



Cathedral Energy Services  
1949 North Pyrite Road  
Casper, Wyoming 82604

**155109**

5":100' - MD

3/13/2015 10:19:41 AM

**CATHEDRAL**

**Oper. Company:** Encana Oil & Gas (USA) Inc.

**Country:** U.S.A.

**State / Province:** Colorado

**County / Parish:** Weld

**Started:** 03/06/2015 01:00 AM

**API/UWI:** 05-123-40276-00

**Field:** Wattenberg (Codell)

**Well:** Ruhl 1L-32H-B264

**Rig:** Ensign Drilling 135

**Ended:** 03/12/2015 12:00 PM

Gamma Ray  
Section Plane: 180.00  
Magnetic North: 8.47  
Gamma Attenuation Factor: 2.09  
Gamma Averaging: 7%

### Personnel

**Day Hand:** J. Nichols

**Night Hand:** K. Wagoner

**Comp. Emp:**

### Location

**Latitude:** 40.101447

**Longitude:** -104.570730

**Elev. GL:** 4998

**Elev. DF:**

**Elev. KB:** 5011

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

### Hole Data

Size	From	To
12-1/4	0	1166
8-3/4	1166	7692
6-1/8	7692	11797

### Casing Data

Size	From	To
9-5/8	0	1150
7	0	7657
4-1/2	0	11786

### Bit Sizes

Size	From	To
12-1/4	0	1166
8-3/4	1166	7692
6-1/8	7692	11797

### Mud Data

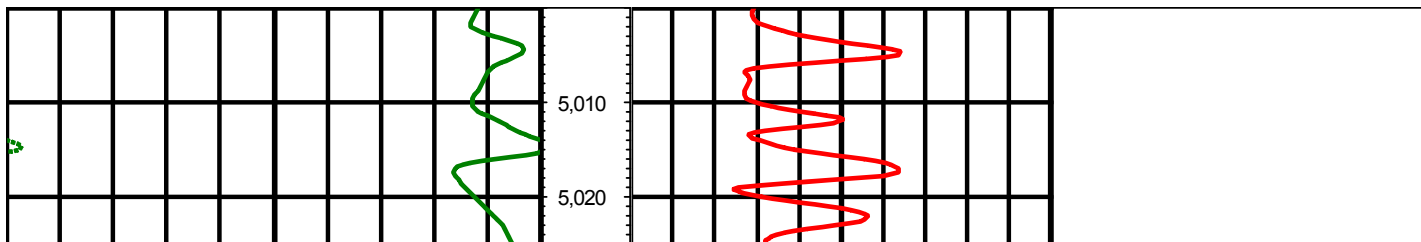
Type	Weight	Density	Viscosity	Rm	Rmf	Rmc	From	To
------	--------	---------	-----------	----	-----	-----	------	----

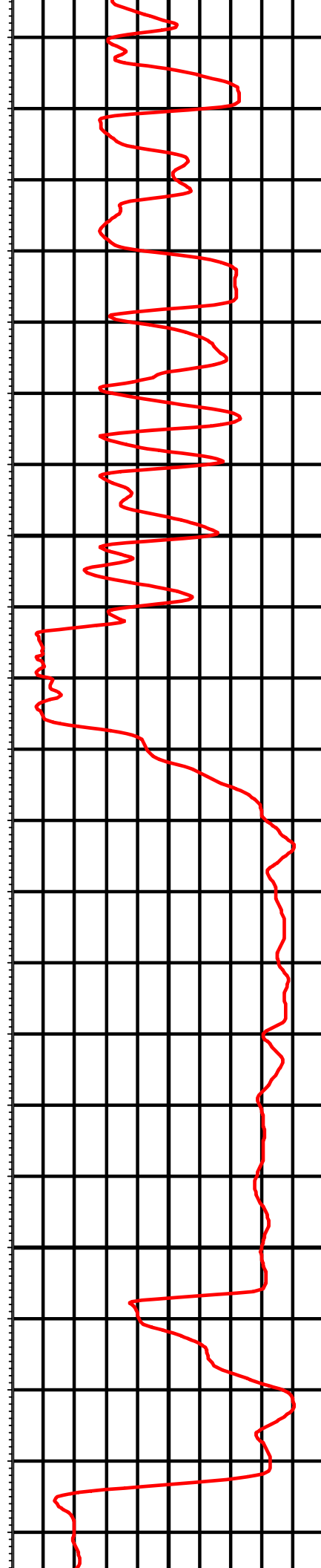
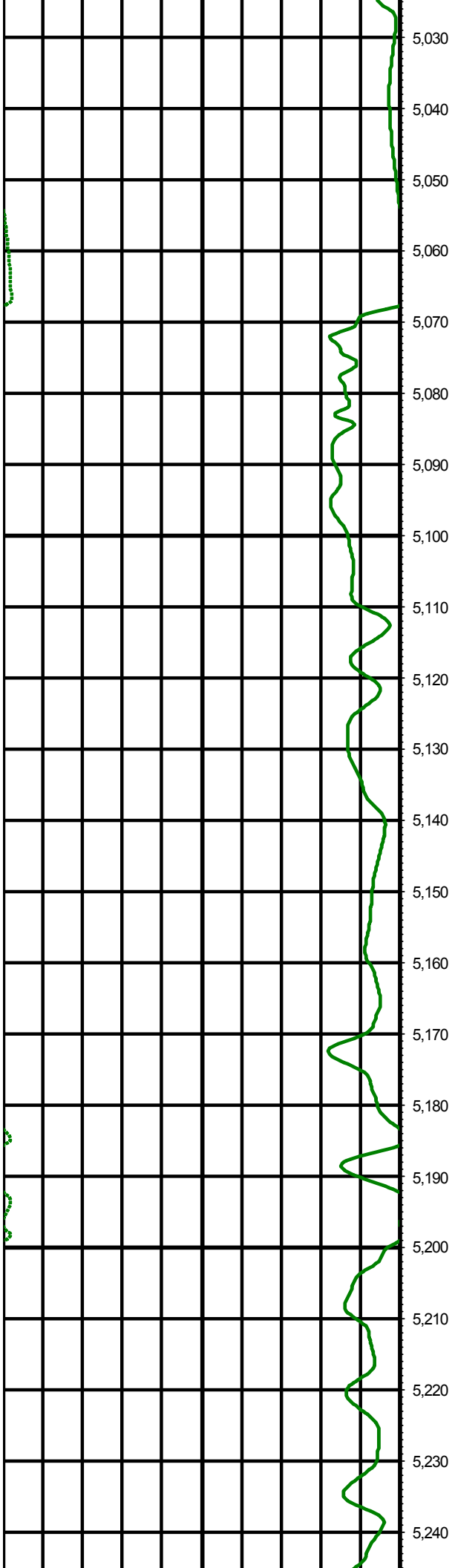
### Tool Run Data

Serial Number	Gamma Offset	Resist. Offset	Start Time	Start Depth	End Time	End Depth
088P	41.56	0	3/6/2015 10:00:03 AM	5000	3/9/2015 4:00:03 AM	7692
IF9H4-05	43.17	0	3/10/2015 4:00:09 AM	7692	3/12/2015 7:00:09 PM	11797

*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.*

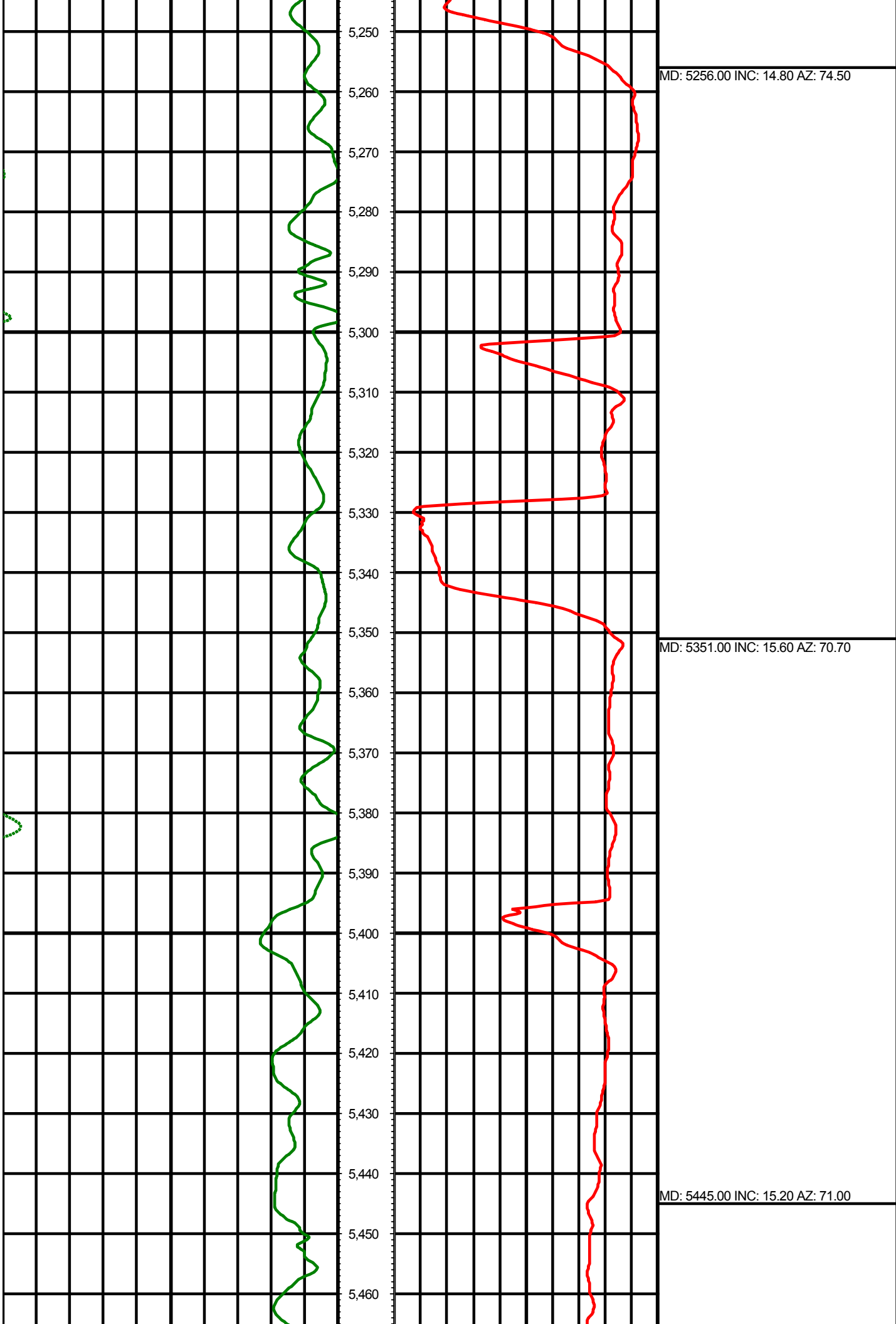
0.00      Gamma Ray (API)      150.00      MD      0.00      ROP (FT/HR)      600.00      Surveys (MD/INC/AZ)  
150.00      2      300.00      FT

