

| | | |
|----------|----------|----------------------|
| ATC_LCPM | ATC_LCPM | Auto Trak Curve LCPM |
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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 1953 to 10950 feet MD (1952 to 5891 feet TVD).

Remarks

| Number | Measured Depth (ft) | Hole Section (in) | Run No. | Remark |
|--------|---------------------------|-------------------------|------------|---------------------------------------------------------------------------------------------------------------------|
| 1 | 10900.16 | 8.500 | 1 | The interval from 10937 to 10950 feet MD (5892 to 5891 feet TVD) has no gamma ray data due to sensor to bit offset. |



Company

Well

Interval

Created

Noble Energy

RILEY LD19-738

Date From:

2016-10-24 00:31:59

Date To:

2016-10-24 20:57:03

2016-10-25 18:40

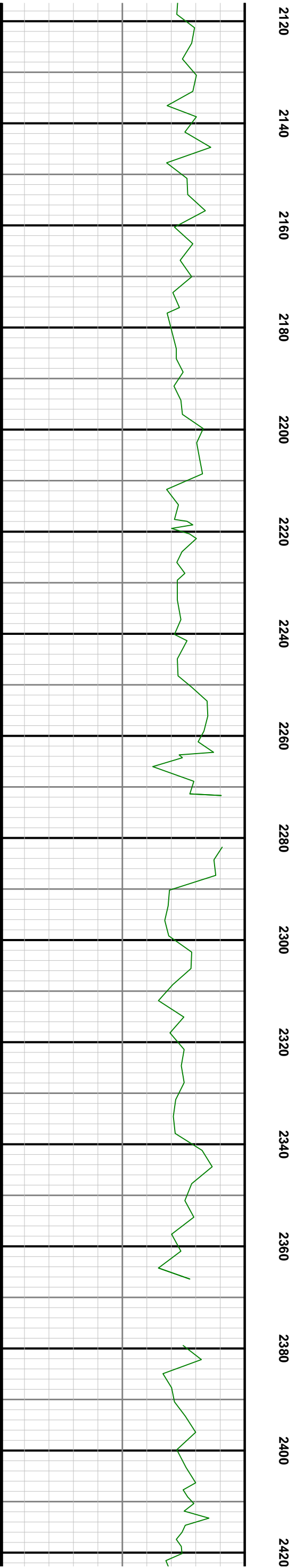
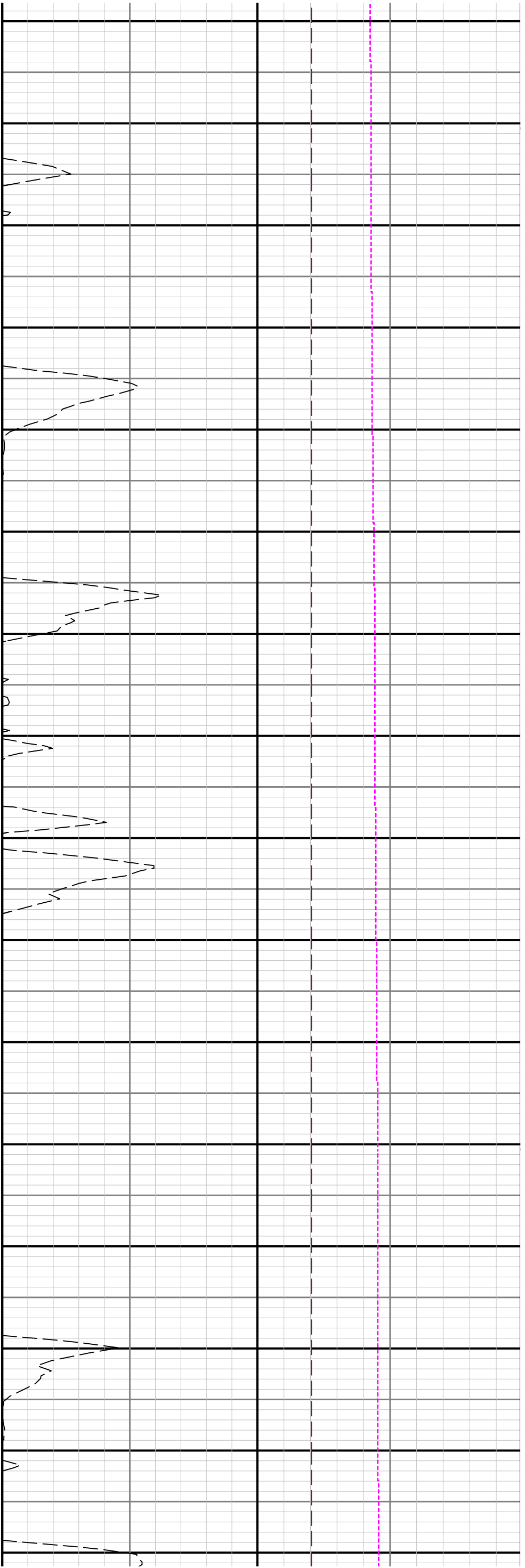
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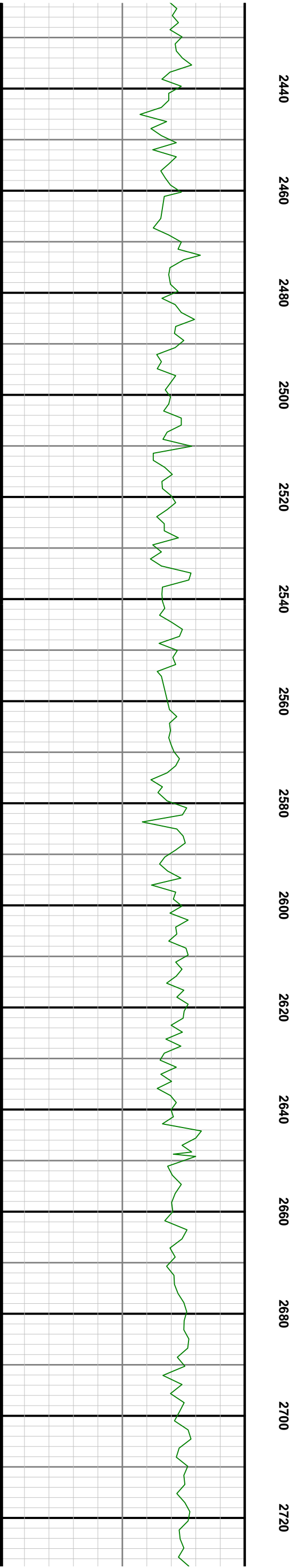
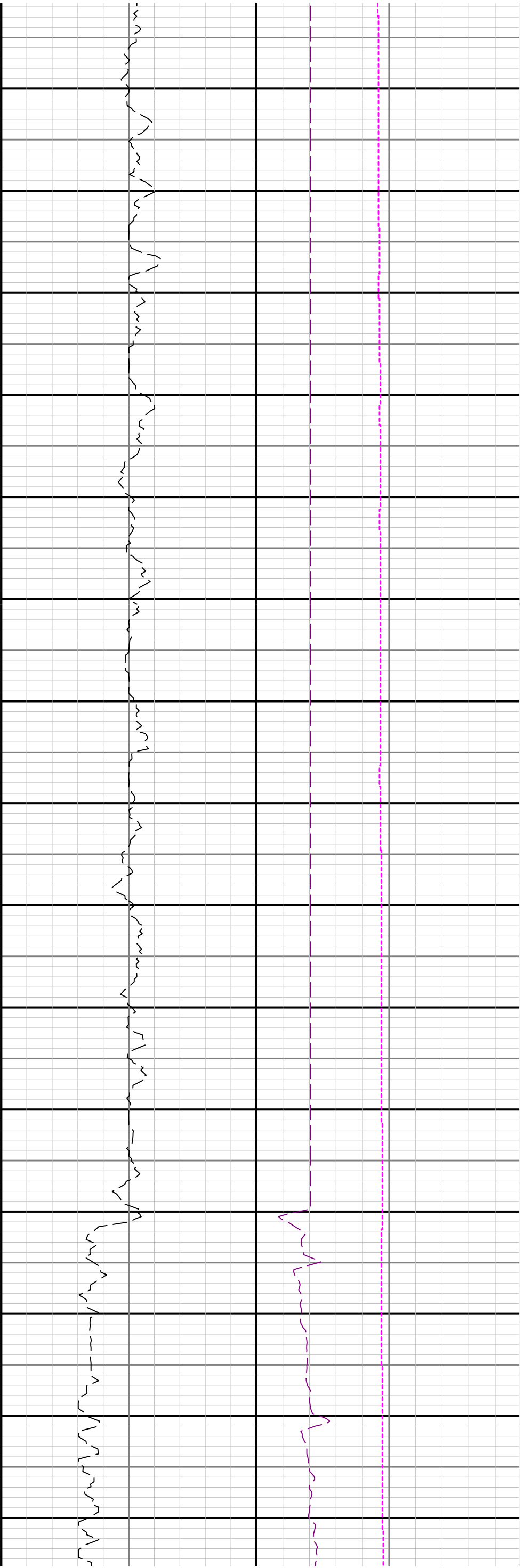
