



# CATHEDRAL

Cathedral Energy Services  
1949 North Pyrite Road  
Casper, Wyoming 82604

**145356**

5":100' - MD

11/5/2014 1:47:07 PM

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

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

**State / Province:** Colorado

**County / Parish:** Weld

**Started:** 10/09/2014 03:00 AM

**API/UWI:** 05-123-37613-00

**Field:** Wattenberg (Niobrara)

**Well:** Drieth 4D-6H-I368

**Rig:** Helmrich & Payne Drilling 522

**Ended:** 10/14/2014 02:00 AM

Gamma Ray  
Section Plane: 270.0  
Magnetic North: 8.55  
Gamma Attenuation Factor: 2.81  
Gamma Averaging: 7%

## Personnel

**Day Hand:** J. Nichols

**Night Hand:** T. Kaspch

**Comp. Emp:**

Maximum Temperature: 210°F

## Location

**Latitude:** 40.254130

**Longitude:** -105.038550

**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	7646
6-1/8	7646	11477

## Casing Data

Size	From	To
9-5/8	0	870
7	0	7510
4-1/2	0	11467

## Bit Sizes

Size	From	To
12-1/4	0	880
8-3/4	880	7520
6-1/8	7520	11477

## Mud Data

Type	Weight	Density	Viscosity	Rm	Rmf	Rmc	From	To
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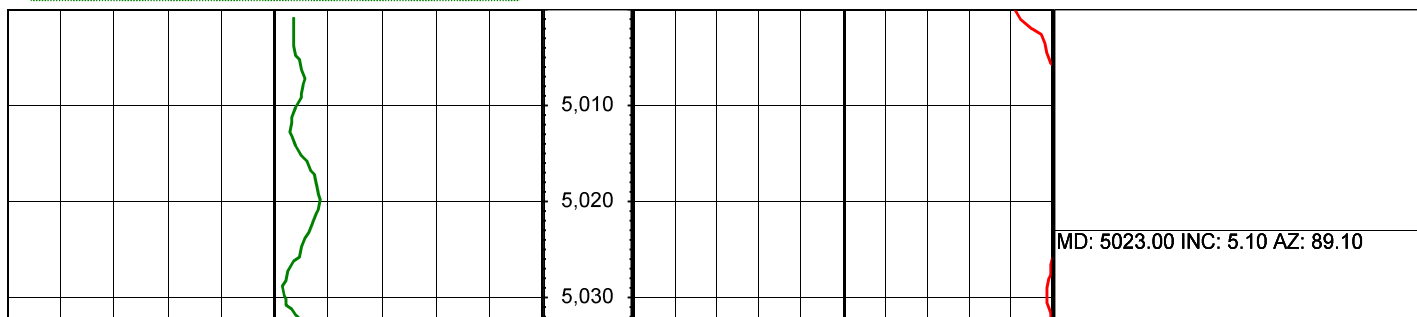
## Tool Run Data

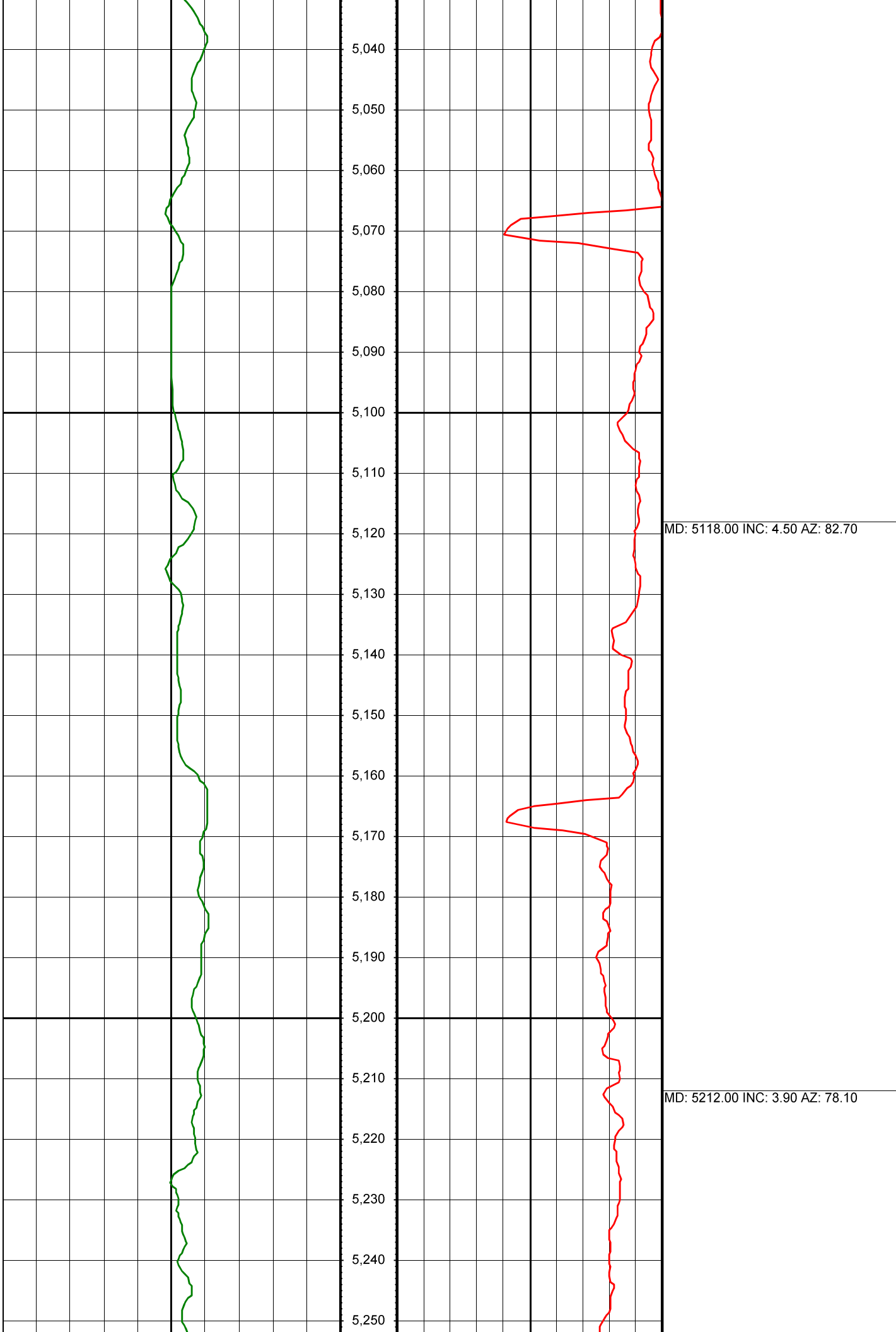
Serial Number	Gamma Offset	Resist. Offset	Start Time	Start Depth	End Time	End Depth
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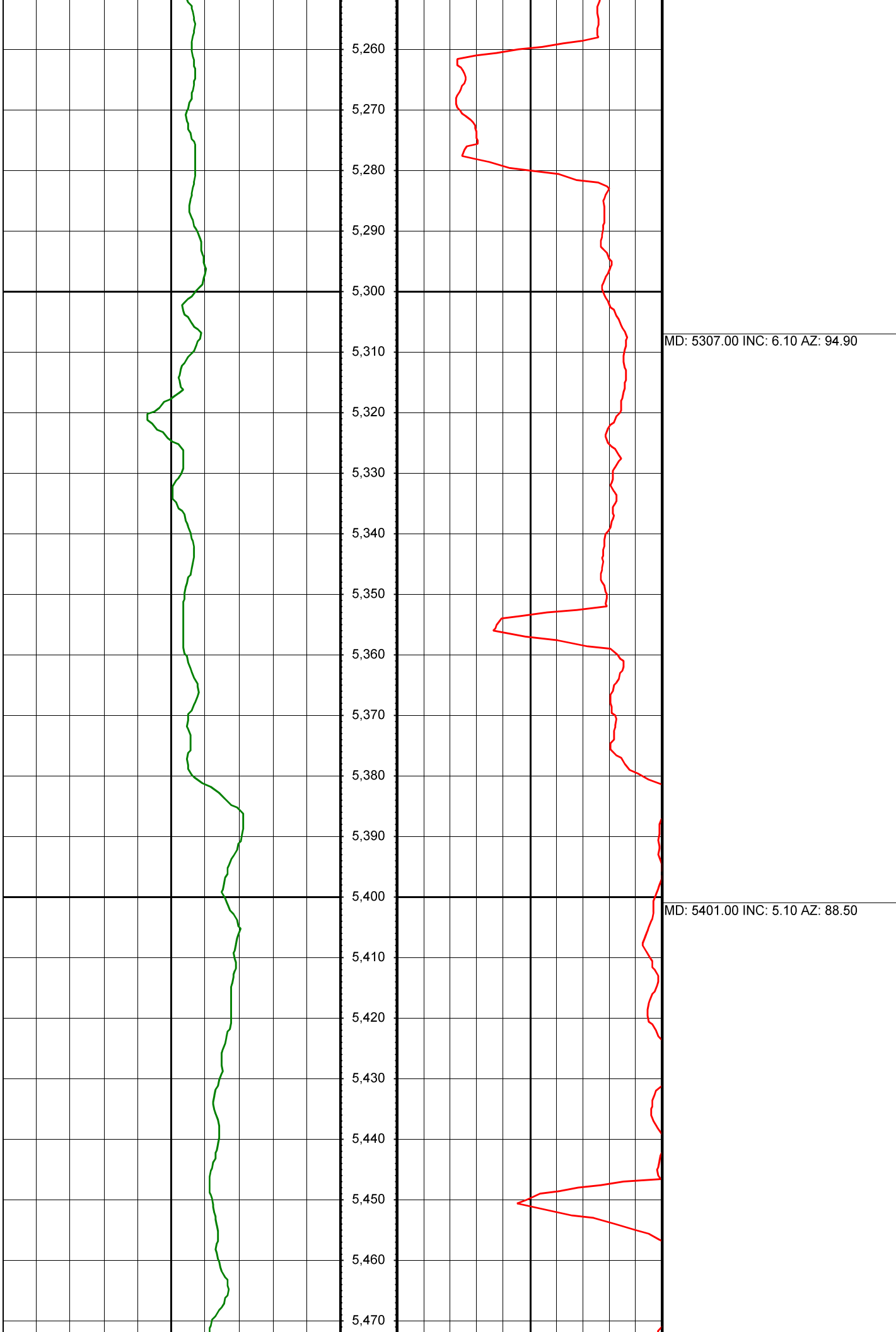
*All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost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

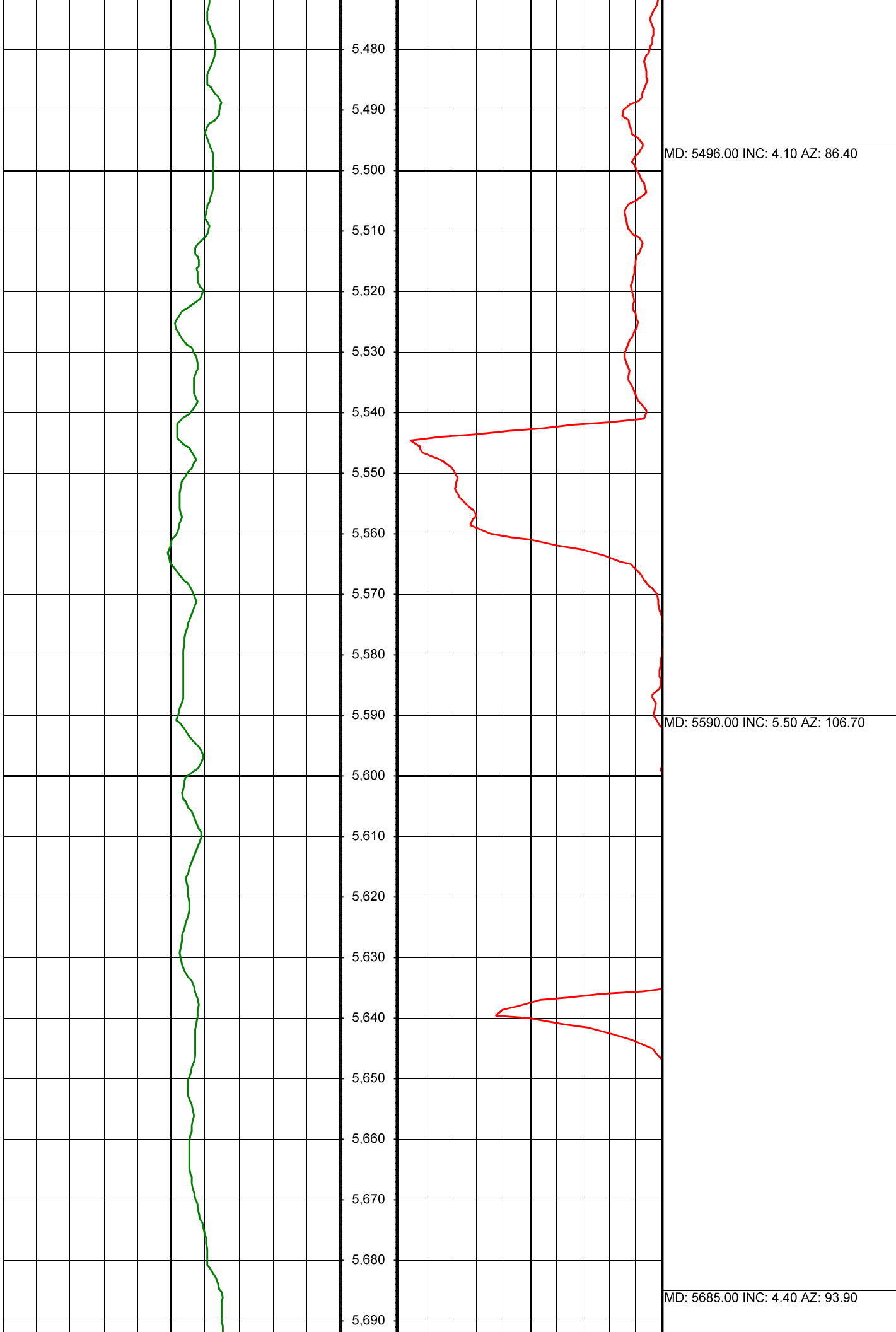
0.00      Gamma Ray (API)      150.00      MD      0.00      ROP (FT/HR)      600.00      Surveys (MD/INC/AZ)

