



Cathedral Energy Services  
1949 North Pyrite Road  
Casper, Wyoming 82604

**145255**

5":100' - MD

9/19/2014 2:12:18 PM

**CATHEDRAL**

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

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

**State / Province:** Colorado

**County / Parish:** Weld

**Started:** 08/06/2014 09:30 AM

**API/UWI:** 05-123-39216-00

**Field:** Wattenberg (Niobrara)

**Well:** Mumby State 4F-36H-P266

**Rig:** Helmerich & Payne 522

**Ended:** 08/12/2014 09:00 PM

Gamma Ray  
Section Plane: 0.00  
Magnetic North: 8.46  
Gamma Averaging: 7%

### Personnel

**Day Hand:** J. Nichols

**Night Hand:** T. Kapsch

**Comp. Emp:** Kevin Bergeron

### Location

**Latitude:** 40.090826

**Longitude:** -104.719516

**Elev. GL:** 5018

**Elev. DF:**

**Elev. KB:** 5048

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

### Hole Data

Size	From	To
12-1/4	0	1121
8-3/4	1121	7623
6-1/8	7623	11819

### Casing Data

Size	From	To
9-5/8	0	1108
7	0	7611
4-1/2	0	11809

### Bit Sizes

Size	From	To
12-1/4	0	1121
8-3/4	1121	7623
6-1/8	7623	11819

### Mud Data

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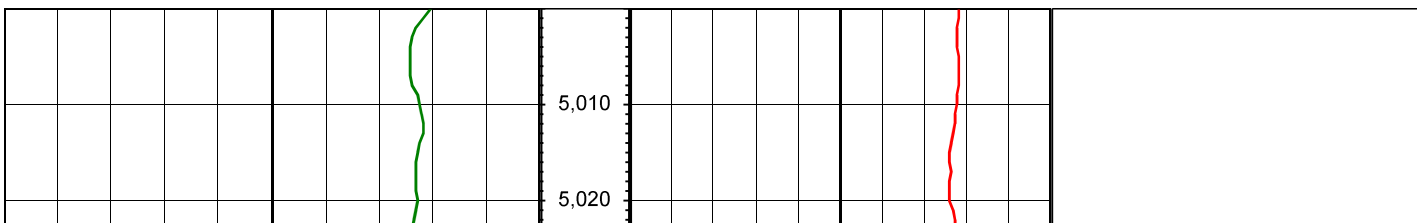
### Tool Run Data

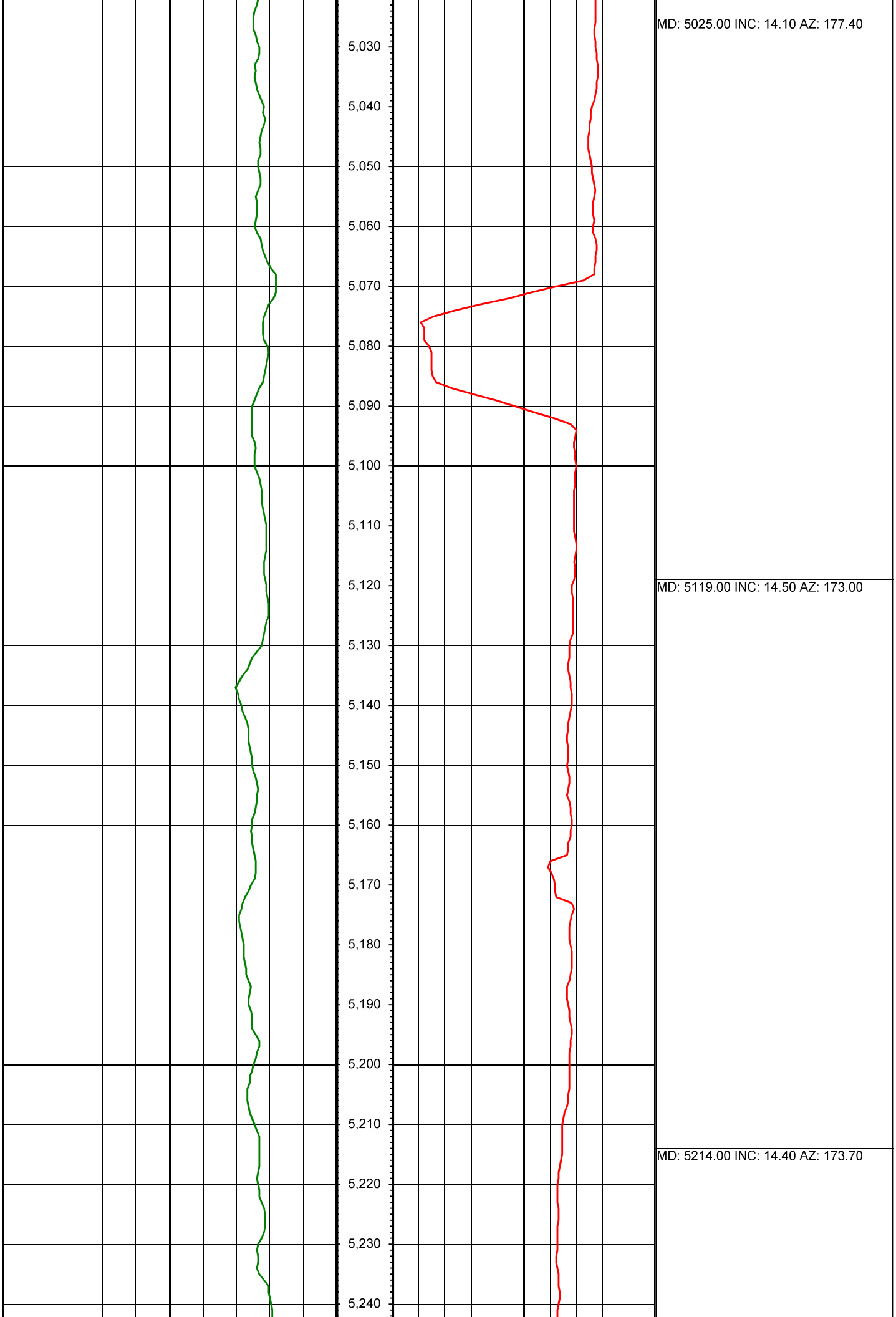
Serial Number	Gamma Offset	Resist. Offset	Start Time	Start Depth	End Time	End Depth
199	35.29	0	8/6/2014 9:30:41 AM	5000	8/7/2014 2:00:41 AM	7623
199	38.75	0	8/10/2014 10:00:20 PM	7623	8/11/2014 10:30:20 PM	10160
331	37.98	0	8/12/2014 12:30:24 AM	10160	8/13/2014 11:21:24 AM	11819

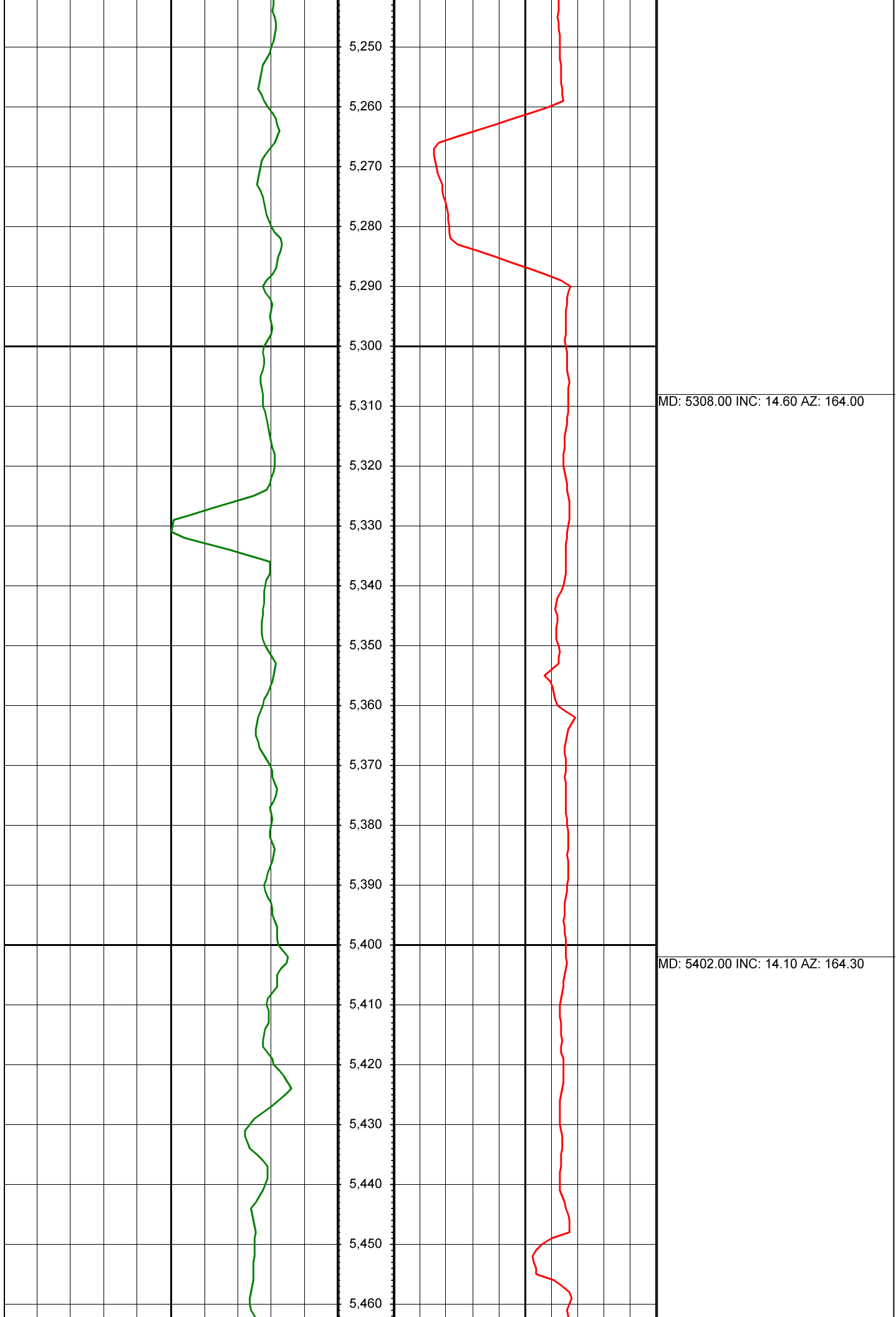
*All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost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

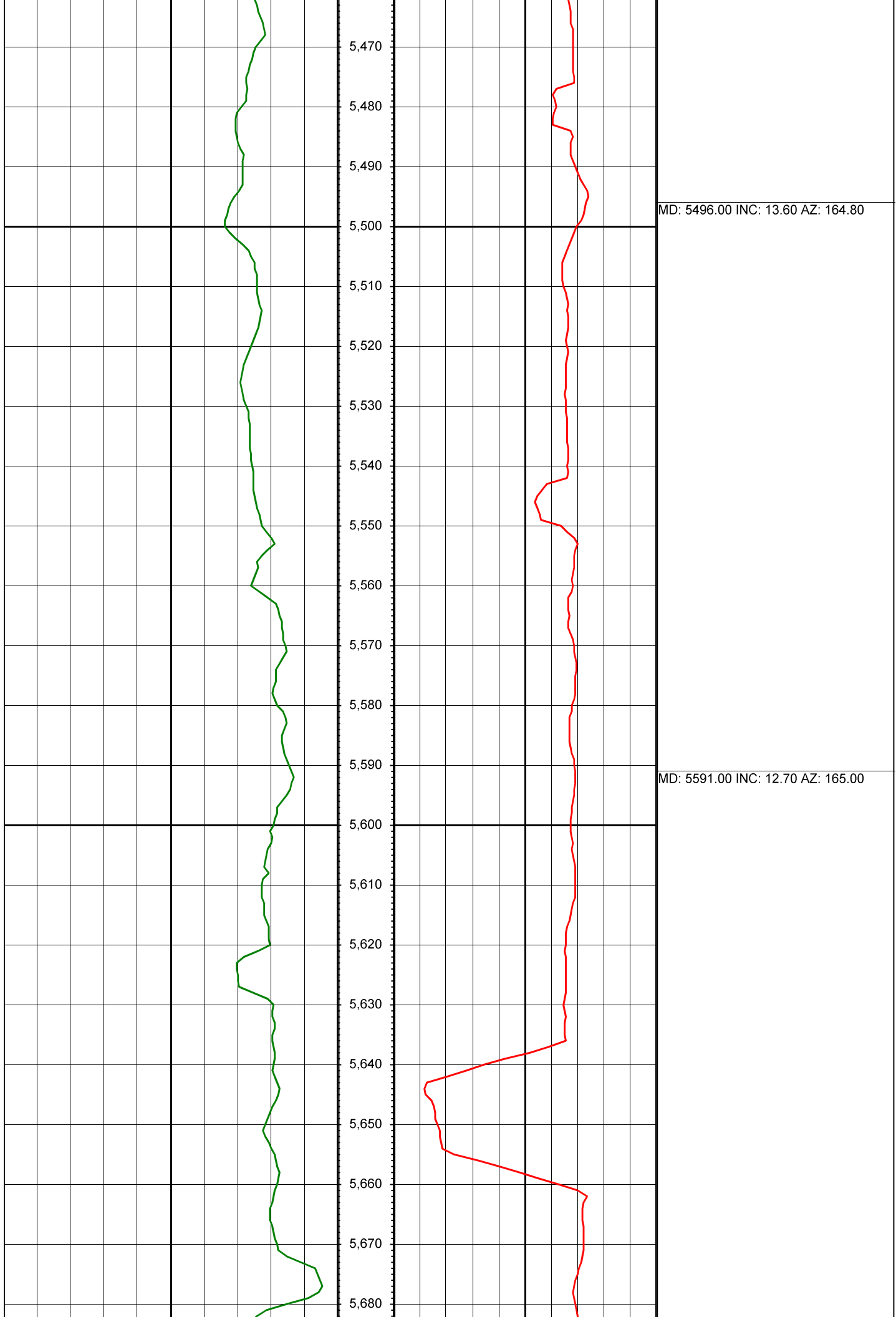
0.00      Gamma Ray (API)      150.00      MD      0.00      ROP (FT/HR)      600.00      Surveys (MD/INC/AZ)

