

CATHEDRAL

Build & Lateral

Job #:

185133

Well ID:

16190980

Scale:

5" = 100 ft

Type:

MD

Well Site Information

Oil Company

Surface Location

Well Name

API

Field

State

Country

Surface Coordinates

Well Type

Latitude

Longitude

N / S Coordinates

E / W Coordinates

Azimuth Reference

Grid Convergence

MWD Engineers

Lead Hand

Second Hand

Crestone Peak Resources

S4-T1N-R65W

Ruegge 3D-4H-N165

05-123-4655600

DJ Wattenburg

Colorado

USA

Horizontal

40° 4' 31 N

104° 40' 16 W

1,271,335.24 us/ft

3,231,981.84 us/ft

True North

0.54°

Bob Stahlecker

Adrian Loma

Perm Datum

Log depth measured from KB is

Total Depth

(MD) Log Interval

Ground

23.00 ft

Spud Date

Start Depth

Elevation

above perm datum.

KB =

End Date

End Depth

4,940.00 ft

4,917.00 ft

May/27/2018

2,570.57 ft

Jun/01/2018

12,140.00 ft

Bore Hole Record

Hole Size

From

To

13.50 in

0.00 ft

2,510.00 ft

8.50 in

2,510.00 ft

12,140.00 ft

Casing Record

Type

Size

WGT

From

To

LT&C

9.63 in

40.00 lbs/ft

0.00 ft

2,510.00 ft

LT&C

5.50 in

20.00 lbs/ft

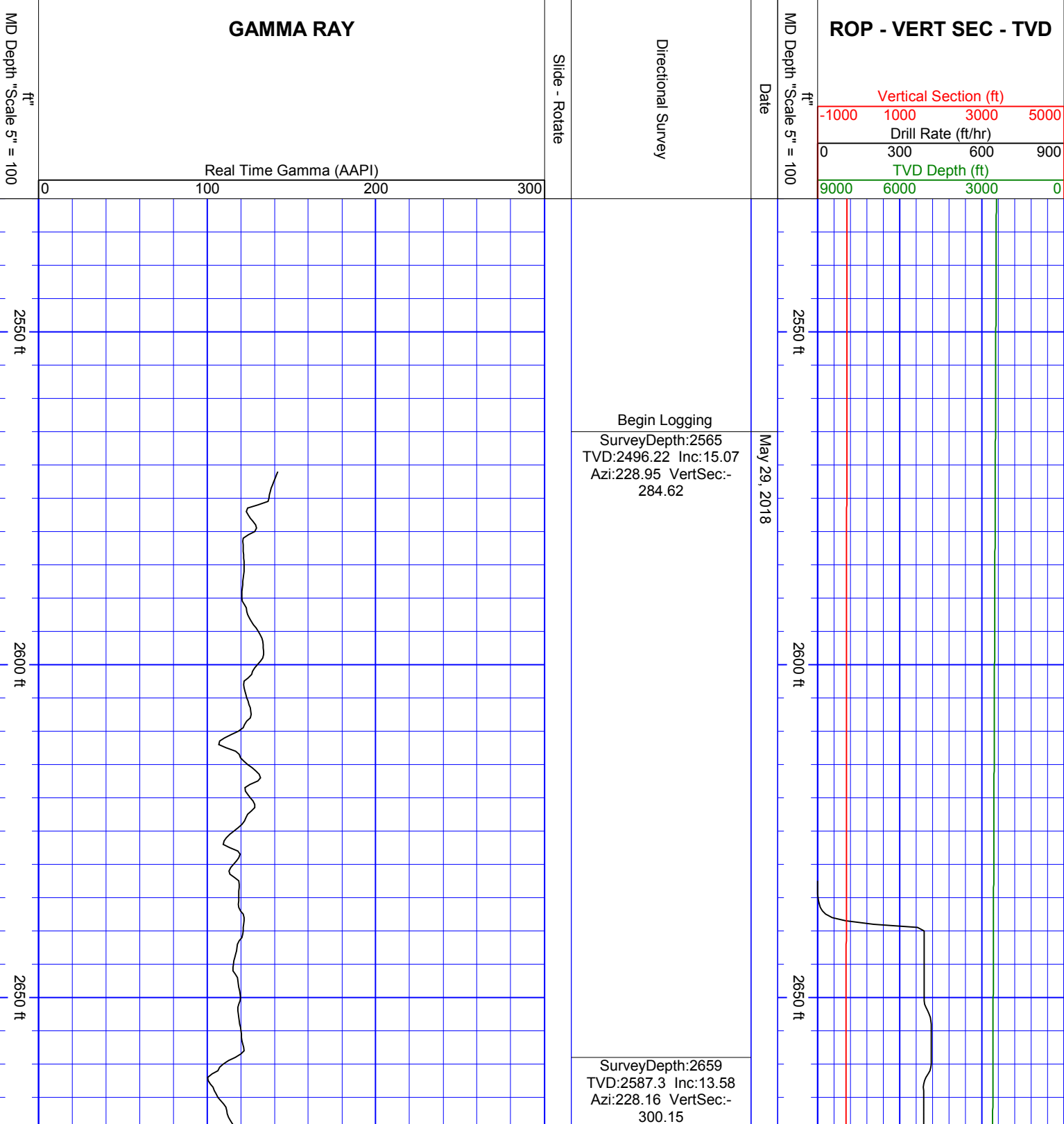
0.00 ft

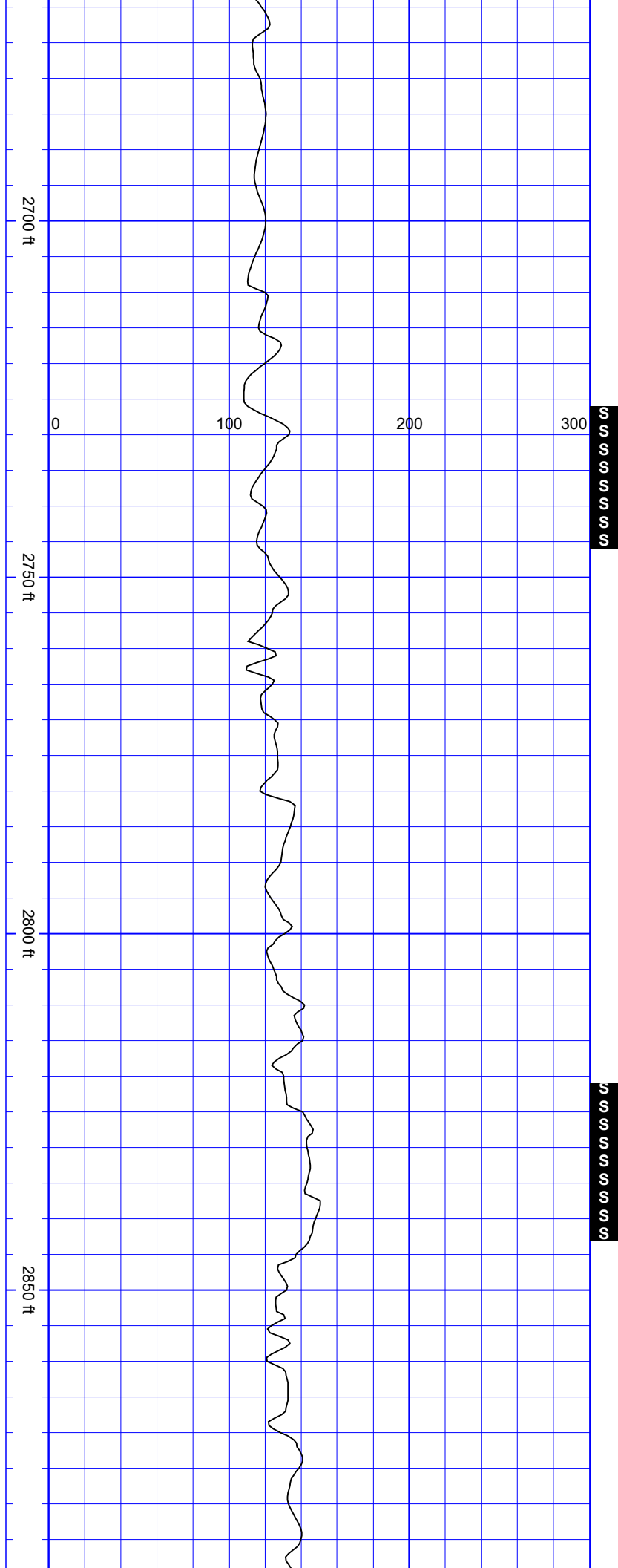
12,140.00 ft

Run Data					
Bit Run Number	1	2	3	4	
Start Date & Time	May/27/2018 09:30:00	May/28/2018 18:00:00	May/29/2018 11:30:00	May/29/2018 18:00:00	
End Date & Time	May/28/2018 07:00:00	May/29/2018 01:00:00	May/29/2018 16:30:00	Jun/01/2018 12:00:00	
Run Hours	21.50	7.00	5.00	65.00	
Depth In	2,518.00 ft	2,537.00 ft	2,544.00 ft	2,272.00 ft	
Depth Out	2,537.00 ft	2,544.00 ft	2,722.00 ft	12,140.00 ft	
Total Gamma Correction	5.82	5.89	5.89	6.00	
Gamma to Bit	61.61 ft	61.61 ft	61.61 ft	61.61 ft	
Resistivity to Bit	-	-	-	-	
Mud Type	Oil Based	Oil Based	Oil Based	Oil Based	
Density	9.25 ppg	9.35 ppg	9.35 ppg	9.75 ppg	
Viscosity	45.00 sec/qt	48.00 sec/qt	48.00 sec/qt	38.00 sec/qt	
PH	-	-	-	-	
Fluid Loss	21.00 cc	20.00 cc	20.00 cc	18.00 cc	
K+ ppm	-	-	-	-	
CL- ppm	206,895.00 ppm	216,431.00 ppm	216,431.00 ppm	272,001.00	
Max Mud Temp	96.00 °F	93.00 °F	120.00 °F	249.00 °F	
Mud Report Depth	2,518.00 ft	2,537.00 ft	2,720.00 ft	10,782.00 ft	

Remarks

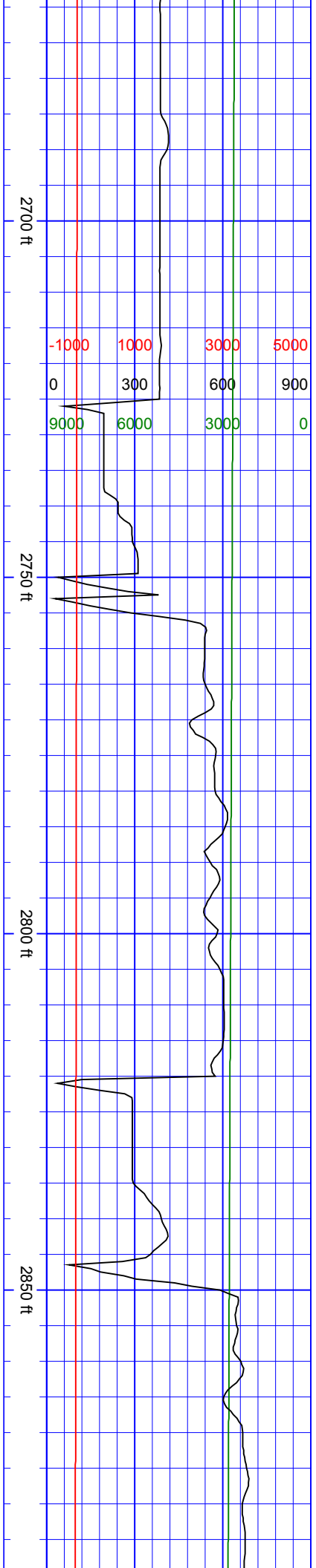
Interpretations of this data by Cathedral Energy Services will be of best judgment as to correctness. Cathedral Energy Services cannot and does not guarantee the accuracy or correctness of interpretations or any surveys derived therefrom. Cathedral Energy Services makes no warranties of performance, 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.

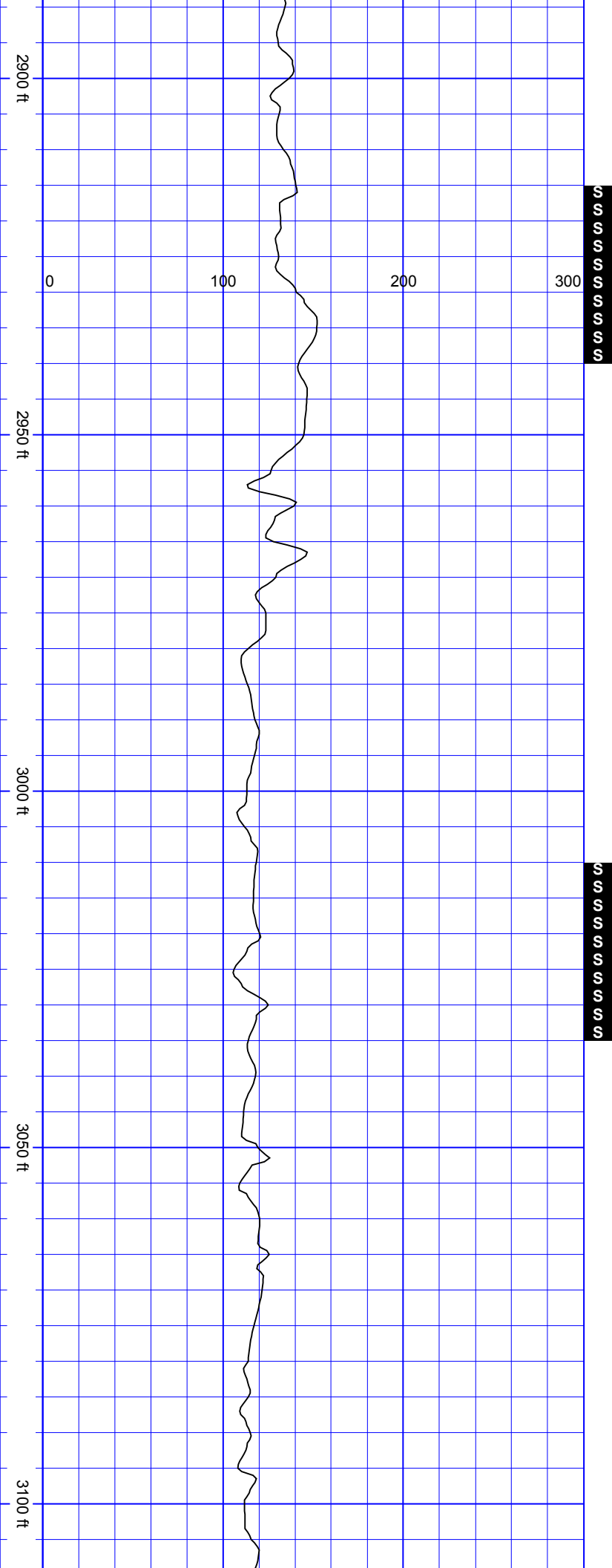




SurveyDepth:2754
TVD:2679.29 Inc:15.34
Azi:223.85 VertSec:-
316.79

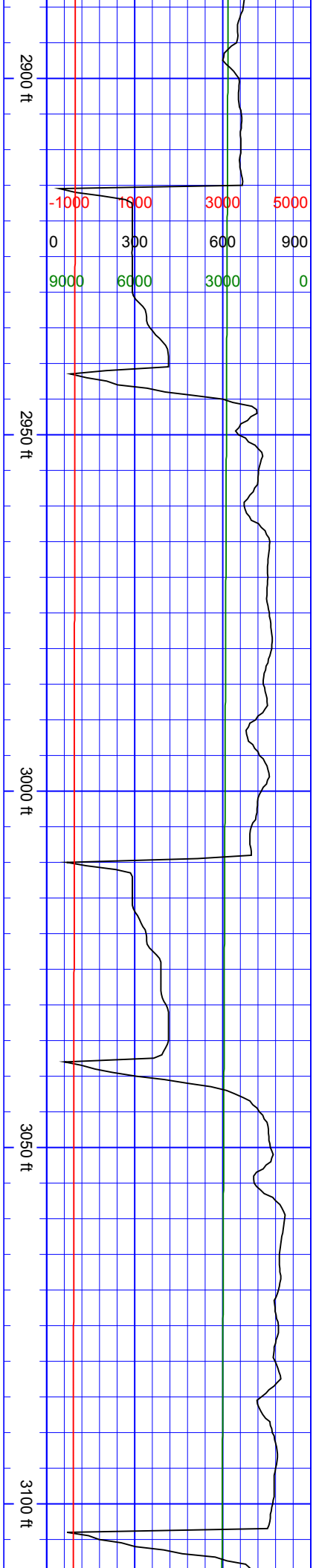
SurveyDepth:2848
TVD:2769.72 Inc:16.35
Azi:225.79 VertSec:-
335.13

