Sperry Drilling Services

MWD

EWR Electromagnetic Wave Resistivity
DGR Dual Gamma Ray
SLD Stabilized Litho-Density
CTN Comp Thermal Neutron
ACAL Acoustic Caliper

1 : 200

Country	: **Australia**
Field	: **Exploration**
Location	: **Lat: 38° 24' 8.14" South** **Long: 148° 39' 14.92" East**
Well	: **Culverin-1**
Company	: **Nexus Energy Ltd**
Rig	: **Ocean Patriot**

Company	: **Nexus Energy Ltd**	LOCATION	
Rig	: **Ocean Patriot**	Latitude	: **38° 24' 8.14" South**
Well	: **Culverin-1**	Longitude	: **148° 39' 14.92" East**
Field	: **Exploration**	UTM Easting =	**644,437.30 m**
Country	: **Australia**	UTM Northing =	**5,748,256.39 m**
DOE Number	:	Other Services	**Directional Drilling**

Permanent Datum	: **LAT**	Elevation :	**0.00 m**	Elev.	KB
Log Measured From	: **Drill Floor**	**21.50 m**	Above Permanent Datum	DF	**21.50 m**
Drilling Measured From	: **Drill Floor**	MD LOG		GL	
				WD	**585.50 m**

Depth Logged	: **650.00 m** To **3,758.00 m**	Unit No.	: **182**	Job No. :	**AU-FE-0003951414**
Date Logged	: **16-Dec-05** To **07-Jan-06**				
Total Depth MD	: **3,758.00 m** TVD: **3,753.86 m**	Plot Type	: **Final**		
Spud Date	: **16-Dec-05**	Plot Date	: **08-Mar-06**		

Run No.	Borehole Record (MD) Size	From	To	Run No.	Borehole Record (MD) Size	From	To
2	445.000 mm	650.00 m	1,525.00 m				
3	311.000 mm	1,525.00 m	3,402.00 m				
4	311.000 mm	3,402.00 m	3,571.00 m				
6	311.000 mm	3,571.00 m	3,758.00 m				

Casing Record (MD) Size	Weight	From	To
508.000 mm	192.00 kg/m	SURFACE	650.00 m
340.000 mm	101.00 kg/m	SURFACE	1,511.80 m

WELL INFORMATION

MWD Run Number	200	300	400	600	
Date run completed	20-Dec-05	30-Dec-05	02-Jan-06	07-Jan-06	
Rig Bit Number	2	3	4	6	
Bit Size (mm)	445	311	311	311	
Tool Nominal OD (mm)	241	203	203.	203	
Log Start Depth (MD, m)	650.0	1,525.0	3,402.0	3,571.0	
Log End Depth (MD, m)	1,525.0	3,402.0	3,571.0	3,758.0	
Drill or Wipe	Drilling	Drilling	Drilling	Drilling	
Drill/Wipe Start Date and Time	18-Dec-05 14:52	24-Dec-05 17:15	31-Dec-05 12:35	04-Jan-06 09:52	
Drill/Wipe End Date and Time	20-Dec-05 08:30	30-Dec-05 08:30	01-Jan-06 18:58	07-Jan-06 00:10	
Min Inc (deg) @ Depth (MD, m)	0.03 @ 1,371.46	0.33 @ 1,540.46	3.32 @ 3,547.59	2.98 @ 3,641.38	
Max Inc (deg) @ Depth (MD, m)	1.26 @ 681.95	4.30 @ 2,457.14	3.59 @ 3,432.80	3.36 @ 3,555.34	
Bit TFA(in2) / Bit Type	1.31 / Reed T-11	2.197 / Hycalog RSX-616M	2.197 / Hycalog RSX-616M	0.920 / Smith GF30BODVCP	
Flow Rate (gpm)	1,100	900	850	795	
Max AV (mpm) / CV (mpm) @ MWD	38.0 / 9.0	78.0 / 138.1	78.0 / 150.0	70.4 / 142.9	
Fluid Type	Seawater	MixSalt-Glydrill	MixSalt-Glydrill	MixSalt-Glydrill	
Density (sg) / Viscosity (spqt)	1.04 / N/A	1.2 / 57.0	1.2 / 62.0	1.2 / 59.0	
Filtrate CL (ppm)	N/A	82,000	84,000	79,000	
pH / Fluid Loss (mptm)	N/A / N/A	9.0 / 4.0	6.0 / 3.6	9.0 / 3.8	
PV (cp) / YP (lhf2)	N/A / N/A	17 / 30.0	17 / 33.0	15 / 30.0	
% Solids / % Sand	N/A / N/A	10.5 / 1.25	10.5 / 1.5	10.5 / 0.7	
% Oil / Oil:Water Ratio	N/A / N/A	0 / N/A	0 / N/A	0 / N/A	
Rm @ Measured Temp (degC)	N/A @ N/A	0.07 @ 23.9	0.07 @ 24.4	0.07 @ 23.9	
Rmf @ Measured Temp (degC)	N/A @ N/A	0.05 @ 23.9	0.06 @ 24.4	0.06 @ 23.9	
Rmc @ Measured Temp (degC)	N/A @ N/A	0.11 @ 23.9	0.11 @ 24.4	0.10 @ 23.9	
Max Tool Temp (degC) / Source	24.0 / TM	56.0 / EWRP4	75.0 / EWR-P4	58.0 / EWR-P4	
Rm @ Max Tool Temp (degC)	N/A @ N/A	0.04 @ 56.0	0.03 @ 75.0	0.04 @ 58.0	
Lead MWD Engineer	A. Oraekwuotu	A. Oraekwuotu	A. Rule	A. Oraekwuotu	
Customer Representative	W. Westman	R. King	R. King	R. King	

SENSOR INFORMATION

Downhole Processor Information

Tool Type	TM	HCIM	HCIM	HCIM	
Software Version	4.30	68.18	68.18	68.18	
Sub Serial Number	209351	AX8005	AX8005	078516	
Insert Serial Number	134334	093281	093281	160772	
Logging String Serial Number	N/A	90089208XH1RGV8	90089208XH1RGV8	90089207H1RGV8	
Date and Time Initialized	18-Dec-05 07:08	24-Dec-05 00:23	30-Dec-05 23:36	03-Jan-06 12:52	
Date and Time Read	20-Dec-05 15:14	30-Dec-05 19:04:00	02-Jan-06 05:19:00	07-Jan-06 17:22:00	

Directional Sensor Information

Tool Type	DM	DM	DM	DM	
Distance From Bit (m)	13.36	13.13	13.09	13.55	
Software Version	3.15	3.15	3.15	3.15	
Sub Serial Number	209351	10603354	10603354	111363	
Sonde Serial Number	185534	185534	185534	149865	
Sensor ID Number	N/A	N/A	N/A	N/A	
Survey String Serial Number	N/A	N/A	N/A	N/A	
Toolface Offset (deg)	N/A	N/A	N/A	N/A	

Gamma Ray Sensor Information

Tool Type	GM	DGR	DGR	DGR	
Distance From Bit (m)	15.18	15.73	15.70	16.17	
Recorded Sample Period (sec)	8	10	10	10	
Software Version	1.22	N/A	N/A	N/A	
Sub Serial Number	209351	210655	210655	10718409	
Insert/Sonde Serial Number	83563	172498	172498	151081	

Resistivity Sensor Information

Tool Type		EWR-P4	EWR-P4	EWR-P4	
Distance From Bit (m)		18.04	18.00	18.53	
Recorded Sample Period (sec)		24	24	24	
Software Version		1.38	1.38	1.38	
Sub Serial Number		129428	129428	37661	
Receiver Insert Serial Number		121609	121609	205859	
Transmitter Insert Serial Number		106183	106183	151389	
Receiver Orientation		Down	Down	Down	

Neutron Sensor Information

Tool Type		CTN	CTN	CTN	
Distance From Bit (m)		30.97	30.93	31.43	
Recorded Sample Period (sec)		20	20	20	
Sub Serial Number		189897	189897	10507513	
Insert Serial Number		10507211	10507211	194156	
Source Serial Number		0044NN	0044NN	0044NN	
Source Factor		N/A	N/A	N/A	
Pin Orientation		Up	Up	Up	

Density Sensor Information

Tool Type		SLD	SLD	SLD	
Distance From Bit (m)		25.66	25.62	26.13	
Recorded Sample Period (sec)		22	22	22	
Software Version		11.00	11.00	11.00	
Sub Serial Number		151423	151423	140456	
Insert Serial Number		157942	157942	133722	
Sensor ID Number		449	449	403	
Source Serial Number		1919GW	1919GW	14932b	
Pin Orientation		Up	Up	Up	
Stabilizer Blade O.D. (mm)		298	298	298	
DPA Offset		N/A	N/A	N/A	

Caliper Sensor Information

Tool Type		ACAL	ACAL	ACAL	

Distance From Bit (m)		29.93	29.89	30.39	
Software Version		2.05	2.05	2.05	
Sub Serial Number		189897	189897	10507513	
Insert Serial Number		10507211	10507211	194156	

REMARKS

1. All depths are bit depths and referenced to the drillers pipe tally unless otherwise noted.

2. AV/CV is calculated at the MWD collar using the Power Law for water based muds and is in m/min.

3. Curve mnemonics are :
   - SROP - Smoothed Rate of Penetration, m/hr
   - SGRC - Smoothed Gamma Ray Combined, api
   - ACAL - Smoothed Hole Size from Acoustic Caliper Tool, inches
   - SEXP - Smoothed Extra Shallow Phase Shift Derived Resistivity, ohmm
   - SESP - Smoothed Shallow Phase Shift Derived Resistivity, ohmm
   - SEMP - Smoothed Medium Phase Shift Derived Resistivity, ohmm
   - SEDP - Smoothed Deep Phase Shift Derived Resistivity, ohmm
   - SBD2 - Smoothed Best Bin Bulk Density Compensated, g/cc
   - SCO2 - Smoothed Best Bin Stand-off Correction, g/cc
   - SNP2 - Smoothed Best Bin Near Photoelectric Effect, b/e
   - TNPL - Smoothed Compensated Thermal Neutron Porosity, v/v
   - RSPD - Smoothed Running Speed, m/hr

4. CTN data processed using using the following parameters and is based on a Limestone Matrix:
   - MW = 1.14 - 1.22 SG
   - Formation Water Salinity = 10,000 ppm Cl
   - Mud Salinity = 35,500 - 84,000 ppm Cl
   - Matrix Density = 2.71 g/cc
   - Fluid Density = 1.00 g/cc

