



CATHEDRAL

Build & Lateral

Job #:

185341

Well ID:

16191563

Scale:

5" = 100 ft

Type:

MD

Well Site Information

Oil Company Crestone Peak Resources

Surface Location S33-T3N-R67W

Well Name Herren 1D-33H-H367

API 05-123-47730

Field DJ BASIN

State CO

Country USA

Surface Coordinates

Well Type Horizontal

Latitude 40° 10' 59.6784 N

Longitude 104° 53' 13.6176 W

N / S Coordinates 1,310,192.78 us/ft

E / W Coordinates 3,171,245.26 us/ft

Azimuth Reference True North

Grid Convergence 0.40°

MWD Engineers

Lead Hand Deric Group

Second Hand Jerry Shannahan

Perm Datum Ground Elevation 4,848.00 ft

Log depth measured from KB is 23.00 ft above perm datum. KB = 4,871.00 ft

Total Depth 12,050.00 ft Spud Date Dec/13/2018 End Date Dec/14/2018

(MD) Log Interval Start Depth 2,008.39 ft End Depth 12,050.59 ft

Bore Hole Record

Hole Size From To

13.50 in 0.00 ft 2,023.00 ft

8.50 in 2,023.00 ft 12,050.00 ft

Casing Record

Type Size WGT From To

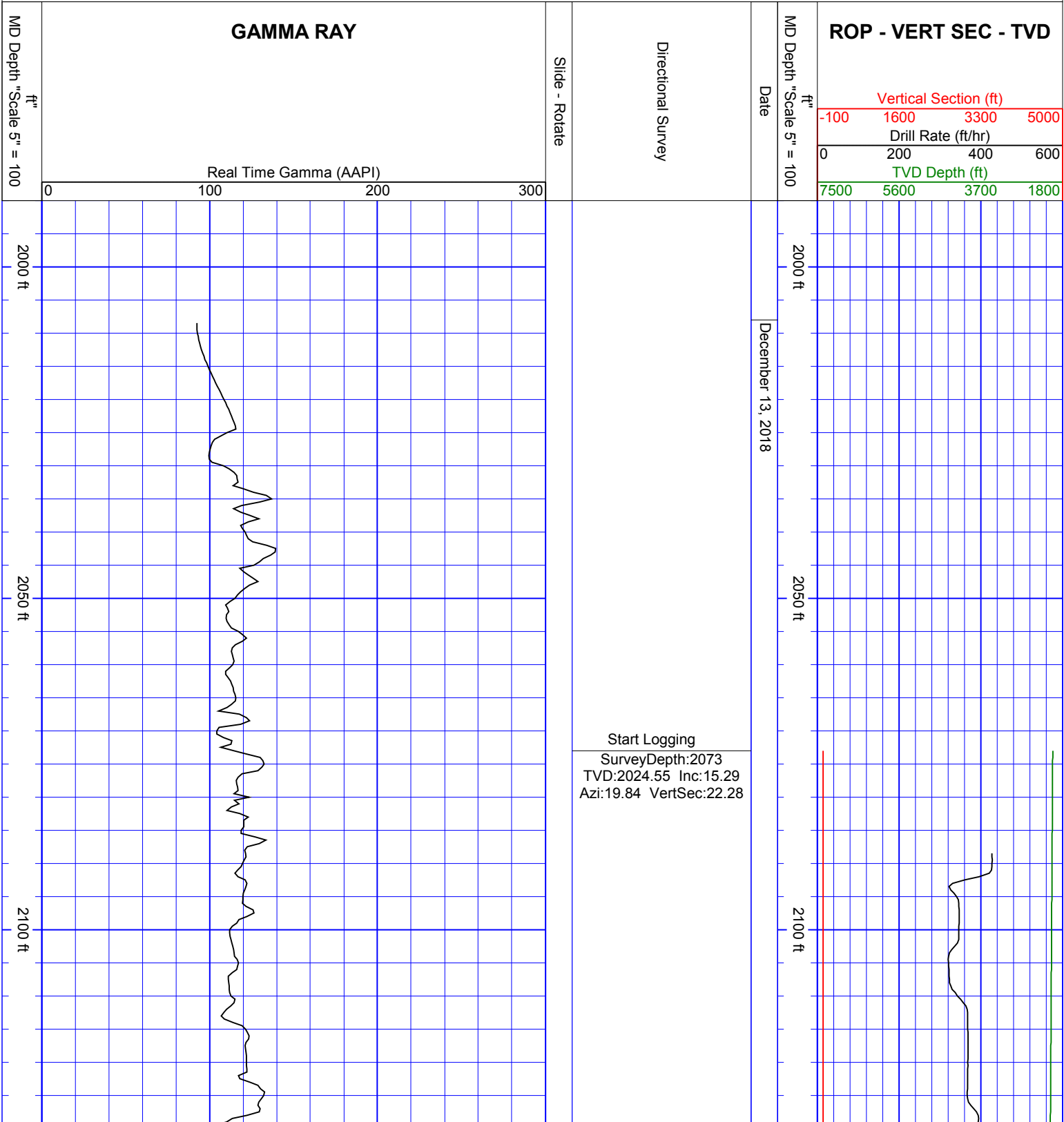
LTC 9.63 in 40.00 lbs/ft 0.00 ft 2,008.00 ft

Run Data

Bit Run Number	1				
Start Date & Time	Dec/13/2018 01:00:00				
End Date & Time	Dec/15/2018 08:00:00				
Run Hours	55.00				
Depth In	2,023.00 ft				
Depth Out	12,050.00 ft				
Total Gamma Correction	5.90				
Gamma to Bit	64.16 ft				
Resistivity to Bit	-				
Mud Type	OBM				
Density	10.20 ppg				
Viscosity	44.00 sec/qt				
PH	-				
Fluid Loss	-				
K+ ppm	-				
CL- ppm	236,160.00 ppm				
Max Mud Temp	251.00 °F				
Mud Report Depth	10,350.00 ft				

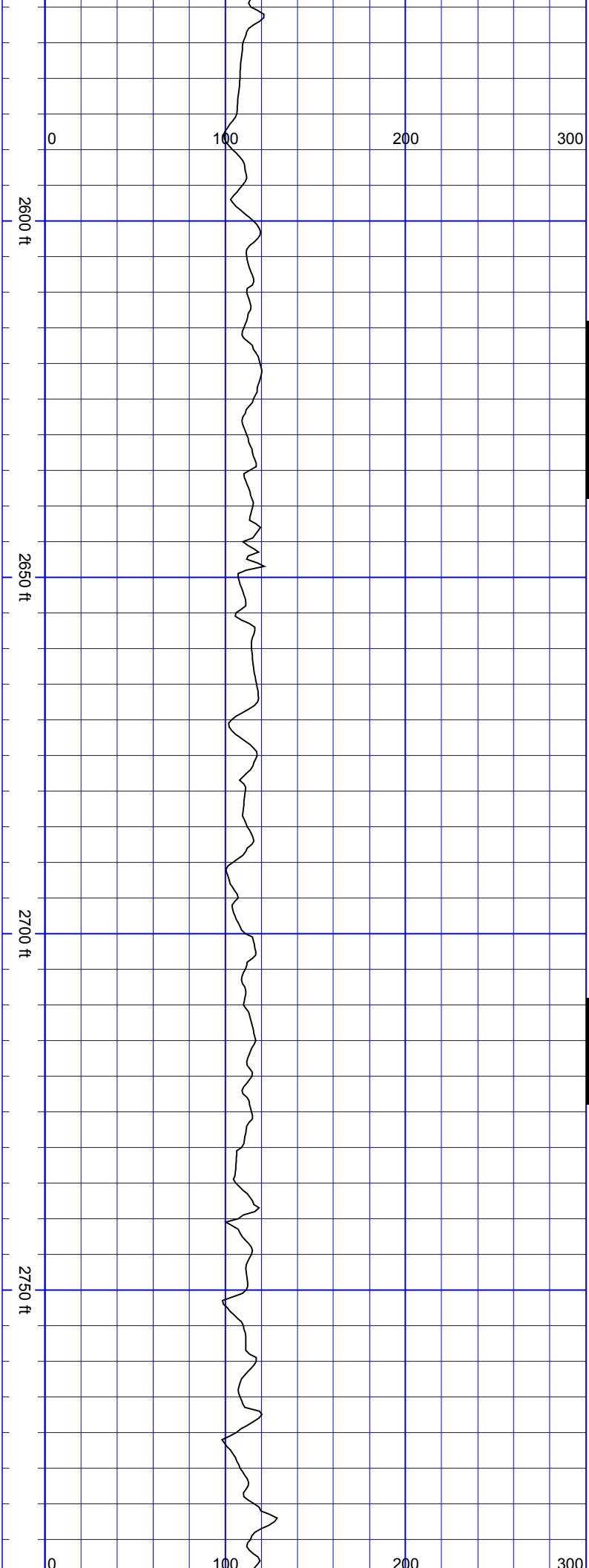
Remarks

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.







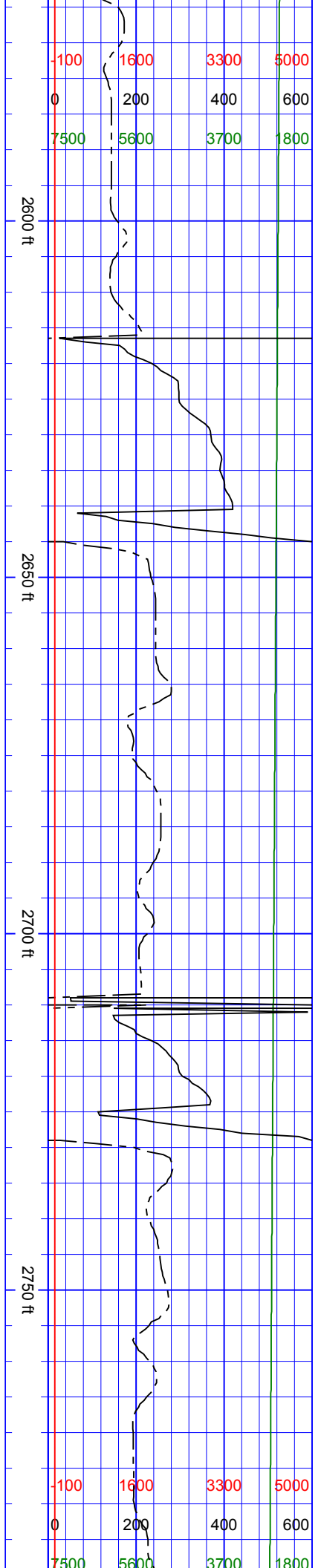


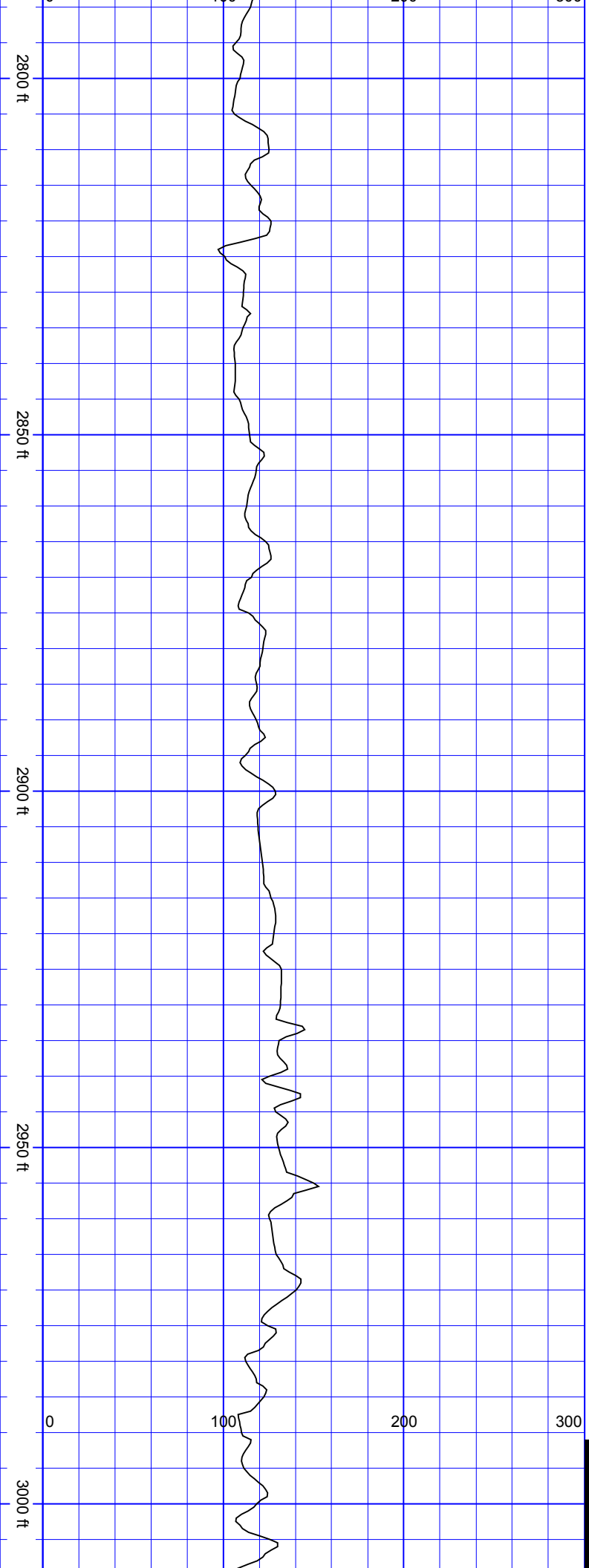
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SurveyDepth:2639  
TVD:2564.93 Inc:18.11  
Azi:25.02 VertSec:29.92

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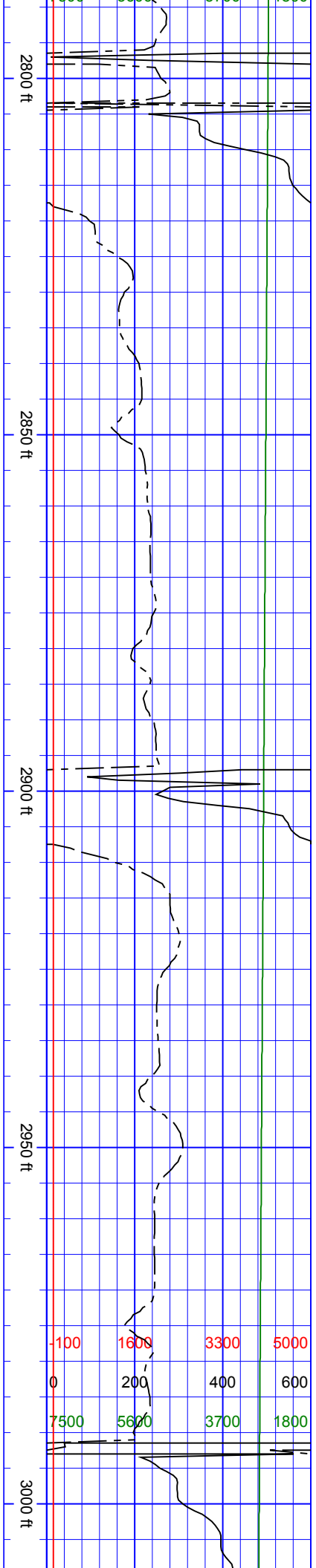
SurveyDepth:2733  
TVD:2653.92 Inc:19.47  
Azi:21.95 VertSec:30.12

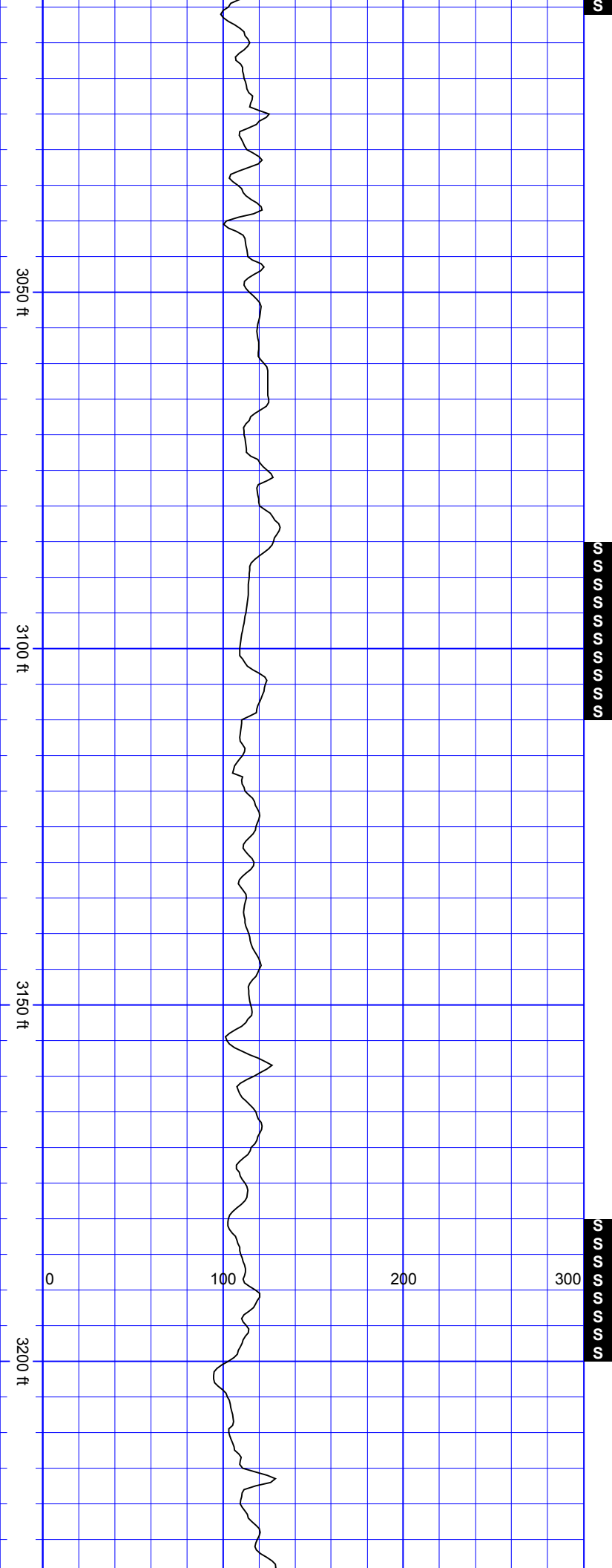




SurveyDepth:2827  
TVD:2742.81 Inc:18.46  
Azi:20.45 VertSec:31.5

SurveyDepth:2921  
TVD:2832.45 Inc:16.57  
Azi:17.29 VertSec:33.89

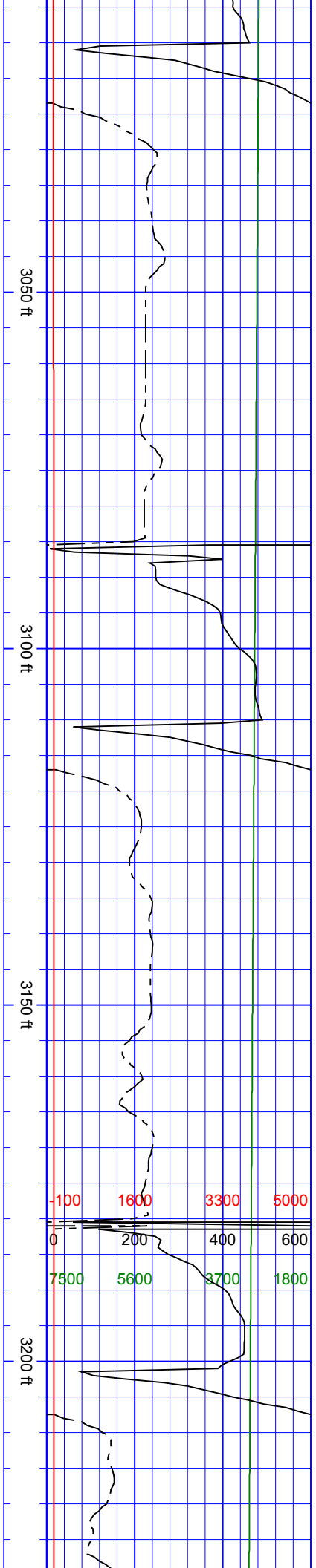


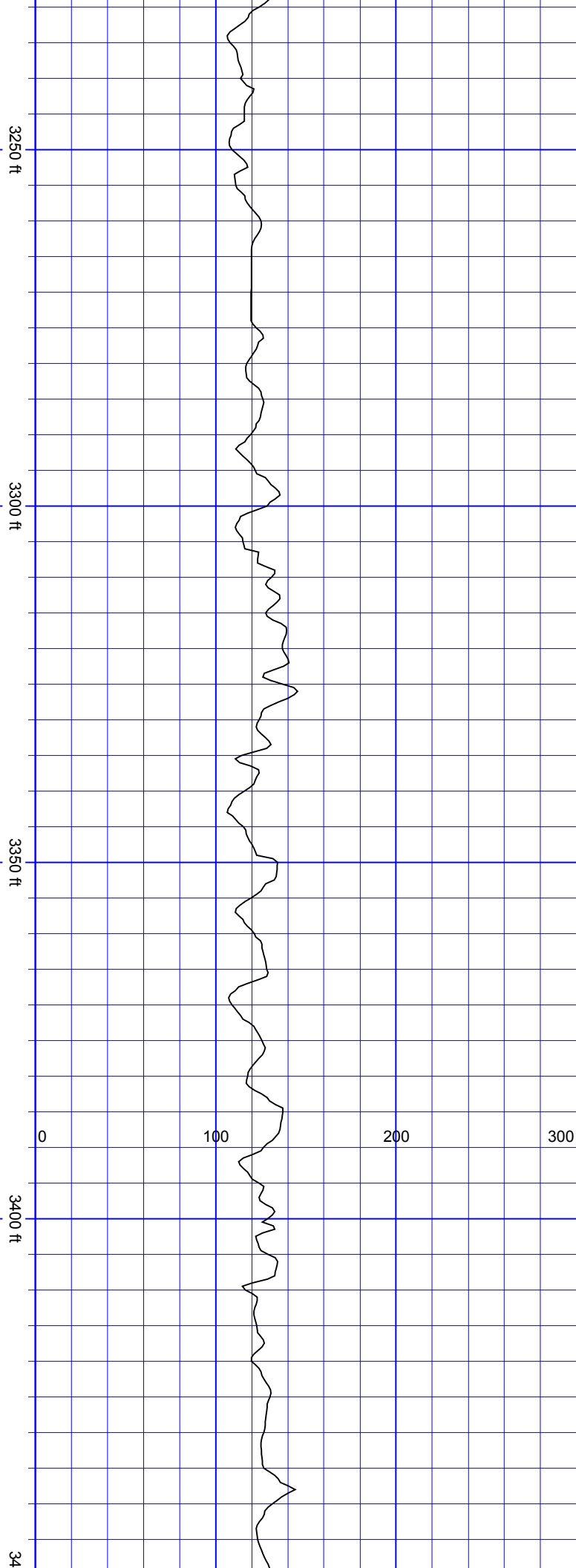


SurveyDepth:3015  
TVD:2922.55 Inc:16.57  
Azi:17.9 VertSec:36.79

SurveyDepth:3110  
TVD:3013.42 Inc:17.36  
Azi:20.72 VertSec:38.95

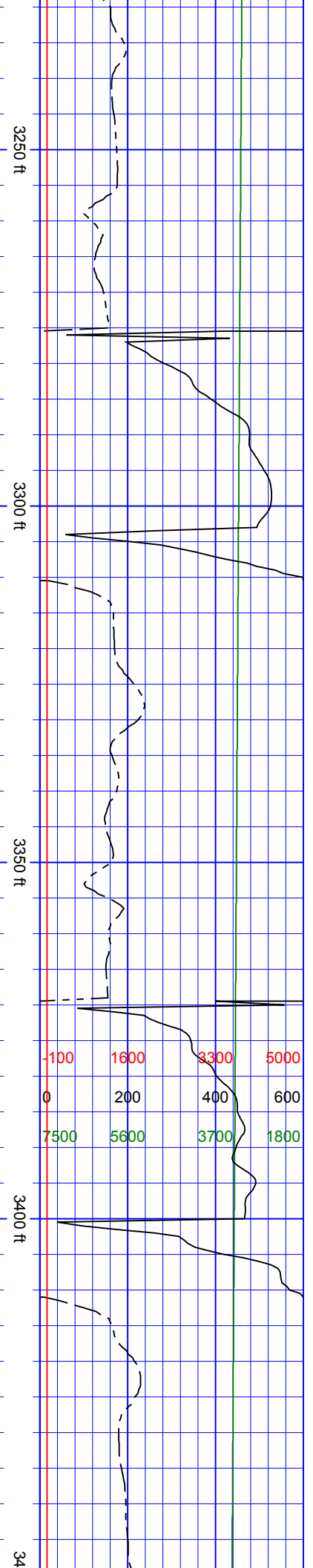
SurveyDepth:3205  
TVD:3104.1 Inc:17.31  
Azi:21.42 VertSec:40.31





