



CATHEDRAL

Cathedral Energy Services
1949 North Pyrite Road
Casper, Wyoming 82604

145220

5":100' - MD

11/4/2014 10:03:42 AM

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

Country: U.S.A.

State / Province: Colorado

County / Parish: Weld

Started: 07/09/2014 01:00 AM

API/UWI: 05-123-39219-00

Field: Wattenberg

Well: Mumby State 4C-36H

Rig: Helmrich & Payne Drilling 522

Ended: 07/15/2014 12:00 PM

Gamma Ray
Section Plane: 0.00
Magnetic North: 8.41
Gamma Attenuation Factor: 2.74
Gamma Averaging: 7%

Personnel

Day Hand: J.Nichols

Night Hand: T.Kaspch

Comp. Emp: Kevin Bergeron

Maximum Temperature: 221°F

Location

Latitude: 40.090827

Longitude: -104.719624

Elev. GL: 5019

Elev. DF: 30

Elev. KB: 5049

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

Hole Data

Size	From	To
12 -1/4	0	1135
8-3/4	1135	7590
6-1/8	7590	1280

Casing Data

Size	From	To
9-5/8	0	1123
7	0	7581
4-1/2	0	12069

Bit Sizes

Size	From	To
12-1/4	0	1135
8-3/4	1135	7590
6-1/8	7590	12080

Mud Data

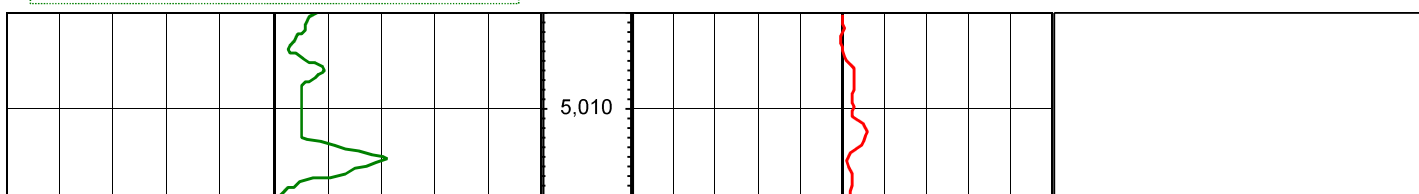
Type	Weight	Density	Viscosity	Rm	Rmf	Rmc	From	To
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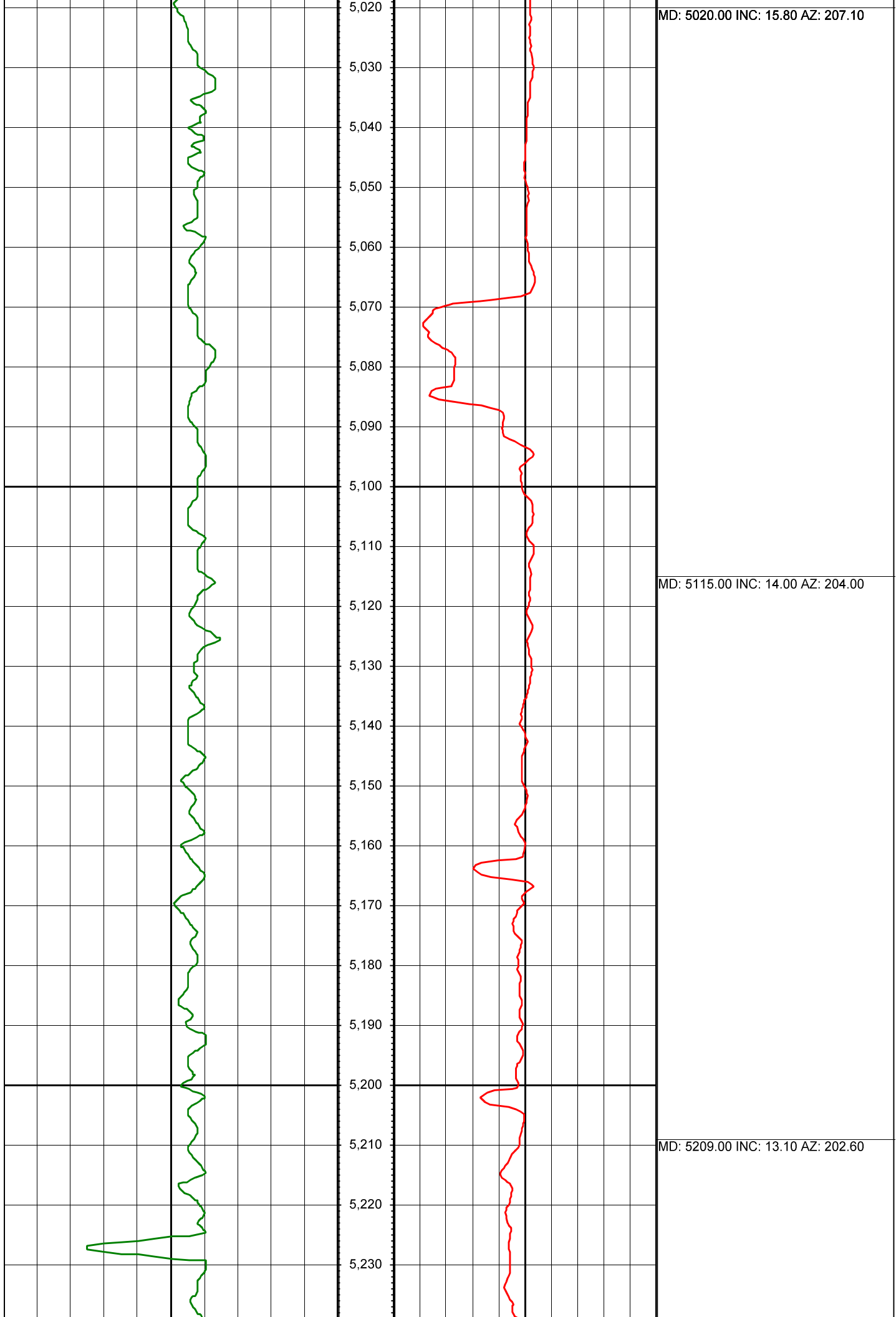
Tool Run Data

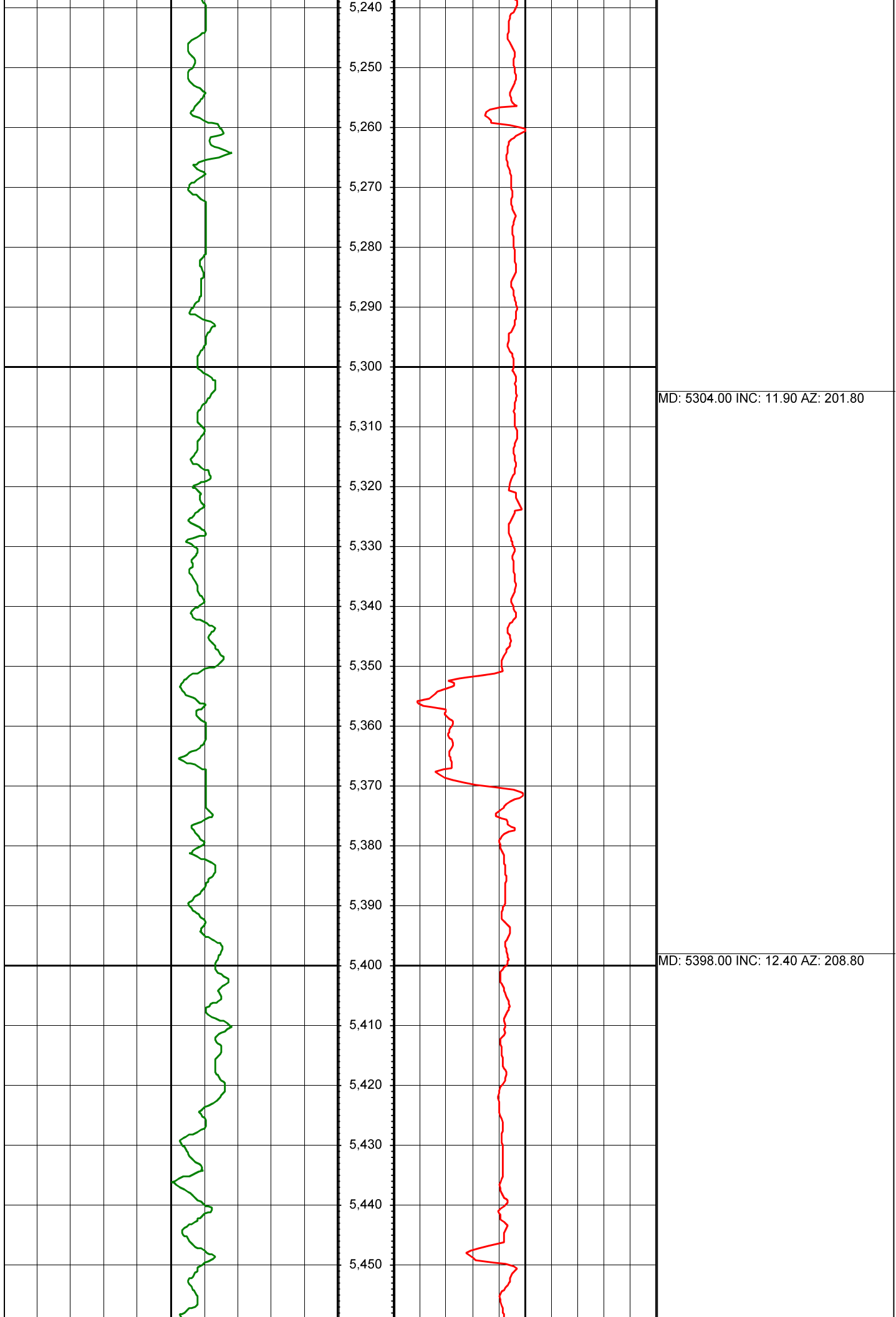
Serial Number	Gamma Offset	Resist. Offset	Start Time	Start Depth	End Time	End Depth
1285	35.2	0	7/6/2014 1:00:28 PM	5000	7/9/2014 1:00:28 AM	7394
1285	36.8	0	7/9/2014 2:00:02 AM	7394	7/9/2014 7:30:02 PM	7590
1285	36	0	7/11/2014 4:00:12 AM	7590	7/15/2014 12:00:12 PM	12080

