

# DEPARTURE

## Energy Services (US) LP

1:240 MD



NGR NATURAL GAMMA RAY  
ROP RATE OF PENETRATION

Customer: BONANZA CREEK ENERGY INC  
Wellname: STATE ANTELOPE J14-F11-24HNB  
Surface LSD: SWSE 24 T5N R62W  
Field: WATTENBERG  
Country: UNITED STATES  
API Number: 05-123-36472-00  
Permit: ---

Company : BONANZA CREEK ENERGY INC  
Field : WATTENBERG  
Wellname : STATE ANTELOPE J14-F11-24HNB  
API : 05-123-36472-00  
Permit : ---  
Surface Location : SWSE 24 T5N R62W  
Field Gen. API : 05-123-36472-00  
State : COLORADO  
Job Number : 313002  
Surface Coordinates : 40.379160 N 104.276480 W  
Logging System Type : MWD Scintillation

Permanent Datum : GROUND LEVEL  
Dir. Surveys Measured From : KELLY BUSHING  
Log Measured From : KELLY BUSHING  
KB Elevation: 4579.00 ft  
DF Elevation: 4579.00 ft  
GL Elevation: 4562.00 ft

### Casing Summary

### Borehole Summary

Size (in)	From (ft MD)	To (ft MD)	Size (in)	From (ft MD)	To (ft MD)
9.630	0.00	470.00	13.500	0.00	470.00
177.800	0.00	6102.00	8.750	470.00	6524.00
			6.250	6524.00	10707.00

## RUN DATA

MWD Run Number	1	2	3	4
Start Date Time	16-Jan-13 06:30	17-Jan-13 21:30	19-Jan-13 18:46	22-Jan-13 19:30
End Date Time	16-Jan-13 15:00	19-Jan-13 17:30	21-Jan-13 23:00	26-Jan-13 21:30
Start Depth (ft MD)	0.00	470.00	5488.00	6524.00
End Depth (ft MD)	470.00	5488.00	6524.00	9872.00
Start Depth (ft TVD)	0.00	416.77	5410.89	6088.60
End Depth (ft TVD)	416.77	5410.89	6088.60	6080.47
Start / End Inclination	0.0 / 3.2	3.2 / 0.9	0.9 / 90.0	90.0 / 89.6
Drill or Wipe	Drill	Drill	Drill	Drill
Bit Type	DT1JMRS	VM416P2HR	VM416P2HR	VM416P2HR
Bit Size (in)	343.00	222.00	222	156
Flow Rate (gal/min)	500.0	500.0	500	300
Fluid Type	Water	Water	Water	Water
Density / Viscosity	8 / ---	9 / 30	10 / 45	9 / 30
Chlorides (mg / L)	---	1300	2000	1300
PV / YP	--- / ---	3.0 / 4.0	14.0 / 16.0	3.0 / 4.0
PH / Fluid Loss	--- / ---	9.6 / ---	9.1 / ---	9.6 / ---
Sand % / Solids %	--- / ---	1.0 / 7.1	0.3 / 7.7	1.0 / 7.1
Max MWD Temp °F	73	73	112	112
Lead LWD Engineer	Adam Stormer	Adam Stormer	Adam Stormer	Adam Stormer
Customer Representative	John Bradley	John Bradley	John Bradley	John Bradley
Geologist	---	---	Paul McKay	Paul McKay
Geologist	---	---	---	---

## TOOL DATA

MWD System Type	Mud Pulse	Mud Pulse	Mud Pulse	Mud Pulse
MWD System Size	650	650	650	475
Surface Software Ver.	1.00.0316	1.00.0316	1.00.0316	1.00.0316
Transmitter SN	499	499	397	438
Directional Sensor SN	274	274	284	7001
Gamma Sensor SN	---	---	112	111
Dir Sensor to Bit (ft)	53.00	50.00	53.00	65.00
Gamma to Bit (ft)	32.77	28.86	37.00	54.22
Gamma Calibration	---	---	1.000	1.000
Collar Attenuation Factor	---	---	3.080	2.160

## RUN DATA

MWD Run Number	5			
Start Date Time	26-Jan-13 23:30			
End Date Time	29-Jan-13 03:00			
Start Depth (ft MD)	9872.00			
End Depth (ft MD)	10707.00			
Start Depth (ft TVD)	6080.47			
End Depth (ft TVD)	6084.92			
Start / End Inclination	89.6 / 90.1			
Drill or Wipe	Drill			
Bit Type	VM416P2HR			
Bit Size (in)	156.00			
Flow Rate (m3/min)	300.0			
Fluid Type	Water			
Density / Viscosity	10 / 40			
Chlorides (mg / L)	1900			
PV / YP	15.0 / 9.0			
PH / Fluid Loss	9.7 / 118.2			
Sand % / Solids %	0.5 / 8.3			
Max MWD Temp °F	217			
Lead LWD Engineer	Adam Stormer			
Customer Representative	John Bradley			
Geologist	Paul McKay			
Geologist	---			

## TOOL DATA

MWD System Type	Mud Pulse			
MWD System Size	475			
Surface Software Ver.	1.00.0316			
Transmitter SN	397			
Directional Sensor SN	284			
Gamma Sensor SN	112			
Dir Sensor to Bit (ft)	50.00			
Gamma to Bit (ft)	38.50			
Gamma Calibration	1.000			
Collar Attenuation Factor	2.140			

## REMARKS

1. All Survey and Logging Depths were Acquired from Pason / Rig Pipe Tally.
2. Last Survey is an Extrapolation to the Bit.

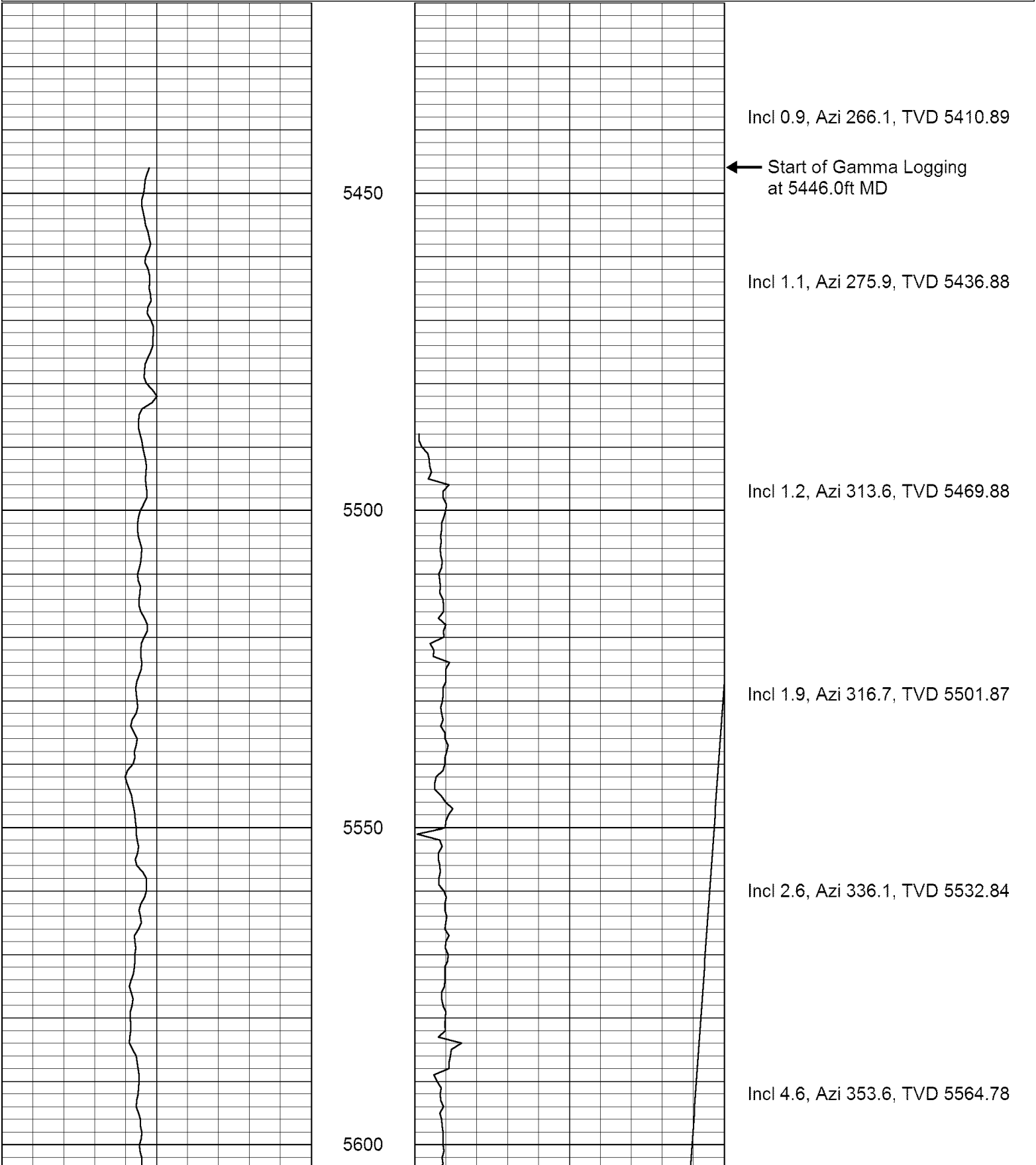
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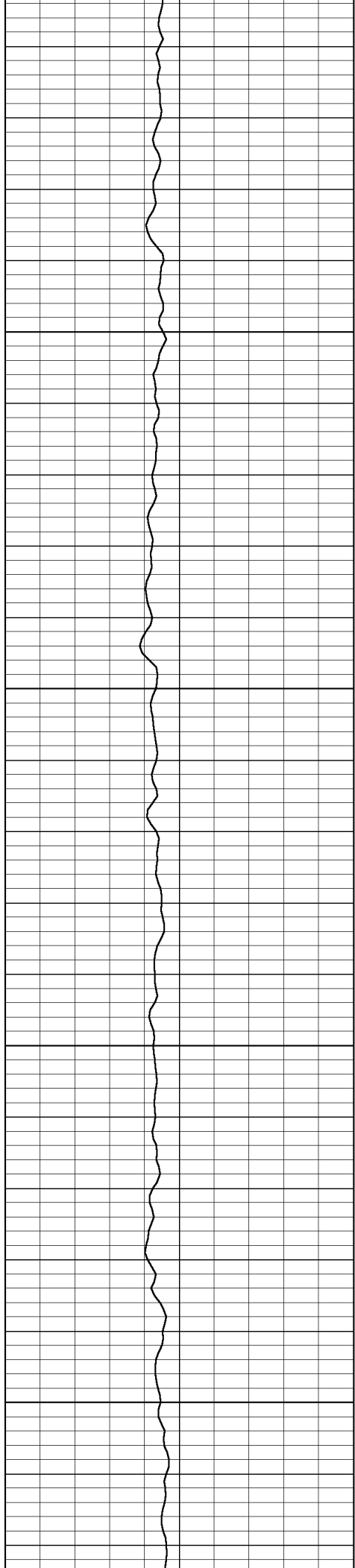
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Database File: 313002\_md.db  
Dataset Pathname: ../cmp3  
Presentation Format: us240md  
Dataset Creation: Mon Jan 28 16:25:03 2013  
Charted by: Depth in Feet scaled 1:240

0	Gamma Ray (API)	200
200	Gamma Ray (API)	600

0	ROP (ft/hr)	500
6200	TVD (ft)	5500



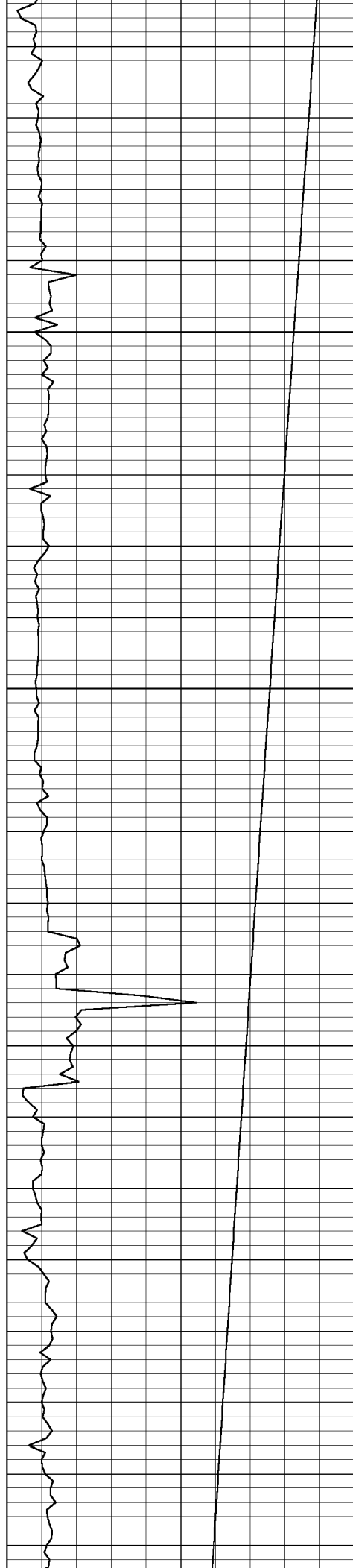


5650

5700

5750

5800



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Incl 11.3, Azi 3.5, TVD 5628.13