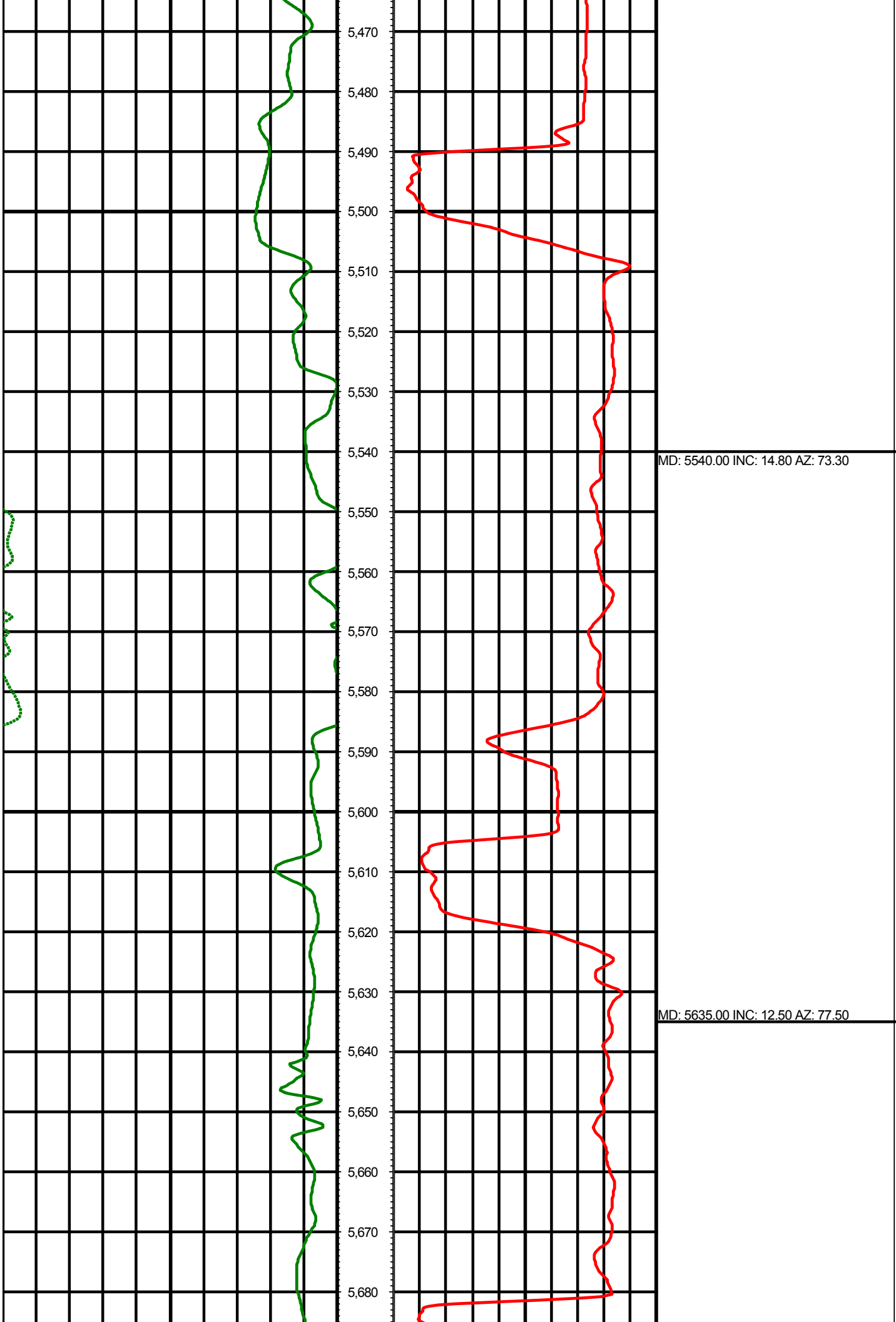




MD: 5067.00 INC: 15.30 AZ: 78.10

MD: 5161.00 INC: 14.50 AZ: 73.90

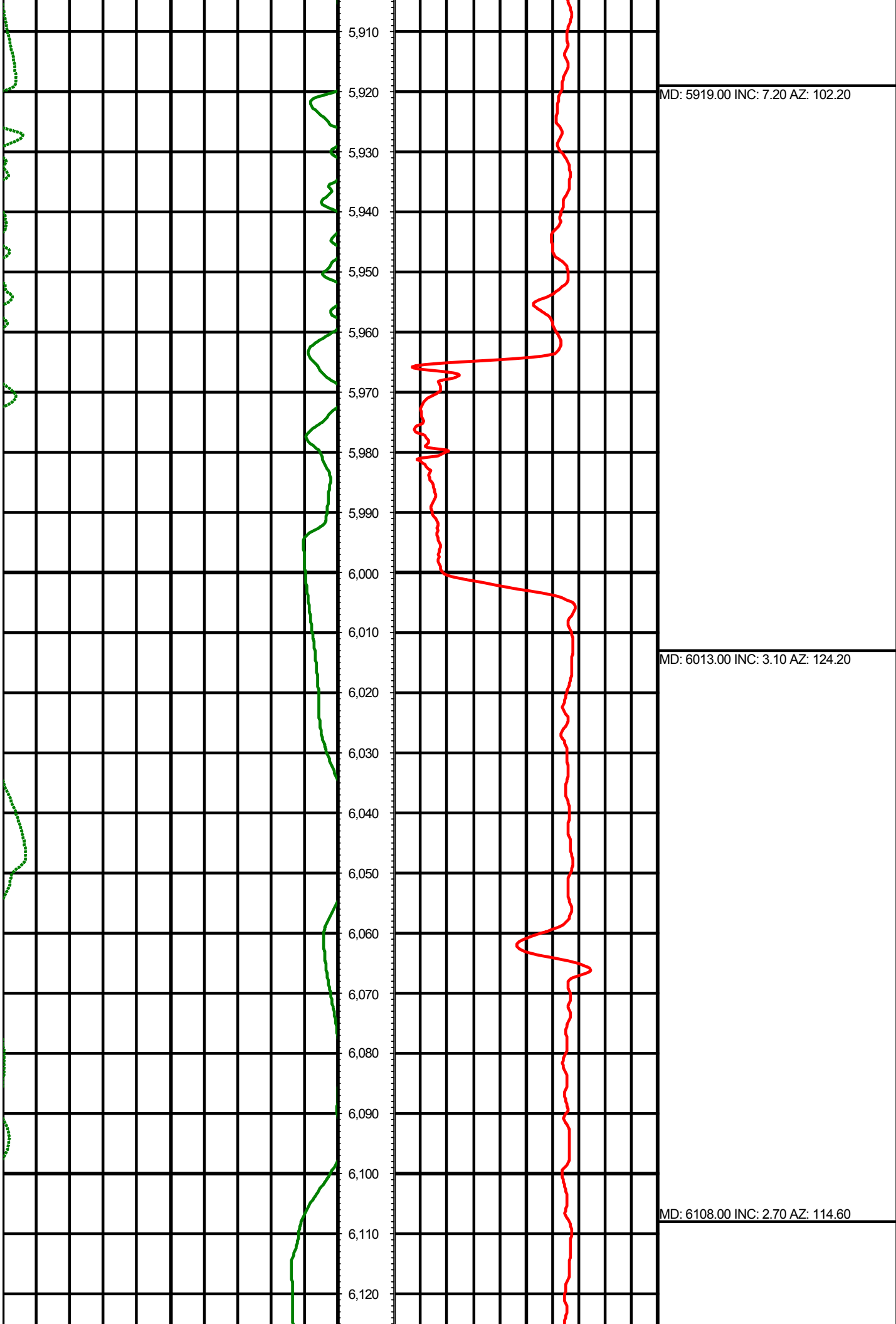


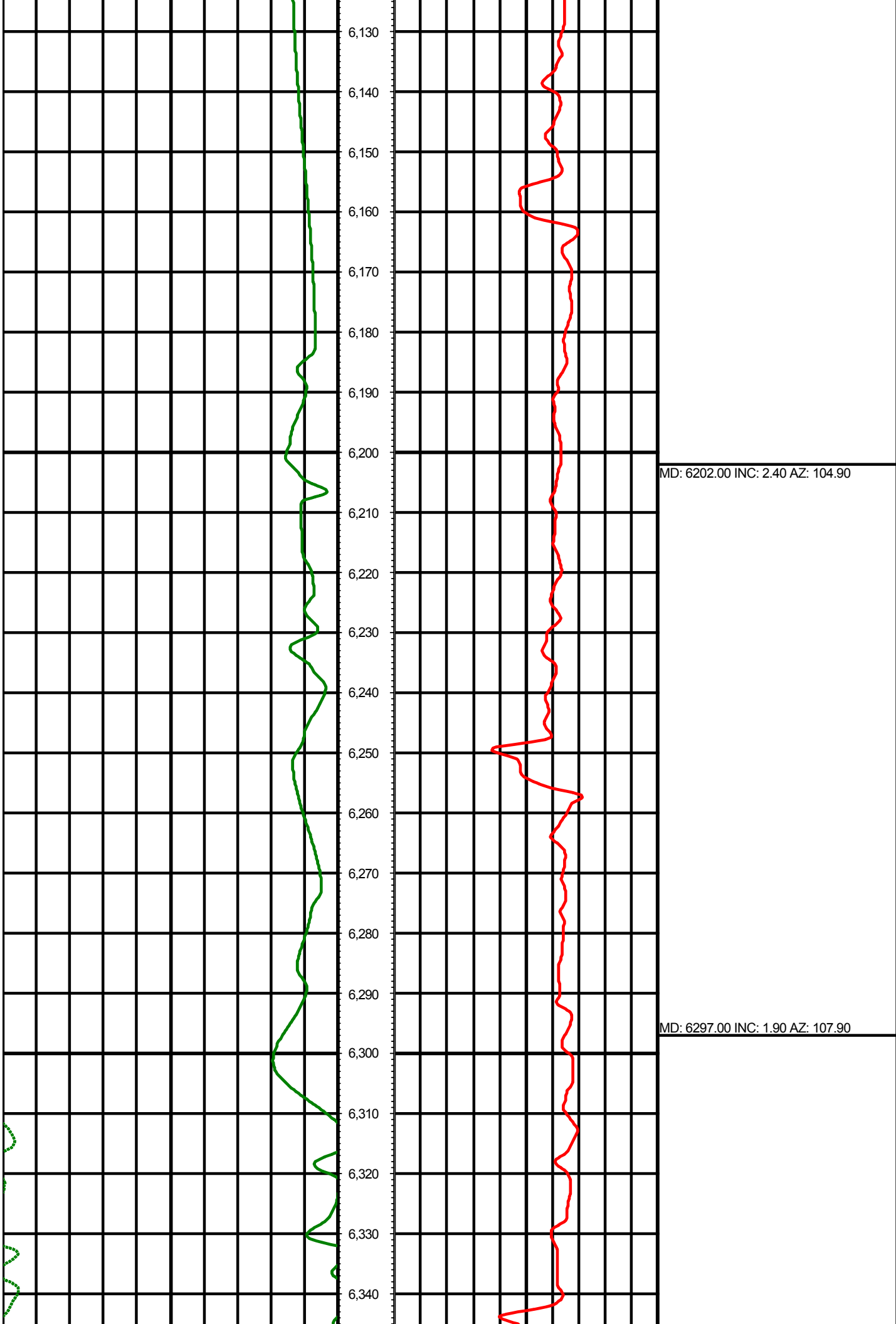


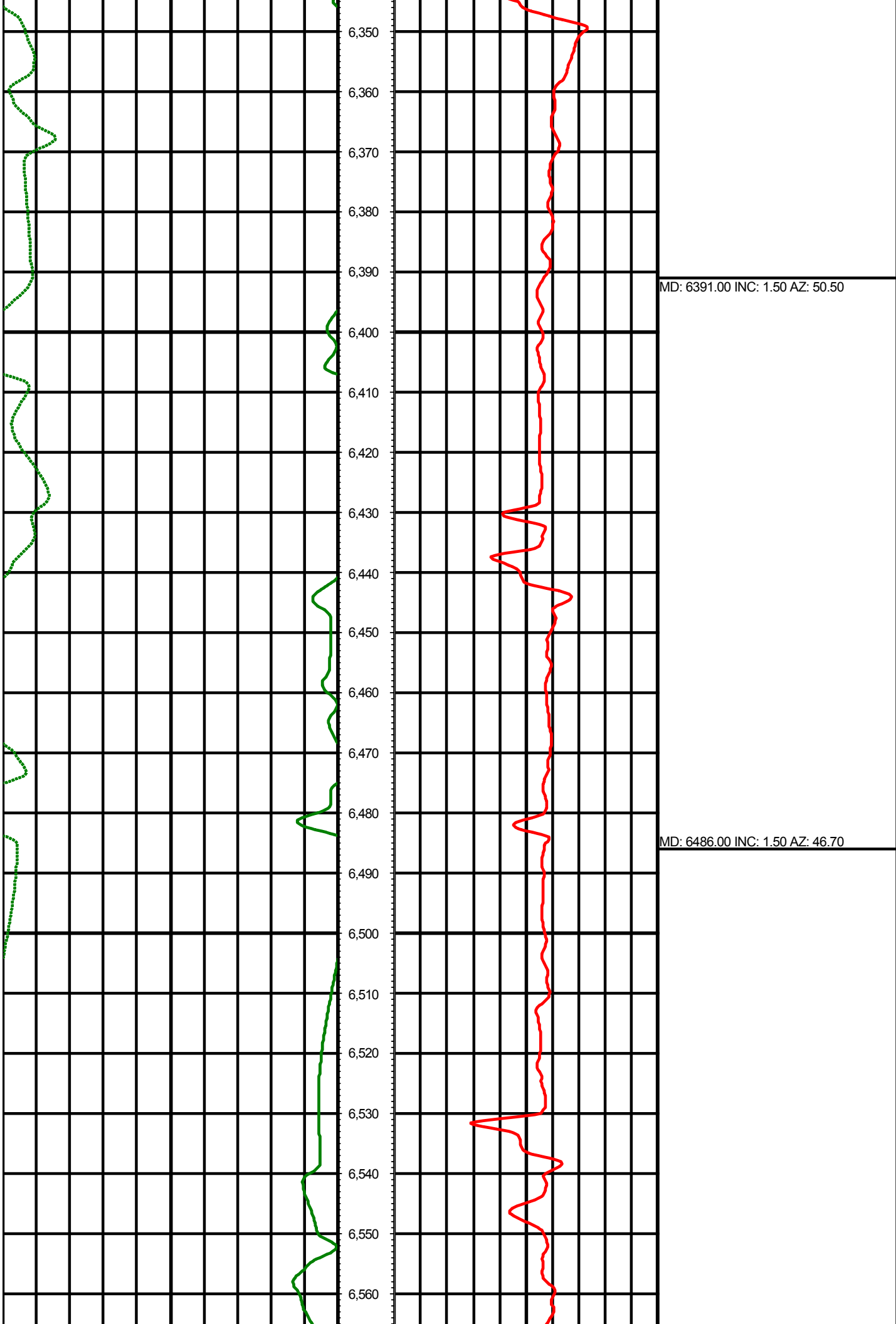


MD: 5729.00 INC: 10.20 AZ: 76.30

