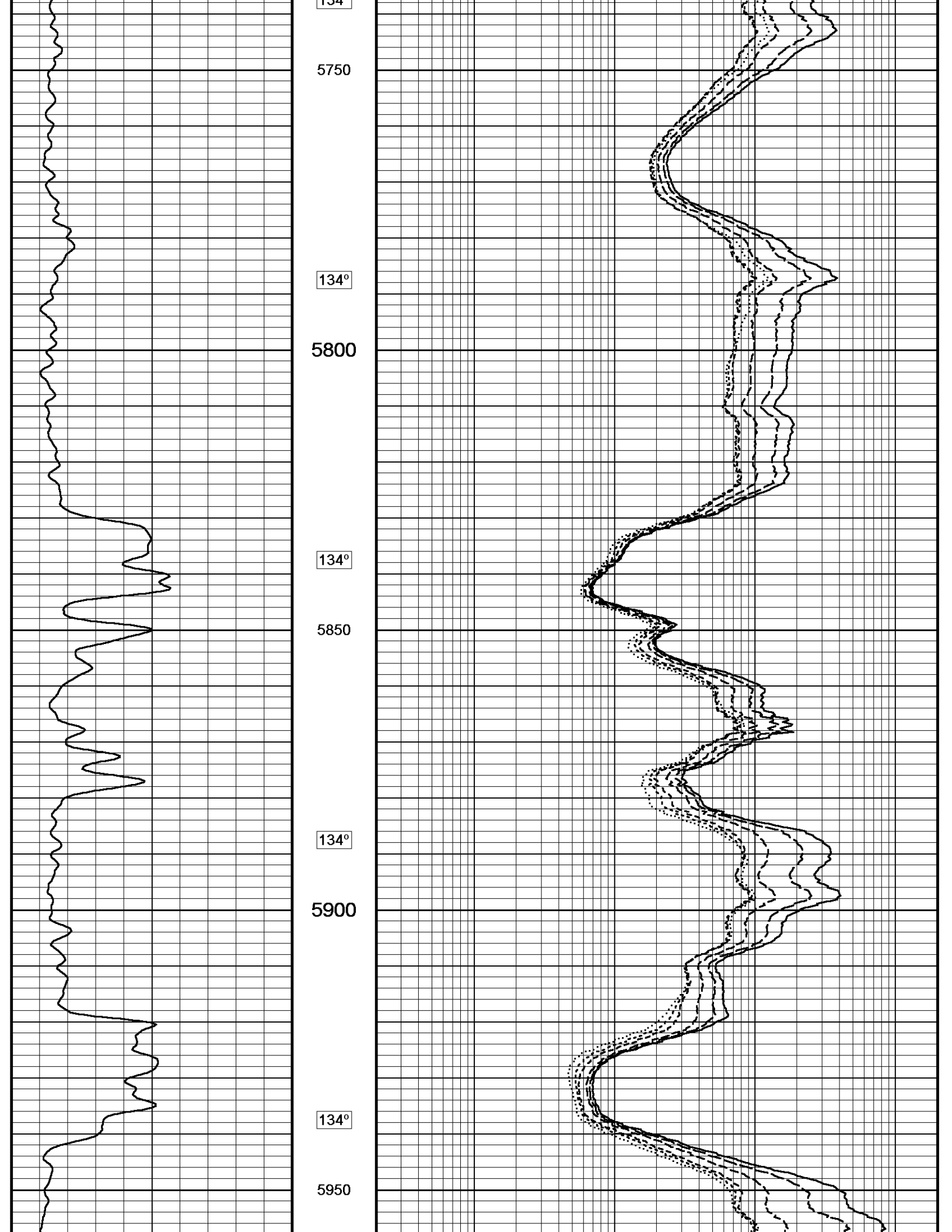
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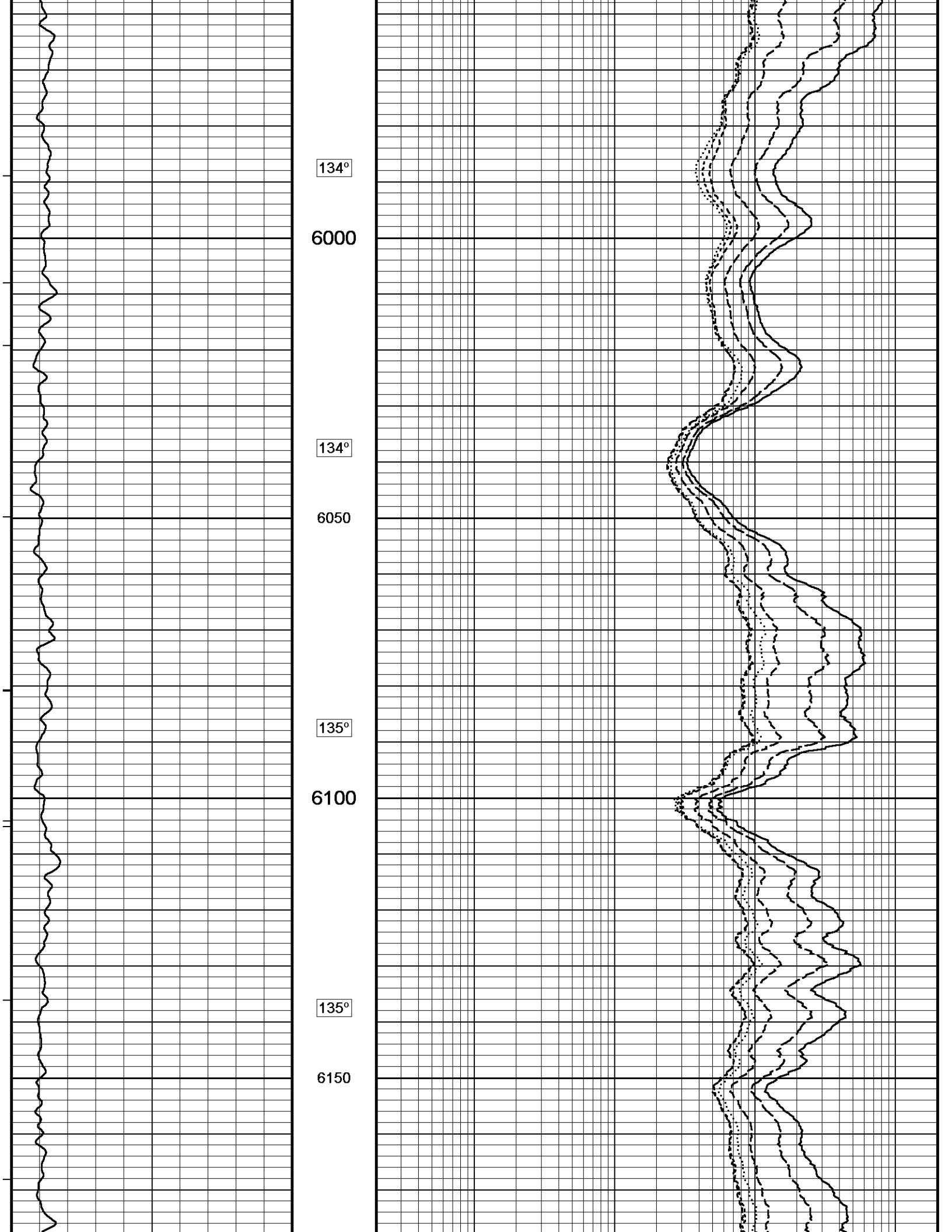
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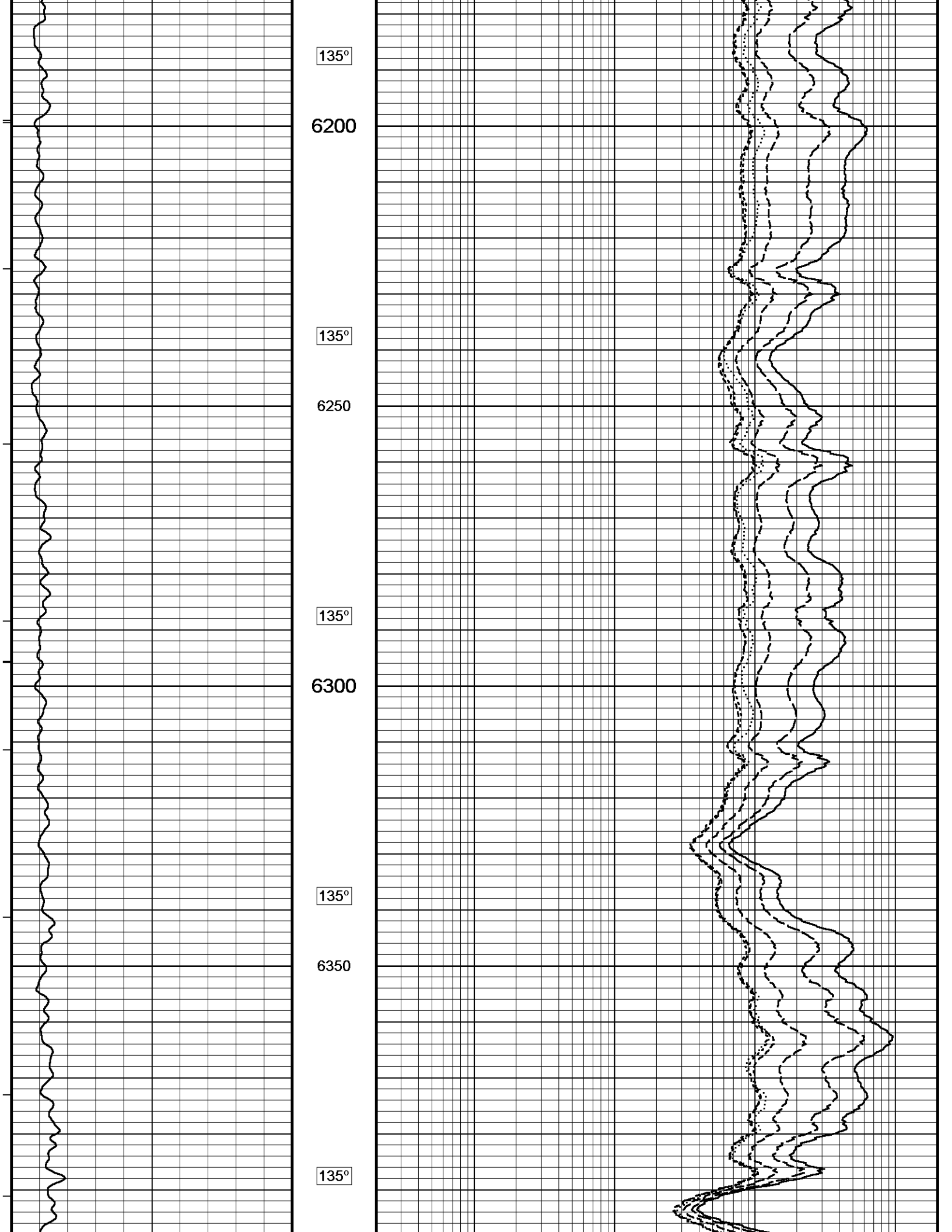
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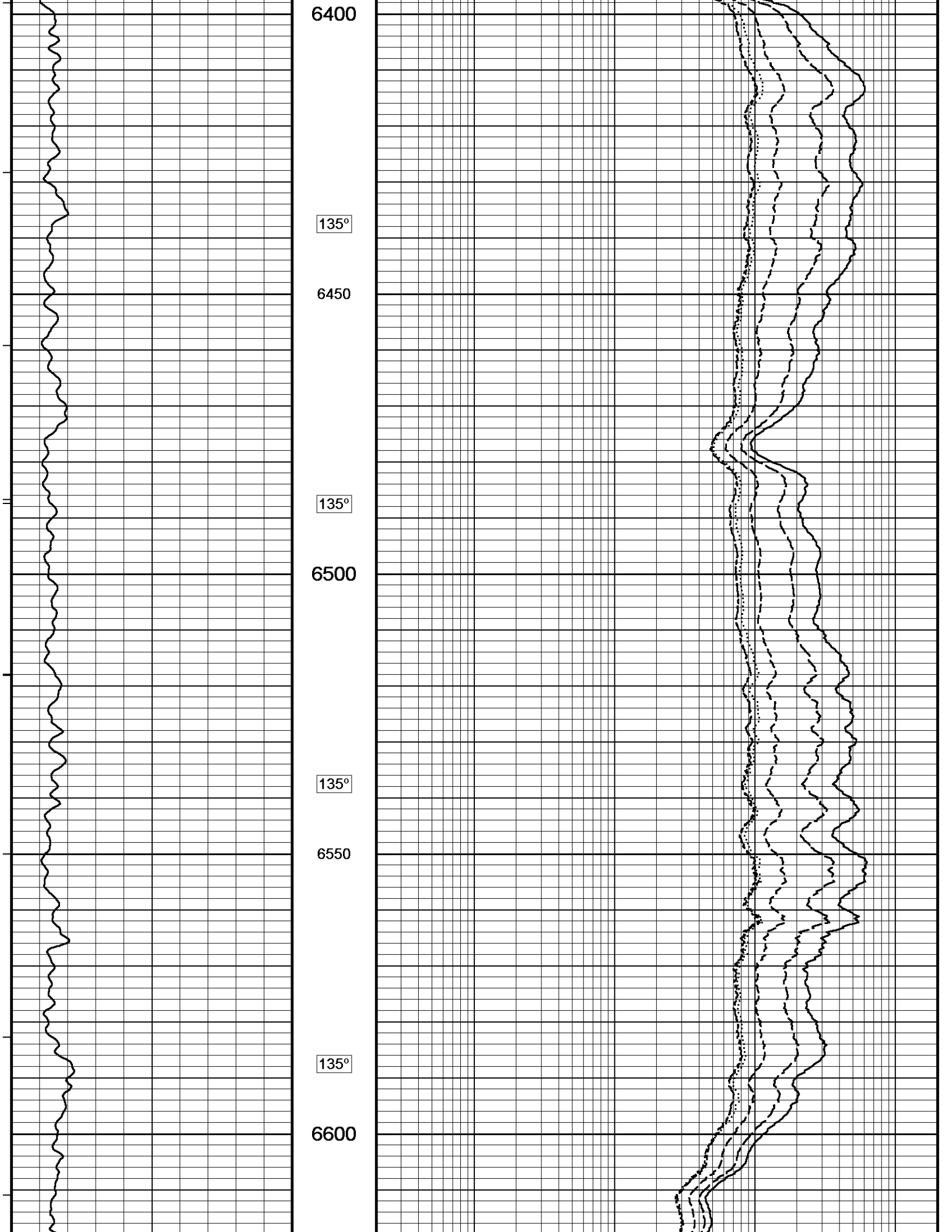
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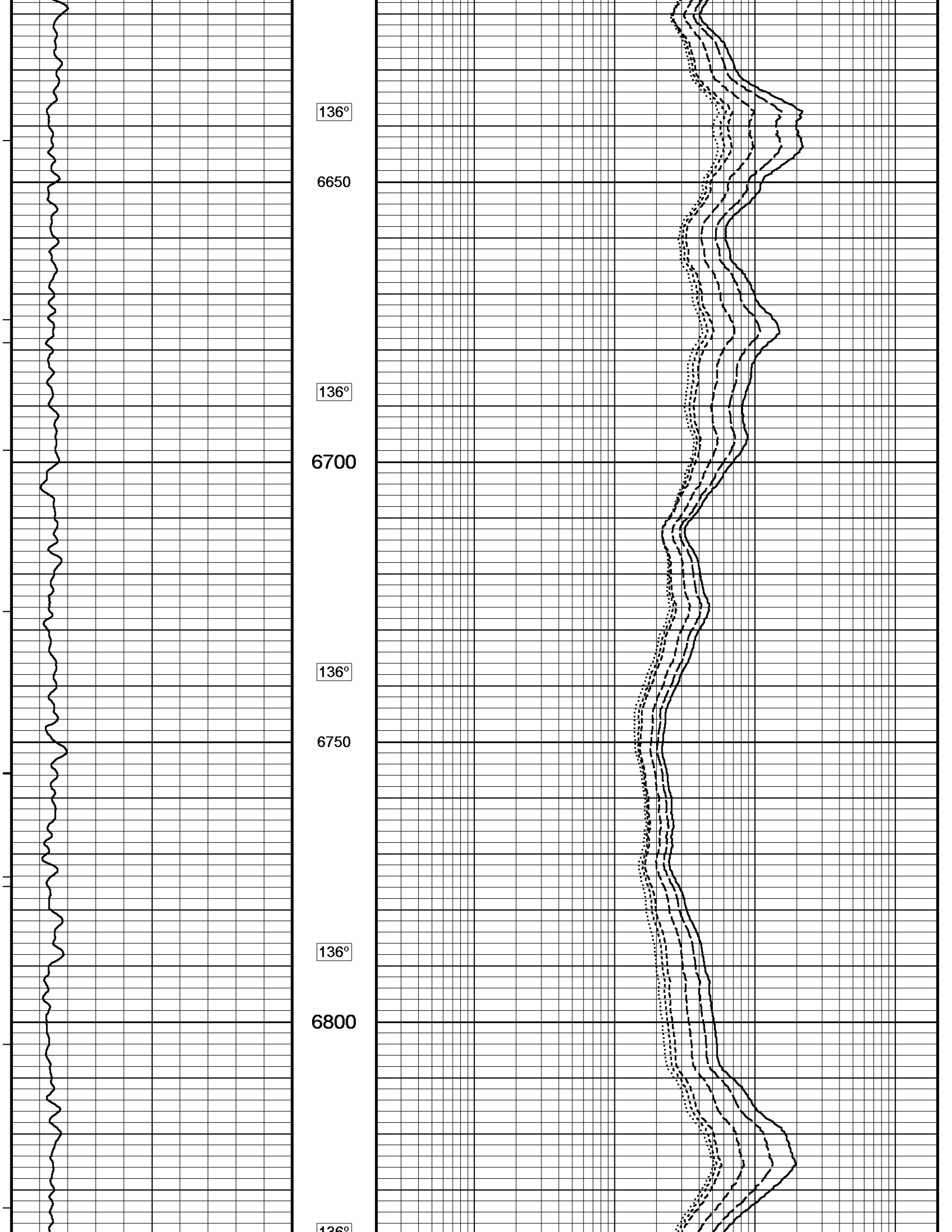