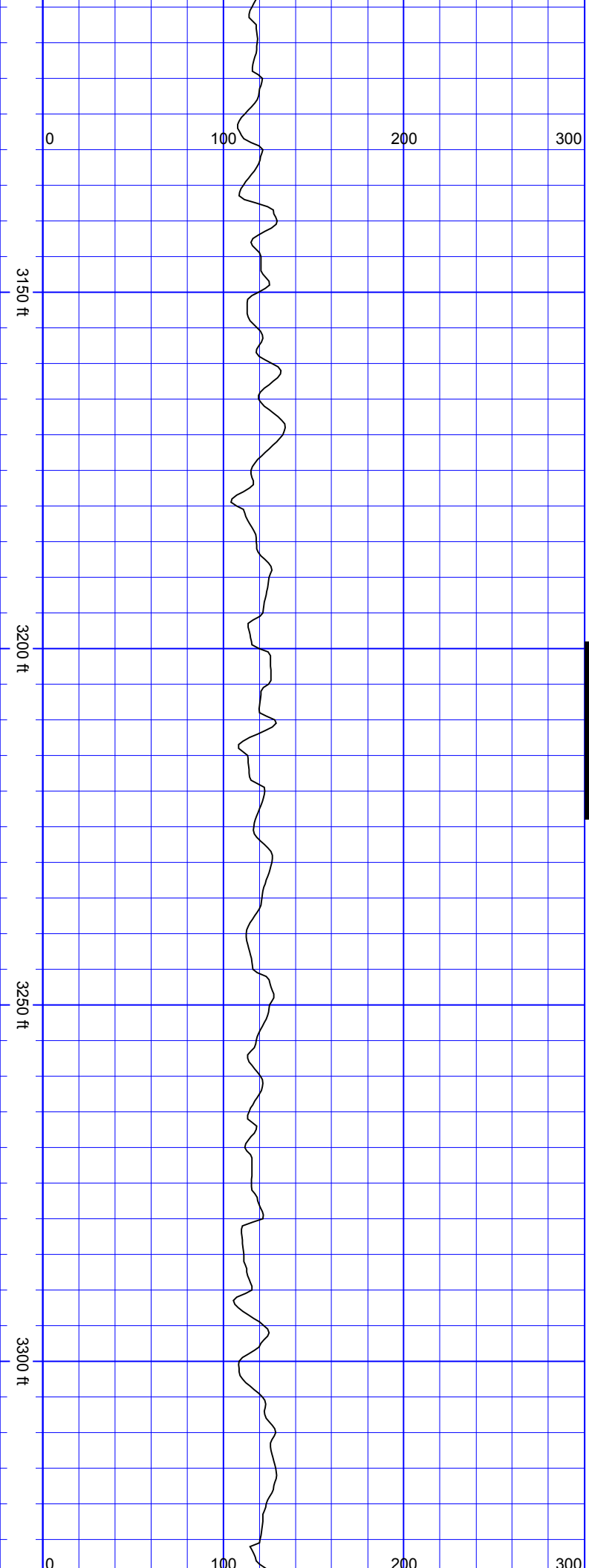




SurveyDepth:2943
TVD:2860.53 Inc:17.8
Azi:225.08 VertSec:-
354.87

SurveyDepth:3037
TVD:2949.35 Inc:20.39
Azi:230.53 VertSec:-
375.62

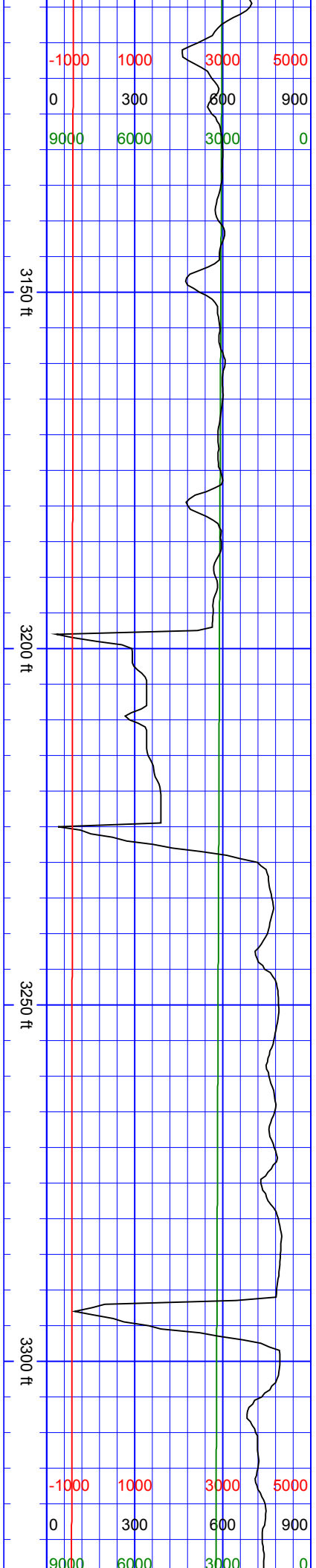


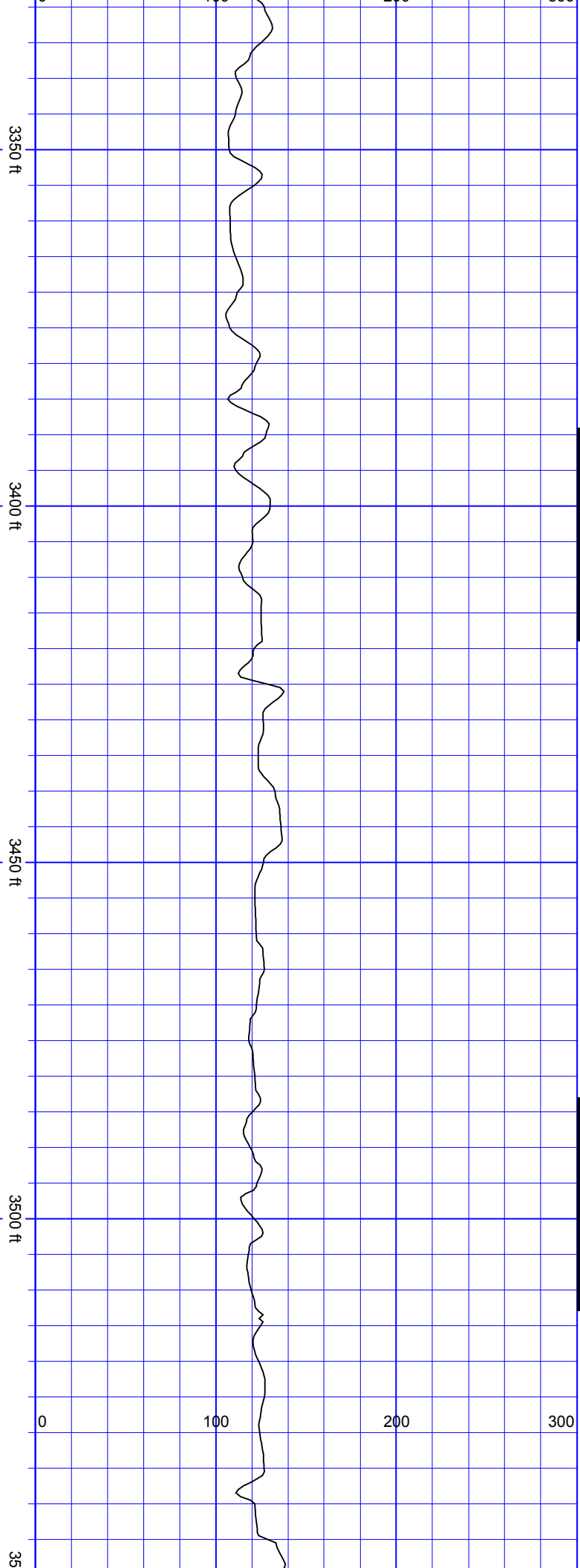


SurveyDepth:3132
TVD:3038.93 Inc:18.5
Azi:228.78 VertSec:-
396.27

SurveyDepth:3227
TVD:3129.24 Inc:17.8
Azi:240.73 VertSec:-
413.5

SurveyDepth:3322
TVD:3220.31 Inc:15.21
Azi:240.38 VertSec:-



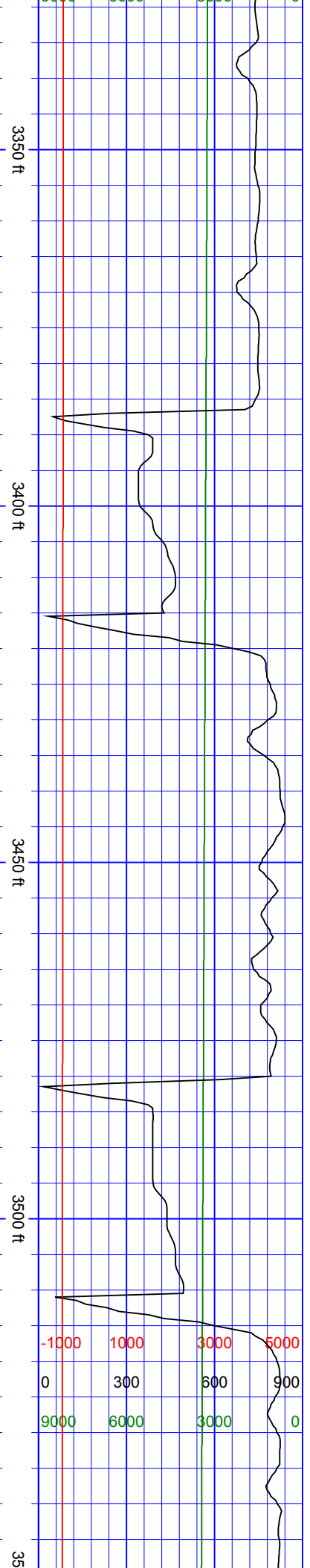


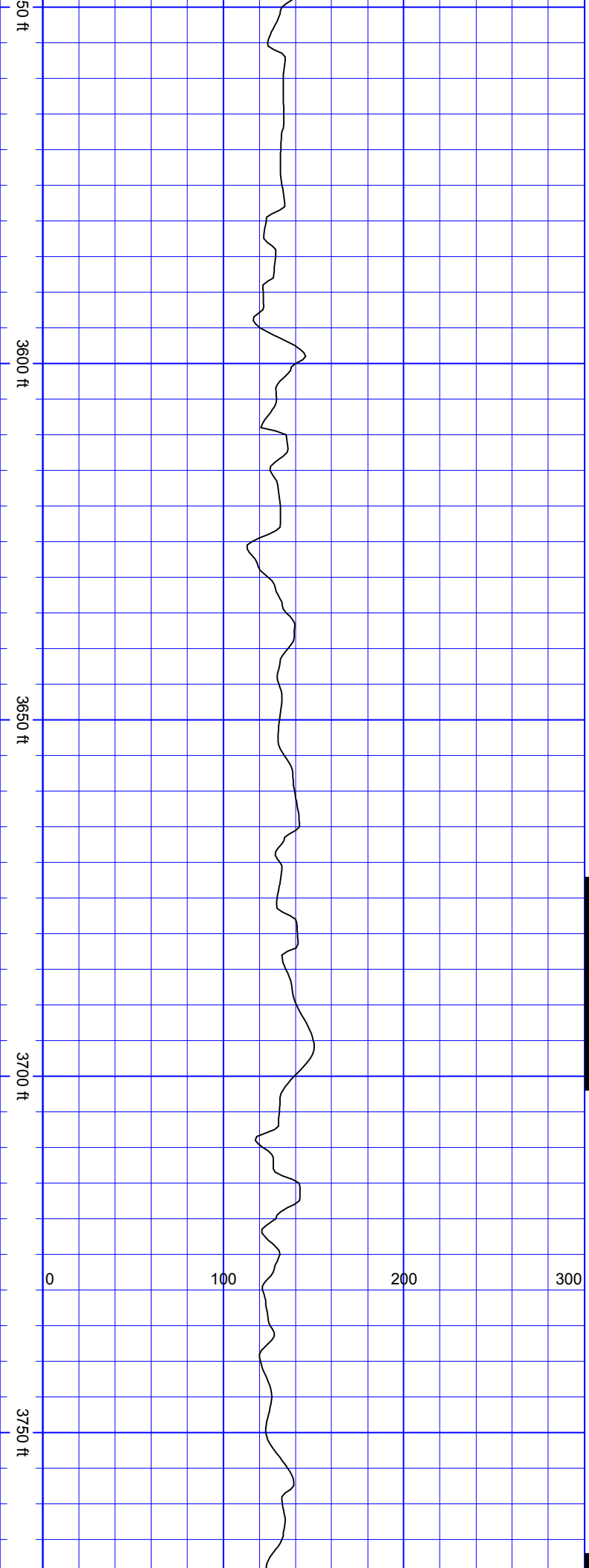
S S S S S S S S S S

SurveyDepth:3416
TVD:3310.85 Inc:16
Azi:240.82 VertSec:-
439.55

S S S S S S S S S S

SurveyDepth:3511
TVD:3401.73 Inc:17.84
Azi:239.59 VertSec:-
453.49





SurveyDepth:3605
TVD:3492.02 Inc:14.41
Azi:237.57 VertSec:-
467.24

SurveyDepth:3700
TVD:3583.92 Inc:14.94
Azi:238.09 VertSec:-
480.22

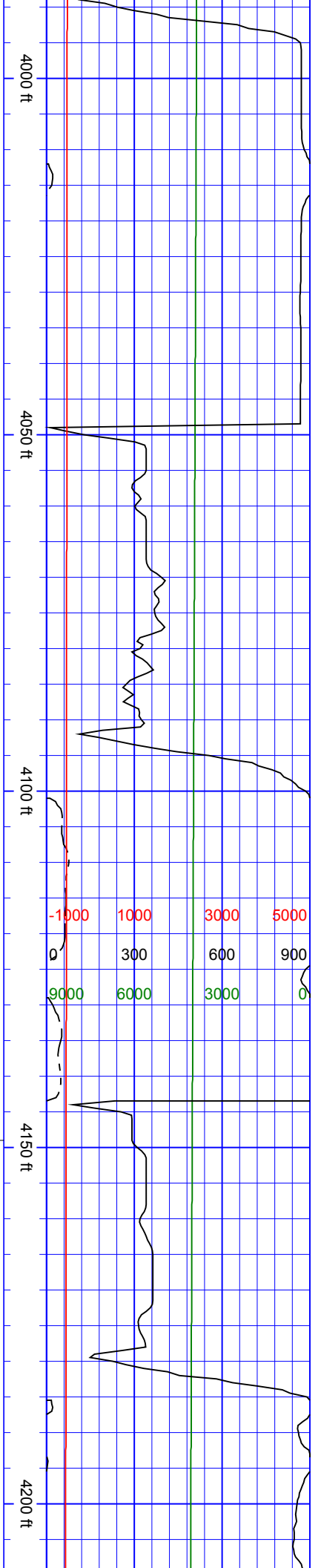
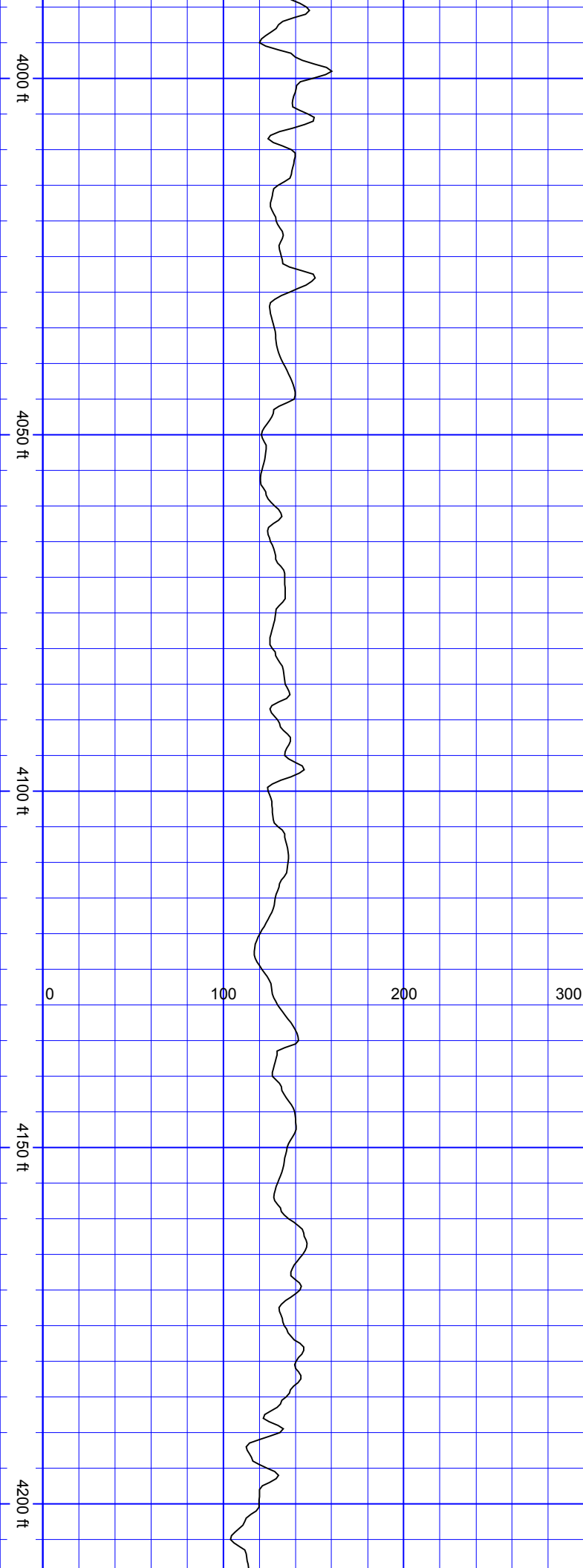


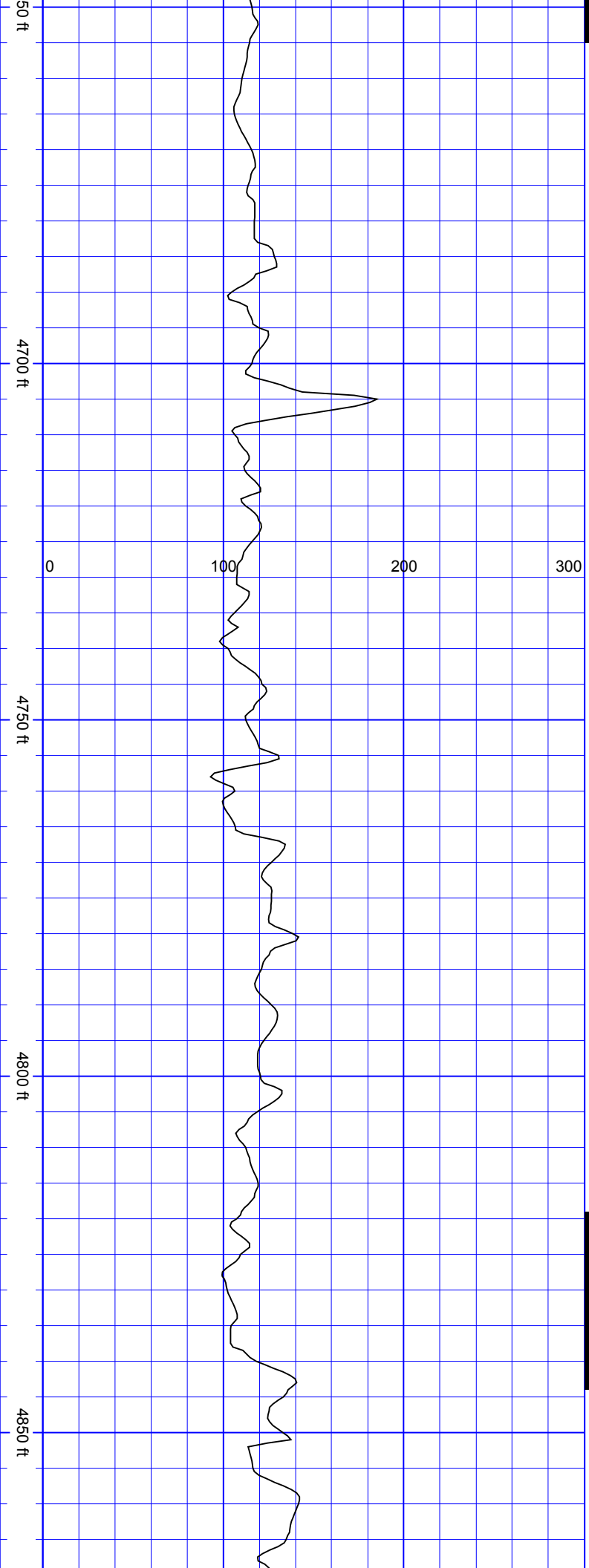
Azi:237.13 VertSec:-522.95

SurveyDepth:4079
TVD:3946.24 Inc:16.57
Azi:242.4 VertSec:-537.06

SurveyDepth:4173
TVD:4036.04 Inc:17.93
Azi:229.83 VertSec:-552.79

May 29, 2018





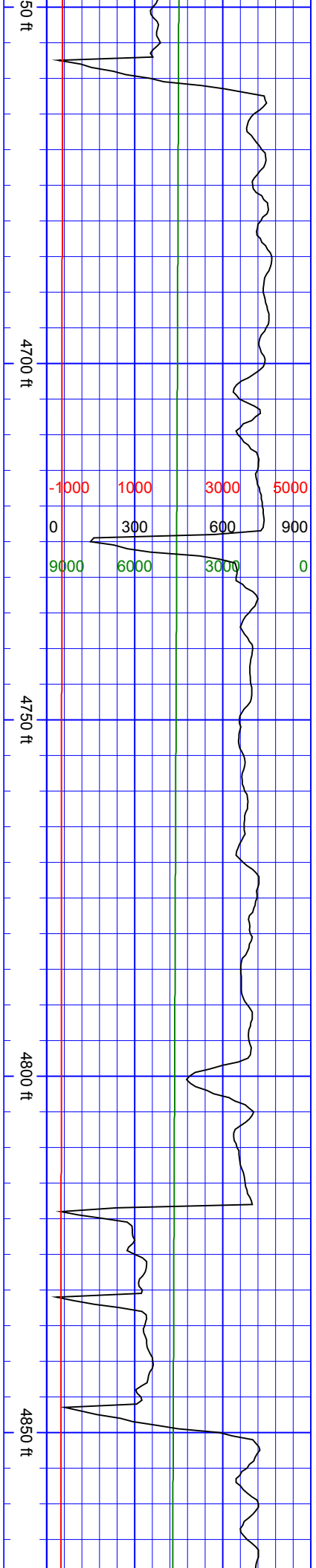
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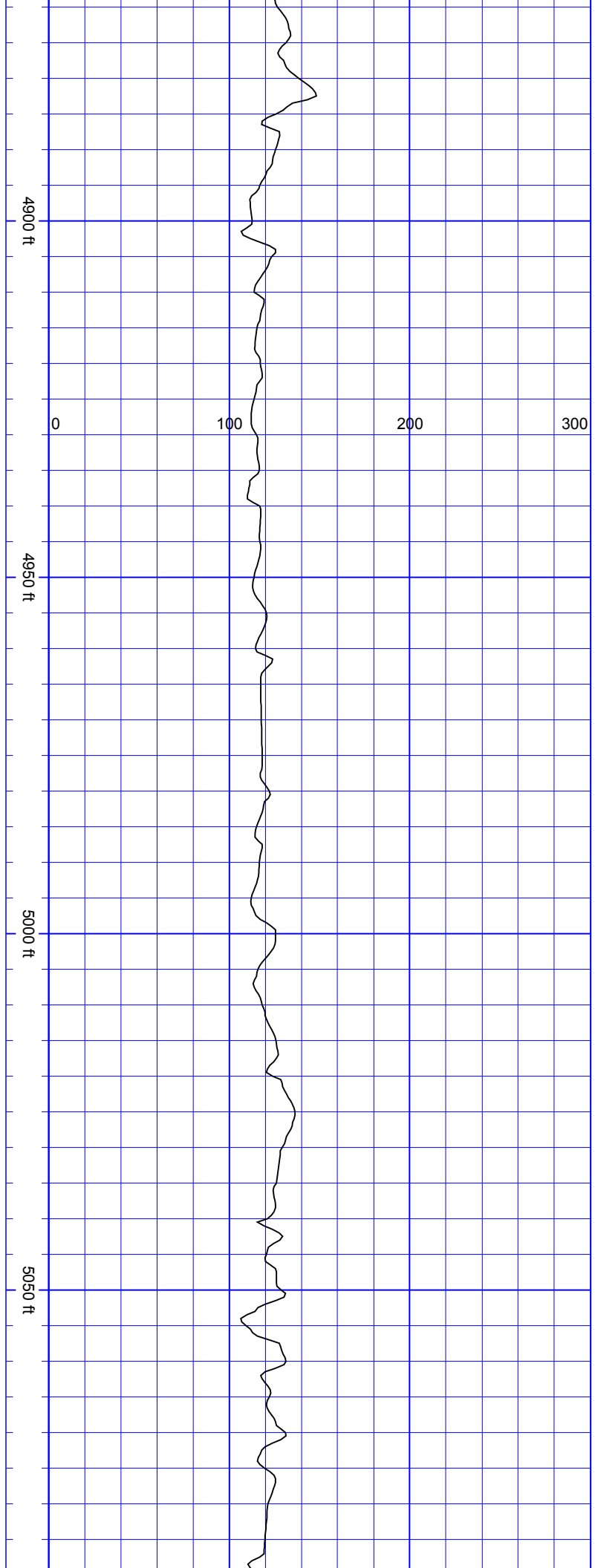
SurveyDepth:4657
TVD:4496.32 Inc:19.25
Azi:236.95 VertSec:-
638.19