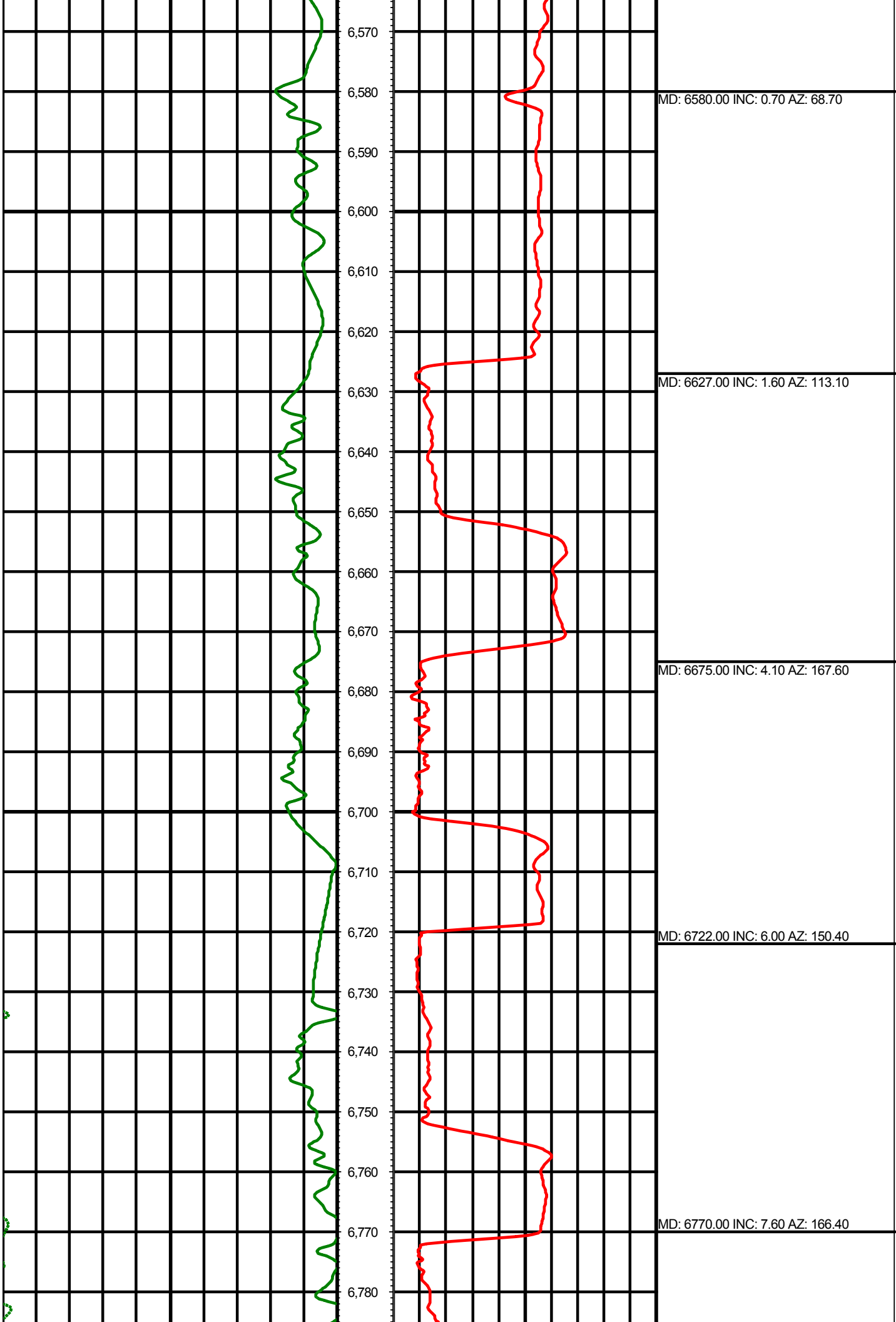
MD: 5824.00 INC: 8.30 AZ: 90.50

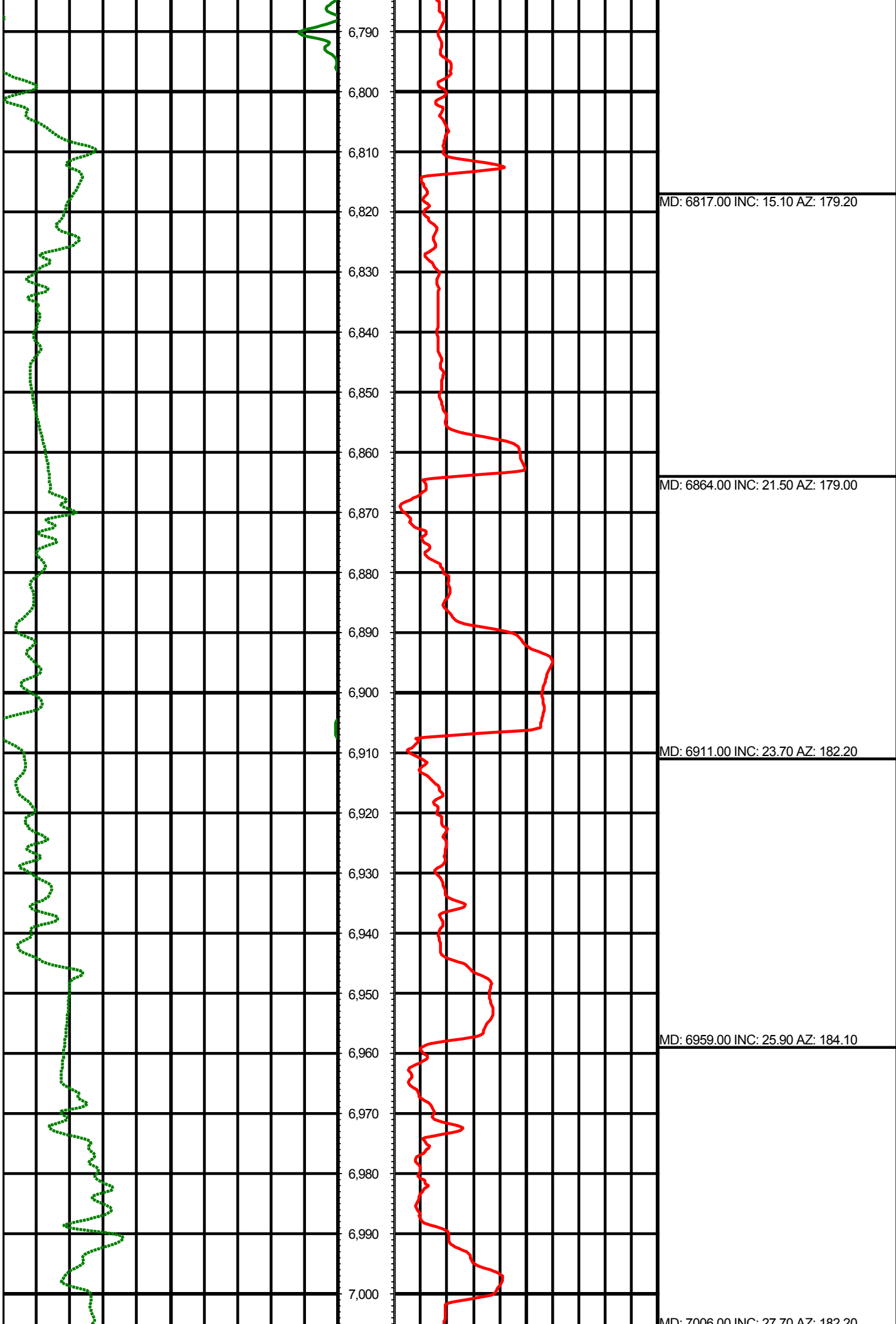


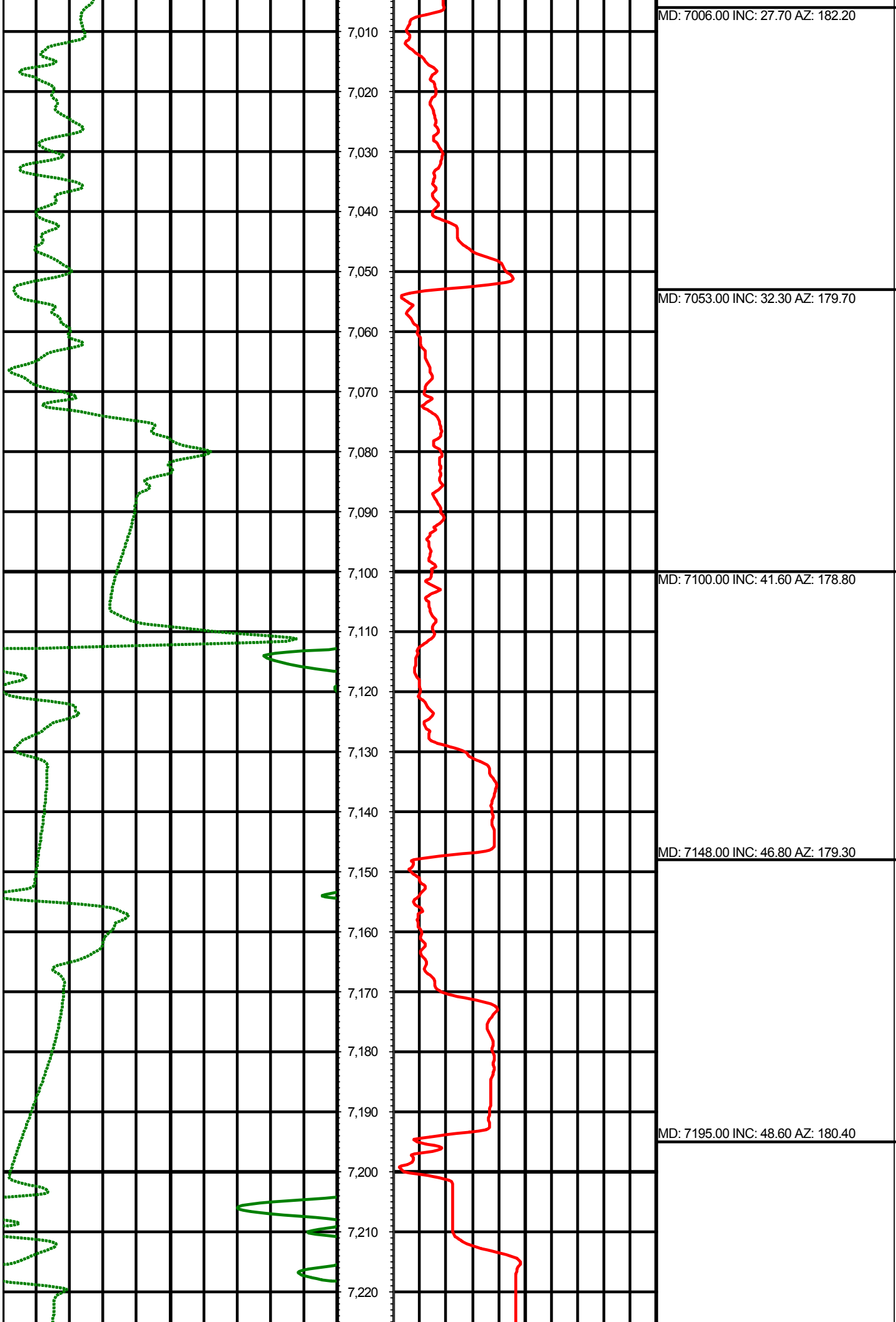


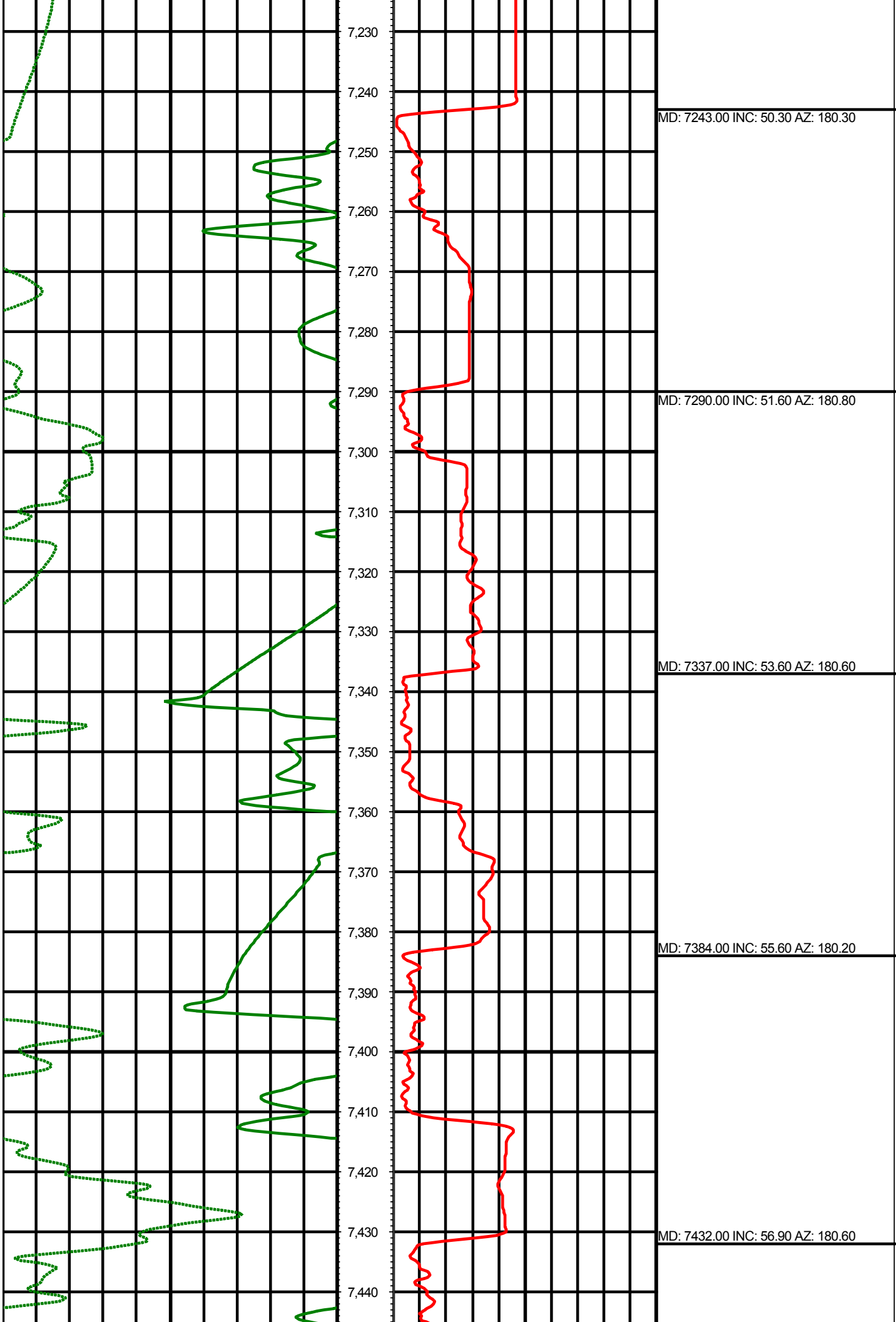


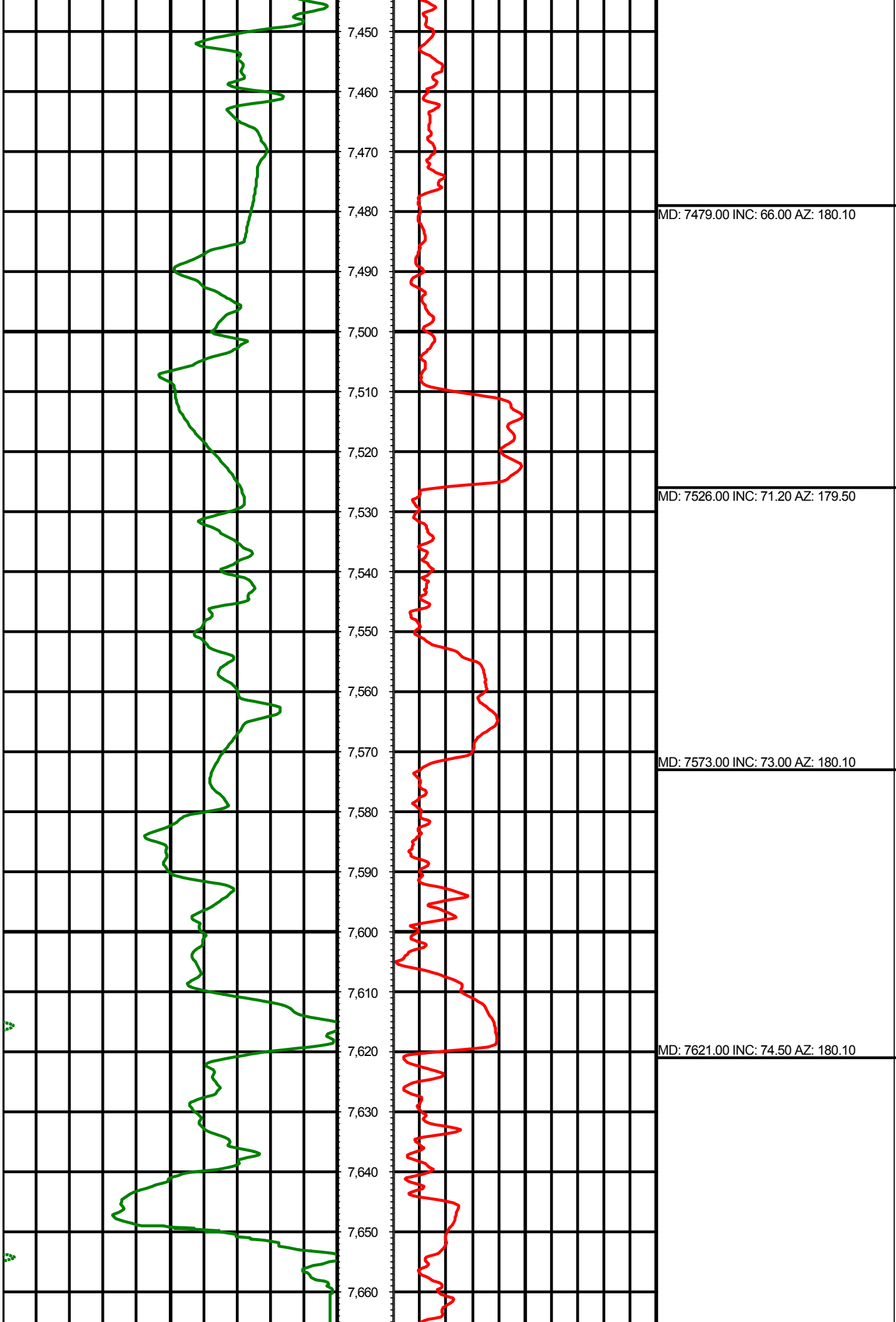


