



Precision Directional Services, Inc.

27610 Commerce Oaks Drive  
Oak Ridge North, TX 77385  
713-435-6250

**DL1921**

2":100' - MD

10/8/2013 1:54:37 PM

**Oper. Company:** Carrizo Oil and Gas, Inc.

**Country:** USA

**State / Province:** Colorado

**County / Parish:** Weld County

**Started:** 10/02/2013 03:30 PM

**API/UWI:** 05-123-37593

**Field:** Niobrara CONZ'83

**Well:** Nelson Ranches 1-33-10-59

**Rig:** Xtreme 19

**Ended:** 10/08/2013 12:30 PM

### Personnel

**Day Hand:** Kody Armajo

**Night Hand:** Neil LaRubbio

**Comp. Emp:** Gabriel Vela

### Location

**Latitude:** 40.80432N

**Longitude:** -103.981150W

**Elev. GL:** 5210

**Elev. DF:** 5227

**Elev. KB:** 17

### Hole Data

Size	From	To
12 1/4	0	1430
8 3/4	1430	6445
6 1/8	6445	11659

### Casing Data

Size	From	To
9 5/8"	0	1404
7"	0	5960
4.5	5960	11659

### Bit Sizes

Size	From	To
12 1/4	0	1430
8 3/4	1430	6445
6 1/8	6445	11659

### Mud Data

Type	Weight	Density	Viscosity	Rm	Rmf	Rmc	From	To
WBM	8.4	8.4	40- 44	N/A	N/A	N/A	0	1430
WBM	8.4 - 9.0	8.4 - 9.0	30 - 40	N/A	N/A	N/A	1430	5823
WBM	9.0 - 9.5	9.0 - 9.5	28 - 30	N/A	N/A	N/A	5823	6645
WBM	9.5 - 9.6	9.5 - 9.6	44 - 45	N/A	N/A	N/A	6645	11659

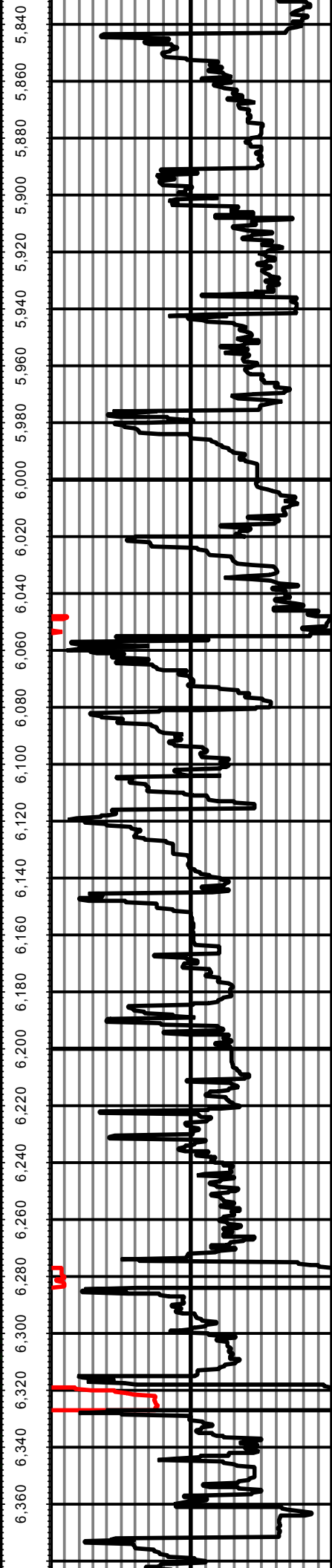
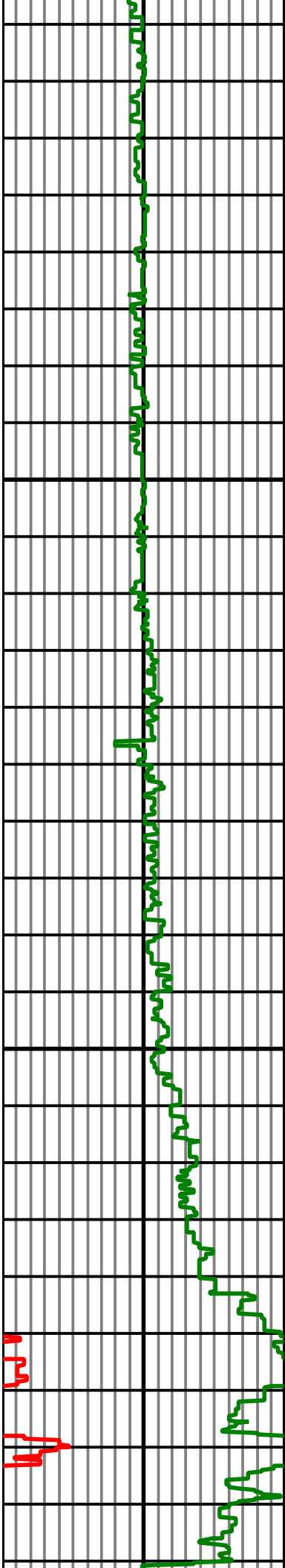
### Tool Run Data

Serial Number	Gamma Offset	Resist. Offset	Start Time	Start Depth	End Time	End Depth
G2110	41	0	10/2/2013 11:00:27 PM	5823	10/3/2013 12:30:27 PM	6445
G2110	41	0	10/4/2013 6:30:31 AM	6445	10/8/2013 12:30:31 PM	11659

