



Cathedral Energy Services
1949 North Pyrite Road
Casper, Wyoming 82604

145487

5":100' - MD

12/29/2014 11:08:03 AM

CATHEDRAL

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

Country: U.S.A.

State / Province: Colorado

County / Parish: Weld

Started: 12/20/2014 09:00 AM

API/UWI: 05-123-36892

Field: Wattenberg (Codell)

Well: Billings 3H-18H

Rig: Patterson Drilling 326

Ended: 12/28/2014 12:30 AM

Gamma Ray
Section Plane: 90.00
Magnetic North: 8.53
Gamma Averaging: 7%

Personnel

Day Hand: T. Mueller

Night Hand: J. Davis

Comp. Emp: Norman McCreary

Maximum Temperature: 228°F

Location

Latitude: 40.229390

Longitude: -105.054290

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	90	975
8-3/4	975	7770
6-1/8	7770	14190

Casing Data

Size	From	To
9-5/8	0	964
7	0	7747
4-1/2	0	14170

Bit Sizes

Size	From	To
12-1/4	90	975
8-3/4	975	7770
6-1/8	7770	14190

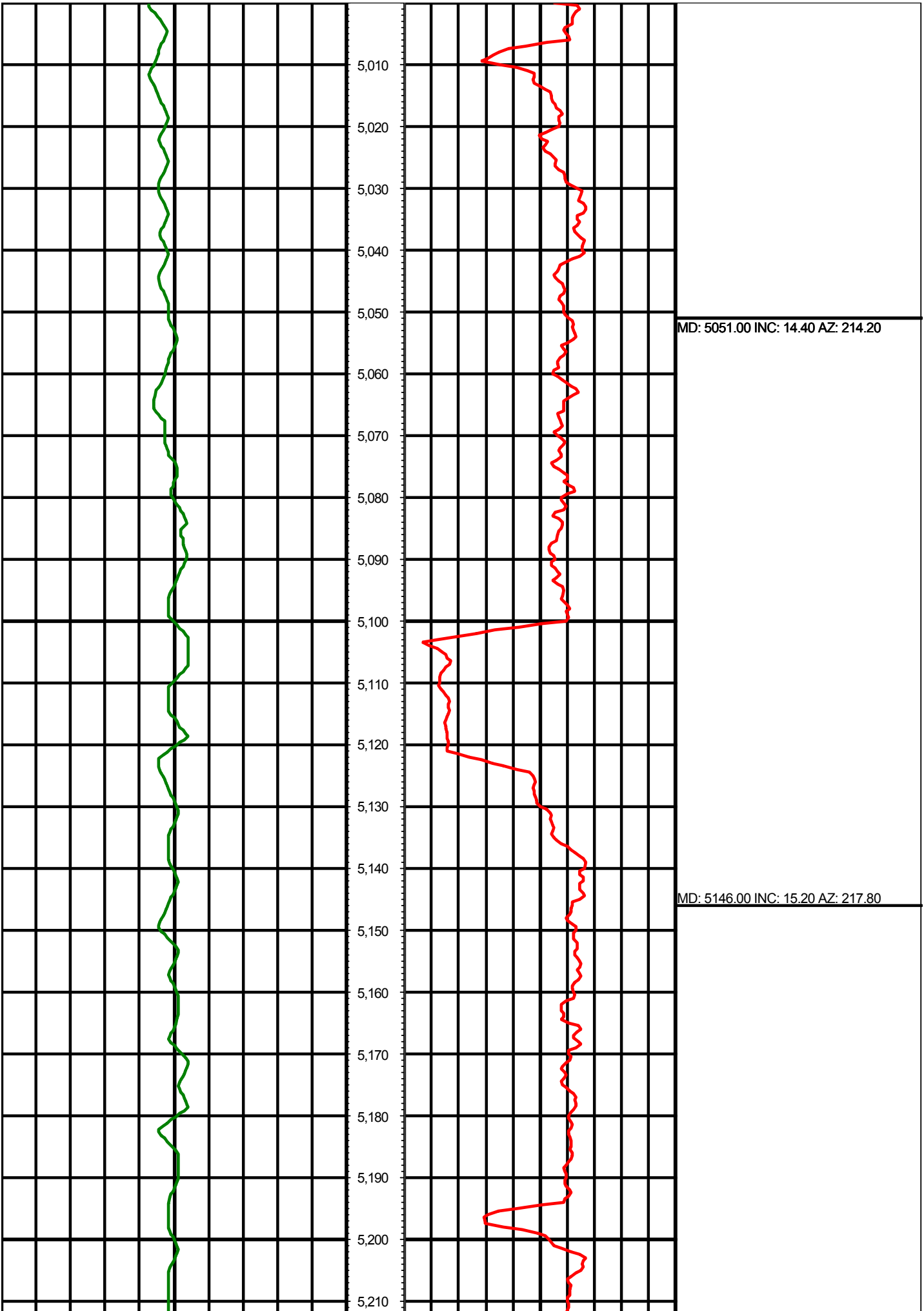
Mud Data

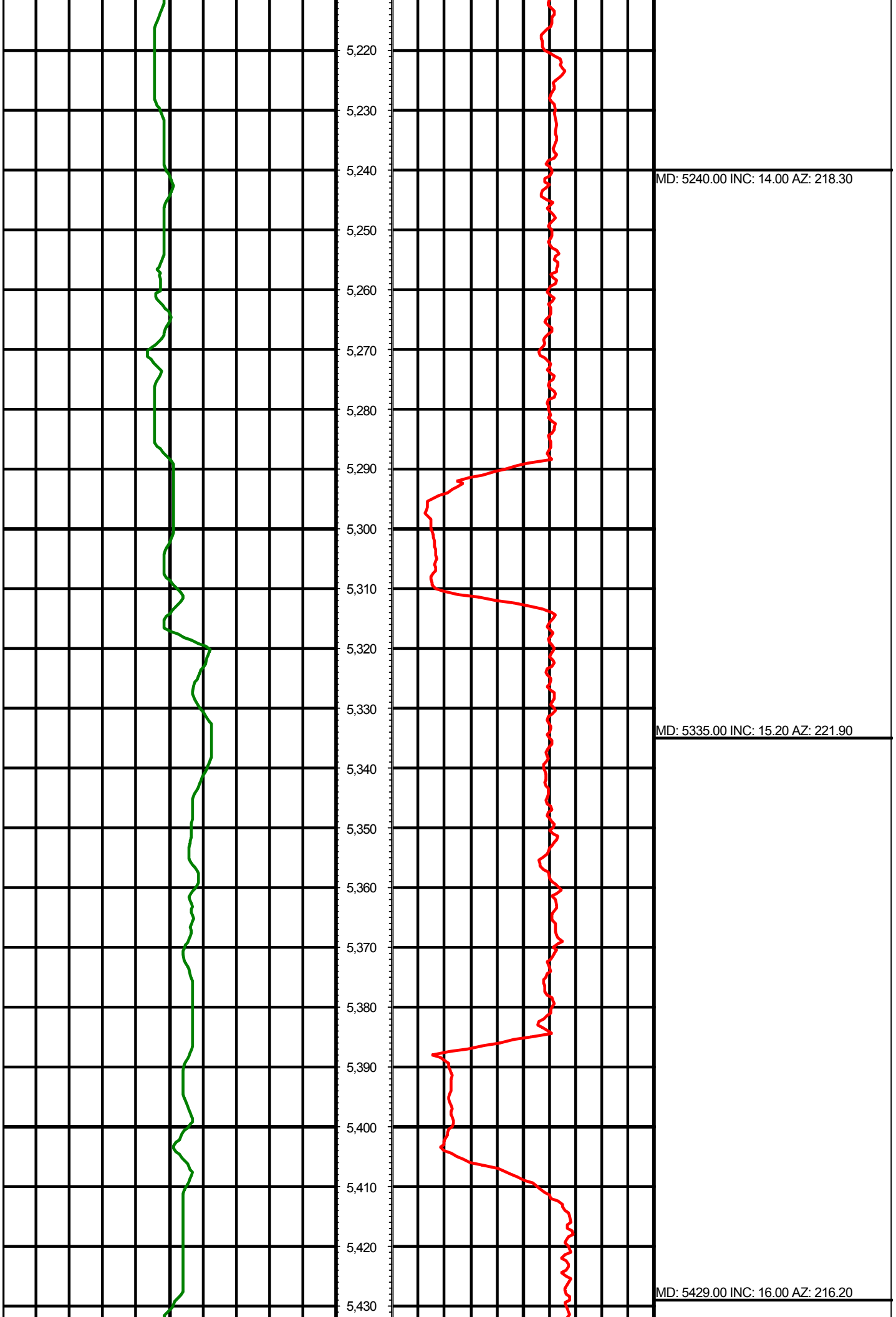
Type	Weight	Density	Viscosity	Rm	Rmf	Rmc	From	To
Water Base	10.8		44				5000	7770
Water Base	11.2		41				7770	7976
Water Base	11.4		41				7976	7976
Water Base	11.8		42				7976	9759
Water Base	12.5		42				9759	14190

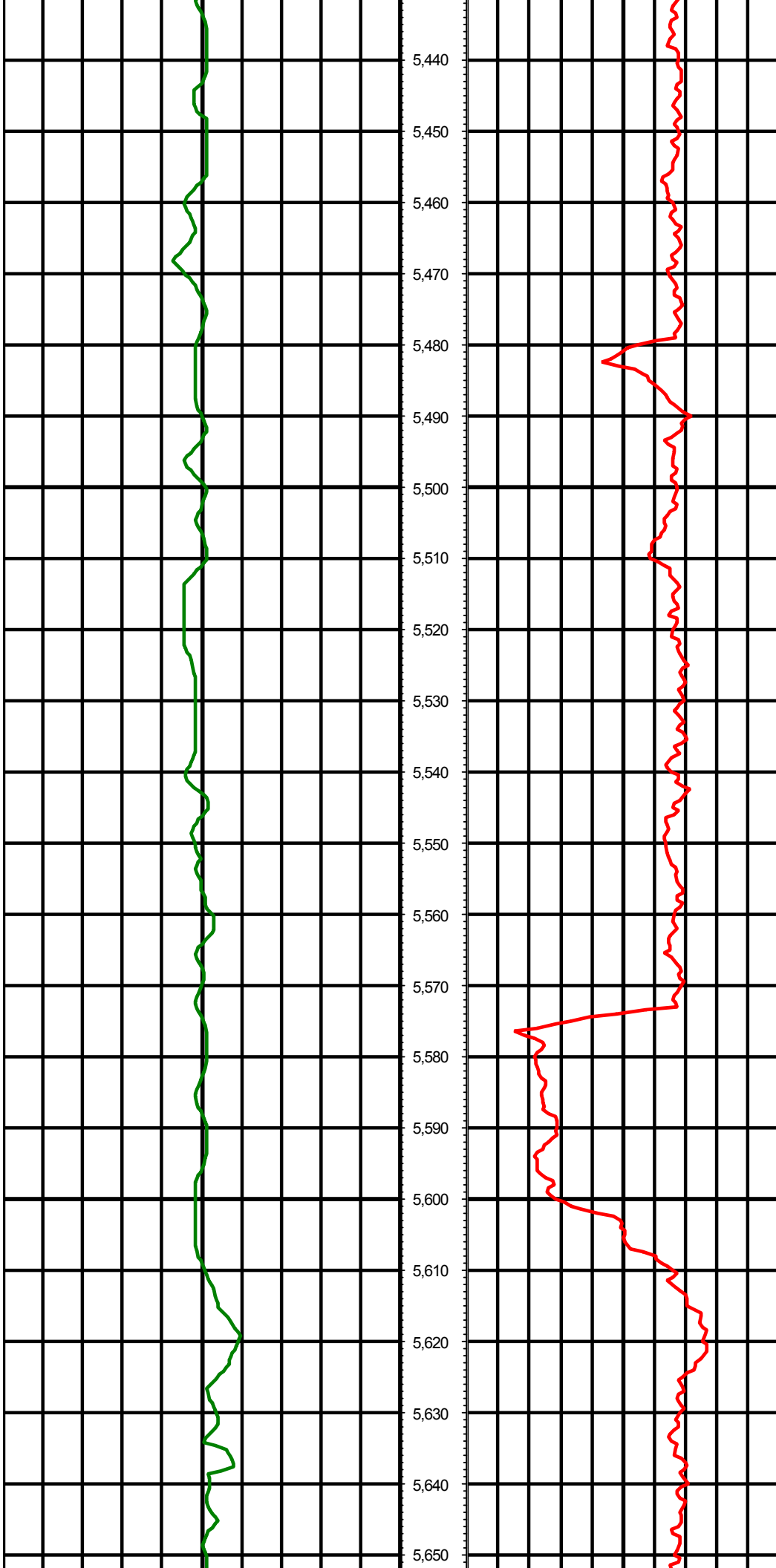
Tool Run Data

Serial Number	Gamma Offset	Resist. Offset	Start Time	Start Depth	End Time	End Depth
1595	35.81	0	12/19/2014 3:00:07 PM	5000	12/22/2014 5:00:07 AM	7770
1492	39.64	0	12/23/2014 4:15:28 AM	7770	12/23/2014 6:45:28 PM	7976
1220	39.64	0	12/23/2014 8:15:09 AM	7976	12/24/2014 2:15:09 AM	7976
1634	34.66	0	12/24/2014 2:45:46 AM	7976	12/25/2014 6:00:46 AM	9759
1493	39.6	0	12/25/2014 7:00:19 AM	9759	12/28/2014 1:00:19 PM	14190

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: 5524.00 INC: 14.20 AZ: 213.70

MD: 5618.00 INC: 14.90 AZ: 216.70



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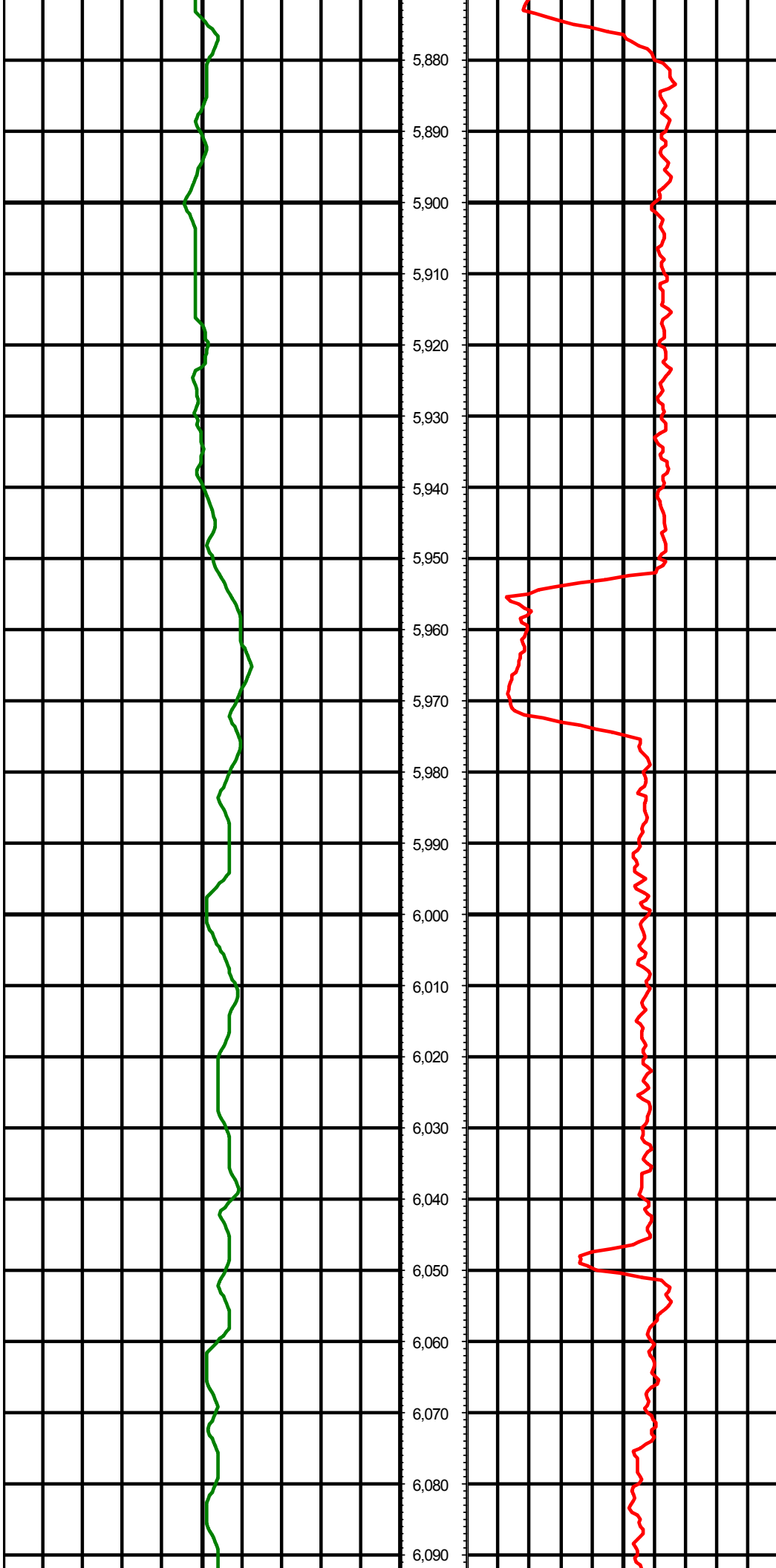
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MD: 5713.00 INC: 16.60 AZ: 215.60

MD: 5807.00 INC: 15.60 AZ: 215.70



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MD: 5996.00 INC: 15.30 AZ: 220.10

