



Cathedral Energy Services
1949 North Pyrite Road
Casper, Wyoming 82604

145254

5":100' - MD

9/21/2014 11:21:04 AM

CATHEDRAL

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

Country: U.S.A.

State / Province: Colorado

County / Parish: Weld

Started: 03/17/2014 04:00 AM

API/UWI: 05-123-38073-00

Field: Wattenberg (Niobrara)

Well: Edith Ann-Duckworth 4A-2H 0268

Rig: Patterson UTI Drilling 272

Ended: 08/21/2014 09:30 AM

Gamma Ray
Section Plane: 0.00
Magnetic North: 8.54
Gamma Averaging: 7%

Personnel

Day Hand: R. Moulton

Night Hand: E. King

Comp. Emp: Leonard Clark

Location

Latitude: 40.117670

Longitude: -105.003720

Elev. GL: 4925

Elev. DF:

Elev. KB: 4953.5

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

Hole Data

Size	From	To
12-1/4	0	913
8-3/4	913	7884
6-1/8	7884	7884

Casing Data

Size	From	To
9-5/8	0	902.5
7	0	7870
4-1/2	0	17114

Bit Sizes

Size	From	To
12-1/4	0	913
8-3/4	913	7884
6-1/8	7884	17130

Mud Data

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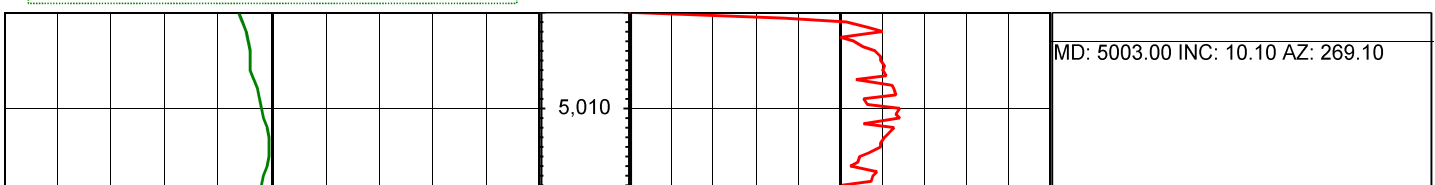
Tool Run Data

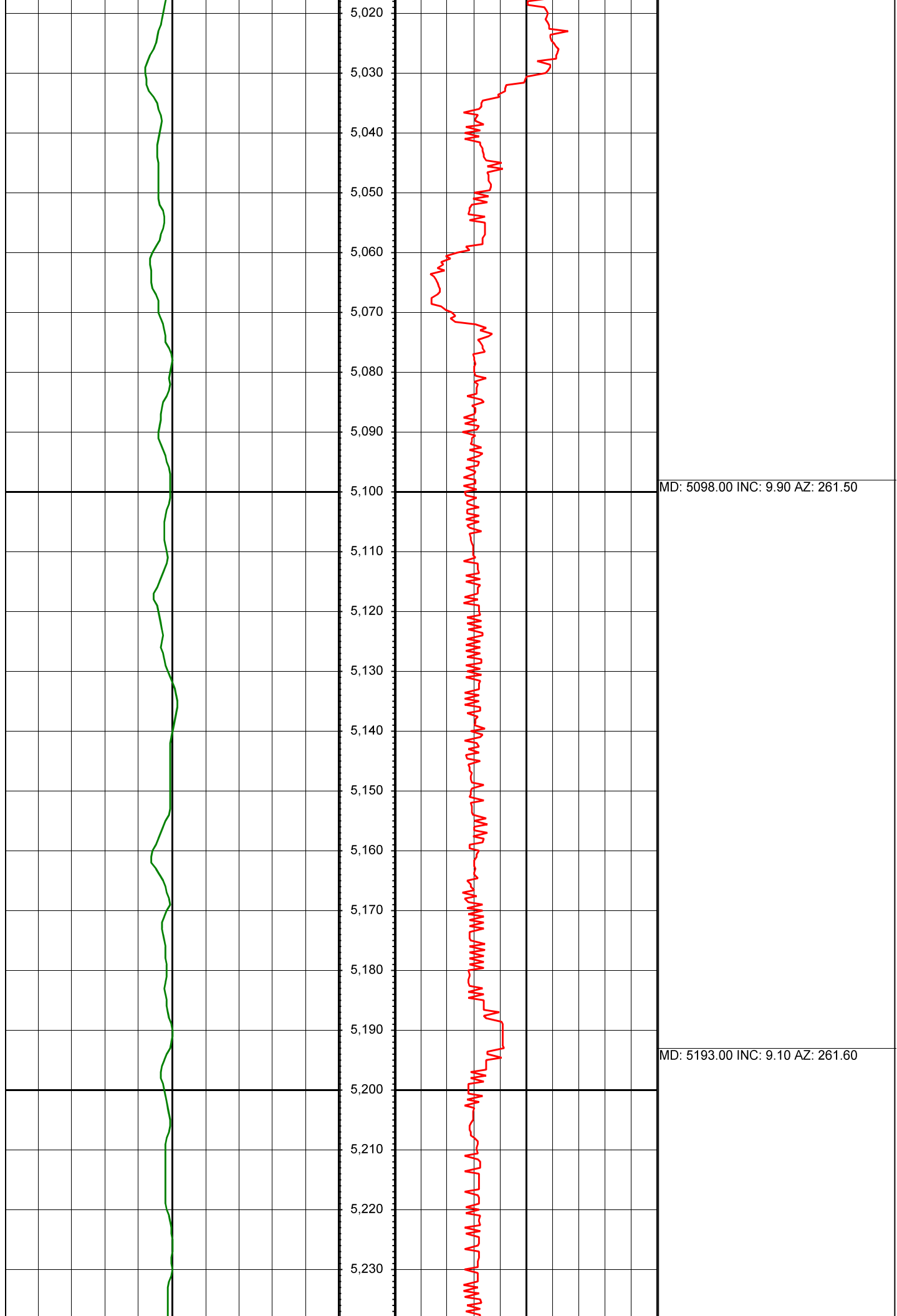
Serial Number	Gamma Offset	Resist. Offset	Start Time	Start Depth	End Time	End Depth
1580	36.37	0	3/20/2014 12:00:28 AM	5000	3/21/2014 8:30:28 PM	6864
1580	39.63	0	9/21/2014 9:20:06 PM	6864	3/22/2014 2:00:06 AM	7884
1519	38.78	0	8/10/2014 8:00:57 AM	7884	8/16/2014 4:30:57 PM	14632
1519	39.72	0	8/16/2014 6:00:35 PM	14632	8/21/2014 9:30:35 AM	17130

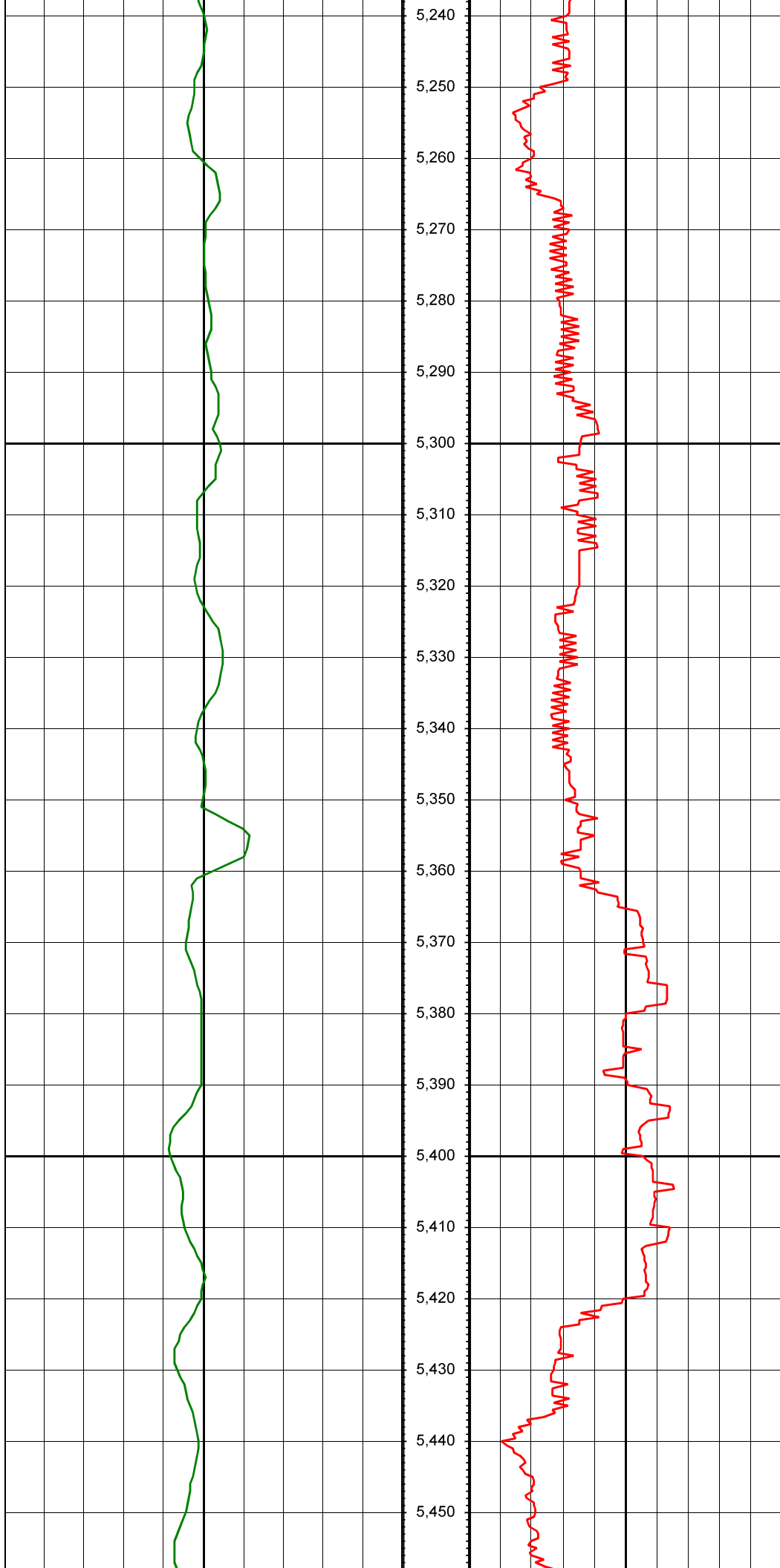
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost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

