

**Build & Lateral**

Job #: 185186 Well ID: 16190984

Scale: 5" = 100 ft Type: MD

Well Site Information

| | |
|------------------|-------------------------|
| Oil Company | Crestone Peak Resources |
| Surface Location | S4-T1N-R65W |
| Well Name | Ruegge 3H-4H-N165 |
| API | 05-123-46558-00 |
| Field | DJ Wattenburg |
| State | Colorado |
| Country | USA |

Surface Coordinates

| | |
|-------------------|--------------------|
| Well Type | Horizontal |
| Latitude | 40° 4' 31 N |
| Longitude | 104° 40' 15 W |
| N / S Coordinates | 1,271,341.49 us/ft |
| E / W Coordinates | 3,232,021.35 us/ft |
| Azimuth Reference | True North |
| Grid Convergence | 0.54° |

MWD Engineers

| | |
|-------------|----------------|
| Lead Hand | Bob Stahlecker |
| Second Hand | Adrian Loma |

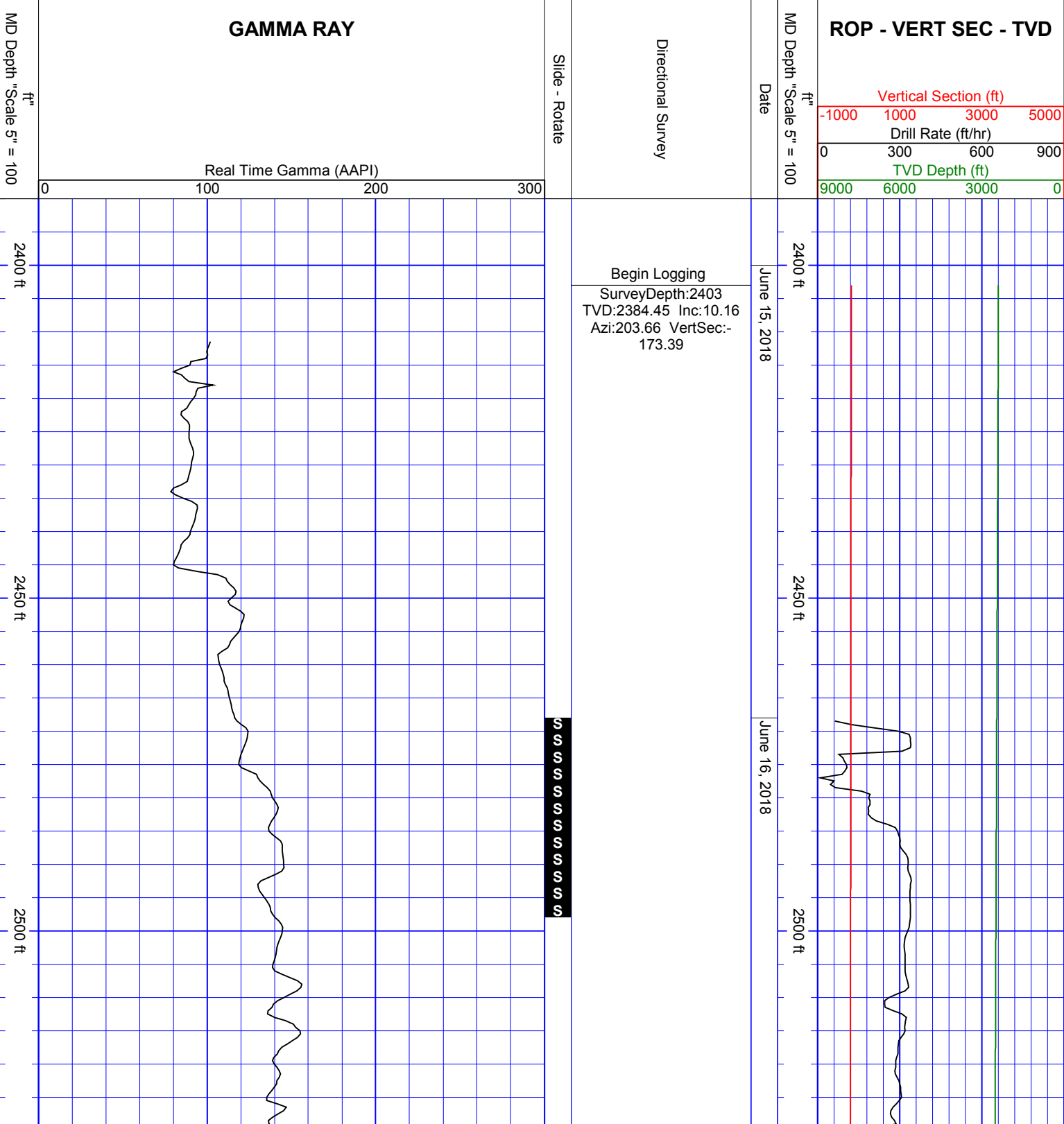
| | | | | | |
|-------------------------------|--------------|-------------------|------------------|--------------|-------------|
| Perm Datum | Ground | Elevation | 4,916.00 ft | | |
| Log depth measured from KB is | 23.00 ft | above perm datum. | KB = 4,939.00 ft | | |
| Total Depth | 12,135.00 ft | Spud Date | Jun/15/2018 | End Date | Jun/18/2018 |
| (MD) Log Interval | Start Depth | 2,411.15 ft | End Depth | 12,135.15 ft | |

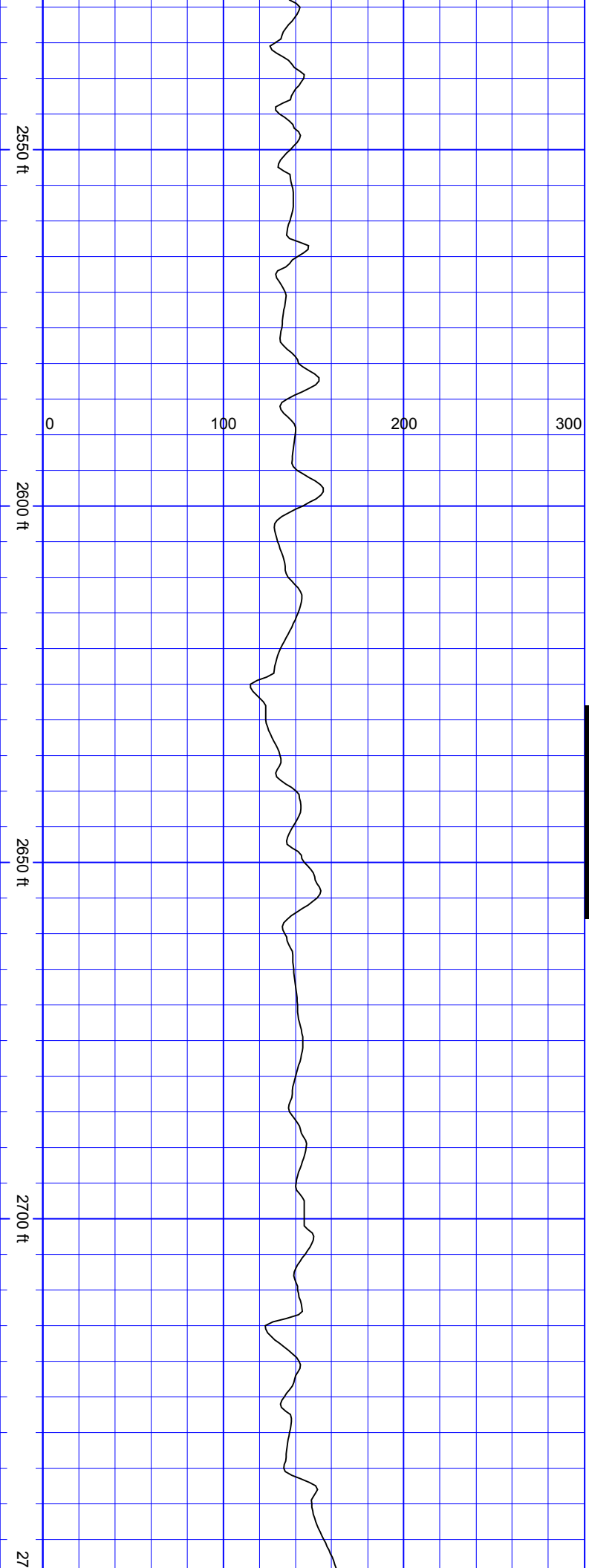
| Bore Hole Record | | | Casing Record | | | | |
|------------------|-------------|--------------|---------------|---------|--------------|---------|--------------|
| Hole Size | From | To | Type | Size | WGT | From | To |
| 13.50 in | 0.00 ft | 2,468.00 ft | L T&C | 9.63 in | 40.00 lbs/ft | 0.00 ft | 2,468.00 ft |
| 8.50 in | 2,468.00 ft | 12,135.00 ft | L T&C | 5.50 in | 20.00 lbs/ft | 0.00 ft | 12,135.00 ft |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| Run Data | | | | | |
|------------------------|----------------------|----------------------|--|--|--|
| Bit Run Number | 1 | 2 | | | |
| Start Date & Time | Jun/15/2018 21:00:00 | Jun/17/2018 08:30:00 | | | |
| End Date & Time | Jun/17/2018 05:00:00 | Jun/18/2018 23:30:00 | | | |
| Run Hours | 32.00 | 39.00 | | | |
| Depth In | 2,468.00 ft | 7,937.00 ft | | | |
| Depth Out | 7,937.00 ft | 12,135.00 ft | | | |
| Total Gamma Correction | 5.40 | 5.40 | | | |
| Gamma to Bit | 59.40 ft | 55.98 ft | | | |
| Resistivity to Bit | - | - | | | |
| Mud Type | Oil Based Mud | Oil Based Mud | | | |
| Density | 9.80 ppg | 9.80 ppg | | | |
| Viscosity | 41.00 sec/qt | 41.00 sec/qt | | | |
| PH | - | - | | | |
| Fluid Loss | 16.80 cc | 16.80 cc | | | |
| K+ ppm | - | - | | | |
| CL- ppm | 238,409.00 ppm | 238,409.00 ppm | | | |
| Max Mud Temp | 225.00 °F | 240.00 °F | | | |
| Mud Report Depth | 7,937.00 ft | 12,135.00 ft | | | |

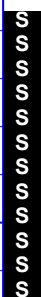
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|---------|
| Remarks |
|---------|

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.

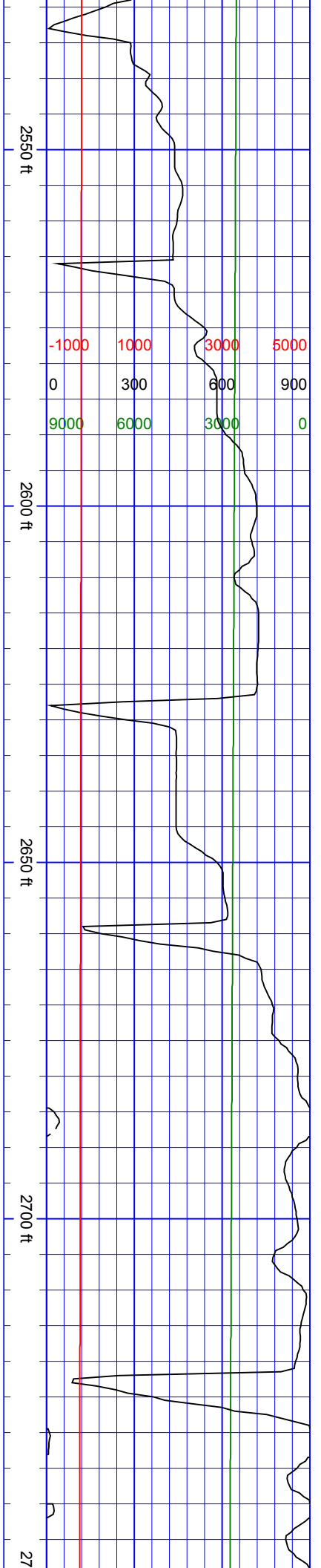


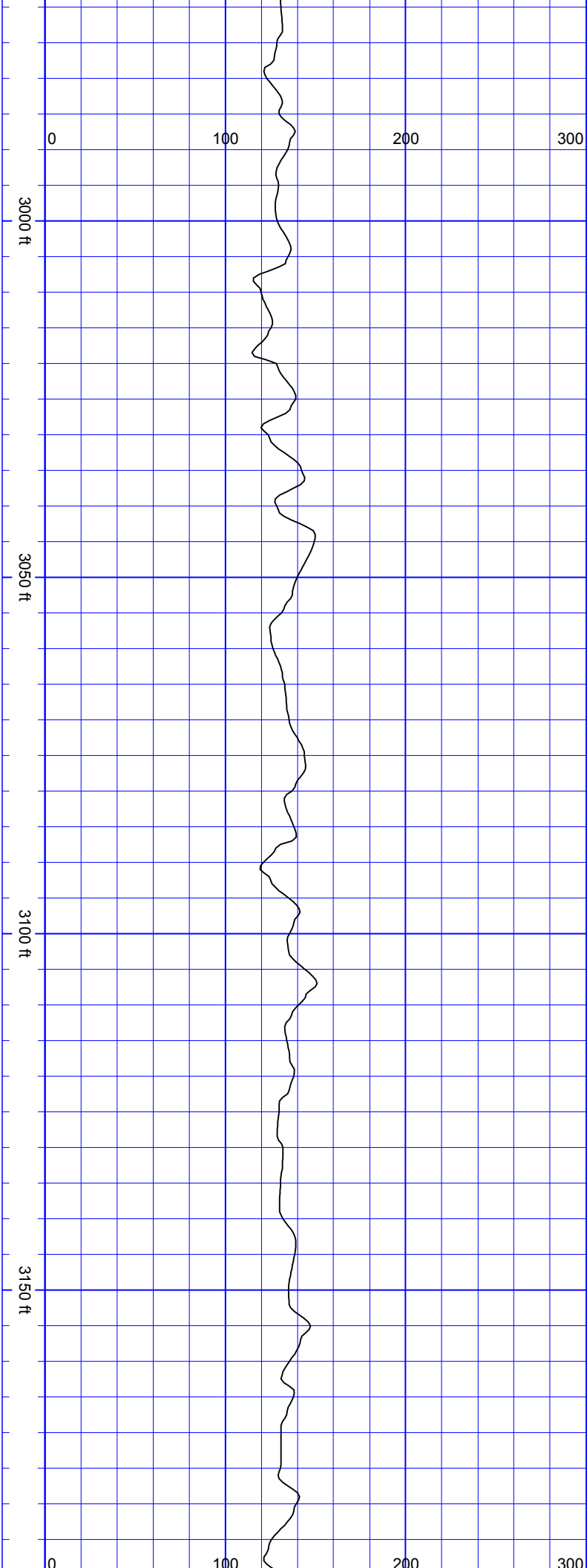


SurveyDepth:2563
TVD:2541.63 Inc:11.38
Azi:199.77 VertSec:-
201.26



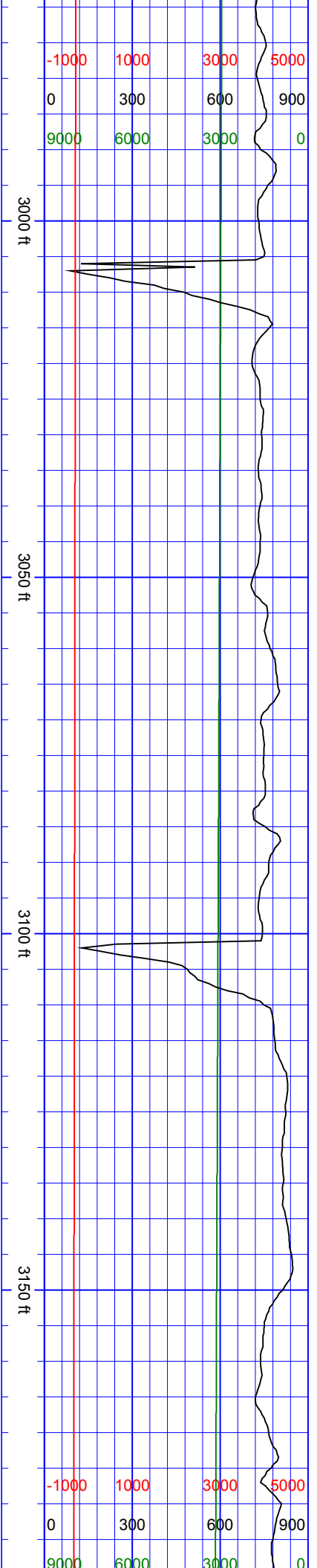
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TVD:2633.43 Inc:13.45
Azi:202.94 VertSec:-
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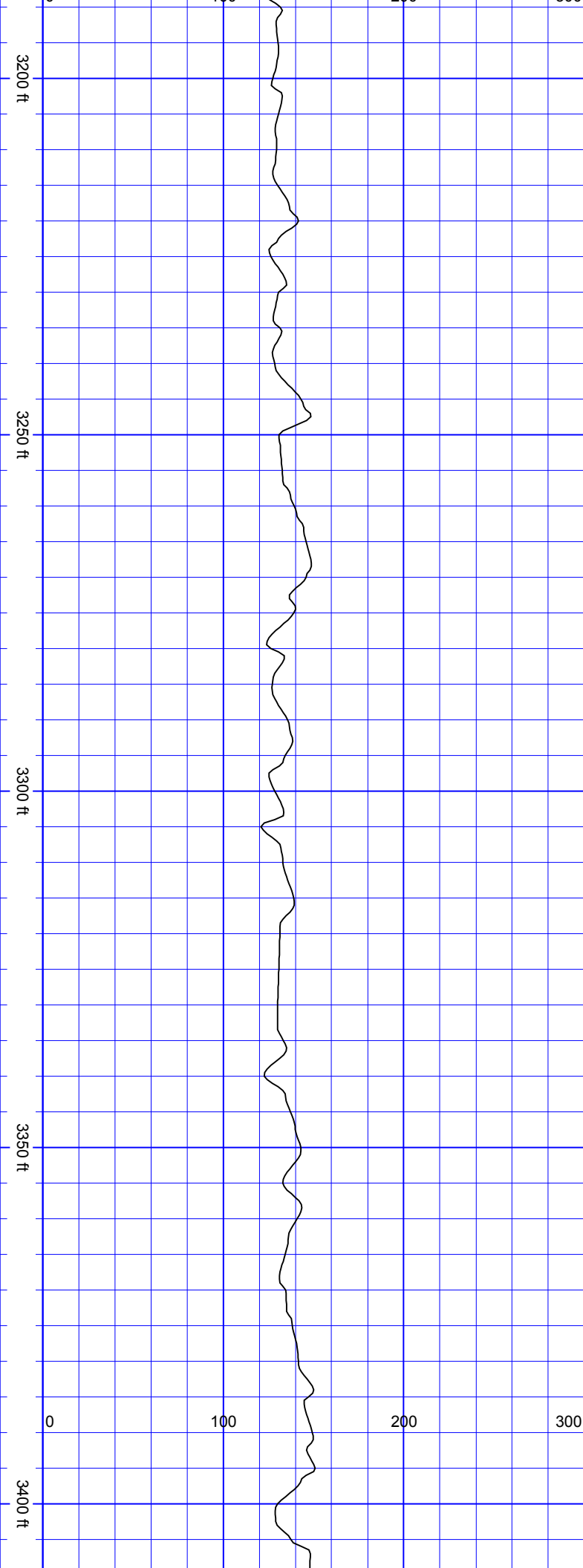




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TVD:3001.2 Inc:14.46
Azi:209 VertSec:-296.91

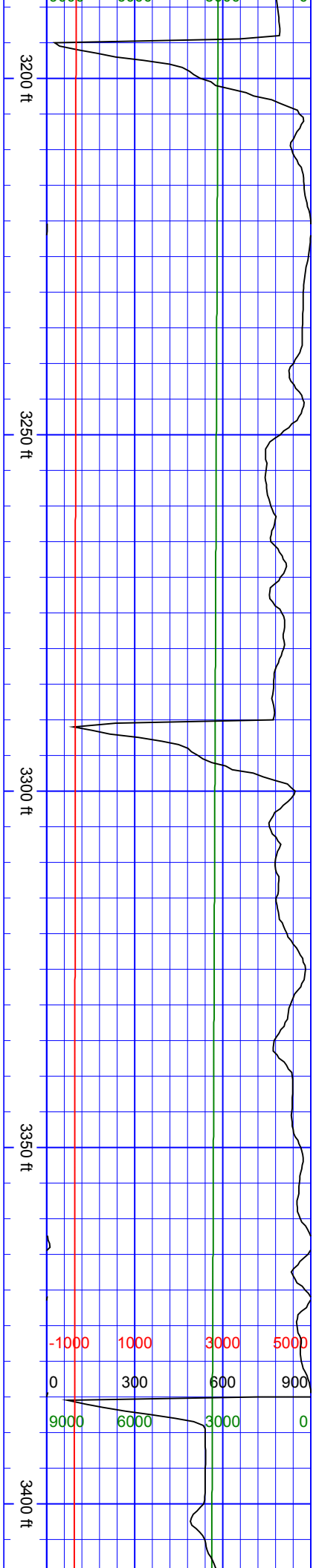
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TVD:3093.5 Inc:12.88
Azi:208.91 VertSec:-316.64

