



Cathedral Energy Services  
1949 North Pyrite Road  
Casper, Wyoming 82604

**145087**

5":100' - MD

4/2/2014 12:27:34 PM

**CATHEDRAL**

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

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

**State / Province:** Colorado

**County / Parish:** Weld

**Started:** 03/22/2014 11:00 PM

**API/UWI:** 05-123-37666

**Field:** Wattenburg (Niobrara)

**Well:** Frederiksen 1D-28H-A368

**Rig:** Ensign Drilling 135

**Ended:** 04/01/2014 09:00 PM

Gamma Ray  
Section Plane: 270.00  
Magnetic North: 8.60  
Gamma Attenuation Factor:  
Gamma Averaging: 3%

### Personnel

**Day Hand:** D. Counts

**Night Hand:** J. Smith

**Comp. Emp:** William LaForce

Maximum Temperature: 219°F

### Location

**Latitude:** 40.201970

**Longitude:** -104.999340

**Elev. GL:** 4992

**Elev. DF:**

**Elev. KB:** 5005

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

### Hole Data

Size	From	To
8-3/4	8844	7515
6-1/8	7515	11717

### Casing Data

Size	From	To
9-5/8	0	844
7	0	7499

### Bit Sizes

Size	From	To
8-3/4	844	7515
6-1/8	7515	11717

### Mud Data

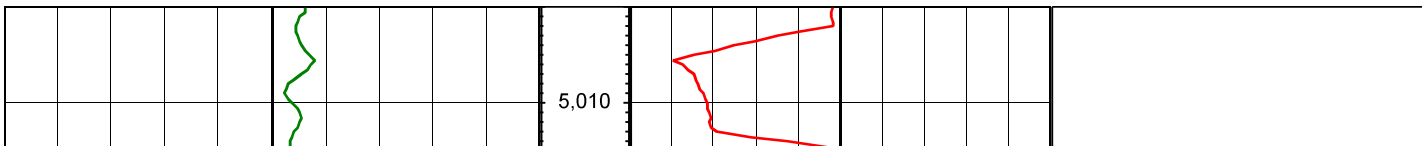
Type	Weight	Density	Viscosity	Rm	Rmf	Rmc	From	To
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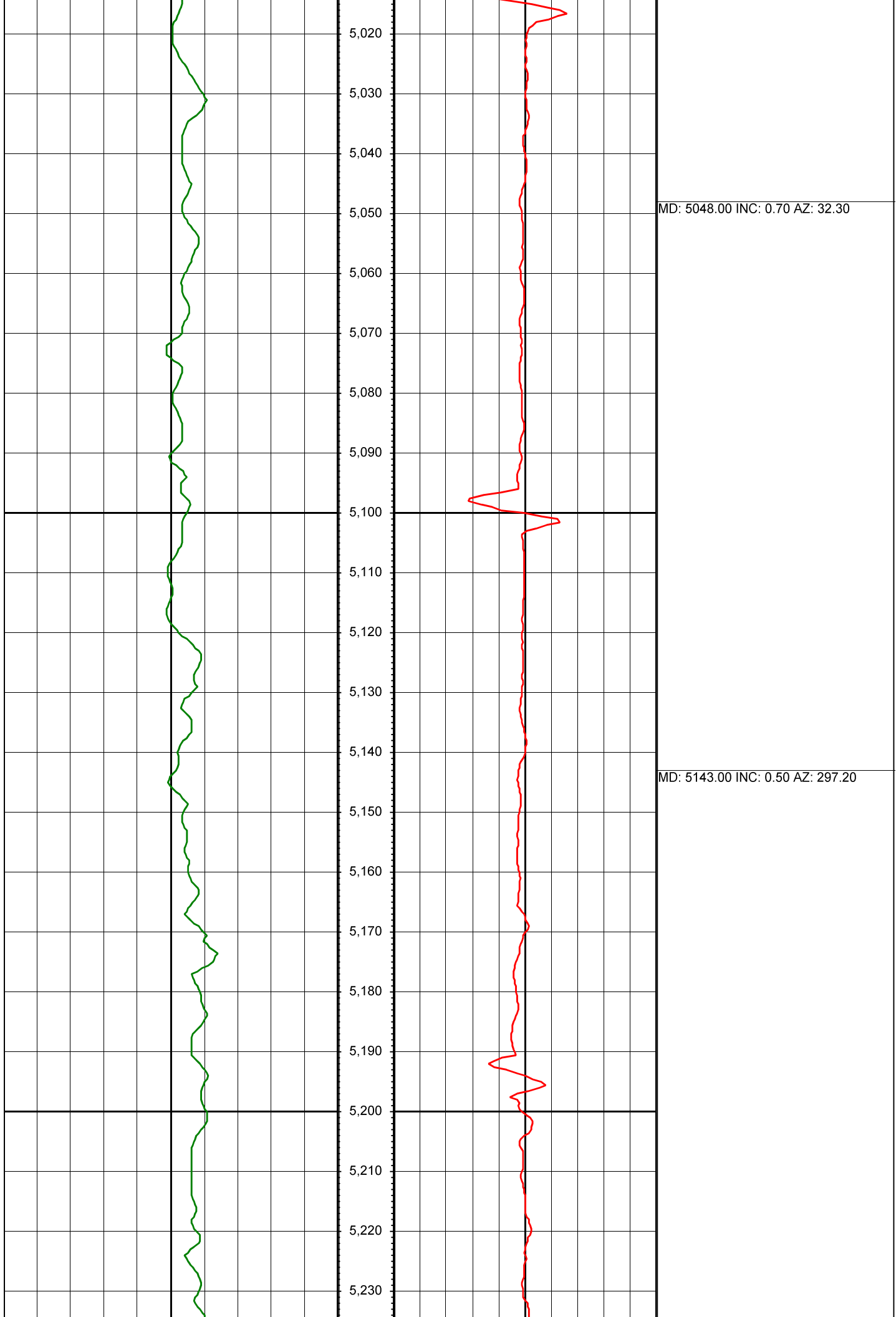
### Tool Run Data

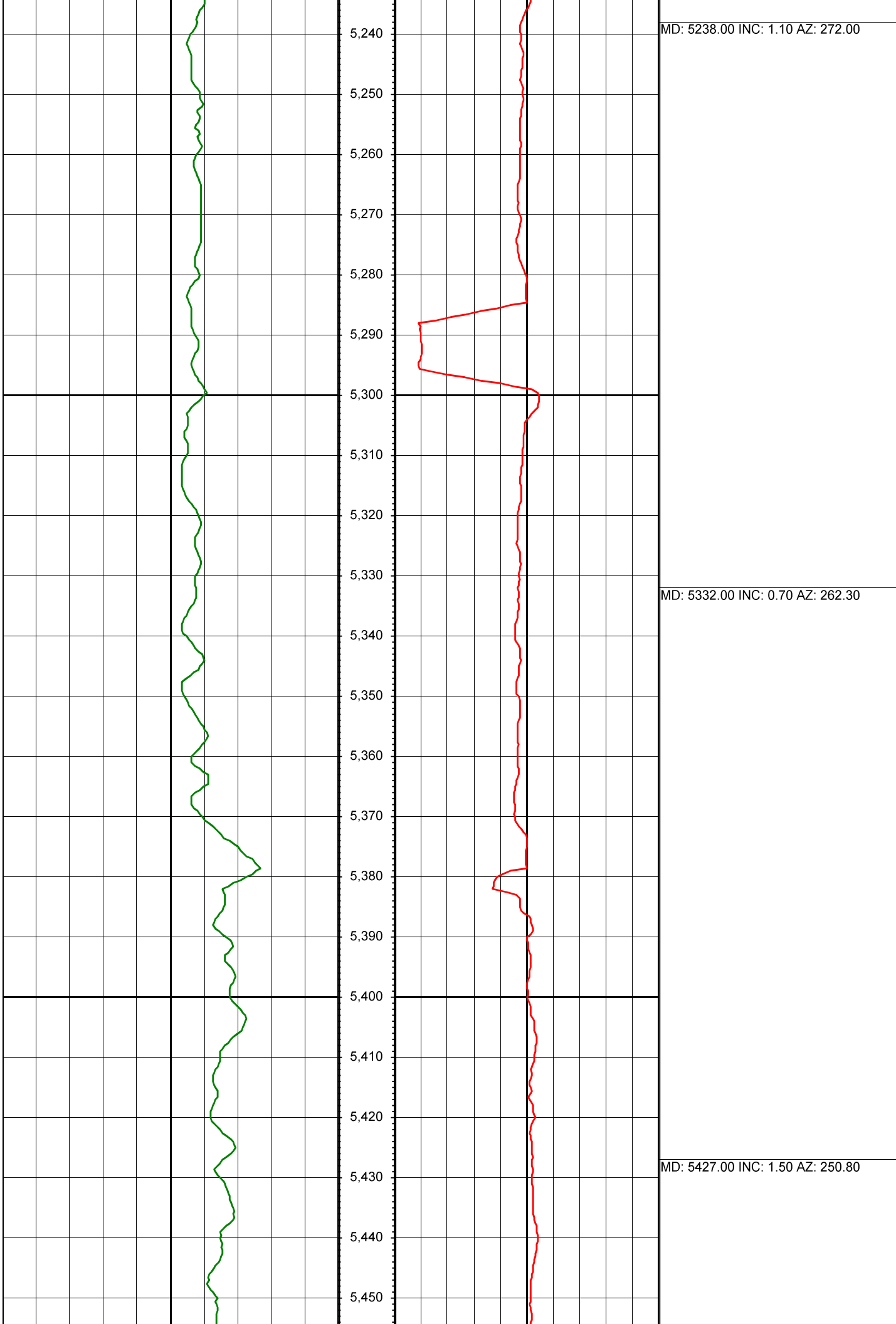
Serial Number	Gamma Offset	Resist. Offset	Start Time	Start Depth	End Time	End Depth
1524	37.46	0	3/23/2014 11:00:24 PM	5000	3/25/2014 11:30:24 AM	7181
1524	37.46	0	1/25/2014 7:00:21 AM	7181	3/26/2014 8:00:21 AM	7515
1524	34.41	0	3/27/2014 8:30:03 PM	7515	3/27/2014 8:30:03 PM	7515
1289	37.57	0	3/28/2014 12:30:45 AM	7175	3/29/2014 9:30:45 PM	11034
1289	37.57	0	3/29/2014 10:00:25 PM	11034	3/31/2014 4:49:25 PM	11717

