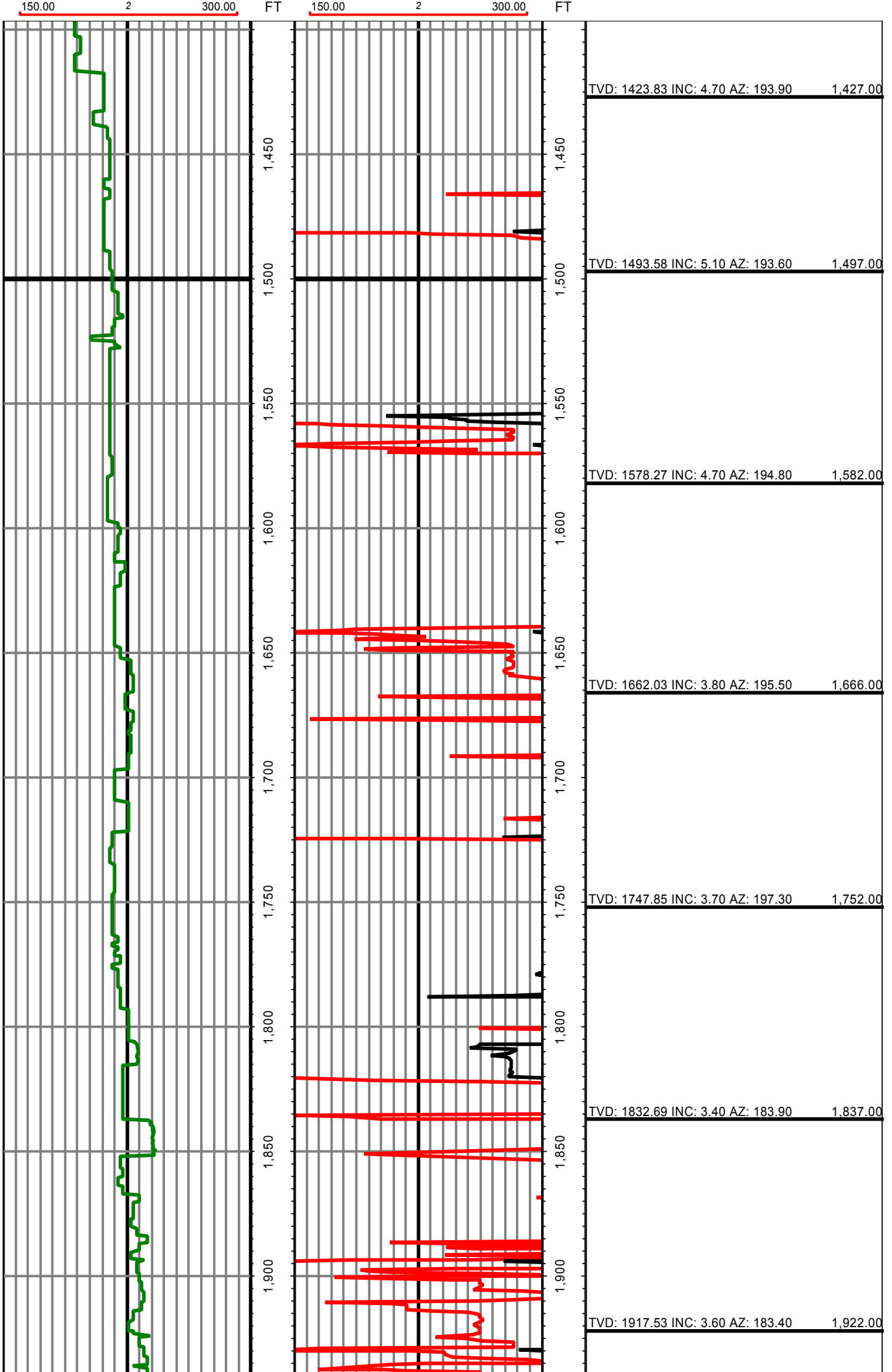
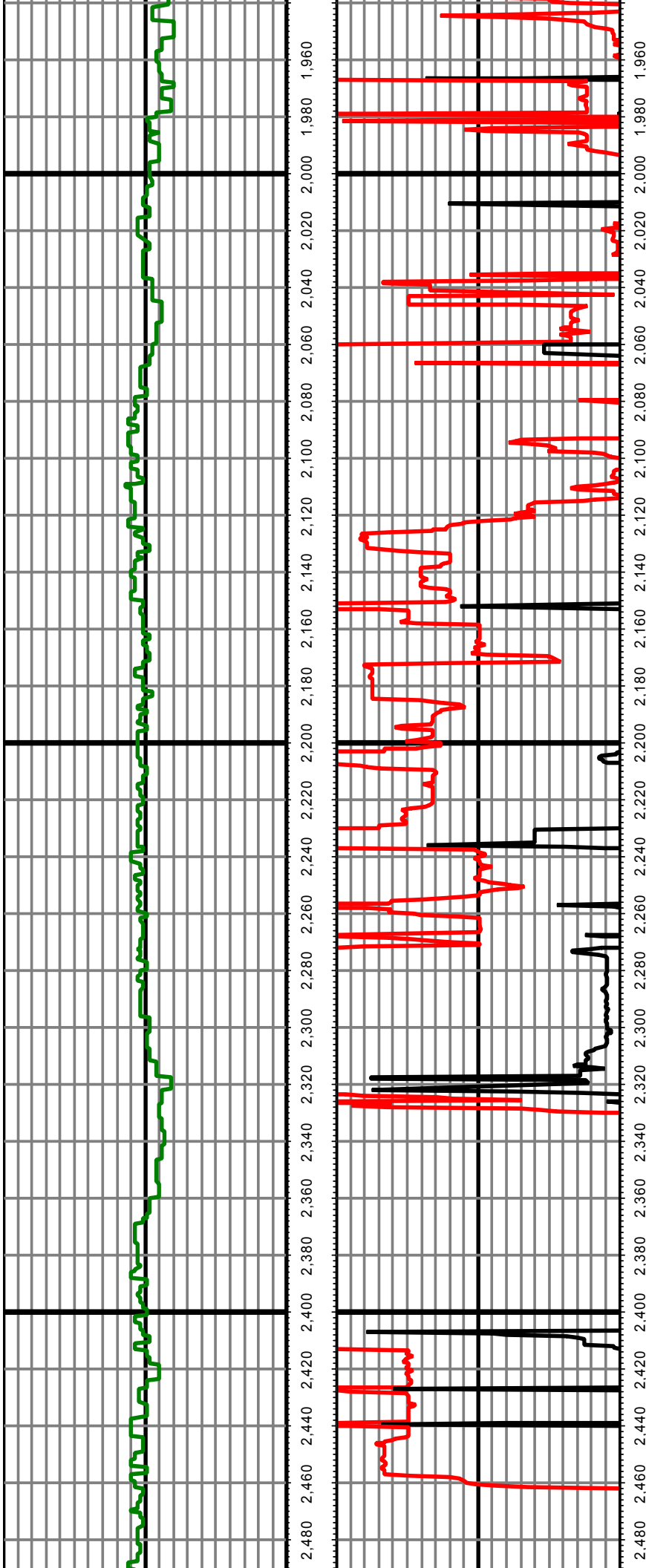


**Precision Directional Services, Inc.**27610 Commerce Oaks Drive  
Oak Ridge North, TX 77385  
713-435-6250**Gaffney 2-29-8-61****Scale 2":100' - MD****1/2/2014 2:28 AM****Oper. Company:** Carrizo Oil & Gas, Inc.**Well:** Gaffney 2-29-8-61**Field:** Niobrara CONZ'83**Rig:** Xtreme 19**Well ID:** 05-123-38575**Job Number:** DL2049**Notes:****State:** Colorado**County:** Weld**Country:** USA**Start Date:** 12/23/2013 14:00:00**End Date:** 01/02/2014 02:00:00**Latitude:** 40.6337888888889**Longitude:** -104.238291666667**Notes:****Elev KB:** 17'**Elev DF:** 5008'**Elev GL:** 4991'**Operator 1:** Paul Brown**Notes:****Operator 2:** Neil LaRubbio

Tool Run Data	Run #1	Run #2	Run #3	Run #4	Run #5
Tool S/N	G2577	G2629	G2577	G2629	
Bit Size	8 3/4	8 3/4	6 1/8	6 1/8	
Cal Factor	3.23	3.82	1.30	1.54	
Gamma Offset	42.00	43.00	42.00	42.00	
Resisitivity Offset	0.00	0.00	0.00	0.00	
Start Depth	1438.00	5990.00	6650.00	12252.00	
StartDate	12/23/2013	12/25/2013	12/26/2013	12/30/2013	
StartTime	9:30 AM	2:45 AM	6:30 PM	8:30 PM	
EndDepth	5990.00	6650.00	12252.00	13917.00	
EndDate	12/25/2013	12/26/2013	12/30/2013	1/2/2014	
EndTime	2:00 AM	12:30 AM	10:30 PM	2:00 AM	
Mud Type	WBM	WBM	WBM	WBM	
Mud Weight	8.5 - 9.5	9.5 - 9.6	9.4 - 10	10	
Funnel Viscosity	30 - 44	40 - 44	40 - 41	47-49	
Plastic Viscosity	1-5, 10-14	13	8 - 13	18-20	
Yield Point	1-2, 4-10	8	8	14 - 19	
Gel Strength	2,7 - 2,11	3,16	2,7	18	
Solids Content	2.5 - 3.0	5.5	5	11	
Sand Content	0.0 - 0.25	0.25	0.25	0.5	
Mud Alkalinity	0.12 - 0.7	0.8	0.6	0.7	
Filtrate Alkalinity	0.05 - 0.3	0.08 - 0.5	0.05 - 0.5	0.08 - 0.7	
Chlorides	650 - 800	850	850	850	
Mud RM	N/A	N/A	N/A	N/A	
Mud RMF	N/A	N/A	N/A	N/A	
Mud RMC	N/A	N/A	N/A	N/A	
Mud RM at BHT	N/A	N/A	N/A	N/A	
Hole Data			Casing Data		
Size	From	To	Size	From	To
12 1/4	0.00	1400.00	9 5/8	0.00	1400.00
8 3/4	1400.00	6808.00	7	0.00	6808.00
6 1/8	6808.00	13917.00	4 1/2	6808.00	13917.00

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.





