

5" = 100' FEET TVD

COMPANY : ENCANA OIL AND GAS (U.S.A.) INC
 WELL : DALE 4I-20H-0264
 FIELD : WATTENBERG
 COUNTY : WELD
 STATE : COLORADO
 COUNTRY : U.S.A.
 UWI : 05-123-39727

COMPANY : ENCANA OIL AND GAS (U.S.A.) INC
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WELL LOCATION
 LAT:40°7'3.508"N LONG:104°34'18.502"W
 N:1287059.21 ft E:3259583.58 ft
 SEC:20 TWP:2N RANGE:64W

OTHER SERVICES

DIRECTIONAL
 ROP

DEPTH REF. : RKB
 REF. HEIGHT : 25.000 Ft
 GROUND LEVEL : 4957.000 ft
 RKB to Ground Level
 G.L. to MEAN SEA LEVEL

BOREHOLE RECORD

DEVIATION RECORD

HOLE SIZE in	FROM Ft	TO Ft	INCLINATION deg	FROM Ft	TO Ft
12.25	0	1111	0 - 14	0	4226
8.75	1111	7352	14 - 0	4226	6415
6.125	7352	11504	0 - 78	6415	7352
			78 - 92	7352	11504

CASING RECORD

CASING SIZE in	FROM Ft	TO Ft	DEVIATION RECORD		
9.625	0	1094			
7	0	7345			

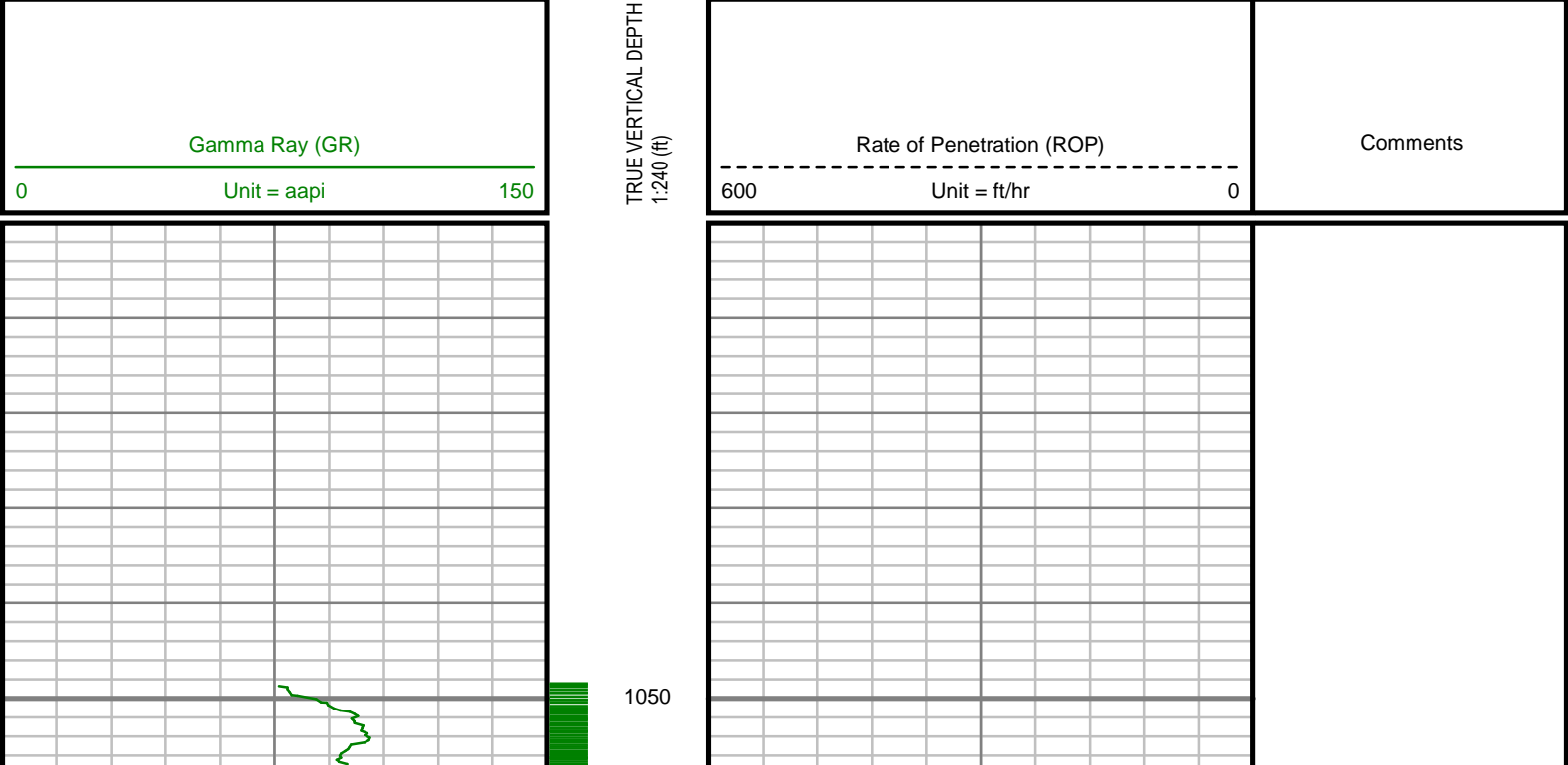
DRILLING CO. : H&P
 RIG : 278
 LMD UNIT NO. : MWD-00046-DISTRICT : CASPER, CASP
 SPUD DATE : 08/17/2014
 LMD START DATE : 09/15/2014
 LMD END DATE : 09/20/2014
 DEPTH : 5000 Ft
 DEPTH : 11504 Ft
 TOTAL DEPTH : 11504 Ft

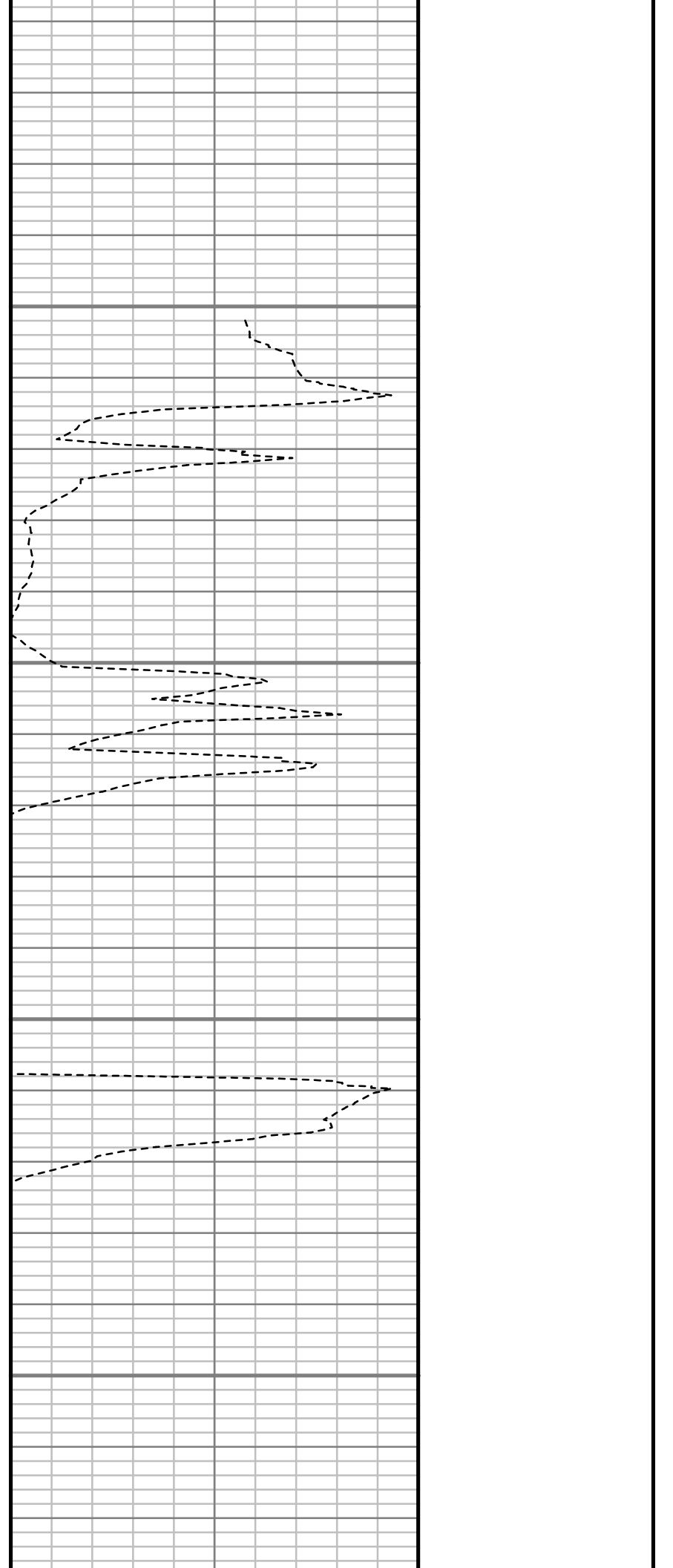
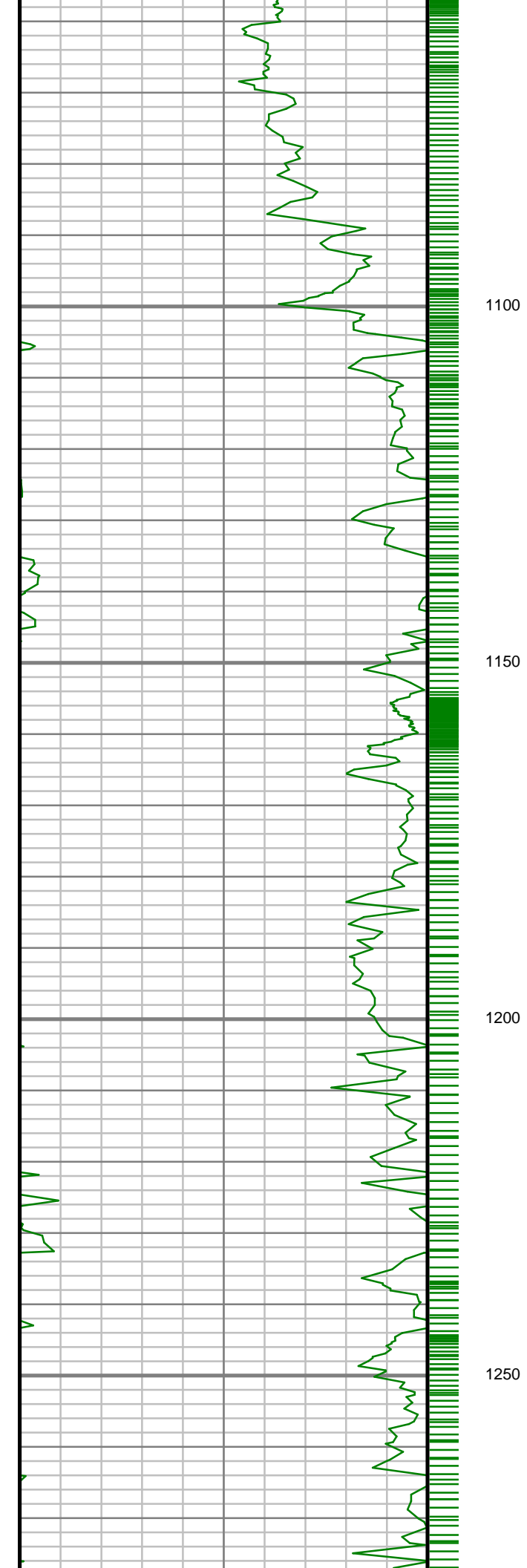
Run Data			
RUN NUMBER	1	2	3
START DATE	08/17/2014	09/15/2014	09/18/2014
START TIME	1745	0530	1930
END DATE	08/18/2014	09/17/2014	09/20/2014
END TIME	0220	1630	0930
DEPTH IN (ft)	0	1111	7352
DEPTH OUT (ft)	1111	7352	11504
LOG TOP (ft)	-	5000	7298
LOG BOTTOM (ft)	-	7298	11451
HOLE SIZE (in)	12.25	8.75	6.125
MUD DATA @ (ft)	1111	7035	10805
MUD TYPE	WATER-BASED	WATER-BASED	WATER-BASED
DENSITY (lb / gal)	8.5	10.5	10.1
VISCOSITY (s / qt)	26	36	44
pH	-	8.1	7.7
FLUID LOSS (cm3 / 30)	-	-	-
SALINITY (ppm)	-	-	-
Rm (ohmm @ deg F)	-	-	-
Rmf (ohmm @ deg F)	-	-	-
MAX TEMP (deg F)	120	175	222
Rm @ MAX TEMP (ohmm)	-	-	-
LWD ENGINEER #1	S. WAXLER	C. WILSON	S. WAXLER
LWD ENGINEER #2	C. WILSON	T. LE	T. LE
LWD ENGINEER #3	T. LE	-	-
LOG WITNESS #1	P. KRUGER	P. KRUGER	P. KRUGER
LOG WITNESS #2	C. NAKOS	C. NAKOS	C. NAKOS

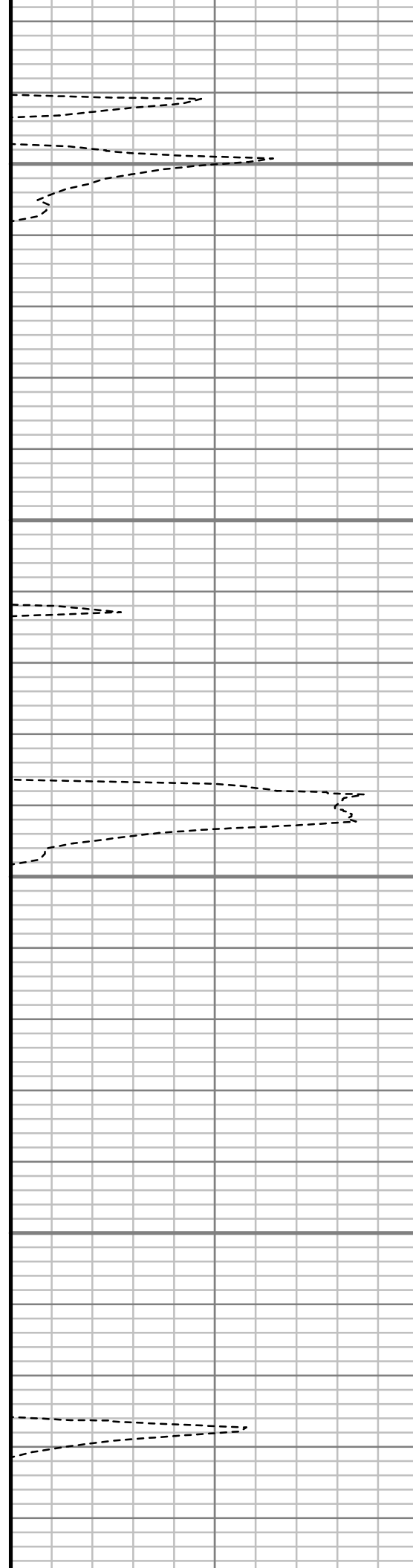
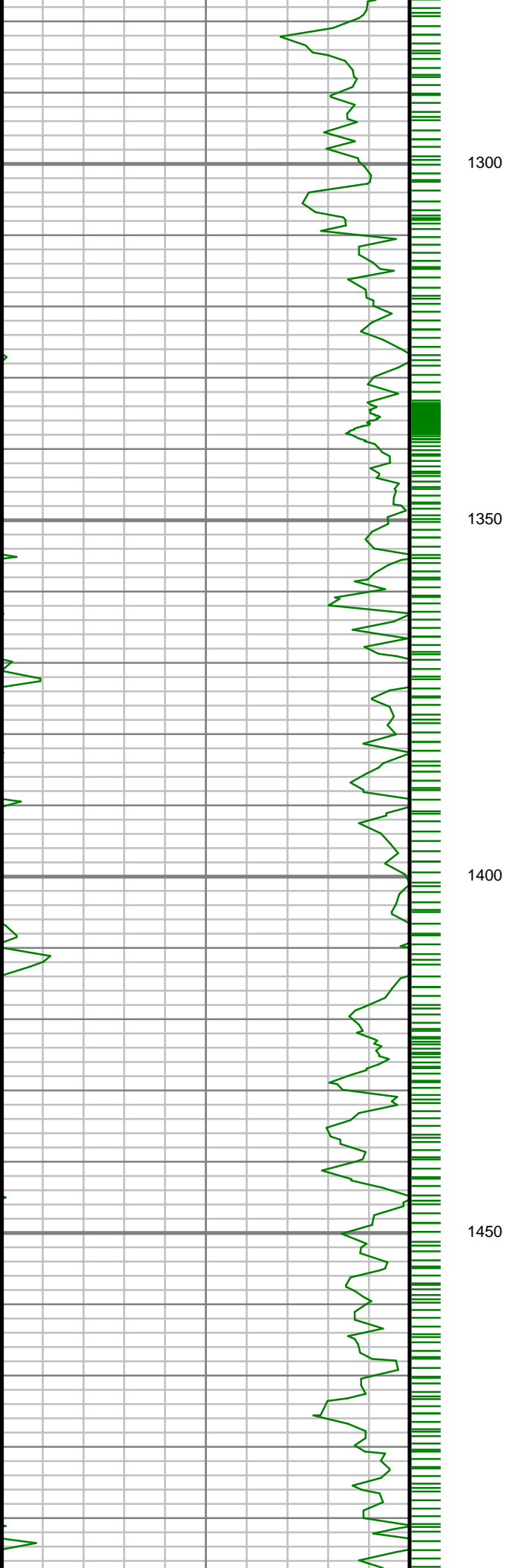
Remarks
ENCANA OIL AND GAS (U.S.A.) INC PRODUCTION AFE# 14182132
SCIENTIFIC DRILLING INTERNATIONAL JOB# 186338, 198465
ALL REFERENCES IN THE DEPTH TRACK ARE AT BIT DEPTH.
ALL DATA IS MEMORY DATA UNLESS STATED OTHERWISE.
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO GAMMA RAY CURVE
FLAT AVERAGE FILTER OF 1.00 FT APPLIED TO RATE OF PENETRATION CURVE
RUN #1 : GYRO DIRECTIONAL RUN
SENSORS S/N: EM 5 PULSER = 890 / GYRO = 034
BIT TO SENSOR OFFSET: SURVEY = 44.64 FT.
RUN #2 : MWD / GYRO / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSER = 128-094 / CONT = 858 / MWD EYE = 738 / GAMMA RAY = 1076 / GYRO = 012
BIT TO SENSOR OFFSETS: SURVEY = 63.23 FT. / GAMMA RAY = 54.57 FT. / GYRO = 43.09 FT.
RUN #3 : MWD / GAMMA RAY LOGGING RUN
SENSORS S/N: PULSER = 78-133 / CONT = 706 / MWD EYE = 0862 / GAMMA RAY = 1054
BIT TO SENSOR OFFSETS: SURVEY = 61.53 FT. / GAMMA RAY = 52.87 FT.
REMARK #1: GAMMA RAY FROM 7300 FT. - 7344 FT. WAS LOGGED BEHIND CASING.
MNEMONICS LIST:
GR = GAMMA RAY
ROP = RATE OF PENETRATION