MD: 6091.00 INC: 13.00 AZ: 220.30

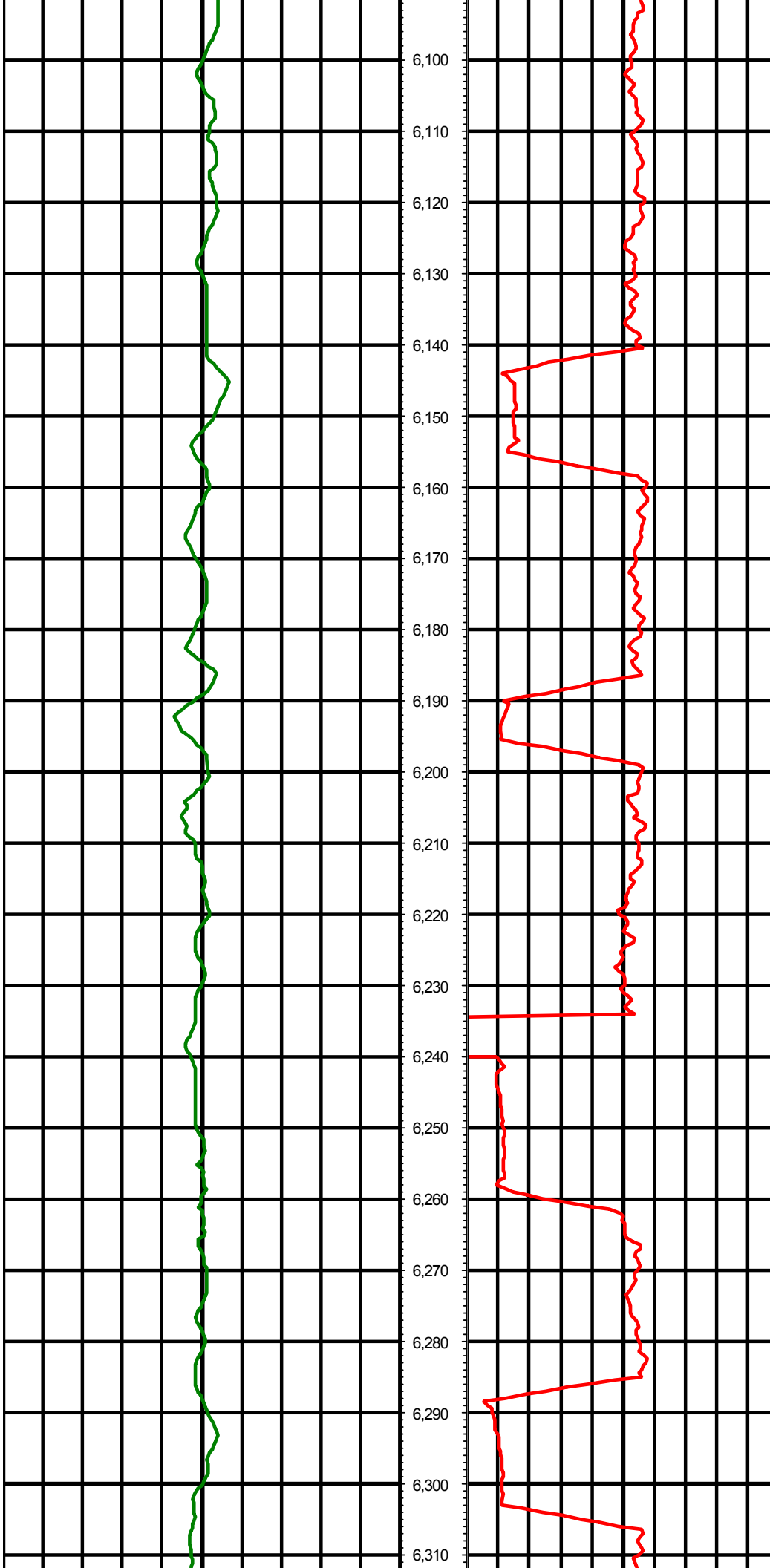
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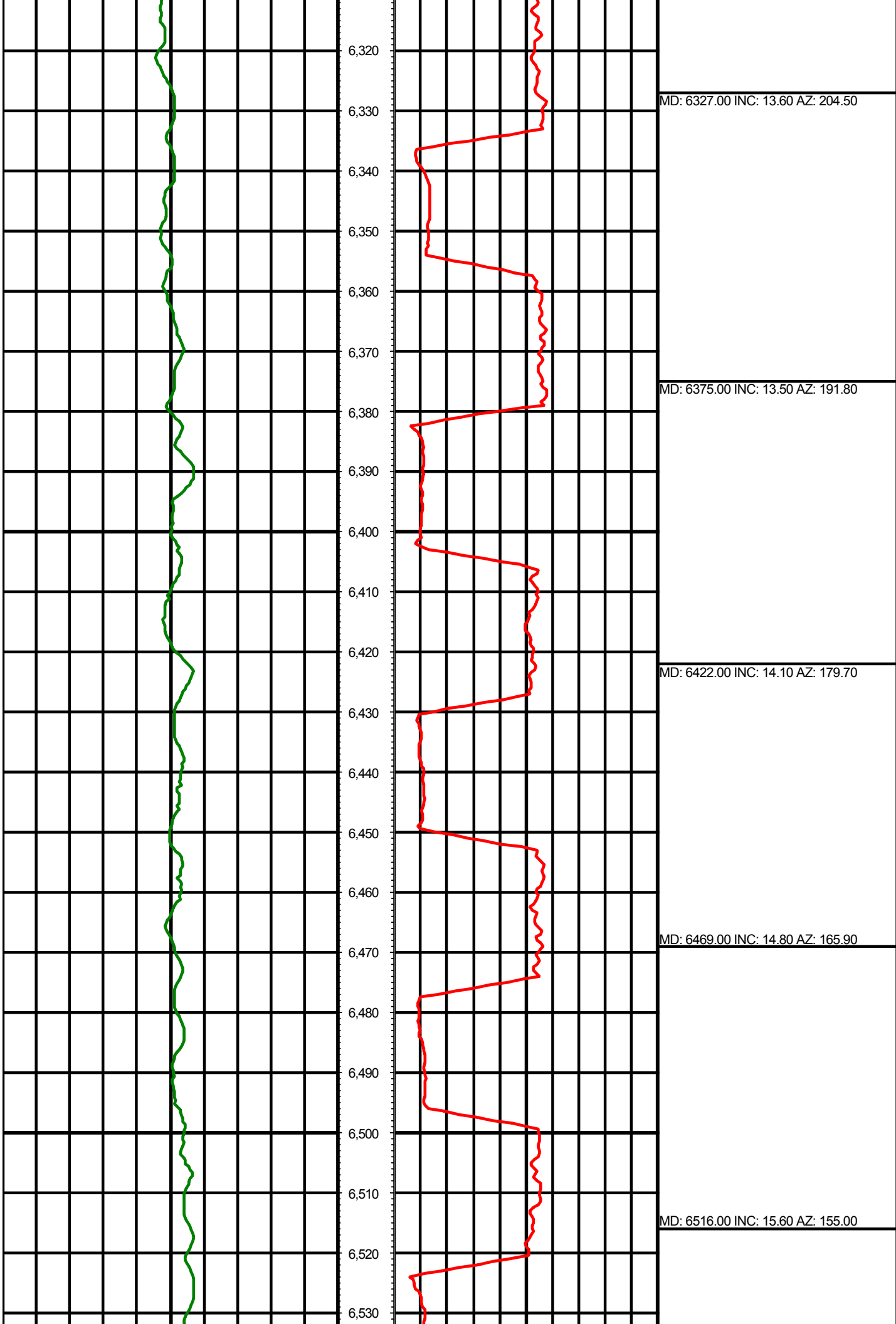
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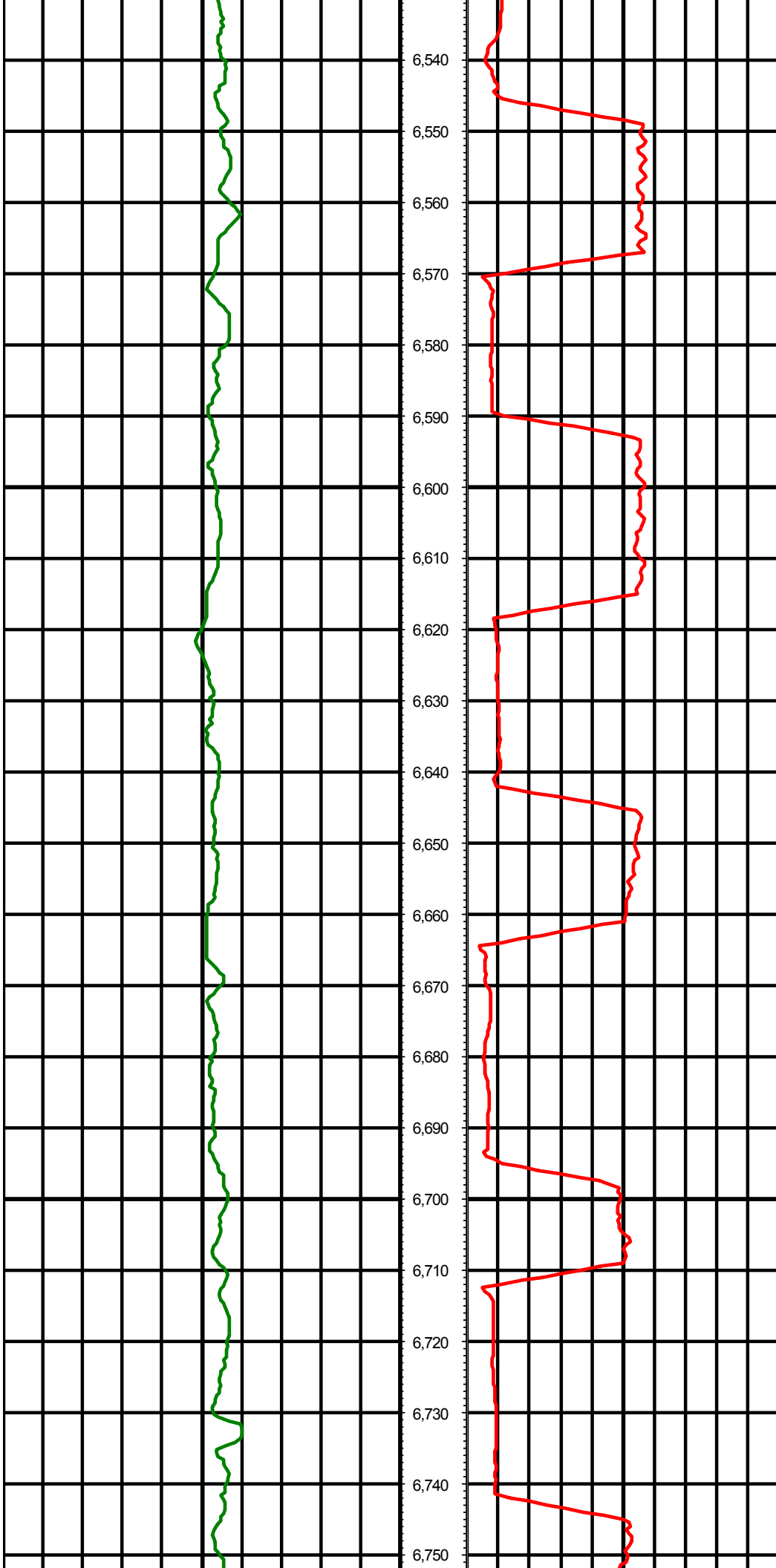
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MD: 6232.00 INC: 12.00 AZ: 220.20

MD: 6280.00 INC: 13.10 AZ: 212.60







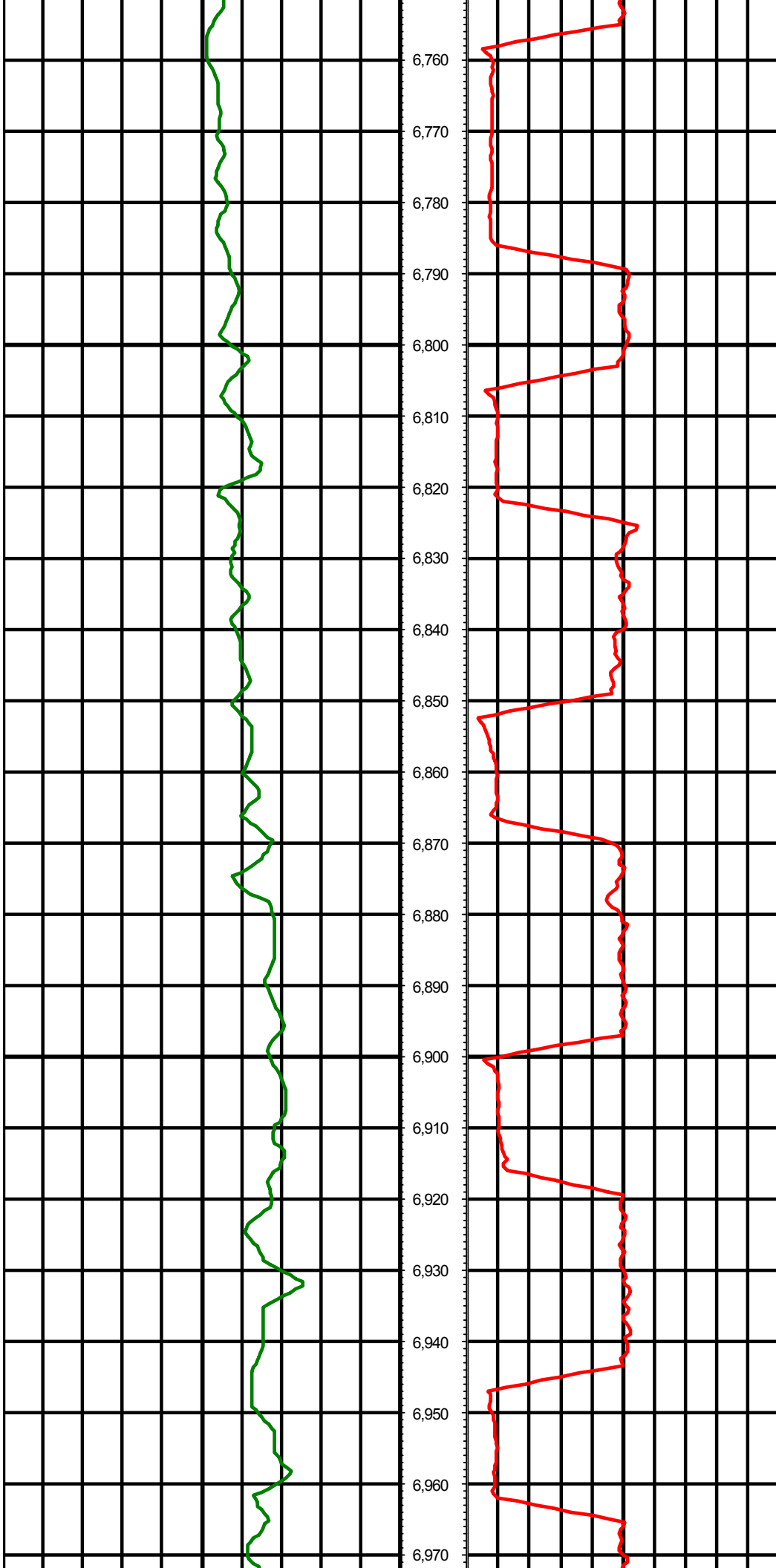
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MD: 6611.00 INC: 19.30 AZ: 141.20

