



CATHEDRAL

Cathedral Energy Services
1949 North Pyrite Road
Casper, Wyoming 82604

145319

5":100' - MD

11/4/2014 5:58:46 PM

Oper. Company: Encana Oil & Gas (USA) Inc.**Country:** U.S.A.**State / Province:** Colorado**County / Parish:** Weld**Started:** 09/20/2014 03:00 AM**API/UWI:** 05-123-37614-00**Field:** Wattenberg (Niobrara)**Well:** Drieth 4B-6H-I368**Rig:** Helmrich & Payne Drilling 522**Ended:** 09/27/2014 02:00 AM

Gamma Ray
Section Plane: 270.0
Magnetic North: 8.70
Gamma Attenuation Factor: 2.74
Gamma Averaging: 7%

Personnel

Day Hand: J. Nichols**Night Hand:** T. Kaspch**Comp. Emp:**

Maximum Temperature: 208°F

Location

Latitude: 40.254190**Longitude:** -105.038560**Elev. GL:** 5110**Elev. DF:****Elev. KB:** 5140

Log and Survey Depths Relative to Kelly Bushing (KB) Depth

Hole Data

| Size | From | To |
|--------|------|-------|
| 12-1/4 | 0 | 880 |
| 8-3/4 | 880 | 7615 |
| 6-1/8 | 7615 | 11493 |

Casing Data

| Size | From | To |
|-------|------|-------|
| 9-5/8 | 0 | 870 |
| 7 | 0 | 7605 |
| 4-1/2 | 0 | 11483 |

Bit Sizes

| Size | From | To |
|--------|------|-------|
| 12-1/4 | 0 | 880 |
| 8-3/4 | 880 | 7615 |
| 6-1/8 | 7615 | 11493 |

Mud Data

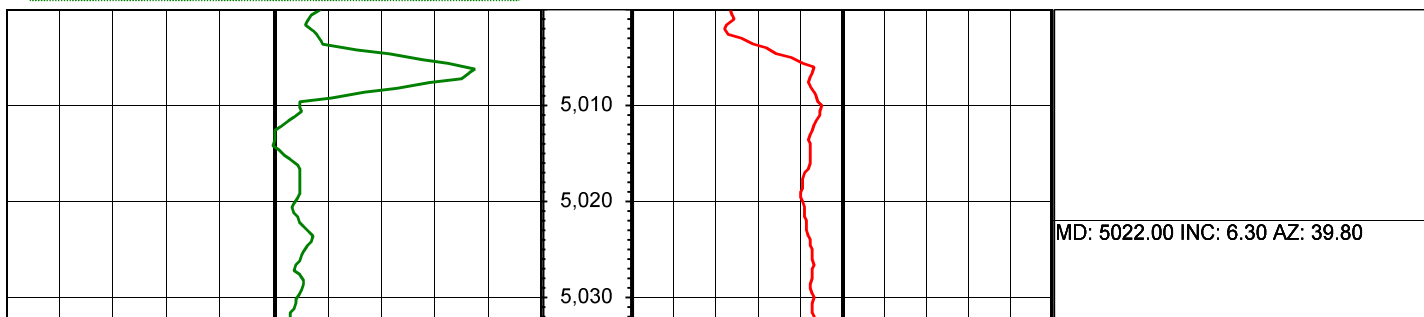
| Type | Weight | Density | Viscosity | Rm | Rmf | Rmc | From | To |
|------|--------|---------|-----------|----|-----|-----|------|----|
|------|--------|---------|-----------|----|-----|-----|------|----|

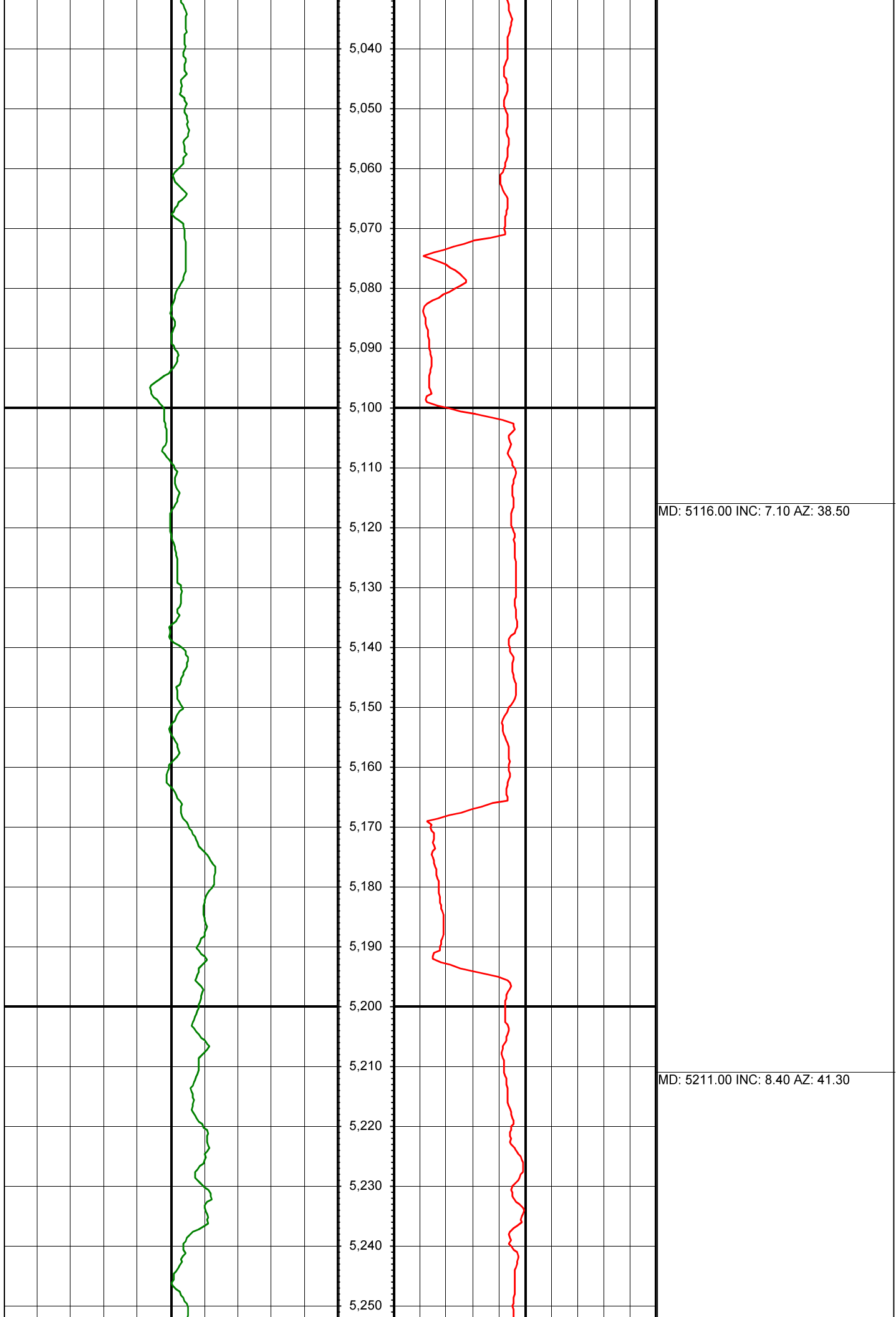
Tool Run Data

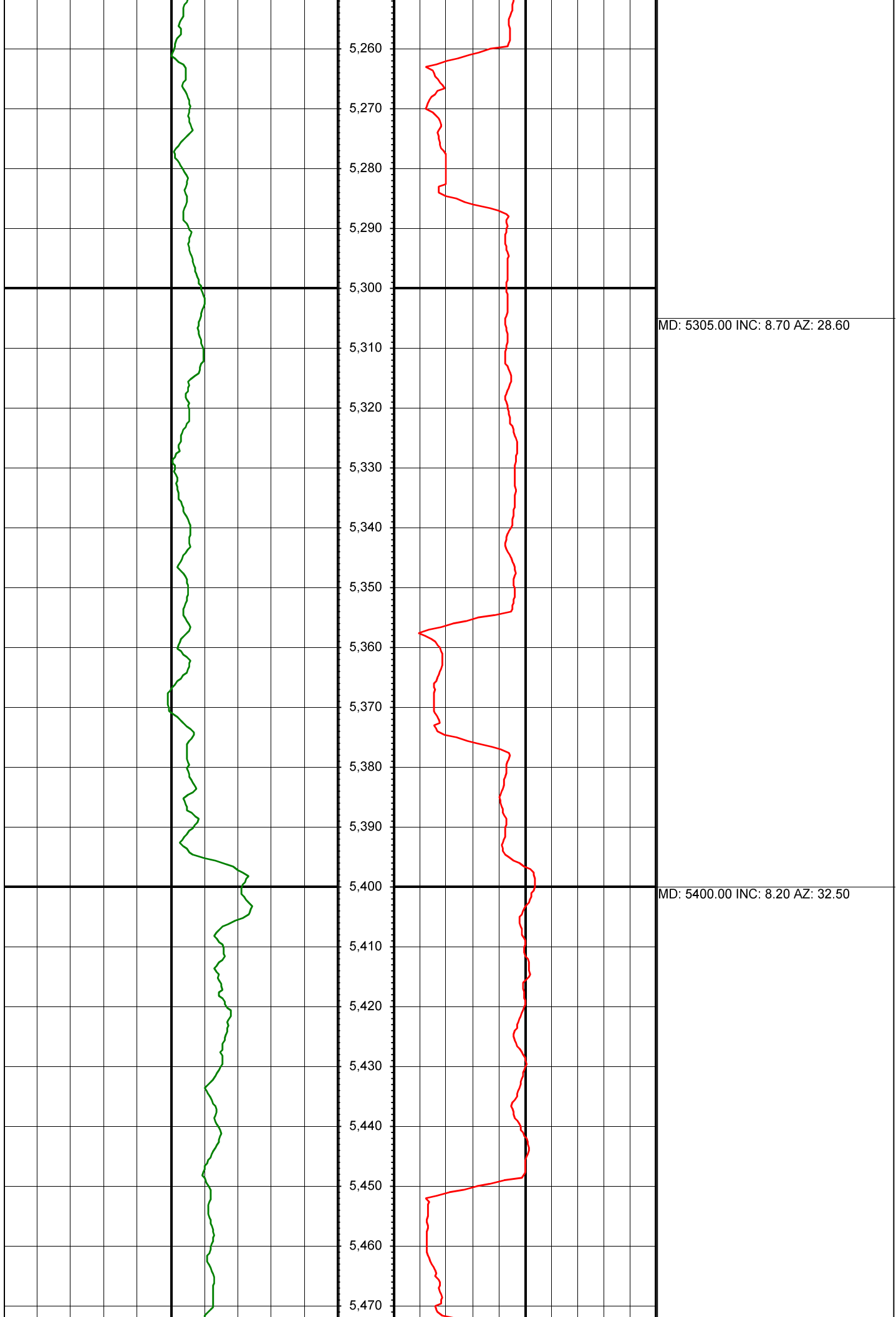
| Serial Number | Gamma Offset | Resist. Offset | Start Time | Start Depth | End Time | End Depth |
|---------------|--------------|----------------|------------|-------------|----------|-----------|
|---------------|--------------|----------------|------------|-------------|----------|-----------|

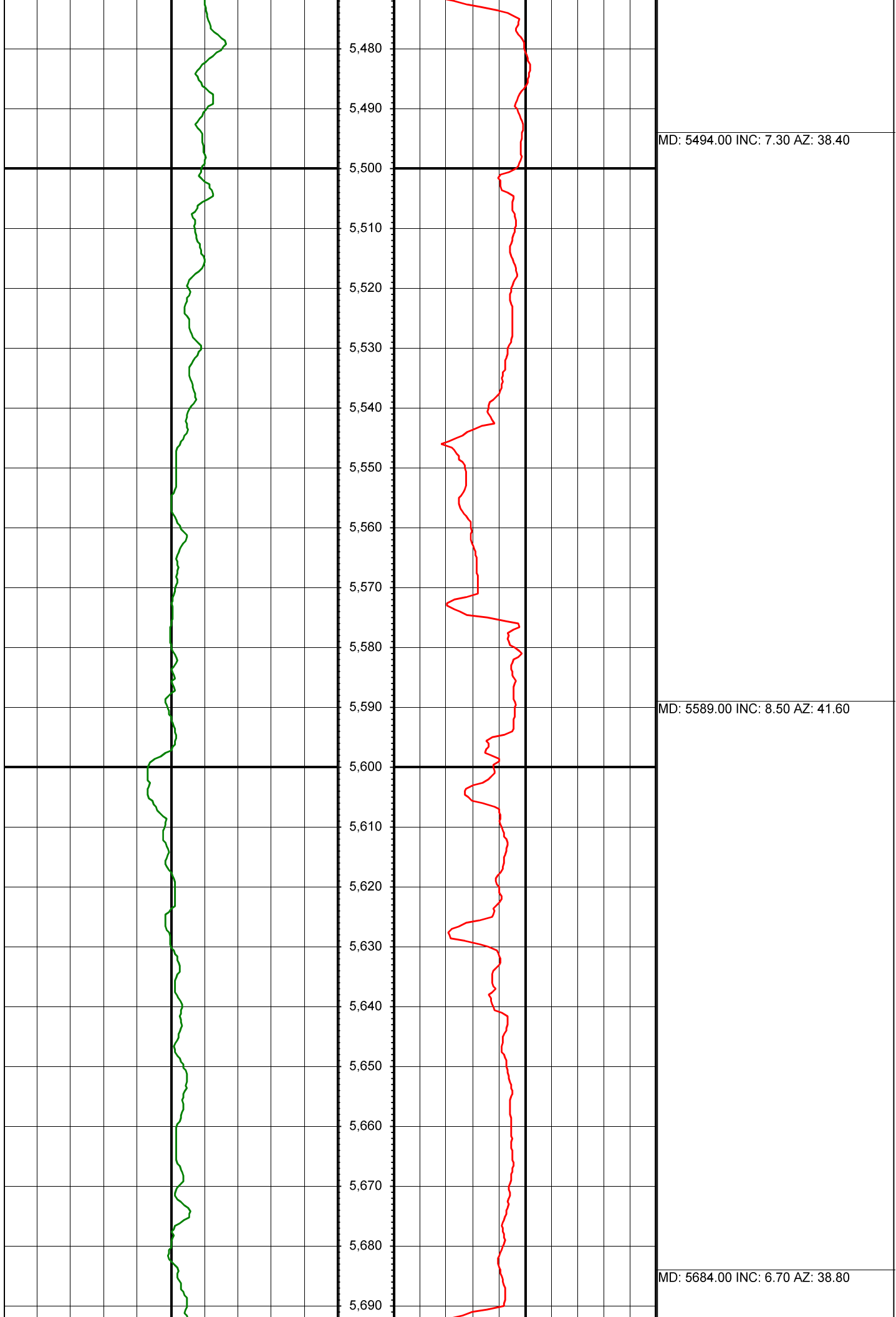
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost damages or expenses incurred or sustained by anyone resulting from an interpretation made by any of our officers, agents, or employees.