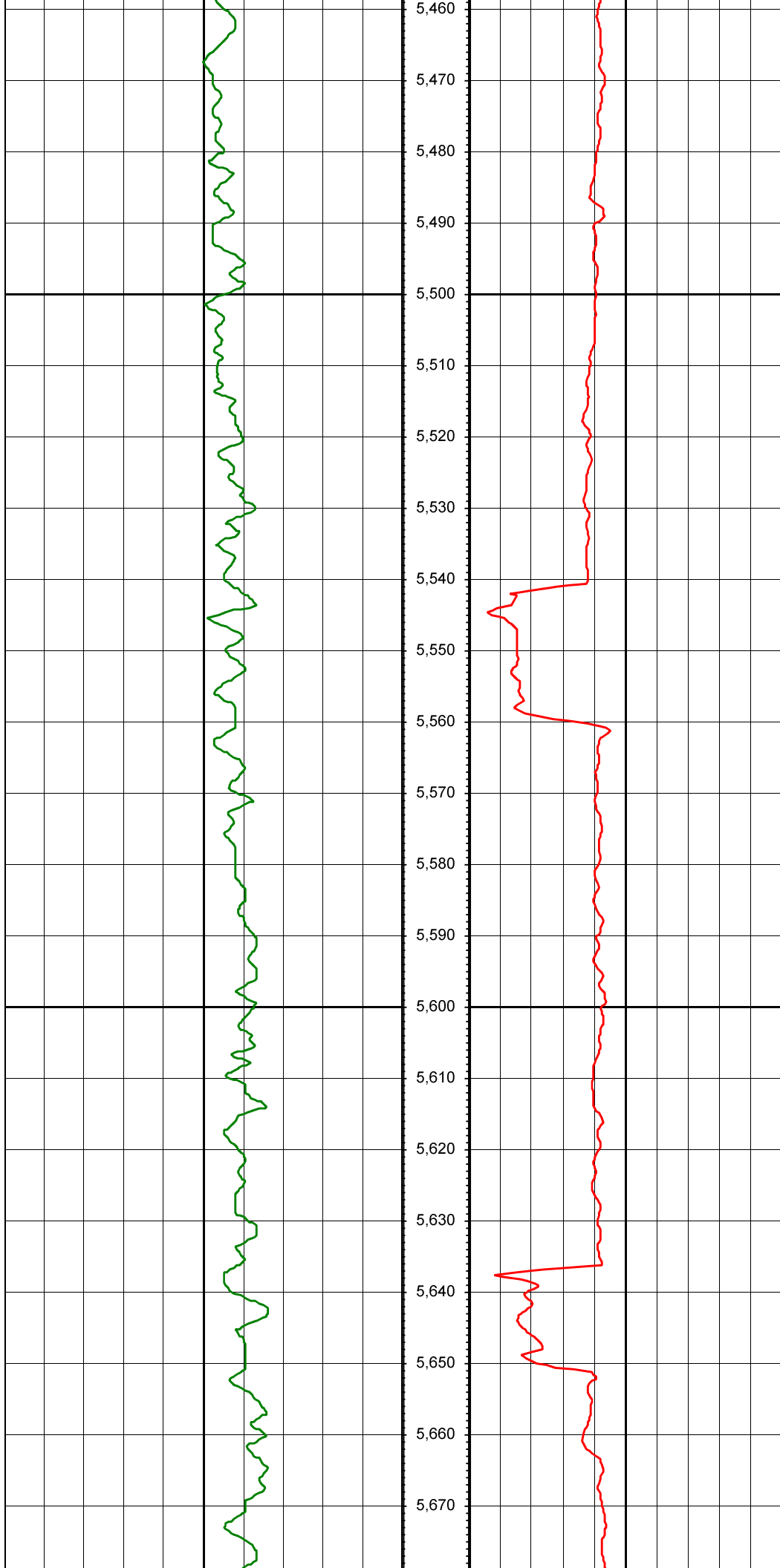
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost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



