

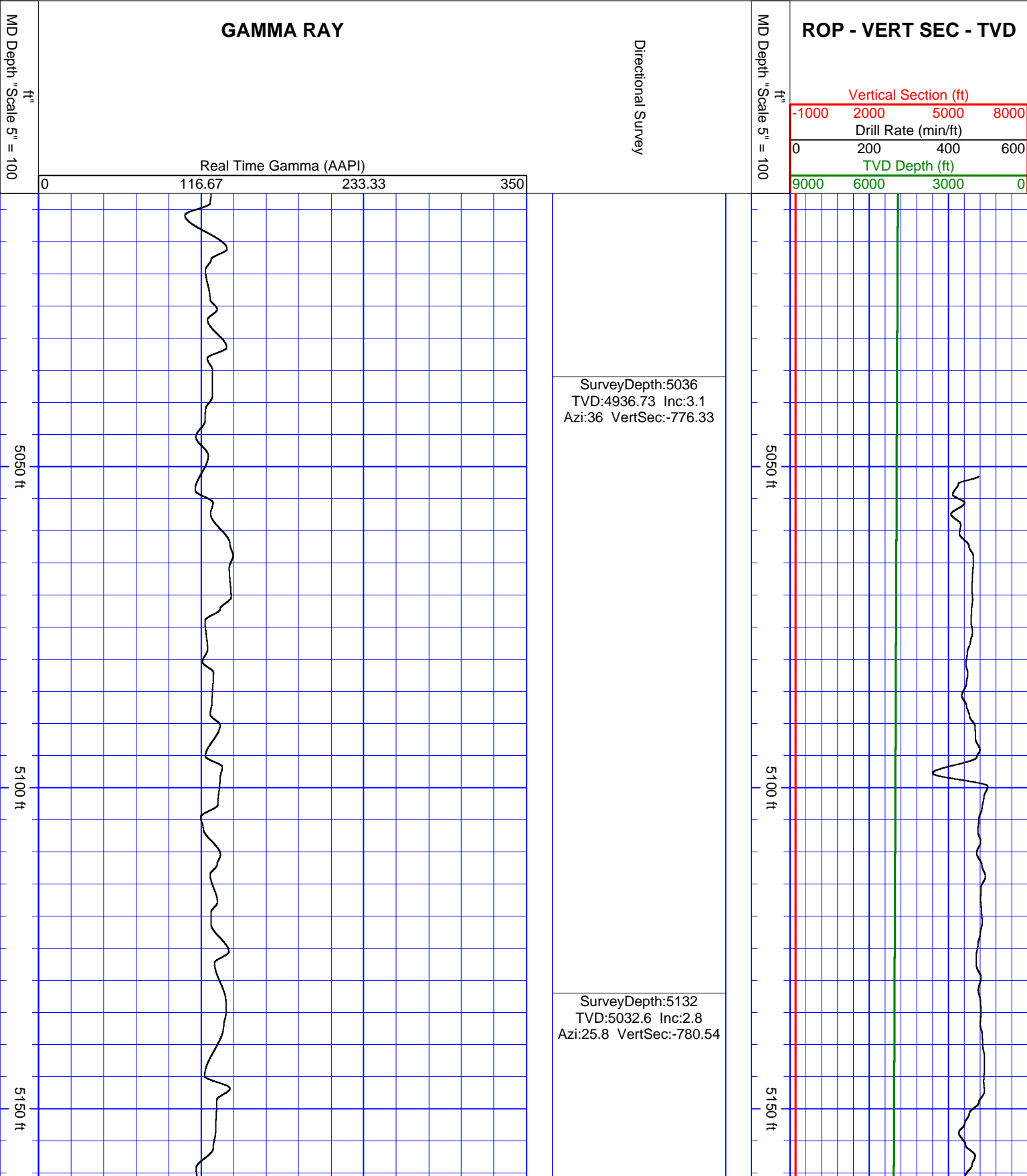


Oil Company: Whiting Petroleum
Well Name: Razor Federal 30K-3108
Surface Location: NESW Sec 30, T10N, R58W
Bit Run: 5
Log Depth Start: 5007.45 ft Log Depth End: 13749.99 ft
Data Depth Start: 5007.45 ft Data Depth End: 13749.99 ft

4849'KB
4828'GR

API 05-123-40215-00

Interpretations of this data by Cathedral Energy Services will be of best judgment as to correctness. Cathedral Energy Services cannot and does not guarantee the accuracy or correctness of interpretations or any surveys derived therefrom. Cathedral Energy Services makes no warranties of performance, results, fitness or suitability for any particular purposes with respect to the goods being furnished under the terms and conditions. Cathedral Energy Services warrants that the equipment furnished will conform to Cathedral Energy Services published specifications in effect at the time and be in good working order.



5200 ft 0 116.67 233.33 350

5250 ft

5300 ft

5350 ft

SurveyDepth:5226
TVD:5126.52 Inc:1.9
Azi:19 VertSec:-784.08

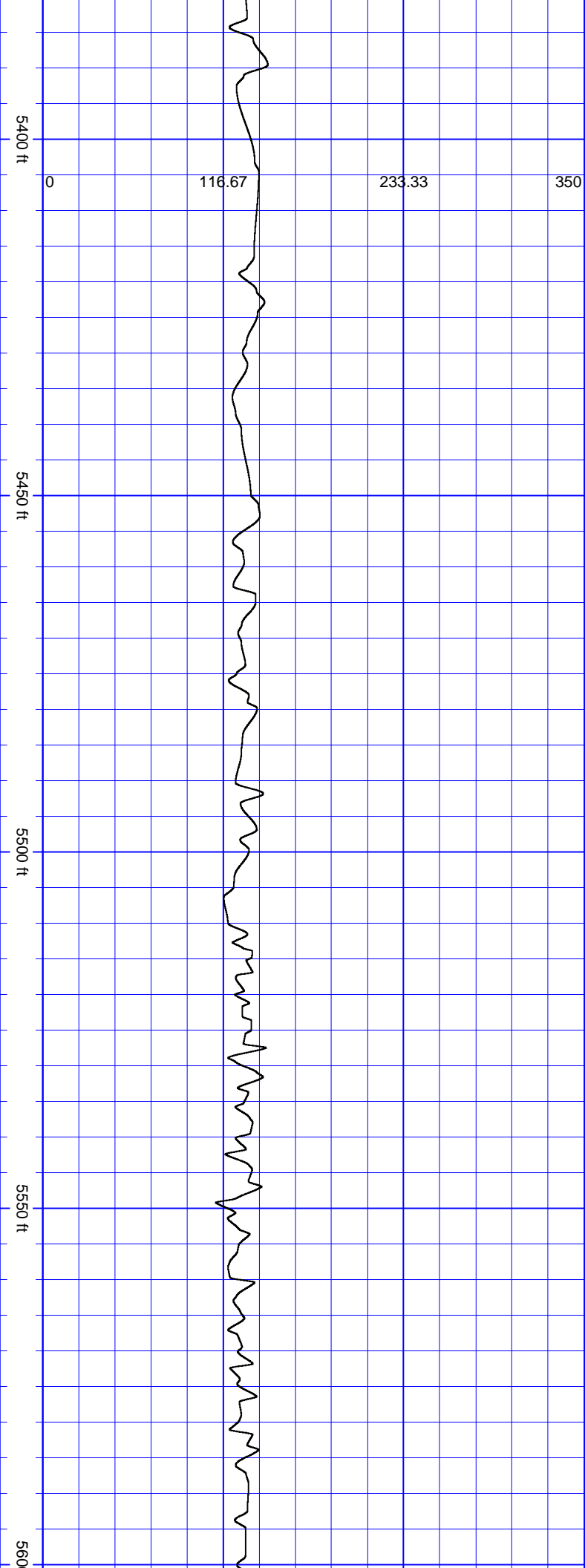
SurveyDepth:5320
TVD:5220.48 Inc:1.7
Azi:35.9 VertSec:-786.68

5200 ft 1000 2000 5000 8000
0 200 400 600
9000 6000 3000 0

5250 ft

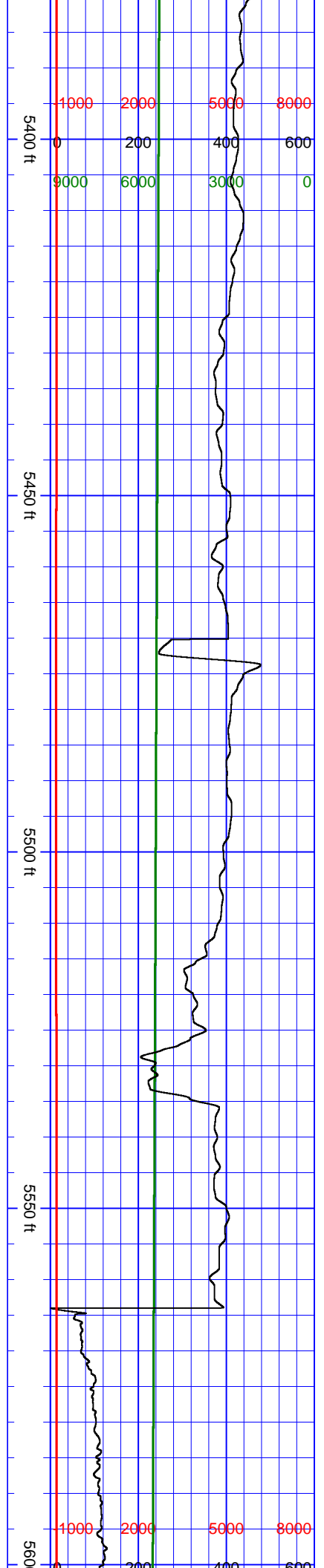
5300 ft

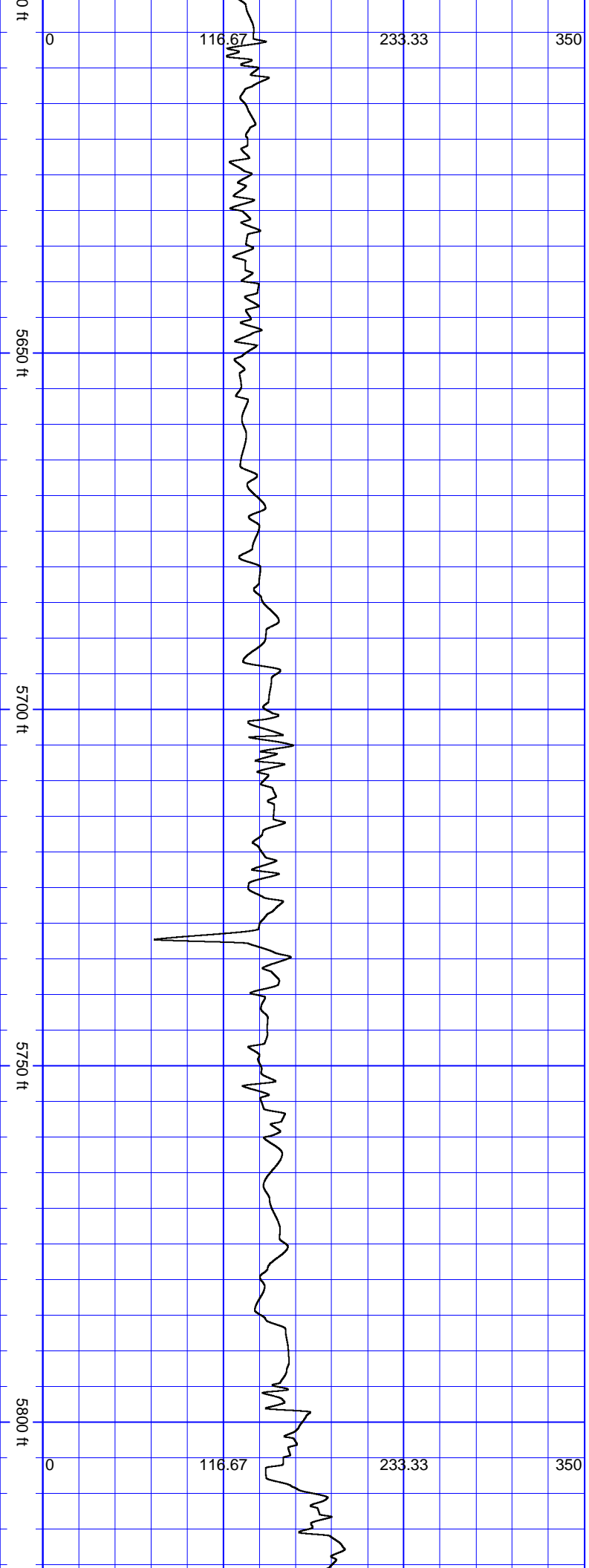
5350 ft



SurveyDepth:5413
TVD:5313.44 Inc:1.7
Azi:50.2 VertSec:-788.69

SurveyDepth:5507
TVD:5407.42 Inc:0.4
Azi:10.6 VertSec:-789.9

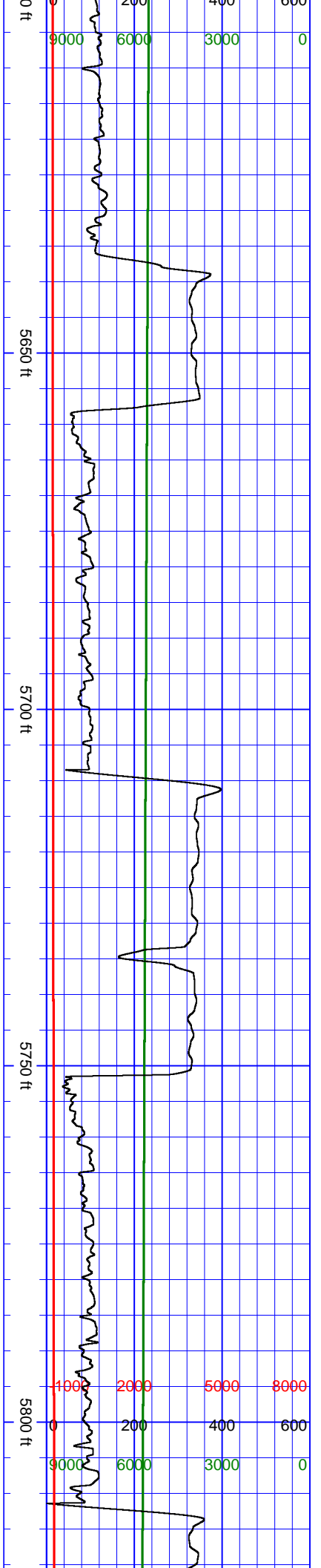


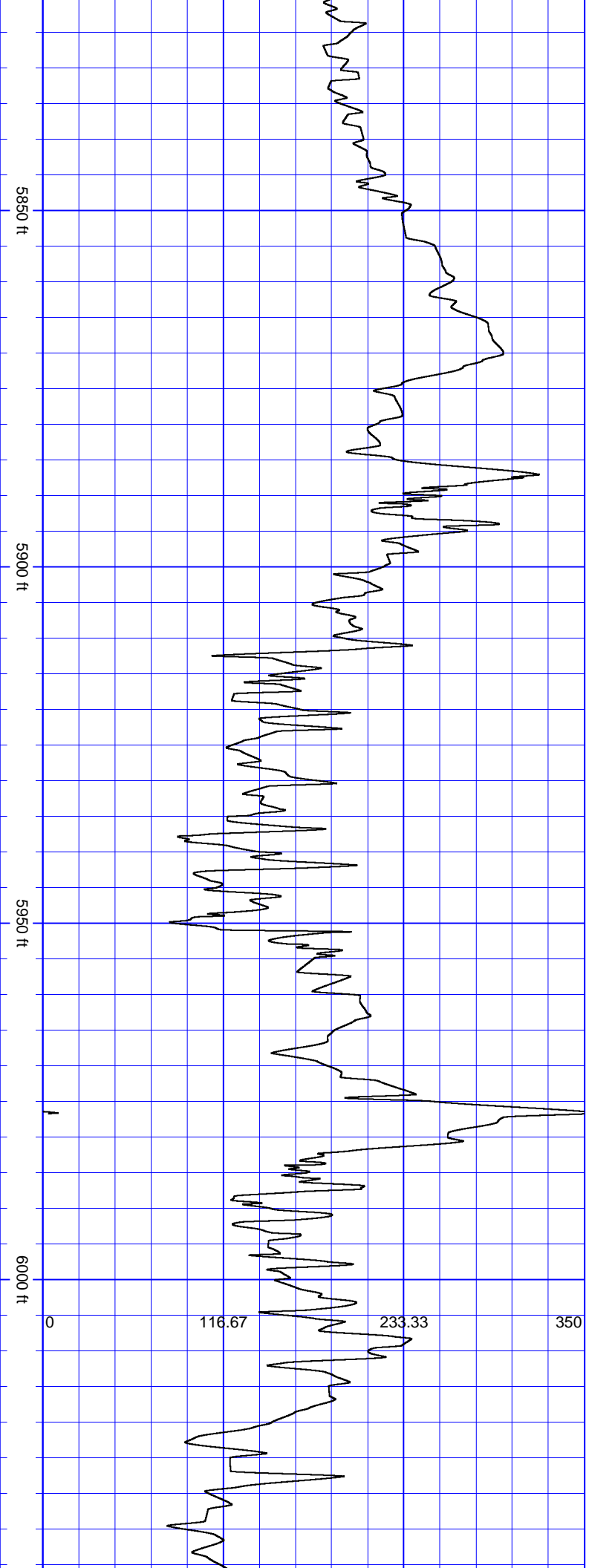


SurveyDepth:5600
TVD:5500.28 Inc:5.6
Azi:188.9 VertSec:-
785.73

SurveyDepth:5694
TVD:5592.81 Inc:14.1
Azi:188.9 VertSec:-
769.86

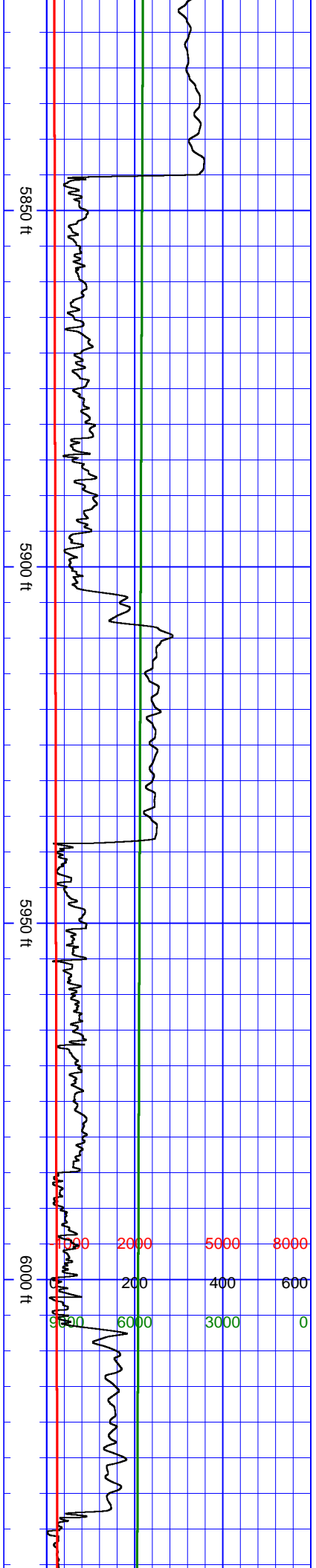
SurveyDepth:5788
TVD:5683 Inc:18.6
Azi:179.9 VertSec:-
743.54

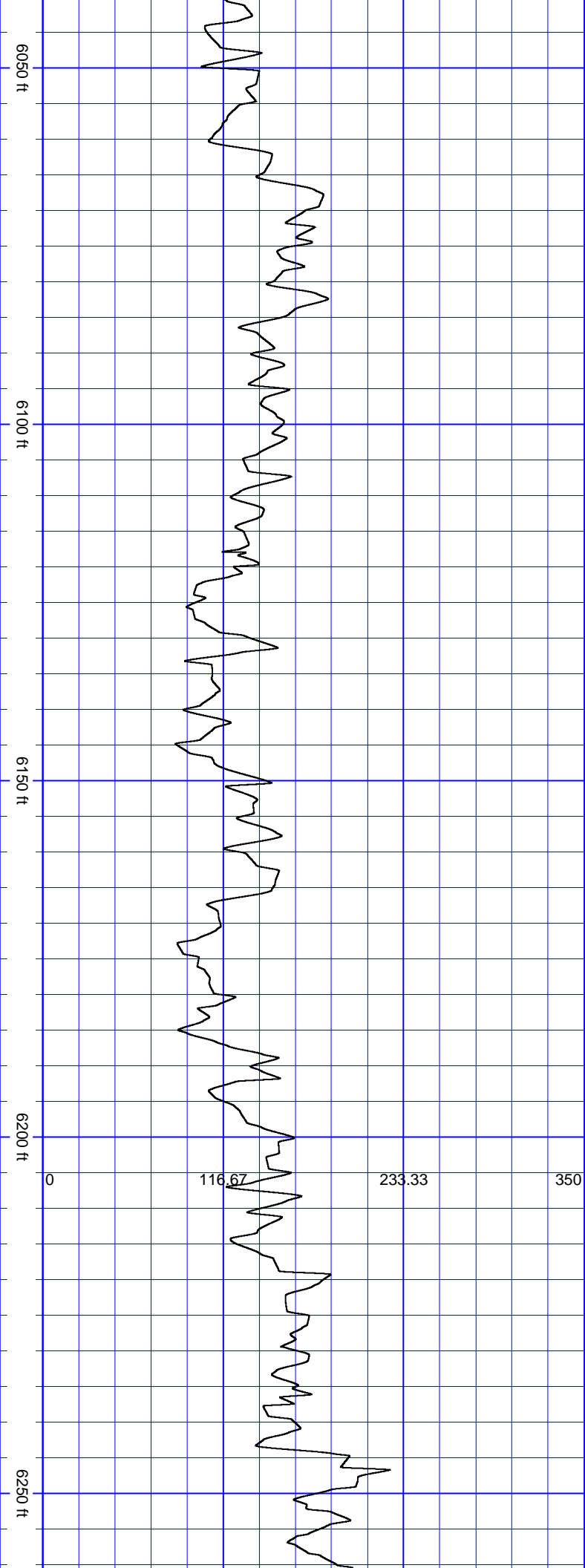




SurveyDepth:5881
TVD:5769.24 Inc:25.2
Azi:177.4 VertSec:-
708.89

SurveyDepth:5975
TVD:5852.49 Inc:30.1
Azi:173.9 VertSec:-
665.43





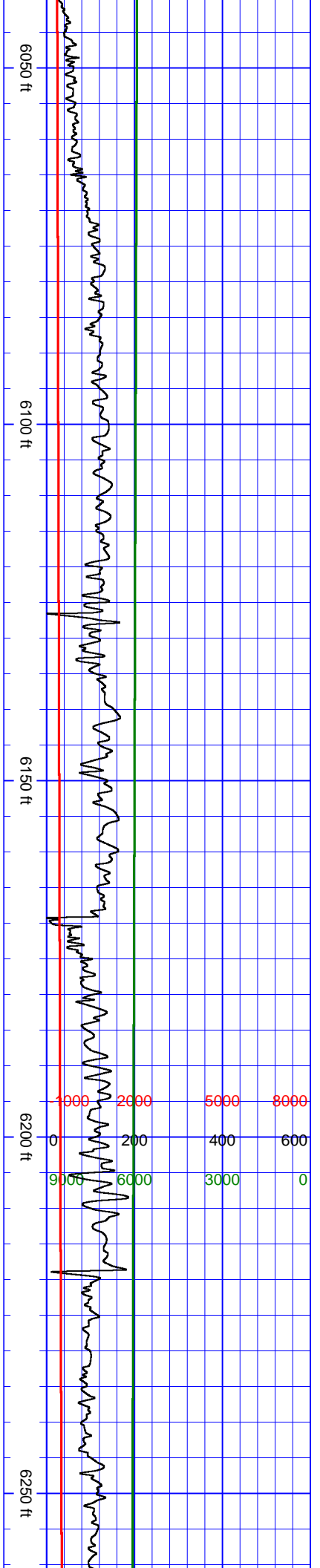
SurveyDepth:6068
TVD:5929.9 Inc:37.1
Azi:172 VertSec:-614.4

