

SlimPulse - Gamma Ray



1 in / 100 ft & 5 in / 100 ft True Vertical Depth

Recorded Mode, Composite Log

Company:

Noble Energy

Well:

Heartland G25-72-1HN

Field:

Wattenberg

County:

Weld

State:

Colorado

Country:

U.S.A

Section: 25

APIN:

05-123-39557-00

Township: 04 N

Rig Name:

Precision 828

Range: 65 W

Rig Type:

Top Drive

FL: NAD83 Colorado State Plane, Northern Zone, US Feet

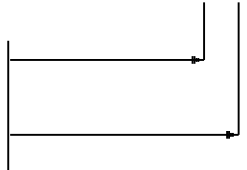
FL1: N 40° 16' 36.228", Northing 1344918.097 ftUS

FL2: W 104° 36' 13.140", Easting 3250092.424 ftUS

Log Measured From: - Drill Floor: 4858.00 ft

Ground Level: 4842.00 ft

Permanent Datum: - Mean Sea Level



Acquisition Dates:

30-Jul-2014 -- 06-Aug-2014

Other Services:

Log Interval:

675.00(ft)TVD -- 7007.17(ft)TVD

Surveys / Continuous D&I

Index Types:

True Vertical Depth

Downhole Shocks

Index Scales:

1:1200 1" / 100', 1:240 5" / 100'

Downhole Temperature

Depth Source:

Driller's Depth

Directional Drilling

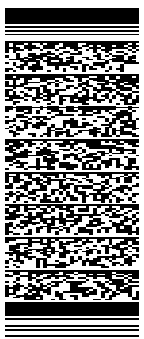
Depth Sensor:

Print Type:

Field

Spud Date:

25-Jul-2014



Disclaimer

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 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.

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9. UDComposite1
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9.4 Log (EOW_TVD)	
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Borehole Size/Casing Record						
Bit						
Bit Size (in)	13.75	8.75	6.125			
Top Driller (ft)	0	718	7409			
Bottom Driller (ft)	718	7409	16939			
Casing						
Size (in)	9.625	7				
Weight (lbm/ft)	36	26				
Inner Diameter (in)	8.921	6.276				
Grade	J55	P110				
Top Driller (ft)	0	0				
Bottom Driller (ft)	708	7400				

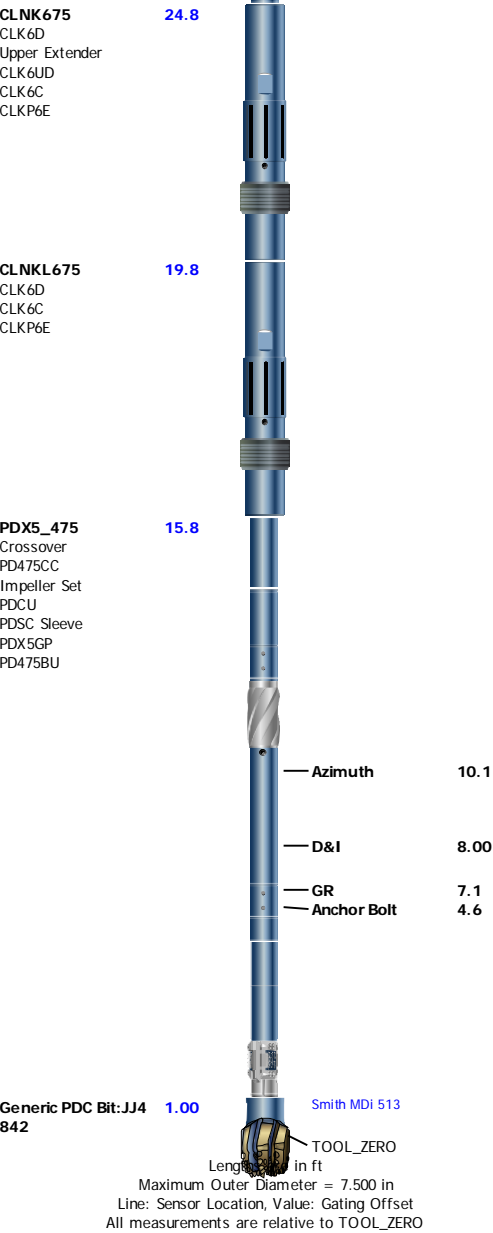
Operational Run Summary						
Parameter (unit)	Run001					
Date Log Started	30-Jul-2014					
Time Log Started	21:27:37					
Date Log Finished	06-Aug-2014					
Time Log Finished	00:07:34					
Bit Size (in)	6.125					
Bit Start Depth (ft)	7409.00					
Bit Stop Depth (ft)	16939.00					
Top Log Interval (ft)	7380.00					
Bottom Log Interval (ft)	16939.00					
Max Hole Deviation (deg)	92.54					
Azimuth of Max Deviation (deg)	358.38					
Logging Unit Number	Command Center					
Logging Unit Location	Zone 2					
Recorded By	P. Michels					
Witnessed By	J. Leslie					
Service Order Number	14CCO0545					

Borehole Fluids						
Parameter(unit)	Run001					
Fluid Type	Water					
Fluid Name	Fresh Water					
Max Recorded Temperatures (degF)	273.2					
Source of Sample	Active Tank					

Salinity (ppm)	700					
Density (lbm/gal)	Zoned					
Funnel Viscosity (s)	41					
Fluid Loss (cm3)	8.6					
PH	9.5					
Source RMF	Pressed					
RMC	Pressed					
RM @ Meas Temp (ohm.m@degF)	0.2 @ 68					
RMF @ Meas Temp (ohm.m@degF)	0.15 @ 68					
RMC @ Meas Temp (ohm.m@degF)						
RM @ BHT (ohm.m@degF)	0.05 @ 273.2					
RMF @ BHT (ohm.m@degF)	0.04 @ 273.2					
RMC @ BHT (ohm.m@degF)	NaN @ 273.2					
Total Solid (%)	5.5					
High Gravity Solids (%)	4					

Zoned Borehole Fluids		
Run001		
Parameter	Value	Start
Density	8.8	7/30/2014 9:27:37 PM
Density	9.5	7/31/2014 3:00:00 AM
Density	9.55	8/2/2014 3:00:00 AM
Density	9.85	8/3/2014 3:00:00 AM
Density	9.4	8/4/2014 2:00:00 AM

Remarks and Equipment Summary			
Run001: Toolstring		Run001: Remarks	
<div> <div> <div>Equip name</div> <div>SPULSE-GEN:DR11354</div> <div>FLOWSUB: DR18321</div> <div>SPCOLLAR: DR11354</div> <div>SPMA: 609</div> <div>SPEC: 6045</div> <div>SPBA: 01730</div> <div>UBHO: 475U141</div> </div> <div> <div>Length</div> <div>56.94</div> </div> <div> <div>MP name</div> <div></div> </div> <div> <div>Offset</div> <div></div> </div> </div>		Data presented is from tool memory and acquired while drilling from 7409 ft MD to16939 ft MD.	
		Depth Reference: Driller's Depth	
		Gamma ray corrected for bit size, mud weight, and tool collar thickness. Barite and Potassium in the mud affect Gamma Ray readi	
		Run Objective: Drill out cement, then drill lateral section to well TD.	
		Bit to D&I: 41.03 ft Bit to GR: 44.06 ft	
		Drilled from: 7409 ft MD to 16939 ft MD Logged from: 7380 ft MD to 16939 ft MD	
		SlimPulse Software Version 11.0c-00	
		SlimPulse D&I Calibrated:18-Feb-2013 SlimPulse GR Calibrated: 28-Jul-2014	
		Pathfinder a Schlumberger Co. Personnel: MWD: Paul Michels & Jessica Leslie DD: John Perry & Charles Ogu	
		Reason for POOH: Well TD	

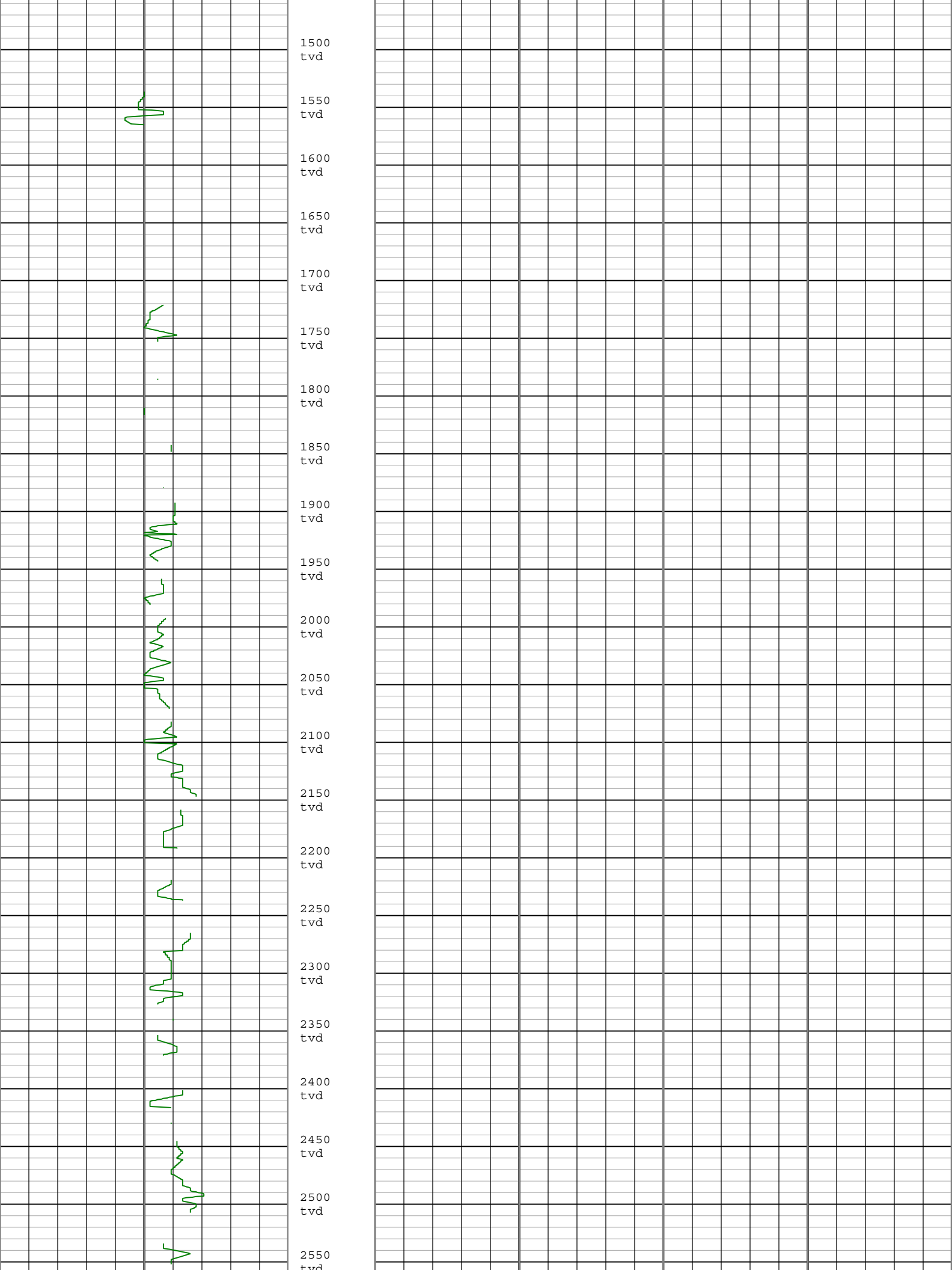


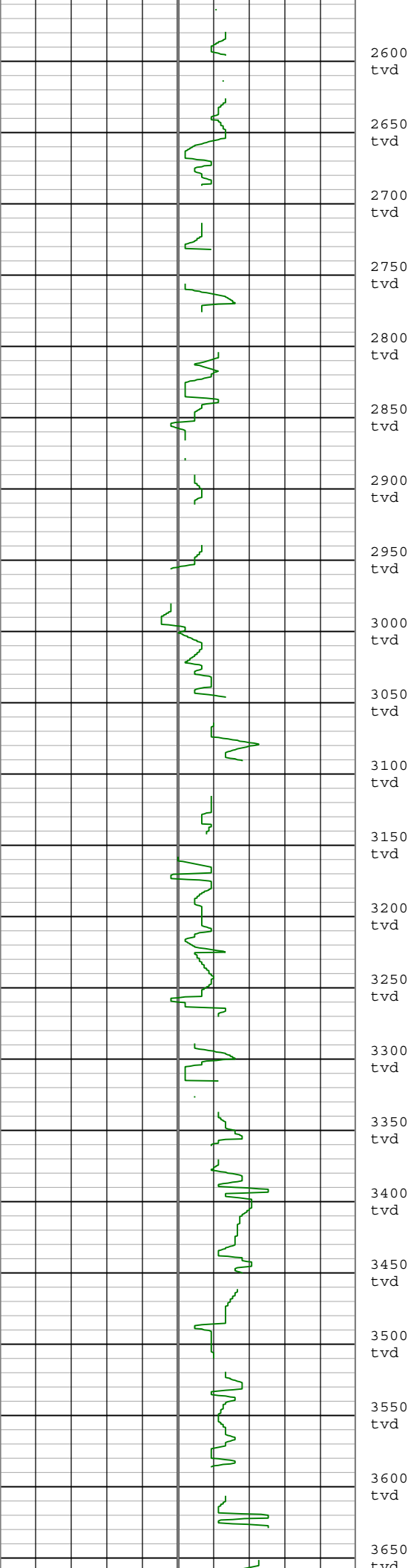
UDComposite 1

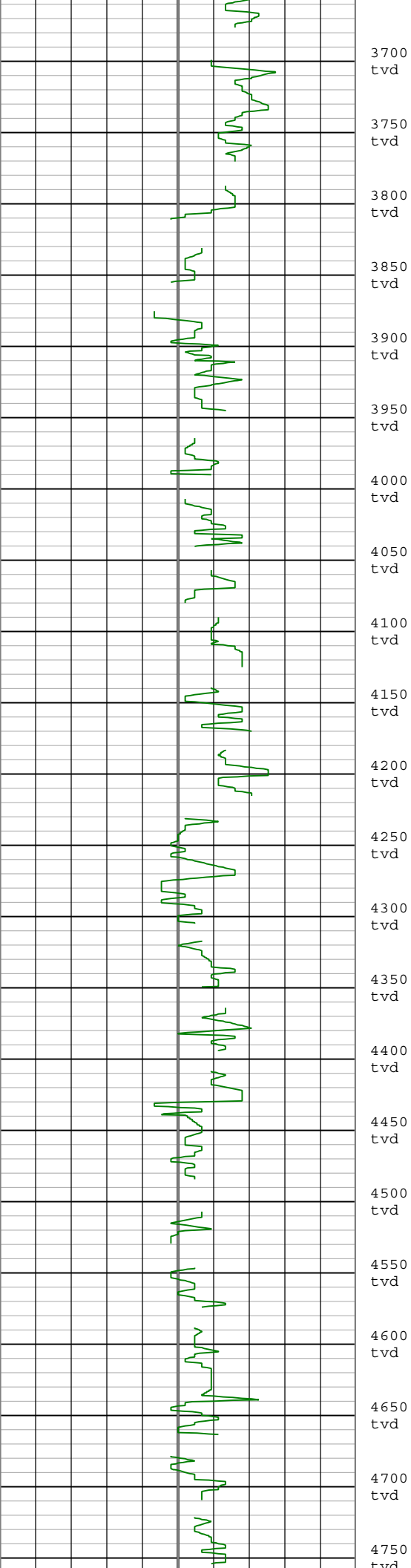
Software Version

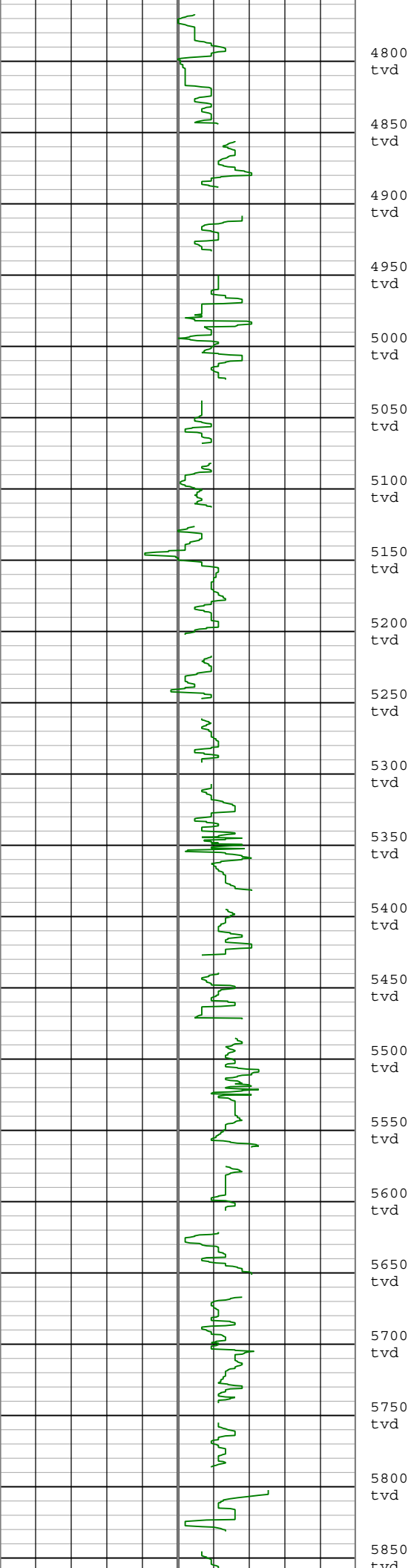
Acquisition System		Version	
MaxWell		4.0.9163.3000	
Application Patch		Patch-SP-10767_22480-4.0.9163.3001	
		Patch-NPD_ADN8D_SP3-23661-4.0.9530.3002	
		Patch-Hotfix_overwrite_survey_for_petrolink-23199-4.0.9530.3002	
		Patch-Hotfix_MRT_SP3-23306-4.0.9530.3002	
		Patch-Hotfix_ECO_SP3-23896-4.0.9530.3002	

