



**Well: BMA A5A**

Field: **Bream A**

Rig: ISDL 453

State: **Victoria**

# Gamma Ray Service

# 1:200 True Vertical Depth

## Real Time Log

Depth logged:	896.0 m	To 2791.6 m	Mag decl:	13.10°	Other services:
Date logged:	11-June-05	To 14-June-05	Mag dip:	-69.03°	Directional Drilling, D&I

<p style="text-align: center;">DISCLAIMER</p> <p>THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.</p>		
<p>OTHER SERVICES FOR RUN1</p> <p>Directional Drilling</p> <p>Directional Surveys</p>	<p>OTHER SERVICES FOR RUN</p>	<p>OTHER SERVICES FOR RUN</p>
<p>REMARKS: RUN NUMBER 1</p> <p>8-1/2 in. hole was drilled from 896.0 m to 2810.0m MD</p> <p>Depth is referenced to Driller's Depth.</p> <p>Gamma Ray corrected for Tool Size, Bit Size and Mud Weight.</p> <p>Mud Type is KCl/PHPA/Glycol.</p> <p>POOH due to TD of BMA A5A</p> <p>Data Gaps due to Power Shutdown between 1428.0m to 1431.5m MD</p> <p>Reamed Down for Data between 1116.0m</p>	<p>REMARKS: RUN NUMBER</p>	<p>REMARKS: RUN NUMBER</p>

to 1123.0m MD

Thank You for Choosing Schlumberger

EQUIPMENT DESCRIPTION		
RUN1	RUN	RUN

DOWNHOLE EQUIPMENT		
6-3/4 in. PowerPac MDC: Z MEC: 1 MDI: 10 MGR: 52 DHS: V8.1		23.5
	D&I	19.0
	GR	18.4
	APW	15.8
6-3/4 in. NM PowerPac S/N: 9708		14.9
8-3/8 in. NM Roller Reamer S/N: GU2		13.5
6-1/4 in. FI S/N: 961		11.5
7 in. PowerPac A700G1 S/N: N7 1.5 deg. Bent 8-3/8 in. Motor		9.1

A blank coordinate plane with x and y axes ranging from -10 to 10. The x-axis is labeled 'x' and the y-axis is labeled 'y'. The origin is marked with '0'. The axes are labeled with integers from -10 to 10.

[illegible]

Product	Score
6-3/4 in. Pov MDC: Z MEC: 1 MDI: 1 MGR: 52 DHS: V8	23.3
D&I	19.0
GR	18.4
APW	15.8
6-3/4 in. NM Por S/N: 970	14.9
8-3/8 in. NM Rol S/N: GU2	13.5
6-1/4 in. FI S/N: 961	11.5
7 in. PowerP A700G1 S/N: N7 1.5 deg. Bent 8-3/8 in. Mot	9.1



— 0.00 0.25

Smith PC  
OD: 8-1  
S73VPX S/N

Maximum string dia  
All lengths in

# Bit Run Summary

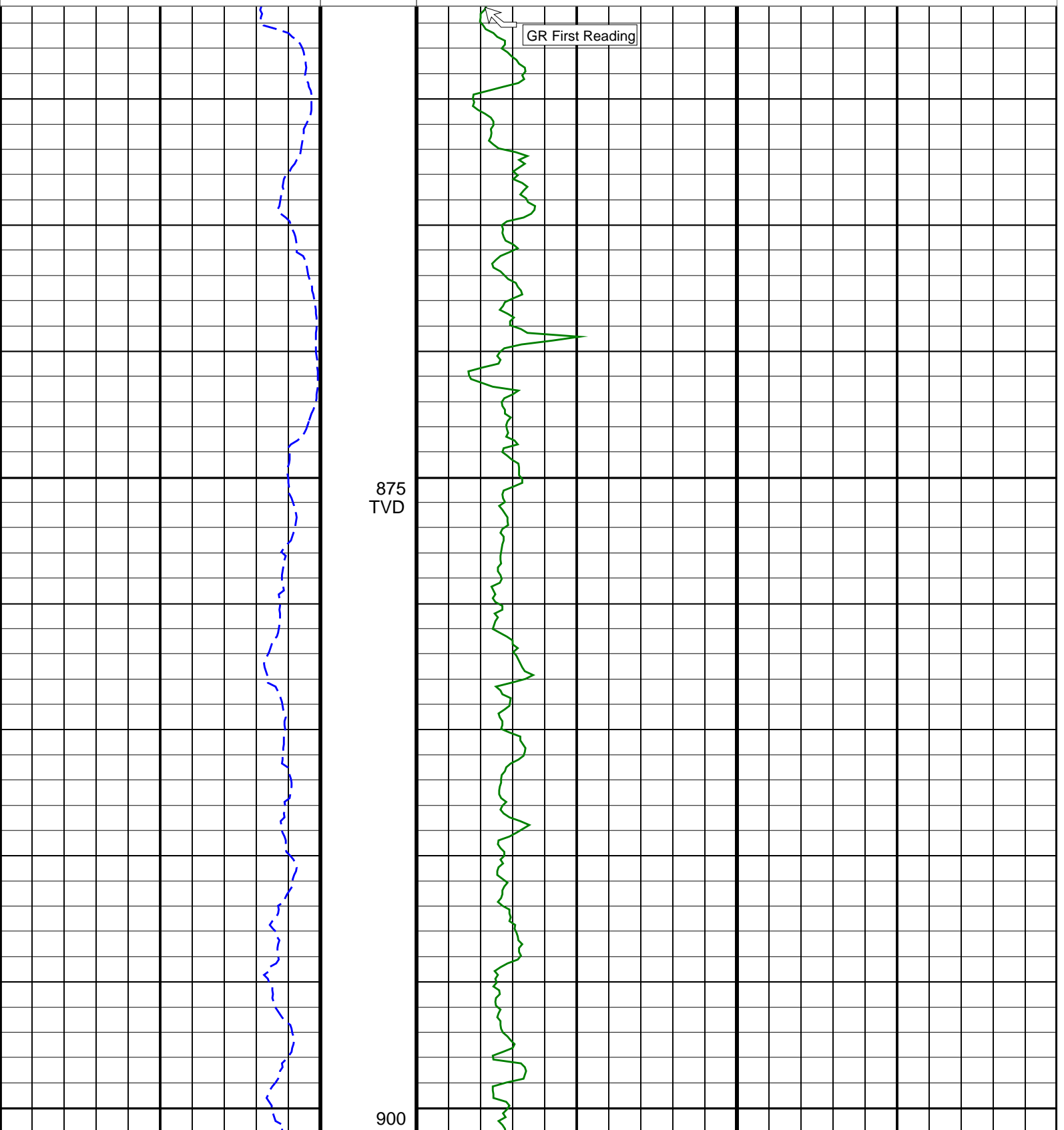
Run number		1									
Bit size	in.	8.5									
Bit start depth	m	896.0									
Bit end depth	m	2810.0									
Top interval logged	m	896.0									
Bottom interval logged	m	2791.6									
Begin log: time		0:02									
Begin log: date		11-Jun-05									
End log: time		16:30									
End log: date		14-Jun-05									
Mud data											
Depth	m	2810.0									
Type		KCl/PHPA/Glycol									
Mud weight	ppg	10.08									
Solids	%	8.5									
Chlorides	mg/L	45,500									
Rm		N/A									
Rmf		N/A									
Rmc		N/A									
Potassium	%	4.5									
Environmental data											
GR											
Mud weight	ppg	10.08									
Bit size	in.	8.5									
Resistivity											
Neutron porosity											
Hole Size											
Mud weight											
Temperature											
Mud salinity											
Formation salinity											
Recording rate 1	SEC	9.47									
Recording rate 2	SEC	N/A									
Filtering GR		3 pt.									
Filtering density		N/A									
Filtering Neutron		N/A									
Company representative		G. Campbell	J. MacKinnon	M. Jackson							
Schlumberger D&M Personnel		R. Borjas	L. Johnston	C. Cocks	T. Auger						