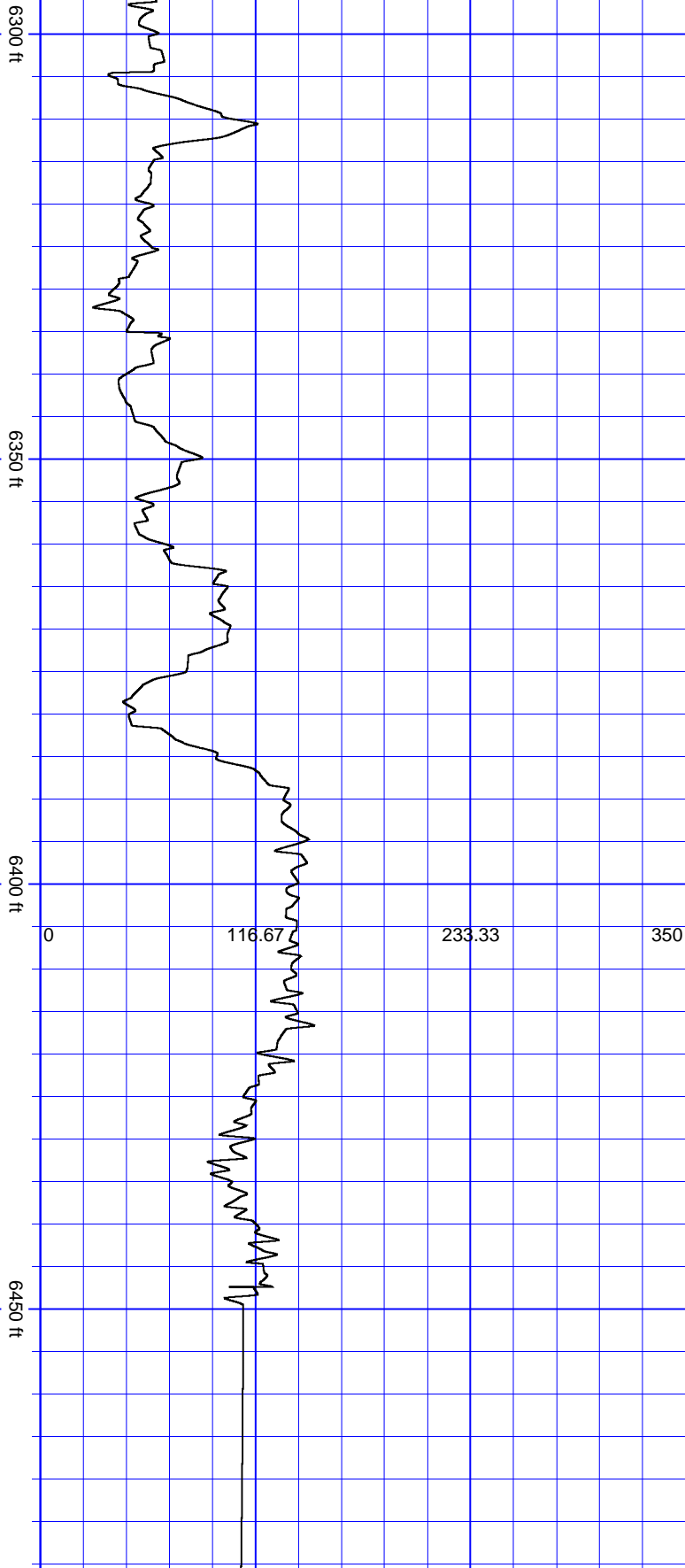
SurveyDepth:6114
TVD:5965.62 Inc:41
Azi:172.8 VertSec:-585.68

SurveyDepth:6162
TVD:6001.06 Inc:43.8
Azi:173.4 VertSec:-553.55

SurveyDepth:6208
TVD:6032.27 Inc:50.7
Azi:173.8 VertSec:-520

SurveyDepth:6255
TVD:6059 Inc:59.9





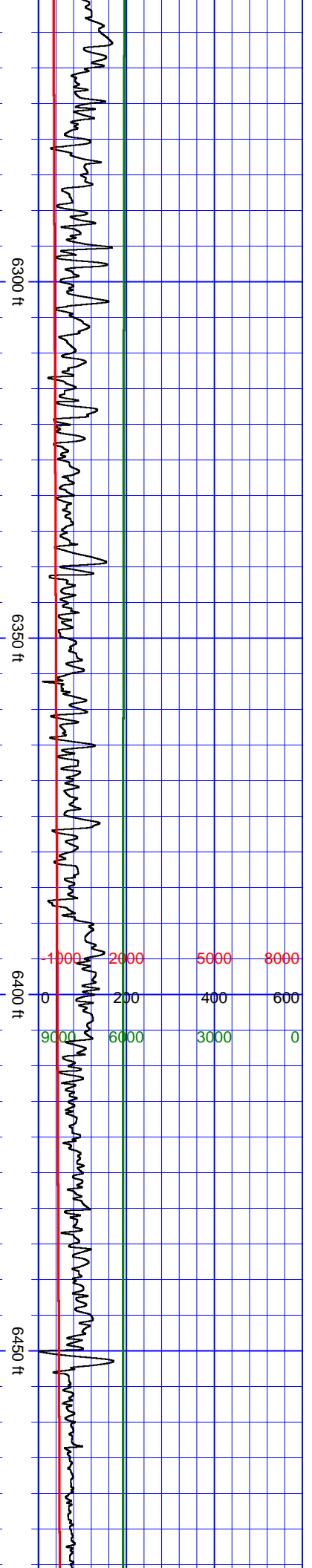
Azi:173.6 VertSec:-481.64

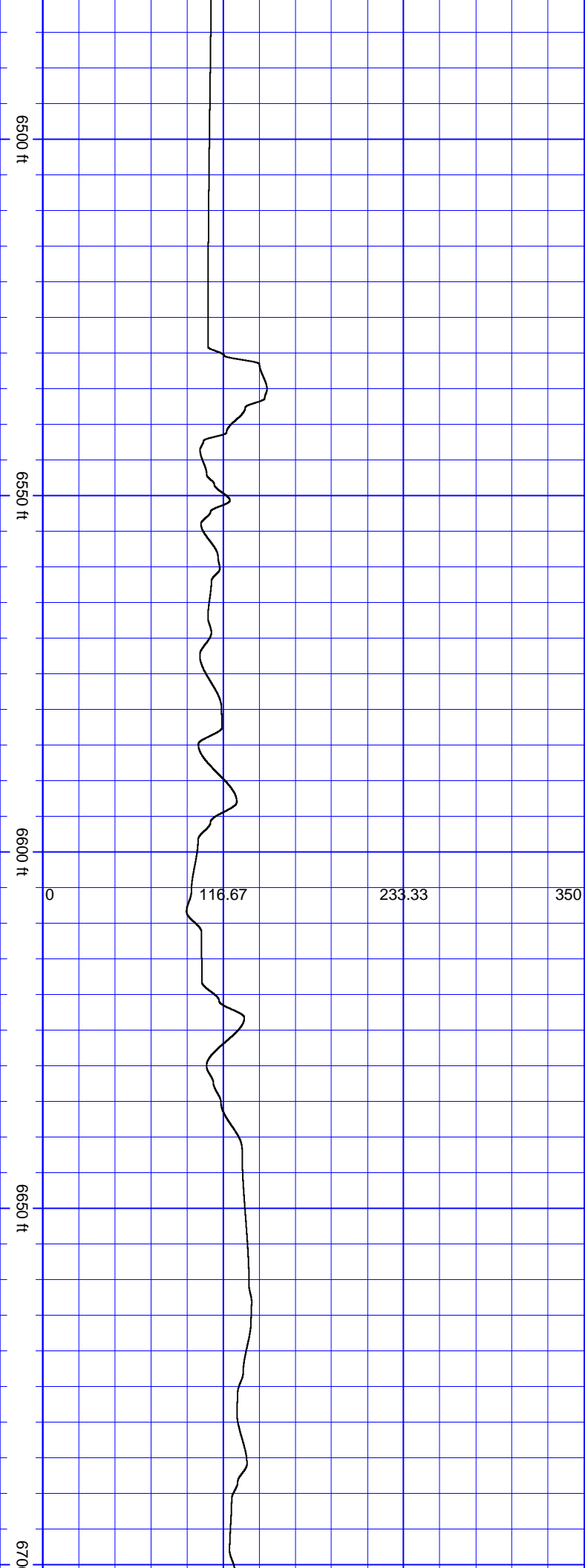
SurveyDepth:6301
TVD:6079.22 Inc:67.9
Azi:174.3 VertSec:-440.59

SurveyDepth:6349
TVD:6094.6 Inc:74.7
Azi:178.2 VertSec:-395.26

SurveyDepth:6395
TVD:6104.67 Inc:80
Azi:180.4 VertSec:-350.4

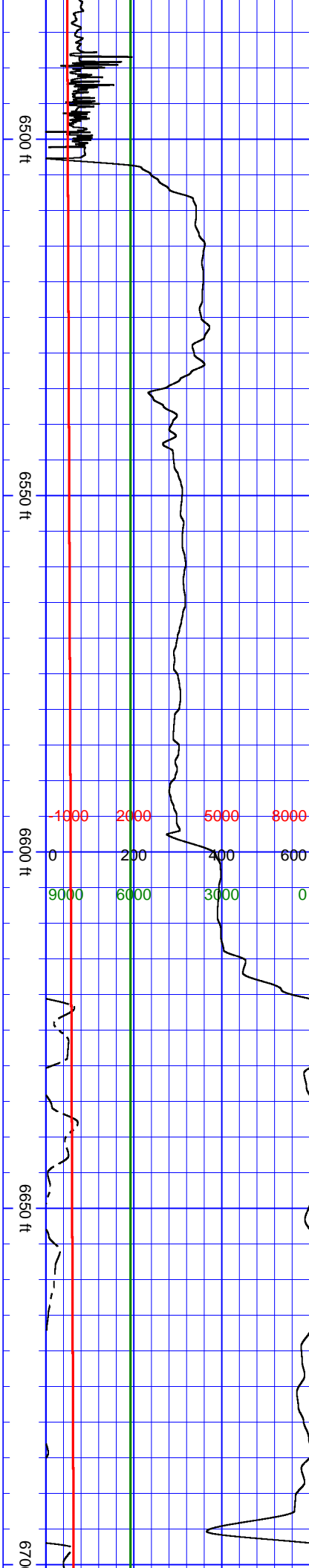
SurveyDepth:6443
TVD:6110.06 Inc:87.1
Azi:181.5 VertSec:-302.74

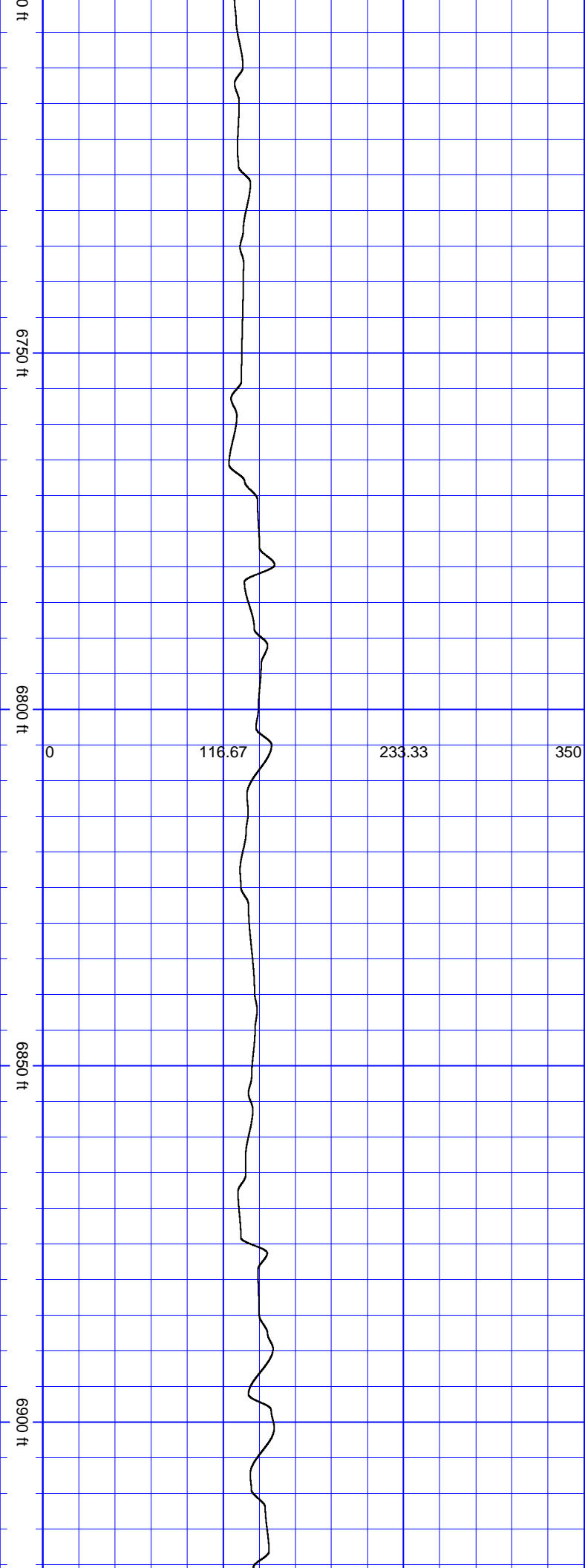




SurveyDepth:6543
TVD:6111.63 Inc:91.1
Azi:182.7 VertSec:-
202.84

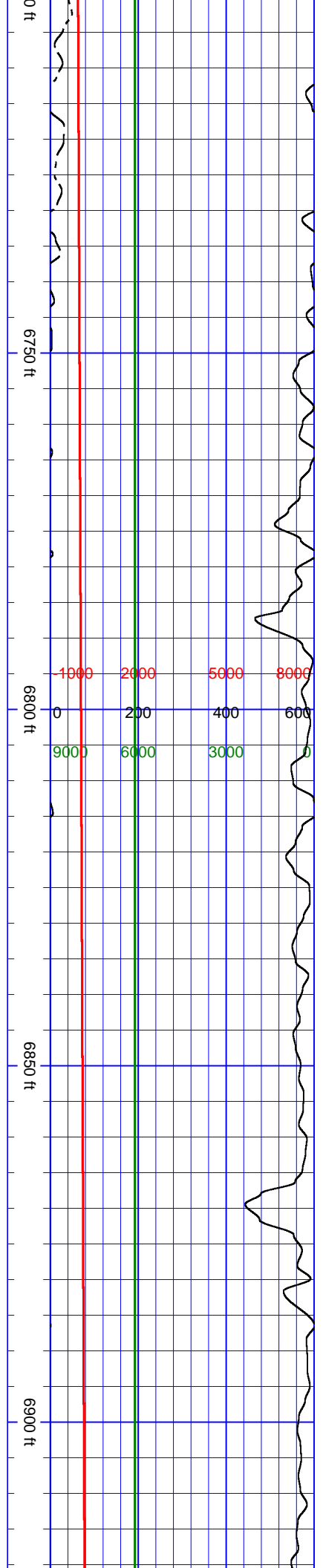
SurveyDepth:6638
TVD:6109.81 Inc:91.1
Azi:181.8 VertSec:-
107.93