SurveyDepth:3299  
TVD:3193.89 Inc:17.14  
Azi:22.91 VertSec:41.11

SurveyDepth:3394  
TVD:3284.52 Inc:17.75  
Azi:24.23 VertSec:41.22







SurveyDepth:3677  
TVD:3555.55 Inc:15.51  
Azi:21.77 VertSec:42.41

3700 ft

3750 ft

0 100 200 300

3800 ft

3850 ft

SurveyDepth:3795  
TVD:3668.8 Inc:17.1  
Azi:22.74 VertSec:43.29

3700 ft

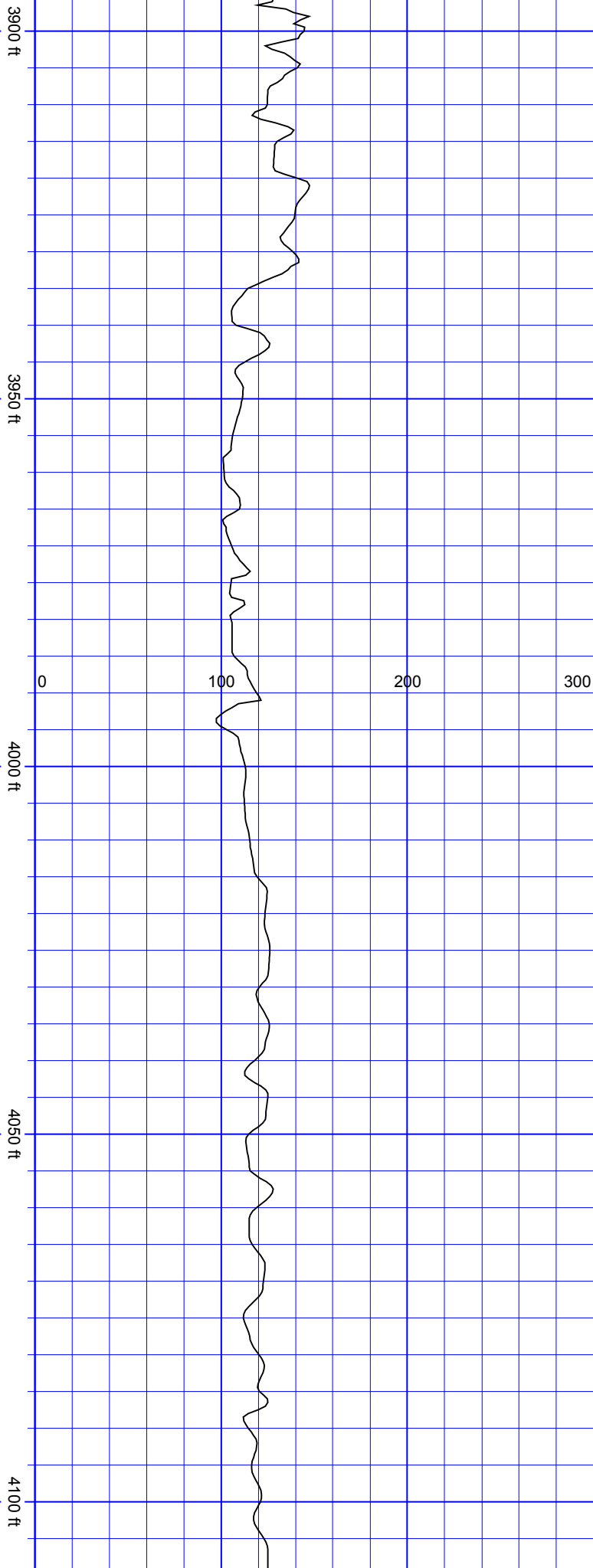
3750 ft

-100	1600	3300	5000
0	200	400	600
7500	5600	3700	1800

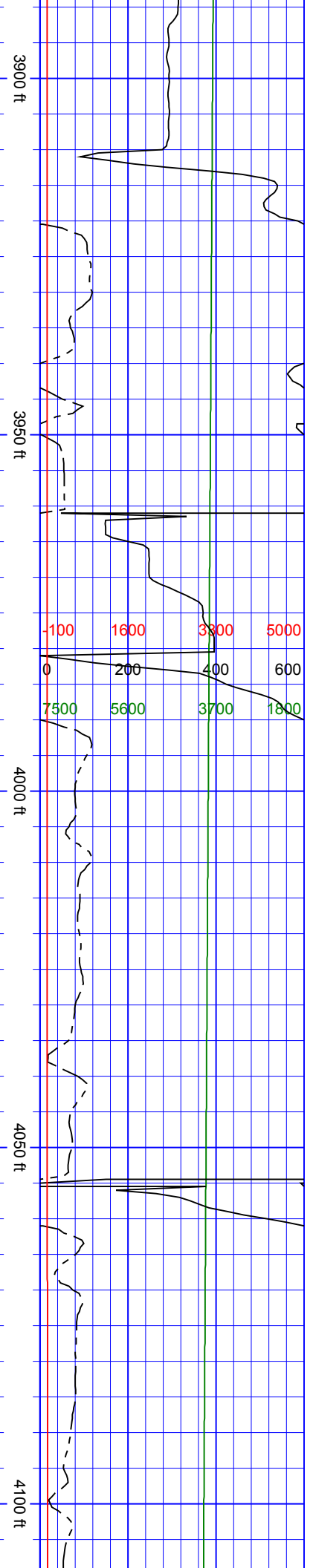
3800 ft

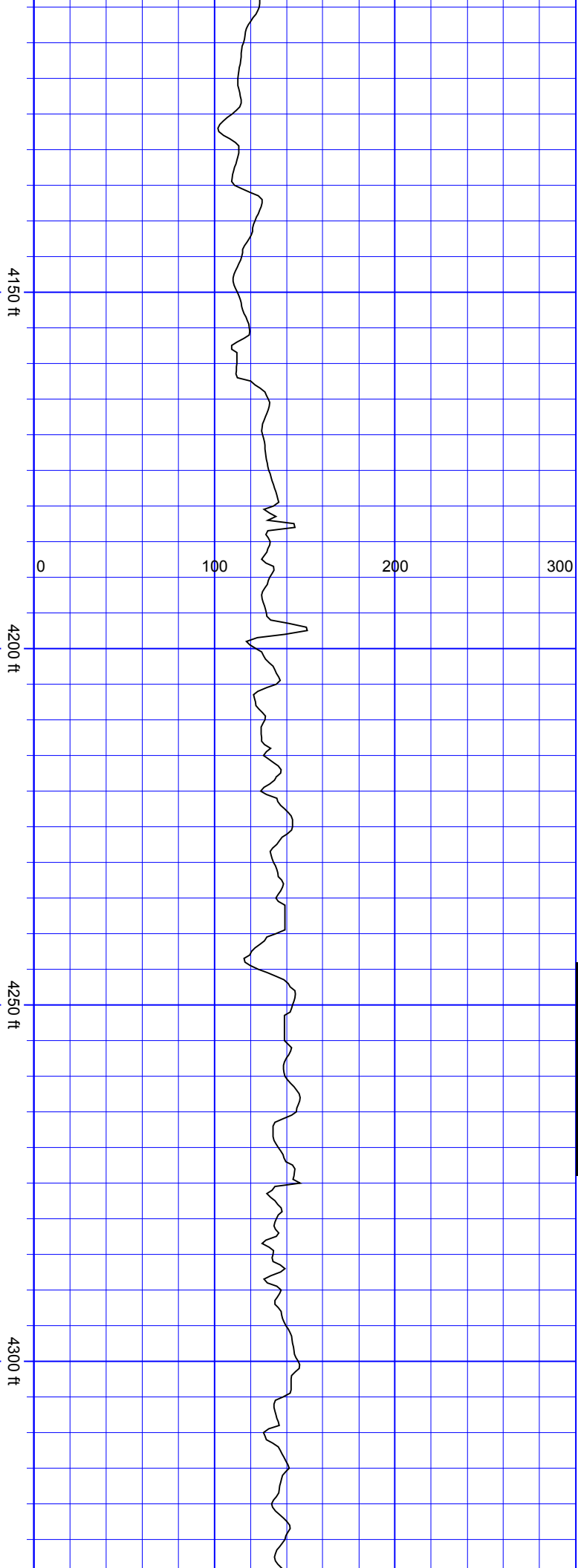
3850 ft

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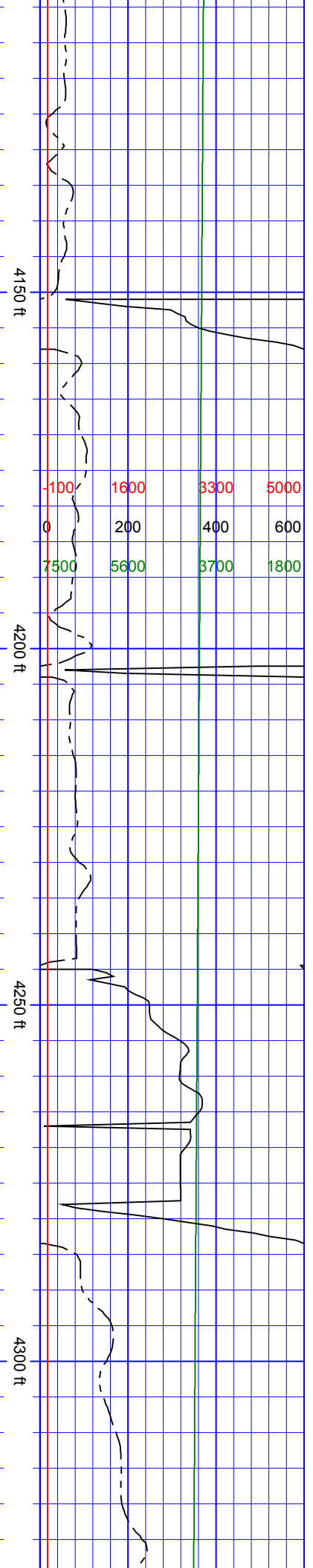


SSSSSSSS



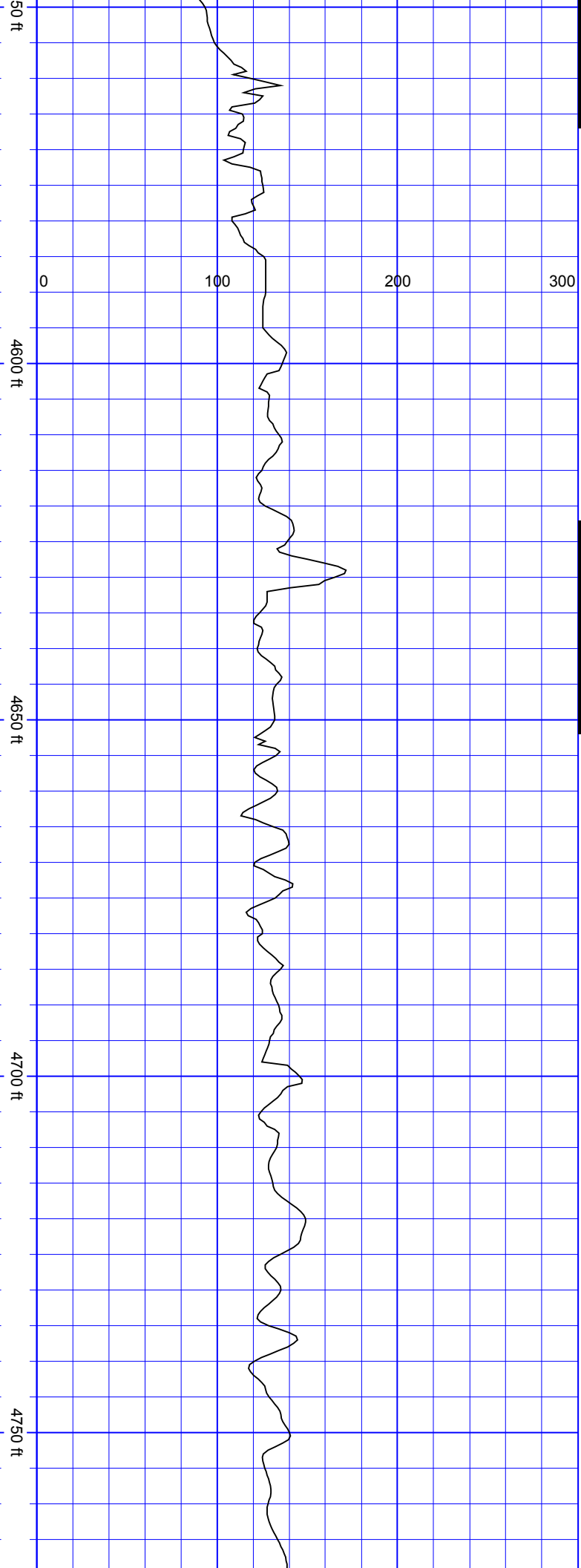


SurveyDepth:4174  
TVD:4027.82 Inc:17.27  
Azi:18.17 VertSec:49.57



SurveyDepth:4268  
TVD:4117.62 Inc:17.1  
Azi:17.81 VertSec:52.39

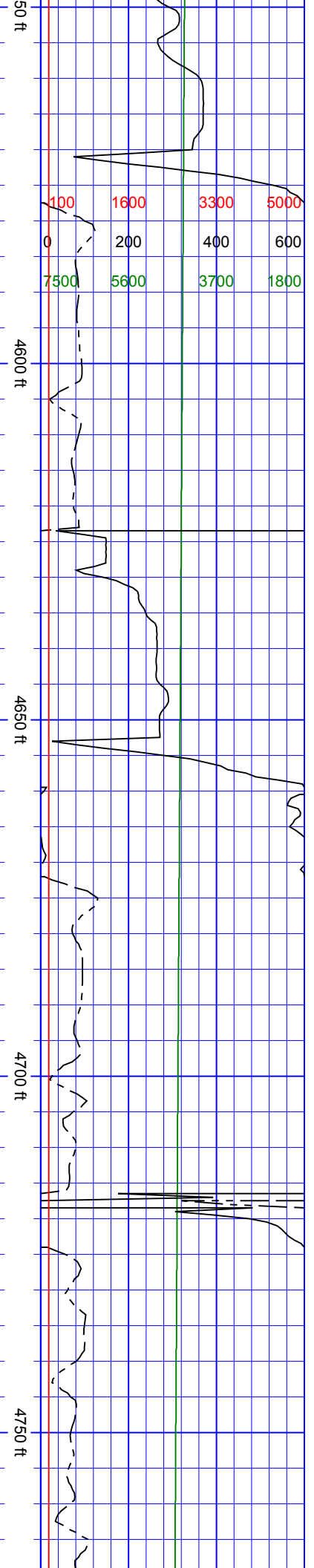


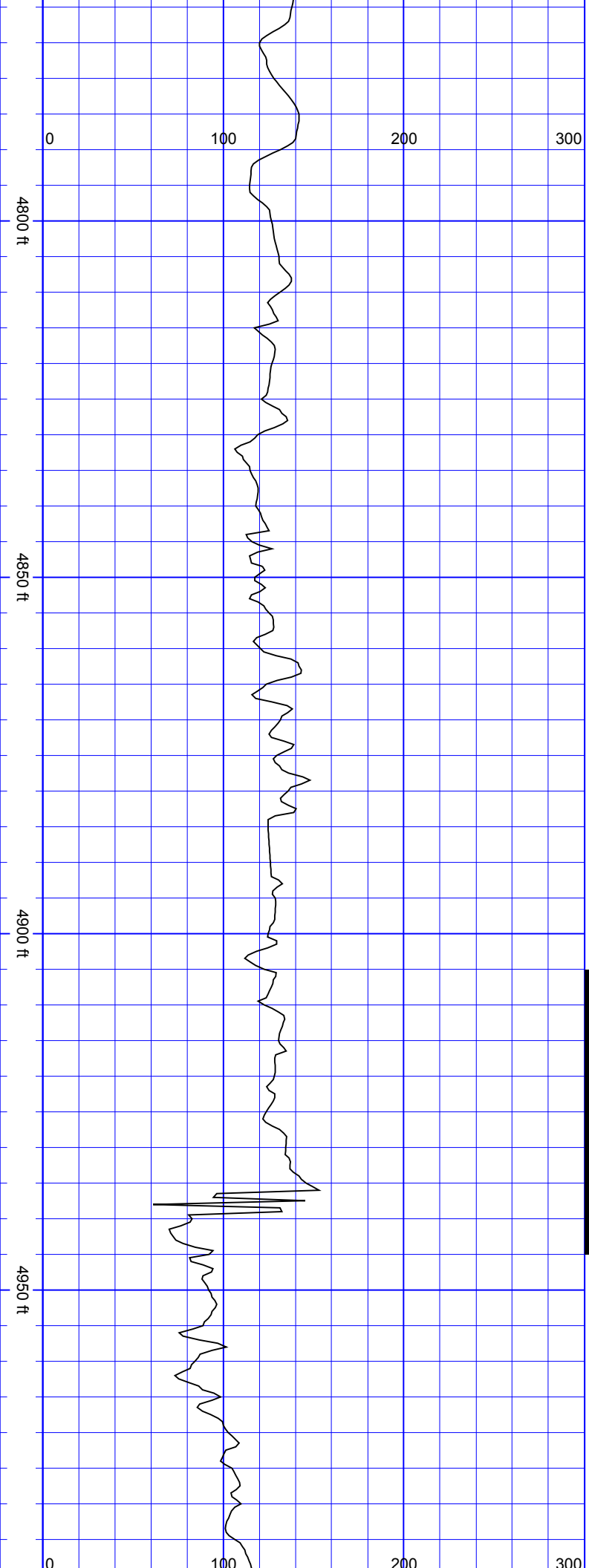


SurveyDepth:4552  
TVD:4388.21 Inc:19.16  
Azi:23.26 VertSec:59.3

SurveyDepth:4646  
TVD:4476.34 Inc:21.53  
Azi:24.76 VertSec:59.17

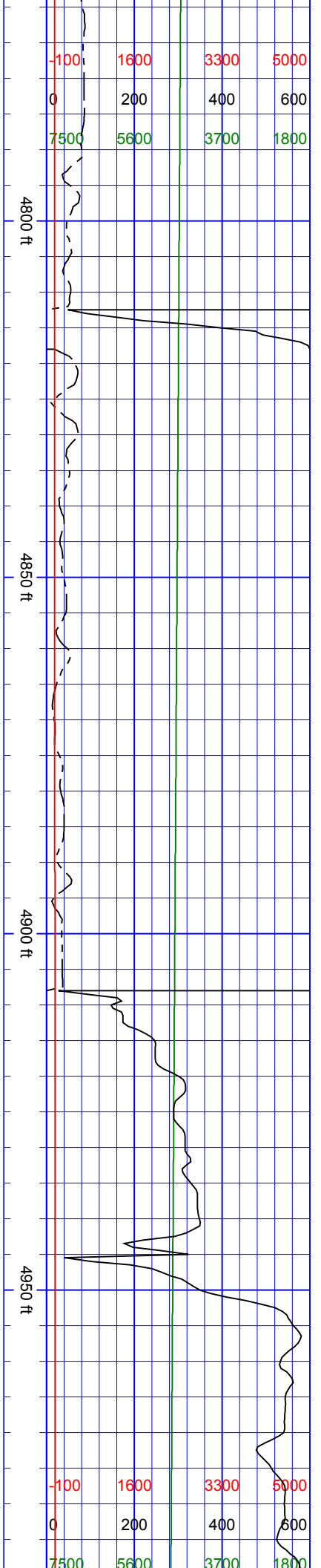
SurveyDepth:4741  
TVD:4565.38 Inc:19.25  
Azi:20.28 VertSec:59.84





