

**Premier Directional Drilling**

12941 North Freeway
400
Houston, TX 77060
281-673-4000

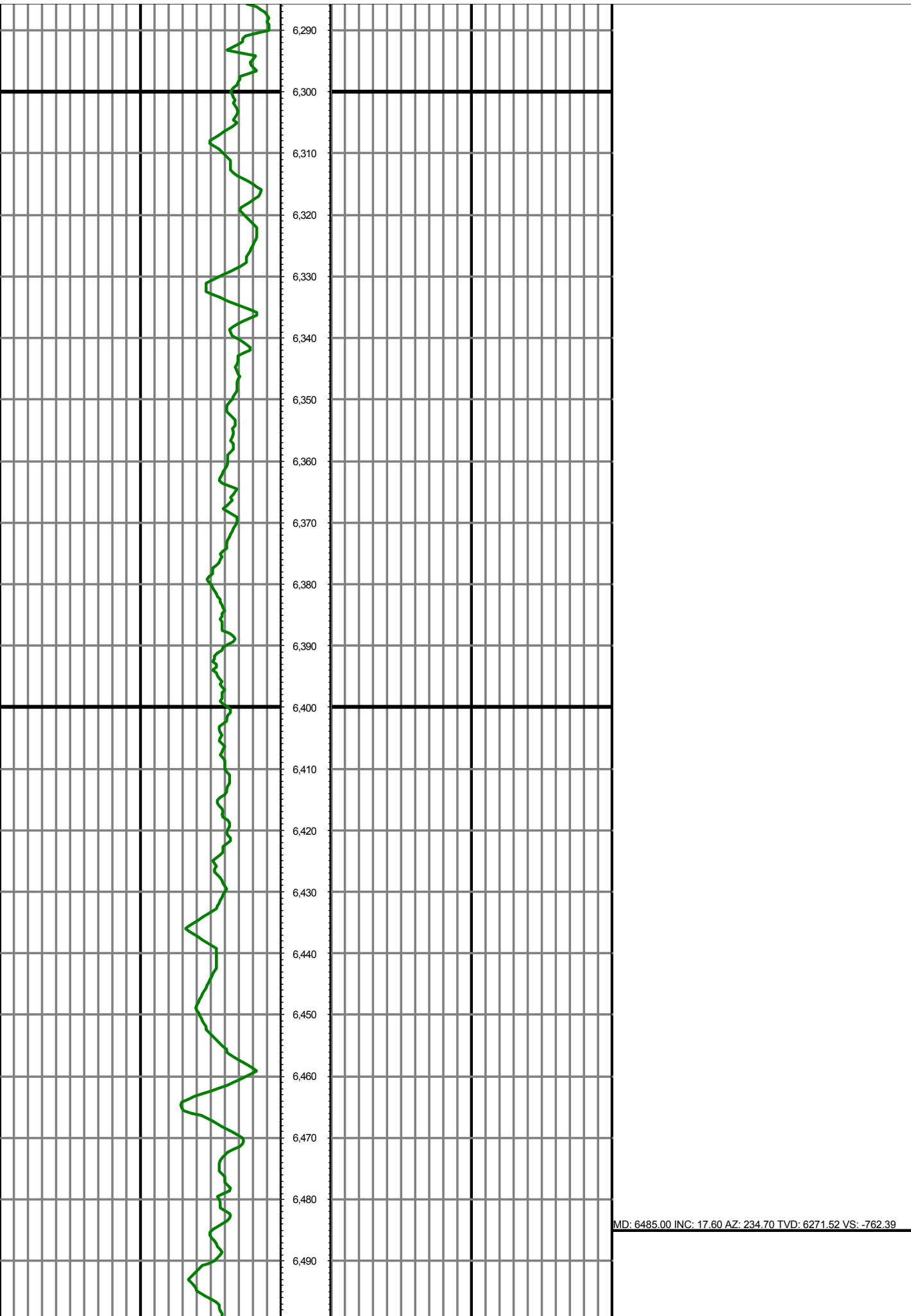
Bat 29N1-9HZ**Scale 5":100' - MD****6/25/2015 9:09 AM****Oper. Company:** Anadarko Petroleum Corporation**State:** Colorado**Well:** Bat 29N1-9HZ**County:** Weld**Field:** Wattenberg/ Niobrara**Country:** USA**Rig:** H & P 311**Location:** 1N 65W Sect. 9**Well ID:** 05123412840000**Start Date:** 06/22/2015 09:56:00**Job Number:** R15238**End Date:** 06/25/2015 07:00:00

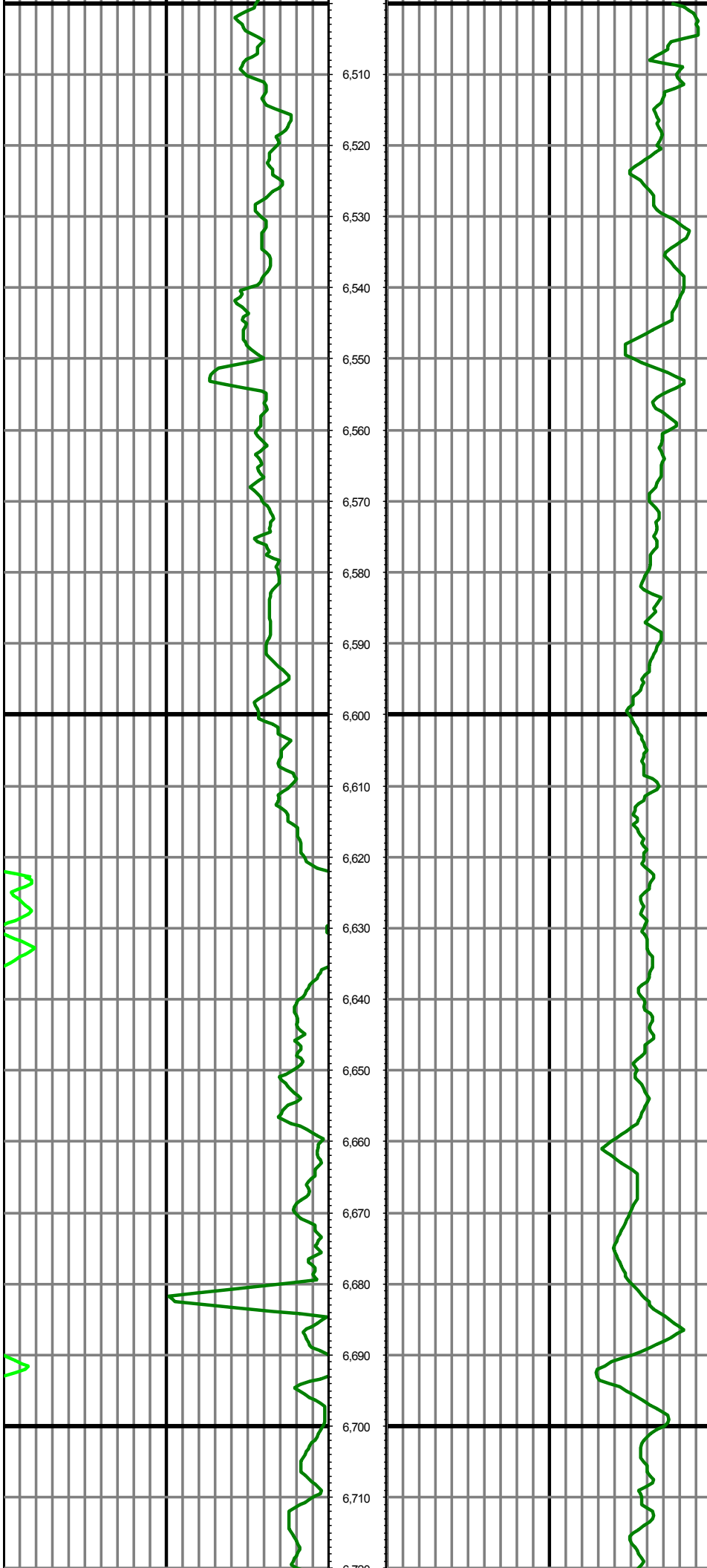
Notes: LWD Real Time Log
Gamma Correction Determined by Pipe ID & OD, Mud Weight & Bit Size

Latitude: 40° 3' 37.598 N**Elev KB:** 4956'**Longitude:** 104° 40' 10.222 W**Elev DF:** 4956'**Elev GL:** 4931'**Notes:** Datum: NAD 1983 Map Zone: 13N (108 W to 102 W) Total Correction: 8.12° (Mean MagVar) Grid Convergence: 0.00° (True)**Operator 1:** Robert Grossman**Operator 2:** Joe Hammond**Notes:** Smoothing: 7Gap Fill: 10Survey Tool Type: Mud Pulse Calculation Method: Minimum Curvature

Tool Run Data	Run #1	Run #2	Run #3	Run #4	Run #5
Tool S/N	286	286	237		
Bit Size	8.5	8.5	8.5		
Cal Factor	5.48940	5.48940	5.50357		
Gamma Offset	51.00	47.00	53.00		
Resistivity Offset	0.00	0.00	0.00		
Start Depth	1570.00	9470.00	11044.00		
StartDate	6/21/2015	6/23/2015	6/24/2015		
StartTime	11:50 AM	5:15 PM	7:00 PM		
EndDepth	9470.00	11044.00	12061.00		
EndDate	6/23/2015	6/24/2015	6/25/2015		
EndTime	4:30 PM	7:00 PM	3:00 PM		
Mud Type	OBM	OBM	OBM		
Mud Weight	9.5	9.5	9.5		
Funnel Viscosity	58	55	55		
Plastic Viscosity	17	16	16		
Yield Point	12	13	13		
Gel Strength	NA	NA	NA		
Solids Content	4.1	4.0	4.0		
Sand Content	NA	NA	NA		
Mud Alkalinity	NA	NA	NA		
Filtrate Alkalinity	NA	NA	NA		
Chlorides	56000	57000	57000		
Mud RM	NA	NA	NA		
Mud RMF	NA	NA	NA		
Mud RMC	NA	NA	NA		
Mud RM at BHT	NA	NA	NA		
Temperature	NA	NA	NA		
Hole Data			Casing Data		
Size	From	To	Size	From	To
13.5	0.00	1570.00	9.625	0.00	1562.00
8.5	1570.00	12061.00	5.5	0.00	12061.00