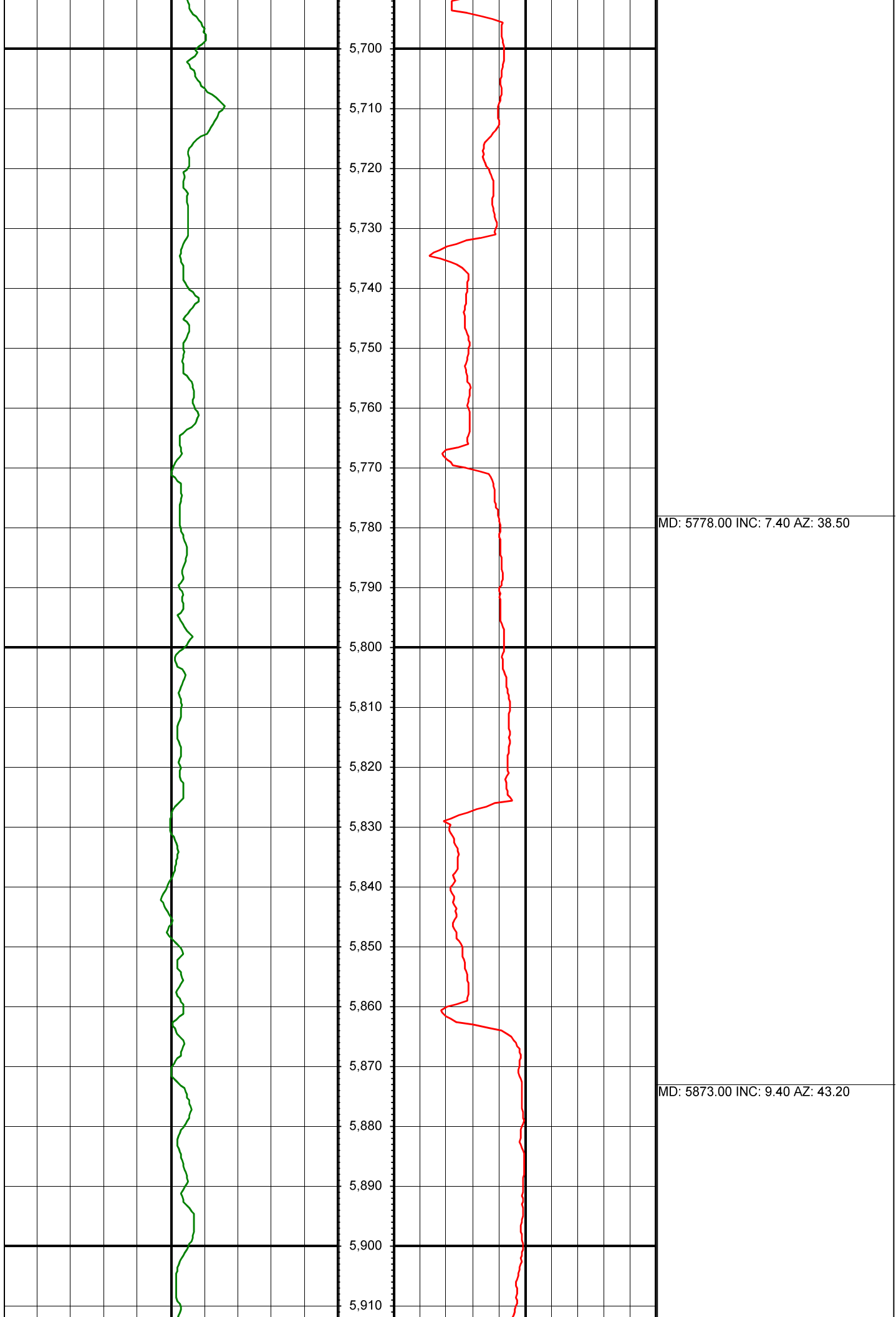
0.00 Gamma Ray (API) 150.00 MD 0.00 ROP (FT/HR) 600.00 Surveys (MD/INC/AZ)
150.00 2 300.00 FT

