



Encana Oil & Gas (USA) Inc.
1949 North Pyrite Road
Casper, Wyoming 82604

145450

5":100' - MD

12/8/2014 12:40:57 PM

CATHEDRAL

Oper. Company: Cathedral Energy Services

Country: U.S.A.

State / Province: Colorado

County / Parish: Weld

Started: 11/26/2014 02:00 PM

API/UWI: 05-123-3764300

Field: Wattenberg (Codell)

Well: Grant Elmquist 2D-14H-C268

Rig: Ensign Drilling 135

Ended: 12/05/2014 07:00 PM

Gamma Ray
Section Plane: 180.00
Magnetic North: 8.49
Gamma Averaging: 7%

Personnel

Day Hand: T. Mueller
Night Hand: J. Corby
Comp. Emp: William LaForce

Maximum Temperature: 225°F

Location

Latitude: 40.143860
Longitude: -104.973790
Elev. GL: 4881
Elev. DF:
Elev. KB: 4894

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

Hole Data

Size	From	To
12-3/4	90	868
8-3/4	868	7860
6-1/8	7860	13900

Casing Data

Size	From	To
9-5/8	0	858
7	0	7838
4-1/2	0	13900

Bit Sizes

Size	From	To
12-3/4	90	868
8-3/4	868	7860
6-1/8	7860	13900

Mud Data

Type	Weight	Density	Viscosity	Rm	Rmf	Rmc	From	To
LSND	9.7		37				5000	6458
LSND	10.1		40				6458	7860
LSND	10.3		39				7860	8524
LSND	11.3		42				8524	12947
LSND	11.2		42				12947	13900

Tool Run Data

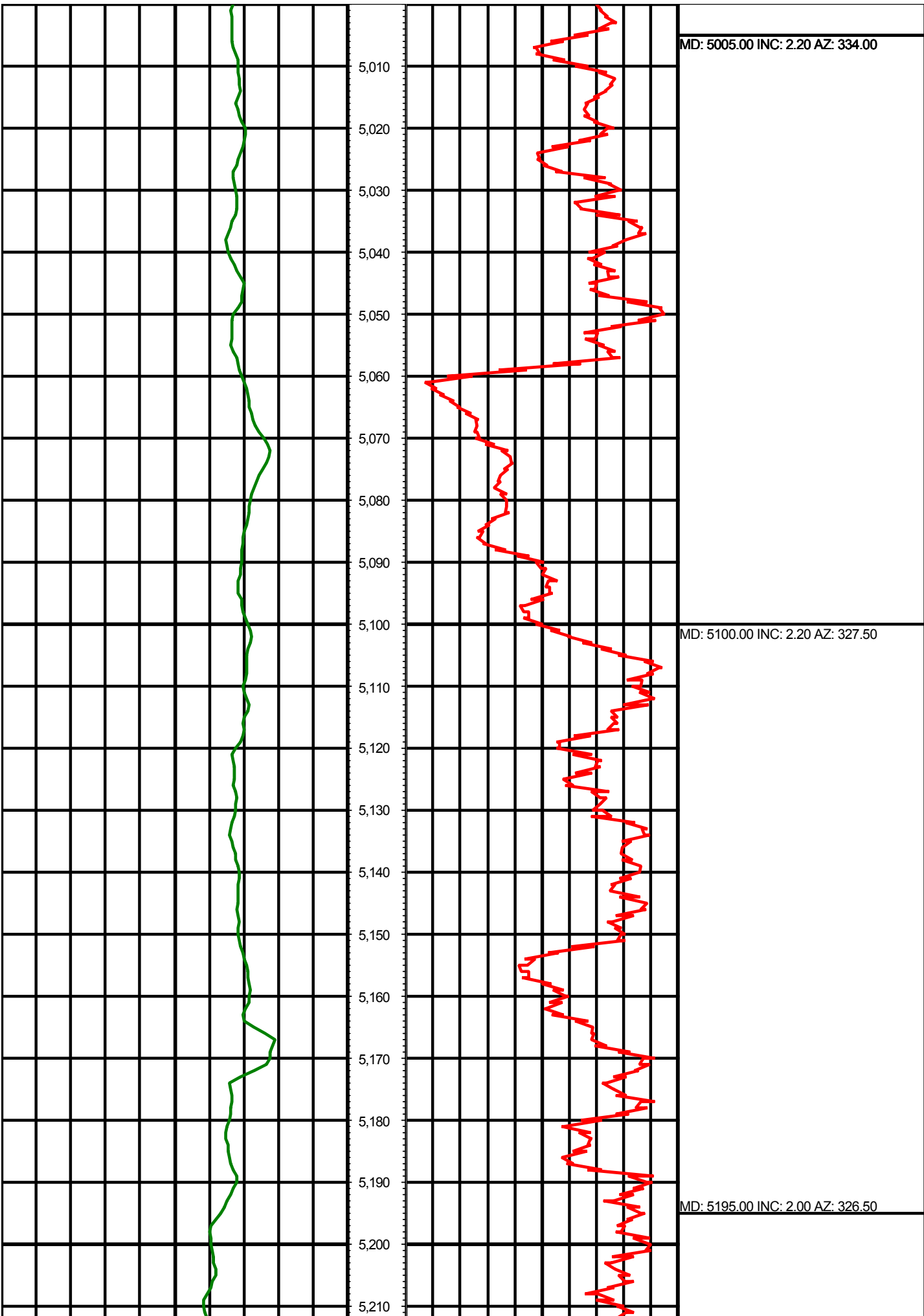
Serial Number	Gamma Offset	Resist. Offset	Start Time	Start Depth	End Time	End Depth
APS-WPR	48	0	11/26/2014 2:00:53 PM	5000	11/27/2014 12:30:53 AM	6458
1518	37.19	0	11/27/2014 10:28:00 AM	6458	11/29/2014 1:30:00 AM	7860
1518	40.01	0	11/30/2014 9:30:39 AM	7860	12/1/2014 11:30:39 AM	8524
1518	40.34	0	12/1/2014 1:30:18 PM	8524	12/4/2014 12:42:18 AM	12947
1322	40.12	0	12/4/2014 1:30:41 AM	12947	12/5/2014 7:00:41 PM	13900

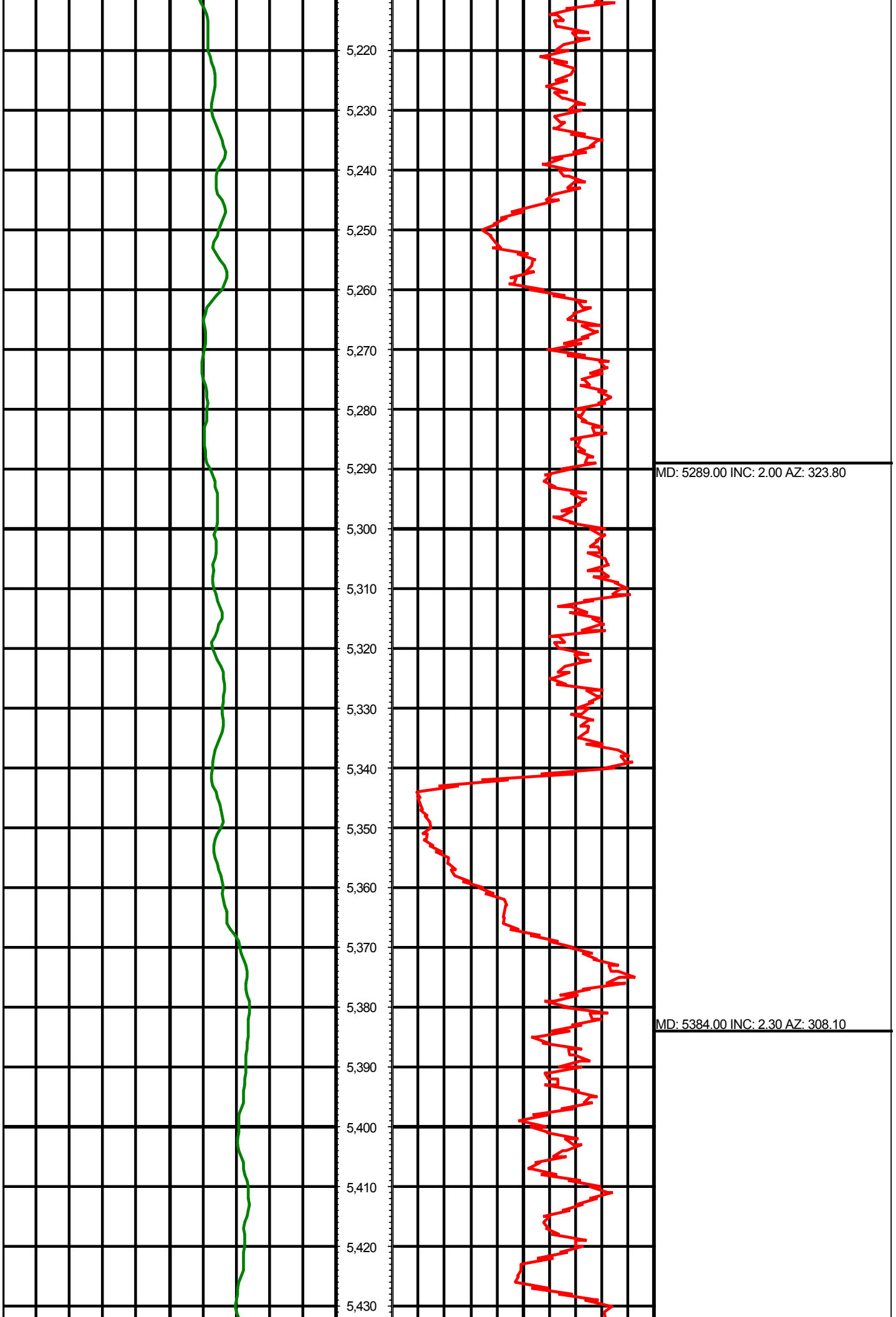
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost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

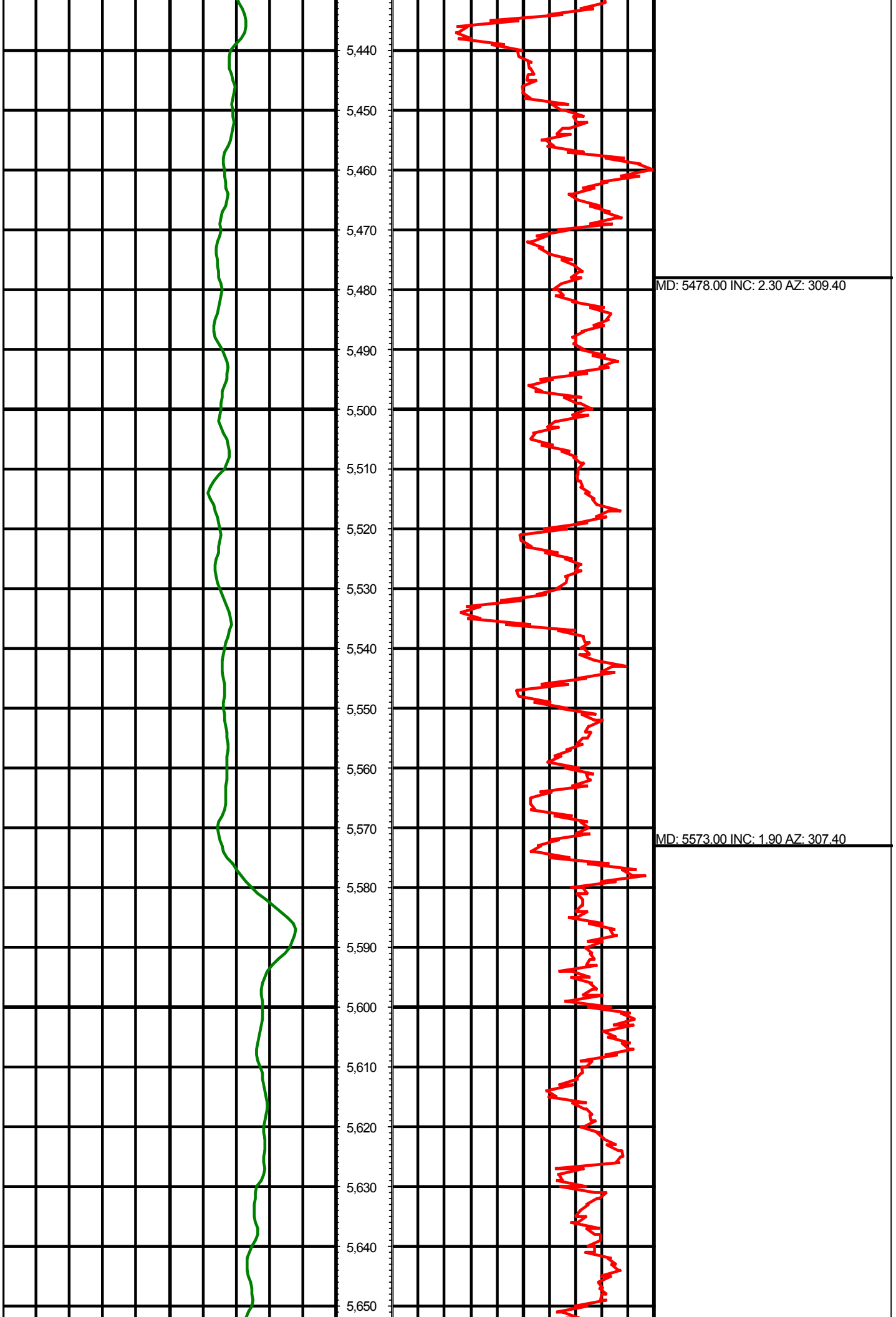
0.00 Gamma Ray (API) 150.00
150.00 2 300.00
FT

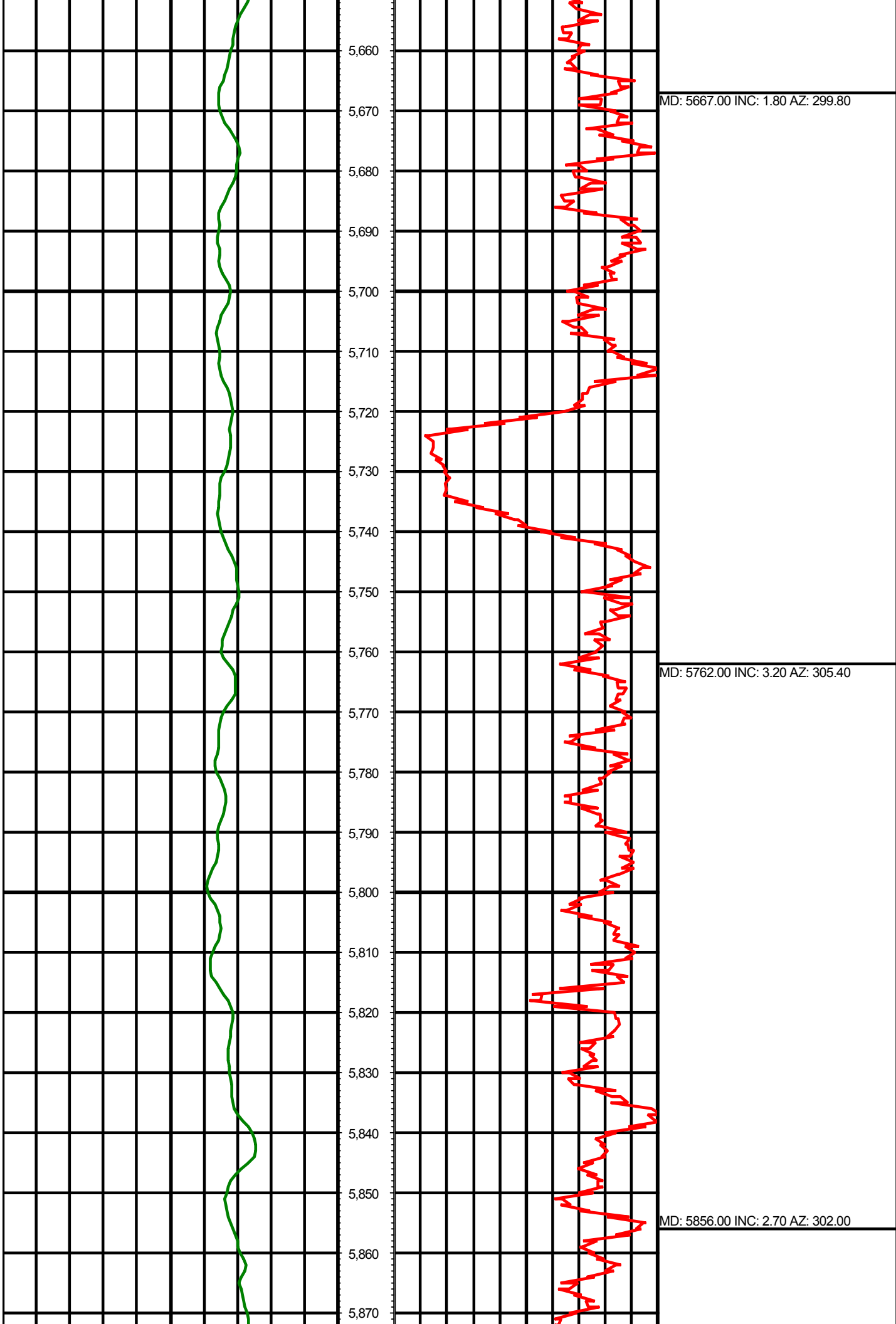
0.00 ROP (FT/HR) 600.00
FT

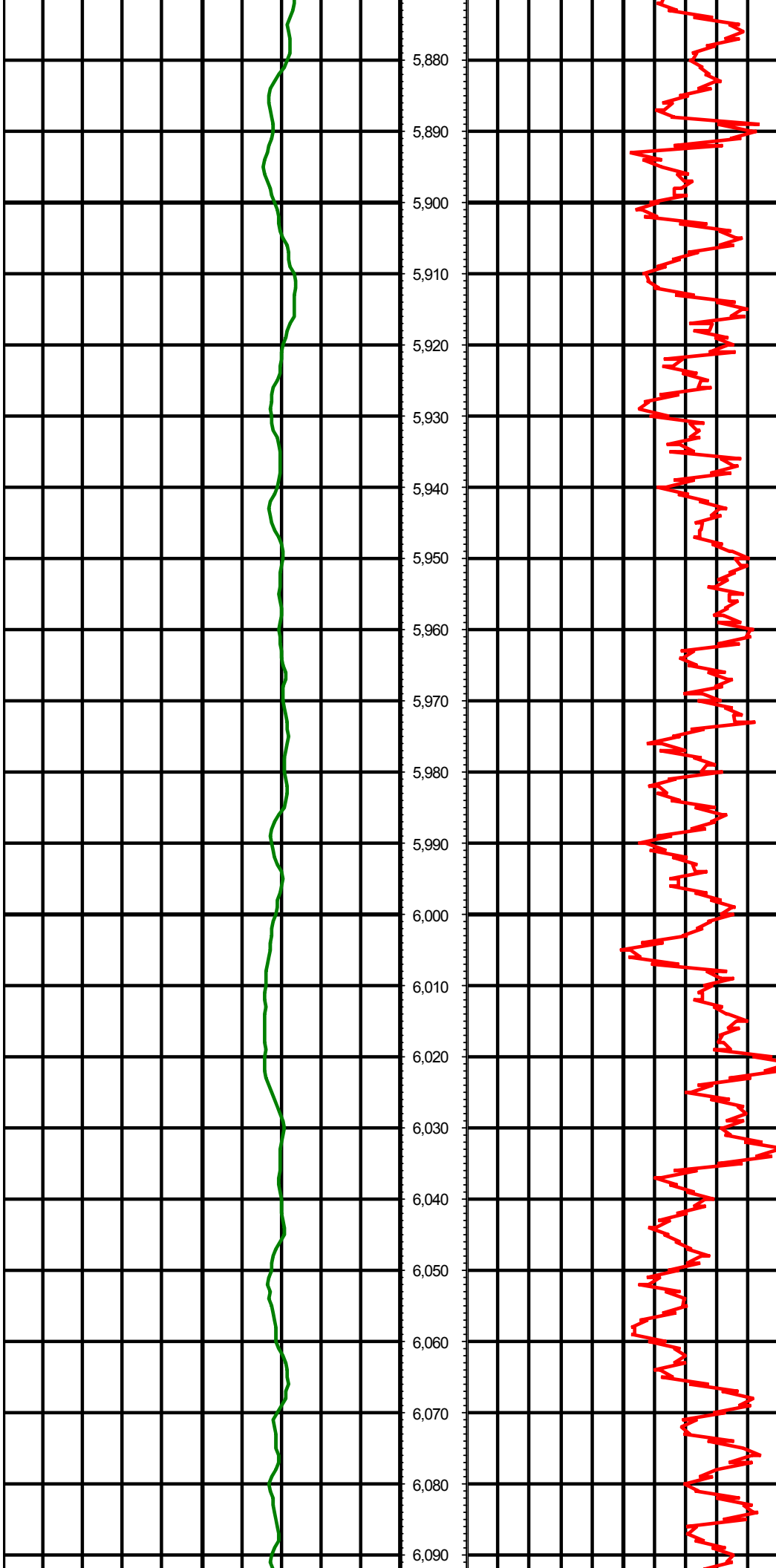
Surveys (MD/INC/AZ)