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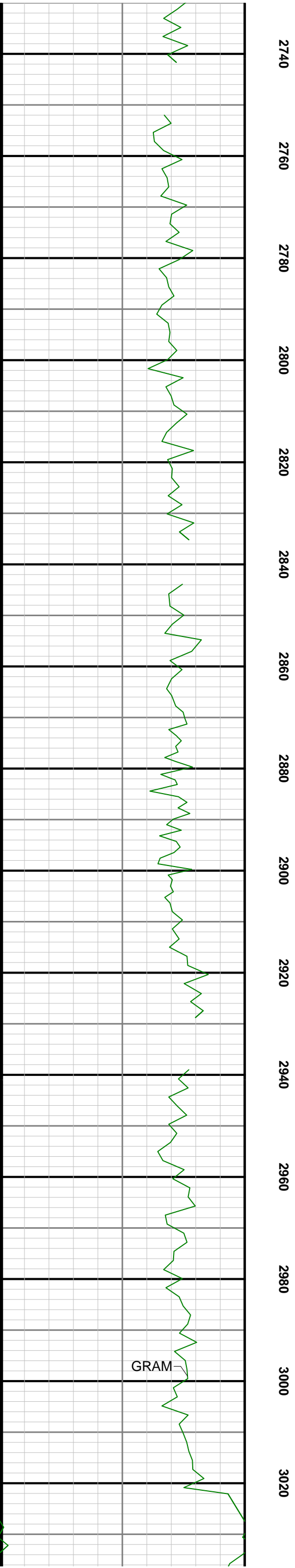
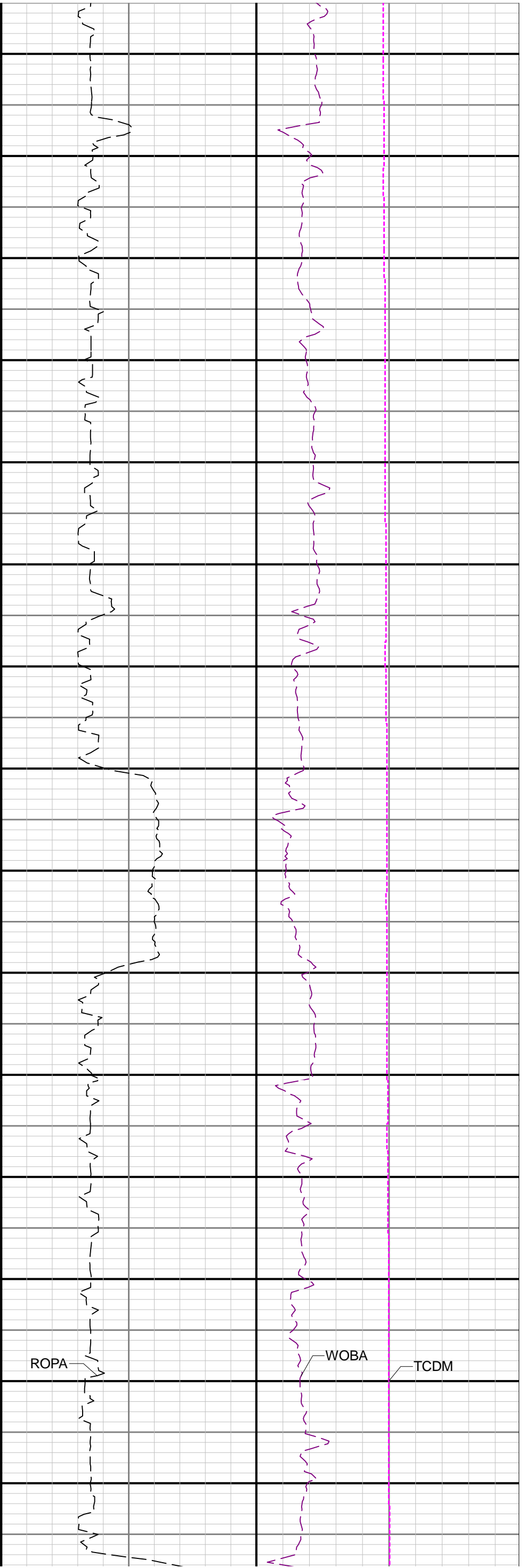
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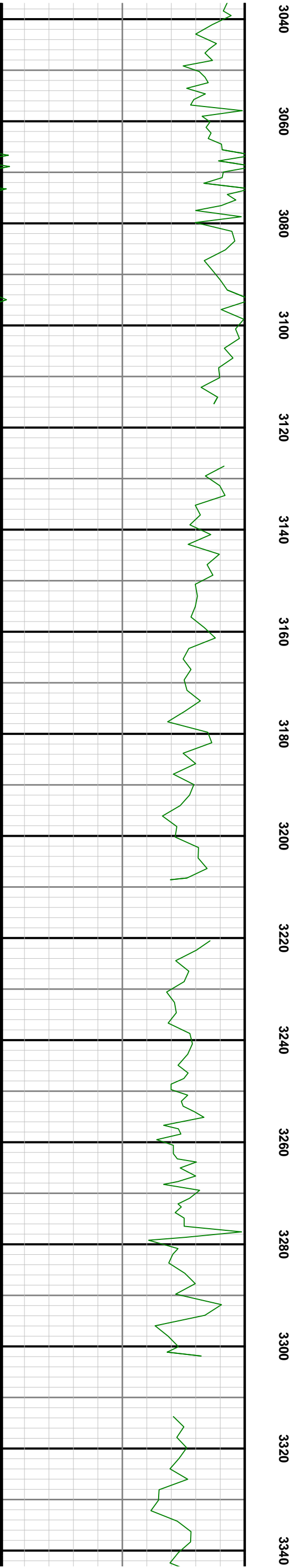
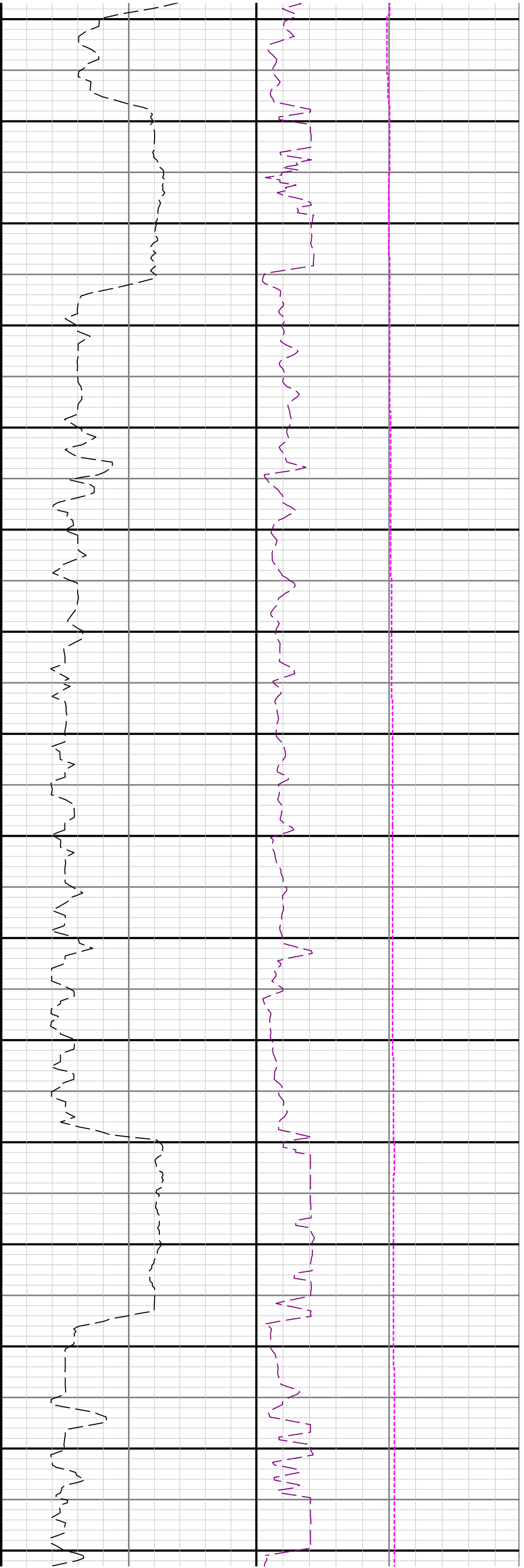
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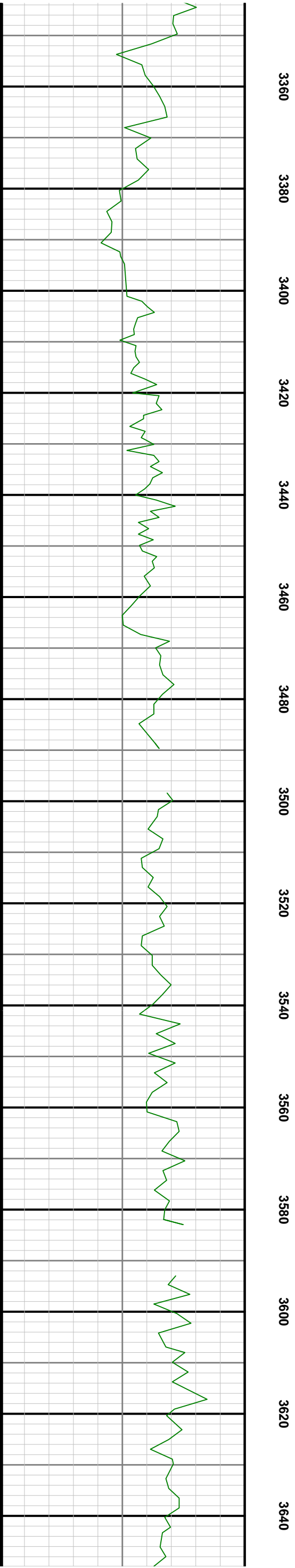
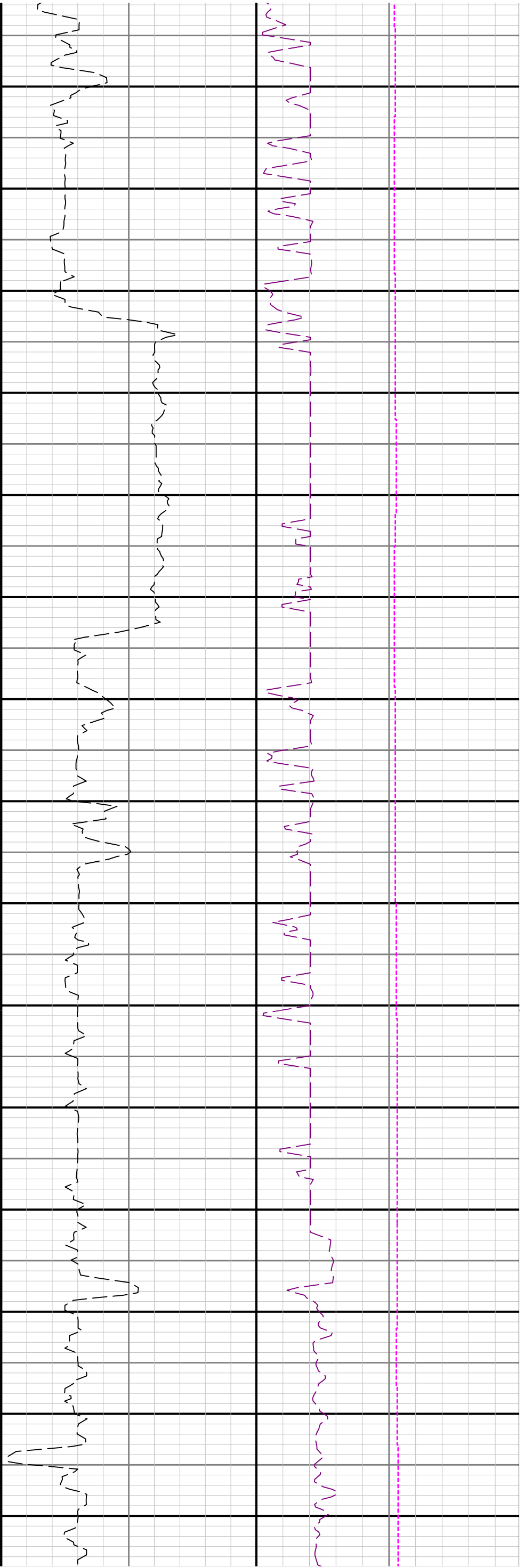
| | | | |
|------------------------------------------|----------------|--------------------------------------|------------------------------------------|
| Gamma Ray - Apparent 0.5 ft Average GRAM | TVD 1:240 feet | Depth Averaged ROP 3 ft Average ROPA | Weight On Bit, Average 1 ft Average WOBA |
| 0150 | | 10000ft/h0 | 050 |
| API | | | klb |
| | | | Downhole Temperature TCDM |
| | | | 0250 |
| | | | degF |
| | 1920 | | |
| | 1940 | | |
| GRAM | 9 5/8" Casing | ROPA | WOBA |
| | 1960 | | TCDM |
| | 1980 | | |
| | 2000 | | |
| | 2020 | | |
| | 2040 | | |
| | 2060 | | |
| | 2080 | | |
| | 2100 | | |