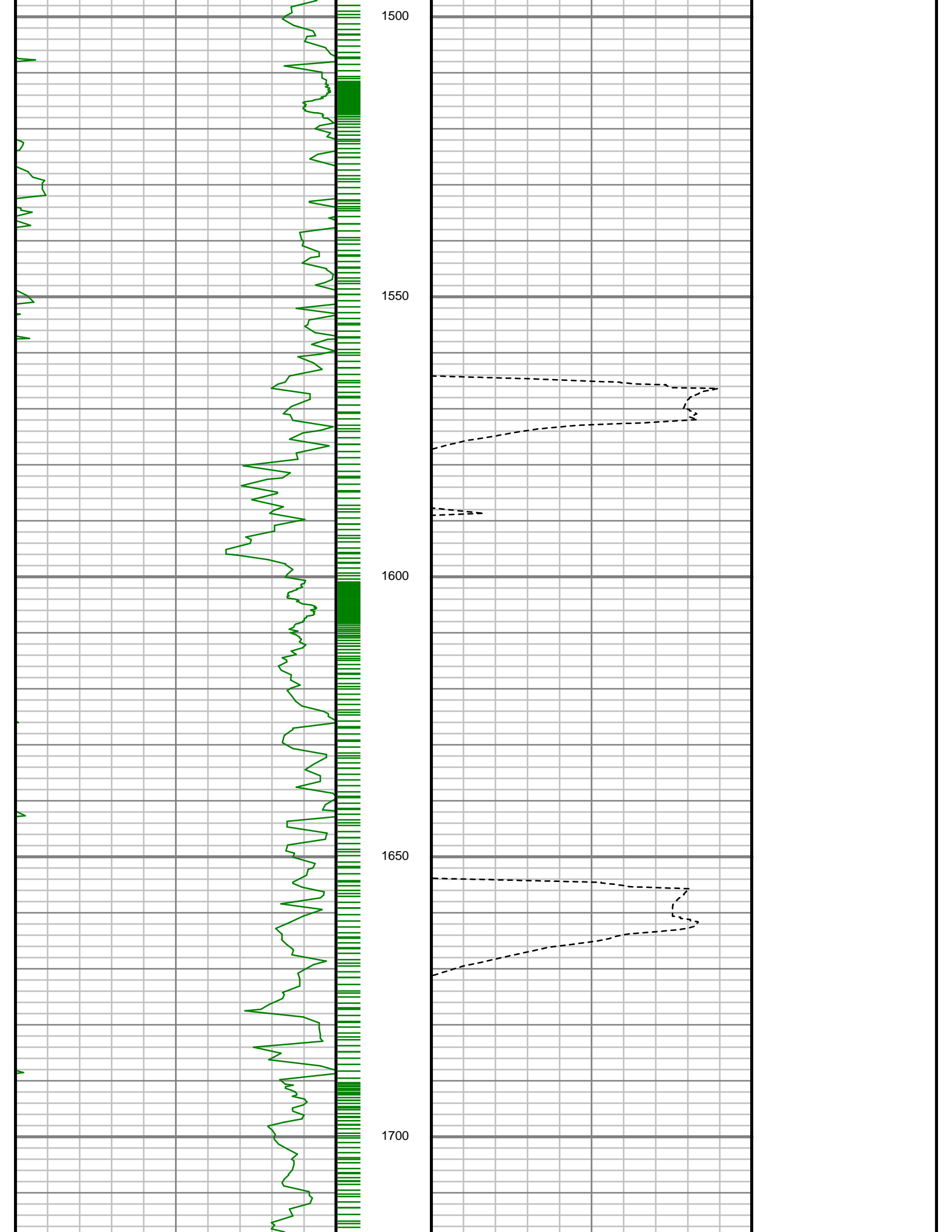
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs,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

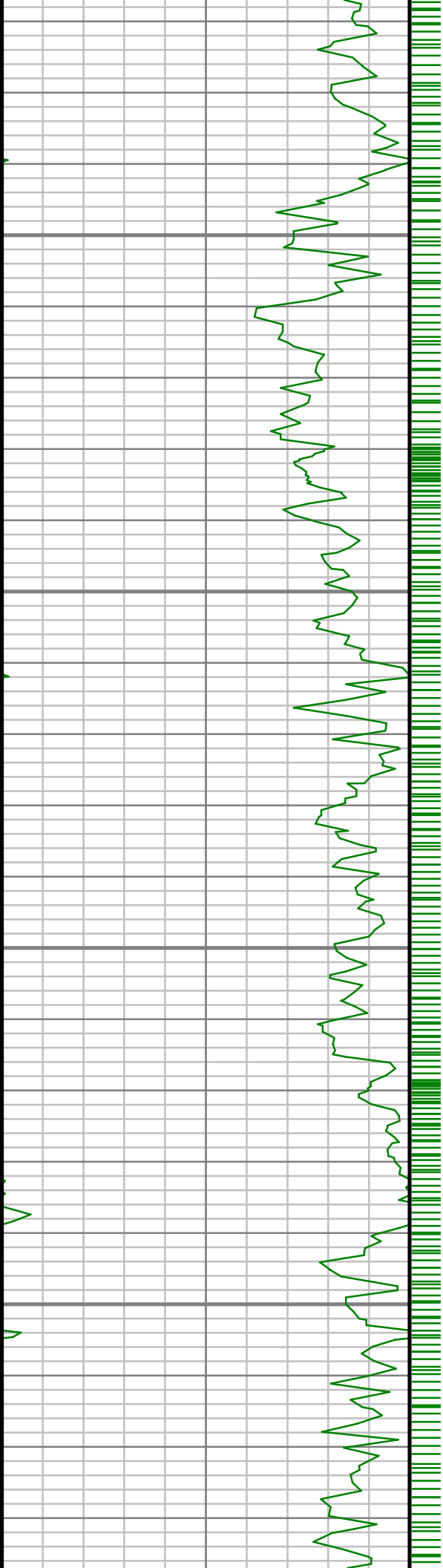
ENCANA OIL AND GAS (U.S.A.) INC
DALE 4I-20H-O264
WATTENBERG FIELD
WELD COUNTY, COLORADO
05-123-39727









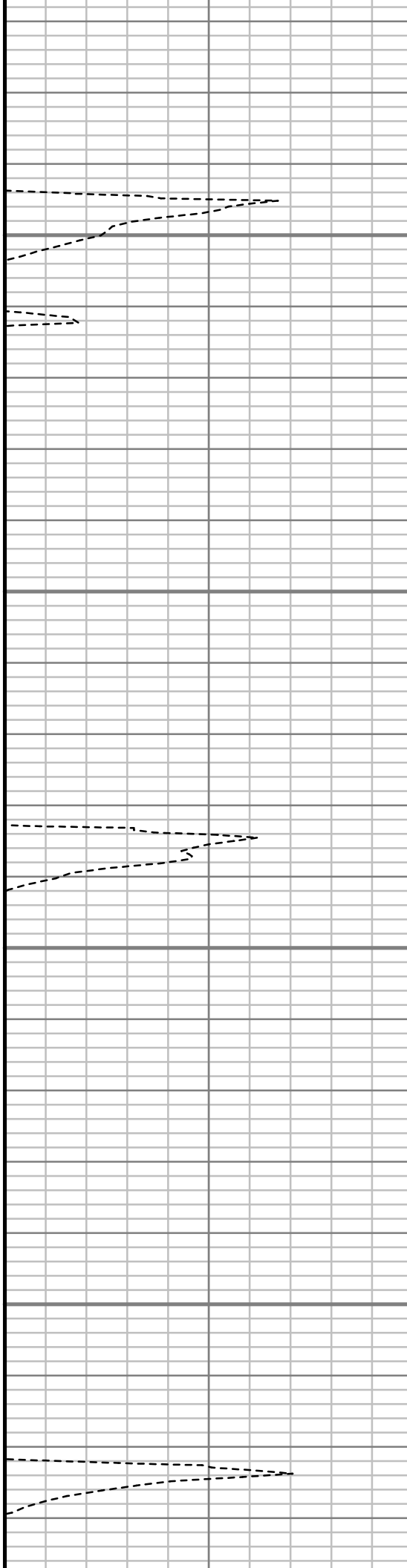


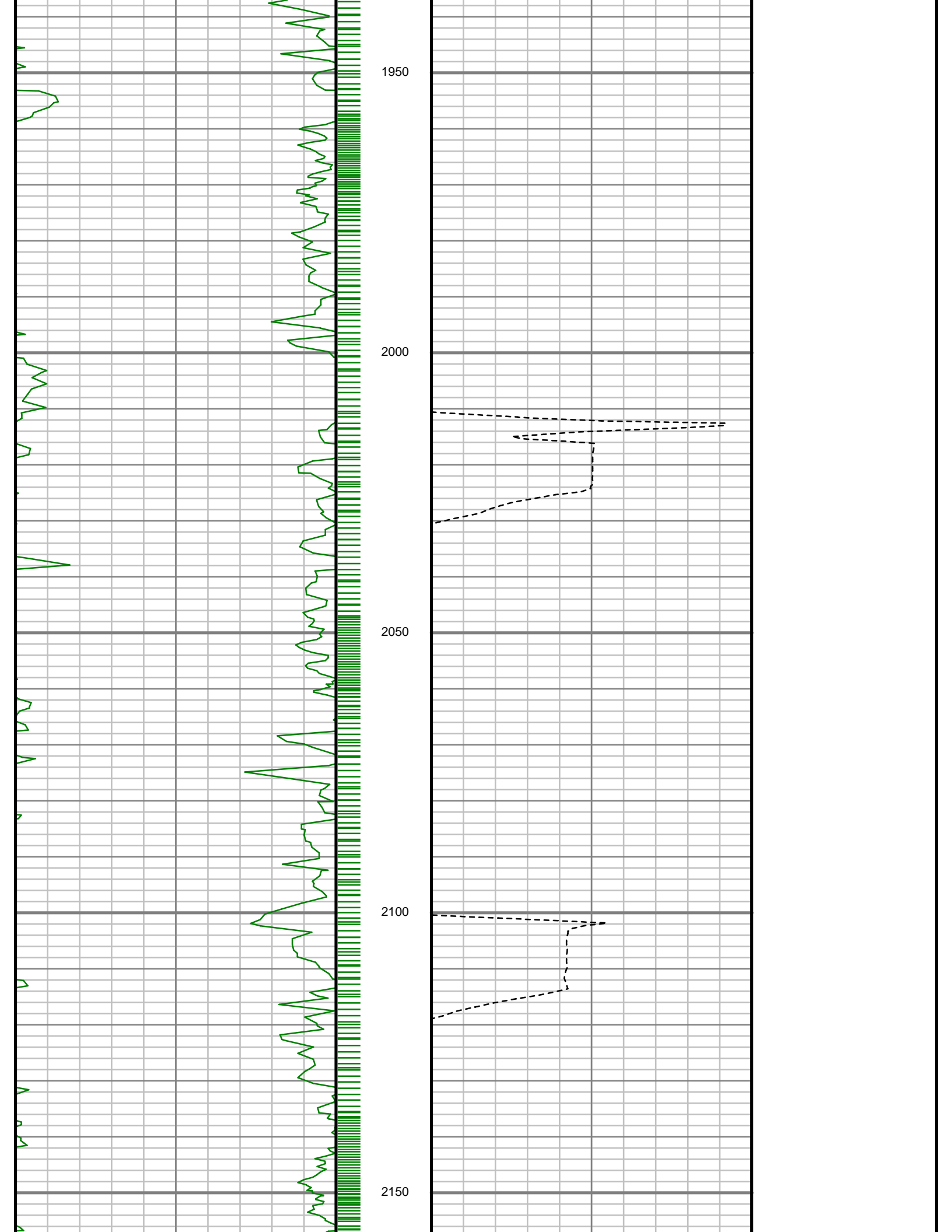
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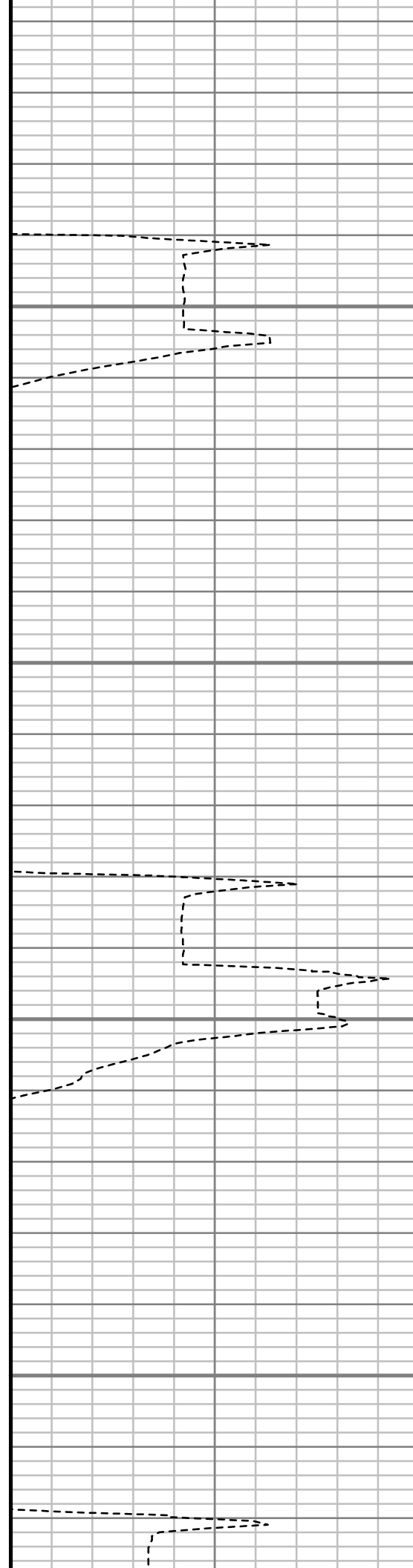
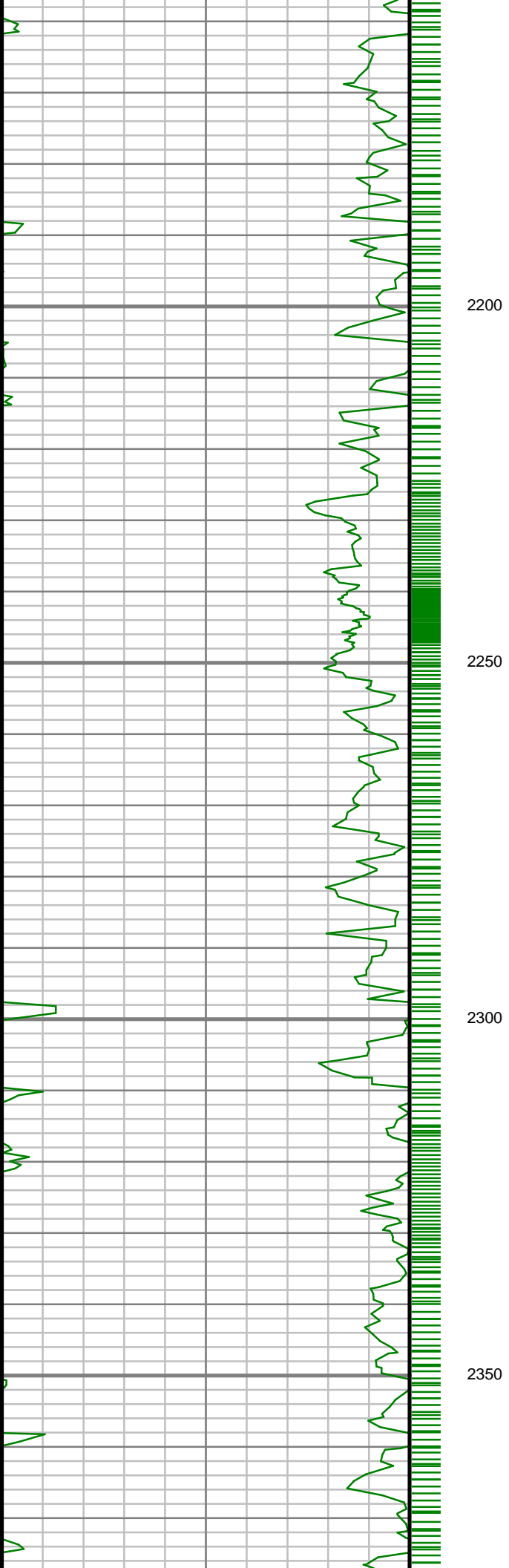
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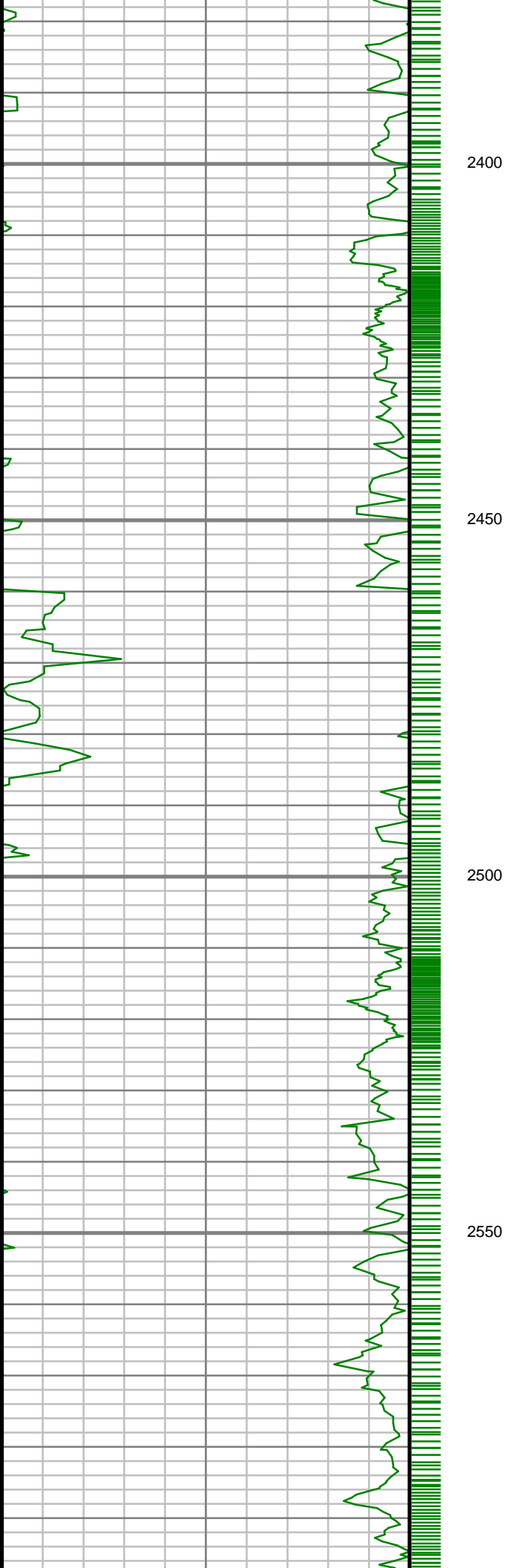
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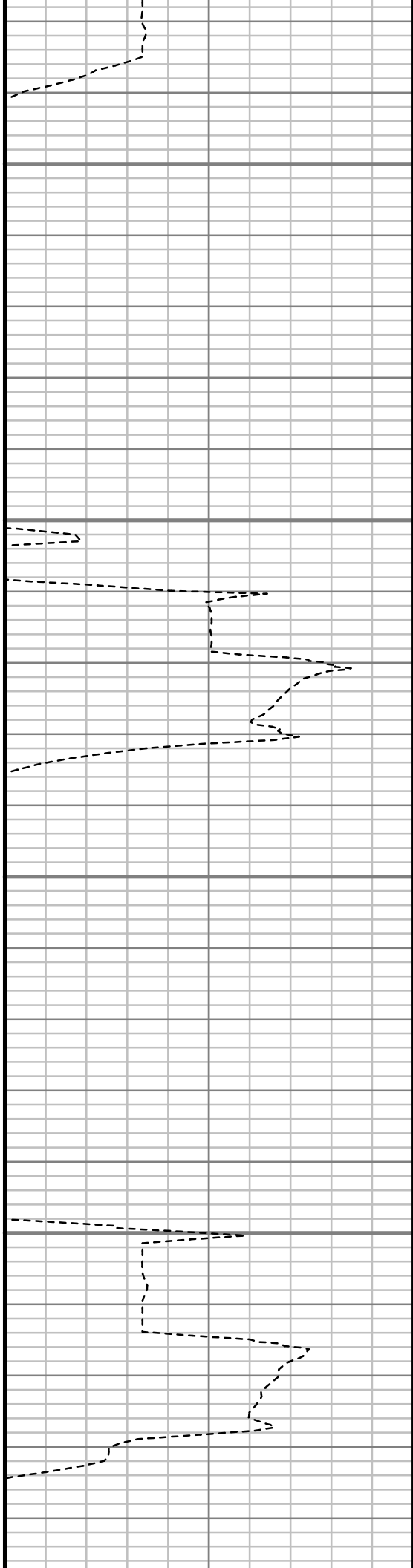