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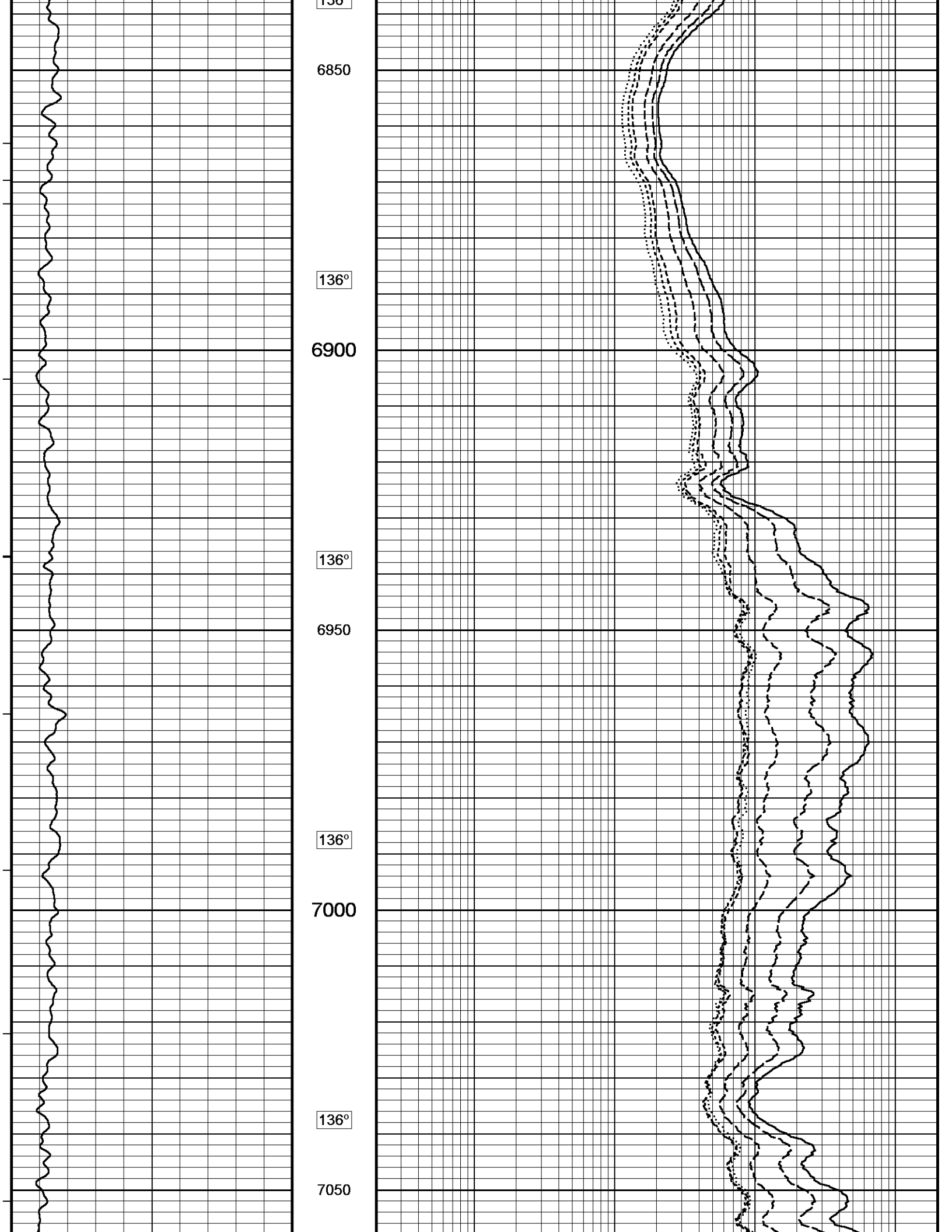
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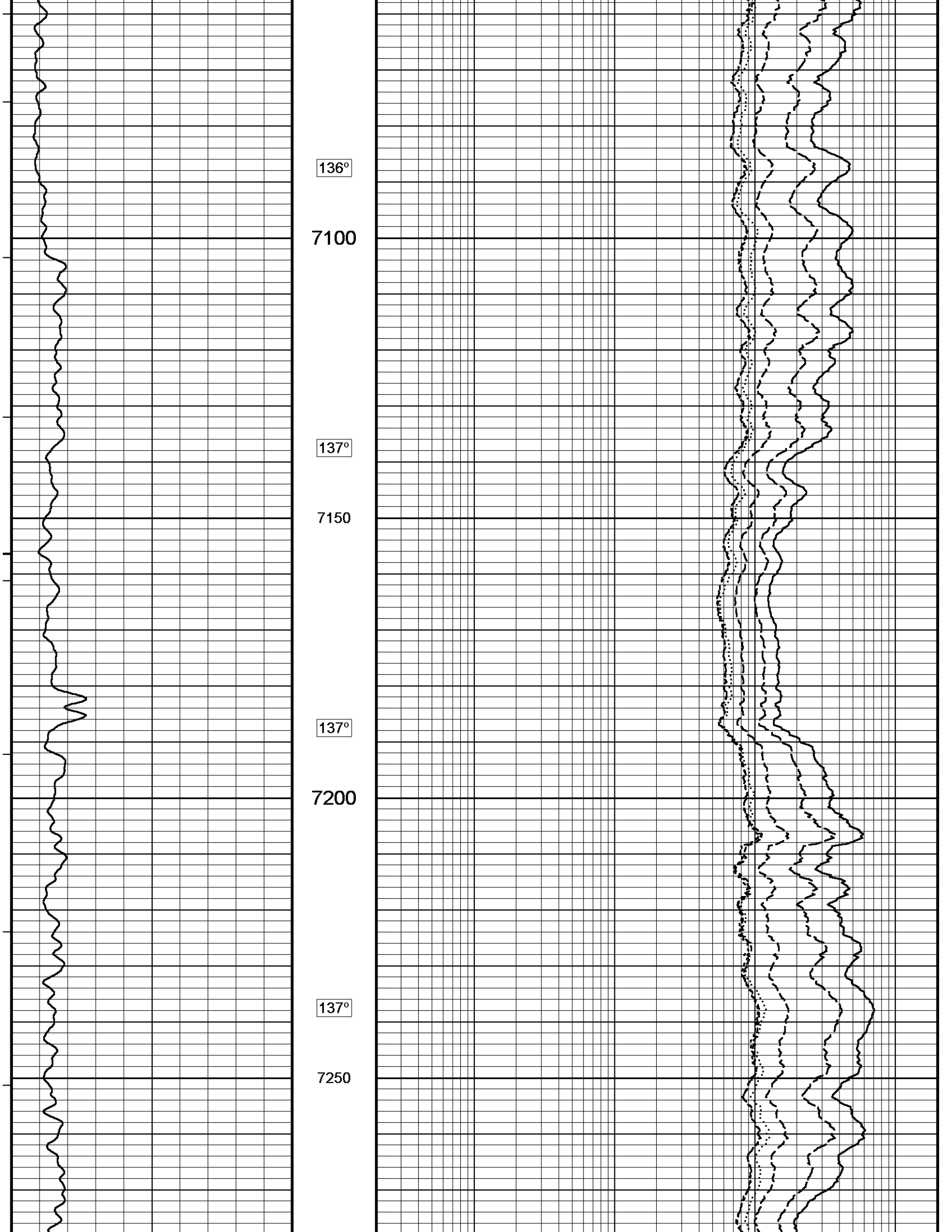
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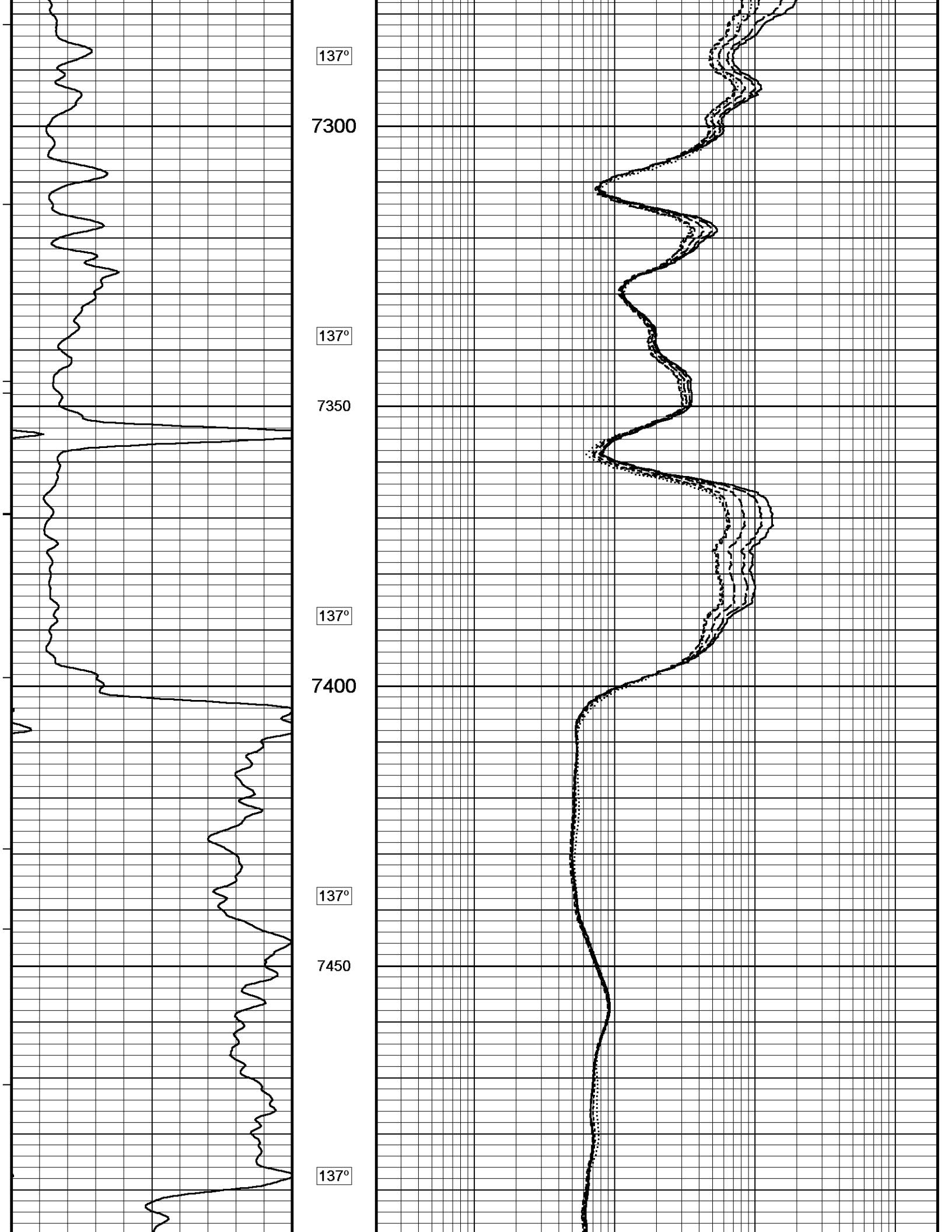
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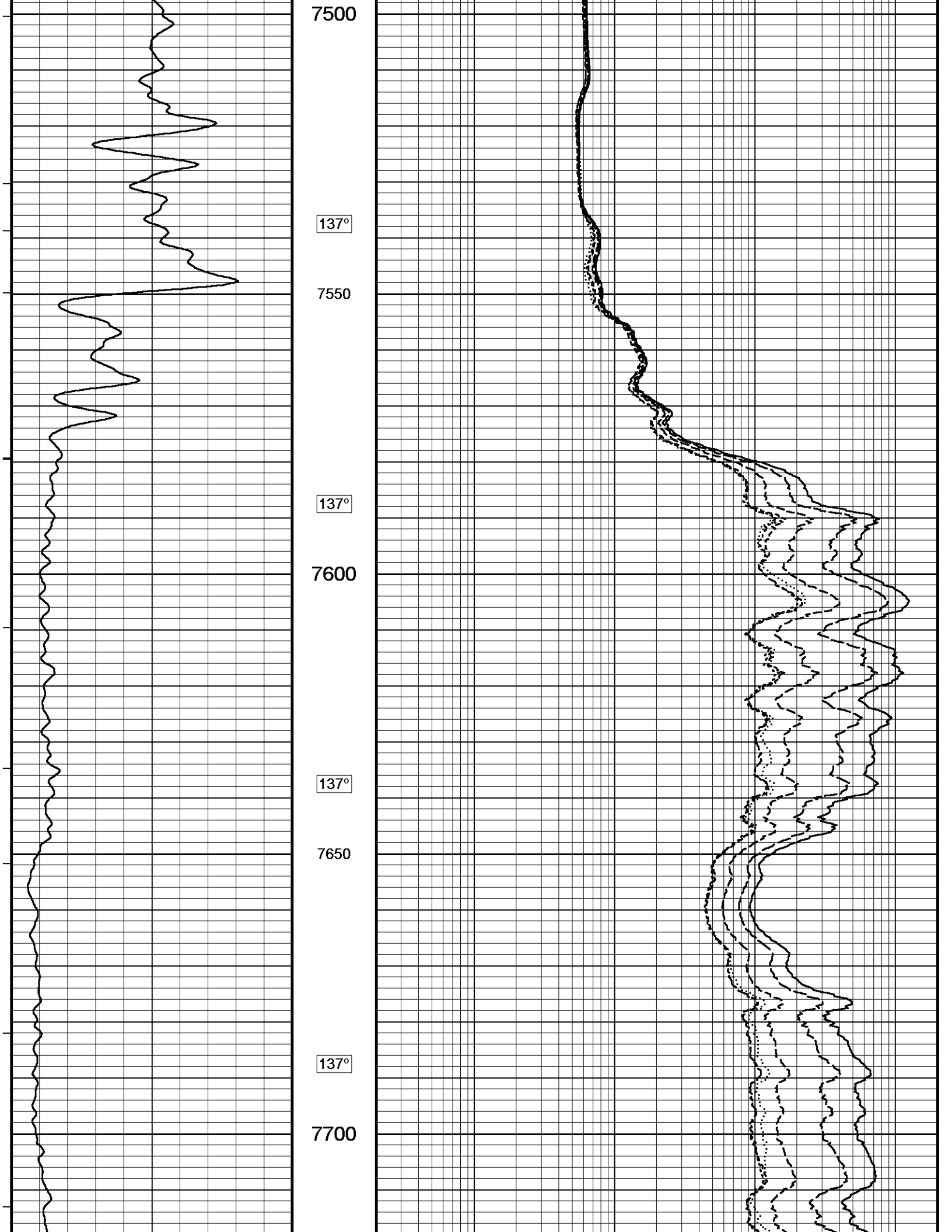