SurveyDepth:4835  
TVD:4654.8 Inc:16.7  
Azi:12.72 VertSec:63.39

SurveyDepth:4930  
TVD:4745.76 Inc:16.88  
Azi:20.63 VertSec:66.79







5250 ft

5300 ft

5350 ft

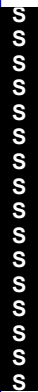
5400 ft

0 100 200 300

SurveyDepth:5213  
TVD:5016.31 Inc:14.85  
Azi:22.91 VertSec:68.19



SurveyDepth:5308  
TVD:5108.17 Inc:14.68  
Azi:25.9 VertSec:67.95



SurveyDepth:5403  
TVD:5199.8 Inc:15.91  
Azi:26.34 VertSec:66.93

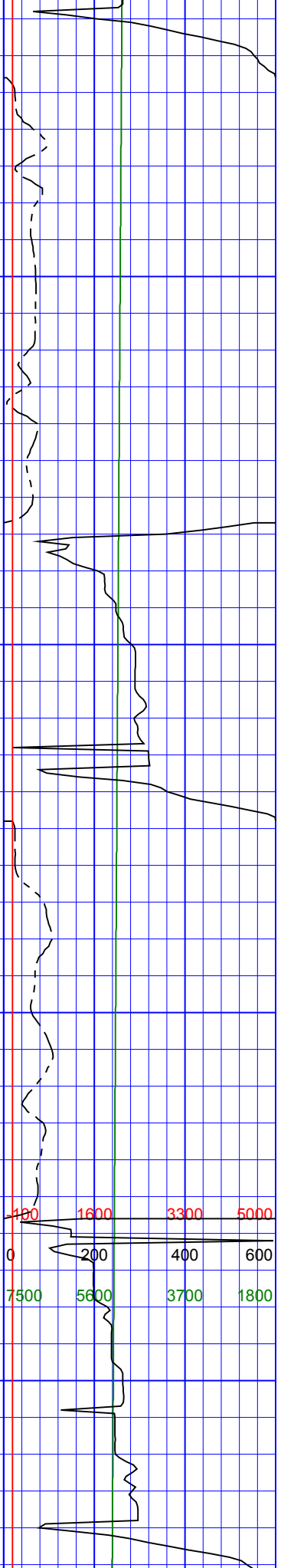
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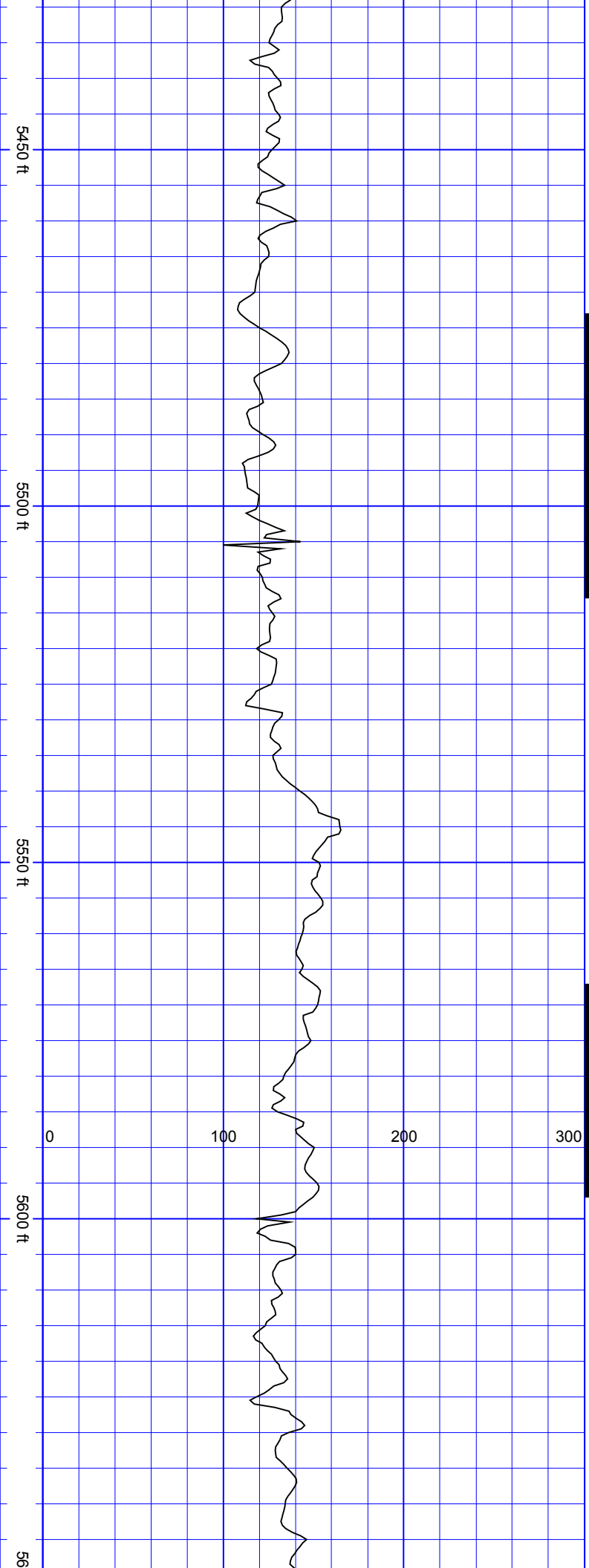
5300 ft

5350 ft

5400 ft

100 1600 3300 5000  
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7500 5600 3700 1800

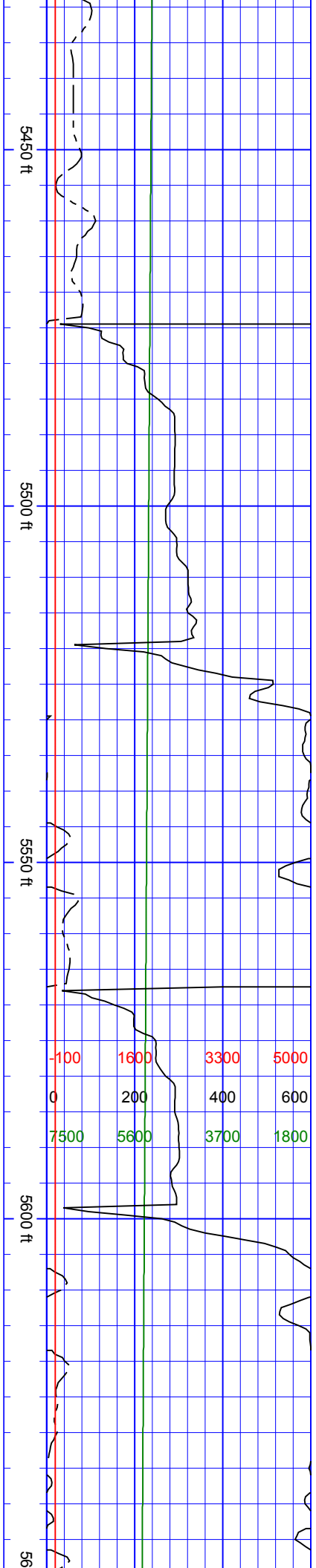


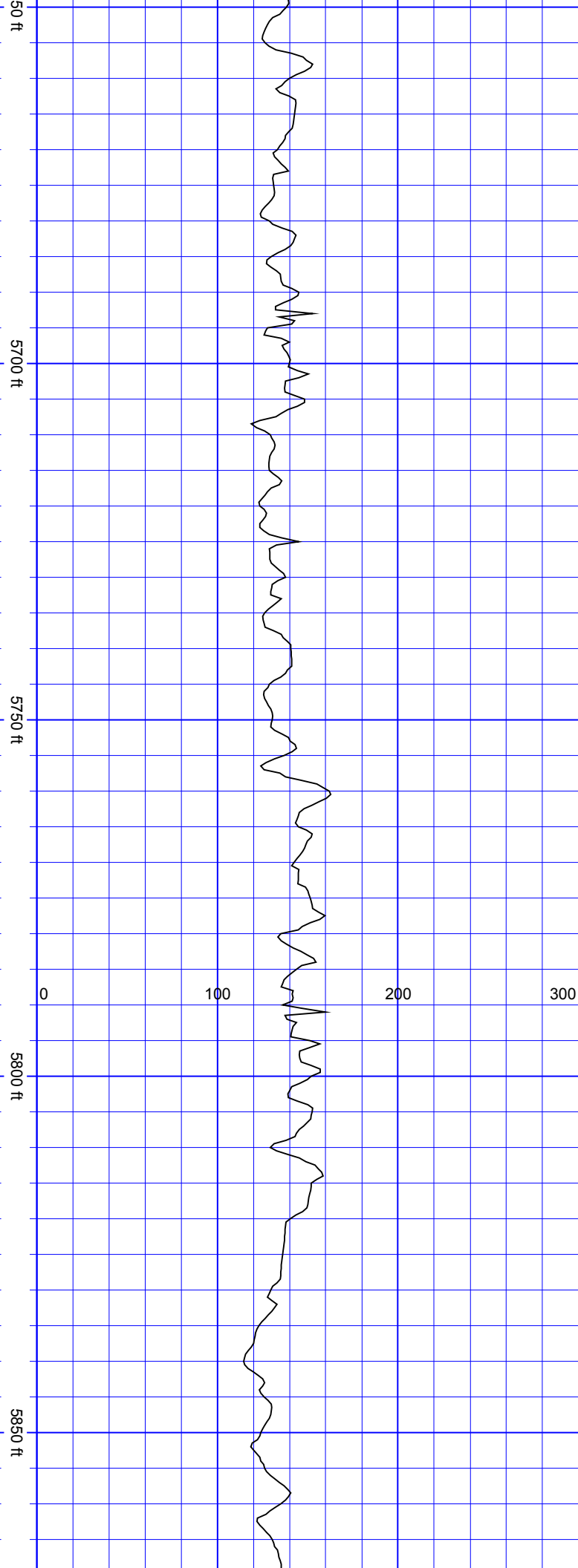


SurveyDepth:5497  
TVD:5289.72 Inc:18.02  
Azi:19.13 VertSec:67.55



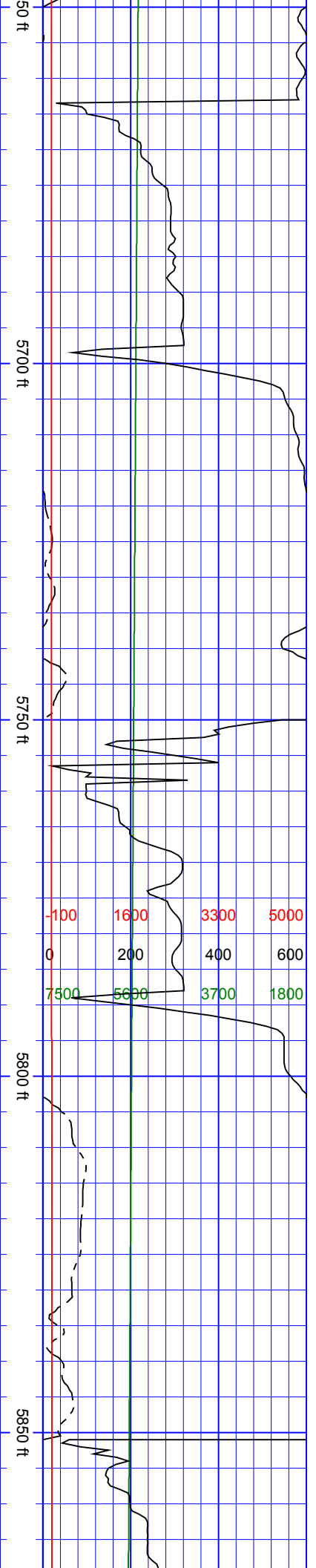
SurveyDepth:5592  
TVD:5379.86 Inc:18.77  
Azi:17.29 VertSec:70.49

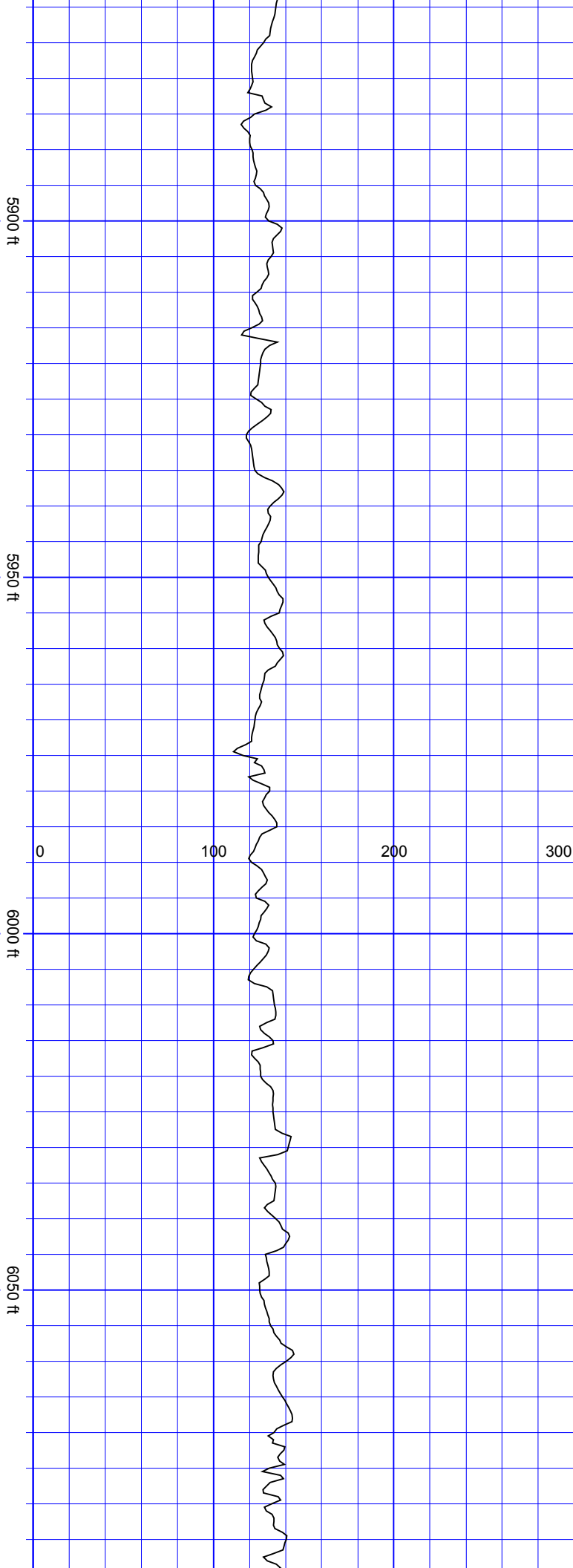




SurveyDepth:5686  
TVD:5468.9 Inc:18.63  
Azi:19.84 VertSec:73.24

SurveyDepth:5781  
TVD:5559.01 Inc:18.33  
Azi:23.35 VertSec:74.41

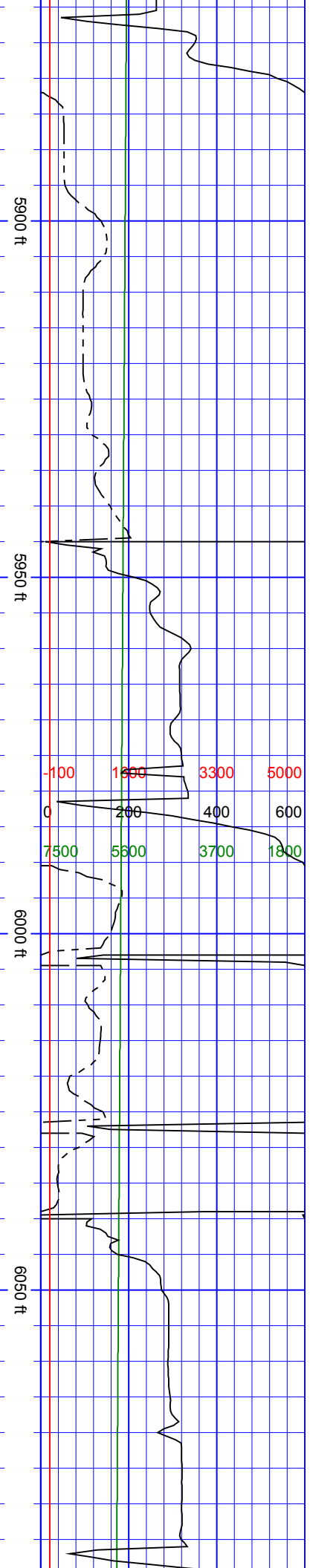


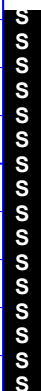
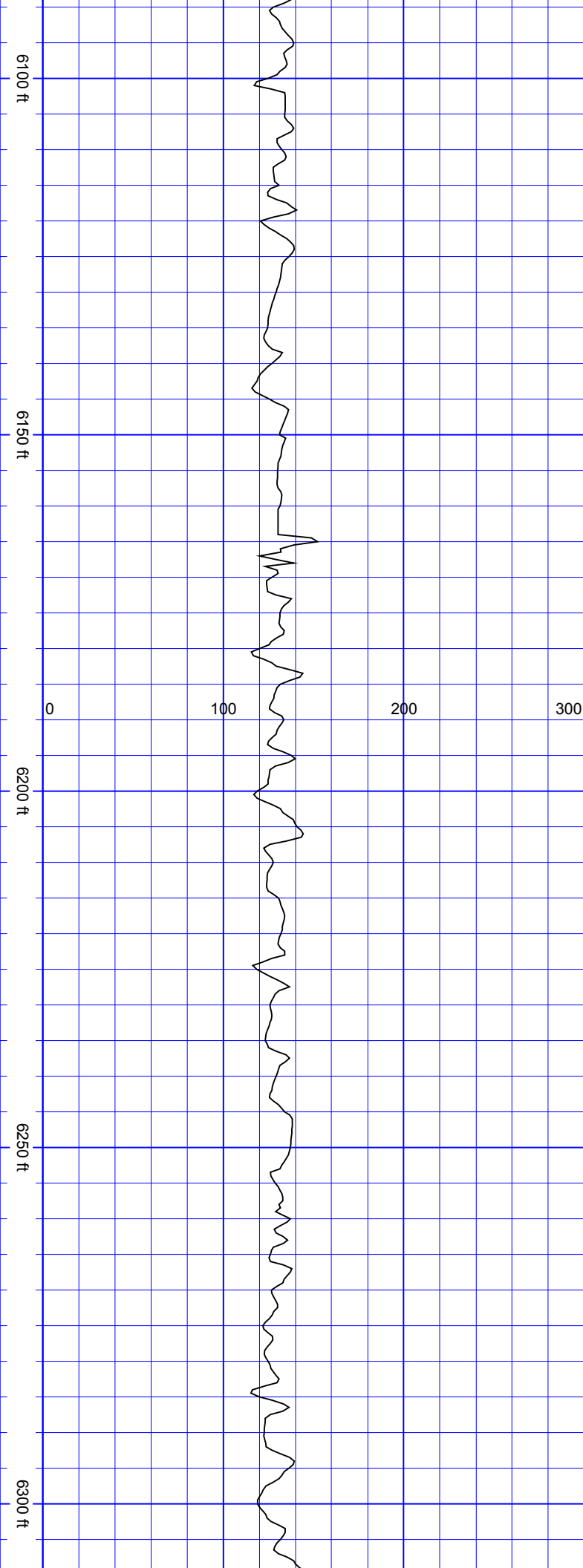


SurveyDepth:5875  
TVD:5648.73 Inc:16.35  
Azi:18.87 VertSec:75.67

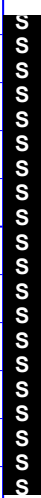
SurveyDepth:5969  
TVD:5739.33 Inc:14.59  
Azi:22.3 VertSec:77.12

SurveyDepth:6064  
TVD:5831.12 Inc:15.29  
Azi:20.72 VertSec:78.11

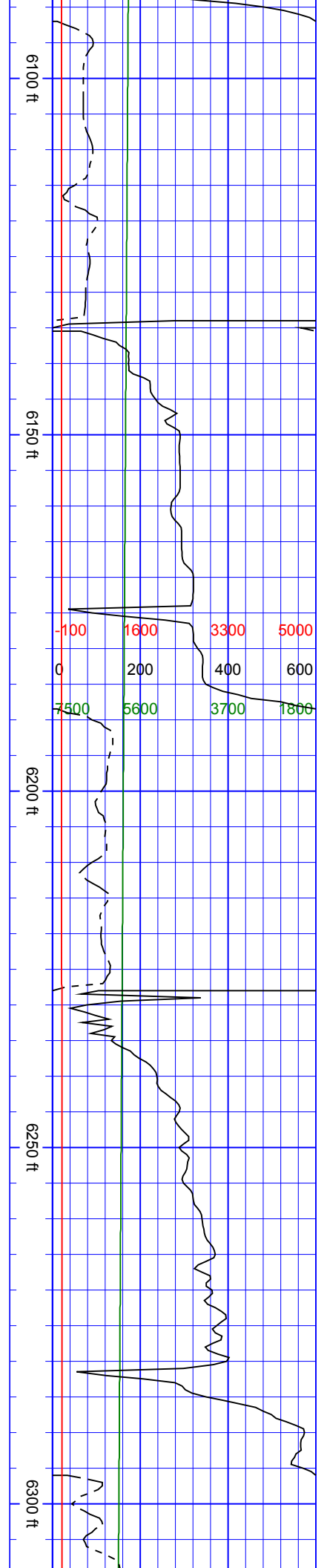




SurveyDepth:6158  
TVD:5921.58 Inc:16.26  
Azi:14.3 VertSec:80.96



SurveyDepth:6252  
TVD:6011.83 Inc:16.22  
Azi:16.5 VertSec:84.8



6350 ft

6400 ft

6450 ft

6500 ft

SurveyDepth:6347  
TVD:6103.13 Inc:15.95  
Azi:26.6 VertSec:85.85

SurveyDepth:6441  
TVD:6193.34 Inc:16.74  
Azi:19.84 VertSec:86.16

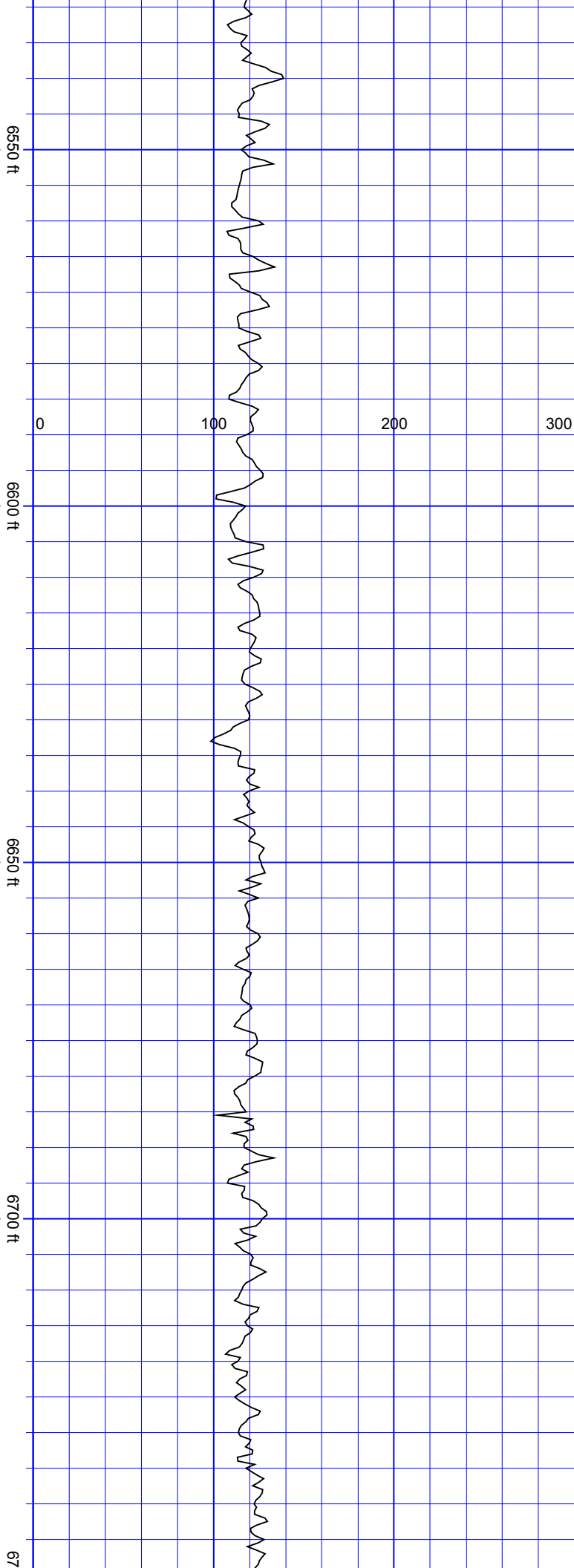
6350 ft

6400 ft

6450 ft

6500 ft

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0 200 400 600  
7500 5600 3700 1800

