



Precision Directional Services, Inc.

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

Hemberger 6-26-8-60

Scale 5":100' - TVD

10/21/2014 10:05 PM

Oper. Company: Carrizo Oil & Gas, Inc.

Well: Hemberger 6-26-8-60

Field: Niobrara CONZ'83

Rig: Xtreme 19

Well ID: 05-123-39278-00

Job Number: DL2458

State: Colorado

County: Weld

Country: USA

Location: Briggsdale

Start Date: 10/15/2014 08:00:00

End Date: 10/21/2014 22:00:00

Latitude: 40.6388722222222

Longitude: -104.051575

Elev KB: 17'

Elev DF: 4894'

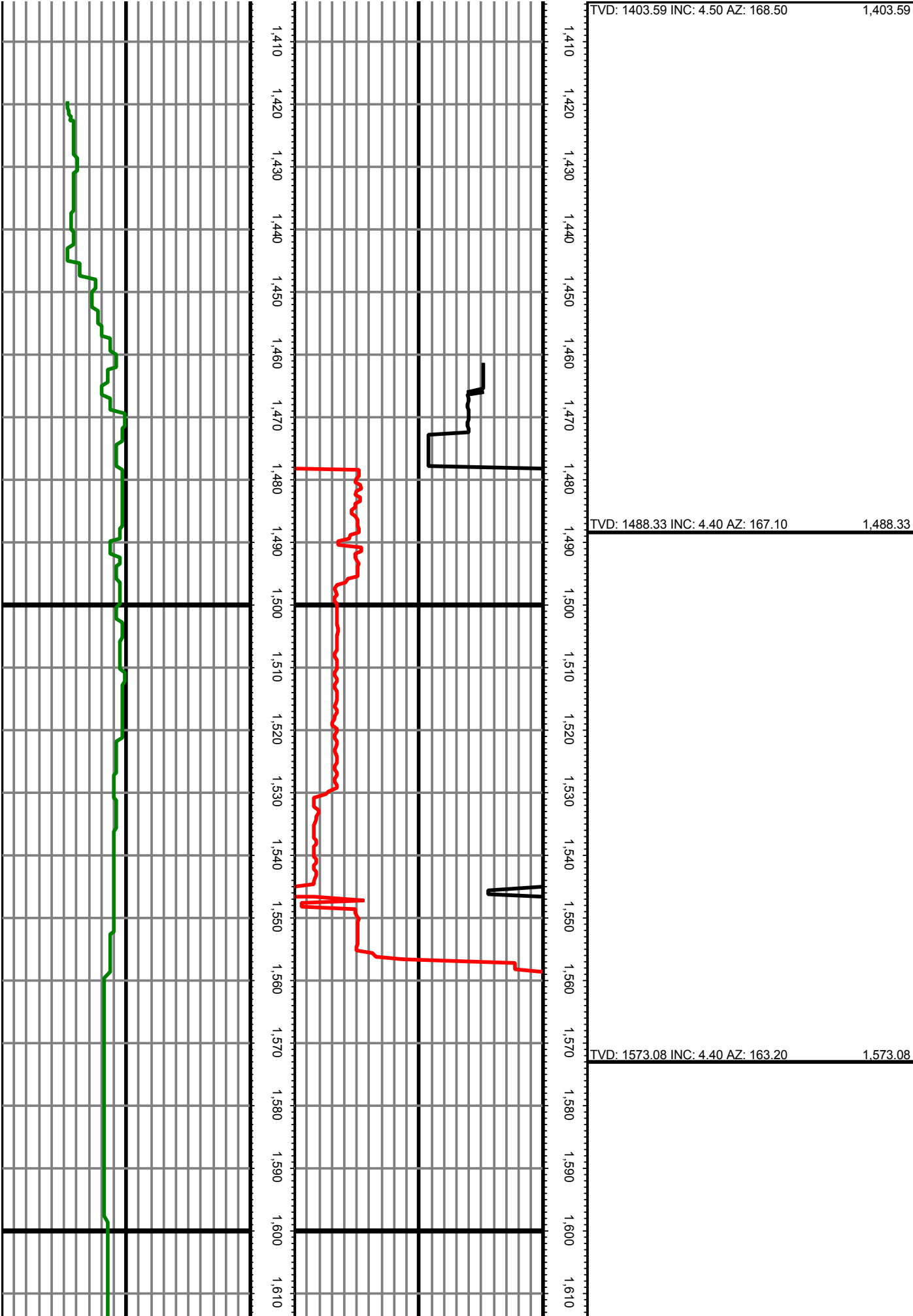
Elev GL: 4877'

Operator 1: Paul Brown

Operator 2: Steven Loggie

Tool Run Data	Run #1	Run #2	Run #3	Run #4	Run #5
Tool S/N	G1527	G2030	G2030	G1527	G1527
Bit Size	8 3/4	8 3/4	8 3/4	8 3/4	6 1/8
Cal Factor	3.64	3.72	3.72	3.65	1.68
Gamma Offset	42.00	42.00	42.00	42.00	45.00
Resistivity Offset	0.00	0.00	0.00	0.00	0.00
Start Depth	1465.00	5578.00	6001.00	6128.00	6291.00
StartDate	10/15/2014	10/16/2014	10/17/2014	10/17/2014	10/19/2014
StartTime	3:02 PM	3:05 PM	3:13 PM	3:14 PM	3:17 PM
EndDepth	5578.00	6001.00	6128.00	6291.00	10574.00
EndDate	10/16/2014	10/17/2014	10/17/2014	10/18/2014	10/21/2014
EndTime	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM
Mud Type	WBM	WBM	WBM	WBM	WBM
Mud Weight	8.4 - 9.5	9.5 - 9.6	9.6	9.6	9.6
Funnel Viscosity	41	40 - 45	40 - 45	40 - 41	42 - 43
Plastic Viscosity	16	18 - 23	18 - 23	16 - 17	16 - 17
Yield Point	16	14 - 16	14 - 16	13	13 - 14
Gel Strength	10 - 15	3 - 6	3 - 6	5 - 6	9 - 13
Solids Content	5.4	5	5	6	7 - 8
Sand Content	0.1 - 0.25	0.1	0.1	0.1	0.1
Mud Alkalinity	0.4	0.8 - 0.9	0.8 - 0.9	0.3	1.5 - 1.7
Filtrate Alkalinity	0.4 - 1.4	0.5 - 1.4	0.5 - 1.4	0.2 - 1.7	1.3 - 2.5
Chlorides	700	700 - 750	700	700	700
Mud RM	N/A	N/A	N/A	N/A	N/A
Mud RMF	N/A	N/A	N/A	N/A	N/A
Mud RMC	N/A	N/A	N/A	N/A	N/A
Mud RM at BHT	N/A	N/A	N/A	N/A	N/A
Temperature	76 - 145	145	145	145	145 - 153
Hole Data			Casing Data		
Size	From	To	Size	From	To
12 1/4	0.00	1465.00	9 5/8	0.00	1445.00
8 3/4	1465.00	6291.00	7	0.00	6291.00
6 1/8	6291.00	10574.00	4.5	6291.00	10574.00

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: 1656.85 INC: 4.20 AZ: 163.90 1,656.85

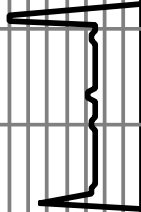
TVD: 1742.63 INC: 4.00 AZ: 157.40 1,742.63