TVD: 2002.37 INC: 3.50 AZ: 177.40 2,007.00

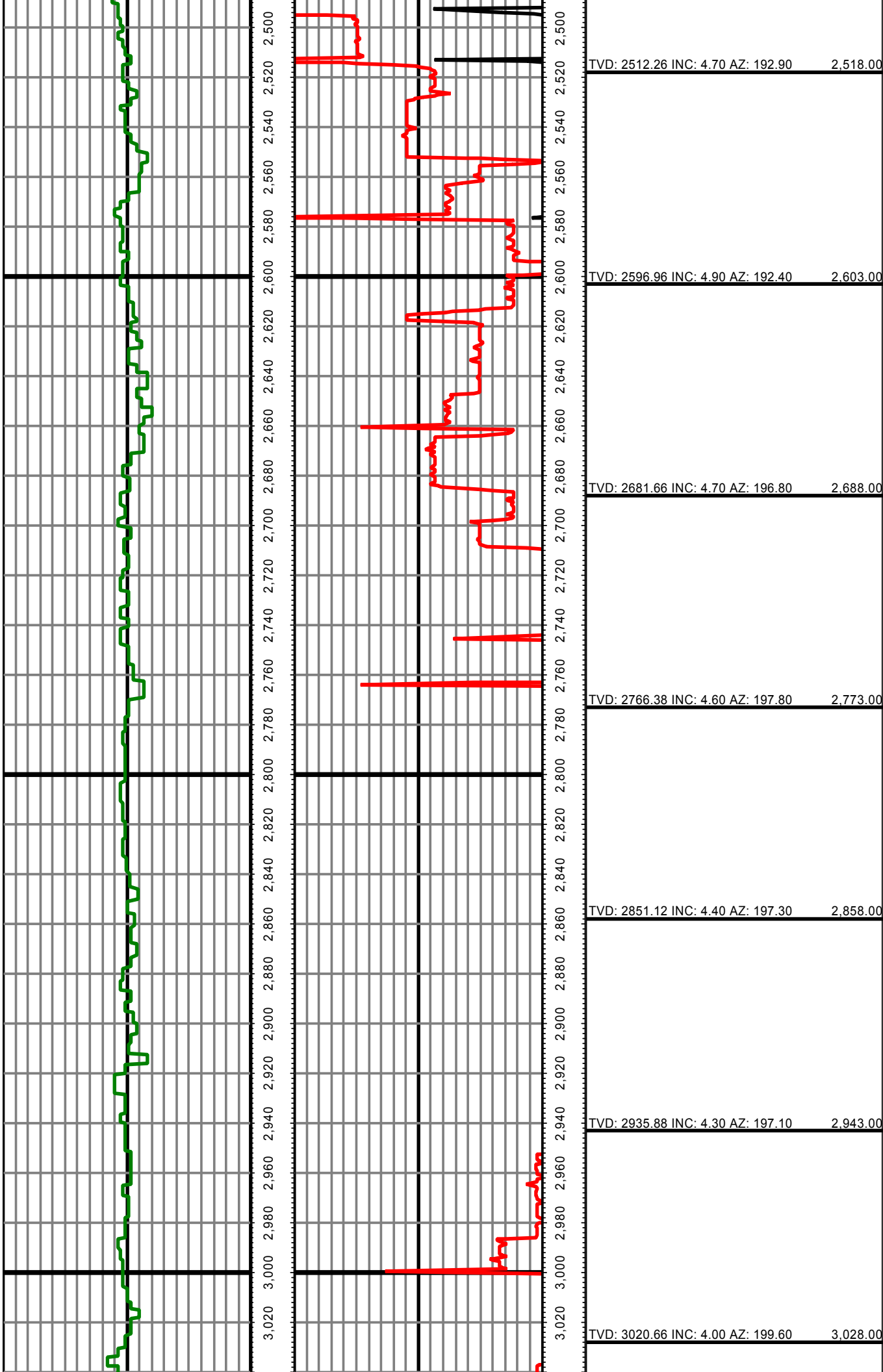
TVD: 2088.21 INC: 3.50 AZ: 172.10 2,093.00

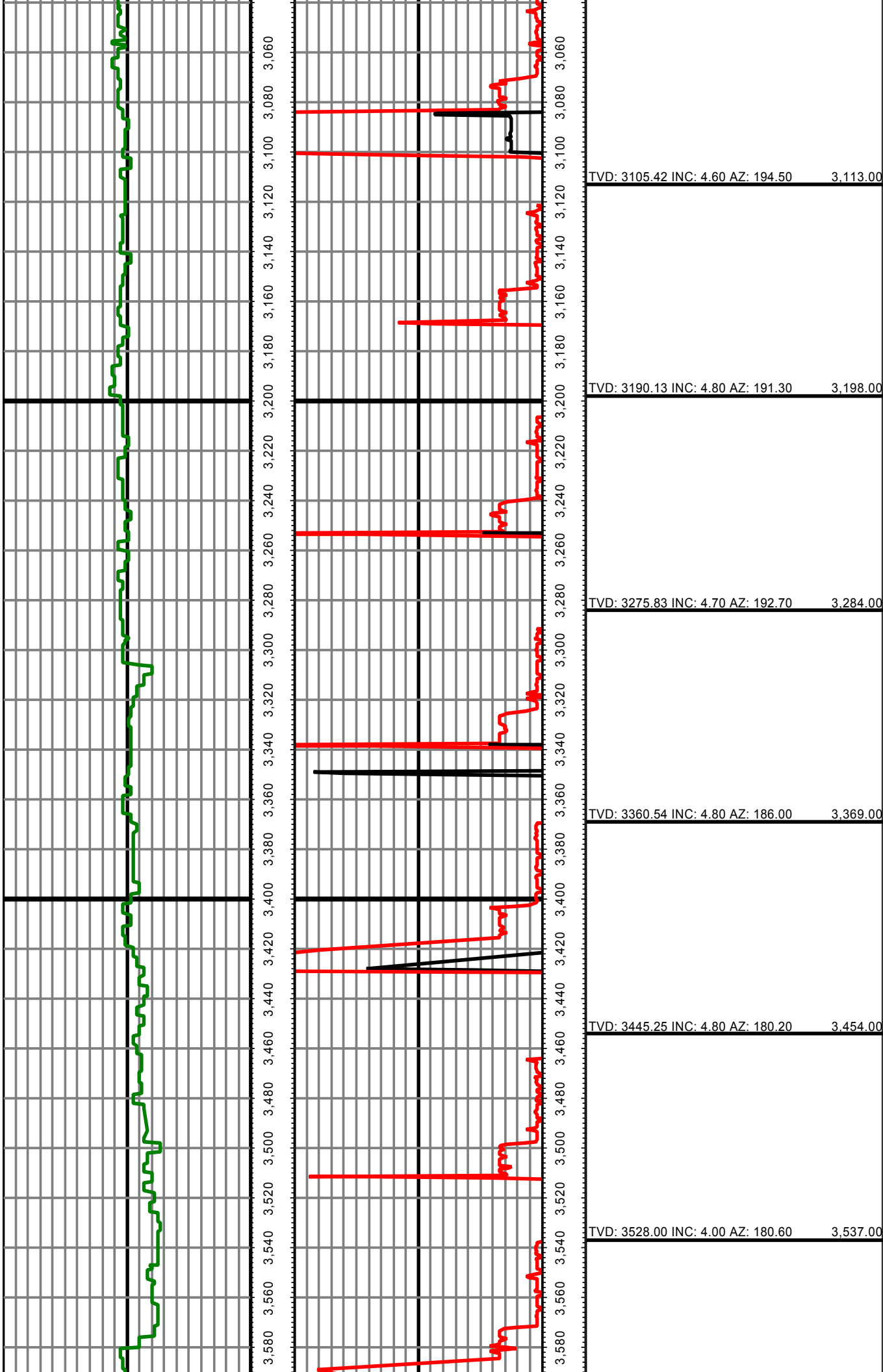
TVD: 2173.04 INC: 3.80 AZ: 185.20 2,178.00

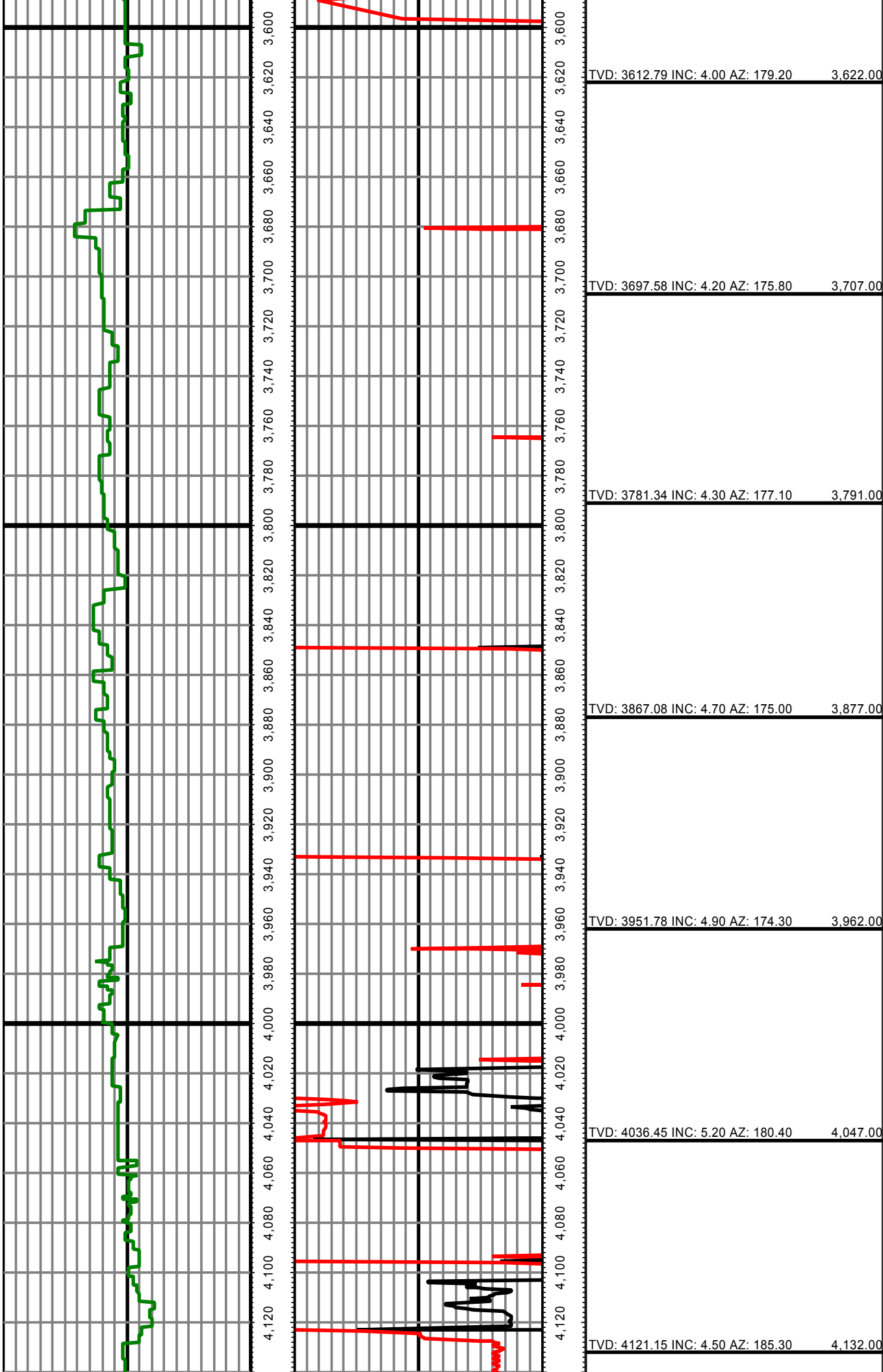
TVD: 2257.84 INC: 4.00 AZ: 182.90 2,263.00