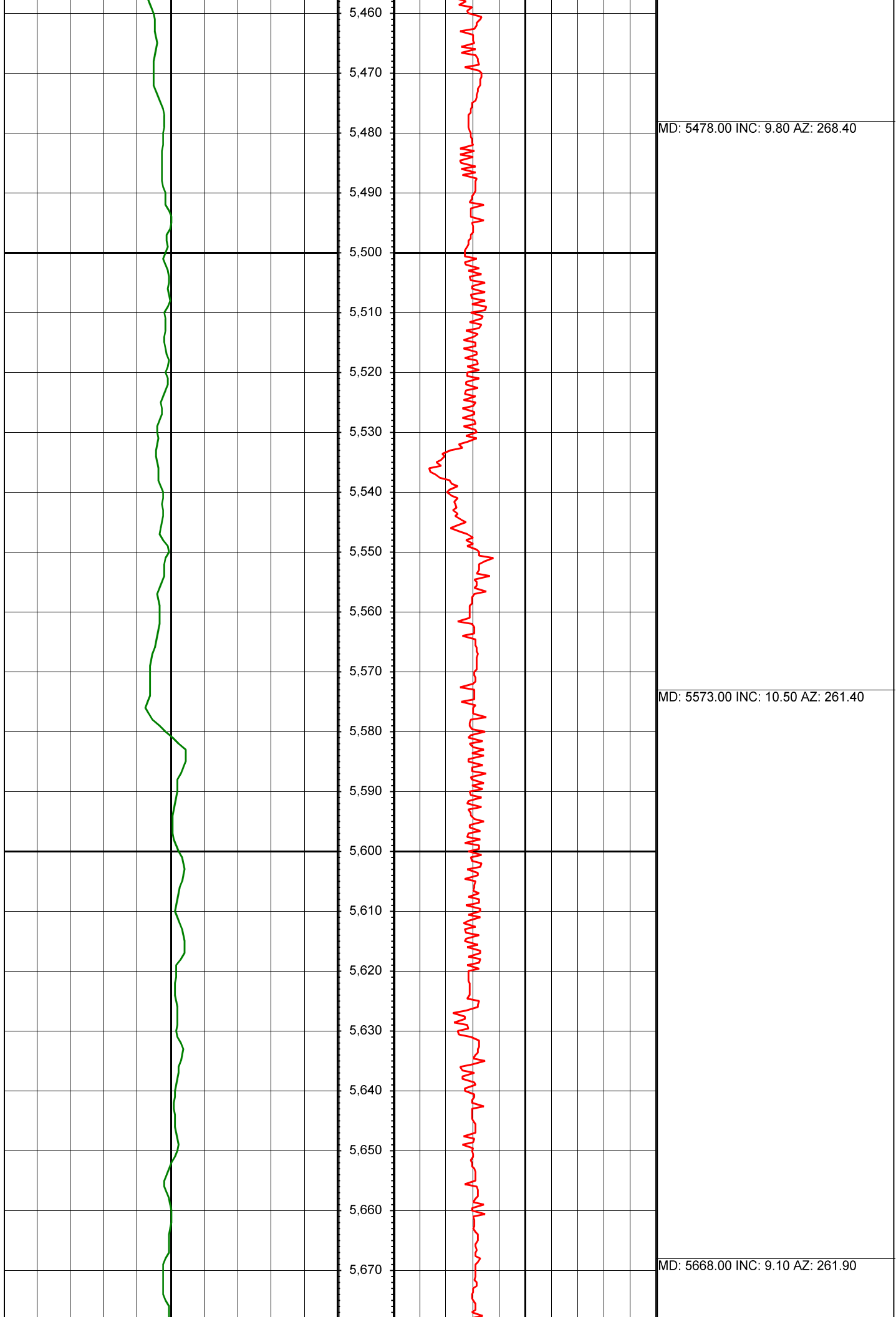


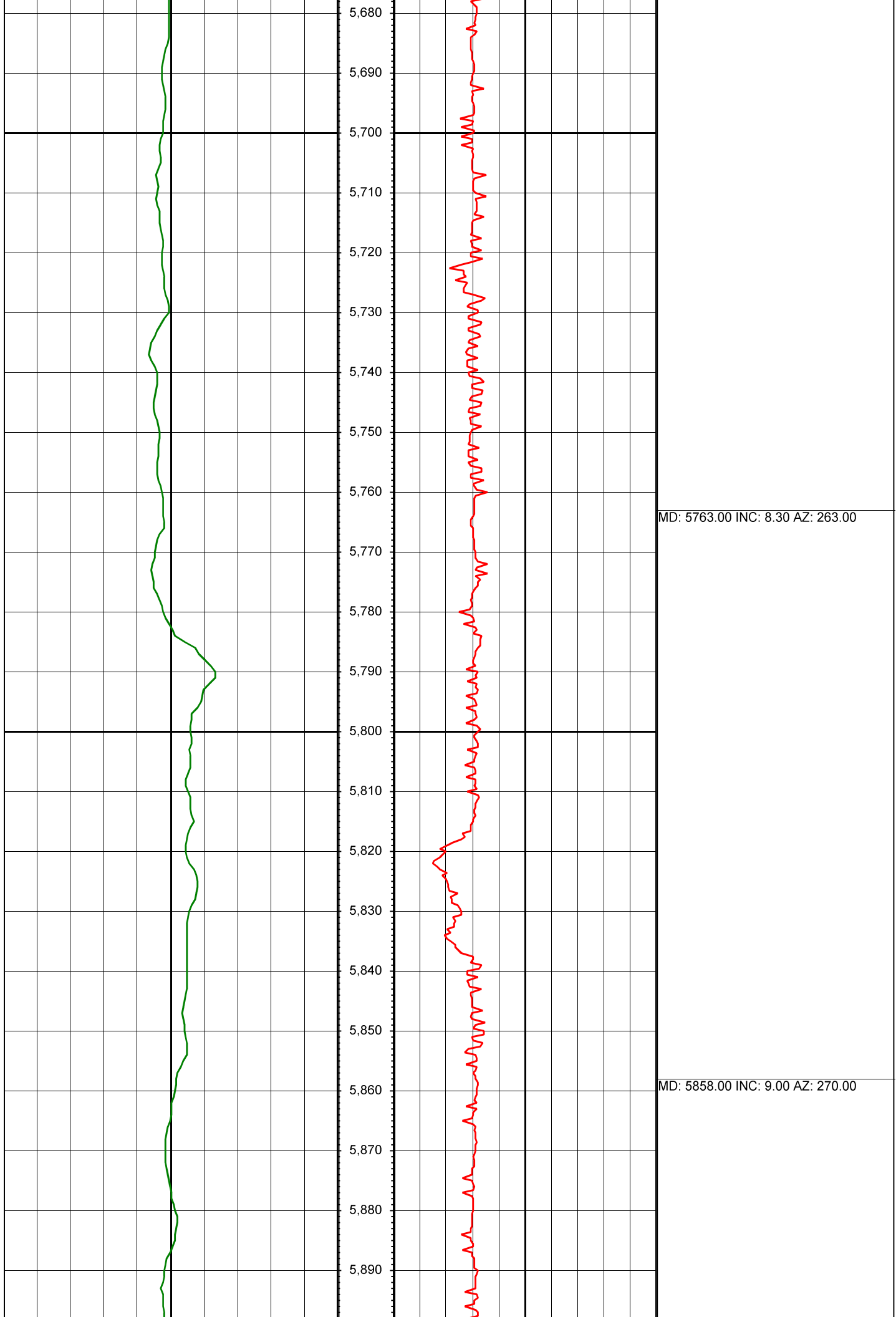


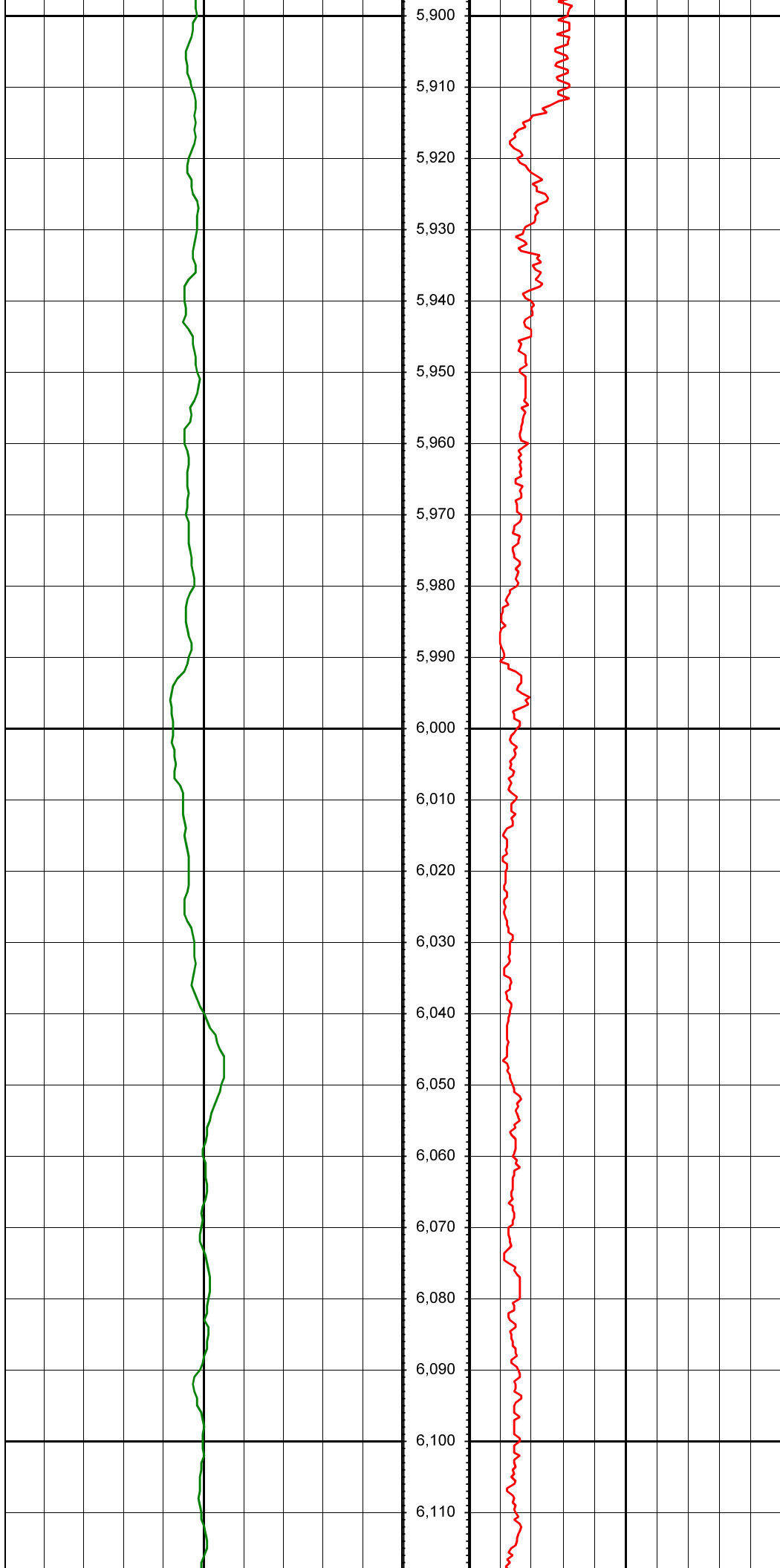


MD: 5288.00 INC: 9.30 AZ: 269.50

MD: 5383.00 INC: 8.10 AZ: 269.80

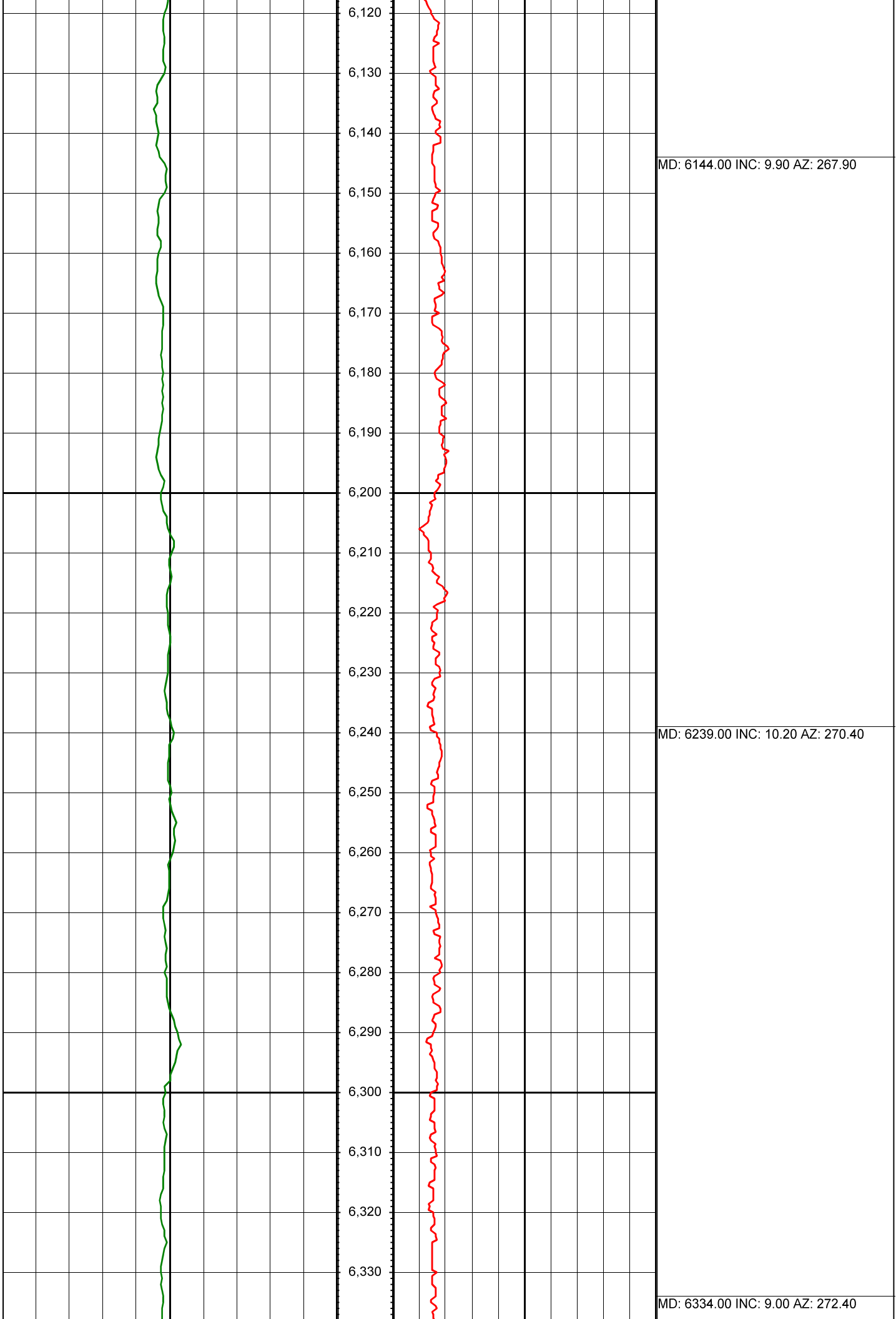


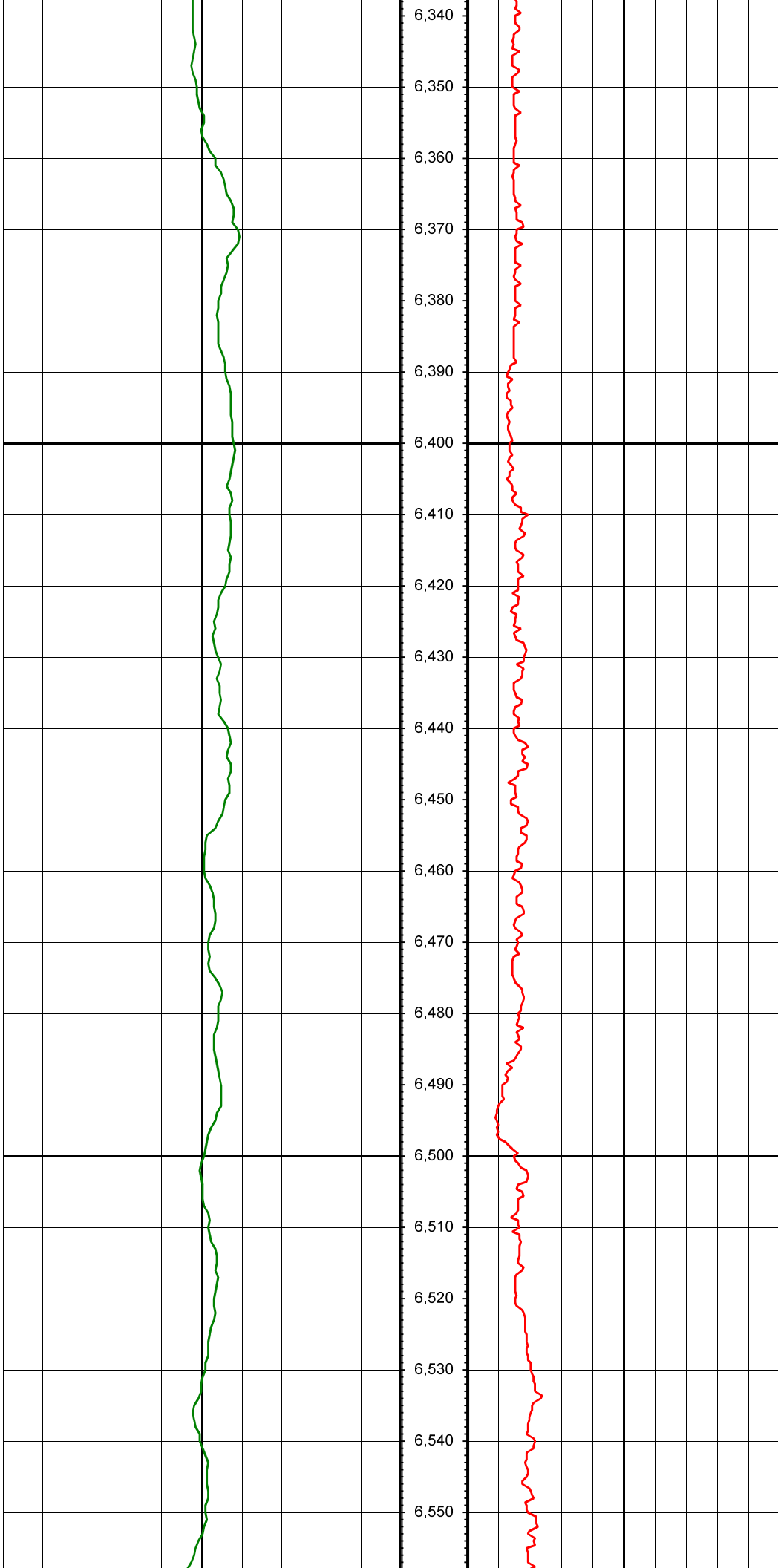




MD: 5954.00 INC: 10.10 AZ: 266.20

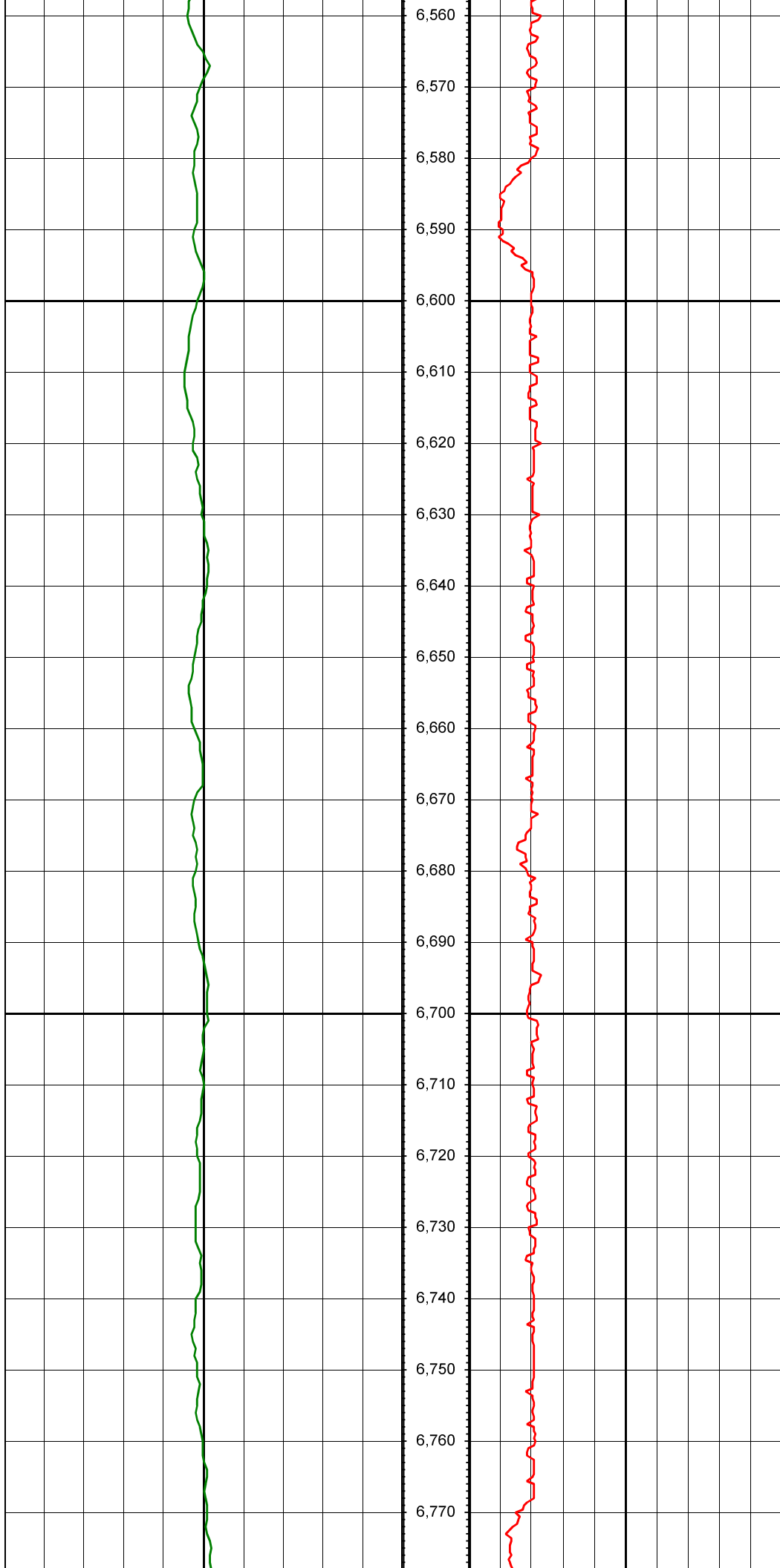
MD: 6049.00 INC: 9.20 AZ: 266.30





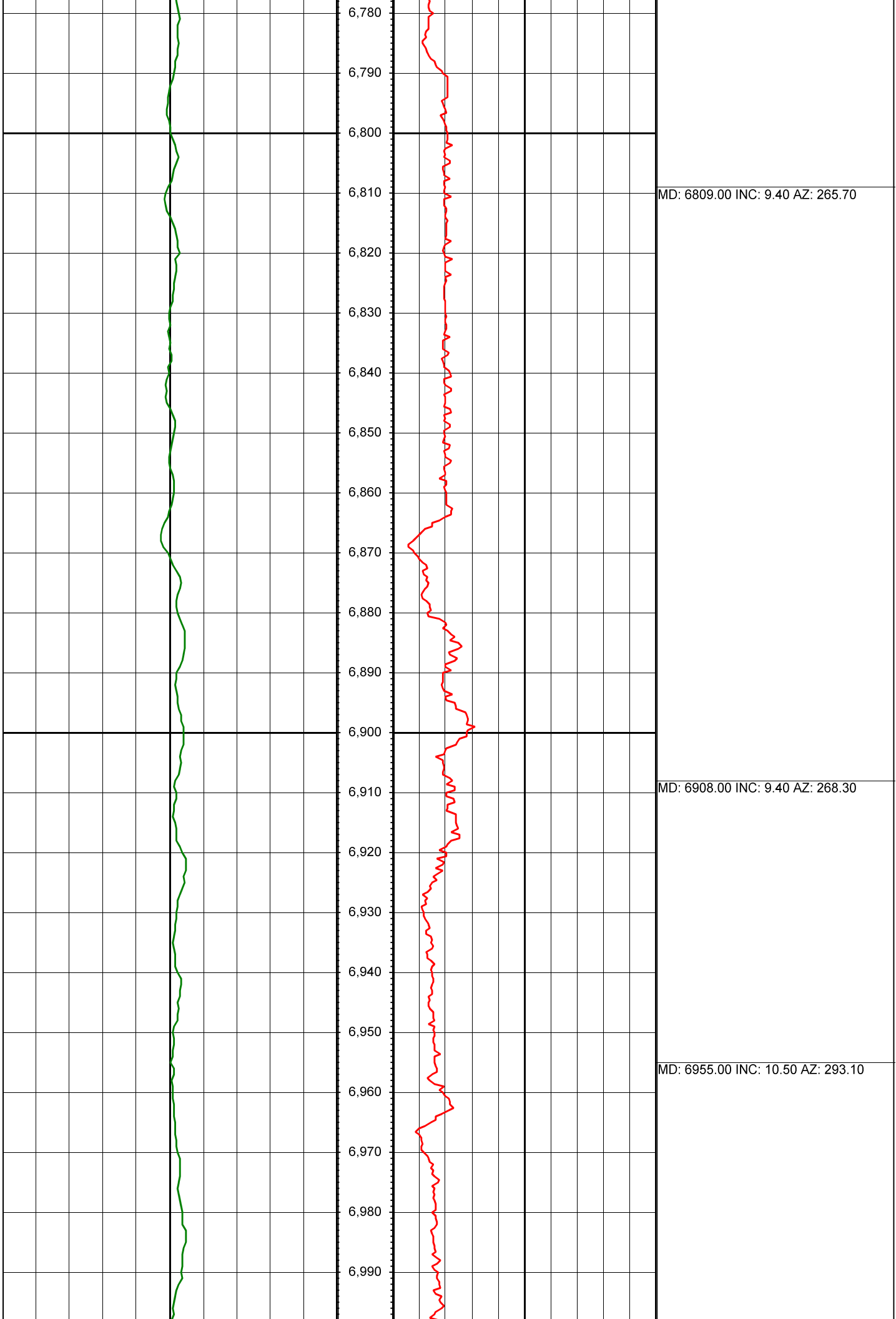
MD: 6429.00 INC: 9.10 AZ: 264.60

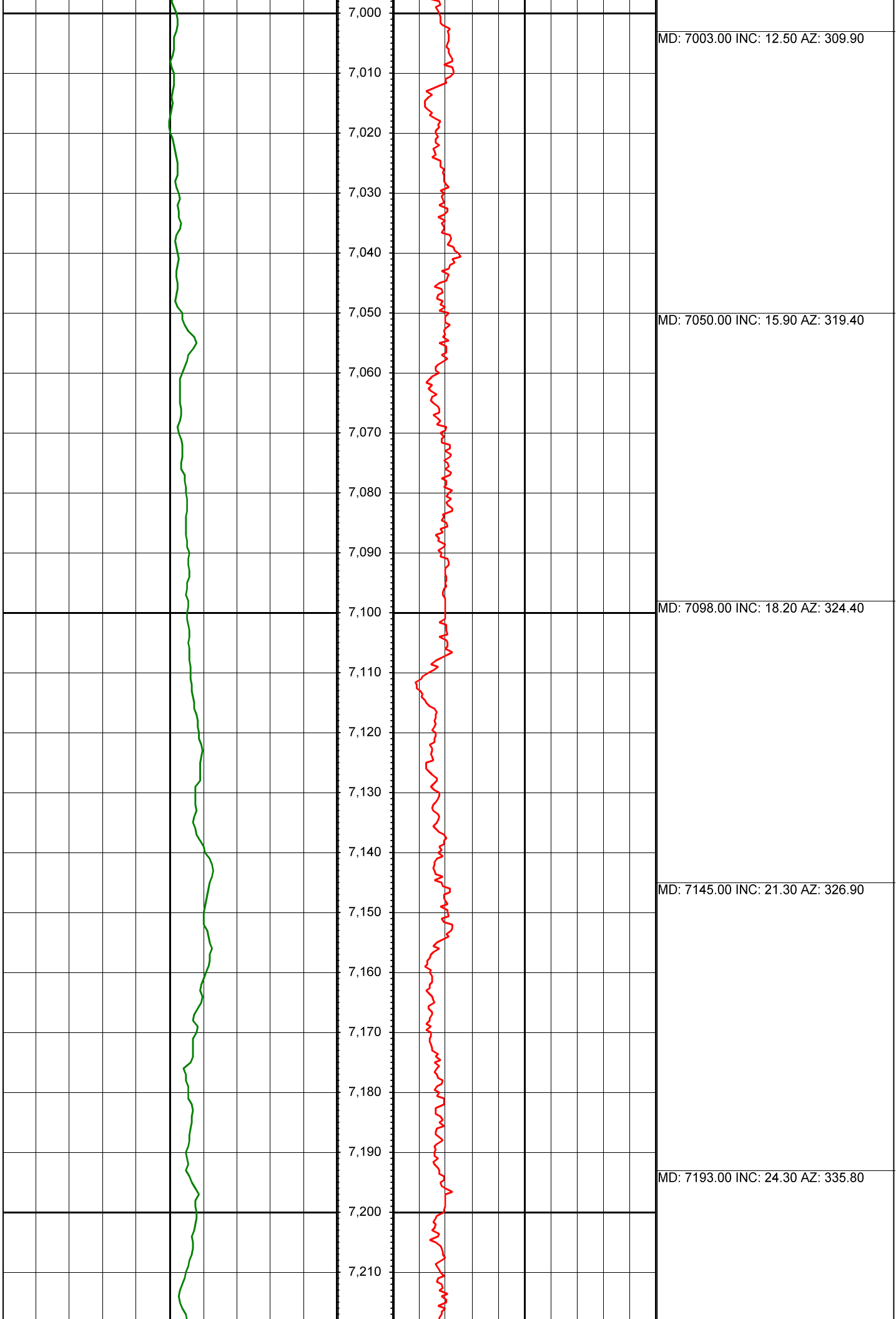
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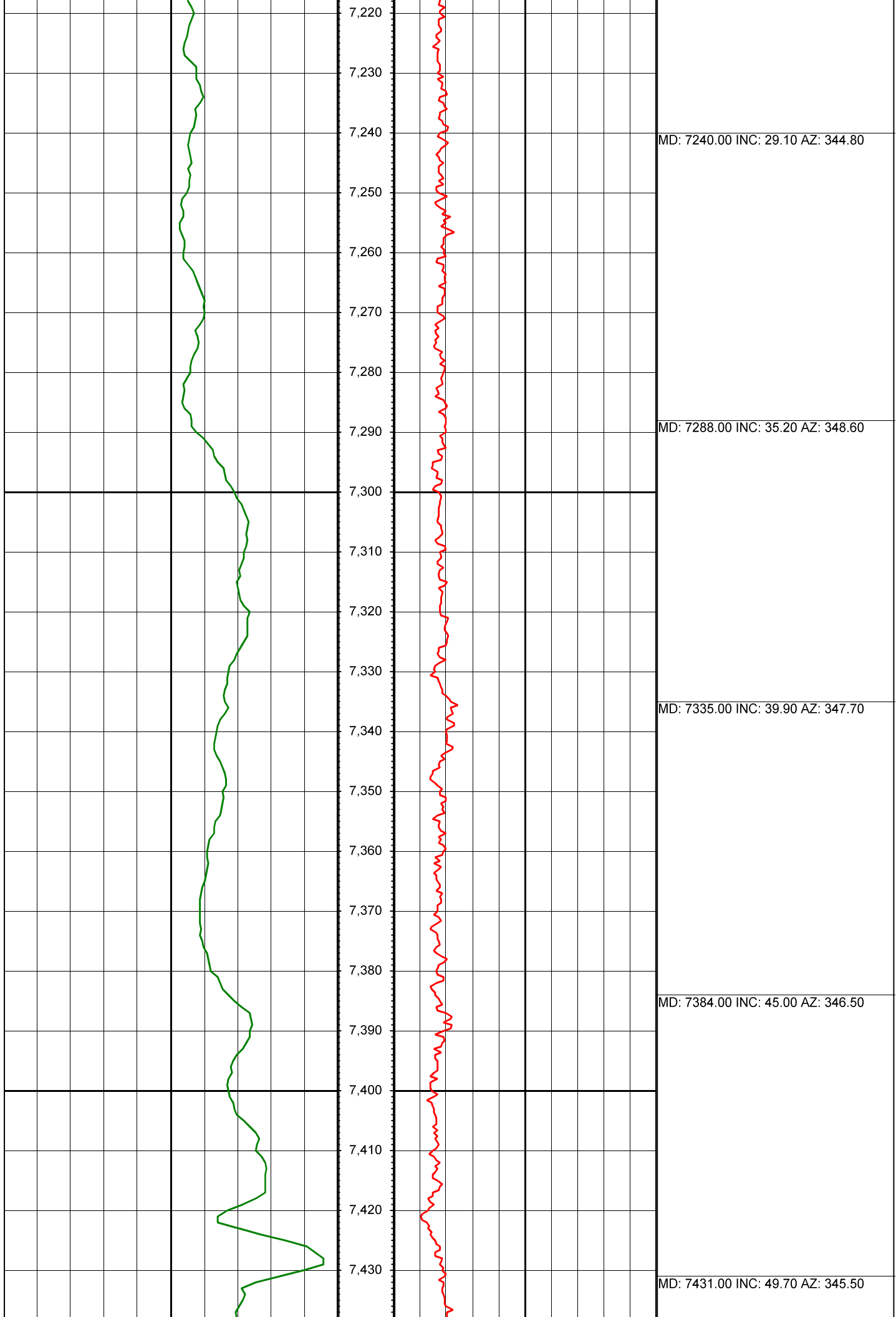