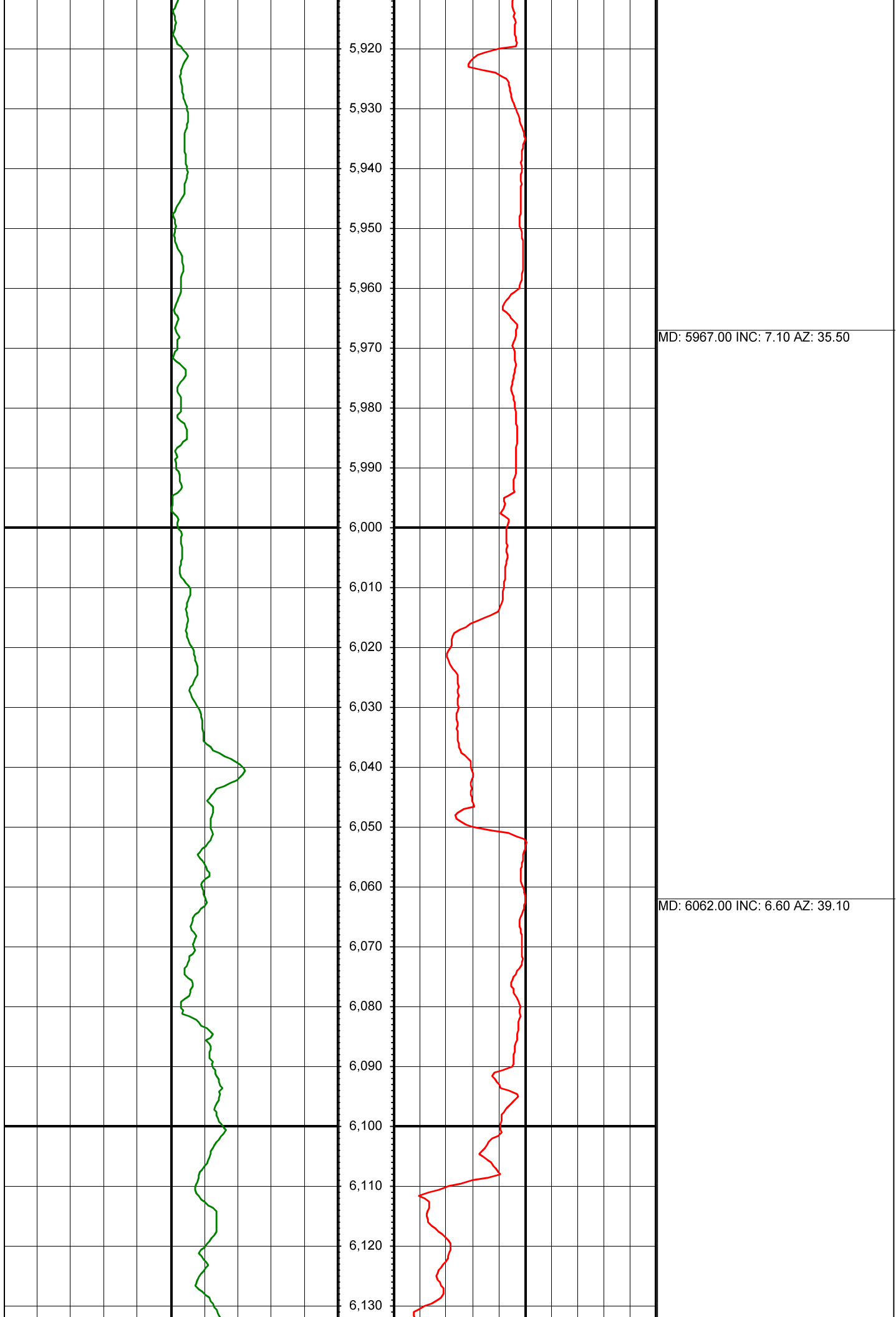


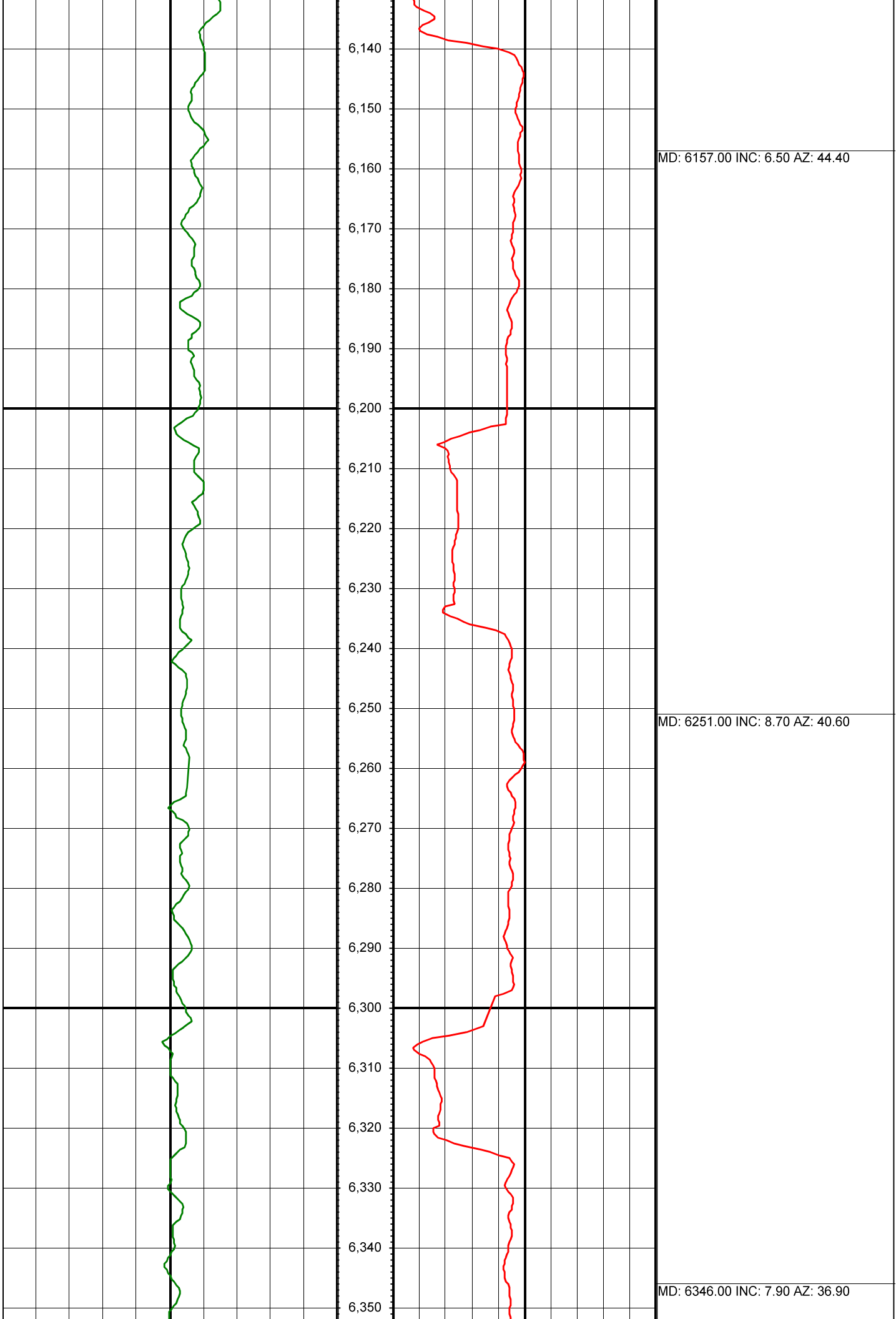


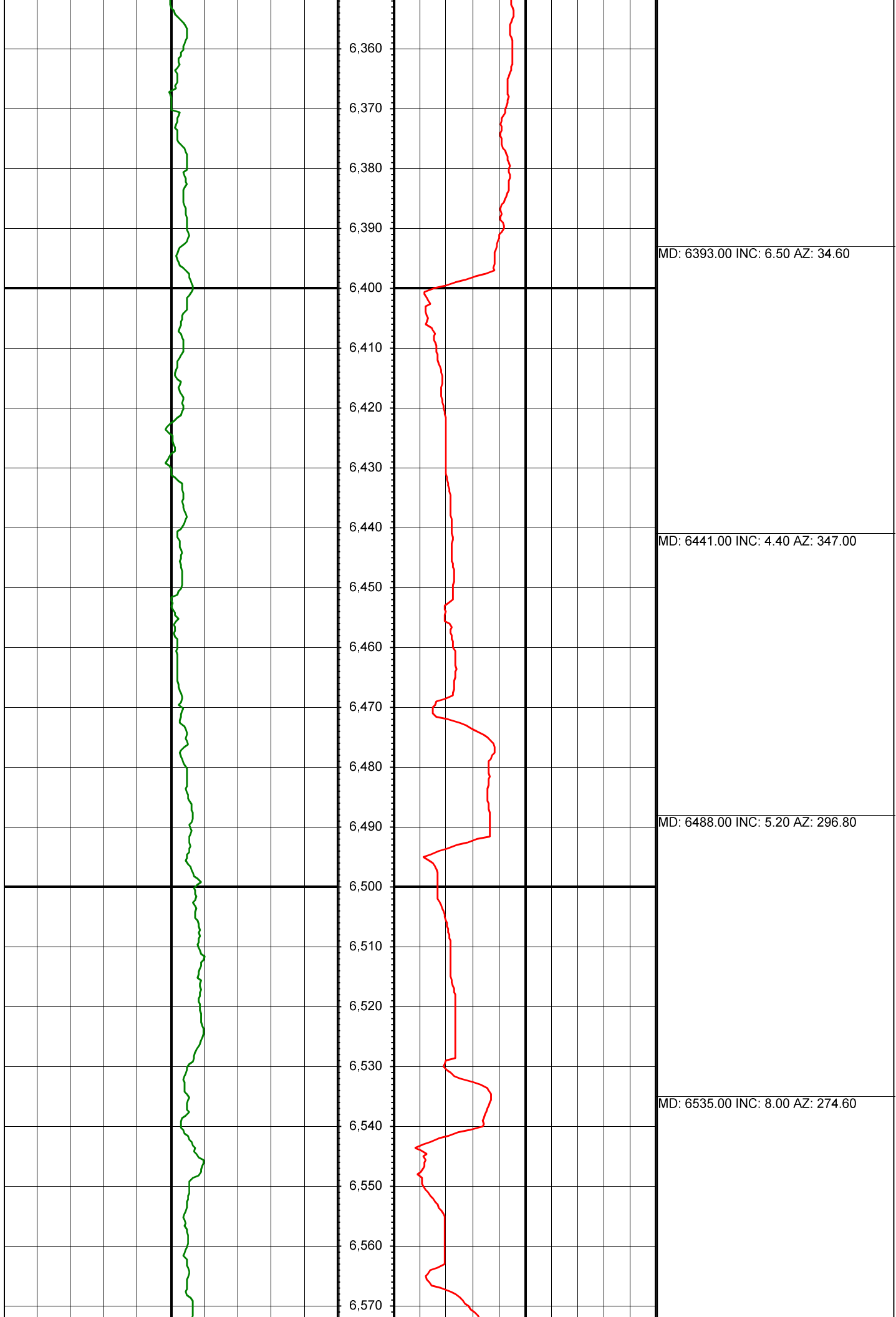


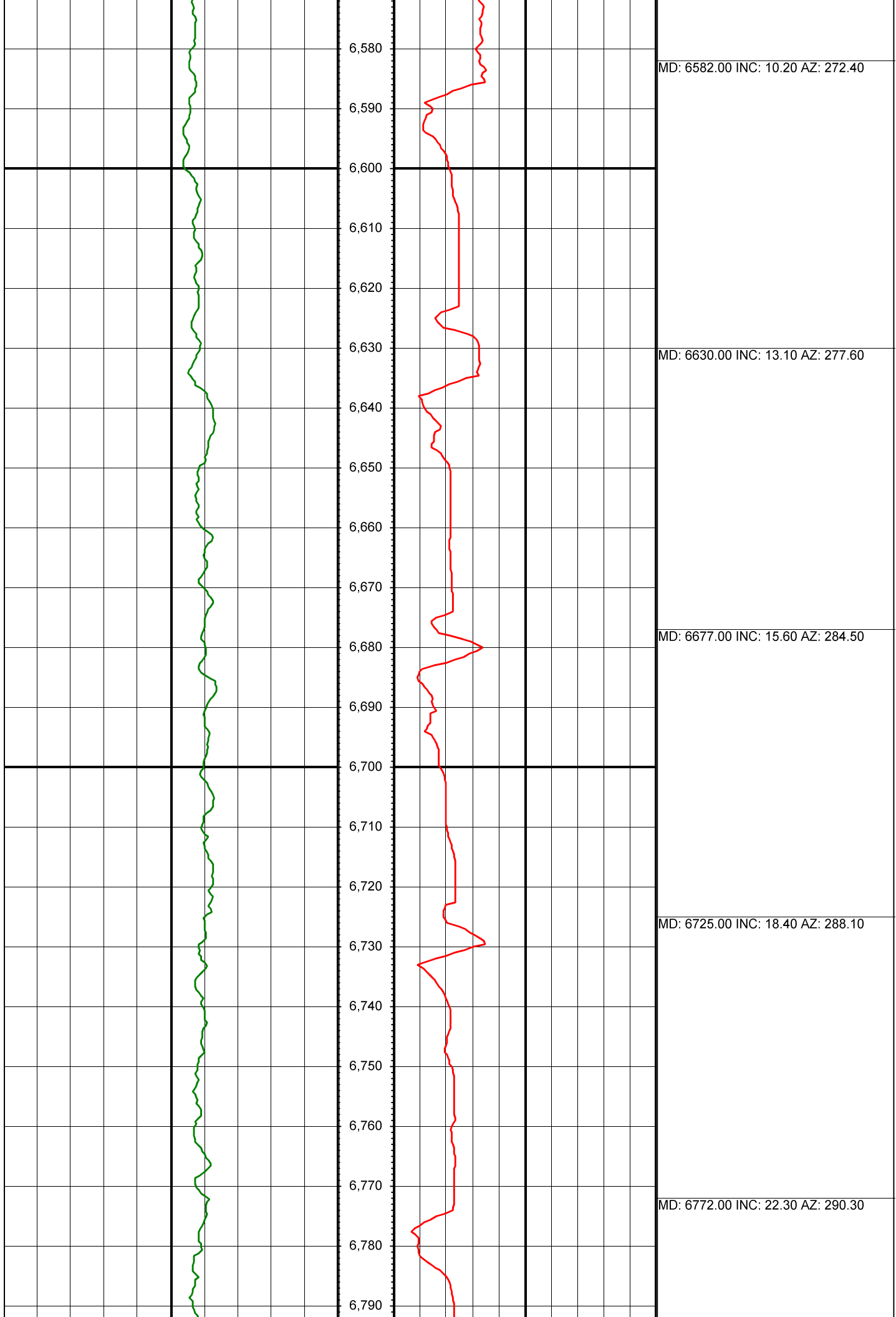


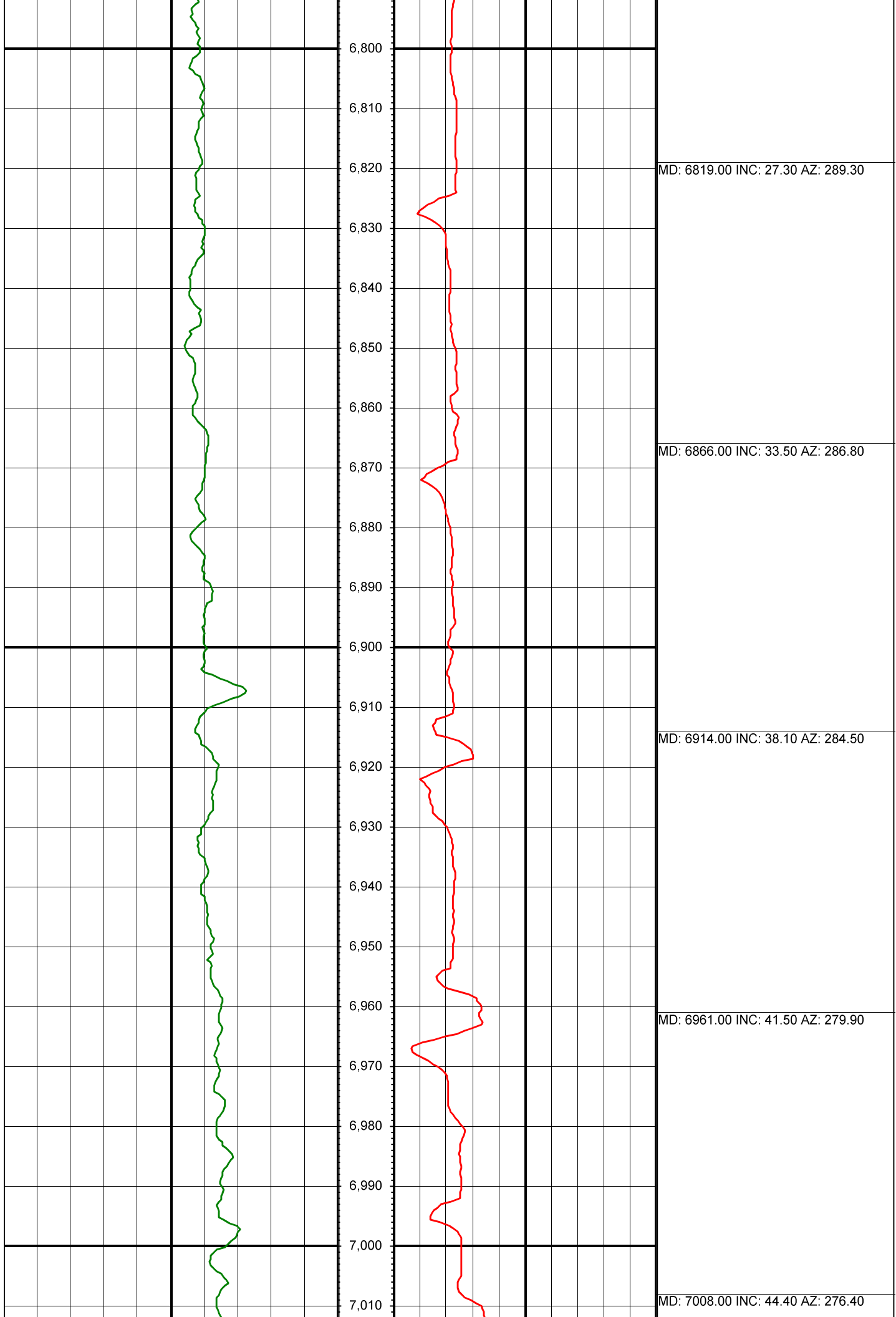


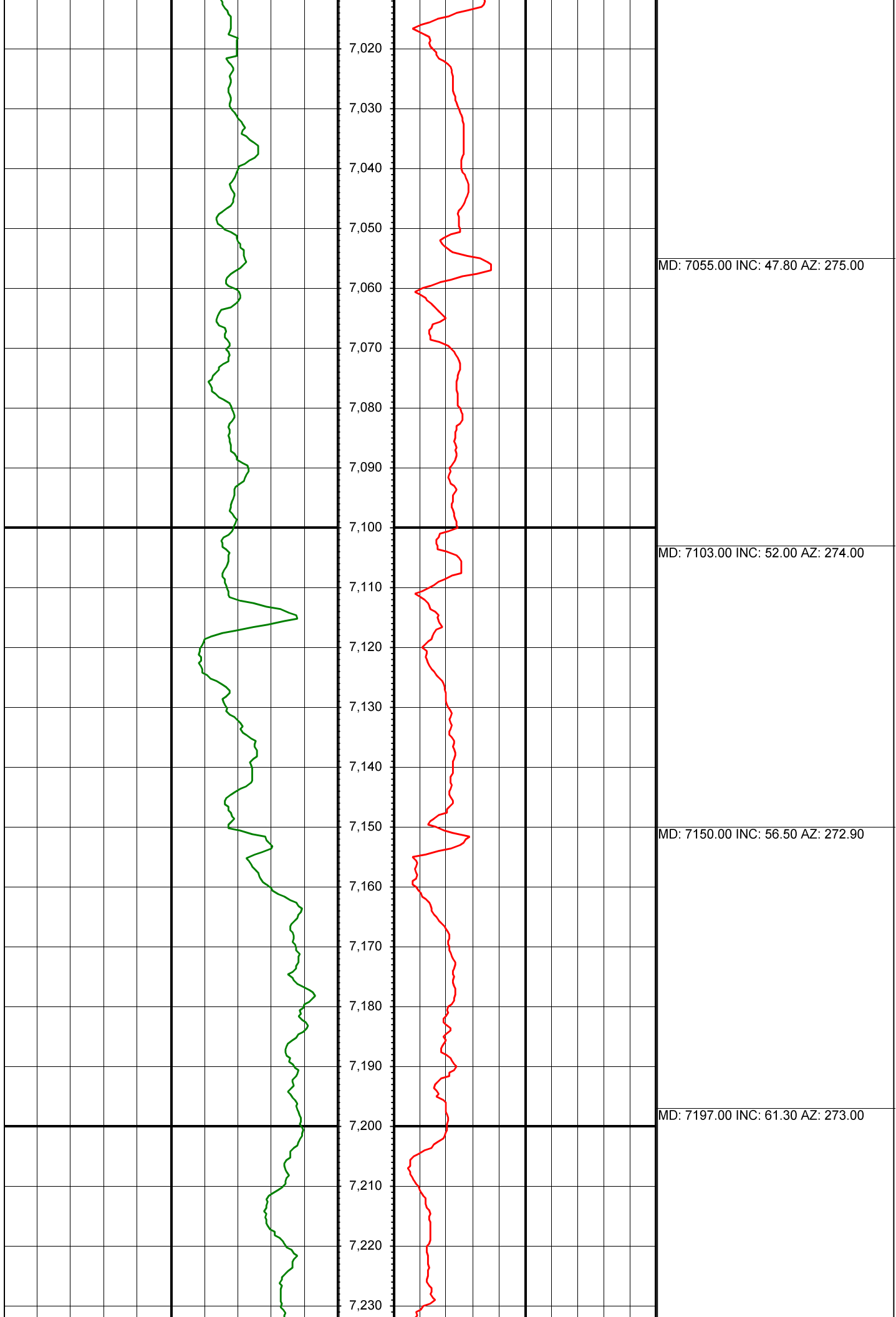


