

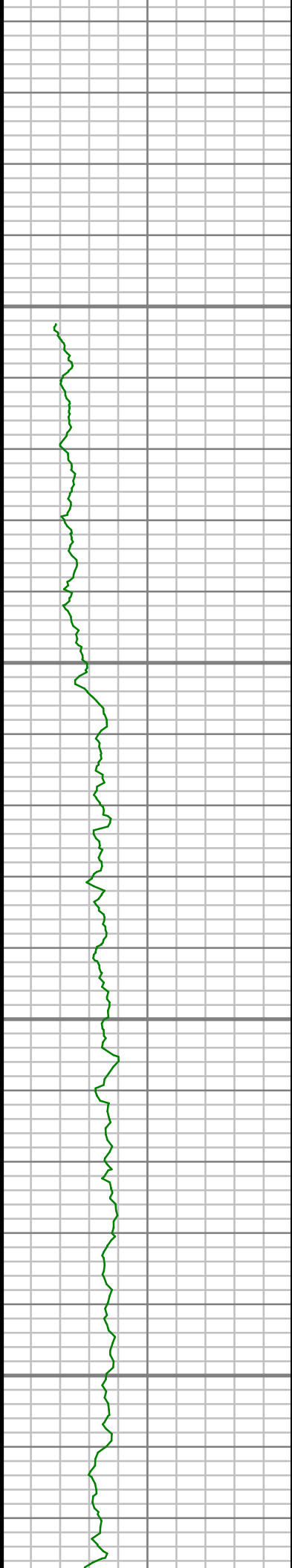
5" = 100' FEET TVD

COMPANY : ANADARKO PETROLEUM CORP. WELL : NRC 29N-8HZ FIELD : WATTENBERG COUNTY : WELD STATE : COLORADO COUNTRY : U.S.A. UWI : 05-123-38951										COMPANY : ANADARKO PETROLEUM CORP. WELL : NRC 29N-8HZ FIELD : WATTENBERG COUNTY : WELD STATE : COLORADO COUNTRY : U.S.A. UWI : 05-123-38951																			
DEPTH REF. : RKB REF. HEIGHT : 25.000 ft GROUND LEVEL : 5052.000 ft										WELL LOCATION LAT:40°3'34.002"N LONG:104°54'57.334"W N:1265039.57 ft E:3163486.62 ft SEC:8 TWP:1N RANGE:67W										OTHER SERVICES DIRECTIONAL ROP									
BOREHOLE RECORD										DEVIATION RECORD																			
HOLE SIZE in		FROM ft		TO ft		INCLINATION deg		FROM ft		TO ft																			
12.25		0		1256		0-13		0		7147																			
8.75		1256		7955		13-90		7147		7955																			
6.125		7955		12445		90-92		7955		12445																			
CASING RECORD																													
CASING SIZE in		FROM ft		TO ft																									
9.625		0		1256																									
7		0		7955																									
DRILLING CO.: H&P RIG: 311																													
LMD UNIT NO.: C-46												DISTRICT: CASPER																	
SPUD DATE: 03/03/2014																													
LMD START DATE: 03/16/2014												DEPTH: 1202 ft																	
LMD END DATE: 03/22/2014												DEPTH: 12445 ft																	
TOTAL DEPTH: 12445 ft																													

Remarks
ANADARKO PETROLEUM CORP. PRODUCTION AFE# 2085767
SCIENTIFIC DRILLING INTERNATIONAL JOB# 127530
ALL REFERENCES IN THE DEPTH TRACK ARE AT BIT DEPTH.
ALL DATA IS MEMORY DATA UNLESS STATED OTHERWISE.
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO GAMMA RAY CURVE
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO RATE OF PENETRATION CURVE
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO TOOL TEMPERATURE CURVE
RUN # 1: MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSER = 128-103 / CONT = 239 / MWD EYE = 386 / GAMMA RAY =1083
BIT TO SENSOR OFFSETS: SURVEY = 62.79 FT. / GAMMA RAY = 53.54 FT.
RUN # 2: MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSER = 78-103 / CONT =590 / MWD EYE = 185 / GAMMA RAY =1031
BIT TO SENSOR OFFSETS: SURVEY = 57.73 FT. / GAMMA RAY =48.48 FT.
SURVEY WELL NOTES:
SURVEYS FROM 0.0 FT. TO 1118 FT. WERE ACQUIRED BY MS GYRO MWD.
SURVEYS FROM 1118 FT. TO 12385 FT. WERE ACQUIRED BY SCIENTIFIC DRILLING INTERNATIONAL MWD.
MNEMONICS LIST:
GR = GAMMA RAY
ROP = RATE OF PENETRATION
T-TEMP = TOOL TEMPERATURE

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions as set out in our current price schedule.

[illegible]

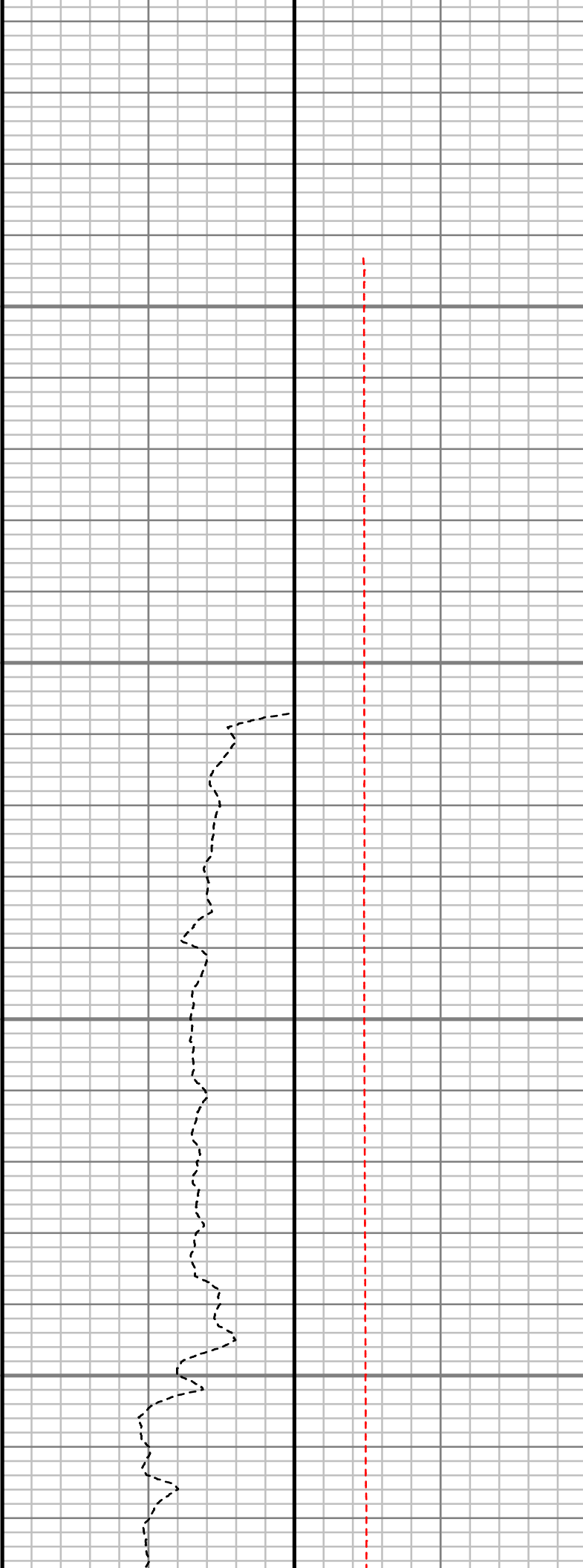


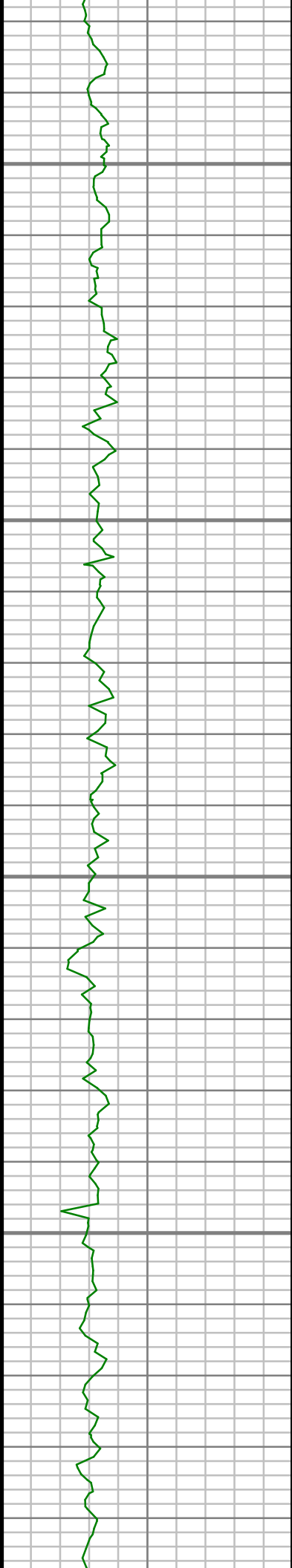
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1350



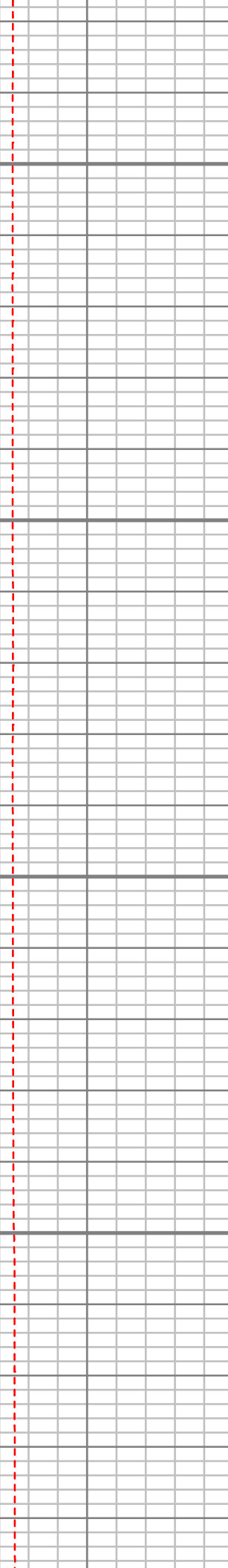
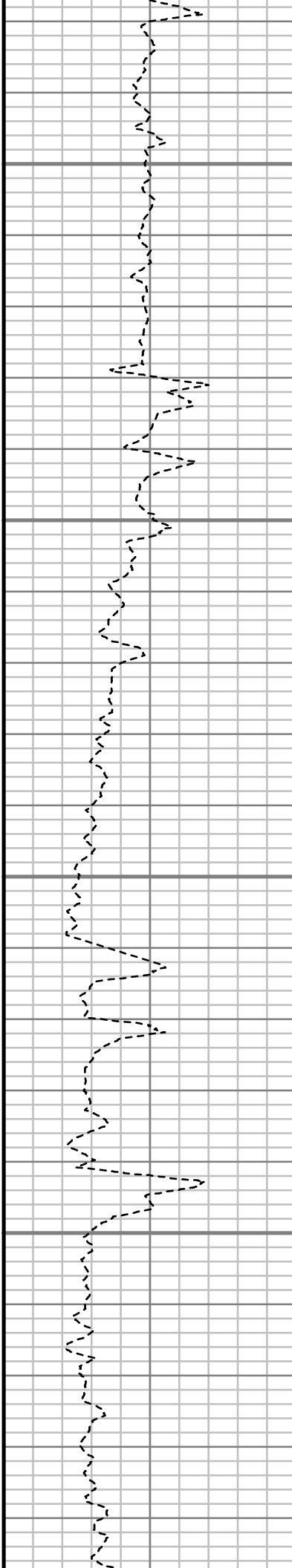


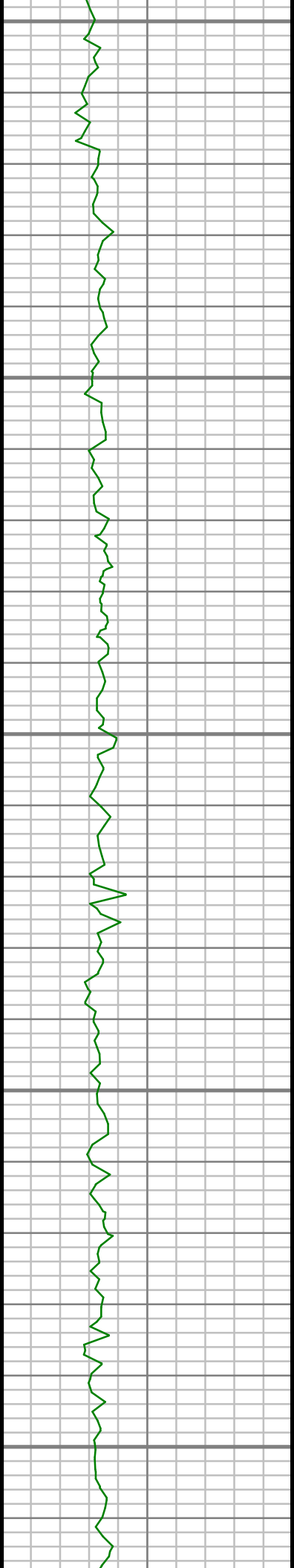
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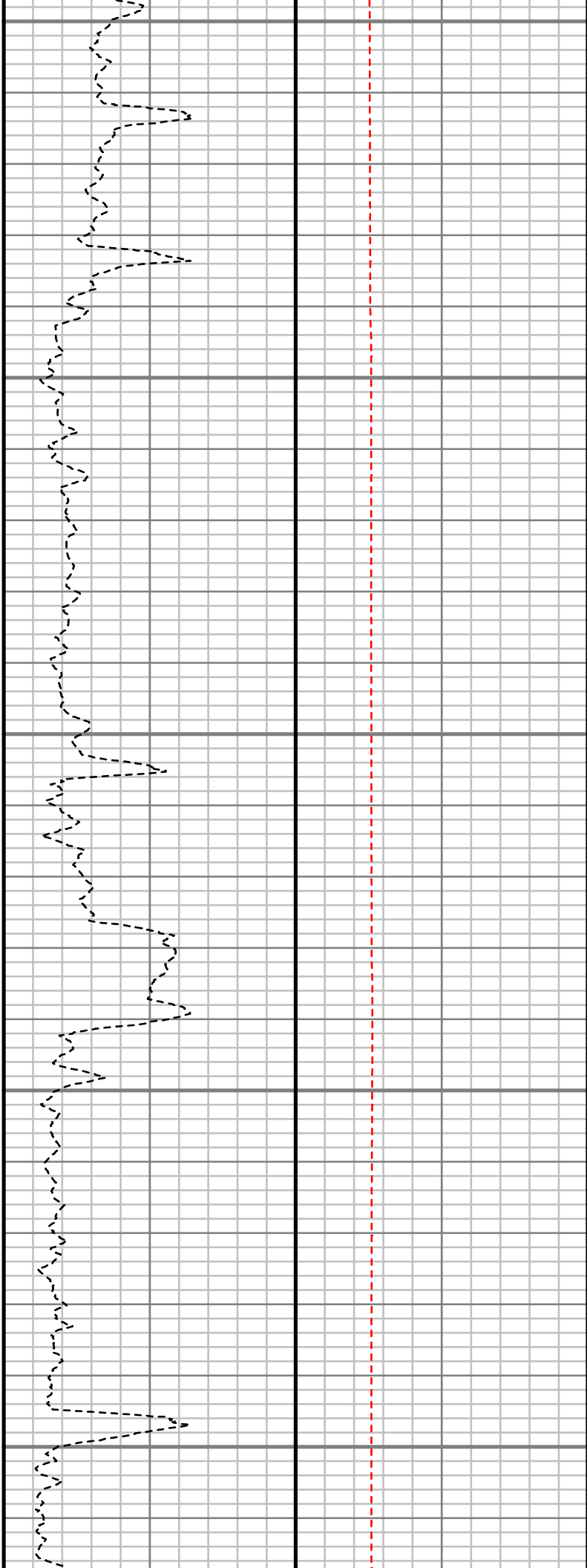
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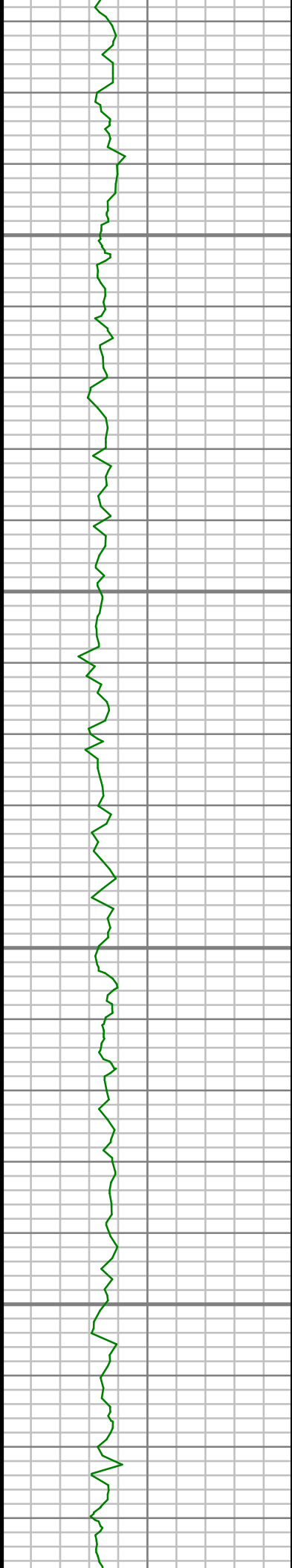
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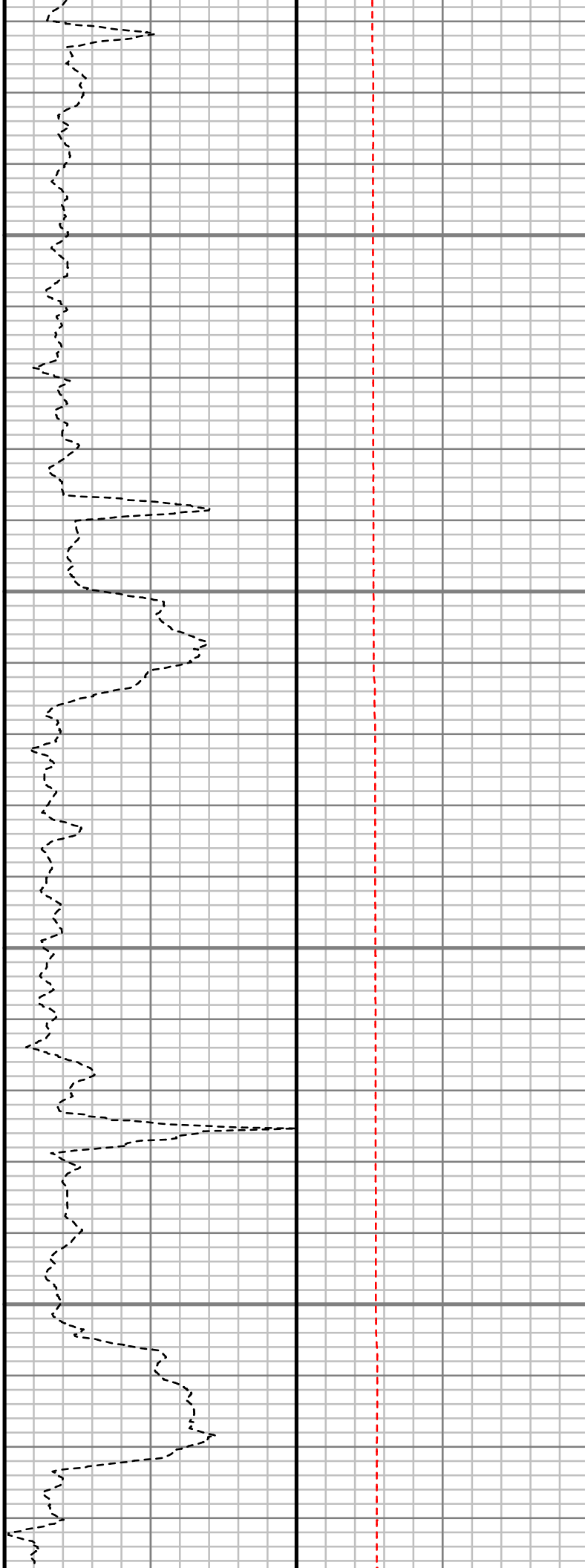