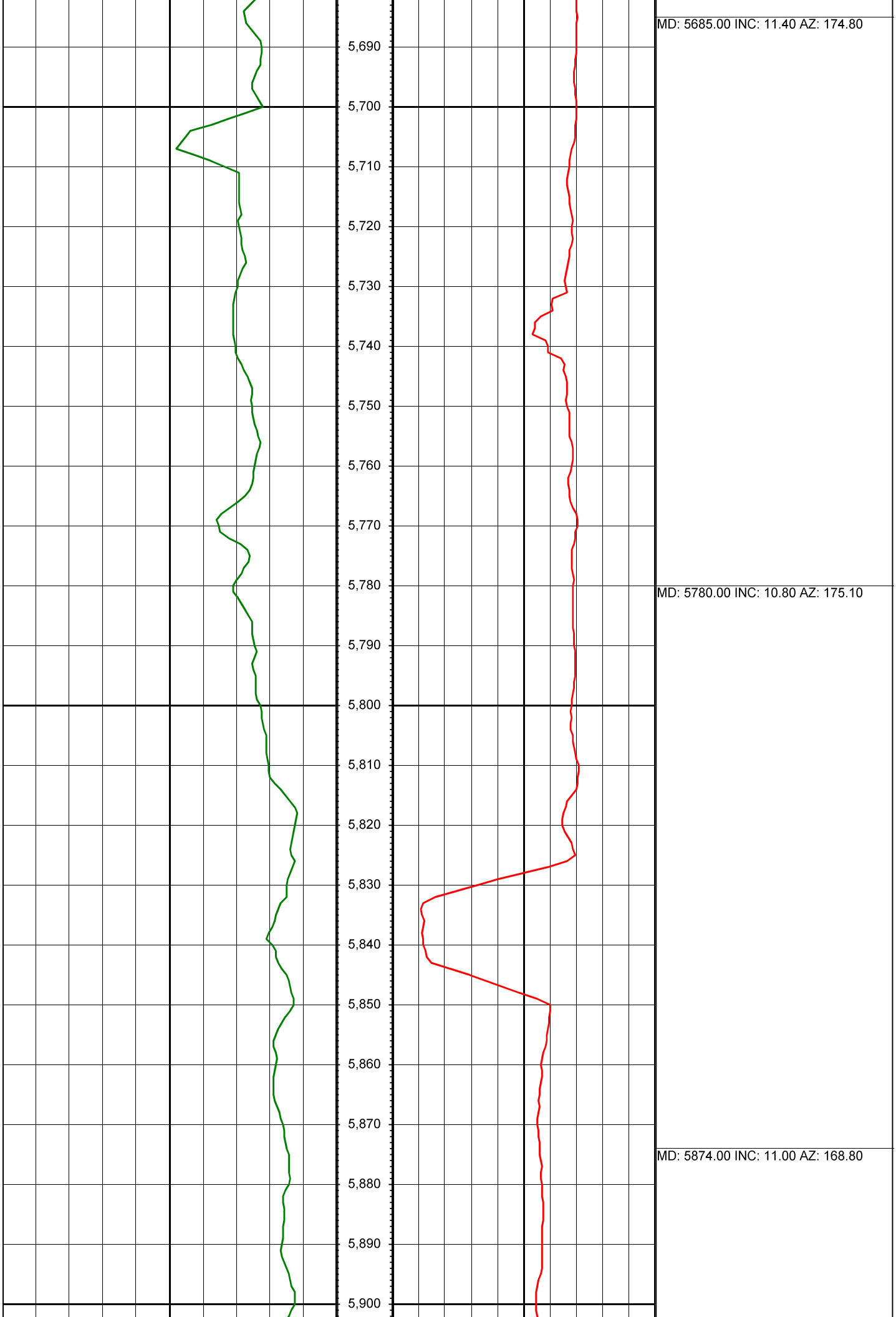
150.00      2      300.00      FT

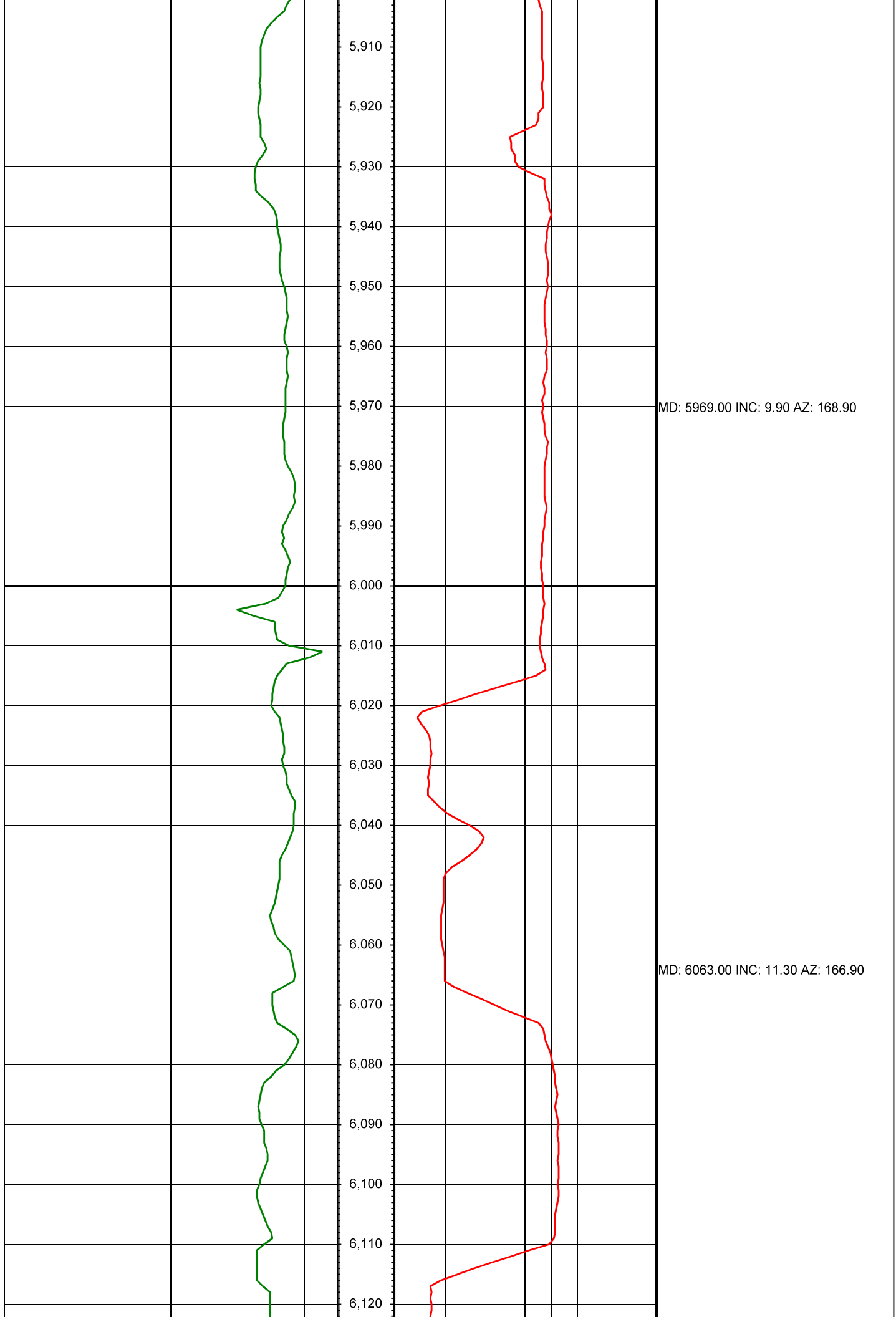


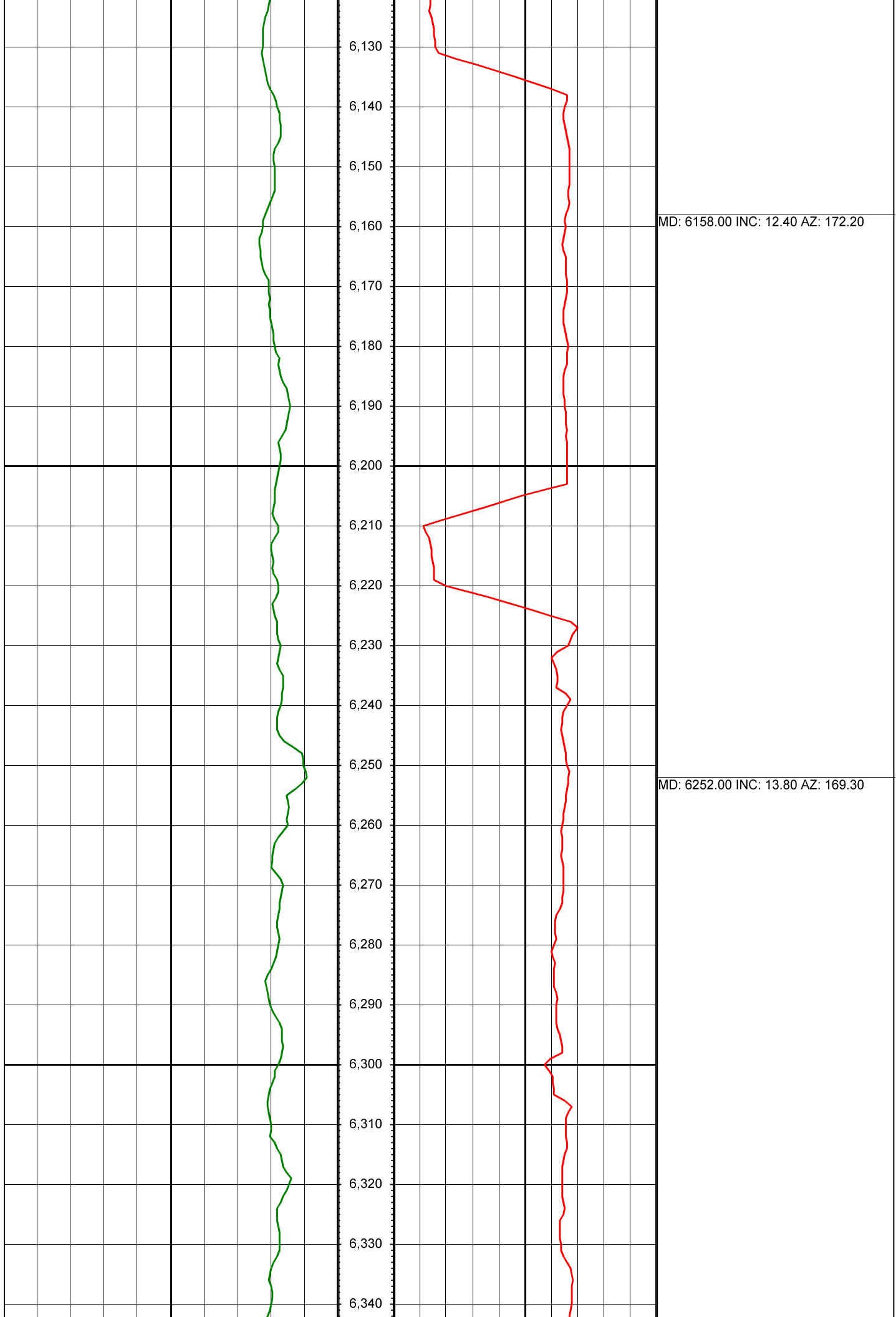


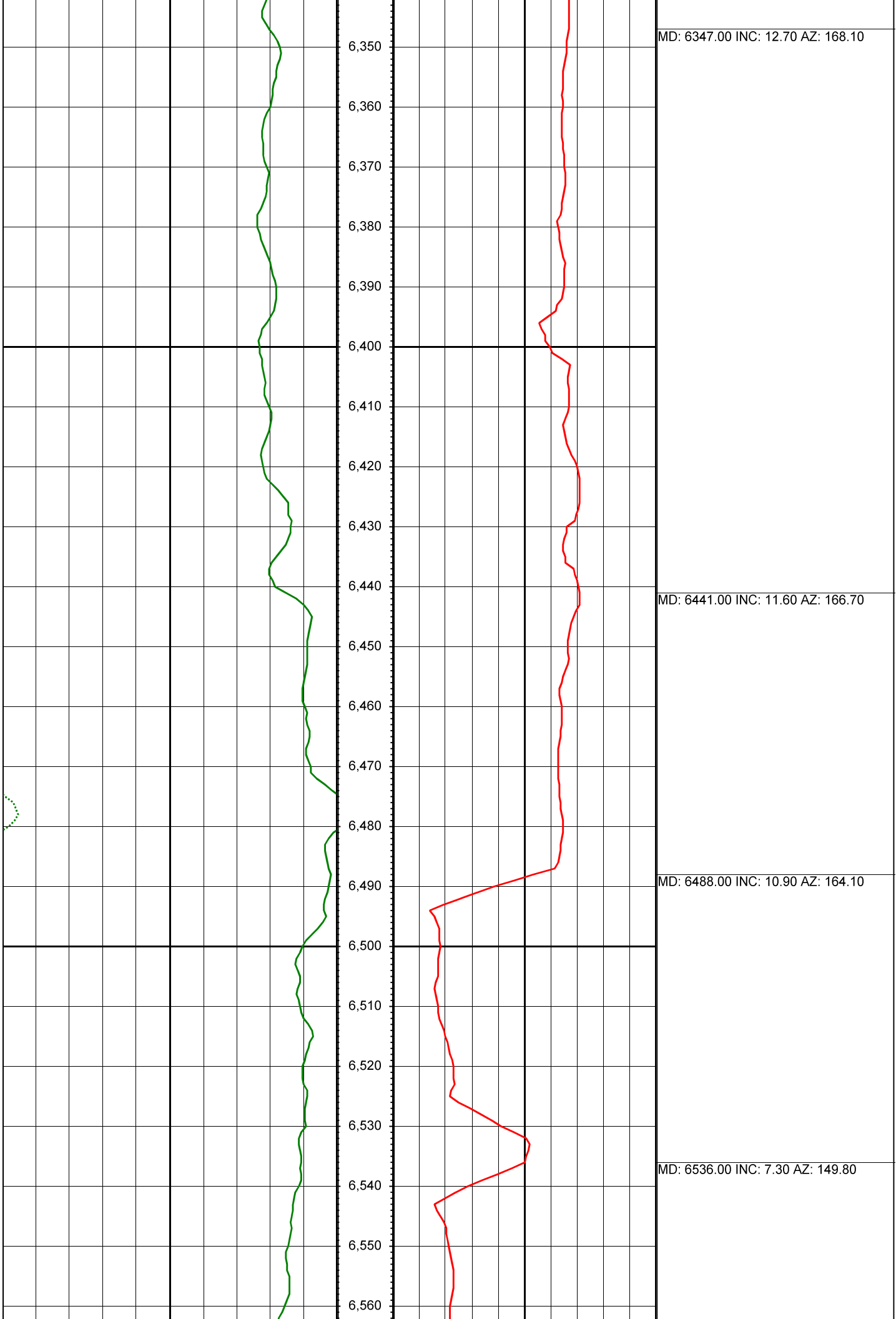