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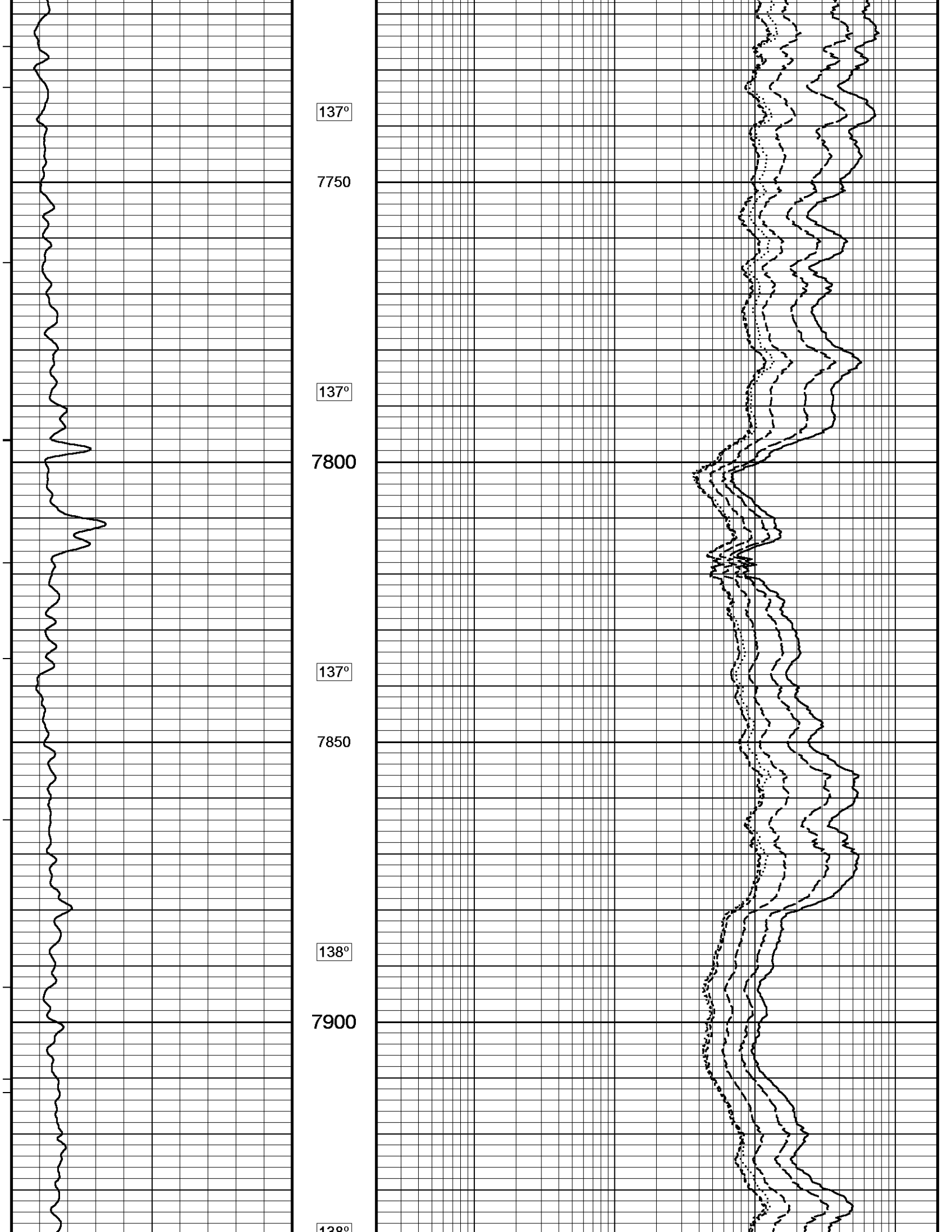
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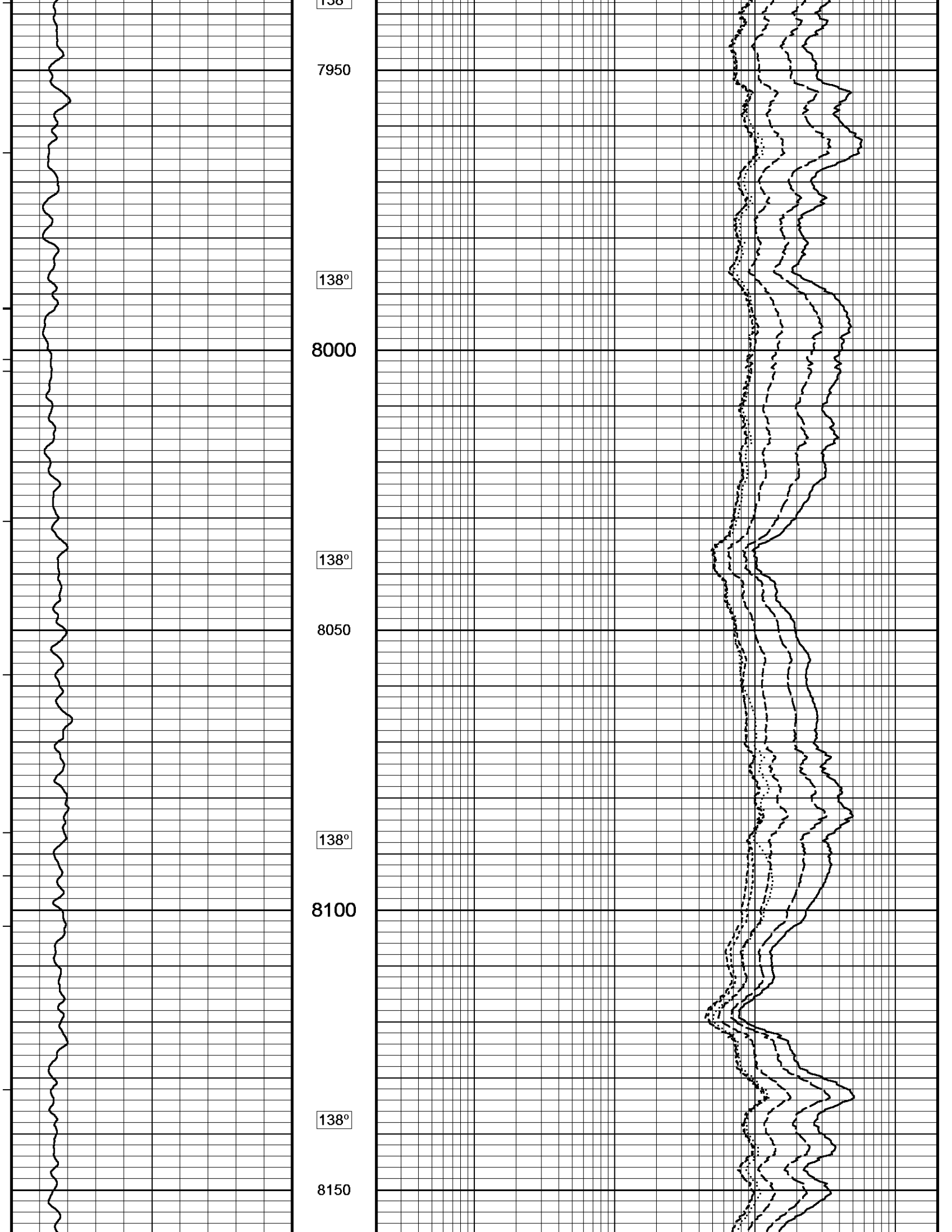
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8000
138°
8050
138°
8100
138°
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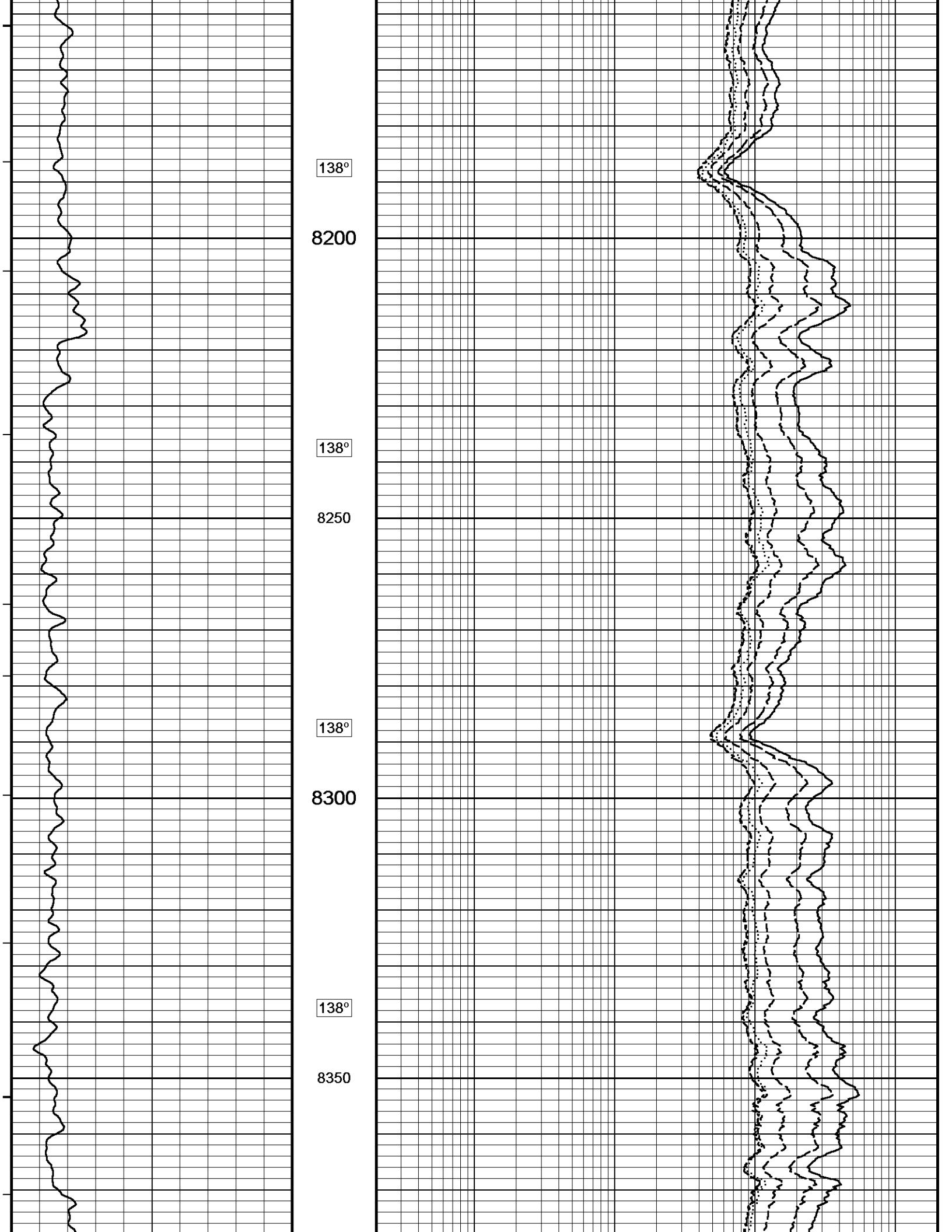
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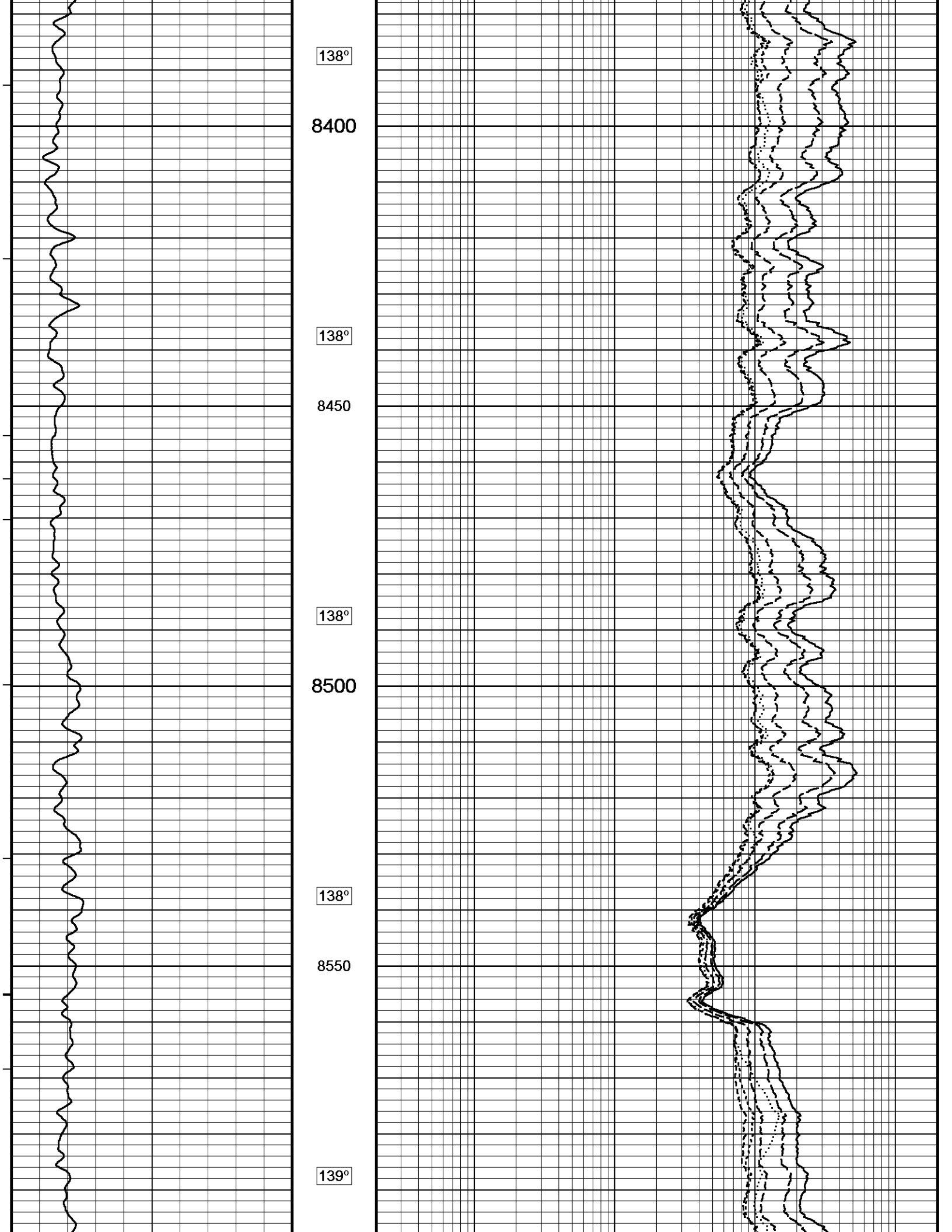