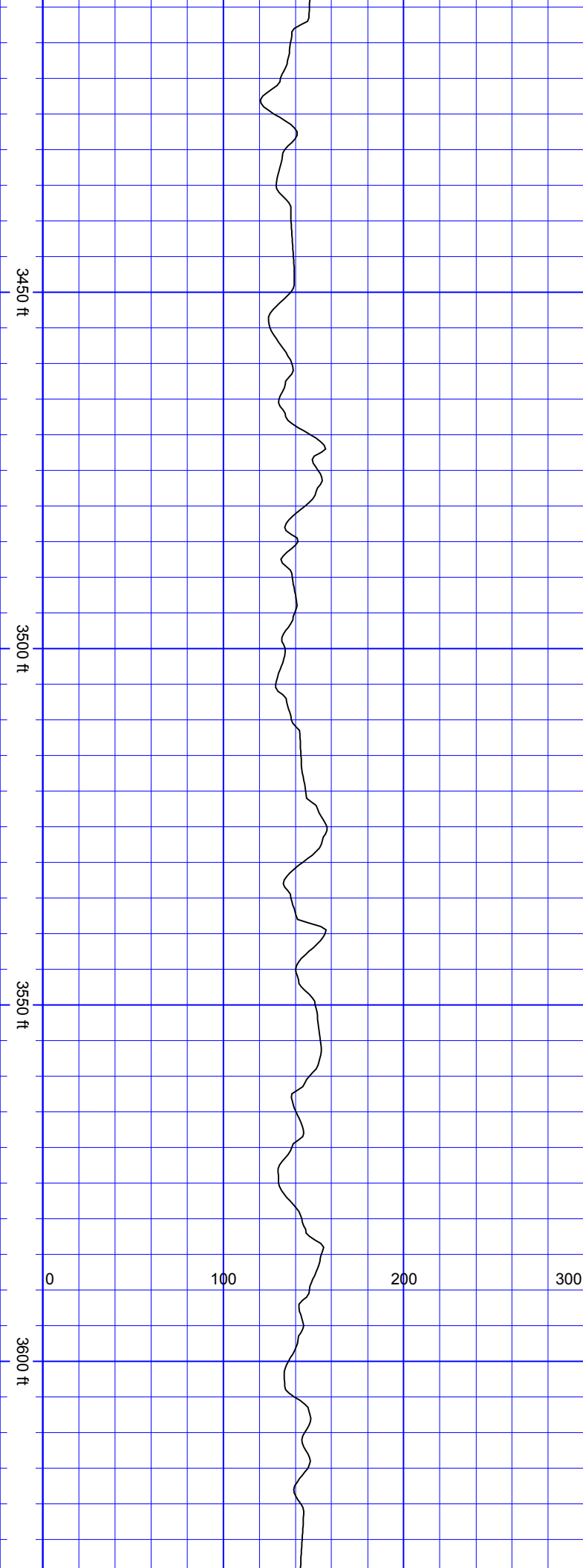




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TVD:3186.35 Inc:11.56
Azi:207.42 VertSec:-
334.44

SurveyDepth:3319
TVD:3278.7 Inc:9.93
Azi:206.19 VertSec:-
350.14





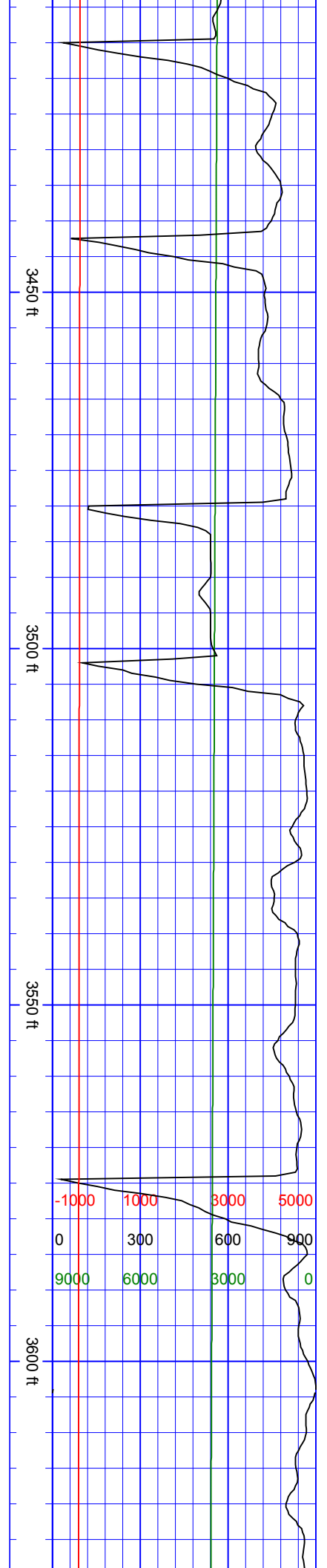
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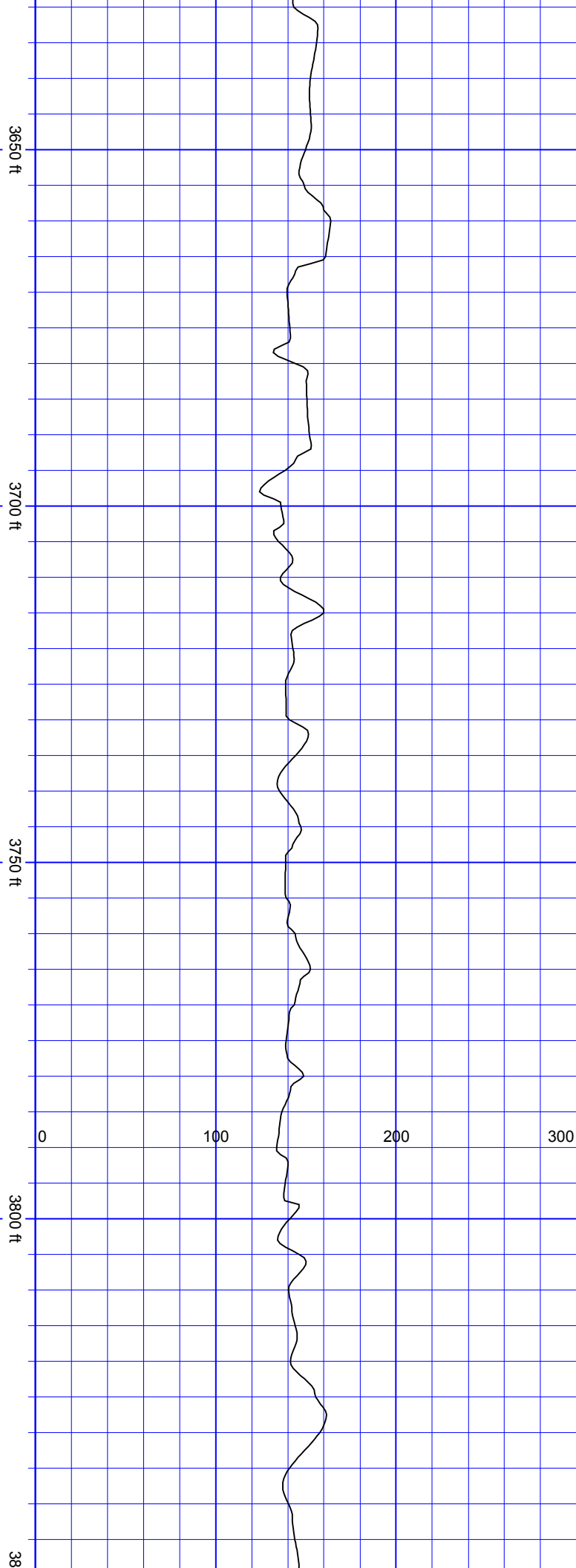
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TVD:3371.98 Inc:11.87
Azi:202.85 VertSec:-366.56

SSSSSSSS

SurveyDepth:3509
TVD:3464.87 Inc:12.44
Azi:215.68 VertSec:-383.95

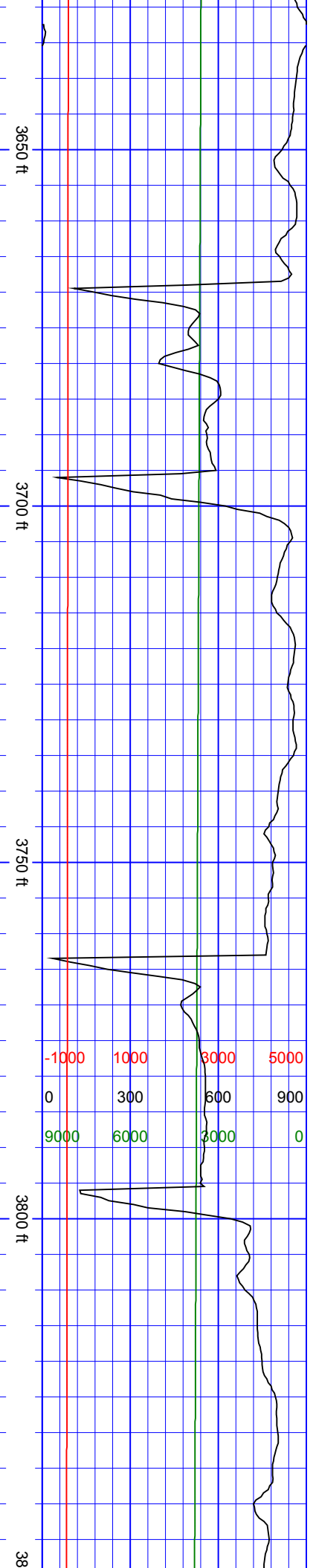
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TVD:3557.01 Inc:10.33
Azi:214.63 VertSec:-399.2

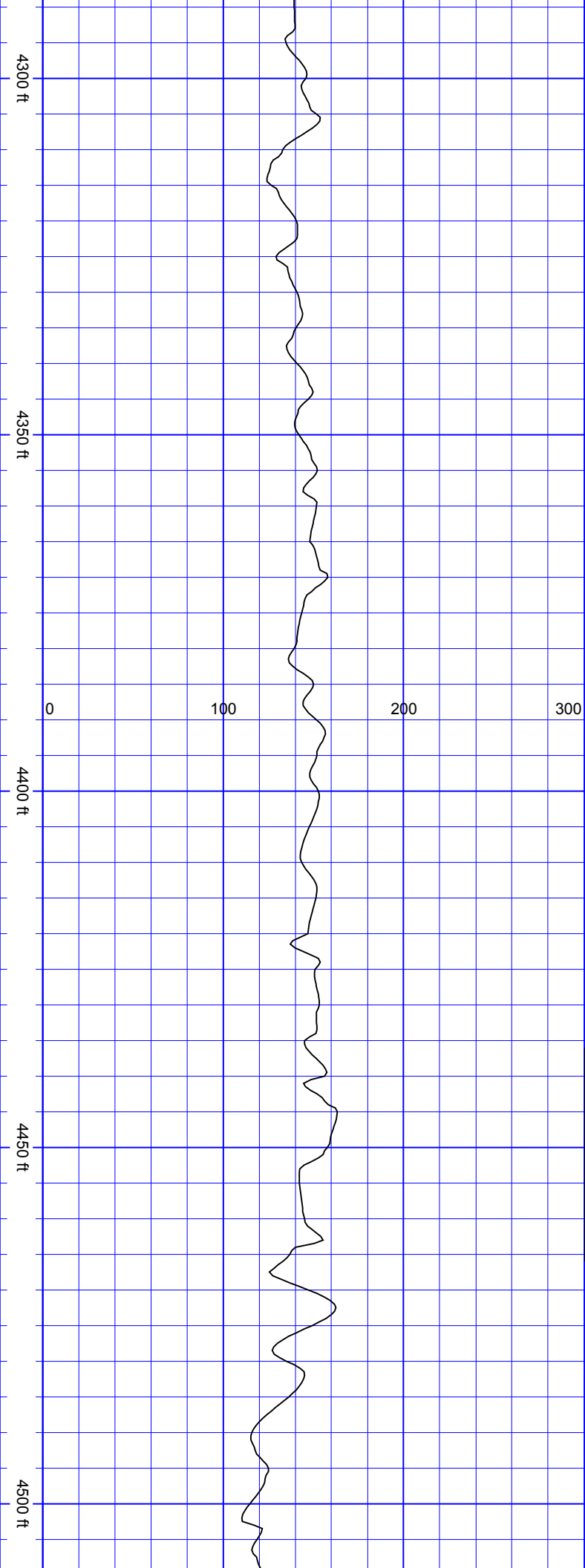




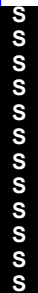
SurveyDepth:3698
TVD:3650.59 Inc:9.58
Azi:205.75 VertSec:-
413.4

SurveyDepth:3792
TVD:3742.97 Inc:11.73
Azi:196.61 VertSec:-
429.65

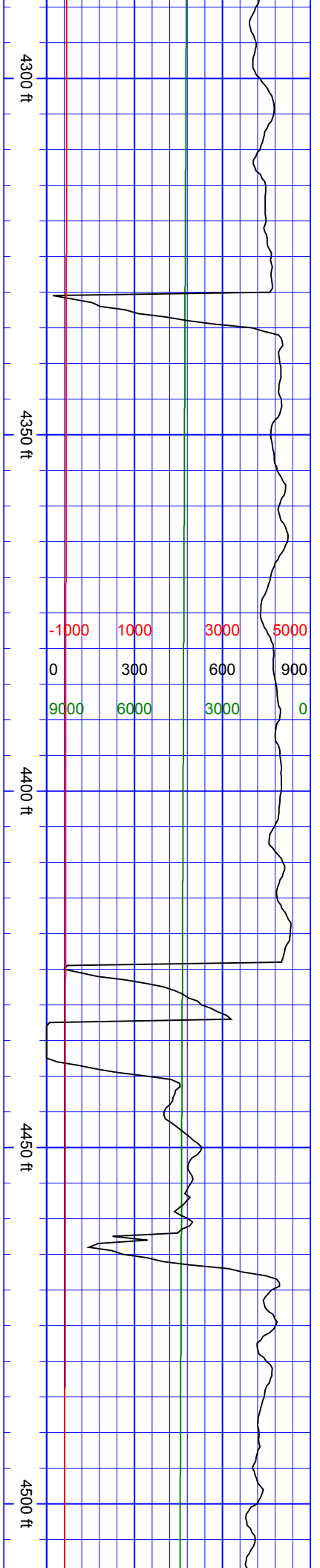


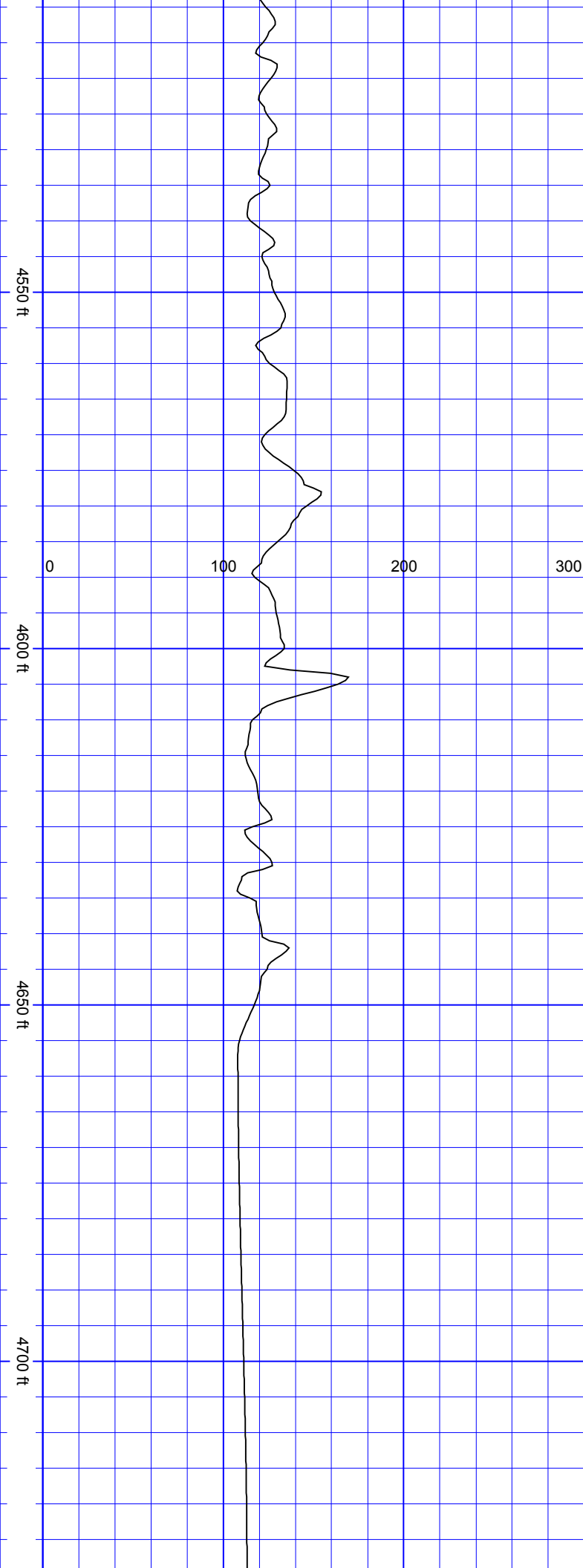


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TVD:4305.23 Inc:13.14
Azi:199.68 VertSec:-
556.76

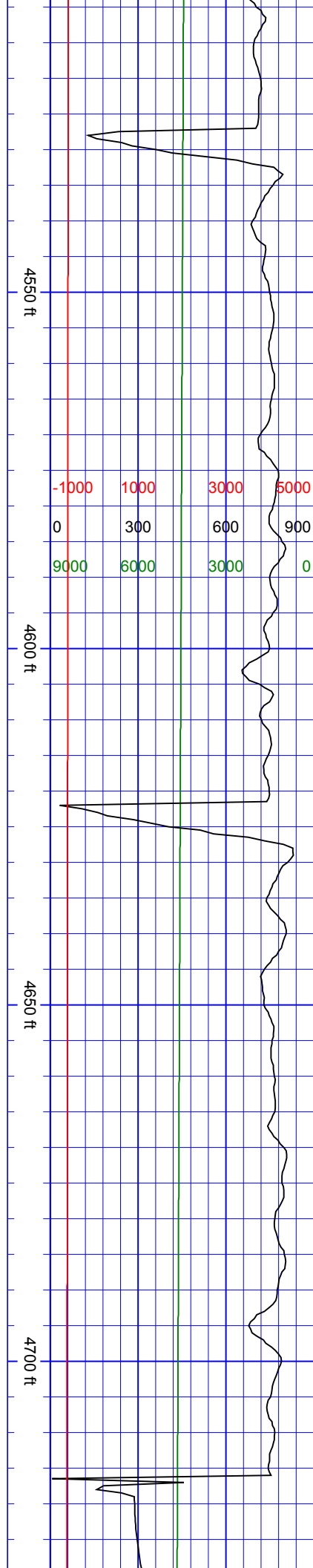


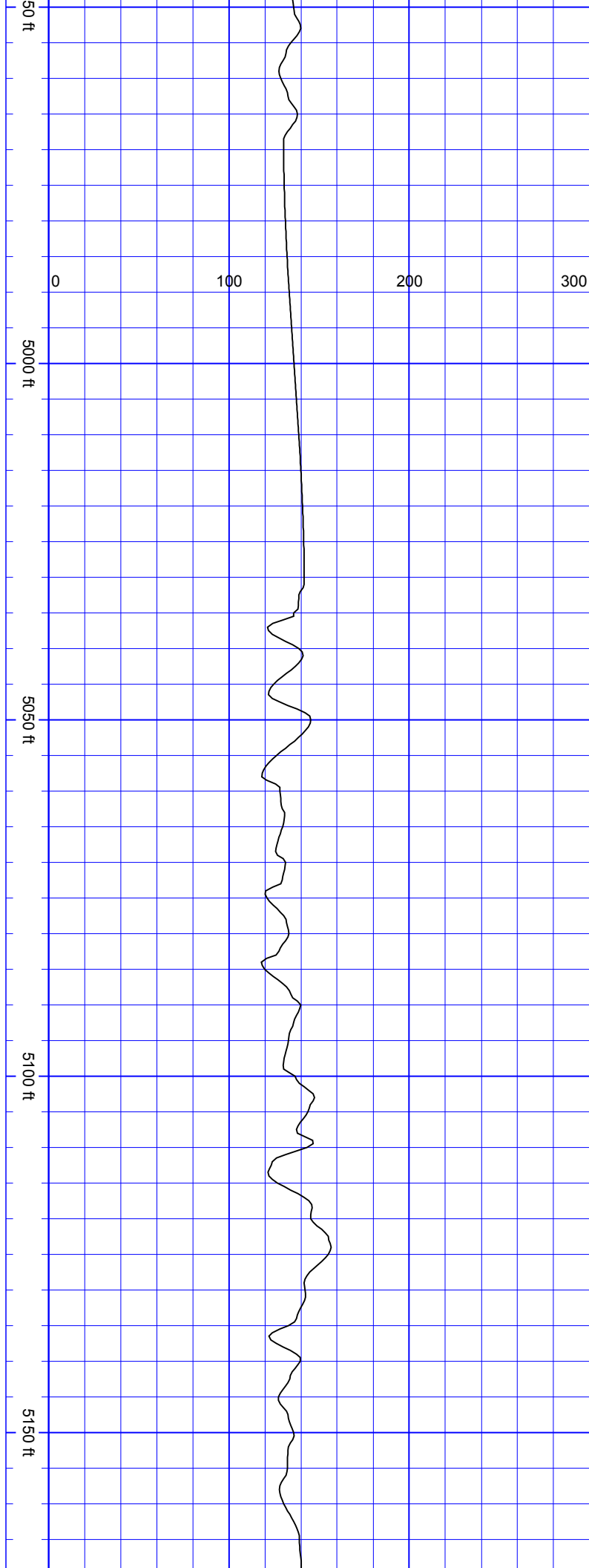
SurveyDepth:4465
TVD:4397.04 Inc:11.69
Azi:209.35 VertSec:-
575.19





| | |
|---|---|
| SurveyDepth:4561 TVD:4491.16 Inc:11.03 Azi:212.78 VertSec:-591.47 | SurveyDepth:4655 TVD:4583.55 Inc:10.15 Azi:212.96 VertSec:-606.05 |
|---|---|