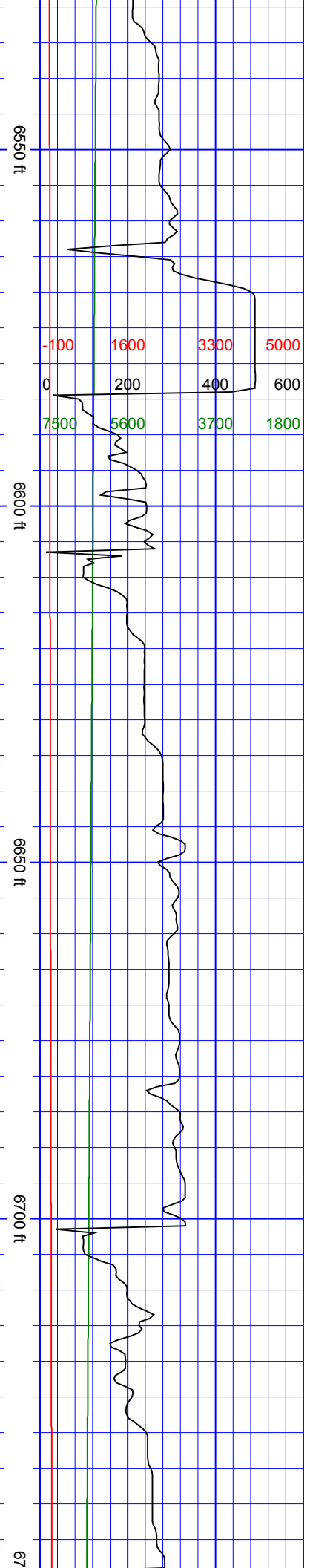


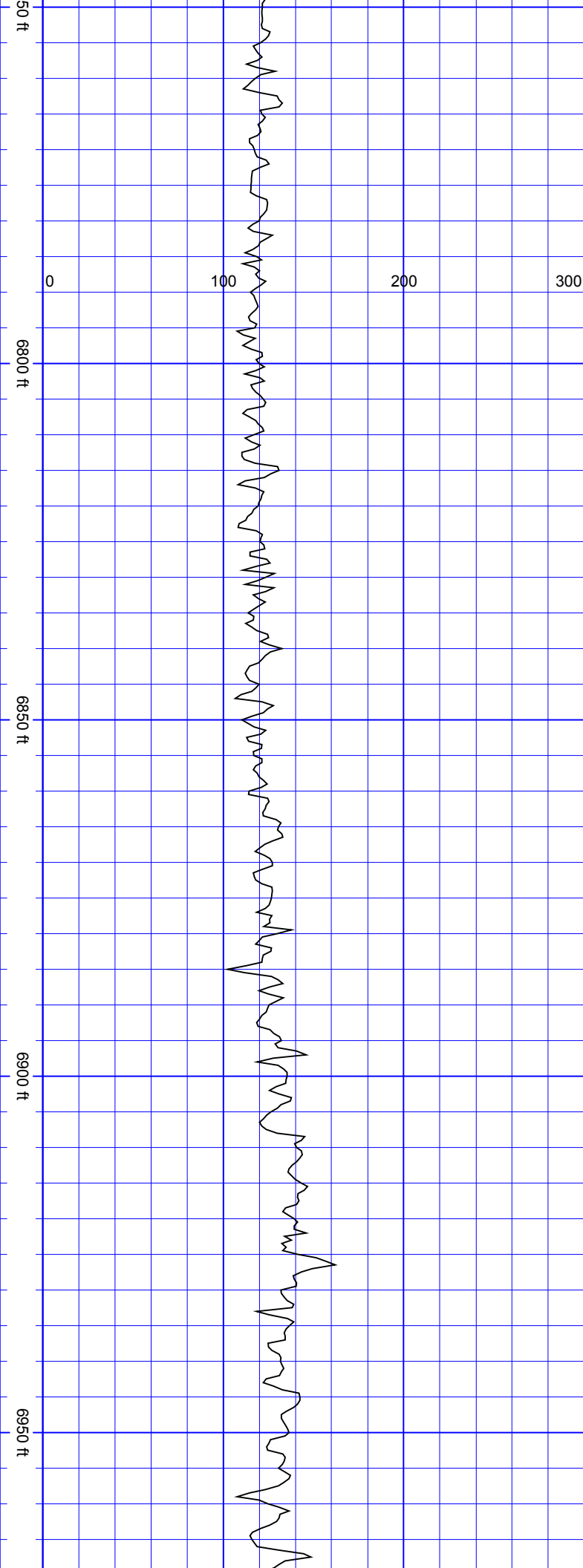
SurveyDepth:6536  
TVD:6283.74 Inc:19.12  
Azi:9.11 VertSec:91.06

SurveyDepth:6631  
TVD:6373.13 Inc:20.79  
Azi:350.48  
VertSec:104.29

SurveyDepth:6678  
TVD:6416.82 Inc:22.5  
Azi:341.34  
VertSec:114.94

SurveyDepth:6725  
TVD:6460.03 Inc:23.91  
Azi:333.78  
VertSec:128.32





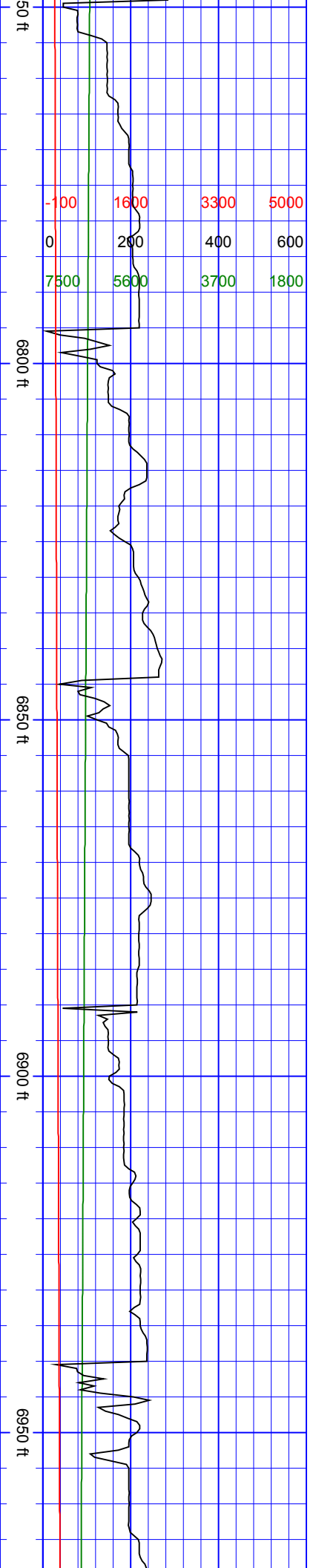
SurveyDepth:6772  
TVD:6502.48 Inc:26.94  
Azi:328.16  
VertSec:144.42

SurveyDepth:6820  
TVD:6544.81 Inc:29.31  
Azi:327.28  
VertSec:163.2

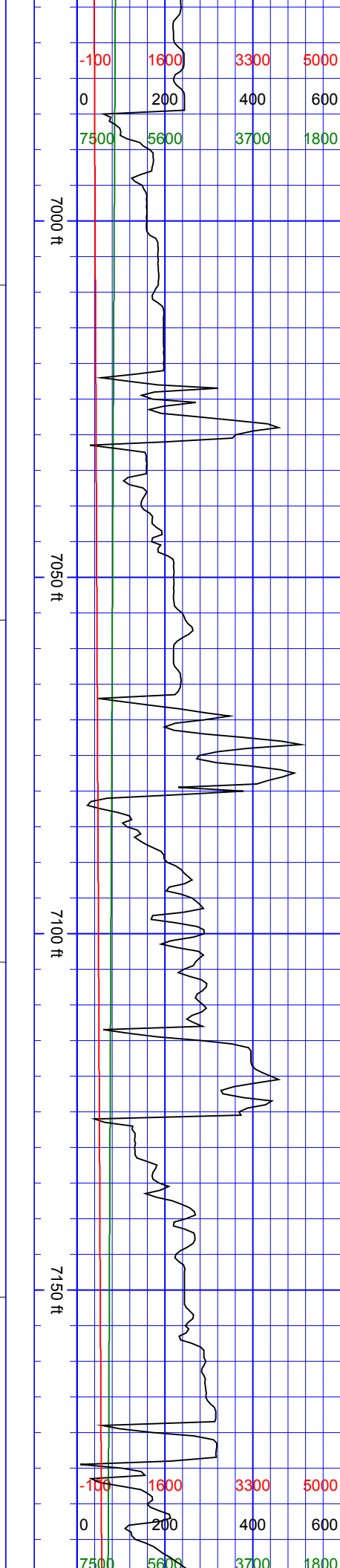
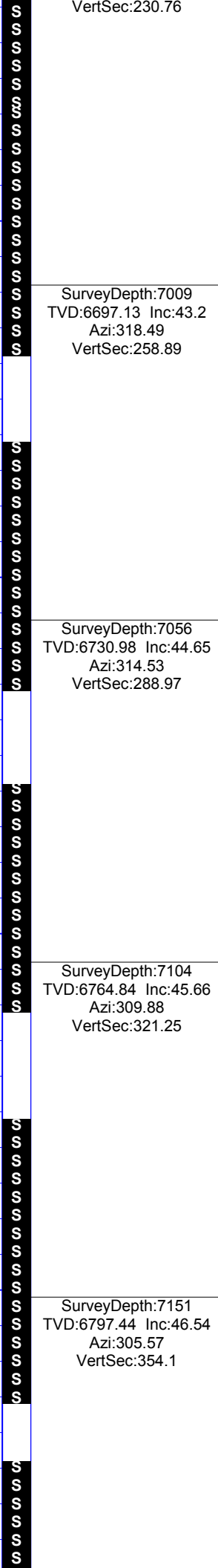
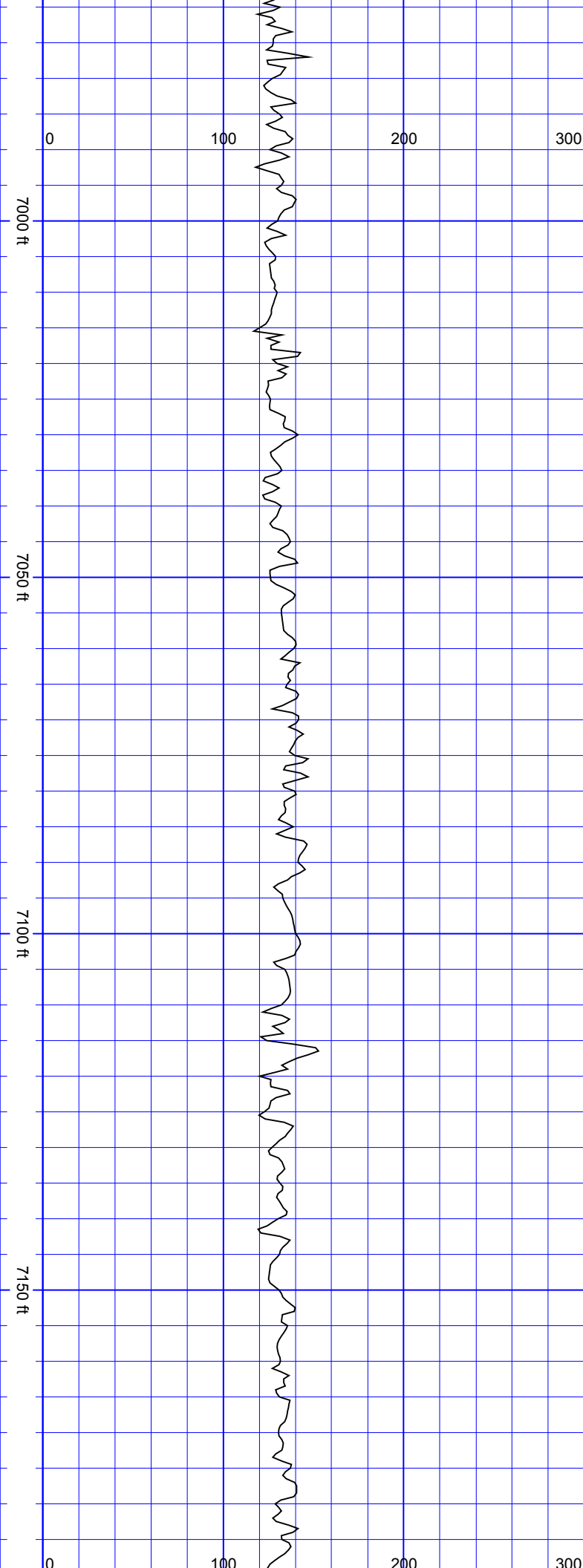
SurveyDepth:6867  
TVD:6585.17 Inc:32.3  
Azi:325.87  
VertSec:183.44

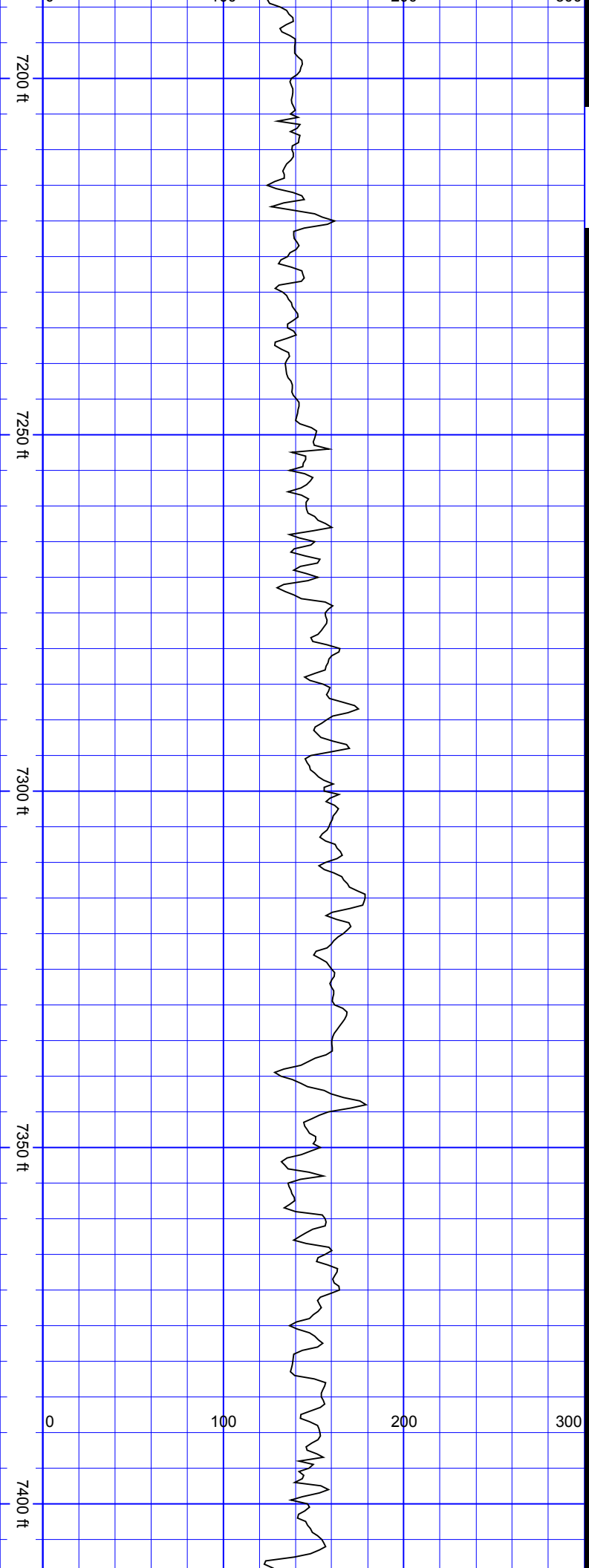
SurveyDepth:6914  
TVD:6624.02 Inc:36.17  
Azi:324.9  
VertSec:205.97

SurveyDepth:6961  
TVD:6661.11 Inc:39.6  
Azi:324.29

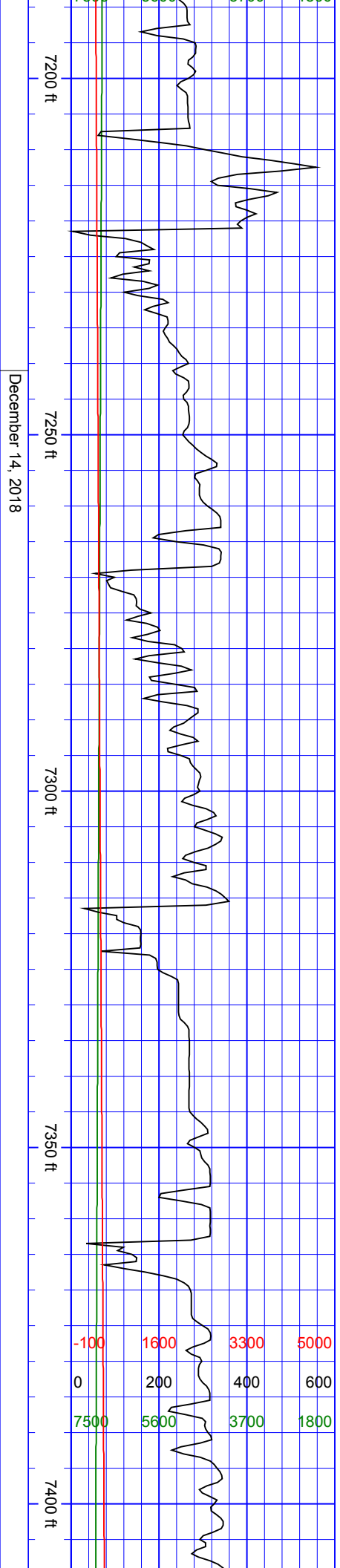


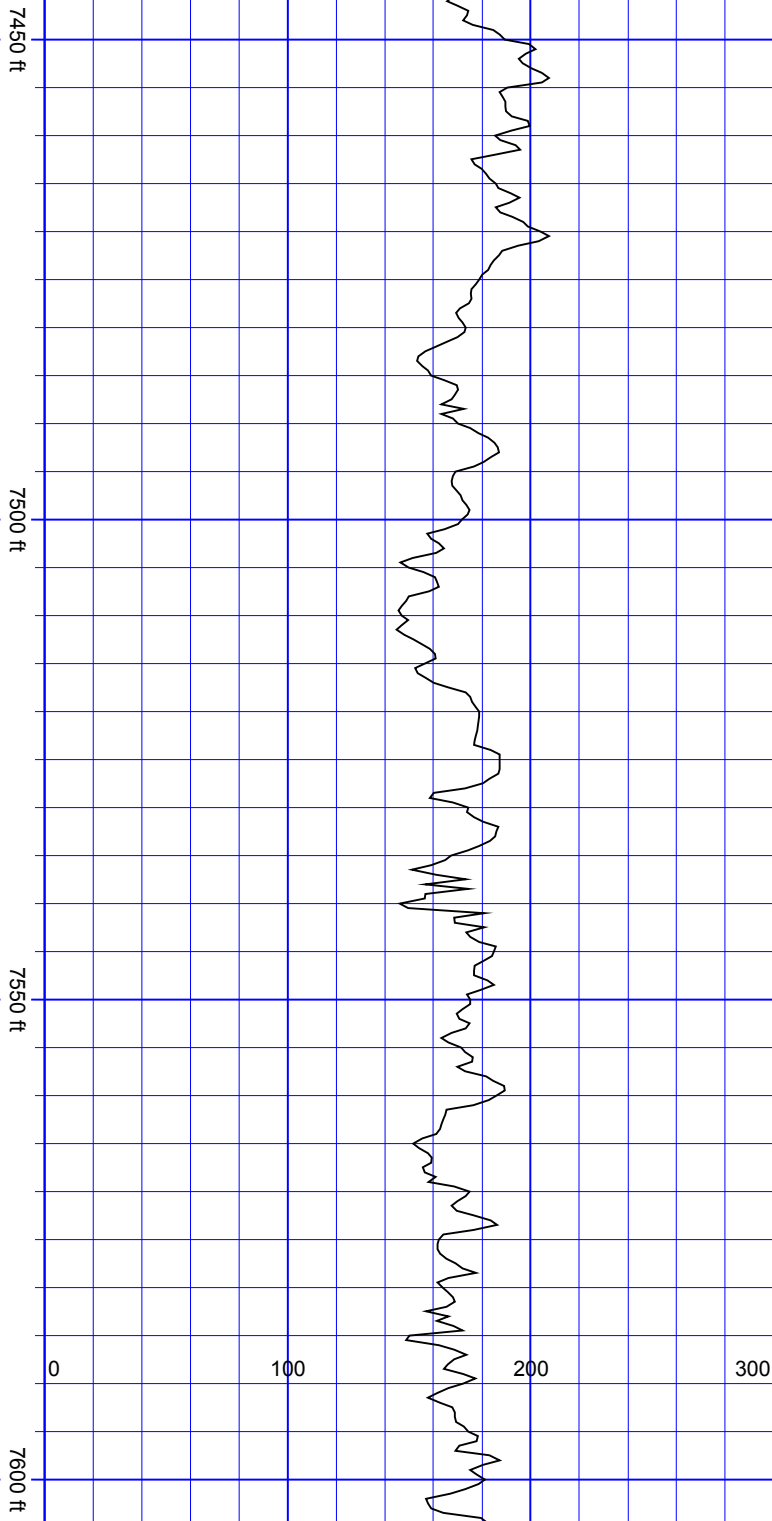






SurveyDepth:7198 TVD:6829.66 Inc:46.93 Azi:302.23 VertSec:387.79
SurveyDepth:7245 TVD:6861.63 Inc:47.37 Azi:296.69 VertSec:422.06
SurveyDepth:7293 TVD:6893.63 Inc:49.09 Azi:290.1 VertSec:457.82
SurveyDepth:7340 TVD:6923.96 Inc:50.58 Azi:282.72 VertSec:493.38
SurveyDepth:7387 TVD:6952.9 Inc:53.44 Azi:279.64 VertSec:529.51