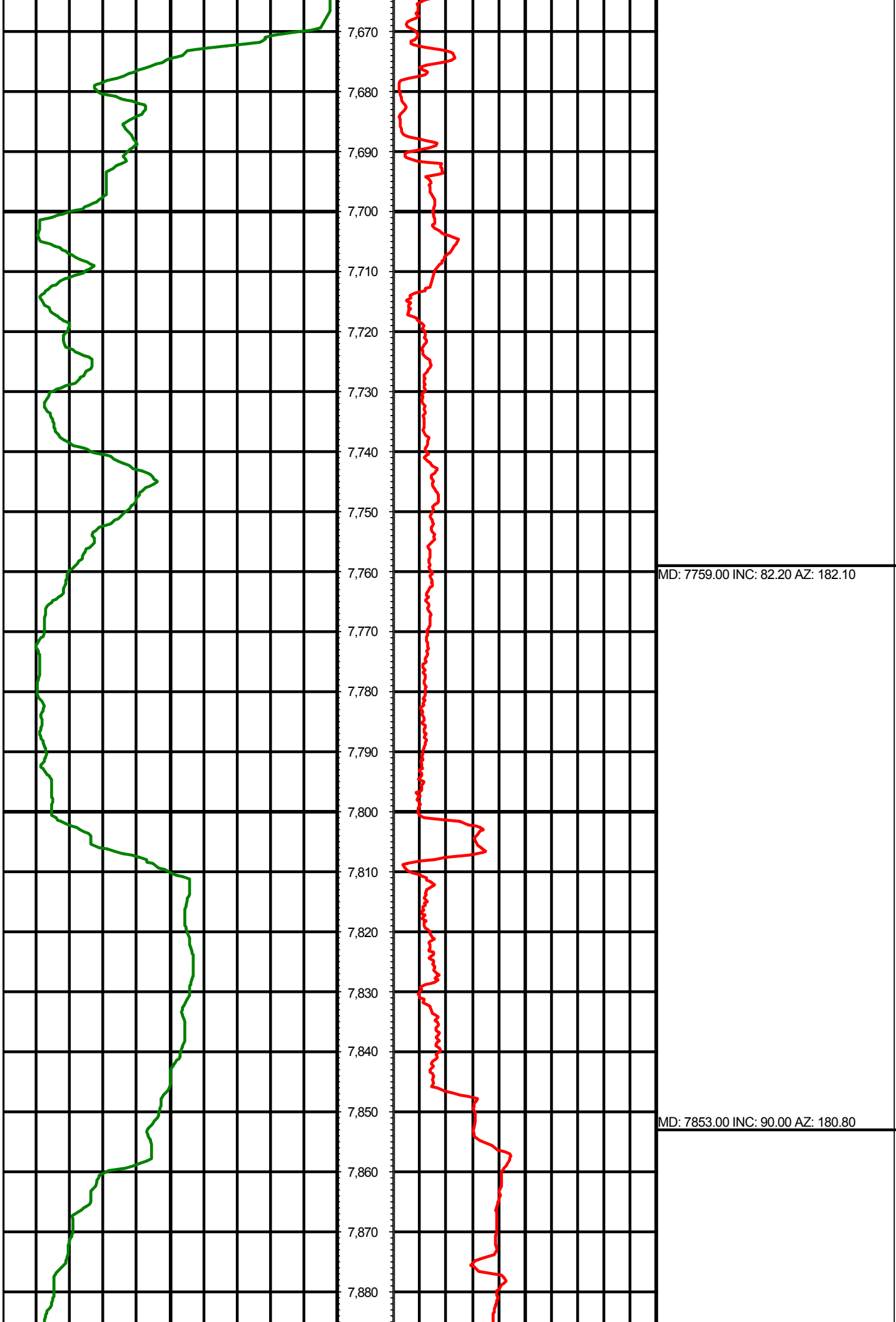


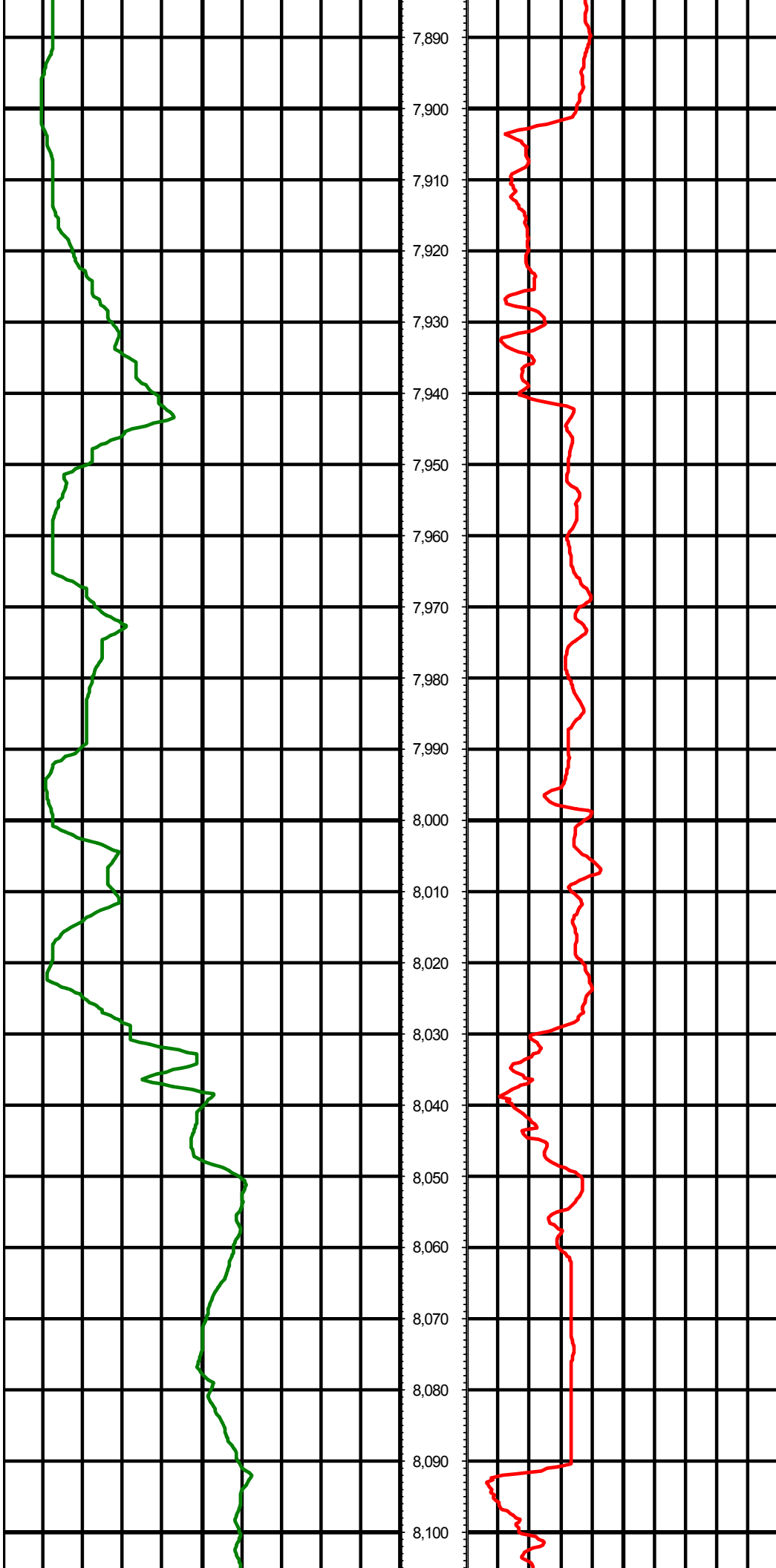






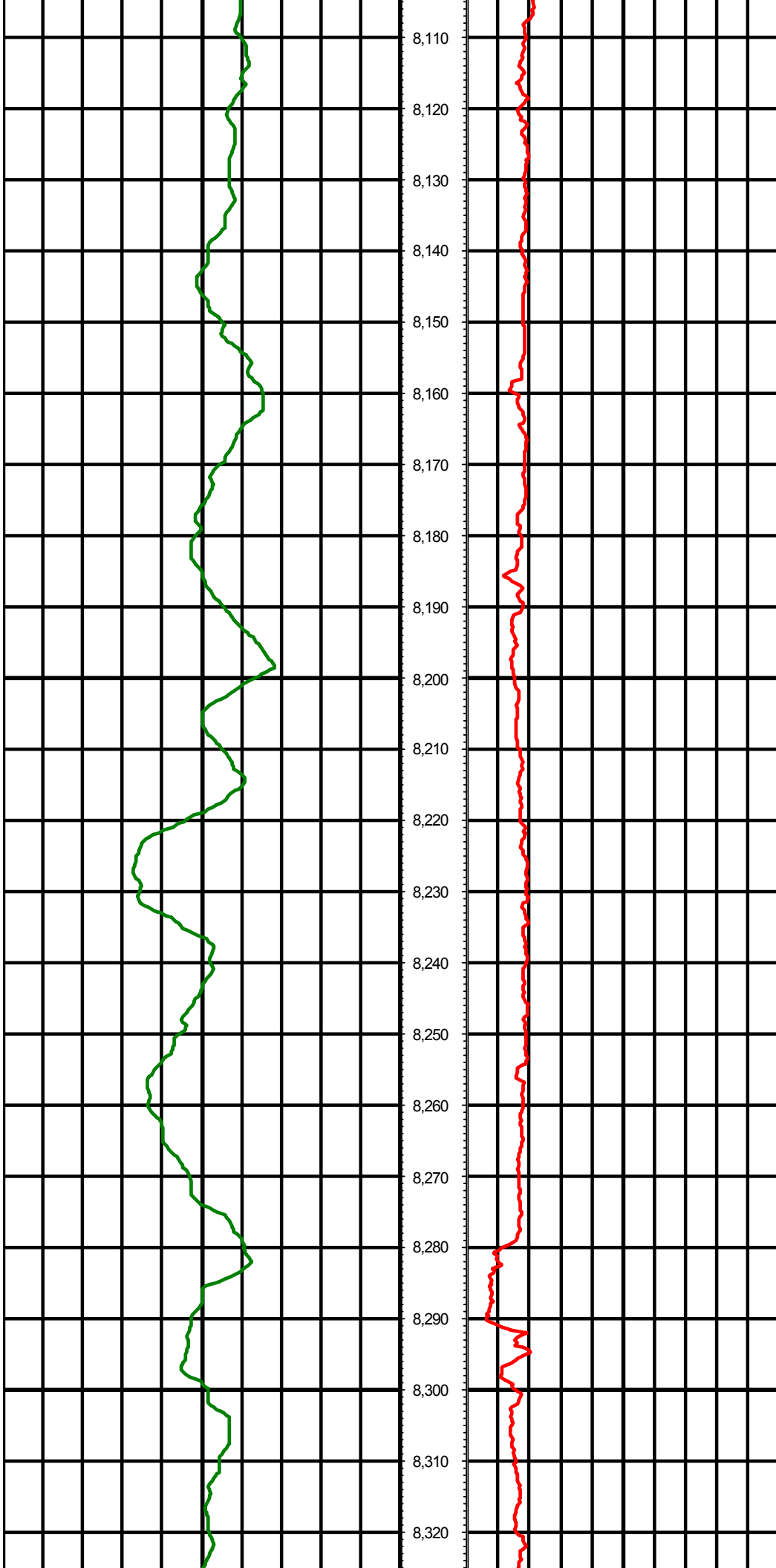






MD: 7947.00 INC: 93.70 AZ: 181.20

MD: 8042.00 INC: 93.00 AZ: 181.70

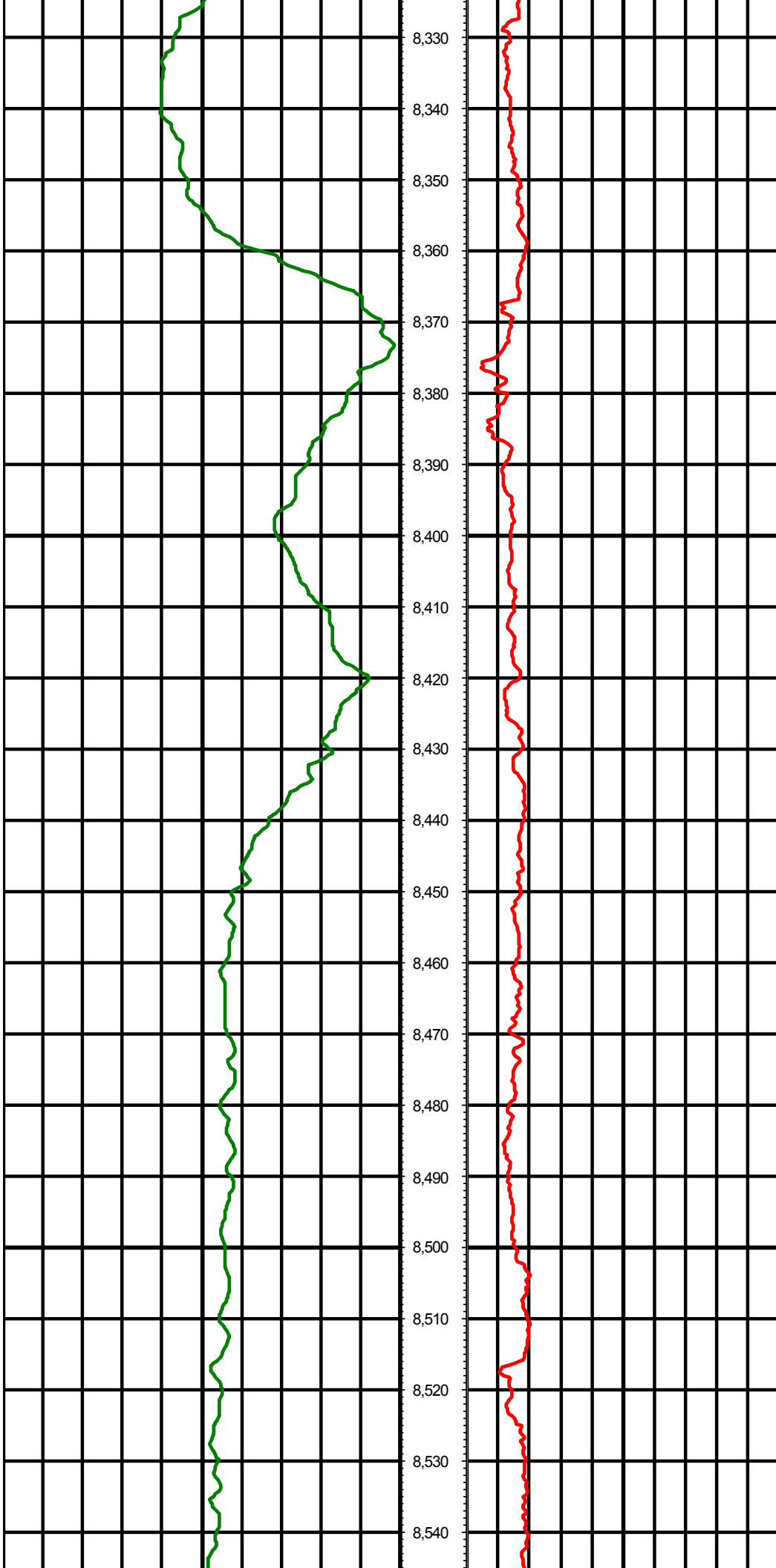


MD: 8137.00 INC: 92.60 AZ: 181.00