TVD: 1826.44 INC: 3.70 AZ: 161.30 1,826.44

TVD: 1912.28 INC: 3.30 AZ: 157.20 1,912.28

TVD: 1996.12 INC: 3.80 AZ: 162.70 1,996.12

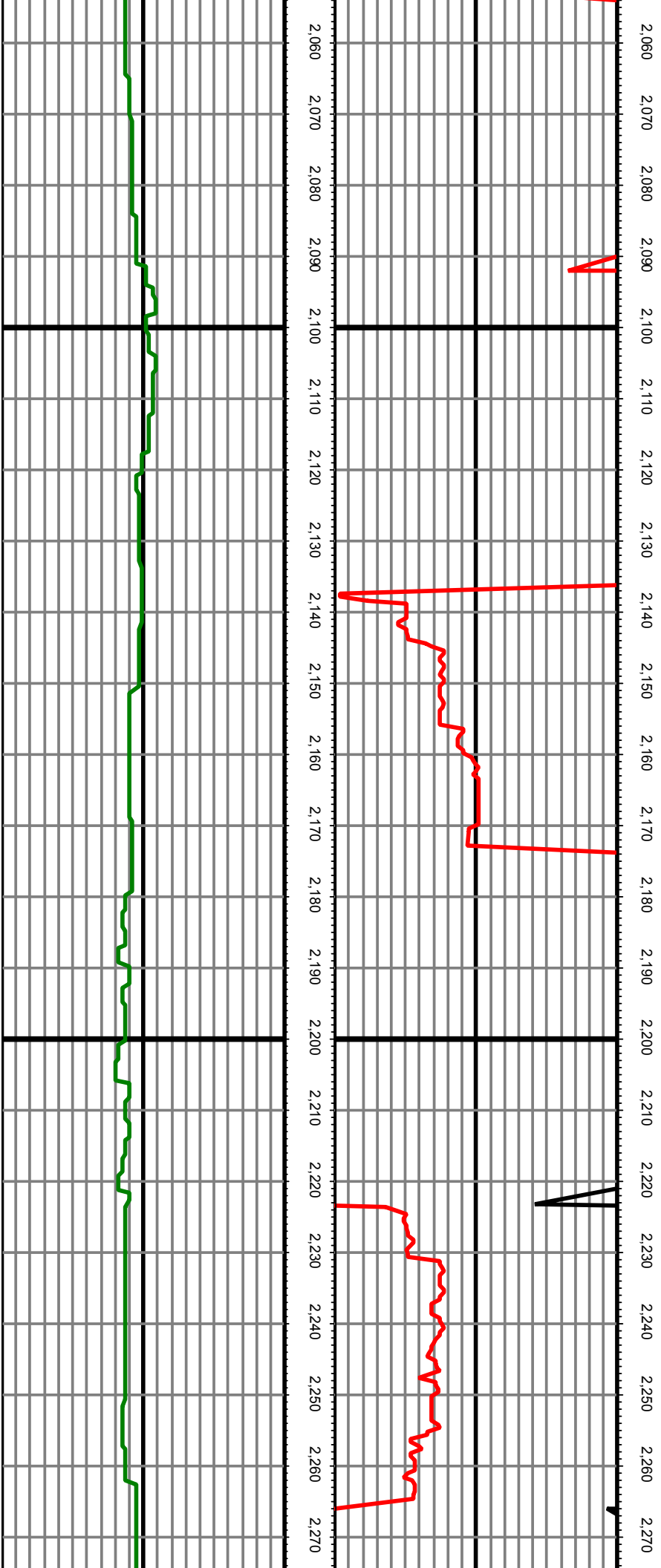
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TVD: 2080.95 INC: 3.30 AZ: 157.40 2,080.95

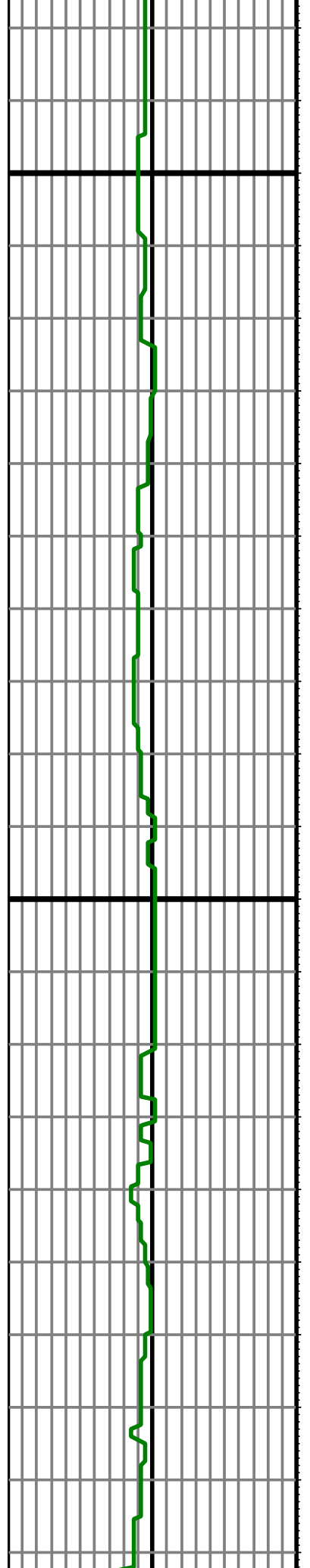
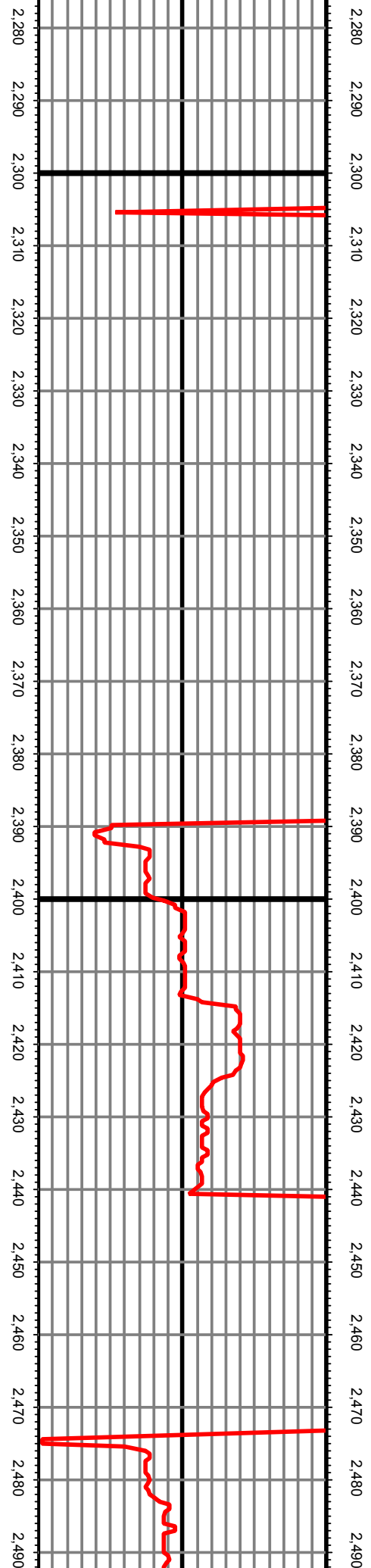
TVD: 2166.81 INC: 3.30 AZ: 154.20 2,166.81