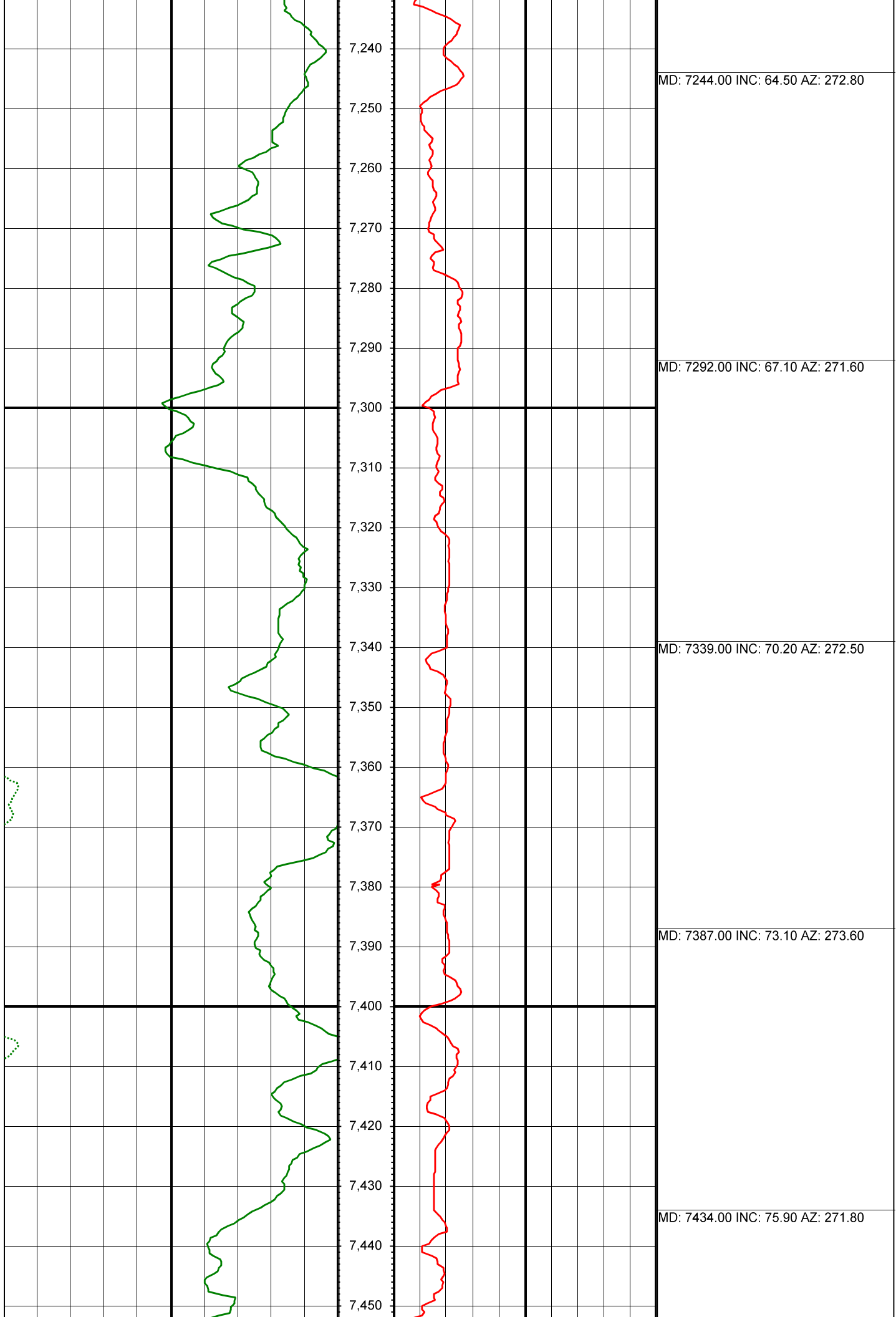


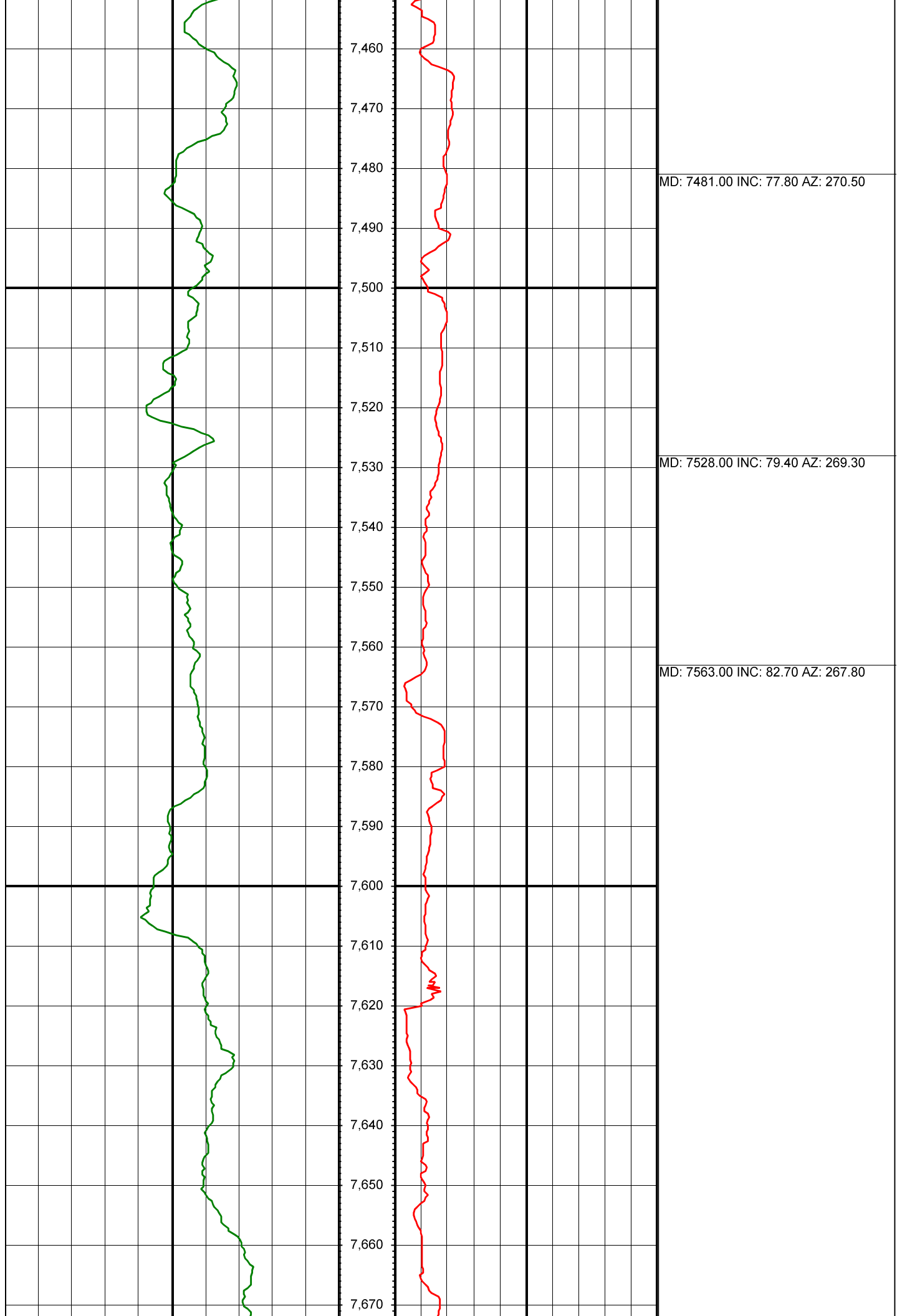


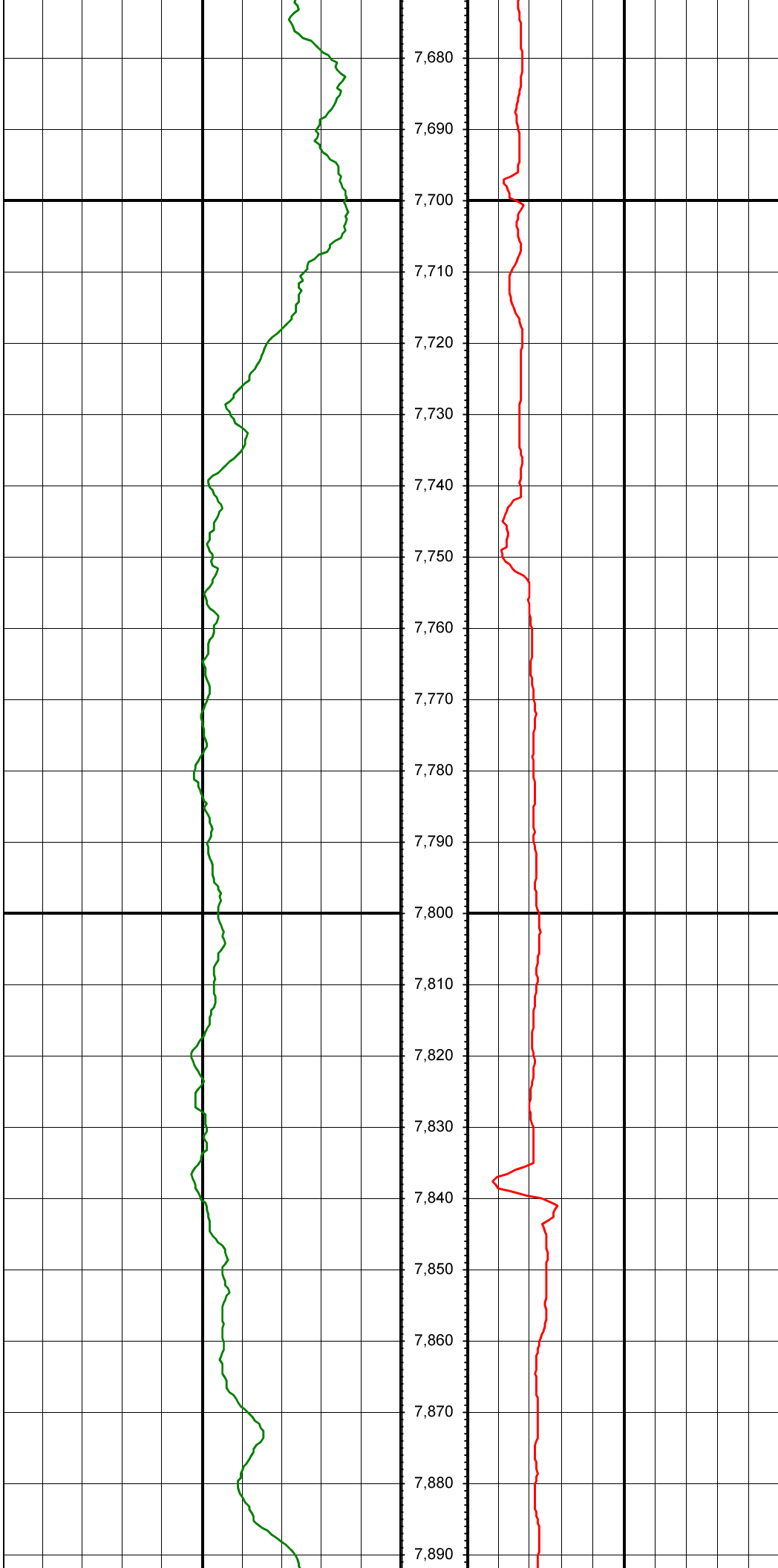








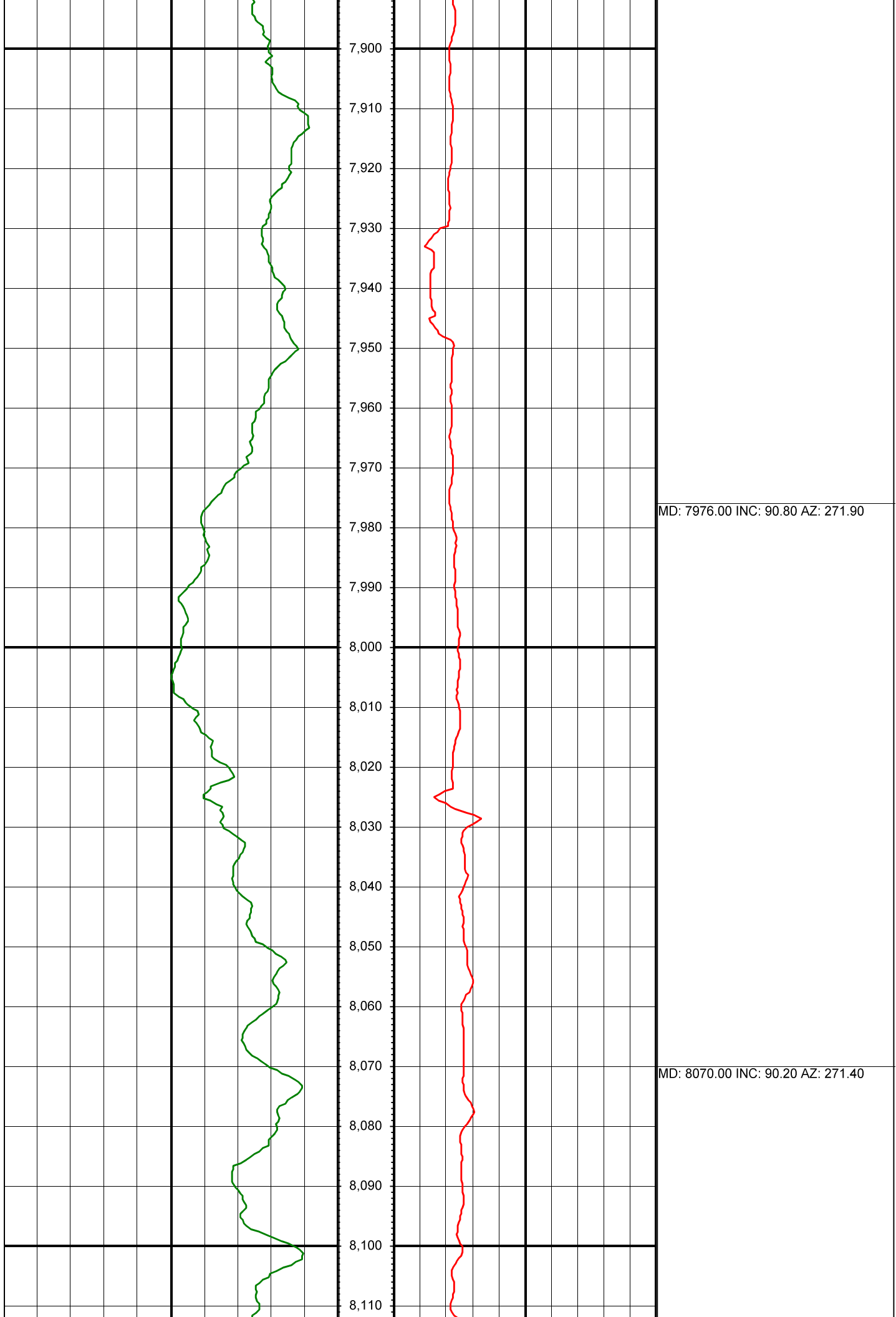




MD: 7693.00 INC: 89.40 AZ: 269.90