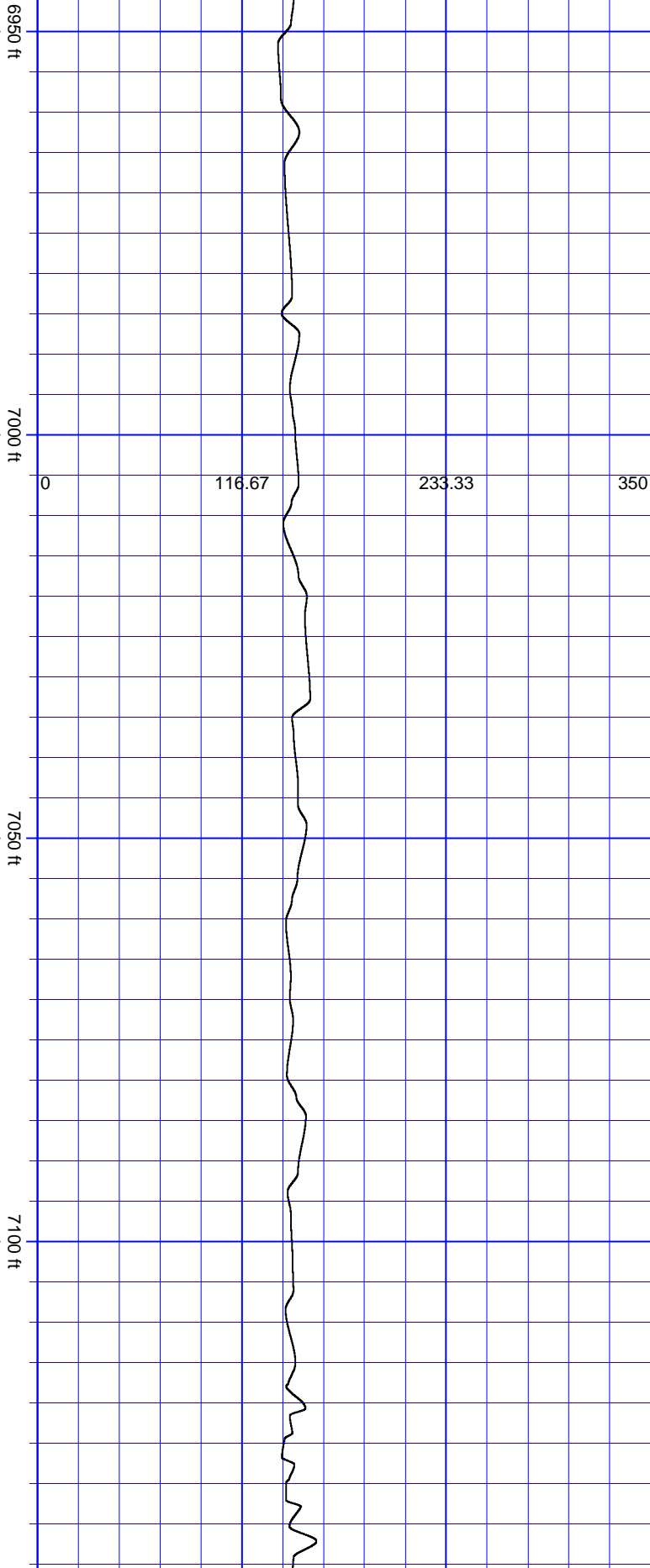




SurveyDepth:6732
TVD:6108.09 Inc:91
Azi:181.5 VertSec:-13.99

SurveyDepth:6827
TVD:6106.6 Inc:90.8
Azi:181 VertSec:80.98

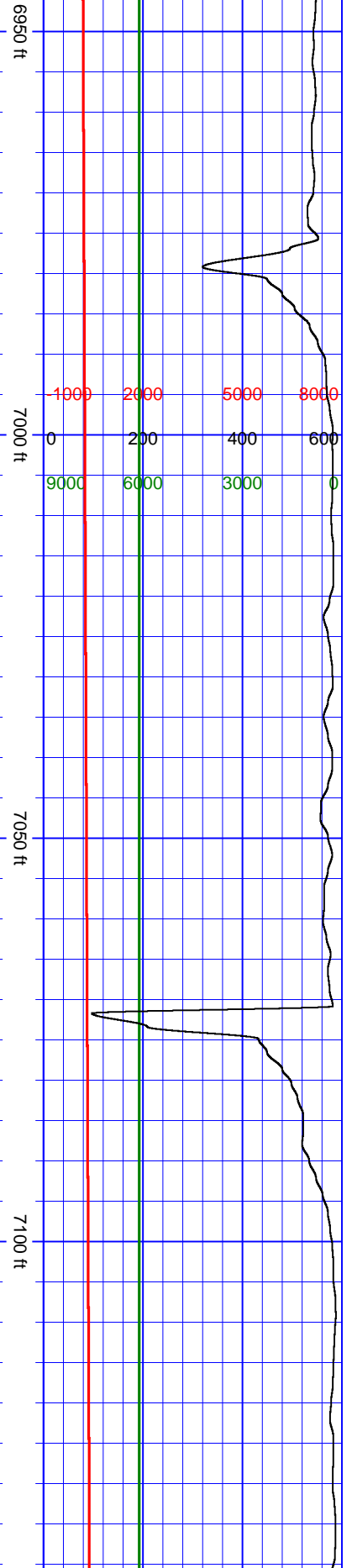


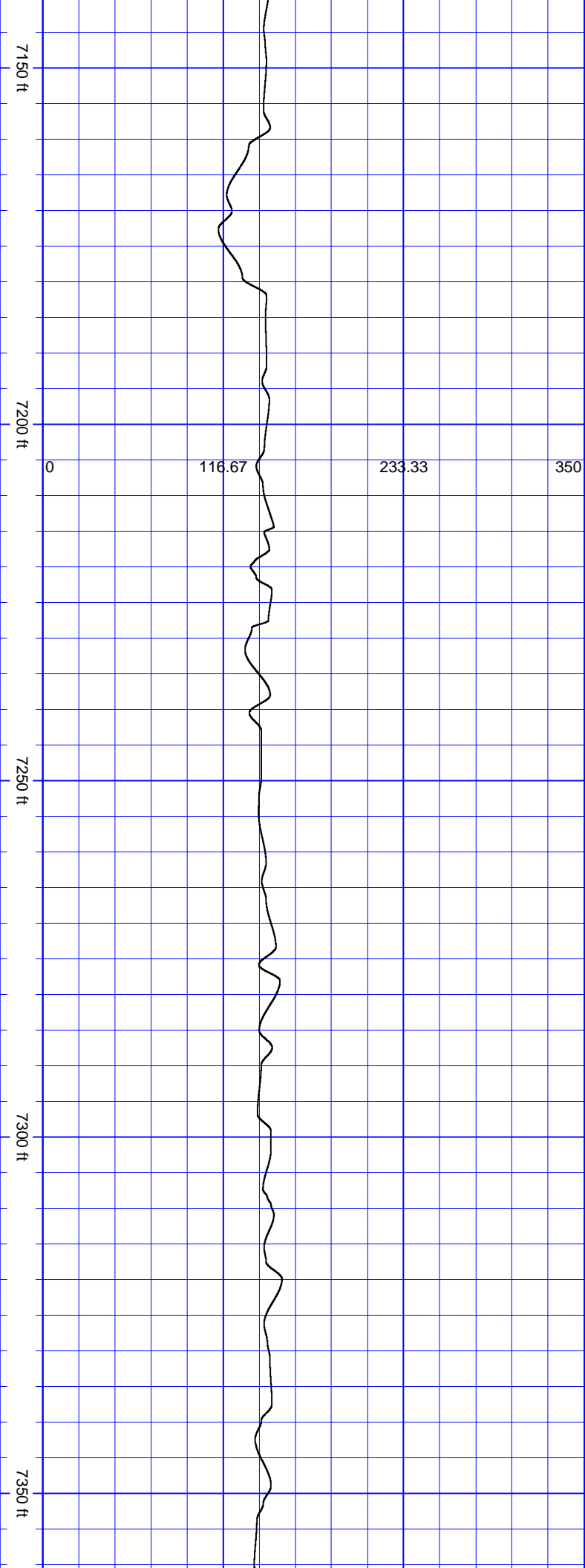


SurveyDepth:6922
TVD:6105.43 Inc:90.6
Azi:180.6
VertSec:175.96

SurveyDepth:7016
TVD:6104.94 Inc:90
Azi:179.8
VertSec:269.96

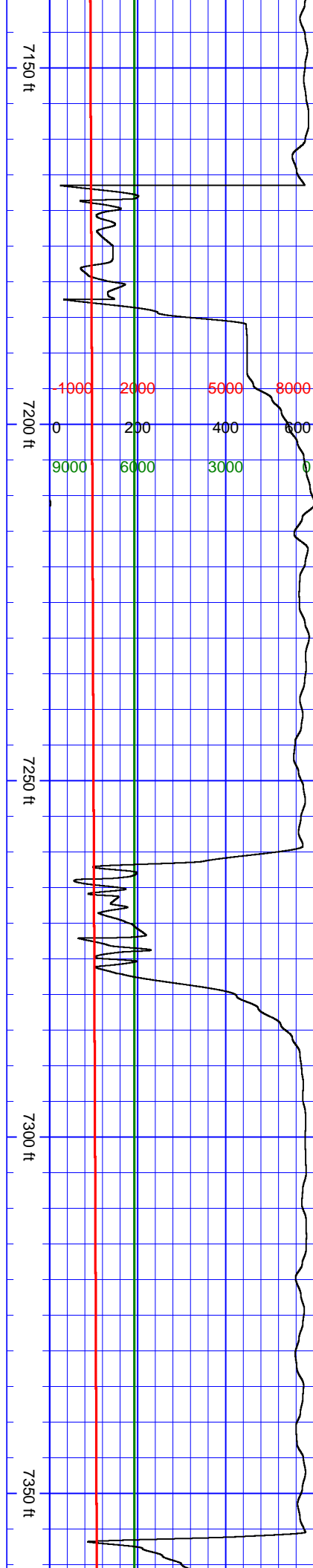
SurveyDepth:7111
TVD:6105.61 Inc:89.2
Azi:178.8
VertSec:364.95





SurveyDepth:7206
TVD:6105.77 Inc:90.6
Azi:179.3
VertSec:459.93

SurveyDepth:7300
TVD:6104.79 Inc:90.6
Azi:179.3
VertSec:553.92



7400 ft 0 116.67 233.33 350

7450 ft

7500 ft

7550 ft

SurveyDepth:7395
TVD:6103.96 Inc:90.4
Azi:179.2
VertSec:648.91

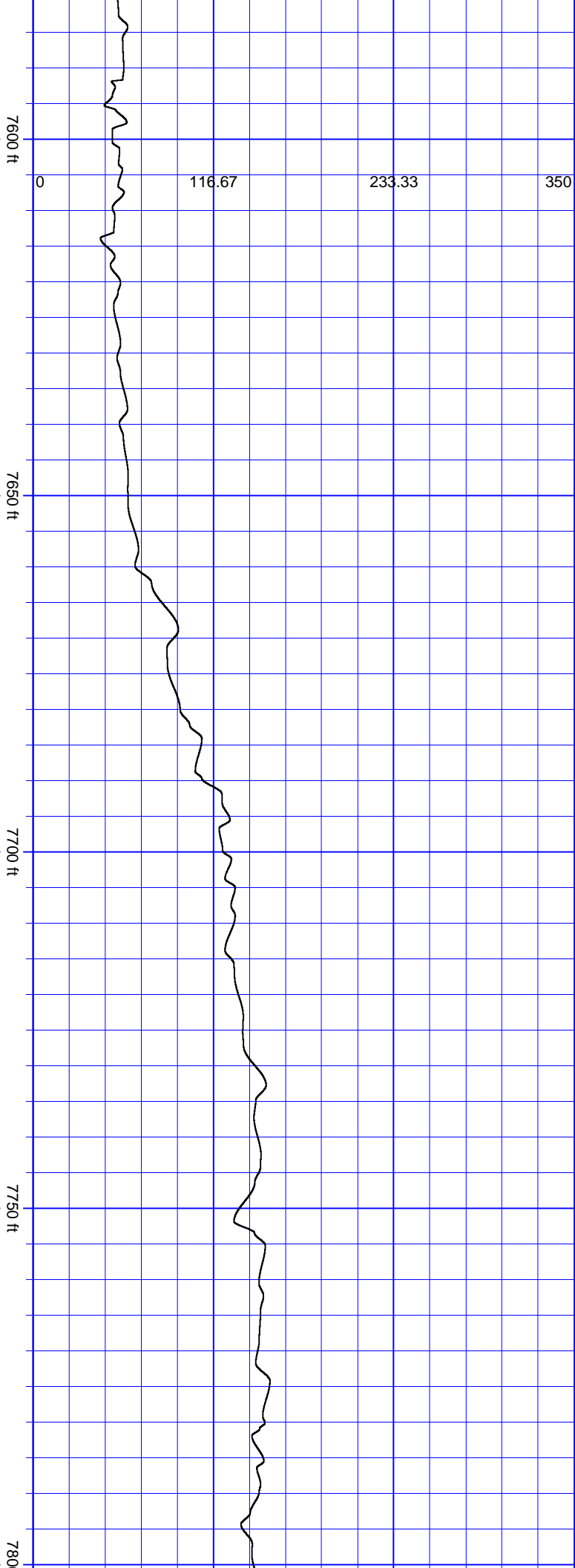
SurveyDepth:7490
TVD:6102.88 Inc:90.9
Azi:178.8
VertSec:743.89

7400 ft -1000 2000 5000 8000
0 200 400 600
9000 6000 3000 0

7450 ft

7500 ft

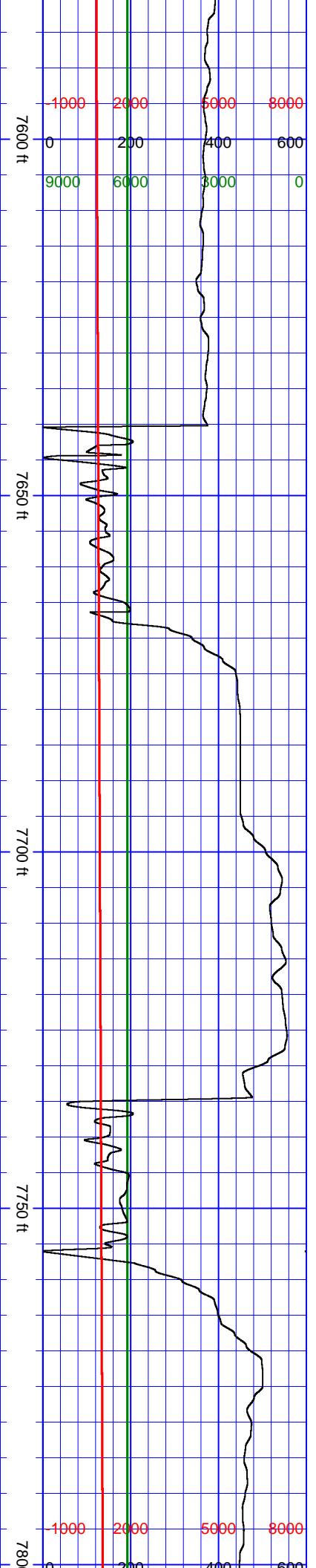
7550 ft

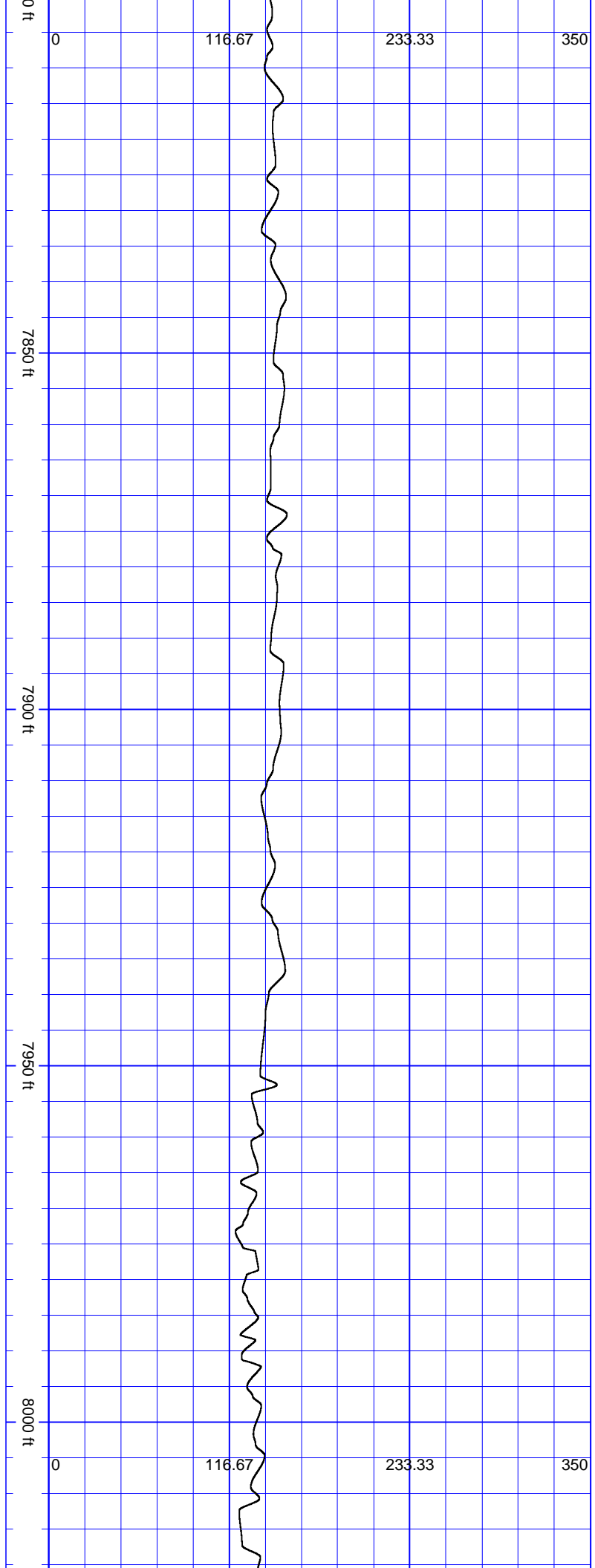


SurveyDepth:7585
TVD:6102.05 Inc:90.1
Azi:179.6
VertSec:838.87

SurveyDepth:7679
TVD:6103.12 Inc:88.6
Azi:180.8
VertSec:932.86

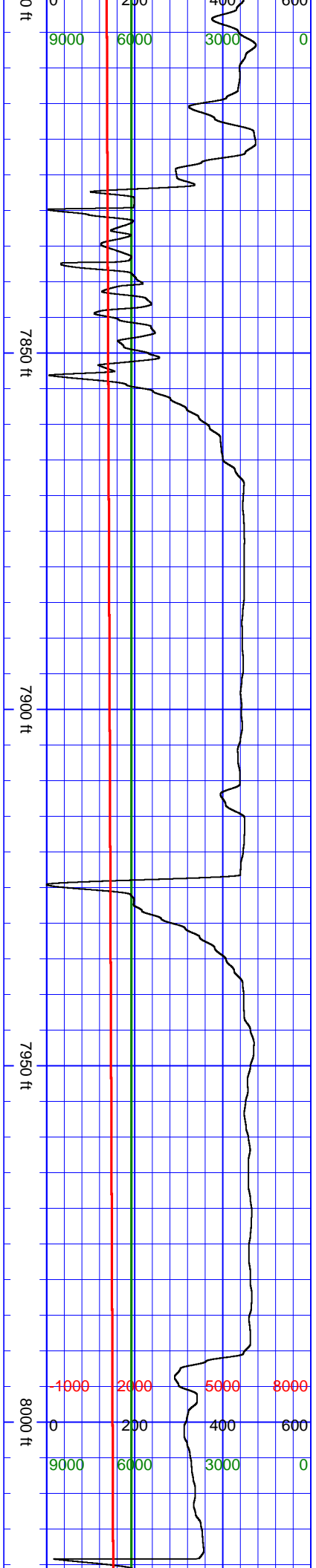
SurveyDepth:7774
TVD:6104.61 Inc:89.6
Azi:181.1
VertSec:1027.83





SurveyDepth:7869
TVD:6105.27 Inc:89.6
Azi:183.2
VertSec:1122.76

SurveyDepth:7963
TVD:6106.26 Inc:89.2
Azi:182.5
VertSec:1216.64



8050 ft

8100 ft

8150 ft

8200 ft

0 118.67 233.33 350

SurveyDepth:8058
TVD:6107.92 Inc:88.8
Azi:183.1
VertSec:1311.51

SurveyDepth:8153
TVD:6108.91 Inc:90
Azi:183.4
VertSec:1406.35

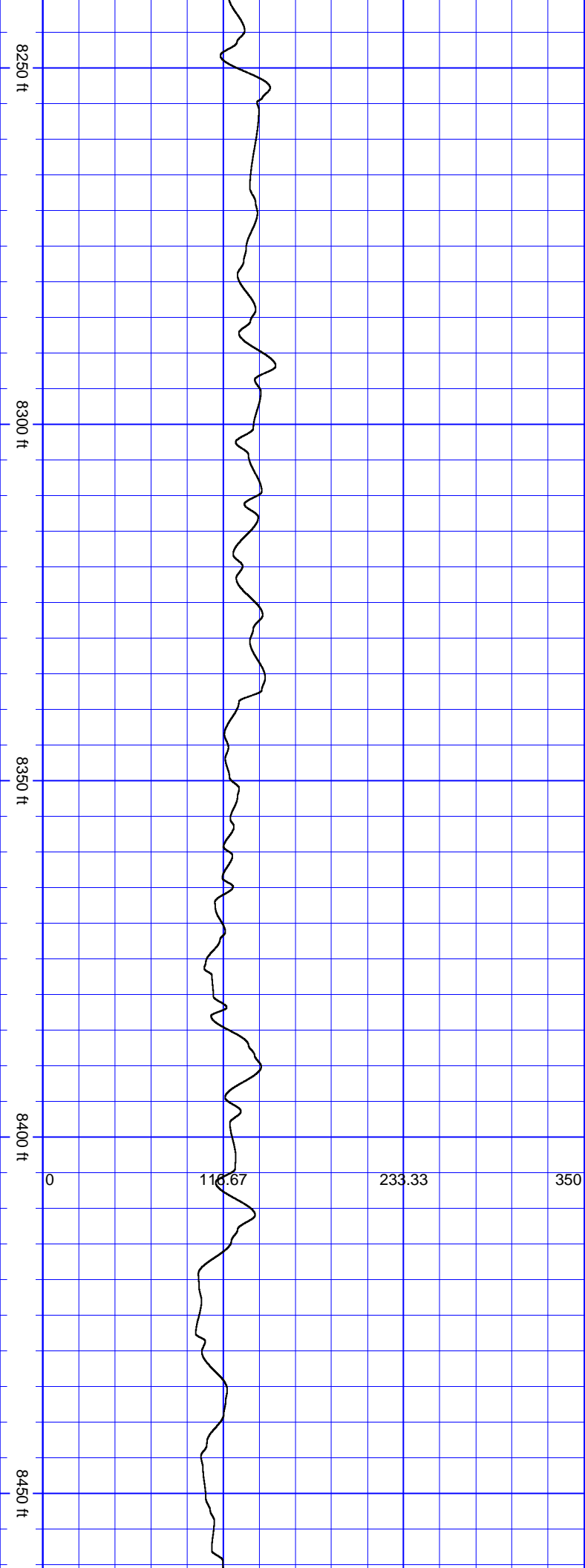
8050 ft

8100 ft

8150 ft

8200 ft

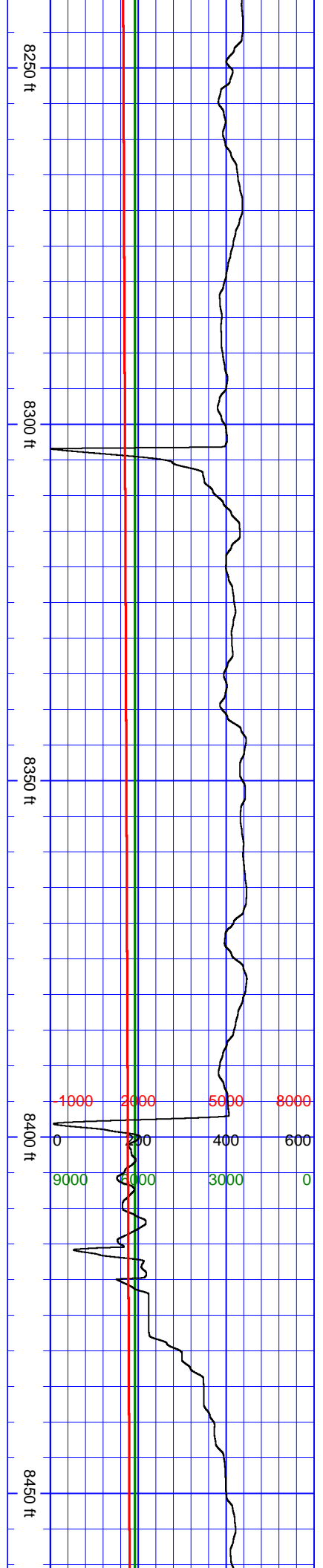
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9000 6000 3000 0