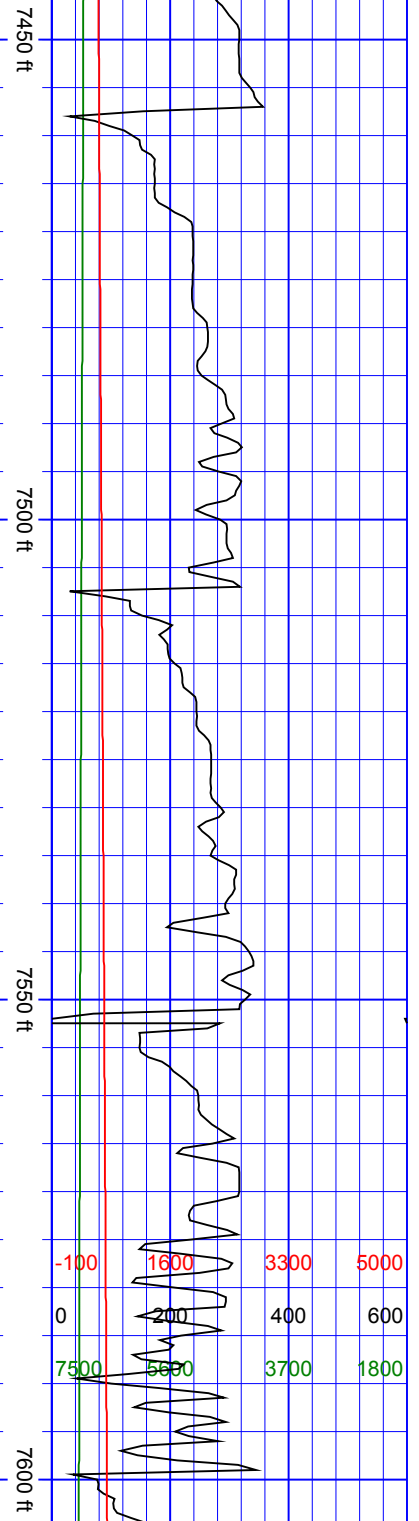
SurveyDepth:7434  
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Azi:273.84  
VertSec:566.12

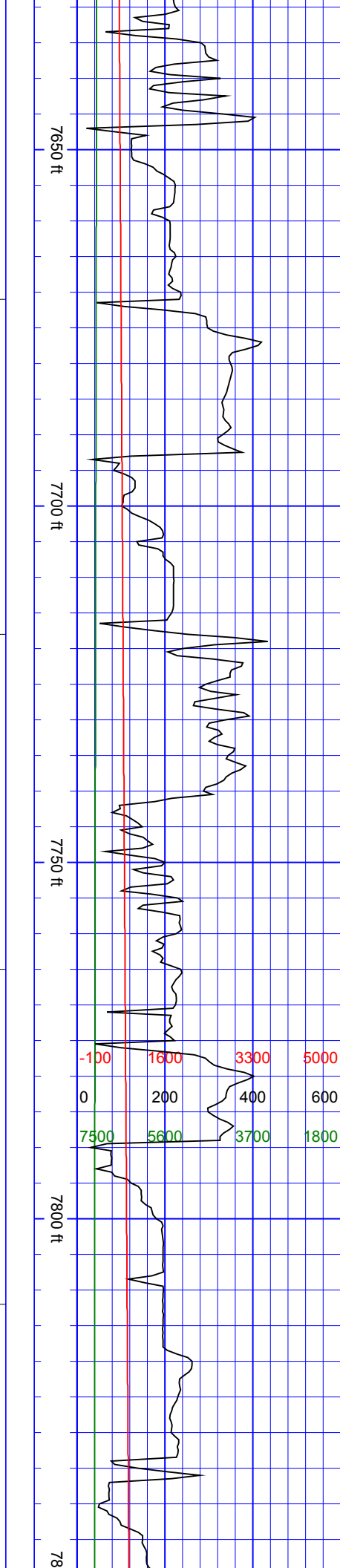
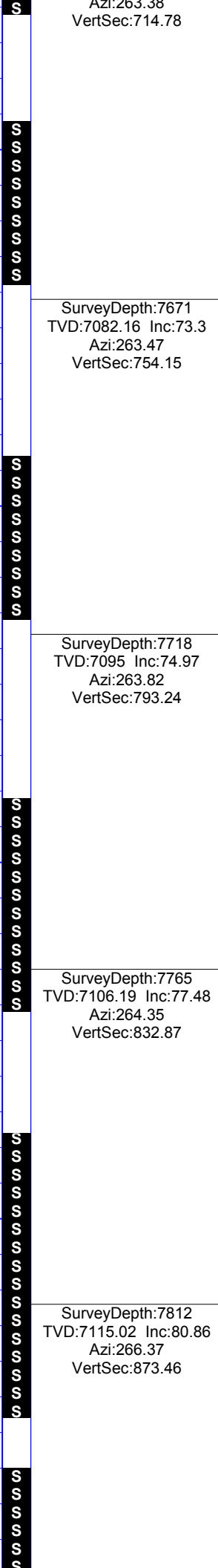
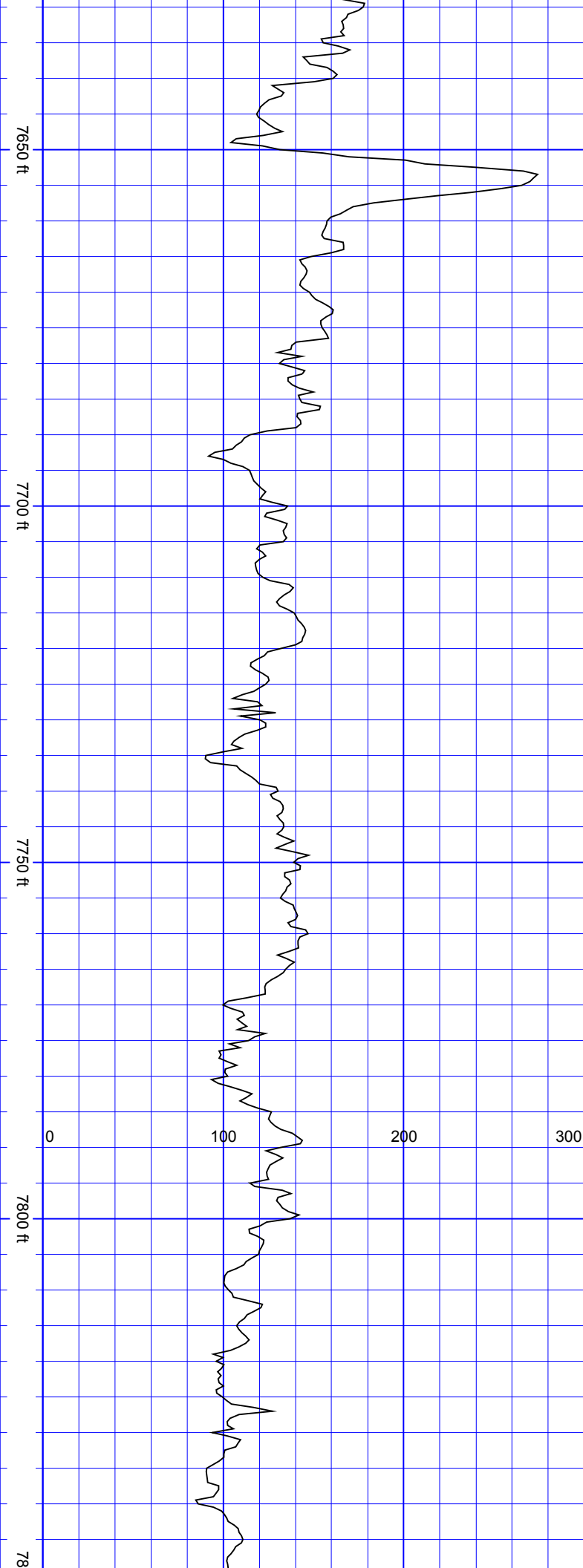
SurveyDepth:7482  
TVD:7006.2 Inc:58.32  
Azi:269.18  
VertSec:603.37

SurveyDepth:7529  
TVD:7029.8 Inc:61.39  
Azi:265.93  
VertSec:639.8

SurveyDepth:7576  
TVD:7050.29 Inc:66.89  
Azi:264.17  
VertSec:676.86

SurveyDepth:7623  
TVD:7067.31 Inc:70.66  
Azi:262.28  
VertSec:713.91





Azi:263.38  
VertSec:714.78

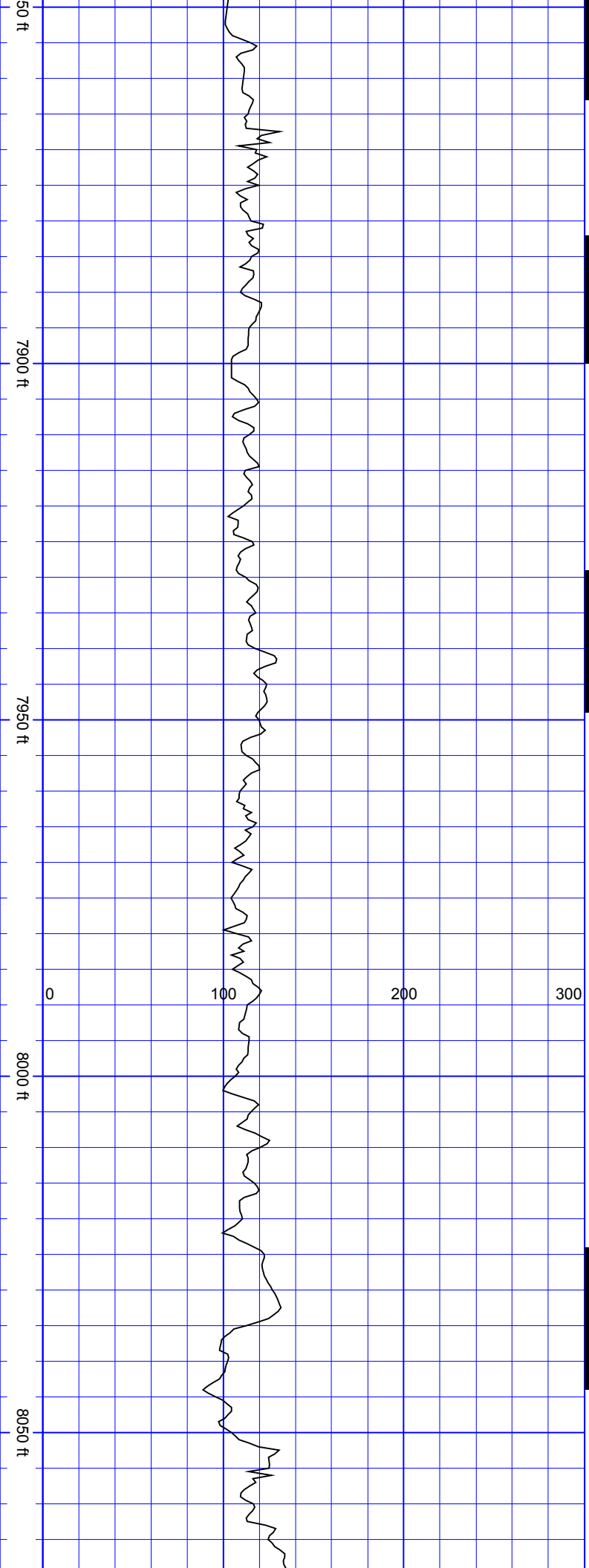
SurveyDepth:7671  
TVD:7082.16 Inc:73.3  
Azi:263.47  
VertSec:754.15

SurveyDepth:7718  
TVD:7095 Inc:74.97  
Azi:263.82  
VertSec:793.24

SurveyDepth:7765  
TVD:7106.19 Inc:77.48  
Azi:264.35  
VertSec:832.87

SurveyDepth:7812  
TVD:7115.02 Inc:80.86  
Azi:266.37  
VertSec:873.46

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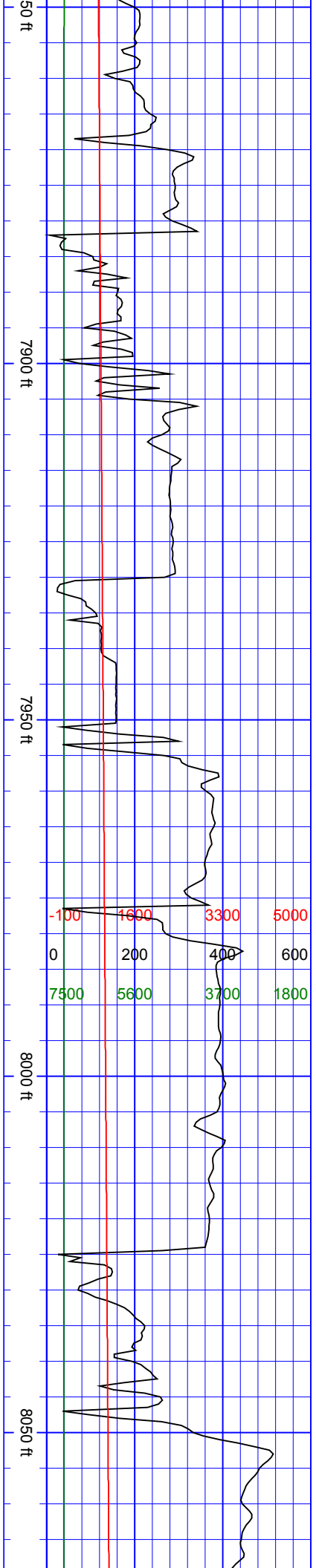


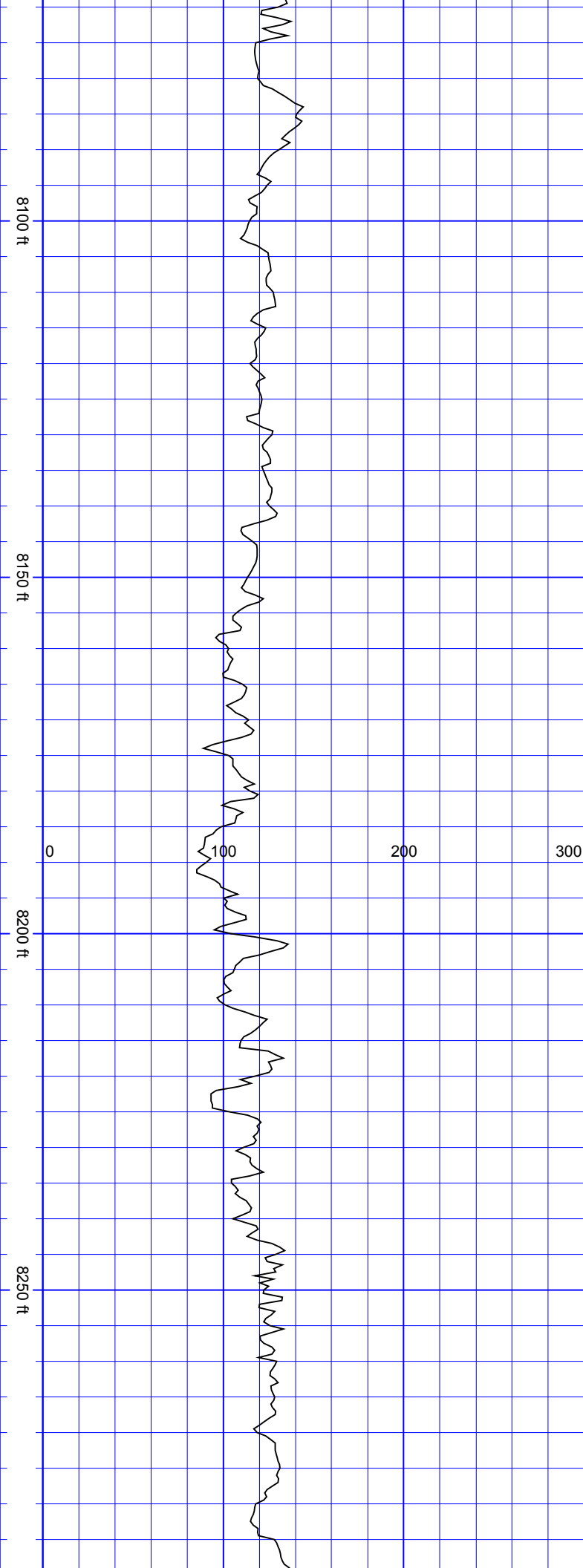
SurveyDepth:7859  
TVD:7120.74 Inc:85.17  
Azi:268.13  
VertSec:915.17

SurveyDepth:7906  
TVD:7123.71 Inc:87.58  
Azi:268.92  
VertSec:957.58

SurveyDepth:7954  
TVD:7124.63 Inc:90.22  
Azi:268.48  
VertSec:1001.03

SurveyDepth:8049  
TVD:7125.18 Inc:89.12  
Azi:270.5  
VertSec:1087.6

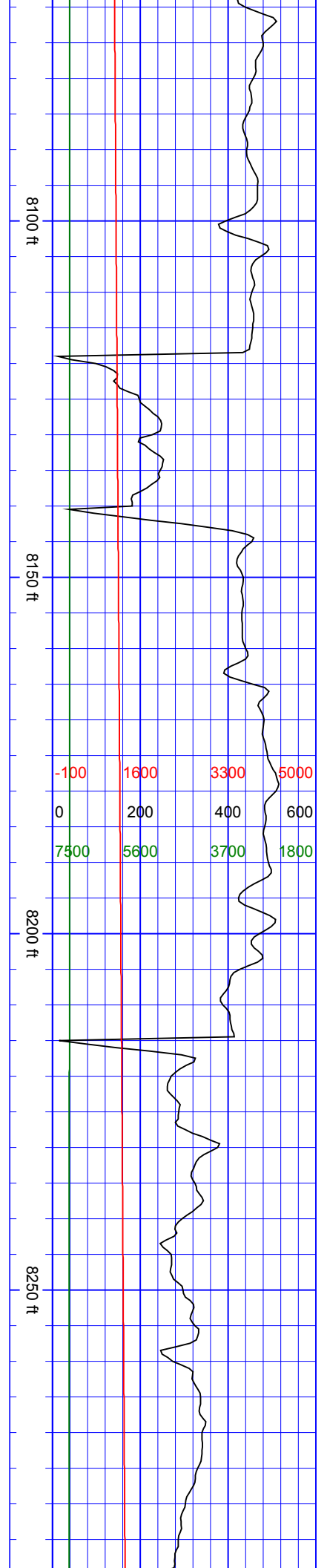


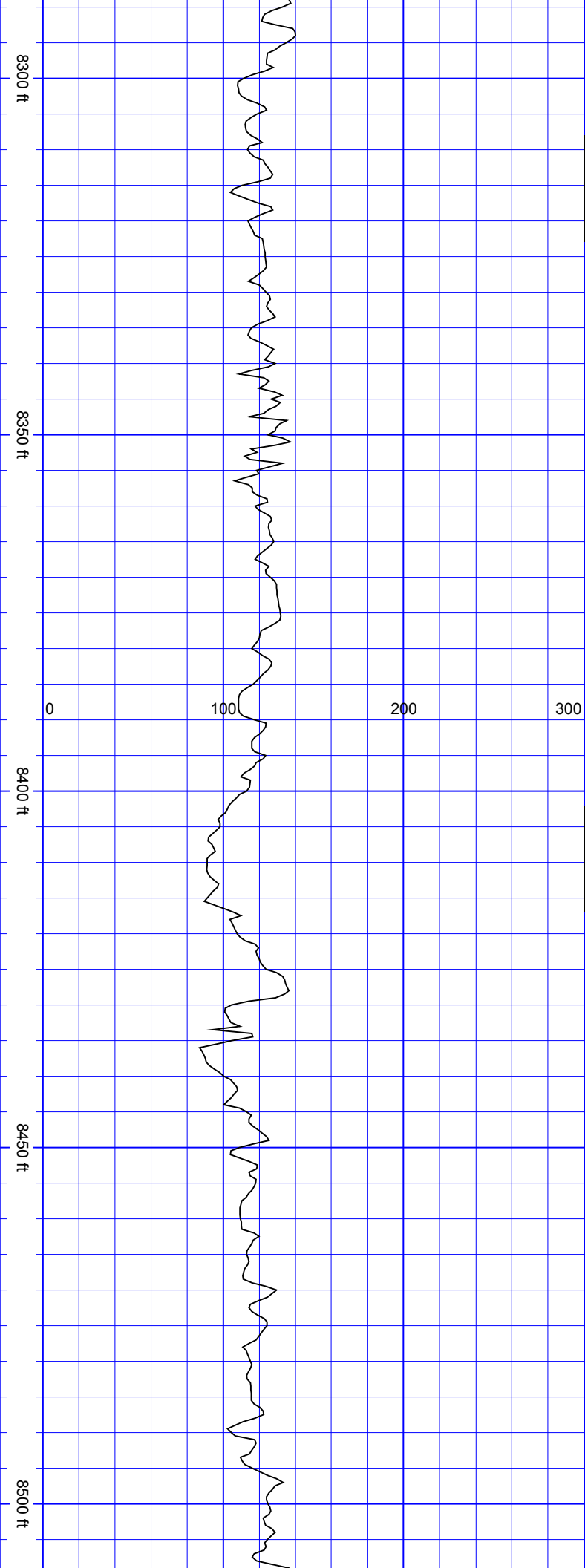


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SurveyDepth:8143  
TVD:7127.38 Inc:88.2  
Azi:272.08  
VertSec:1174.4

SurveyDepth:8238  
TVD:7130.98 Inc:87.45  
Azi:272.08  
VertSec:1262.59



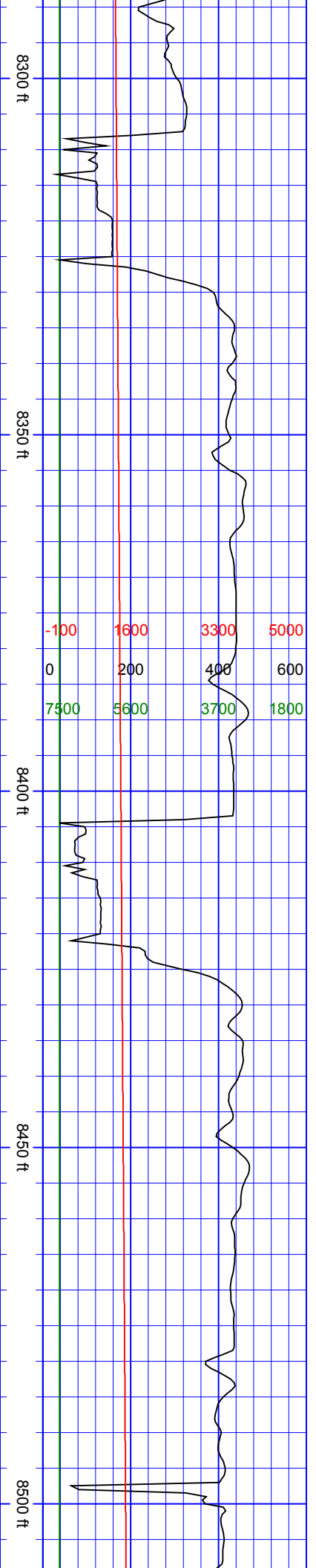


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SurveyDepth:8332  
TVD:7134.19 Inc:88.64  
Azi:272.7  
VertSec:1350.04