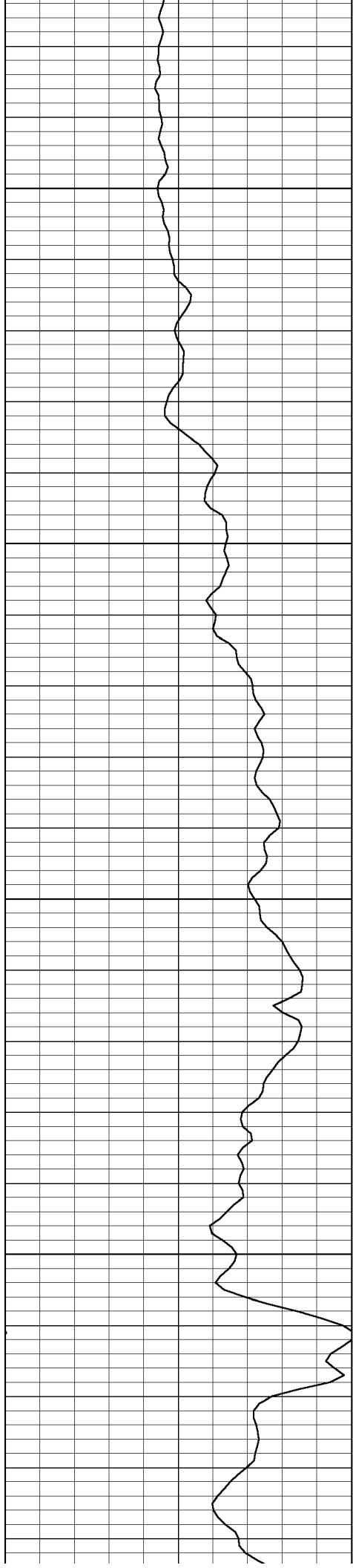
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Incl 17.2, Azi 5.9, TVD 5690.12

Incl 18.7, Azi 5.9, TVD 5720.56

Incl 21.8, Azi 8.8, TVD 5750.58

Incl 25.7, Azi 11.2, TVD 5784.44

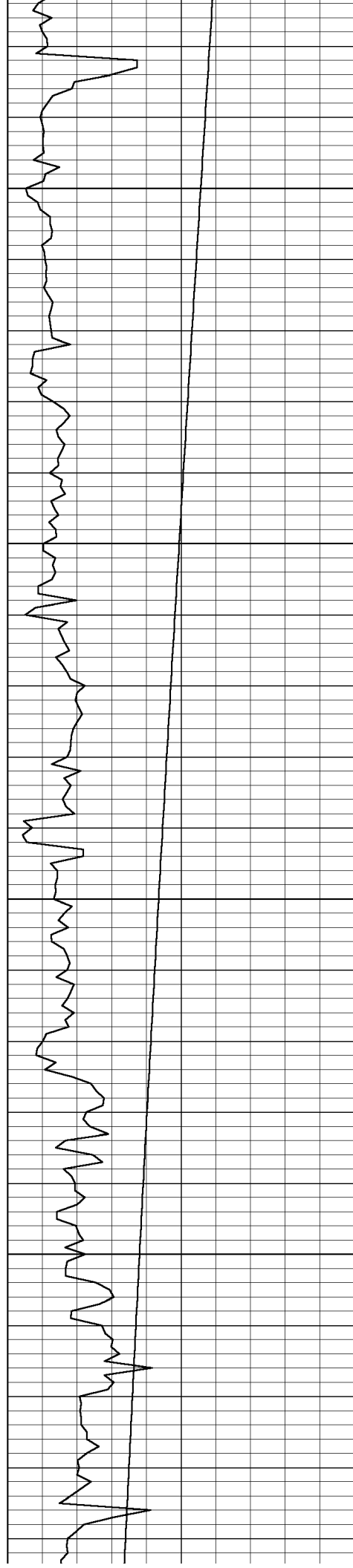


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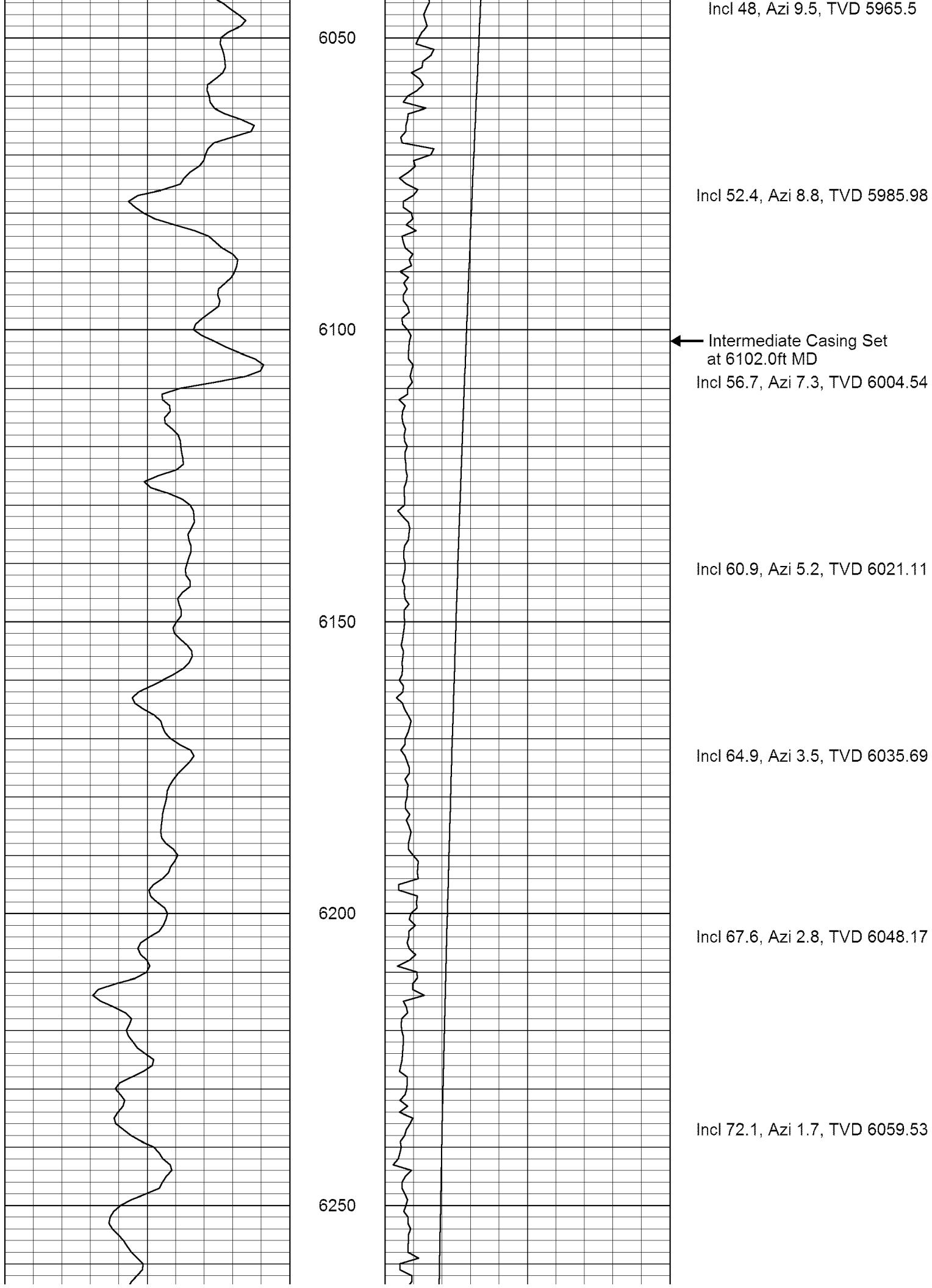
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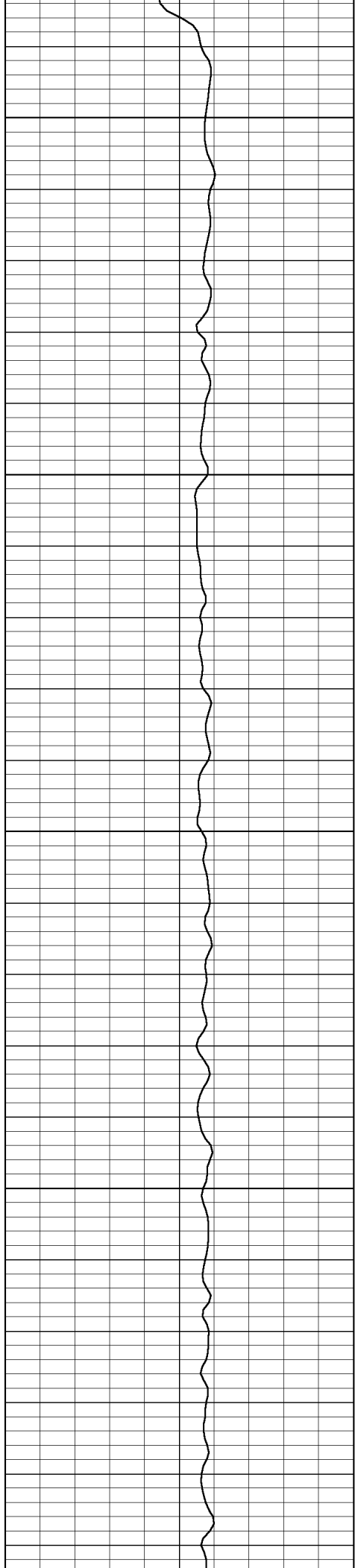
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Incl 44.2, Azi 9.5, TVD 5943.32