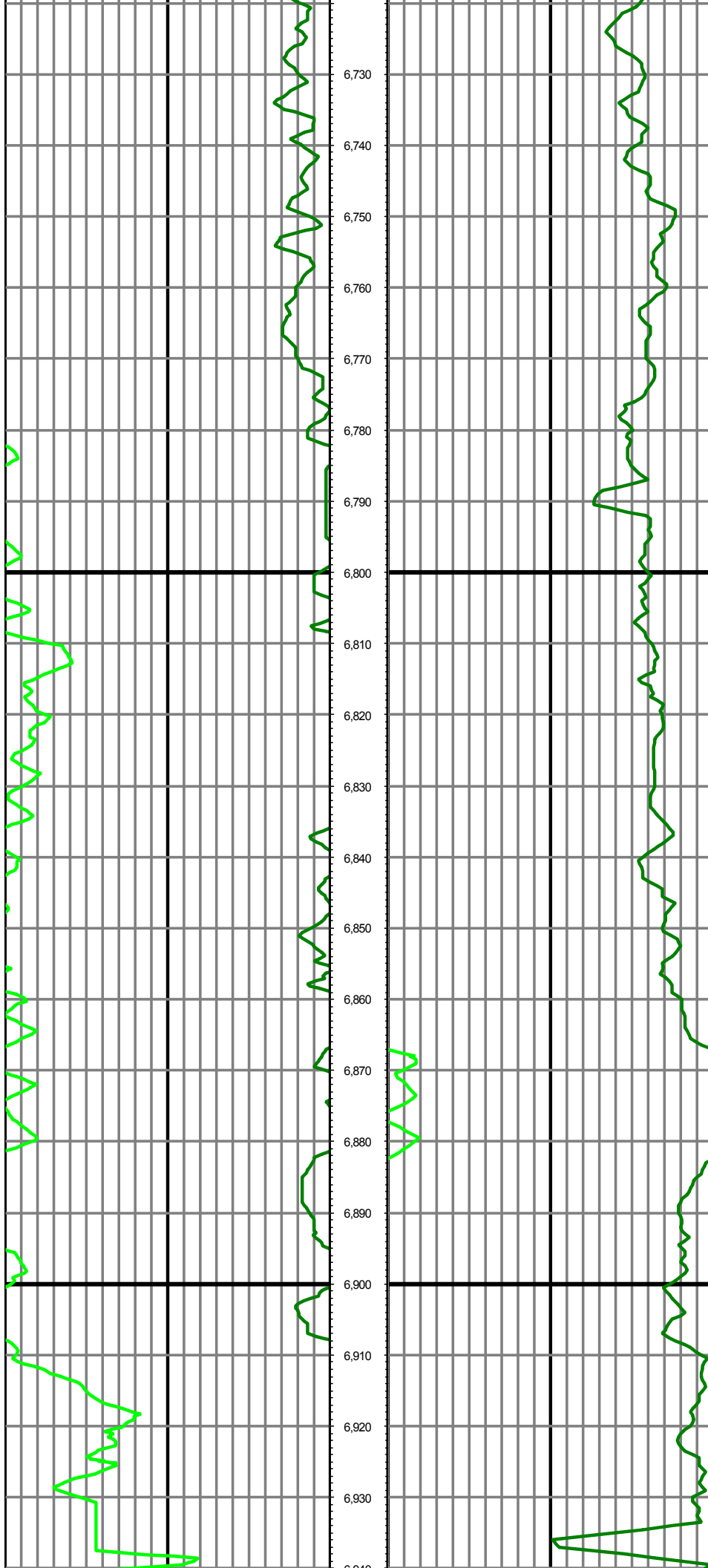
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost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





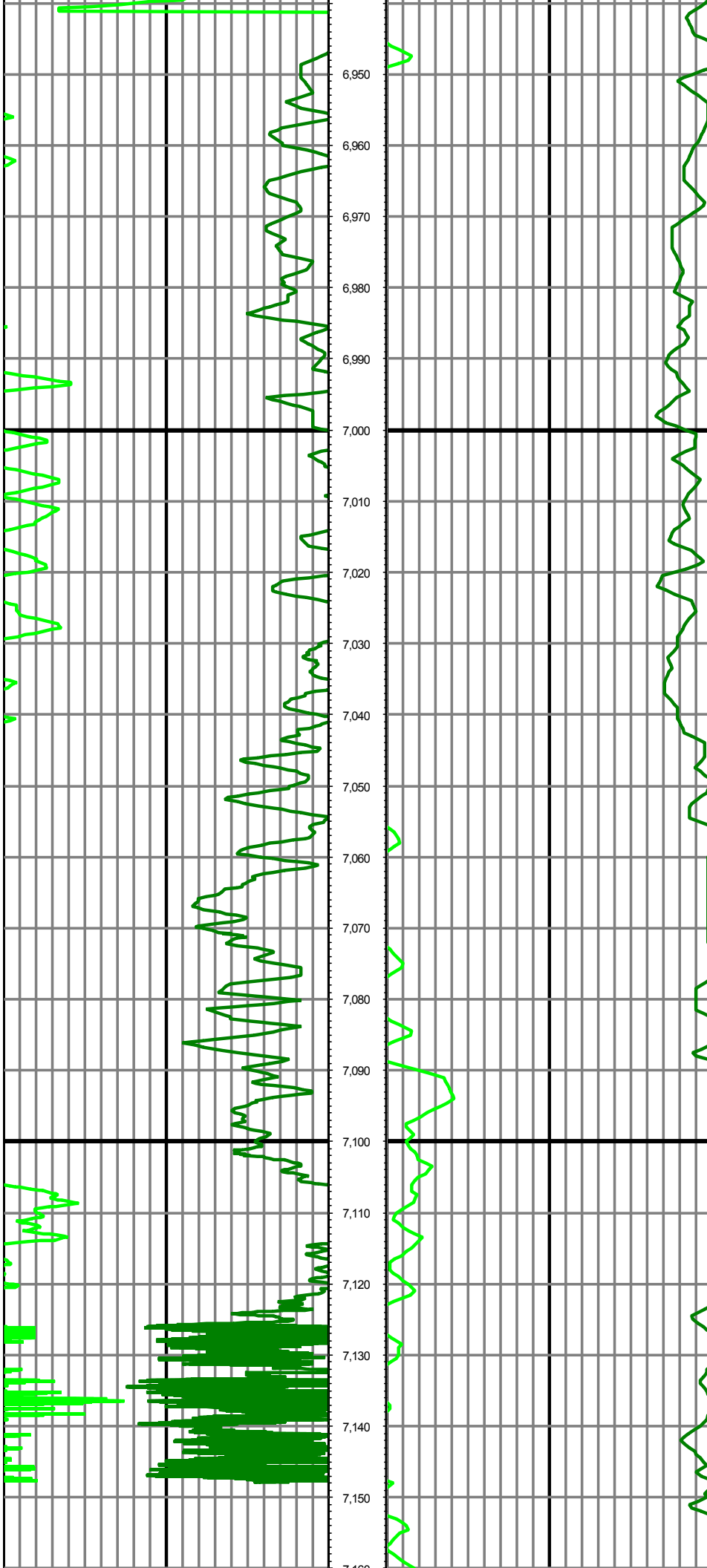
MD: 6579.00 INC: 20.30 AZ: 236.10 TVD: 6360.41 VS: -779.70

MD: 6674.00 INC: 26.10 AZ: 260.40 TVD: 6447.89 VS: -792.42



MD: 6768.00 INC: 25.10 AZ: 279.70 TVD: 6532.81 VS: -792.51

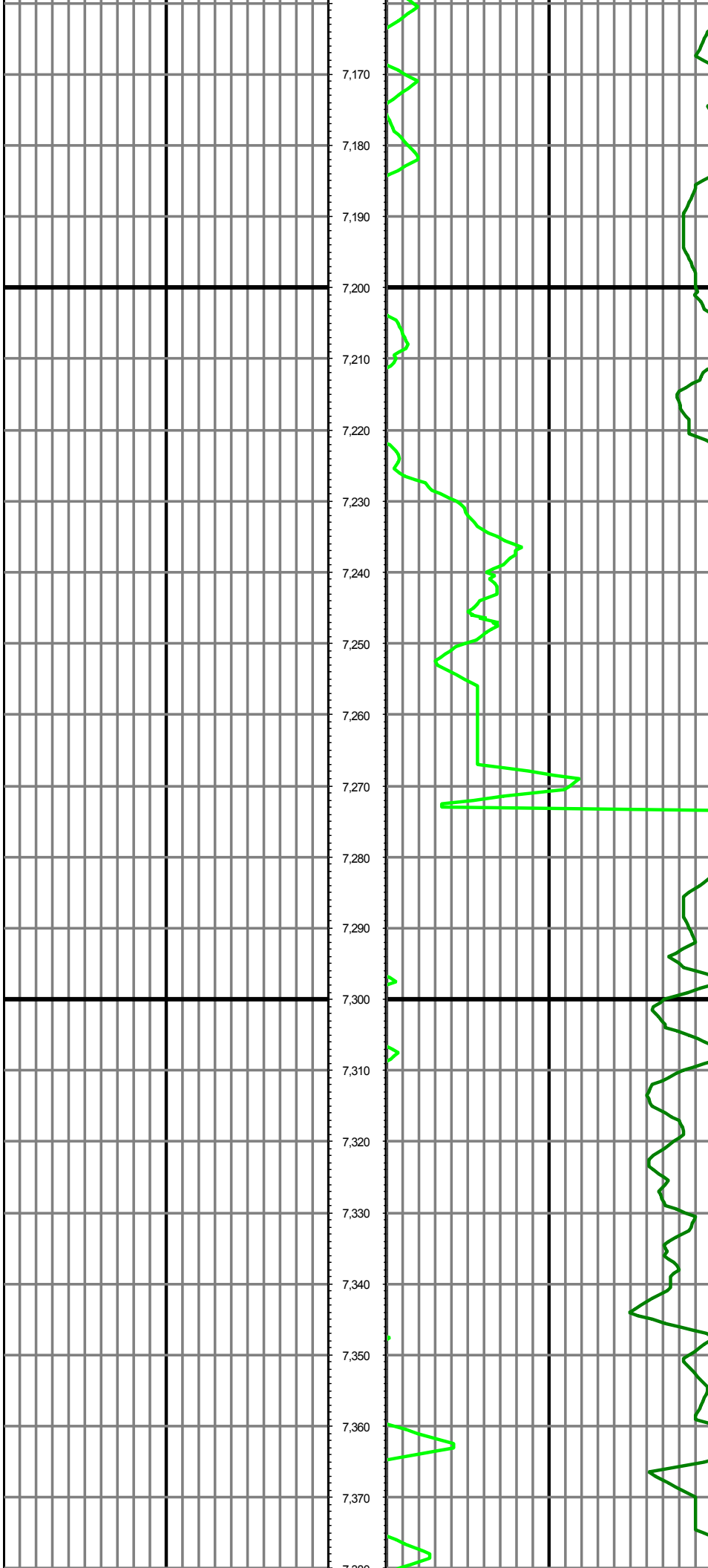
MD: 6862.00 INC: 27.40 AZ: 315.90 TVD: 6617.65 VS: -773.49



MD: 6957.00 INC: 33.20 AZ: 334.00 TVD: 6699.81 VS: -734.30

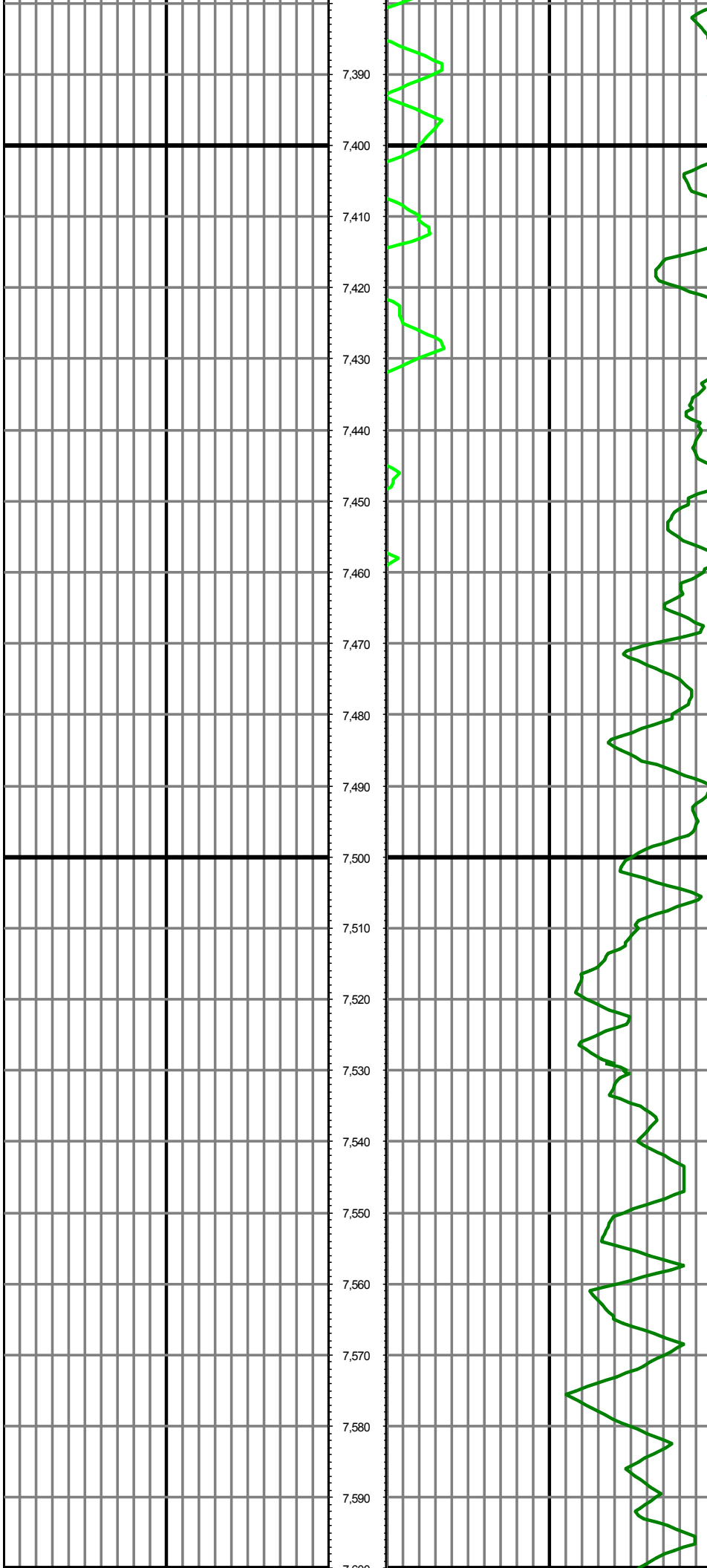
MD: 7052.00 INC: 33.60 AZ: 345.70 TVD: 6779.20 VS: -685.40

