



LWD MEMORY LOG

Gamma Ray

Scale: Company: Noble Energy

1:240 Well: Gutteresen State D23-731

True Vertical Depth Field: Wattenberg

Depth Reference: County: Weld Country: United States

Driller's Depth State: Colorado

Status: Surface Location: Other Services:

Final Print Latitude: 040° 12' 20.484" N

Longitude: 104° 30' 51.948" W

API No: 05-123-48623

Job ID: 109870263

SEC: 23 TVN: 3N RGE: 64W

Permanent Datum (P.D.): Mean Sea Level

Elevation: 0.00 ft

Elev. KB: N/A

Log Measured From: Rig Floor

Above P.D.: 4839.00 ft

Elev. DF: 4839.00 ft

Elev. GL: 4809.00 ft

Dates Interval Magnetic Field Reference

From: 2019-06-23 Drilled (ft) Logged (ft) Azi Reference North: Grid Dip Angle: (deg) 66.65

To: 2019-06-26 Top: 1947.00 Top: 1947.00 Total Magnetic Field Strength: (nT) 52085

Spud: 2019-06-17 Bottom: 17538.00 Bottom: 17525.00 Mag to Reference North Correction: (deg) 7.44

Borehole Record

Casing Record

Hole Size (in) From (ft) To (ft) Size (in) Weight (lb/ft) From (ft) To (ft)

13.500 30.00 1947.00 9.625 36.00 30.00 1937.00

8.500 1947.00 17538.00

Mud Record

Deviation Record

Type From (ft) To (ft) Hole Size (in) Interval (ft) Inc | Az (Start) Inc | Az (End)

Oil Based Mud 1947.00 17538.00 8.500 15591.00 0.80 | 317.69 89.94 | 357.25

Acquisition System Software Version

Other

Cadence RT 5.2

Rig: H&P 517

Plot Studio 5.2.8472.1

Contractor: Helmerich & Payne Drilling Co

District: RMA

Unit: D&E

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Log Run Summary

Run No	Bit Run No.	Bit Size (in)	Bit Type	Bit Gauge Length (in)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Hours (h)
						Top	Bottom	From	To	Start Logging	End Logging	
						(ft)	(ft)	(ft)	(ft)			
1	1	8.500	PDC	3.00	AutoTrak Curve	1947.00	17525.00	1947.00	17538.00	2019-06-23 20:42	2019-06-26 16:48	61.90

Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
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Mud Properties Record

Date / Time	Run No.	Depth (ft)	Mud Type	Density (ppg)	Viscosity (cP)	pH	Fluid Loss (cm3)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
2019-06-24 04:00	1	3614.00	Oil Based Mud	9.1	9	N/A	N/A	74/16	Active Pit	24295	0.00
2019-06-25 04:00	1	9041.00	Oil Based Mud	9.4	10	N/A	N/A	72/16	Active Pit	24295	0.00
2019-06-26 04:00	1	14920.00	Oil Based Mud	9.7	13	N/A	N/A	72/14	Active Pit	24295	0.00

Equipment and Service Data

Run No.	Tool	Serial Number	Measurement	Sensor Offset (ft)	Bit Offset (ft)	Max O.D. (in)	Min I.D. (in)
1	AutoTrak Curve Steering Unit	14473397	Near Bit VSS	5.93	6.73	7.000	4.330
1	AutoTrak Curve Steering Unit	14473397	Near Bit Inclination	5.93	6.73	7.000	4.330
1	AutoTrak Curve MWD	12168856	Gamma (single)	2.73	12.90	7.000	3.250
1	AutoTrak Curve MWD	12168856	Directional (mag)	12.27	22.44	7.000	3.250

Service and Tool Mnemonics

Mnemonic	Name	Description
ATC SU	AutoTrak Curve SU	Auto Trak Curve Steering Unit
ATC MWD	AutoTrak Curve MWD	Auto Trak Curve MWD
ATC LCPM	AutoTrak Curve LCPM	Auto Trak Curve LCPM

Comments

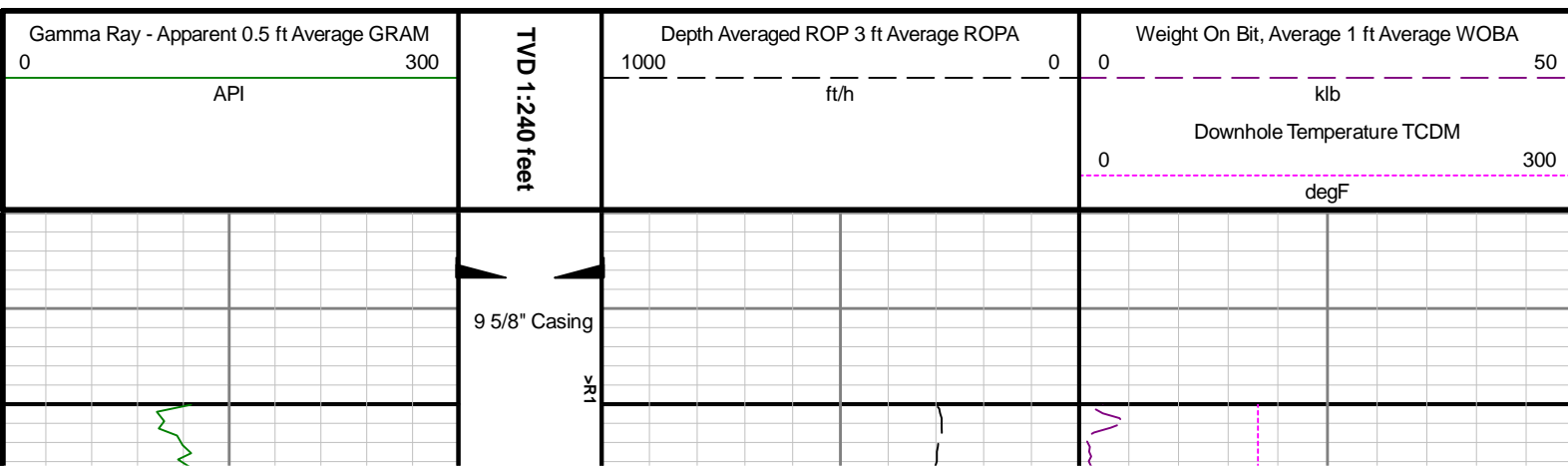
- 1 Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes. Due to the lack of control by Baker Hughes, depth calibrations and measurements could not be independently verified.
- 2 Baker Hughes LWD run 1 utilized a 6.75 inch NaviGamma service (Directional and Gamma Ray) behind a 8.5 inch bit and rotary steerable assembly from 1947 to 17538 feet MD (1947 to 6819 feet TVD).
- 3 The Gamma Ray Apparent (GRAM) data is presented 0 to 300 API, per the customer's request.

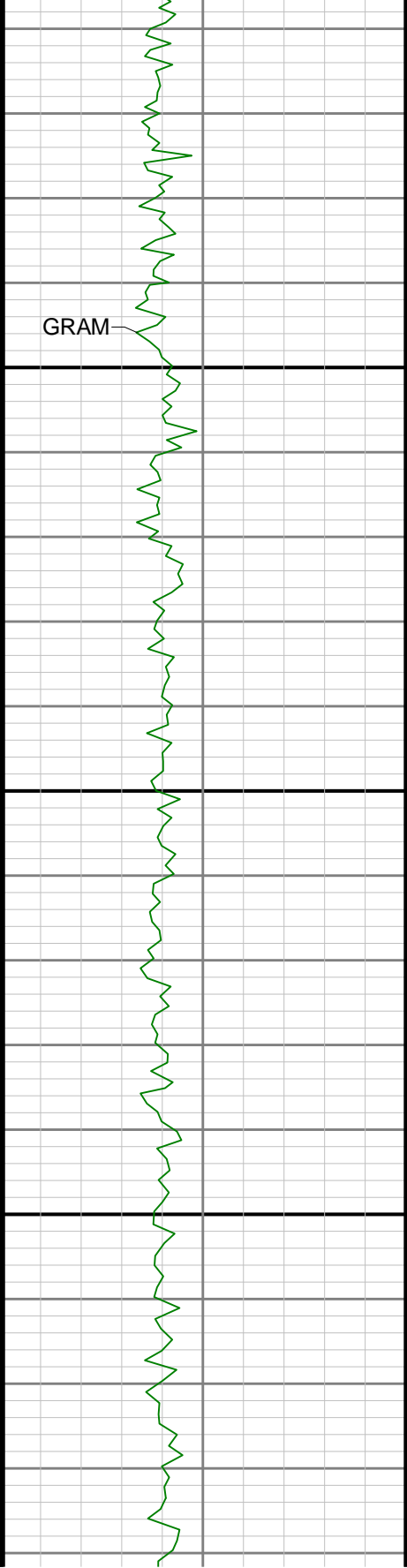
Remarks

Number	Depth (ft)	Hole Section (in)	Run No.	Remark
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Curve Mnemonics

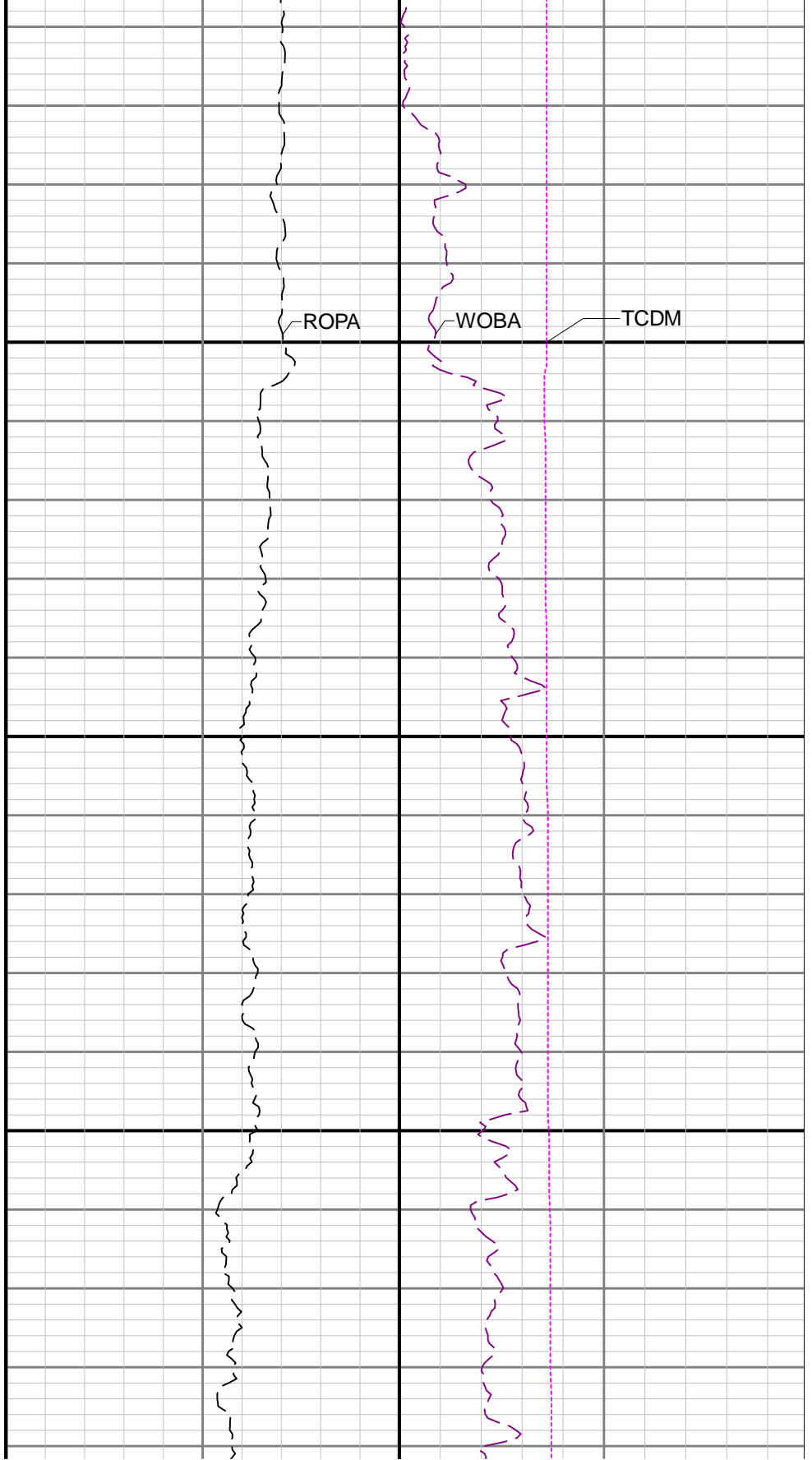
Presented Curves	Description	Units
ROPA	Depth Averaged ROP 3 ft Average	ft/h
WOBA	Weight On Bit, Average 1 ft Average	klb
GRAM	Gamma Ray - Apparent - Memory 0.5 ft Average	API
TCDM	Directional Real-Time Survey Temperature	degF

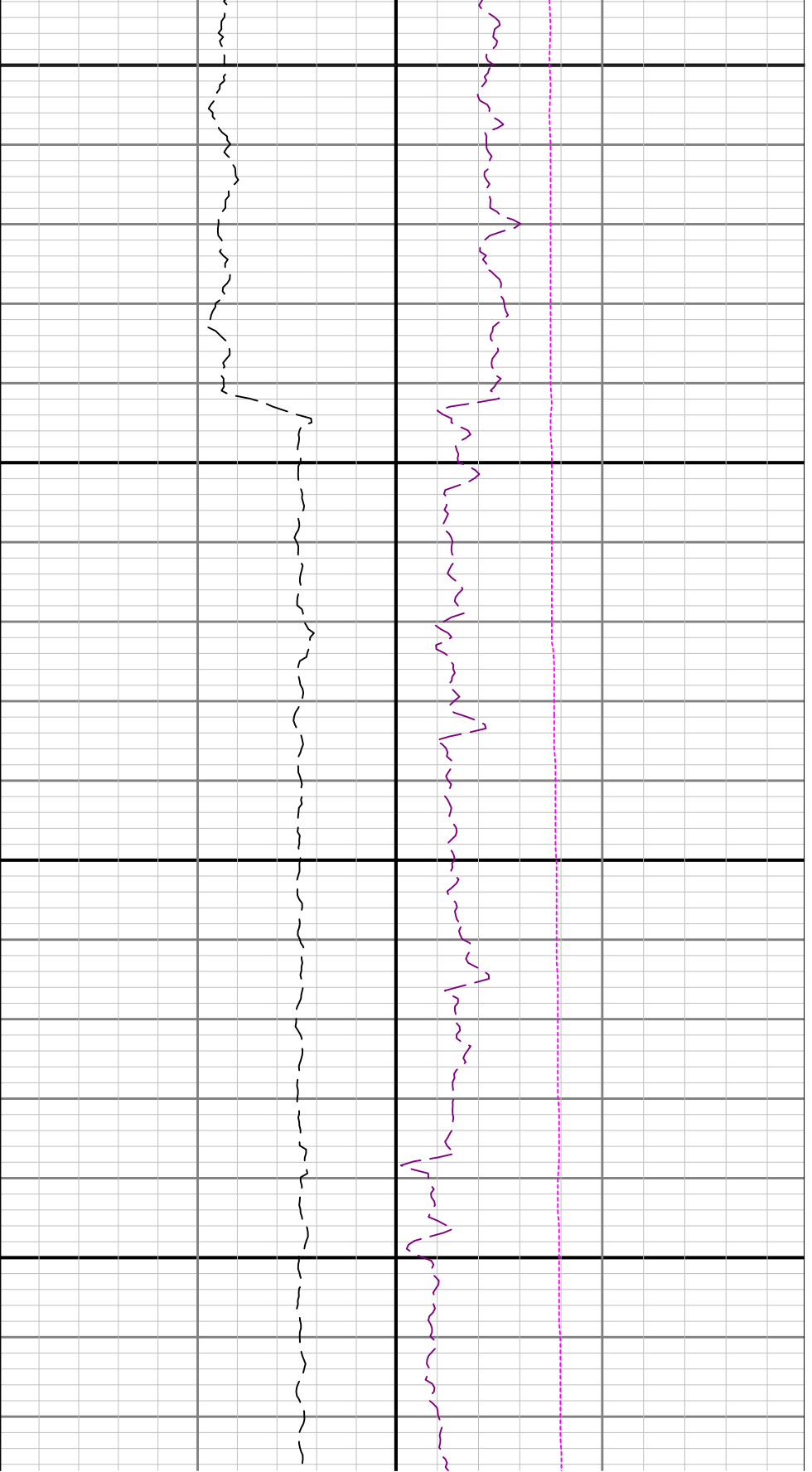




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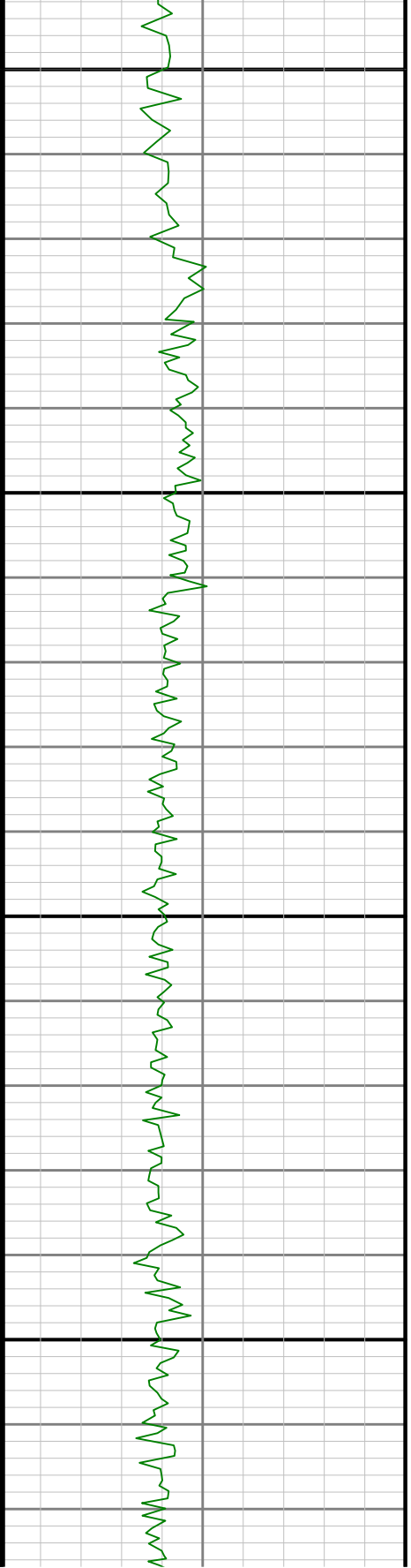
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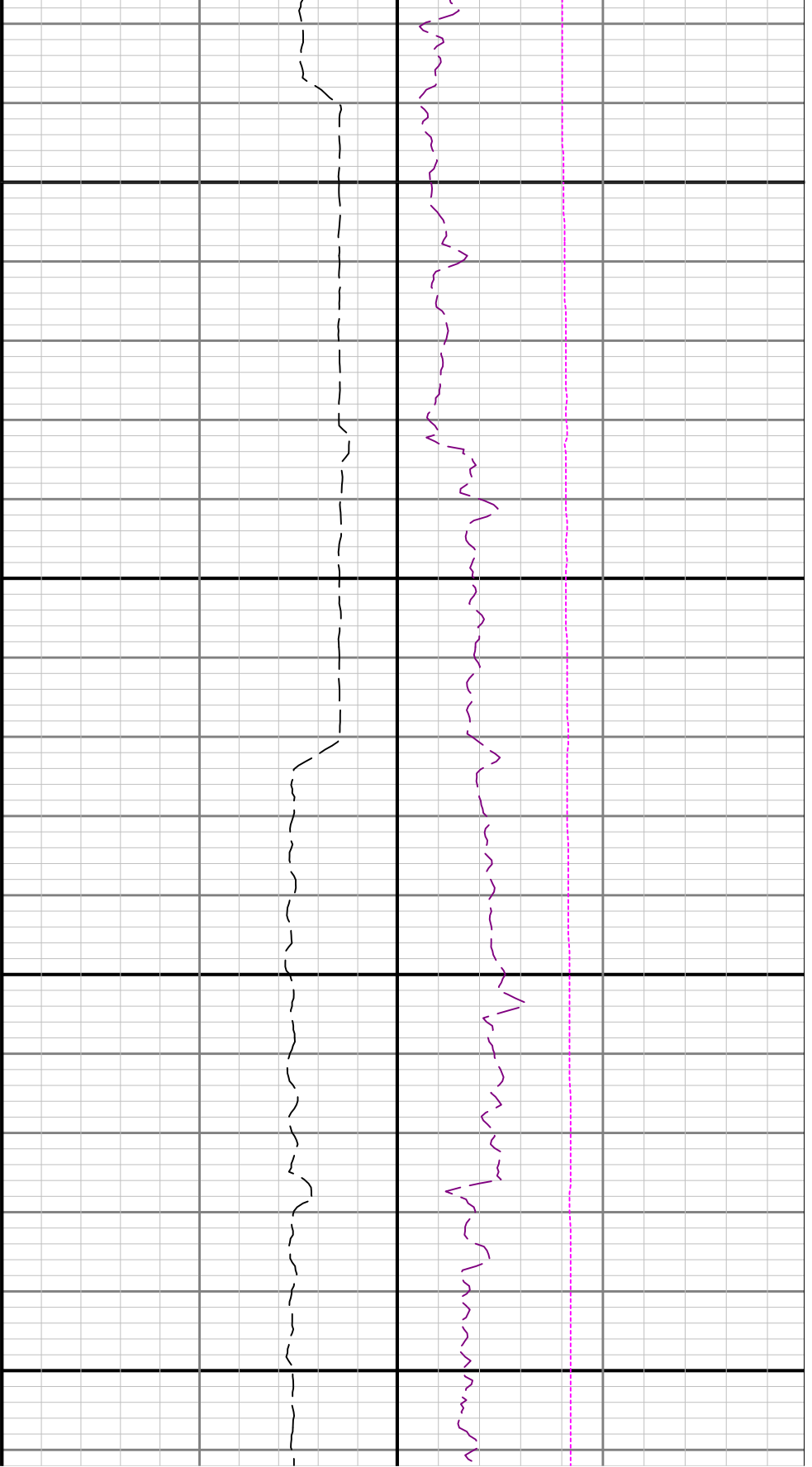