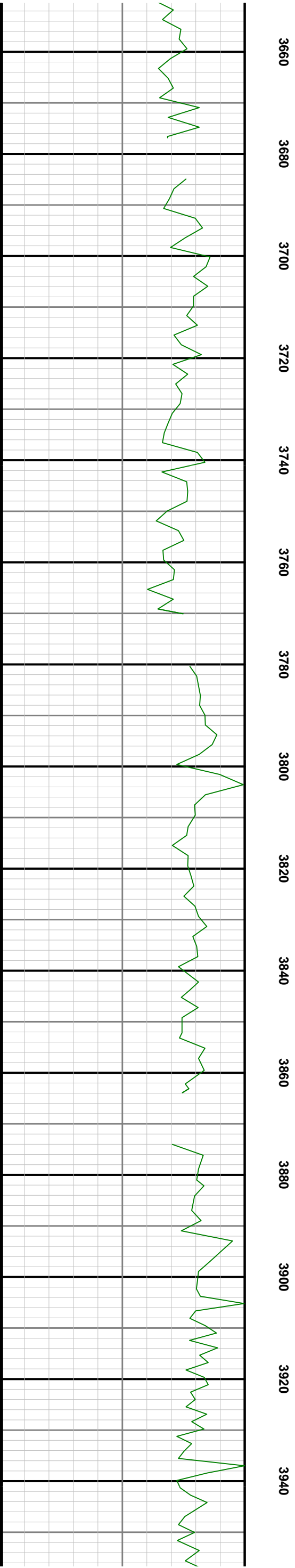
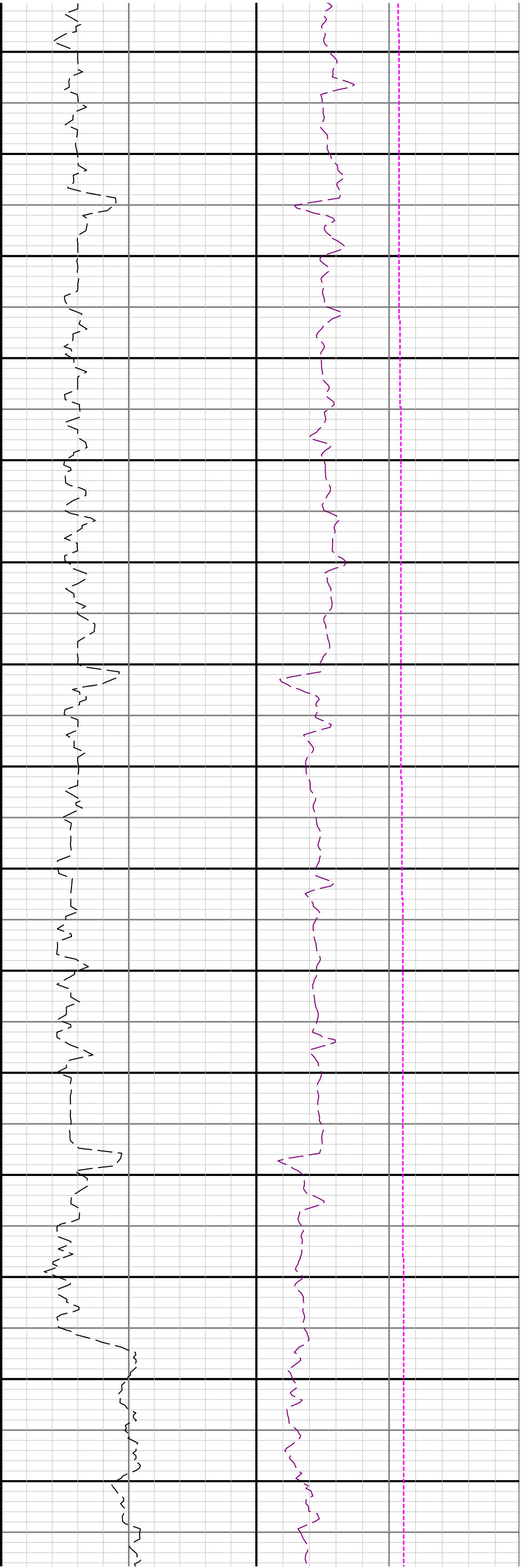