S S S S S S S S S S

SurveyDepth:4752
TVD:4586.57 Inc:17.1
Azi:234.23 VertSec:-
655.1

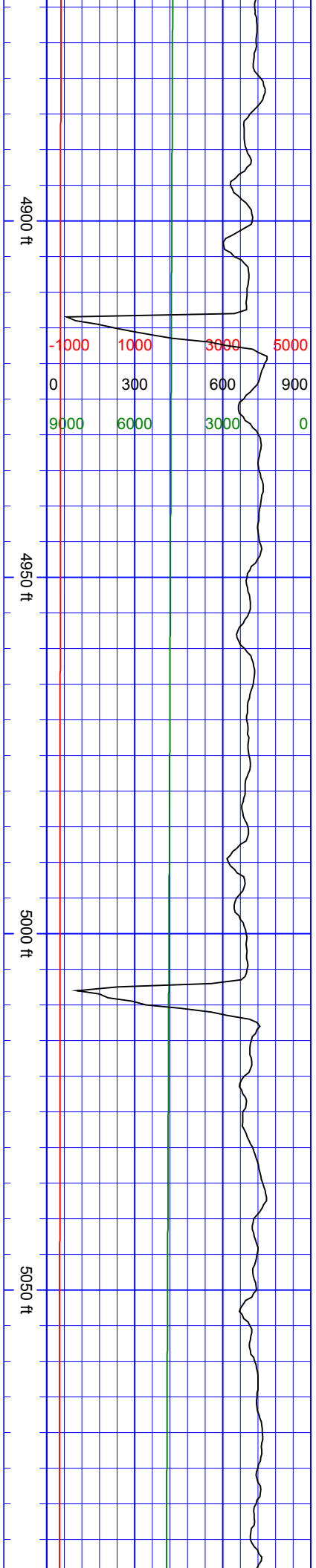
SurveyDepth:4847
TVD:4677.35 Inc:17.23
Azi:241.87 VertSec:-
670.09

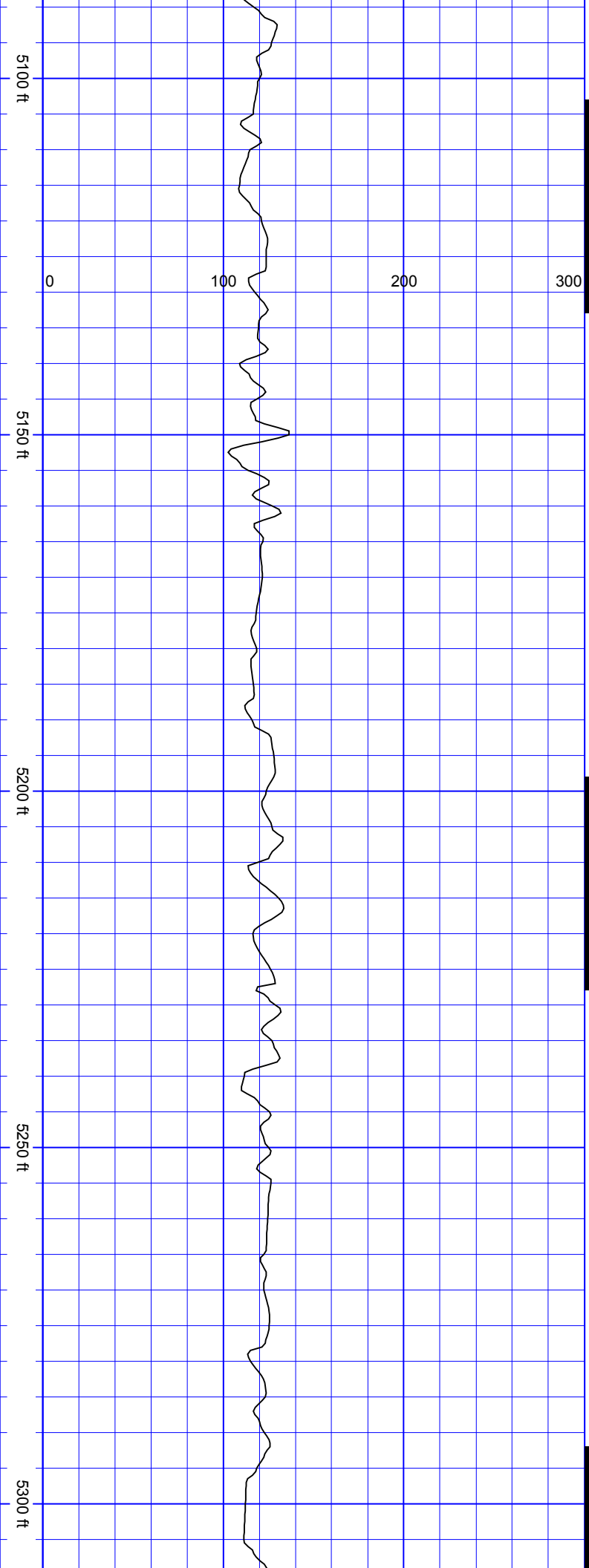




SurveyDepth:4942
TVD:4768.27 Inc:16.48
Azi:240.2 VertSec:-
683.62

SurveyDepth:5036
TVD:4859.05 Inc:13.54
Azi:237.65 VertSec:-
696.31

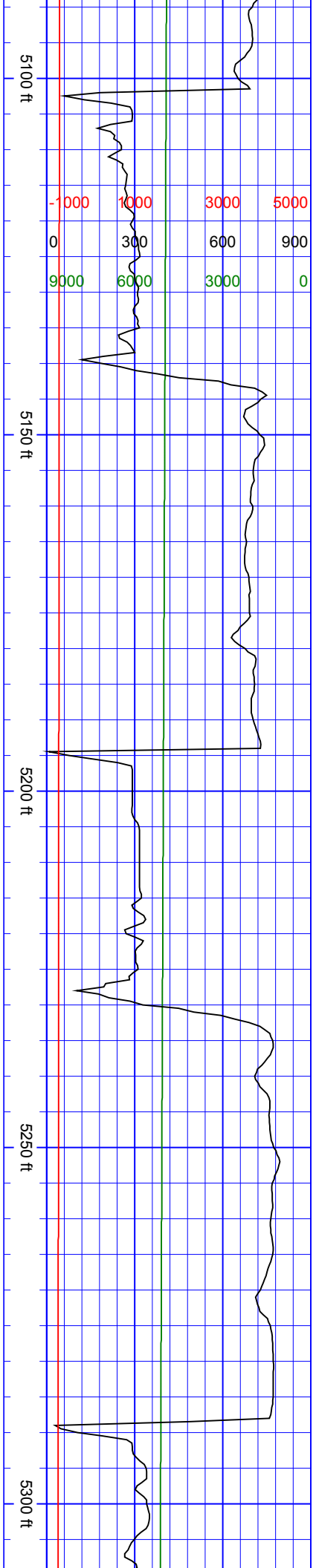
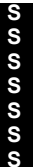


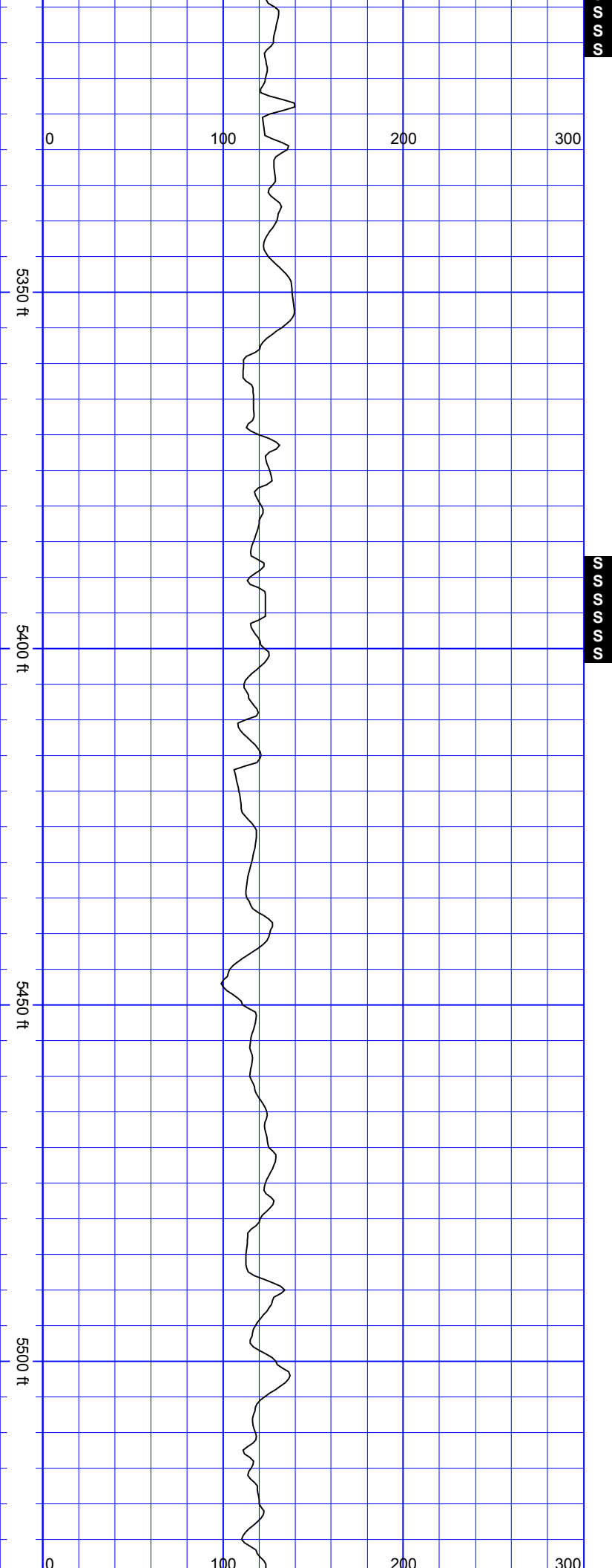


SurveyDepth:5131
TVD:4951.31 Inc:14.11
Azi:231.5 VertSec:-
709.62



SurveyDepth:5225
TVD:5041.98 Inc:16.48
Azi:238.09 VertSec:-
723.97

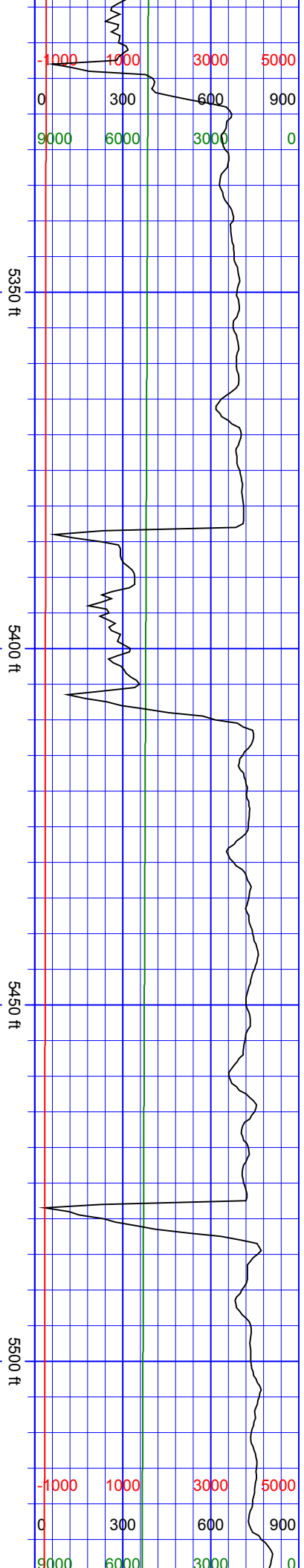


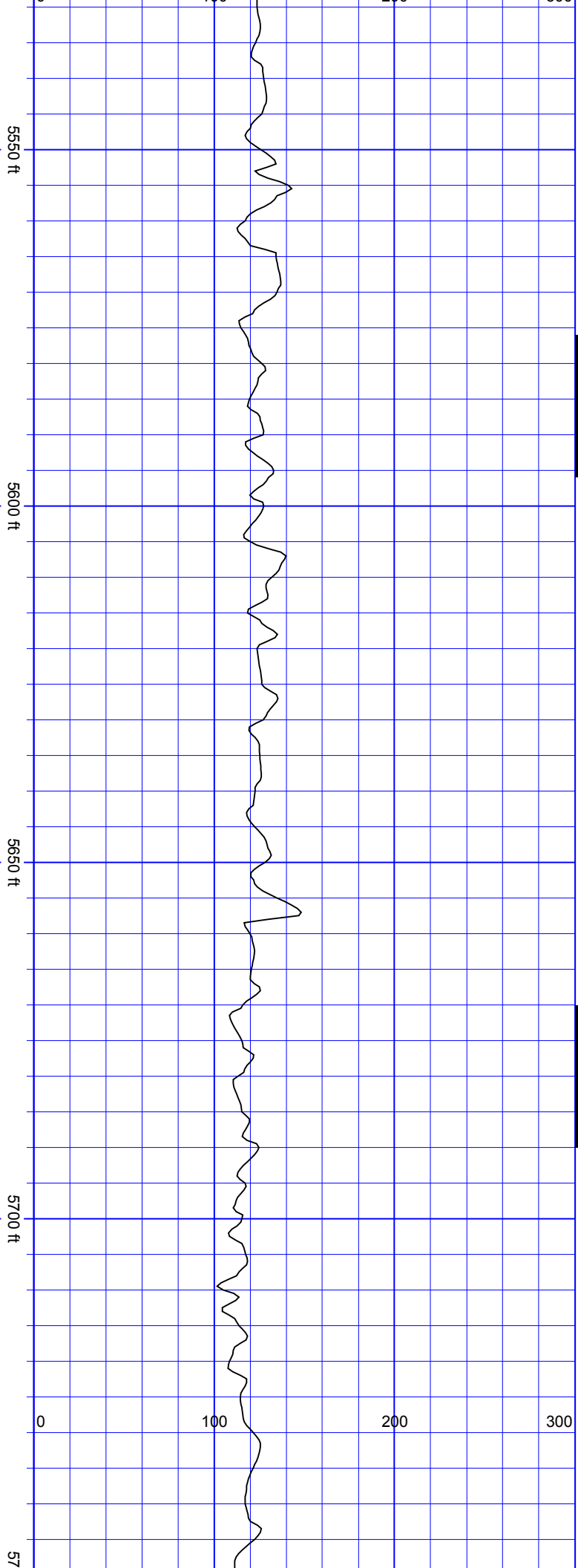


SurveyDepth:5320
TVD:5132.9 Inc:17.23
Azi:238.97 VertSec:-
738.54

SurveyDepth:5415
TVD:5223.2 Inc:18.94
Azi:235.1 VertSec:-
754.82

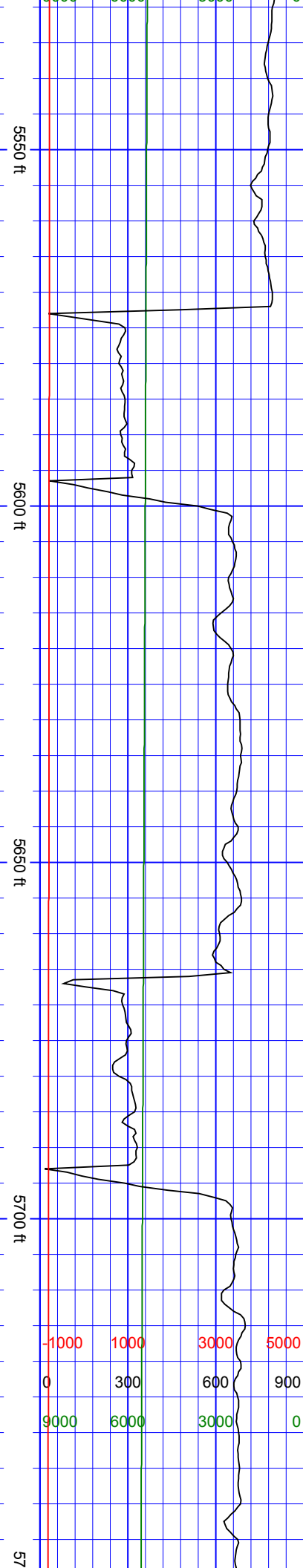
SurveyDepth:5509
TVD:5312.69 Inc:16.7
Azi:233.7 VertSec:-
771.73

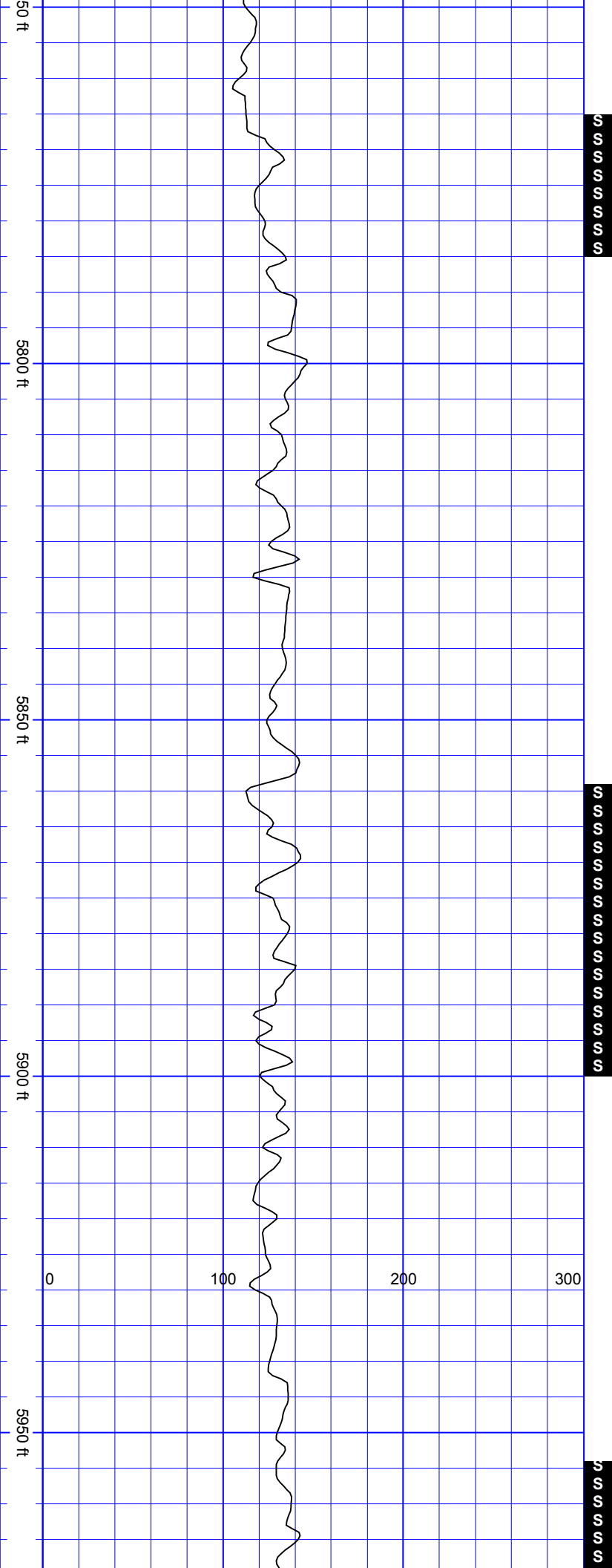




SurveyDepth:5603
TVD:5403.02 Inc:15.43
Azi:237.21 VertSec:-
786.68

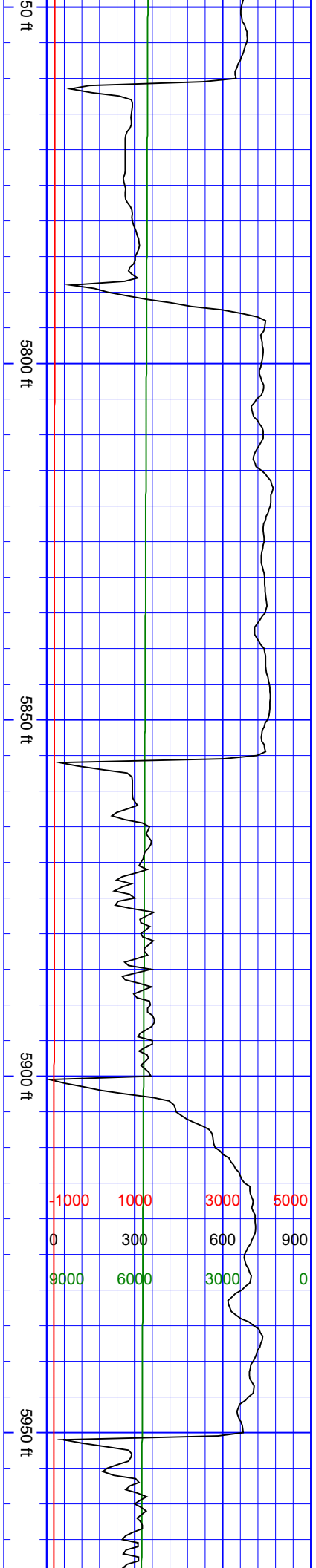
SurveyDepth:5698
TVD:5494.45 Inc:16.08
Azi:235.81 VertSec:-
801.09