5. CTN data has been reprocessed using borehole diameter data from the ACAL tool.

6. DGR data from interval 1510.7 to 1511.8 mMDRT was logged behind casing.

7. No DGR data from 3698.7m to 3758.0 mMDRT and EWR data from 3696.4m to 3758.0 mMDRT because of a downhole failure.

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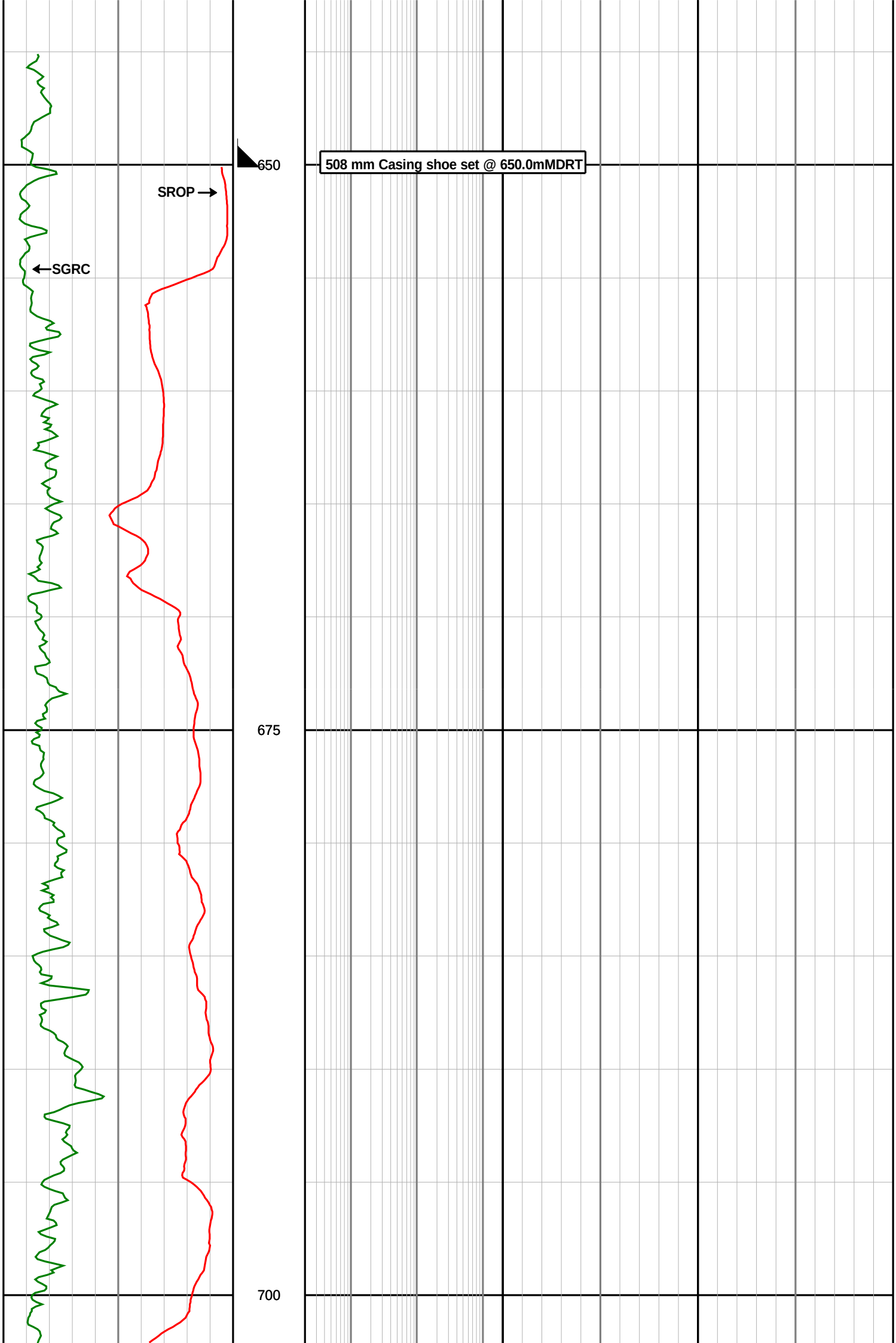
		Deep Phase Res (SEDP) 0.2 ohmm 200		
Acoustic Caliper (ACAL) 6 in 16		Medium Phase Res (SEMP) 0.2 ohmm 200	Best Bin Bulk Density (SBD2) 1.85 g/cc 2.85	
Rate of Penetration (SROP) 500 m/hr 0		Shallow Phase Res (SESP) 0.2 ohmm 200	Neutron Porosity (TNPL) 0.45 v/v -0.15	
Gamma Ray (SGRC) 0 api 200	Depth MD 1:200	Ext Shallow Phase Res (SEXP) 0.2 ohmm 200	Best Bin Delta Rho (SCO2) -0.75 g/cc 0.25	Photoelectric Effect (SNP2) 0 b/e 10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508 mm Casing shoe set @ 650.0mMDRT
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SGRC
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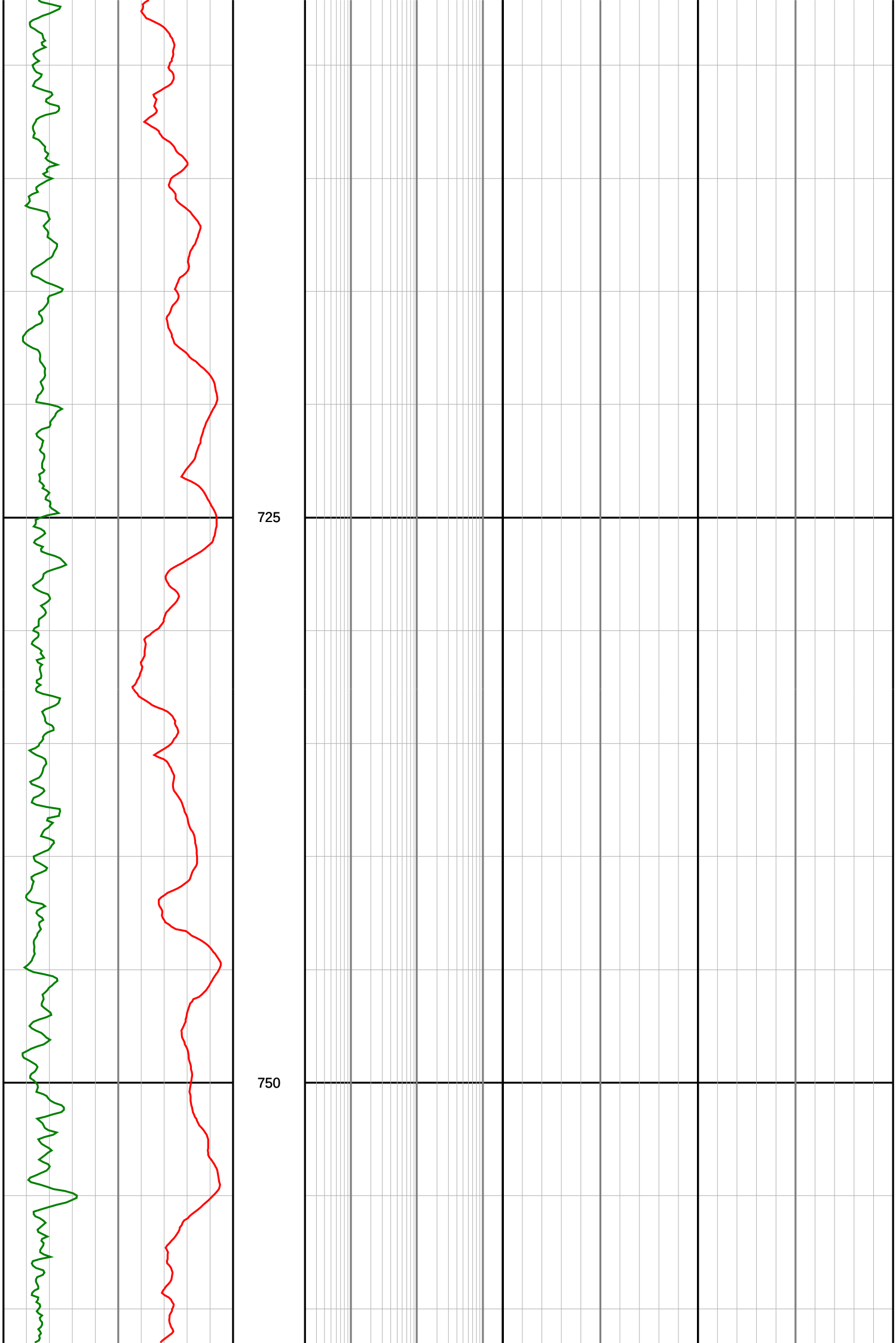
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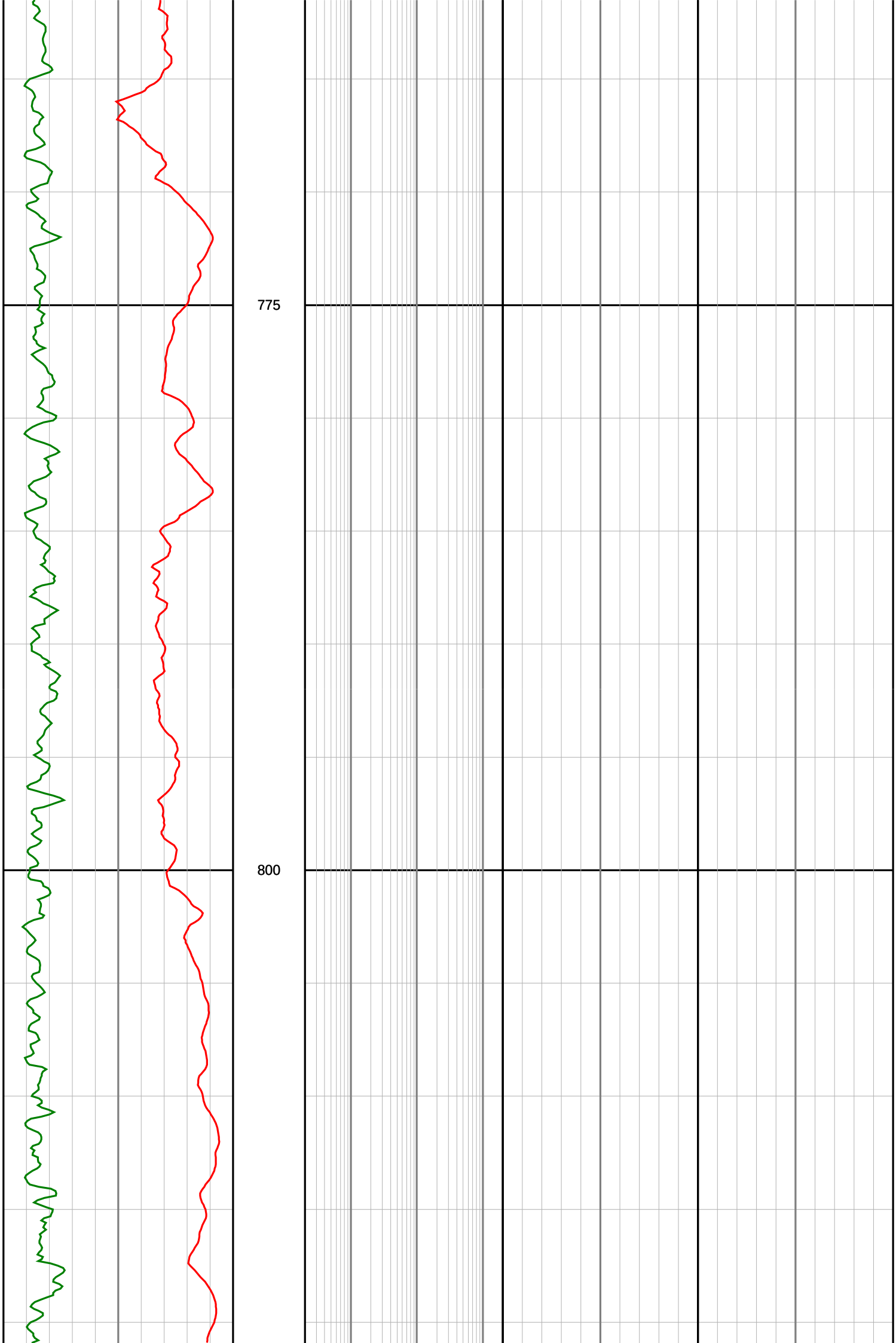