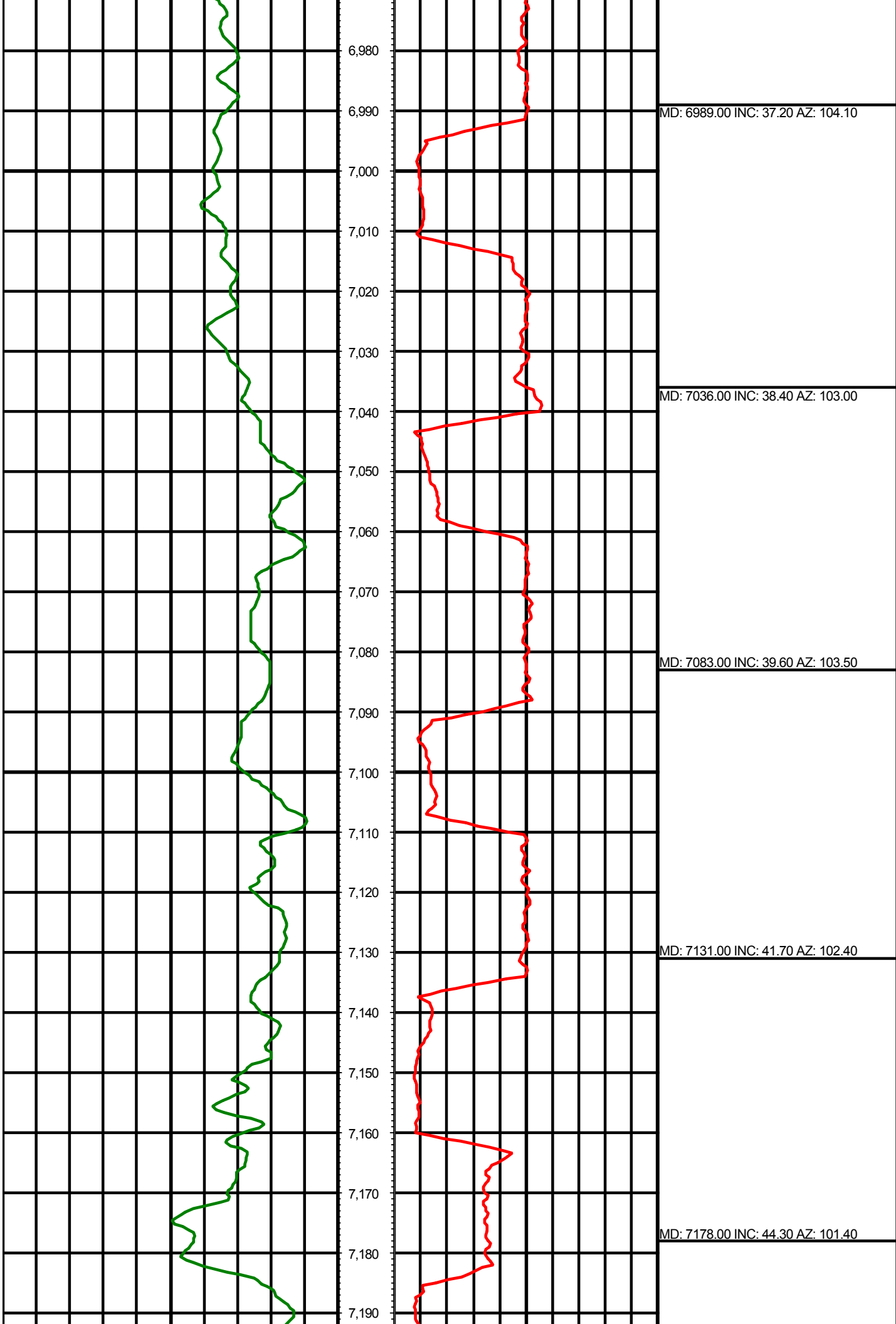
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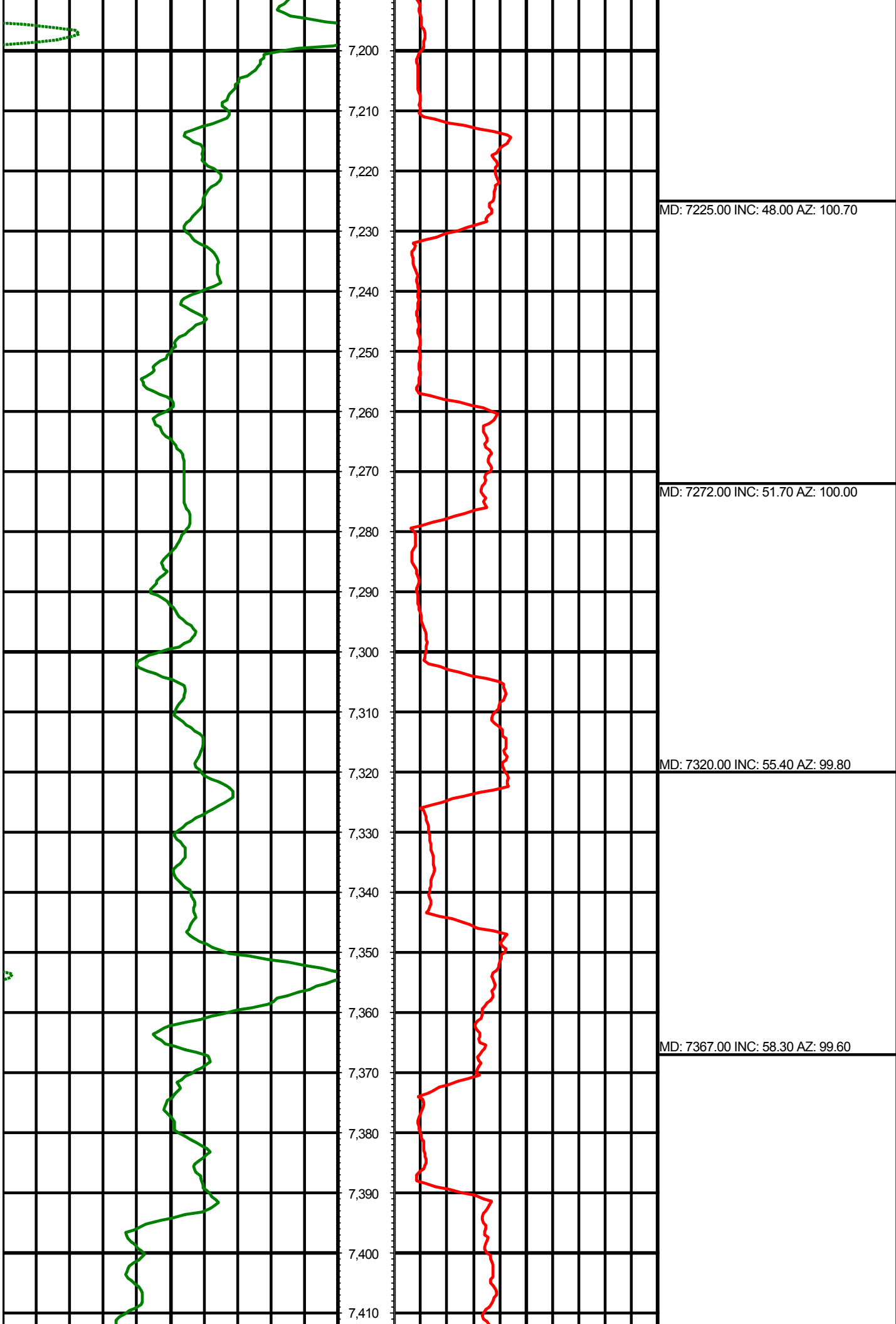
MD: 6705.00 INC: 24.10 AZ: 127.40

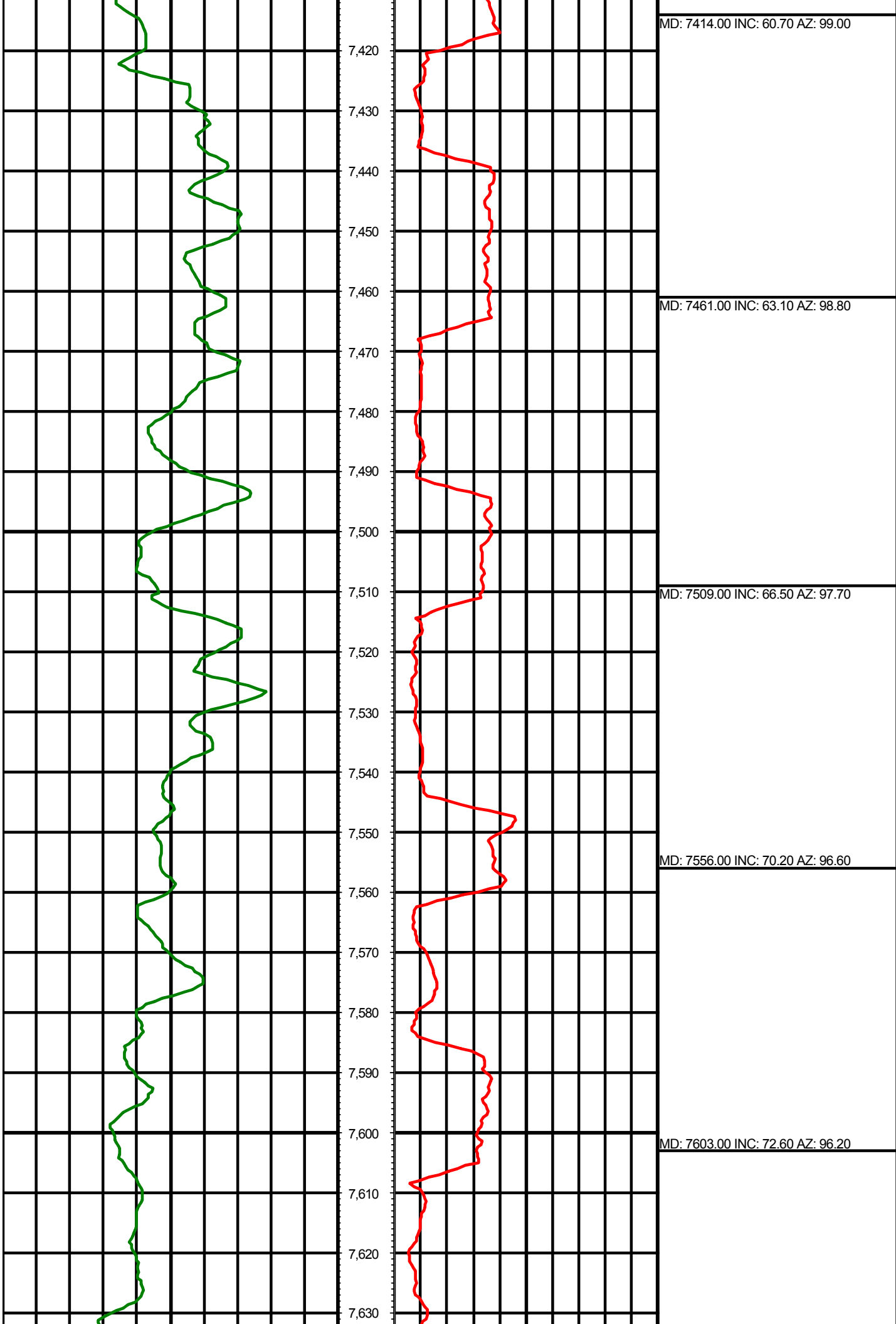
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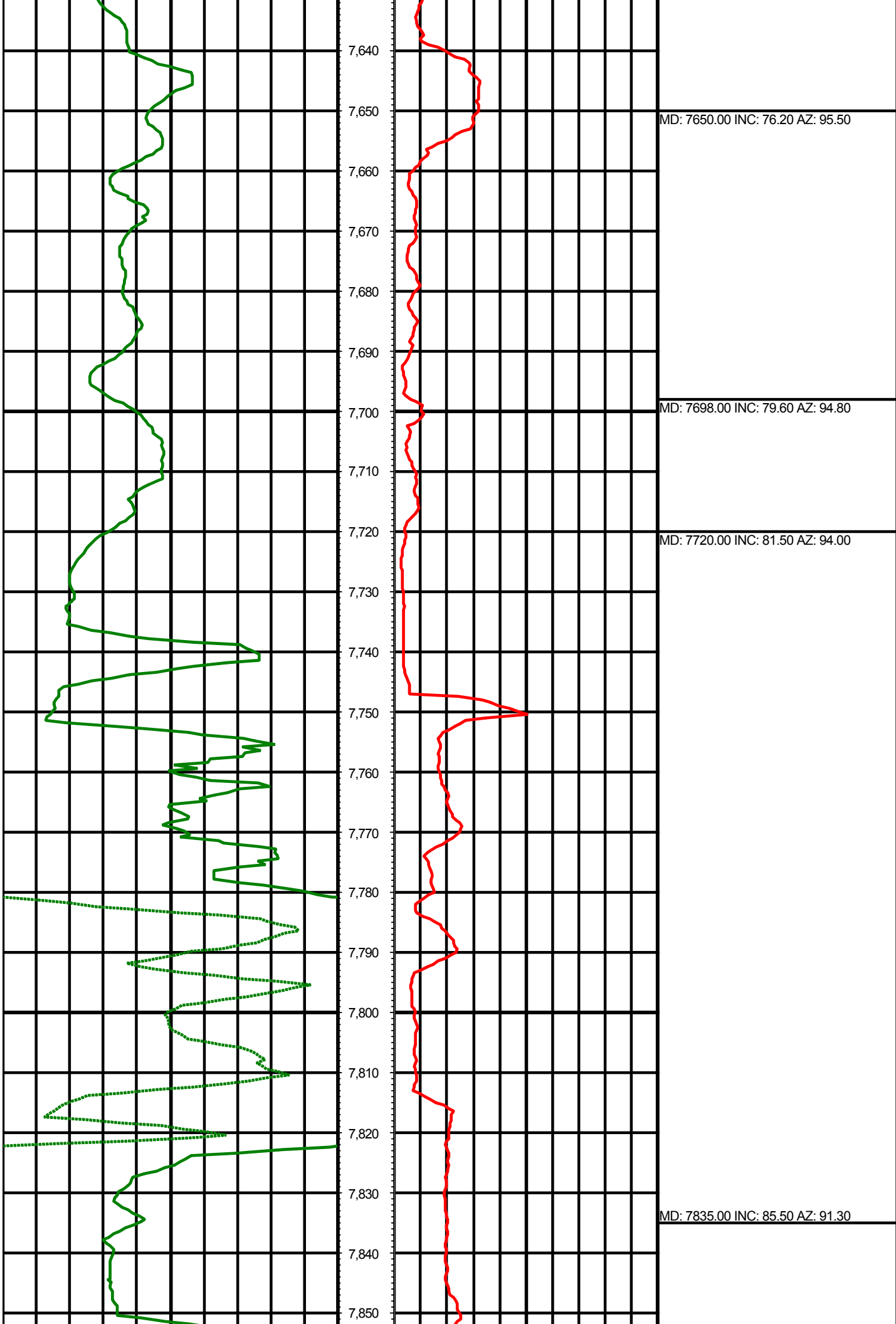


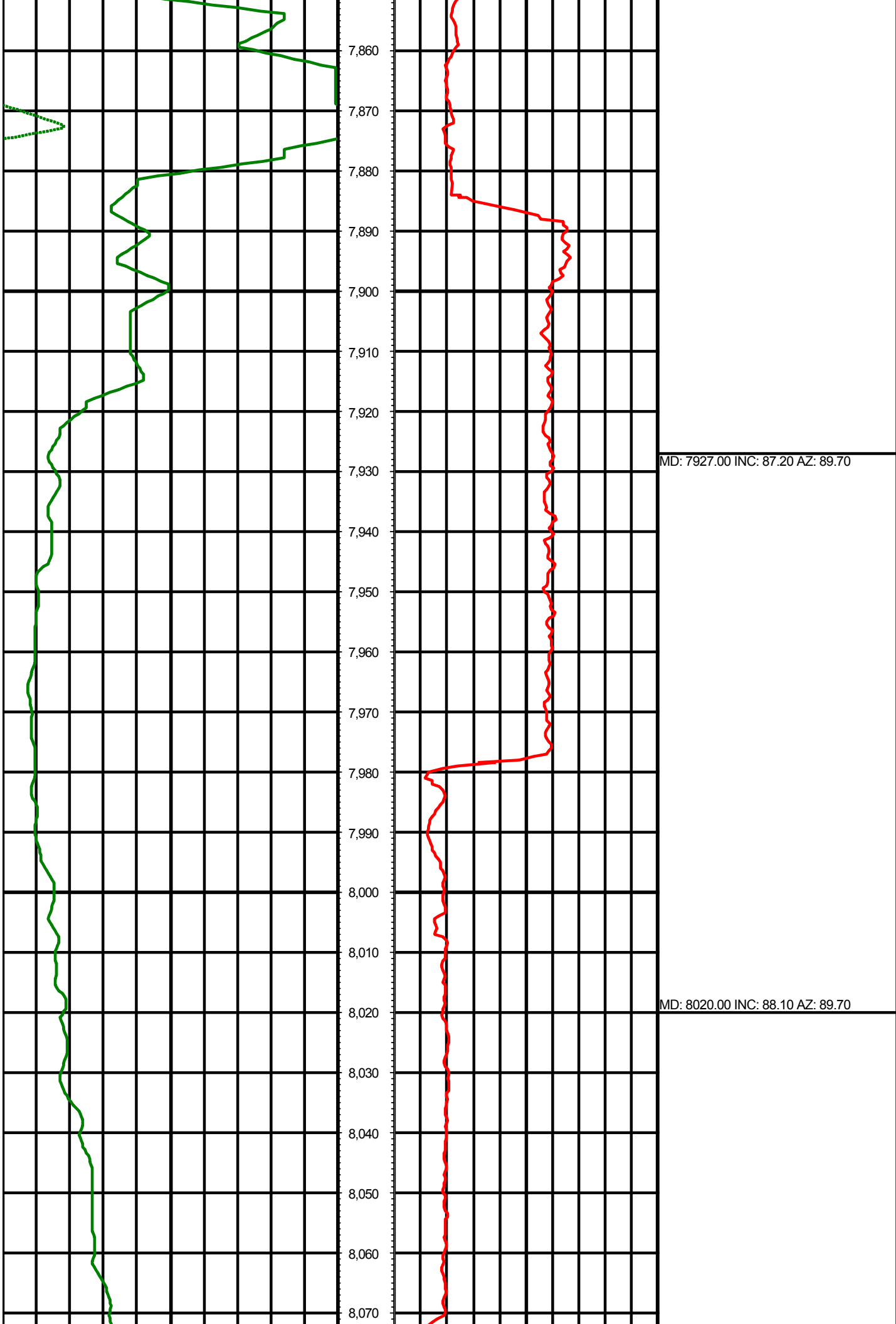
MD: 6753.00 INC: 27.60 AZ: 118.50
MD: 6800.00 INC: 31.00 AZ: 111.90
MD: 6847.00 INC: 32.90 AZ: 109.40
MD: 6894.00 INC: 34.10 AZ: 106.40
MD: 6942.00 INC: 35.60 AZ: 103.60