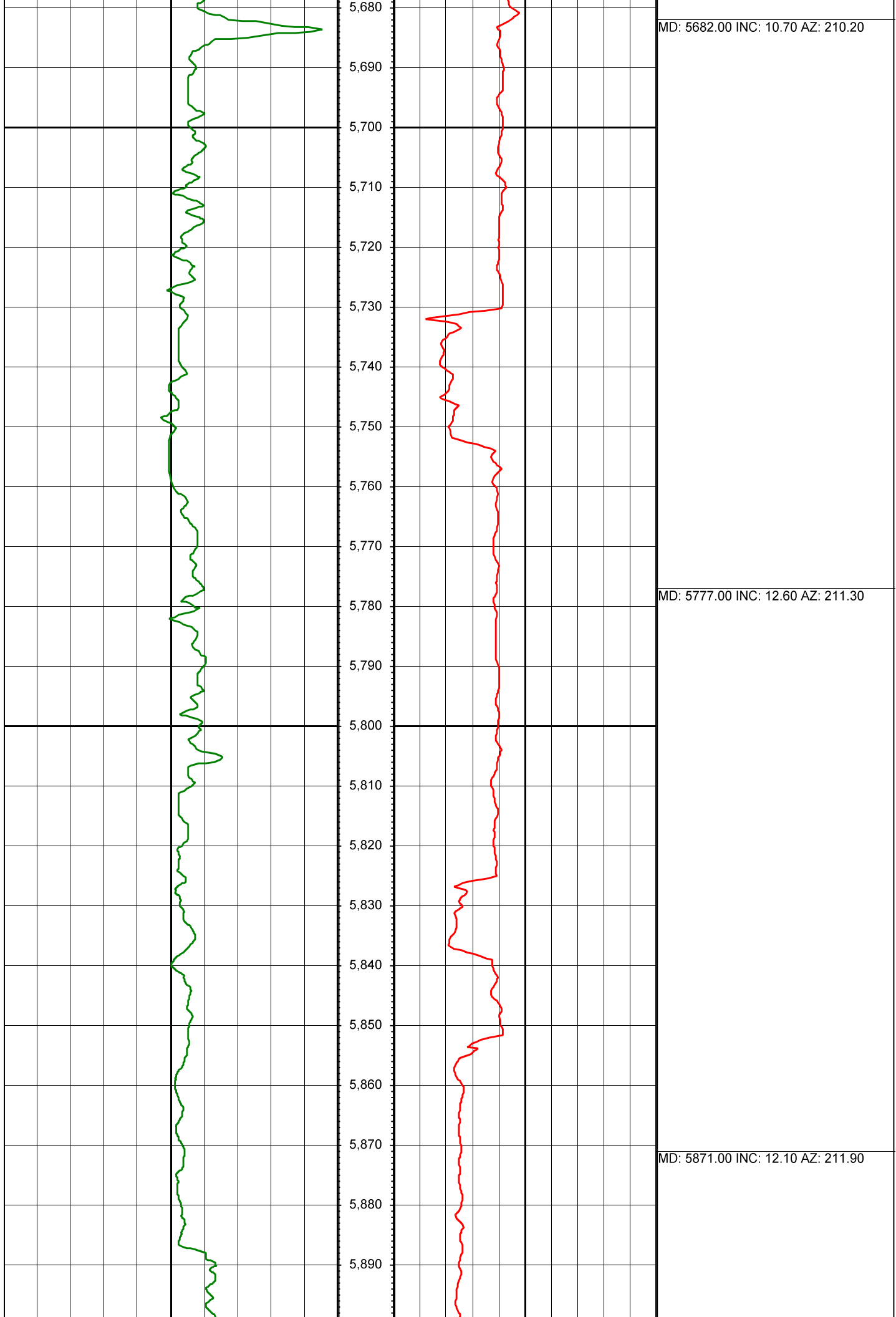


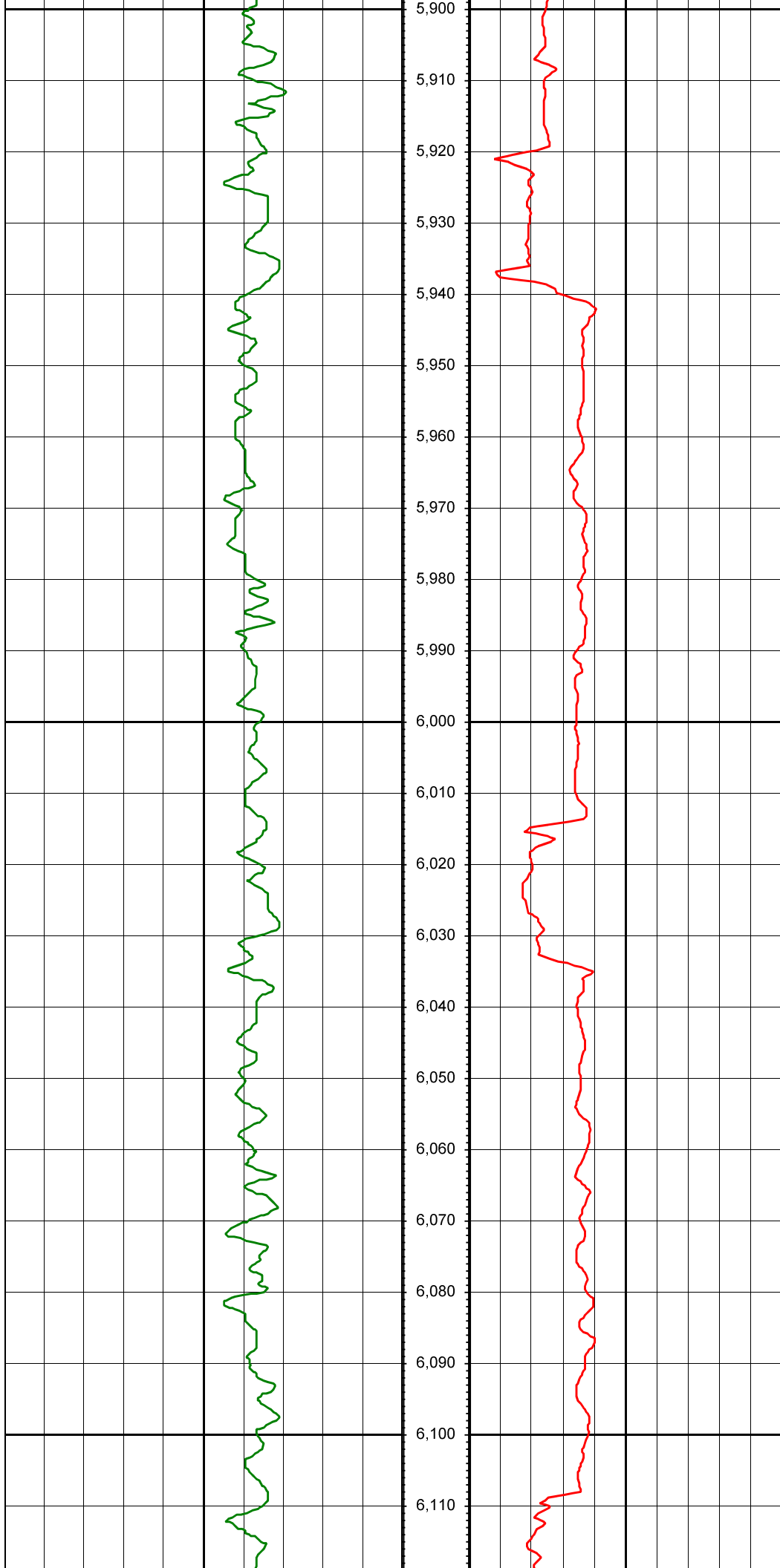




MD: 5493.00 INC: 11.70 AZ: 208.20

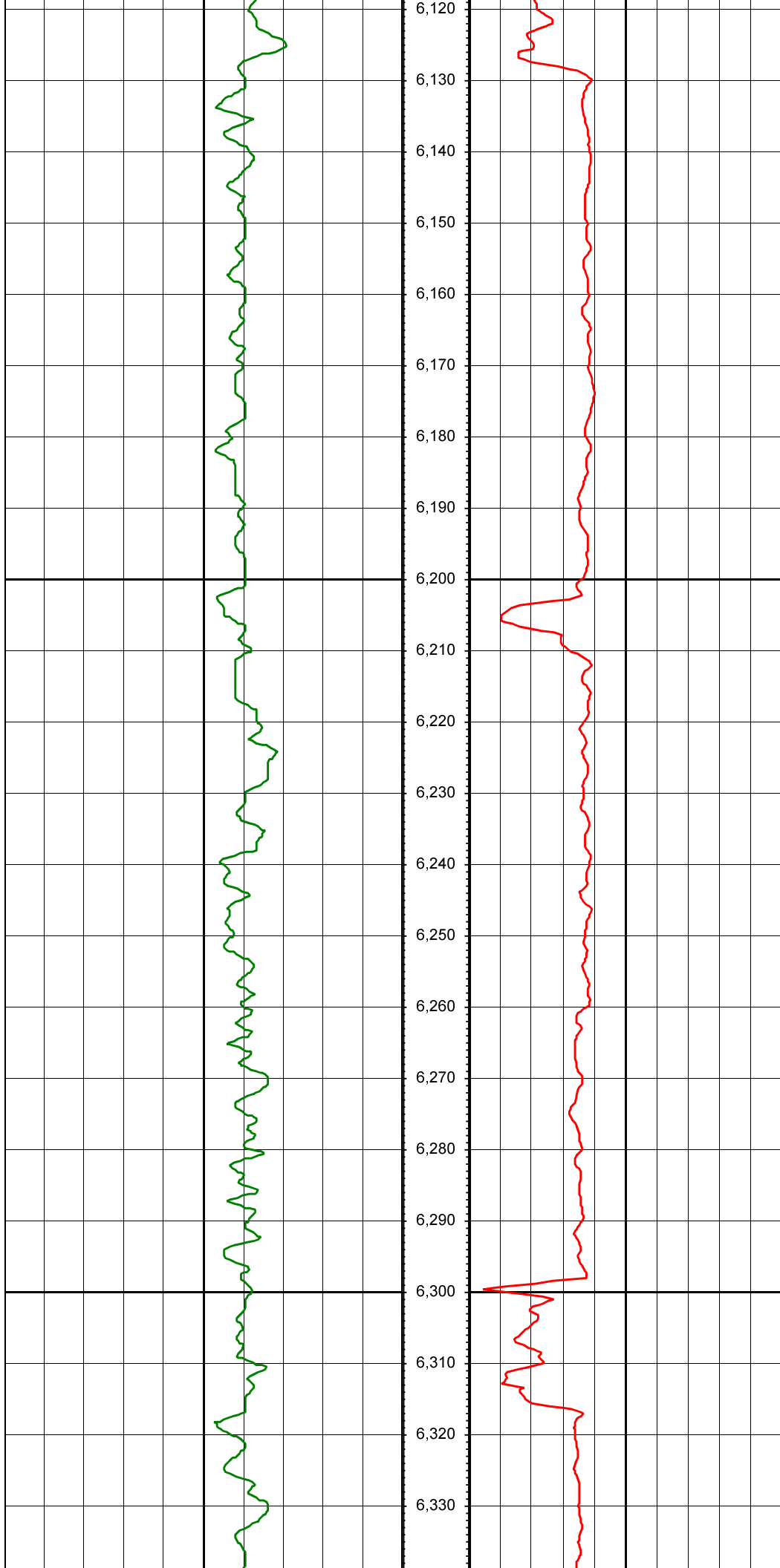