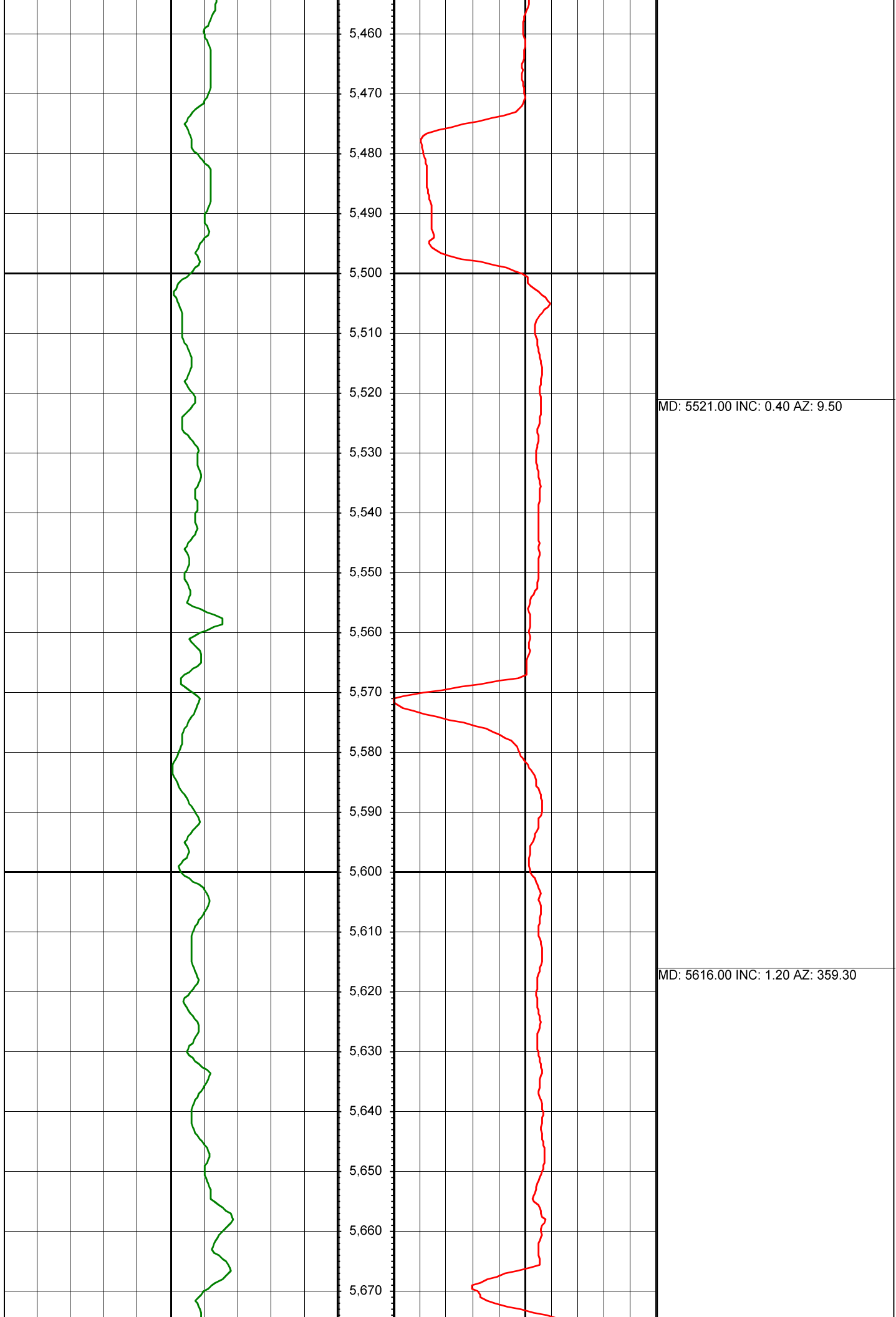
*All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost 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