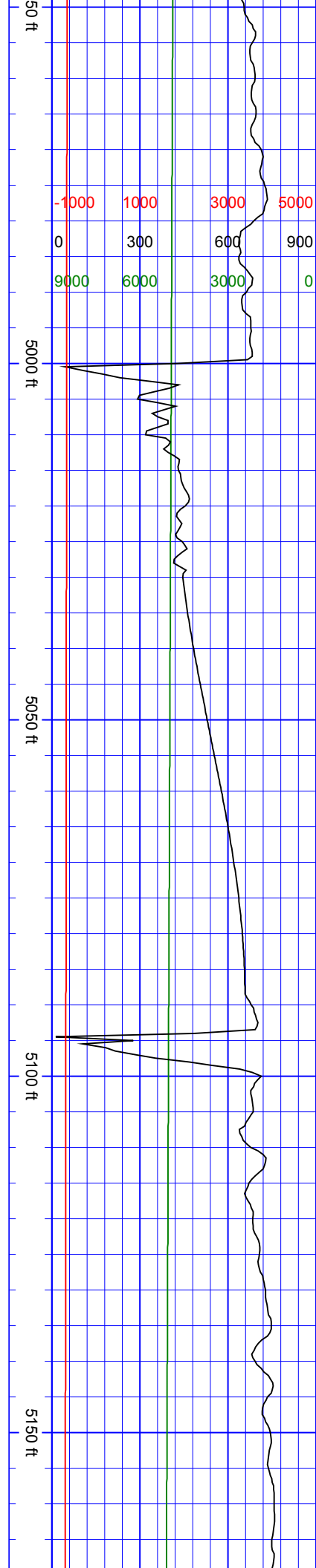


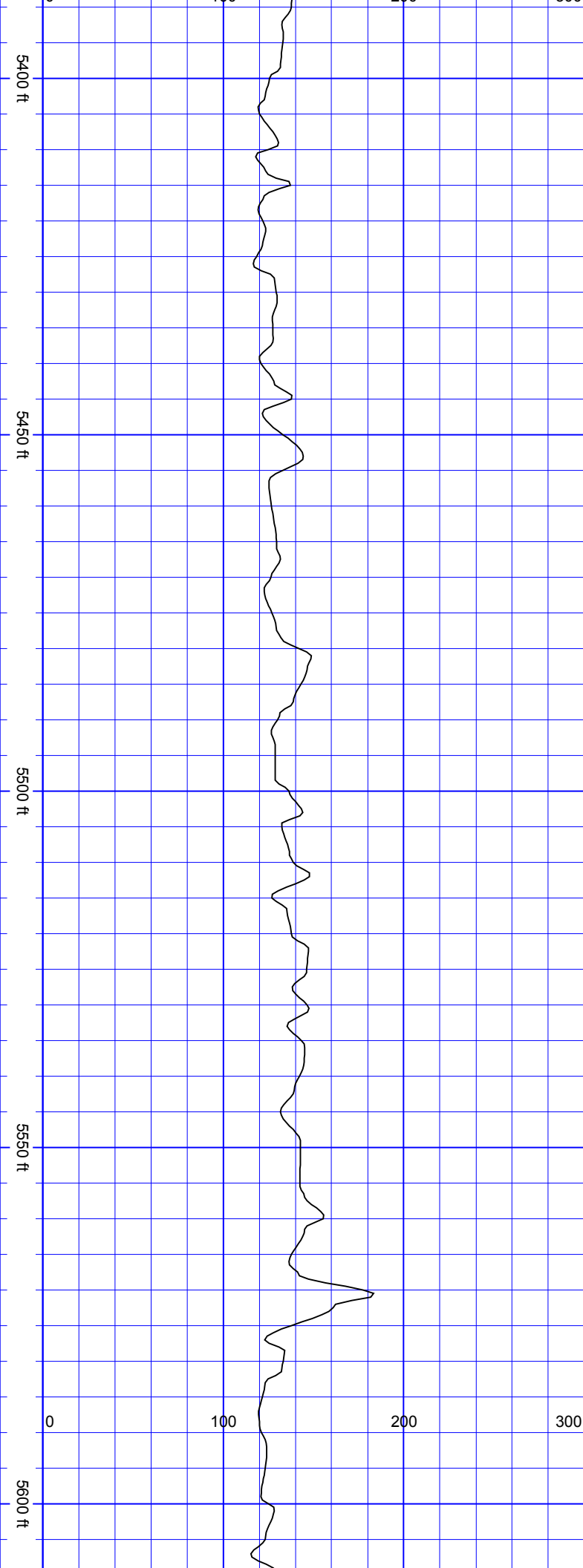


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SurveyDepth:5034
TVD:4955.97 Inc:13.45
Azi:212.96 VertSec:-
665.23

SurveyDepth:5129
TVD:5048.55 Inc:12.44
Azi:208.82 VertSec:-
683.55

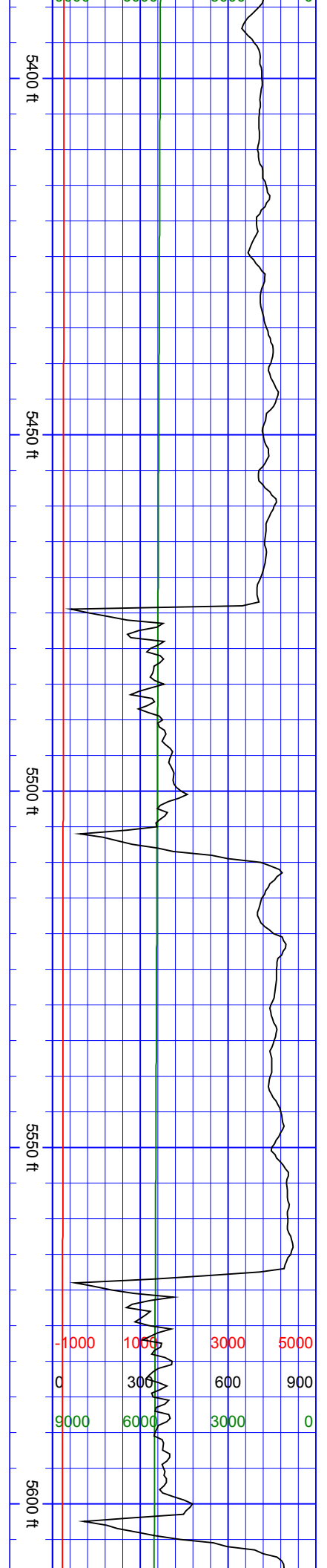




SurveyDepth:5413
TVD:5325.9 Inc:10.85
Azi:209.97 VertSec:-736

SurveyDepth:5507
TVD:5418.18 Inc:11.16
Azi:206.89 VertSec:-751.85

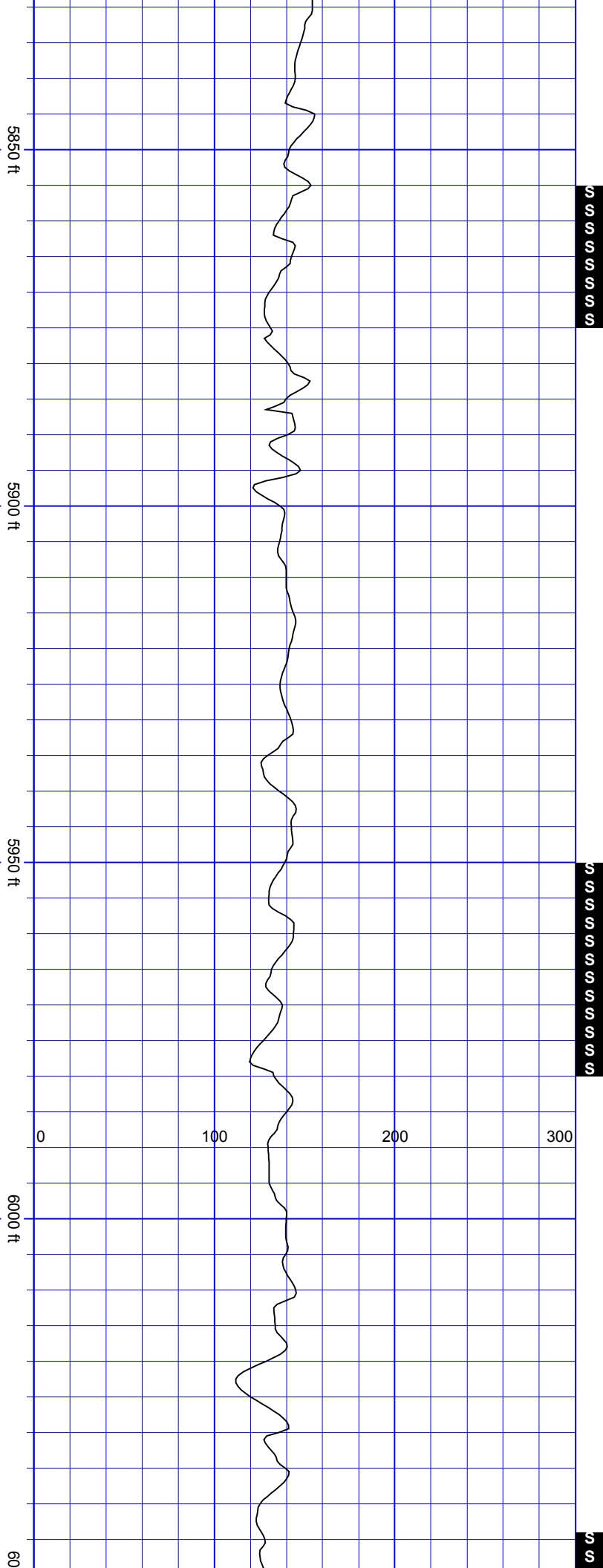
SurveyDepth:5601
TVD:5510.14 Inc:12.7
Azi:206.63 VertSec:-



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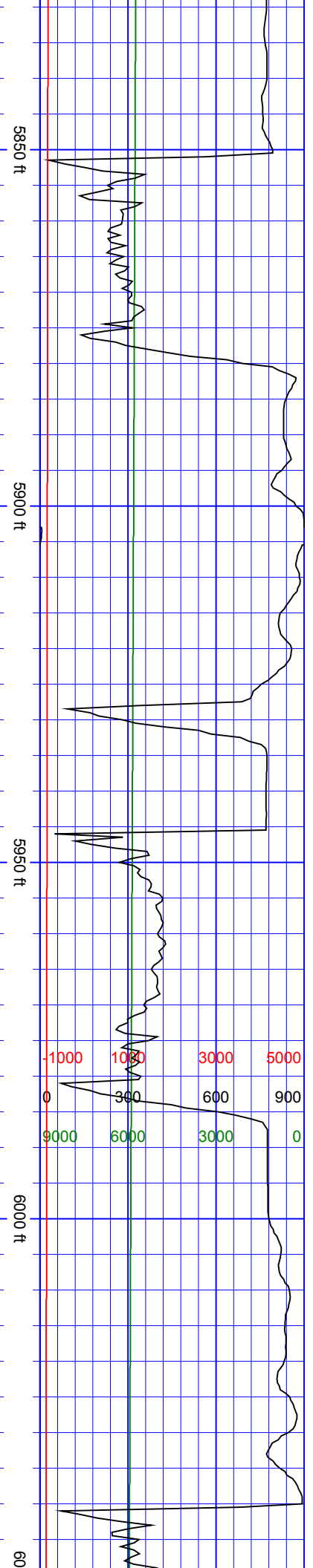
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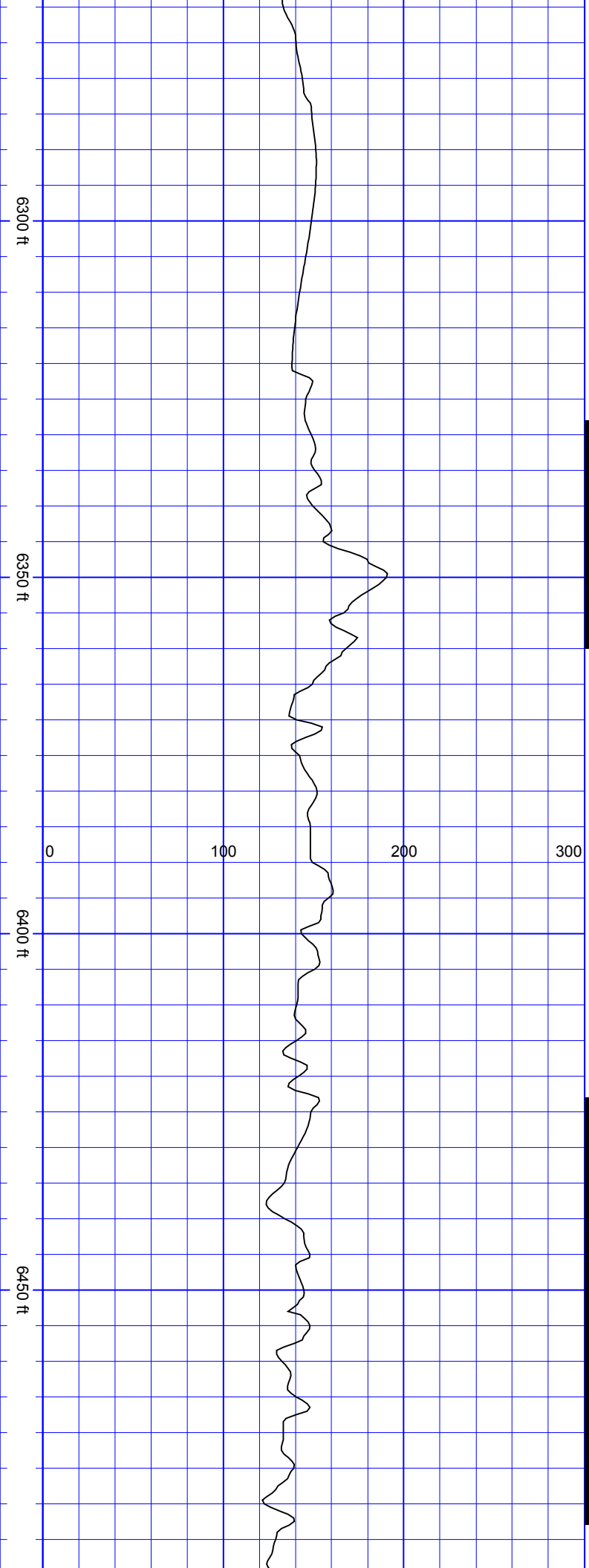
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SurveyDepth:5885
TVD:5786.71 Inc:13.4
Azi:209.09 VertSec:-
824.83

SurveyDepth:5979
TVD:5878.33 Inc:12.48
Azi:215.86 VertSec:-
842.68

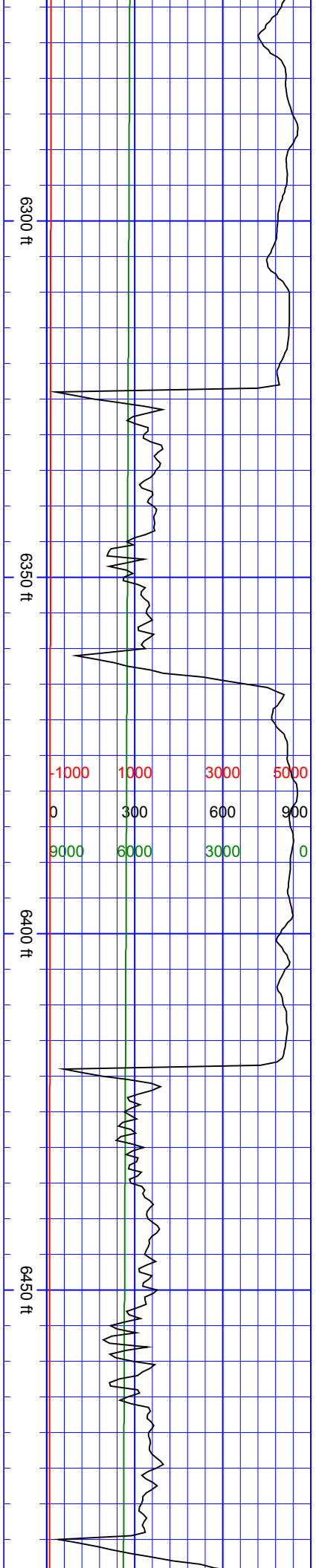


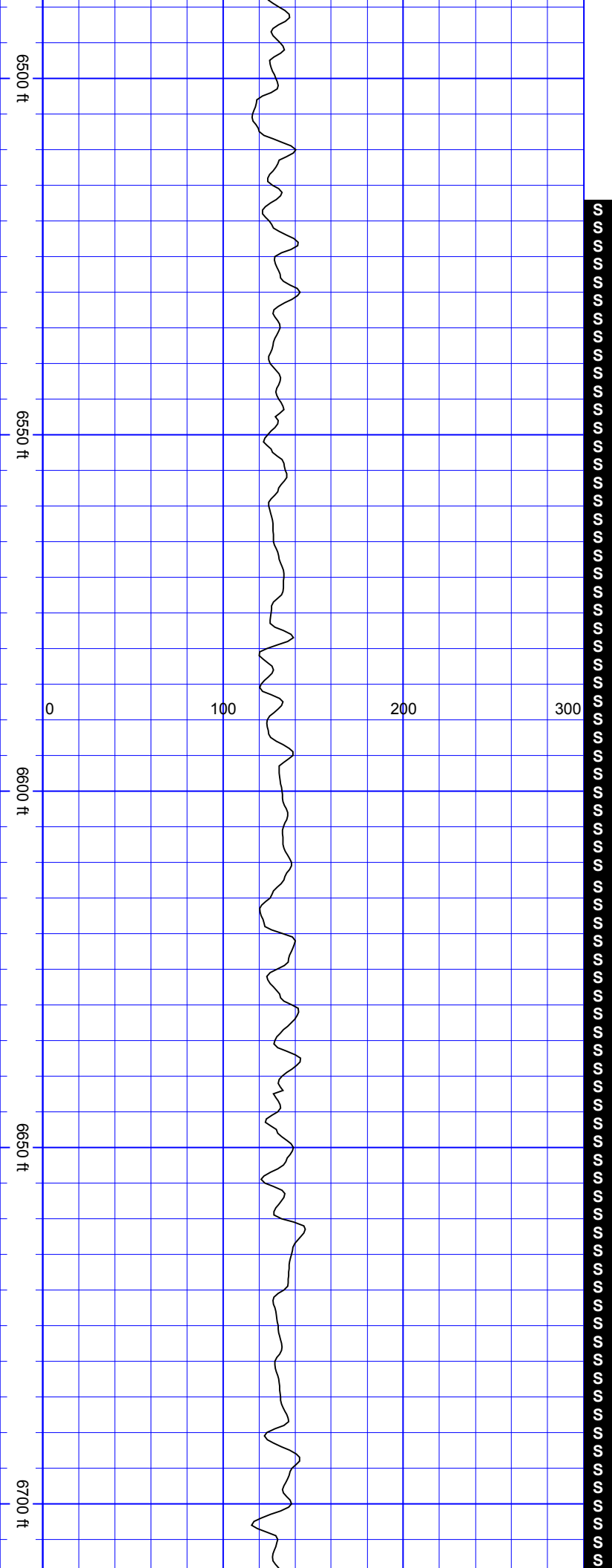


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TVD:6248.57 Inc:11.87
Azi:203.2 VertSec:-
913.18