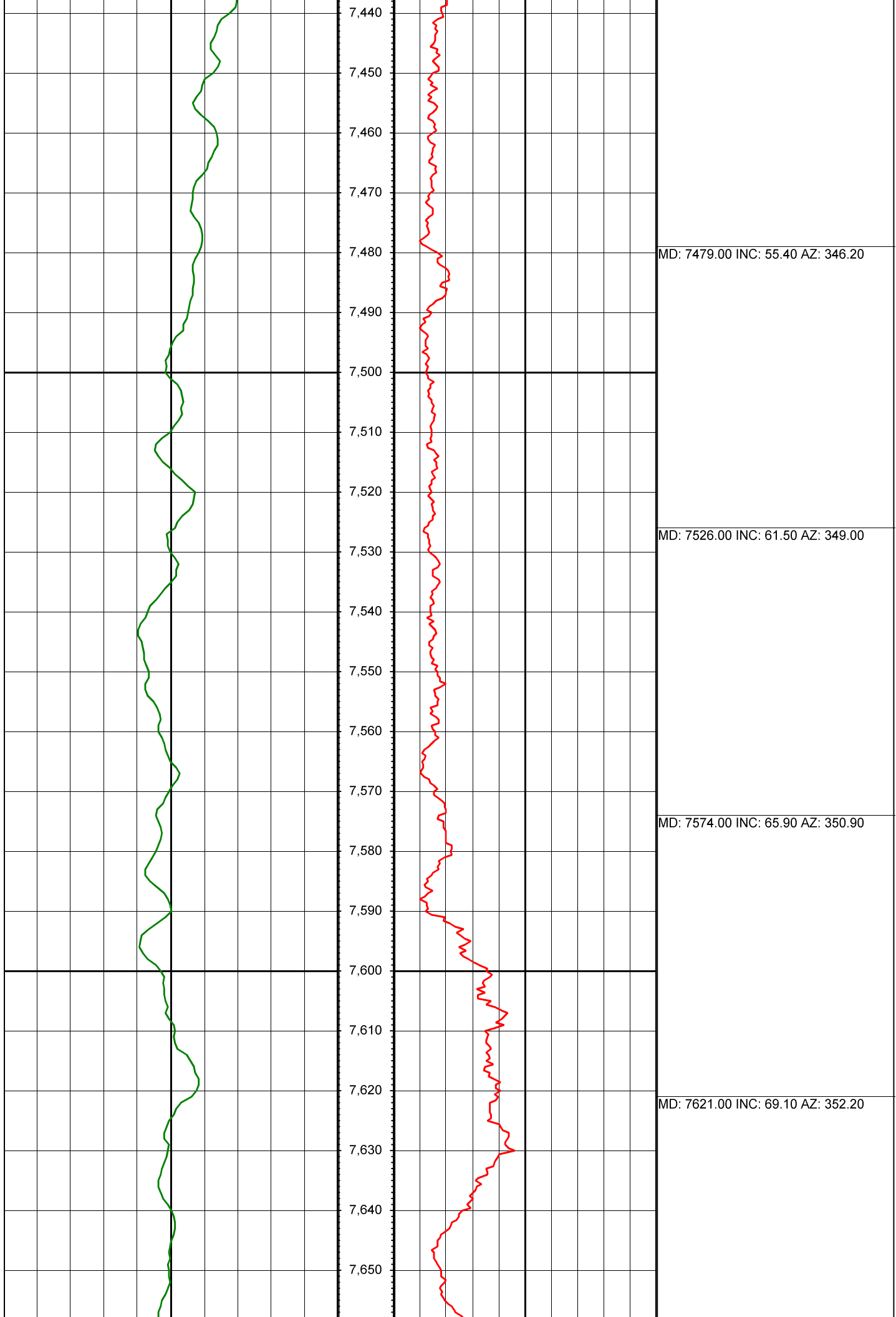
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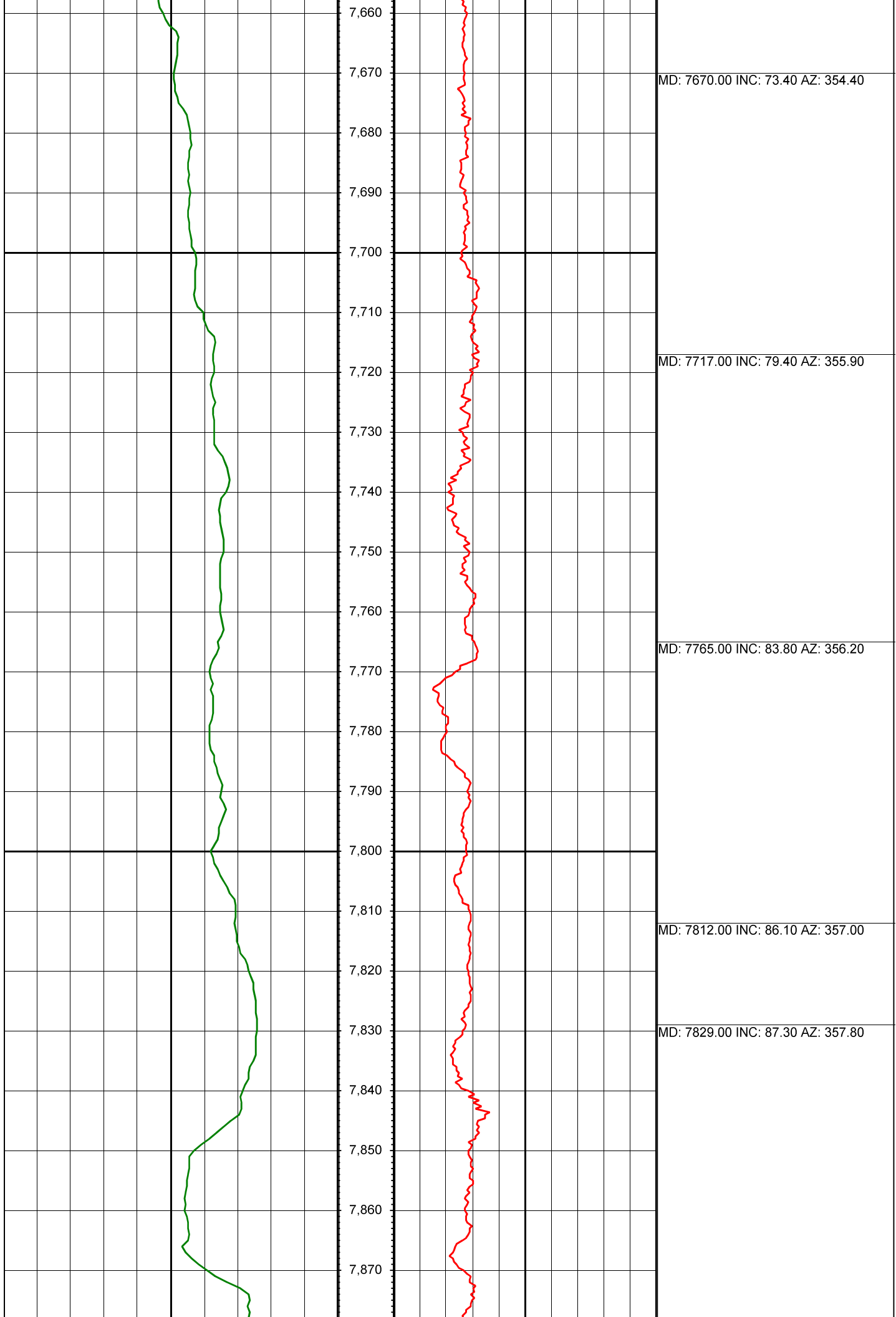
MD: 6714.00 INC: 8.90 AZ: 266.50