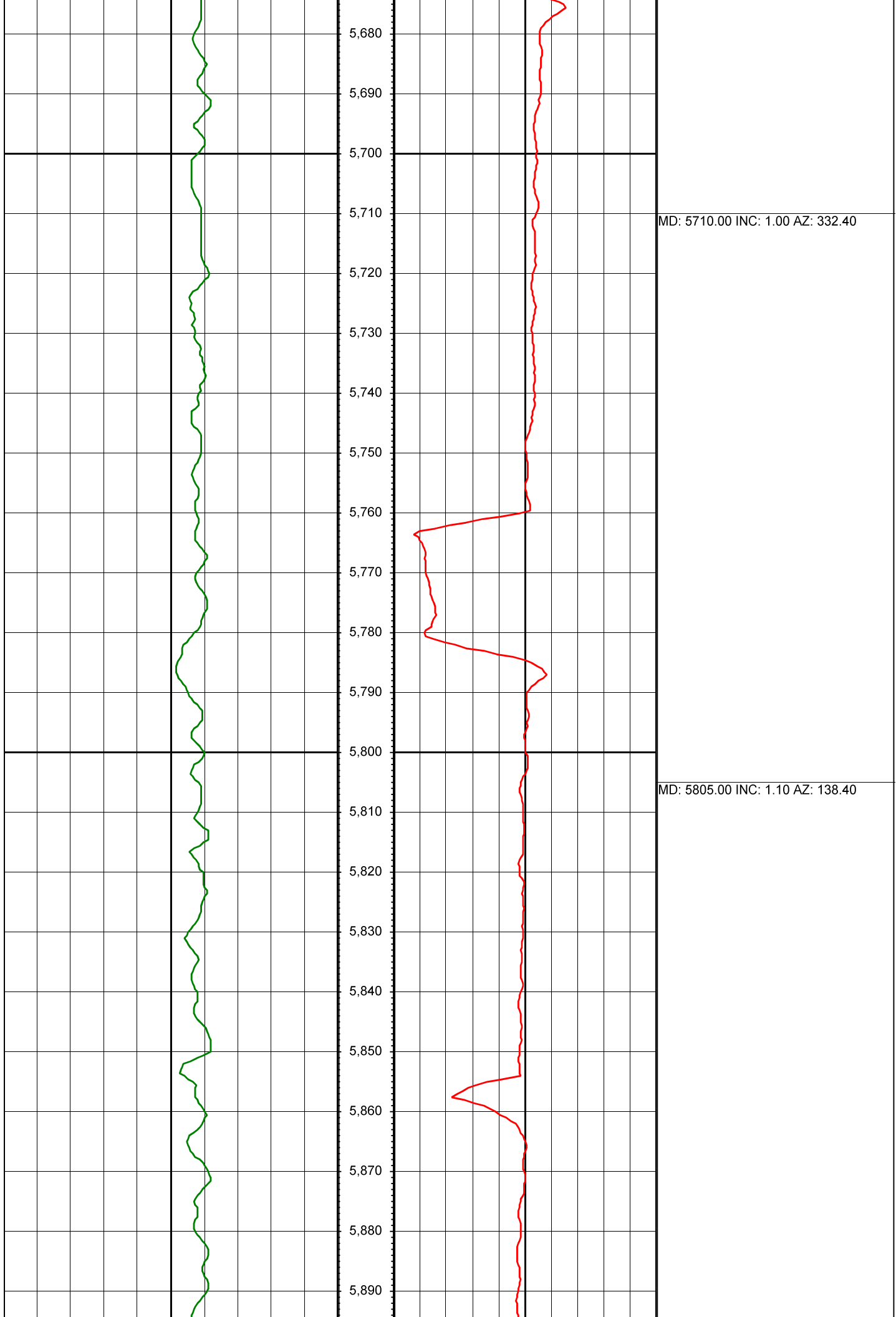


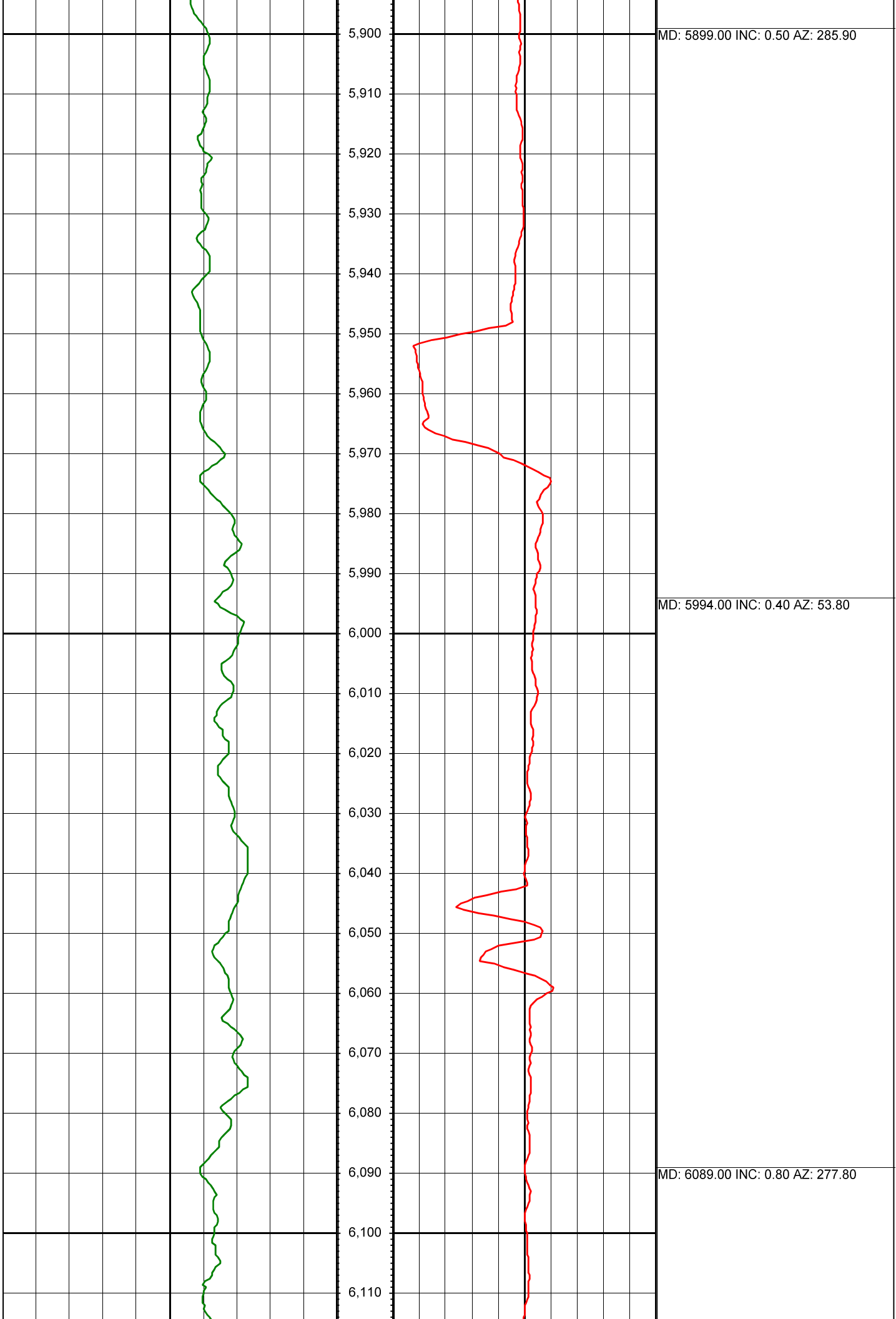


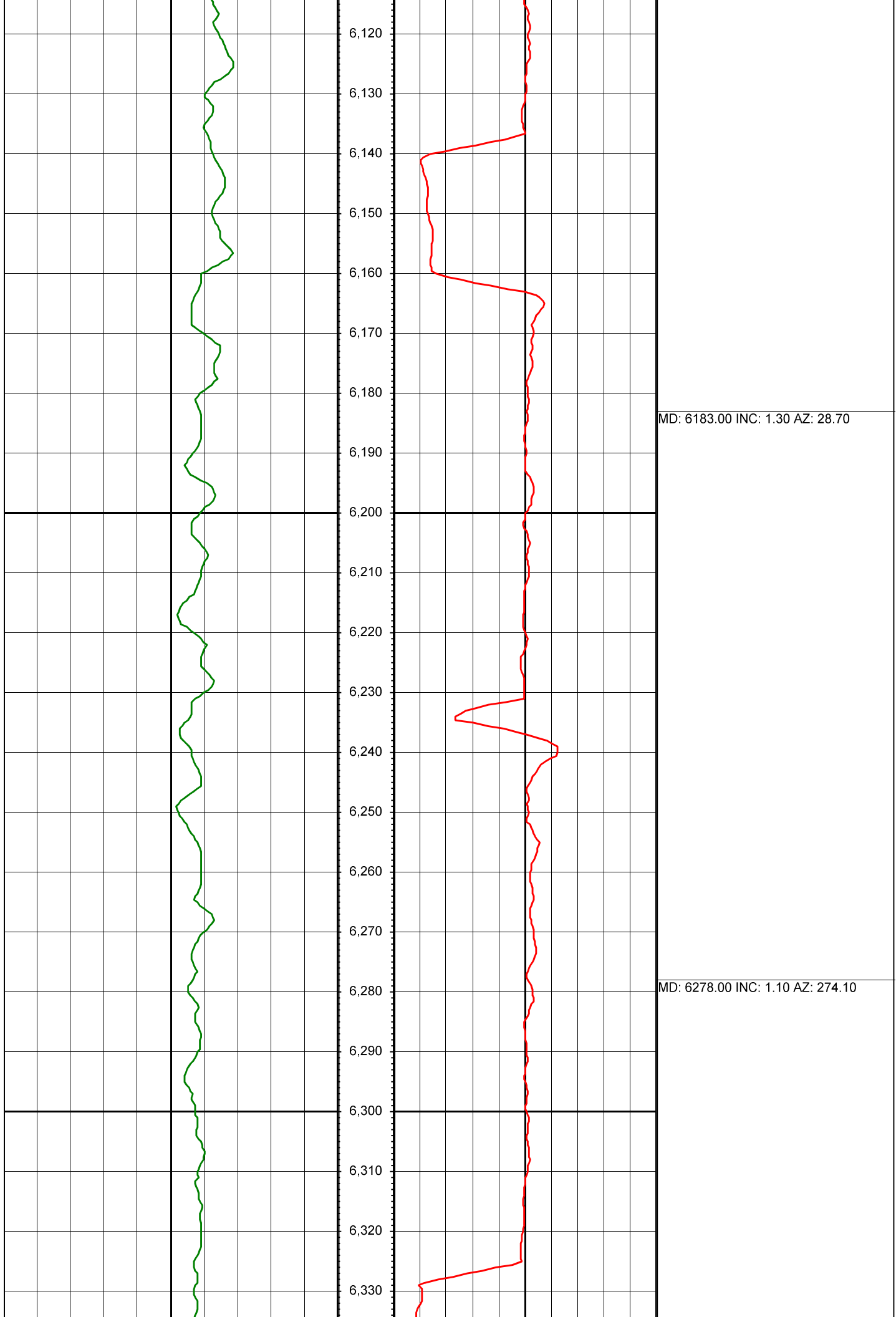


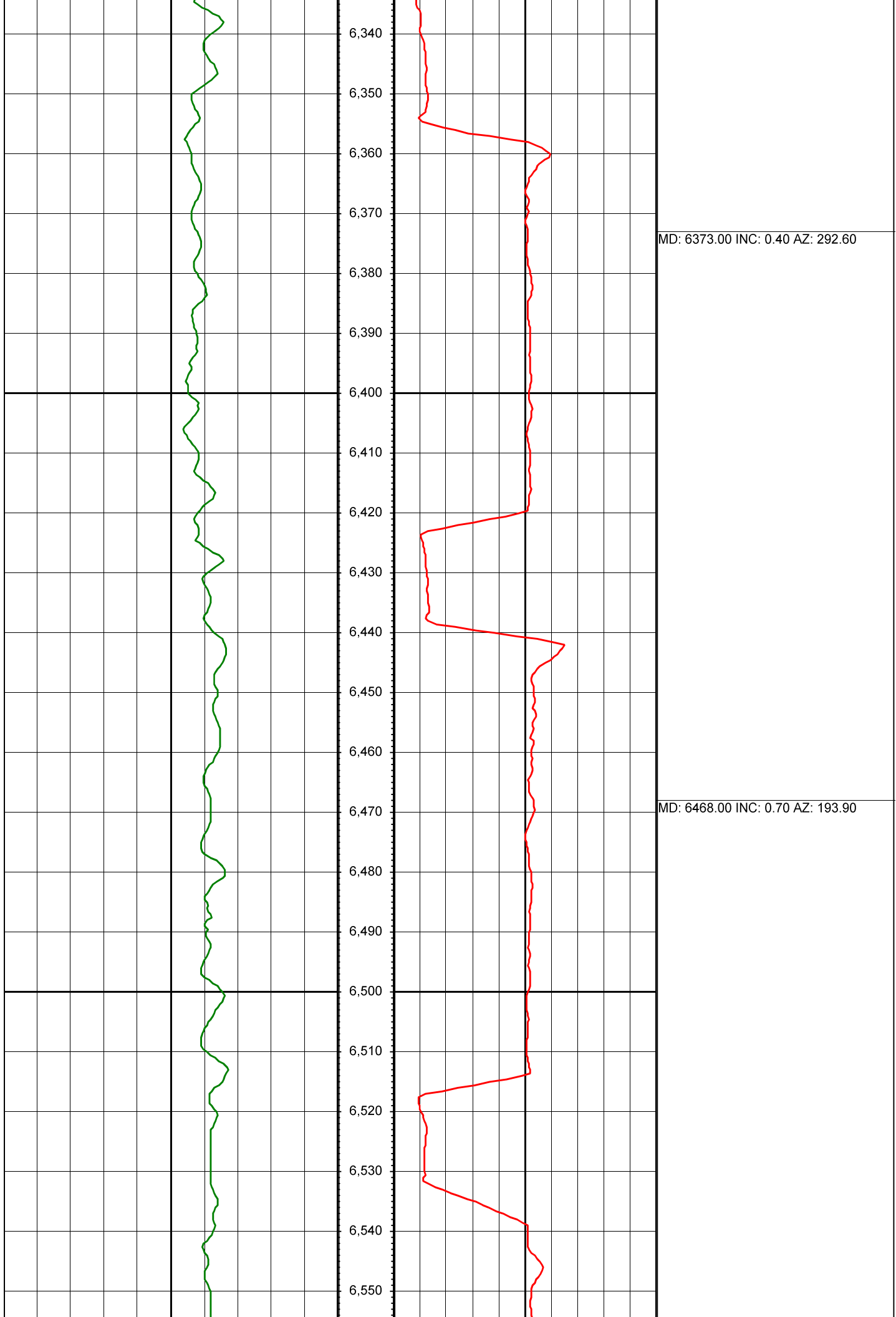