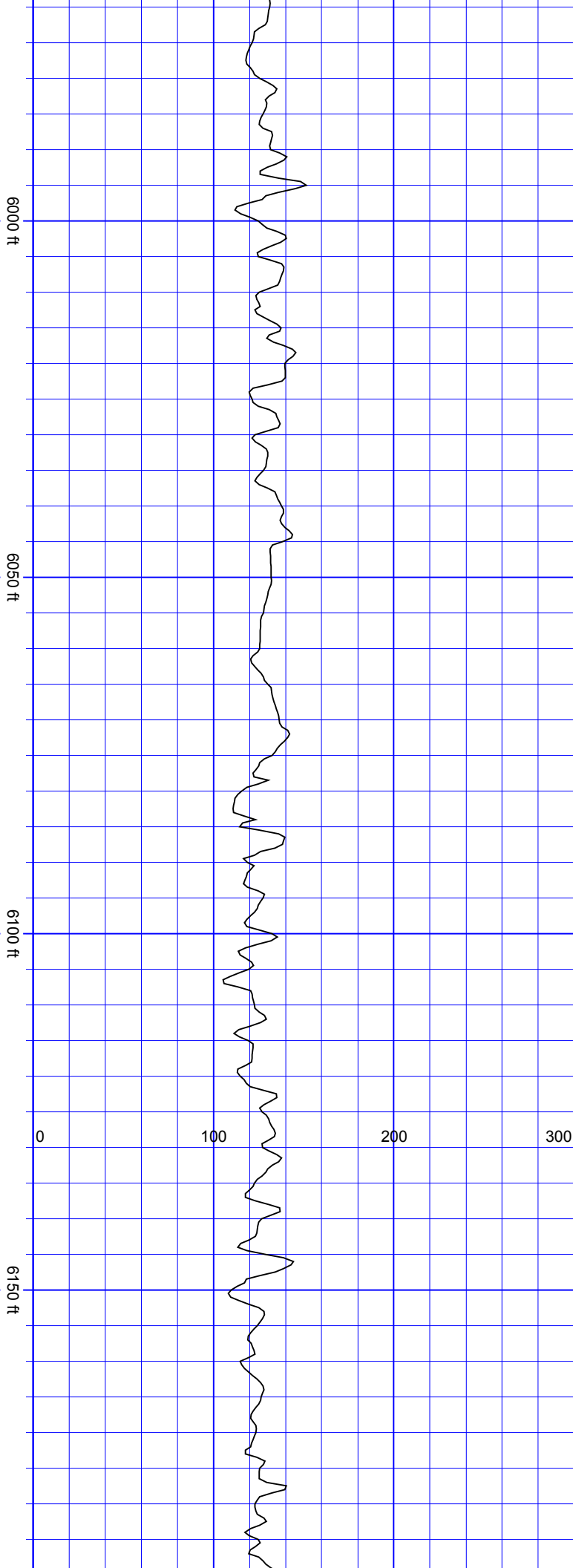




SurveyDepth:5792
TVD:5585.1 Inc:14.59
Azi:239.41 VertSec:-
814.6

SurveyDepth:5887
TVD:5677.47 Inc:12.39
Azi:240.82 VertSec:-
825.82

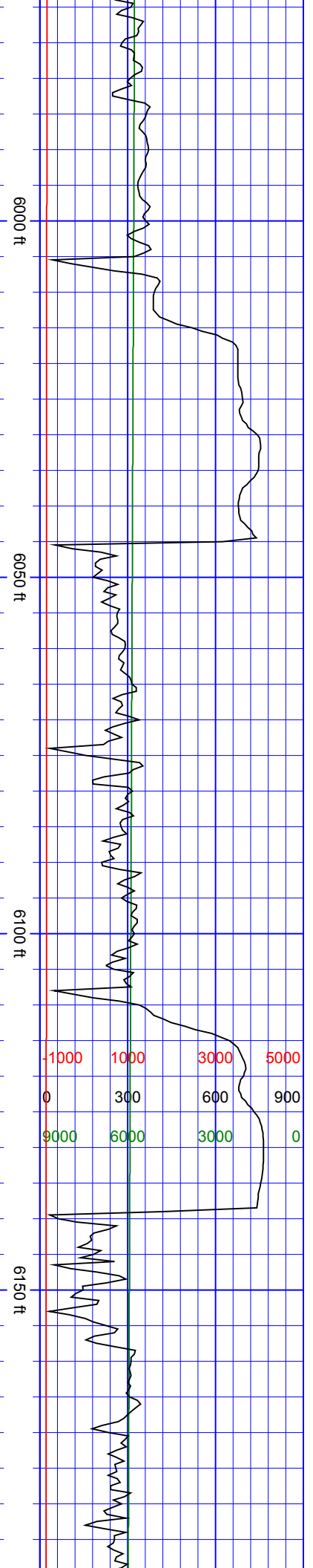


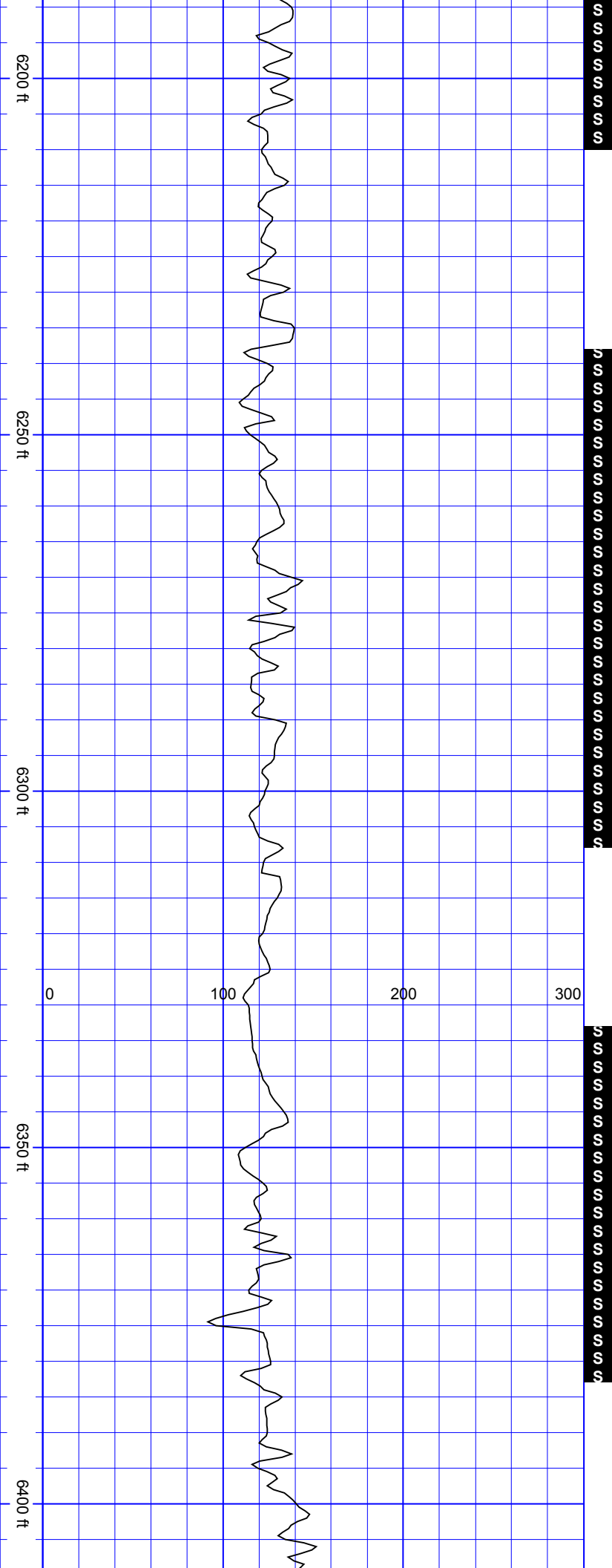


SurveyDepth:5982
TVD:5770.48 Inc:11.16
Azi:235.37 VertSec:-
836.15

SurveyDepth:6076
TVD:5862.49 Inc:12.48
Azi:242.49 VertSec:-
846.15

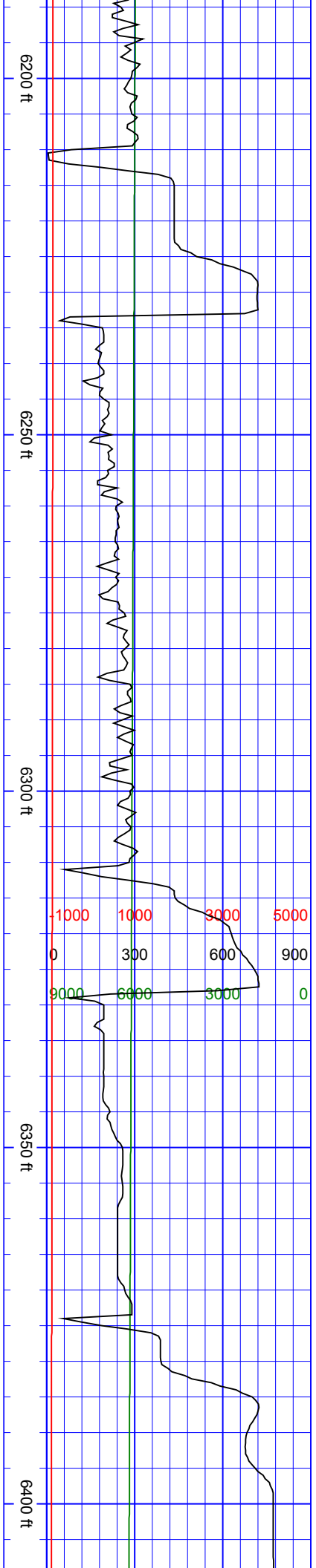
SurveyDepth:6171
TVD:5955.64 Inc:10.33
Azi:261.73 VertSec:-
852.26

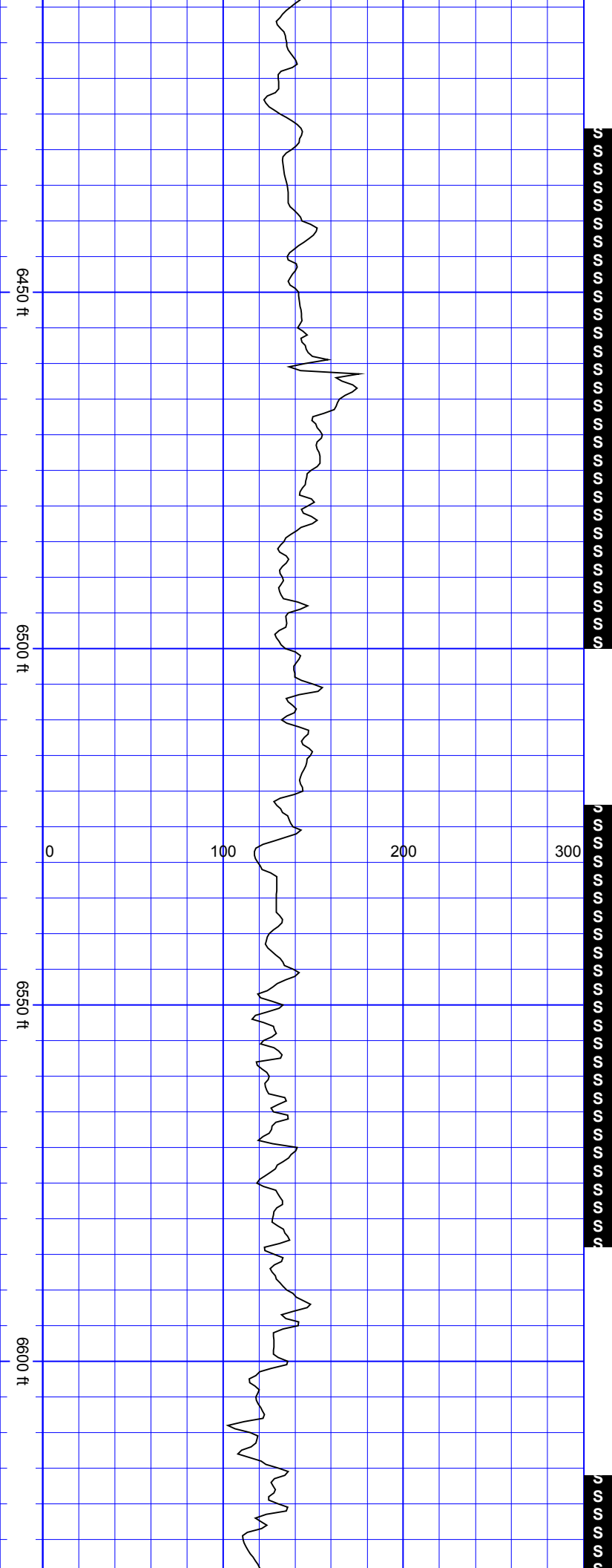




SurveyDepth:6266
TVD:6048.46 Inc:14.5
Azi:236.95 VertSec:-
860.13

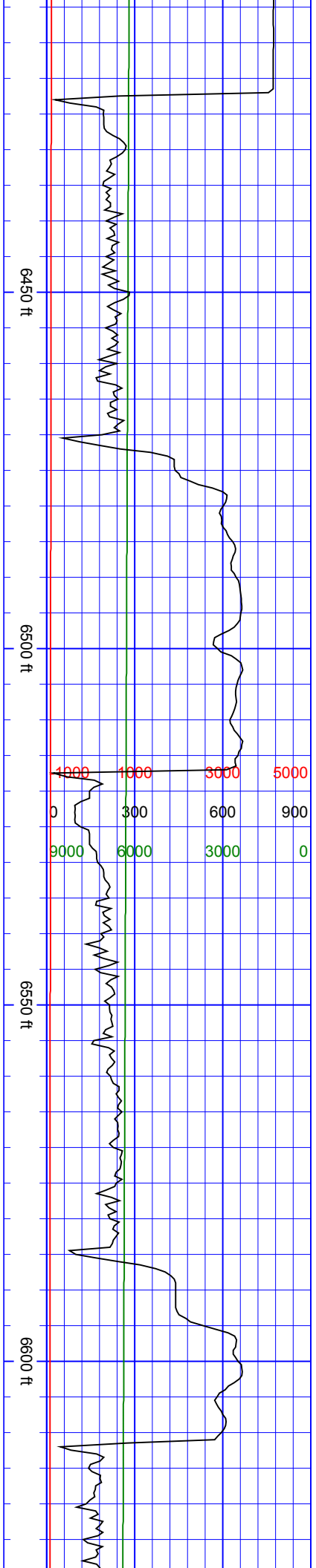
SurveyDepth:6360
TVD:6138.65 Inc:18.37
Azi:221.66 VertSec:-
877.79