MD: 8231.00 INC: 93.00 AZ: 180.10

MD: 8326.00 INC: 91.20 AZ: 180.60

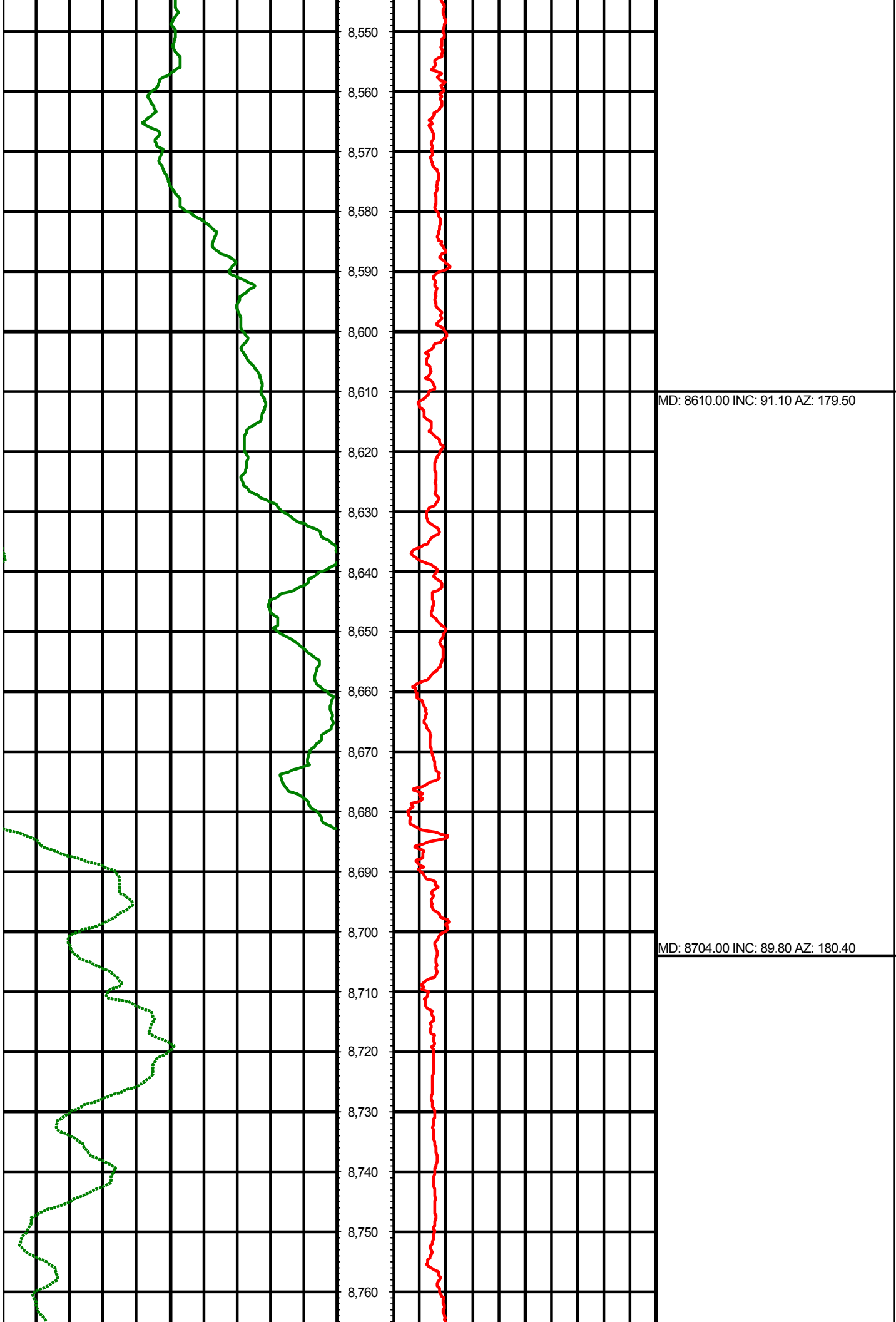


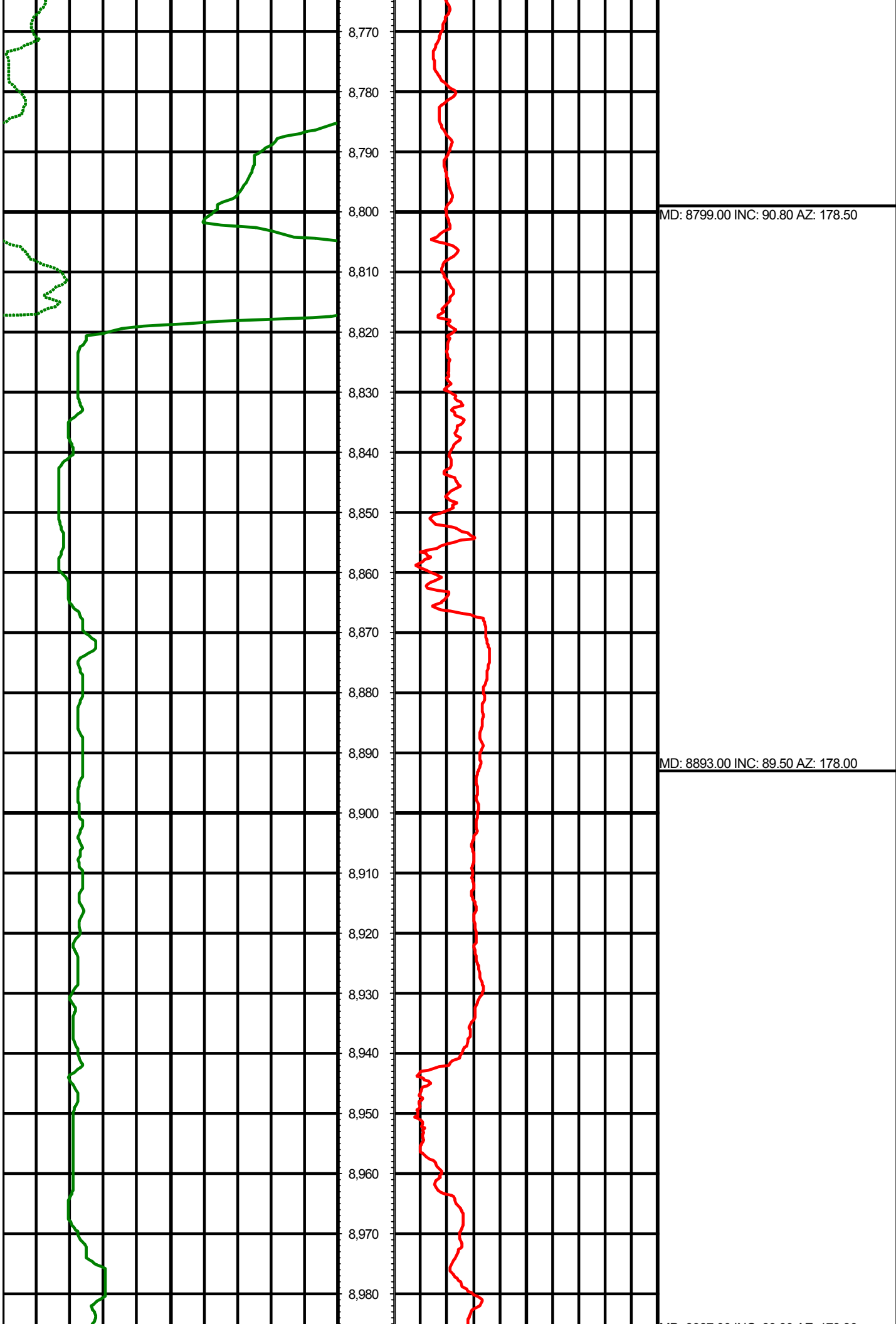


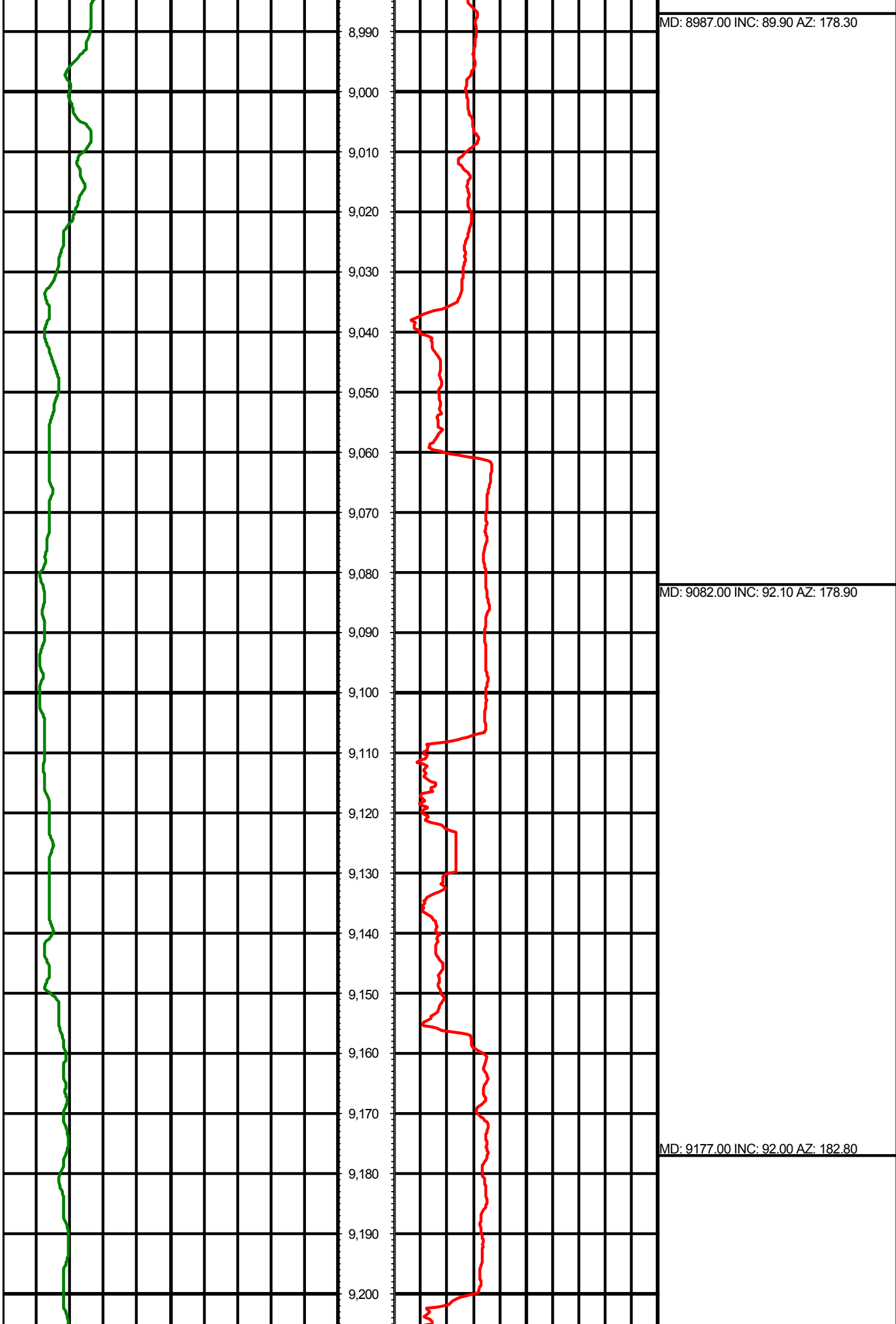
MD: 8326.00 INC: 91.20 AZ: 180.60

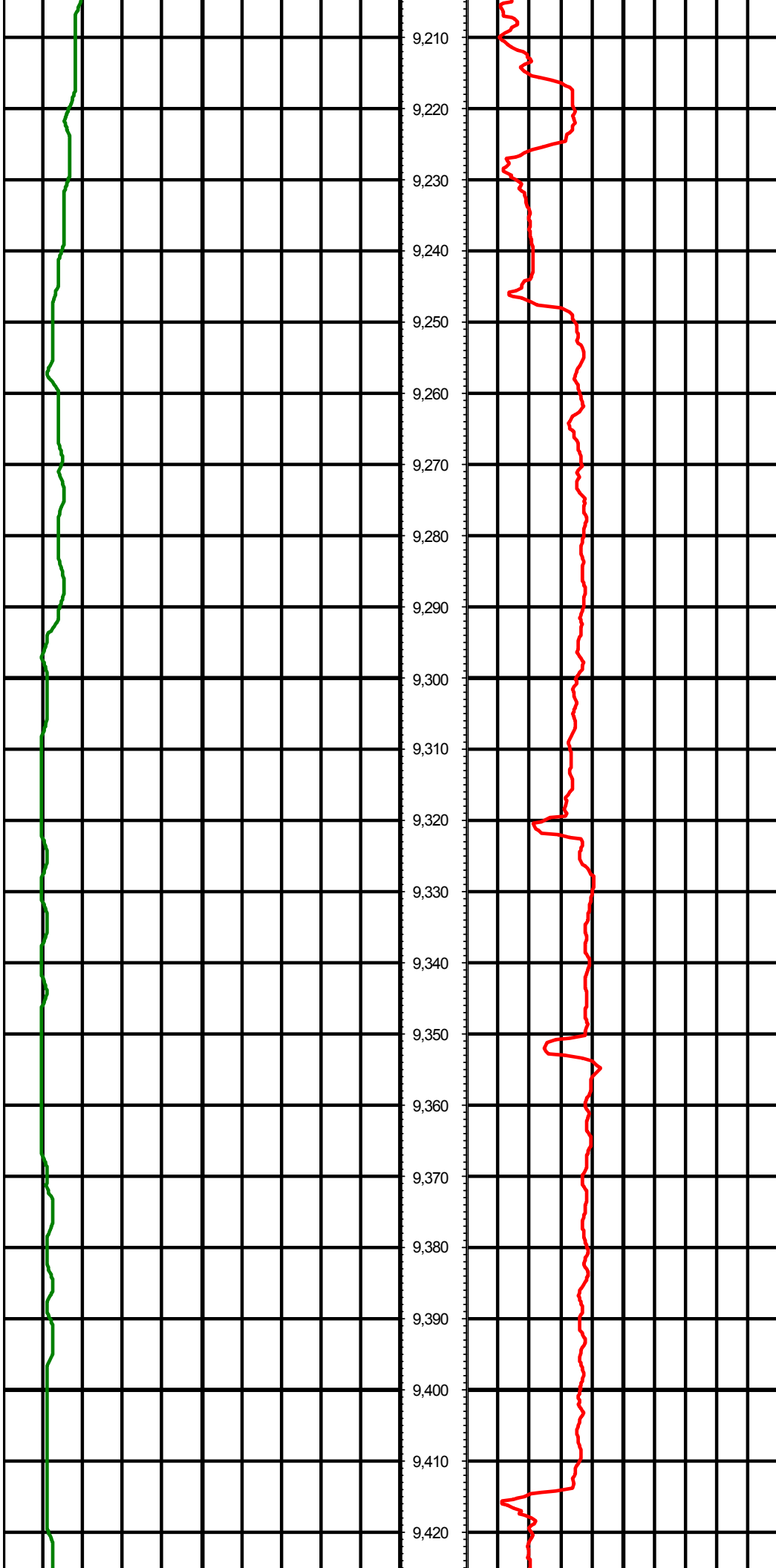