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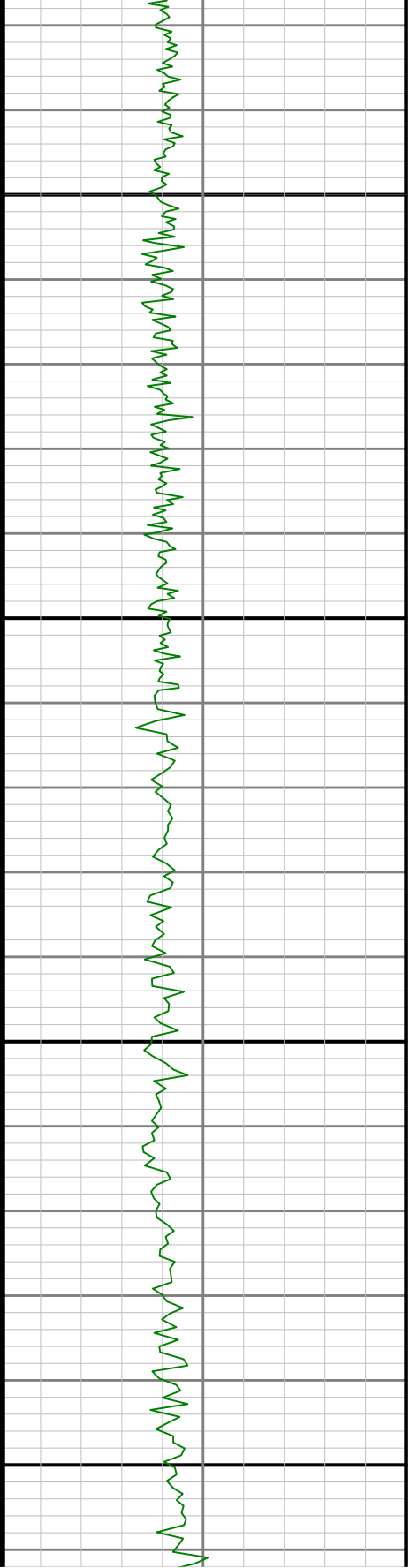
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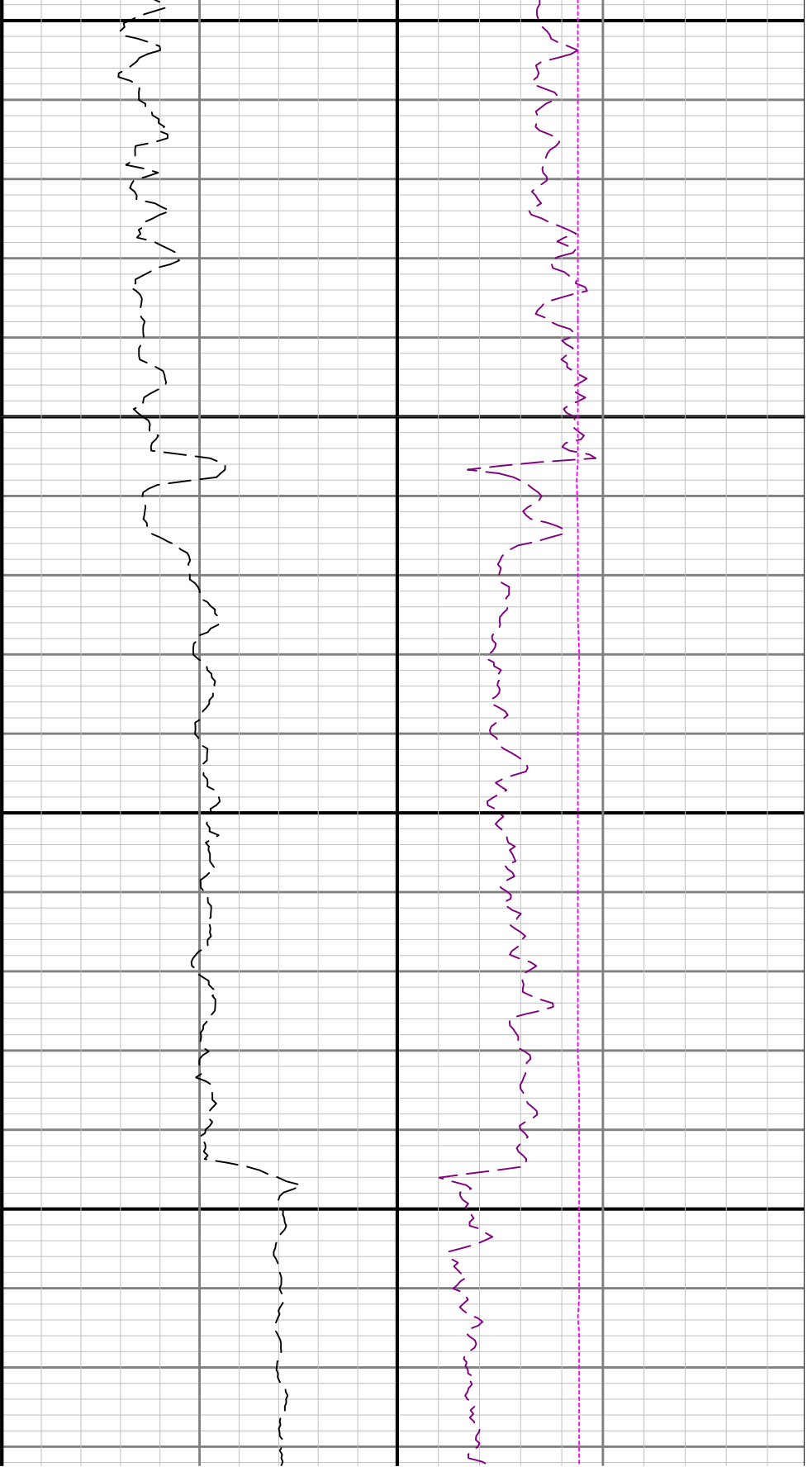




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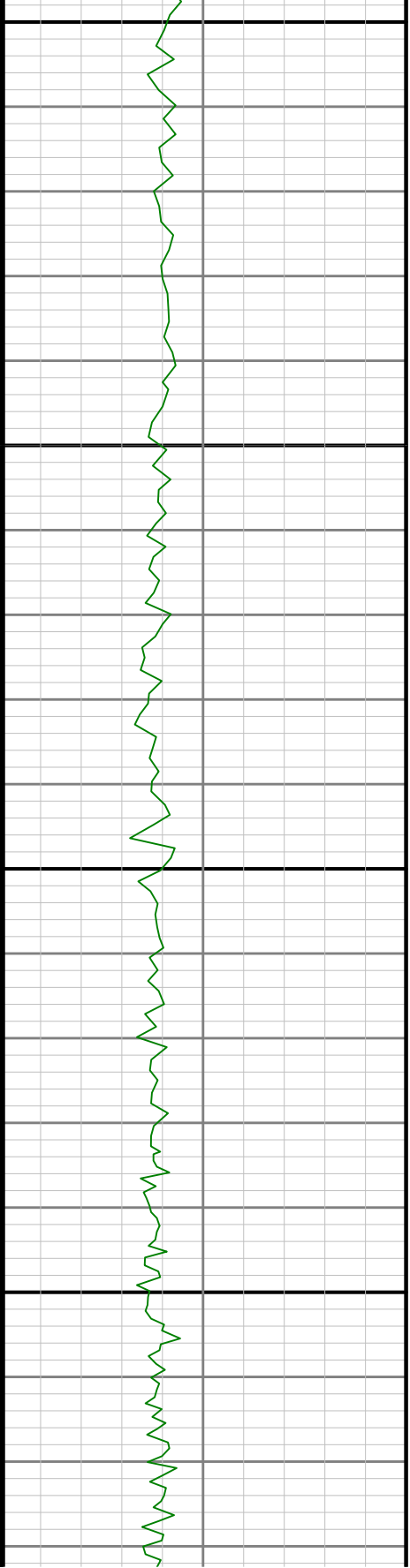
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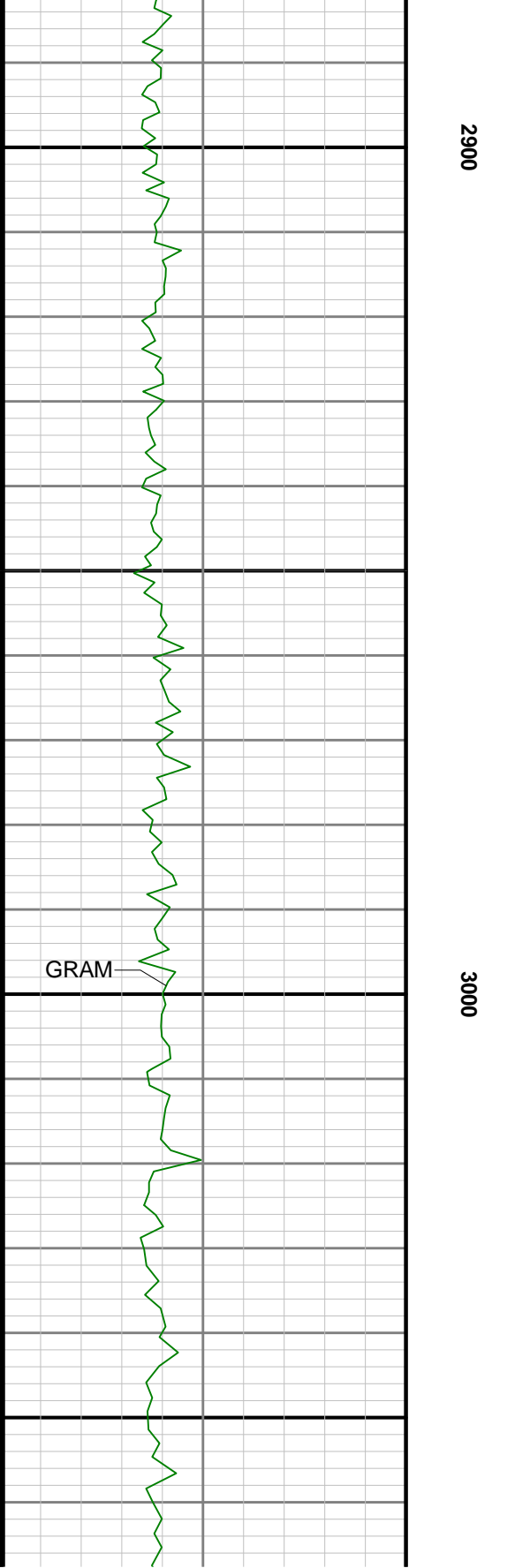
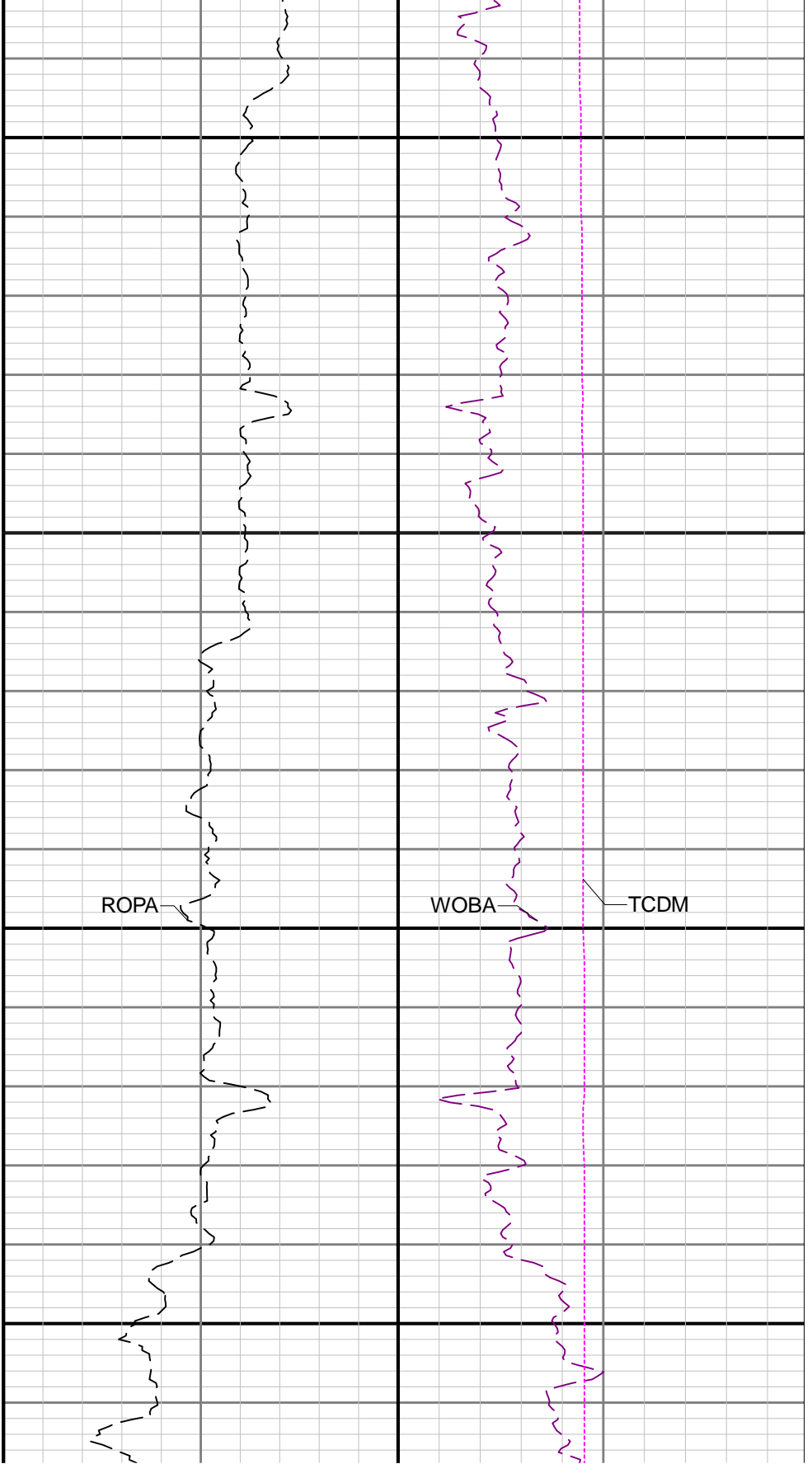


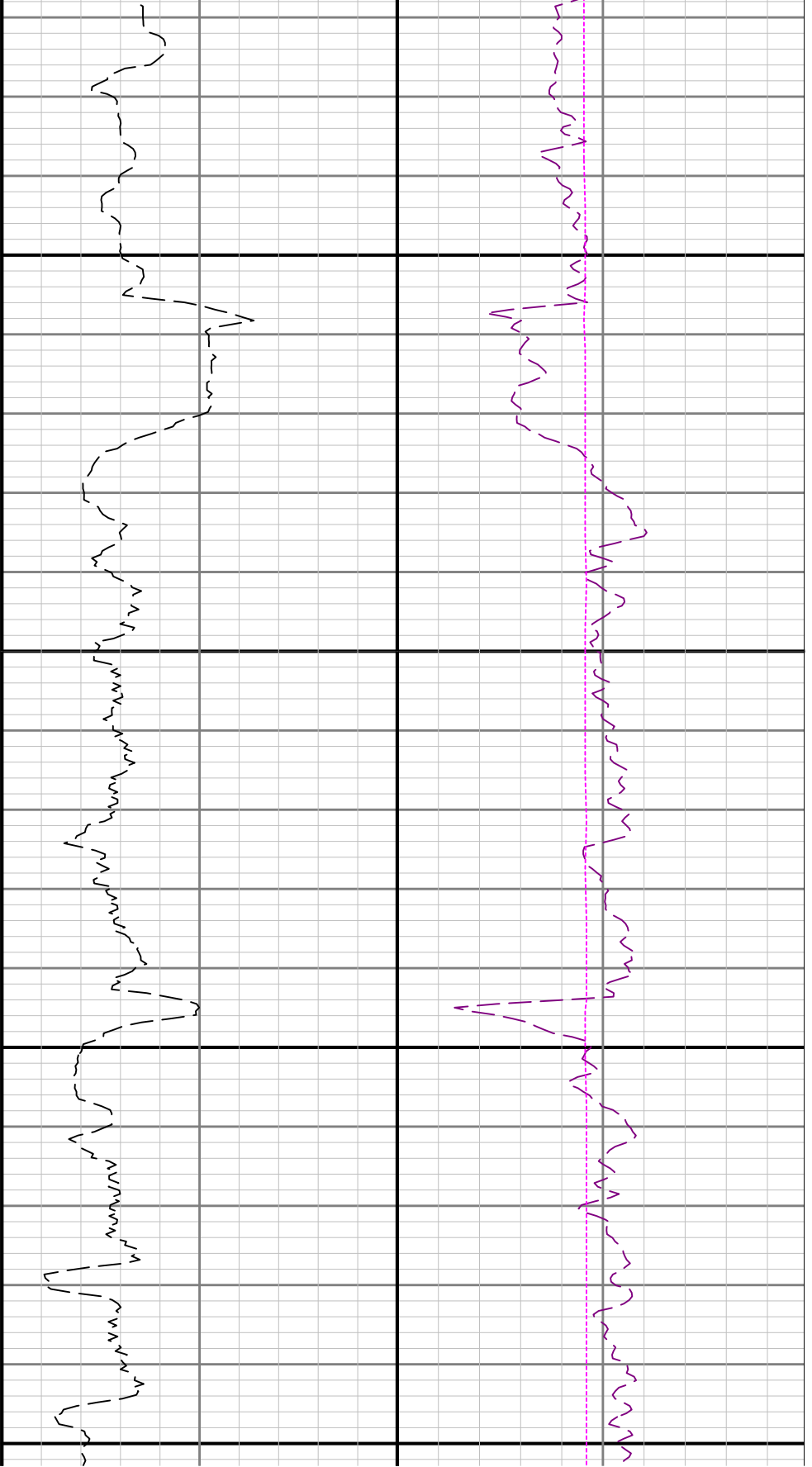


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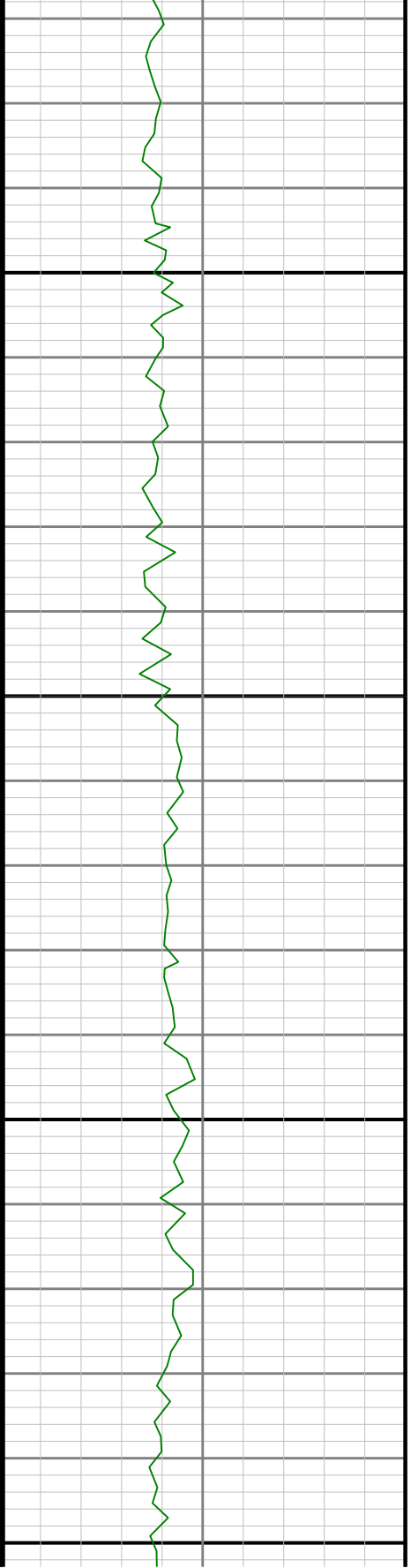