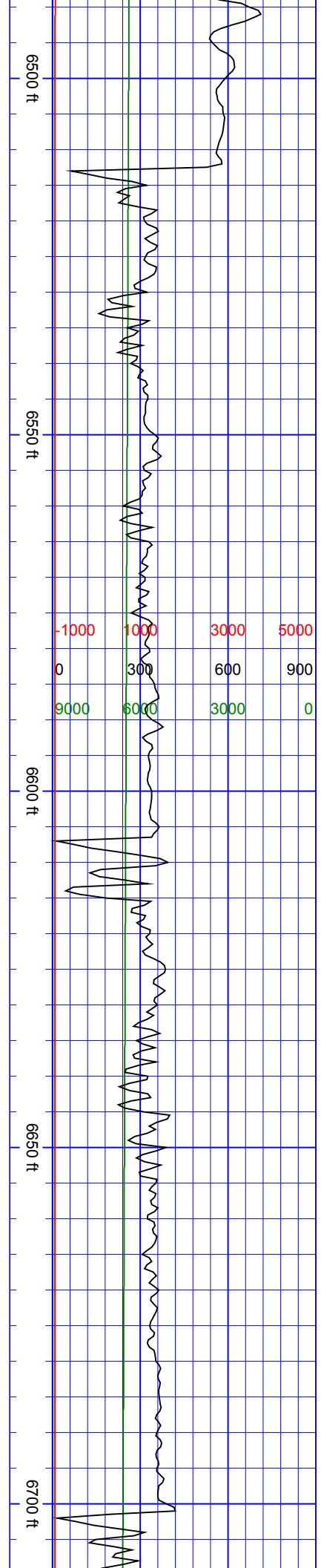
SurveyDepth:6452
TVD:6340.61 Inc:11.65
Azi:216.65 VertSec:-
929.76





SurveyDepth:6547
TVD:6433.46 Inc:13.14
Azi:241.08 VertSec:-942.81

SurveyDepth:6642
TVD:6525.15 Inc:18.11
Azi:279.14 VertSec:-945.89



6750 ft

6800 ft

6850 ft

6900 ft

0 100 200 300

SurveyDepth:6736
TVD:6613.81 Inc:21.45
Azi:308.4 VertSec:-
933.09

SurveyDepth:6831
TVD:6702.92 Inc:20.17
Azi:341.72 VertSec:-
906.81

SurveyDepth:6926

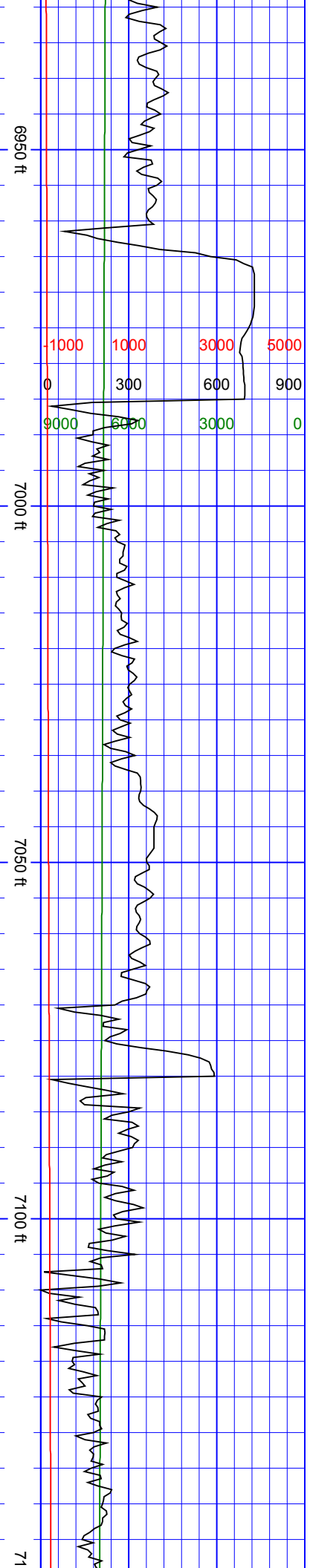
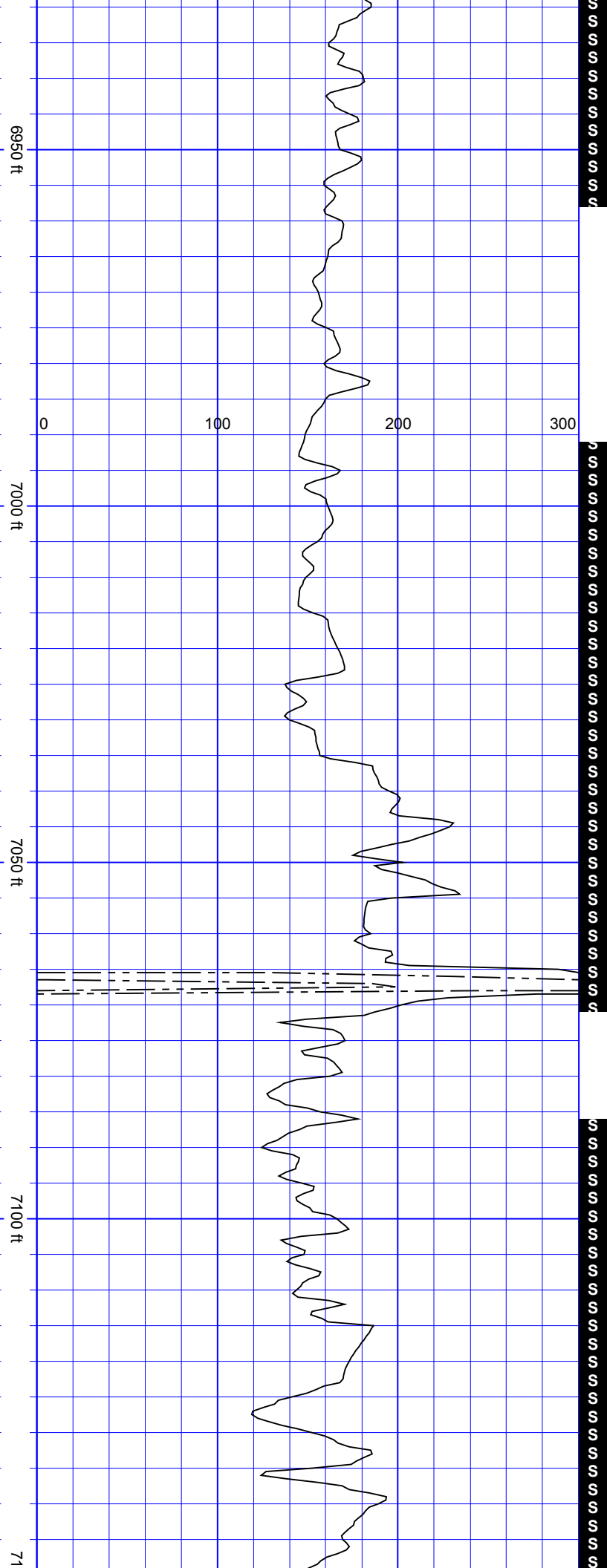
6750 ft

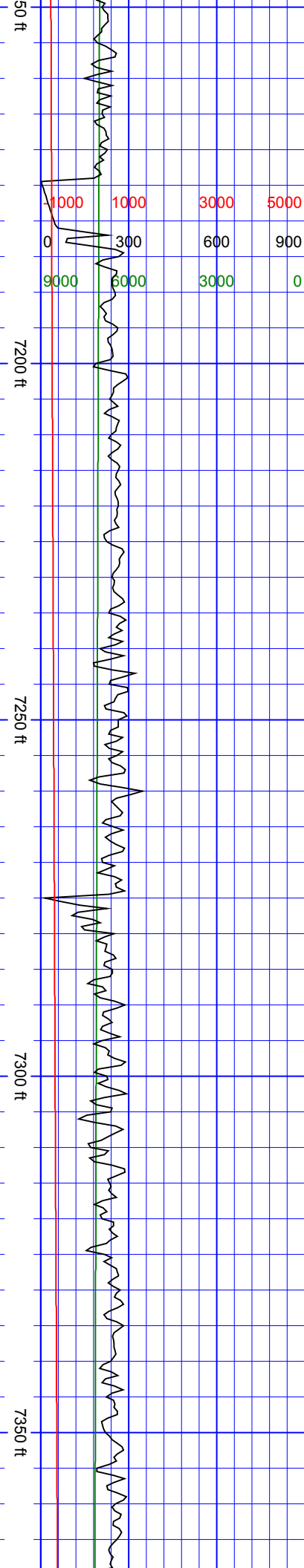
6800 ft

6850 ft

6900 ft

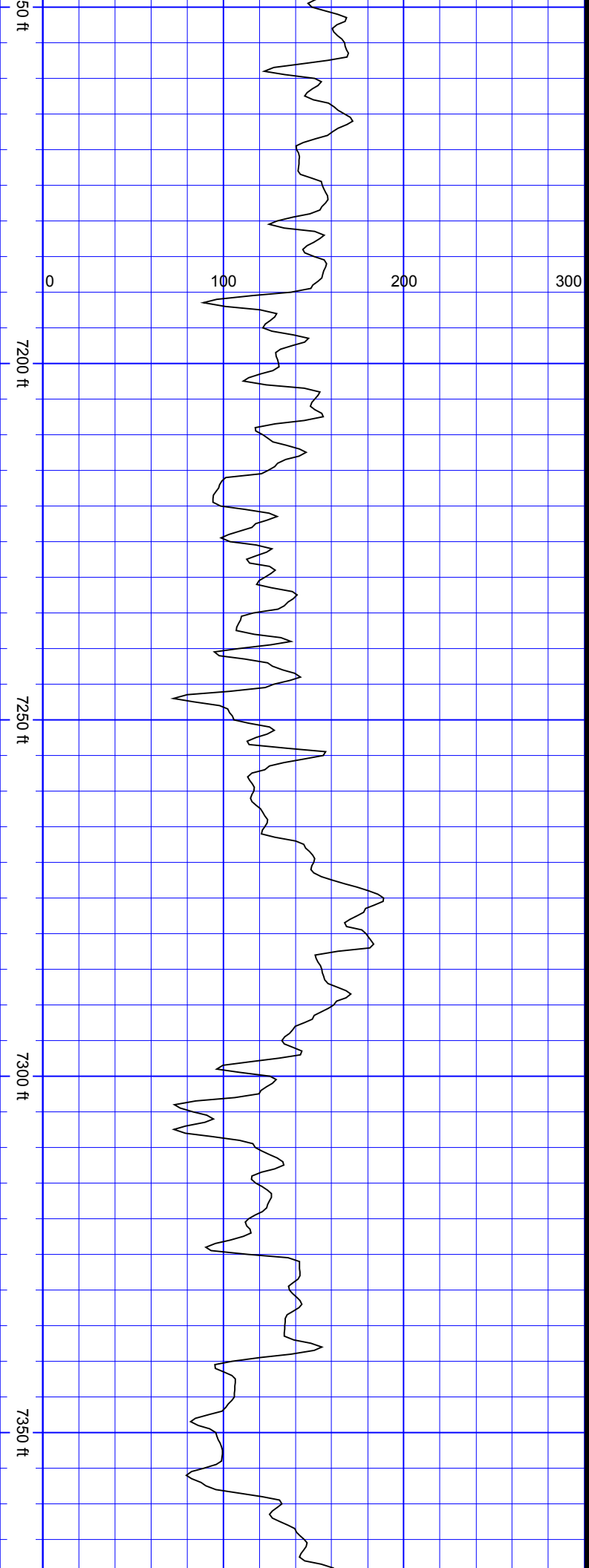
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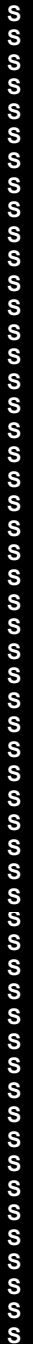
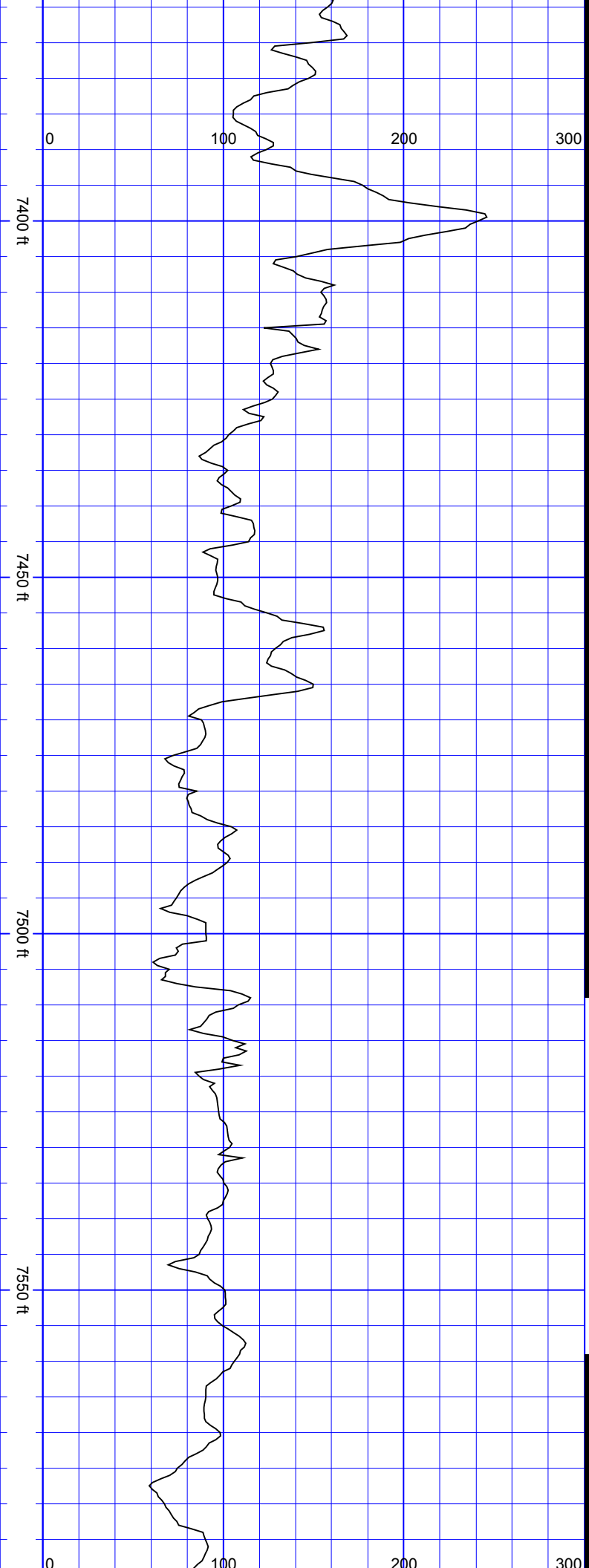




SurveyDepth:7209
TVD:7034.23 Inc:36.91
Azi:358.06 VertSec:-
729.04

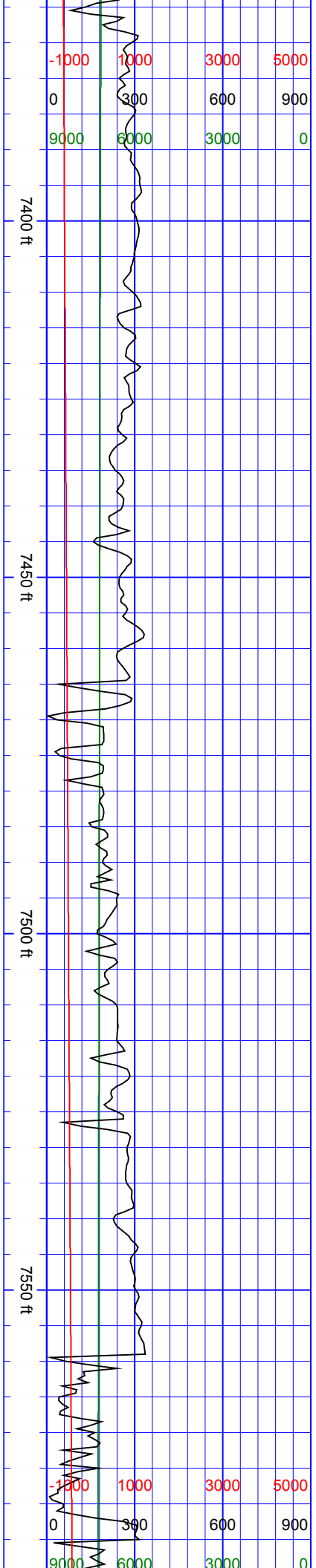
SurveyDepth:7304
TVD:7104.79 Inc:47.02
Azi:2.11 VertSec:-665.63

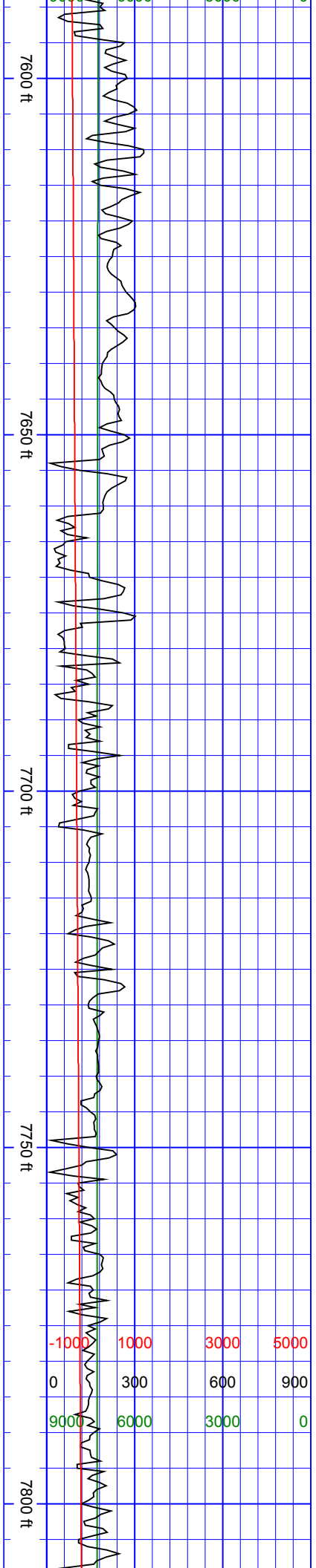
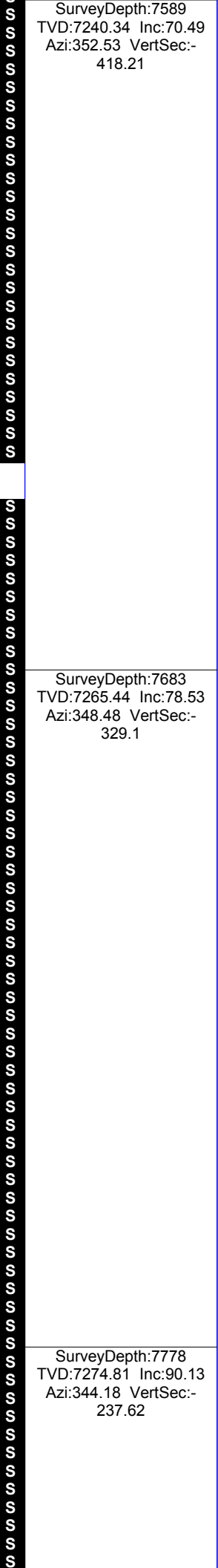
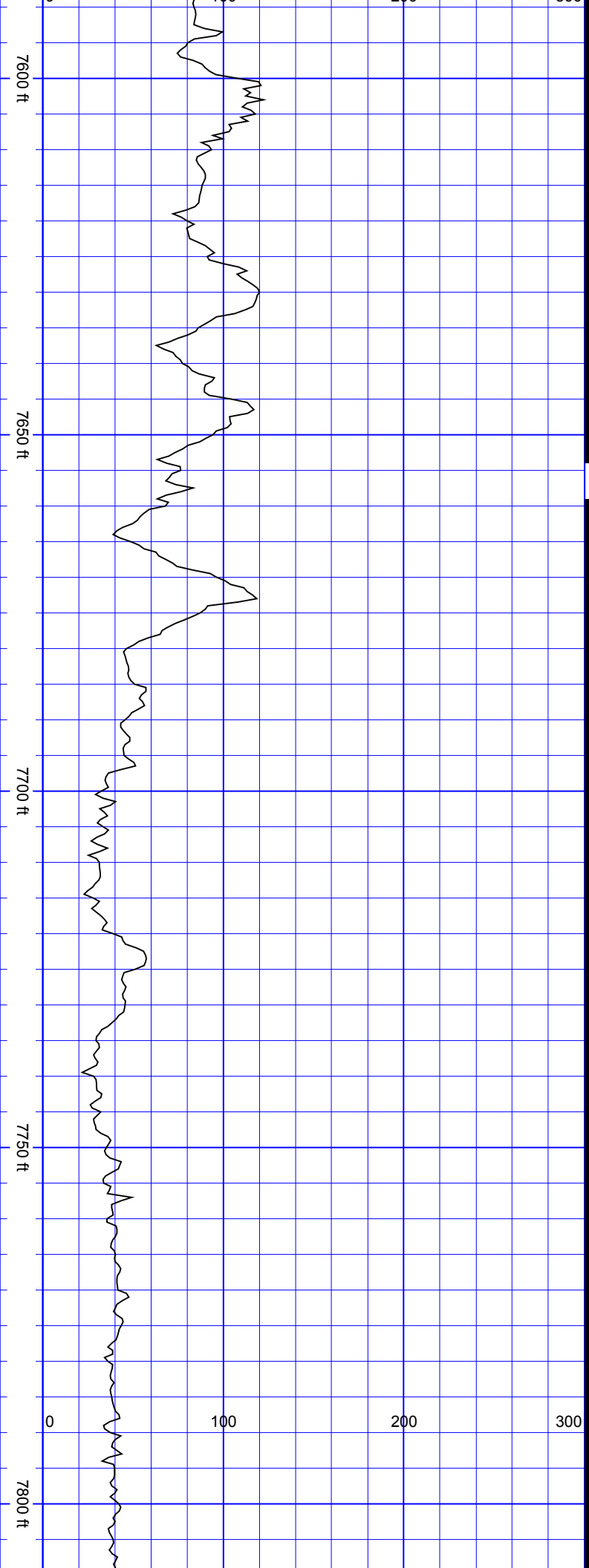