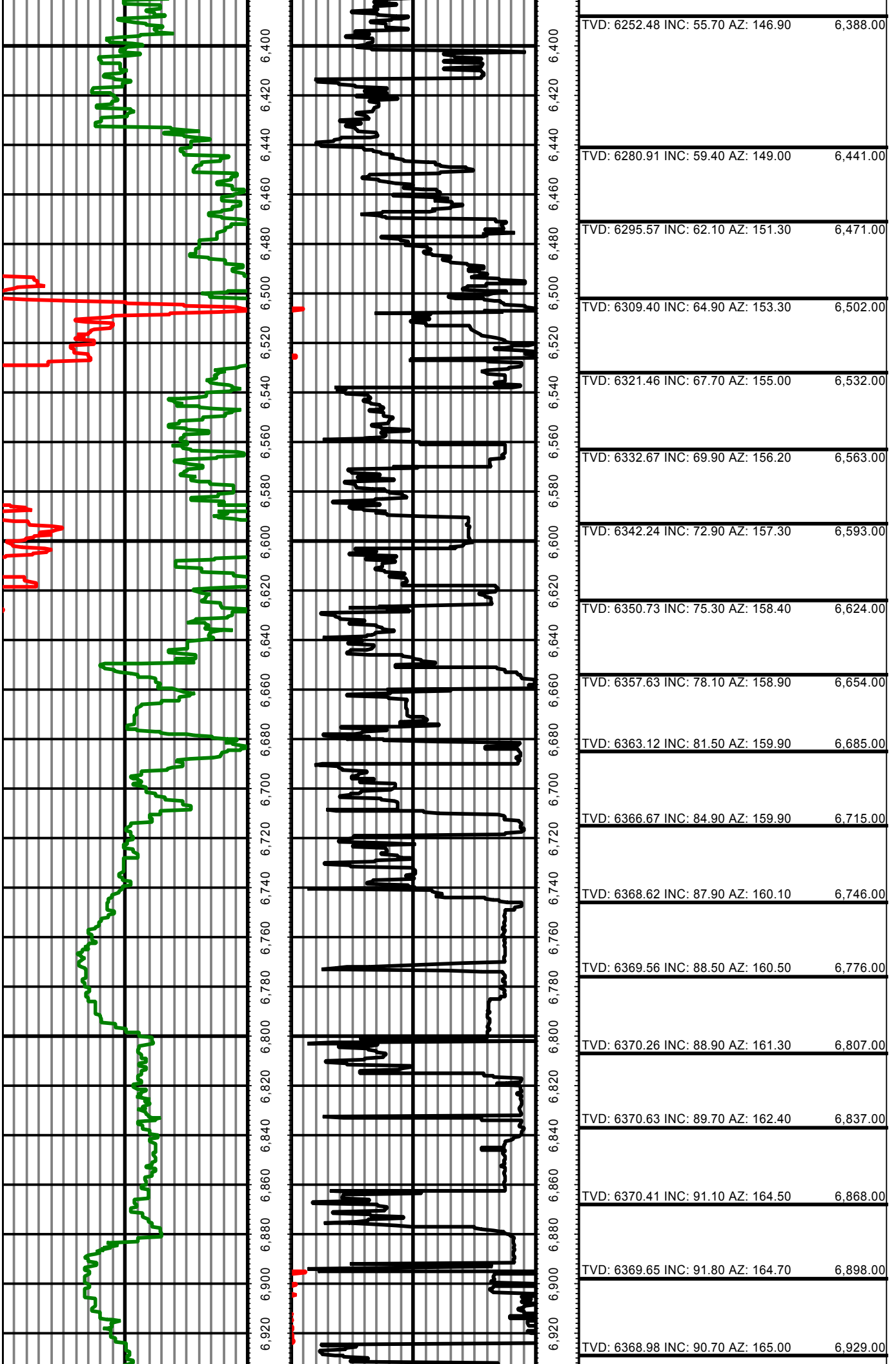
*All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost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

