

BAKER HUGHES				MEMORY LOG			
<div>Scale: 1:240 TVD</div> <div>Depth Reference:</div> <div>Driller's Depth</div> <div>Status: Final Print</div> <div>API No: 05-123-43493</div> <div>Job ID: 8173294</div> <div>Permanent Datum (P.D.): Mean Sea Level</div> <div>Log Measured From: Rig Floor</div>				<div>Company: Noble Energy</div> <div>Well: Bennett LD19-758</div> <div>Field: Weld County</div> <div>County: Weld County</div> <div>State: Colorado</div> <div>Surface Location: 040° 43' 48.720" N 103° 54' 41.112" W</div> <div>Other Services: Directional</div>			
<div>Interval Logged</div> <div> <div>Date From: 2016-10-30</div> <div>Date To: 2016-10-31</div> <div>Spud Date: 2016-10-29</div> </div> <div> <div>Top: (ft) 1925.00</div> <div>Bottom: (ft) 5960.00</div> </div>				<div>Magnetic Field Reference</div> <div> <div>Azi Reference North: 1925.00</div> <div>Total Magnetic Field Strength: (nT) 52641</div> <div>Mag to Reference North Correction: (deg) 6.65E</div> </div>			
<div>Borehole Record</div> <div> <div>Hole Size (in)</div> <div>13.500</div> <div>8.500</div> </div> <div> <div>From (ft)</div> <div>0.00</div> <div>1937.00</div> </div> <div> <div>To (ft)</div> <div>1937.00</div> <div>10963.00</div> </div>				<div>Casing Record</div> <div> <div>Size (in)</div> <div>9.625</div> </div> <div> <div>Weight (lb/ft)</div> <div>36.00</div> </div> <div> <div>From (ft)</div> <div>0.00</div> </div> <div> <div>To (ft)</div> <div>1927.00</div> </div>			
<div>Mud Record</div> <div> <div>Type</div> <div>Oil Based Mud</div> </div> <div> <div>From (ft)</div> <div>1937.00</div> </div> <div> <div>To (ft)</div> <div>10963.00</div> </div>				<div>Deviation Record</div> <div> <div>Hole Size (in)</div> <div>8.500</div> </div> <div> <div>Interval (ft)</div> <div>9026.00</div> </div> <div> <div>Inc Az (Start)</div> <div>0.26 306.24</div> </div> <div> <div>Inc Az (End)</div> <div>89.97 353.92</div> </div>			
<div>Acquisition System</div> <div>Baker Hughes Cadence PlotStudio</div>				<div>Software Version</div> <div>G3.3 3.3.7410.1</div>			
<div>Other</div> <div>Rig: H&P 517</div> <div>Contractor: Helmerich & Payne Drilling Co</div> <div>District: RMD</div>				<div>Unit: D&E</div>			

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Log Run Summary												
Run No	Bit Run No.	Bit Size (in)	Bit Type	Bit Gauge Length (in)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Hours (h)
						Top (ft)	Bottom (ft)	From (ft)	To (ft)	Start Logging	End Logging	
1	1	8.500	PDC	3.00	AutoTrak Curve	1925.00	10950.00	1937.00	10963.00	2016-10-30 04:22	2016-10-31 21:54	36.27

Crew								
Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
Alex Osborne	2016-10-28	2016-11-01	Scott Sims	2016-10-28	2016-11-01			

Mud Properties Record												
Date / Time	Run No.	Measured Depth (ft)	Mud Type	Density (ppg)	Viscosity (cP)	pH	Fluid Loss (cm3)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)	
2016-10-29 20:00	1	1937.00	Oil Based Mud	9.5	60	N/A	89.0	80 / 20	Active Pit	16500	N/A	
2016-10-30 08:00	1	2479.00	Oil Based Mud	9.0	52	N/A	21.8	72 /28	Active Pit	18000	N/A	
2016-10-30 20:00	1	5772.00	Oil Based Mud	9.0	42	N/A	20.4	80 / 20	Active Pit	22500	N/A	
2016-10-31 08:00	1	8156.00	Oil Based Mud	8.9	42	N/A	22.0	73 / 27	Active Pit	25000	N/A	
2016-10-31 20:00	1	10606.00	Oil Based Mud	9.0	47	N/A	21.4	73 / 27	Active Pit	27000	N/A	

Equipment and Service Data							
Run No.	Tool	Serial Number	Measurement	Sensor Offset (ft)	Bit Offset (ft)	Max O.D. (in)	Min I.D. (in)
1	ATC_SU	12022378	Near Bit Inclination	5.93	6.69	7.000	4.330
1	ATC_SU	12022378	Near Bit VSS	5.93	6.69	7.000	4.330
1	ATC_MWD	12398198	Gamma (single)	2.20	12.31	7.000	3.250
1	ATC_MWD	12398198	Directional (mag)	12.27	22.38	7.000	3.250

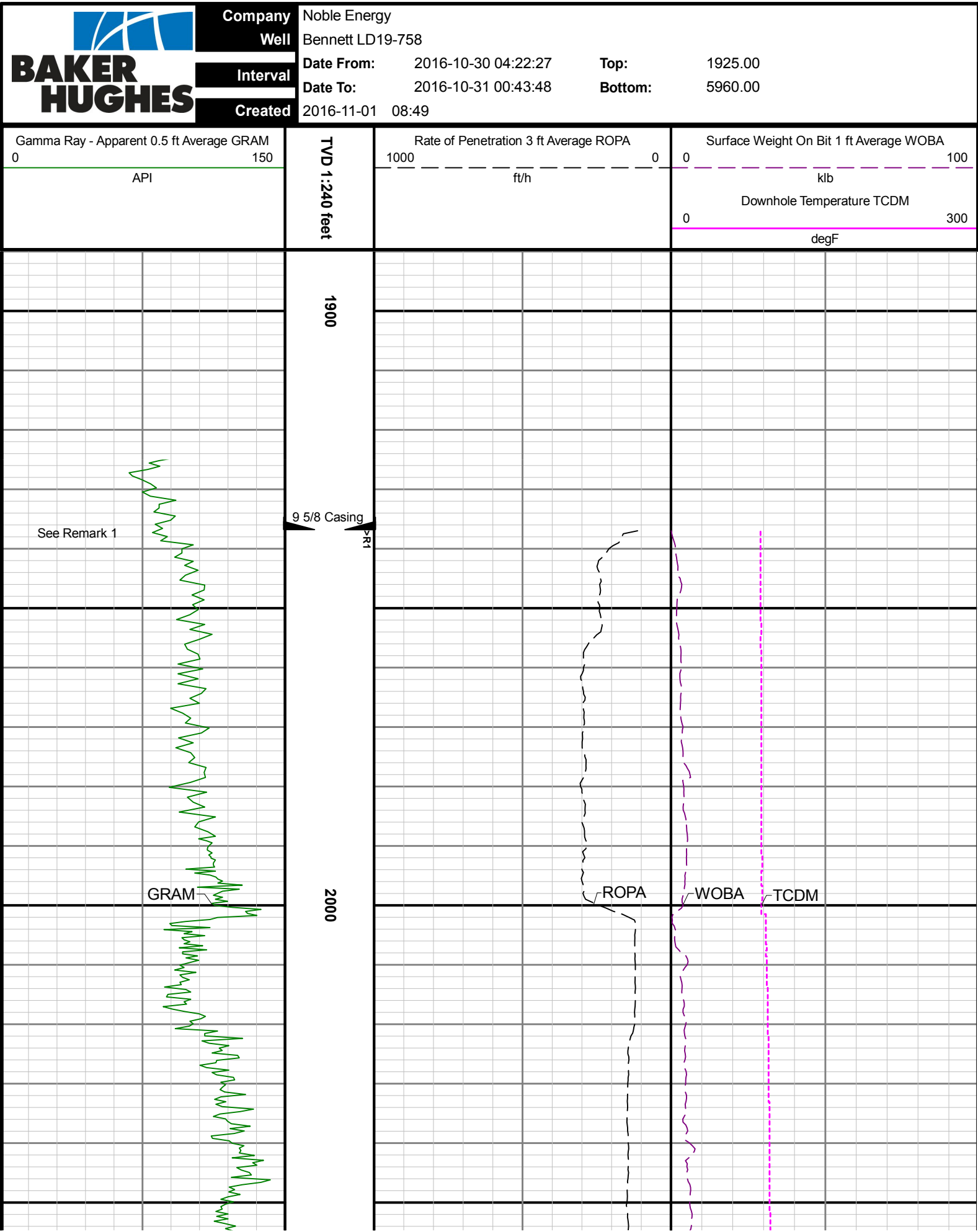
Service and Tool Mnemonics		
Mnemonic	Name	Description