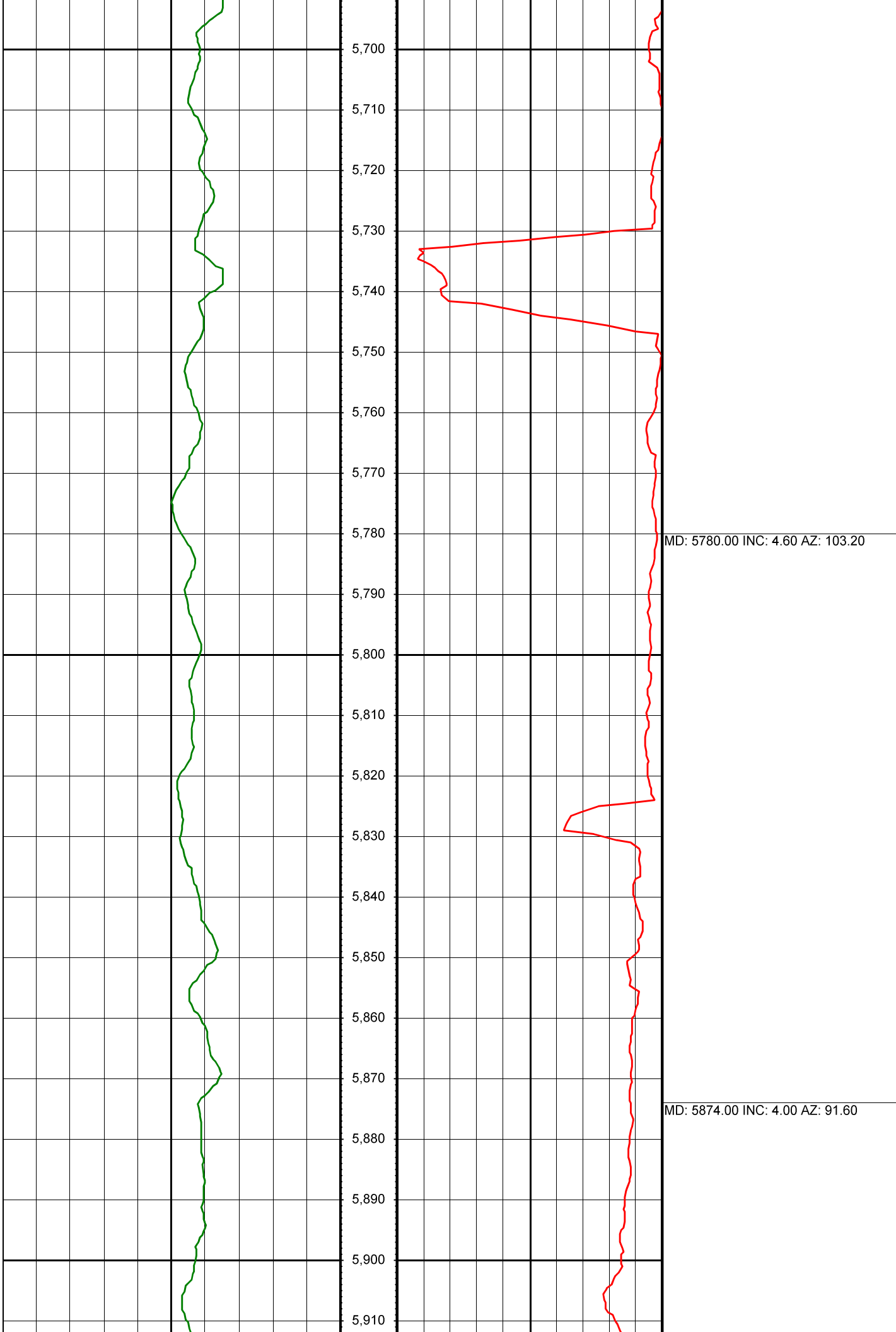
150.00      2      300.00      FT

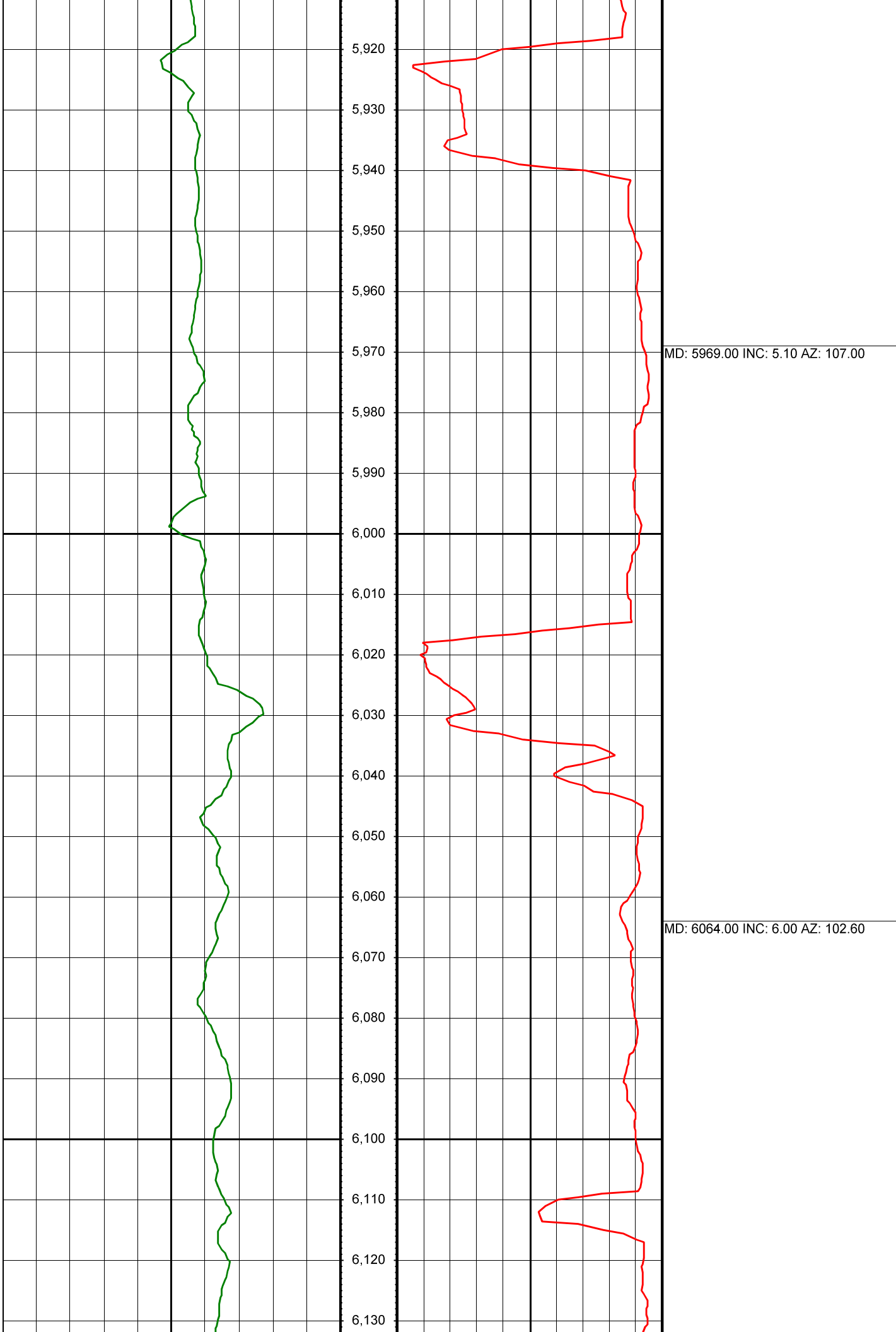


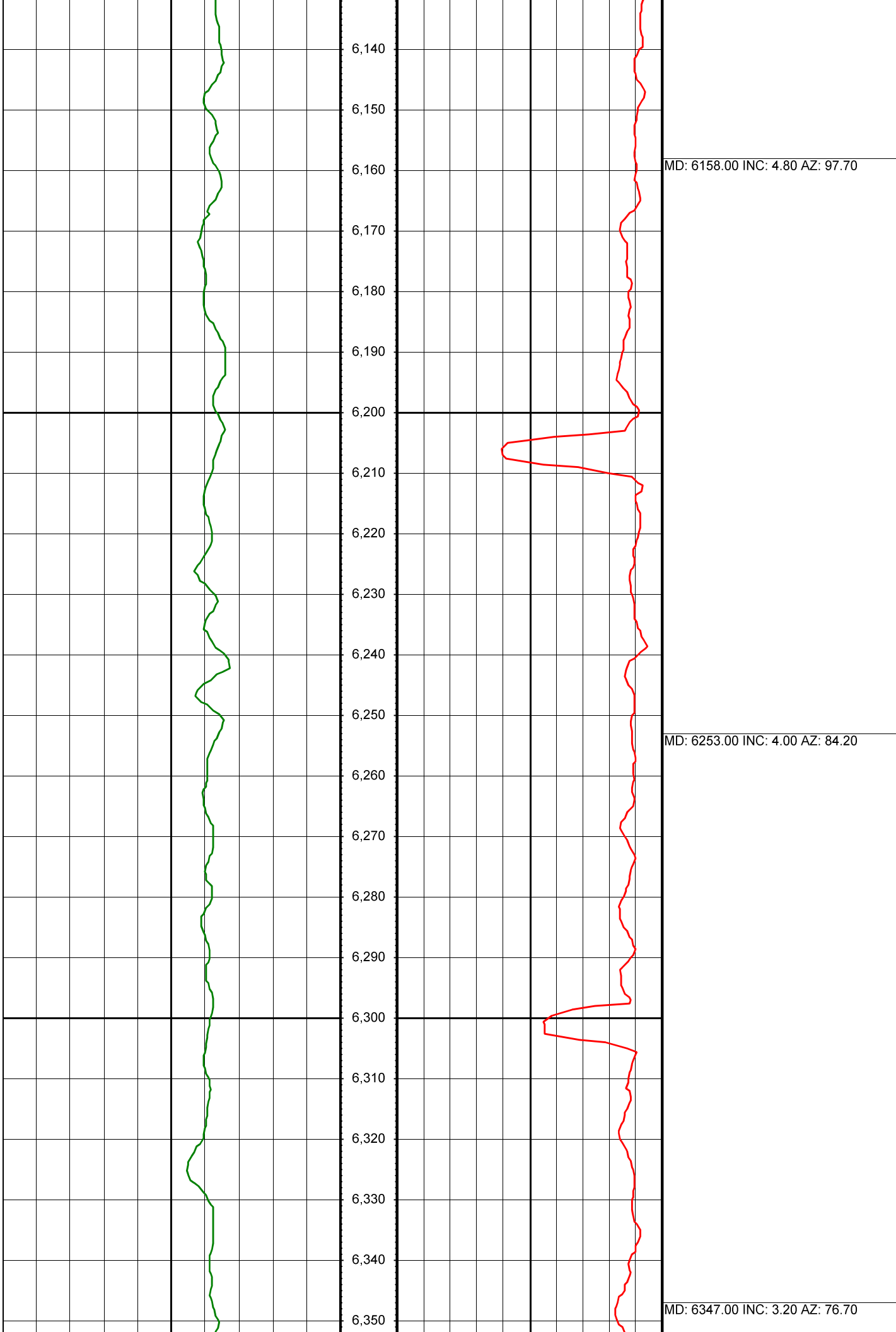


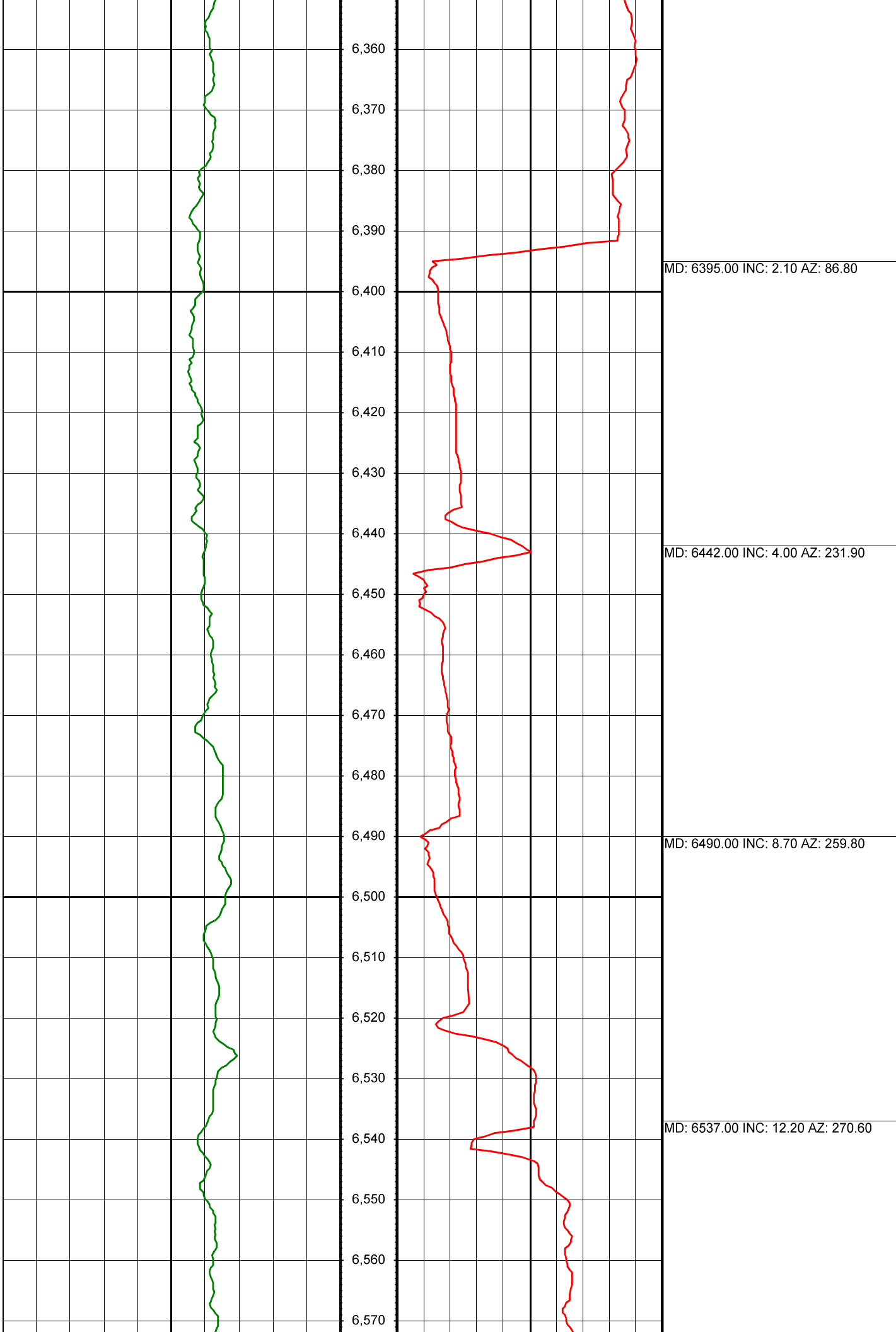






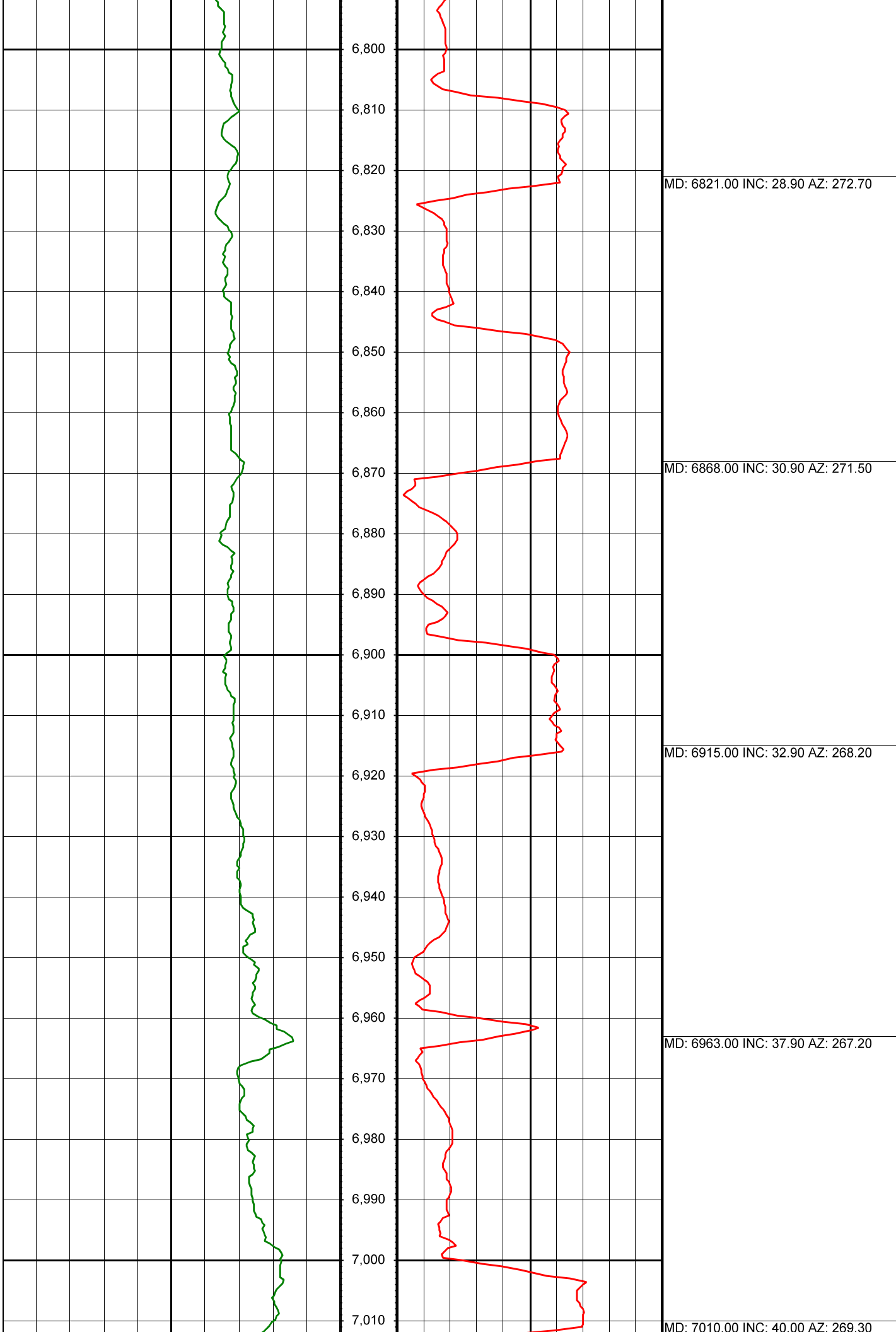