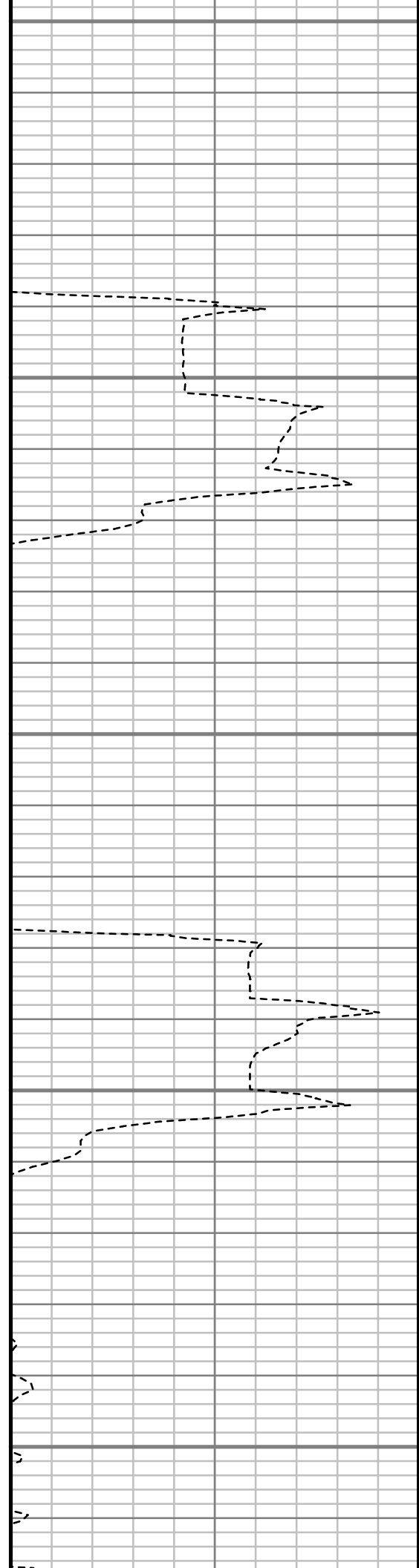
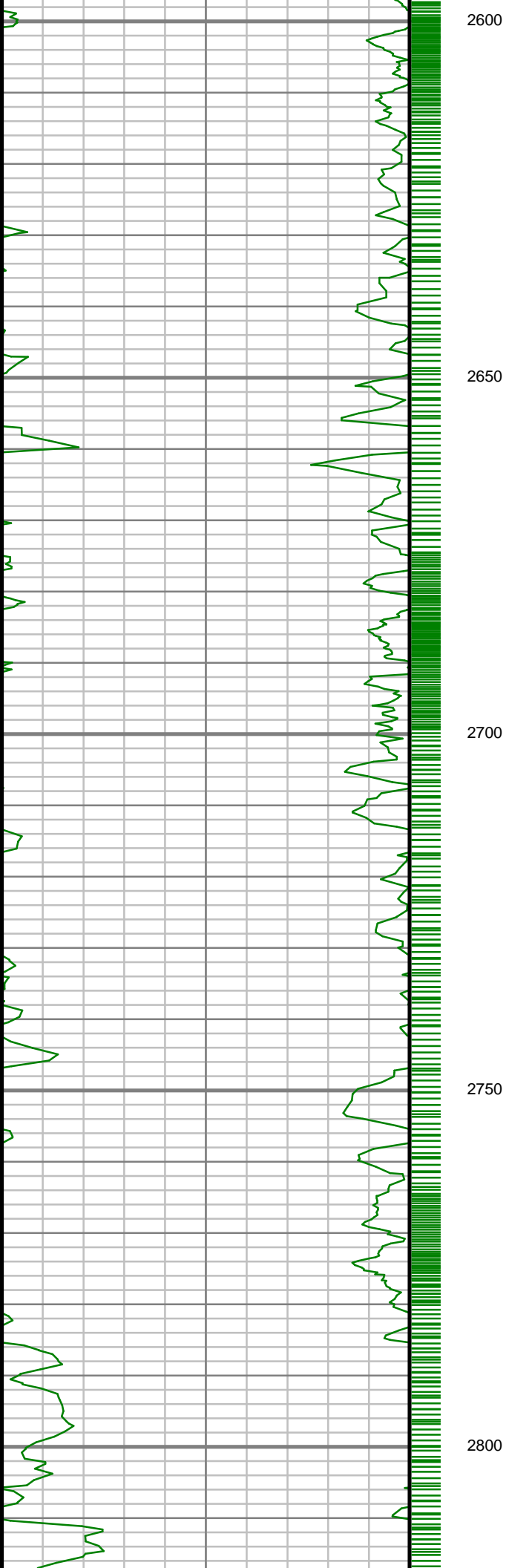
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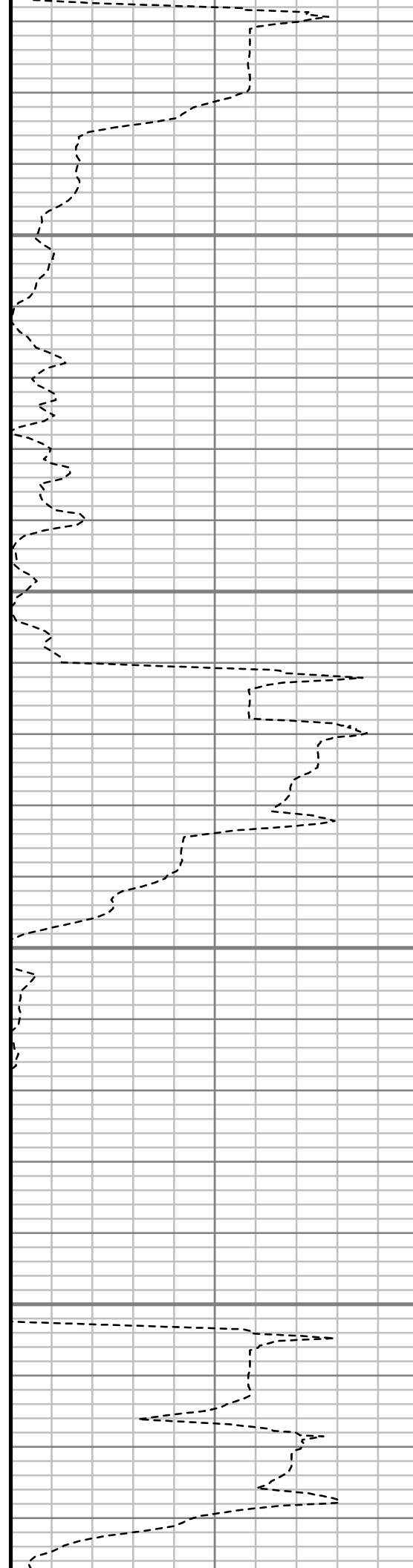
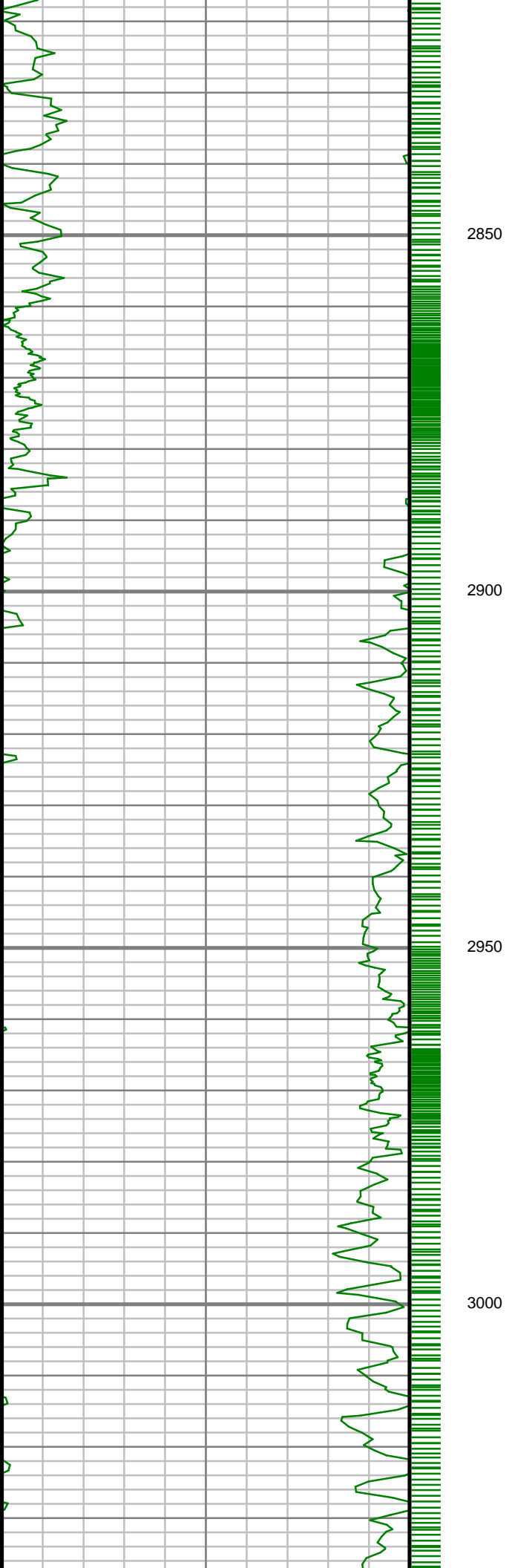
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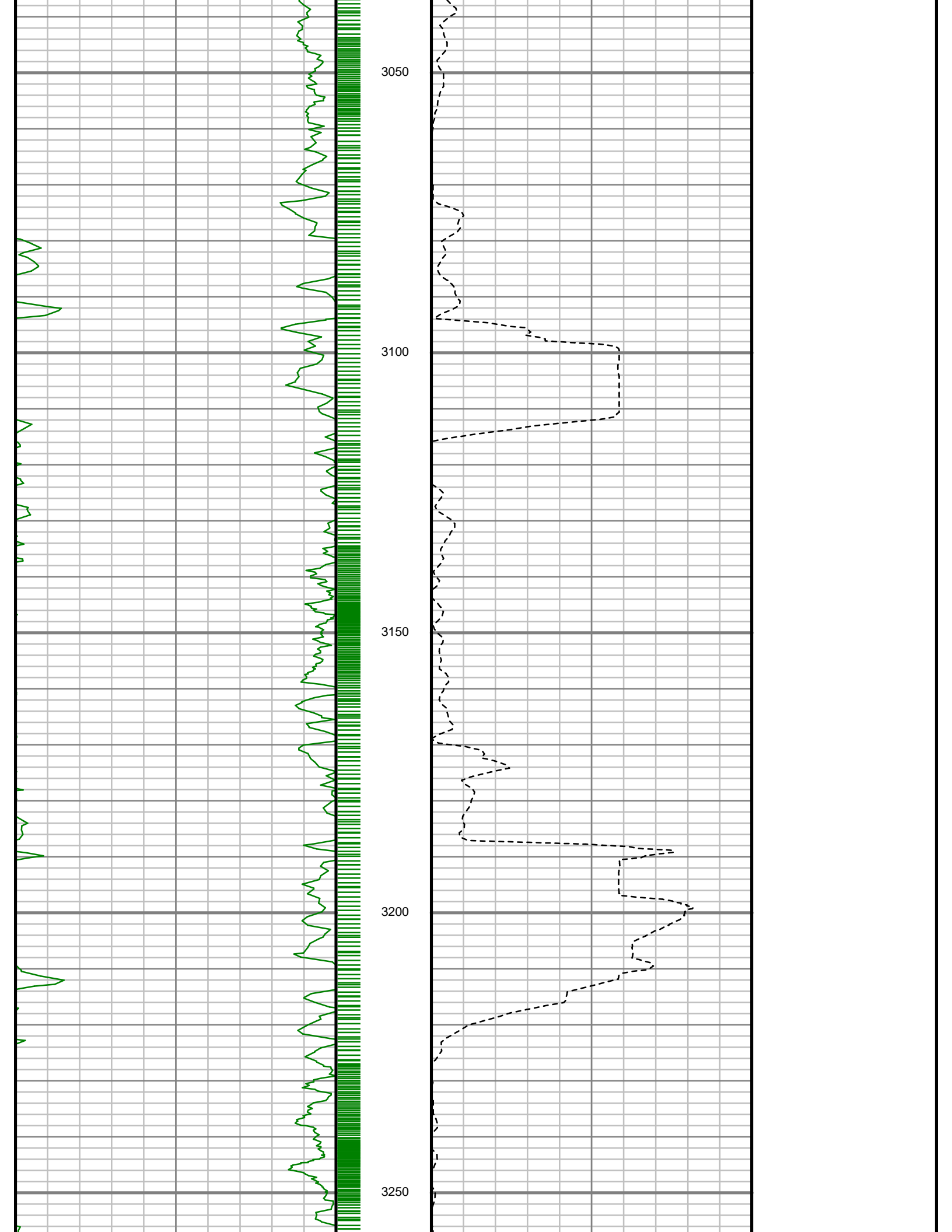
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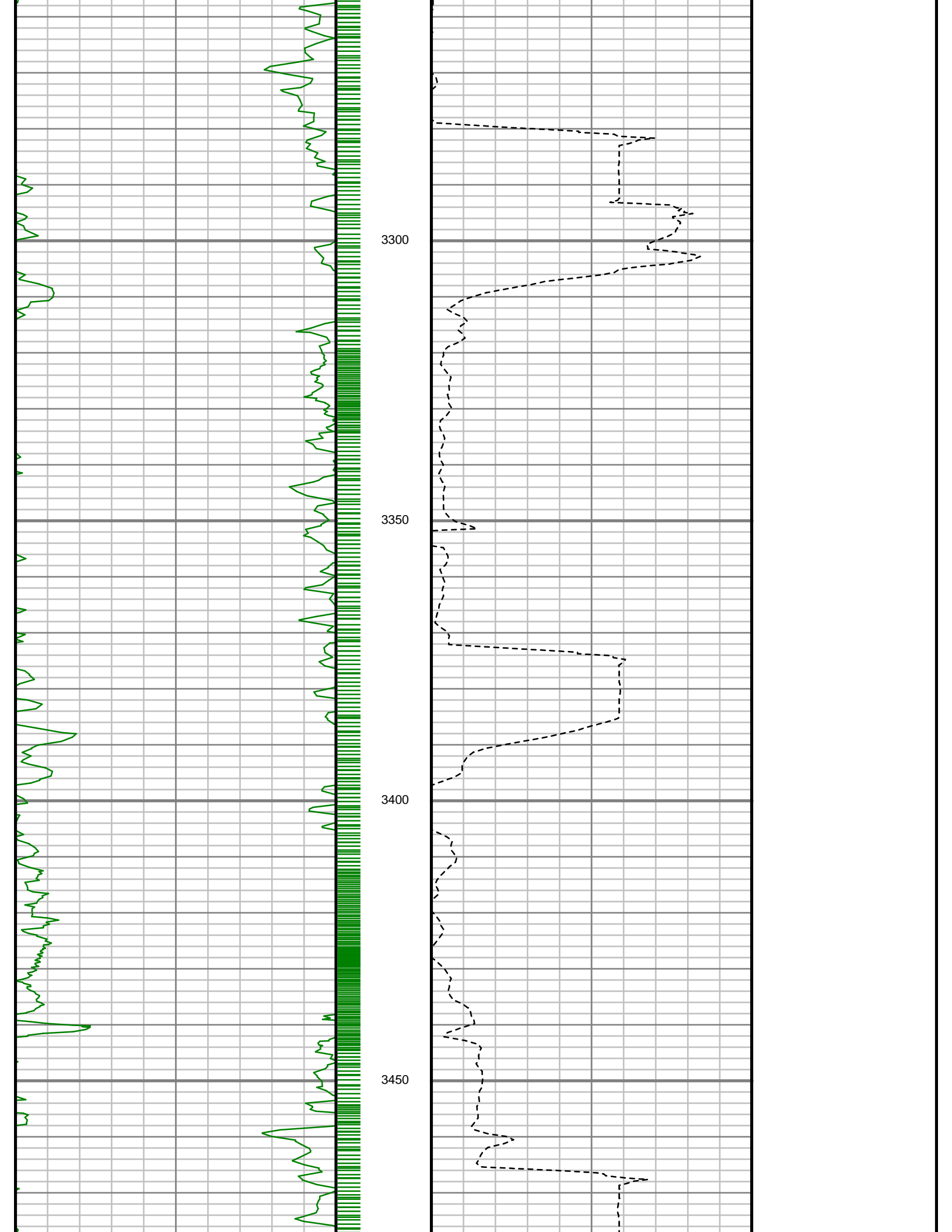
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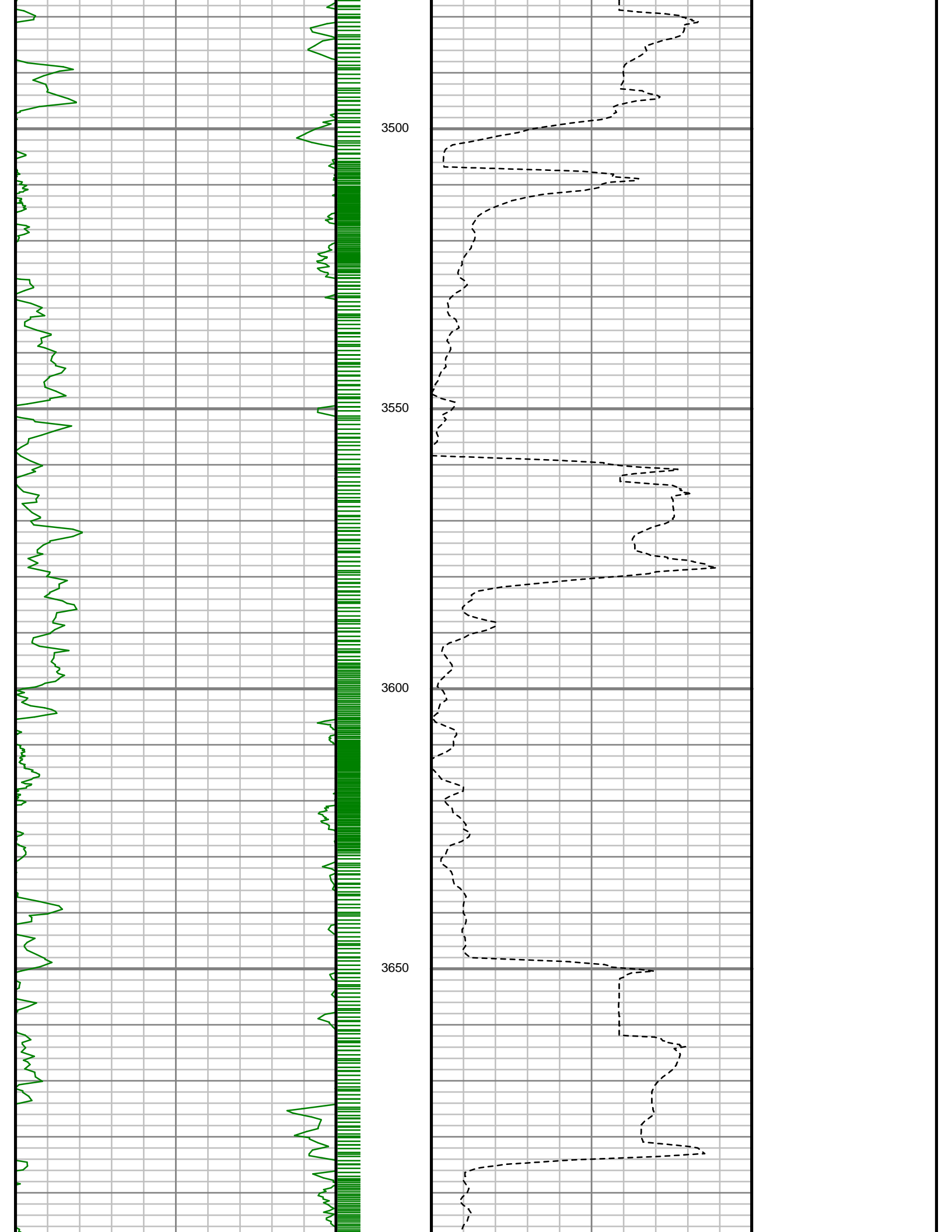