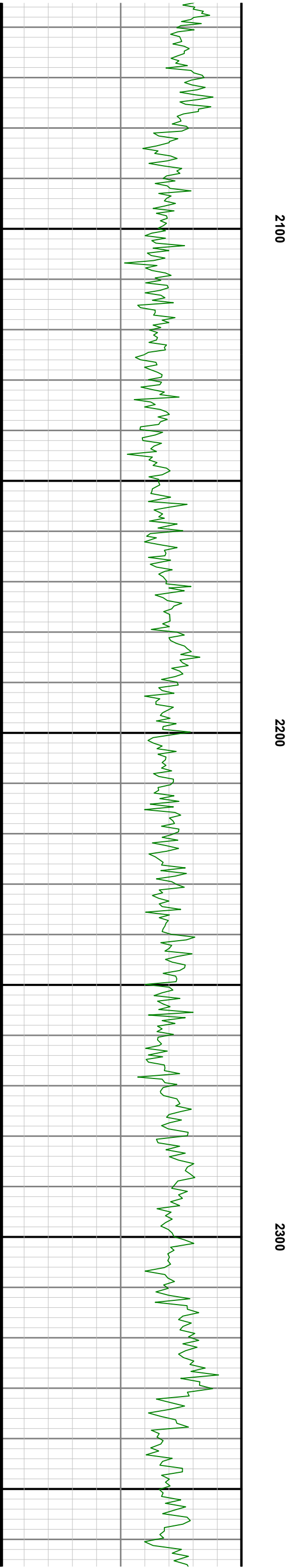
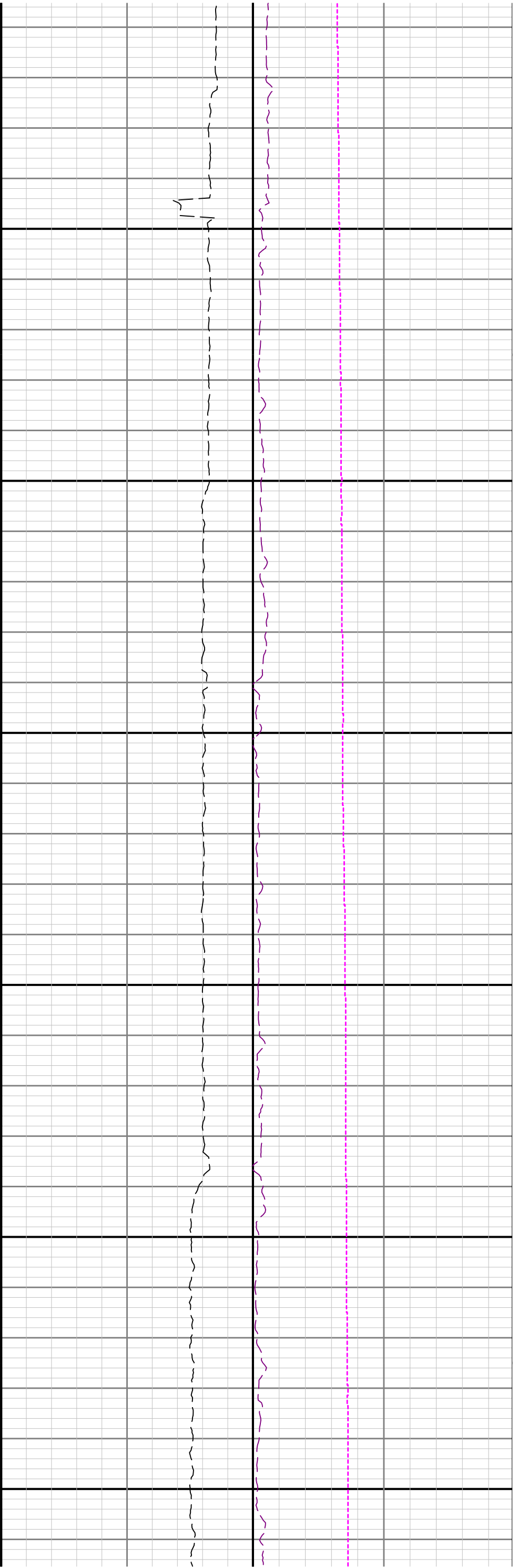
ATC_SU	ATC_SU	Auto Trak Curve Steering Unit
ATC_MWD	ATC_MWD	Auto Trak Curve MWD
ATC_LCPM	ATC_LCPM	Auto Trak Curve LCPM

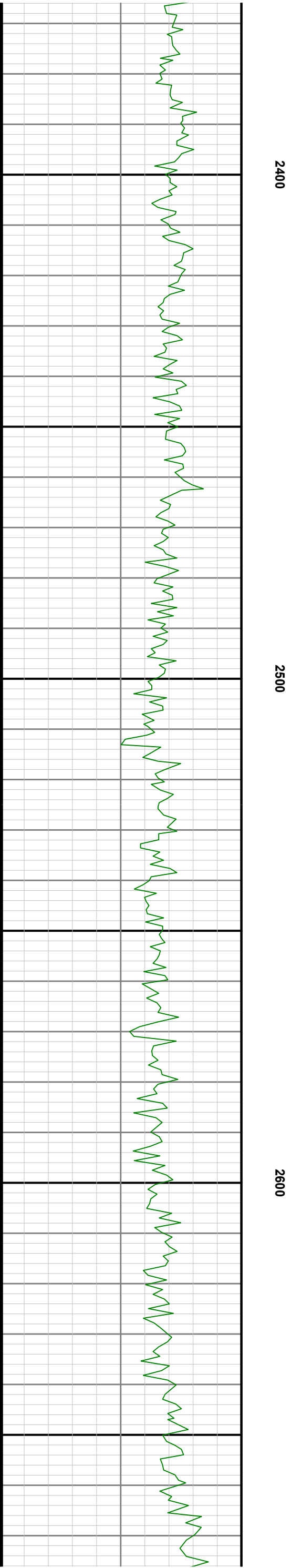
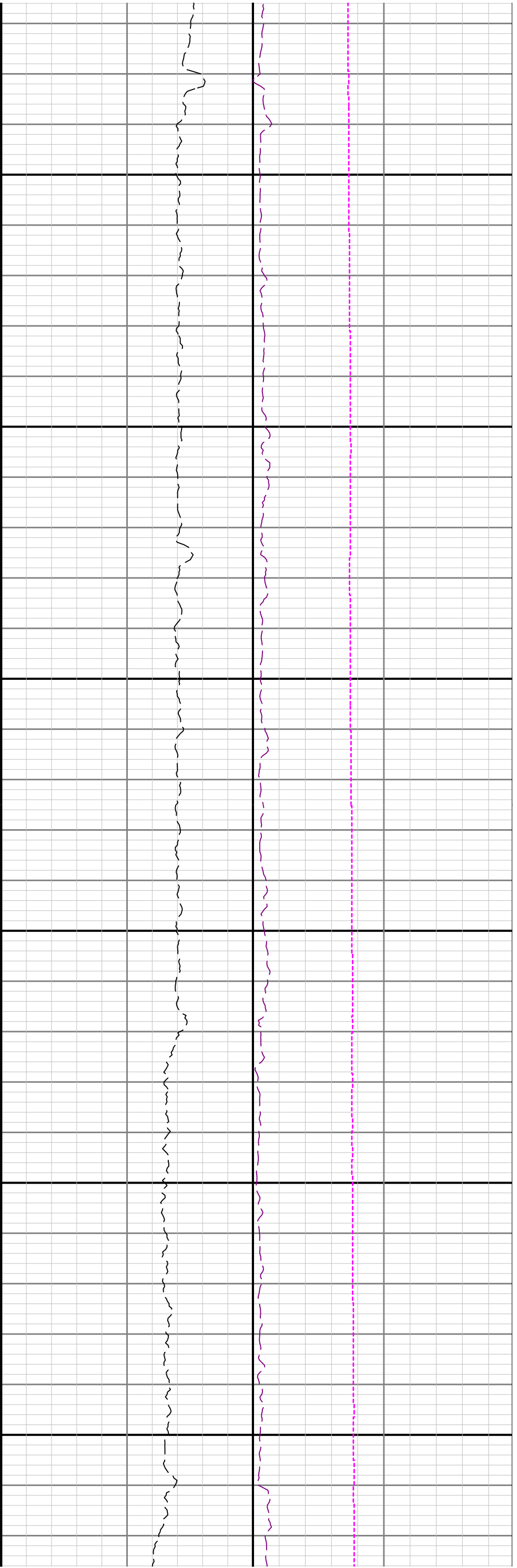
Comments	
1	Depth measurements obtained from a depth control system not supplied or operated by Baker Hughes. Due to lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified.
2	Baker Hughes LWD Run 1 utilized 6 3/4 inch NaviGamma Services (Gamma Ray and Directional) behind an 8 1/2 inch bit and rotary steerable assembly from 1937 to 10963 ft MD (1937 to 5903 ft TVD).