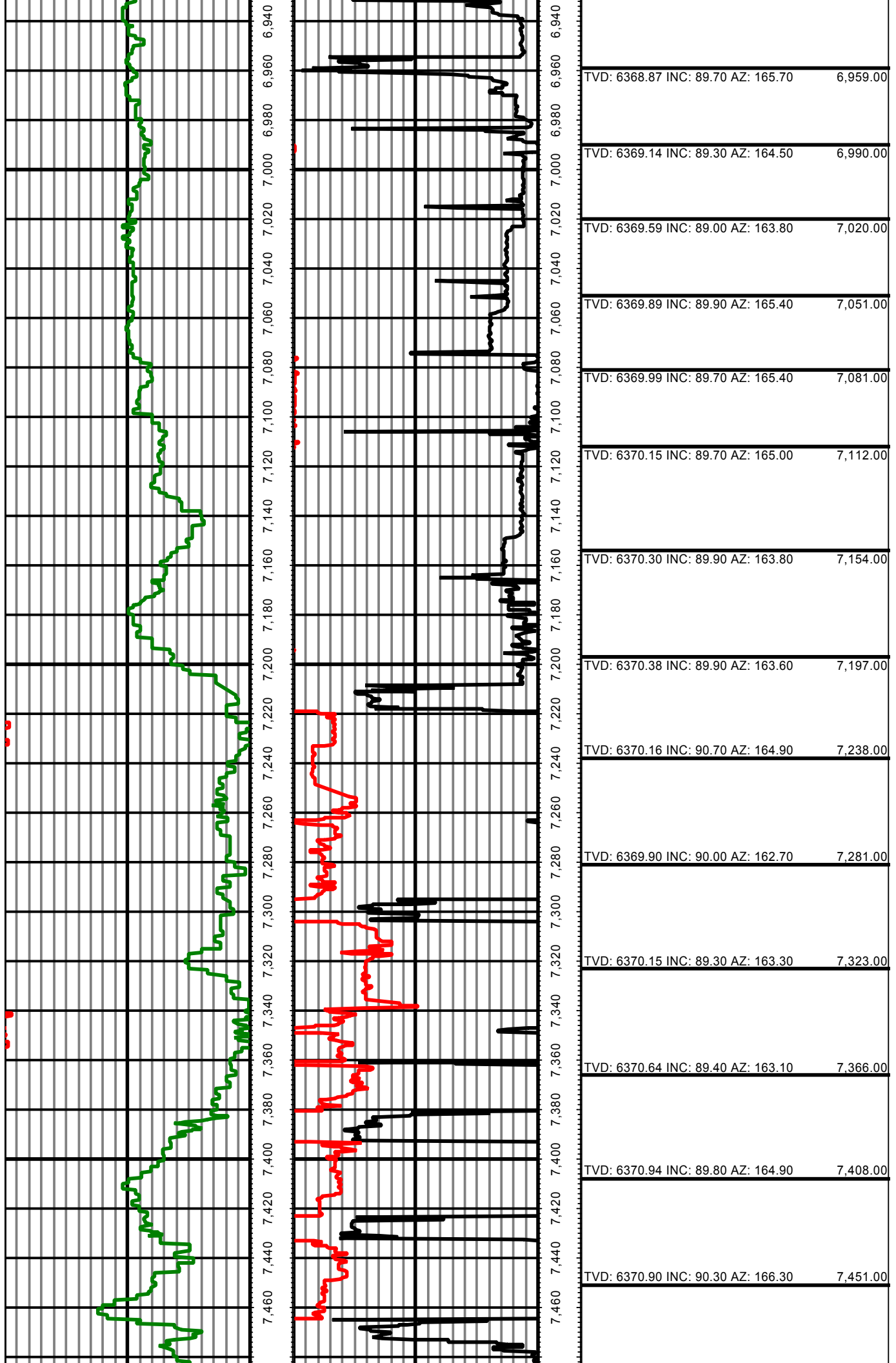
0.00 GR(API) 150.00 MD 0.00 ROP(FT/HR) 150.00 MD Surveys (TVD/INC/AZ)  
150.00 2 300.00 FT 150.00 2 300.00 FT