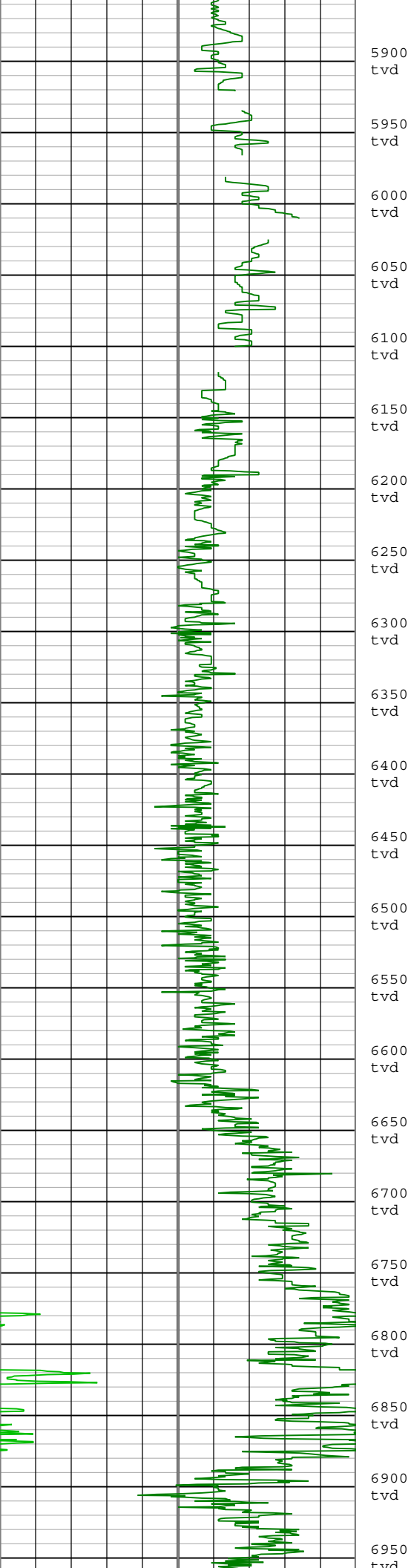
Tool Elements	Description	Software Version	Firmware Version
DRILLING_SURFACE	DRILLING_SURFACE	4.0.9469.3000	
SPEC	SlimPulse Electronics Cartridge	4.0.9469.3000	

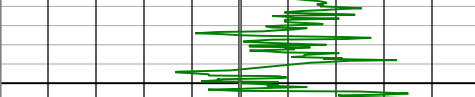
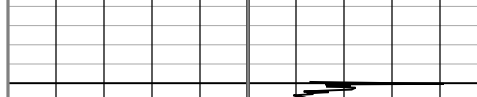
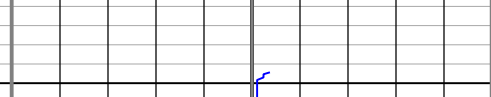










								
Gamma Ray (GR) SlimPulse[1] RM 300 gAPI 450			Rate of penetration averaged over the last 5 ft (1.5 m) (ROP5) RT 300 ft/h 0			Shock Risk (SHKRSK) SlimPulse[1] RT 3 0		
Gamma Ray (GR) SlimPulse[1] RM 150 gAPI 300						Direction and Inclination Sensor Temperature (TEMP_DNI) SlimPulse[1] RT 100 degF 300		
Gamma Ray (GR) SlimPulse[1] RM 0 gAPI 150								

Description:	Format: Log (EOW_TVD)	Index Scale: 1 in per 100 ft	Index Unit: ft	Index Type: TVD	Creation Date: 23-Sep-2014 16:59:01
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Channel Processing Parameters

Run001: Parameters

Parameter	Description	Tool	Value	Unit
BS	Bit Size	DNMSESSION	Depth Zoned	in
DFD	Drilling Fluid Density	Borehole	Time Zoned	lbm/gal
GR_SRC	GR Source Selection	SPULSE-GEN	GAMMA_EXT	

Run001Depth Zoned Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	8.75	6991.77	6997.44
BS	6.125	6997.44	7015.64

All depth are actual.

Run001Time Zoned Parameters

Pass Drilling

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
DFD	9.5	30-Jul-2014 23:33:30	02-Aug-2014 03:00:00	7423.25	12062.67
DFD	9.55	02-Aug-2014 03:00:00	03-Aug-2014 03:00:00	12062.67	14159.67
DFD	9.85	03-Aug-2014 03:00:00	04-Aug-2014 02:00:00	14159.67	15736.92
DFD	9.4	04-Aug-2014 02:00:00	06-Aug-2014 00:07:34	15736.92	16939.33

All depth are at tool zero.

Tool Control Parameters

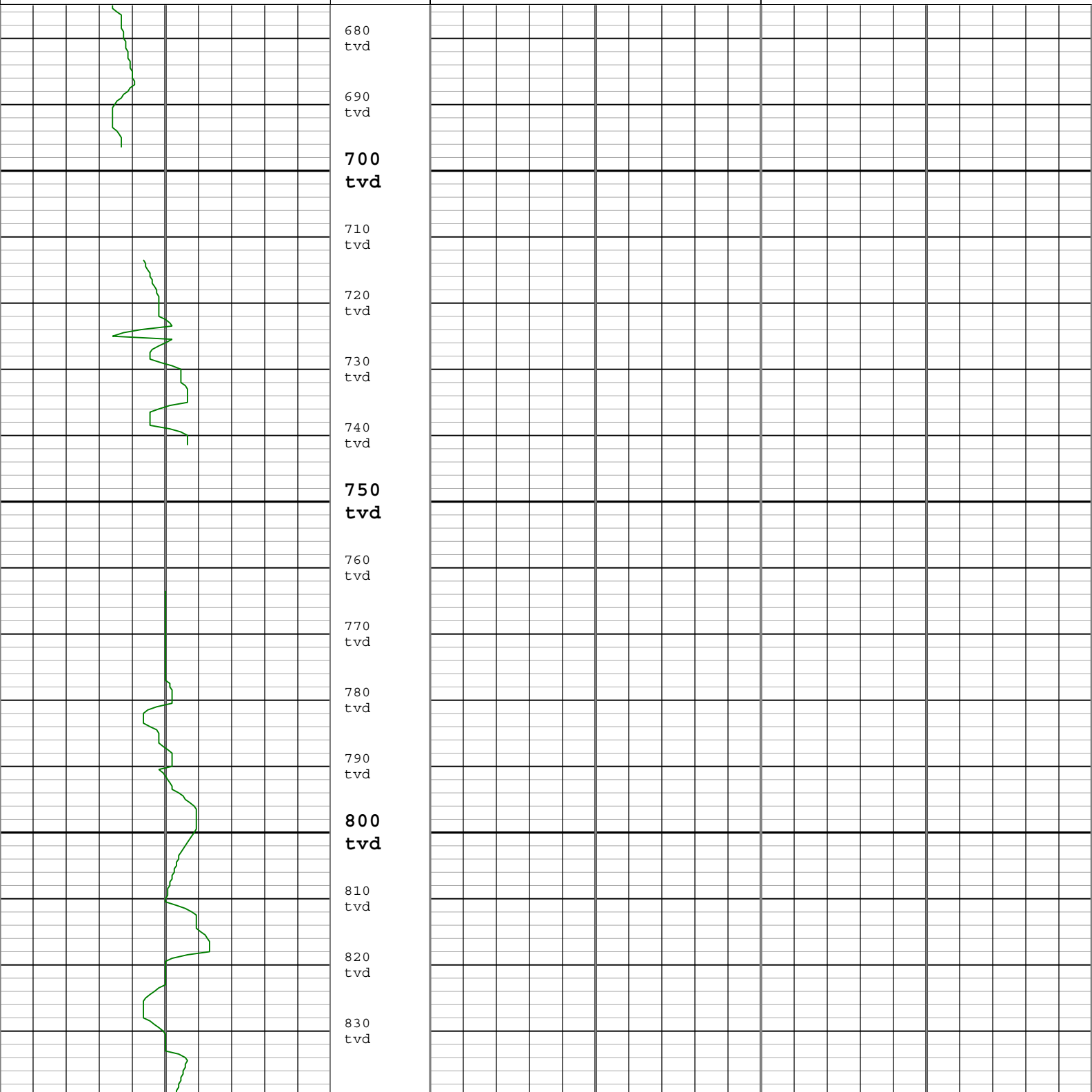
UDComposite 1

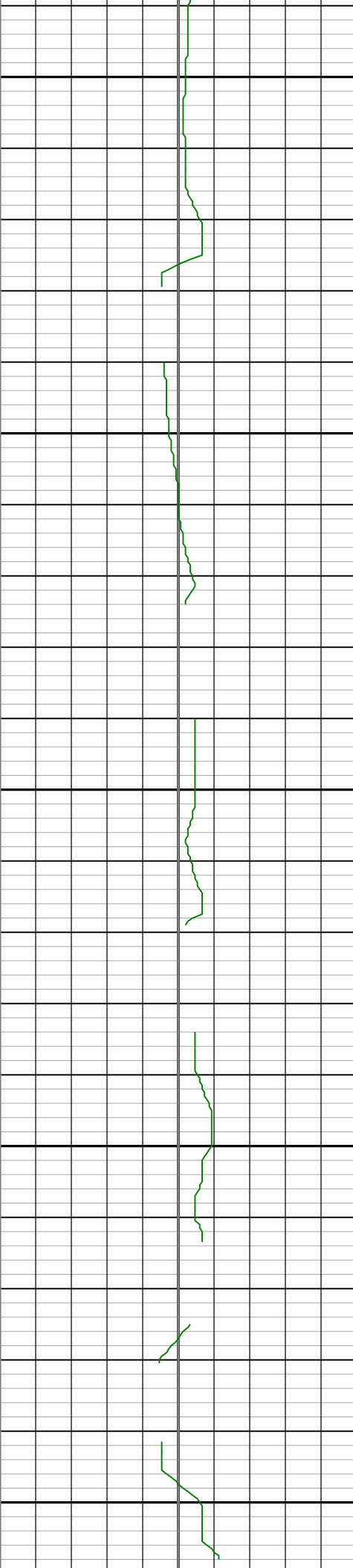
Software Version

Acquisition System		Version	
MaxWell		4.0.9163.3000	
Application Patch		Patch-SP-10767_22480-4.0.9163.3001	
		Patch-NPD_ADN8D_SP3-23661-4.0.9530.3002	
		Patch-Hotfix_overwrite_survey_for_petrolink-23199-4.0.9530.3002	
		Patch-Hotfix_MRT_SP3-23306-4.0.9530.3002	
		Patch-Hotfix_ECO_SP3-23896-4.0.9530.3002	
Tool Elements	Description	Software Version	Firmware Version
DRILLING_SURFACE	DRILLING_SURFACE	4.0.9469.3000	
SPEC	SlimPulse Electronics Cartridge	4.0.9469.3000	

Composite Summary

Run Name	Run Objective	Direction	Time	Bottom	Start	Stop	Included Parallel Data
Run 1	Test 1	Up	10:00	10:00	10:00	10:00	Yes
Run 2	Test 2	Down	10:05	10:05	10:05	10:05	No
Run 3	Test 3	Up	10:10	10:10	10:10	10:10	Yes
Run 4	Test 4	Down	10:15	10:15	10:15	10:15	No
Run 5	Test 5	Up	10:20	10:20	10:20	10:20	Yes
Run 6	Test 6	Down	10:25	10:25	10:25	10:25	No
Run 7	Test 7	Up	10:30	10:30	10:30	10:30	Yes
Run 8	Test 8	Down	10:35	10:35	10:35	10:35	No
Run 9	Test 9	Up	10:40	10:40	10:40	10:40	Yes
Run 10	Test 10	Down	10:45	10:45	10:45	10:45	No