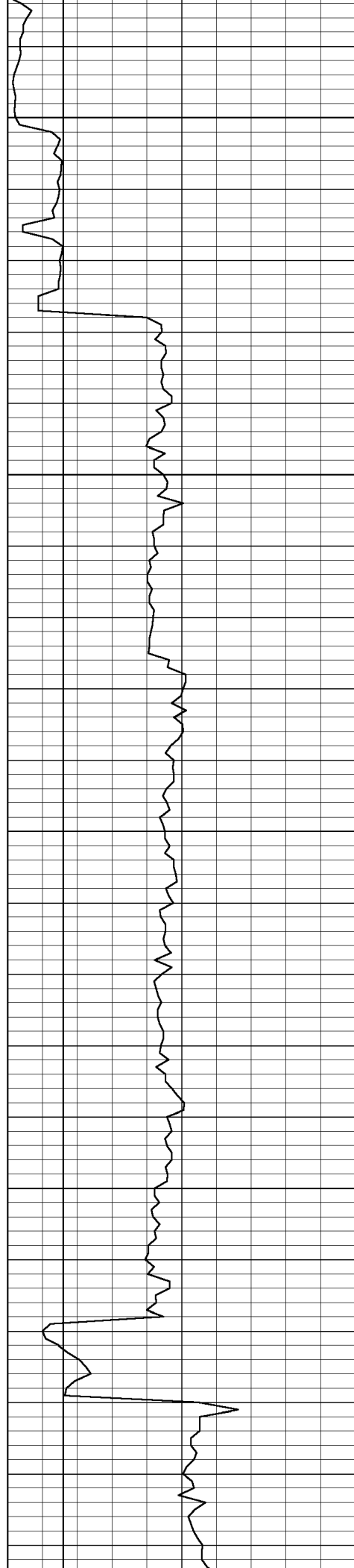
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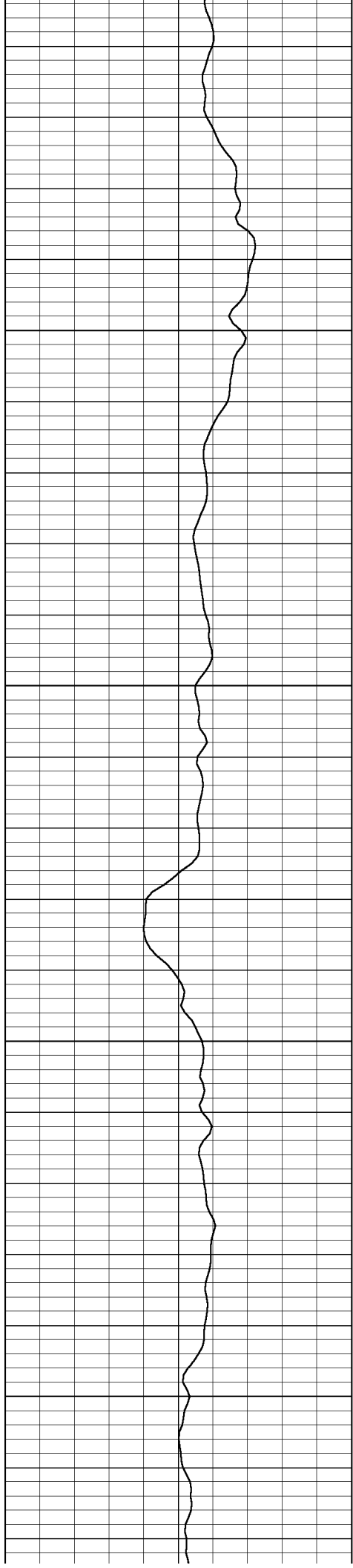
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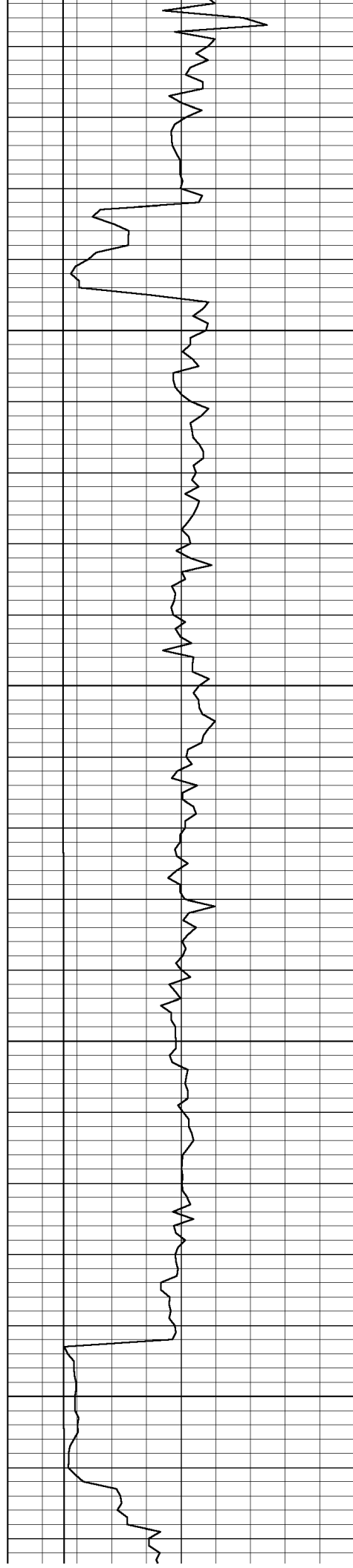


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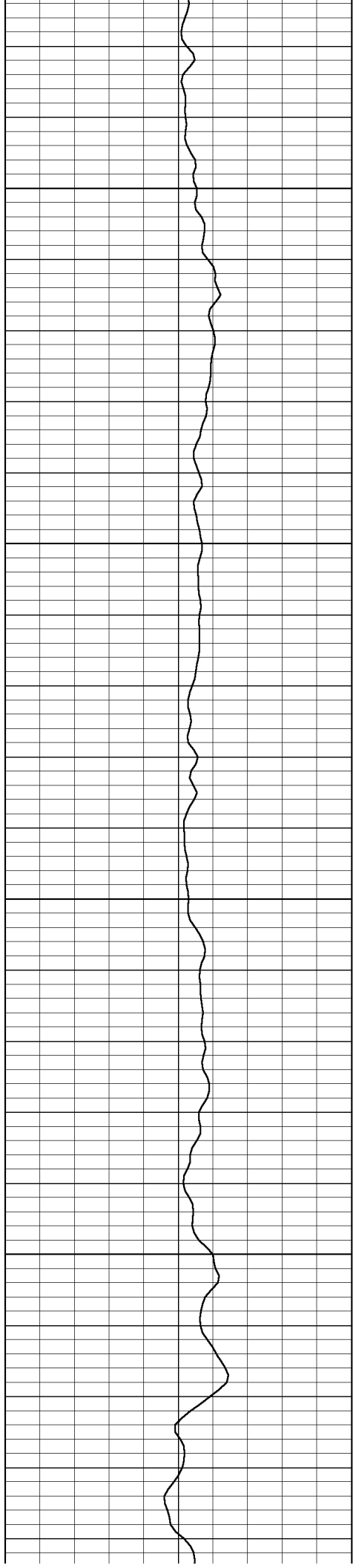
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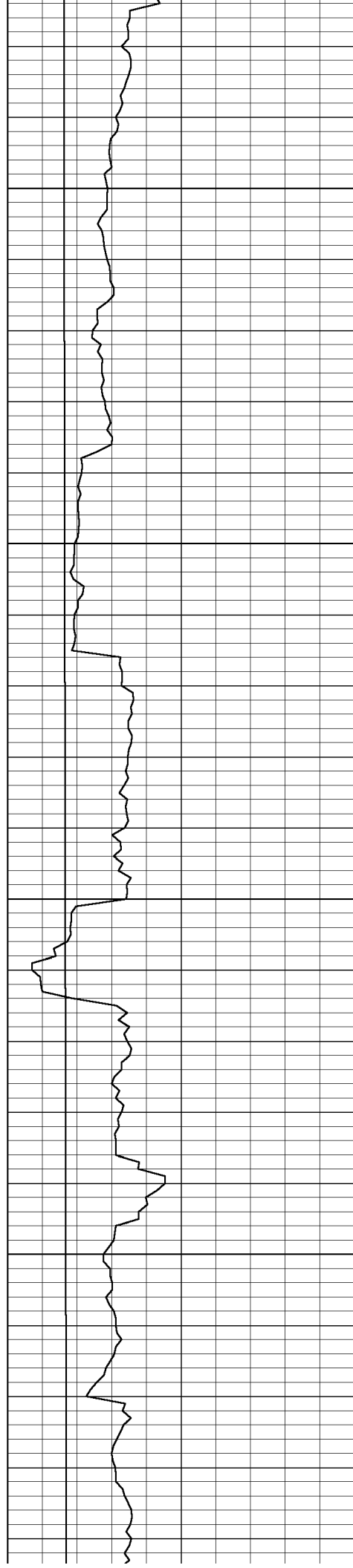


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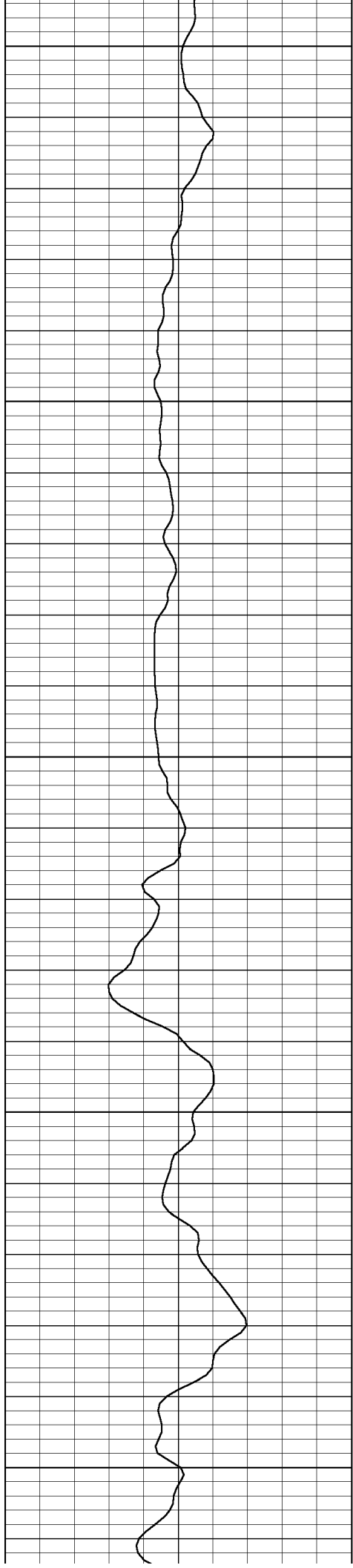
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Incl 91.8, Azi 2.1, TVD 6082.64



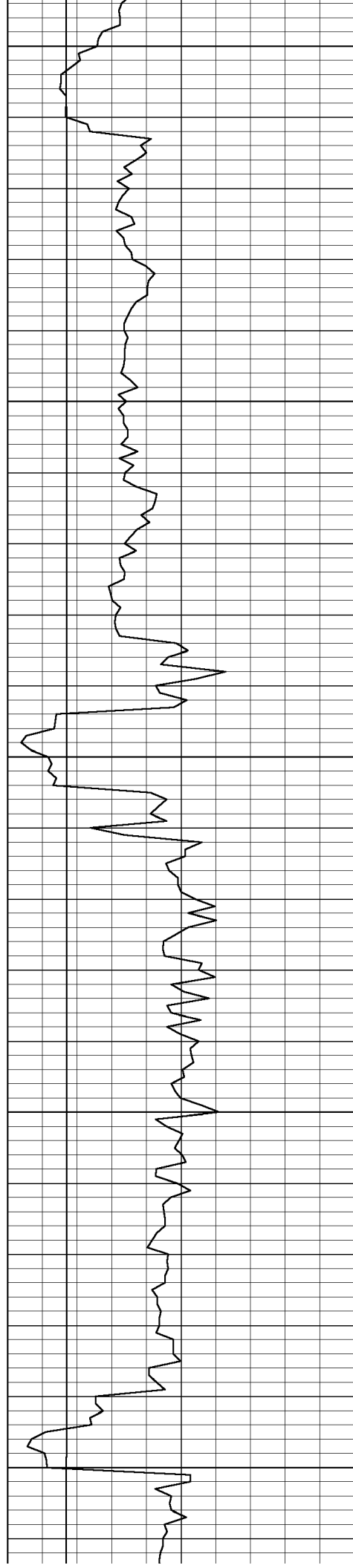
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Incl 90.1, Azi 2.4, TVD 6080.06

Incl 88.3, Azi 1.7, TVD 6081.38

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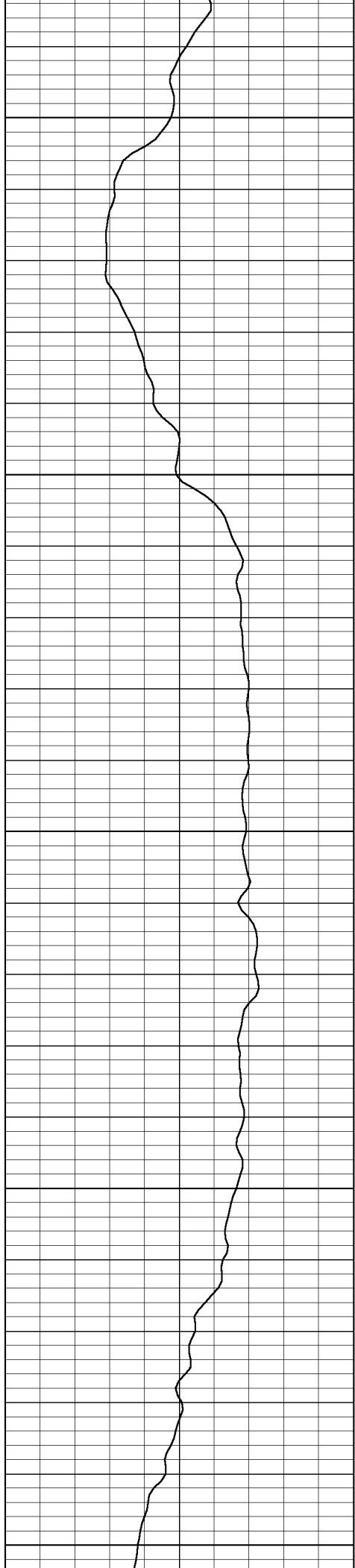
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Incl 92, Azi 358.6, TVD 6078.28