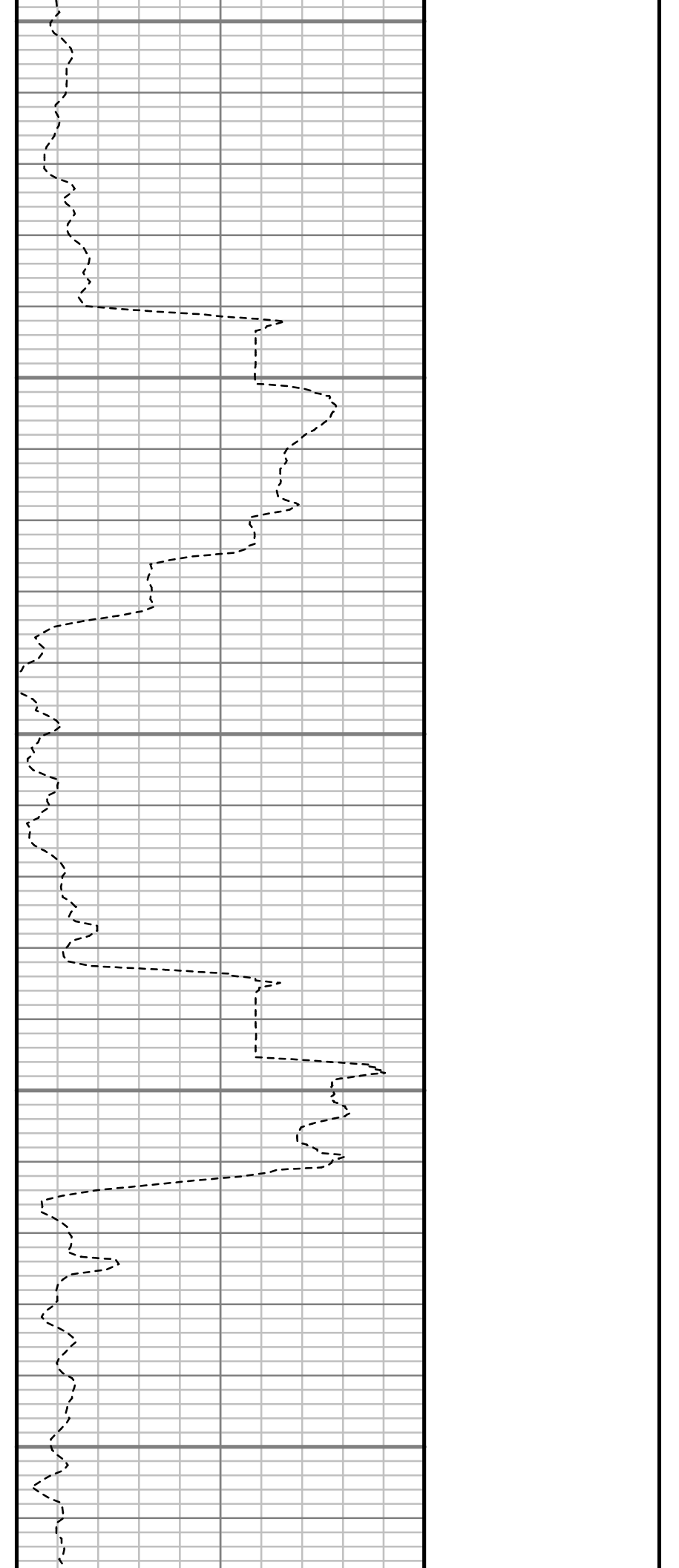
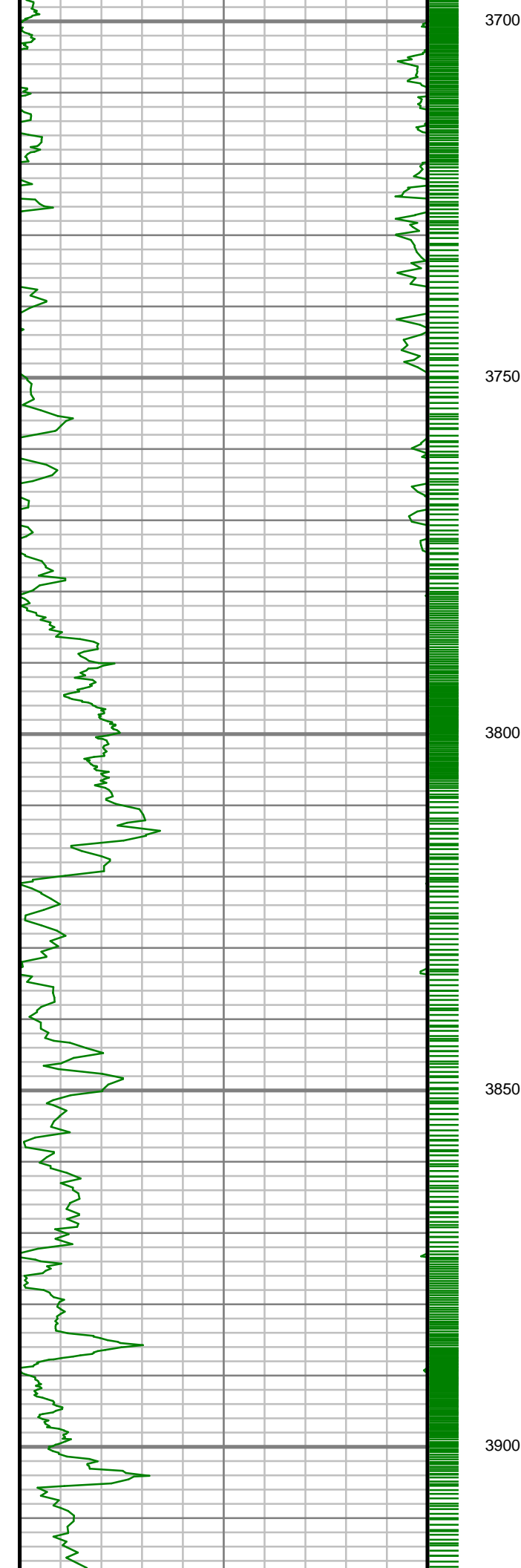