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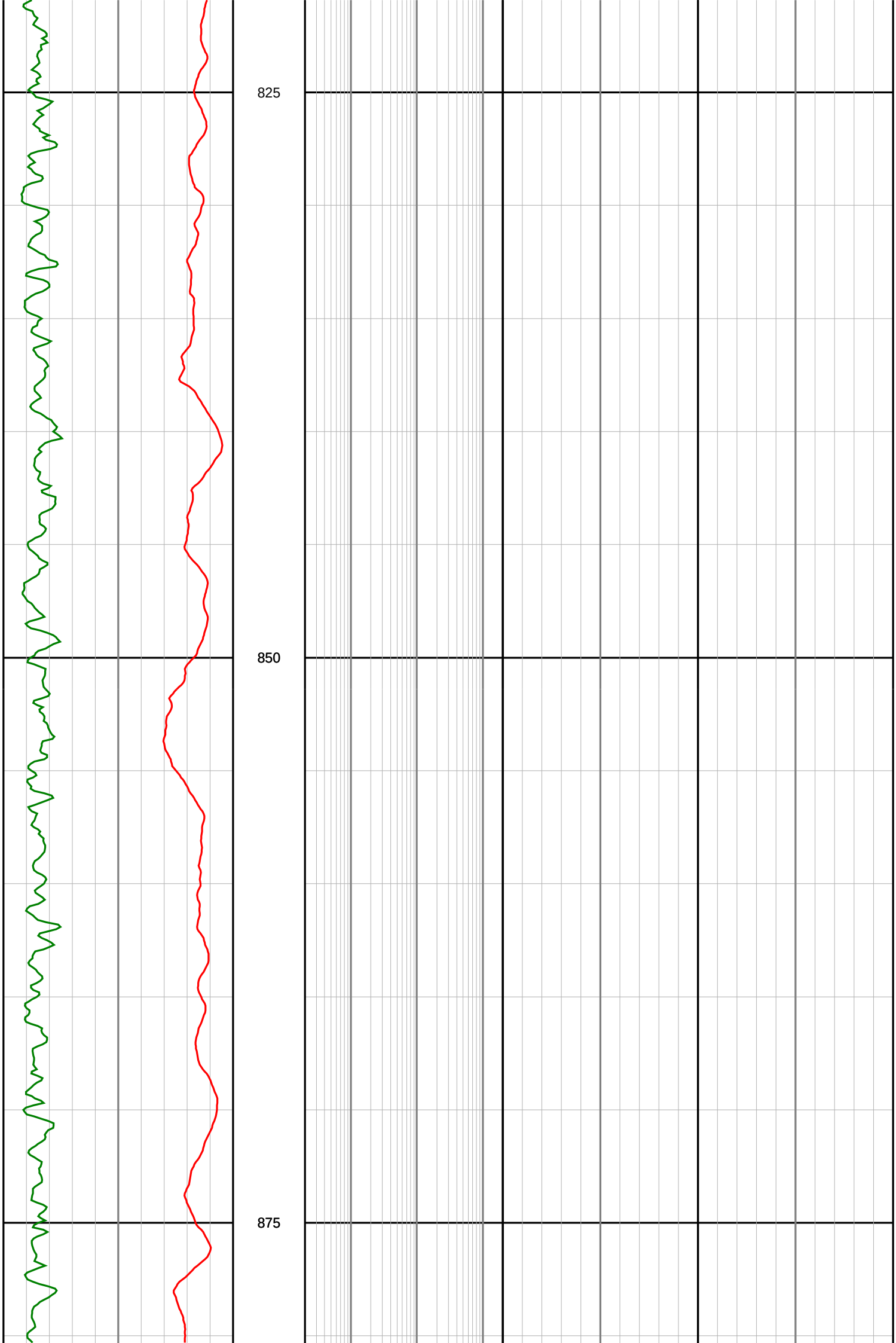
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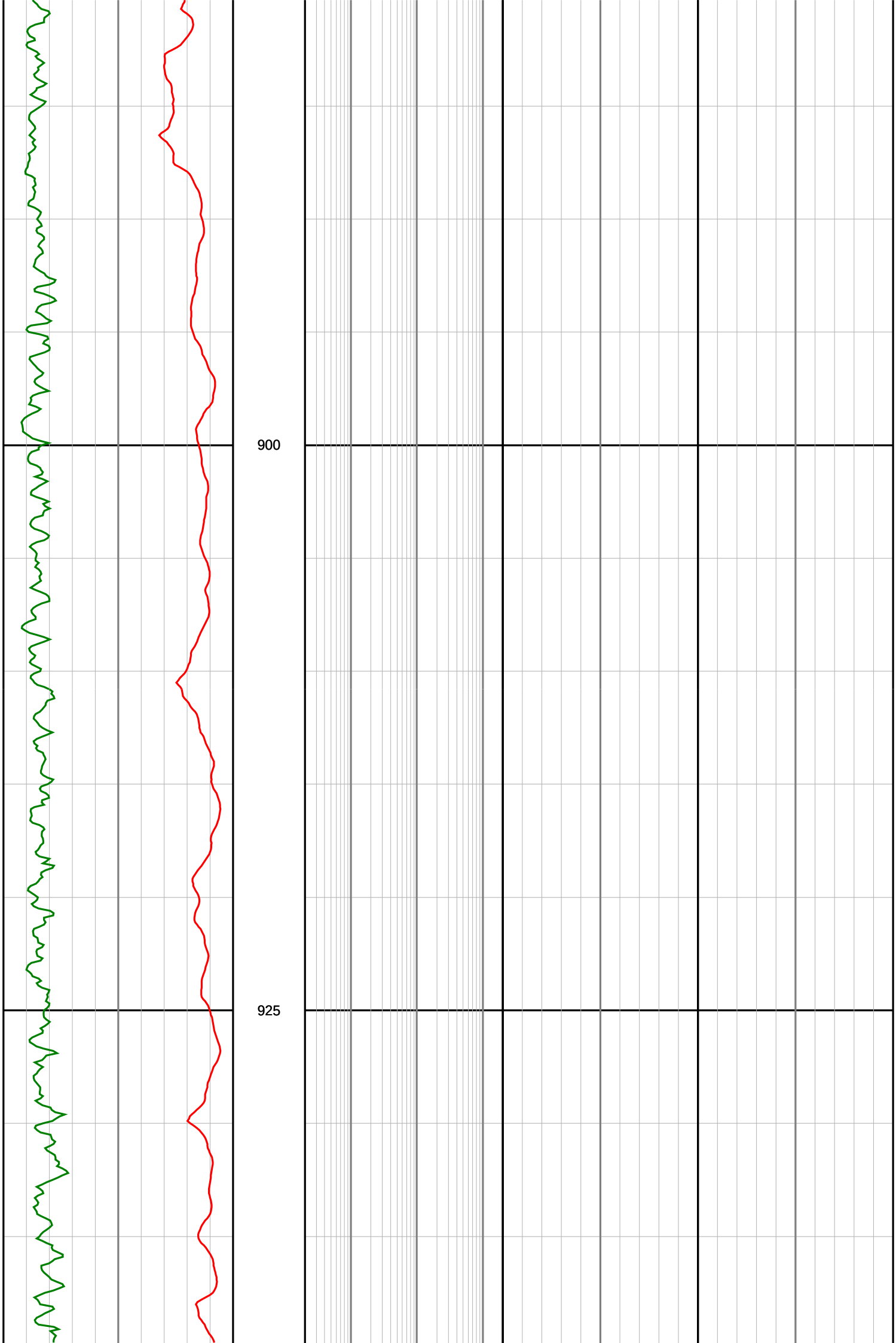
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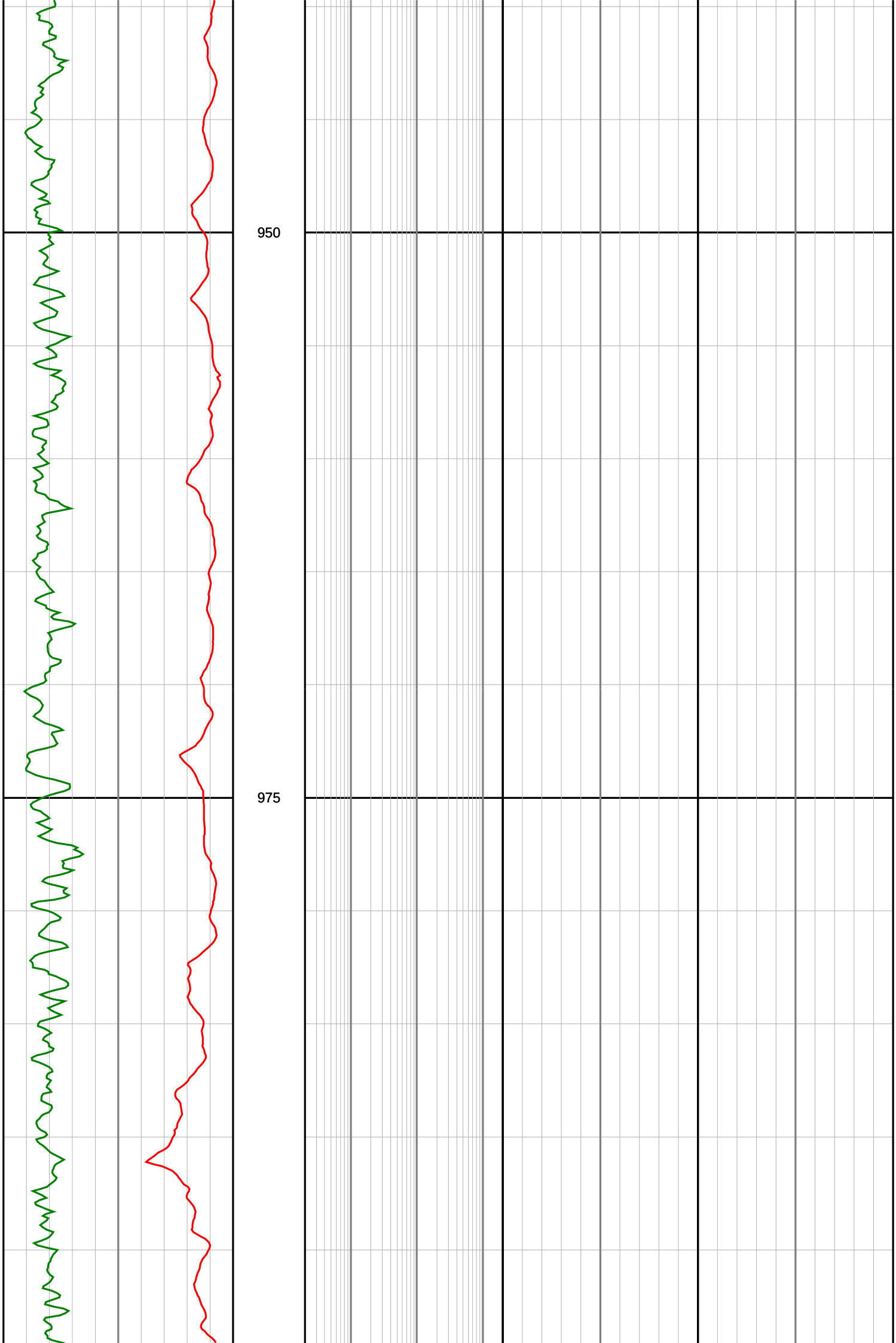
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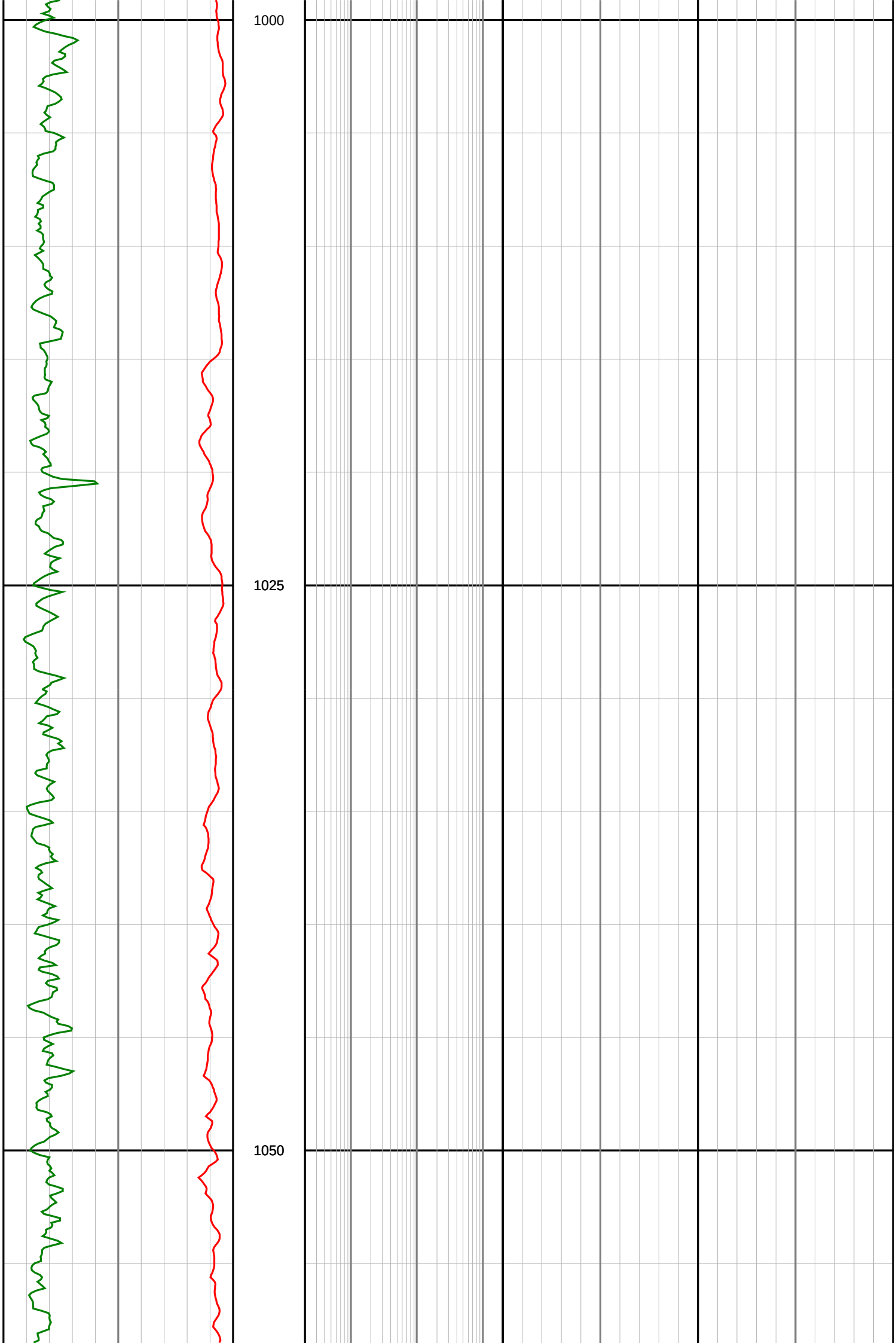
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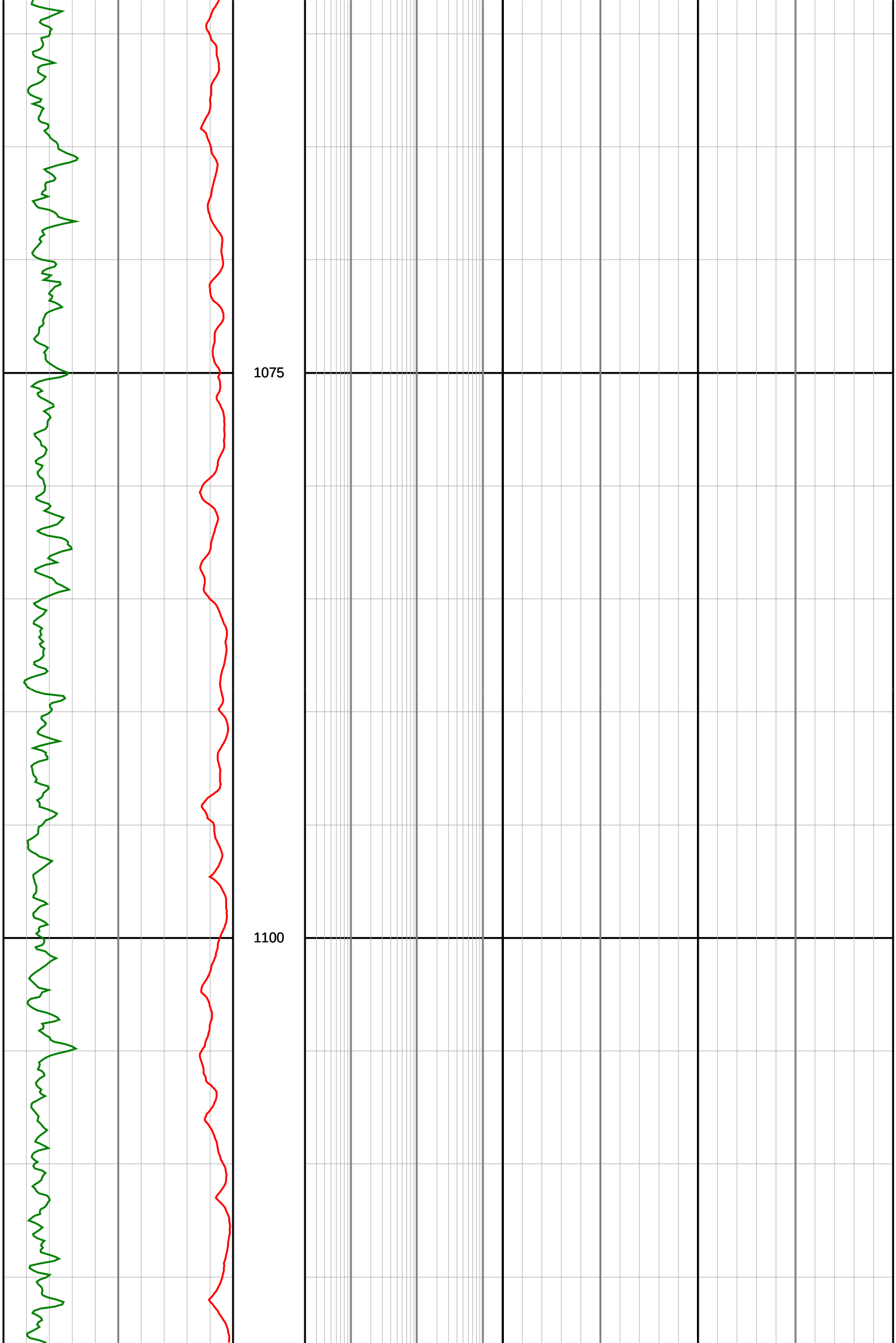
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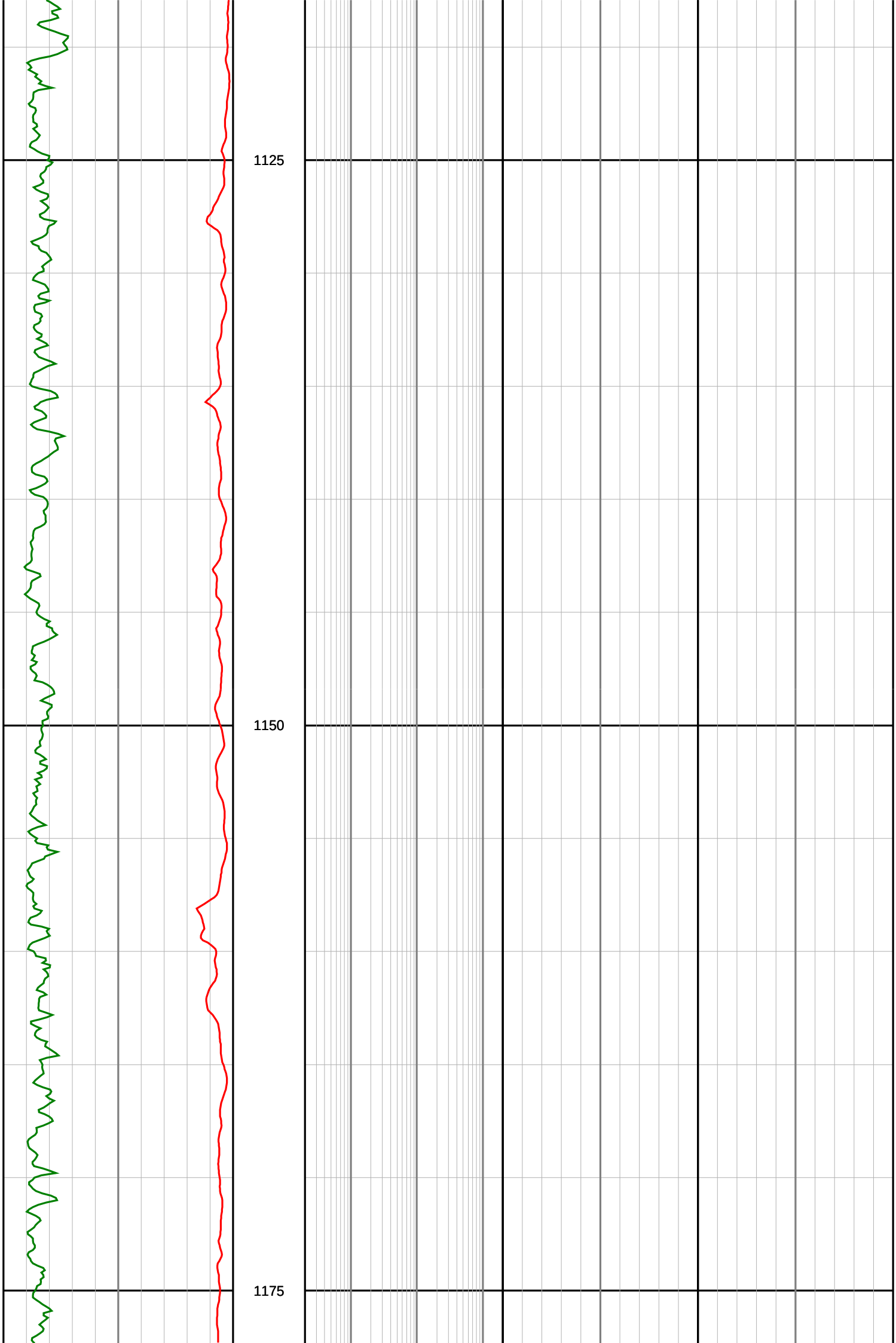
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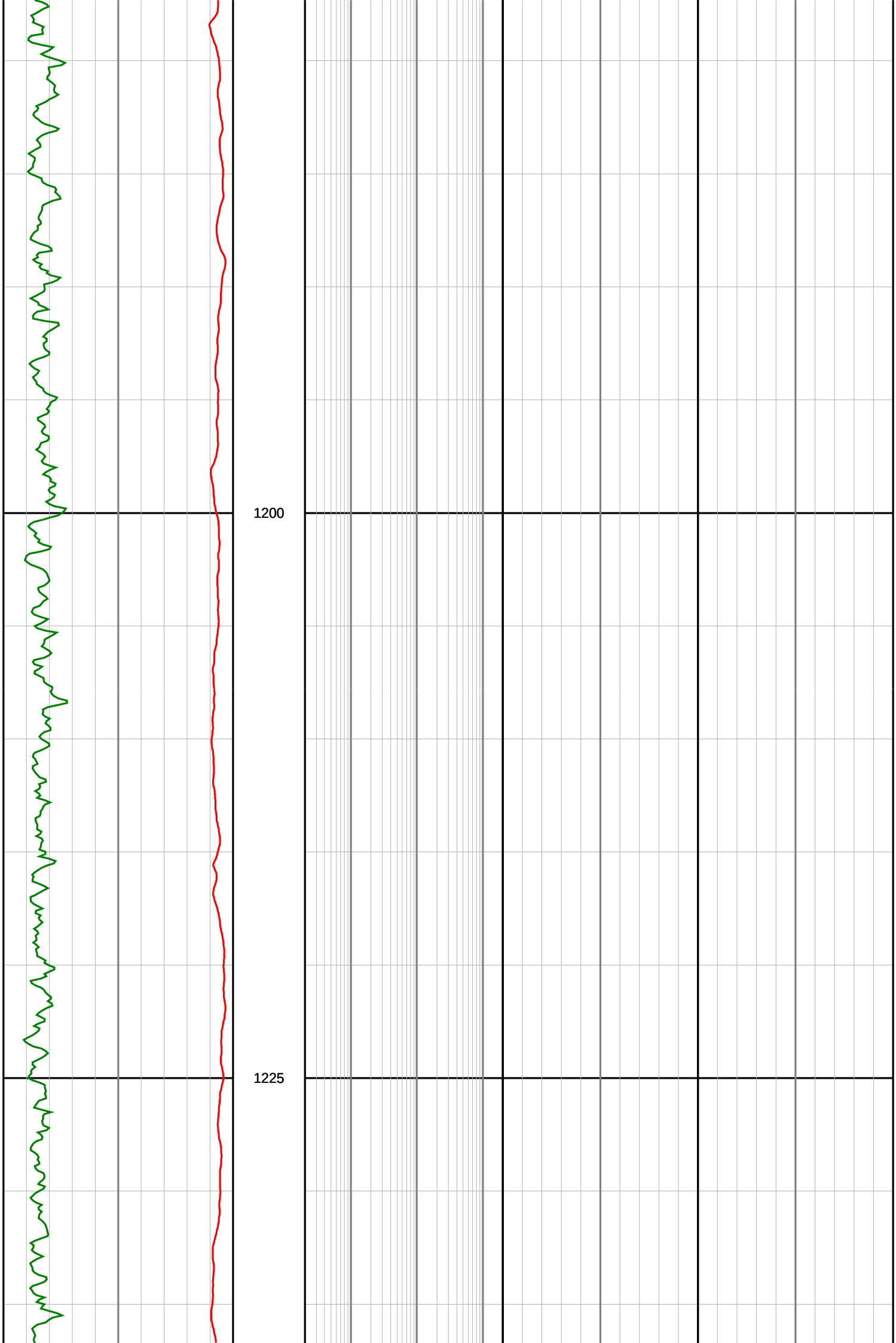
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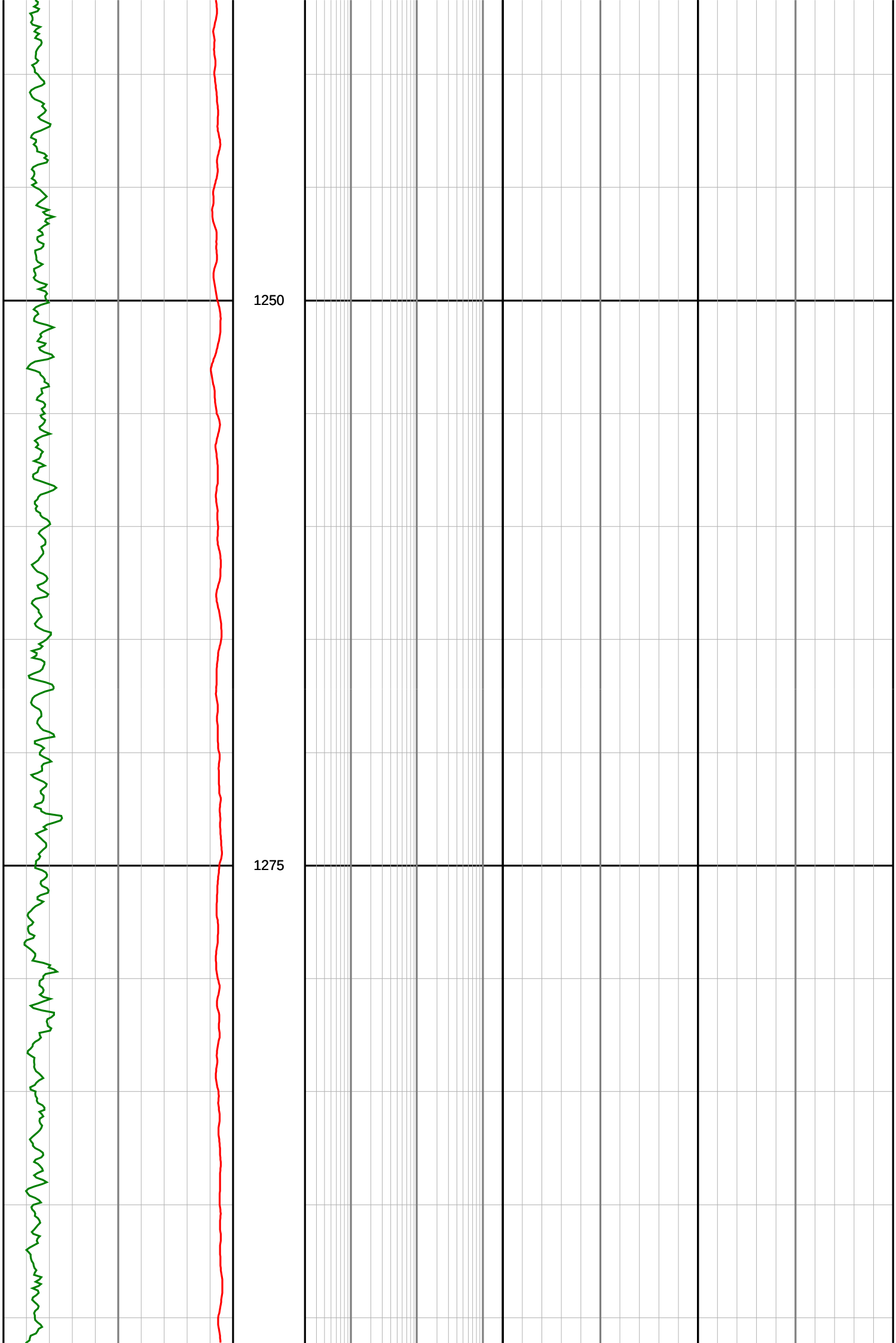
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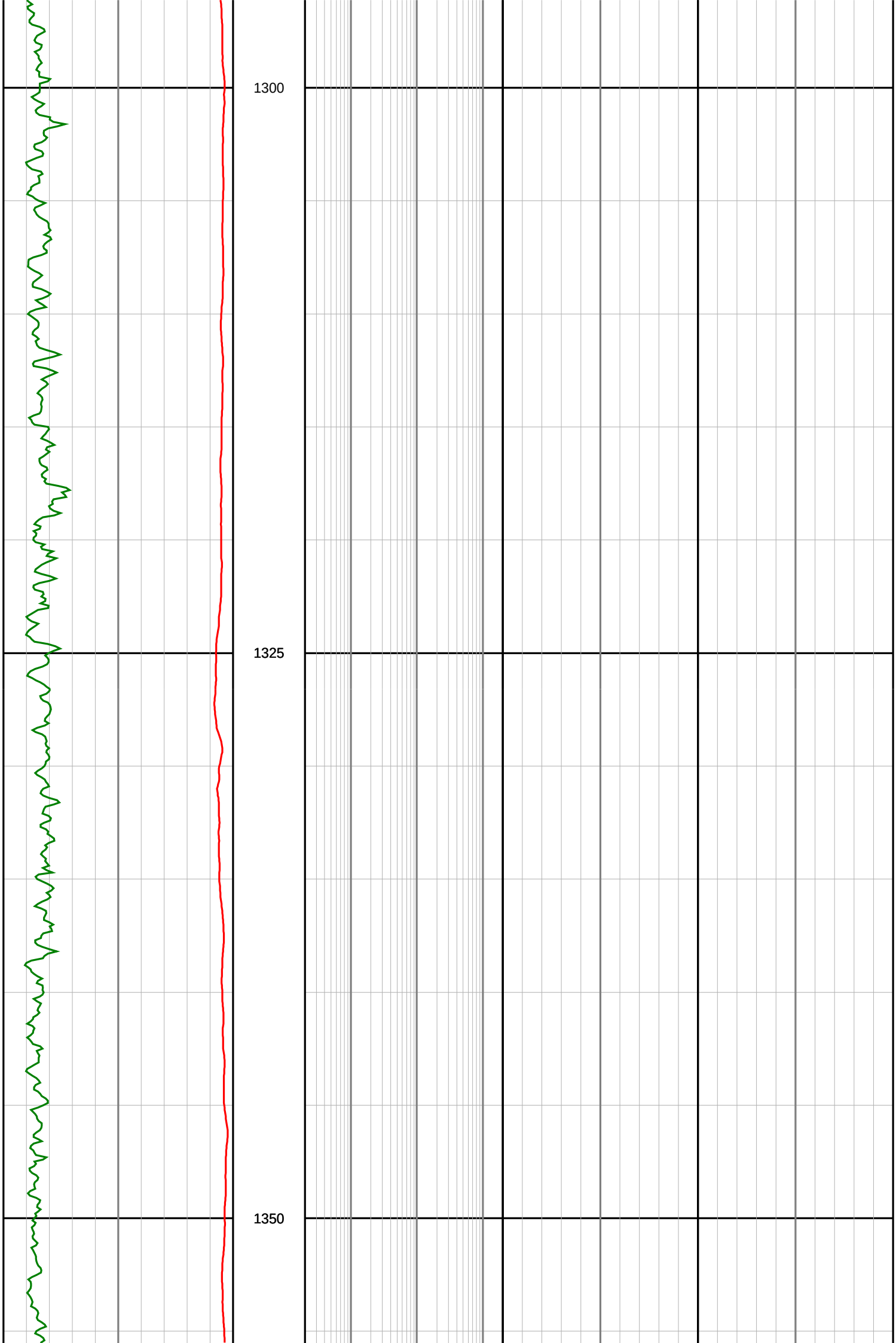
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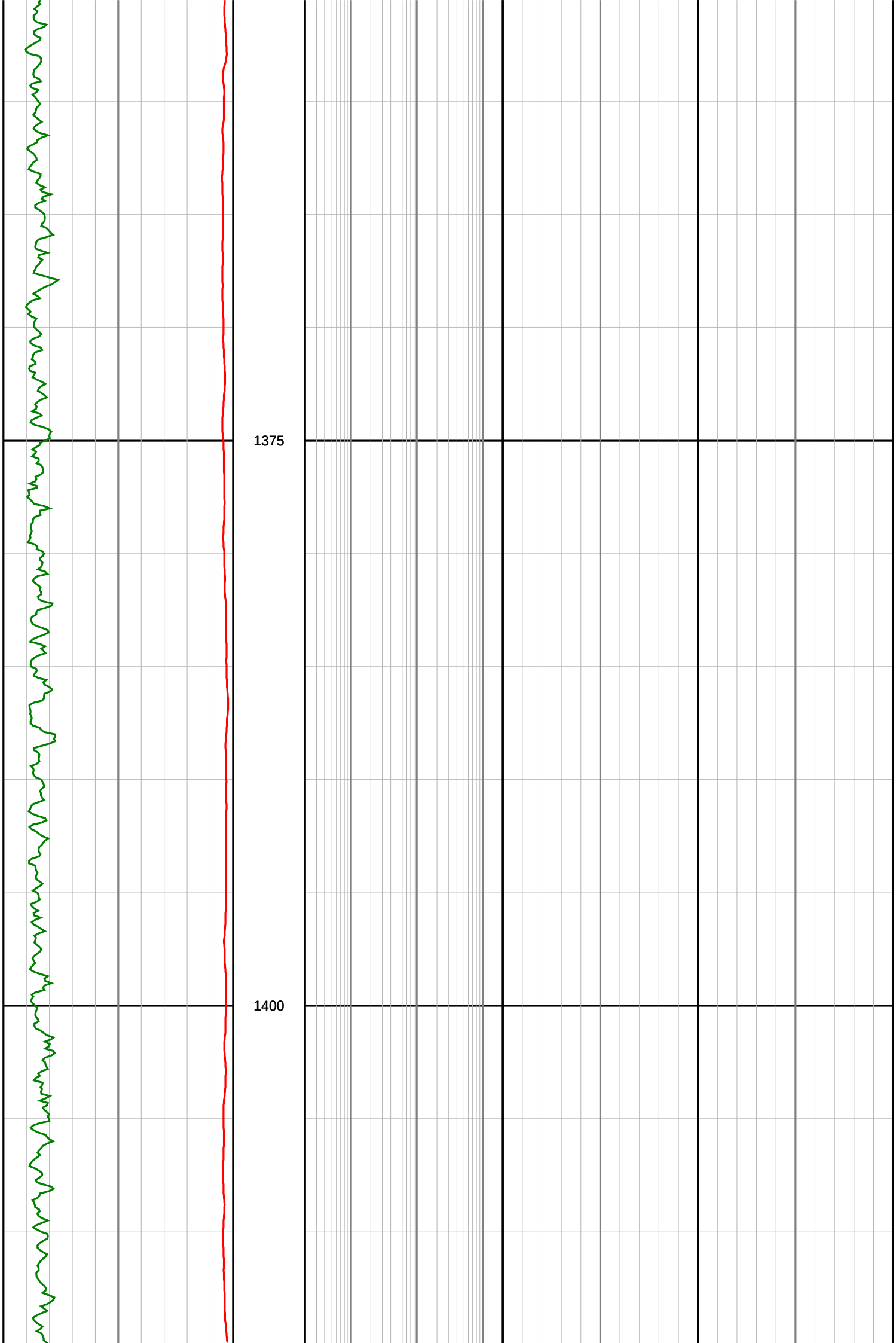
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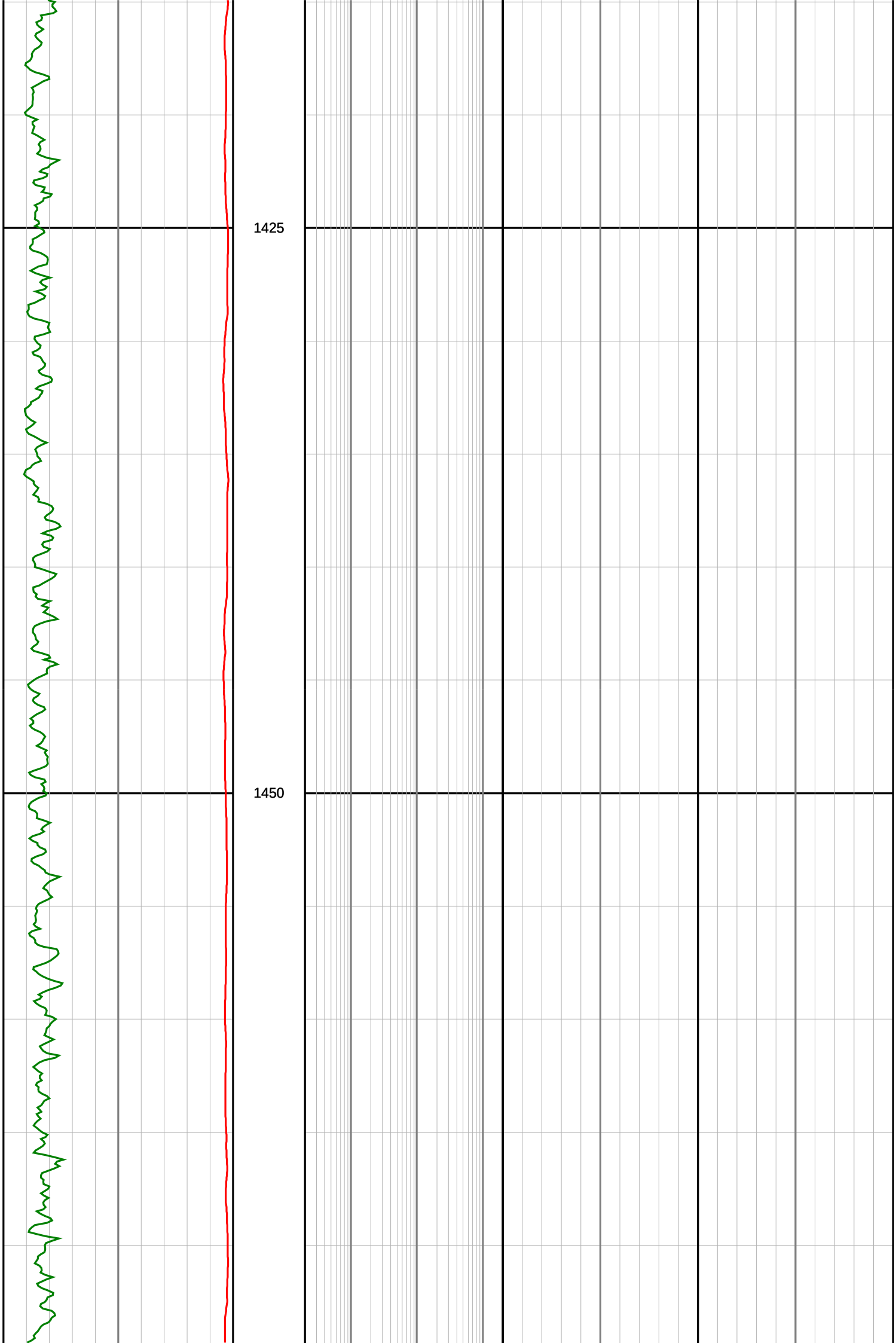
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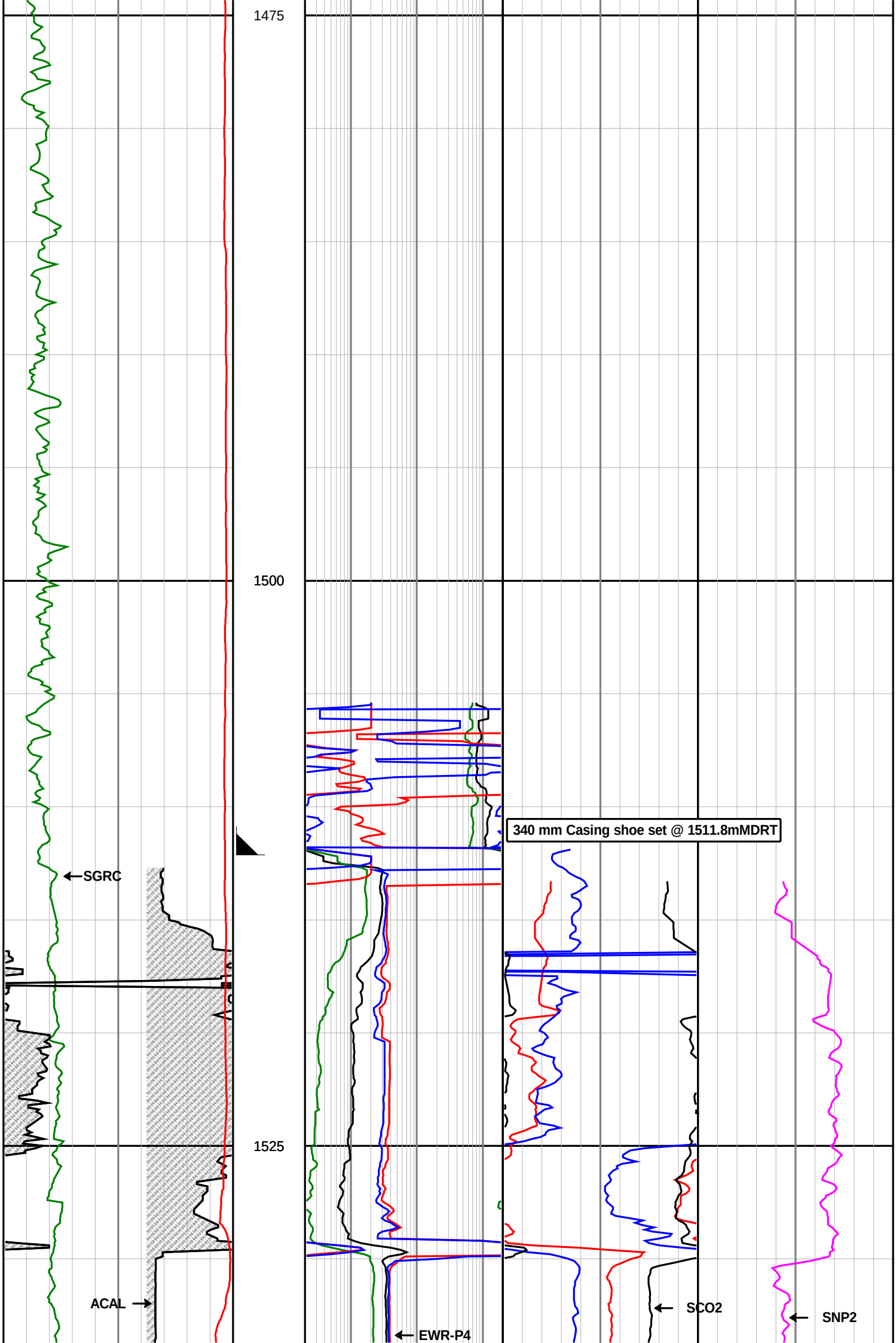
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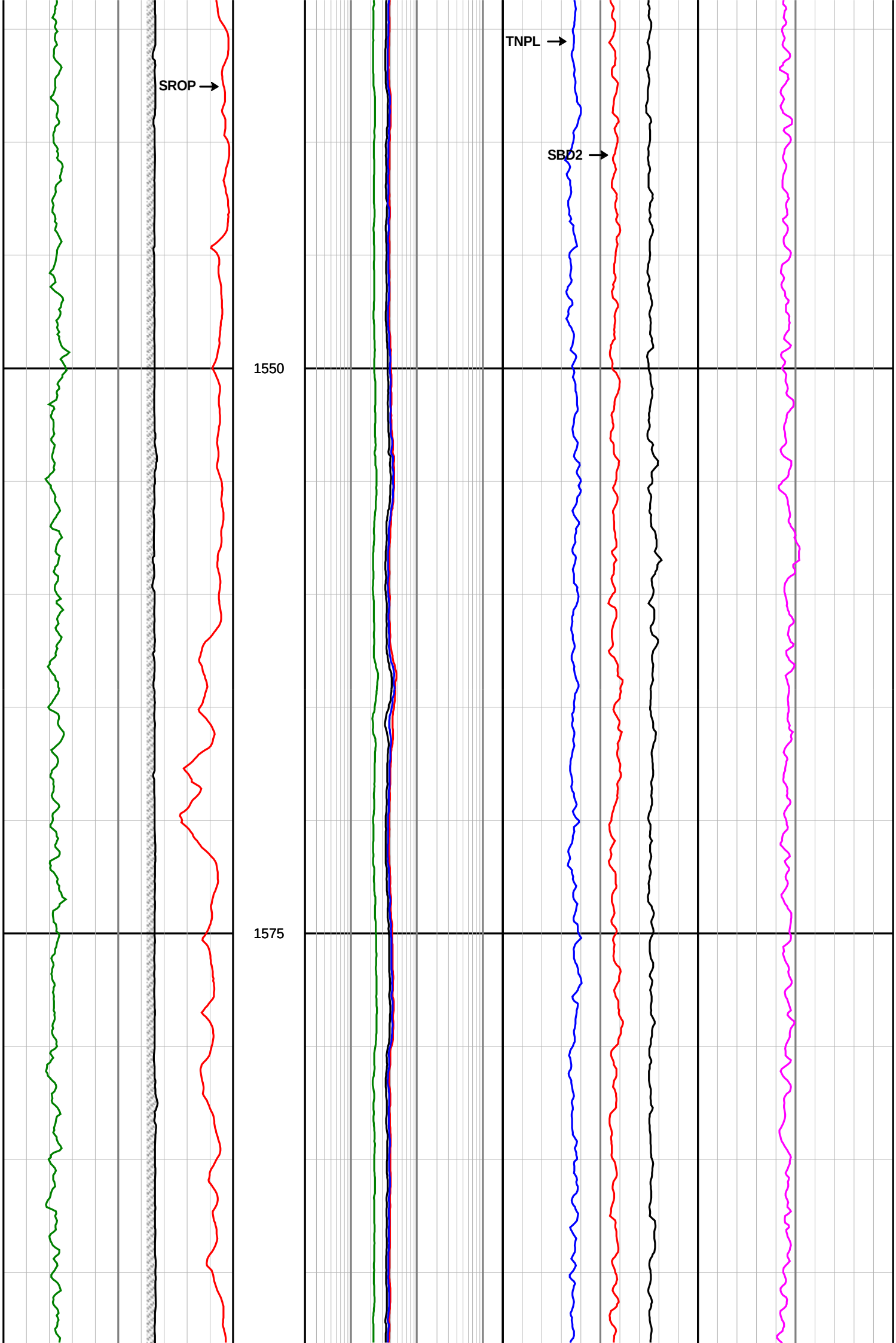
SCO2