MD: 5588.00 INC: 11.30 AZ: 215.50





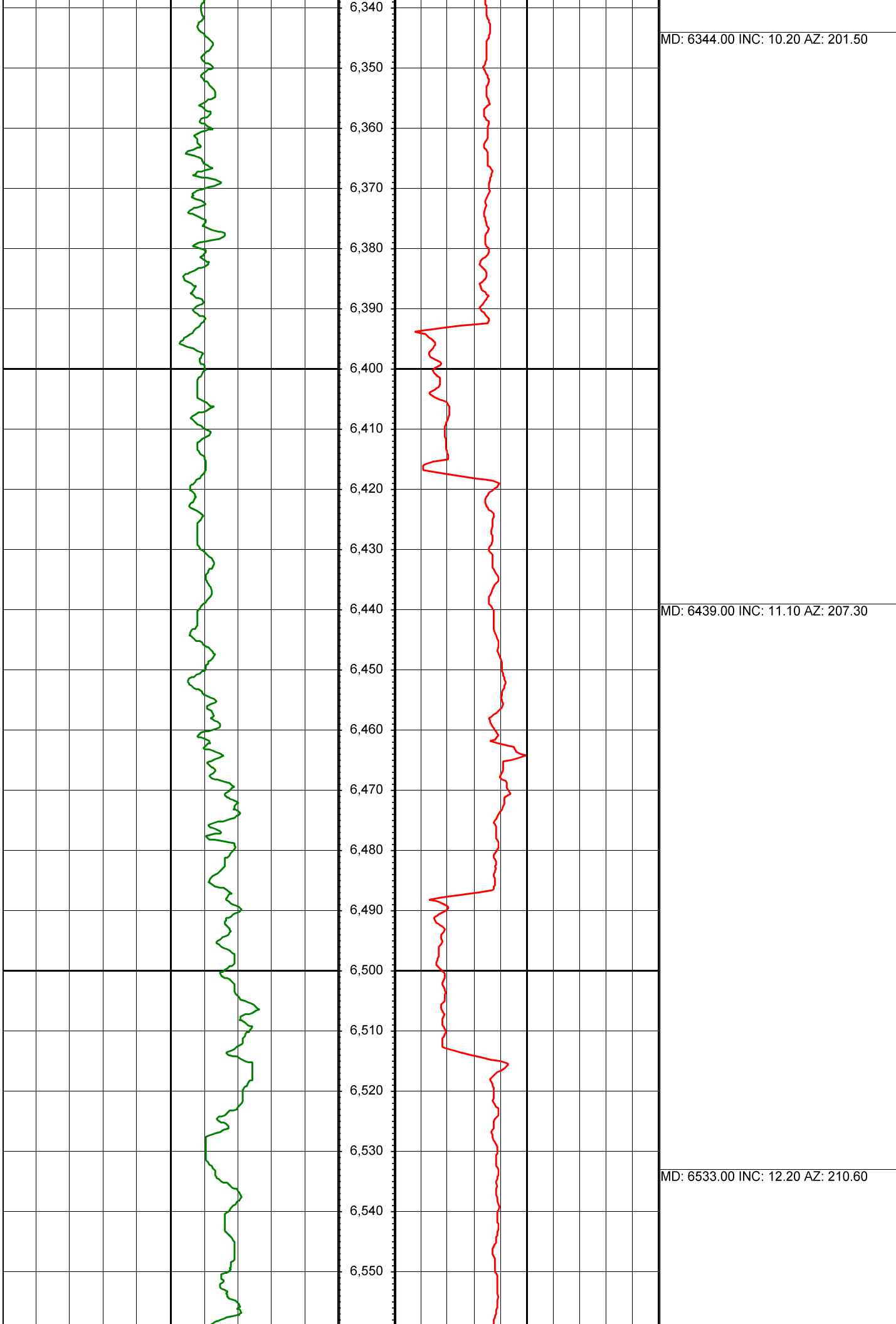
MD: 5966.00 INC: 13.10 AZ: 211.20

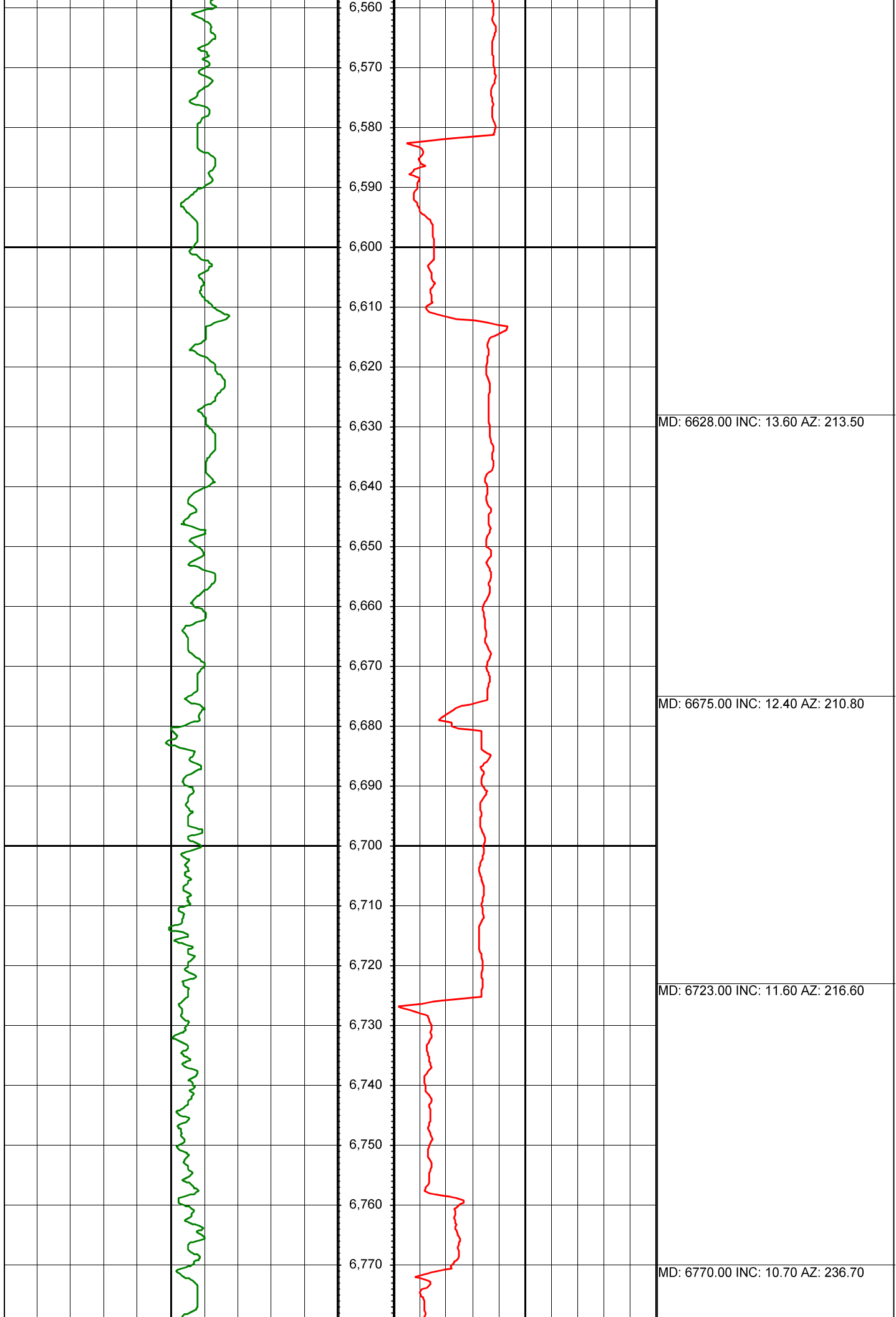
MD: 6060.00 INC: 12.90 AZ: 211.10