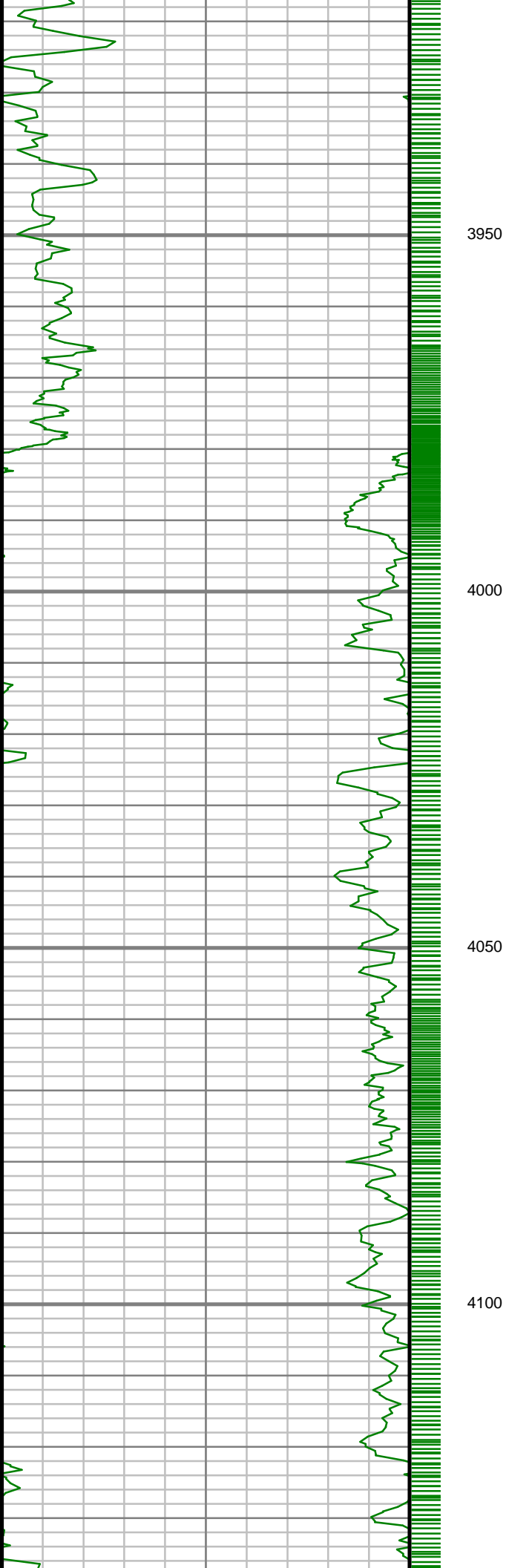










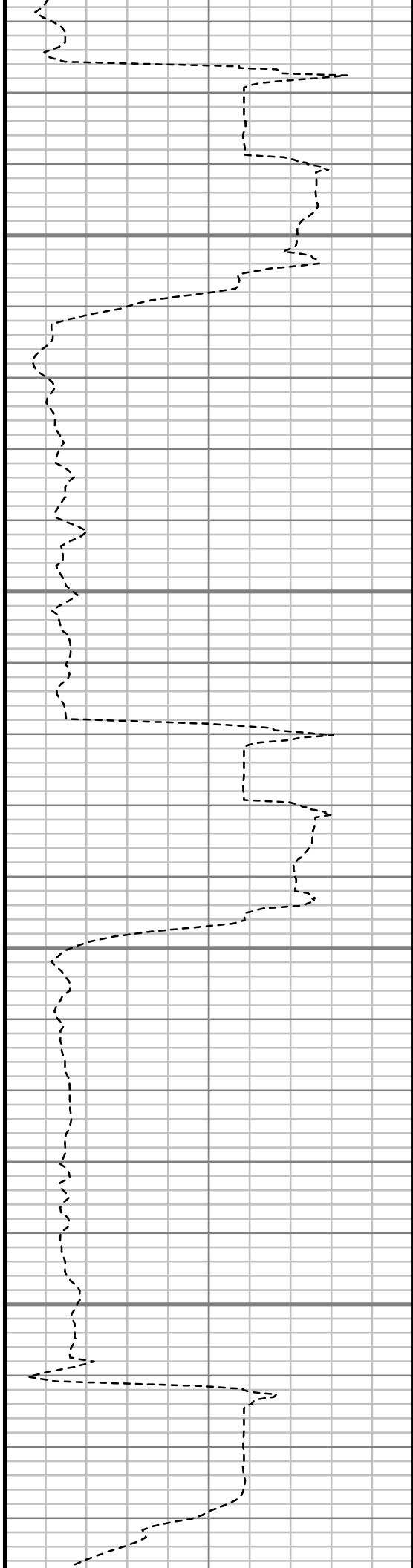


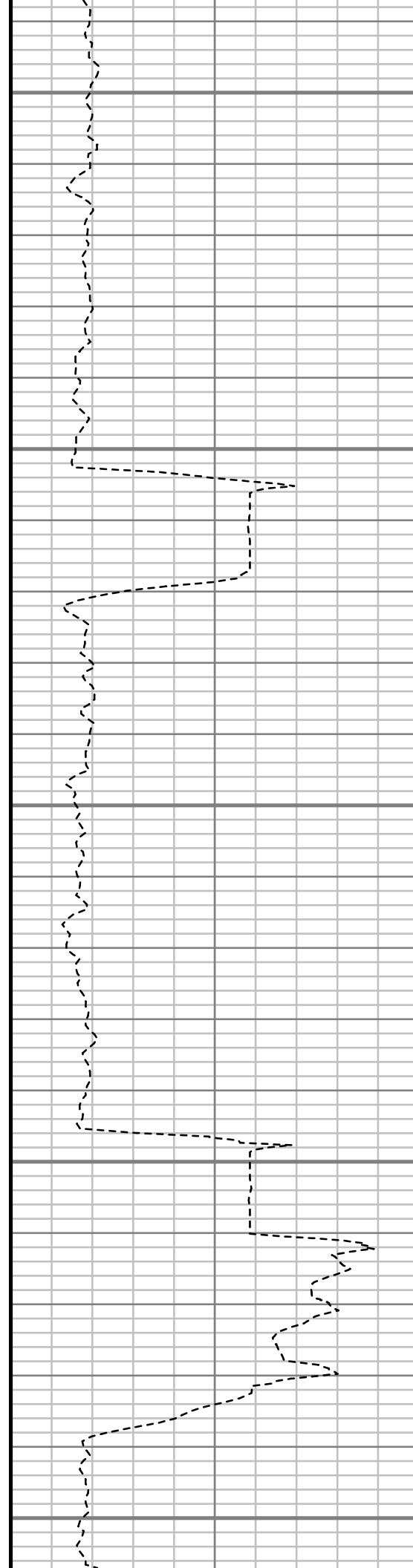
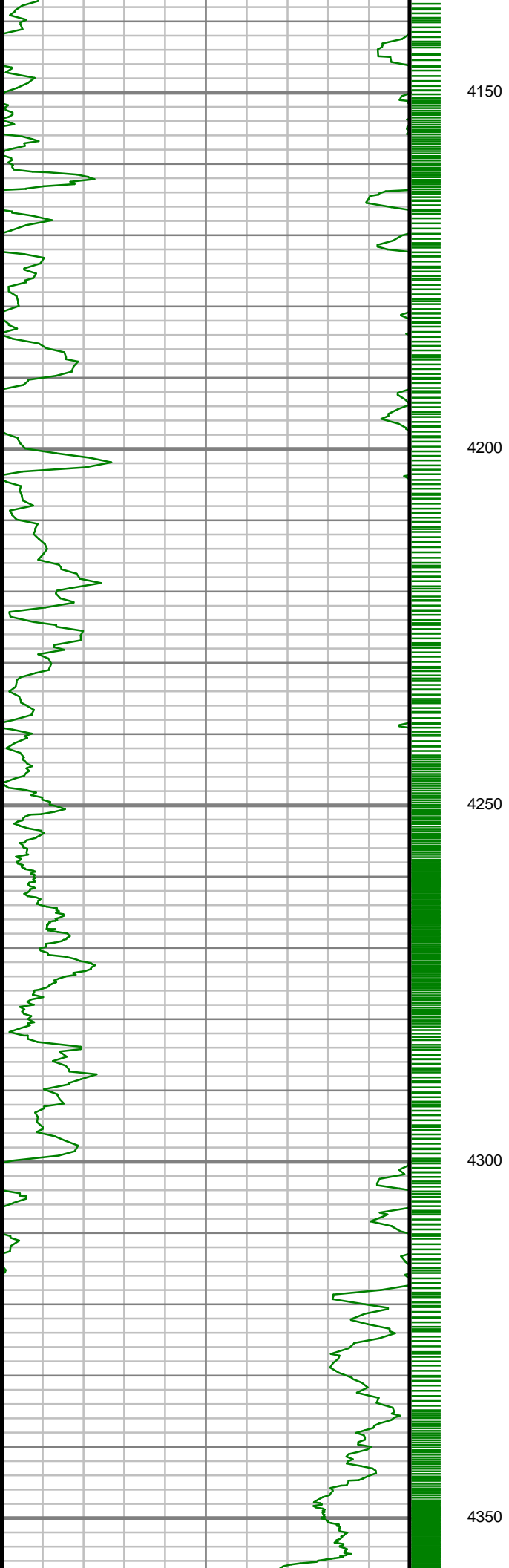
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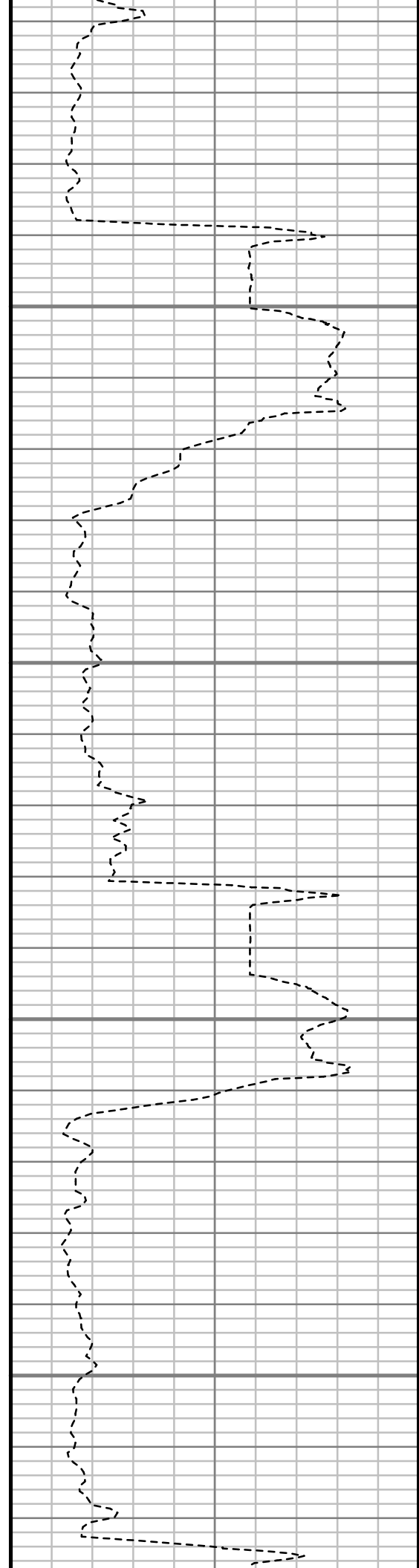
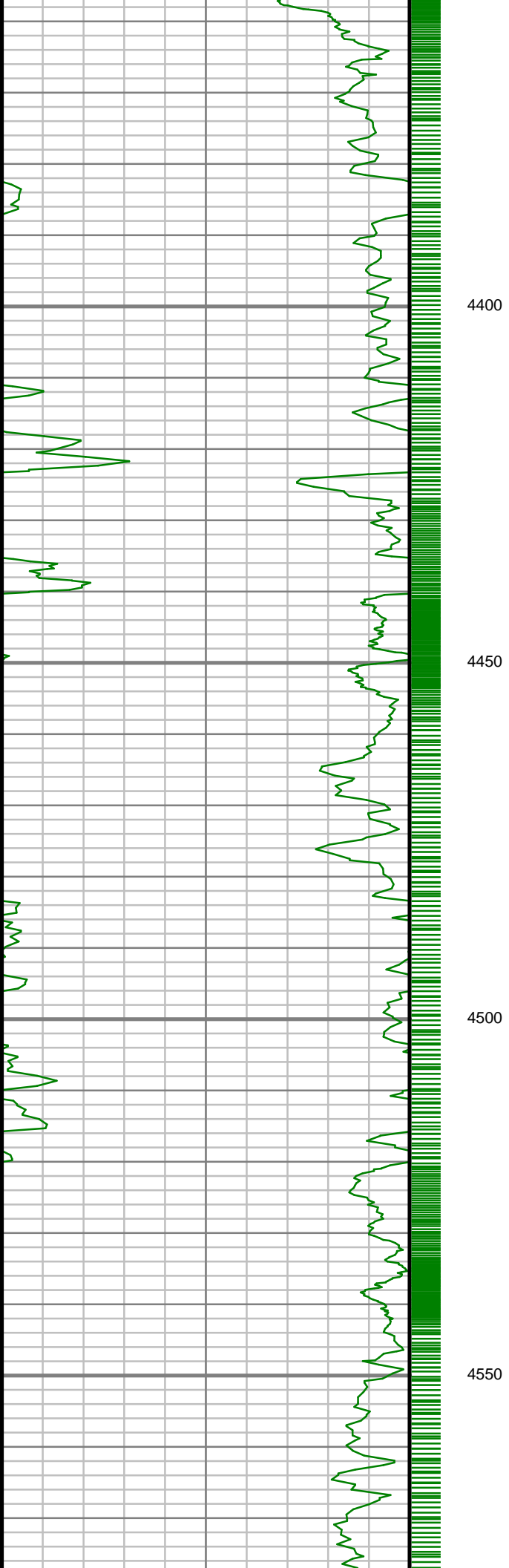
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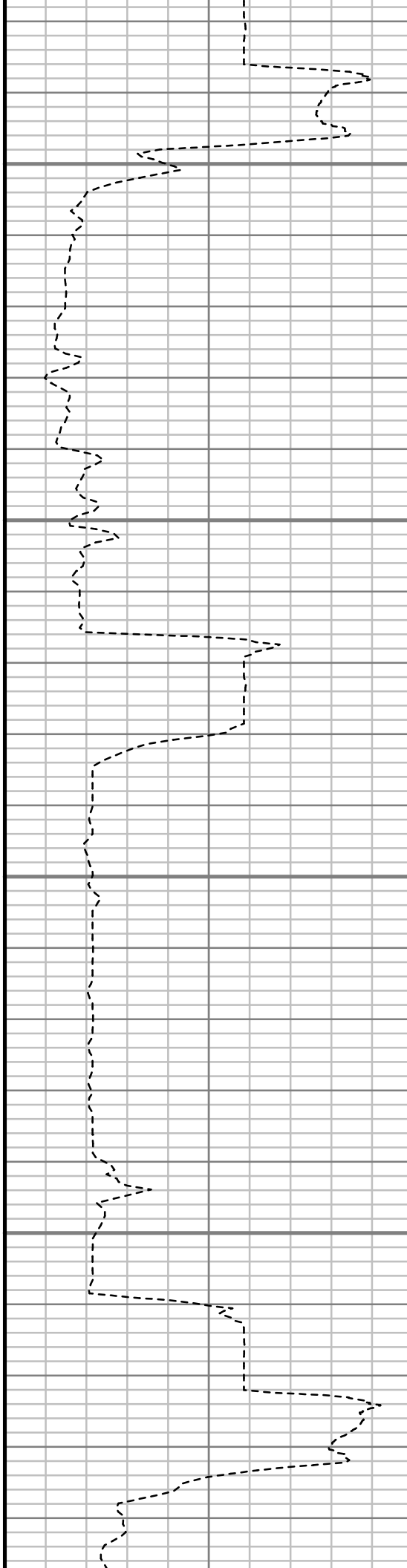
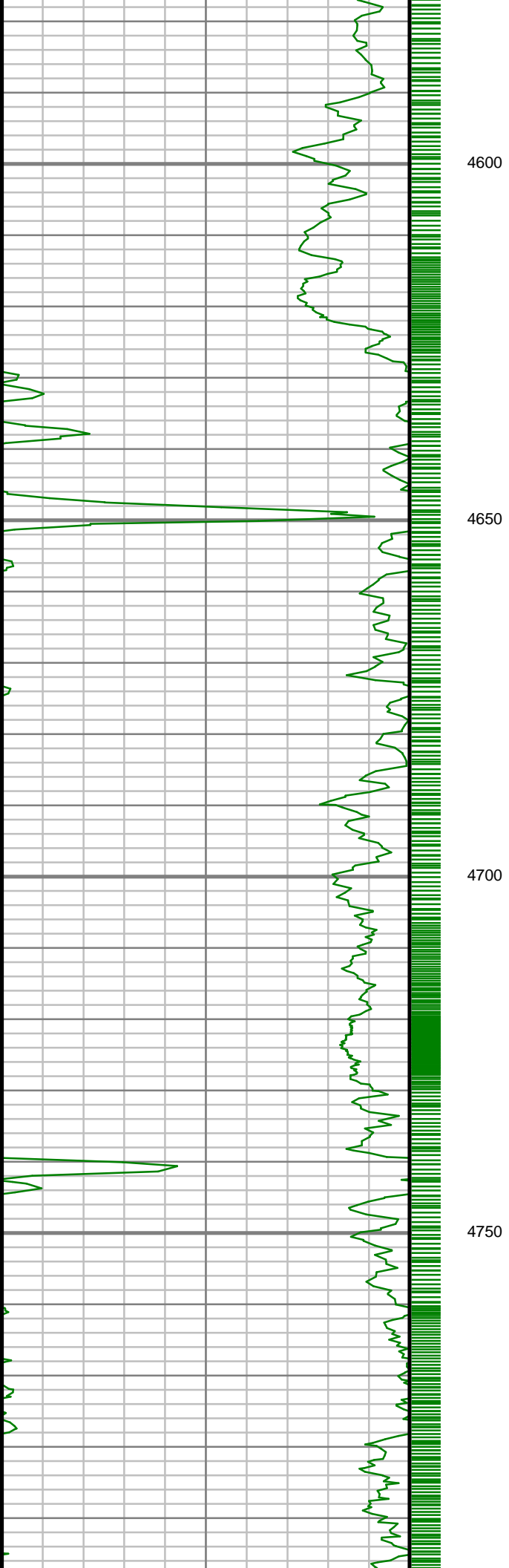
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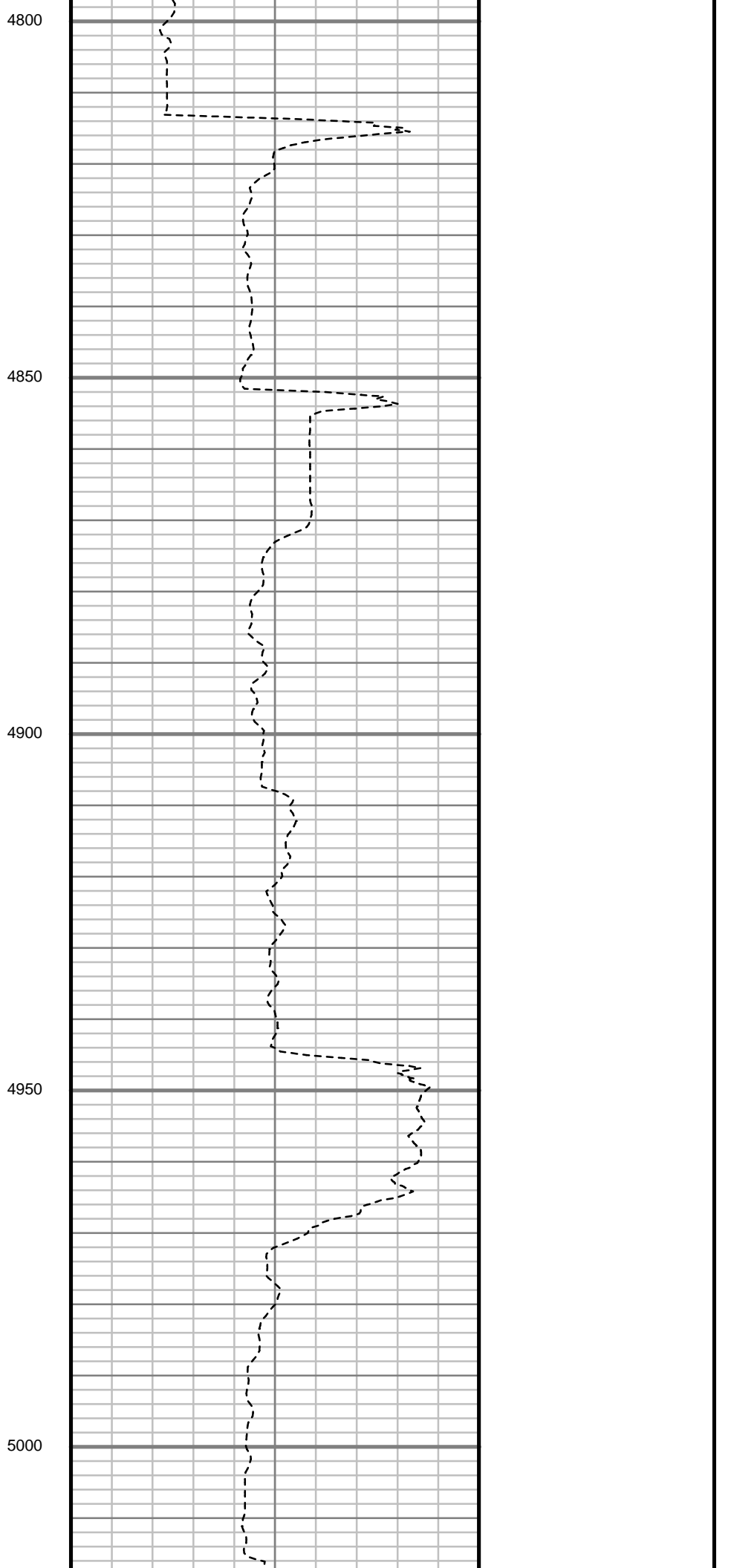
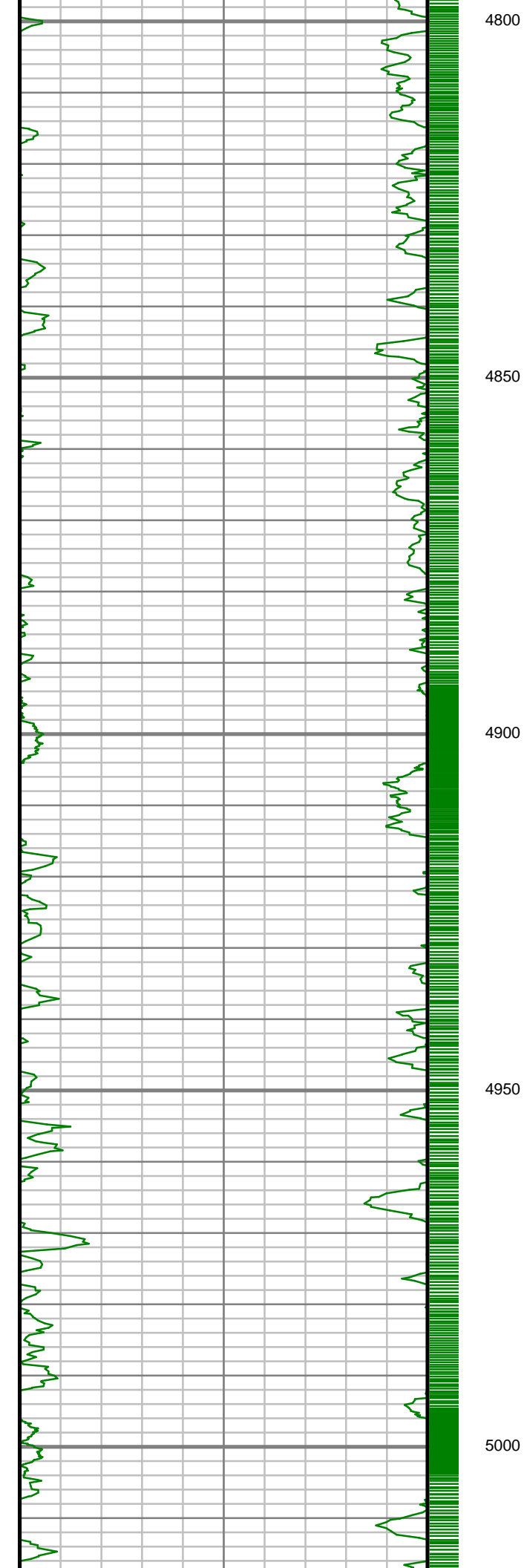
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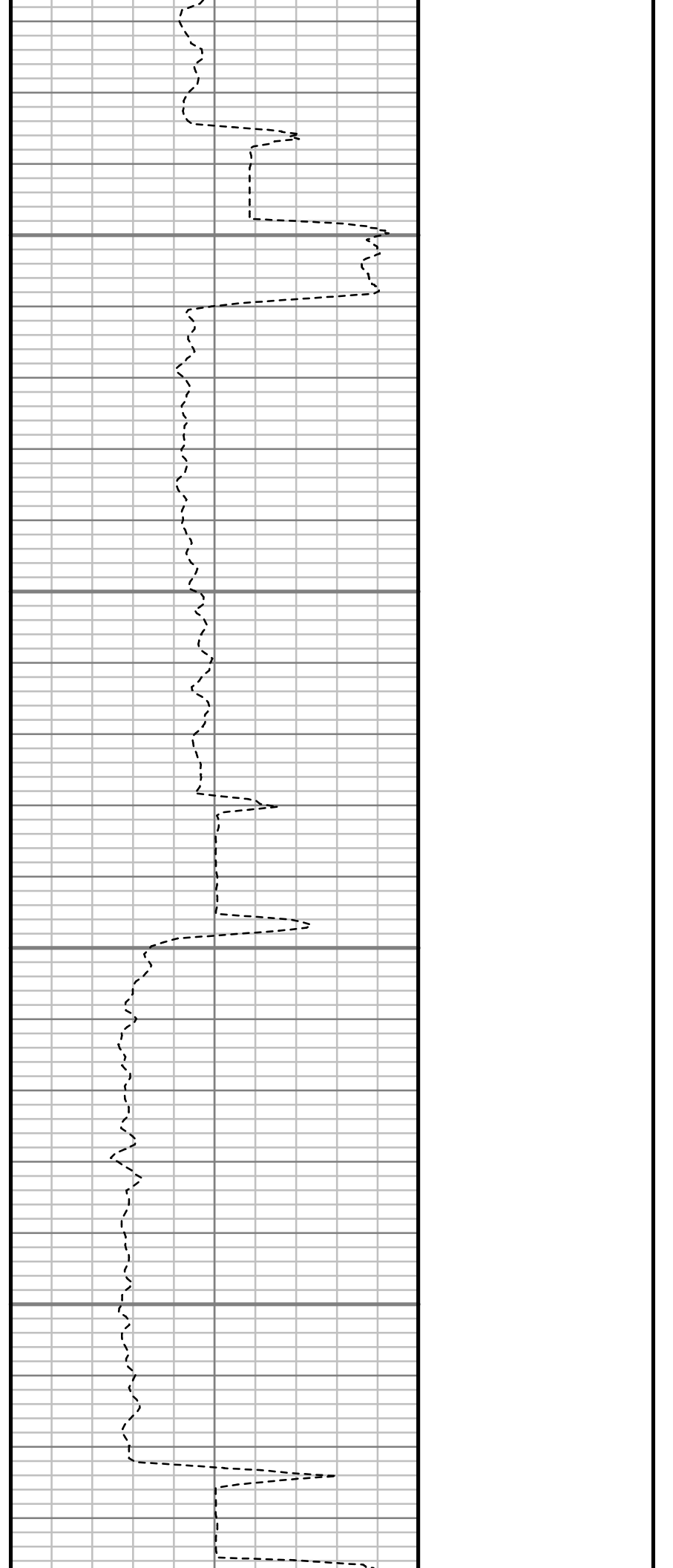
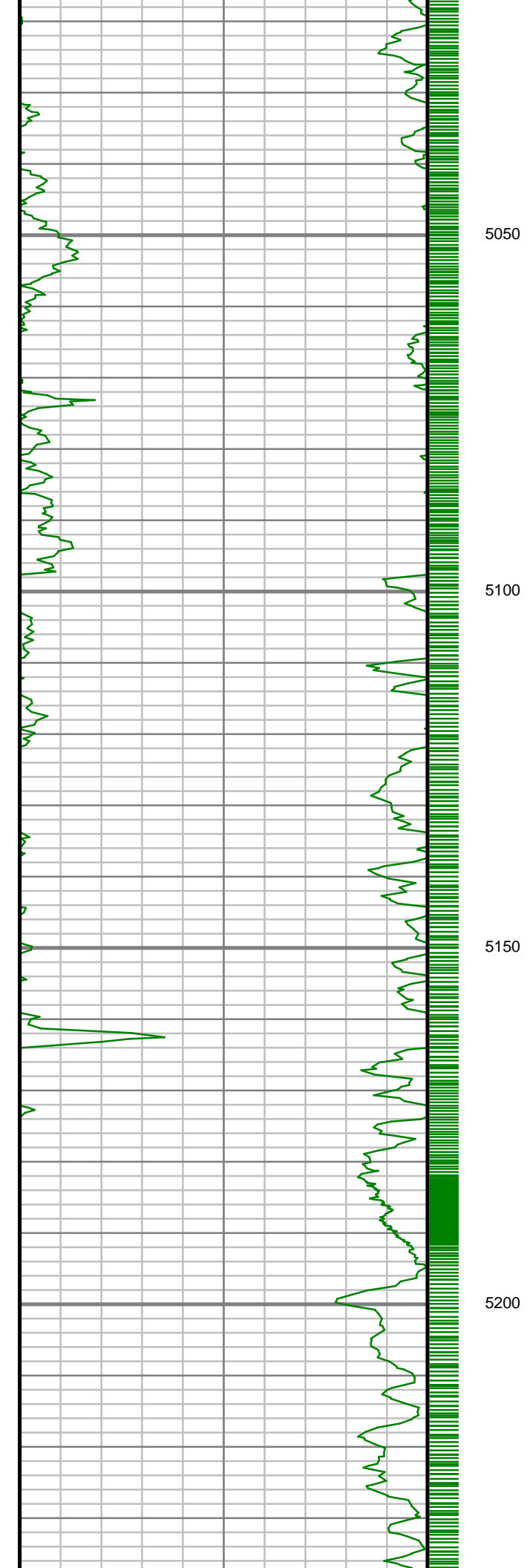