TVD: 2342.66 INC: 3.40 AZ: 176.90 2,348.00

TVD: 2427.50 INC: 3.80 AZ: 191.80 2,433.00







TVD: 3612.79 INC: 4.00 AZ: 179.20 3,622.00

TVD: 3697.58 INC: 4.20 AZ: 175.80 3,707.00

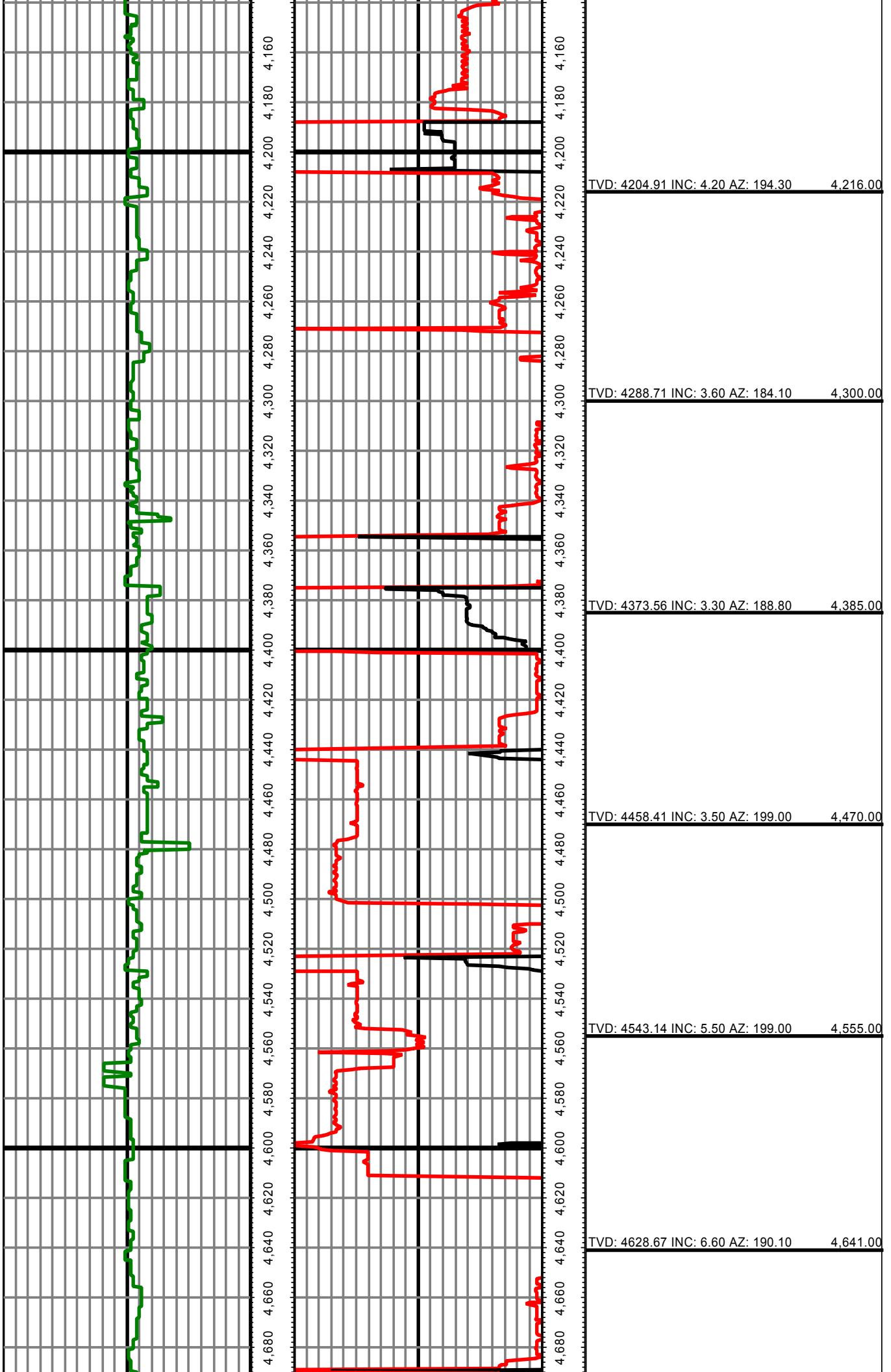
TVD: 3781.34 INC: 4.30 AZ: 177.10 3,791.00

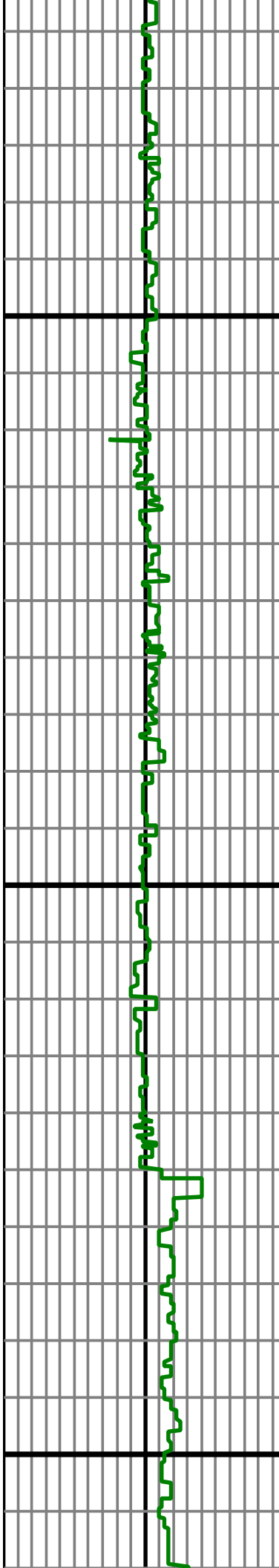
TVD: 3867.08 INC: 4.70 AZ: 175.00 3,877.00

TVD: 3951.78 INC: 4.90 AZ: 174.30 3,962.00

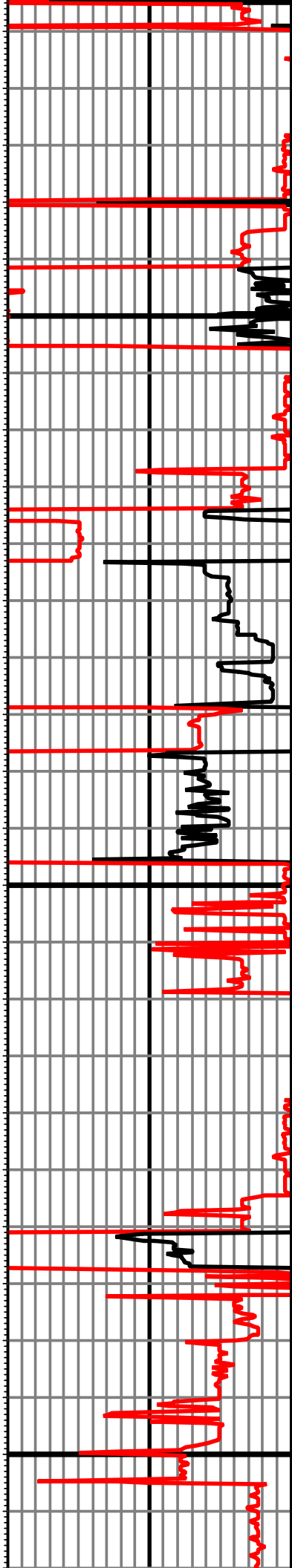
TVD: 4036.45 INC: 5.20 AZ: 180.40 4,047.00

TVD: 4121.15 INC: 4.50 AZ: 185.30 4,132.00





5,220 5,200 5,180 5,160 5,140 5,120 5,100 5,080 5,060 5,040 5,020 5,000 4,980 4,960 4,940 4,920 4,900 4,880 4,860 4,840 4,820 4,800 4,780 4,760 4,740 4,720 4,700



5,220 5,200 5,180 5,160 5,140 5,120 5,100 5,080 5,060 5,040 5,020 5,000 4,980 4,960 4,940 4,920 4,900 4,880 4,860 4,840 4,820 4,800 4,780 4,760 4,740 4,720 4,700