SurveyDepth:8248
TVD:6108.25 Inc:90.8
Azi:183.5
VertSec:1501.17

SurveyDepth:8342
TVD:6107.92 Inc:89.6
Azi:181.8
VertSec:1595.07

SurveyDepth:8435
TVD:6108.08 Inc:90.2
Azi:181.2
VertSec:1688.03



8500 ft

8550 ft

8600 ft

8650 ft

0 116.67 233.33 350

SurveyDepth:8529
TVD:6107.67 Inc:90.3
Azi:180.6
VertSec:1782.02

SurveyDepth:8622
TVD:6106.86 Inc:90.7
Azi:181.3 VertSec:1875

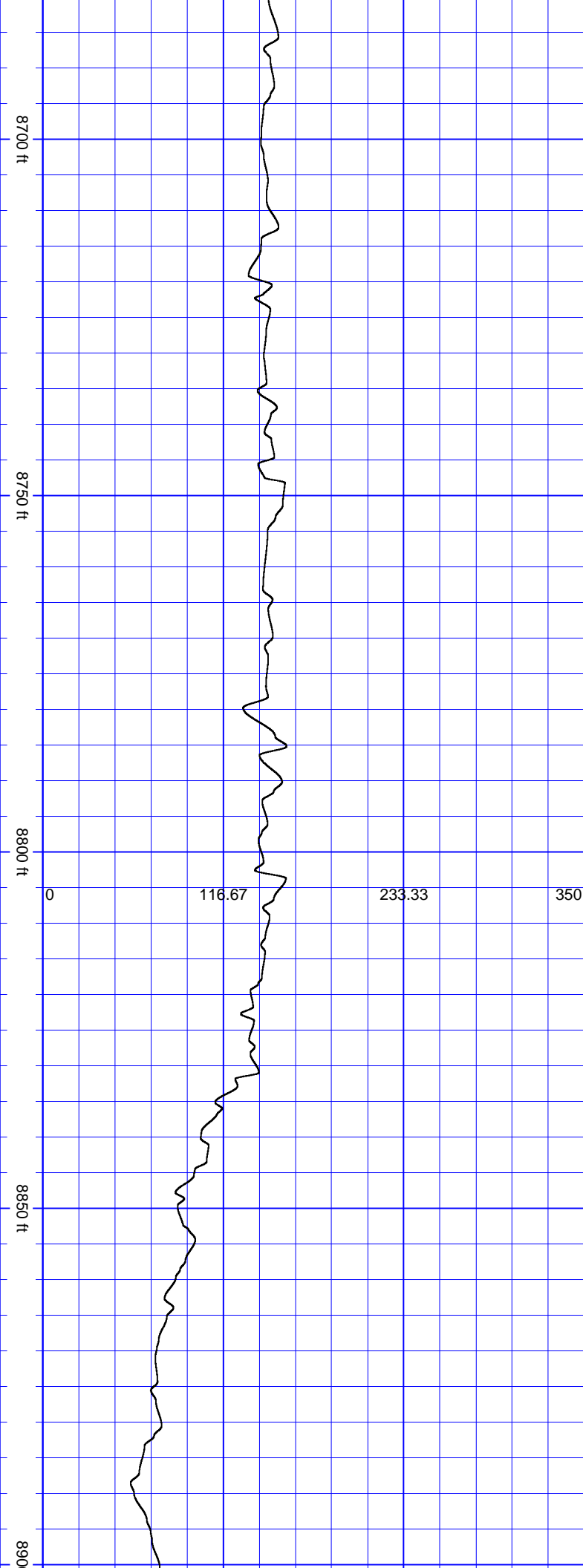
8500 ft

8550 ft

8600 ft

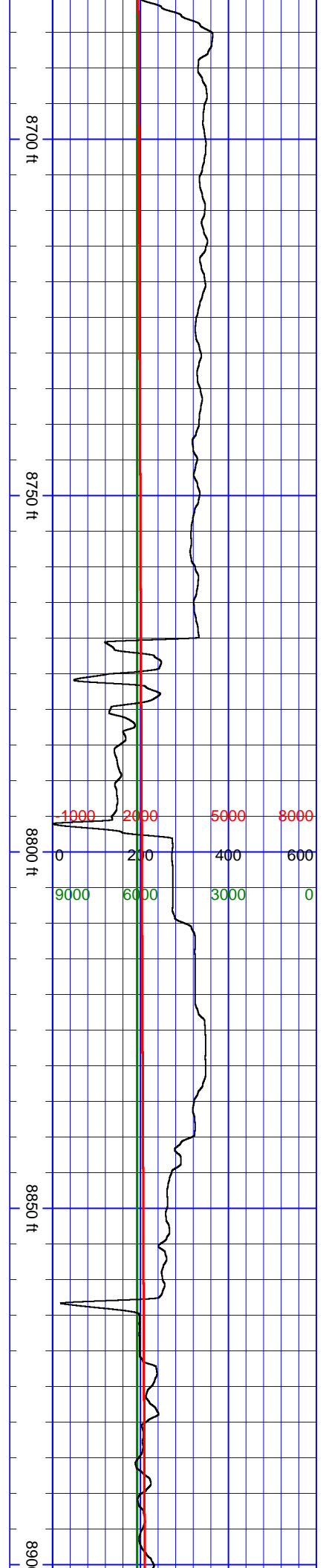
8650 ft

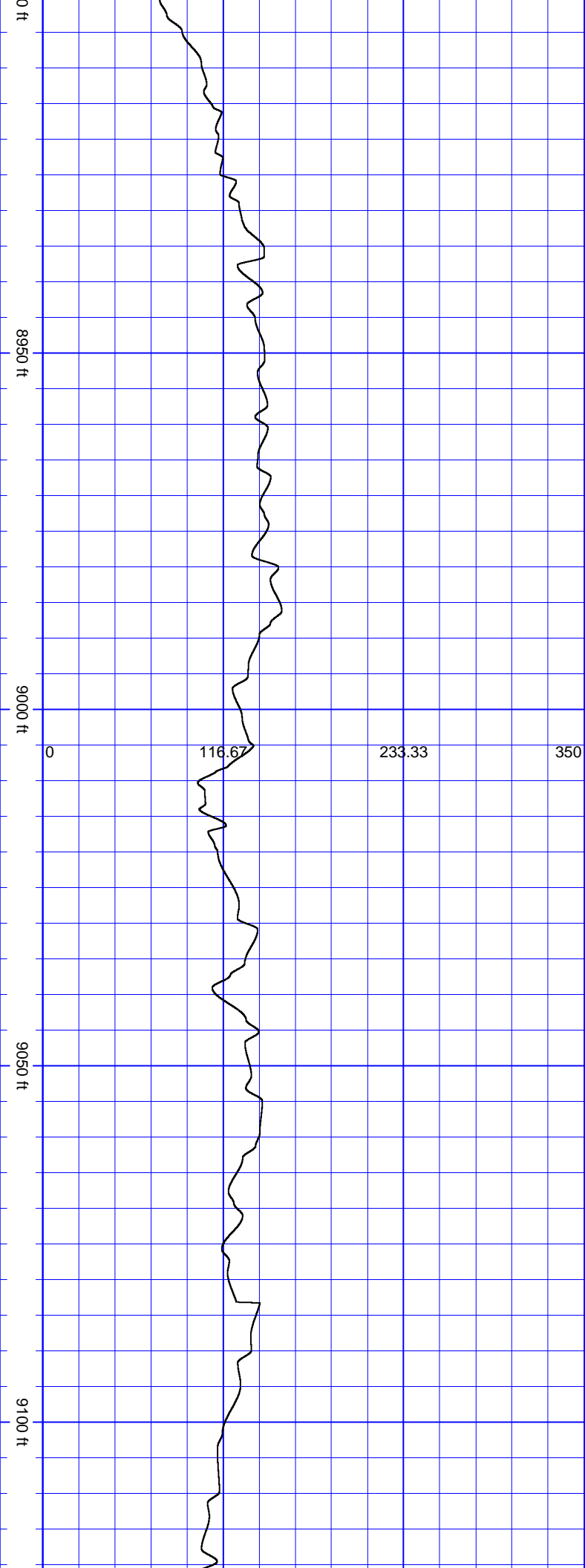
1000 2000 5000 8000
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9000 6000 3000 0



SurveyDepth:8715
TVD:6106.05 Inc:90.3
Azi:180 VertSec:1967.99

SurveyDepth:8808
TVD:6104.18 Inc:92
Azi:181.4
VertSec:2060.96

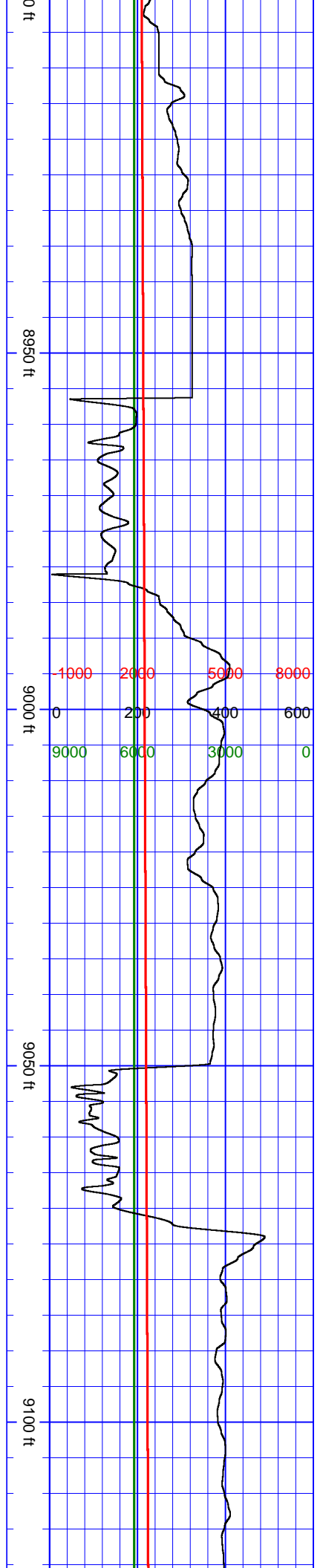


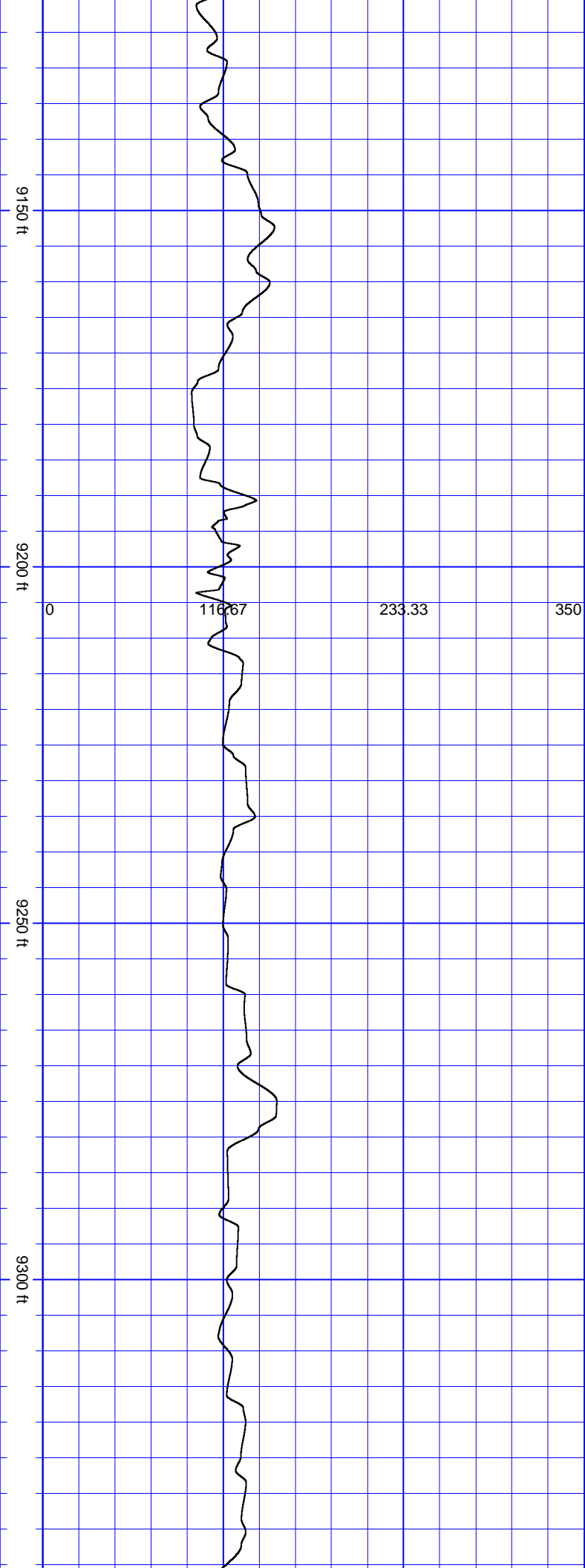


SurveyDepth:8901
TVD:6103.21 Inc:89.2
Azi:179 VertSec:2153.94

SurveyDepth:8994
TVD:6105.07 Inc:88.5
Azi:179.7
VertSec:2246.91

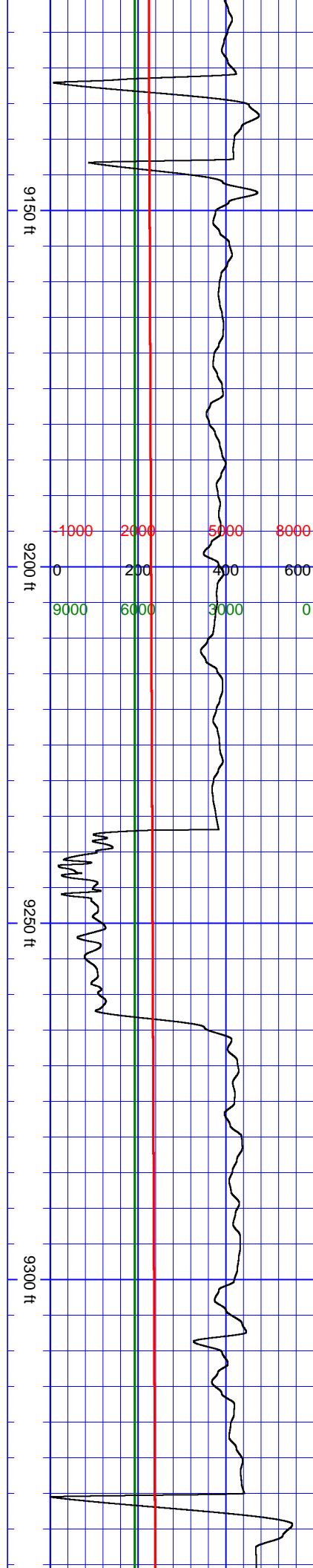
SurveyDepth:9087
TVD:6106.29 Inc:90
Azi:179.4
VertSec:2339.9