MD: 7788.00 INC: 90.20 AZ: 269.80

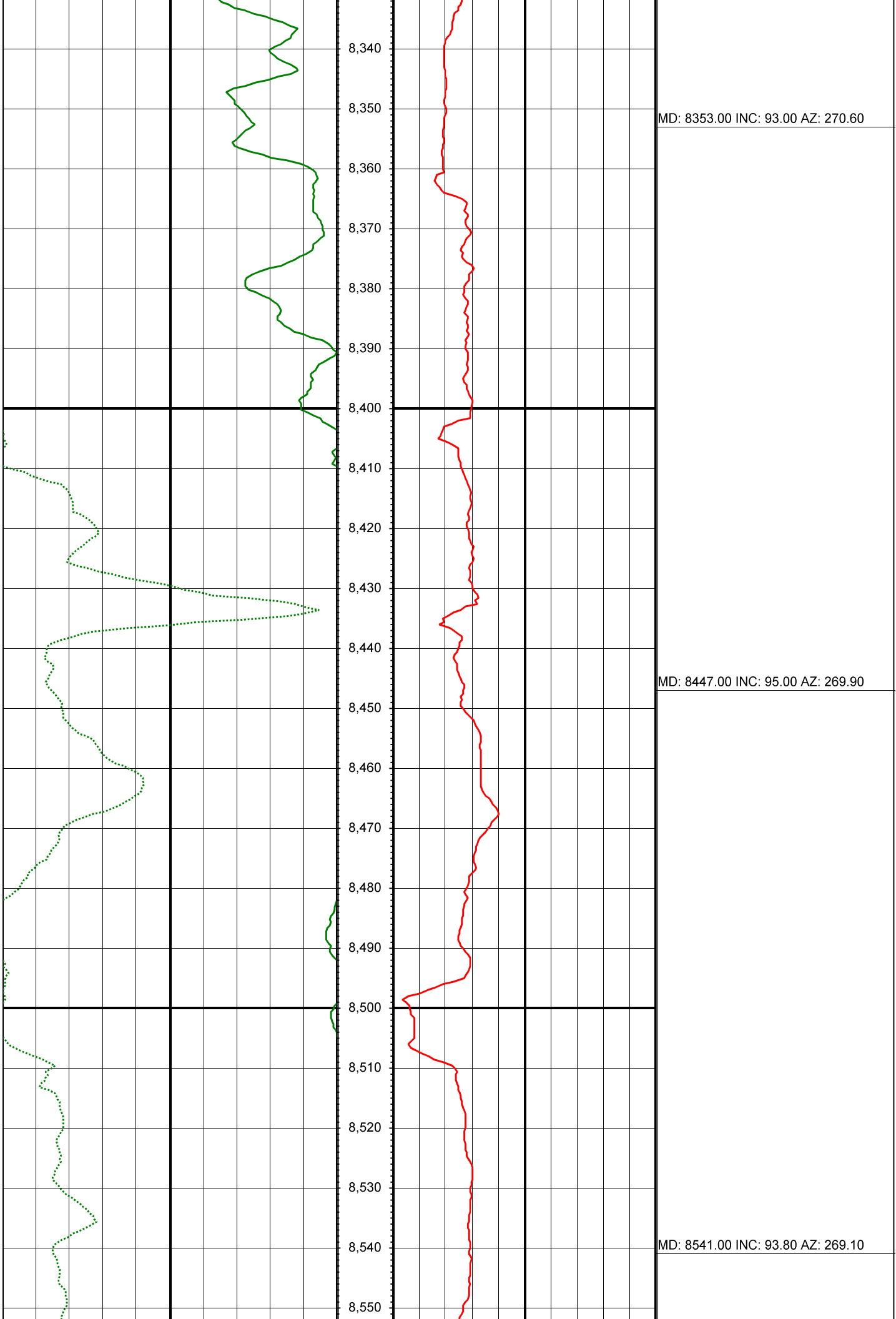
MD: 7882.00 INC: 91.40 AZ: 269.70

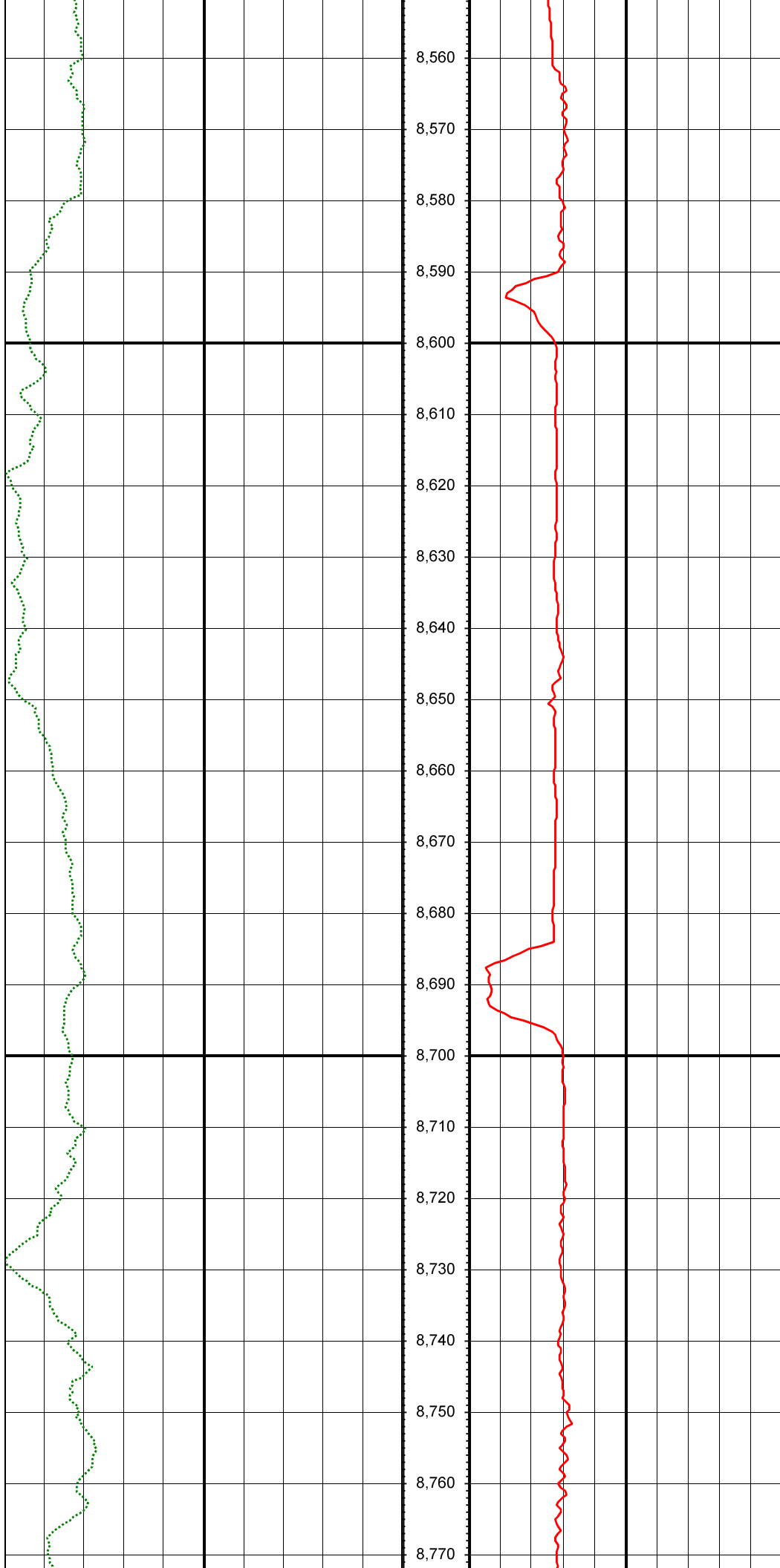




MD: 8165.00 INC: 89.90 AZ: 271.40

MD: 8259.00 INC: 90.20 AZ: 271.00





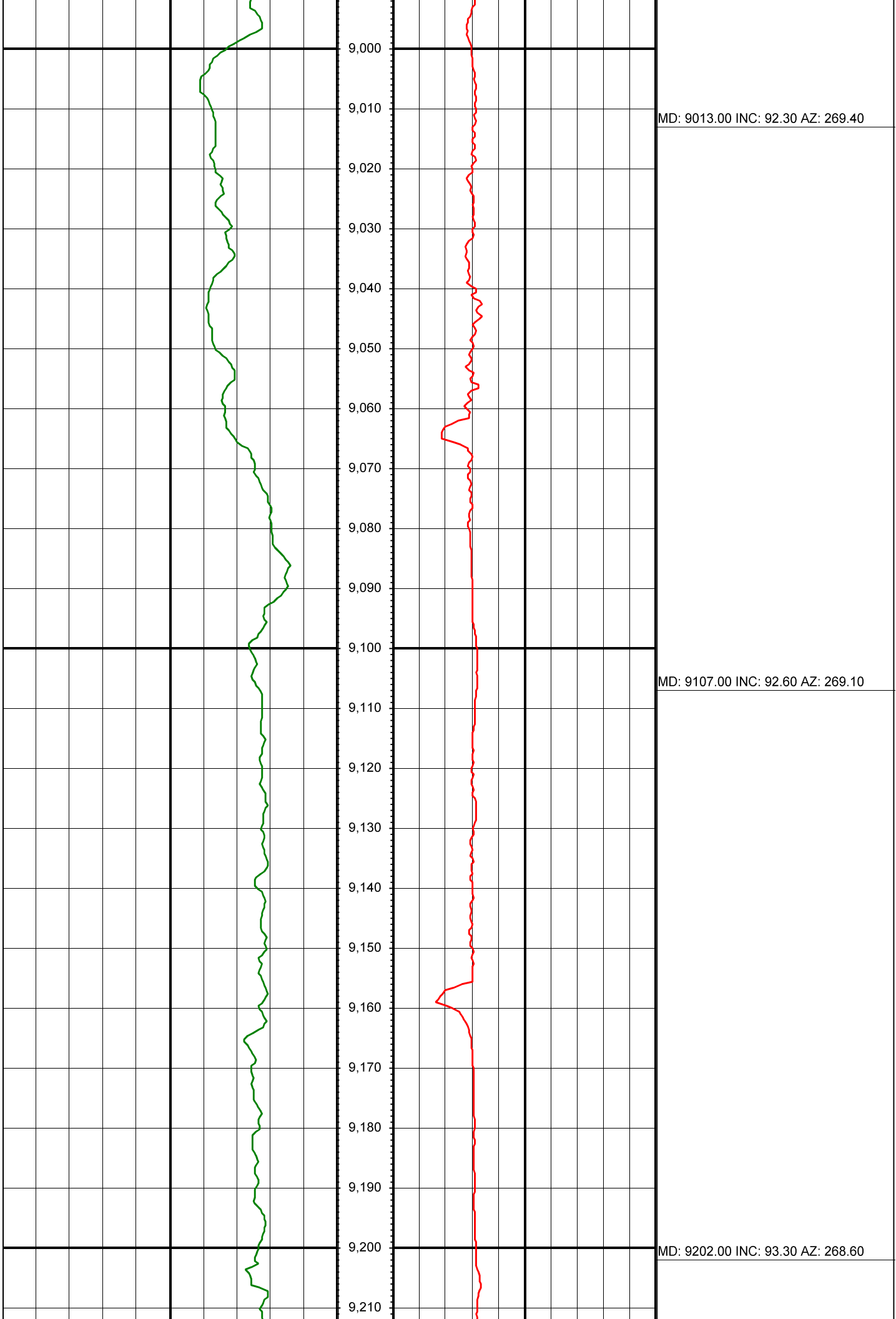