MD: 7895.00 INC: 88.40 AZ: 357.60

MD: 7988.00 INC: 88.10 AZ: 357.00

MD: 8081.00 INC: 87.60 AZ: 356.40



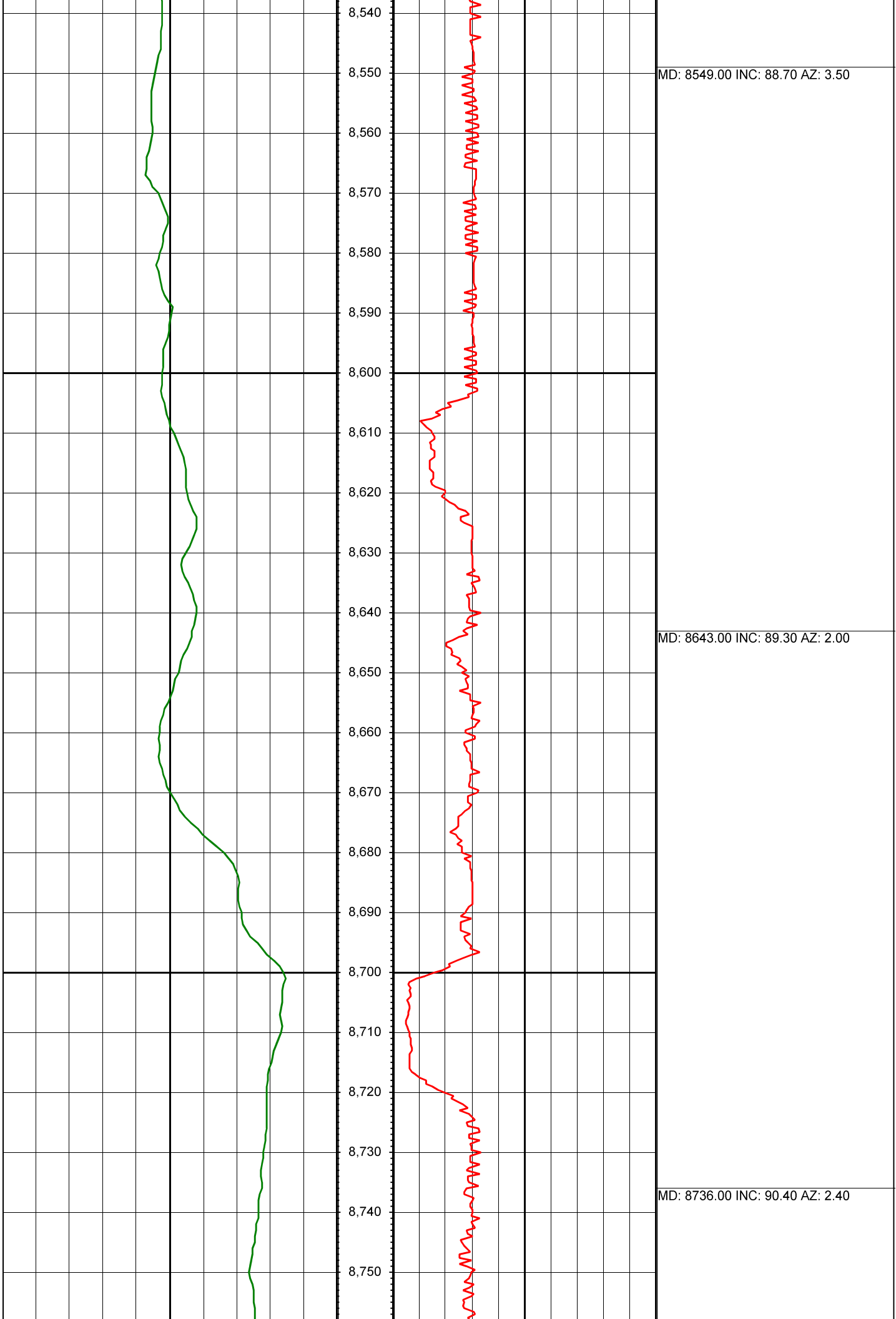
MD: 8175.00 INC: 88.00 AZ: 358.00

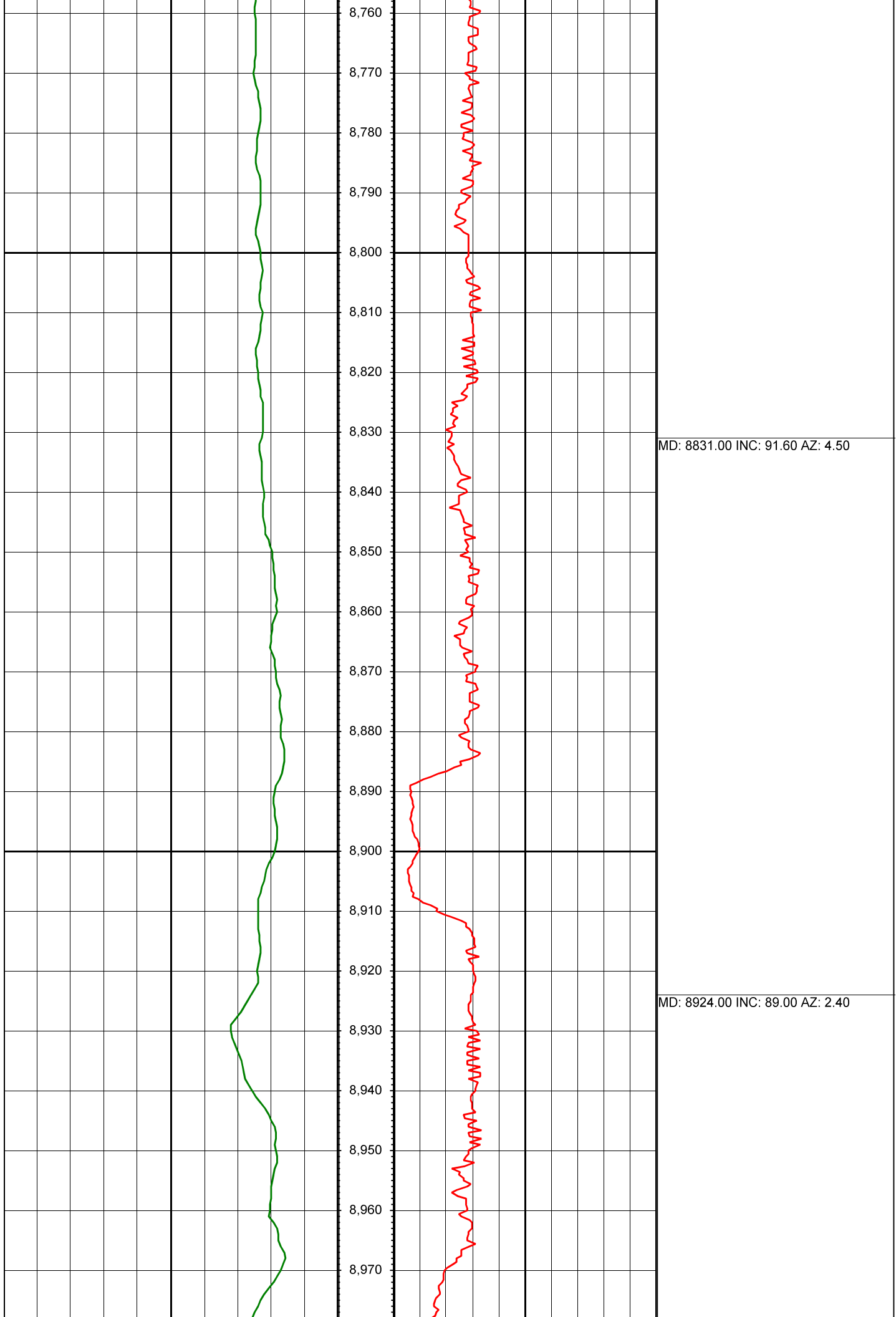
MD: 8269.00 INC: 89.30 AZ: 358.60



MD: 8362.00 INC: 91.70 AZ: 359.70

MD: 8456.00 INC: 93.70 AZ: 3.50

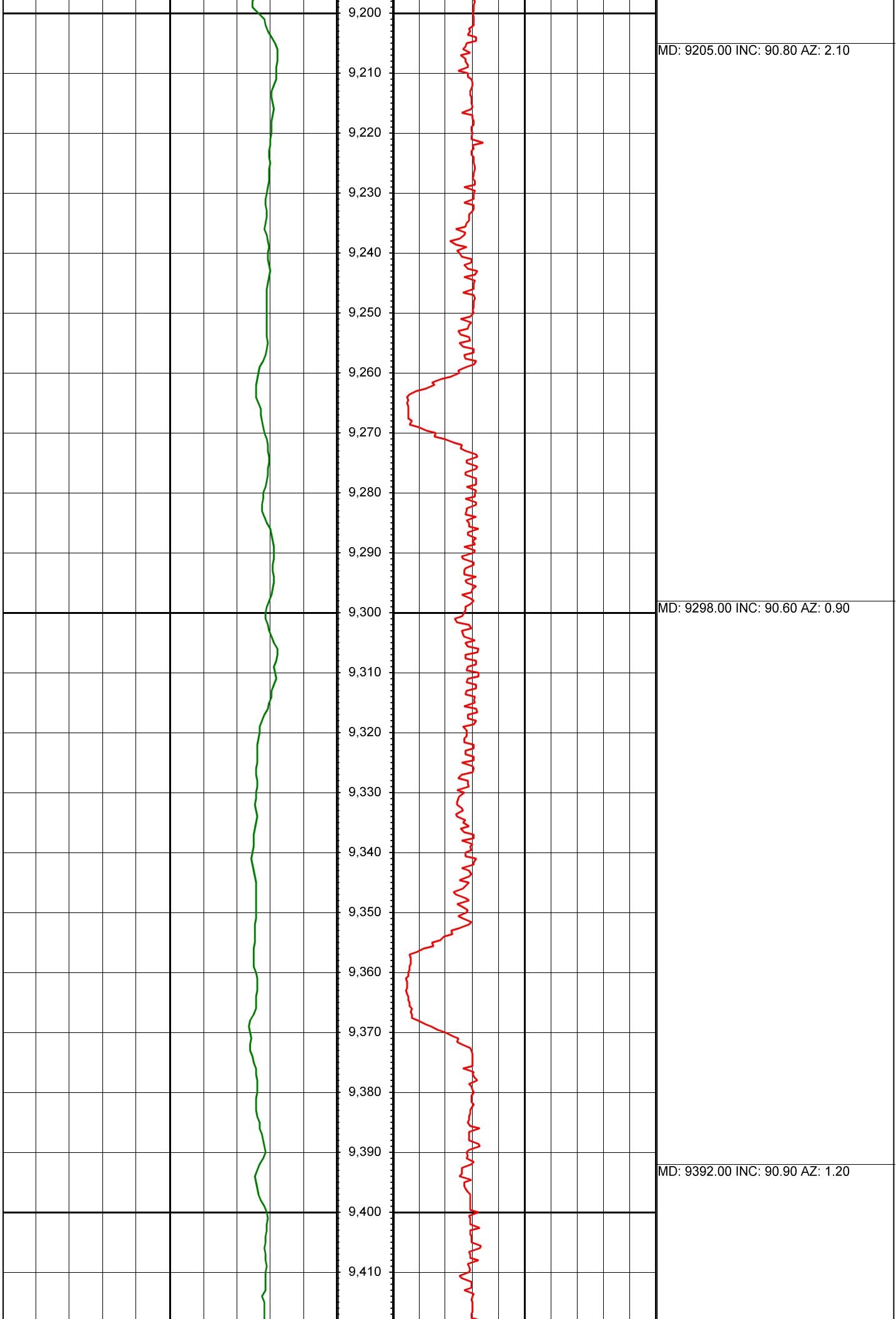


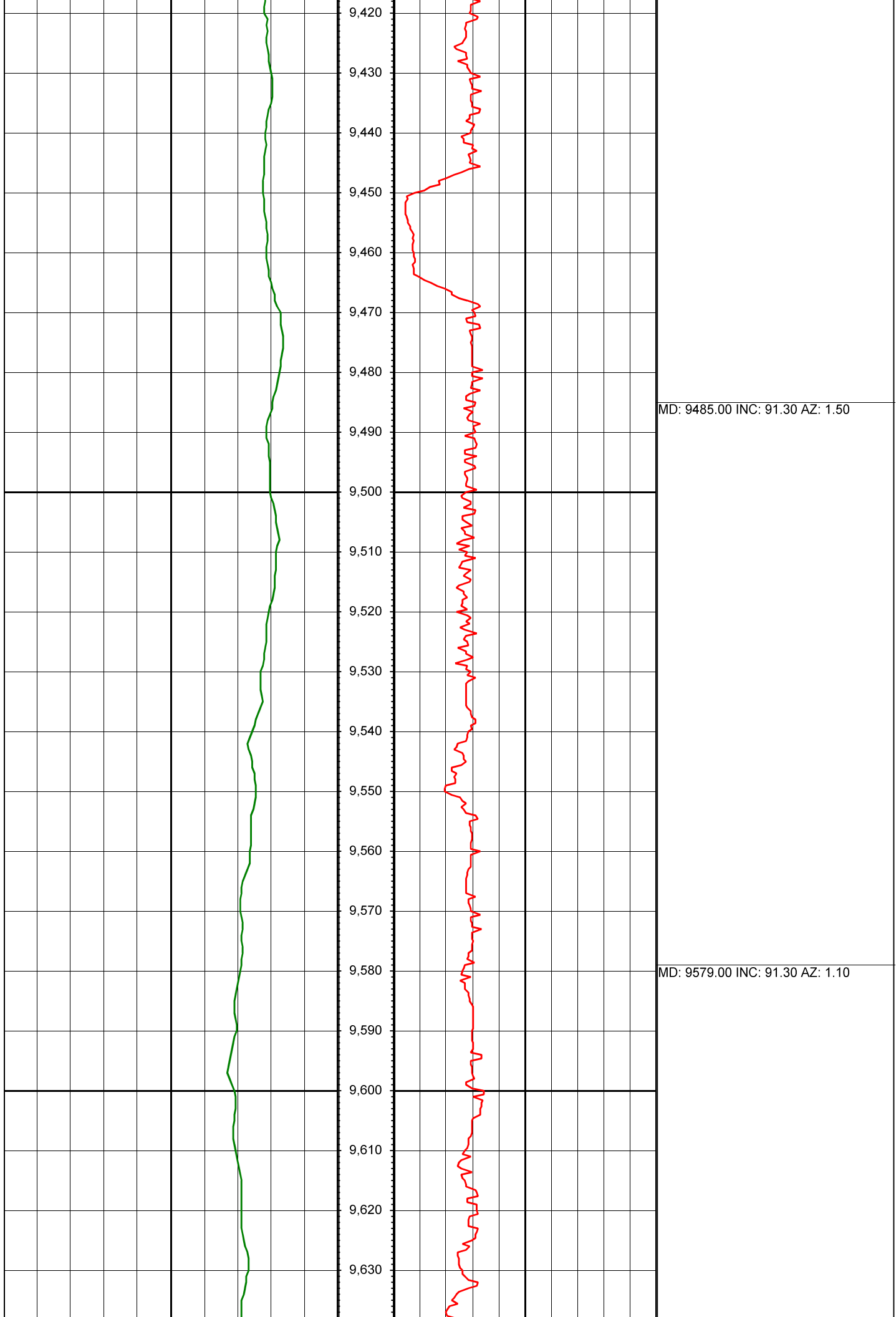




MD: 9018.00 INC: 90.70 AZ: 2.00