TVD: 2250.62 INC: 4.40 AZ: 157.10 2,250.62



TVD: 2335.41 INC: 3.70 AZ: 158.60 2,335.41

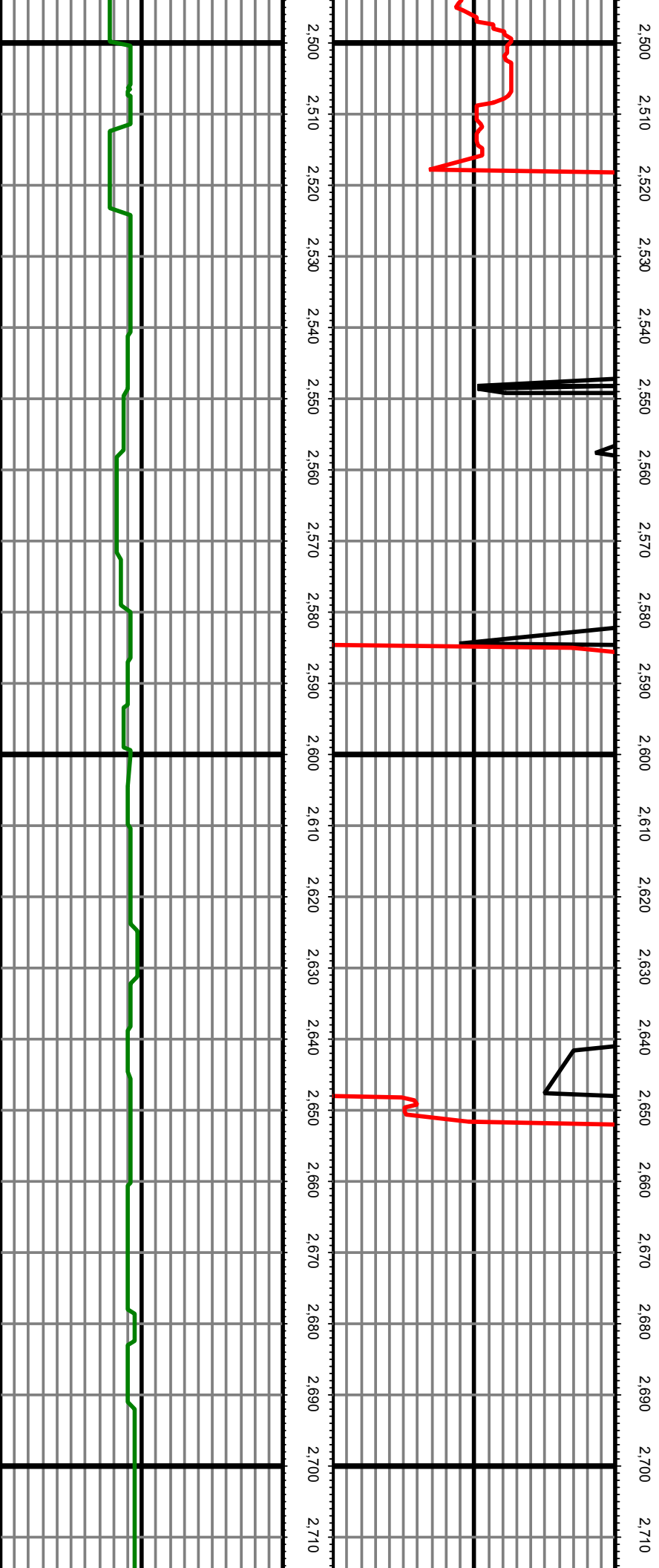
TVD: 2420.19 INC: 4.40 AZ: 162.90 2,420.19



TVD: 2503.87 INC: 5.60 AZ: 170.60 2,503.87

TVD: 2588.46 INC: 5.70 AZ: 172.50 2,588.46

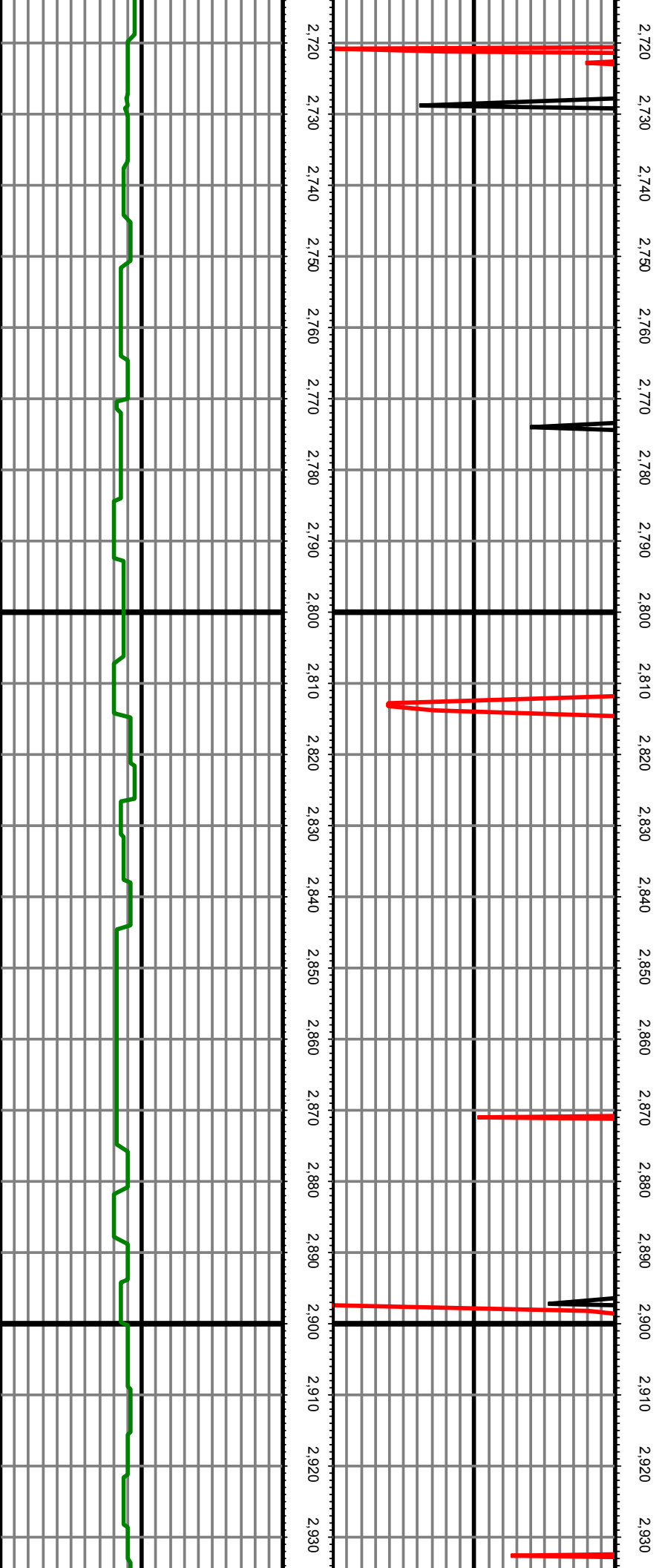
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TVD: 2756.57 INC: 6.20 AZ: 176.60 2,756.57

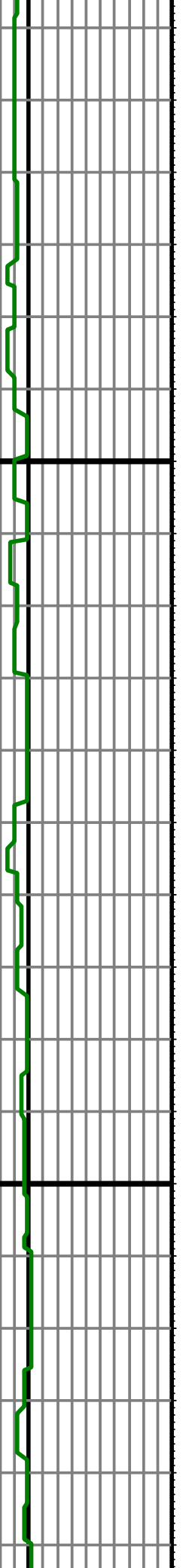
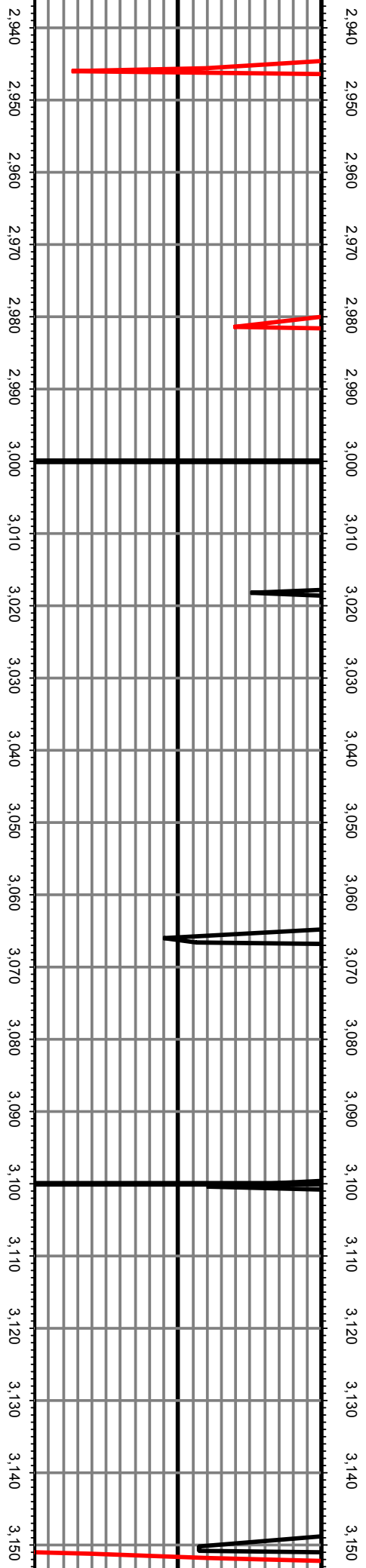
TVD: 2841.08 INC: 6.20 AZ: 176.20 2,841.08