SurveyDepth:6455
TVD:6229.35 Inc:16.3
Azi:232.82 VertSec:-
897.21

SurveyDepth:6549
TVD:6319.1 Inc:18.28
Azi:235.81 VertSec:-
913.65



6650 ft

6700 ft

0 100 200 300

6750 ft

6800 ft

68

SurveyDepth:6644
TVD:6409.23 Inc:19.03
Azi:259.1 VertSec:-
925.19

SurveyDepth:6739
TVD:6499.34 Inc:18.11
Azi:274.48 VertSec:-
927.21

SurveyDepth:6833
TVD:6588.9 Inc:18.19
Azi:307.26 VertSec:-
917.38

6650 ft

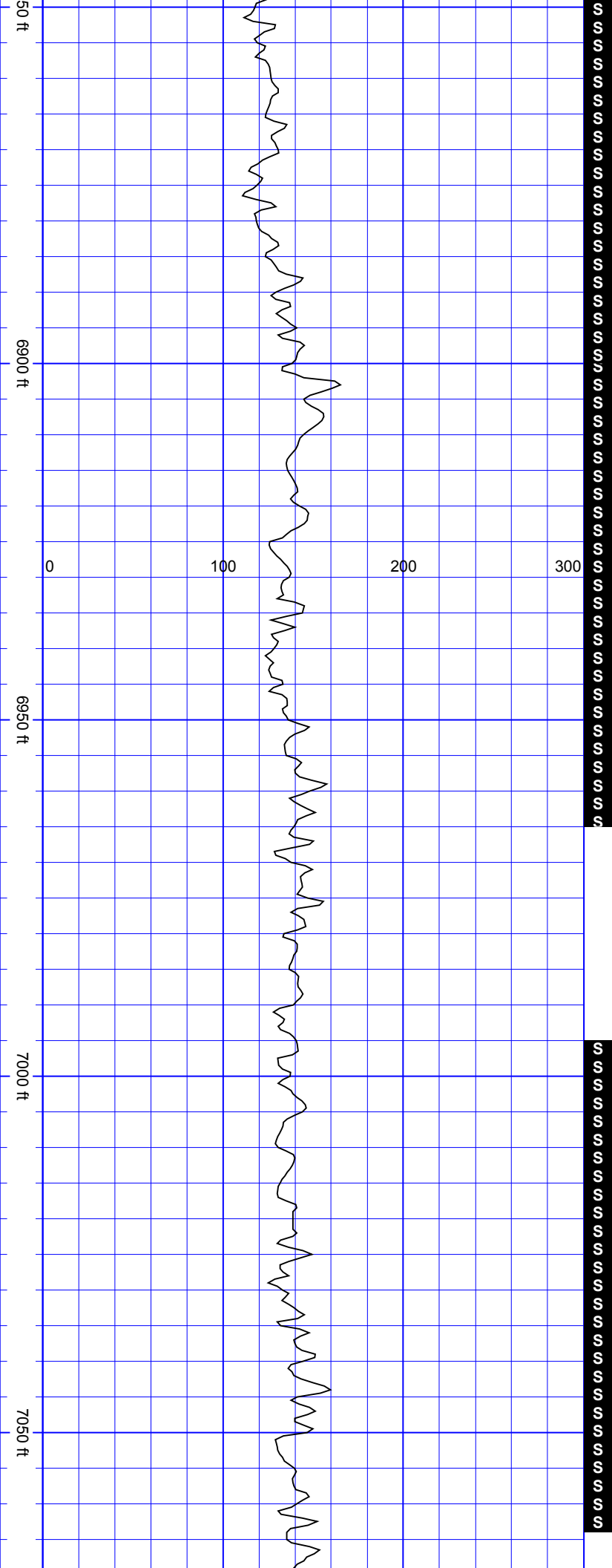
6700 ft

6750 ft

6800 ft

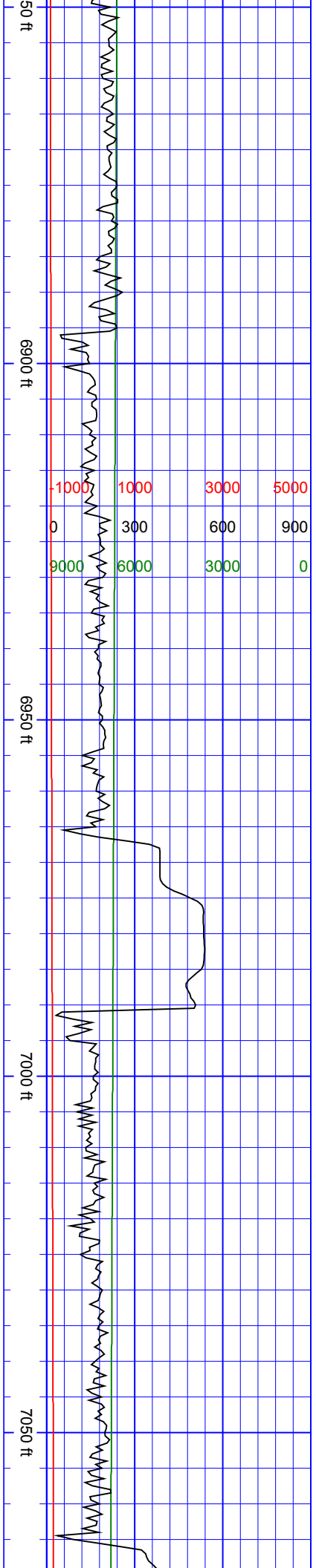
68

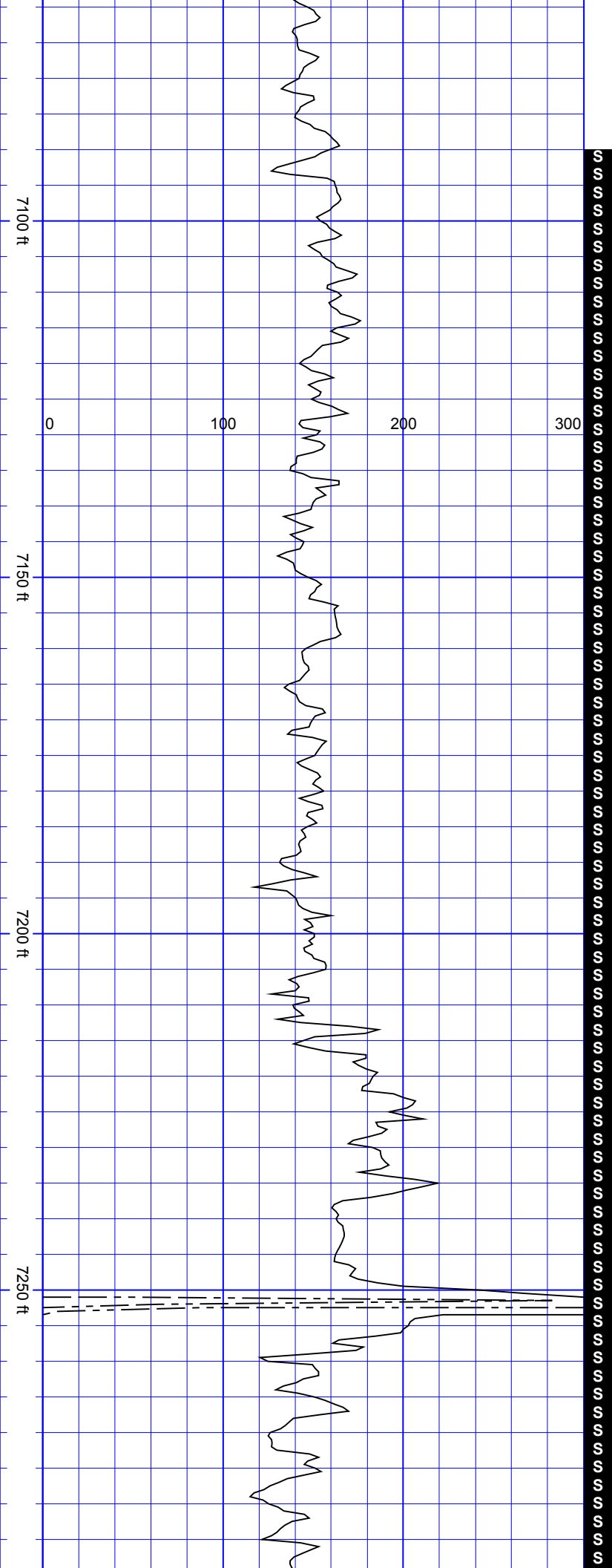
-1000	1000	3000	5000
9000	6000	3000	0
300	600	900	



SurveyDepth:6928
TVD:6677.62 Inc:24.04
Azi:329.85 VertSec:-
891.78

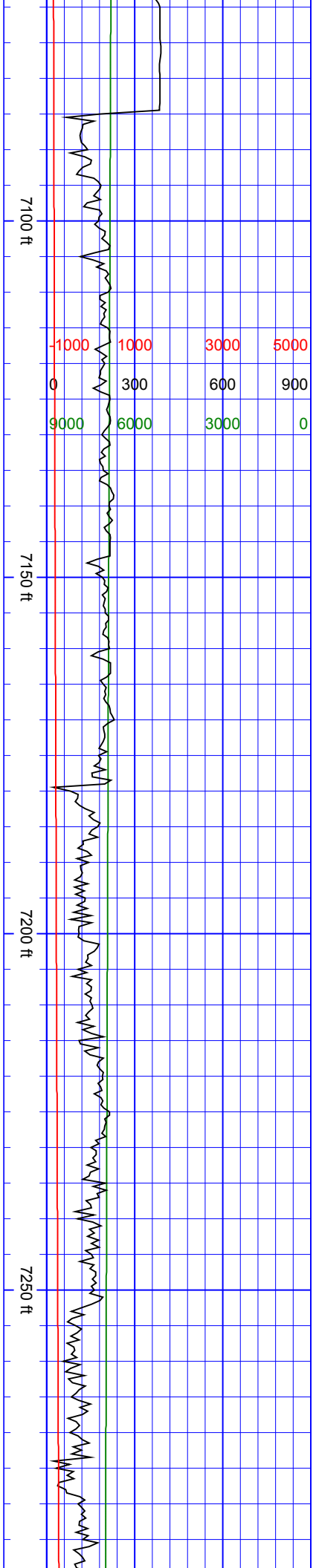
SurveyDepth:7023
TVD:6764.99 Inc:22.37
Azi:342.68 VertSec:-
857.89

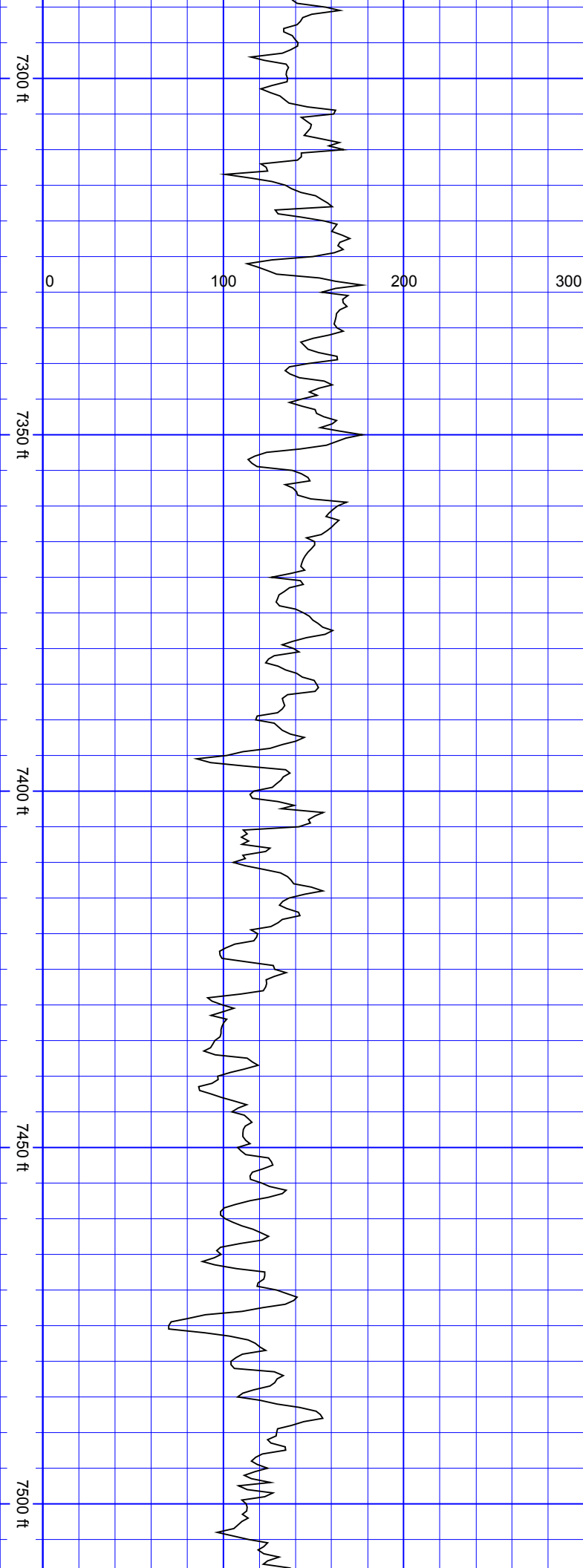




SurveyDepth:7117
TVD:6850.16 Inc:27.69
Azi:350.68 VertSec:-
819.3

SurveyDepth:7212
TVD:6930.19 Inc:37.31
Azi:353.05 VertSec:-
768.88

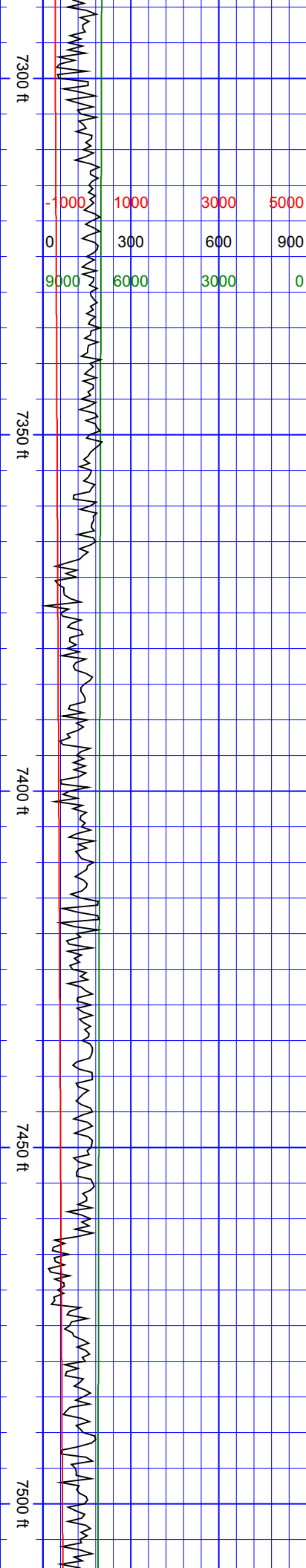


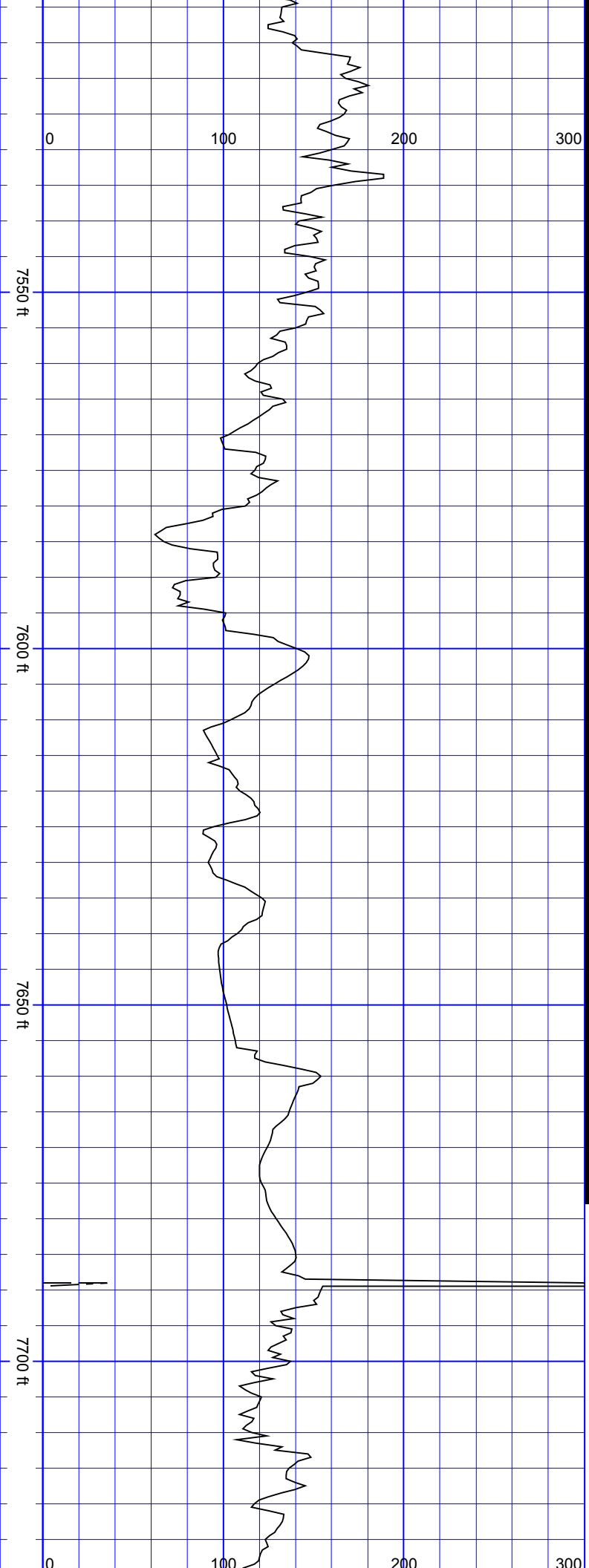


SurveyDepth:7307
TVD:7001.24 Inc:45.75
Azi:352.61 VertSec:-
706.51

SurveyDepth:7401
TVD:7061.28 Inc:54.76
Azi:352.79 VertSec:-
634.97

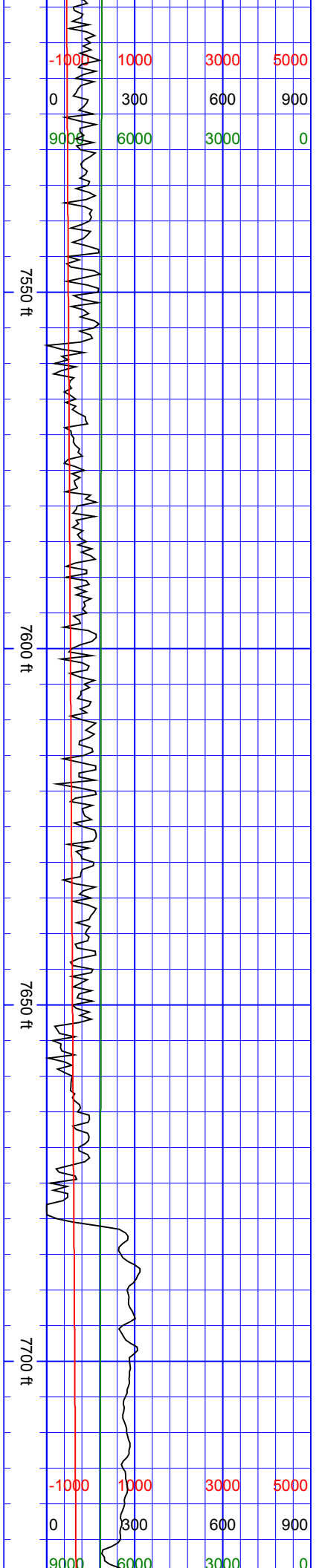
SurveyDepth:7496
TVD:7109.05 Inc:64.78
Azi:352.7 VertSec:-
553.74