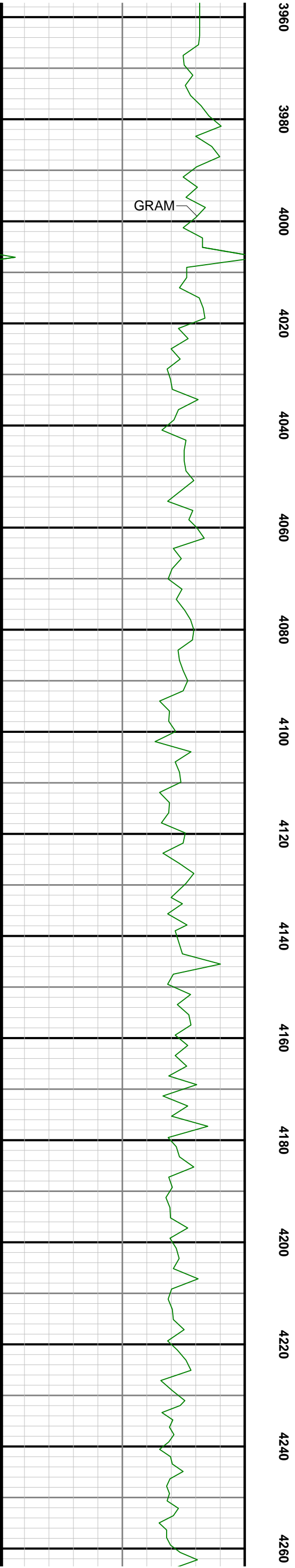
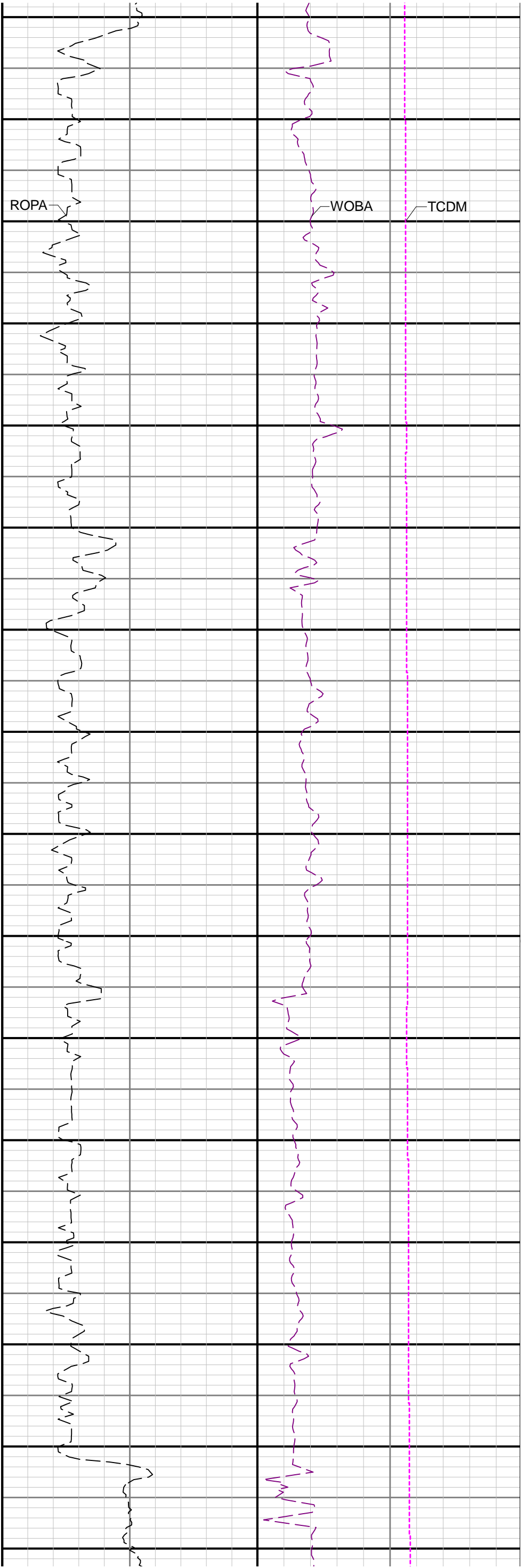


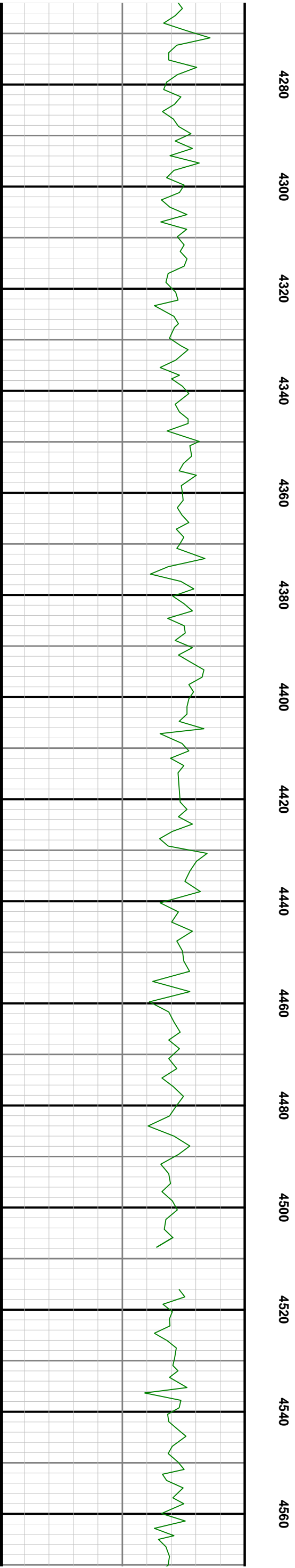
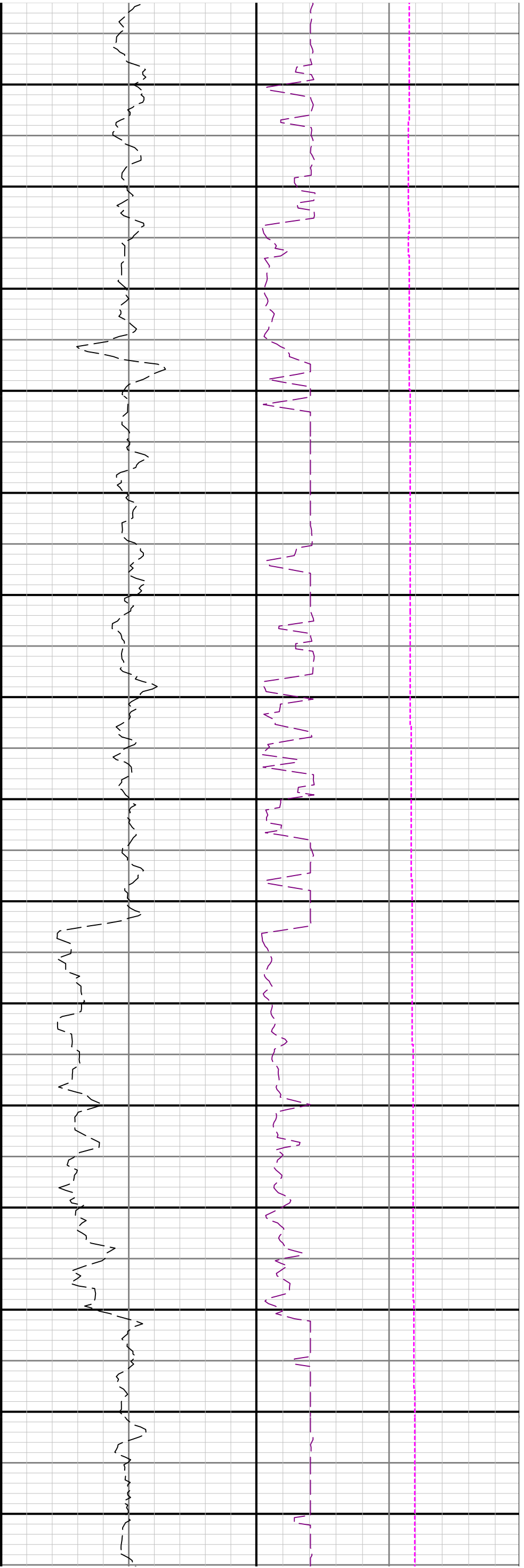


