



Cathedral Energy Services  
1949 North Pyrite Road  
Casper, Wyoming 82604

**155064**

5":100' - MD

2/4/2015 11:25:28 AM

**CATHEDRAL**

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

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

**State / Province:** Colorado

**County / Parish:** Weld

**Started:** 01/26/2015 12:00 AM

**API/UWI:** 05-123-39412-00

**Field:** Wattenberg (Codell)

**Well:** Minch 3B-4H

**Rig:** Helmerich & Payne 522

**Ended:** 02/02/2015 06:00 AM

Gamma Ray  
Section Plane: 90.00  
Magnetic North: 8.50  
Gamma Attenuation Factor: 2.75  
Gamma Averaging: 7%

### Personnel

**Day Hand:** T. Kapsch

**Night Hand:** W. O'Dell

**Comp. Emp:** Dave Hildreth

Maximum Temperature: 213°F

### Location

**Latitude:** 40.254080

**Longitude:** -105.038550

**Elev. GL:** 5110

**Elev. DF:**

**Elev. KB:** 5140

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

### Hole Data

Size	From	To
12-1/4	0	888
8-3/4	888	7800
6-1/8	7800	11956

### Casing Data

Size	From	To
9-5/8	0	877
7	0	7790
4-1/2	0	11950

### Bit Sizes

Size	From	To
12-1/4	0	888
8 3/4	888	7800
6-1/8	7800	11956

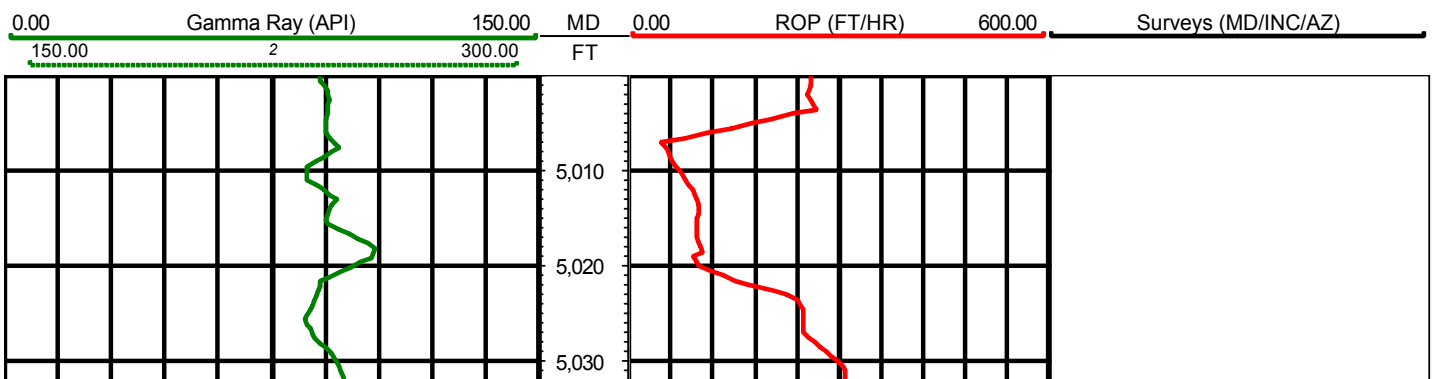
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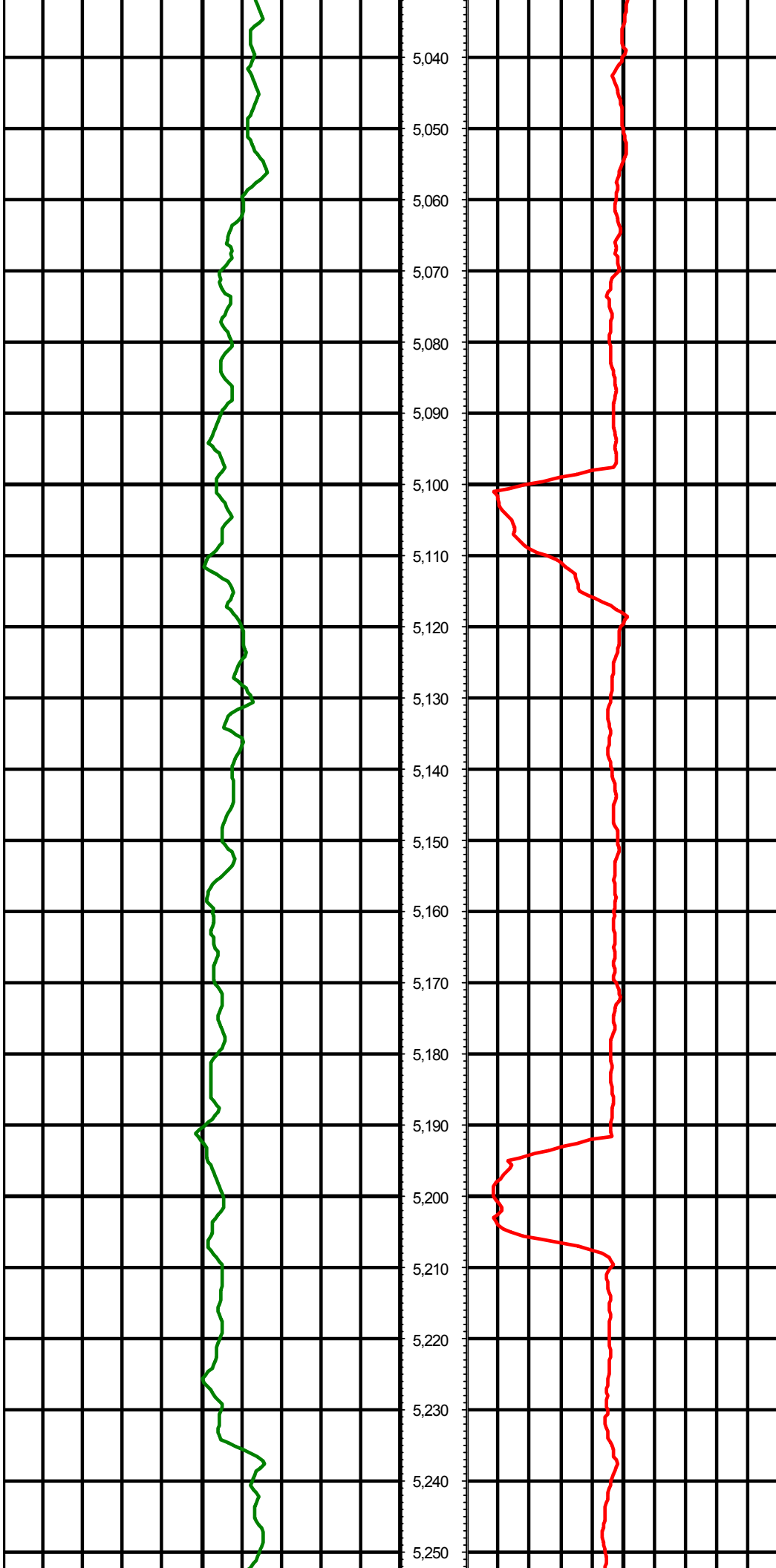
Type	Weight	Density	Viscosity	Rm	Rmf	Rmc	From	To
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### Tool Run Data

Serial Number	Gamma Offset	Resist. Offset	Start Time	Start Depth	End Time	End Depth
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*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.*





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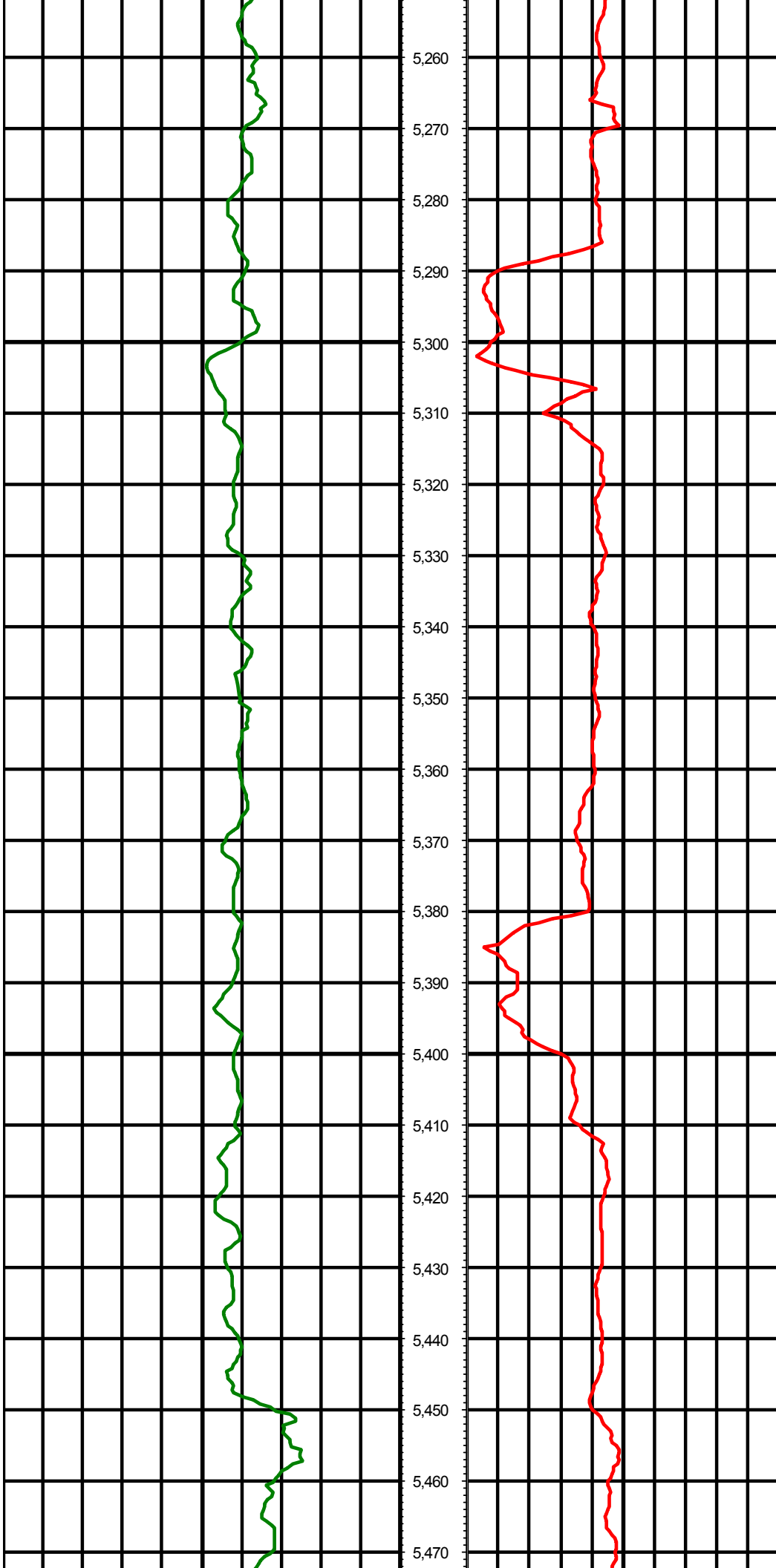
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MD: 5146.00 INC: 5.80 AZ: 316.60