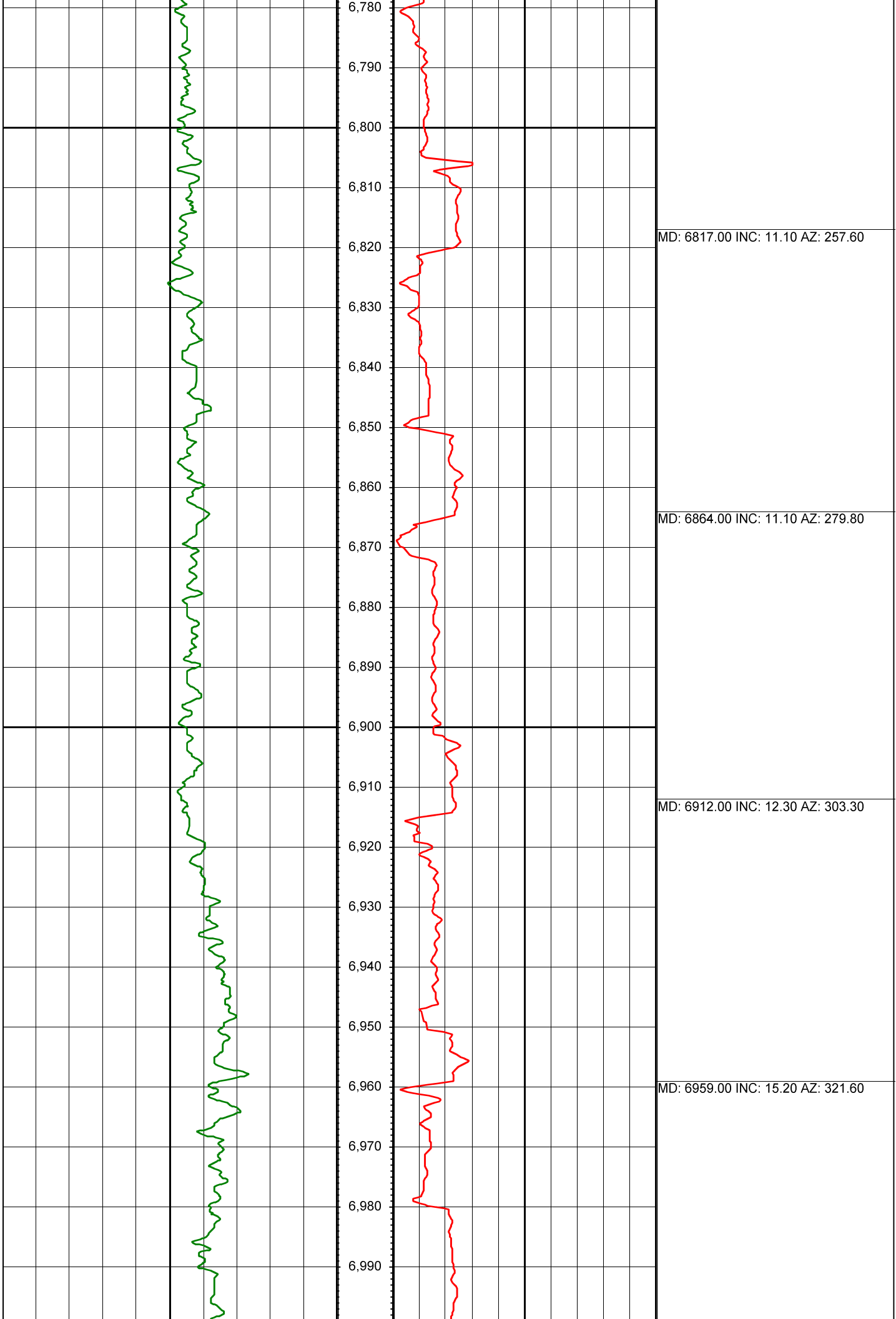


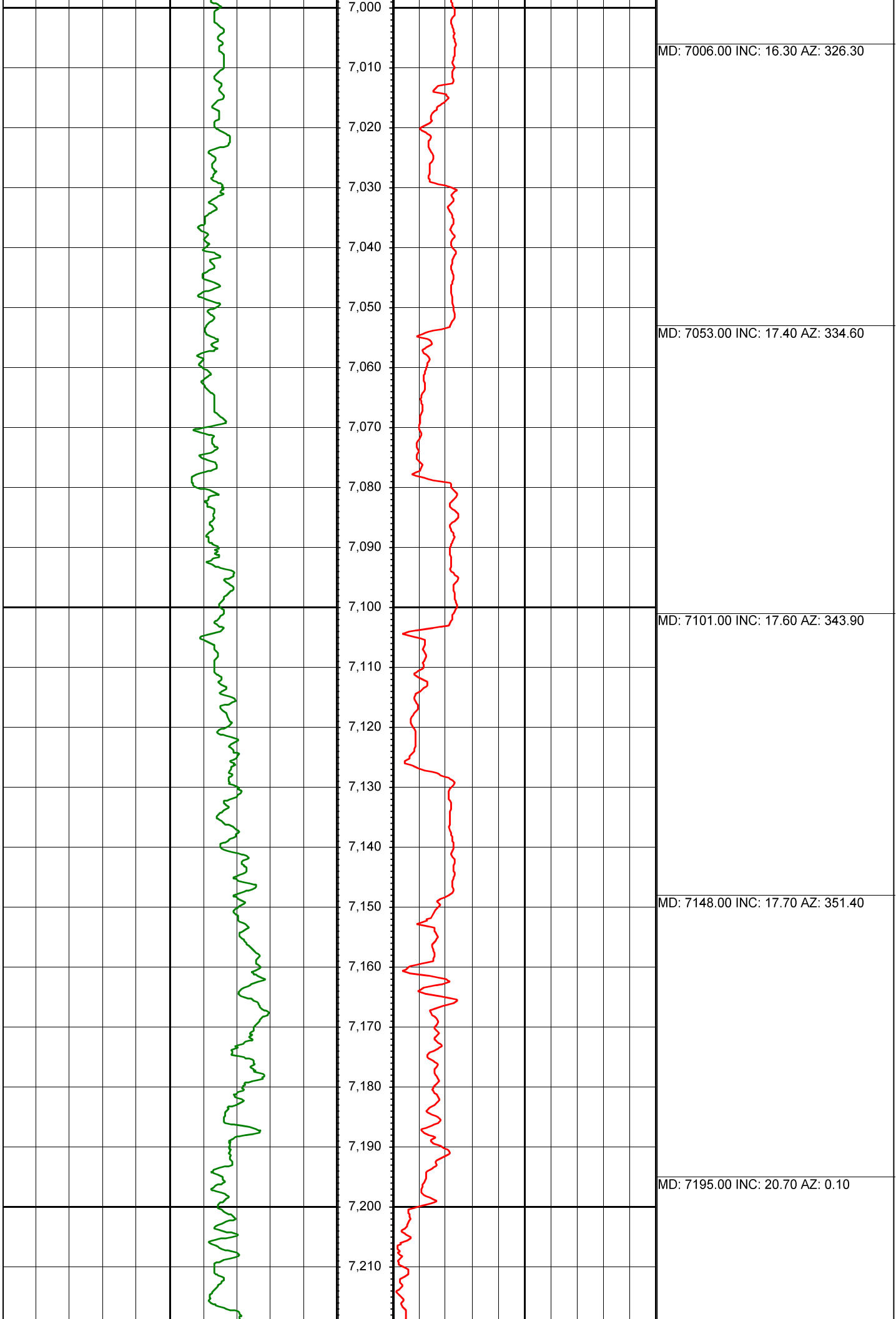
MD: 6155.00 INC: 13.50 AZ: 210.60

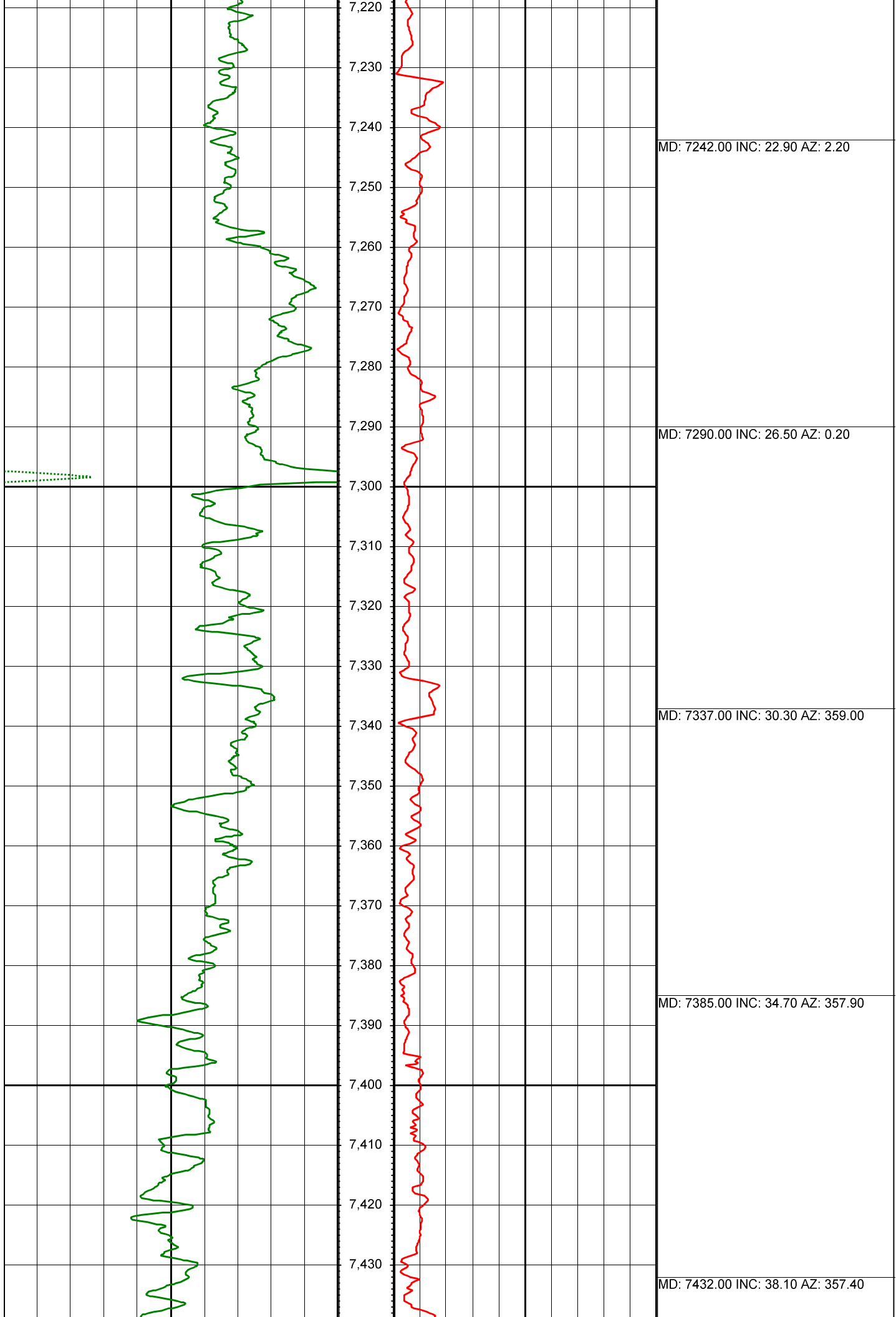
MD: 6250.00 INC: 12.00 AZ: 208.00