SNP2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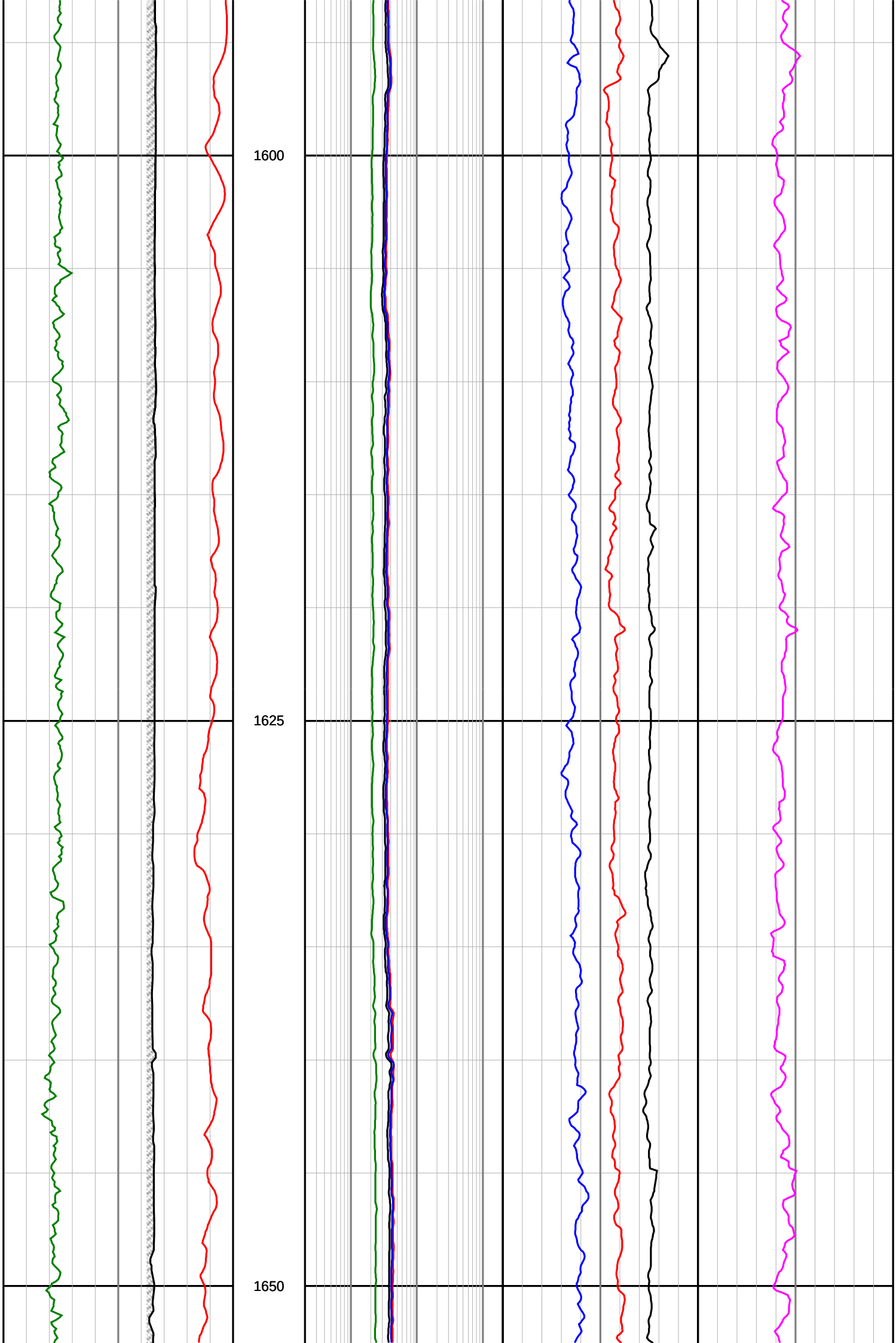
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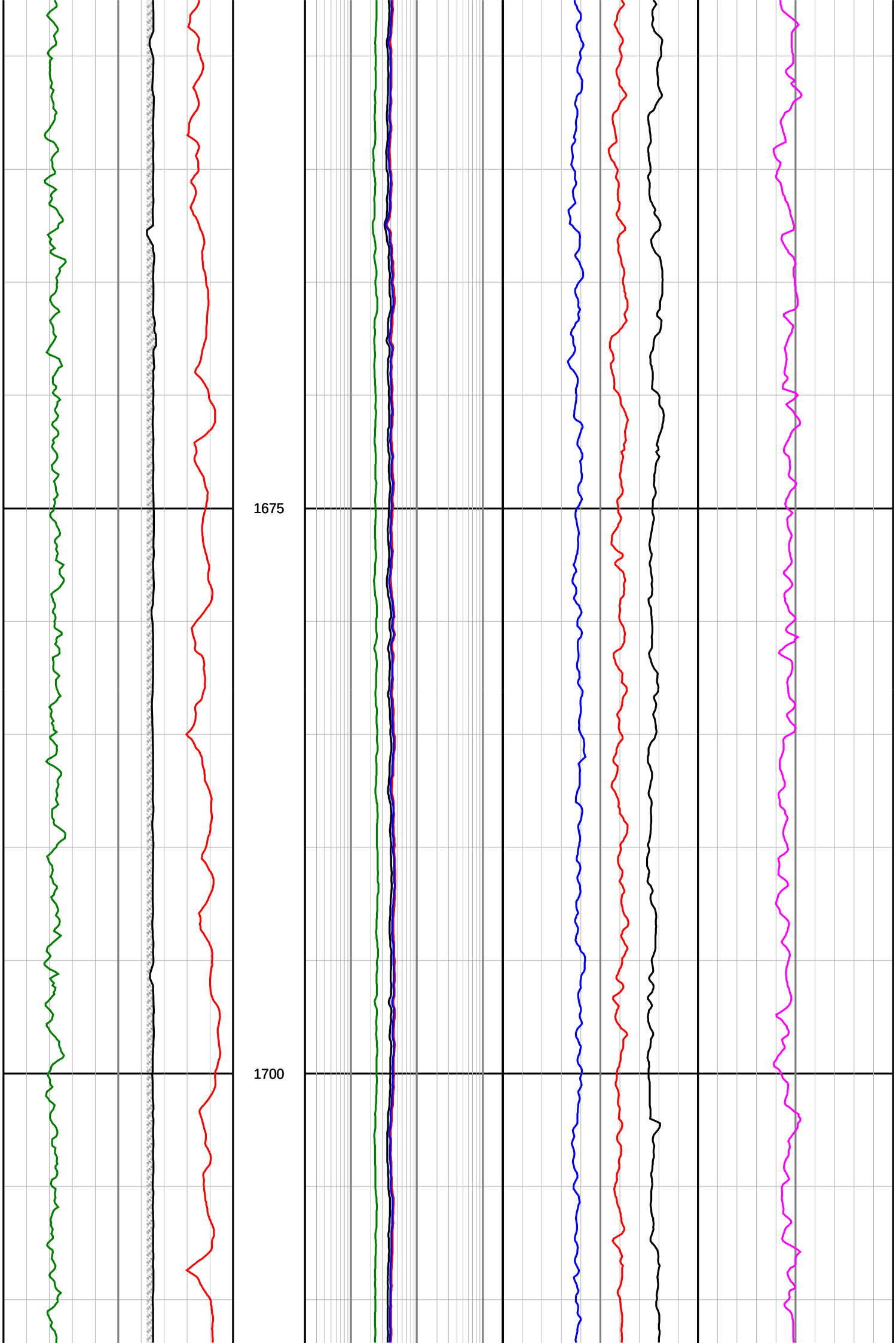
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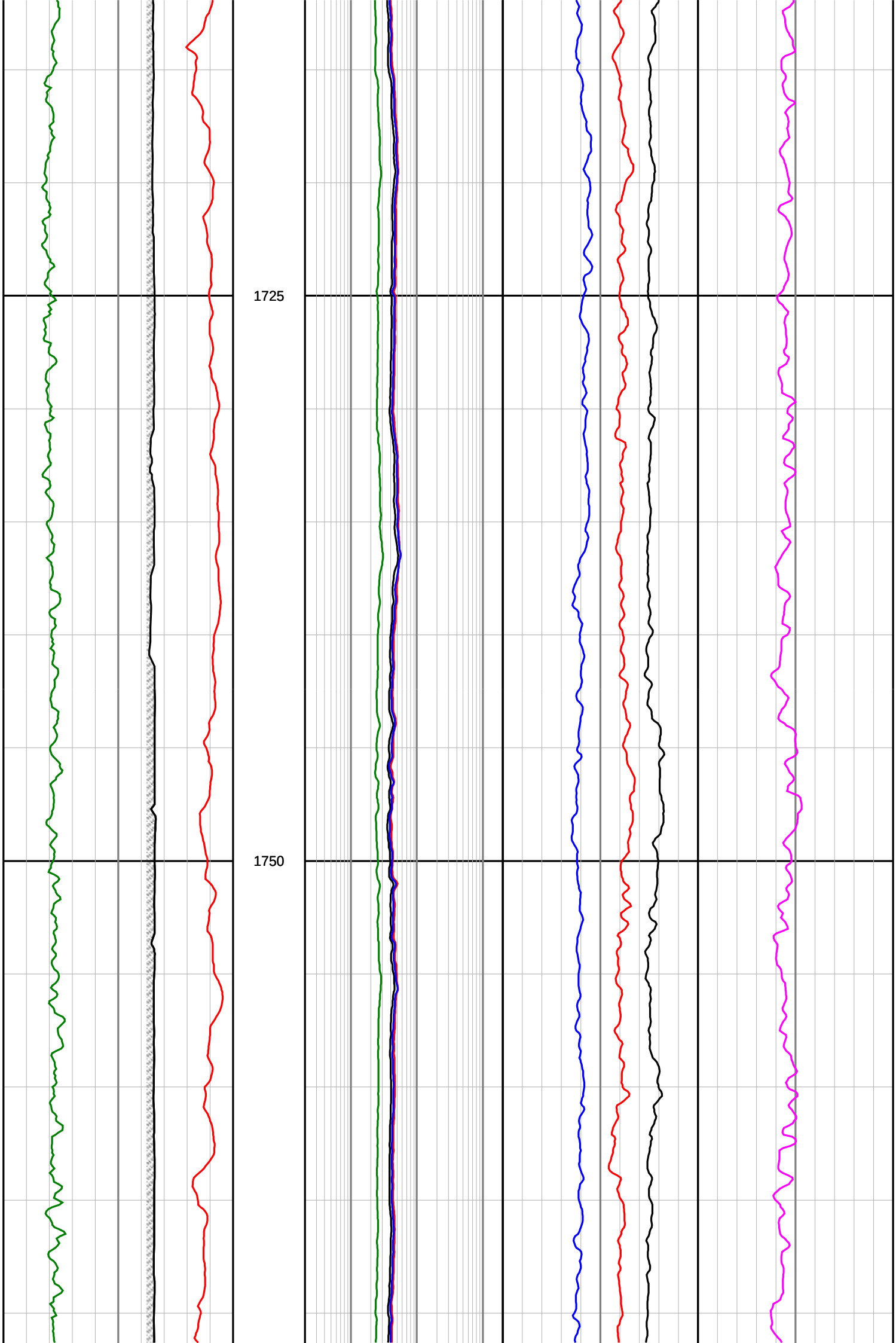
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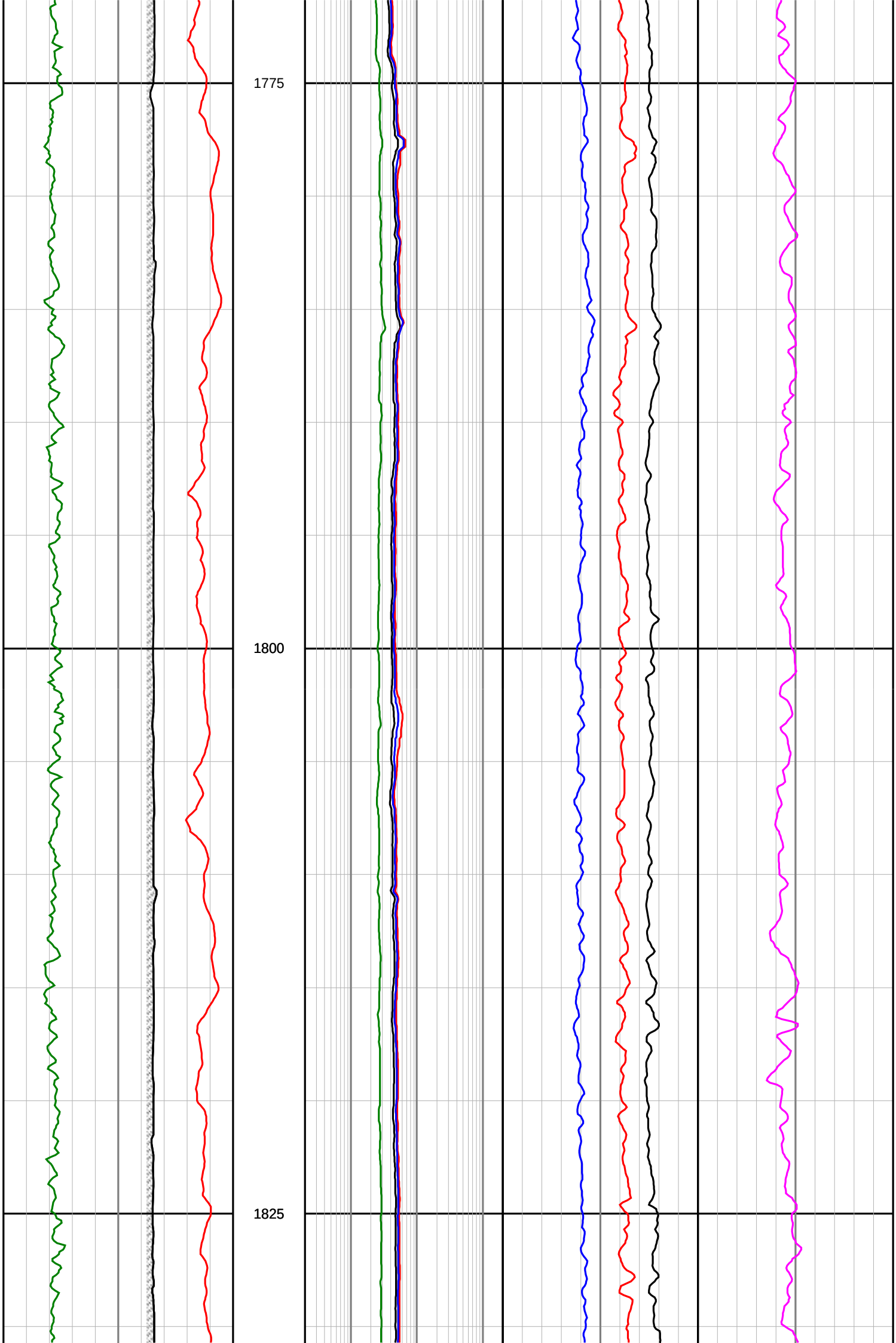
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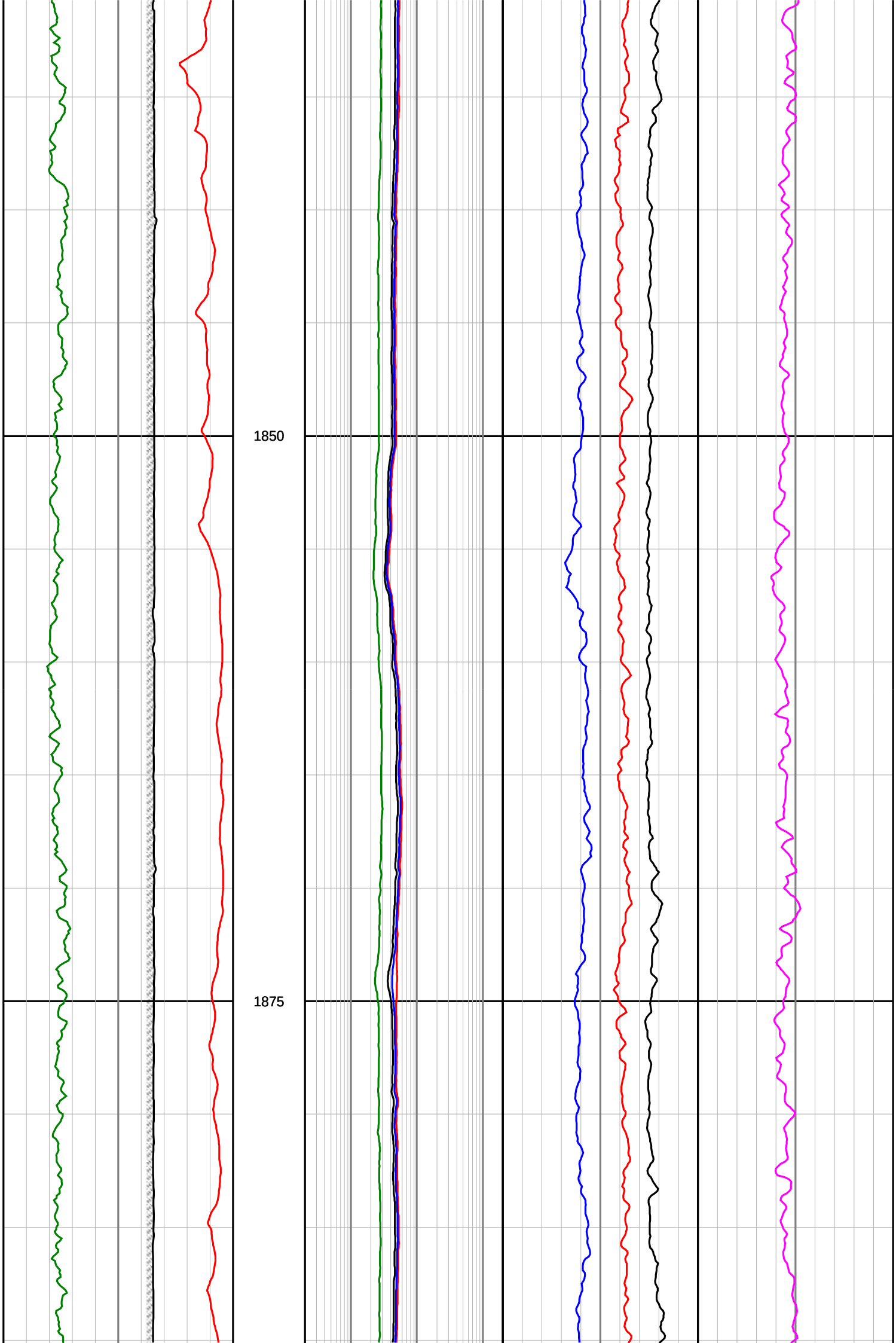
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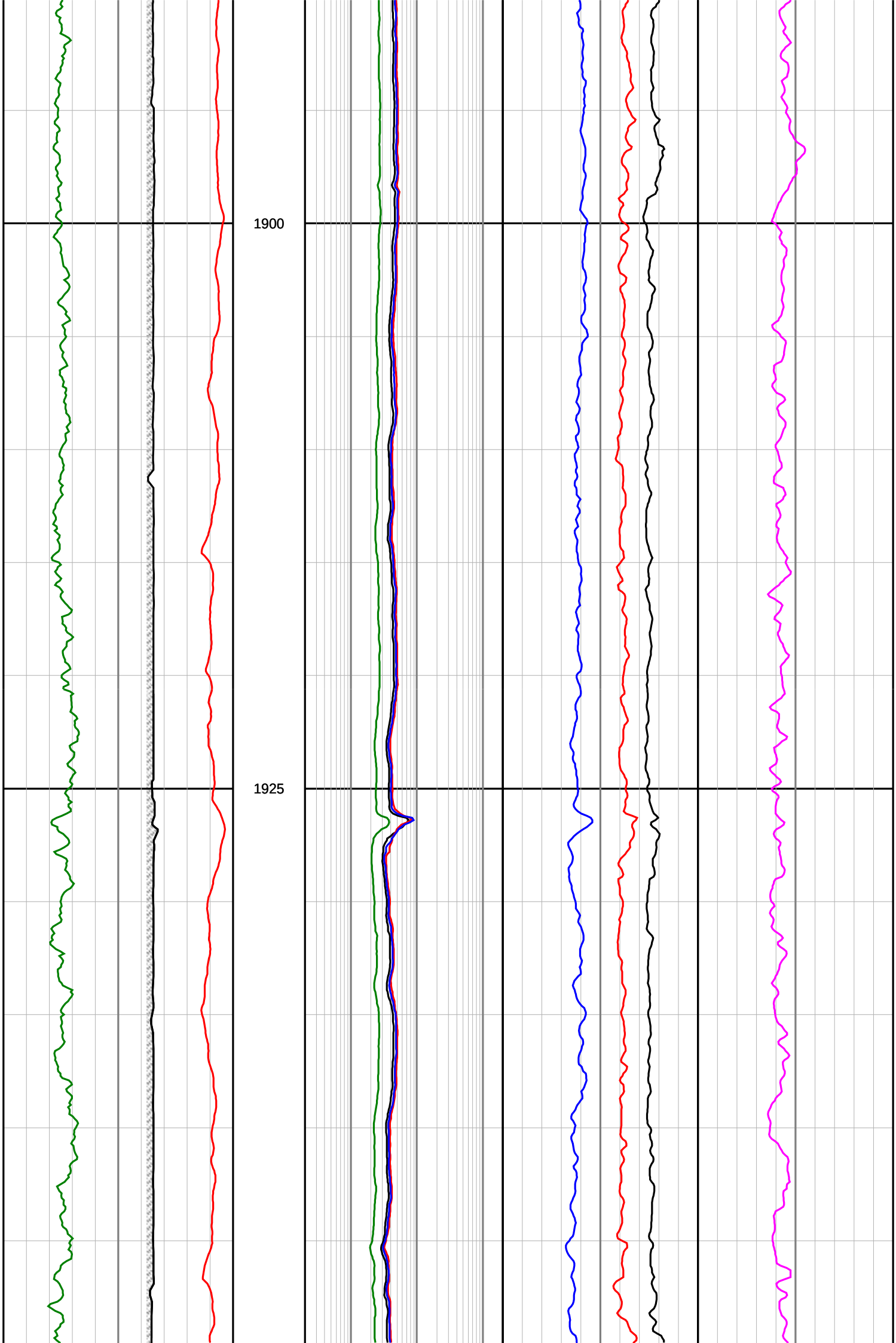
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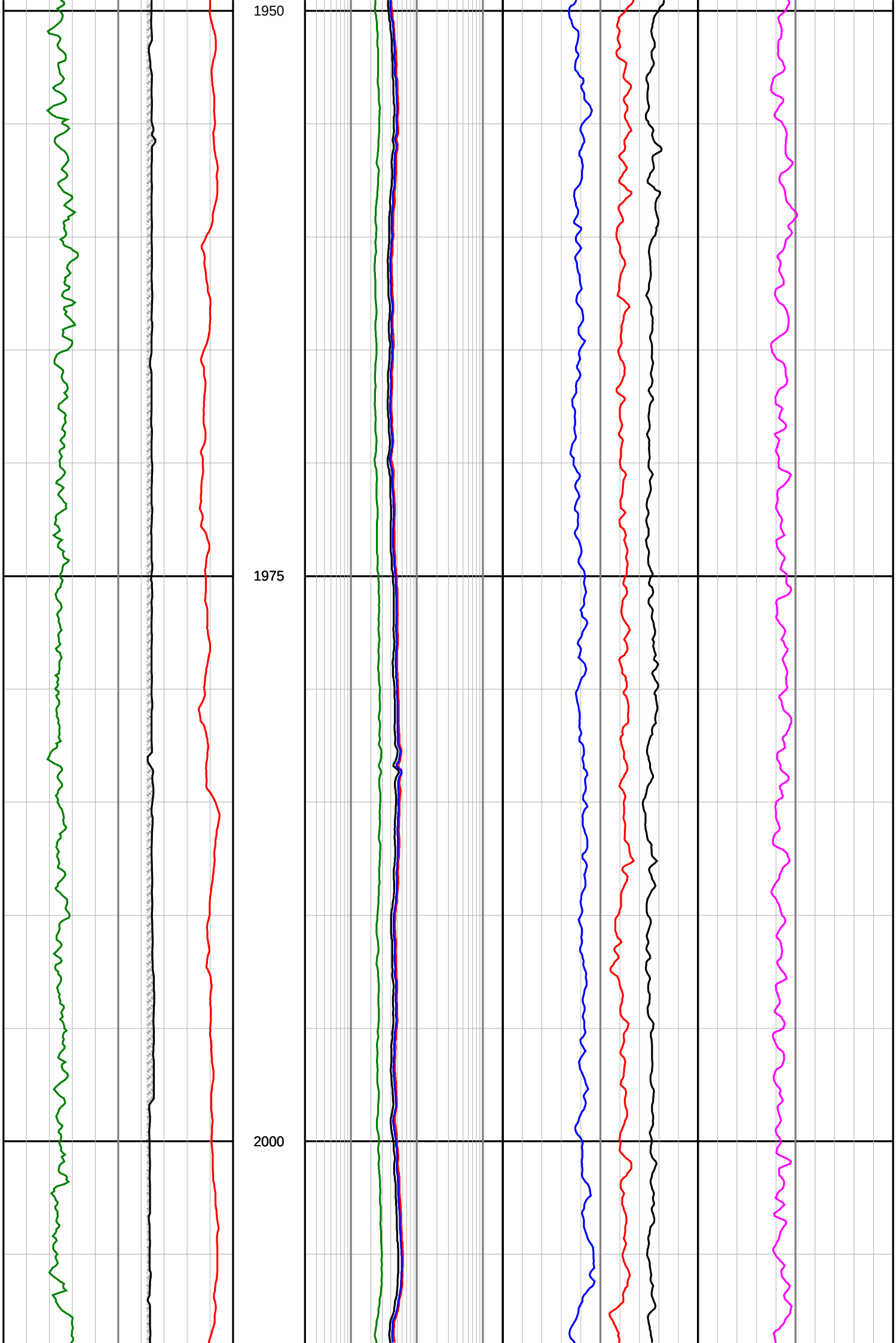
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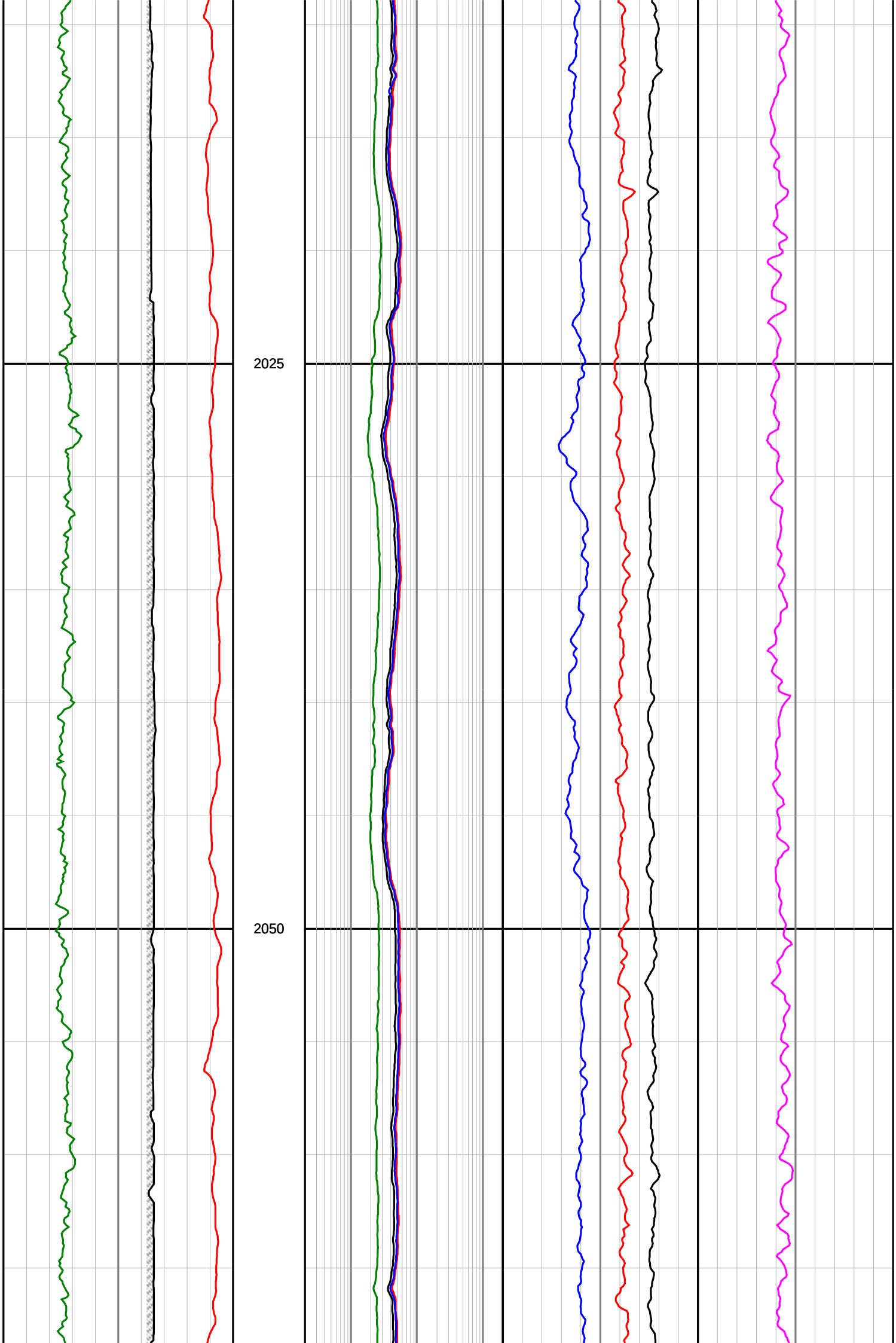
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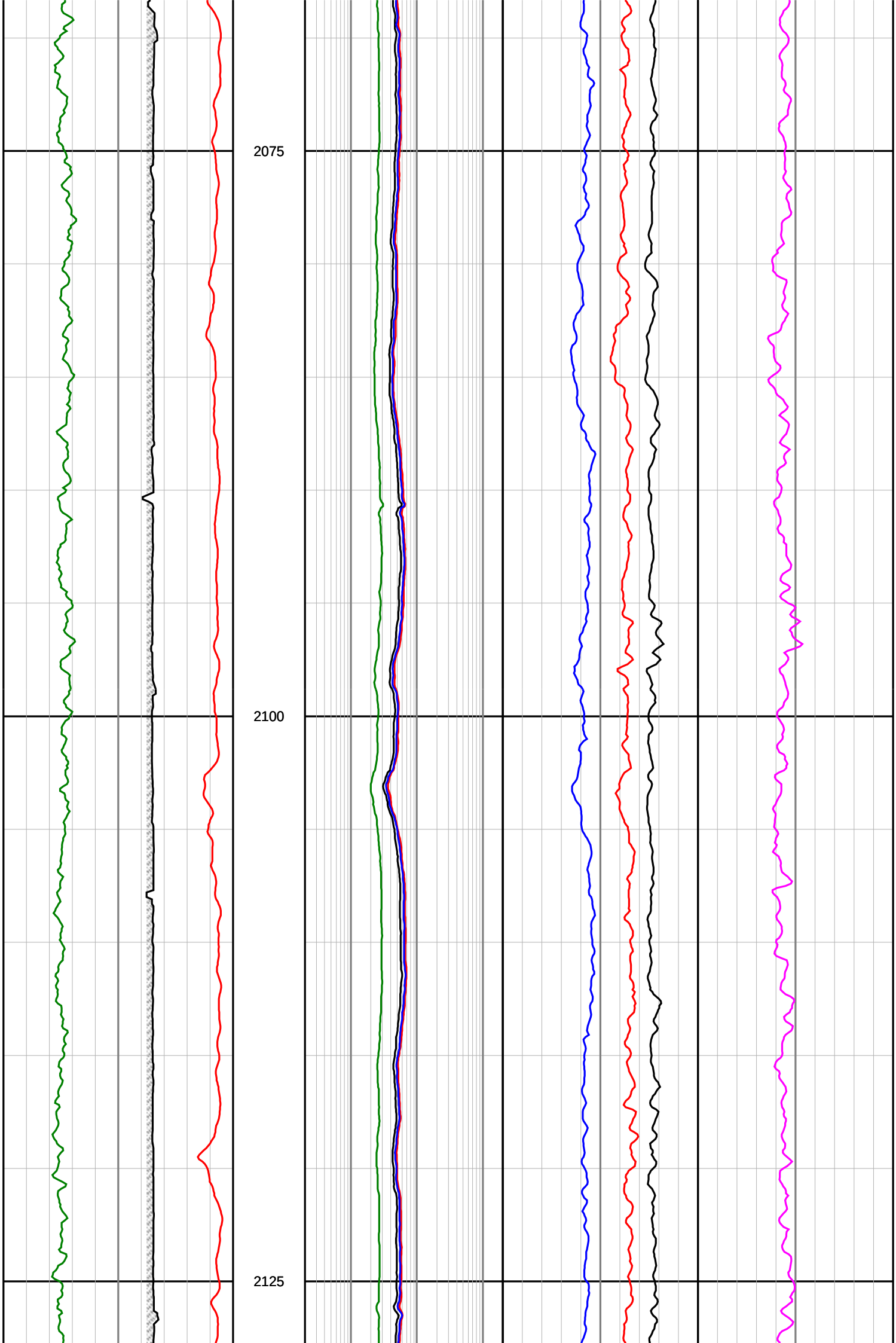
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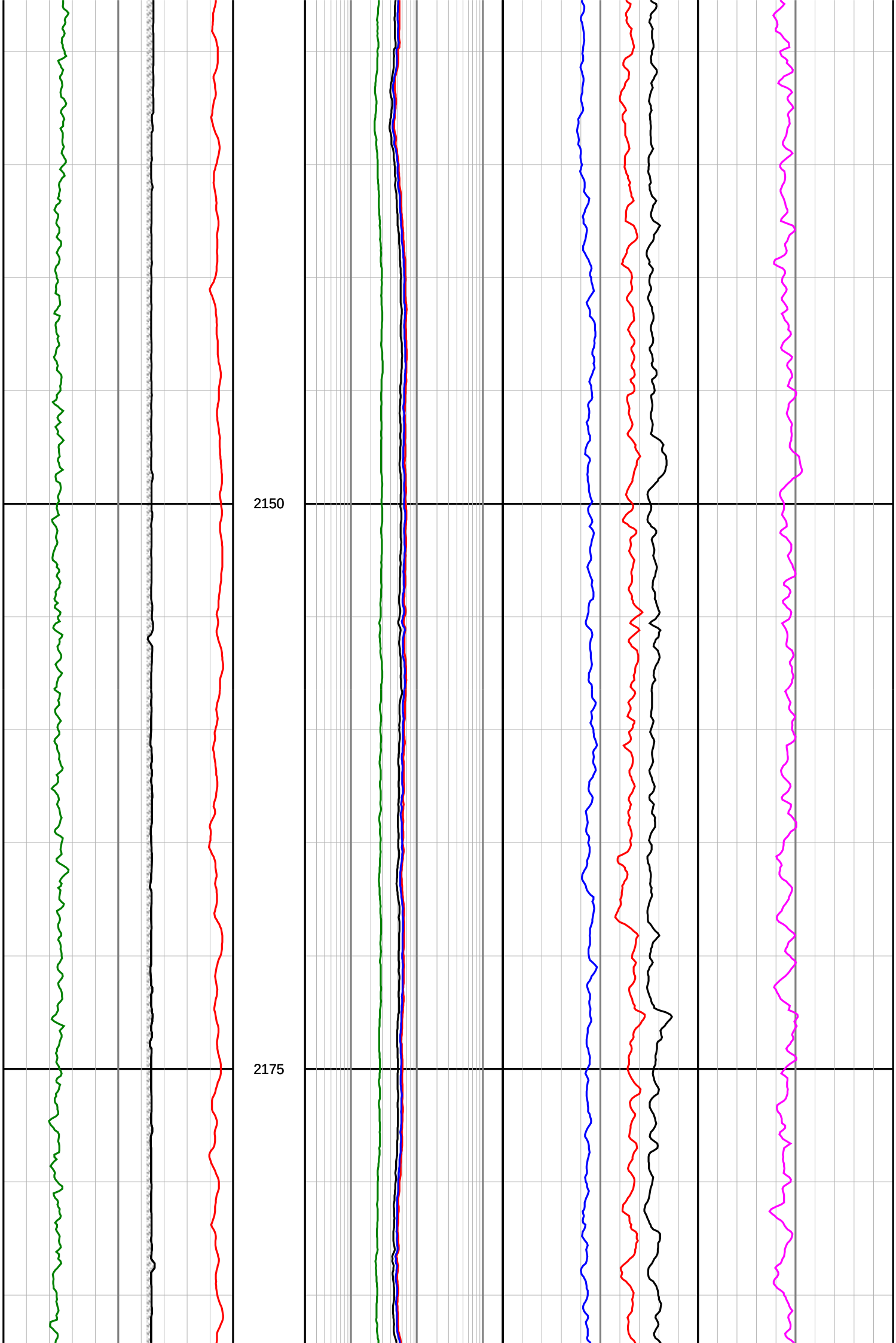
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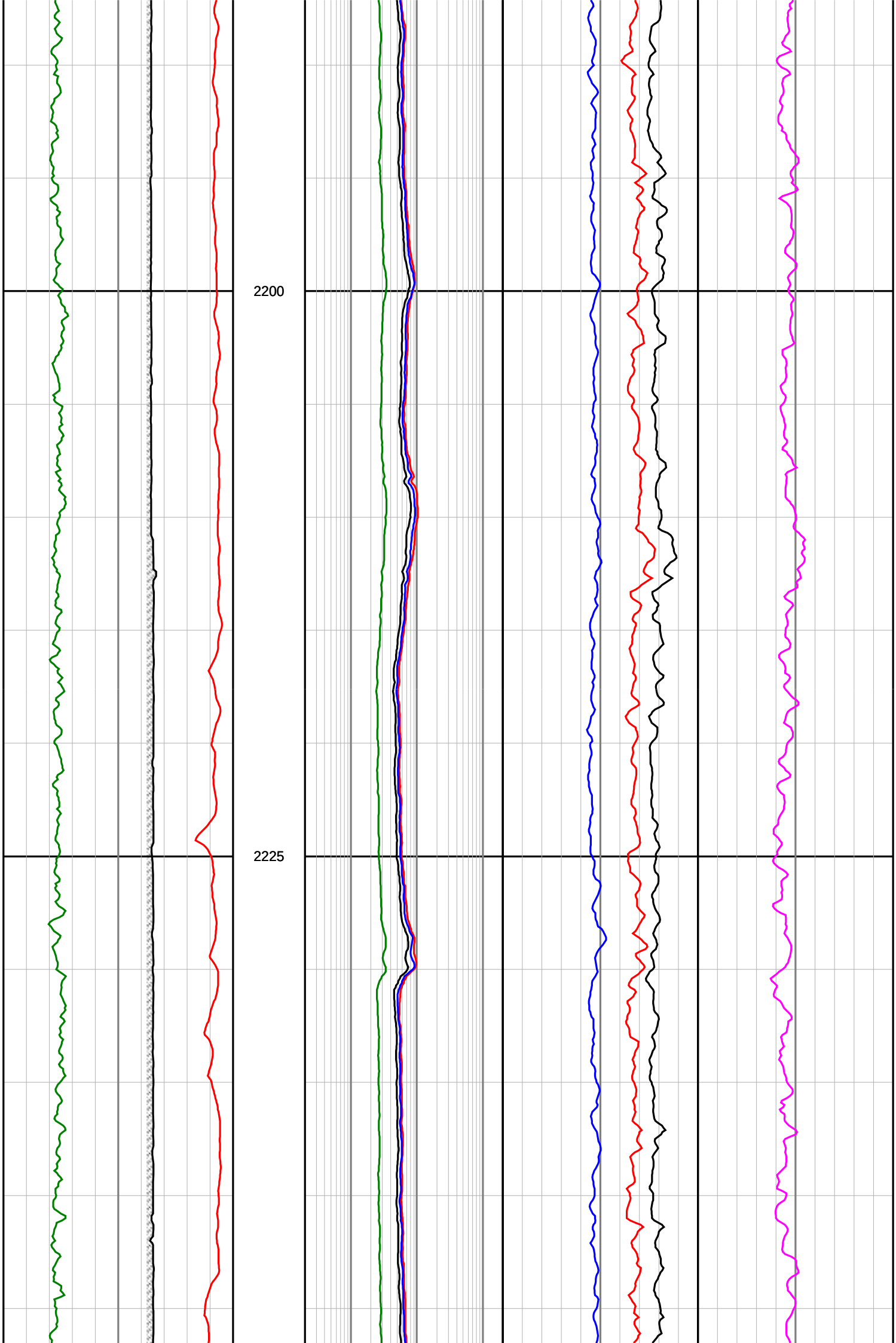
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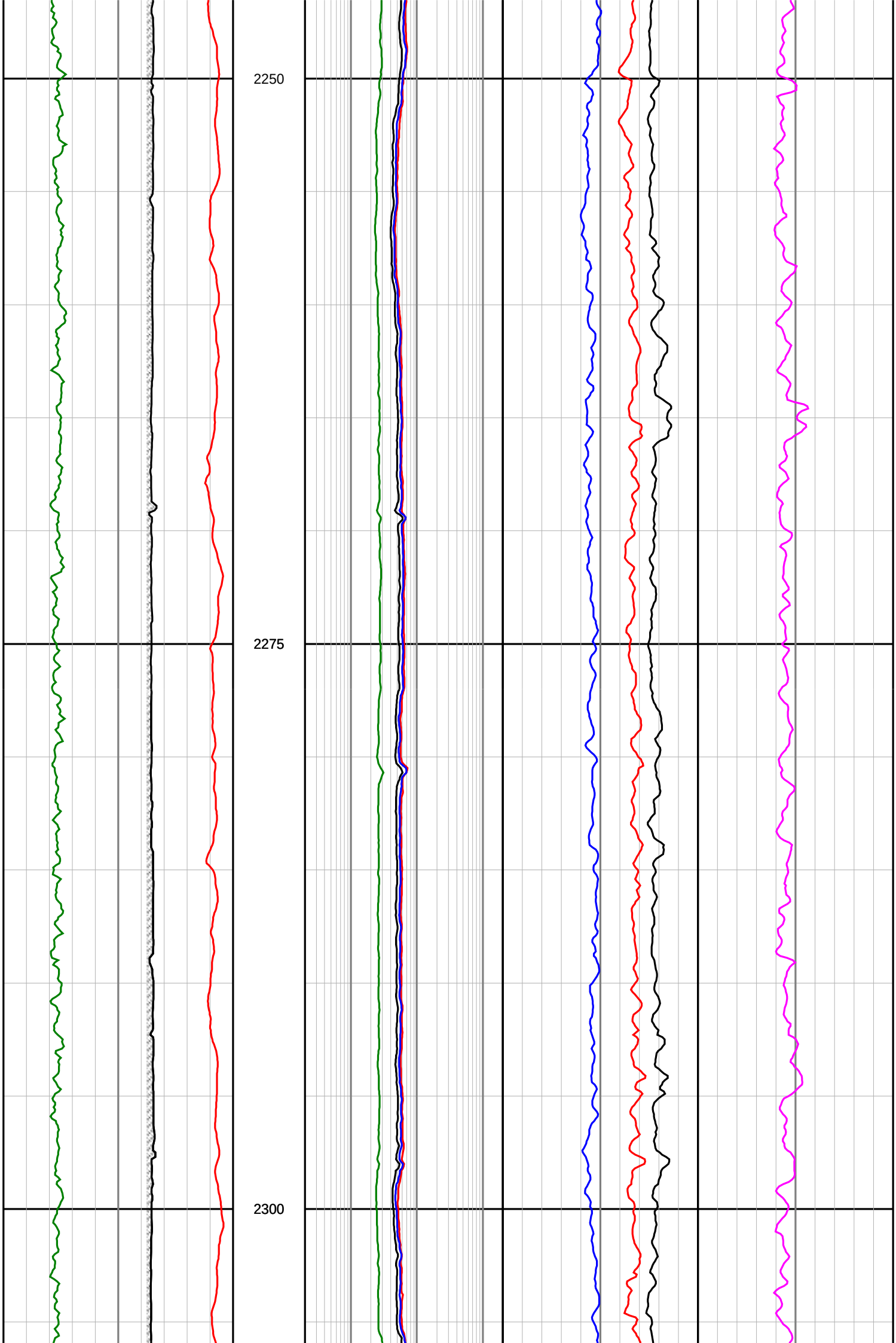
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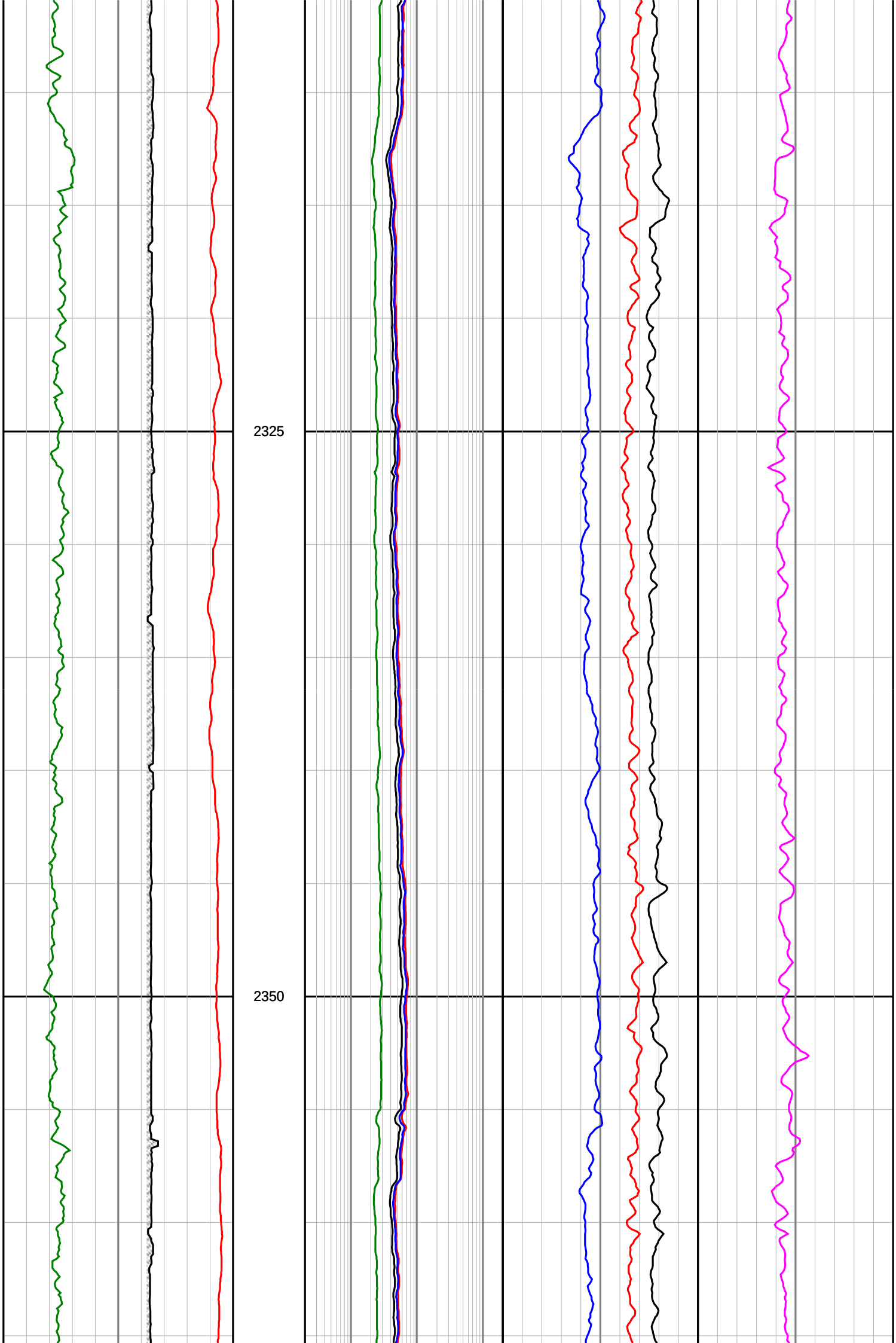