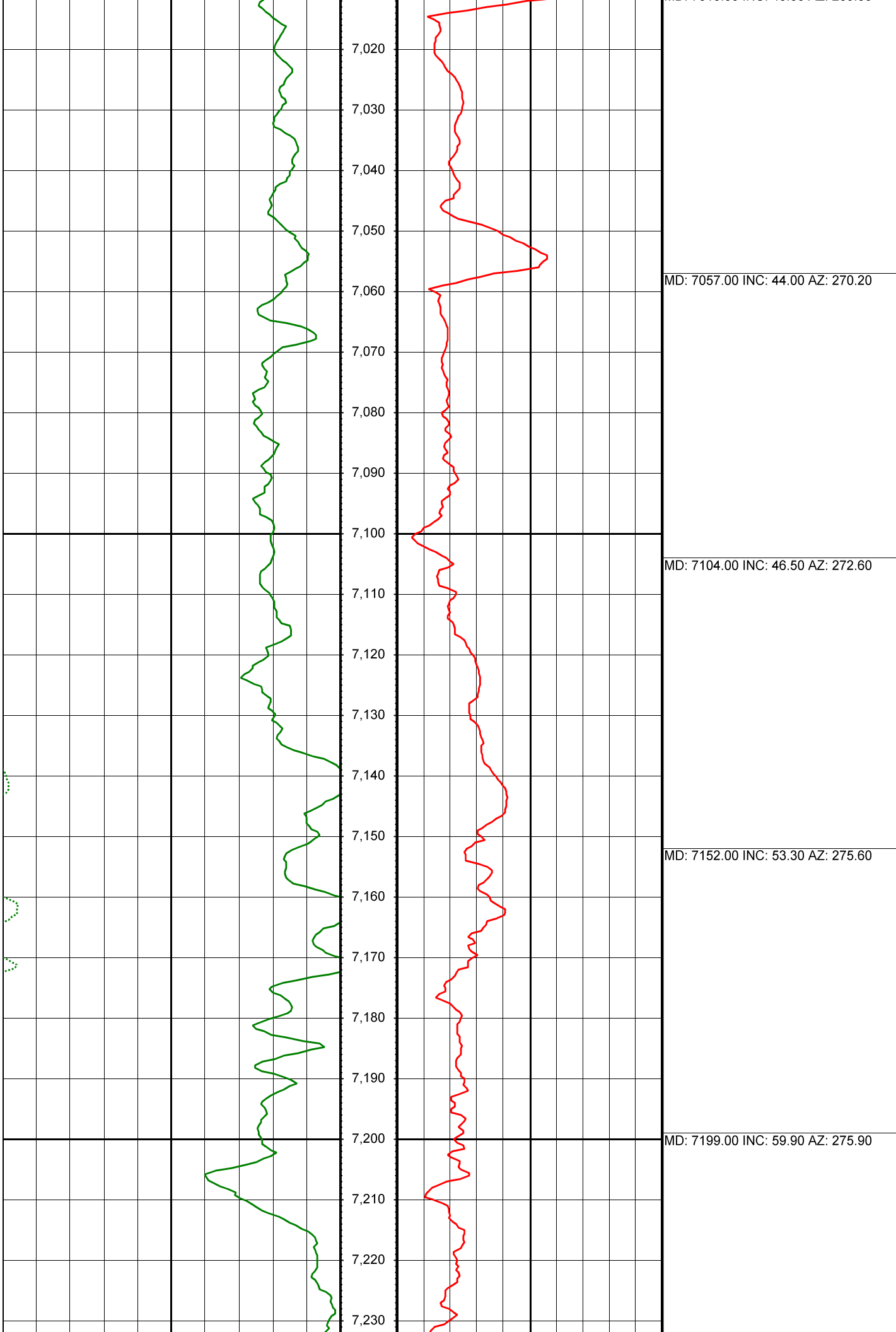


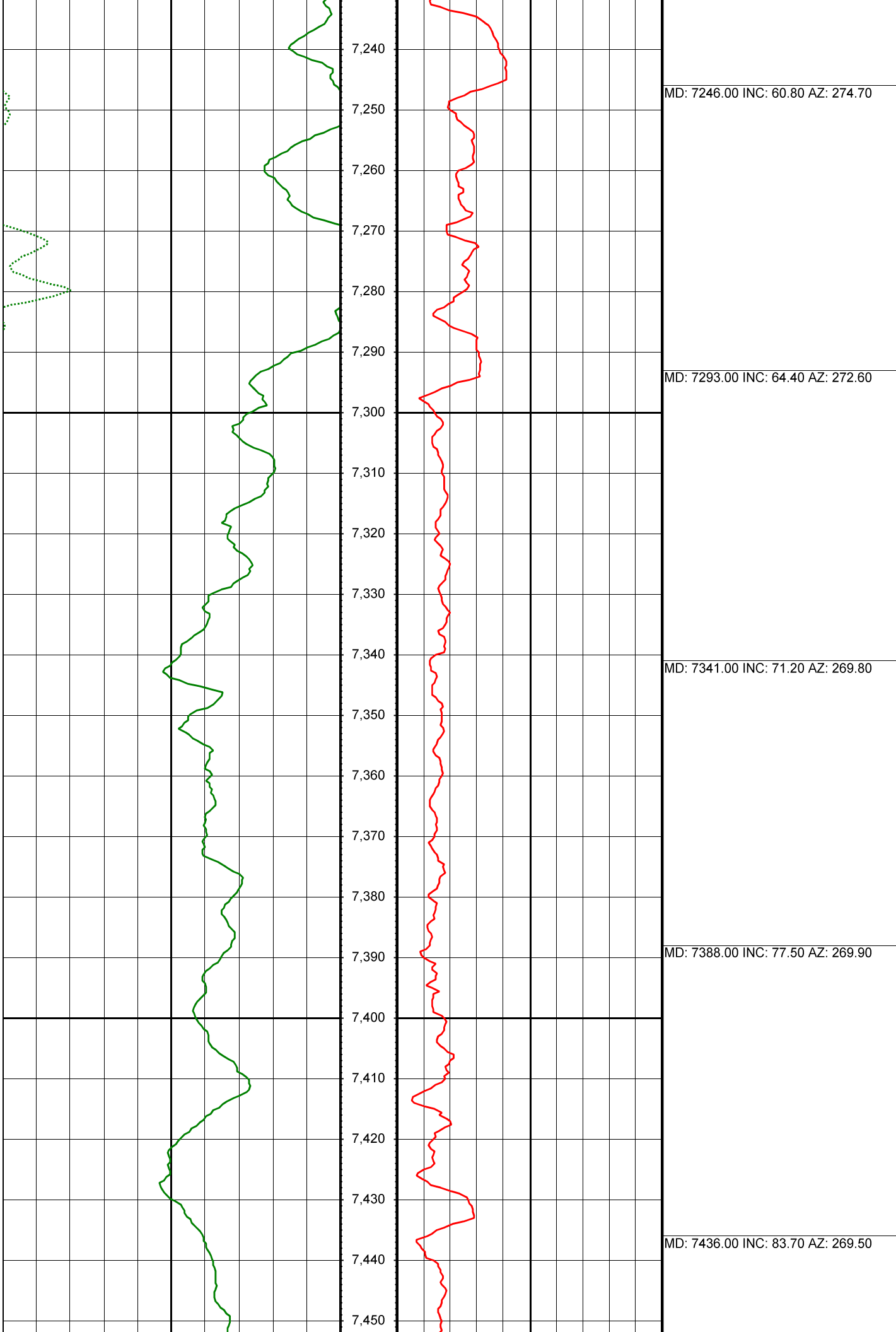


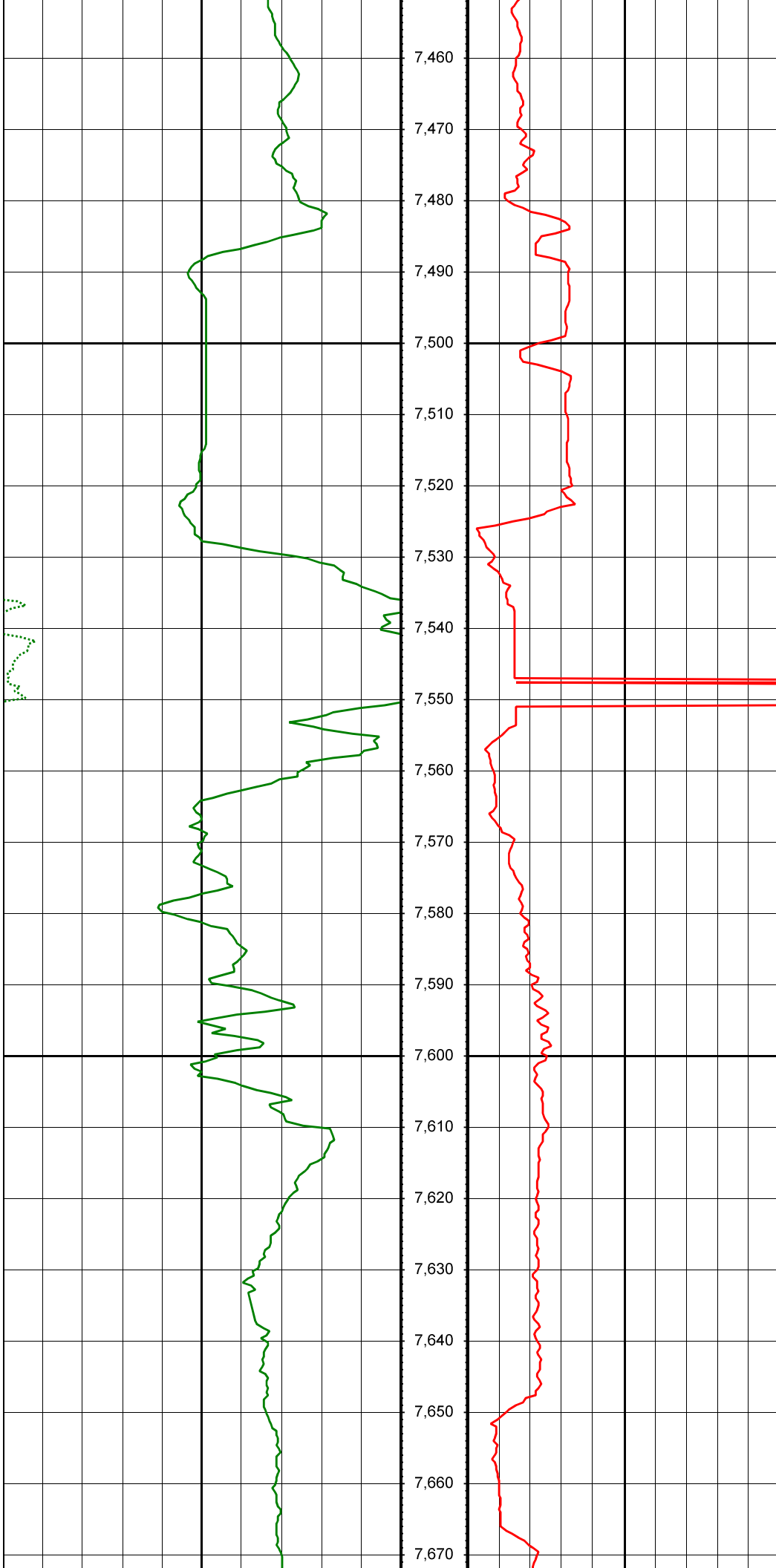






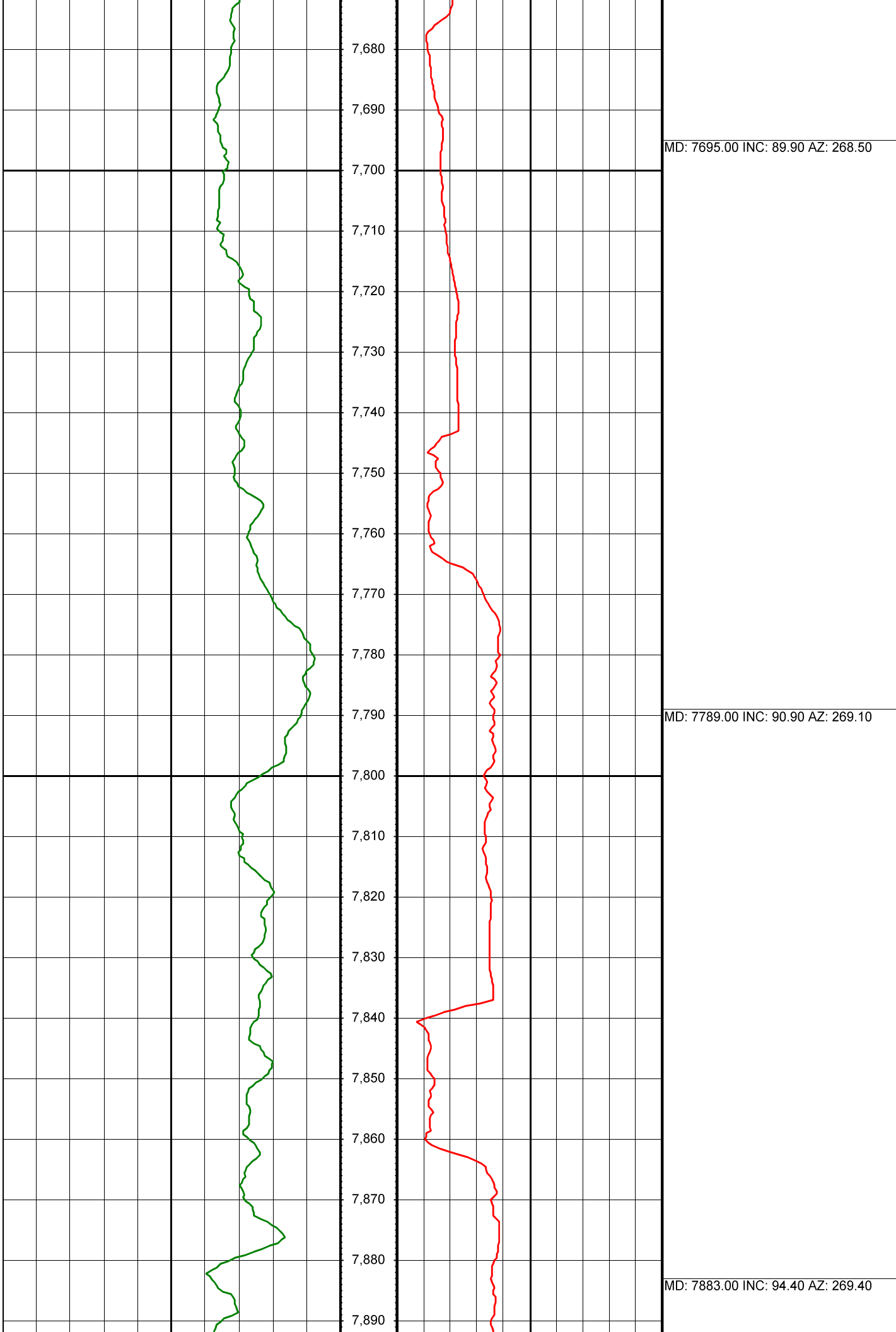


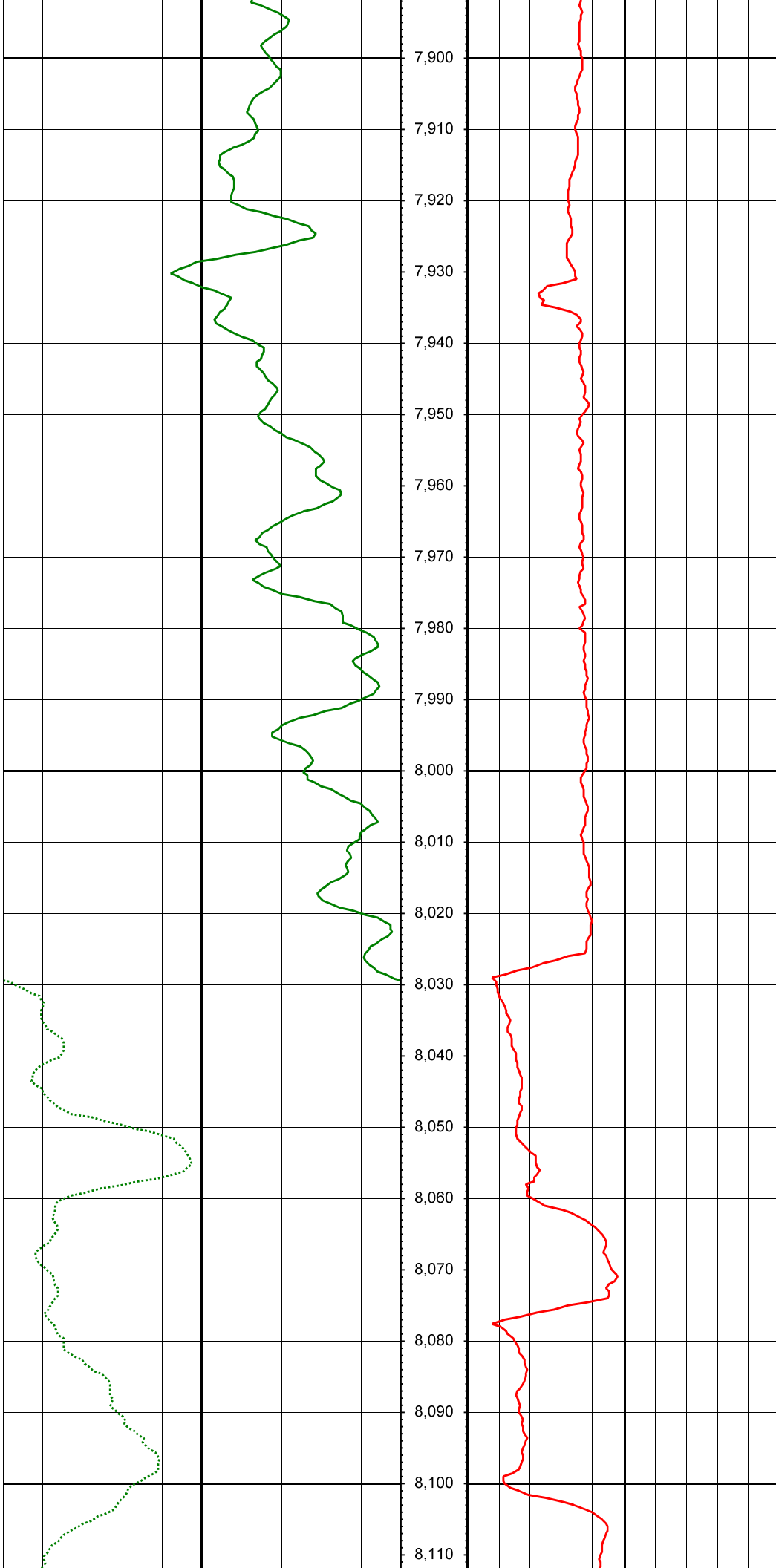




MD: 7472.00 INC: 88.60 AZ: 270.30