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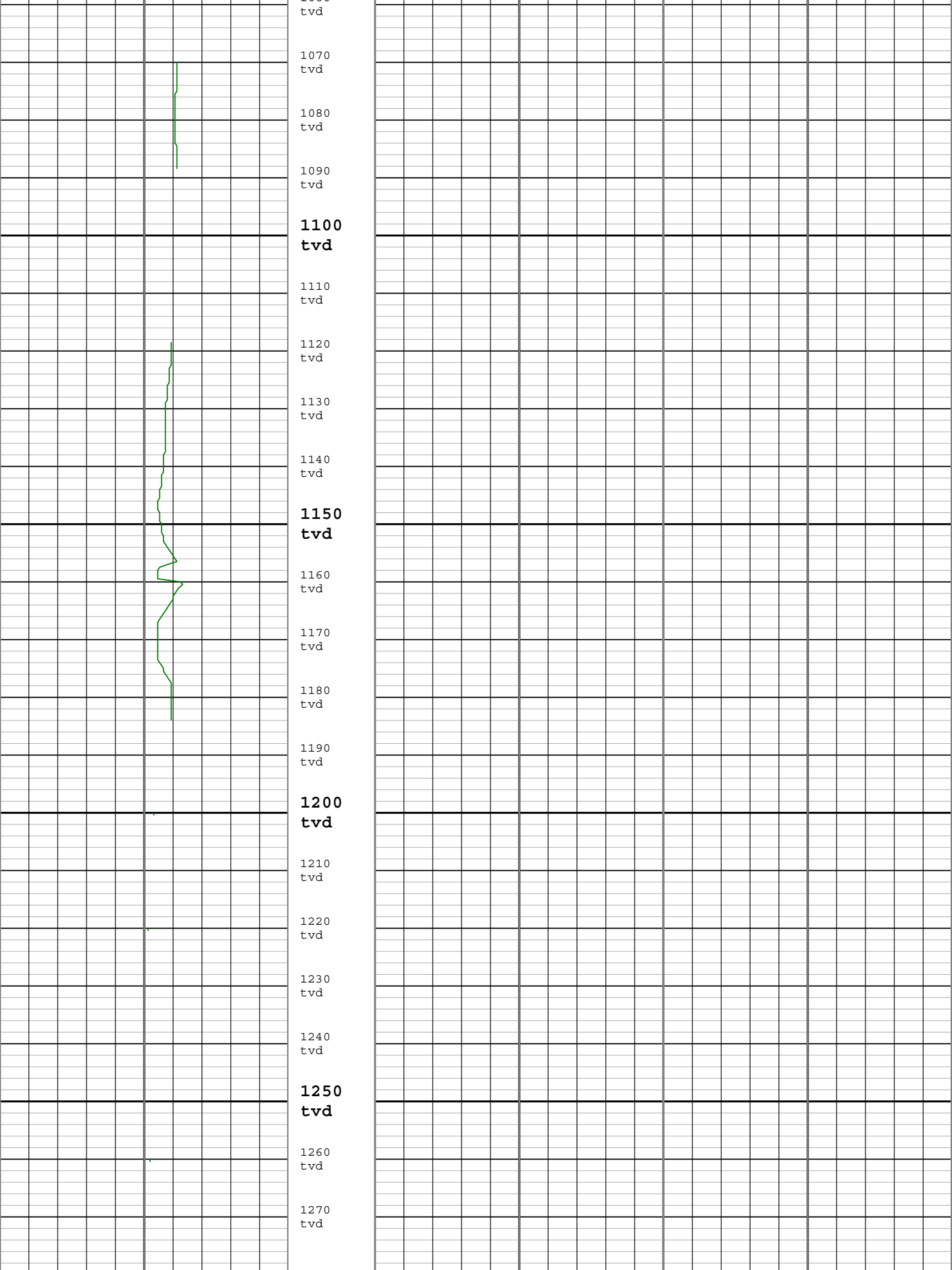
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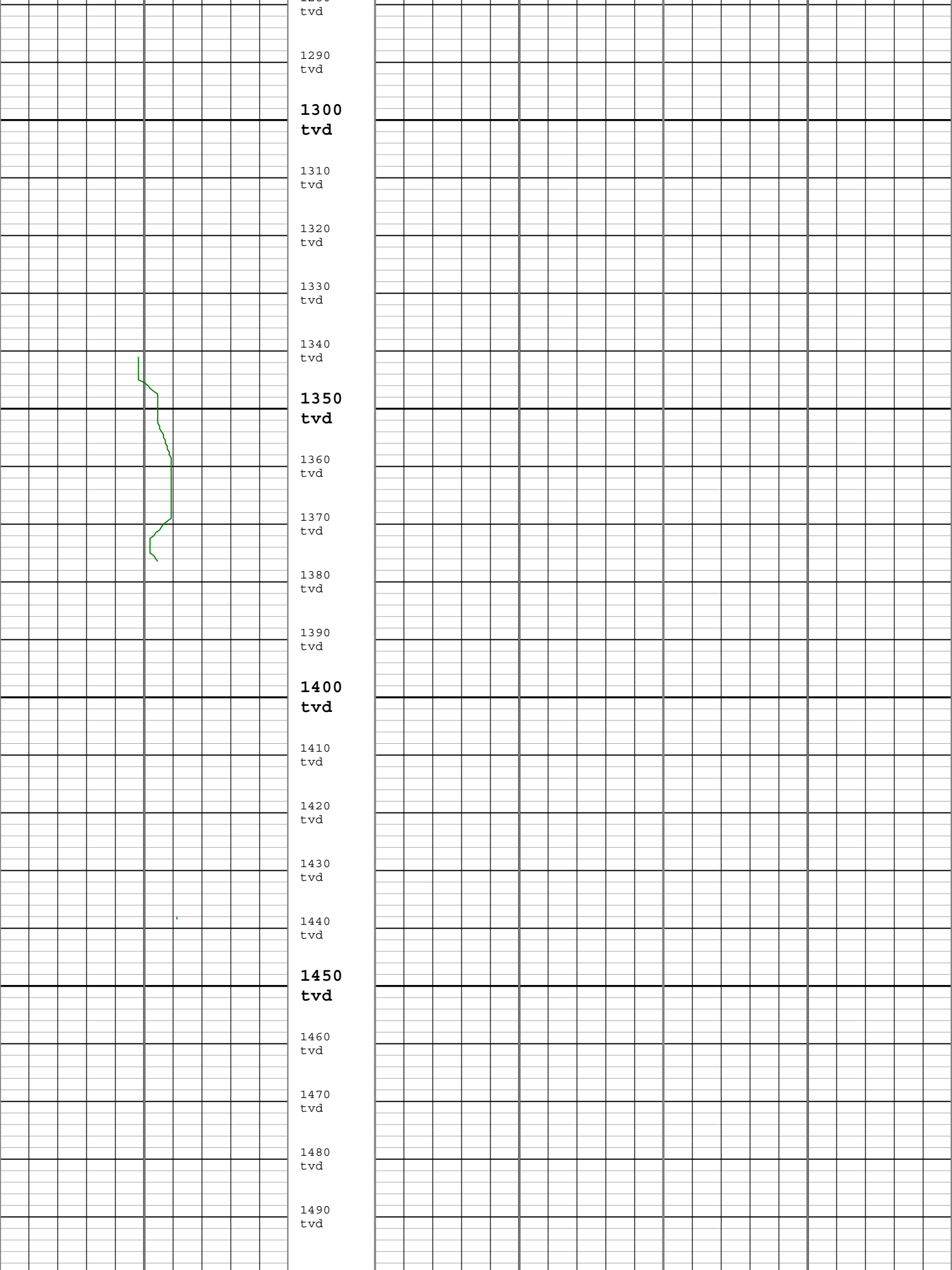
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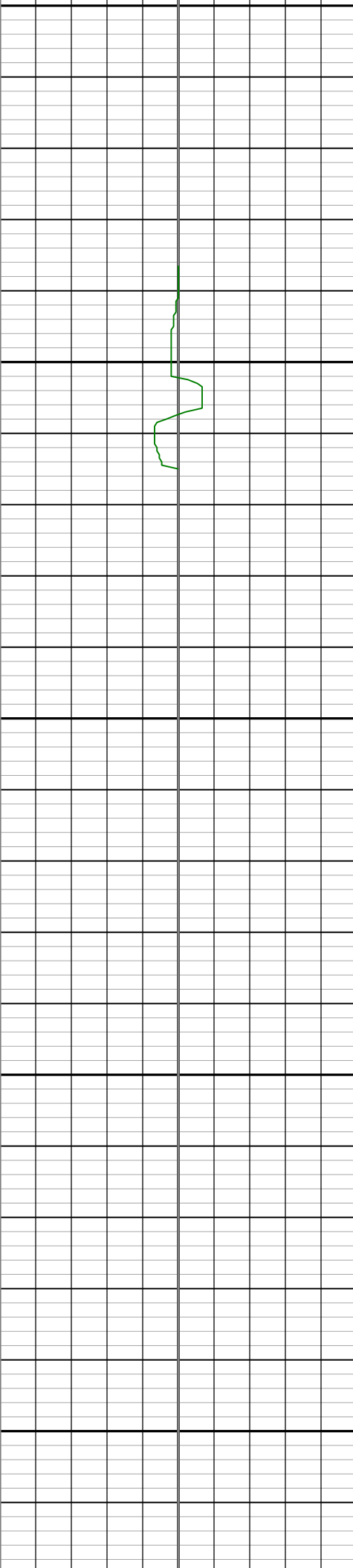
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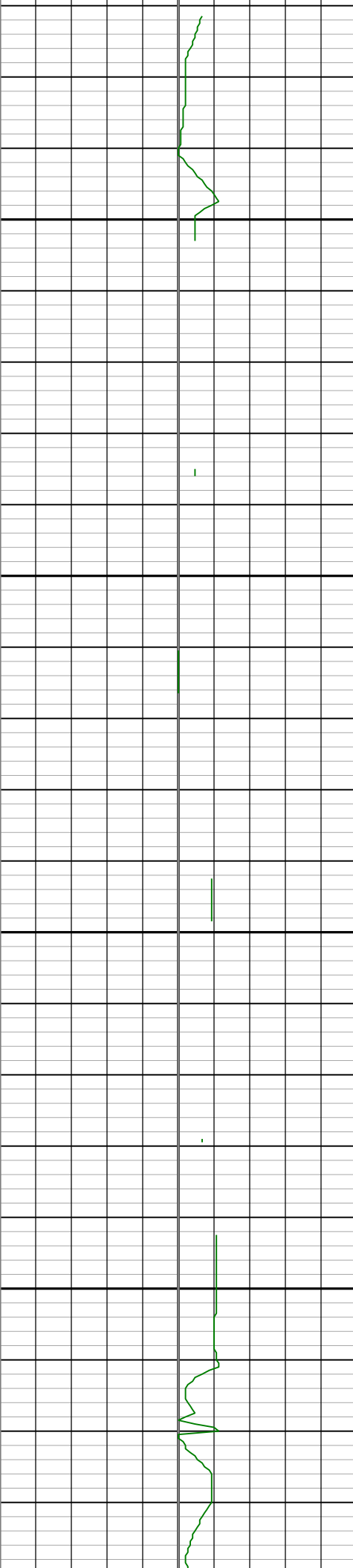
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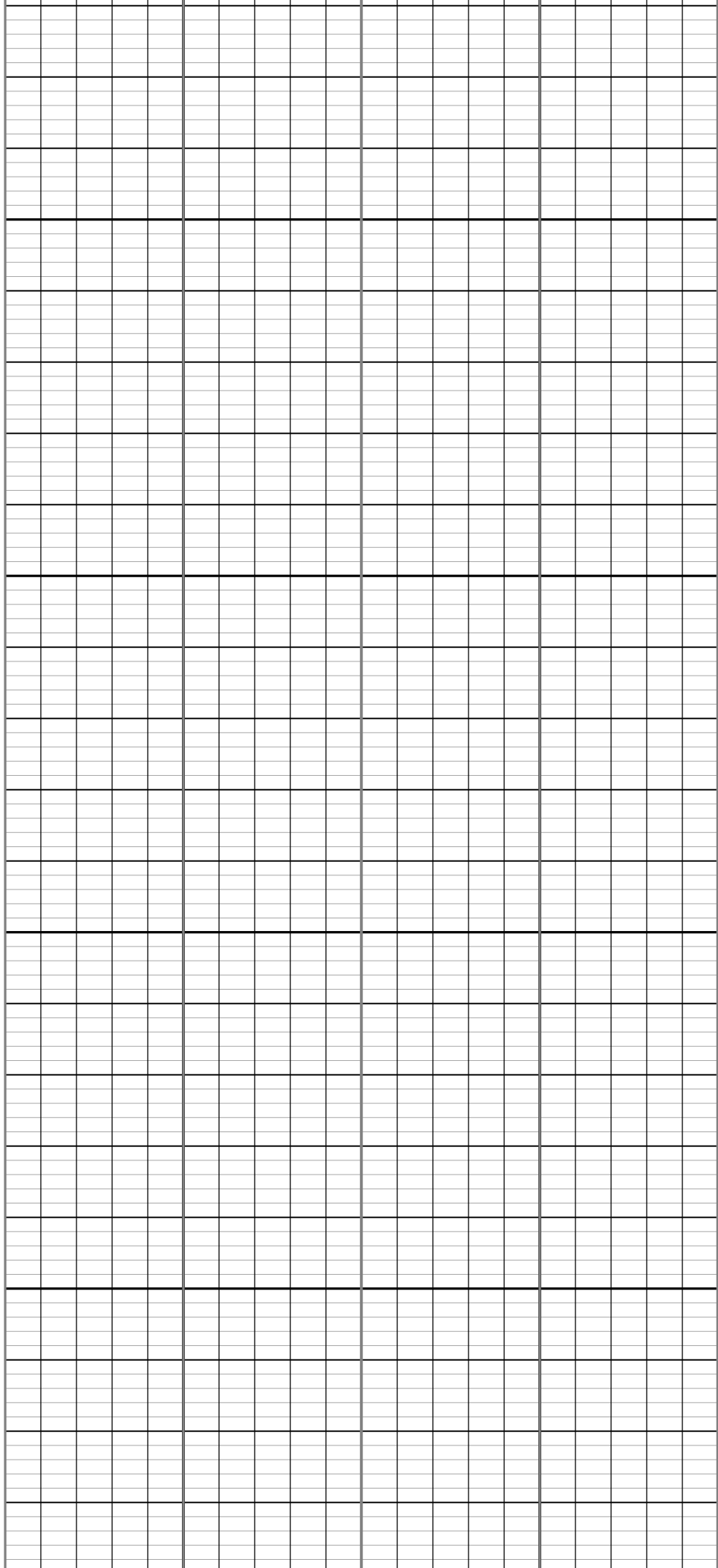
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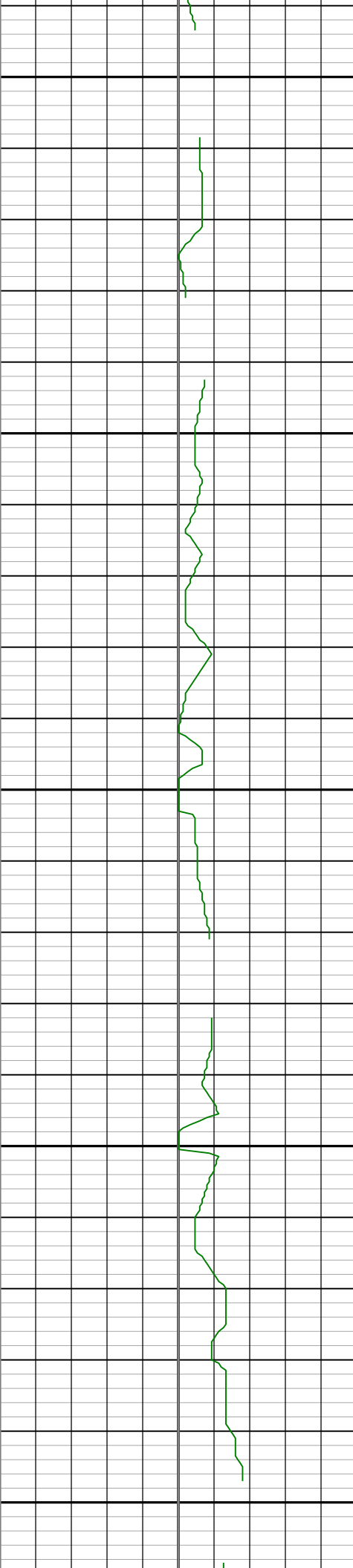
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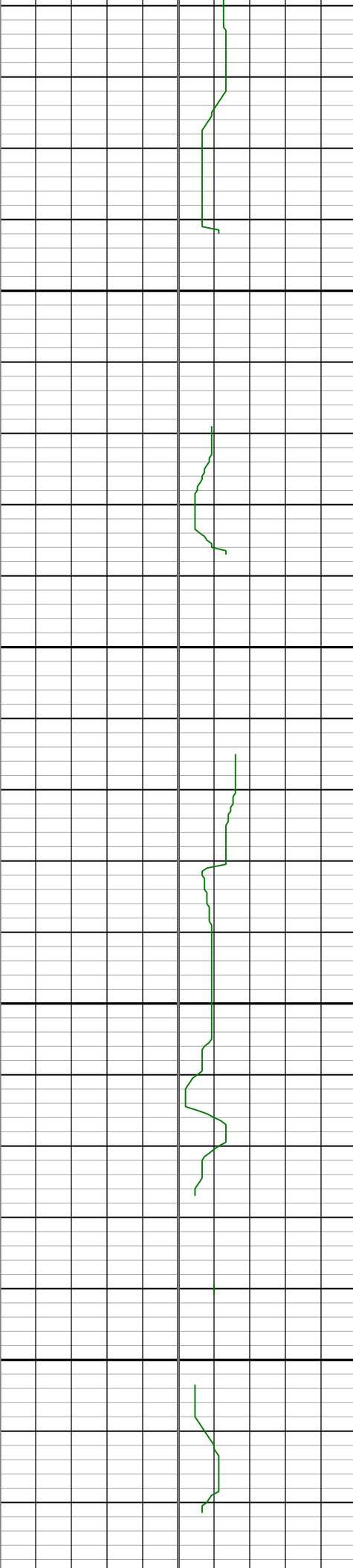
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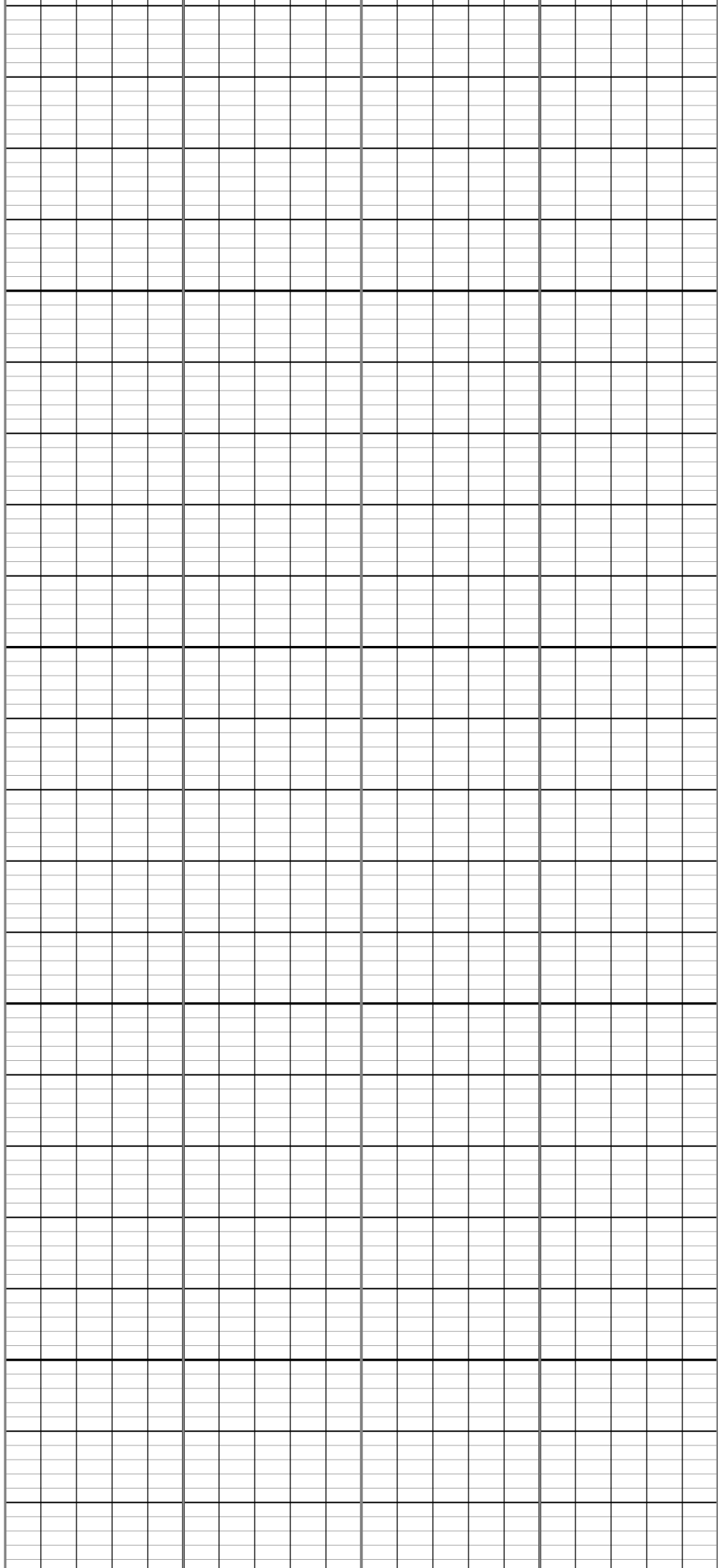
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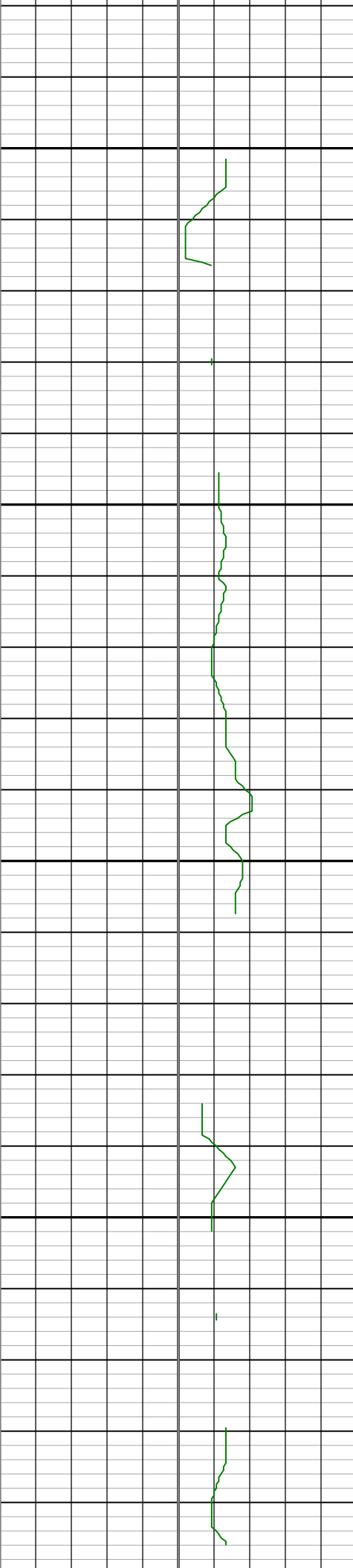
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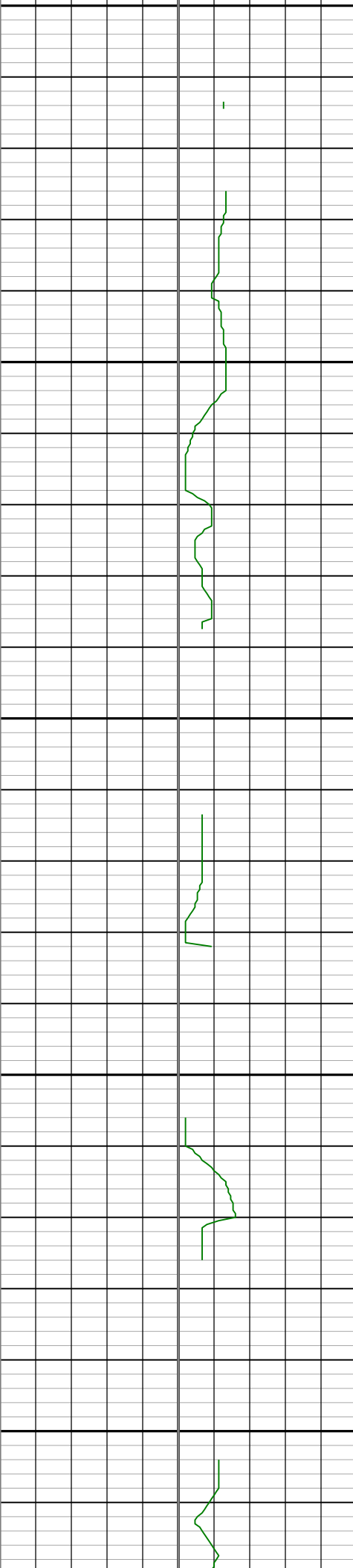
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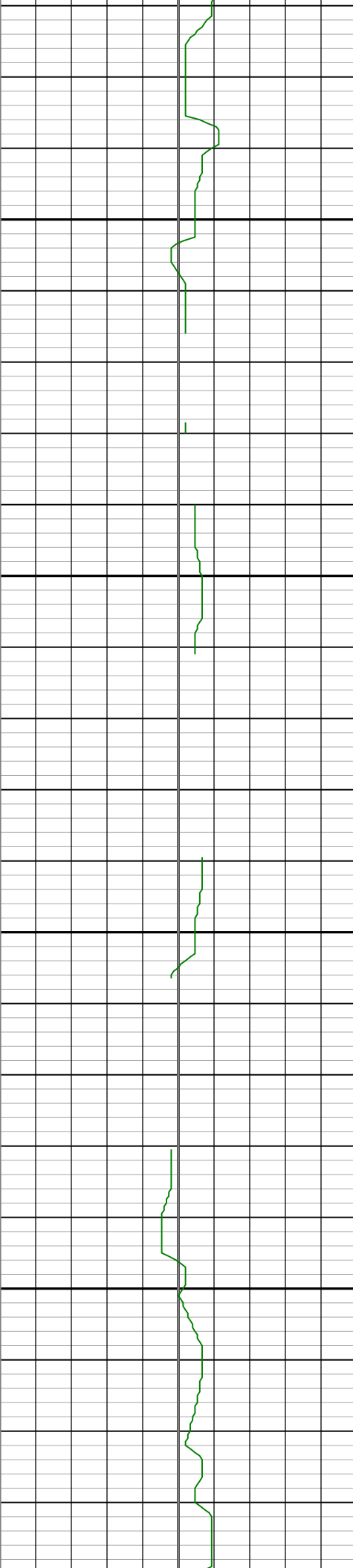
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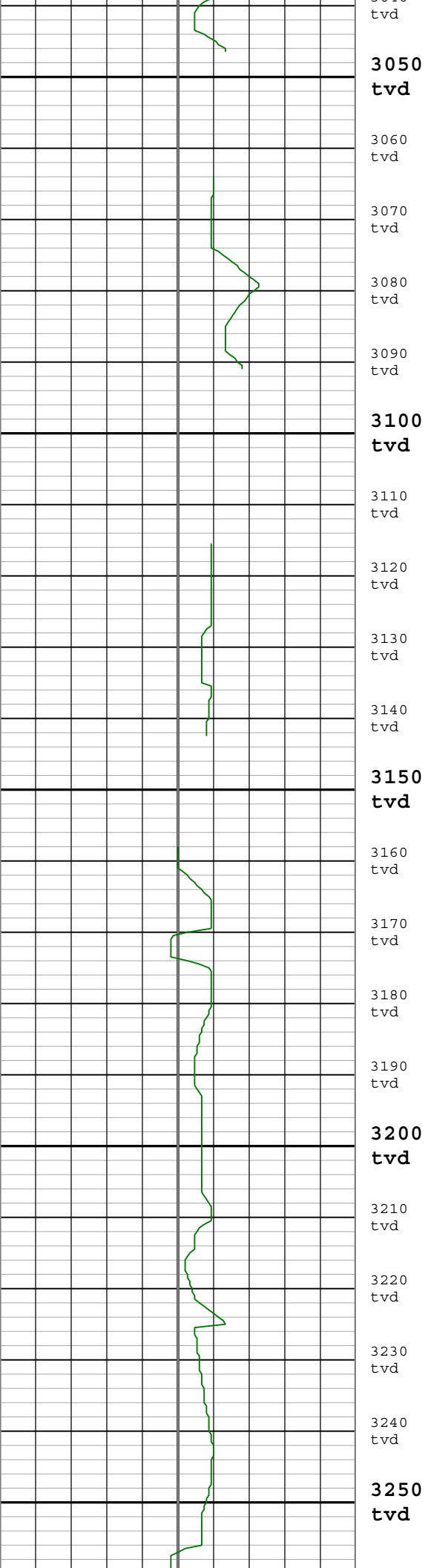
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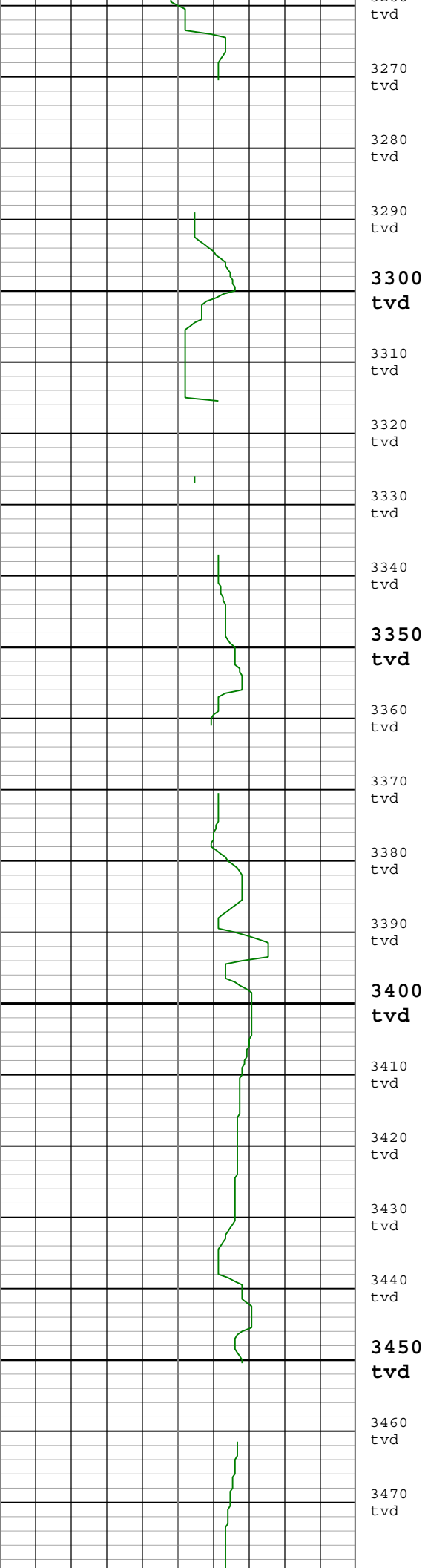
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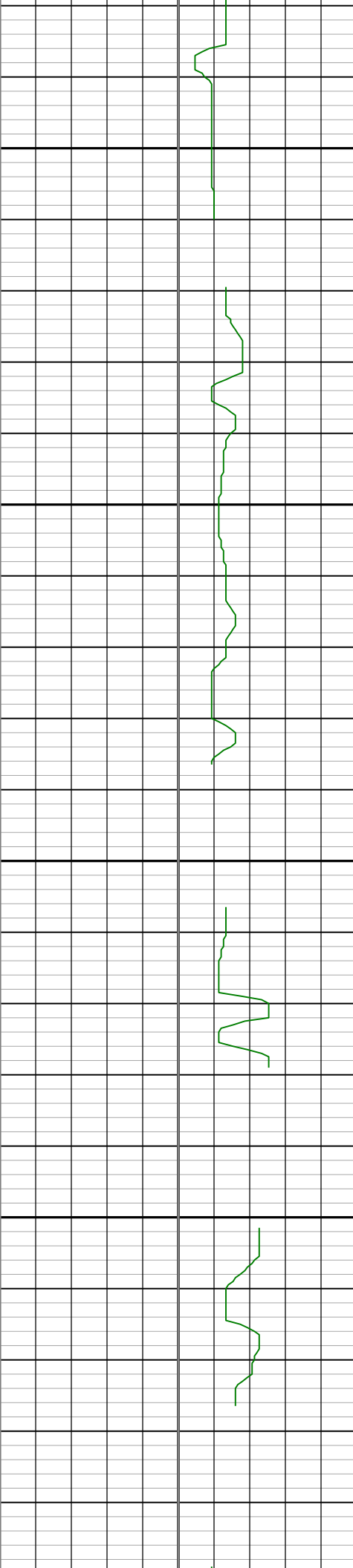
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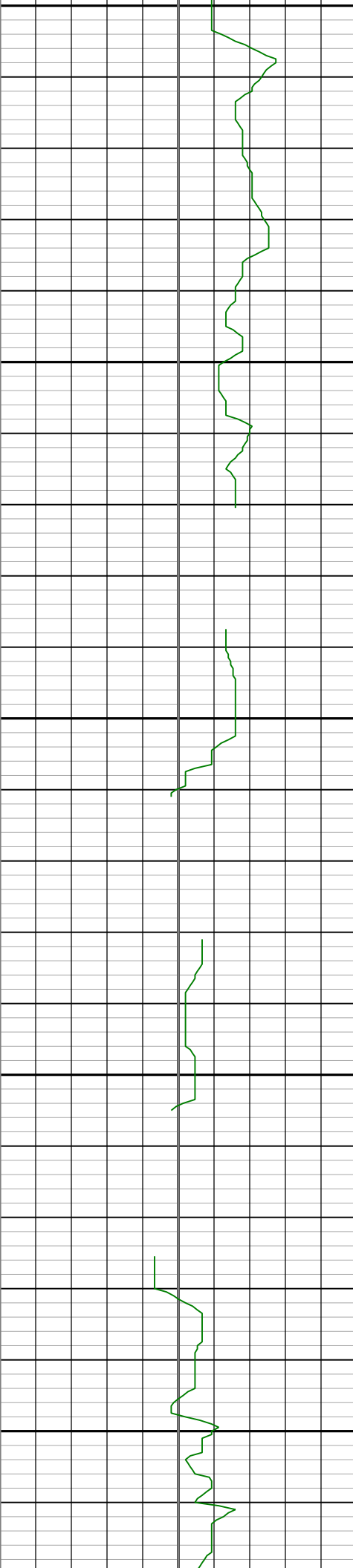
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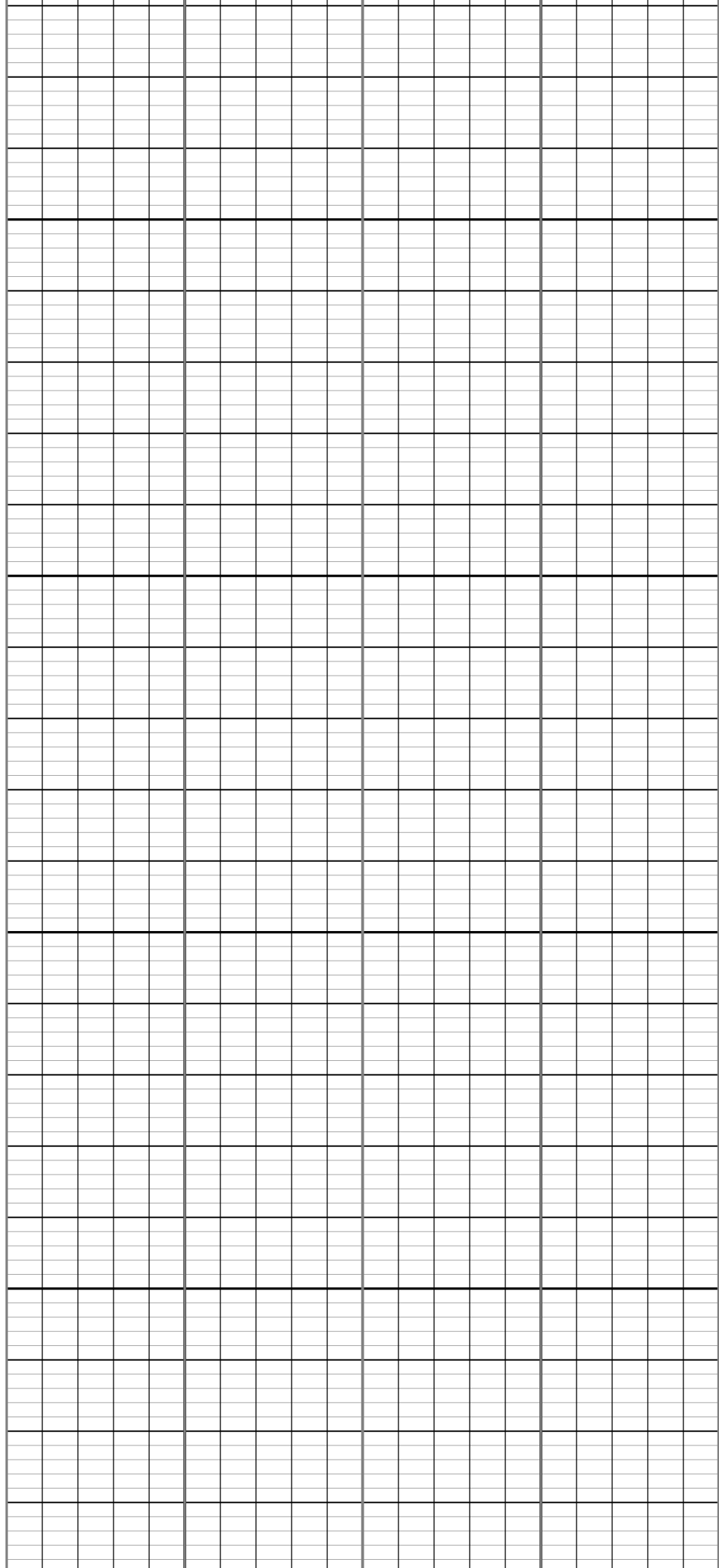
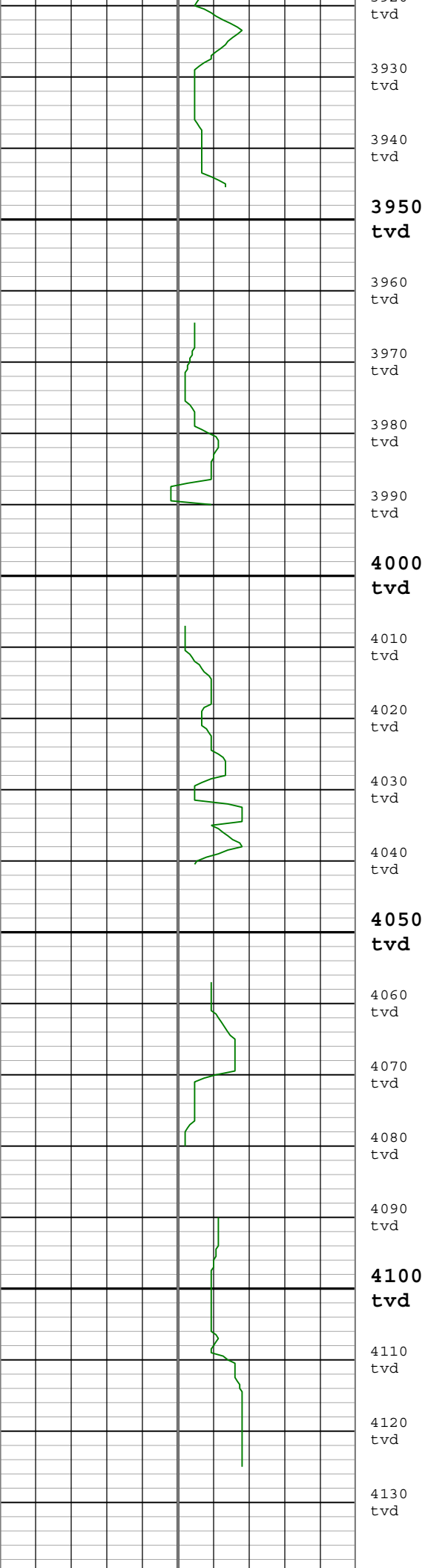
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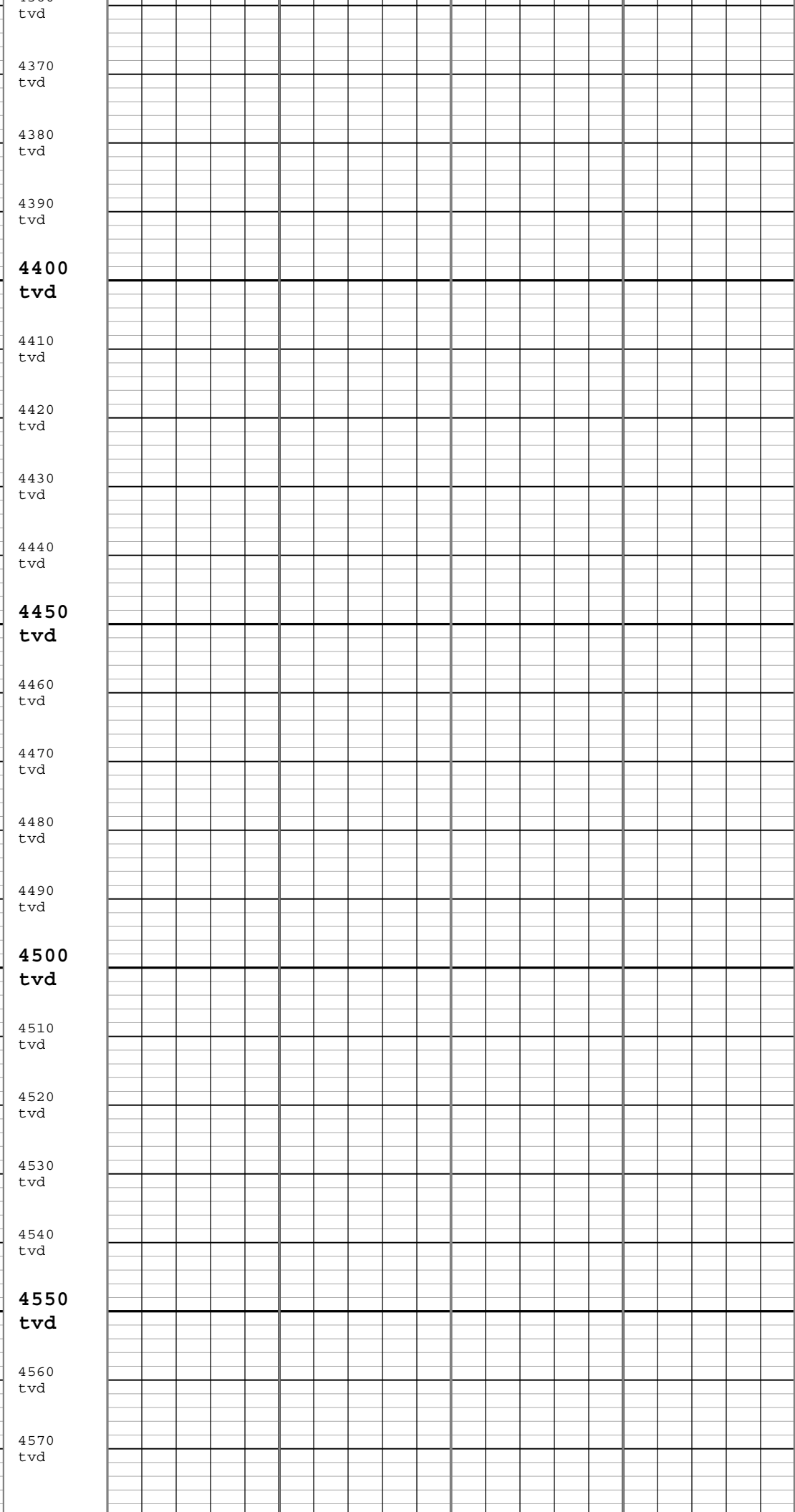