MD: 7146.00 INC: 40.50 AZ: 355.80 TVD: 6854.25 VS: -629.64



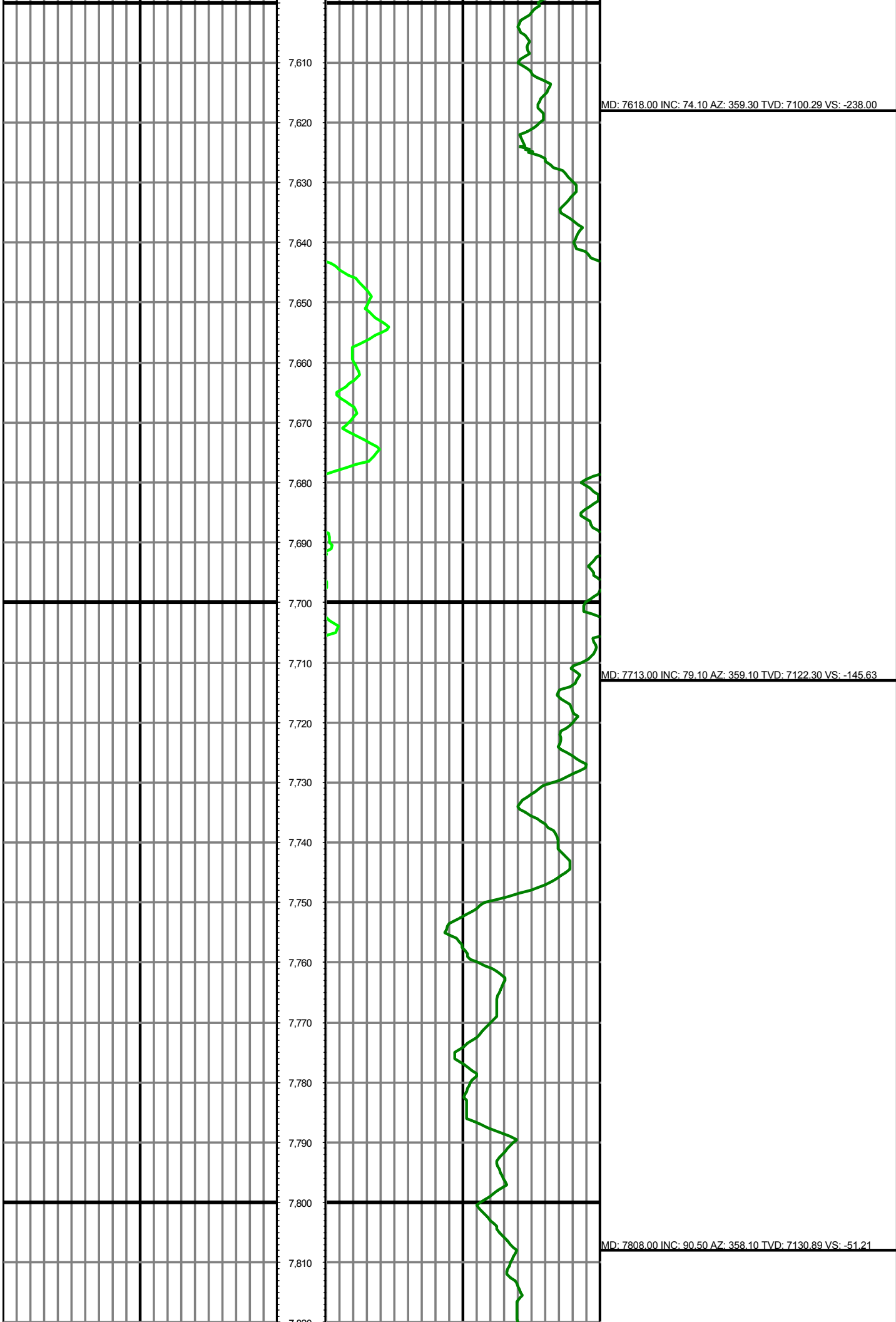
MD: 7241.00 INC: 49.30 AZ: 353.50 TVD: 6921.48 VS: -562.95

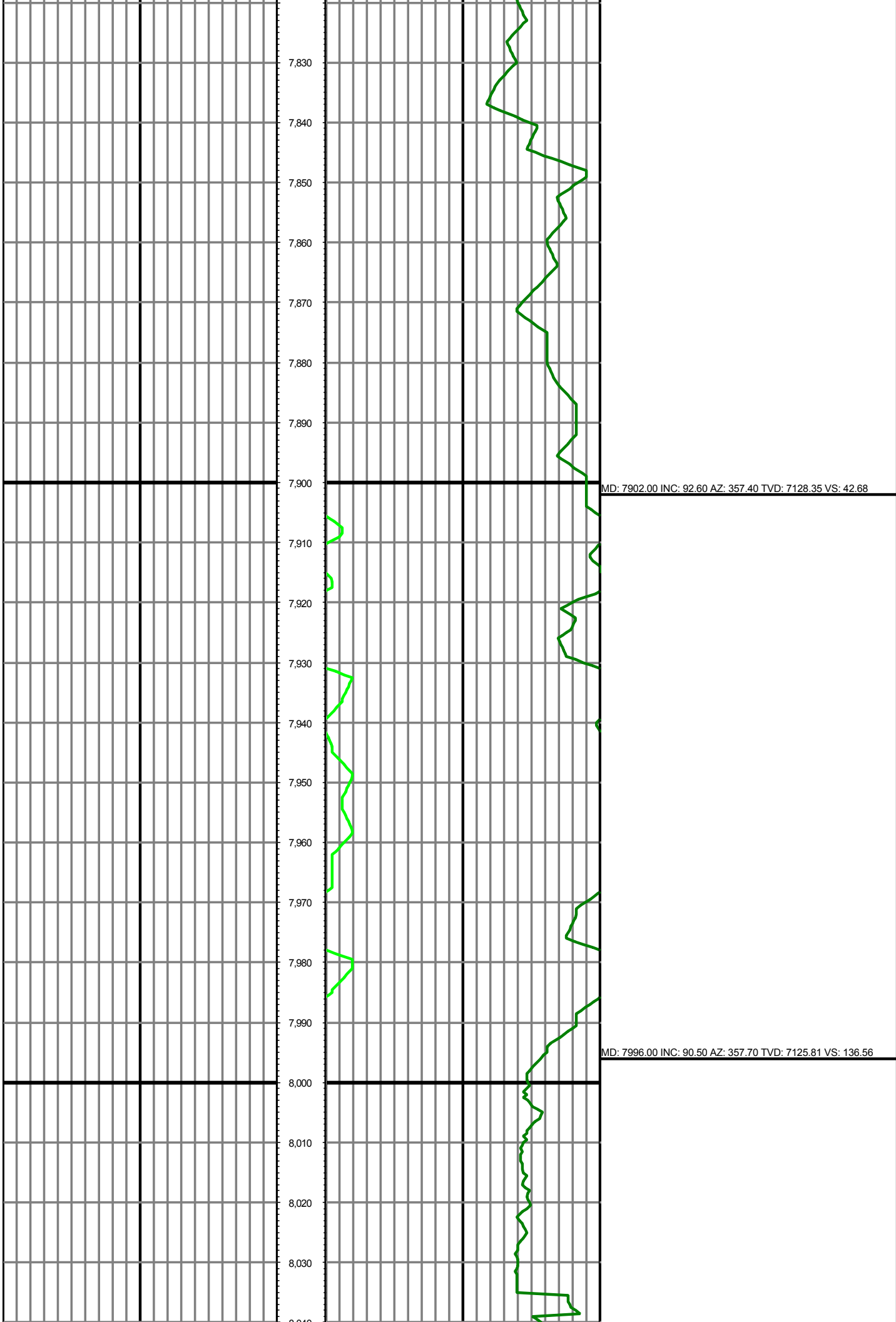
MD: 7335.00 INC: 55.20 AZ: 348.60 TVD: 6979.02 VS: -489.63