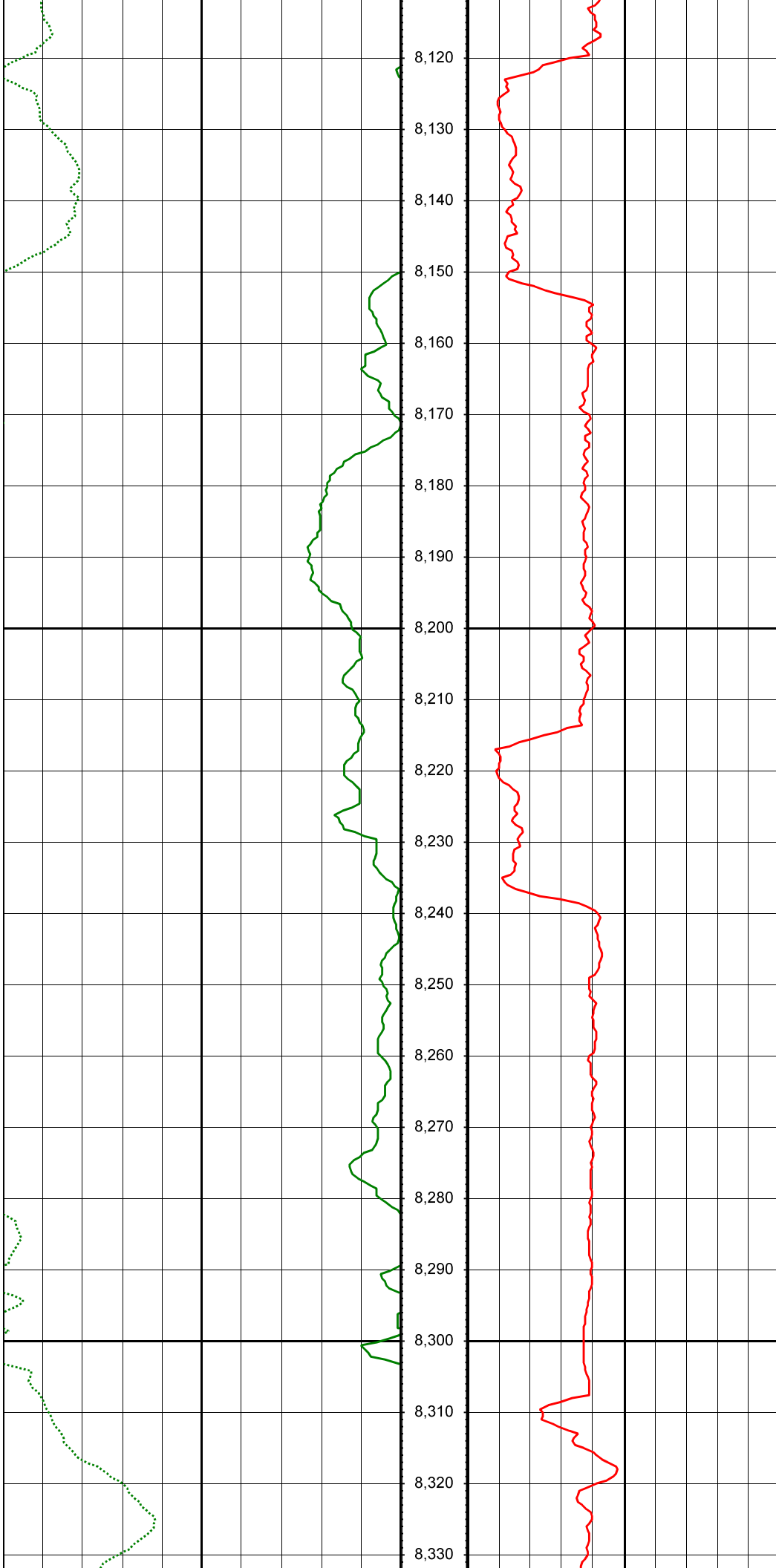
MD: 7598.00 INC: 88.40 AZ: 270.90





MD: 7977.00 INC: 98.50 AZ: 269.30

MD: 8072.00 INC: 96.00 AZ: 269.10



8,120

8,130

8,140

8,150

8,160

8,170

8,180

8,190