MD: 8635.00 INC: 94.10 AZ: 269.20

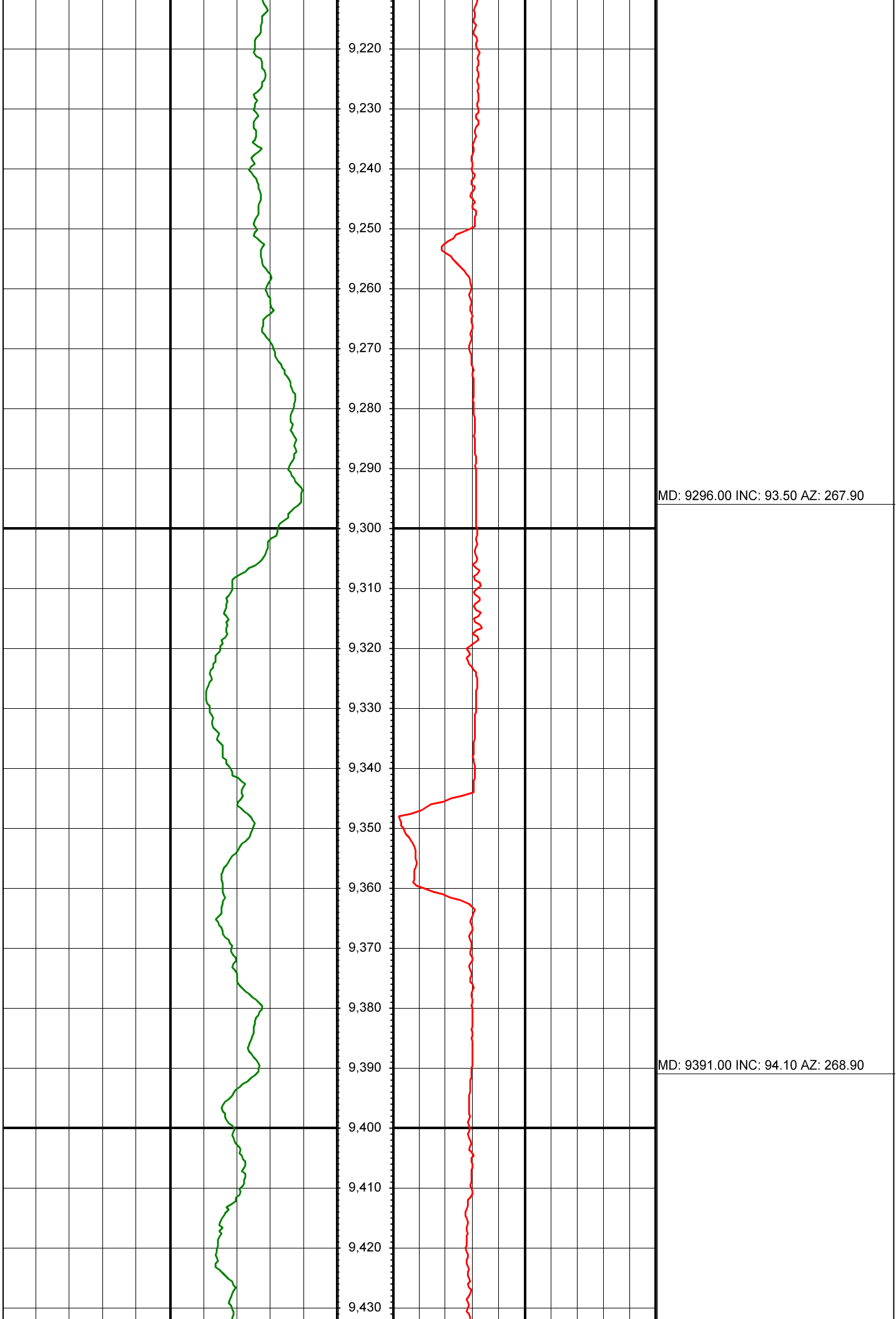
MD: 8730.00 INC: 93.50 AZ: 269.50

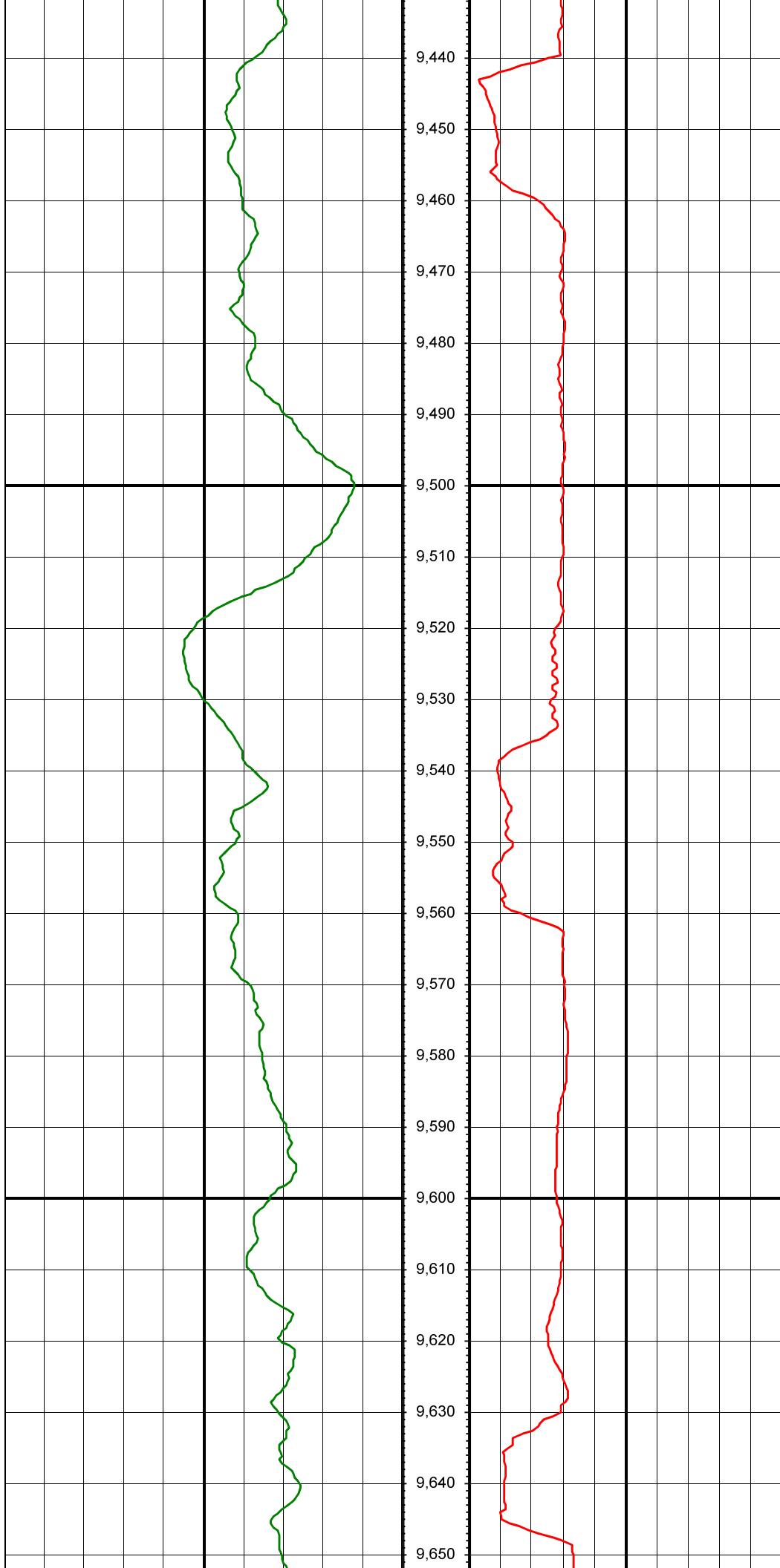


MD: 8824.00 INC: 93.30 AZ: 268.70

MD: 8919.00 INC: 92.00 AZ: 270.10