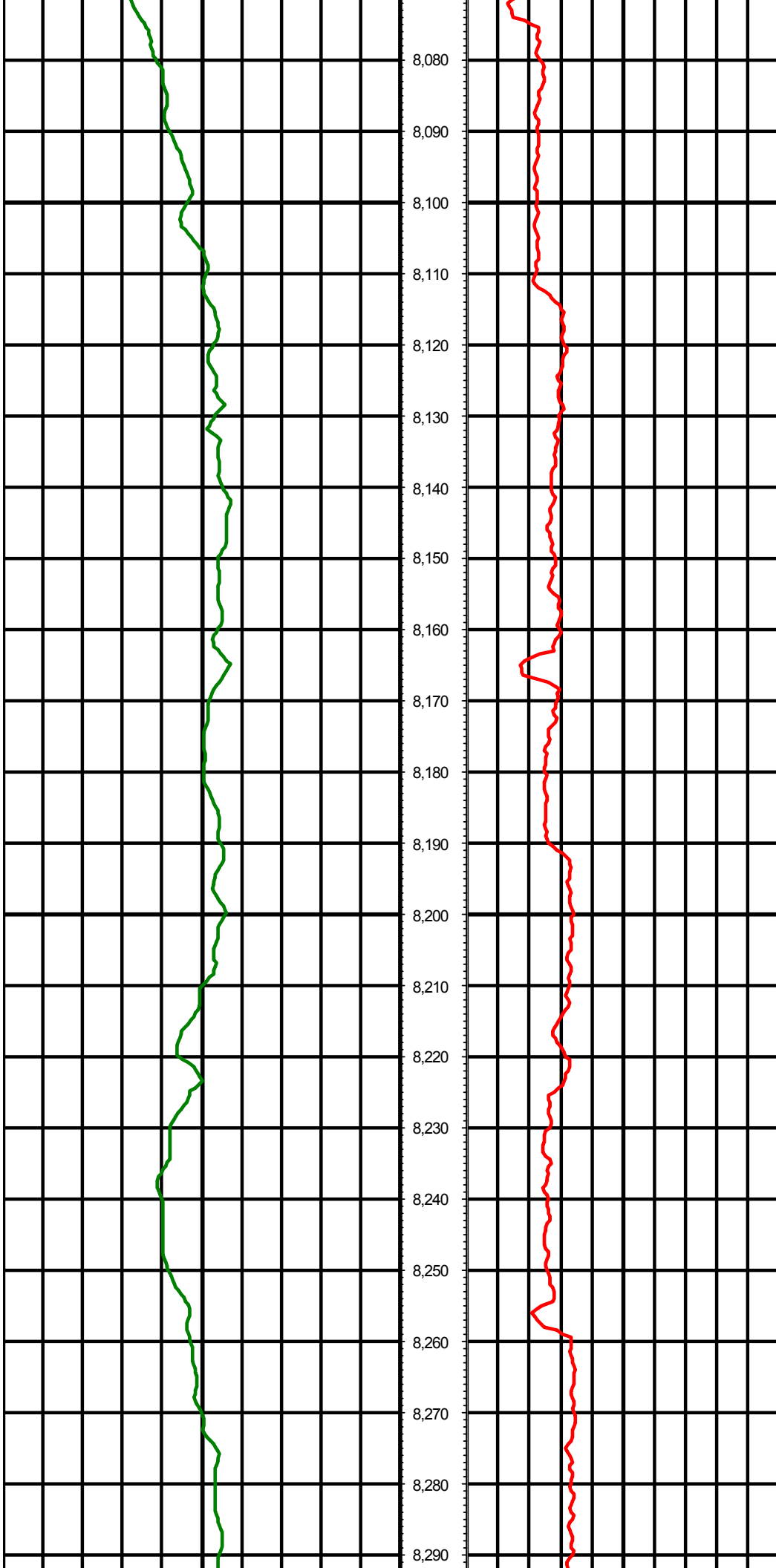






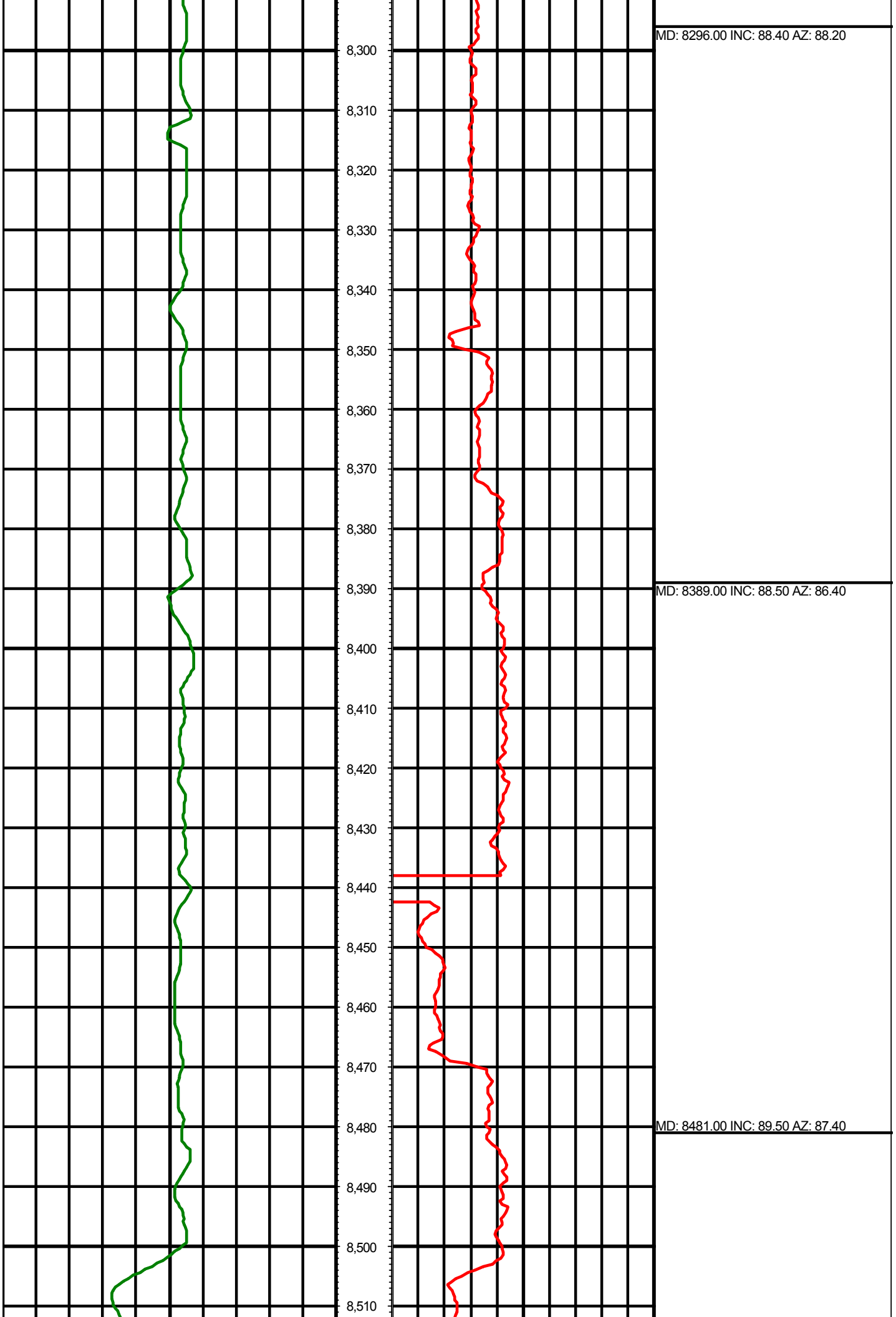






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MD: 8204.00 INC: 89.60 AZ: 89.00



MD: 8296.00 INC: 88.40 AZ: 88.20

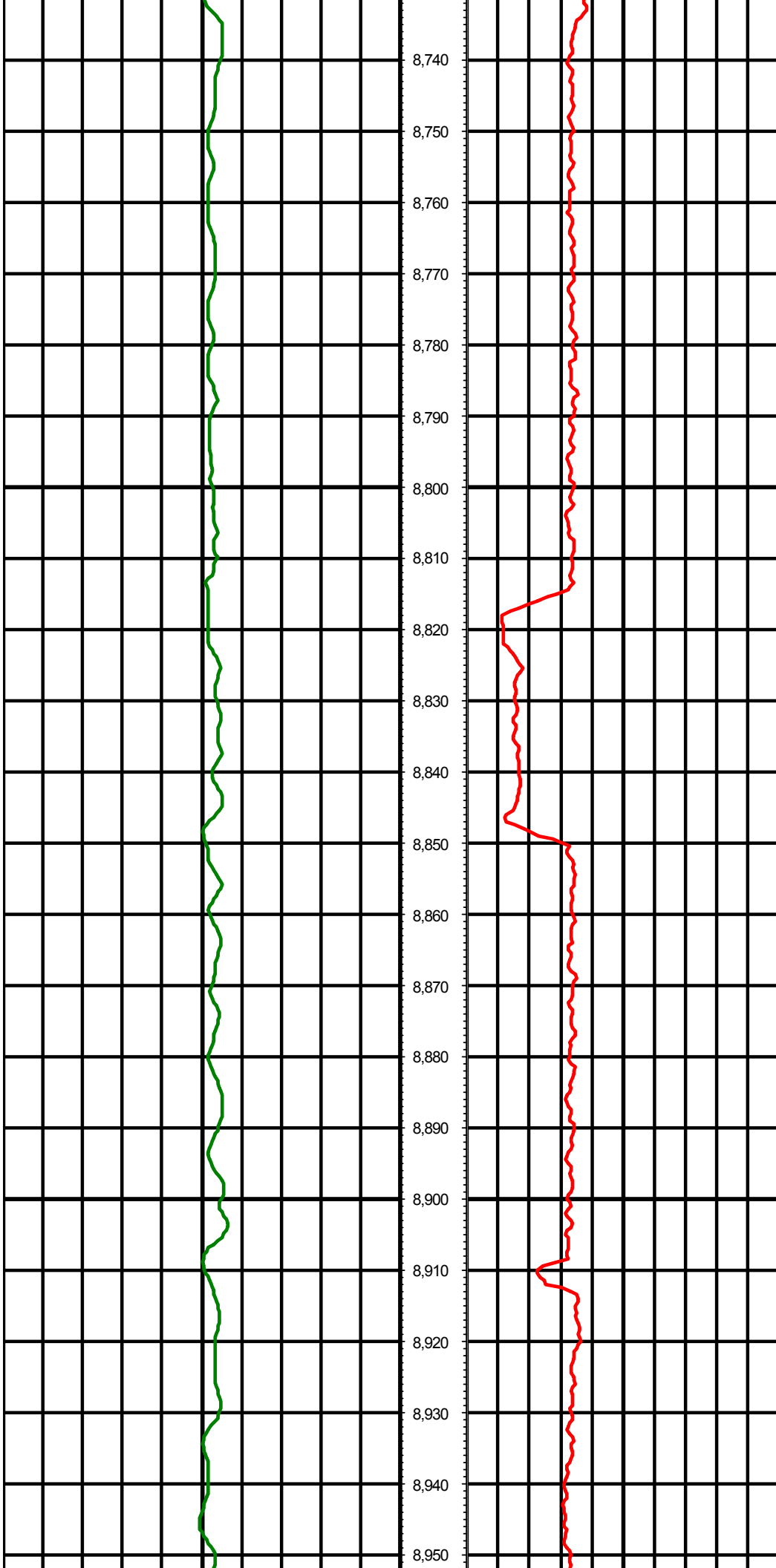
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MD: 8481.00 INC: 89.50 AZ: 87.40



MD: 8575.00 INC: 89.40 AZ: 89.40

MD: 8670.00 INC: 89.00 AZ: 88.20



MD: 8764.00 INC: 89.40 AZ: 86.90

MD: 8859.00 INC: 89.50 AZ: 88.90

MD: 8953.00 INC: 88.00 AZ: 85.00

MD: 8953.00 INC: 88.00 AZ: 85.00

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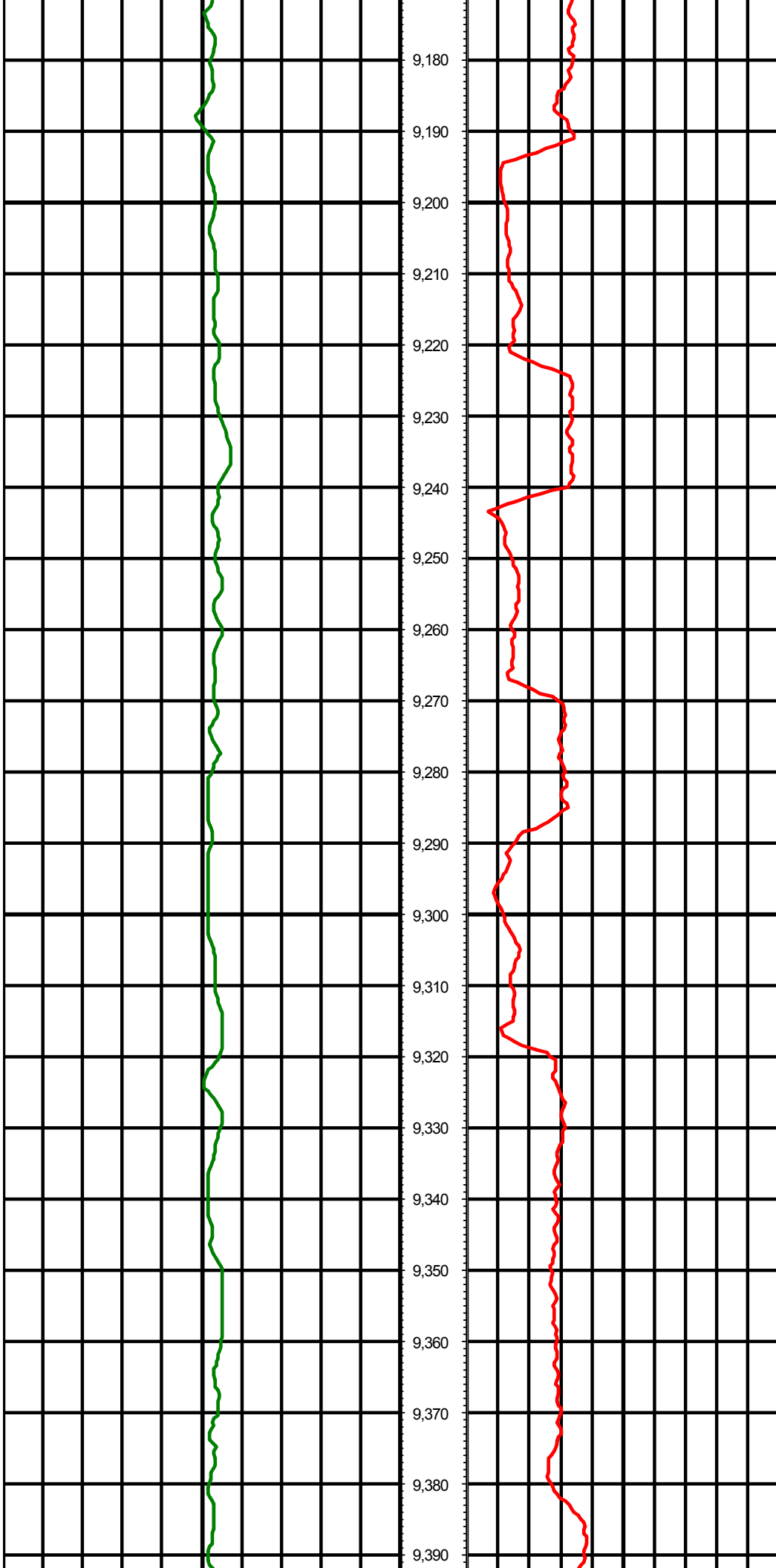
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MD: 9142.00 INC: 89.00 AZ: 87.00



MD: 9237.00 INC: 89.80 AZ: 88.90

MD: 9331.00 INC: 89.70 AZ: 90.50



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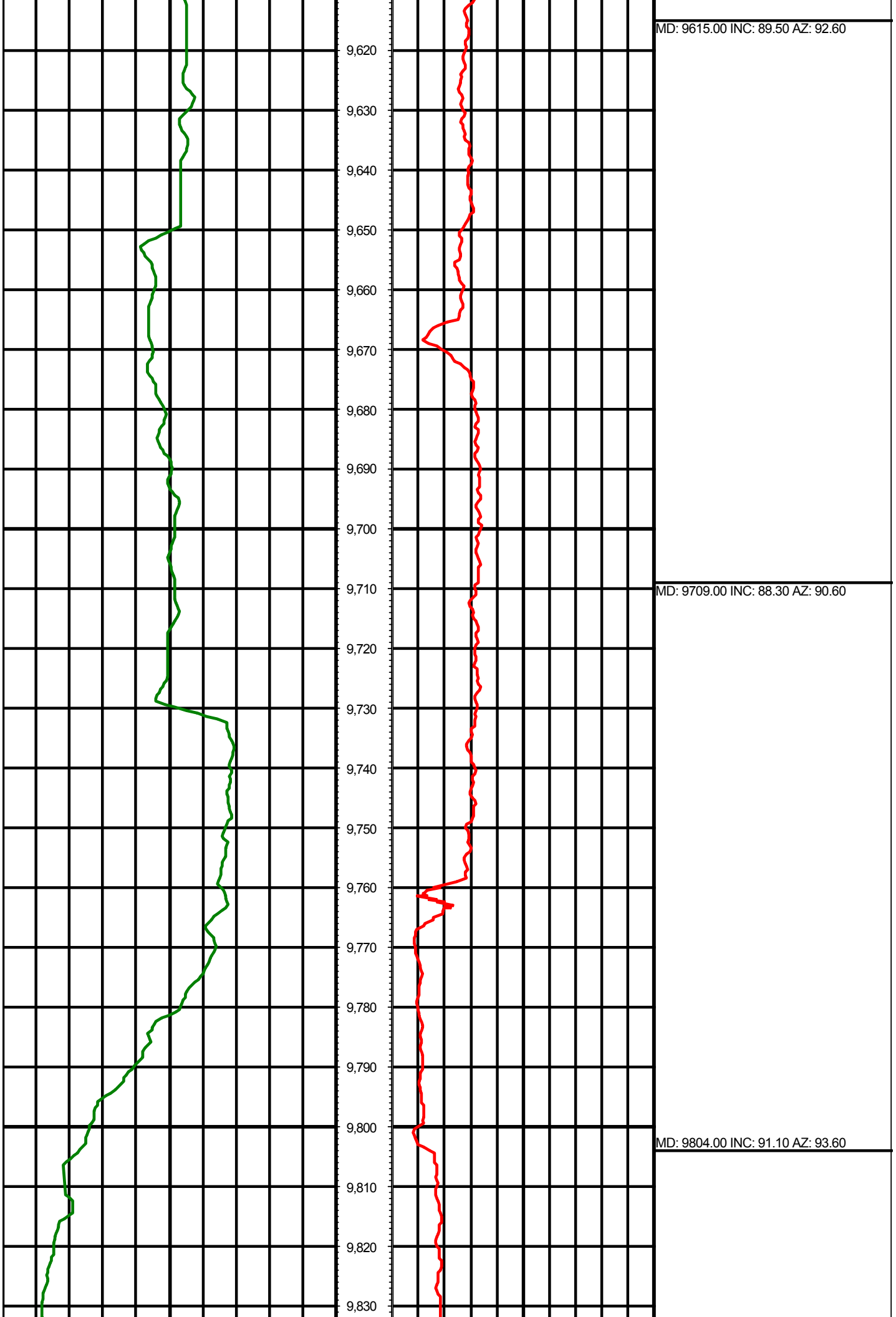
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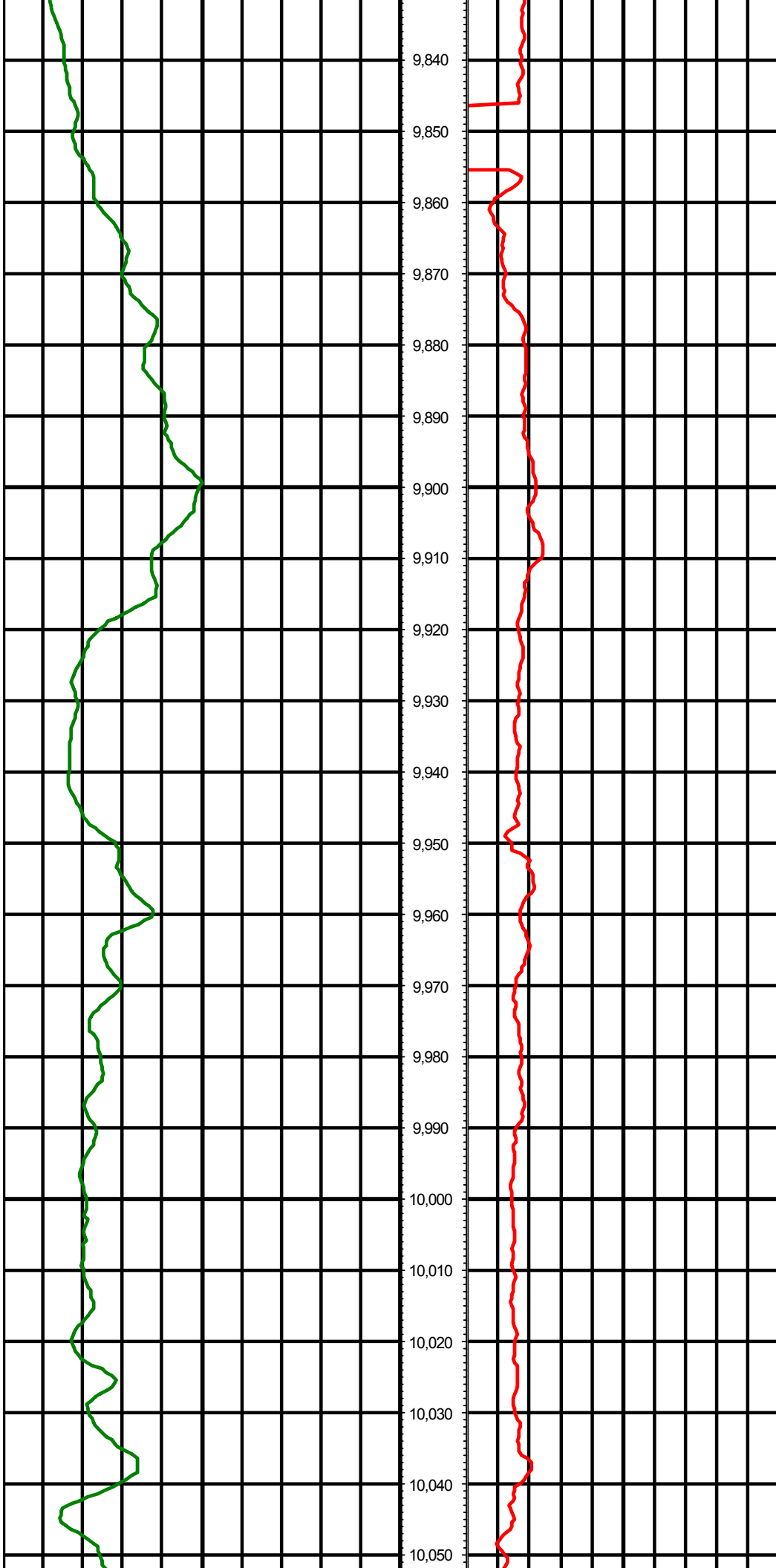
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MD: 9615.00 INC: 89.50 AZ: 92.60

