



Cathedral Energy Services
1949 North Pyrite Road
Casper, Wyoming 82604

145483

5":100' - MD

12/19/2014 12:58:20 PM

CATHEDRAL

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

Country: U.S.A.

State / Province: Colorado

County / Parish: Weld

Started: 12/11/2014 03:30 PM

API/UWI: 05-123-36893

Field: Wattenberg (B Chalk)

Well: Billings 3G-18H-L368

Rig: Patterson Drilling 326

Ended: 12/17/2014 10:00 AM

Gamma Ray
Section Plane: 90.00
Magnetic North: 8.55
Gamma Averaging: 7%

Personnel

Day Hand: M. Andrews

Night Hand: J. Davis

Comp. Emp: Norman McCreary

Maximum Temperature: 224°F

Location

Latitude: 40.222567

Longitude: -105.051742

Elev. GL: 5155

Elev. DF:

Elev. KB: 5187

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

Hole Data

Size	From	To
12-1/4	0	1020
8-3/4	1020	7540
6-1/8	7540	14075

Casing Data

Size	From	To
9-5/8	0	1004
7	0	7520

Bit Sizes

Size	From	To
12-1/4	0	1020
8-3/4	1020	7540
6-1/8	7540	14075

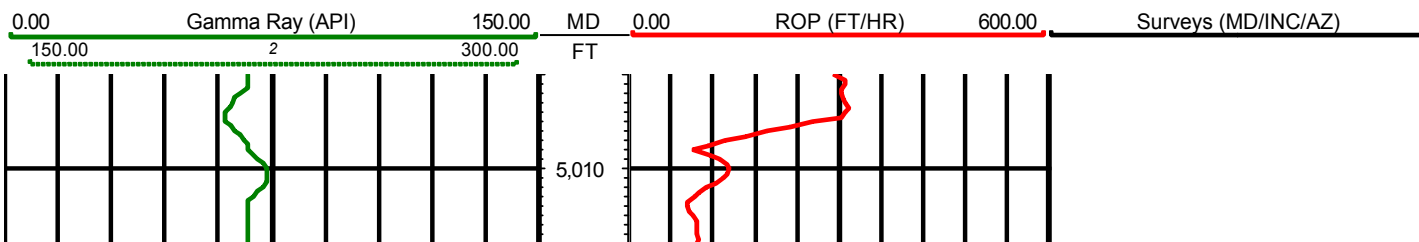
Mud Data

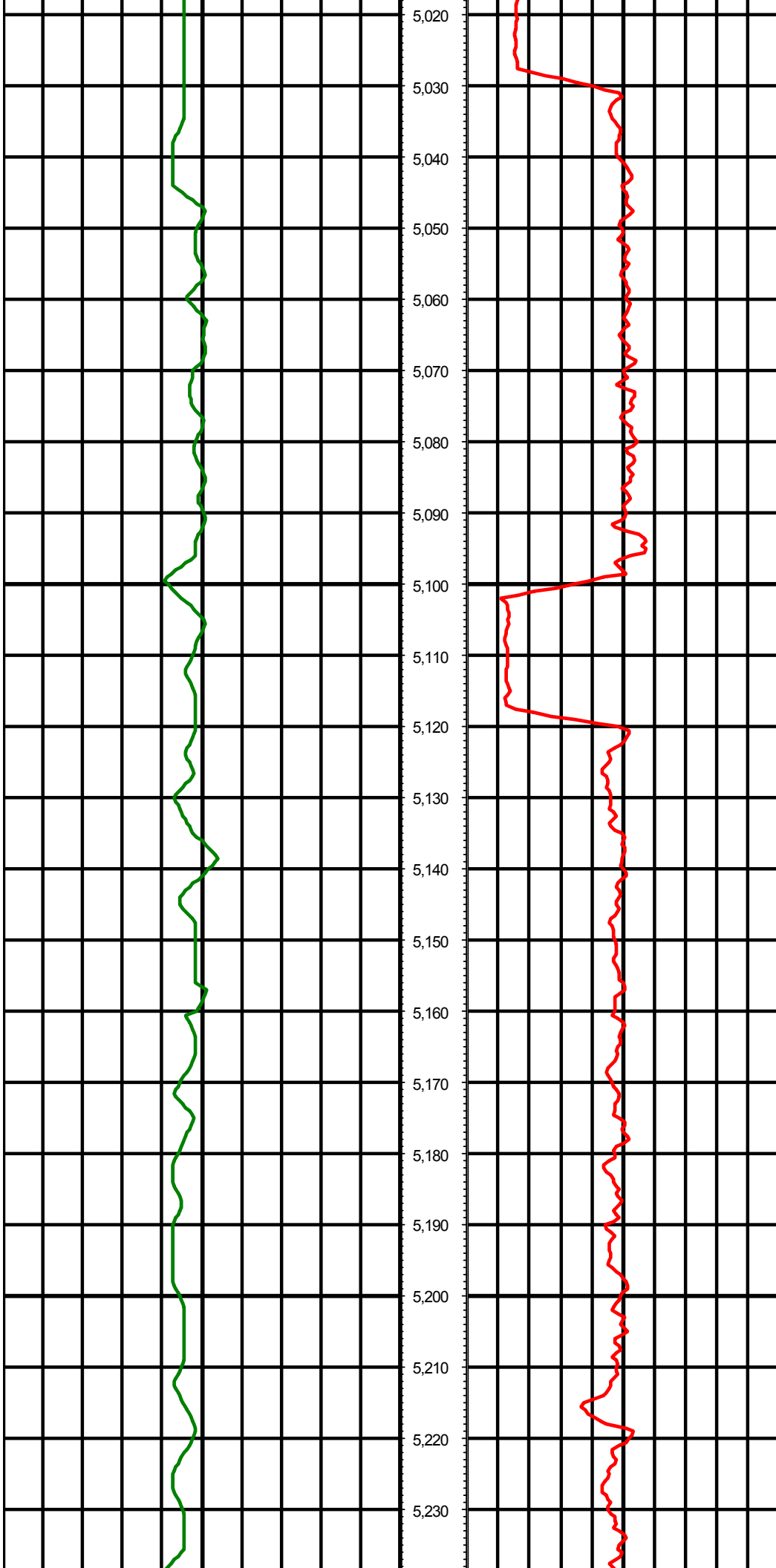
Type	Weight	Density	Viscosity	Rm	Rmf	Rmc	From	To
Gel/Poly	10.7		40				1020	7540
Gel/Poly	12.4		39				7540	14075

Tool Run Data

Serial Number	Gamma Offset	Resist. Offset	Start Time	Start Depth	End Time	End Depth
1595	36.56	0	12/10/2014 9:00:53 PM	1020	12/14/2014 4:00:53 AM	7540
1218	39.64	0	12/14/2014 3:00:43 AM	7540	12/17/2014 10:00:43 AM	14075

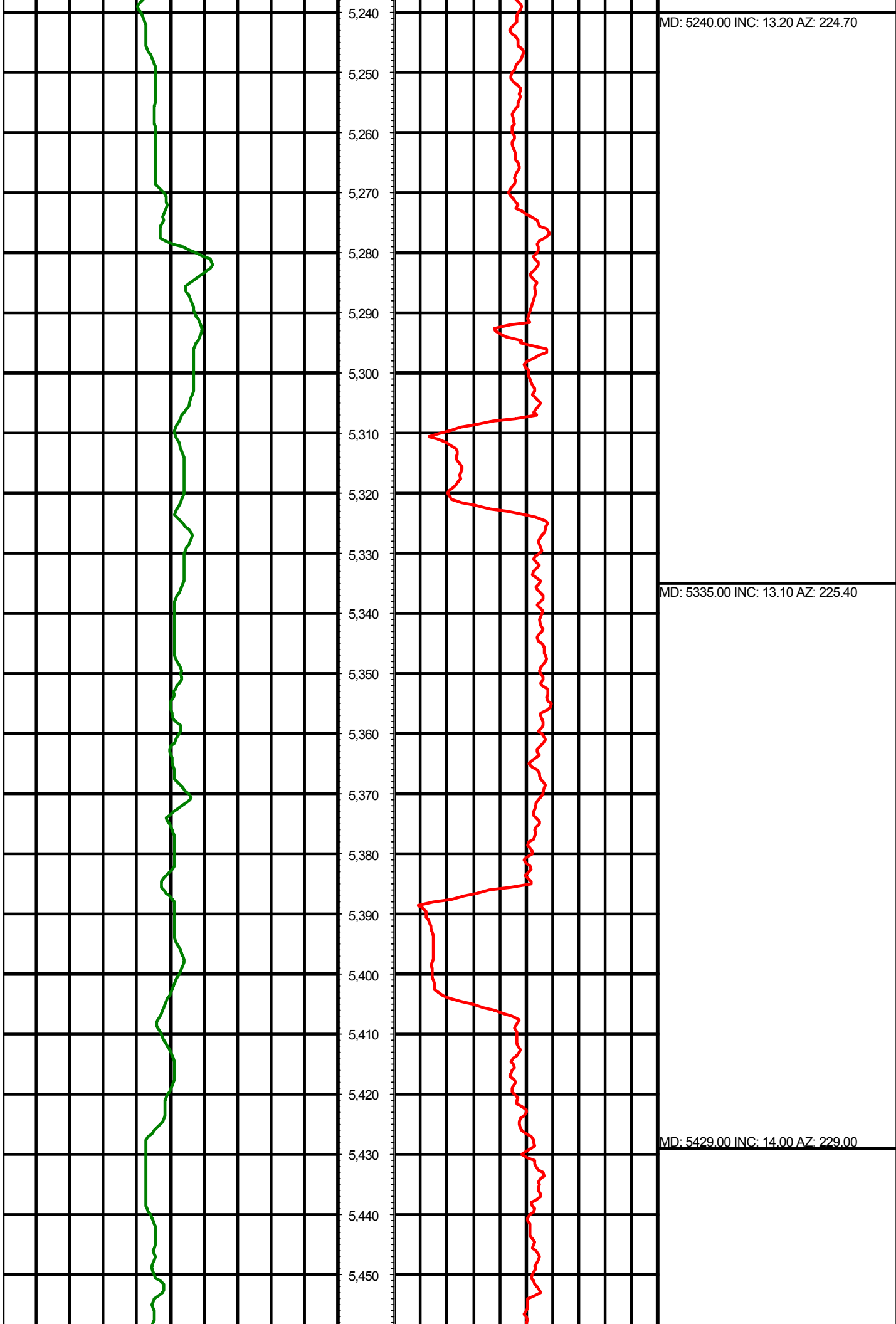
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost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