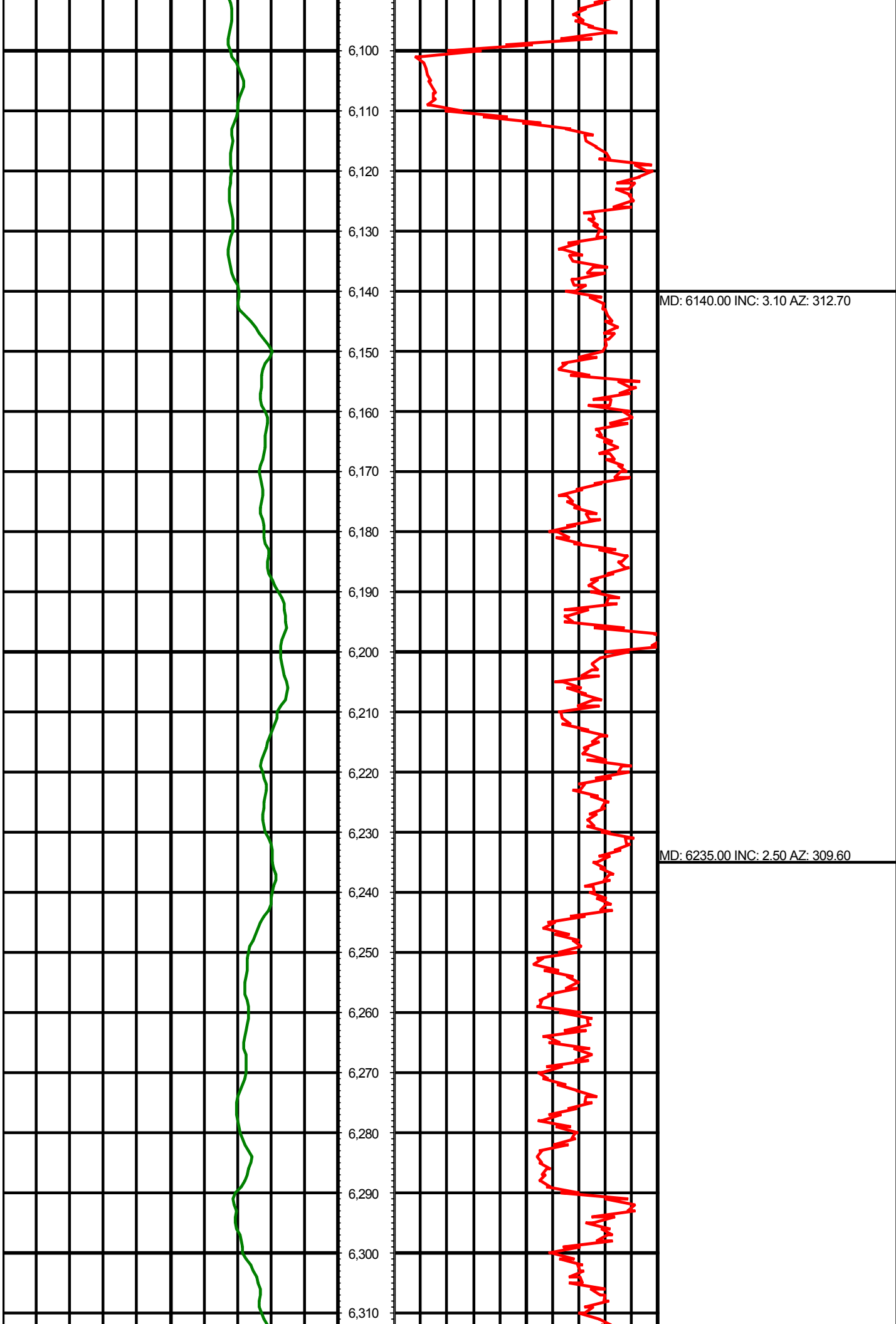


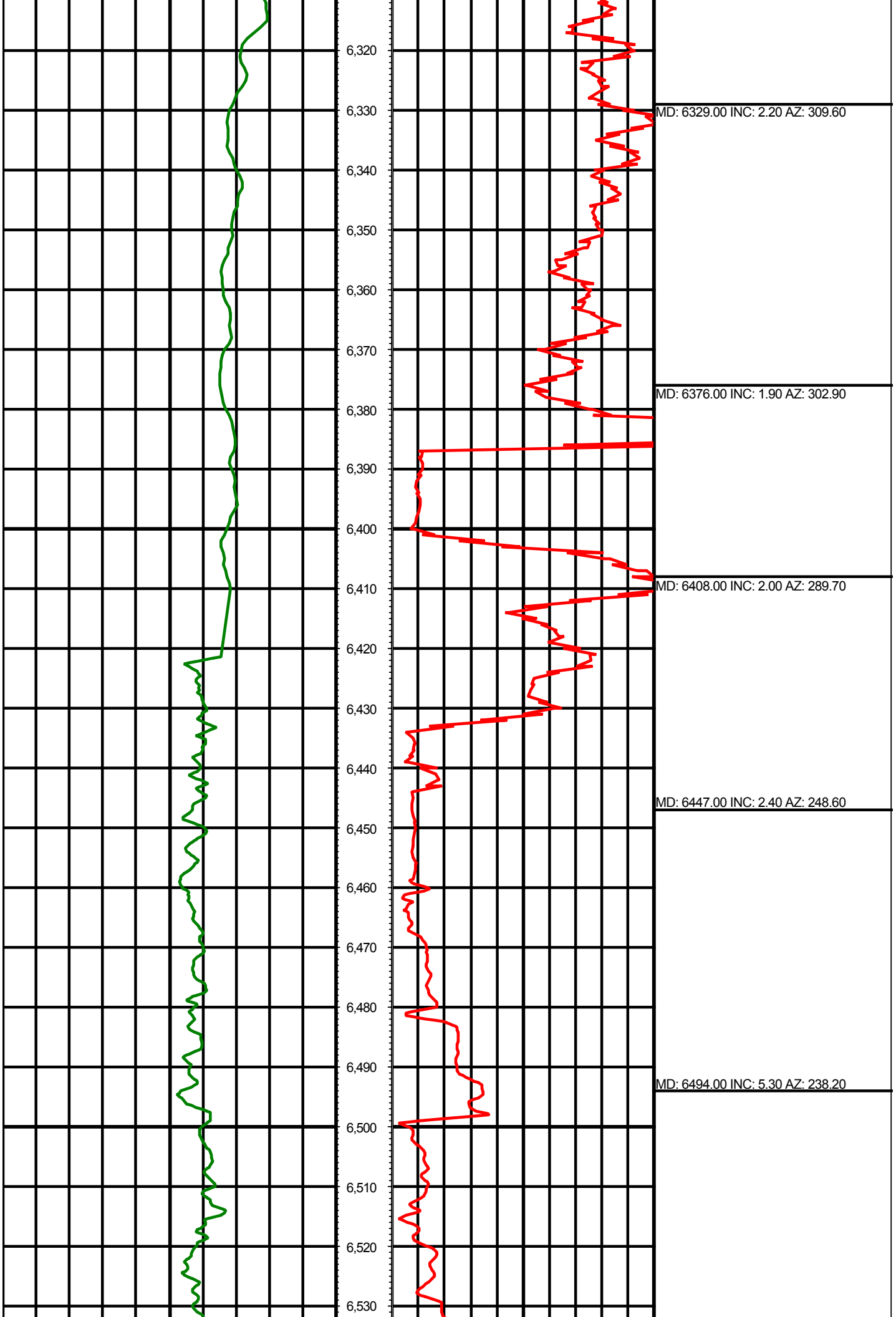


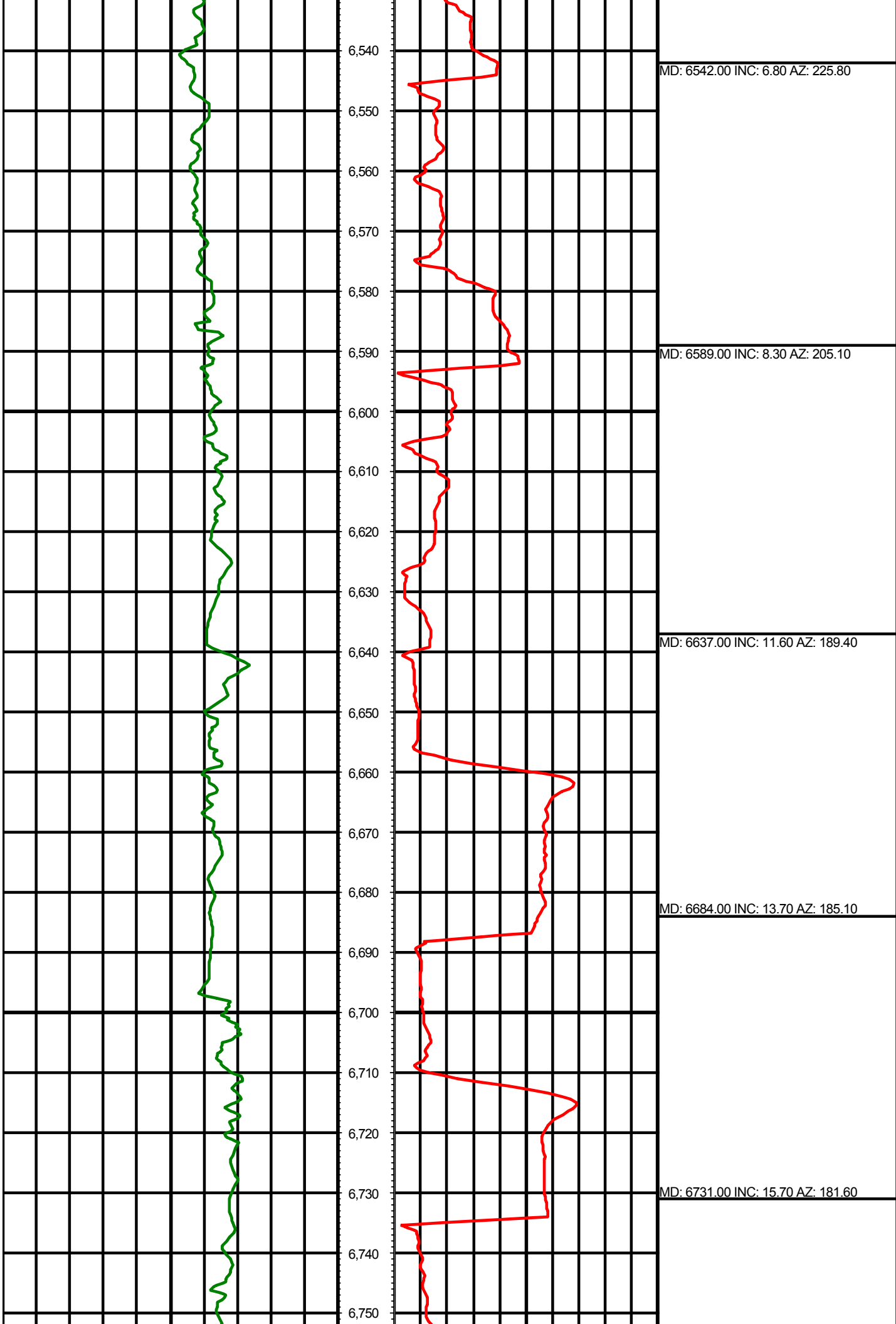


MD: 5951.00 INC: 2.30 AZ: 294.30

MD: 6045.00 INC: 2.00 AZ: 295.30







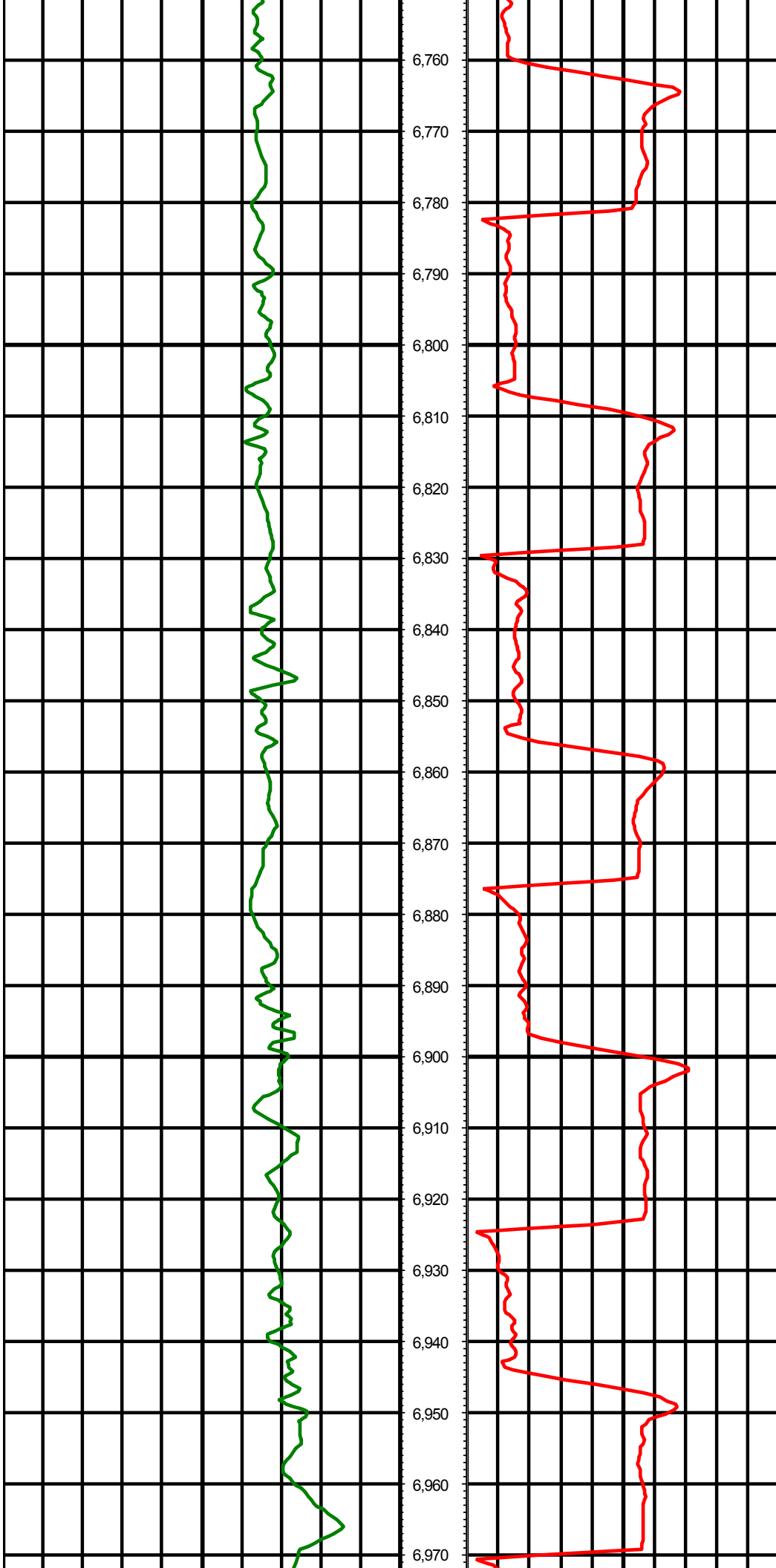
MD: 6542.00 INC: 6.80 AZ: 225.80

MD: 6589.00 INC: 8.30 AZ: 205.10

MD: 6637.00 INC: 11.60 AZ: 189.40

MD: 6684.00 INC: 13.70 AZ: 185.10

MD: 6731.00 INC: 15.70 AZ: 181.60



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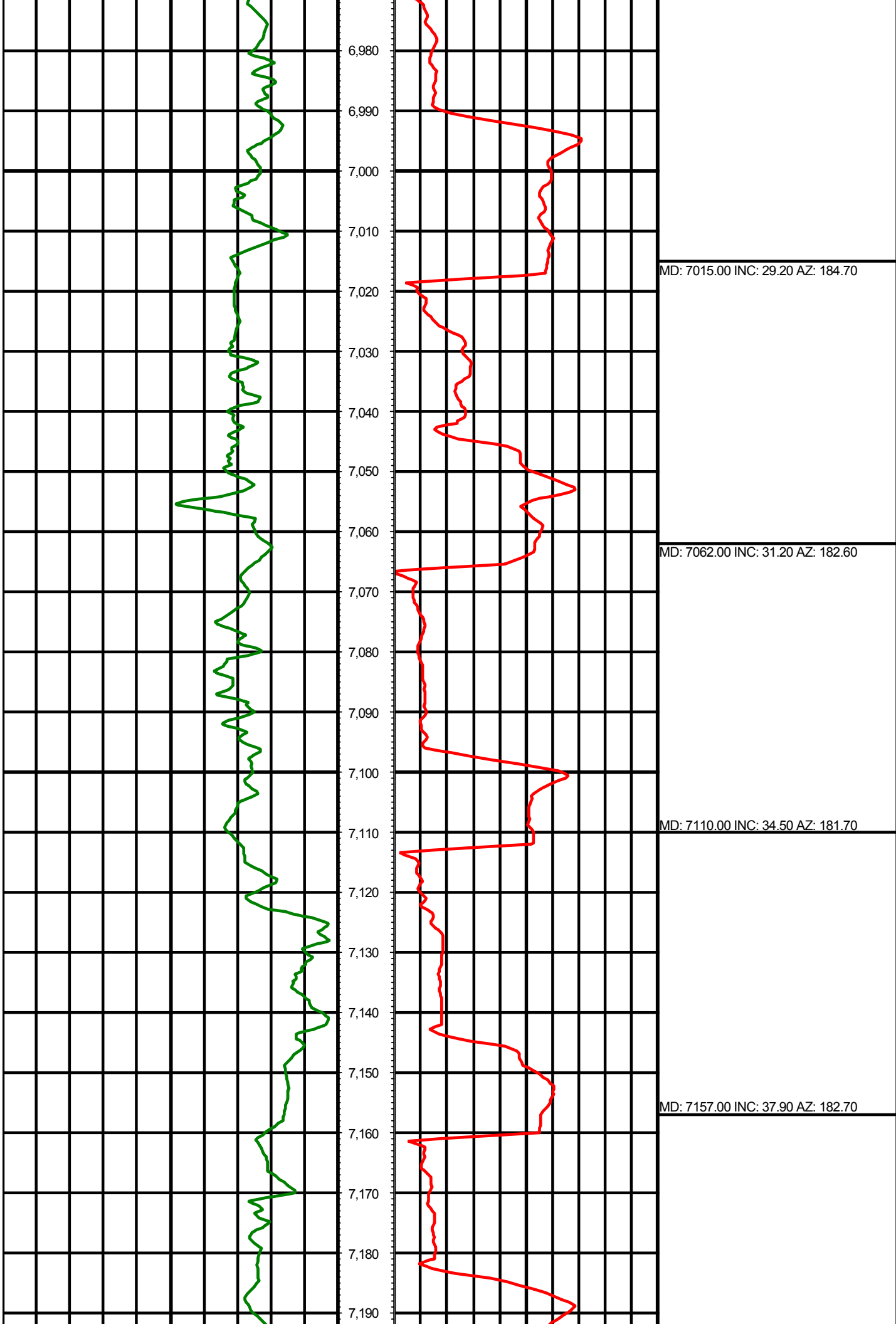
MD: 6778.00 INC: 18.20 AZ: 182.70