MD: 9709.00 INC: 88.30 AZ: 90.60

MD: 9804.00 INC: 91.10 AZ: 93.60



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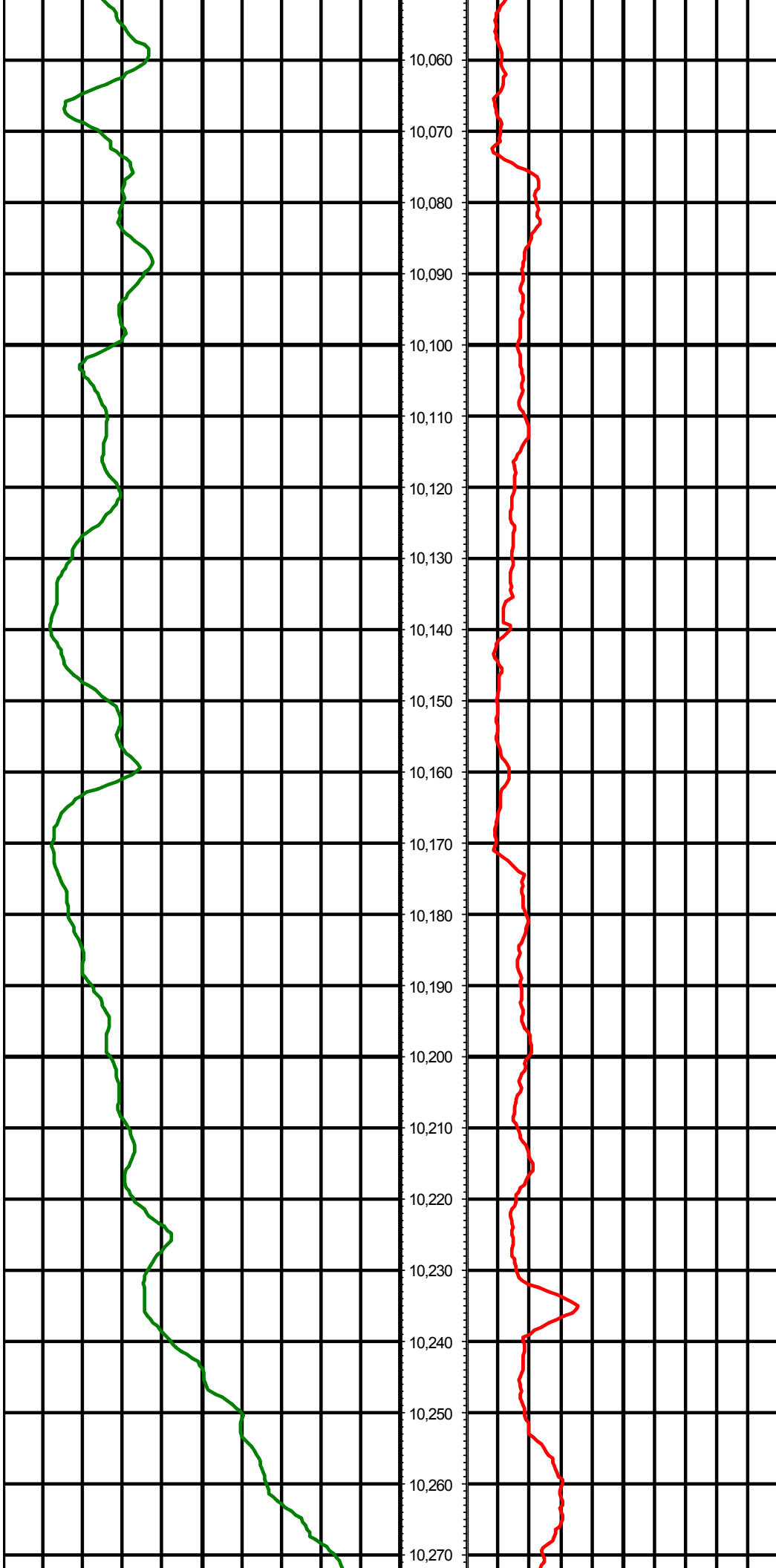
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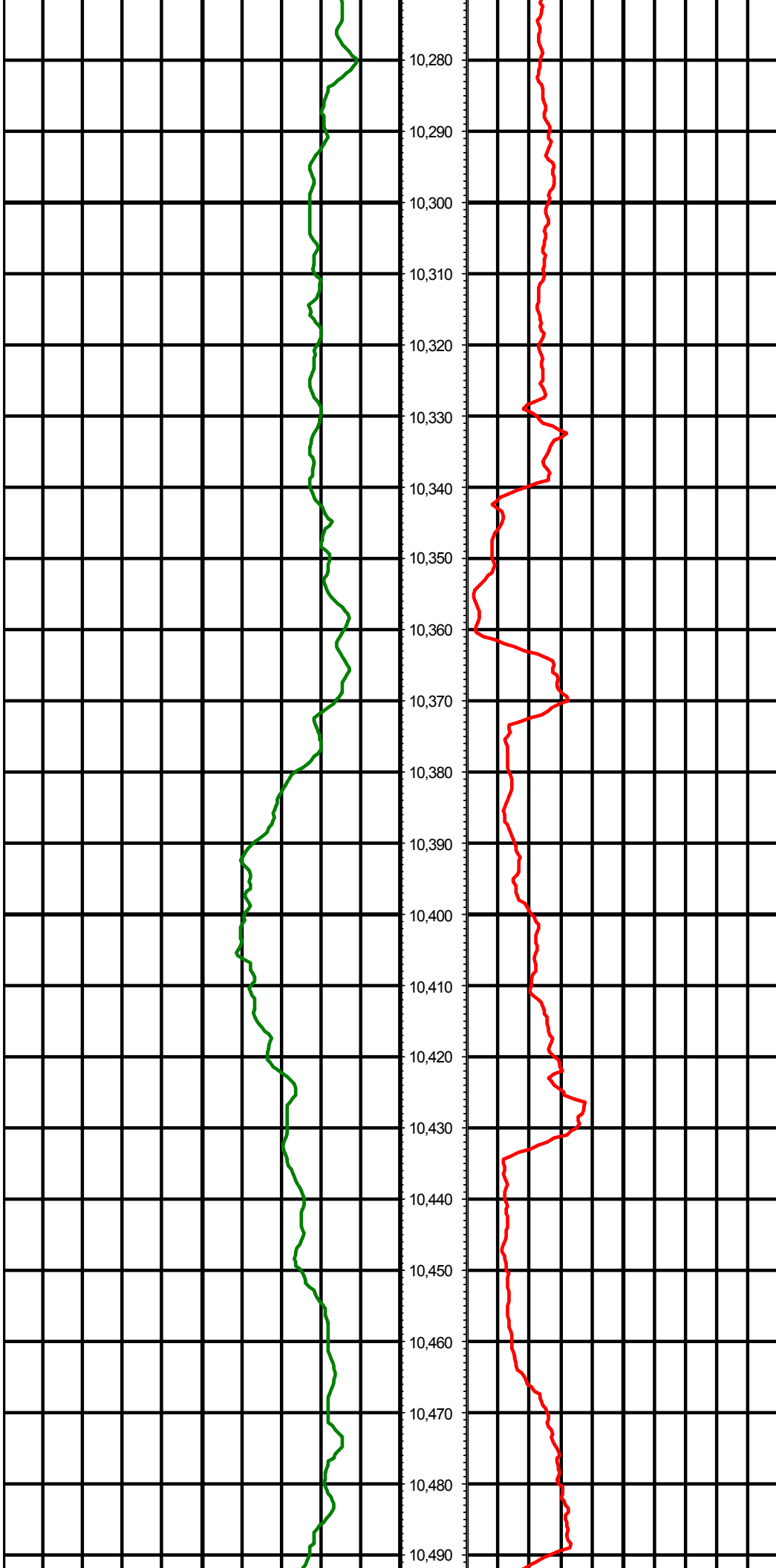
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MD: 9993.00 INC: 92.10 AZ: 95.10



MD: 10087.00 INC: 88.90 AZ: 95.40

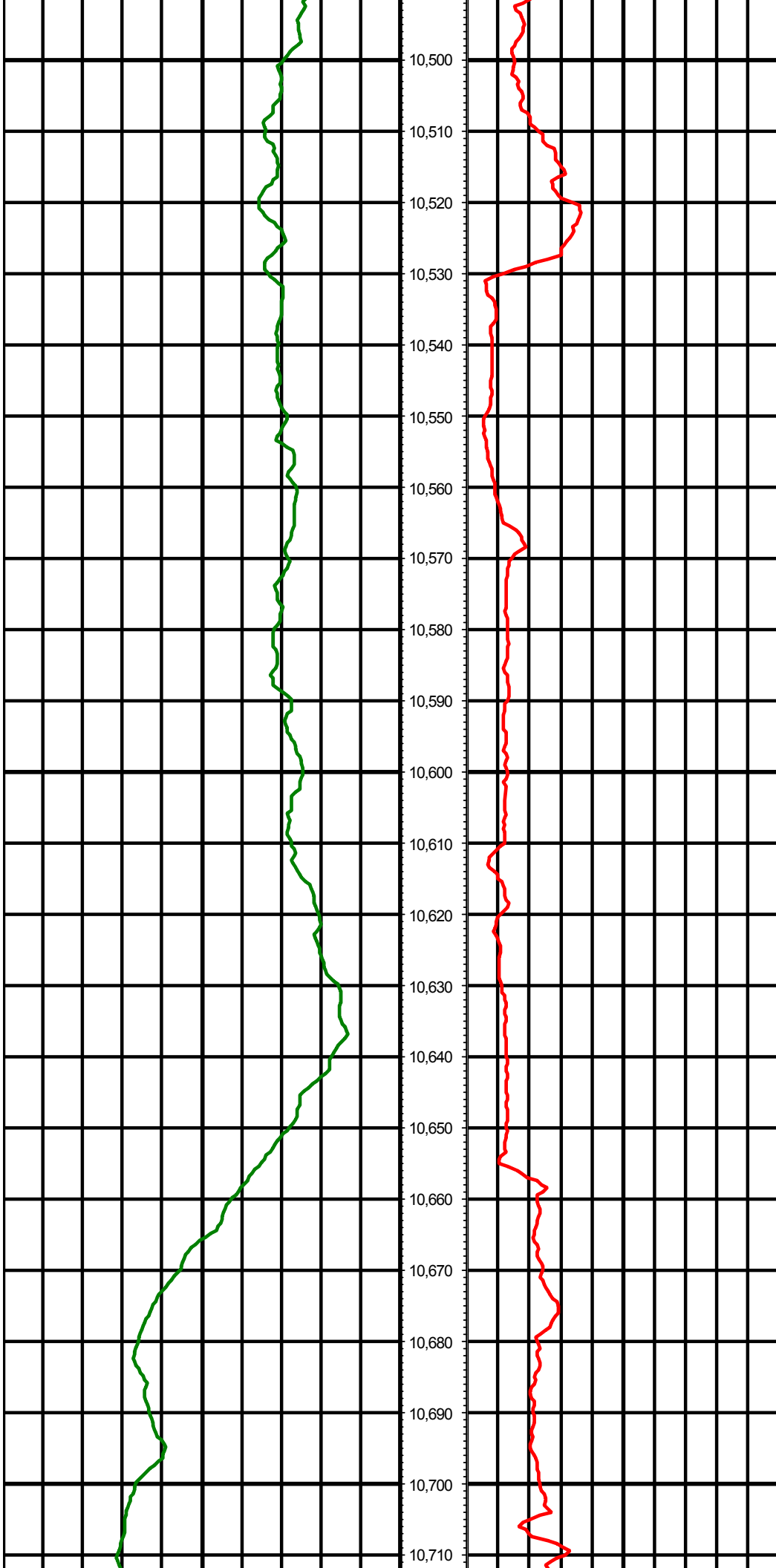
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MD: 10276.00 INC: 90.70 AZ: 91.80

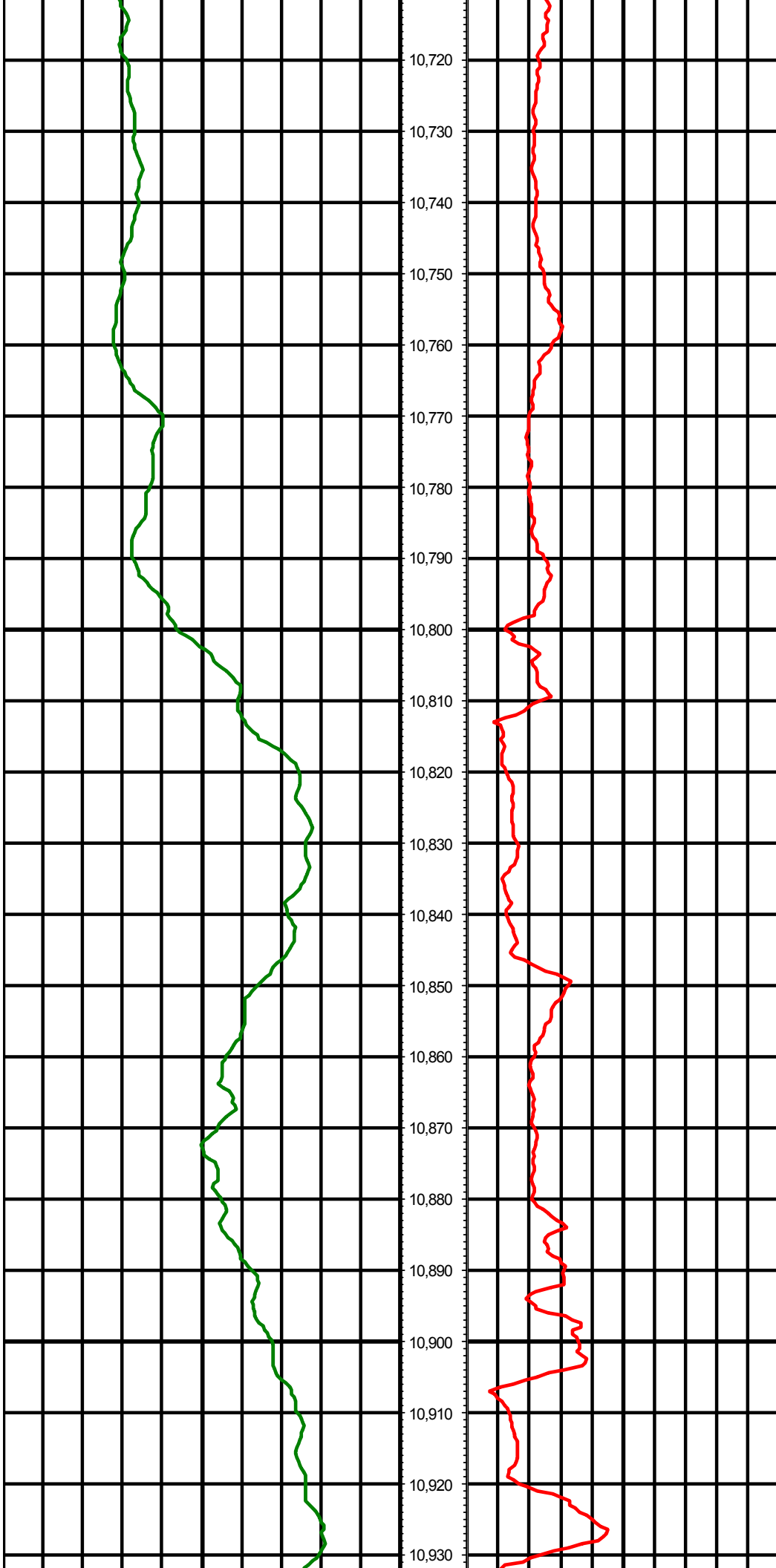
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MD: 10465.00 INC: 90.70 AZ: 92.50