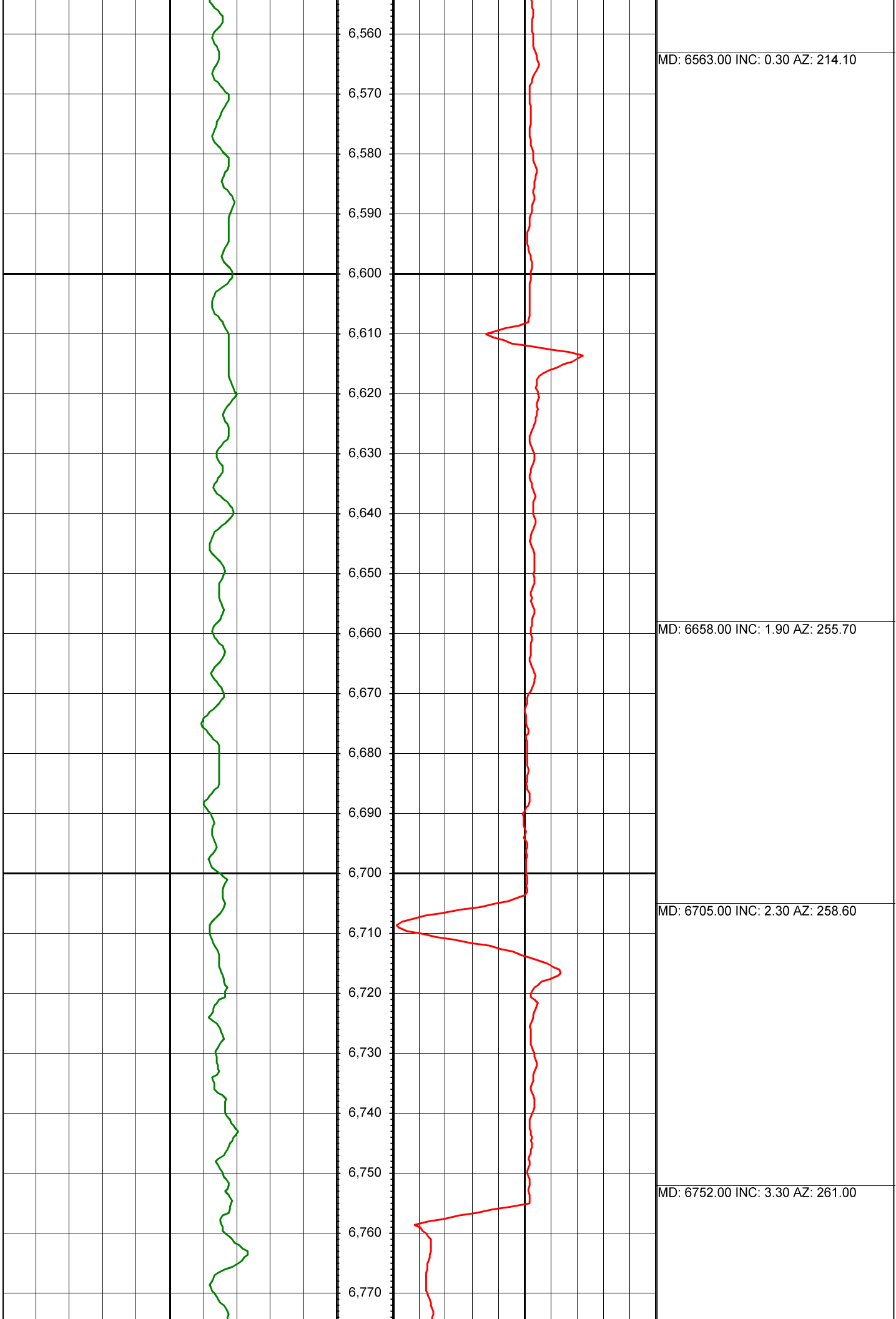


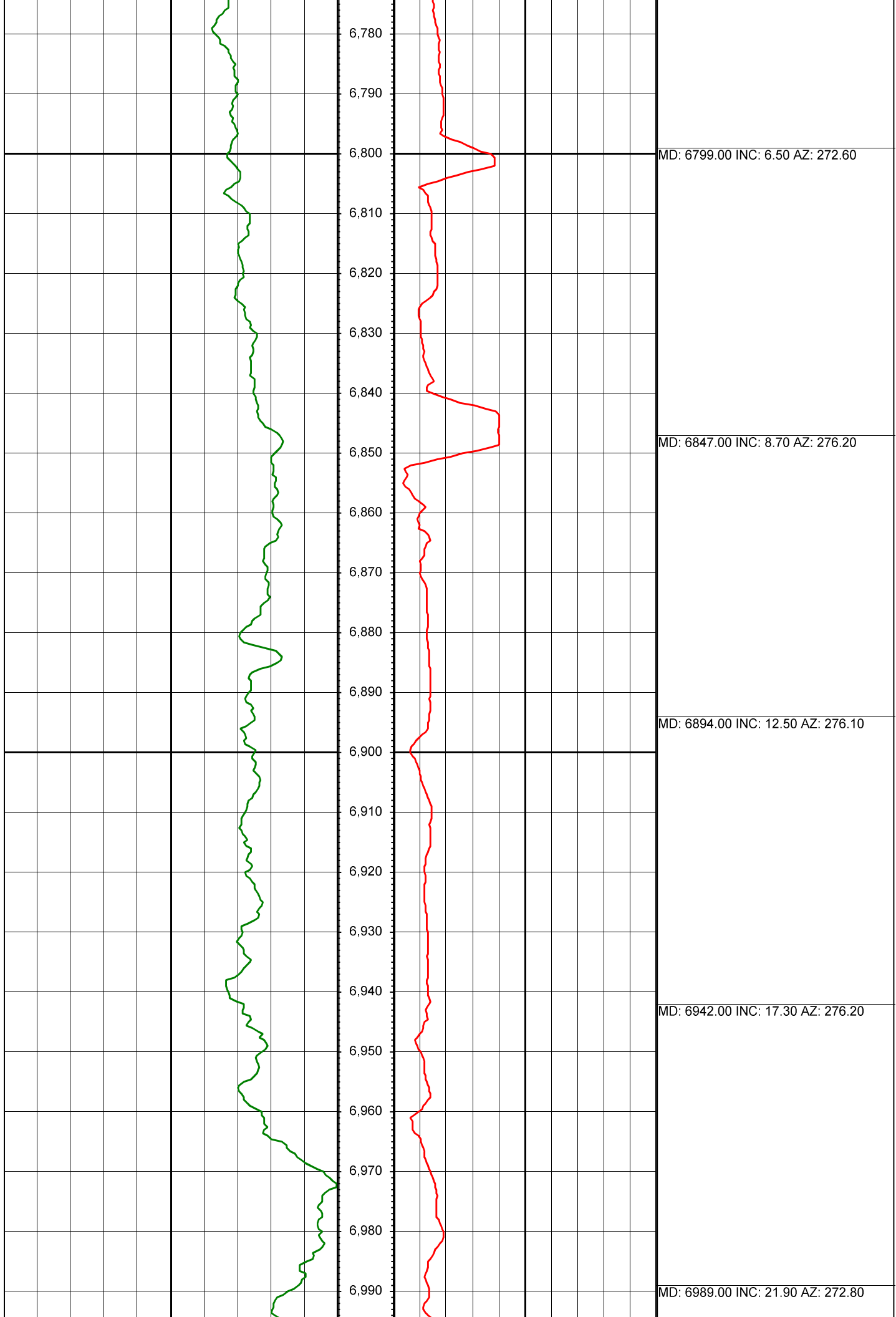


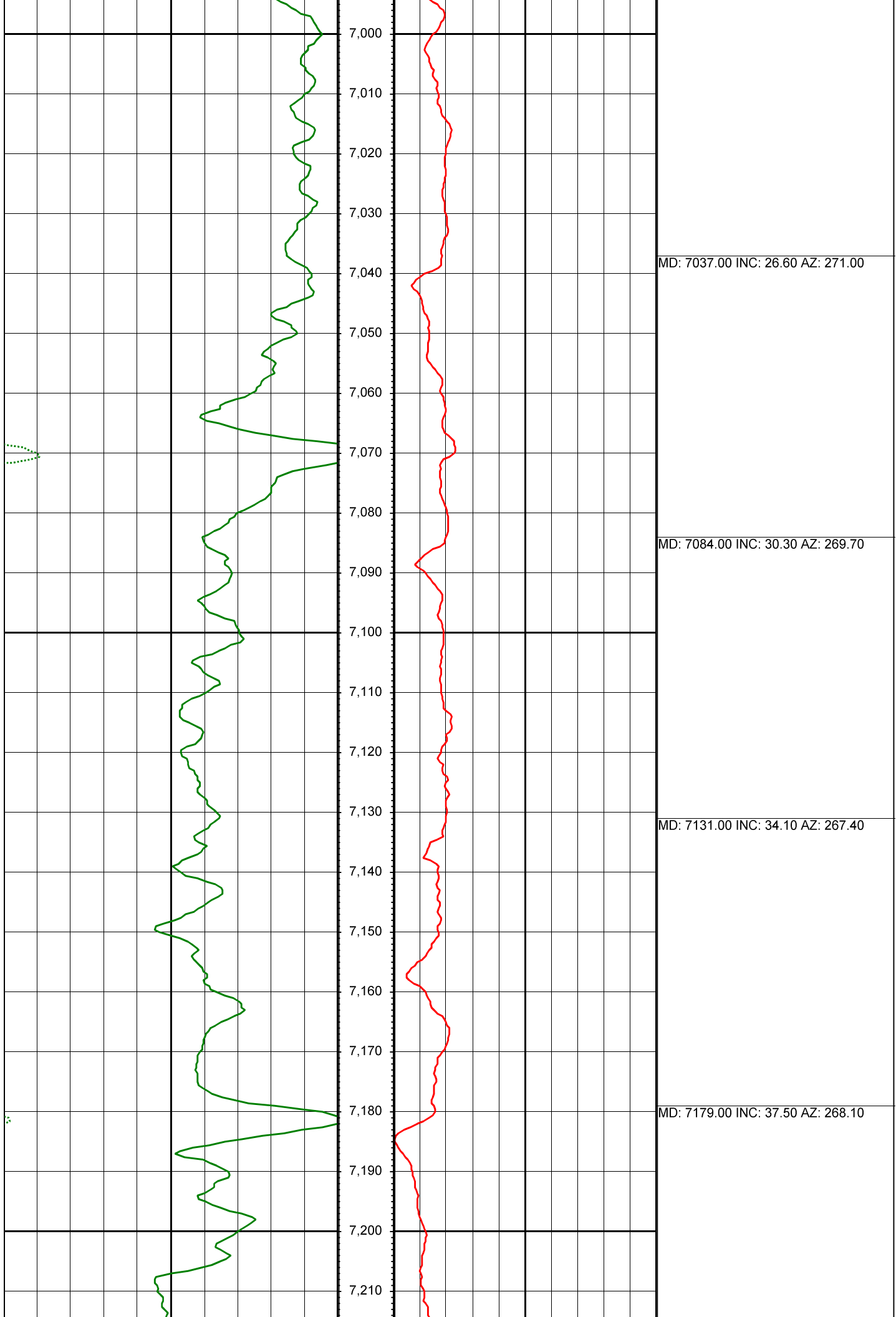


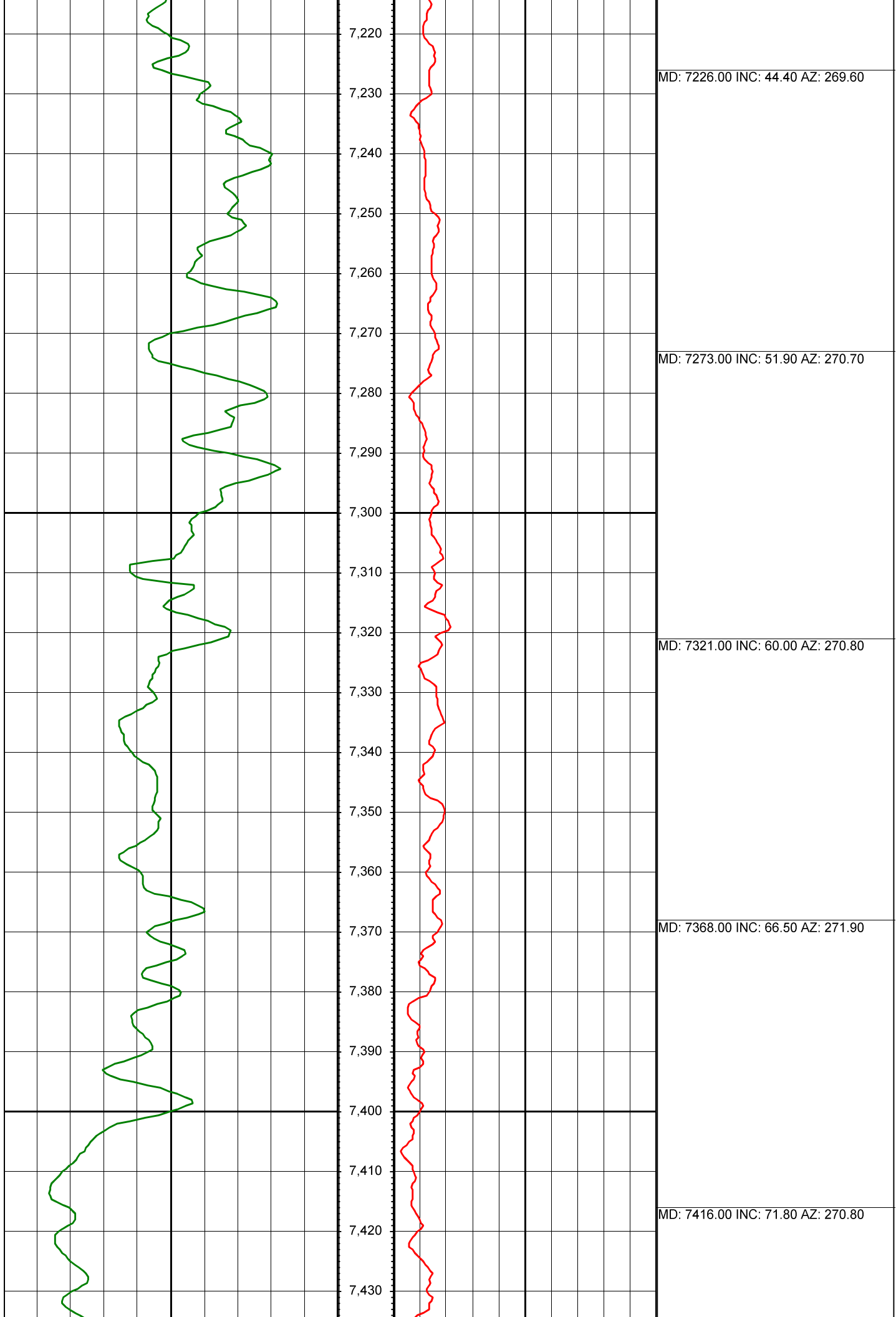