MD: 6826.00 INC: 20.70 AZ: 184.80

MD: 6873.00 INC: 23.10 AZ: 186.20

MD: 6920.00 INC: 25.30 AZ: 185.70

MD: 6967.00 INC: 27.60 AZ: 185.00

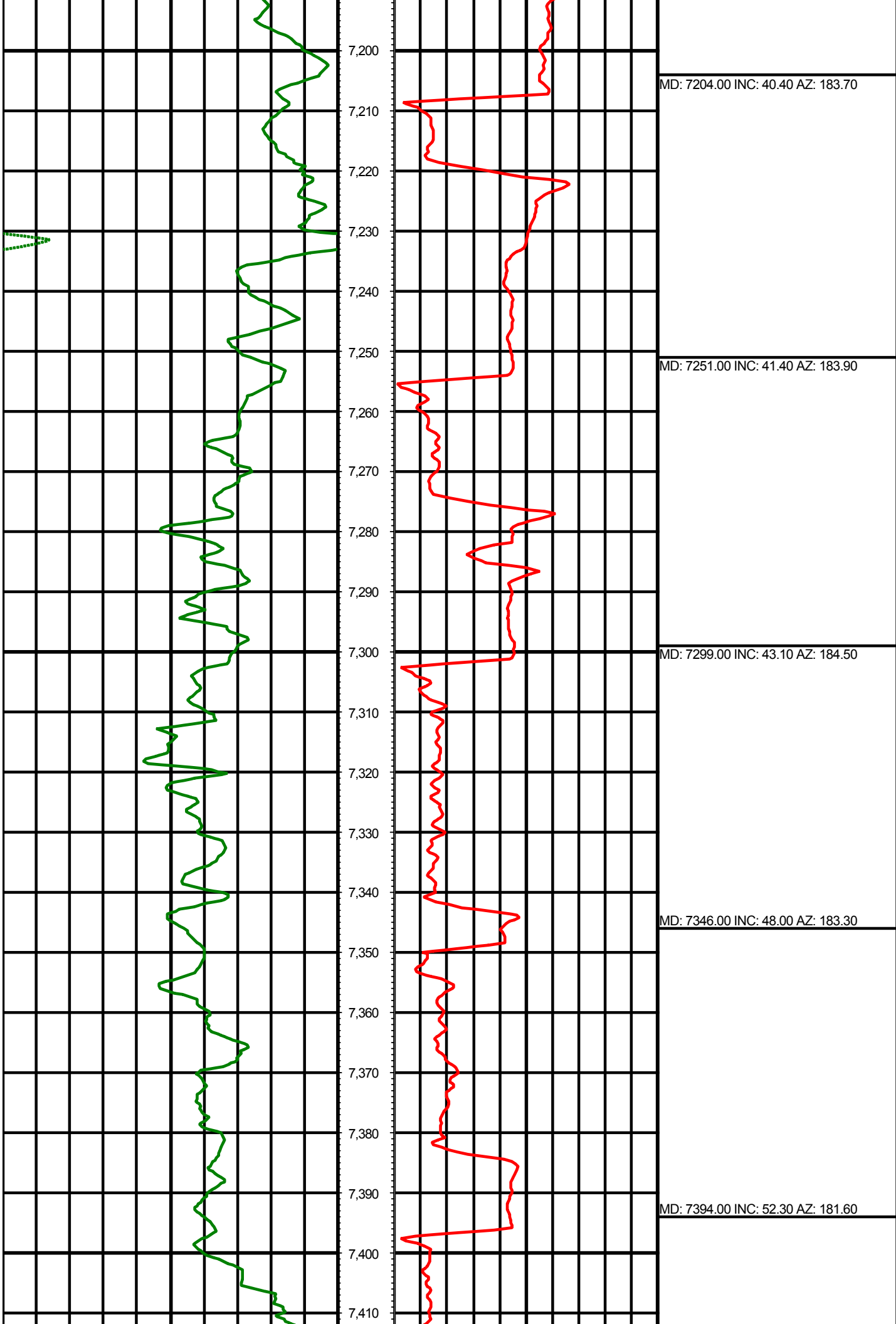


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MD: 7062.00 INC: 31.20 AZ: 182.60

MD: 7110.00 INC: 34.50 AZ: 181.70

MD: 7157.00 INC: 37.90 AZ: 182.70



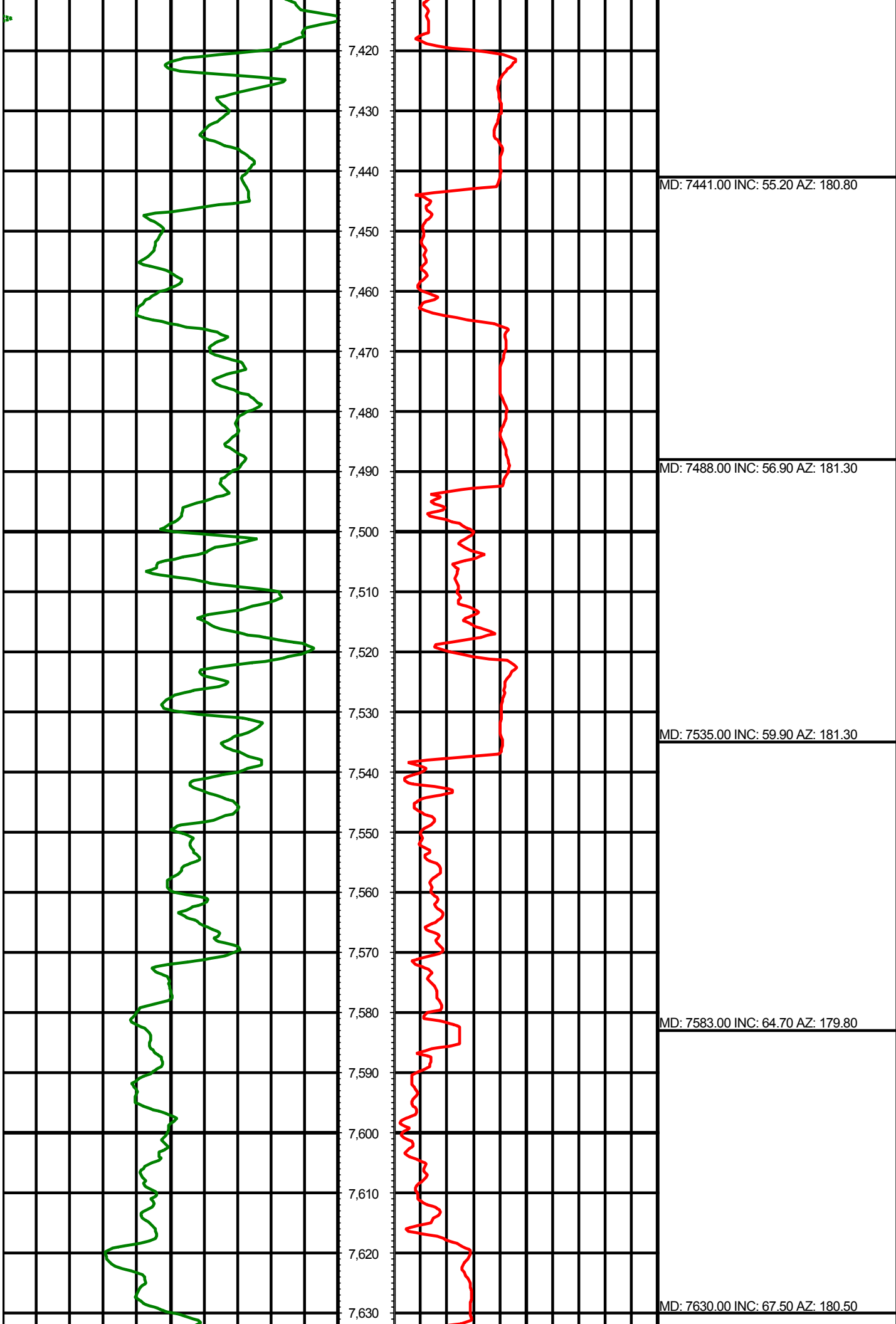
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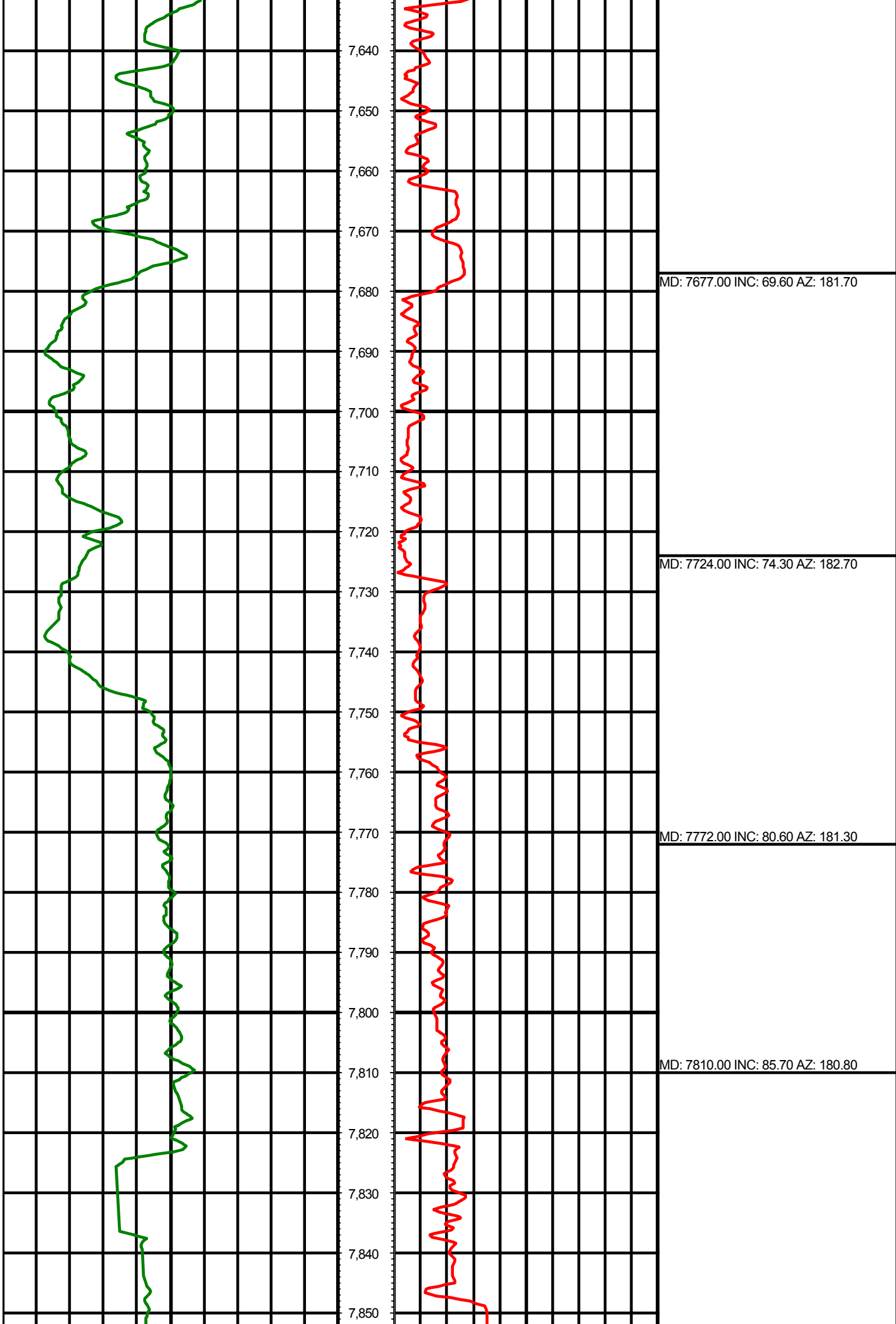
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MD: 7299.00 INC: 43.10 AZ: 184.50

MD: 7346.00 INC: 48.00 AZ: 183.30

MD: 7394.00 INC: 52.30 AZ: 181.60



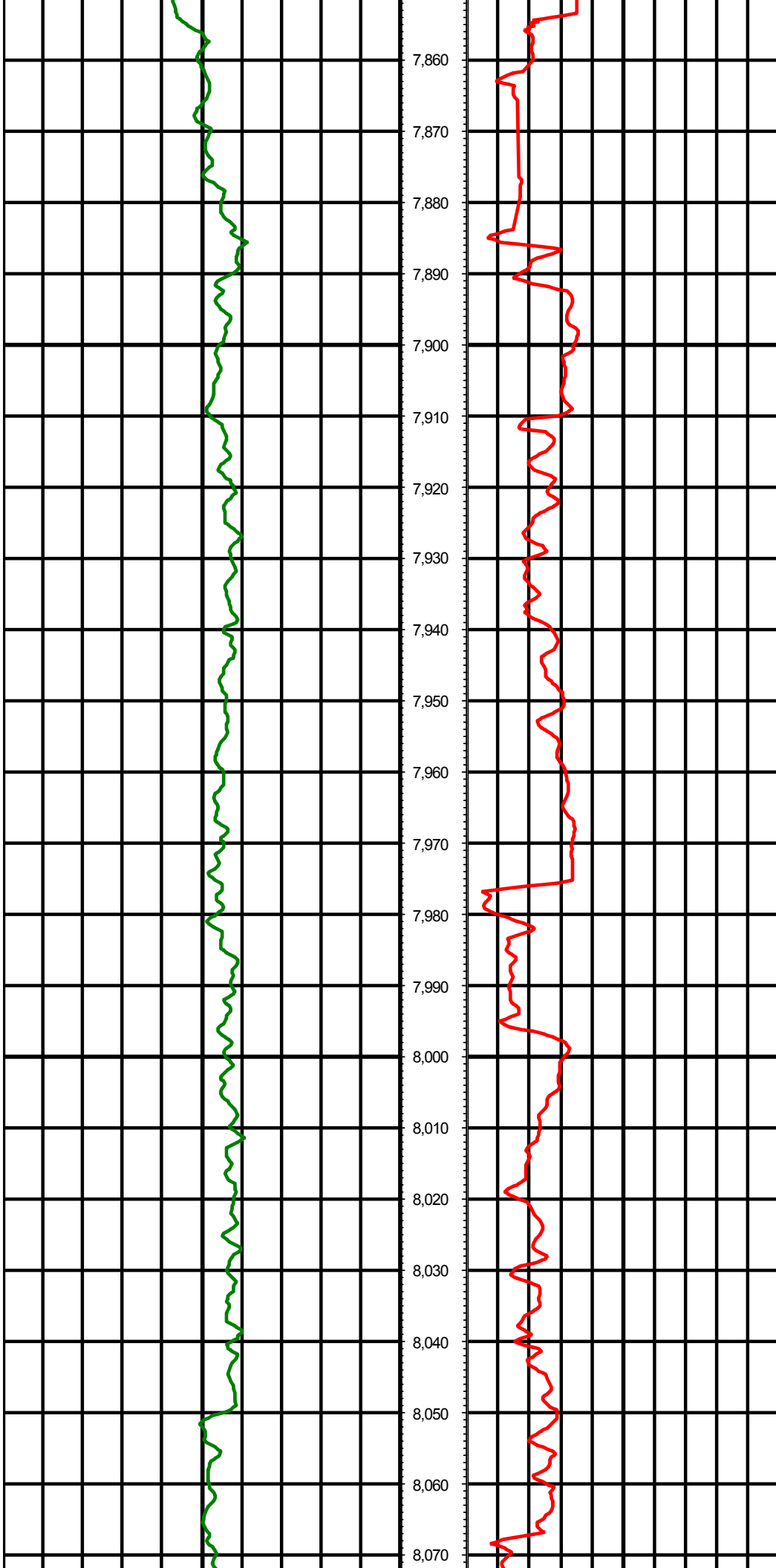


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MD: 7724.00 INC: 74.30 AZ: 182.70