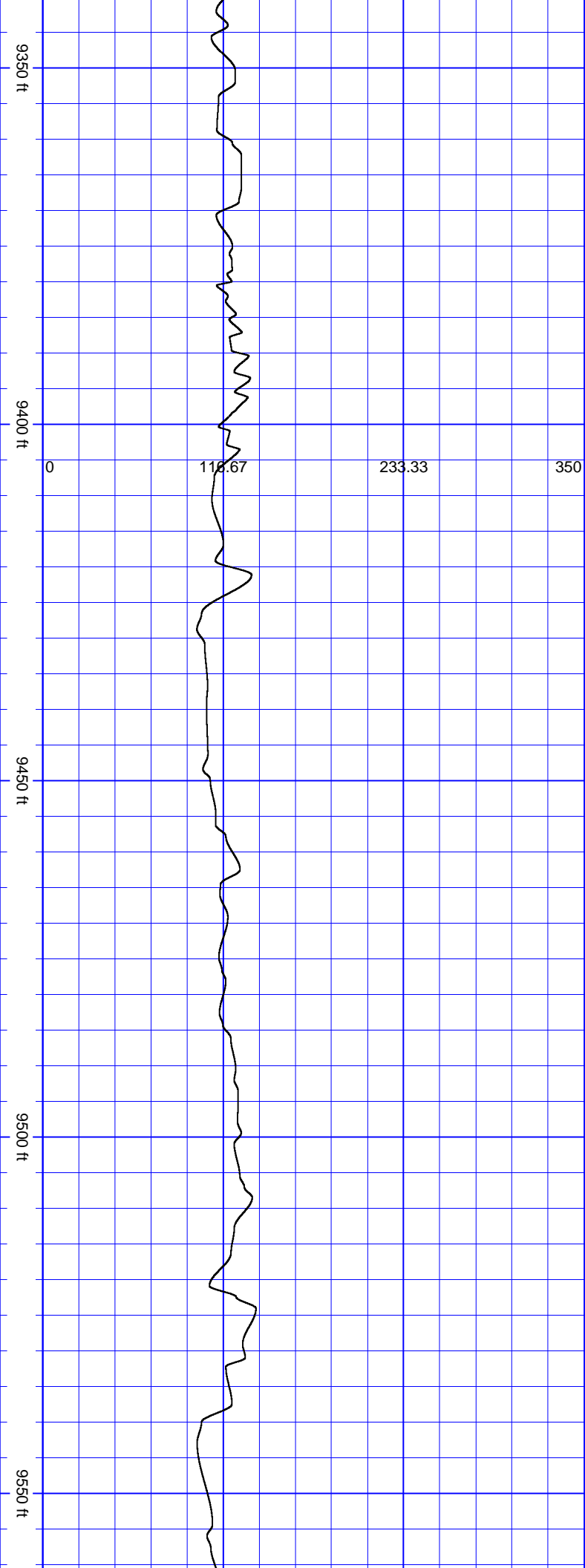




SurveyDepth:9181
TVD:6106.62 Inc:89.6
Azi:178.9
VertSec:2433.89

SurveyDepth:9274
TVD:6107.03 Inc:89.9
Azi:179.7
VertSec:2526.88

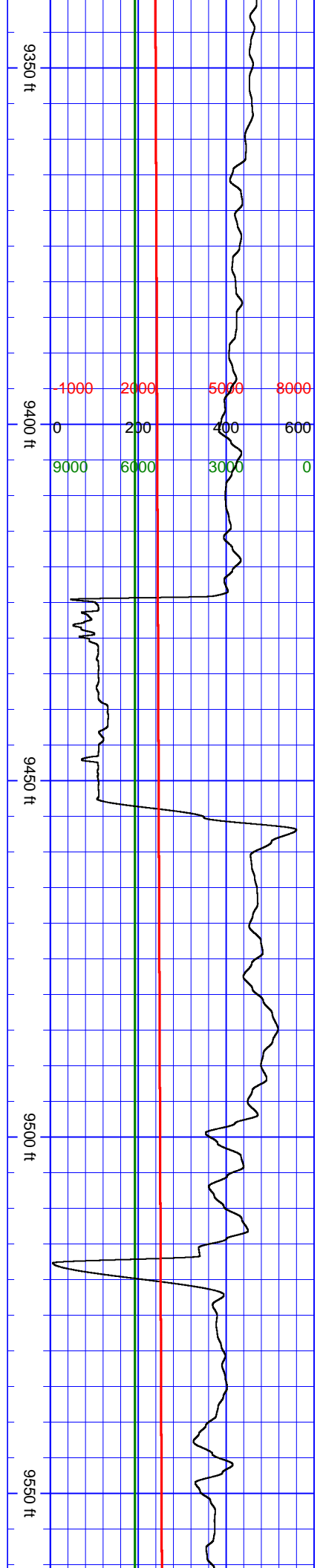


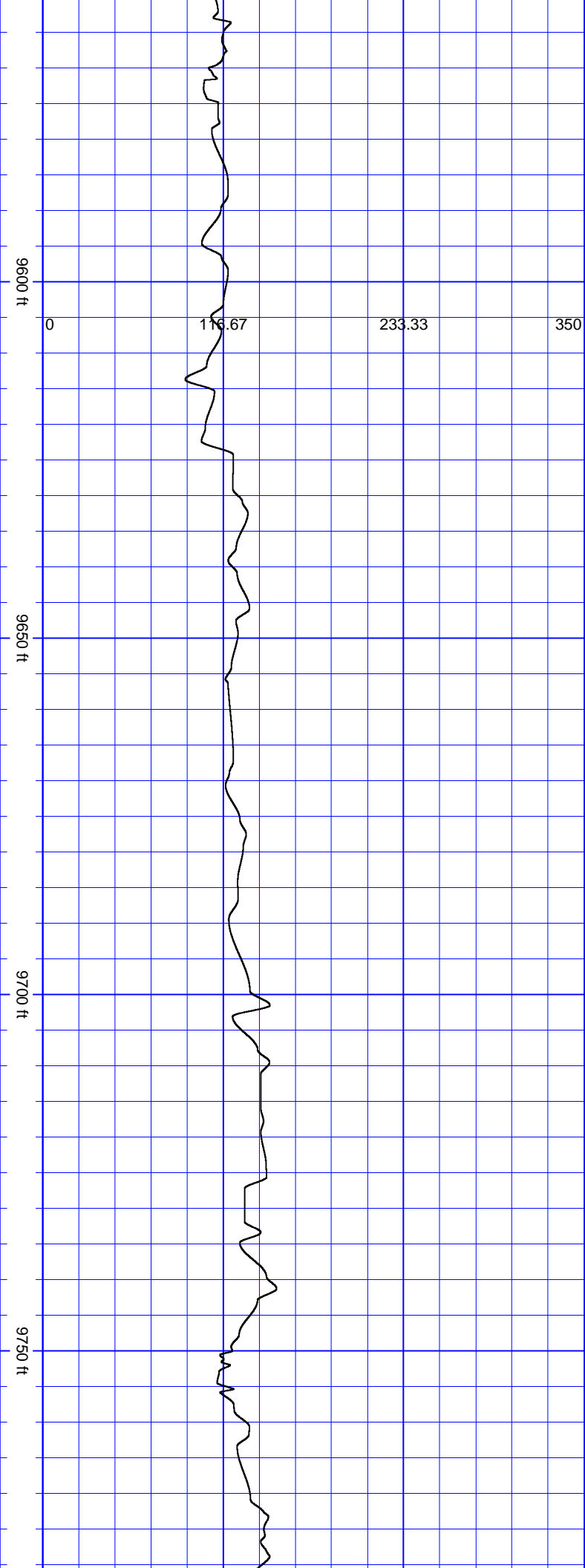


SurveyDepth:9367
TVD:6107.27 Inc:89.8
Azi:179.1
VertSec:2619.87

SurveyDepth:9461
TVD:6107.27 Inc:90.2
Azi:181.9
VertSec:2713.86

SurveyDepth:9555
TVD:6106.04 Inc:91.3

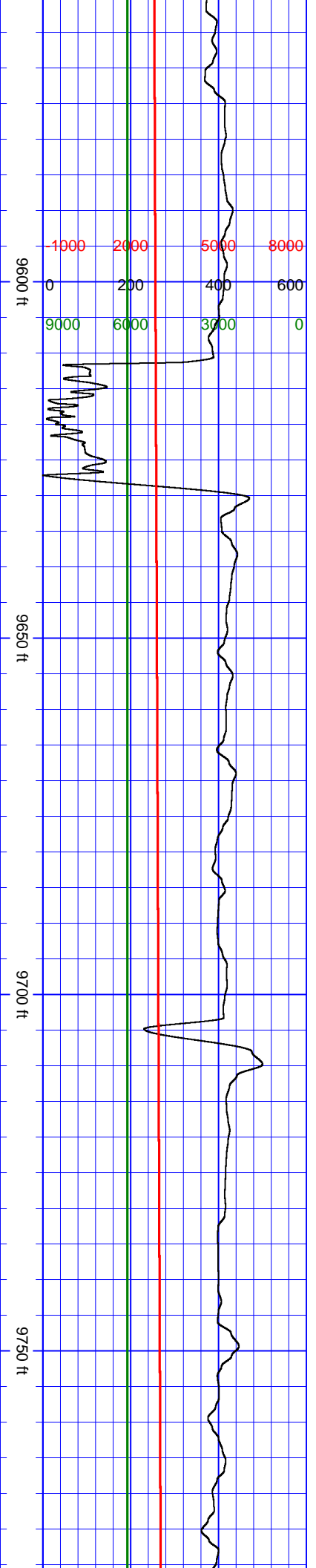


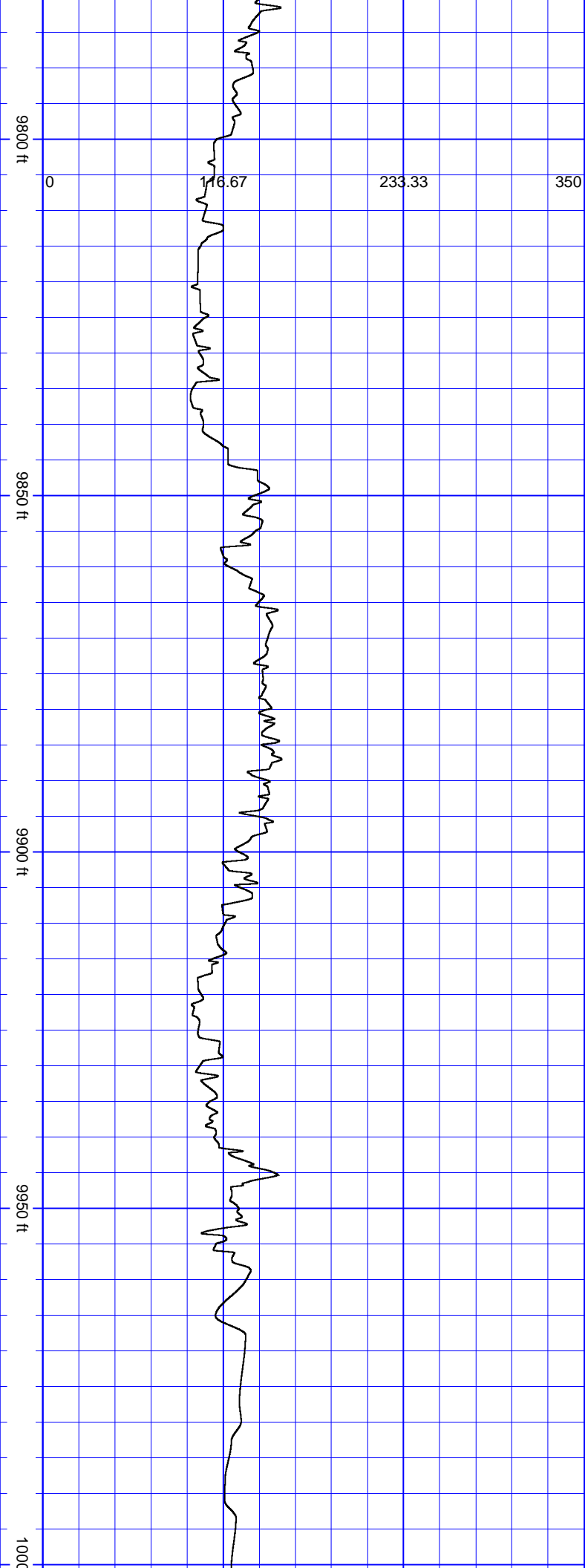


Azi:183.2
VertSec:2807.76

SurveyDepth:9648
TVD:6104.25 Inc:90.9
Azi:183.2
VertSec:2900.59

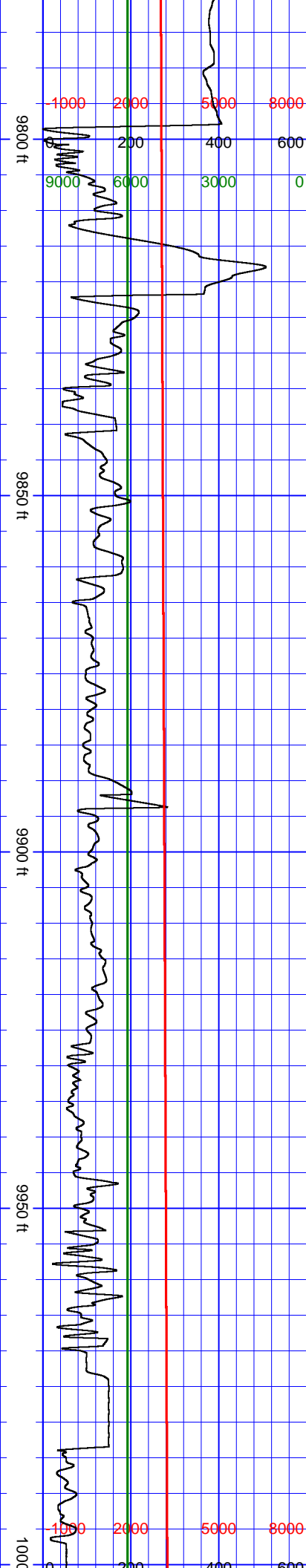
SurveyDepth:9742
TVD:6103.19 Inc:90.4
Azi:182.8
VertSec:2994.46

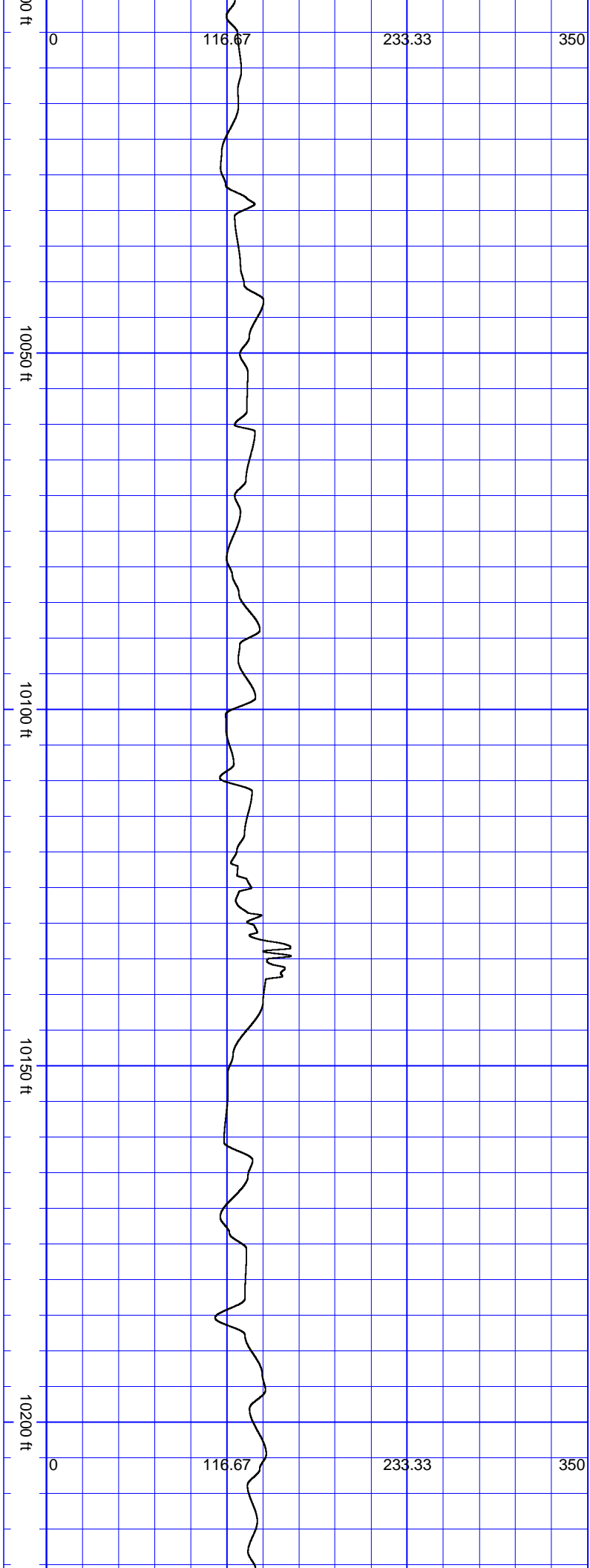




SurveyDepth:9835
TVD:6102.78 Inc:90.1
Azi:181 VertSec:3087.4

SurveyDepth:9930
TVD:6104.6 Inc:87.7
Azi:179.9
VertSec:3182.37

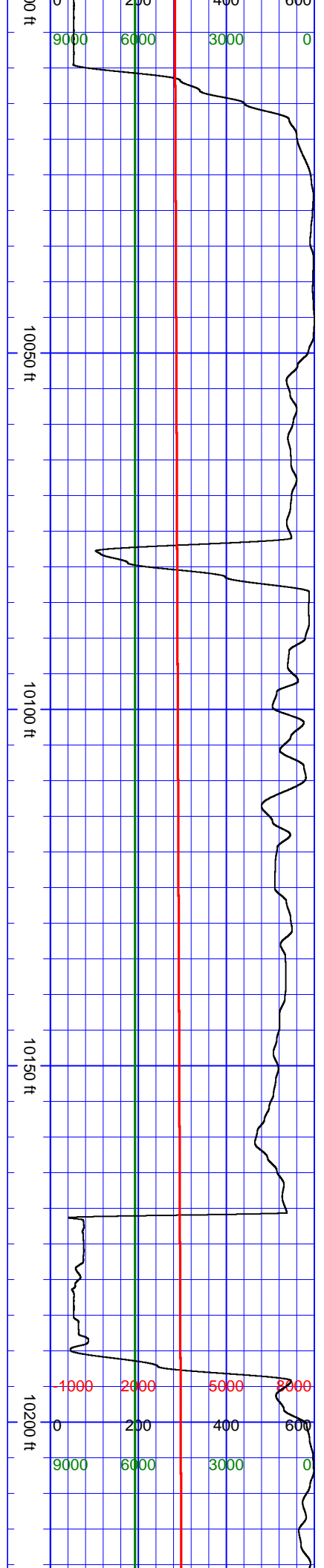


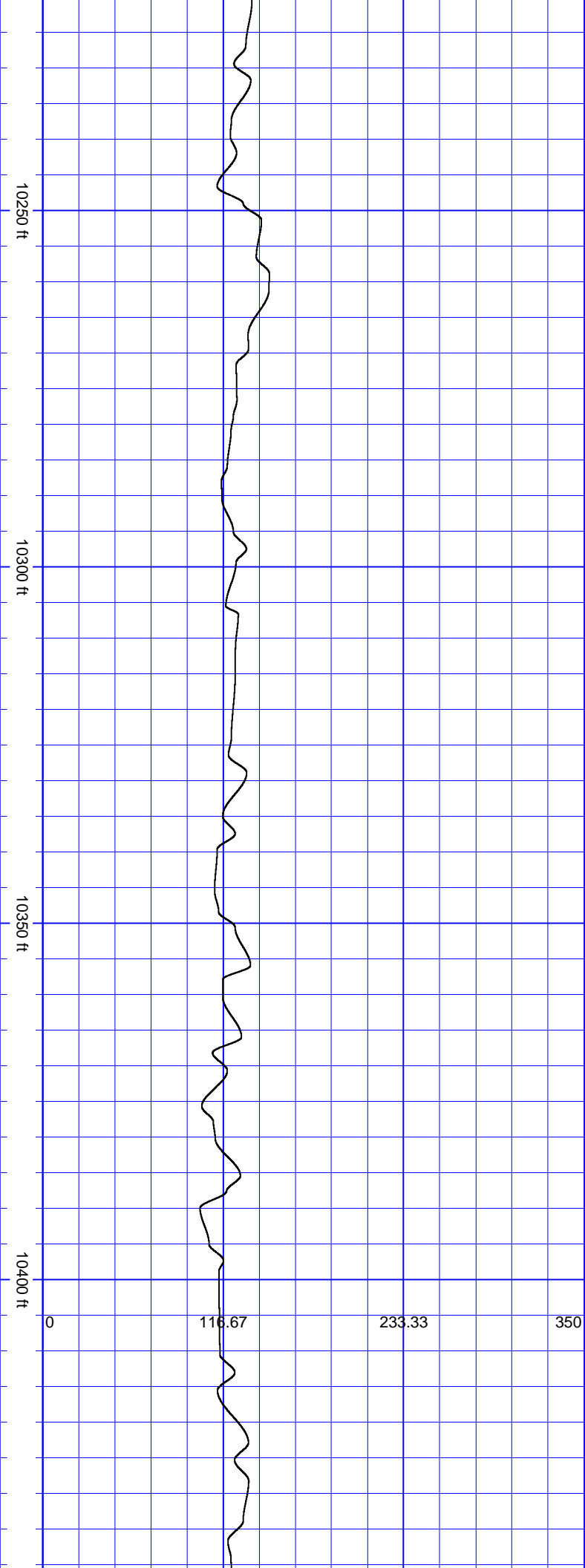


SurveyDepth:10023
TVD:6106.63 Inc:89.8
Azi:182.3
VertSec:3275.32

SurveyDepth:10117
TVD:6107.21 Inc:89.5
Azi:182.4
VertSec:3369.24

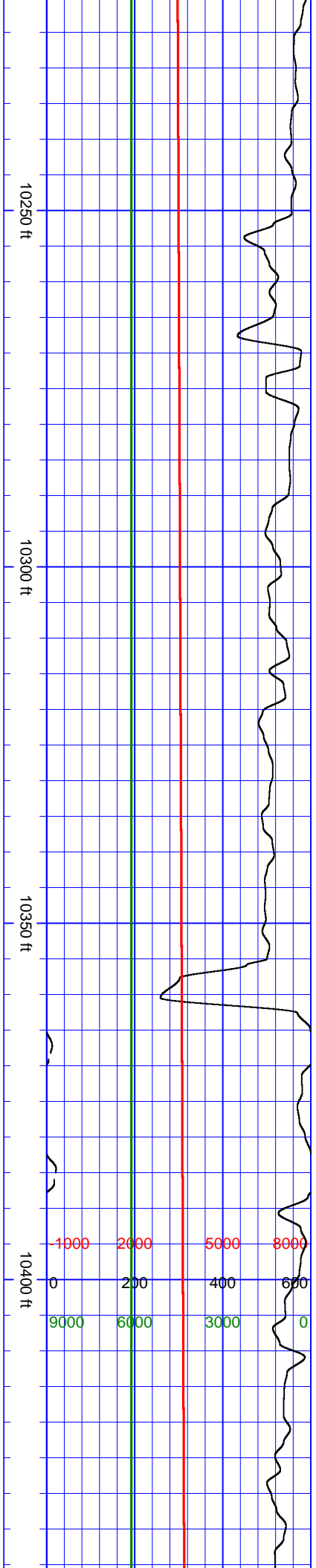
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TVD:6107.45 Inc:90.2
Azi:179.8
VertSec:3462.22

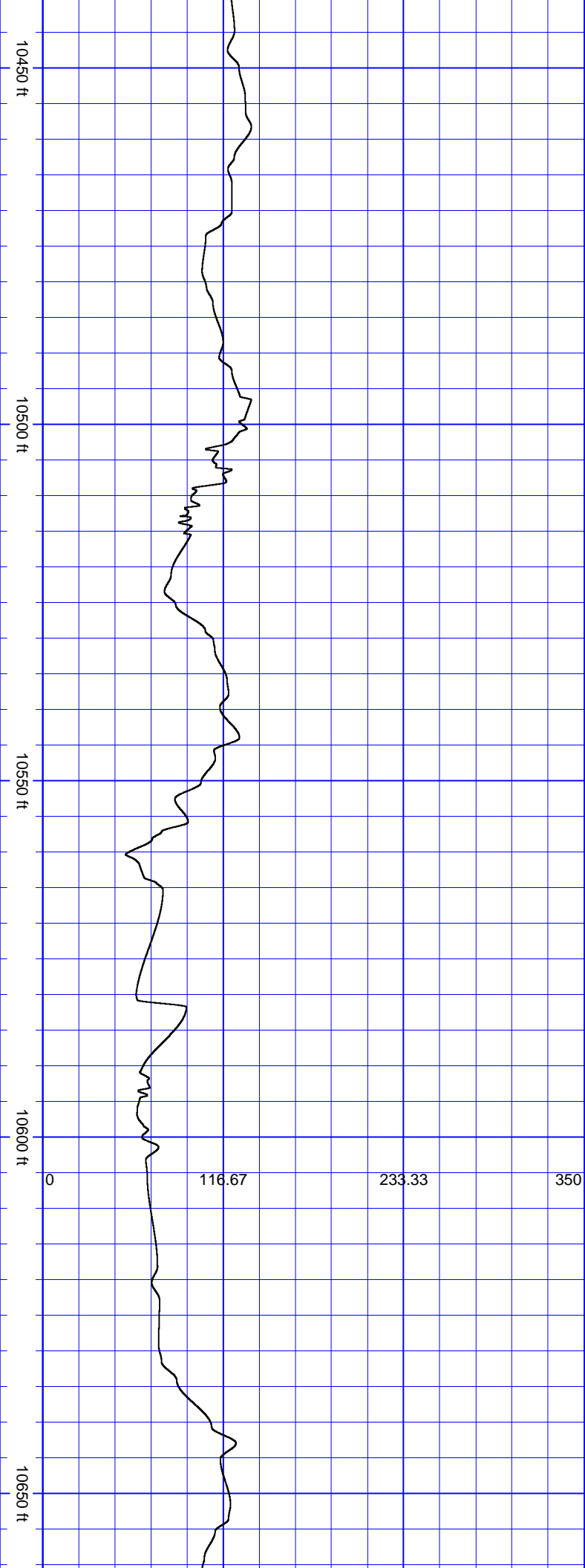




SurveyDepth:10304
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Azi:179.6
VertSec:3556.21

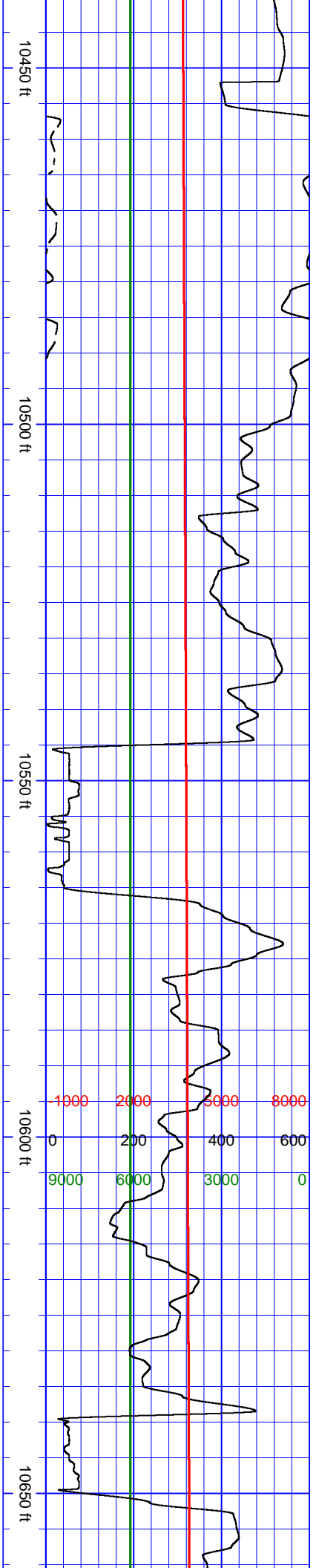
SurveyDepth:10397
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Azi:178.7
VertSec:3649.2