MD: 5051.00 INC: 12.90 AZ: 226.90

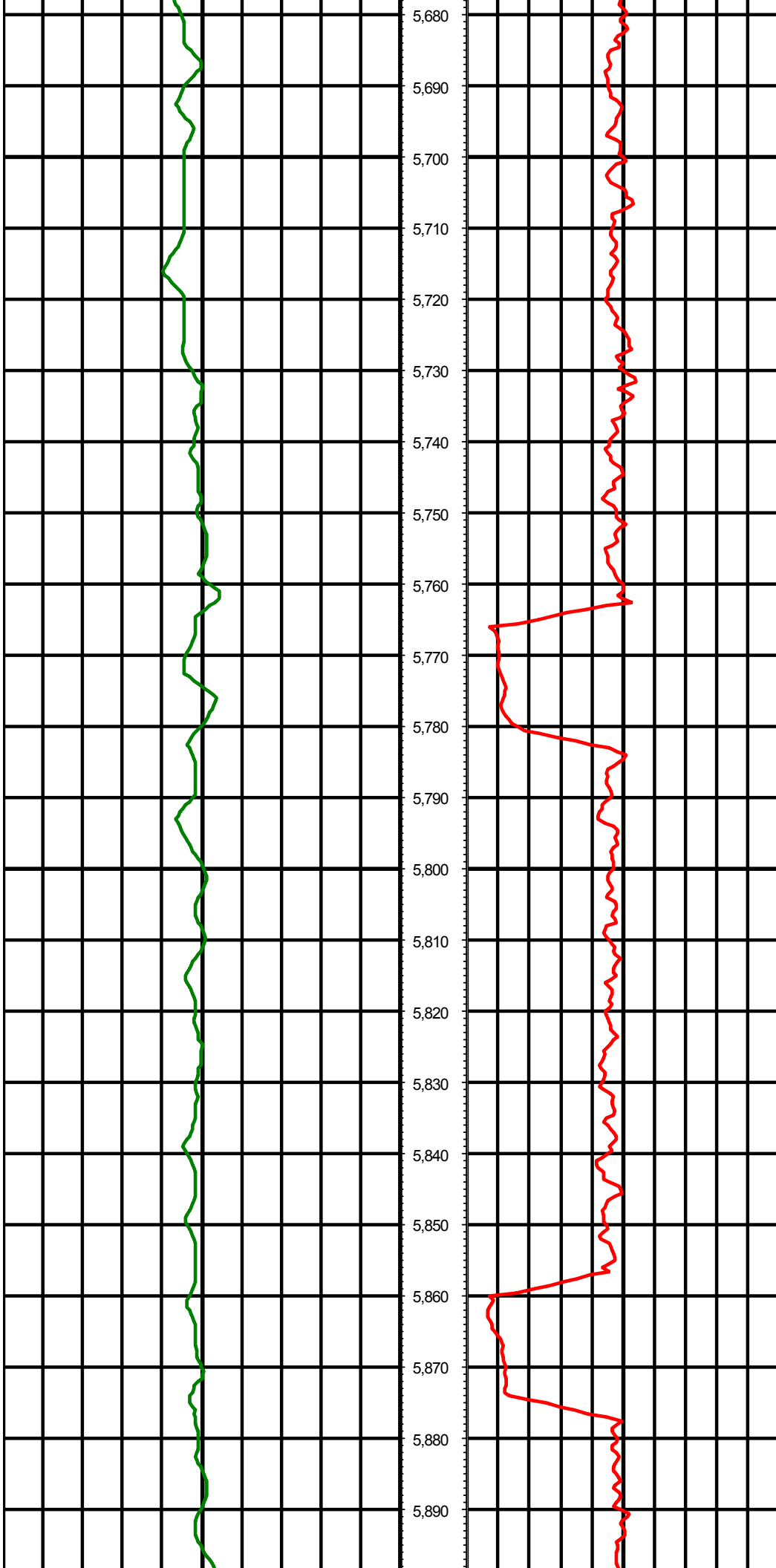
MD: 5146.00 INC: 14.60 AZ: 225.50





MD: 5524.00 INC: 15.30 AZ: 234.20

MD: 5618.00 INC: 13.20 AZ: 231.20

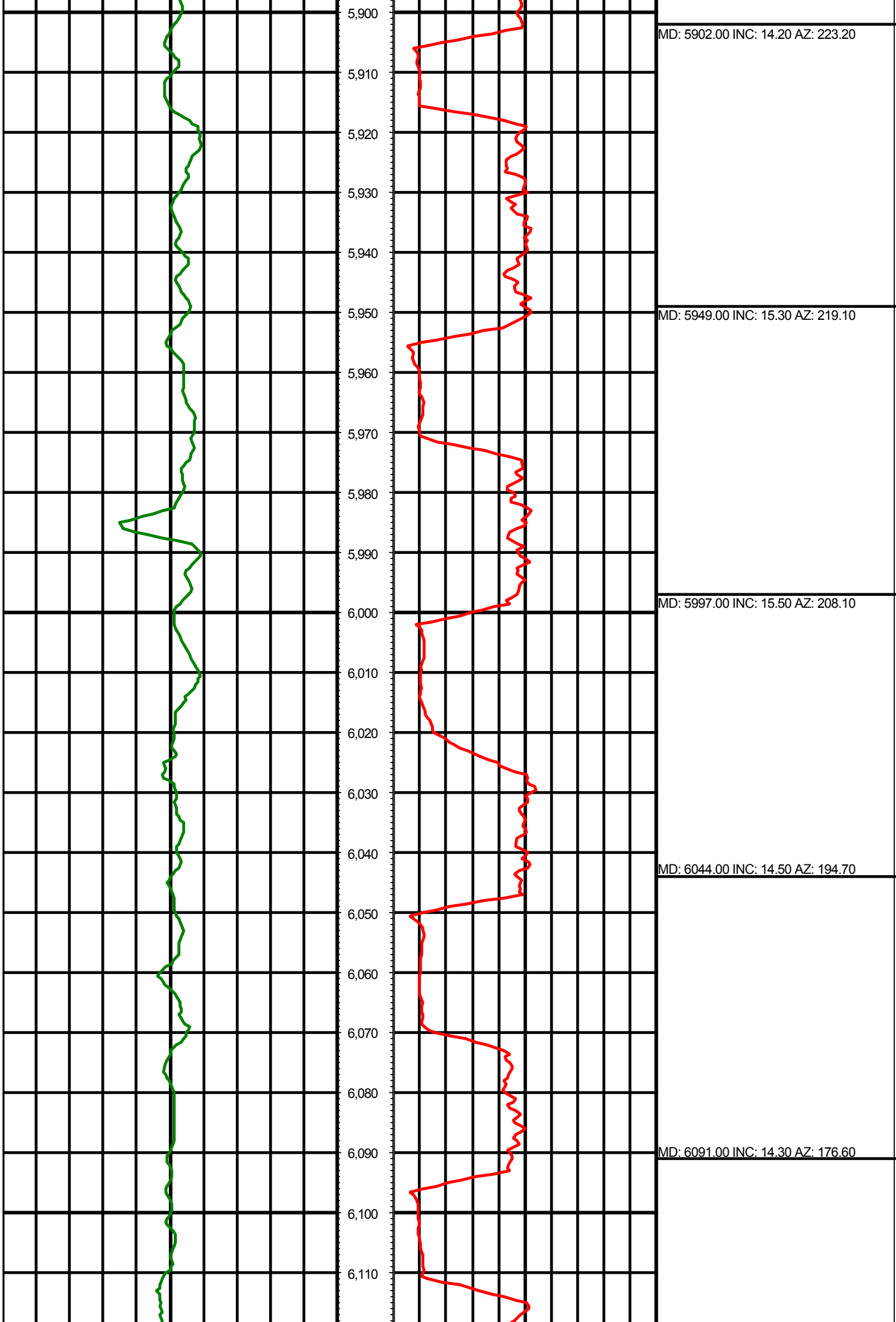


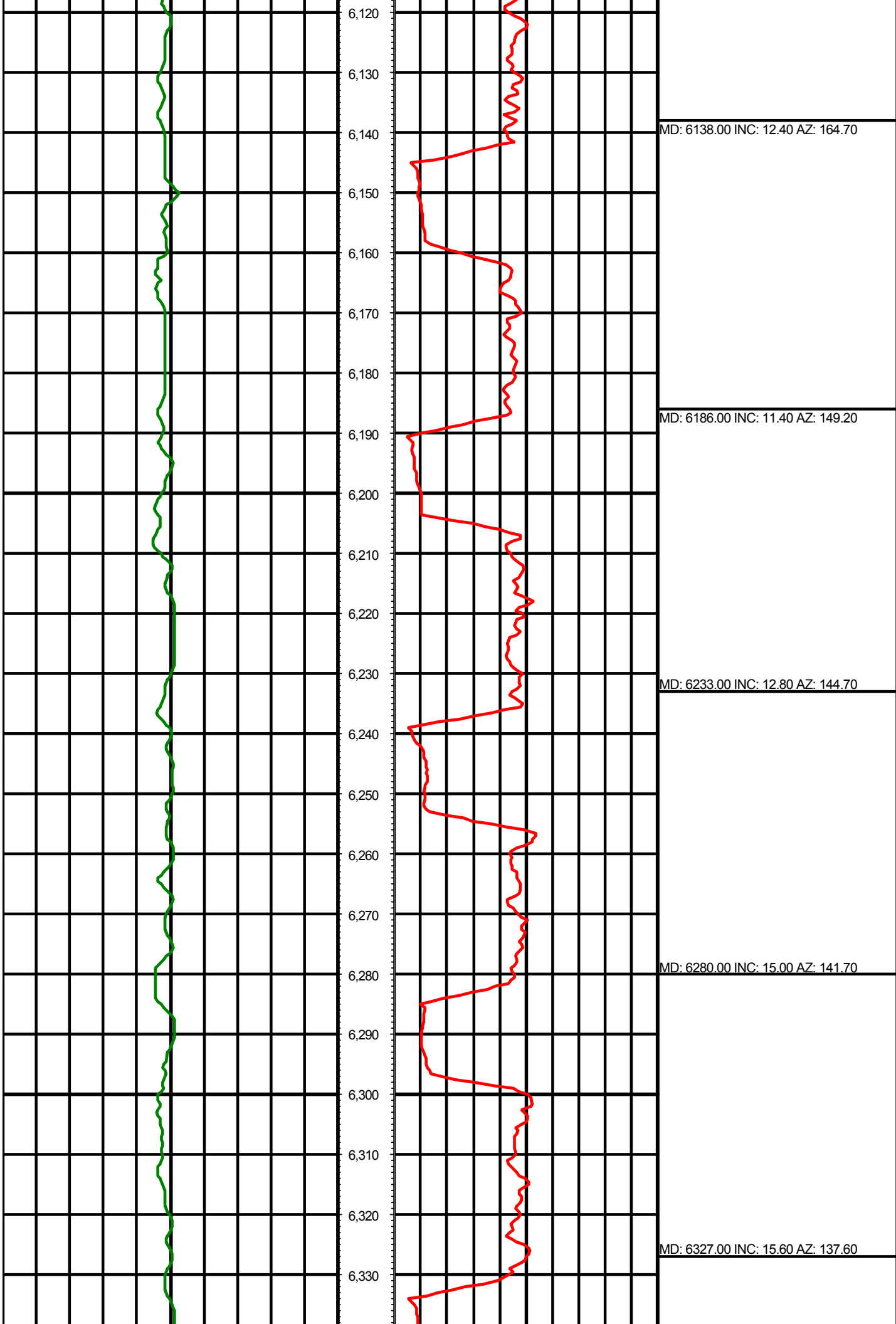
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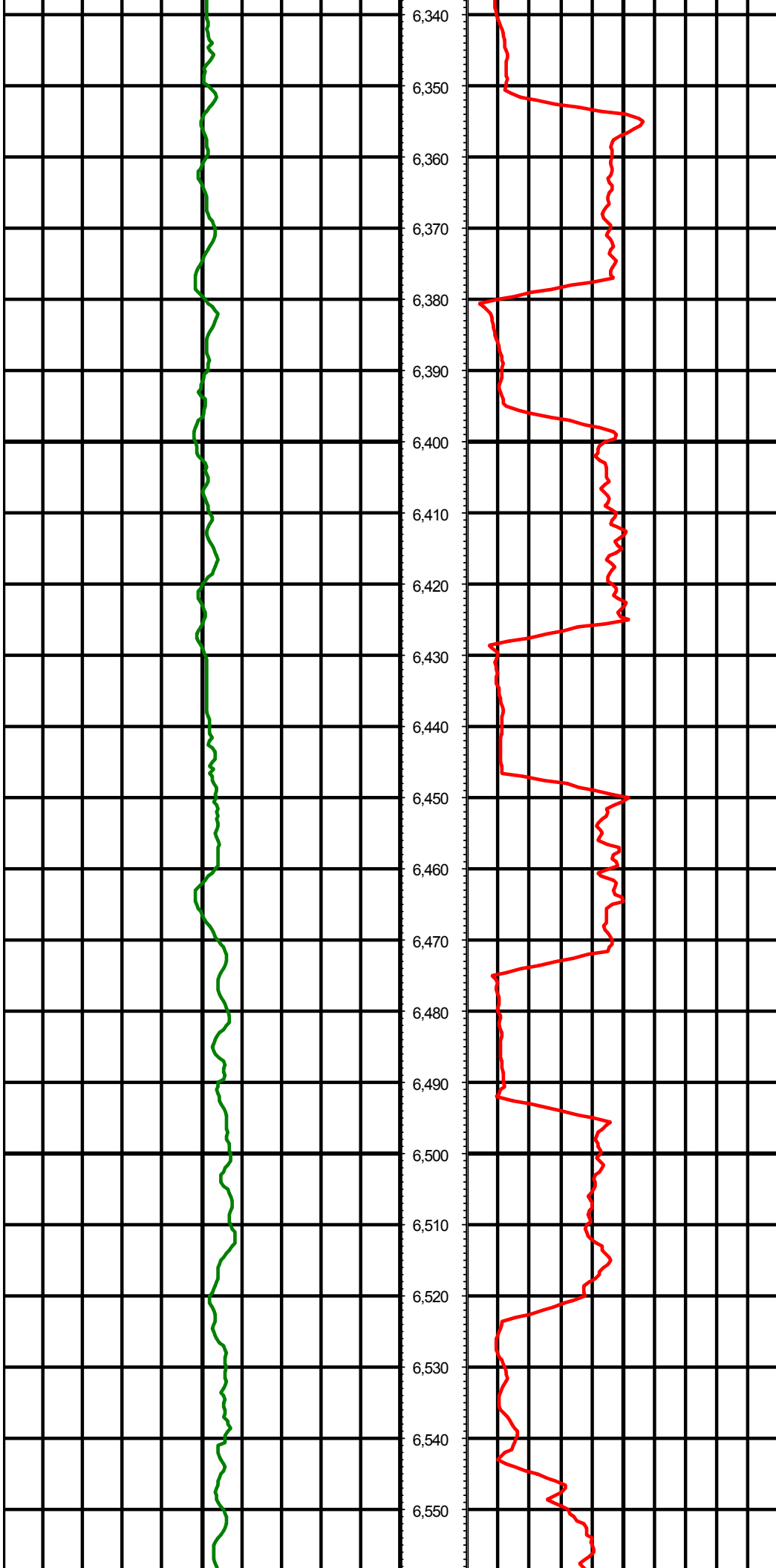
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MD: 5807.00 INC: 12.50 AZ: 225.70