TVD: 2925.61 INC: 5.80 AZ: 178.70 2,925.61



TVD: 3010.23 INC: 5.10 AZ: 179.40 3,010.23

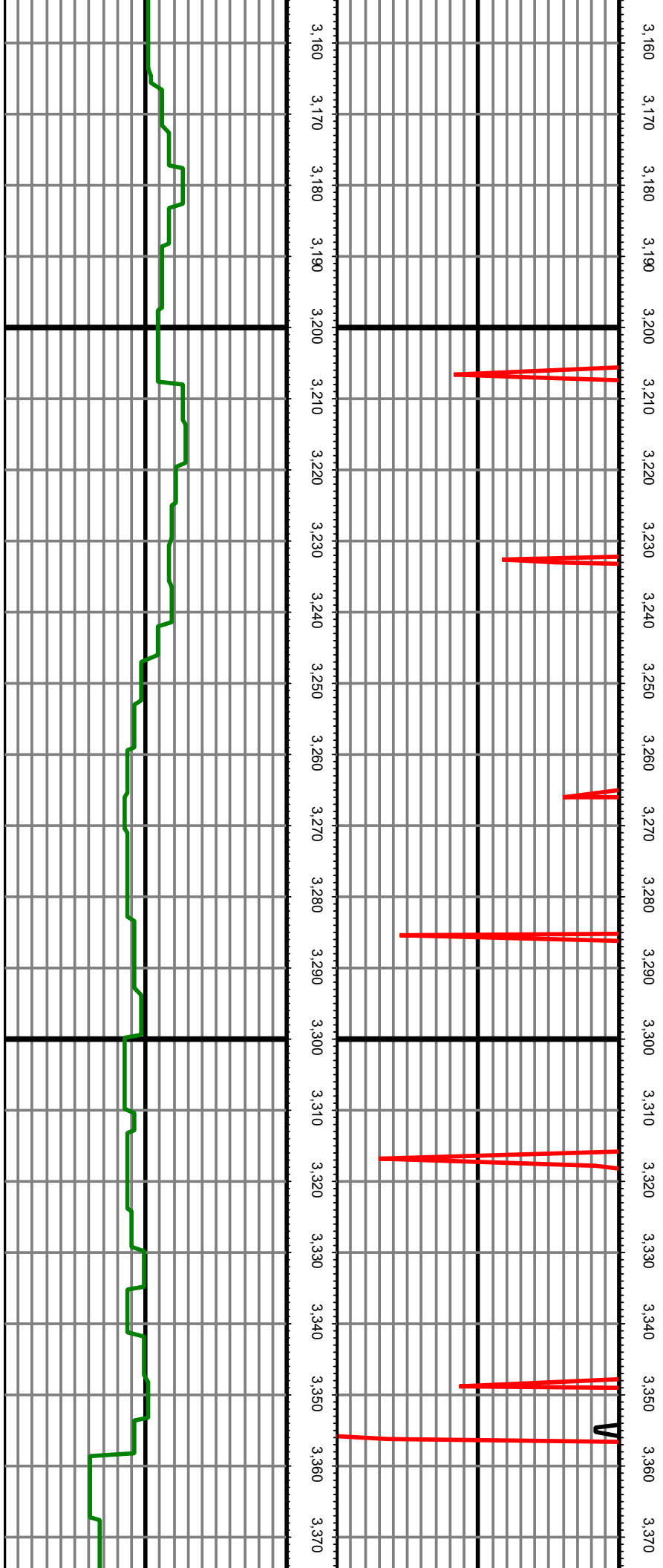
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TVD: 3177.65 INC: 4.50 AZ: 167.60 3,177.65

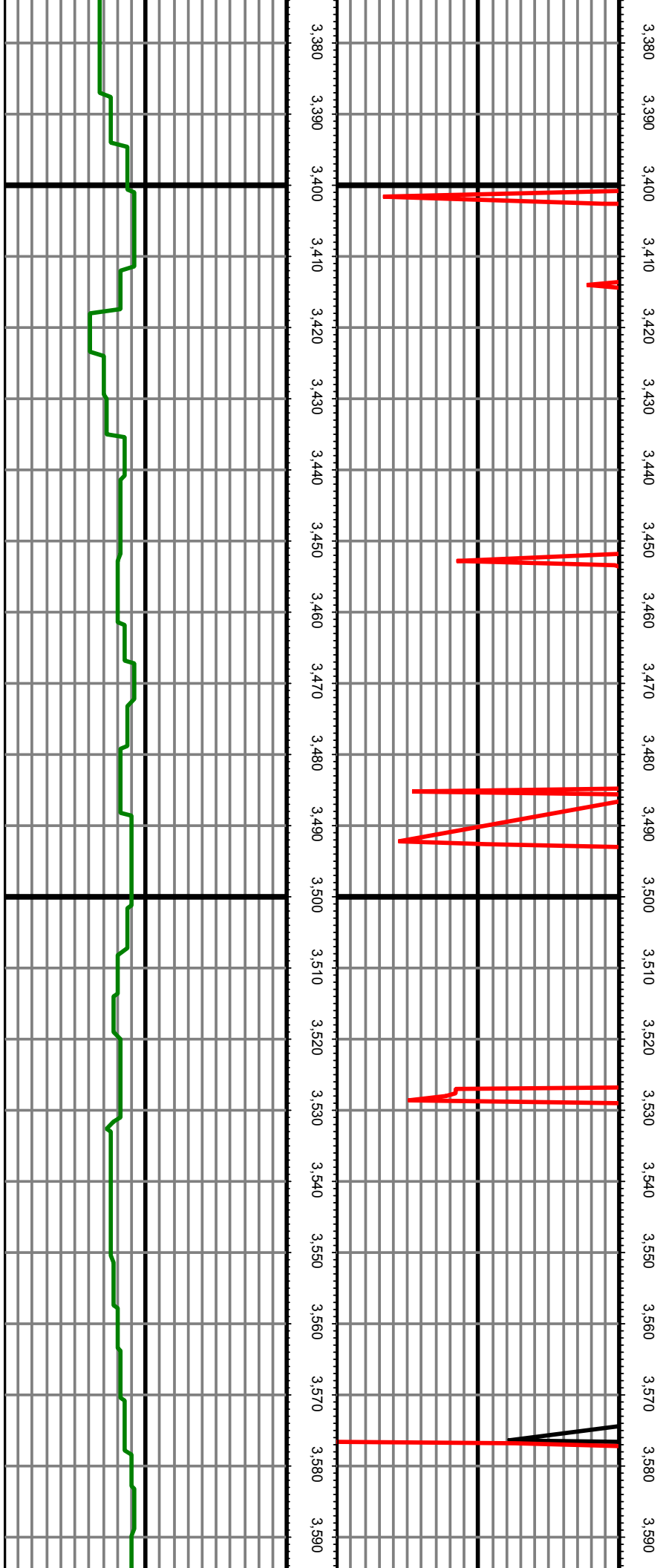
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TVD: 3347.21 INC: 4.40 AZ: 164.30 3,347.21