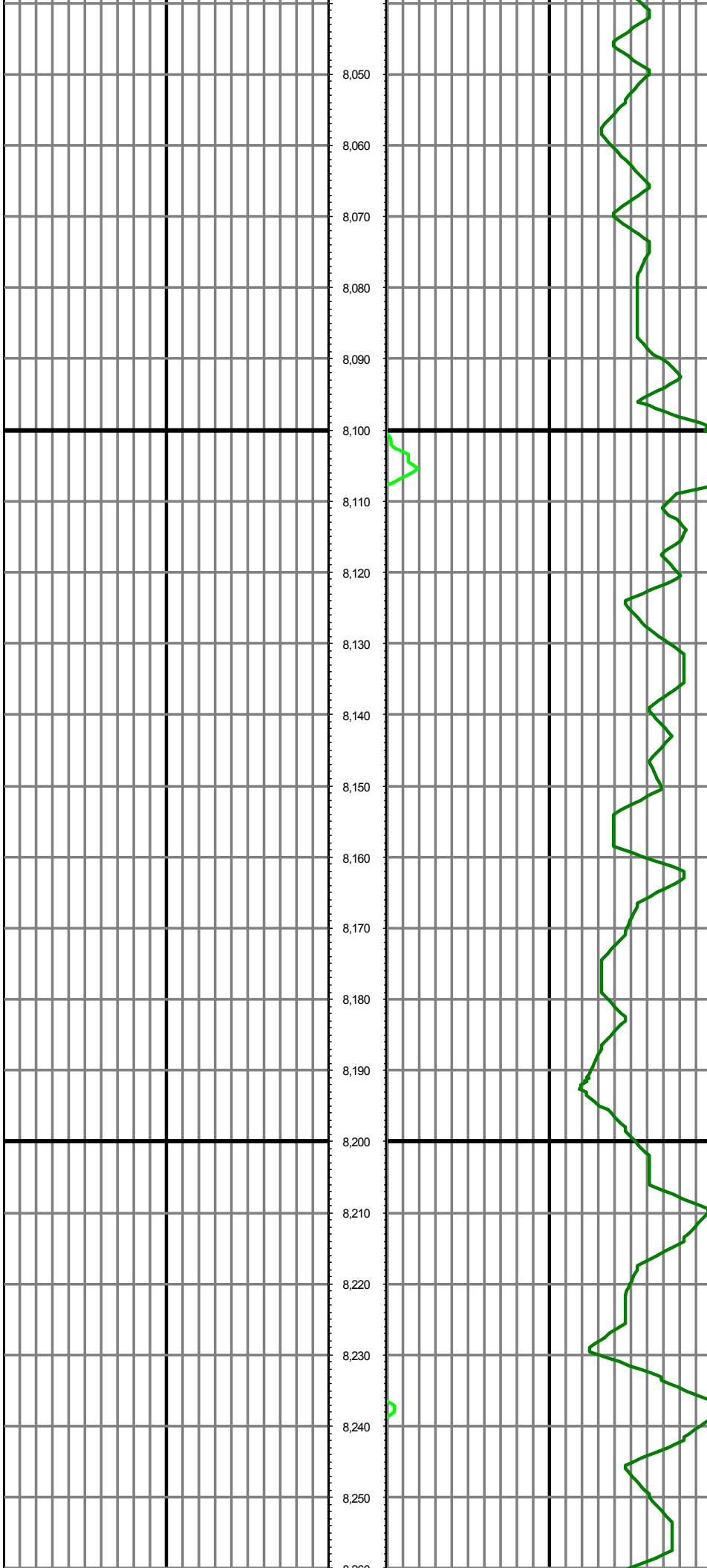


MD: 7430.00 INC: 61.90 AZ: 347.60 TVD: 7028.56 VS: -410.38

MD: 7524.00 INC: 67.10 AZ: 355.90 TVD: 7069.08 VS: -326.52

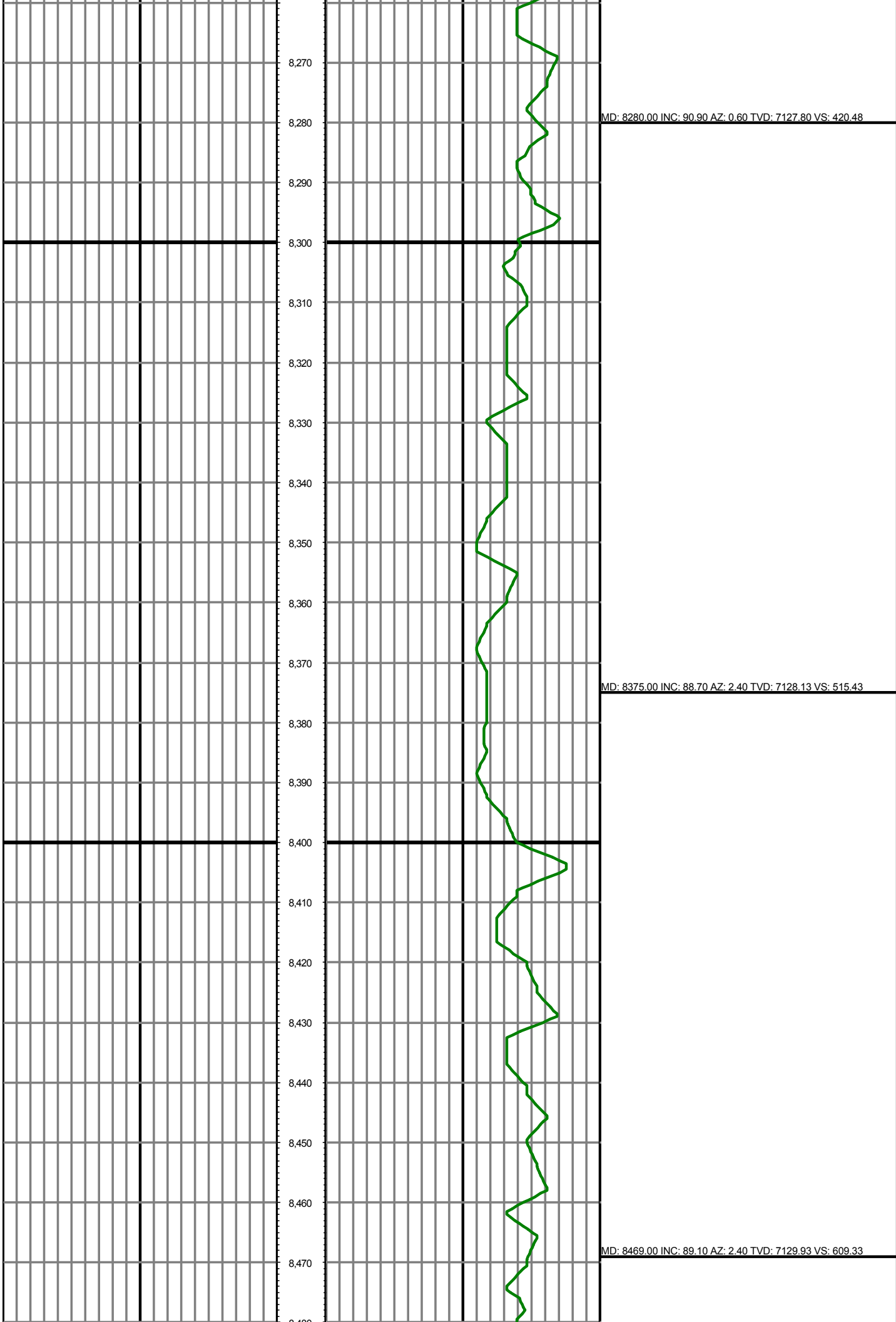


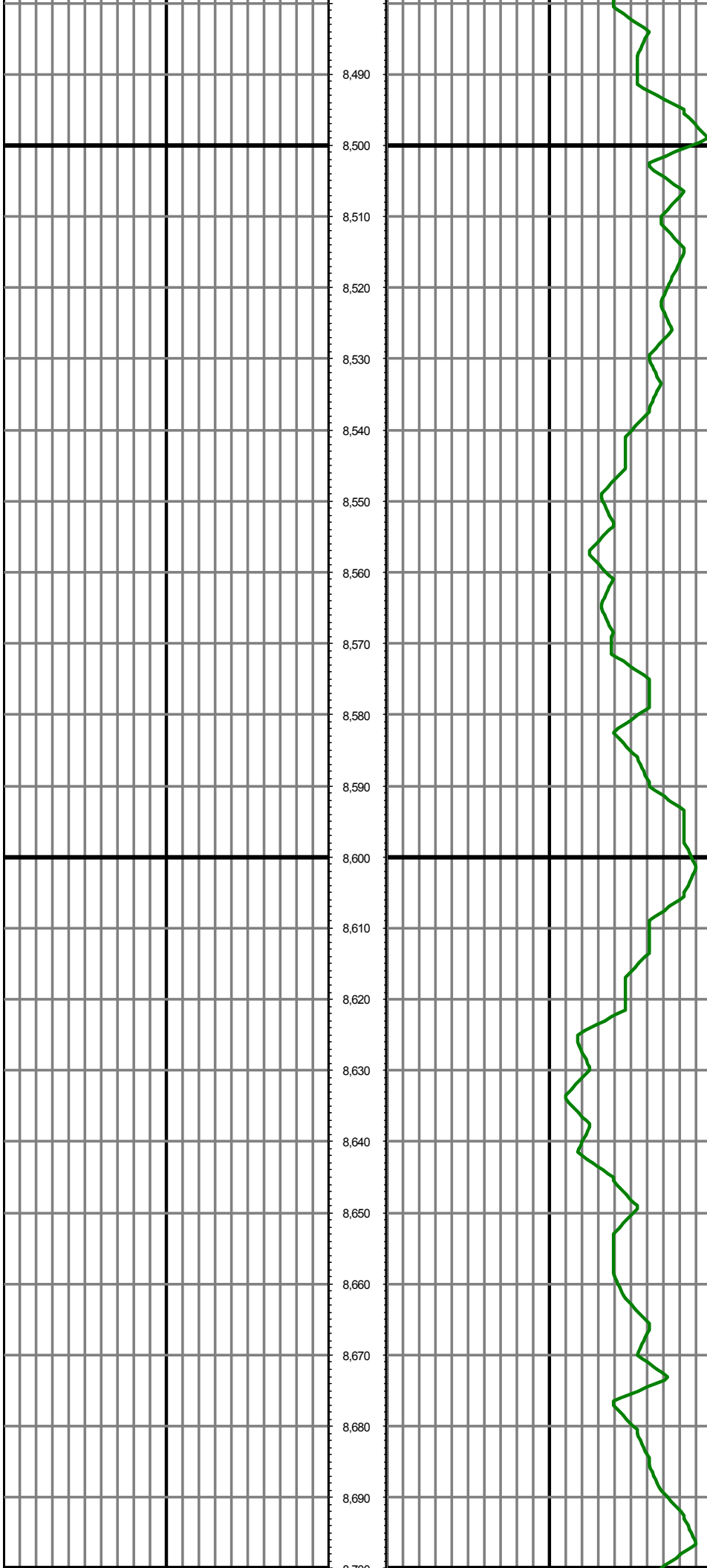




MD: 8091.00 INC: 89.00 AZ: 358.80 TVD: 7126.22 VS: 231.51

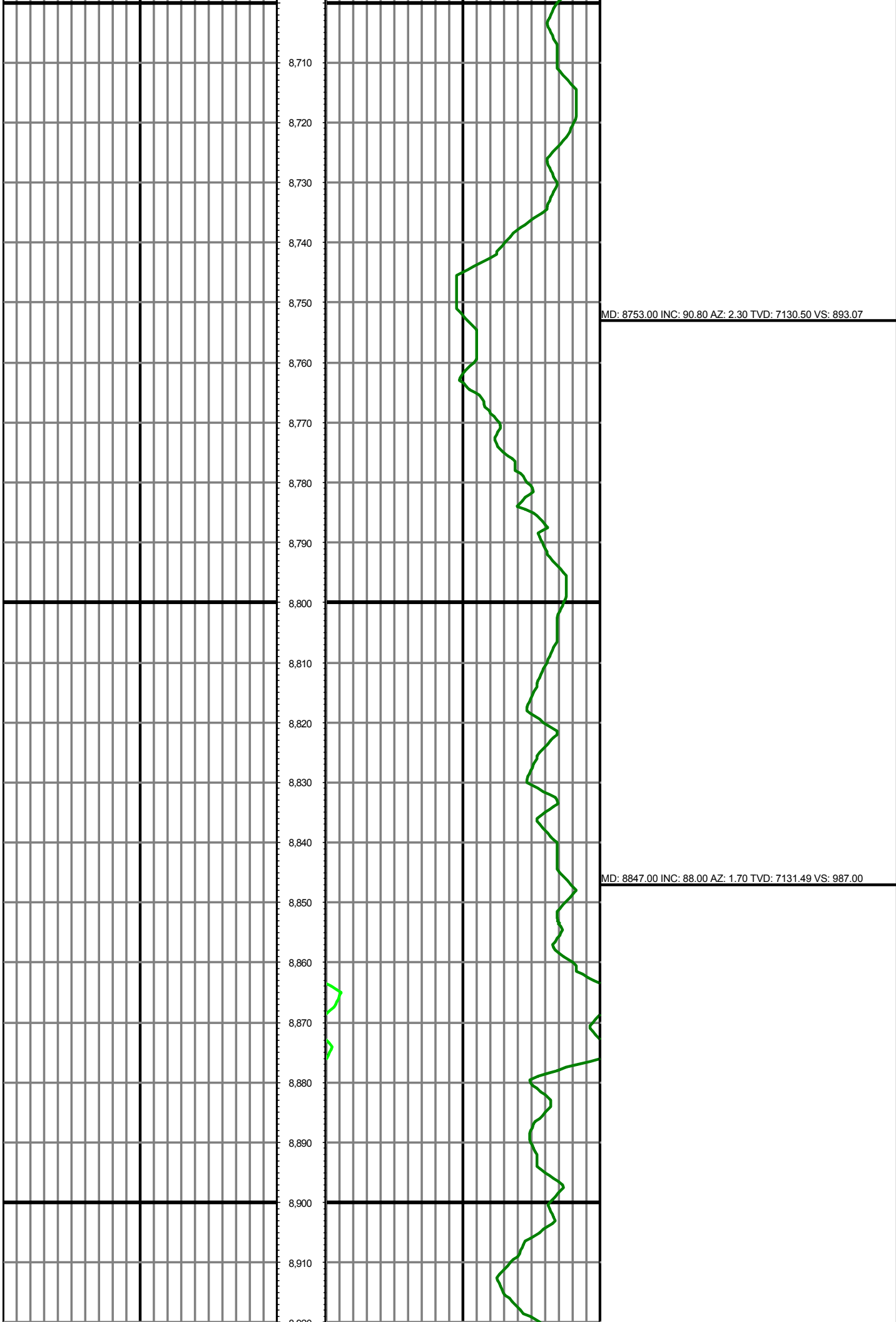
MD: 8186.00 INC: 89.10 AZ: 0.90 TVD: 7127.80 VS: 326.49