MD: 7772.00 INC: 80.60 AZ: 181.30

MD: 7810.00 INC: 85.70 AZ: 180.80



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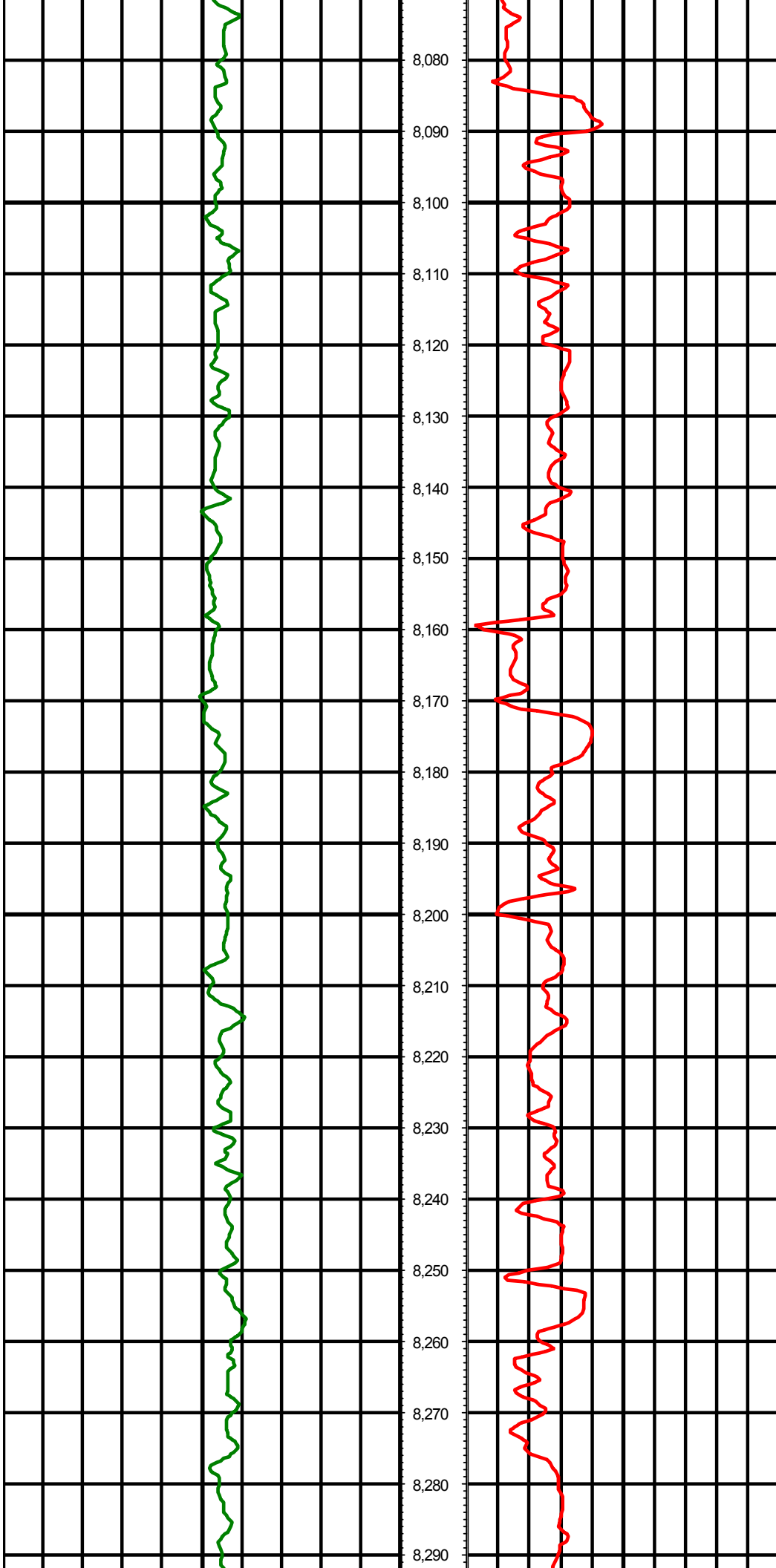
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MD: 8015.00 INC: 89.50 AZ: 179.30

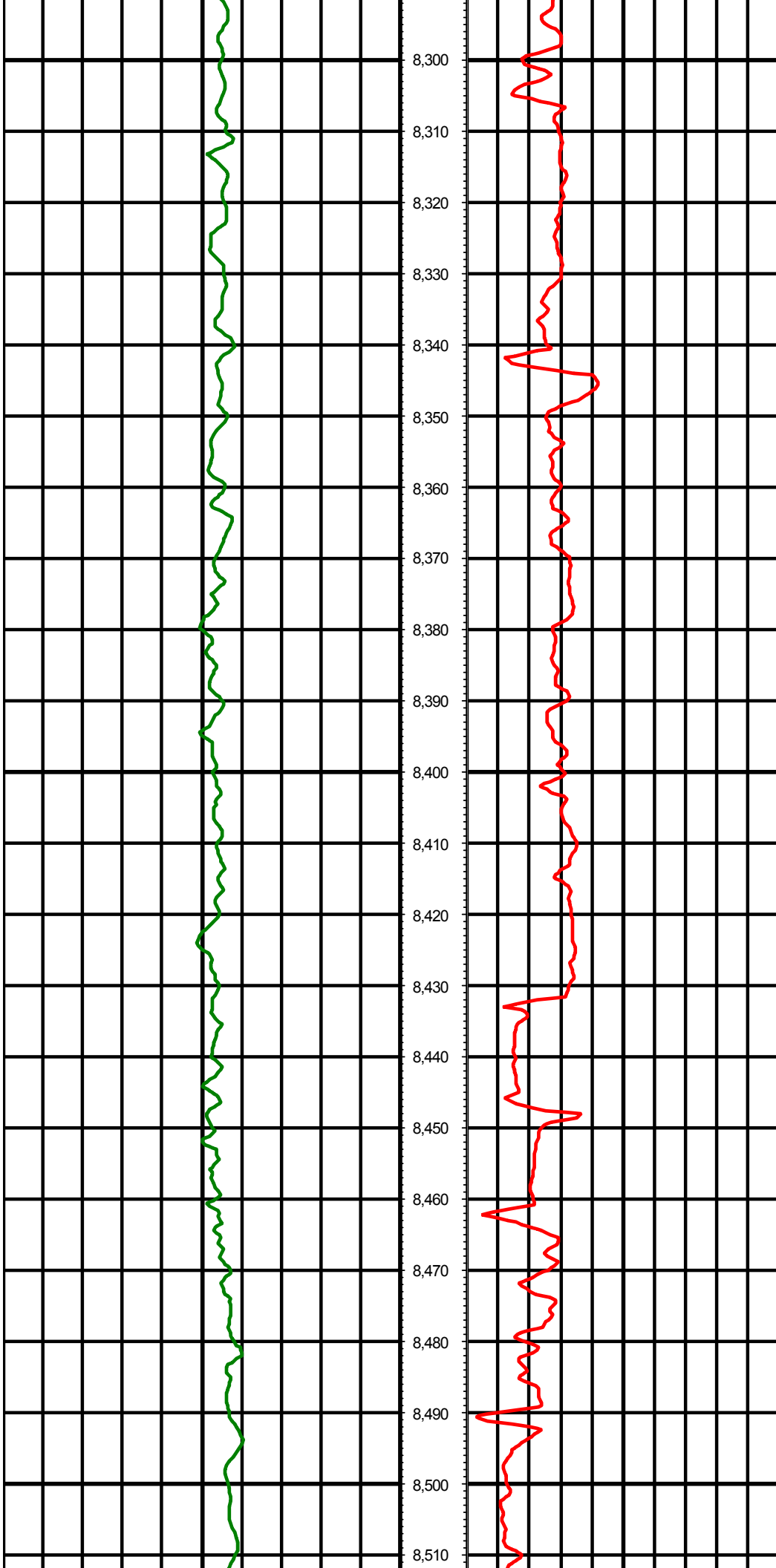


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MD: 8198.00 INC: 88.10 AZ: 180.70

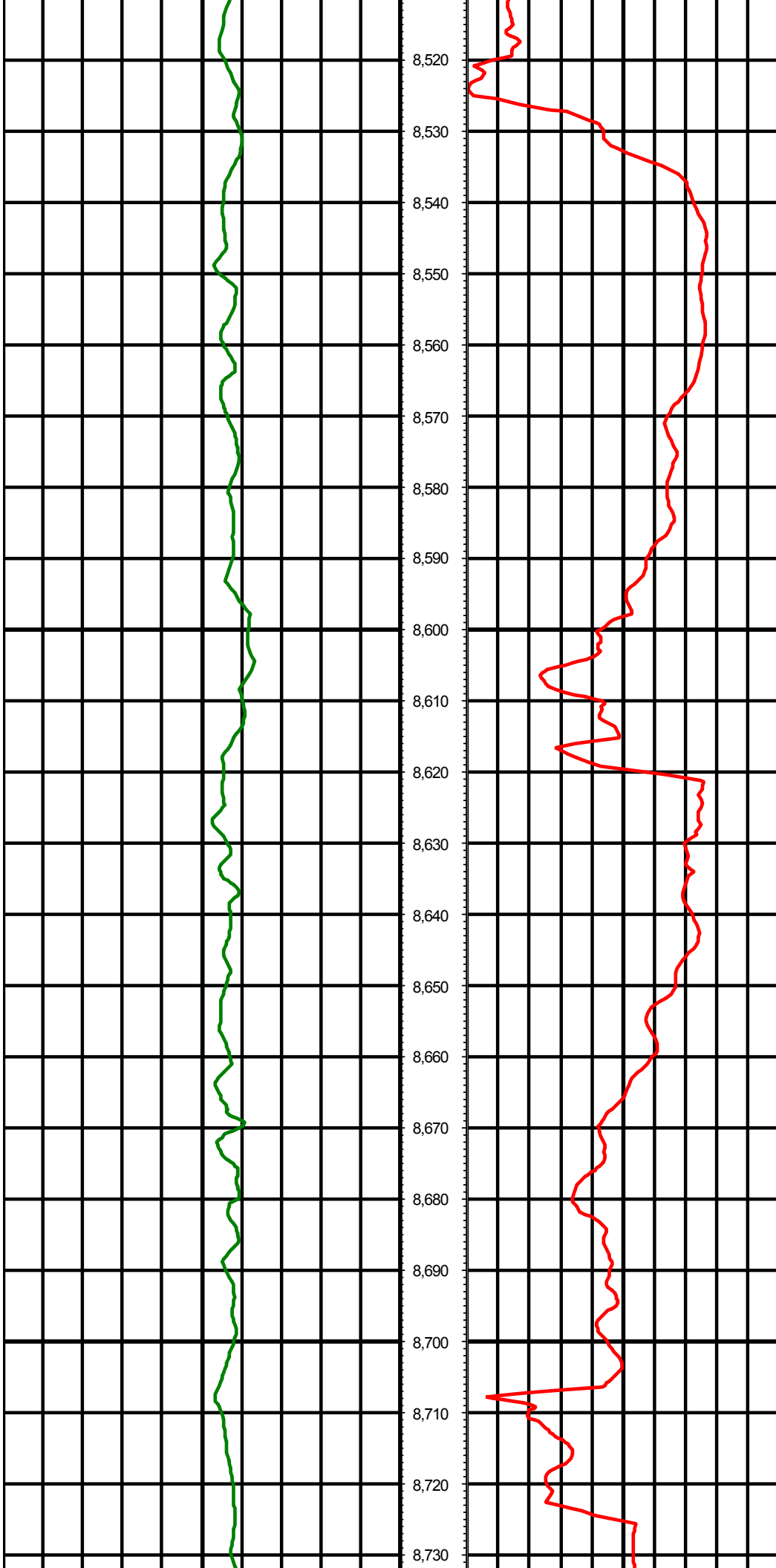
MD: 8290.00 INC: 88.30 AZ: 180.10



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MD: 8381.00 INC: 88.20 AZ: 178.60

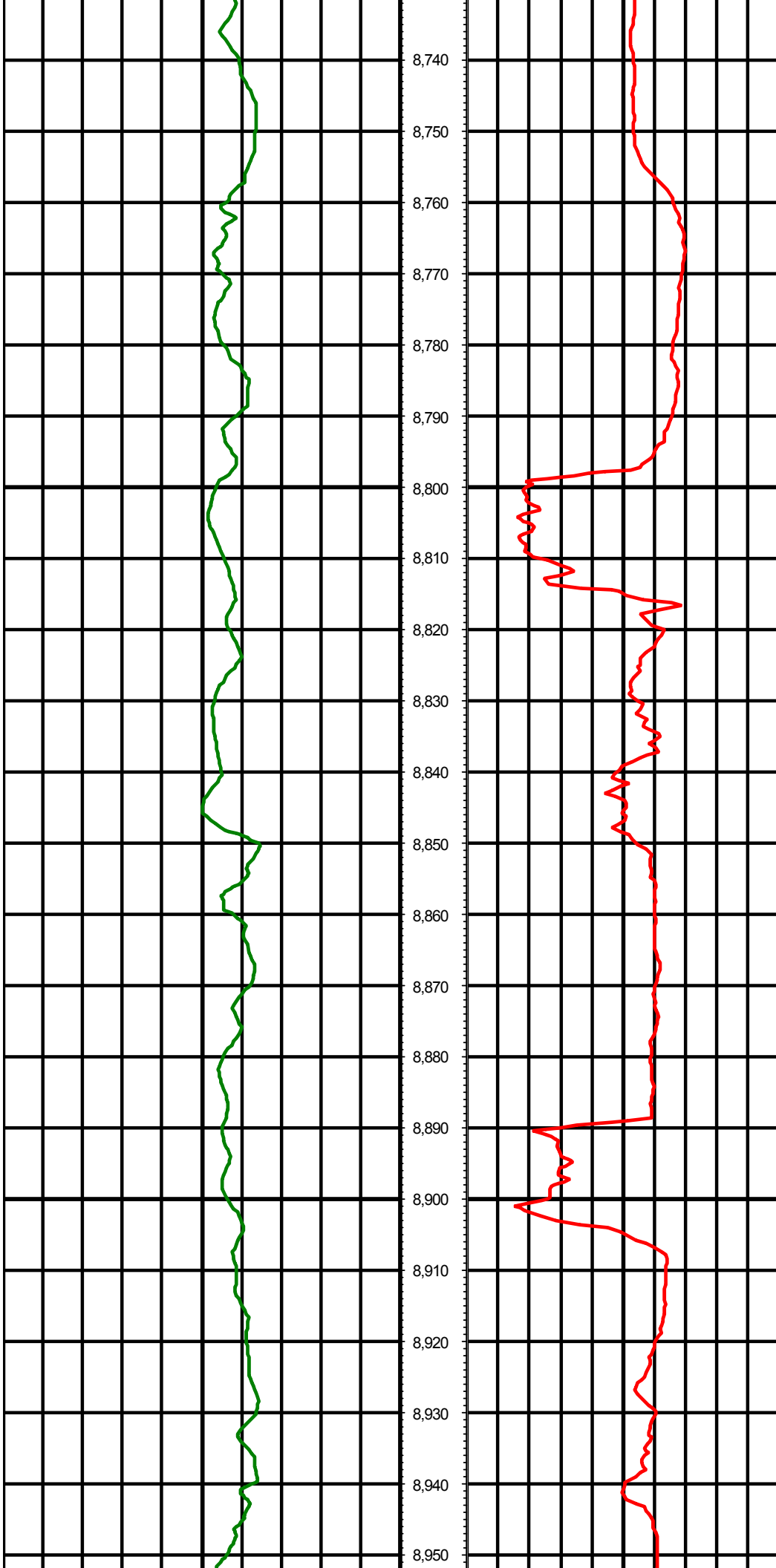
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MD: 8565.00 INC: 88.90 AZ: 178.50

MD: 8656.00 INC: 88.30 AZ: 177.20



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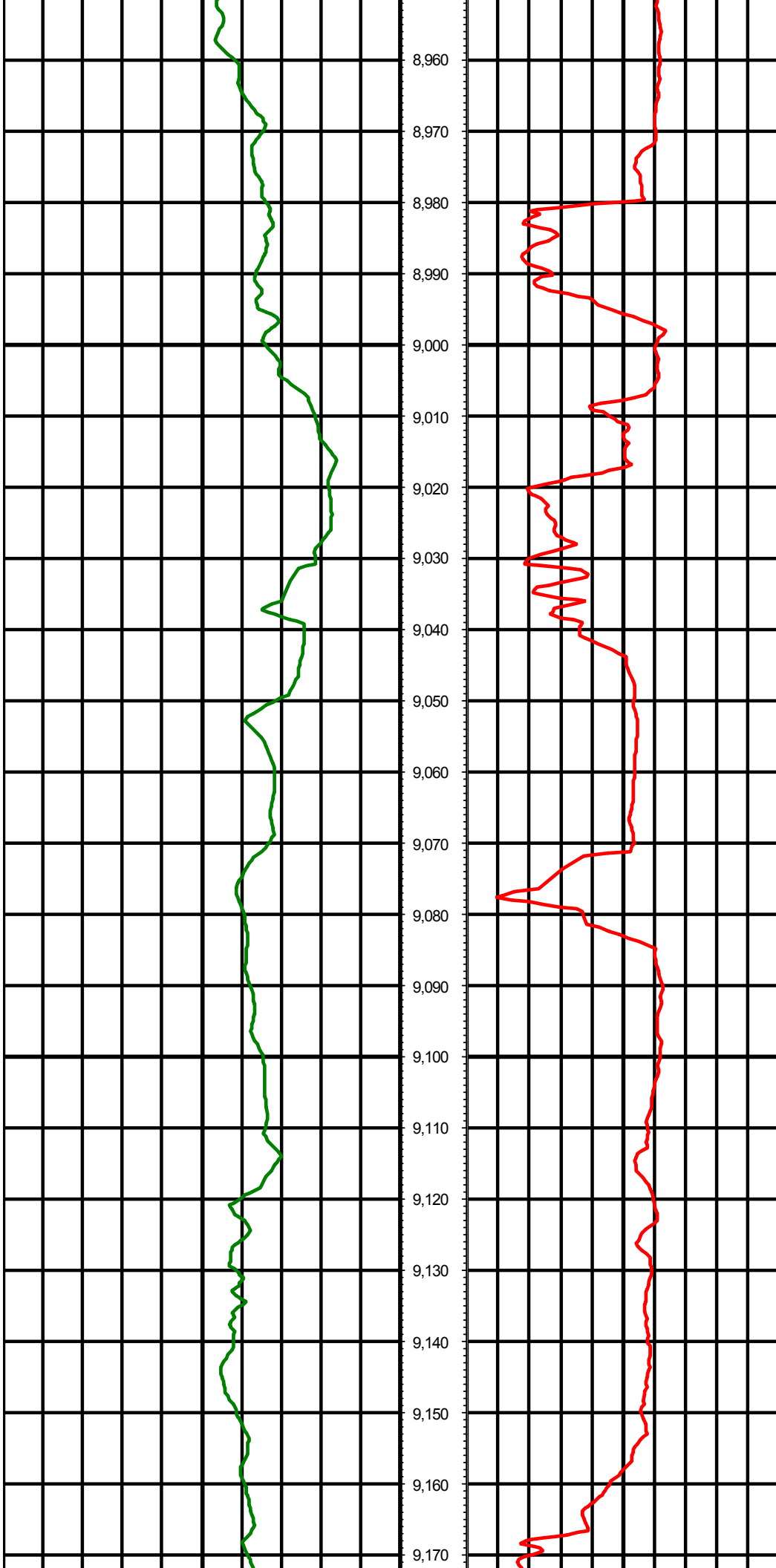
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MD: 8840.00 INC: 89.00 AZ: 180.30