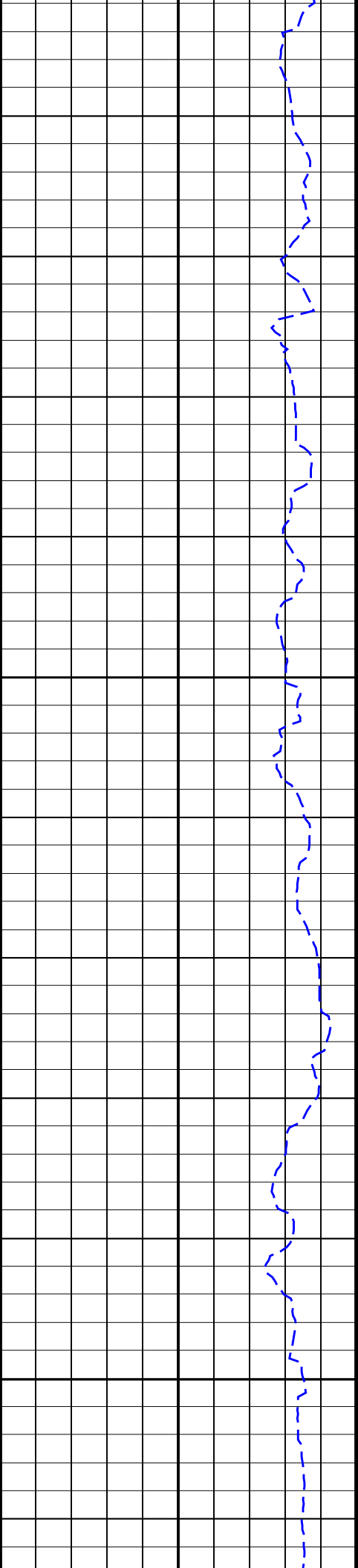
# BMA A5A RT 1:200 TVD

IDEAL Version: ID10\_2B\_08 <TVD> Vertical Scale: 1:200

Graphics File Created: 17-Jun-2005 01:45

ROP\*5 (ROP5) (M/HR) 200 0 GR(TM) (GRM1) (GAPI) 0 400

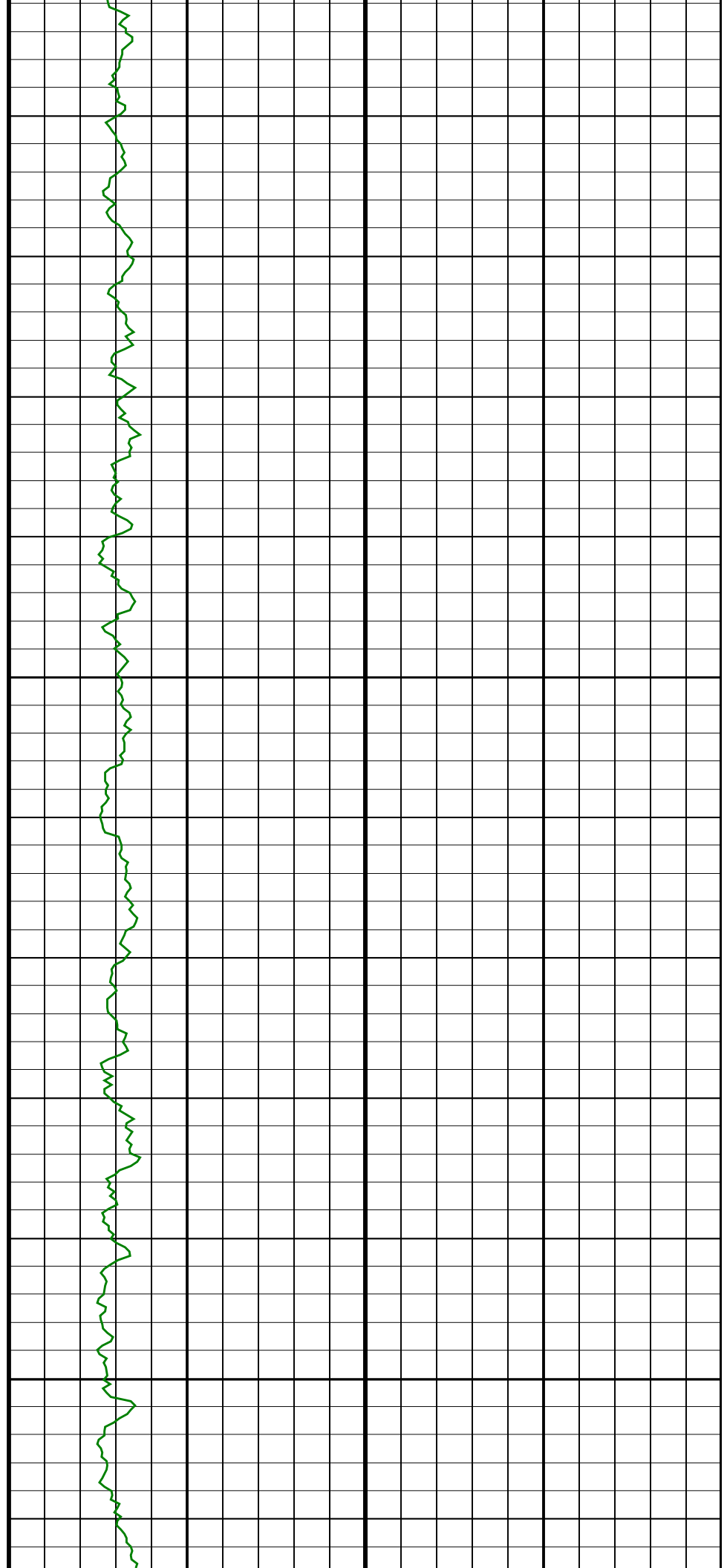




TVD

925  
TVD

950  
TVD

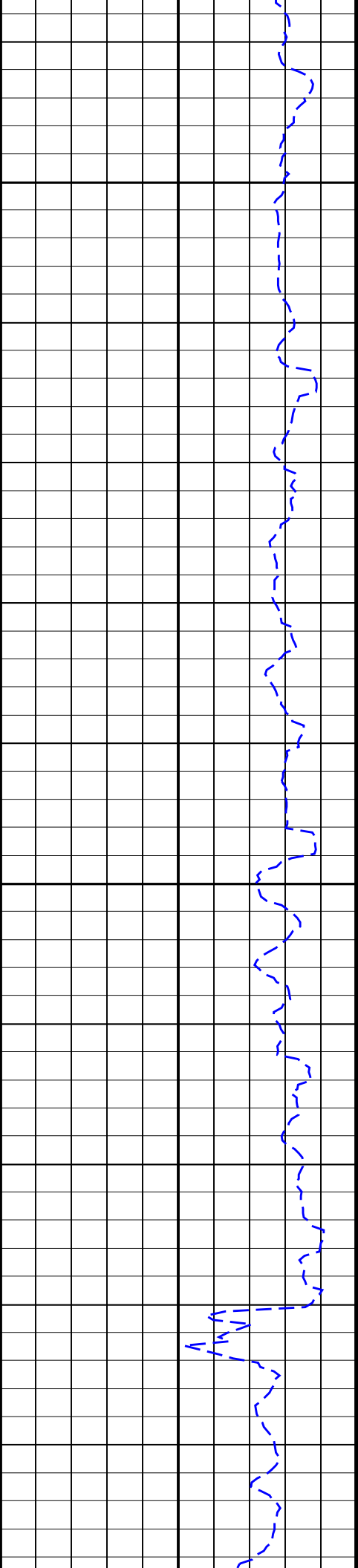






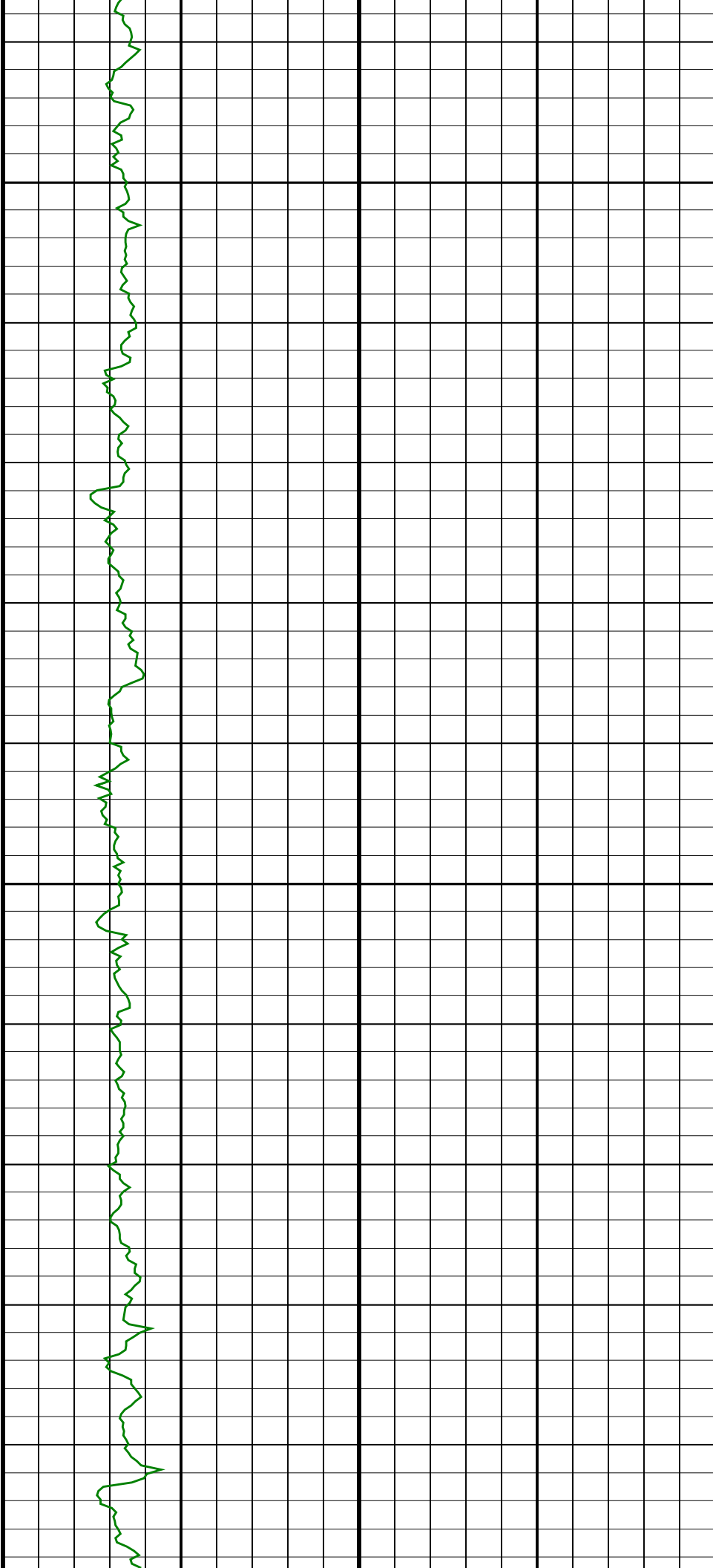
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TVD