MD: 9111.00 INC: 90.40 AZ: 2.00

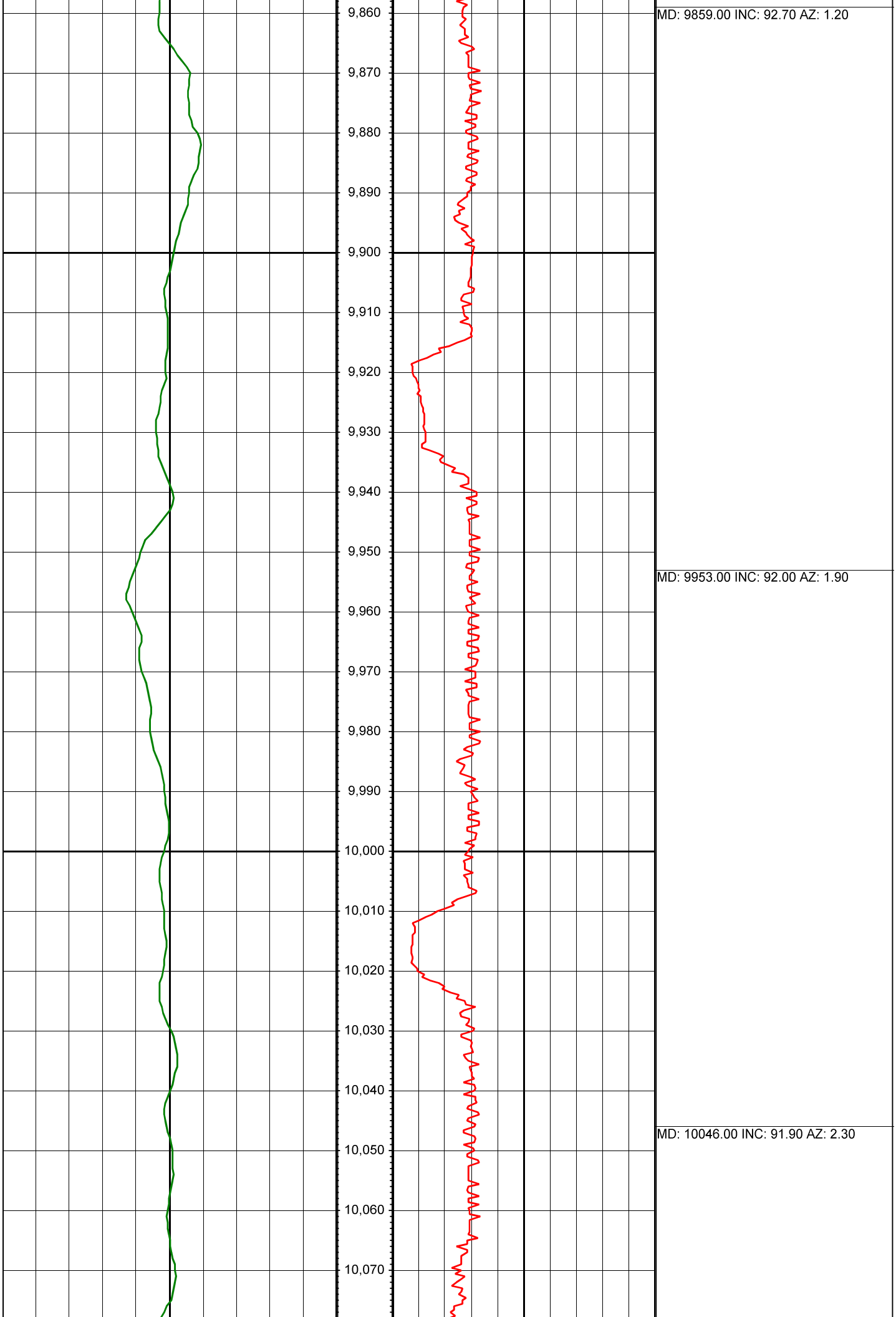


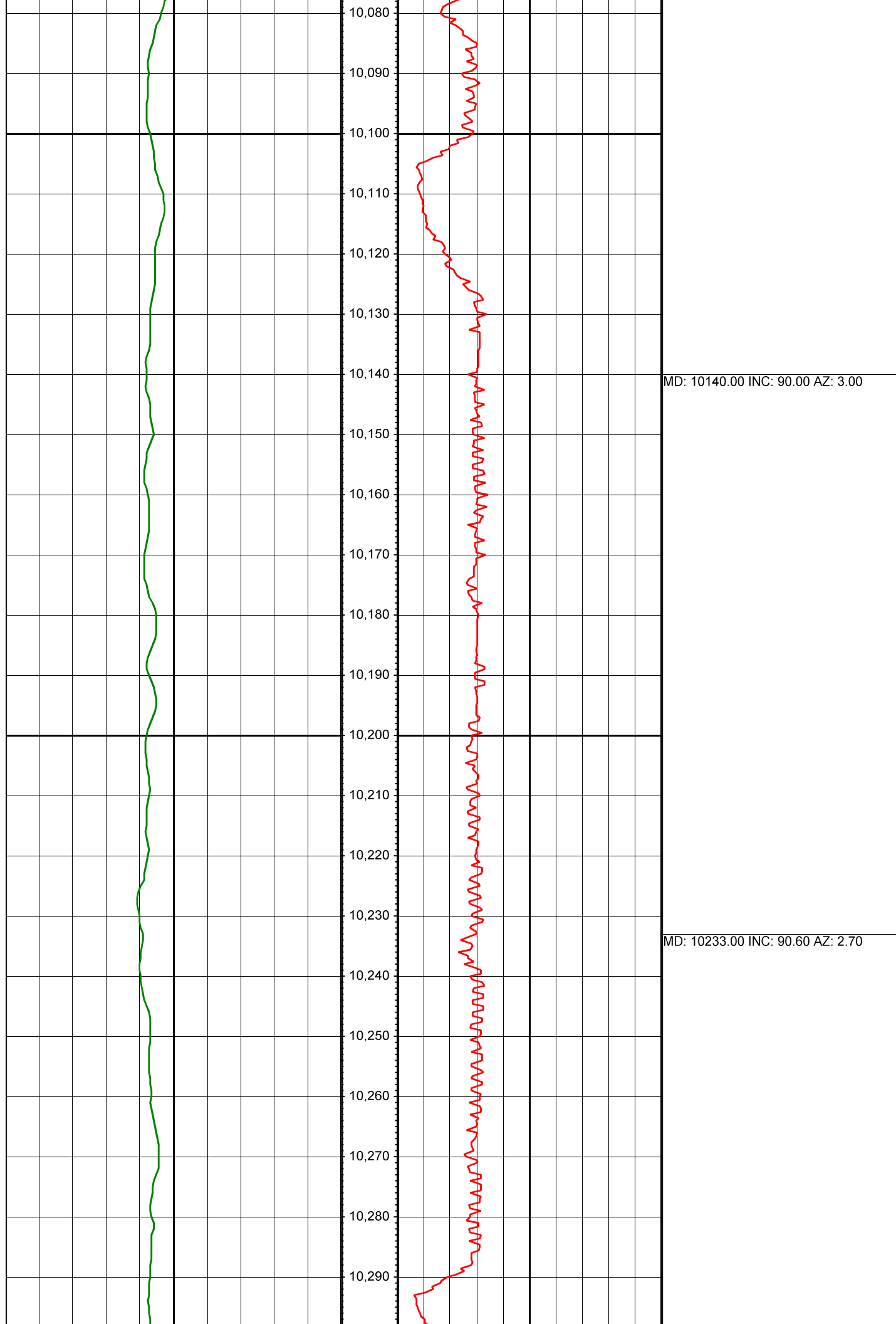


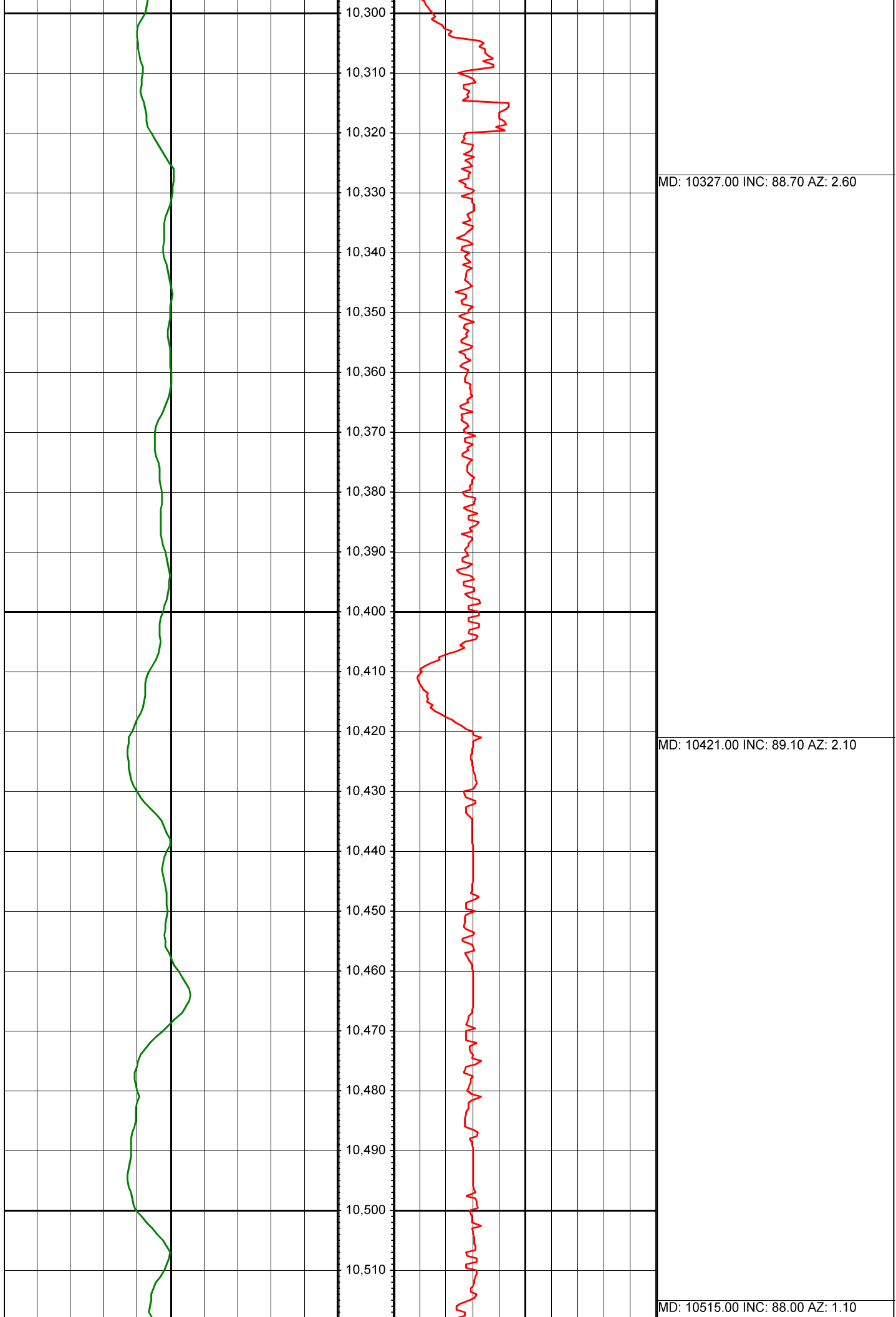


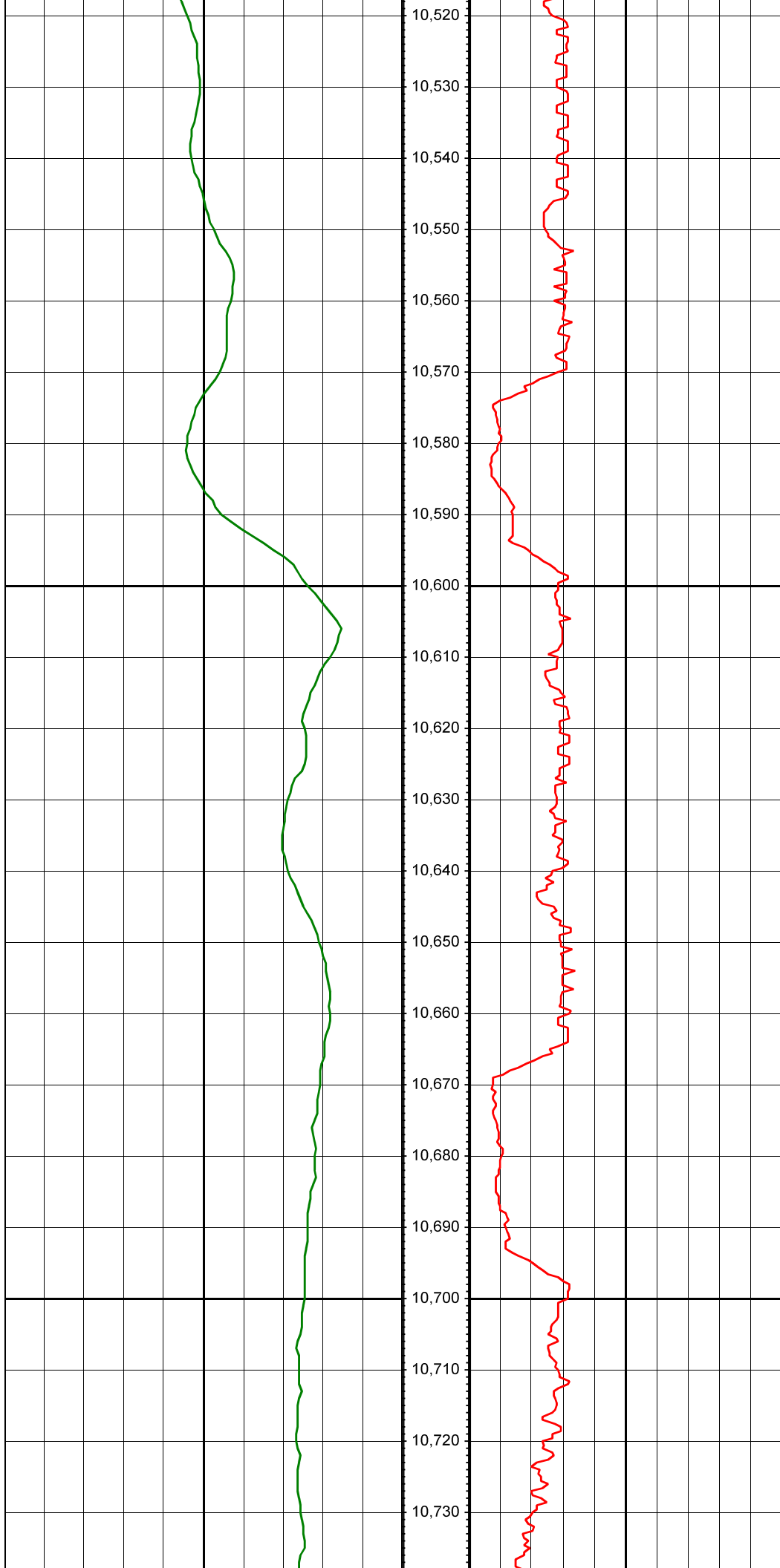
MD: 9672.00 INC: 90.10 AZ: 359.90

MD: 9766.00 INC: 91.80 AZ: 0.10



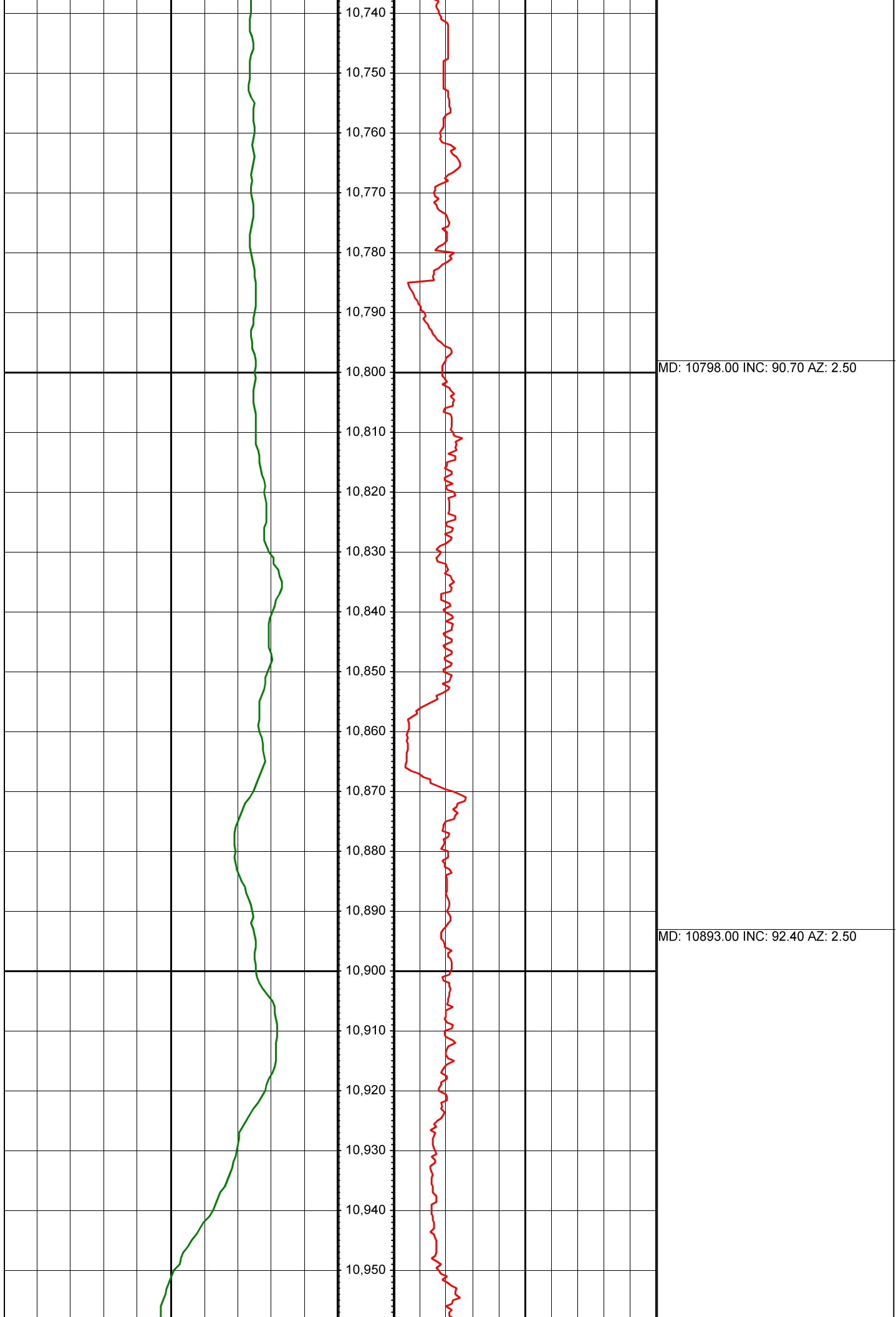


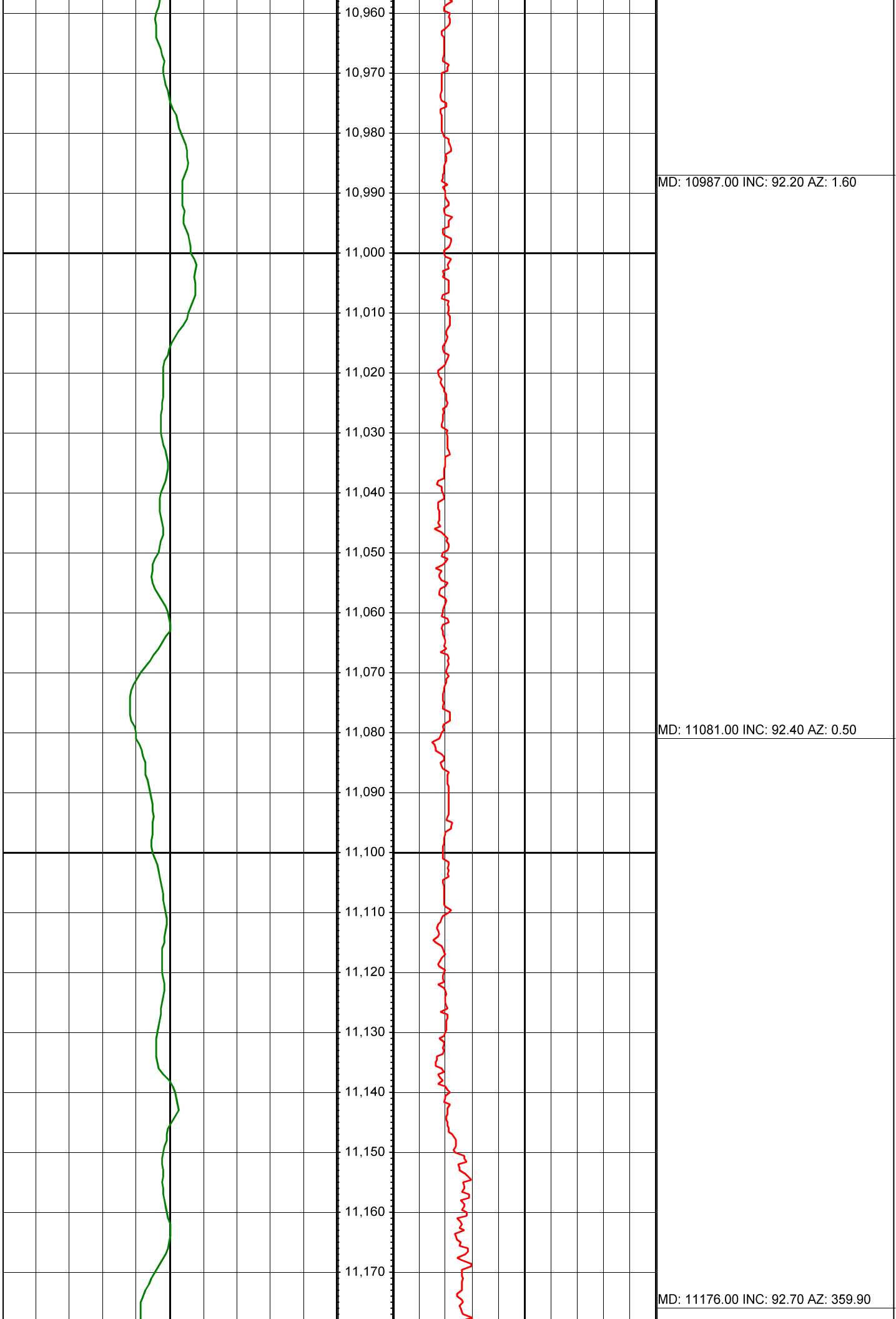


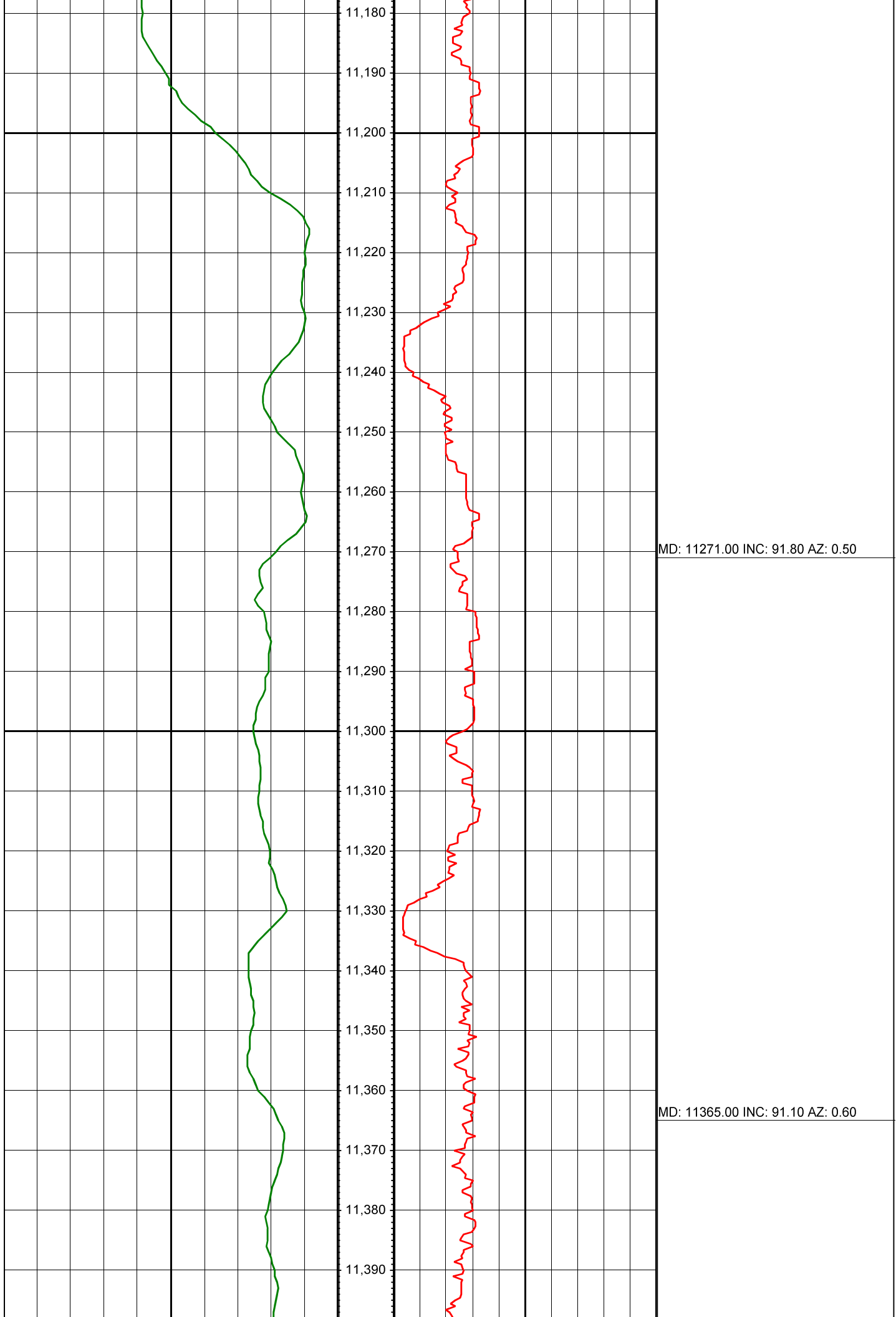


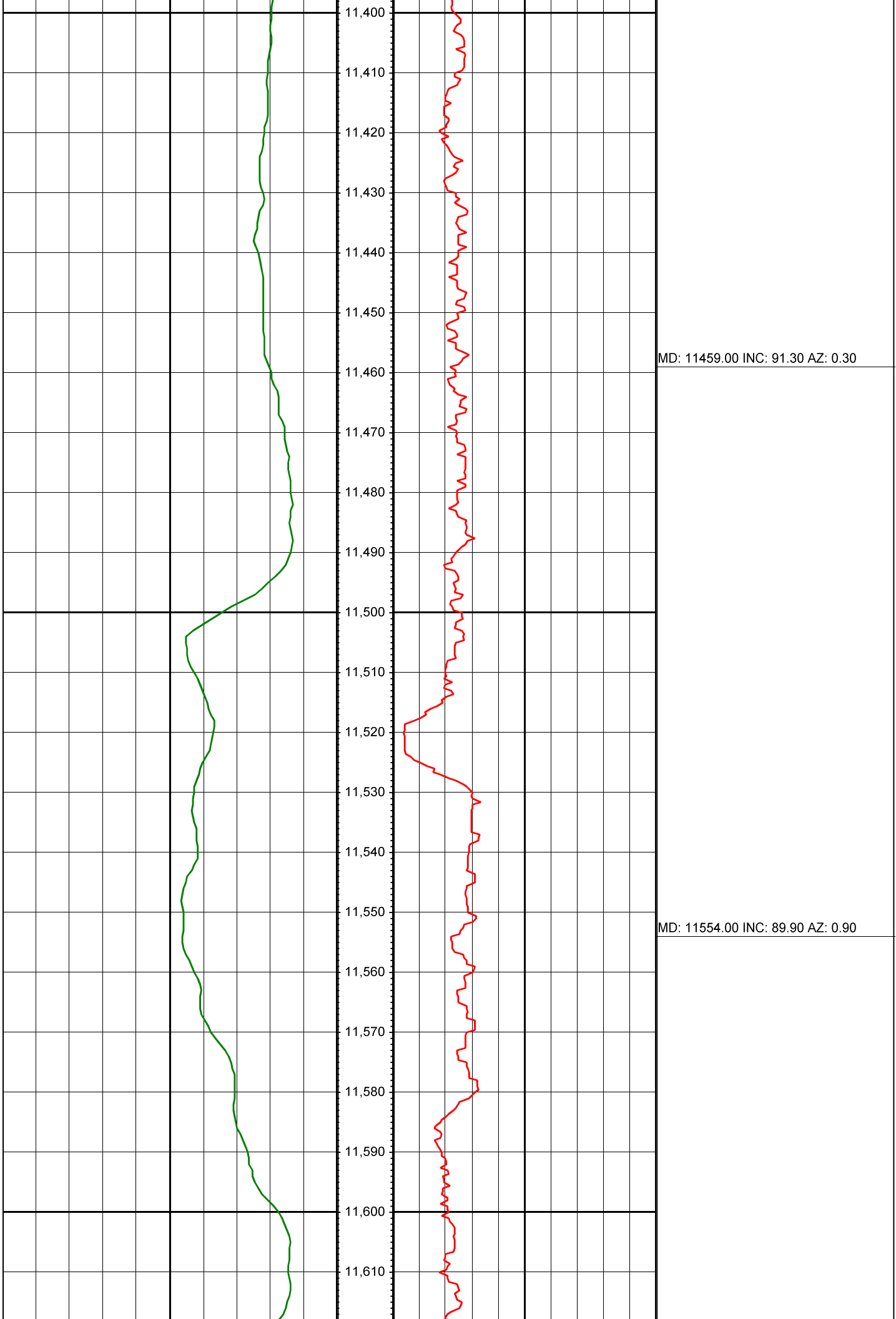
MD: 10609.00 INC: 88.70 AZ: 1.80