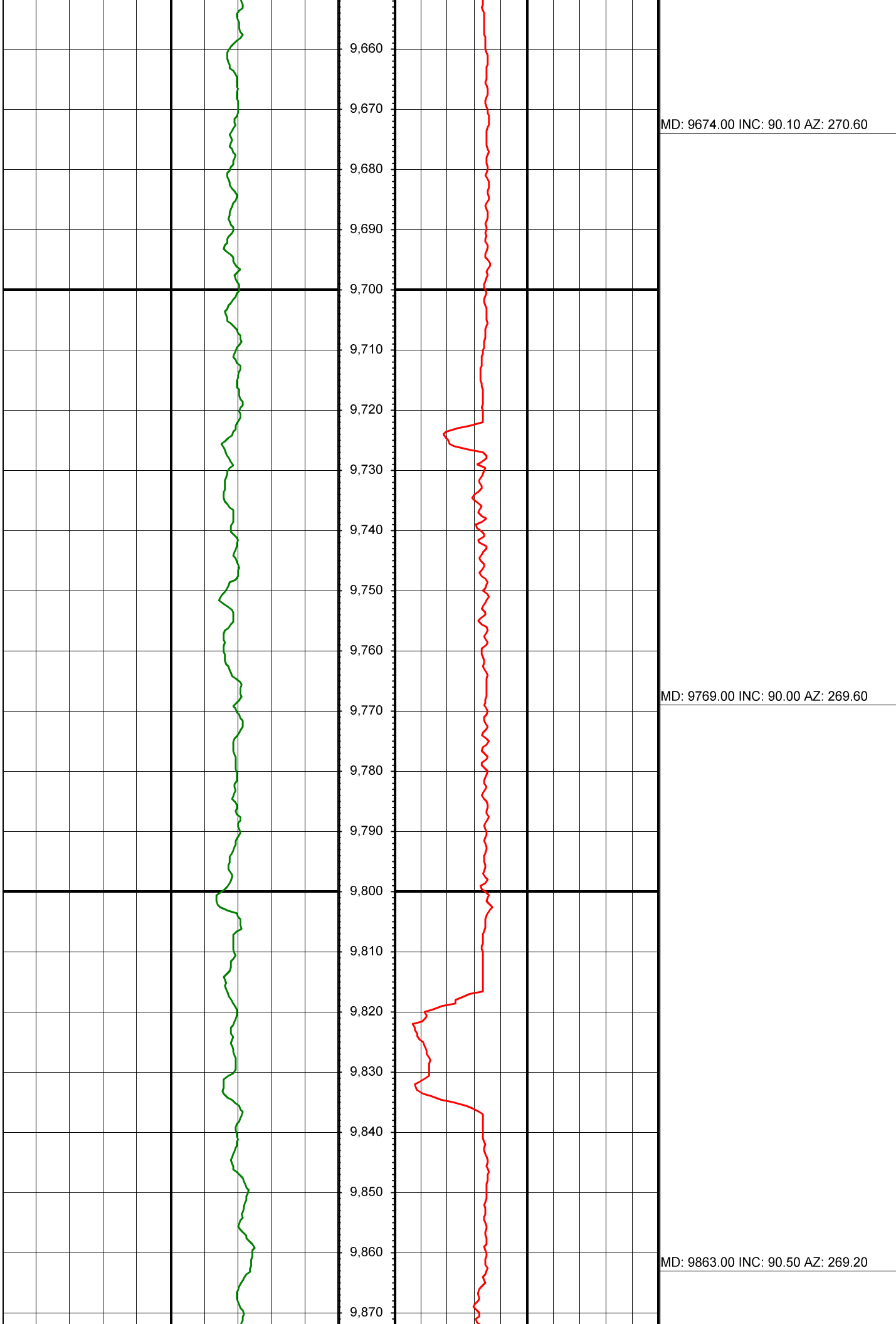


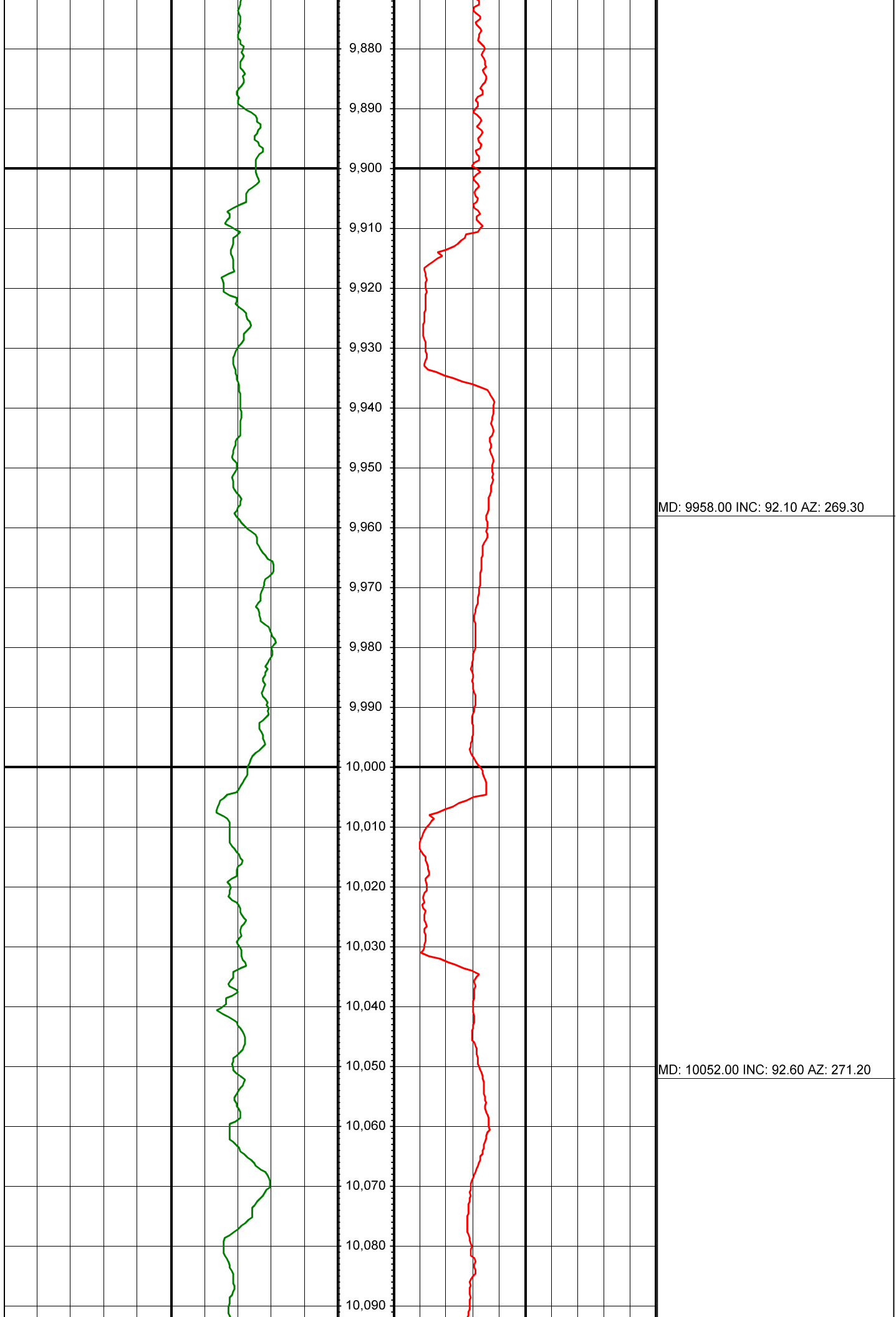


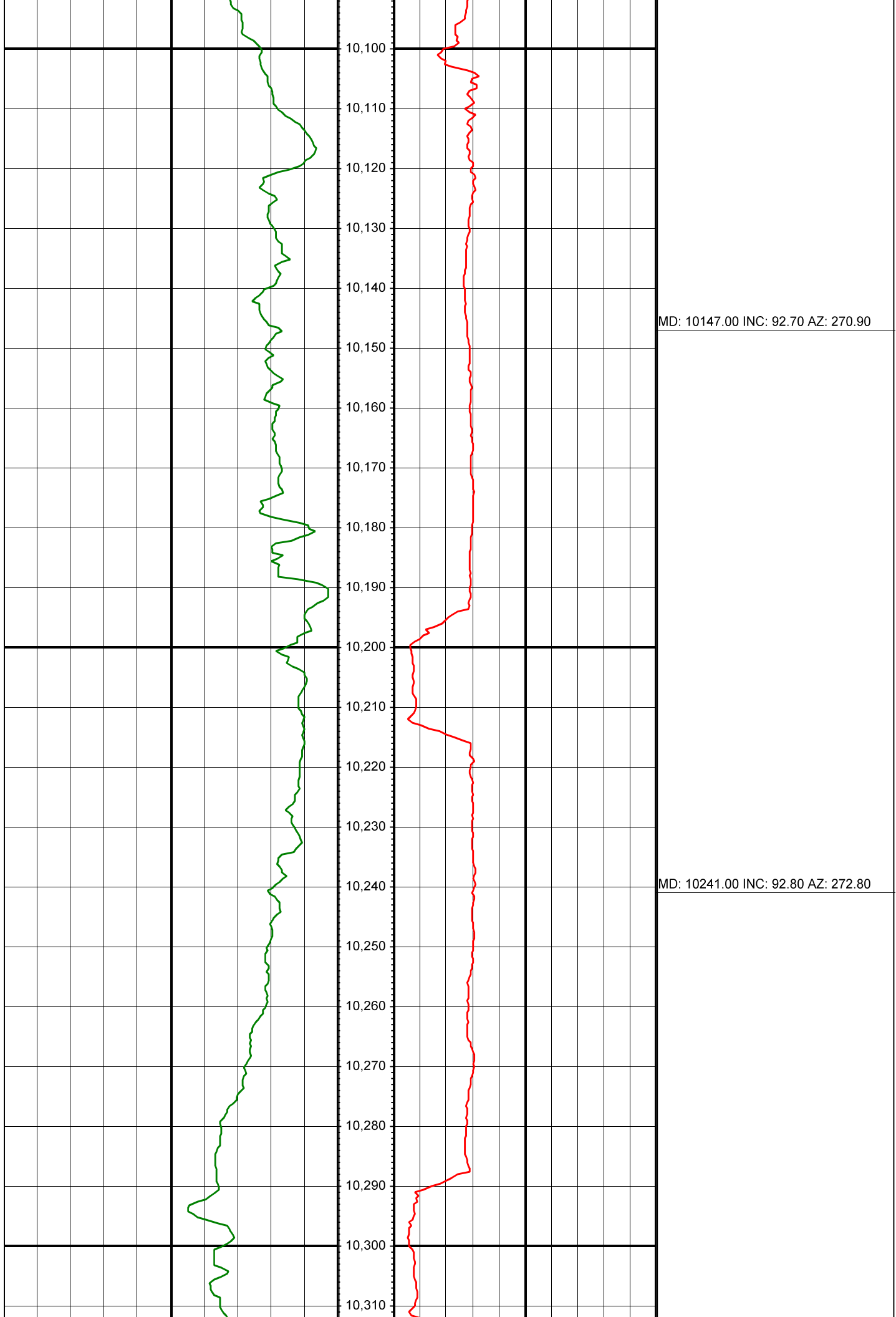


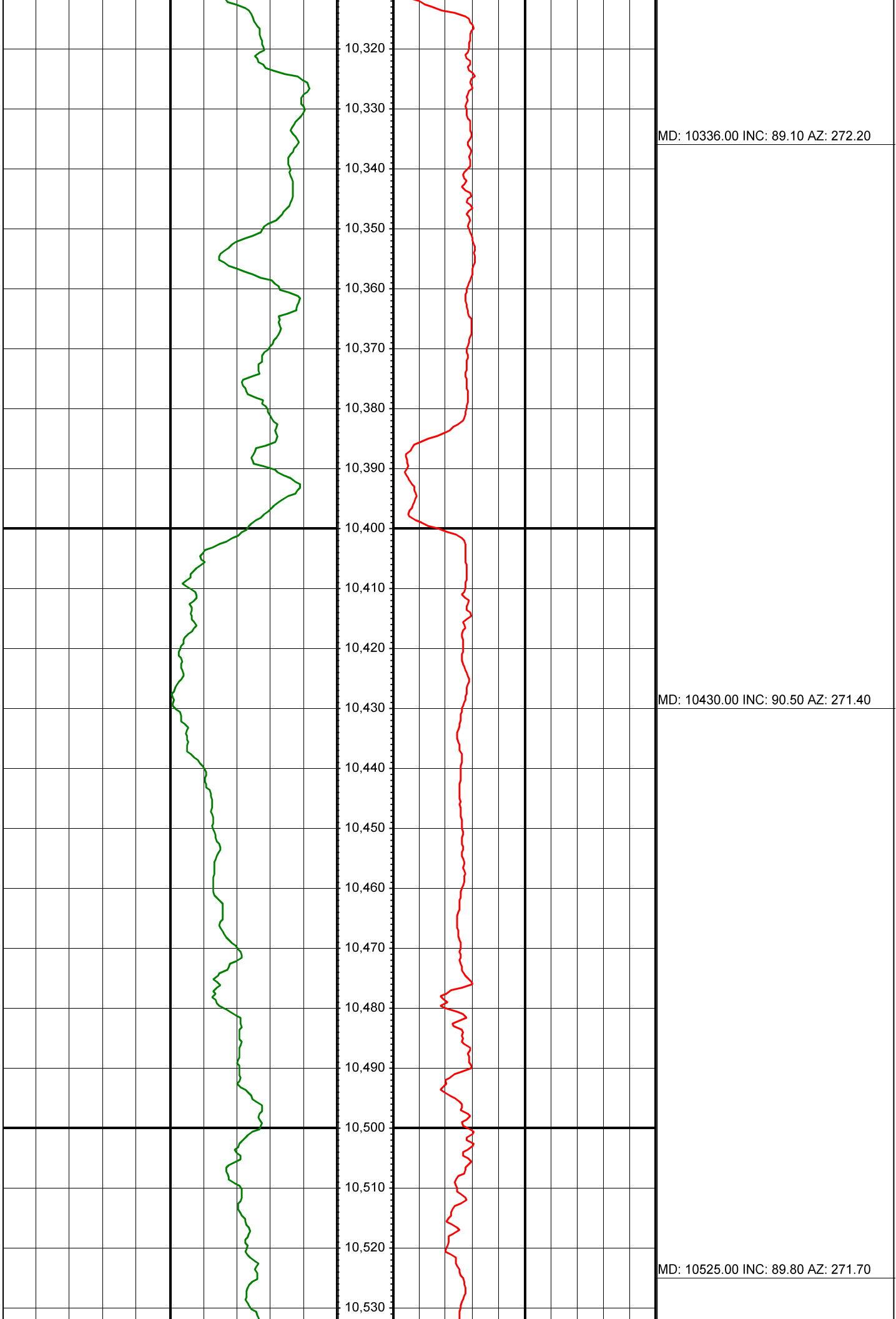
MD: 9485.00 INC: 94.00 AZ: 269.70

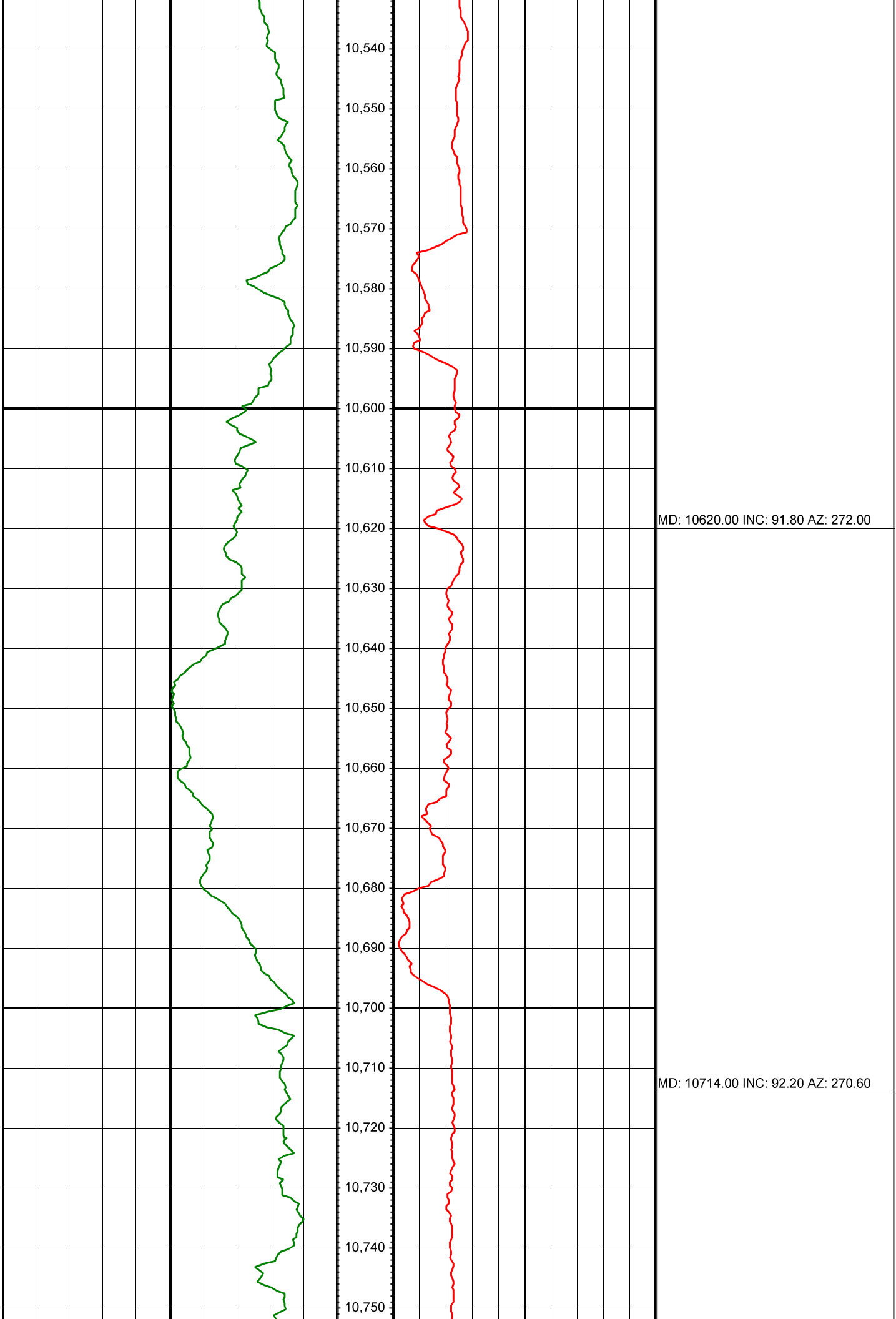