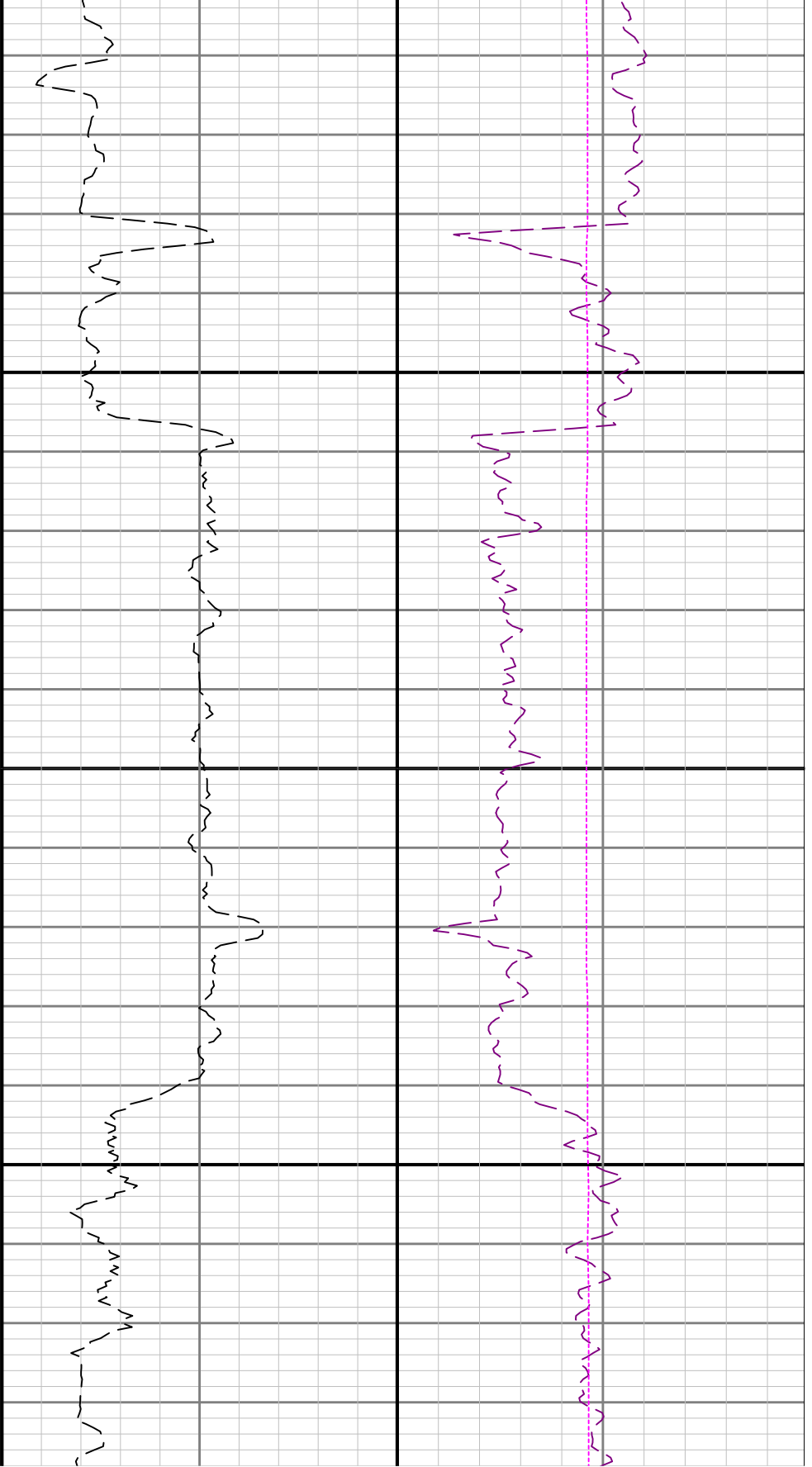




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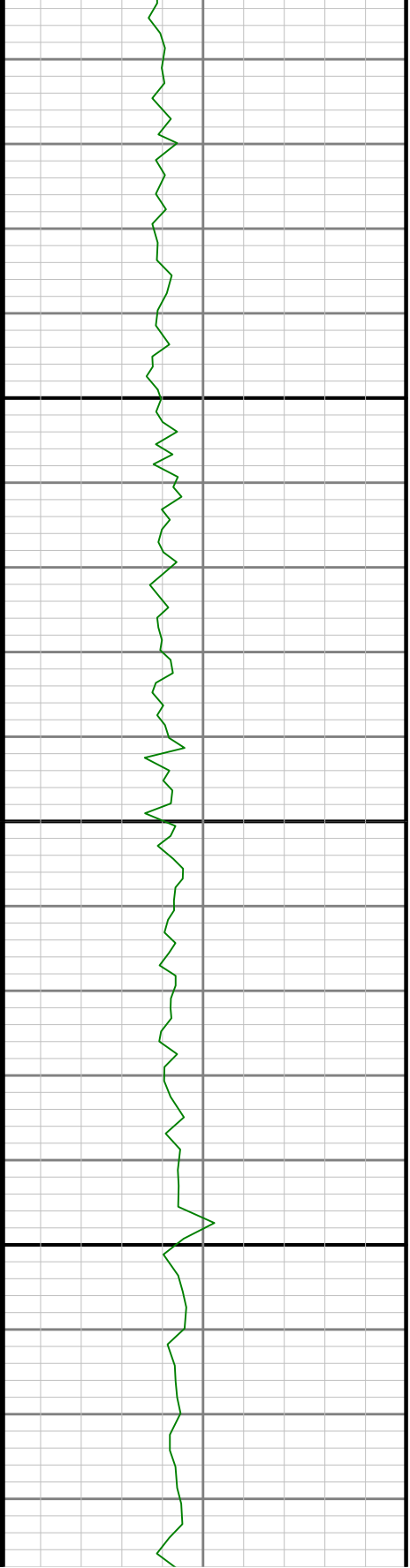
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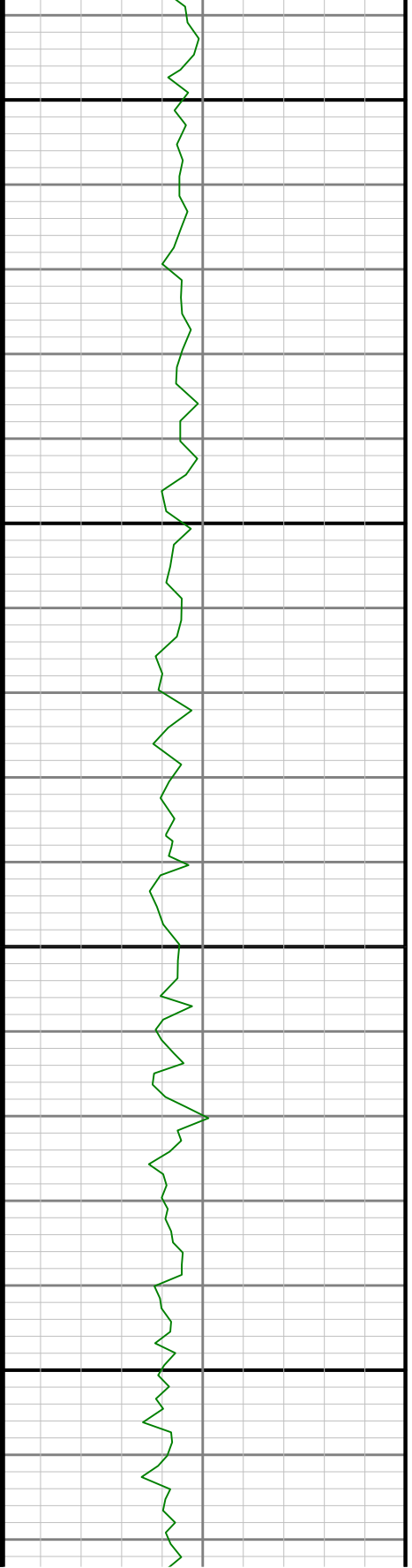
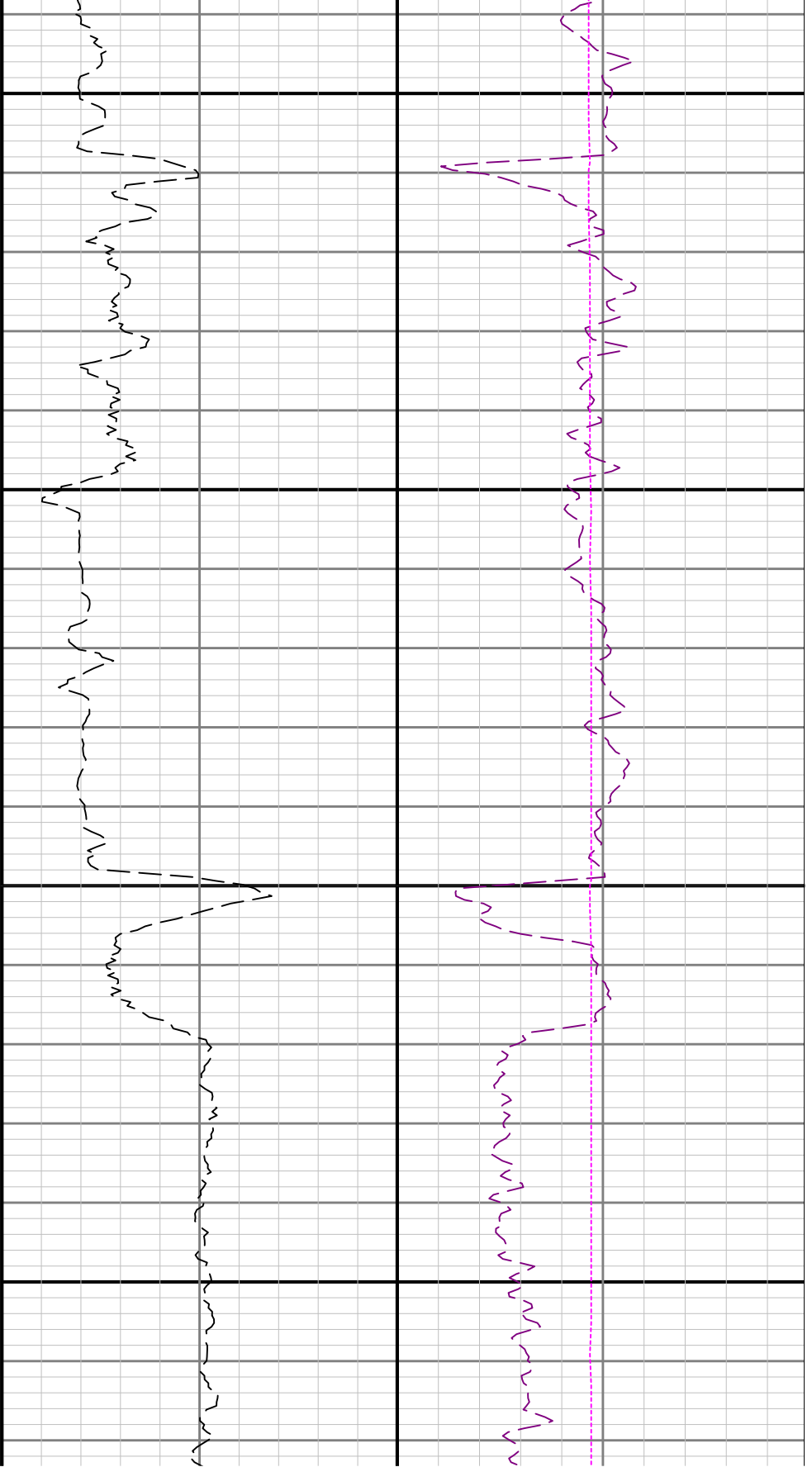


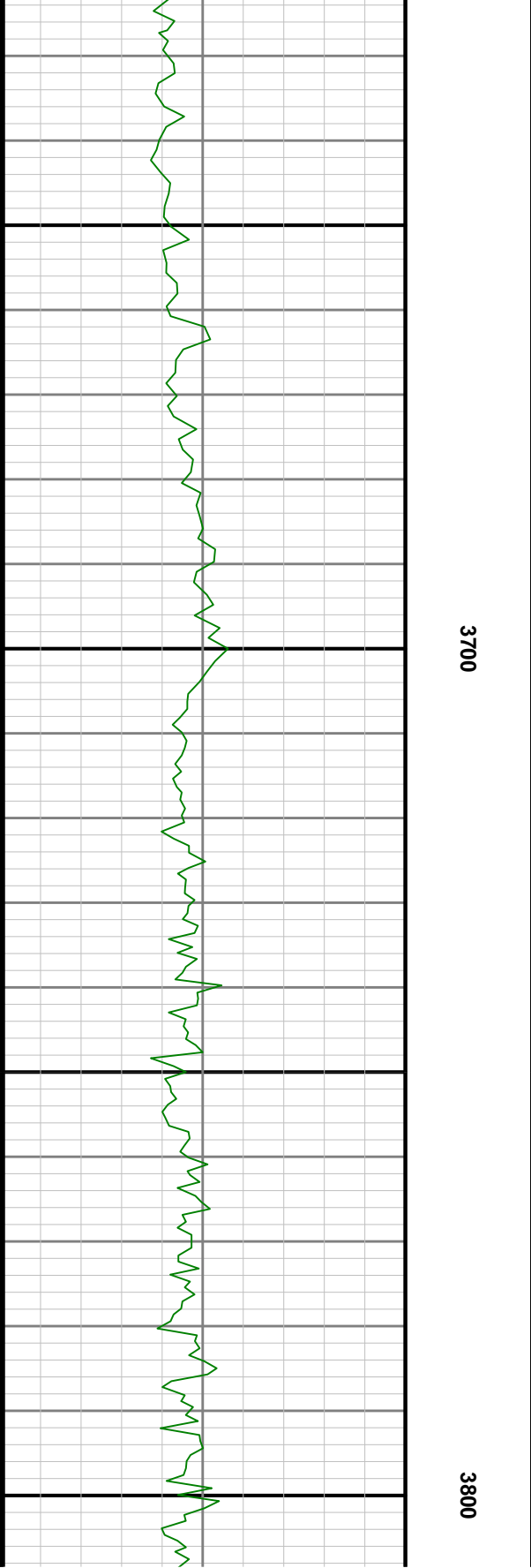


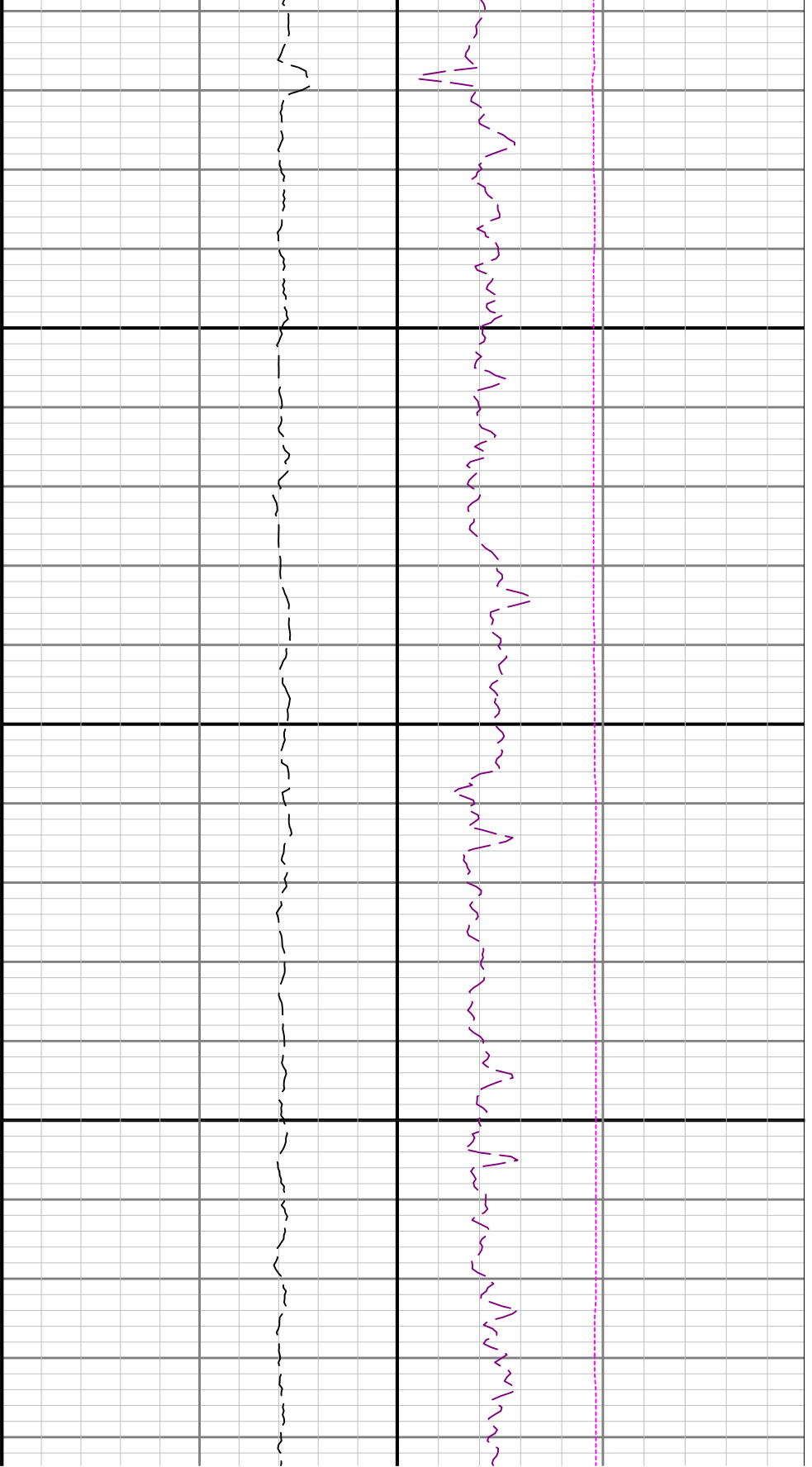
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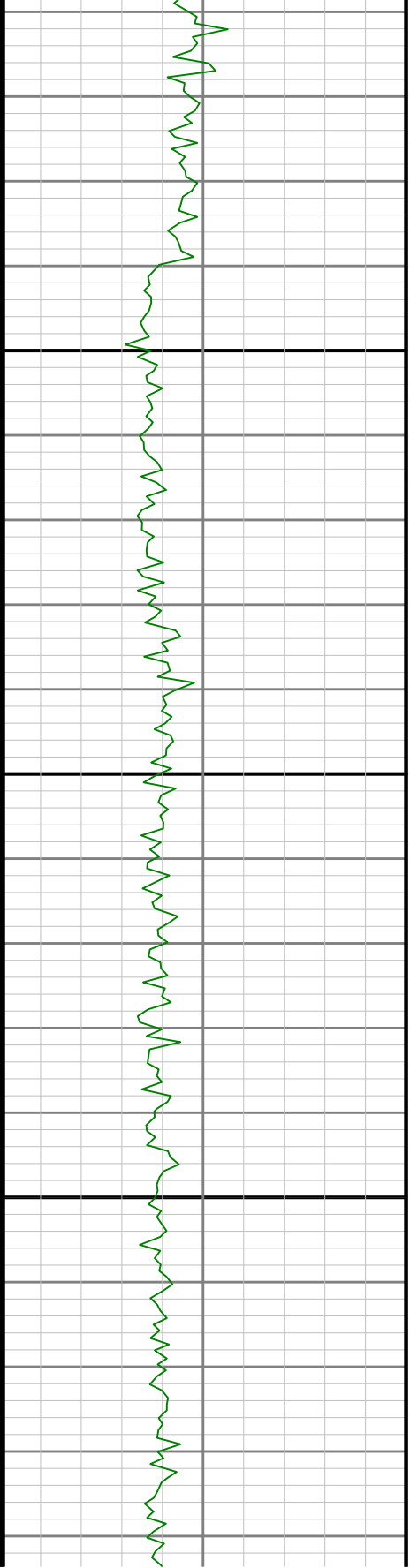