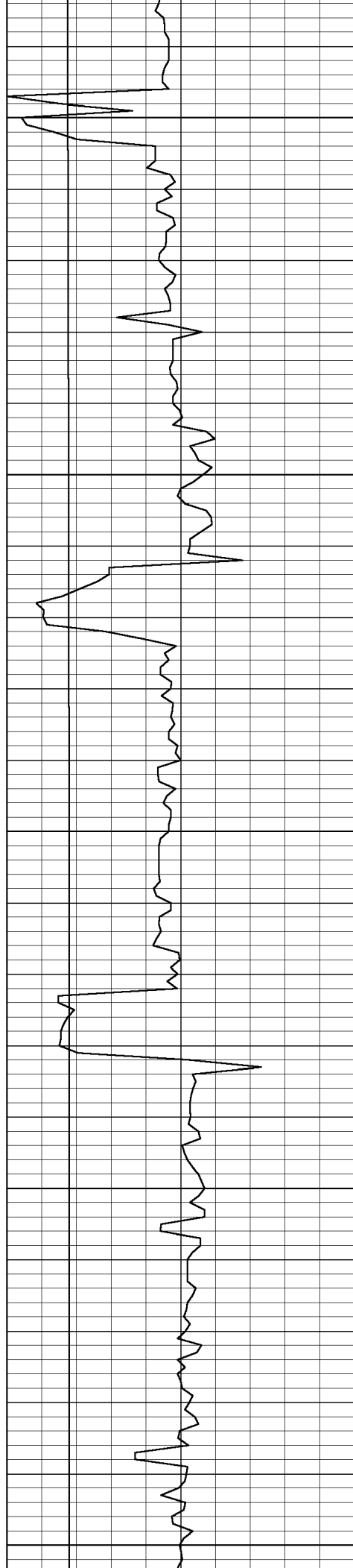
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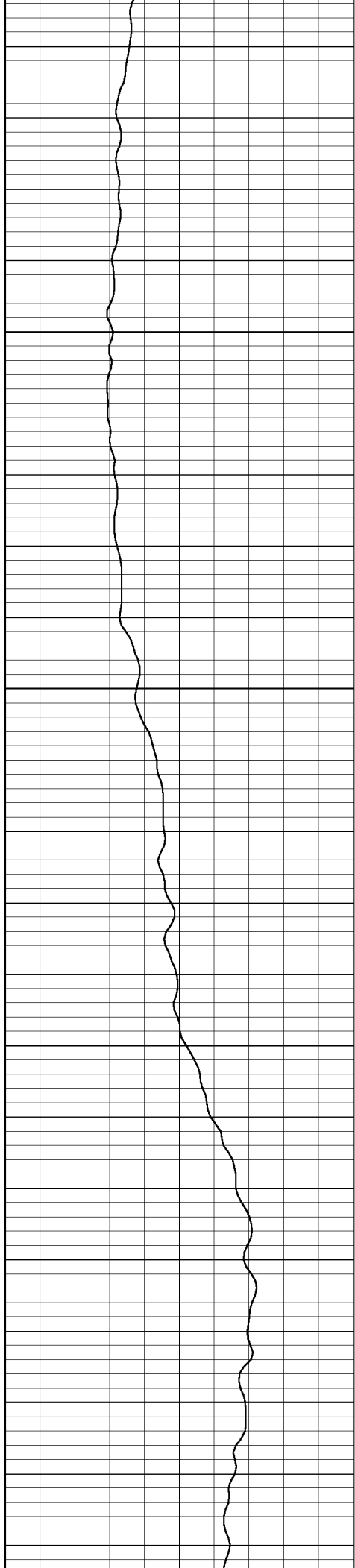
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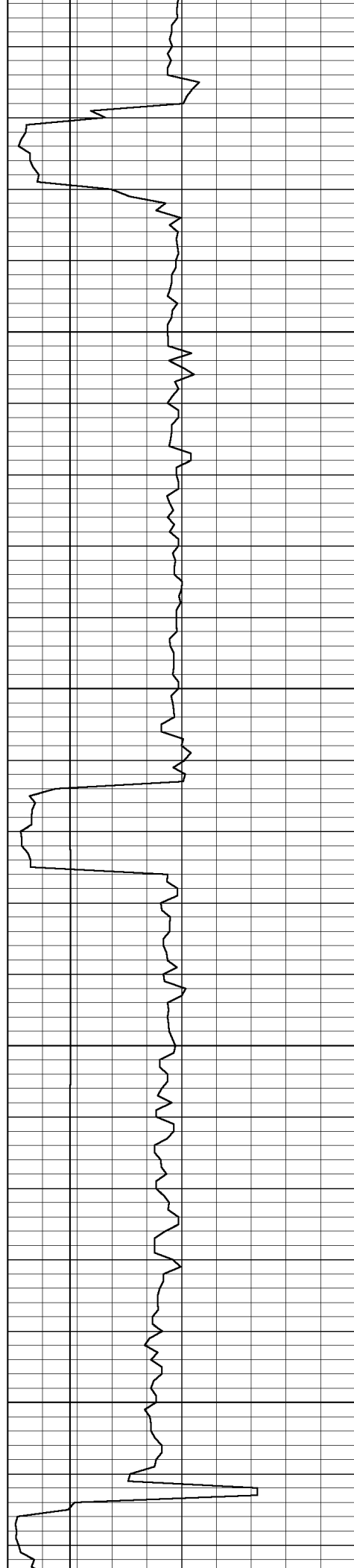


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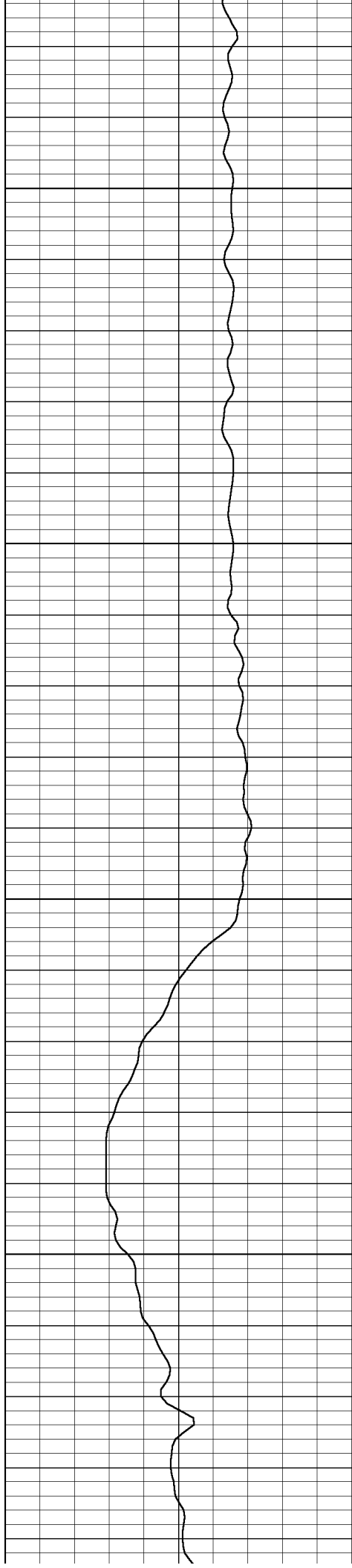
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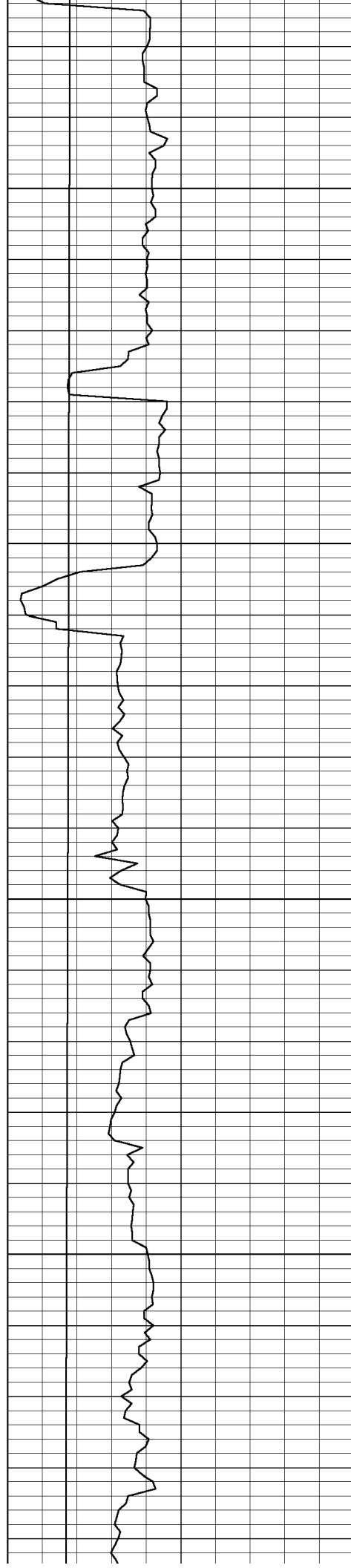


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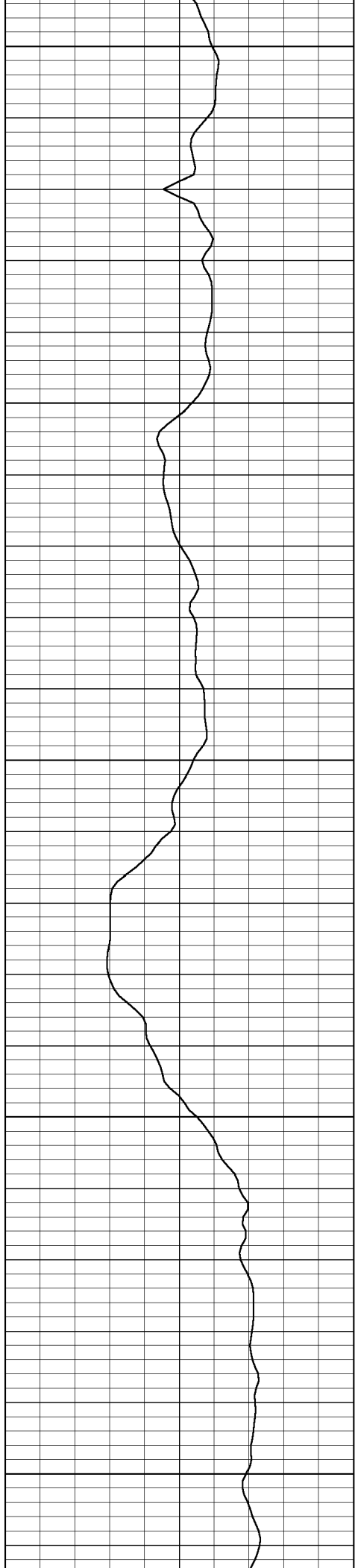
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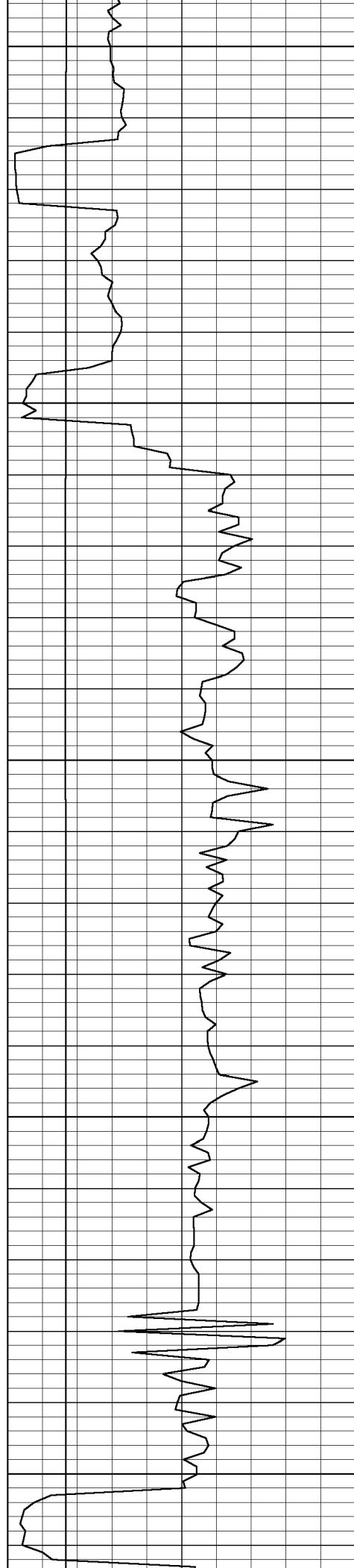
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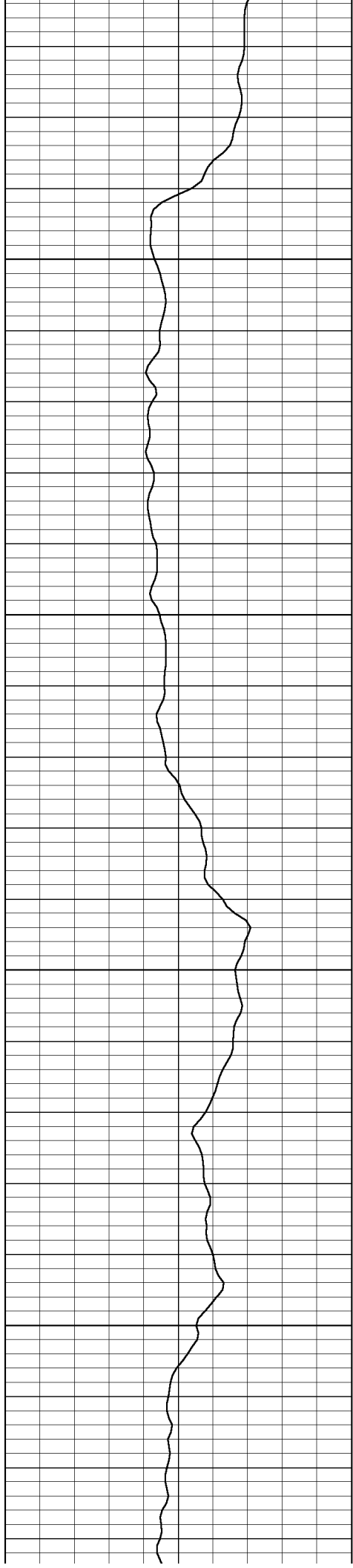
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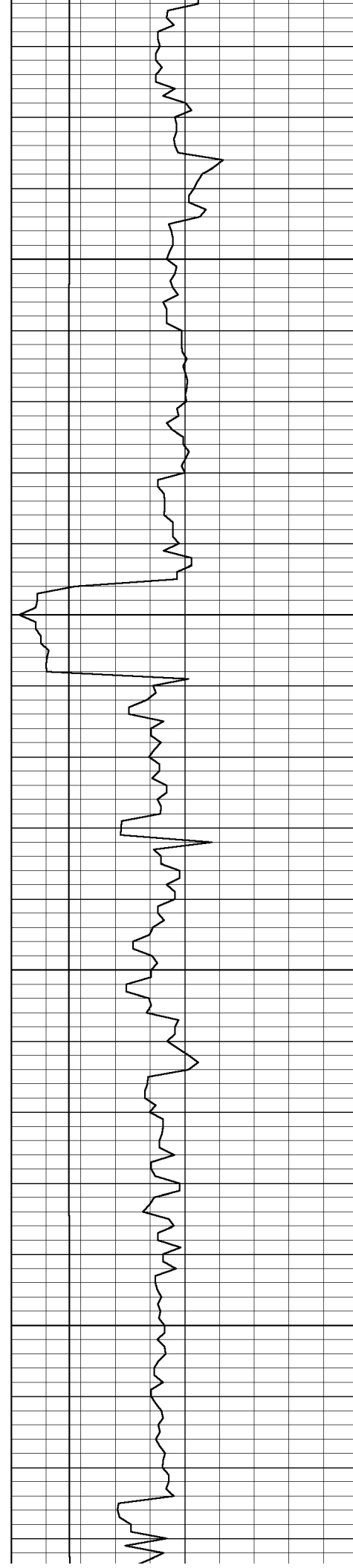