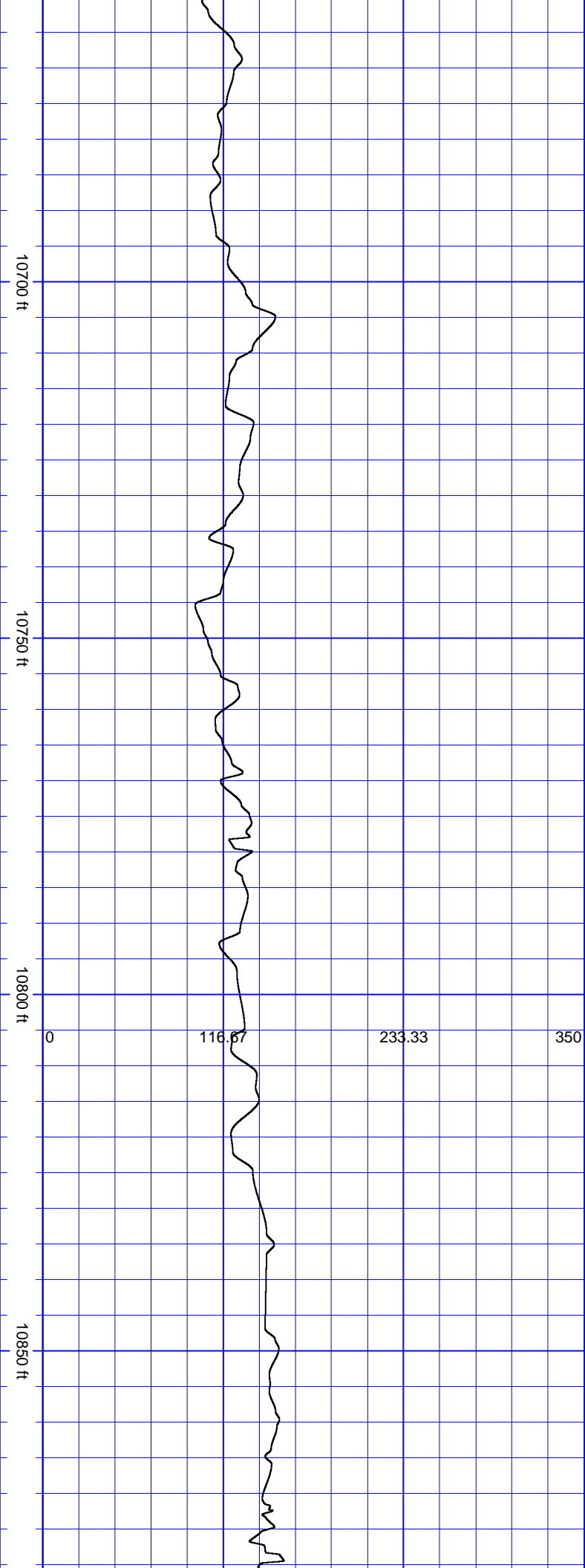




SurveyDepth:10491
TVD:6108.51 Inc:89.3
Azi:178.1
VertSec:3743.16

SurveyDepth:10584
TVD:6109.16 Inc:89.9
Azi:179.8
VertSec:3836.14

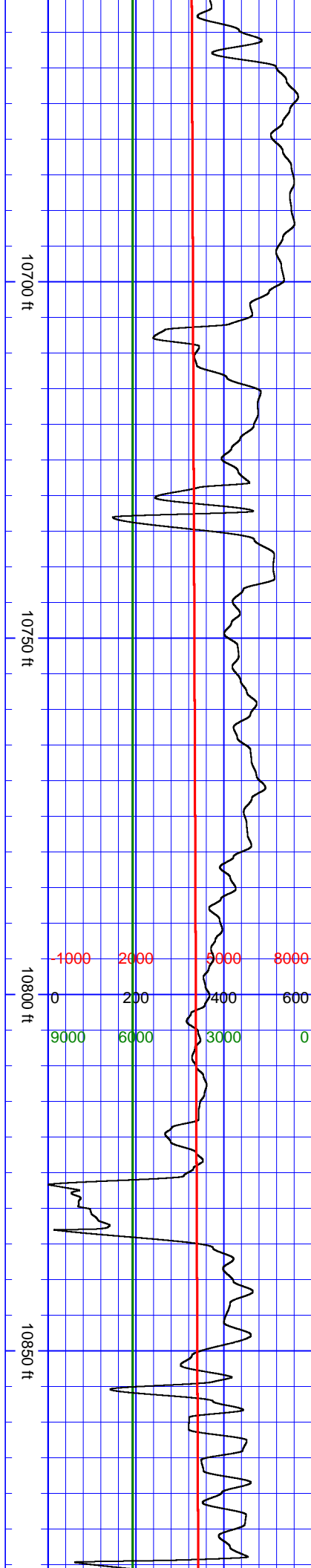


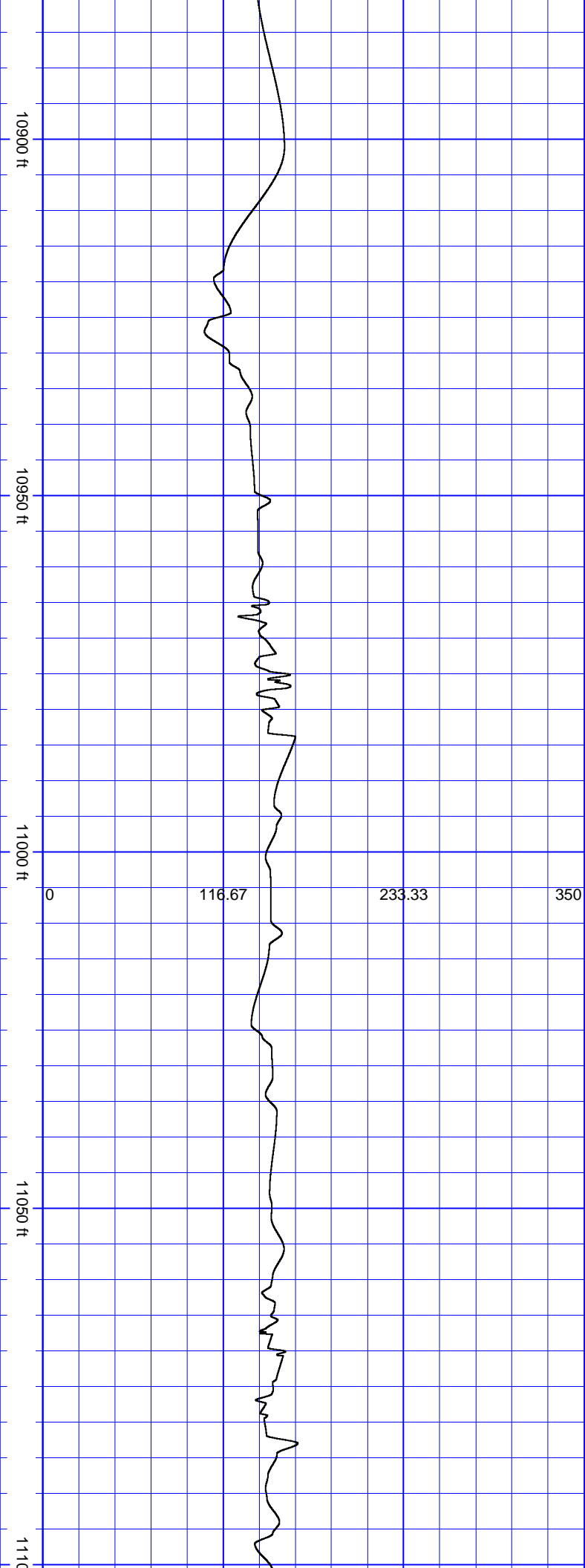


SurveyDepth:10678
TVD:6107.69 Inc:91.9
Azi:179.9
VertSec:3930.12

SurveyDepth:10771
TVD:6104.52 Inc:92
Azi:179.5
VertSec:4023.07

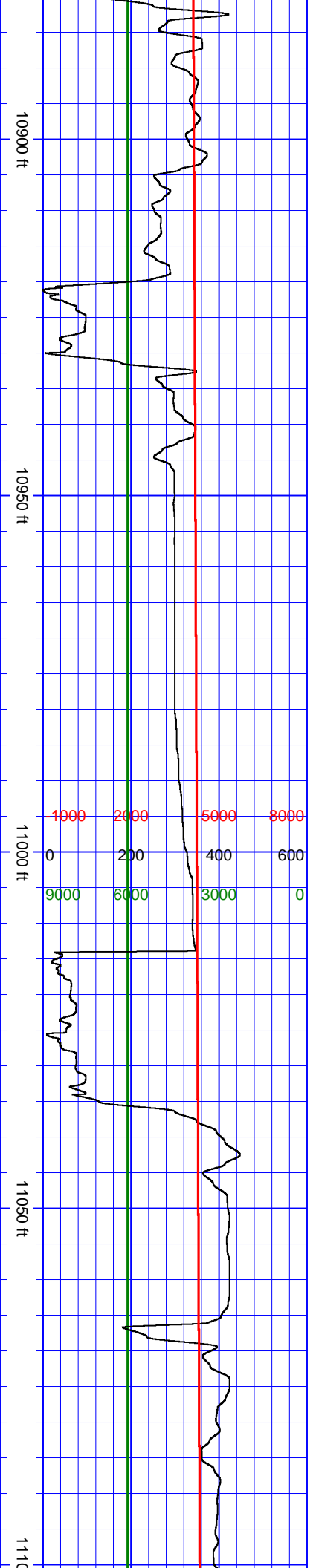
SurveyDepth:10865
TVD:6101.49 Inc:91.7
Azi:179.4
VertSec:4117.01

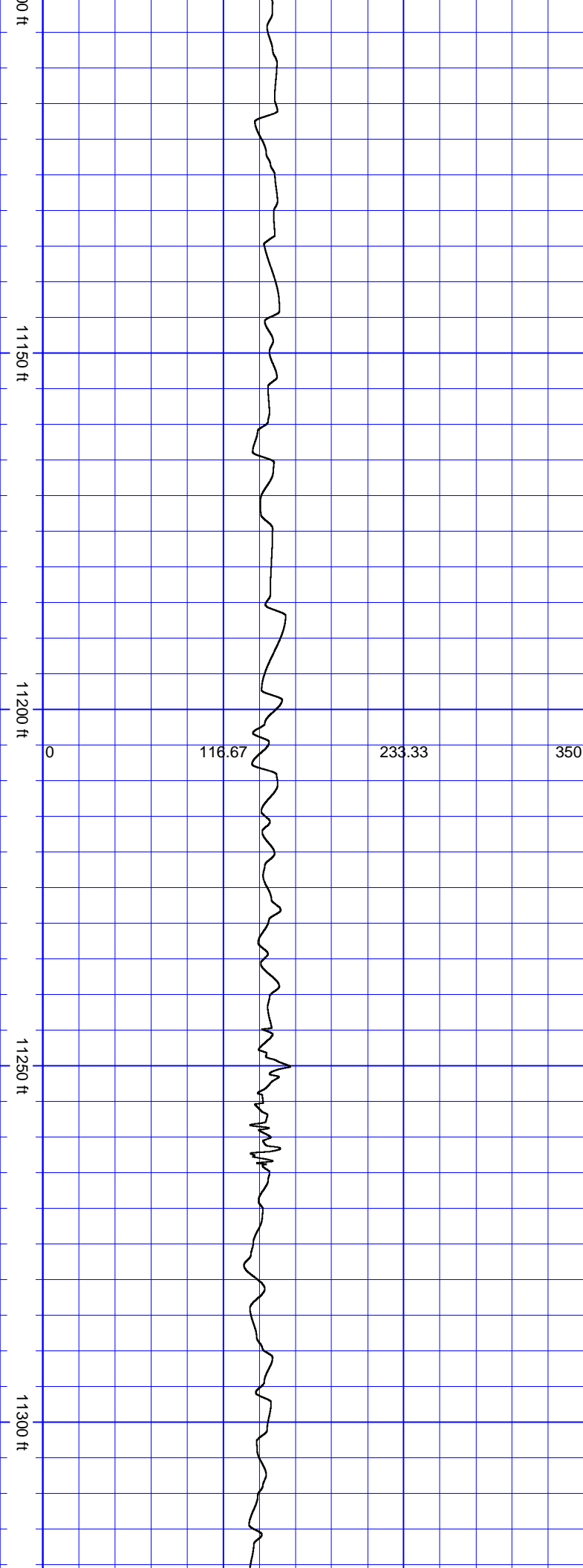




SurveyDepth:10958
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Azi:177.2
VertSec:4209.95

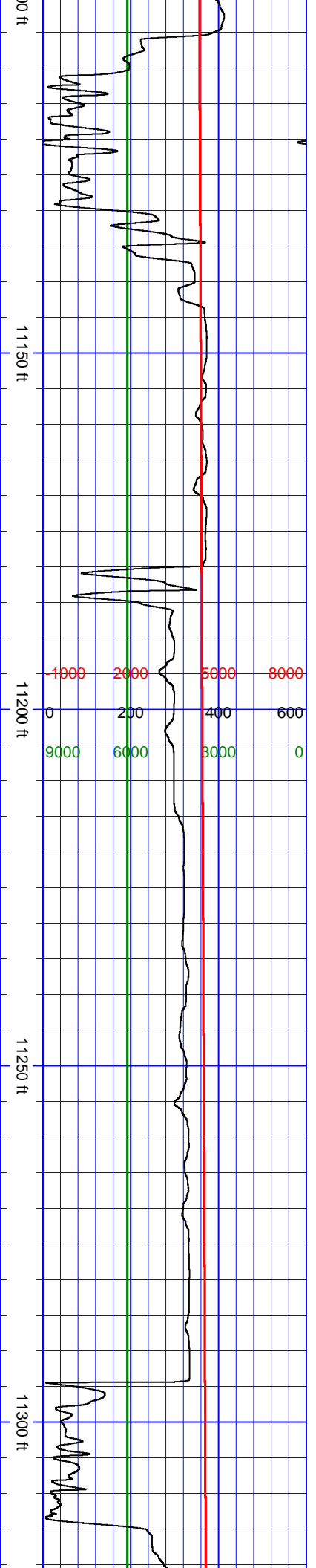
SurveyDepth:11052
TVD:6103.62 Inc:89.9
Azi:177.7
VertSec:4303.83

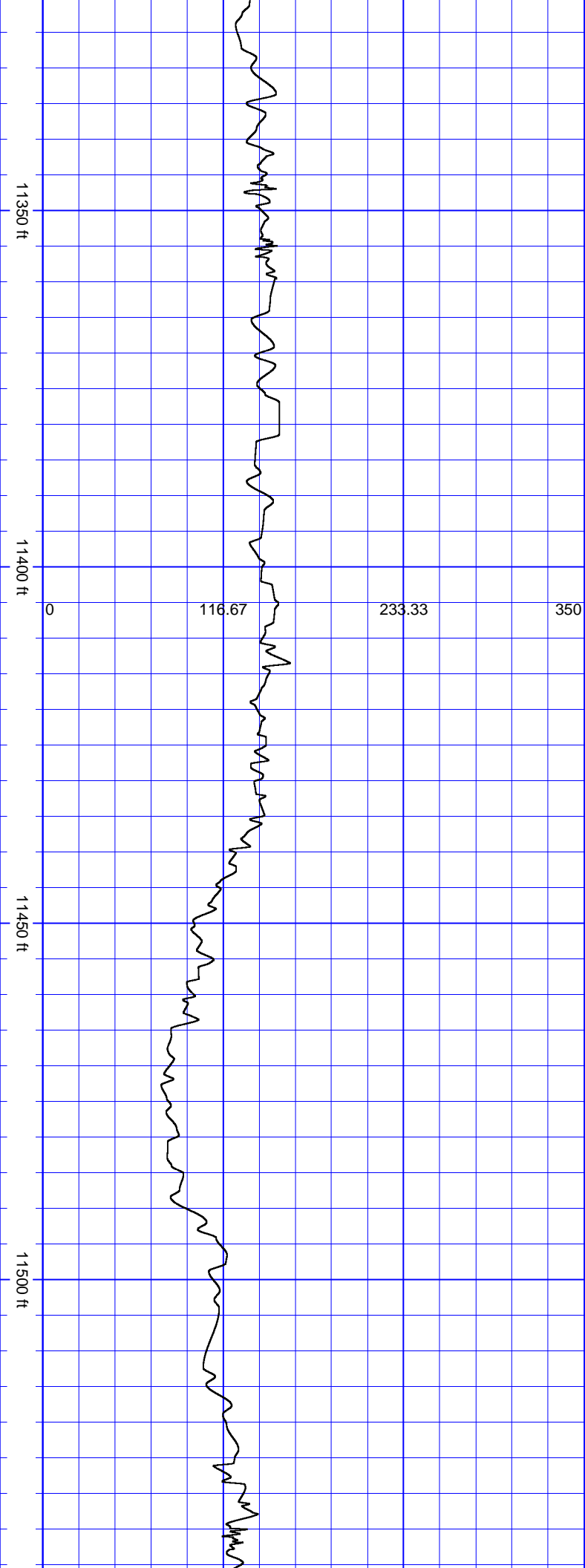




SurveyDepth:11145
TVD:6103.54 Inc:90.2
Azi:177.5
VertSec:4396.75

SurveyDepth:11239
TVD:6103.7 Inc:89.6
Azi:177.1
VertSec:4490.65

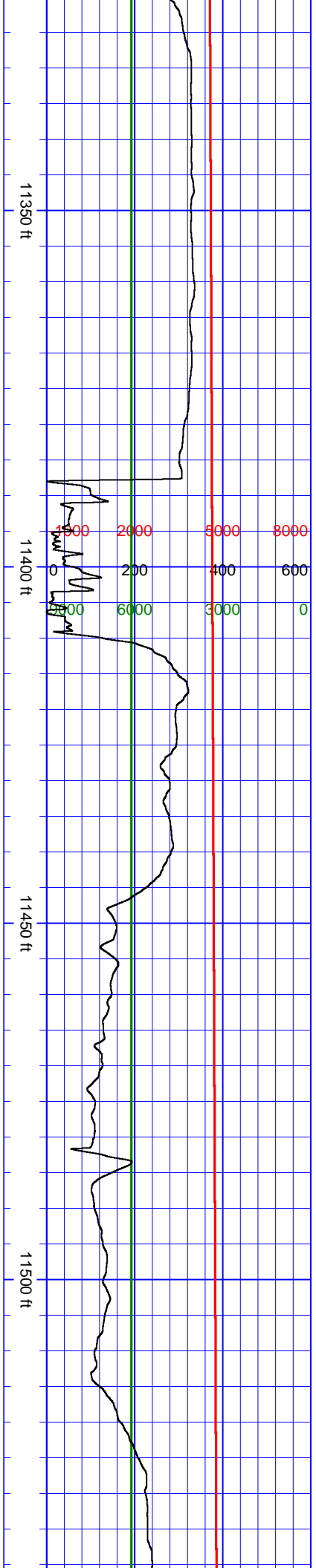


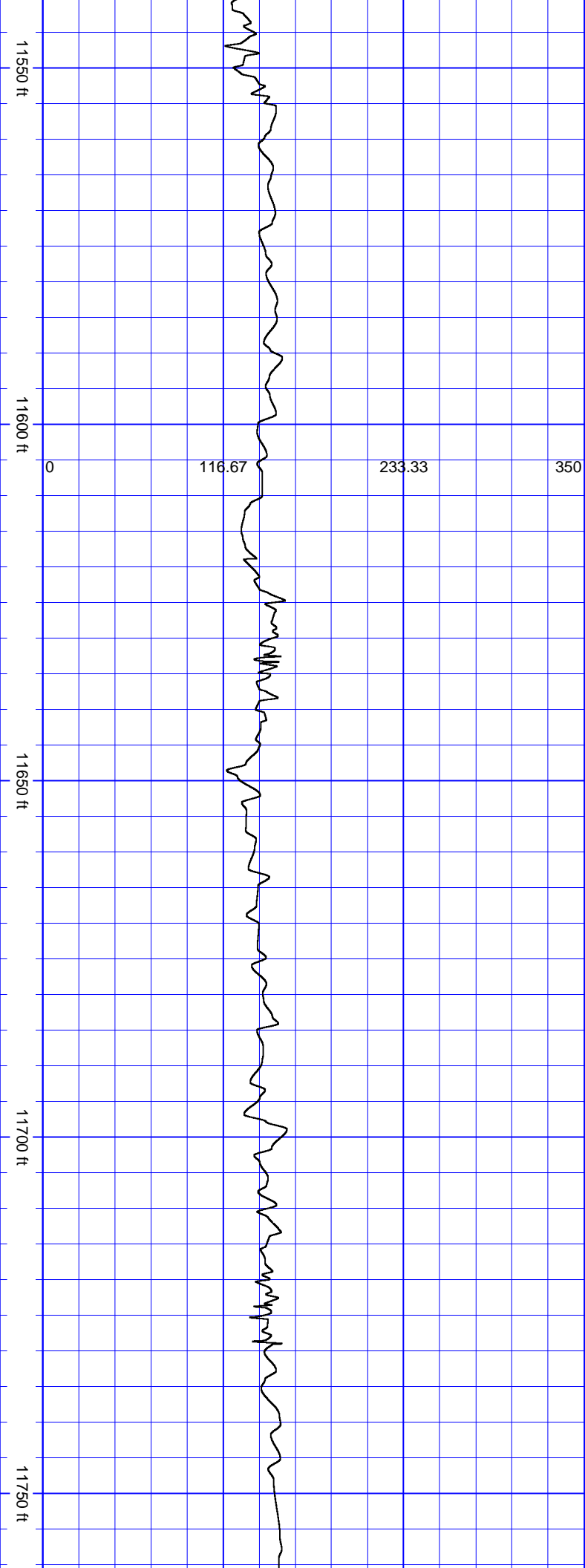


SurveyDepth:11333
TVD:6104.36 Inc:89.6
Azi:179.1
VertSec:4584.59

SurveyDepth:11426
TVD:6103.71 Inc:91.2
Azi:178 VertSec:4677.55

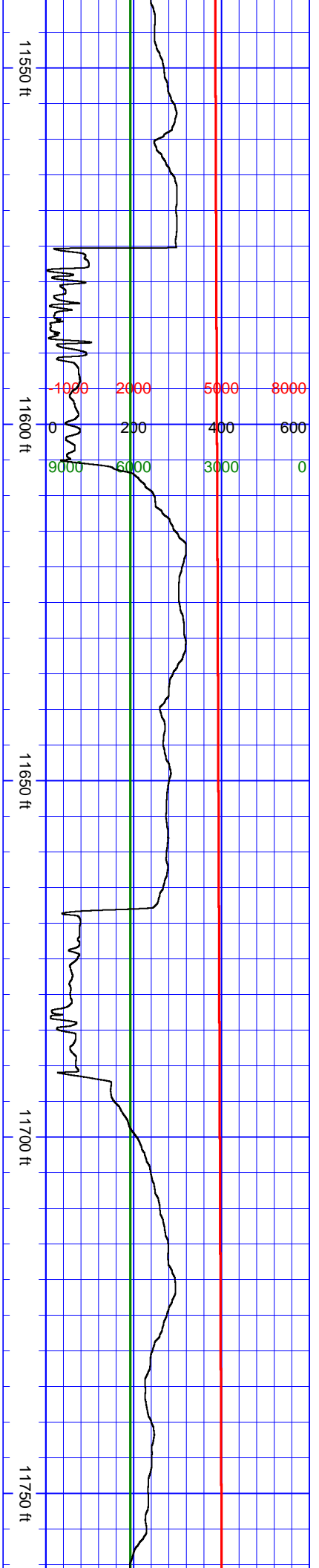
SurveyDepth:11520
TVD:6103.87 Inc:88.6
Azi:176.4
VertSec:4771.43