MD: 5854.00 INC: 12.10 AZ: 224.20





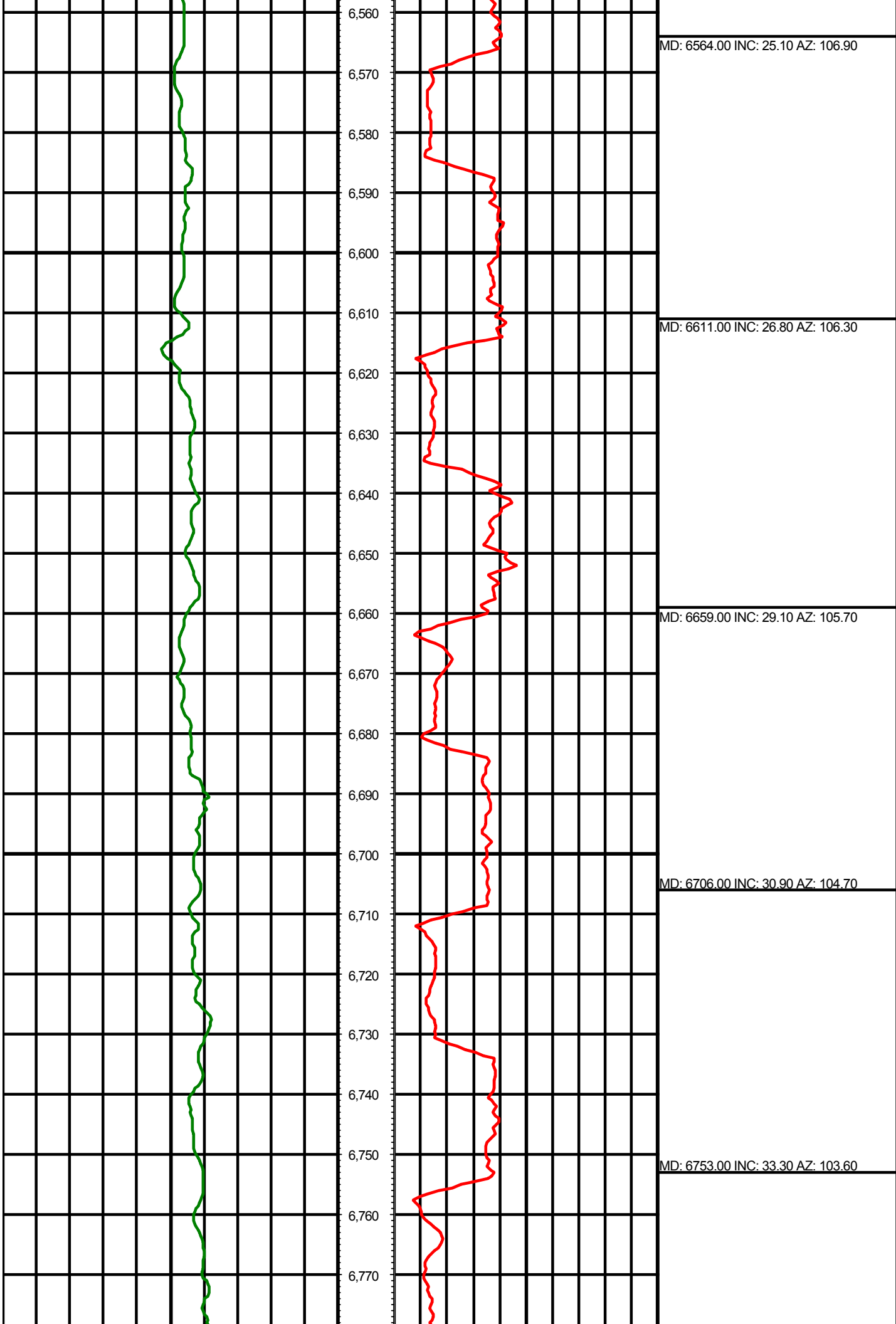


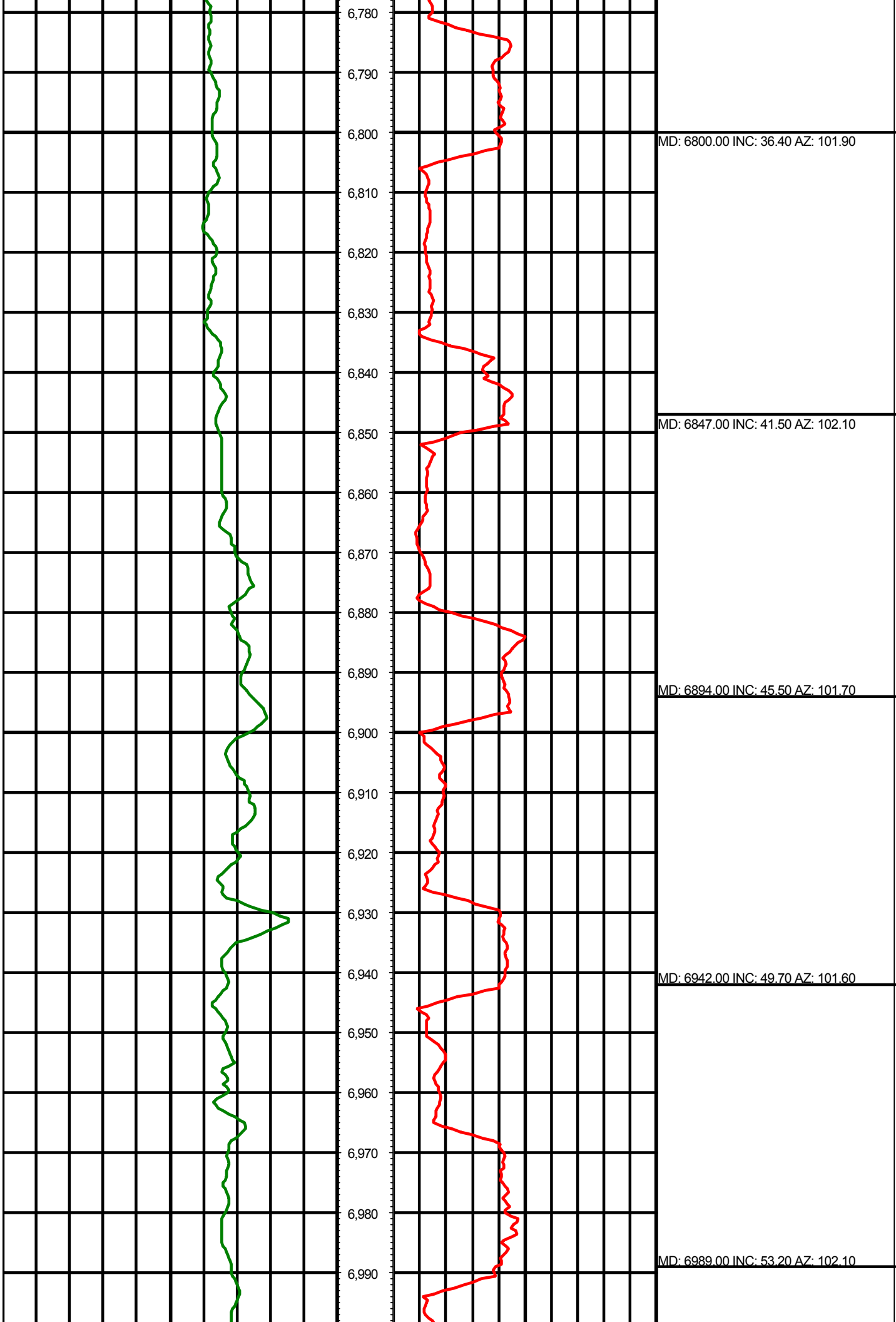
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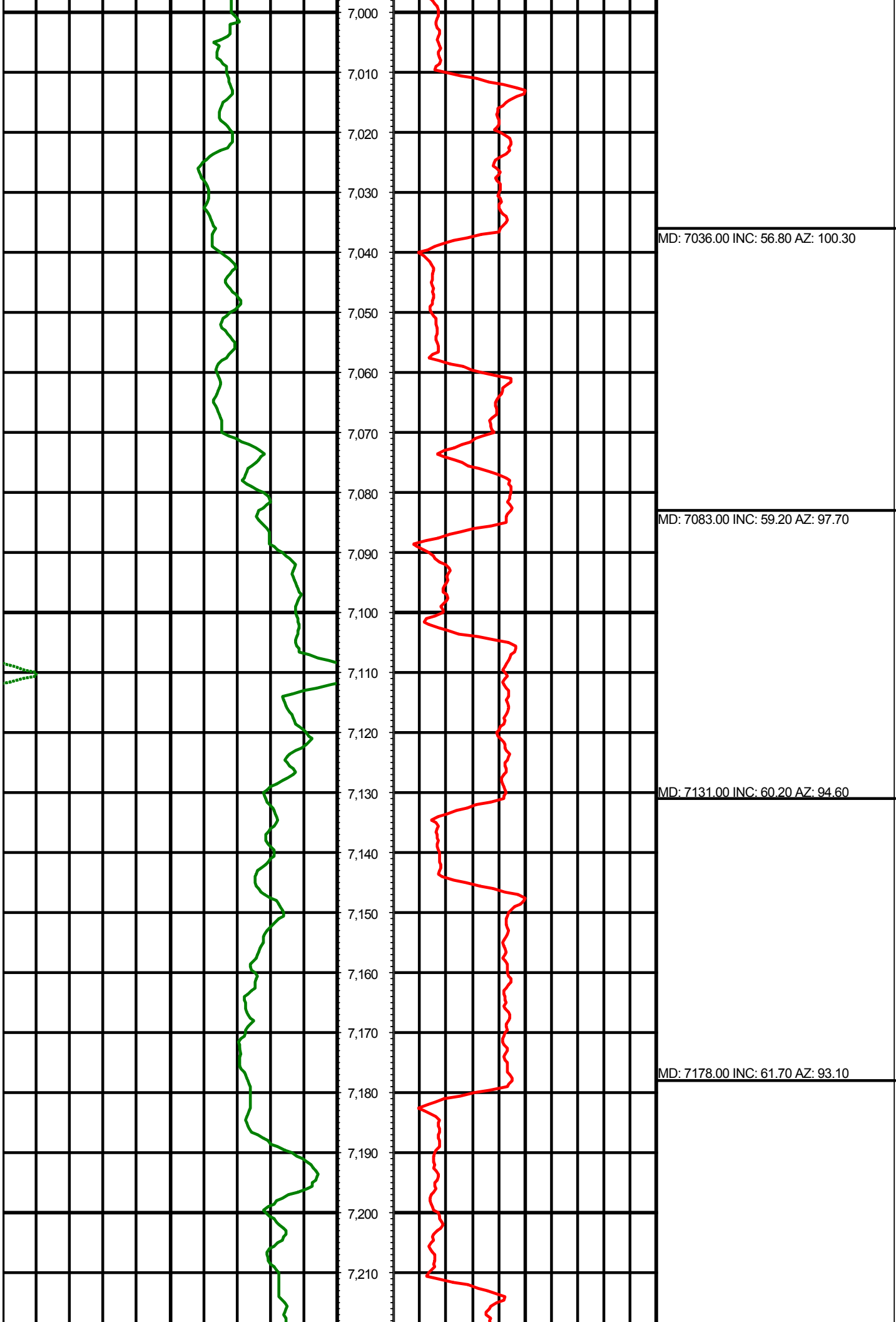
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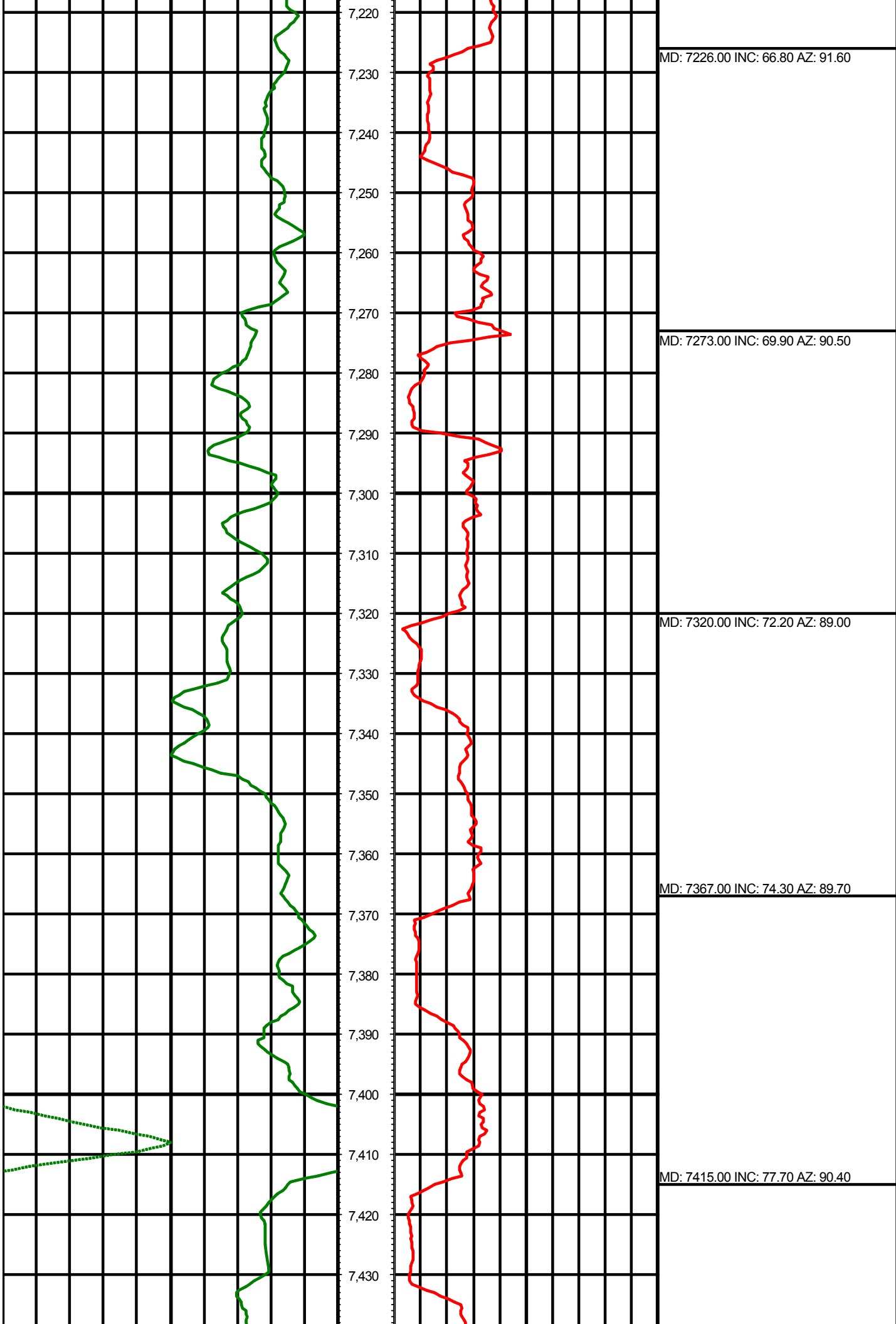
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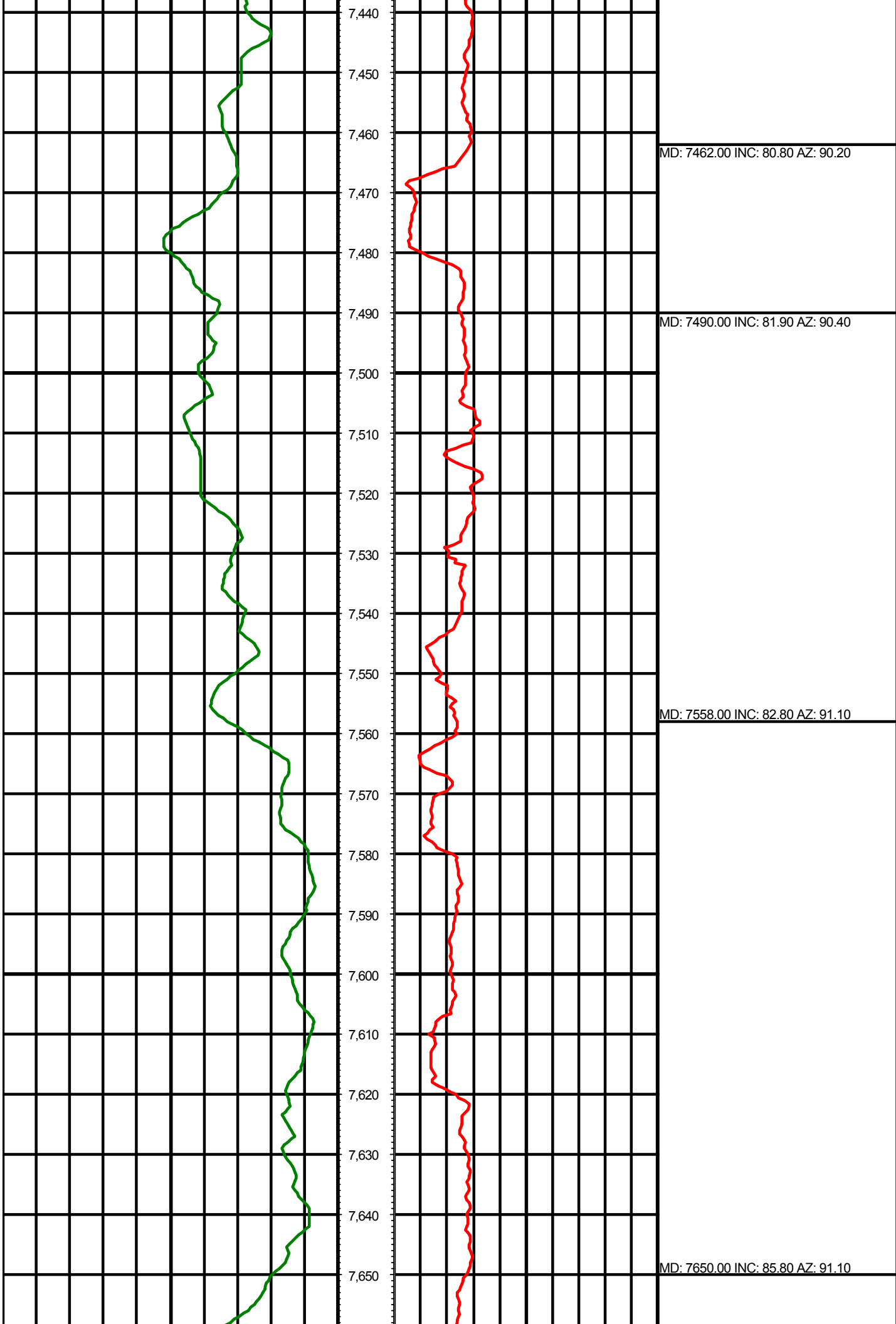
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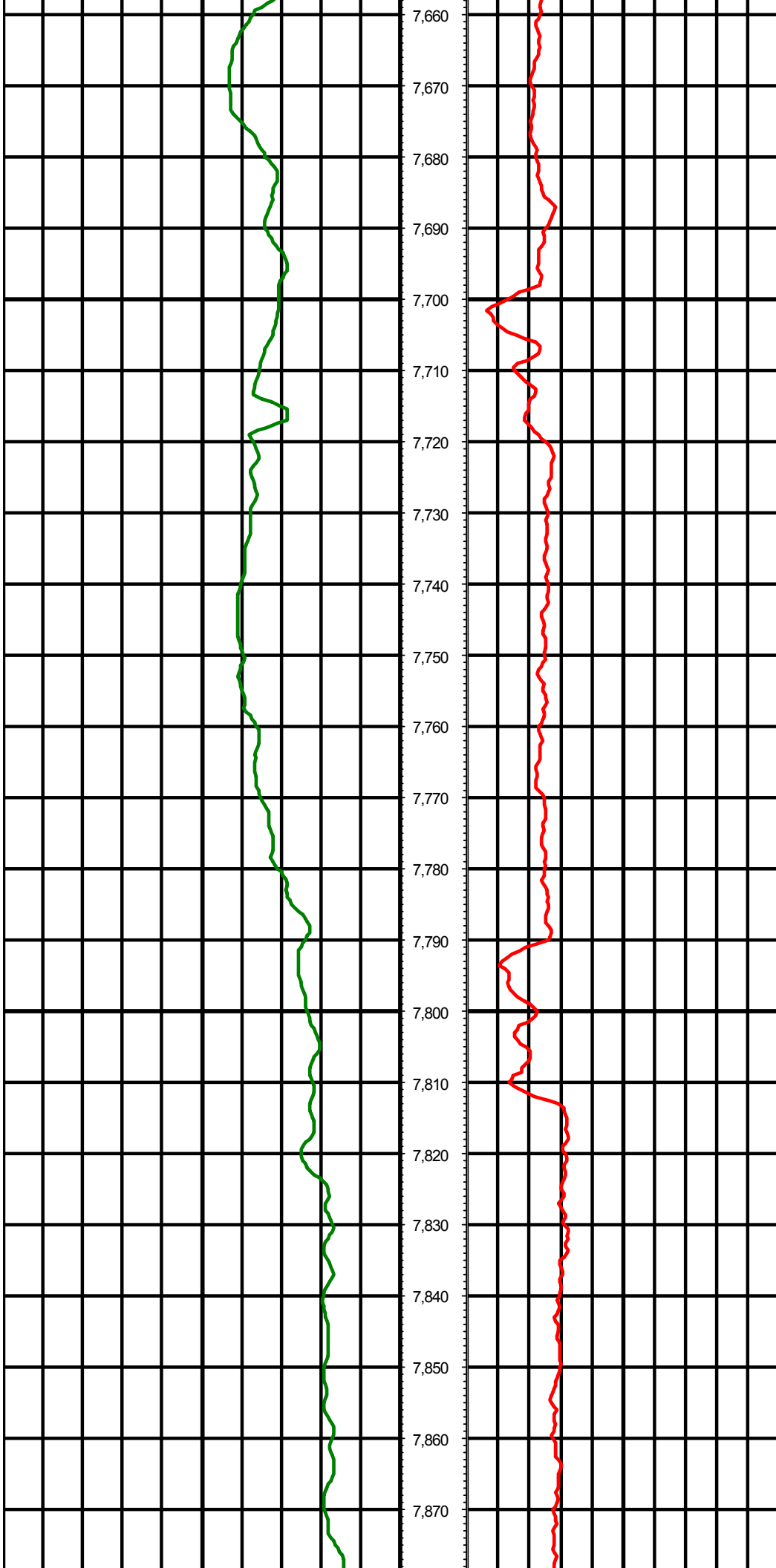