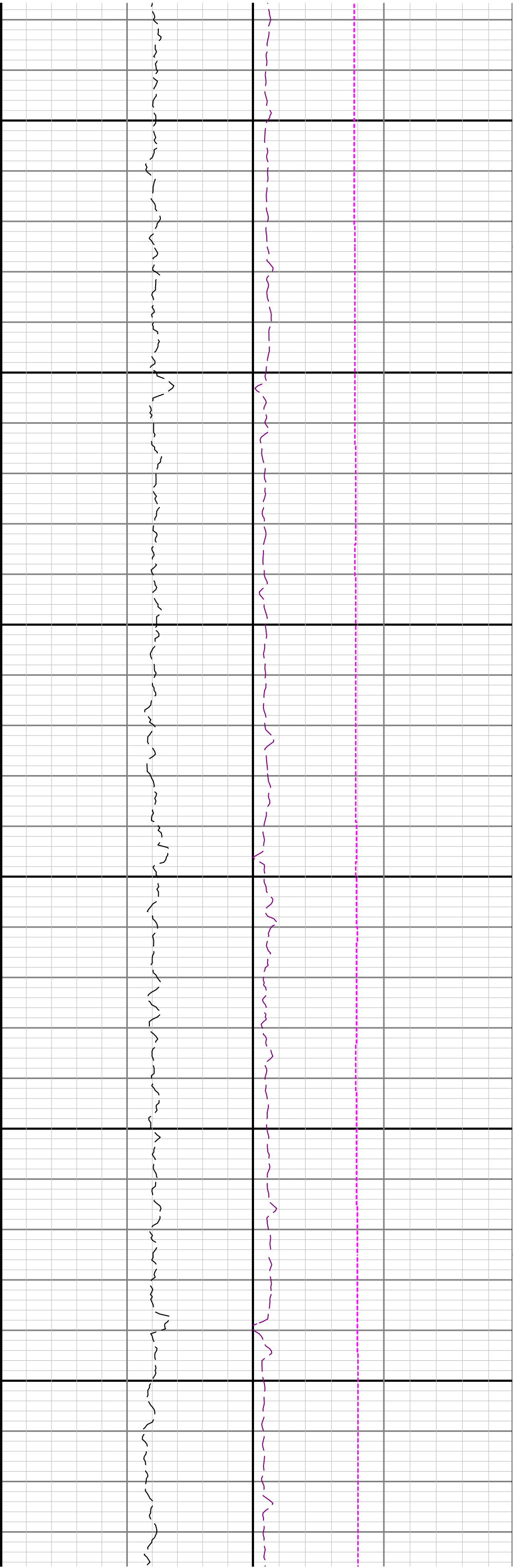
Remarks				
Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	1925.00	8.500	1	Gamma Ray logging operations began at 1925 feet MD (1925 feet TVD)

Curve Mnemonics	
Presented Curves	Description Units
ROPA	Depth Averaged ROP 3 ft Average ft/h
GRAM	Gamma Ray - Apparent 0.5 ft Average API
TCDM	Downhole Temperature degF
WOBA	Weight On Bit, Average 1 ft Average klb