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SurveyDepth:8427  
TVD:7134.37 Inc:91.14  
Azi:272.96  
VertSec:1438.74



8550 ft

8600 ft

8650 ft

8700 ft

0 100 200 300

SurveyDepth:8521  
TVD:7132.68 Inc:90.92  
Azi:272.96  
VertSec:1526.57

SurveyDepth:8616  
TVD:7131.08 Inc:91.01  
Azi:272.79  
VertSec:1615.28

SurveyDepth:8710  
TVD:7129.28 Inc:91.19  
Azi:272.52  
VertSec:1702.93

8550 ft

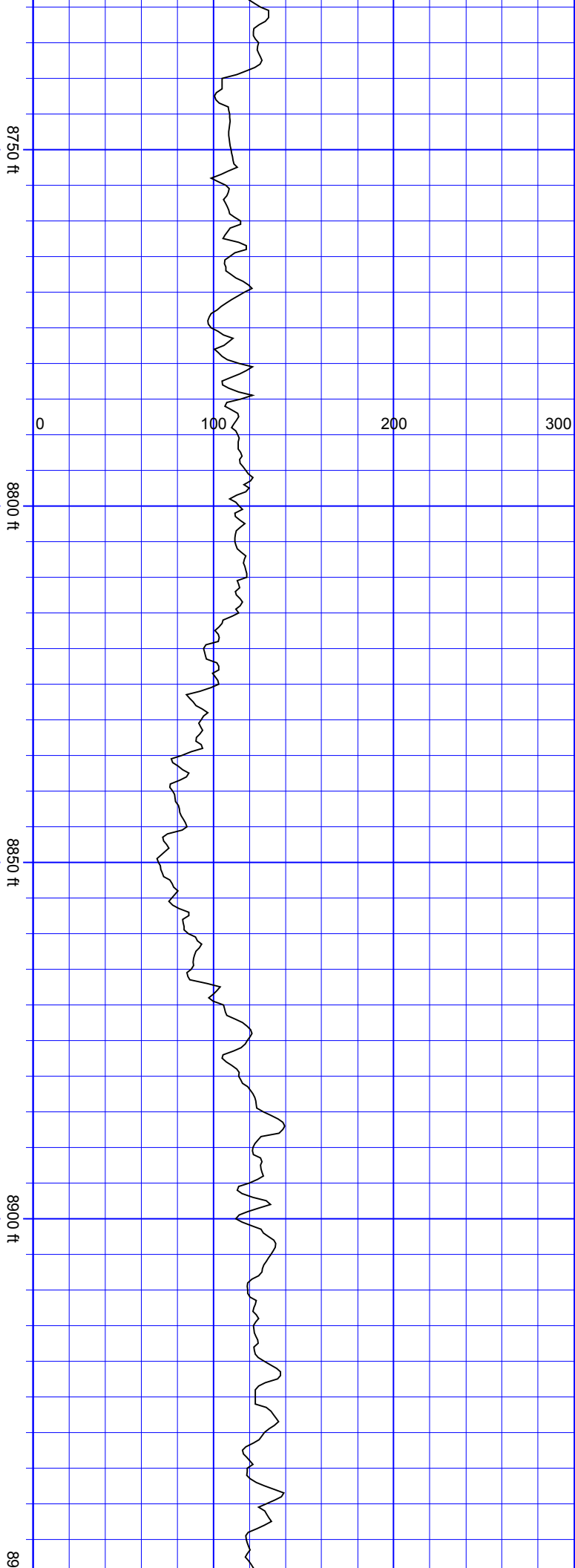
8600 ft

8650 ft

8700 ft

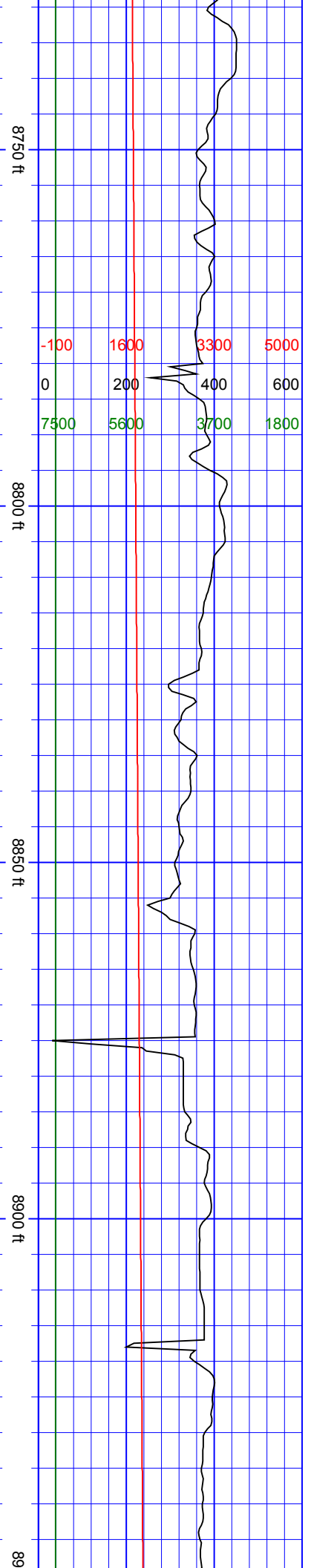
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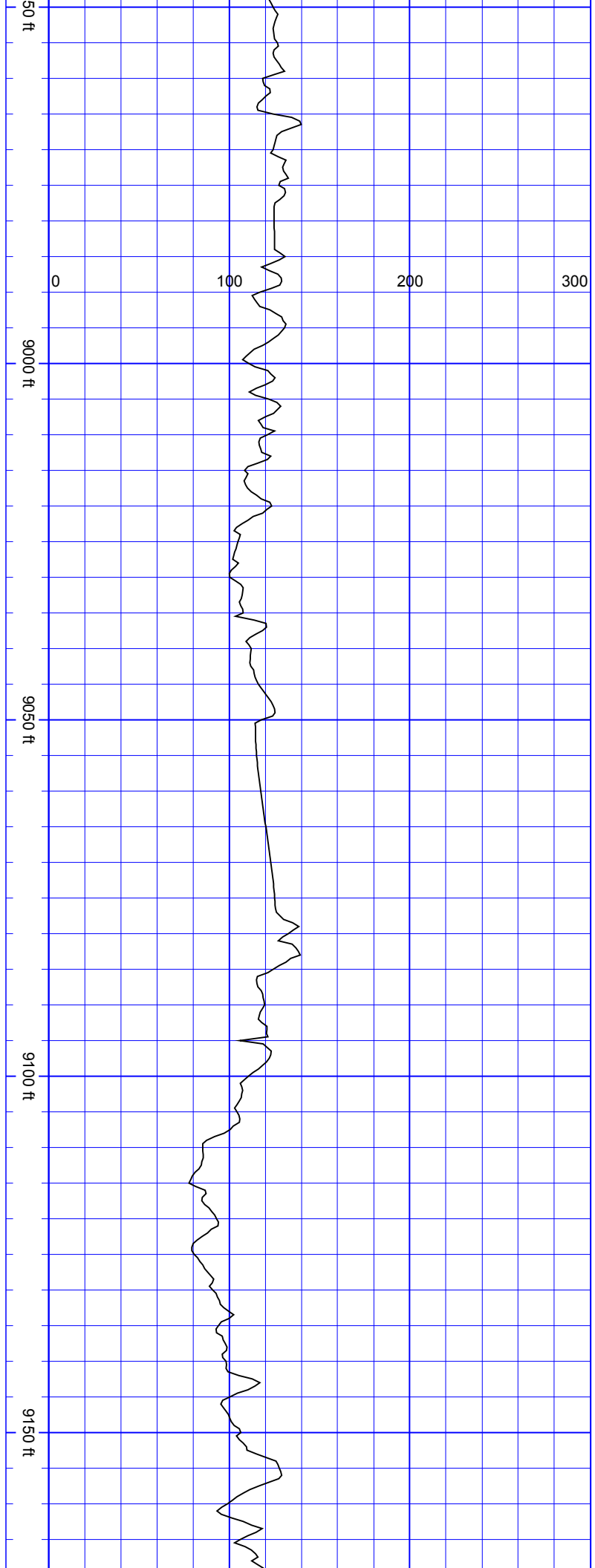




SurveyDepth:8804  
TVD:7127.29 Inc:91.23  
Azi:272.43  
VertSec:1790.47

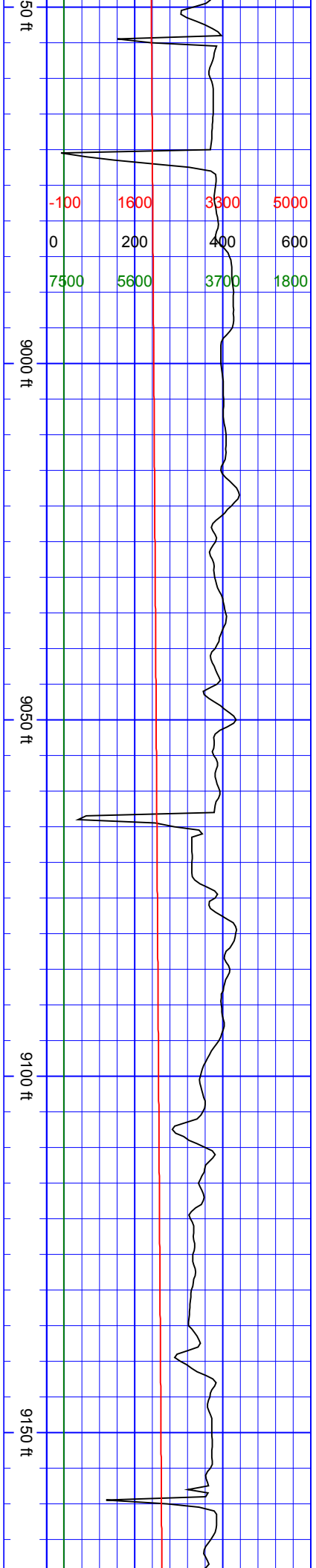
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TVD:7125.41 Inc:91.06  
Azi:271.91  
VertSec:1877.83

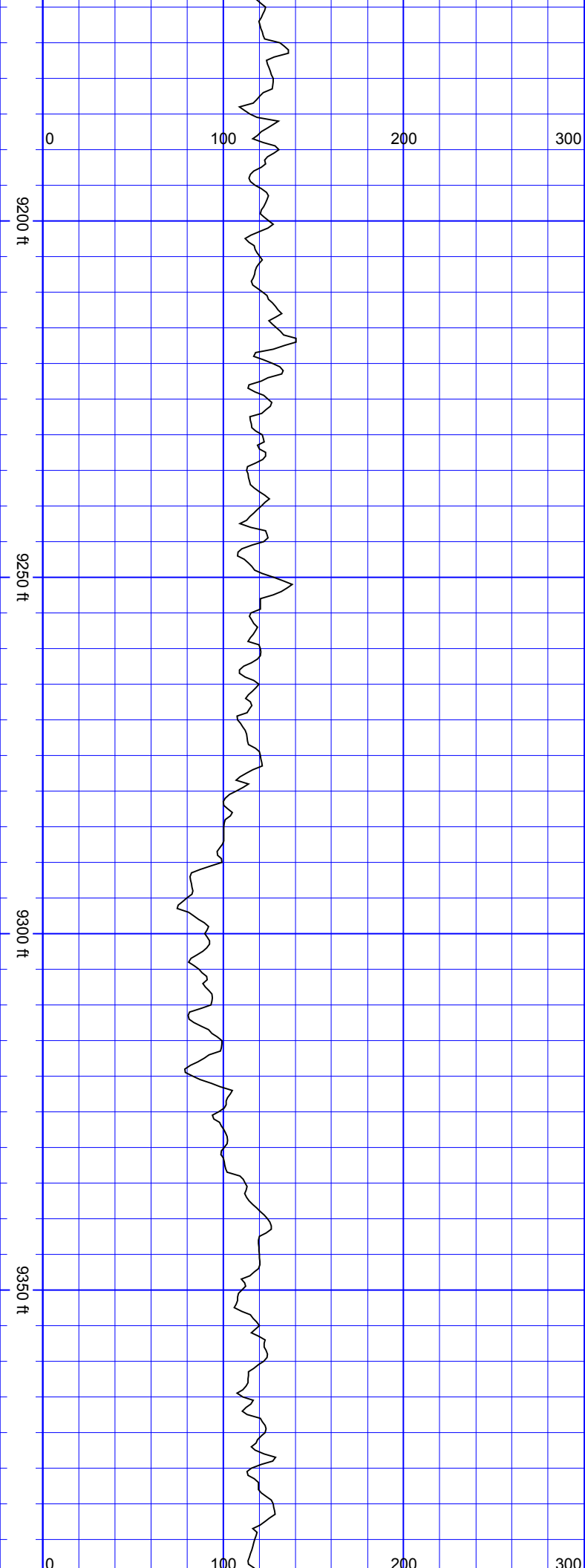




SurveyDepth:8993  
TVD:7124.61 Inc:89.91  
Azi:271.73  
VertSec:1965.91

SurveyDepth:9088  
TVD:7124.58 Inc:90.13  
Azi:271.91 VertSec:2054

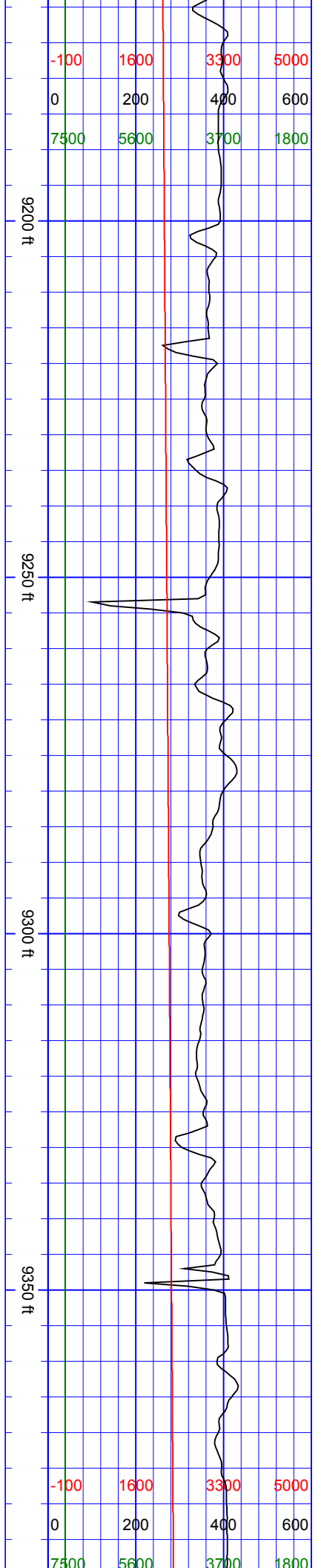


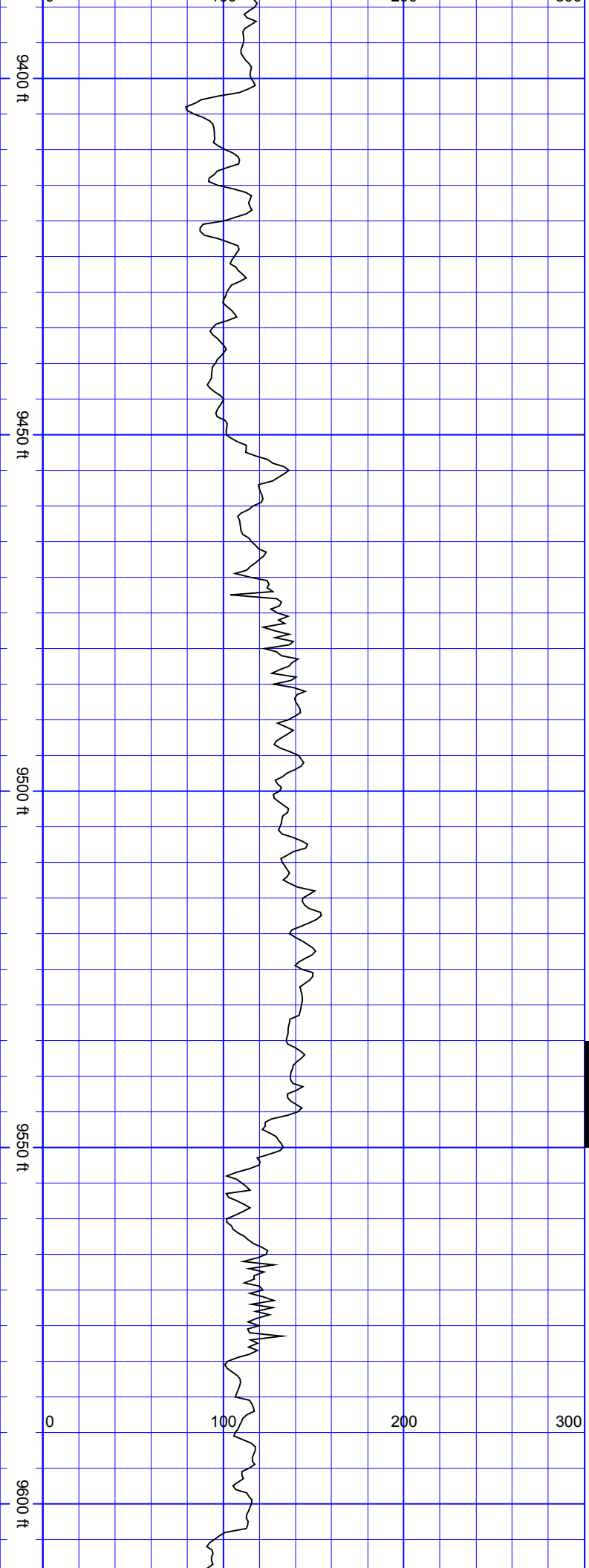


SurveyDepth:9182  
TVD:7124.9 Inc:89.47  
Azi:271.82  
VertSec:2141.19

SurveyDepth:9277  
TVD:7125.49 Inc:89.82  
Azi:271.82  
VertSec:2229.27

SurveyDepth:9371  
TVD:7125.72 Inc:89.91  
Azi:271.64  
VertSec:2316.38

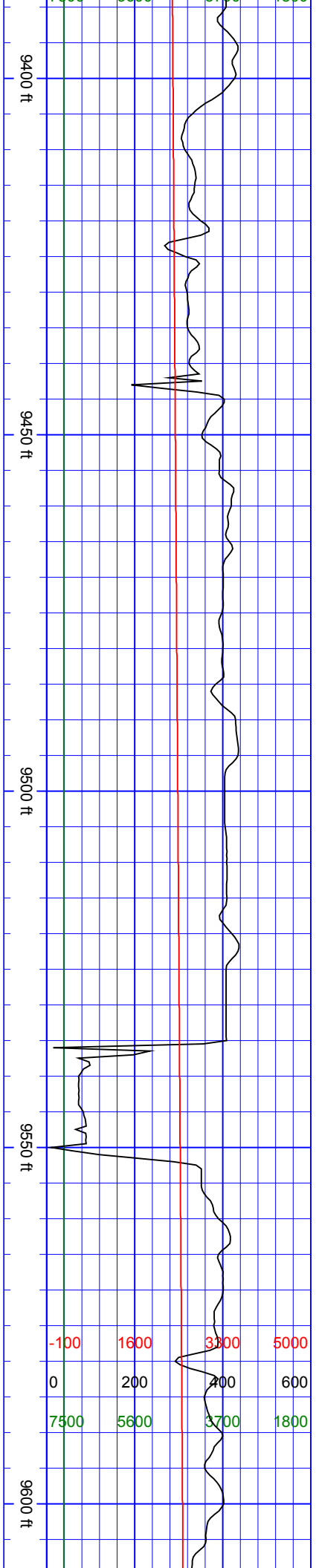


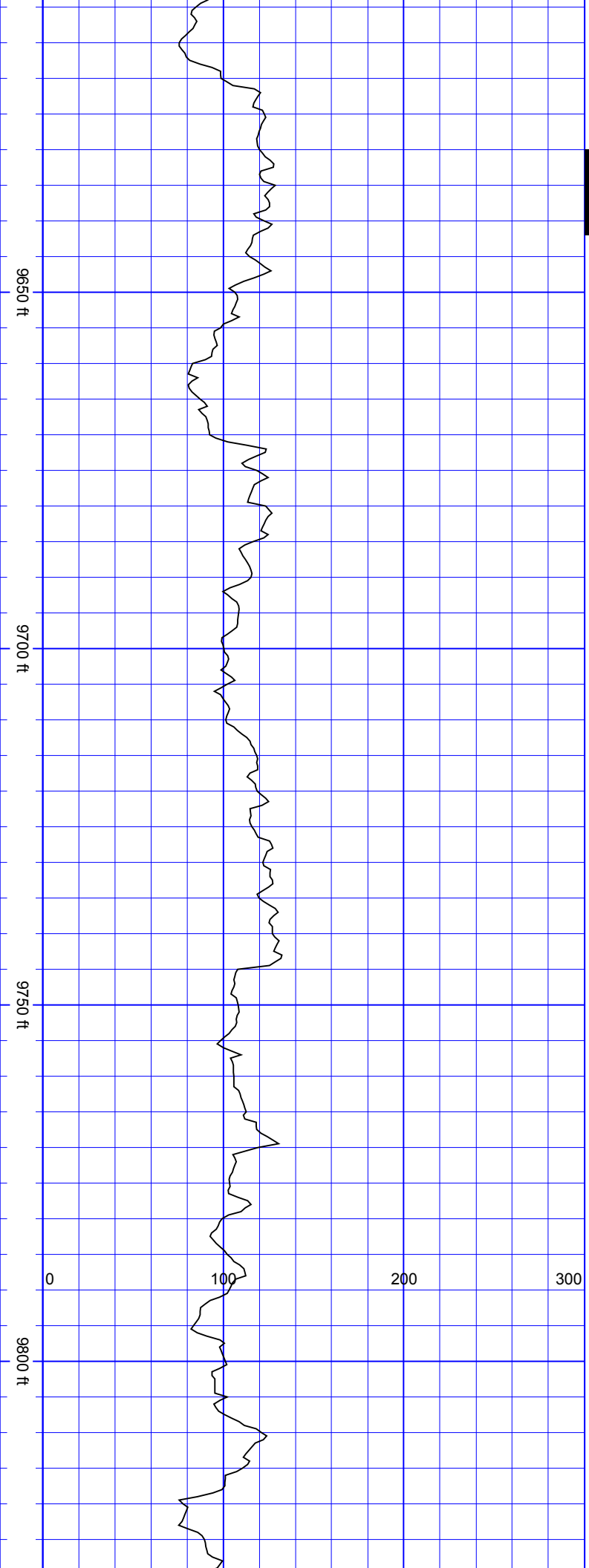


SurveyDepth:9465  
TVD:7126.36 Inc:89.3  
Azi:271.56  
VertSec:2403.4

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SurveyDepth:9560  
TVD:7125.77 Inc:91.41  
Azi:271.99  
VertSec:2491.46