MD: 9580.00 INC: 92.10 AZ: 270.70

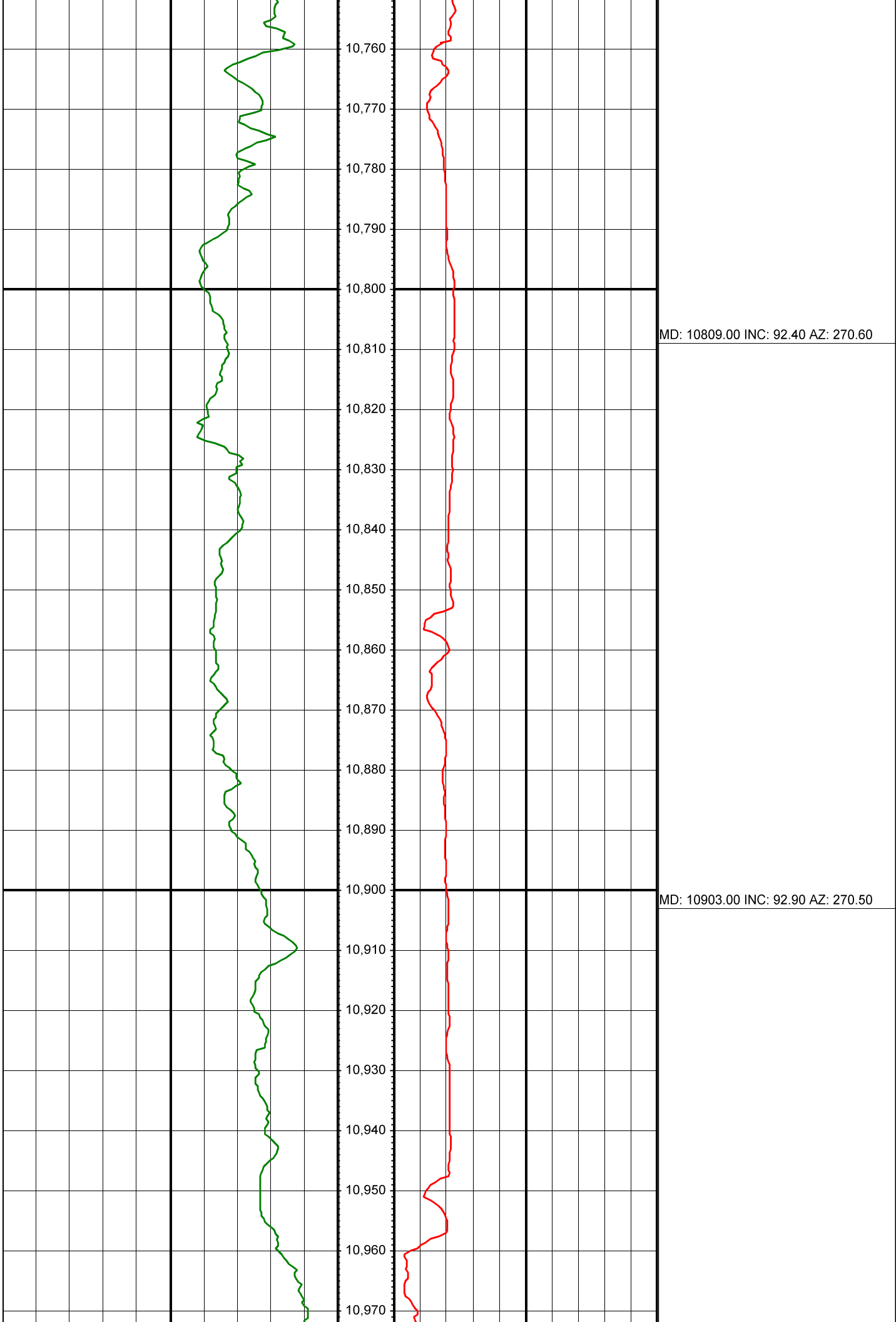


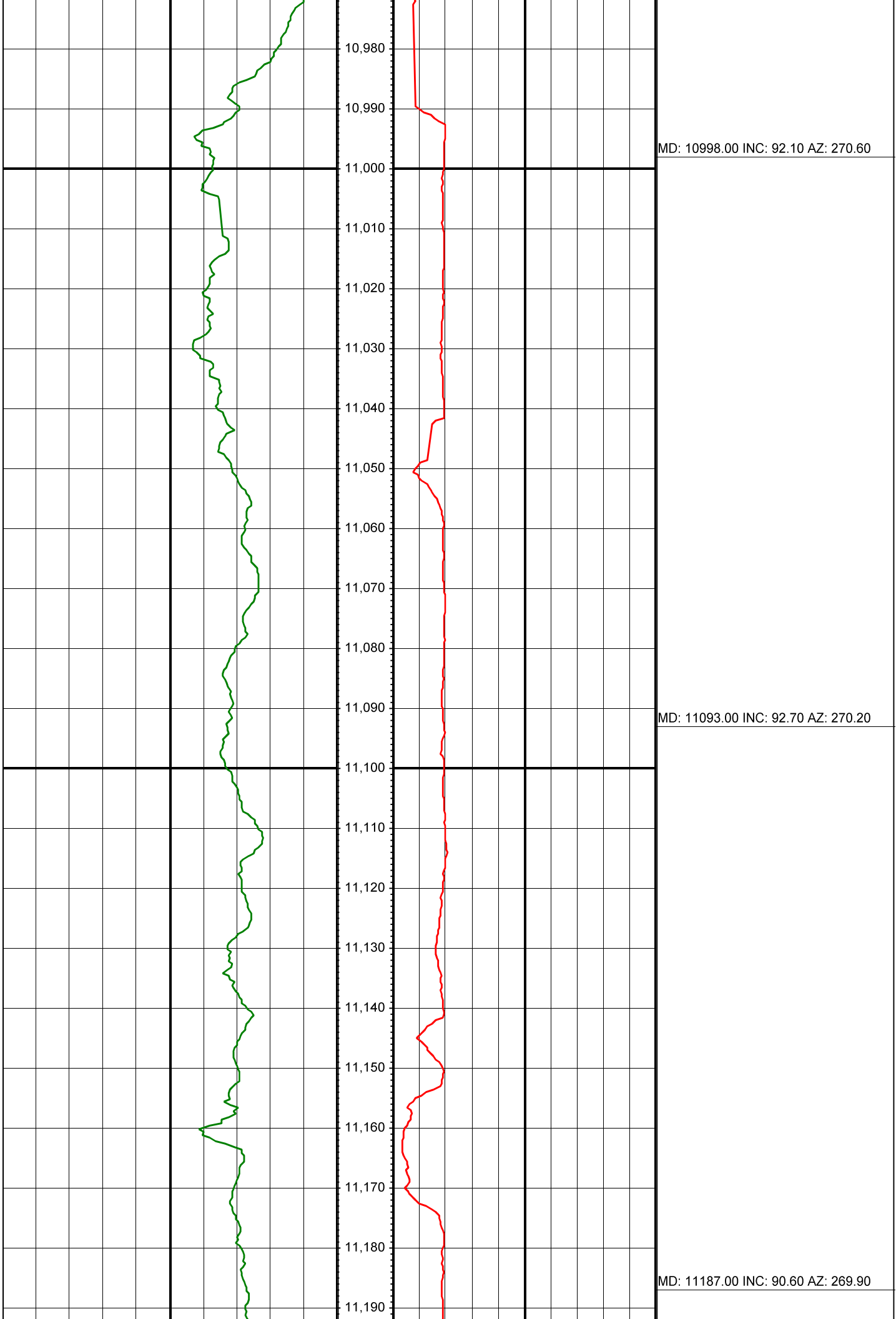


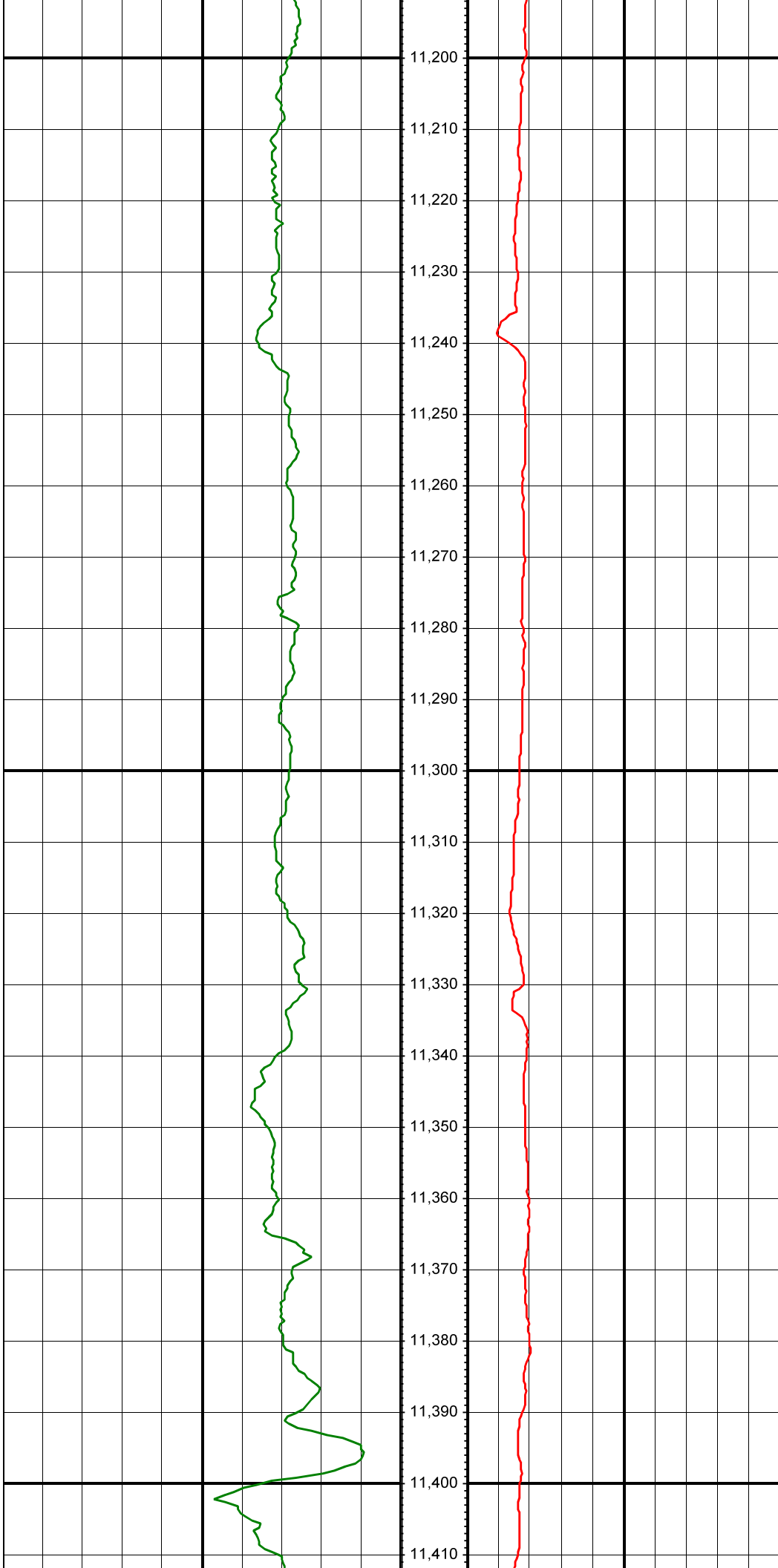












MD: 11282.00 INC: 92.00 AZ: 269.90

MD: 11376.00 INC: 92.50 AZ: 270.30