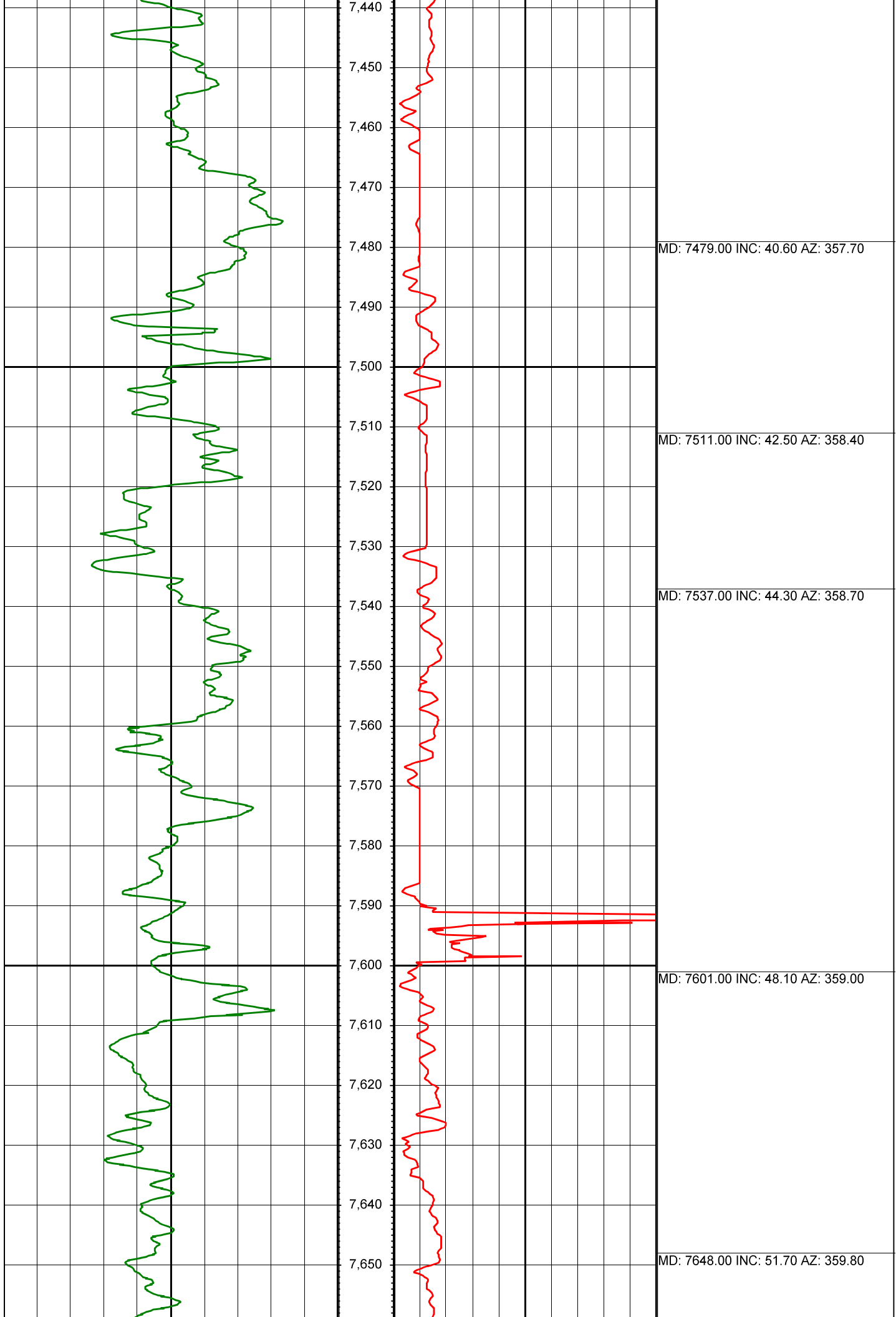


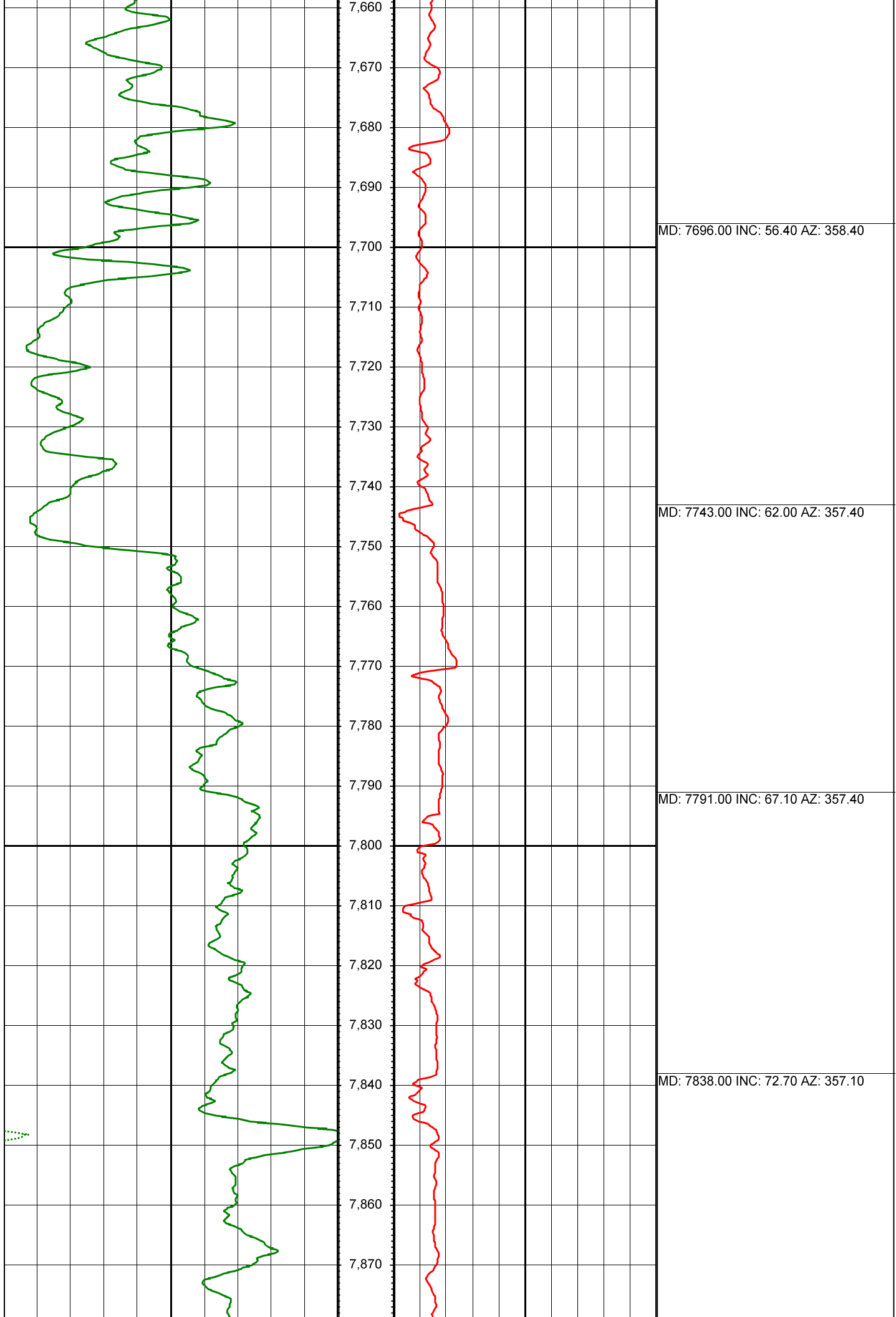


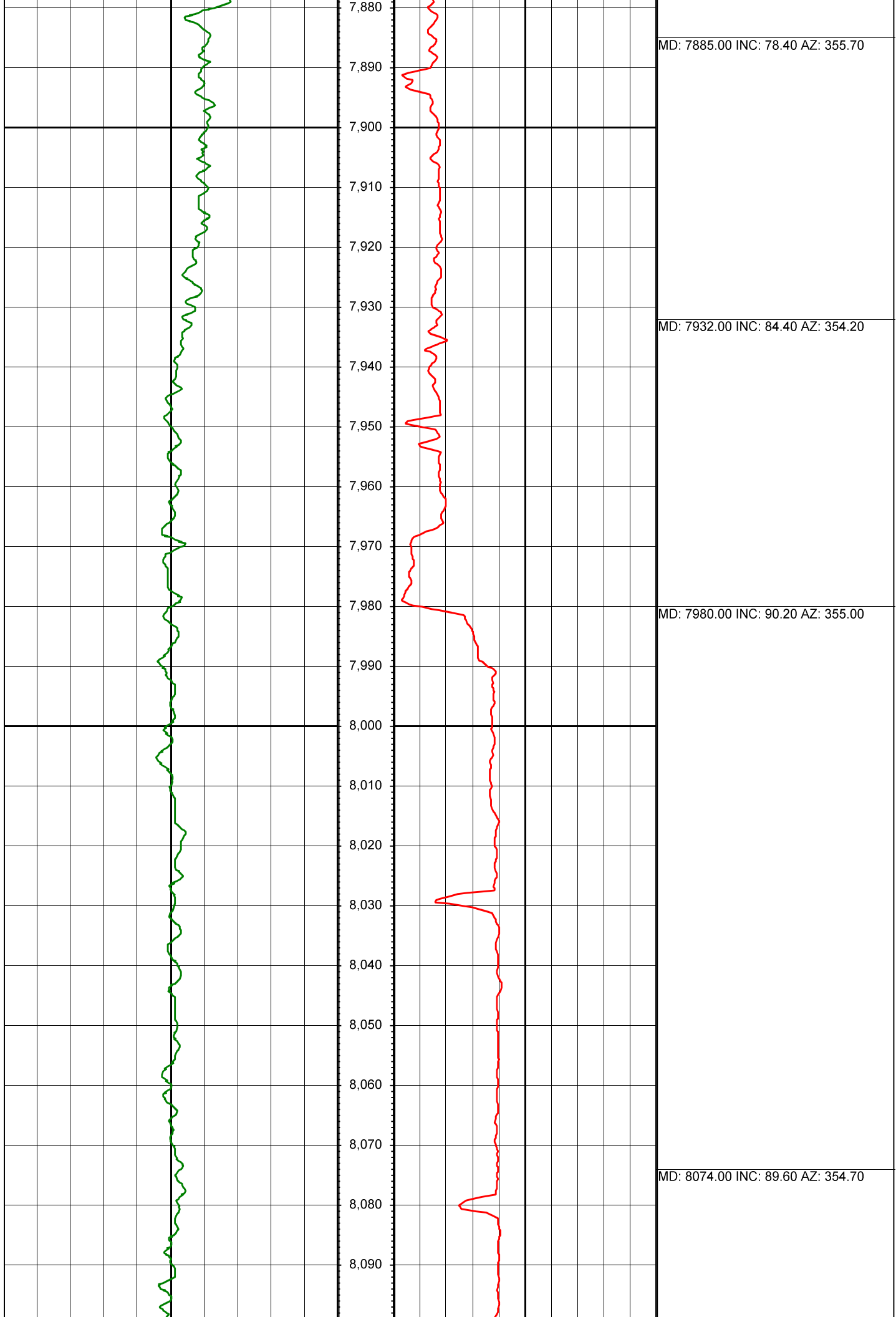








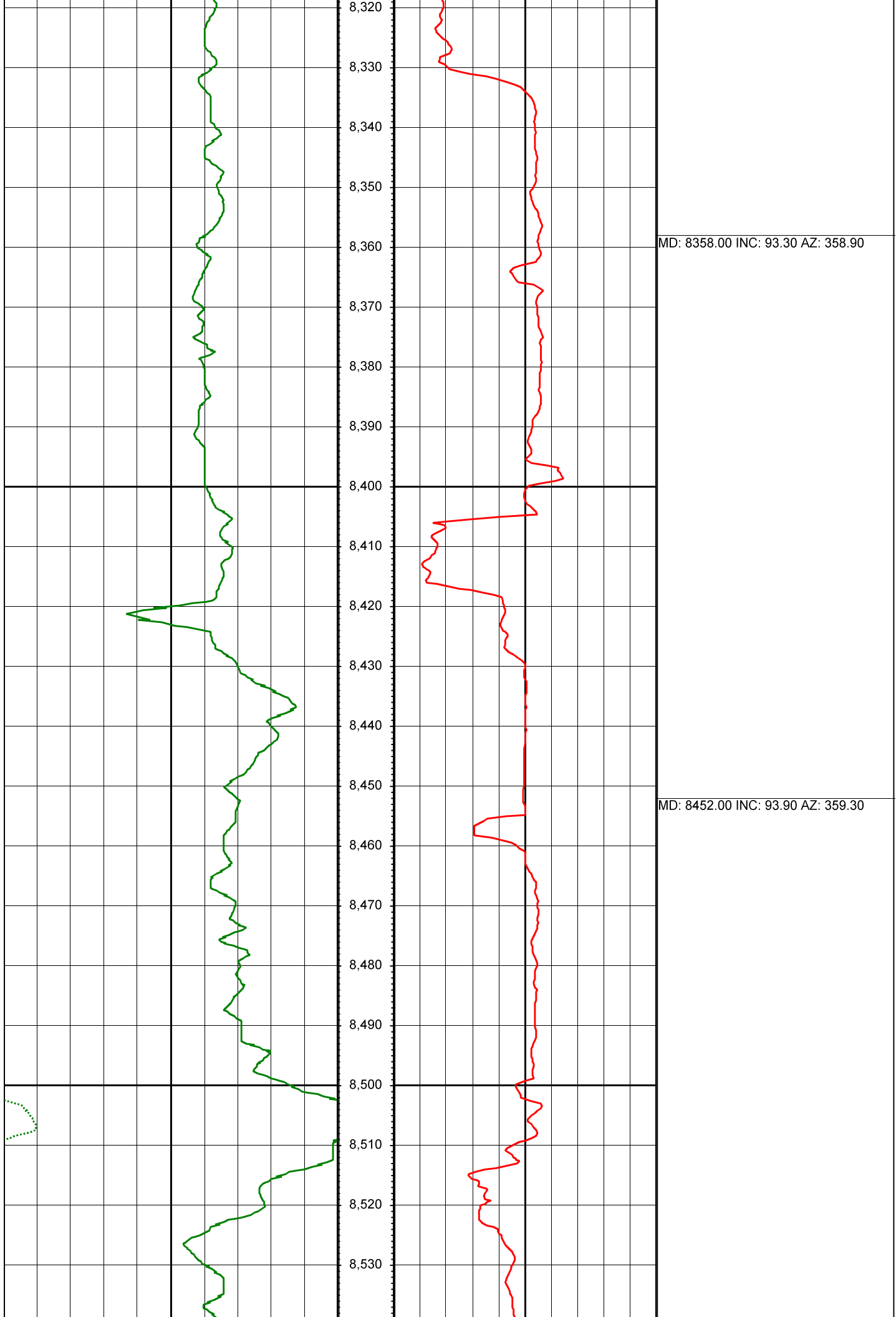