TVD: 3432.92 INC: 5.00 AZ: 166.40 3,432.92

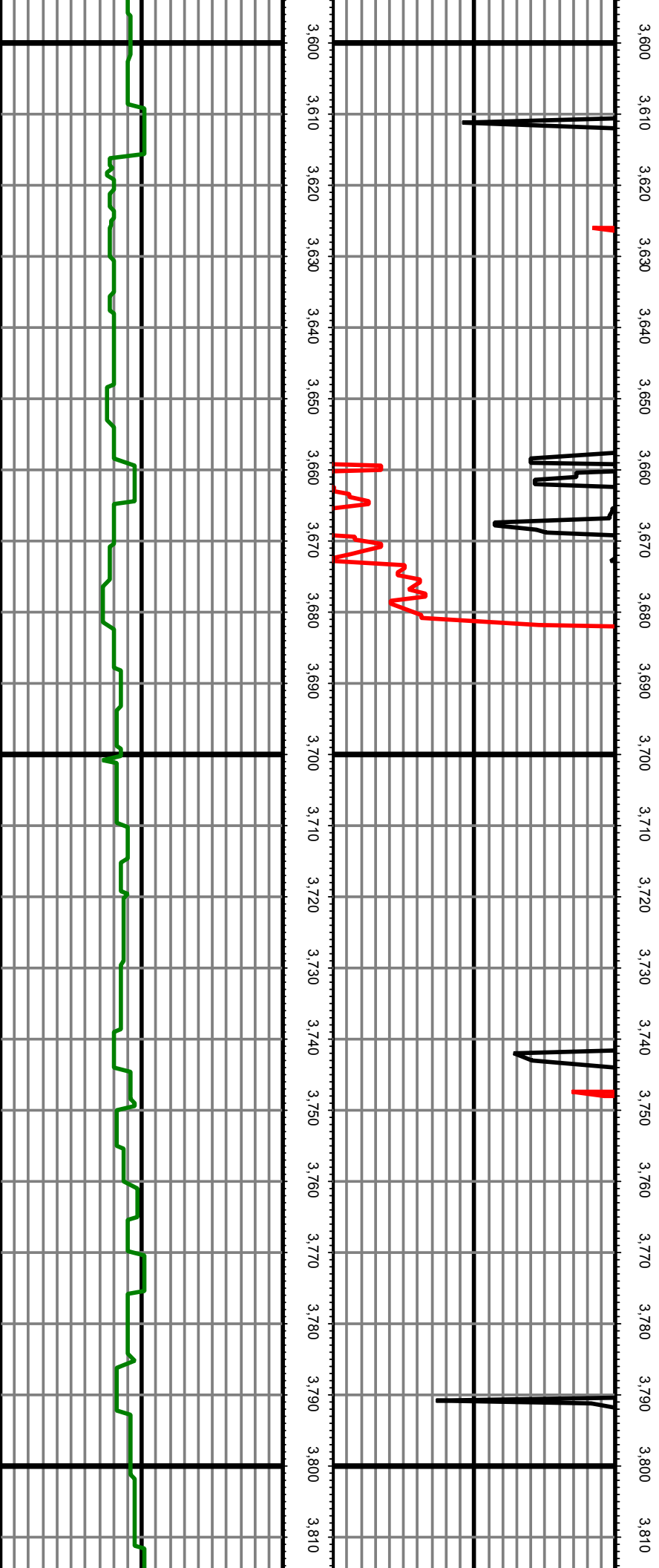
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TVD: 3600.20 INC: 5.60 AZ: 165.00 3,600.20

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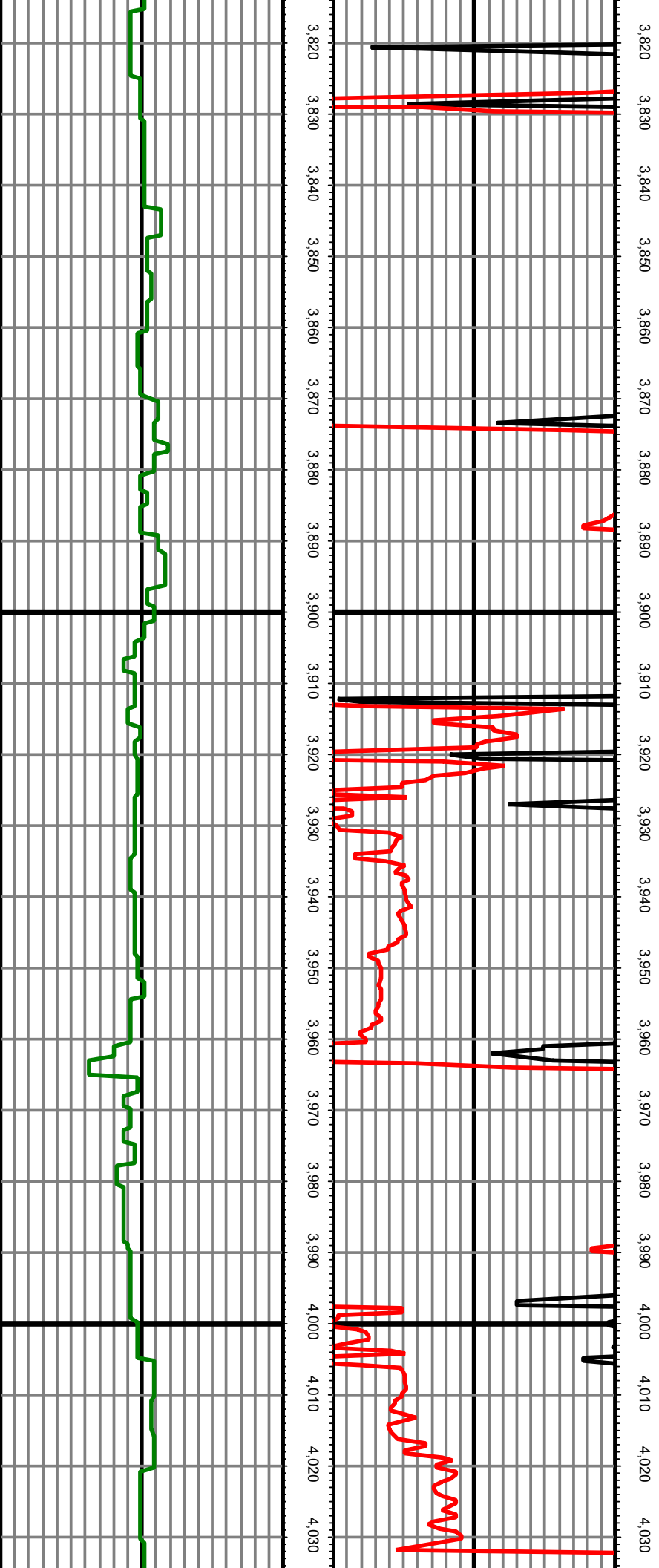
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TVD: 3853.92 INC: 6.00 AZ: 167.10 3,853.92