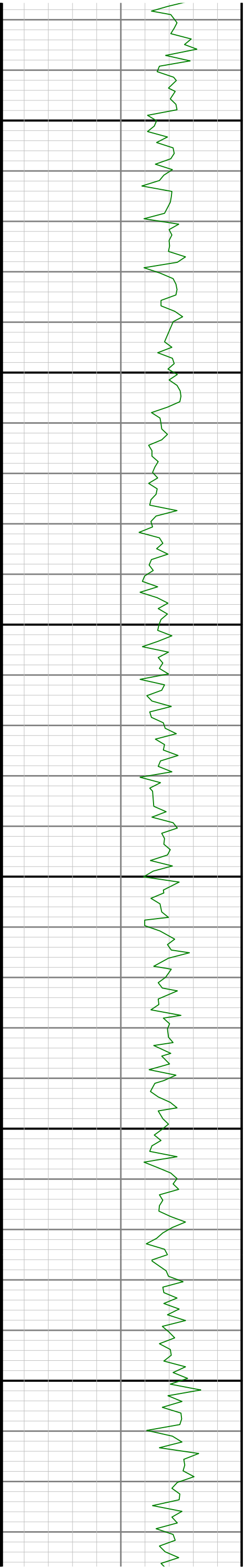


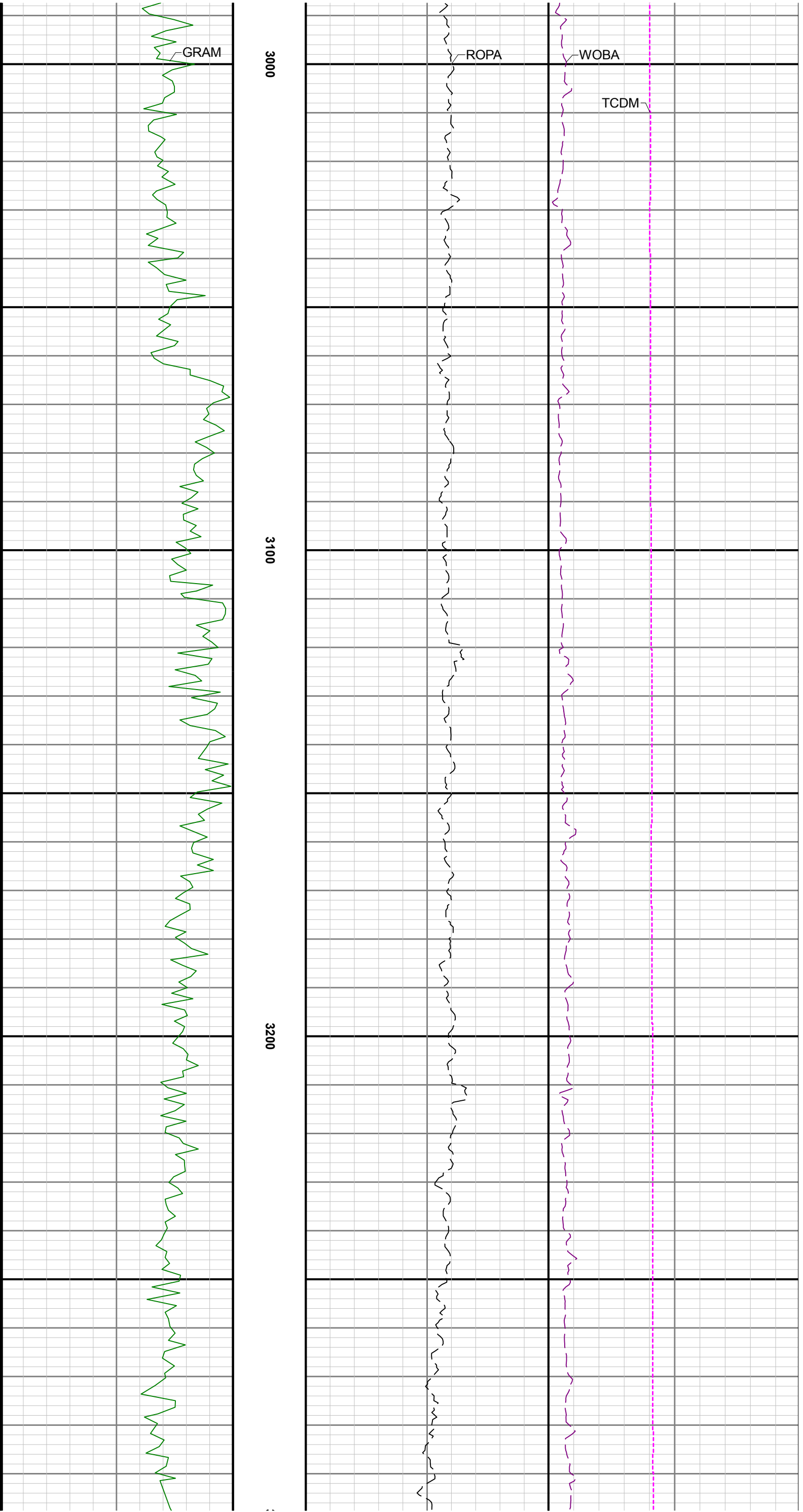


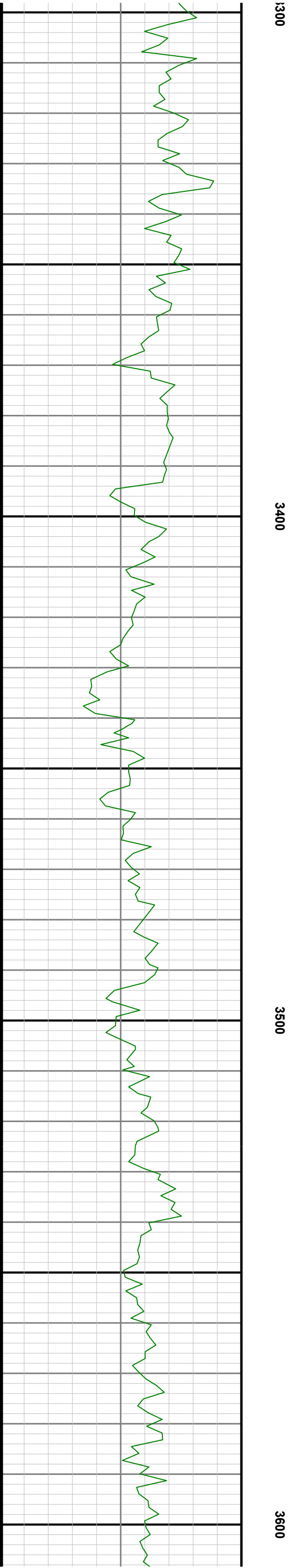
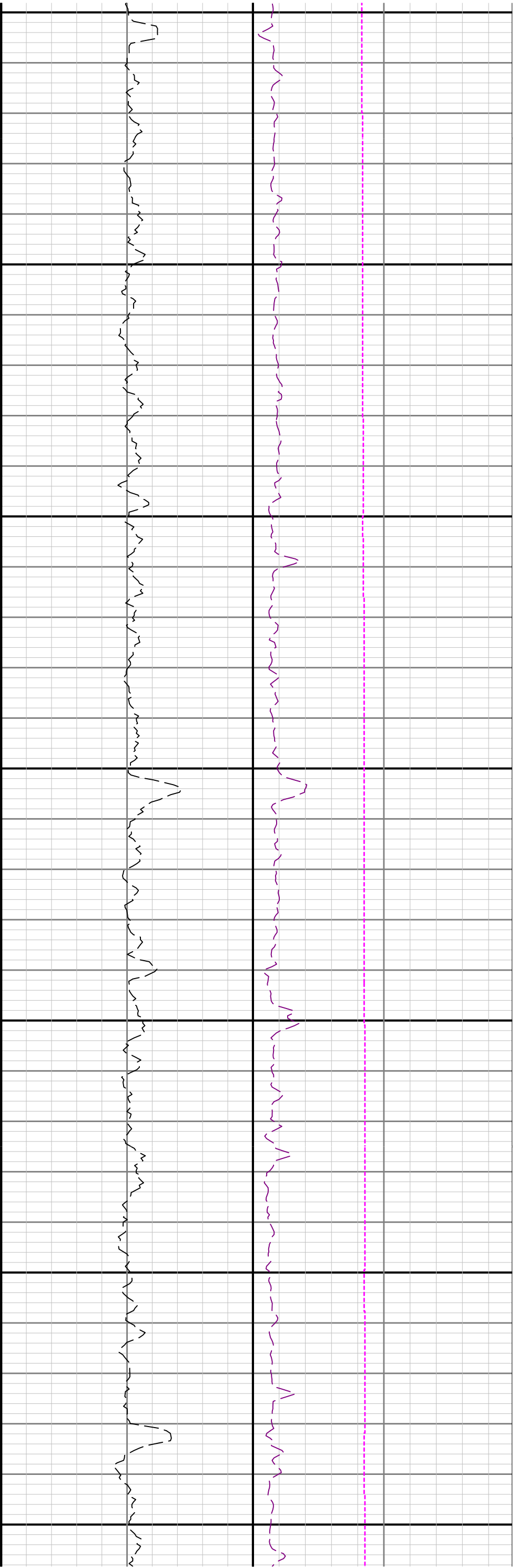
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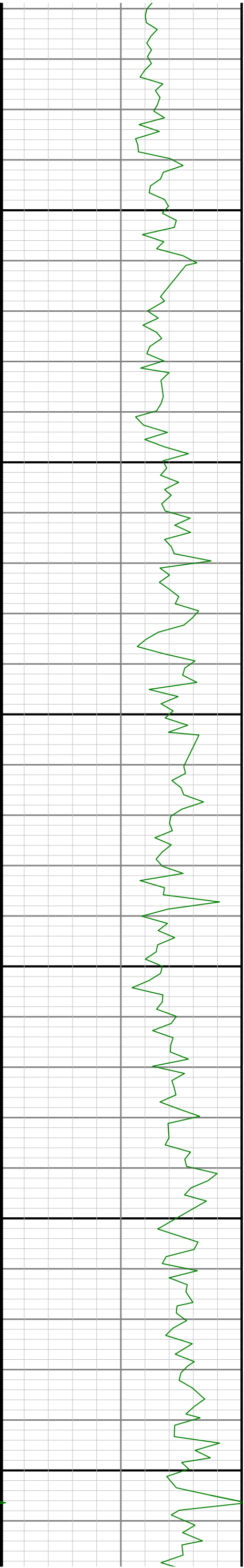
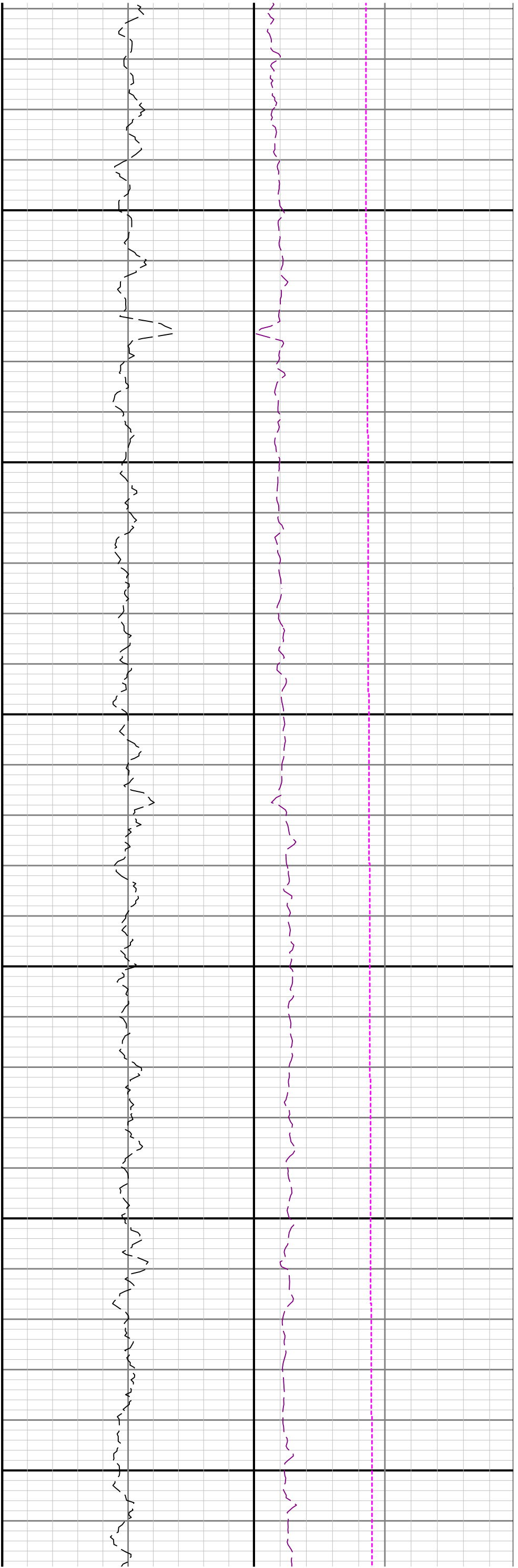