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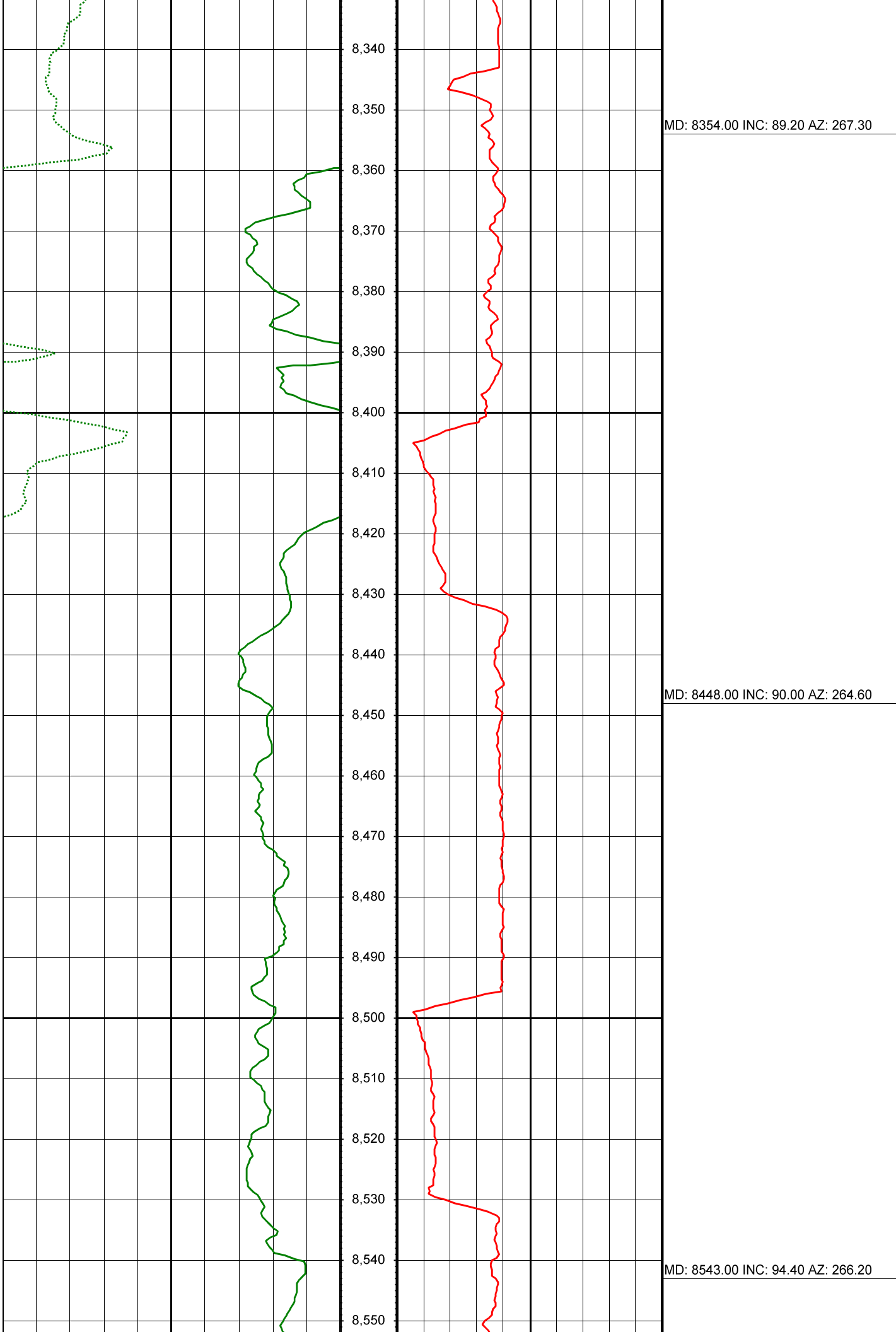
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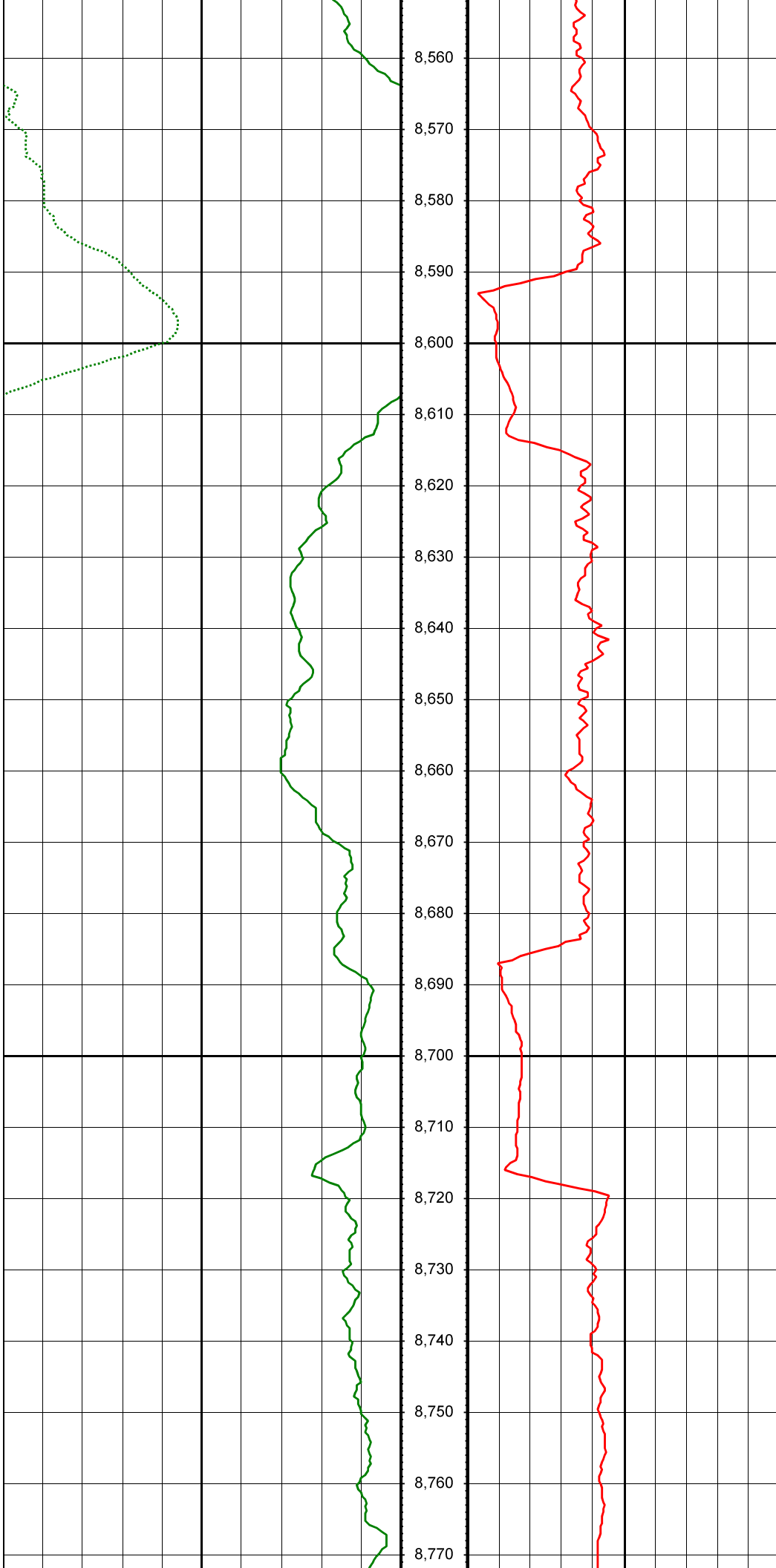
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MD: 8260.00 INC: 90.50 AZ: 269.00