TVD: 4712.13 INC: 6.30 AZ: 183.20 4,725.00

TVD: 4797.65 INC: 5.90 AZ: 186.90 4,811.00

TVD: 4882.20 INC: 5.90 AZ: 189.40 4,896.00

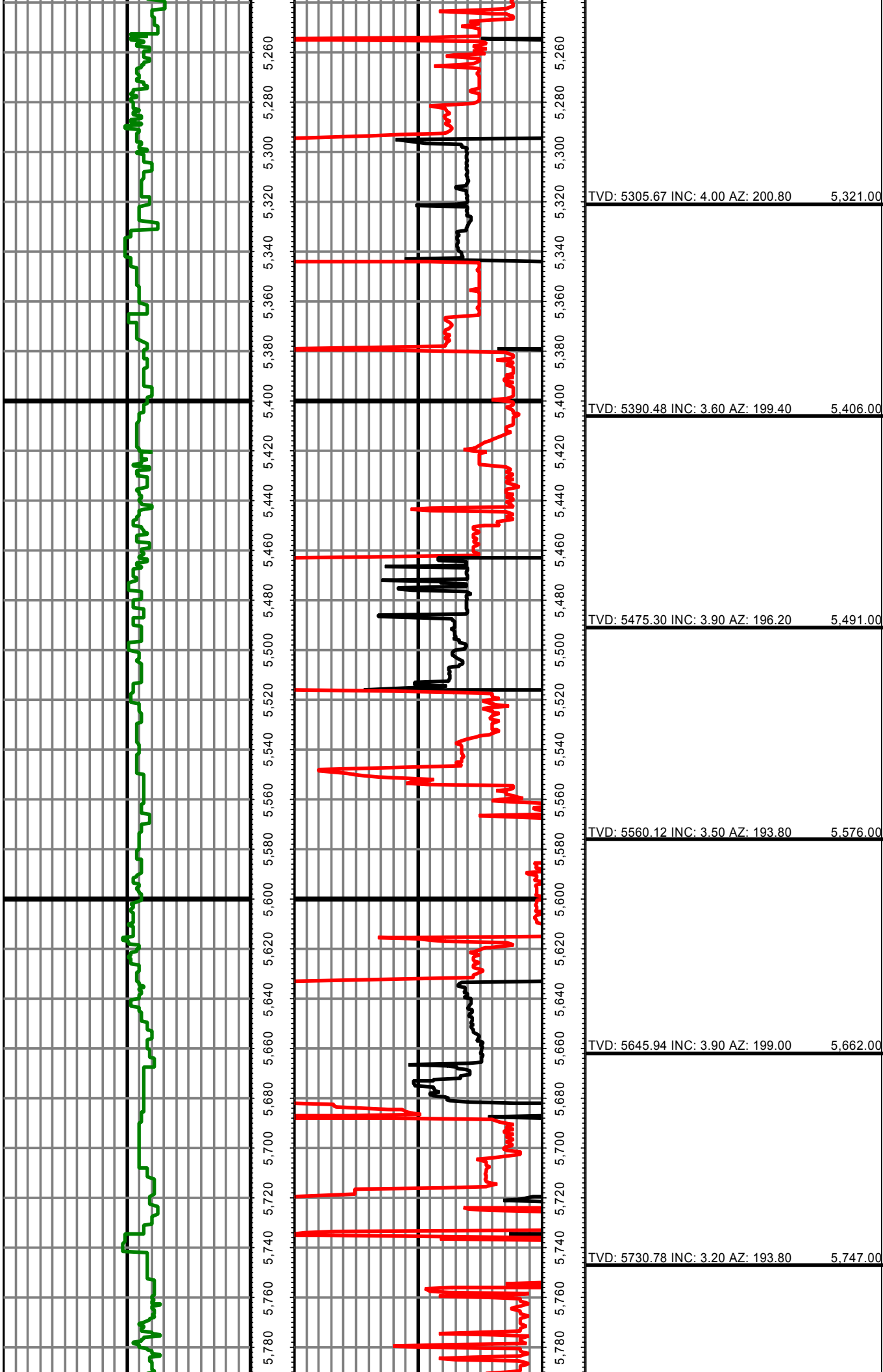
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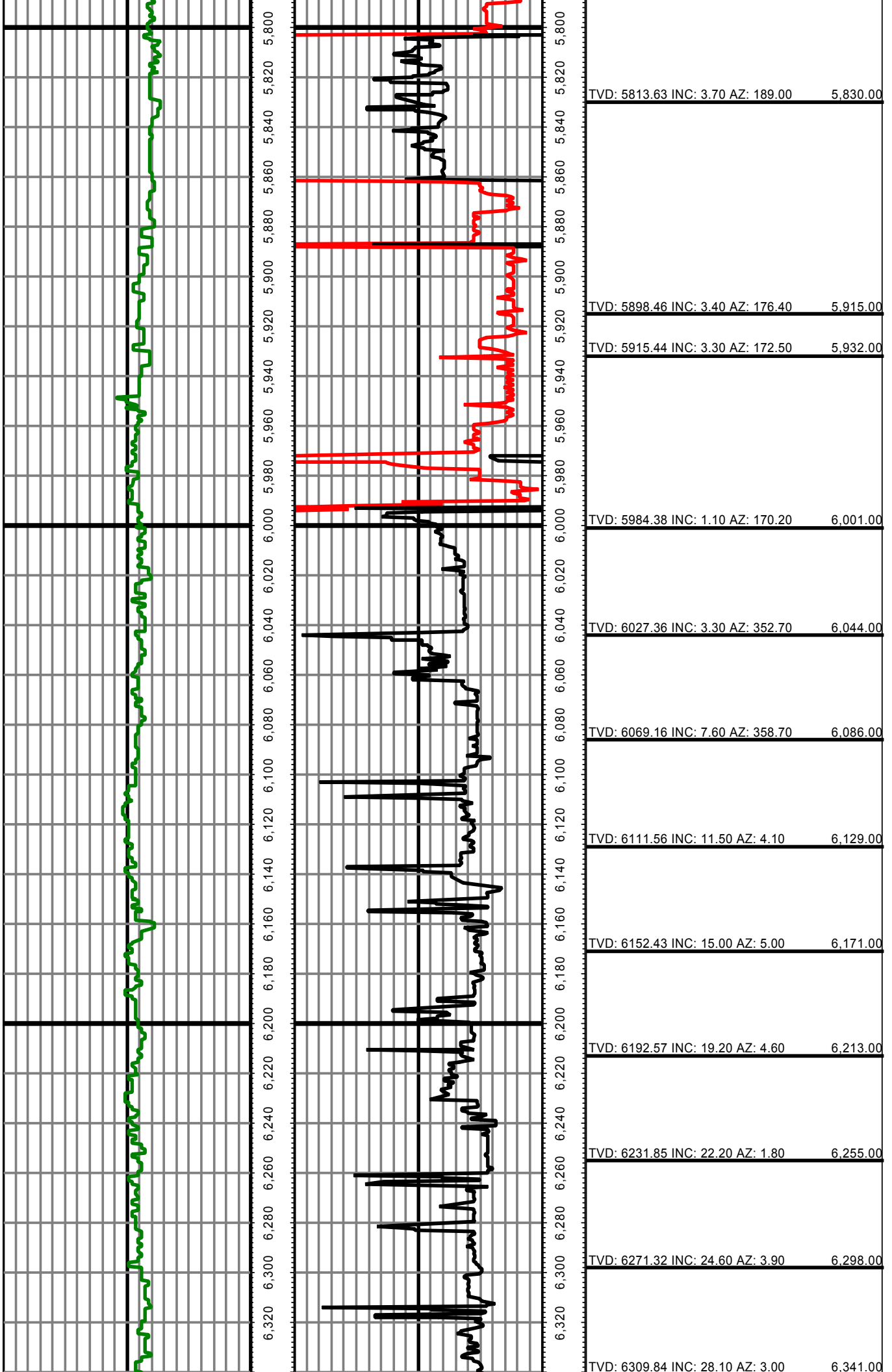
TVD: 5051.32 INC: 5.50 AZ: 202.70 5,066.00

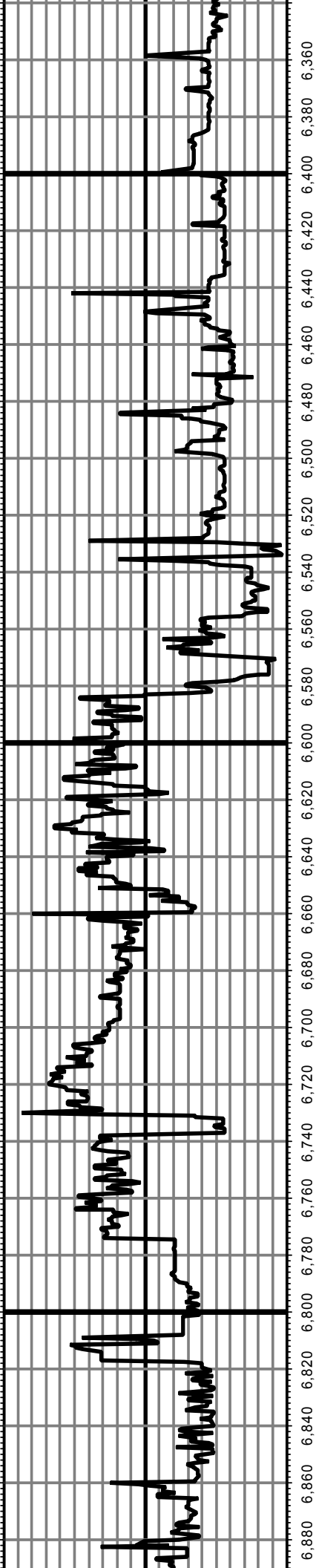
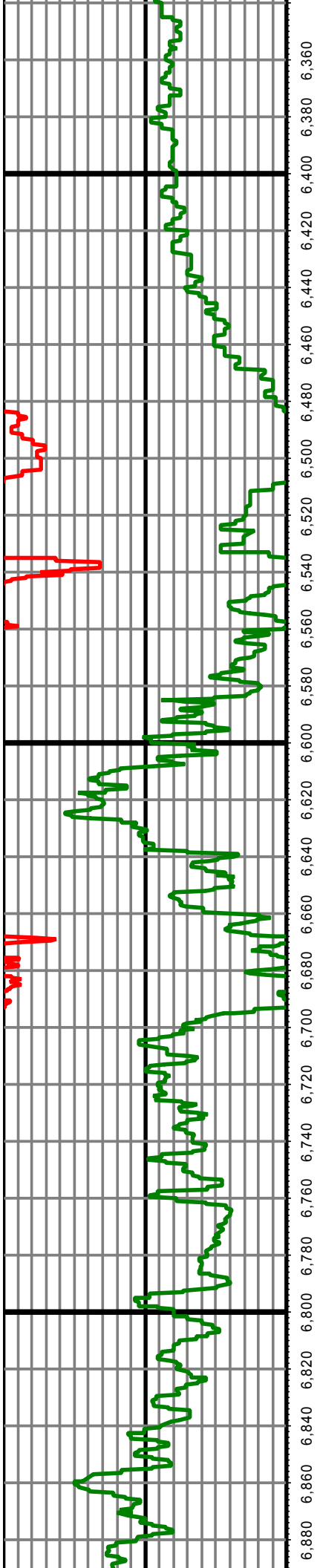
TVD: 5136.02 INC: 4.10 AZ: 204.10 5,151.00