MD: 10560.00 INC: 90.60 AZ: 93.00

MD: 10654.00 INC: 88.00 AZ: 87.50



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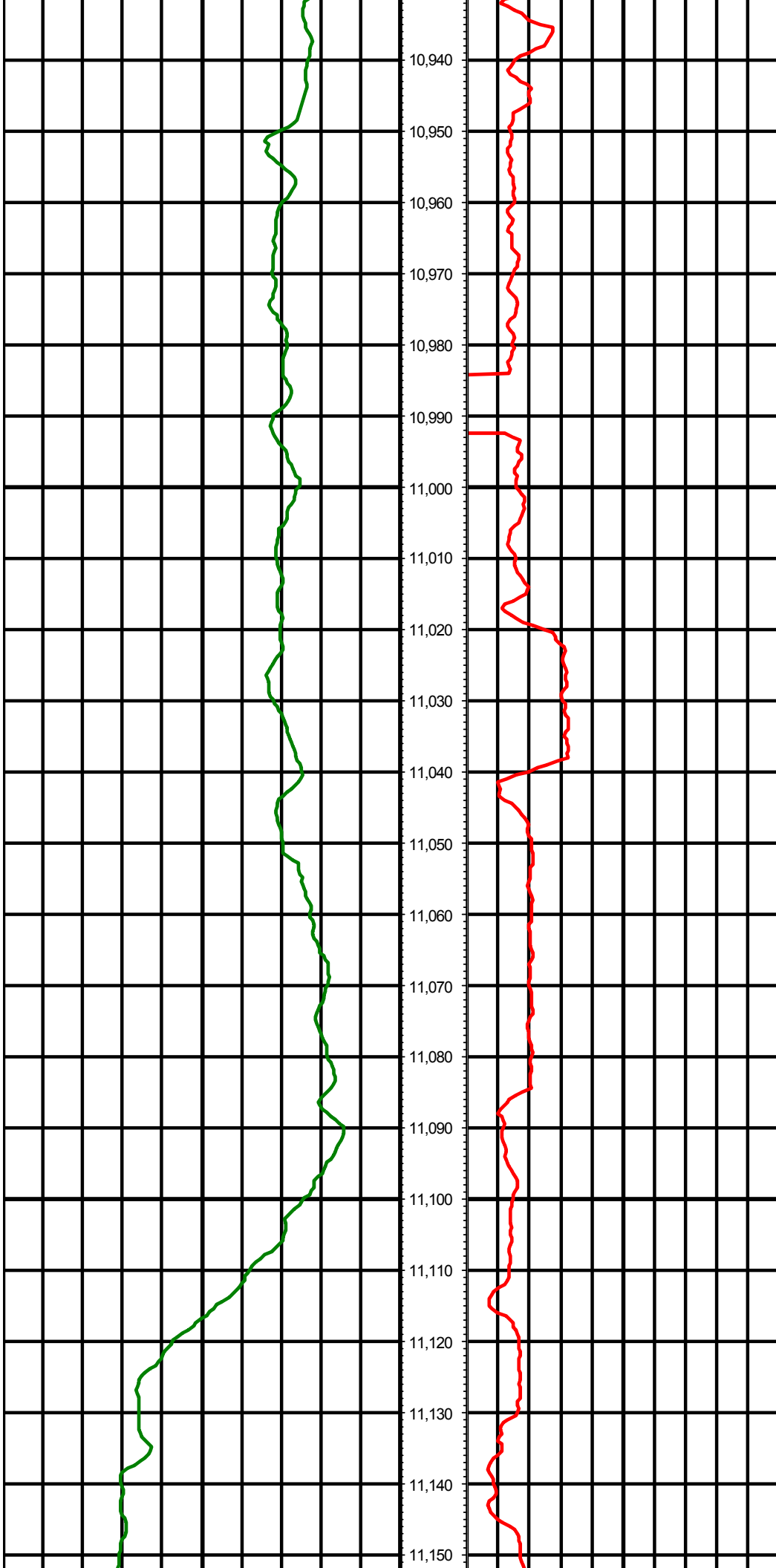
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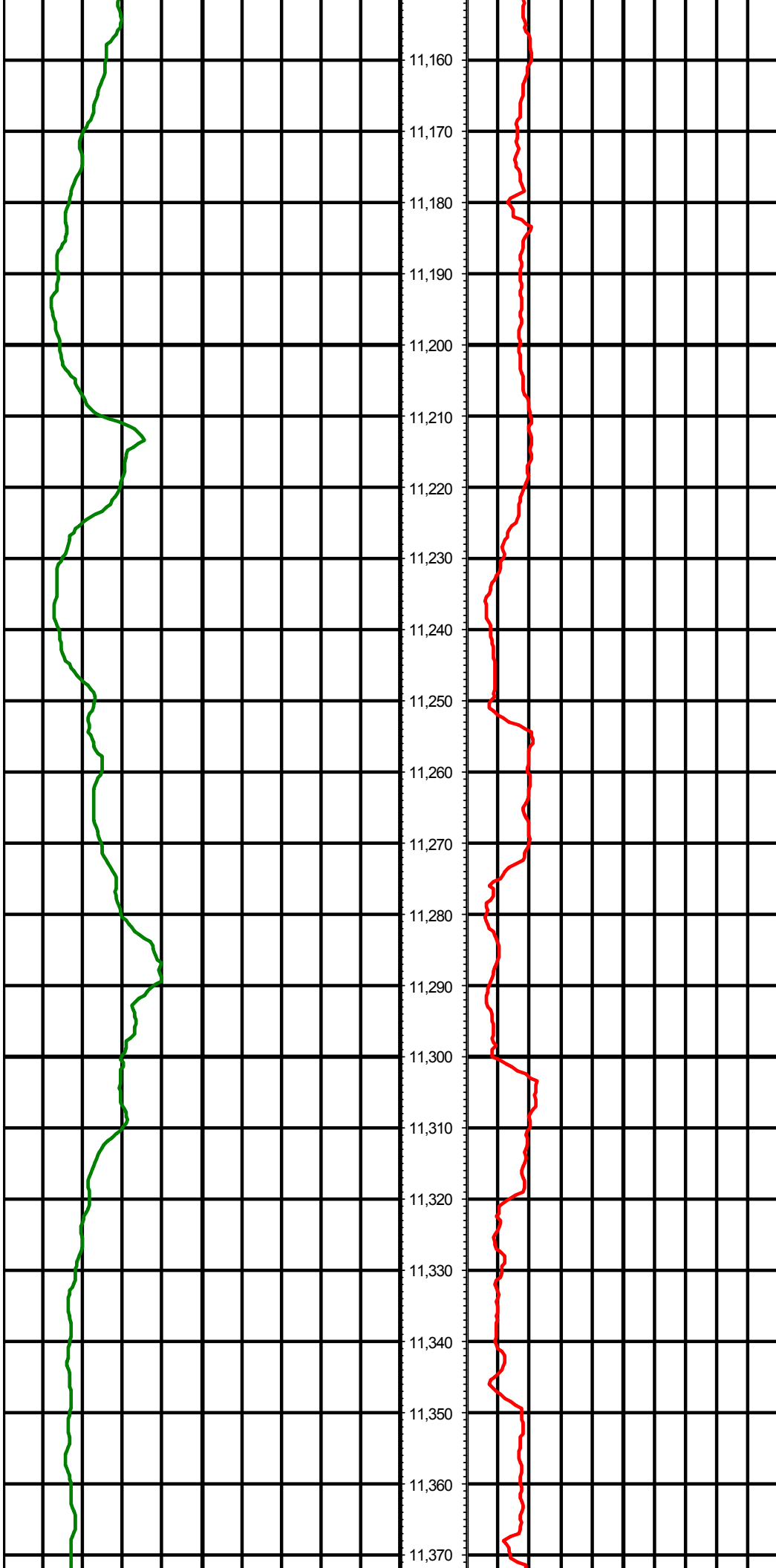
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MD: 10937.00 INC: 87.60 AZ: 89.40

MD: 11032.00 INC: 88.20 AZ: 89.50

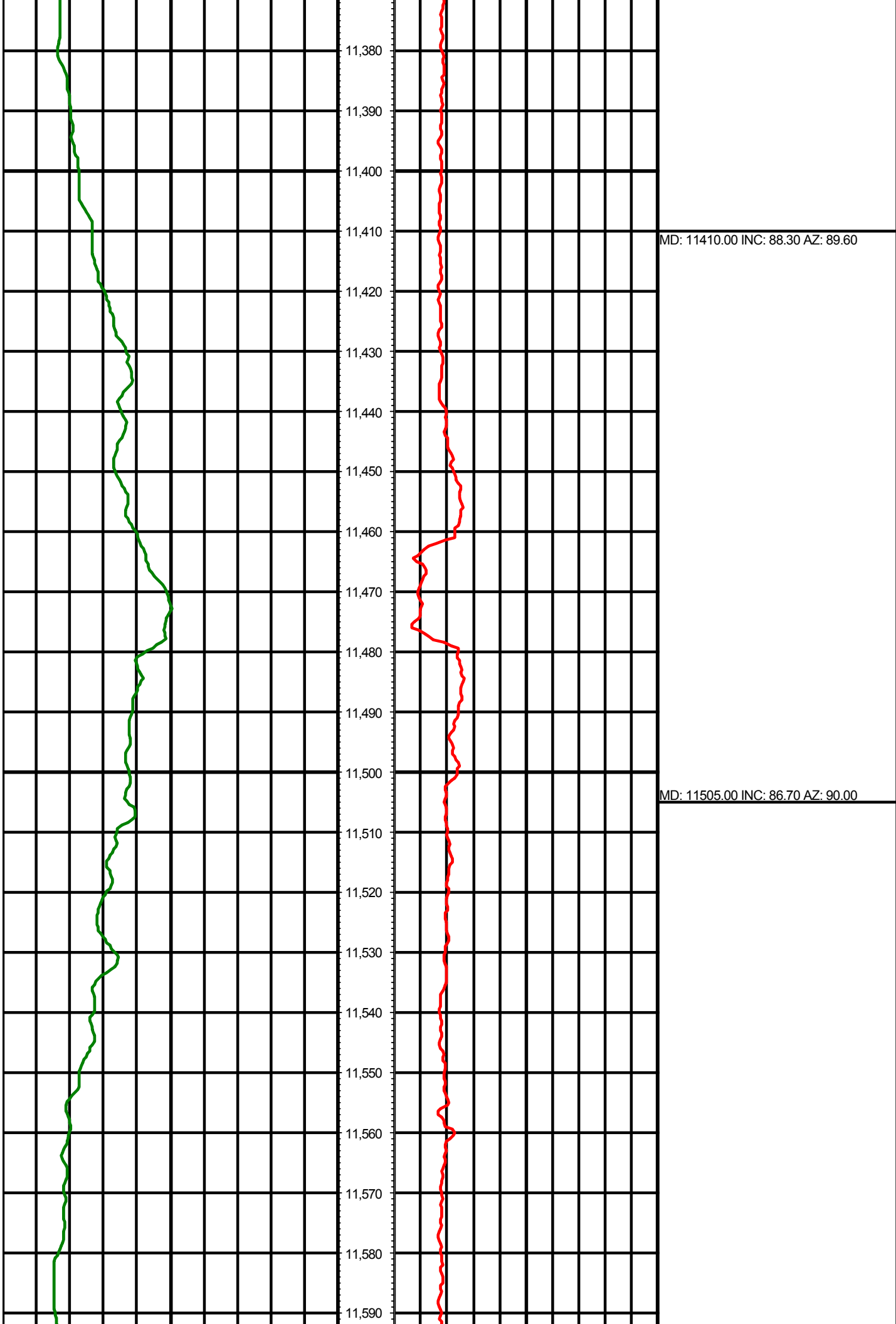
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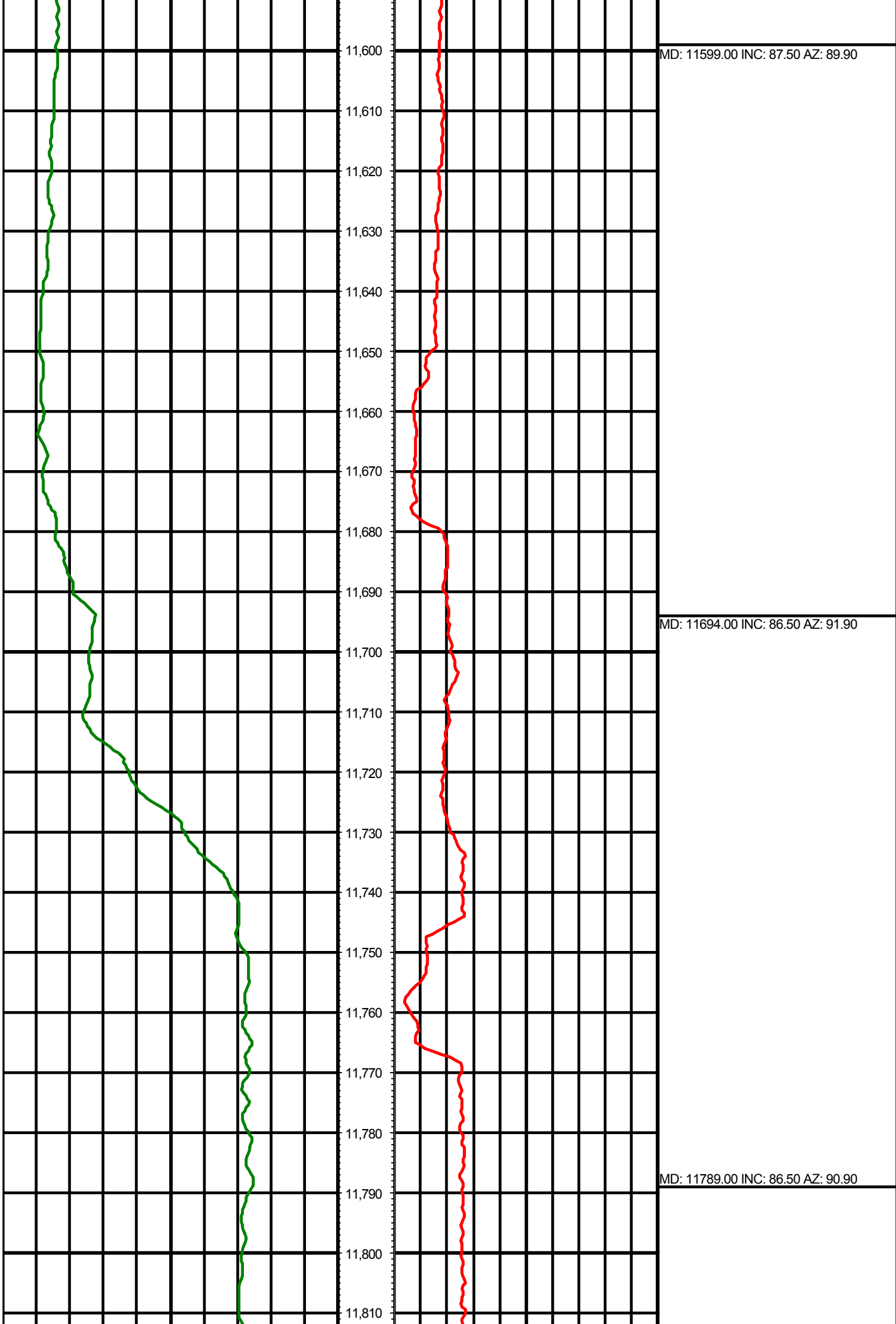


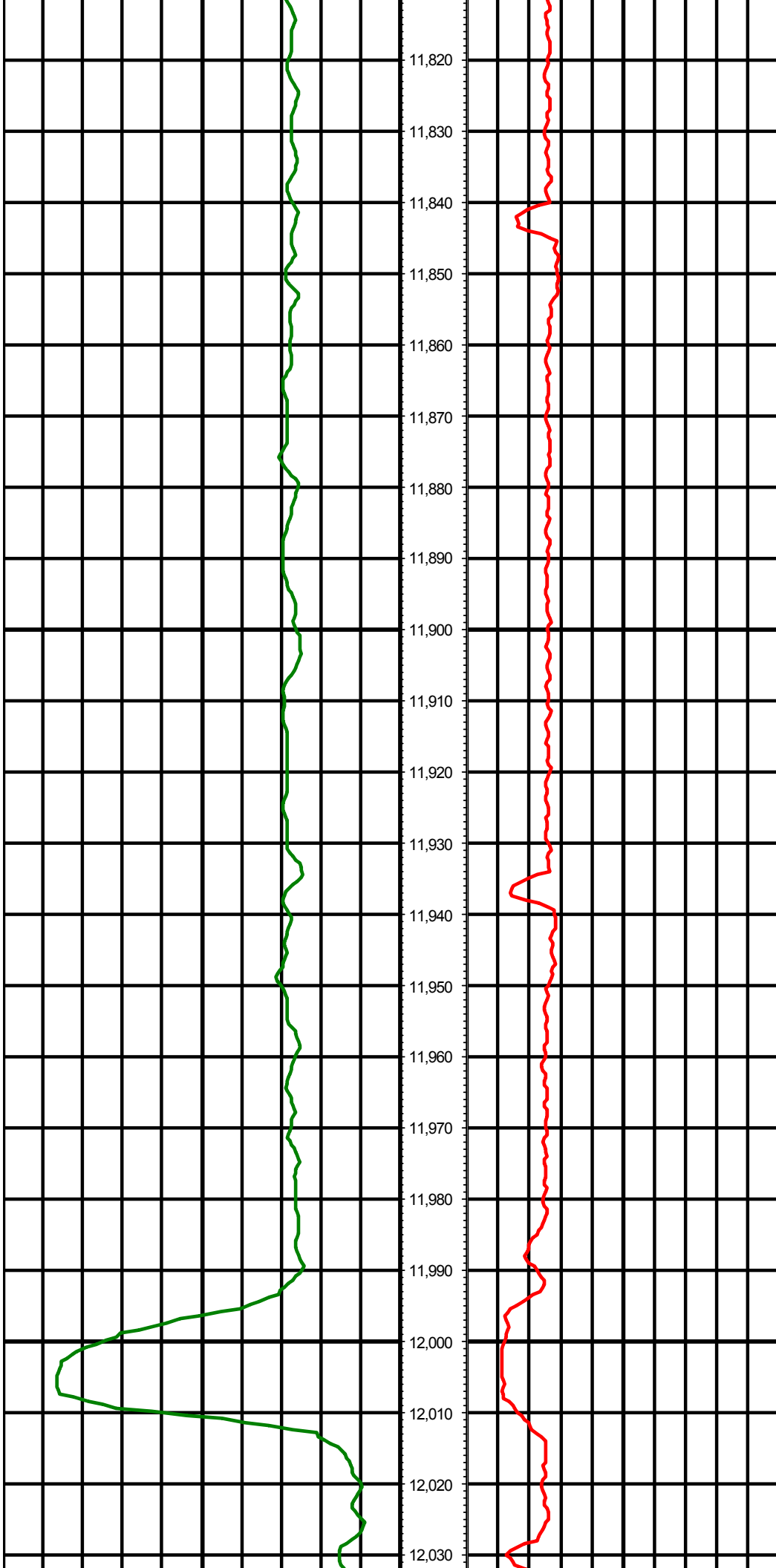
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MD: 11316.00 INC: 87.10 AZ: 87.30