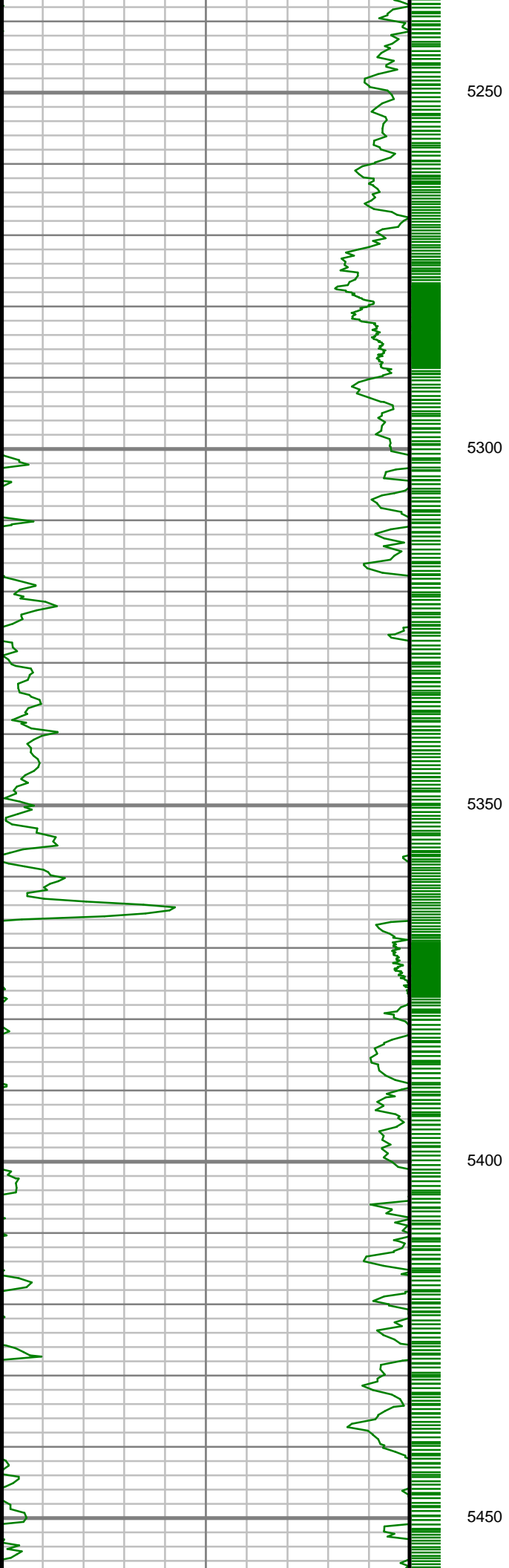












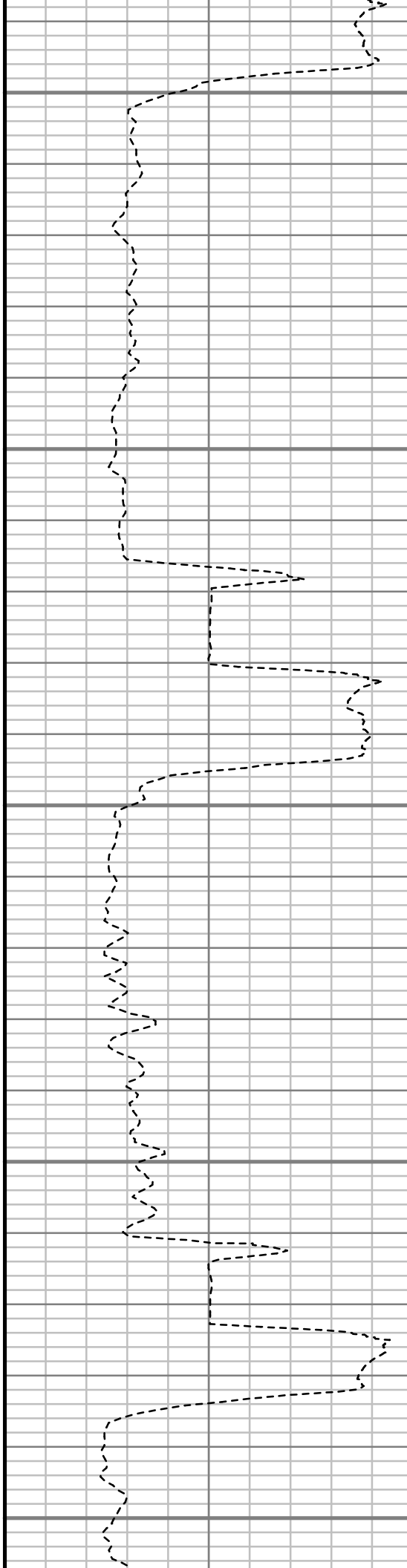
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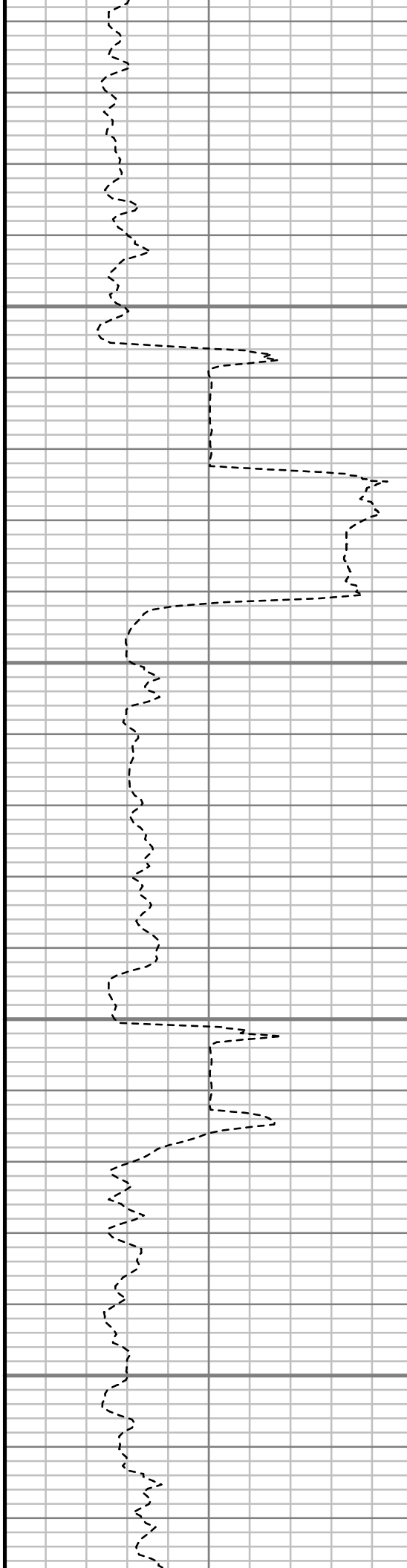
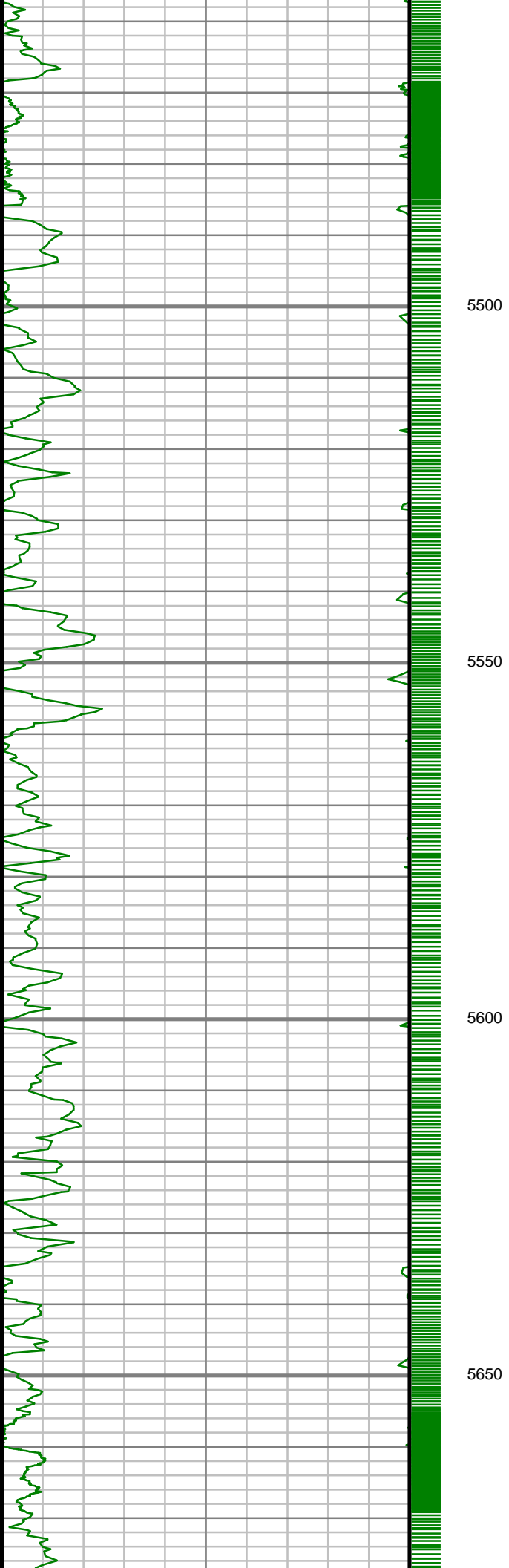
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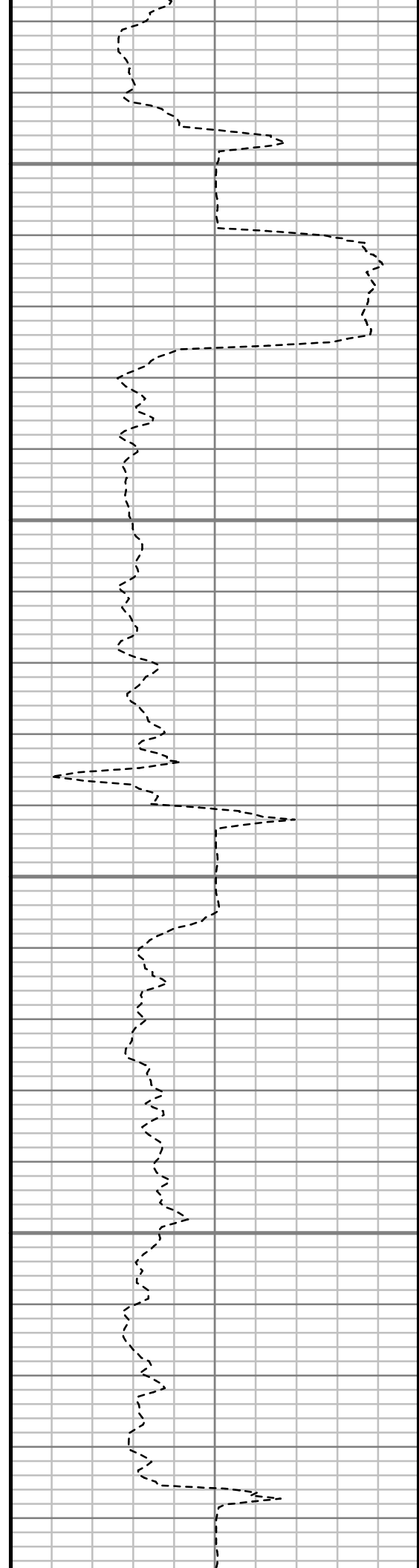
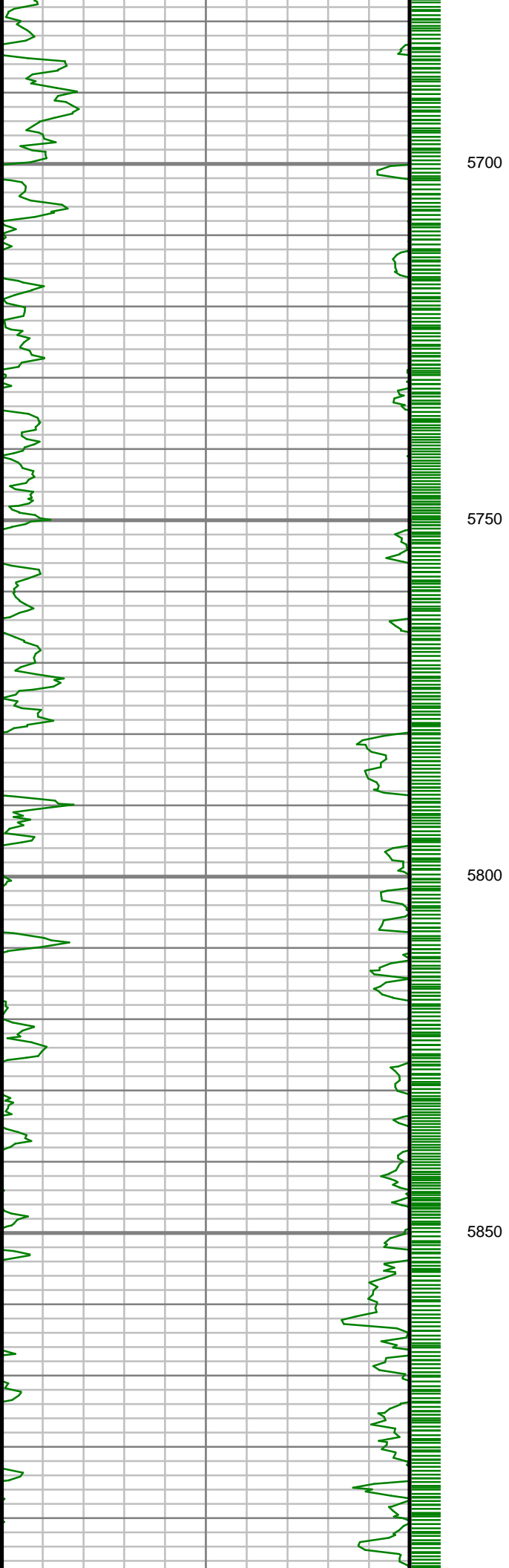
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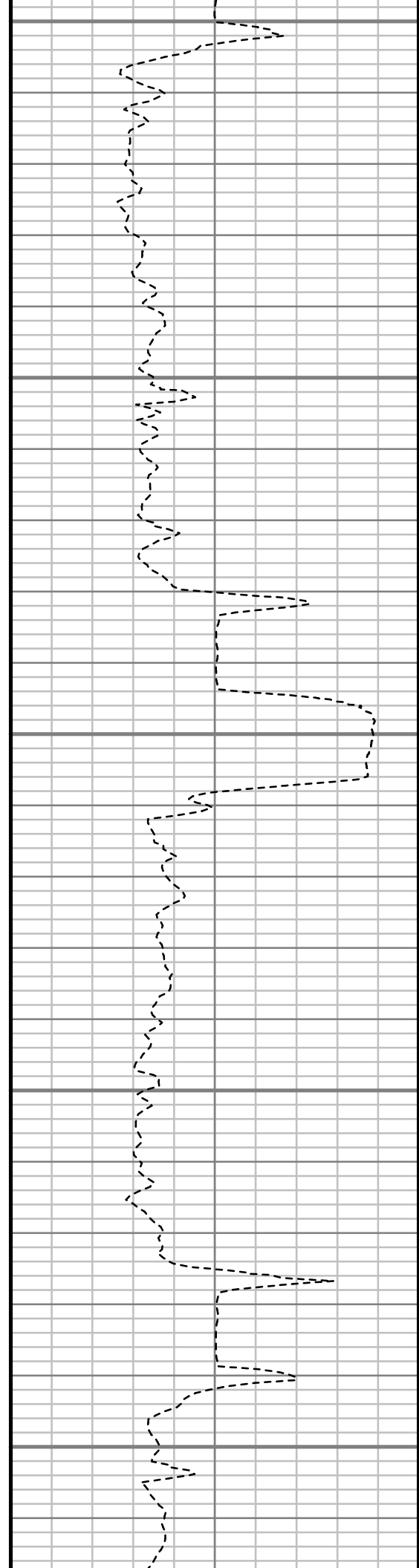
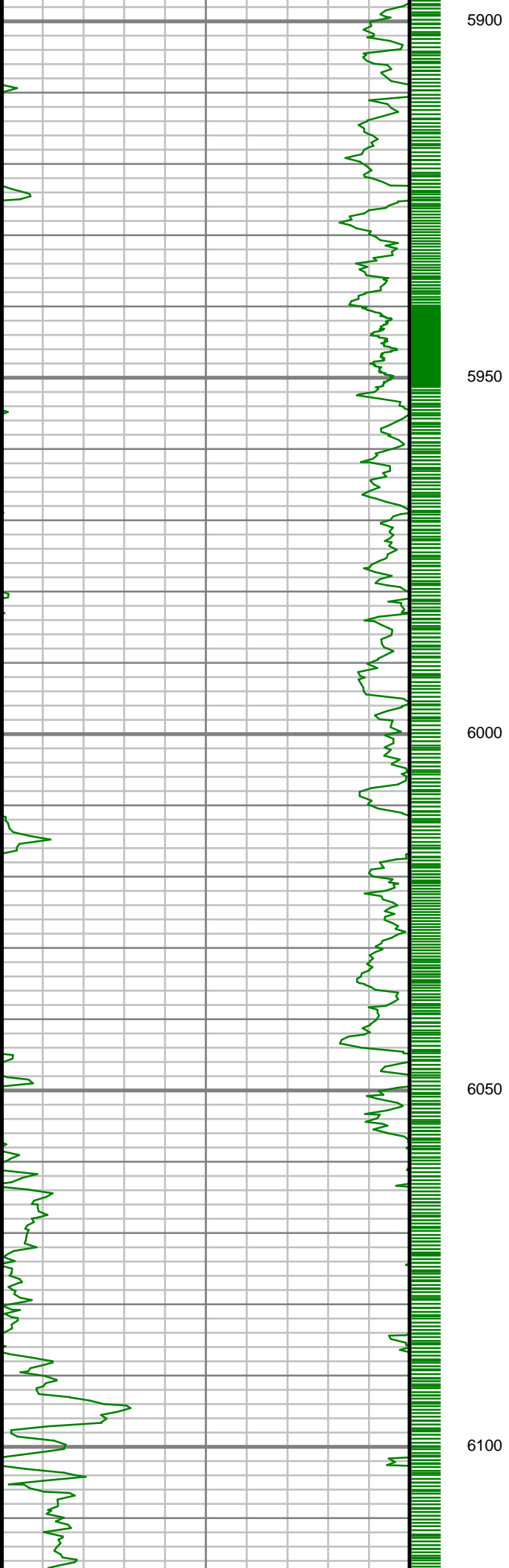
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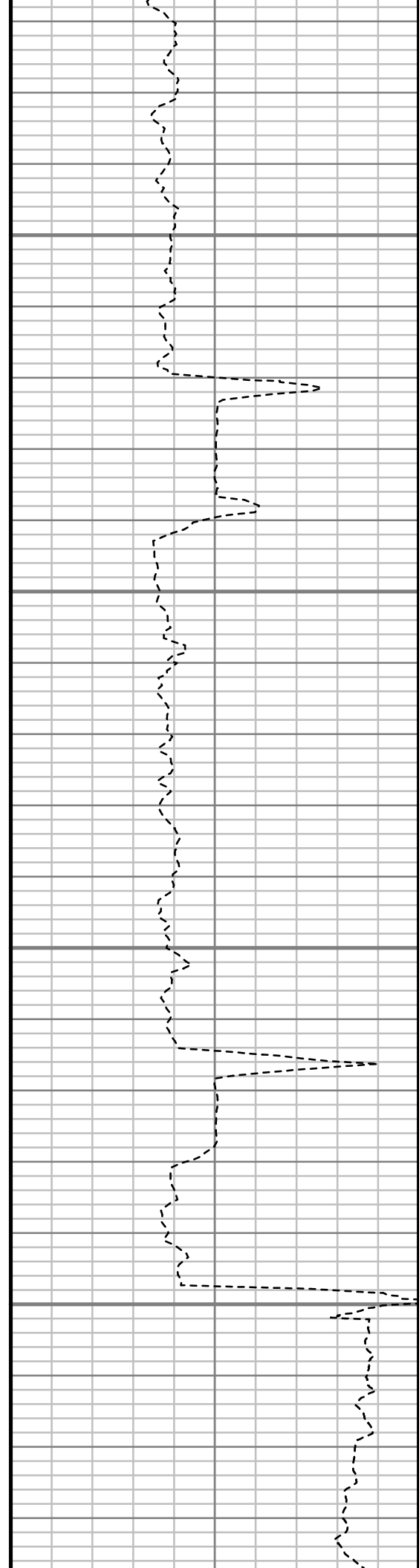
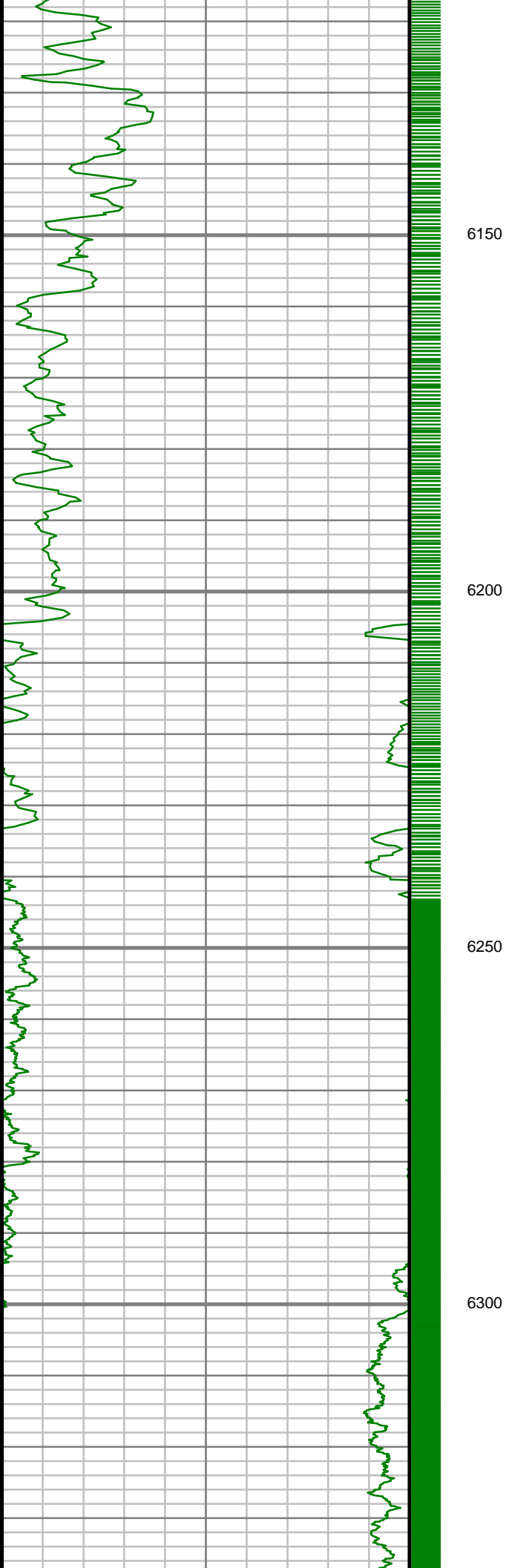
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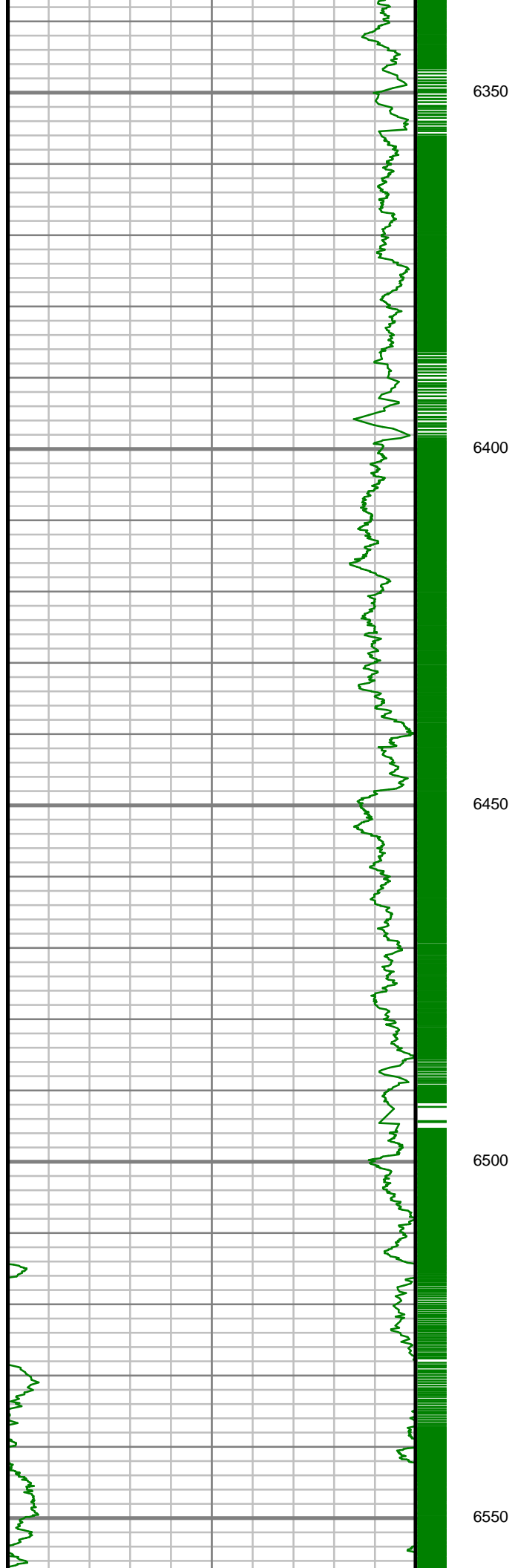