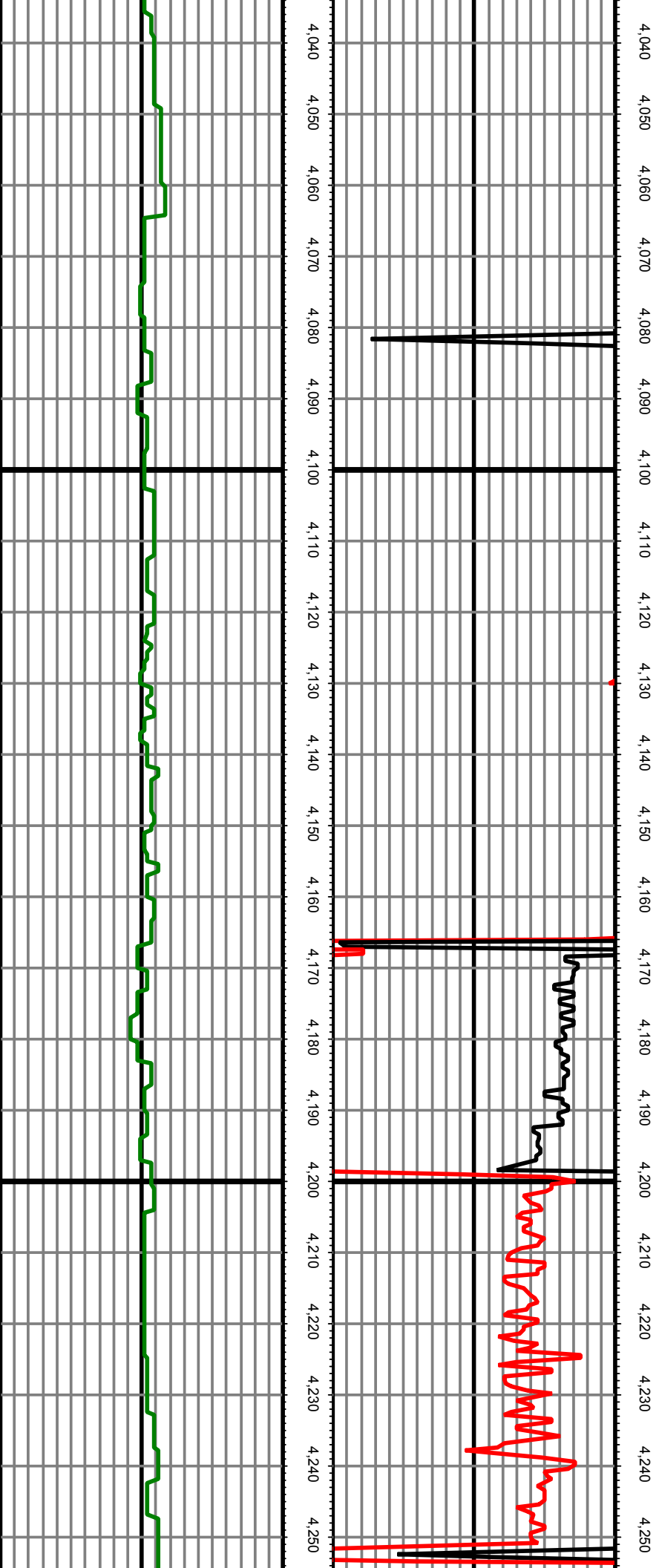
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TVD: 4023.21 INC: 3.80 AZ: 160.40 4,023.21



TVD: 4108.06 INC: 3.00 AZ: 152.80 4,108.06

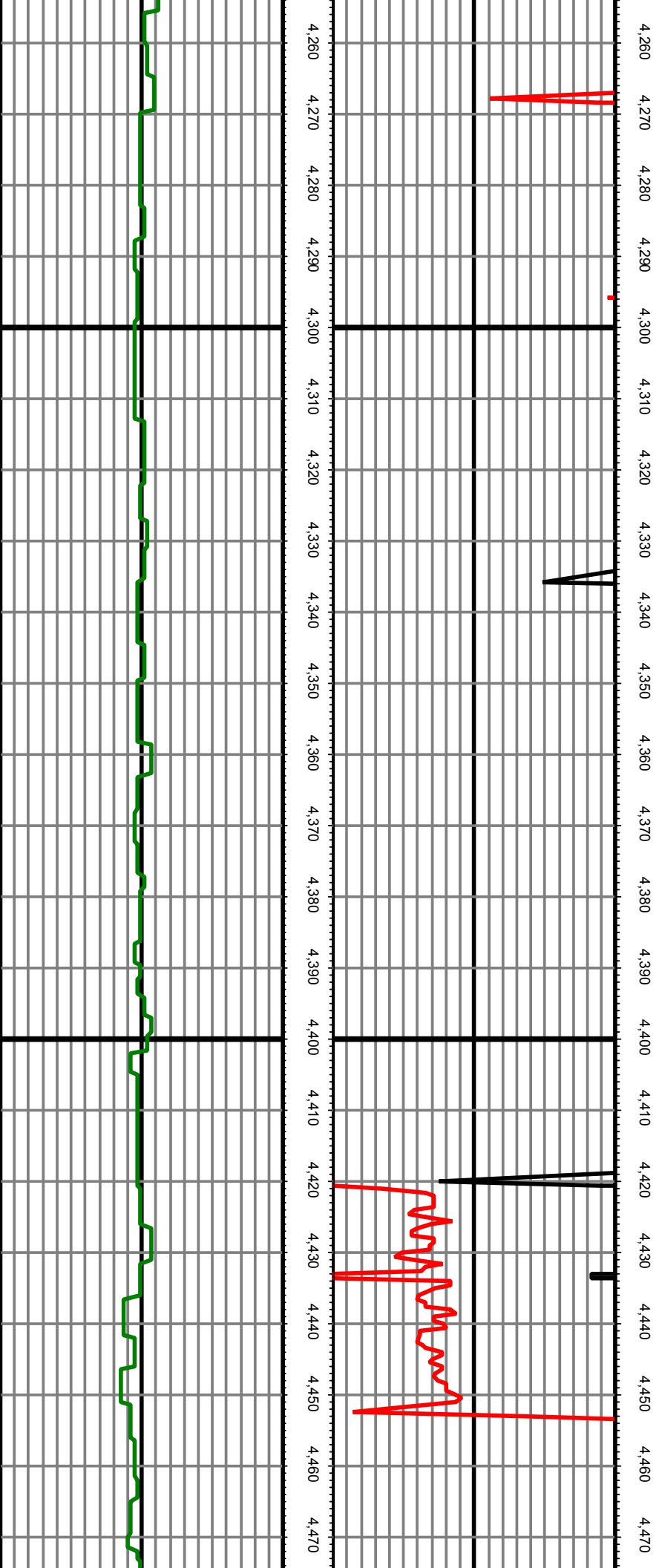
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TVD: 4276.80 INC: 3.20 AZ: 168.70 4,276.80

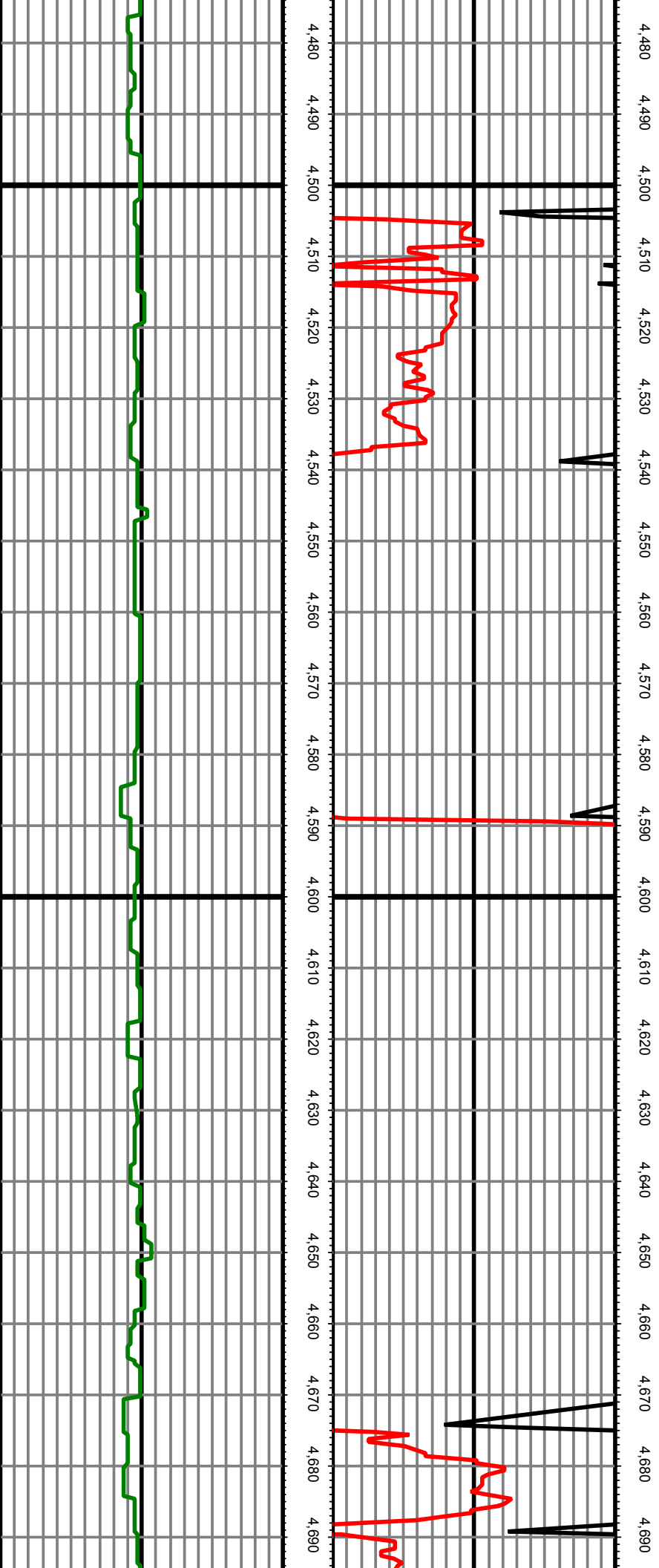
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TVD: 4445.49 INC: 4.10 AZ: 179.70 4,445.49