SurveyDepth:7399
TVD:7162.07 Inc:58.67
Azi:2.28 VertSec:-590.08

SurveyDepth:7494
TVD:7205.68 Inc:66.71
Azi:353.84 VertSec:-505.93





7850 ft

7900 ft

7950 ft

8000 ft

0 100 200 300

SurveyDepth:7872
TVD:7264.89 Inc:102
Azi:347.43 VertSec:-
147.37

SurveyDepth:7967
TVD:7247.85 Inc:98.61
Azi:358.06 VertSec:-54.9

June 17, 2018

7850 ft

7900 ft

7950 ft

8000 ft

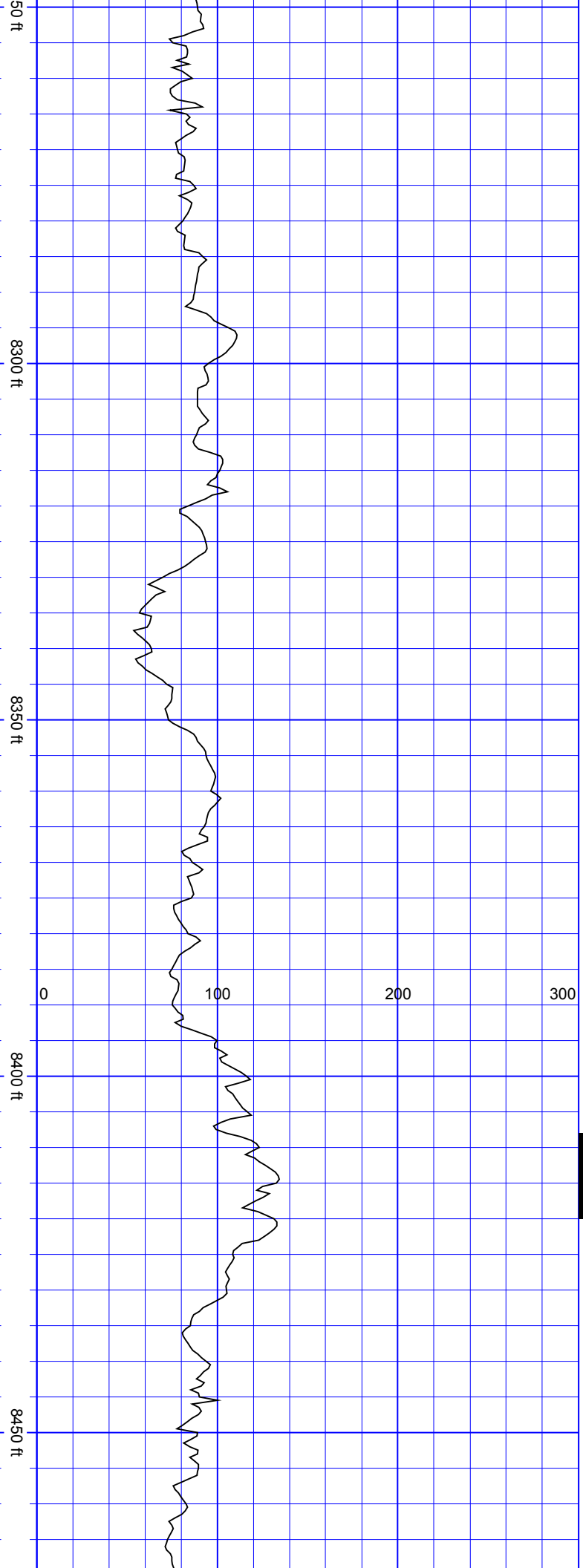
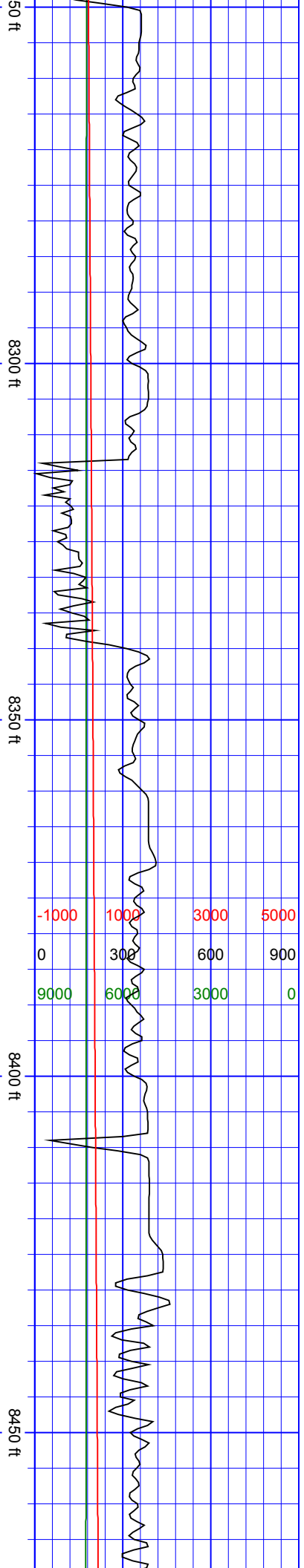
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SurveyDepth:8250
TVD:7231.45 Inc:89.39
Azi:3.16 VertSec:227.24

SurveyDepth:8346
TVD:7236.6 Inc:84.46
Azi:3.86 VertSec:322.94

SurveyDepth:8440
TVD:7246.43 Inc:83.54
Azi:3.25 VertSec:416.29

SSSS



8500 ft

8550 ft

0 100 200 300

8600 ft

8650 ft

SurveyDepth:8535
TVD:7255.85 Inc:85.08
Azi:3.69 VertSec:510.69

SurveyDepth:8630
TVD:7262.25 Inc:87.19
Azi:5.89 VertSec:605.19

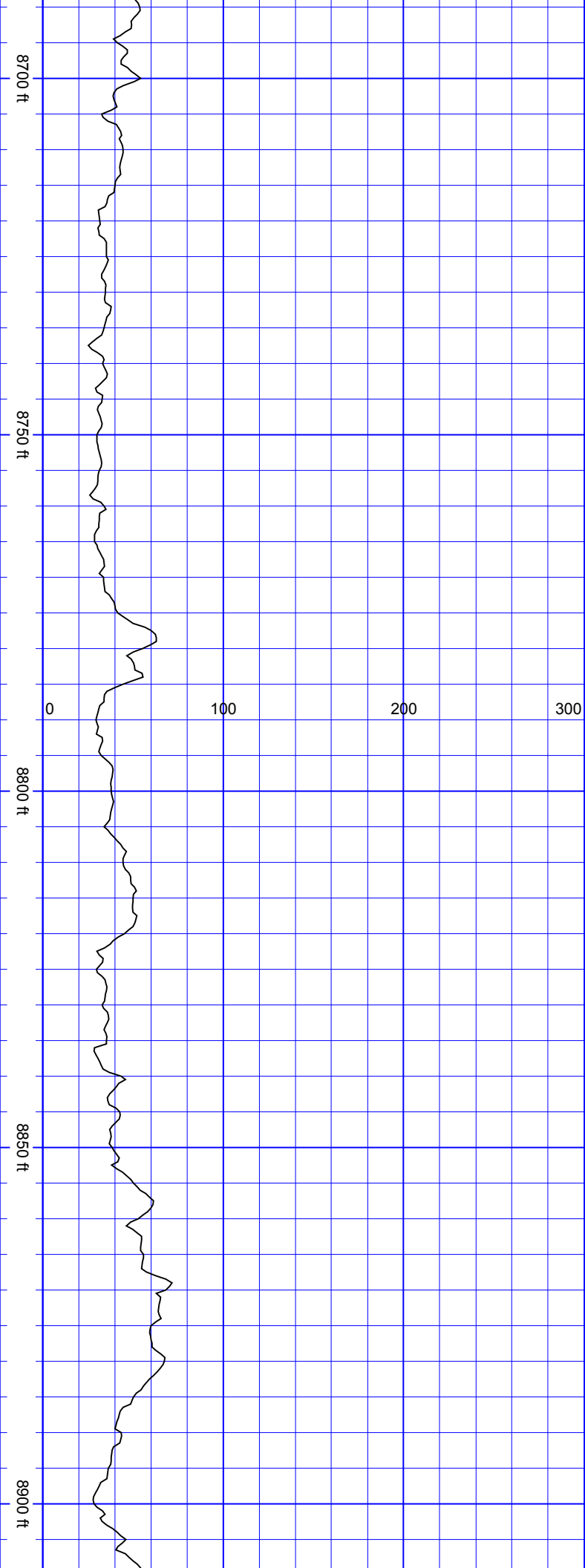
8500 ft

8550 ft

| | | | |
|-------|------|------|------|
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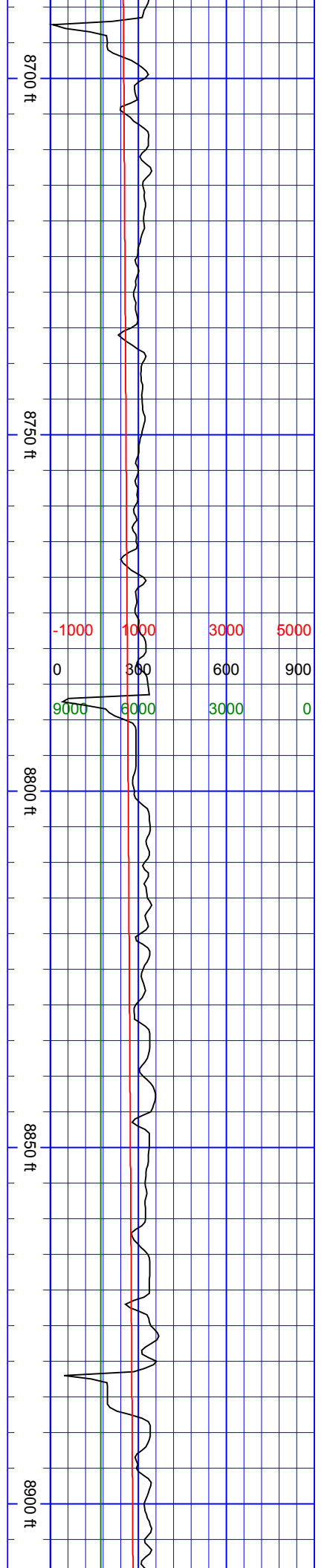
8600 ft

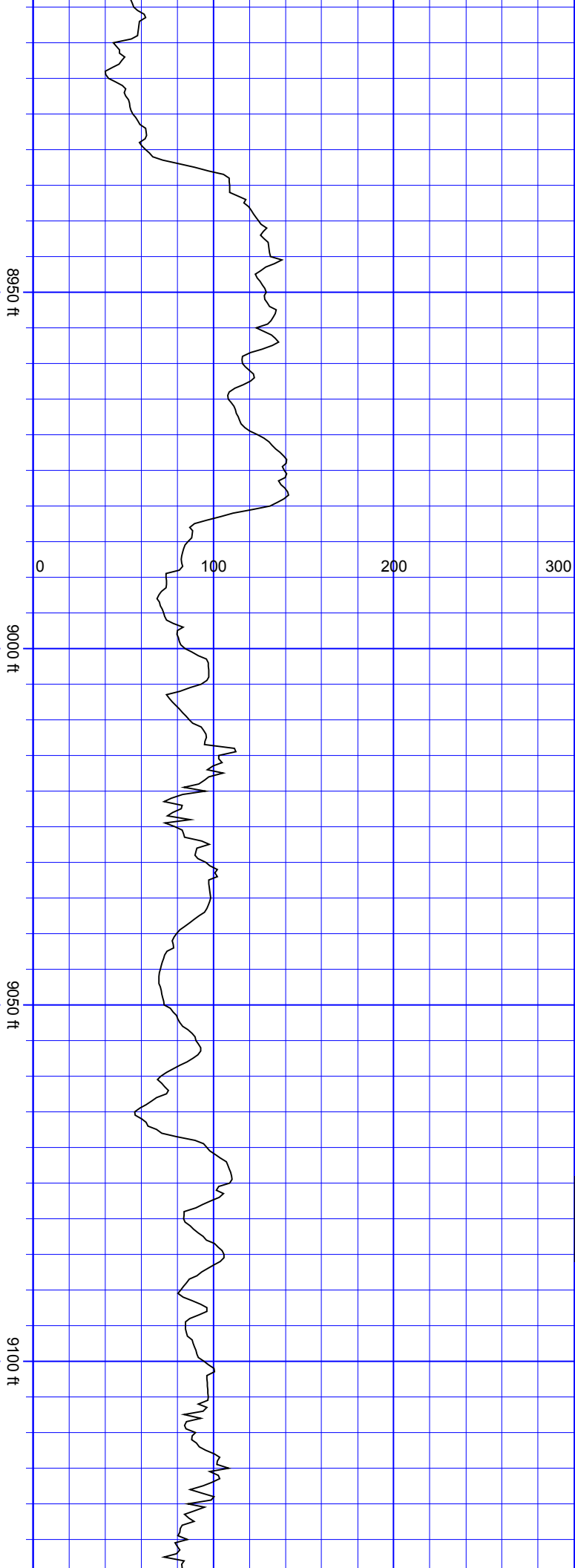
8650 ft



SurveyDepth:8725
TVD:7266.65 Inc:87.5
Azi:5.62 VertSec:699.68

SurveyDepth:8819
TVD:7270.64 Inc:87.63
Azi:5.36 VertSec:793.24



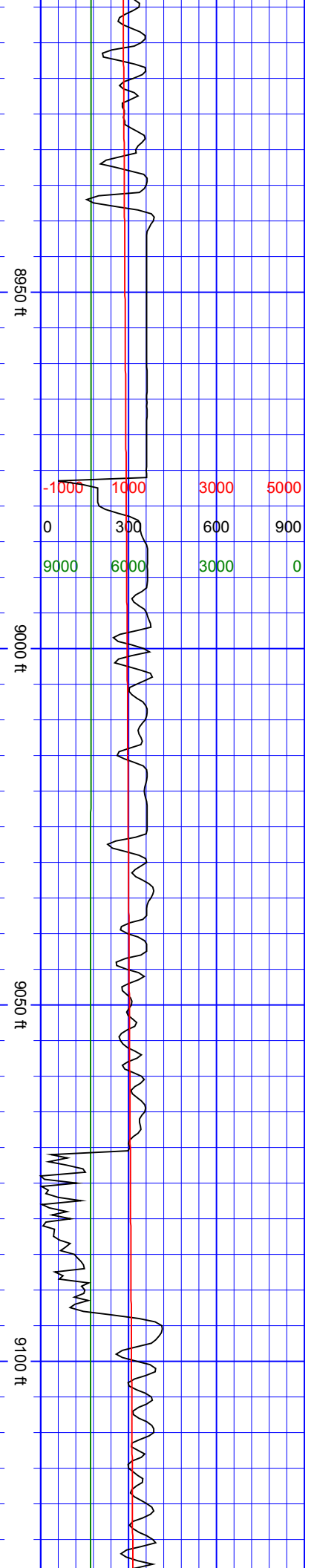


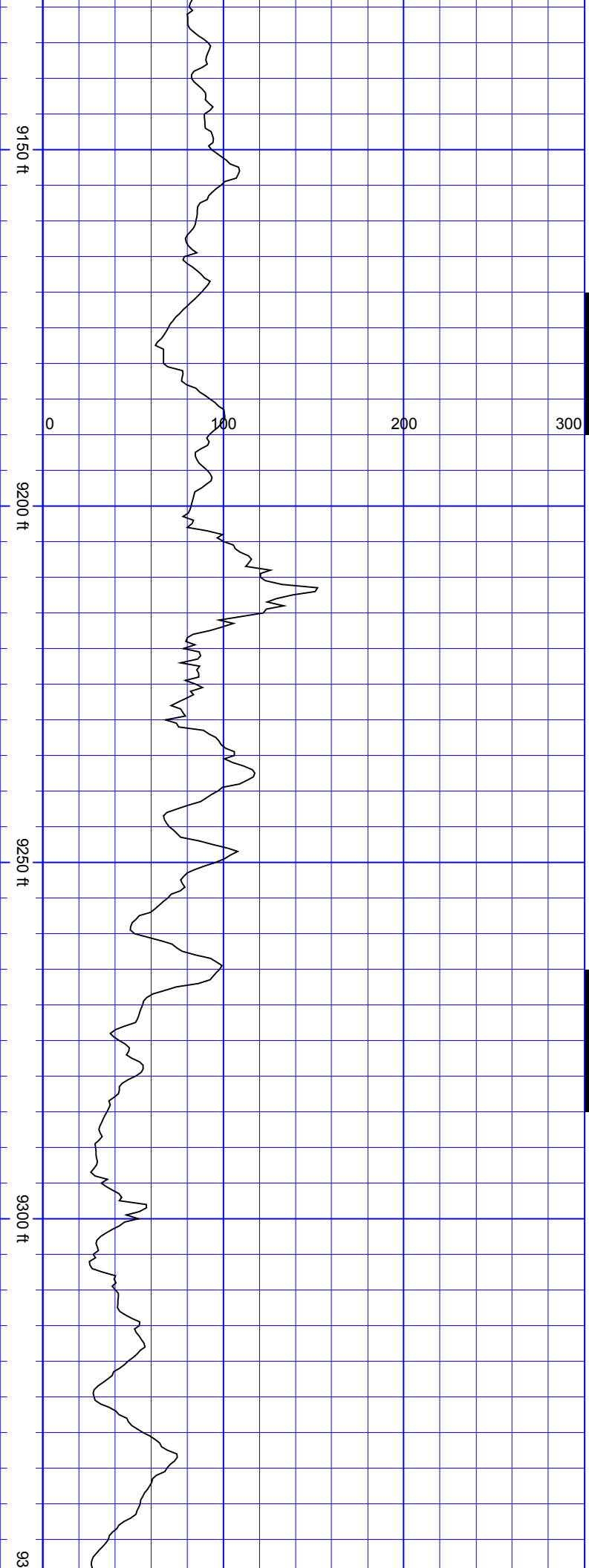
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TVD:7274.8 Inc:87.36
Azi:4.22 VertSec:887.88