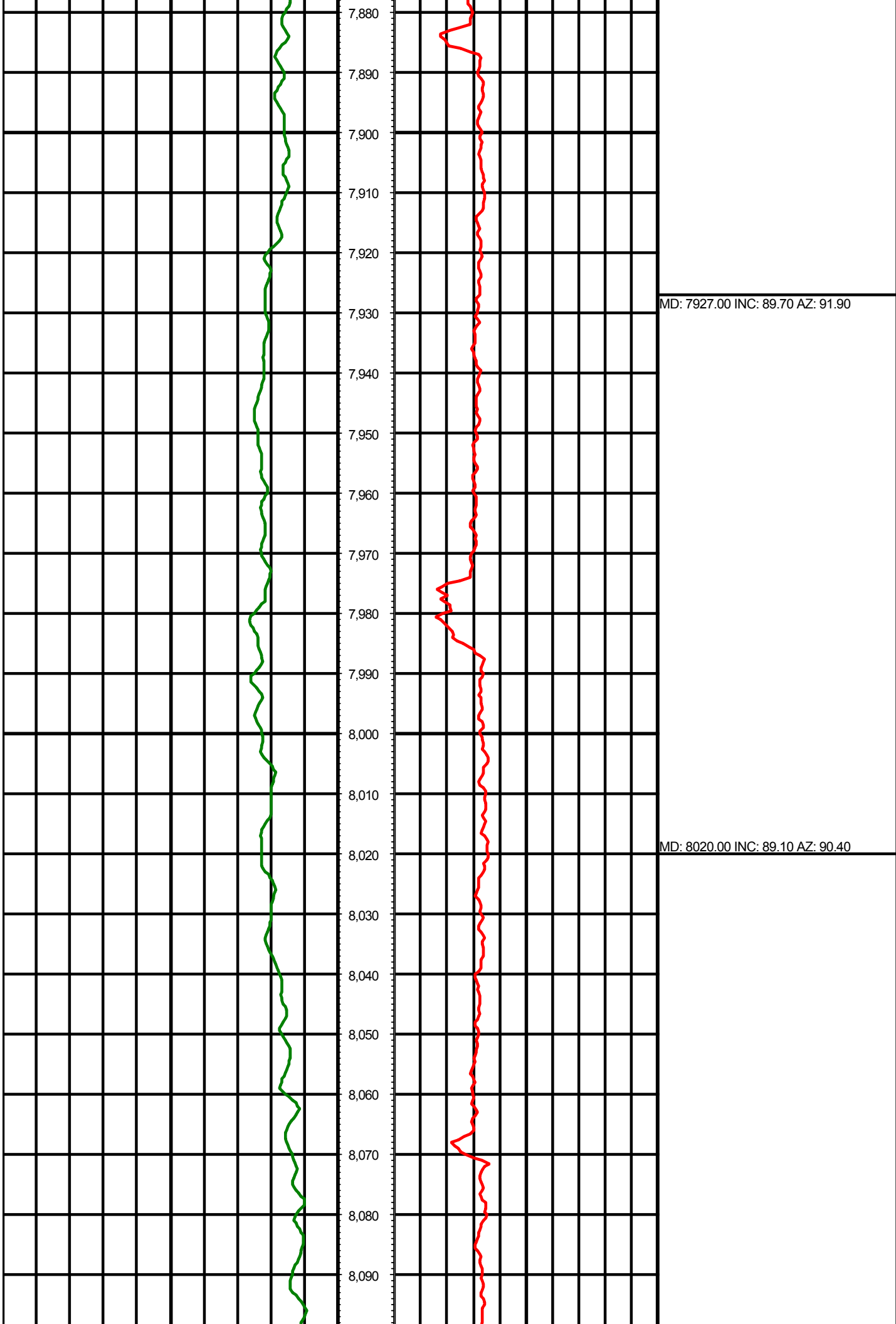


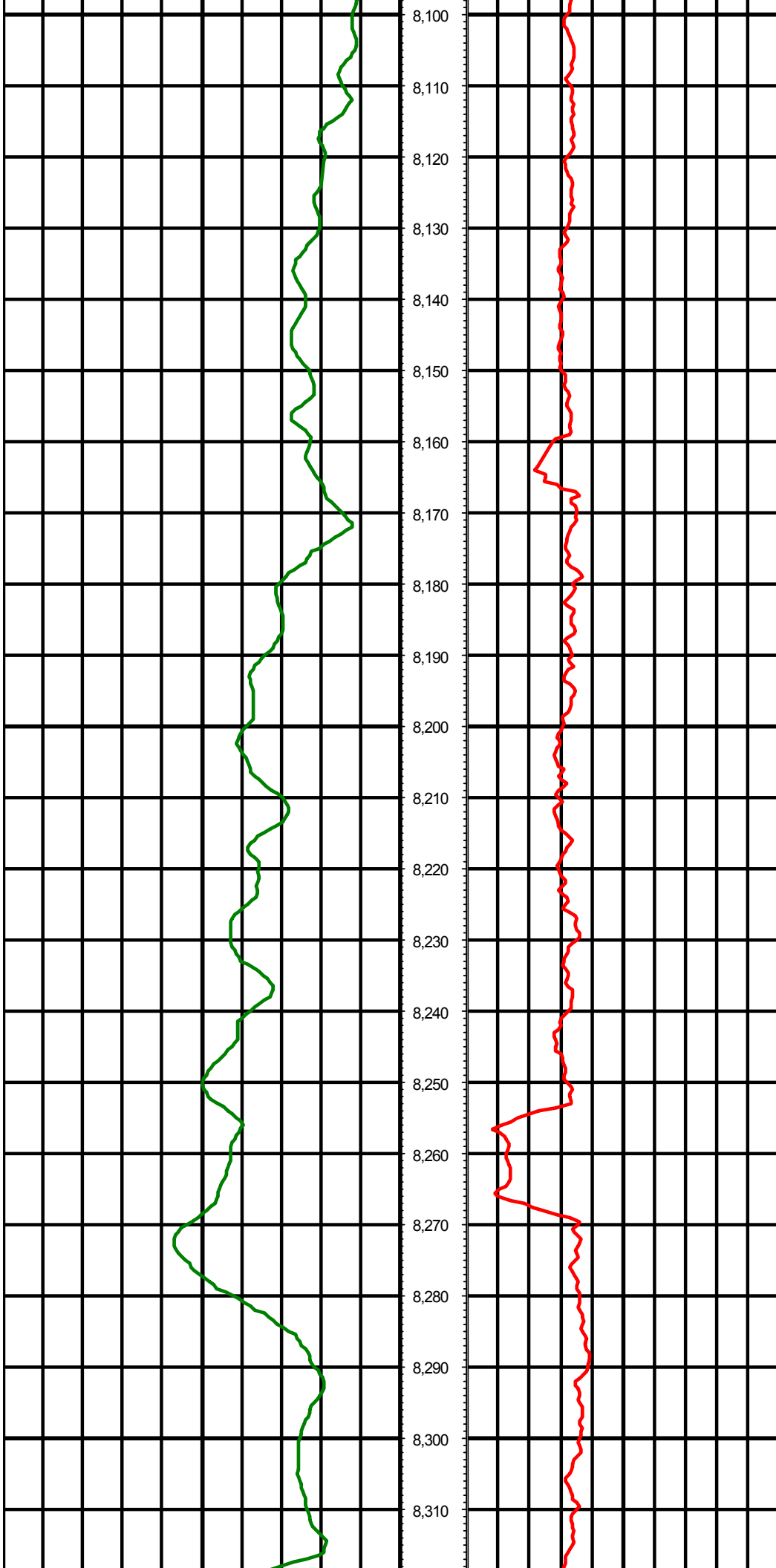




MD: 7742.00 INC: 88.00 AZ: 91.80

MD: 7835.00 INC: 89.00 AZ: 91.30

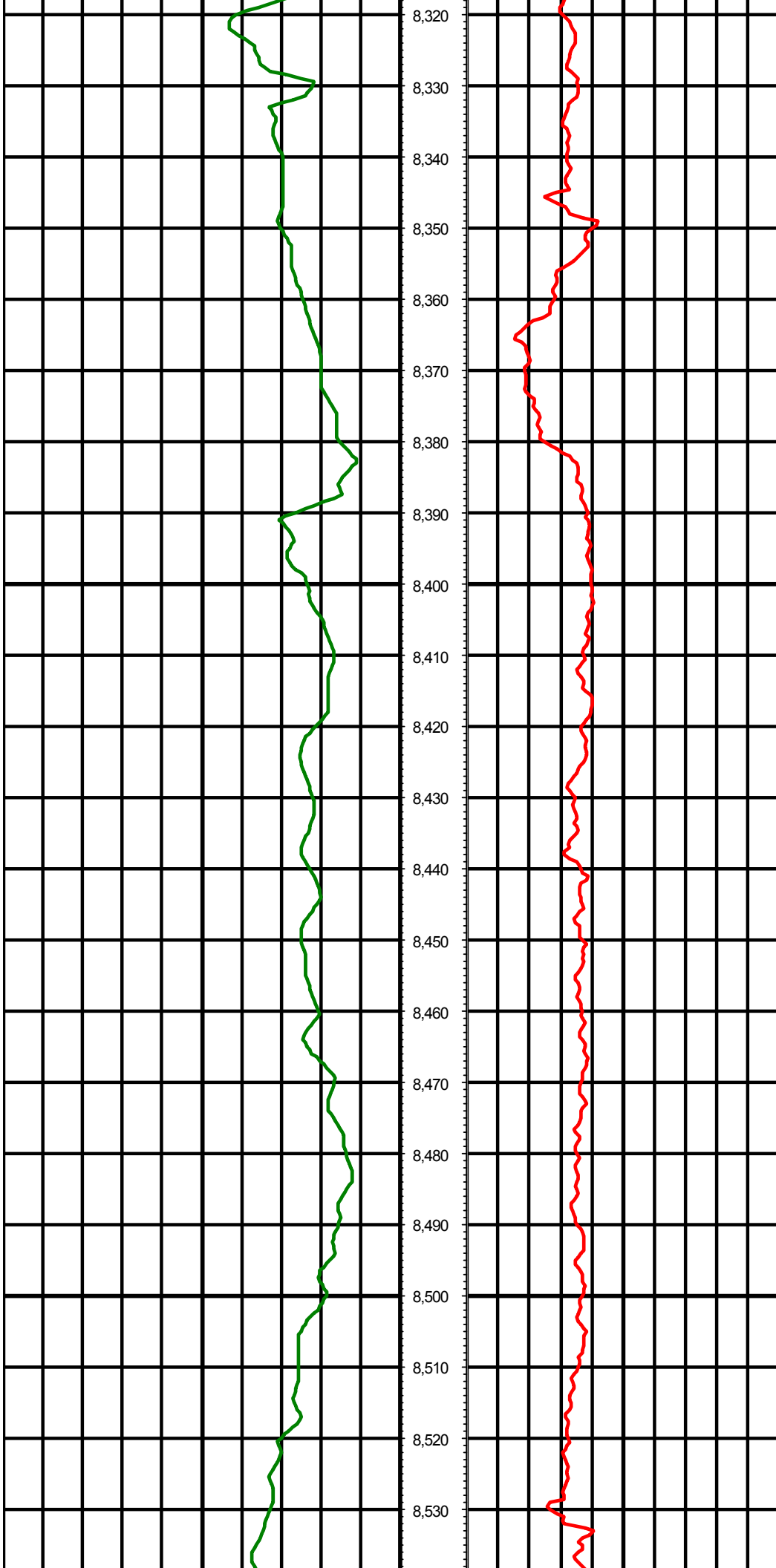




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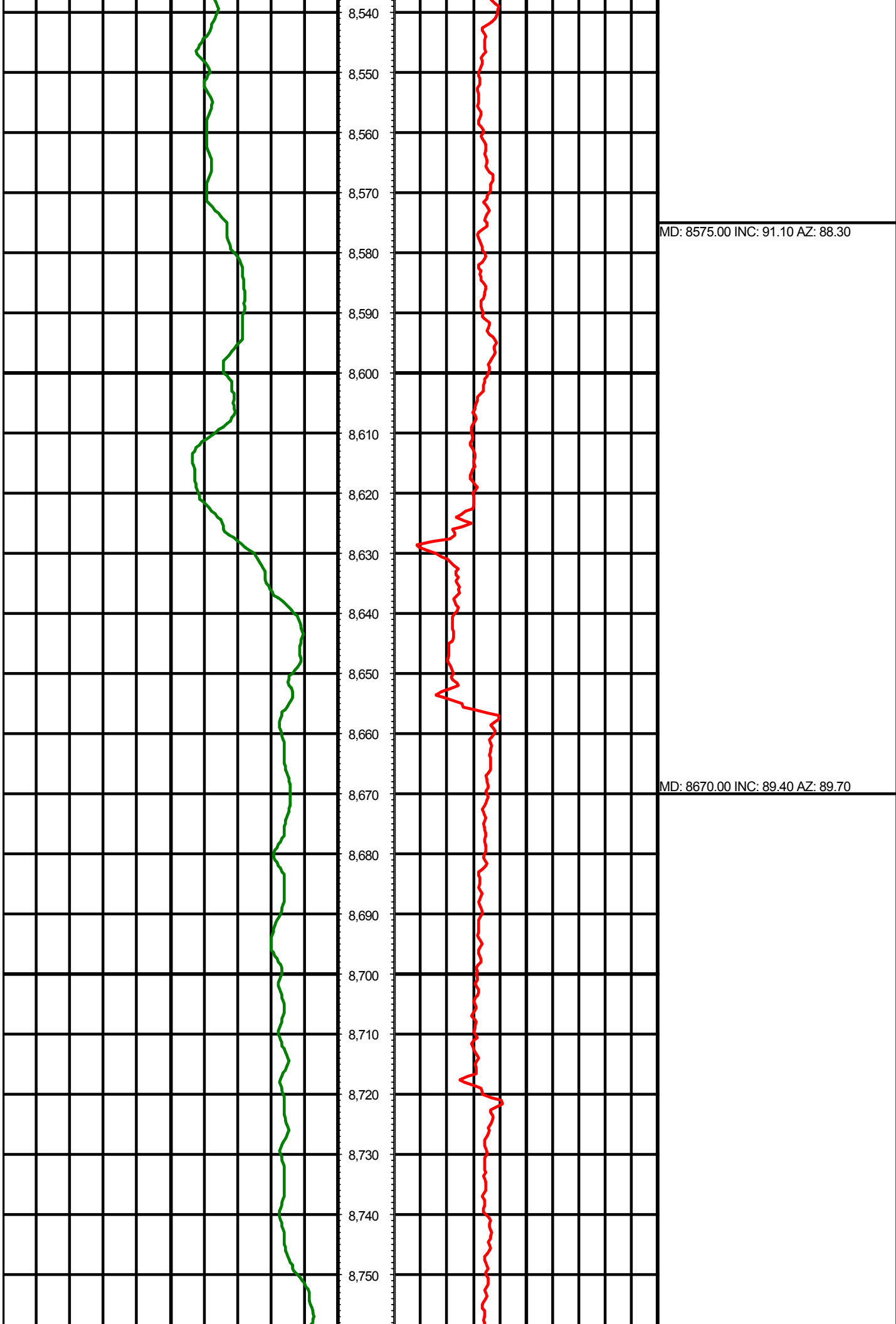
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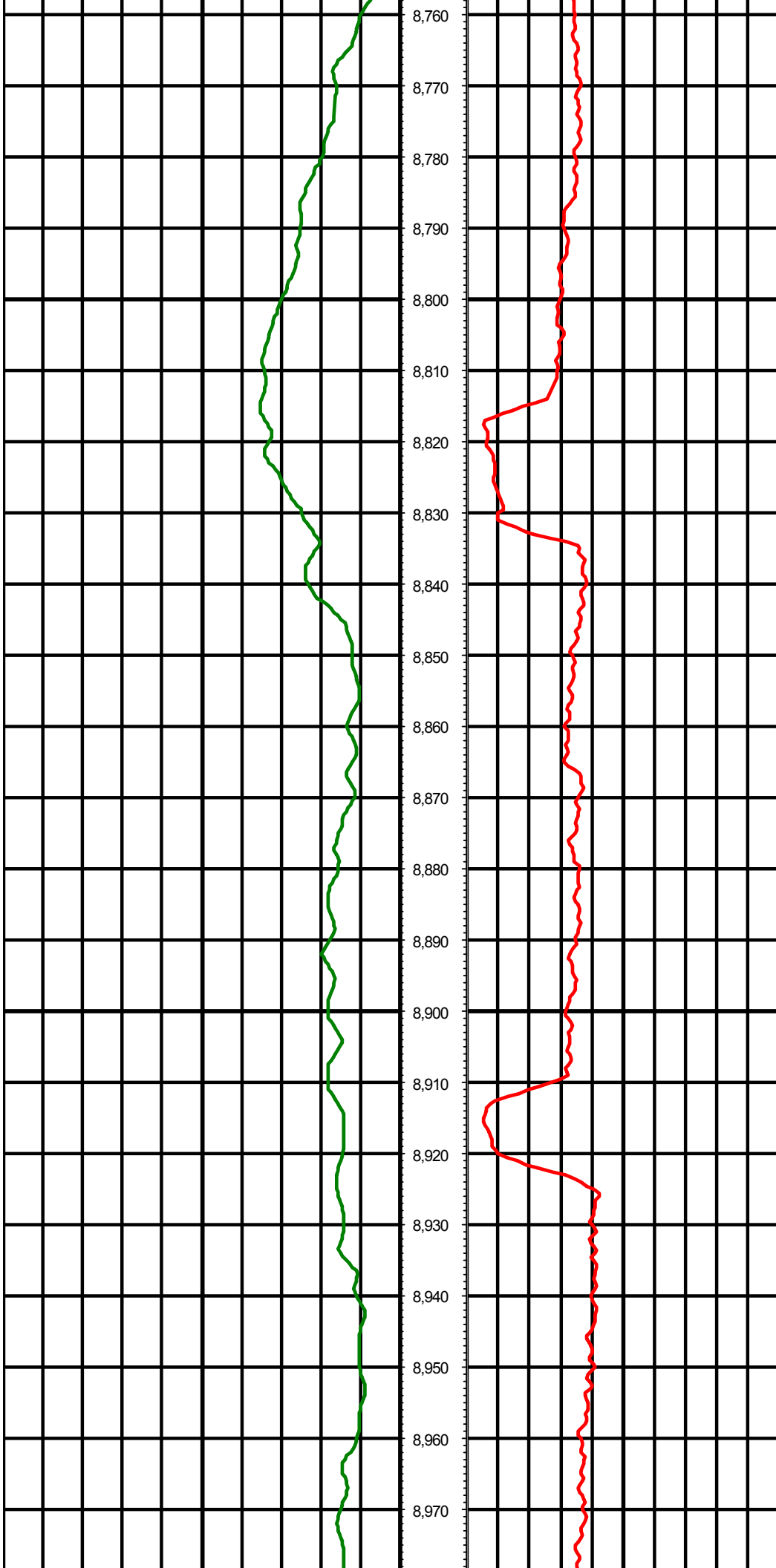
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MD: 8389.00 INC: 90.60 AZ: 89.50

MD: 8481.00 INC: 90.80 AZ: 88.90

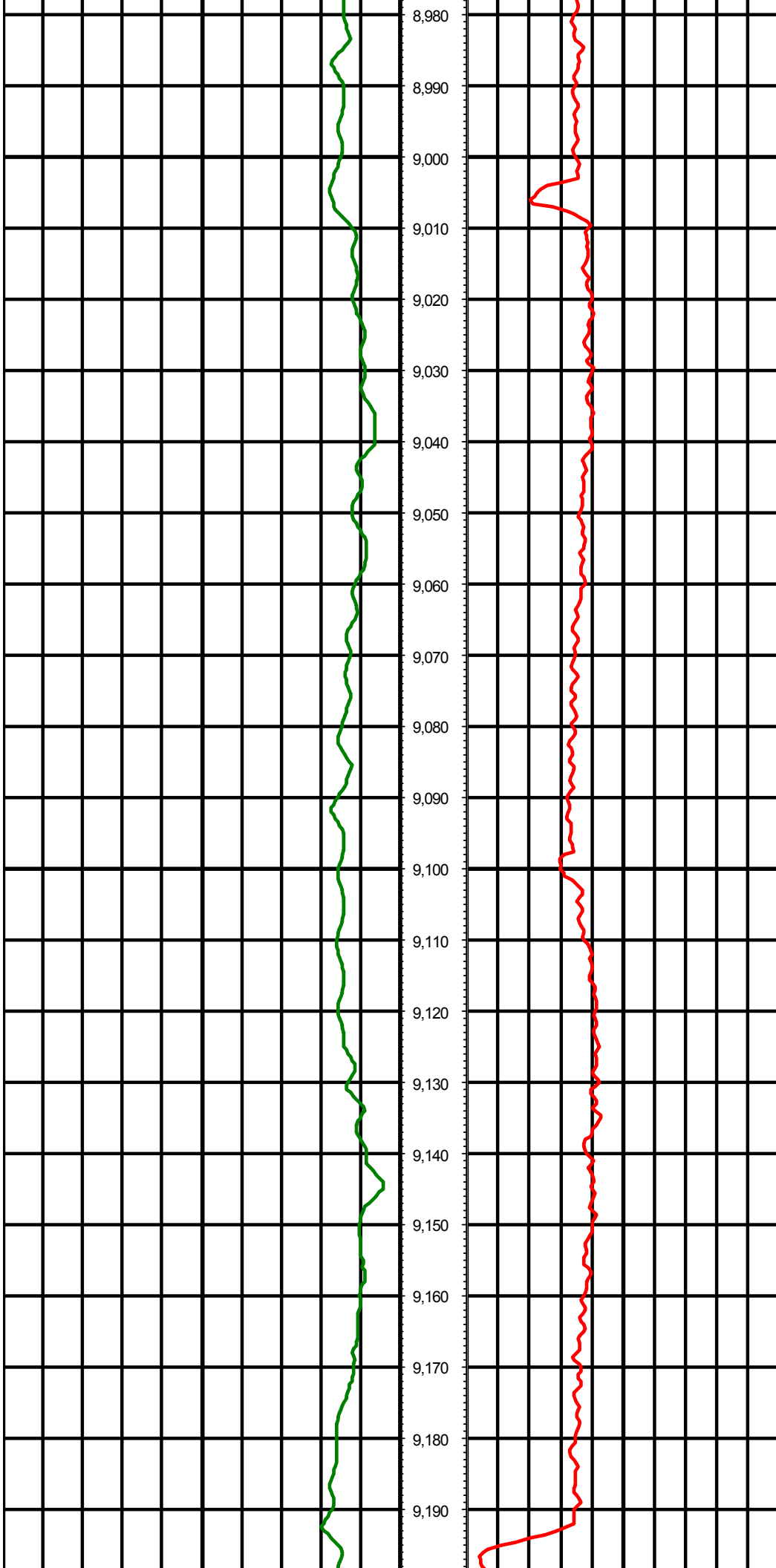




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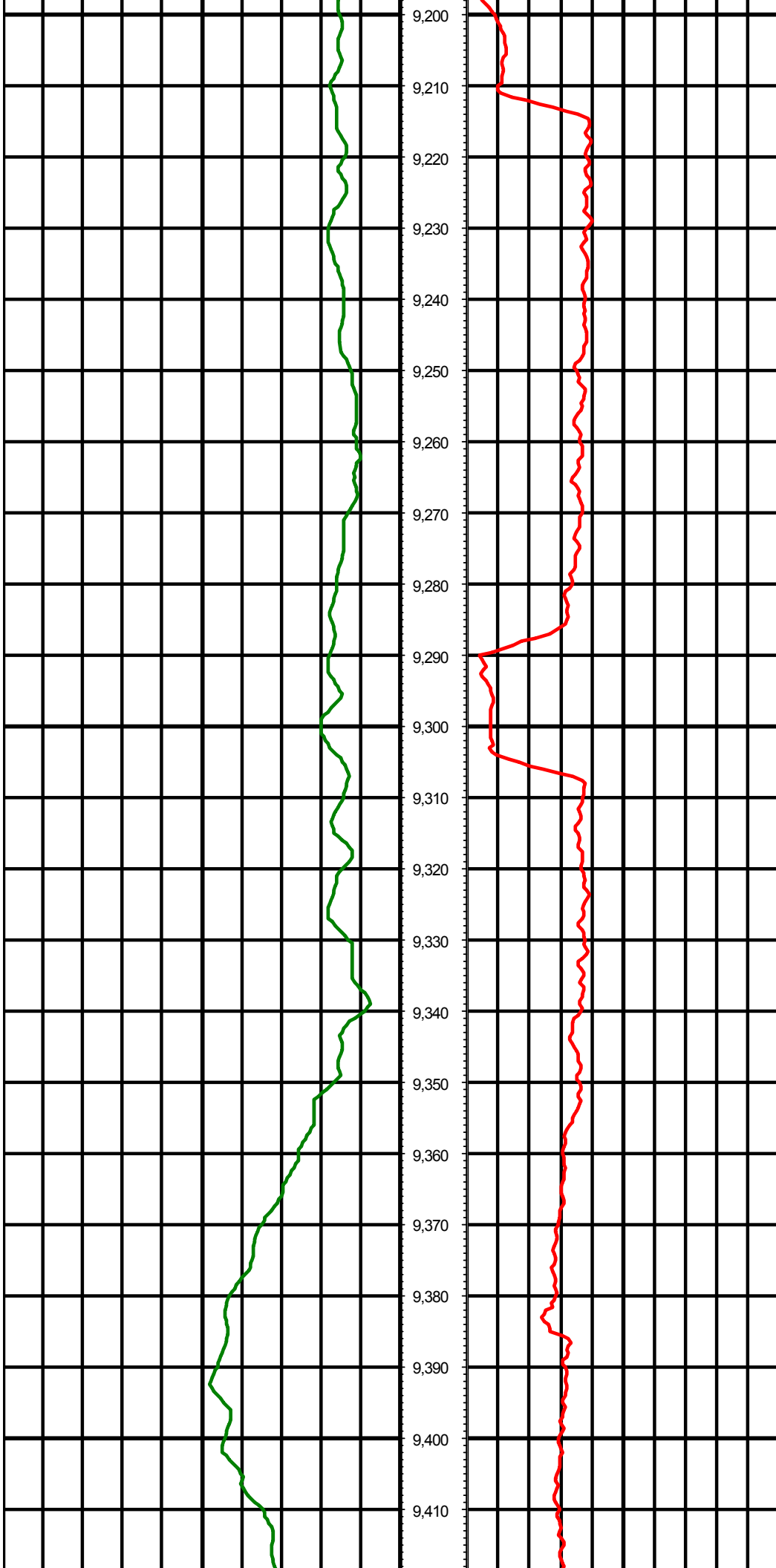
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MD: 8953.00 INC: 90.20 AZ: 90.10