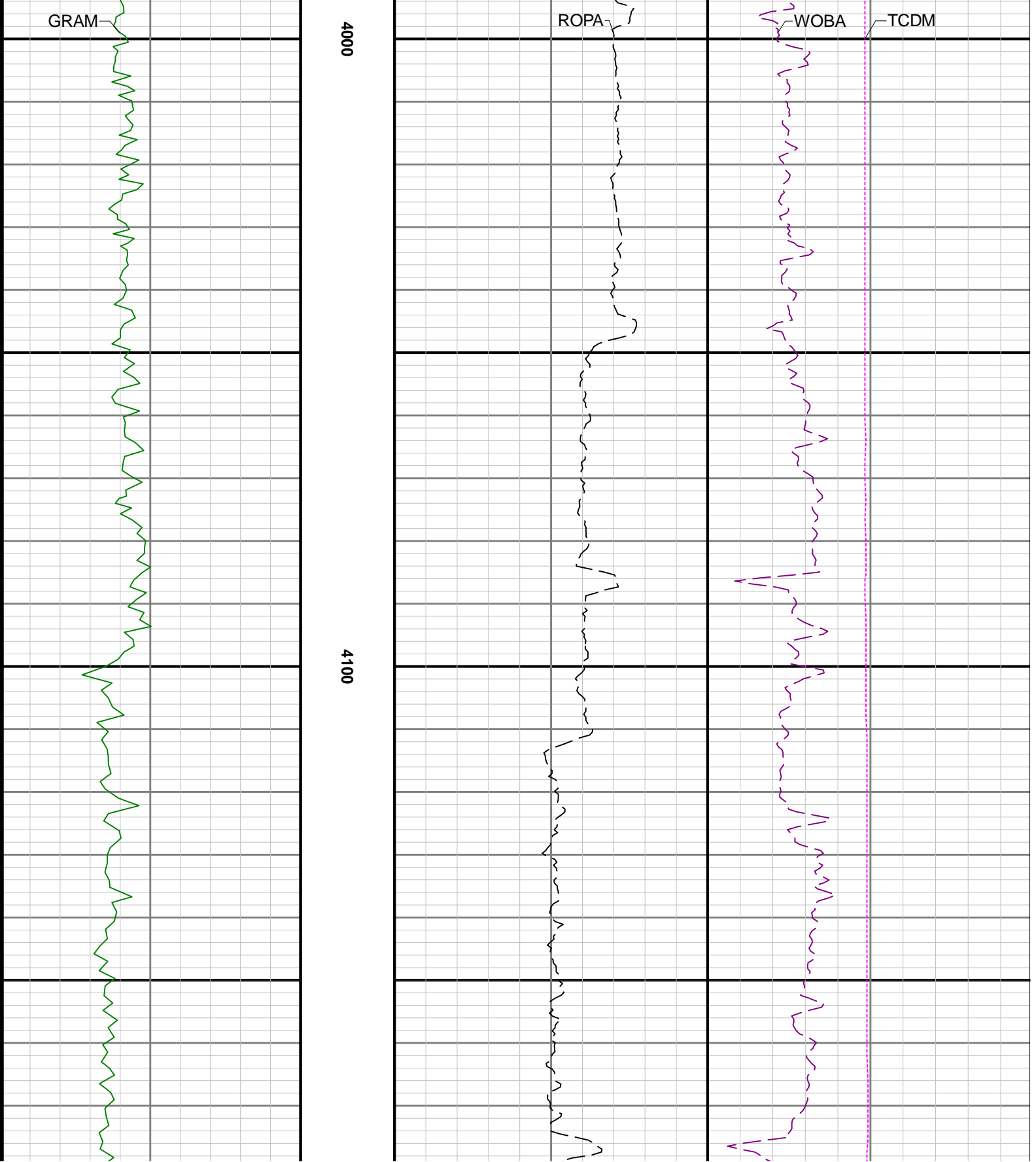


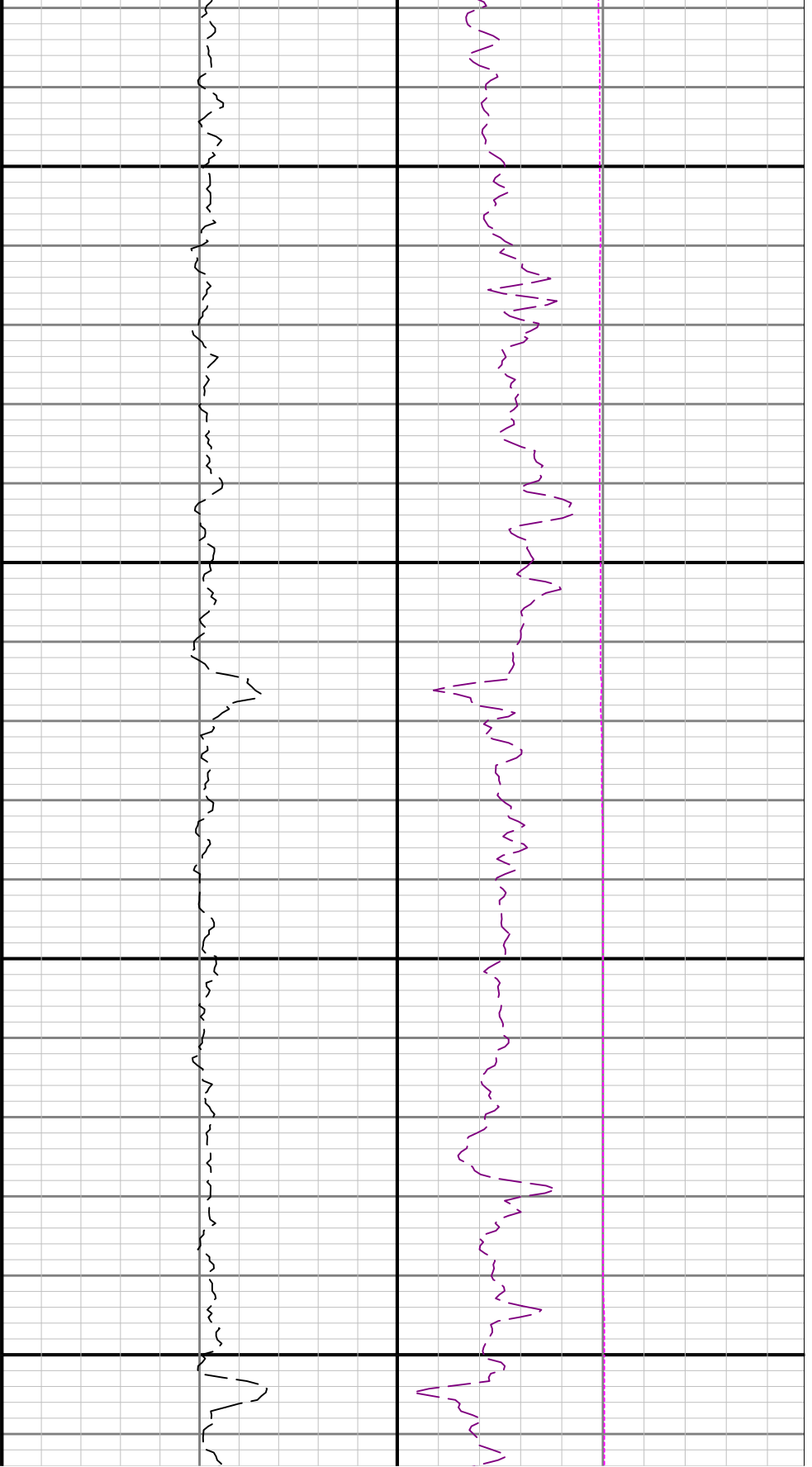




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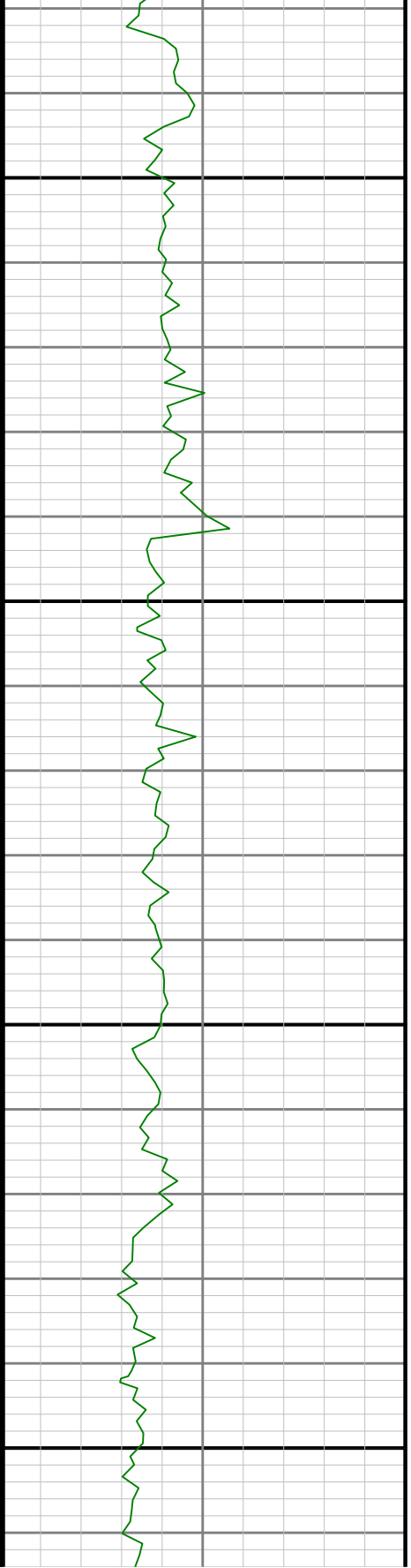


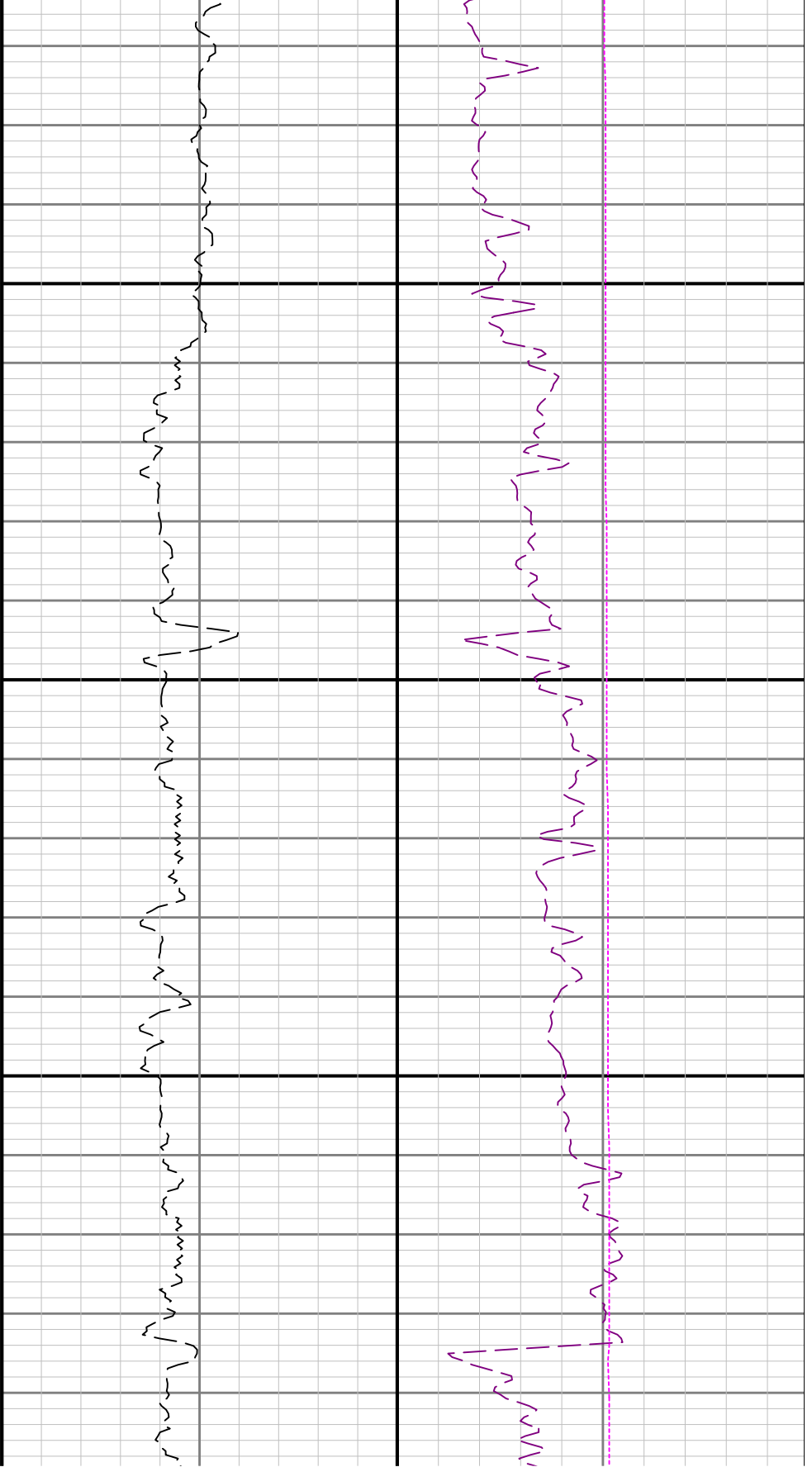




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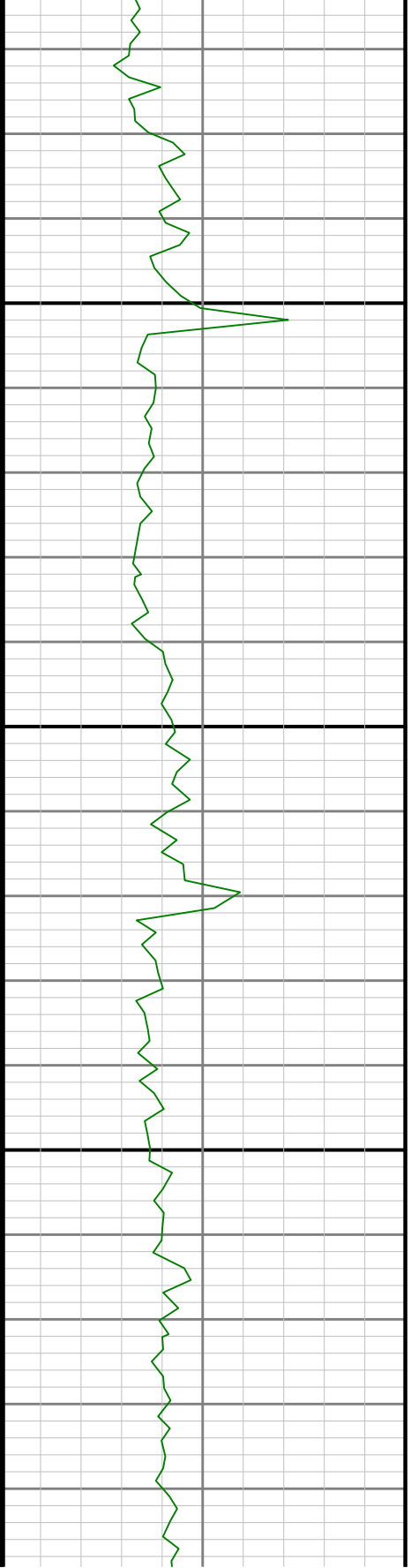
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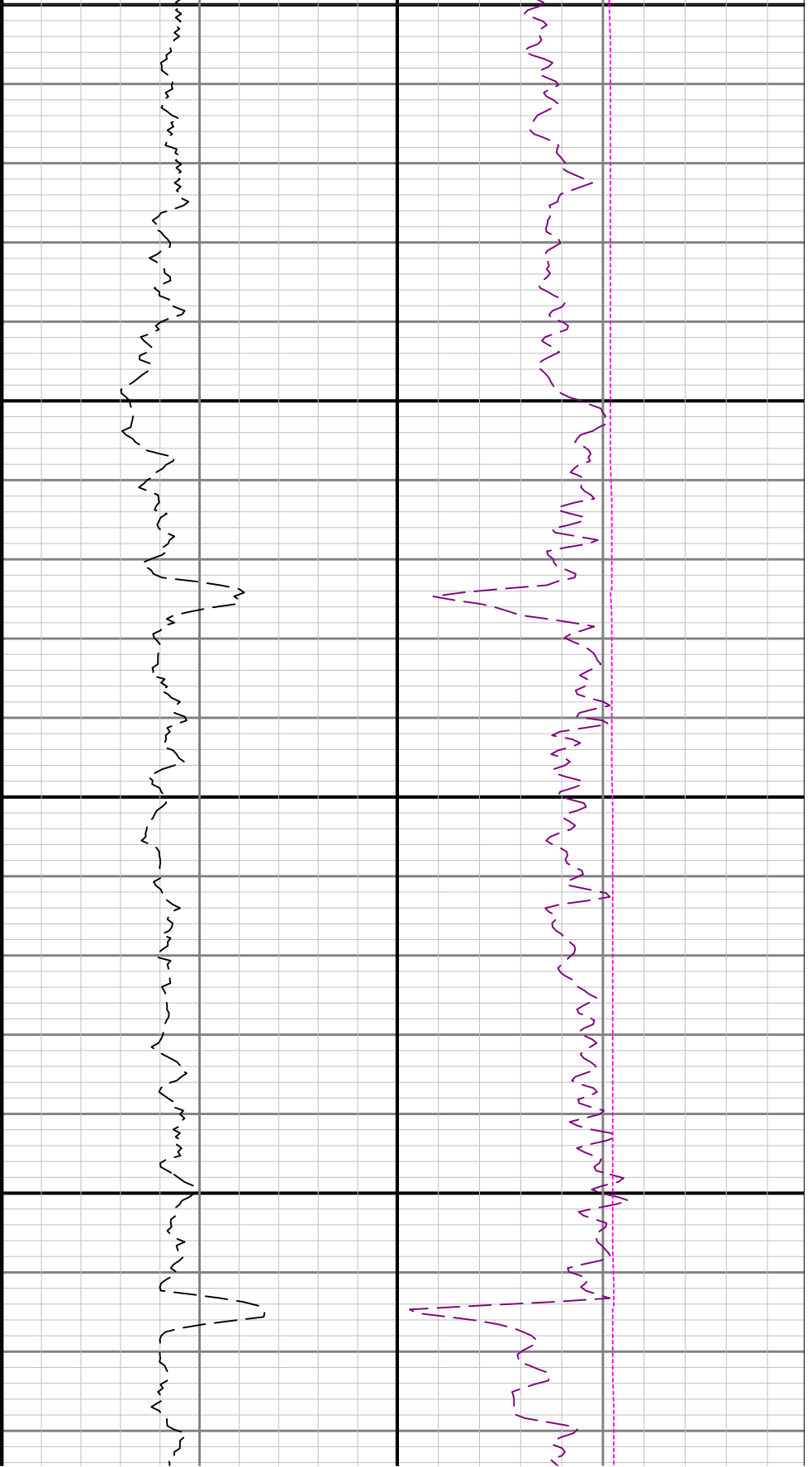




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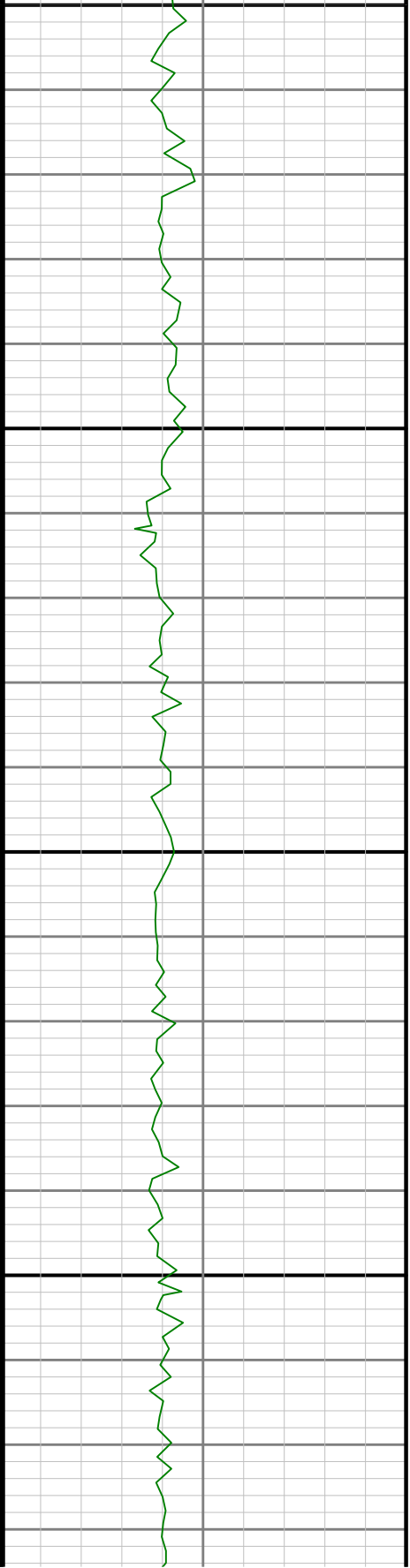
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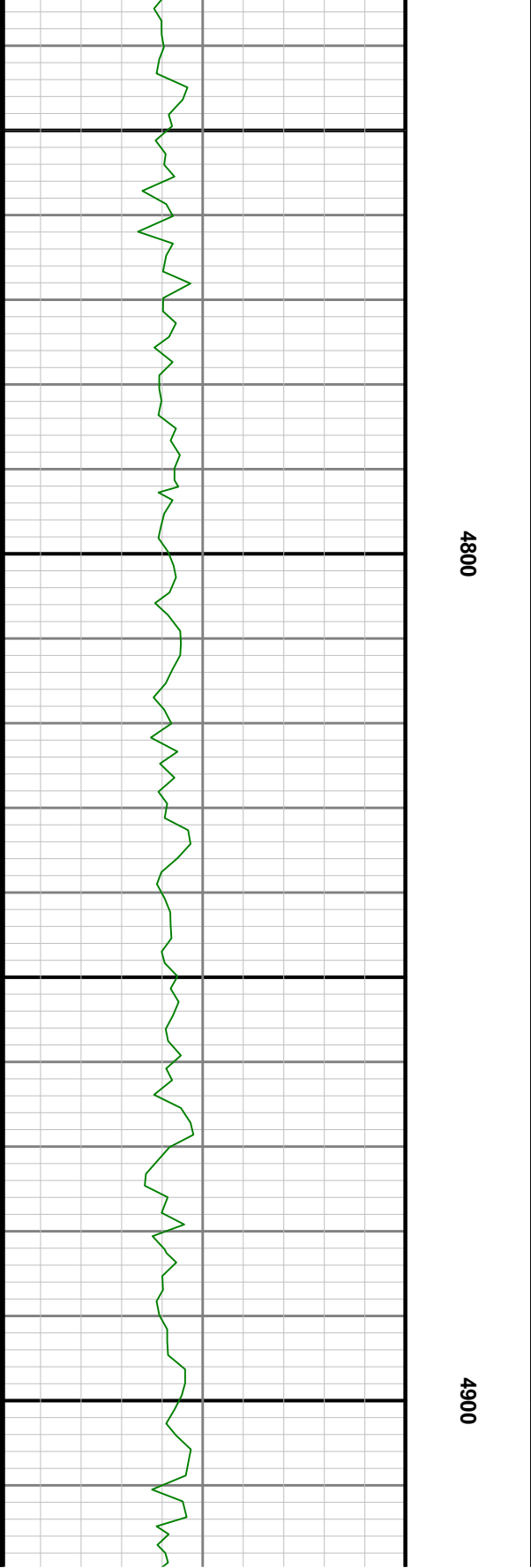
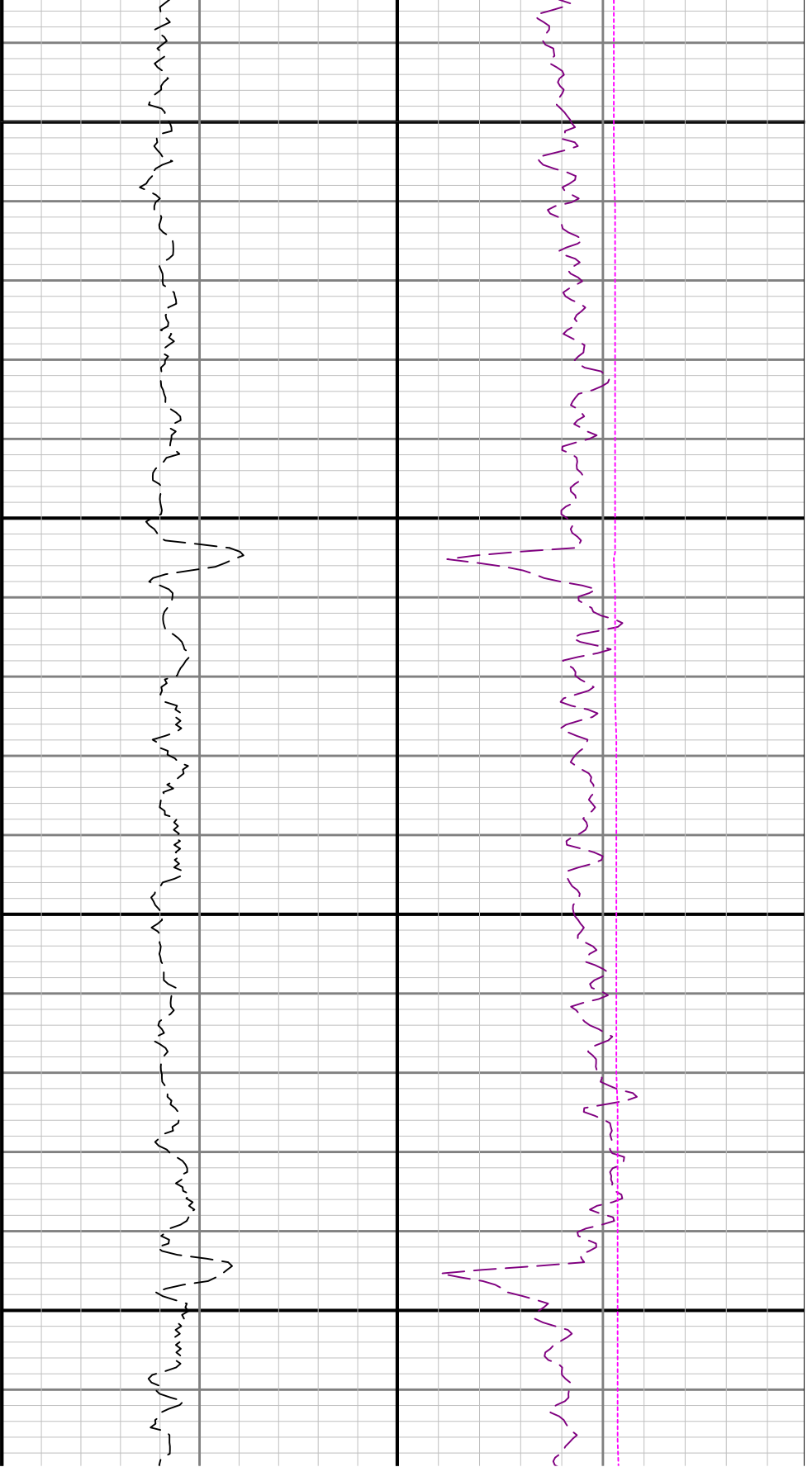