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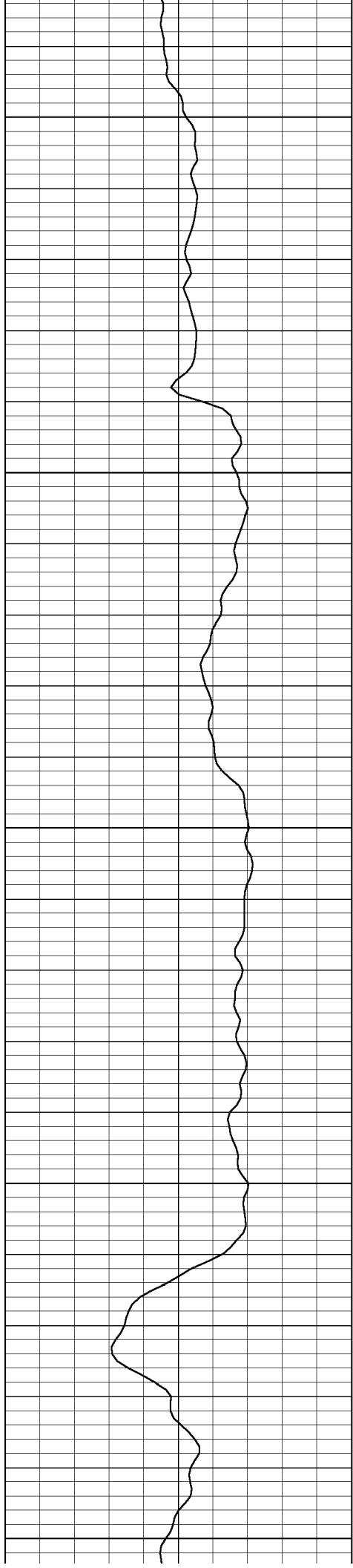
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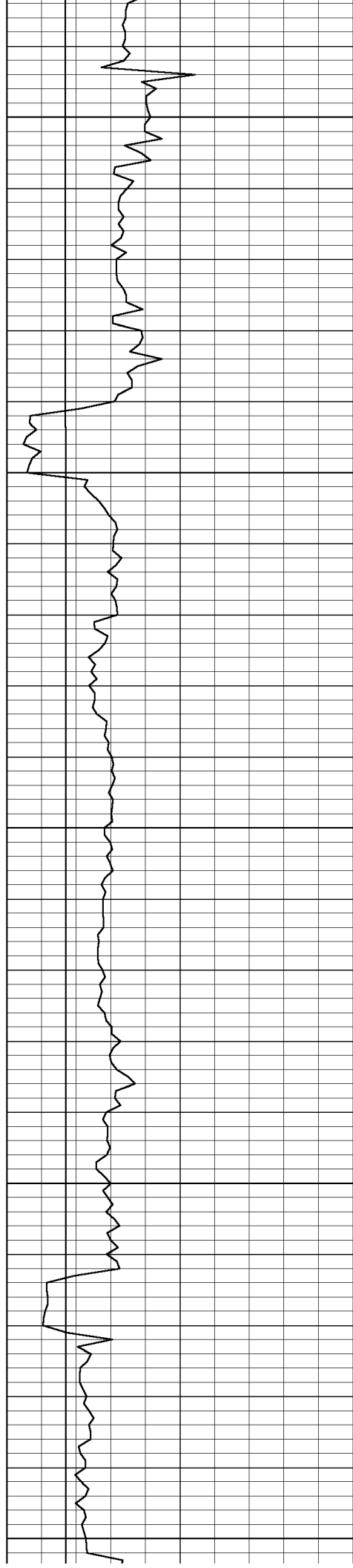
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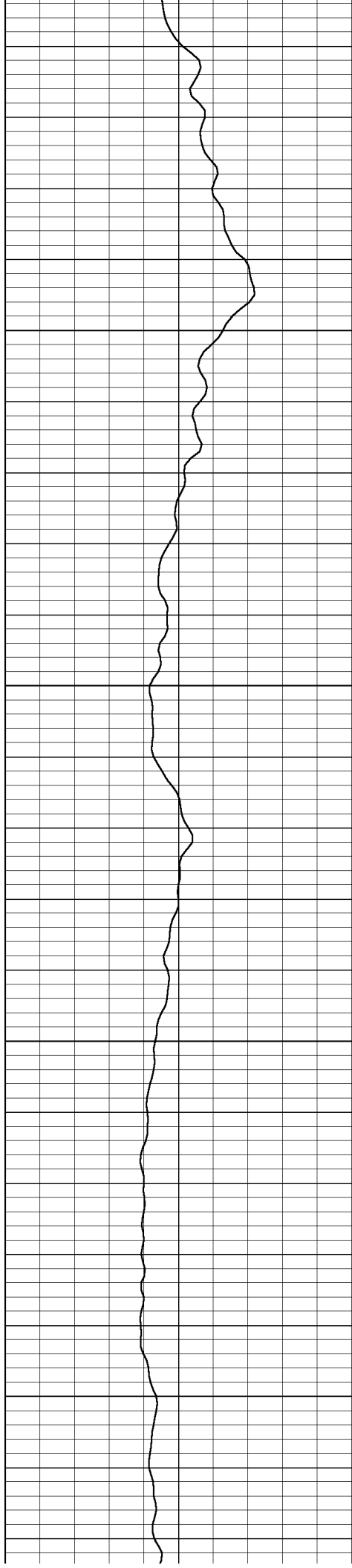
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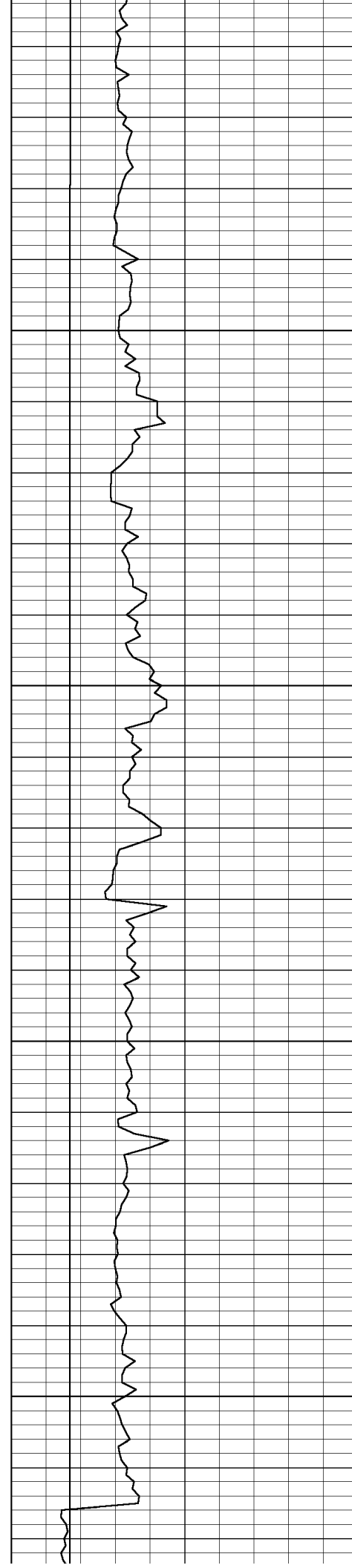


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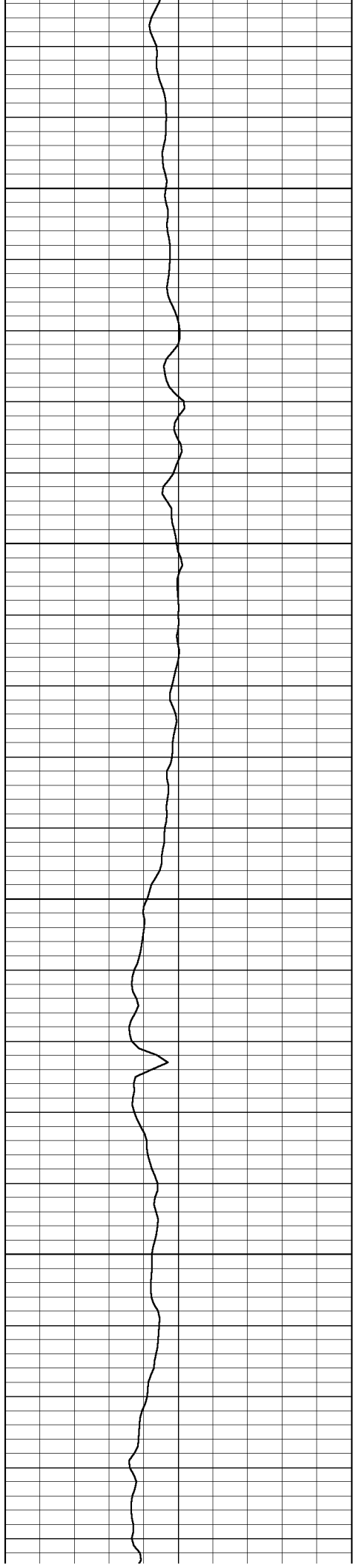
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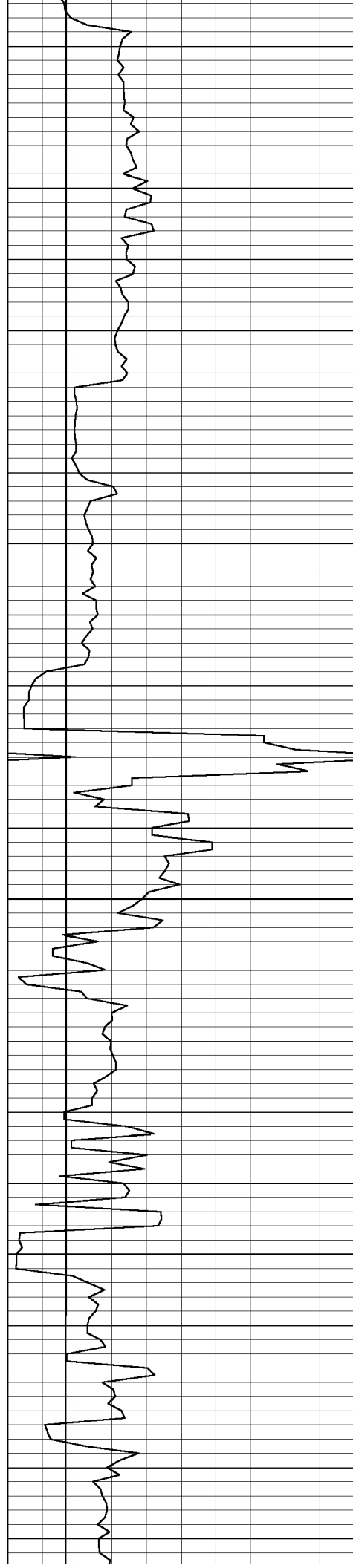