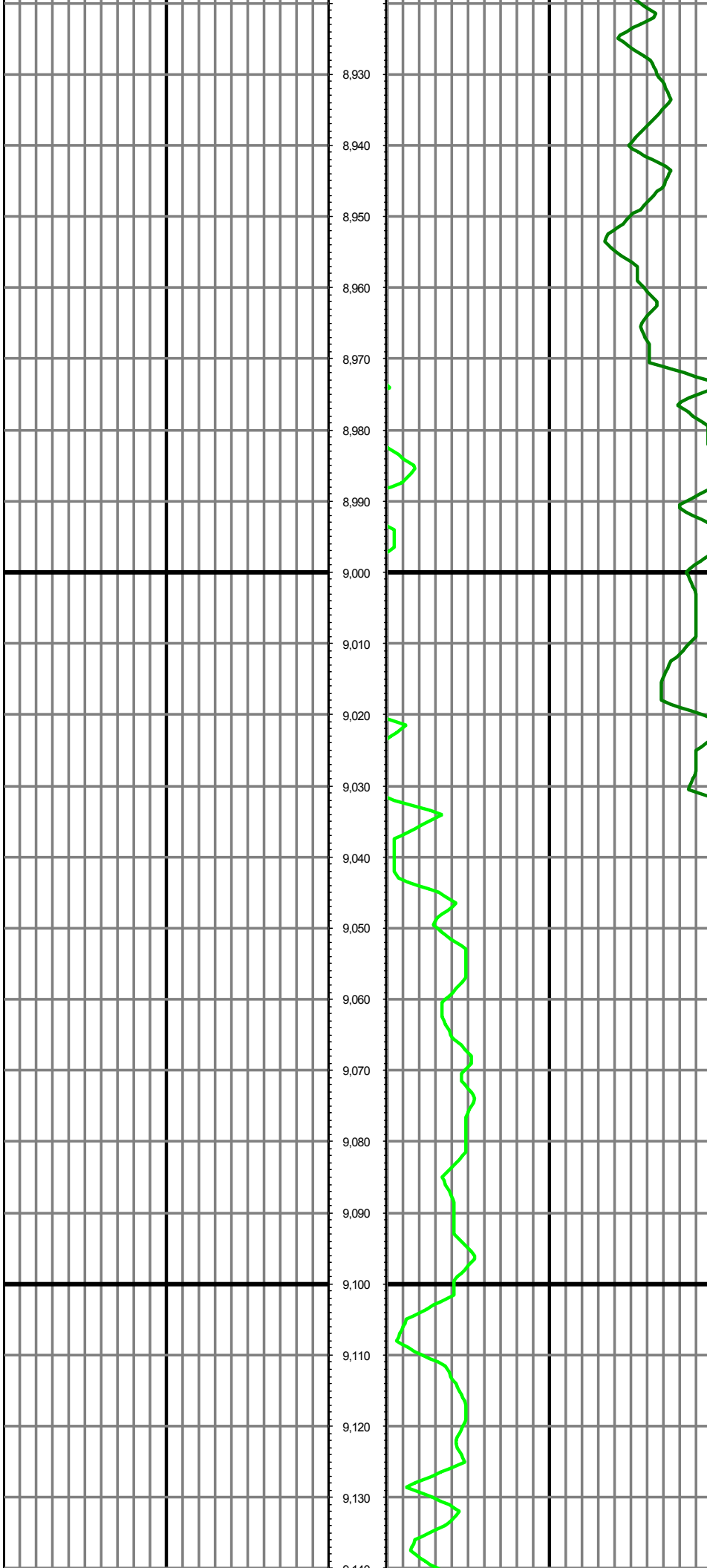




MD: 8563.00 INC: 89.50 AZ: 2.40 TVD: 7131.08 VS: 703.24

MD: 8658.00 INC: 90.20 AZ: 2.50 TVD: 7131.33 VS: 798.16

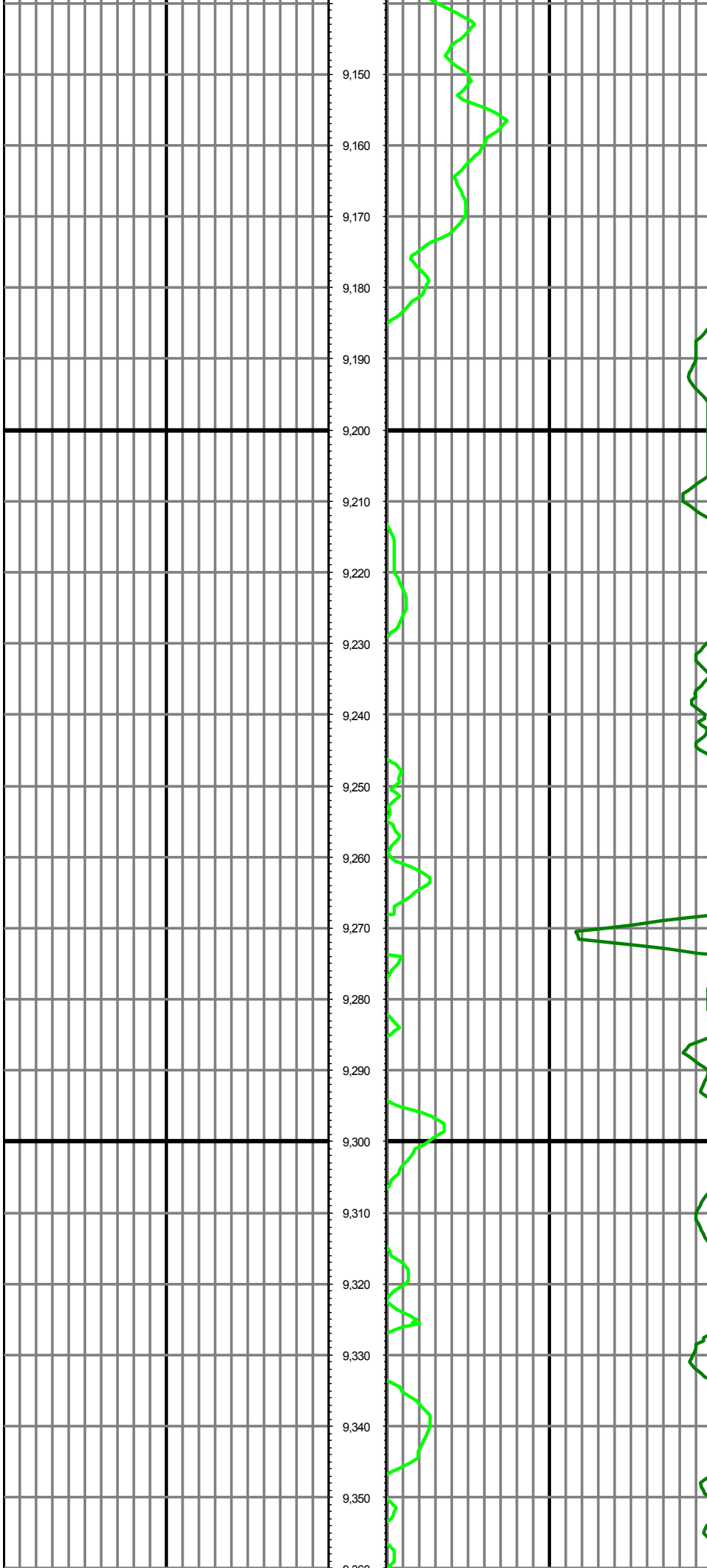




MD: 8942.00 INC: 88.40 AZ: 1.60 TVD: 7134.47 VS: 1081.91

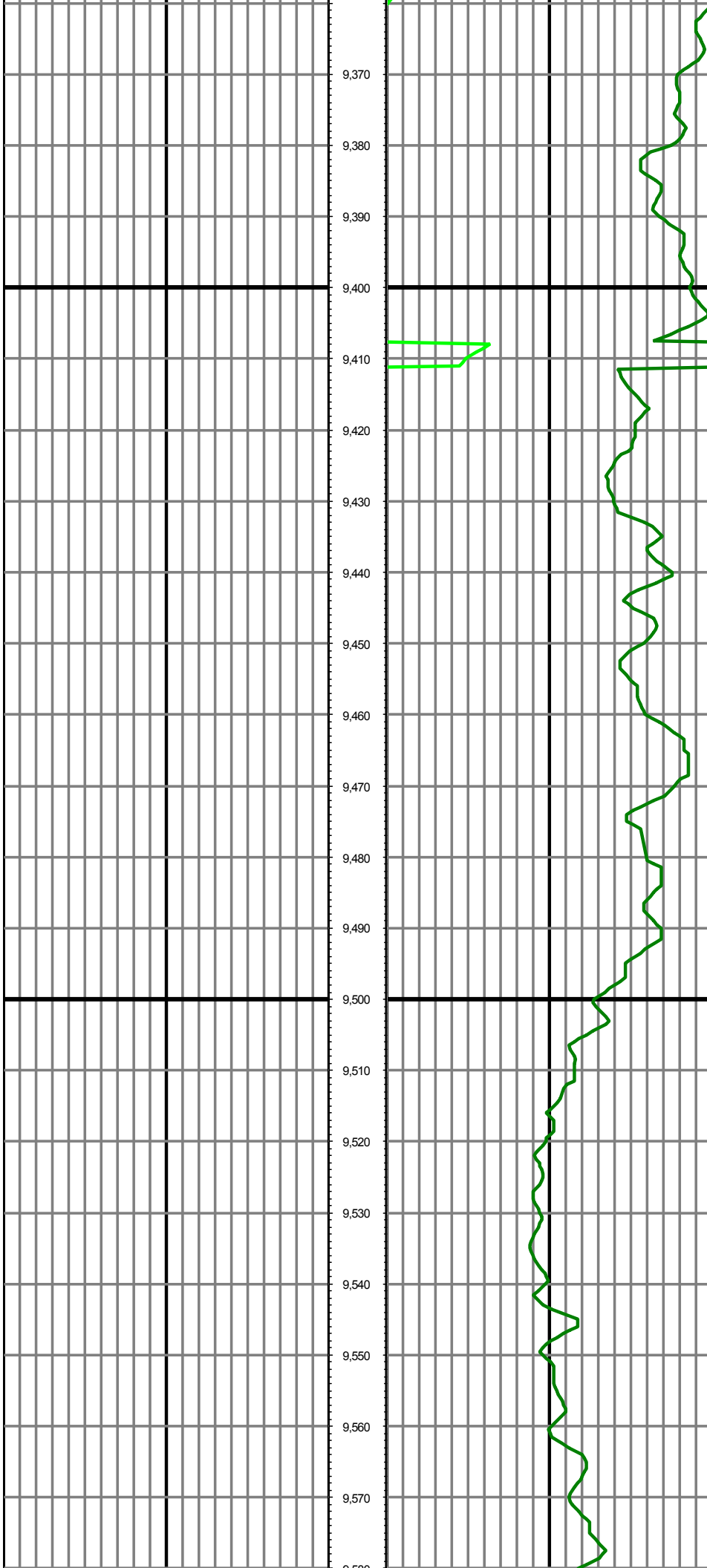
MD: 9036.00 INC: 89.30 AZ: 1.40 TVD: 7136.36 VS: 1175.86