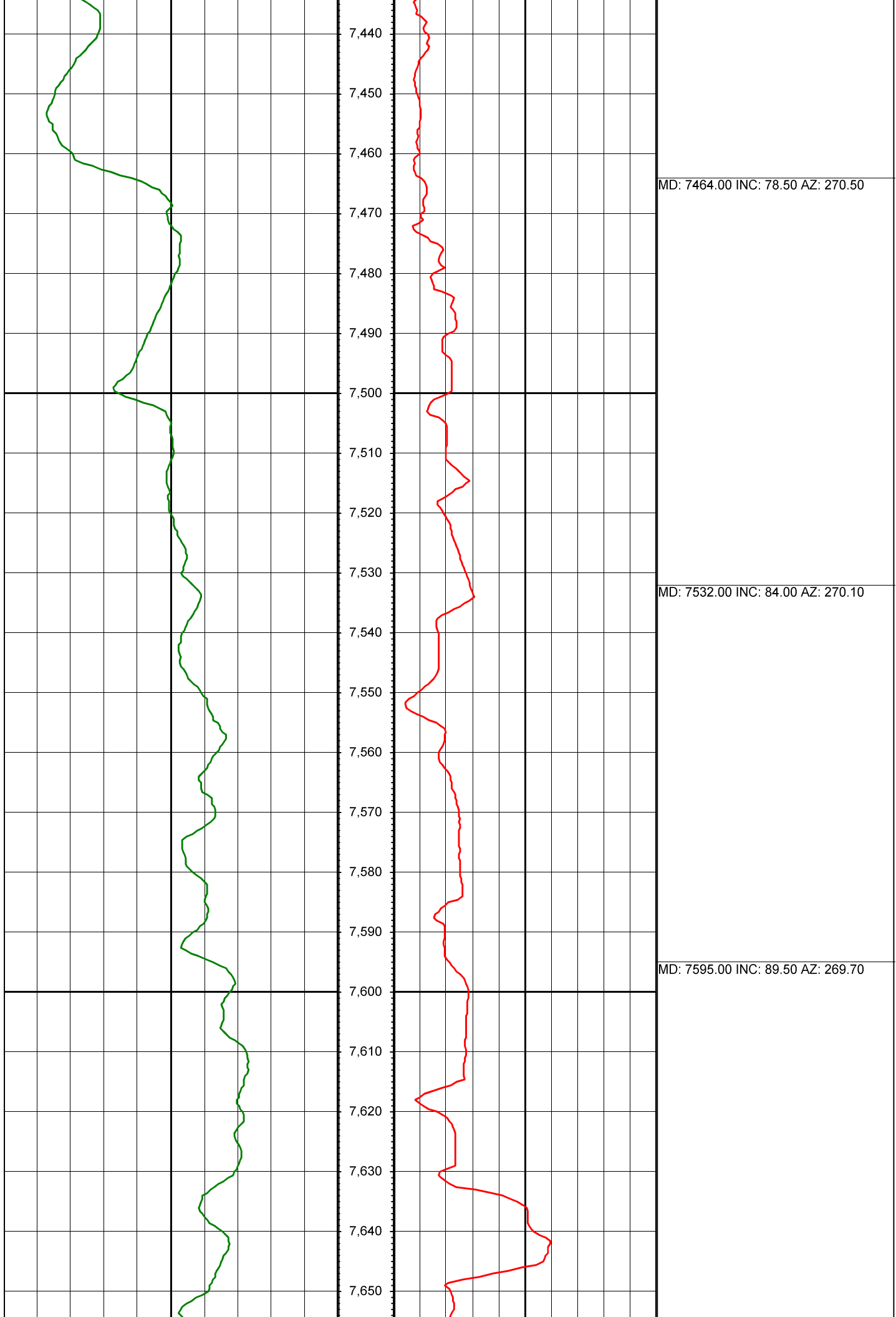


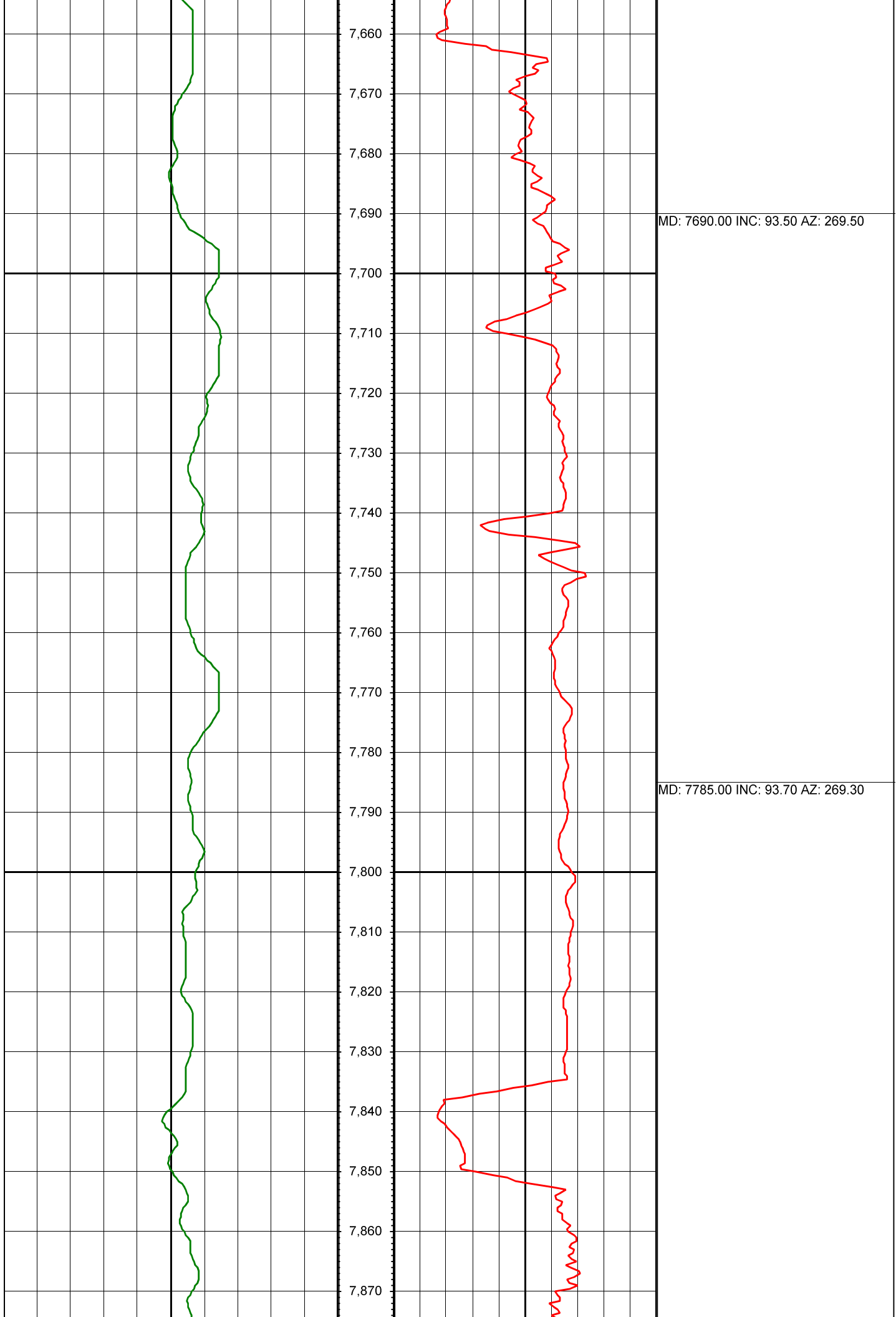


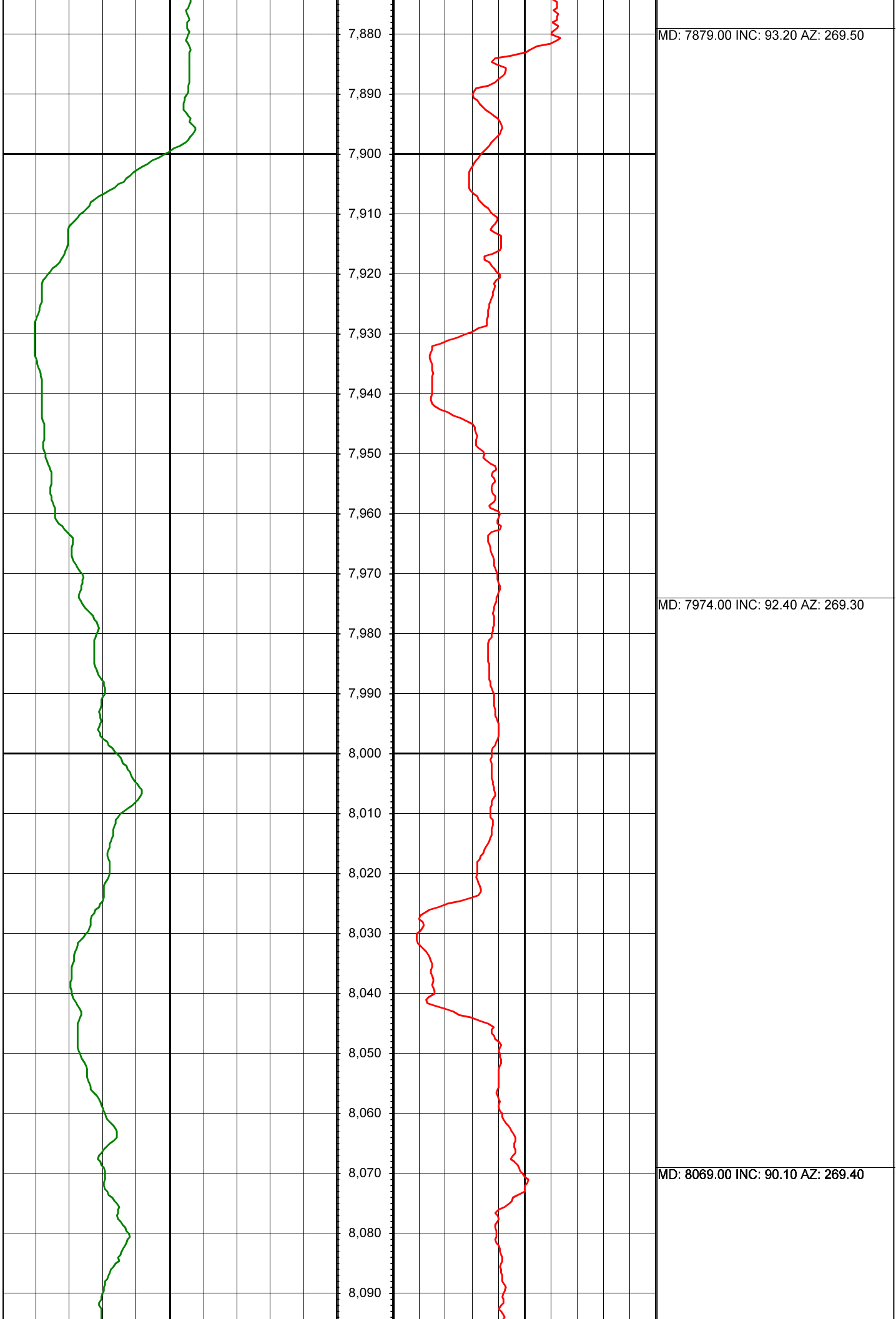


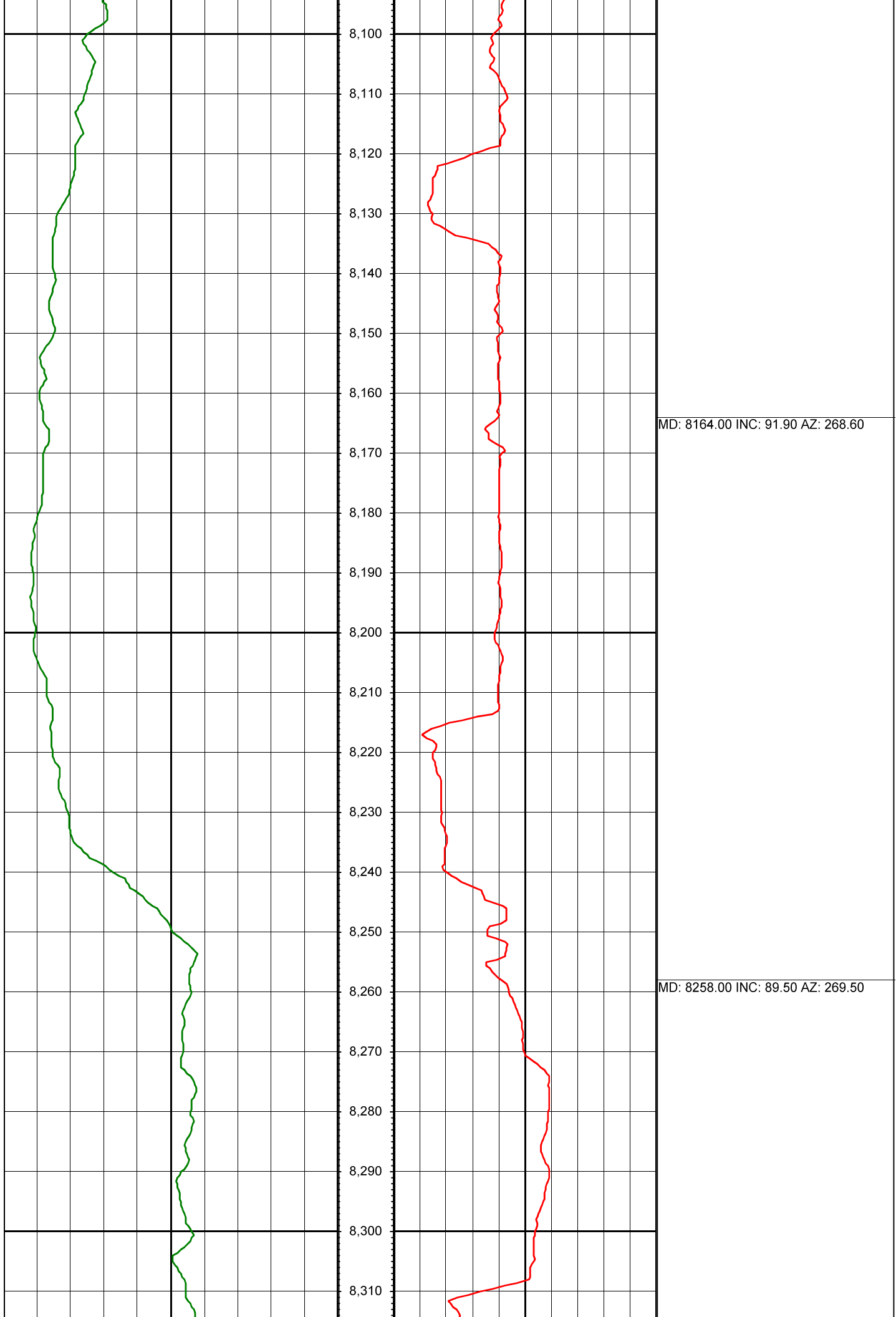