TVD: 5220.84 INC: 3.30 AZ: 199.20 5,236.00

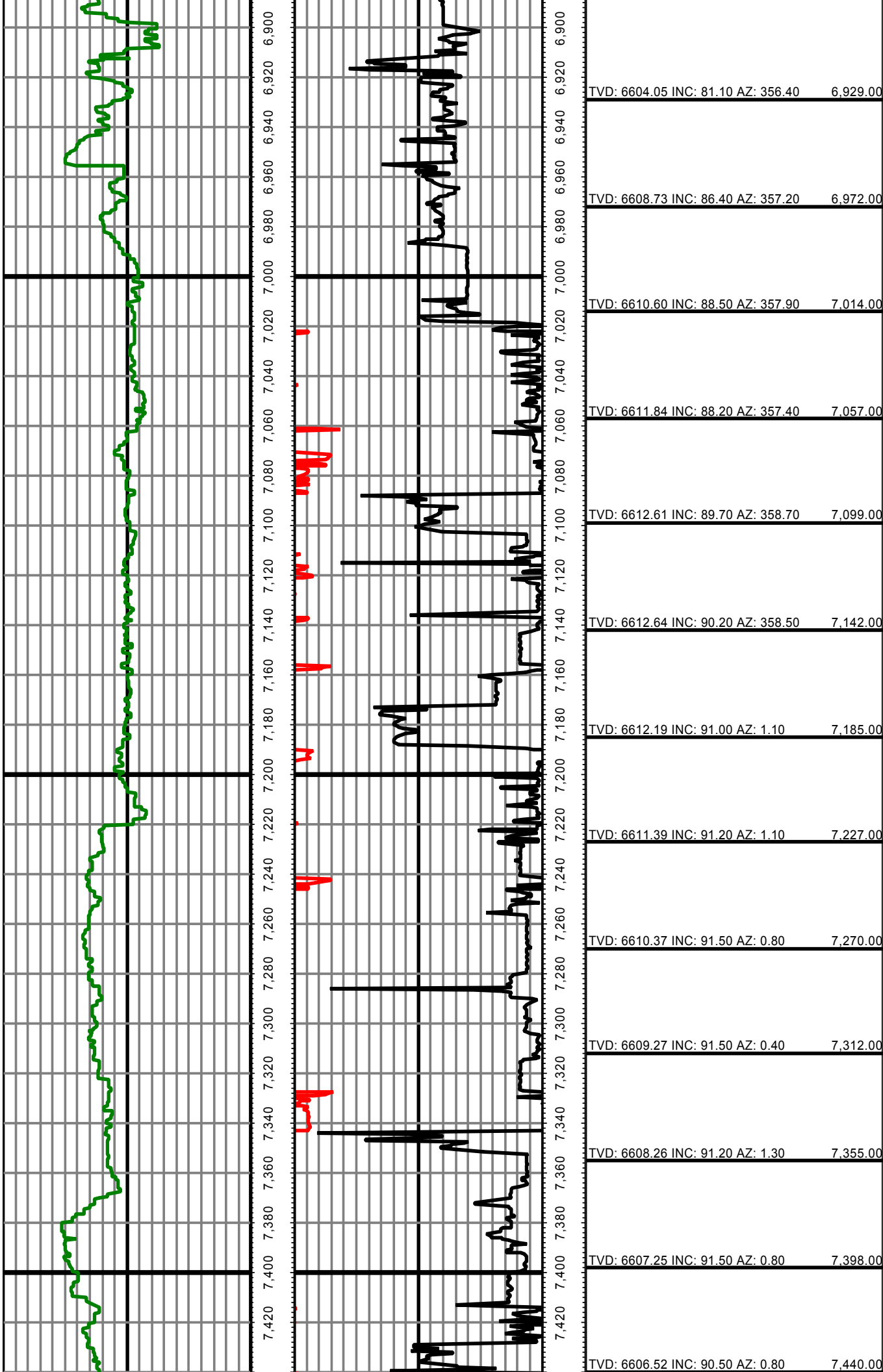


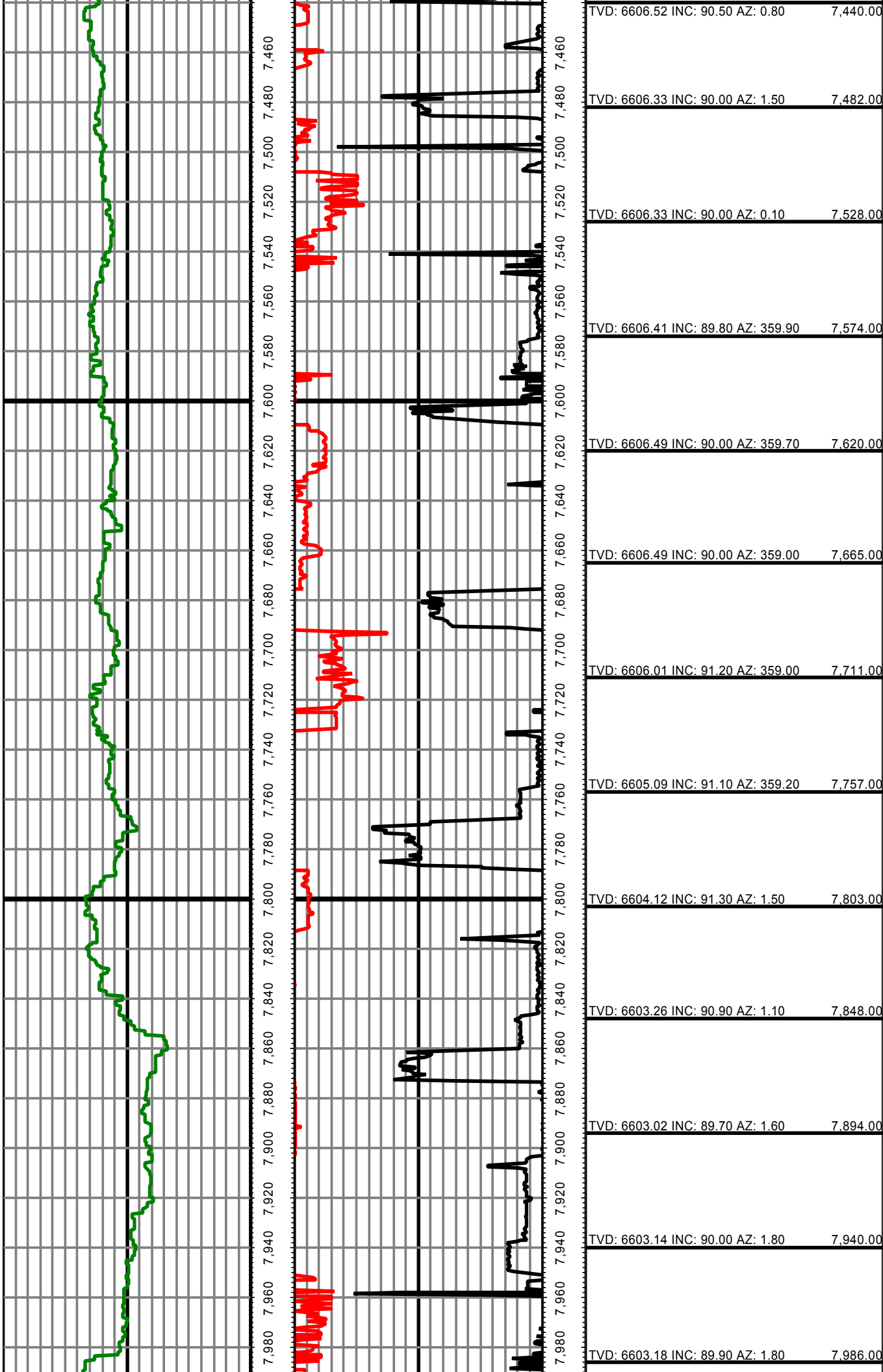




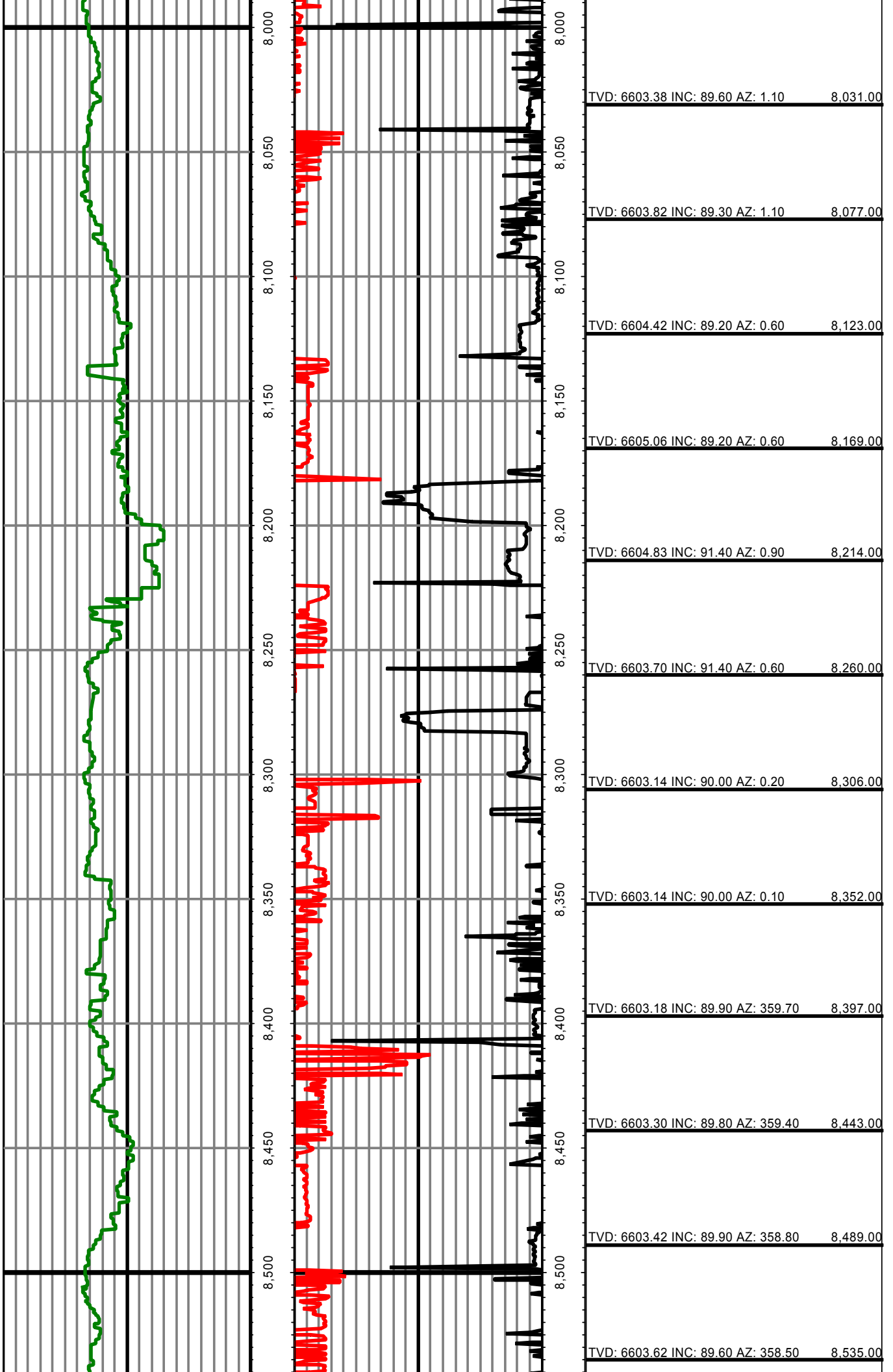


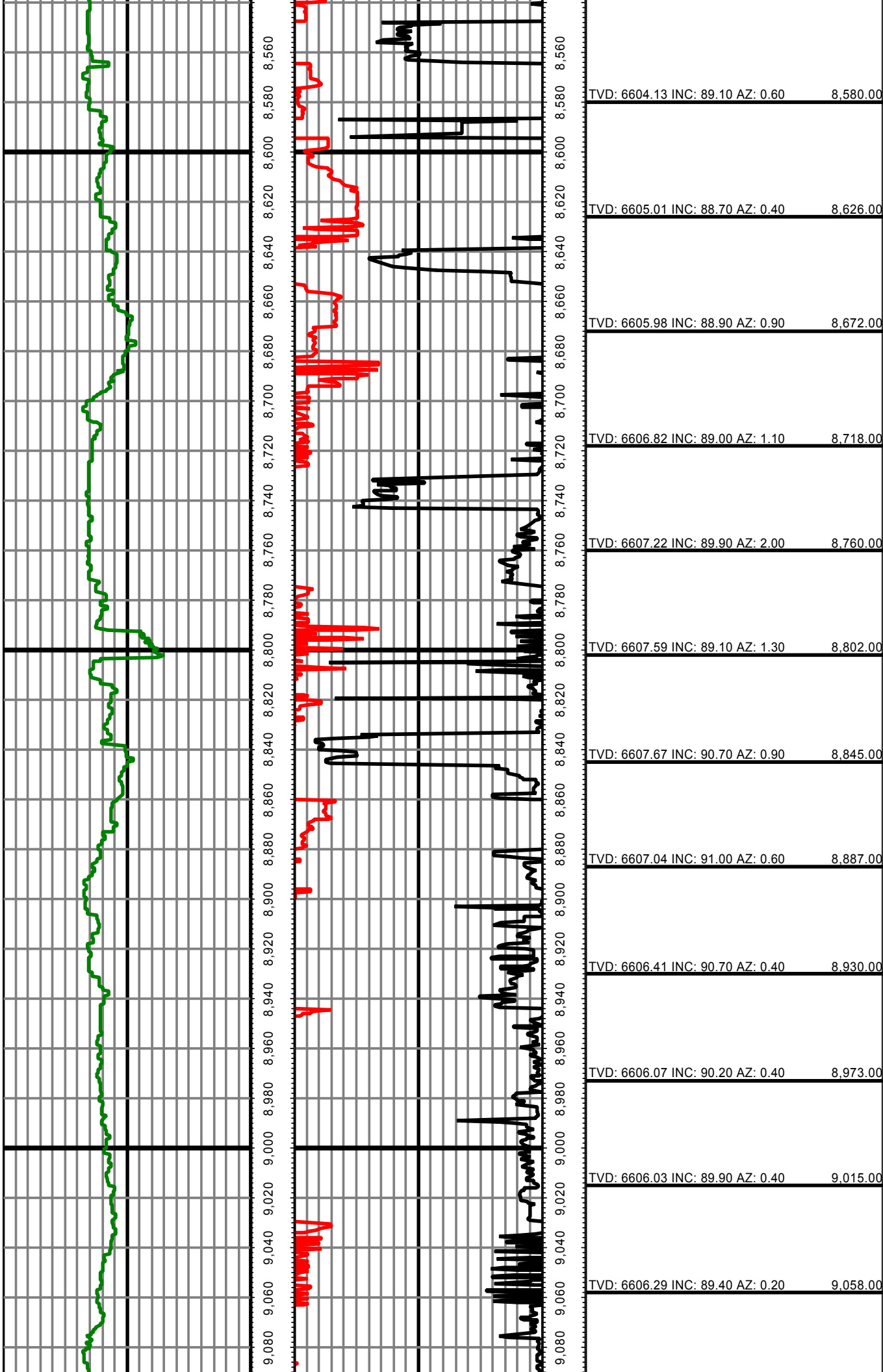
TVD: 6309.84 INC: 28.10 AZ: 3.00	6,341.00
TVD: 6346.04 INC: 32.80 AZ: 2.70	6,383.00
TVD: 6381.21 INC: 37.40 AZ: 1.30	6,426.00
TVD: 6414.29 INC: 42.00 AZ: 1.60	6,469.00
TVD: 6444.92 INC: 47.10 AZ: 1.30	6,512.00
TVD: 6472.41 INC: 51.10 AZ: 0.90	6,554.00
TVD: 6494.83 INC: 54.30 AZ: 359.70	6,591.00
TVD: 6537.36 INC: 62.30 AZ: 358.50	6,672.00
TVD: 6556.13 INC: 69.50 AZ: 359.40	6,718.00
TVD: 6568.83 INC: 75.30 AZ: 358.70	6,760.00
TVD: 6578.43 INC: 77.60 AZ: 358.50	6,801.00