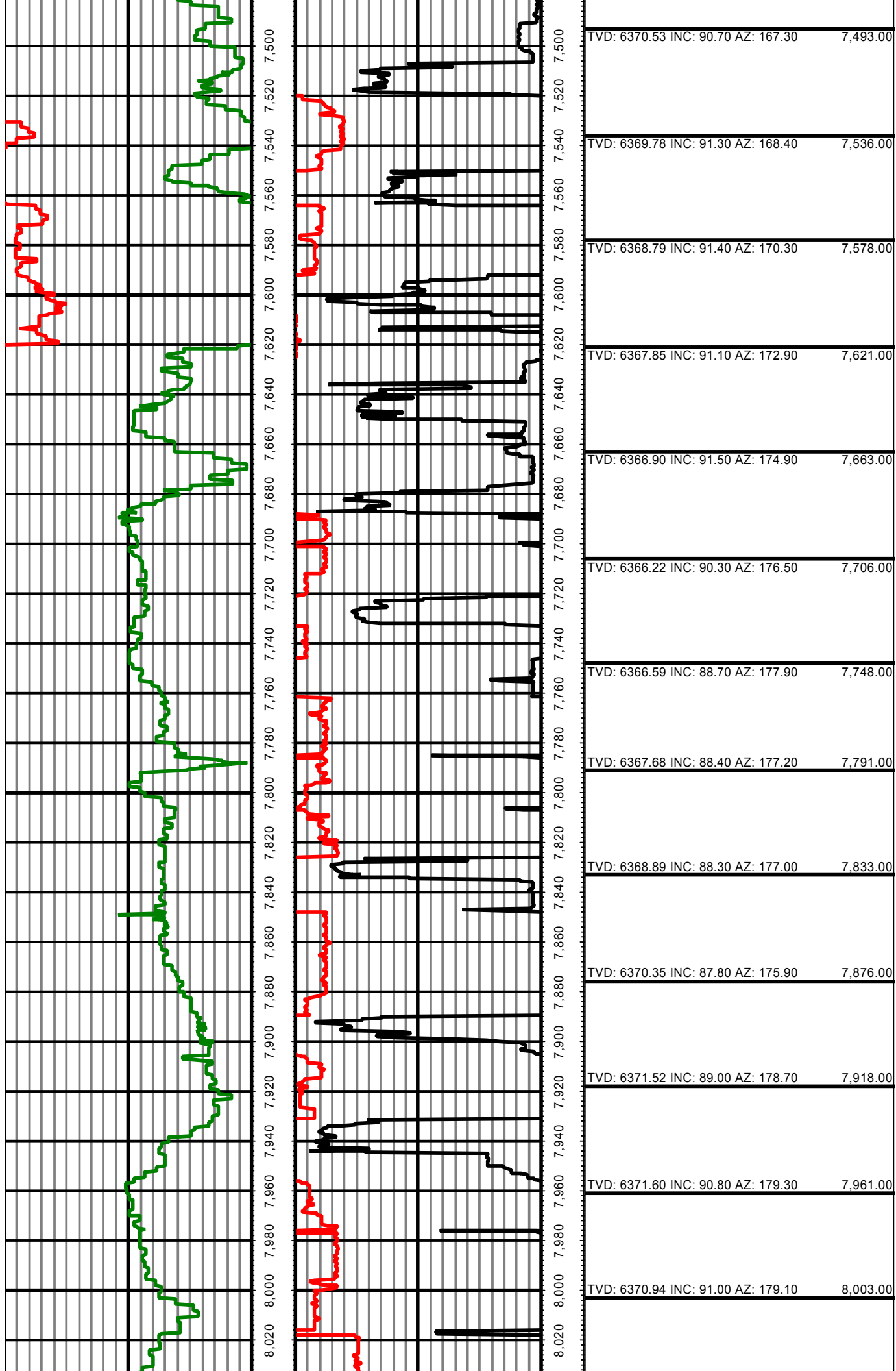


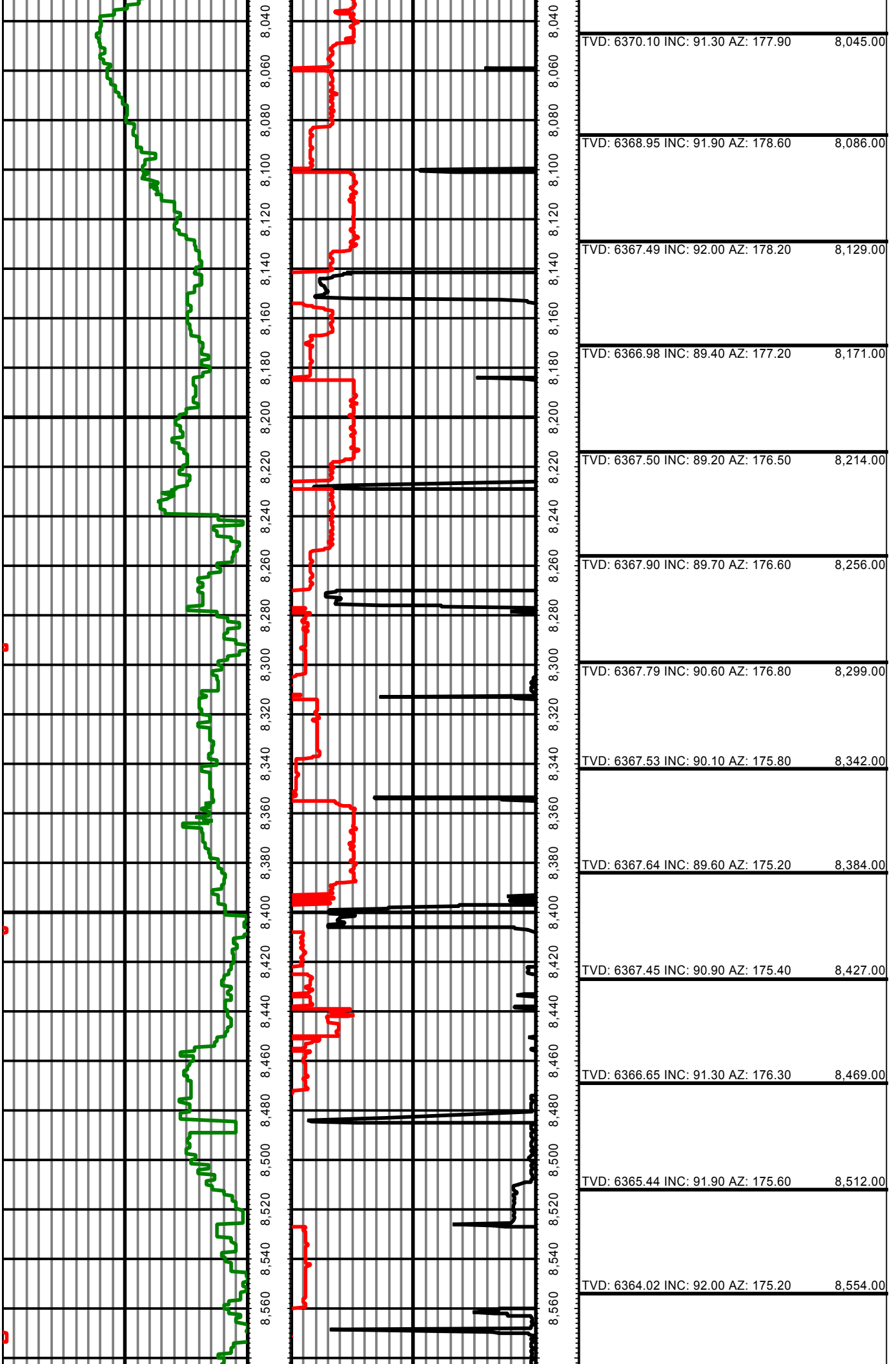


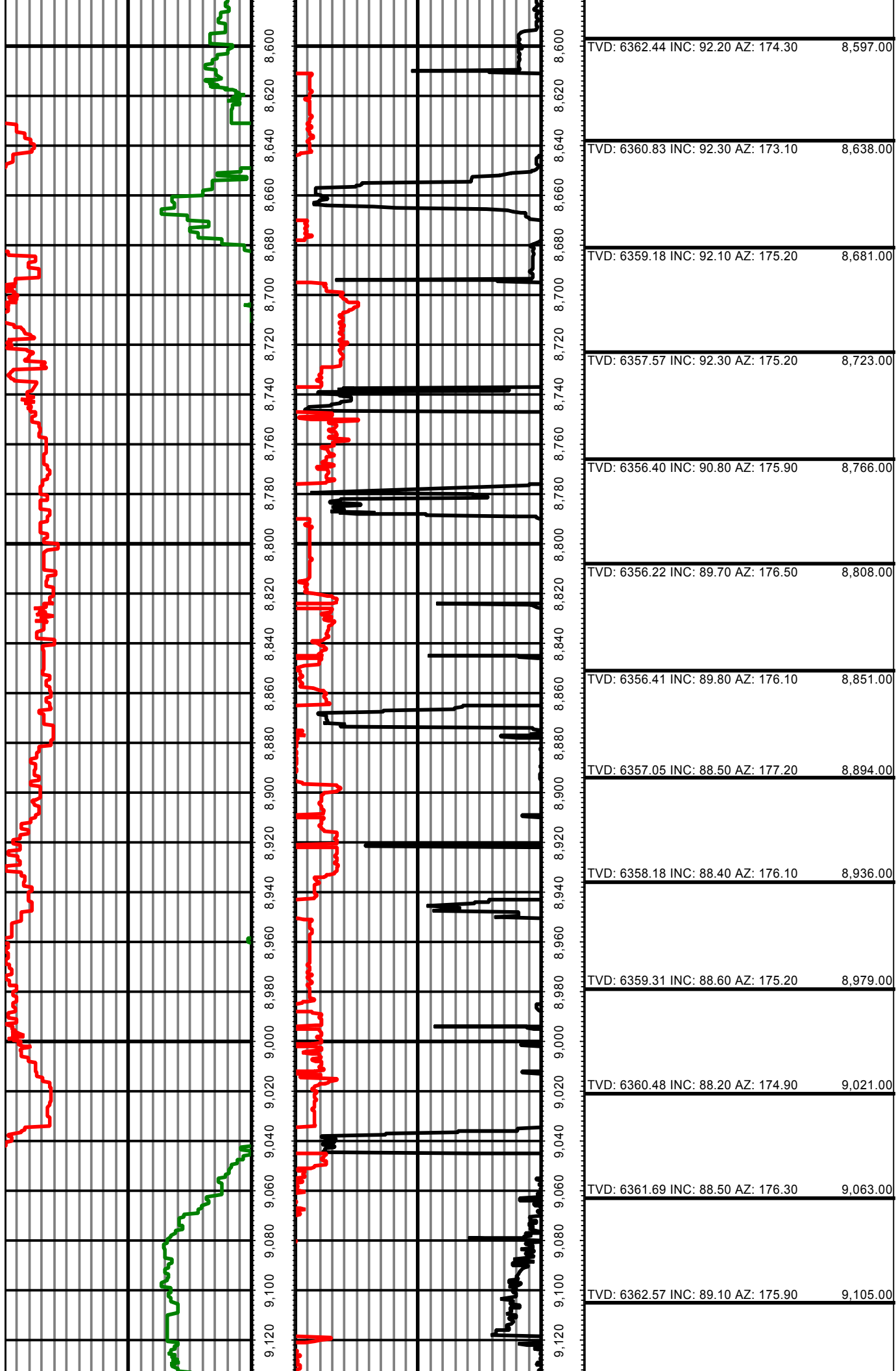
TVD: 5795.20 INC: 5.70 AZ: 118.60	5,835.00
TVD: 5836.79 INC: 10.20 AZ: 121.80	5,877.00
TVD: 5878.79 INC: 14.40 AZ: 123.70	5,920.00
TVD: 5919.12 INC: 18.00 AZ: 123.90	5,962.00
TVD: 5959.48 INC: 22.30 AZ: 122.10	6,005.00
TVD: 5997.77 INC: 26.20 AZ: 120.20	6,047.00
TVD: 6035.89 INC: 28.90 AZ: 122.80	6,090.00
TVD: 6072.06 INC: 32.20 AZ: 128.50	6,132.00
TVD: 6107.65 INC: 36.10 AZ: 133.70	6,175.00
TVD: 6140.58 INC: 40.60 AZ: 138.10	6,217.00
TVD: 6171.97 INC: 45.60 AZ: 140.10	6,260.00
TVD: 6200.37 INC: 49.30 AZ: 142.40	6,302.00
TVD: 6226.77 INC: 52.80 AZ: 144.80	6,344.00