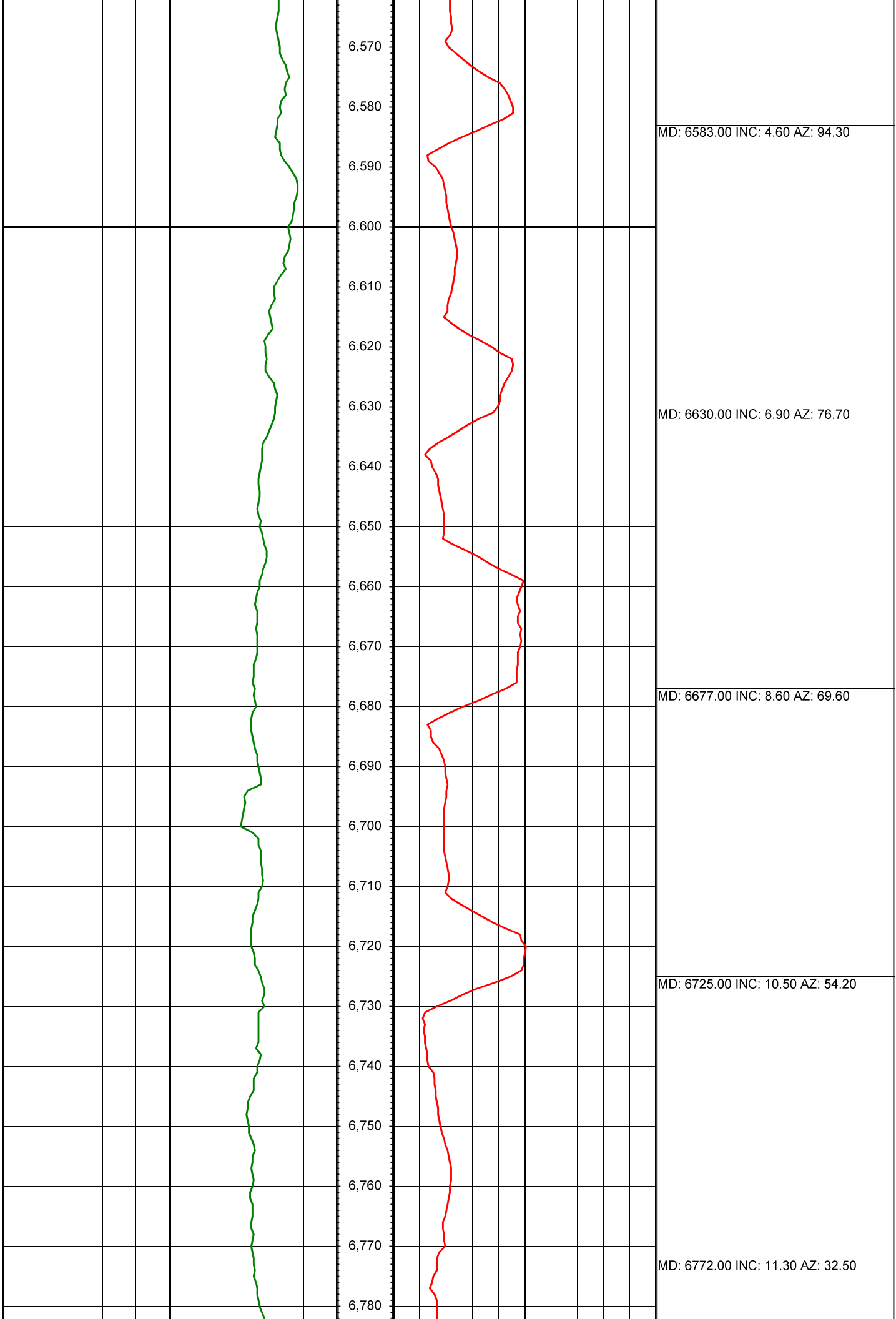


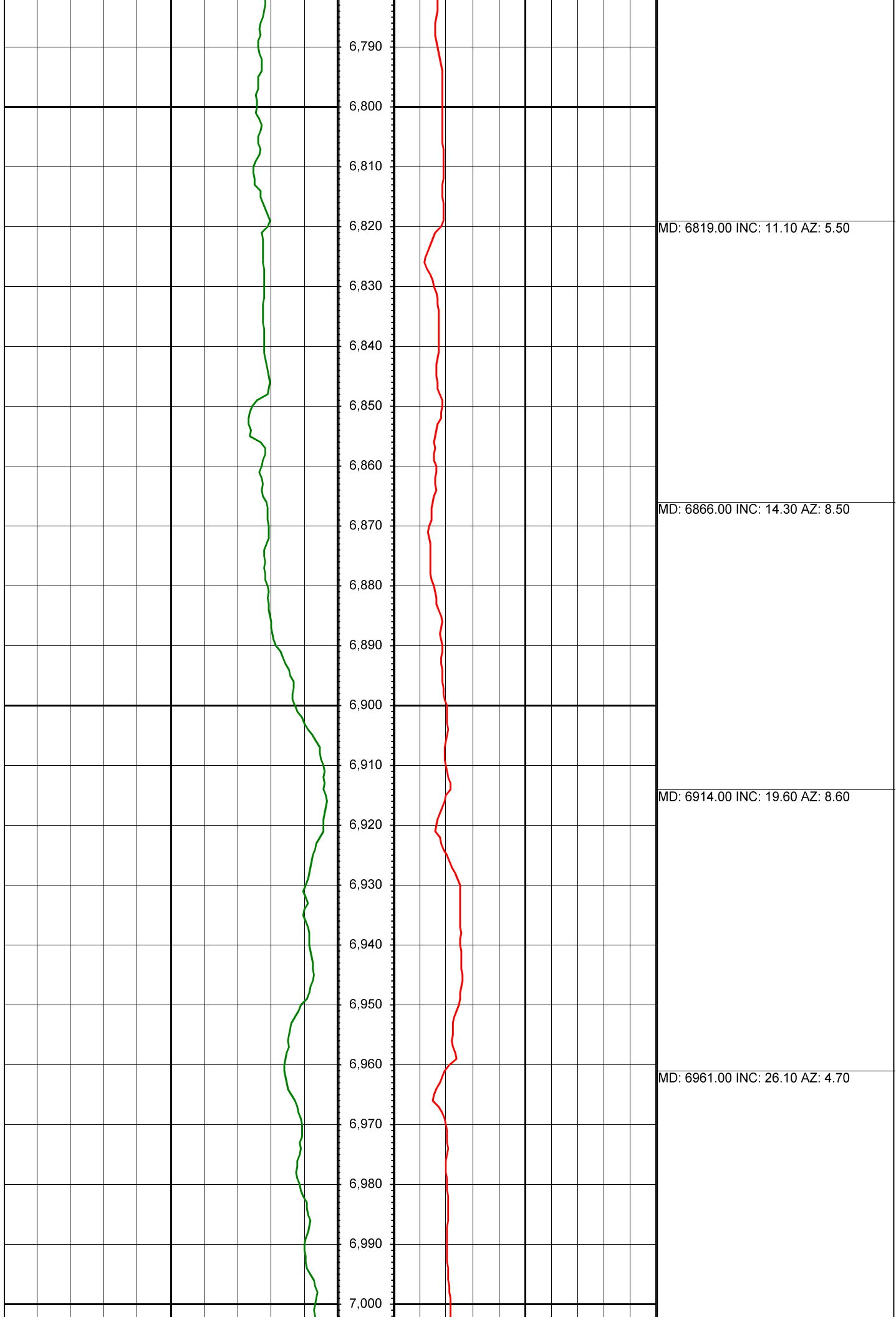


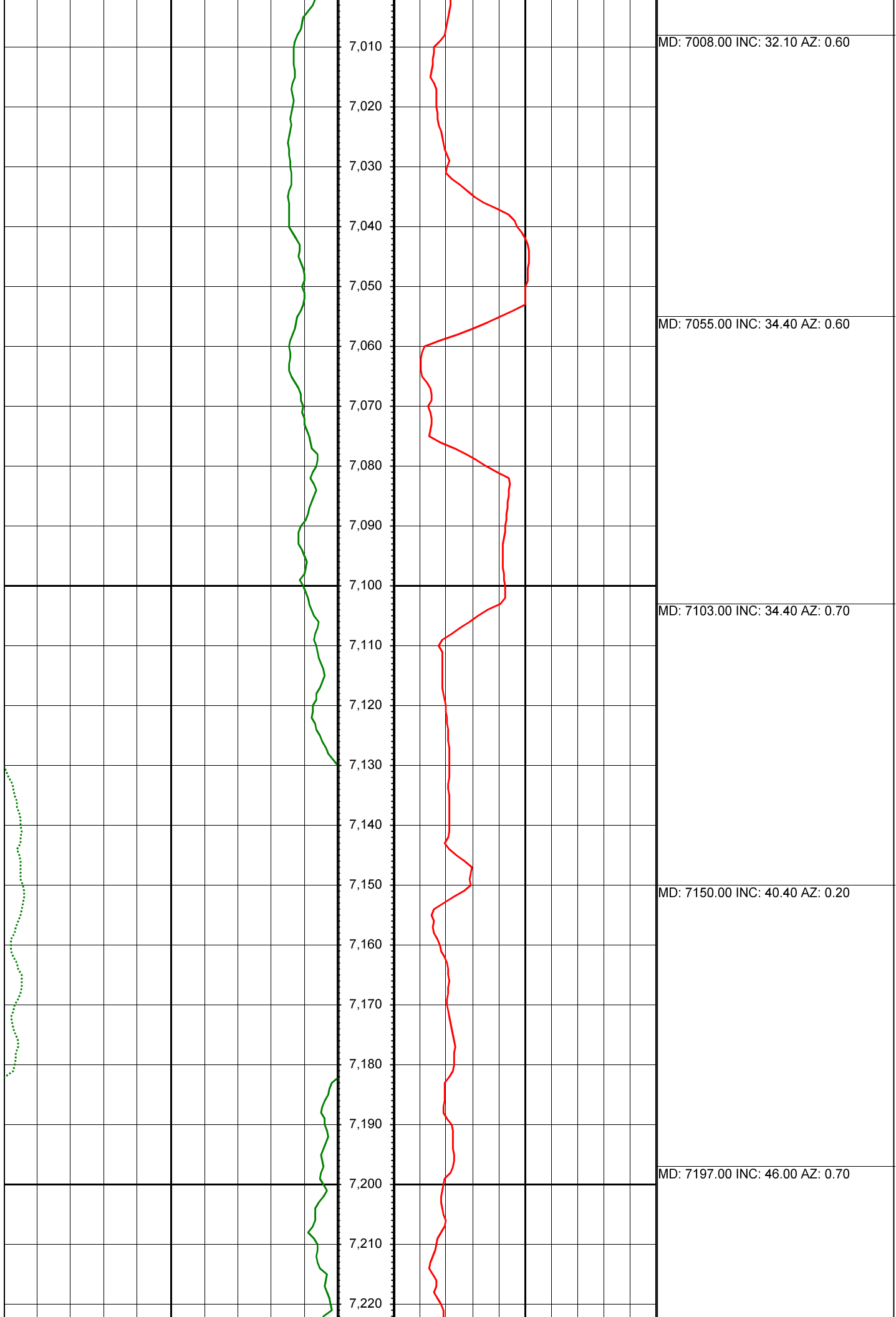












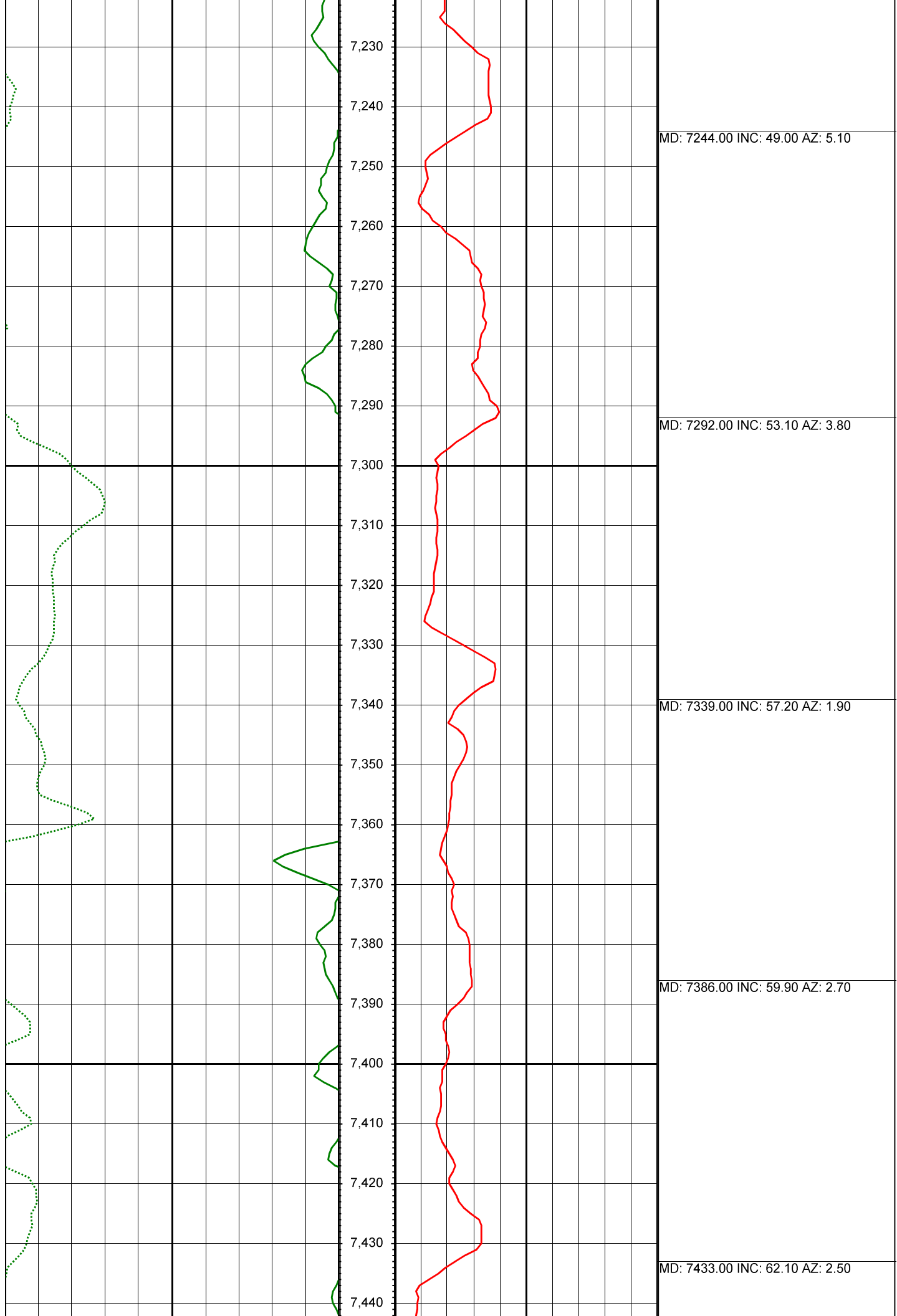