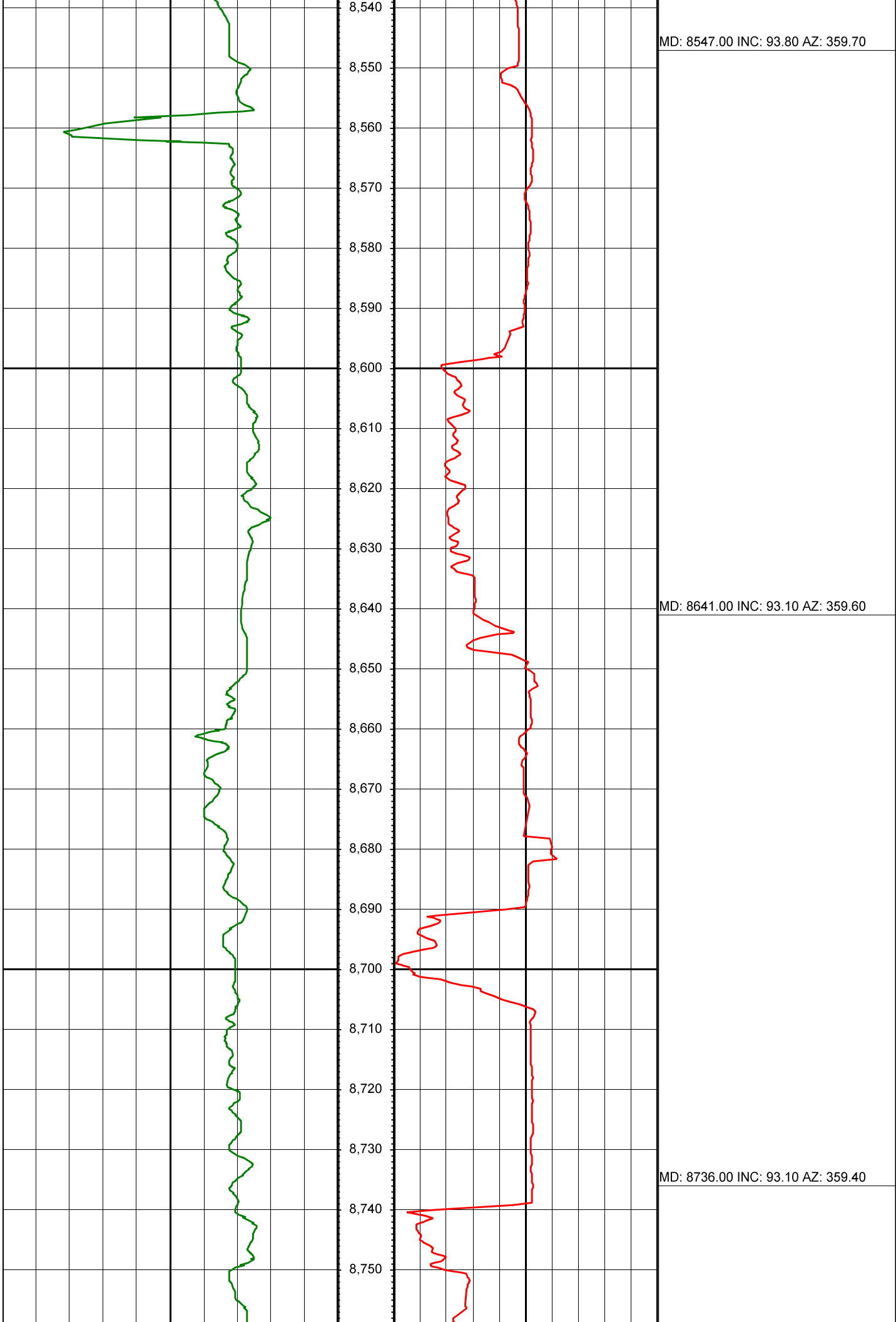


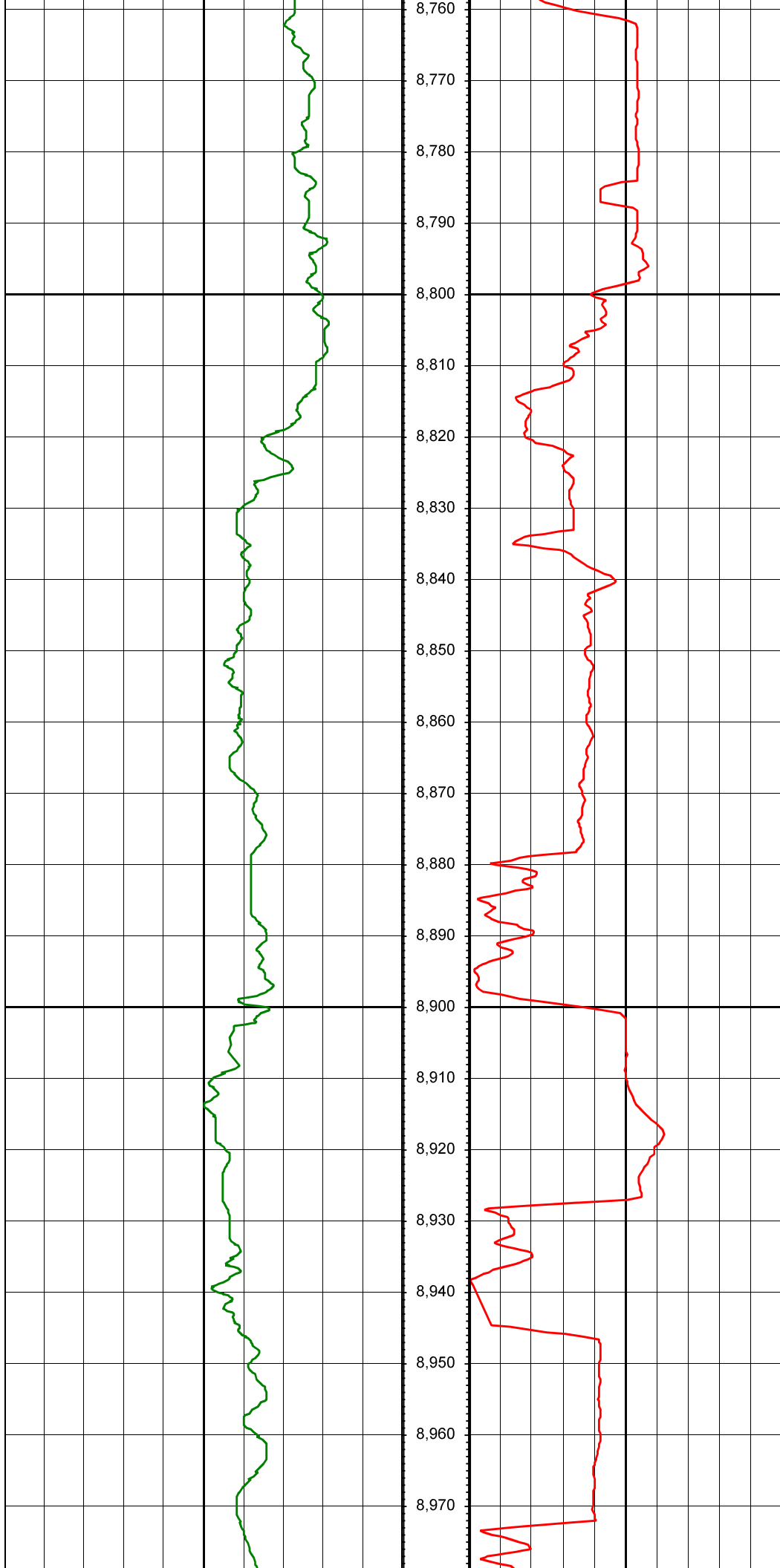


MD: 8169.00 INC: 90.50 AZ: 354.70

MD: 8264.00 INC: 92.50 AZ: 355.90