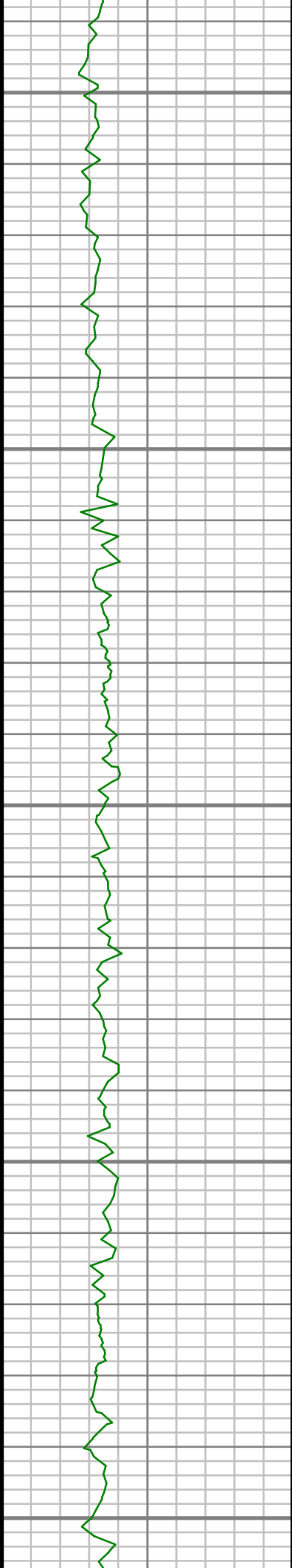
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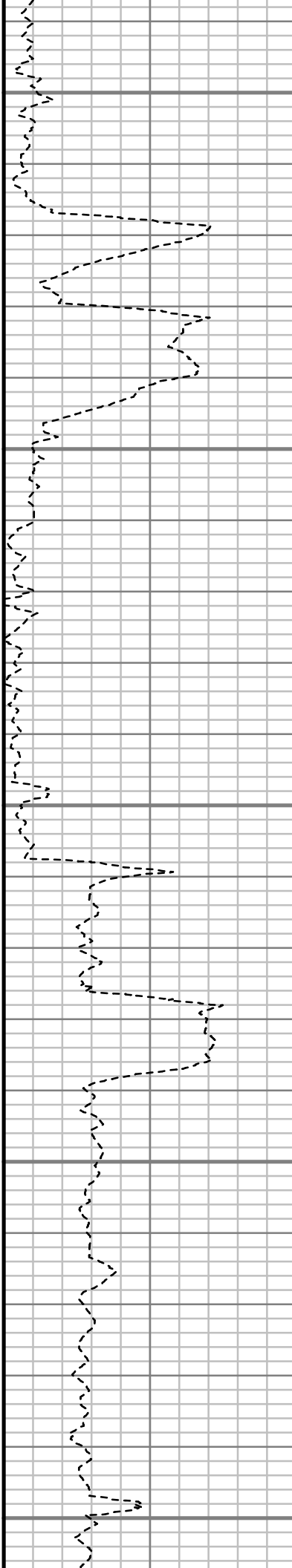
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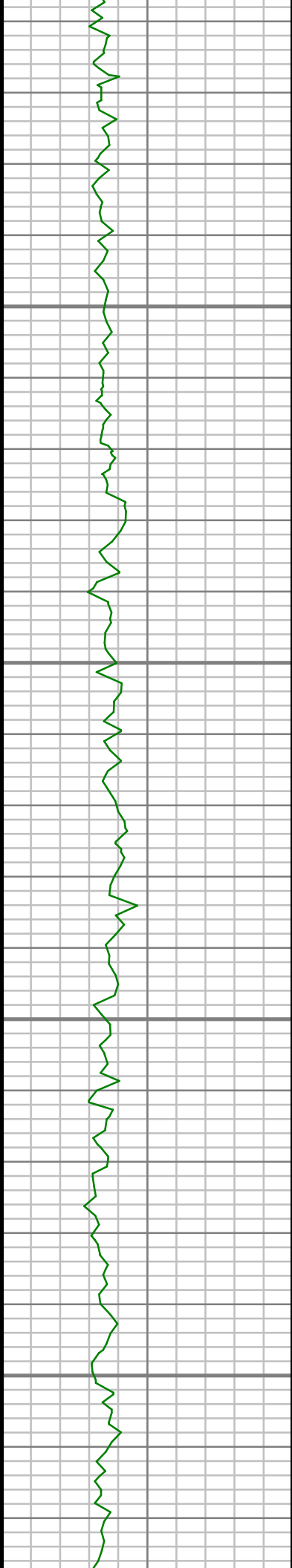
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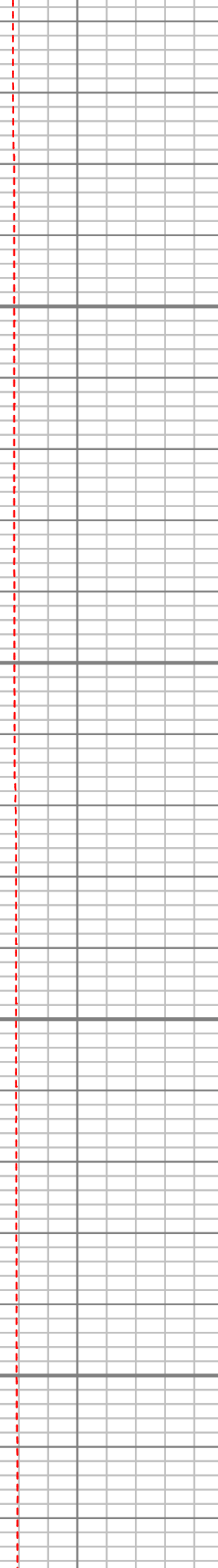
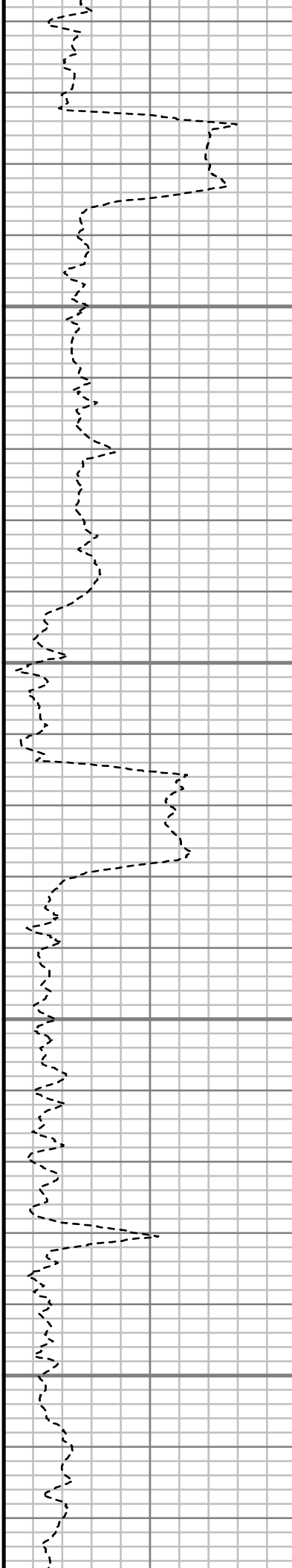


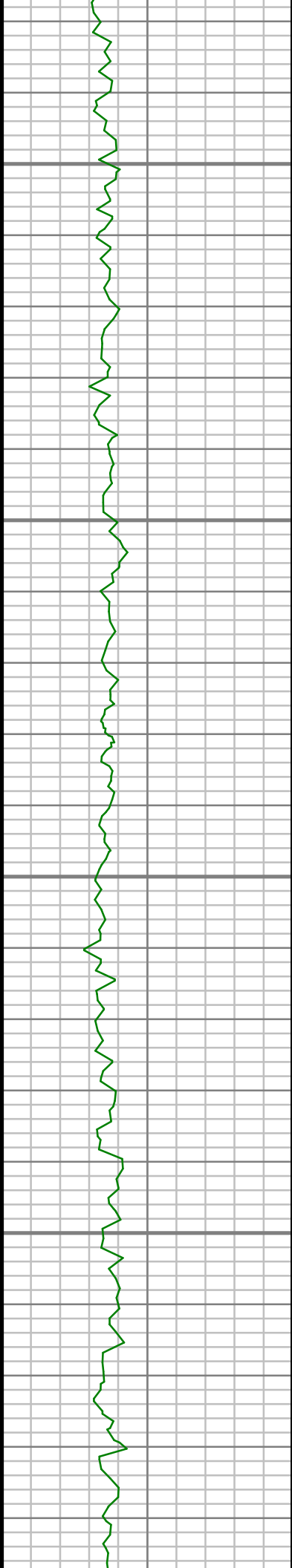
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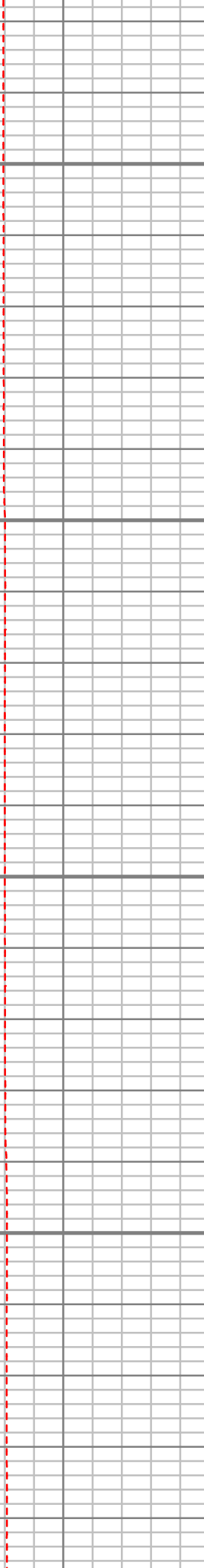
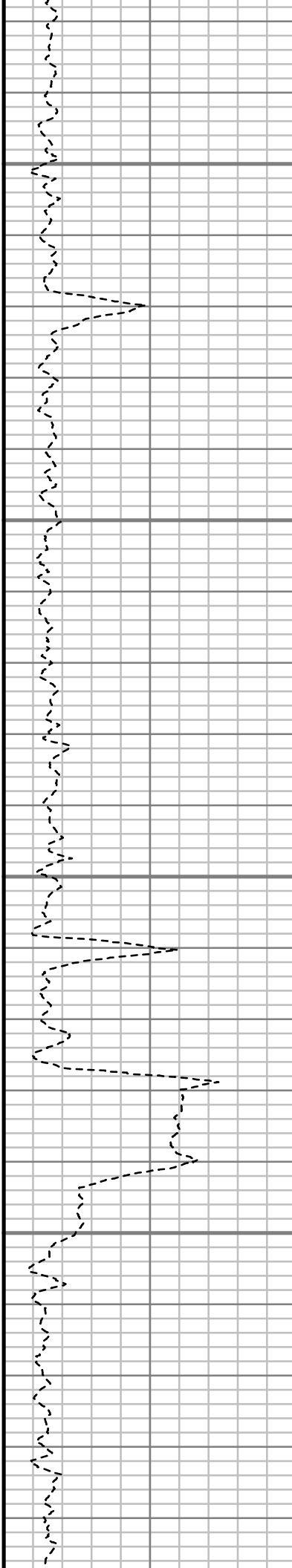