SurveyDepth:9008
TVD:7280.06 Inc:86.22
Azi:3.69 VertSec:981.55

SurveyDepth:9103
TVD:7286.58 Inc:85.91
Azi:4.04
VertSec:1076.16

SSSSS



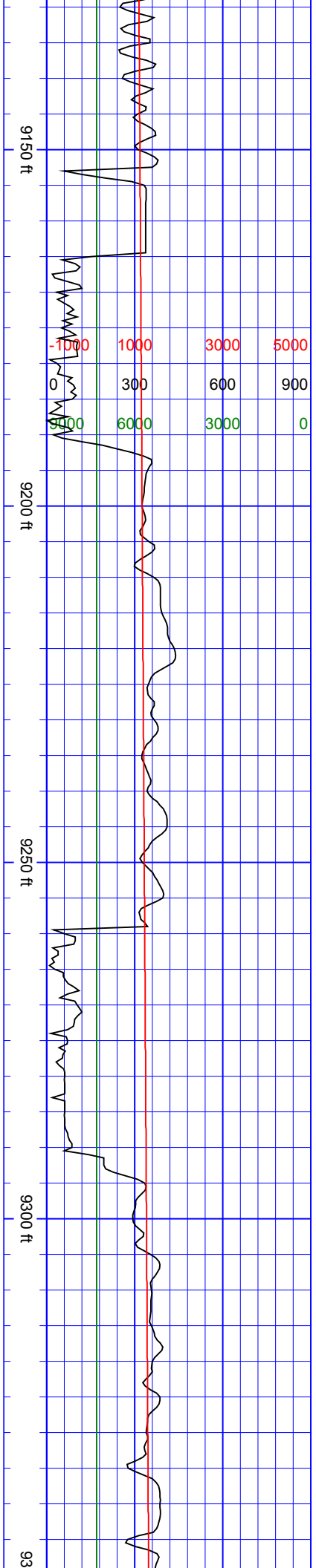


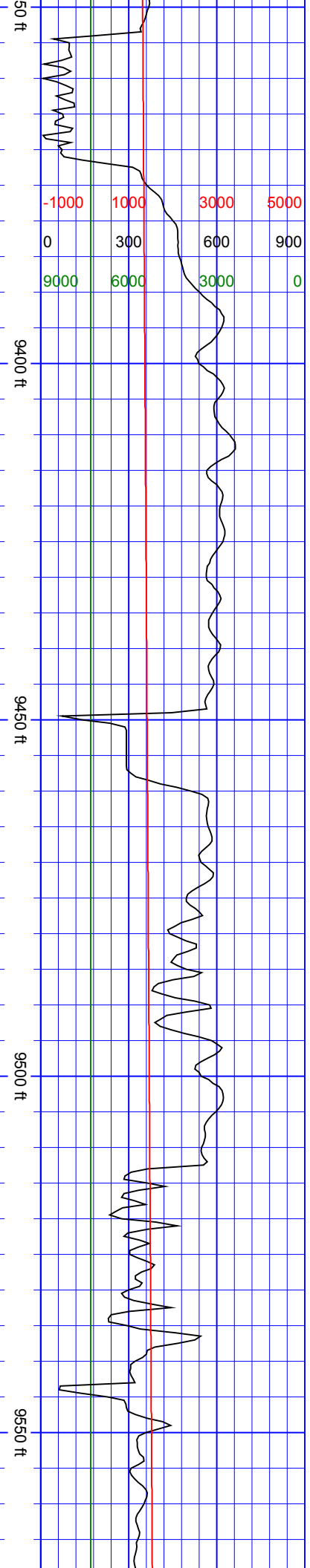
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SurveyDepth:9197
TVD:7292.2 Inc:87.23
Azi:5.45
VertSec:1169.73

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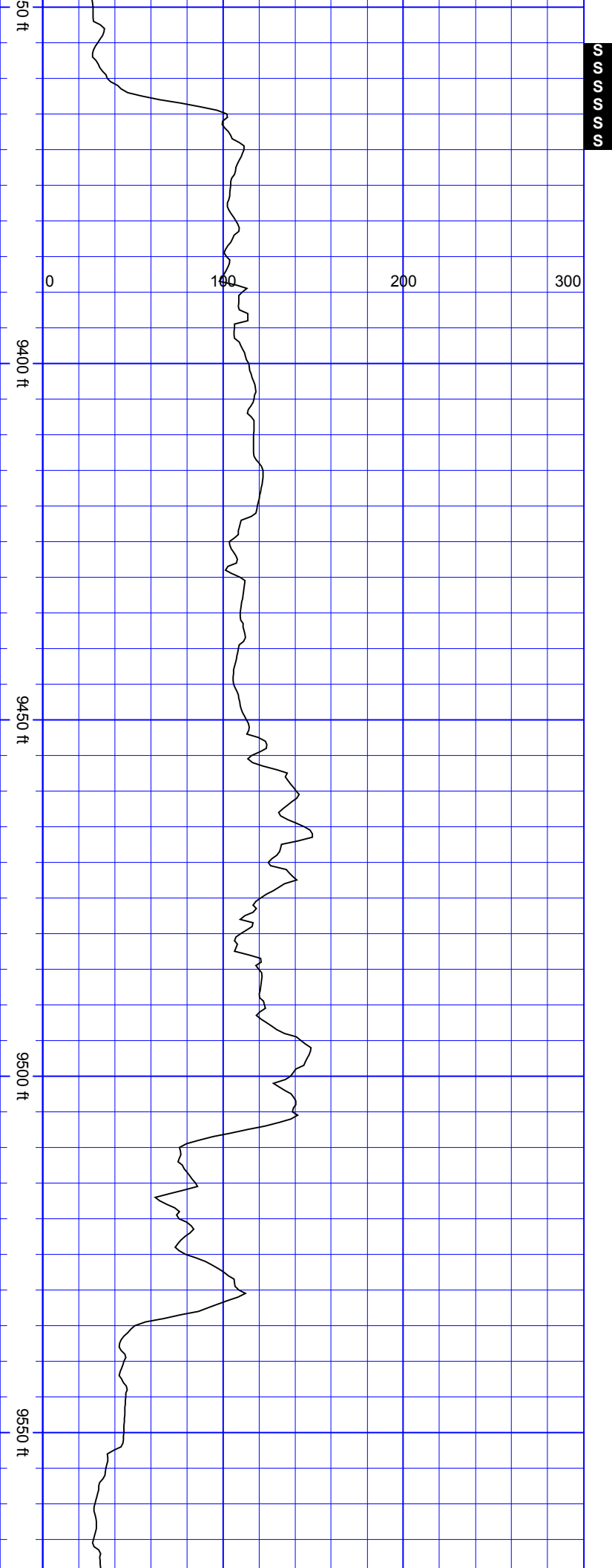
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TVD:7295.37 Inc:88.95
Azi:5.36
VertSec:1264.32

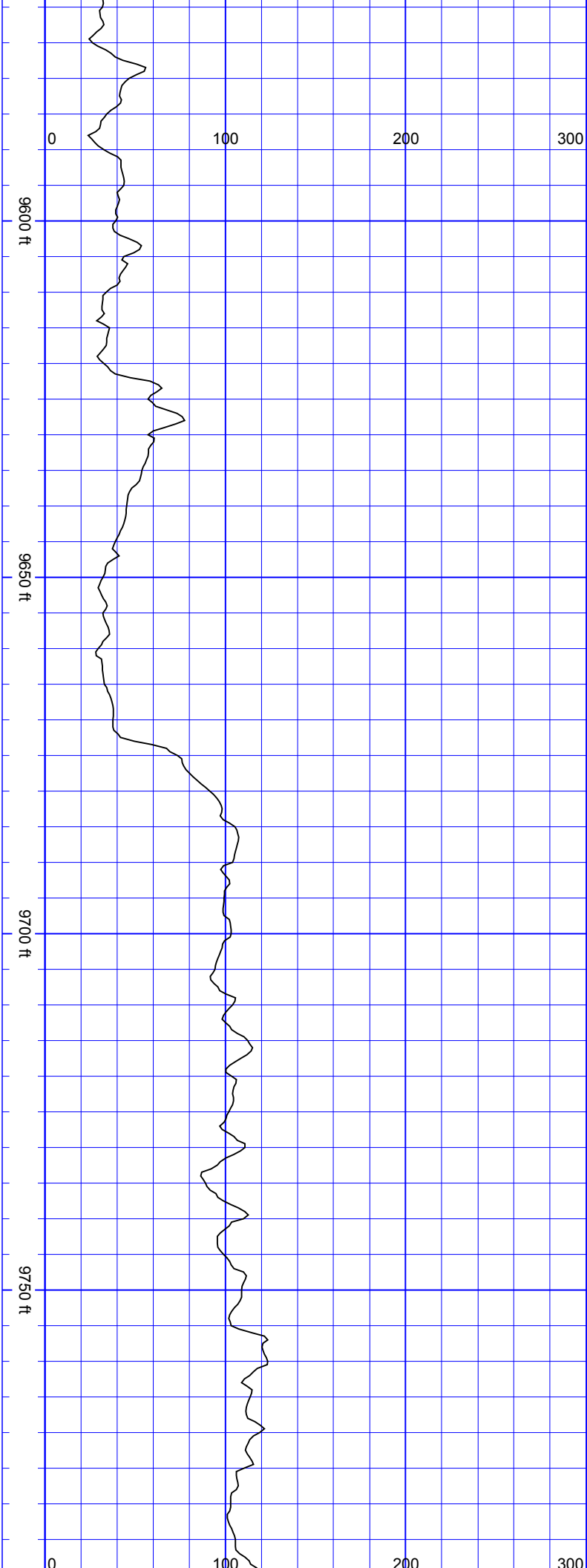




SurveyDepth:9386
TVD:7295.84 Inc:90.48
Azi:3.86
VertSec:1358.07

SurveyDepth:9481
TVD:7295.29 Inc:90.18
Azi:3.51
VertSec:1452.92

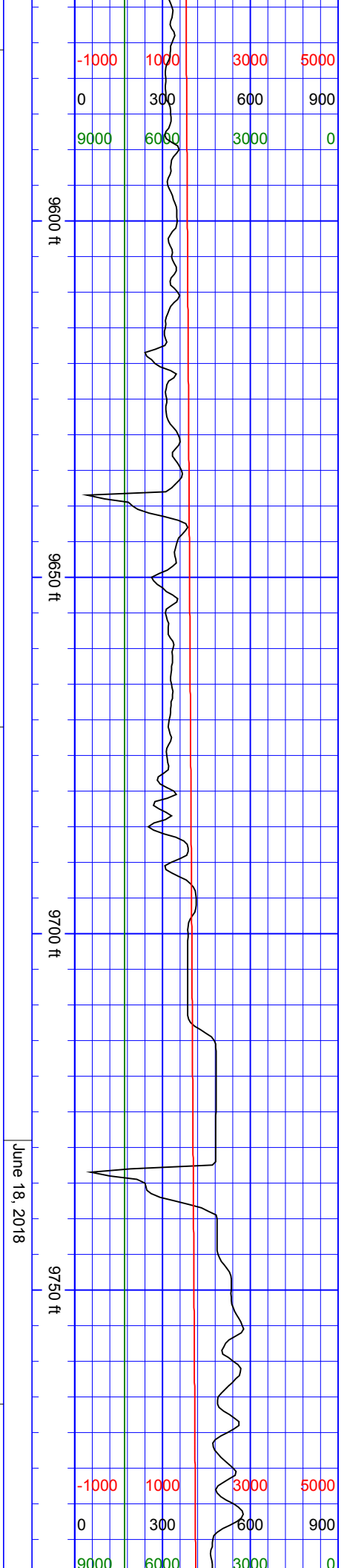


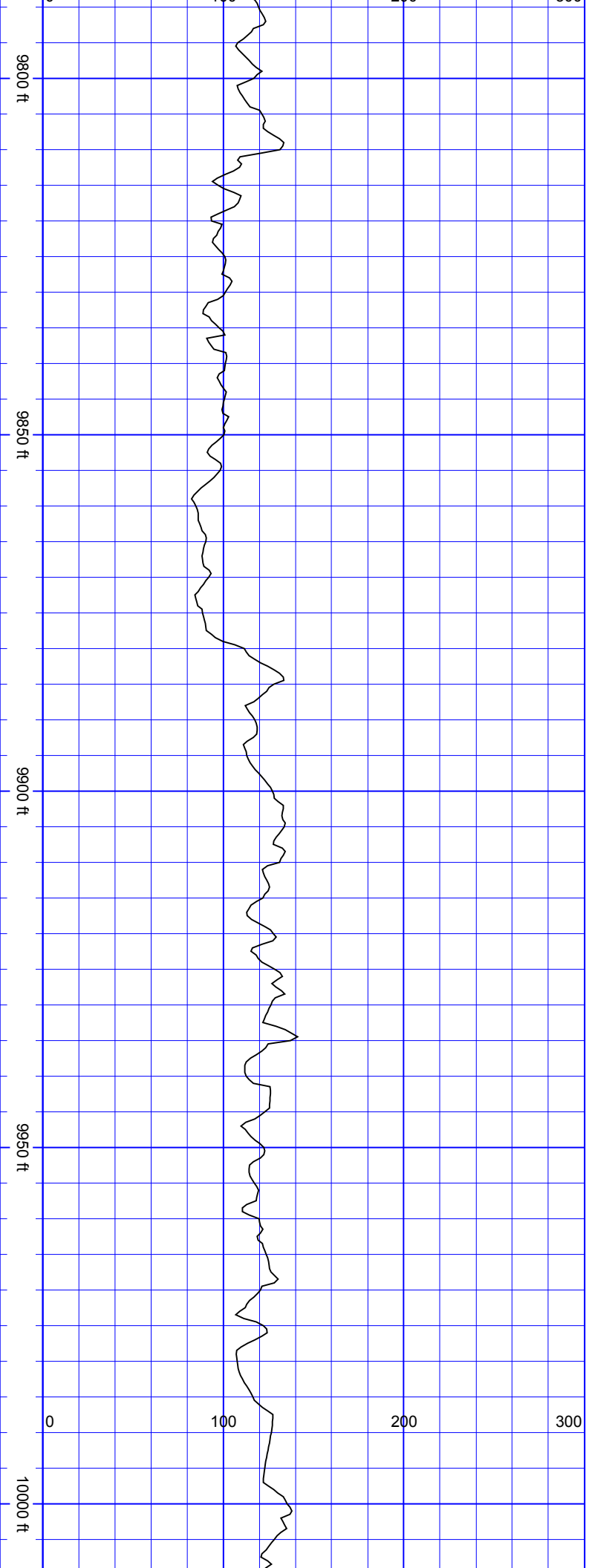


SurveyDepth:9576
TVD:7295.36 Inc:89.74
Azi:3.51
VertSec:1547.78

SurveyDepth:9671
TVD:7295.68 Inc:89.87
Azi:2.28 VertSec:1642.7

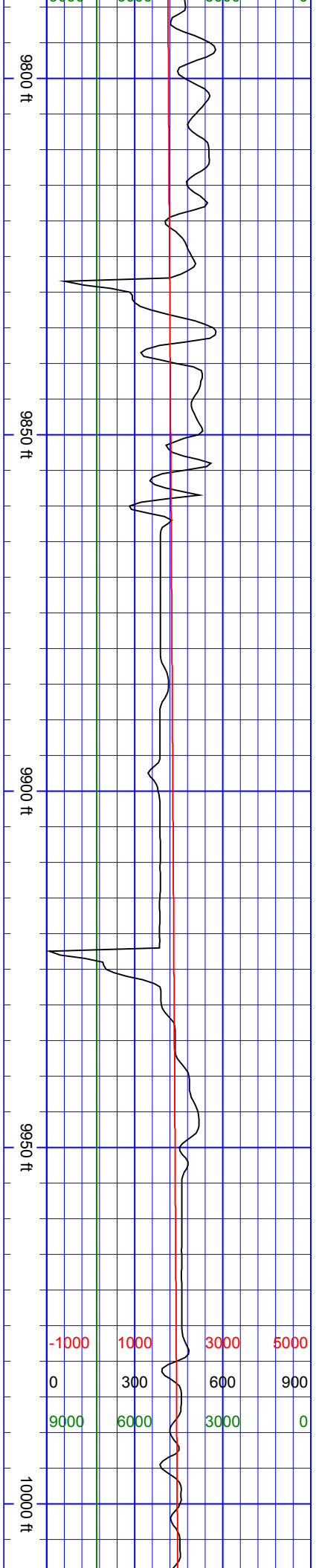
SurveyDepth:9766
TVD:7295.94 Inc:89.82
Azi:1.75
VertSec:1737.66

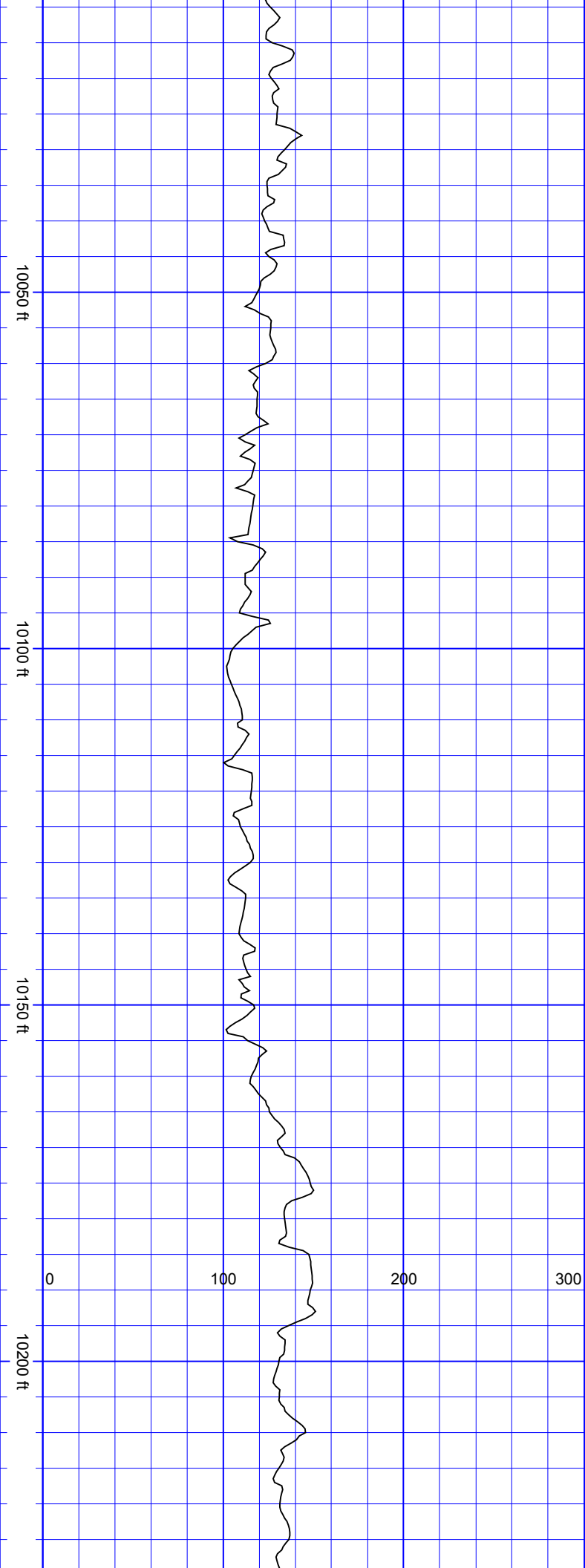




SurveyDepth:9860
TVD:7295.65 Inc:90.53
Azi:1.49
VertSec:1831.64

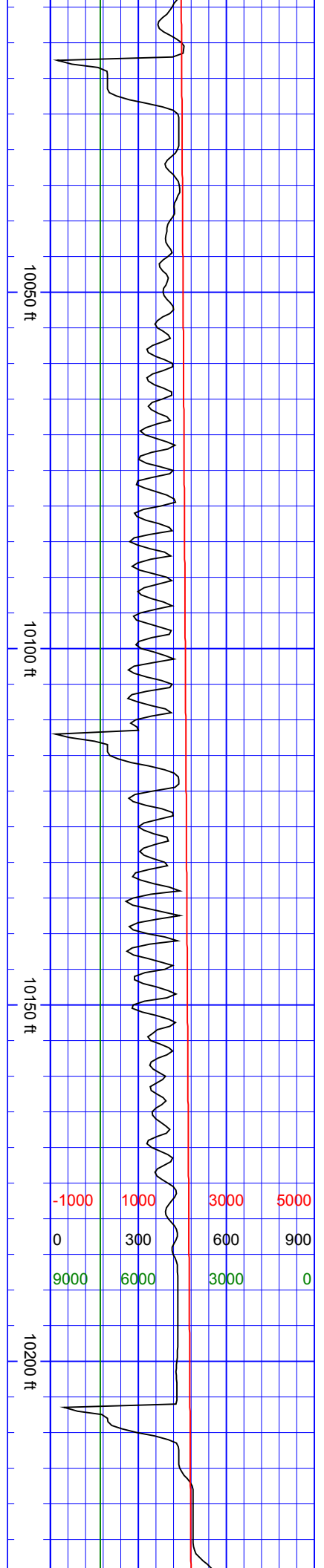
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TVD:7294.88 Inc:90.4
Azi:1.4 VertSec:1926.62