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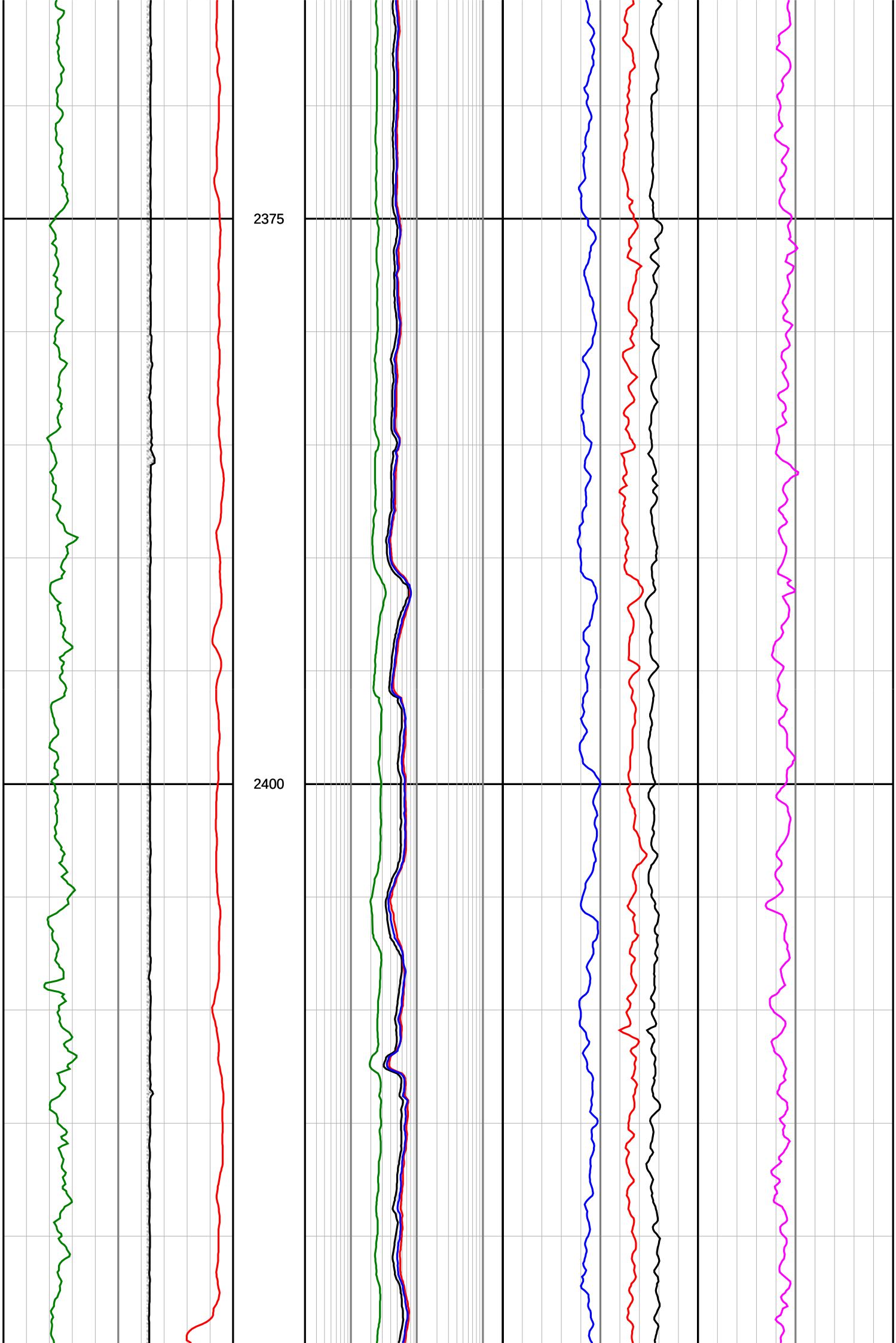
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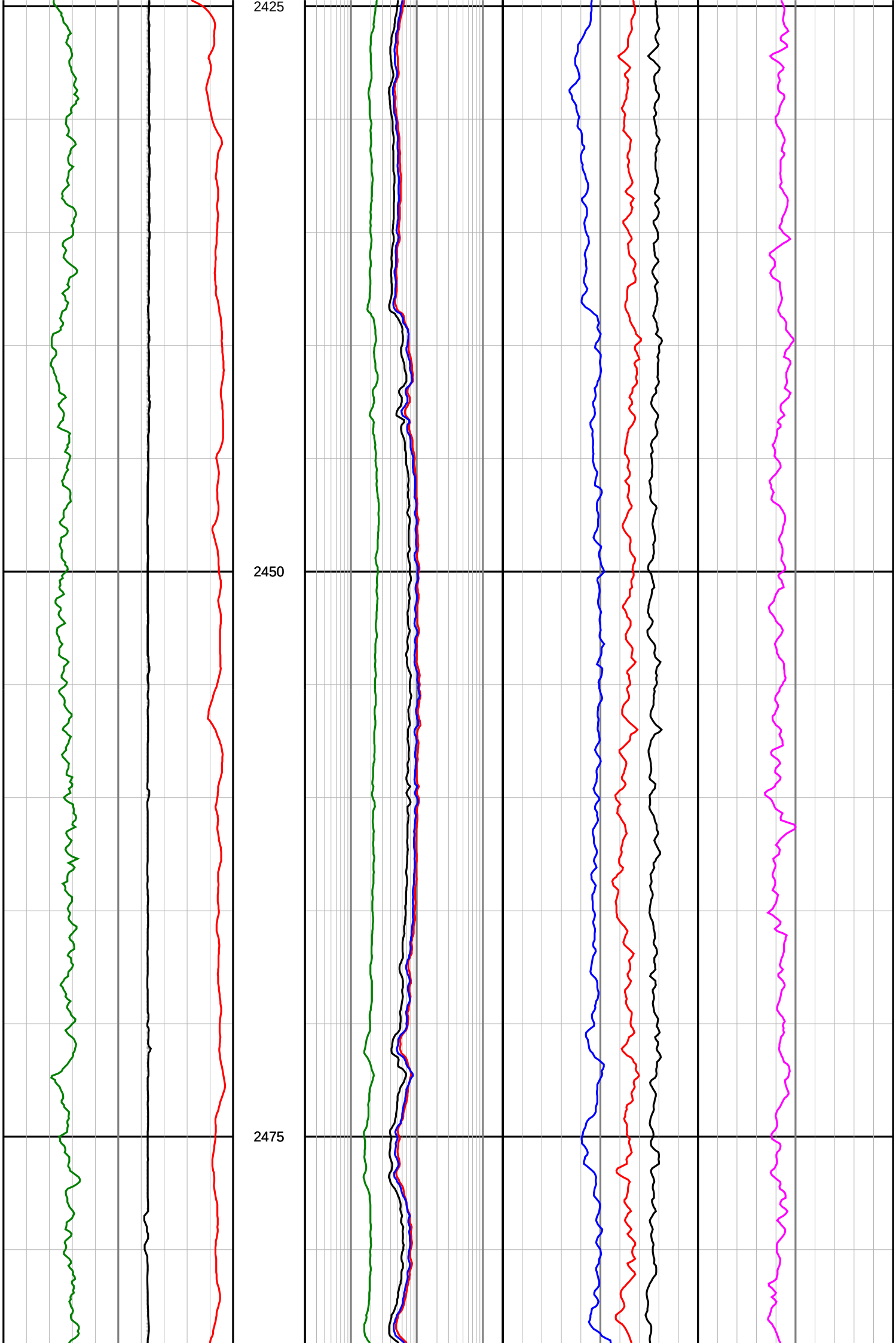
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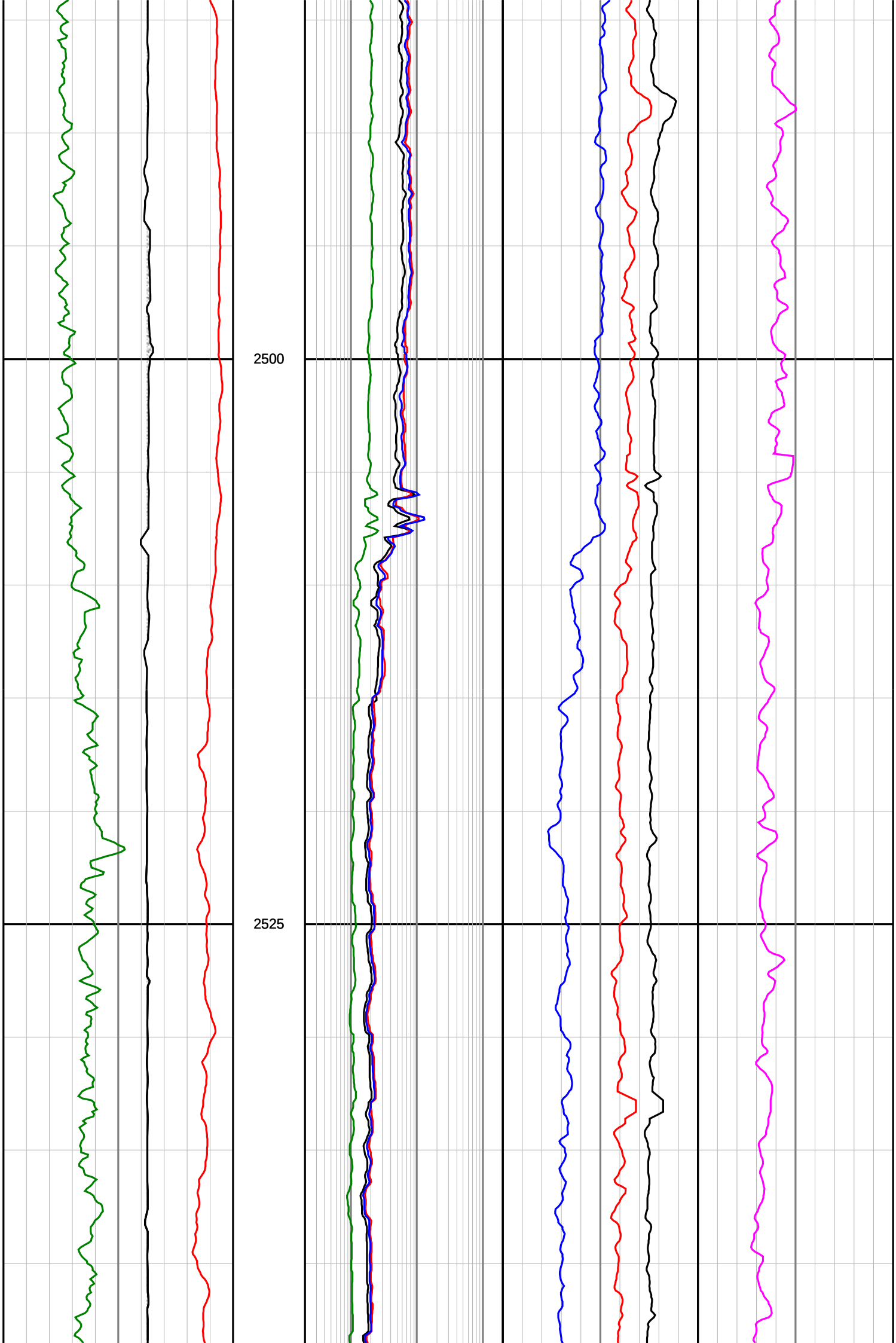
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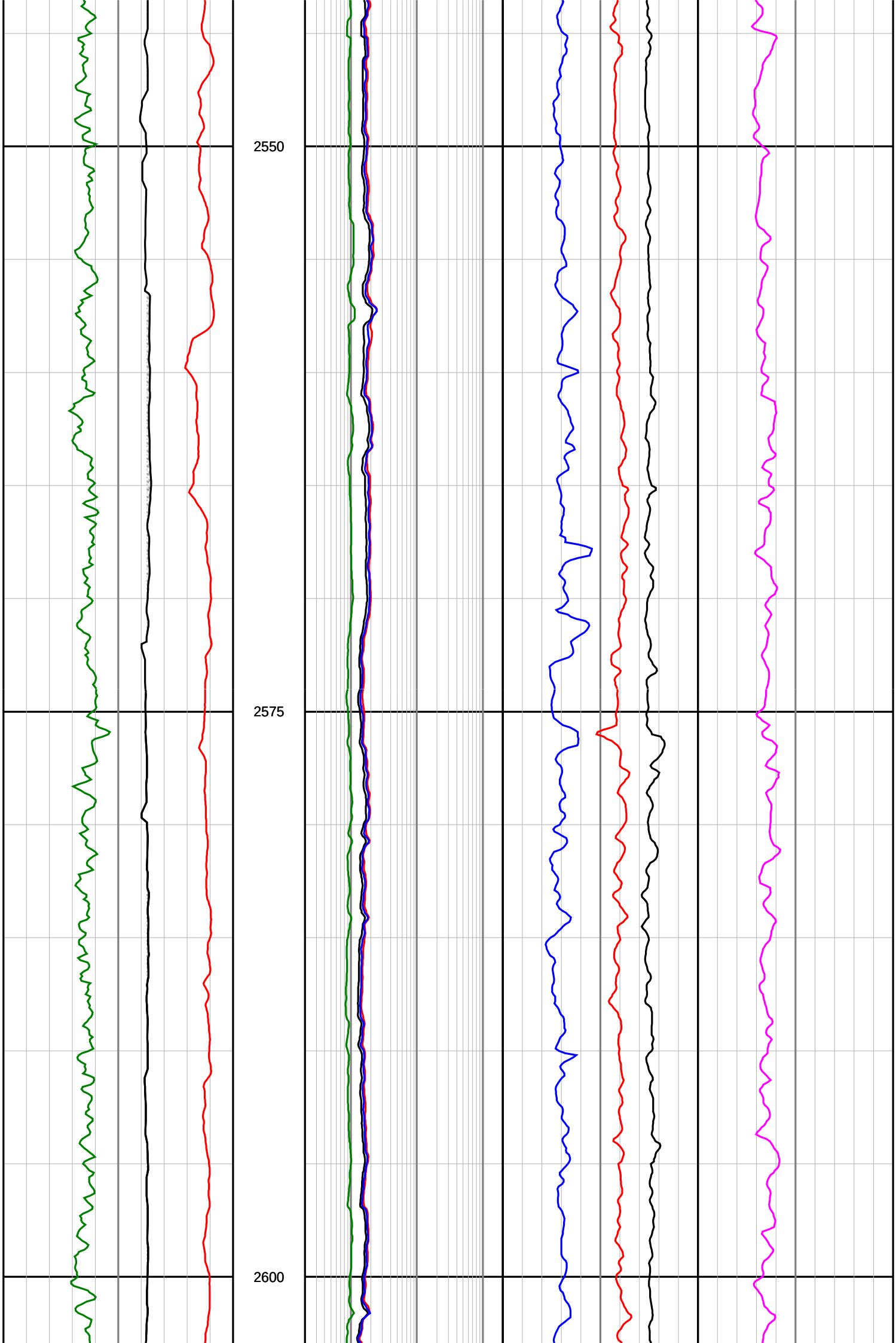
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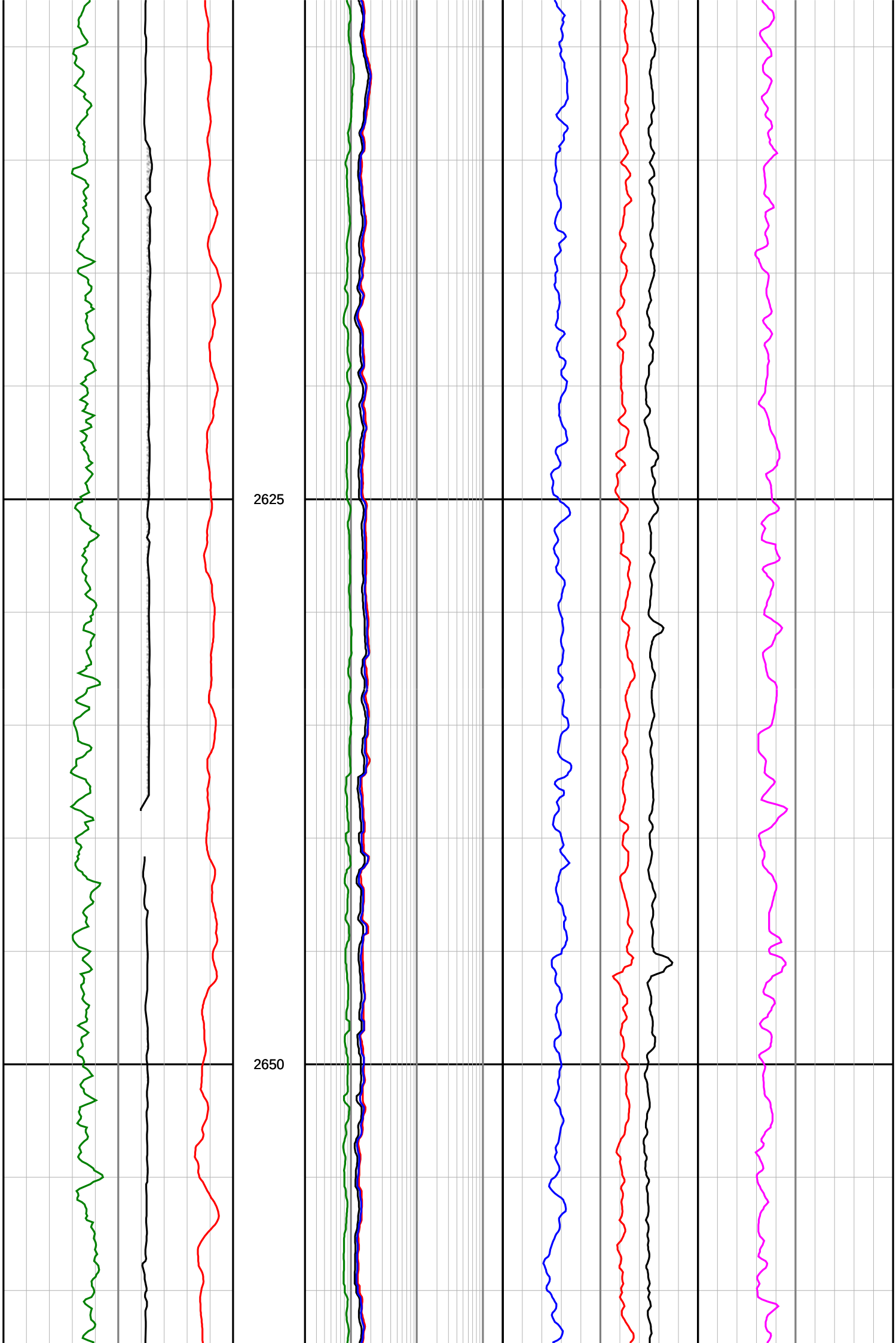
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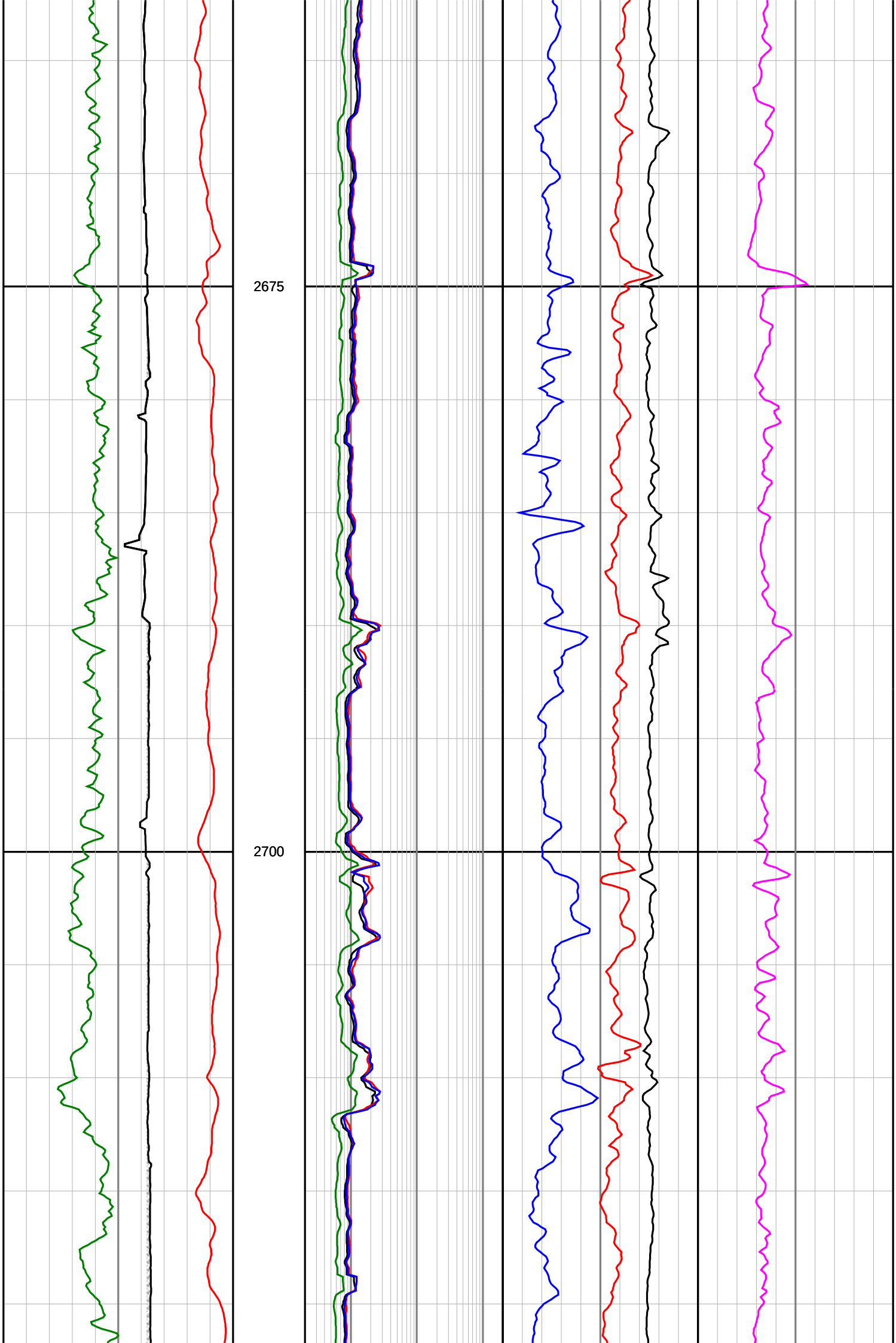
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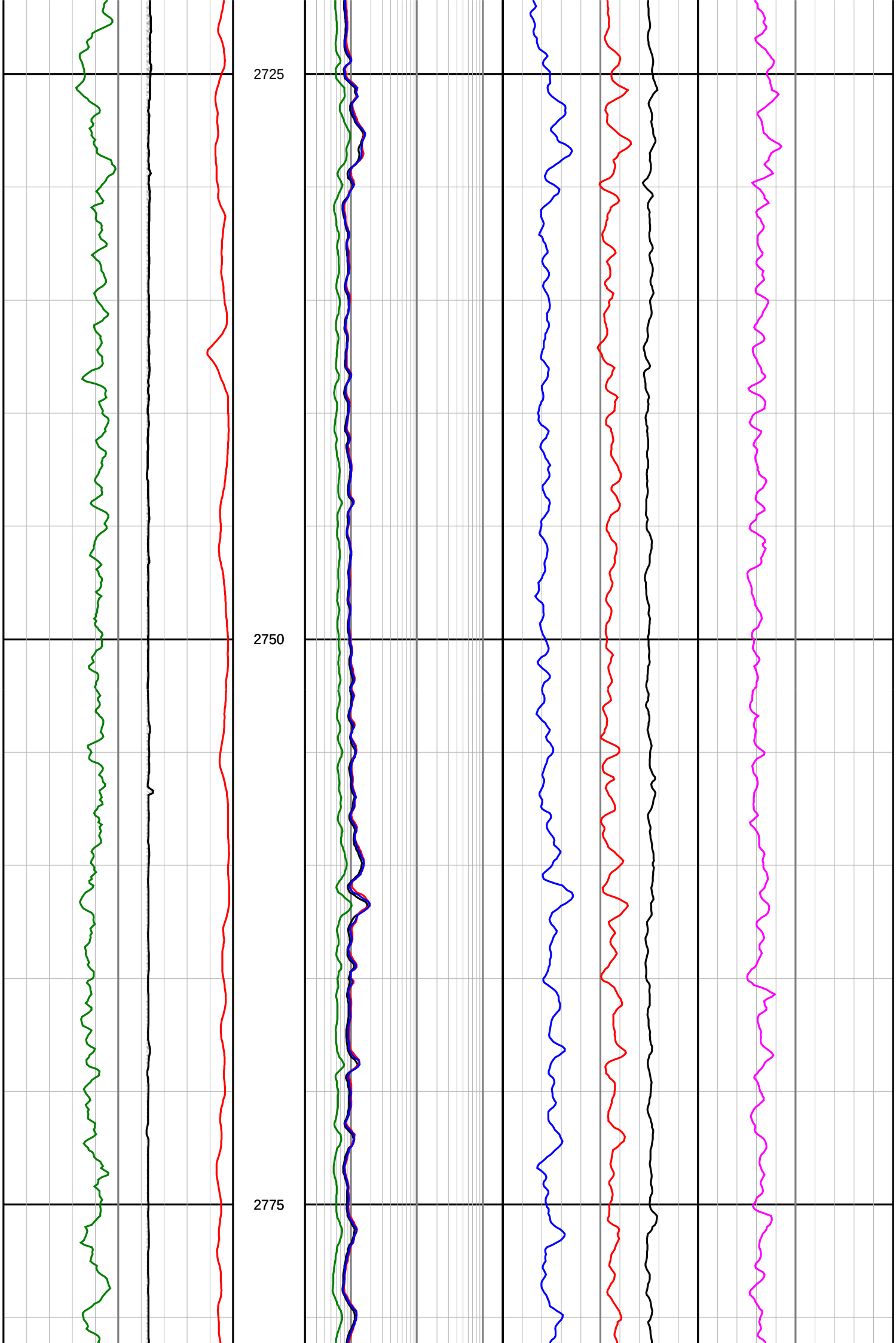
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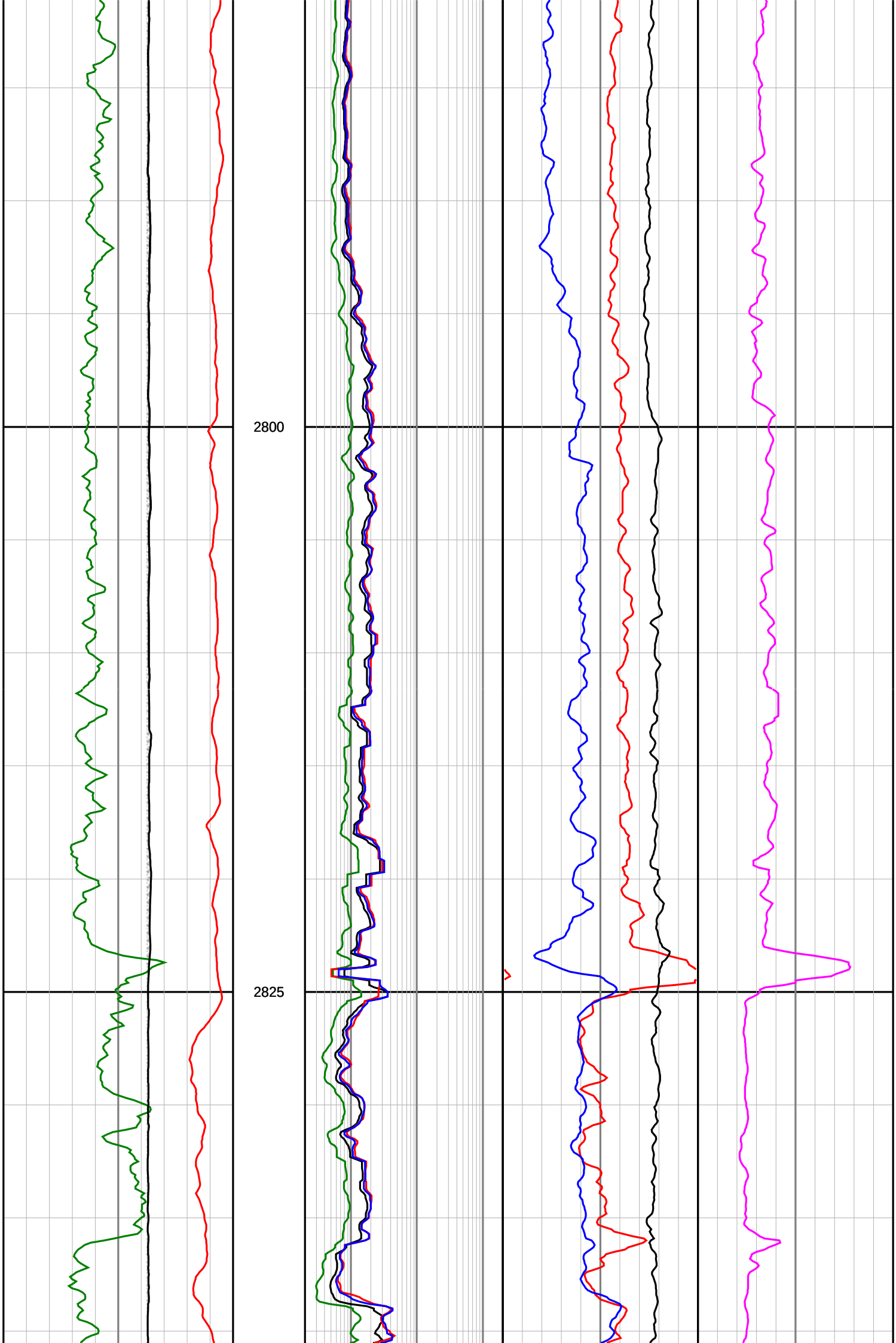
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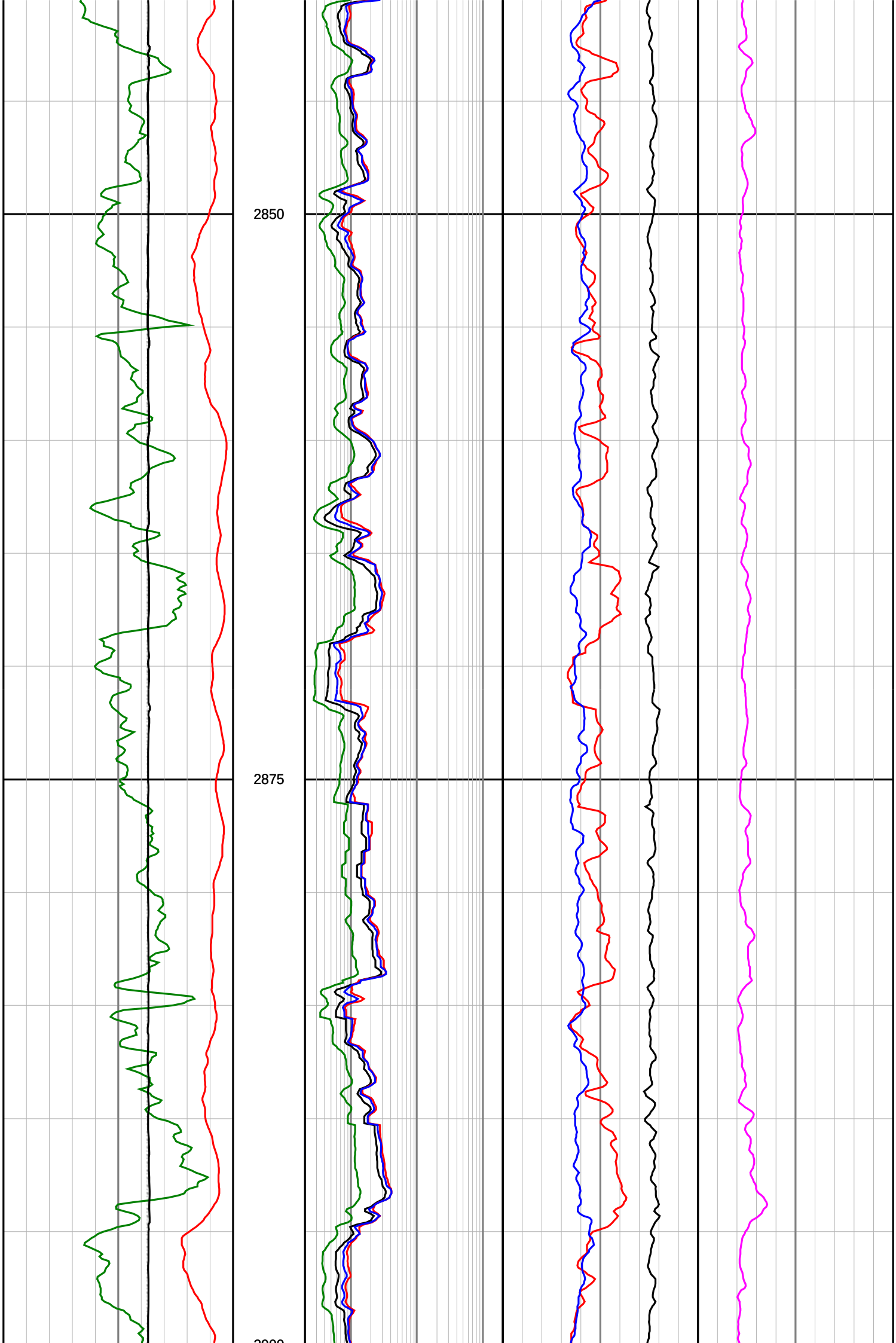
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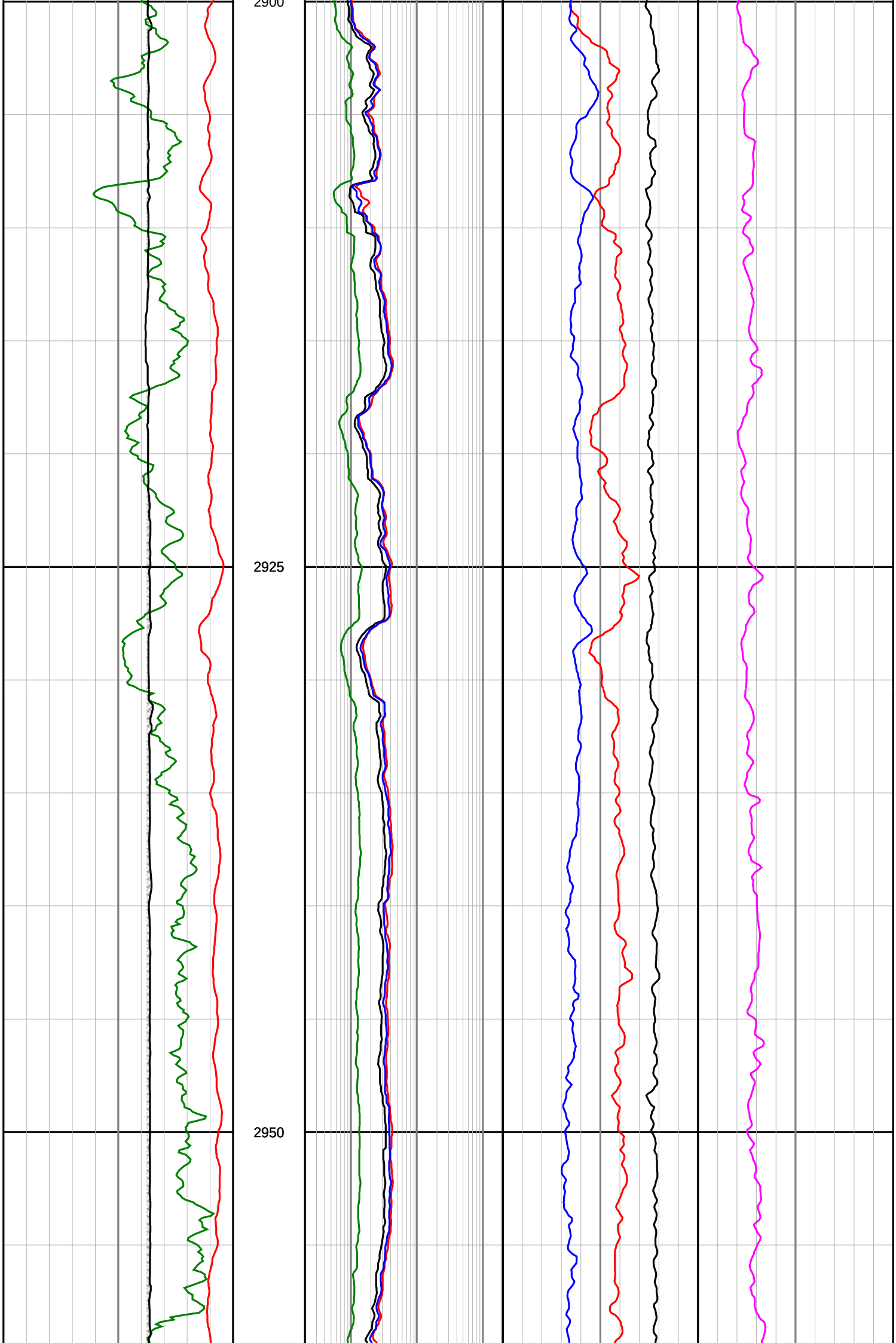
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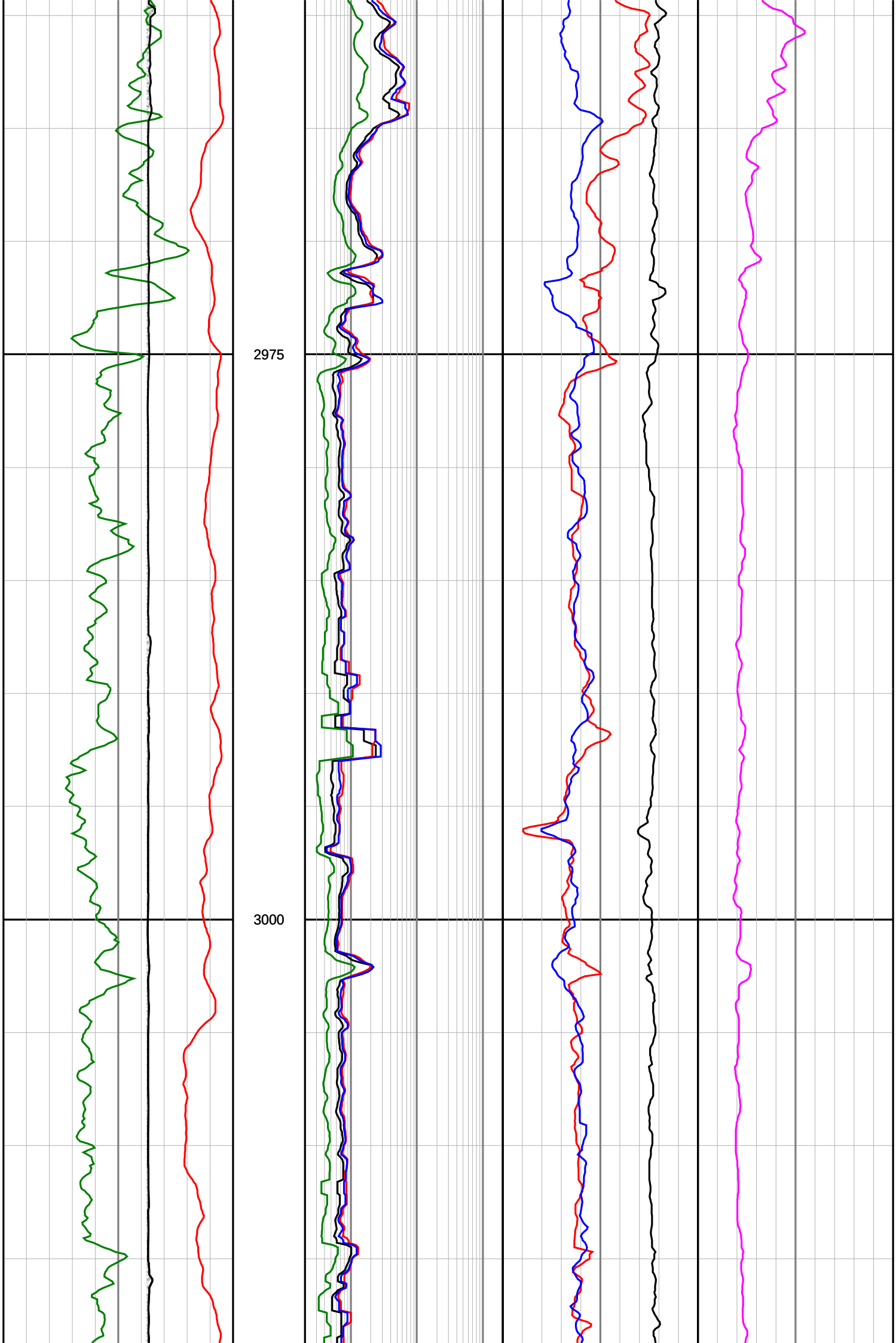
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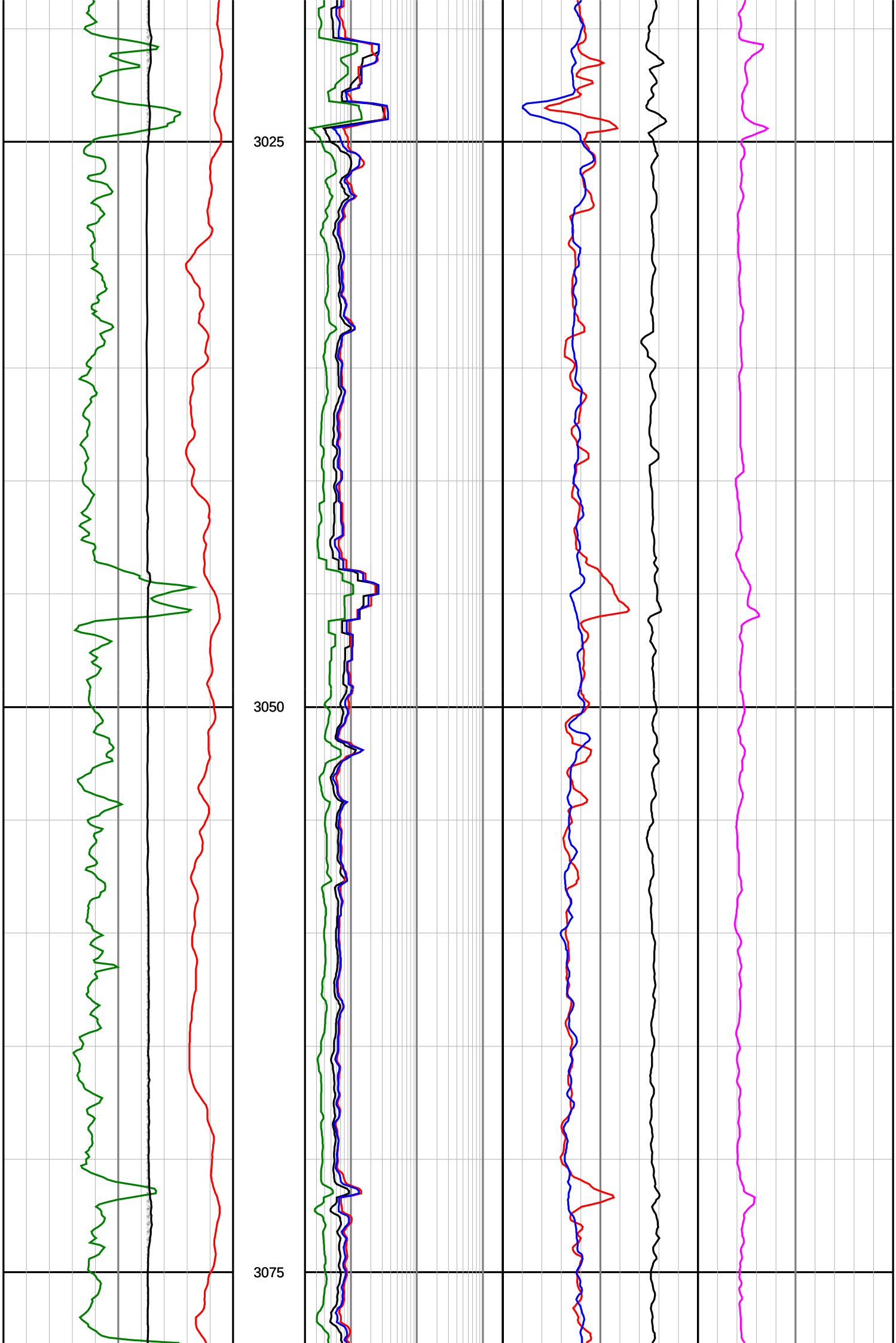