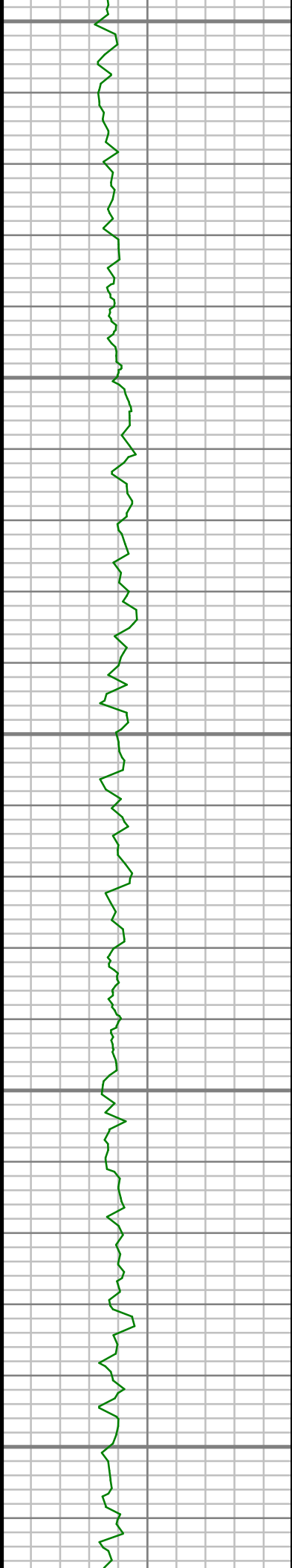
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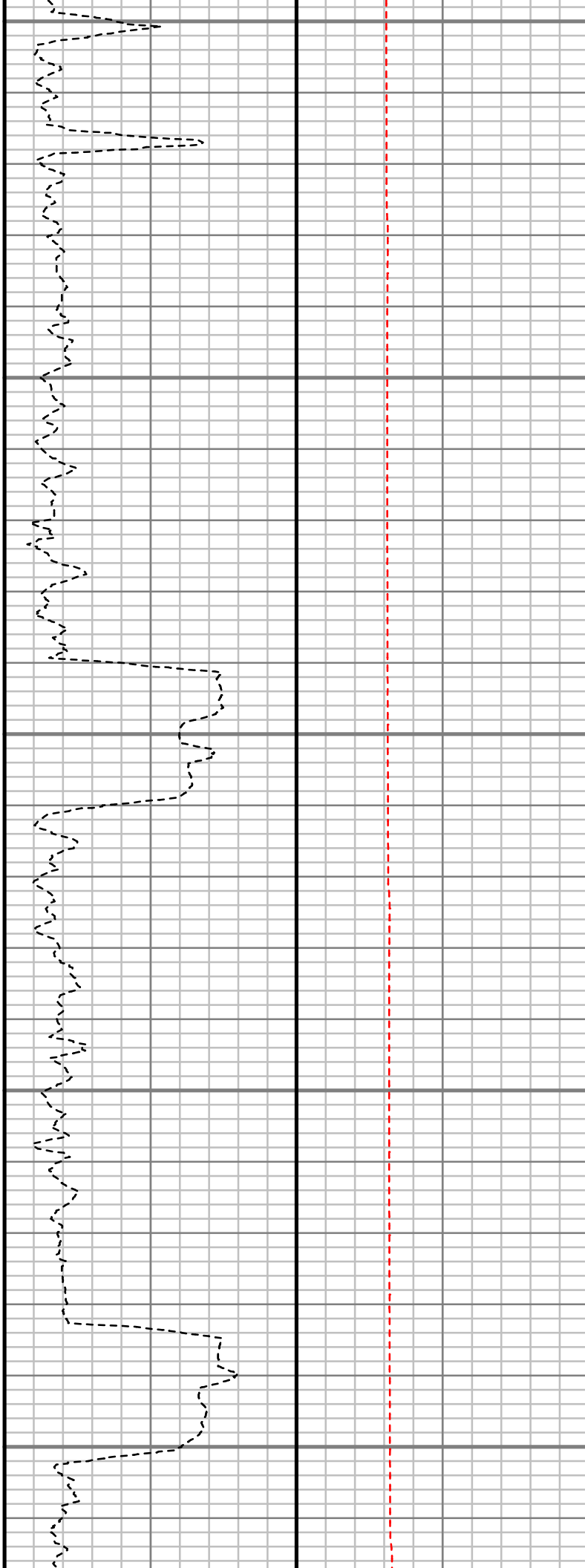
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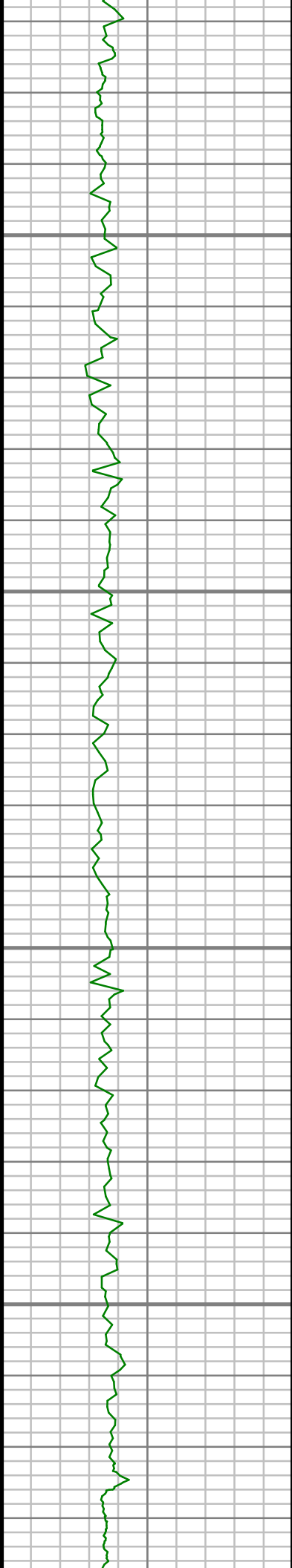
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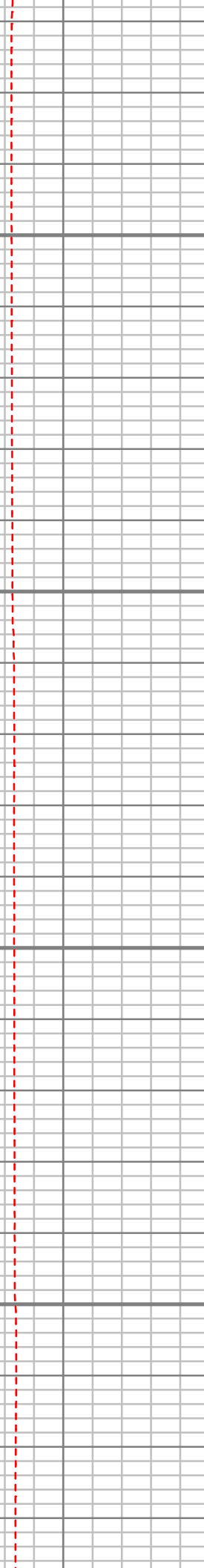
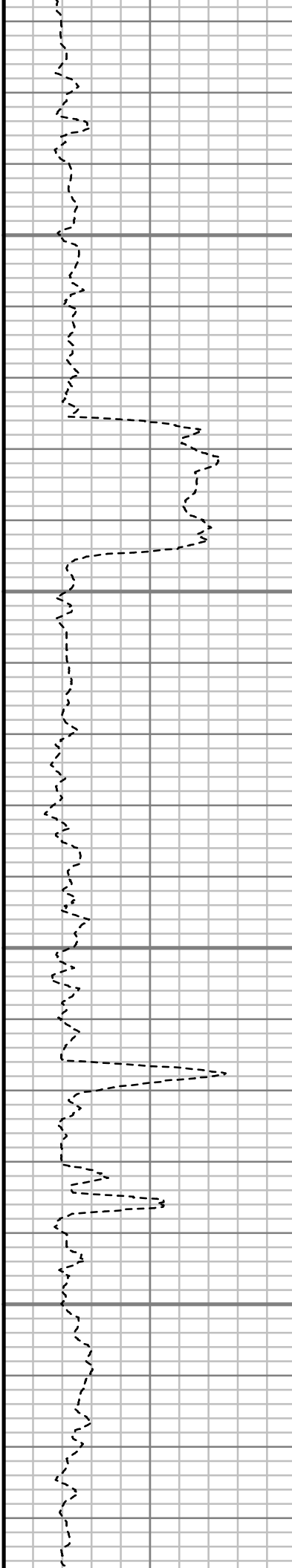


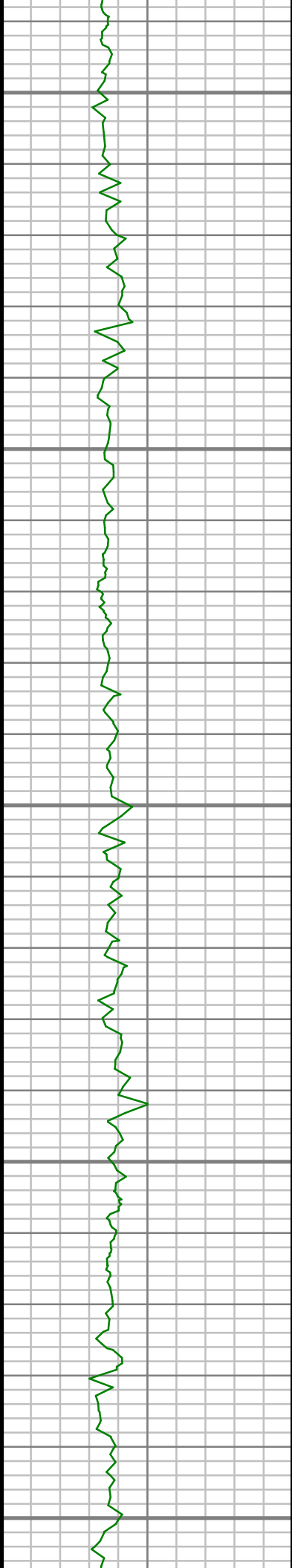
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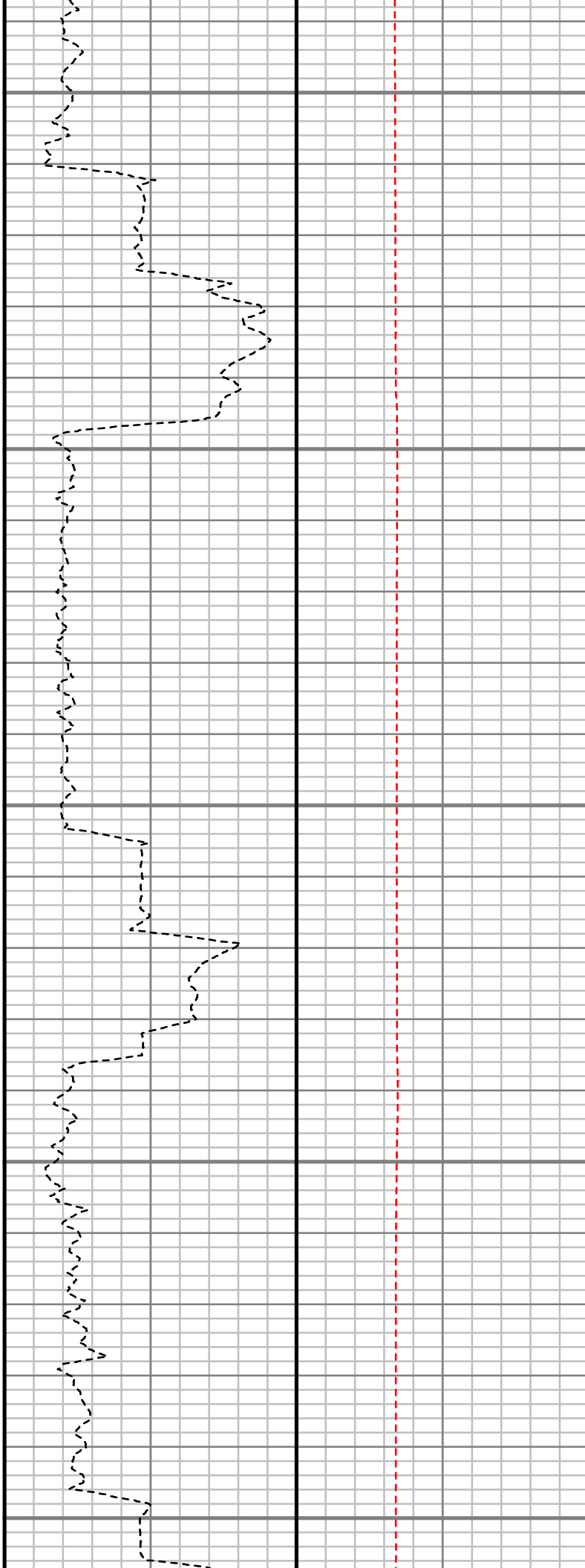
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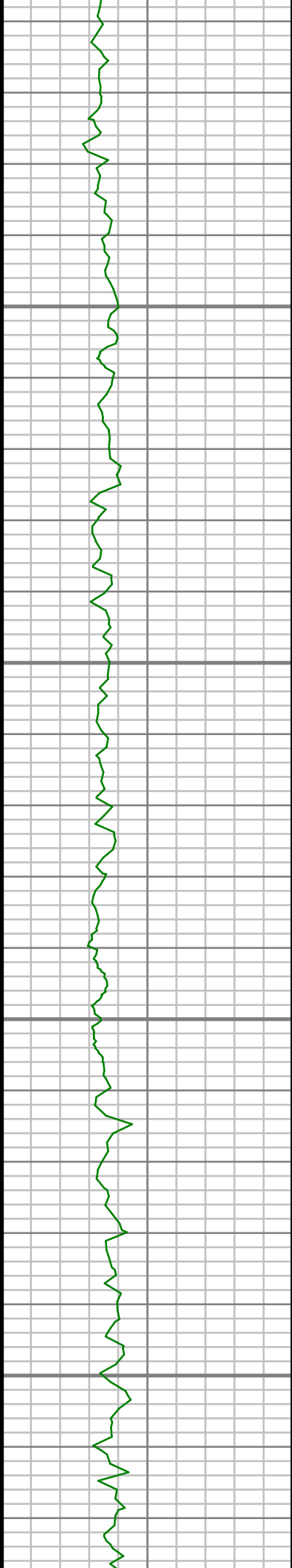
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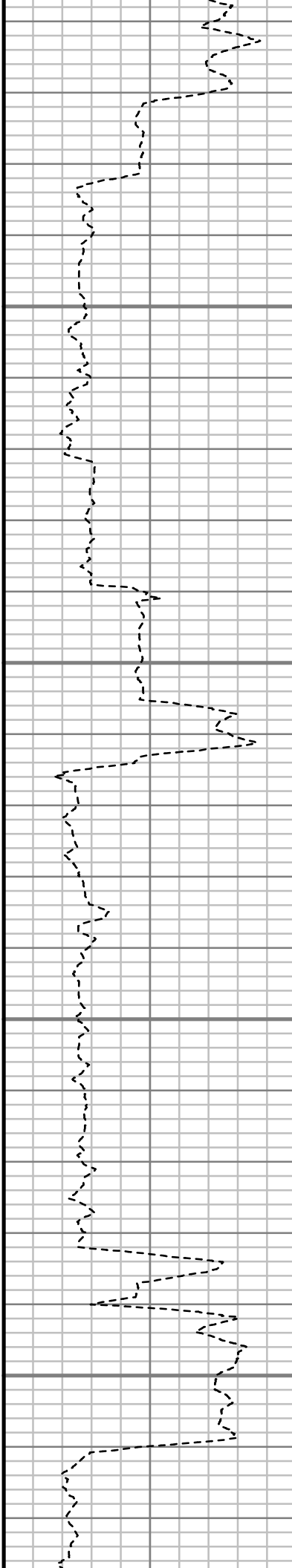