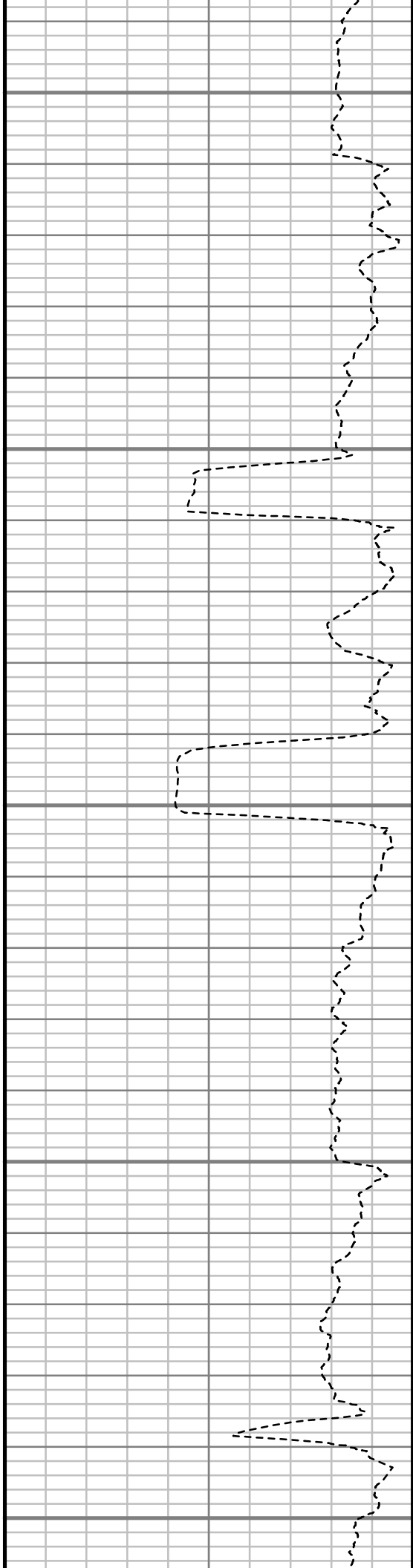
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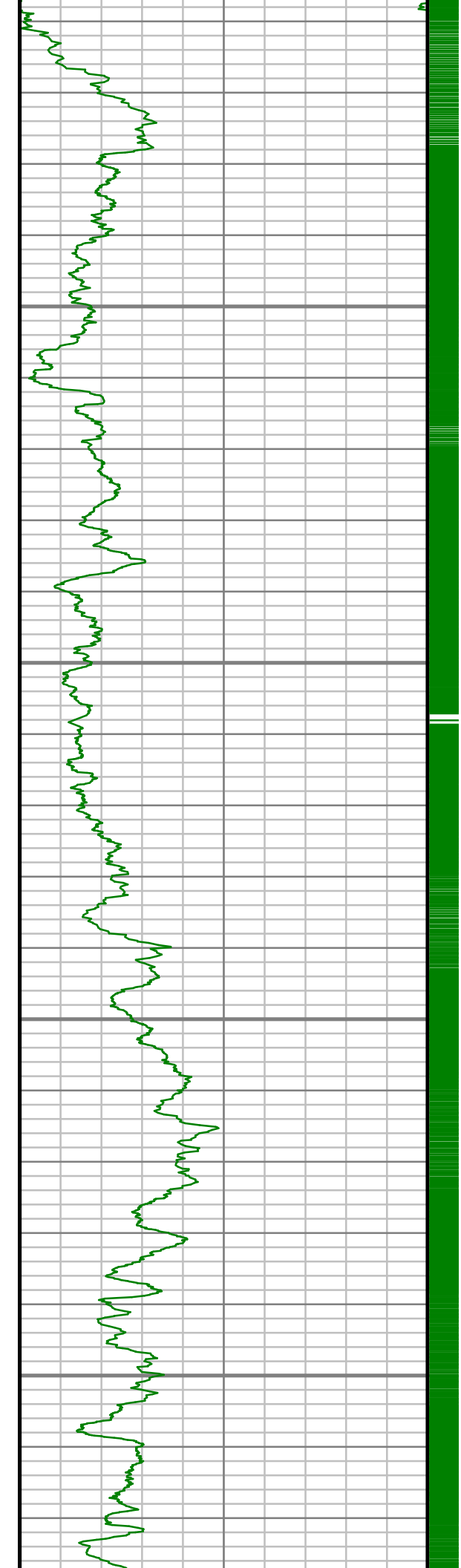
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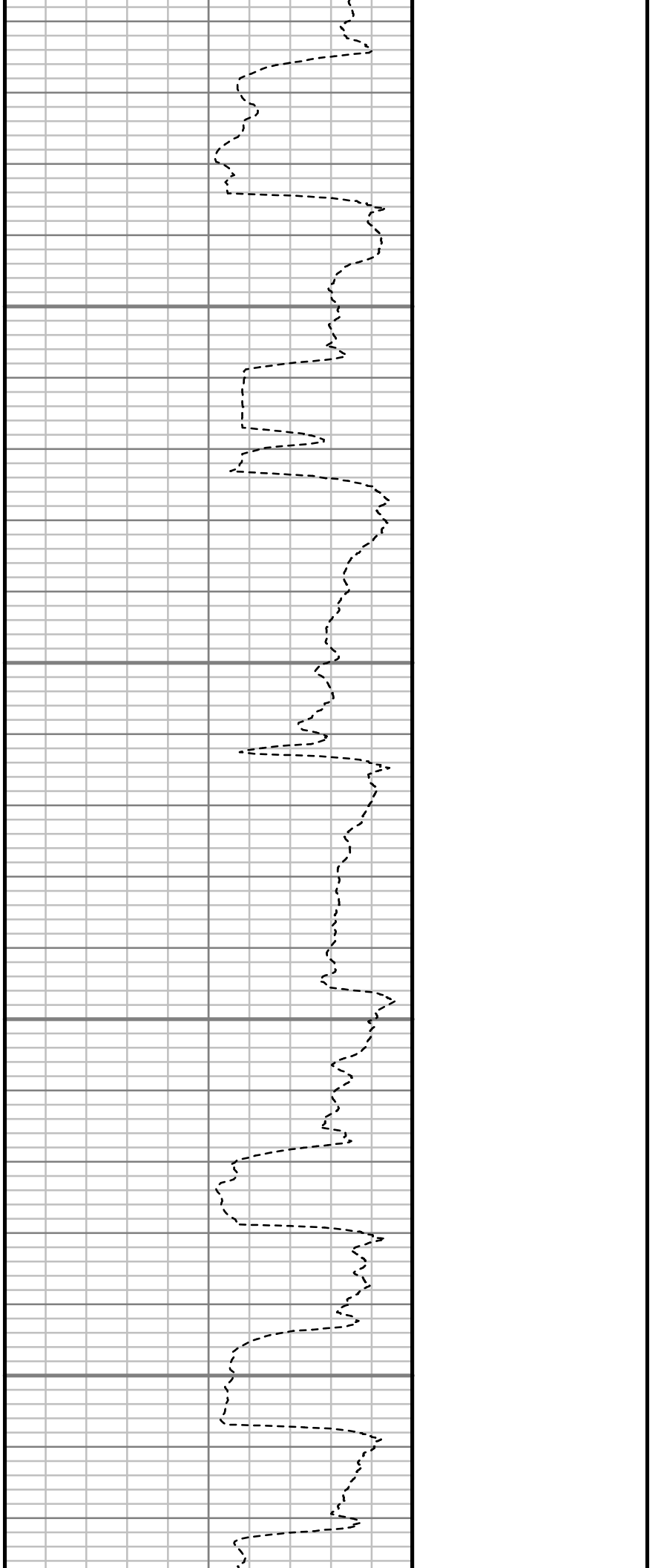