MD: 8421.00 INC: 90.90 AZ: 180.60

MD: 8515.00 INC: 91.10 AZ: 180.70



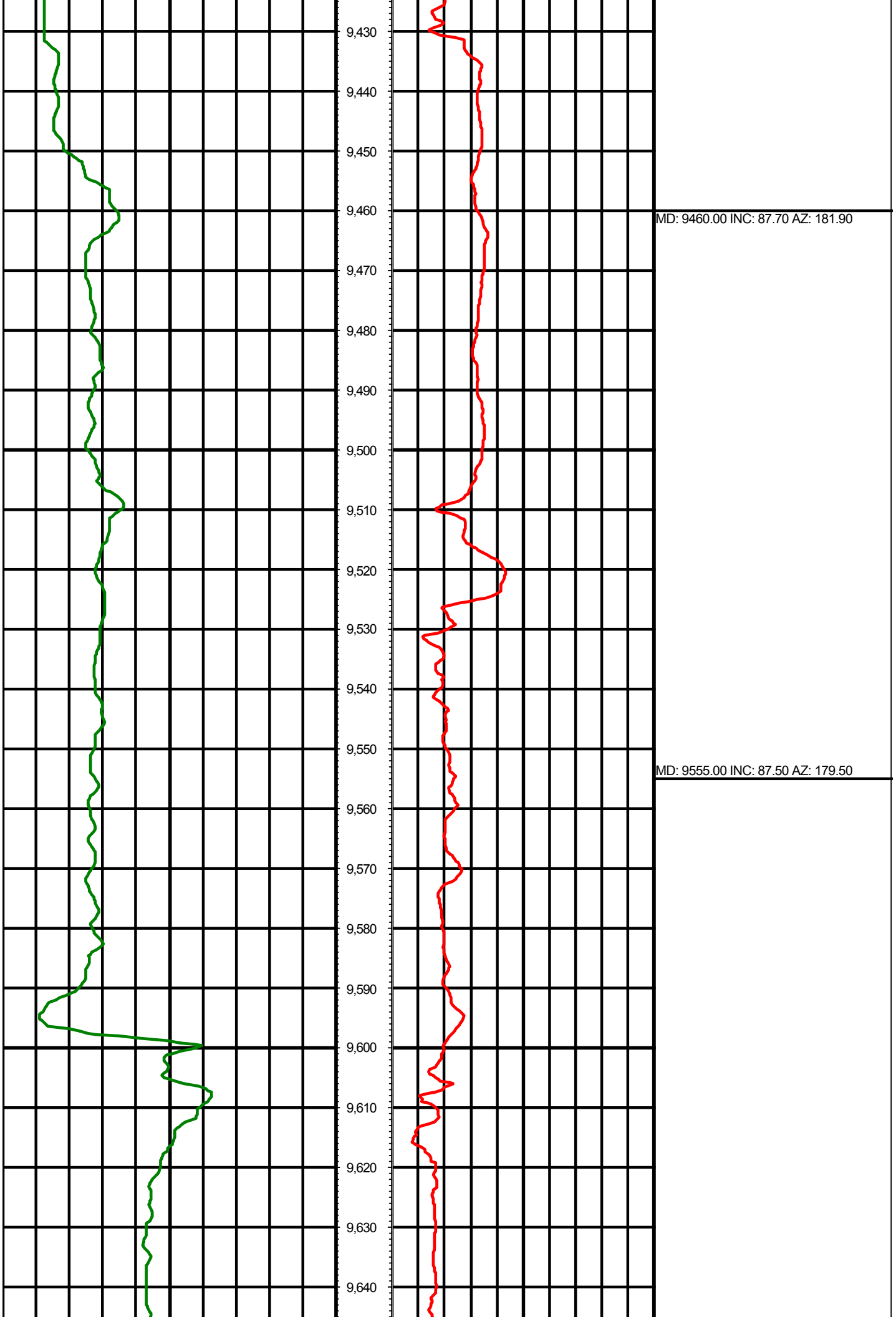


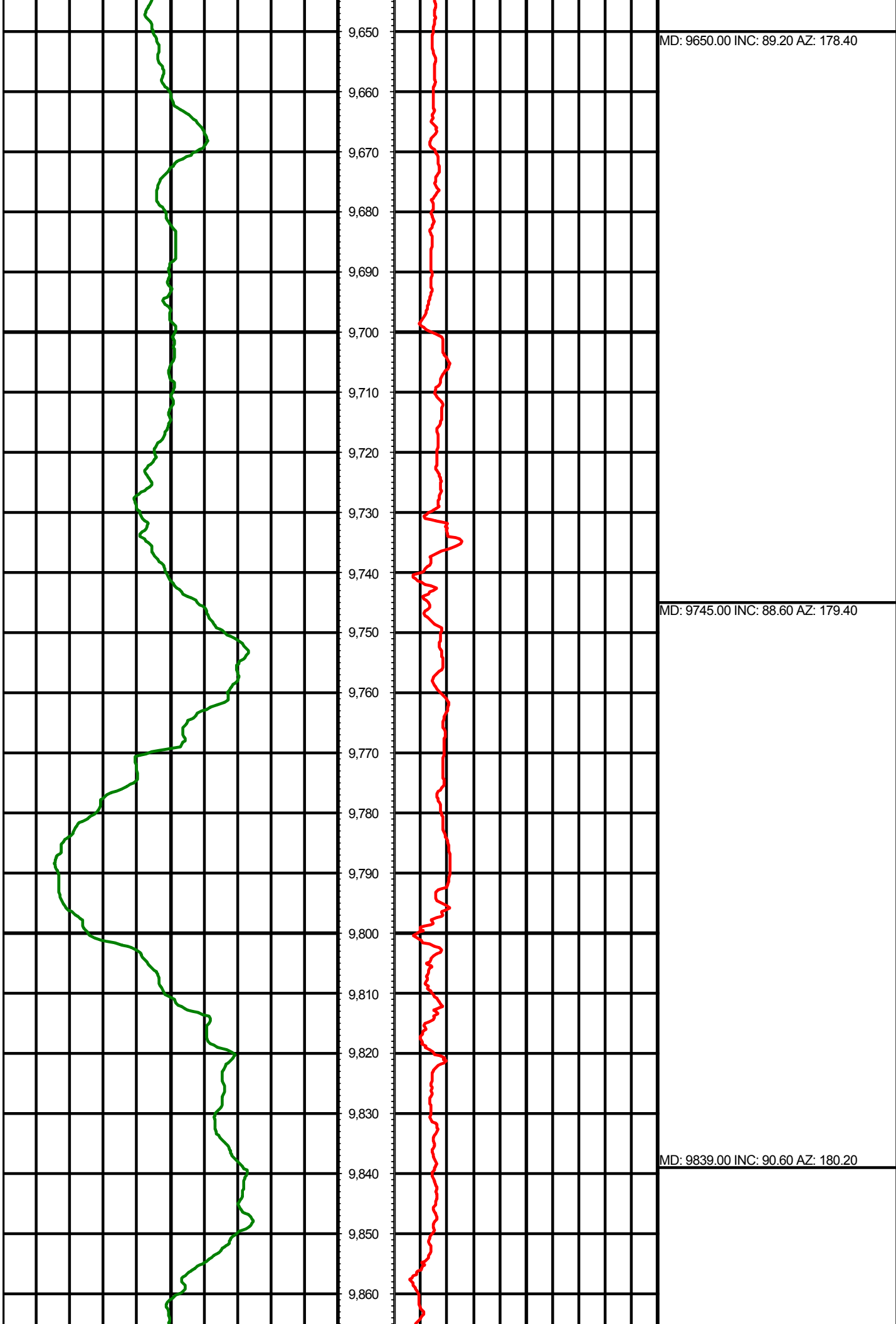


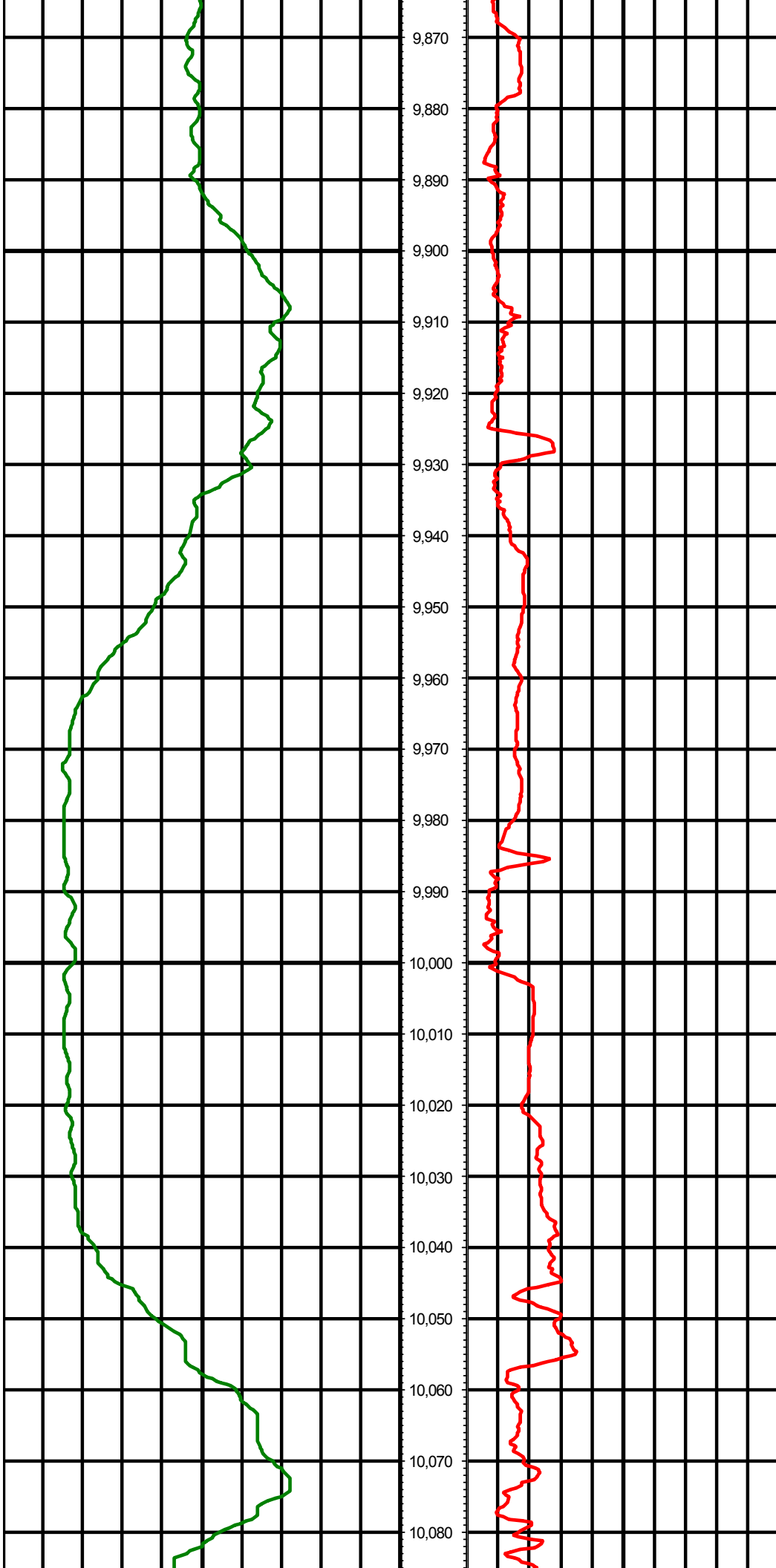


MD: 9271.00 INC: 88.70 AZ: 182.80

MD: 9366.00 INC: 89.70 AZ: 183.10