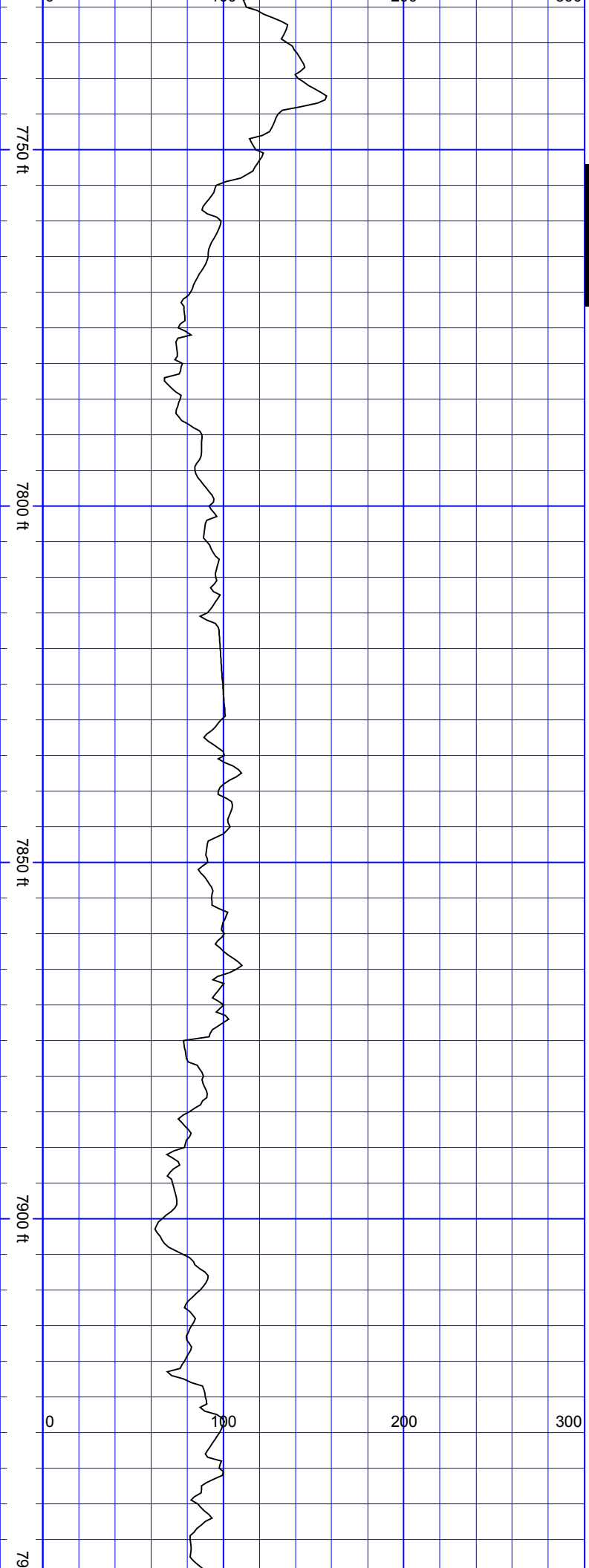




SurveyDepth:7591
TVD:7140.38 Inc:76.64
Azi:353.84 VertSec:-
464.94

SurveyDepth:7685
TVD:7154.38 Inc:86.22
Azi:359.65 VertSec:-
372.33

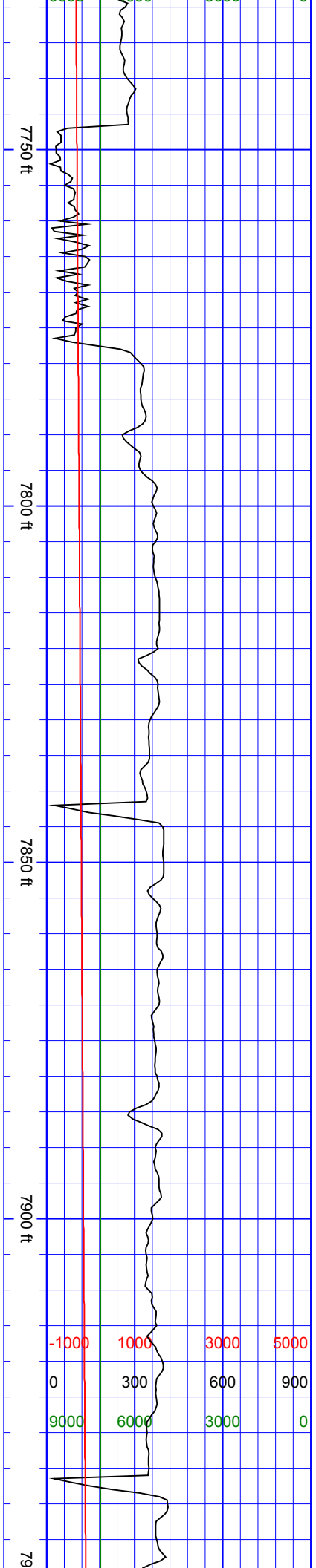


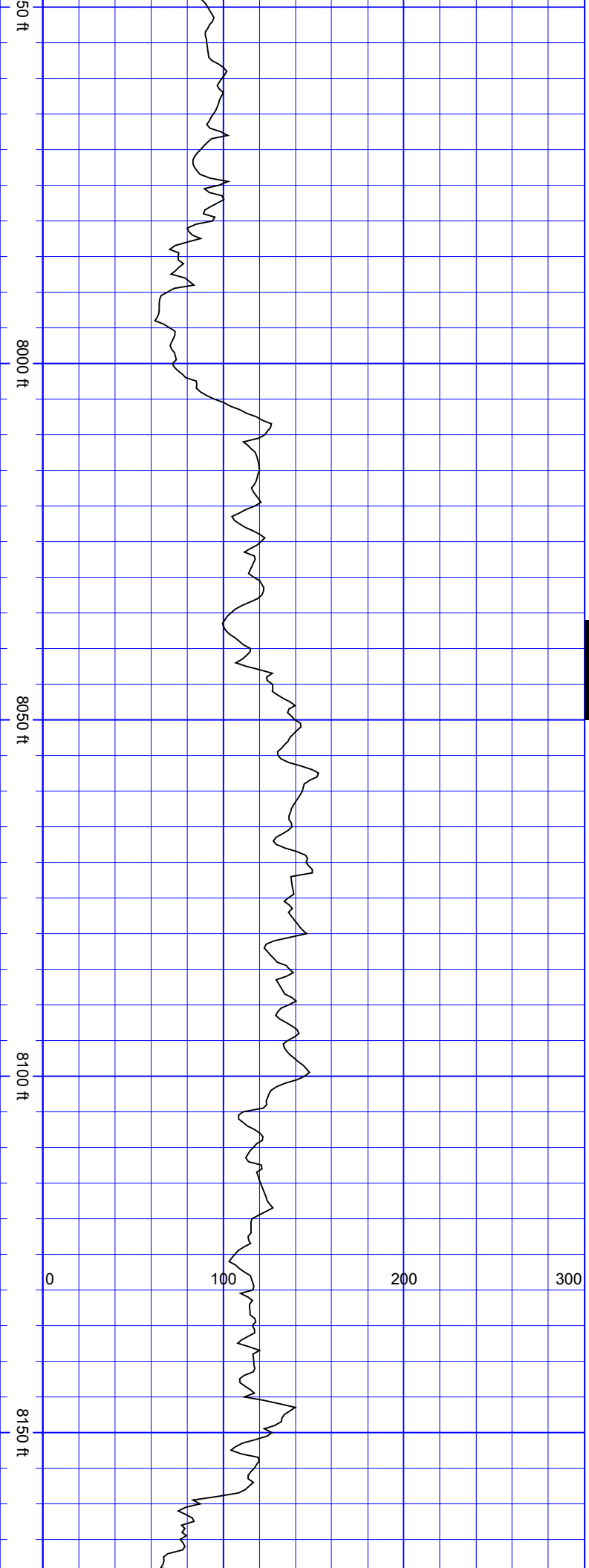


SSSSSSSSSS

SurveyDepth:7780
TVD:7157.66 Inc:89.82
Azi:356.66 VertSec:-
277.49

SurveyDepth:7875
TVD:7158.44 Inc:89.25
Azi:356.31 VertSec:-
182.72

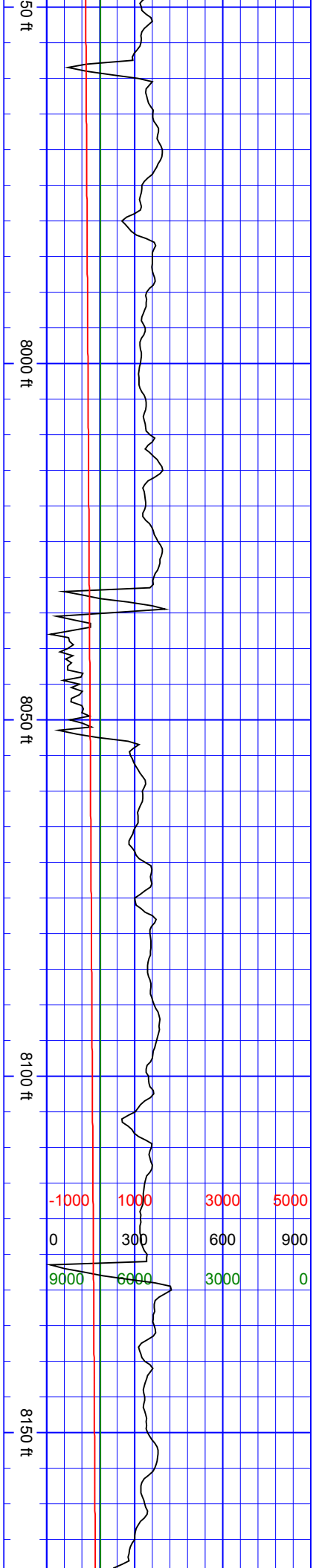


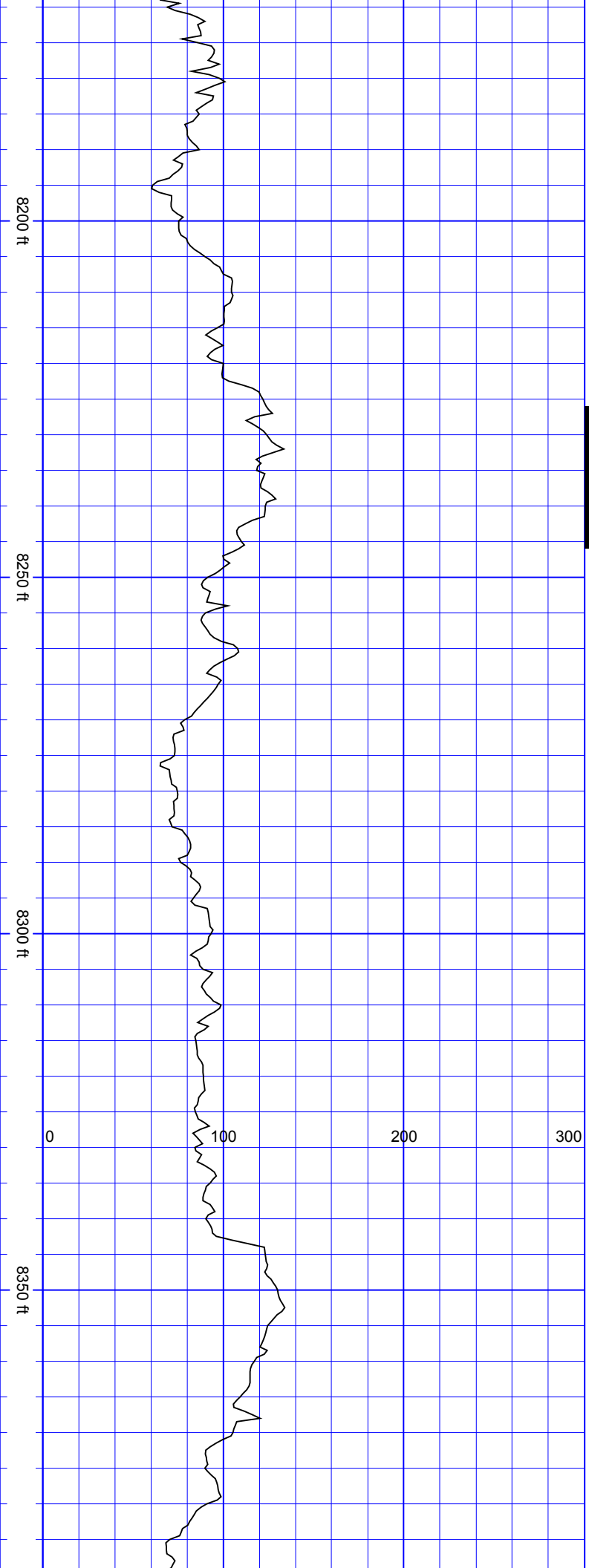


SurveyDepth:7969
TVD:7160.13 Inc:88.68
Azi:356.04 VertSec:-89

SurveyDepth:8064
TVD:7161.23 Inc:90
Azi:357.18 VertSec:5.77

SurveyDepth:8159
TVD:7161.92 Inc:89.17
Azi:357.01
VertSec:100.61

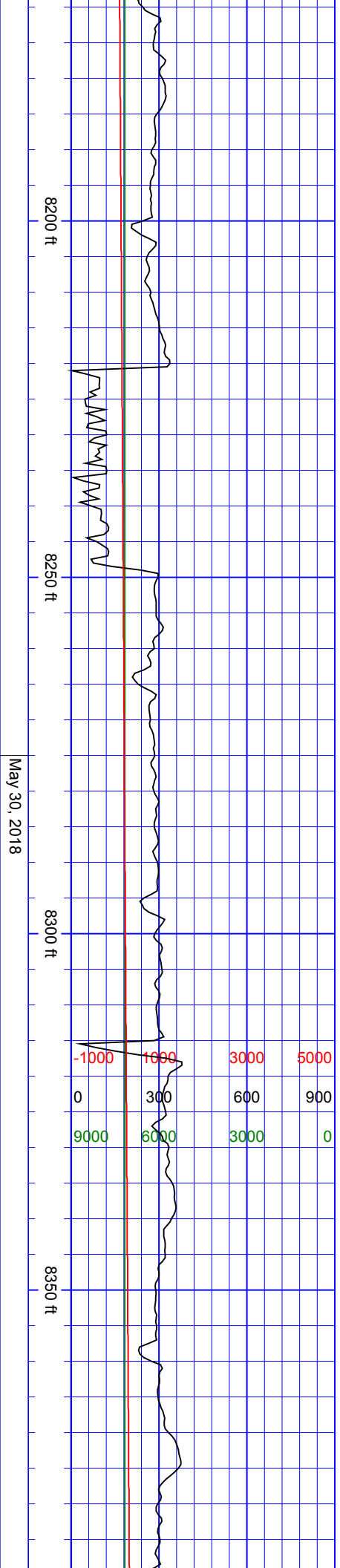


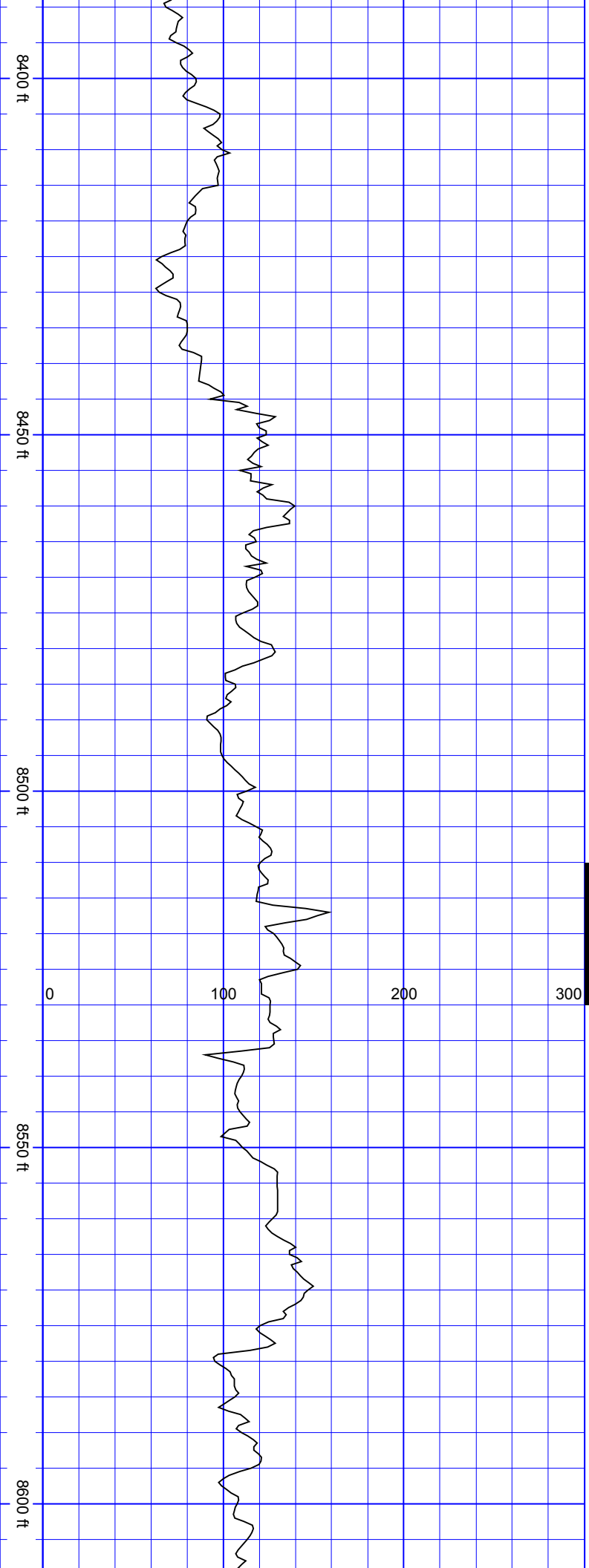


SSSSSSSSSS

SurveyDepth:8253
TVD:7160.94 Inc:92.02
Azi:357.1
VertSec:194.42

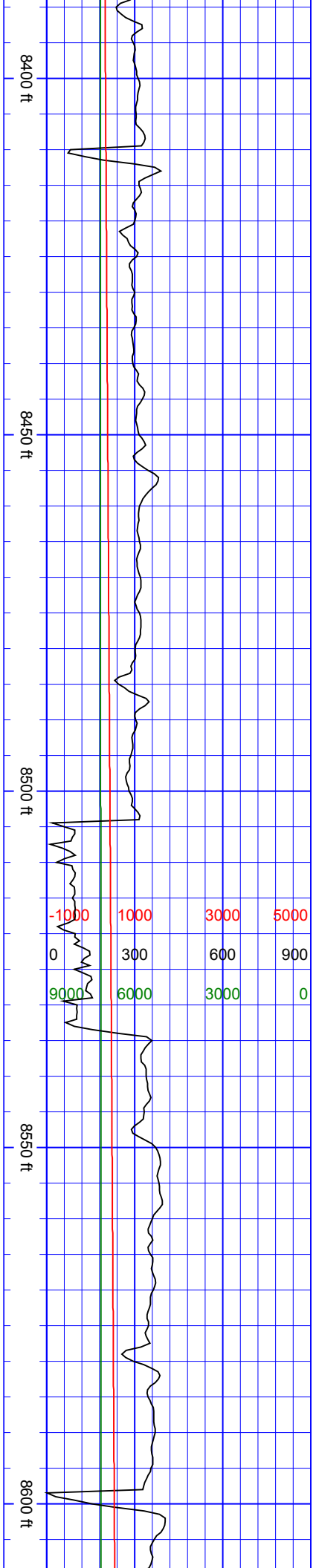
SurveyDepth:8348
TVD:7157.37 Inc:92.29
Azi:357.01
VertSec:289.19

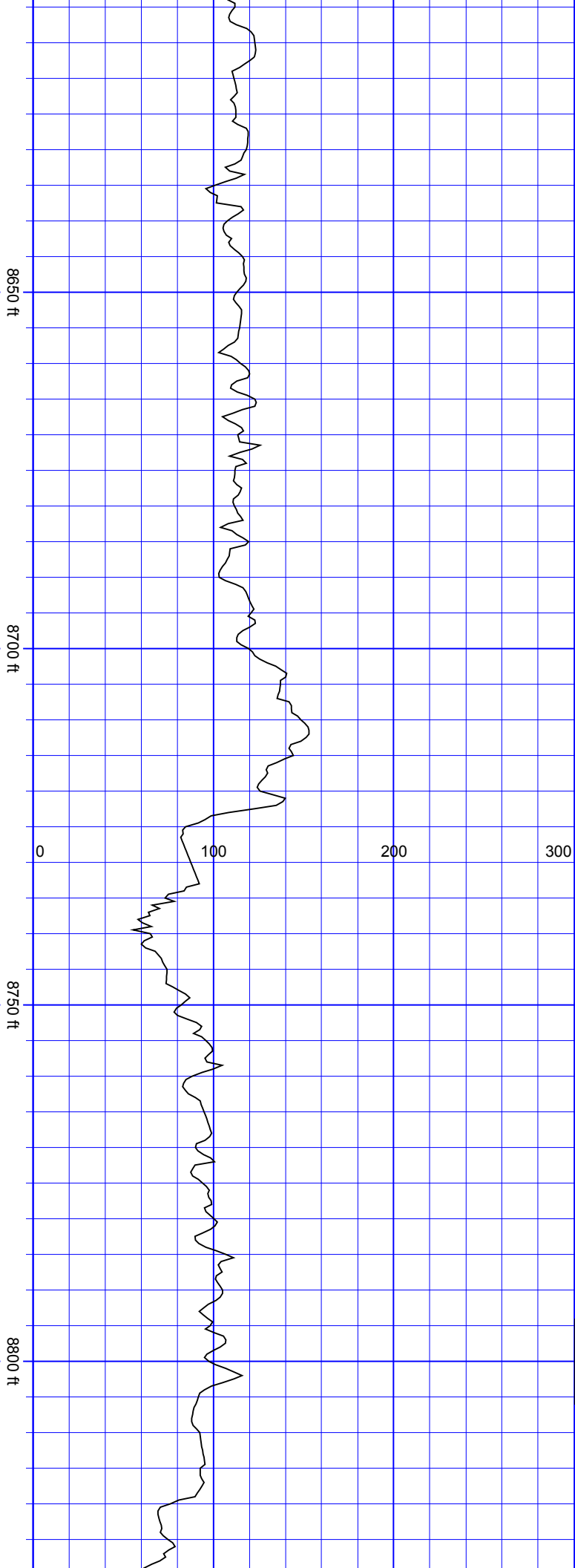




SurveyDepth:8443
TVD:7153.65 Inc:92.2
Azi:356.74
VertSec:383.93

SurveyDepth:8538
TVD:7149.96 Inc:92.24
Azi:0.79 VertSec:478.79



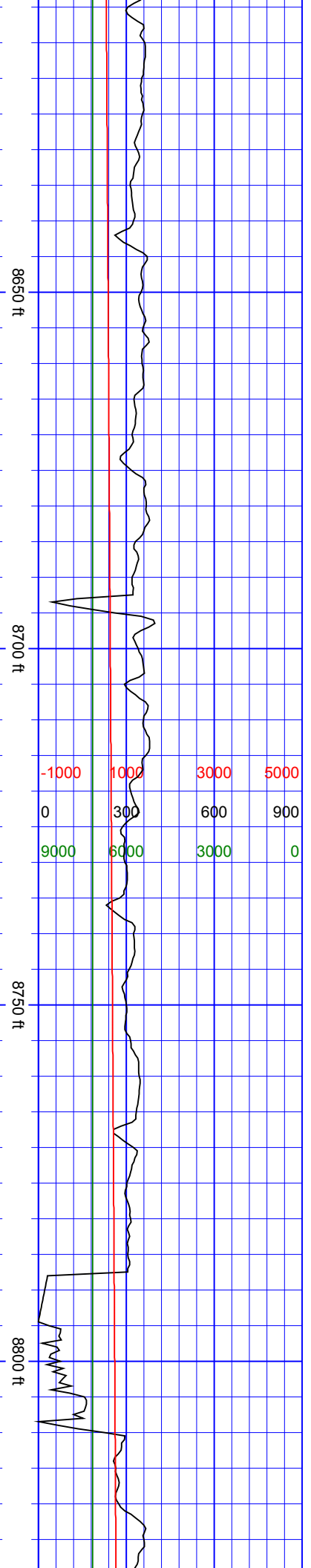


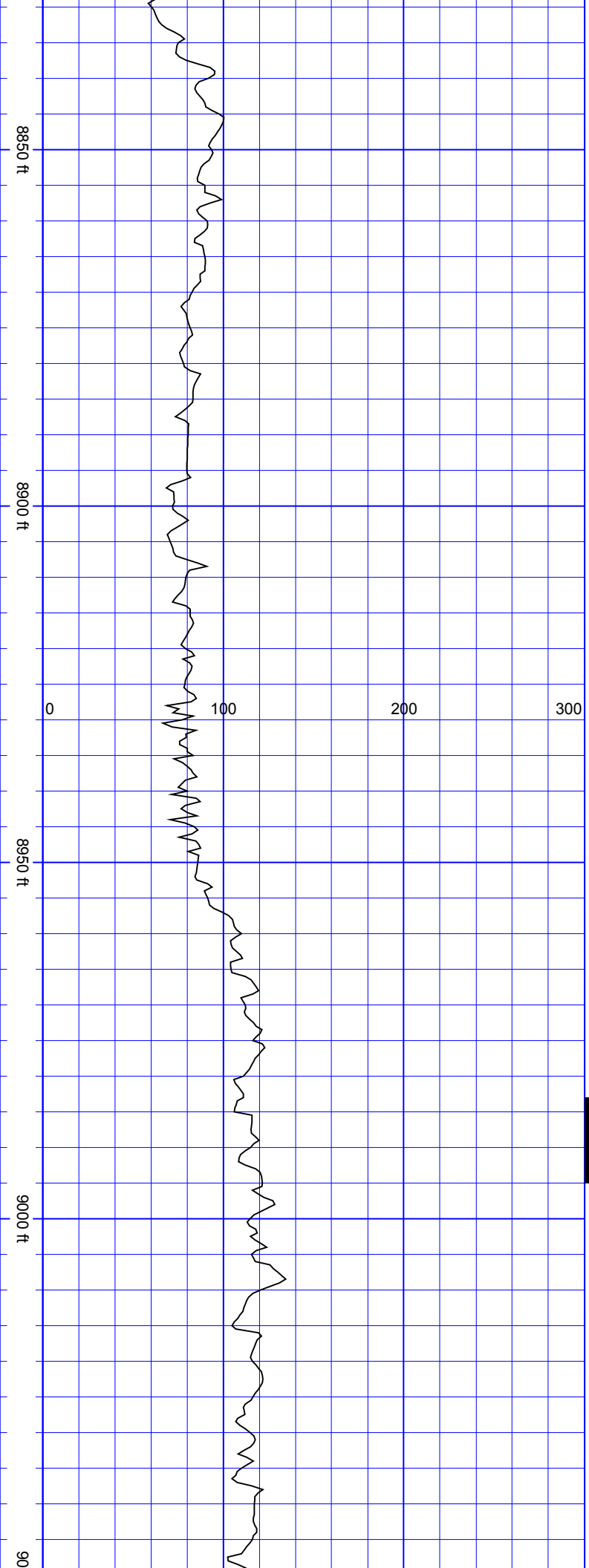
SurveyDepth:8633
TVD:7146.14 Inc:92.37
Azi:0.44 VertSec:573.72