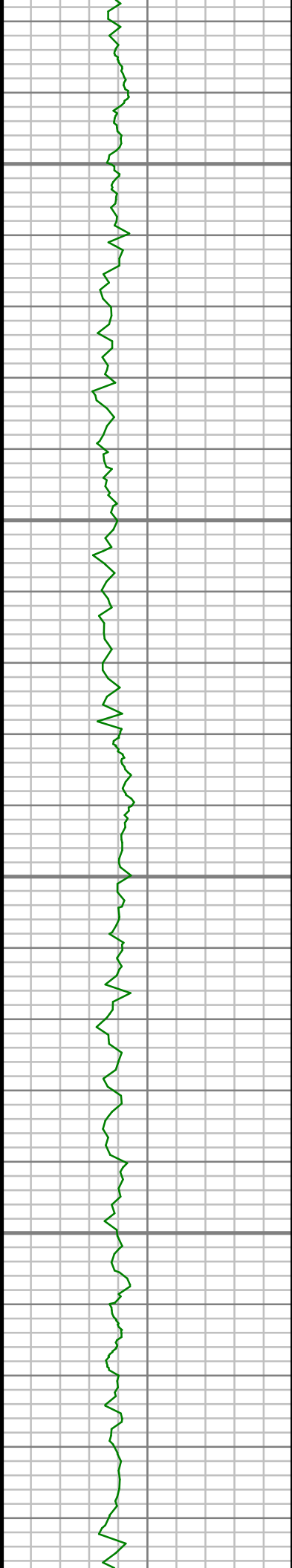
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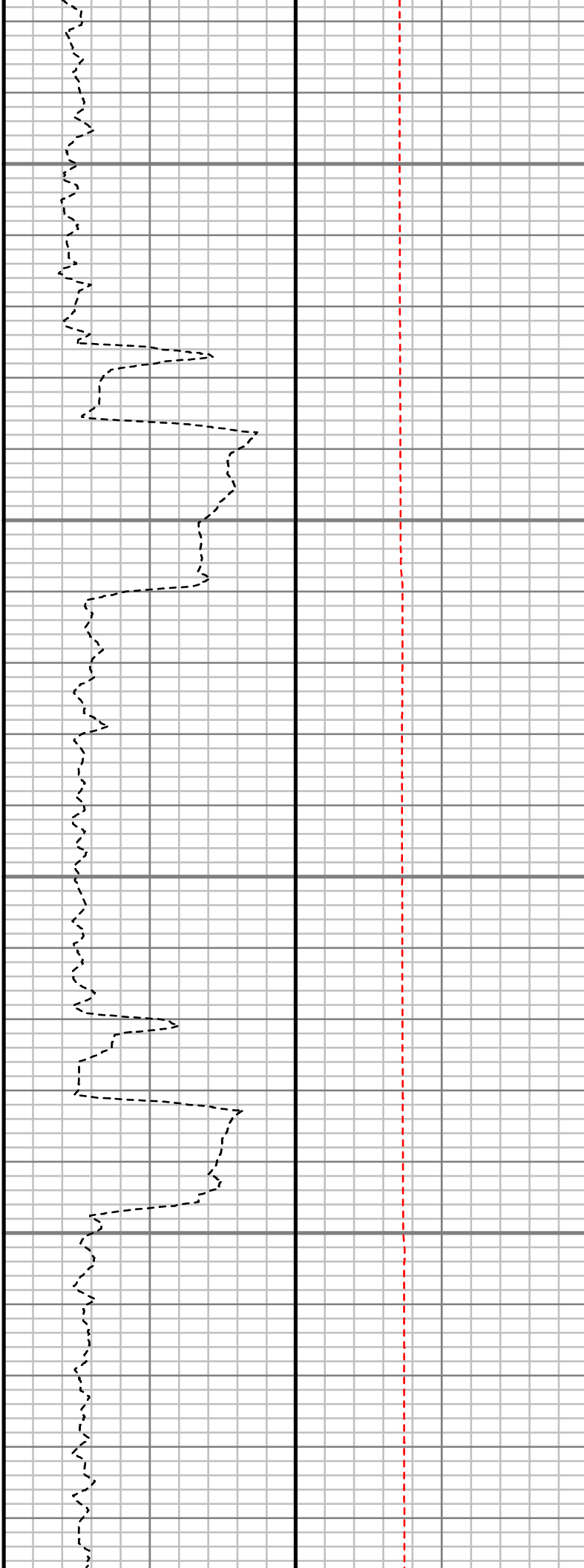


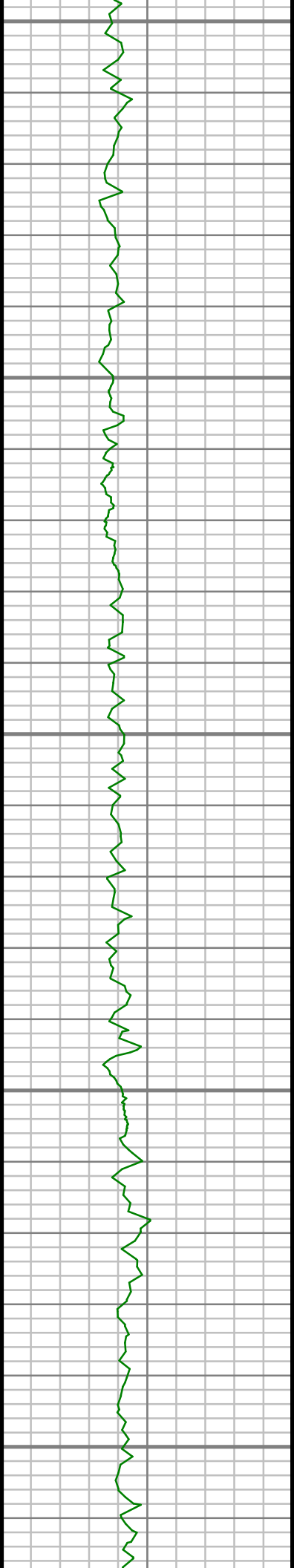
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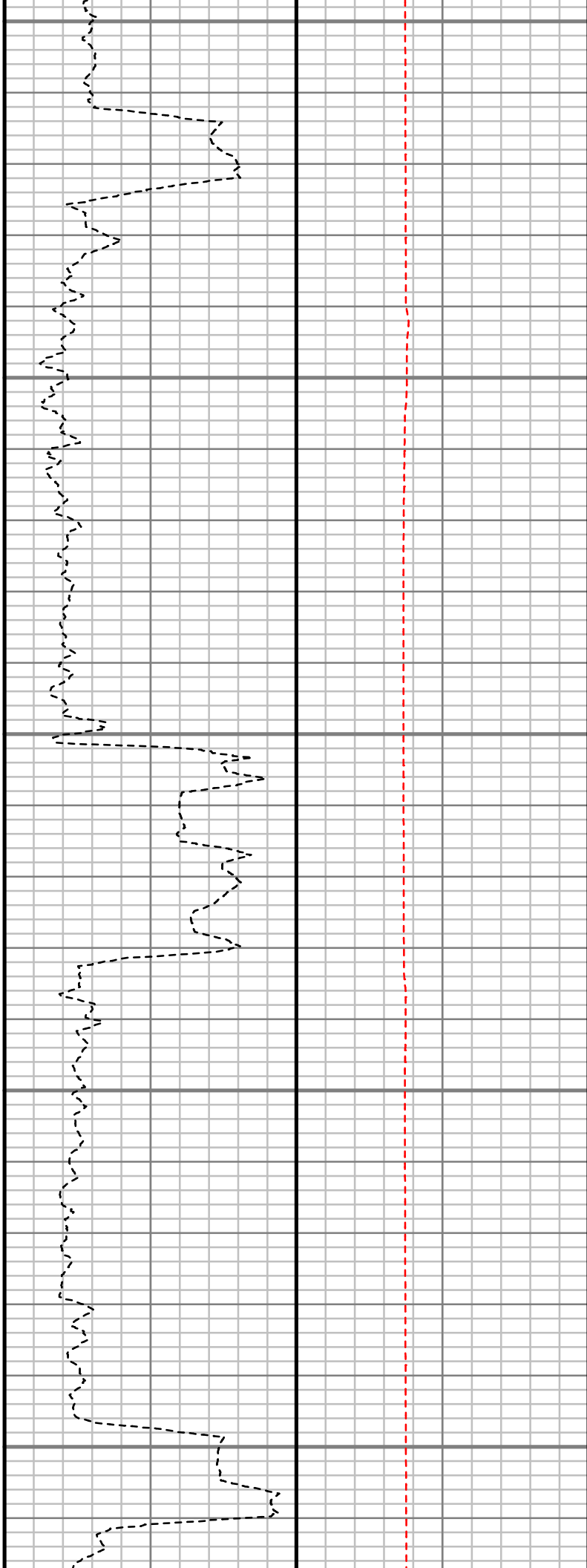
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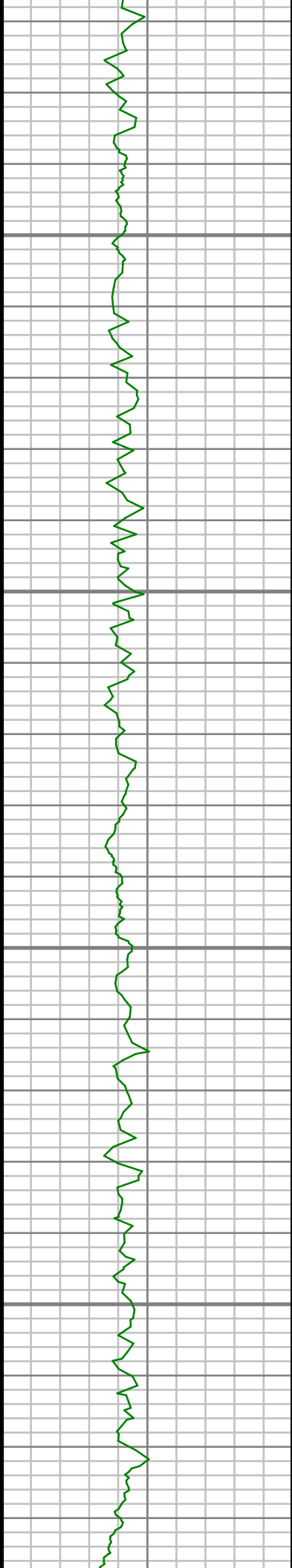
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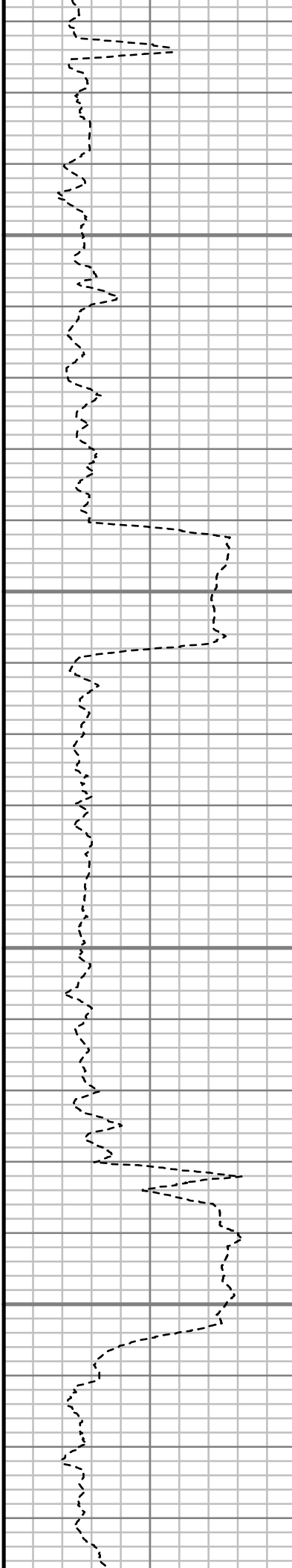


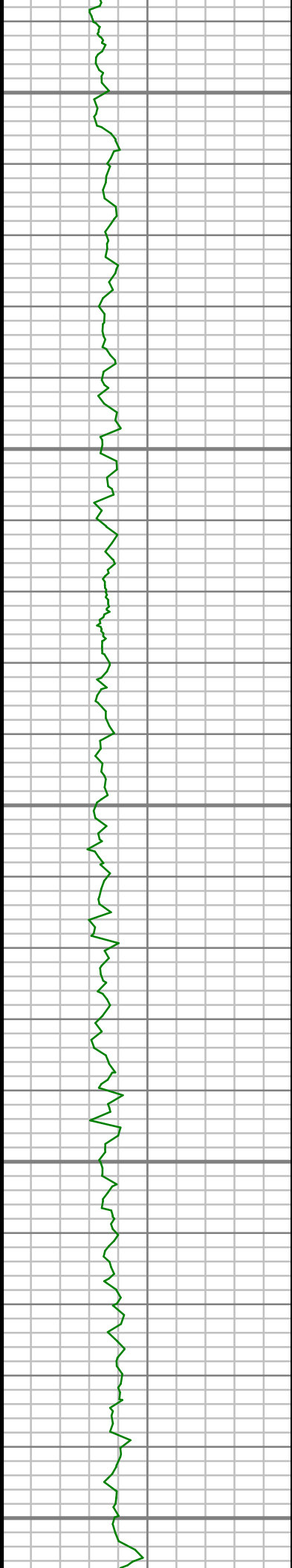
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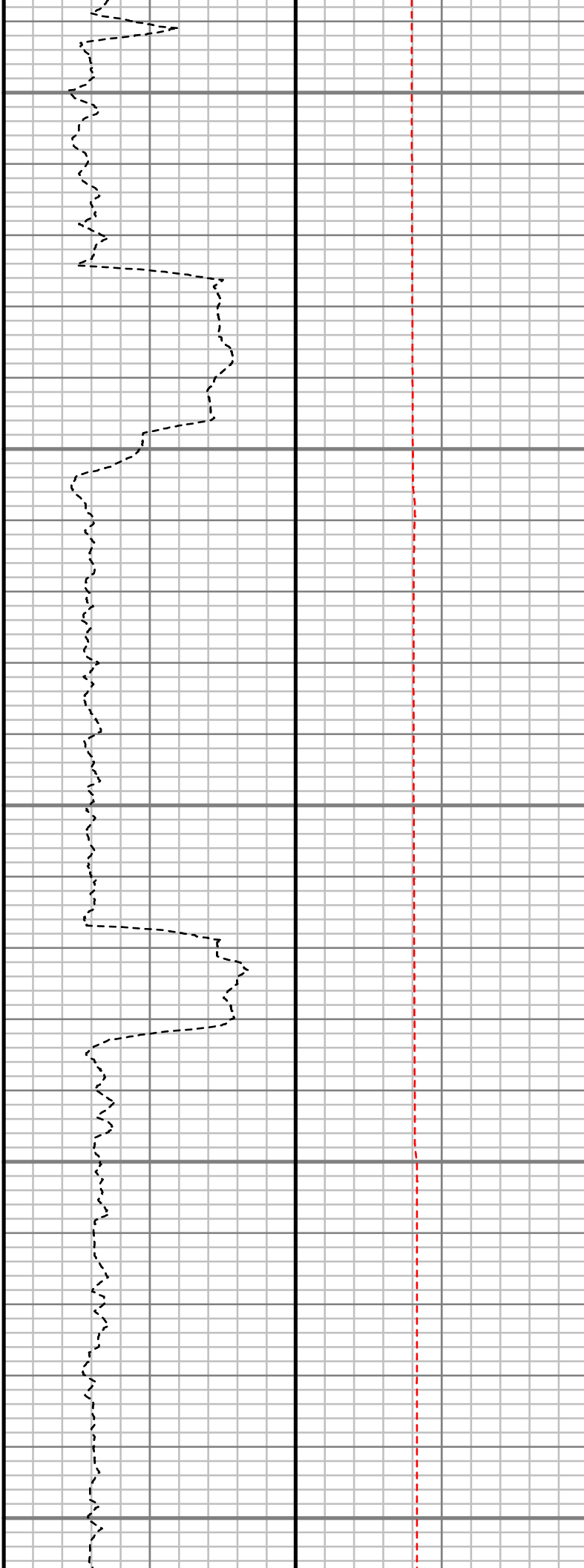
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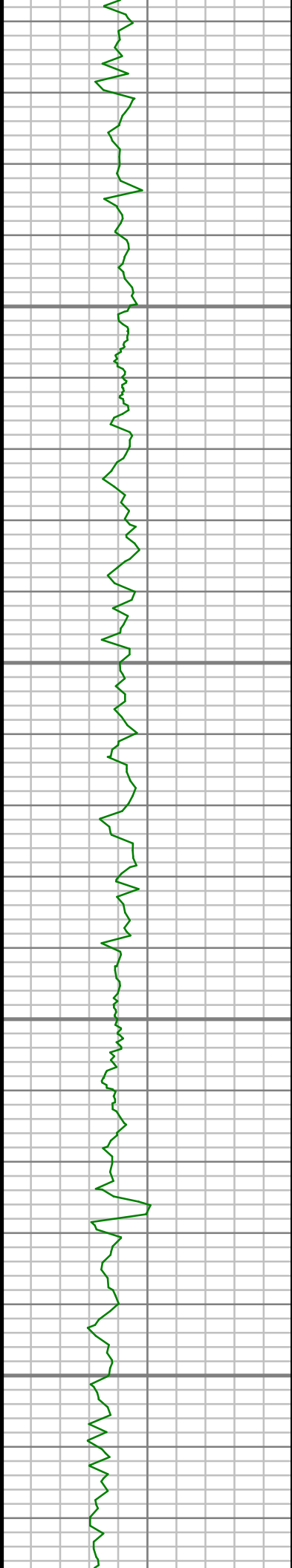
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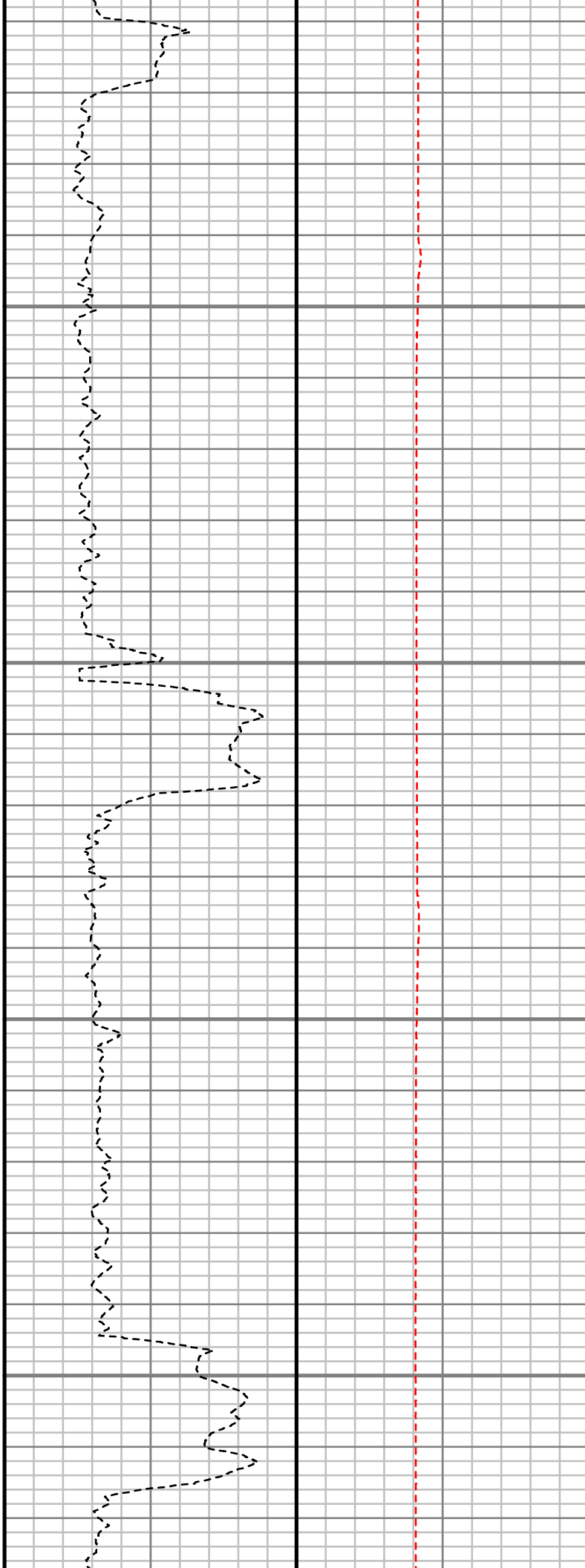