MD: 9131.00 INC: 90.20 AZ: 1.60 TVD: 7136.77 VS: 1270.82



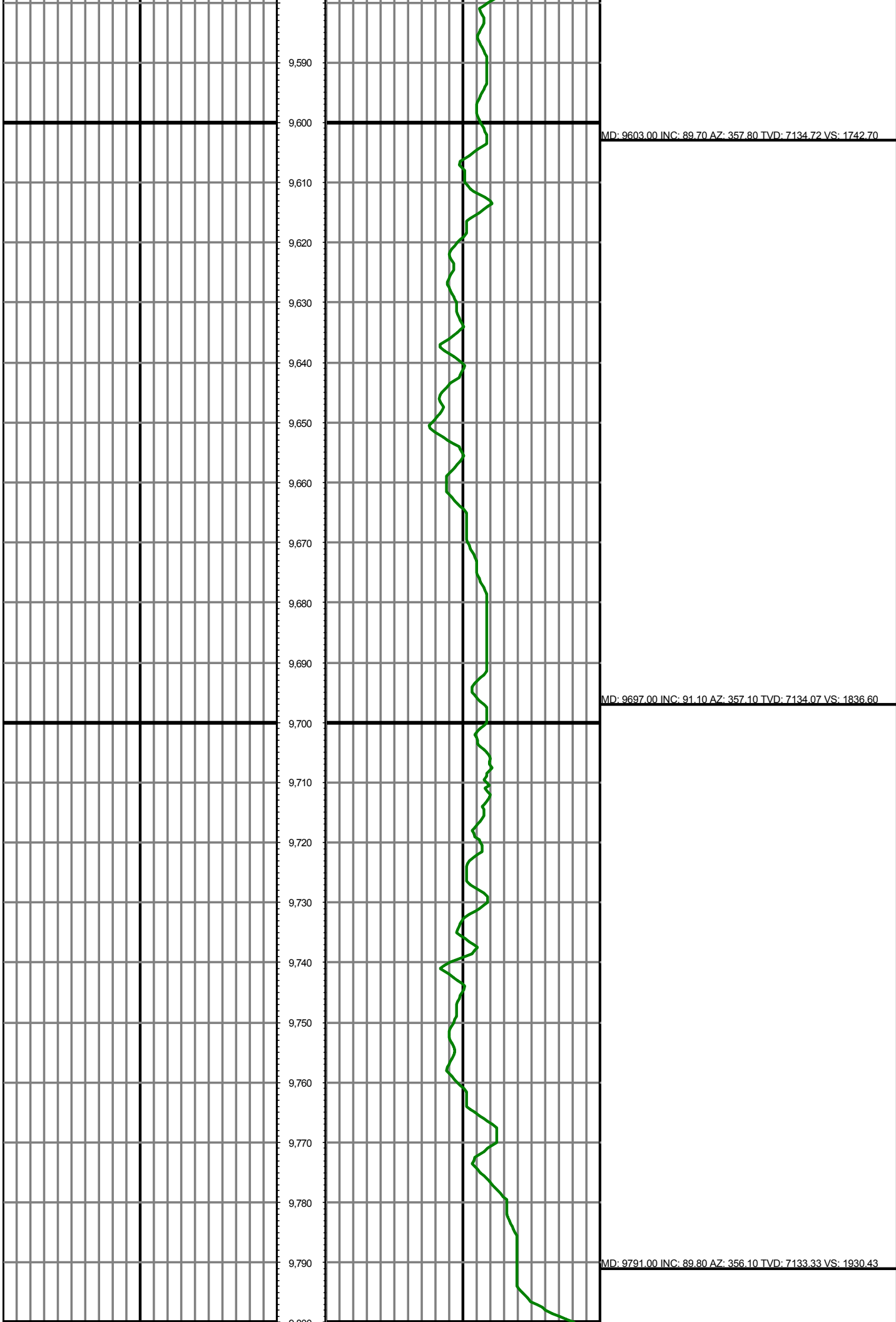
MD: 9225.00 INC: 91.30 AZ: 1.50 TVD: 7135.54 VS: 1364.78

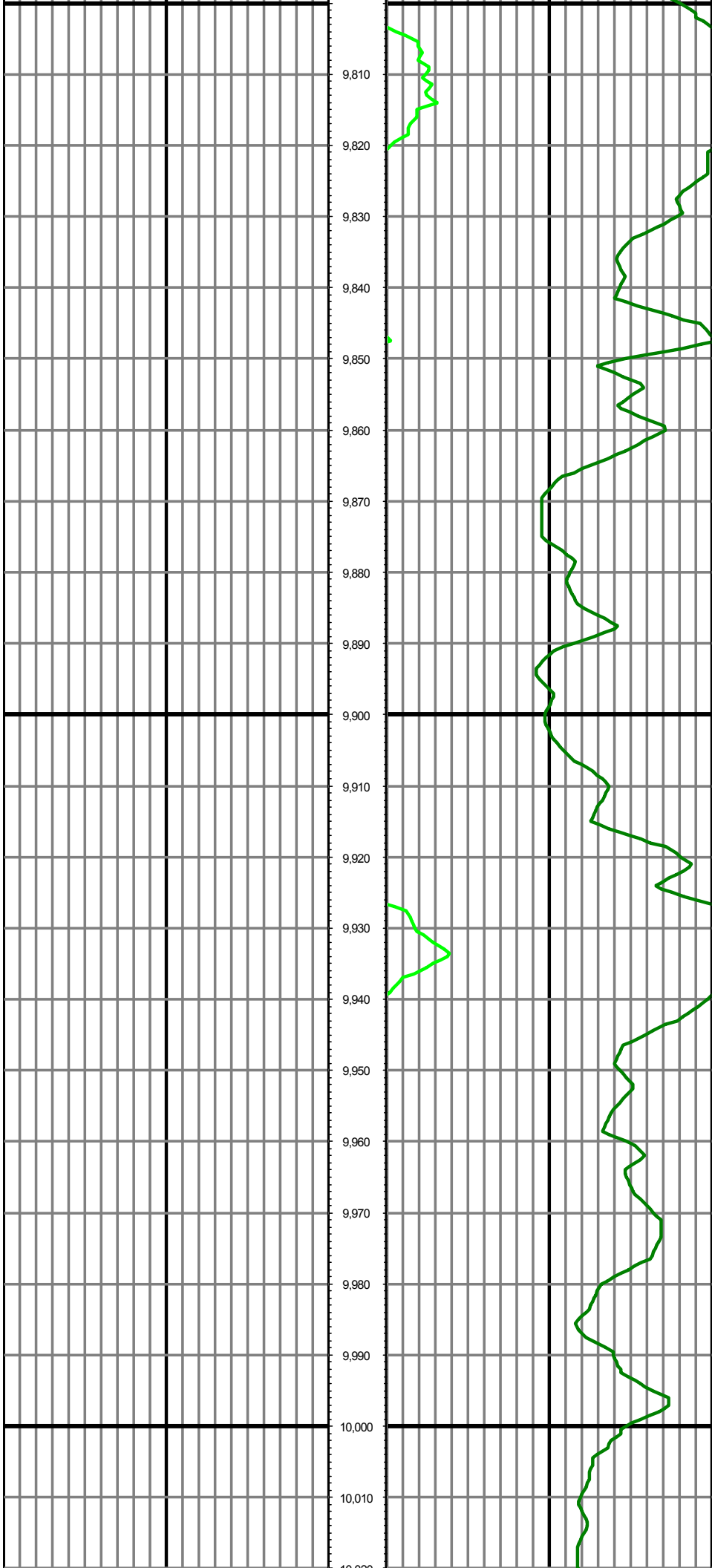
MD: 9319.00 INC: 89.10 AZ: 359.80 TVD: 7135.21 VS: 1458.76



MD: 9414.00 INC: 89.80 AZ: 359.40 TVD: 7136.13 VS: 1553.76

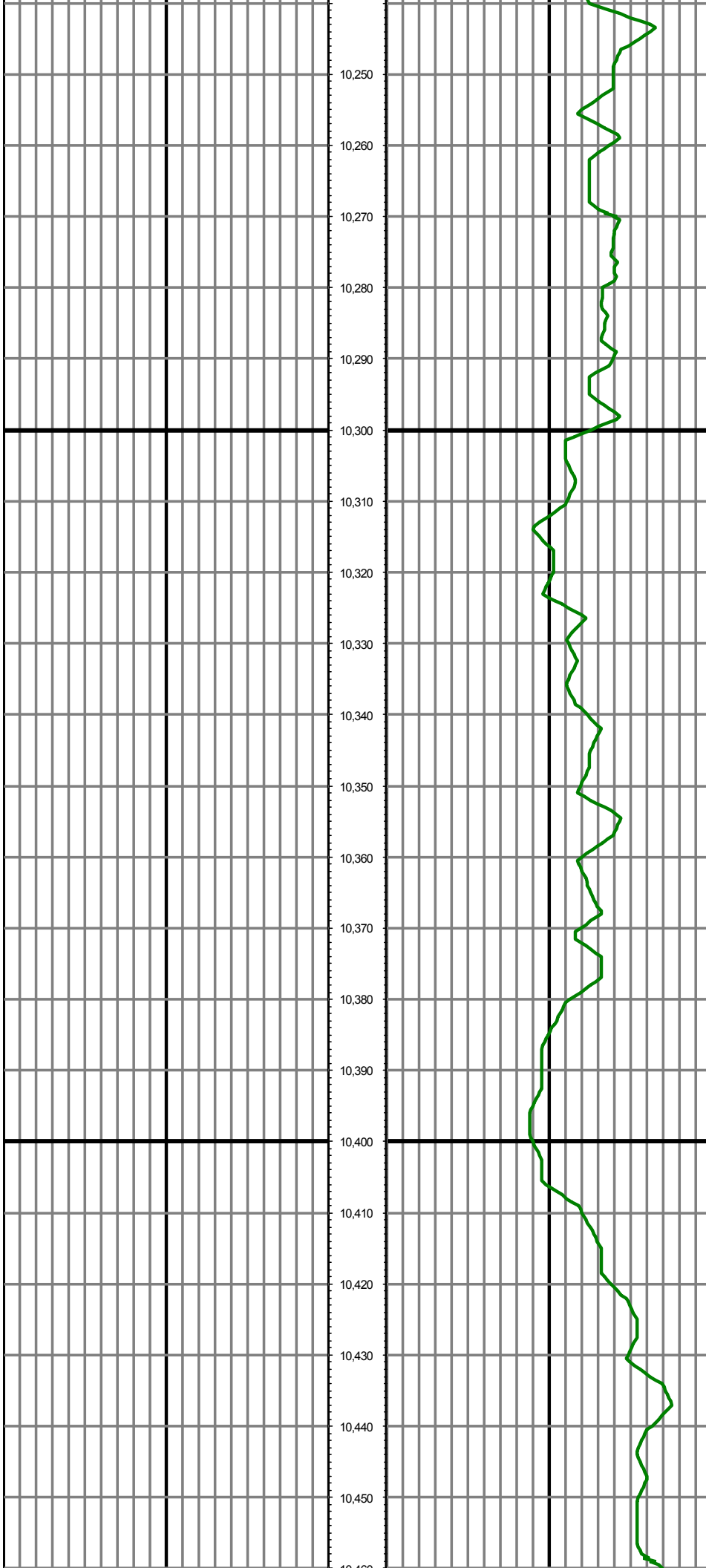
MD: 9509.00 INC: 91.10 AZ: 359.00 TVD: 7135.38 VS: 1648.74