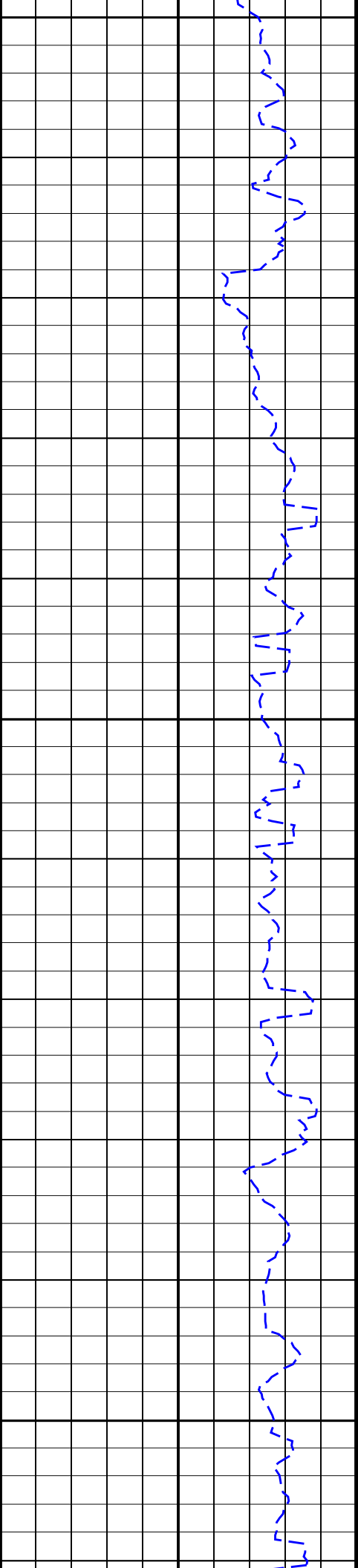


1075  
TVD

1100  
TVD



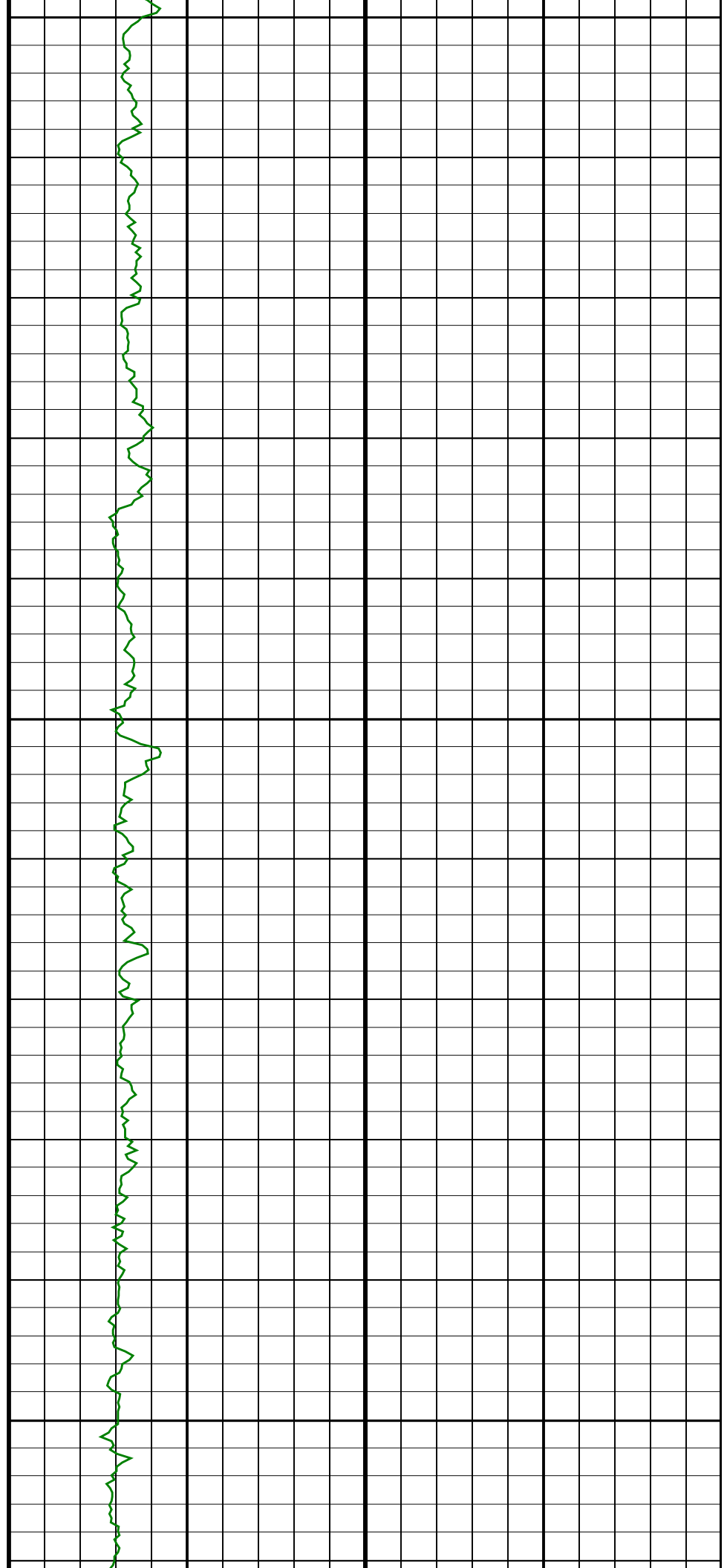


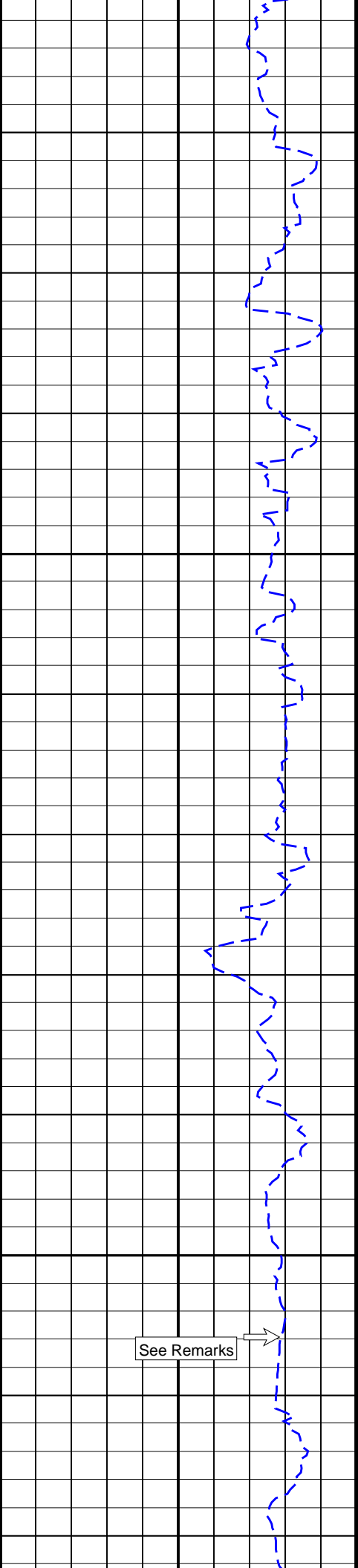


1125  
TVD

1150  
TVD

1175  
TVD

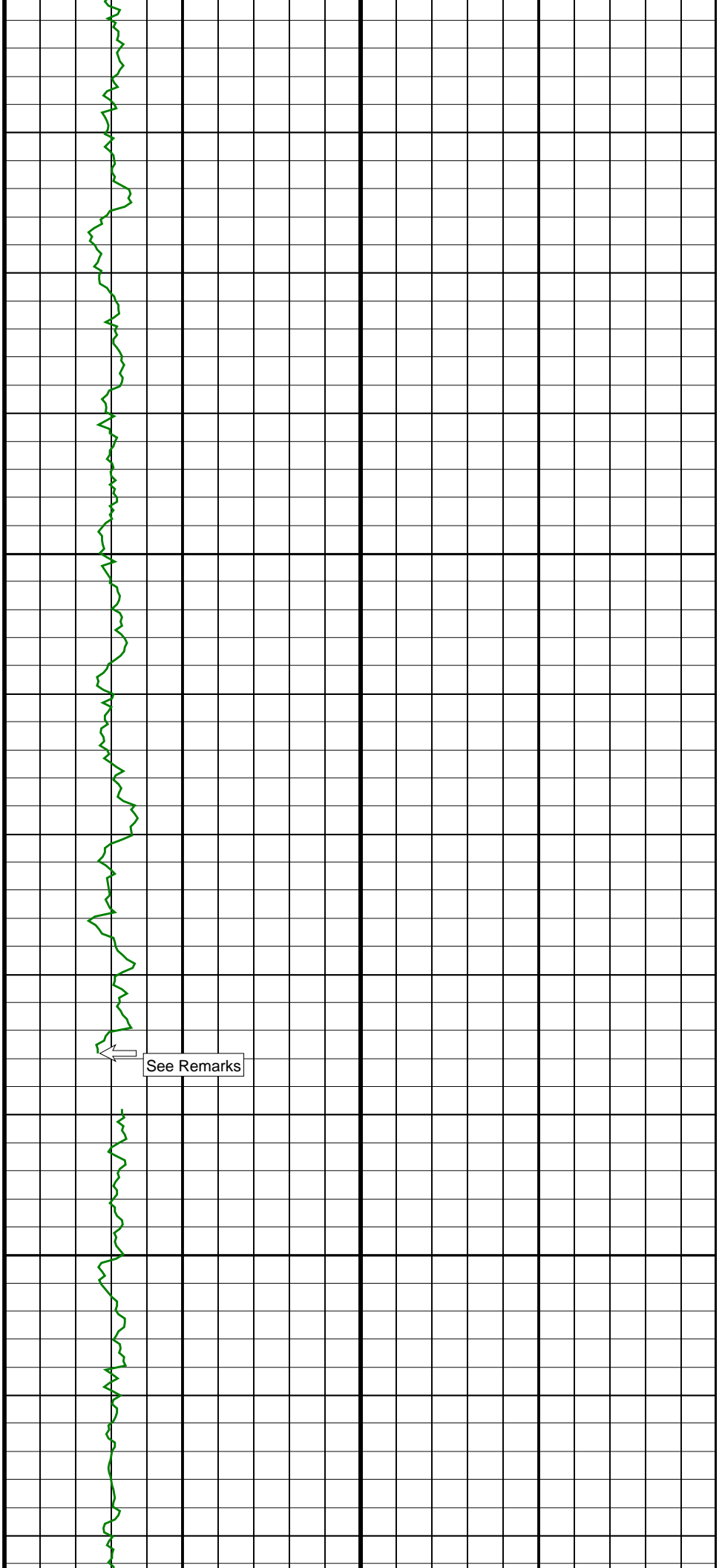




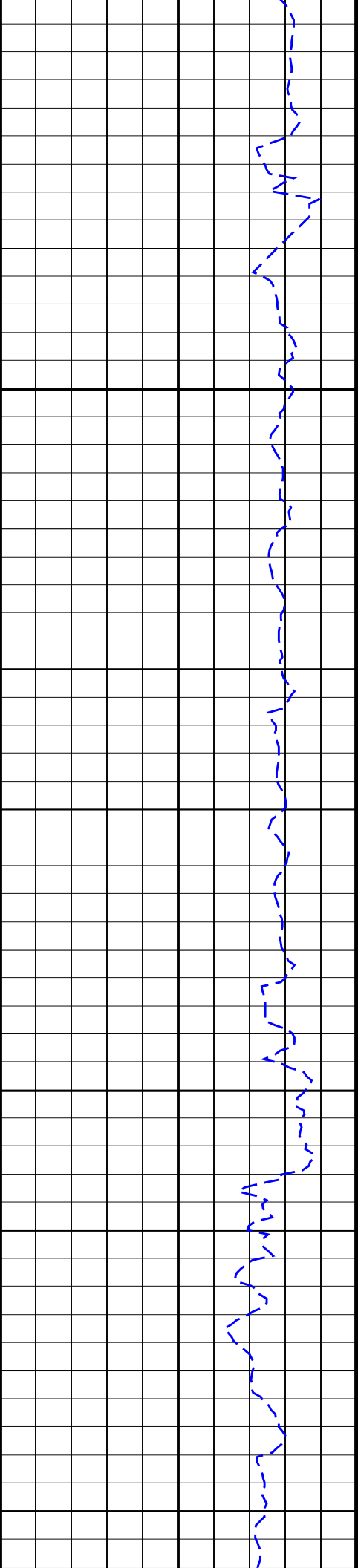
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TVD

1225  
TVD

See Remarks

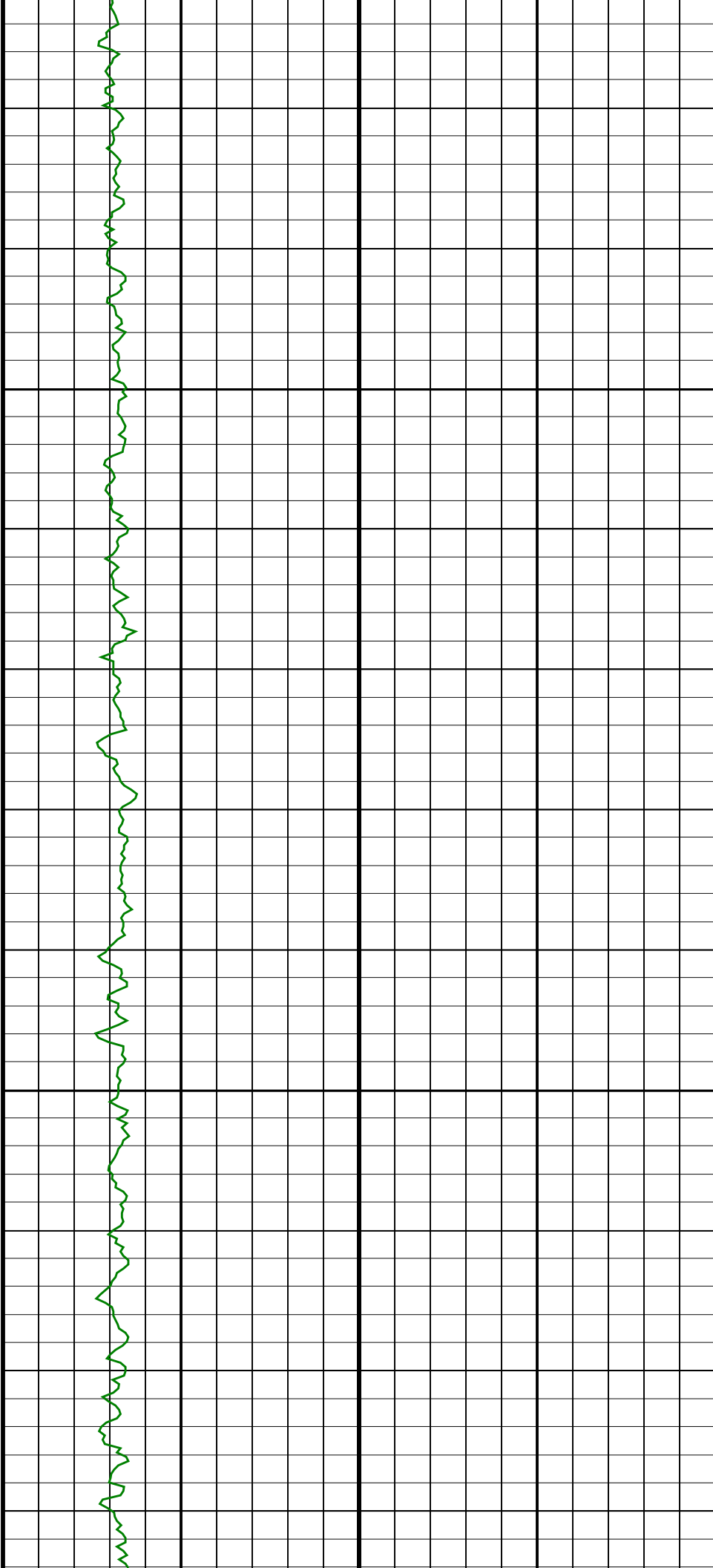


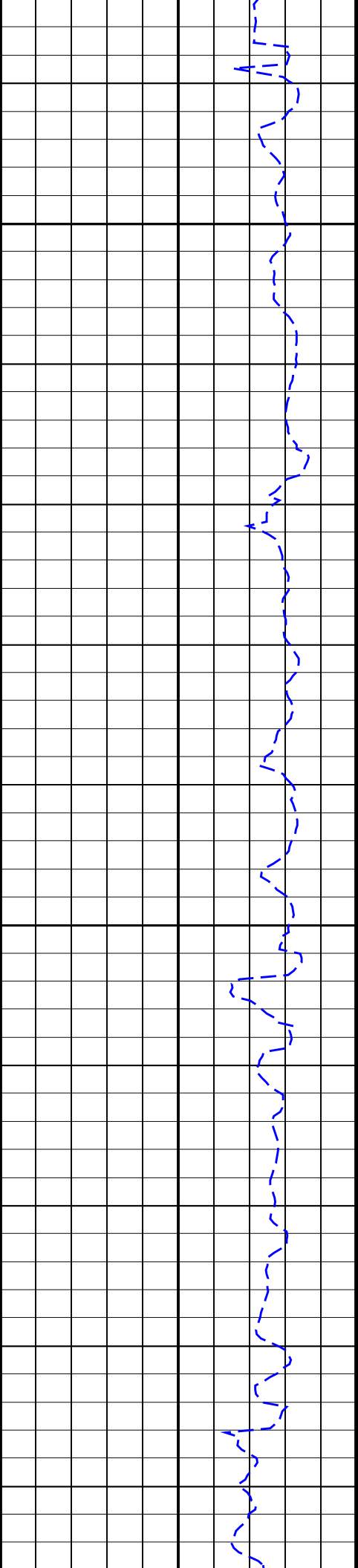
See Remarks



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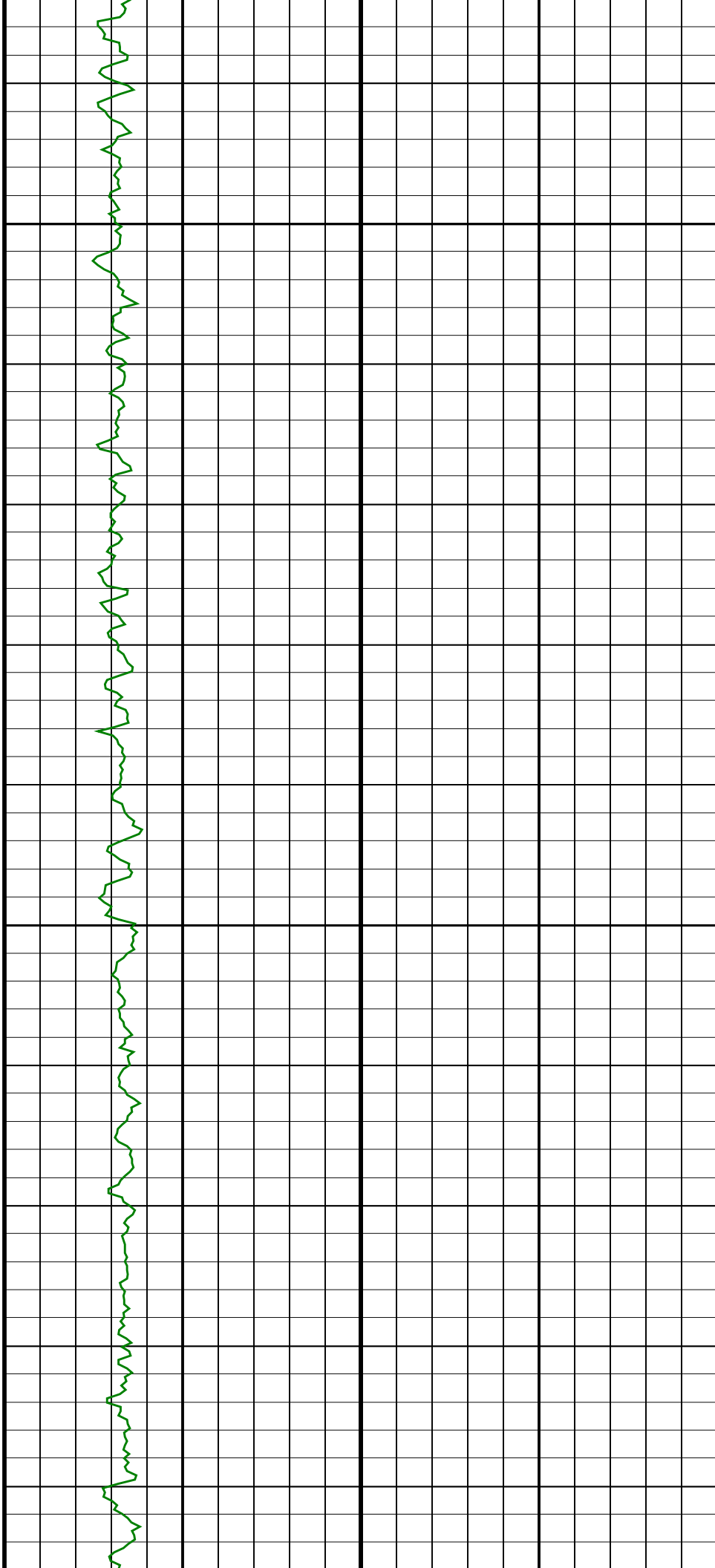
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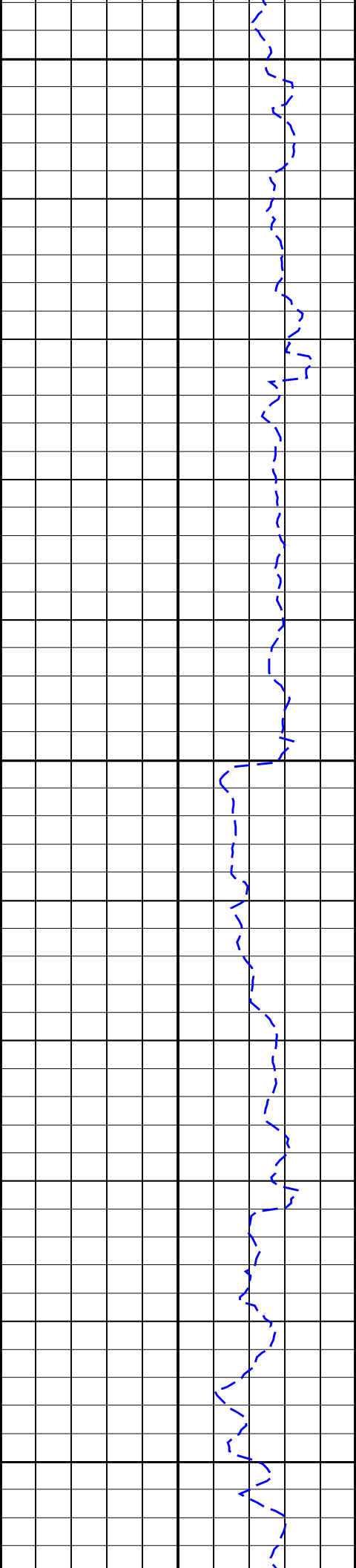