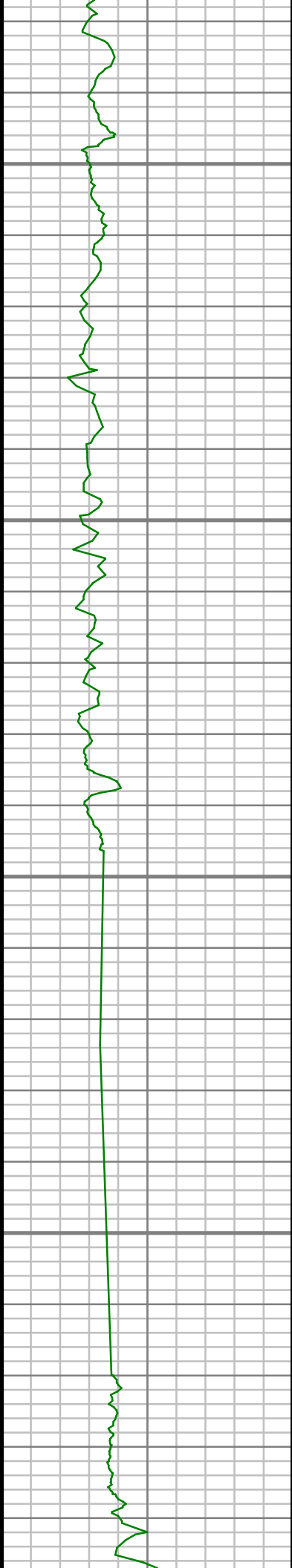
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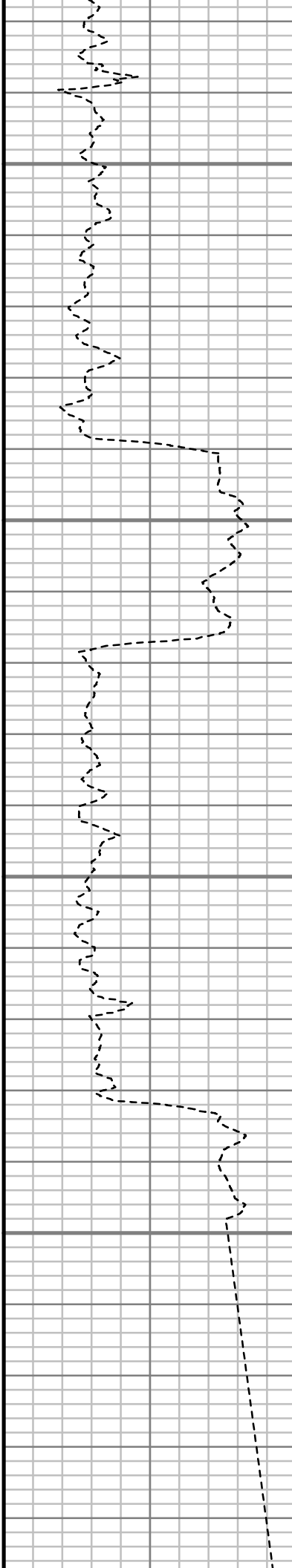


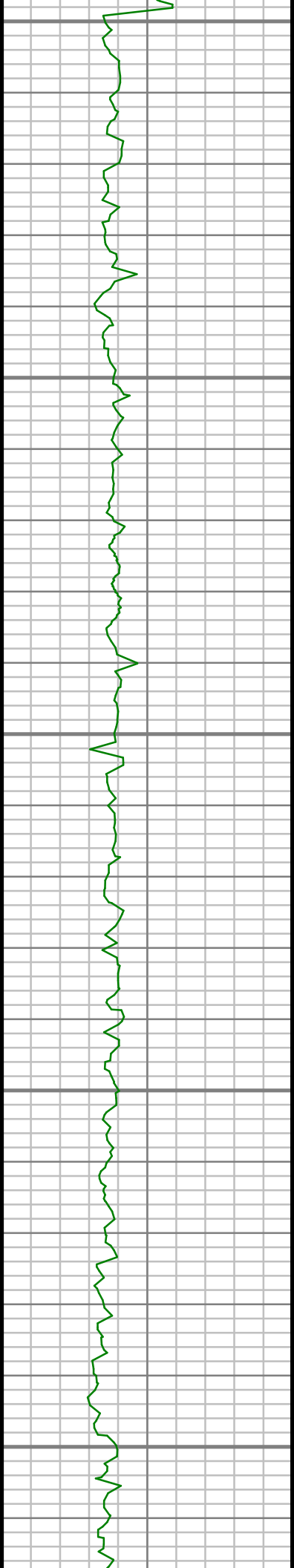
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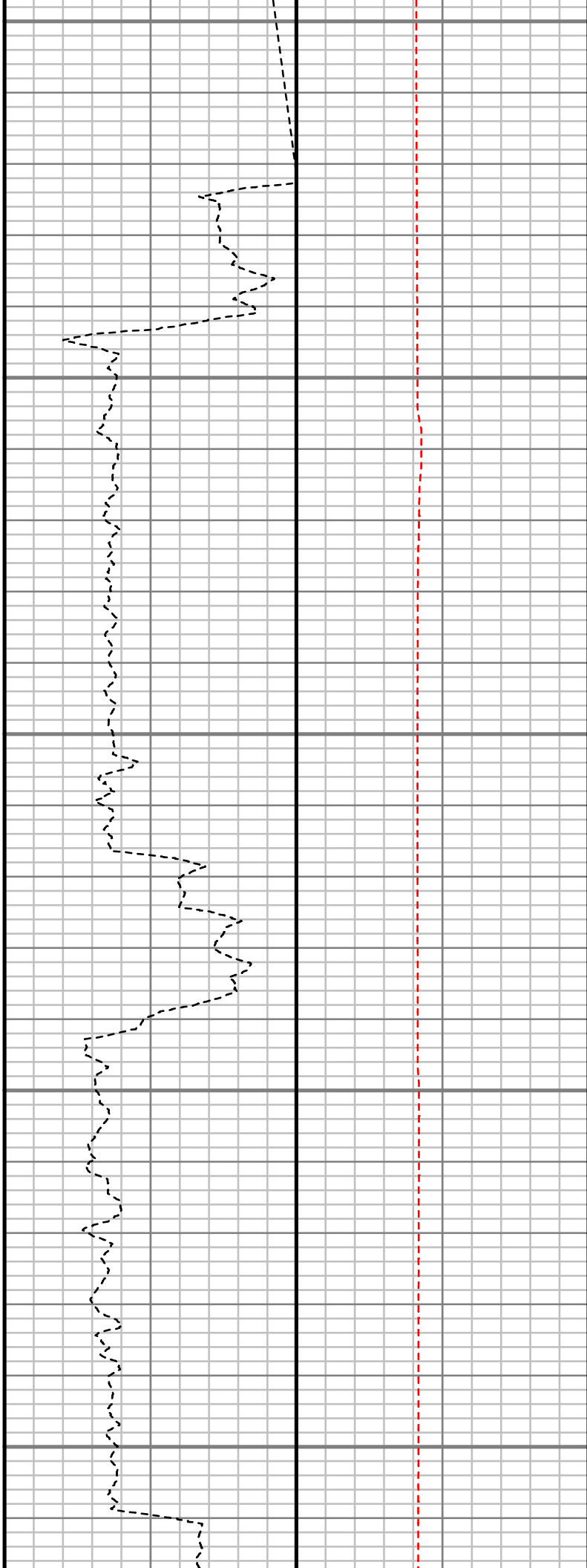
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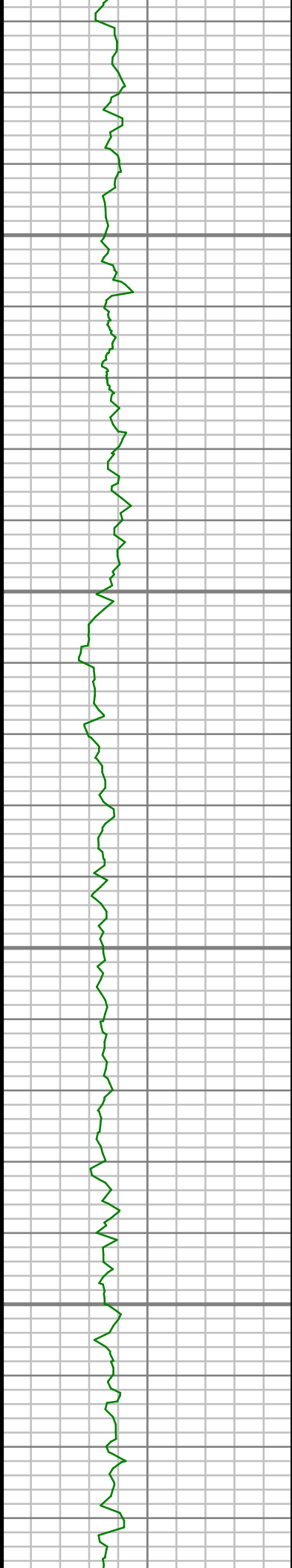
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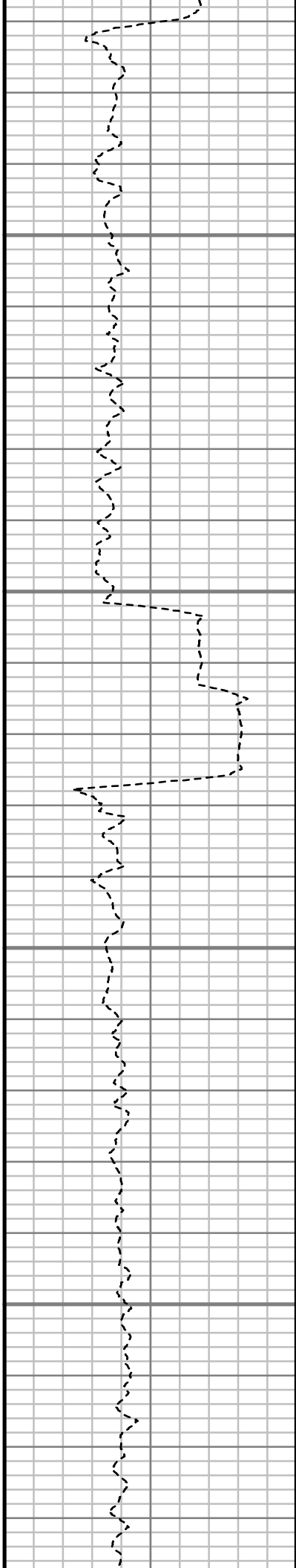


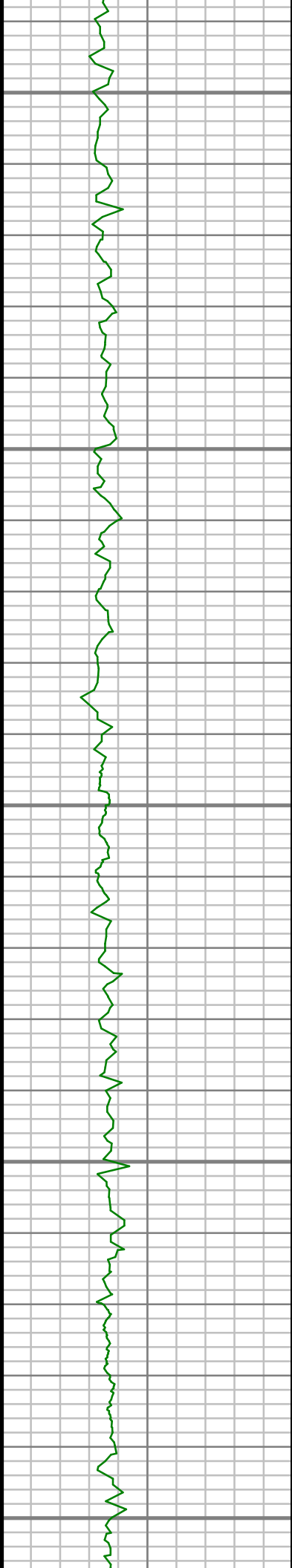
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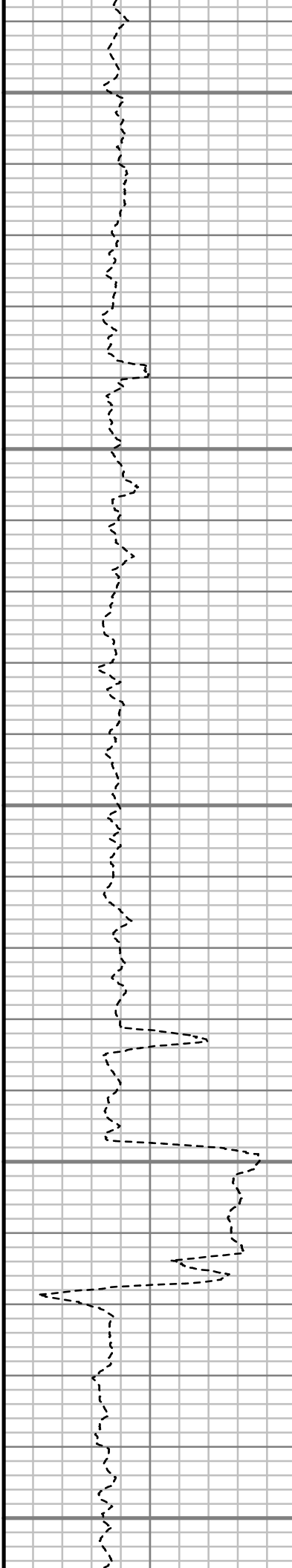
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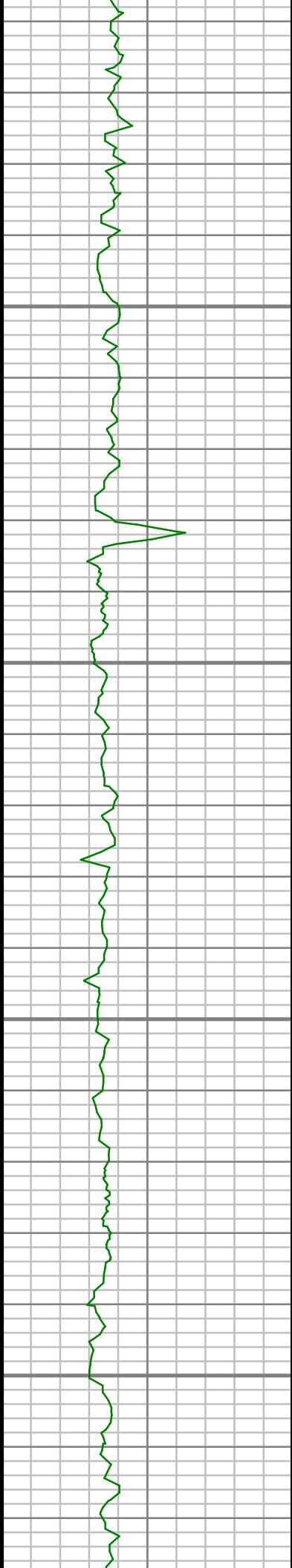
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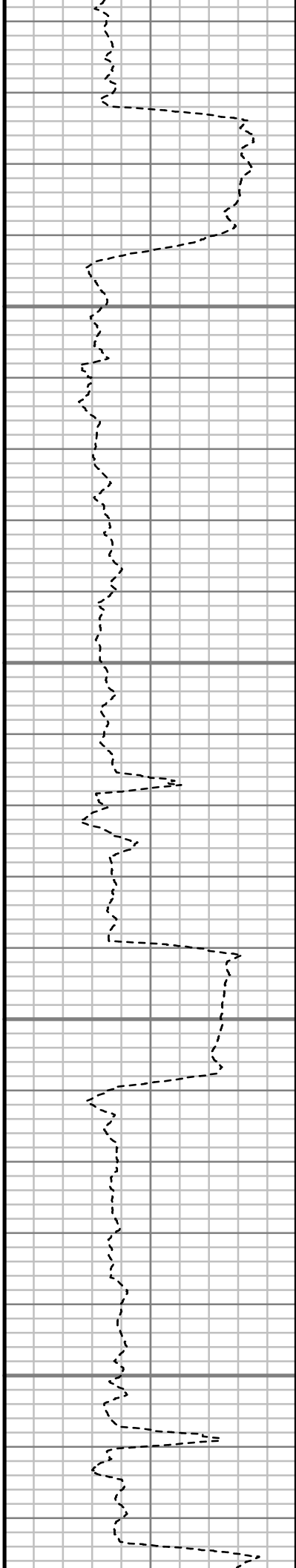