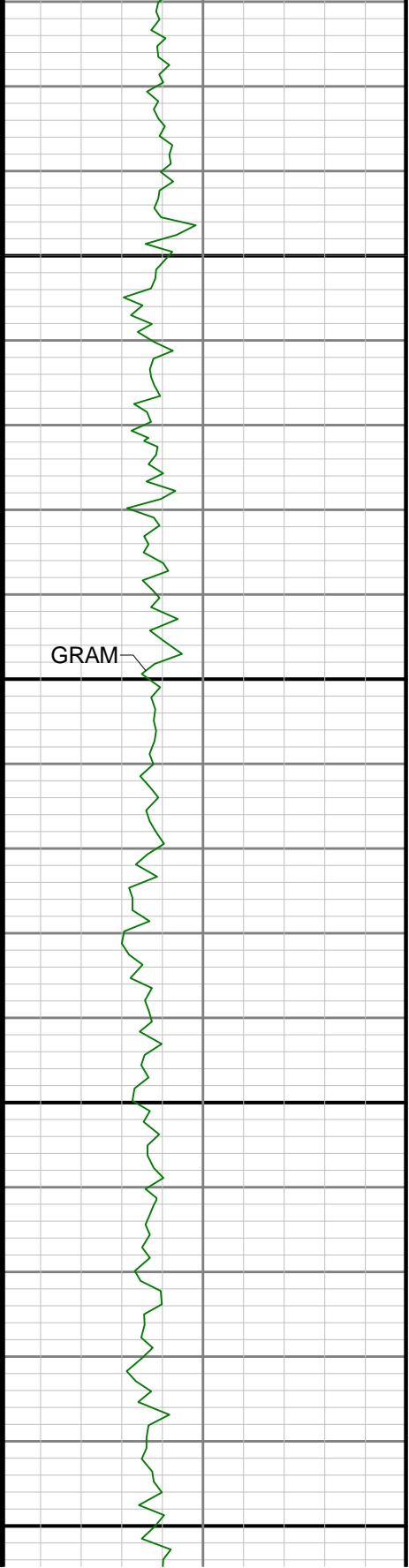


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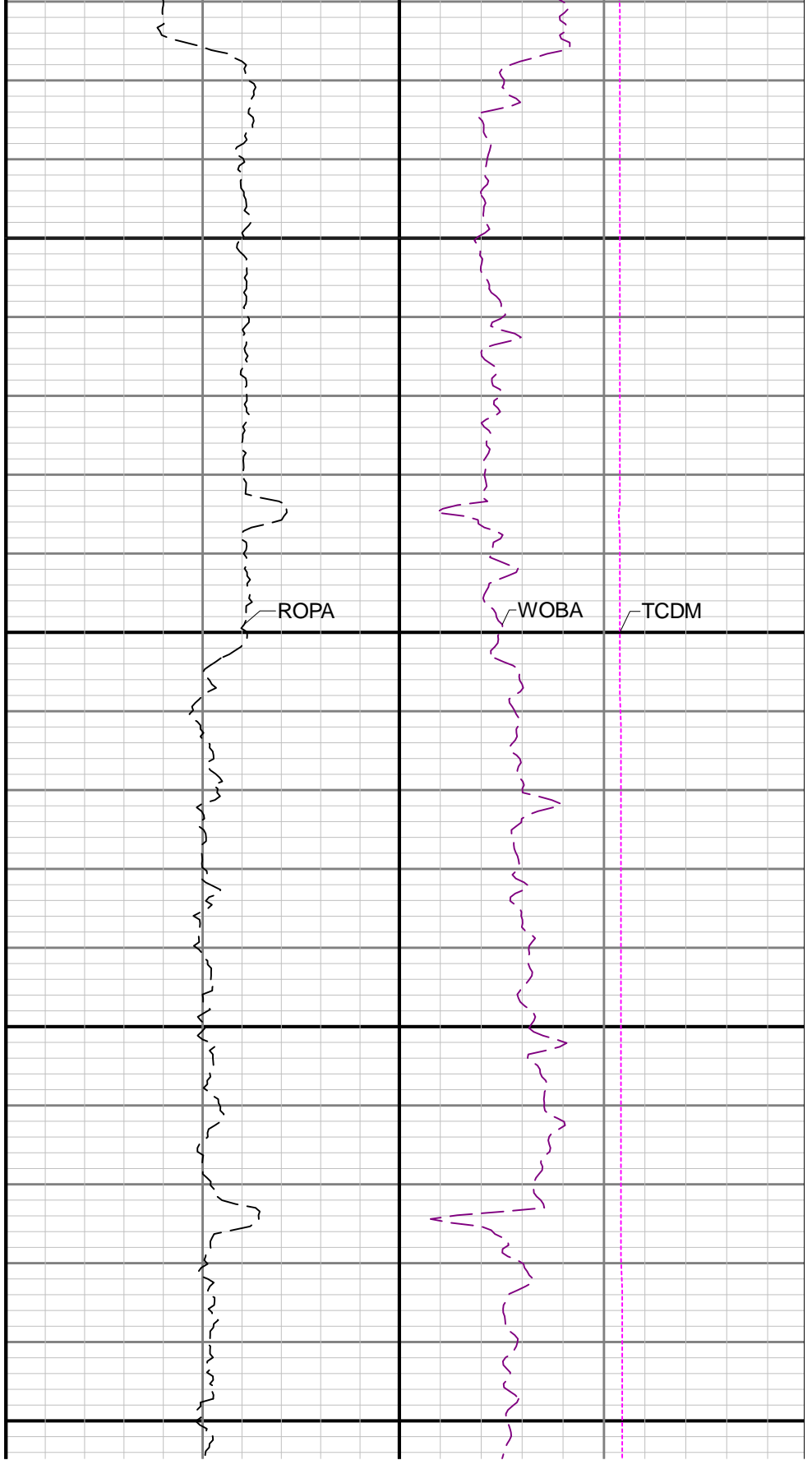


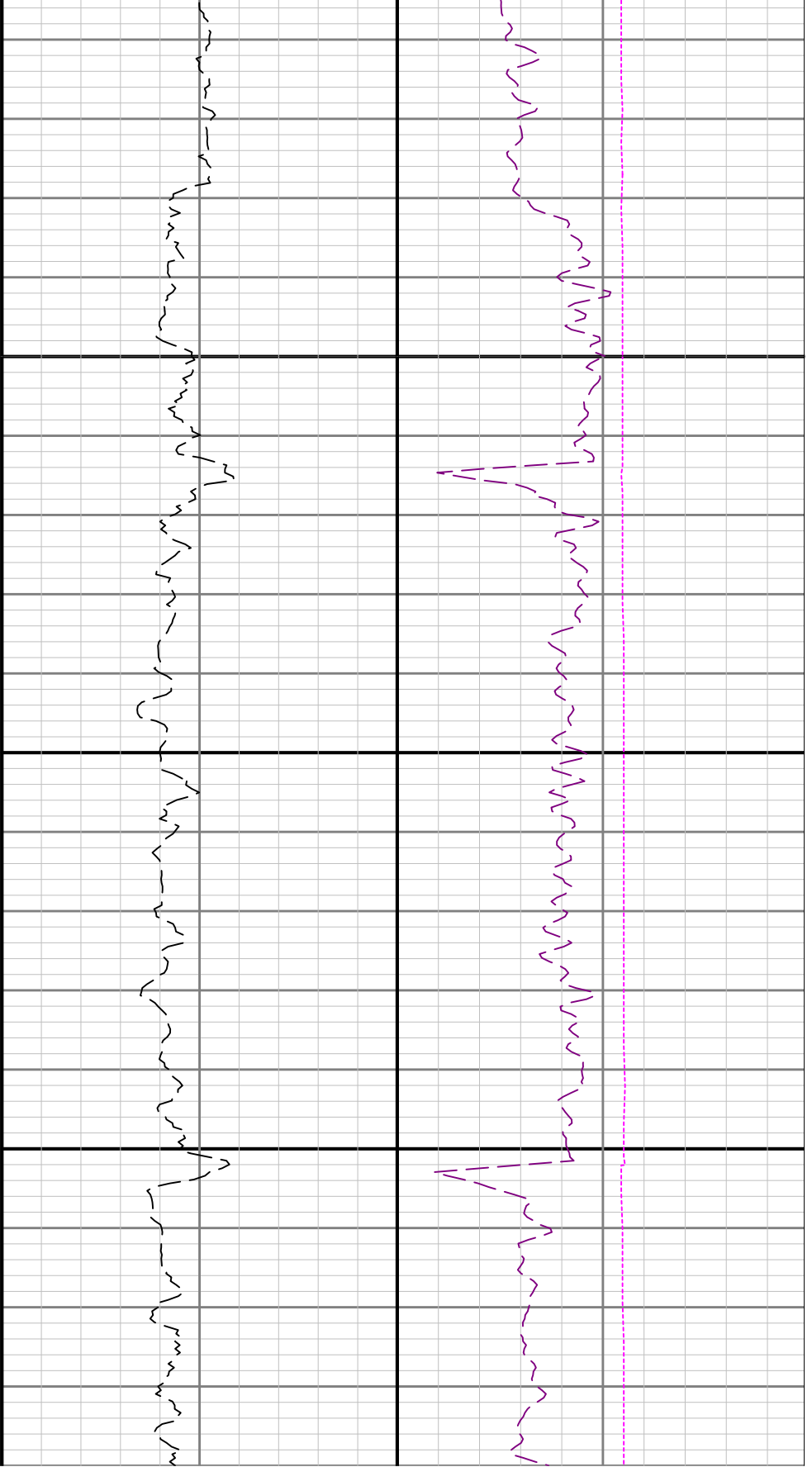




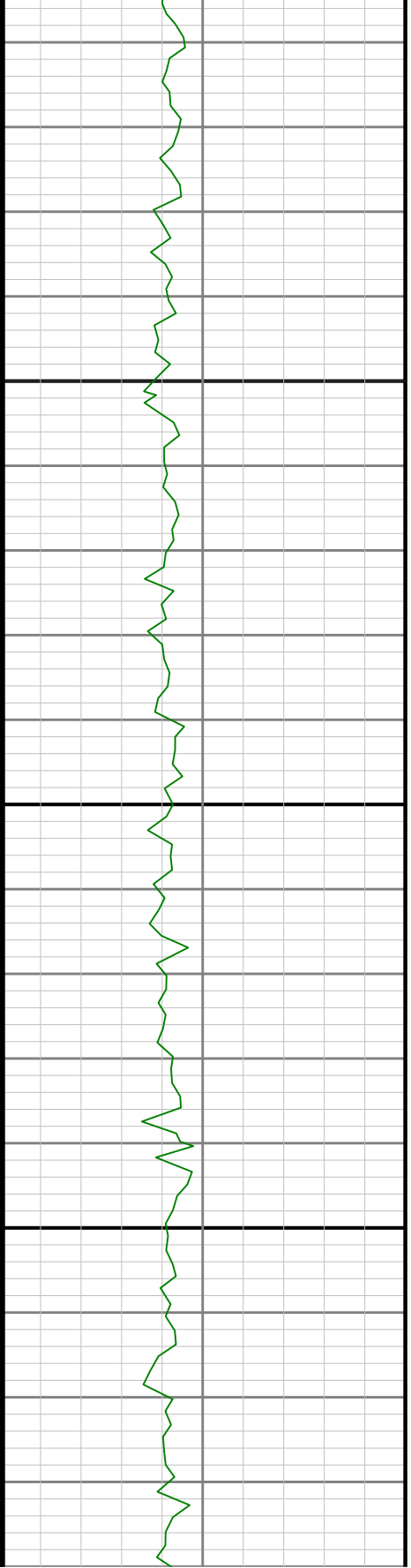
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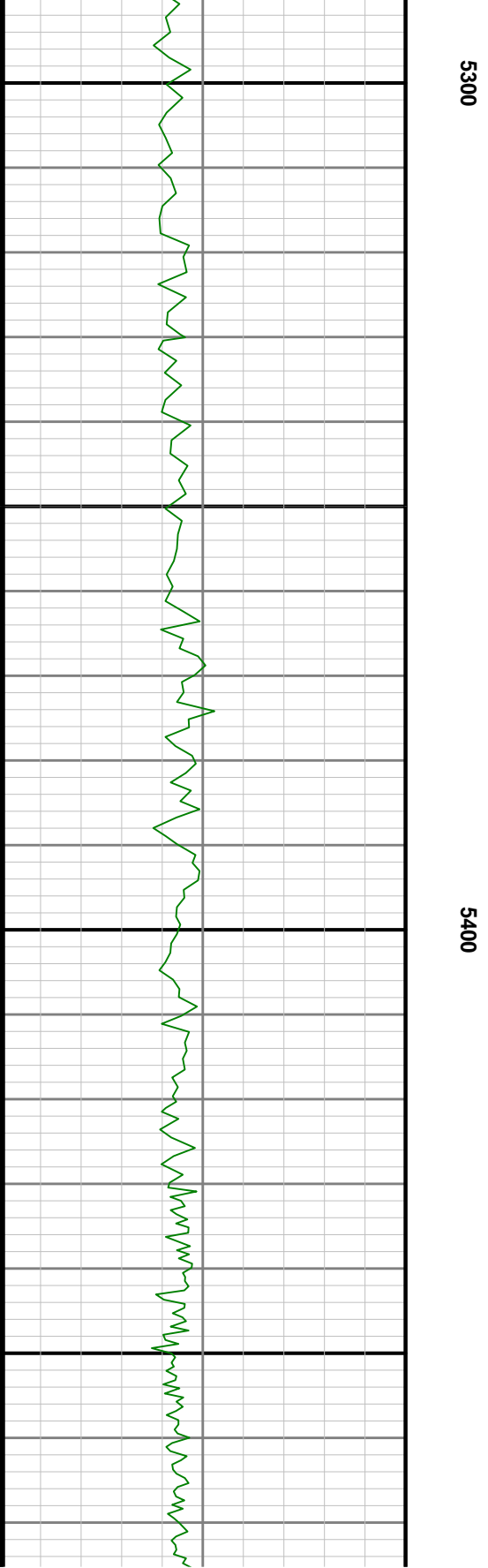
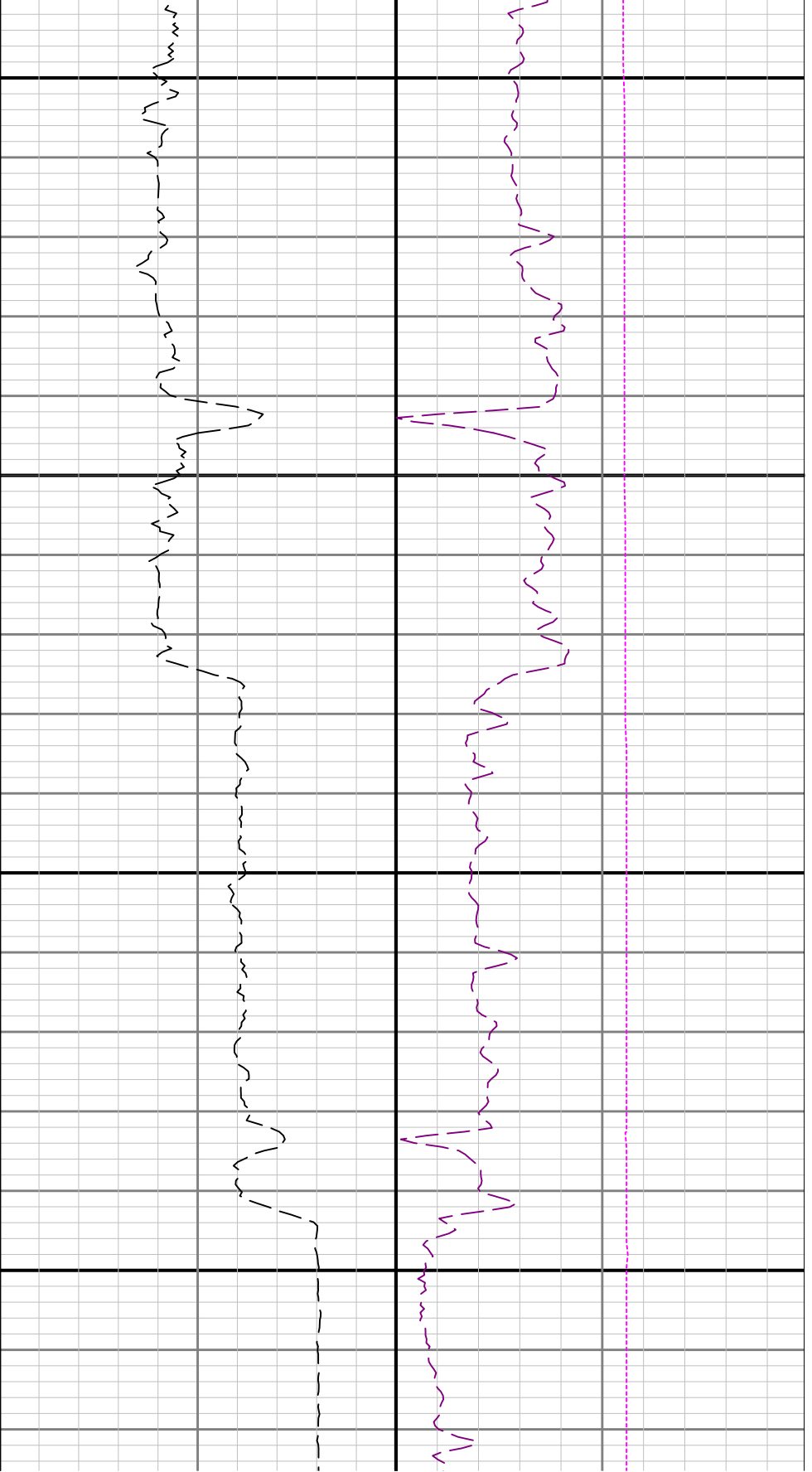
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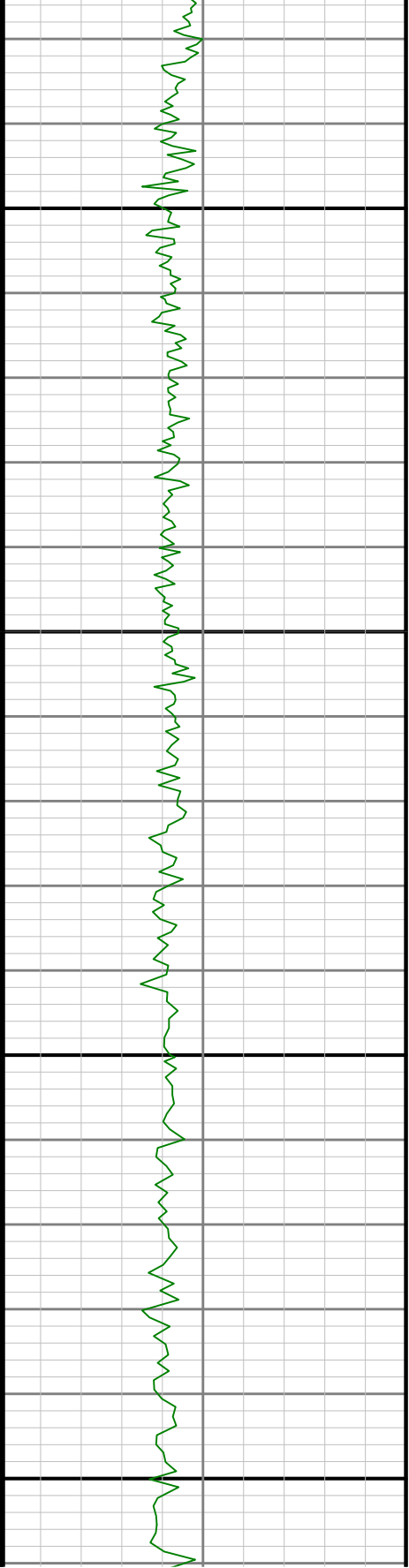
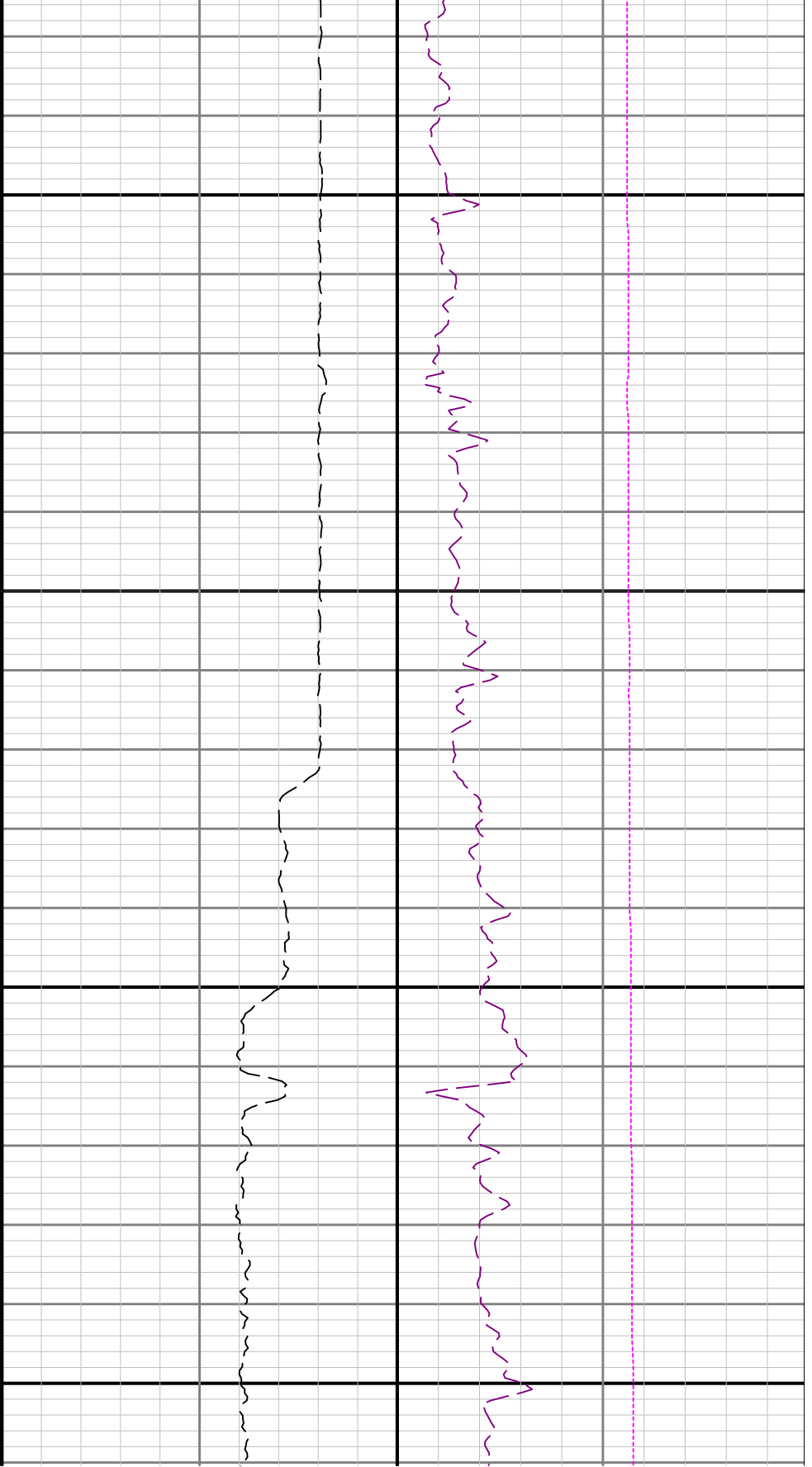