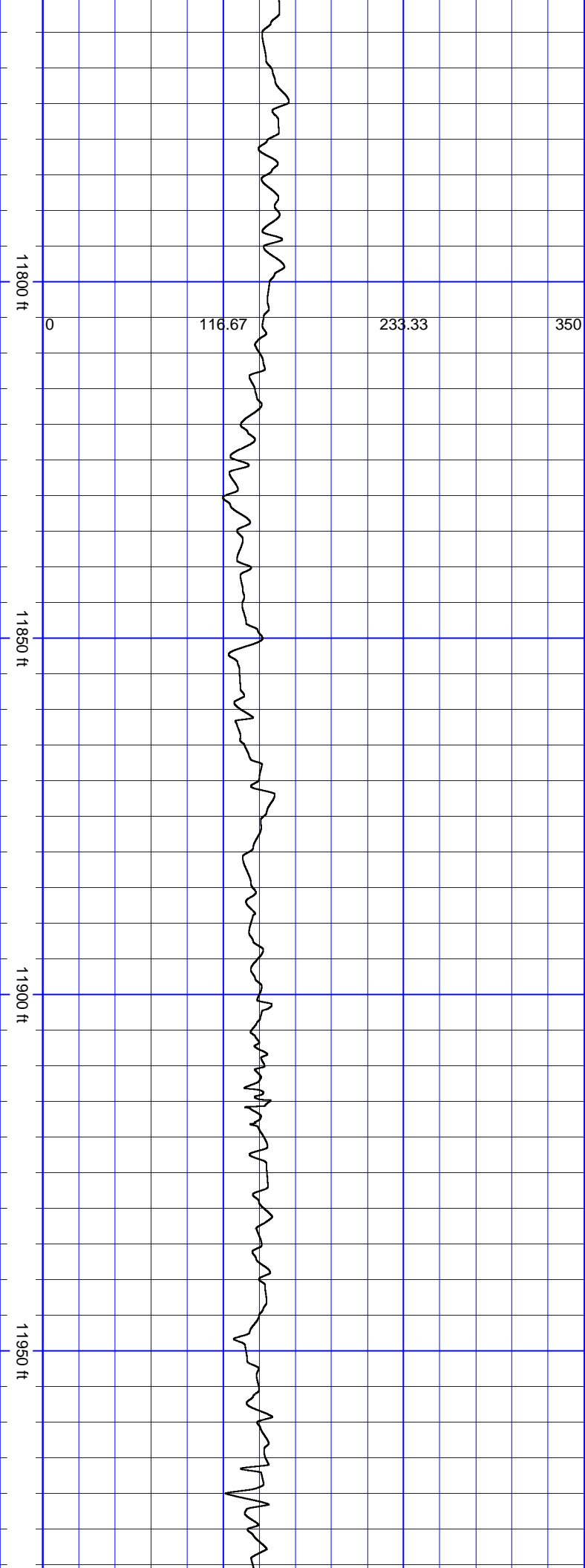




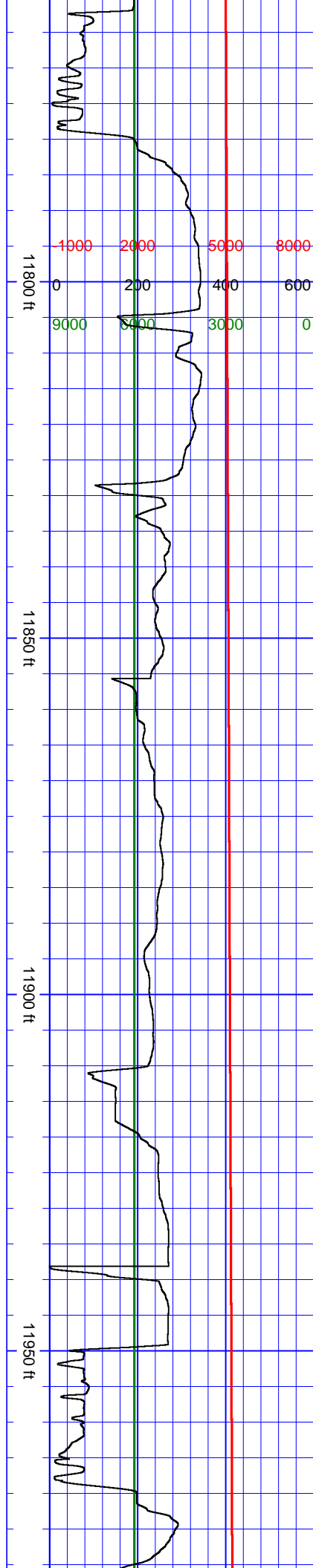
SurveyDepth:11613
TVD:6105.98 Inc:88.8
Azi:177.2
VertSec:4864.26

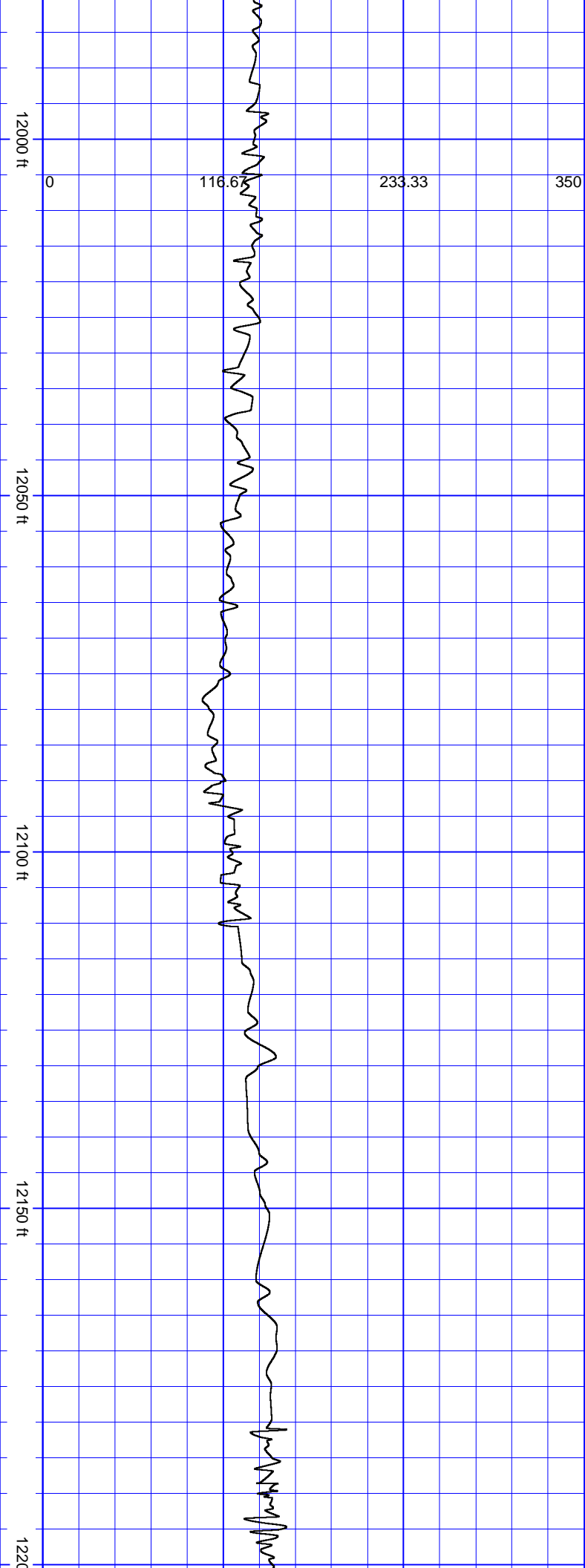
SurveyDepth:11707
TVD:6106.97 Inc:90
Azi:179.8
VertSec:4958.21





SurveyDepth:11800 TVD:6105.99 Inc:91.2 Azi:180.5 VertSec:5051.2	SurveyDepth:11894 TVD:6105.83 Inc:89 Azi:179 VertSec:5145.19
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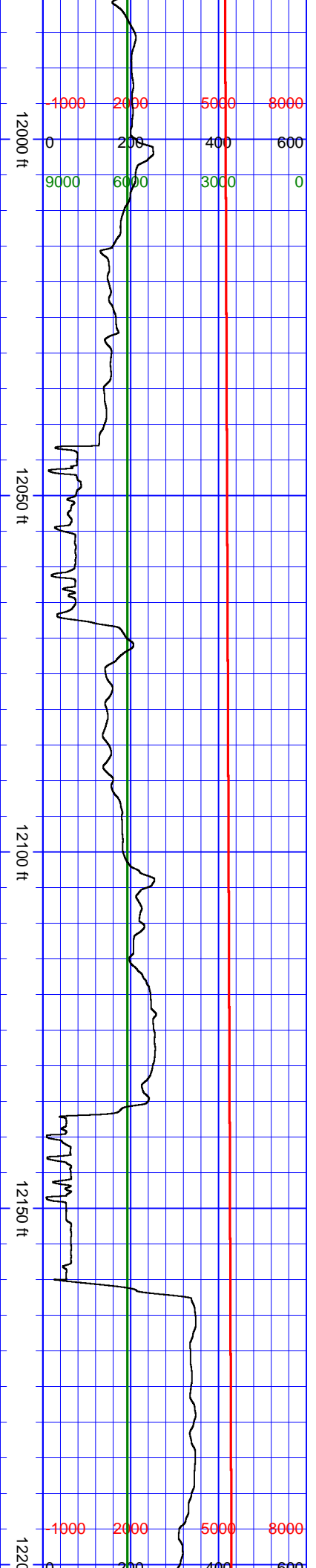


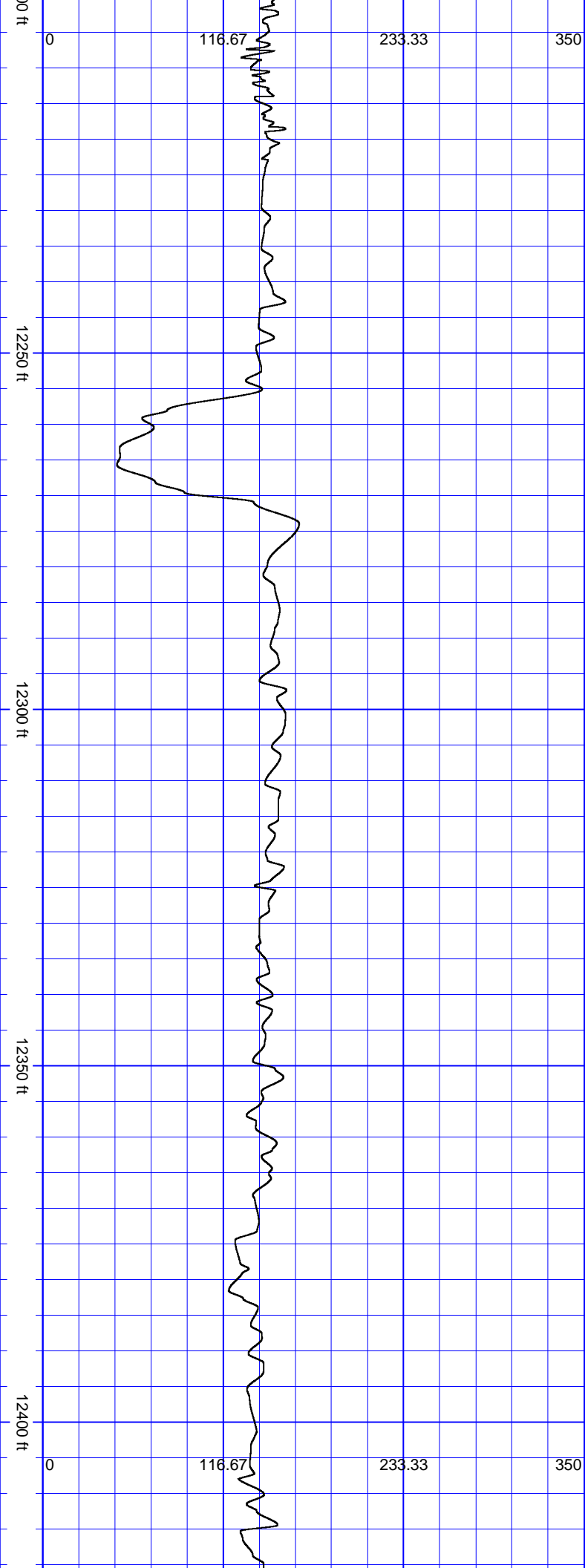


SurveyDepth:11988
TVD:6107.47 Inc:89
Azi:180.6
VertSec:5239.18

SurveyDepth:12081
TVD:6108.77 Inc:89.4
Azi:179 VertSec:5332.16

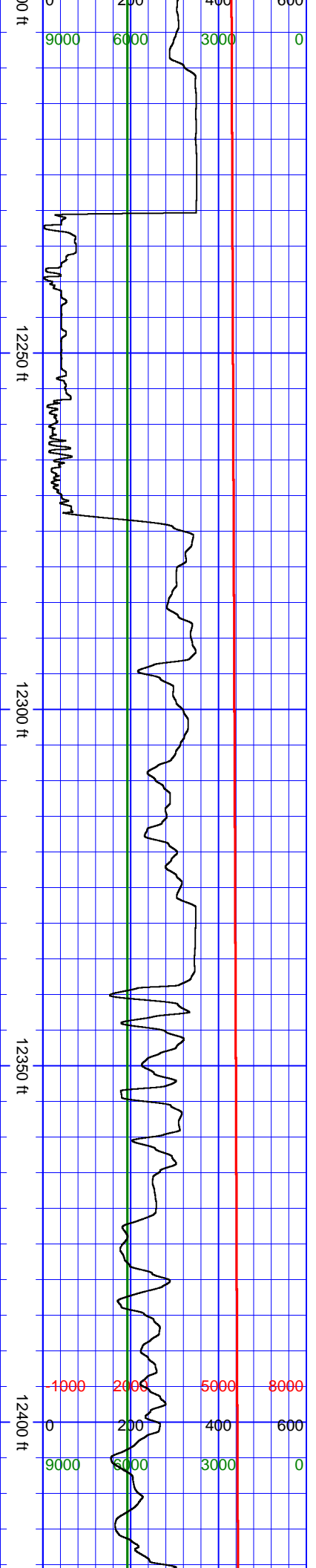
SurveyDepth:12175
TVD:6110.08 Inc:89
Azi:180.1
VertSec:5426.15

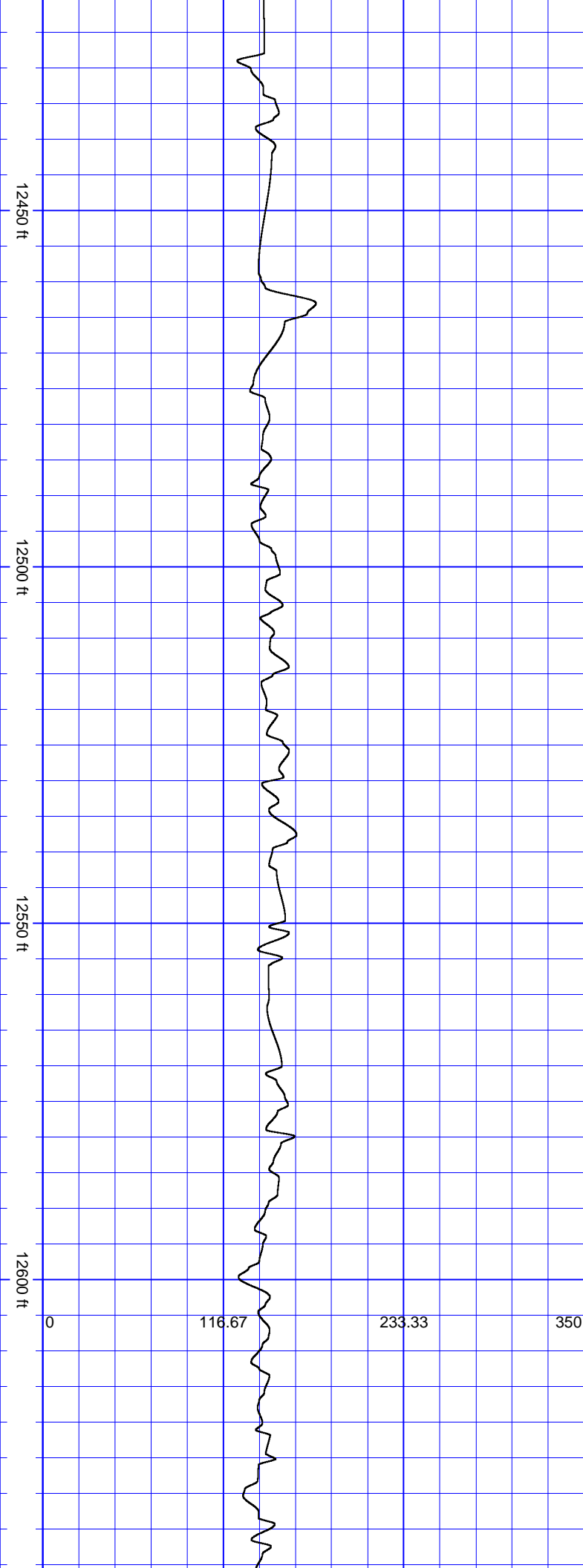




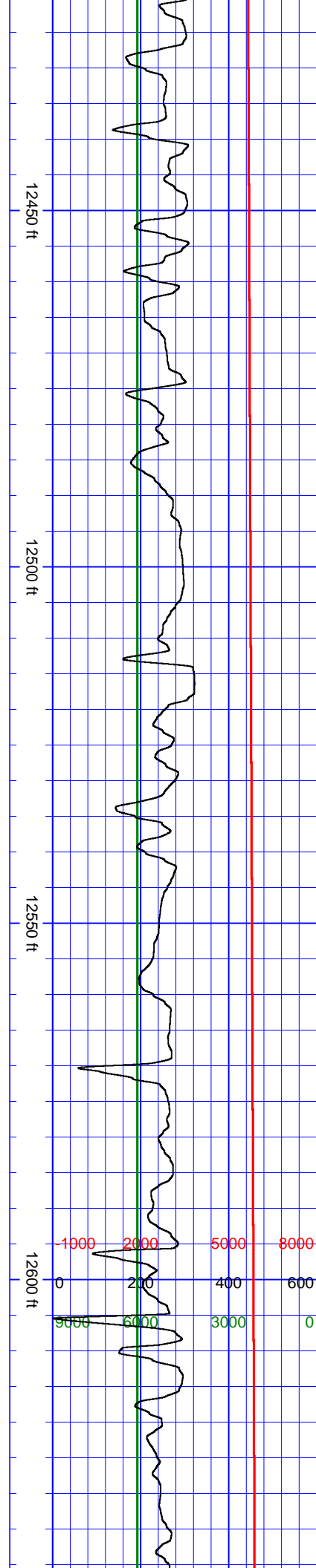
SurveyDepth:12269
TVD:6108.68 Inc:92.7
Azi:181.3
VertSec:5520.11

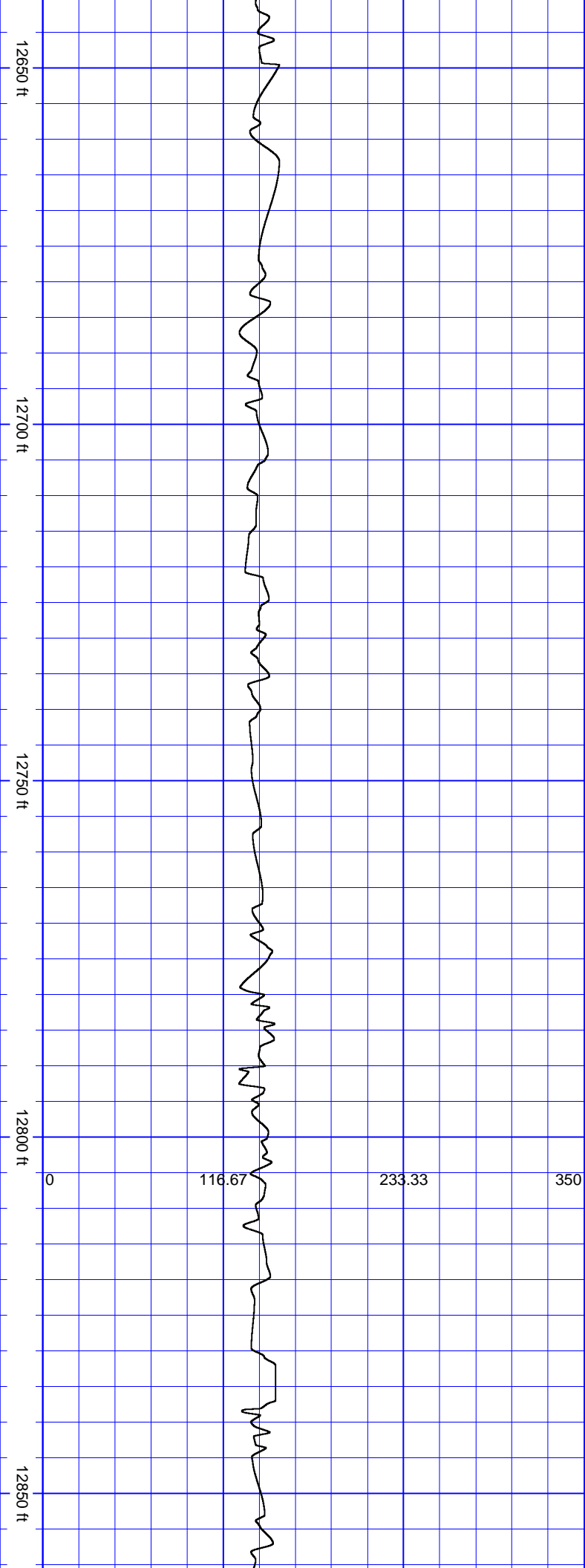
SurveyDepth:12362
TVD:6104.87 Inc:92
Azi:181.5
VertSec:5613.01





SurveyDepth:12456 TVD:6102.49 Inc:90.9 Azi:181 VertSec:5706.95
SurveyDepth:12550 TVD:6100.77 Inc:91.2 Azi:181.6 VertSec:5800.91