MD: 7008.00 INC: 32.10 AZ: 0.60

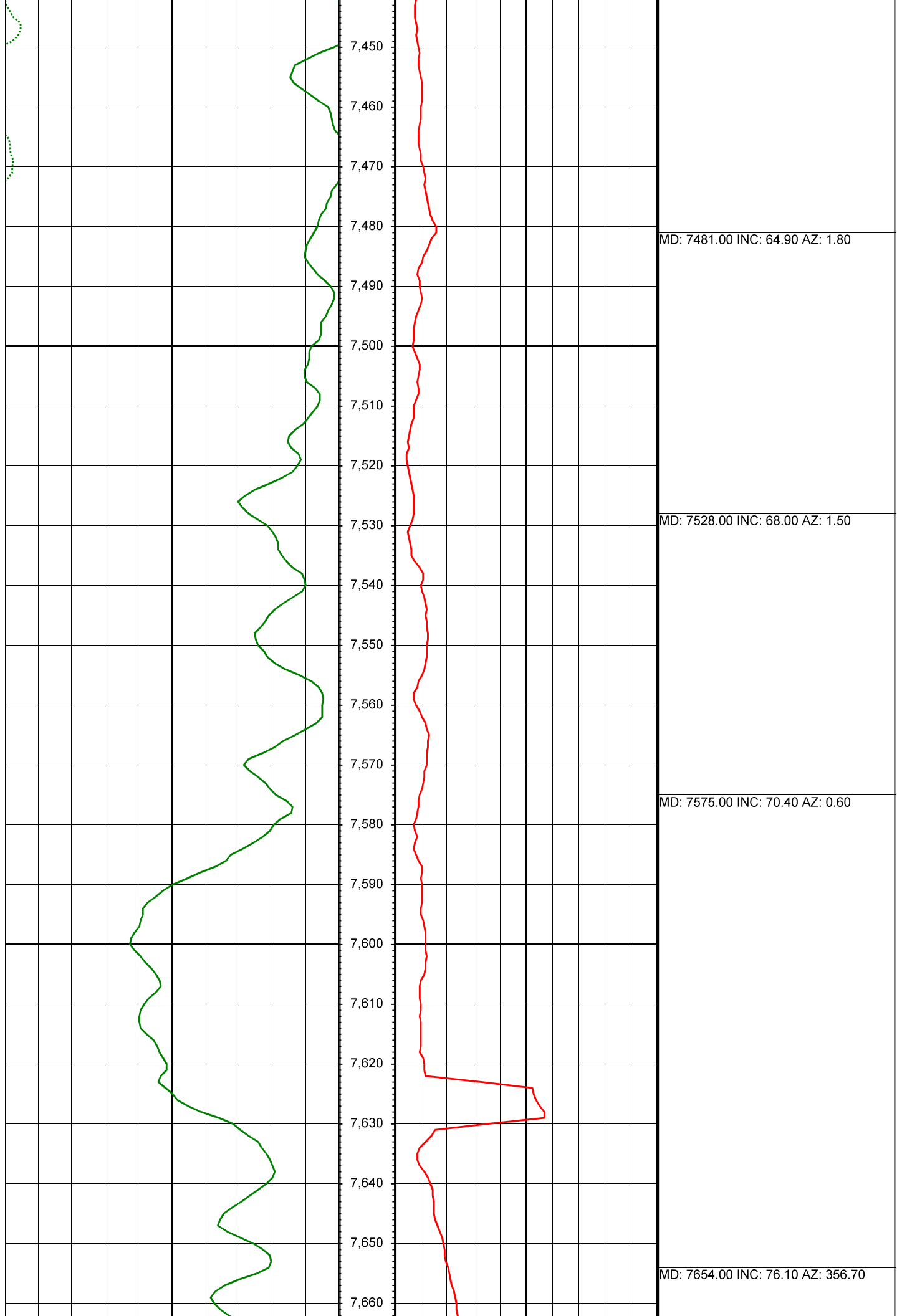
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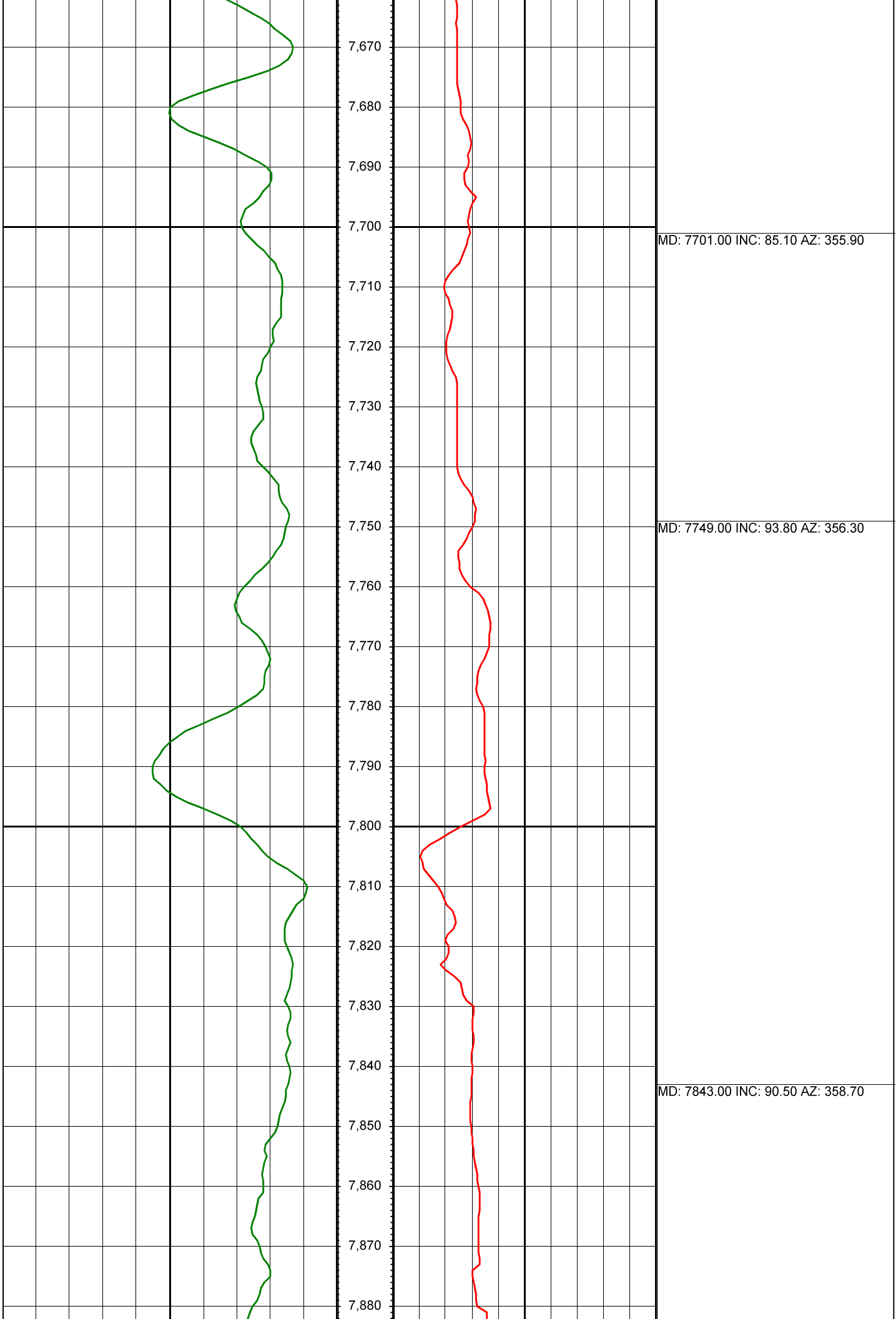
MD: 7103.00 INC: 34.40 AZ: 0.70