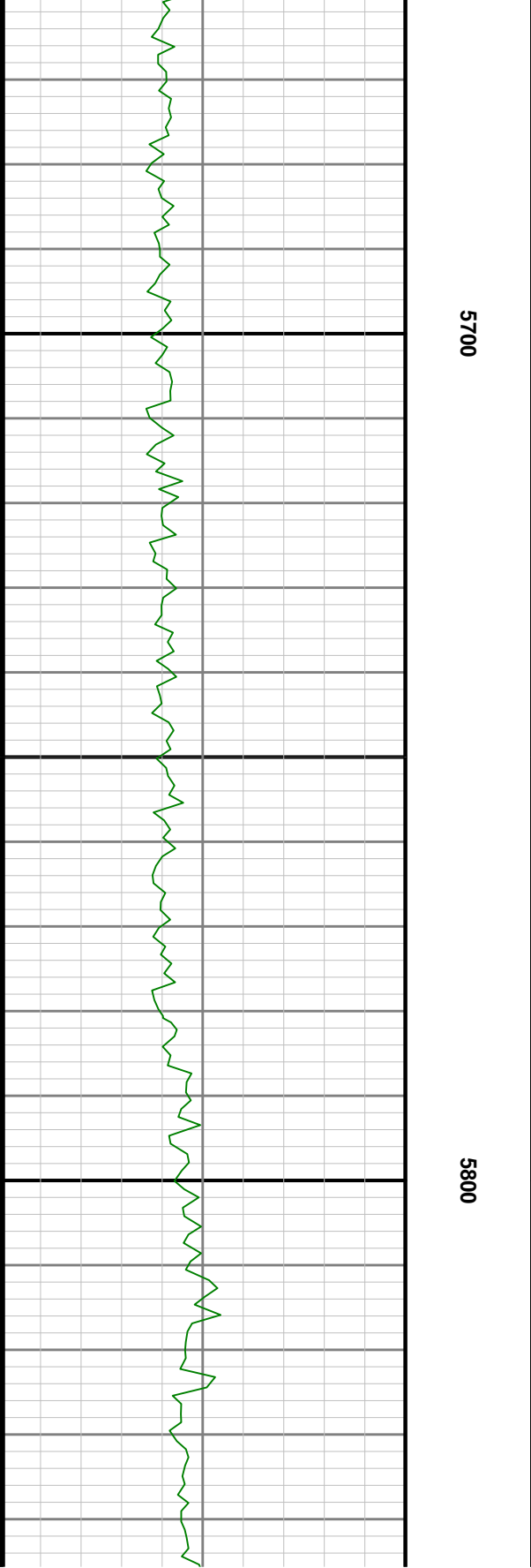
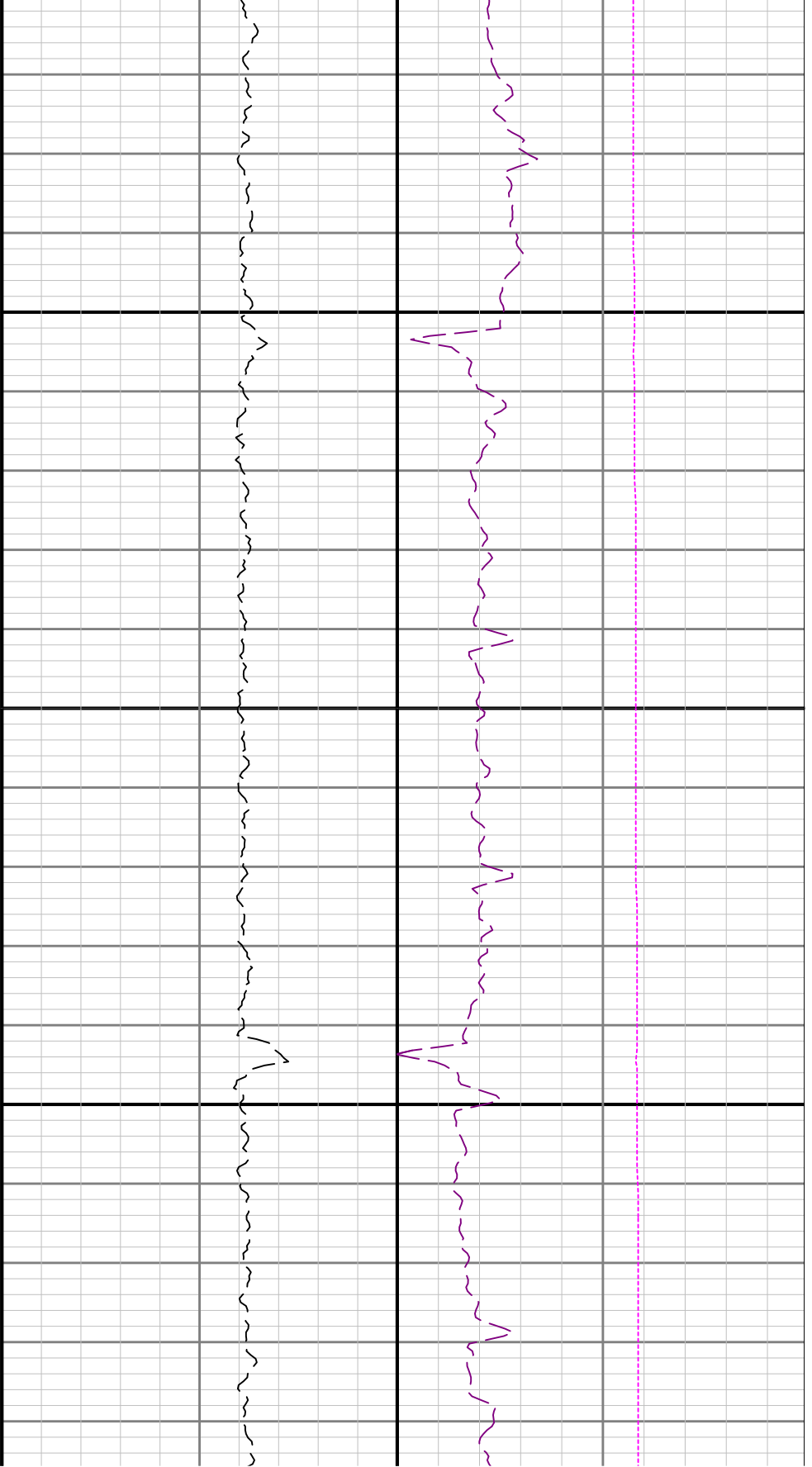


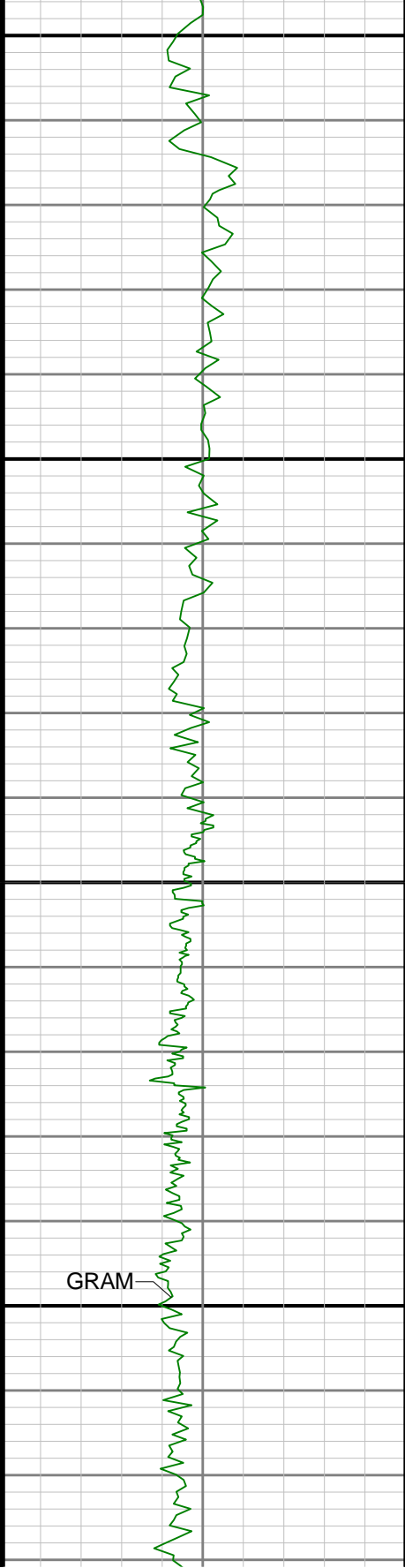
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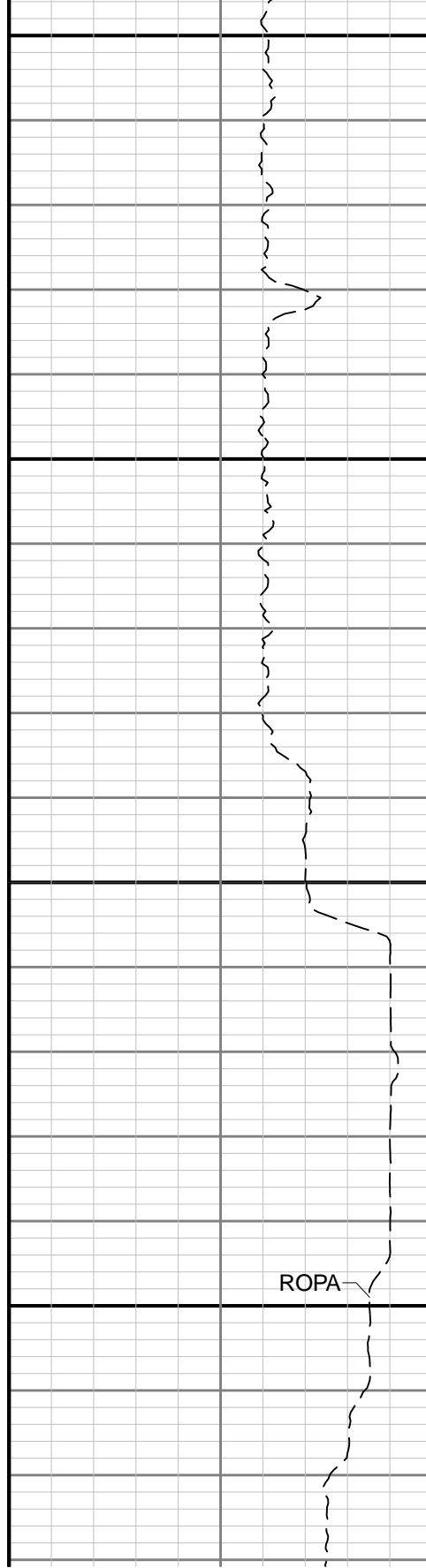




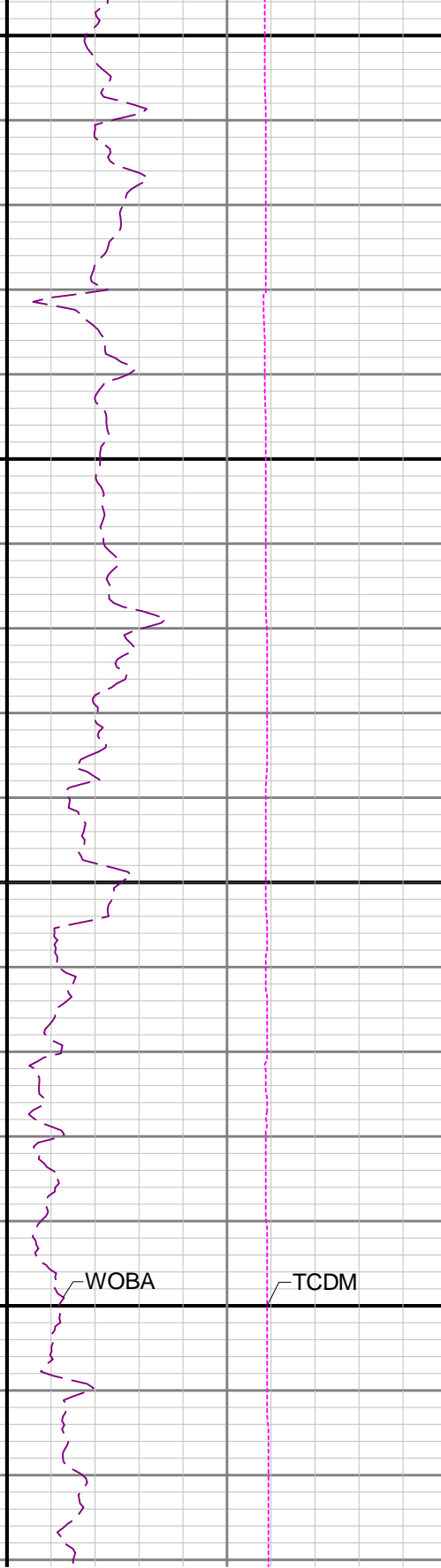
GRAM

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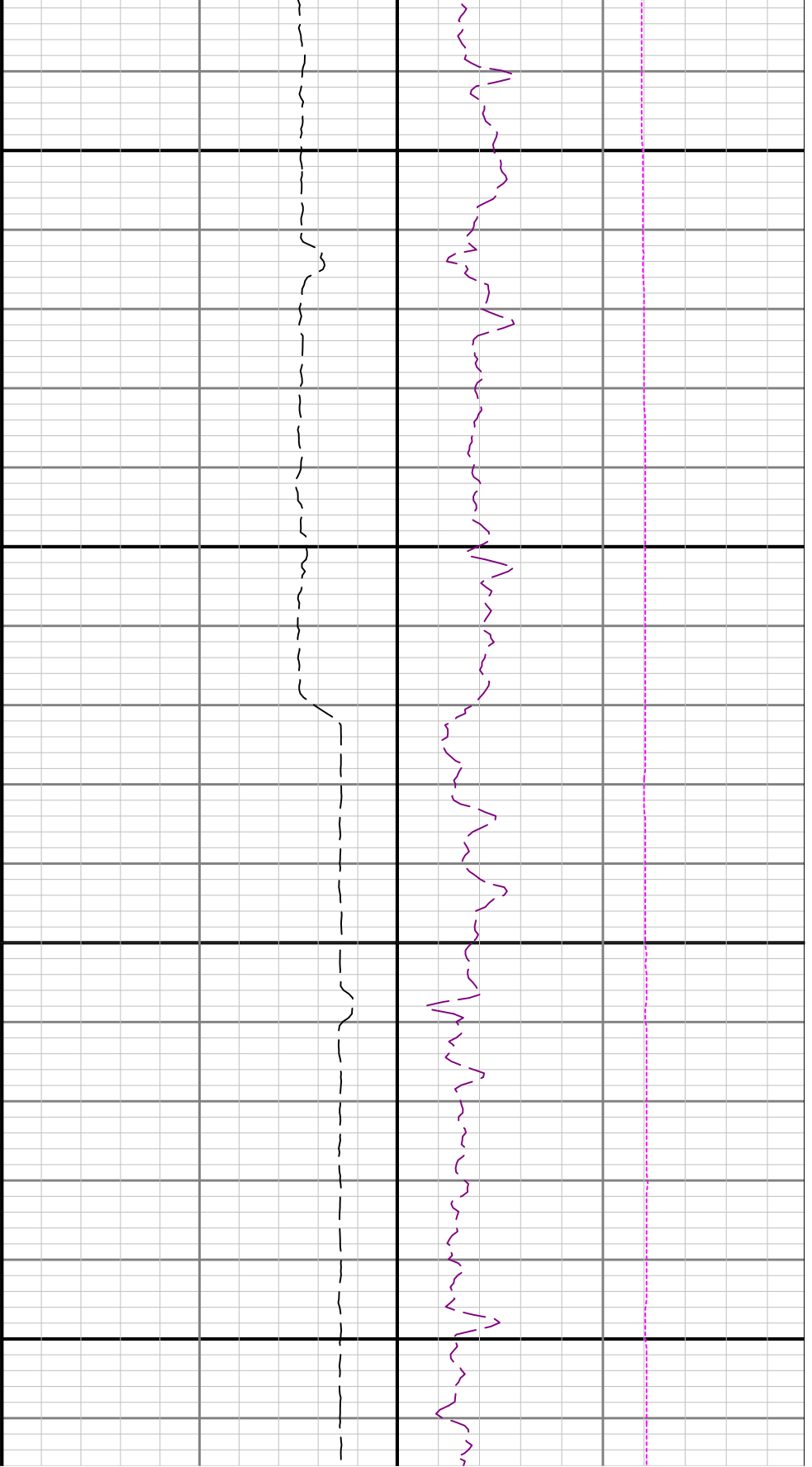


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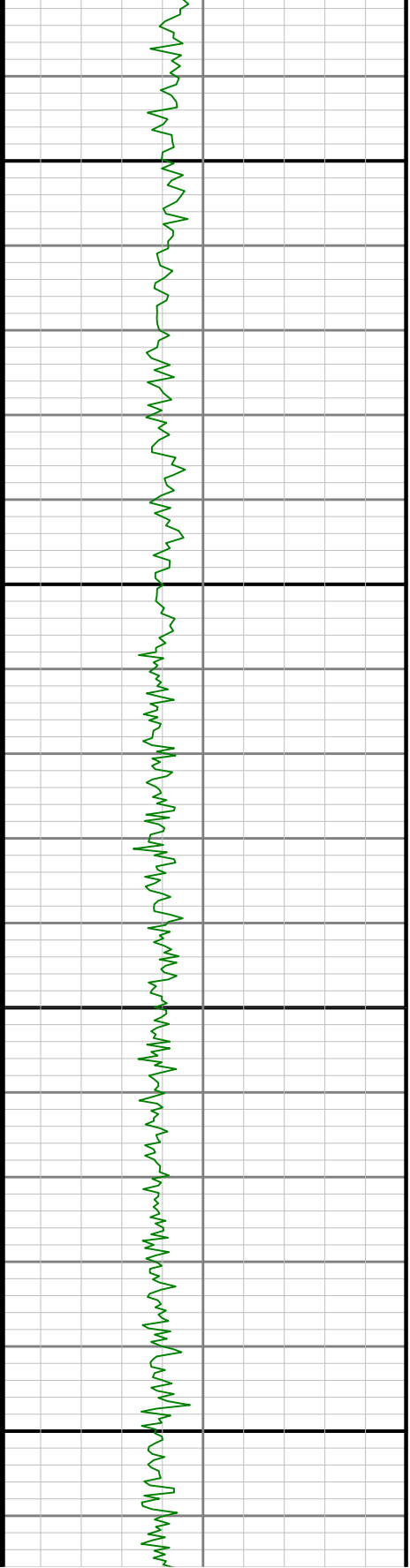
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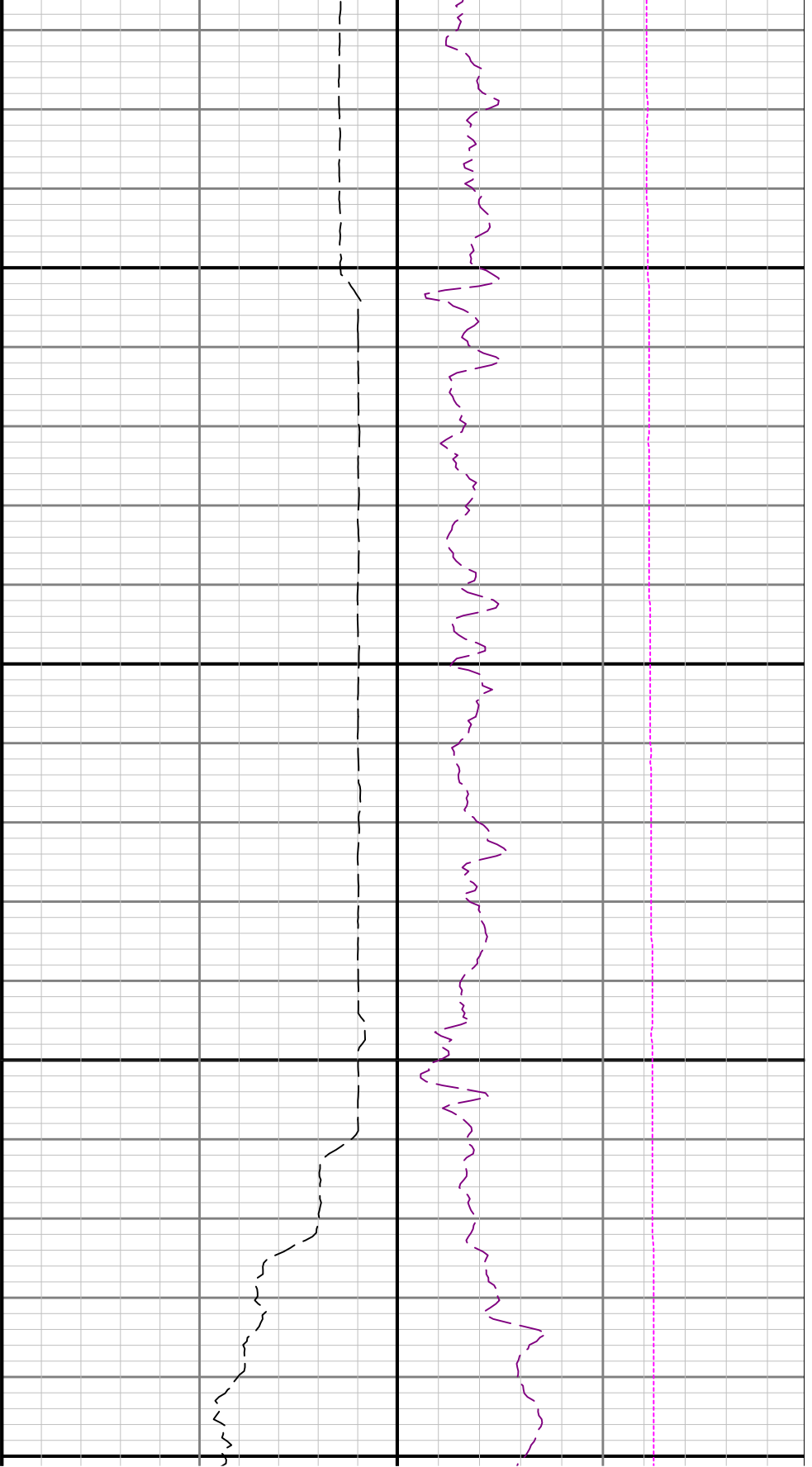
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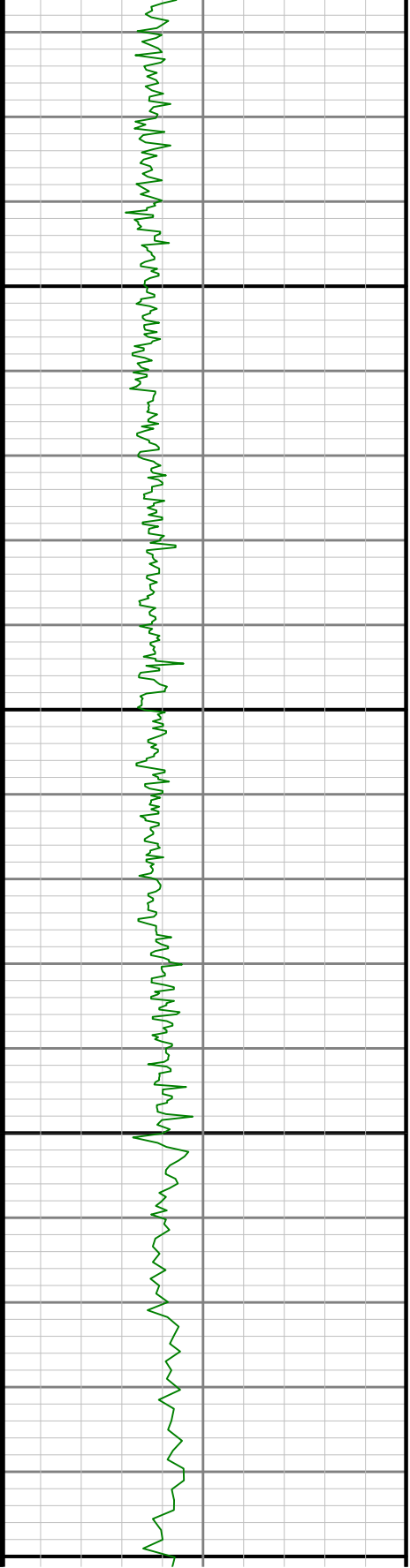
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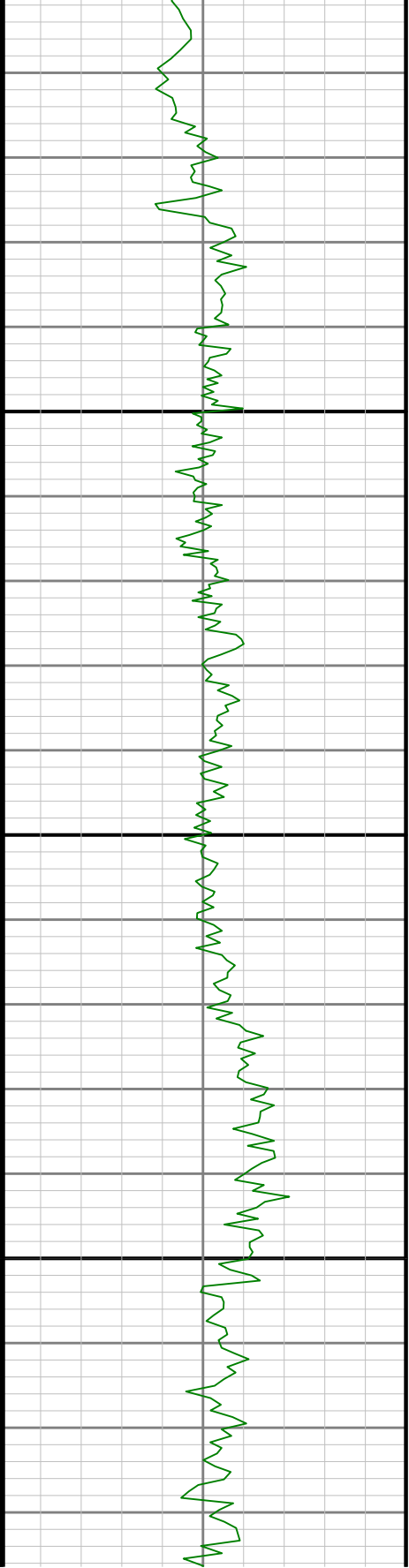