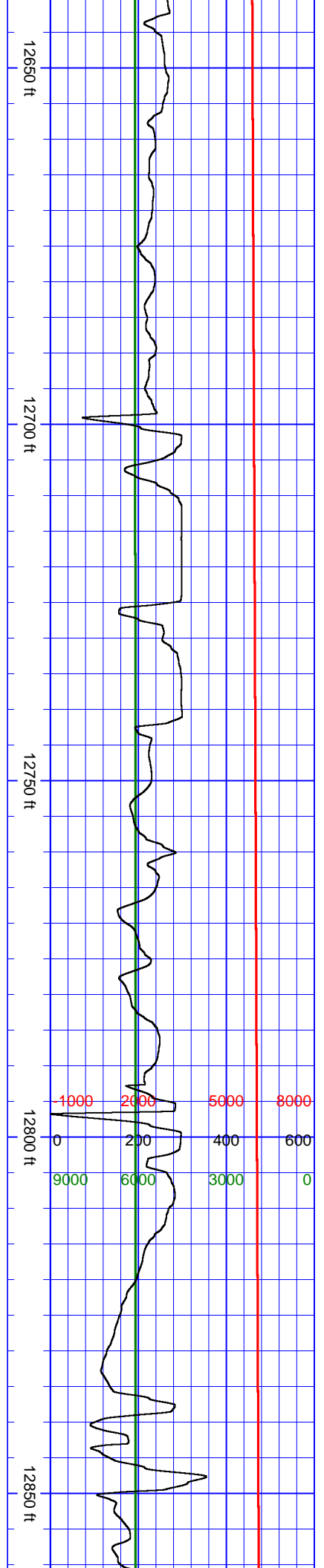


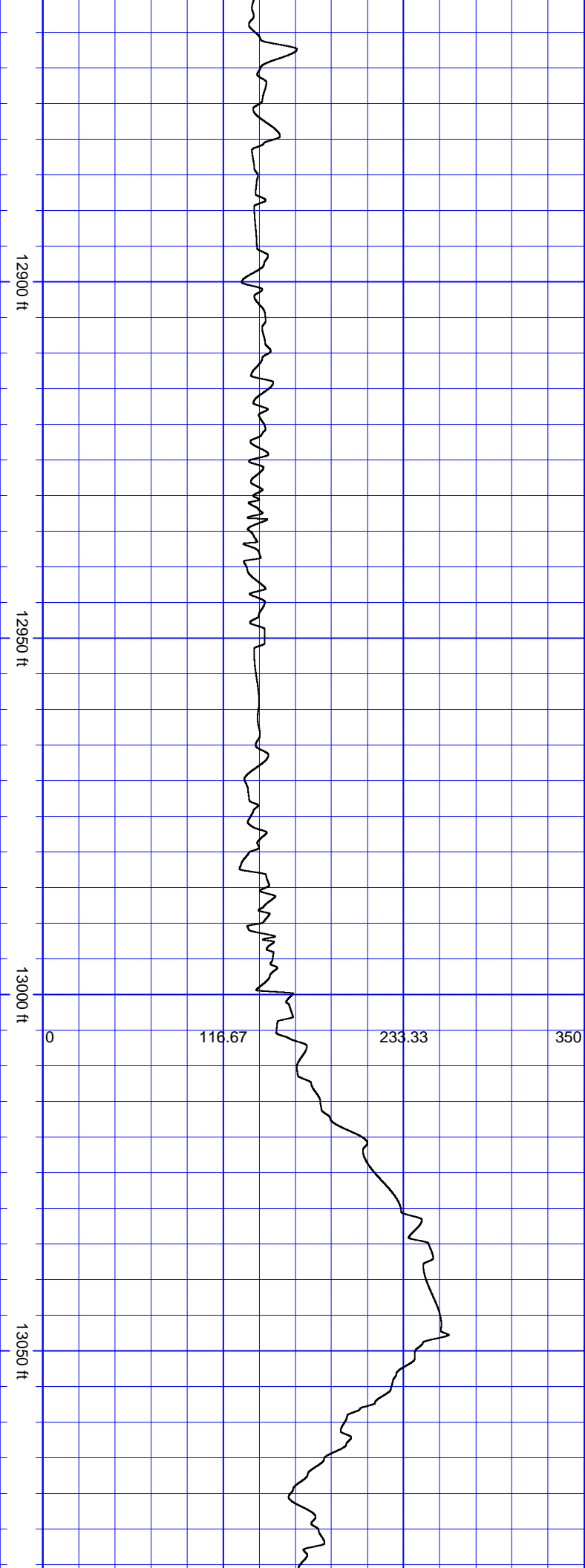


SurveyDepth:12643
TVD:6098.74 Inc:91.3
Azi:180.8
VertSec:5893.87

SurveyDepth:12737
TVD:6096.94 Inc:90.9
Azi:180.8
VertSec:5987.84

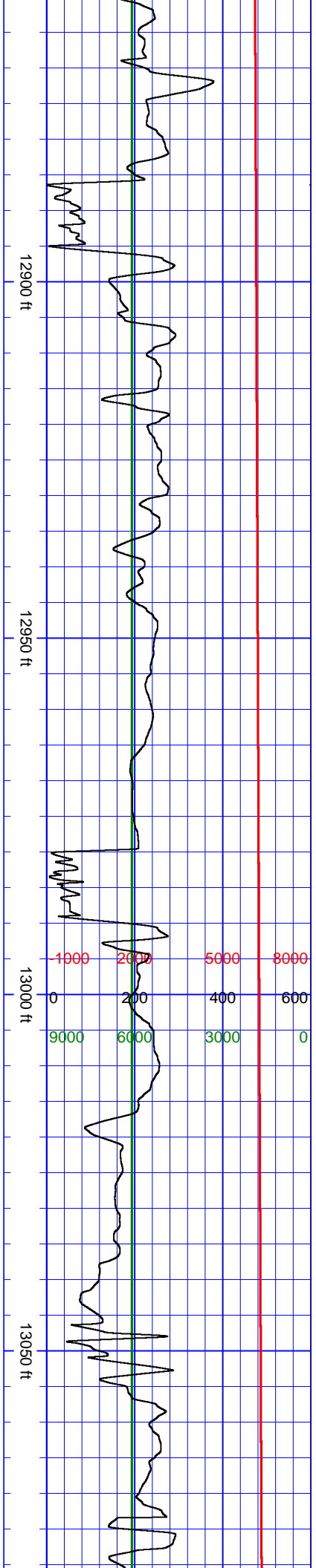
SurveyDepth:12830
TVD:6095.64 Inc:90.7
Azi:180.3
VertSec:6080.83

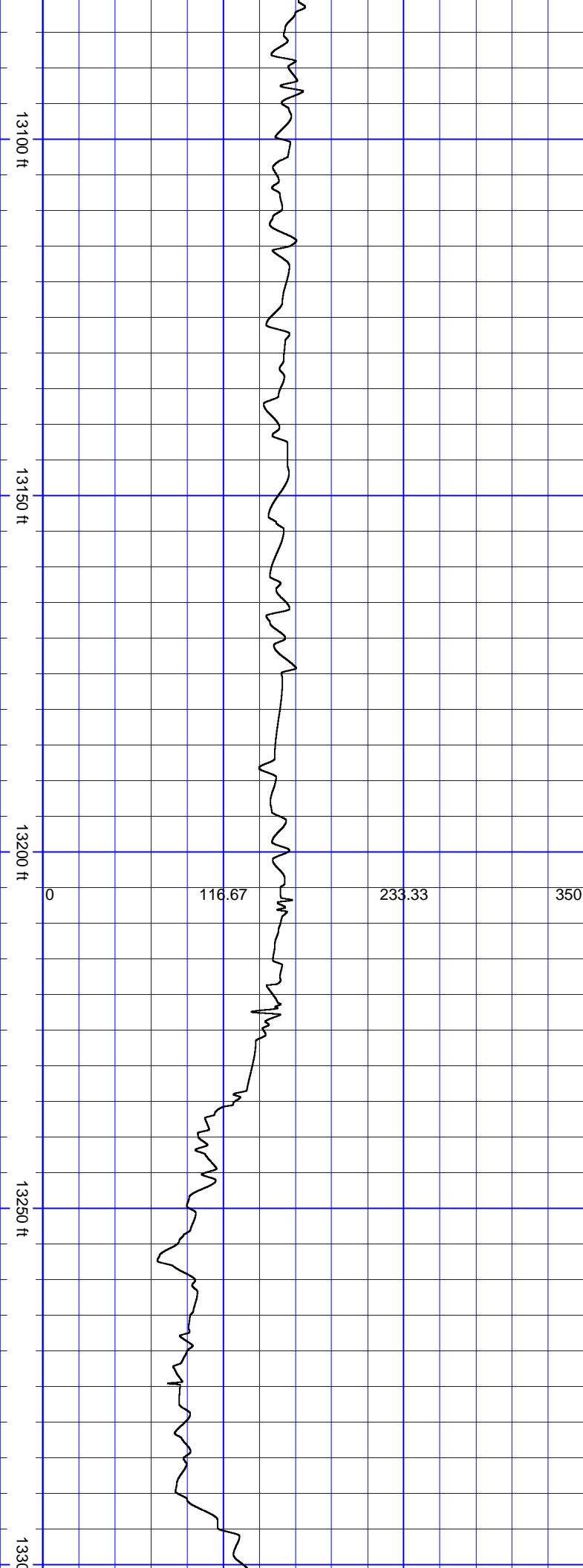




SurveyDepth:12924
TVD:6094.24 Inc:91
Azi:180.2
VertSec:6174.82

SurveyDepth:13017
TVD:6091.57 Inc:92.3
Azi:180 VertSec:6267.78

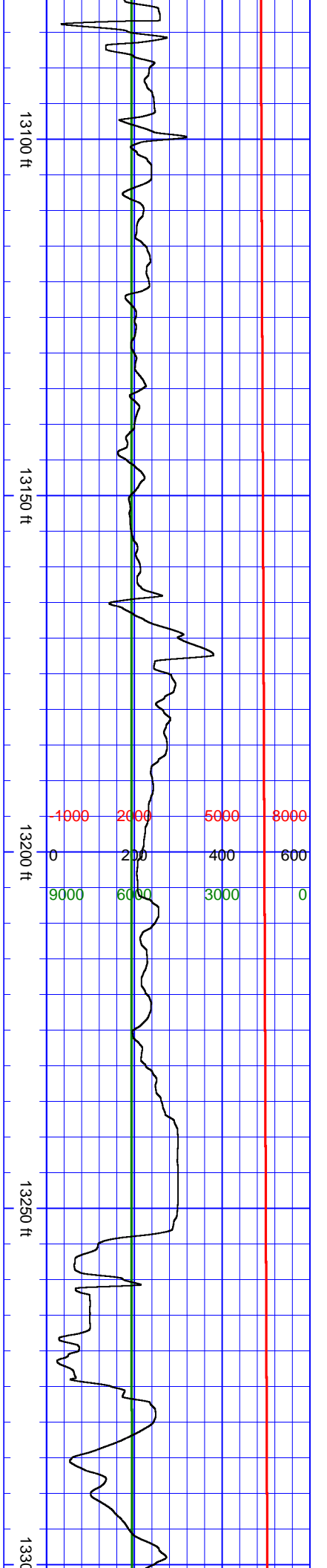


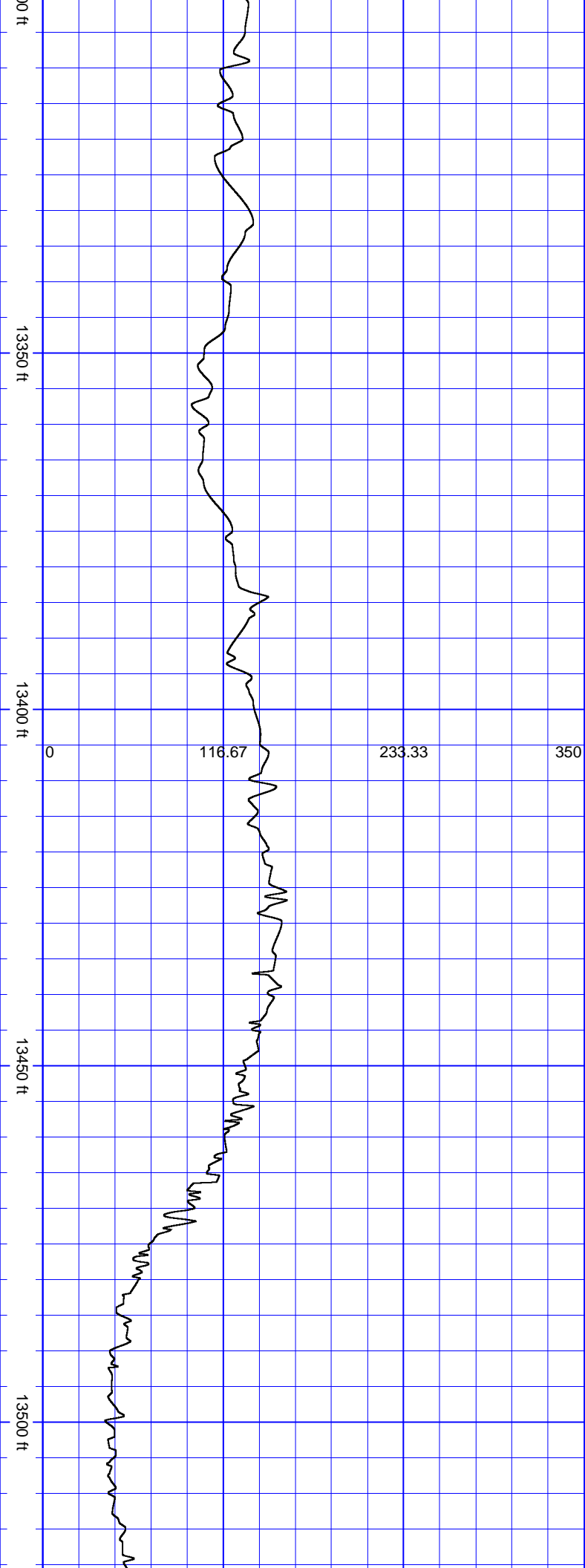


SurveyDepth:13111
TVD:6087.79 Inc:92.3
Azi:180.2
VertSec:6361.7

SurveyDepth:13204
TVD:6084.39 Inc:91.9
Azi:180 VertSec:6454.64

SurveyDepth:13298

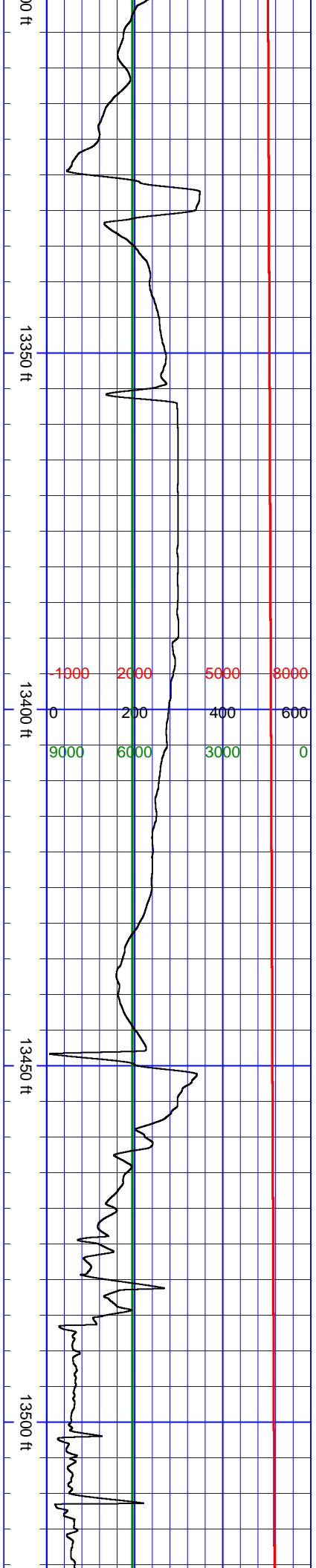


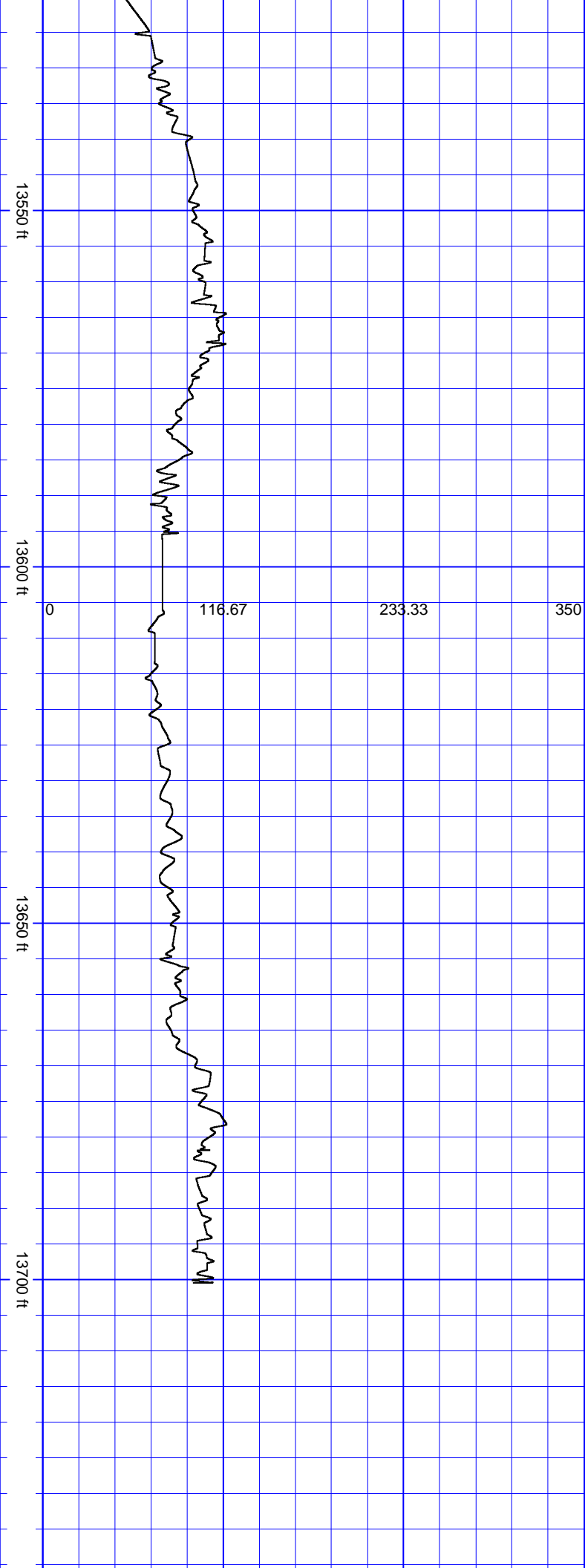


TVD:6080.2 Inc:93.2
Azi:180.7
VertSec:6548.54

SurveyDepth:13391
TVD:6075.17 Inc:93
Azi:179.2
VertSec:6641.4

SurveyDepth:13485
TVD:6071.4 Inc:91.6
Azi:178.3
VertSec:6735.3

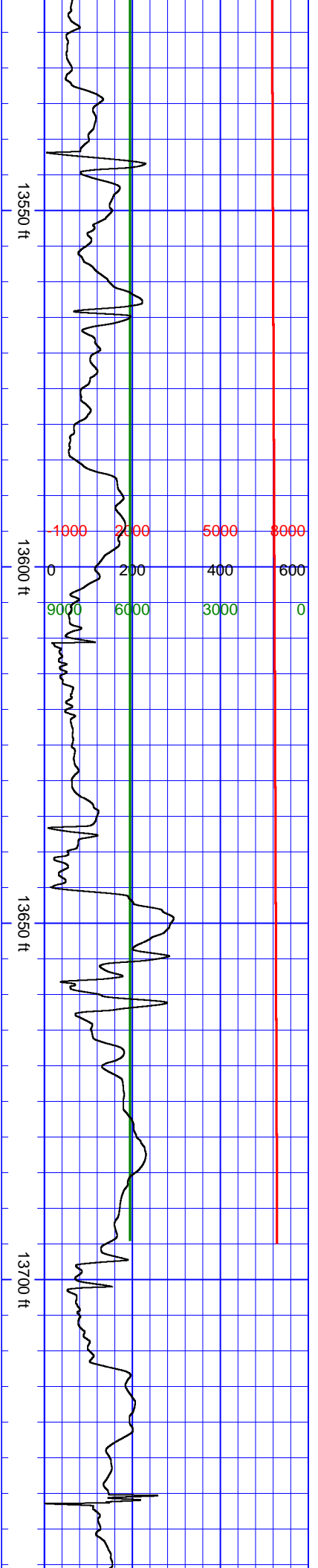


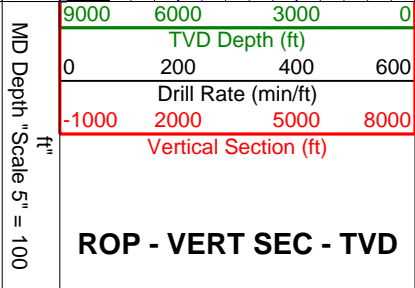
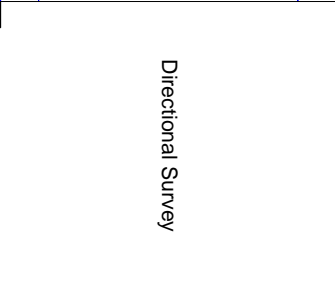
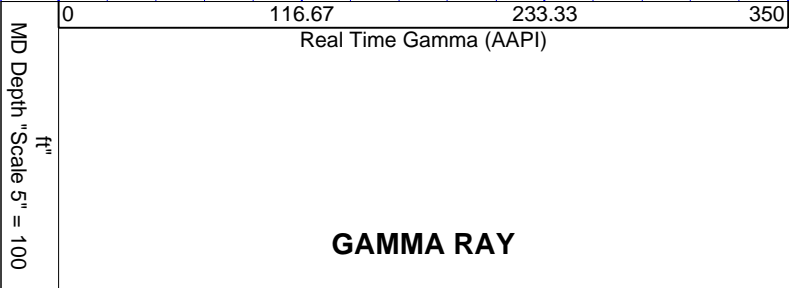


SurveyDepth:13580
TVD:6068.09 Inc:92.4
Azi:178.1
VertSec:6830.2

SurveyDepth:13674
TVD:6067.18 Inc:88.7
Azi:175.9
VertSec:6924.04

SurveyDepth:13695
TVD:6067.66 Inc:88.7
Azi:176.2
VertSec:6944.99





Oil Company: Whiting Petroleum
Well Name: Razor Federal 30K-3108
Surface Location: NESW Sec 30, T10N, R58W
Bit Run: 5
Log Depth Start: 5007.45 ft Log Depth End: 13749.99 ft
Data Depth Start: 5007.45 ft Data Depth End: 13749.99 ft

4849'KB
4828'GR
API 05-123-40215-00