TVD: 6362.44 INC: 92.20 AZ: 174.30 8,597.00

TVD: 6360.83 INC: 92.30 AZ: 173.10 8,638.00

TVD: 6359.18 INC: 92.10 AZ: 175.20 8,681.00

TVD: 6357.57 INC: 92.30 AZ: 175.20 8,723.00

TVD: 6356.40 INC: 90.80 AZ: 175.90 8,766.00

TVD: 6356.22 INC: 89.70 AZ: 176.50 8,808.00

TVD: 6356.41 INC: 89.80 AZ: 176.10 8,851.00

TVD: 6357.05 INC: 88.50 AZ: 177.20 8,894.00

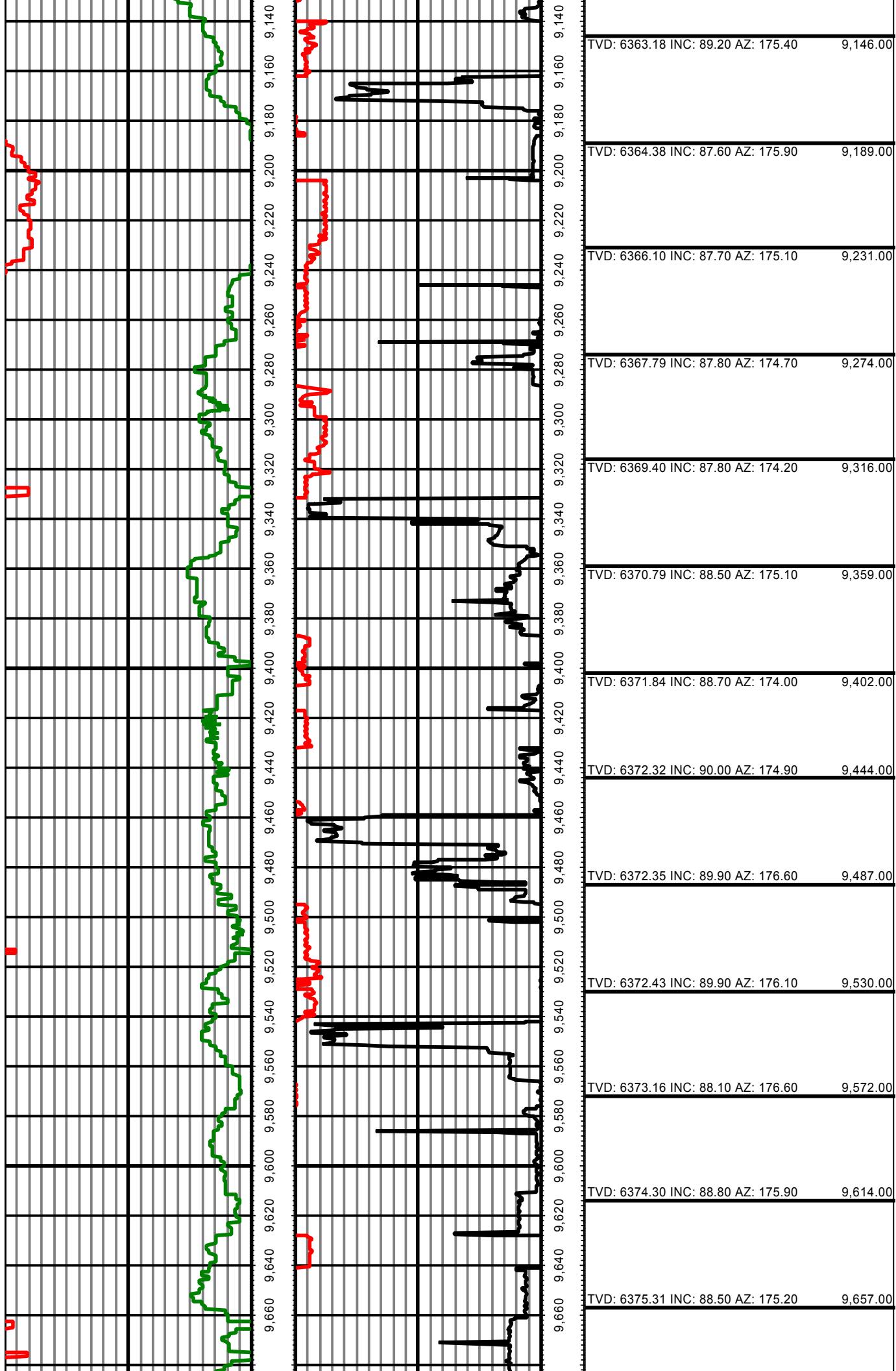
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TVD: 6359.31 INC: 88.60 AZ: 175.20 8,979.00