TVD: 4530.23 INC: 4.80 AZ: 170.40 4,530.23

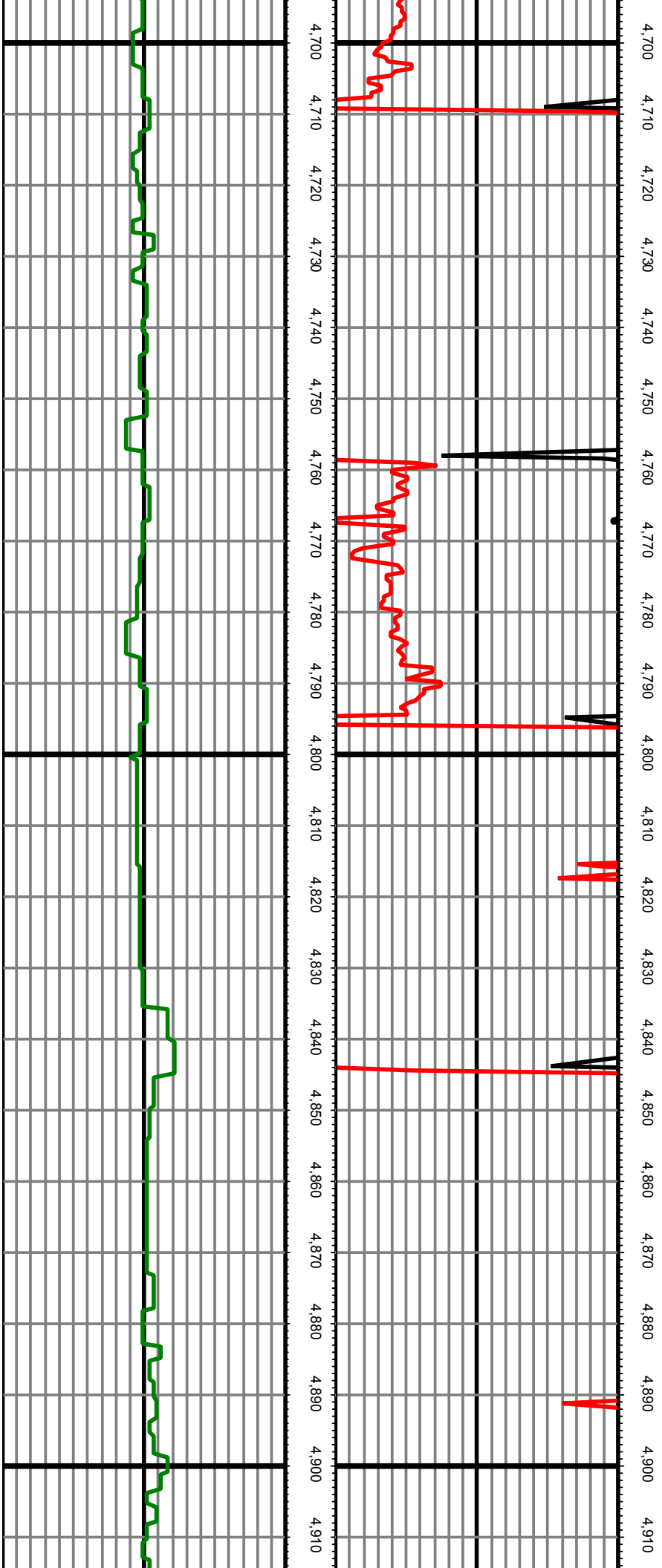
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TVD: 4699.56 INC: 4.60 AZ: 174.30 4,699.56

TVD: 4784.37 INC: 3.10 AZ: 167.40 4,784.37

TVD: 4869.28 INC: 2.10 AZ: 160.70 4,869.28

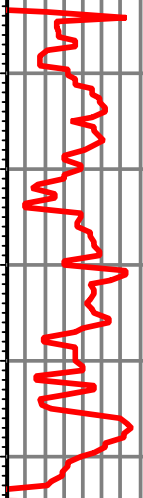
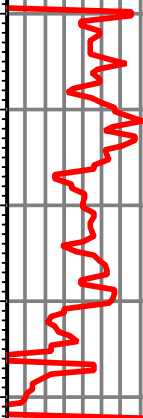


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TVD: 5122.87 INC: 4.00 AZ: 146.90 5,122.87

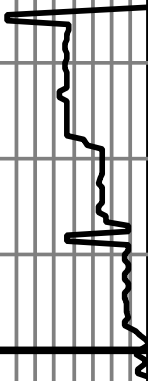
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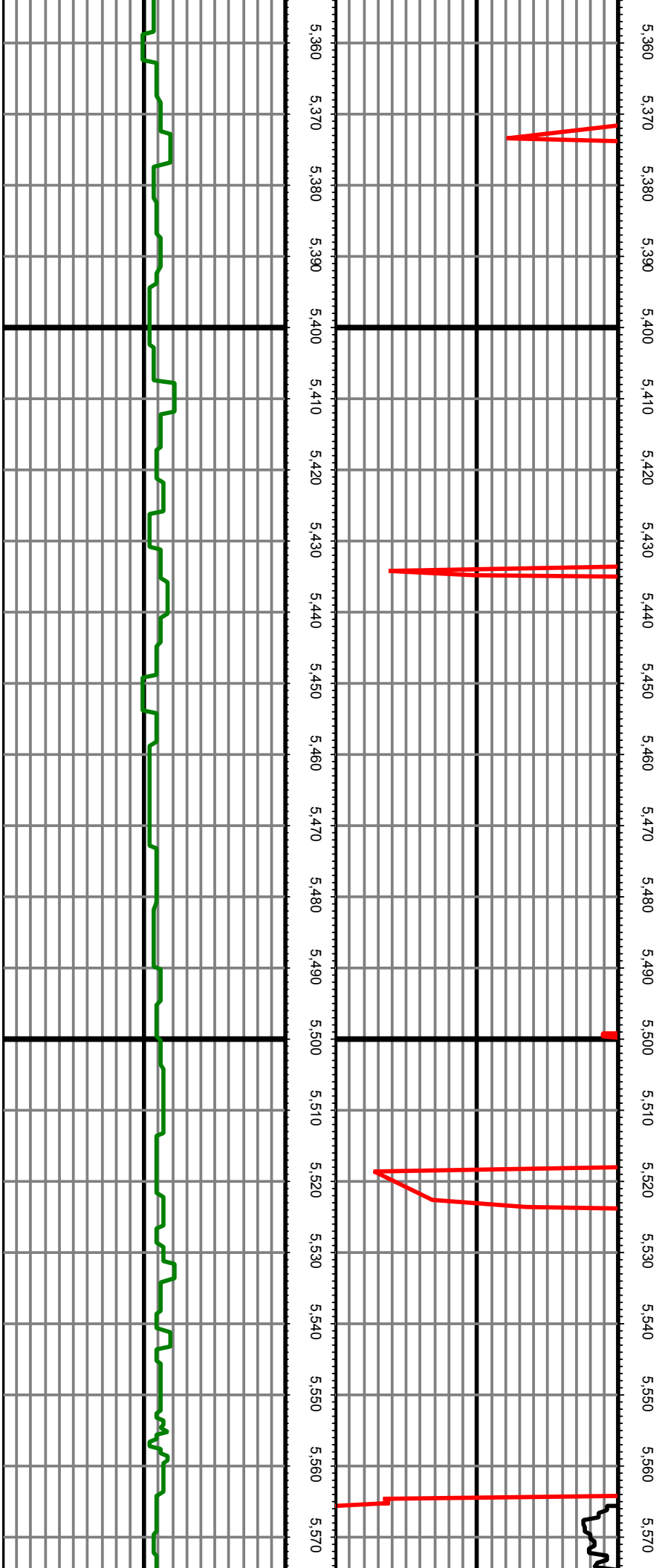
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TVD: 5378.34 INC: 3.40 AZ: 157.10 5,378.34