MD: 5241.00 INC: 5.20 AZ: 320.30



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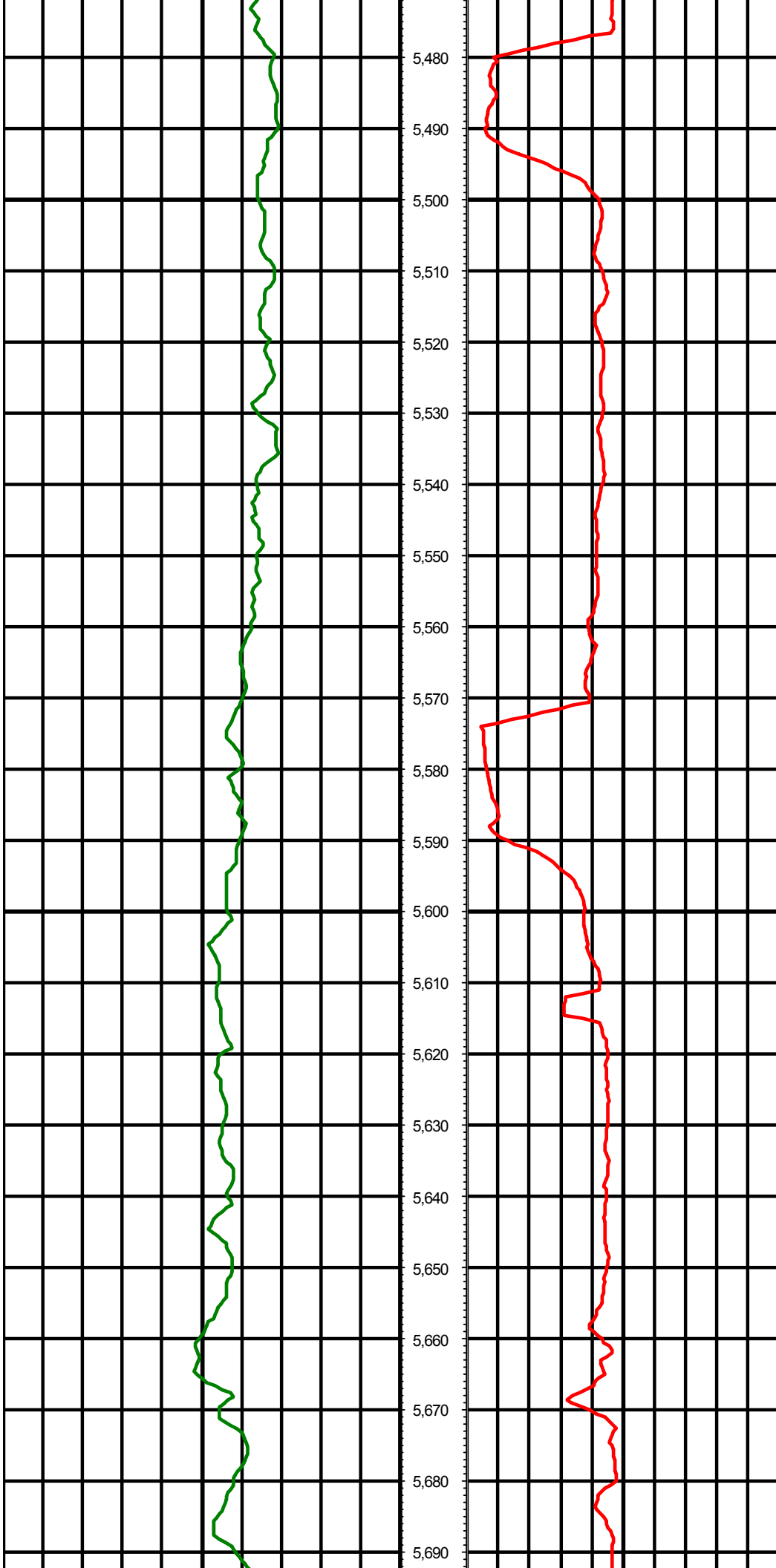
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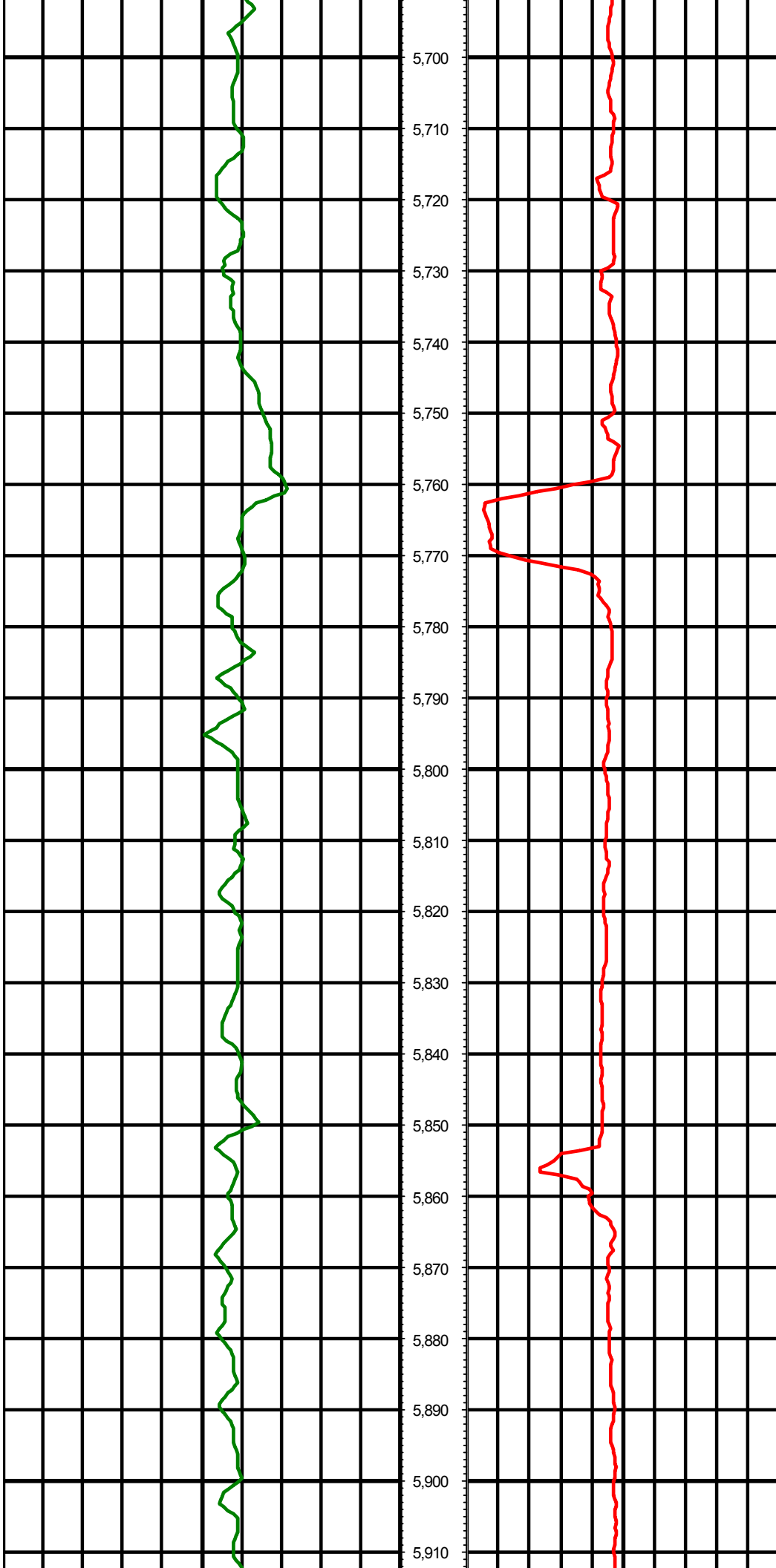
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MD: 5430.00 INC: 5.50 AZ: 323.60



MD: 5524.00 INC: 4.50 AZ: 323.90

MD: 5618.00 INC: 7.30 AZ: 316.90



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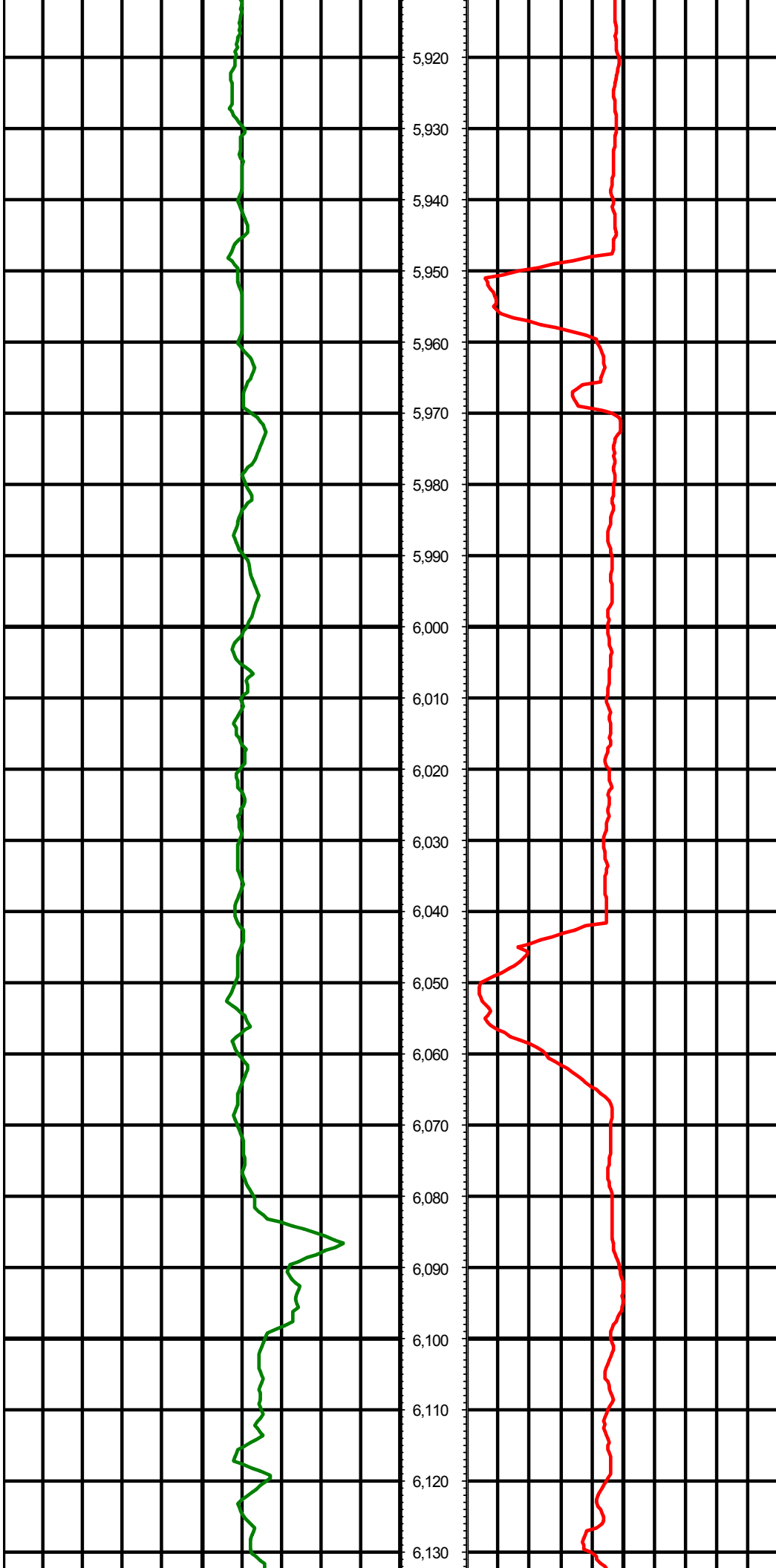
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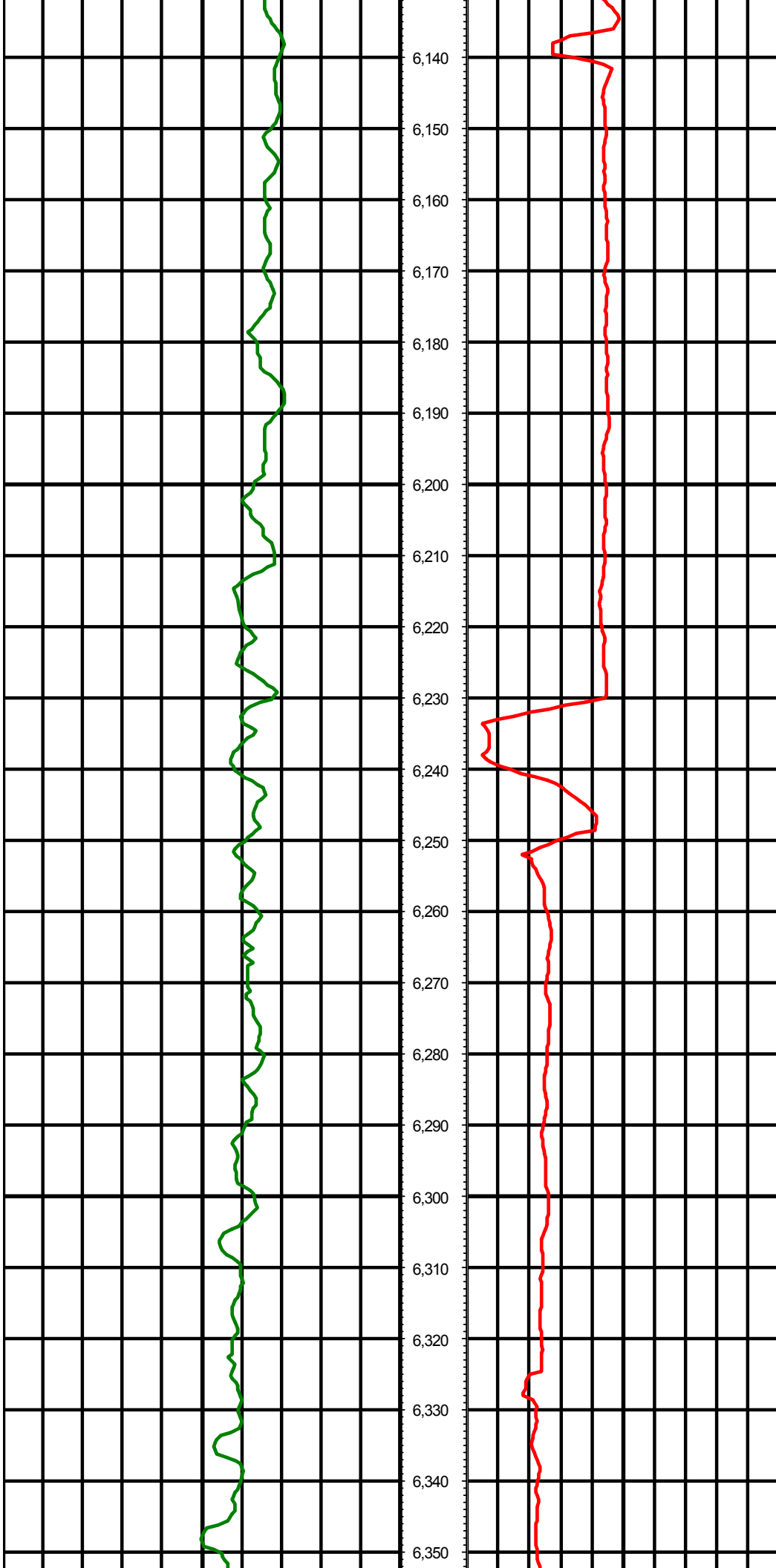
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MD: 5902.00 INC: 6.40 AZ: 315.30