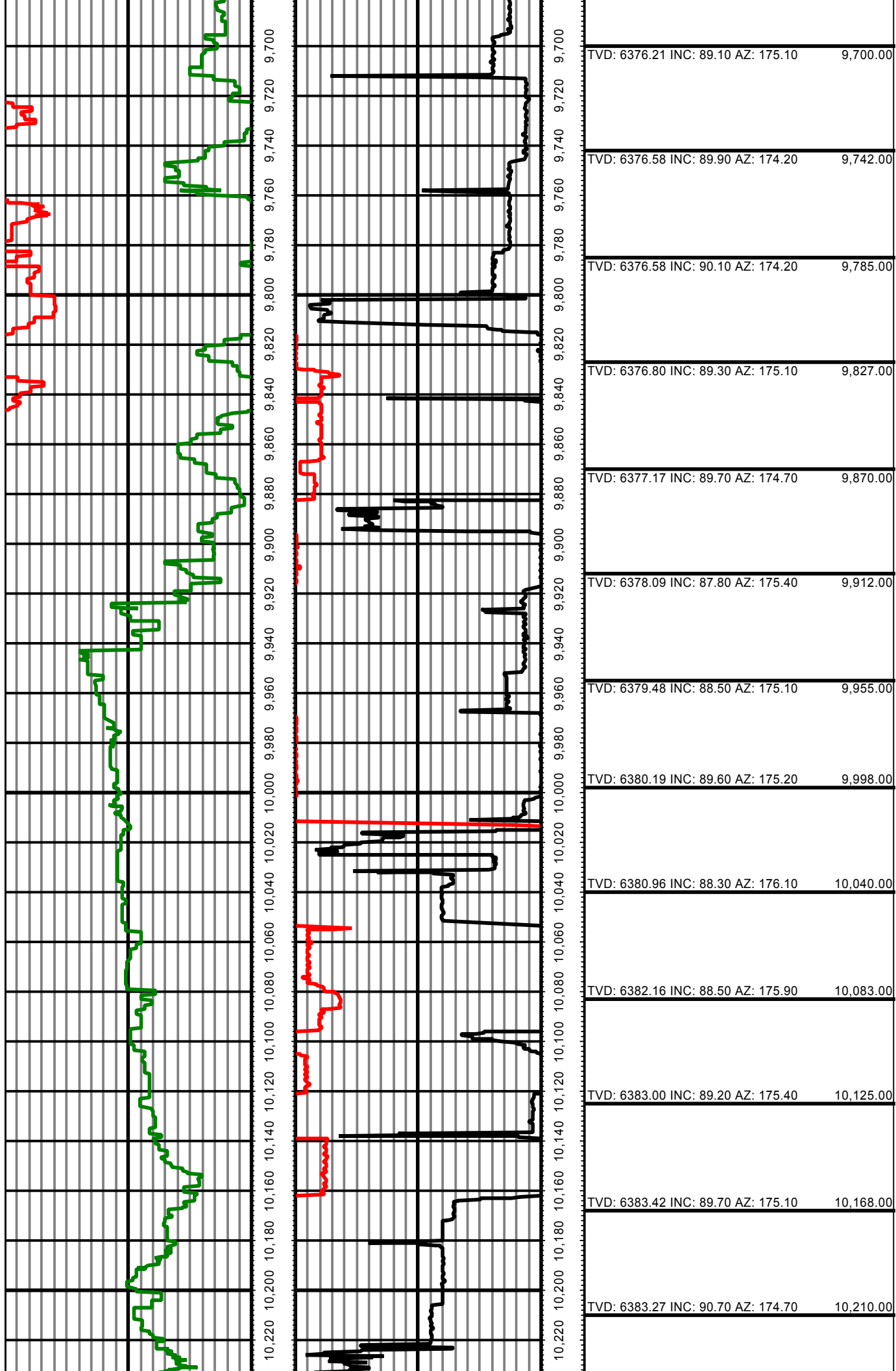
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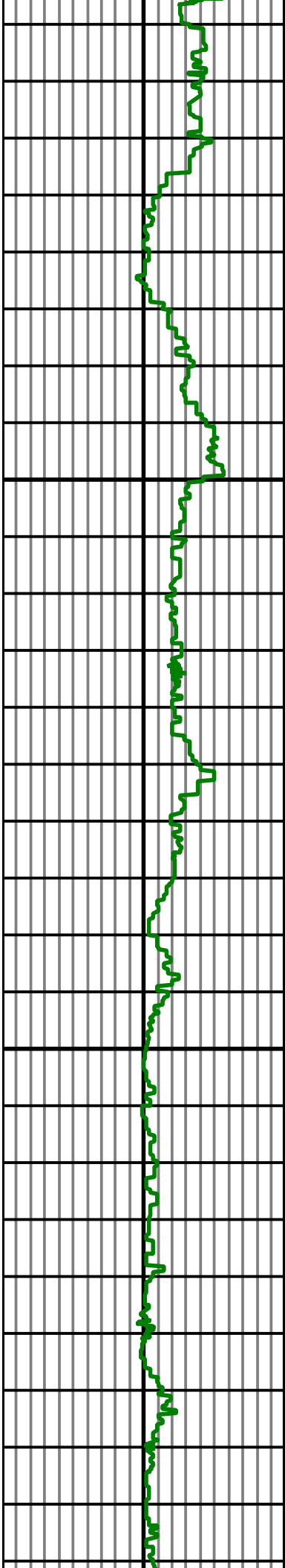
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TVD: 6362.57 INC: 89.10 AZ: 175.90 9,105.00