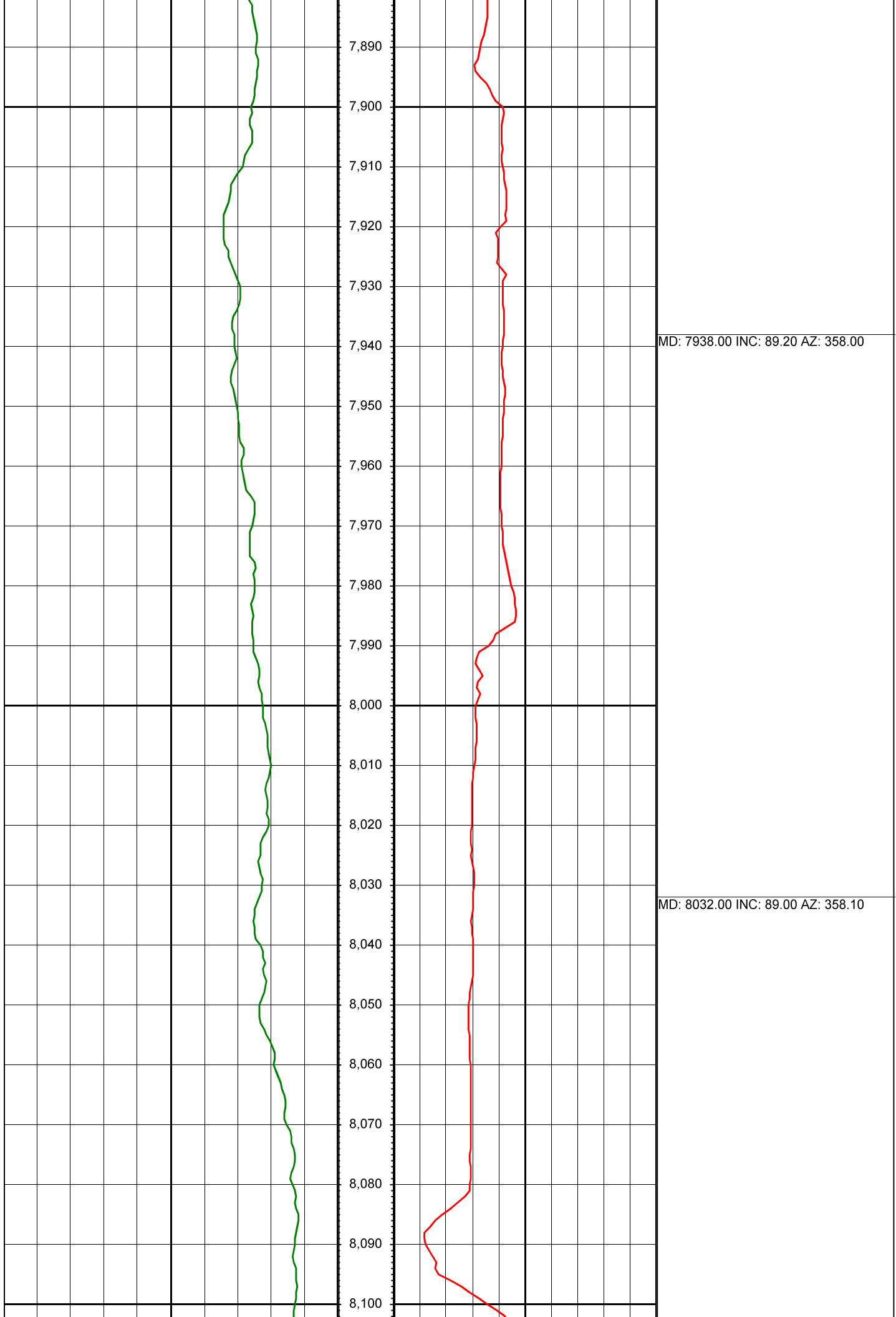
MD: 7150.00 INC: 40.40 AZ: 0.20

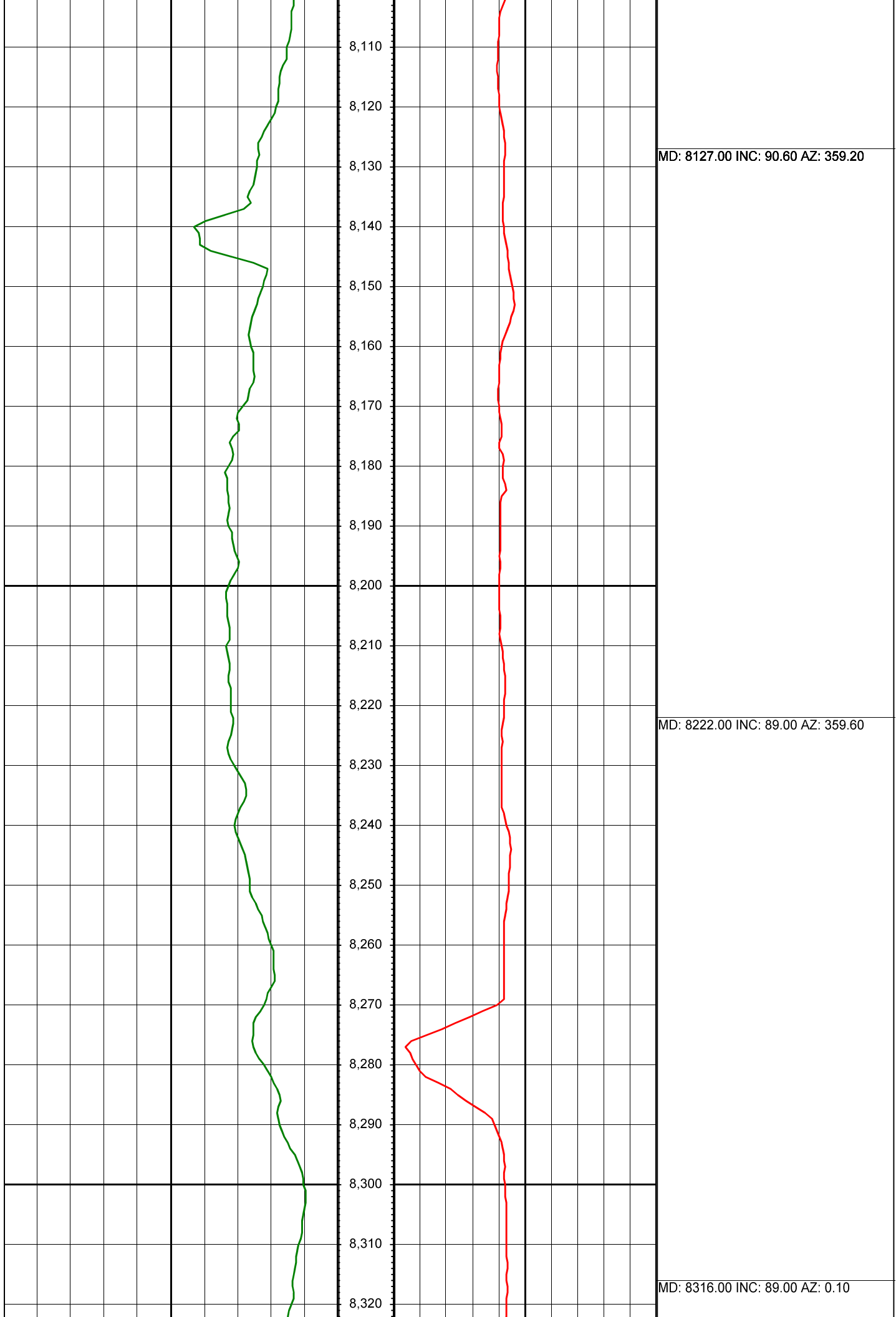
MD: 7197.00 INC: 46.00 AZ: 0.70



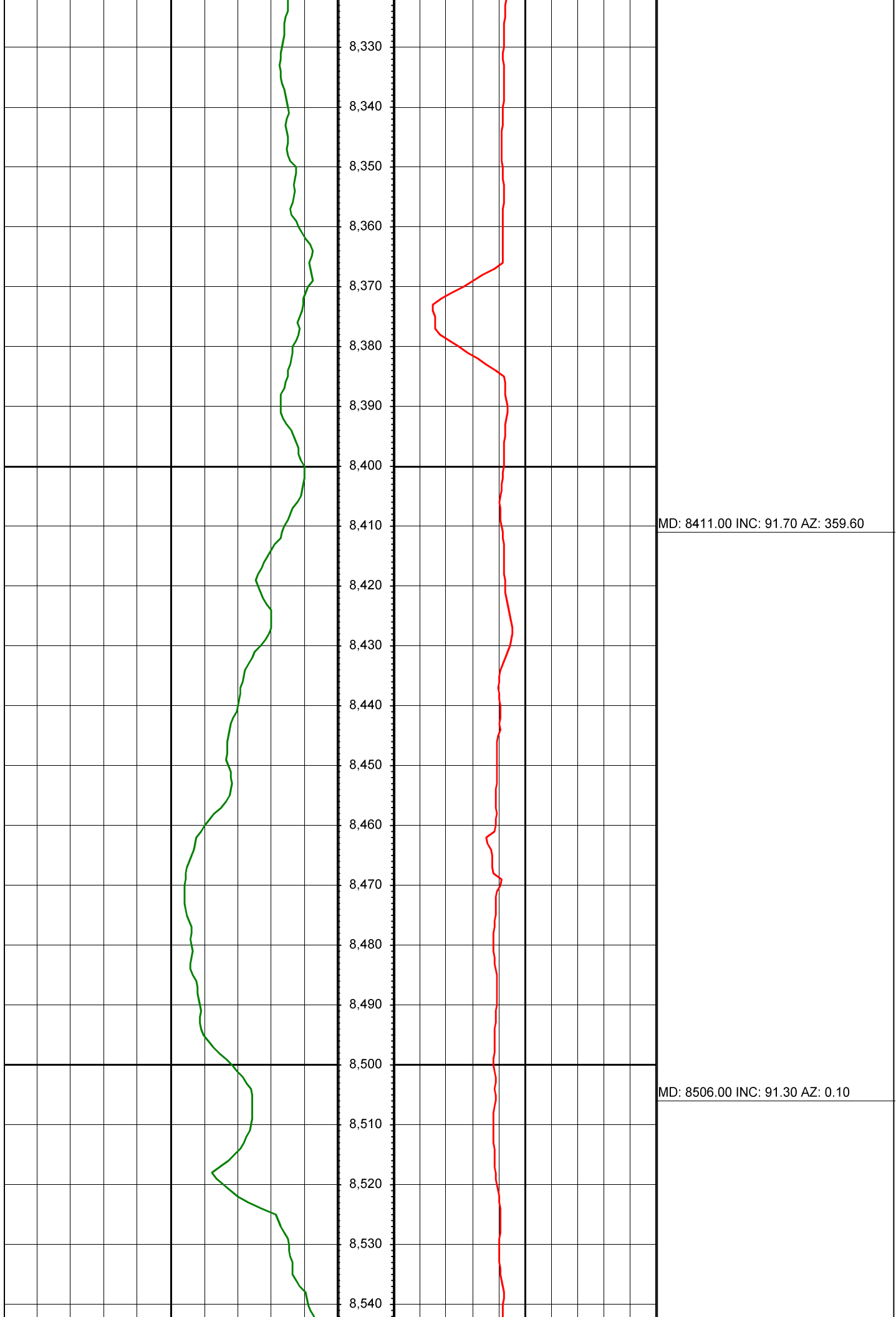