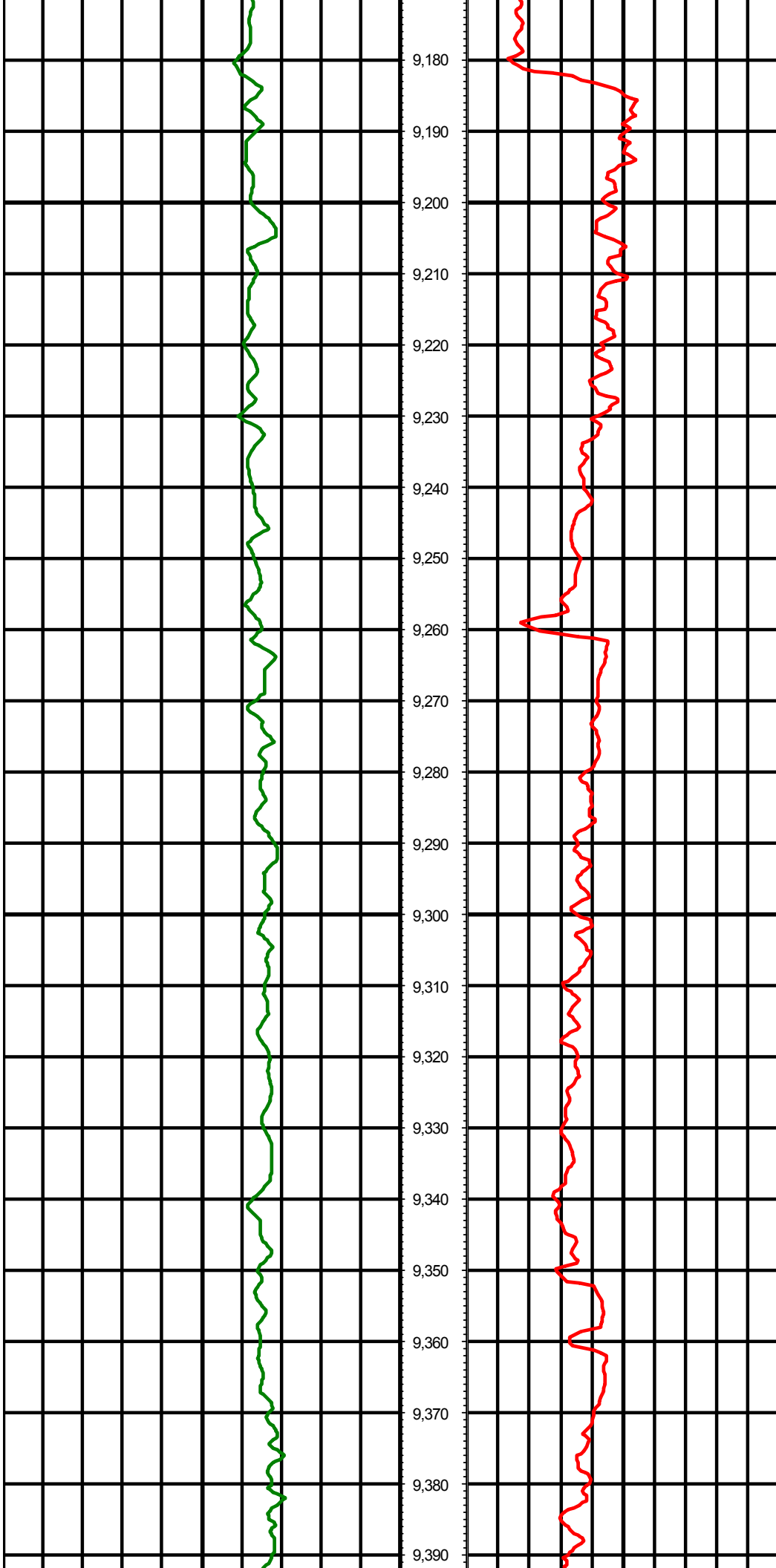
MD: 8932.00 INC: 90.10 AZ: 179.30



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MD: 9024.00 INC: 89.40 AZ: 179.90

MD: 9115.00 INC: 88.70 AZ: 179.00

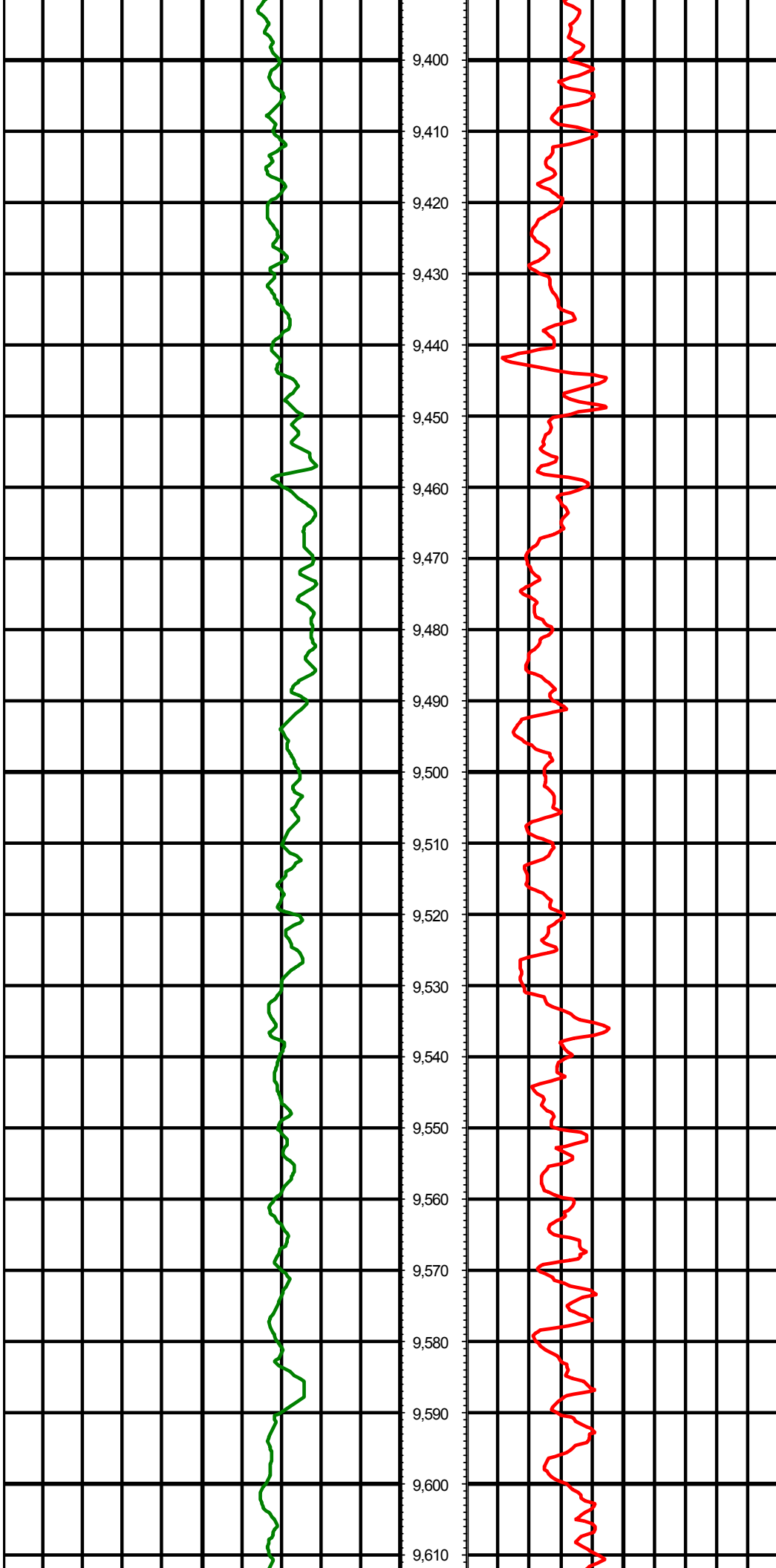


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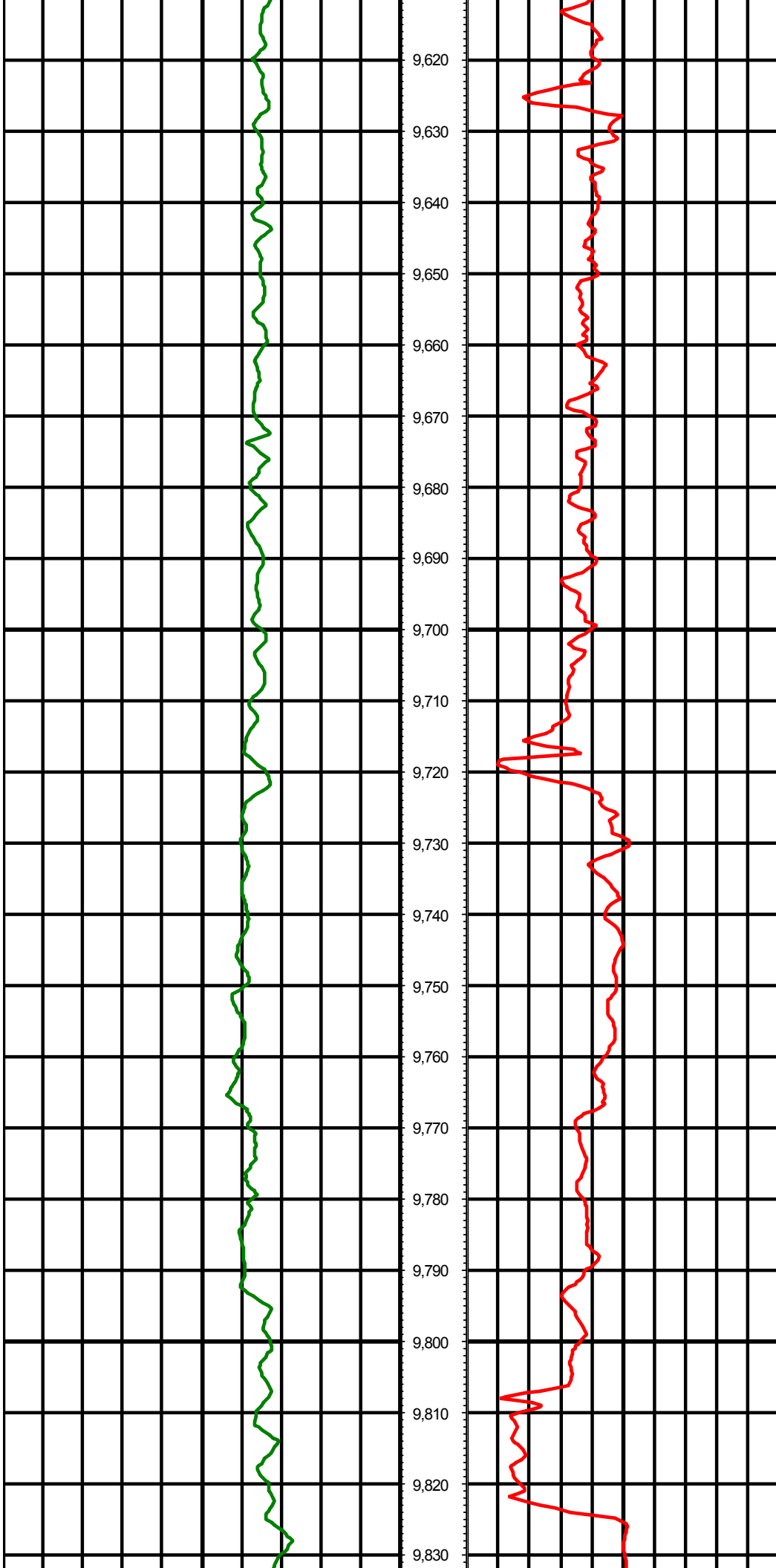
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MD: 9389.00 INC: 89.30 AZ: 180.20



MD: 9481.00 INC: 89.10 AZ: 180.30

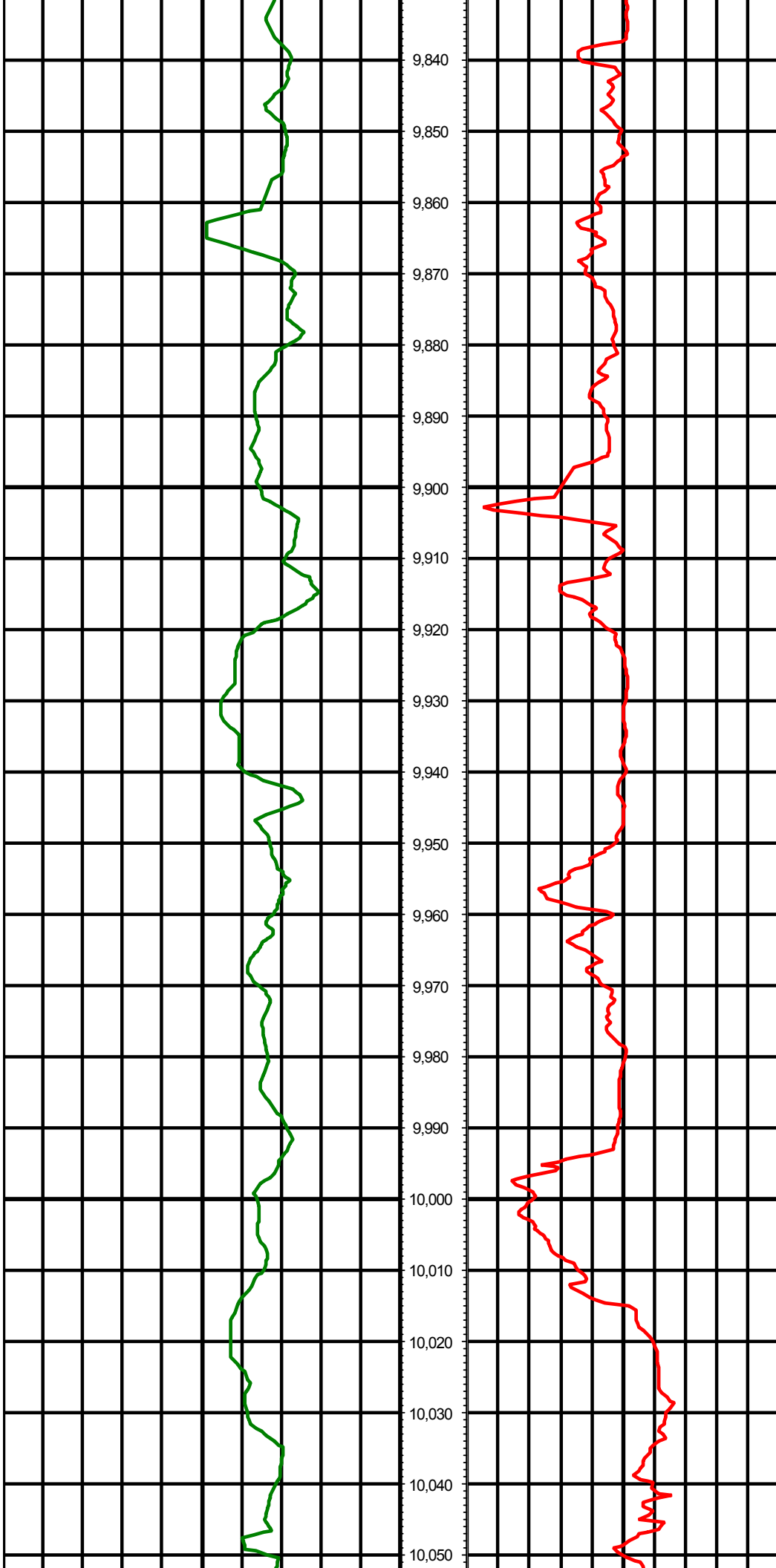
MD: 9573.00 INC: 89.30 AZ: 180.20



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MD: 9665.00 INC: 89.50 AZ: 180.70