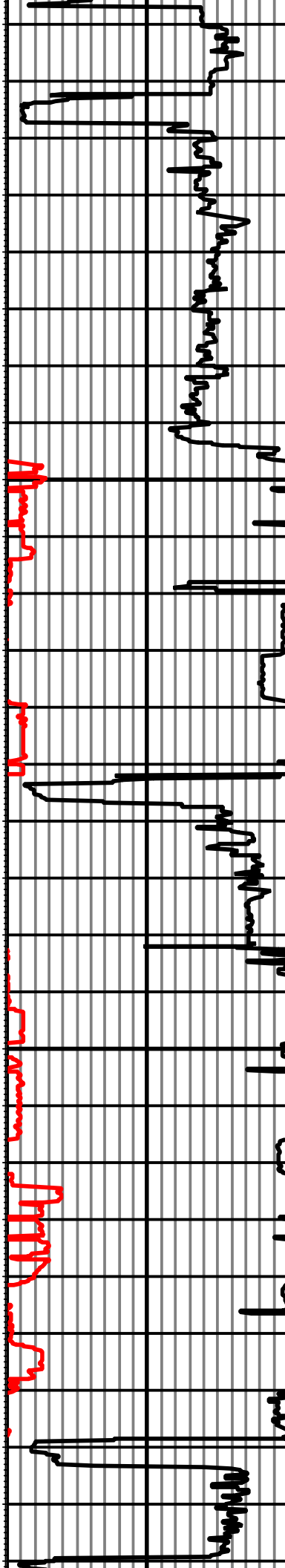






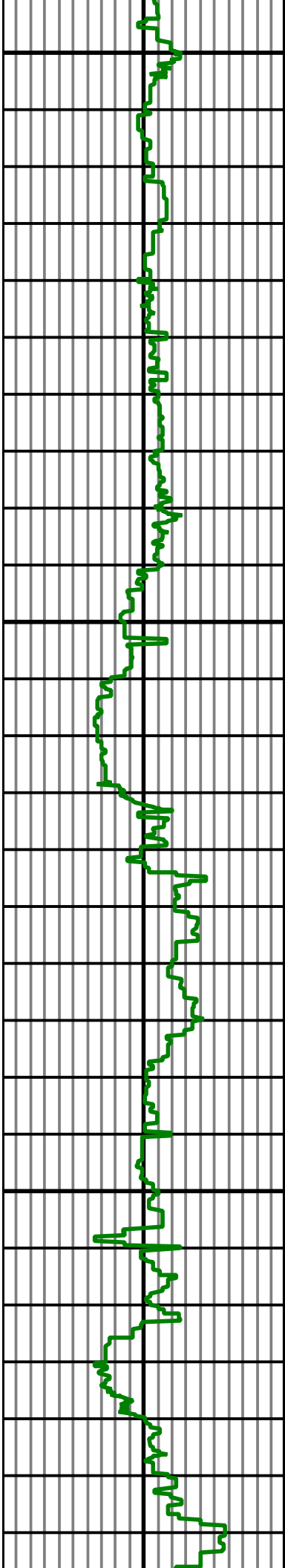


10,240 10,260 10,280 10,300 10,320 10,340 10,360 10,380 10,400 10,420 10,440 10,460 10,480 10,500 10,520 10,540 10,560 10,580 10,600 10,620 10,640 10,660 10,680 10,700 10,720 10,740 10,760

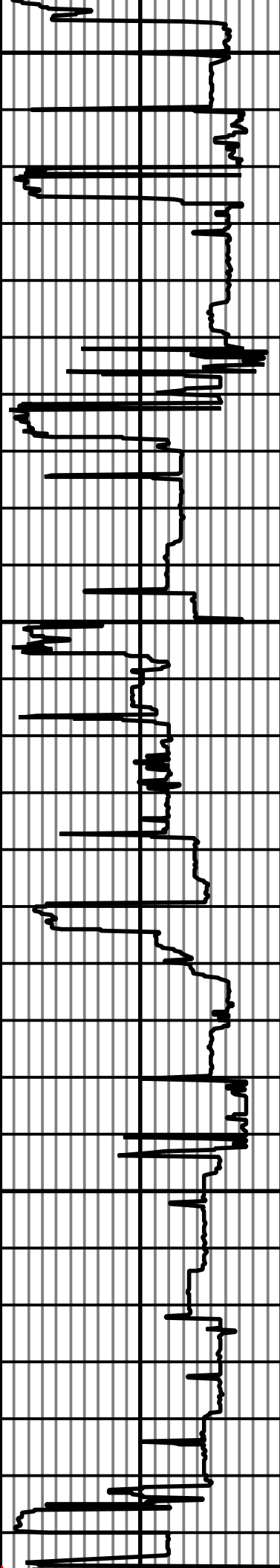


10,240 10,260 10,280 10,300 10,320 10,340 10,360 10,380 10,400 10,420 10,440 10,460 10,480 10,500 10,520 10,540 10,560 10,580 10,600 10,620 10,640 10,660 10,680 10,700 10,720 10,740 10,760

TVD: 6383.27 INC: 89.30 AZ: 176.10	10,253.00
TVD: 6384.17 INC: 88.30 AZ: 176.80	10,296.00
TVD: 6385.27 INC: 88.70 AZ: 177.50	10,338.00
TVD: 6386.17 INC: 88.90 AZ: 176.80	10,381.00
TVD: 6386.78 INC: 89.40 AZ: 177.00	10,422.00
TVD: 6386.89 INC: 90.30 AZ: 177.70	10,465.00
TVD: 6387.04 INC: 89.30 AZ: 177.90	10,507.00
TVD: 6387.64 INC: 89.10 AZ: 177.30	10,550.00
TVD: 6388.35 INC: 89.00 AZ: 176.30	10,593.00
TVD: 6388.65 INC: 90.20 AZ: 179.10	10,636.00
TVD: 6388.32 INC: 90.70 AZ: 182.10	10,678.00
TVD: 6387.53 INC: 91.40 AZ: 183.30	10,721.00
TVD: 6387.02 INC: 90.00 AZ: 180.90	10,763.00



11,320 11,300 11,280 11,260 11,240 11,220 11,200 11,180 11,160 11,140 11,120 11,100 11,080 11,060 11,040 11,020 11,000 10,980 10,960 10,940 10,920 10,900 10,880 10,860 10,840 10,820 10,800



11,320 11,300 11,280 11,260 11,240 11,220 11,200 11,180 11,160 11,140 11,120 11,100 11,080 11,060 11,040 11,020 11,000 10,980 10,960 10,940 10,920 10,900 10,880 10,860 10,840 10,820 10,800

TVD: 6387.40 INC: 89.00 AZ: 178.40 10,806.00

TVD: 6388.20 INC: 88.80 AZ: 178.20 10,848.00

TVD: 6389.10 INC: 88.80 AZ: 177.50 10,891.00

TVD: 6390.05 INC: 88.60 AZ: 177.00 10,933.00

TVD: 6391.14 INC: 88.50 AZ: 177.00 10,976.00

TVD: 6391.98 INC: 89.20 AZ: 175.20 11,018.00

TVD: 6392.51 INC: 89.40 AZ: 174.50 11,061.00

TVD: 6392.73 INC: 90.00 AZ: 173.80 11,103.00

TVD: 6392.47 INC: 90.70 AZ: 172.80 11,146.00

TVD: 6391.92 INC: 90.80 AZ: 172.20 11,188.00

TVD: 6390.94 INC: 91.80 AZ: 172.80 11,231.00

TVD: 6389.29 INC: 92.60 AZ: 172.10 11,274.00

TVD: 6387.61 INC: 92.00 AZ: 173.10 11,316.00