TVD: 6587.48 INC: 78.10 AZ: 358.30	6,844.00
TVD: 6596.21 INC: 77.90 AZ: 357.40	6,886.00





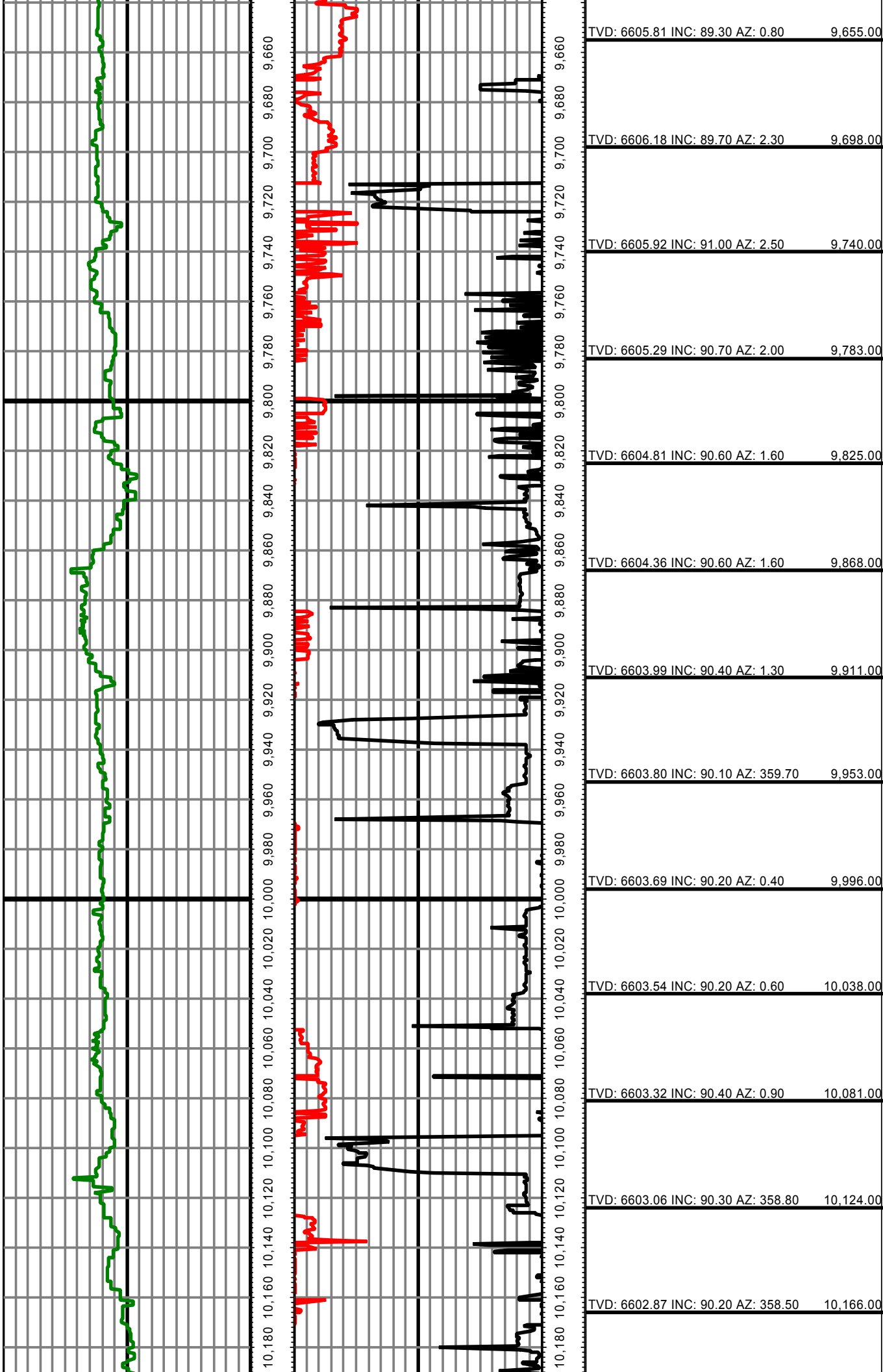
TVD: 6606.52 INC: 90.50 AZ: 0.80	7,440.00
TVD: 6606.33 INC: 90.00 AZ: 1.50	7,482.00
TVD: 6606.33 INC: 90.00 AZ: 0.10	7,528.00
TVD: 6606.41 INC: 89.80 AZ: 359.90	7,574.00
TVD: 6606.49 INC: 90.00 AZ: 359.70	7,620.00
TVD: 6606.49 INC: 90.00 AZ: 359.00	7,665.00
TVD: 6606.01 INC: 91.20 AZ: 359.00	7,711.00
TVD: 6605.09 INC: 91.10 AZ: 359.20	7,757.00
TVD: 6604.12 INC: 91.30 AZ: 1.50	7,803.00
TVD: 6603.26 INC: 90.90 AZ: 1.10	7,848.00
TVD: 6603.02 INC: 89.70 AZ: 1.60	7,894.00
TVD: 6603.14 INC: 90.00 AZ: 1.80	7,940.00
TVD: 6603.18 INC: 89.90 AZ: 1.80	7,986.00