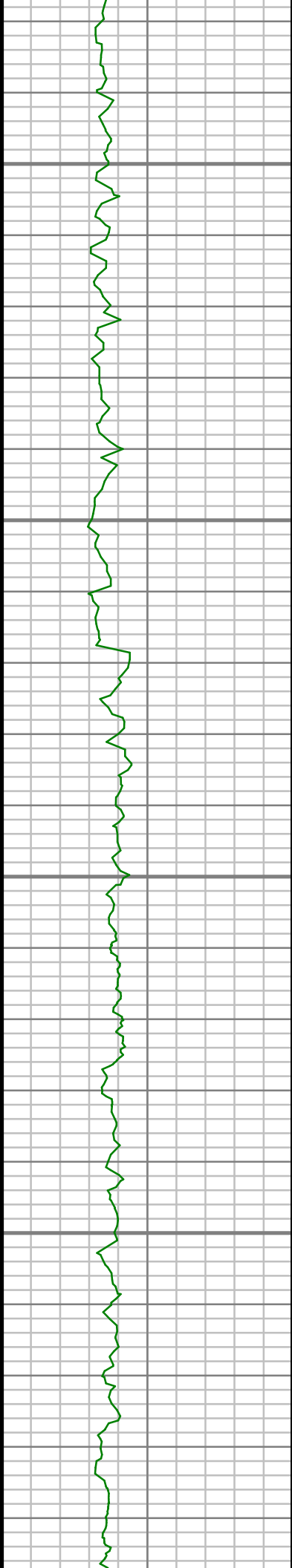
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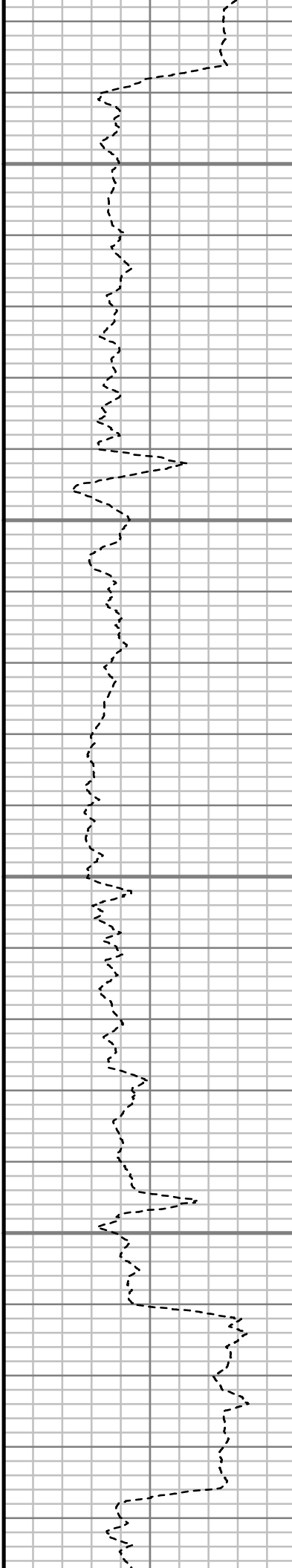


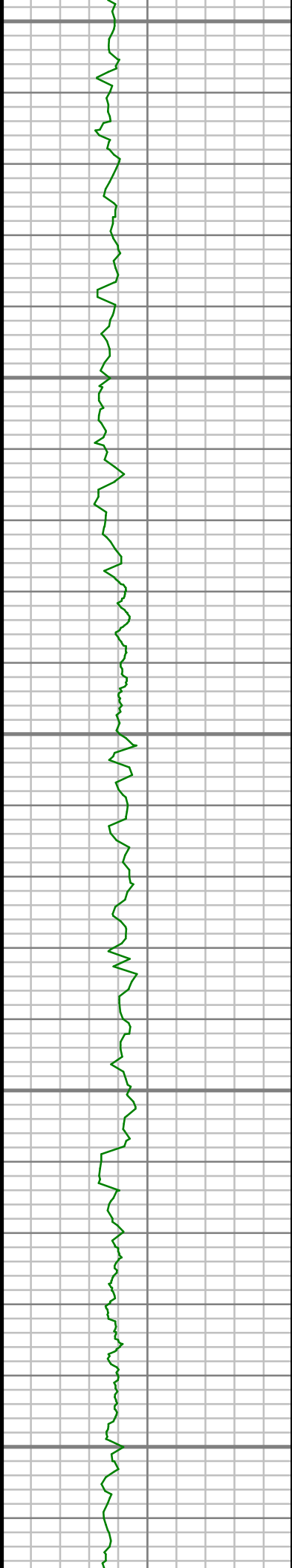
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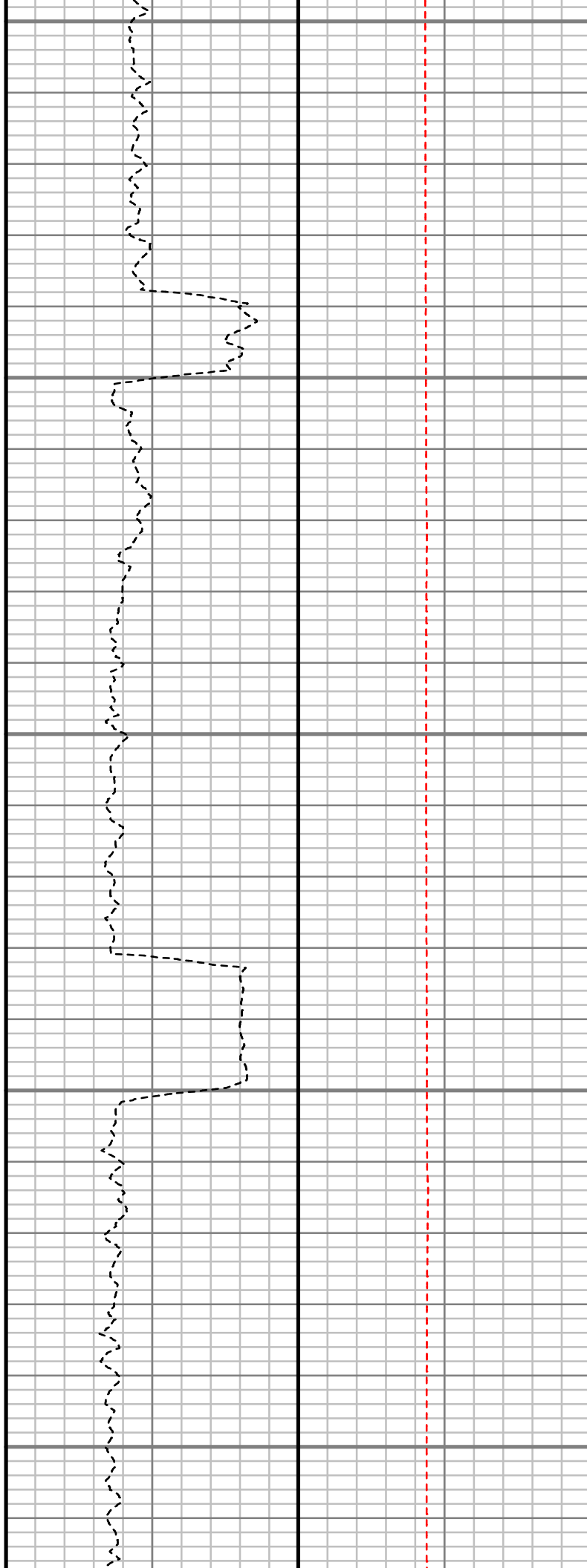
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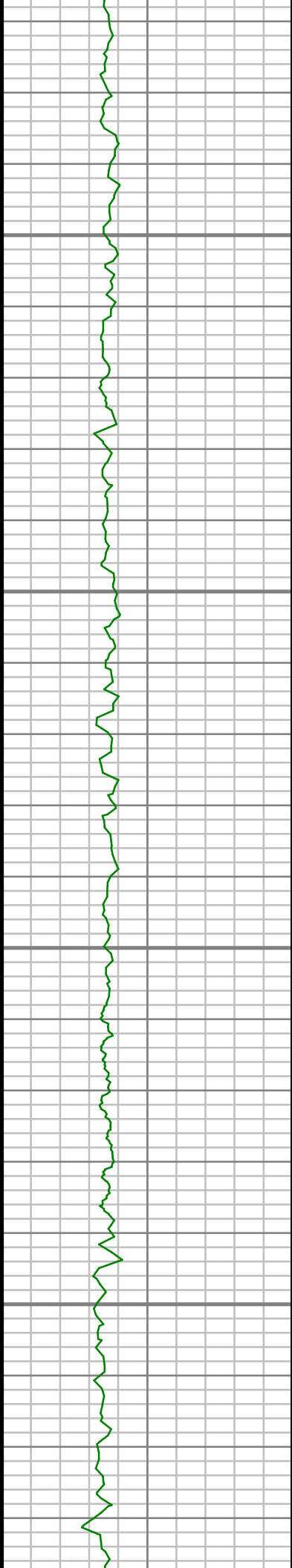
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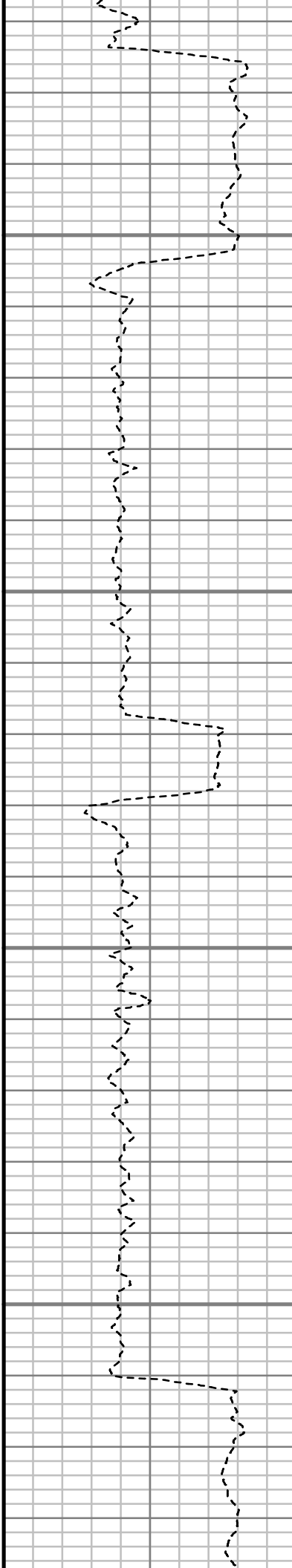