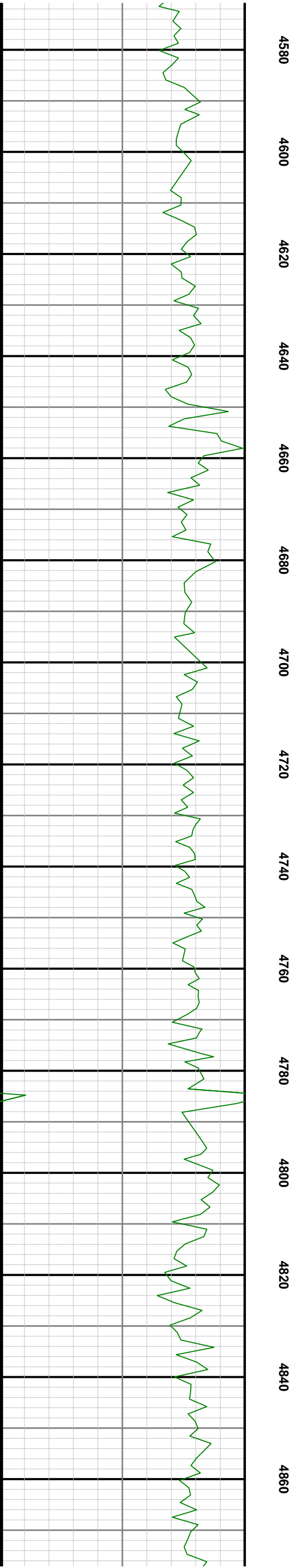
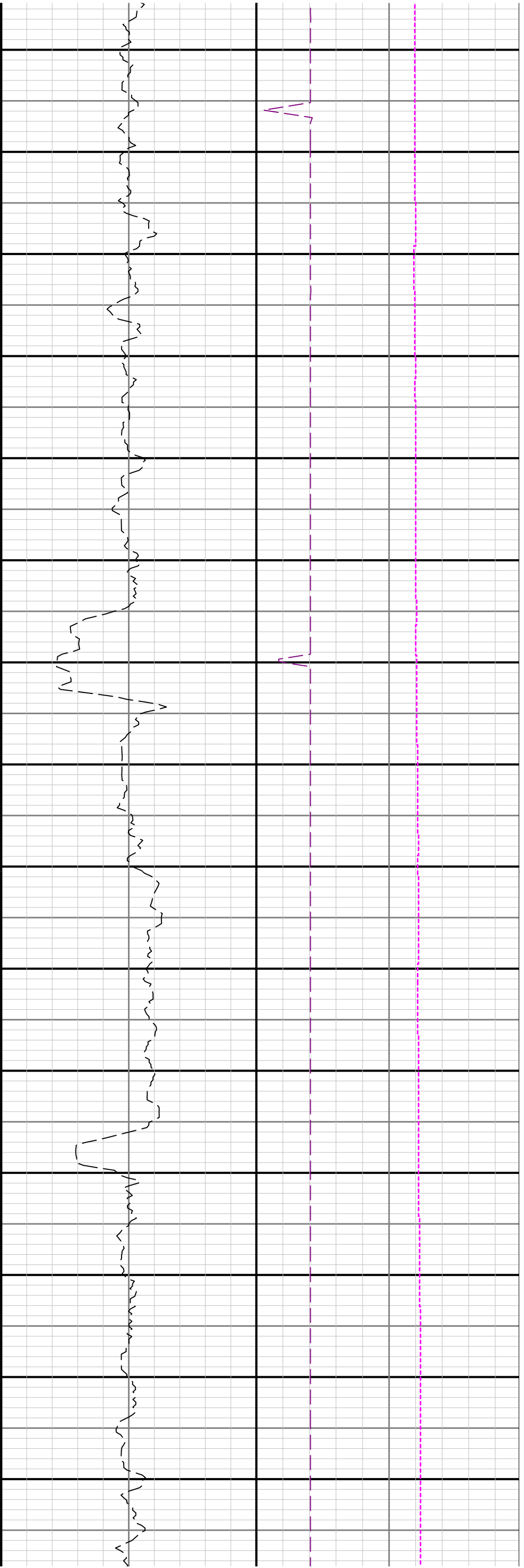


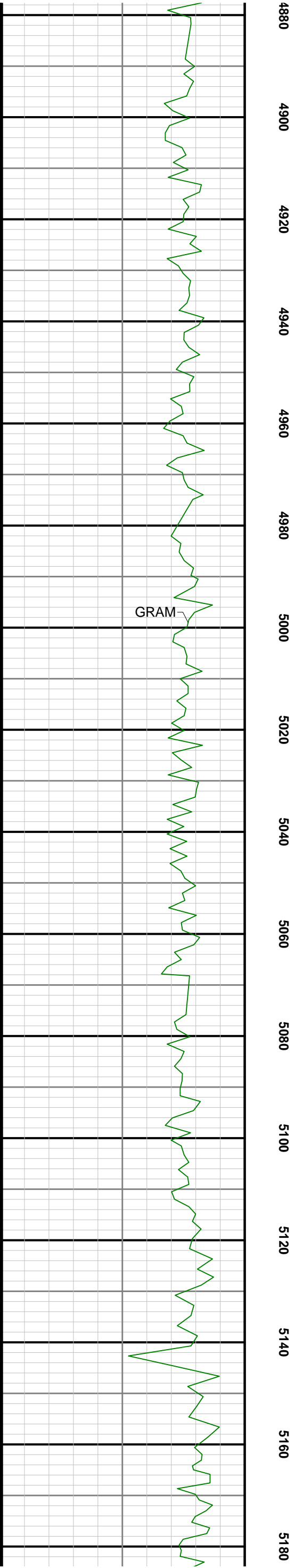
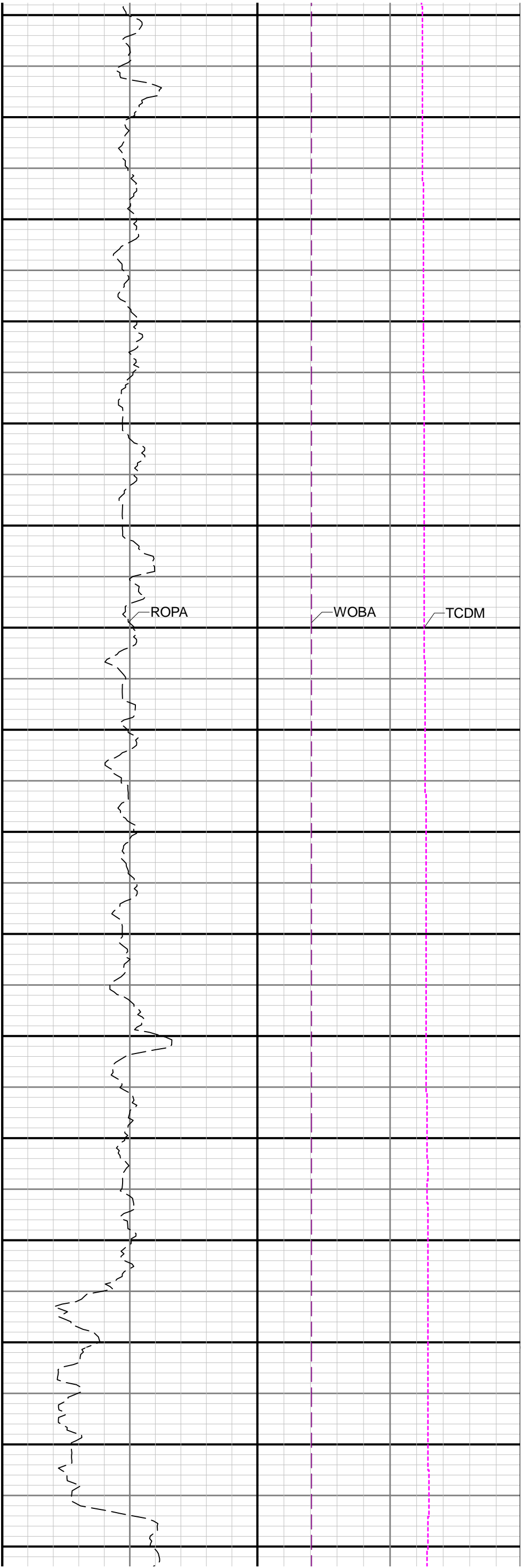