1300  
TVD

1325  
TVD

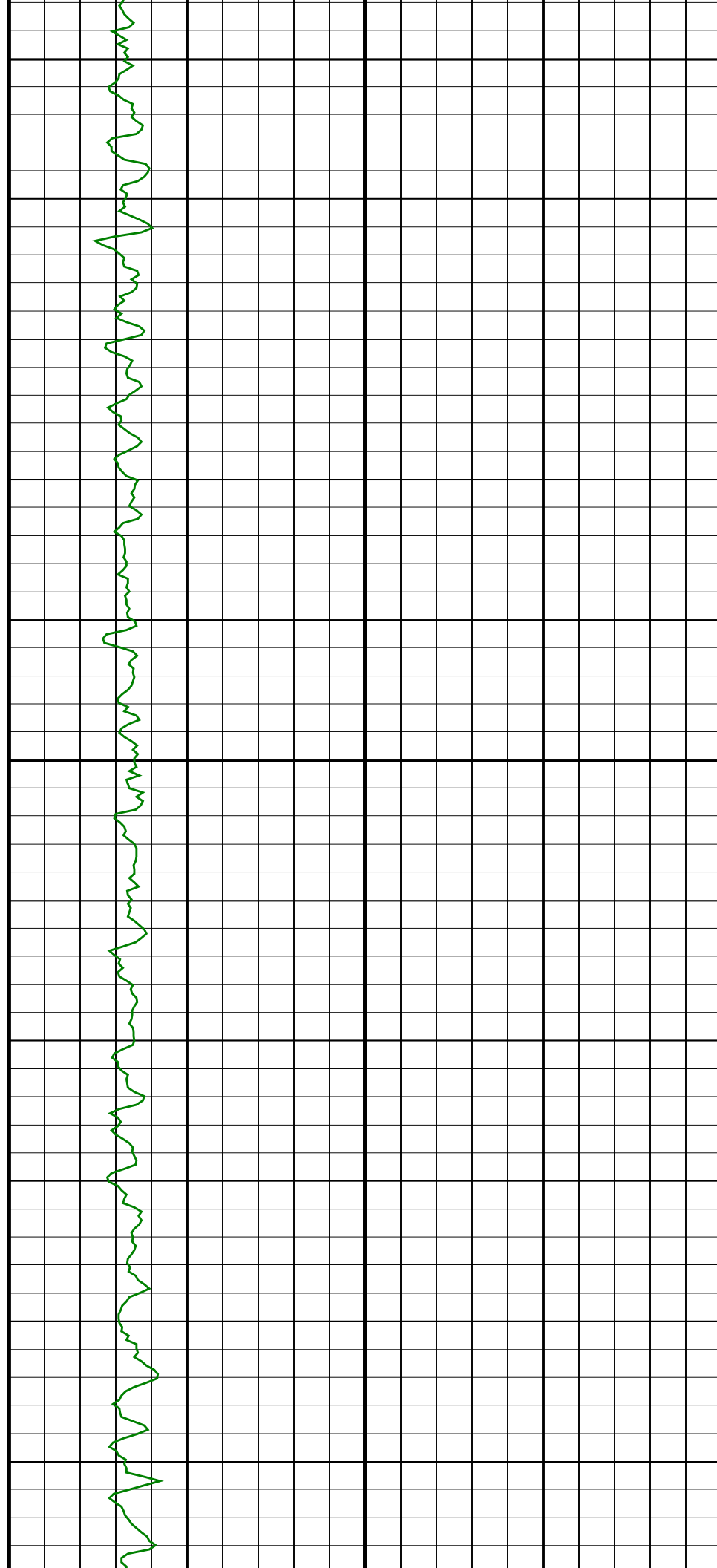


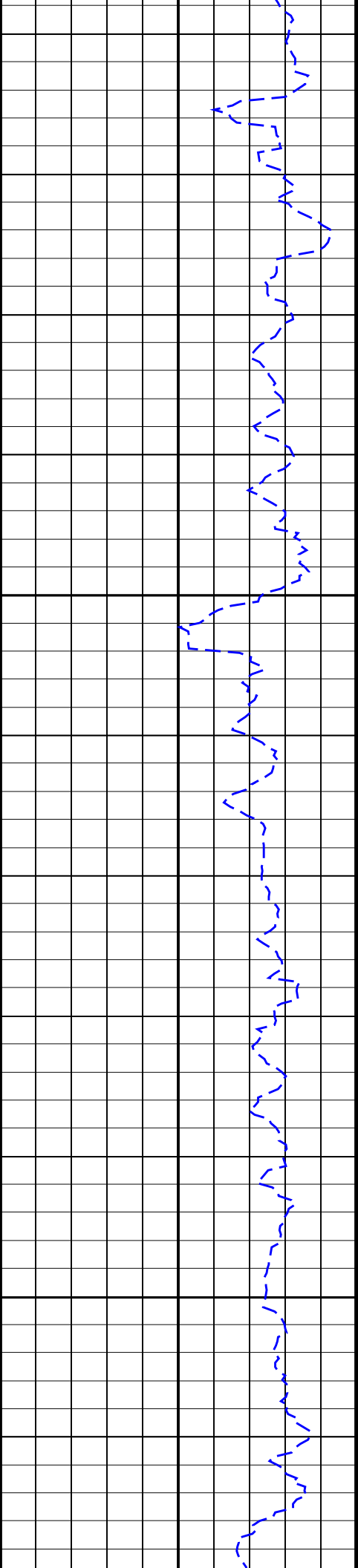


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TVD

1375  
TVD

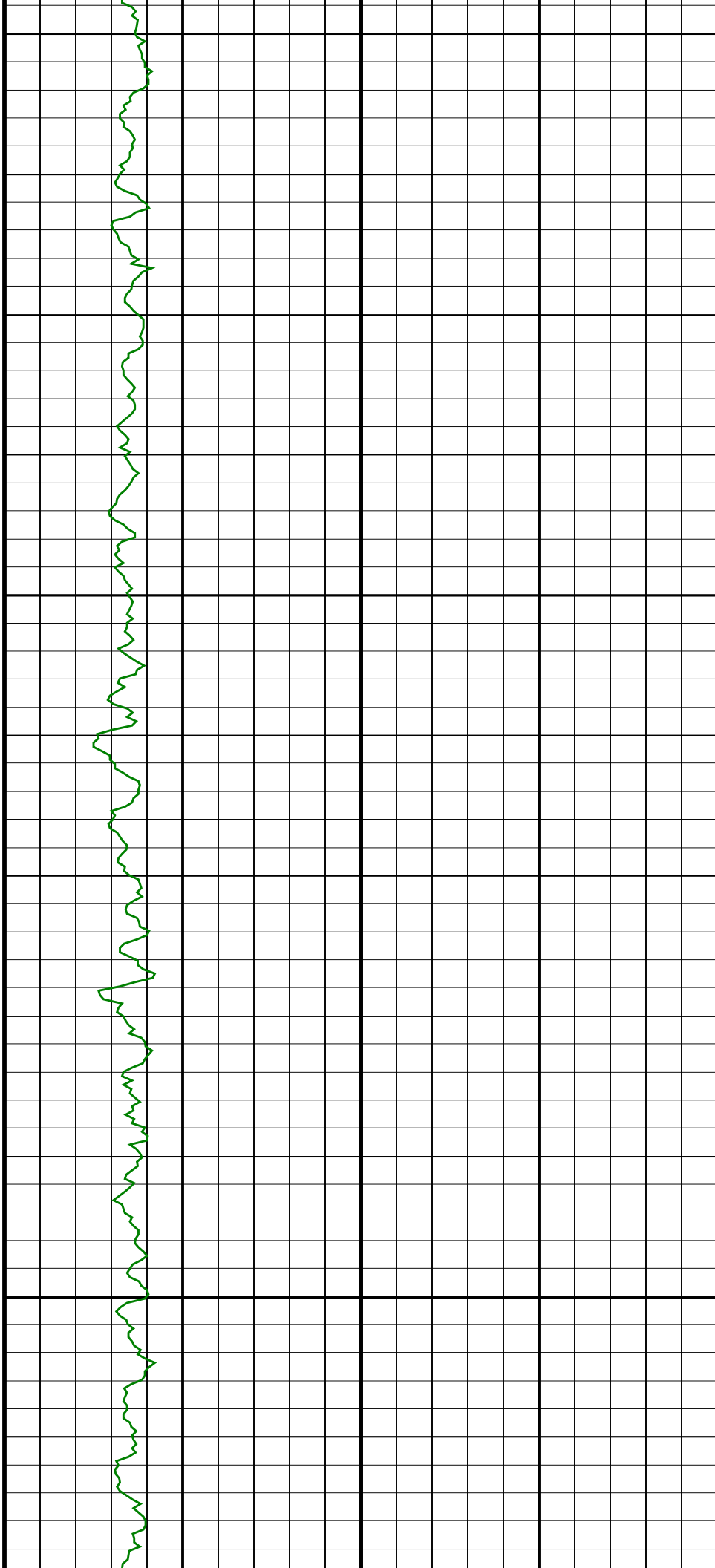
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TVD

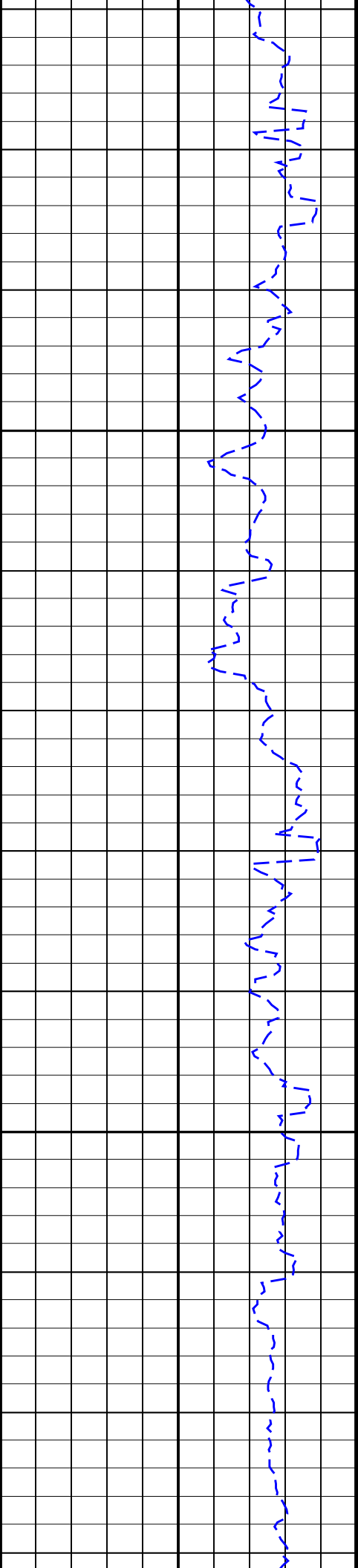




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TVD

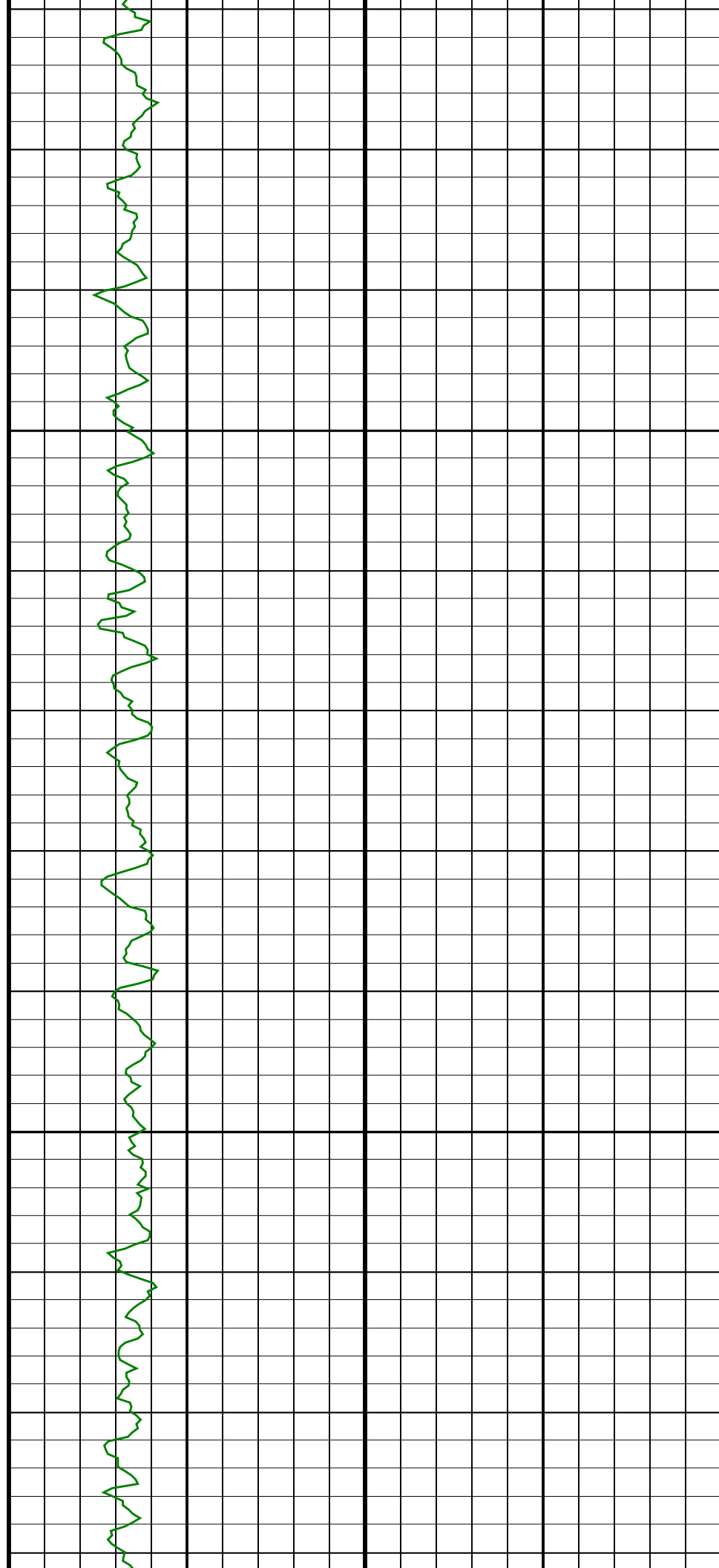
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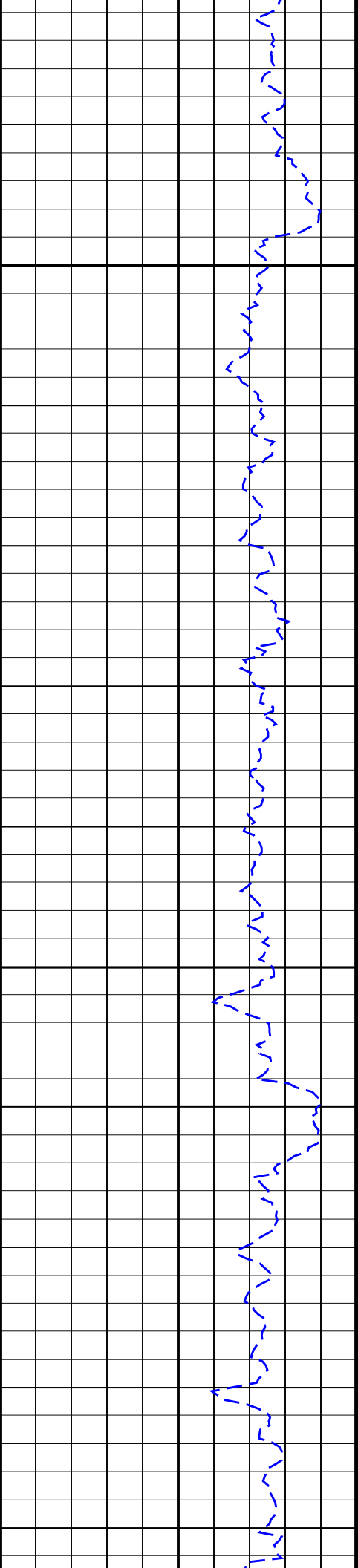