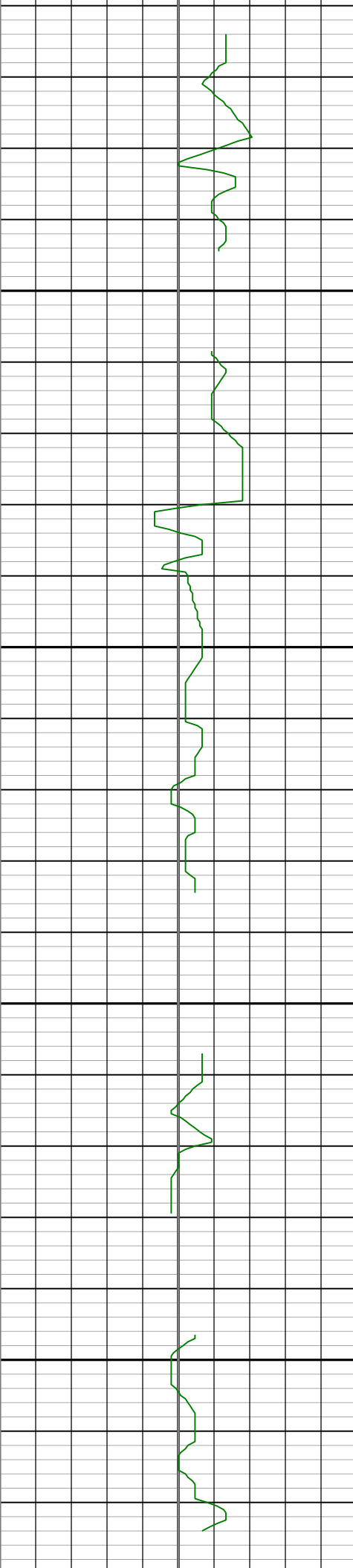
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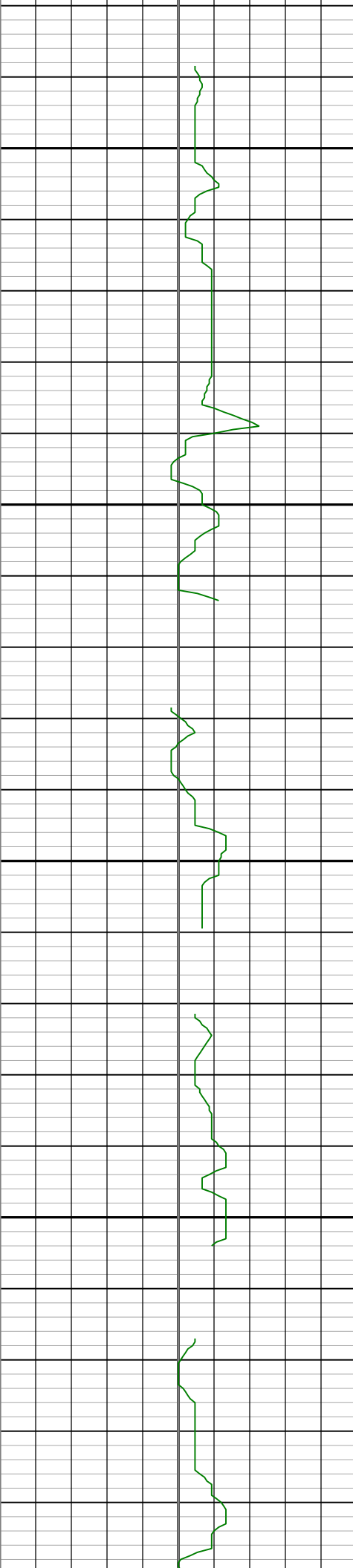
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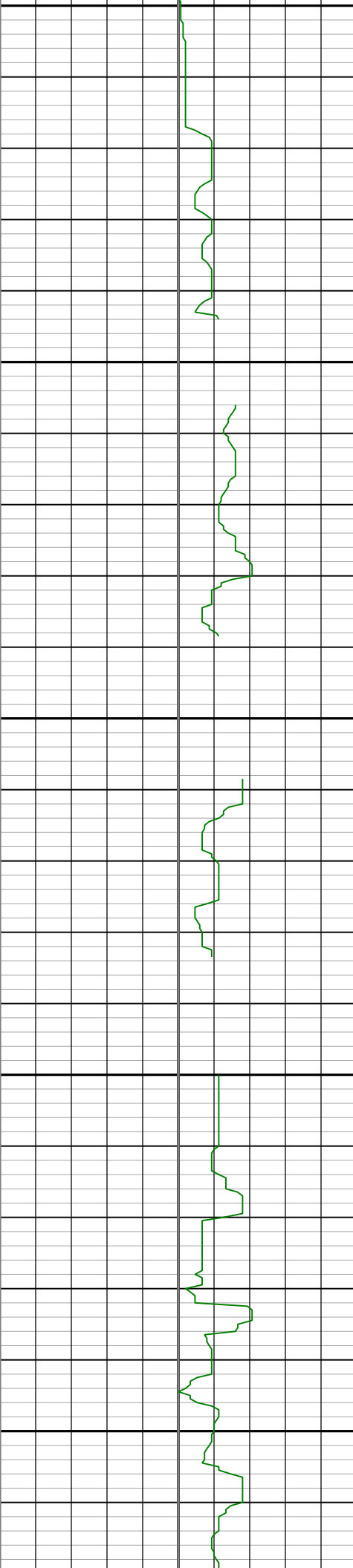
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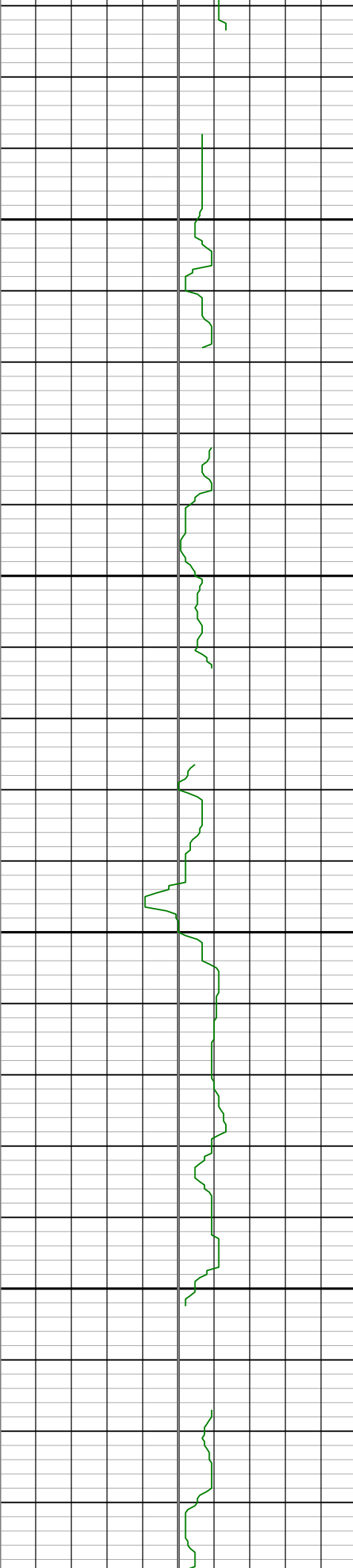
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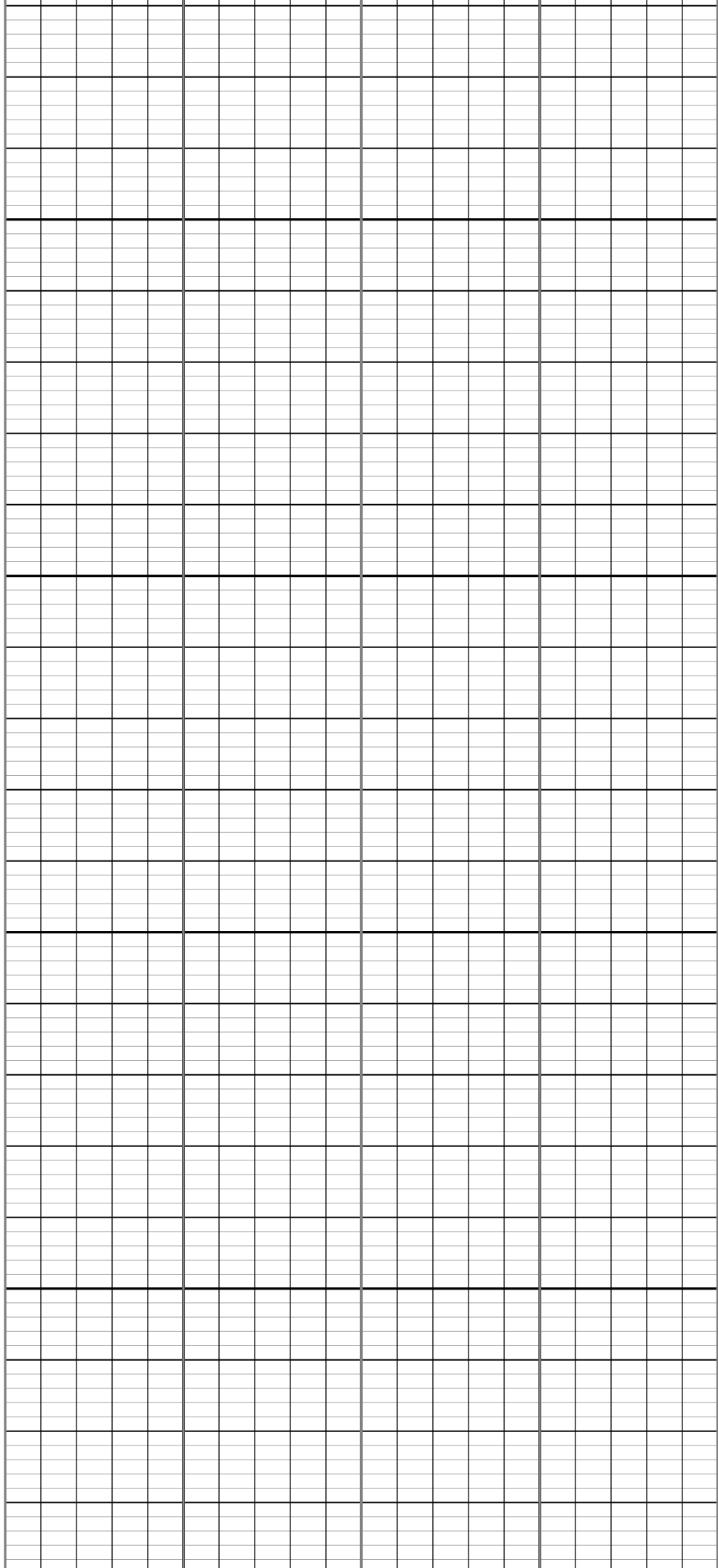
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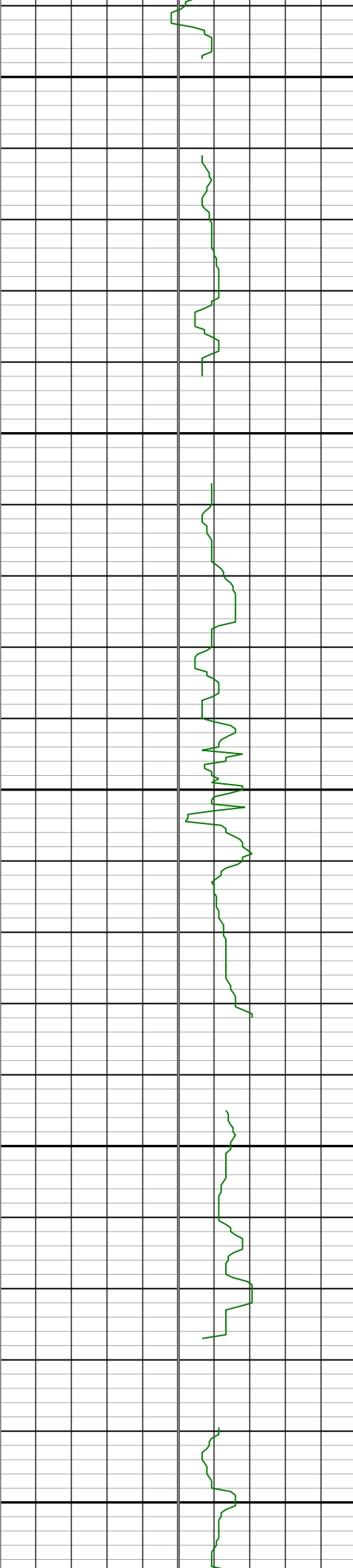
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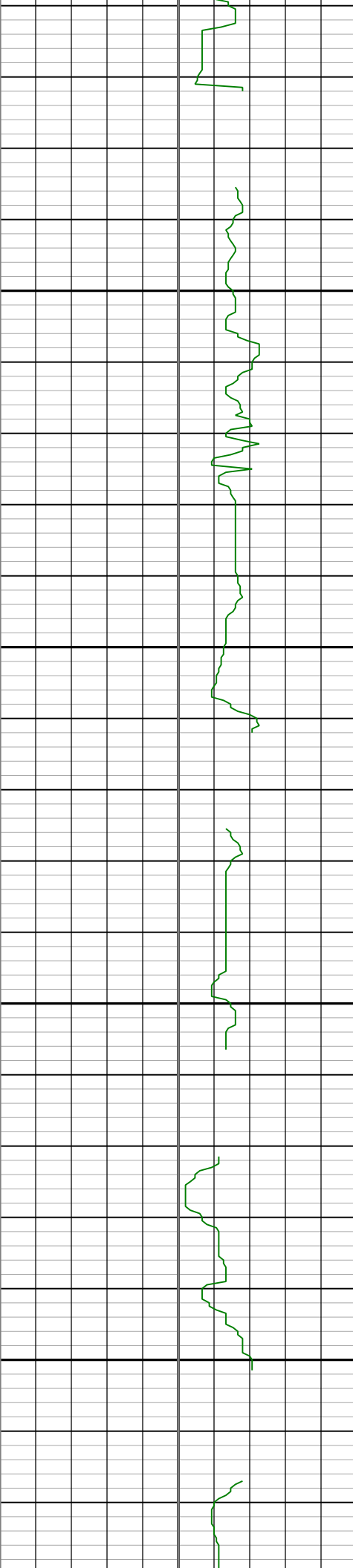
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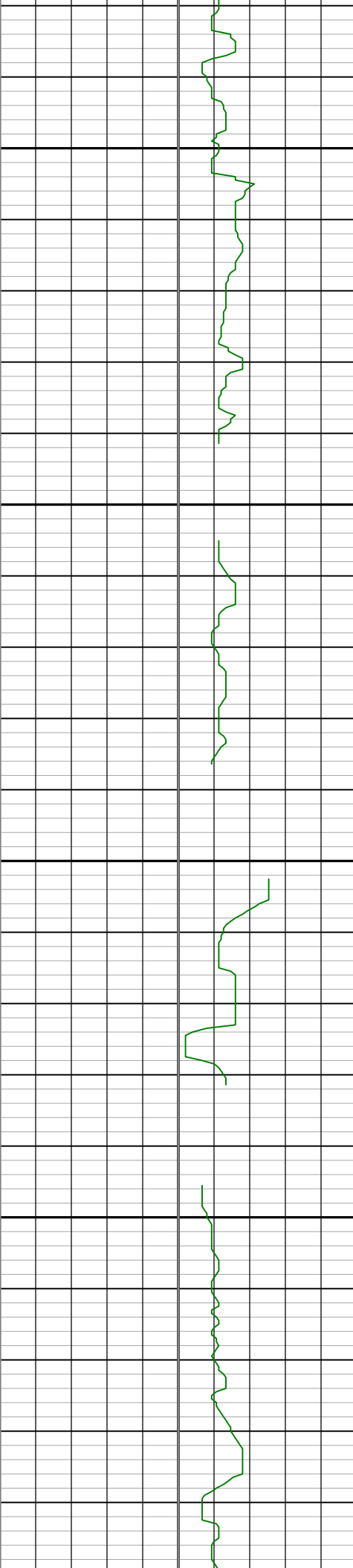
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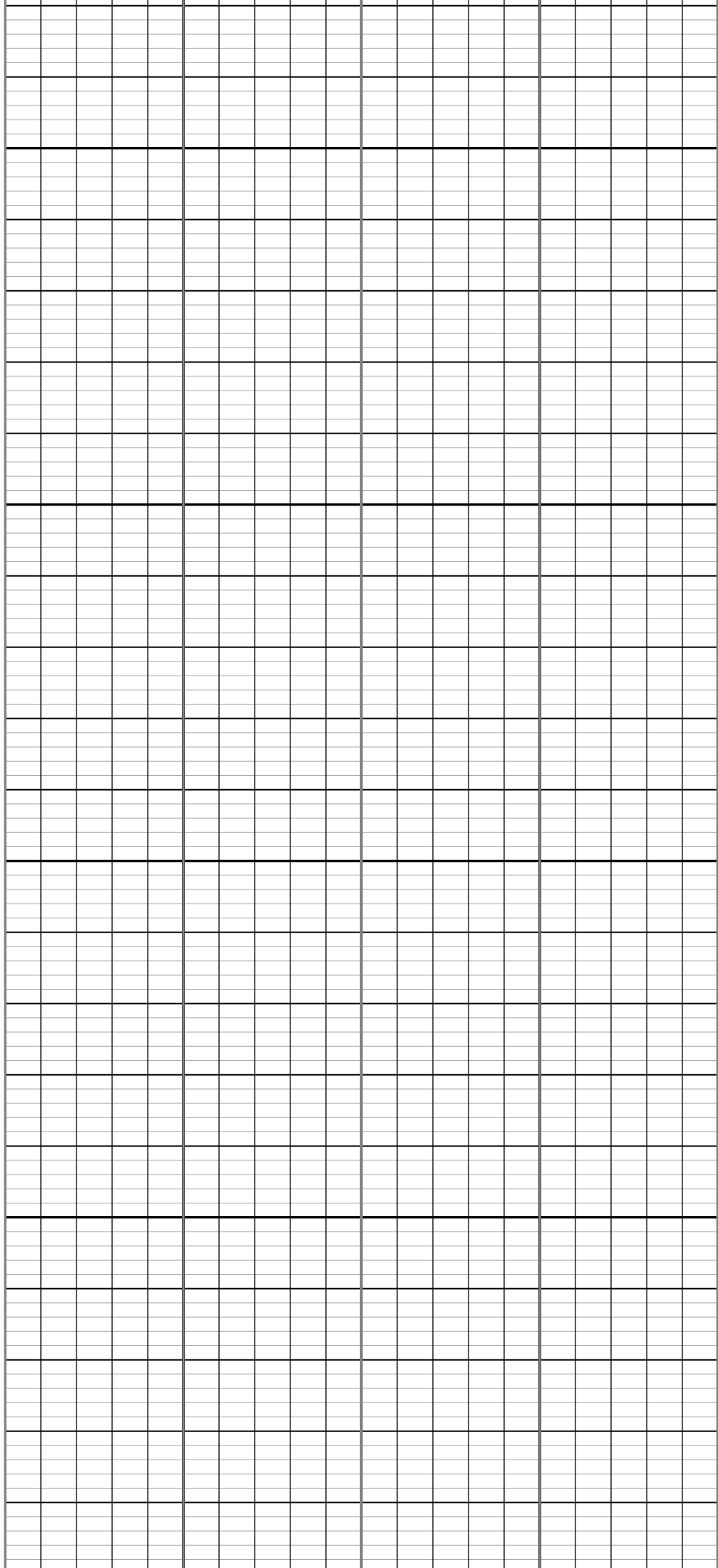
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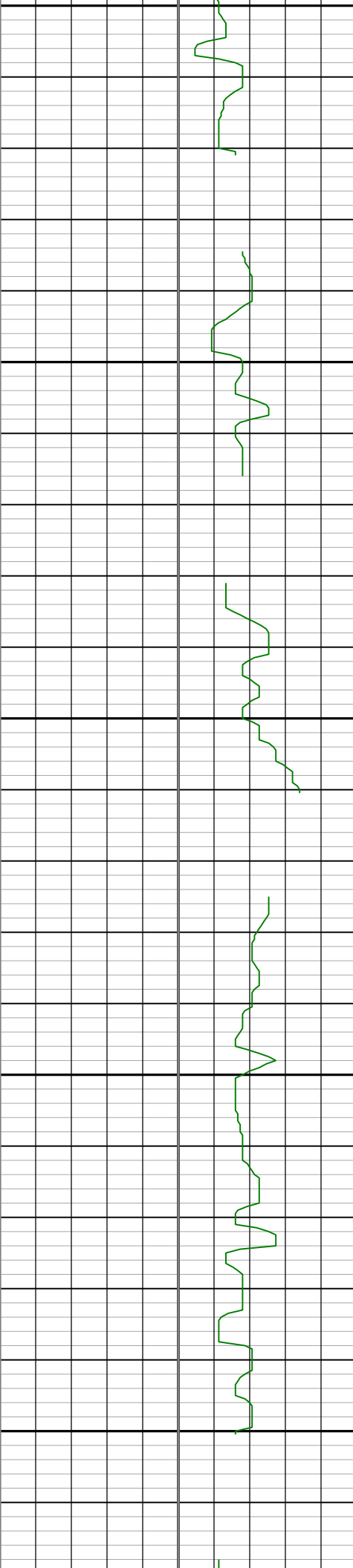
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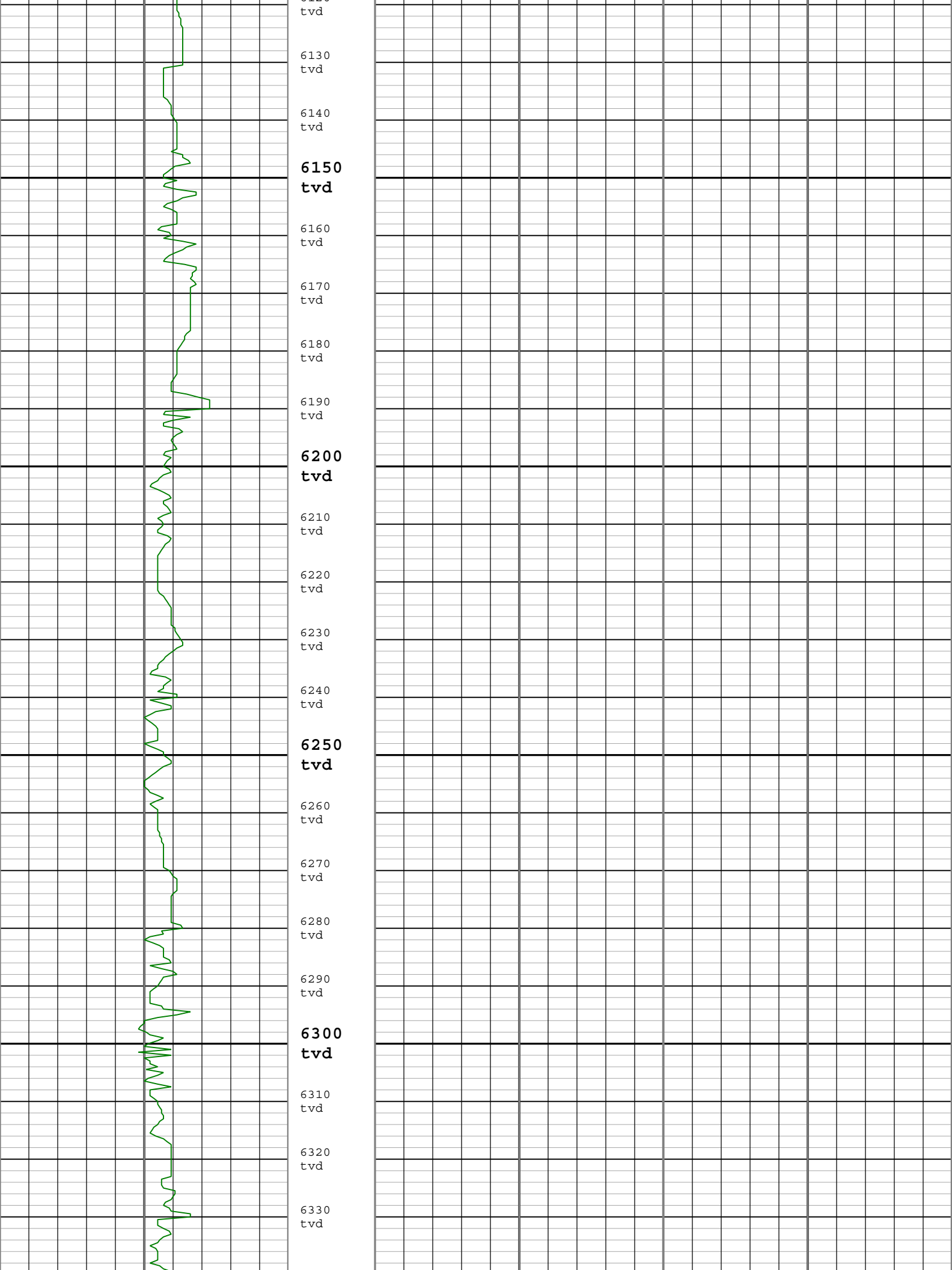
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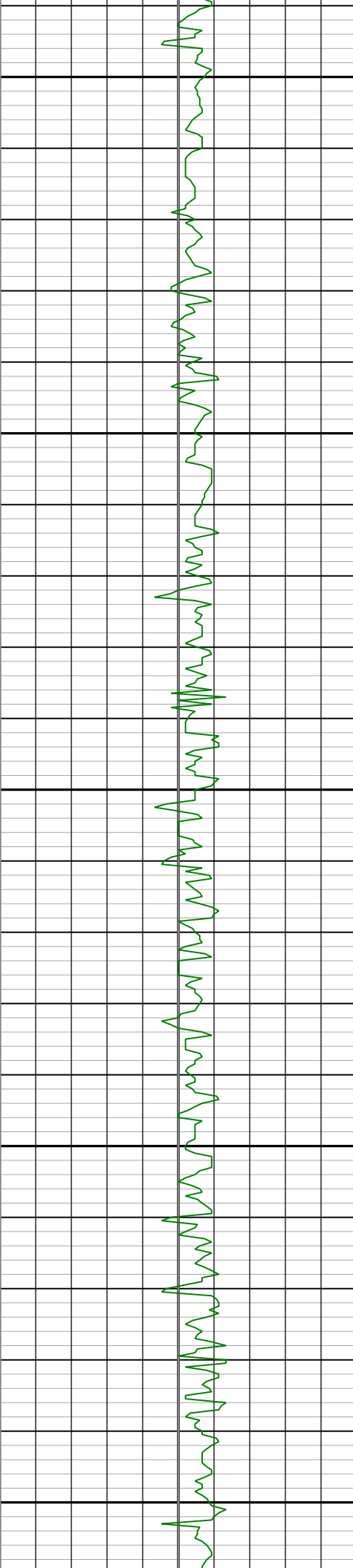
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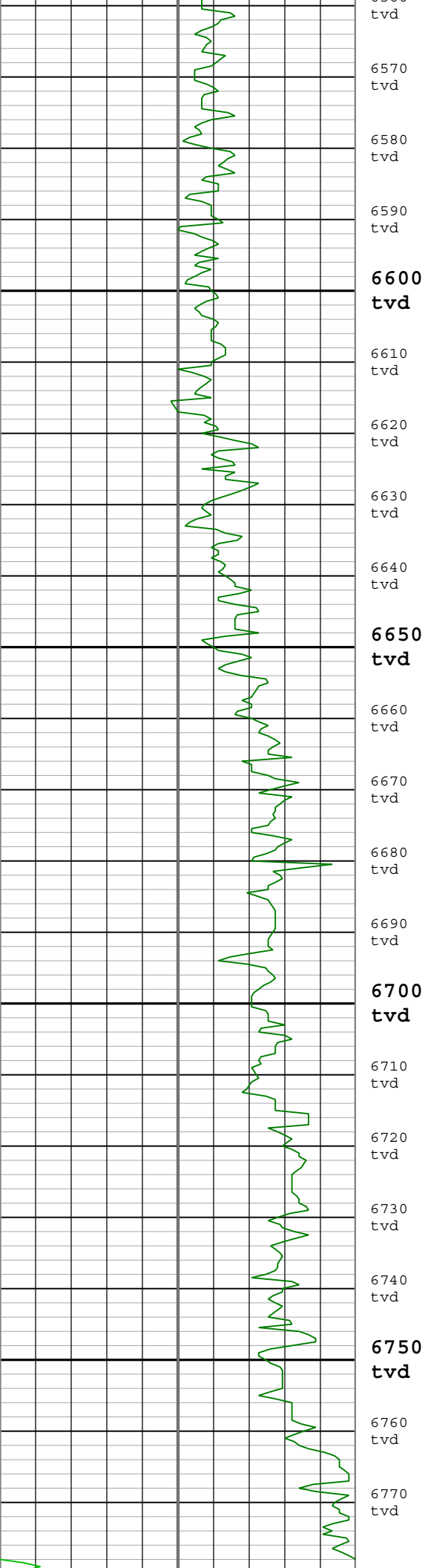
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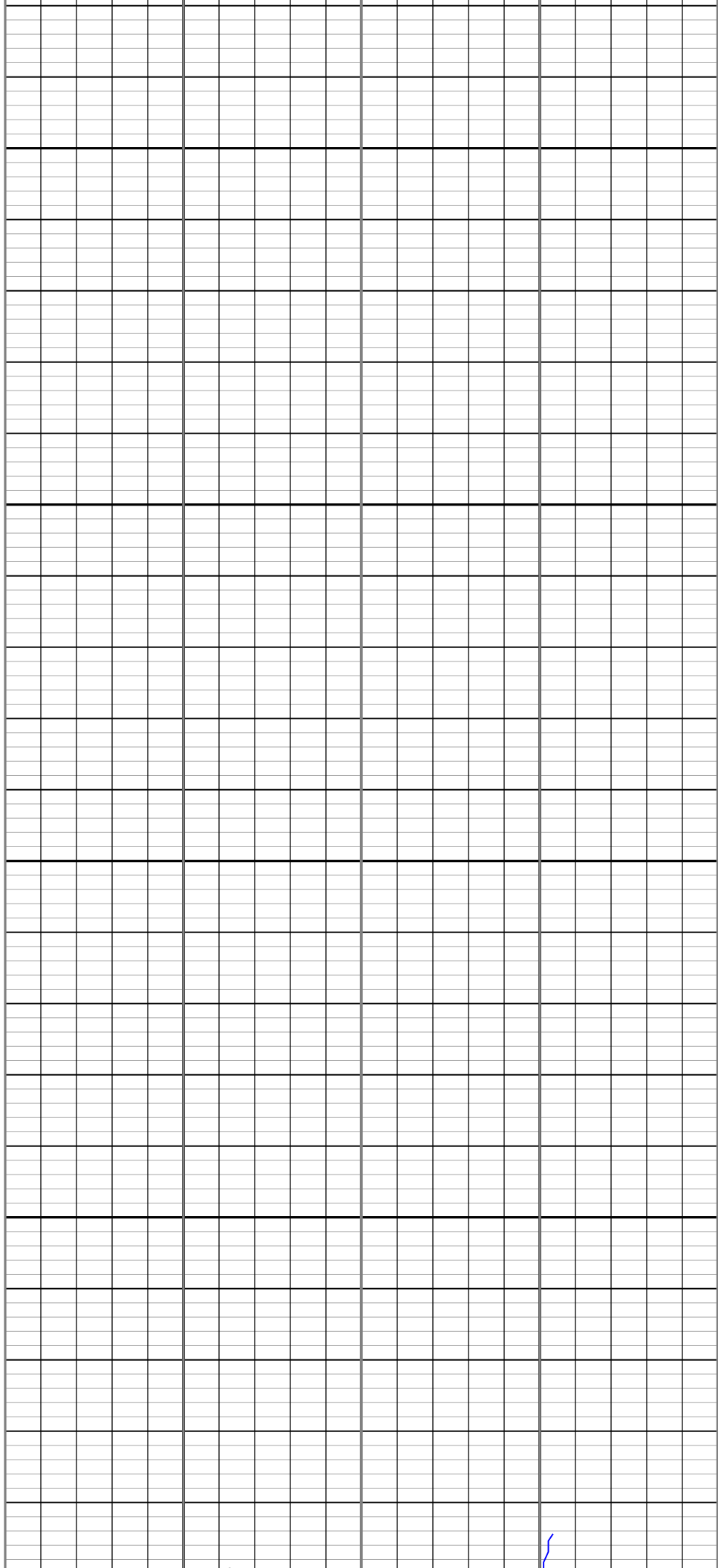
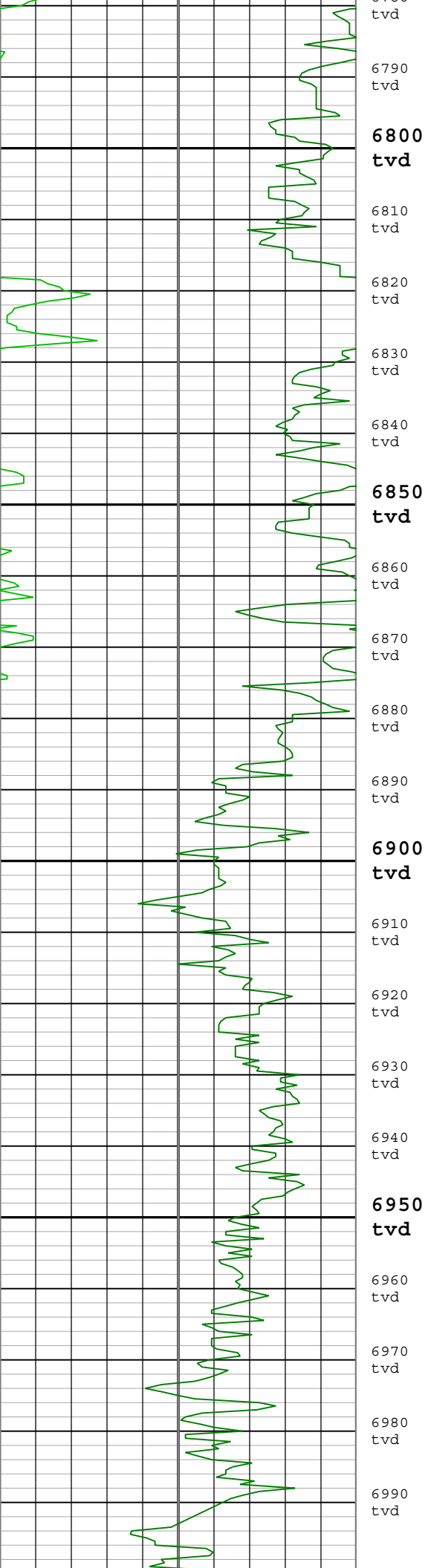
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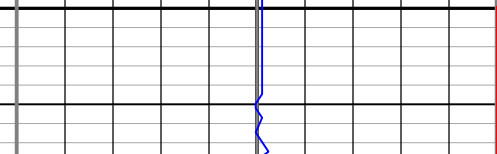
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Shock Risk (SHKRSK) SlimPulse[1] RT		
3		0
Direction and Inclination Sensor Temperature (TEMP_DNI) SlimPulse[1] RT		
100	degF	300