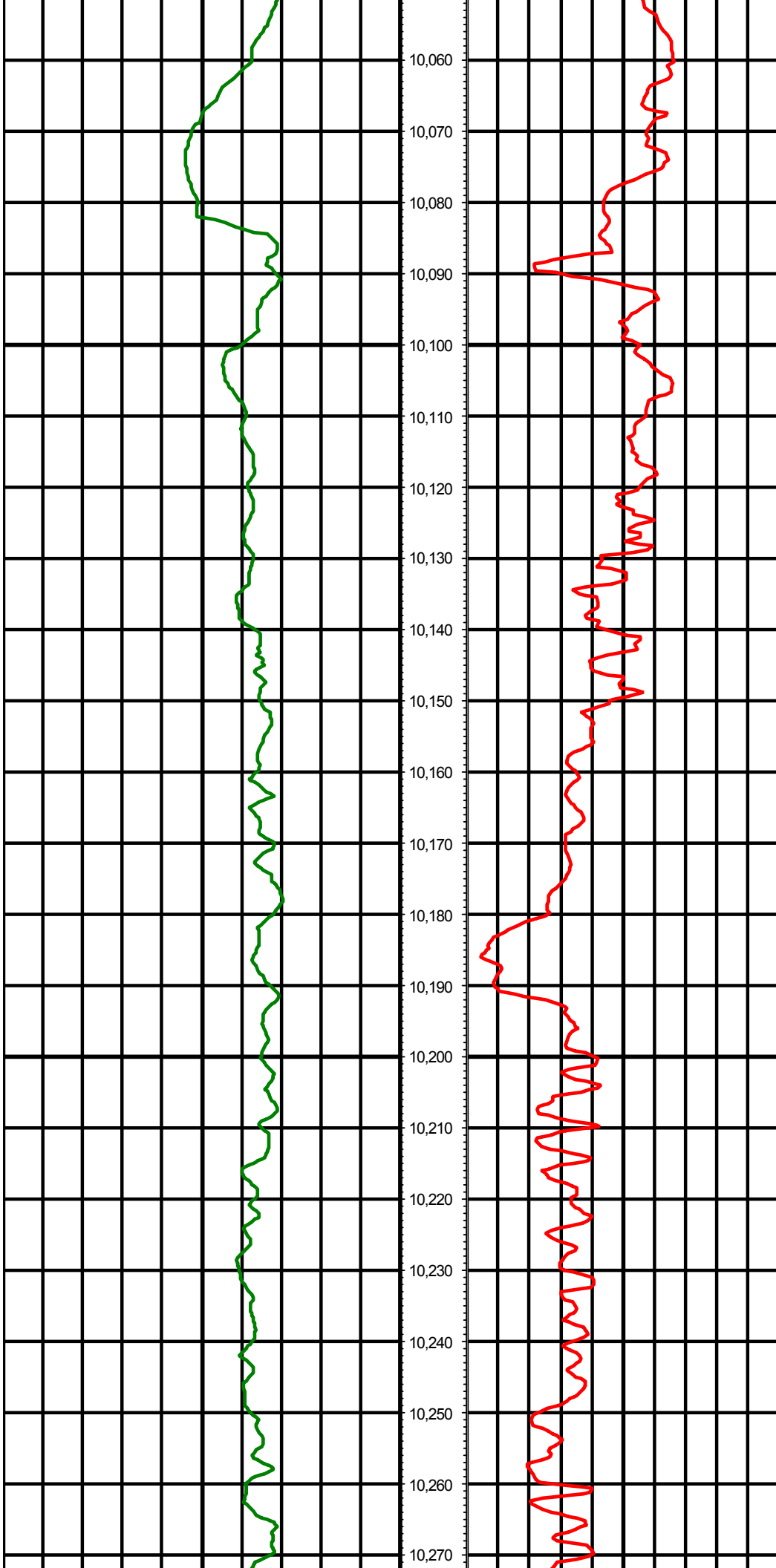
MD: 9757.00 INC: 89.80 AZ: 181.80



MD: 9849.00 INC: 89.10 AZ: 179.30

MD: 9940.00 INC: 88.60 AZ: 178.10

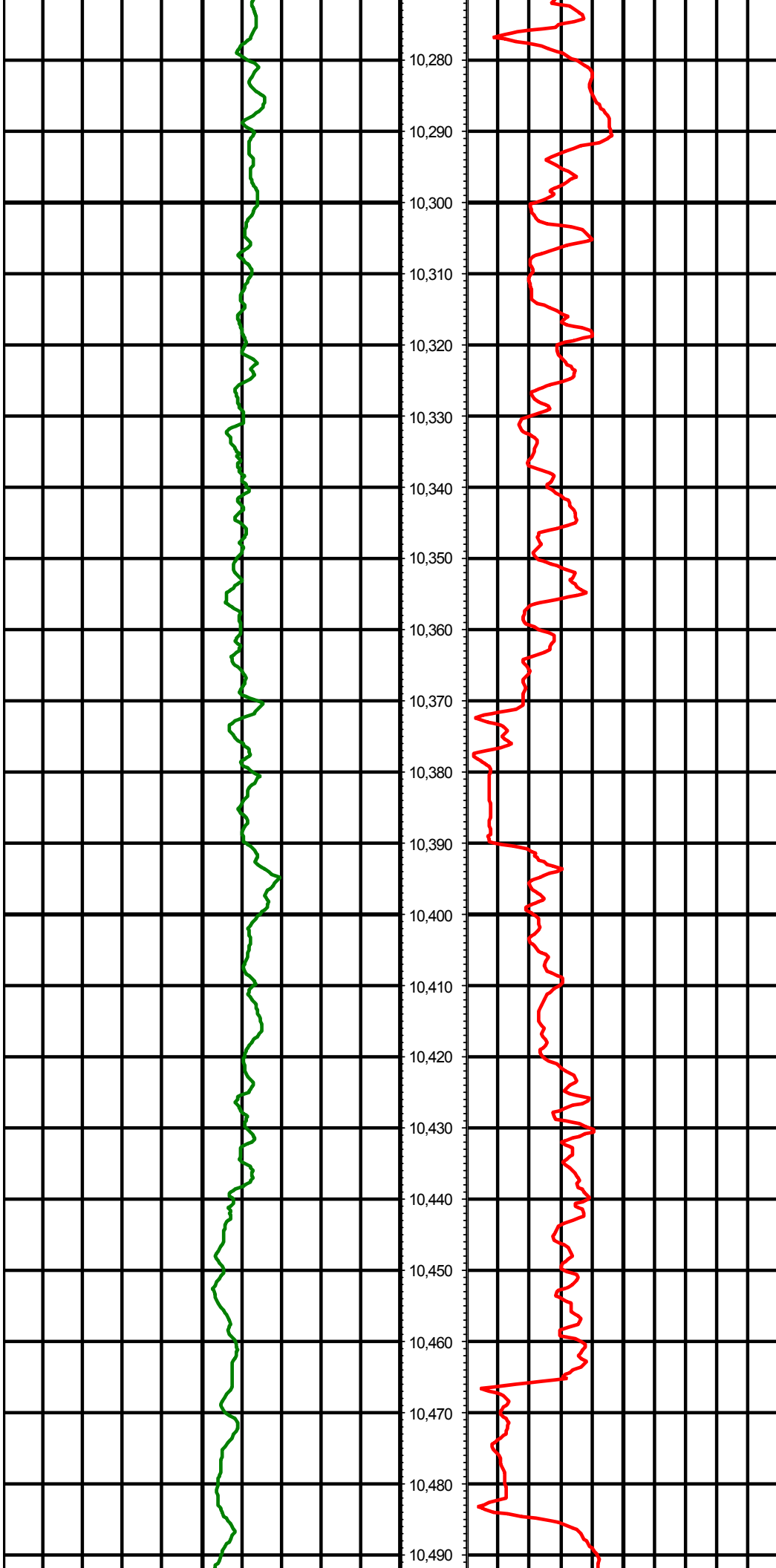
MD: 10035.00 INC: 89.80 AZ: 179.30



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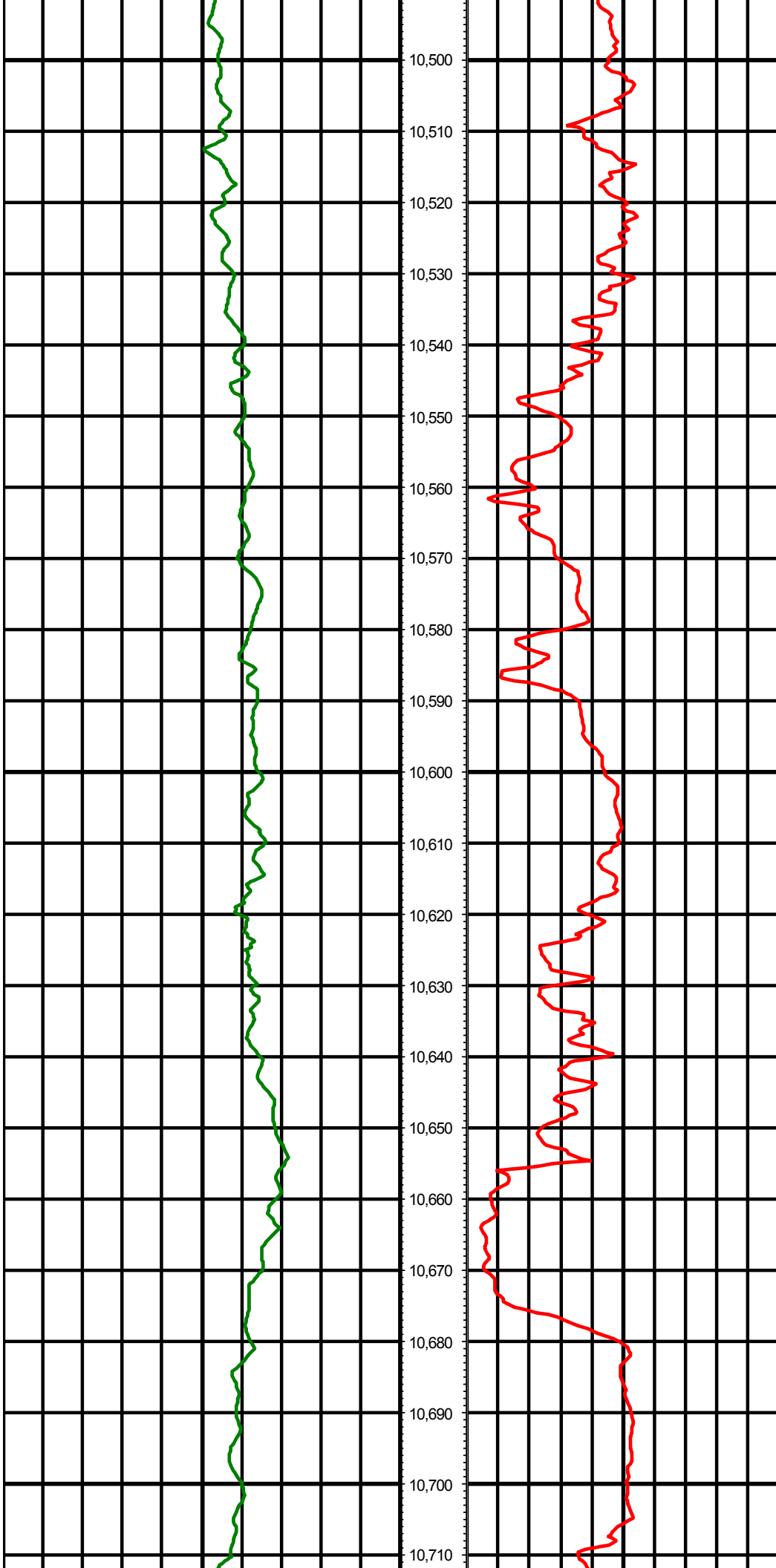
MD: 10224.00 INC: 90.10 AZ: 180.20



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MD: 10319.00 INC: 89.40 AZ: 180.10

MD: 10413.00 INC: 89.80 AZ: 180.50



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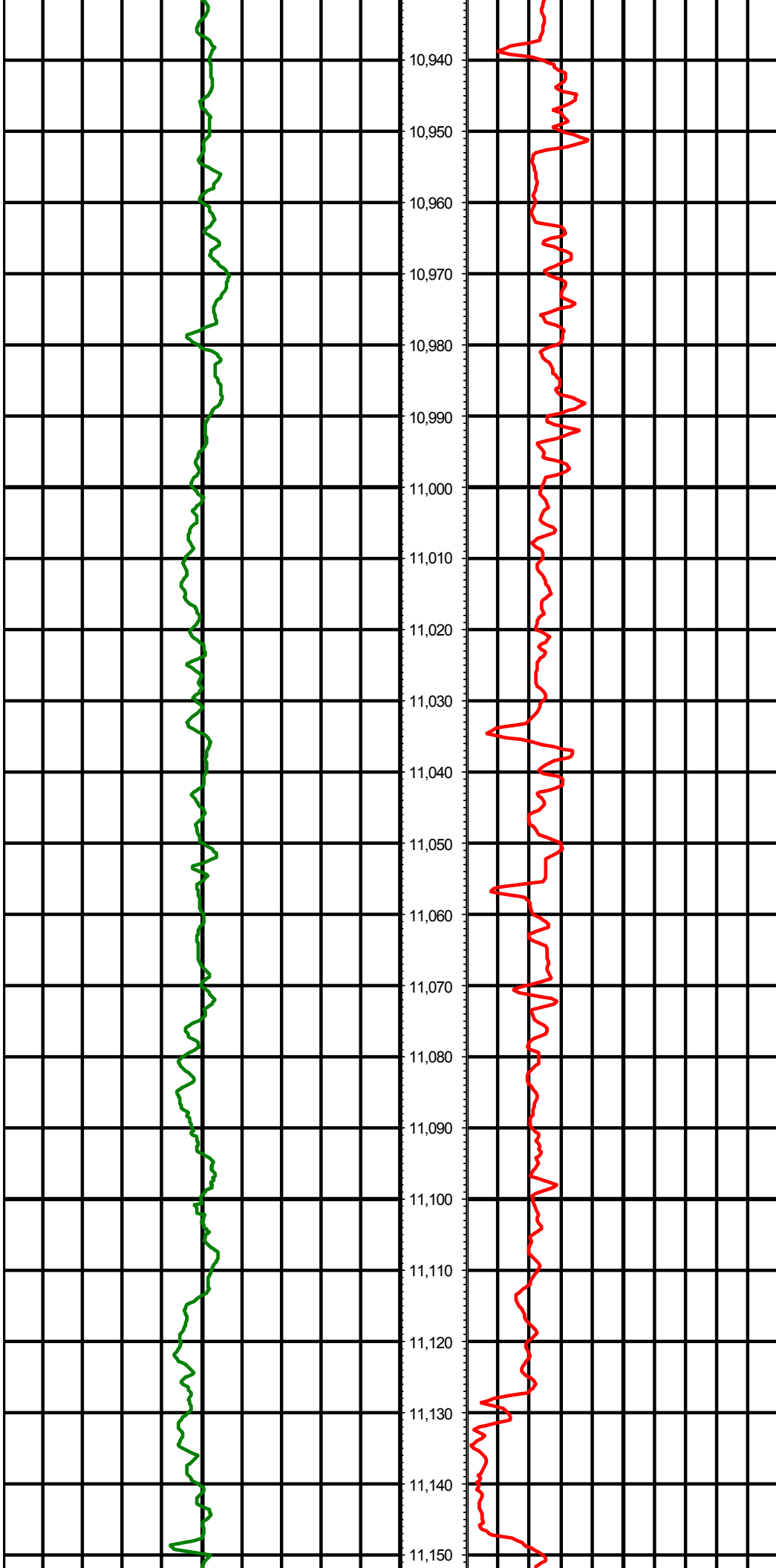
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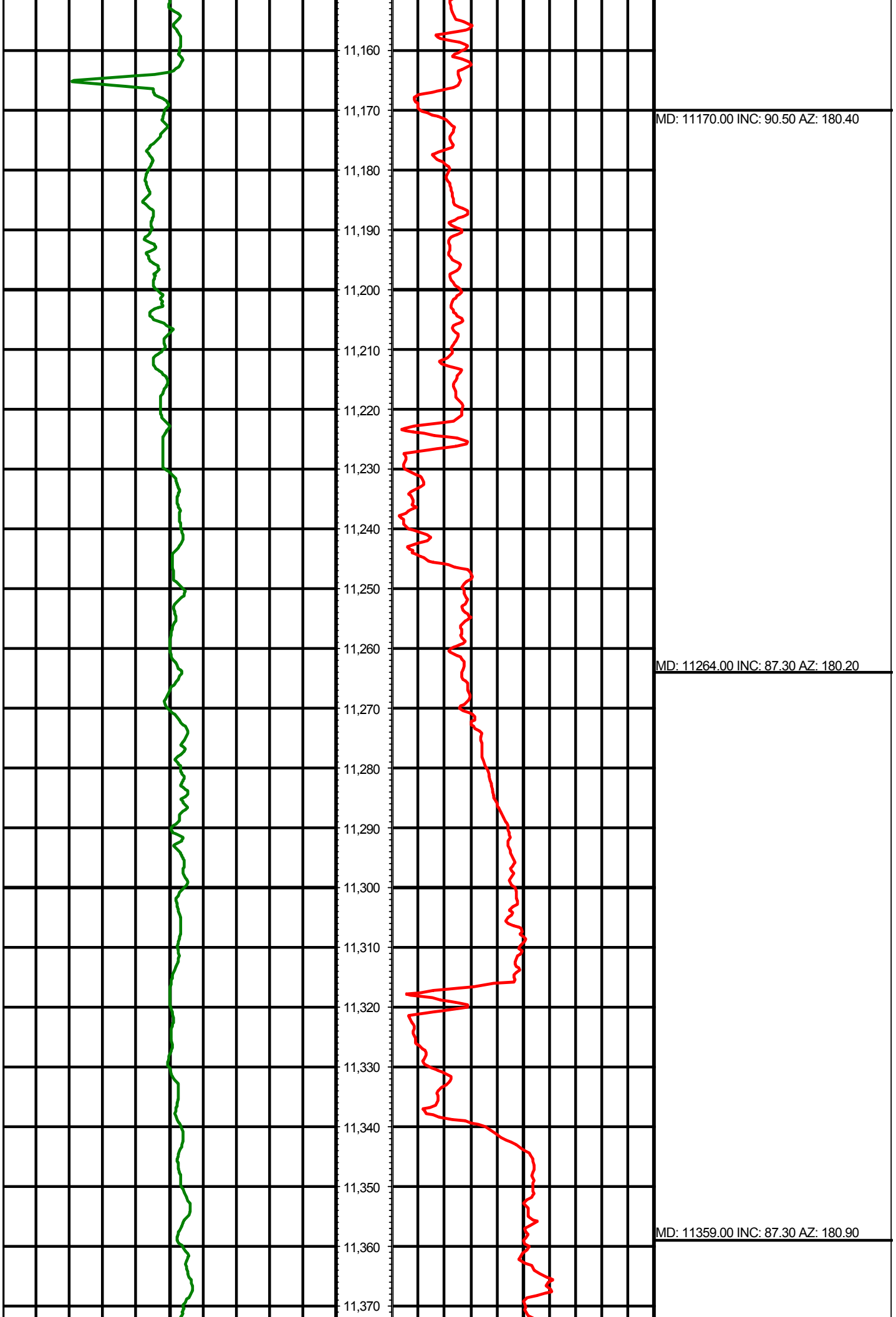
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MD: 10886.00 INC: 91.20 AZ: 181.20



MD: 10981.00 INC: 90.70 AZ: 180.10

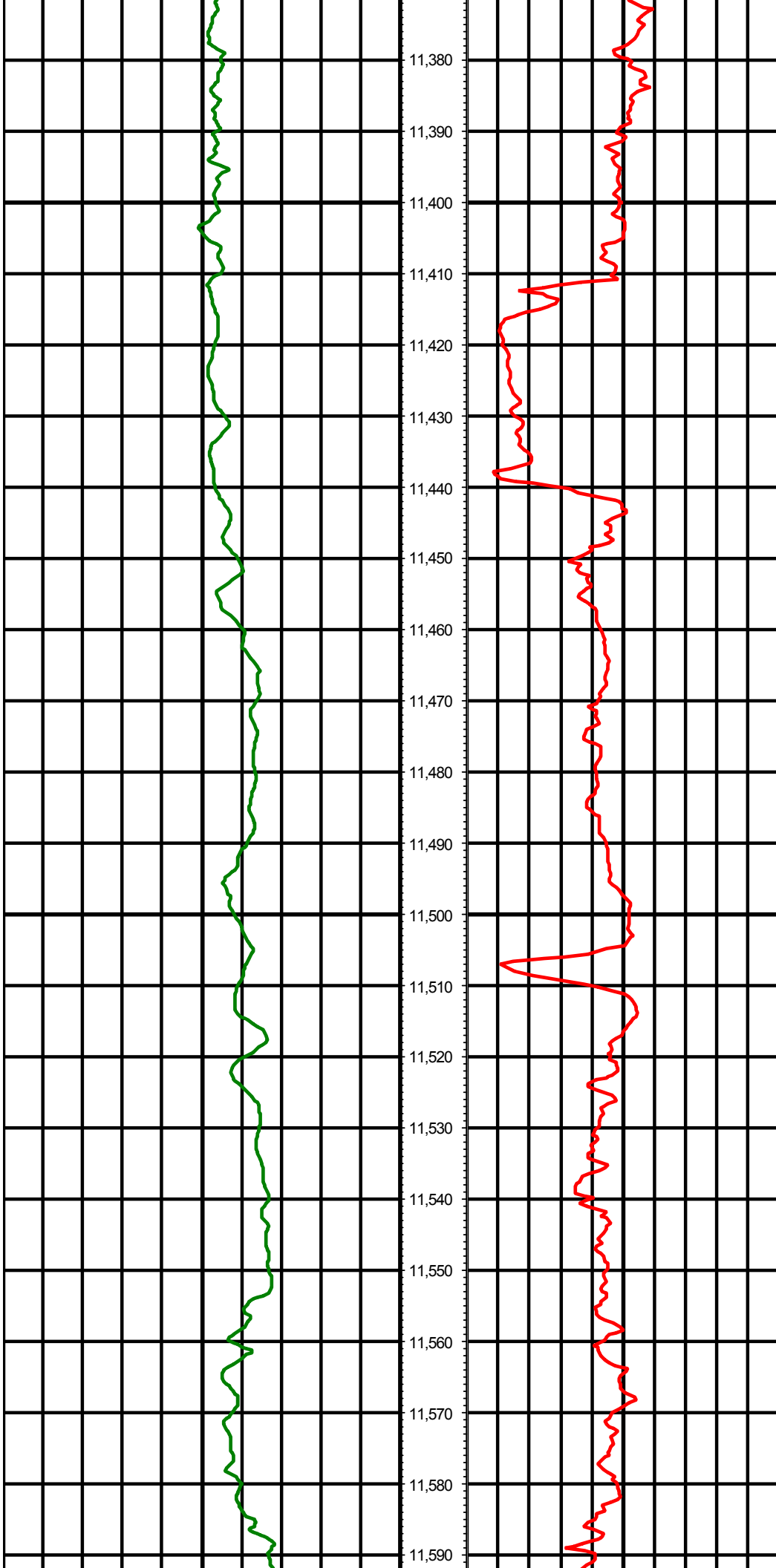
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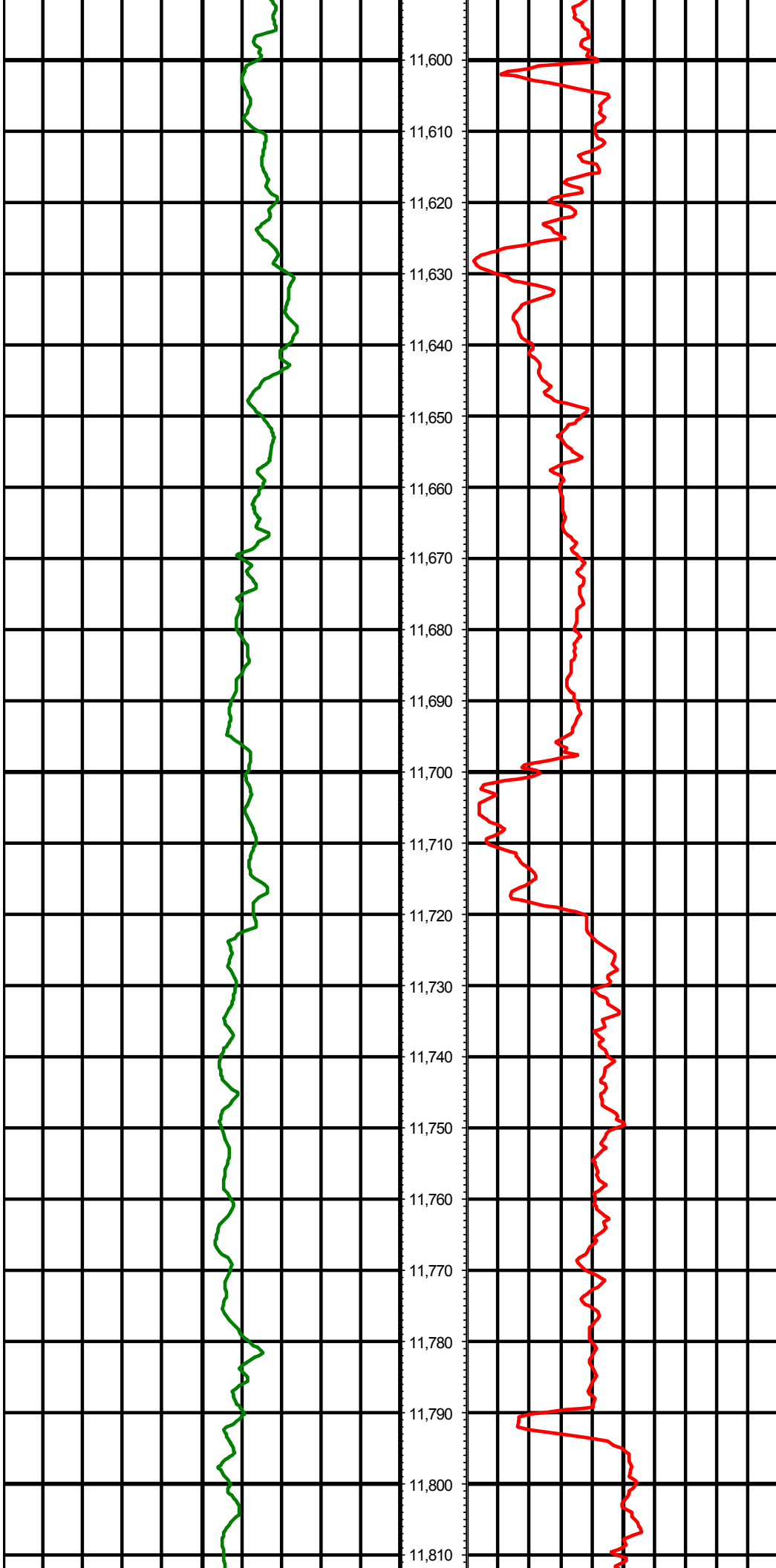
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MD: 11453.00 INC: 89.20 AZ: 183.60