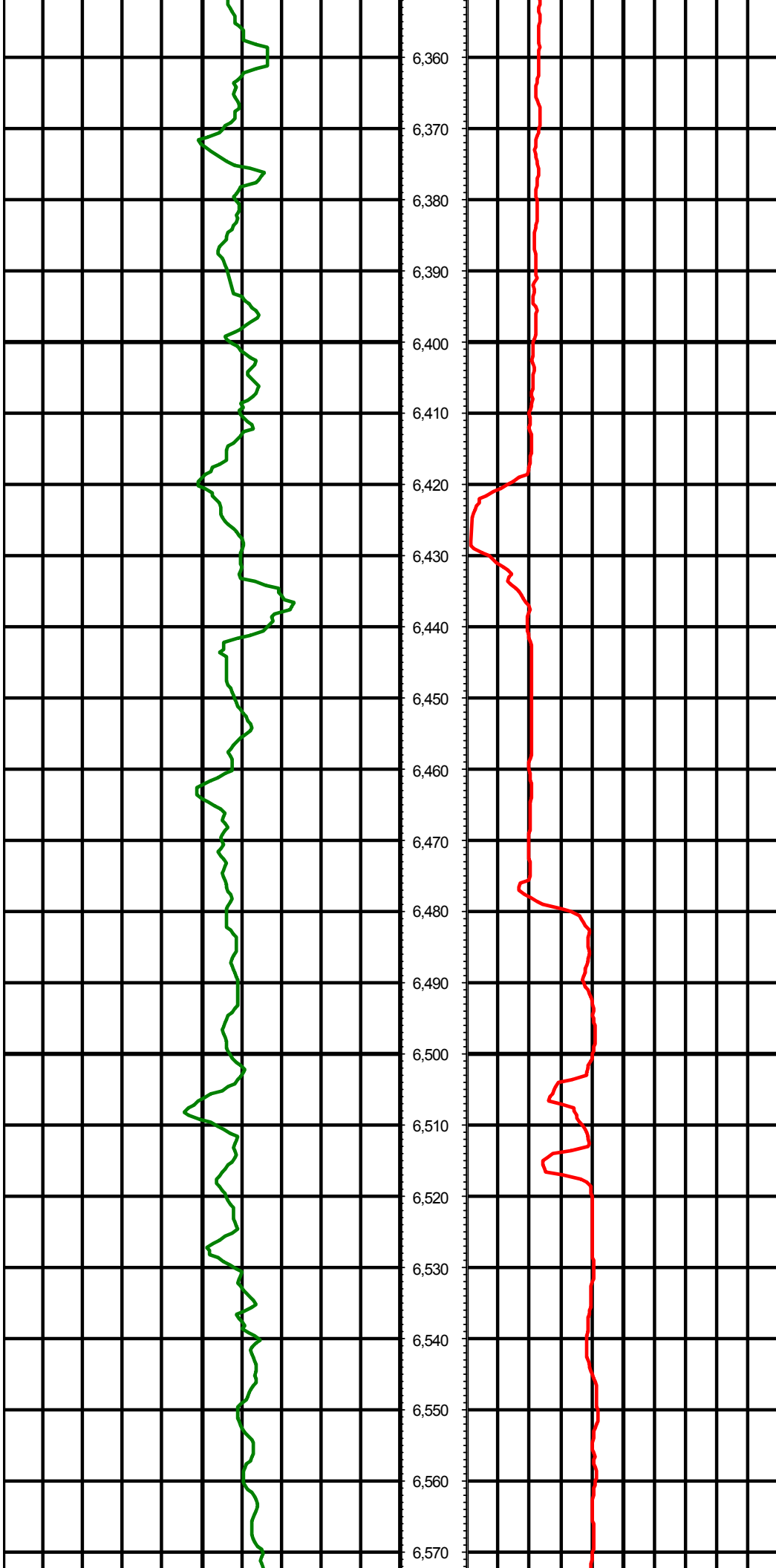
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MD: 6091.00 INC: 6.30 AZ: 326.00



MD: 6185.00 INC: 5.50 AZ: 322.10

MD: 6280.00 INC: 6.10 AZ: 330.50



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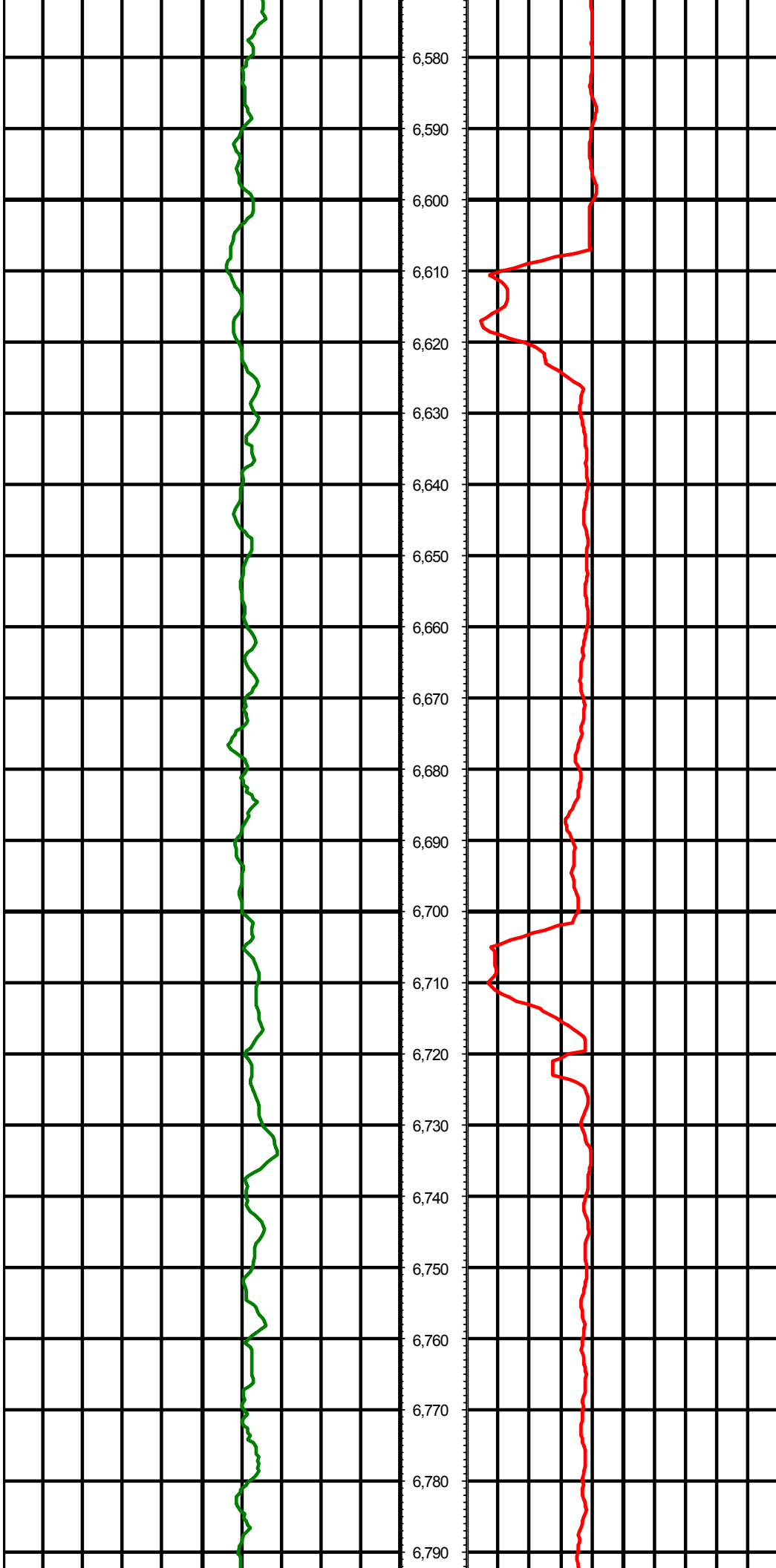
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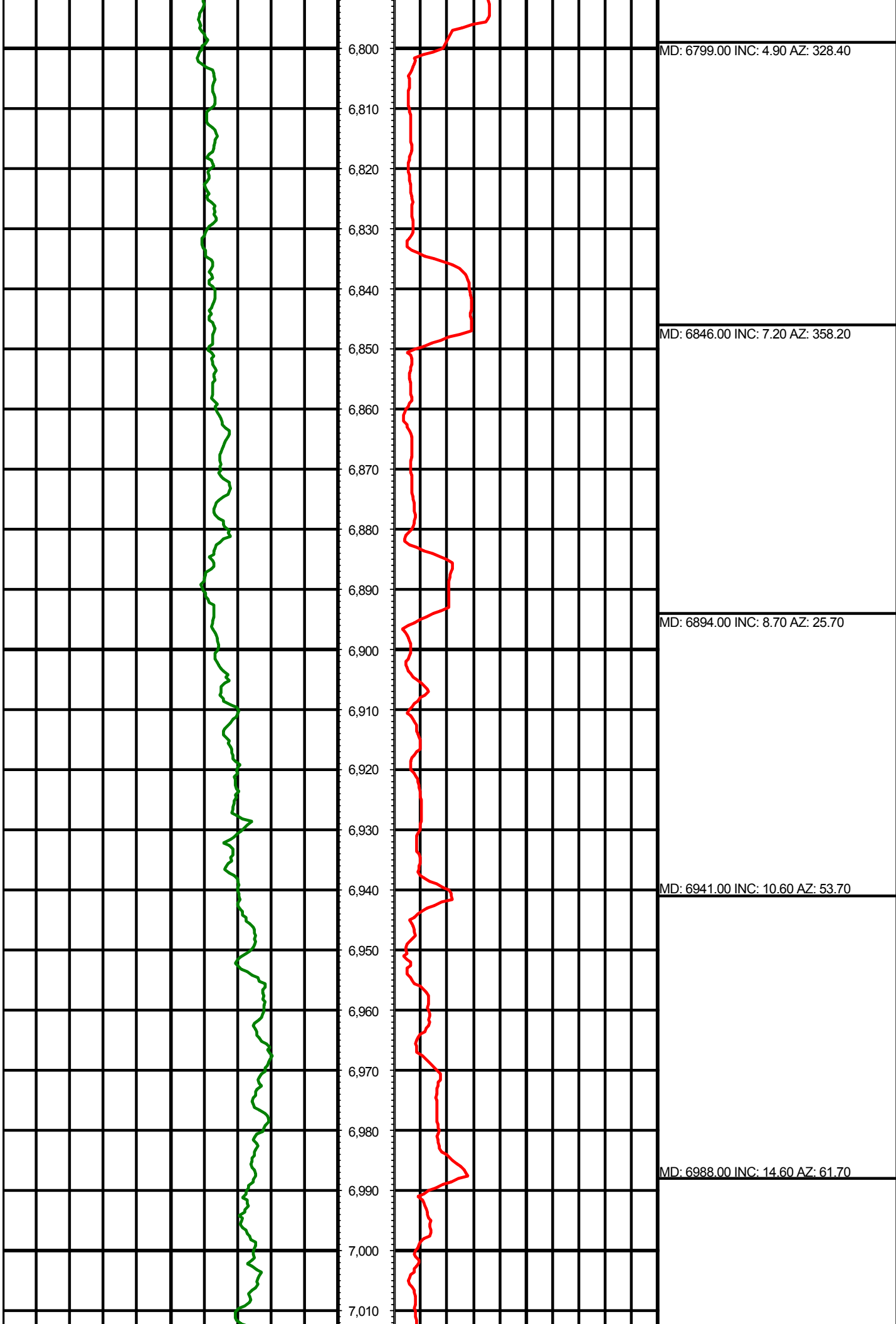
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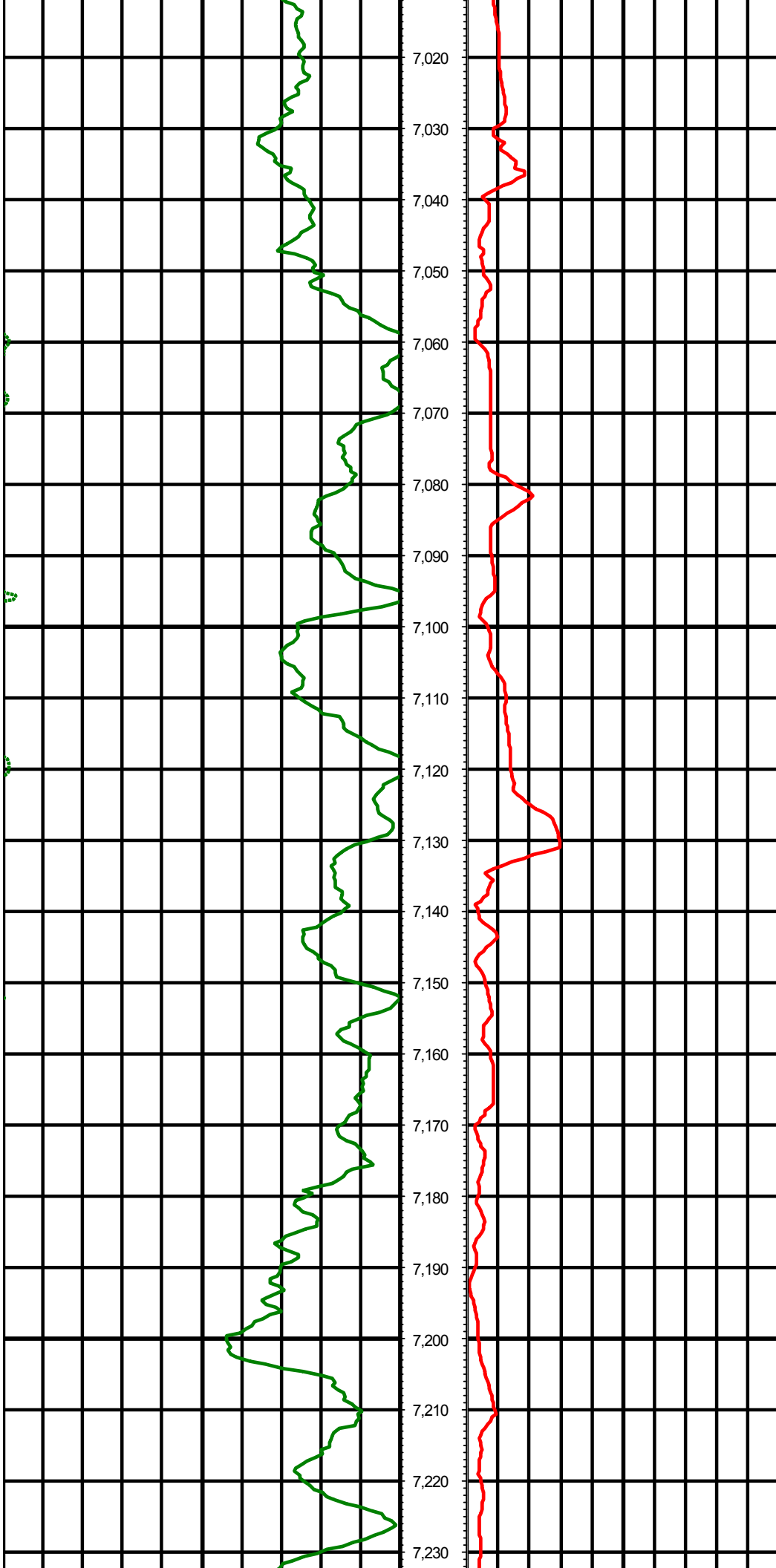