Geomagnetic Model :	BGGM 2014	Geomagnetic Date :	29-Jul-2014
Computed Location B :	52653.31 nT +/- 300.00nT	Used Location B :	52575.00 nT +/- 300.00nT
Computed Location G :	999.53 mgn +/- 2.50mgn	Used Location G :	999.53 mgn +/- 2.50mgn
Computed Magnetic Dip :	66.86 deg +/- 0.45deg	Used Magnetic Dip :	66.84 deg +/- 0.45deg
Computed Magnetic Dec :	8.43 deg	Used Magnetic Dec :	8.46 deg
Computed Total Correction :	7.85 deg	Used Total Correction :	7.88 deg

Survey Quality Index															
9 : Manual					28 : Tie-In Point										
Survey Correction Index															
0 : No correction															
Survey Description Index															
0 : Not Flagged Survey					1 : DMAG Corrected Survey					7 : Projection to Bit					
Seq	MD (ft)	Incl (deg)	Azim (deg)	Course (ft)	TVD (ft)	V Sec (ft)	N/ -S (ft)	E/ -W (ft)	Closure (ft)	at Azim (deg)	DLS deg/100ft	Tool Type	QI	CI	DI
1	0.00	0.00	0.00	- - - -	0.00	0.00	0.00	0.00	0.00	90.00	0.00	TIP	28	0	0
2	328.00	0.00	76.00	328.00	328.00	0.00	0.00	0.00	0.00	90.00	0.00	Other	9	0	0
3	680.00	0.20	213.00	352.00	680.00	-0.51	-0.52	-0.33	0.62	213.00	0.06	Other	9	0	0
4	794.00	0.70	227.00	114.00	794.00	-1.16	-1.16	-0.95	1.51	219.46	0.45	Other	9	0	0
5	974.00	0.60	225.00	180.00	973.98	-2.57	-2.57	-2.42	3.54	223.27	0.06	Other	9	0	0
6	1158.00	1.00	222.80	184.00	1157.97	-4.43	-4.43	-4.19	6.10	223.42	0.22	Other	9	0	0
7	1348.00	1.00	4.60	190.00	1347.95	-3.99	-4.00	-5.19	6.56	232.39	0.99	Other	9	0	0
8	1538.00	0.80	8.10	190.00	1537.93	-1.03	-1.03	-4.87	4.99	258.05	0.11	Other	9	0	0
9	1727.00	0.50	352.10	189.00	1726.92	1.10	1.09	-4.80	4.92	282.83	0.18	Other	9	0	0
10	1917.00	1.40	343.60	190.00	1916.89	4.15	4.14	-5.57	6.92	306.65	0.48	Other	9	0	0
11	2105.00	0.20	143.00	188.00	2104.87	6.09	6.08	-6.02	8.56	315.31	0.85	Other	9	0	0
12	2285.00	0.20	141.40	180.00	2284.87	5.59	5.59	-5.63	7.94	314.76	0.00	Other	9	0	0
13	2465.00	0.10	309.10	180.00	2464.87	5.44	5.44	-5.56	7.78	314.38	0.17	Other	9	0	0
14	2644.00	0.70	67.60	179.00	2643.87	5.96	5.95	-4.67	7.58	321.90	0.42	Other	9	0	0
15	2824.00	0.70	62.50	180.00	2823.85	6.88	6.88	-2.68	7.38	338.75	0.03	Other	9	0	0
16	3004.00	0.40	78.10	180.00	3003.85	7.52	7.52	-1.09	7.61	351.78	0.18	Other	9	0	0
17	3184.00	0.30	83.00	180.00	3183.84	7.70	7.70	0.00	7.71	359.98	0.06	Other	9	0	0
18	3364.00	0.80	70.50	180.00	3363.83	8.18	8.18	1.65	8.33	11.40	0.28	Other	9	0	0
19	3543.00	0.50	104.00	179.00	3542.82	8.41	8.41	3.58	9.15	23.09	0.26	Other	9	0	0
20	3723.00	0.90	302.80	180.00	3722.82	8.98	8.99	3.16	9.51	19.37	0.77	Other	9	0	0
21	3903.00	1.20	263.10	180.00	3902.79	9.52	9.53	0.10	9.51	0.60	0.43	Other	9	0	0
22	4082.00	0.40	289.40	179.00	4081.77	9.51	9.51	-2.35	9.81	346.11	0.48	Other	9	0	0
23	4262.00	0.20	186.50	180.00	4261.77	9.41	9.40	-2.98	9.88	342.42	0.27	Other	9	0	0
24	4441.00	0.50	171.20	179.00	4440.77	8.32	8.32	-2.90	8.83	340.82	0.17	Other	9	0	0
25	4621.00	0.40	188.60	180.00	4620.76	6.93	6.92	-2.87	7.48	337.50	0.09	Other	9	0	0
26	4801.00	0.70	246.30	180.00	4800.75	5.87	5.86	-3.97	7.09	325.89	0.33	Other	9	0	0
27	4981.00	1.10	357.40	180.00	4980.74	7.15	7.15	-5.05	8.76	324.72	0.83	Other	9	0	0
28	5160.00	0.20	92.50	179.00	5159.73	8.85	8.85	-4.82	10.07	331.42	0.63	Other	9	0	0
29	5340.00	1.20	9.10	180.00	5339.71	10.70	10.70	-4.21	11.48	338.52	0.66	Other	9	0	0
30	5519.00	0.70	339.80	179.00	5518.69	13.58	13.57	-4.29	14.24	342.46	0.38	Other	9	0	0
31	5699.00	1.20	238.70	180.00	5698.67	13.63	13.63	-6.28	14.99	335.25	0.83	Other	9	0	0
32	5879.00	0.60	176.00	180.00	5878.65	11.71	11.71	-7.82	14.07	326.24	0.59	Other	9	0	0
33	6058.00	0.50	95.50	179.00	6057.65	10.70	10.70	-6.98	12.76	326.86	0.40	Other	9	0	0
34	6238.00	2.90	19.50	180.00	6237.57	14.92	14.91	-4.68	15.62	342.58	1.57	Other	9	0	0
35	6283.00	5.40	16.70	45.00	6282.44	18.02	18.02	-3.69	18.41	348.42	5.57	Other	9	0	0
36	6328.00	7.30	11.00	45.00	6327.17	22.85	22.85	-2.54	23.00	353.66	4.44	Other	9	0	0
37	6372.00	8.50	10.30	44.00	6370.75	28.80	28.79	-1.42	28.84	357.17	2.74	Other	9	0	0
38	6417.00	10.60	12.40	45.00	6415.12	36.11	36.11	0.06	36.12	0.10	4.73	Other	9	0	0
39	6462.00	13.40	12.30	45.00	6459.13	45.25	45.25	2.06	45.31	2.61	6.22	Other	9	0	0
40	6507.00	16.40	11.50	45.00	6502.62	56.57	56.57	4.44	56.76	4.49	6.68	Other	9	0	0
41	6552.00	20.20	10.20	45.00	6545.33	70.44	70.45	7.08	70.80	5.74	8.49	Other	9	0	0
42	6597.00	23.70	9.30	45.00	6587.07	87.01	87.02	9.92	87.60	6.50	7.81	Other	9	0	0
43	6642.00	27.00	5.90	45.00	6627.73	106.10	106.12	12.43	106.86	6.68	8.01	Other	9	0	0
44	6687.00	30.20	2.20	45.00	6667.24	127.58	127.59	13.92	128.35	6.23	8.12	Other	9	0	0
45	6731.00	33.90	0.40	44.00	6704.52	150.92	150.93	14.43	151.61	5.46	8.68	Other	9	0	0
46	6776.00	37.80	0.80	45.00	6740.99	177.26	177.28	14.71	177.89	4.74	8.68	Other	9	0	0