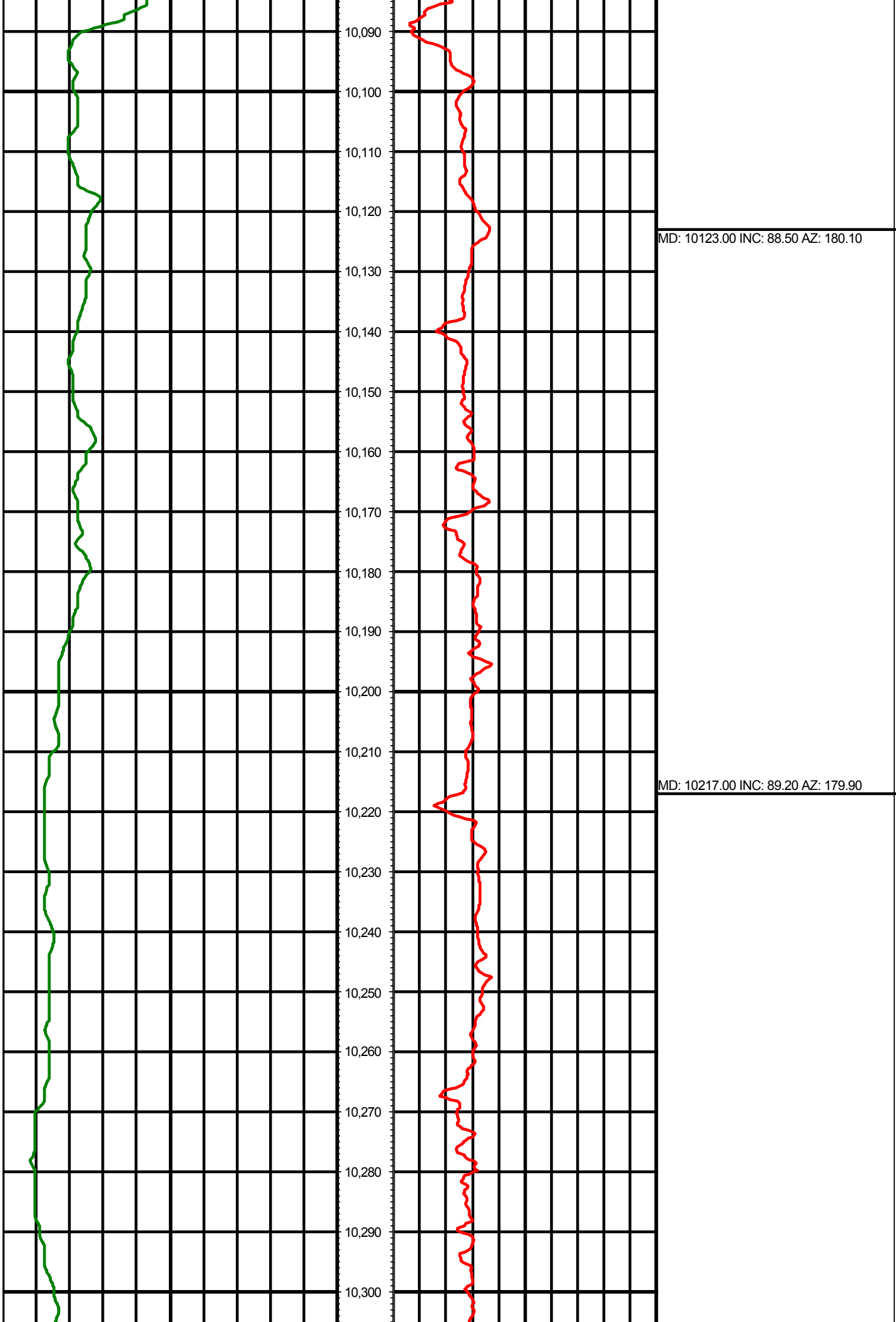


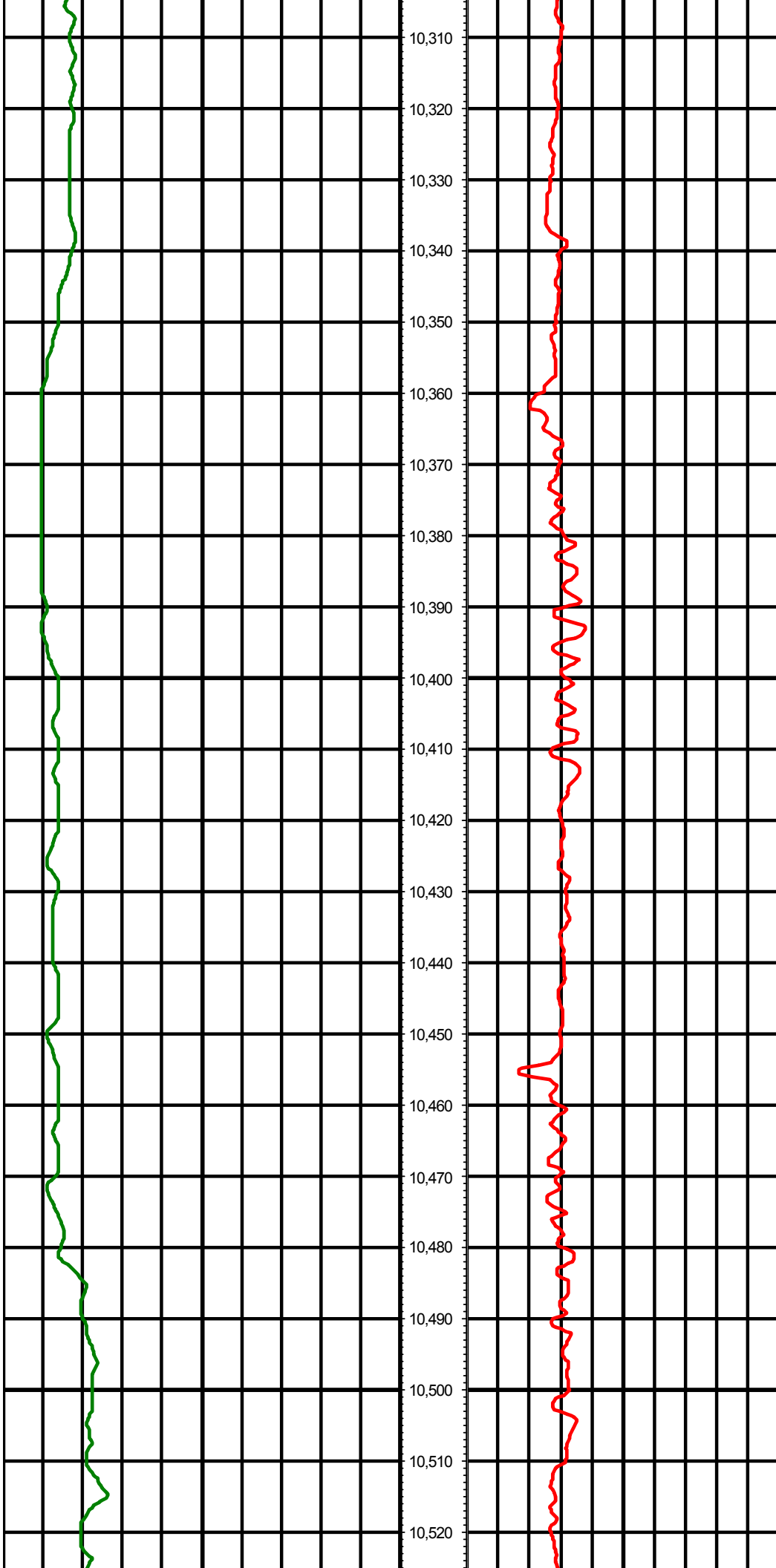
9,870  
9,880  
9,890  
9,900  
9,910  
9,920  
9,930  
9,940  
9,950  
9,960  
9,970  
9,980  
9,990  
10,000  
10,010  
10,020  
10,030  
10,040  
10,050  
10,060  
10,070  
10,080