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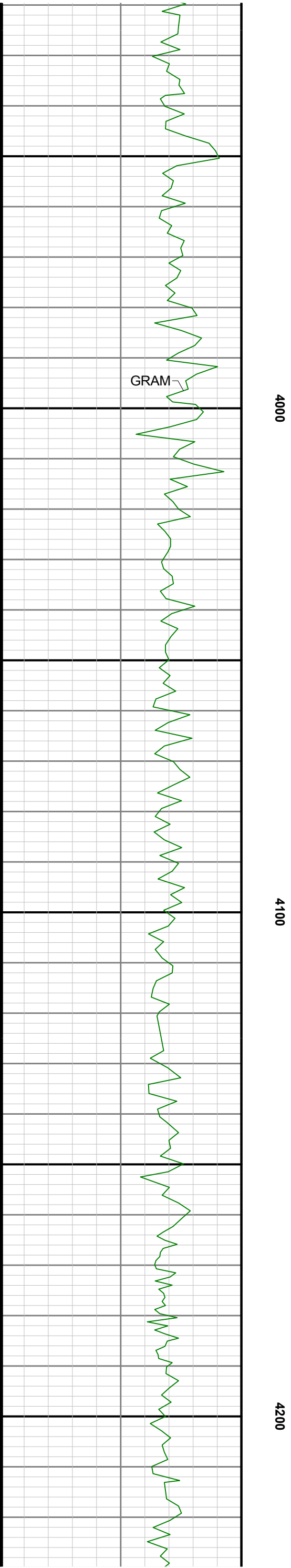
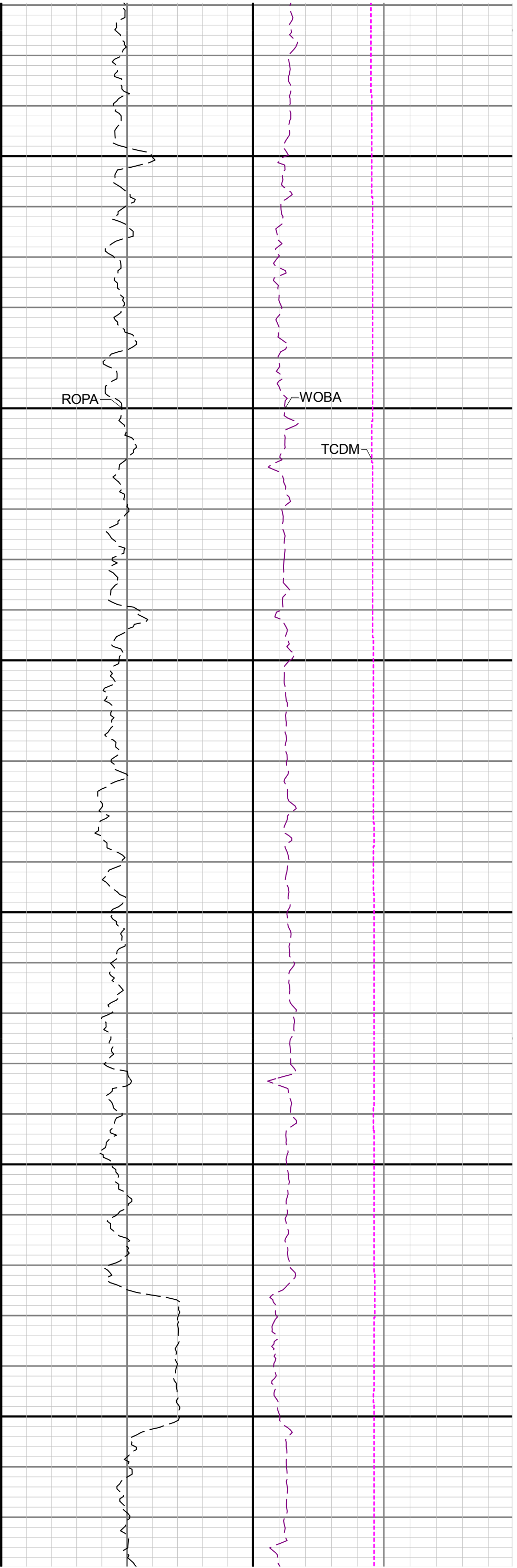
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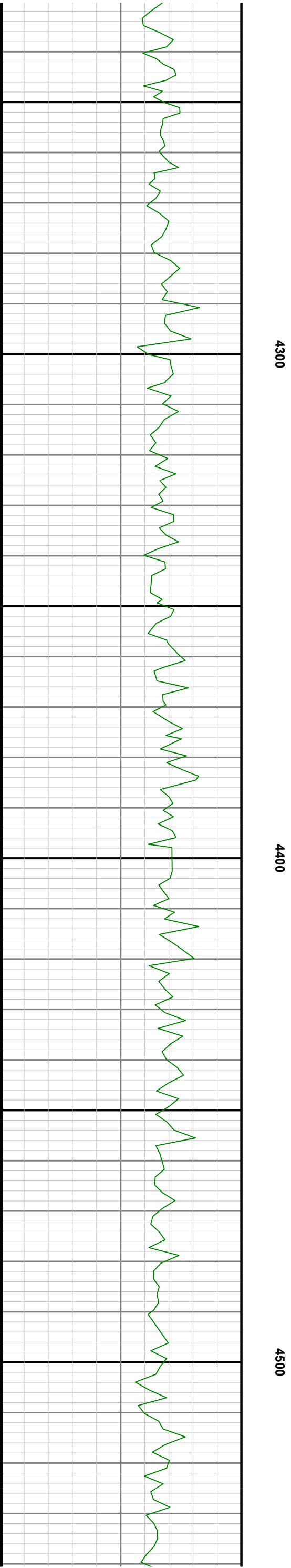
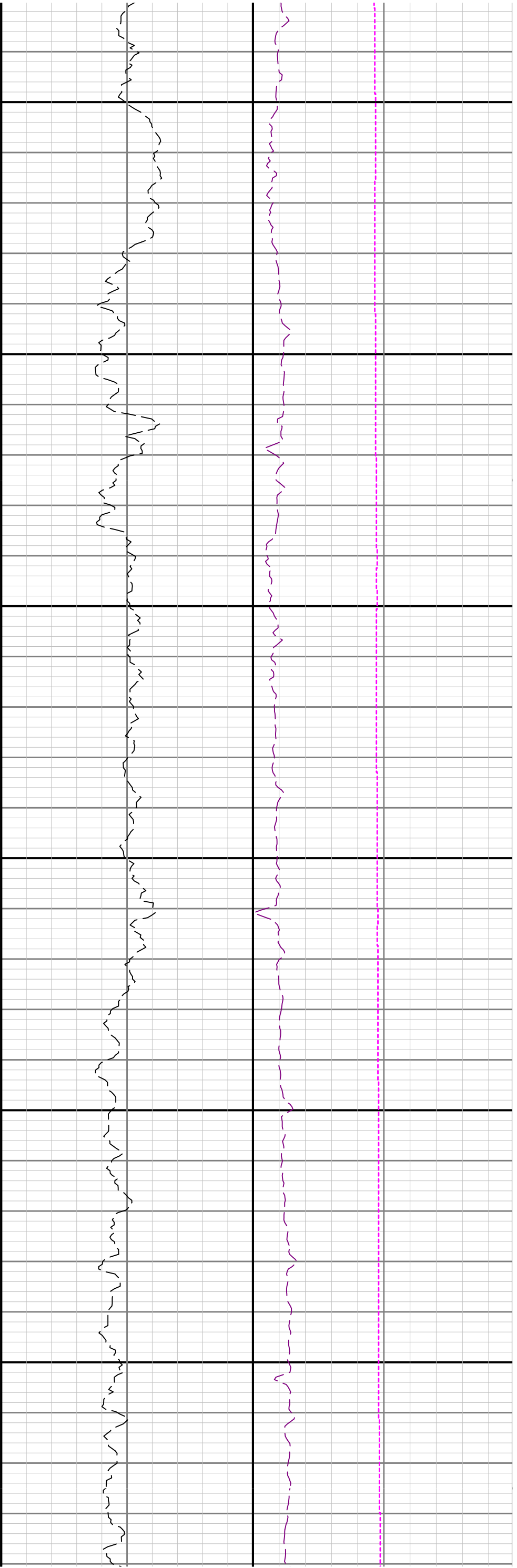