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MD: 6752.00 INC: 5.10 AZ: 308.40





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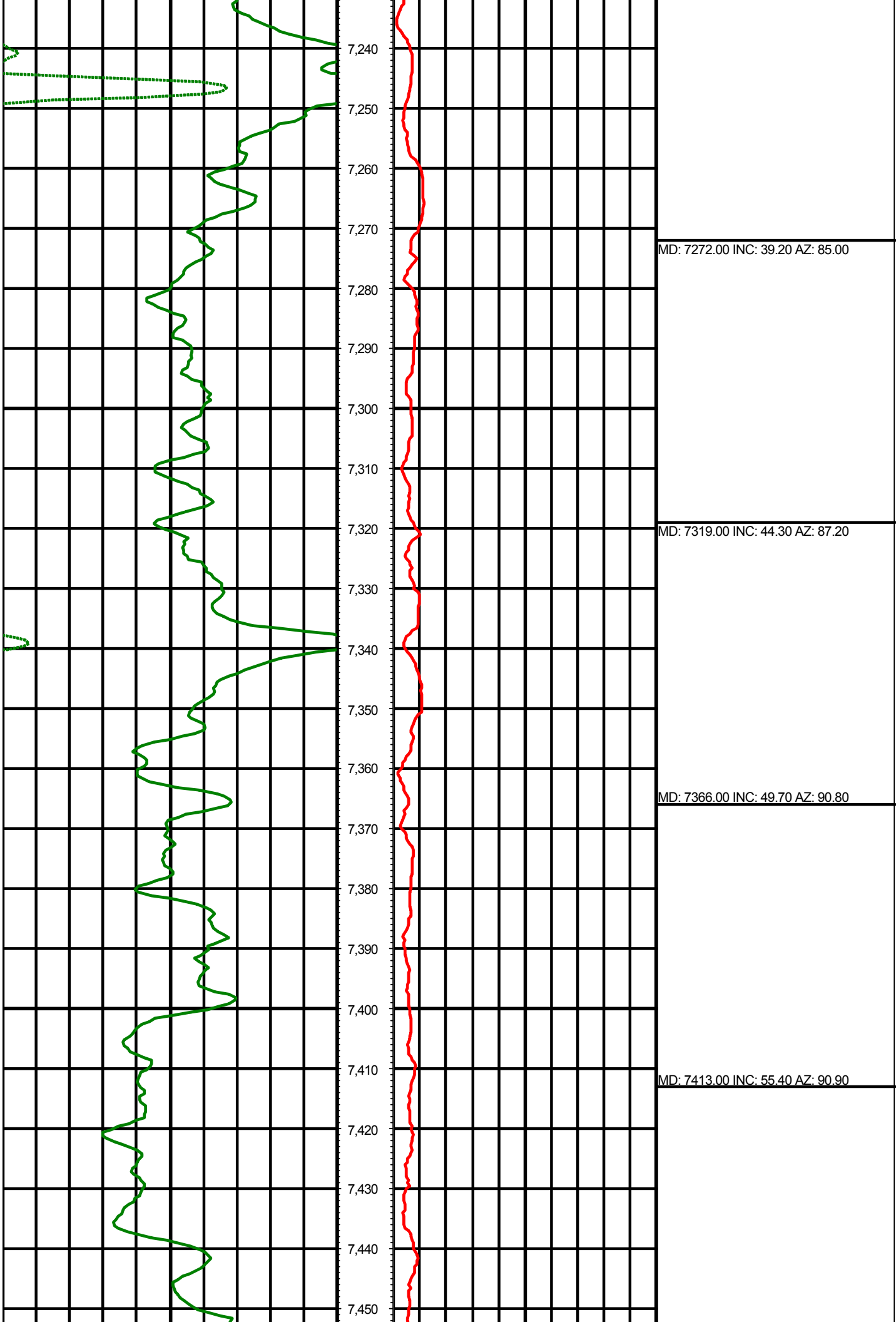
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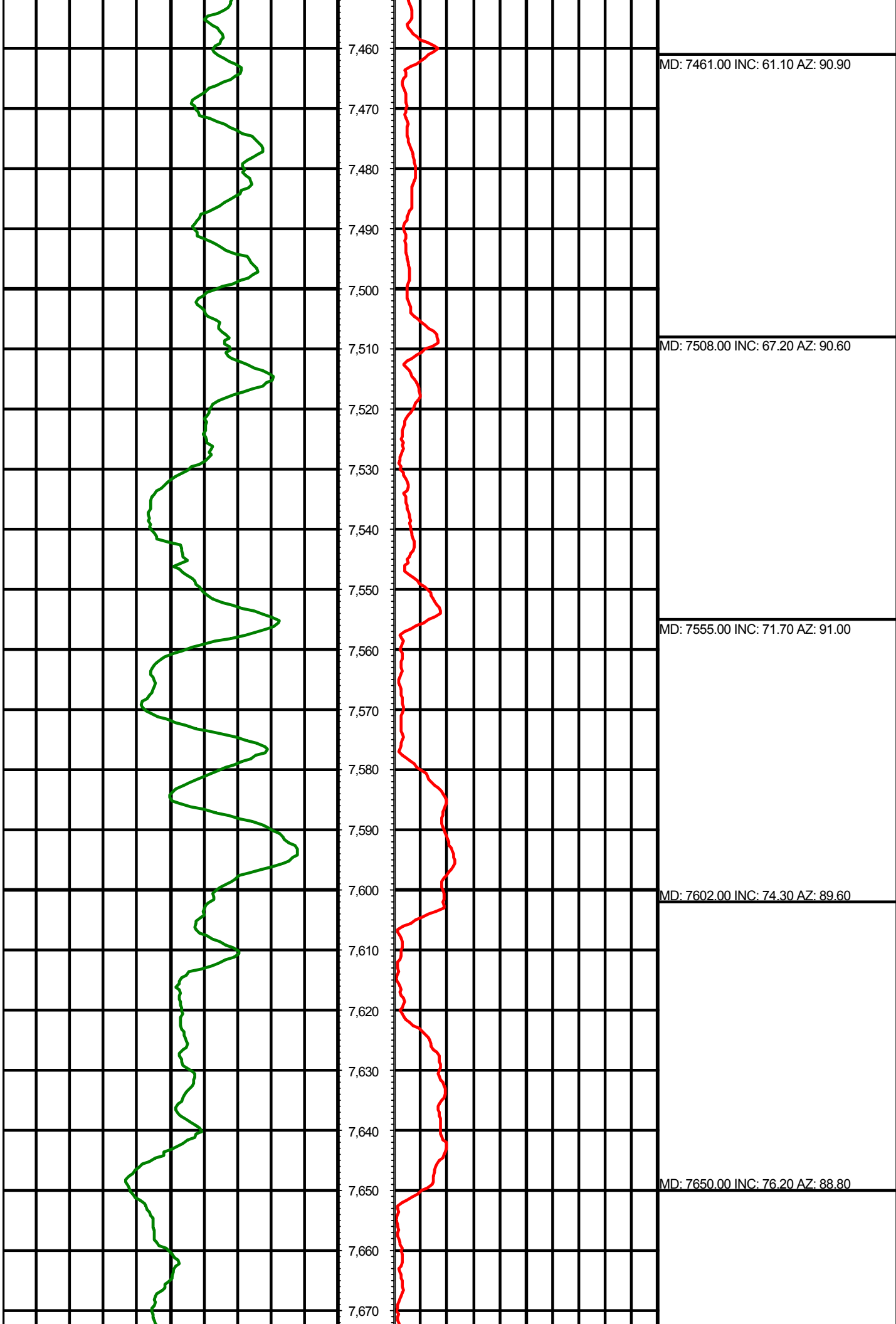
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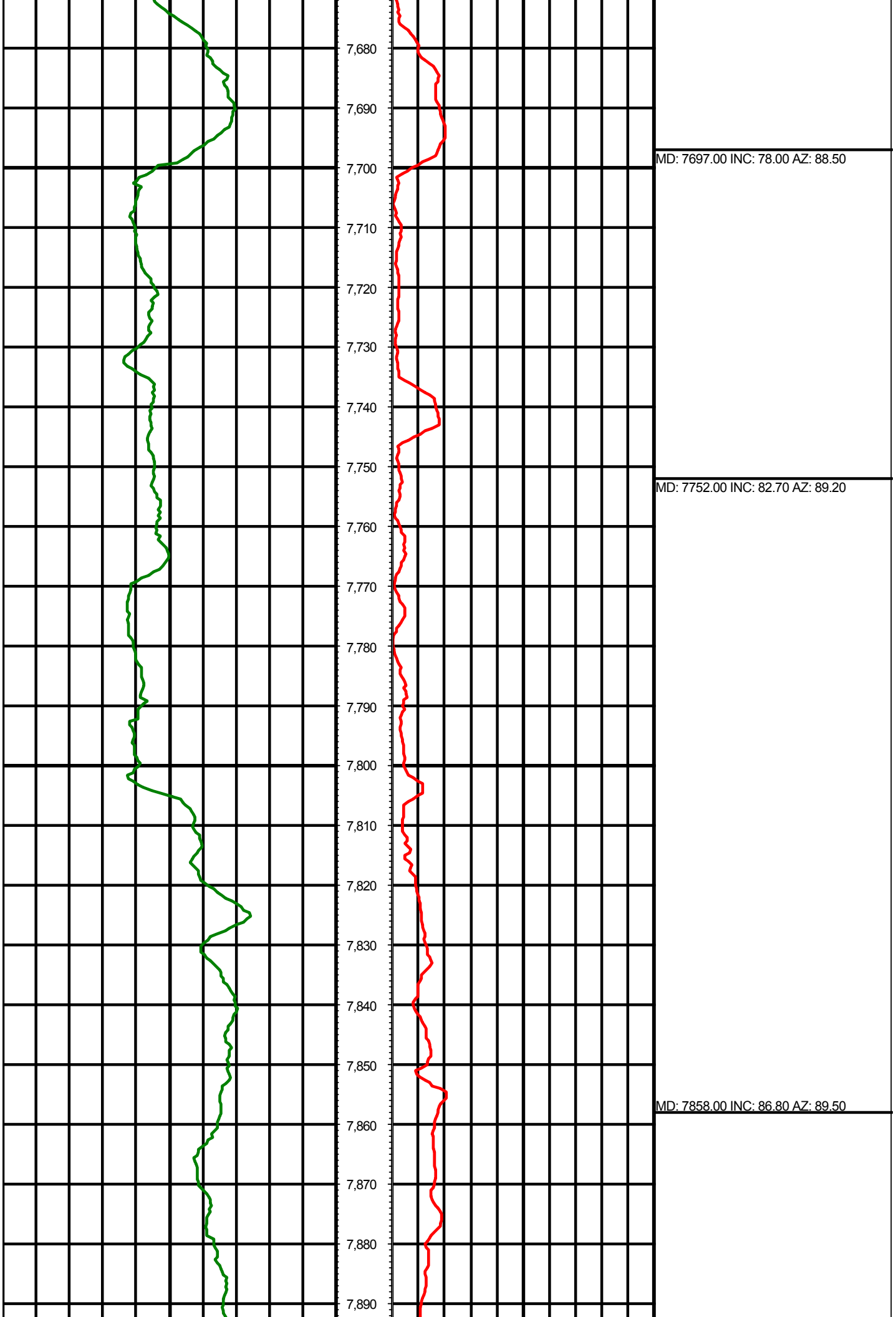
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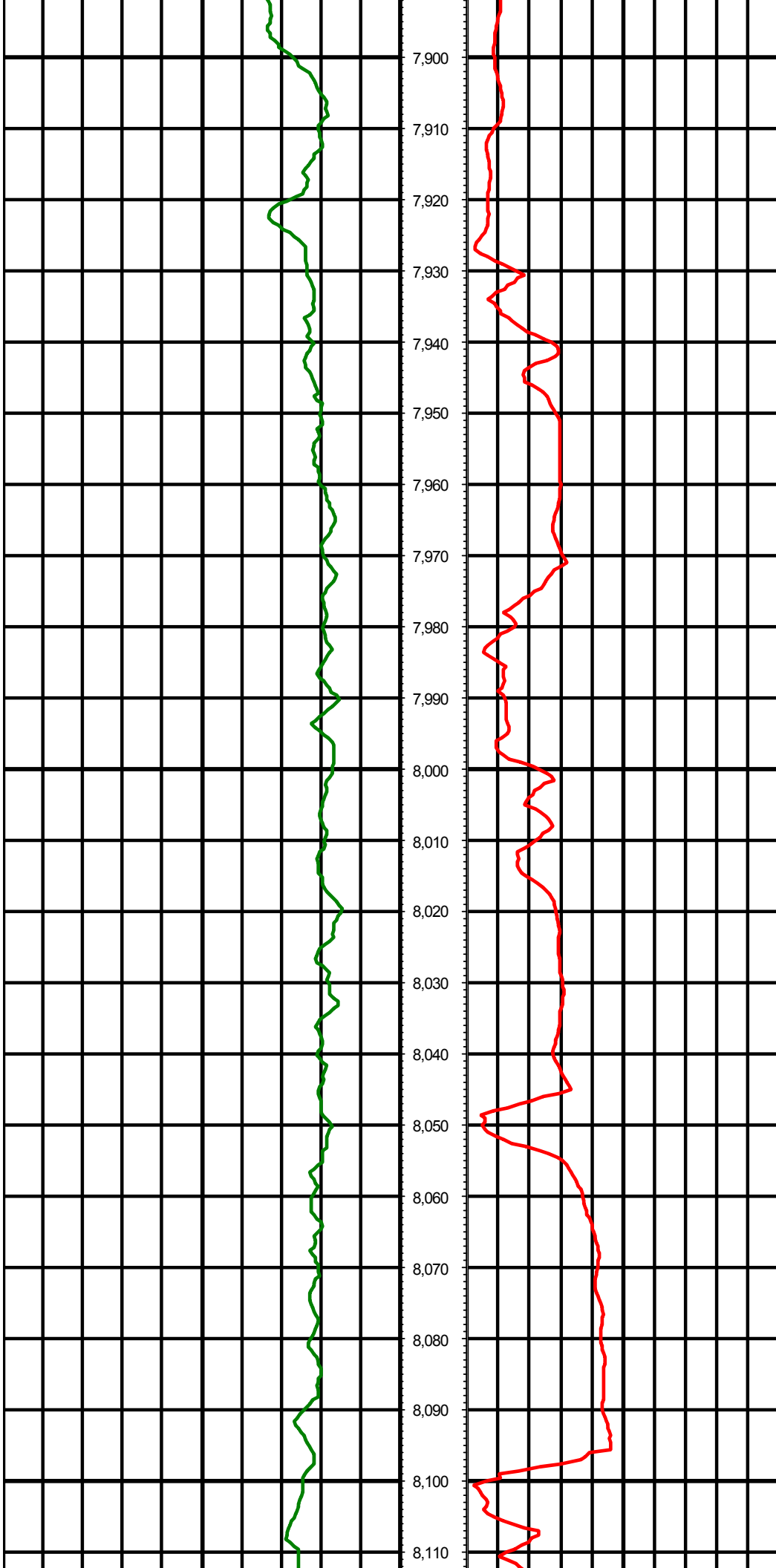
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MD: 7224.00 INC: 34.00 AZ: 82.20