MD: 9934.00 INC: 92.20 AZ: 182.00

MD: 10028.00 INC: 89.90 AZ: 182.10





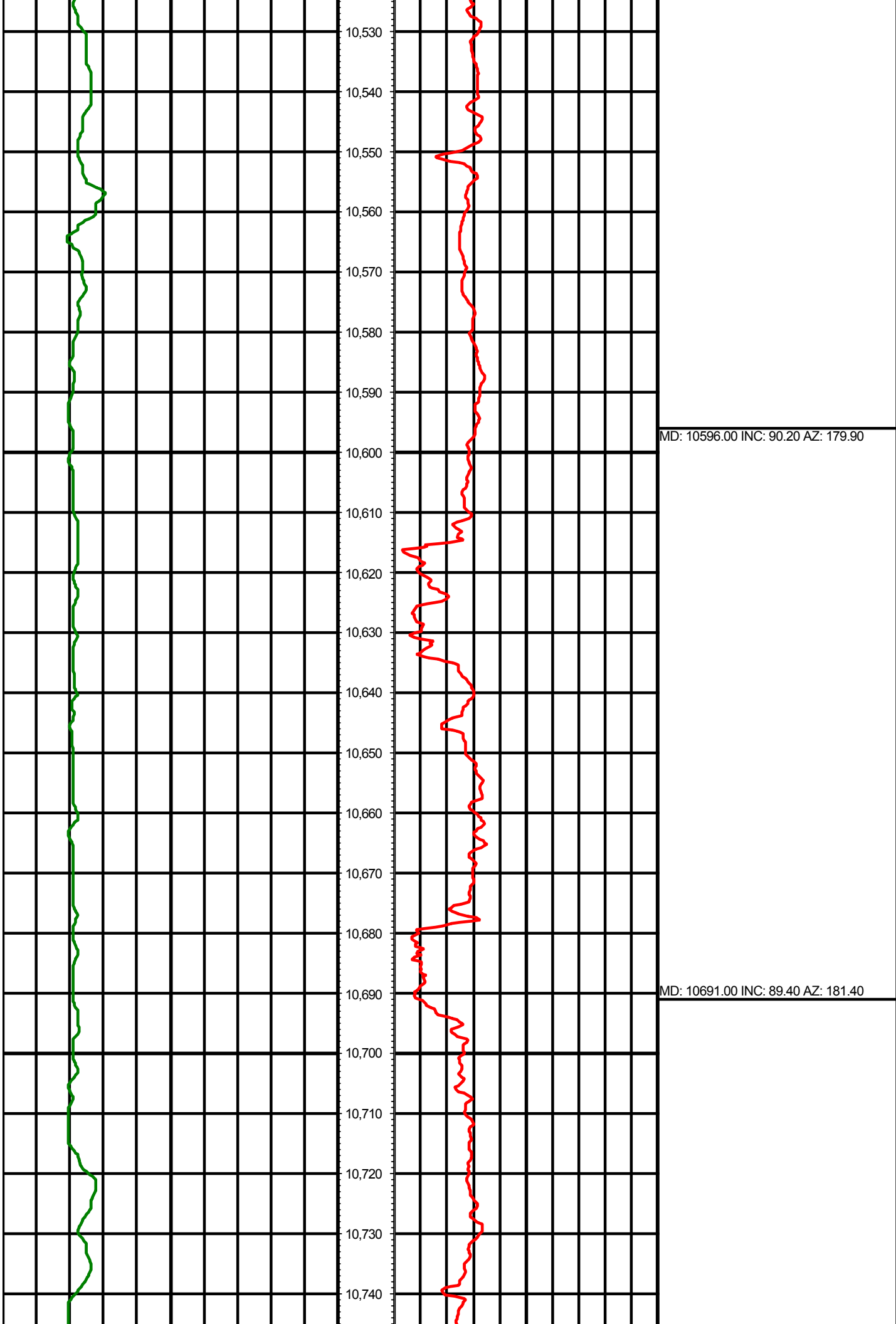


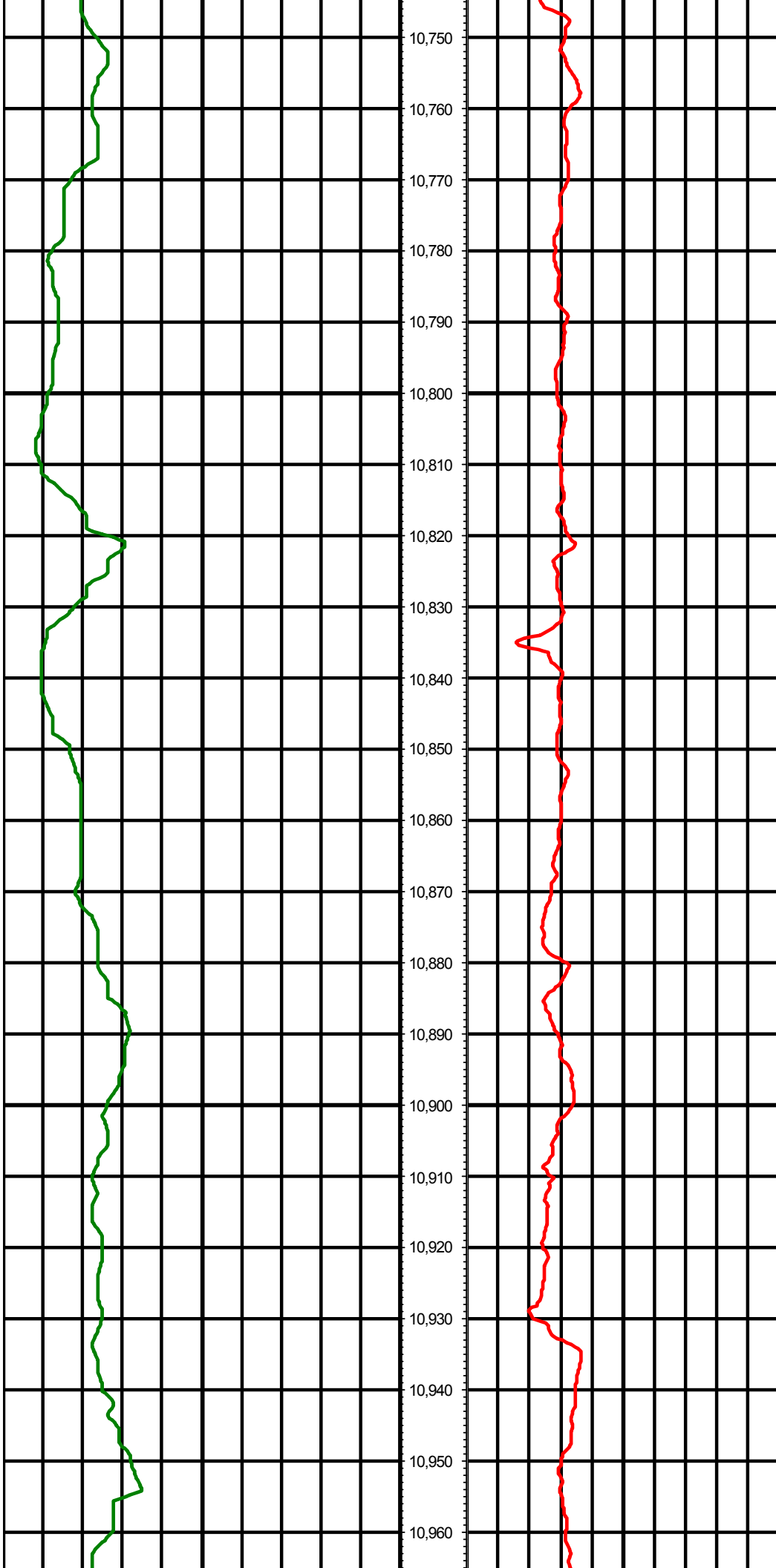
10,310  
10,320  
10,330  
10,340  
10,350  
10,360  
10,370  
10,380  
10,390  
10,400  
10,410  
10,420  
10,430  
10,440  
10,450  
10,460  
10,470  
10,480  
10,490  
10,500  
10,510  
10,520

MD: 10312.00 INC: 89.20 AZ: 179.20

MD: 10407.00 INC: 89.40 AZ: 179.20

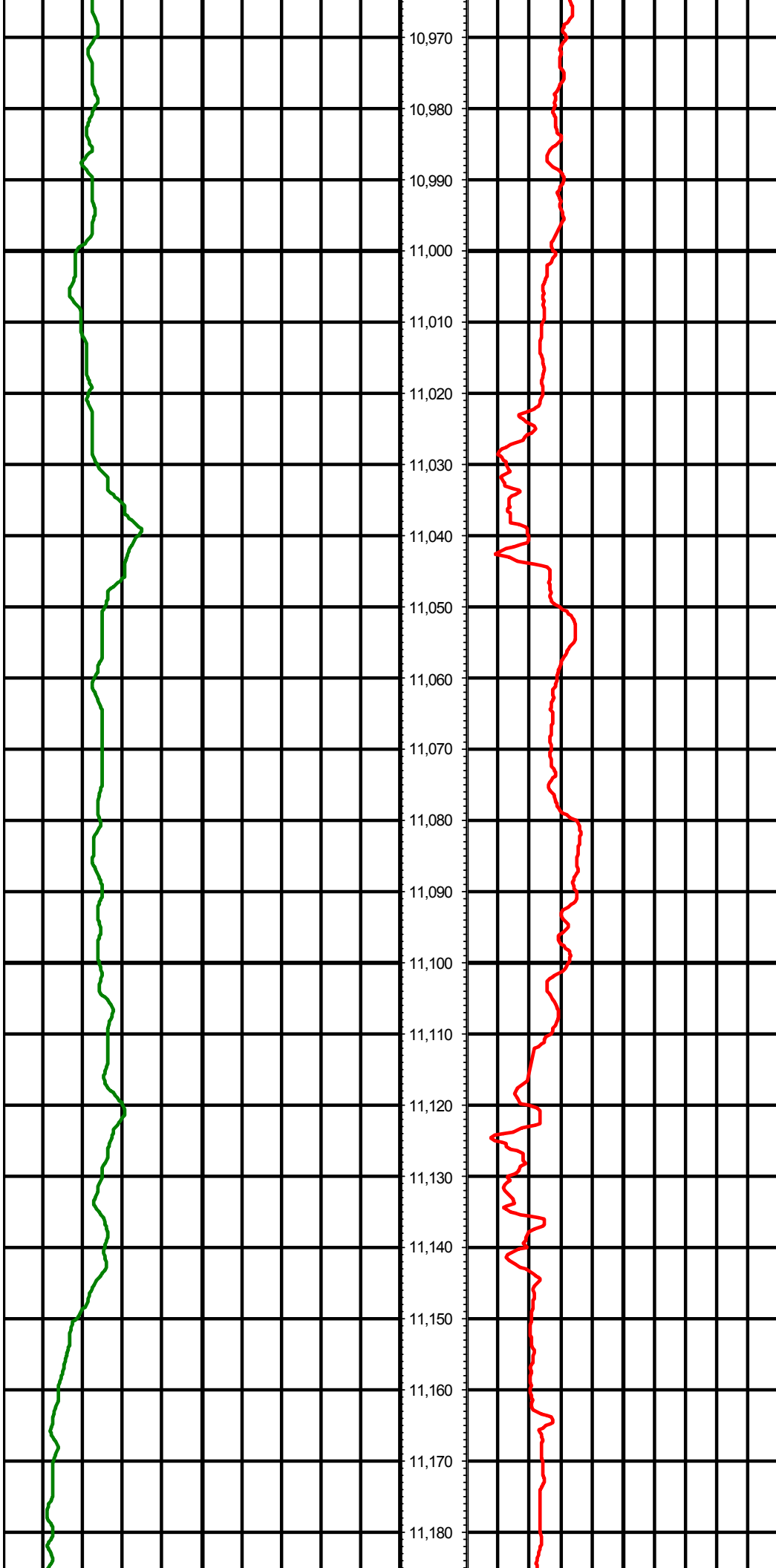
MD: 10501.00 INC: 90.00 AZ: 178.80





MD: 10785.00 INC: 88.90 AZ: 181.80

MD: 10880.00 INC: 89.60 AZ: 180.90

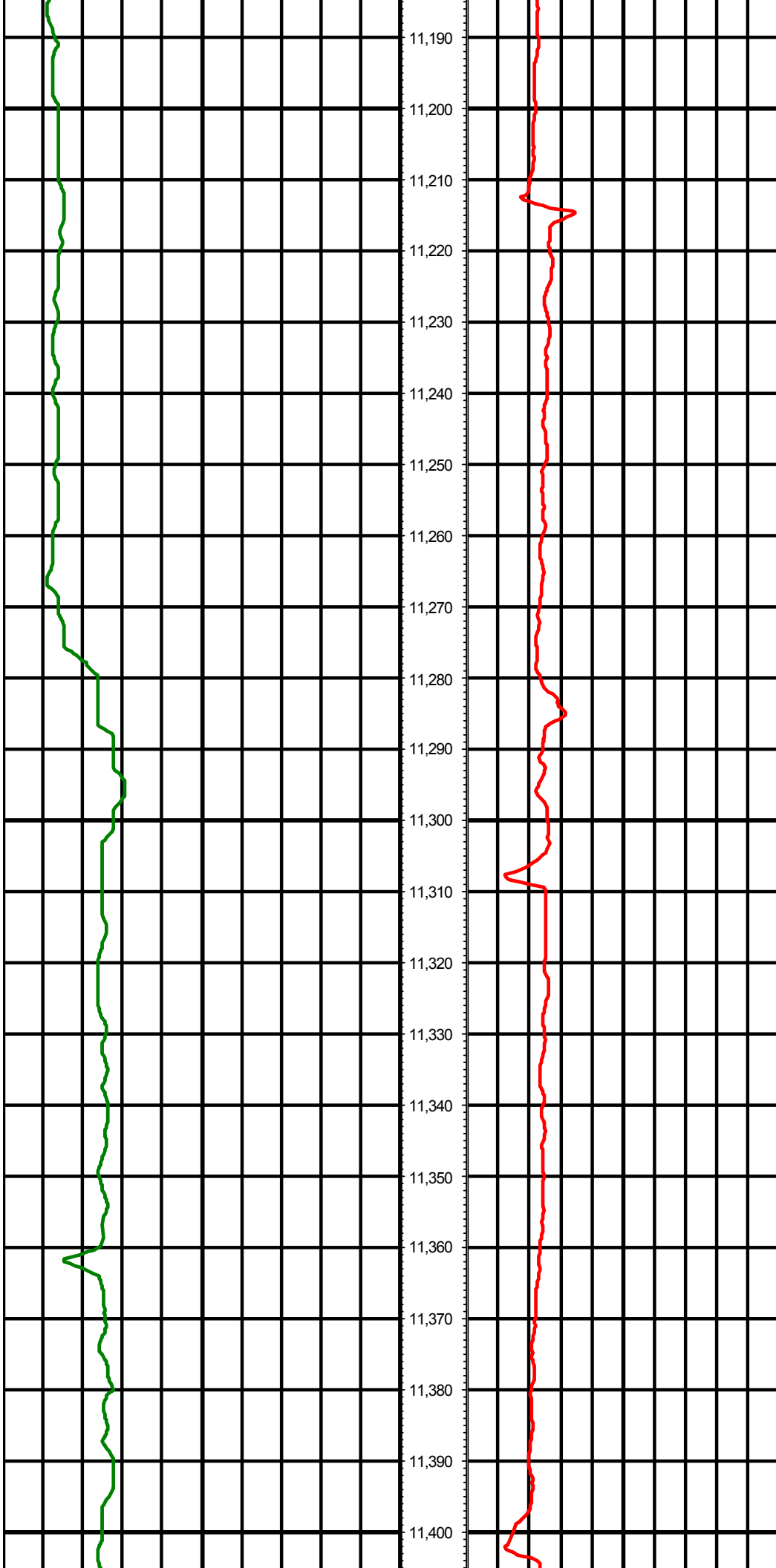


10,970  
10,980  
10,990  
11,000  
11,010  
11,020  
11,030  
11,040  
11,050  
11,060  
11,070  
11,080  
11,090  
11,100  
11,110  
11,120  
11,130  
11,140  
11,150  
11,160  
11,170  
11,180

MD: 10975.00 INC: 90.10 AZ: 181.10

MD: 11069.00 INC: 89.60 AZ: 179.90

MD: 11164.00 INC: 88.70 AZ: 177.80



MD: 11259.00 INC: 89.90 AZ: 177.40

MD: 11353.00 INC: 90.00 AZ: 175.00