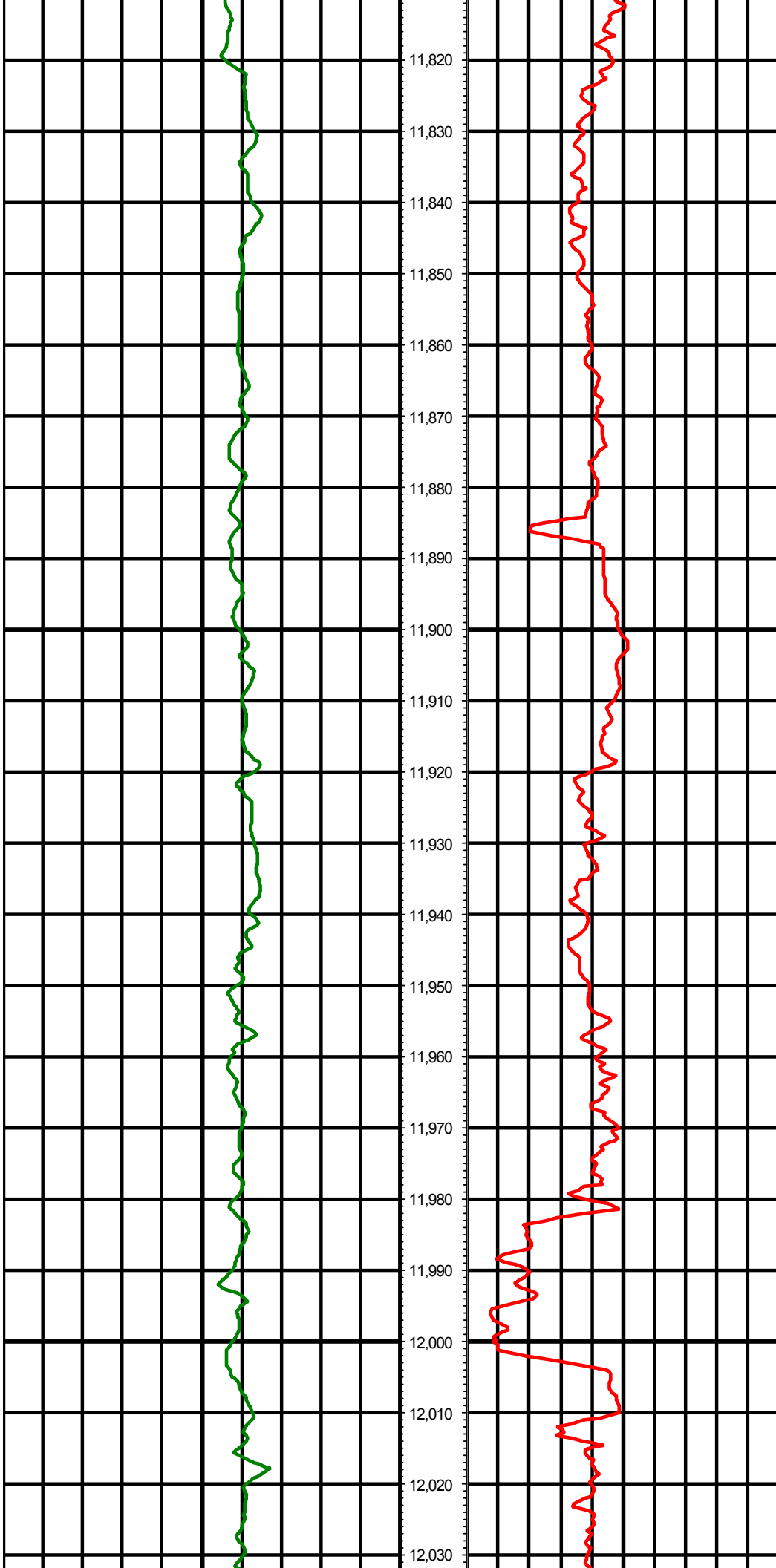
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MD: 11643.00 INC: 89.20 AZ: 183.70

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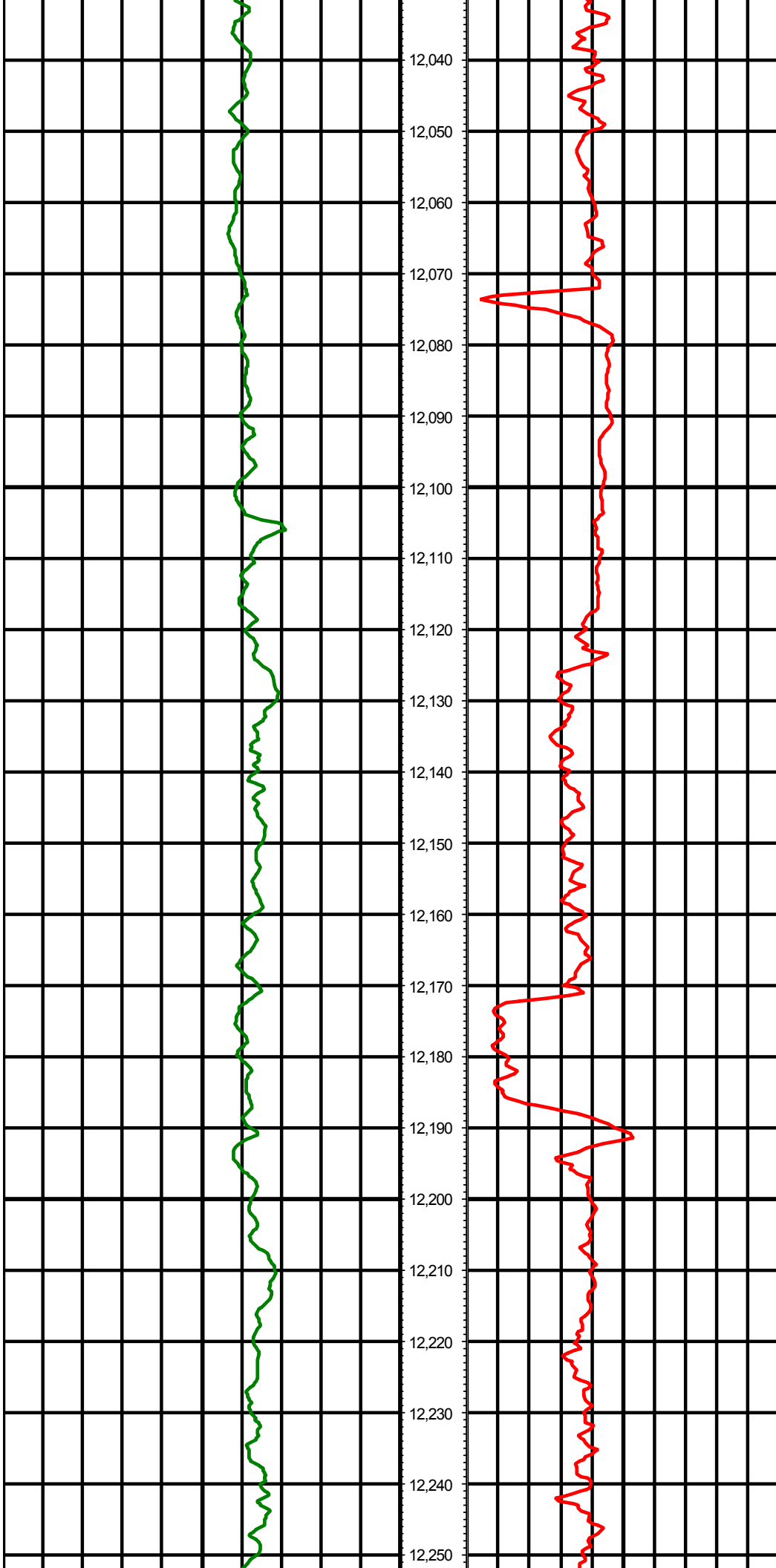


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MD: 11832.00 INC: 89.80 AZ: 182.40

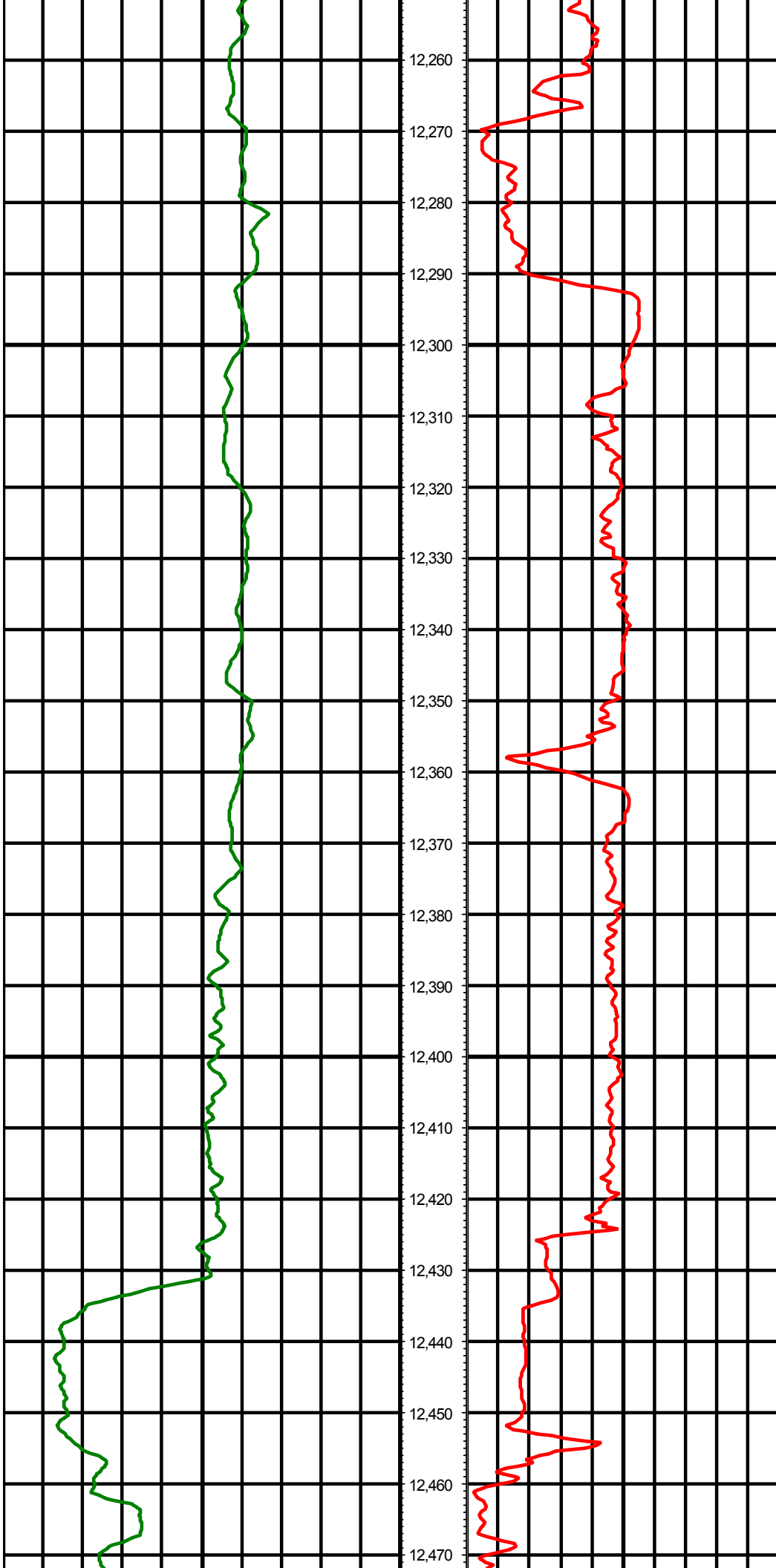
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MD: 12020.00 INC: 89.80 AZ: 180.50



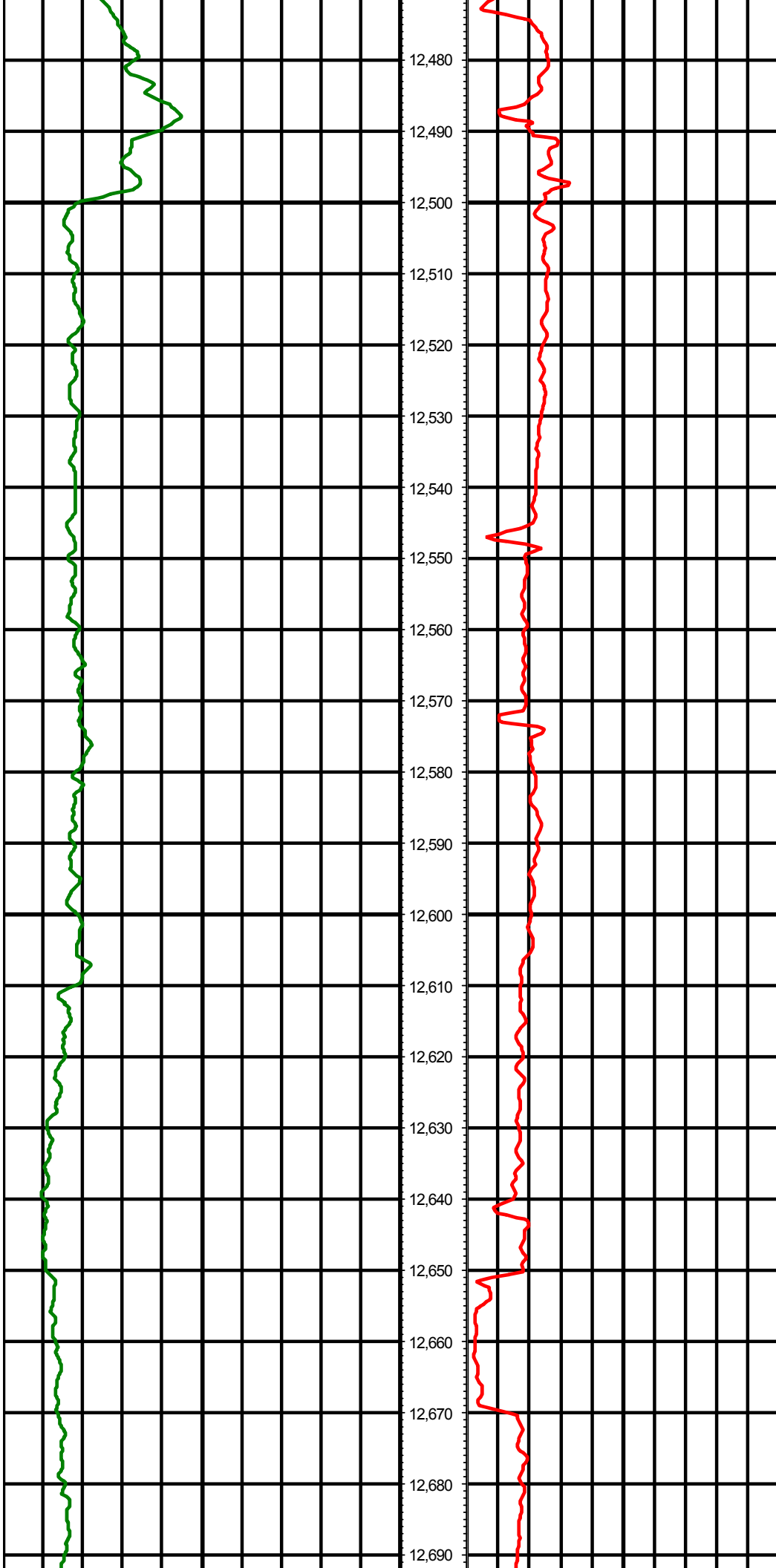
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MD: 12210.00 INC: 89.70 AZ: 181.00