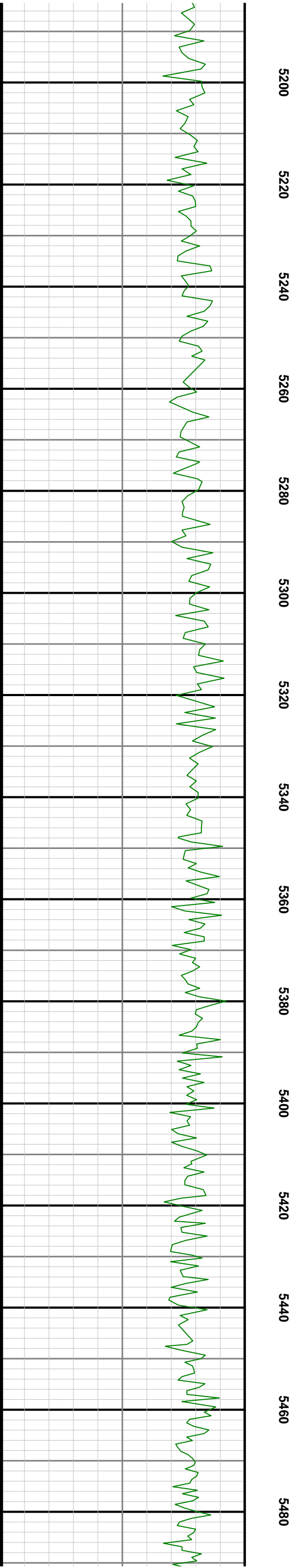
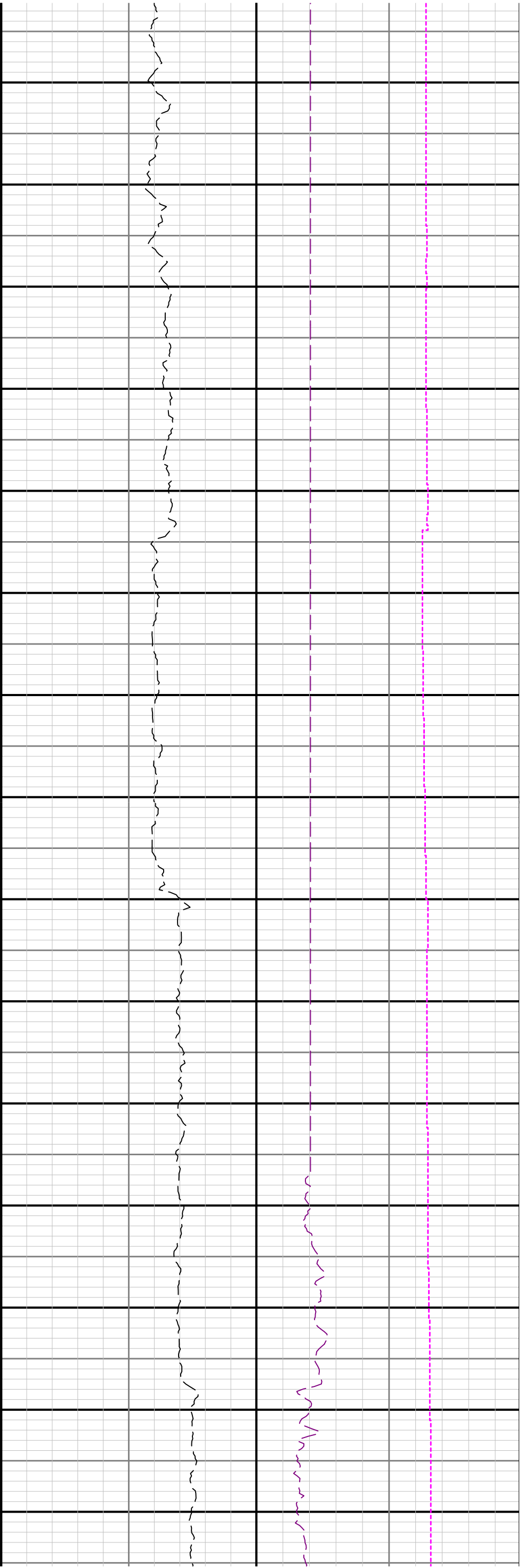