TVD: 5463.22 INC: 2.70 AZ: 146.90 5,463.22

TVD: 5546.15 INC: 2.00 AZ: 134.40 5,546.15



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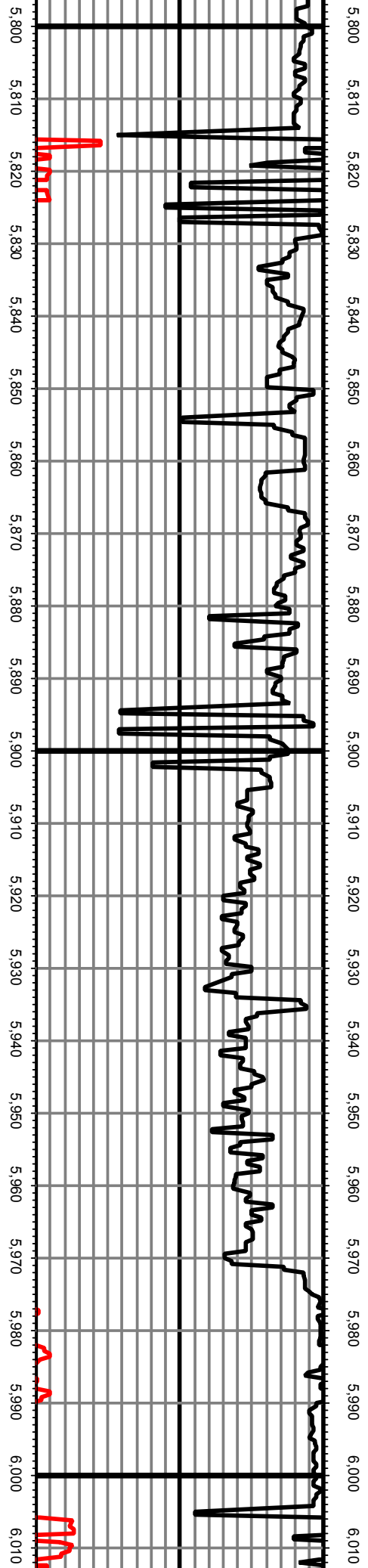
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TVD: 5757.18 INC: 11.40 AZ: 357.80 5,757.18

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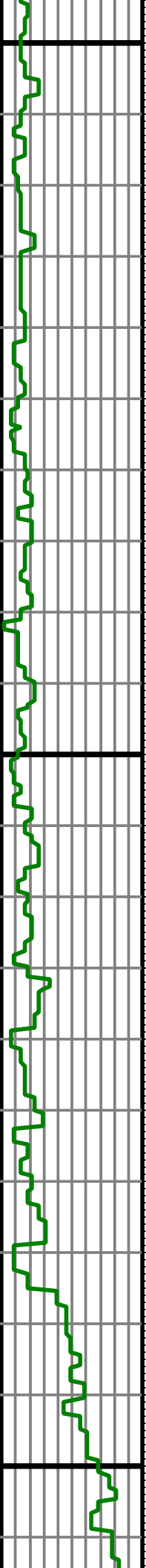
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TVD: 5956.19 INC: 29.00 AZ: 358.10 5,956.19

TVD: 5993.06 INC: 32.90 AZ: 356.60 5,993.06



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TVD: 6027.69 INC: 36.00 AZ: 355.20 6,027.69

TVD: 6061.55 INC: 40.10 AZ: 354.30 6,061.55

TVD: 6092.45 INC: 45.10 AZ: 353.90 6,092.45

TVD: 6121.04 INC: 51.50 AZ: 353.90 6,121.04

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TVD: 6702.87 INC: 588.50 AZ: 359.30 6,702.87

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TVD: 6710.73 INC: 596.50 AZ: 359.30 6,710.73

TVD: 6714.66 INC: 600.50 AZ: 359.30 6,714.66

TVD: 6718.59 INC: 604.50 AZ: 359.30 6,718.59

TVD: 6722.52 INC: 608.50 AZ: 359.30 6,722.52

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TVD: 6730.38 INC: 616.50 AZ: 359.30 6,730.38

TVD: 6734.31 INC: 620.50 AZ: 359.30 6,734.31

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TVD: 6742.17 INC: 628.50 AZ: 359.30 6,742.17

TVD: 6746.10 INC: 632.50 AZ: 359.30 6,746.10

TVD: 6750.03 INC: 636.50 AZ: 359.30 6,750.03

TVD: 6753.96 INC: 640.50 AZ: 359.30 6,753.96

TVD: 6757.89 INC: 644.50 AZ: 359.30 6,757.89

TVD: 6761.82 INC: 648.50 AZ: 359.30 6,761.82

TVD: 6765.75 INC: 652.50 AZ: 359.30 6,765.75

TVD: 6769.68 INC: 656.50 AZ: 359.30 6,769.68

TVD: 6773.61 INC: 660.50 AZ: 359.30 6,773.61

TVD: 6777.54 INC: 664.50 AZ: 359.30 6,777.54

TVD: 6781.47 INC: 668.50 AZ: 359.30 6,781.47

TVD: 6785.40 INC: 672.50 AZ: 359.30 6,785.40

TVD: 6789.33 INC: 676.50 AZ: 359.30 6,789.33

TVD: 6793.26 INC: 680.50 AZ: 359.30 6,793.26

TVD: 6797.19 INC: 684.50 AZ: 359.30 6,797.19

TVD: 6801.12 INC: 688.50 AZ: 359.30 6,801.12

TVD: 6805.05 INC: 692.50 AZ: 359.30 6,805.05

TVD: 6808.98 INC: 696.50 AZ: 359.30 6,808.98

TVD: 6812.91 INC: 700.50 AZ: 359.30 6,812.91

TVD: 6816.84 INC: 704.50 AZ: 359.30 6,816.84

TVD: 6820.77 INC: 708.50 AZ: 359.30 6,820.77

TVD: 6824.70 INC: 712.50 AZ: 359.30 6,824.70

TVD: 6828.63 INC: 716.50 AZ: 359.30 6,828.63

TVD: 6832.56 INC: 720.50 AZ: 359.30 6,832.56

TVD: 6836.49 INC: 724.50 AZ: 359.30 6,836.49

TVD: 6840.42 INC: 728.50 AZ: 359.30 6,840.42

TVD: 6844.35 INC: 732.50 AZ: 359.30 6,844.35

TVD: 6848.28 INC: 736.50 AZ: 359.30 6,848.28

TVD: 6852.21 INC: 740.