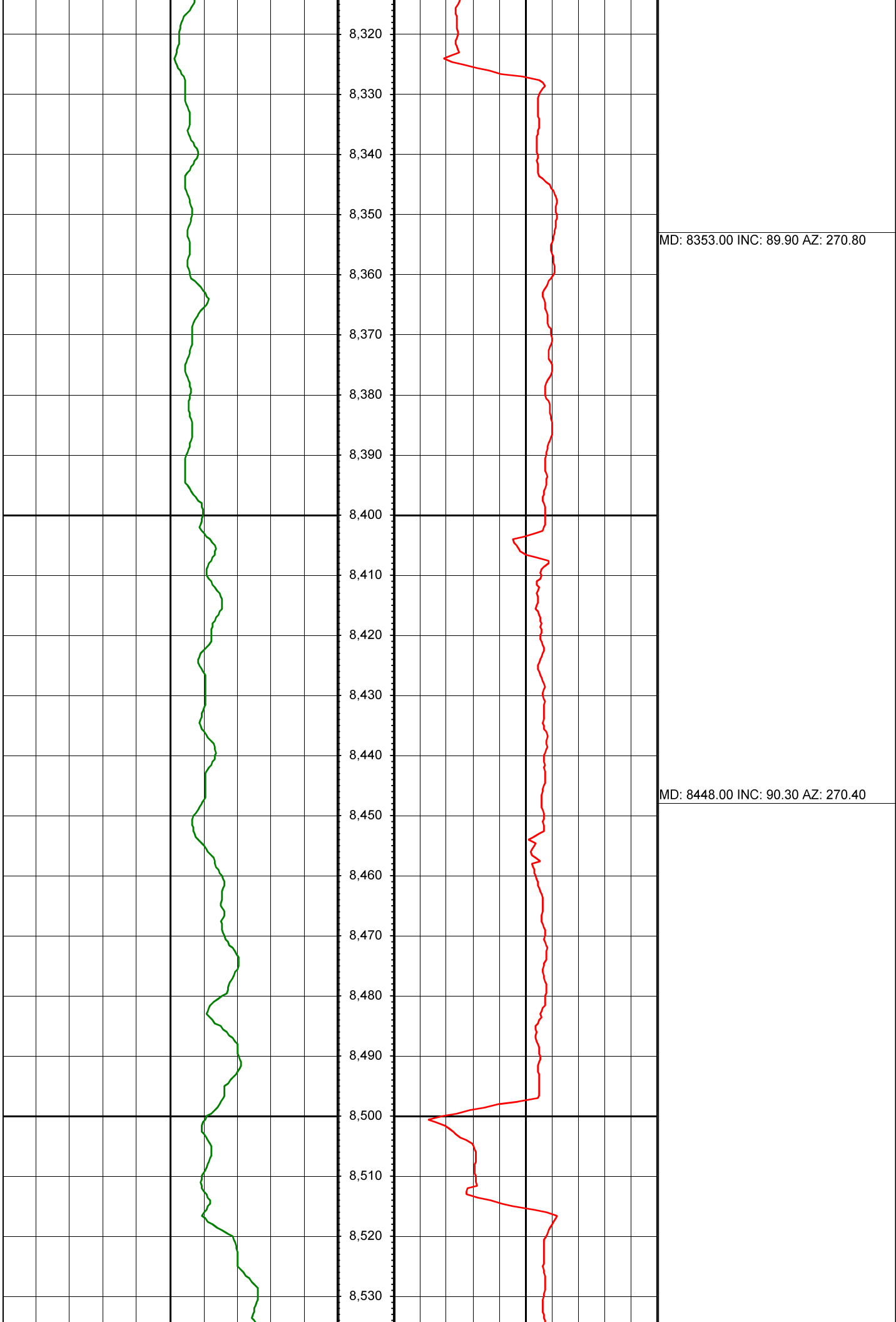


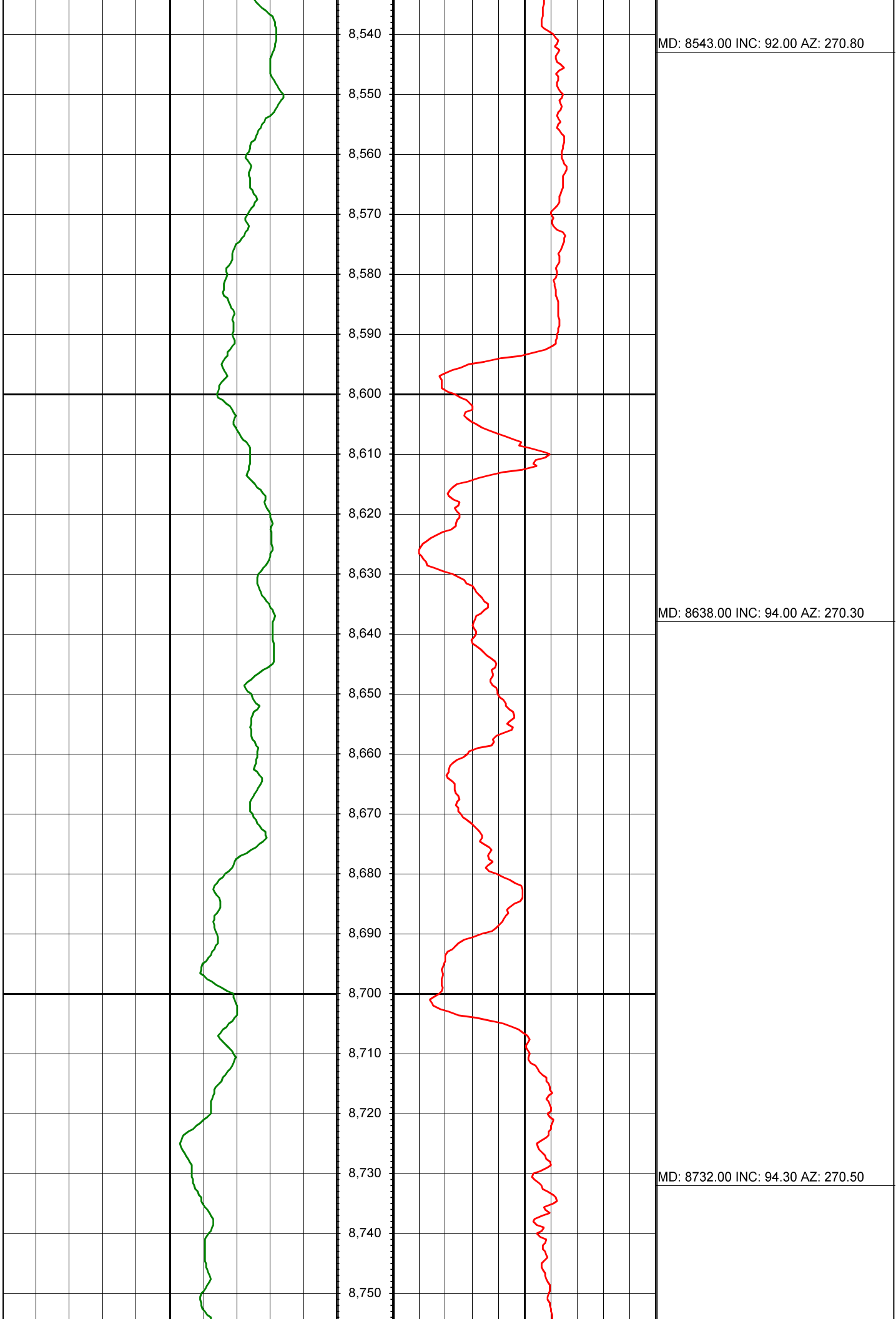


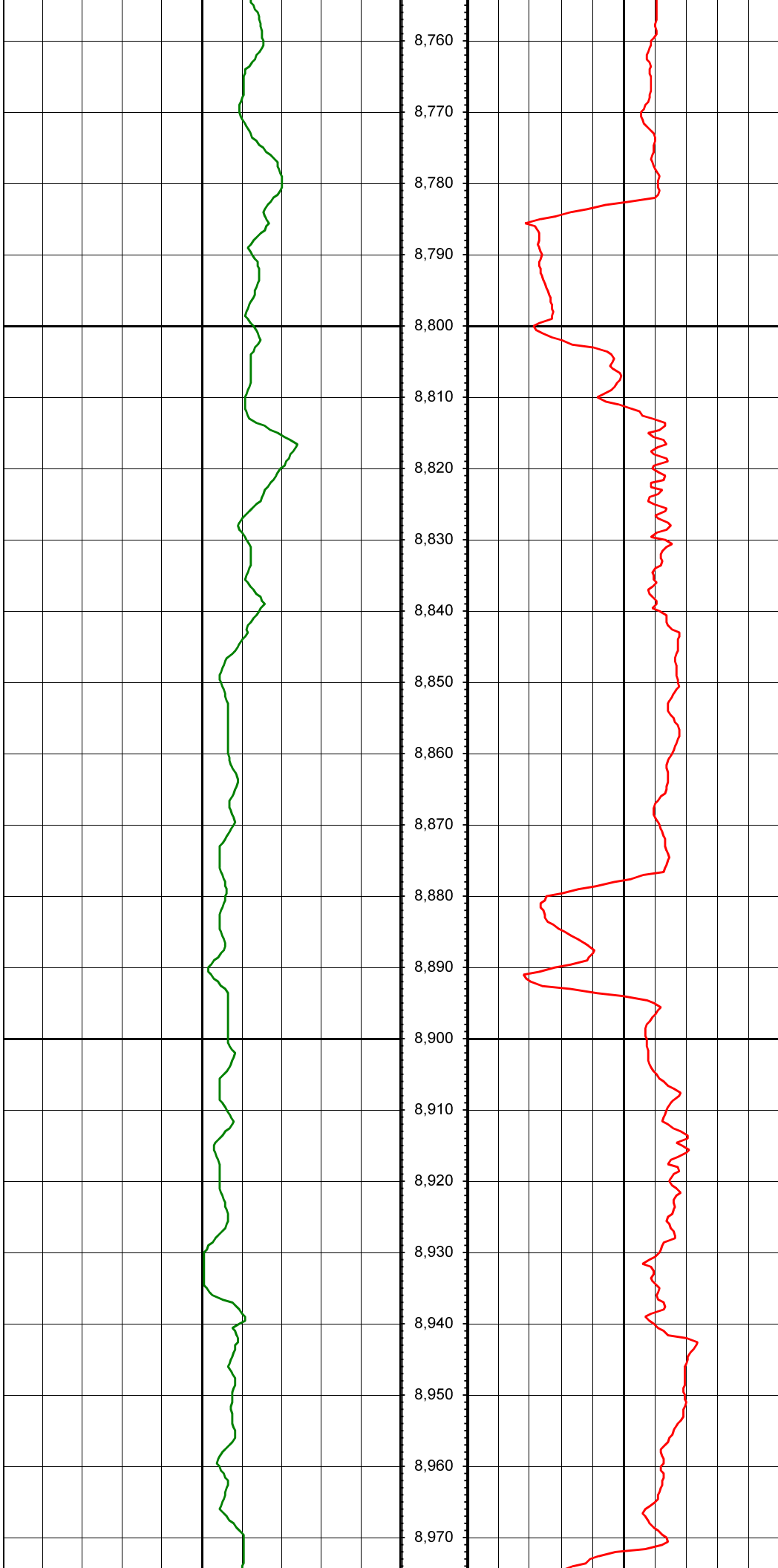






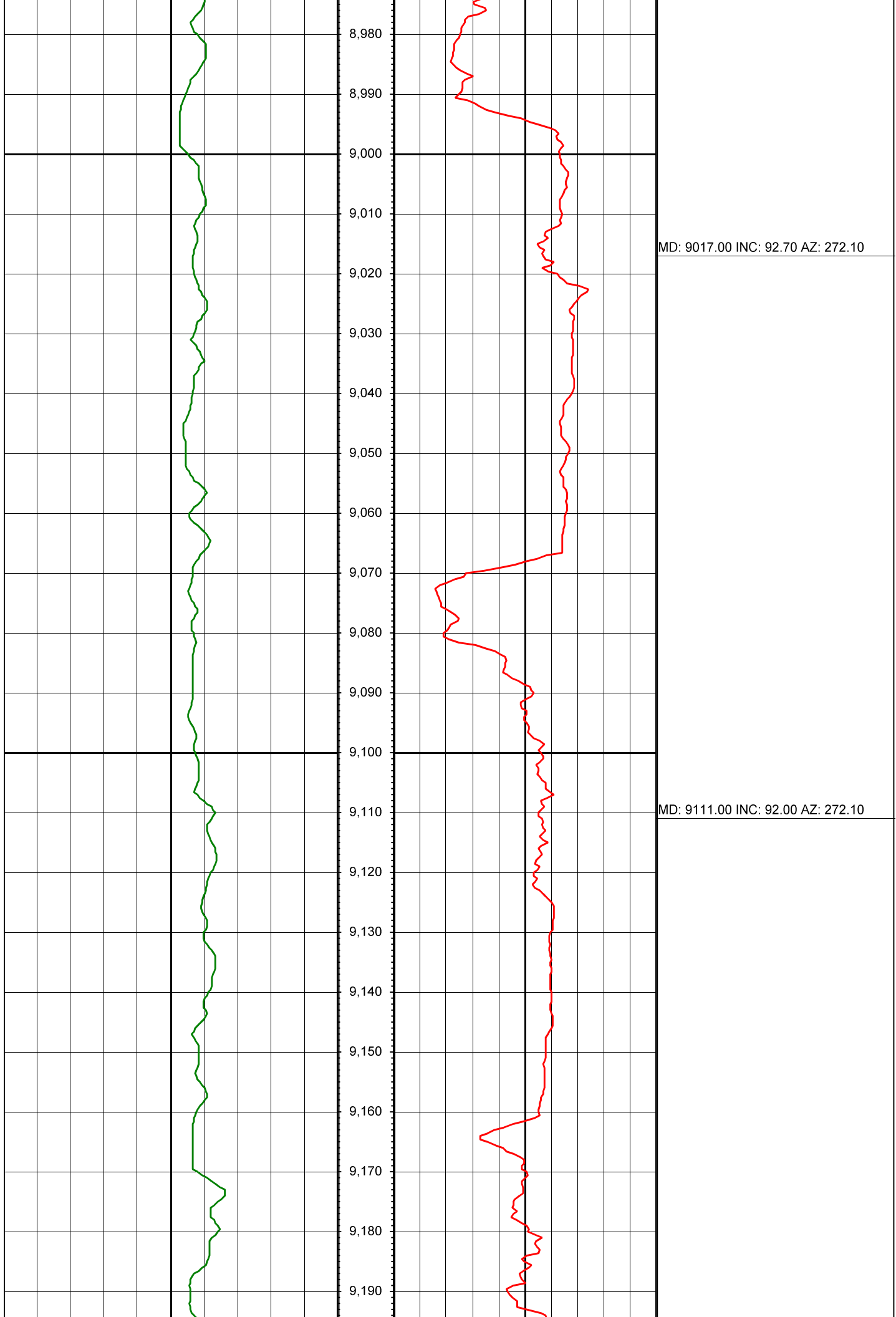




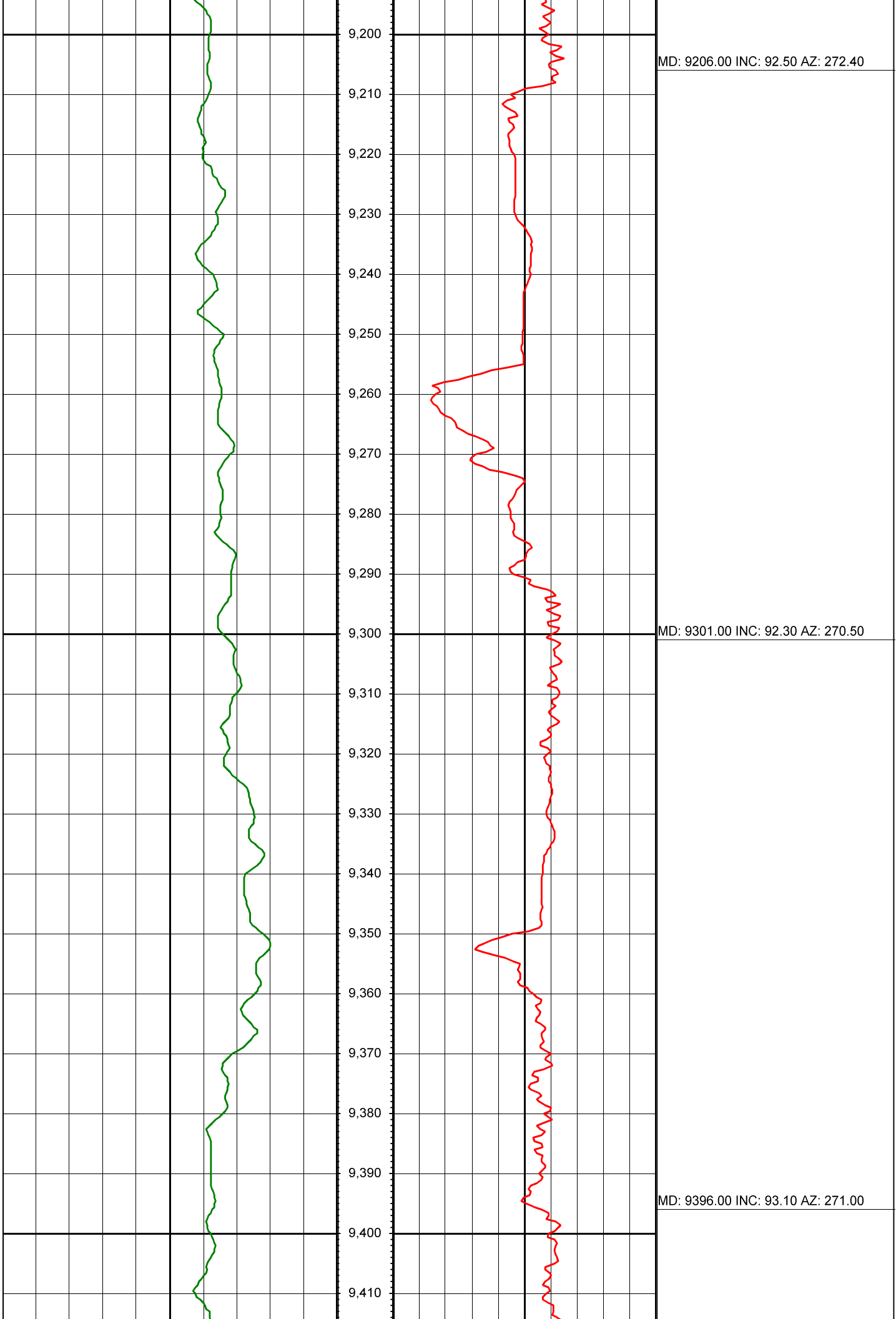