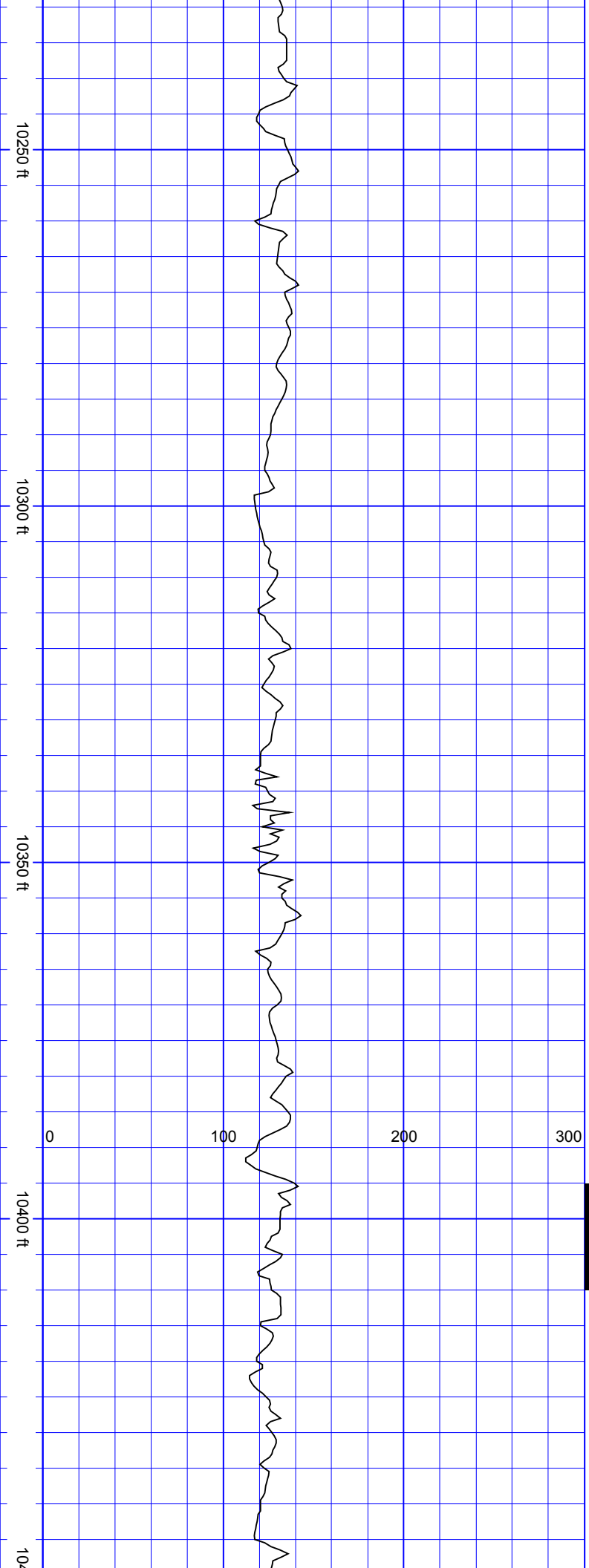




SurveyDepth:10049
TVD:7294.19 Inc:90.44
Azi:0.7 VertSec:2020.62

SurveyDepth:10144
TVD:7293.28 Inc:90.66
Azi:360 VertSec:2115.61

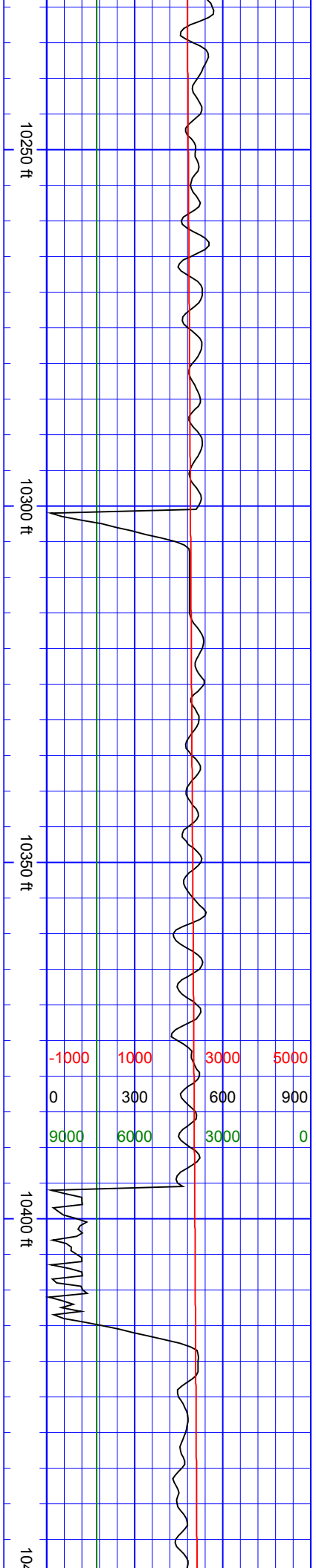


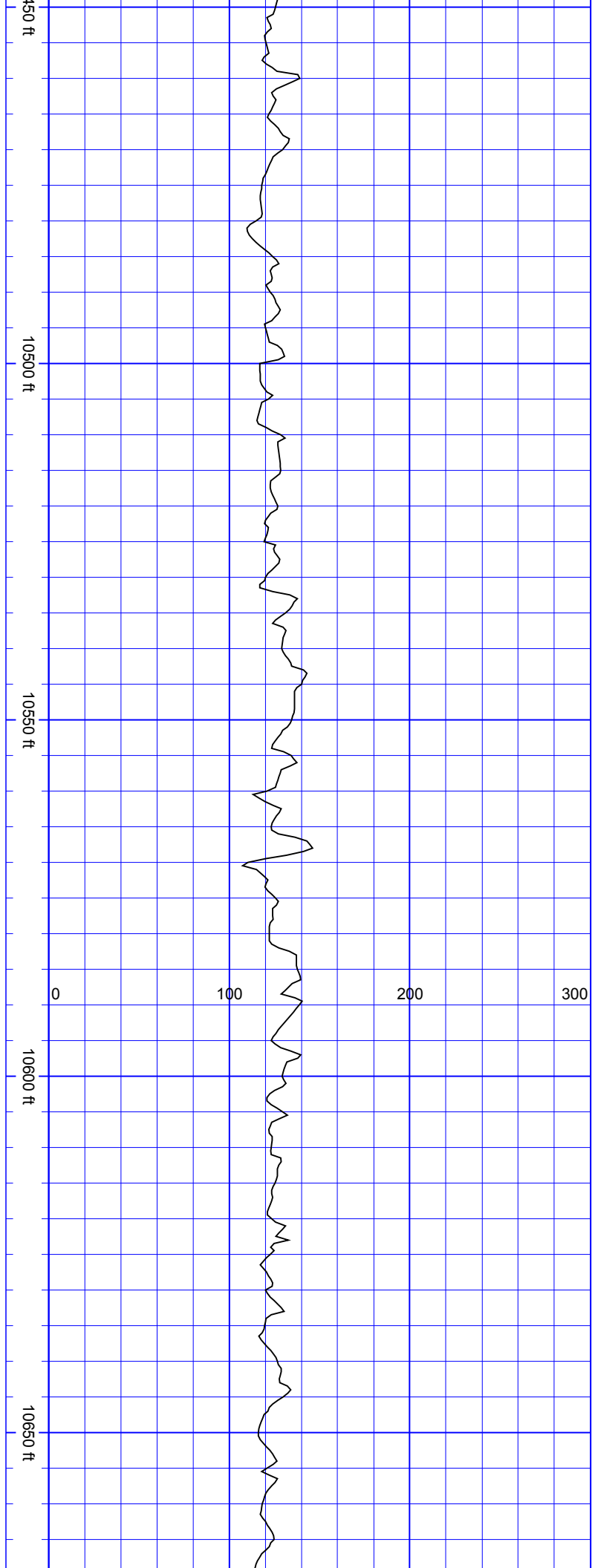


SurveyDepth:10239
TVD:7292.03 Inc:90.84
Azi:359.29
VertSec:2210.59

SurveyDepth:10333
TVD:7290.7 Inc:90.79
Azi:358.68
VertSec:2304.55

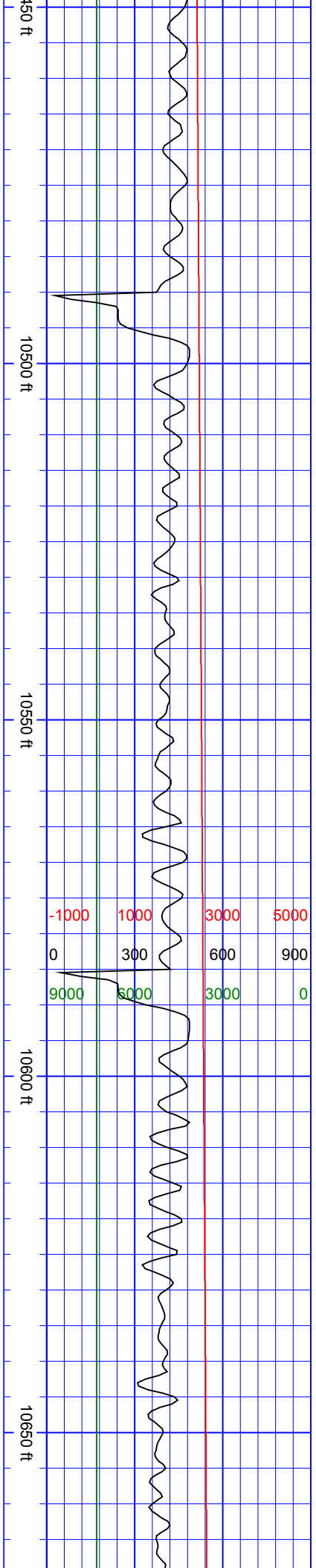
SurveyDepth:10428
TVD:7290.88 Inc:88.99
Azi:1.32
VertSec:2399.54

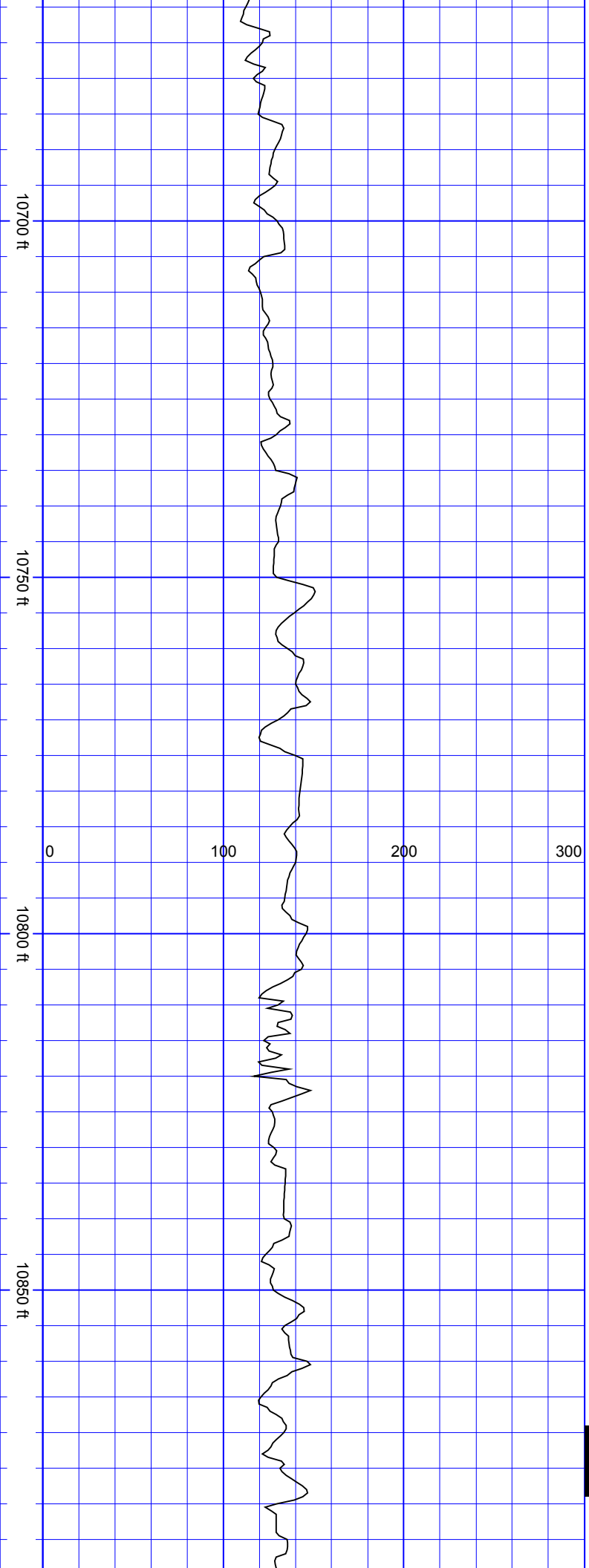




SurveyDepth:10523
TVD:7292.45 Inc:89.12
Azi:1.75
VertSec:2494.51

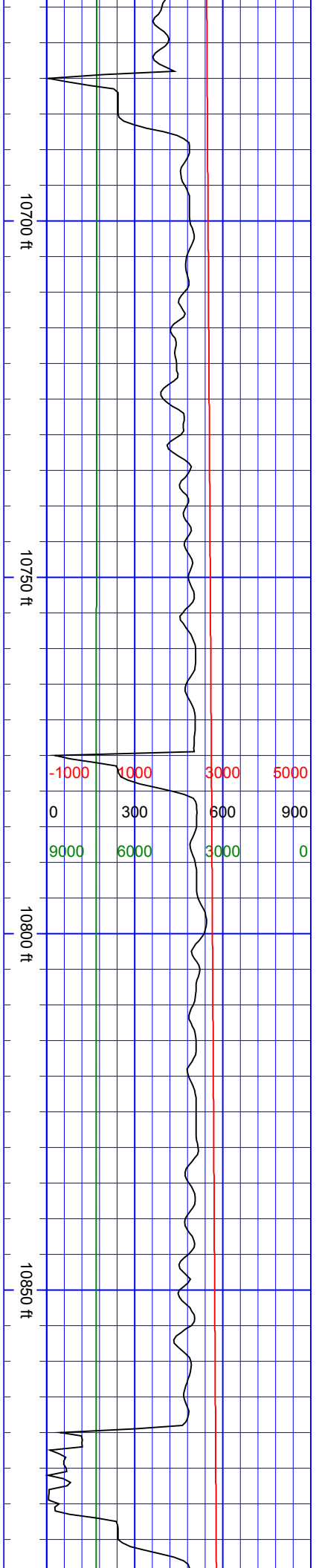
SurveyDepth:10617
TVD:7294.14 Inc:88.81
Azi:0.96
VertSec:2588.48

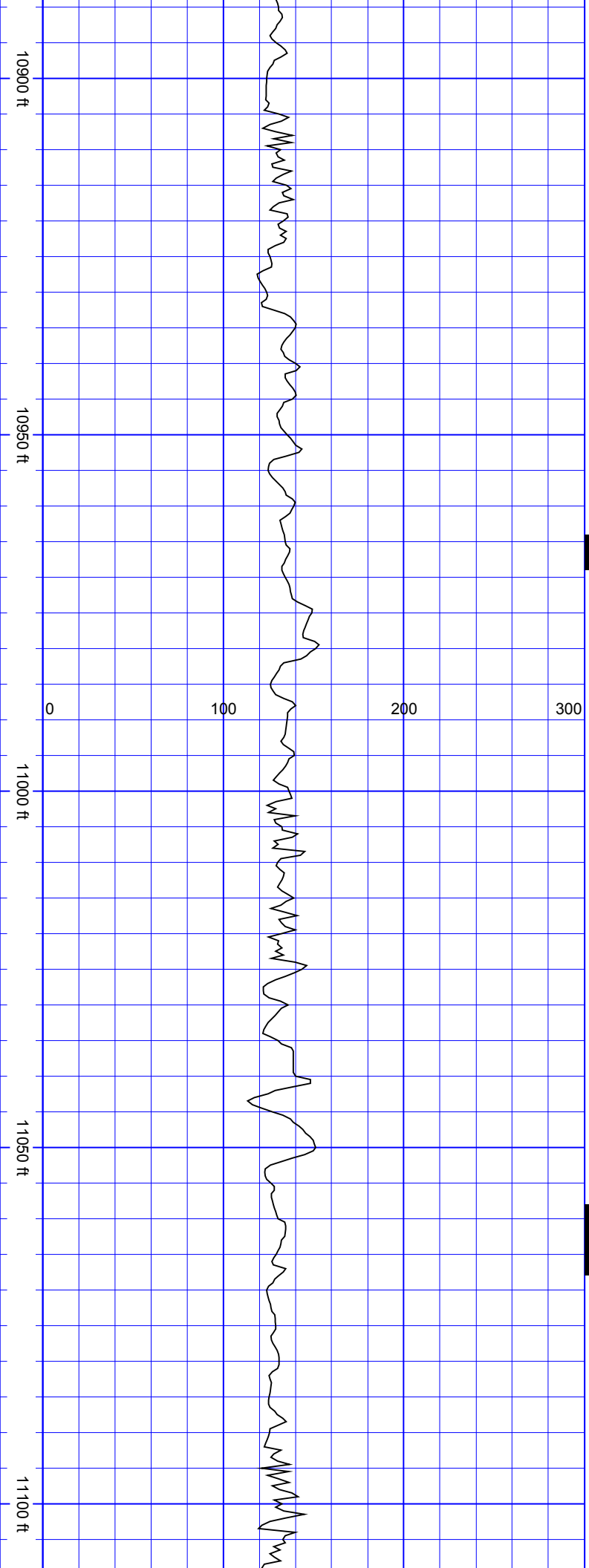




SurveyDepth:10712
TVD:7296.23 Inc:88.68
Azi:0.79
VertSec:2683.45

SurveyDepth:10807
TVD:7298.63 Inc:88.42
Azi:0.35
VertSec:2778.42





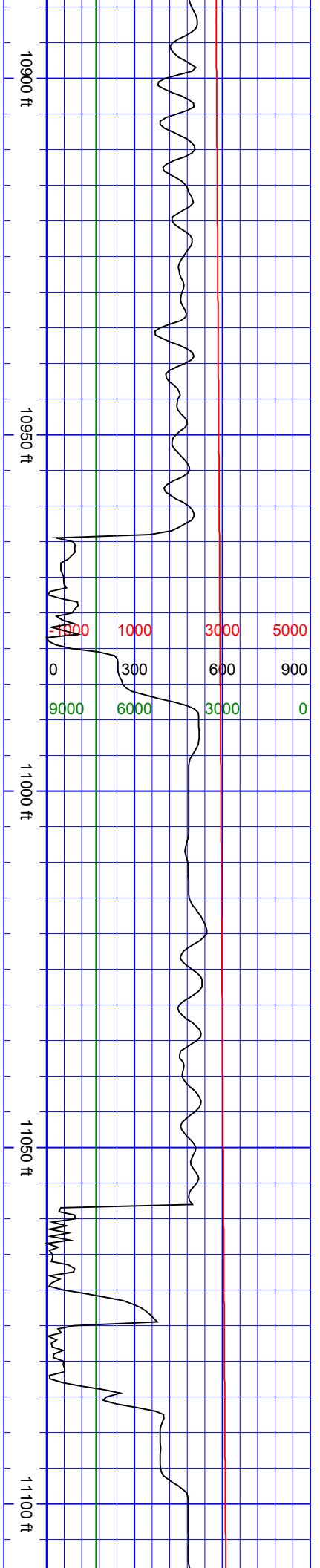
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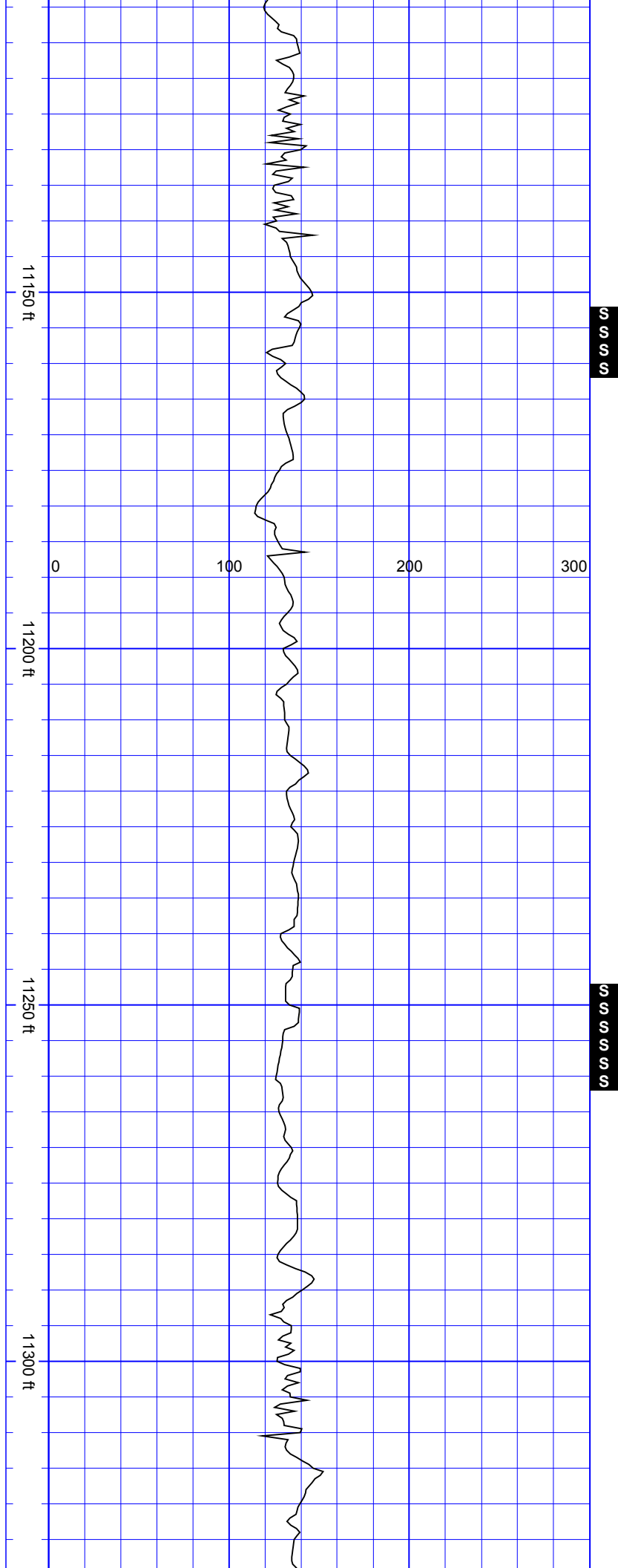
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SurveyDepth:10902
TVD:7300.96 Inc:88.77
Azi:359.47
VertSec:2873.39