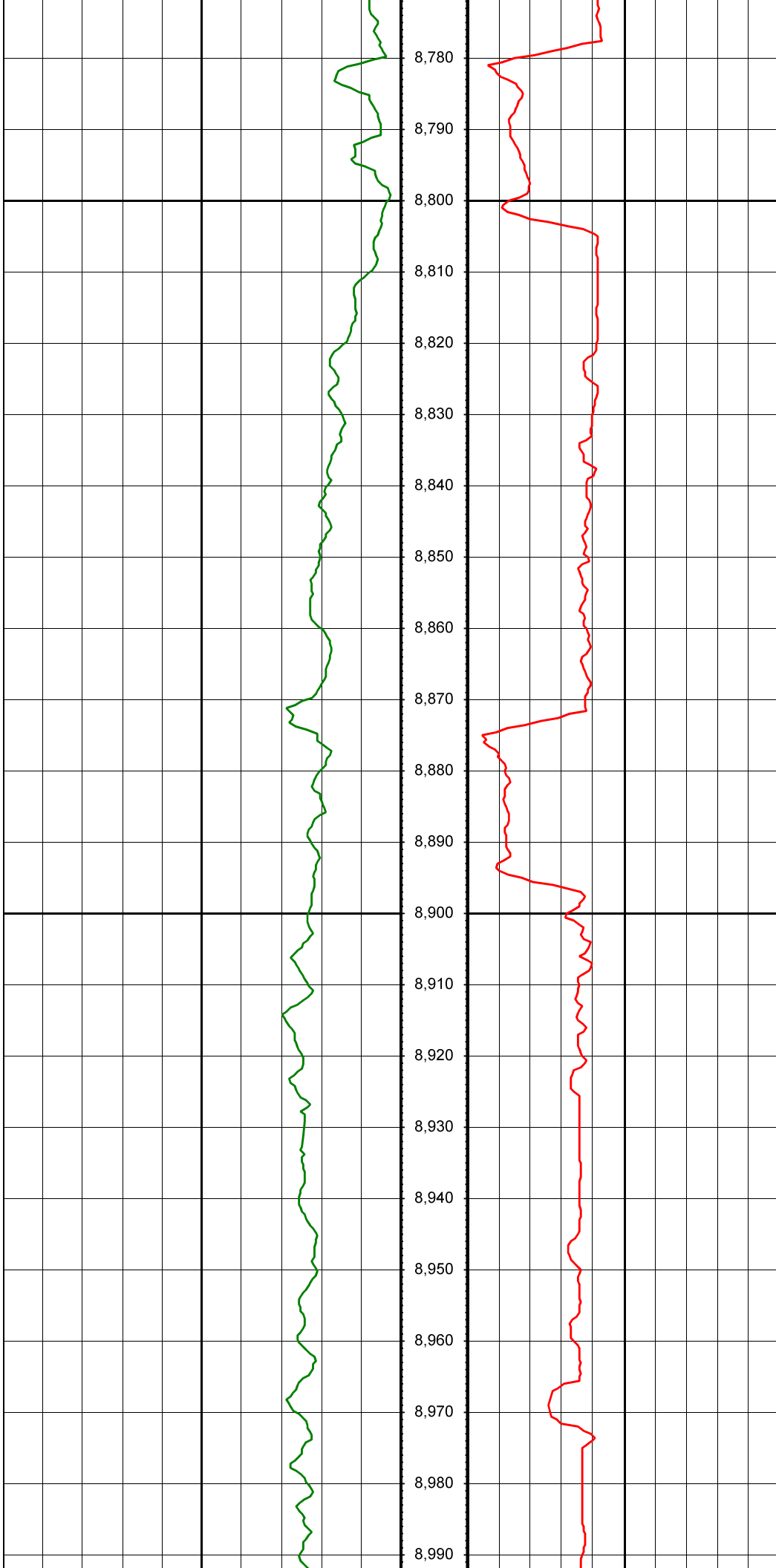






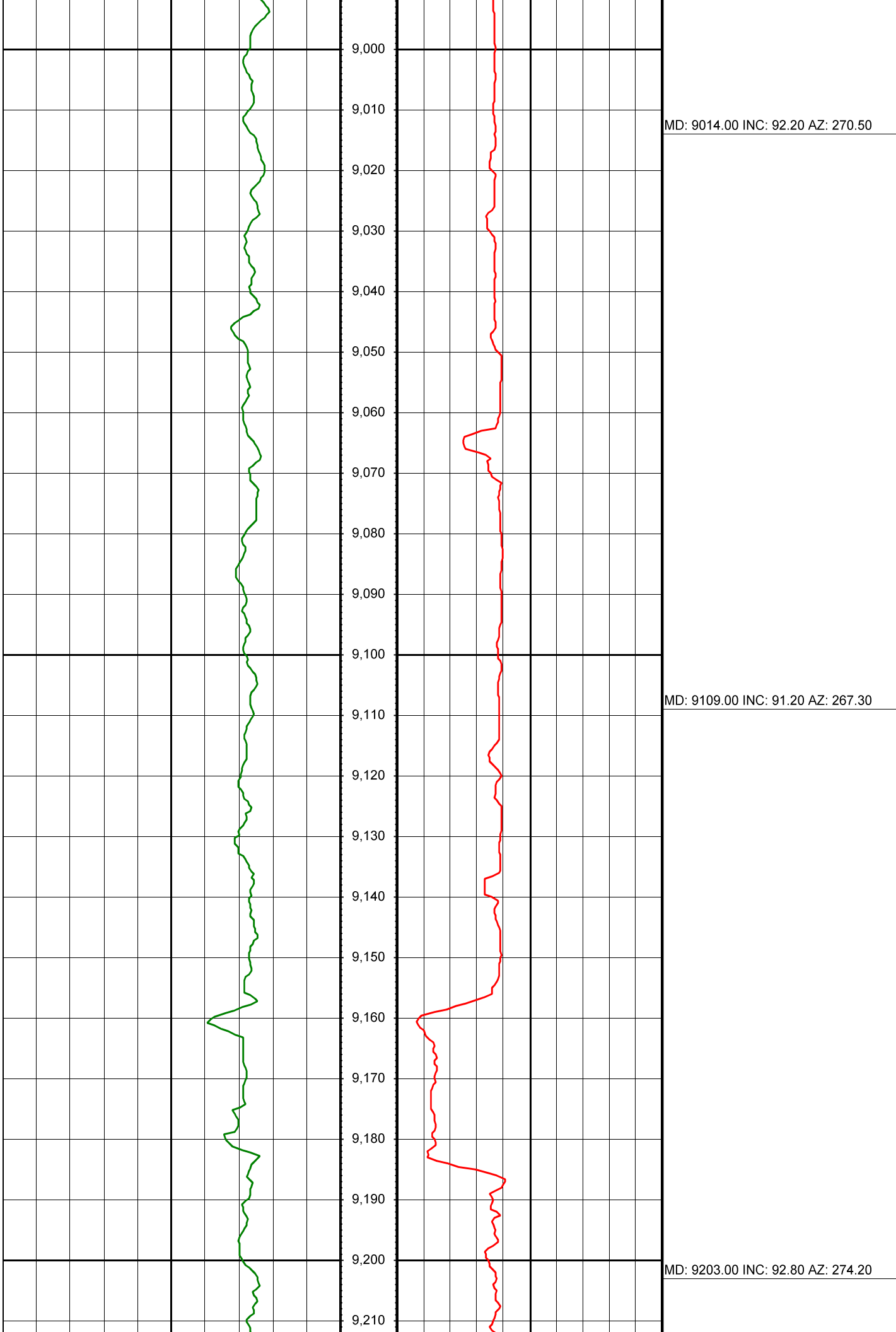
MD: 8637.00 INC: 95.00 AZ: 269.00

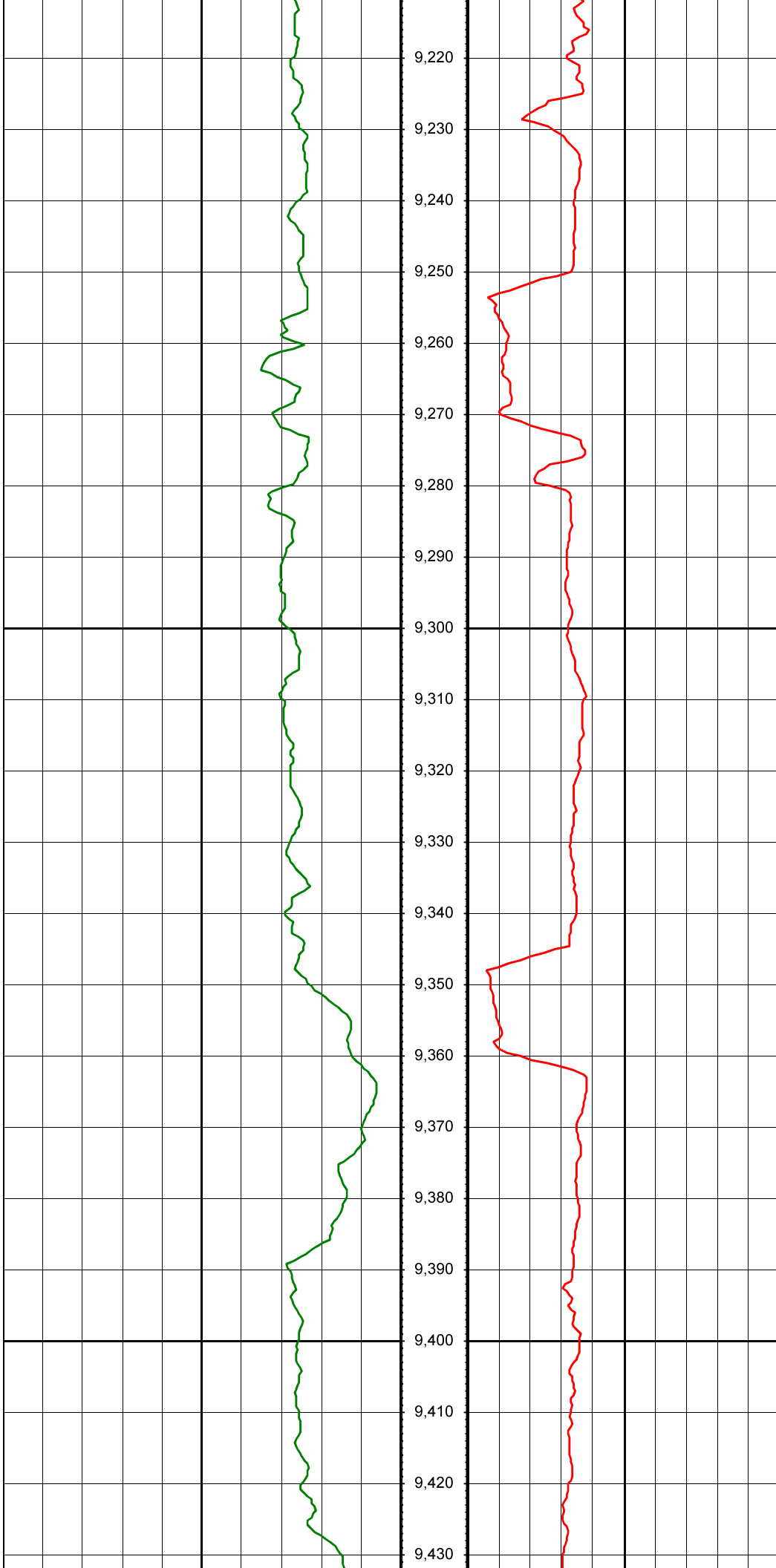
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MD: 8826.00 INC: 92.10 AZ: 268.40