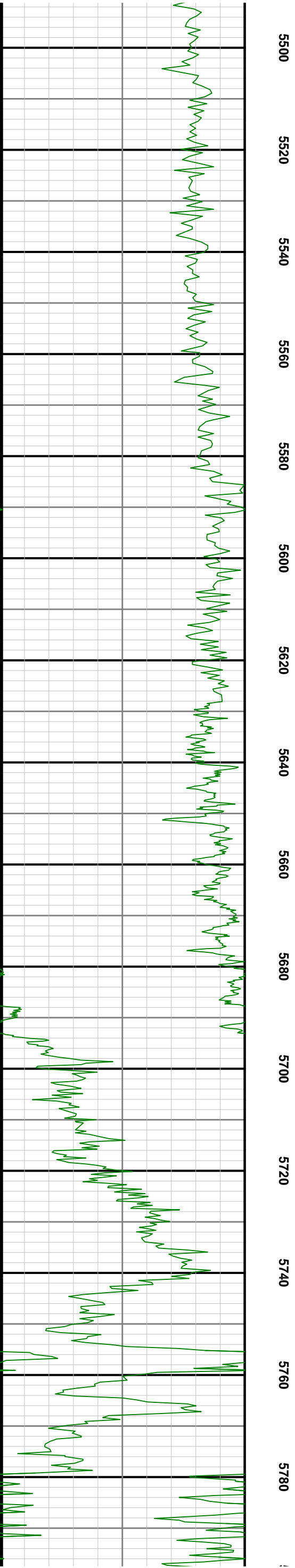












| | | | | | | | | | | | | |
|------------|----------|-------|--------|-----|---------|---------|---------|---------|--------|-------|-------|---------|
| | 2074.00 | 0.04 | 42.33 | N/A | -7.84 | 4.29 | 2073.94 | -8.21 | 95.00 | 1.23 | -1.16 | -137.60 |
| | 2168.00 | 0.03 | 116.46 | N/A | -7.83 | 4.34 | 2167.94 | -8.20 | 94.00 | 0.05 | -0.01 | 78.86 |
| | 2263.00 | 0.90 | 247.06 | N/A | -8.13 | 3.67 | 2262.93 | -8.44 | 95.00 | 0.97 | 0.92 | 137.47 |
| | 2357.00 | 1.96 | 239.18 | N/A | -9.24 | 1.61 | 2356.90 | -9.35 | 94.00 | 1.14 | 1.13 | -8.38 |
| | 2452.00 | 3.31 | 235.64 | N/A | -11.62 | -2.05 | 2451.80 | -11.38 | 95.00 | 1.43 | 1.42 | -3.73 |
| | 2546.00 | 6.00 | 232.77 | N/A | -16.13 | -8.20 | 2545.48 | -15.29 | 94.00 | 2.87 | 2.86 | -3.05 |
| | 2641.00 | 8.46 | 230.21 | N/A | -23.60 | -17.53 | 2639.72 | -21.86 | 95.00 | 2.61 | 2.59 | -2.69 |
| | 2735.00 | 8.78 | 226.67 | N/A | -32.95 | -28.06 | 2732.66 | -30.19 | 94.00 | 0.66 | 0.34 | -3.77 |
| | 2830.00 | 8.89 | 225.85 | N/A | -43.04 | -38.60 | 2826.53 | -39.25 | 95.00 | 0.18 | 0.12 | -0.86 |
| | 2925.00 | 8.89 | 224.60 | N/A | -53.38 | -49.02 | 2920.39 | -48.57 | 95.00 | 0.20 | 0.00 | -1.32 |
| | 3019.00 | 8.99 | 221.11 | N/A | -64.09 | -58.95 | 3013.25 | -58.30 | 94.00 | 0.59 | 0.11 | -3.71 |
| | 3114.00 | 9.27 | 215.86 | N/A | -75.88 | -68.31 | 3107.05 | -69.17 | 95.00 | 0.92 | 0.29 | -5.53 |
| | 3209.00 | 9.43 | 199.87 | N/A | -89.40 | -75.44 | 3200.80 | -81.96 | 95.00 | 2.73 | 0.17 | -16.83 |
| | 3303.00 | 9.20 | 174.93 | N/A | -104.14 | -77.40 | 3293.60 | -96.45 | 94.00 | 4.27 | -0.24 | -26.53 |
| | 3398.00 | 9.10 | 173.83 | N/A | -119.17 | -75.92 | 3387.39 | -111.56 | 95.00 | 0.21 | -0.11 | -1.16 |
| | 3492.00 | 8.81 | 176.49 | N/A | -133.74 | -74.68 | 3480.24 | -126.18 | 94.00 | 0.54 | -0.31 | 2.83 |
| | 3587.00 | 9.19 | 182.72 | N/A | -148.58 | -74.59 | 3574.08 | -140.97 | 95.00 | 1.10 | 0.40 | 6.56 |
| | 3681.00 | 9.06 | 190.27 | N/A | -163.36 | -76.27 | 3666.89 | -155.53 | 94.00 | 1.28 | -0.14 | 8.03 |
| | 3776.00 | 9.03 | 200.28 | N/A | -177.72 | -80.19 | 3760.72 | -169.45 | 95.00 | 1.65 | -0.03 | 10.54 |
| | 3870.00 | 9.13 | 212.48 | N/A | -190.93 | -86.75 | 3853.55 | -181.99 | 94.00 | 2.05 | 0.11 | 12.98 |
| | 3965.00 | 9.03 | 219.44 | N/A | -203.05 | -95.53 | 3947.36 | -193.24 | 95.00 | 1.16 | -0.11 | 7.33 |
| | 4060.00 | 8.96 | 223.04 | N/A | -214.21 | -105.32 | 4041.19 | -203.44 | 95.00 | 0.60 | -0.07 | 3.79 |
| | 4249.00 | 9.47 | 225.53 | N/A | -235.86 | -126.46 | 4227.75 | -223.02 | 189.00 | 0.34 | 0.27 | 1.32 |
| | 4438.00 | 9.32 | 228.66 | N/A | -256.86 | -149.04 | 4414.22 | -241.82 | 189.00 | 0.28 | -0.08 | 1.66 |
| | 4533.00 | 9.37 | 234.45 | N/A | -266.44 | -161.11 | 4507.96 | -250.22 | 95.00 | 0.99 | 0.05 | 6.09 |
| | 4627.00 | 9.37 | 239.89 | N/A | -274.73 | -173.96 | 4600.71 | -257.28 | 94.00 | 0.94 | 0.00 | 5.79 |
| | 4721.00 | 9.42 | 248.40 | N/A | -281.40 | -187.73 | 4693.45 | -262.63 | 94.00 | 1.48 | 0.05 | 9.05 |
| | 4816.00 | 9.38 | 244.13 | N/A | -287.64 | -201.92 | 4787.18 | -267.52 | 95.00 | 0.74 | -0.04 | -4.49 |
| | 4910.00 | 9.38 | 232.00 | N/A | -295.70 | -214.85 | 4879.93 | -274.33 | 94.00 | 2.10 | 0.00 | -12.90 |
| | 5004.00 | 9.30 | 222.18 | N/A | -306.04 | -225.99 | 4972.69 | -283.59 | 94.00 | 1.70 | -0.09 | -10.45 |
| | 5193.00 | 9.48 | 200.11 | N/A | -331.98 | -241.60 | 5159.22 | -307.96 | 189.00 | 1.90 | 0.10 | -11.68 |
| | 5288.00 | 9.45 | 194.04 | N/A | -346.90 | -246.18 | 5252.93 | -322.38 | 95.00 | 1.05 | -0.03 | -6.39 |
| | 5382.00 | 8.91 | 228.09 | N/A | -359.25 | -253.48 | 5345.79 | -334.00 | 94.00 | 5.72 | -0.57 | 36.22 |
| | 5477.00 | 11.75 | 262.68 | N/A | -365.41 | -268.56 | 5439.33 | -338.72 | 95.00 | 7.04 | 2.99 | 36.41 |
| | 5571.00 | 17.17 | 293.50 | N/A | -361.08 | -290.83 | 5530.44 | -332.34 | 94.00 | 9.82 | 5.77 | 32.79 |
| | 5666.00 | 21.87 | 323.56 | N/A | -341.20 | -314.27 | 5620.18 | -310.35 | 95.00 | 11.51 | 4.95 | 31.64 |
| | 5760.00 | 33.59 | 338.65 | N/A | -302.72 | -334.23 | 5703.34 | -270.17 | 94.00 | 14.45 | 12.47 | 16.05 |
| | 5855.00 | 40.01 | 357.34 | N/A | -247.50 | -345.26 | 5779.61 | -214.17 | 95.00 | 13.52 | 6.76 | 19.67 |
| | 5949.00 | 47.43 | 6.78 | N/A | -182.79 | -342.57 | 5847.57 | -149.99 | 94.00 | 10.49 | 7.89 | 10.04 |
| | 6044.00 | 60.42 | 8.04 | N/A | -106.82 | -332.62 | 5903.39 | -75.28 | 95.00 | 13.72 | 13.67 | 1.33 |
| | 6139.00 | 75.77 | 7.91 | N/A | -19.79 | -320.43 | 5938.73 | 10.23 | 95.00 | 16.16 | 16.16 | -0.14 |
| | 6233.00 | 91.60 | 7.80 | N/A | 72.47 | -307.71 | 5949.04 | 100.90 | 94.00 | 16.84 | 16.84 | -0.12 |
| | 6328.00 | 92.80 | 6.56 | N/A | 166.65 | -295.84 | 5945.39 | 193.56 | 95.00 | 1.82 | 1.26 | -1.31 |
| | 6422.00 | 91.38 | 5.07 | N/A | 260.10 | -286.32 | 5941.96 | 285.71 | 94.00 | 2.19 | -1.51 | -1.59 |
| | 6517.00 | 91.60 | 4.65 | N/A | 354.73 | -278.28 | 5939.49 | 379.17 | 95.00 | 0.50 | 0.23 | -0.44 |
| | 6612.00 | 91.51 | 3.24 | N/A | 449.46 | -271.75 | 5936.91 | 472.88 | 95.00 | 1.49 | -0.09 | -1.48 |