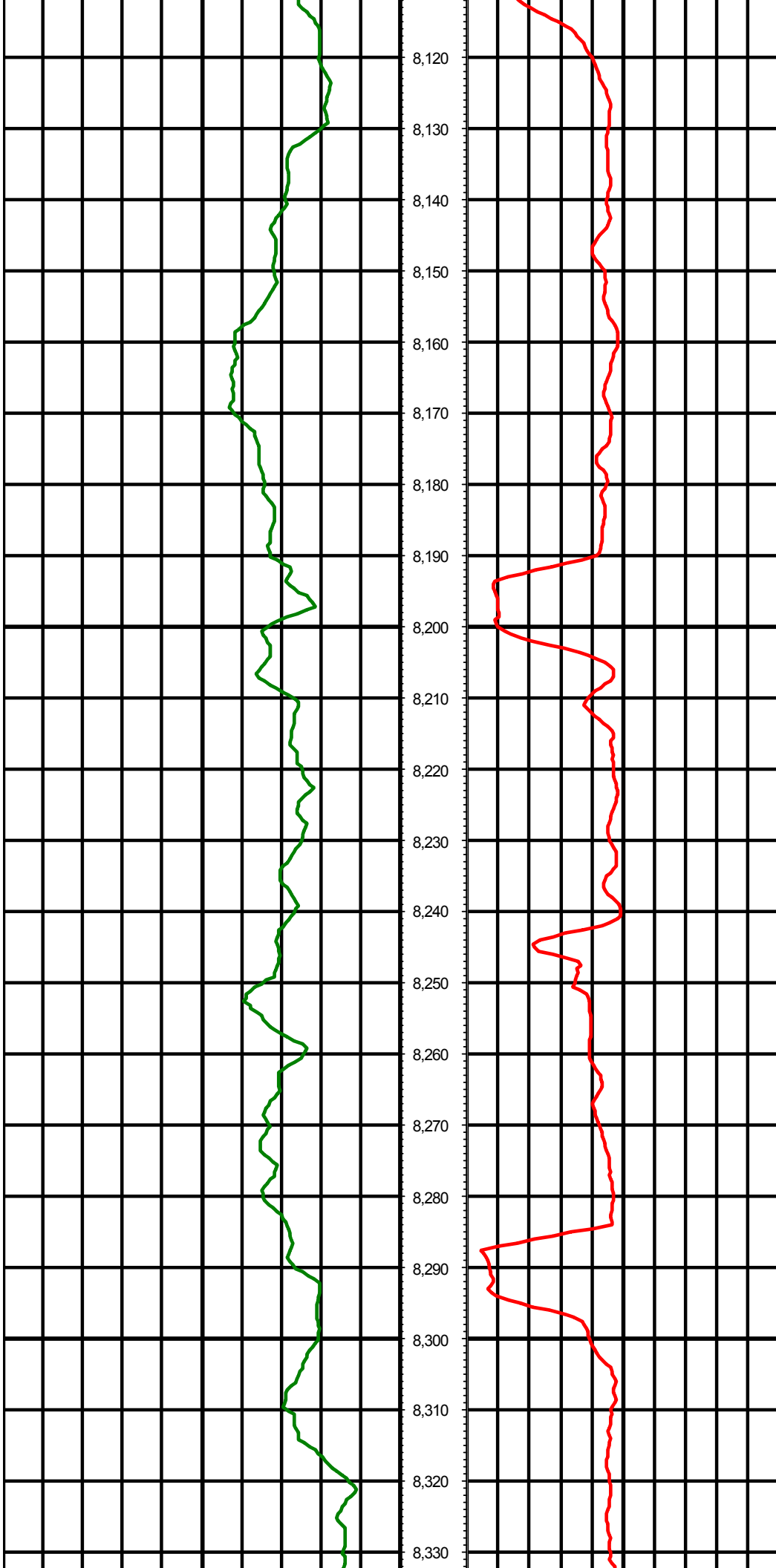






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MD: 8047.00 INC: 90.50 AZ: 89.90

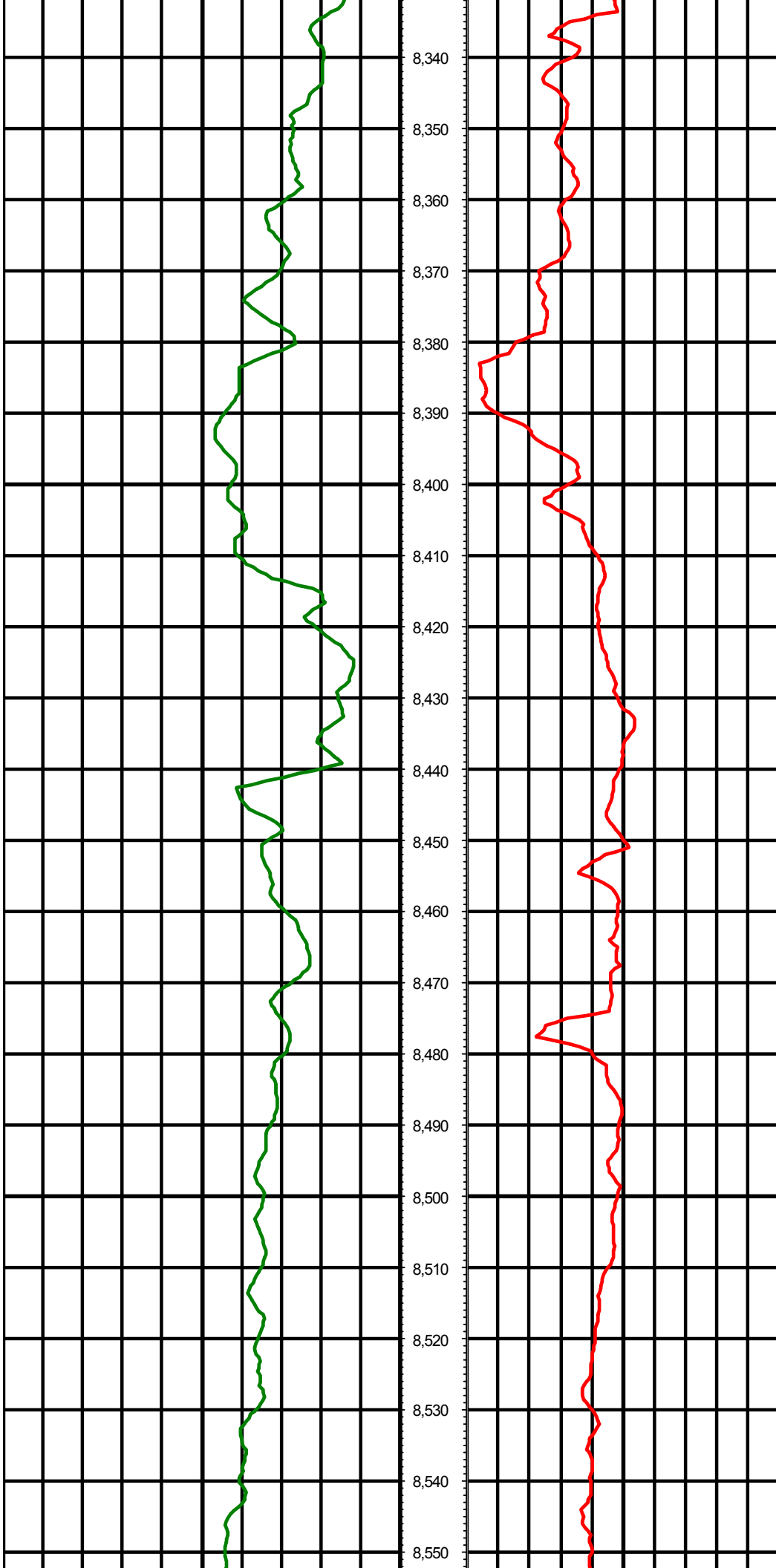


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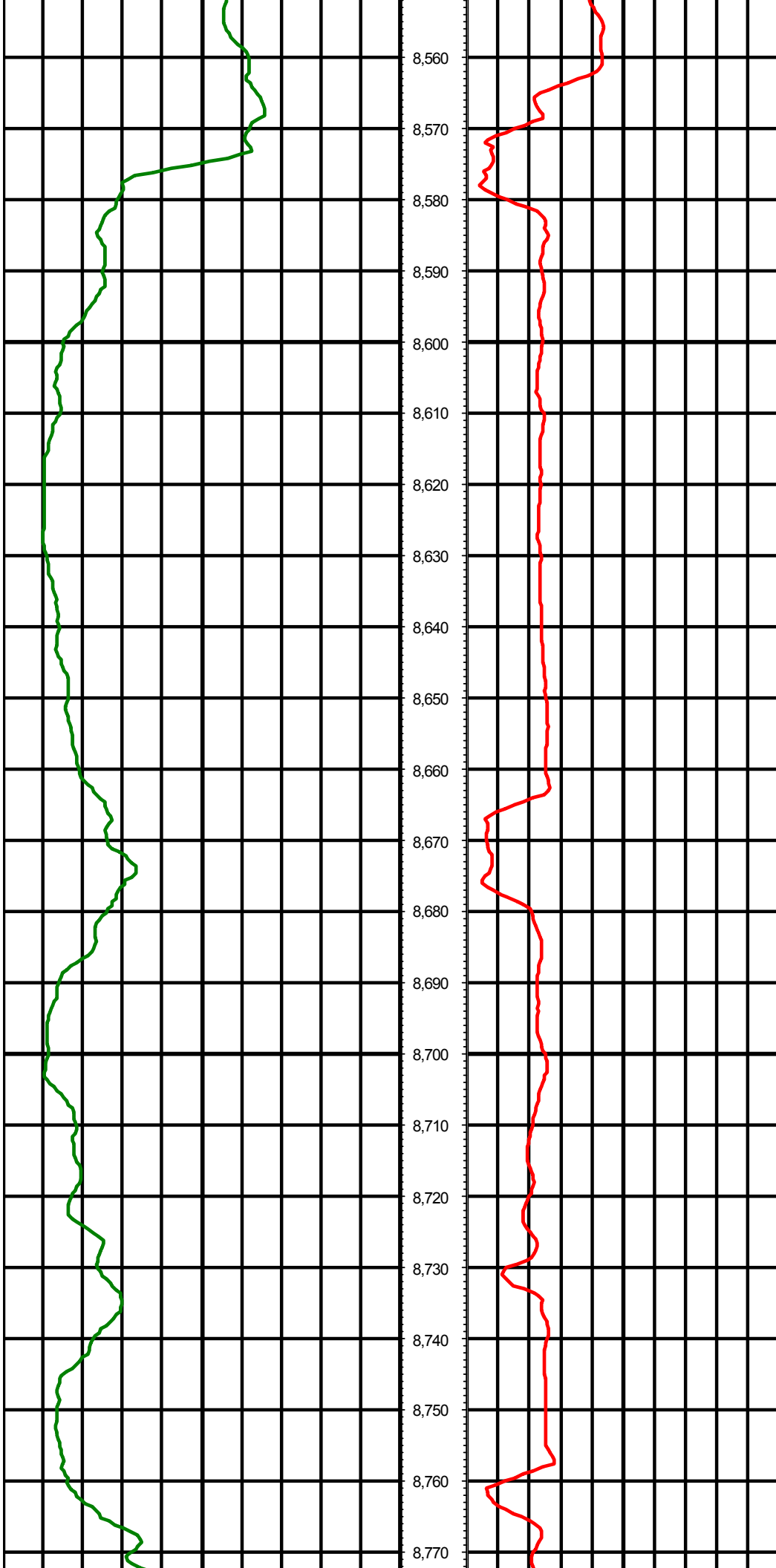
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MD: 8520.00 INC: 91.10 AZ: 90.00