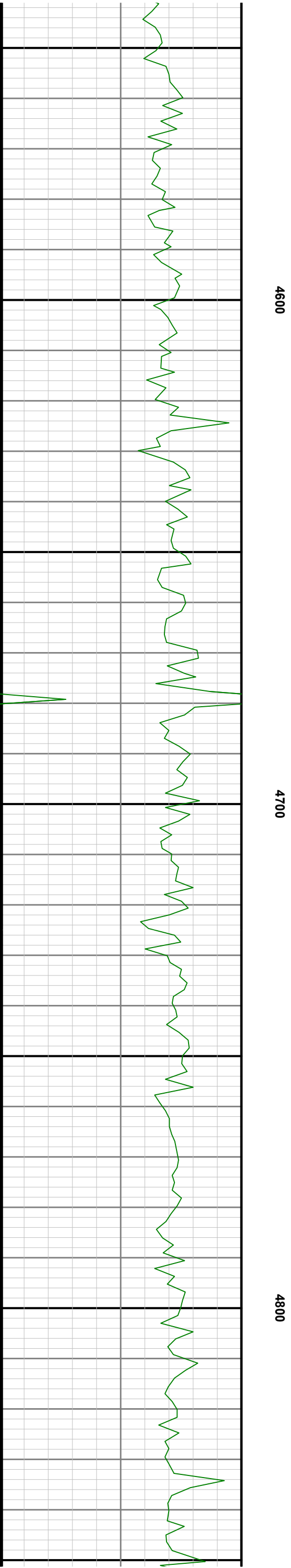


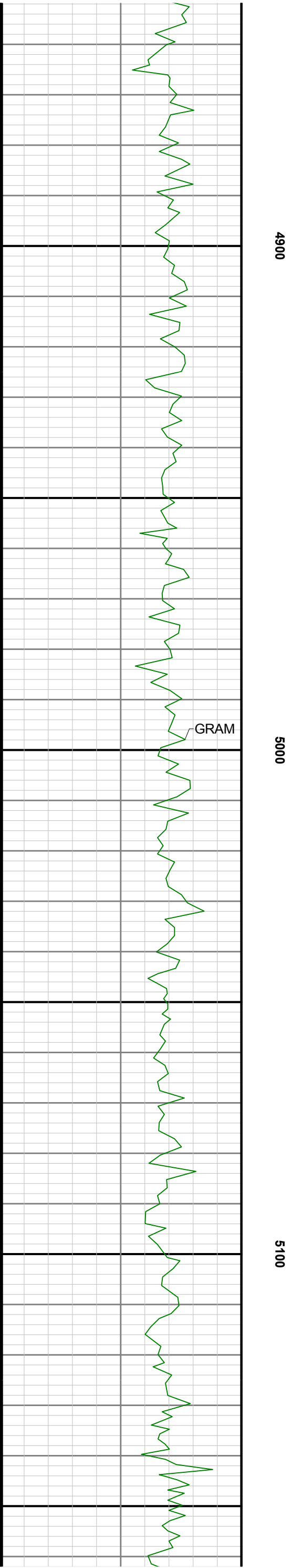
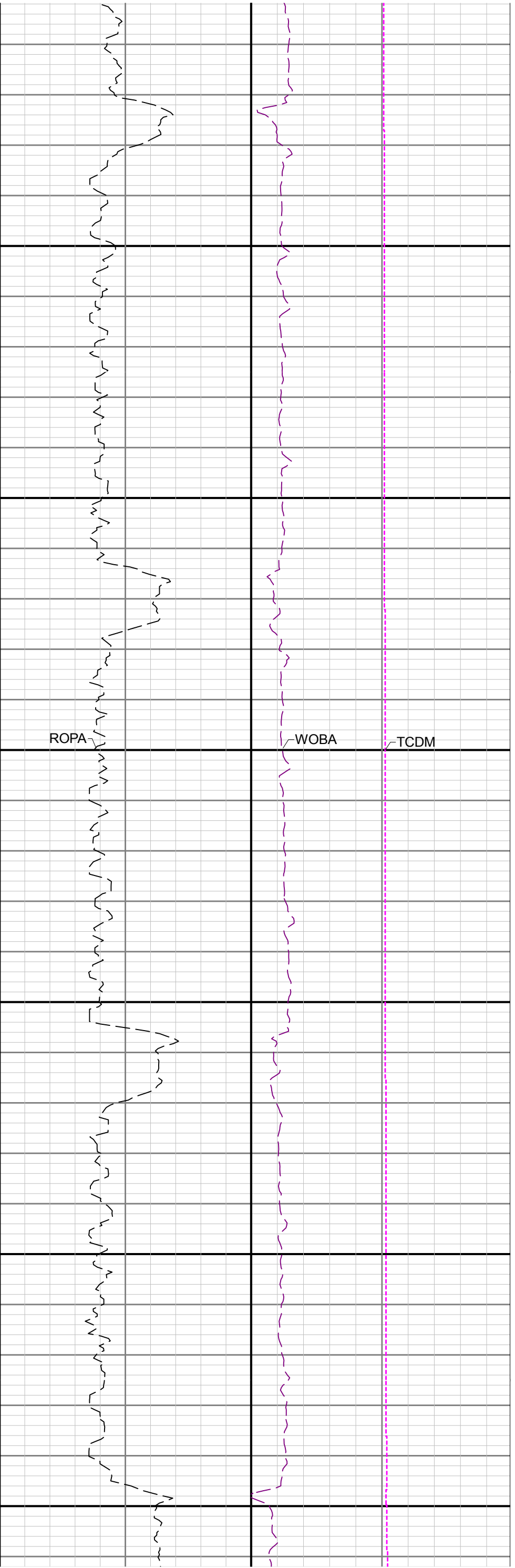


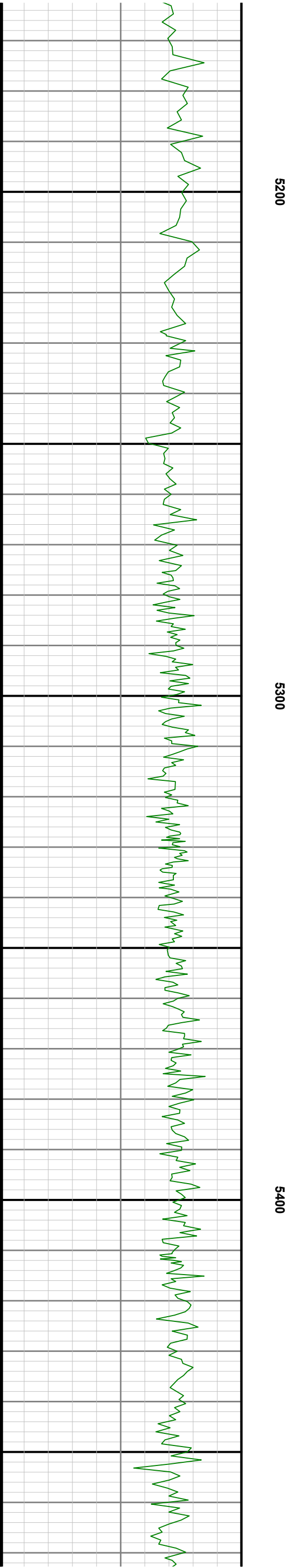
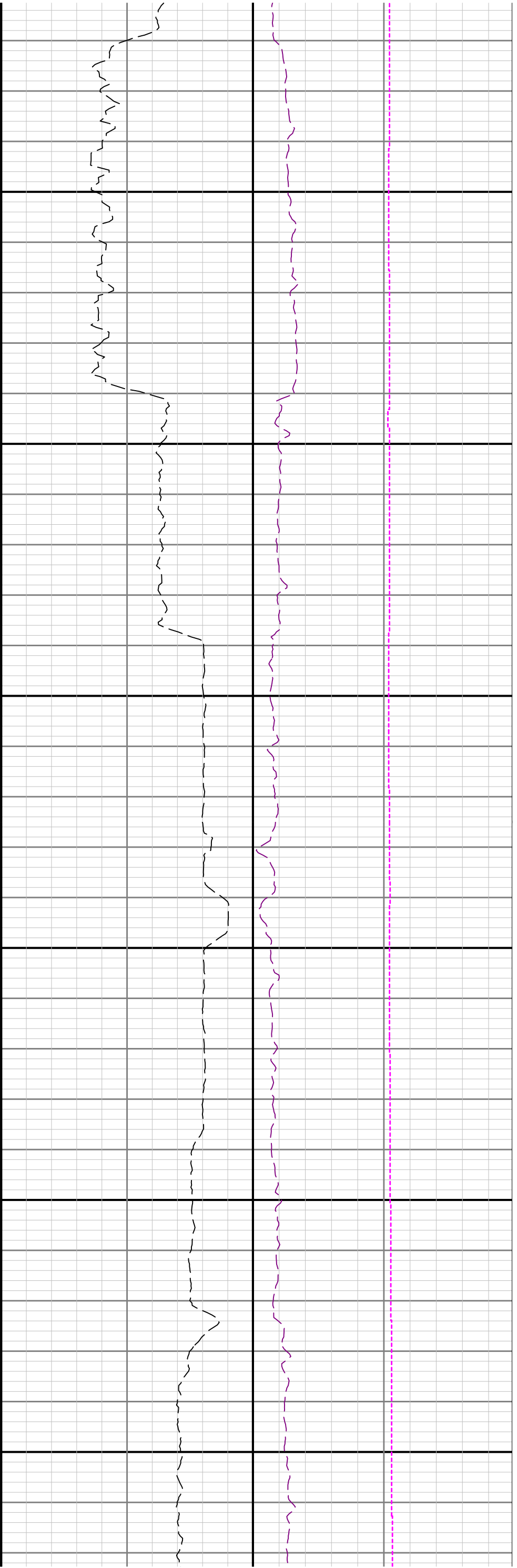