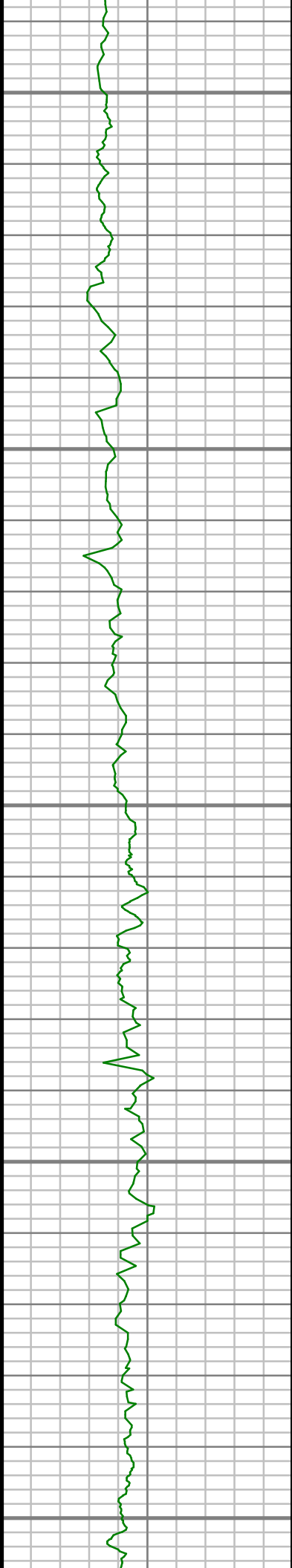
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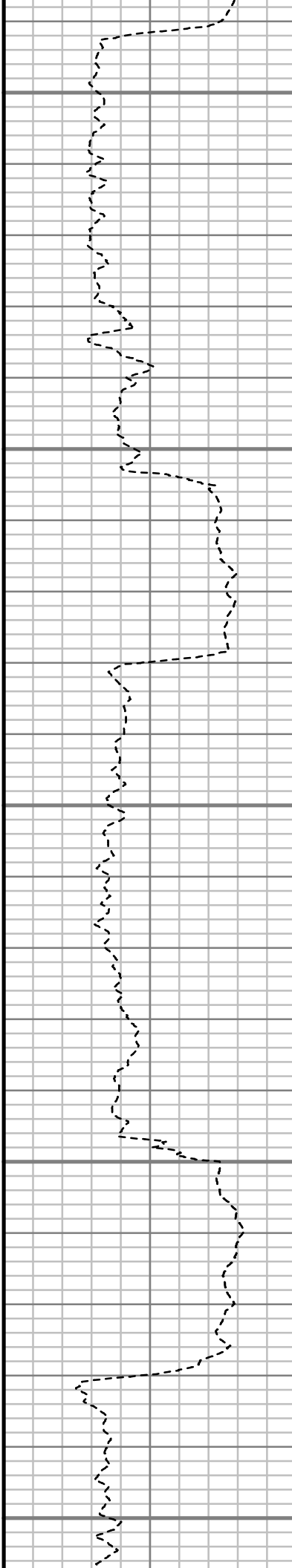
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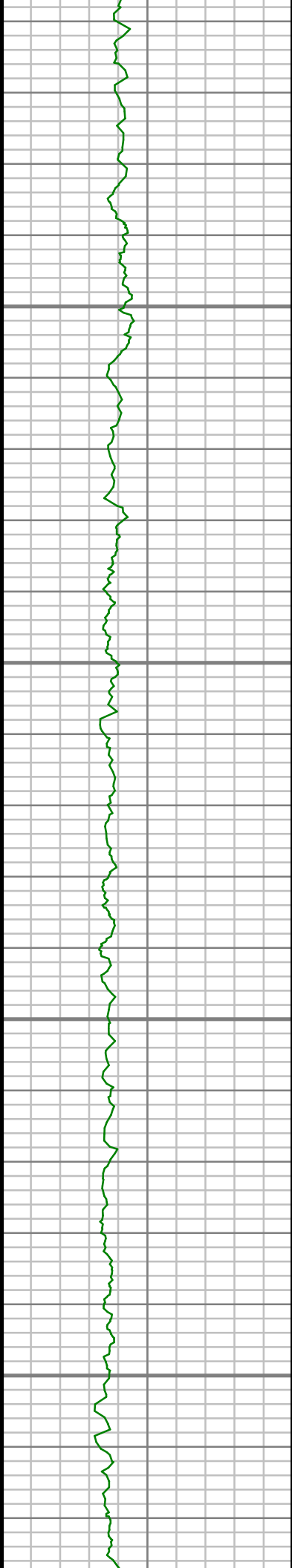
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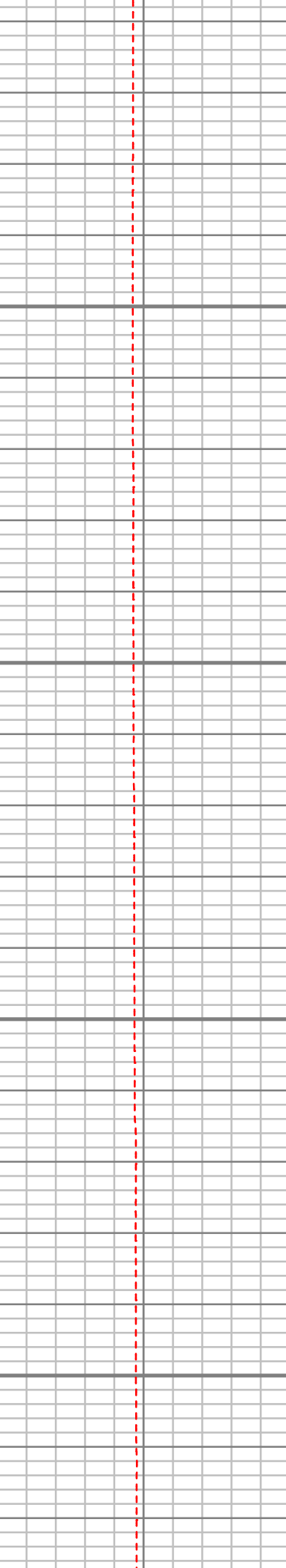
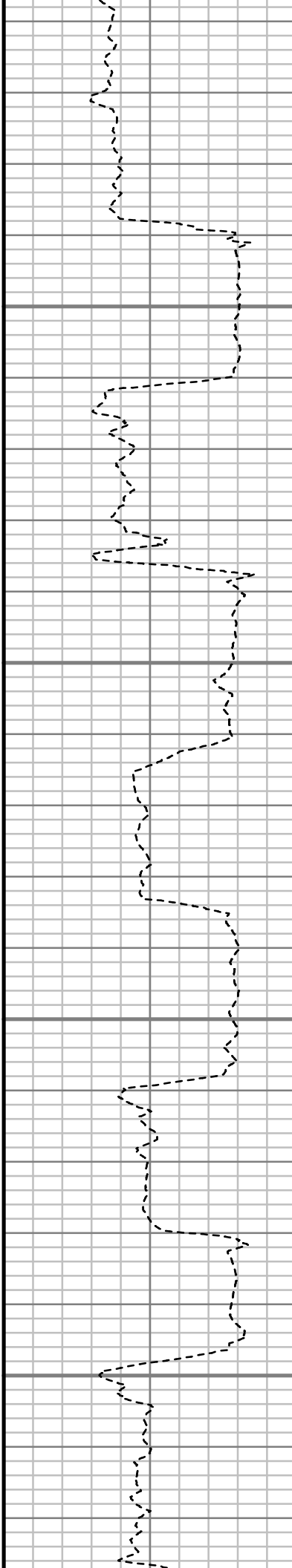


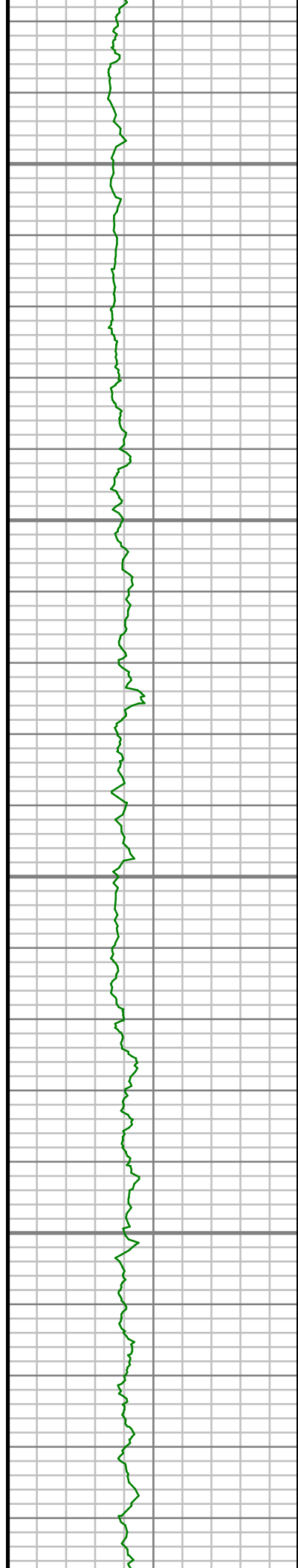
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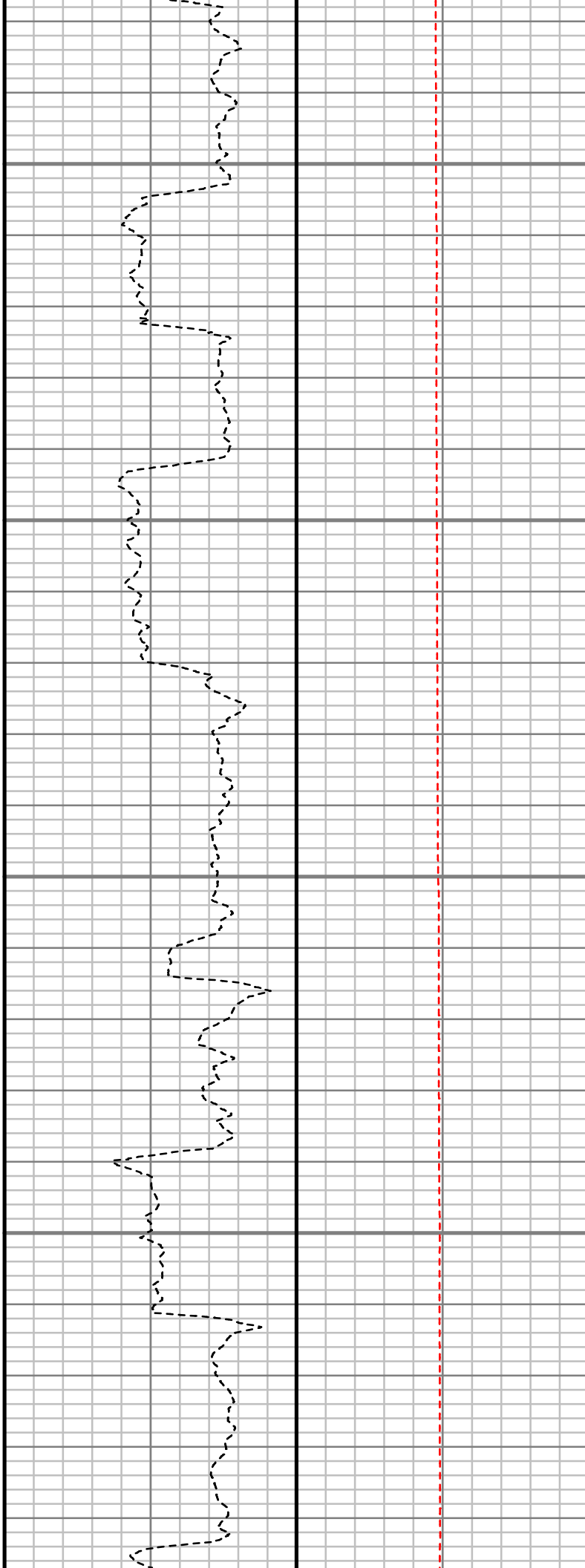


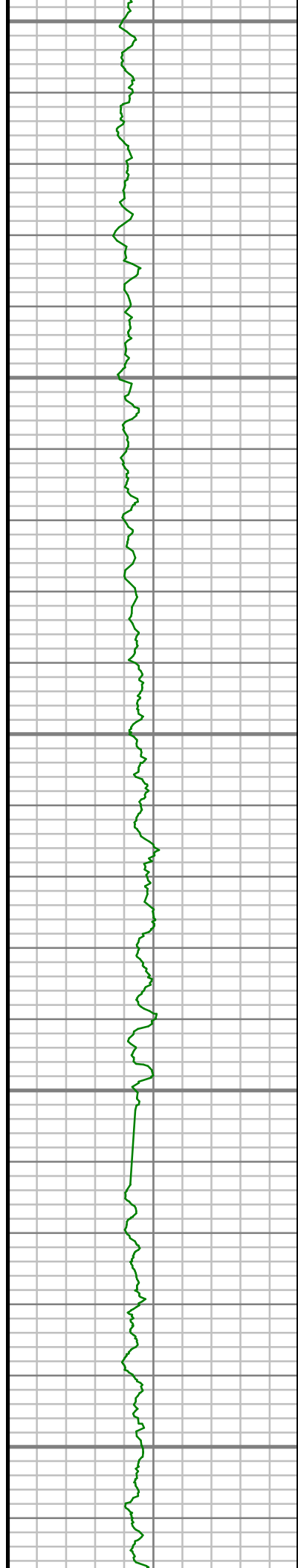
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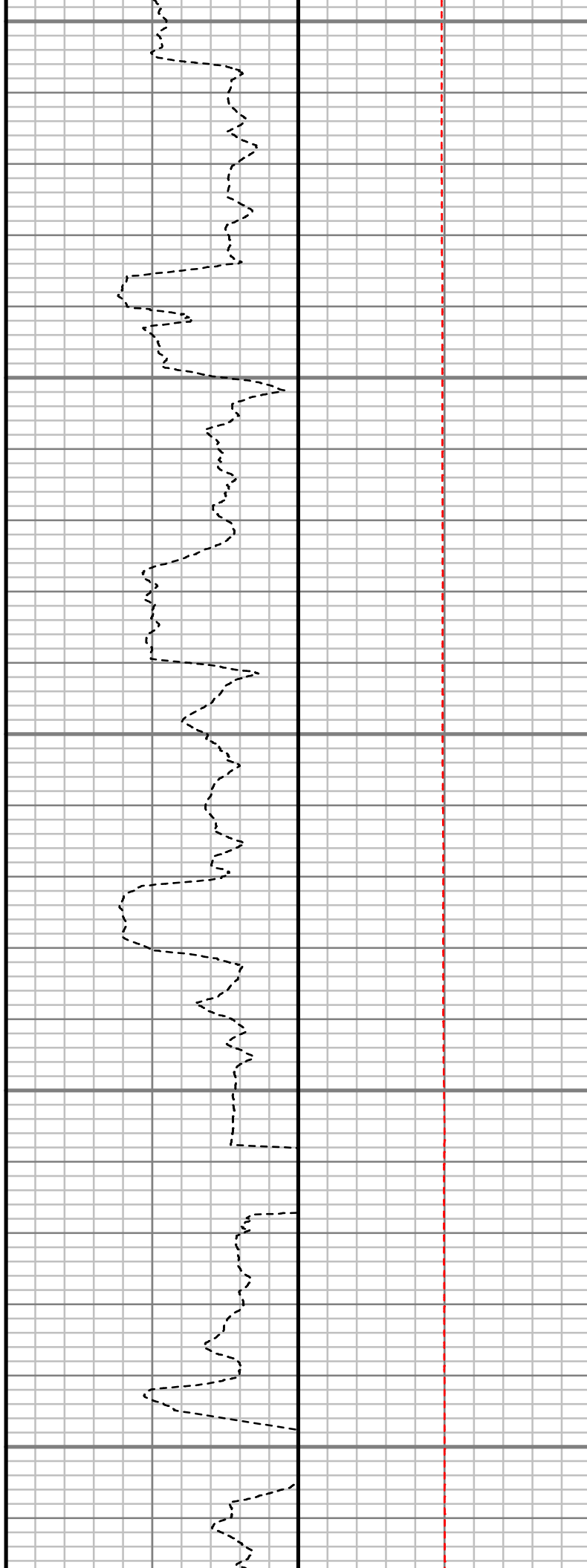
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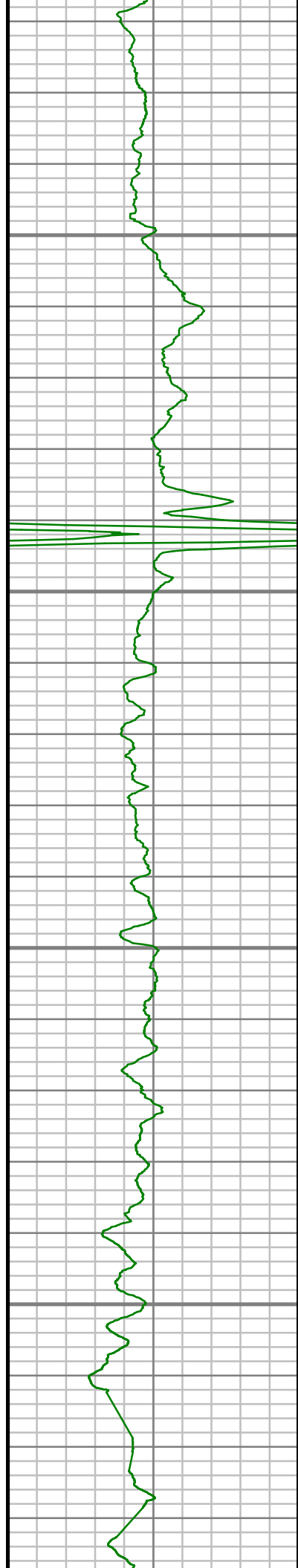
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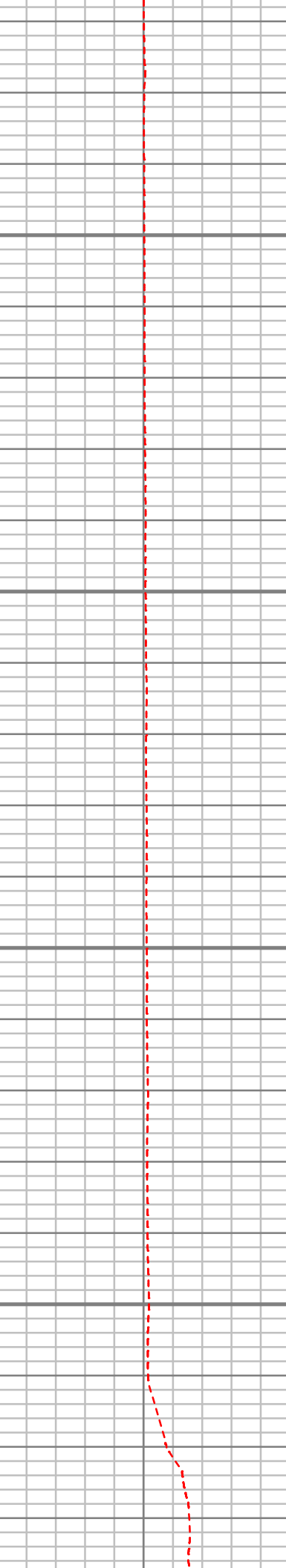
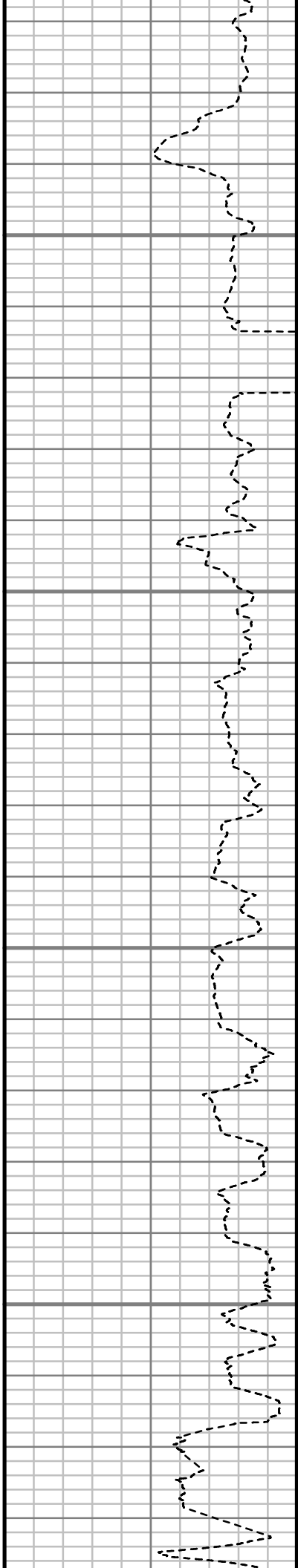