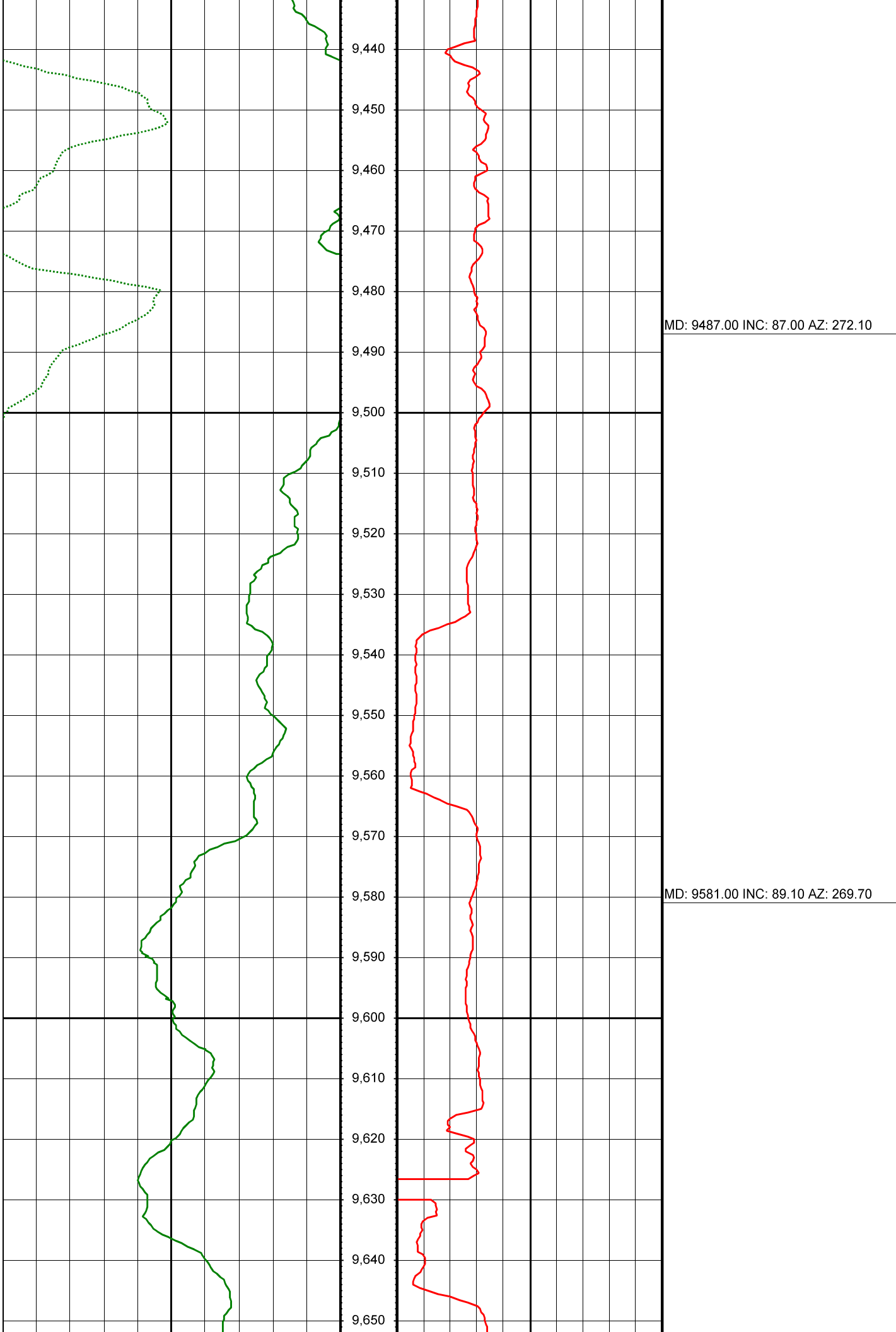
MD: 8920.00 INC: 92.30 AZ: 270.00

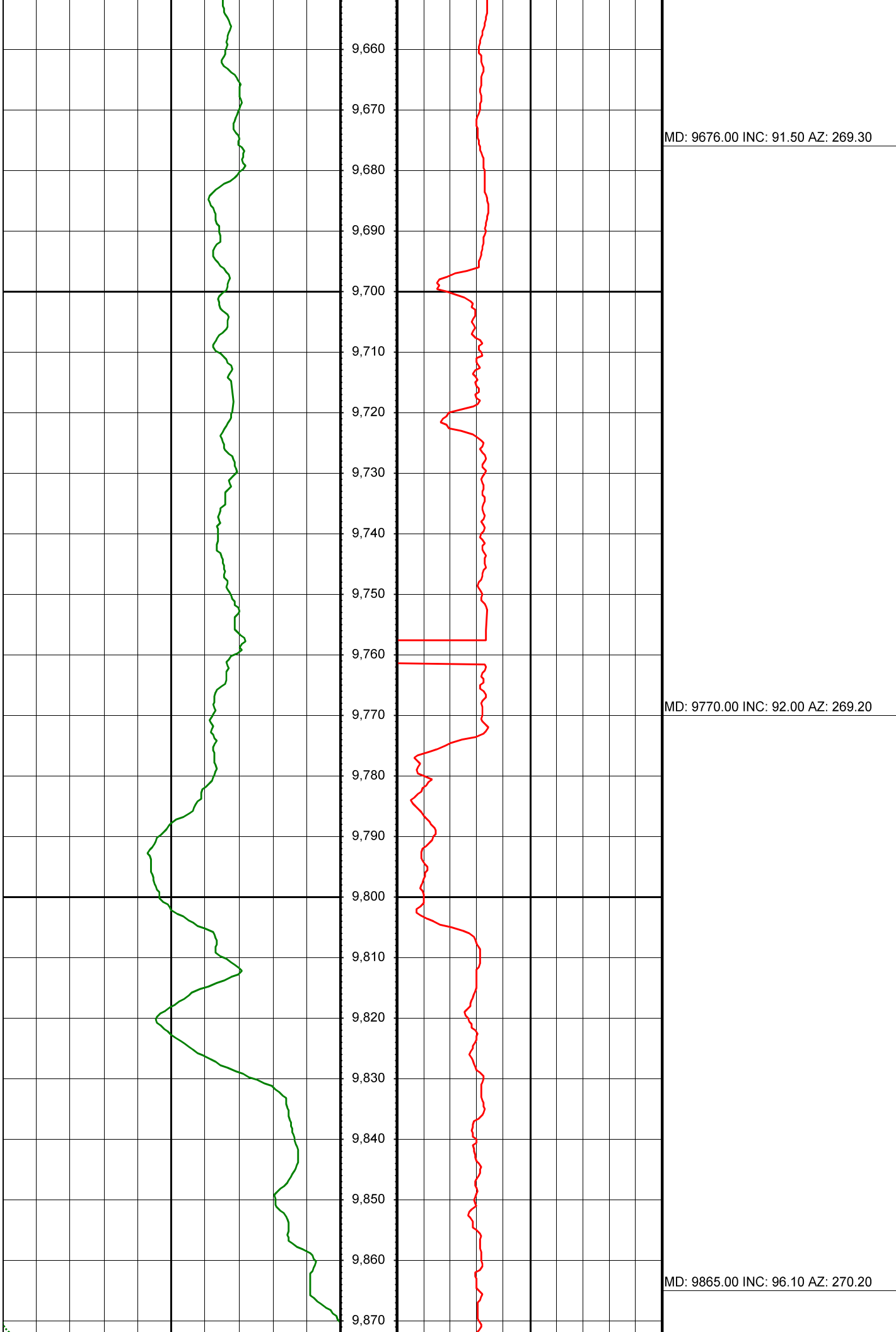


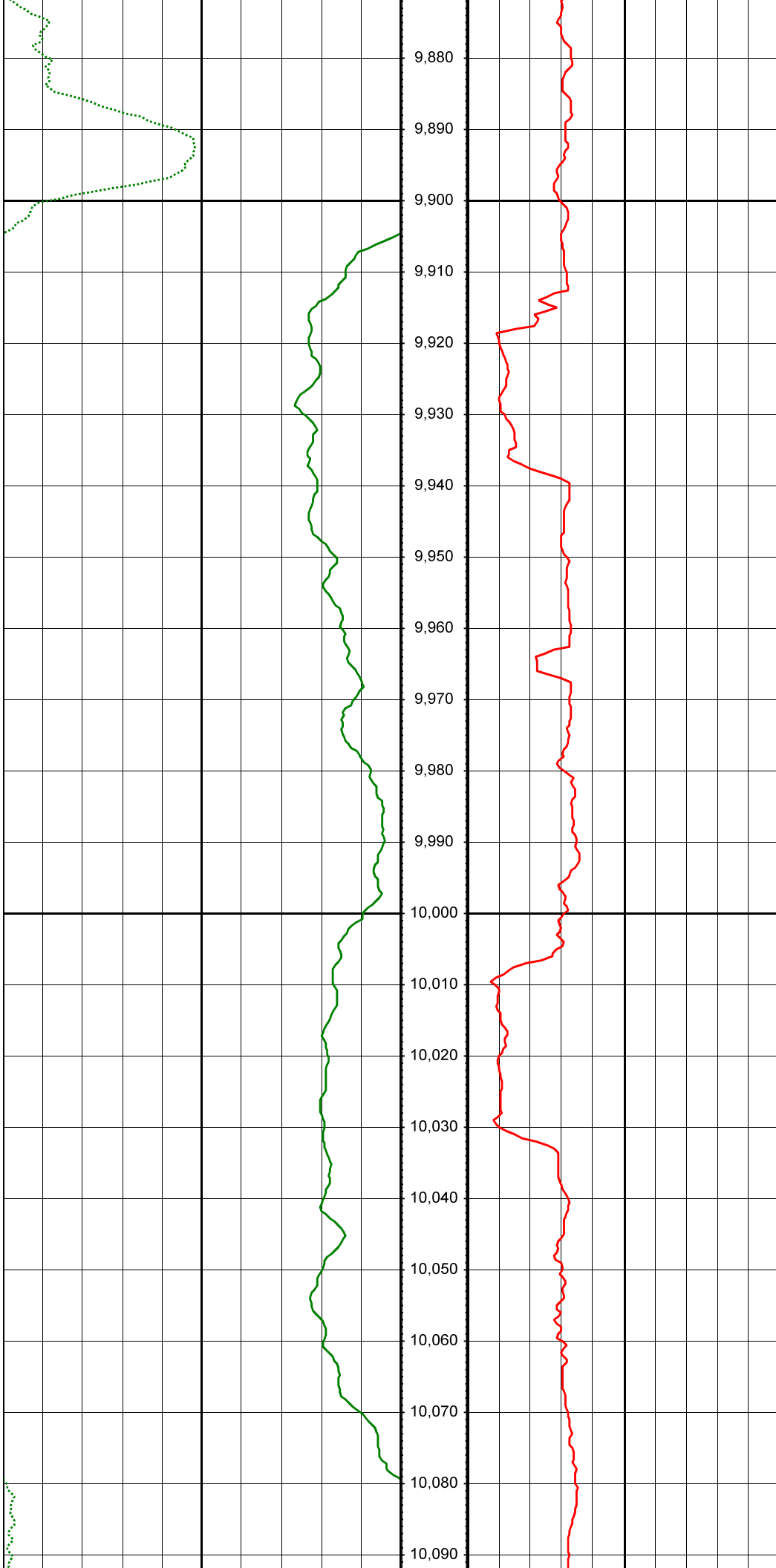


MD: 9298.00 INC: 90.30 AZ: 273.40

MD: 9392.00 INC: 88.30 AZ: 272.90



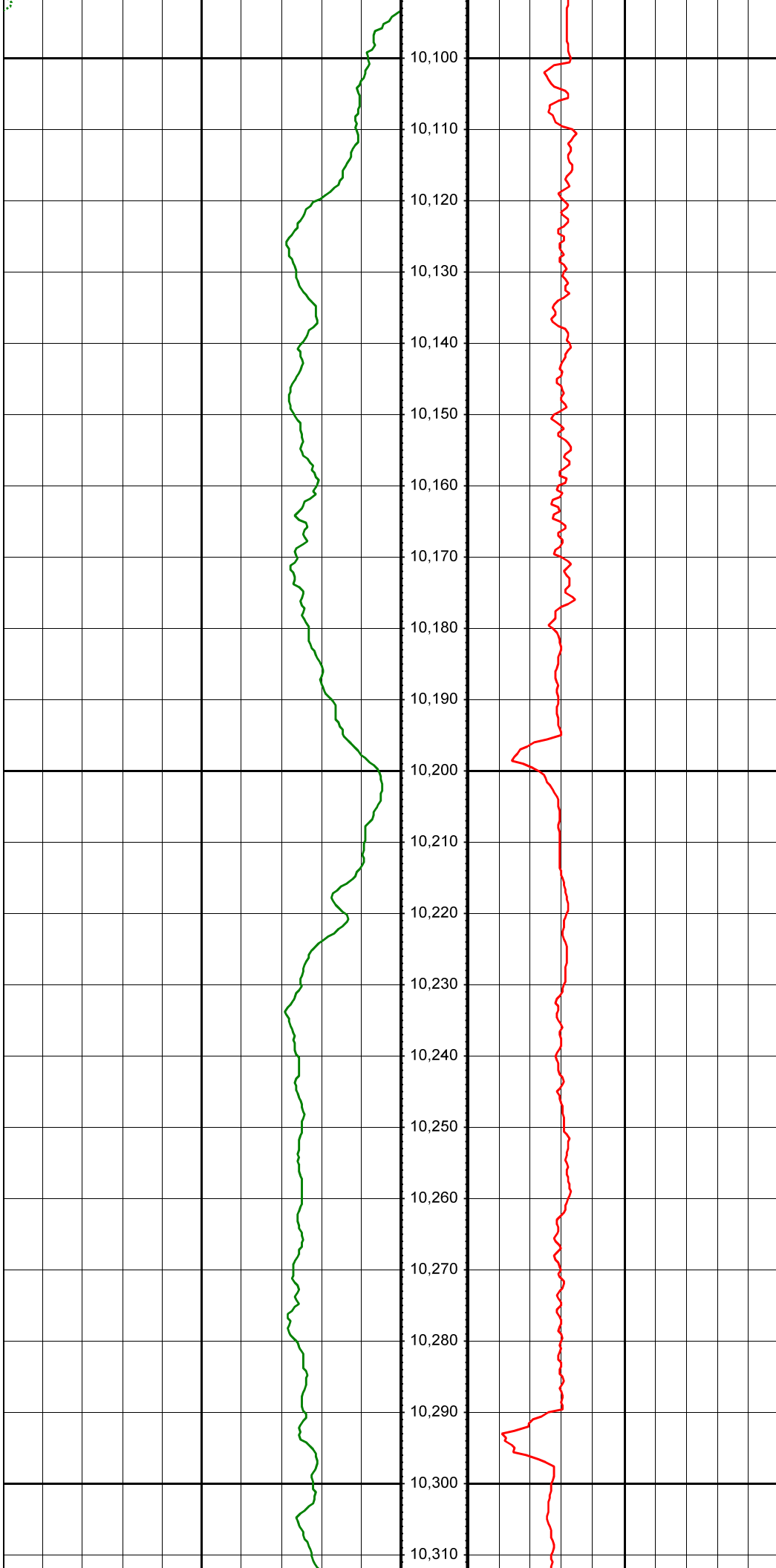




MD: 9959.00 INC: 93.80 AZ: 270.50

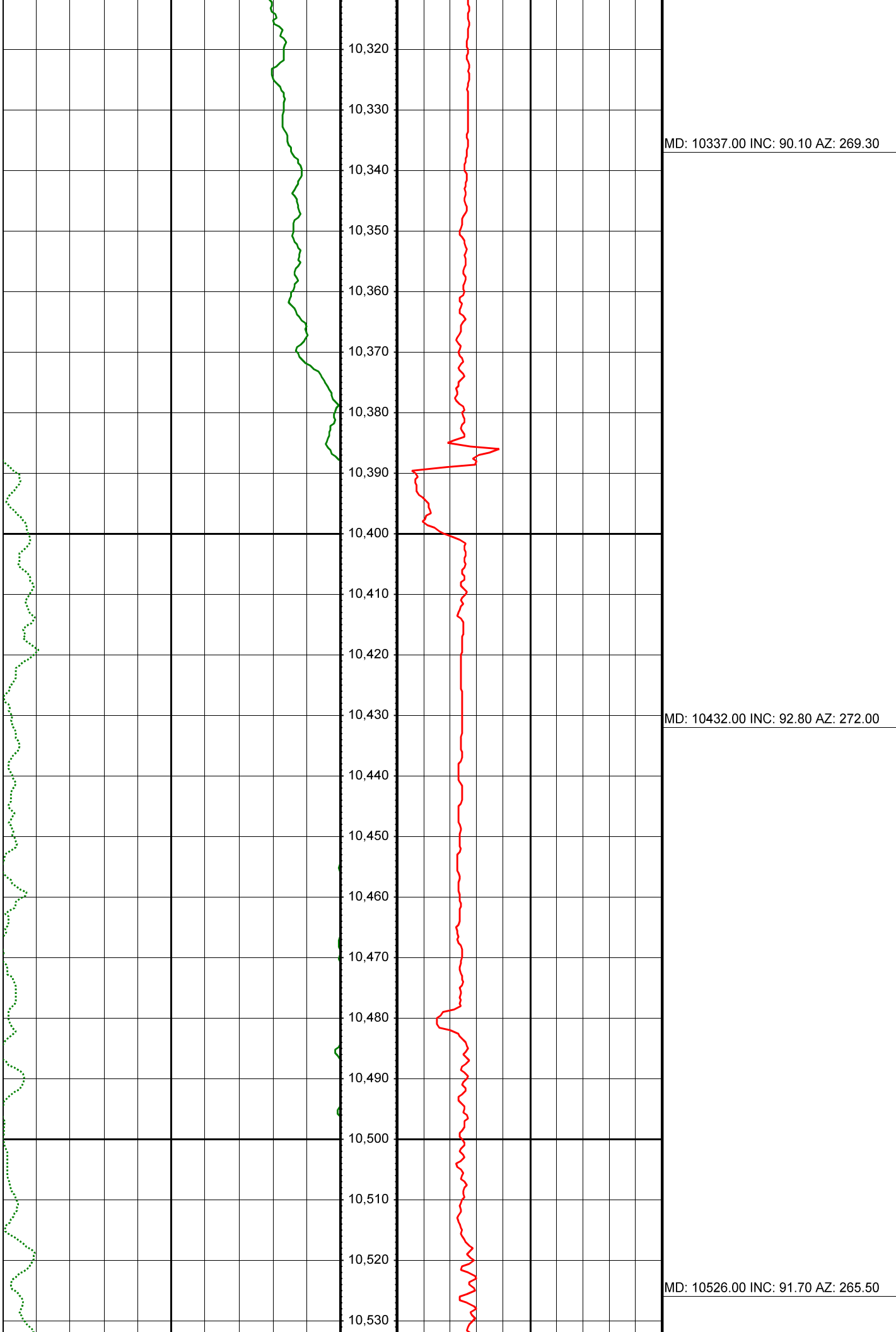
MD: 10054.00 INC: 90.80 AZ: 271.10

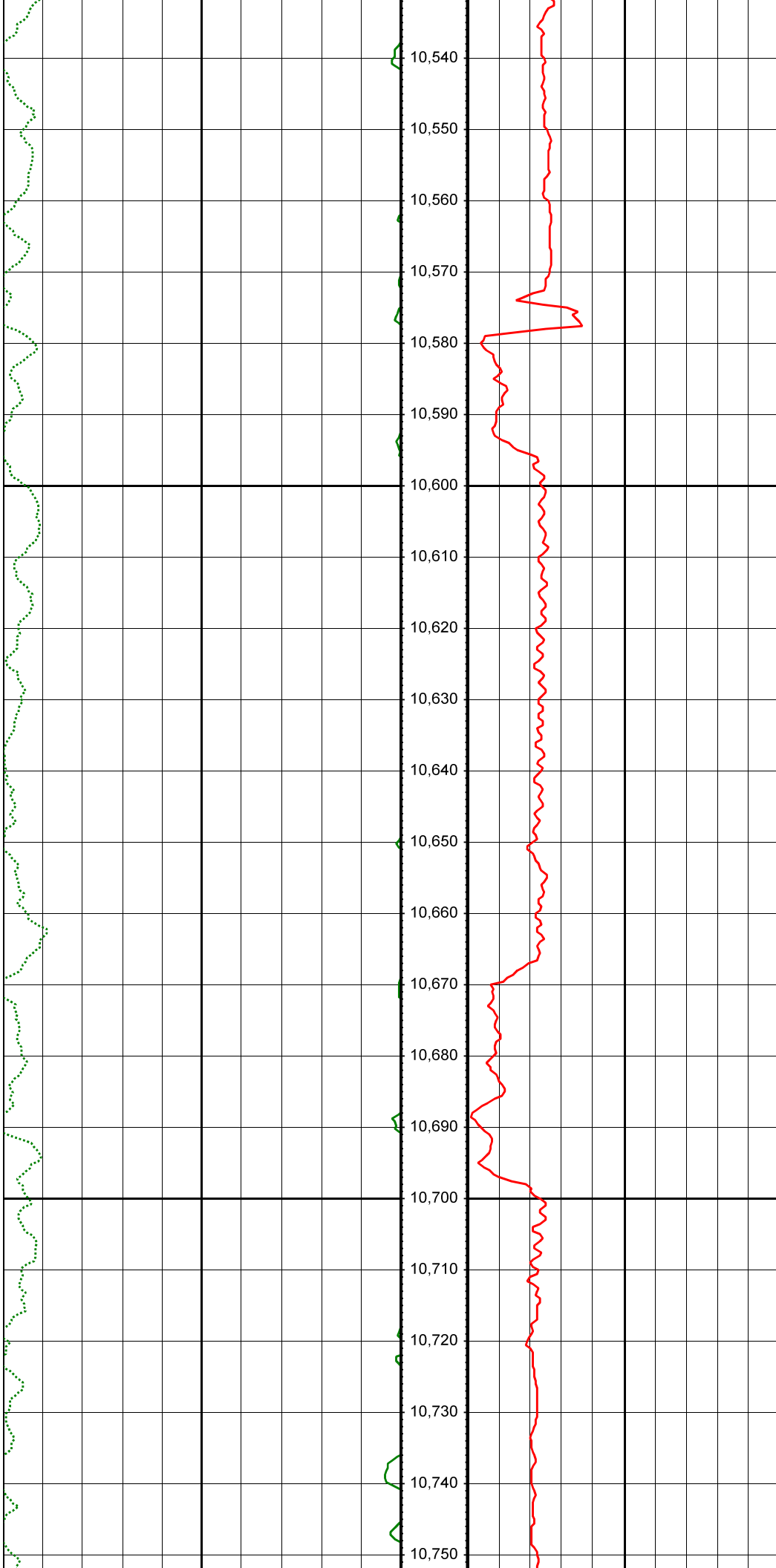