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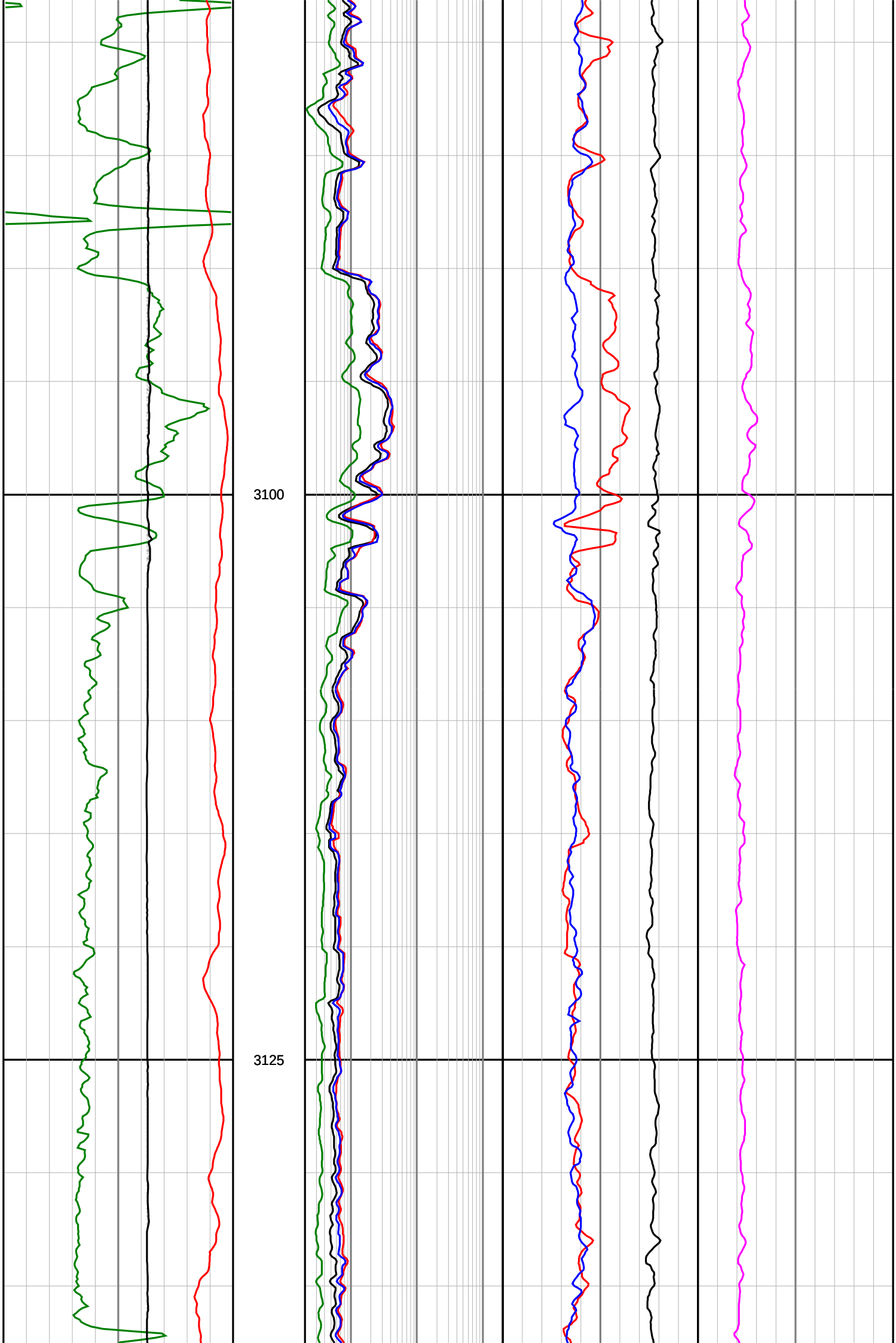
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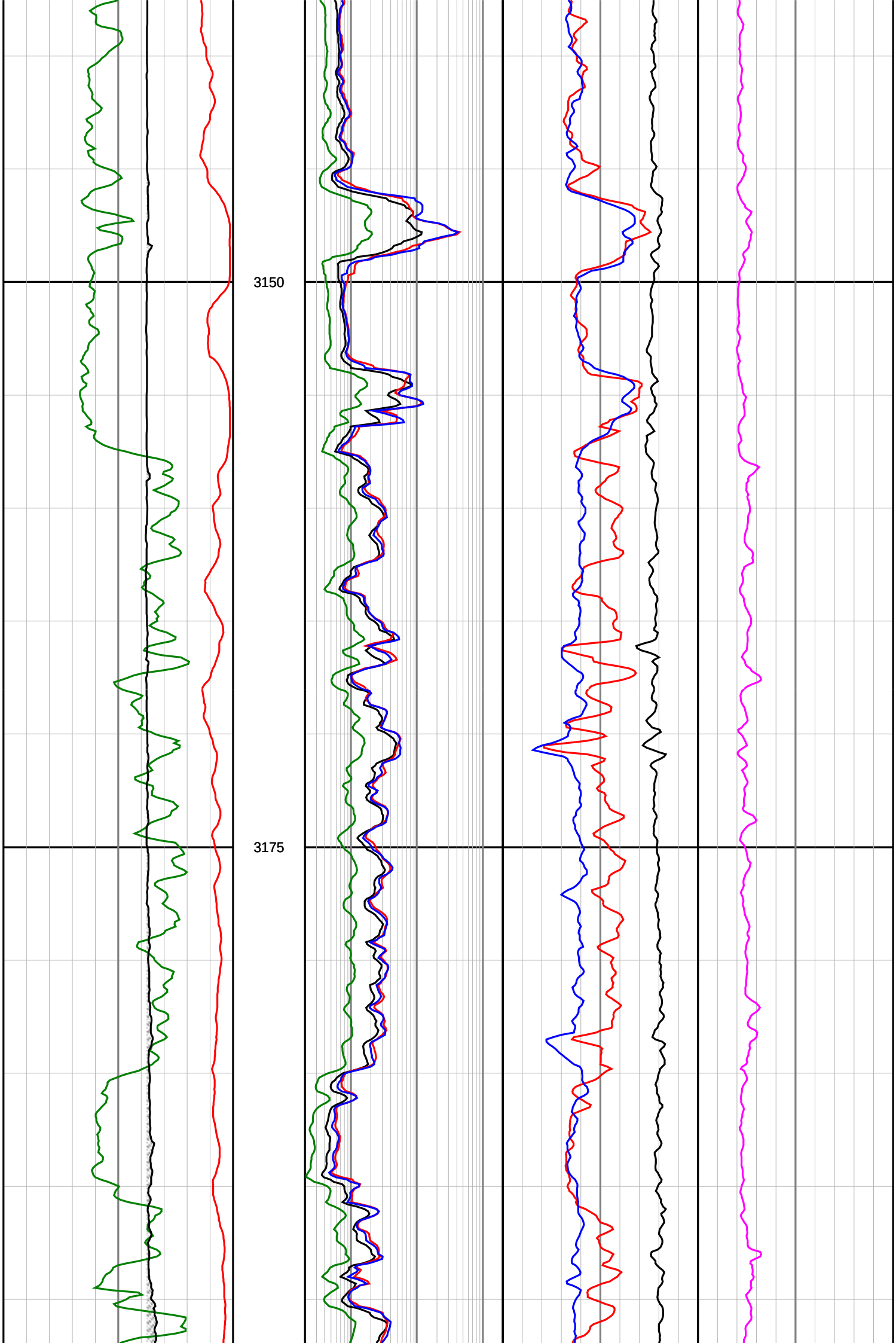
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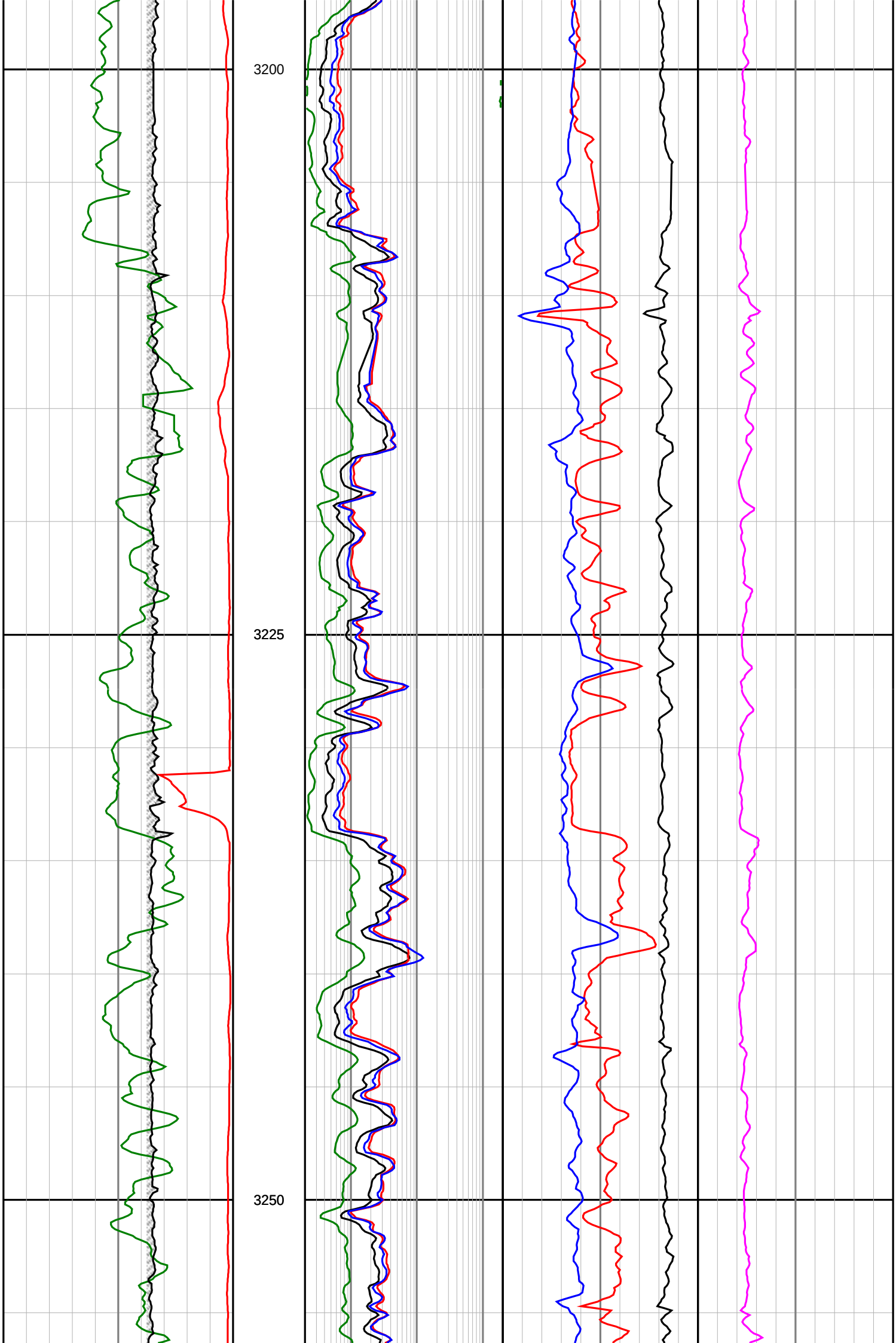
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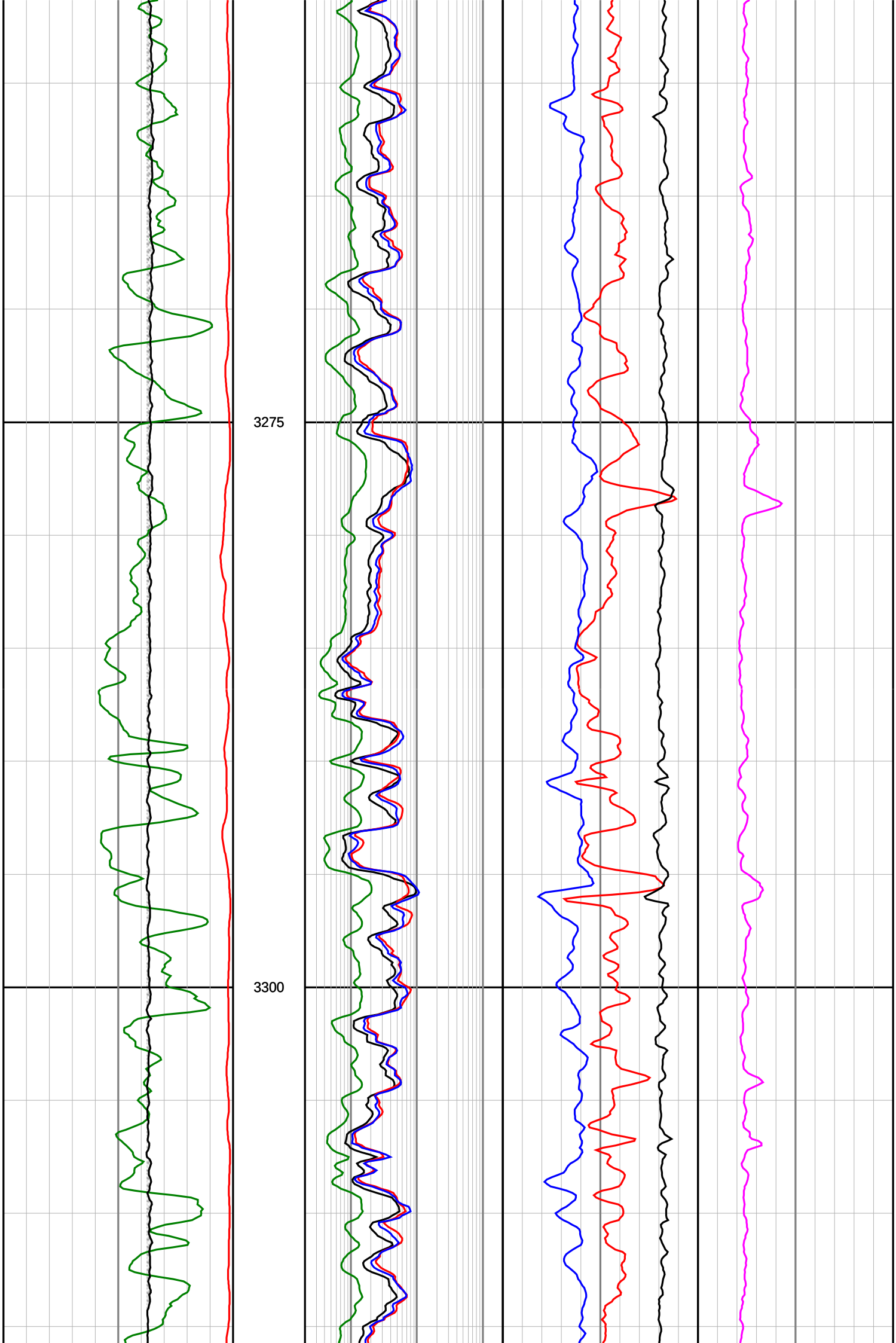
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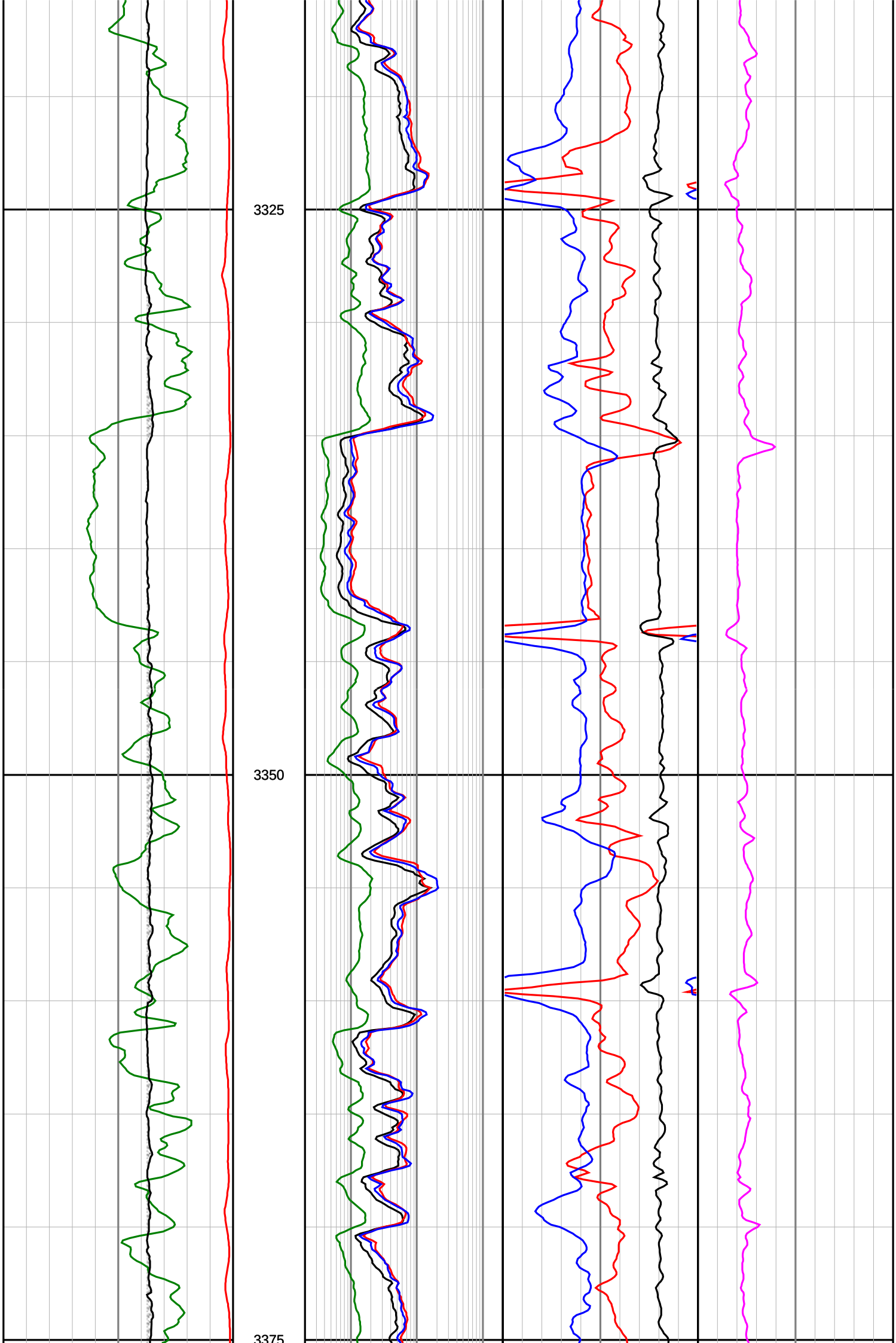
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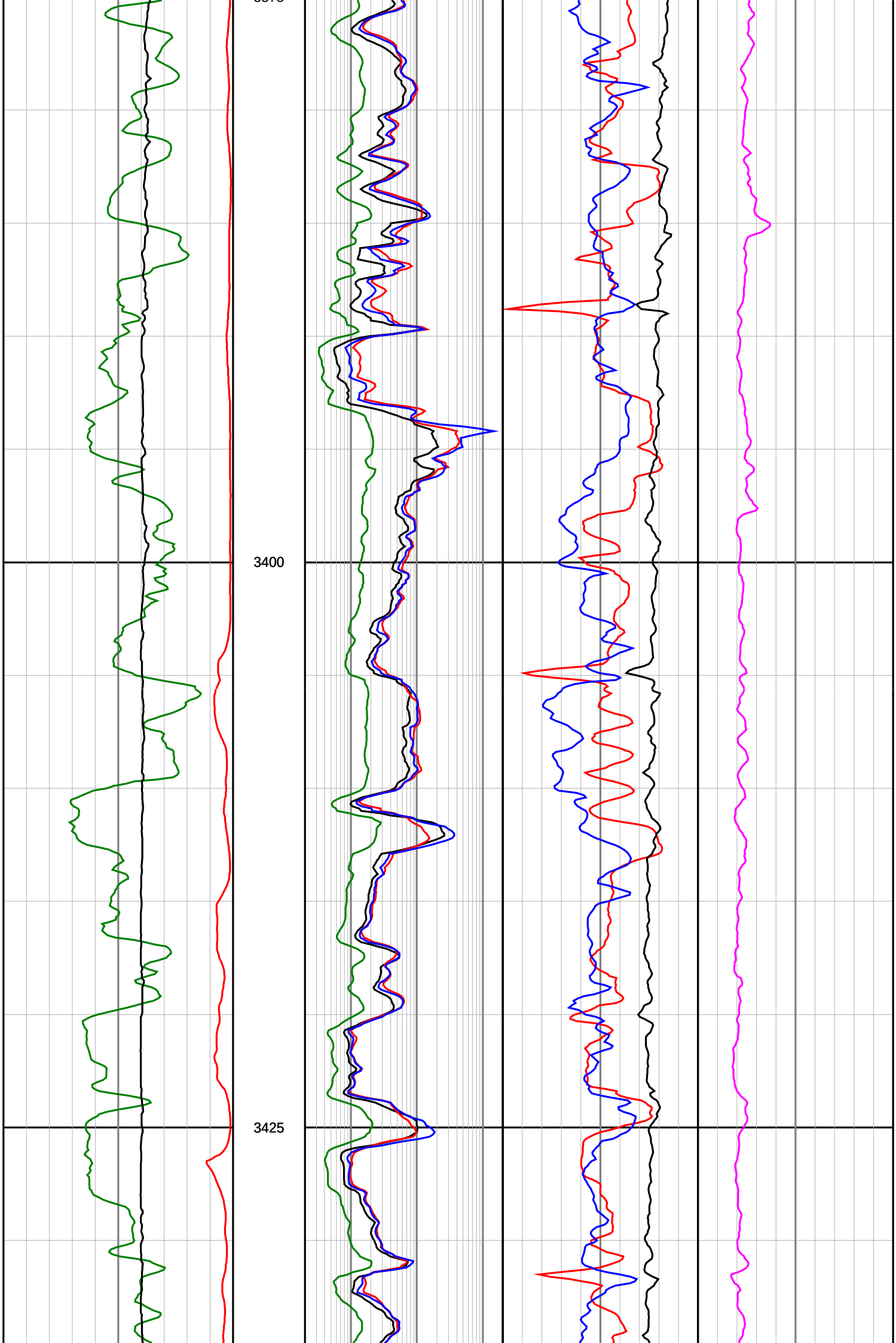
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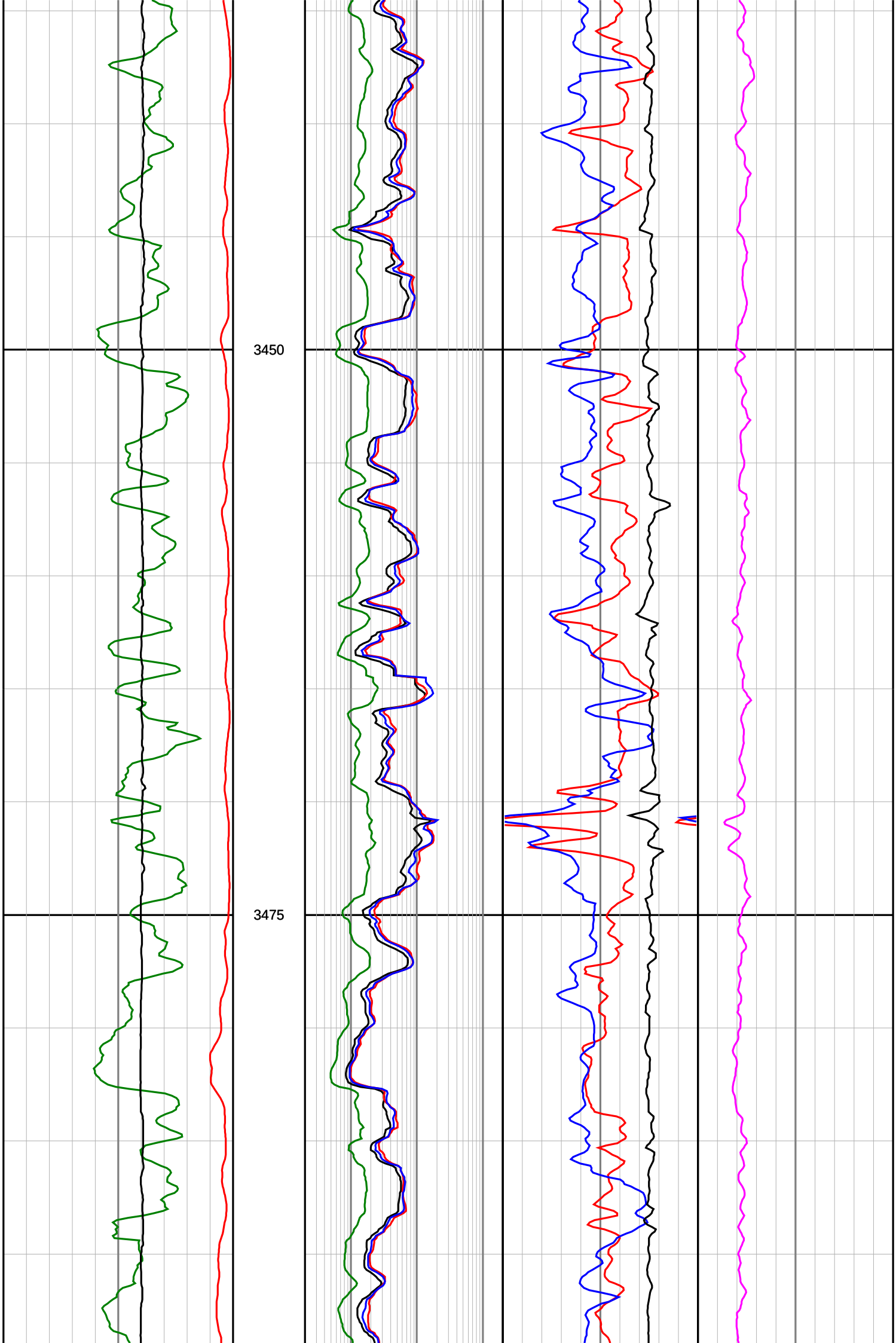
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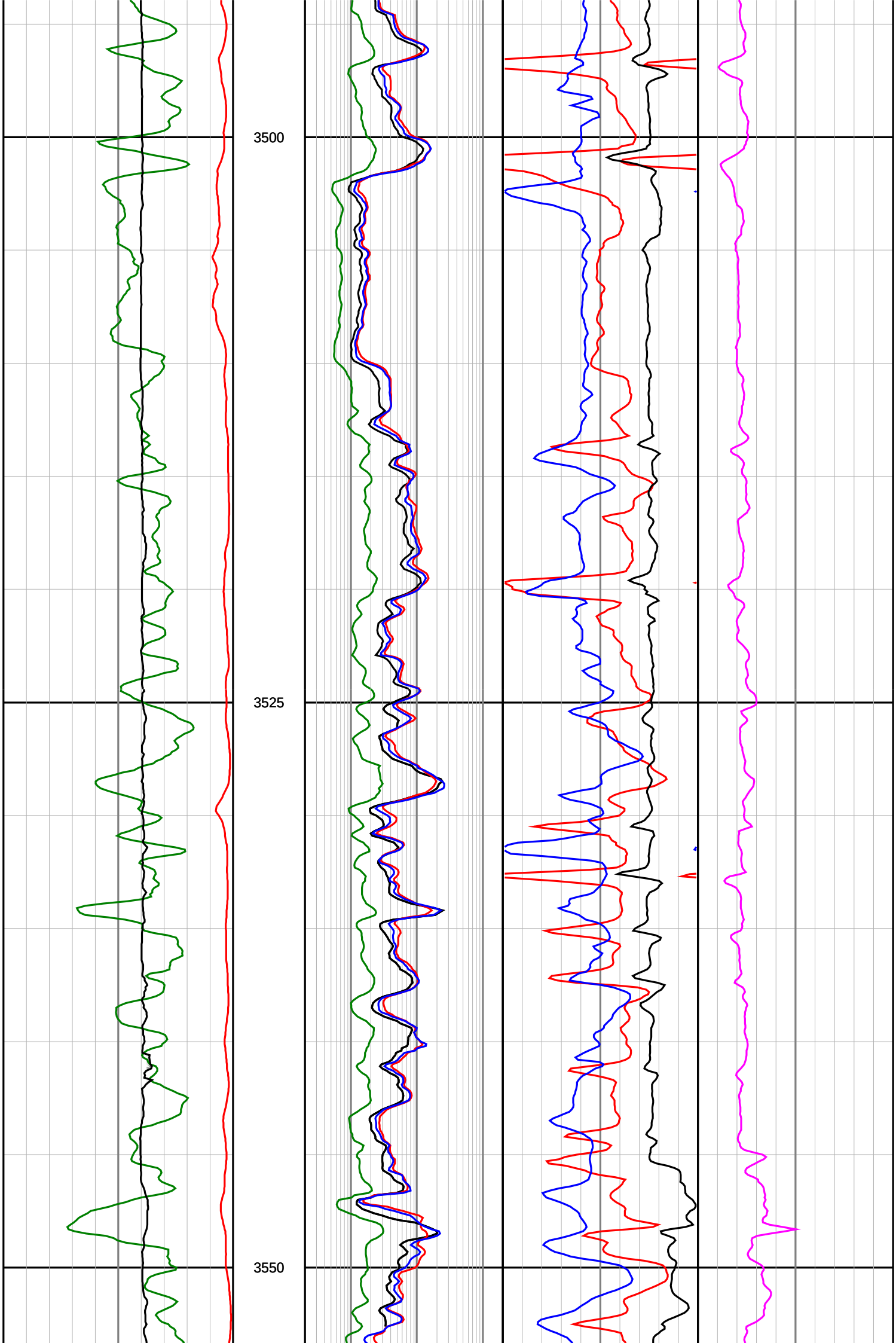
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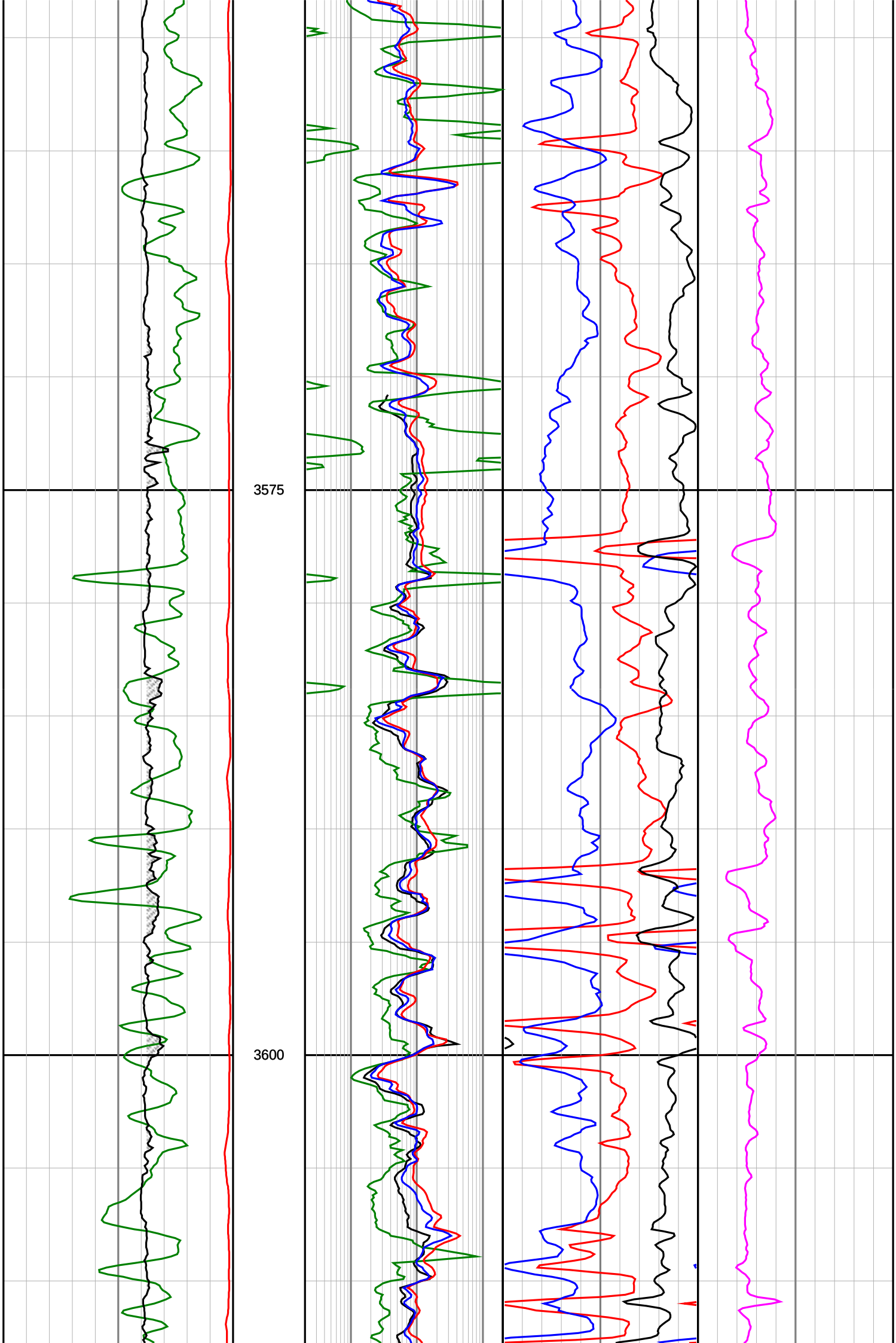
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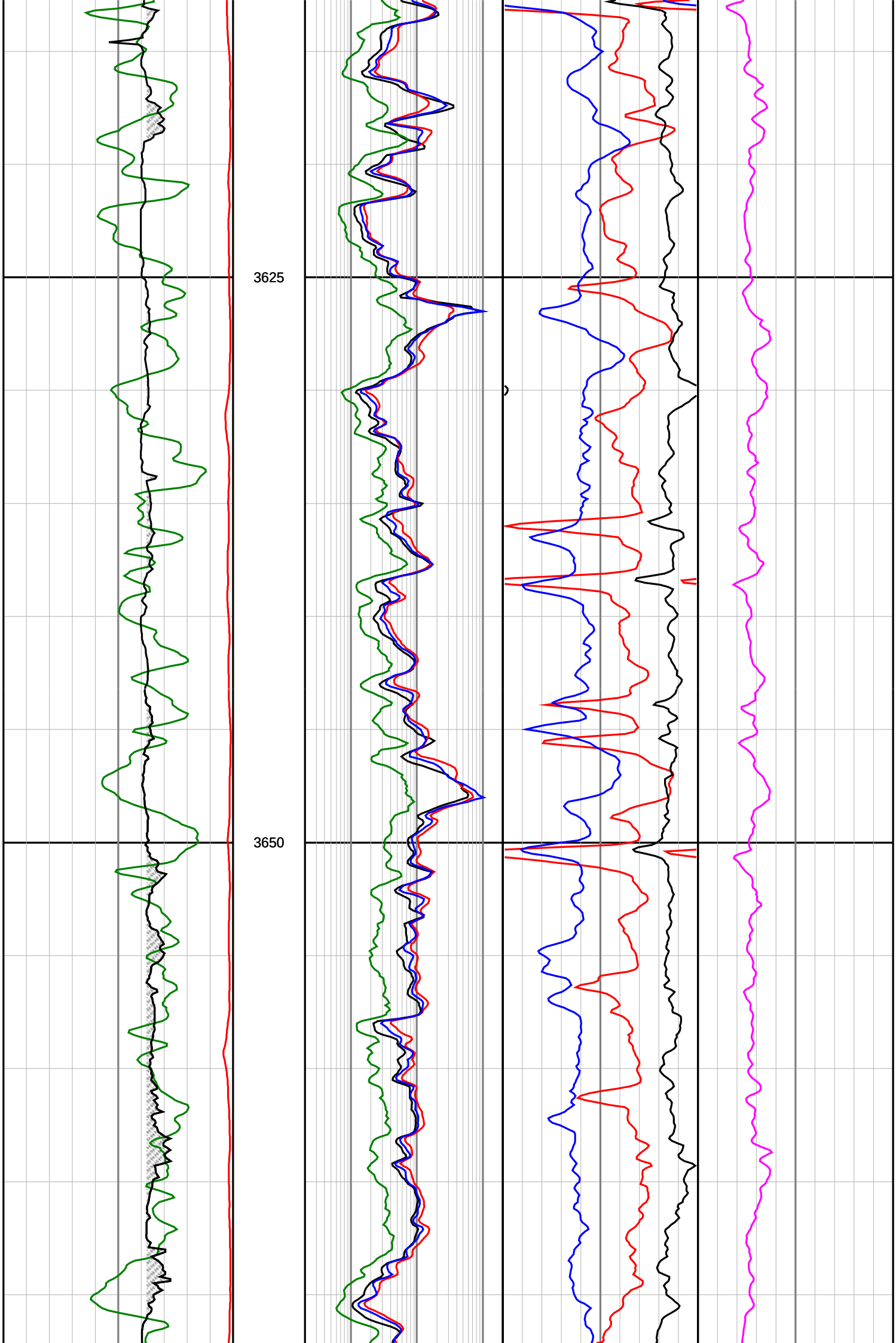
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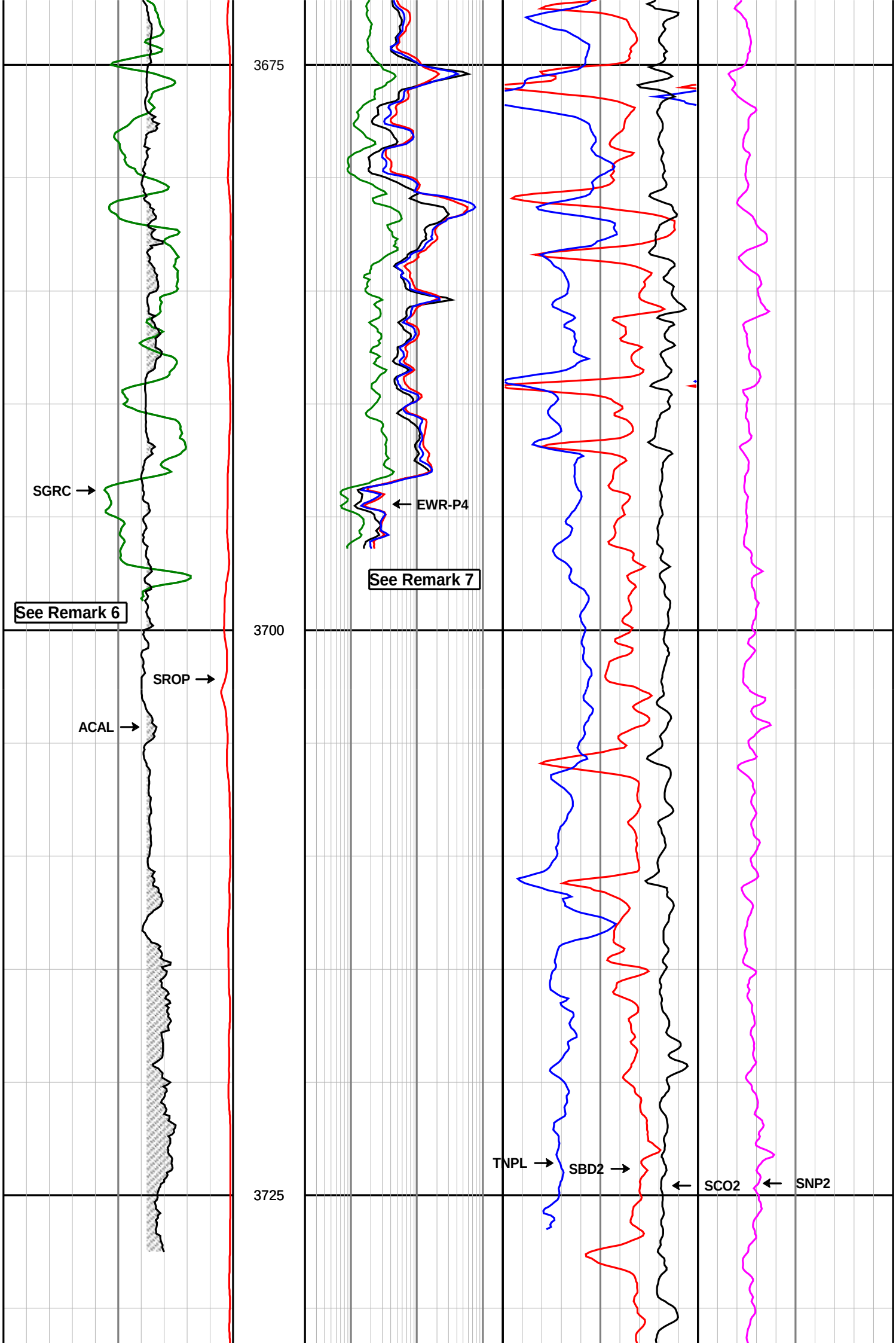
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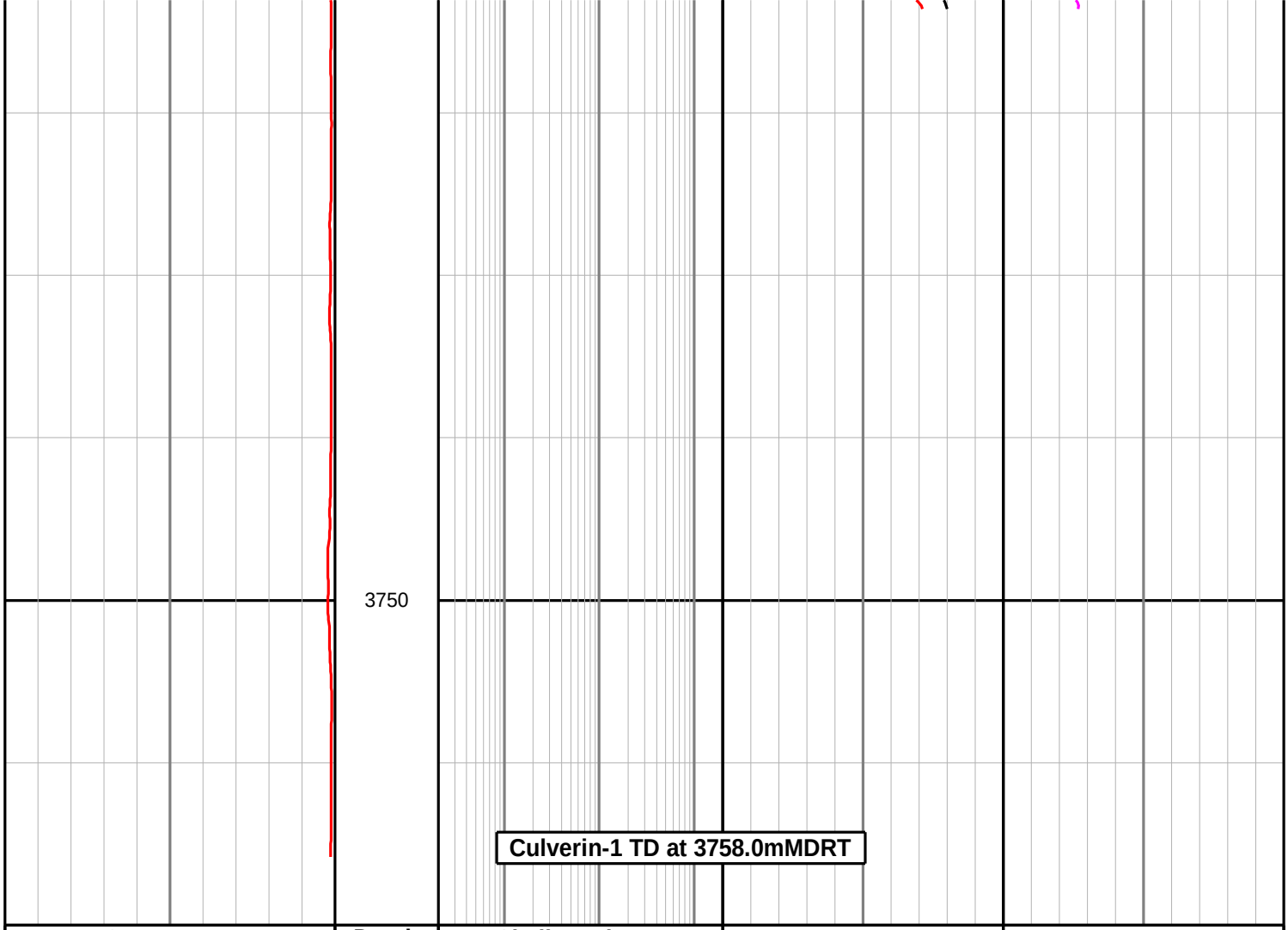
SGRC
See Remark 6
SROP
ACAL
EWR-P4
See Remark 7
TNPL
SBD2
SCO2
SNP2