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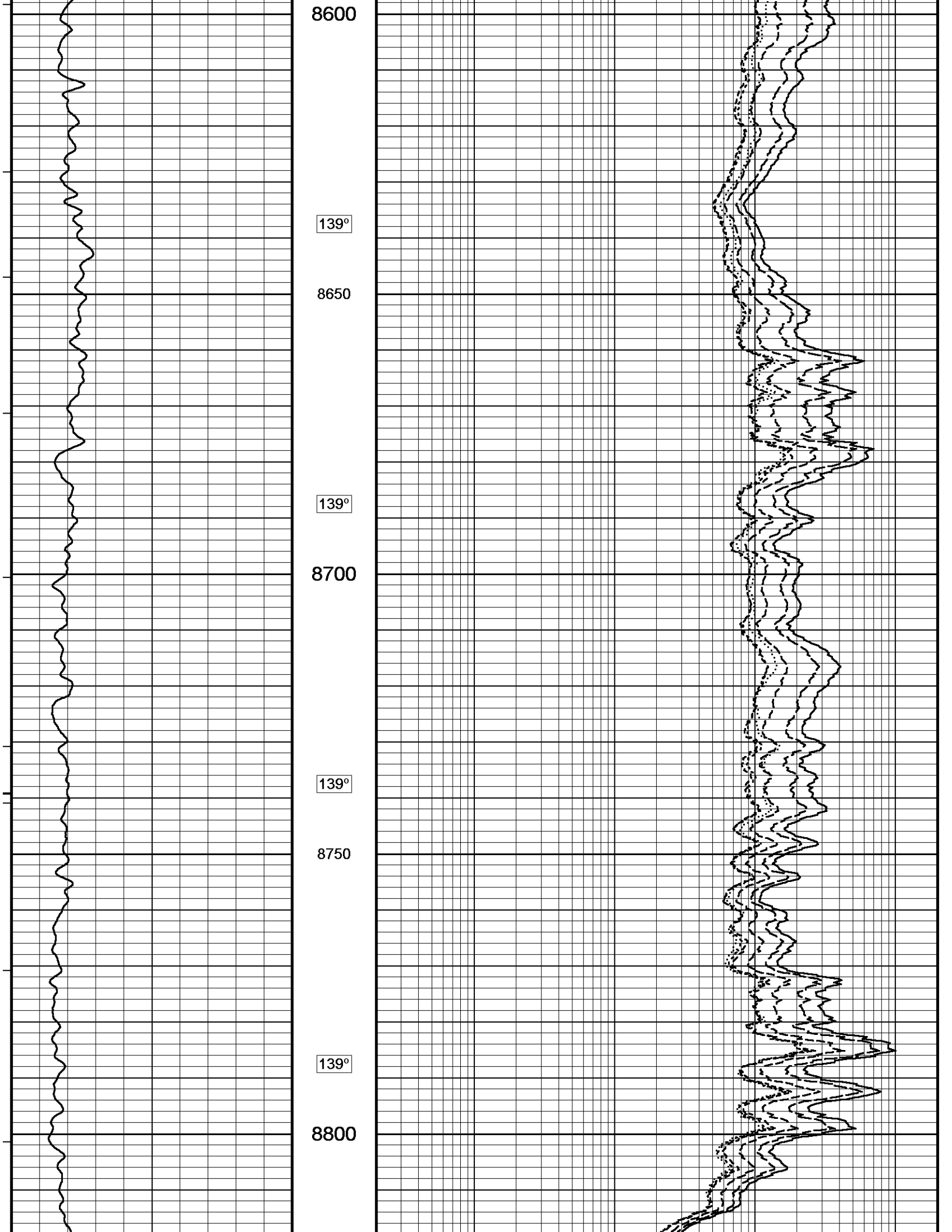
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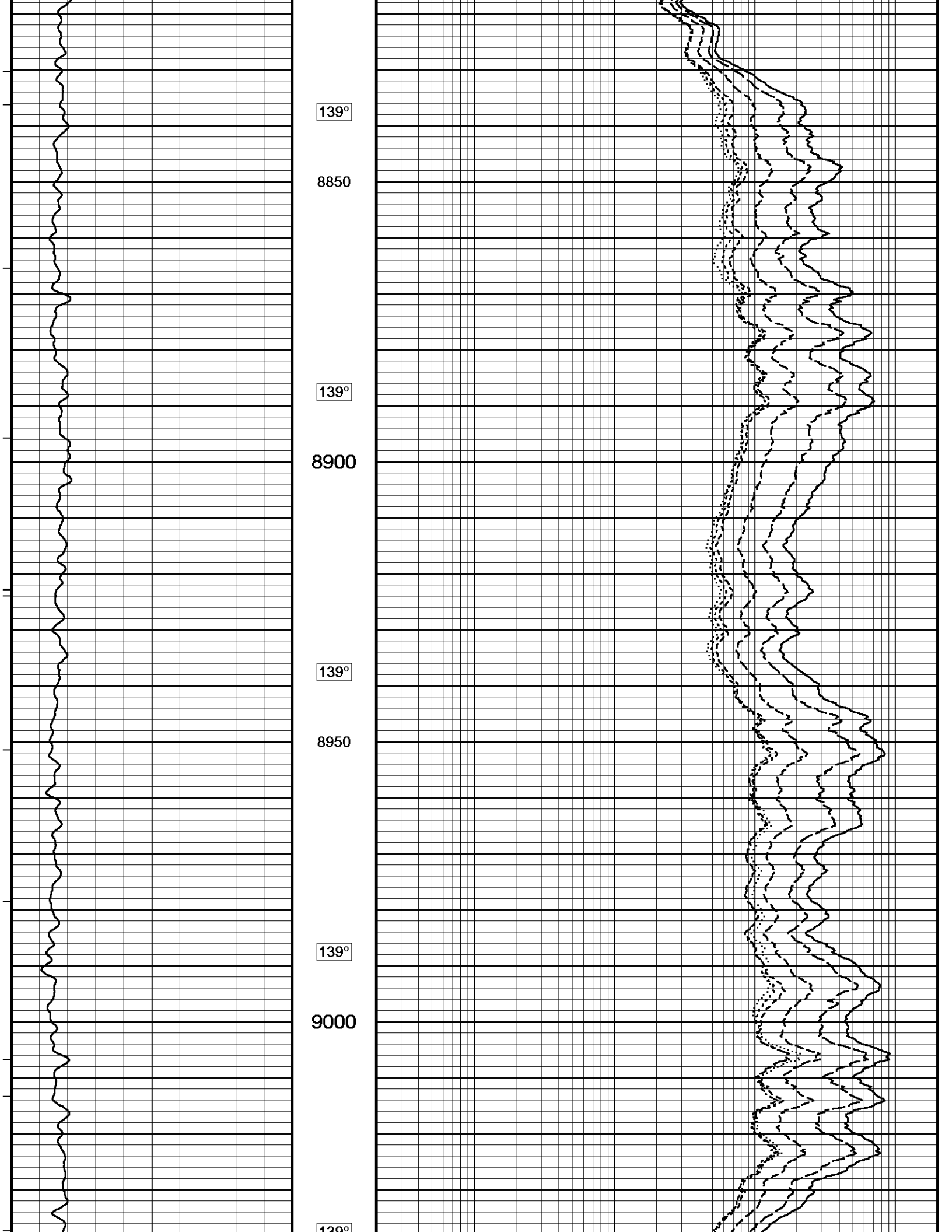
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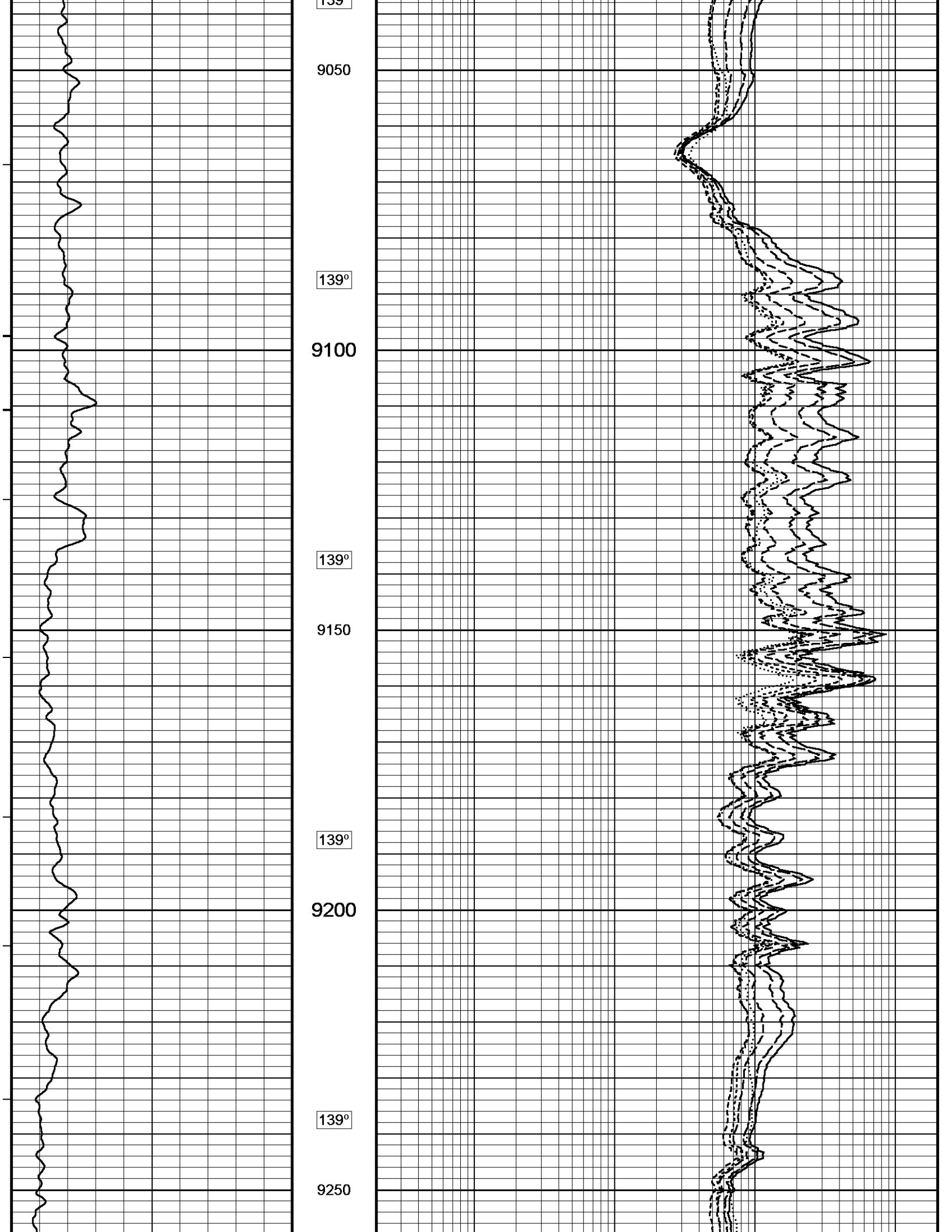
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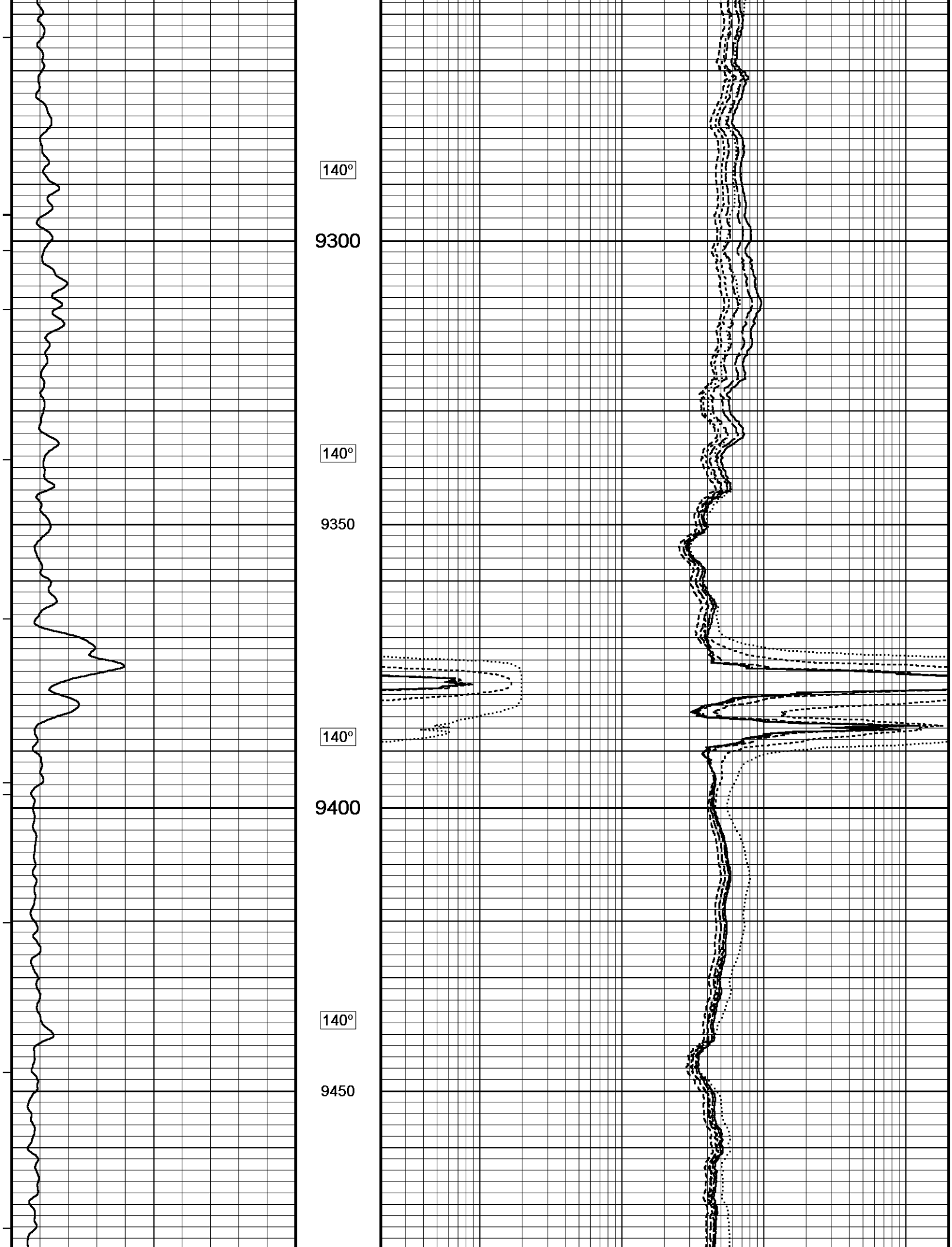