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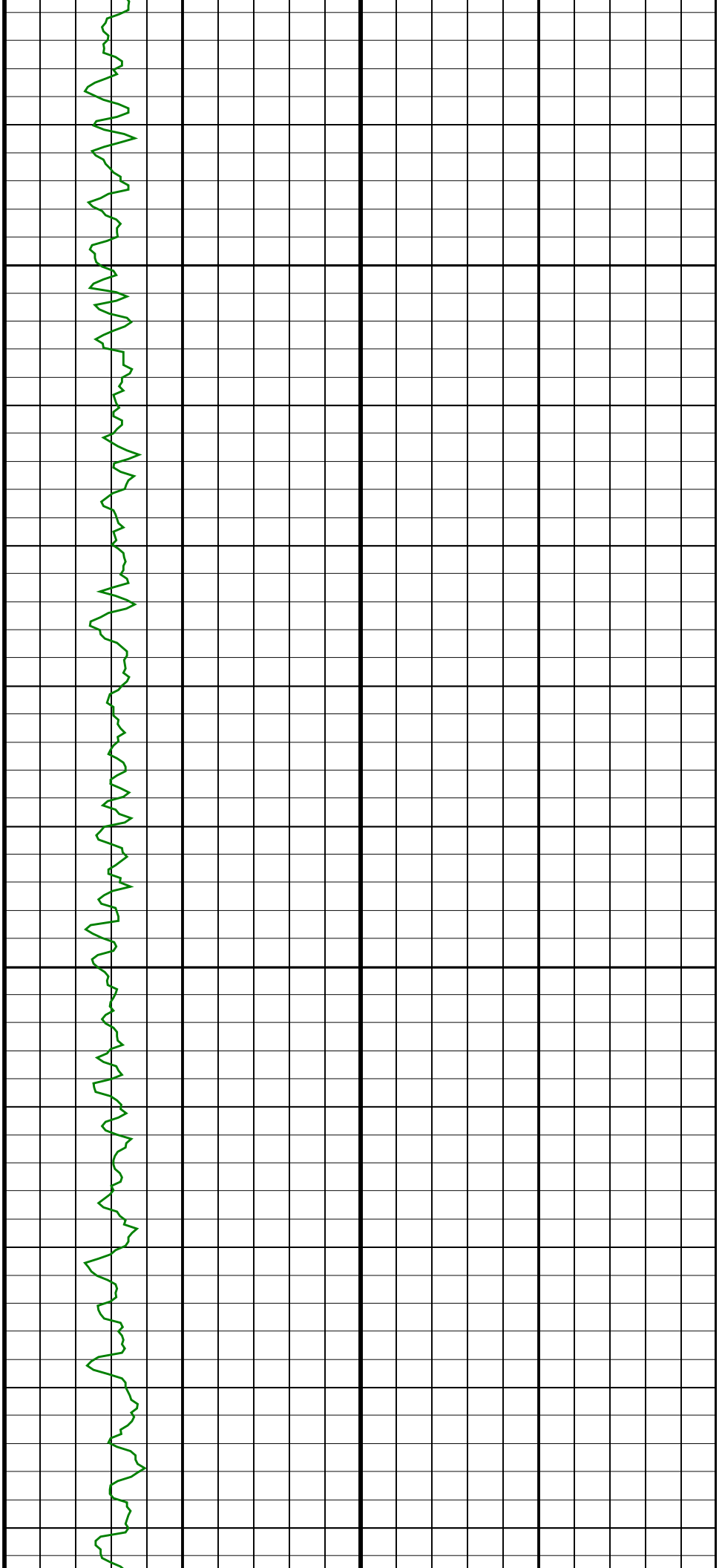
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TVD



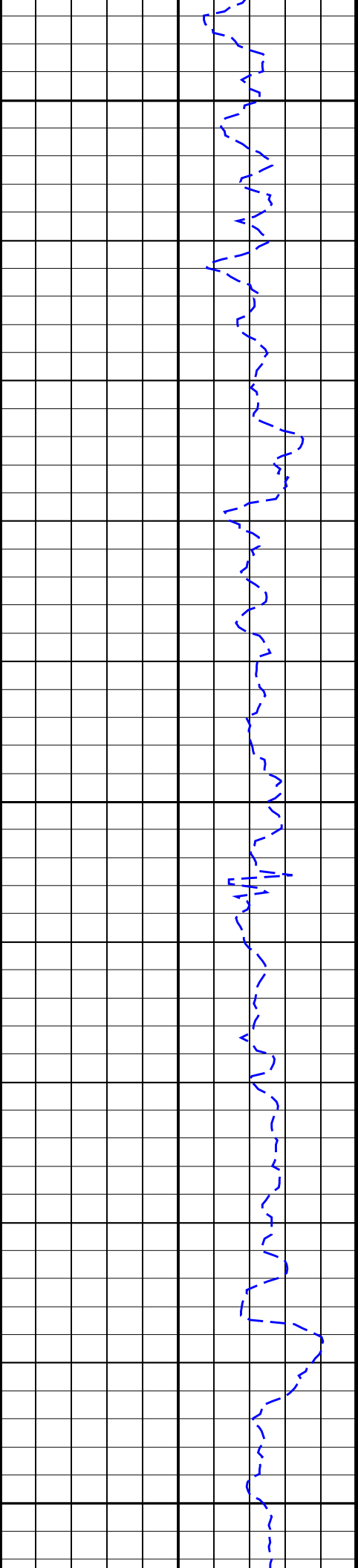


1525  
TVD

1550  
TVD



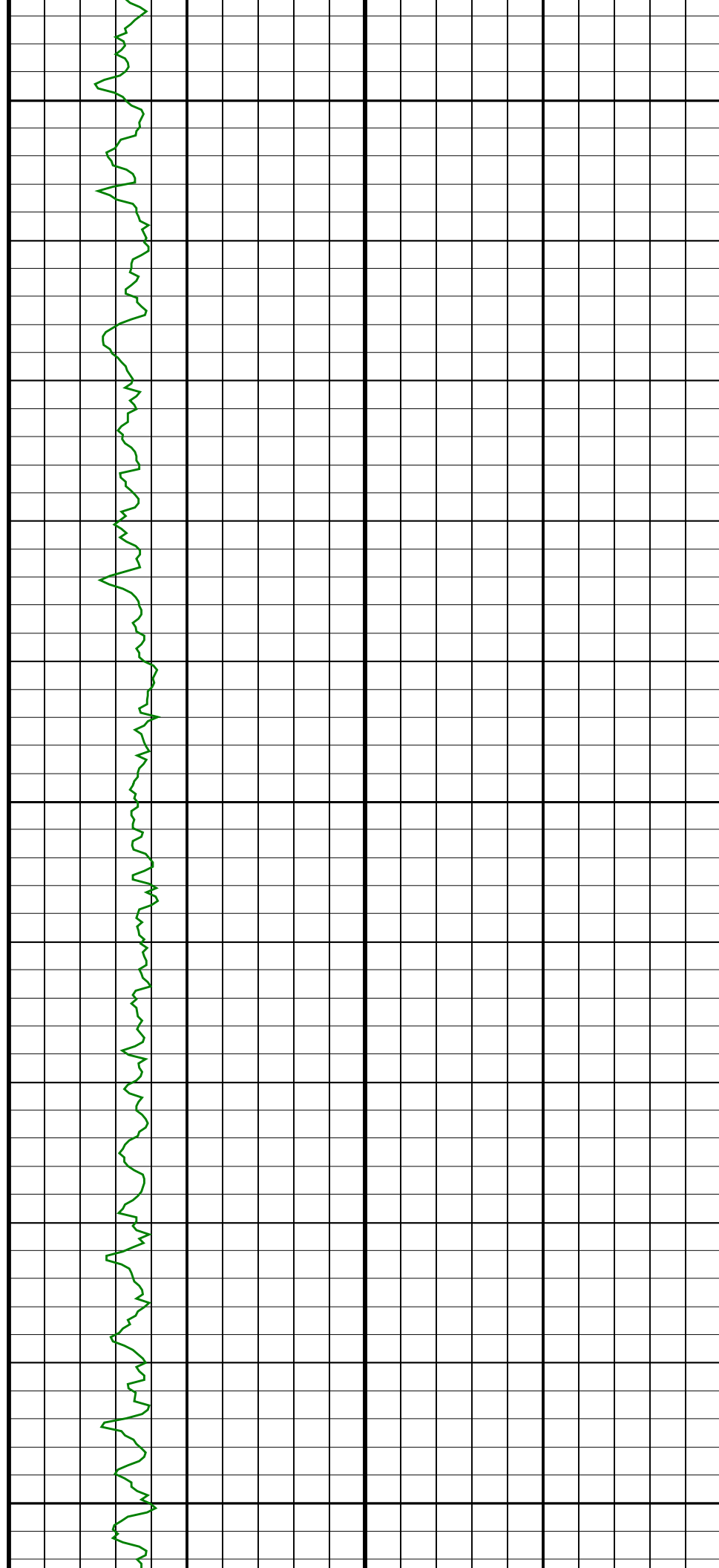


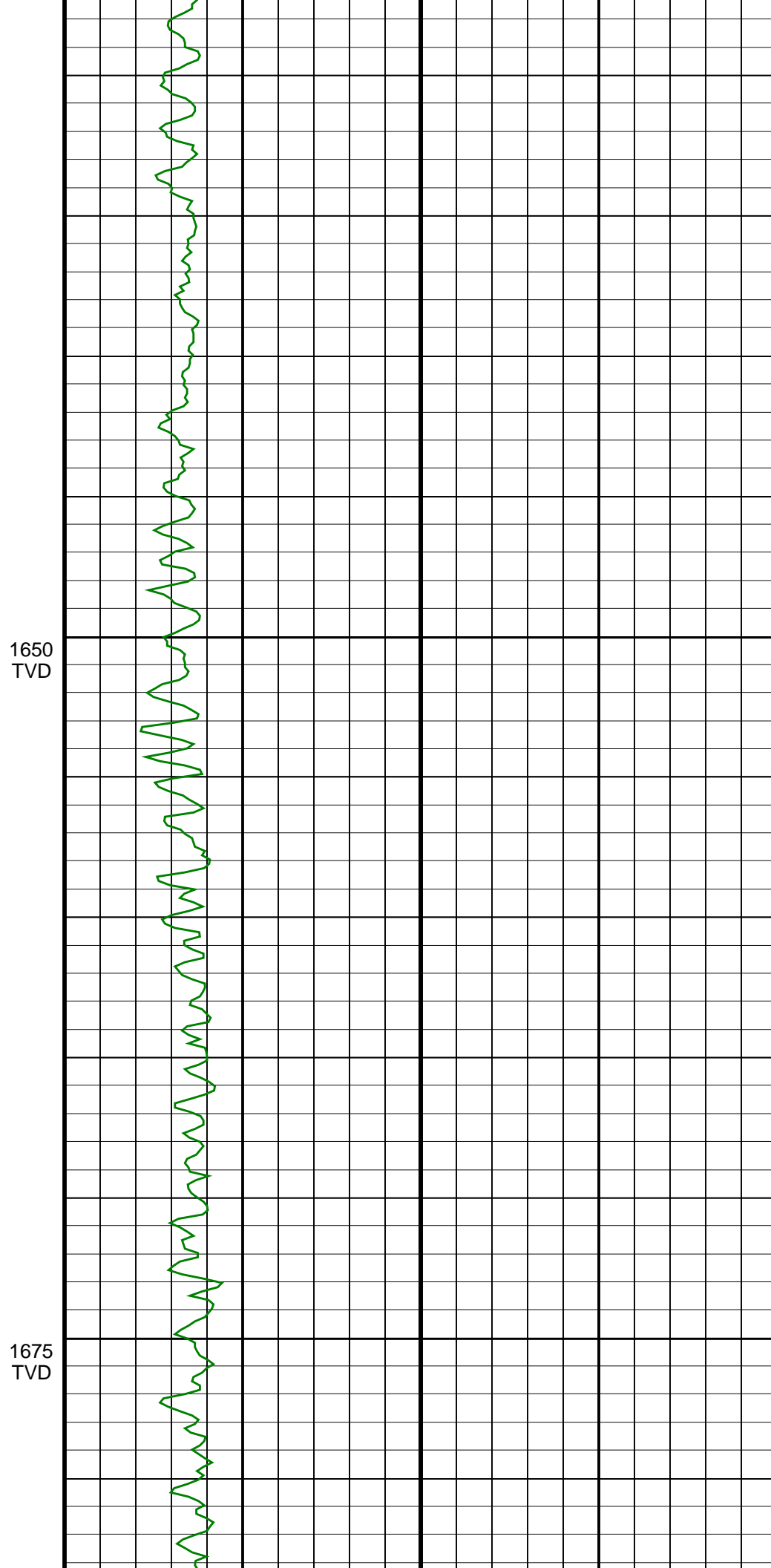
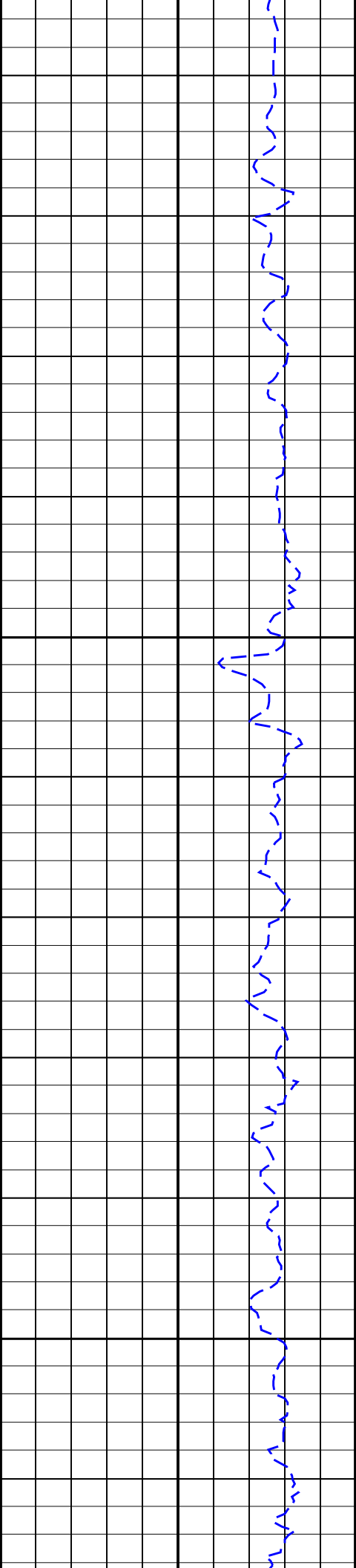