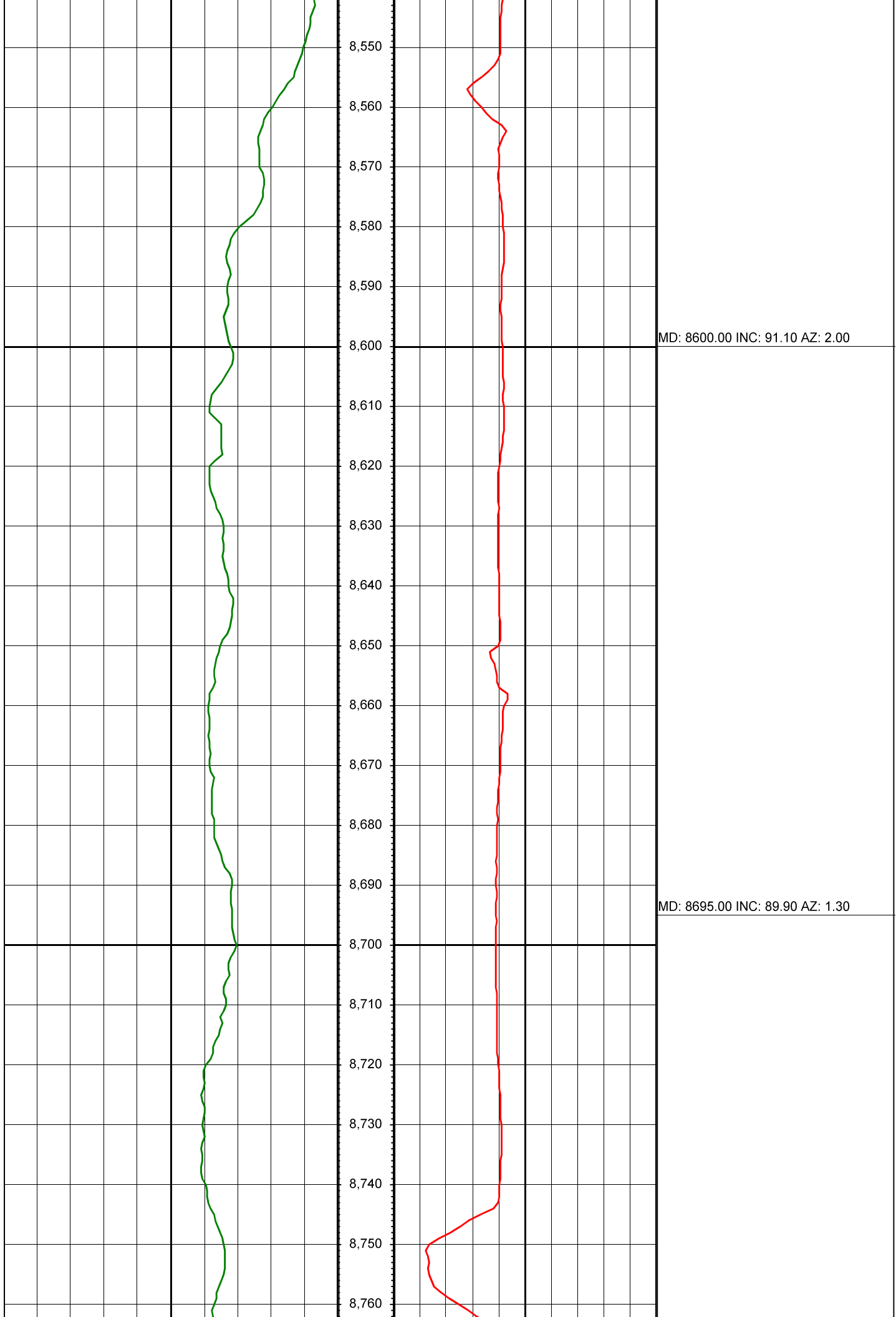


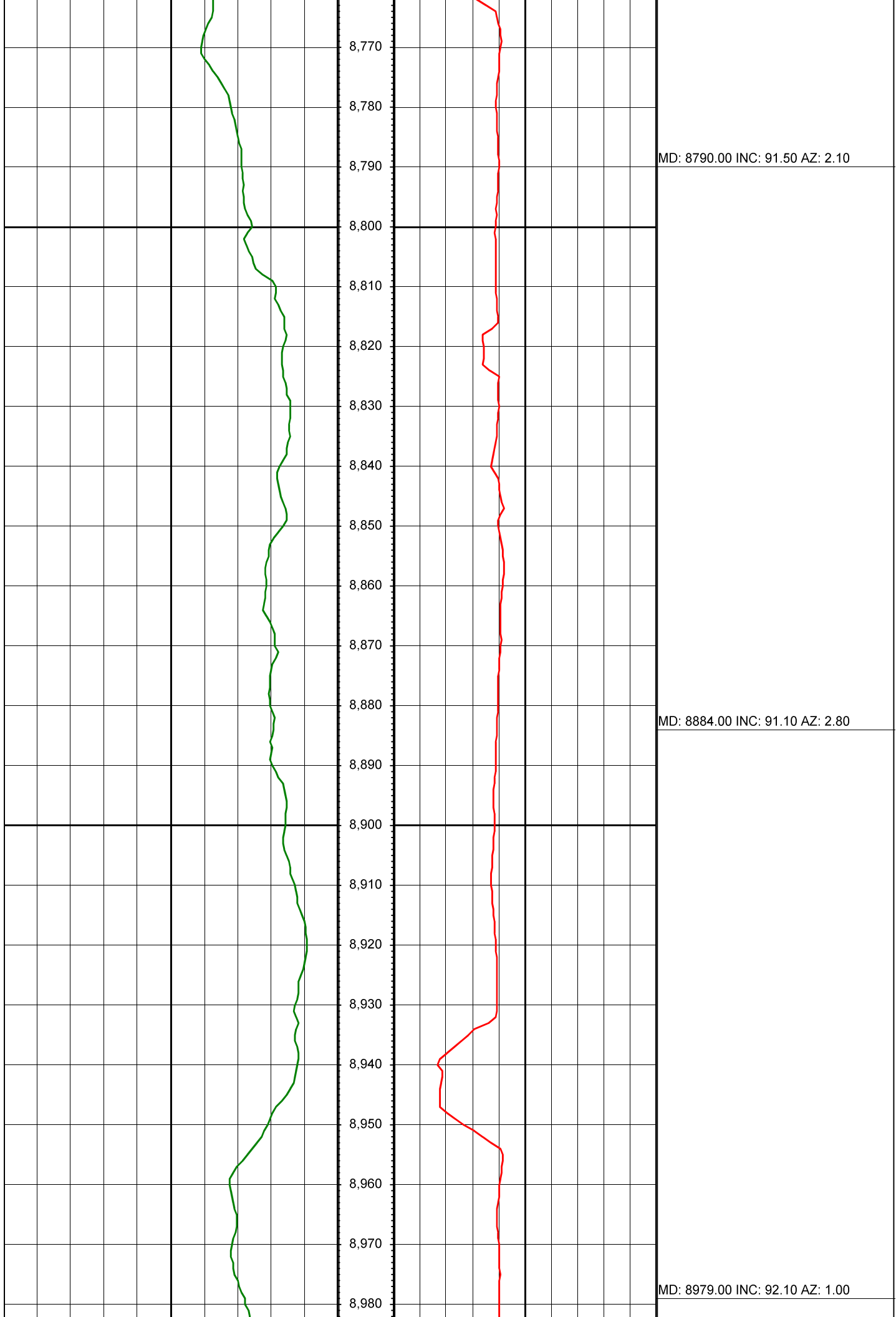


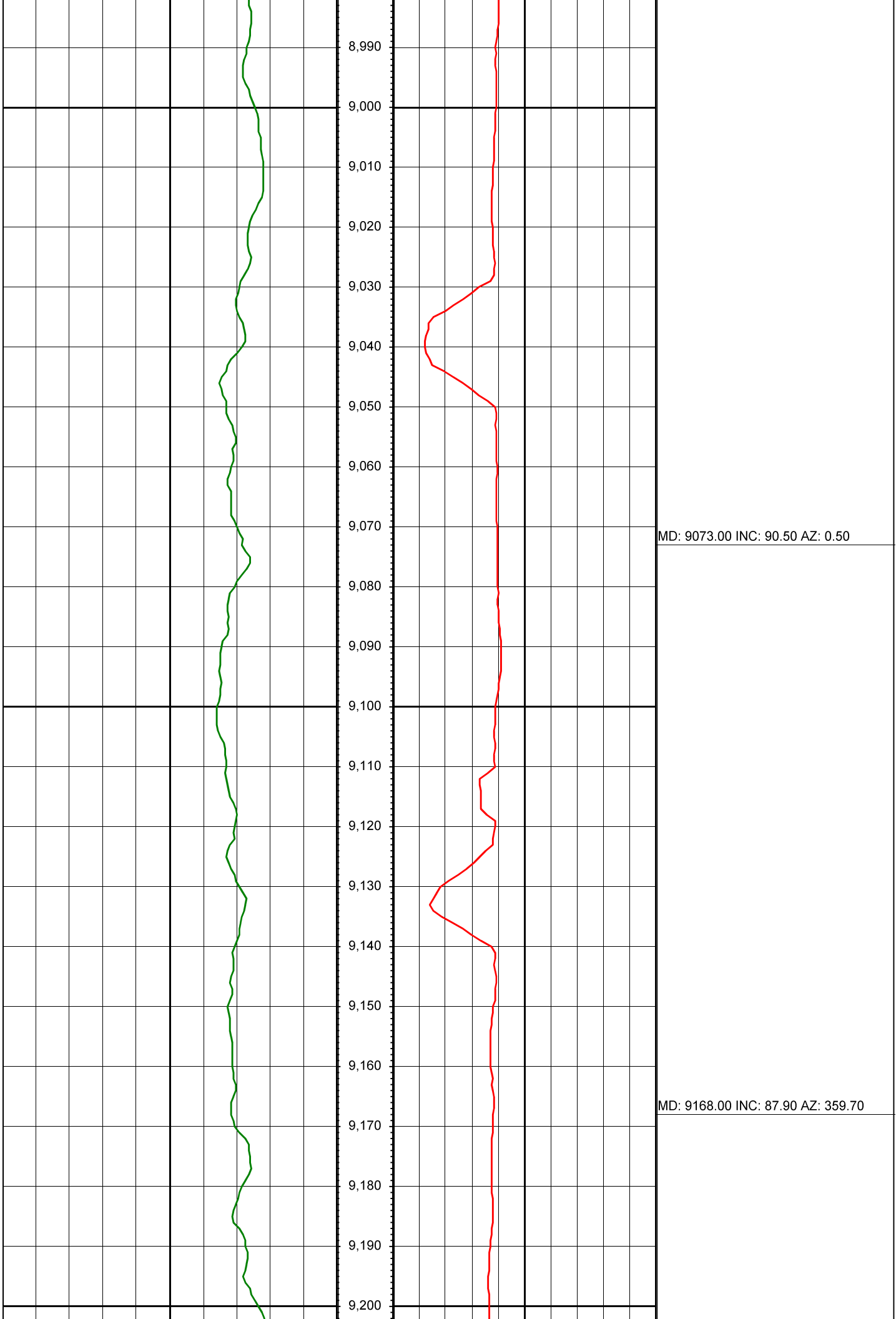


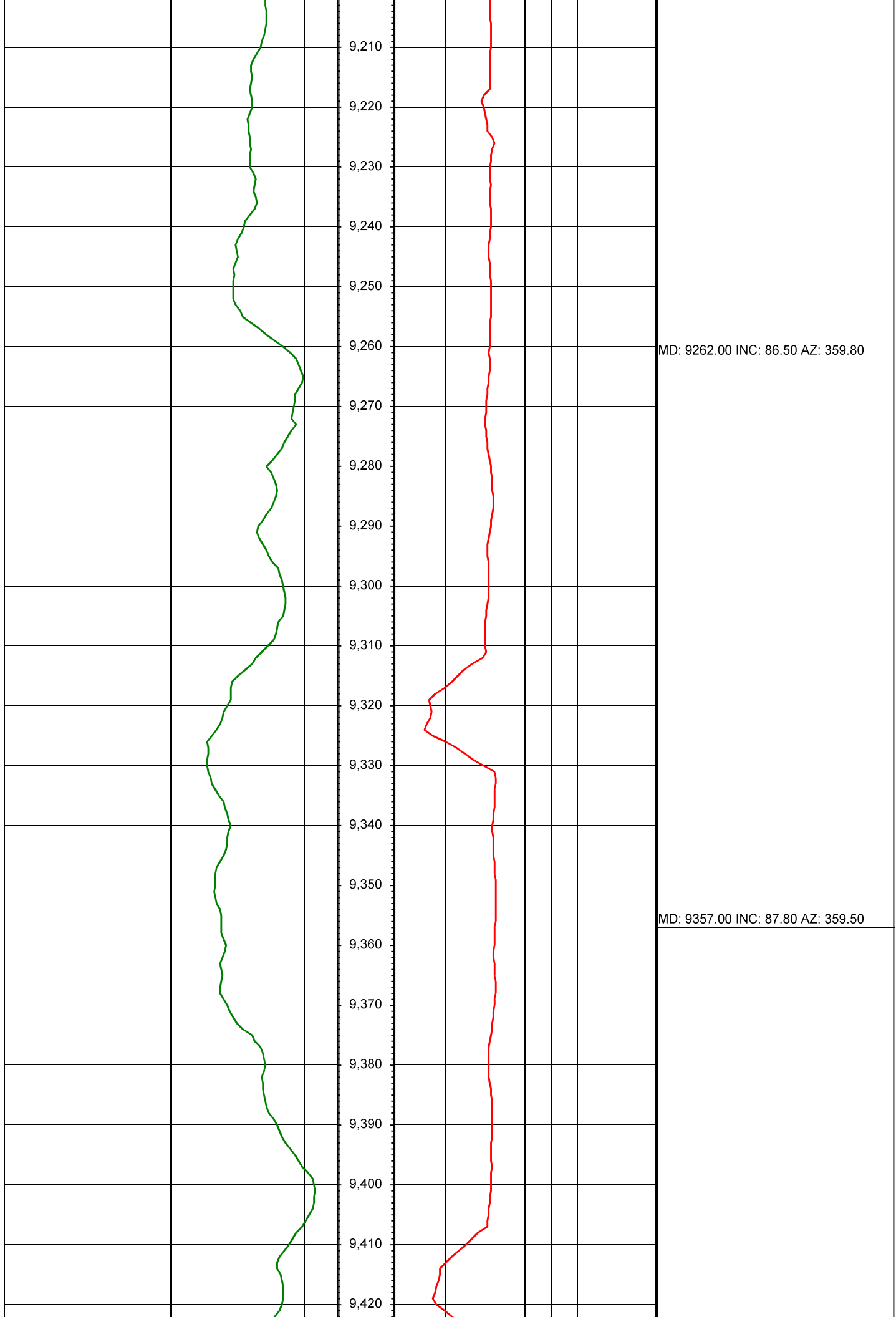


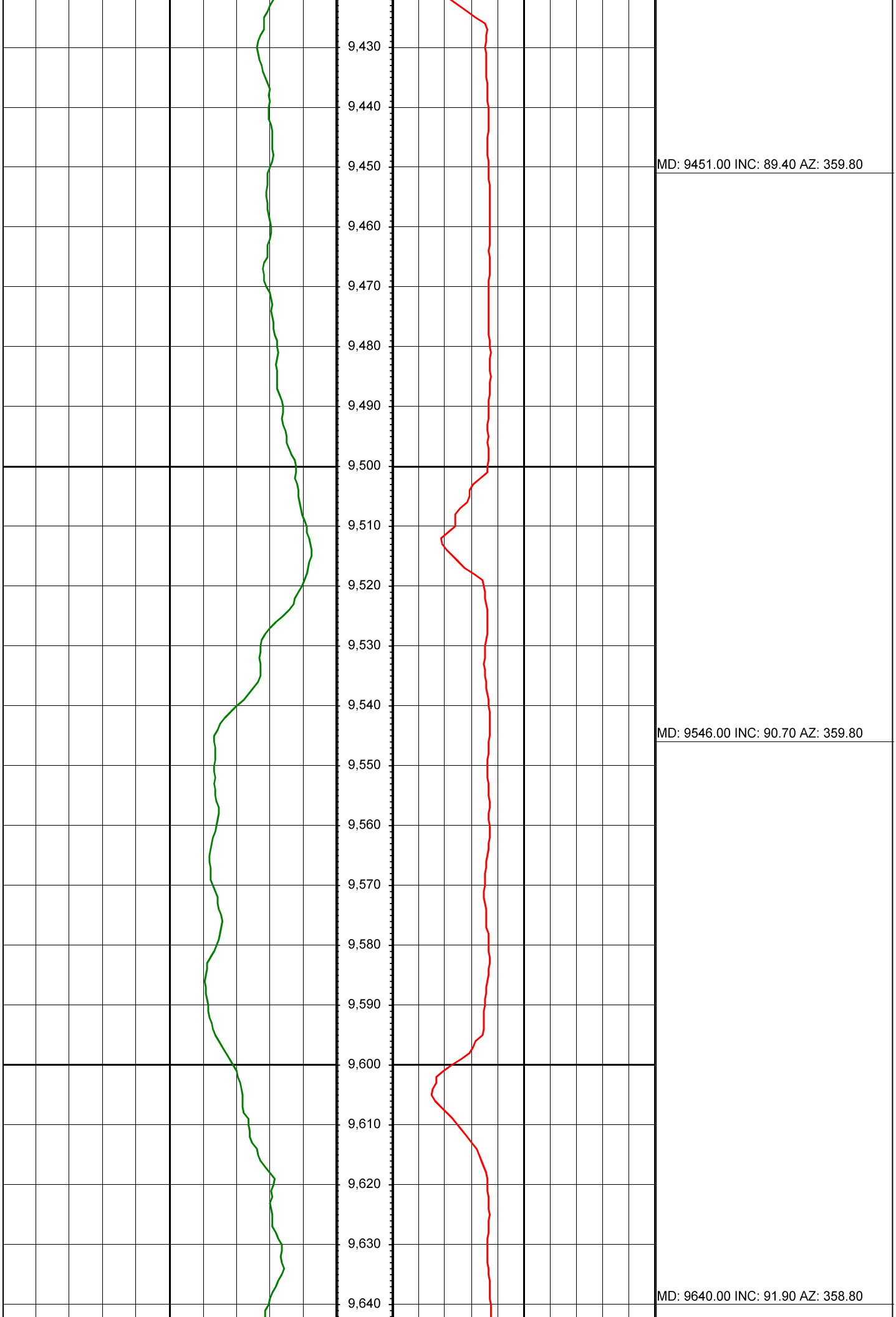