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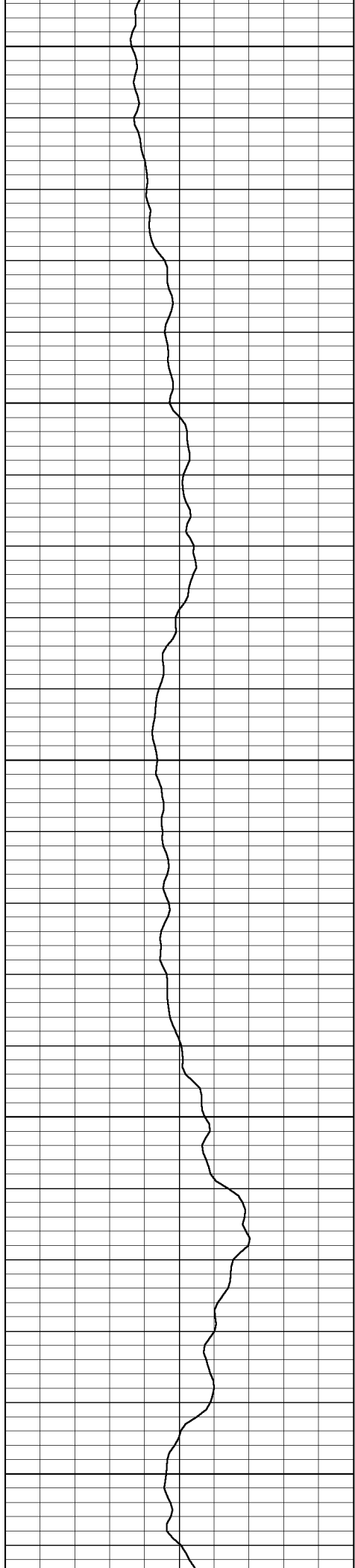
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Incl 88.7, Azi 1, TVD 6081.73



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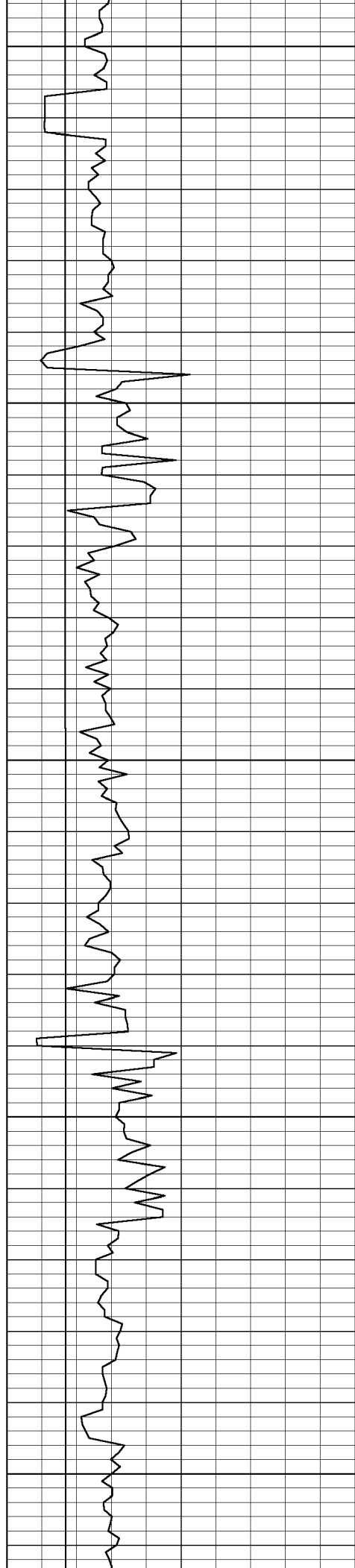
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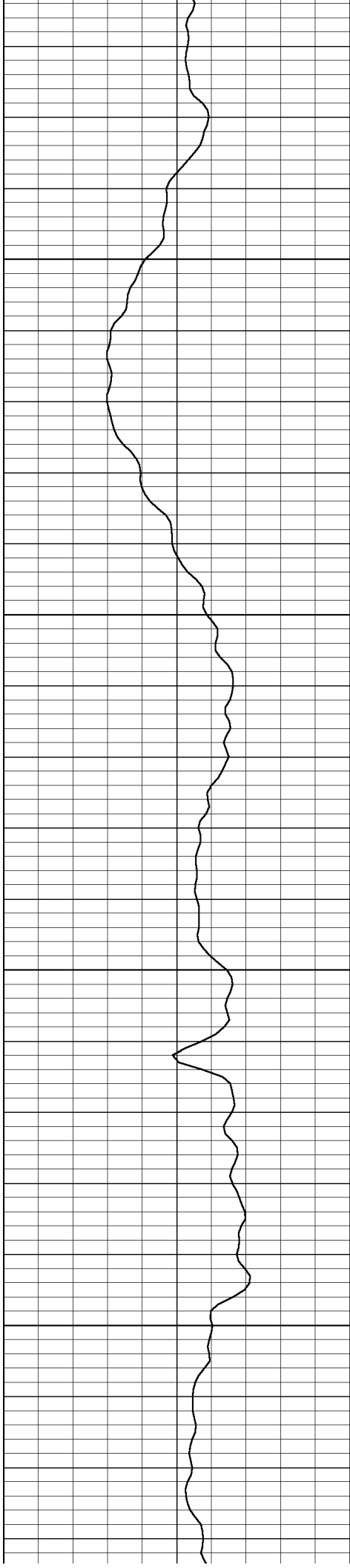
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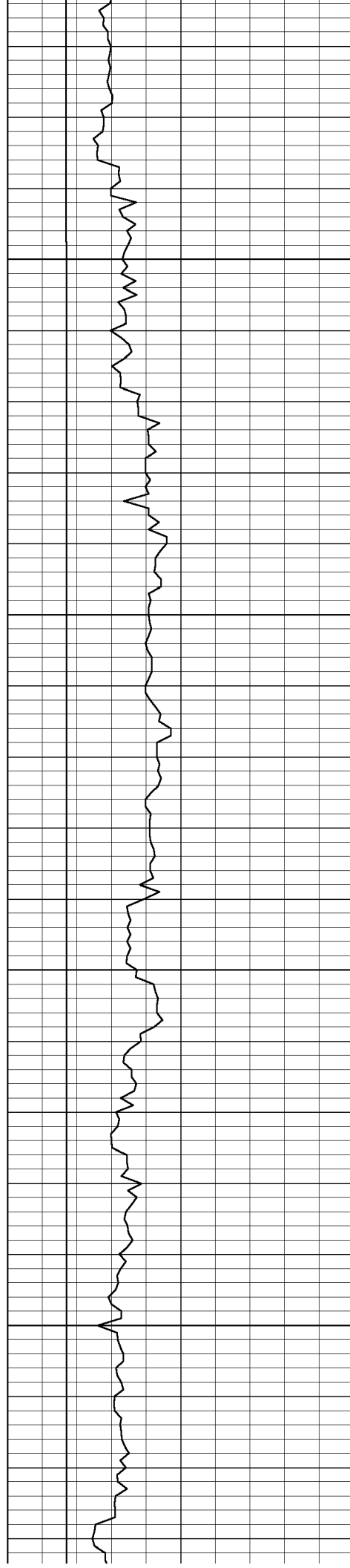


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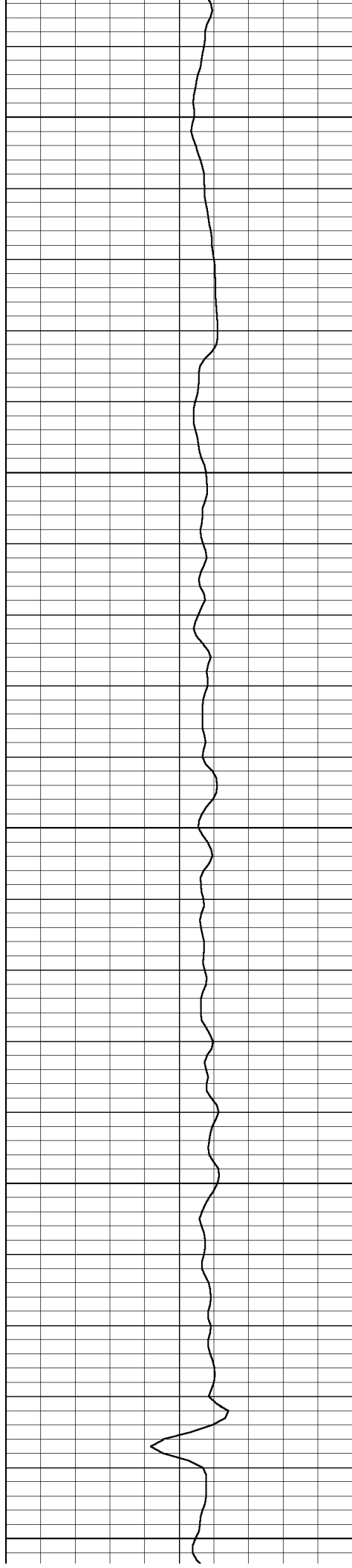
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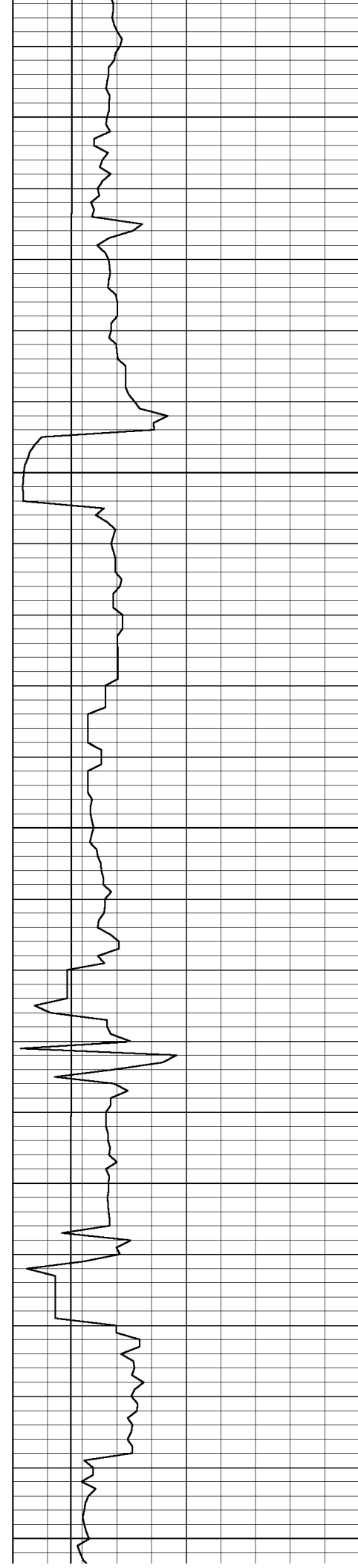
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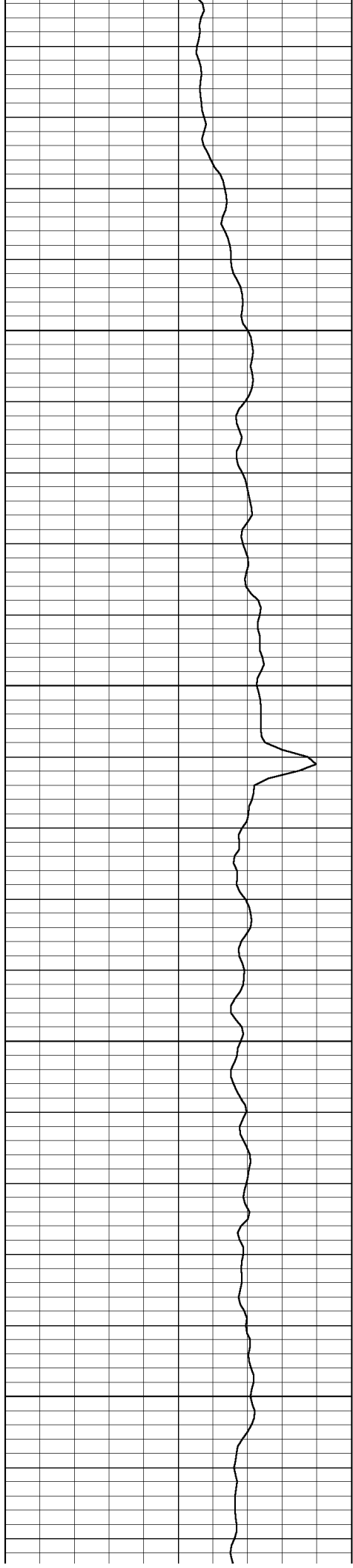
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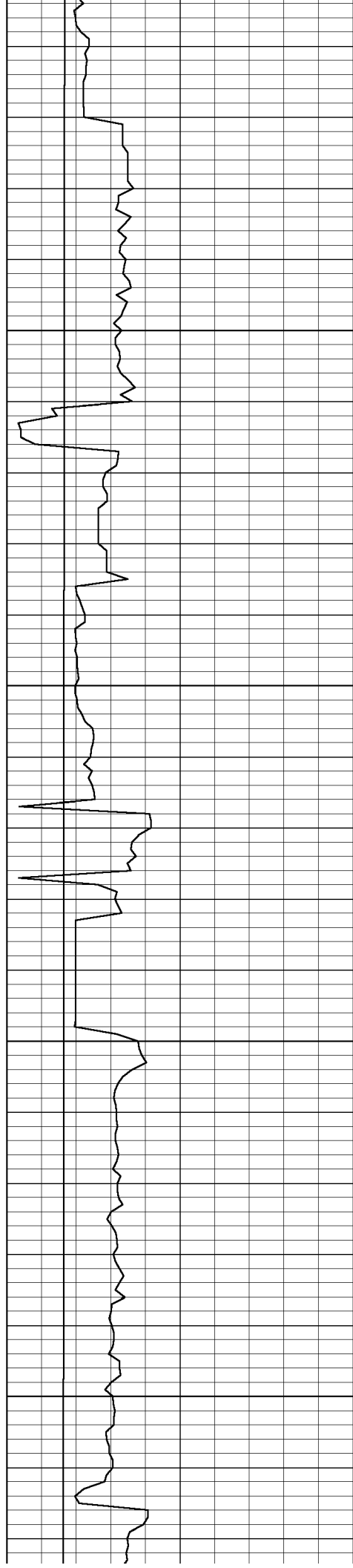