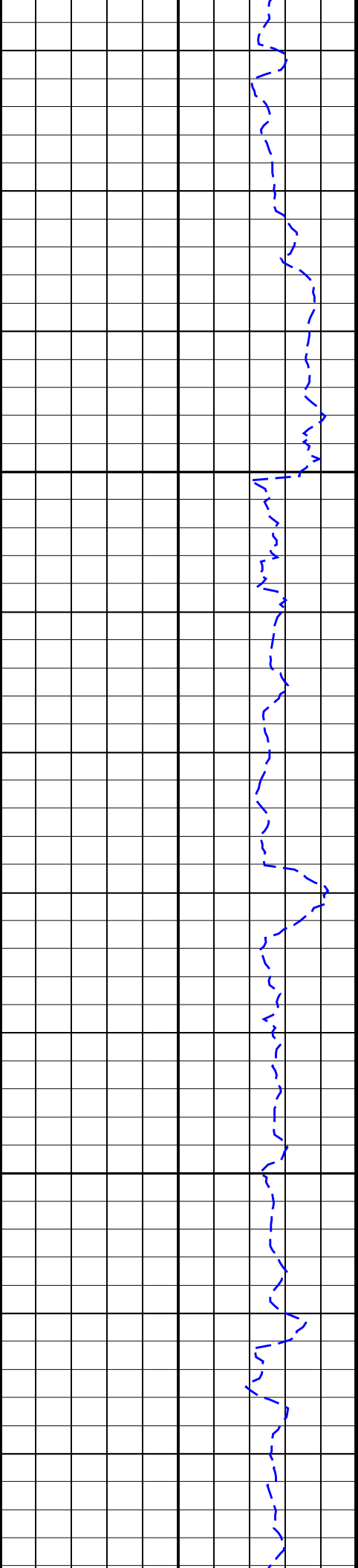
1575  
TVD

1600  
TVD

1625  
TVD

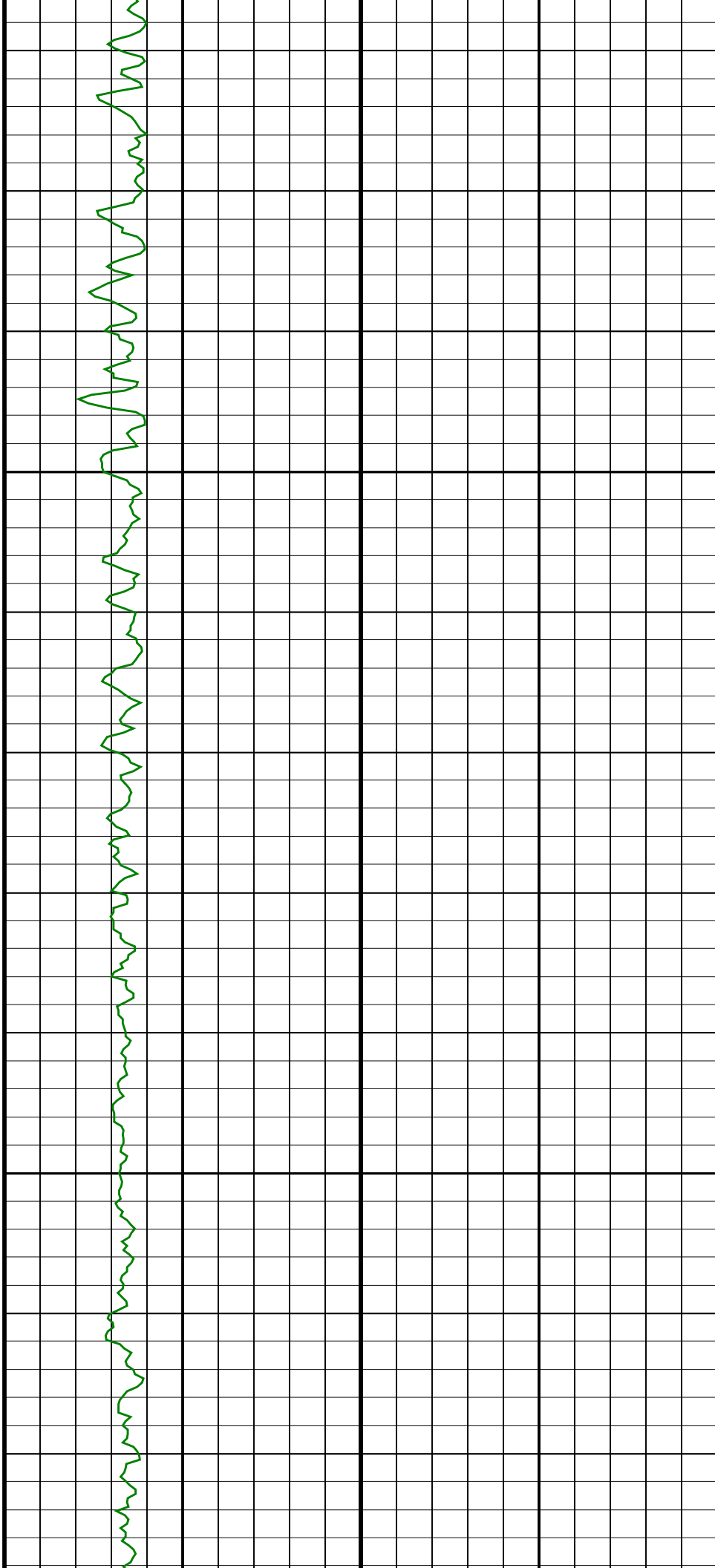


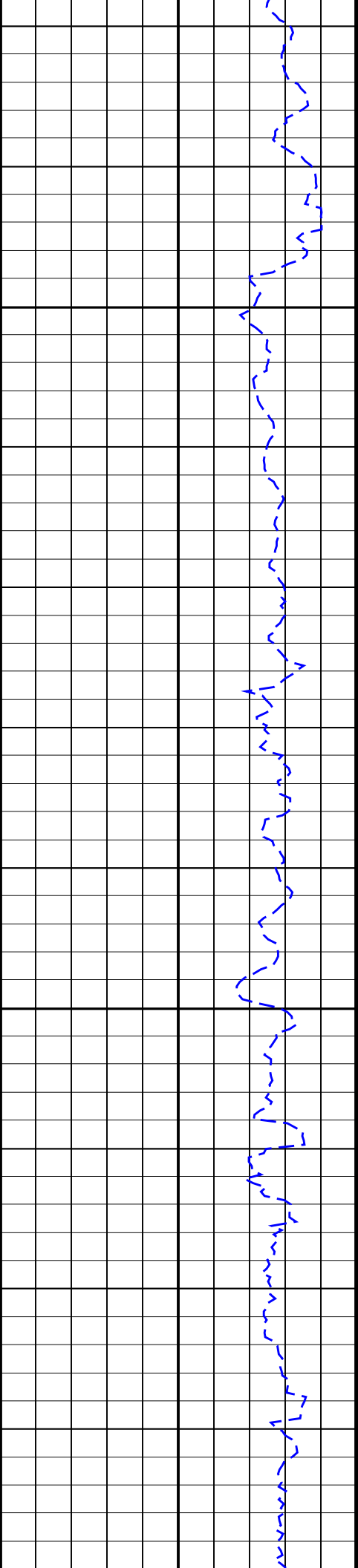




1700  
TVD

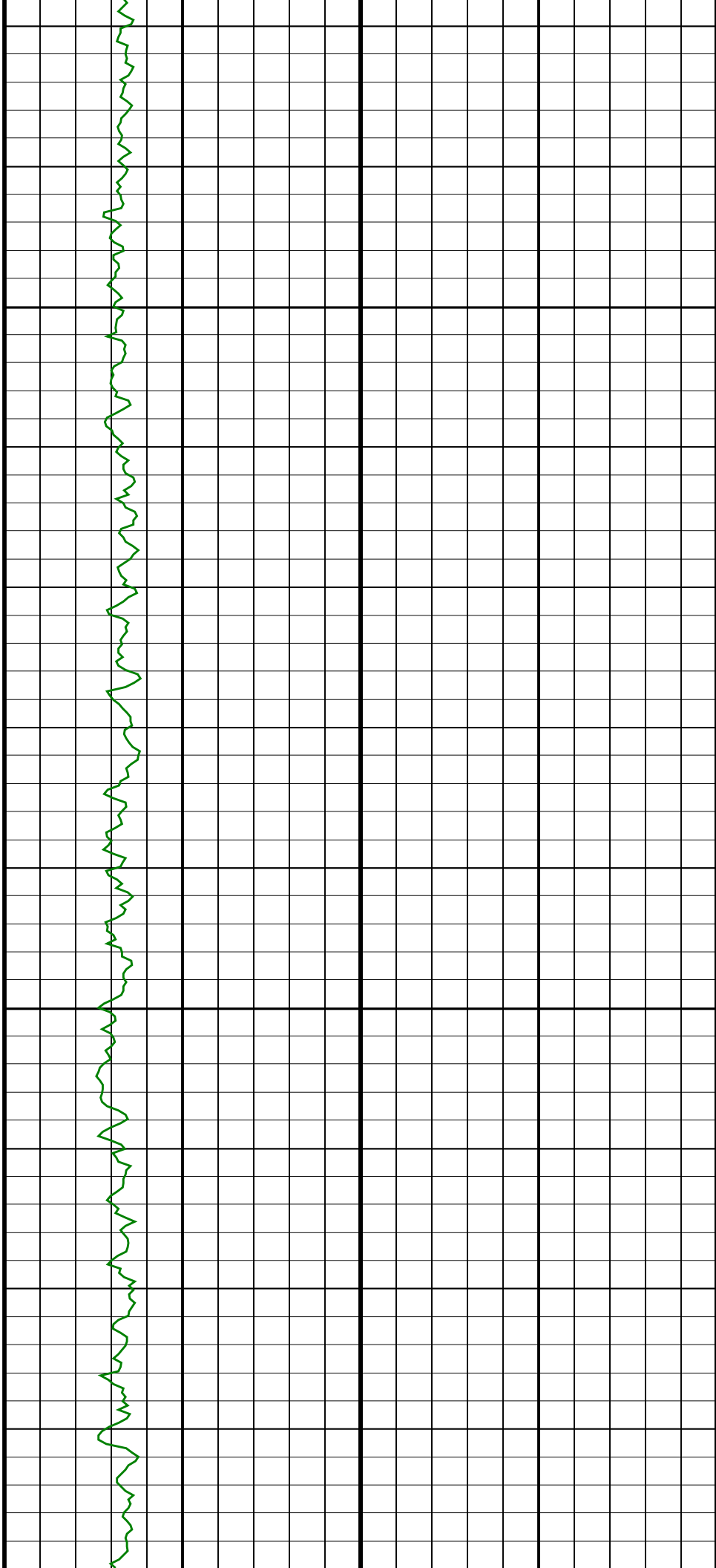
1725  
TVD

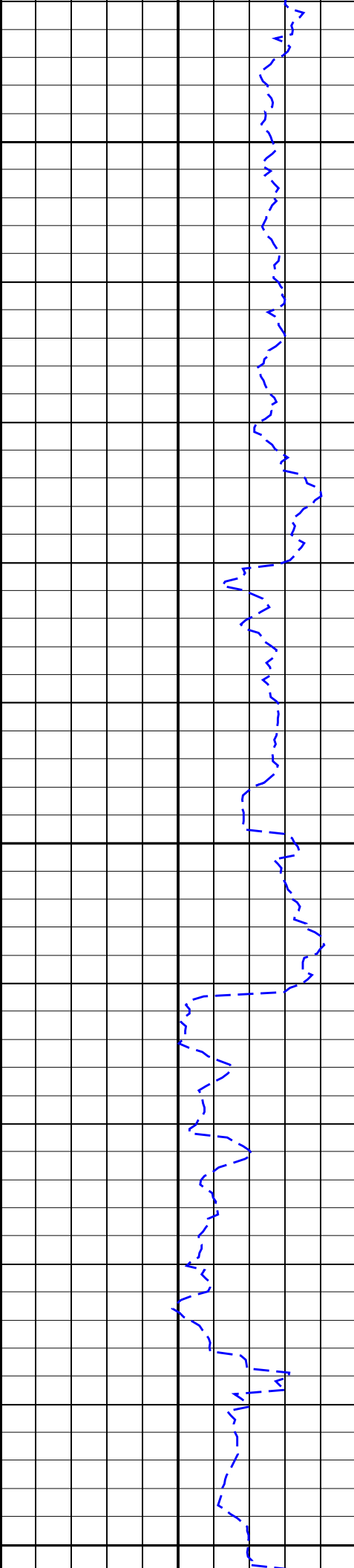




1750  
TVD

1775  
TVD

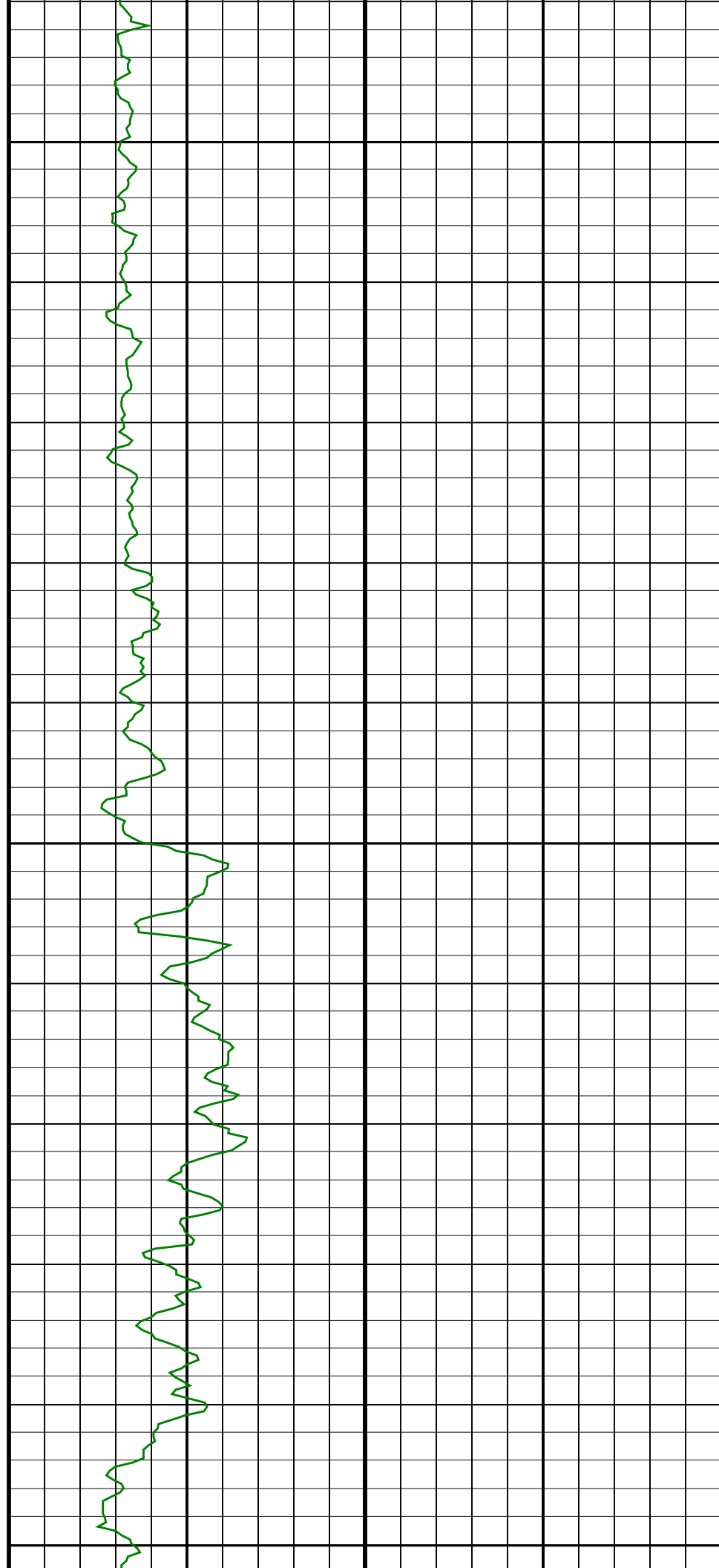


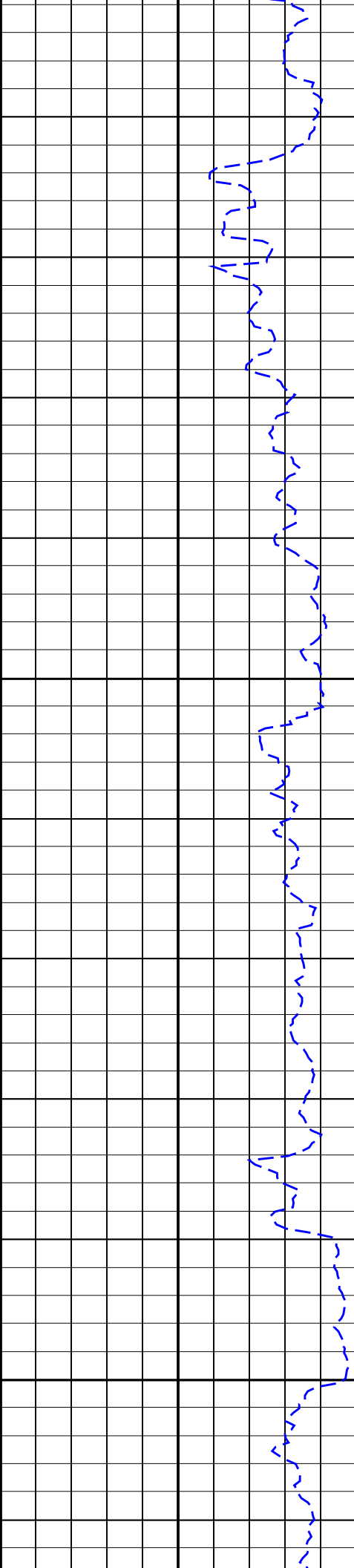