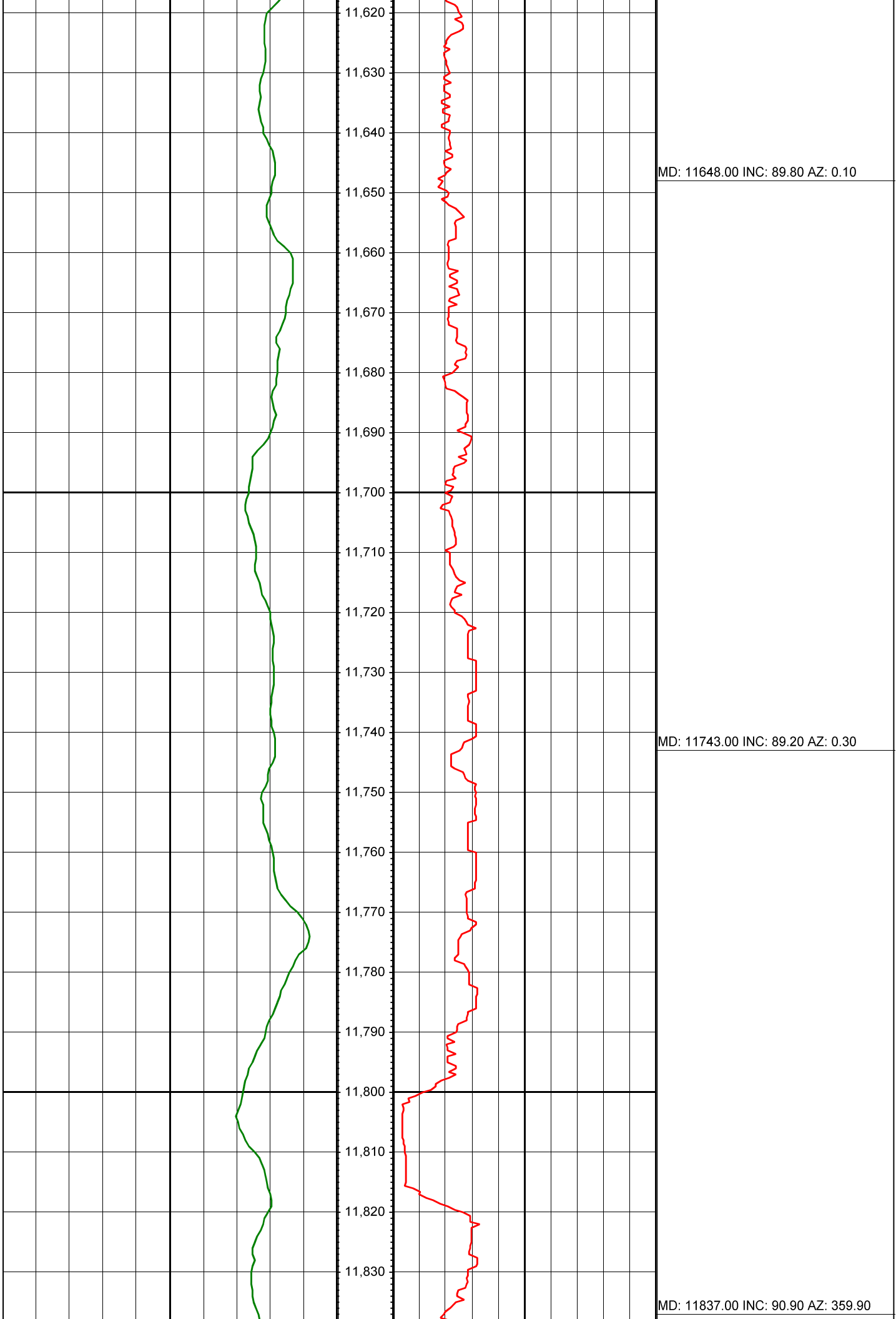
MD: 10704.00 INC: 90.20 AZ: 2.40

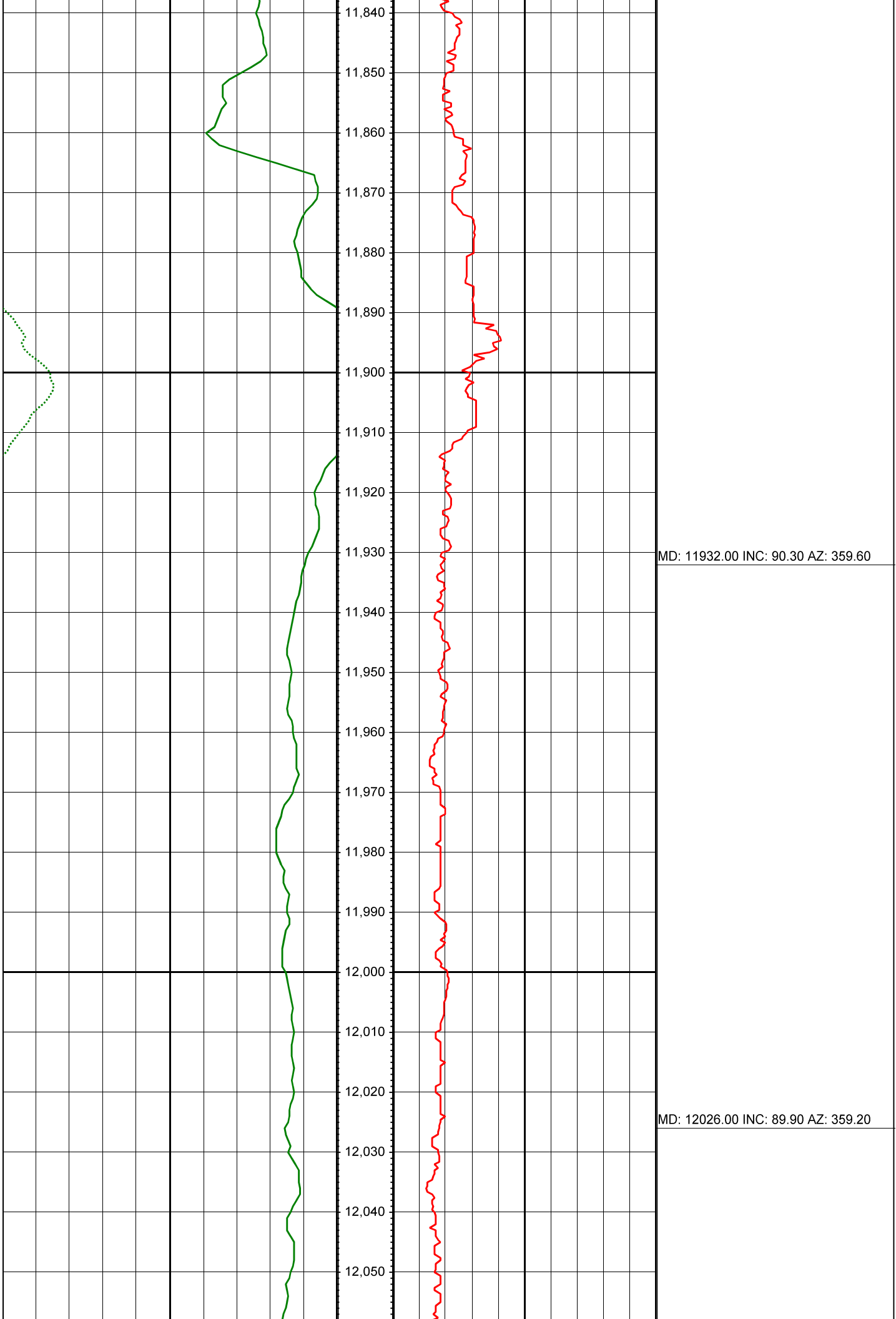


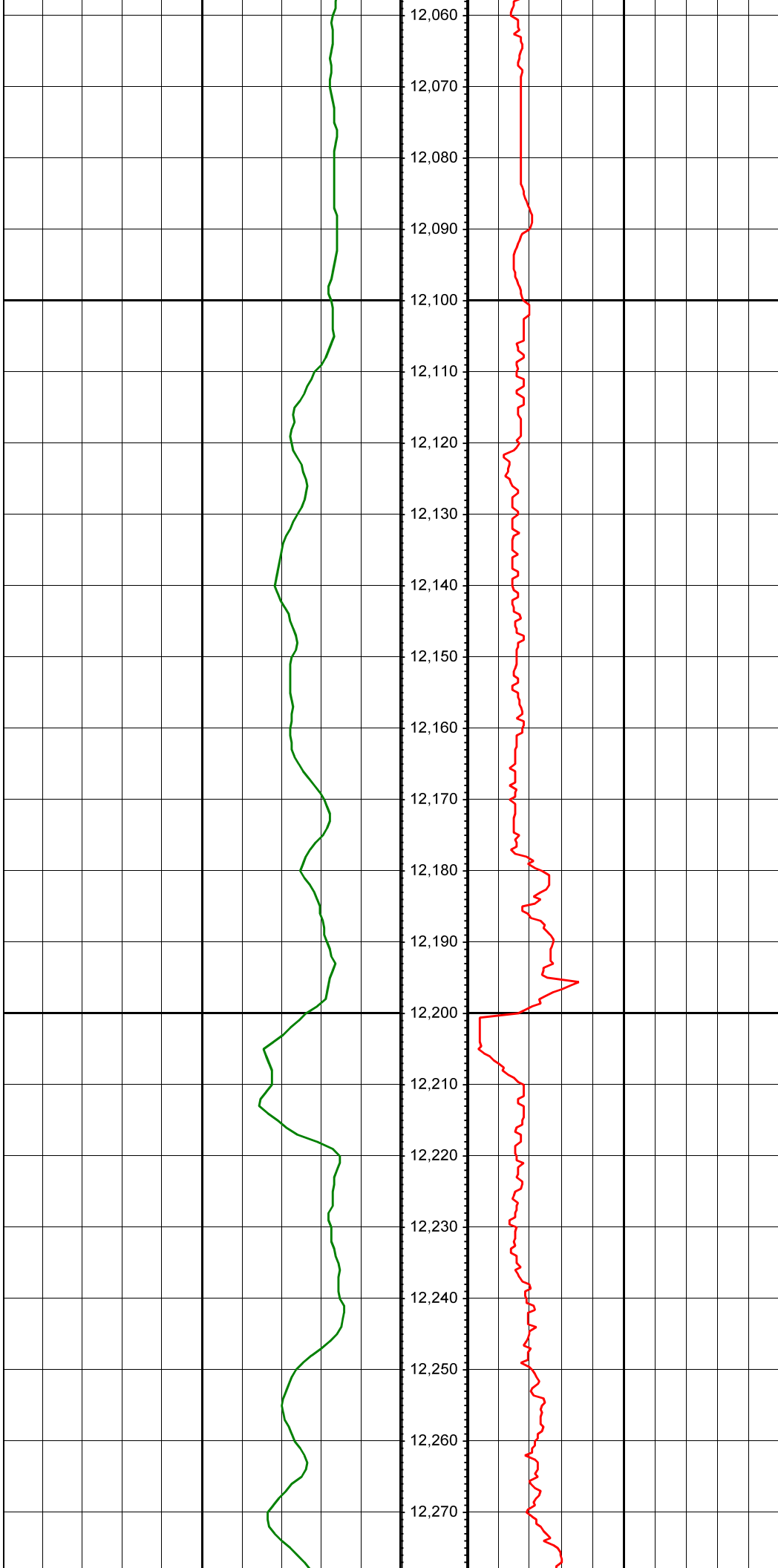






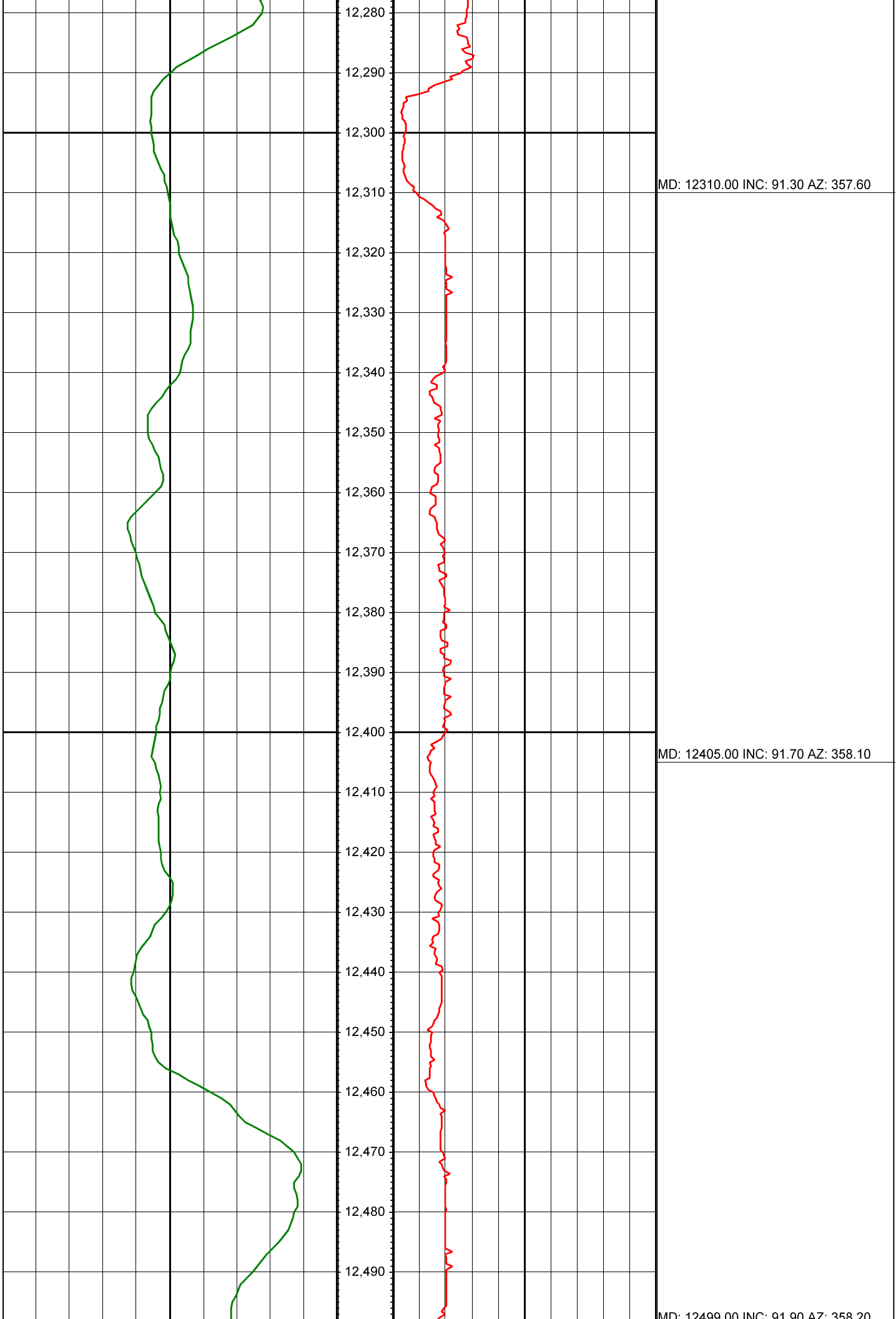


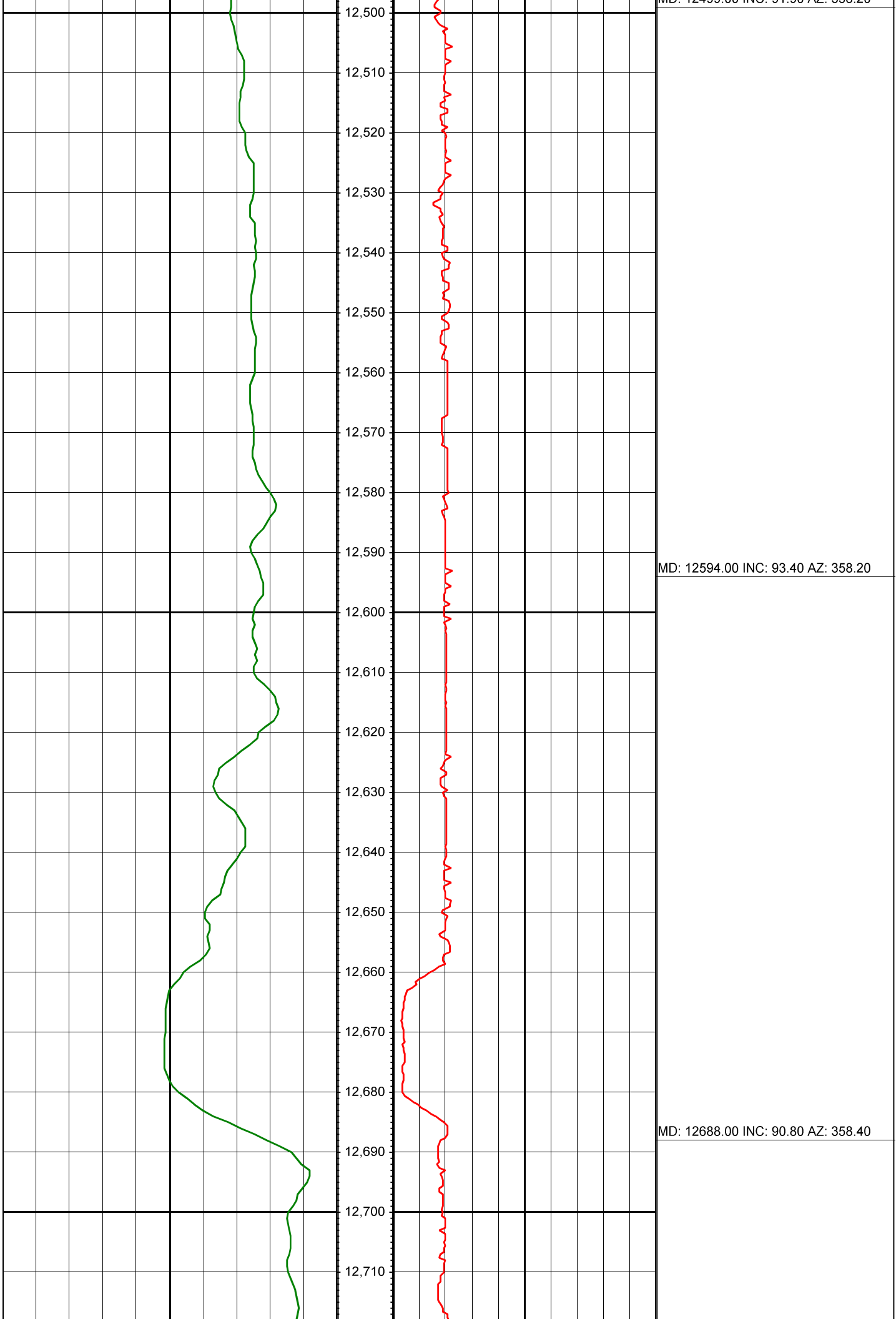


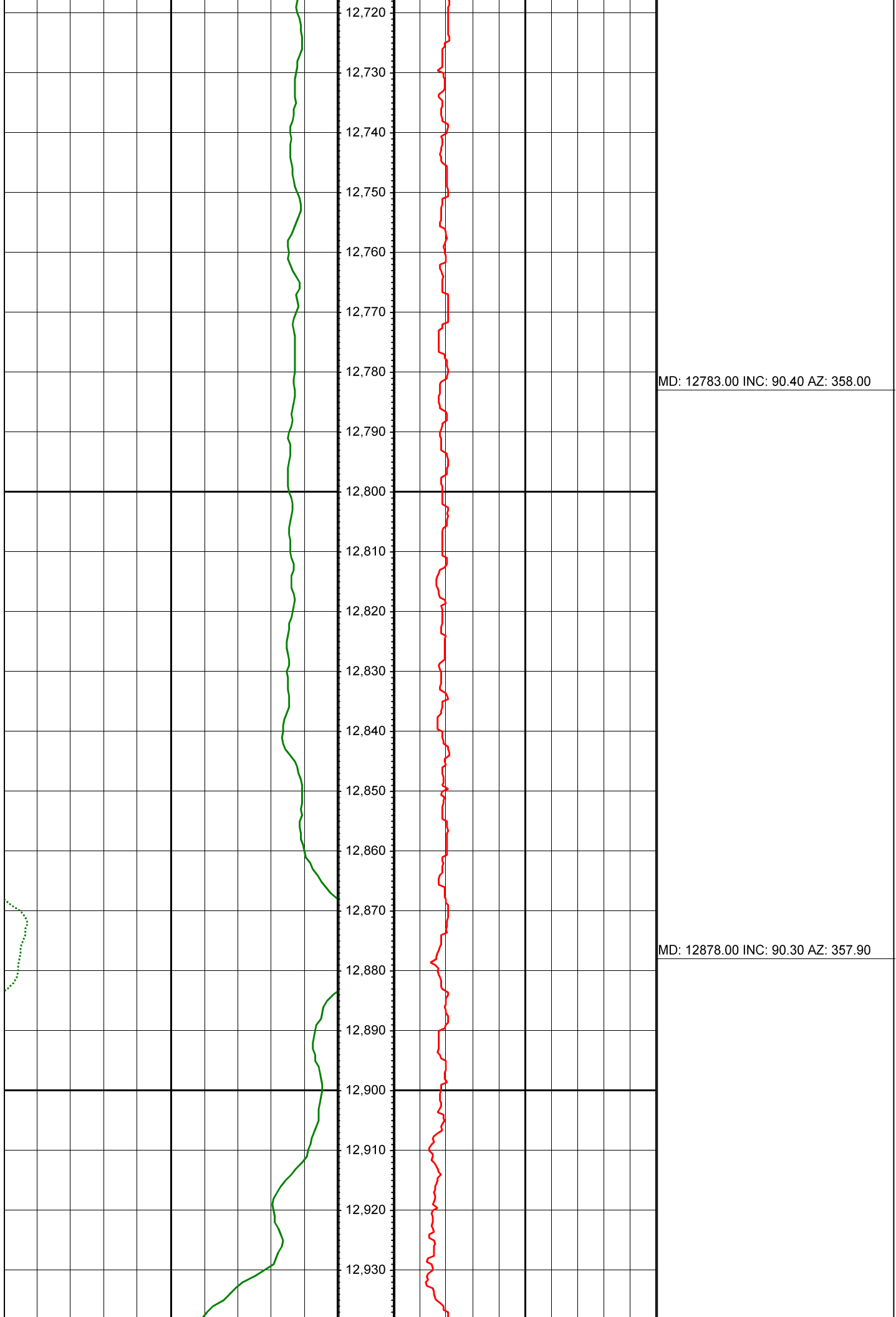


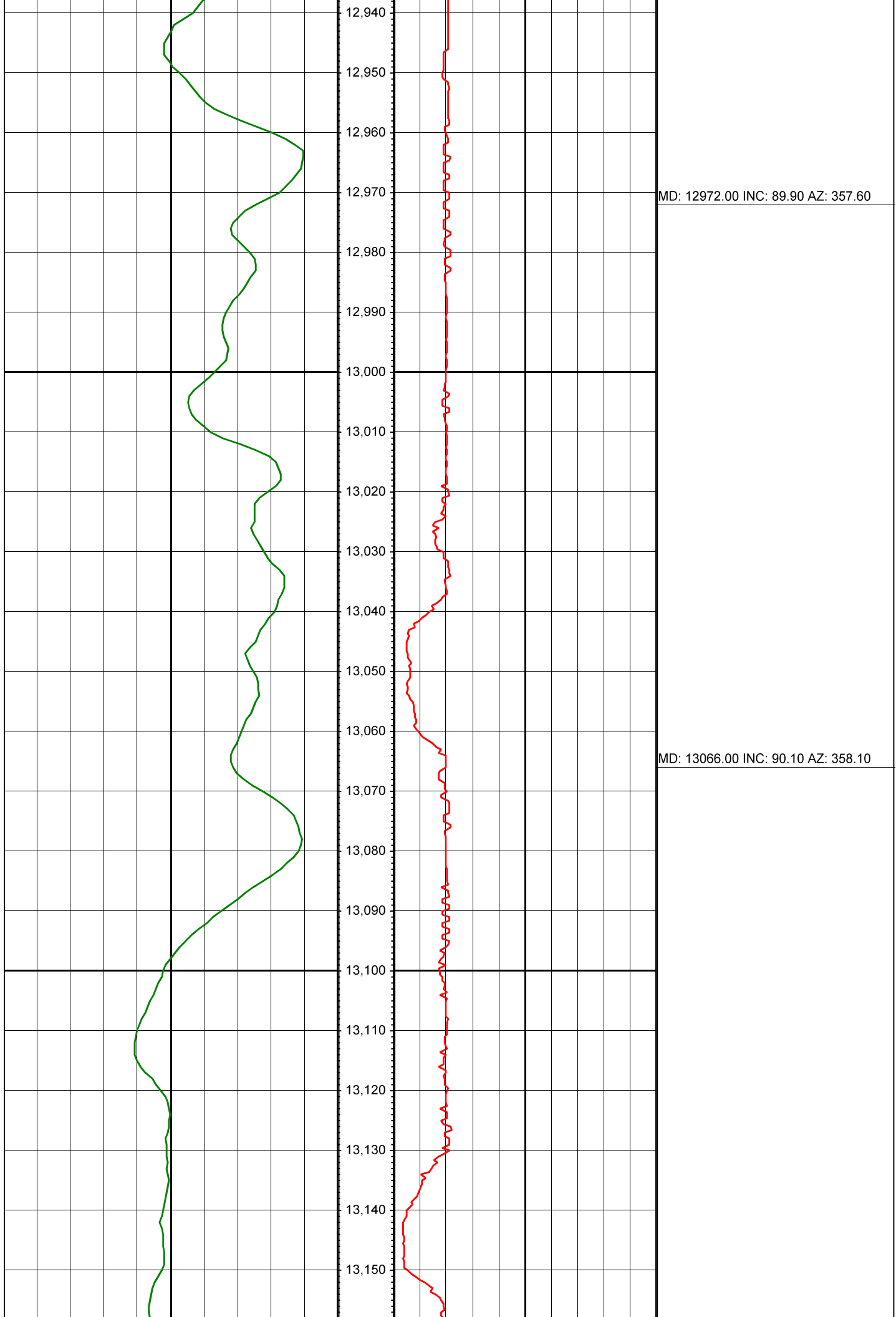
MD: 12121.00 INC: 89.60 AZ: 359.30

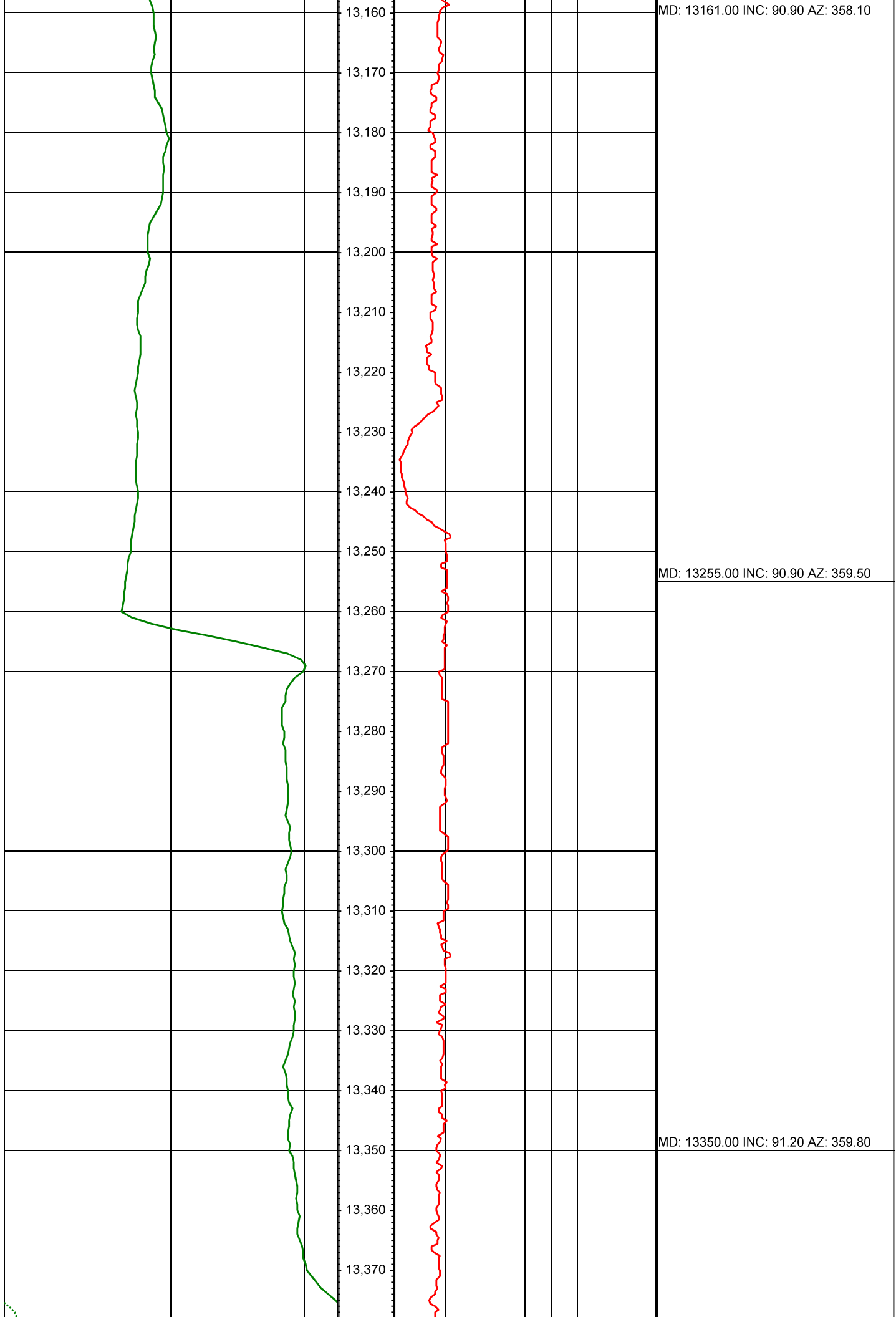
MD: 12215.00 INC: 89.80 AZ: 358.80