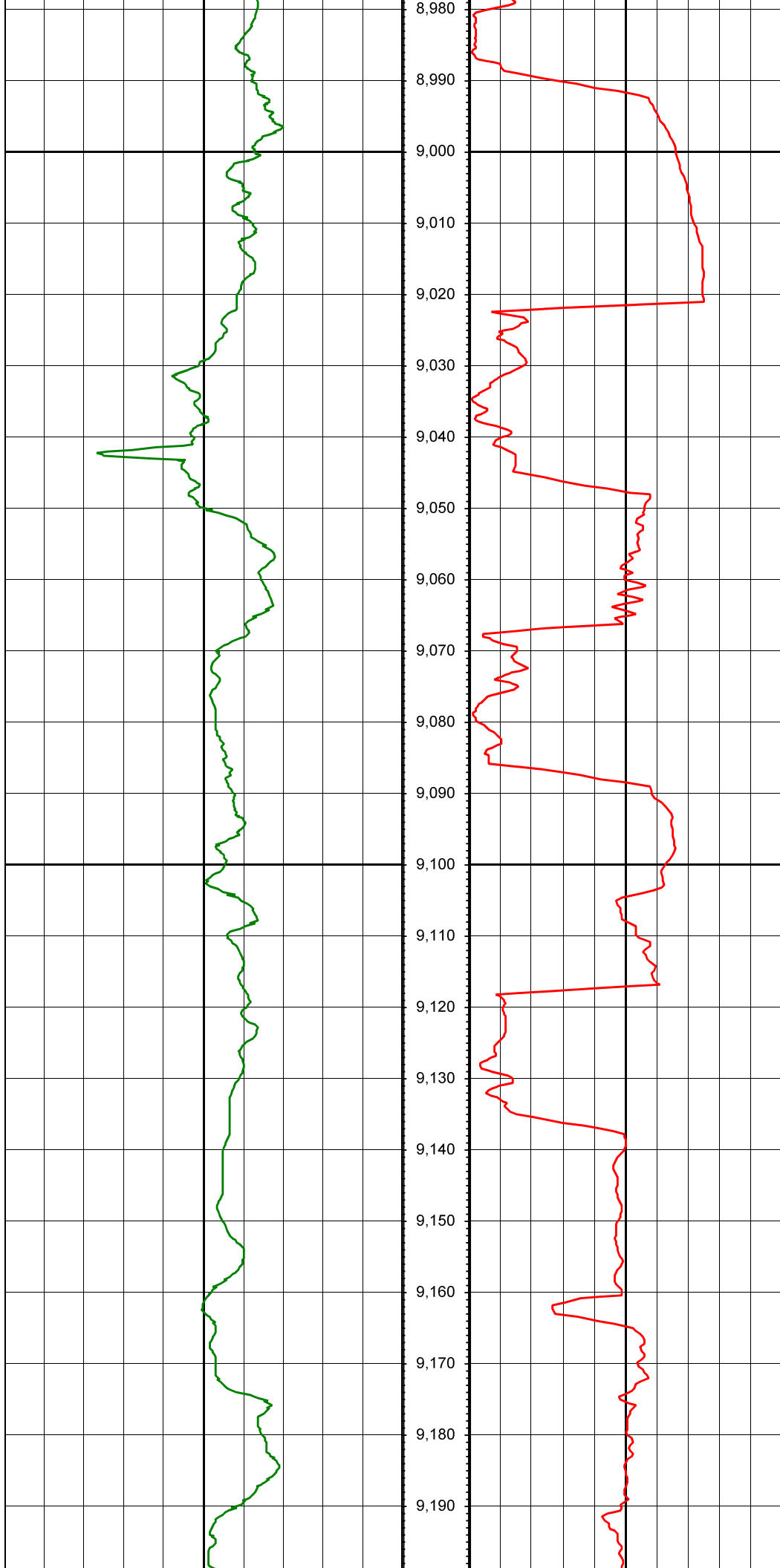






MD: 8830.00 INC: 92.70 AZ: 0.40

MD: 8924.00 INC: 91.70 AZ: 0.50



MD: 9019.00 INC: 91.10 AZ: 0.90

MD: 9113.00 INC: 89.50 AZ: 359.70