1800  
TVD

1825  
TVD

1850

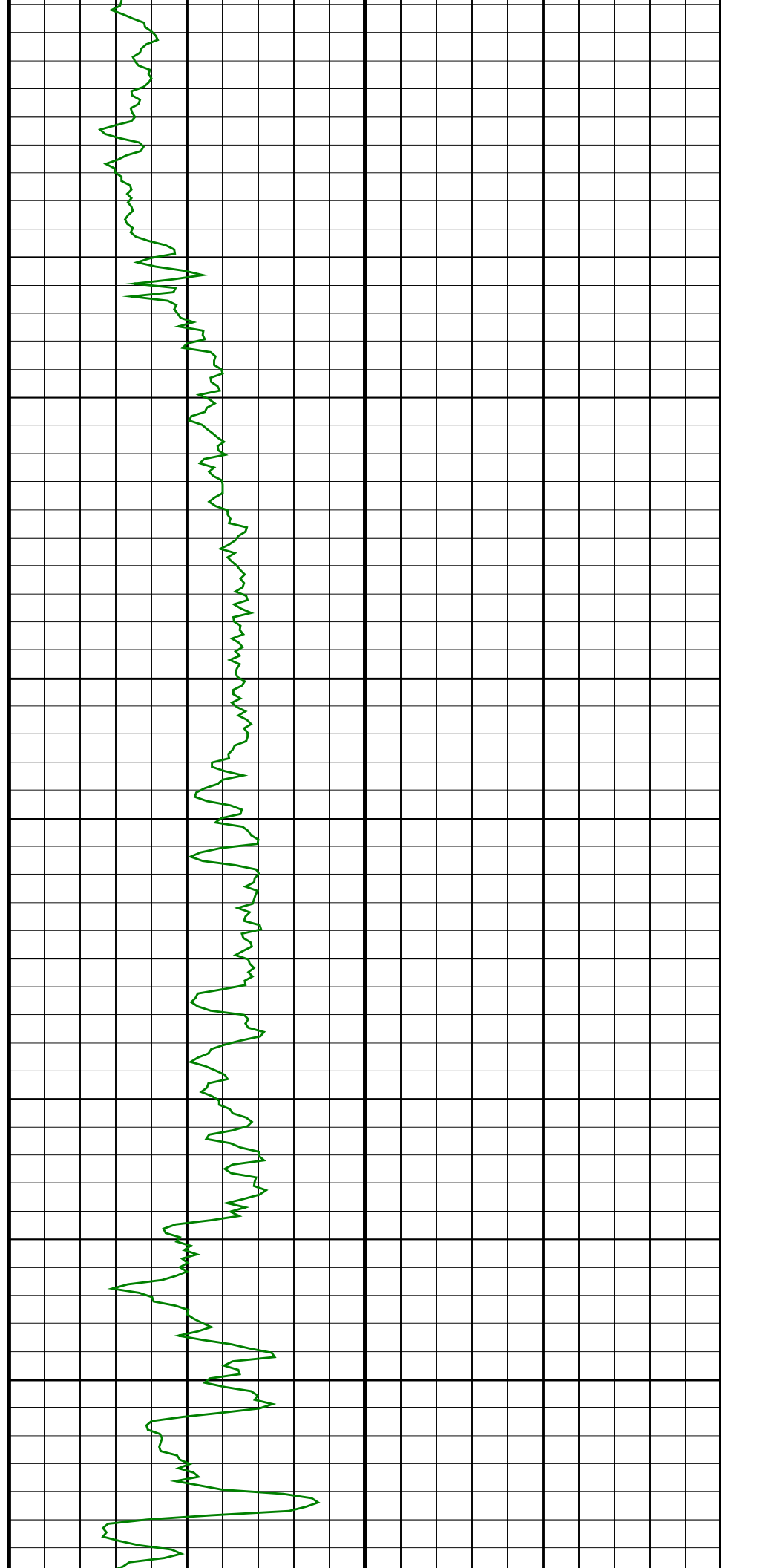


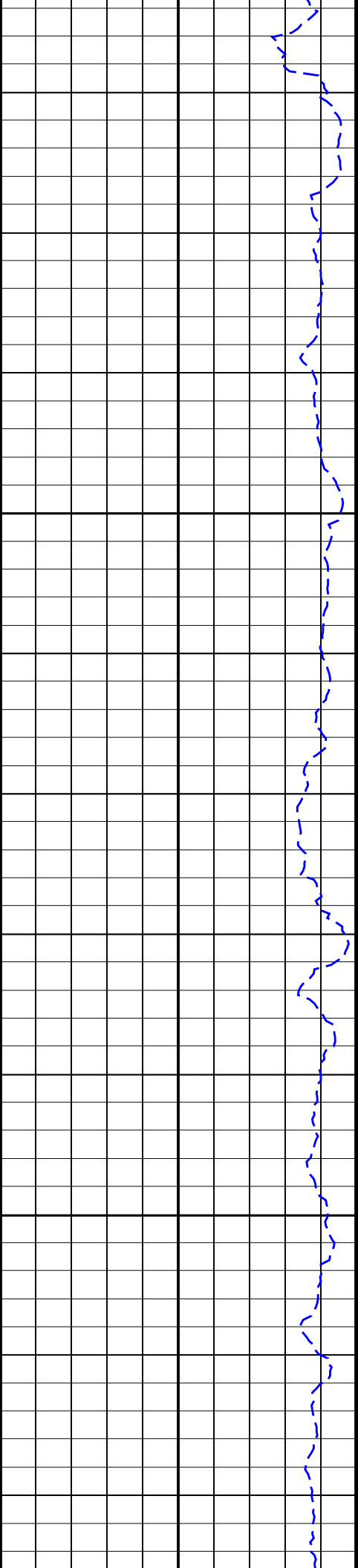


TVD

1875  
TVD

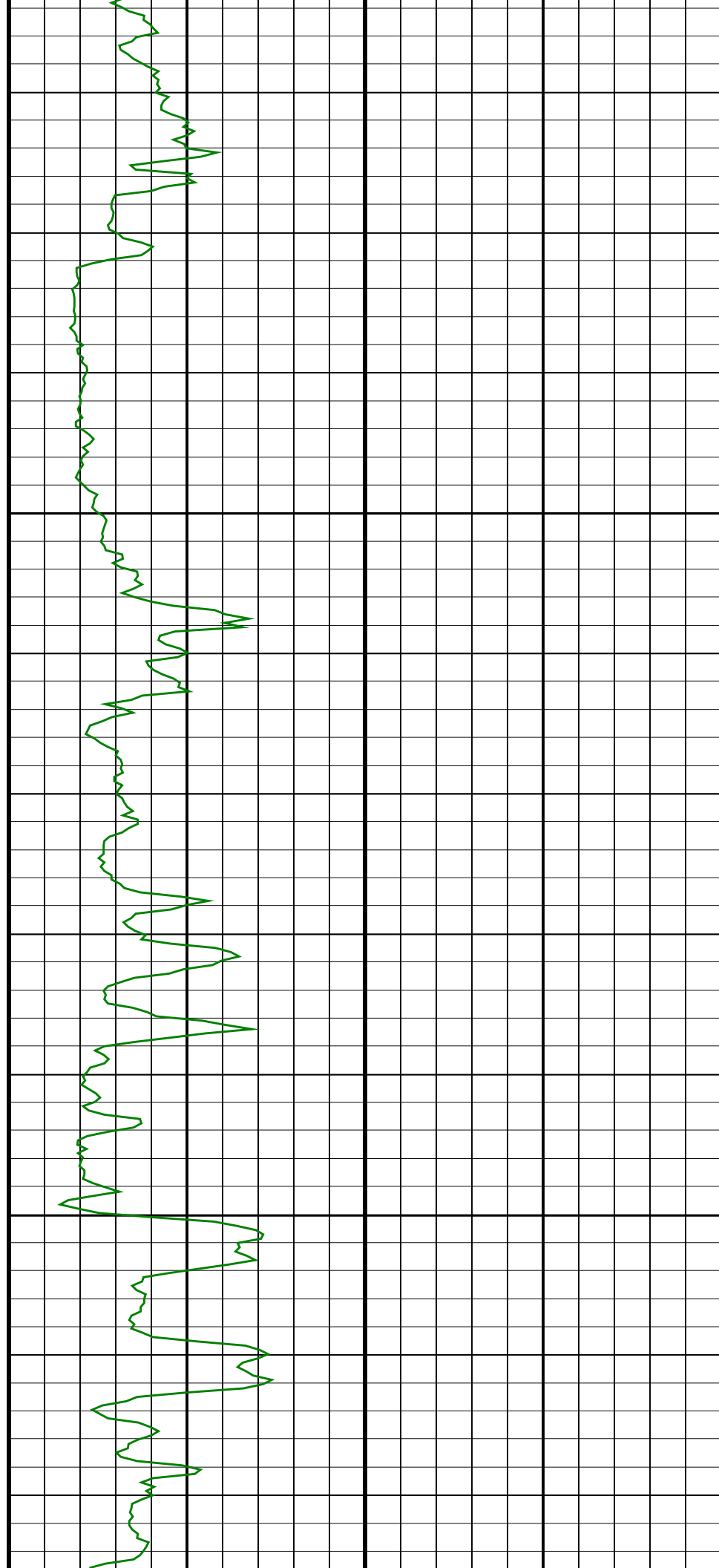
1900  
TVD

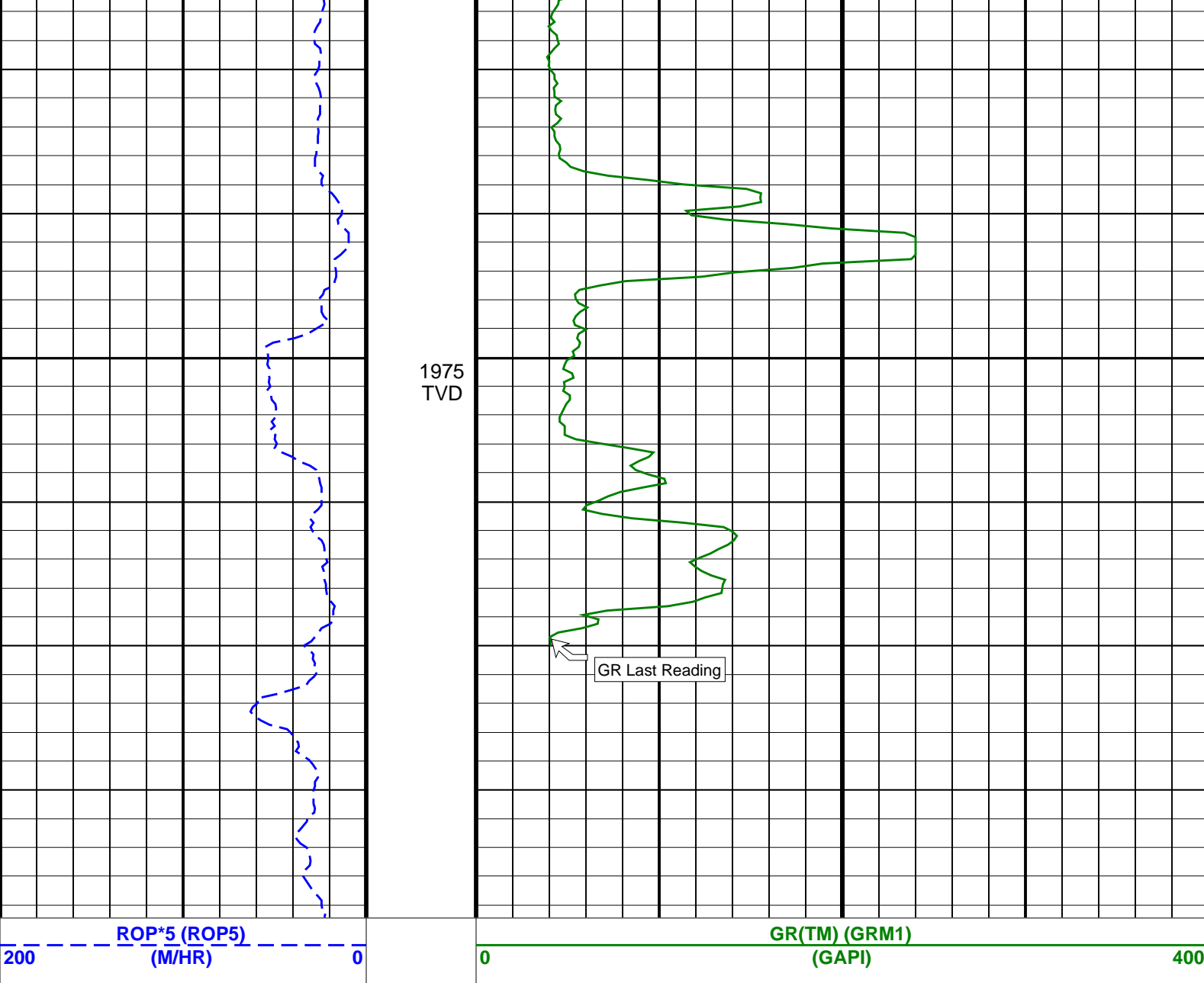




1925  
TVD

1950  
TVD





SCHLUMBERGER

Survey report 15-Jun-2005 18:28:25 Page 1 of 4

Client.....: ESSO Australia Pty. Ltd.