MD: 8615.00 INC: 90.90 AZ: 91.50

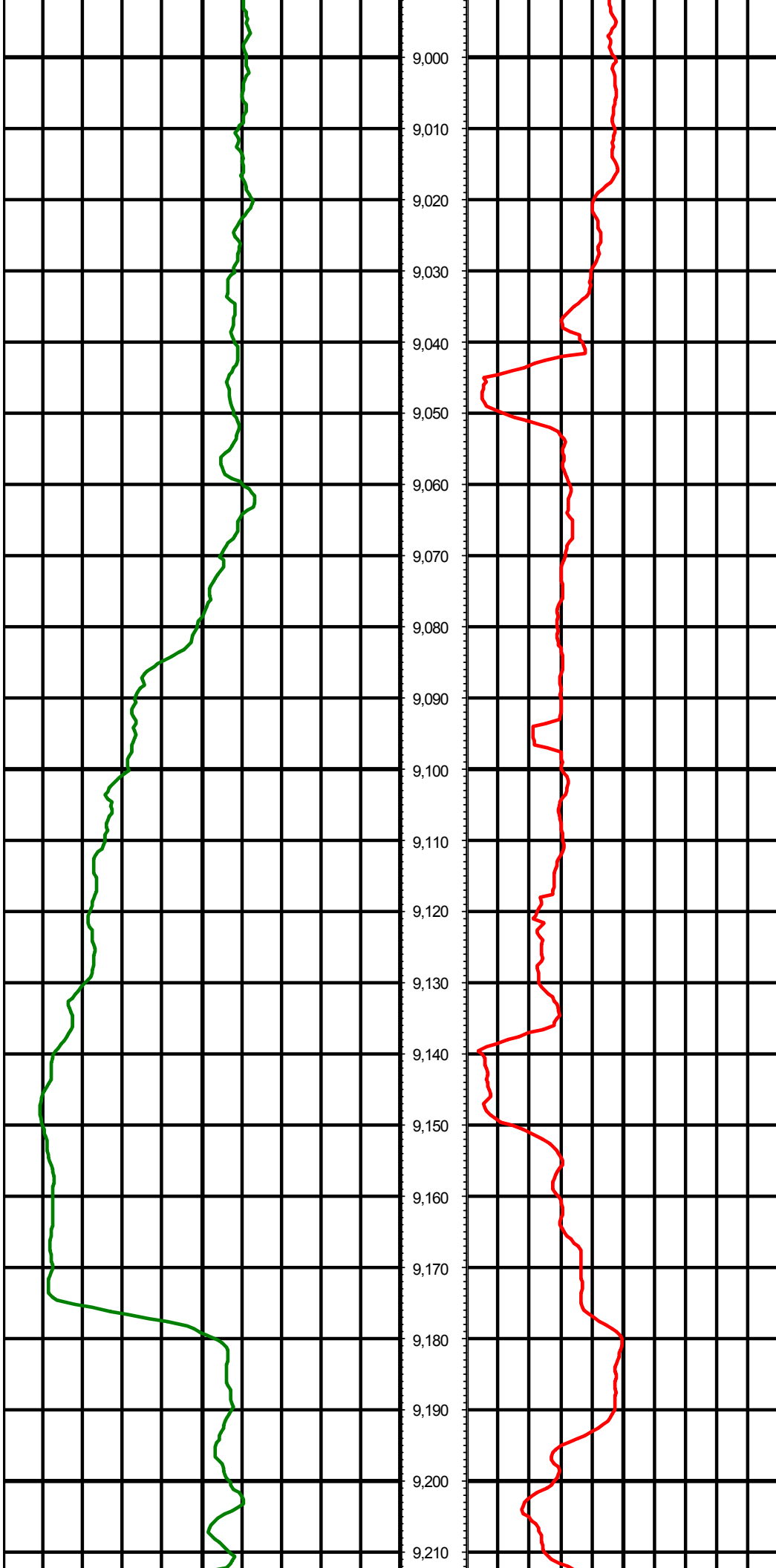
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MD: 8804.00 INC: 89.90 AZ: 90.70

MD: 8898.00 INC: 89.30 AZ: 90.40

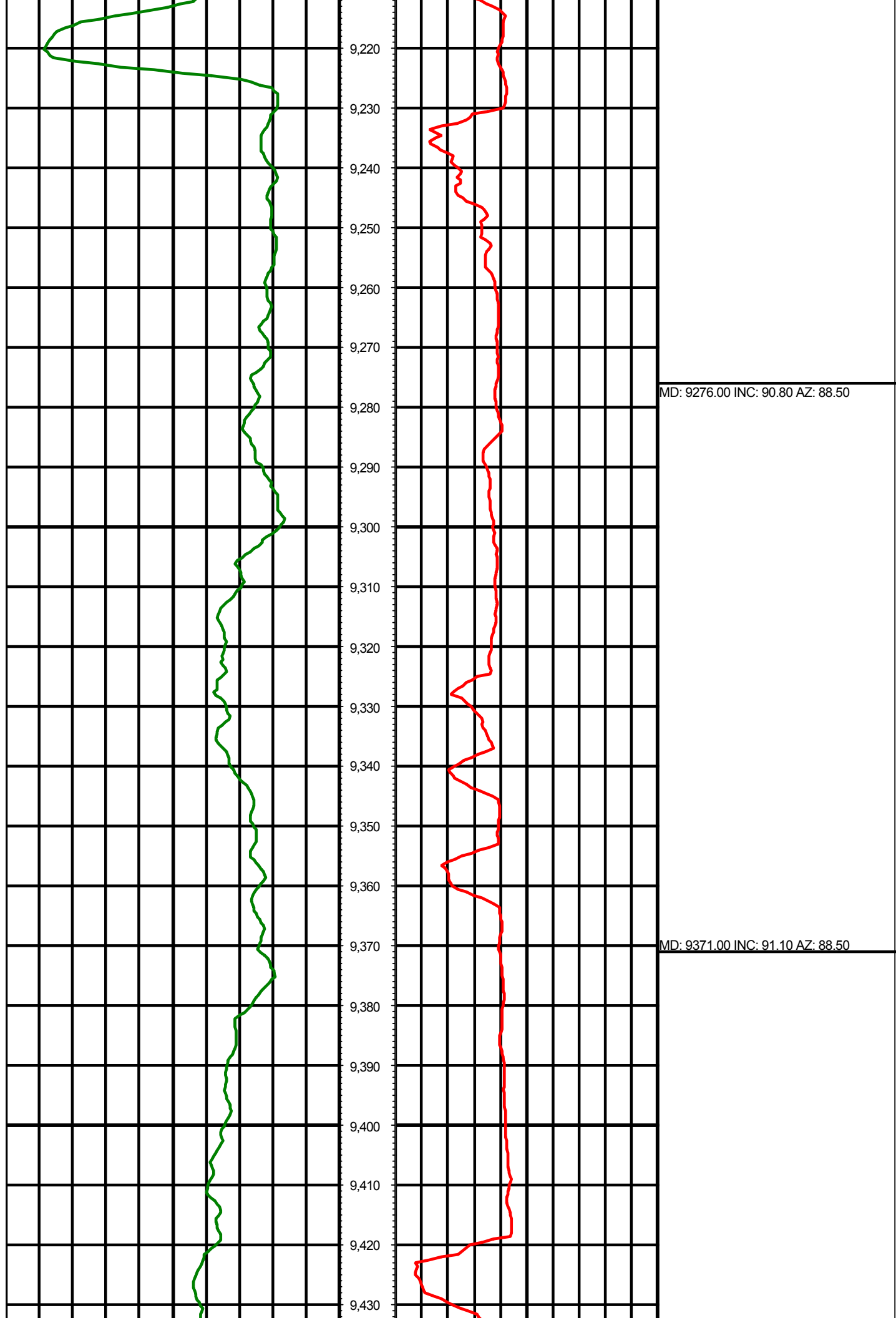
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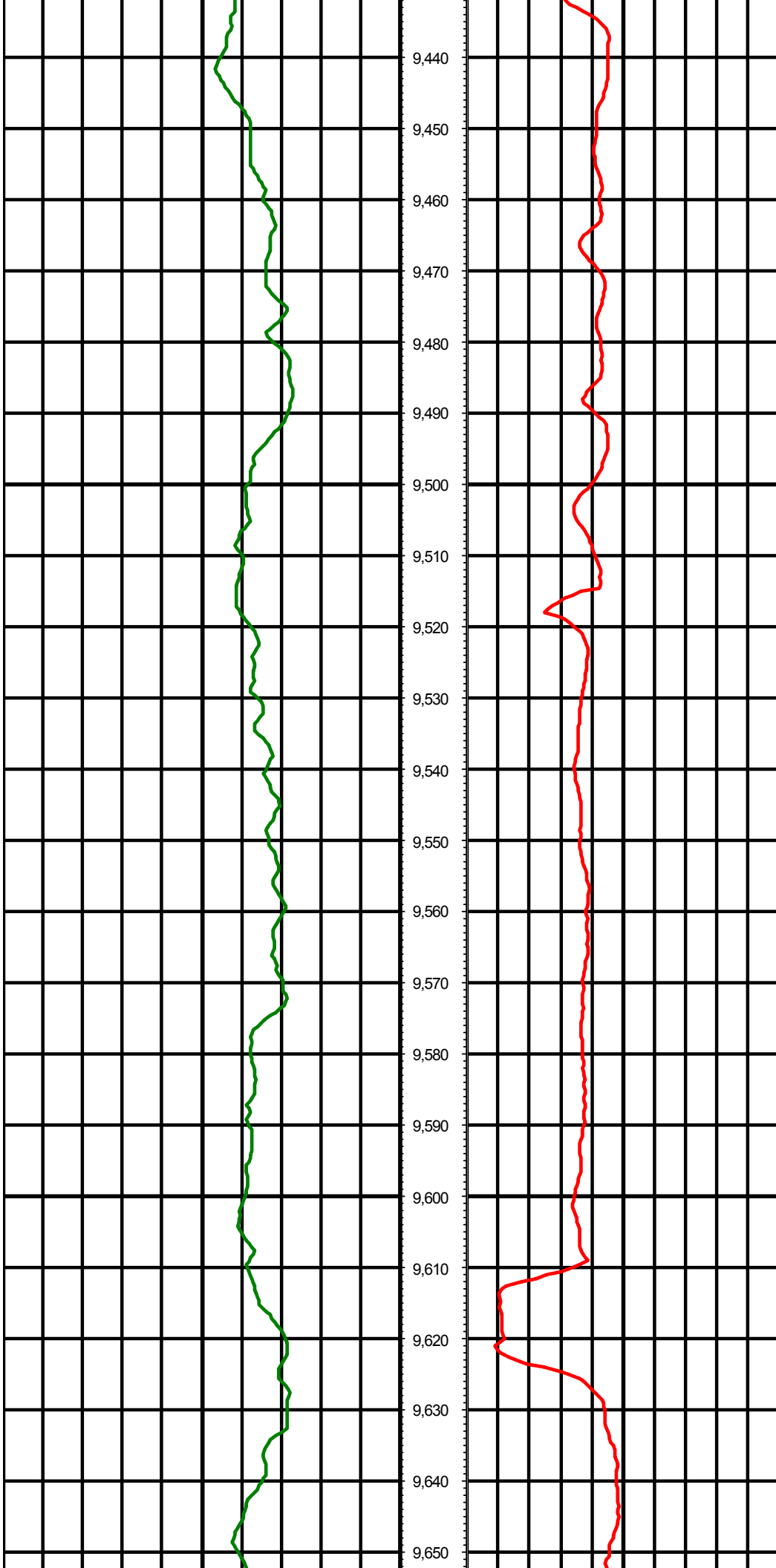


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MD: 9088.00 INC: 88.90 AZ: 88.60

MD: 9182.00 INC: 90.70 AZ: 88.20





MD: 9466.00 INC: 90.90 AZ: 89.20

MD: 9560.00 INC: 91.20 AZ: 89.90

MD: 9655.00 INC: 91.50 AZ: 90.50

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MD: 9750.00 INC: 90.30 AZ: 90.50