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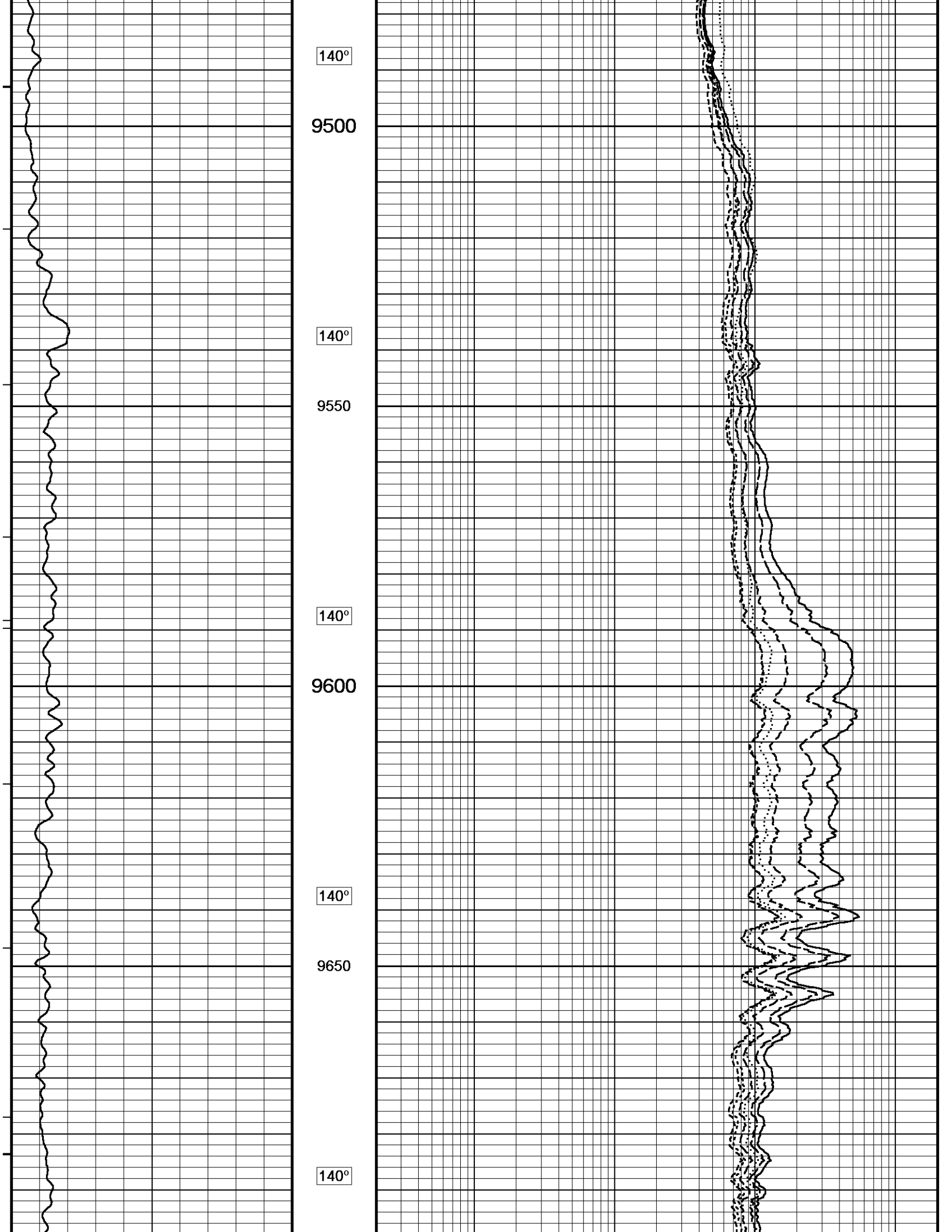
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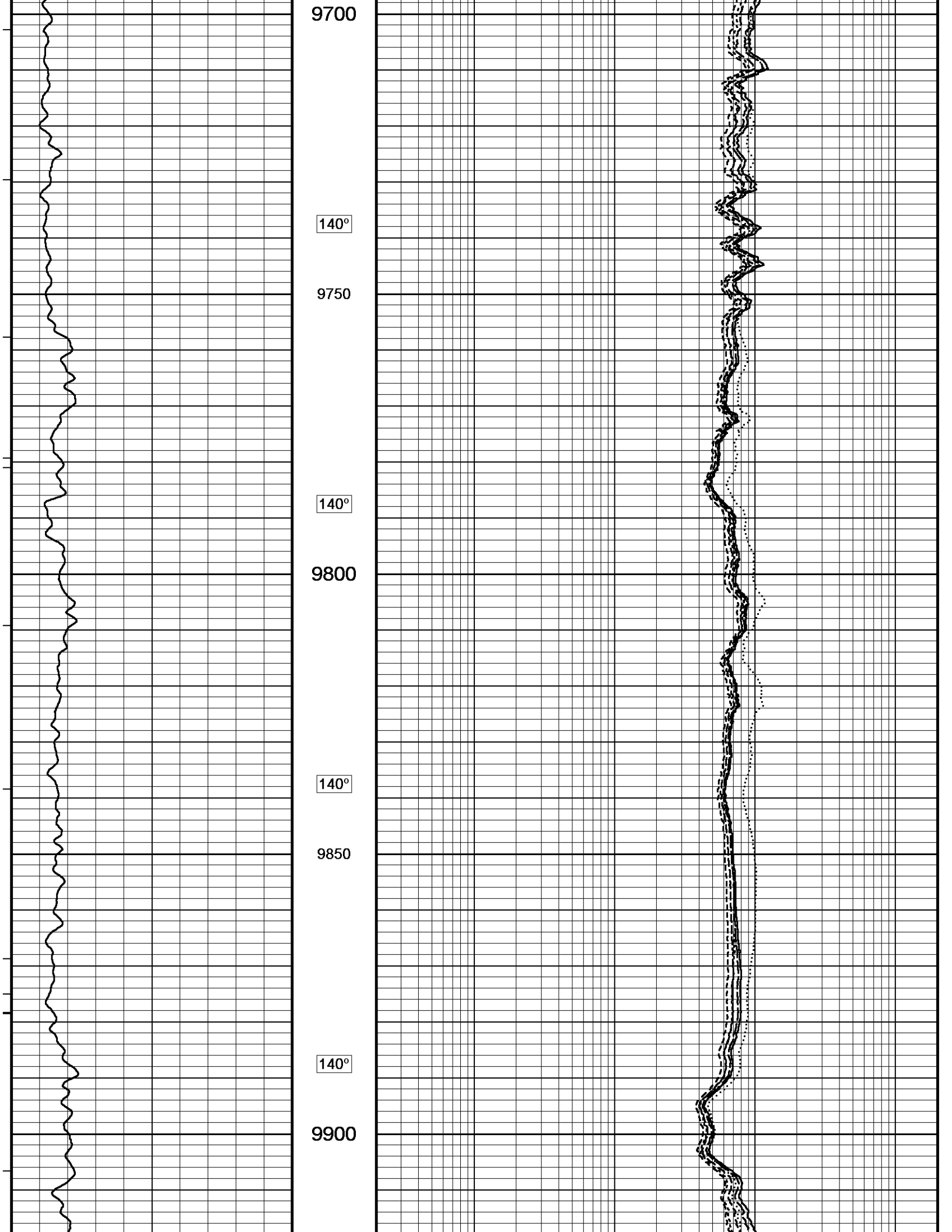
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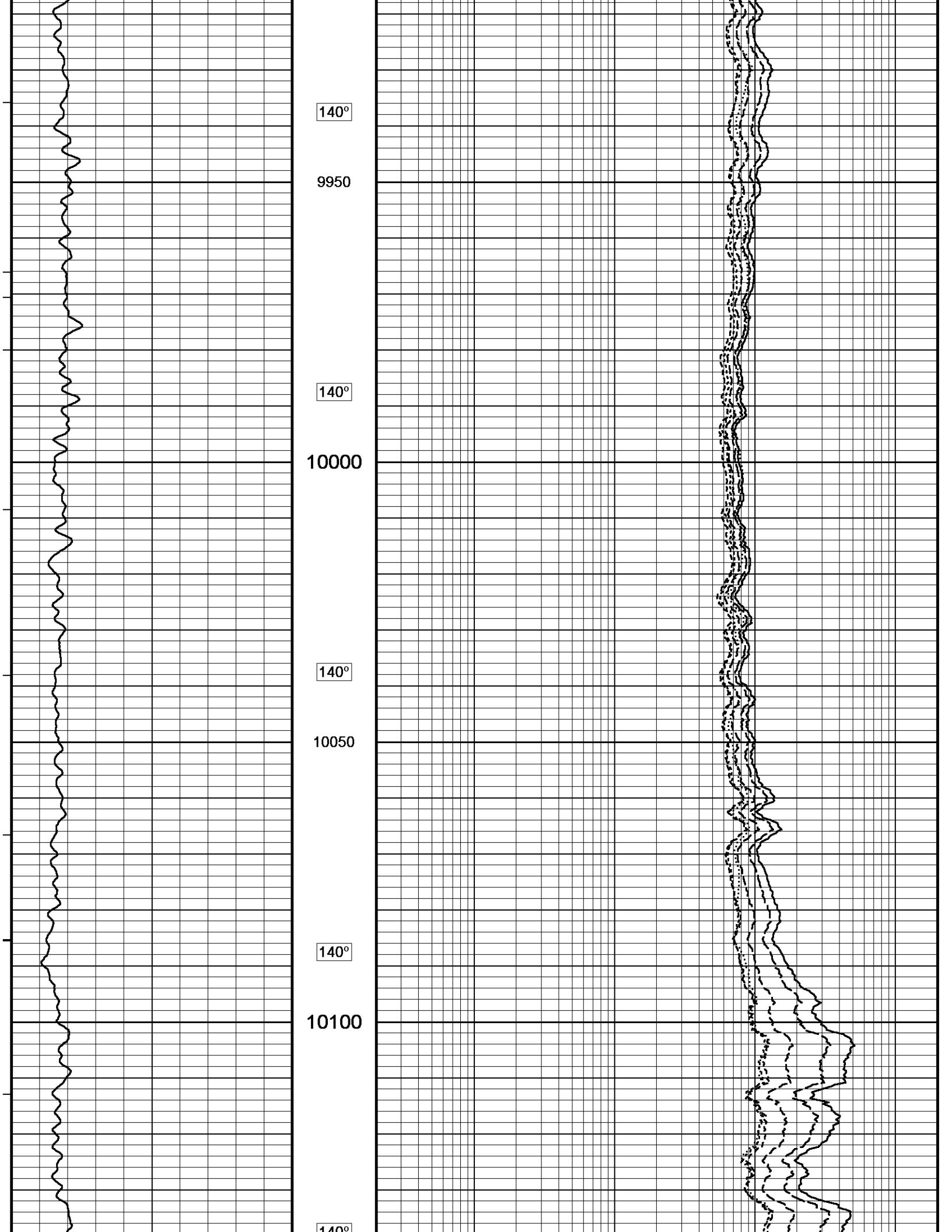
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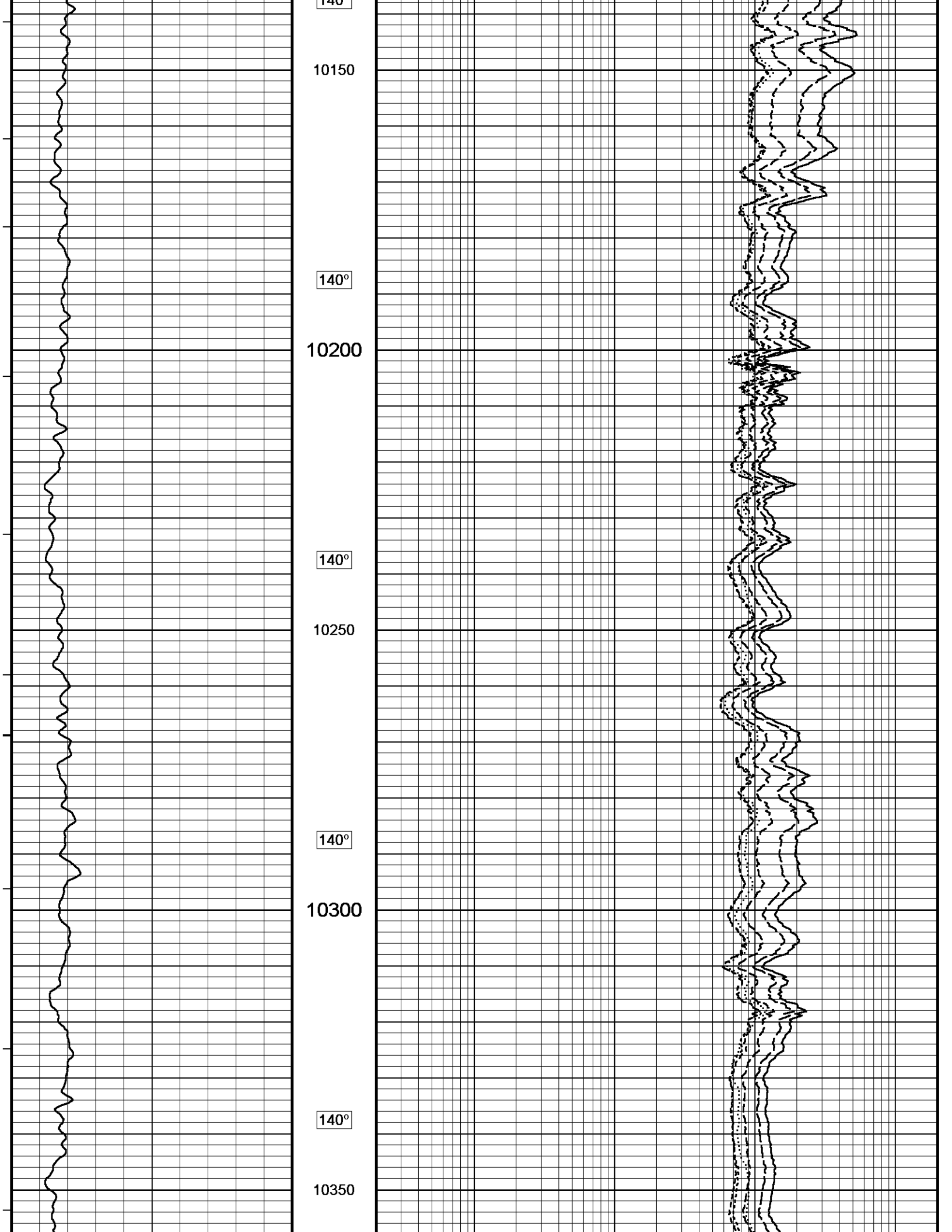