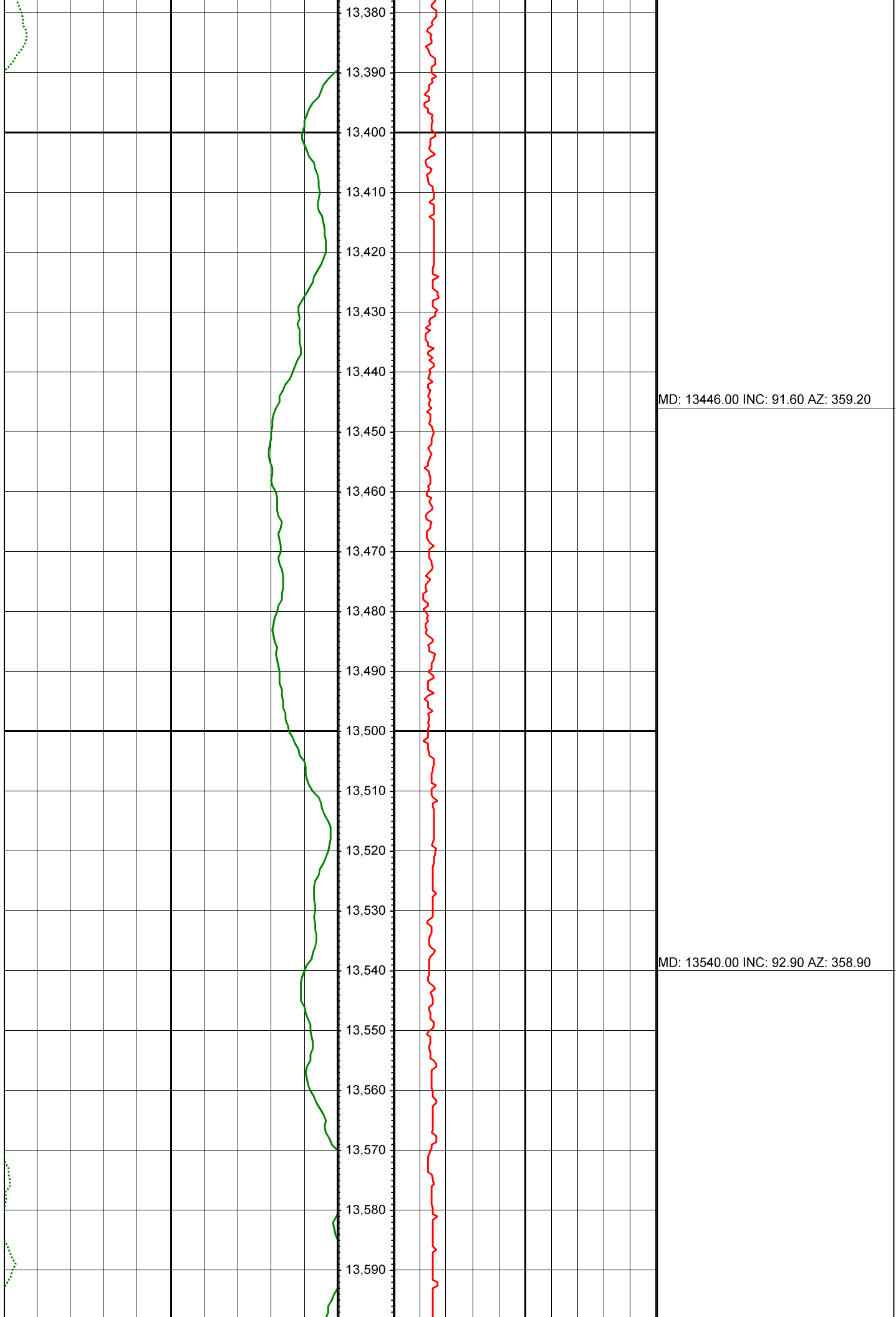


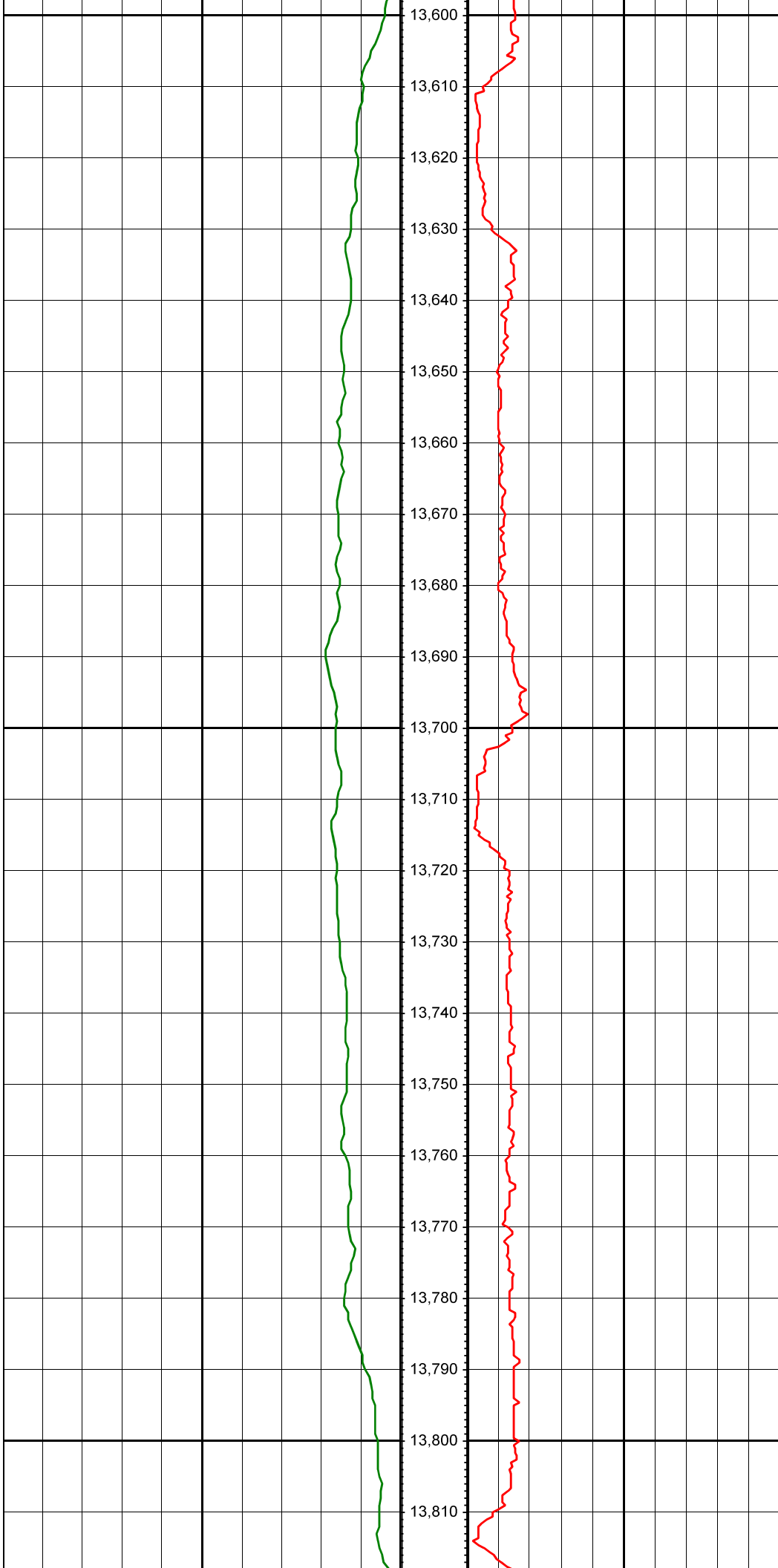






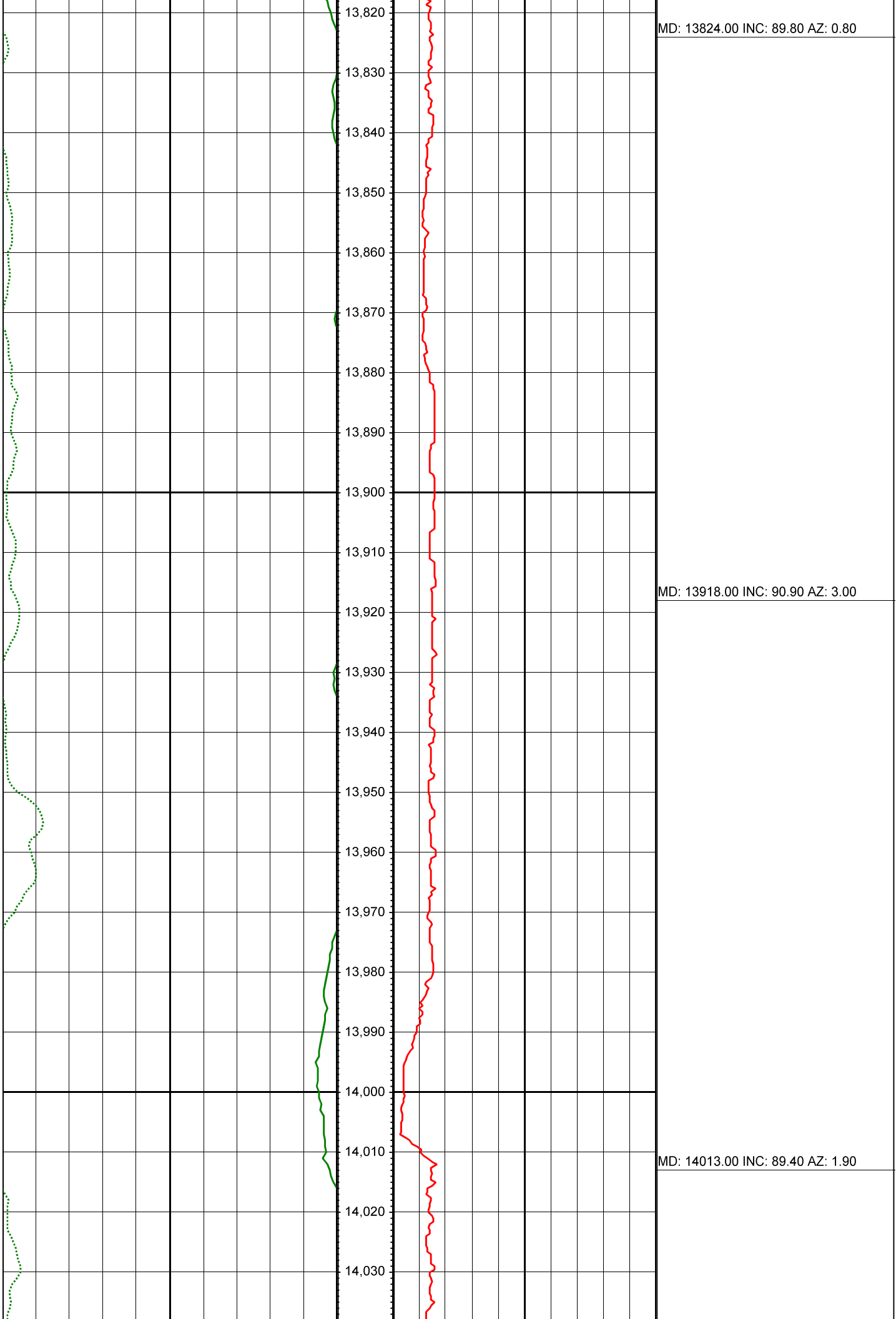






MD: 13635.00 INC: 91.30 AZ: 1.10

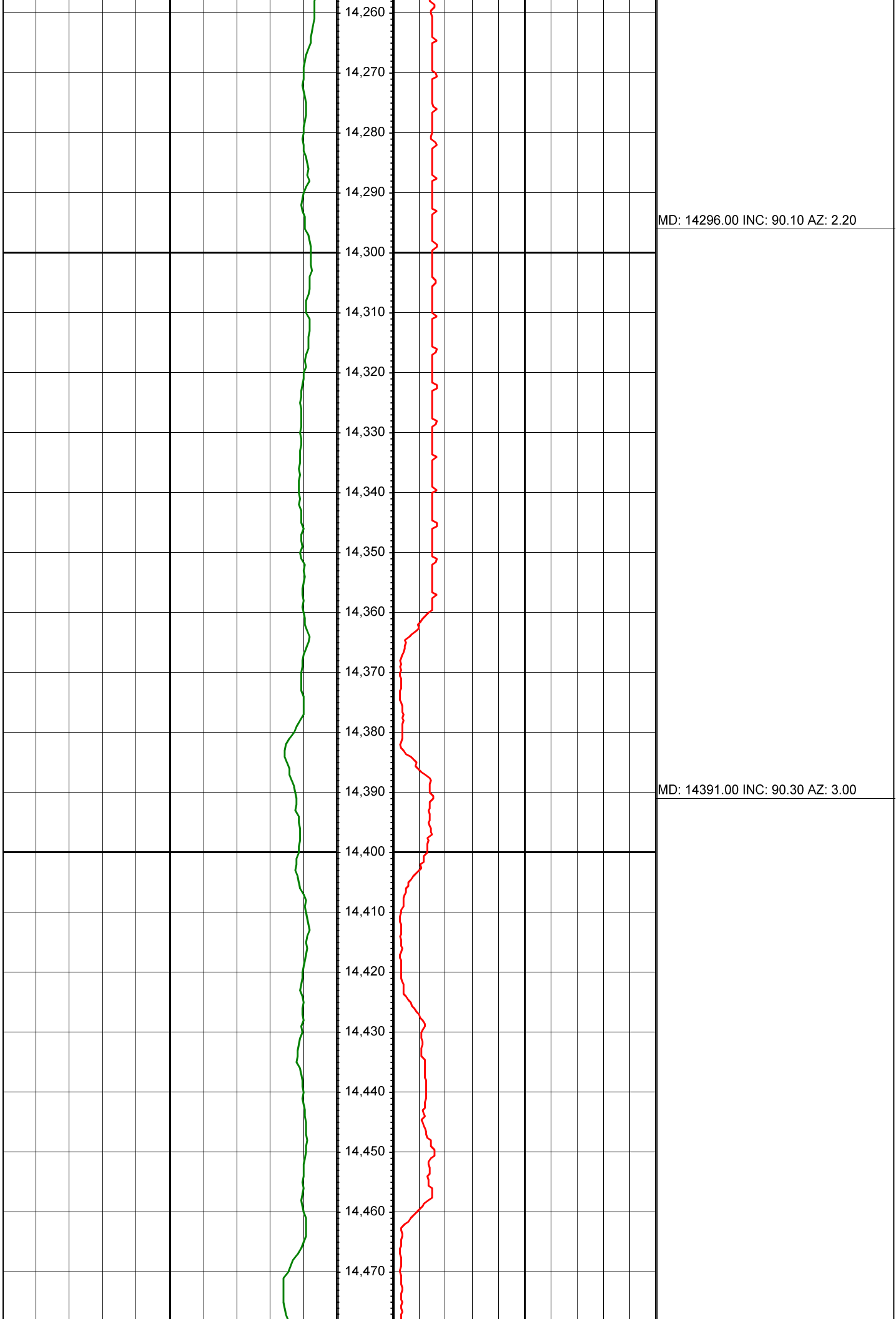
MD: 13729.00 INC: 89.70 AZ: 0.60

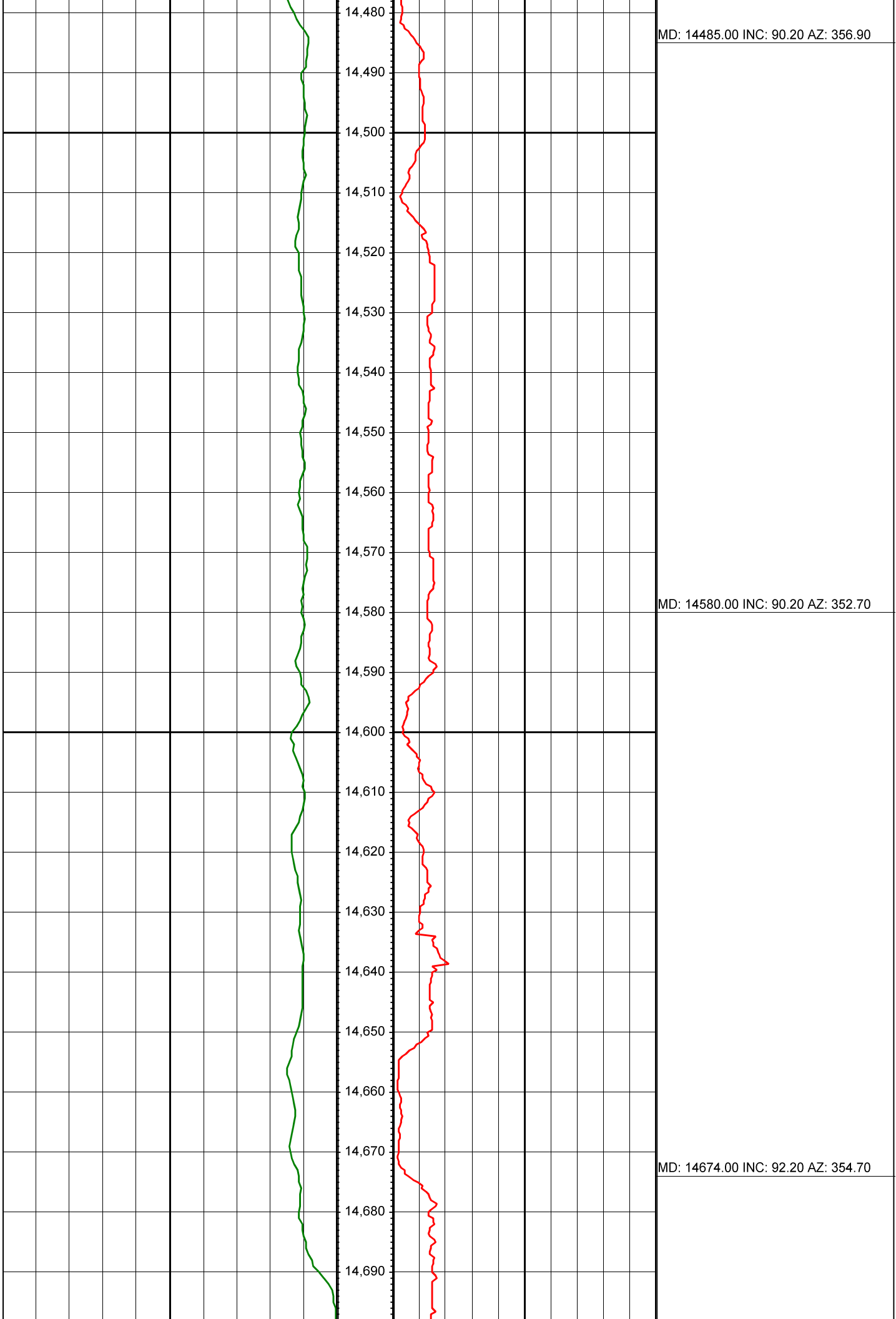


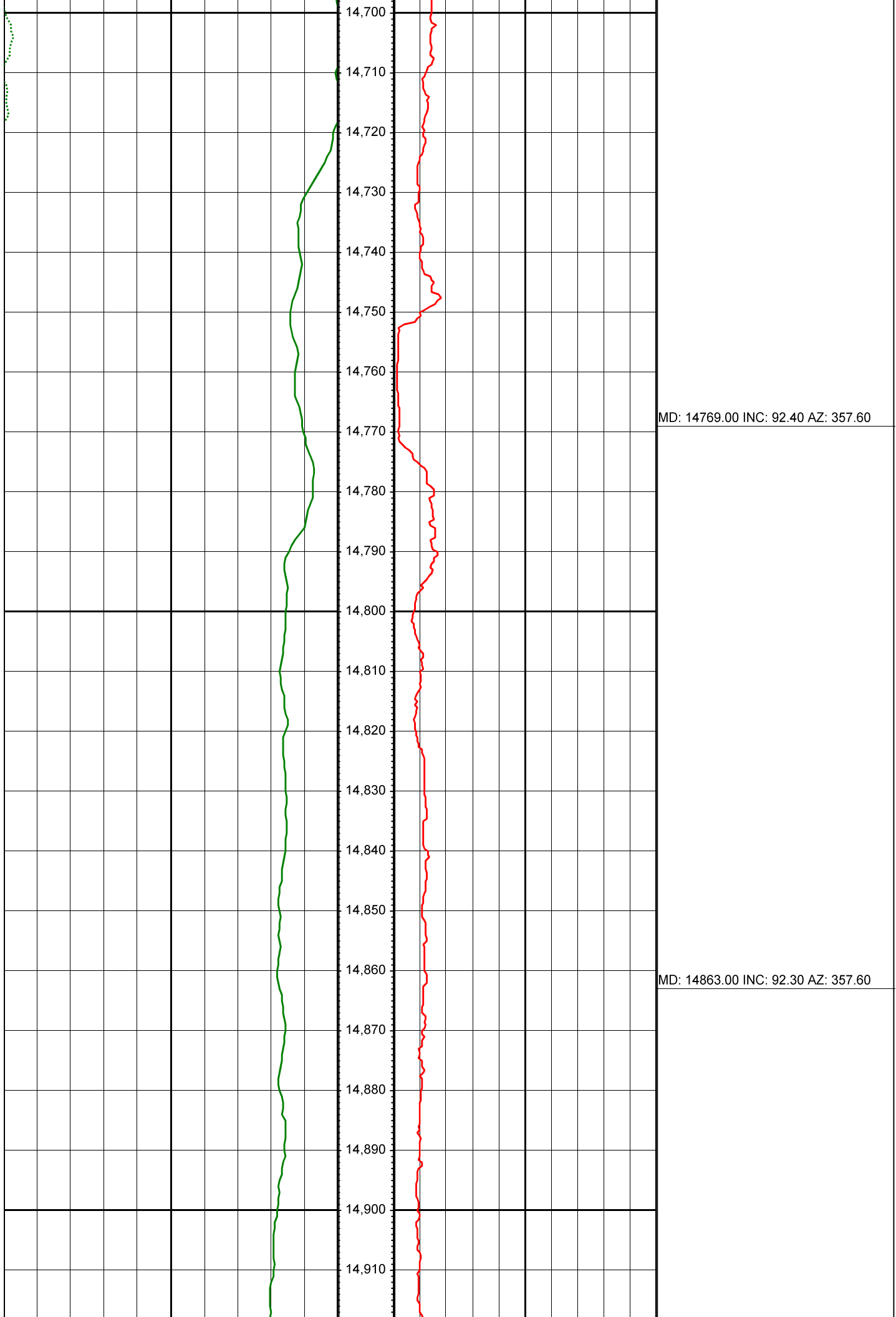


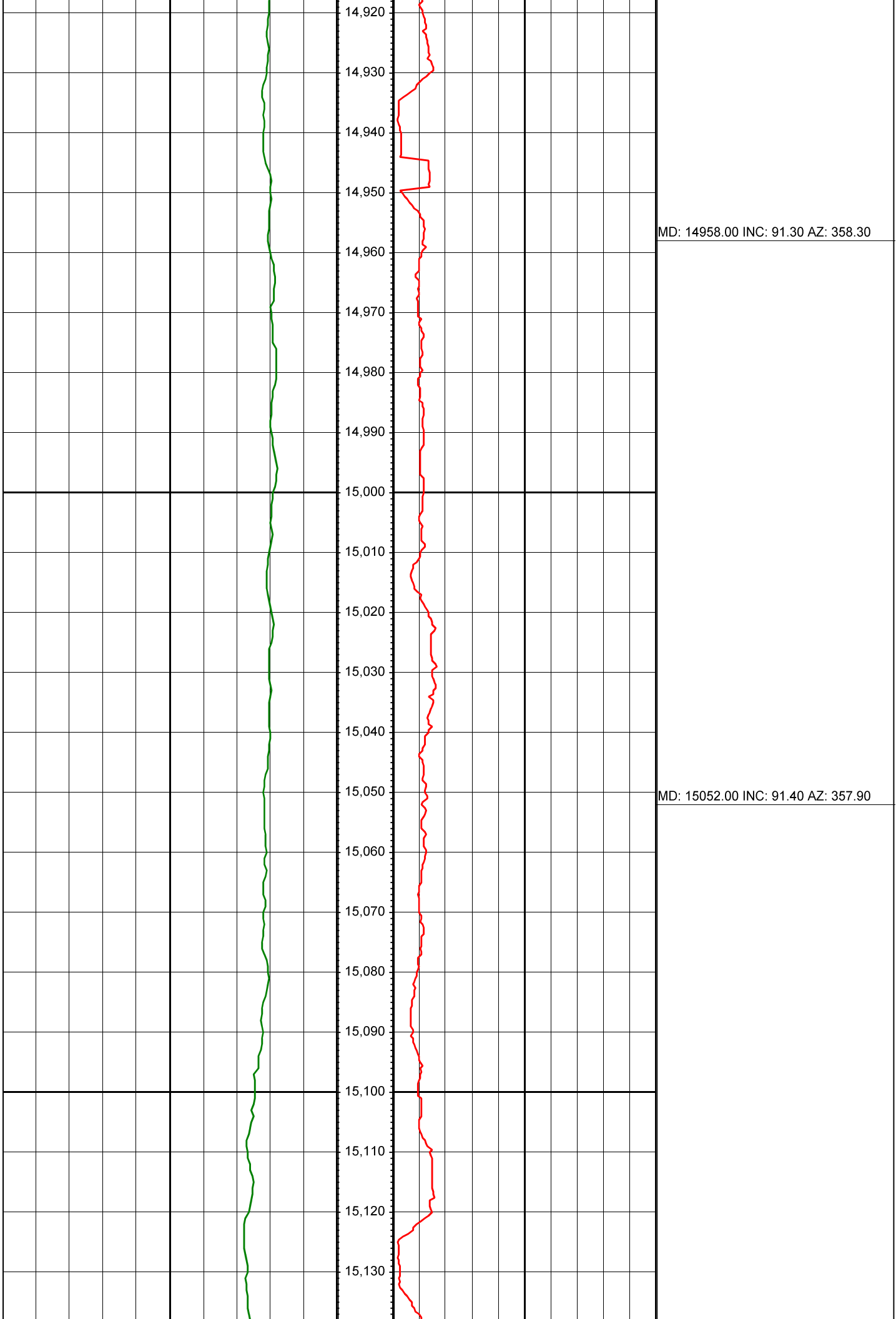
MD: 14107.00 INC: 89.30 AZ: 1.10

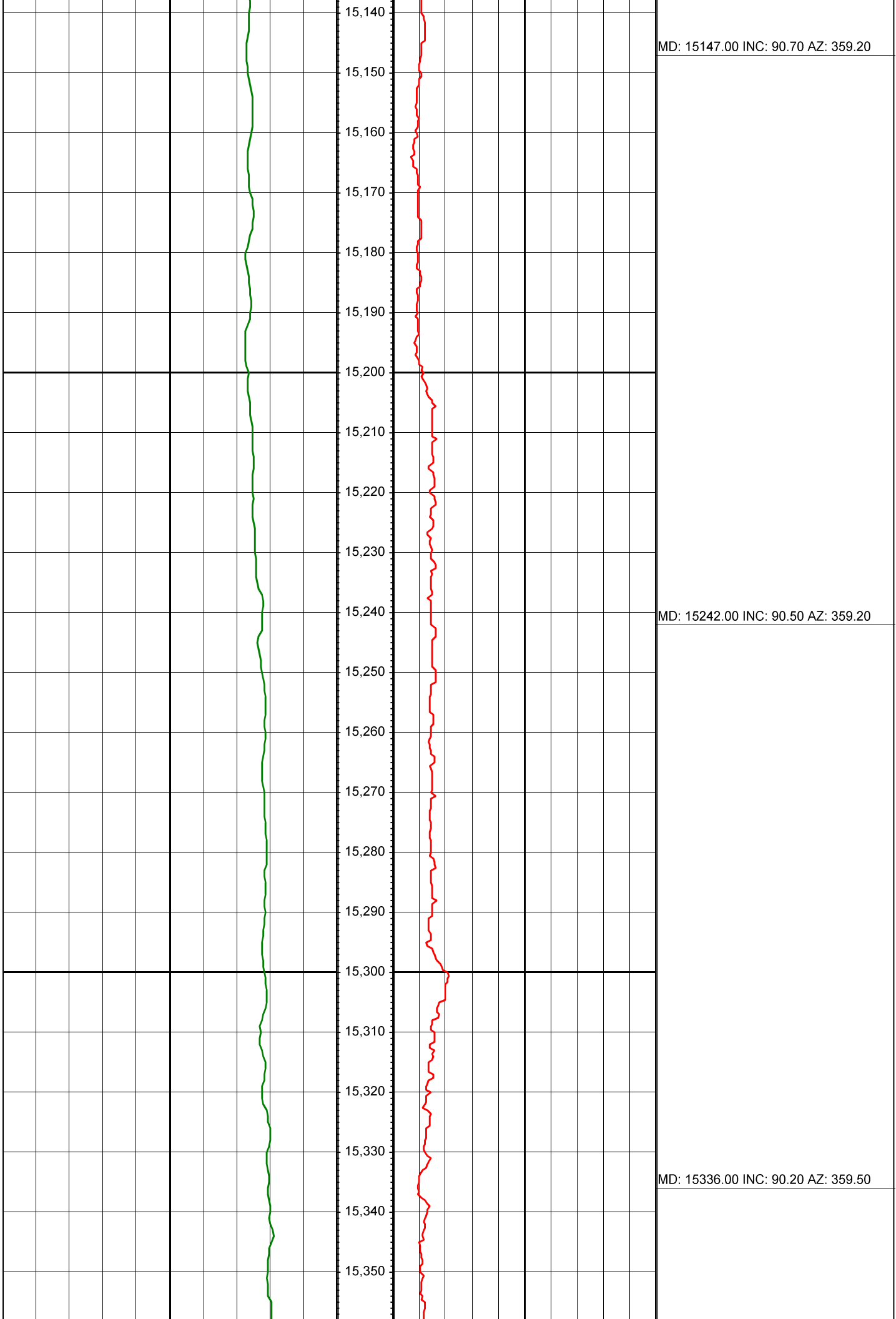