MD: 9886.00 INC: 88.30 AZ: 359.00 TVD: 7134.90 VS: 2025.32

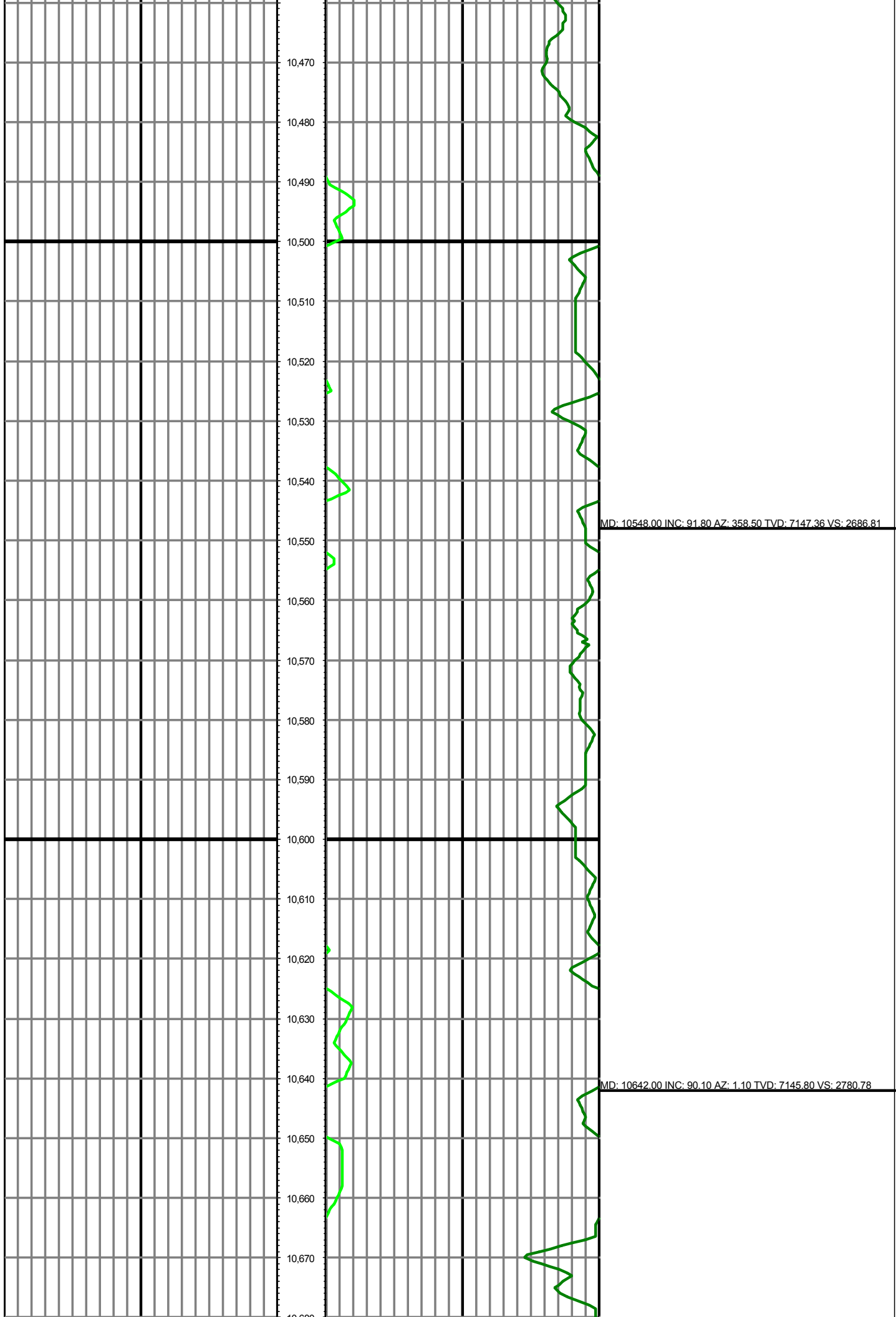
MD: 9980.00 INC: 87.20 AZ: 358.80 TVD: 7138.59 VS: 2119.23

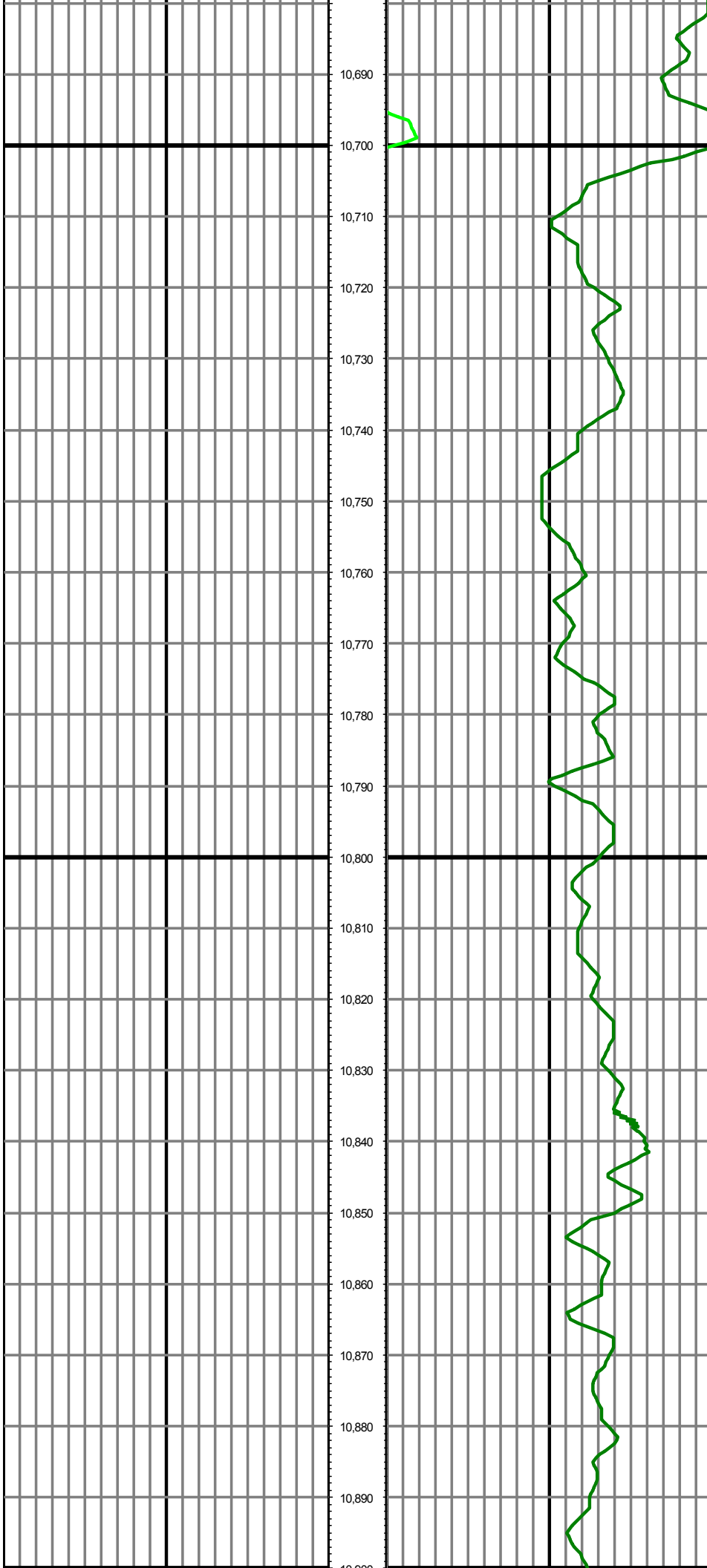


MD: 10264.00 INC: 90.20 AZ: 357.00 TVD: 7146.05 VS: 2402.99

MD: 10359.00 INC: 89.50 AZ: 358.70 TVD: 7146.30 VS: 2497.92

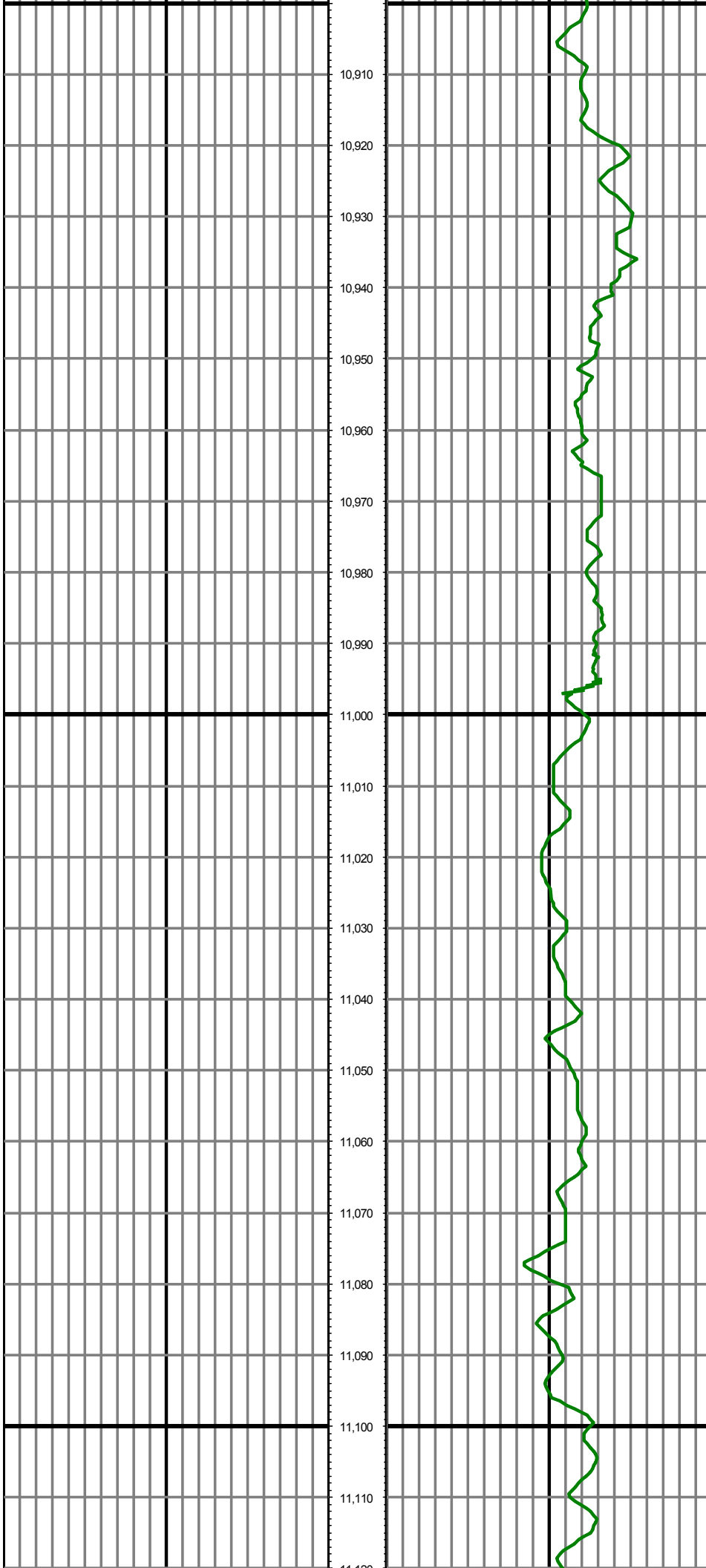
MD: 10453.00 INC: 88.70 AZ: 358.00 TVD: 7147.78 VS: 2591.87