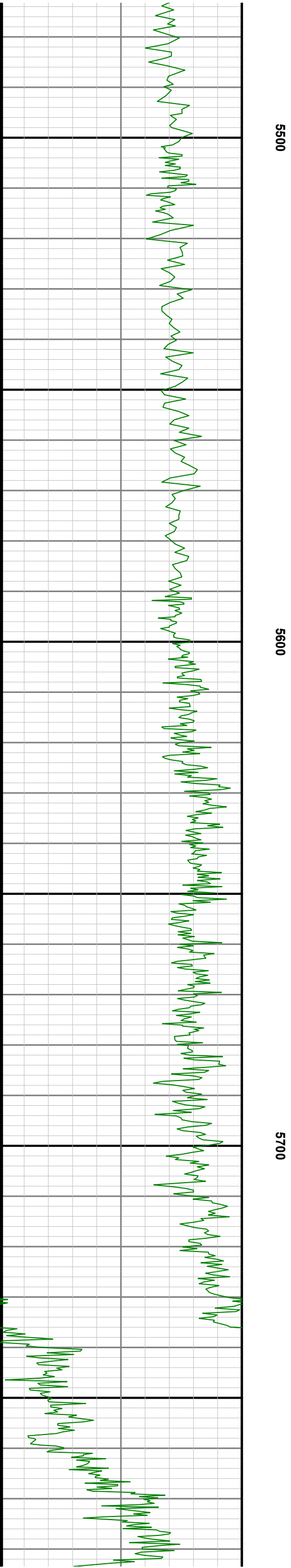
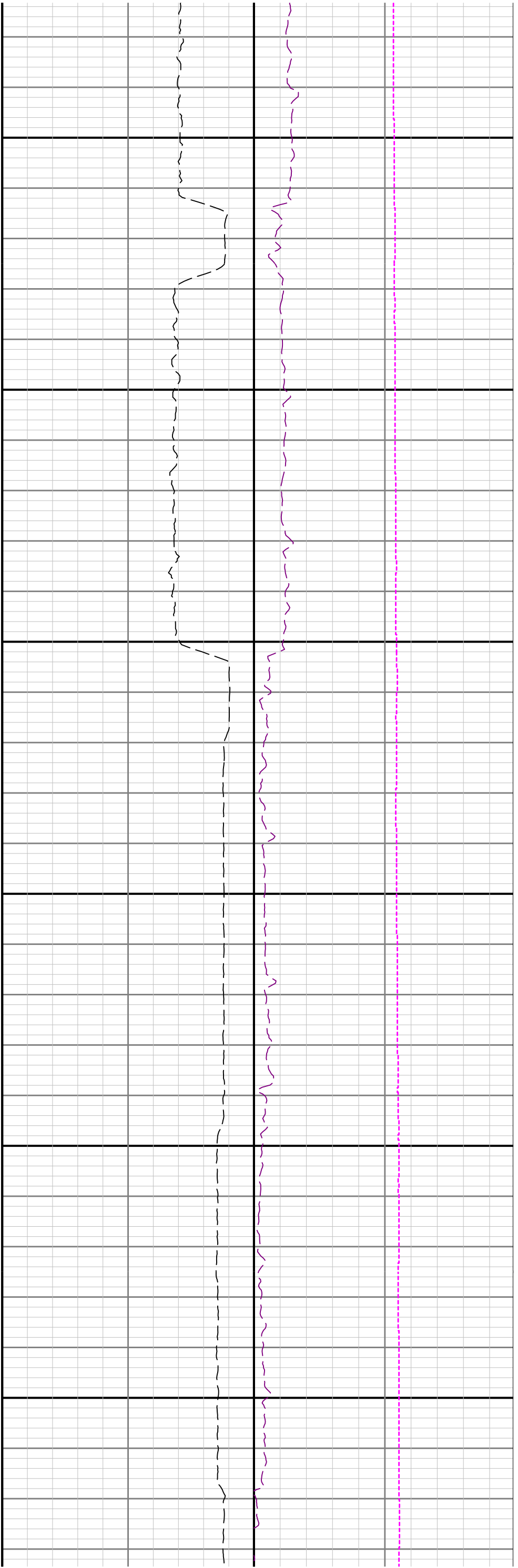