Field.....: Bream A

Well.....: BMA A5A

Spud date.....: 11-June-2005

API number.....:

Last survey date.....: 14-Jun-05

Engineer.....: R. Borjas, L. Johnston

Total accepted surveys...: 67

Rig.....: ISDL 453

MD of first survey.....: 898.00 m

State.....: Victoria

MD of last survey.....: 2810.00 m

----- Survey calculation methods-----

Method for positions.....: Minimum curvature

Method for DLS.....: Mason & Taylor

----- Depth reference-----

Permanent datum.....: Mean Sea Level

Depth reference.....: Drillers Depth

GL above permanent.....: -59.40 m

KB above permanent.....: 9219.15 m

DF above permanent.....: 32.82 m

----- Vertical section origin-----

Latitude (+N/S-).....: -0.78 m

Departure (+E/W-).....: 8.50 m

----- Geomagnetic data-----

Magnetic model.....: BGGM version 2004

Magnetic date.....: 06-Jun-2005

Magnetic field strength...: 1202.99 HCNT

Magnetic dec (+E/W-).....: 13

Magnetic dip.....: -69.03 degrees

----- MWD survey Reference Criteria-----

Reference G.....: 1000.05 mGal

Reference H.....: 1202.99 HCNT

Reference Dip.....: -69.03 degrees

Tolerance of G.....: (+/-) 2.0

Tolerance of H.....: (+/-) 6.00 HCNT

Tolerance of Dip.....: (+/-) 0.45 degrees

Magnetic Correction (+E/W-).....: -13.10 degrees

Grid convergence (+E/W-).....: -0.48 degrees

Total az corr (+E/W-).....: 13.58 degrees

Azimuth from Vsect Origin to target: 237.07 degrees (Total az corr = magnetic dec - grid conv)

Survey Correction Type ...:

I=Sag Corrected Inclination

M=Schlumberger Magnetic Correction



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SCHLUMBERGER Survey Report

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Seq	Measured	Incl	Azimuth	Course	TVD	Vertical	Displ	Displ	Total	At	DLS	Srvy	Tool
#	depth	angle	angle	length	depth	section	+N/S-	+E/W-	displ	Azim	(deg/	tool	Corr
-	(m)	(deg)	(deg)	(m)	(m)	(m)	(m)	(m)	(deg)	100f)	type	(deg)	
1	898.00	18.77	284.15	0.00	856.01	185.55	30.51	-232.83	234.82	277.47	0.00	TIP	None
2	966.80	28.43	257.97	68.80	919.15	208.50	29.80	-259.72	261.42	276.55	6.22	MWD	None
3	995.62	33.51	257.04	28.82	943.85	222.39	26.58	-274.19	275.47	275.54	5.40	MWD	None
4	1024.44	36.09	254.25	28.82	967.52	237.99	22.49	-290.11	290.98	274.43	3.21	MWD	None
5	1052.94	39.62	250.42	28.50	990.02	254.85	17.17	-306.76	307.24	273.20	4.53	MWD	None
6	1081.54	42.92	246.85	28.60	1011.52	273.33	10.28	-324.31	324.48	271.82	4.32	MWD	None
7	1109.93	45.33	243.50	28.39	1031.90	292.89	1.97	-342.24	342.25	270.33	3.60	MWD	None
8	1138.40	48.75	241.39	28.47	1051.30	313.63	-7.67	-360.70	360.79	268.78	4.02	MWD	None
9	1166.60	51.88	234.98	28.20	1069.31	335.31	-19.12	-379.11	379.59	267.11	6.31	MWD	None
10	1195.16	54.08	231.63	28.56	1086.51	358.05	-32.75	-397.38	398.73	265.29	3.70	MWD	None
11	1223.60	55.44	228.23	28.44	1102.92	381.10	-47.71	-415.15	417.88	263.44	3.31	MWD	None
12	1254.14	55.31	227.89	30.54	1120.28	405.92	-64.50	-433.84	438.61	261.54	0.31	MWD	None
13	1282.54	56.21	227.72	28.40	1136.26	429.09	-80.27	-451.24	458.32	259.91	0.98	MWD	None
14	1311.31	55.68	227.71	28.77	1152.37	452.61	-96.31	-468.87	478.66	258.39	0.56	MWD	None
15	1339.95	56.20	228.63	28.64	1168.41	476.05	-112.13	-486.55	499.31	257.02	0.98	MWD	None
16	1368.59	56.02	228.31	28.64	1184.38	499.55	-127.89	-504.35	520.31	255.77	0.34	MWD	None
17	1397.42	55.90	227.95	28.83	1200.51	523.15	-143.84	-522.14	541.59	254.60	0.34	MWD	None
18	1427.92	55.55	227.39	30.50	1217.69	548.02	-160.81	-540.77	564.18	253.44	0.58	MWD	None
19	1455.09	55.36	228.89	27.17	1233.10	570.13	-175.75	-557.44	584.49	252.50	1.40	MWD	None
20	1483.16	55.14	229.20	28.07	1249.10	592.96	-190.86	-574.86	605.71	251.63	0.37	MWD	None
21	1512.02	54.35	229.06	28.86	1265.76	616.30	-206.28	-592.68	627.55	250.81	0.84	MWD	None
22	1540.91	54.88	230.06	28.89	1282.49	639.65	-221.56	-610.60	649.56	250.06	1.03	MWD	None
23	1569.53	55.84	229.71	28.62	1298.76	663.01	-236.73	-628.61	671.71	249.36	1.06	MWD	None
24	1598.06	55.39	229.72	28.53	1314.87	686.36	-251.96	-646.57	693.92	248.71	0.47	MWD	None
25	1626.78	55.95	230.07	28.72	1331.07	709.90	-267.24	-664.71	716.41	248.10	0.67	MWD	None
26	1655.43	55.32	229.93	28.65	1347.24	733.36	-282.44	-682.82	738.93	247.53	0.68	MWD	None
27	1683.72	56.42	229.37	28.29	1363.11	756.59	-297.60	-700.67	761.25	246.99	1.29	MWD	None
28	1712.45	56.26	229.02	28.73	1379.04	780.27	-313.23	-718.77	784.05	246.45	0.35	MWD	None
29	1741.09	55.75	228.66	28.64	1395.05	803.77	-328.85	-736.65	806.72	245.94	0.63	MWD	None
30	1770.00	55.22	228.45	28.91	1411.43	827.33	-344.62	-754.50	829.48	245.45	0.59	MWD	None

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Seq	Measured	Incl	Azimuth	Course	TVD	Vertical	Displ	Displ	Total	At	DLS	Srvy	Tool
#	depth	angle	angle	length	depth	section	+N/S-	+E/W-	displ	Azim	(deg/	tool	Corr
-	(m)	(deg)	(deg)	(m)	(m)	(m)	(m)	(m)	(deg)	100f)	type	(deg)	
31	1798.98	56.22	228.15	28.98	1427.75	851.00	-360.55	-772.38	852.39	244.98	1.08	MWD	None
32	1827.38	55.67	228.12	28.40	1443.66	874.24	-376.25	-789.90	874.94	244.53	0.59	MWD	None
33	1856.22	55.37	227.89	28.84	1459.98	897.72	-392.16	-807.57	897.75	244.10	0.38	MWD	None
34	1885.10	54.95	227.75	28.88	1476.48	921.11	-408.07	-825.14	920.53	243.69	0.46	MWD	None
35	1913.84	54.76	227.59	28.74	1493.03	944.30	-423.90	-842.51	943.14	243.29	0.24	MWD	None
36	1942.52	54.23	227.73	28.68	1509.68	967.33	-439.63	-859.77	965.65	242.92	0.58	MWD	None
37	1971.34	55.16	228.07	28.82	1526.34	990.55	-455.39	-877.22	988.38	242.56	1.03	MWD	None
38	2000.13	54.87	227.76	28.79	1542.84	1013.84	-471.20	-894.73	1011.22	242.23	0.41	MWD	None
39	2028.59	55.60	228.87	28.46	1559.07	1036.94	-486.75	-912.19	1033.93	241.92	1.25	MWD	None
40	2057.47	55.15	228.63	28.88	1575.48	1060.46	-502.42	-930.05	1057.08	241.62	0.52	MWD	None
41	2085.70	56.15	228.38	28.23	1591.41	1083.51	-517.86	-947.51	1079.79	241.34	1.10	MWD	None
42	2113.96	55.53	228.22	28.26	1607.28	1106.61	-533.42	-964.97	1102.59	241.07	0.68	MWD	None
43	2142.51	56.95	227.90	28.54	1623.14	1130.05	-549.28	-982.62	1125.72	240.80	1.54	MWD	None
44	2171.01	56.53	227.84	28.50	1638.77	1153.58	-565.26	-1000.29	1148.96	240.53	0.45	MWD	None
45	2199.62	56.33	227.52	28.61	1654.59	1177.10	-581.31	-1017.92	1172.21	240.27	0.36	MWD	None
46	2228.56	56.16	227.27	28.94	1670.67	1200.82	-597.60	-1035.63	1195.68	240.01	0.28	MWD	None
47	2256.86	55.96	227.18	28.31	1686.48	1223.95	-613.55	-1052.87	1218.60	239.77	0.23	MWD	None
48	2285.73	55.59	228.30	28.67	1702.71	1247.51	-629.60	-1070.53	1241.95	239.54	1.05	MWD	None
49	2314.37	55.68	228.68	28.63	1718.88	1270.88	-645.27	-1088.23	1265.16	239.33	0.35	MWD	None
50	2342.91	55.67	228.64	28.54	1734.97	1294.20	-660.84	-1105.93	1288.33	239.14	0.04	MWD	None
51	2371.48	55.45	229.48	28.57	1751.13	1317.53	-676.27	-1123.73	1311.53	238.96	0.78	MWD	None
52	2400.20	55.35	229.02	28.72	1767.44	1340.95	-691.71	-1141.64	1334.84	238.79	0.42	MWD	None
53	2429.43	55.21	228.77	29.24	1784.09	1364.73	-707.50	-1159.74	1358.52	238.61	0.26	MWD	None
54	2457.95	54.99	228.91	28.52	1800.40	1387.88	-722.90	-1177.35	1381.57	238.45	0.27	MWD	None
55	2486.70	55.47	230.11	28.75	1816.80	1411.29	-738.23	-1195.31	1404.90	238.30	1.16	MWD	None
56	2515.40	56.27	230.52	28.70	1832.90	1434.88	-753.40	-1213.60	1428.43	238.17	0.92	MWD	None
57	2544.25	57.18	230.64	28.85	1848.73	1458.85	-768.72	-1232.23	1452.35	238.04	0.97	MWD	None
58	2572.83	56.41	230.34	28.58	1864.38	1482.61	-783.93	-1250.68	1476.06	237.92	0.86	MWD	None
59	2601.59	56.46	230.30	28.76	1880.28	1506.40	-799.23	-1269.12	1499.81	237.80	0.06	MWD	None
60	2630.34	56.56	230.09	28.75	1896.15	1530.21	-814.58	-1287.54	1523.58	237.68	0.21	MWD	None

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SCHLUMBERGER Survey Report

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Seq	Measured	Incl	Azimuth	Course	TVD	Vertical	Displ	Displ	Total	At	DLS	Srvy	Tool
#	depth	angle	angle	length	depth	section	+N/S-	+E/W-	displ	Azim	(deg/	tool	Corr
-	(m)	(deg)	(deg)	(m)	(m)	(m)	(m)	(m)	(deg)	100f)	type	(deg)	
61	2658.55	56.02	229.02	28.21	1911.80	1553.47	-829.80	-1305.40	1546.82	237.56	1.12	MWD	None

62	2687.16	56.05	228.09	28.62	1927.79	1576.94	-845.51	-1323.19	1570.26	237.42	0.82	MWD	None
63	2716.60	56.25	227.84	29.43	1944.18	1601.08	-861.88	-1341.34	1594.38	237.28	0.30	MWD	None
64	2744.47	56.92	227.78	27.87	1959.53	1624.04	-877.50	-1358.58	1617.33	237.14	0.73	MWD	None
65	2773.23	57.67	227.57	28.76	1975.07	1647.91	-893.80	-1376.47	1641.20	237.00	0.82	MWD	None
66	2790.16	58.07	227.42	16.94	1984.08	1662.06	-903.49	-1387.05	1655.35	236.92	0.76	MWD	None
67	2810.00	58.40	227.30	19.84	1994.52	1678.68	-914.91	-1399.45	1671.98	236.82	0.53	Projection to TD	

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Company: **ESSO Australia Pty. Ltd.**

**Schlumberger**

Well: **BMA A5A**

Field: **Bream A**

Rig: **ISDL 453**

State: **Victoria**

**Gamma Ray Service**  
**1:200 True Vertical Depth**  
**Real Time Log**