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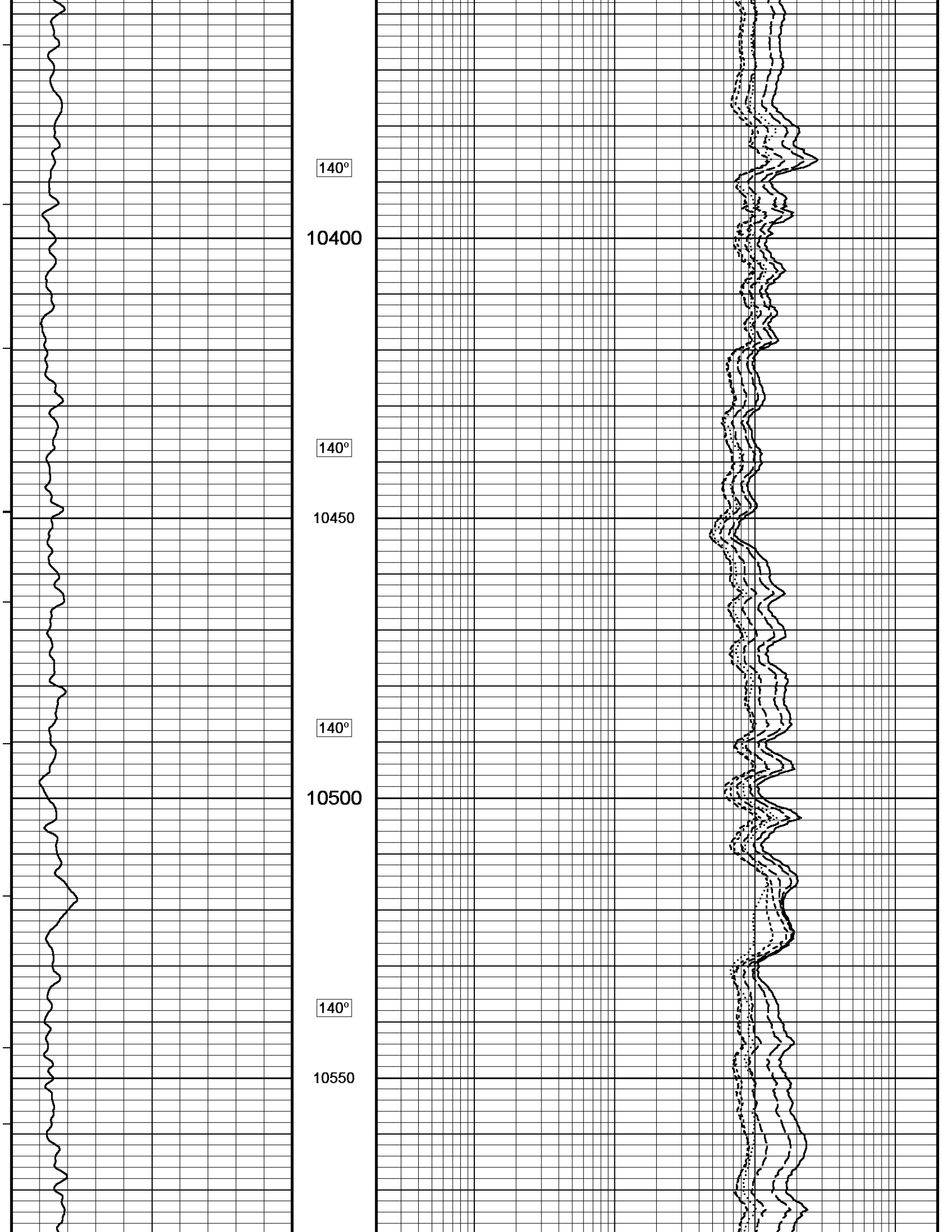
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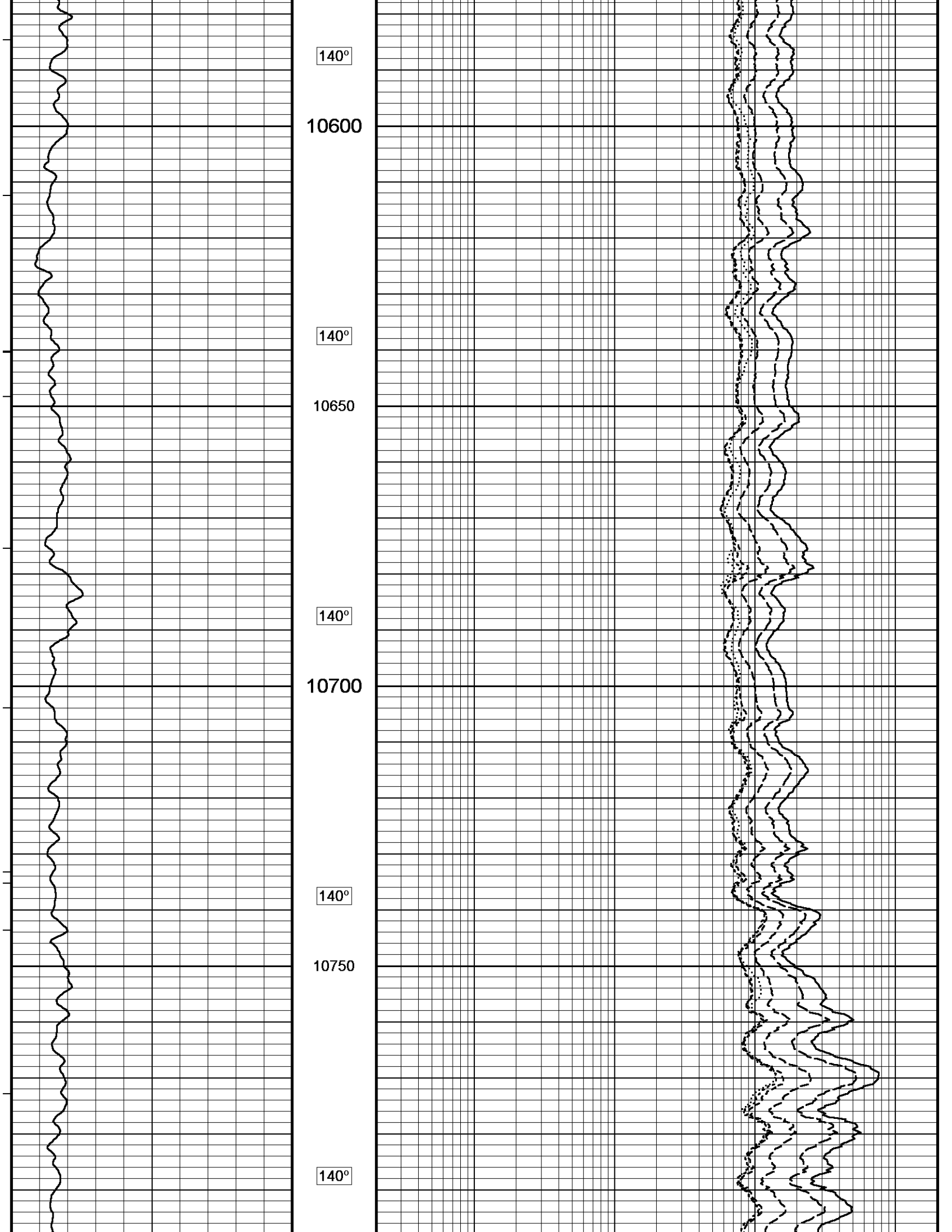
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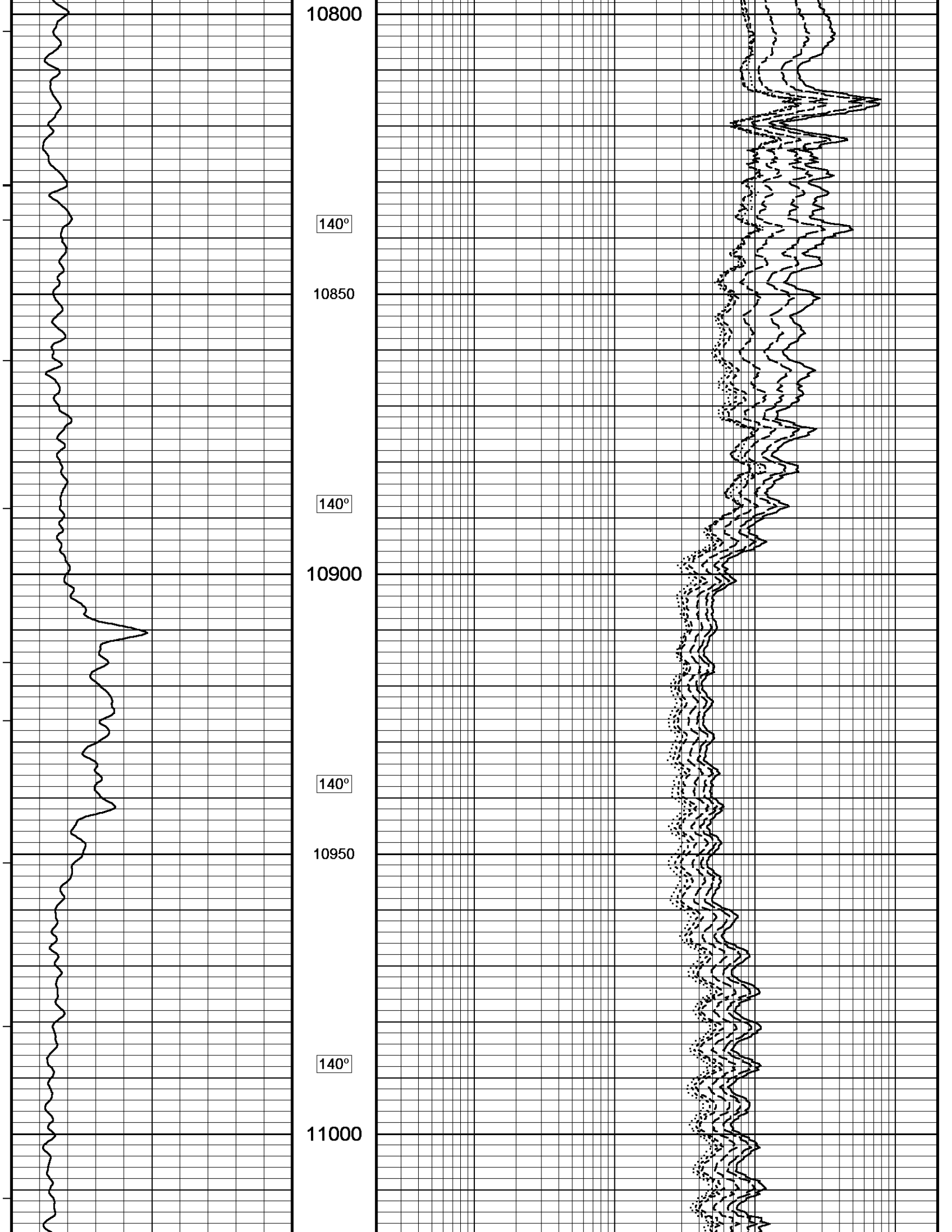
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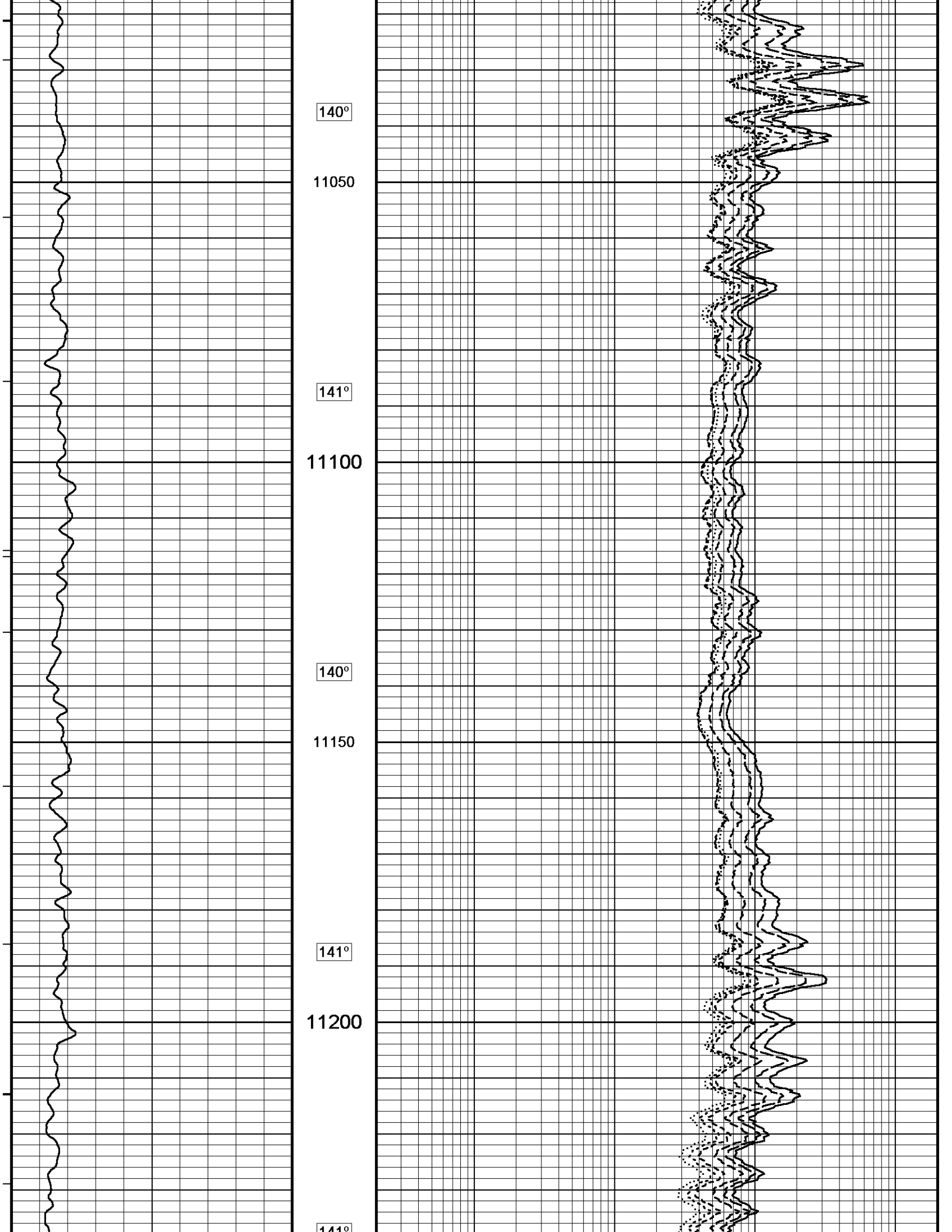
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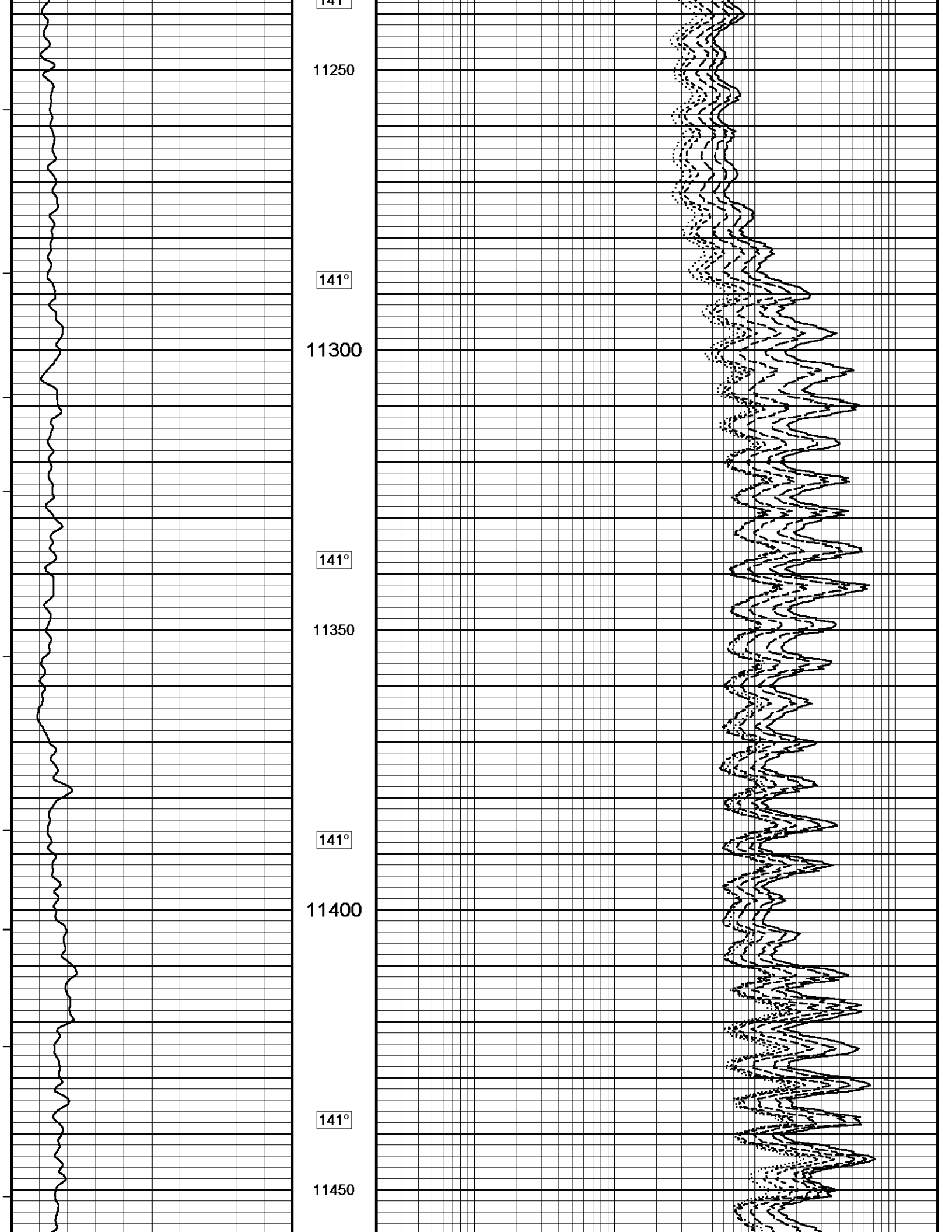