Gamma Ray (SGRC)	Depth	Ext Shallow Phase Res (SEXP)	Best Bin Delta Rho (SCO2)	Photoelectric Effect (SNP2)
0 api 200	MD	0.2 ohmm 200	-0.75 g/cc 0.25	0 b/e 10
	1:200			

Rate of Penetration (SROP)	Shallow Phase Res (SESP)	Neutron Porosity (TNPL)
500 m/hr 0	0.2 ohmm 200	0.45 v/v -0.15

Acoustic Caliper (ACAL)	Medium Phase Res (SEMP)	Best Bin Bulk Density (SBD2)
6 in 16	0.2 ohmm 200	1.85 g/cc 2.85

Deep Phase Res (SEDP)
0.2 ohmm 200

Nexus Energy Ltd

Culverin-1

Repeat Section 3320.0 to 3360.0 mMDRT

Wiped at 08:51 - 12:35 on 31-Dec-05, while running in hole, pumps on and rotating prior to Run 400.

Deep Phase Res (SEDP)
0.2 ohmm 200

Acoustic Caliper (ACAL)	Medium Phase Res (SEMP)	Best Bin Bulk Density (SBD2)
6 in 16	0.2 ohmm 200	1.85 g/cc 2.85

Running Speed	Shallow Phase Res	Neutron Porosity

(RSPD)
500 m/hr 0

(SESP)
0.2 ohmm 200

(TNPL)
0.45 v/v -0.15

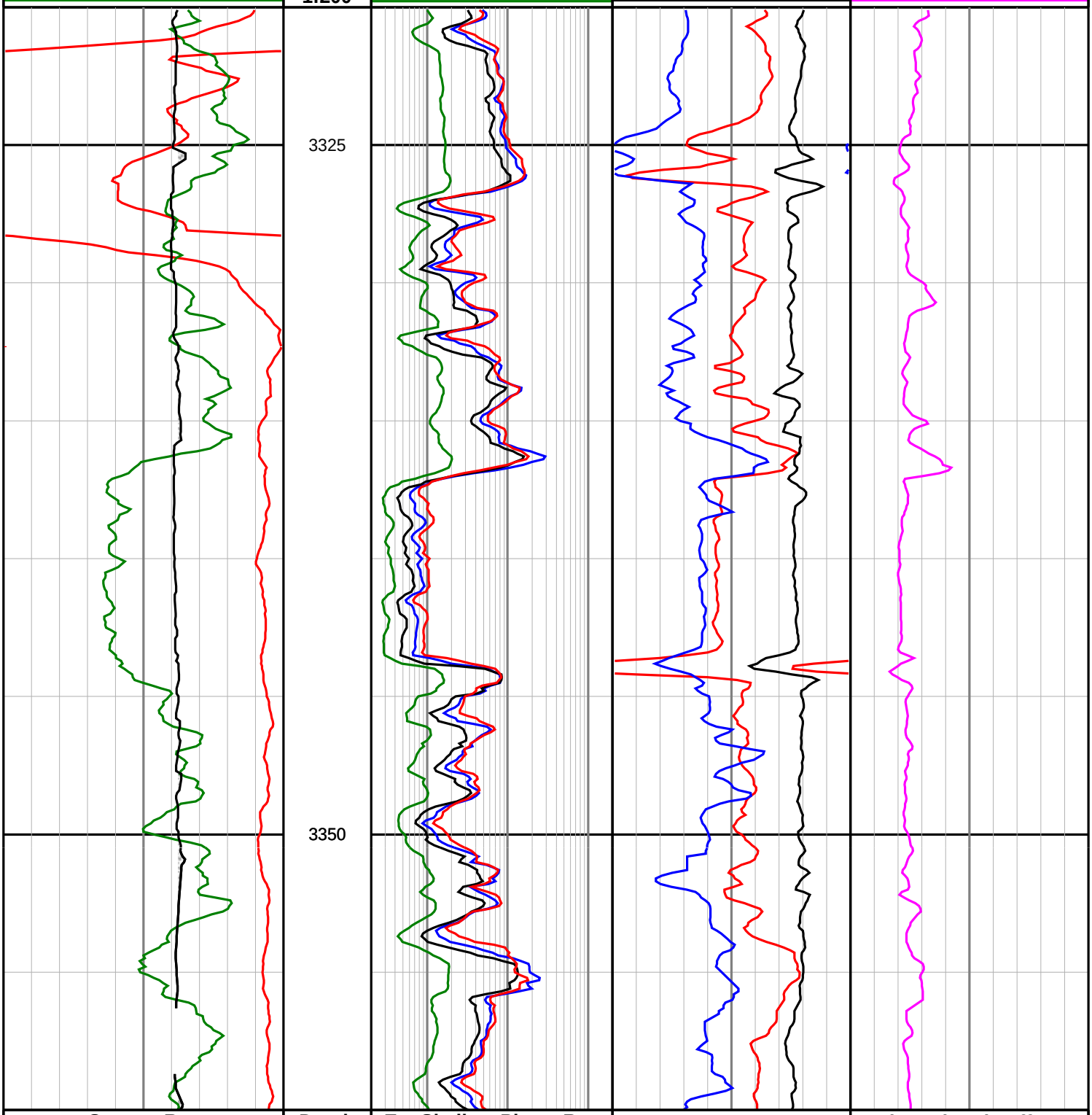
Gamma Ray
(SGRC)
0 api 200

Depth
MD
1:200

Ext Shallow Phase Res
(SEXP)
0.2 ohmm 200

Best Bin Delta Rho
(SCO2)
-0.75 g/cc 0.25

Photoelectric Effect
(SNP2)
0 b/e 10



Gamma Ray
(SGRC)
0 api 200

Depth
MD
1:200

Ext Shallow Phase Res
(SEXP)
0.2 ohmm 200

Best Bin Delta Rho
(SCO2)
-0.75 g/cc 0.25

Photoelectric Effect
(SNP2)
0 b/e 10

Running Speed
(RSPD)
500 m/hr 0

Shallow Phase Res
(SESP)
0.2 ohmm 200

Neutron Porosity
(TNPL)
0.45 v/v -0.15

Acoustic Caliper
(ACAL)
6 in 16

Medium Phase Res
(SEMP)
0.2 ohmm 200

Best Bin Bulk Density
(SBD2)
1.85 g/cc 2.85

Deep Phase Res
(SEDP)

0.2 ohmm 200

DIRECTIONAL SURVEY REPORT

Nexus Energy Ltd
Culverin-1
Exploration
Victoria
Australia
AU-FE-0003951414
RT - LAT = 21.5m. Final Survey projected to TD.

Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
0.000	0.00	0.00	0.000	0.000 N	0.000 E	0.000	TIE-IN
681.950	1.26	227.00	681.895	5.102 S	5.471 W	-7.379	0.06
767.680	0.81	263.55	767.612	5.812 S	6.763 W	-8.729	0.27
825.040	0.93	254.57	824.965	5.981 S	7.615 W	-9.383	0.09
911.190	1.09	257.49	911.102	6.344 S	9.088 W	-10.567	0.06
1027.780	0.85	252.60	1027.675	6.844 S	10.998 W	-12.127	0.06
1056.460	0.79	254.04	1056.352	6.962 S	11.391 W	-12.460	0.07
1085.160	0.77	260.55	1085.050	7.048 S	11.770 W	-12.760	0.09
1113.810	0.62	255.11	1113.698	7.119 S	12.110 W	-13.023	0.18
1142.540	0.51	257.73	1142.426	7.186 S	12.384 W	-13.244	0.11
1171.110	0.43	257.64	1170.995	7.236 S	12.615 W	-13.424	0.08
1228.350	0.22	250.90	1228.234	7.318 S	12.928 W	-13.679	0.12
1257.080	0.17	244.39	1256.964	7.355 S	13.019 W	-13.764	0.05
1342.790	0.06	257.65	1342.674	7.421 S	13.181 W	-13.915	0.04
1371.460	0.03	247.14	1371.344	7.427 S	13.204 W	-13.934	0.03
1428.750	0.11	336.43	1428.634	7.382 S	13.240 W	-13.920	0.06
1486.030	0.16	21.18	1485.914	7.258 S	13.234 W	-13.818	0.06
1509.770	0.09	0.70	1509.654	7.210 S	13.222 W	-13.773	0.10
1540.460	0.33	354.58	1540.343	7.098 S	13.230 W	-13.689	0.24
1569.110	0.36	350.12	1568.993	6.926 S	13.254 W	-13.567	0.04
1597.730	0.50	2.93	1597.612	6.714 S	13.263 W	-13.404	0.18
1626.440	0.63	1.96	1626.321	6.431 S	13.251 W	-13.173	0.14
1655.170	0.86	9.39	1655.048	6.061 S	13.210 W	-12.855	0.26
1683.810	1.15	21.61	1683.684	5.583 S	13.070 W	-12.390	0.38
1712.560	1.54	24.62	1712.426	4.963 S	12.802 W	-11.735	0.42
1741.120	1.85	23.41	1740.973	4.190 S	12.458 W	-10.912	0.33
1769.900	2.12	24.21	1769.736	3.276 S	12.055 W	-9.942	0.28
1798.490	2.39	23.17	1798.304	2.246 S	11.603 W	-8.850	0.28
1827.170	2.73	24.42	1826.955	1.075 S	11.086 W	-7.607	0.36
1855.780	2.98	24.43	1855.530	0.221 N	10.497 W	-6.220	0.27
1884.430	3.09	24.80	1884.139	1.601 N	9.865 W	-4.741	0.12
1913.080	3.07	24.58	1912.748	3.000 N	9.222 W	-3.240	0.02
1941.890	3.12	23.61	1941.516	4.421 N	8.587 W	-1.726	0.08
1970.980	3.18	24.11	1970.562	5.884 N	7.939 W	-0.171	0.07
1999.060	3.22	24.85	1998.598	7.312 N	7.289 W	1.358	0.06
2027.820	3.27	25.23	2027.312	8.789 N	6.599 W	2.949	0.06
2056.650	3.24	27.04	2056.095	10.260 N	5.878 W	4.555	0.11
2085.120	3.33	26.59	2084.518	11.717 N	5.141 W	6.160	0.10
2113.640	3.40	27.83	2112.989	13.207 N	4.375 W	7.808	0.10
2142.040	3.46	29.61	2141.338	14.697 N	3.558 W	9.487	0.13
2170.630	3.60	30.30	2169.874	16.223 N	2.679 W	11.232	0.15
2199.170	3.77	30.65	2198.355	17.802 N	1.749 W	13.051	0.18
2227.870	3.85	36.05	2226.992	19.392 N	0.702 W	14.950	0.38
2256.540	3.99	35.43	2255.595	20.983 N	0.443 E	16.909	0.16
2285.350	4.14	37.21	2284.332	22.630 N	1.654 E	18.953	0.20
2314.020	4.15	34.69	2312.927	24.308 N	2.871 E	21.025	0.19
2342.600	4.24	35.48	2341.430	26.018 N	4.072 E	23.113	0.11
2371.300	4.20	37.23	2370.053	27.718 N	5.323 E	25.223	0.14
2399.910	4.28	37.96	2398.584	29.394 N	6.614 E	27.338	0.10
2428.460	4.30	38.32	2427.054	31.073 N	7.933 E	29.474	0.04

HALLIBURTON

Culverin-1

Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
2457.140	4.30	37.54	2455.653	32.770 N	9.255 E	31.625	0.06
2514.650	4.09	38.40	2513.009	36.089 N	11.845 E	35.835	0.11
2543.240	4.05	40.48	2541.527	37.657 N	13.134 E	37.863	0.16
2572.000	4.01	40.97	2570.216	39.188 N	14.452 E	39.880	0.05
2600.650	3.91	40.54	2598.798	40.686 N	15.743 E	41.855	0.11
2629.390	3.86	40.58	2627.472	42.165 N	17.009 E	43.799	0.05
2658.020	3.89	41.30	2656.036	43.626 N	18.277 E	45.730	0.06
2686.600	3.77	41.46	2684.552	45.058 N	19.538 E	47.633	0.12
2715.150	3.77	40.42	2713.041	46.476 N	20.768 E	49.507	0.07
2743.830	3.80	42.10	2741.658	47.900 N	22.017 E	51.397	0.12
2772.650	3.83	43.73	2770.414	49.304 N	23.323 E	53.306	0.12
2801.660	3.84	42.76	2799.359	50.718 N	24.652 E	55.237	0.07
2830.440	3.89	43.81	2828.074	52.130 N	25.982 E	57.168	0.09
2859.140	3.95	44.31	2856.706	53.540 N	27.347 E	59.118	0.08
2887.700	3.86	45.65	2885.200	54.916 N	28.722 E	61.046	0.14
2916.430	3.87	45.26	2913.865	56.273 N	30.101 E	62.963	0.03
2944.960	3.83	45.79	2942.331	57.614 N	31.466 E	64.858	0.06
2973.530	3.73	46.71	2970.839	58.916 N	32.826 E	66.718	0.12
3002.190	3.72	46.75	2999.438	60.192 N	34.182 E	68.557	0.01
3059.490	3.72	46.57	3056.618	62.743 N	36.885 E	72.226	0.01
3088.210	3.81	46.46	3085.276	64.040 N	38.253 E	74.088	0.10
3116.080	3.75	45.37	3113.085	65.318 N	39.572 E	75.905	0.10
3145.070	3.74	48.33	3142.013	66.613 N	40.954 E	77.774	0.20
3173.790	3.67	49.59	3170.673	67.832 N	42.354 E	79.594	0.11
3202.650	3.71	48.97	3199.473	69.044 N	43.762 E	81.413	0.06
3231.770	3.53	48.20	3228.535	70.260 N	45.141 E	83.217	0.20
3260.370	3.66	49.86	3257.079	71.435 N	46.494 E	84.973	0.17
3317.480	3.72	47.74	3314.070	73.856 N	49.259 E	88.578	0.08
3346.360	3.65	50.41	3342.891	75.074 N	50.663 E	90.398	0.19
3375.030	3.69	54.03	3371.502	76.198 N	52.114 E	92.174	0.25
3404.400	3.54	54.90	3400.813	77.275 N	53.621 E	93.946	0.17
3432.800	3.59	51.96	3429.159	78.327 N	55.038 E	95.643	0.20
3461.320	3.48	51.53	3457.624	79.415 N	56.418 E	97.347	0.12
3490.240	3.38	50.31	3486.493	80.504 N	57.760 E	99.029	0.13
3519.260	3.32	50.11	3515.463	81.590 N	59.063 E	100.683	0.06
3547.590	3.32	49.95	3543.745	82.644 N	60.321 E	102.285	0.01
3555.340	3.36	53.74	3551.482	82.922 N	60.676 E	102.722	0.87
3583.830	3.00	50.85	3579.928	83.887 N	61.927 E	104.249	0.41
3641.380	2.98	50.16	3637.400	85.797 N	64.244 E	107.176	0.02
3758.000	2.98	50.16	3753.862	89.681 N	68.900 E	113.093	0.00

CALCULATION BASED ON MINIMUM CURVATURE METHOD

SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG A CLOSURE OF 37.53 DEGREES (GRID)
A TOTAL CORRECTION OF 14.43 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 3758.000 METRES
IS 113.093 METRES ALONG 37.53 DEGREES (GRID)

MWD RUN 200 - BHA

Component Length (m)

Cumulative Length (m)

2242.57

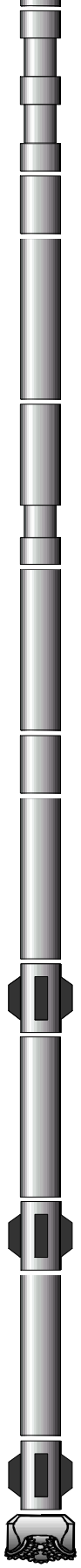
Drill Pipe

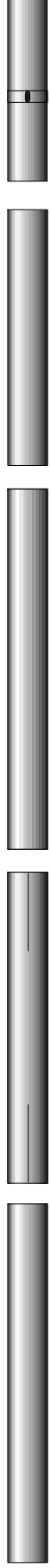
2,000.000

MWD RUN 200 - MWD

Sensor Measure Point Distance To Bit (m)

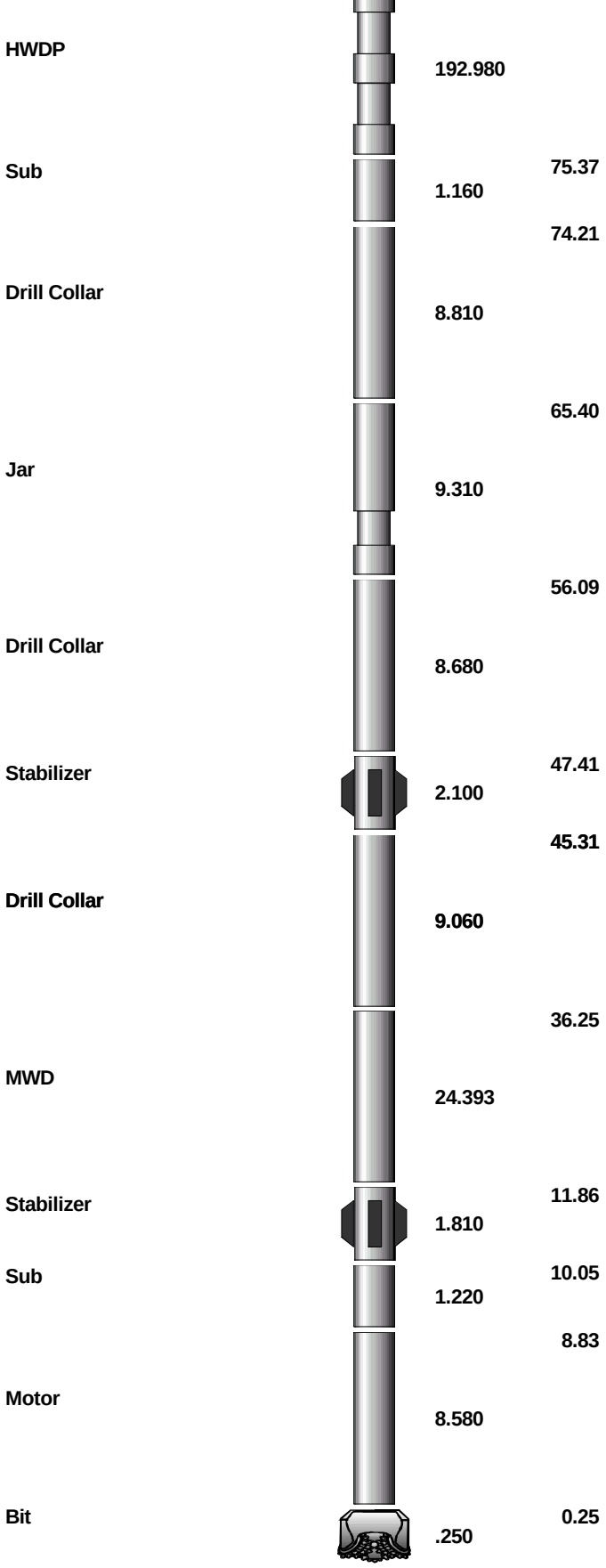
Positive Pulser



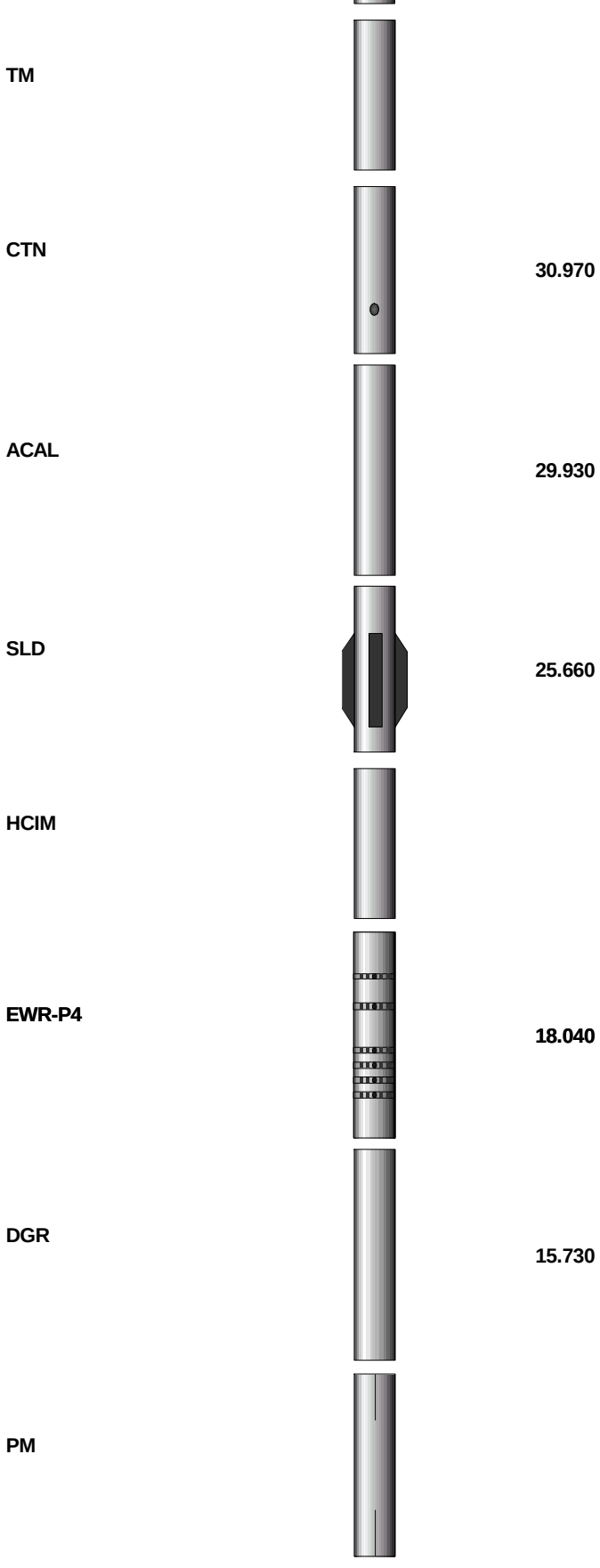


MWD RUN 300 - BHA

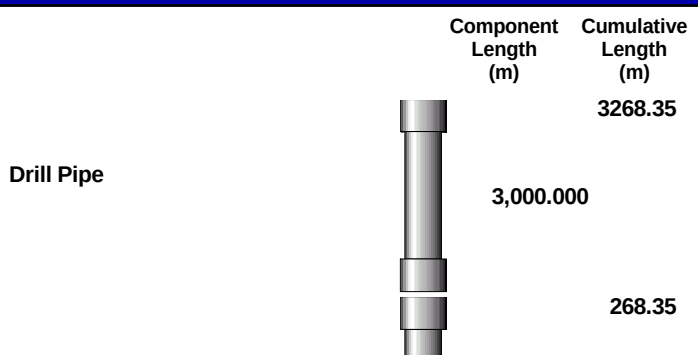
MWD RUN 300 - MWD

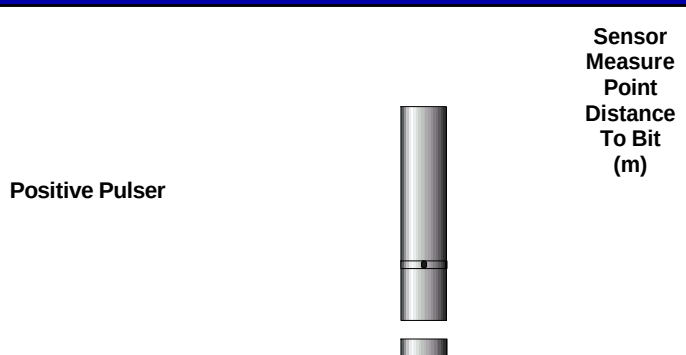


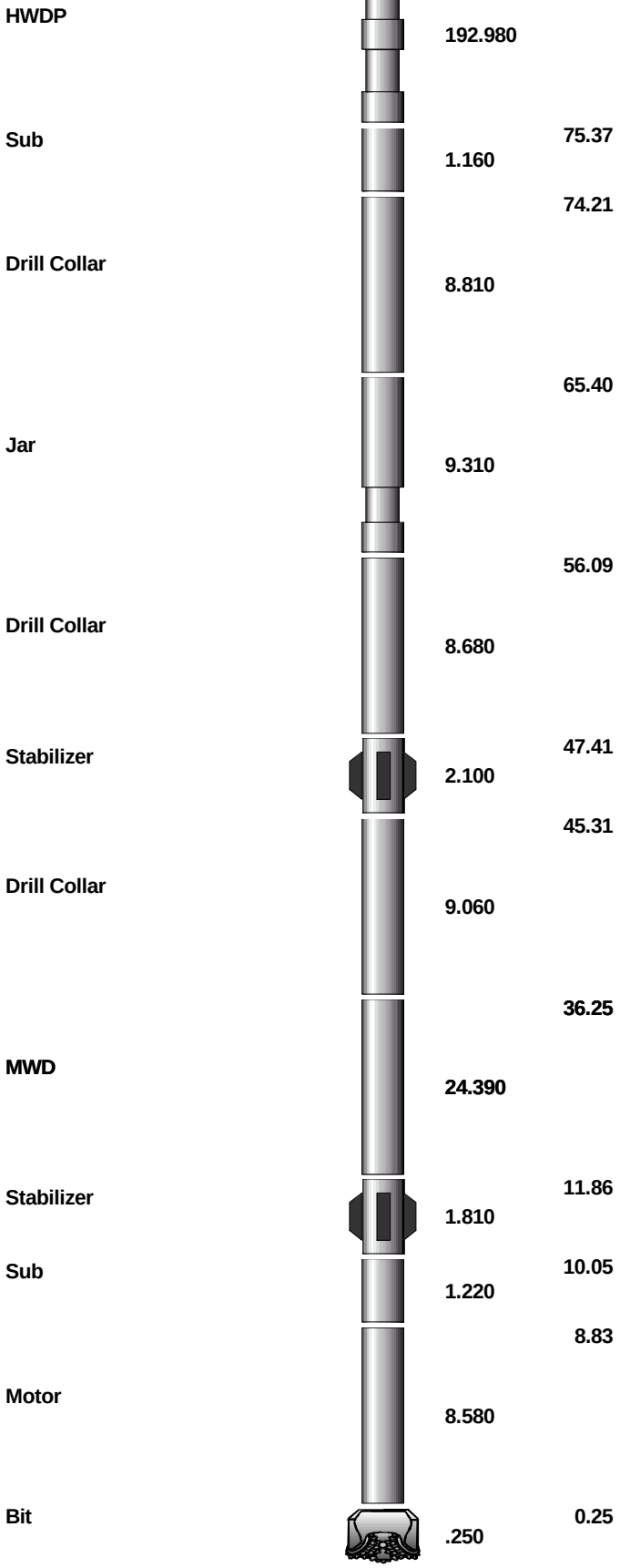
MWD RUN 400 - BHA

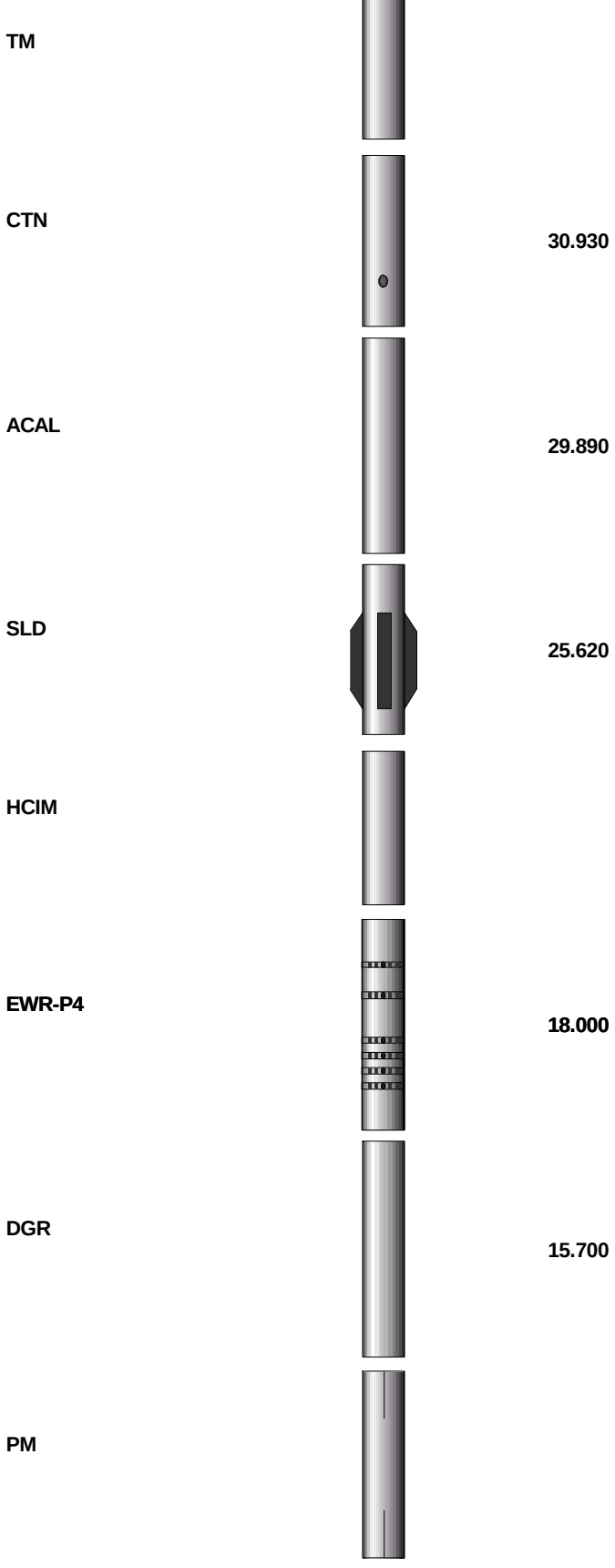


MWD RUN 400 - MWD

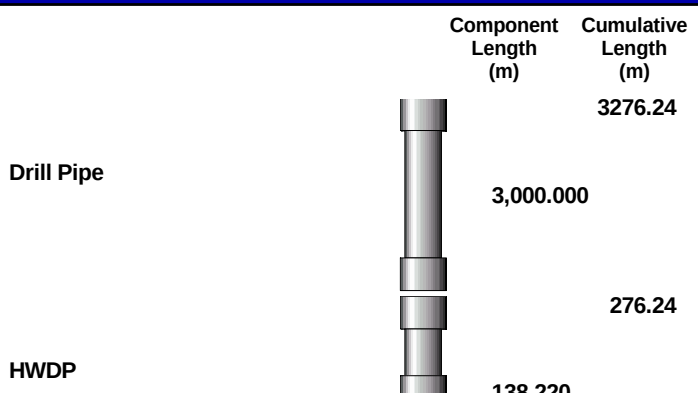




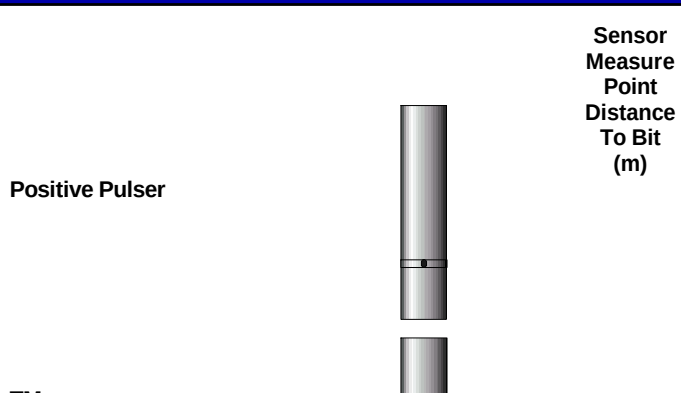


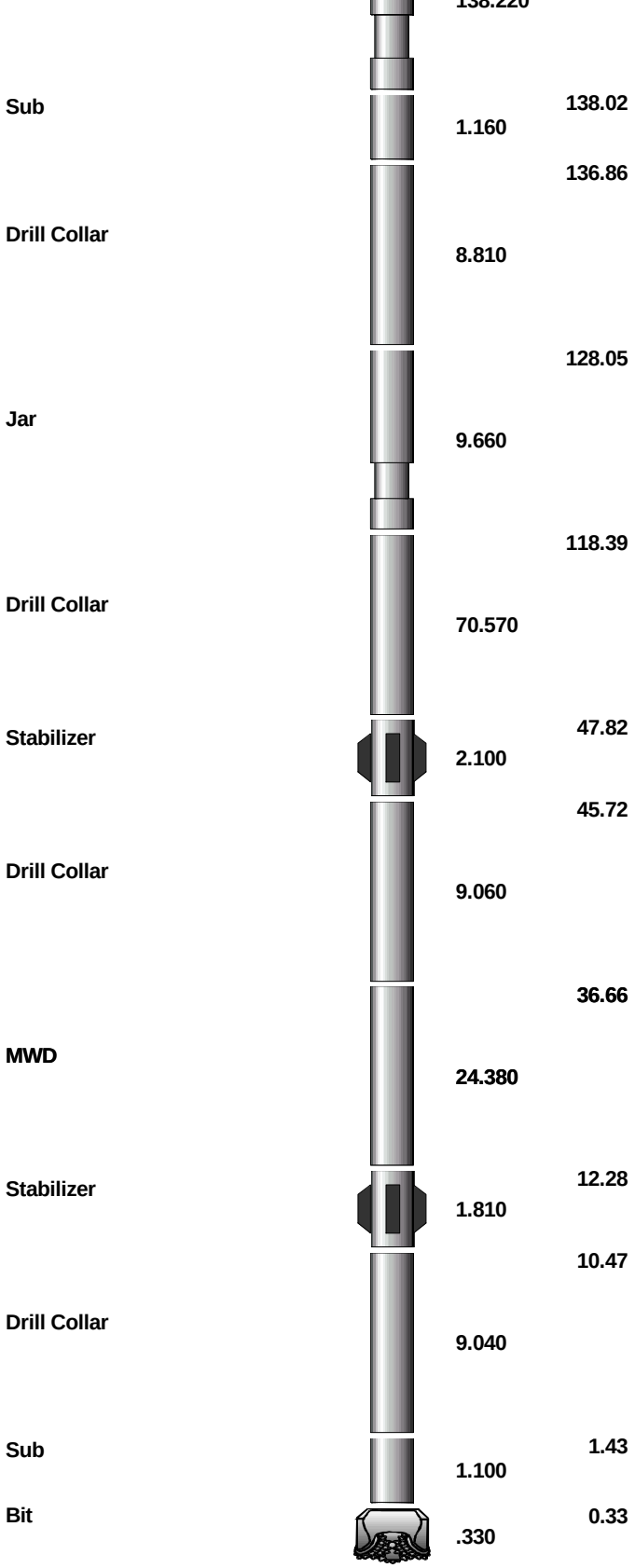


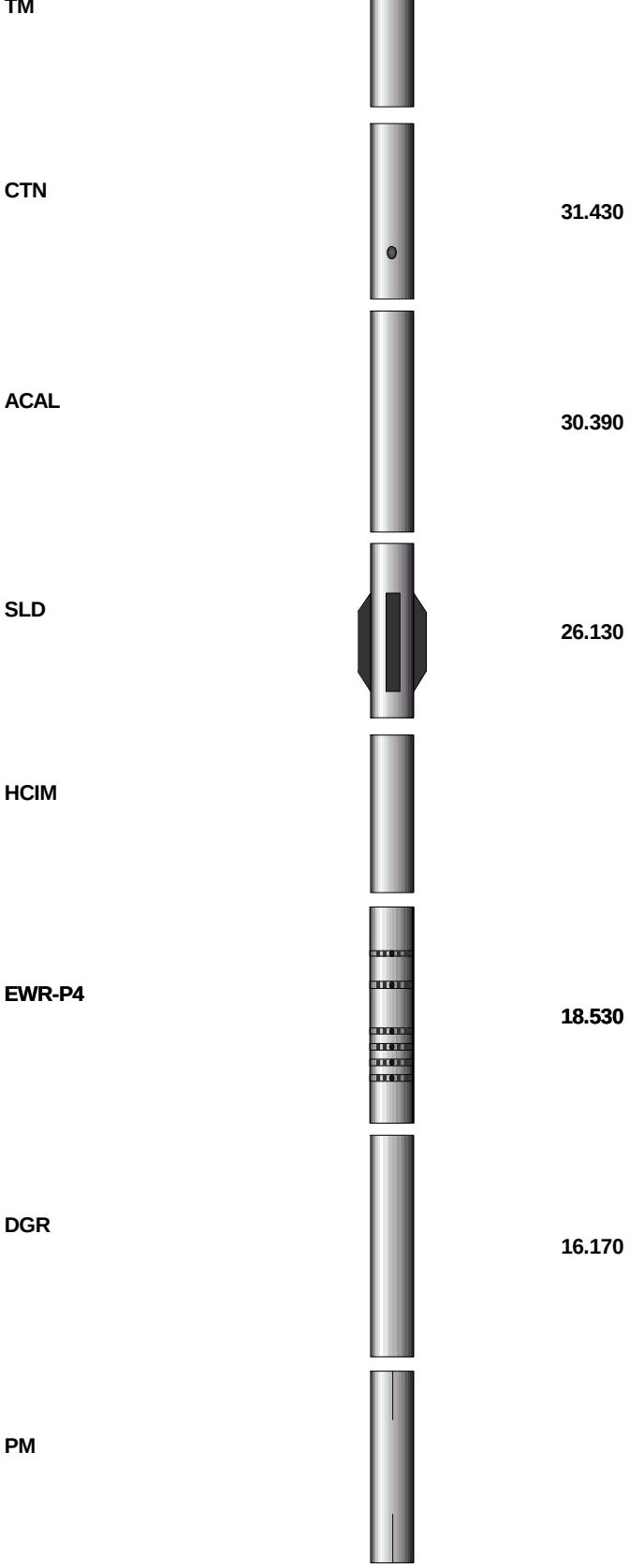
MWD RUN 600 - BHA



MWD RUN 600 - MWD




138.220
Sub
138.02
1.160
136.86
Drill Collar
8.810
128.05
Jar
9.660
118.39
Drill Collar
70.570
Stabilizer
47.82
2.100
45.72
Drill Collar
9.060
36.66
MWD
24.380
Stabilizer
12.28
1.810
10.47
Drill Collar
9.040
Sub
1.43
1.100
Bit
0.33
.330


TM
CTN
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ACAL
30.390
SLD
26.130
HCIM
EWR-P4
18.530
DGR
16.170
PM