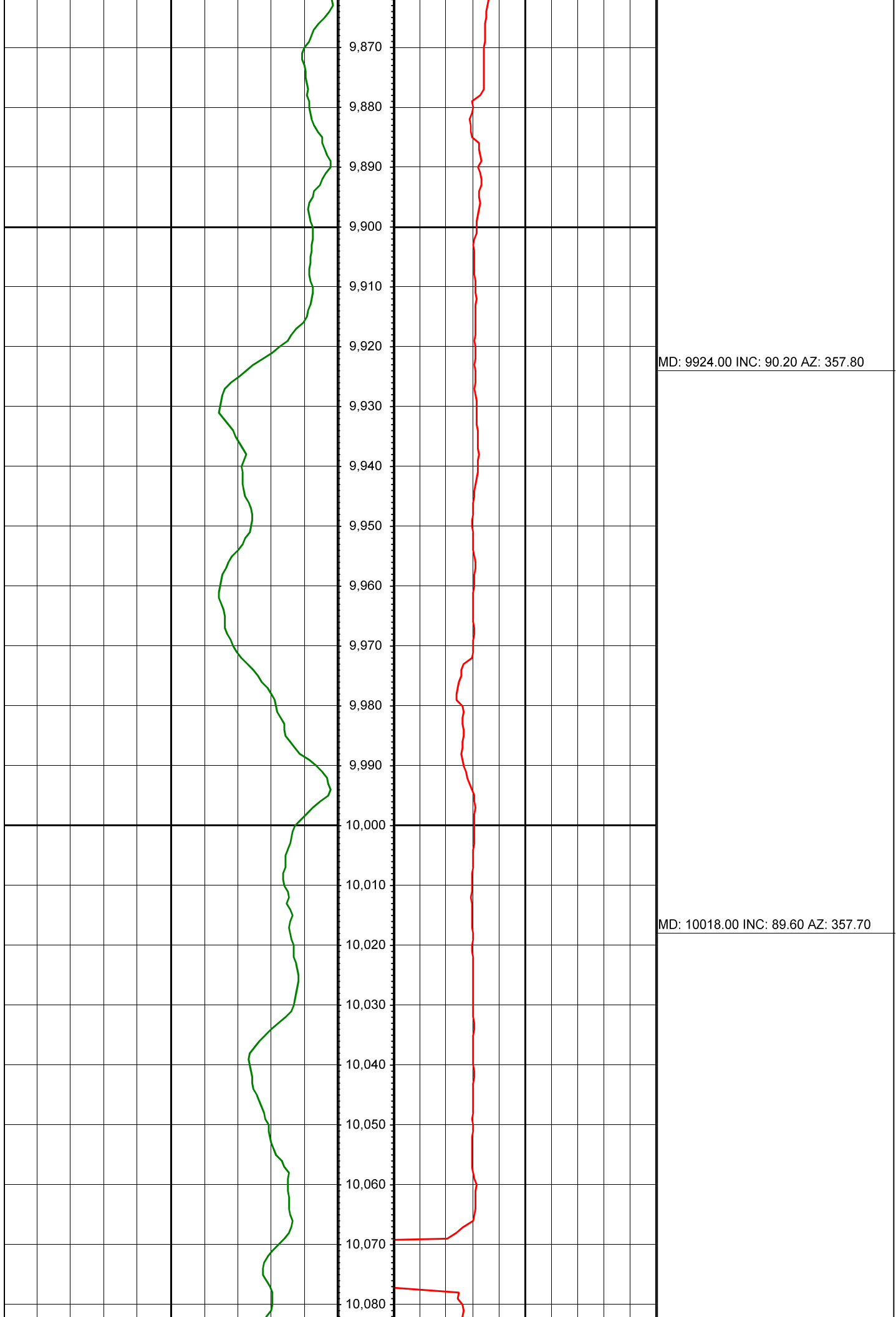




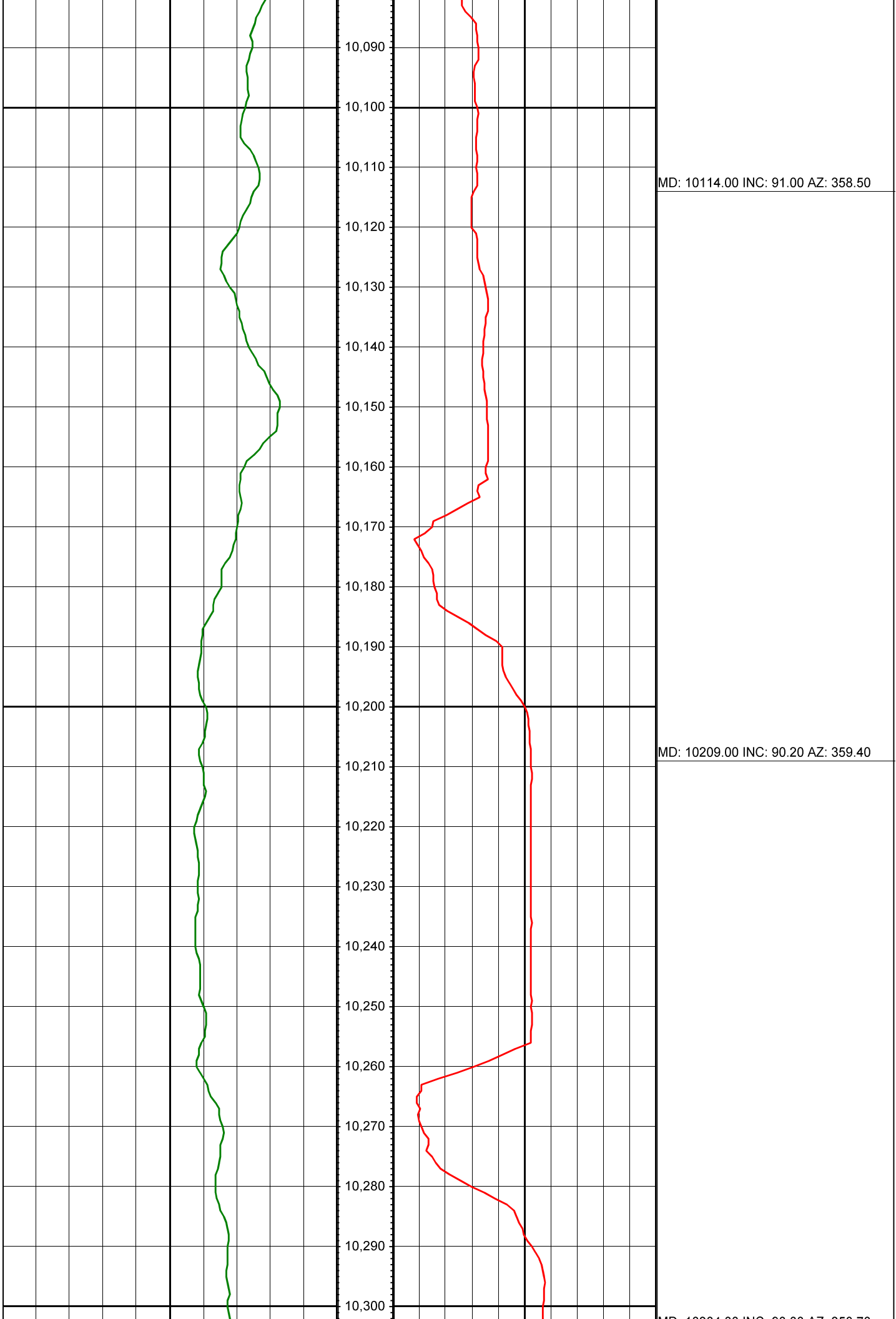


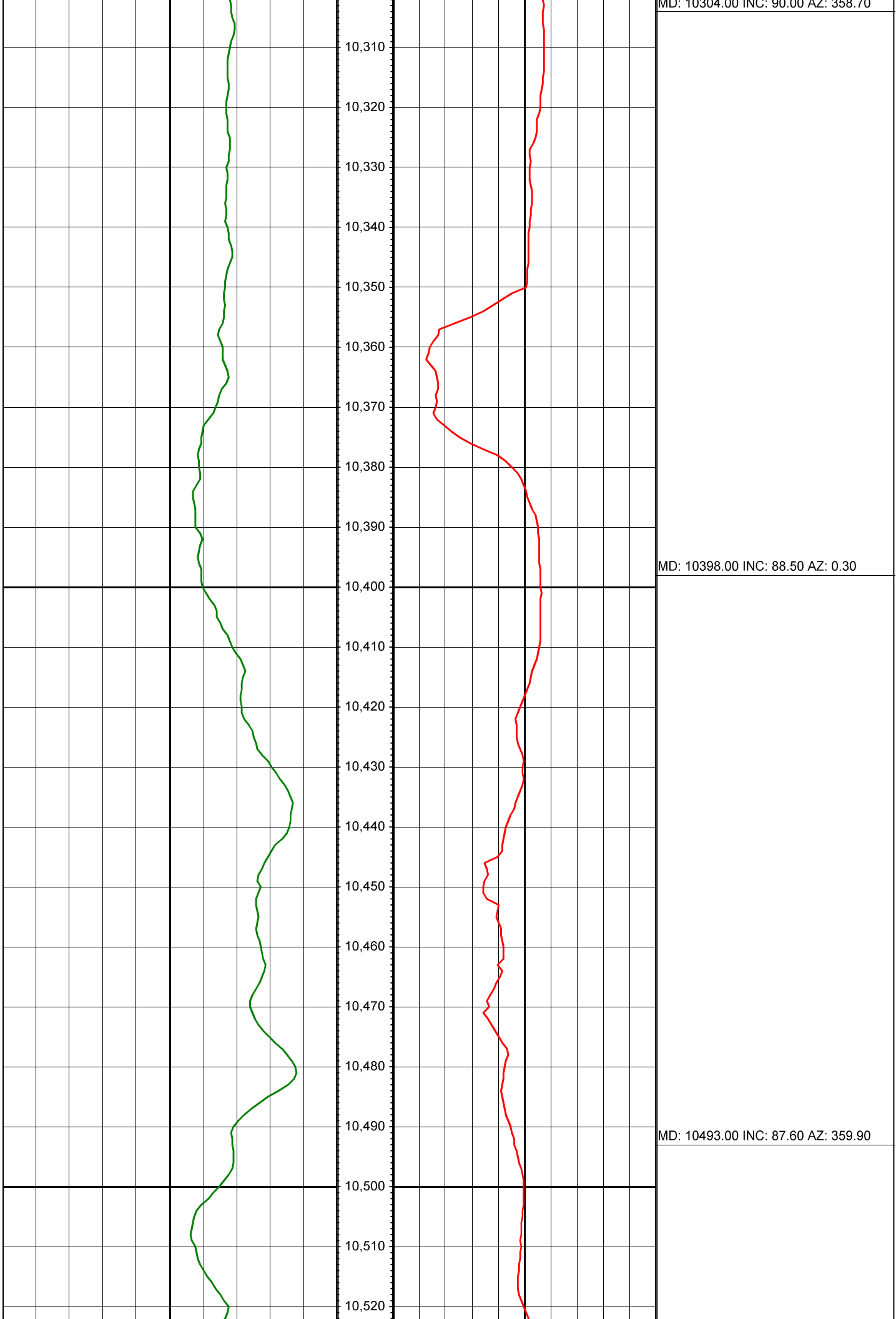
MD: 9735.00 INC: 89.50 AZ: 358.70

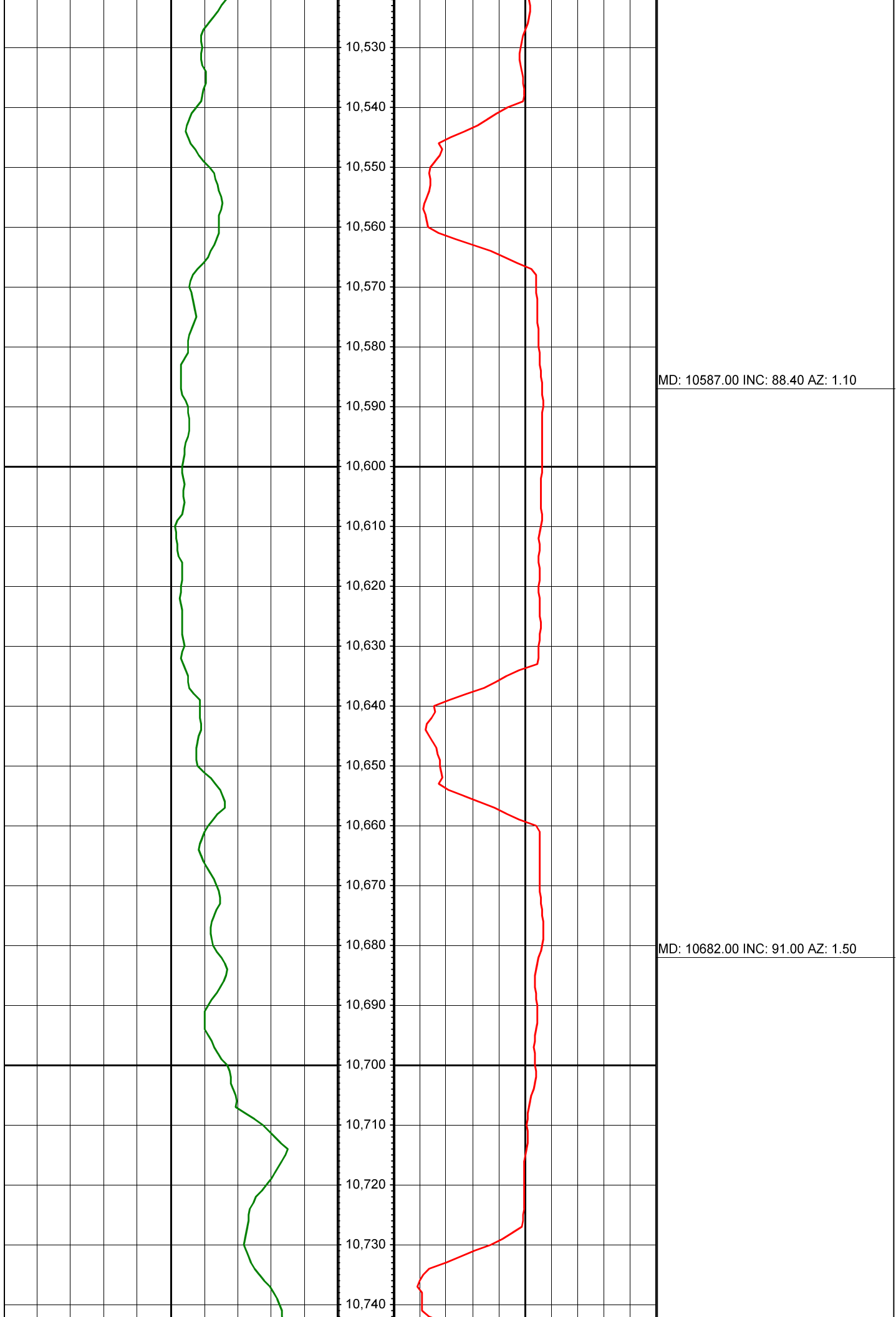