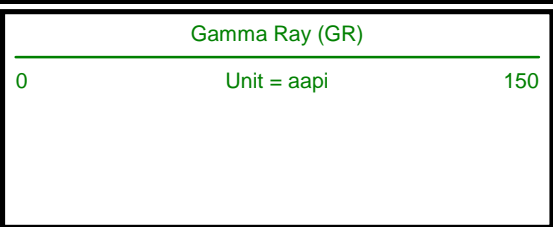
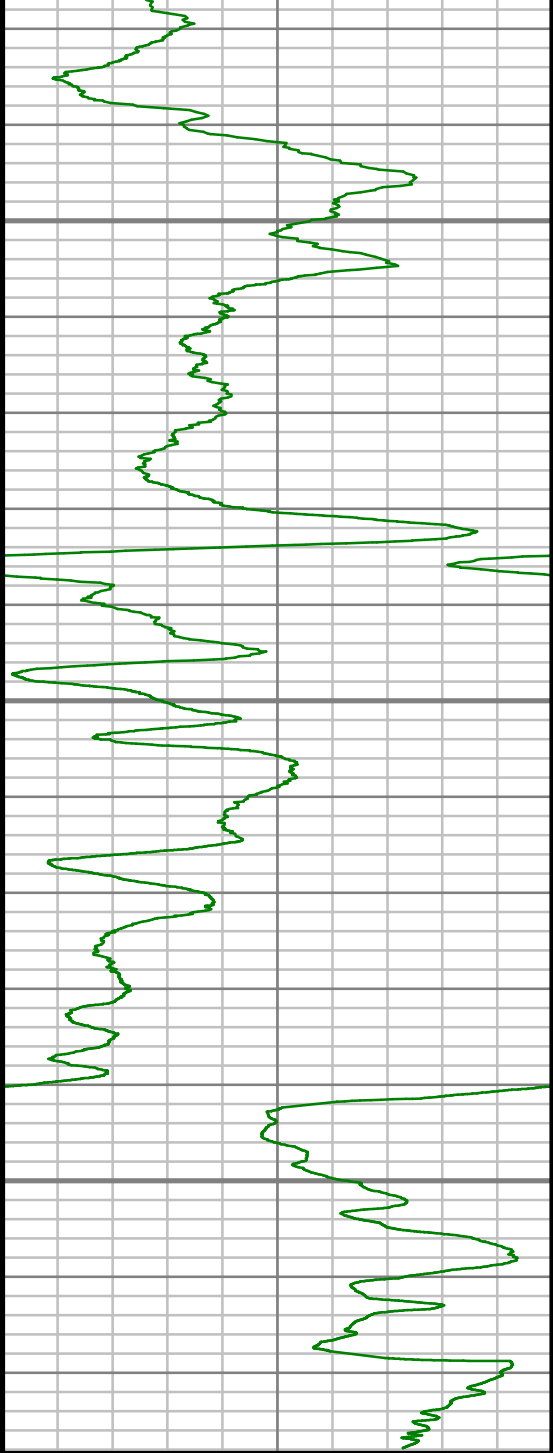
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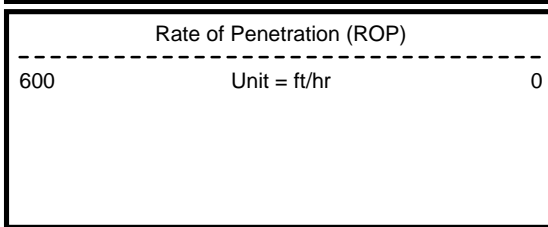
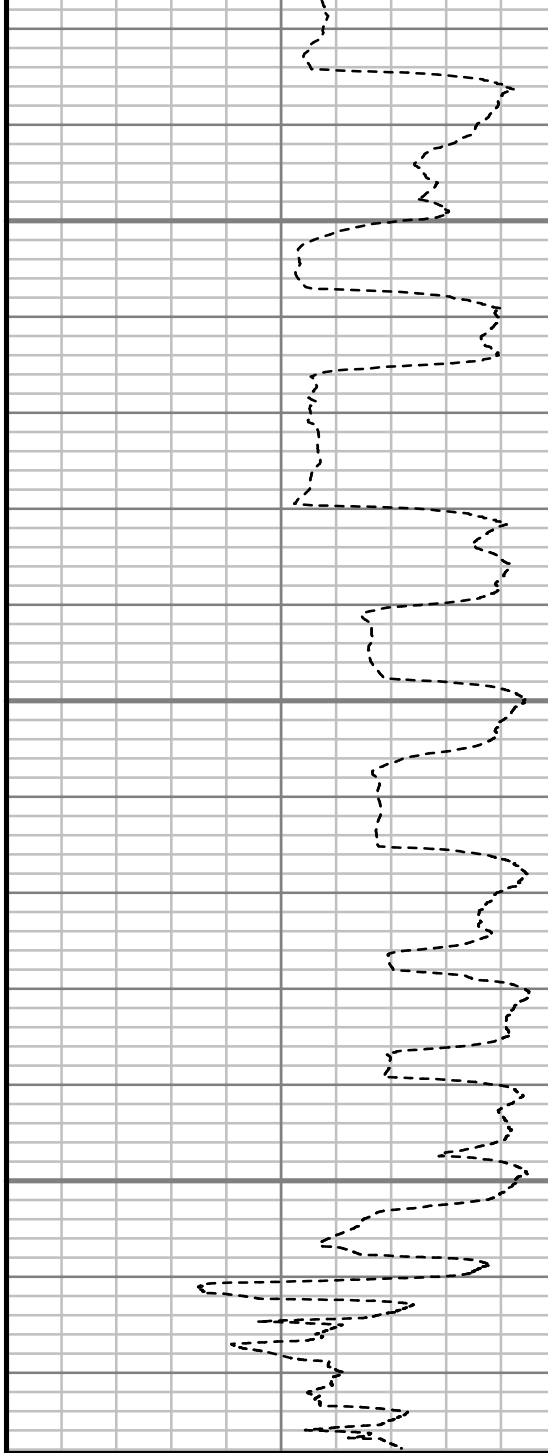


6800

6850

6900

TRUE VERTICAL DEPTH
1,240 (ft)



Comments

Well Location	DALE 4I-20H-O264
Well Name	DALE 4I-20H-O264
Survey Date	8/17/2014
Latitude	40°7'3.508"N
Longitude	104°34'18.502"W
Btotal	52553 nT
Dip	66.74 deg
Magnetic Declination	8.39 deg
North Reference	True North
Grid Correction	None
Depth Reference	RKB (25.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 12.97Azim (deg)
Operator(s)	C. WILSON, S. WAXLER, T. LE

Well Notes

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	Closure Distance	Closure Direction	DLS
ft	deg	deg	ft	ft	ft	ft	ft	deg	"/100ft
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid
140.00	0.62	298.12	140.00	0.20	0.35	-0.66	0.75	298.12	0.44
201.00	0.53	60.91	201.00	0.47	0.65	-0.71	0.96	312.41	1.65
263.00	0.70	96.24	262.99	0.71	0.74	-0.08	0.75	353.93	0.66
323.00	1.58	110.74	322.98	0.64	0.41	1.06	1.14	68.92	1.53
384.00	2.82	99.40	383.93	0.62	-0.13	3.33	3.33	92.30	2.13
445.00	4.13	100.72	444.82	0.80	-0.79	6.97	7.01	96.45	2.17
506.00	4.40	103.27	505.65	0.87	-1.73	11.41	11.54	98.64	0.53
568.00	5.54	108.19	567.42	0.59	-3.21	16.56	16.87	100.98	1.97
629.00	6.95	107.05	628.05	0.05	-5.22	22.89	23.48	102.84	2.32
689.00	7.57	108.90	687.57	-0.61	-7.56	30.10	31.03	104.10	1.10
751.00	8.53	110.74	748.96	-1.66	-10.51	38.26	39.68	105.36	1.62
812.00	10.12	110.92	809.15	-3.01	-14.03	47.50	49.53	106.45	2.60
873.00	11.17	109.60	869.10	-4.43	-17.92	58.07	60.78	107.15	1.78
934.00	12.23	106.61	928.83	-5.52	-21.75	69.83	73.14	107.30	2.00
995.00	12.84	108.37	988.38	-6.57	-25.74	82.46	86.38	107.33	1.19
1064.00	12.32	105.47	1055.72	-7.62	-30.12	96.83	101.41	107.28	1.19
1117.00	11.88	106.44	1107.55	-8.19	-33.17	107.51	112.51	107.15	0.91
1177.00	11.61	106.00	1166.29	-8.88	-36.58	119.24	124.72	107.05	0.46

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	Closure Distance	Closure Direction	DLS
ft	deg	deg	ft	ft	ft	ft	ft	deg	°/100ft
1269.00	12.49	106.00	1256.26	-9.90	-41.87	137.70	143.93	106.91	0.96
1361.00	12.67	104.33	1346.05	-10.66	-47.11	157.04	163.96	106.70	0.44
1453.00	12.40	106.52	1435.86	-11.51	-52.42	176.29	183.92	106.56	0.59
1544.00	12.49	104.24	1524.72	-12.34	-57.62	195.20	203.53	106.44	0.55
1635.00	12.23	107.58	1613.61	-13.33	-62.95	213.93	223.00	106.40	0.84
1727.00	13.64	109.25	1703.28	-15.30	-69.47	233.46	243.57	106.57	1.58
1818.00	13.99	107.84	1791.65	-17.40	-76.37	254.05	265.29	106.73	0.53
1910.00	13.72	108.02	1880.97	-19.31	-83.16	275.02	287.31	106.82	0.29
1981.00	13.71	107.75	1949.94	-20.75	-88.33	291.04	304.15	106.88	0.09
2165.00	12.70	104.68	2129.08	-23.17	-100.10	331.37	346.16	106.81	0.67
2346.00	12.26	105.77	2305.80	-24.71	-110.37	369.12	385.26	106.65	0.27
2530.00	11.29	110.98	2485.93	-28.17	-122.13	404.75	422.77	106.79	0.78
2713.00	12.83	112.48	2664.89	-34.02	-136.31	440.25	460.87	107.20	0.85
2900.00	12.21	112.04	2847.44	-40.57	-151.67	477.75	501.25	107.61	0.34
3090.00	14.22	108.34	3032.41	-45.92	-166.55	518.52	544.61	107.81	1.15
3279.00	13.64	106.36	3215.85	-49.41	-180.12	561.92	590.08	107.77	0.40
3469.00	12.03	102.20	3401.10	-50.47	-190.62	602.77	632.19	107.55	0.97
3658.00	11.85	102.07	3586.01	-49.90	-198.84	641.00	671.13	107.23	0.10

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	Closure Distance	Closure Direction	DLS
ft	deg	deg	ft	ft	ft	ft	ft	deg	°/100ft
3848.00	13.29	104.44	3771.46	-50.15	-208.36	681.22	712.37	107.01	0.81
4037.00	12.82	107.51	3955.58	-52.37	-220.09	722.24	755.03	106.95	0.44
4226.00	14.19	104.40	4139.35	-54.61	-232.15	764.66	799.13	106.89	0.82
4415.00	13.72	101.98	4322.78	-54.80	-242.56	809.02	844.60	106.69	0.40
4606.00	13.46	105.77	4508.44	-55.49	-253.31	852.57	889.40	106.55	0.49
4796.00	13.41	107.30	4693.24	-58.24	-265.87	894.89	933.55	106.55	0.19
4986.00	11.26	99.96	4878.85	-58.93	-275.63	934.20	974.01	106.44	1.40
5177.00	11.04	104.22	5066.25	-58.35	-283.35	970.29	1010.82	106.28	0.45
5367.00	9.49	112.91	5253.21	-61.45	-293.92	1002.36	1044.56	106.34	1.15
5557.00	4.97	108.09	5441.66	-64.89	-302.57	1024.62	1068.36	106.45	2.40
5748.00	2.55	102.47	5632.23	-65.59	-306.06	1036.64	1080.87	106.45	1.28
5938.00	0.74	106.51	5822.15	-65.63	-307.32	1041.94	1086.32	106.43	0.96
6129.00	1.26	238.43	6013.13	-67.17	-308.77	1041.34	1086.15	106.52	0.96
6320.00	0.77	260.26	6204.10	-69.13	-310.08	1038.30	1083.61	106.63	0.32
6415.00	0.82	327.74	6299.09	-68.90	-309.62	1037.31	1082.53	106.62	0.93
6462.00	7.87	344.45	6345.93	-65.83	-306.23	1036.27	1080.57	106.46	15.09
6510.00	11.58	348.83	6393.23	-58.55	-298.33	1034.45	1076.61	106.09	7.87
6557.00	14.81	352.68	6438.99	-48.60	-287.74	1032.77	1072.11	105.57	7.13

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	Closure Distance	Closure Direction	DLS
ft	deg	deg	ft	ft	ft	ft	ft	deg	°/100ft
6605.00	19.64	354.95	6484.82	-35.17	-273.61	1031.28	1066.96	104.86	10.15
6652.00	26.60	357.28	6528.02	-17.51	-255.21	1030.08	1061.23	103.92	14.92
6701.00	30.13	0.24	6571.13	5.05	-231.95	1029.61	1055.42	102.70	7.75
6748.00	32.85	0.65	6611.21	29.02	-207.40	1029.81	1050.48	101.39	5.81
6796.00	37.79	1.23	6650.36	56.15	-179.67	1030.27	1045.82	99.89	10.32
6843.00	43.99	1.12	6685.87	86.25	-148.92	1030.90	1041.60	98.22	13.19
6891.00	49.64	1.24	6718.71	120.50	-113.94	1031.62	1037.89	96.30	11.77
6938.00	52.75	0.58	6748.16	156.31	-77.32	1032.20	1035.09	94.28	6.70
6986.00	56.40	359.31	6775.98	194.41	-38.22	1032.15	1032.86	92.12	7.90
7033.00	60.72	359.58	6800.49	233.39	1.87	1031.77	1031.77	89.90	9.21
7081.00	63.26	359.39	6823.03	274.59	44.24	1031.38	1032.33	87.54	5.30
7128.00	67.00	0.29	6842.80	316.11	86.87	1031.27	1034.92	85.18	8.16
7177.00	69.80	1.08	6860.84	360.62	132.42	1031.81	1040.28	82.69	5.89
7224.00	74.21	359.98	6875.35	404.26	177.11	1032.22	1047.30	80.26	9.65
7272.00	78.15	359.01	6886.82	449.58	223.71	1031.81	1055.78	77.77	8.43
7448.00	86.87	358.20	6909.73	618.46	397.98	1027.56	1101.94	68.83	4.98
7540.00	88.25	358.64	6913.65	707.42	489.86	1025.02	1136.06	64.46	1.57
7631.00	88.89	0.28	6915.92	795.87	580.83	1024.16	1177.40	60.44	1.94

MD	Inc	Azim	TVD	VS	+N/-S	+E/-W	Closure Distance	Closure Direction	DLS
ft	deg	deg	ft	ft	ft	ft	ft	deg	°/100ft
7727.00	89.40	0.94	6917.36	889.64	676.81	1025.19	1228.44	56.57	0.86
7821.00	90.17	0.46	6917.71	981.49	770.80	1026.34	1283.55	53.09	0.97
7916.00	91.08	359.71	6916.68	1074.09	865.79	1026.48	1342.86	49.85	1.24
8011.00	90.84	0.01	6915.09	1166.60	960.78	1026.25	1405.80	46.89	0.40
8105.00	89.93	1.10	6914.46	1258.40	1054.77	1027.16	1472.28	44.24	1.51
8200.00	91.01	0.75	6913.68	1351.30	1149.75	1028.69	1542.77	41.82	1.19
8295.00	90.23	1.98	6912.65	1444.35	1244.72	1030.95	1616.22	39.63	1.53
8390.00	88.96	0.57	6913.31	1537.37	1339.69	1033.05	1691.73	37.64	2.00
8485.00	89.09	359.47	6914.93	1629.94	1434.67	1033.08	1767.92	35.76	1.16
8580.00	89.06	359.58	6916.46	1722.32	1529.66	1032.30	1845.40	34.01	0.12
8674.00	88.56	359.36	6918.42	1813.71	1623.63	1031.43	1923.55	32.43	0.58
8769.00	87.72	358.51	6921.51	1905.82	1718.57	1029.67	2003.42	30.93	1.26
8864.00	88.15	359.48	6924.93	1997.95	1813.49	1028.00	2084.59	29.55	1.13
8958.00	89.03	1.04	6927.24	2089.61	1907.45	1028.43	2167.04	28.33	1.90
9052.00	90.34	1.76	6927.76	2181.70	2001.42	1030.73	2251.24	27.25	1.59
9147.00	89.83	1.95	6927.63	2274.92	2096.37	1033.80	2337.42	26.25	0.57
9242.00	91.34	1.24	6926.65	2368.04	2191.33	1036.44	2424.07	25.31	1.76
9337.00	92.49	1.17	6923.47	2460.99	2286.25	1038.44	2511.04	24.43	1.21

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	Closure Distance ft	Closure Direction deg	DLS °/100ft
9432.00	91.85	1.15	6919.88	2553.91	2381.16	1040.37	2598.52	23.60	0.68
9527.00	90.84	1.37	6917.65	2646.91	2476.11	1042.45	2686.60	22.83	1.09
9622.00	90.64	359.41	6916.43	2739.62	2571.10	1043.10	2774.64	22.08	2.07
9717.00	89.60	358.48	6916.24	2831.79	2666.08	1041.36	2862.24	21.34	1.47
9813.00	90.10	359.21	6916.49	2924.88	2762.06	1039.43	2951.17	20.62	0.92
9908.00	90.84	359.68	6915.71	3017.24	2857.05	1038.51	3039.94	19.98	0.92
10003.00	89.87	359.75	6915.13	3109.71	2952.05	1038.03	3129.23	19.37	1.03
10098.00	89.60	359.21	6915.57	3202.09	3047.04	1037.17	3218.72	18.80	0.64
10193.00	89.33	358.92	6916.46	3294.30	3142.02	1035.62	3308.30	18.24	0.42
10288.00	89.56	0.18	6917.38	3386.70	3237.01	1034.87	3398.41	17.73	1.35
10384.00	89.56	359.85	6918.11	3480.25	3333.01	1034.89	3489.98	17.25	0.34
10479.00	89.43	359.65	6918.95	3572.73	3428.01	1034.47	3580.69	16.79	0.25
10574.00	89.23	358.96	6920.06	3665.03	3522.99	1033.32	3671.41	16.35	0.75
10669.00	89.36	0.77	6921.23	3757.55	3617.98	1033.10	3762.59	15.94	1.91
10765.00	91.18	0.70	6920.78	3851.36	3713.97	1034.33	3855.31	15.56	1.89
10860.00	90.94	0.70	6919.02	3944.17	3808.94	1035.48	3947.19	15.21	0.25
10955.00	90.74	0.58	6917.63	4036.97	3903.93	1036.54	4039.19	14.87	0.24
11050.00	90.50	359.73	6916.60	4129.60	3998.92	1036.80	4131.14	14.54	0.93

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	Closure Distance ft	Closure Direction deg	DLS °/100ft
11146.00	90.30	359.25	6915.92	4222.95	4094.92	1035.95	4223.92	14.20	0.55
11241.00	89.80	358.31	6915.84	4315.05	4189.89	1033.93	4315.58	13.86	1.13
11336.00	89.56	358.86	6916.37	4407.07	4284.86	1031.58	4407.29	13.54	0.63
11432.00	89.63	358.39	6917.04	4500.08	4380.83	1029.27	4500.12	13.22	0.50



GAMMA RAY

5" = 100' FEET TVD