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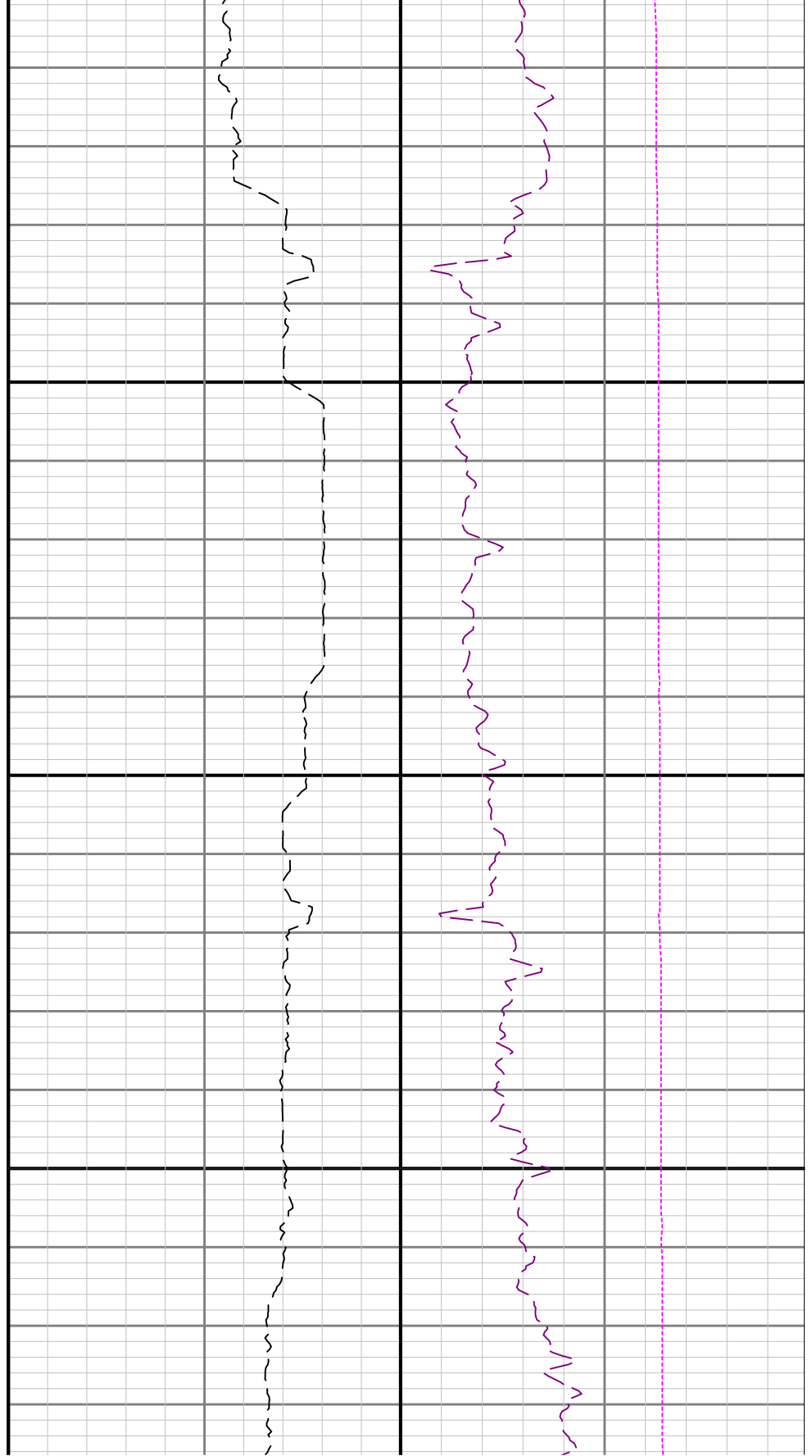
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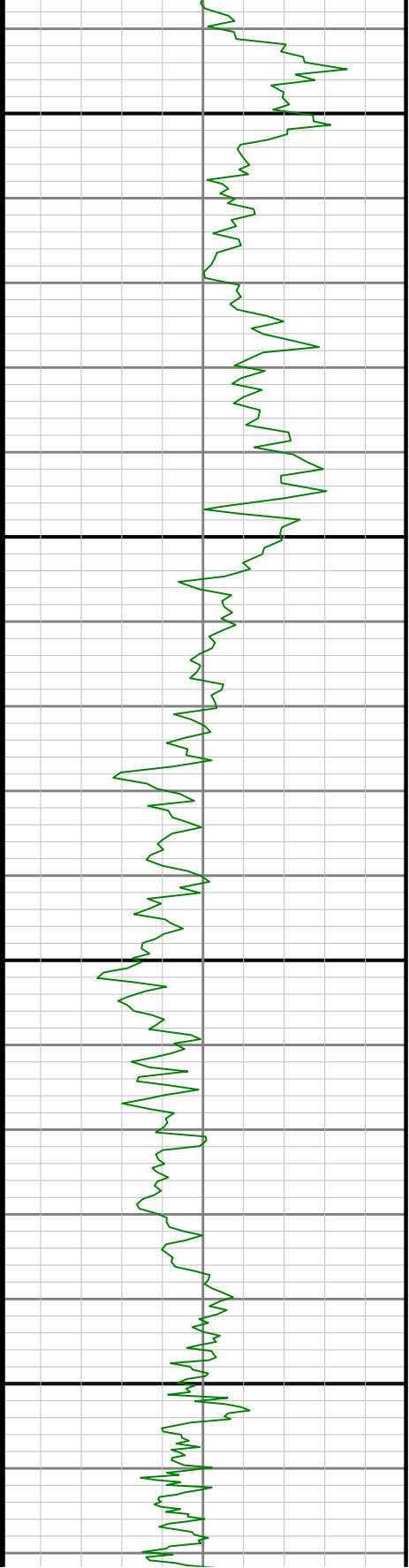




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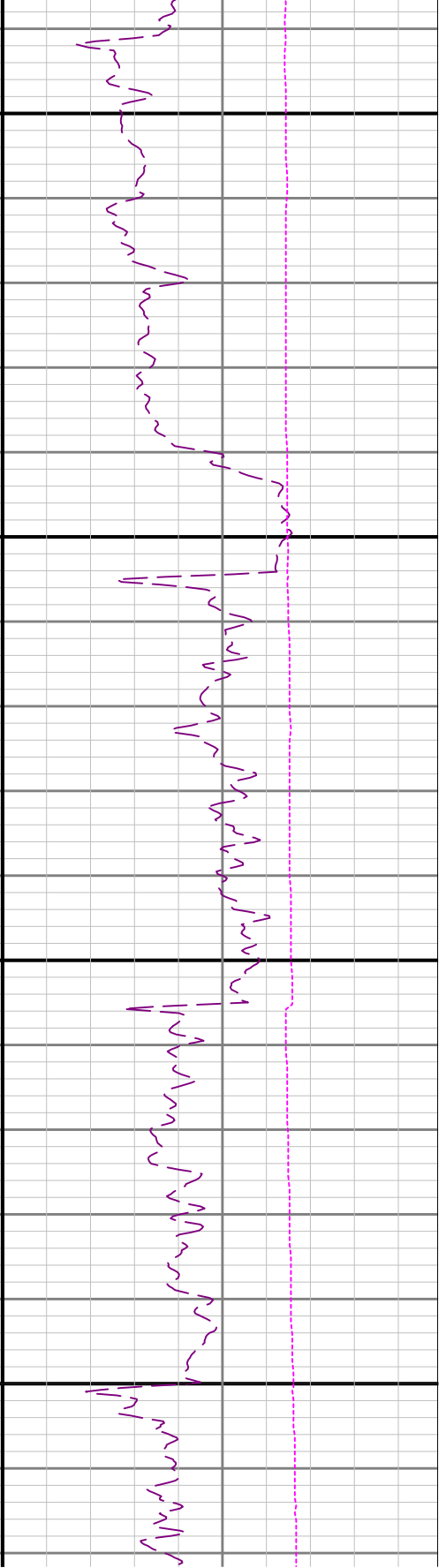
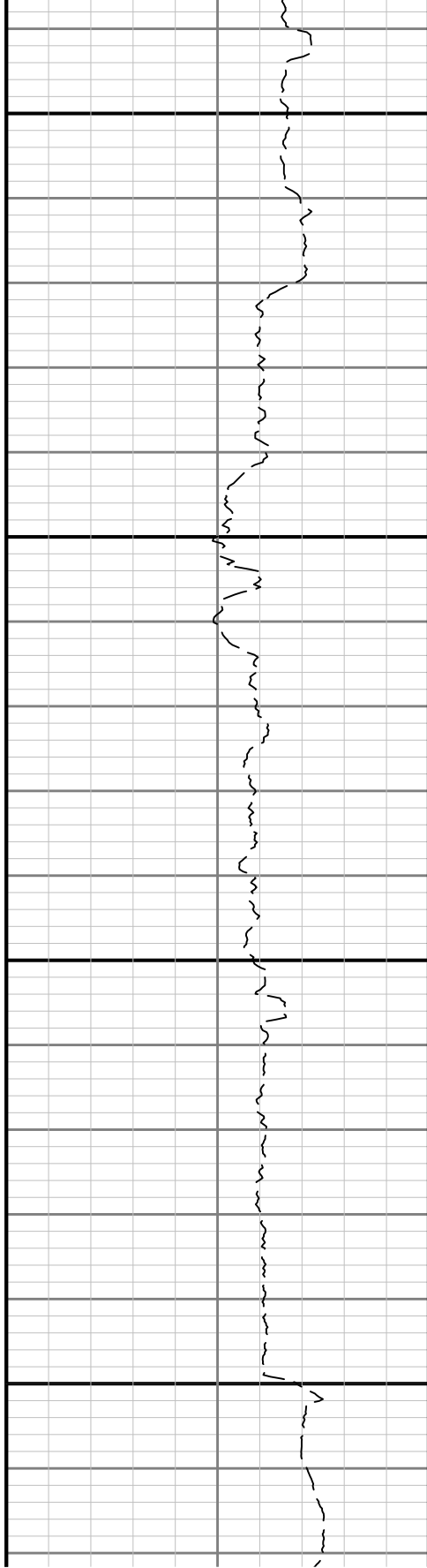
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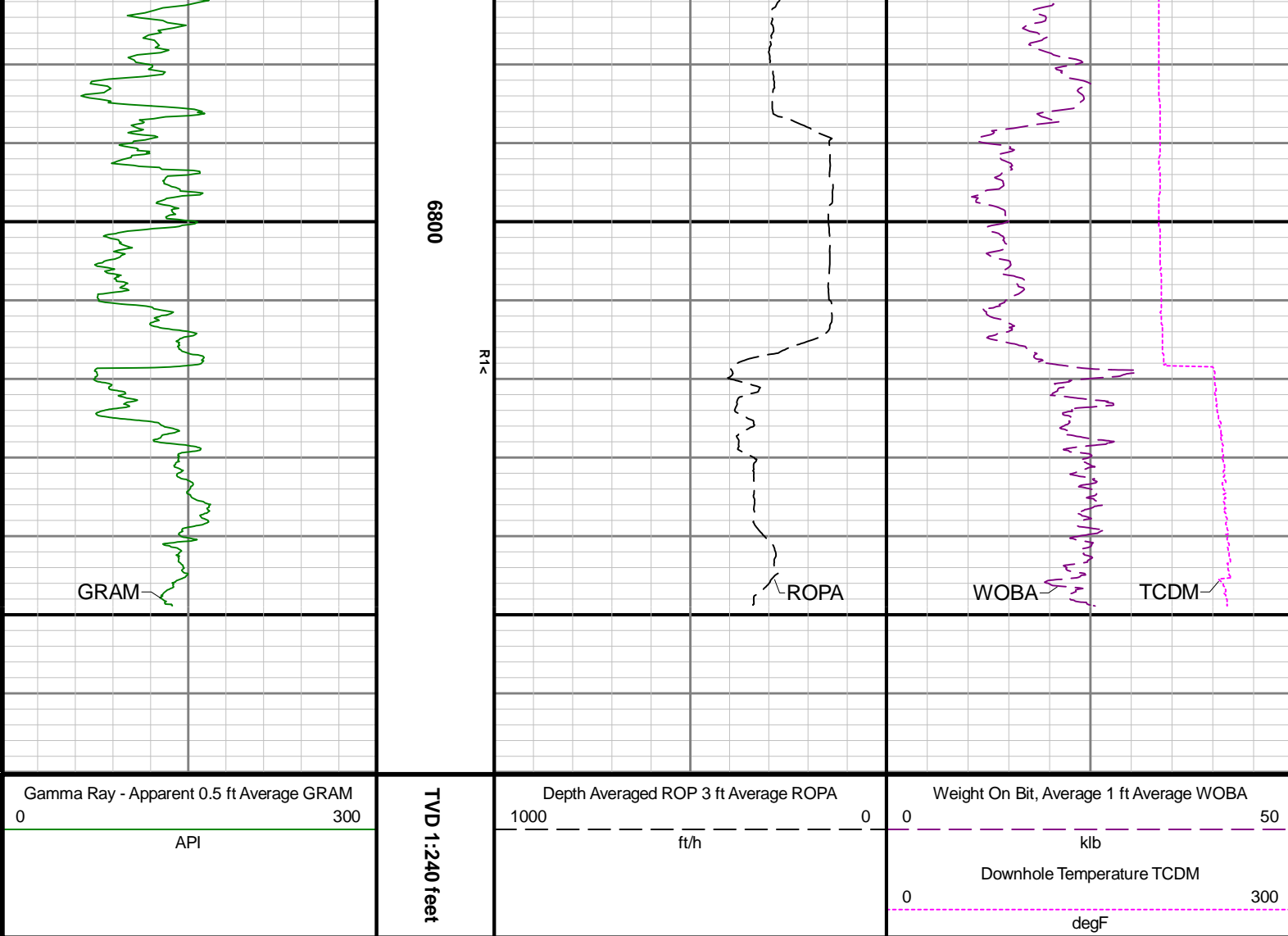




6600

6700





Directional Survey Summary

Latitude:	040° 12' 20.484" N	Longitude:	104° 30' 51.948" W
North Reference:	Grid	Drill Depth Zero:	Rig Floor
Vertical Datum is:	Mean Sea Level	Vertical Datum to DDZ: (ft)	4839.00
Vertical Section North: (ft)	0.00	Vertical Section East: (ft)	0.00
Vertical Section Azimuth: (deg)	0.55	Magnetic Declination: (deg)	8.08
Grid Convergence: (deg)	-0.64	TVD Calculation Method:	Minimum Curvature
Total Correction: (deg)	7.44	Local Magnetic Field: (nT)	52085
Magnetic Correction:	On	Local Gravity Field: (m/s2)	9.800
Local Magnetic Dip Angle: (deg)	66.65		

Tie-In / Projection	Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	Temperature (degF)	North (ft)	East (ft)	True Vertical Depth (ft)	TVD Subsea (ft)	Vertical Section (ft)	Course Length (ft)	Dog Leg Severity (deg/100ft)	Build Rate (deg/100ft)	Turn Rate (deg/100ft)
Tie-In	0.00	0.00	0.00	N/A	0.00	0.00	0.00	-4839.00	0.00	0.00	0.00	0.00	0.00
	82.00	0.10	356.51	N/A	0.07	-0.00	82.00	-4757.00	0.07	82.00	0.12	0.12	-4.26
	176.00	0.07	17.90	N/A	0.21	0.01	176.00	-4663.00	0.21	94.00	0.05	-0.03	22.76
	267.00	0.29	359.84	N/A	0.49	0.02	267.00	-4572.00	0.49	91.00	0.25	0.24	-19.85
	330.00	0.57	345.86	N/A	0.95	-0.05	330.00	-4509.00	0.95	63.00	0.47	0.44	-22.19
	425.00	0.66	358.62	N/A	1.96	-0.18	424.99	-4414.01	1.96	95.00	0.17	0.09	13.43
	520.00	0.21	298.57	N/A	2.59	-0.35	519.99	-4319.01	2.59	95.00	0.61	-0.47	-63.21