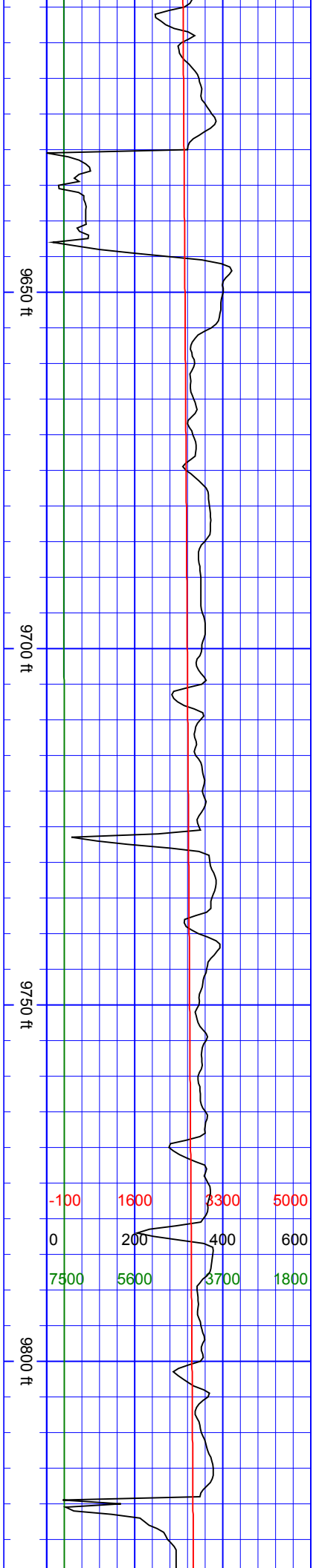


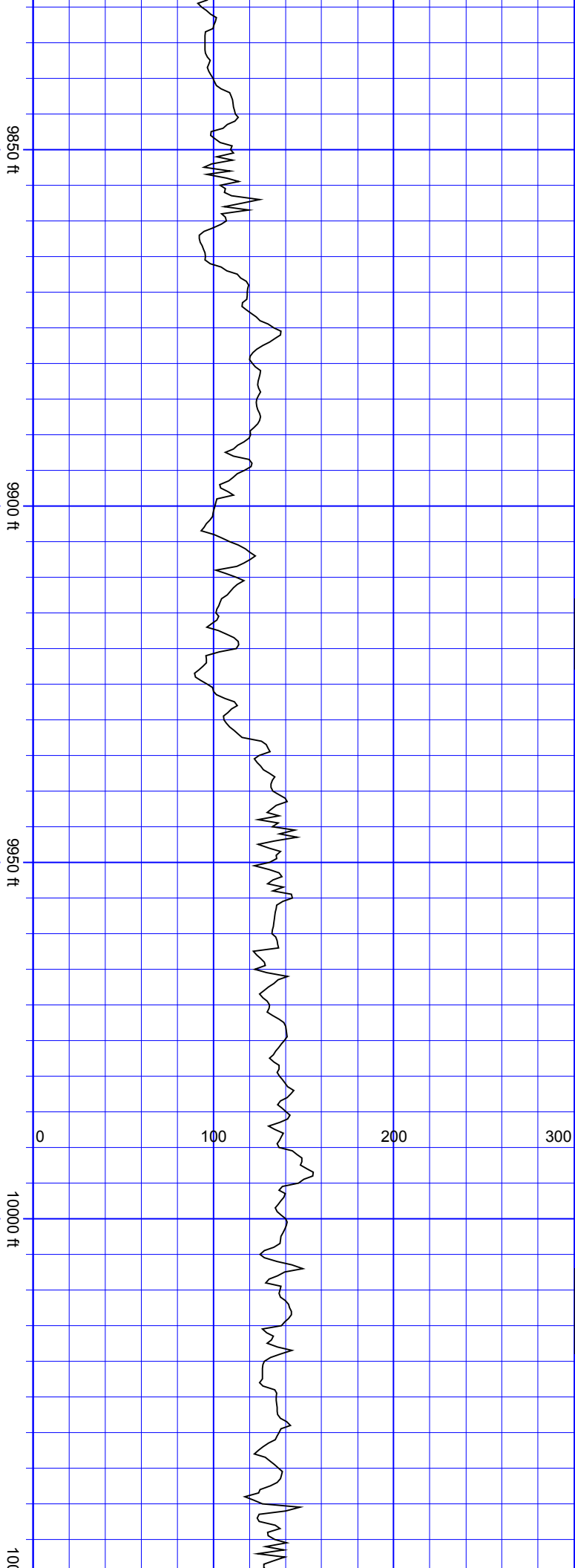


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SurveyDepth:9654  
TVD:7122.56 Inc:92.51  
Azi:269.8  
VertSec:2577.98

SurveyDepth:9749  
TVD:7117.71 Inc:93.34  
Azi:269.45  
VertSec:2664.53

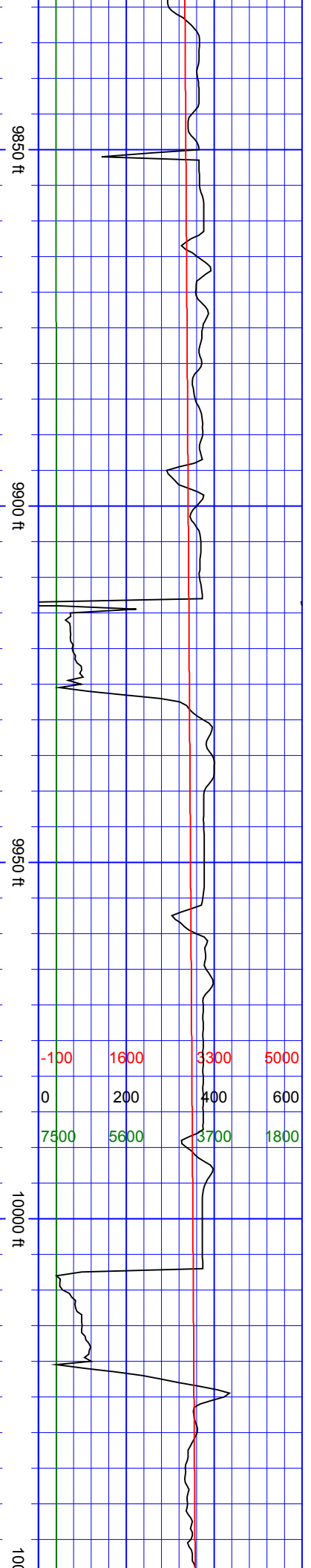


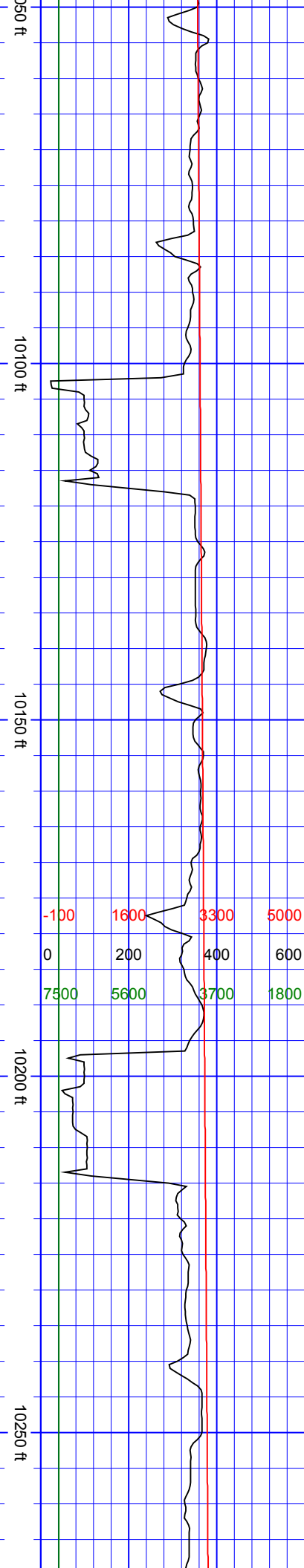


SurveyDepth:9843  
TVD:7111.59 Inc:94.13  
Azi:269.09  
VertSec:2749.86

SurveyDepth:9937  
TVD:7106.01 Inc:92.68  
Azi:268.04  
VertSec:2834.72

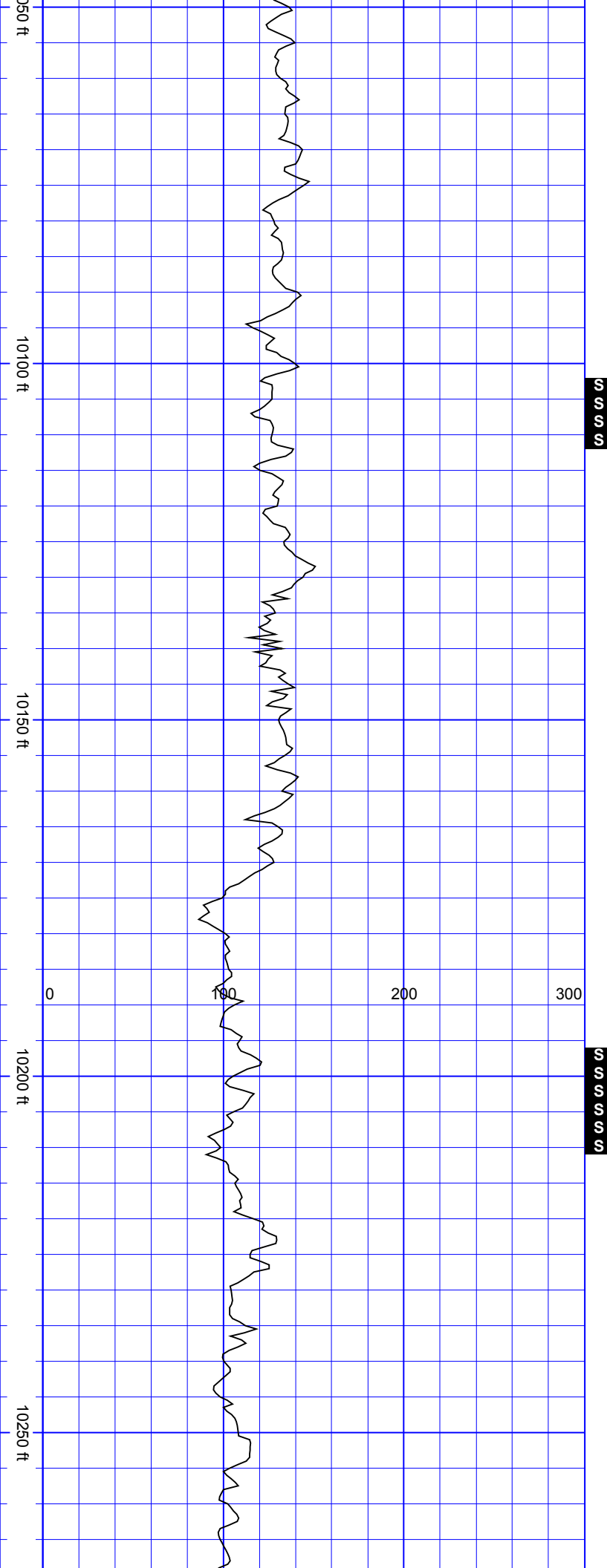
SurveyDepth:10032  
TVD:7102.8 Inc:91.19  
Azi:268.22  
VertSec:2920.29