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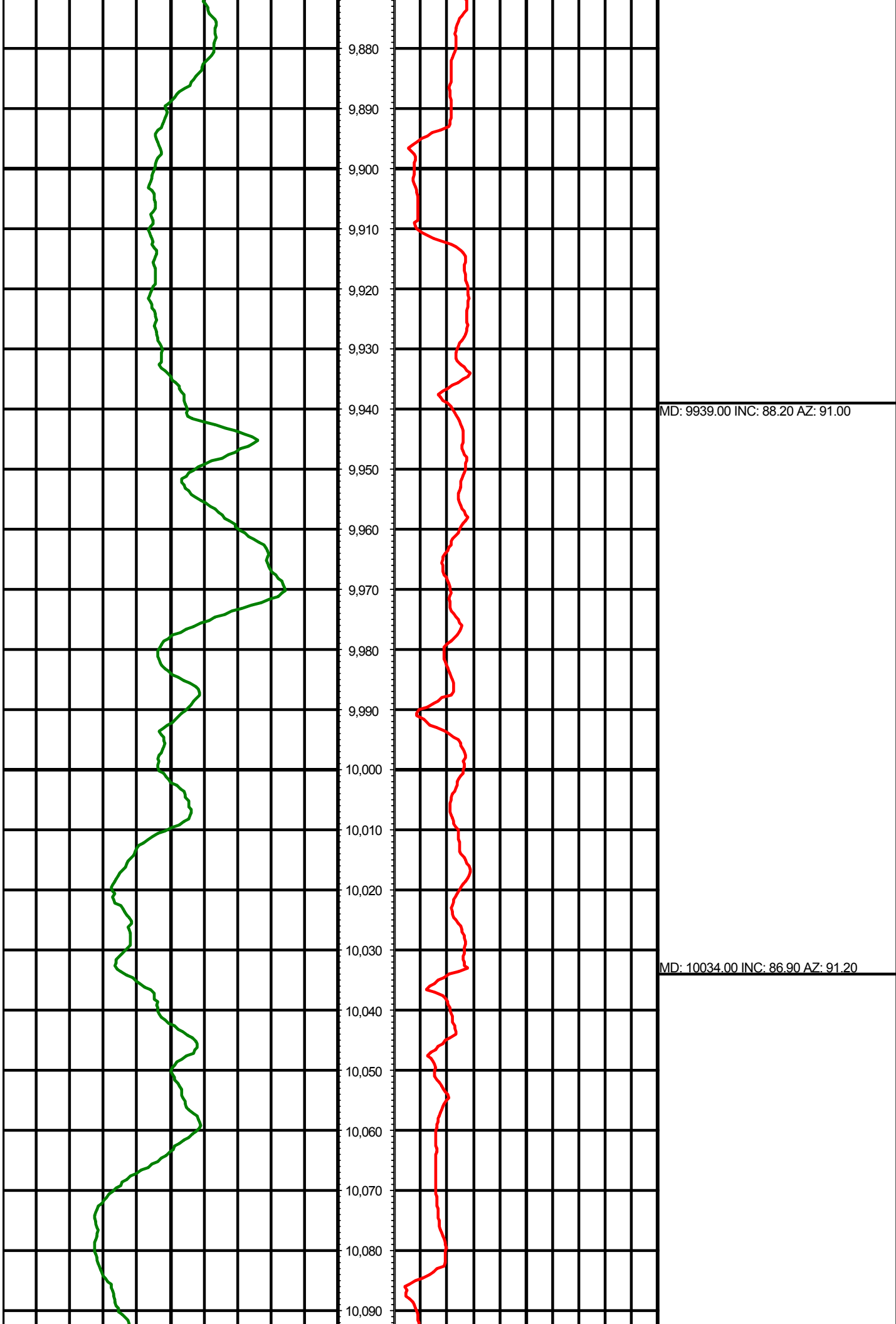
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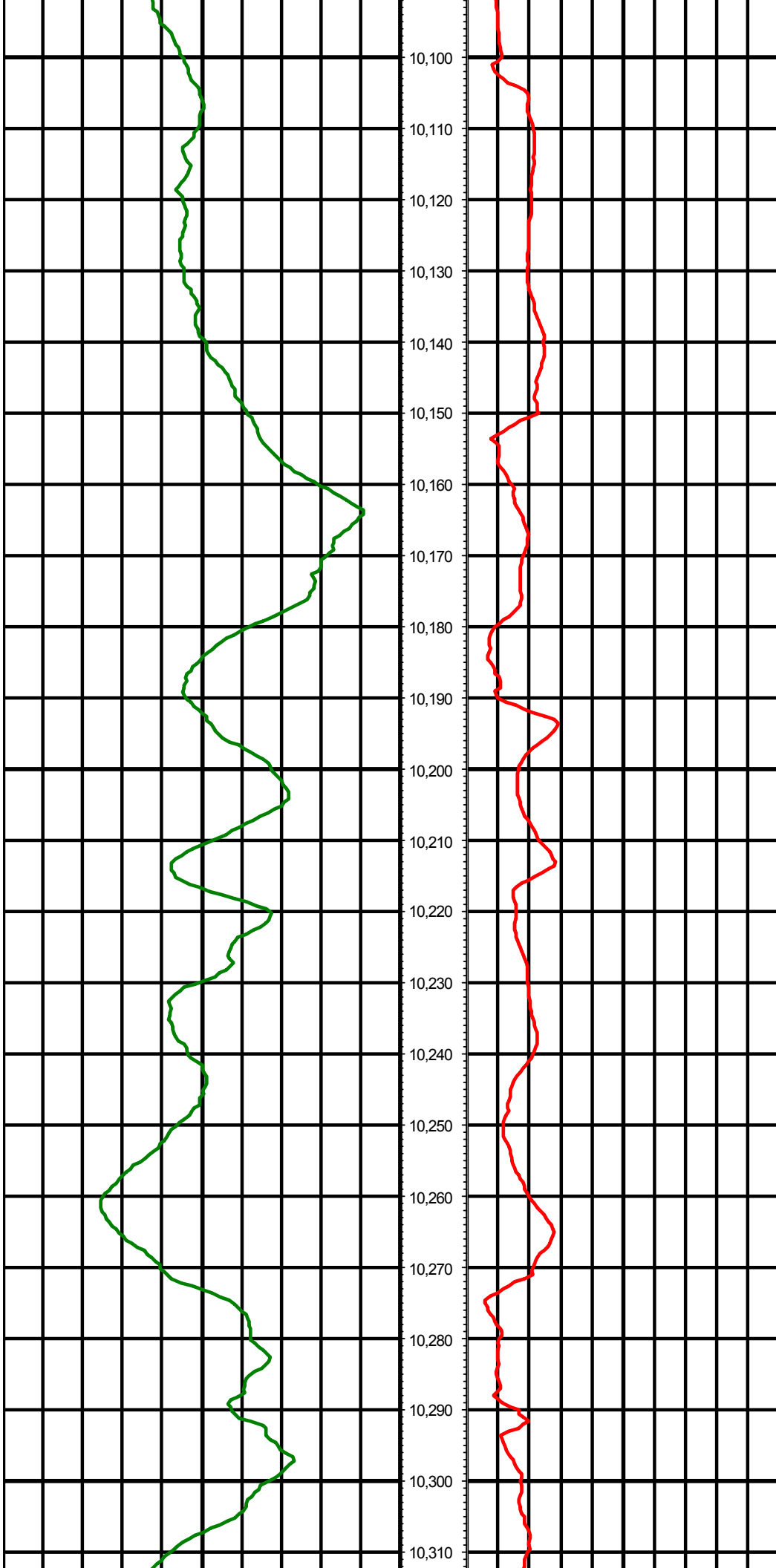
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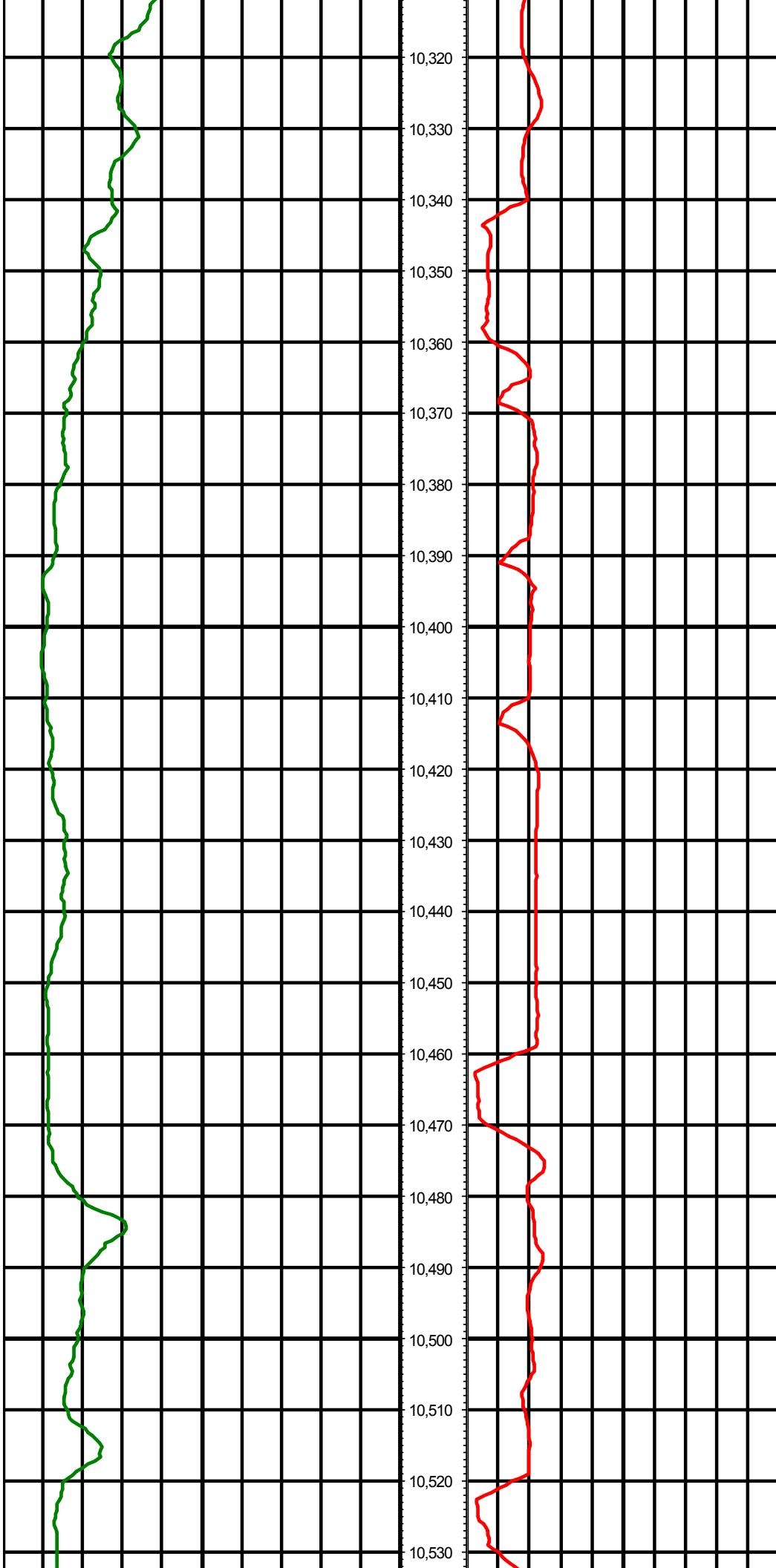




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MD: 10223.00 INC: 87.00 AZ: 90.00