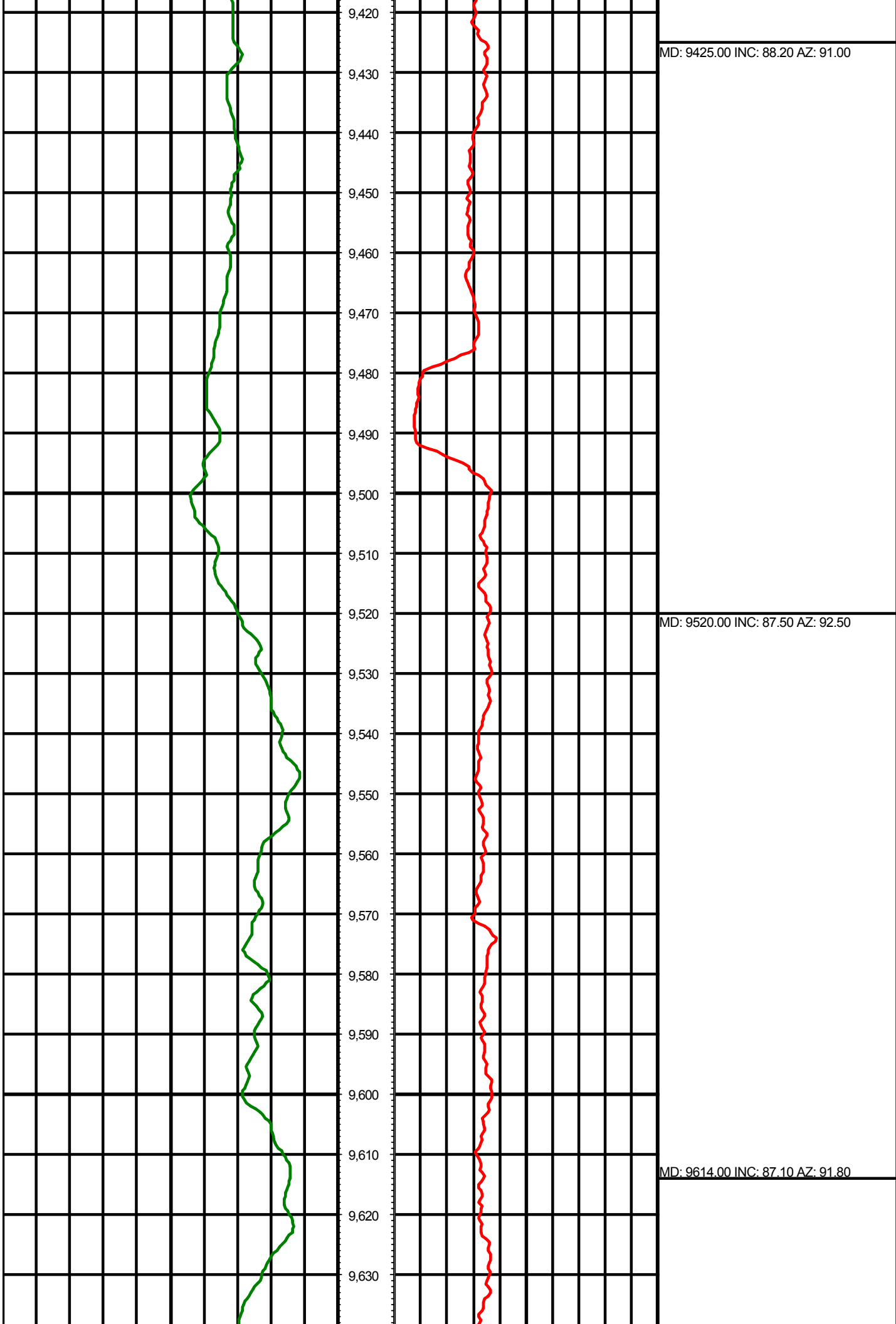
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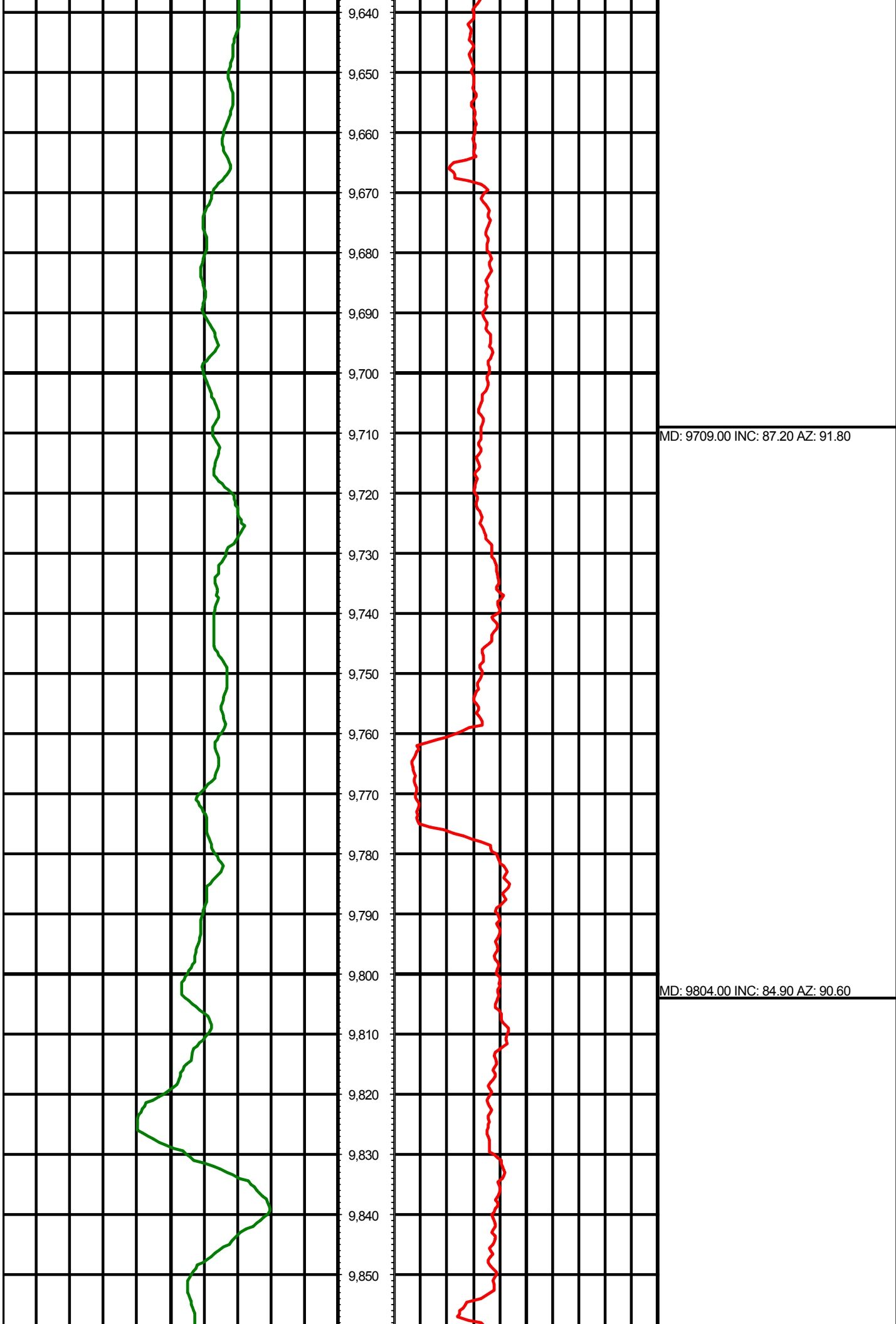
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MD: 9237.00 INC: 88.30 AZ: 90.20

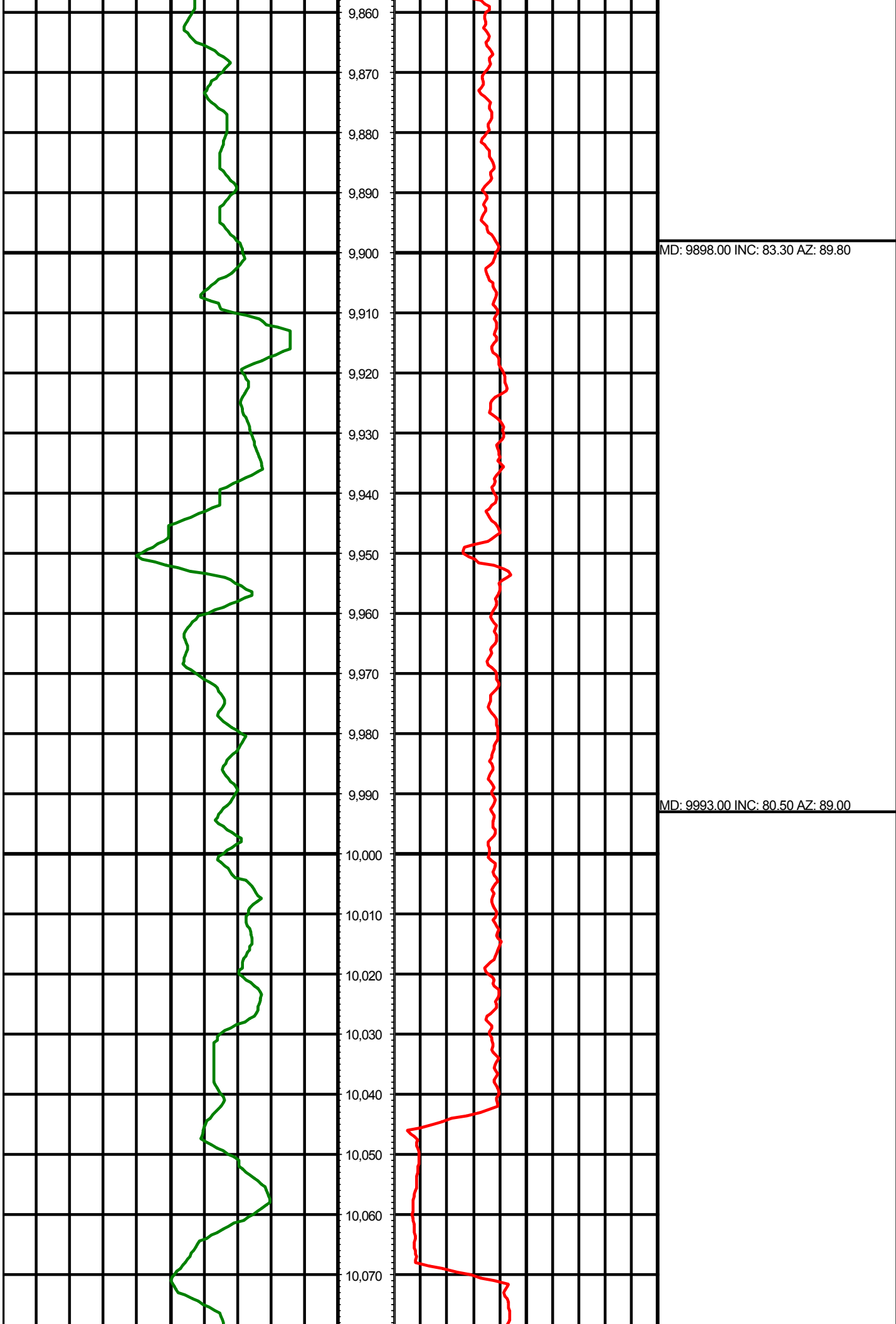
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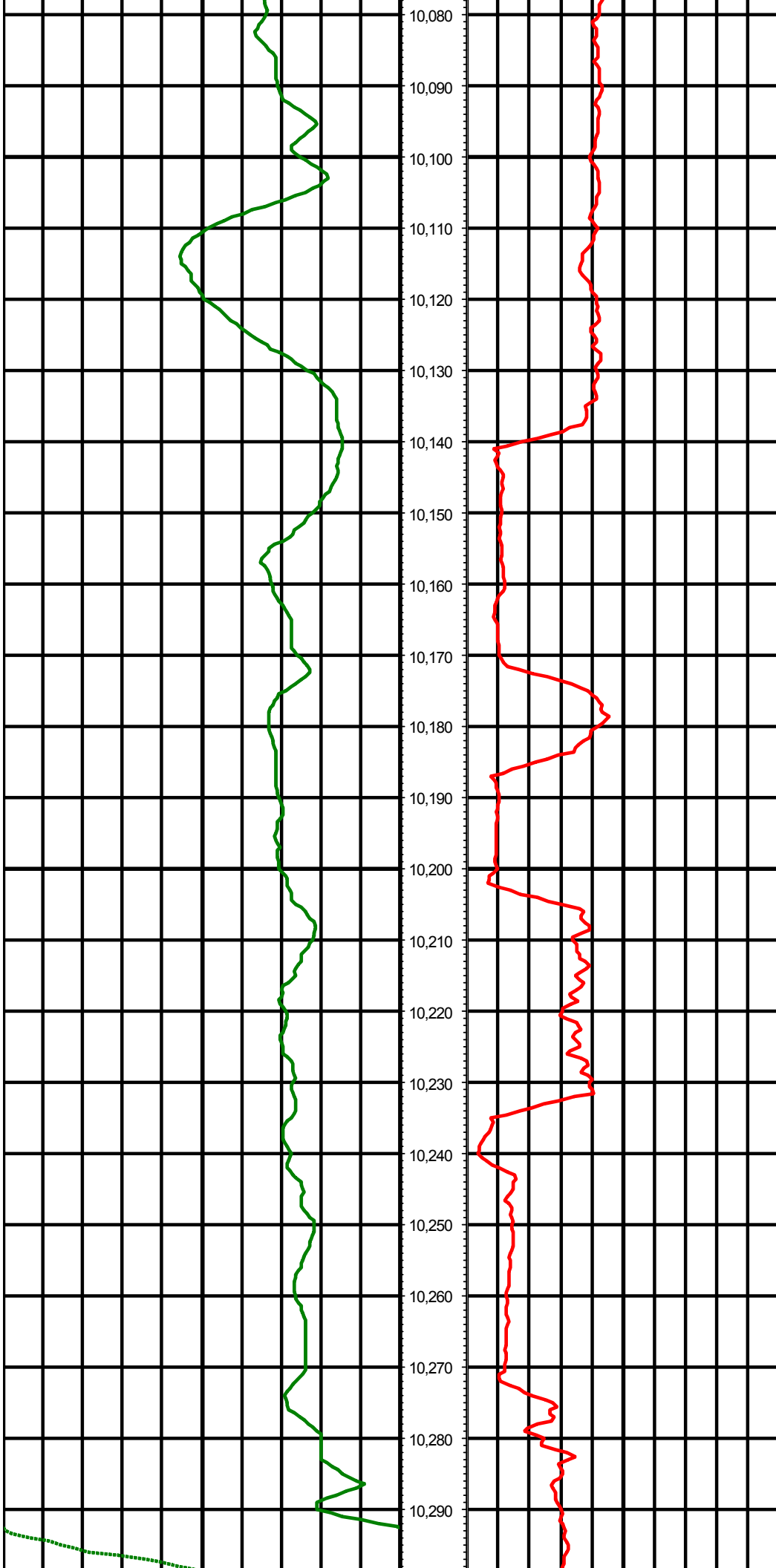




MD: 9709.00 INC: 87.20 AZ: 91.80

MD: 9804.00 INC: 84.90 AZ: 90.60

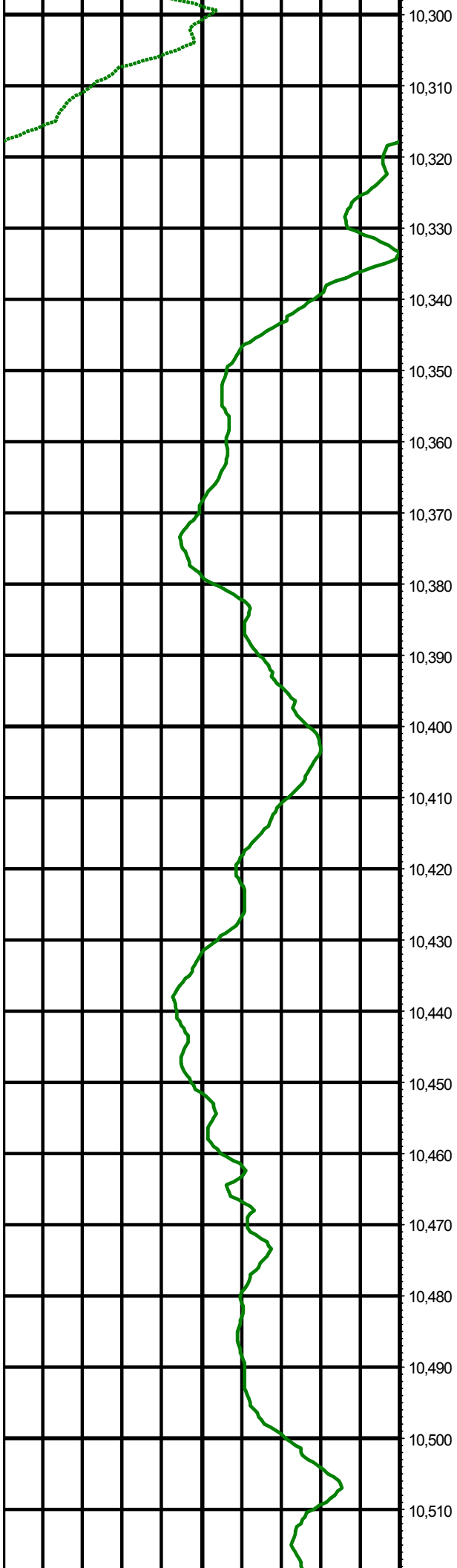




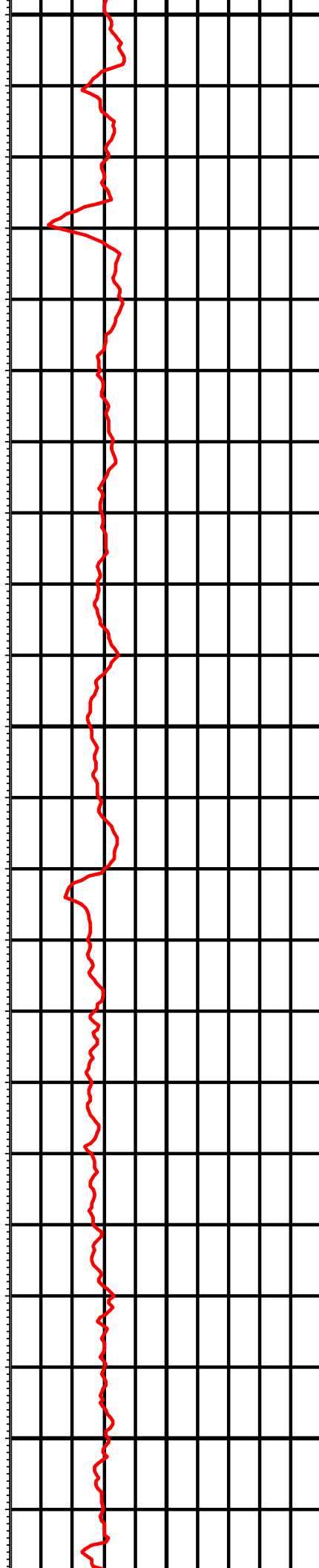
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MD: 10182.00 INC: 84.30 AZ: 90.70