MD: 12304.00 INC: 91.60 AZ: 181.70

MD: 12399.00 INC: 91.70 AZ: 181.20



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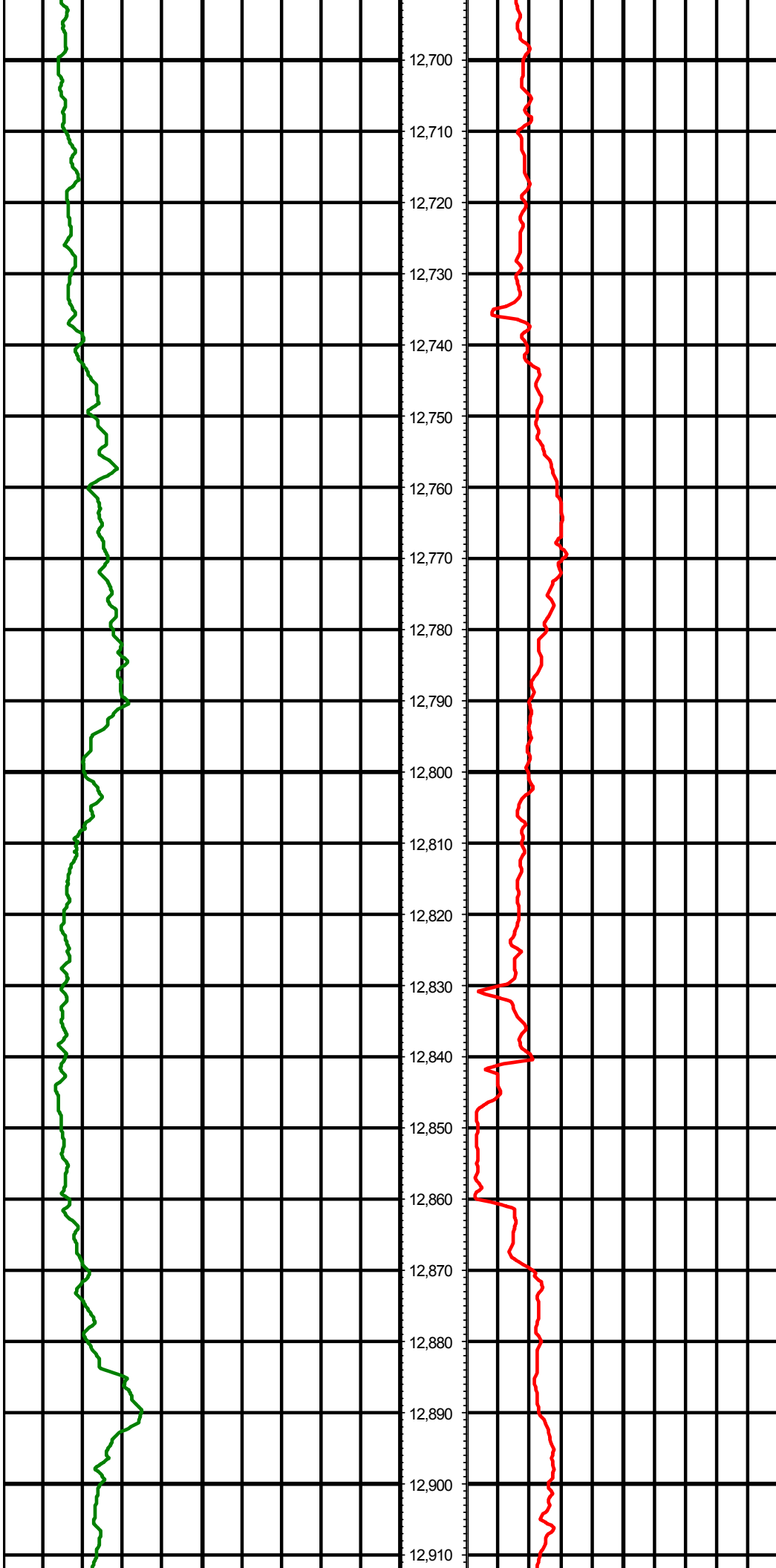
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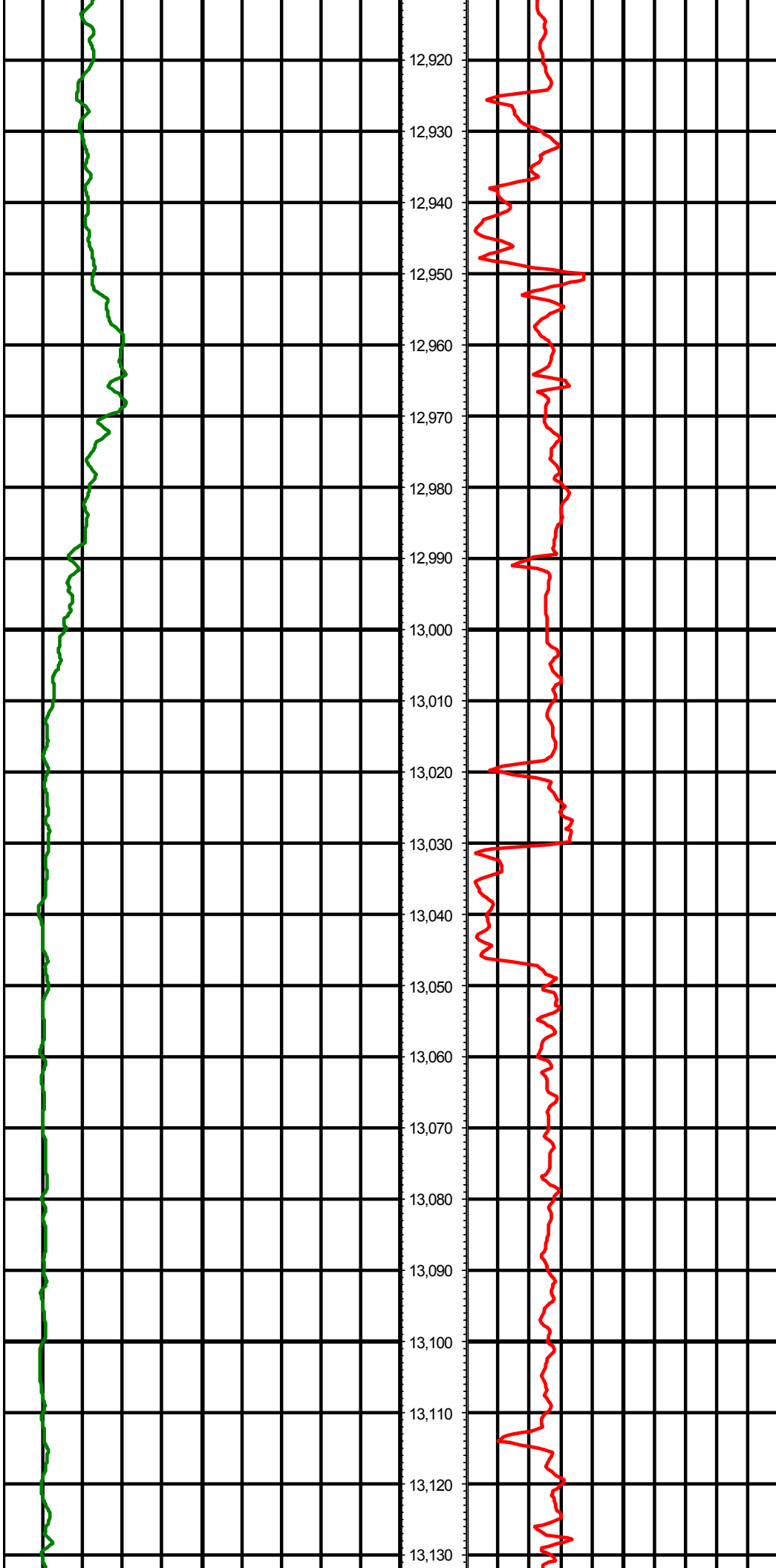
MD: 12683.00 INC: 89.50 AZ: 179.20



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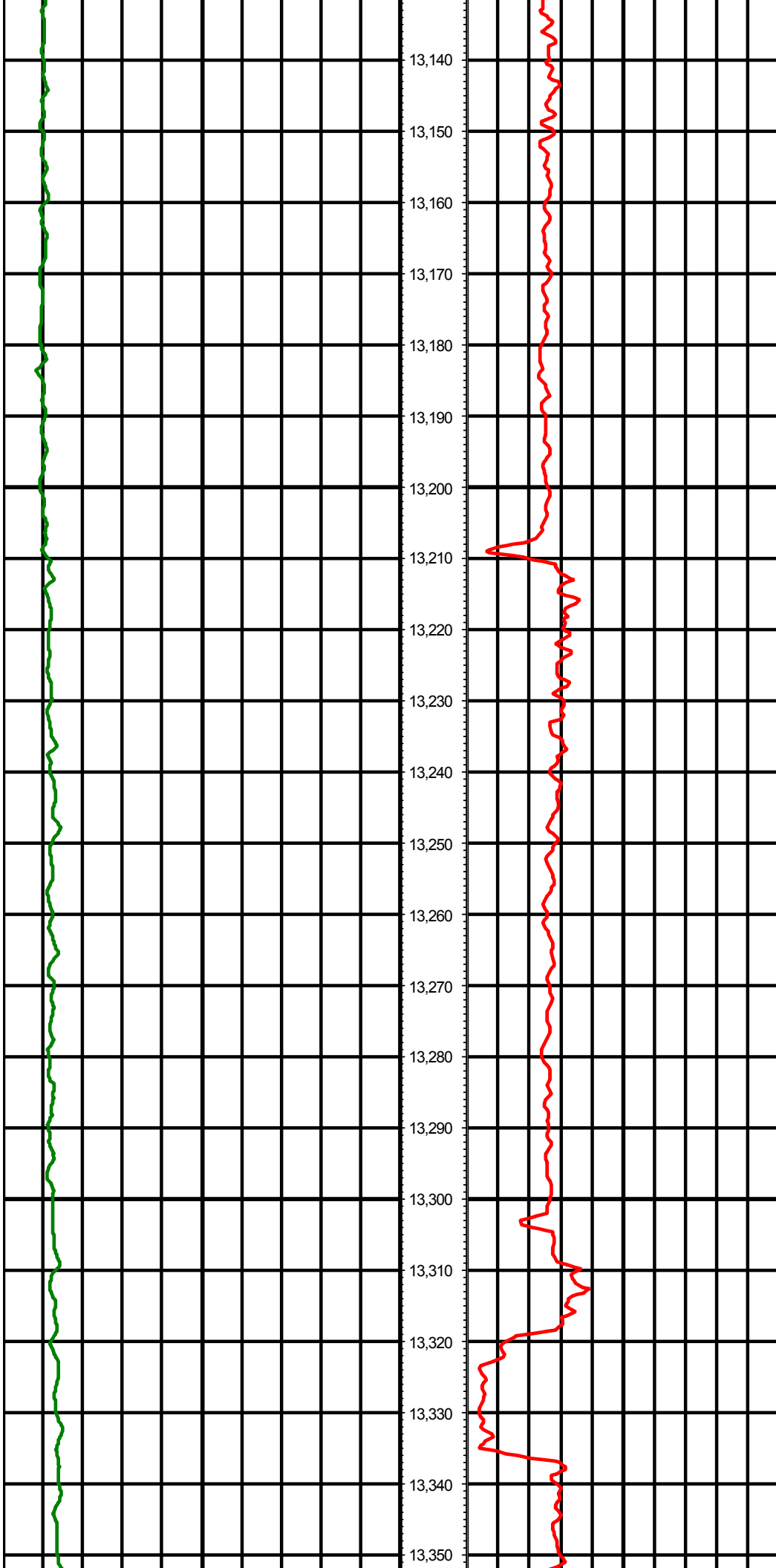
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MD: 12966.00 INC: 90.60 AZ: 179.10

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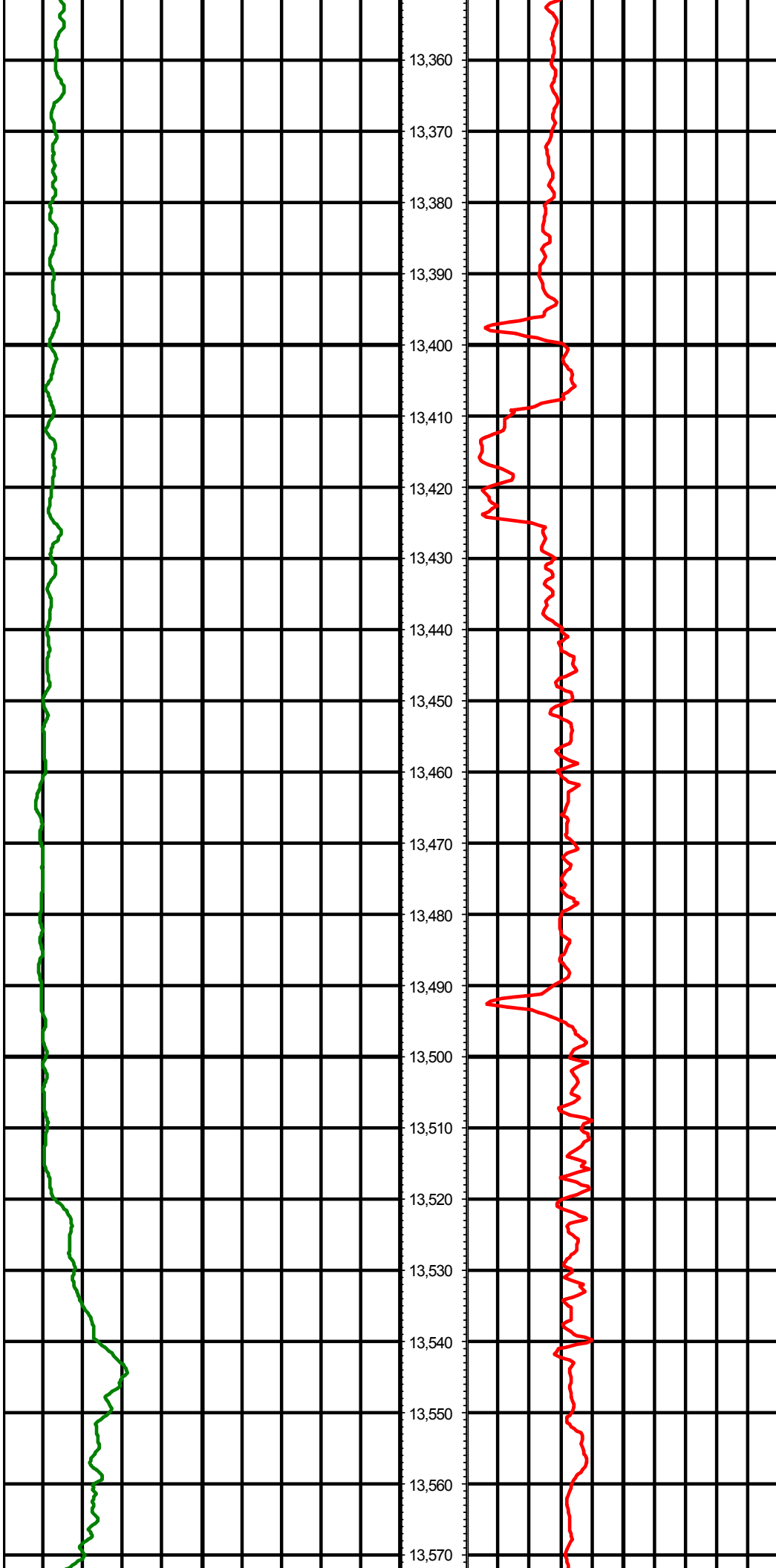


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MD: 13155.00 INC: 90.00 AZ: 179.80

MD: 13250.00 INC: 90.20 AZ: 179.00

MD: 13344.00 INC: 89.90 AZ: 180.10



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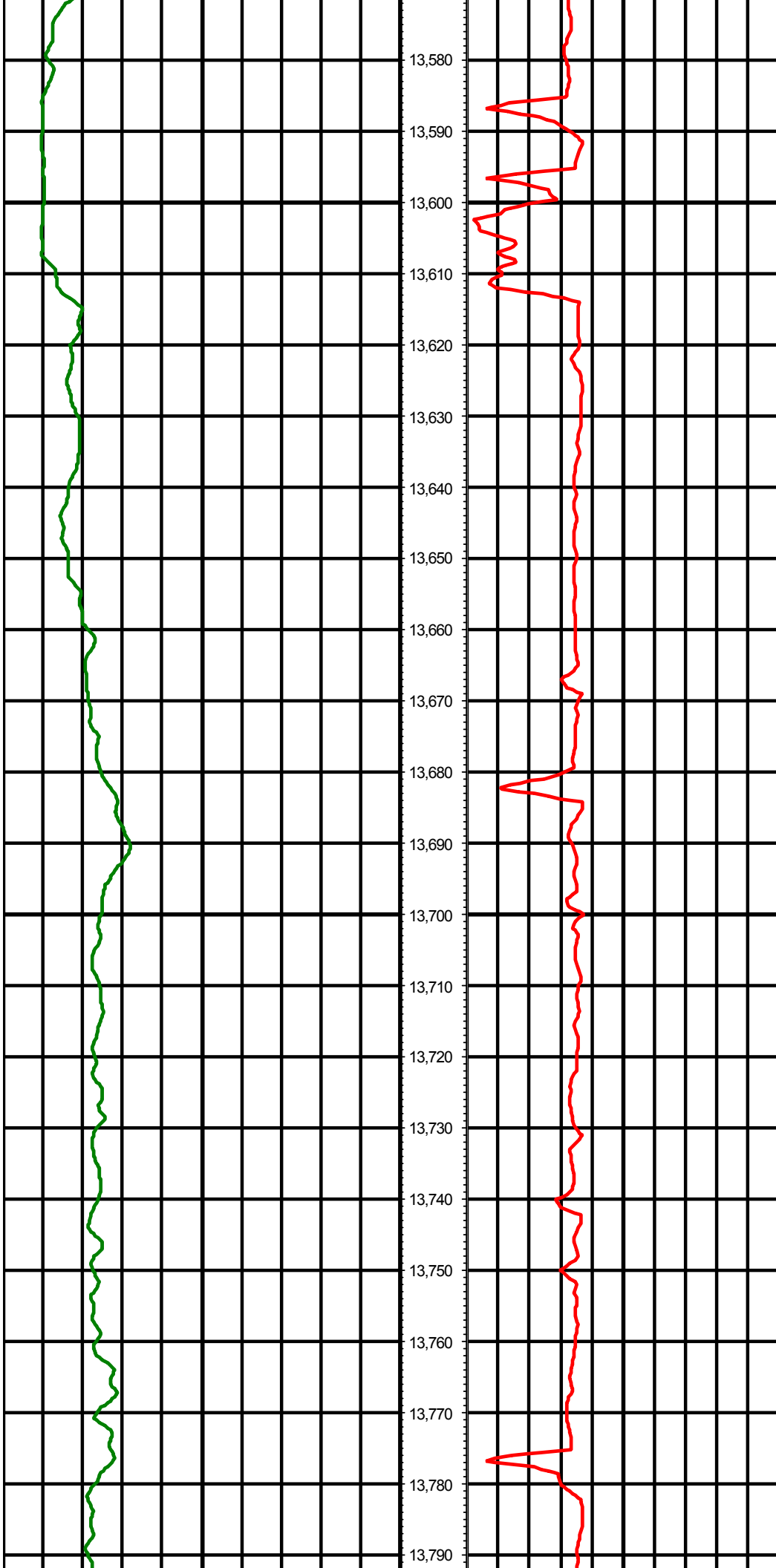
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MD: 13439.00 INC: 89.40 AZ: 181.40

MD: 13533.00 INC: 89.50 AZ: 180.70



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MD: 13628.00 INC: 88.50 AZ: 181.90

MD: 13723.00 INC: 89.00 AZ: 181.90