SurveyDepth:10126  
TVD:7101.57 Inc:90.31  
Azi:269.01  
VertSec:3005.34

SurveyDepth:10221  
TVD:7102.11 Inc:89.03  
Azi:270.76  
VertSec:3092.17



10300 ft

10350 ft

10400 ft

10450 ft

0 100 200 300

SurveyDepth:10315  
TVD:7103.66 Inc:89.08  
Azi:270.32  
VertSec:3178.51

SurveyDepth:10409  
TVD:7104.85 Inc:89.47  
Azi:269.18  
VertSec:3264.34

10300 ft

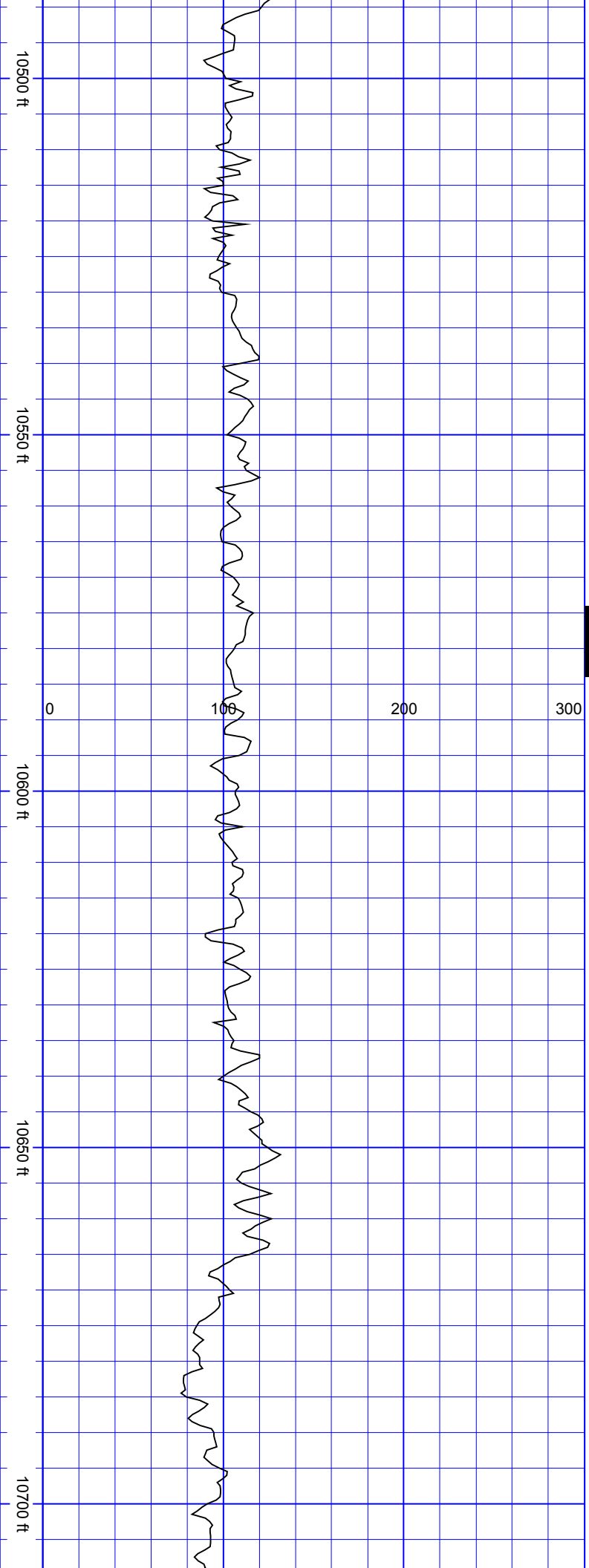
10350 ft

10400 ft

10450 ft

-100	1600	3300	5000
0	200	400	600
7500	5600	3700	1800

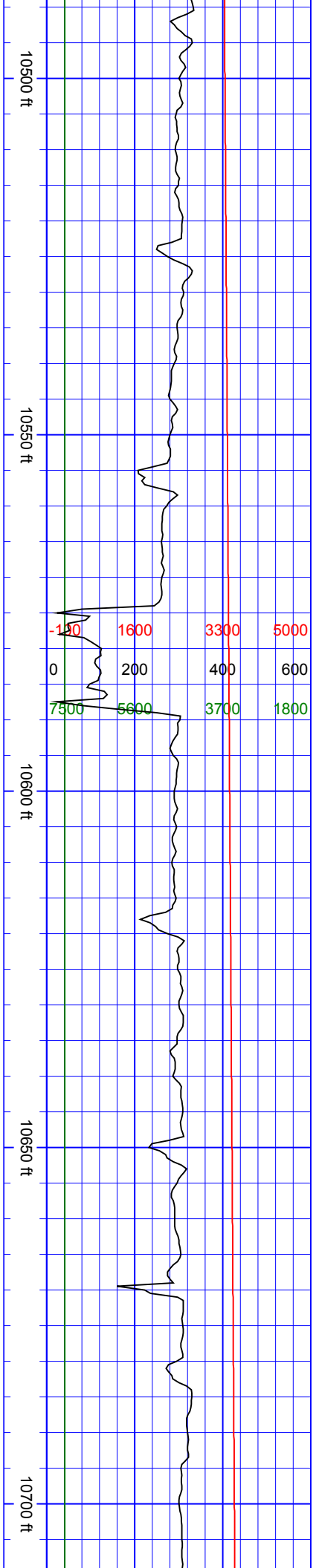


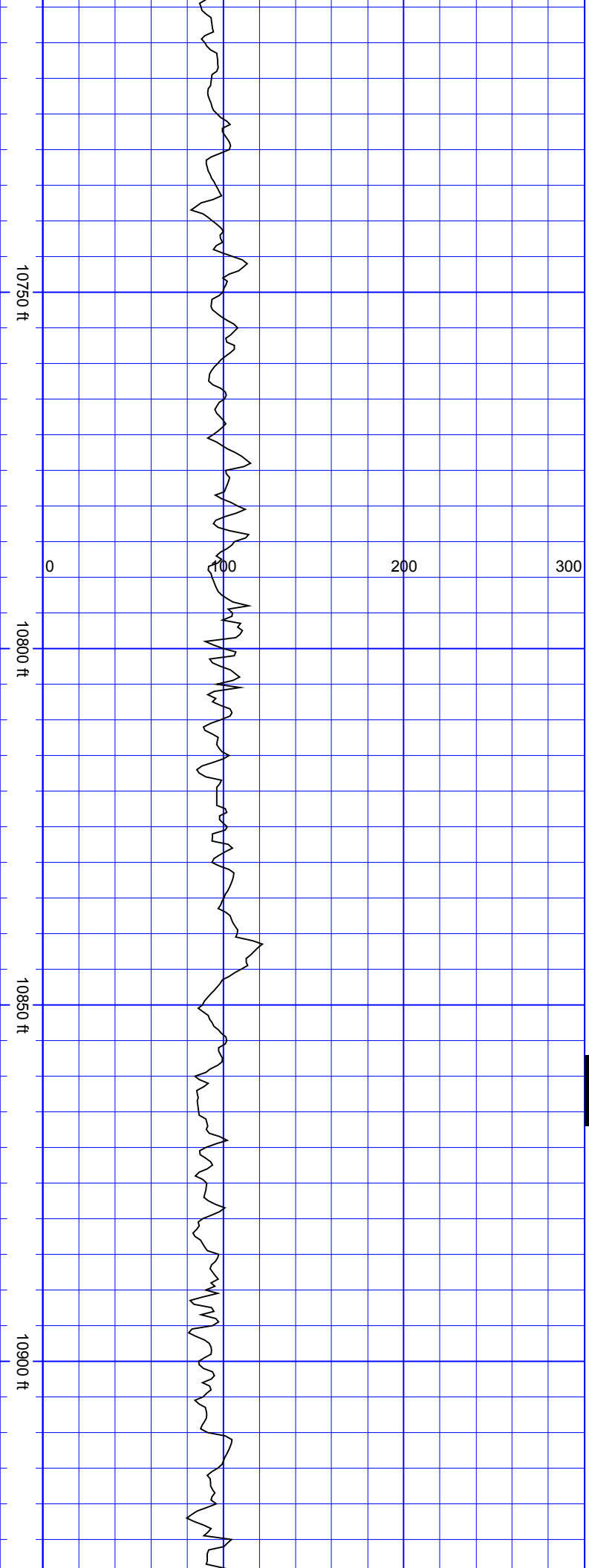


SurveyDepth:10504  
TVD:7105.51 Inc:89.74  
Azi:268.57  
VertSec:3350.48

SurveyDepth:10598  
TVD:7105.87 Inc:89.82  
Azi:269.8  
VertSec:3435.93

SurveyDepth:10693  
TVD:7106.71 Inc:89.17  
Azi:269.36  
VertSec:3522.55

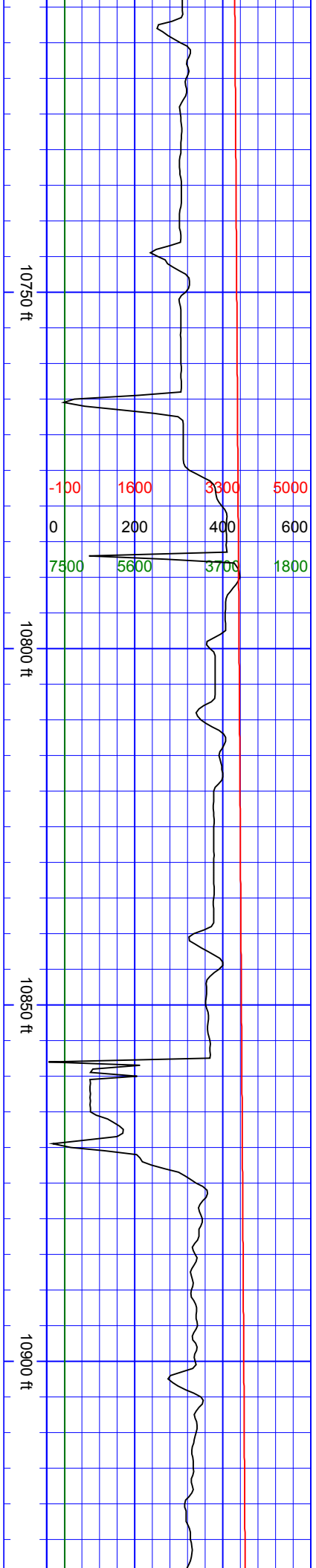


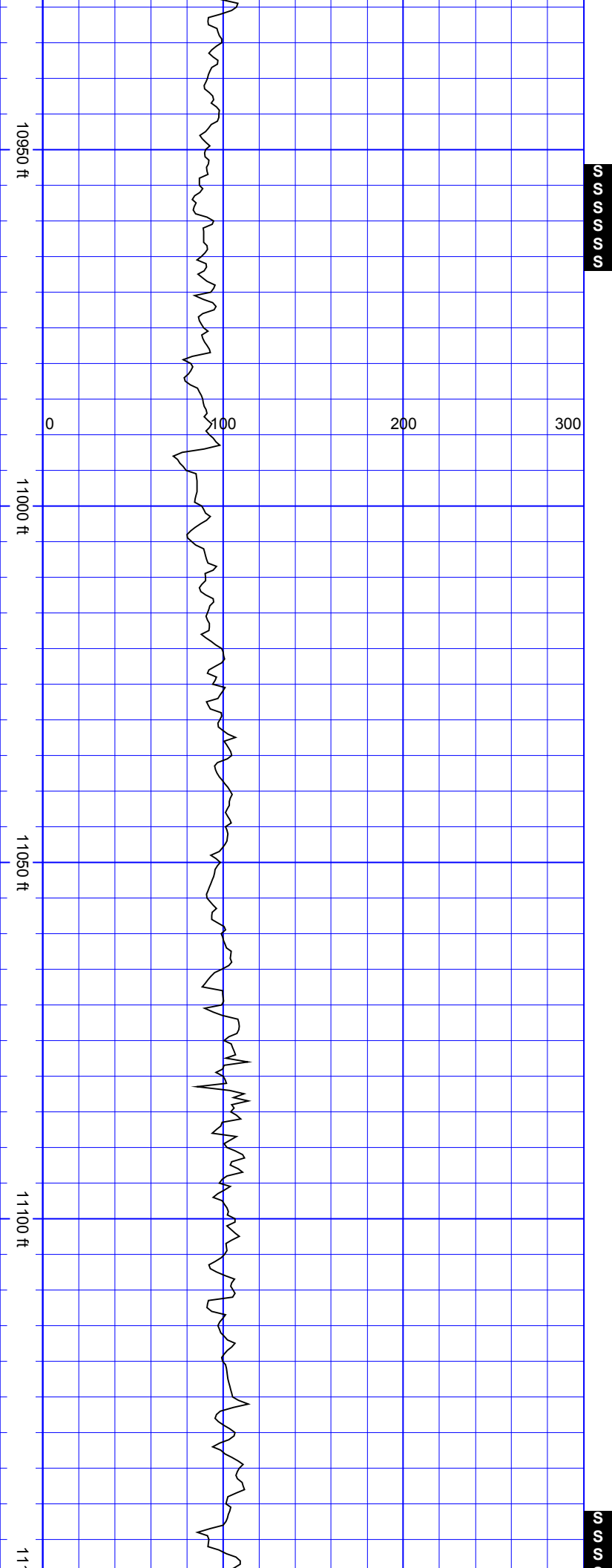


SurveyDepth:10787  
TVD:7107.86 Inc:89.43  
Azi:268.83  
VertSec:3607.94

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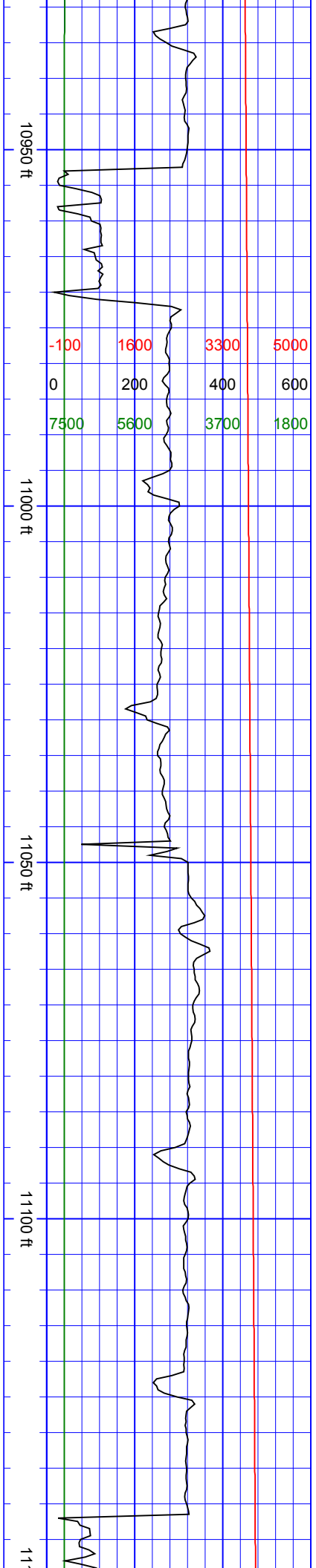
SurveyDepth:10882  
TVD:7108.95 Inc:89.25  
Azi:268.74  
VertSec:3694.01

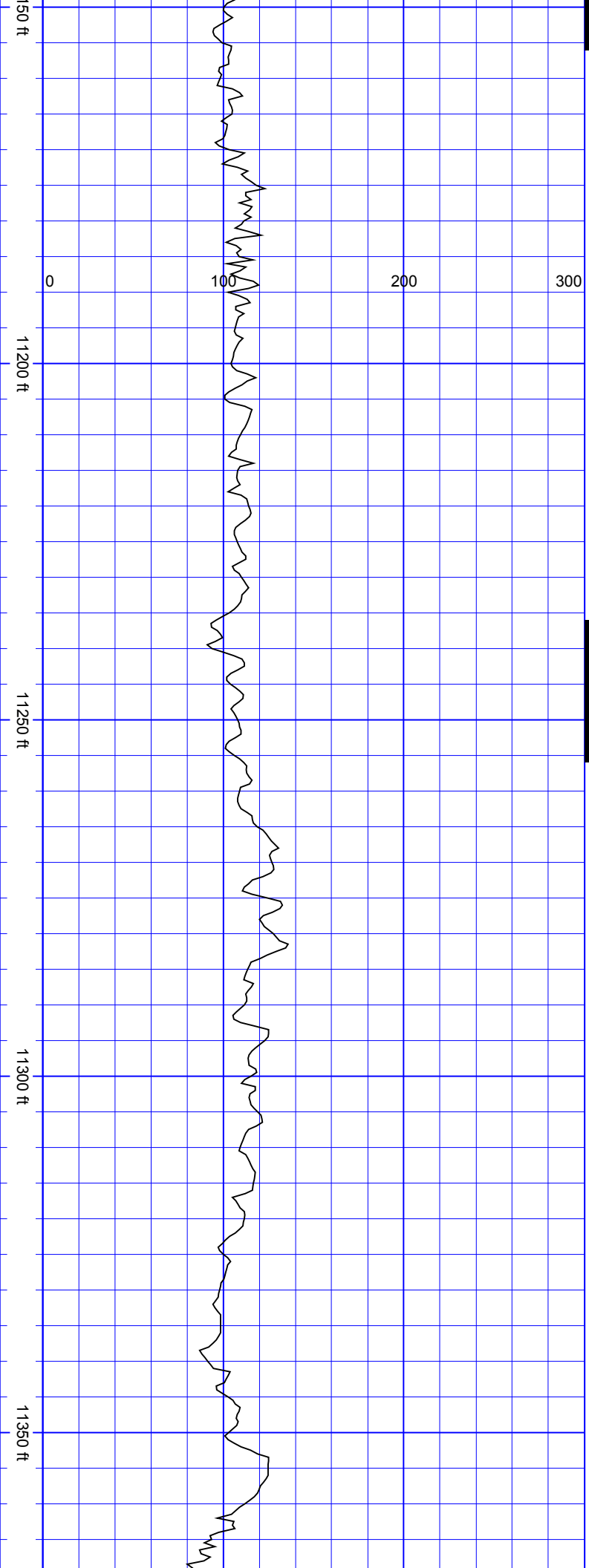




SurveyDepth:10977  
TVD:7110.38 Inc:89.03  
Azi:269.8  
VertSec:3780.42

SurveyDepth:11071  
TVD:7112.03 Inc:88.95  
Azi:269.53  
VertSec:3866.18

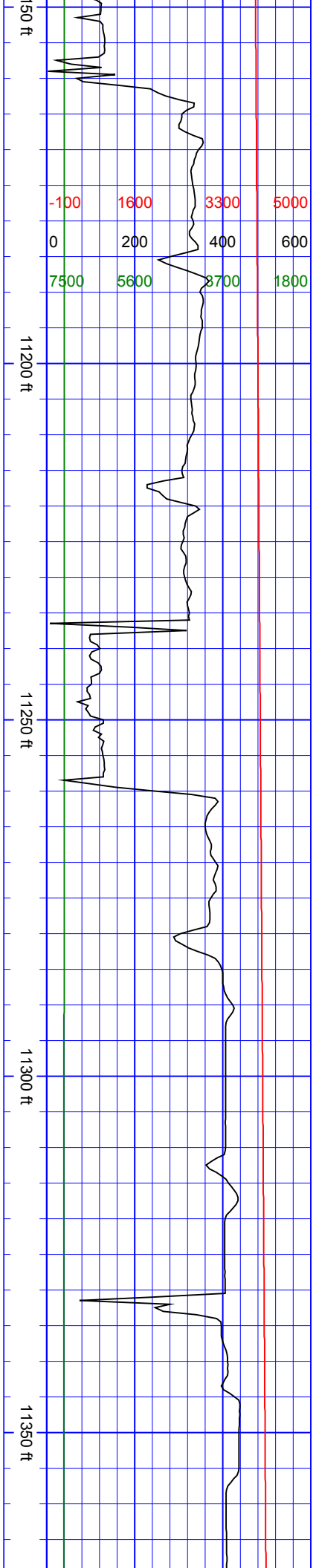


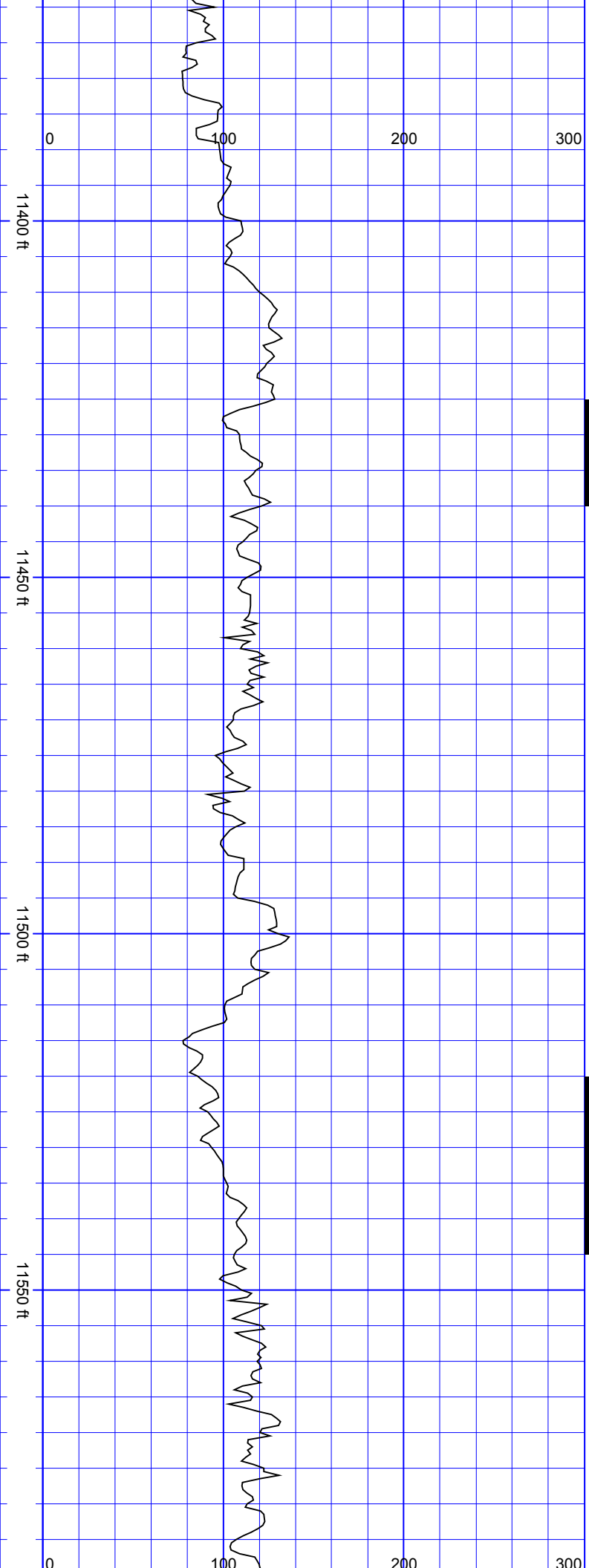


SurveyDepth:11166  
TVD:7114.69 Inc:87.85  
Azi:269.01  
VertSec:3952.57

SurveyDepth:11261  
TVD:7118.43 Inc:87.63  
Azi:270.41  
VertSec:4039.22

SurveyDepth:11355  
TVD:7123.29 Inc:86.44  
Azi:270.24  
VertSec:4125.31



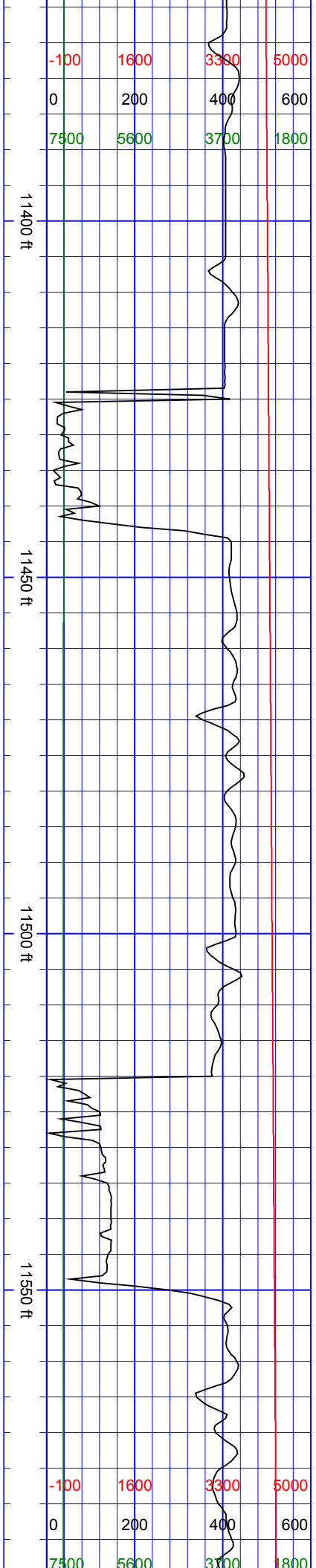


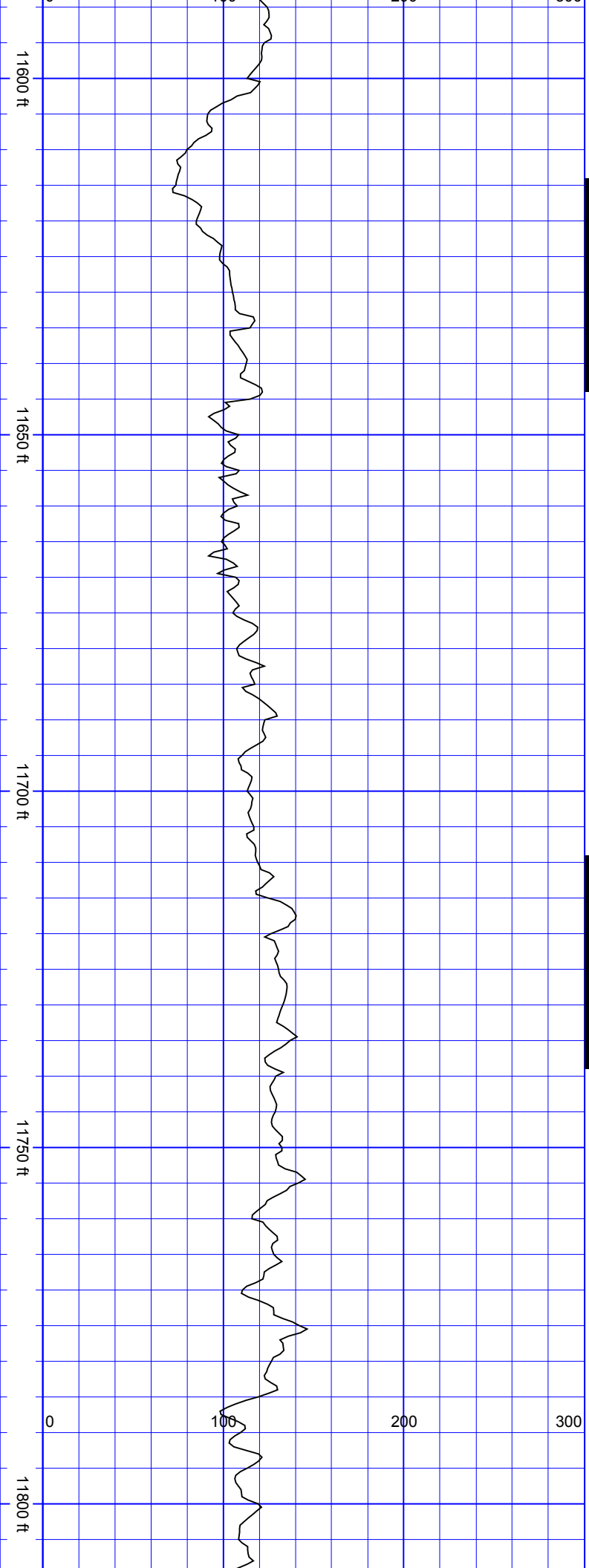
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SurveyDepth:11450  
TVD:7129.85 Inc:85.65  
Azi:269.36  
VertSec:4211.88

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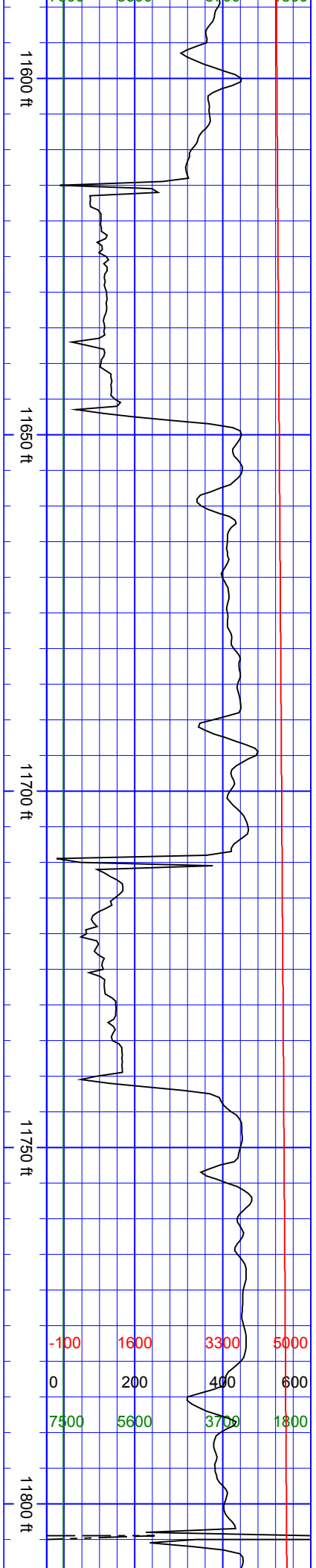
SurveyDepth:11544  
TVD:7136.08 Inc:86.75  
Azi:270.24  
VertSec:4297.56

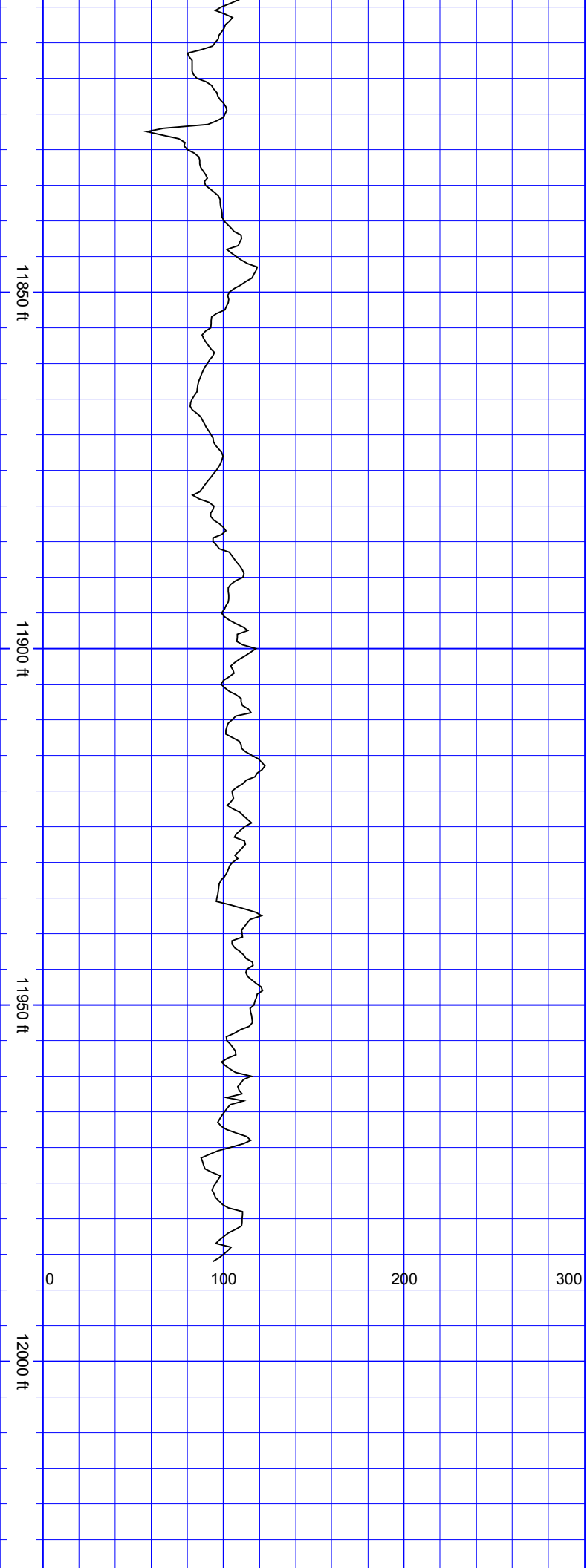




SurveyDepth:11639  
TVD:7139.68 Inc:88.9  
Azi:271.82  
VertSec:4385.08

SurveyDepth:11733  
TVD:7139.32 Inc:91.54  
Azi:271.64  
VertSec:4472.18





SurveyDepth:11828  
TVD:7136.99 Inc:91.27  
Azi:270.85  
VertSec:4559.88

SurveyDepth:11923  
TVD:7135.18 Inc:90.92  
Azi:270.24  
VertSec:4647.14

SurveyDepth:11980  
TVD:7134.3 Inc:90.84  
Azi:270.59  
VertSec:4699.44