47	6821.00	42.20	2.00	45.00	6775.46	206.17	206.19	15.43	206.76	4.28	9.93	Other	9	0	0
48	6866.00	46.40	0.60	45.00	6807.66	237.58	237.60	16.13	238.16	3.88	9.58	Other	9	0	0
49	6911.00	51.40	359.20	45.00	6837.23	271.48	271.50	16.05	271.98	3.38	11.36	Other	9	0	0
50	6956.00	56.20	358.80	45.00	6863.80	307.78	307.79	15.42	308.17	2.87	10.69	Other	9	0	0
51	7001.00	61.30	359.20	45.00	6887.14	346.23	346.25	14.75	346.56	2.44	11.36	Other	9	0	0
52	7046.00	65.00	0.20	45.00	6907.46	386.37	386.39	14.54	386.65	2.16	8.46	Other	9	0	0
53	7091.00	68.30	359.20	45.00	6925.29	427.68	427.69	14.32	427.92	1.92	7.61	Other	9	0	0
54	7136.00	71.70	358.00	45.00	6940.68	469.95	469.96	13.28	470.14	1.62	7.96	Other	9	0	0
55	7180.00	73.80	356.90	44.00	6953.73	511.92	511.94	11.41	512.07	1.28	5.34	Other	9	0	0
56	7226.00	76.30	356.20	46.00	6965.59	556.29	556.30	8.74	556.36	0.90	5.63	Other	9	0	0
57	7270.00	78.20	355.80	44.00	6975.30	599.10	599.10	5.74	599.15	0.55	4.41	Other	9	0	0
58	7315.00	80.00	356.00	45.00	6983.81	643.17	643.18	2.58	643.18	0.23	4.02	Other	9	0	0
59	7354.00	81.70	357.00	39.00	6990.01	681.61	681.61	0.23	681.59	0.02	5.04	Other	9	0	0
60	7463.00	83.87	358.06	109.00	7003.70	789.64	789.64	-4.42	789.63	359.68	2.21	SlimPulse	9	0	1
61	7508.00	84.73	358.64	45.00	7008.17	834.40	834.39	-5.71	834.42	359.61	2.30	SlimPulse	9	0	1
62	7552.00	86.01	358.29	44.00	7011.72	878.24	878.23	-6.89	878.25	359.55	3.02	SlimPulse	9	0	1
63	7597.00	87.42	358.93	45.00	7014.30	923.15	923.14	-7.98	923.20	359.50	3.44	SlimPulse	9	0	1
64	7688.00	91.38	359.26	91.00	7015.26	1014.12	1014.11	-9.41	1014.14	359.47	4.37	SlimPulse	9	0	1
65	7777.00	92.54	358.38	89.00	7012.21	1103.05	1103.04	-11.24	1103.08	359.42	1.64	SlimPulse	9	0	1
66	7867.00	91.75	358.80	90.00	7008.84	1192.96	1192.95	-13.46	1193.01	359.35	0.99	SlimPulse	9	0	1
67	7957.00	91.00	359.80	90.00	7006.68	1282.93	1282.91	-14.56	1283.01	359.35	1.39	SlimPulse	9	0	1
68	8047.00	90.41	0.56	90.00	7005.58	1372.92	1372.90	-14.27	1372.97	359.40	1.07	SlimPulse	9	0	1
69	8137.00	90.41	1.71	90.00	7004.93	1462.89	1462.88	-12.49	1462.93	359.51	1.28	SlimPulse	9	0	1
70	8227.00	90.55	2.37	90.00	7004.18	1552.83	1552.82	-9.29	1552.85	359.66	0.75	SlimPulse	9	0	1
71	8317.00	90.21	1.58	90.00	7003.58	1642.77	1642.76	-6.19	1642.78	359.78	0.96	SlimPulse	9	0	1
72	8406.00	89.90	1.63	89.00	7003.50	1731.73	1731.73	-3.69	1731.73	359.88	0.35	SlimPulse	9	0	1
73	8496.00	89.86	0.75	90.00	7003.68	1821.71	1821.71	-1.82	1821.72	359.94	0.98	SlimPulse	9	0	1
74	8586.00	89.83	0.81	90.00	7003.93	1911.70	1911.70	-0.60	1911.71	359.98	0.07	SlimPulse	9	0	1
75	8676.00	89.42	0.13	90.00	7004.52	2001.69	2001.69	0.14	2001.71	0.00	0.88	SlimPulse	9	0	1
76	8766.00	89.45	0.13	90.00	7005.40	2091.69	2091.69	0.34	2091.70	0.01	0.03	SlimPulse	9	0	1
77	8855.00	89.73	0.20	89.00	7006.04	2180.69	2180.69	0.60	2180.68	0.02	0.32	SlimPulse	9	0	1
78	8945.00	89.76	0.96	90.00	7006.44	2270.68	2270.68	1.51	2270.67	0.04	0.85	SlimPulse	9	0	1
79	9035.00	90.38	359.71	90.00	7006.33	2360.67	2360.68	2.04	2360.66	0.05	1.55	SlimPulse	9	0	1
80	9125.00	89.90	0.24	90.00	7006.11	2450.67	2450.68	2.00	2450.69	0.05	0.79	SlimPulse	9	0	1
81	9215.00	89.69	358.40	90.00	7006.43	2540.66	2540.67	0.93	2540.65	0.02	2.06	SlimPulse	9	0	1
82	9304.00	89.66	358.88	89.00	7006.94	2629.64	2629.64	-1.18	2629.63	359.97	0.54	SlimPulse	9	0	1
83	9394.00	90.28	357.06	90.00	7006.99	2719.58	2719.58	-4.37	2719.59	359.91	2.14	SlimPulse	9	0	1
84	9484.00	90.24	358.39	90.00	7006.58	2809.51	2809.50	-7.94	2809.51	359.84	1.48	SlimPulse	9	0	1
85	9574.00	89.83	359.65	90.00	7006.52	2899.50	2899.49	-9.48	2899.51	359.81	1.47	SlimPulse	9	0	1
86	9664.00	90.00	358.66	90.00	7006.66	2989.49	2989.48	-10.81	2989.50	359.79	1.12	SlimPulse	9	0	1
87	9754.00	90.24	358.50	90.00	7006.47	3079.46	3079.45	-13.04	3079.46	359.76	0.32	SlimPulse	9	0	1
88	9843.00	89.90	356.01	89.00	7006.36	3168.36	3168.34	-17.30	3168.37	359.69	2.82	SlimPulse	9	0	1
89	9933.00	90.58	358.82	90.00	7005.98	3258.26	3258.24	-21.36	3258.30	359.62	3.21	SlimPulse	9	0	1
90	10023.00	89.90	359.51	90.00	7005.60	3348.25	3348.23	-22.67	3348.29	359.61	1.08	SlimPulse	9	0	1
91	10112.00	90.41	0.24	89.00	7005.36	3437.25	3437.23	-22.87	3437.30	359.62	1.00	SlimPulse	9	0	1
92	10203.00	90.45	0.82	91.00	7004.68	3528.24	3528.22	-22.02	3528.28	359.64	0.64	SlimPulse	9	0	1
93	10292.00	90.31	1.94	89.00	7004.09	3617.21	3617.19	-19.88	3617.26	359.69	1.27	SlimPulse	9	0	1
94	10382.00	90.38	2.44	90.00	7003.55	3707.14	3707.12	-16.44	3707.15	359.75	0.56	SlimPulse	9	0	1
95	10472.00	90.48	2.98	90.00	7002.87	3797.03	3797.02	-12.19	3797.05	359.82	0.61	SlimPulse	9	0	1
96	10562.00	90.65	1.88	90.00	7001.99	3886.94	3886.93	-8.37	3886.94	359.88	1.24	SlimPulse	9	0	1
97	10651.00	90.72	0.63	89.00	7000.92	3975.91	3975.90	-6.42	3975.92	359.91	1.41	SlimPulse	9	0	1
98	10741.00	90.45	0.13	90.00	7000.00	4065.90	4065.90	-5.83	4065.91	359.92	0.63	SlimPulse	9	0	1
99	10836.00	90.48	0.33	95.00	6999.23	4160.90	4160.89	-5.44	4160.89	359.93	0.21	SlimPulse	9	0	1
100	10929.00	90.58	0.45	93.00	6998.37	4253.89	4253.89	-4.81	4253.90	359.94	0.17	SlimPulse	9	0	1