MD: 10148.00 INC: 90.80 AZ: 270.20

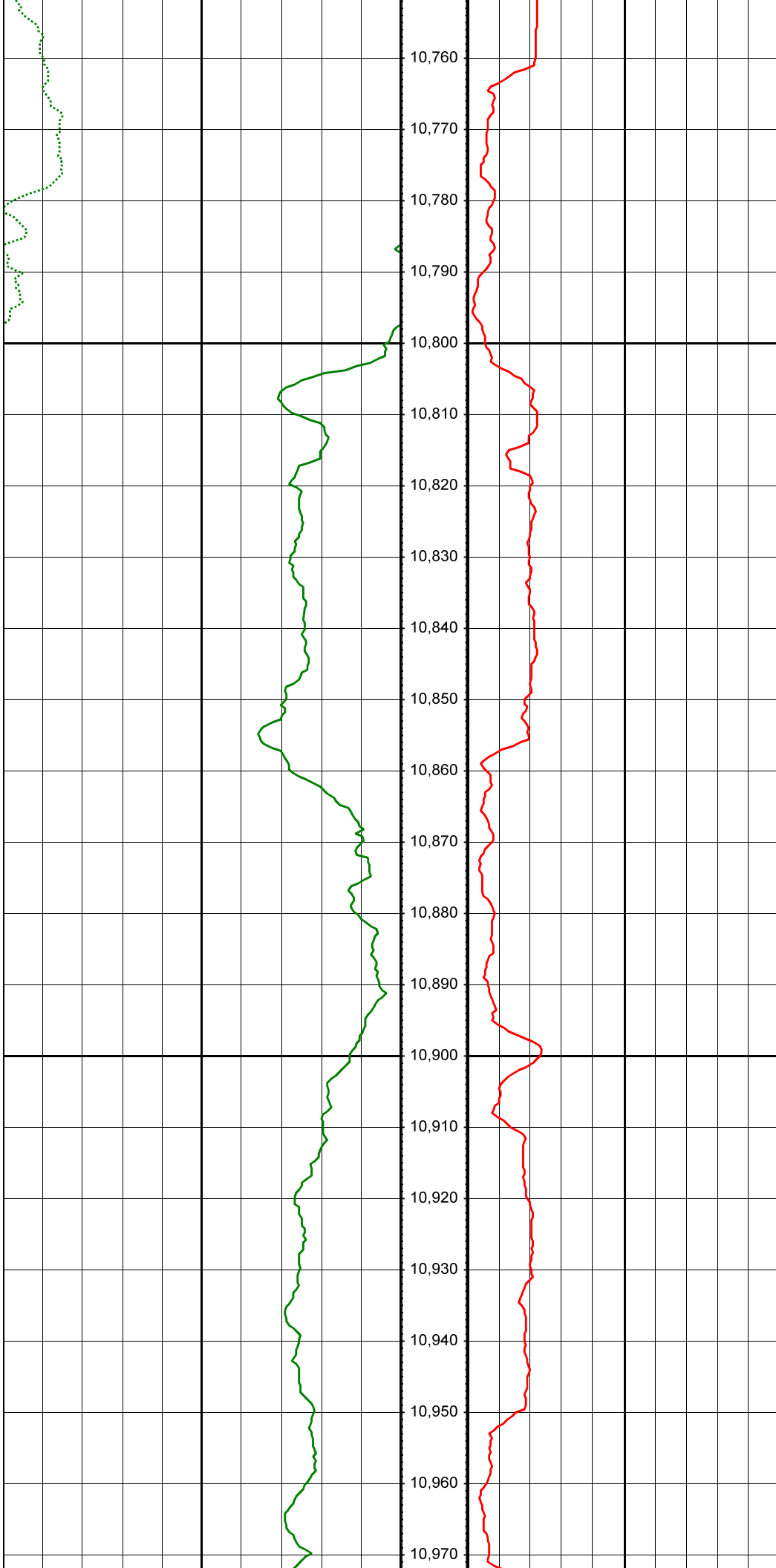
MD: 10243.00 INC: 90.20 AZ: 269.50





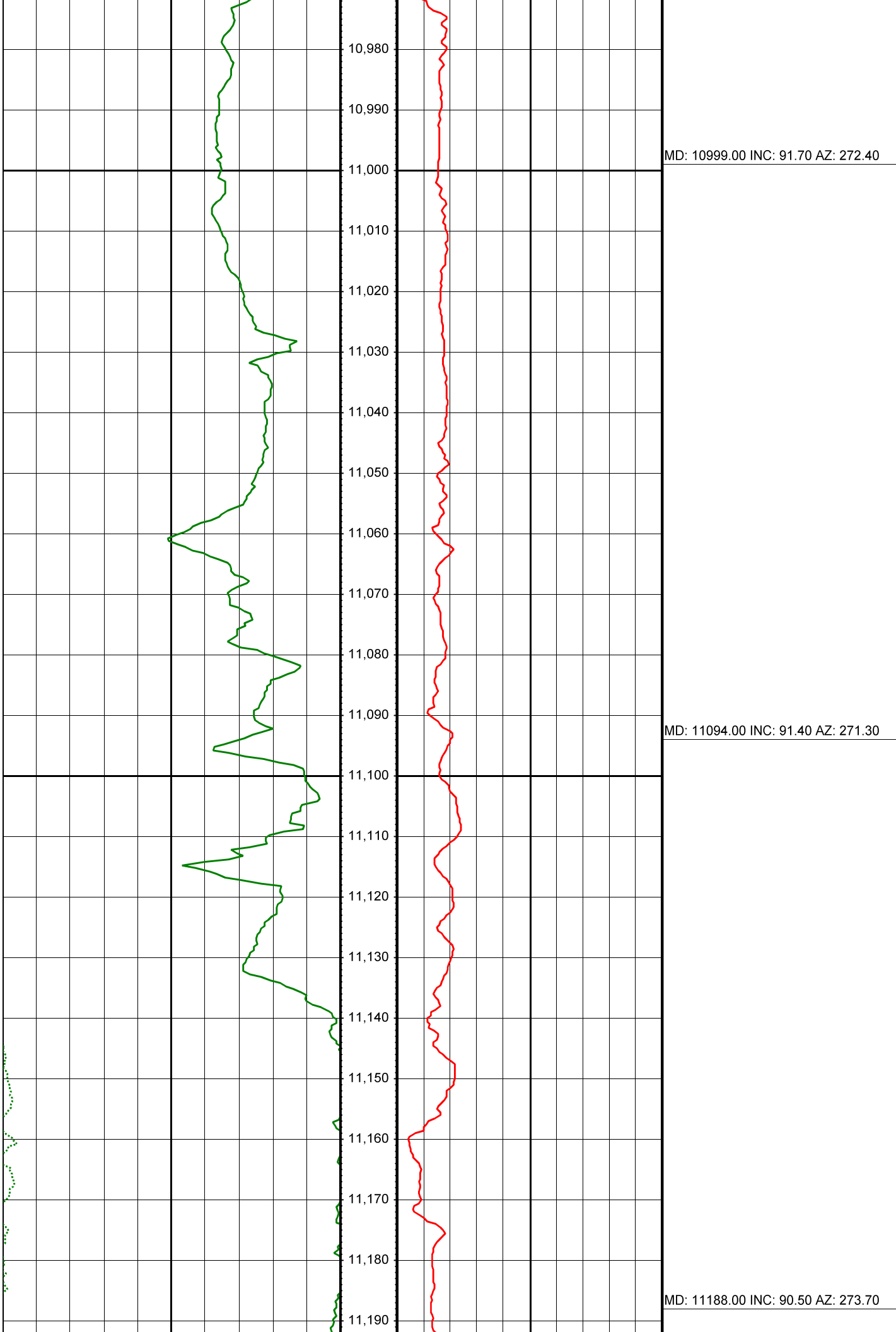
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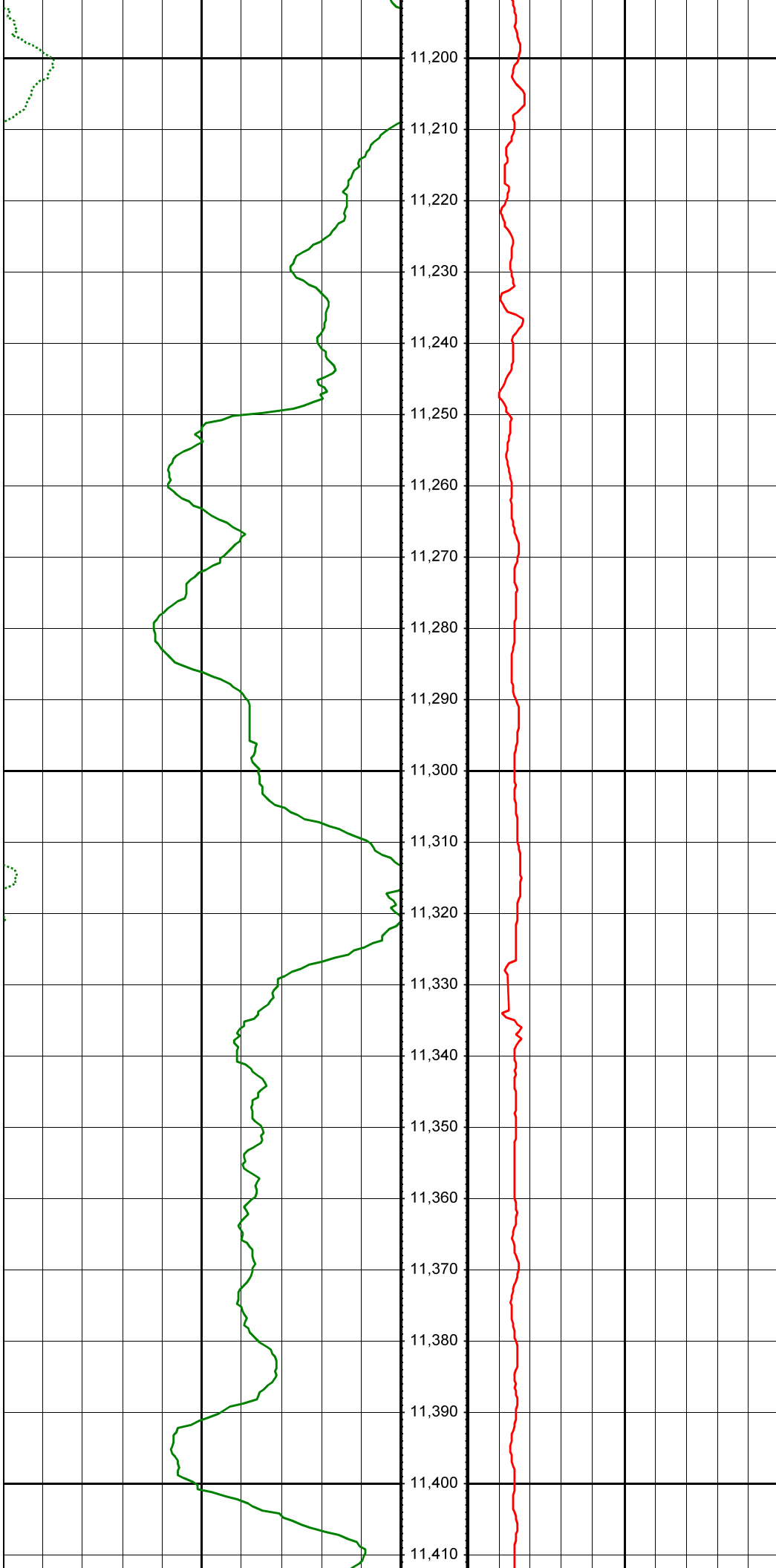
MD: 10716.00 INC: 90.20 AZ: 262.90



MD: 10810.00 INC: 92.90 AZ: 265.80

MD: 10905.00 INC: 91.90 AZ: 269.90





MD: 11283.00 INC: 88.40 AZ: 273.30

MD: 11378.00 INC: 86.20 AZ: 272.70