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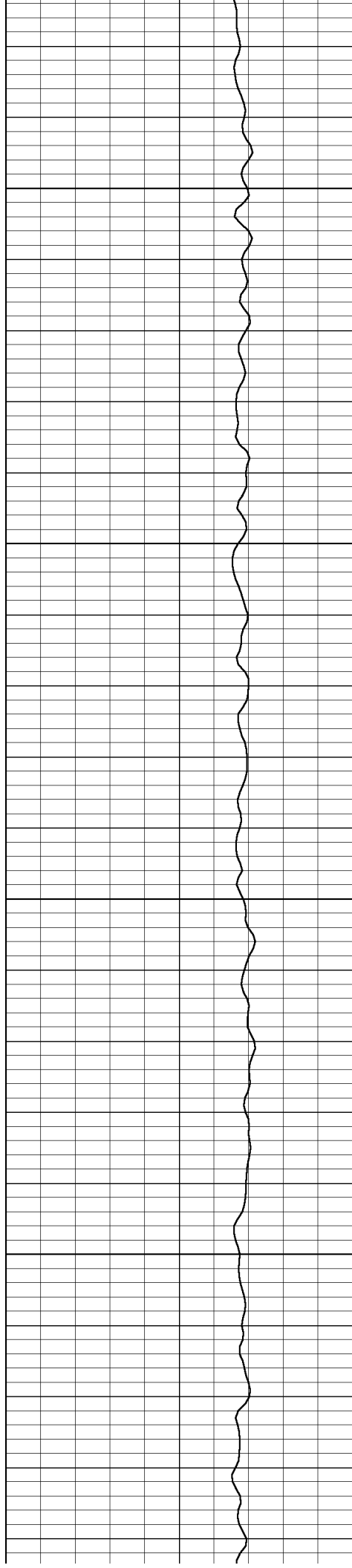
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Incl 89.7, Azi 358.2, TVD 6085.42

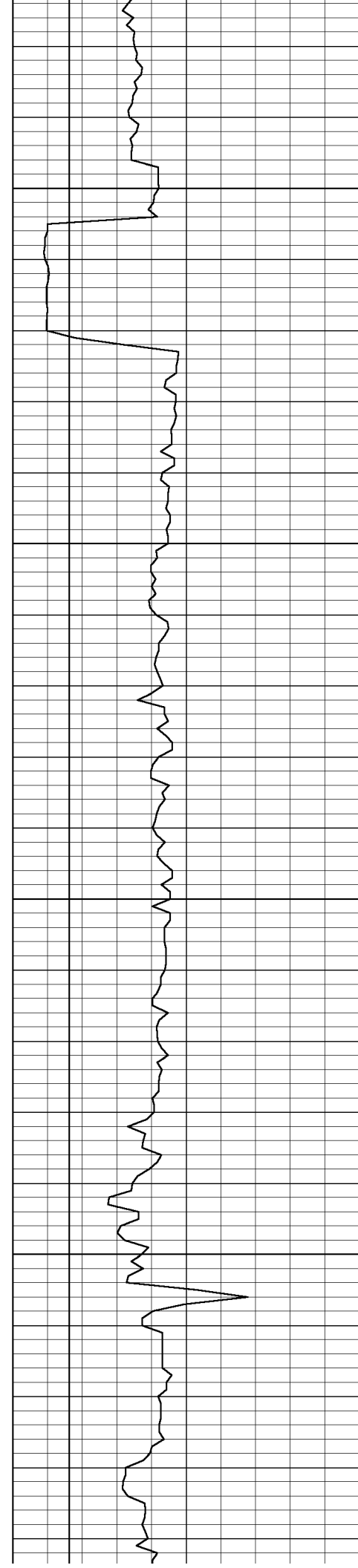


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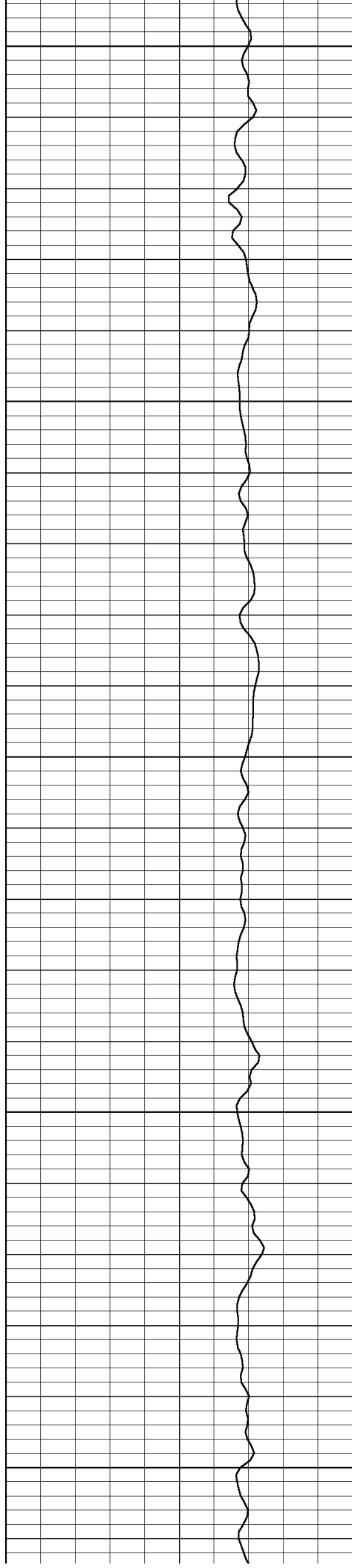
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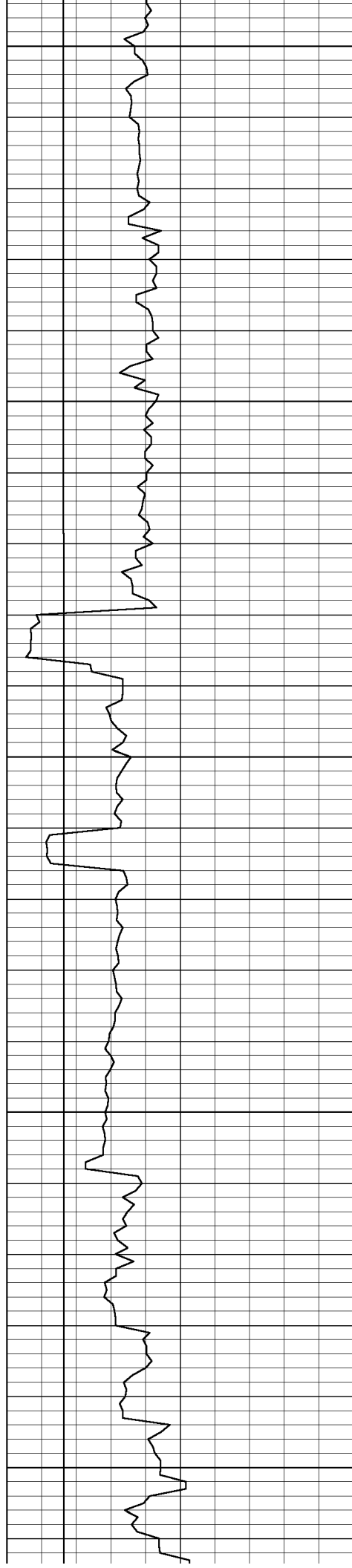
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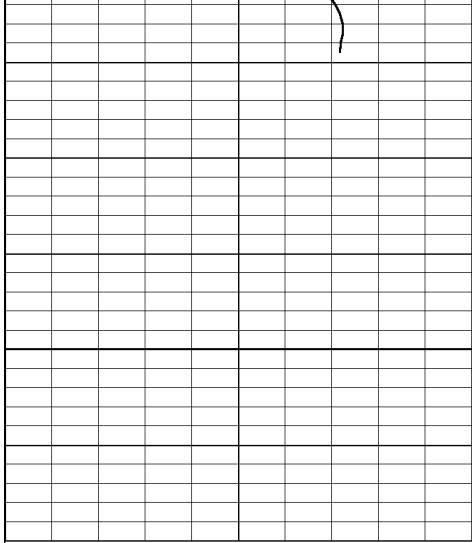
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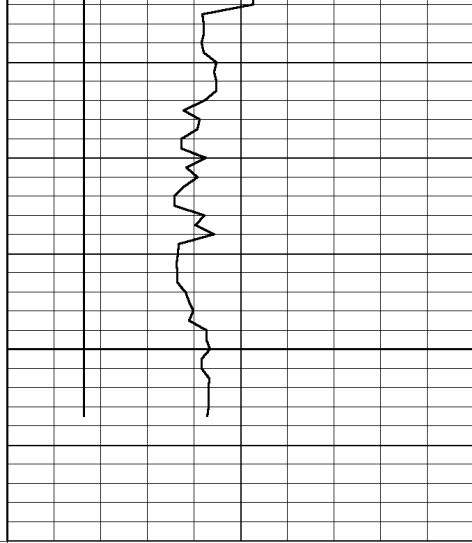
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Incl 90.1, Azi 0, TVD 6085