MD: 10737.00 INC: 90.20 AZ: 0.20 TVD: 7145.55 VS: 2875.78

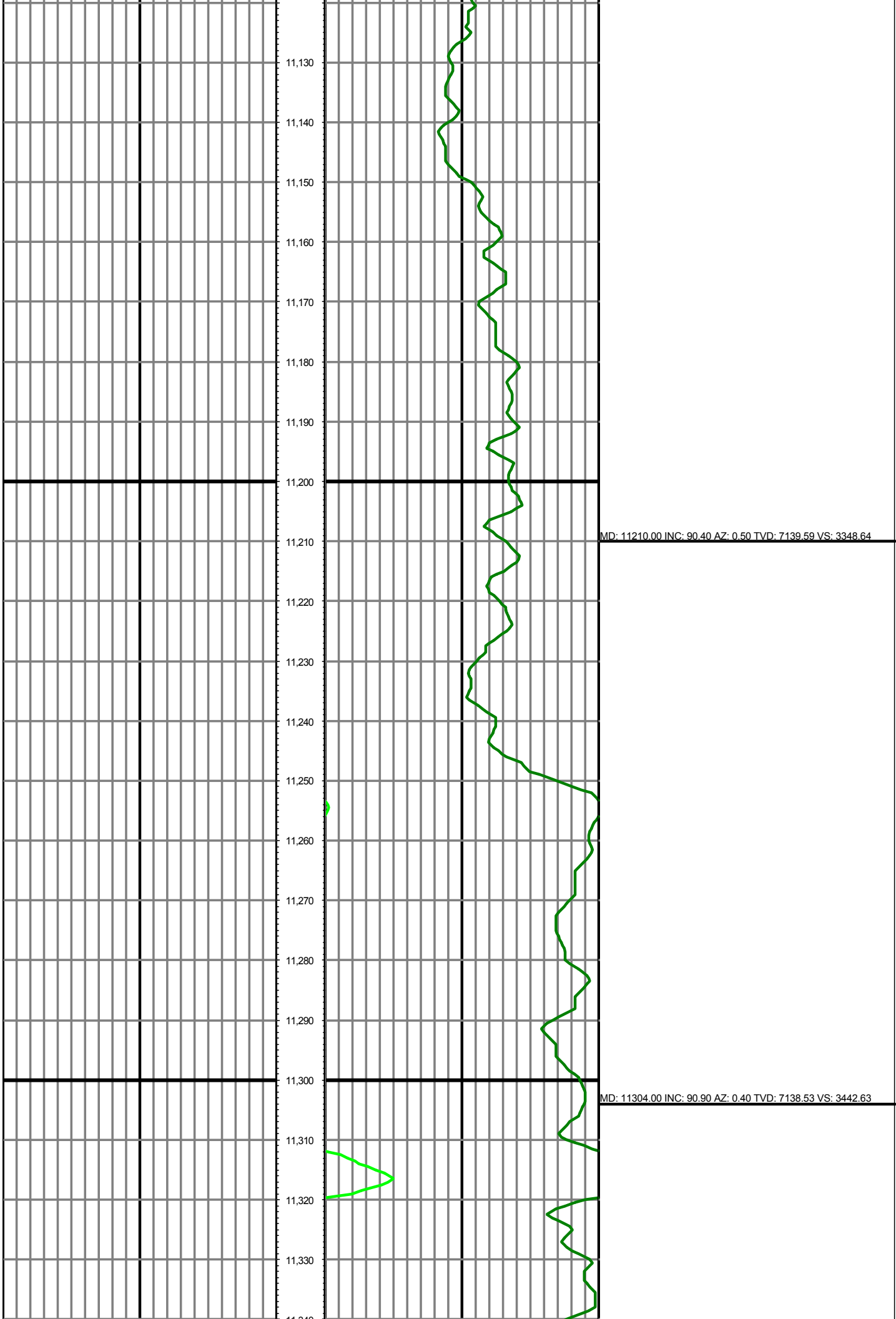
MD: 10831.00 INC: 91.20 AZ: 359.30 TVD: 7144.41 VS: 2969.77

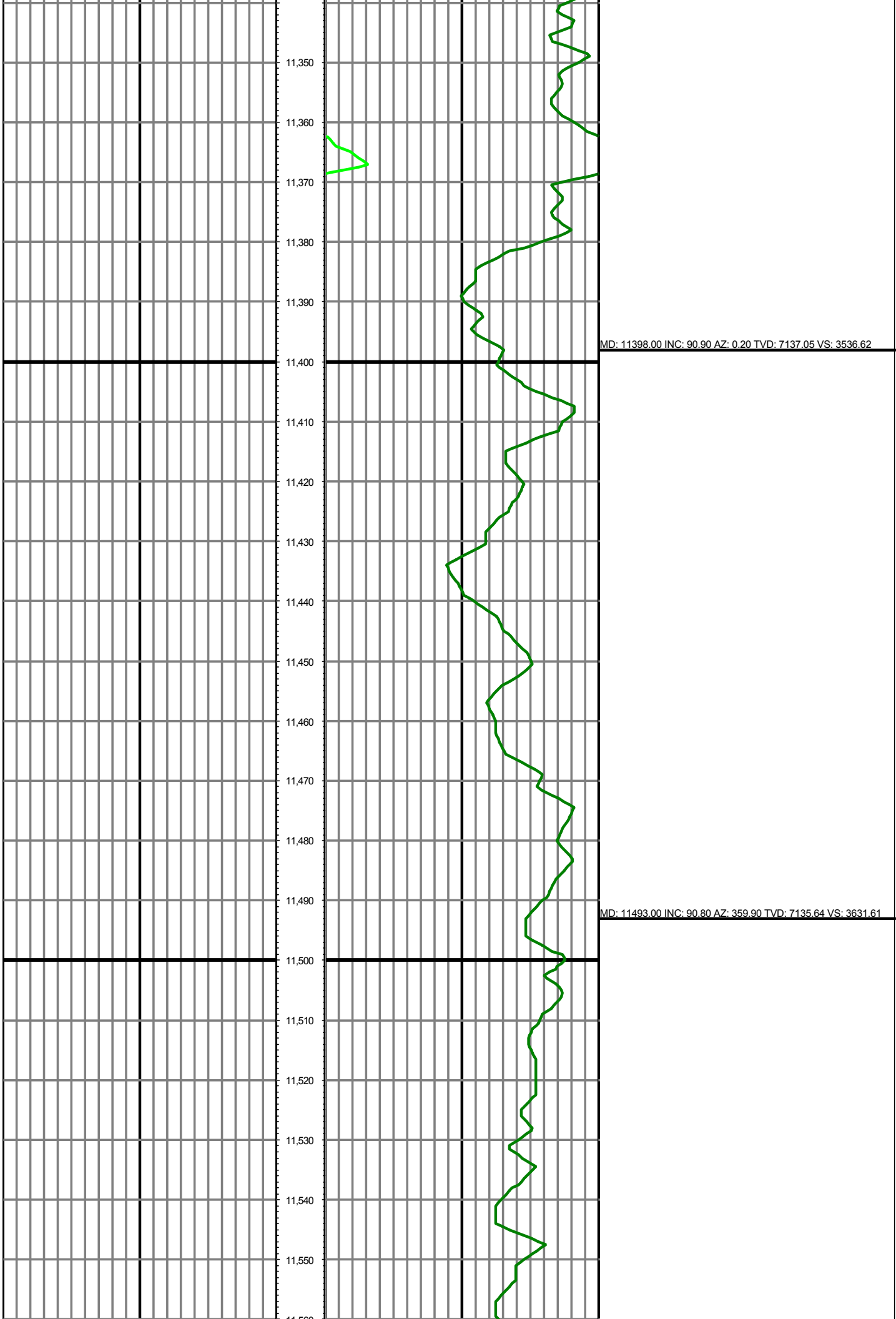


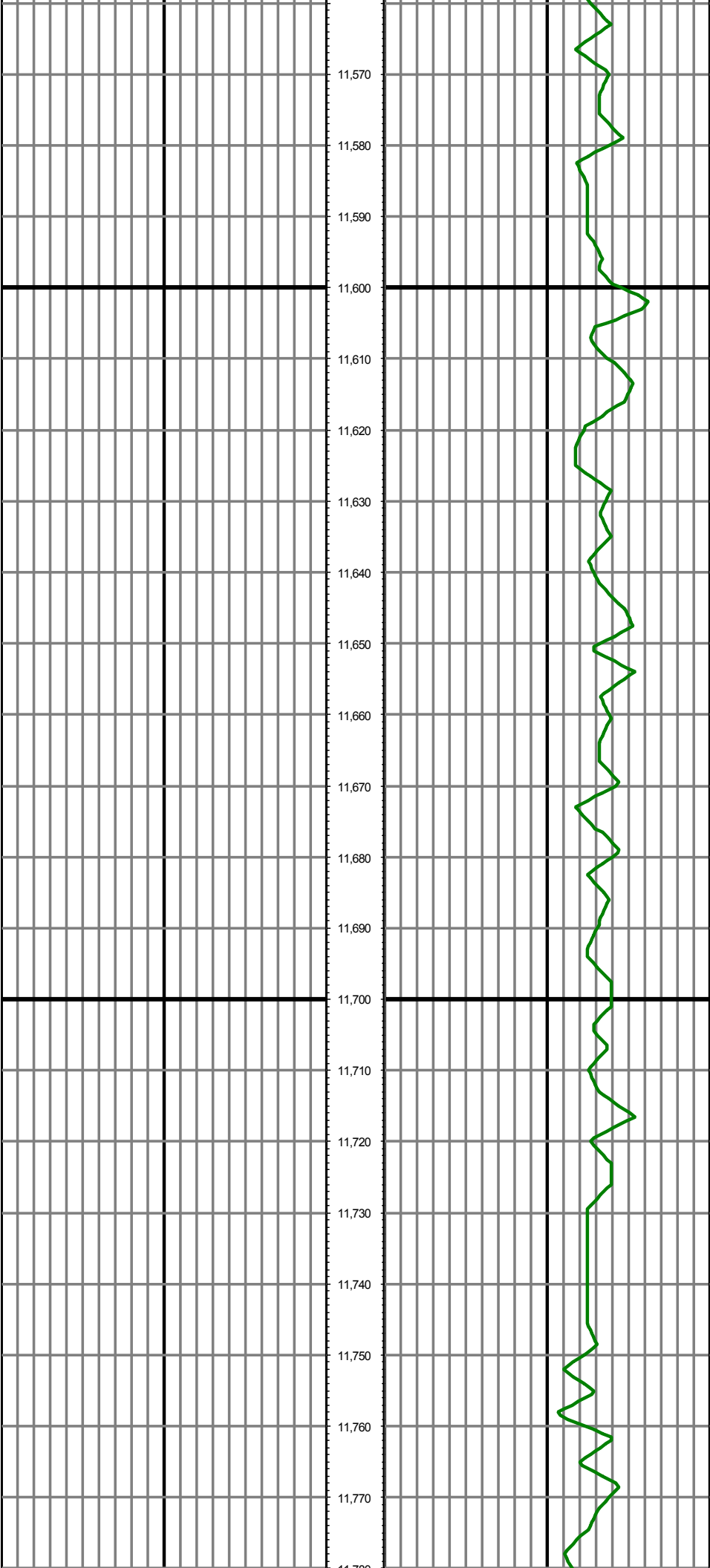
MD: 10926.00 INC: 92.40 AZ: 358.70 TVD: 7141.42 VS: 3064.70

MD: 11021.00 INC: 89.90 AZ: 0.90 TVD: 7139.51 VS: 3159.67

MD: 11115.00 INC: 89.80 AZ: 1.20 TVD: 7139.76 VS: 3253.65







MD: 11587.00 INC: 90.60 AZ: 359.80 TVD: 7134.49 VS: 3725.60

MD: 11682.00 INC: 90.10 AZ: 359.90 TVD: 7133.91 VS: 3820.60

MD: 11777.00 INC: 89.30 AZ: 359.40 TVD: 7134.41 VS: 3915.60