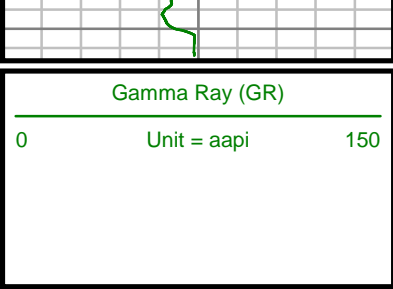
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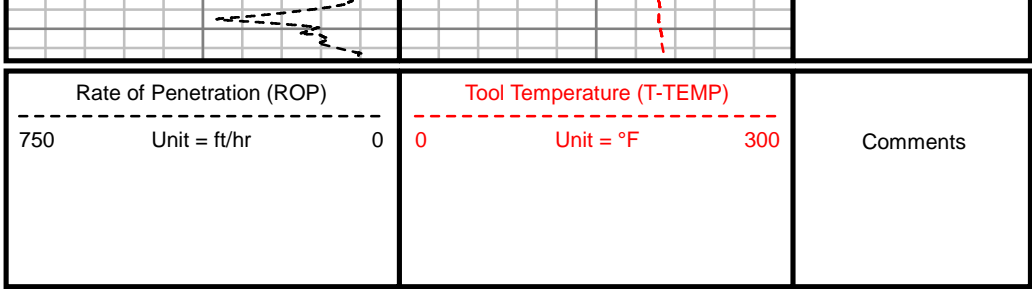
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7500





TRUE VERTICAL DEPTH
1:240 (ft)



Survey Report

Customer Name:	ANADARKO PETROLEUM CORP.						
Site Name:	NRC 29N-8HZ						
Well Name:	NRC 29N-8HZ						
Survey:	NRC 29N-8HZ						
Survey Date:	3/16/2014						
Magnetic Declination:	8.51 deg						
North Reference:	True North						
Calculation Method:	Minimum Curvature						
Section (VS) Ref:	0.00N (ft), 0.00E (ft), 0.00Azim (deg)						
MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid
100.00	0.32	261.30	100.00	-0.04	-0.04	-0.28	0.32
200.00	0.50	122.06	200.00	-0.32	-0.32	-0.18	0.77
300.00	0.59	31.69	300.00	-0.11	-0.11	0.46	0.78
400.00	0.48	273.26	399.99	0.35	0.35	0.31	0.92
500.00	0.37	139.57	499.99	0.13	0.13	0.10	0.78
600.00	0.35	346.43	599.99	0.18	0.18	0.24	0.70
700.00	0.57	213.40	699.99	0.06	0.06	-0.11	0.85
800.00	0.33	64.16	799.99	-0.23	-0.23	-0.12	0.87

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
900.00	0.39	278.15	899.99	-0.05	-0.05	-0.20	0.69
1000.00	0.54	184.79	999.99	-0.47	-0.47	-0.57	0.68
1100.00	0.39	24.32	1099.98	-0.63	-0.63	-0.47	0.92
1122.00	0.40	67.22	1121.98	-0.54	-0.54	-0.37	1.31
1271.00	0.23	3.52	1270.98	-0.03	-0.03	0.13	0.24
1363.00	1.31	259.00	1362.97	-0.04	-0.04	-0.89	1.51
1455.00	3.04	227.70	1454.91	-1.89	-1.89	-3.73	2.22
1547.00	4.05	224.71	1546.73	-5.84	-5.84	-7.83	1.12
1638.00	4.06	225.74	1637.50	-10.38	-10.38	-12.40	0.08
1730.00	4.73	225.89	1729.23	-15.30	-15.30	-17.46	0.73
1821.00	6.05	227.01	1819.82	-21.18	-21.18	-23.66	1.45
1913.00	7.00	224.25	1911.23	-28.50	-28.50	-31.12	1.09
2005.00	7.35	216.99	2002.51	-37.22	-37.22	-38.57	1.06
2096.00	10.02	218.32	2092.46	-48.08	-48.08	-46.98	2.94
2188.00	10.76	218.93	2182.95	-61.04	-61.04	-57.34	0.81
2280.00	10.86	218.58	2273.32	-74.49	-74.49	-68.14	0.13
2372.00	10.56	219.92	2363.72	-87.73	-87.73	-78.95	0.42
2464.00	11.42	220.04	2454.03	-101.17	-101.17	-90.22	0.93
2556.00	10.42	217.28	2544.36	-114.76	-114.76	-101.12	1.22
2648.00	10.79	218.89	2634.79	-128.08	-128.08	-111.56	0.51

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
2740.00	9.69	222.09	2725.33	-140.53	-140.53	-122.15	1.34
2834.00	10.33	220.99	2817.89	-152.76	-152.76	-132.99	0.72
2928.00	10.06	222.38	2910.41	-165.19	-165.19	-144.05	0.39
3022.00	11.47	220.20	3002.75	-178.39	-178.39	-155.62	1.56
3117.00	10.27	220.60	3096.05	-192.03	-192.03	-167.22	1.26
3211.00	9.79	217.13	3188.61	-204.77	-204.77	-177.50	0.82
3306.00	10.50	223.53	3282.13	-217.48	-217.48	-188.34	1.40
3400.00	10.75	221.87	3374.52	-230.22	-230.22	-200.09	0.42
3495.00	9.88	222.24	3467.98	-242.85	-242.85	-211.48	0.92
3589.00	8.91	218.47	3560.72	-254.52	-254.52	-221.43	1.22
3684.00	10.69	224.09	3654.33	-266.62	-266.62	-232.15	2.12
3778.00	11.54	224.50	3746.57	-279.59	-279.59	-244.80	0.90
3872.00	12.07	224.48	3838.58	-293.30	-293.30	-258.28	0.57
3967.00	10.77	216.29	3931.70	-307.55	-307.55	-270.49	2.18
4061.00	9.17	215.20	4024.28	-320.75	-320.75	-280.01	1.71
4155.00	9.67	230.79	4117.03	-331.87	-331.87	-290.45	2.76
4250.00	10.98	224.63	4210.49	-343.35	-343.35	-302.99	1.80
4344.00	11.76	222.64	4302.64	-356.77	-356.77	-315.77	0.93
4439.00	12.24	219.43	4395.57	-371.67	-371.67	-328.72	0.86

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
4533.00	10.35	216.32	4487.74	-386.17	-386.17	-340.05	2.11
4627.00	10.17	220.43	4580.24	-399.29	-399.29	-350.44	0.80
4722.00	9.01	216.80	4673.91	-411.63	-411.63	-360.33	1.38
4816.00	10.17	212.55	4766.60	-424.52	-424.52	-369.20	1.45
4911.00	12.33	214.03	4859.77	-440.00	-440.00	-379.39	2.29
5005.00	11.68	212.54	4951.71	-456.34	-456.34	-390.13	0.76
5100.00	10.93	219.81	5044.87	-471.37	-471.37	-401.07	1.70
5194.00	10.27	223.93	5137.27	-484.25	-484.25	-412.59	1.07
5289.00	10.61	223.27	5230.70	-496.71	-496.71	-424.46	0.38
5477.00	8.84	222.12	5415.99	-520.04	-520.04	-446.02	0.95
5572.00	9.16	218.85	5509.82	-531.34	-531.34	-455.66	0.64
5666.00	10.56	221.26	5602.43	-543.65	-543.65	-466.04	1.55
5760.00	10.39	221.17	5694.86	-556.51	-556.51	-477.31	0.19
5854.00	11.72	214.43	5787.12	-570.77	-570.77	-488.28	1.97
5949.00	10.43	210.12	5880.35	-586.16	-586.16	-498.06	1.61
6043.00	9.28	212.73	5972.96	-599.90	-599.90	-506.42	1.31
6138.00	9.60	213.08	6066.67	-612.98	-612.98	-514.89	0.35
6232.00	9.02	216.91	6159.43	-625.44	-625.44	-523.59	0.91
6326.00	10.24	231.42	6252.12	-636.54	-636.54	-534.55	2.88
6421.00	8.02	232.98	6345.91	-645.80	-645.80	-546.45	2.35

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
6515.00	10.37	215.27	6438.71	-656.67	-656.67	-556.57	3.88
6610.00	10.00	216.62	6532.22	-670.27	-670.27	-566.43	0.46
6704.00	9.77	221.02	6624.82	-682.84	-682.84	-576.54	0.84
6751.00	8.53	214.50	6671.23	-688.72	-688.72	-581.13	3.44
6799.00	7.78	228.08	6718.74	-693.82	-693.82	-585.56	4.29
6846.00	7.68	253.69	6765.33	-696.83	-696.83	-590.94	7.27
6893.00	8.72	279.63	6811.87	-697.11	-697.11	-597.47	8.09
6940.00	10.17	287.76	6858.23	-695.25	-695.25	-604.93	4.19
6987.00	8.71	307.80	6904.61	-691.81	-691.81	-611.70	7.60
7034.00	8.80	330.49	6951.07	-686.49	-686.49	-616.28	7.30
7082.00	11.70	336.87	6998.30	-678.82	-678.82	-620.00	6.47
7129.00	15.78	333.94	7043.95	-668.69	-668.69	-624.69	8.81
7176.00	20.40	333.48	7088.61	-655.61	-655.61	-631.16	9.83
7223.00	24.77	333.30	7132.00	-639.48	-639.48	-639.24	9.30
7270.00	28.76	335.46	7173.95	-620.39	-620.39	-648.36	8.73
7317.00	32.17	339.31	7214.46	-598.39	-598.39	-657.48	8.37
7365.00	36.12	338.60	7254.18	-573.25	-573.25	-667.16	8.25
7412.00	40.81	338.66	7290.97	-546.03	-546.03	-677.81	9.98
7459.00	44.40	340.63	7325.56	-516.21	-516.21	-688.86	8.15

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
7506.00	48.88	344.09	7357.83	-483.65	-483.65	-699.17	10.94
7553.00	55.28	347.03	7386.70	-447.76	-447.76	-708.37	14.48
7600.00	60.00	349.26	7411.85	-408.91	-408.91	-716.50	10.82
7647.00	64.88	350.64	7433.59	-367.90	-367.90	-723.76	10.69
7694.00	67.25	353.41	7452.67	-325.36	-325.36	-729.71	7.38
7742.00	68.87	356.69	7470.60	-281.02	-281.02	-733.55	7.19
7789.00	71.71	0.17	7486.46	-236.80	-236.80	-734.75	9.22
7836.00	75.81	359.62	7499.60	-191.68	-191.68	-734.83	8.80
7883.00	79.95	358.81	7509.46	-145.75	-145.75	-735.46	8.97
7957.00	88.59	359.04	7516.84	-72.20	-72.20	-736.84	11.68
8051.00	90.71	357.95	7517.42	21.76	21.76	-739.31	2.53
8145.00	89.87	358.01	7516.95	115.70	115.70	-742.62	0.90
8240.00	89.73	358.85	7517.29	210.66	210.66	-745.23	0.89
8334.00	88.59	359.72	7518.67	304.64	304.64	-746.40	1.53
8429.00	90.23	0.71	7519.64	399.63	399.63	-746.05	2.02
8523.00	89.19	1.05	7520.11	493.62	493.62	-744.61	1.17
8617.00	90.17	1.08	7520.63	587.60	587.60	-742.86	1.04
8712.00	90.44	0.65	7520.13	682.59	682.59	-741.43	0.54
8806.00	90.24	0.87	7519.58	776.58	776.58	-740.19	0.32
8901.00	91.91	0.66	7517.80	871.55	871.55	-738.91	1.78

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
8995.00	92.22	0.22	7514.41	965.49	965.49	-738.19	0.57
9089.00	91.18	358.86	7511.63	1059.44	1059.44	-738.94	1.82
9184.00	90.81	358.01	7509.99	1154.39	1154.39	-741.53	0.98
9278.00	89.46	356.95	7509.77	1248.29	1248.29	-745.66	1.82
9373.00	88.72	358.52	7511.27	1343.20	1343.20	-749.42	1.83
9467.00	87.95	359.14	7514.00	1437.14	1437.14	-751.34	1.06
9561.00	88.18	358.27	7517.17	1531.06	1531.06	-753.47	0.96
9656.00	88.42	359.50	7519.98	1626.00	1626.00	-755.32	1.32
9750.00	87.58	0.81	7523.26	1719.94	1719.94	-755.07	1.66
9845.00	88.39	0.93	7526.61	1814.87	1814.87	-753.63	0.86
9939.00	89.60	1.16	7528.26	1908.84	1908.84	-751.91	1.31
10034.00	90.13	1.04	7528.48	2003.82	2003.82	-750.09	0.58
10128.00	92.28	0.34	7526.50	2097.79	2097.79	-748.96	2.41
10223.00	93.13	359.29	7522.01	2192.68	2192.68	-749.27	1.42
10317.00	91.92	358.02	7517.87	2286.56	2286.56	-751.48	1.87
10411.00	90.17	356.98	7516.15	2380.45	2380.45	-755.58	2.17
10506.00	88.02	357.57	7517.66	2475.32	2475.32	-760.09	2.35
10600.00	89.70	356.86	7519.53	2569.19	2569.19	-764.66	1.94
10694.00	89.76	354.94	7519.97	2662.94	2662.94	-771.38	2.05

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft
10789.00	90.61	353.58	7519.67	2757.46	2757.46	-780.88	1.68
10883.00	90.87	352.01	7518.45	2850.71	2850.71	-792.67	1.70
10977.00	91.01	350.60	7516.91	2943.61	2943.61	-806.88	1.51
11072.00	89.36	349.31	7516.60	3037.15	3037.15	-823.46	2.20
11166.00	89.23	349.29	7517.76	3129.51	3129.51	-840.91	0.14
11260.00	87.41	349.91	7520.52	3221.92	3221.92	-857.87	2.04
11355.00	85.86	351.89	7526.09	3315.56	3315.56	-872.86	2.64
11449.00	86.30	355.13	7532.52	3408.72	3408.72	-883.47	3.47
11544.00	87.48	356.54	7537.67	3503.33	3503.33	-890.35	1.94
11638.00	88.89	357.75	7540.65	3597.16	3597.16	-895.03	1.98
11733.00	90.03	358.66	7541.54	3692.11	3692.11	-898.01	1.54
11827.00	90.10	359.61	7541.43	3786.10	3786.10	-899.42	1.01
11921.00	89.80	1.85	7541.52	3880.08	3880.08	-898.22	2.41
12016.00	89.13	5.08	7542.41	3974.89	3974.89	-892.48	3.47
12110.00	90.91	7.83	7542.38	4068.28	4068.28	-881.91	3.48
12205.00	90.13	9.33	7541.52	4162.21	4162.21	-867.74	1.77
12299.00	91.55	9.69	7540.14	4254.91	4254.91	-852.21	1.55
12385.00	92.76	8.39	7536.91	4339.78	4339.78	-838.71	2.07

5" = 100' FEET TVD