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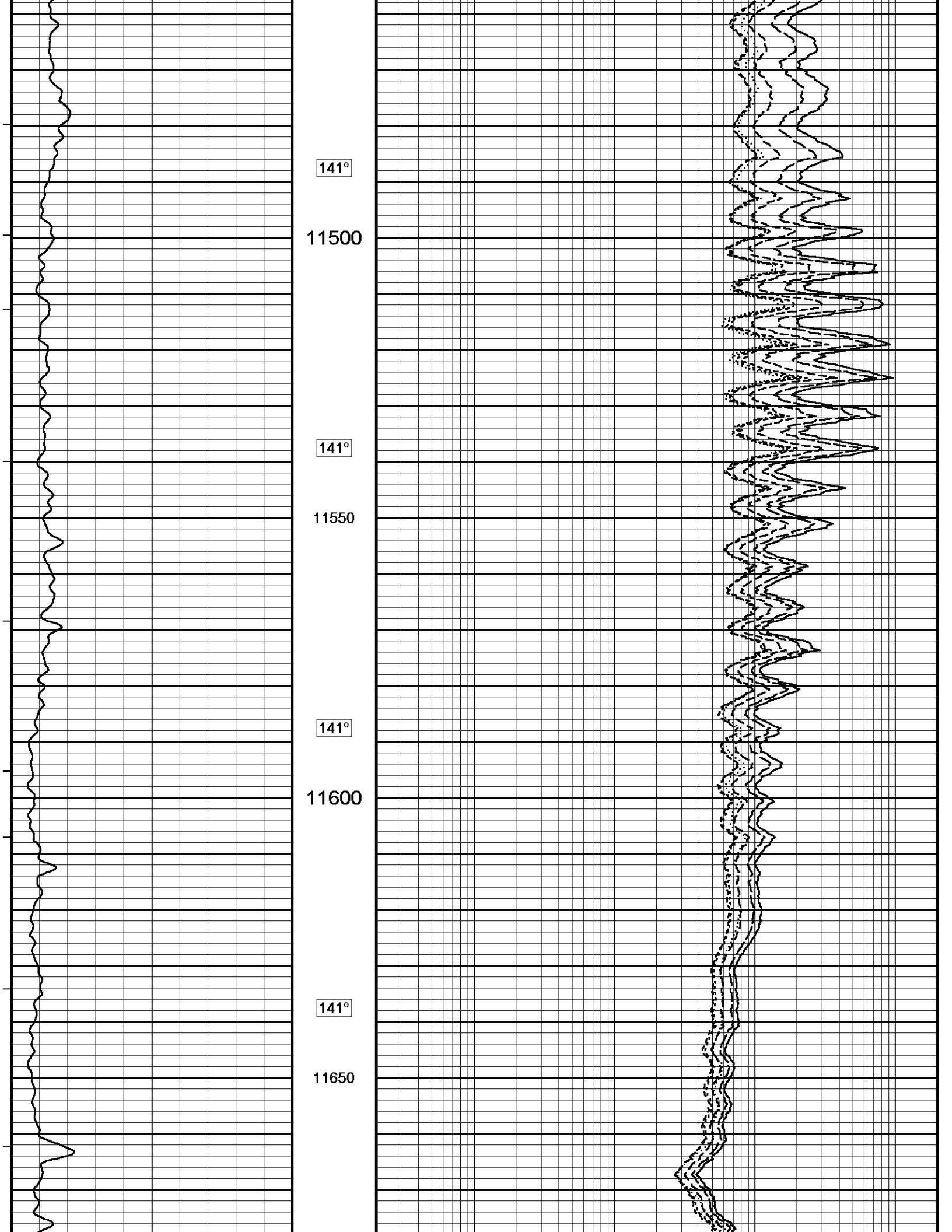
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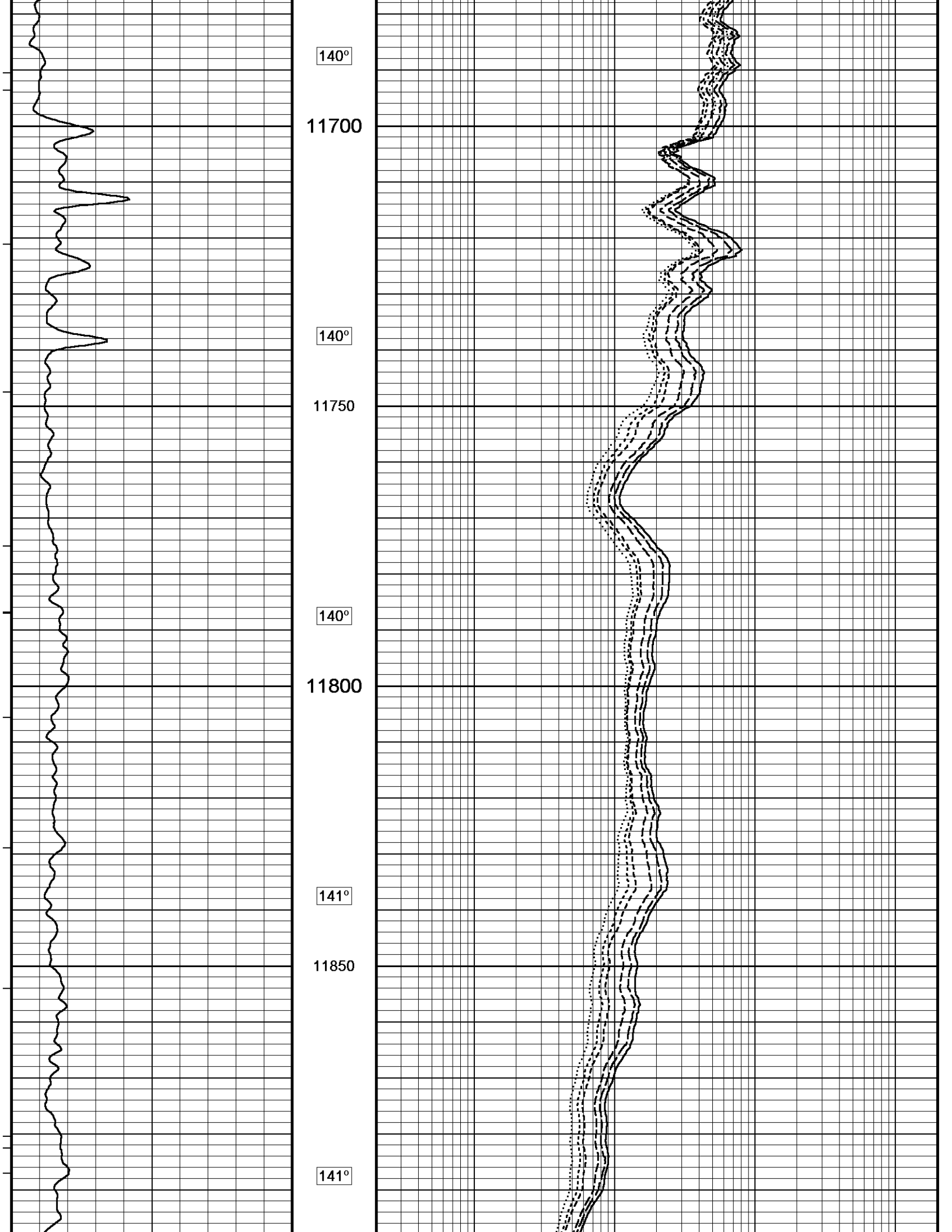
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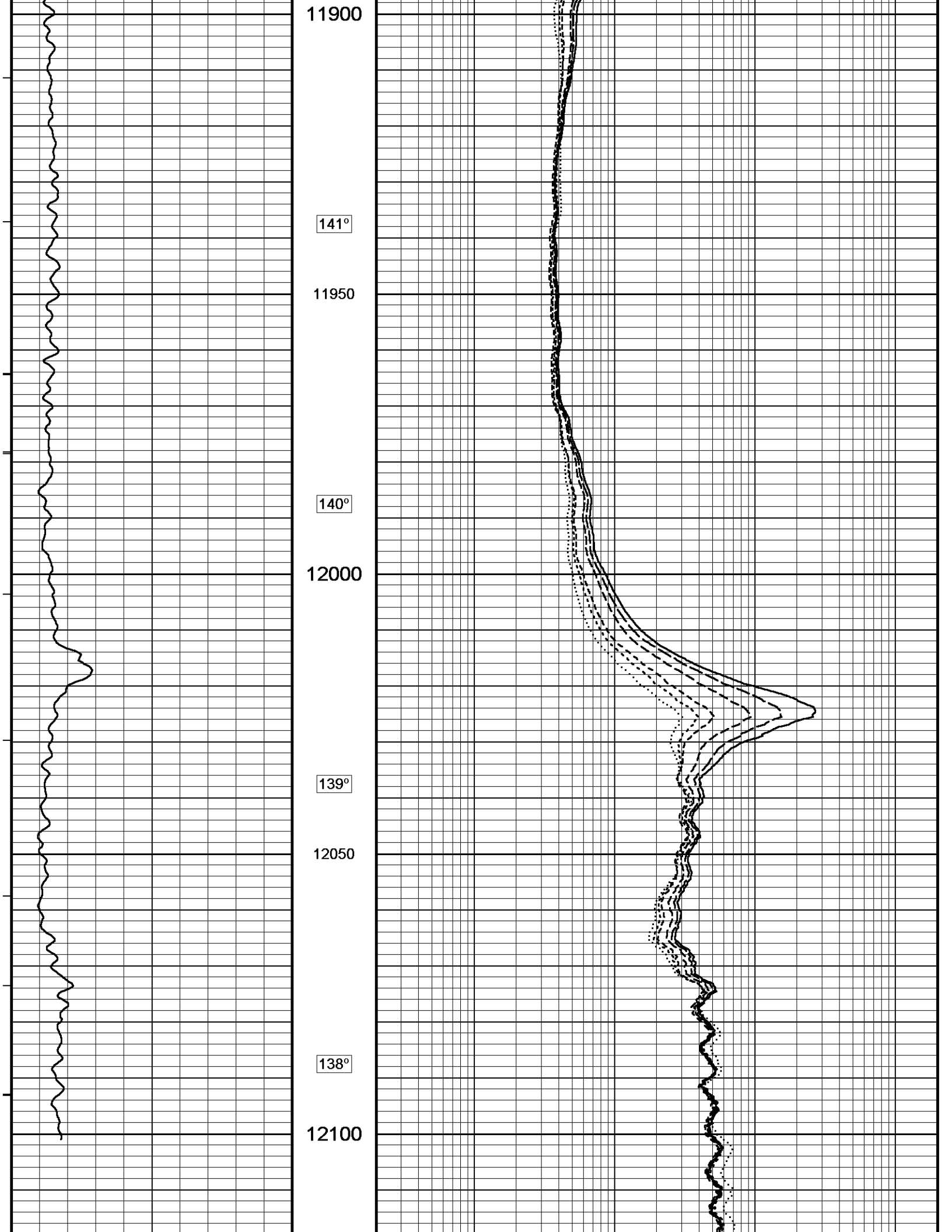
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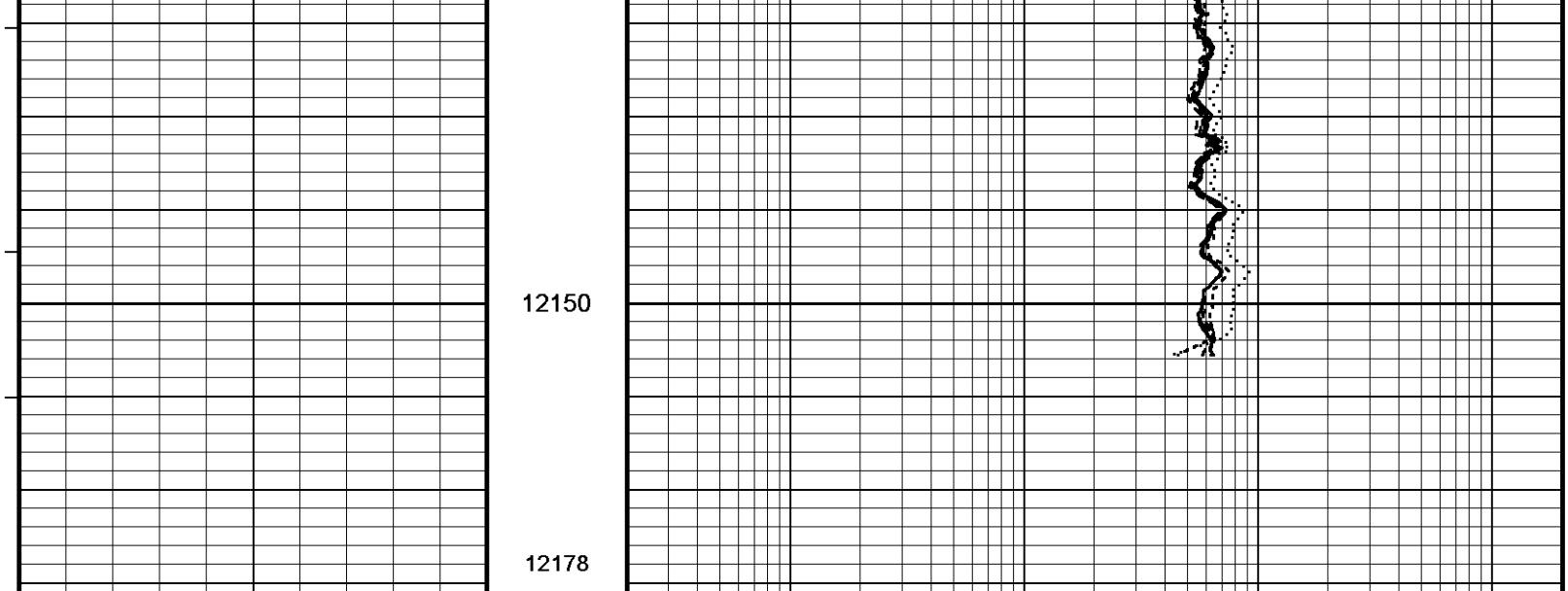