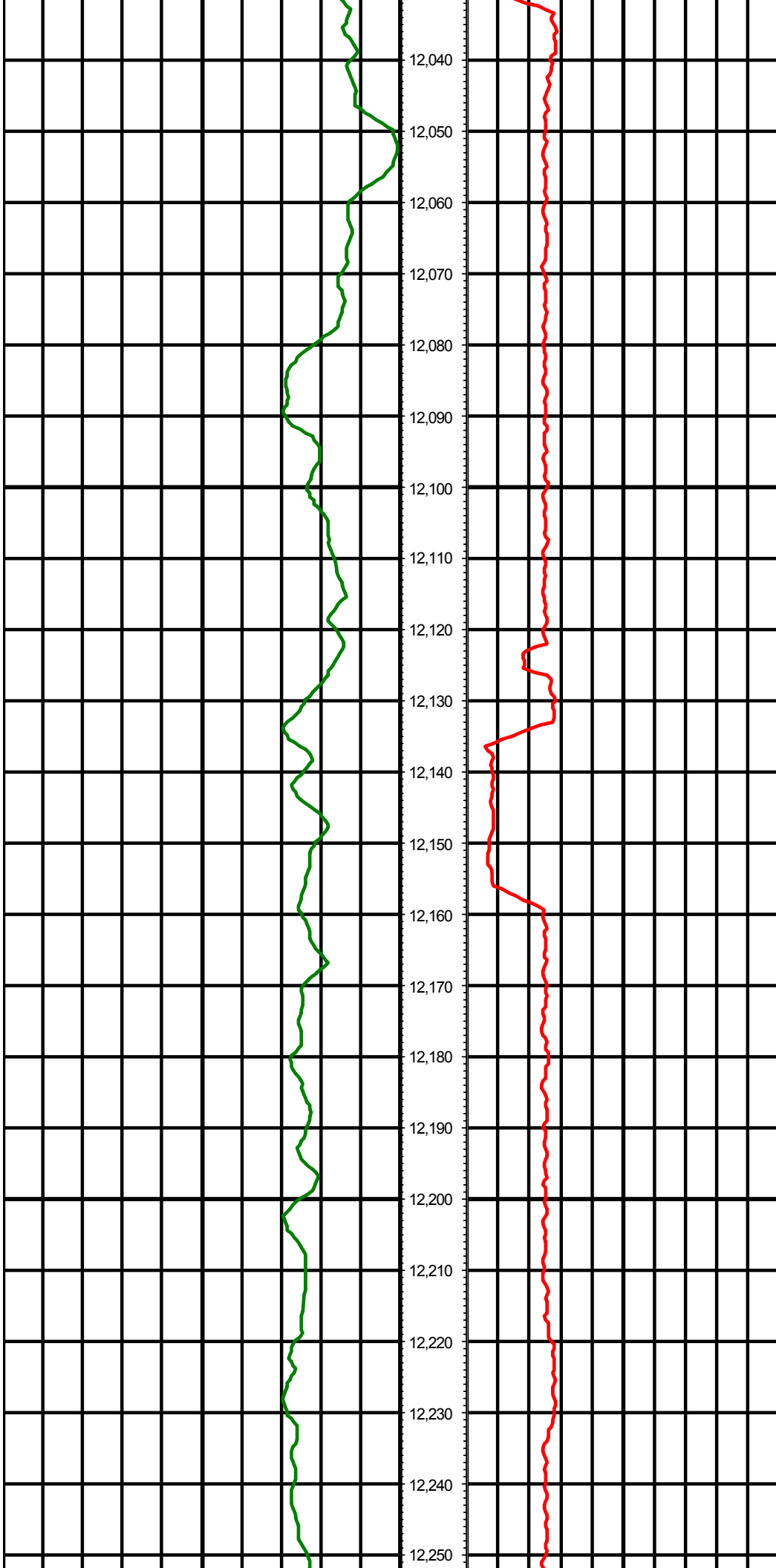






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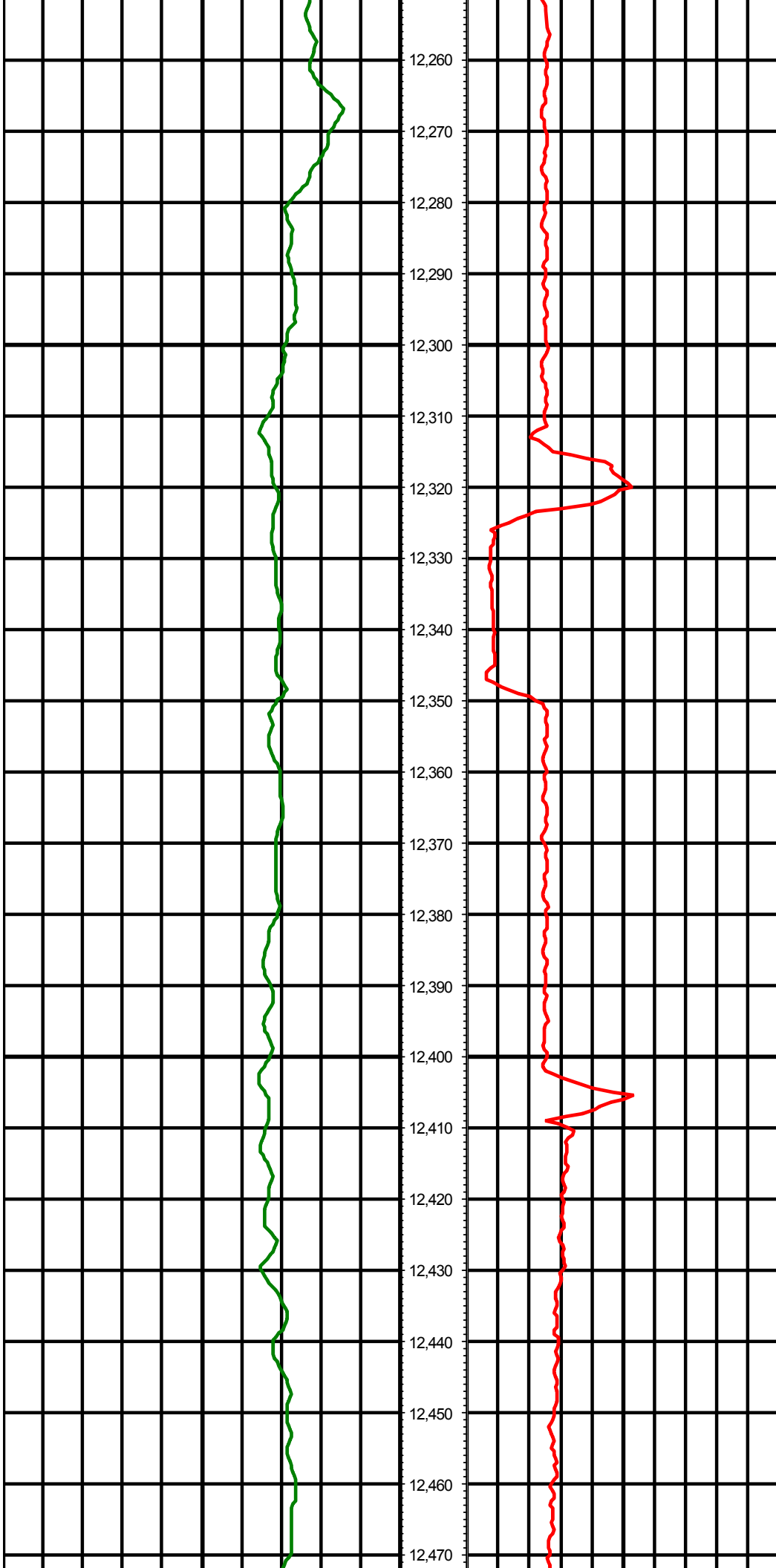
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MD: 12166.00 INC: 89.60 AZ: 90.30



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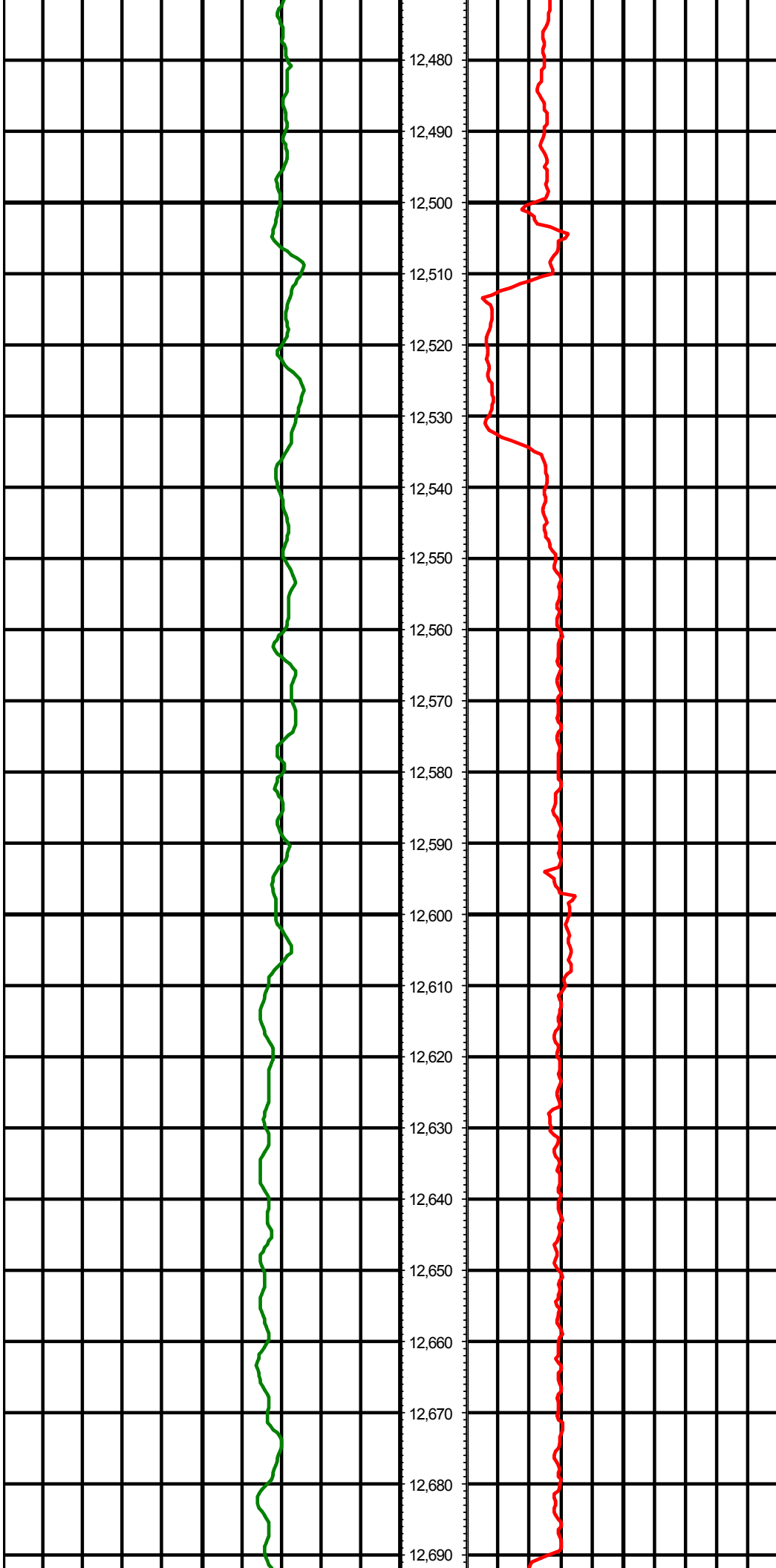
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MD: 12450.00 INC: 89.60 AZ: 91.40