101	11022.00	89.93	0.64	93.00	6997.96	4346.88	4346.88	-3.93	4346.88	359.95	0.73	SlimPulse	9	0	1
102	11113.00	89.55	0.22	91.00	6998.37	4437.88	4437.88	-3.24	4437.86	359.96	0.62	SlimPulse	9	0	1
103	11207.00	89.69	0.32	94.00	6998.99	4531.87	4531.87	-2.80	4531.89	359.96	0.18	SlimPulse	9	0	1
104	11301.00	89.76	0.32	94.00	6999.45	4625.87	4625.87	-2.28	4625.89	359.97	0.07	SlimPulse	9	0	1
105	11394.00	89.76	0.80	93.00	6999.83	4718.86	4718.86	-1.37	4718.86	359.98	0.52	SlimPulse	9	0	1
106	11488.00	89.55	0.04	94.00	7000.40	4812.86	4812.86	-0.68	4812.86	359.99	0.84	SlimPulse	9	0	1
107	11582.00	89.73	358.64	94.00	7000.99	4906.85	4906.85	-1.76	4906.86	359.98	1.50	SlimPulse	9	0	1
108	11675.00	90.69	358.46	93.00	7000.65	4999.82	4999.82	-4.11	4999.80	359.95	1.05	SlimPulse	9	0	1
109	11768.00	90.52	357.60	93.00	6999.67	5092.76	5092.76	-7.31	5092.75	359.92	0.94	SlimPulse	9	0	1
110	11863.00	90.76	358.05	95.00	6998.61	5187.69	5187.68	-10.92	5187.70	359.88	0.54	SlimPulse	9	0	1
111	11957.00	91.10	358.57	94.00	6997.08	5281.64	5281.63	-13.69	5281.66	359.85	0.66	SlimPulse	9	0	1
112	12049.00	90.21	0.09	92.00	6996.03	5373.62	5373.61	-14.76	5373.62	359.84	1.91	SlimPulse	9	0	1
113	12143.00	89.83	0.28	94.00	6996.00	5467.62	5467.61	-14.46	5467.62	359.85	0.45	SlimPulse	9	0	1
114	12236.00	89.07	359.81	93.00	6996.89	5560.62	5560.61	-14.39	5560.63	359.85	0.96	SlimPulse	9	0	1
115	12326.00	89.24	0.17	90.00	6998.22	5650.61	5650.60	-14.40	5650.62	359.85	0.44	SlimPulse	9	0	1
116	12416.00	88.87	359.83	90.00	6999.70	5740.60	5740.58	-14.40	5740.62	359.86	0.56	SlimPulse	9	0	1
117	12505.00	89.31	359.94	89.00	7001.11	5829.58	5829.57	-14.58	5829.59	359.86	0.51	SlimPulse	9	0	1
118	12595.00	89.86	359.18	90.00	7001.77	5919.58	5919.57	-15.27	5919.59	359.85	1.04	SlimPulse	9	0	1
119	12685.00	89.76	359.67	90.00	7002.07	6009.57	6009.56	-16.18	6009.58	359.85	0.56	SlimPulse	9	0	1
120	12775.00	90.21	0.14	90.00	7002.09	6099.57	6099.56	-16.32	6099.57	359.85	0.72	SlimPulse	9	0	1
121	12865.00	90.24	0.25	90.00	7001.74	6189.57	6189.56	-16.02	6189.57	359.85	0.13	SlimPulse	9	0	1
122	12955.00	90.00	0.36	90.00	7001.55	6279.57	6279.56	-15.54	6279.59	359.86	0.29	SlimPulse	9	0	1
123	13045.00	90.21	0.67	90.00	7001.38	6369.57	6369.55	-14.73	6369.59	359.87	0.42	SlimPulse	9	0	1
124	13134.00	89.97	0.50	89.00	7001.24	6458.56	6458.55	-13.82	6458.56	359.88	0.33	SlimPulse	9	0	1
125	13224.00	89.62	359.86	90.00	7001.56	6548.56	6548.55	-13.54	6548.56	359.88	0.81	SlimPulse	9	0	1
126	13314.00	89.45	0.66	90.00	7002.29	6638.55	6638.54	-13.13	6638.55	359.89	0.91	SlimPulse	9	0	1
127	13404.00	89.79	0.37	90.00	7002.89	6728.55	6728.54	-12.32	6728.54	359.90	0.50	SlimPulse	9	0	1
128	13493.00	89.79	0.75	89.00	7003.22	6817.54	6817.53	-11.45	6817.55	359.90	0.43	SlimPulse	9	0	1
129	13583.00	89.73	0.70	90.00	7003.59	6907.53	6907.52	-10.31	6907.55	359.91	0.09	SlimPulse	9	0	1
130	13673.00	89.38	0.77	90.00	7004.29	6997.52	6997.51	-9.16	6997.51	359.93	0.40	SlimPulse	9	0	1
131	13763.00	90.17	0.40	90.00	7004.65	7087.51	7087.51	-8.24	7087.50	359.93	0.97	SlimPulse	9	0	1
132	13853.00	89.62	0.25	90.00	7004.81	7177.51	7177.51	-7.73	7177.49	359.94	0.63	SlimPulse	9	0	1
133	13942.00	90.03	0.34	89.00	7005.08	7266.51	7266.50	-7.27	7266.50	359.94	0.47	SlimPulse	9	0	1
134	14032.00	91.07	0.68	90.00	7004.22	7356.50	7356.49	-6.47	7356.50	359.95	1.22	SlimPulse	9	0	1
135	14122.00	90.10	0.69	90.00	7003.30	7446.48	7446.48	-5.39	7446.49	359.96	1.08	SlimPulse	9	0	1
136	14212.00	89.93	359.92	90.00	7003.28	7536.48	7536.48	-4.91	7536.48	359.96	0.88	SlimPulse	9	0	1
137	14301.00	89.93	1.16	89.00	7003.39	7625.47	7625.47	-4.08	7625.46	359.97	1.39	SlimPulse	9	0	1
138	14391.00	90.00	0.53	90.00	7003.44	7715.46	7715.46	-2.75	7715.45	359.98	0.70	SlimPulse	9	0	1
139	14481.00	90.45	0.93	90.00	7003.09	7805.45	7805.46	-1.60	7805.45	359.99	0.67	SlimPulse	9	0	1
140	14571.00	90.24	0.79	90.00	7002.55	7895.44	7895.44	-0.25	7895.44	360.00	0.28	SlimPulse	9	0	1
141	14660.00	90.93	1.65	89.00	7001.64	7984.41	7984.42	1.64	7984.42	0.01	1.24	SlimPulse	9	0	1
142	14750.00	89.97	359.26	90.00	7000.93	8074.40	8074.40	2.36	8074.41	0.02	2.86	SlimPulse	9	0	1
143	14840.00	89.97	358.72	90.00	7000.98	8164.38	8164.39	0.77	8164.40	0.01	0.60	SlimPulse	9	0	1
144	14930.00	89.21	358.86	90.00	7001.62	8254.36	8254.37	-1.13	8254.36	359.99	0.86	SlimPulse	9	0	1
145	15019.00	89.42	359.42	89.00	7002.69	8343.35	8343.35	-2.46	8343.34	359.98	0.67	SlimPulse	9	0	1
146	15109.00	89.42	358.83	90.00	7003.60	8433.33	8433.33	-3.84	8433.33	359.97	0.66	SlimPulse	9	0	1
147	15199.00	89.24	358.63	90.00	7004.65	8523.31	8523.31	-5.83	8523.29	359.96	0.30	SlimPulse	9	0	1
148	15288.00	88.83	358.32	89.00	7006.15	8612.27	8612.26	-8.20	8612.27	359.95	0.58	SlimPulse	9	0	1
149	15378.00	88.97	357.77	90.00	7007.88	8702.20	8702.19	-11.27	8702.20	359.93	0.63	SlimPulse	9	0	1
150	15468.00	89.21	358.26	90.00	7009.30	8792.14	8792.13	-14.39	8792.13	359.91	0.61	SlimPulse	9	0	1
151	15558.00	89.79	358.67	90.00	7010.09	8882.10	8882.09	-16.80	8882.12	359.89	0.79	SlimPulse	9	0	1
152	15648.00	90.03	0.42	90.00	7010.23	8972.10	8972.08	-17.51	8972.11	359.89	1.96	SlimPulse	9	0	1
153	15737.00	90.34	1.18	89.00	7009.94	9061.09	9061.07	-16.27	9061.09	359.90	0.92	SlimPulse	9	0	1
154	15827.00	91.48	0.83	90.00	7008.52	9151.06	9151.05	-14.69	9151.05	359.91	1.33	SlimPulse	9	0	1