12150

12178

Depth
In
Feet

Timing Marks
every 60.0 sec

MGS Gamma Ray
API
0 75 150
150 225 300

Borehole
Temp in
deg F

Array Ind. Six Res 20
ohm metres
0.20 1 10 100 2000

Array Ind. Six Res 30
ohm metres
0.20 1 10 100 2000

Array Ind. Six Res 40
ohm metres
0.20 1 10 100 2000

Array Ind. Six Res 60
ohm metres
0.20 1 10 100 2000

Array Ind. Six Res 85
ohm metres
0.20 1 10 100 2000

Array Ind. Six Res Rt
ohm metres
0.20 1 10 100 2000

Replay
Scale
1:240

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 10-AUG-2012 01:10
Filename: C:\Data\Sandridge\Sandridge Sally 3420 1-12H\MMS167 Depthlog.dta
Recorded on 10-AUG-2012 00:29
System Versions: Processed with 12.02.4401 Plotted with 12.02.4401

DSC

BEFORE SURVEY CALIBRATION

C:\Data\Sandridge\Sandridge Sally 3420 1-12H\MMS167 Depthlog.dta

General Constants All 000
Last Edited on 10-AUG-2012 00:33

General Constants All 000

Last Edited on 10-AUG-2012 00:33

General Parameters		
Mud Resistivity	1.850	ohm-metres
Mud Resistivity Temperature	75.000	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	Base Density Porosity	
Resistivity used	Array Ind. Four Res Rt	
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

Strain Gauge Constants SER-B.A 166

Last Edited on

Atmospheric Pressure	14.70	psi
Serial Number	0	
Calibration Date	000000000000	
Base Check Date		
Dead Weight Serial Number	0	
Dead Weight Gravitational Correction	1.0	

Temperature	75.0		150.0		250.0		350.0	degrees F
Pressure psia	Inc.	Dec.	Inc.	Dec.	Inc.	Dec.	Inc.	Dec.
0.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10000.0	0.000		0.000		0.000		0.000	

Gamma Calibration MGS-C.J 108

Field Calibration on 05-AUG-2012 08:40

	Measured	Calibrated (API)
Background	38	26
Calibrator (Gross)	1048	722
Calibrator (Net)	1010	696

Gamma Constants MGS-C.J 108

Last Edited on 10-AUG-2012 00:32

Gamma Calibrator Number		
Mud Density	1.02	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

High Resolution Temperature Constants MGS-C.J 108

Last Edited on

Pre-filter Length	11

Neutron Calibration MDN-C.A 423

Base Calibration on 03-JUN-2012 17:50
Field Check on 05-AUG-2012 08:40

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3350	100	3714	110
Ratio	33.500		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	1130	1749

Ratio	0.646	

Field Check	Calibrated (cps)	
	1130	1755
Ratio	0.644	

Neutron Constants MDN-C.A 423

Last Edited on 27-JUL-2012 08:26

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	MGS External Temperature	
Temperature	N/A	degrees F
Mud Salinity	0.00	kppm
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	140.00	kppm
Barite Mud Correction	Not Applied	
Salinity Correction	Not Applied	

FE Constants MFE-B.J 328

Last Edited on

Running Mode	No Sleeve	
MFE K Factor	0.1268	
Caliper Source for FE correction	Bit Size	
Caliper Value for FE correction	2.25	inches
Rm Source for FE correction	Constant Value	
Temp. for Rm Corr.	MCG External Temperature	
Stand-off	Centred	inches

High Resolution Temperature Calibration MAI-B.J 394

Field Calibration on 08-MAR-2012 12:02

	Measured	Calibrated(Deg F)
Lower	10.00	50.00
Upper	100.00	212.00

High Resolution Temperature Constants MAI-B.J 394

Last Edited on

Pre-filter Length	11

Induction Calibration MAI-B.J 394

Base Calibration on 08-MAR-2012 11:57
Field Check on 05-AUG-2012 08:38

Base Calibration

Test Loop Calibration

Channel	Measured Low	Measured High	Calibrated (mmho/m) Low	Calibrated (mmho/m) High
1	16.7	473.5	9.3	966.2
2	5.6	368.9	7.6	821.4
3	3.3	256.4	5.2	566.0
4	1.8	133.4	2.6	279.2

Array Temperature	71.8	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	14.0	3832.0
2	0.0	0.0	31.8	3650.5
3	0.0	0.0	28.8	3083.2
4	0.0	0.0	19.4	2068.6
Deep	0.0	0.0	16.2	1912.0
Medium	0.0	0.0	42.9	4143.5
Shallow	0.0	0.0	49.5	5536.4
Array Temperature	0.0		81.5	Deg F

Induction Constants MAI-B.J 394

Last Edited on 10-AUG-2012 00:31

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	Temperature Corr	
Temp. for Rm Corr.	MGS External Temperature	
Squasher Start	0.0030	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-C.J 395

Base Calibration on 10-JUL-2012 00:07
Field Calibration on 05-AUG-2012 08:45

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	15488	3.99
2	24960	5.97
3	34848	7.99
4	44224	9.86
5	55360	11.93
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.89	7.99

Photo Density Calibration MPD-C.J 395

Base Calibration on 08-MAR-2012 11:47
Field Check on 05-AUG-2012 08:45

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	54938	28656	60364	31945
Reference 2	22898	2647	25079	2547

Field Check at Base

1172.4	1346.5

Field Check

1245.3	1464.8

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	218	1051		

Reference 1	24528	54744	0.453	0.399
Reference 2	6633	22766	0.295	0.273

Field Check at Base

218.2 1051.4

Field Check

228.3 1118.3

Density Constants MPD-C.J 395

Last Edited on 10-AUG-2012 00:32

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	1.02	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	

DOWNHOLE EQUIPMENT

C:\Data\Sandridge\Sandridge Sally 3420 1-12H\MMS167 Depthlog.dta

Shuttle Mechanical Release (SMR A)
SMR-A 152 LG: 8.53 ft WT: 77.2 lb OD: 2.52 in

Shuttle Electrical Release
SER-B.A 166 LG: 6.90 ft WT: 50.7 lb OD: 2.24 in

MBS-F.A 200v Compact Battery Sub
MBS-F.A 65 LG: 10.22 ft WT: 66.1 lb OD: 2.24 in

Compact Memory Sub E.B
MMS-E.B 167 LG: 5.20 ft WT: 37.5 lb OD: 2.24 in

Compact Tool Isolator sub.
MTI-B.A 72 LG: 1.54 ft WT: 13.2 lb OD: 2.24 in

Compact Short Gamma
MGS-C.J 108 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 471 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 450 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 310 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron
MDN-C.A 423 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-C.J 395 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 609 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor
SHA-J.A 454 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

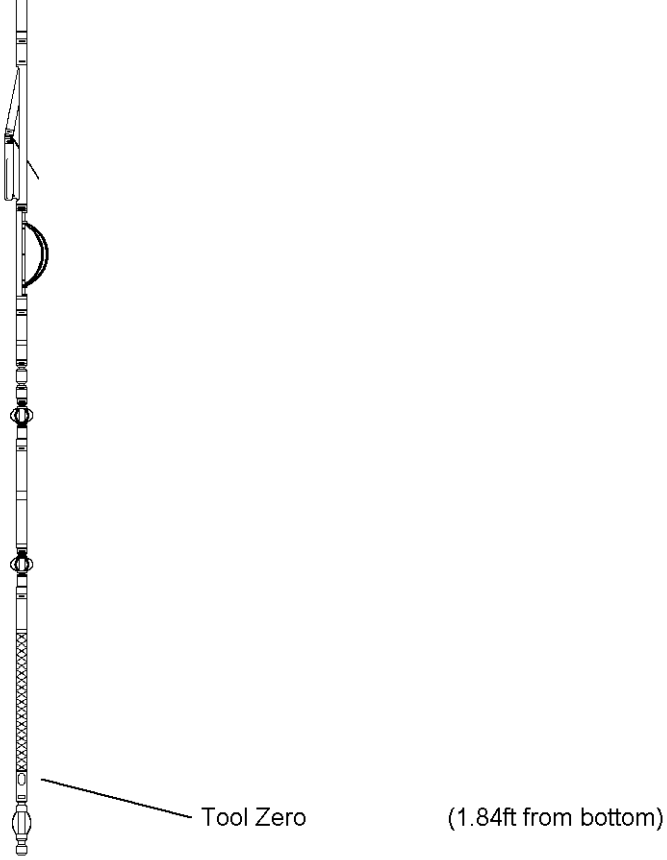
SKJ-E.B Compact Knuckle Joint
SKJ-E.B 456 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-E.B Compact Inline Standoff sub
MIS-E.B 576 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Focussed Electric
MFE-B.J 328 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

MIS-E.B Compact Inline Standoff sub
MIS-E.B 574 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Induction
MAI-B.J 394 LG: 12.52 ft WT: 48.5 lb OD: 2.24 in



COMPANY	SANDRIDGE EXPLORATION & PRODUCTION
WELL	SALLY 3420 1-12H
FIELD	COLLIER FLATS
PROVINCE/COUNTY	COMANCHE
COUNTRY/STATE	USA / KANSAS

Elevation Kelly Bushing	1808.00	feet	First Reading	12158.00	feet
Elevation Drill Floor	1808.00	feet	Depth Driller	12182.00	feet
Elevation Ground Level	1788.00	feet	Depth Logger	12164.00	feet

Weatherford®

CML IMPULSE SHUTTLE
COMPACT ARRAY INDUCTION
LOG

40 Years of Wireline 1970 2010