MD: 10276.00 INC: 86.90 AZ: 89.70

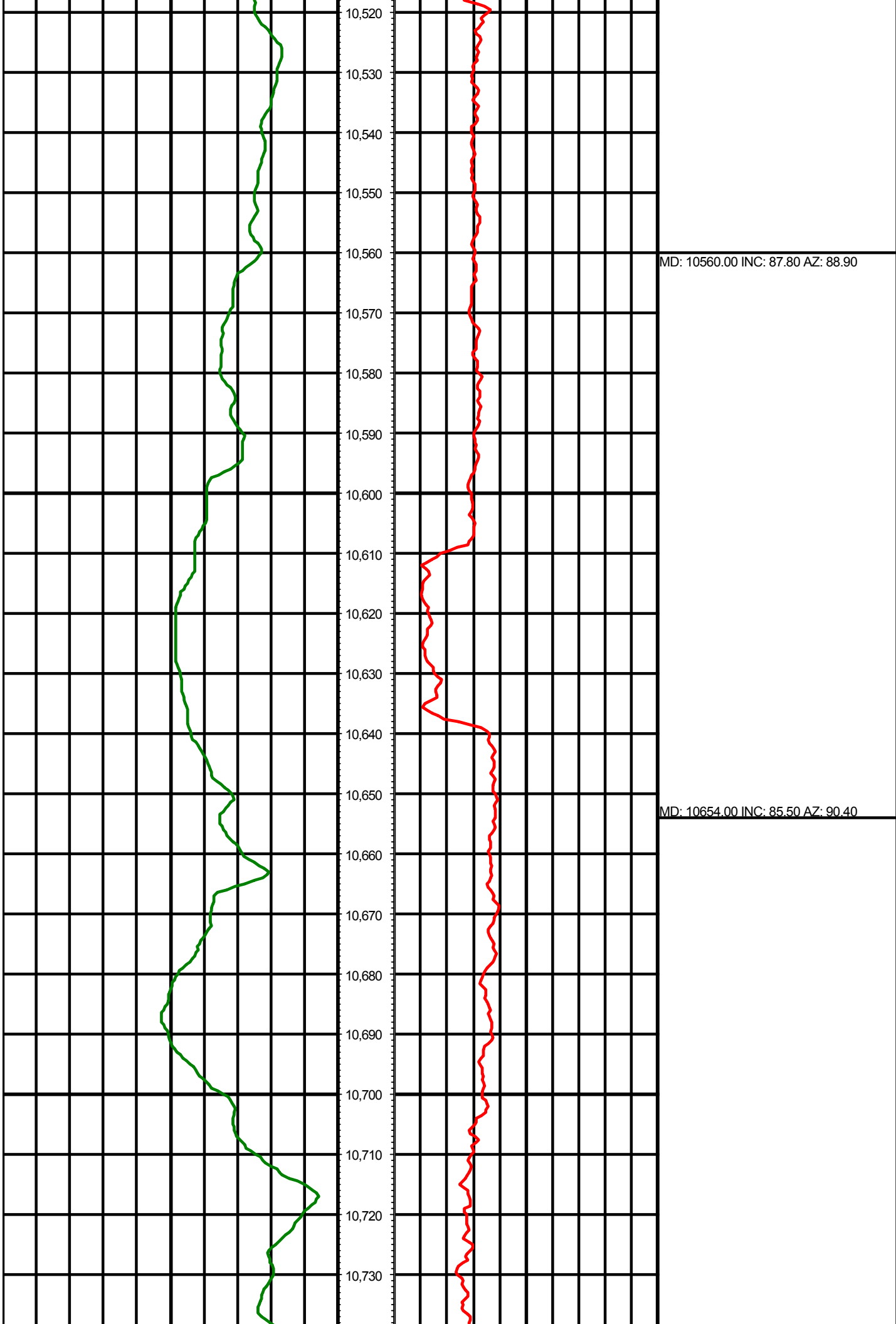


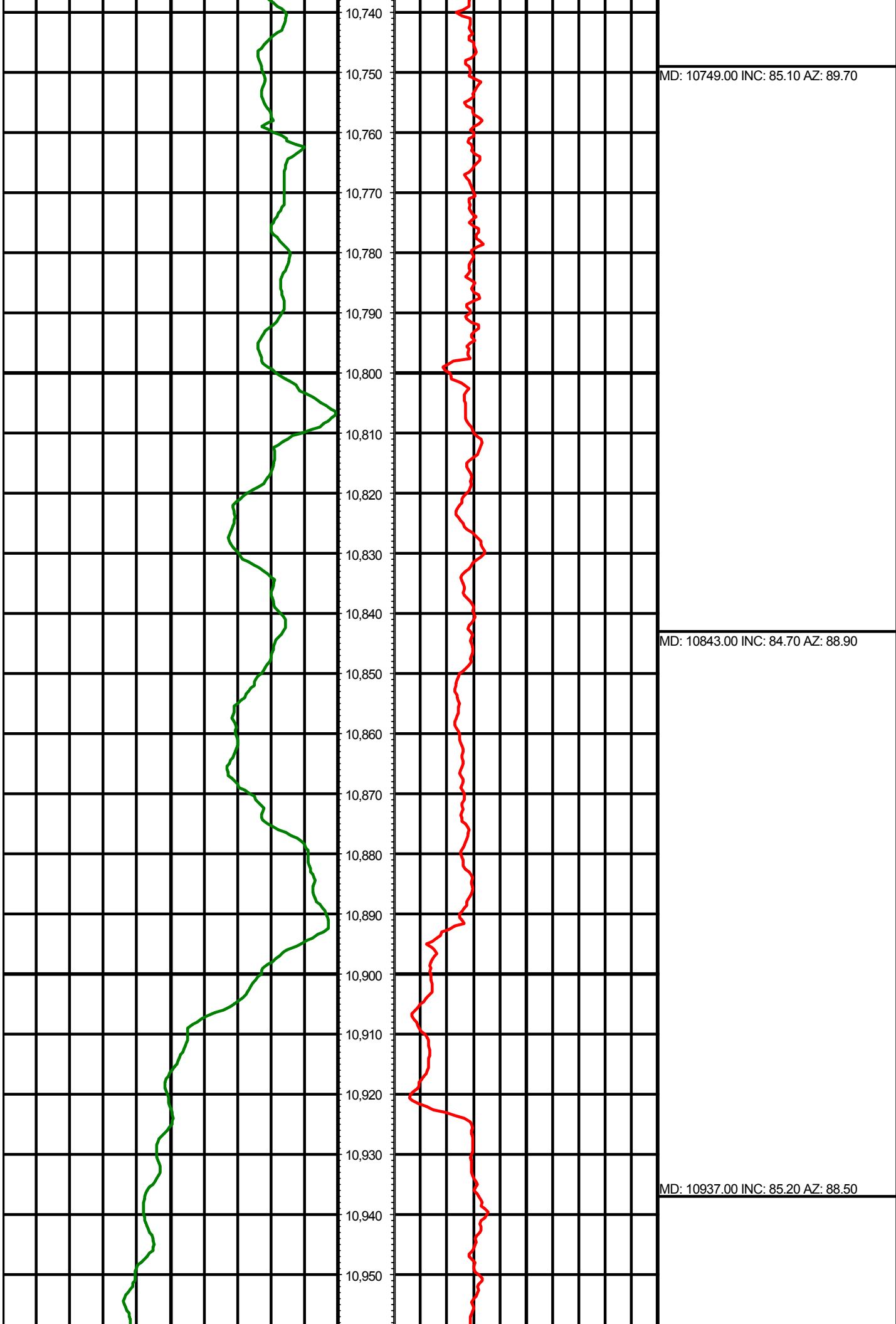
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MD: 10371.00 INC: 86.50 AZ: 89.40

MD: 10465.00 INC: 87.00 AZ: 88.80



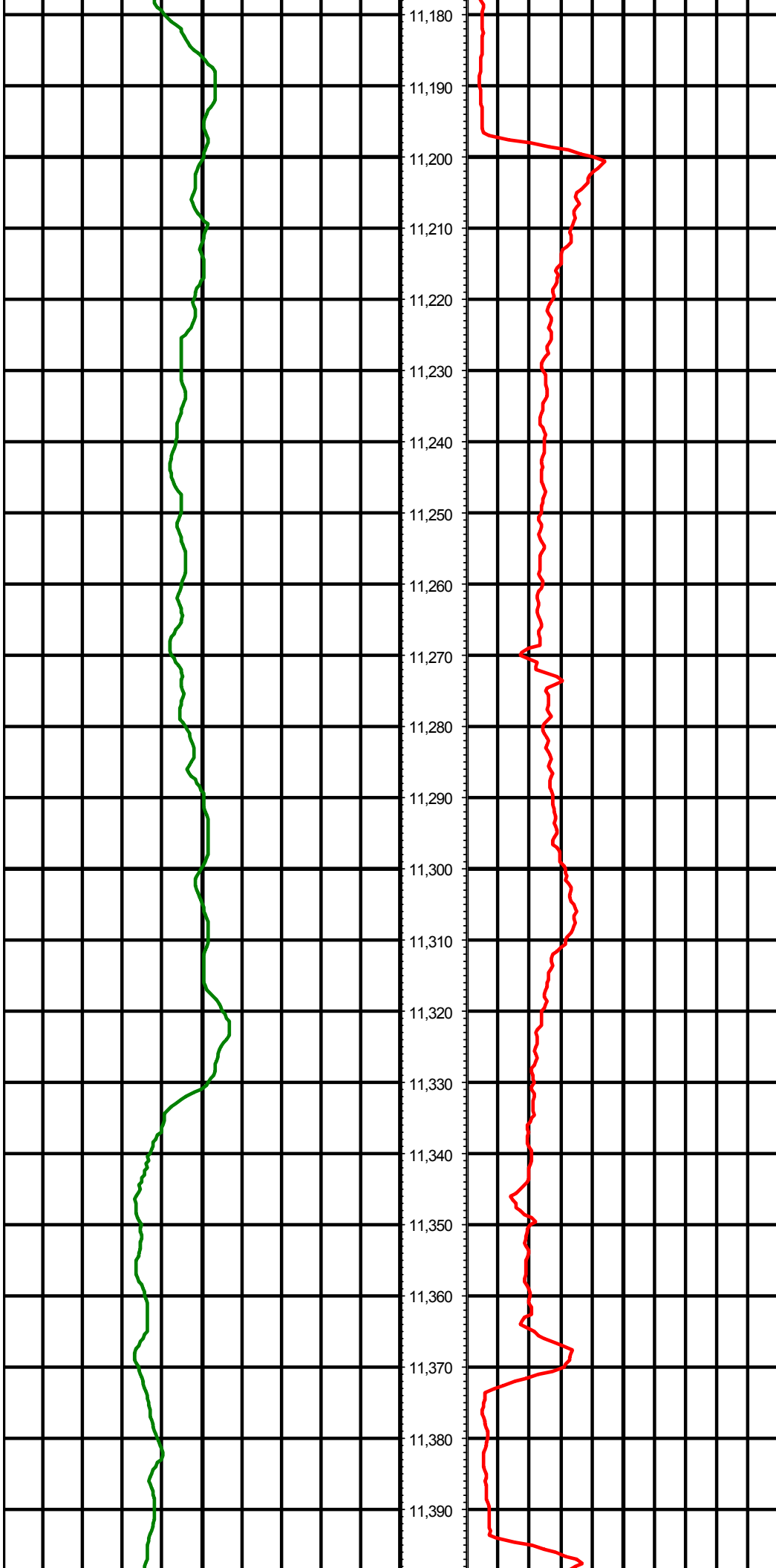




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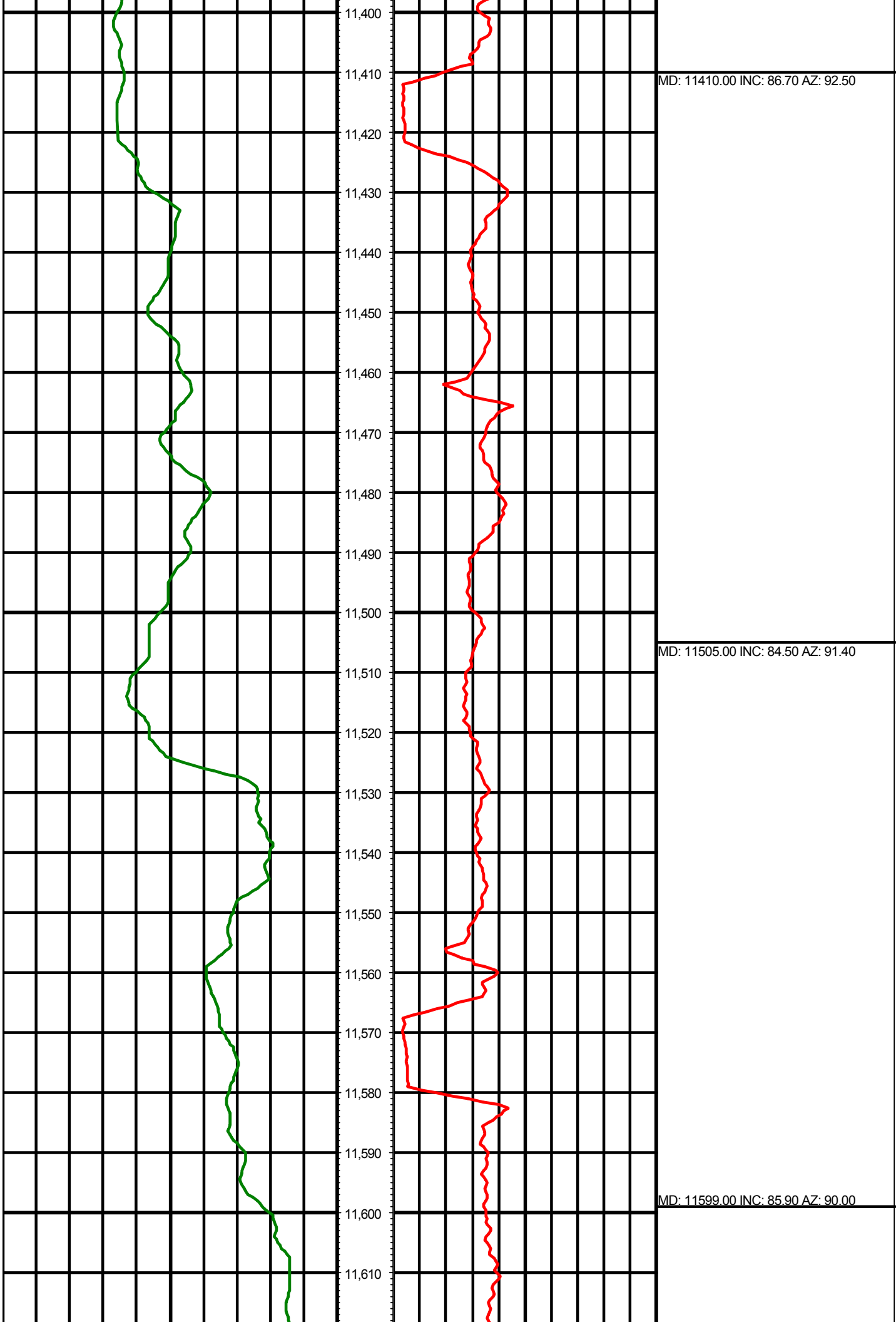
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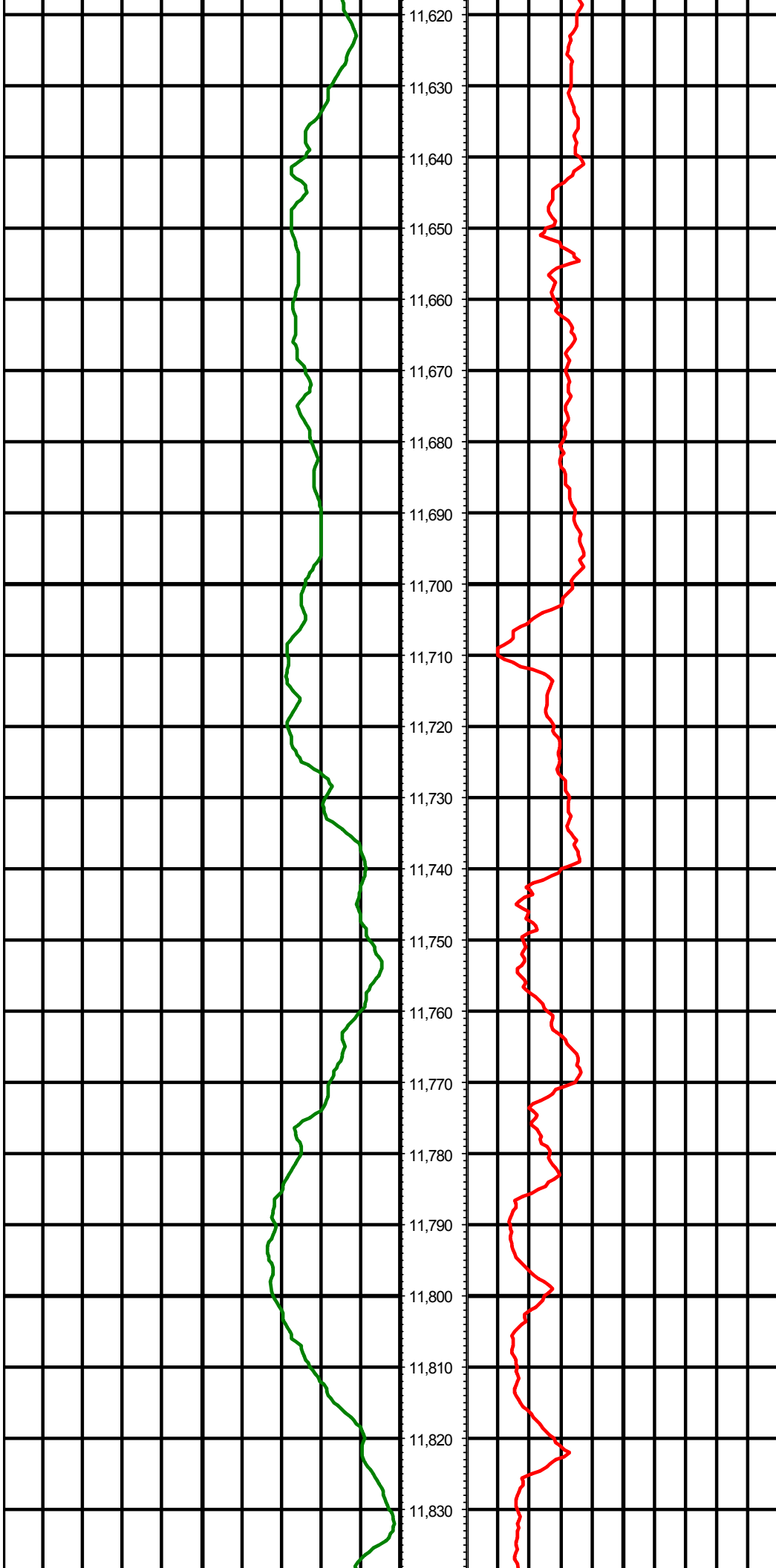
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MD: 11221.00 INC: 87.80 AZ: 92.40