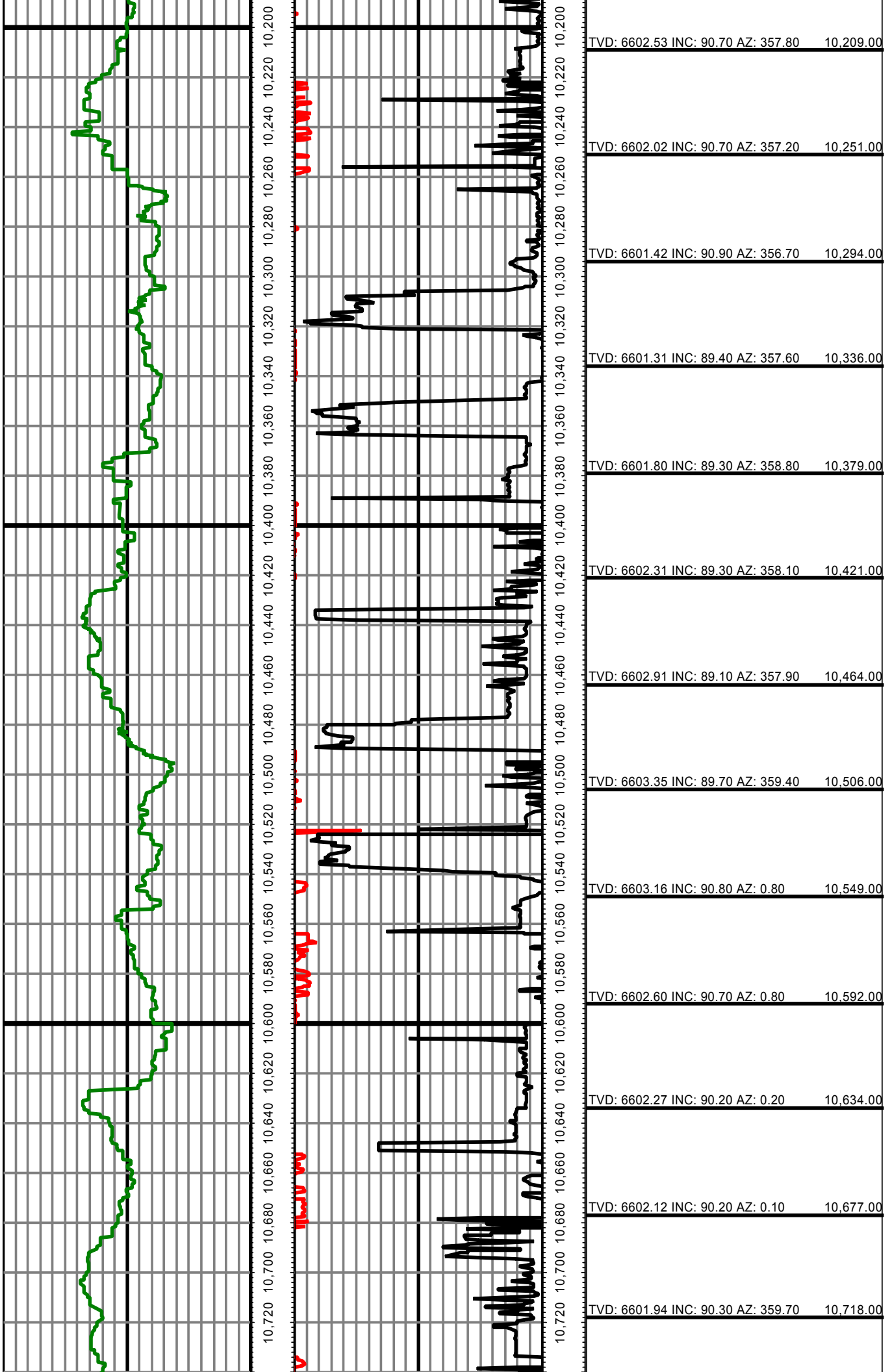


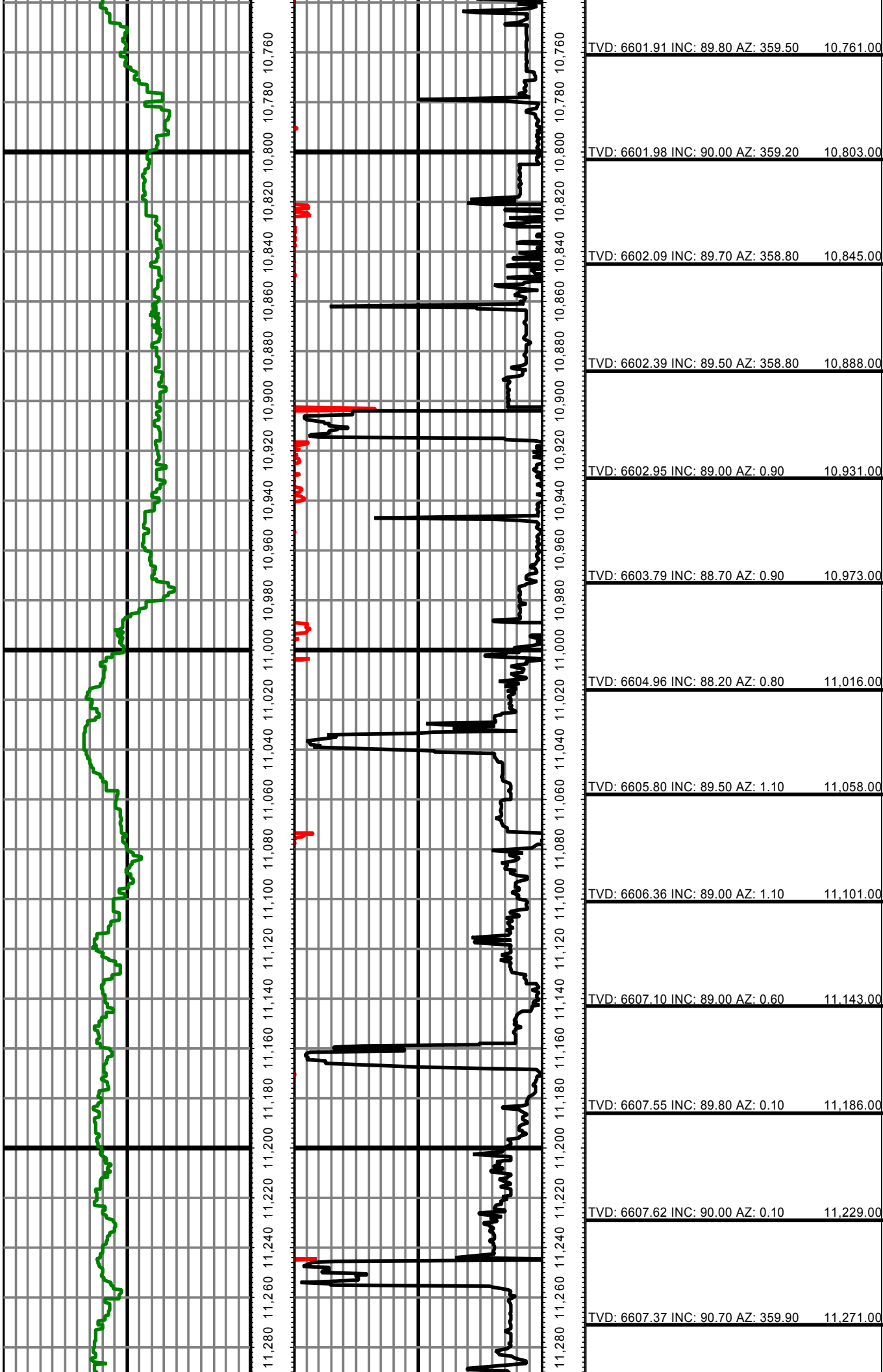












TVD: 6601.91 INC: 89.80 AZ: 359.50 10,761.00

TVD: 6601.98 INC: 90.00 AZ: 359.20 10,803.00

TVD: 6602.09 INC: 89.70 AZ: 358.80 10,845.00

TVD: 6602.39 INC: 89.50 AZ: 358.80 10,888.00

TVD: 6602.95 INC: 89.00 AZ: 0.90 10,931.00

TVD: 6603.79 INC: 88.70 AZ: 0.90 10,973.00

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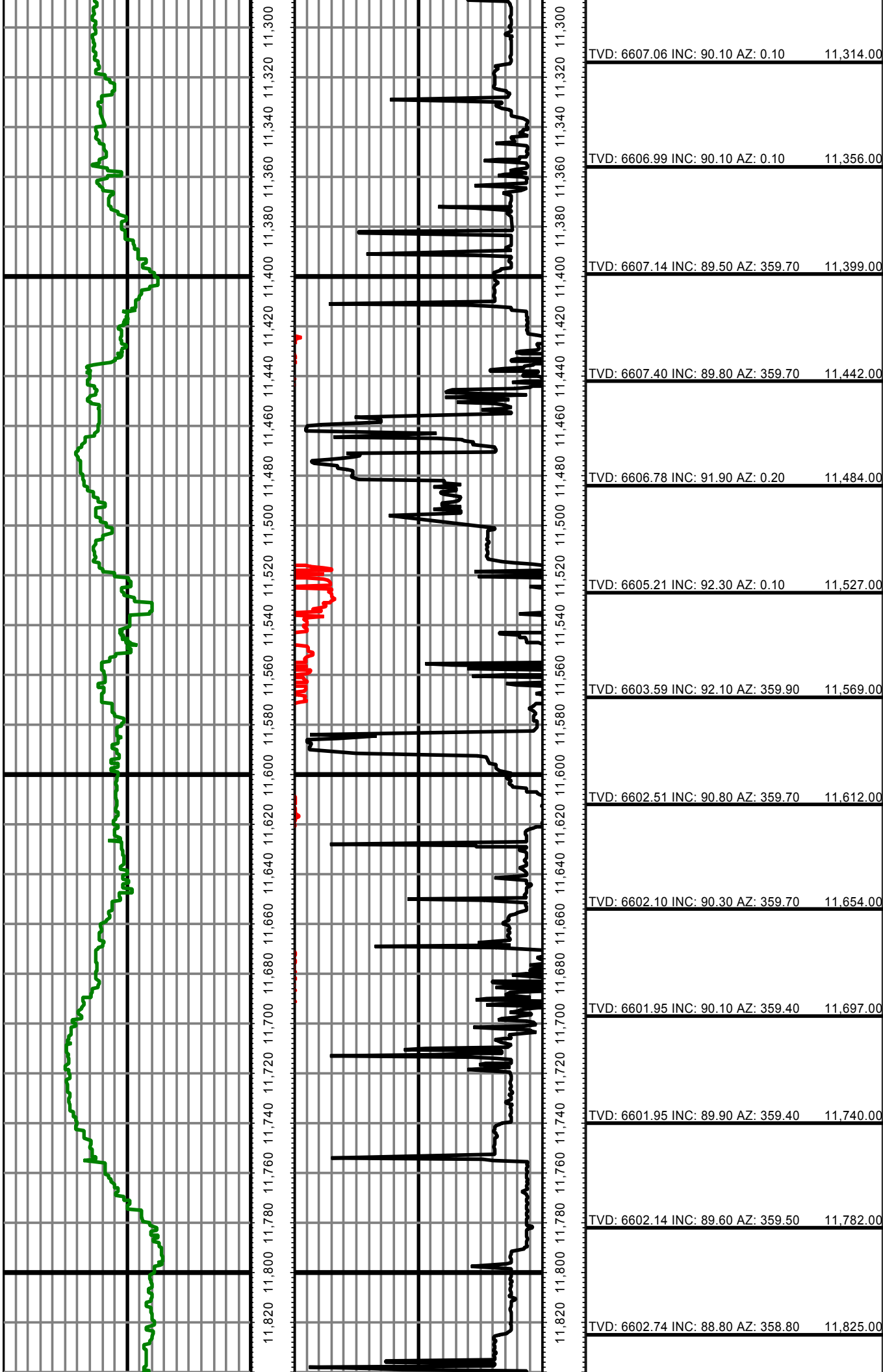
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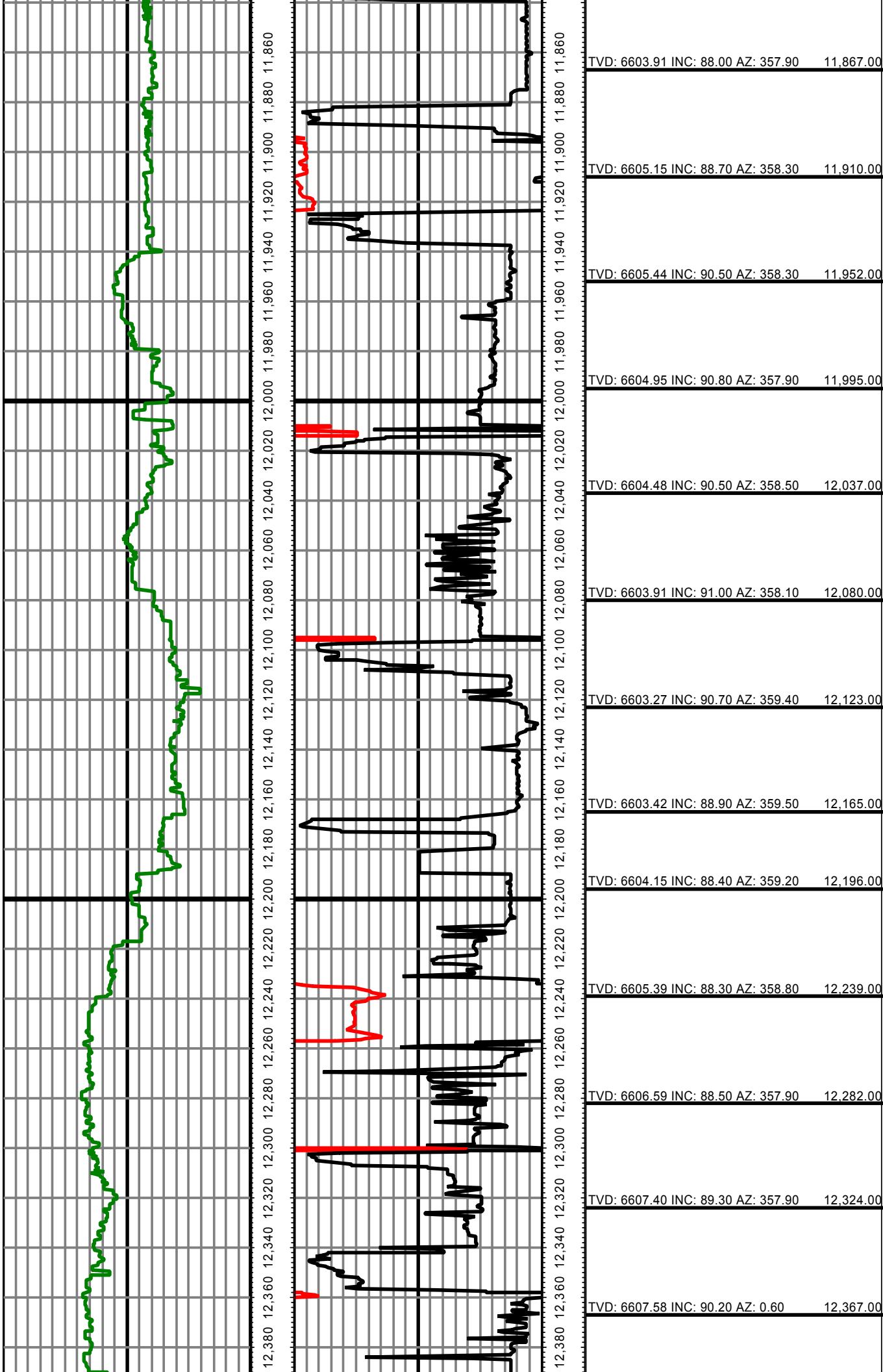
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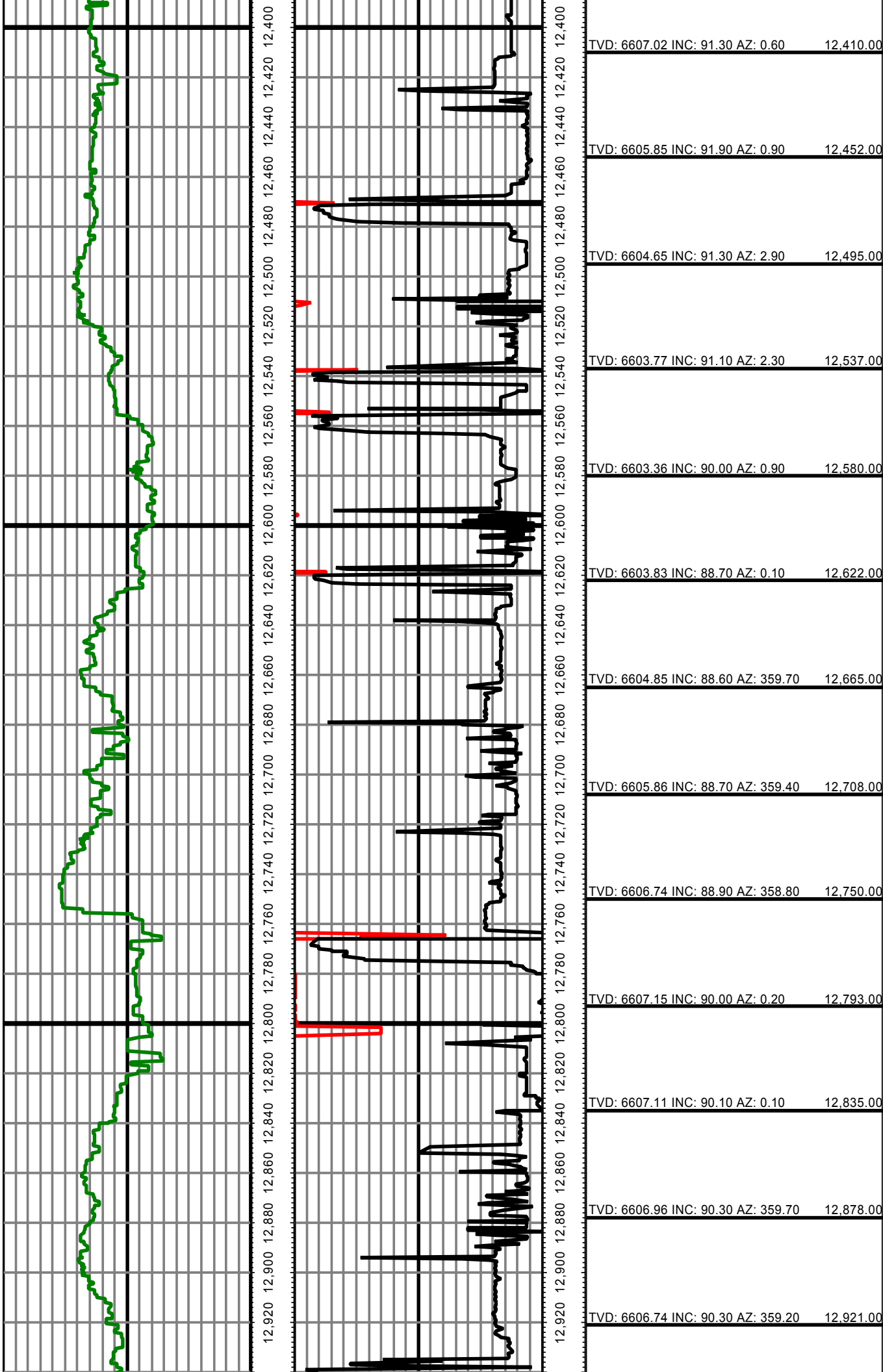