SurveyDepth:8727
TVD:7142.32 Inc:92.29
Azi:359.65
VertSec:667.64

SurveyDepth:8822
TVD:7140.64 Inc:89.74
Azi:0.35 VertSec:762.61

SSSS

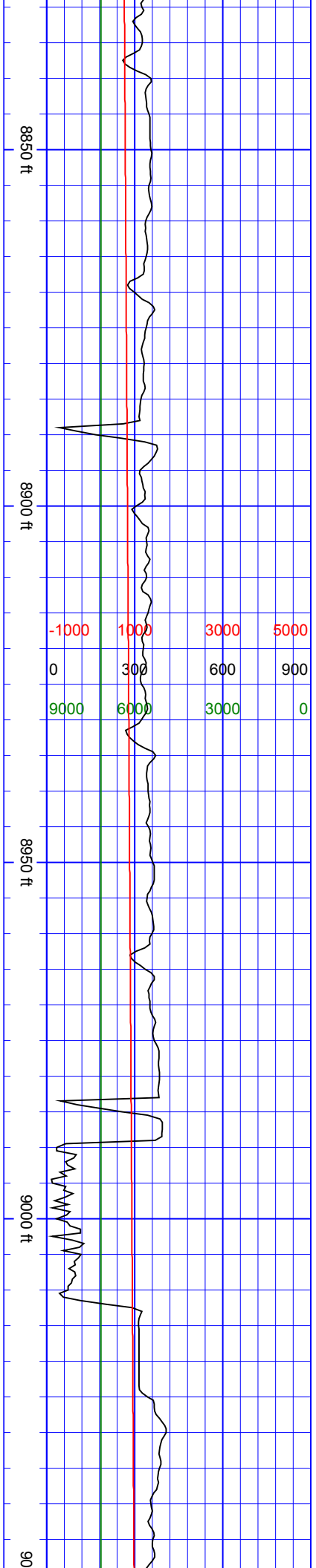




SurveyDepth:8916
TVD:7141.65 Inc:89.03
Azi:358.85
VertSec:856.59

SSSSSS

SurveyDepth:9011
TVD:7143.69 Inc:88.51
Azi:0.17 VertSec:951.55



9300 ft

0 100 200 300

9350 ft

9400 ft

9450 ft

SSSSSS

SurveyDepth:9294
TVD:7148.09 Inc:89.82
Azi:359.91
VertSec:1234.49

SurveyDepth:9389
TVD:7146.89 Inc:91.63
Azi:0.61
VertSec:1329.47

SurveyDepth:9484
TVD:7144.63 Inc:91.1

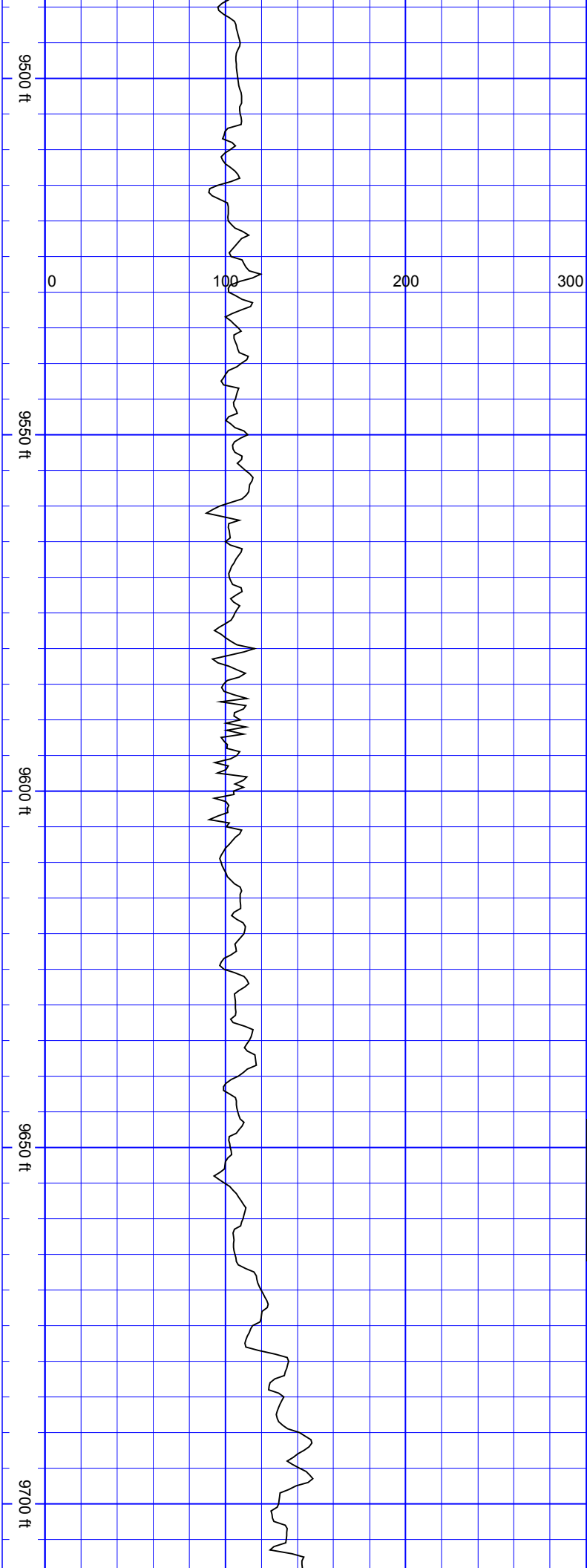
9300 ft

-1000	1000	3000	5000
0	300	600	900
9000	6000	3000	0

9350 ft

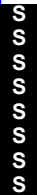
9400 ft

9450 ft

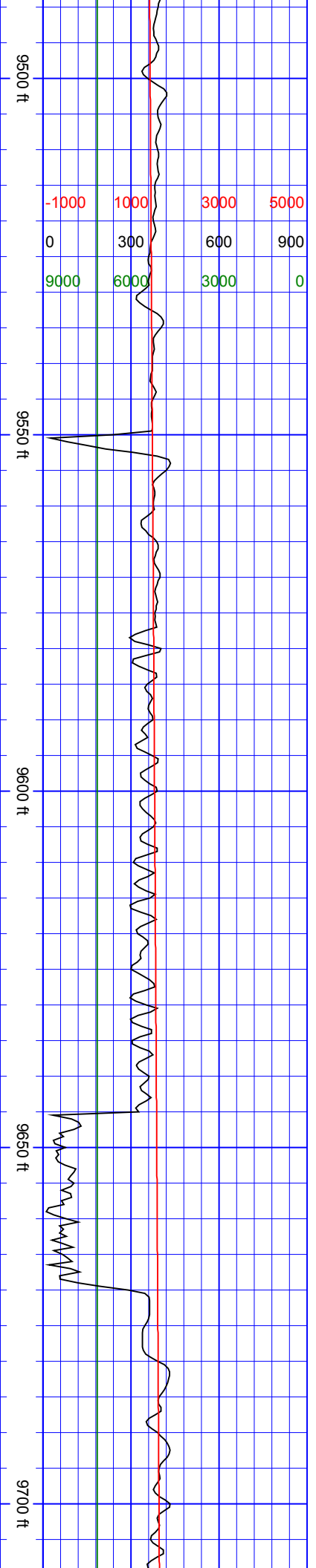


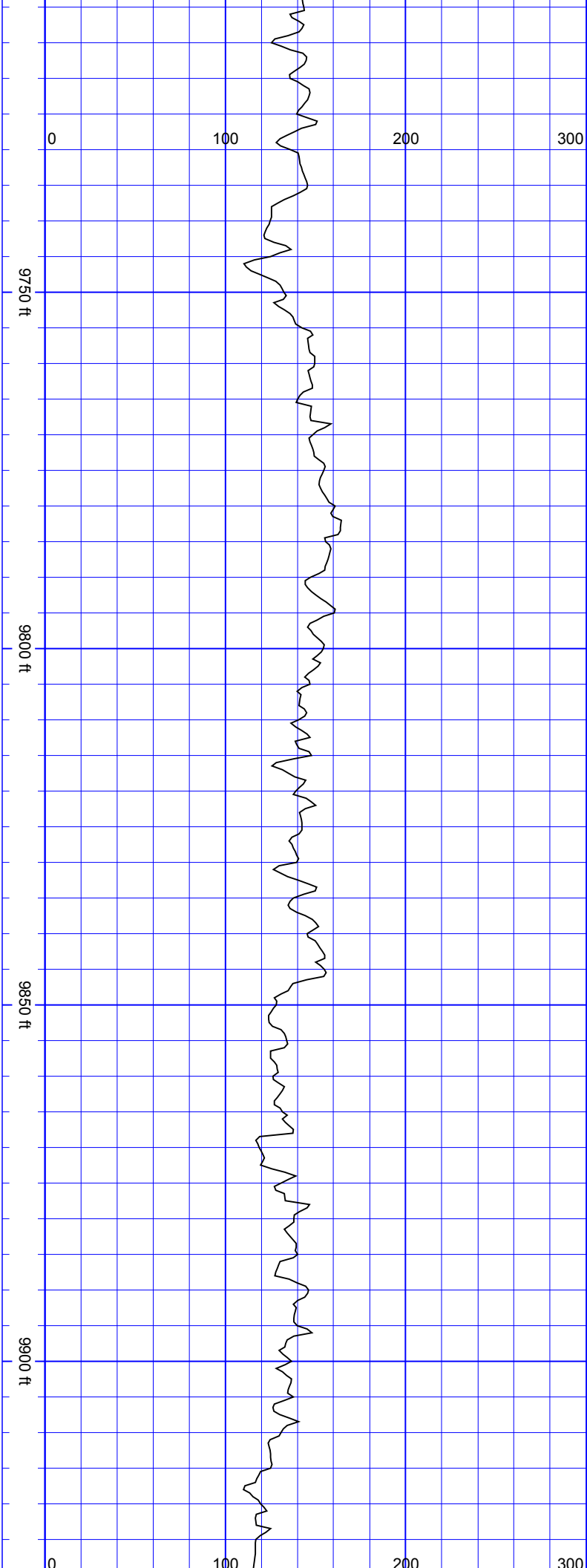
Azi:359.91
VertSec:1424.44

SurveyDepth:9579
TVD:7143.5 Inc:90.26
Azi:359.21
VertSec:1519.42



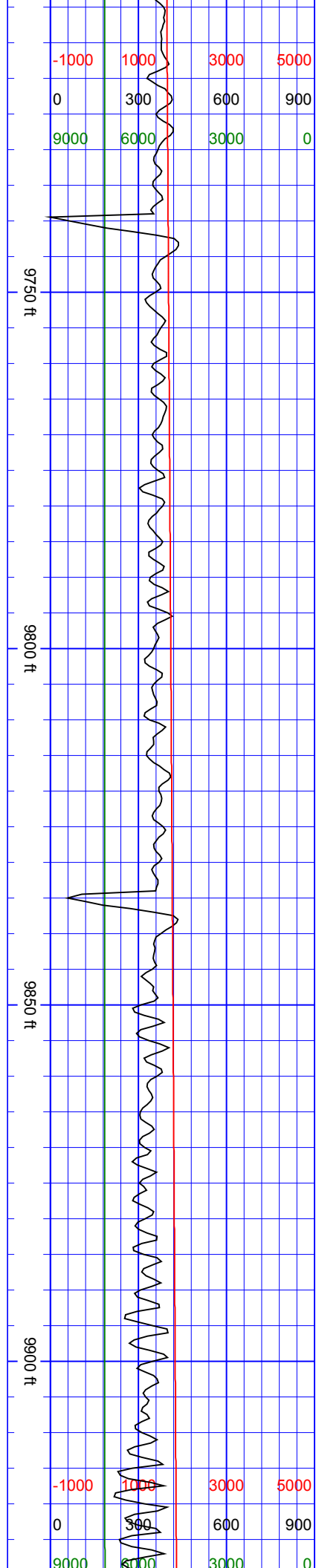
SurveyDepth:9673
TVD:7142.06 Inc:91.49
Azi:1.23
VertSec:1613.41

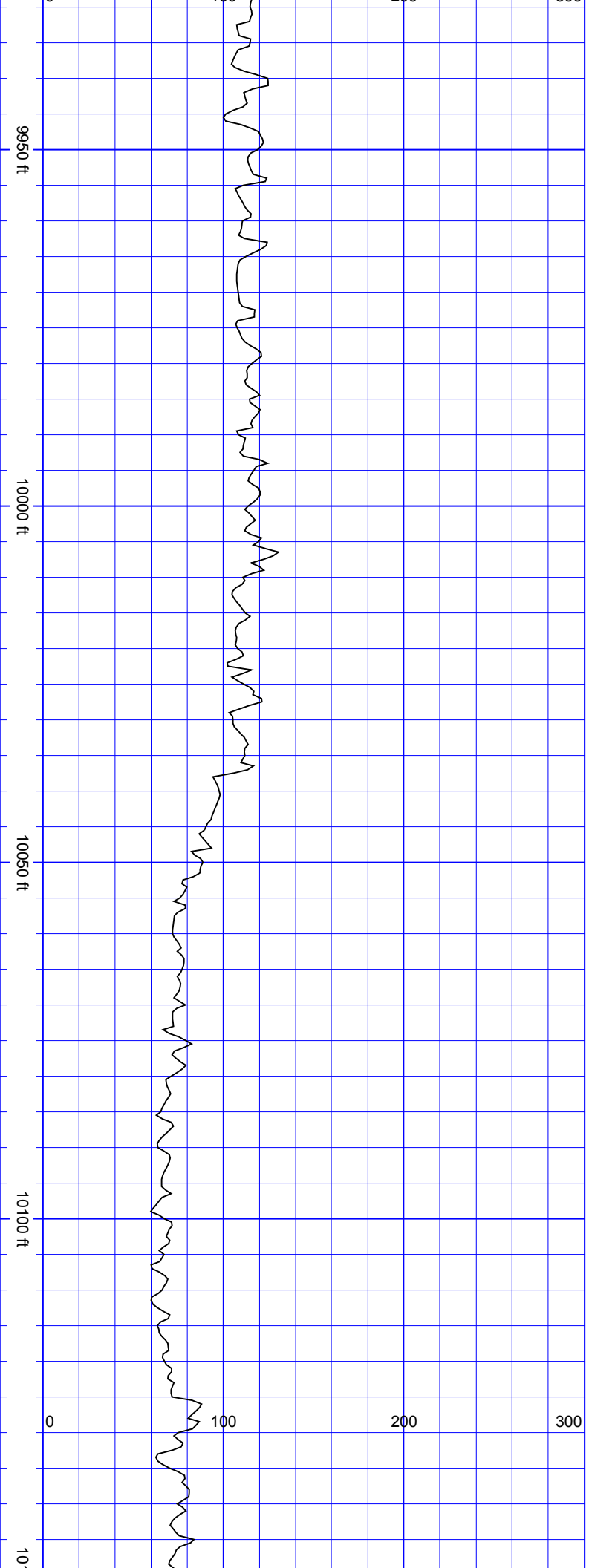




SurveyDepth:9768
TVD:7139.41 Inc:91.71
Azi:0.52
VertSec:1708.37

SurveyDepth:9863
TVD:7136.72 Inc:91.54
Azi:0.52
VertSec:1803.33

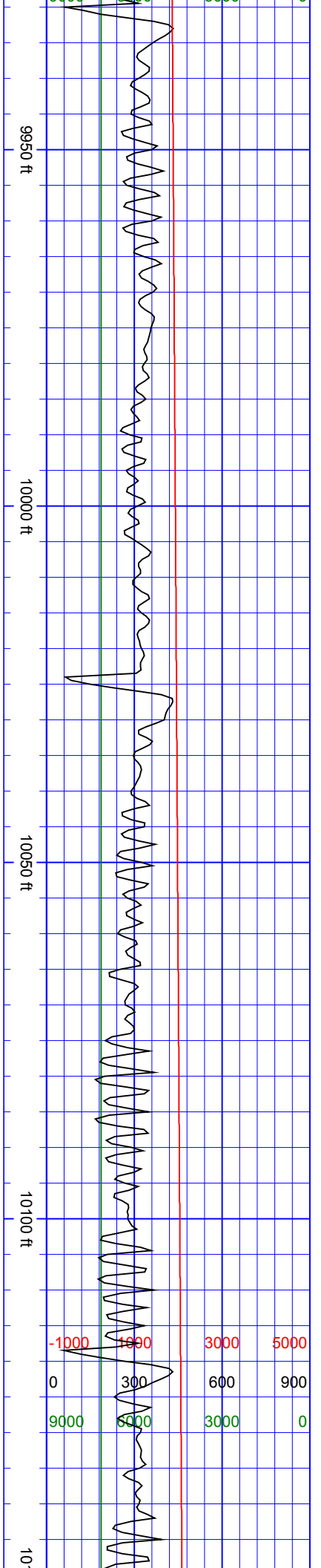




SurveyDepth:9958
TVD:7134.35 Inc:91.32
Azi:0.35 VertSec:1898.3

SurveyDepth:10052
TVD:7132.54 Inc:90.88
Azi:359.91
VertSec:1992.28

SurveyDepth:10146

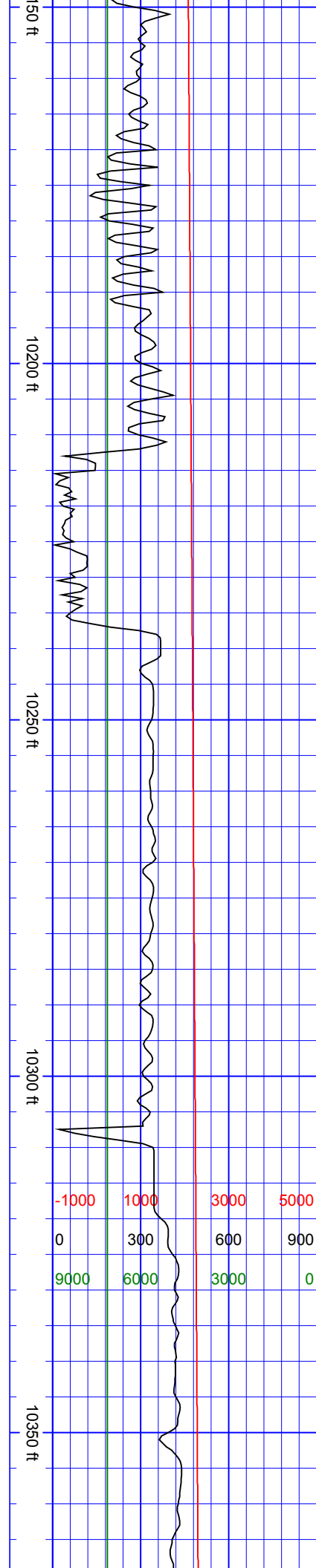
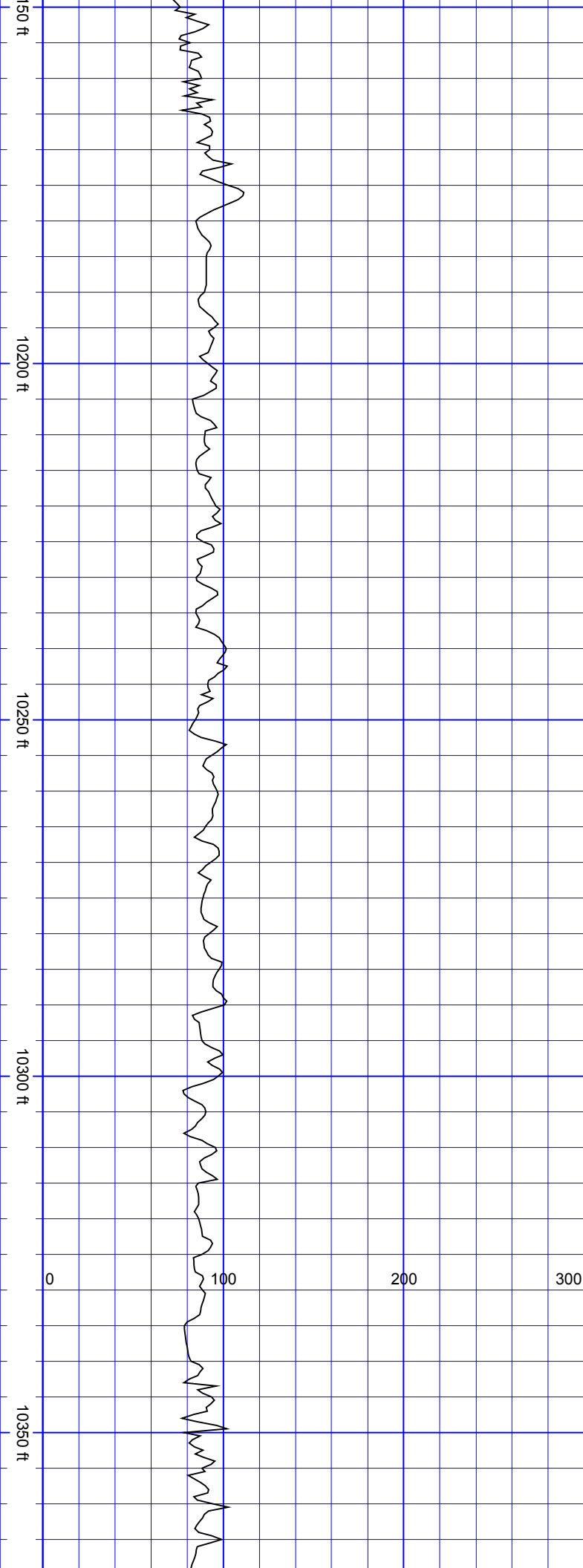