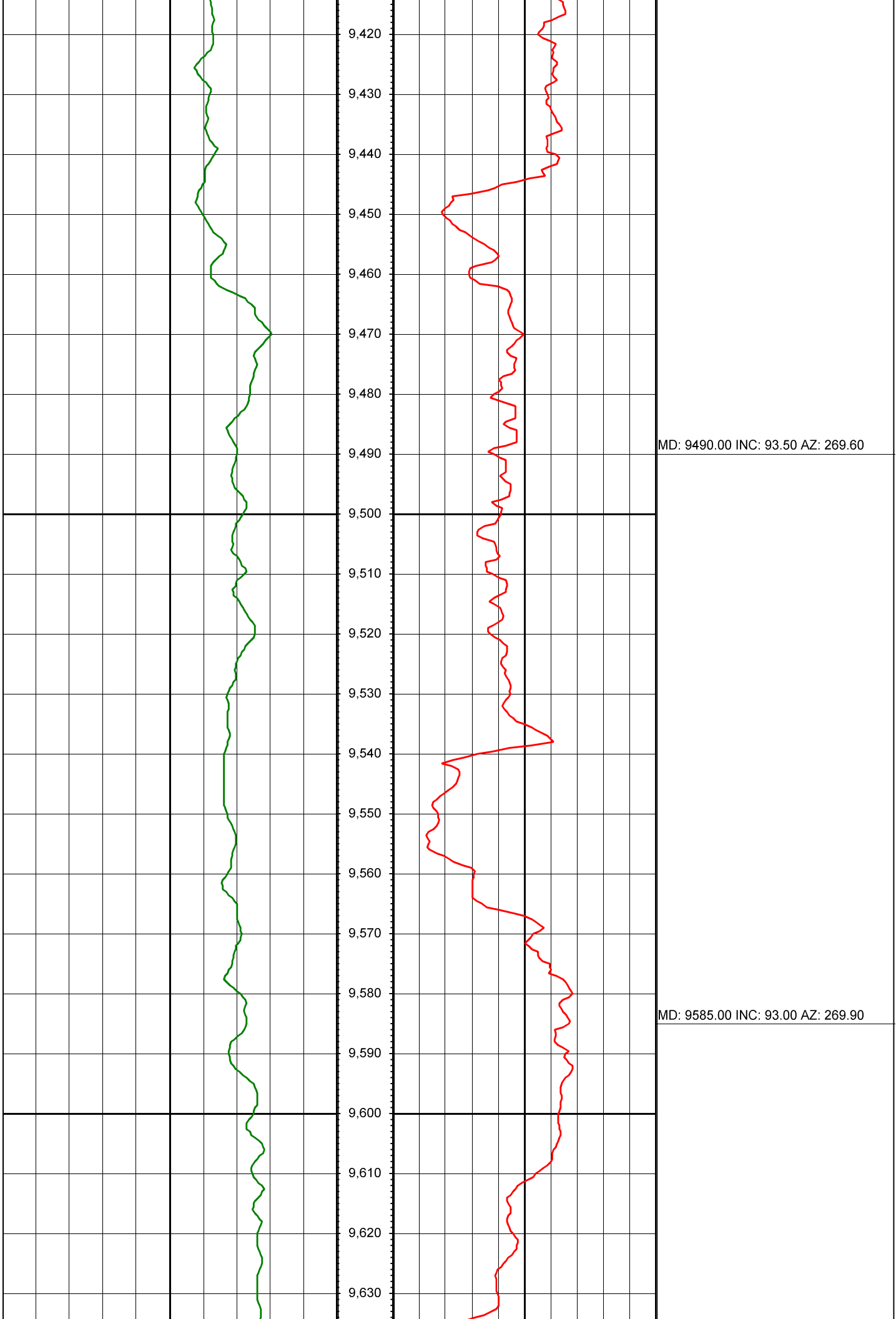
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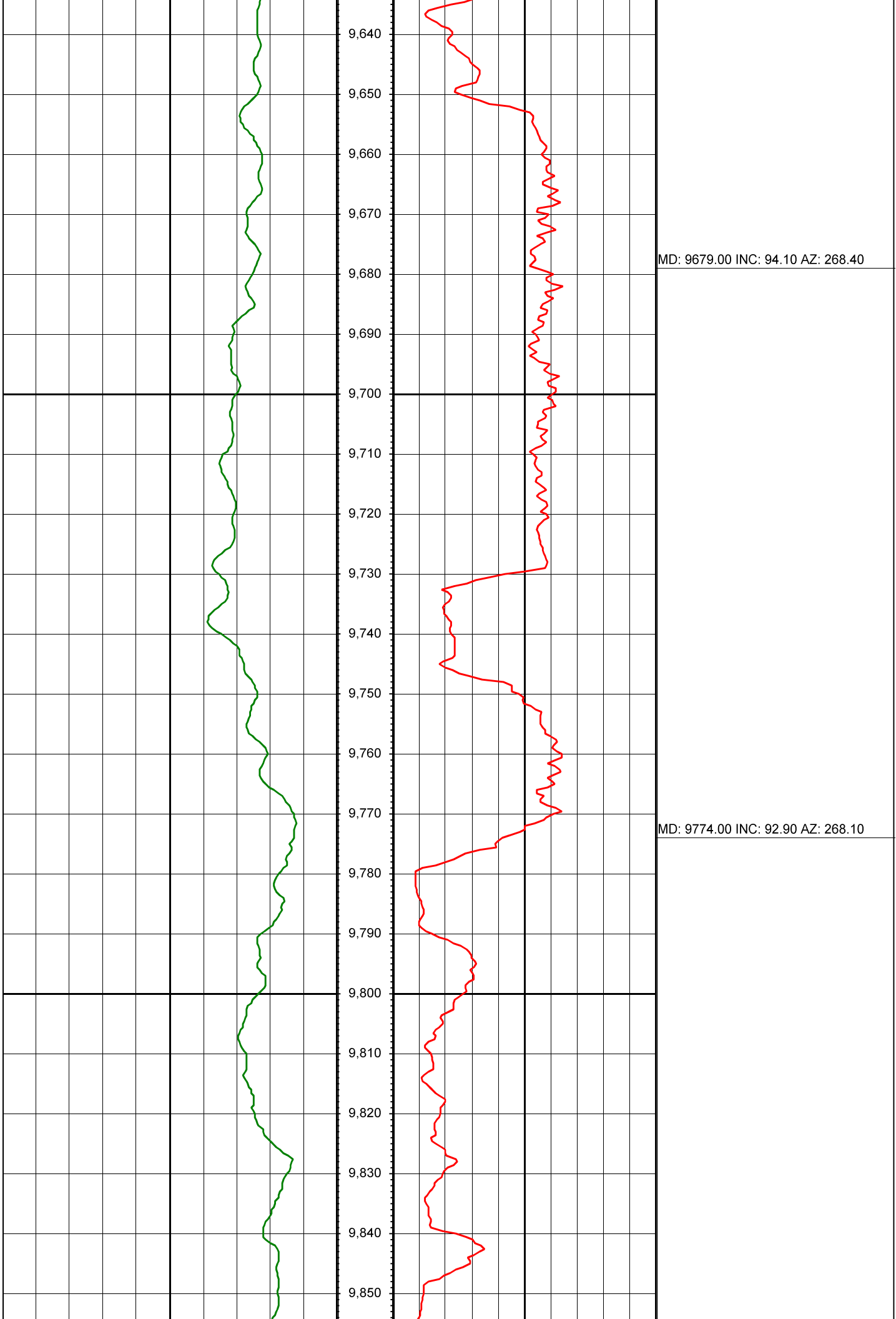
MD: 8922.00 INC: 92.90 AZ: 270.70