MD: 9829.00 INC: 90.80 AZ: 357.60

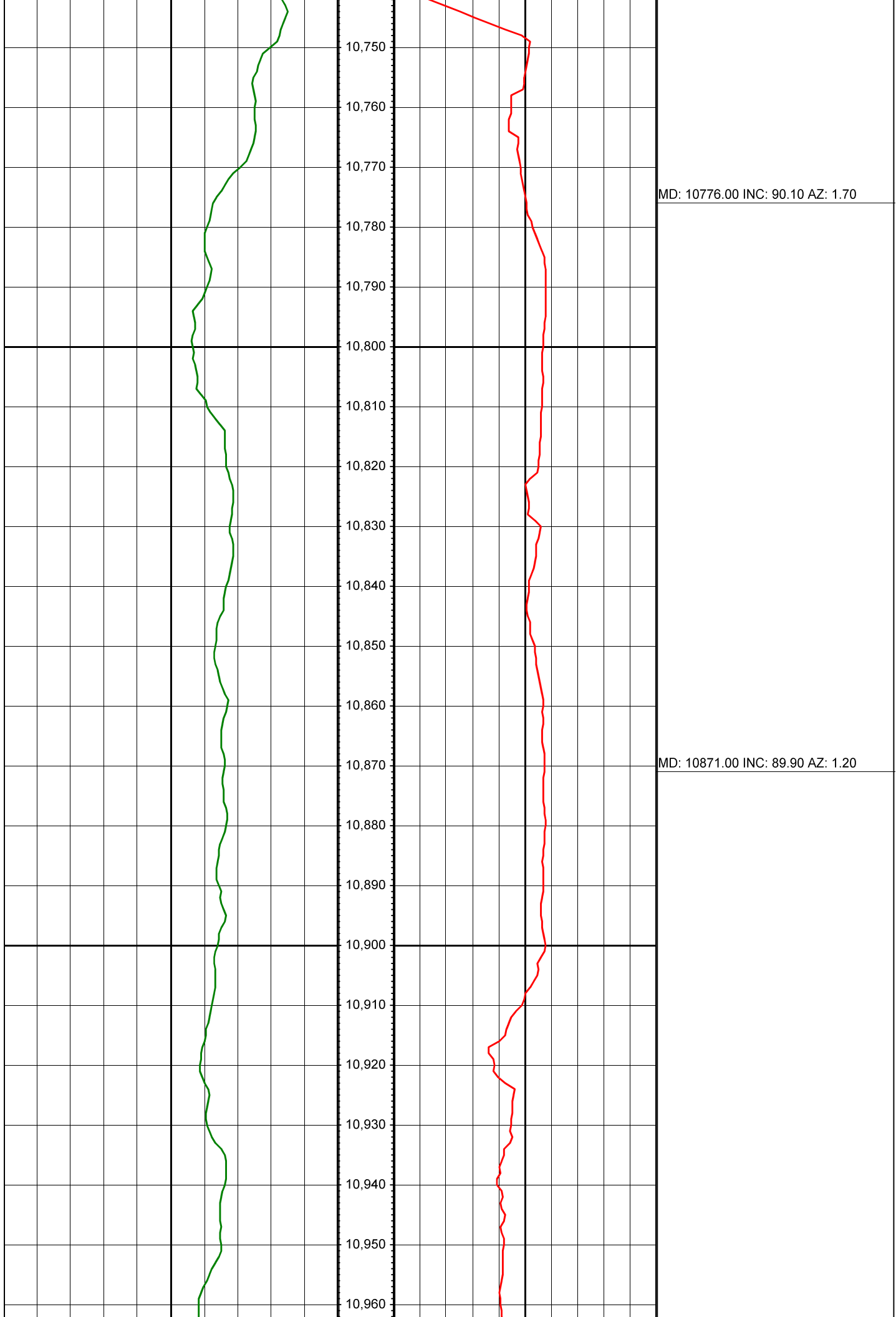














MD: 10965.00 INC: 88.70 AZ: 1.30

MD: 11060.00 INC: 89.10 AZ: 0.10

MD: 11154.00 INC: 88.00 AZ: 360.00