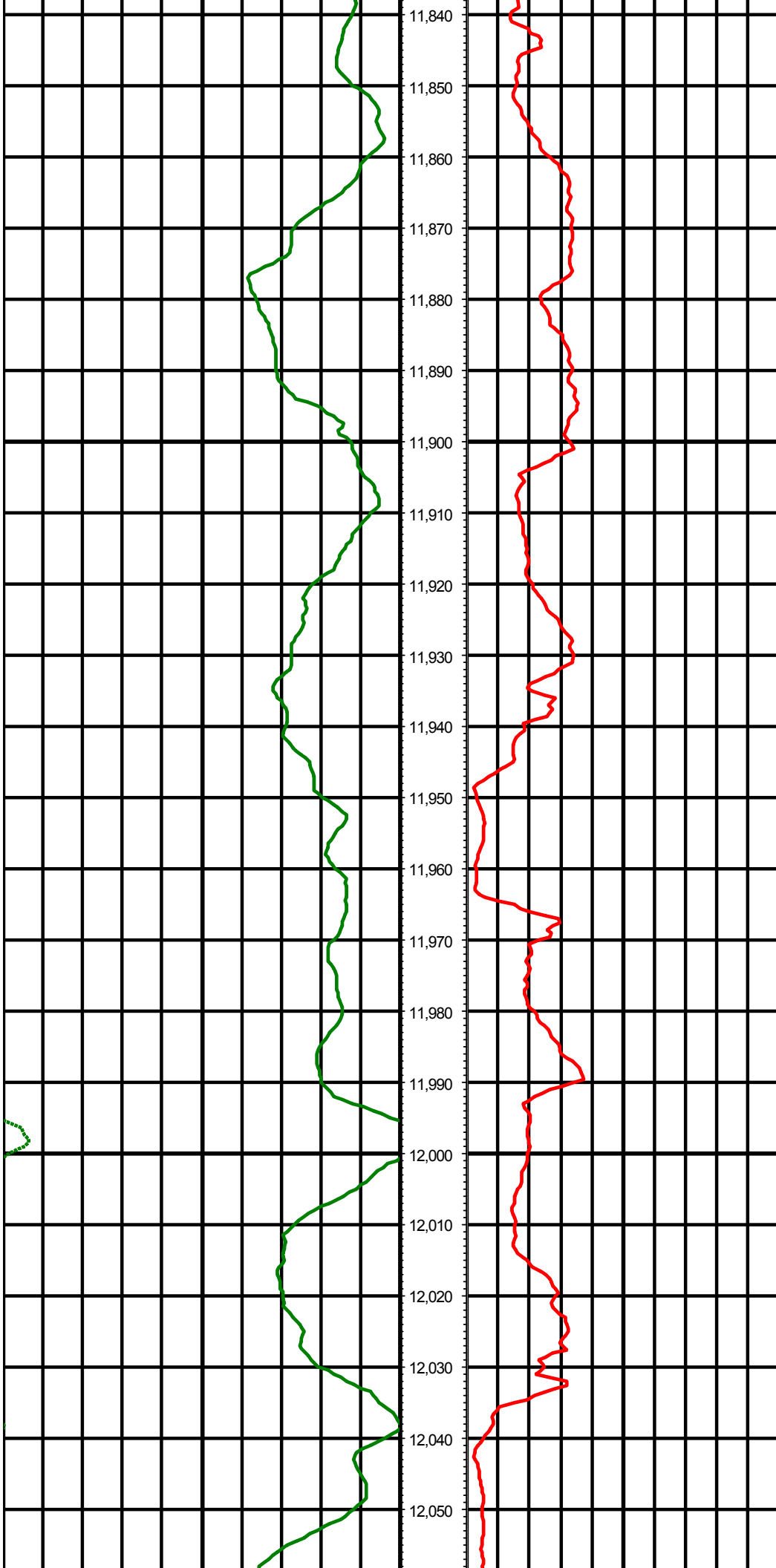
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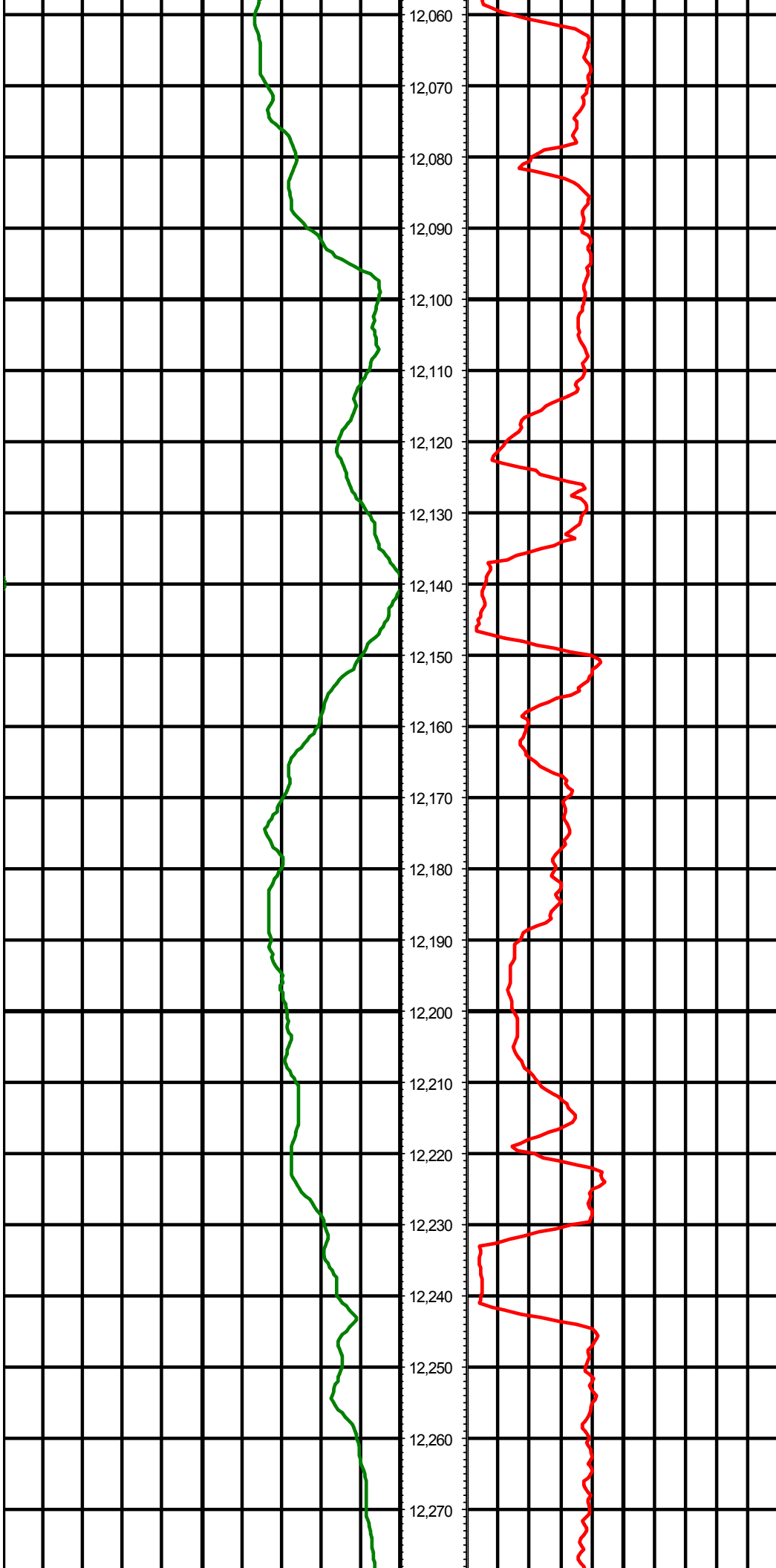
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MD: 11789.00 INC: 86.40 AZ: 89.60



MD: 11883.00 INC: 86.30 AZ: 88.90

MD: 11977.00 INC: 88.20 AZ: 89.70

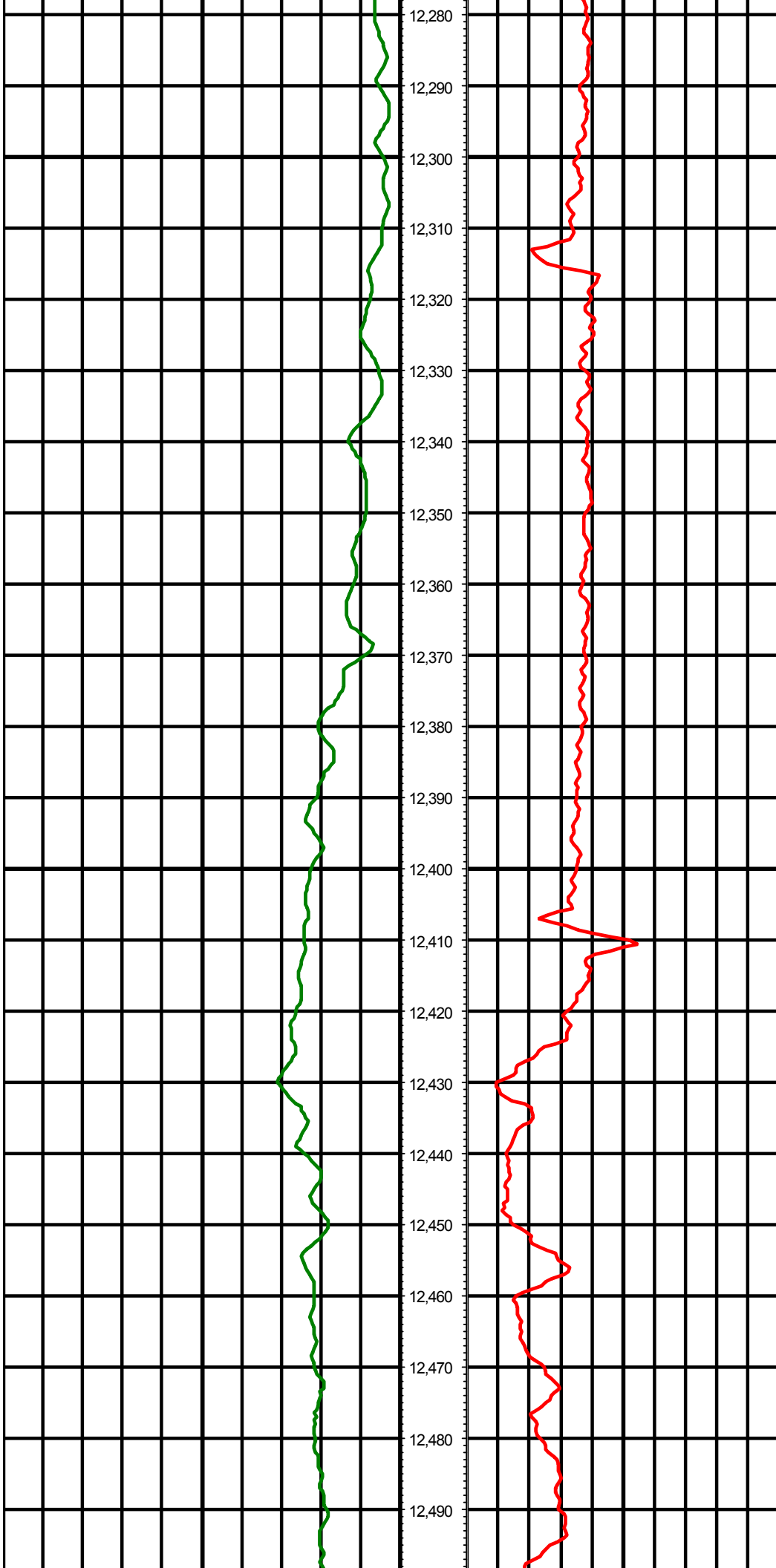


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MD: 12166.00 INC: 90.60 AZ: 90.20