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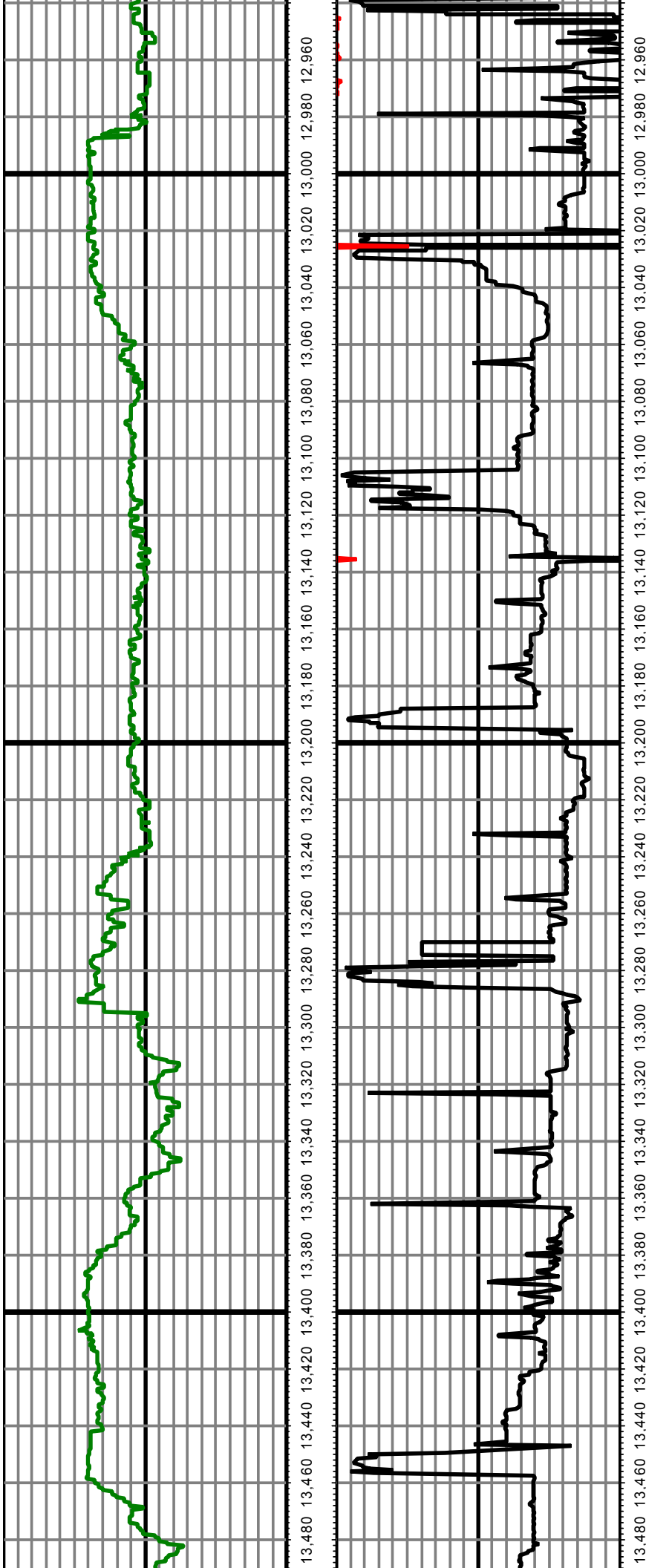
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TVD: 6607.37 INC: 90.70 AZ: 359.90 11,271.00









TVD: 6606.89 INC: 89.30 AZ: 358.80 12,963.00

TVD: 6607.18 INC: 89.90 AZ: 358.70 13,005.00

TVD: 6607.10 INC: 90.30 AZ: 359.40 13,048.00

TVD: 6606.78 INC: 90.60 AZ: 358.50 13,089.00

TVD: 6606.28 INC: 90.70 AZ: 0.20 13,133.00

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TVD: 6606.93 INC: 88.90 AZ: 359.40 13,388.00

TVD: 6607.66 INC: 89.10 AZ: 359.00 13,430.00

TVD: 6608.42 INC: 88.90 AZ: 0.80 13,473.00