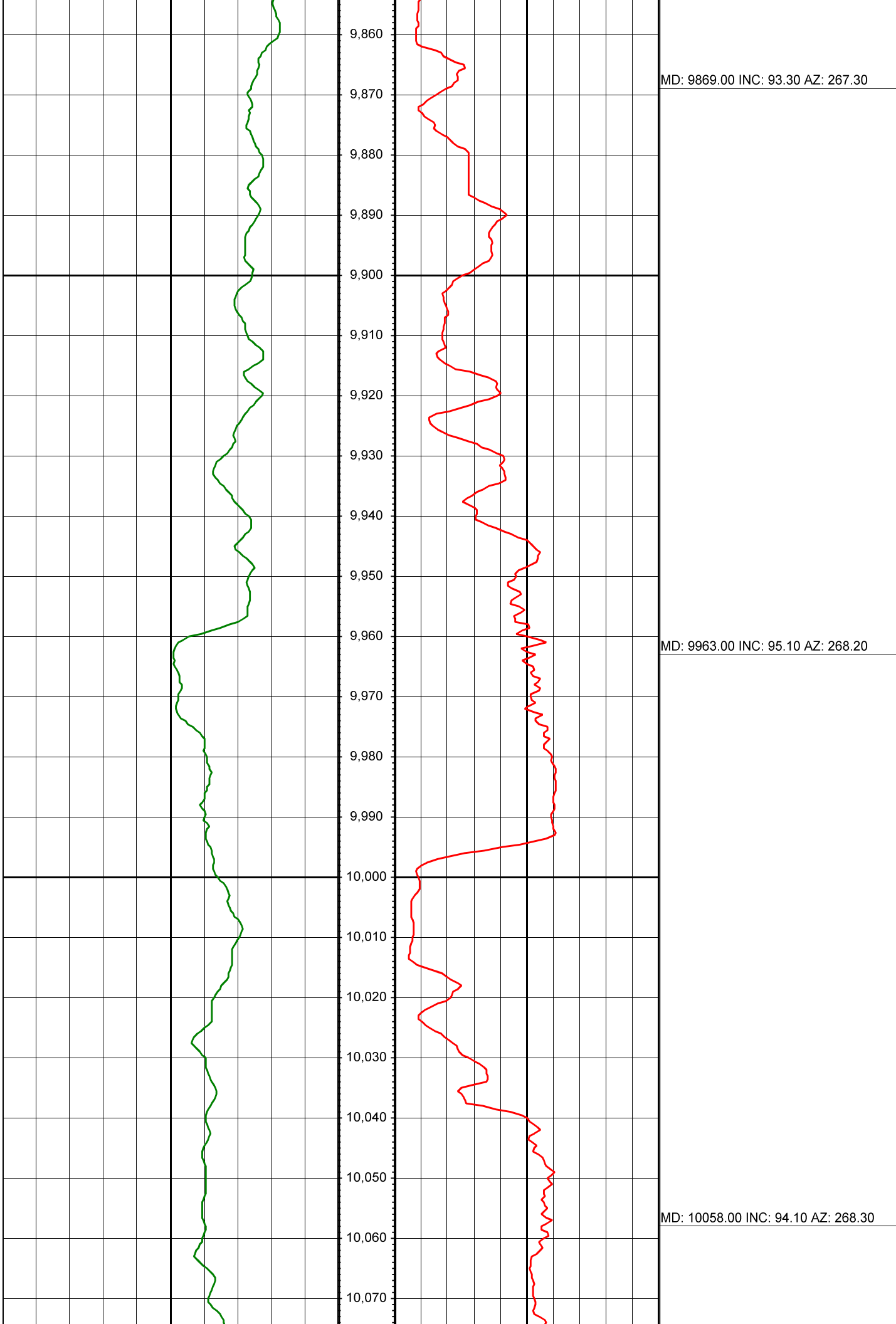


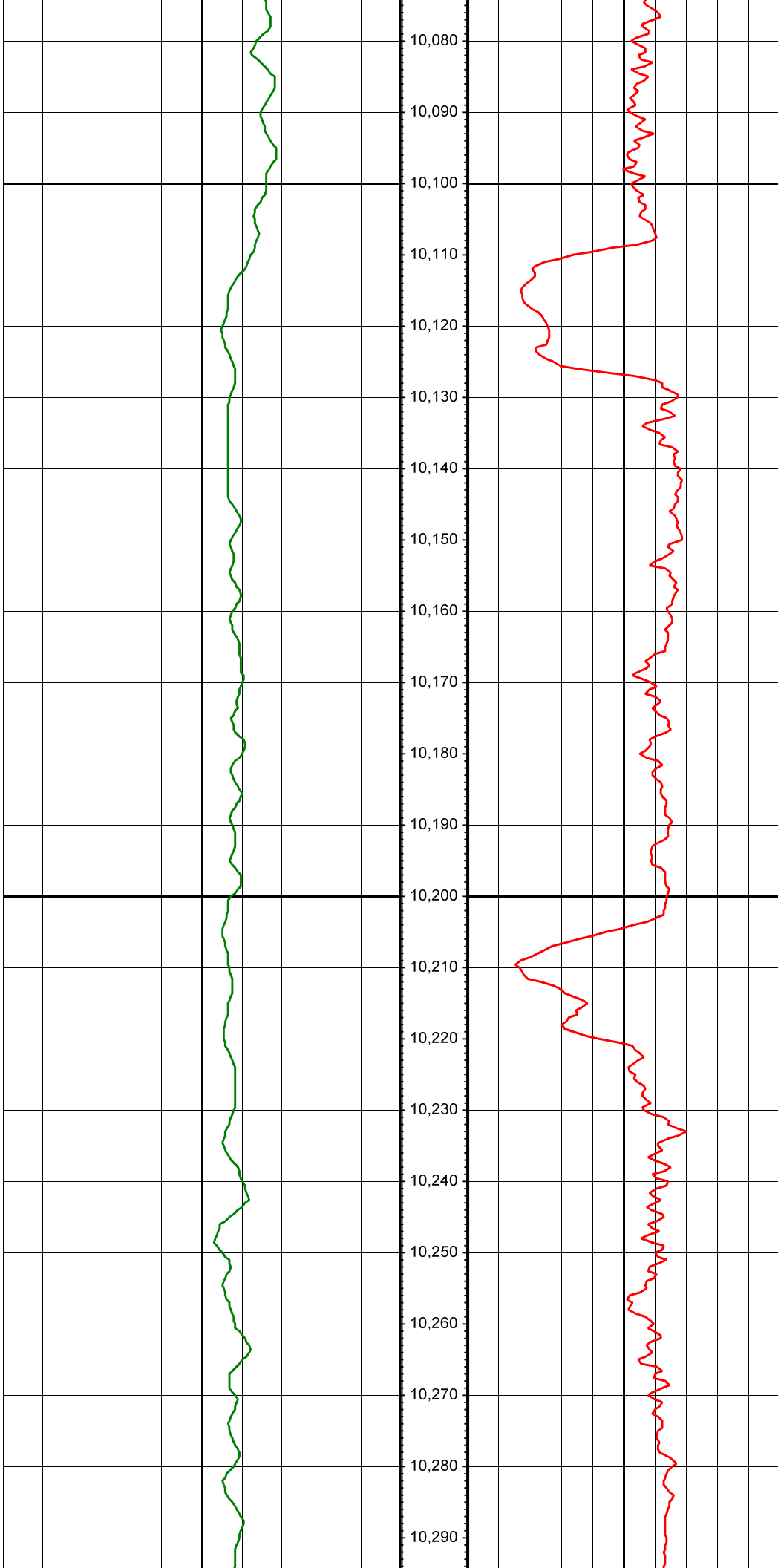












MD: 10153.00 INC: 94.20 AZ: 269.90

MD: 10248.00 INC: 93.20 AZ: 270.00