155	15917.00	91.20	359.74	90.00	7006.41	9241.03	9241.02	-14.25	9241.04	359.91	1.25	SlimPulse	9	0	1
156	16007.00	89.79	0.15	90.00	7005.63	9331.02	9331.01	-14.33	9331.04	359.91	1.63	SlimPulse	9	0	1
157	16097.00	90.24	0.07	90.00	7005.61	9421.02	9421.01	-14.16	9421.03	359.91	0.51	SlimPulse	9	0	1
158	16187.00	89.66	0.20	90.00	7005.69	9511.02	9511.01	-13.95	9511.02	359.92	0.66	SlimPulse	9	0	1
159	16276.00	89.14	359.81	89.00	7006.62	9600.02	9600.01	-13.94	9600.03	359.92	0.73	SlimPulse	9	0	1
160	16366.00	89.24	359.81	90.00	7007.89	9690.01	9690.00	-14.24	9689.99	359.92	0.11	SlimPulse	9	0	1
161	16456.00	90.14	359.34	90.00	7008.38	9780.00	9779.99	-14.91	9780.02	359.91	1.13	SlimPulse	9	0	1
162	16546.00	89.97	359.35	90.00	7008.29	9870.00	9869.99	-15.93	9870.01	359.91	0.19	SlimPulse	9	0	1
163	16635.00	90.07	359.50	89.00	7008.26	9959.00	9958.98	-16.83	9958.99	359.90	0.20	SlimPulse	9	0	1
164	16725.00	90.24	359.81	90.00	7008.02	10048.99	10048.98	-17.37	10048.98	359.90	0.39	SlimPulse	9	0	1
165	16815.00	90.34	1.26	90.00	7007.56	10138.99	10138.97	-16.53	10138.98	359.91	1.61	SlimPulse	9	0	1
166	16897.00	90.10	1.30	82.00	7007.25	10220.96	10220.95	-14.70	10220.96	359.92	0.30	SlimPulse	9	0	1
167	16939.00	90.10	1.30	42.00	7007.17	10262.95	10262.94	-13.74	10262.96	359.92	0.00	Other	9	0	7
Calibration Report															
SPULSE-GEN (SlimPulse with Generic Collar) Calibration - Run Run001															
Primary Equipment :															
Elec. cartridge, 150C max with GR								SPEC				6045			
GRGain - Gamma Ray: Blanket															
Master (Time Frame File): 12:00:00 28-Jul-2014															
Measurement					Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div></div>				
Gamma Ray Calibration Gain						Master	1.0000	0.9000	1.0378	1.1000	<div><div></div><div></div><div></div><div></div><div></div></div>				

Company: Noble Energy

Well: Heartland G25-72-1HN

Field: Wattenberg

County: Weld

State: Colorado

Country: U.S.A



SlimPulse - Gamma Ray

1 in / 100 ft & 5 in / 100 ft True Verical Depth

Recorded Mode, Composite Log