MD: 14202.00 INC: 89.60 AZ: 358.50







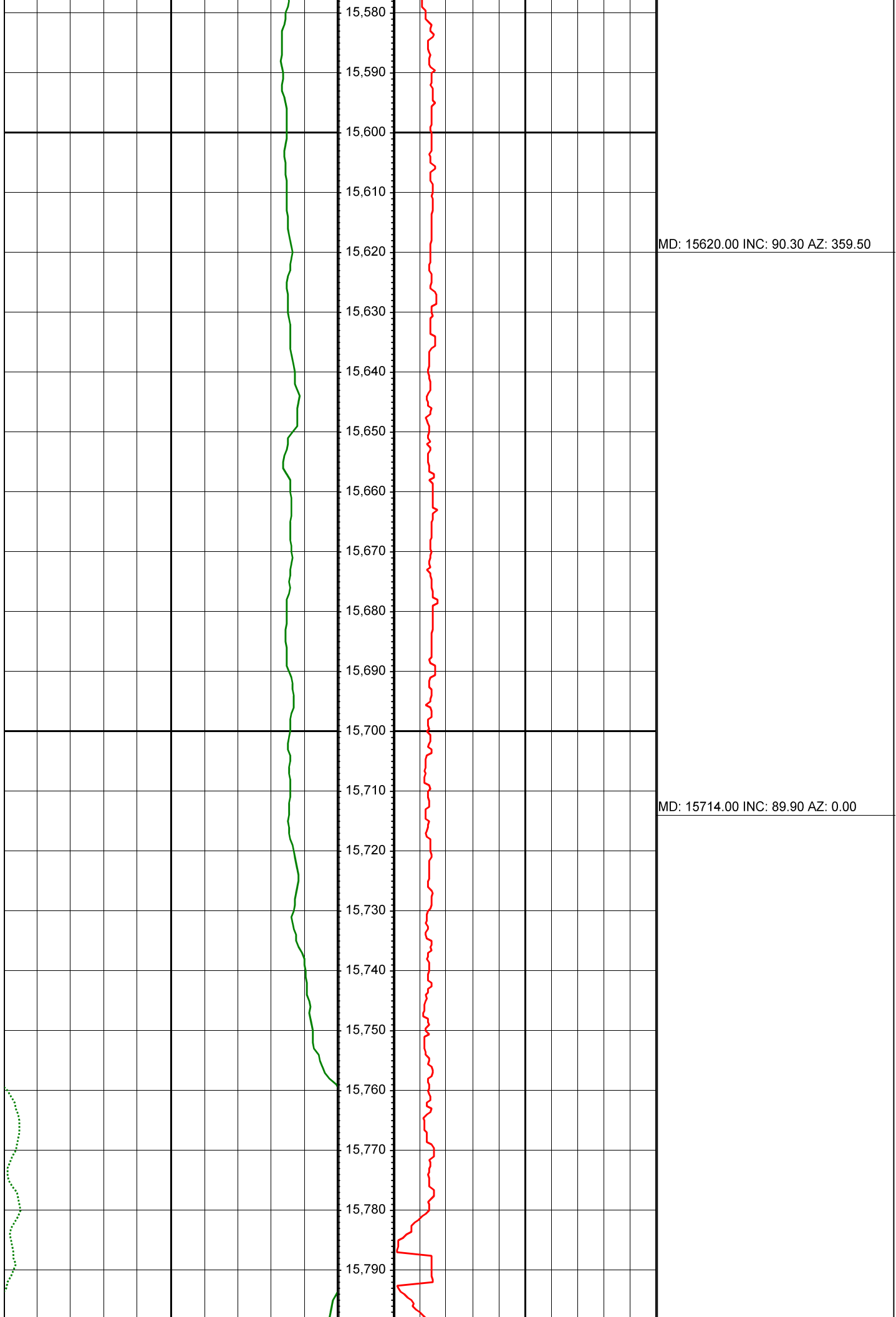


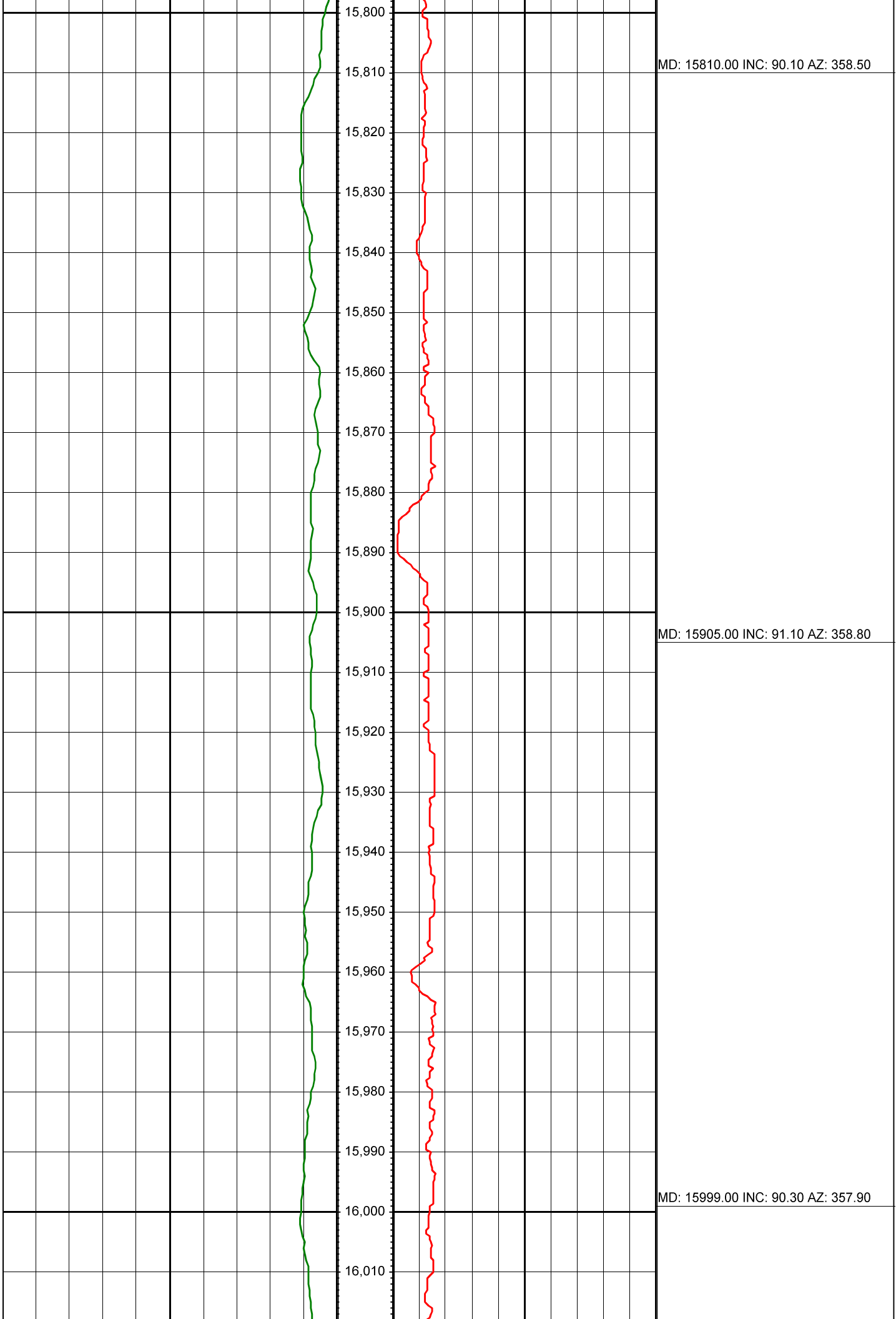




MD: 15430.00 INC: 90.40 AZ: 359.30

MD: 15525.00 INC: 90.30 AZ: 359.80

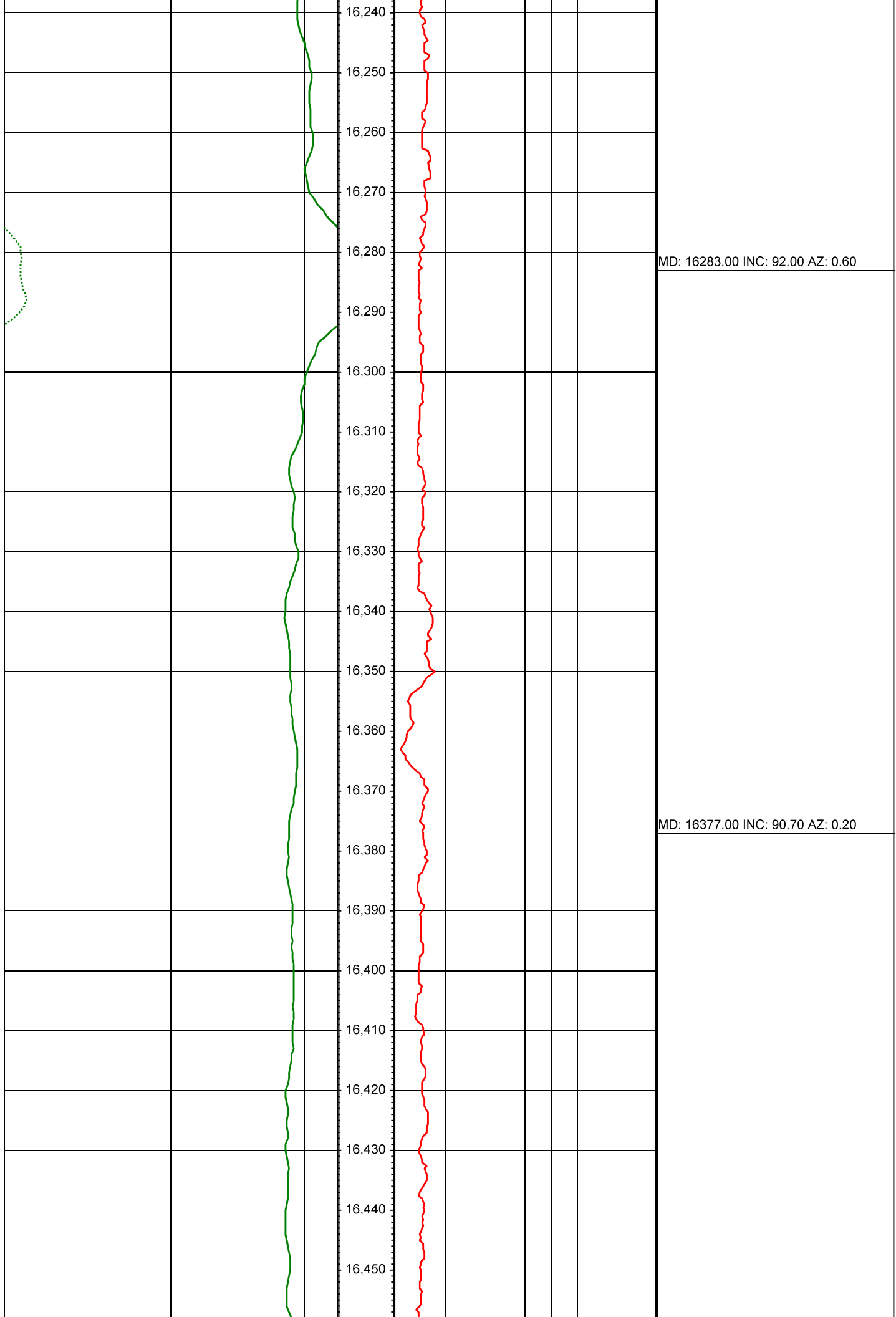


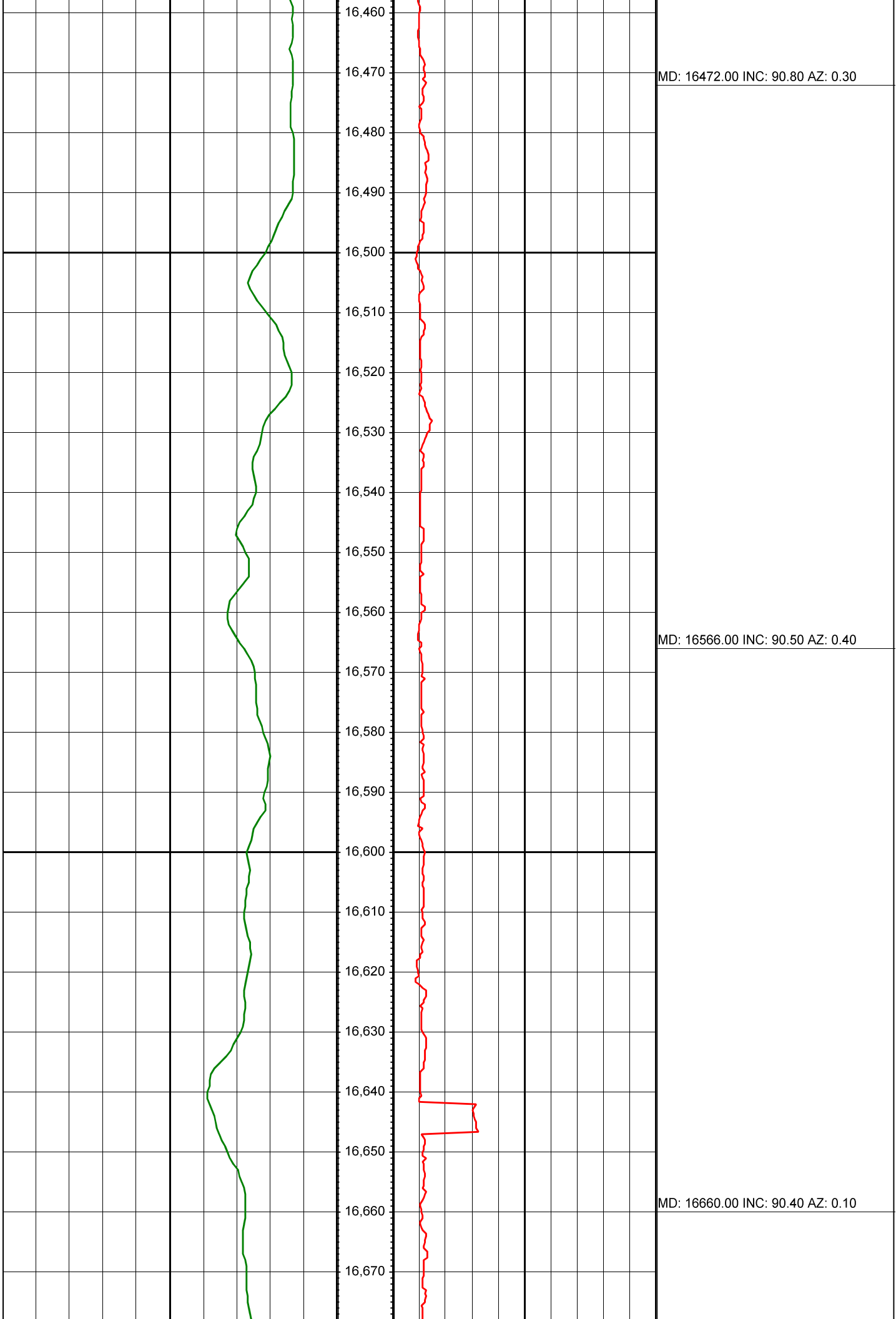


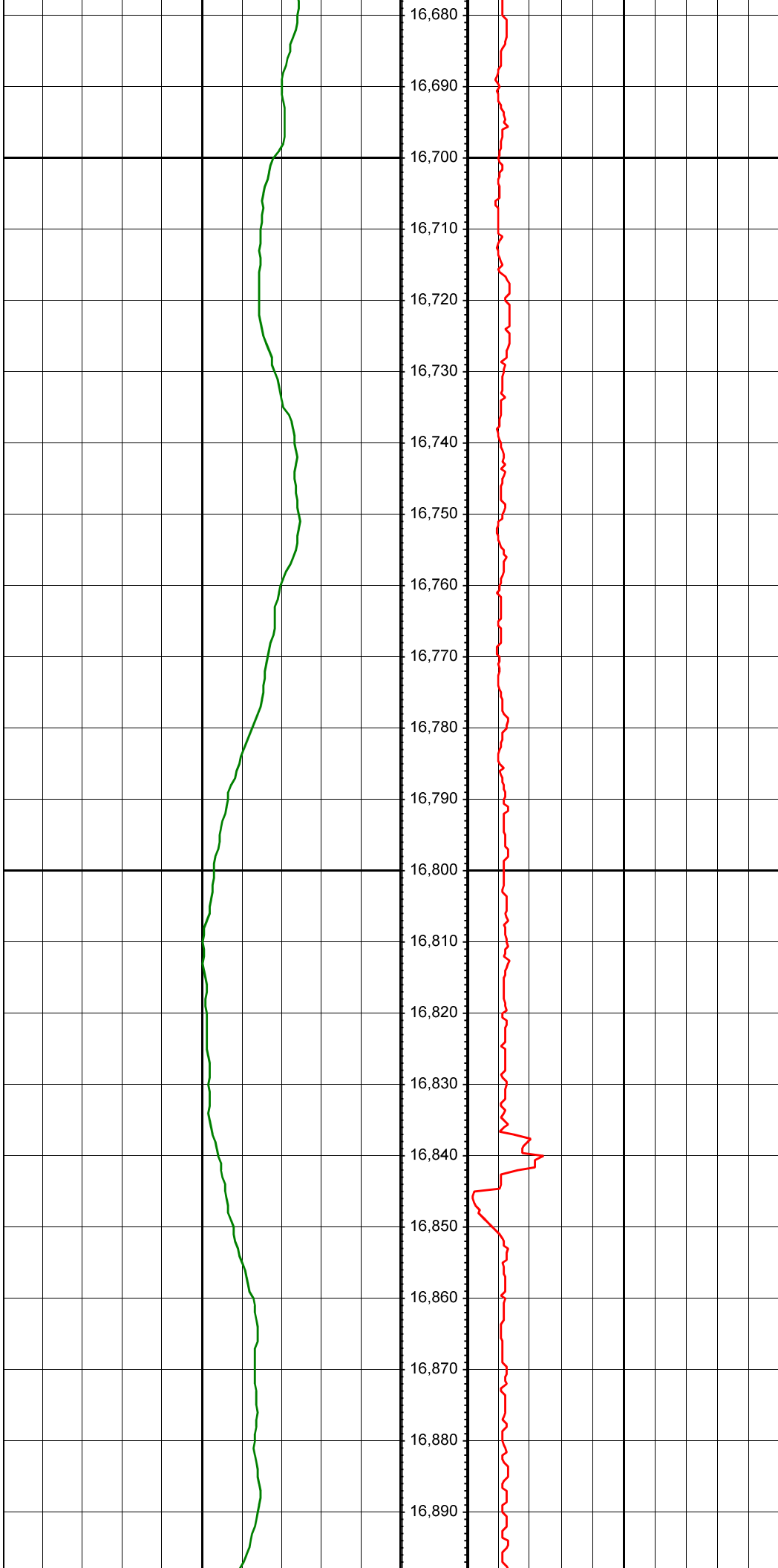


MD: 16094.00 INC: 91.80 AZ: 359.30

MD: 16188.00 INC: 91.90 AZ: 0.60







MD: 16754.00 INC: 90.20 AZ: 359.90

MD: 16849.00 INC: 91.30 AZ: 359.40