	615.00	0.36	33.39	N/A	2.92	-0.34	614.99	-4224.01	2.92	95.00	0.45	0.16	99.81
	709.00	0.43	8.28	N/A	3.52	-0.12	708.99	-4130.01	3.52	94.00	0.20	0.07	-26.71
	804.00	0.32	344.95	N/A	4.13	-0.14	803.98	-4035.02	4.13	95.00	0.20	-0.12	-24.56
	899.00	0.52	31.05	N/A	4.75	0.01	898.98	-3940.02	4.75	95.00	0.40	0.21	48.53
	993.00	0.45	11.81	N/A	5.48	0.31	992.98	-3846.02	5.48	94.00	0.19	-0.07	-20.47
	1088.00	0.28	315.89	N/A	6.01	0.22	1087.98	-3751.02	6.01	95.00	0.39	-0.18	-58.86
	1183.00	0.33	74.54	N/A	6.25	0.33	1182.98	-3656.02	6.25	95.00	0.55	0.05	124.89
	1278.00	0.06	32.40	N/A	6.37	0.62	1277.98	-3561.02	6.37	95.00	0.30	-0.28	-44.36
	1372.00	0.25	237.57	N/A	6.30	0.47	1371.98	-3467.02	6.30	94.00	0.32	0.20	-164.71
	1467.00	0.10	344.60	N/A	6.27	0.27	1466.98	-3372.02	6.27	95.00	0.31	-0.16	112.66
	1562.00	0.13	331.69	N/A	6.44	0.20	1561.98	-3277.02	6.44	95.00	0.04	0.03	-13.59
	1656.00	0.23	356.23	N/A	6.72	0.14	1655.97	-3183.03	6.72	94.00	0.13	0.11	26.11
	1751.00	0.45	336.62	N/A	7.26	-0.02	1750.97	-3088.03	7.26	95.00	0.26	0.23	-20.64
	1846.00	0.44	340.54	N/A	7.94	-0.29	1845.97	-2993.03	7.94	95.00	0.03	-0.01	4.13
	1925.00	0.80	317.69	N/A	8.64	-0.77	1924.97	-2914.03	8.63	79.00	0.54	0.46	-28.92
	1980.00	0.85	303.07	106.8	9.14	-1.37	1979.96	-2859.04	9.13	55.00	0.39	0.09	-26.58
	2075.00	0.43	278.36	106.8	9.58	-2.31	2074.95	-2764.05	9.56	95.00	0.52	-0.44	-26.01
	2170.00	0.73	307.50	112.2	10.00	-3.14	2169.95	-2669.05	9.97	95.00	0.43	0.32	30.67
	2265.00	2.20	304.33	117.6	11.40	-5.13	2264.92	-2574.08	11.35	95.00	1.55	1.55	-3.34
	2359.00	4.11	266.77	120.3	12.22	-9.98	2358.78	-2480.22	12.13	94.00	2.89	2.03	-39.96
	2454.00	5.55	202.63	125.7	7.79	-15.15	2453.50	-2385.50	7.64	95.00	5.55	1.52	-67.52
	2549.00	7.45	177.22	128.4	-2.61	-16.62	2547.90	-2291.10	-2.77	95.00	3.58	2.00	-26.75
	2643.00	12.18	176.98	131.1	-18.60	-15.80	2640.50	-2198.50	-18.76	94.00	5.03	5.03	-0.26
	2738.00	15.73	181.13	131.1	-41.50	-15.53	2732.68	-2106.32	-41.64	95.00	3.88	3.74	4.37
	2833.00	20.03	183.68	131.1	-70.62	-16.83	2823.08	-2015.92	-70.78	95.00	4.60	4.53	2.68
	2927.00	22.86	181.19	133.8	-104.95	-18.24	2910.56	-1928.44	-105.12	94.00	3.16	3.01	-2.65
	3022.00	22.94	176.39	136.5	-141.88	-17.46	2998.08	-1840.92	-142.04	95.00	1.97	0.08	-5.05
	3117.00	22.67	172.15	136.5	-178.49	-13.79	3085.66	-1753.34	-178.62	95.00	1.75	-0.28	-4.46
	3306.00	22.76	169.62	139.2	-250.54	-2.23	3260.01	-1578.99	-250.55	189.00	0.52	0.05	-1.34
	3401.00	22.36	166.53	139.2	-286.19	5.29	3347.74	-1491.26	-286.12	95.00	1.32	-0.42	-3.25
	3590.00	16.57	177.48	277.1	-348.15	14.86	3525.92	-1313.08	-347.99	189.00	3.61	-3.06	5.79
	3780.00	20.12	191.81	141.9	-407.25	9.36	3706.33	-1132.67	-407.14	190.00	3.01	1.87	7.54
	3874.00	19.10	184.71	144.6	-438.41	4.79	3794.89	-1044.11	-438.34	94.00	2.76	-1.09	-7.55
	3969.00	18.22	174.60	144.6	-468.69	4.91	3884.92	-954.08	-468.62	95.00	3.52	-0.93	-10.64
	4064.00	19.25	169.80	144.6	-498.89	9.08	3974.89	-864.11	-498.78	95.00	1.95	1.08	-5.05
	4159.00	19.02	166.77	144.6	-529.37	15.40	4064.64	-774.36	-529.20	95.00	1.07	-0.24	-3.19
	4254.00	19.61	166.77	147.3	-559.96	22.59	4154.29	-684.71	-559.72	95.00	0.62	0.62	0.00
	4348.00	19.14	171.98	147.3	-590.58	28.35	4242.98	-596.02	-590.28	94.00	1.90	-0.50	5.54
	4443.00	18.41	167.99	150.0	-620.68	33.64	4332.92	-506.08	-620.33	95.00	1.55	-0.77	-4.20
	4538.00	18.15	165.94	152.7	-649.70	40.36	4423.13	-415.87	-649.29	95.00	0.73	-0.27	-2.16
	4633.00	18.75	166.76	152.7	-678.92	47.45	4513.25	-325.75	-678.43	95.00	0.69	0.63	0.86
	4727.00	18.30	169.66	155.4	-708.14	53.56	4602.38	-236.62	-707.60	94.00	1.09	-0.48	3.09
	4822.00	18.86	168.02	158.1	-737.84	59.42	4692.43	-146.57	-737.23	95.00	0.81	0.59	-1.73
	5012.00	18.27	176.01	160.8	-797.60	67.87	4872.57	33.57	-796.91	190.00	1.37	-0.31	4.21
	5106.00	19.06	171.52	160.8	-827.48	71.16	4961.63	122.63	-826.76	94.00	1.74	0.84	-4.78
	5201.00	18.35	168.47	160.8	-857.47	76.44	5051.61	212.61	-856.70	95.00	1.27	-0.75	-3.21
	5295.00	18.07	169.59	163.5	-886.31	82.03	5140.91	301.91	-885.48	94.00	0.48	-0.30	1.19
	5390.00	18.51	175.06	166.2	-915.83	85.99	5231.11	392.11	-914.96	95.00	1.86	0.46	5.76
	5485.00	17.90	178.91	166.2	-945.45	87.57	5321.36	482.36	-944.57	95.00	1.42	-0.64	4.05
	5580.00	18.24	182.19	166.2	-974.90	87.28	5411.68	572.68	-974.02	95.00	1.13	0.36	3.45
	5674.00	19.19	170.81	168.9	-1004.87	89.18	5500.74	661.74	-1003.96	94.00	4.01	1.01	-12.11
	5769.00	18.84	163.56	168.9	-1034.99	96.02	5590.56	751.56	-1034.03	95.00	2.51	-0.37	-7.63
	5864.00	18.15	169.74	171.6	-1064.27	102.99	5680.67	841.67	-1063.23	95.00	2.19	-0.73	6.51
	5958.00	18.38	168.45	174.3	-1093.20	108.57	5769.93	930.93	-1092.10	94.00	0.49	0.24	-1.37
	6053.00	18.37	170.19	177.0	-1122.62	114.12	5860.09	1021.09	-1121.47	95.00	0.58	-0.01	1.83
	6148.00	18.54	168.76	177.0	-1152.19	119.61	5950.20	1111.20	-1150.99	95.00	0.51	0.18	-1.51
	6243.00	11.56	171.42	179.7	-1176.44	123.98	6041.89	1202.89	-1175.20	95.00	7.38	-7.35	2.80
	6337.00	3.77	193.82	179.7	-1188.78	124.65	6134.99	1295.99	-1187.53	94.00	8.72	-8.29	23.83
	6432.00	3.76	326.73	182.5	-1189.21	122.19	6229.90	1390.90	-1187.98	95.00	7.27	-0.01	139.91
	6526.00	13.41	359.58	185.2	-1175.69	120.42	6322.78	1483.78	-1174.48	94.00	11.12	10.27	34.95
	6621.00	22.92	351.24	187.9	-1146.32	117.51	6412.95	1573.95	-1145.14	95.00	10.35	10.01	-8.78
	6716.00	31.46	355.85	190.6	-1103.23	112.89	6497.39	1658.39	-1102.09	95.00	9.25	8.99	4.85

	6810.00	41.20	1.31	193.3	-1047.67	111.82	6573.04	1734.04	-1046.54	94.00	10.91	10.36	5.81
	6905.00	50.78	2.29	193.3	-979.46	114.01	6638.97	1799.97	-978.32	95.00	10.11	10.08	1.03
	7000.00	58.79	359.62	196.0	-901.93	115.22	6693.72	1854.72	-900.78	95.00	8.74	8.43	-2.81
	7095.00	62.43	357.96	193.3	-819.19	113.45	6740.33	1901.33	-818.06	95.00	4.12	3.83	-1.75
	7190.00	68.32	356.54	198.7	-732.97	109.28	6779.90	1940.90	-731.89	95.00	6.35	6.20	-1.49
	7284.00	77.98	358.28	201.4	-643.21	105.25	6807.12	1968.12	-642.17	94.00	10.43	10.28	1.85
	7379.00	89.05	1.37	155.4	-548.97	105.00	6817.83	1978.83	-547.94	95.00	12.09	11.65	3.25
	7474.00	90.43	359.56	206.8	-453.98	105.77	6818.26	1979.26	-452.95	95.00	2.40	1.45	-1.91
	7568.00	90.43	357.16	209.5	-360.03	103.08	6817.56	1978.56	-359.03	94.00	2.55	0.00	-2.55
	7663.00	90.40	357.74	209.5	-265.13	98.85	6816.87	1977.87	-264.17	95.00	0.61	-0.03	0.61
	7758.00	90.37	355.89	212.2	-170.28	93.57	6816.23	1977.23	-169.38	95.00	1.95	-0.03	-1.95
	7853.00	90.43	359.21	214.9	-75.38	89.51	6815.57	1976.57	-74.52	95.00	3.50	0.06	3.49
	7947.00	90.00	1.49	214.9	18.61	90.09	6815.22	1976.22	19.47	94.00	2.47	-0.46	2.43
	8042.00	90.06	5.06	217.6	113.44	95.51	6815.17	1976.17	114.35	95.00	3.76	0.06	3.76
	8136.00	90.06	9.25	217.6	206.68	107.22	6815.07	1976.07	207.70	94.00	4.46	0.00	4.46
	8231.00	90.09	5.50	214.9	300.88	119.41	6814.94	1975.94	302.01	95.00	3.95	0.03	-3.95
	8326.00	90.09	0.42	214.9	395.72	124.31	6814.79	1975.79	396.90	95.00	5.35	0.00	-5.35
	8421.00	90.09	357.89	220.3	490.70	122.91	6814.64	1975.64	491.86	95.00	2.66	0.00	-2.66
	8516.00	90.06	355.79	220.3	585.55	117.68	6814.52	1975.52	586.66	95.00	2.21	-0.03	-2.21
	8610.00	90.12	356.37	220.3	679.33	111.25	6814.37	1975.37	680.37	94.00	0.62	0.06	0.62
	8705.00	90.37	356.51	223.0	774.15	105.35	6813.97	1974.97	775.13	95.00	0.30	0.26	0.15
	8800.00	90.00	356.84	225.7	868.99	99.84	6813.66	1974.66	869.91	95.00	0.52	-0.39	0.35
	8895.00	89.82	357.24	225.7	963.86	94.94	6813.81	1974.81	964.73	95.00	0.46	-0.19	0.42
	8989.00	89.94	356.37	228.4	1057.71	89.70	6814.01	1975.01	1058.53	94.00	0.93	0.13	-0.93
	9084.00	89.97	358.04	228.4	1152.60	85.06	6814.08	1975.08	1153.36	95.00	1.76	0.03	1.76
	9179.00	89.97	1.63	228.4	1247.58	84.79	6814.13	1975.13	1248.34	95.00	3.78	-0.00	3.78
	9273.00	90.03	6.09	228.4	1341.35	91.12	6814.13	1975.13	1342.16	94.00	4.75	0.06	4.74
	9368.00	89.97	4.22	228.4	1435.96	99.65	6814.13	1975.13	1436.85	95.00	1.97	-0.06	-1.97
	9463.00	89.97	5.64	228.4	1530.60	107.82	6814.18	1975.18	1531.57	95.00	1.49	0.00	1.49
	9558.00	90.09	5.12	228.4	1625.18	116.72	6814.13	1975.13	1626.23	95.00	0.56	0.13	-0.55
	9653.00	89.97	1.56	231.1	1720.01	122.26	6814.08	1975.08	1721.10	95.00	3.75	-0.13	-3.75
	9747.00	89.97	0.80	233.8	1813.99	124.19	6814.13	1975.13	1815.10	94.00	0.81	0.00	-0.81
	9842.00	89.94	2.65	233.8	1908.94	127.05	6814.20	1975.20	1910.07	95.00	1.95	-0.03	1.95
	9937.00	90.22	3.56	236.5	2003.80	132.20	6814.07	1975.07	2004.98	95.00	1.00	0.29	0.96
	10032.00	89.72	358.18	236.5	2098.75	133.64	6814.12	1975.12	2099.94	95.00	5.69	-0.53	-5.66
	10126.00	90.40	352.99	236.5	2192.44	126.41	6814.02	1975.02	2193.55	94.00	5.57	0.72	-5.52
	10221.00	89.85	351.91	236.5	2286.62	113.93	6813.82	1974.82	2287.60	95.00	1.28	-0.58	-1.14
	10316.00	90.00	355.85	236.5	2381.06	103.80	6813.94	1974.94	2381.94	95.00	4.15	0.16	4.15
	10410.00	89.32	358.65	239.2	2474.94	99.29	6814.50	1975.50	2475.78	94.00	3.07	-0.72	2.98
	10505.00	89.11	2.21	239.2	2569.91	100.00	6815.80	1976.80	2570.75	95.00	3.75	-0.22	3.75
	10600.00	88.89	3.72	239.2	2664.76	104.92	6817.46	1978.46	2665.65	95.00	1.61	-0.23	1.59
	10694.00	88.89	1.73	239.2	2758.64	109.38	6819.28	1980.28	2759.56	94.00	2.12	0.00	-2.12
	10789.00	88.86	1.48	241.9	2853.58	112.04	6821.14	1982.14	2854.52	95.00	0.26	-0.03	-0.26
	10884.00	88.92	2.68	241.9	2948.50	115.49	6822.98	1983.98	2949.47	95.00	1.26	0.06	1.26
	10979.00	89.38	5.20	244.6	3043.26	122.02	6824.39	1985.39	3044.29	95.00	2.70	0.48	2.65
	11073.00	89.23	4.17	244.6	3136.93	129.69	6825.53	1986.53	3138.03	94.00	1.11	-0.16	-1.10
	11168.00	89.11	4.00	244.6	3231.68	136.46	6826.91	1987.91	3232.84	95.00	0.22	-0.13	-0.18
	11263.00	89.29	4.49	247.3	3326.41	143.49	6828.24	1989.24	3327.64	95.00	0.55	0.19	0.52
	11357.00	89.01	3.79	247.3	3420.16	150.28	6829.63	1990.63	3421.44	94.00	0.80	-0.30	-0.74
	11452.00	88.98	2.47	247.3	3515.00	155.46	6831.30	1992.30	3516.33	95.00	1.39	-0.03	-1.39
	11547.00	89.11	0.48	250.0	3609.95	157.91	6832.88	1993.88	3611.30	95.00	2.10	0.14	-2.09
	11642.00	89.14	0.14	250.0	3704.93	158.42	6834.33	1995.33	3706.28	95.00	0.36	0.03	-0.36
	11736.00	88.71	359.73	247.3	3798.92	158.32	6836.10	1997.10	3800.26	94.00	0.63	-0.46	-0.44
	11831.00	89.08	355.91	250.0	3893.81	154.70	6837.93	1998.93	3895.12	95.00	4.04	0.39	-4.02
	11925.00	89.11	349.38	250.0	3986.98	142.68	6839.41	2000.41	3988.16	94.00	6.95	0.03	-6.95
	12020.00	89.04	351.35	250.0	4080.62	126.78	6840.95	2001.95	4081.65	95.00	2.07	-0.07	2.07
	12115.00	88.58	354.52	252.7	4174.87	115.10	6842.92	2003.92	4175.78	95.00	3.37	-0.48	3.34
	12209.00	88.89	358.76	247.3	4268.66	109.59	6845.00	2006.00	4269.52	94.00	4.52	0.33	4.51
	12304.00	88.92	358.15	247.3	4363.61	107.03	6846.81	2007.81	4364.44	95.00	0.64	0.03	-0.64
	12398.00	89.11	358.33	250.0	4457.55	104.15	6848.43	2009.43	4458.34	94.00	0.28	0.20	0.19
	12493.00	90.43	358.26	250.0	4552.51	101.32	6848.81	2009.81	4553.27	95.00	1.39	1.39	-0.07
	12588.00	90.80	357.23	252.7	4647.43	97.66	6847.70	2008.70	4648.15	95.00	1.06	0.20	0.00

	12338.00	90.53	357.32	232.7	4647.43	97.55	6847.79	2000.79	4648.15	93.00	1.53	0.39	-0.39
	12682.00	90.62	355.41	252.7	4741.23	91.70	6846.63	2007.63	4741.89	94.00	2.04	-0.19	-2.03
	12777.00	90.46	354.81	255.4	4835.88	83.60	6845.73	2006.73	4836.46	95.00	0.65	-0.17	-0.63
	12871.00	90.58	356.24	258.1	4929.58	76.27	6844.88	2005.88	4930.09	94.00	1.53	0.13	1.52
	12966.00	90.58	358.30	258.1	5024.47	71.74	6843.92	2004.92	5024.92	95.00	2.17	0.00	2.17
	13061.00	90.55	0.77	258.1	5119.45	70.97	6842.98	2003.98	5119.90	95.00	2.60	-0.03	2.60
	13155.00	90.77	2.94	258.1	5213.39	74.01	6841.90	2002.90	5213.86	94.00	2.32	0.23	2.31
	13250.00	90.62	3.53	260.8	5308.23	79.37	6840.74	2001.74	5308.75	95.00	0.64	-0.16	0.62
	13345.00	90.68	1.87	258.1	5403.12	83.85	6839.67	2000.67	5403.67	95.00	1.75	0.06	-1.75
	13439.00	90.62	0.81	258.1	5497.08	86.05	6838.60	1999.60	5497.66	94.00	1.13	-0.06	-1.13
	13534.00	90.49	359.63	260.8	5592.08	86.41	6837.68	1998.68	5592.65	95.00	1.25	-0.14	-1.24
	13629.00	90.62	358.23	260.8	5687.05	84.64	6836.76	1997.76	5687.60	95.00	1.48	0.14	-1.47
	13724.00	90.99	356.87	260.8	5781.95	80.58	6835.42	1996.42	5782.46	95.00	1.48	0.39	-1.43
	13818.00	90.58	356.94	263.5	5875.81	75.50	6834.14	1995.14	5876.26	94.00	0.44	-0.44	0.07
	13913.00	90.58	358.44	263.5	5970.72	71.67	6833.17	1994.17	5971.14	95.00	1.58	-0.00	1.58
	14008.00	90.58	0.56	260.8	6065.71	70.84	6832.21	1993.21	6066.11	95.00	2.23	0.00	2.23
	14103.00	90.62	2.32	263.5	6160.67	73.23	6831.22	1992.22	6161.09	95.00	1.85	0.04	1.85
	14197.00	90.49	4.16	263.5	6254.51	78.54	6830.31	1991.31	6254.98	94.00	1.96	-0.14	1.96
	14292.00	90.52	4.77	263.5	6349.22	85.94	6829.47	1990.47	6349.75	95.00	0.64	0.03	0.64
	14387.00	90.71	2.97	263.5	6443.99	92.35	6828.45	1989.45	6444.58	95.00	1.91	0.20	-1.89
	14481.00	90.55	1.47	263.5	6537.91	95.99	6827.42	1988.42	6538.53	94.00	1.60	-0.17	-1.60
	14576.00	90.68	0.52	263.5	6632.89	97.64	6826.40	1987.40	6633.53	95.00	1.01	0.14	-1.00
	14671.00	90.55	0.49	266.2	6727.88	98.48	6825.38	1986.38	6728.52	95.00	0.14	-0.14	-0.03
	14765.00	90.58	357.58	266.2	6821.86	96.90	6824.45	1985.45	6822.47	94.00	3.10	0.03	-3.10
	14860.00	90.52	357.03	266.2	6916.75	92.43	6823.54	1984.54	6917.32	95.00	0.58	-0.06	-0.58
	14955.00	90.52	357.99	266.2	7011.65	88.30	6822.68	1983.68	7012.18	95.00	1.01	0.00	1.01
	15049.00	90.62	357.89	266.2	7105.59	84.92	6821.74	1982.74	7106.07	94.00	0.15	0.11	-0.11
	15144.00	90.68	0.77	266.2	7200.56	83.81	6820.66	1981.66	7201.04	95.00	3.03	0.06	3.03
	15238.00	90.62	3.89	266.2	7294.47	87.63	6819.60	1980.60	7294.97	94.00	3.32	-0.06	3.32
	15333.00	90.68	6.56	263.5	7389.06	96.28	6818.52	1979.52	7389.64	95.00	2.81	0.06	2.81
	15428.00	89.97	6.59	263.5	7483.43	107.16	6817.98	1978.98	7484.12	95.00	0.75	-0.75	0.03
	15523.00	90.28	3.83	266.2	7578.03	115.79	6817.77	1978.77	7578.79	95.00	2.92	0.33	-2.91
	15617.00	90.09	0.45	266.2	7671.95	119.30	6817.47	1978.47	7672.74	94.00	3.60	-0.20	-3.60
	15712.00	90.09	358.69	266.2	7766.94	118.58	6817.32	1978.32	7767.72	95.00	1.85	0.00	-1.85
	15806.00	90.06	359.31	266.2	7860.93	116.94	6817.20	1978.20	7861.69	94.00	0.66	-0.03	0.66
	15901.00	89.82	0.17	269.0	7955.93	116.51	6817.30	1978.30	7956.68	95.00	0.94	-0.25	0.91
	15995.00	90.03	357.81	269.0	8049.91	114.85	6817.42	1978.42	8050.64	94.00	2.52	0.22	-2.51
	16090.00	90.00	359.28	269.0	8144.87	112.44	6817.39	1978.39	8145.58	95.00	1.55	-0.03	1.55
	16185.00	89.97	1.35	269.0	8239.87	112.96	6817.42	1978.42	8240.57	95.00	2.18	-0.03	2.18
	16279.00	90.09	2.19	269.0	8333.82	115.87	6817.37	1978.37	8334.55	94.00	0.90	0.13	0.89
	16374.00	90.00	3.23	269.0	8428.71	120.36	6817.29	1978.29	8429.48	95.00	1.10	-0.09	1.09
	16468.00	89.94	2.94	271.7	8522.58	125.42	6817.34	1978.34	8523.39	94.00	0.32	-0.06	-0.31
	16563.00	90.06	2.90	271.7	8617.45	130.26	6817.34	1978.34	8618.31	95.00	0.13	0.13	-0.04
	16658.00	89.82	3.26	263.5	8712.32	135.36	6817.44	1978.44	8713.21	95.00	0.46	-0.25	0.38
	16752.00	89.85	2.64	266.2	8806.19	140.20	6817.71	1978.71	8807.13	94.00	0.66	0.03	-0.66
	16847.00	89.97	357.88	266.2	8901.16	140.63	6817.86	1978.86	8902.10	95.00	5.01	0.13	-5.01
	16942.00	89.82	356.46	266.2	8996.04	135.94	6818.04	1979.04	8996.93	95.00	1.50	-0.16	-1.49
	17036.00	89.88	356.67	269.0	9089.87	130.31	6818.28	1979.28	9090.71	94.00	0.23	0.06	0.22
	17131.00	89.94	357.54	269.0	9184.75	125.51	6818.43	1979.43	9185.53	95.00	0.92	0.06	0.92
	17226.00	89.94	357.36	269.0	9279.66	121.28	6818.53	1979.53	9280.39	95.00	0.19	0.00	-0.19
	17320.00	89.66	355.54	271.7	9373.47	115.46	6818.86	1979.86	9374.15	94.00	1.96	-0.30	-1.94
	17415.00	89.94	354.55	271.7	9468.12	107.26	6819.19	1980.19	9468.71	95.00	1.08	0.29	-1.04
	17510.00	89.94	357.25	271.7	9562.86	100.47	6819.29	1980.29	9563.39	95.00	2.84	0.00	2.84