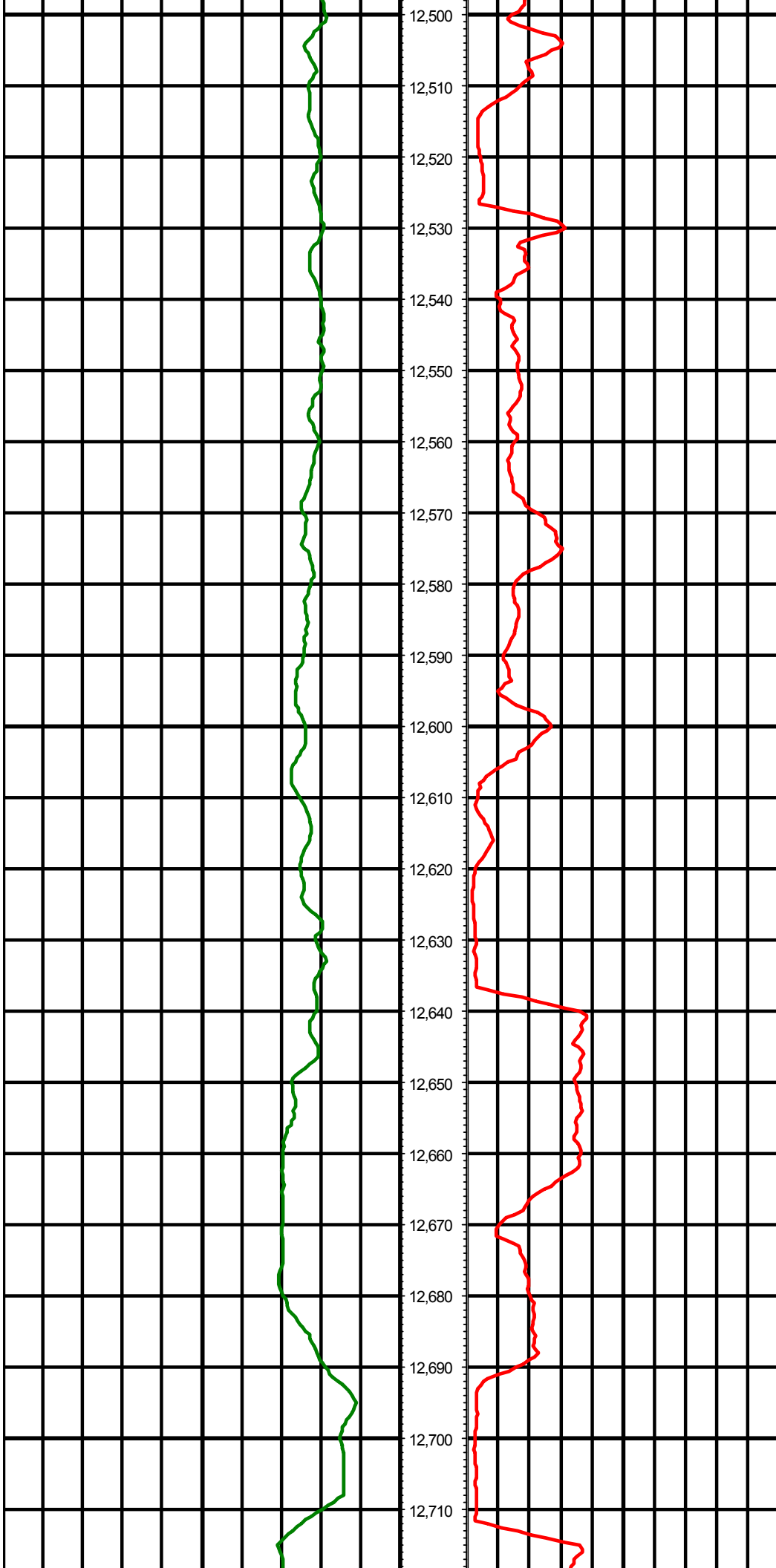
MD: 12261.00 INC: 90.70 AZ: 91.40



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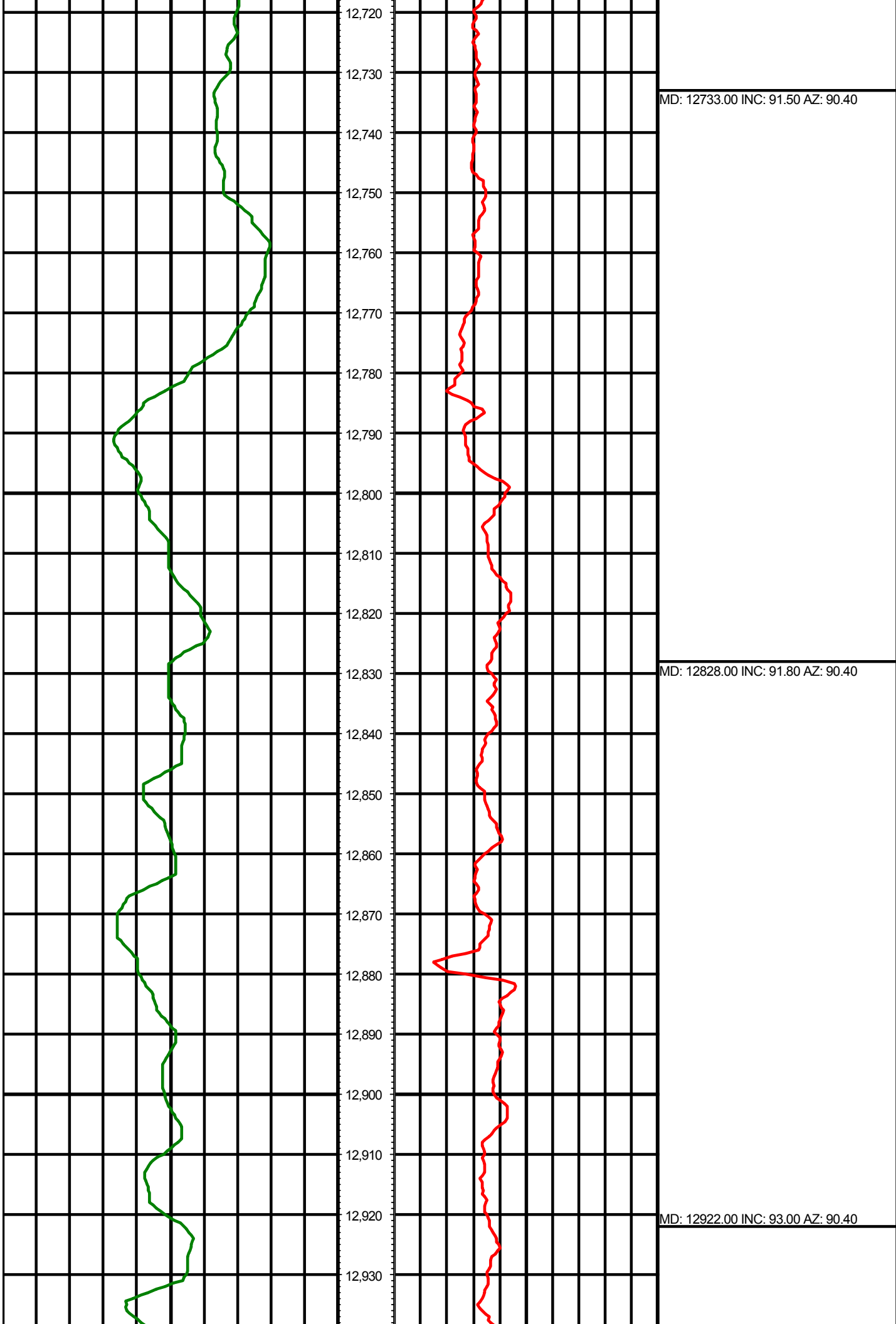
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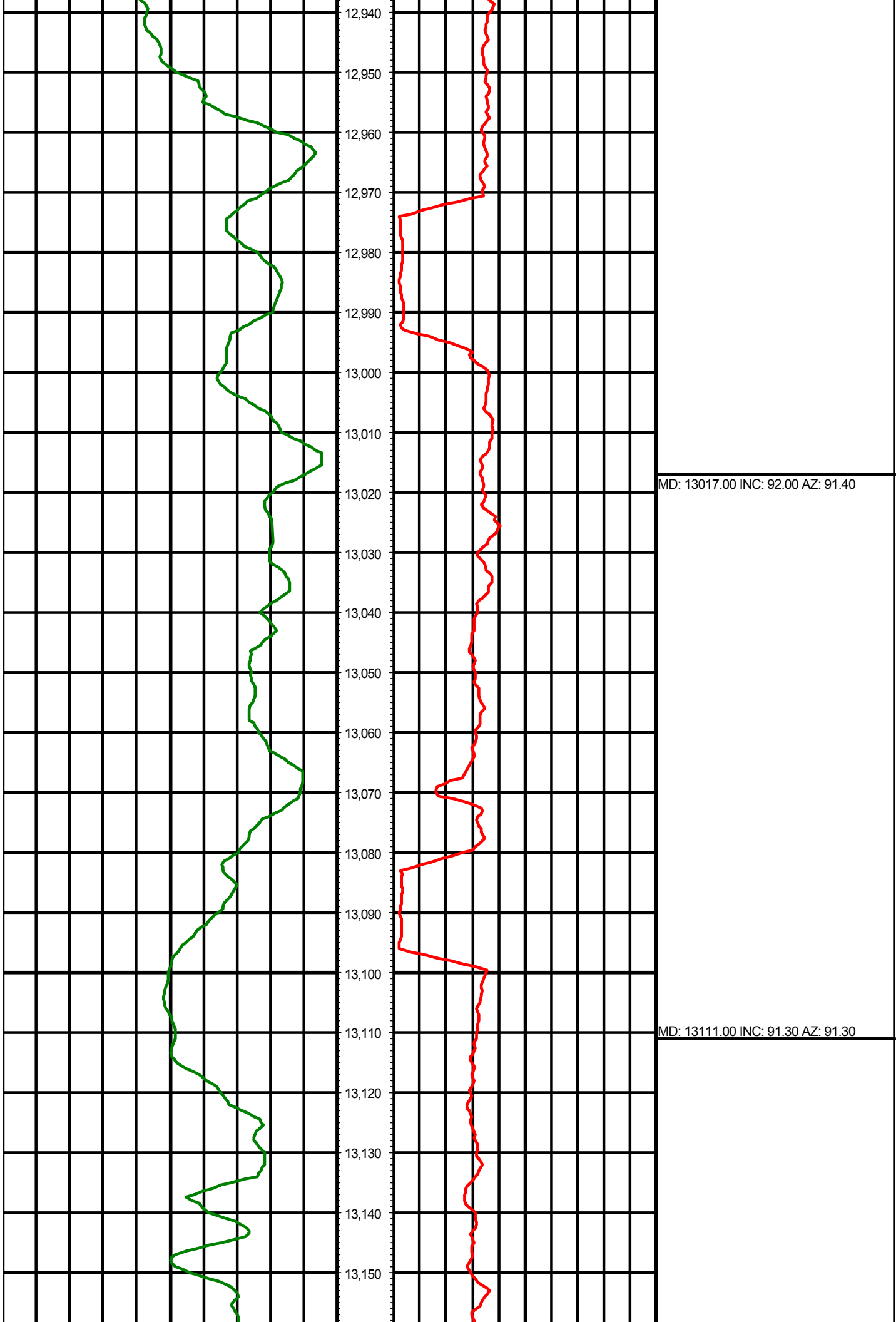
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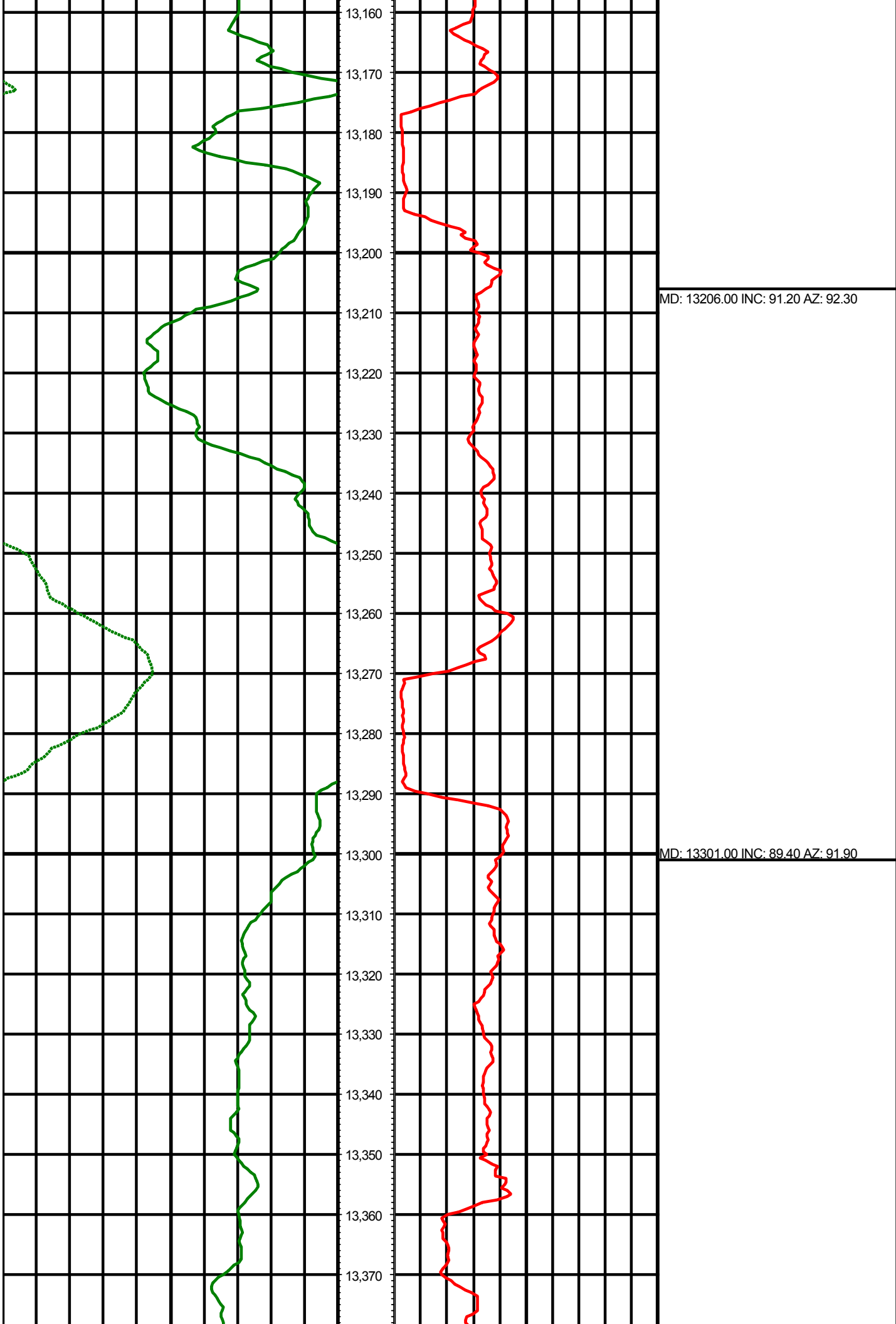


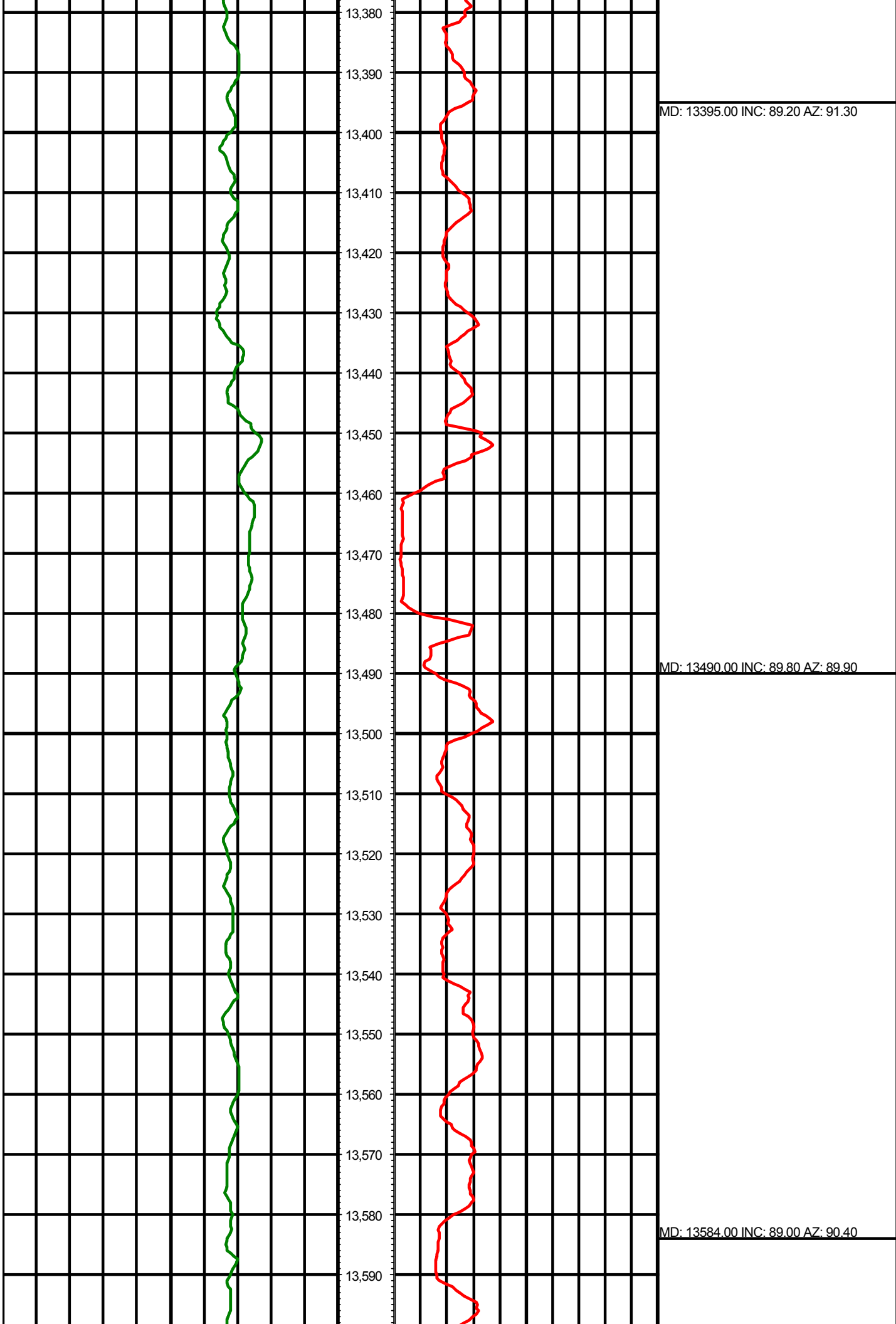
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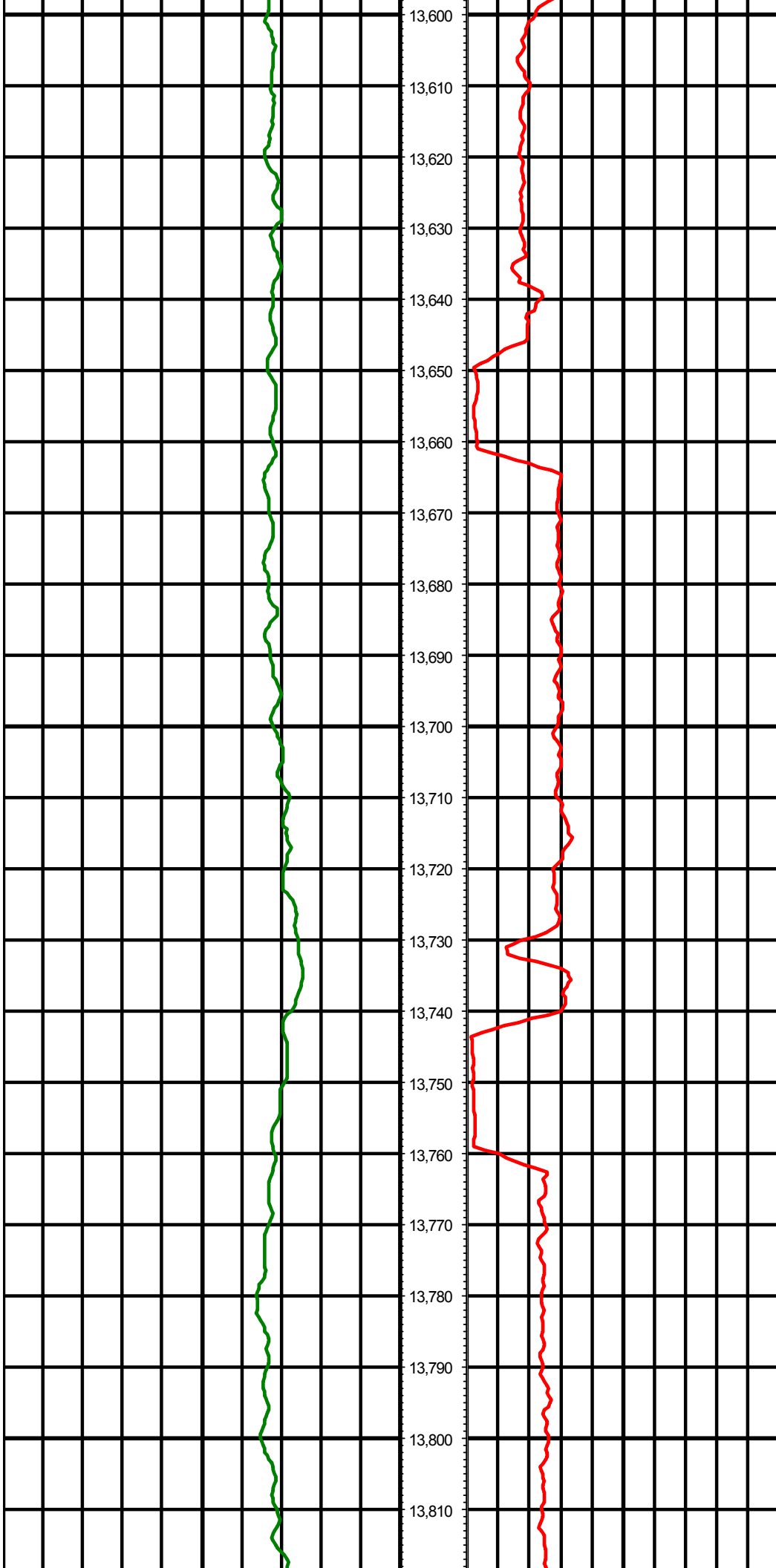
MD: 12639.00 INC: 90.10 AZ: 88.90











MD: 13679.00 INC: 89.30 AZ: 90.70

MD: 13773.00 INC: 89.50 AZ: 89.90