SurveyDepth:10996
TVD:7303.01 Inc:88.73
Azi:358.33
VertSec:2967.33

SurveyDepth:11090
TVD:7303.84 Inc:90.26
Azi:358.24
VertSec:3061.25



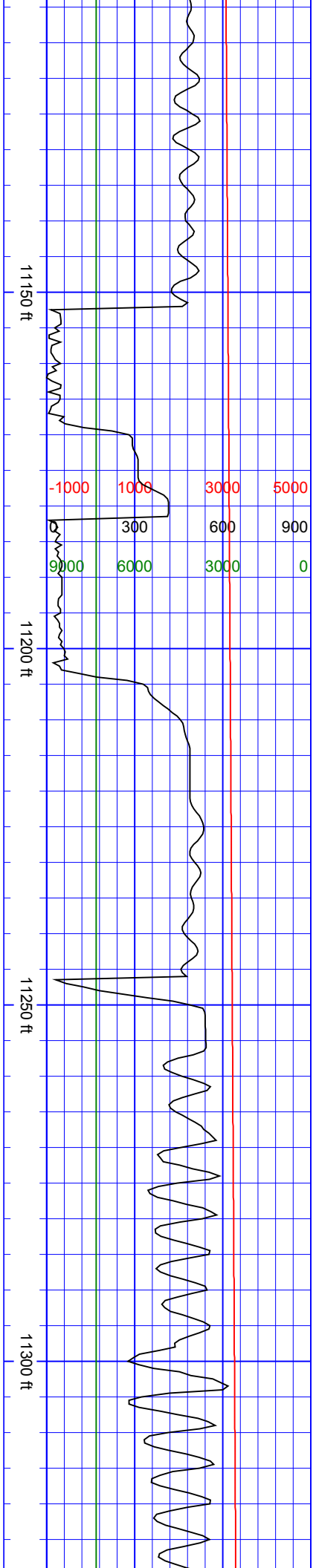


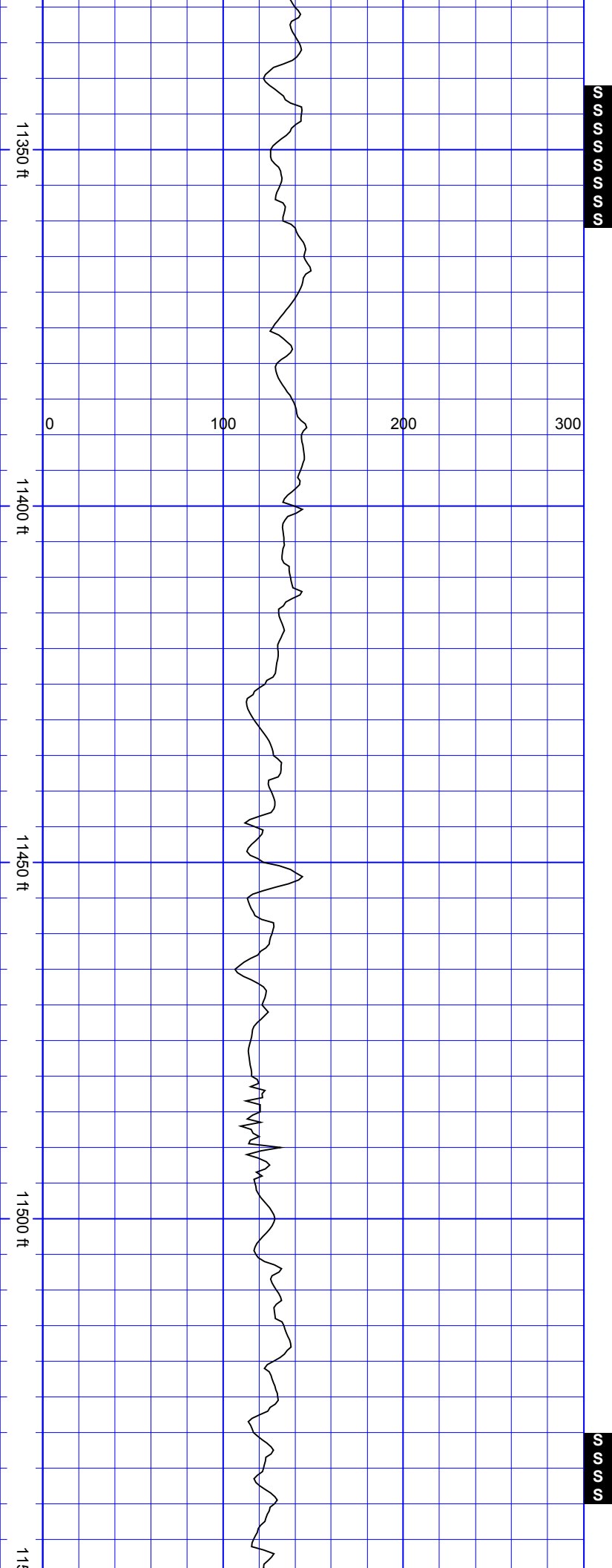
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SurveyDepth:11185
TVD:7302.31 Inc:91.58
Azi:359.56
VertSec:3156.2

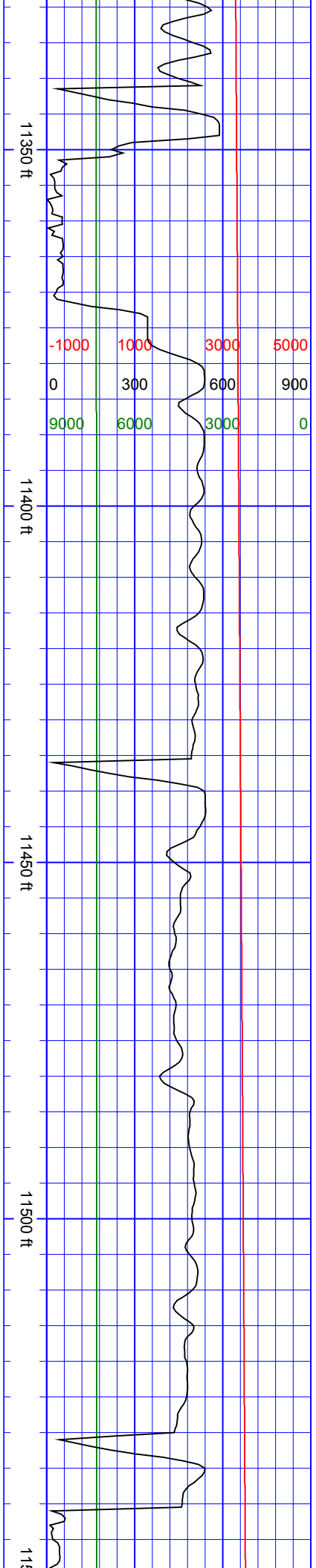
SurveyDepth:11279
TVD:7299.93 Inc:91.32
Azi:0.17
VertSec:3250.17

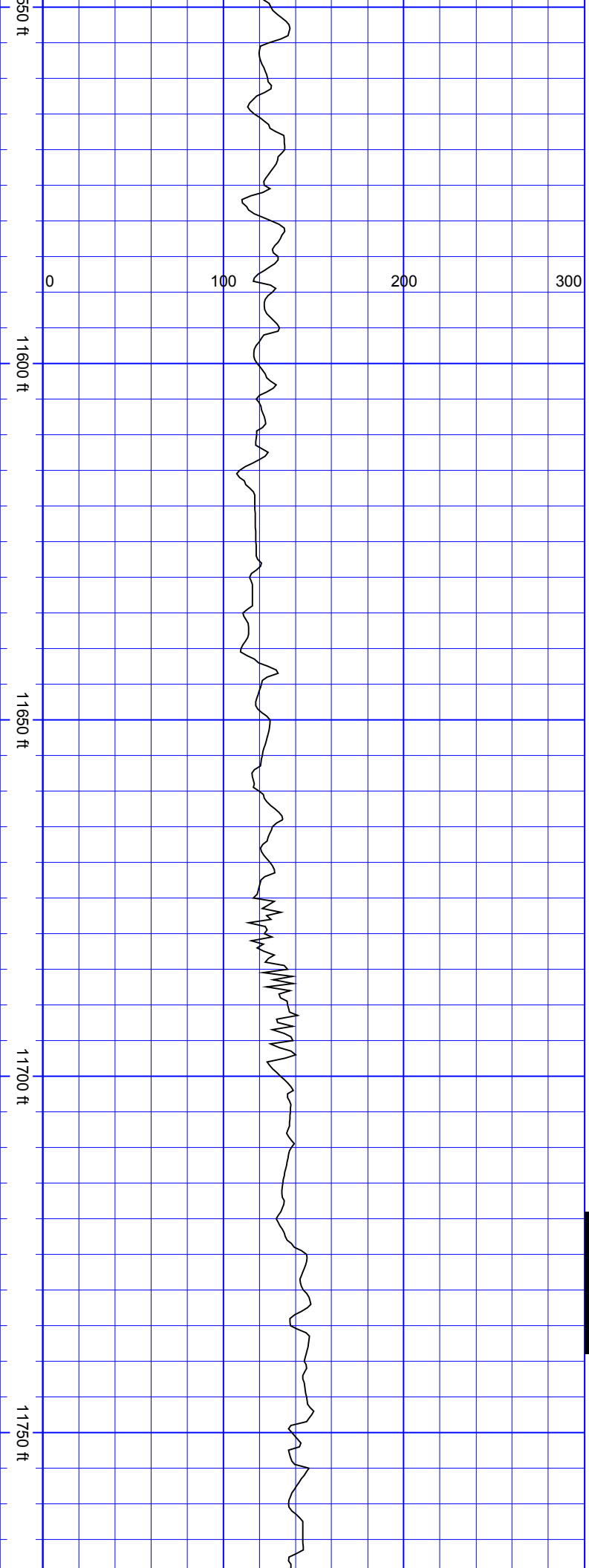




SurveyDepth:11374
TVD:7297.6 Inc:91.49
Azi:2.02
VertSec:3345.13

SurveyDepth:11468
TVD:7295.34 Inc:91.27
Azi:1.05
VertSec:3439.08

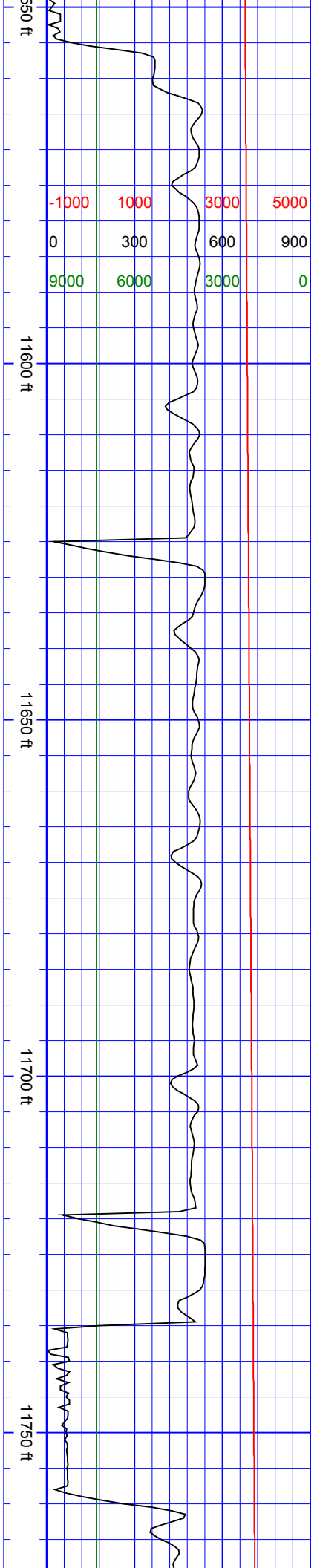


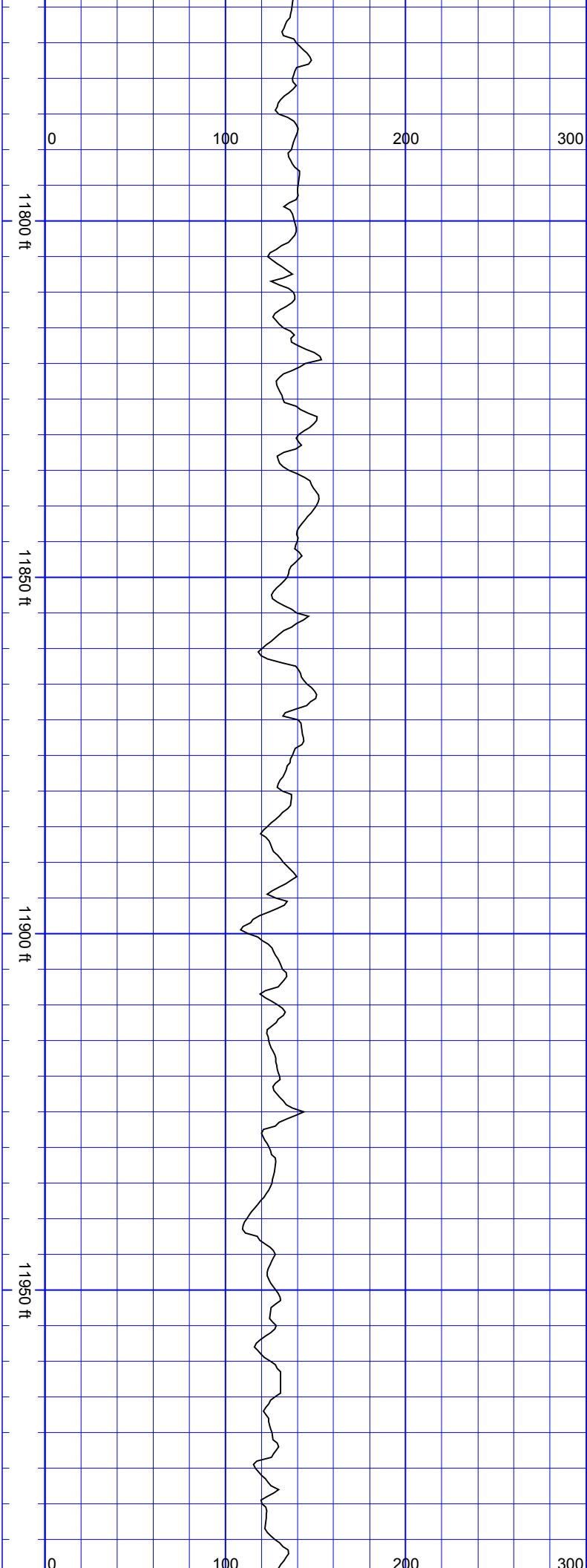


SurveyDepth:11563
TVD:7292.9 Inc:91.67
Azi:1.23
VertSec:3534.05

SurveyDepth:11657
TVD:7290.27 Inc:91.54
Azi:0.88 VertSec:3628

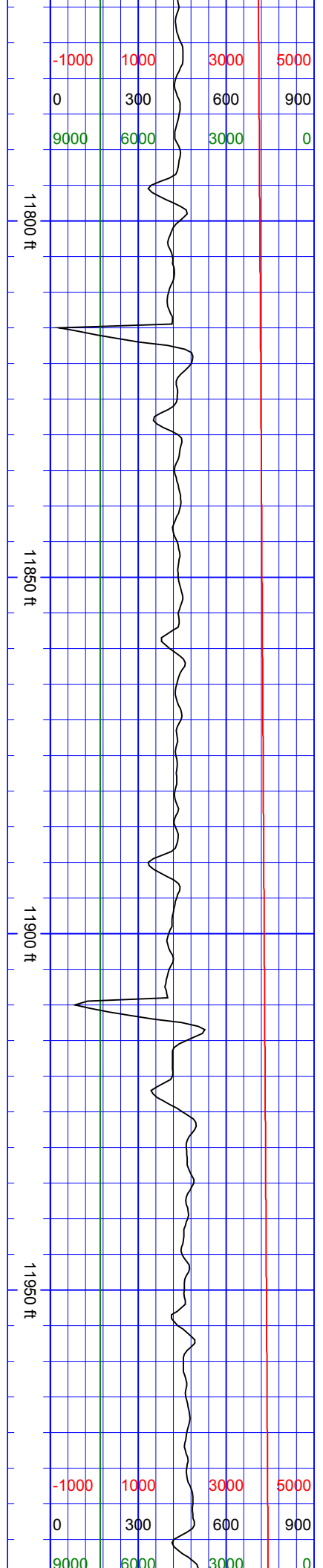
SurveyDepth:11752
TVD:7290.12 Inc:88.64
Azi:1.23
VertSec:3722.99

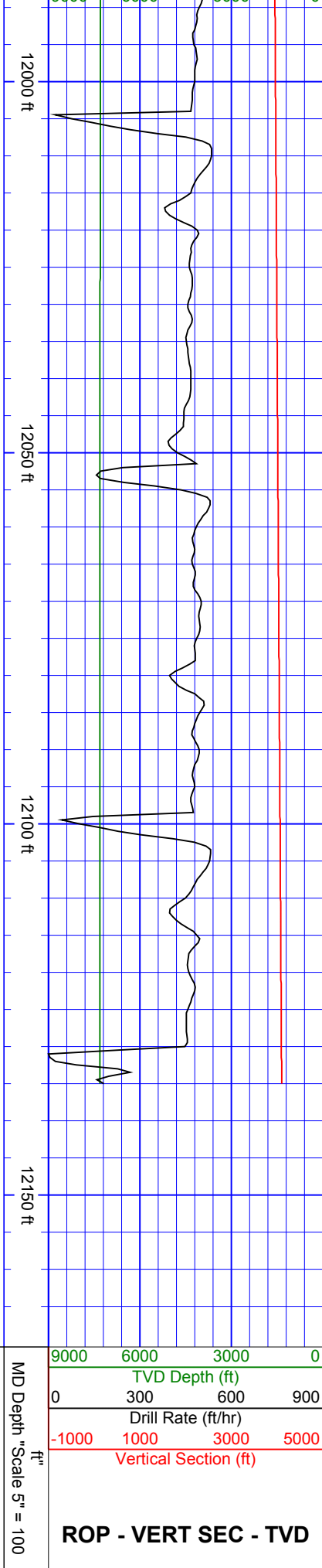




SurveyDepth:11847
TVD:7292.63 Inc:88.33
Azi:0.7 VertSec:3817.95

SurveyDepth:11942
TVD:7295.11 Inc:88.68
Azi:0.7 VertSec:3912.92





SurveyDepth:12037
TVD:7297.56 Inc:88.37
Azi:360 VertSec:4007.89

SurveyDepth:12073
TVD:7298.58 Inc:88.37
Azi:359.03
VertSec:4043.87

Extrapolation to Bit
SurveyDepth:12135
TVD:7300.34 Inc:88.37
Azi:359.03
VertSec:4105.82