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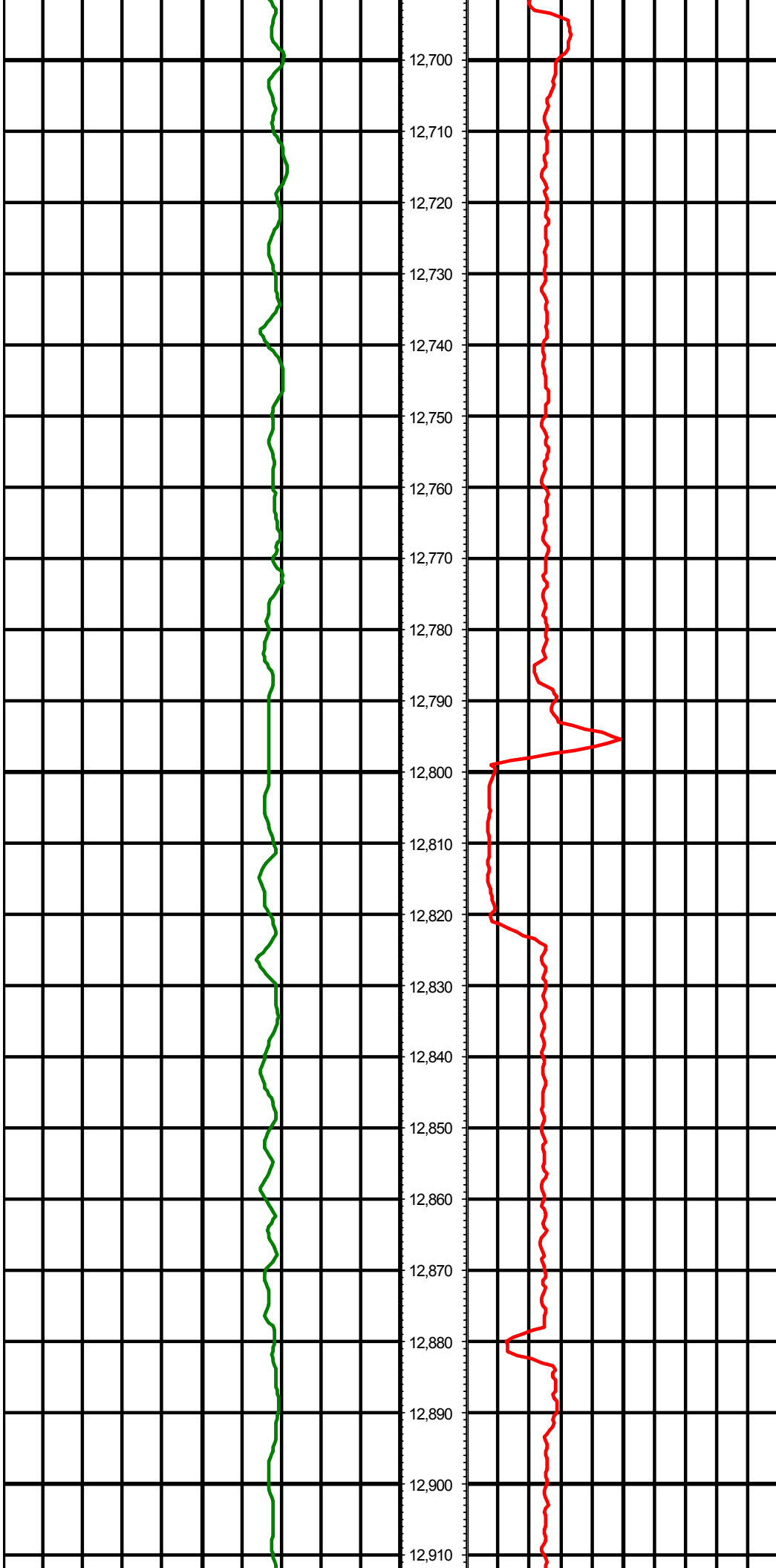
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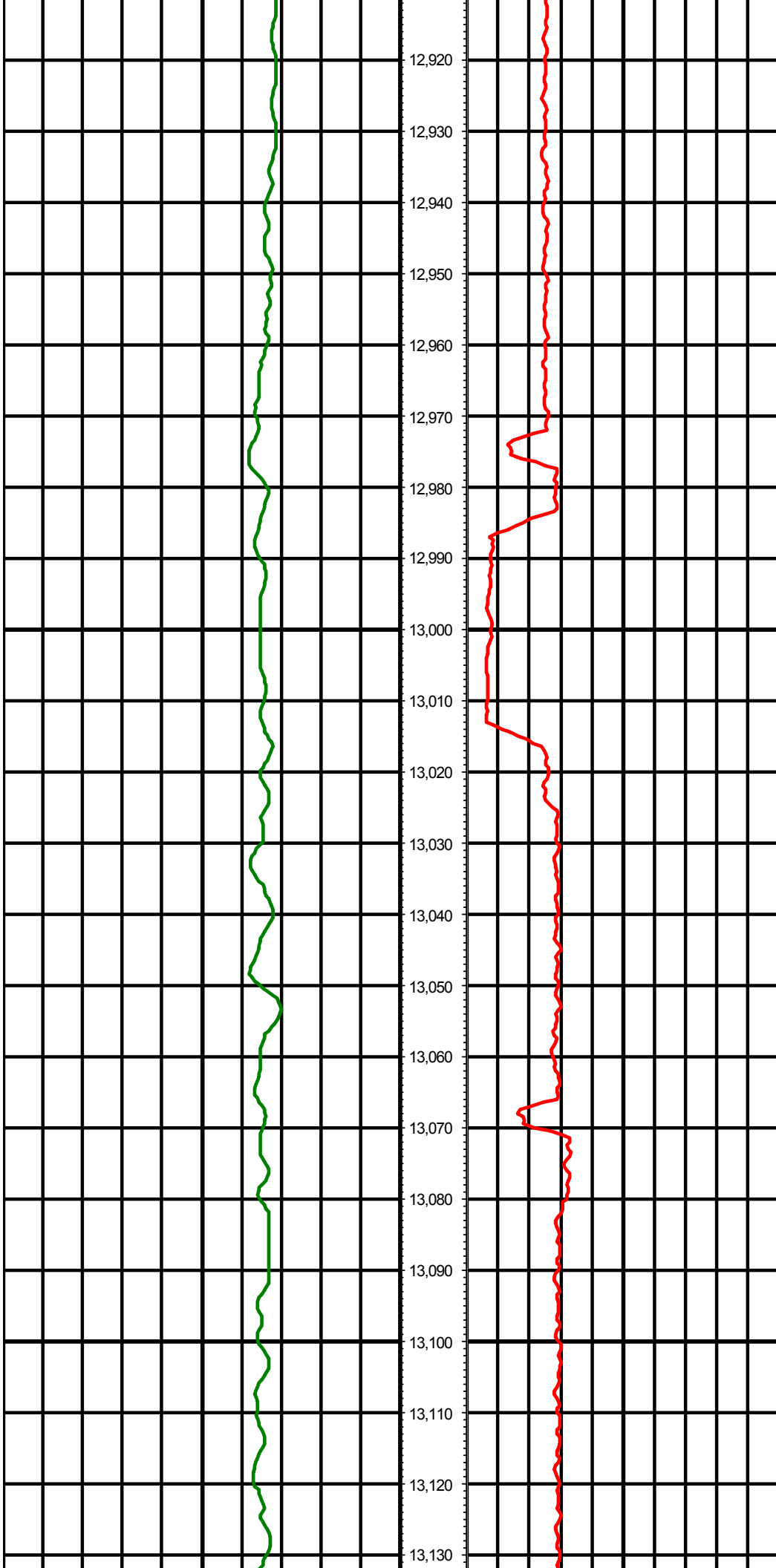
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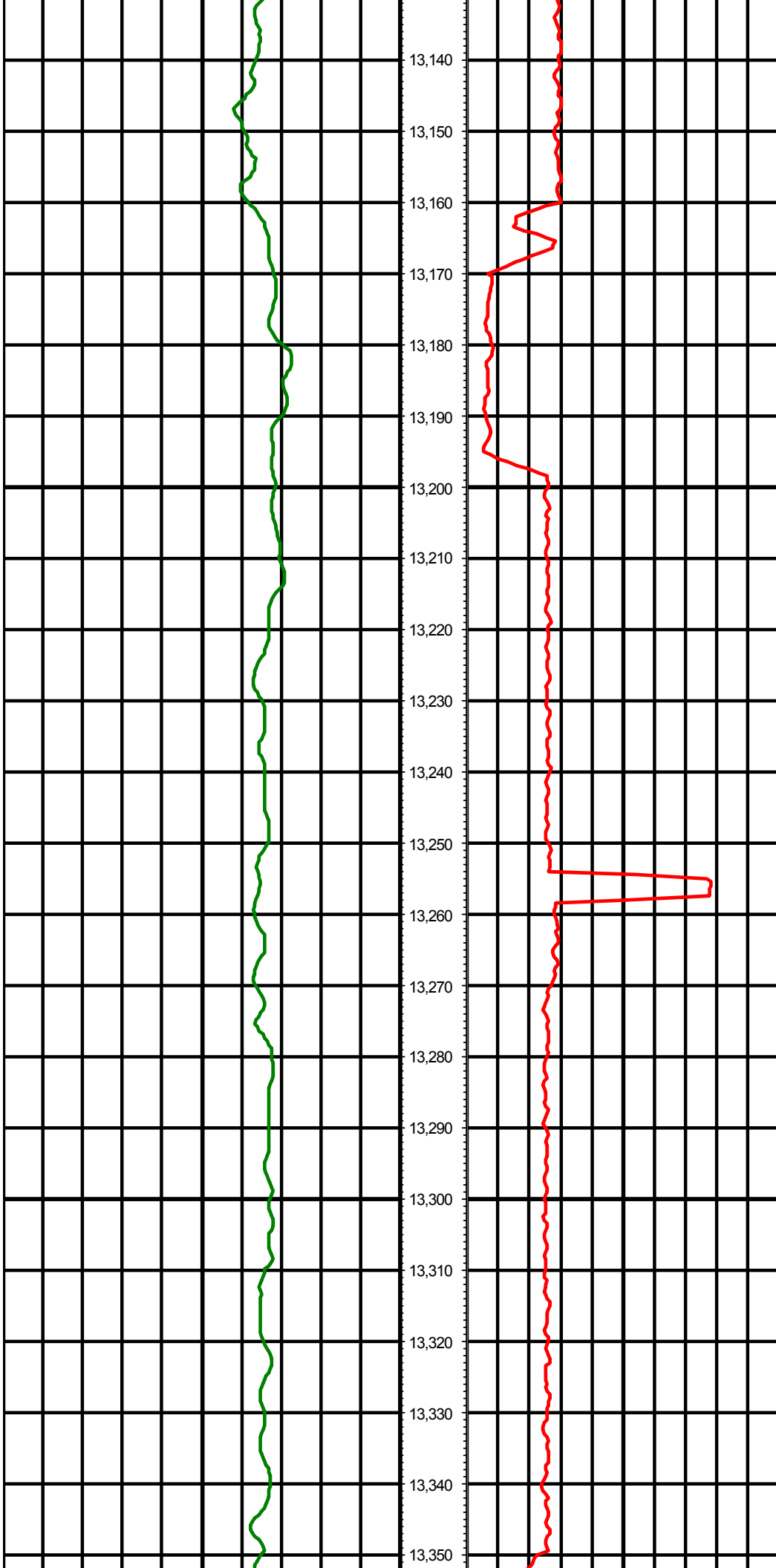
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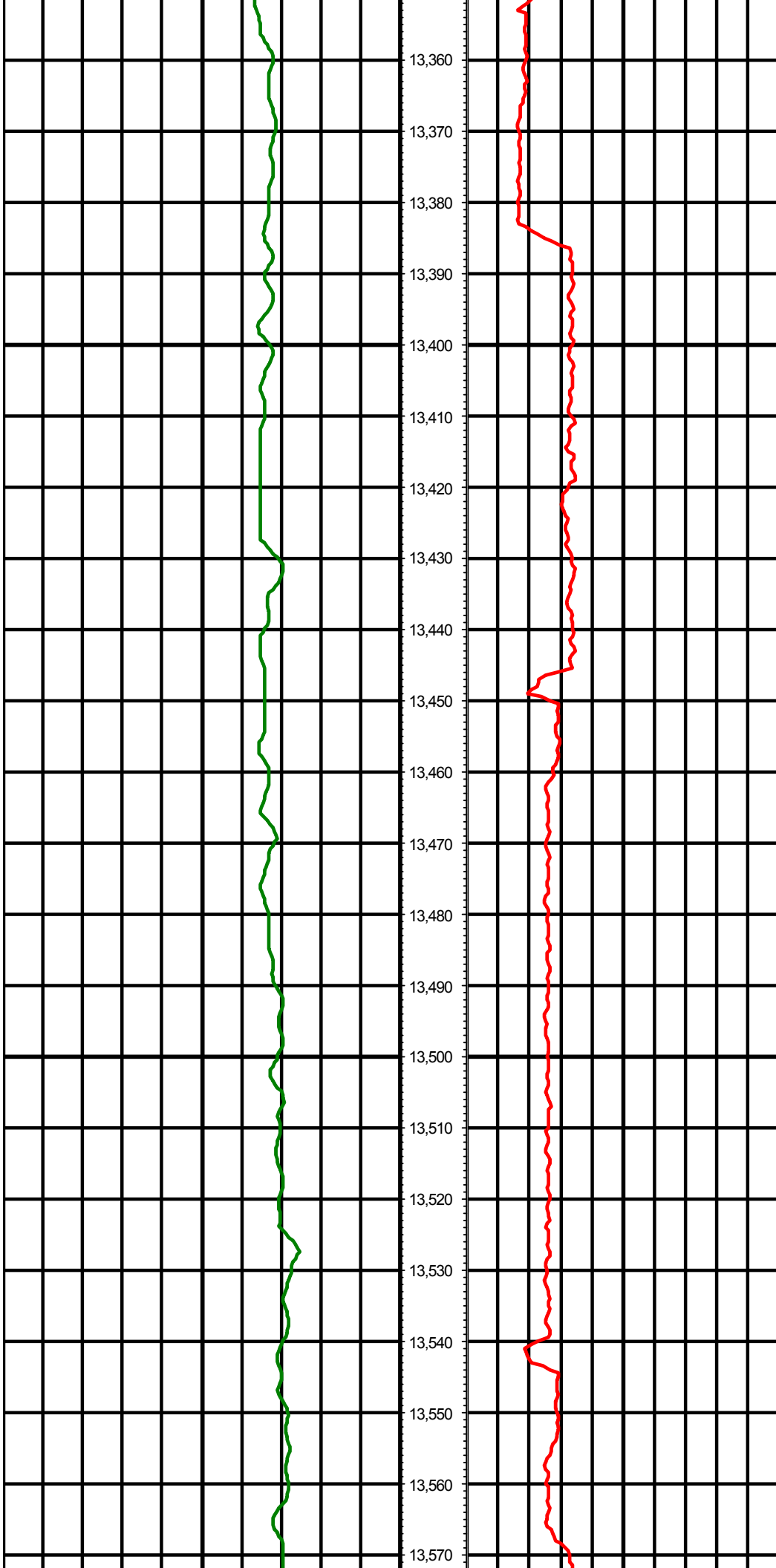
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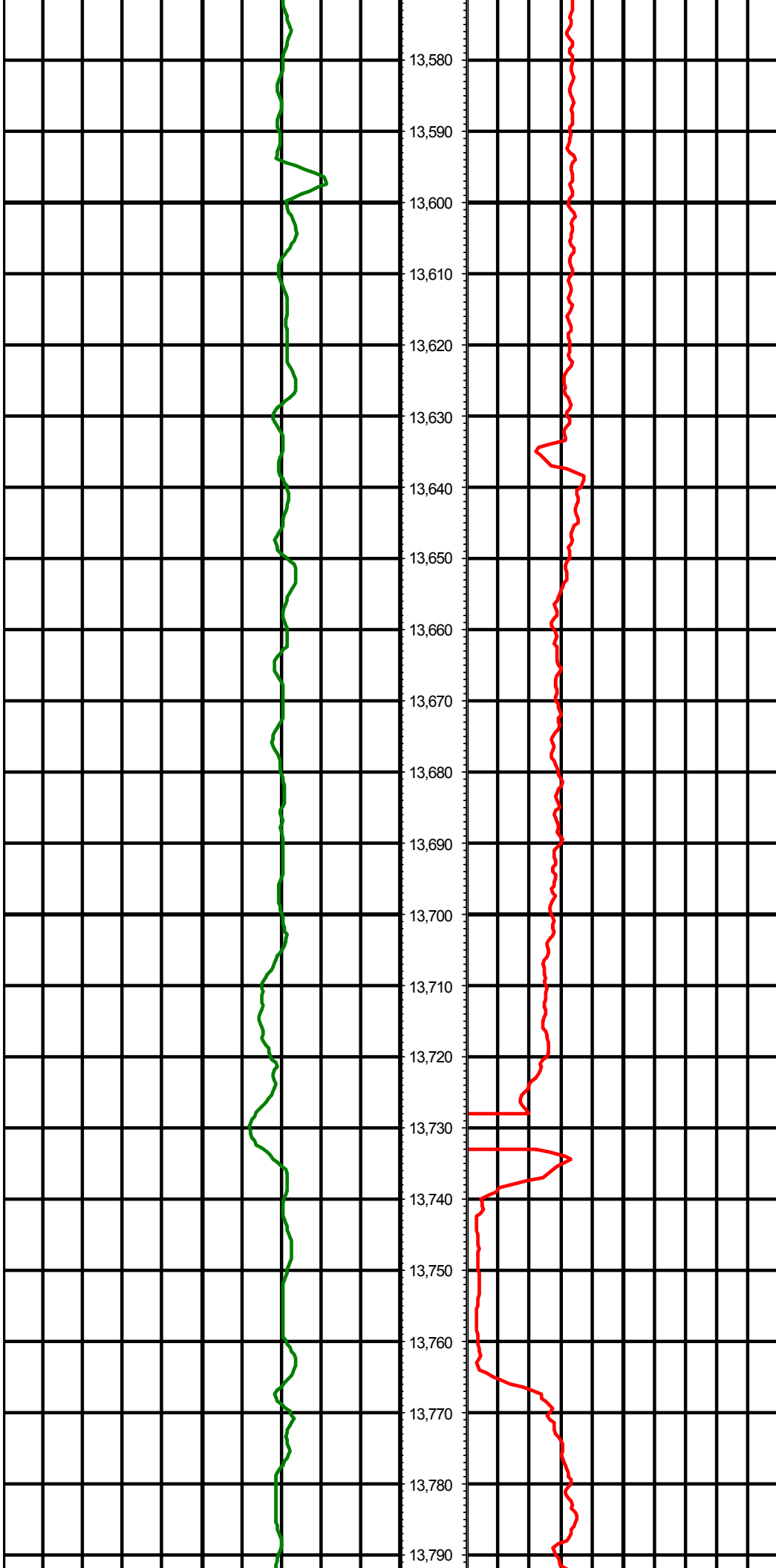
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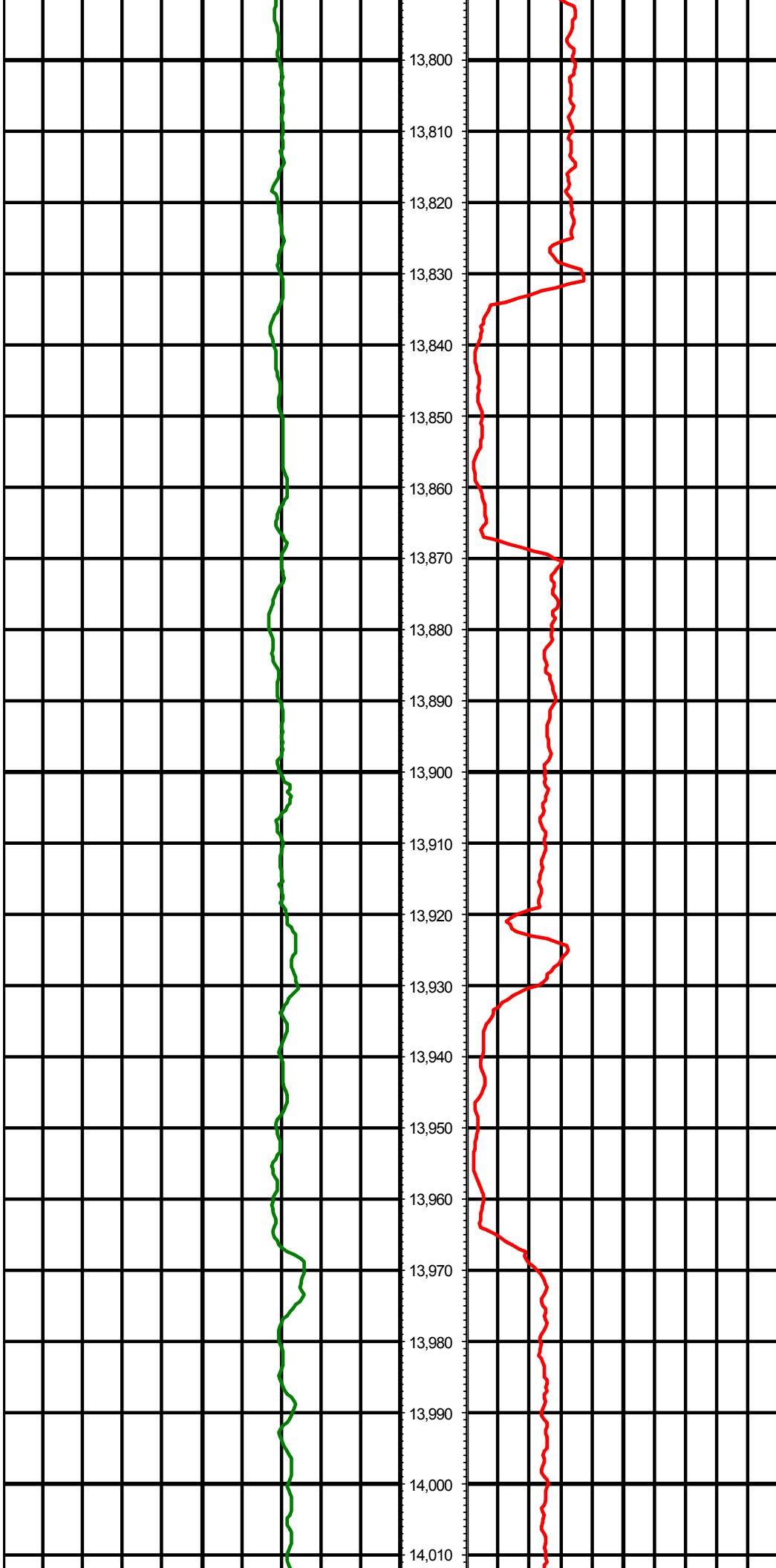
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