0	Gamma Ray (API)	200
200	Gamma Ray (API)	600

10700



0	ROP (ft/hr)	500
6200	TVD (ft)	5500

← End of Gamma Logging  
at 10669.0ft MD

← End of Well at 10707.0ft MD  
Incl 90.1, Azi 0, TVD 6084.92

**Surveys**

Measured Depth Feet	Inclination Angle Degrees	Azimuth Angle Degrees	True Vertical Depth	Latitude North Feet	Departure East Feet	Dogleg Severity % / 100 ft	Vertical Section Feet
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
88.00	0.90	268.90	88.00	-0.01	-0.69	1.02	0.02
149.00	1.20	258.00	148.99	-0.16	-1.79	0.59	-0.07
210.00	1.60	252.70	209.97	-0.54	-3.23	0.69	-0.39
270.00	2.30	242.20	269.93	-1.35	-5.10	1.31	-1.12
331.00	2.60	246.10	330.88	-2.48	-7.45	0.56	-2.14
417.00	3.20	240.40	416.77	-4.46	-11.32	0.77	-3.94
514.00	3.90	242.20	513.58	-7.34	-16.59	0.73	-6.58
544.00	4.00	239.70	543.51	-8.34	-18.39	0.66	-7.50
575.00	4.80	243.90	574.42	-9.45	-20.49	2.78	-8.52
605.00	5.50	240.10	604.30	-10.72	-22.87	2.59	-9.68
635.00	6.20	240.40	634.14	-12.24	-25.52	2.34	-11.07
667.00	7.00	240.40	665.93	-14.06	-28.72	2.50	-12.74
699.00	8.40	239.70	697.64	-16.20	-32.43	4.38	-14.71
730.00	9.00	236.20	728.28	-18.69	-36.40	2.58	-17.02
791.00	9.10	235.90	788.52	-24.05	-44.36	0.18	-22.01
852.00	9.90	239.70	848.69	-29.40	-52.88	1.67	-26.97
914.00	10.00	239.70	909.75	-34.80	-62.13	0.16	-31.95
975.00	10.00	241.80	969.83	-39.98	-71.37	0.60	-36.70
1037.00	9.50	240.80	1030.93	-45.02	-80.58	0.85	-41.32
1096.00	9.50	241.10	1089.12	-49.75	-89.10	0.08	-45.66
1159.00	9.70	243.60	1151.24	-54.62	-98.40	0.73	-50.10
1221.00	9.30	242.50	1212.39	-59.26	-107.52	0.71	-54.32
1282.00	9.90	240.80	1272.53	-64.09	-116.47	1.09	-58.74
1374.00	9.90	240.80	1363.16	-71.81	-130.28	0.00	-65.82
1467.00	9.00	239.00	1454.90	-79.45	-143.50	1.02	-72.86
1559.00	7.60	237.60	1545.94	-86.42	-154.80	1.54	-79.31
1622.00	8.40	235.20	1608.32	-91.28	-162.10	1.38	-83.83
1715.00	9.30	238.30	1700.22	-99.10	-174.07	1.09	-91.11
1809.00	10.20	235.20	1792.86	-107.85	-187.37	1.11	-99.24
1902.00	10.70	241.10	1884.32	-116.72	-201.69	1.27	-107.45
1995.00	10.40	243.60	1975.75	-124.62	-216.76	0.59	-114.66
2088.00	9.30	242.50	2067.37	-131.83	-230.95	1.20	-121.21
2181.00	9.90	234.80	2159.07	-139.90	-244.15	1.52	-128.69
2273.00	9.10	234.10	2249.81	-148.73	-256.50	0.88	-136.94
2367.00	8.40	234.10	2342.72	-157.11	-268.09	0.74	-144.79
2461.00	8.30	240.10	2435.72	-164.52	-279.53	0.93	-151.67
2555.00	6.00	241.50	2528.99	-170.25	-289.73	2.45	-156.93
2648.00	4.80	249.60	2621.57	-173.93	-297.65	1.53	-160.24
2741.00	3.90	227.80	2714.31	-177.41	-303.64	2.01	-163.45
2835.00	2.60	255.20	2808.16	-180.10	-308.07	2.12	-165.94
2929.00	0.40	275.60	2902.12	-180.61	-310.46	2.37	-166.34
3023.00	0.40	321.30	2996.12	-180.32	-310.99	0.33	-166.03
3118.00	0.40	127.20	3091.12	-180.26	-310.93	0.84	-165.97
3210.00	1.10	91.70	3183.11	-180.49	-309.79	0.88	-166.25
3304.00	0.90	85.00	3277.10	-180.45	-308.16	0.25	-166.28
3398.00	0.40	108.60	3371.09	-180.49	-307.11	0.59	-166.37
3492.00	0.50	93.10	3465.09	-180.61	-306.39	0.17	-166.53
3586.00	1.10	31.30	3559.08	-179.87	-305.51	1.03	-165.82
3680.00	1.10	353.60	3653.07	-178.20	-305.14	0.76	-164.17
3775.00	1.10	325.50	3748.05	-176.54	-305.76	0.56	-162.49
3870.00	1.10	317.80	3843.03	-175.11	-306.89	0.16	-161.01
3966.00	1.10	310.00	3939.01	-173.84	-308.22	0.16	-159.68
4061.00	0.90	303.70	4034.00	-172.84	-309.54	0.24	-158.62
4157.00	1.10	305.80	4129.98	-171.88	-310.91	0.21	-157.60
4254.00	1.10	292.10	4226.97	-170.99	-312.53	0.27	-156.63
4349.00	0.50	347.70	4321.96	-170.24	-313.46	0.96	-155.84
4445.00	0.40	105.10	4417.96	-169.92	-313.23	0.80	-155.53
4541.00	0.40	41.40	4513.95	-169.75	-312.68	0.44	-155.39
4638.00	0.90	167.30	4610.95	-170.24	-312.29	1.22	-155.90
4734.00	0.40	146.90	4706.94	-171.26	-311.94	0.57	-156.93
4830.00	0.40	173.60	4802.94	-171.87	-311.72	0.19	-157.55
4926.00	0.40	269.60	4898.94	-172.21	-312.02	0.62	-157.88
5022.00	0.70	318.10	4994.94	-171.77	-312.75	0.55	-157.41
5118.00	1.20	339.90	5090.92	-170.39	-313.48	0.63	-156.00
5214.00	0.90	353.30	5186.91	-168.70	-313.92	0.40	-154.29
5310.00	0.40	328.00	5282.90	-167.67	-314.18	0.59	-153.24
5406.00	1.10	265.70	5378.89	-167.45	-315.28	1.02	-152.98
5438.00	0.90	266.10	5410.89	-167.49	-315.83	0.63	-152.99
5464.00	1.10	275.90	5436.88	-167.48	-316.29	1.01	-152.96
5497.00	1.20	313.60	5469.88	-167.21	-316.85	2.27	-152.66
5529.00	1.90	316.70	5501.87	-166.59	-317.46	2.20	-152.02
5560.00	2.60	336.10	5532.84	-165.57	-318.10	3.31	-150.97
5592.00	4.60	353.60	5564.78	-163.64	-318.53	7.06	-149.02
5624.00	7.90	2.10	5596.59	-160.16	-318.60	10.68	-145.54
5656.00	11.30	3.50	5628.13	-154.83	-318.32	10.65	-140.23
5688.00	14.40	4.50	5659.33	-147.74	-317.82	9.71	-133.17
5720.00	17.20	5.90	5690.12	-139.06	-317.02	8.83	-124.54
5752.00	18.70	5.90	5720.56	-129.25	-316.01	4.69	-114.78
5784.00	21.80	8.80	5750.58	-118.27	-314.57	10.18	-103.88
5821.00	25.70	11.20	5784.44	-103.61	-311.96	10.86	-89.35
5853.00	27.30	13.00	5813.07	-89.65	-308.96	5.59	-75.54
5885.00	30.40	12.30	5841.10	-74.59	-305.59	9.74	-60.65
5917.00	33.30	9.80	5868.28	-58.01	-302.36	9.95	-44.24
5949.00	36.60	8.80	5894.50	-39.93	-299.41	10.47	-26.30
5981.00	40.10	9.10	5919.60	-20.32	-296.32	10.95	-6.85
6013.00	44.20	9.50	5943.32	0.87	-292.85	12.84	14.15
6045.00	48.00	9.50	5965.50	23.61	-289.04	11.87	36.70
6077.00	52.40	8.80	5985.98	47.87	-285.14	13.85	60.76
6109.00	56.70	7.30	6004.54	73.68	-281.50	13.97	86.37
6141.00	60.90	5.20	6021.11	100.88	-278.53	14.27	113.41
6173.00	64.90	3.50	6035.69	129.28	-276.38	13.36	141.68
6204.00	67.60	2.80	6048.17	157.61	-274.82	8.95	169.91
6237.00	72.10	1.70	6059.53	188.56	-273.61	13.99	200.77
6269.00	76.50	1.40	6068.19	219.34	-272.78	13.78	231.49
6301.00	80.60	2.40	6074.54	250.68	-271.73	13.17	262.75
6333.00	83.60	2.80	6078.94	282.34	-270.30	9.46	294.31
6365.00	86.90	3.50	6081.59	314.18	-268.54	10.54	326.04
6397.00	86.90	2.80	6083.32	346.08	-266.79	2.18	357.83
6429.00	86.70	2.10	6085.11	378.01	-265.42	2.27	389.66
6461.00	86.90	1.40	6086.89	409.94	-264.45	2.27	421.51
6508.00	90.40	2.80	6088.00	456.89	-262.72	8.02	468.33
6604.00	90.10	1.70	6087.58	552.81	-258.95	1.19	563.99
6700.00	89.60	1.00	6087.83	648.78	-256.69	0.90	659.76
6796.00	90.60	0.70	6087.67	744.77	-255.27	1.09	755.58
6892.00	90.80	0.70	6086.49	840.76	-254.10	0.21	851.42
6988.00	91.00	0.30	6084.98	936.74	-253.26	0.47	947.26
7084.00	91.80	2.10	6082.64	1032.69	-251.25	2.05	1043.02
7179.00	90.60	1.70	6080.65	1127.61	-248.10	1.33	1137.70
7276.00	90.10	2.40	6080.06	1224.55	-244.63	0.89	1234.38
7371.00	88.30	1.70	6081.38	1319.47	-241.23	2.03	1329.06
7467.00	91.70	0.00	6081.38	1415.44	-239.81	3.96	1424.86
7563.00	92.00	358.60	6078.28	1511.38	-240.98	1.49	1520.76
7659.00	91.80	358.60	6075.10	1607.30	-243.33	0.21	1616.69
7754.00	89.60	358.20	6073.94	1702.25	-245.98	2.35	1711.66
7850.00	90.30	359.30	6074.02	1798.23	-248.07	1.36	1807.63
7946.00	90.10	0.70	6073.69	1894.22	-248.07	1.47	1903.53
8040.00	88.90	1.40	6074.51	1988.20	-246.35	1.48	1997.33
8134.00	87.40	1.40	6077.54	2082.12	-244.05	1.60	2091.05
8228.00	87.60	1.40	6081.64	2176.01	-241.76	0.21	2184.73
8324.00	90.30	2.40	6083.40	2271.93	-238.58	3.00	2280.41
8420.00	90.60	2.40	6082.65	2367.84	-234.56	0.31	2376.04
8516.00	88.70	1.40	6083.24	2463.78	-231.37	2.24	2471.74
8612.00	90.80	0.30	6083.65	2559.76	-229.95	2.47	2567.56
8707.00	91.70	0.70	6081.58	2654.73	-229.12	1.04	2662.39
8804.00	89.90	1.40	6080.23	2751.70	-227.34	1.99	2759.18
8900.00	89.40	1.00	6080.81	2847.68	-225.33	0.67	2854.97
8996.00	89.60	1.00	6081.65	2943.66	-223.66	0.21	2950.78
9092.00	90.10	1.40	6081.90	3039.64	-221.65	0.67	3046.56
9168.00	90.80	1.70	6081.31	3115.61	-219.59	1.00	3122.36
9264.00	88.70	1.00	6081.73	3211.57	-217.33	2.31	3218.13
9360.00	90.30	0.30	6082.56	3307.56	-216.24	1.82	3313.97
9456.00	90.30	0.00	6082.06	3403.56	-215.99	0.31	3409.85
9552.00	90.40	0.70	6081.47	3499.56	-215.40	0.74	3505.72
9648.00	90.60	0.30	6080.64	3595.55	-214.57	0.47	3601.58
9744.00	89.60	358.90	6080.47	3691.54	-215.24	1.	