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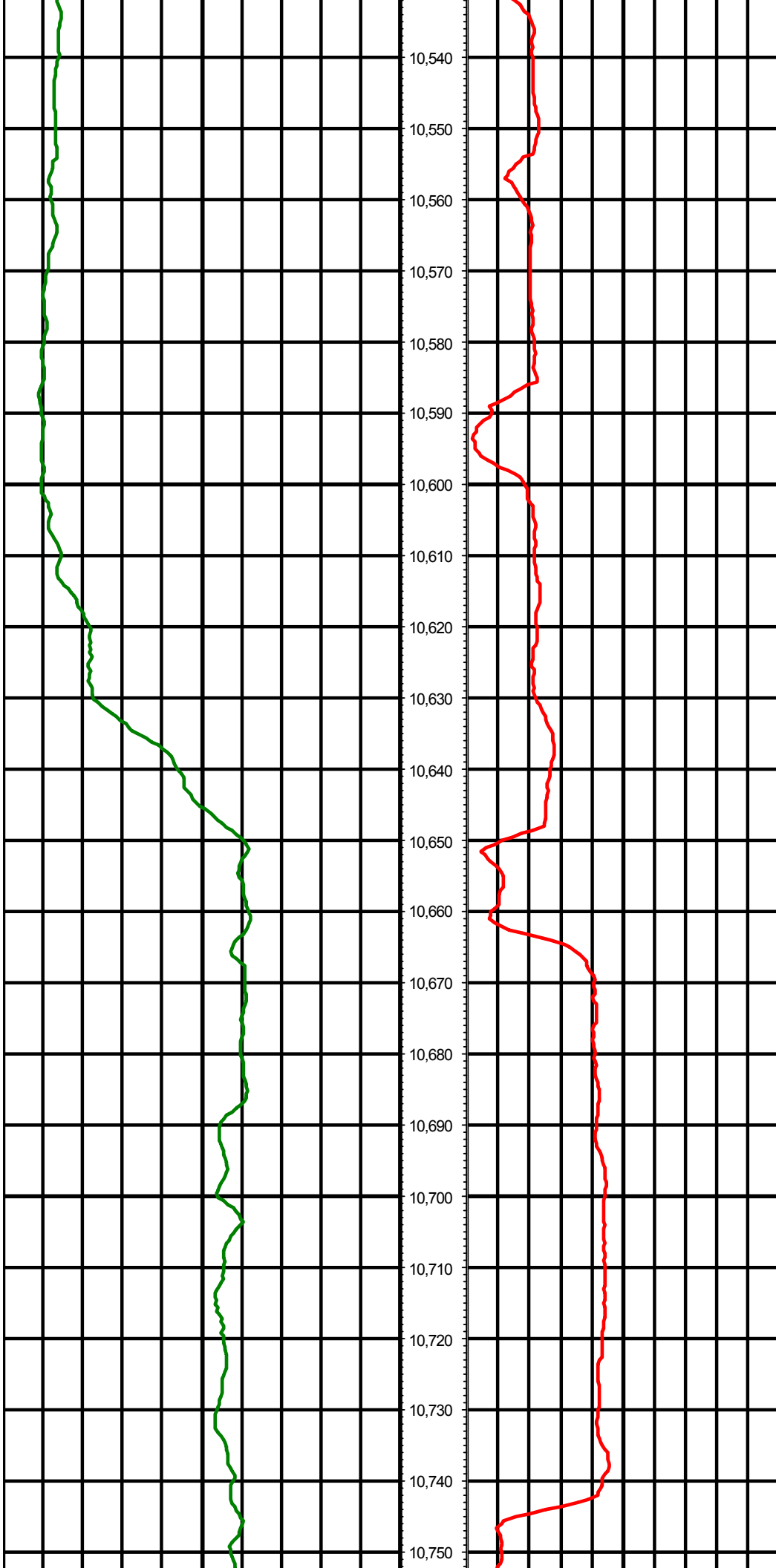
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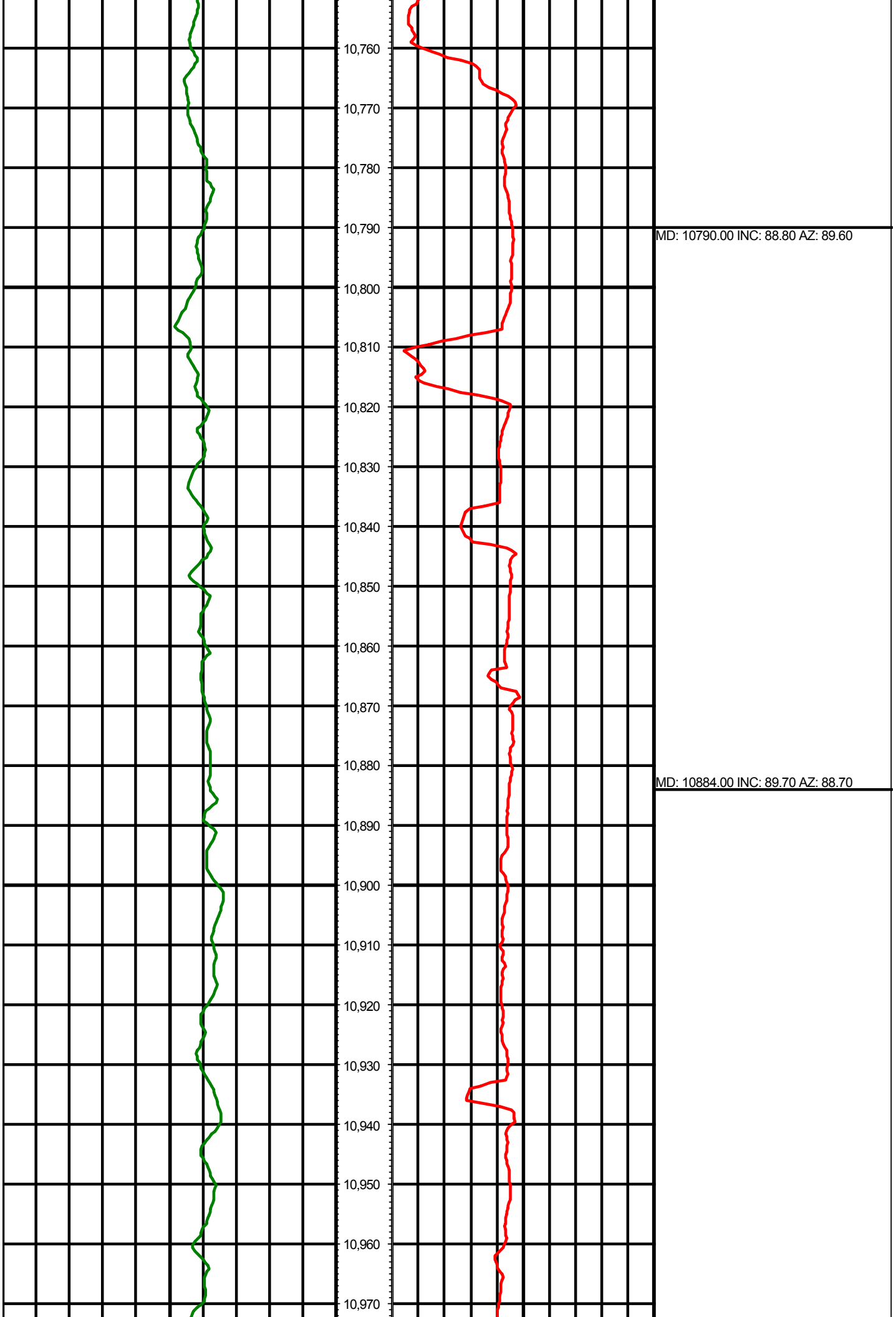
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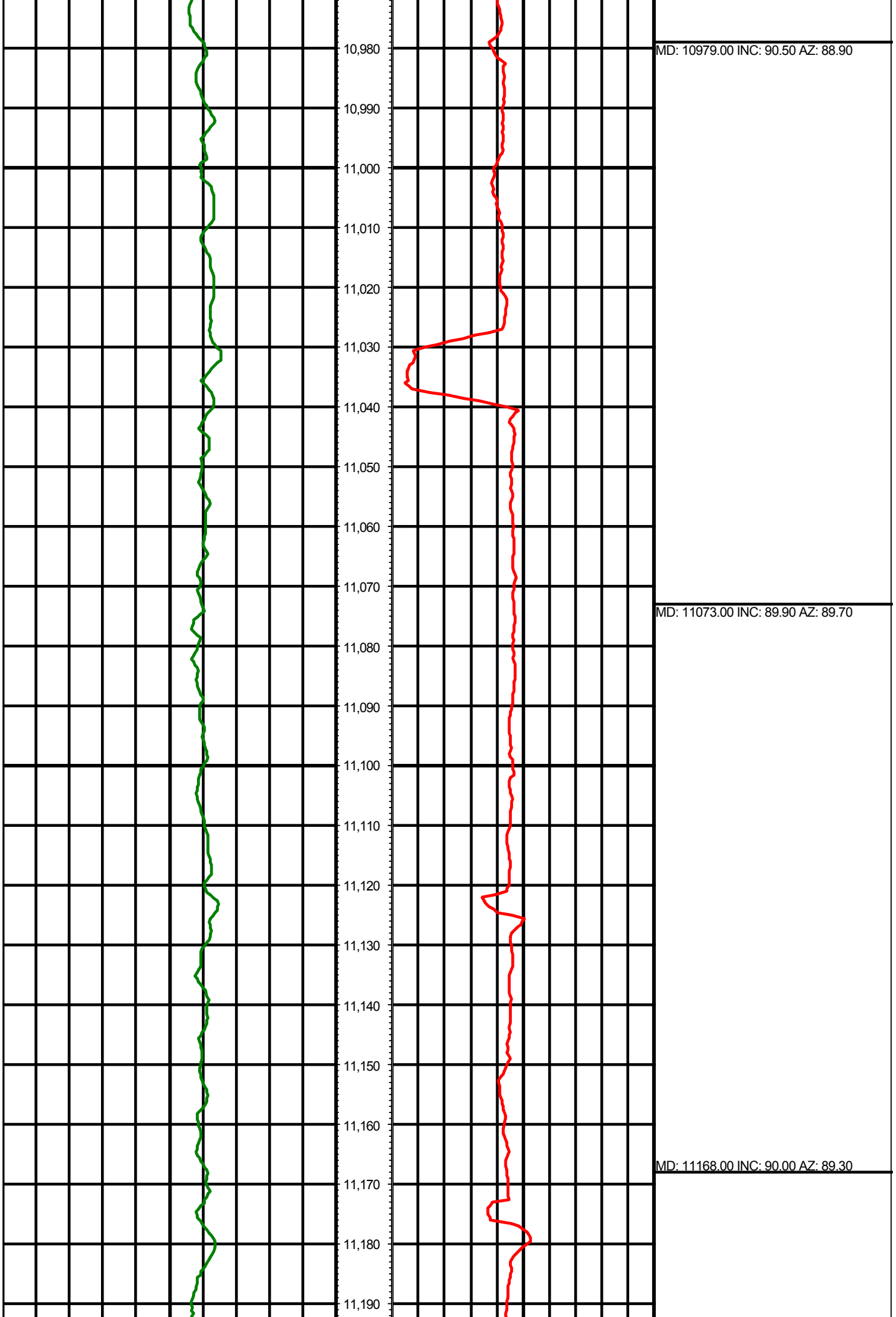


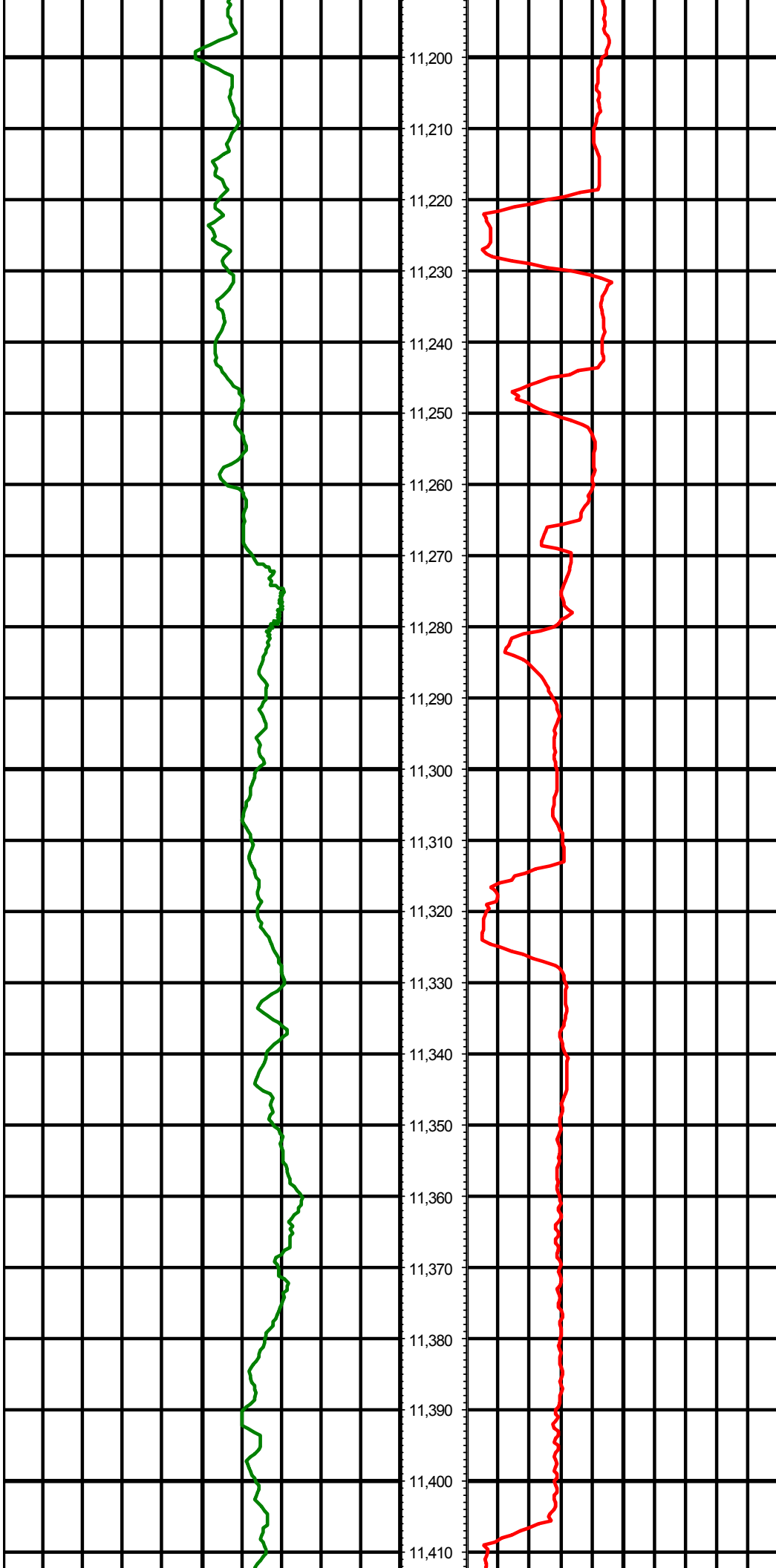
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MD: 10695.00 INC: 87.10 AZ: 88.80

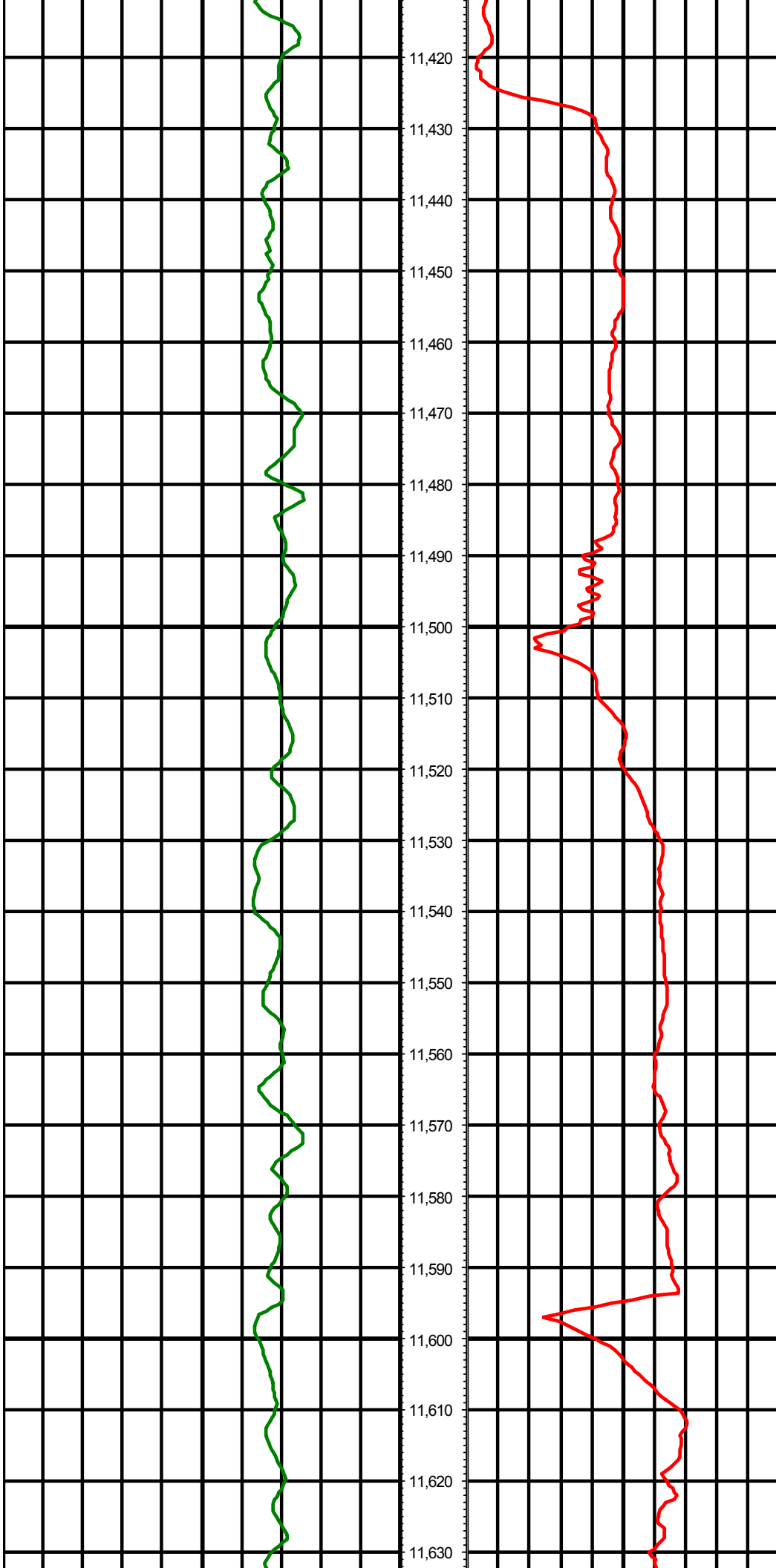






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MD: 11357.00 INC: 89.70 AZ: 91.90



MD: 11451.00 INC: 89.10 AZ: 89.80

MD: 11545.00 INC: 89.70 AZ: 89.00