| | 6706.00 | 91.42 | 358.82 | N/A | 543.39 | -270.06 | 5934.51 | 566.25 | 94.00 | 4.70 | -0.10 | -4.70 |
| | 6801.00 | 91.60 | 353.38 | N/A | 638.11 | -276.51 | 5932.00 | 661.15 | 95.00 | 5.73 | 0.19 | -5.73 |
| | 6895.00 | 91.38 | 349.21 | N/A | 730.97 | -290.73 | 5929.56 | 754.93 | 94.00 | 4.44 | -0.23 | -4.44 |
| | 6990.00 | 91.45 | 349.48 | N/A | 824.30 | -308.29 | 5927.21 | 849.50 | 95.00 | 0.29 | 0.07 | 0.28 |
| | 7084.00 | 91.54 | 350.04 | N/A | 916.78 | -325.00 | 5924.76 | 943.13 | 94.00 | 0.60 | 0.10 | 0.60 |
| | 7179.00 | 91.48 | 350.18 | N/A | 1010.33 | -341.31 | 5922.26 | 1037.80 | 95.00 | 0.16 | -0.06 | 0.15 |
| | 7274.00 | 90.25 | 351.02 | N/A | 1104.04 | -356.82 | 5920.82 | 1132.55 | 95.00 | 1.57 | -1.29 | 0.88 |
| | 7369.00 | 90.37 | 352.92 | N/A | 1198.10 | -370.09 | 5920.31 | 1227.44 | 95.00 | 2.00 | 0.13 | 2.00 |
| | 7463.00 | 90.37 | 354.59 | N/A | 1291.54 | -380.32 | 5919.70 | 1321.42 | 94.00 | 1.78 | 0.00 | 1.78 |
| | 7558.00 | 90.55 | 356.55 | N/A | 1386.25 | -387.65 | 5918.94 | 1416.40 | 95.00 | 2.07 | 0.19 | 2.06 |
| | 7652.00 | 90.40 | 357.61 | N/A | 1480.12 | -392.44 | 5918.16 | 1510.31 | 94.00 | 1.14 | -0.16 | 1.13 |
| | 7747.00 | 90.25 | 357.74 | N/A | 1575.04 | -396.30 | 5917.62 | 1605.18 | 95.00 | 0.21 | -0.16 | 0.14 |
| | 7841.00 | 90.37 | 358.98 | N/A | 1669.00 | -398.99 | 5917.11 | 1698.97 | 94.00 | 1.33 | 0.13 | 1.32 |
| | 7936.00 | 90.34 | 0.83 | N/A | 1764.00 | -399.14 | 5916.52 | 1793.57 | 95.00 | 1.95 | -0.03 | 1.95 |
| | 8031.00 | 90.55 | 1.90 | N/A | 1858.96 | -396.88 | 5915.78 | 1887.91 | 95.00 | 1.15 | 0.22 | 1.13 |
| | 8125.00 | 90.46 | 1.65 | N/A | 1952.92 | -393.97 | 5914.96 | 1981.18 | 94.00 | 0.28 | -0.10 | -0.27 |
| | 8220.00 | 90.43 | 2.20 | N/A | 2047.86 | -390.78 | 5914.22 | 2075.41 | 95.00 | 0.58 | -0.03 | 0.58 |
| | 8315.00 | 90.65 | 2.00 | N/A | 2142.79 | -387.30 | 5913.32 | 2169.60 | 95.00 | 0.31 | 0.23 | -0.21 |
| | 8409.00 | 90.46 | 1.74 | N/A | 2236.74 | -384.23 | 5912.41 | 2262.85 | 94.00 | 0.34 | -0.20 | -0.28 |
| | 8504.00 | 90.52 | 0.27 | N/A | 2331.72 | -382.56 | 5911.60 | 2357.26 | 95.00 | 1.55 | 0.06 | -1.55 |
| | 8598.00 | 90.52 | 1.69 | N/A | 2425.70 | -380.96 | 5910.75 | 2450.68 | 94.00 | 1.51 | 0.00 | 1.51 |
| | 8693.00 | 90.58 | 0.57 | N/A | 2520.67 | -379.08 | 5909.83 | 2545.06 | 95.00 | 1.18 | 0.06 | -1.18 |
| | 8788.00 | 90.52 | 0.02 | N/A | 2615.67 | -378.59 | 5908.92 | 2639.59 | 95.00 | 0.58 | -0.06 | -0.58 |
| | 8882.00 | 90.65 | 359.53 | N/A | 2709.66 | -378.96 | 5907.96 | 2733.21 | 94.00 | 0.54 | 0.14 | -0.52 |
| | 8977.00 | 90.52 | 359.87 | N/A | 2804.65 | -379.46 | 5906.99 | 2827.84 | 95.00 | 0.38 | -0.14 | 0.36 |
| | 9072.00 | 90.52 | 359.03 | N/A | 2899.64 | -380.37 | 5906.13 | 2922.50 | 95.00 | 0.88 | 0.00 | -0.88 |
| | 9167.00 | 90.34 | 358.03 | N/A | 2994.61 | -382.81 | 5905.42 | 3017.27 | 95.00 | 1.07 | -0.19 | -1.05 |
| | 9261.00 | 90.46 | 357.38 | N/A | 3088.53 | -386.57 | 5904.76 | 3111.14 | 94.00 | 0.70 | 0.13 | -0.69 |
| | 9356.00 | 90.68 | 356.93 | N/A | 3183.41 | -391.29 | 5903.82 | 3206.04 | 95.00 | 0.53 | 0.23 | -0.47 |
| | 9451.00 | 90.40 | 356.39 | N/A | 3278.24 | -396.82 | 5902.92 | 3300.98 | 95.00 | 0.64 | -0.29 | -0.57 |
| | 9545.00 | 90.15 | 354.19 | N/A | 3371.92 | -404.54 | 5902.47 | 3394.96 | 94.00 | 2.36 | -0.27 | -2.34 |
| | 9640.00 | 90.40 | 353.74 | N/A | 3466.39 | -414.53 | 5902.01 | 3489.96 | 95.00 | 0.54 | 0.26 | -0.47 |
| | 9734.00 | 90.40 | 353.32 | N/A | 3559.79 | -425.12 | 5901.36 | 3583.94 | 94.00 | 0.45 | 0.00 | -0.45 |
| | 9829.00 | 90.52 | 354.01 | N/A | 3654.21 | -435.60 | 5900.59 | 3678.92 | 95.00 | 0.74 | 0.13 | 0.73 |
| | 9924.00 | 90.58 | 355.03 | N/A | 3748.77 | -444.67 | 5899.68 | 3773.91 | 95.00 | 1.08 | 0.06 | 1.07 |
| | 10019.00 | 90.52 | 355.54 | N/A | 3843.44 | -452.48 | 5898.77 | 3868.90 | 95.00 | 0.54 | -0.06 | 0.54 |
| | 10114.00 | 90.62 | 355.46 | N/A | 3938.14 | -459.94 | 5897.83 | 3963.89 | 95.00 | 0.13 | 0.11 | -0.08 |
| | 10208.00 | 90.52 | 357.51 | N/A | 4031.96 | -465.70 | 5896.89 | 4057.83 | 94.00 | 2.18 | -0.11 | 2.18 |
| | 10302.00 | 90.46 | 358.29 | N/A | 4125.89 | -469.14 | 5896.09 | 4151.67 | 94.00 | 0.83 | -0.06 | 0.83 |
| | 10397.00 | 90.34 | 358.64 | N/A | 4220.85 | -471.69 | 5895.42 | 4246.46 | 95.00 | 0.39 | -0.13 | 0.37 |
| | 10491.00 | 90.43 | 359.34 | N/A | 4314.83 | -473.34 | 5894.79 | 4340.18 | 94.00 | 0.75 | 0.10 | 0.74 |
| | 10586.00 | 90.52 | 358.67 | N/A | 4409.82 | -474.99 | 5894.00 | 4434.90 | 95.00 | 0.71 | 0.09 | -0.71 |
| | 10681.00 | 90.62 | 359.17 | N/A | 4504.79 | -476.78 | 5893.06 | 4529.63 | 95.00 | 0.54 | 0.11 | 0.53 |
| | 10775.00 | 90.52 | 359.76 | N/A | 4598.78 | -477.66 | 5892.12 | 4623.30 | 94.00 | 0.64 | -0.11 | 0.63 |
| | 10870.00 | 90.34 | 0.87 | N/A | 4693.78 | -477.14 | 5891.41 | 4717.83 | 95.00 | 1.18 | -0.19 | 1.17 |
| | 10926.00 | 90.43 | 1.36 | N/A | 4749.77 | -476.05 | 5891.03 | 4773.47 | 56.00 | 0.89 | 0.16 | 0.87 |
| Projection | 10950.00 | 90.43 | 1.36 | N/A | 4773.76 | -475.48 | 5890.85 | 4797.30 | 24.00 | 0.00 | 0.00 | 0.00 |