	1500.00	0.25	180.21	N/A	-1.42	1.32	1499.99	-1.28	95.00	0.29	0.19	107.54
	1595.00	0.39	80.61	N/A	-1.58	1.64	1594.99	-1.40	95.00	0.52	0.15	-104.84
	1689.00	0.41	120.47	N/A	-1.69	2.24	1688.99	-1.45	94.00	0.29	0.02	42.40
	1784.00	0.25	38.93	N/A	-1.71	2.66	1783.99	-1.42	95.00	0.47	-0.17	-85.83
	1879.00	0.29	289.30	N/A	-1.47	2.57	1878.99	-1.19	95.00	0.47	0.04	-115.40
	1919.00	0.26	306.24	N/A	-1.38	2.40	1918.99	-1.12	40.00	0.22	-0.07	42.35
	1979.00	0.34	29.60	87.8	-1.14	2.38	1978.98	-0.89	60.00	0.67	0.13	138.93
	2073.00	3.83	108.21	N/A	-1.88	5.50	2072.91	-1.29	94.00	4.02	3.71	83.63
	2168.00	5.04	107.81	N/A	-4.15	12.49	2167.63	-2.81	95.00	1.27	1.27	-0.42
	2263.00	5.12	109.73	N/A	-6.86	20.45	2262.25	-4.66	95.00	0.20	0.08	2.02
	2357.00	7.26	116.52	N/A	-10.93	29.71	2355.70	-7.73	94.00	2.40	2.28	7.22
	2452.00	9.05	121.18	N/A	-17.47	41.48	2449.74	-13.01	95.00	2.01	1.88	4.91
	2546.00	11.11	123.10	N/A	-26.25	55.39	2542.28	-20.26	94.00	2.22	2.19	2.04
	2641.00	13.03	123.60	N/A	-37.17	71.98	2635.18	-29.38	95.00	2.02	2.02	0.53
	2736.00	12.89	121.33	N/A	-48.61	89.95	2727.76	-38.86	95.00	0.56	-0.15	-2.39
	2830.00	13.01	119.38	N/A	-59.25	108.13	2819.37	-47.53	94.00	0.48	0.13	-2.07
	2925.00	13.02	118.92	N/A	-69.67	126.81	2911.93	-55.92	95.00	0.11	0.01	-0.48
	3019.00	12.92	121.23	N/A	-80.24	145.07	3003.53	-64.51	94.00	0.56	-0.11	2.46
	3114.00	12.92	123.57	N/A	-91.62	163.00	3096.13	-73.93	95.00	0.55	0.00	2.46
	3209.00	12.96	126.42	N/A	-103.82	180.42	3188.71	-84.23	95.00	0.67	0.04	3.00
	3303.00	12.99	123.25	N/A	-115.87	197.74	3280.32	-94.39	94.00	0.76	0.03	-3.37
	3398.00	13.10	120.60	N/A	-127.21	215.93	3372.86	-103.74	95.00	0.64	0.12	-2.79
	3492.00	12.88	117.95	N/A	-137.54	234.36	3464.46	-112.07	94.00	0.68	-0.23	-2.82
	3587.00	13.00	114.69	N/A	-146.97	253.42	3557.05	-119.44	95.00	0.78	0.13	-3.43
	3681.00	13.01	115.18	N/A	-155.88	272.60	3648.64	-126.28	94.00	0.12	0.01	0.52
	3776.00	13.03	119.28	N/A	-165.67	291.62	3741.20	-134.01	95.00	0.97	0.02	4.32
	3870.00	12.90	120.20	N/A	-176.13	309.93	3832.80	-142.49	94.00	0.26	-0.14	0.98
	3965.00	12.86	129.94	N/A	-188.25	327.20	3925.42	-152.72	95.00	2.28	-0.04	10.25
	4059.00	12.97	132.90	N/A	-202.15	342.95	4017.04	-164.88	94.00	0.71	0.12	3.15
	4154.00	13.00	133.58	N/A	-216.77	358.50	4109.62	-177.78	95.00	0.16	0.03	0.72
	4249.00	12.89	129.12	N/A	-230.83	374.46	4202.20	-190.07	95.00	1.06	-0.12	-4.69
	4343.00	12.84	124.54	N/A	-243.36	391.20	4293.85	-200.78	94.00	1.09	-0.05	-4.87
	4438.00	12.91	121.29	N/A	-254.86	408.96	4386.46	-210.34	95.00	0.77	0.07	-3.42
	4532.00	12.84	120.22	N/A	-265.57	426.96	4478.10	-219.09	94.00	0.26	-0.07	-1.14
	4627.00	12.88	121.01	N/A	-276.34	445.16	4570.71	-227.88	95.00	0.19	0.04	0.83
	4722.00	12.74	123.56	N/A	-287.59	462.96	4663.35	-237.19	95.00	0.61	-0.15	2.68
	4911.00	12.85	120.67	N/A	-309.83	498.41	4847.66	-255.57	189.00	0.34	0.06	-1.53
	5005.00	12.85	118.47	N/A	-320.14	516.59	4939.30	-263.91	94.00	0.52	0.00	-2.34
	5100.00	12.86	119.41	N/A	-330.37	535.08	5031.92	-272.13	95.00	0.22	0.01	0.99
	5194.00	12.89	117.48	N/A	-340.34	553.50	5123.56	-280.11	94.00	0.46	0.03	-2.05
	5289.00	12.81	114.10	N/A	-349.53	572.51	5216.18	-287.25	95.00	0.80	-0.08	-3.56
	5383.00	13.24	100.16	N/A	-355.69	592.62	5307.79	-291.25	94.00	3.37	0.46	-14.83
	5478.00	14.94	57.84	N/A	-351.08	613.76	5400.16	-284.43	95.00	10.74	1.79	-44.55
	5572.00	16.55	21.28	N/A	-332.11	628.91	5490.85	-263.97	94.00	10.52	1.71	-38.89
	5667.00	22.71	9.73	N/A	-301.38	636.93	5580.32	-232.57	95.00	7.63	6.48	-12.16
	5761.00	24.72	8.64	N/A	-264.06	642.95	5666.38	-194.83	94.00	2.19	2.14	-1.16
	5856.00	35.21	13.04	N/A	-217.61	652.14	5748.58	-147.66	95.00	11.28	11.04	4.63
	5951.00	46.18	12.48	N/A	-157.28	665.77	5820.49	-86.23	95.00	11.55	11.55	-0.59
	6045.00	56.07	6.08	N/A	-85.17	677.26	5879.45	-13.31	94.00	11.77	10.52	-6.81
	6140.00	67.05	1.77	N/A	-1.97	682.81	5924.64	70.00	95.00	12.22	11.56	-4.54
	6234.00	79.35	1.09	N/A	87.81	685.03	5951.76	159.52	94.00	13.10	13.09	-0.72
	6329.00	90.68	0.29	N/A	182.29	686.16	5960.00	253.60	95.00	11.96	11.93	-0.84
	6374.00	90.77	359.82	N/A	227.29	686.21	5959.43	298.35	45.00	1.06	0.20	-1.04
	6423.00	90.74	359.54	N/A	276.28	685.93	5958.79	347.04	49.00	0.57	-0.06	-0.57
	6518.00	90.89	358.61	N/A	371.26	684.40	5957.44	441.33	95.00	0.99	0.16	-0.98
	6612.00	90.77	357.11	N/A	465.18	680.89	5956.08	534.35	94.00	1.60	-0.13	-1.60
	6706.00	90.83	356.36	N/A	559.02	675.54	5954.76	627.11	94.00	0.80	0.06	-0.80
	6801.00	90.68	356.40	N/A	653.82	669.54	5953.51	720.75	95.00	0.16	-0.16	0.04
	6896.00	90.89	357.14	N/A	748.66	664.19	5952.21	814.49	95.00	0.81	0.22	0.78
	6990.00	90.77	357.66	N/A	842.55	659.92	5950.85	907.42	94.00	0.57	-0.13	0.55
	7085.00	90.74	358.12	N/A	937.48	656.43	5949.60	1001.45	95.00	0.49	-0.03	0.48
	7180.00	90.71	358.32	N/A	1032.43	653.47	5948.39	1095.55	95.00	0.21	-0.03	0.21
	7274.00	90.68	358.39	N/A	1126.38	650.78	5947.25	1188.70	94.00	0.08	-0.03	0.07
	7369.00	90.65	359.06	N/A	1221.35	648.66	5946.15	1282.92	95.00	0.71	-0.03	0.71
	7463.00	90.62	359.13	N/A	1315.33	647.18	5945.11	1376.22	94.00	0.08	-0.03	0.07
	7558.00	90.58	358.47	N/A	1410.31	645.19	5944.11	1470.45	95.00	0.70	-0.04	-0.69
	7652.00	90.58	357.90	N/A	1504.26	642.21	5943.16	1563.56	94.00	0.61	0.00	-0.61
	7747.00	90.68	358.54	N/A	1599.20	639.26	5942.12	1657.67	95.00	0.68	0.11	0.67
	7936.00	90.46	358.67	N/A	1788.14	634.66	5940.24	1845.07	189.00	0.14	-0.12	0.07
	8031.00	90.62	358.06	N/A	1883.09	631.95	5939.34	1939.21	95.00	0.66	0.17	-0.64
	8220.00	90.62	356.76	N/A	2071.89	623.41	5937.30	2126.05	189.00	0.69	0.00	-0.69
	8314.00	90.68	356.38	N/A	2165.71	617.79	5936.23	2218.76	94.00	0.41	0.06	-0.40
	8409.00	90.68	356.46	N/A	2260.52	611.85	5935.10	2312.42	95.00	0.08	0.00	0.08
	8503.00	90.62	356.24	N/A	2354.32	605.87	5934.04	2405.07	94.00	0.24	-0.06	-0.23
	8693.00	90.74	356.83	N/A	2543.96	594.39	5931.78	2592.44	190.00	0.32	0.06	0.31
	8787.00	90.65	356.62	N/A	2637.80	589.02	5930.64	2685.19	94.00	0.24	-0.10	-0.22
	8882.00	90.68	356.89	N/A	2732.64	583.64	5929.54	2778.94	95.00	0.29	0.03	0.28
	8977.00	90.58	355.73	N/A	2827.44	577.53	5928.49	2872.56	95.00	1.23	-0.11	-1.22
	9071.00	90.43	356.37	N/A	2921.21	571.05	5927.67	2965.13	94.00	0.70	-0.16	0.68
	9166.00	90.43	357.17	N/A	3016.06	565.70	5926.95	3058.88	95.00	0.84	0.00	0.84
	9260.00	90.52	358.38	N/A	3109.98	562.05	5926.17	3151.90	94.00	1.29	0.10	1.29
	9355.00	90.40	359.94	N/A	3204.96	560.66	5925.41	3246.20	95.00	1.65	-0.13	1.64
	9449.00	90.46	0.47	N/A	3298.96	560.99	5924.71	3339.71	94.00	0.57	0.06	0.56
	9544.00	90.52	0.53	N/A	3393.95	561.82	5923.89	3434.26	95.00	0.09	0.06	0.06
	9638.00	90.49	359.68	N/A	3487.95	562.00	5923.07	3527.75	94.00	0.90	-0.03	-0.90
	9733.00	90.55	358.97	N/A	3582.94	560.88	5922.20	3622.10	95.00	0.75	0.06	-0.75
	9922.00	90.77	356.87	N/A	3771.79	554.02	5920.03	3809.17	189.00	1.12	0.12	-1.11
	10016.00	90.55	357.34	N/A	3865.66	549.27	5918.94	3902.02	94.00	0.55	-0.23	0.50
	10111.00	90.52	357.68	N/A	3960.57	545.14	5918.06	3995.97	95.00	0.36	-0.03	0.36
	10206.00	90.65	358.66	N/A	4055.51	542.11	5917.09	4090.06	95.00	1.04	0.14	1.03
	10395.00	90.59	359.93	N/A	4244.49	539.79	5915.04	4277.74	189.00	0.67	-0.03	0.67
	10584.00	92.34	359.37	N/A	4433.41	538.63	5910.21	4465.49	189.00	0.97	0.93	-0.30
	10678.00	93.08	359.60	N/A	4527.30	537.79	5905.76	4558.77	94.00	0.82	0.79	0.24
	10772.00	90.00	357.71	N/A	4621.23	535.58	5903.24	4651.94	94.00	3.84	-3.28	-2.01
	10939.00	89.97	353.92	N/A	4787.75	523.40	5903.28	4816.25	167.00	2.27	-0.02	-2.27
Projection	10963.00	89.97	353.92	N/A	4811.62	520.85	5903.29	4839.71	24.00	0.00		