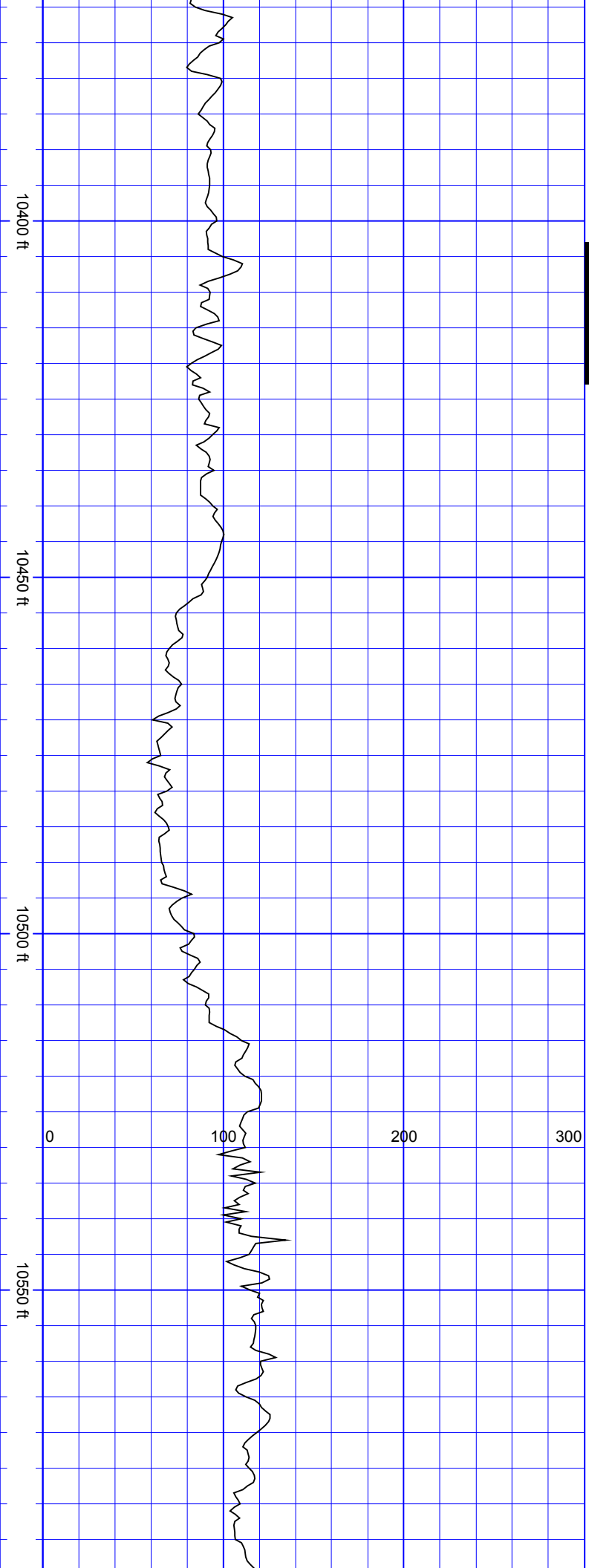
TVD:7131.02 Inc:90.97
Azi:359.65
VertSec:2086.26

SurveyDepth:10241
TVD:7130.44 Inc:89.74
Azi:2.37
VertSec:2181.24

SurveyDepth:10336
TVD:7130.39 Inc:90.31
Azi:3.07
VertSec:2276.17

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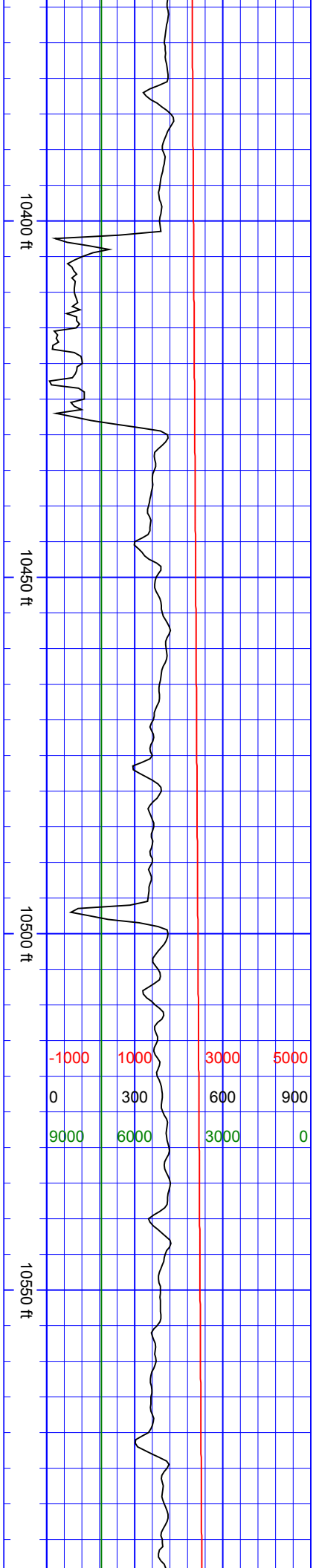


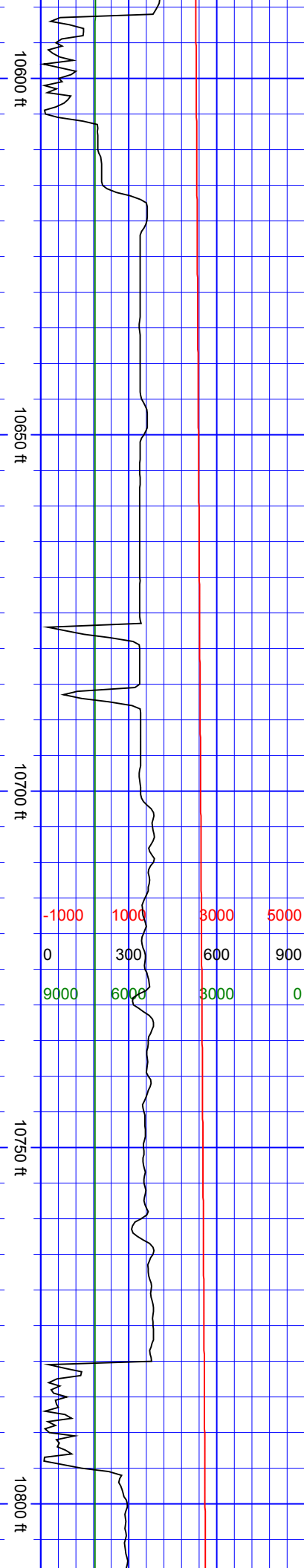


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SurveyDepth:10430
TVD:7131.18 Inc:88.73
Azi:359.29
VertSec:2370.14

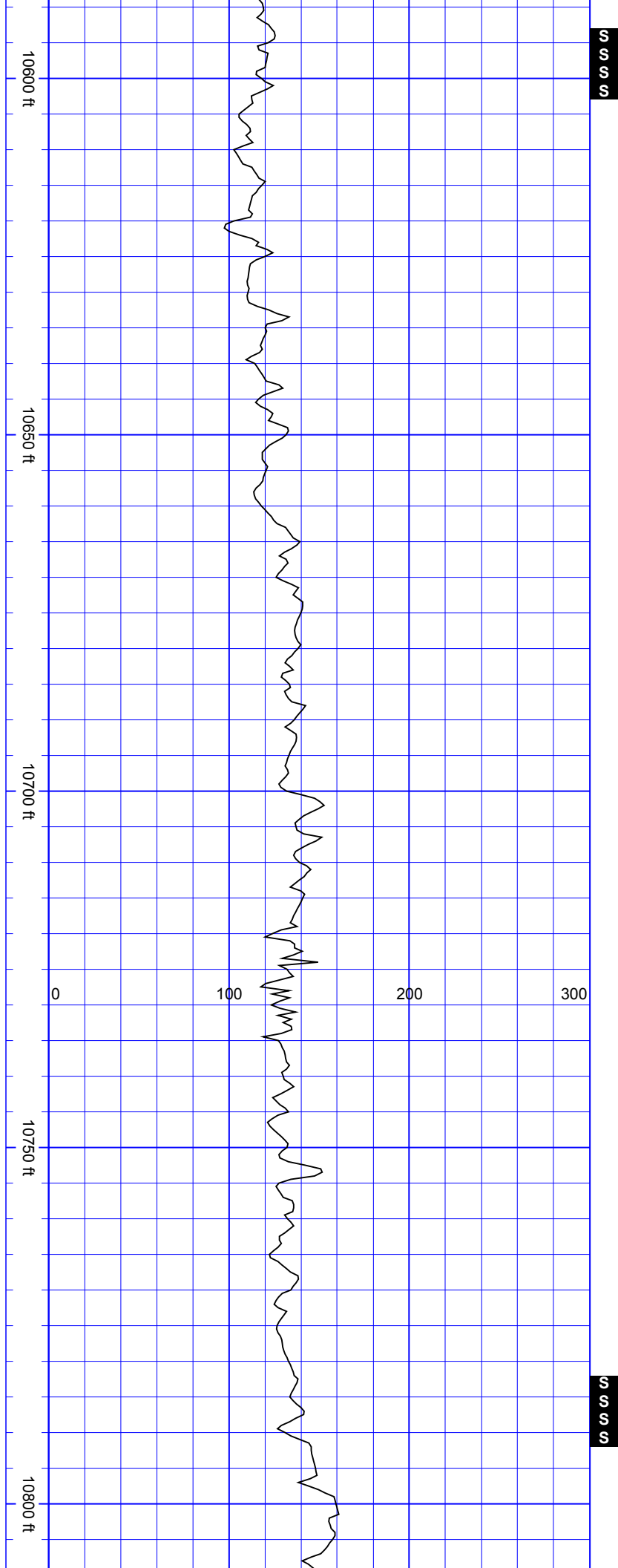
SurveyDepth:10526
TVD:7133.64 Inc:88.33
Azi:358.68
VertSec:2466.07

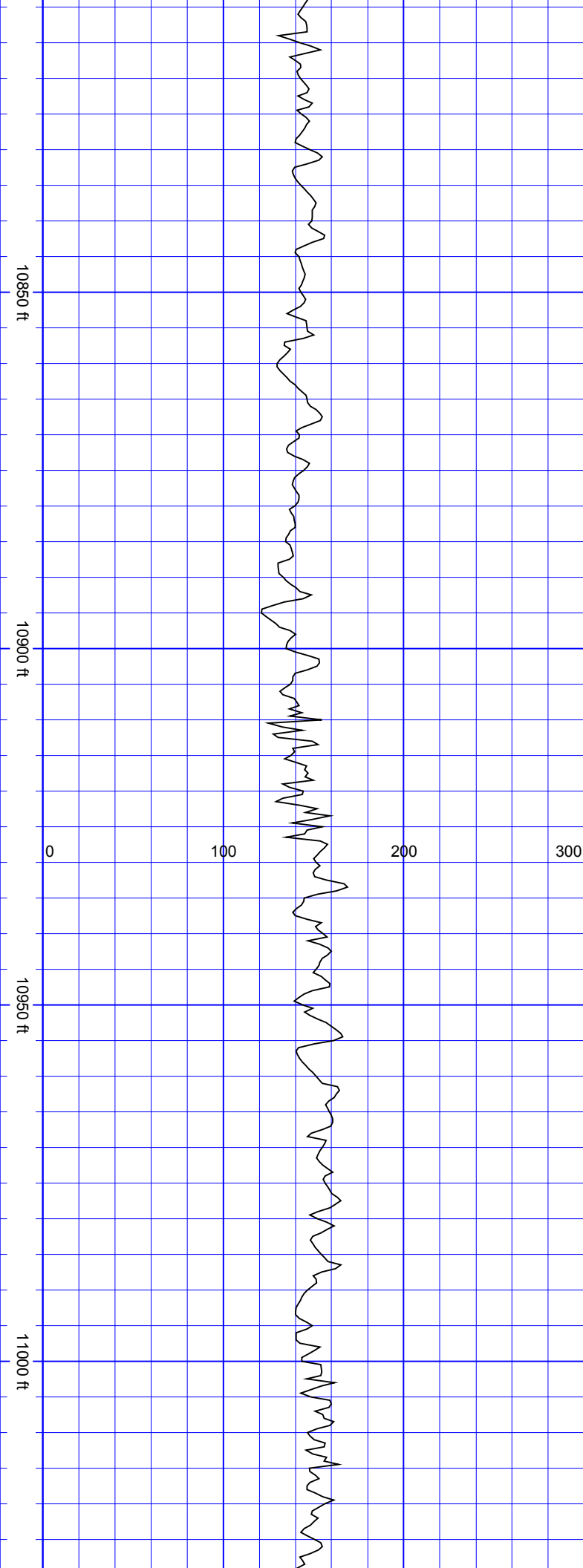




SurveyDepth:10620
TVD:7135.77 Inc:89.08
Azi:360 VertSec:2560.03

SurveyDepth:10715
TVD:7137.48 Inc:88.86
Azi:360 VertSec:2655.01



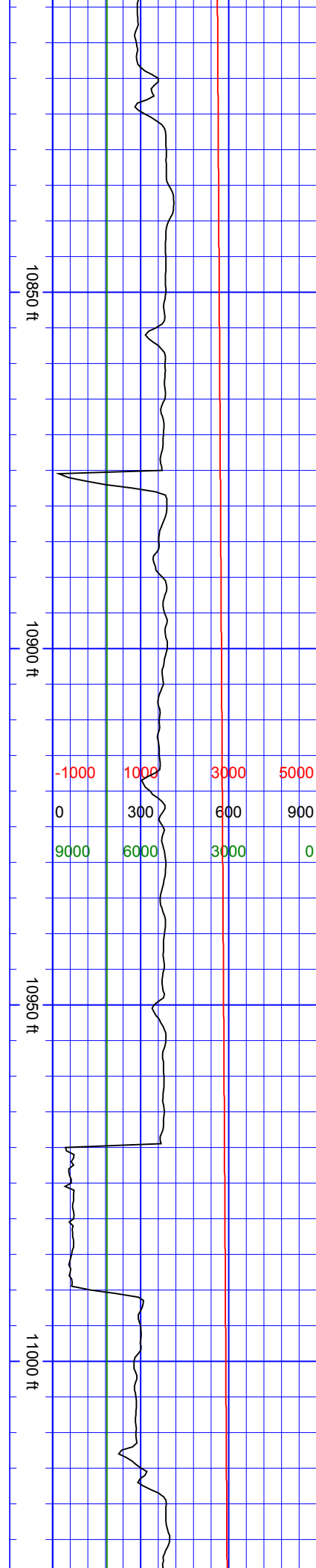


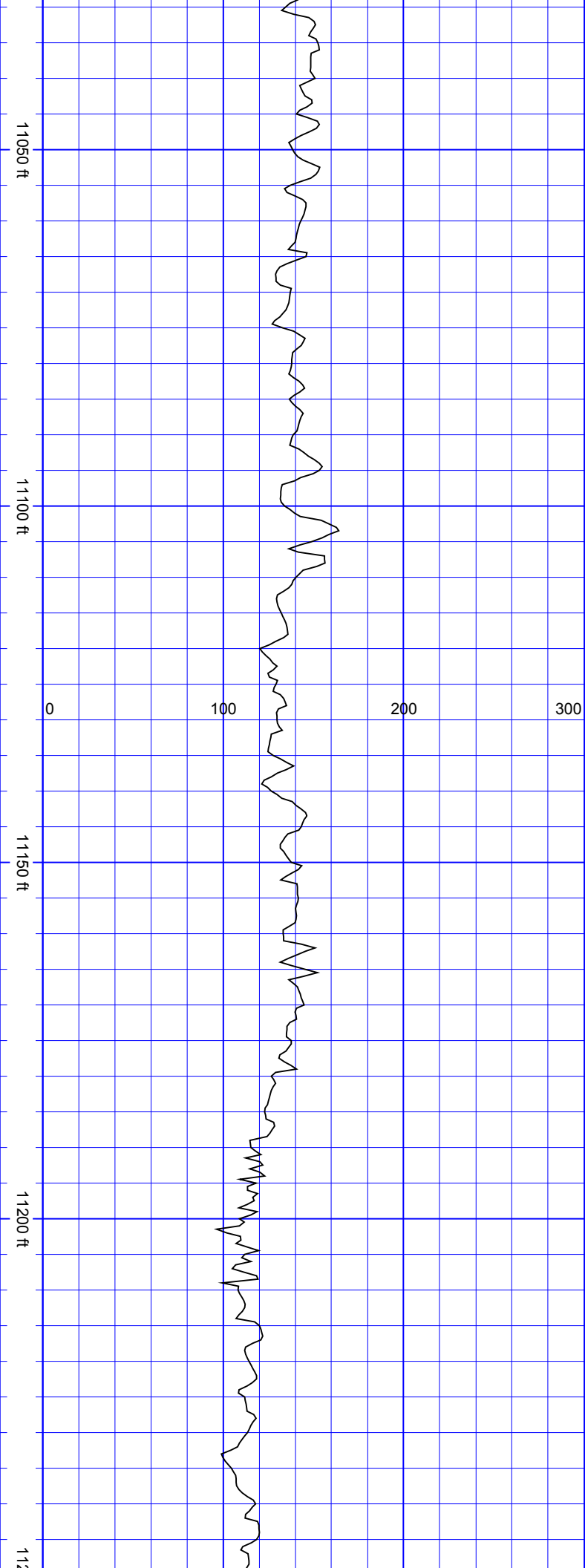
SurveyDepth:10810
TVD:7138.97 Inc:89.34
Azi:359.29
VertSec:2749.99

SurveyDepth:10904
TVD:7140.37 Inc:88.95
Azi:358.68
VertSec:2843.94

SurveyDepth:10999
TVD:7140.55 Inc:90.84
Azi:359.47
VertSec:2938.91

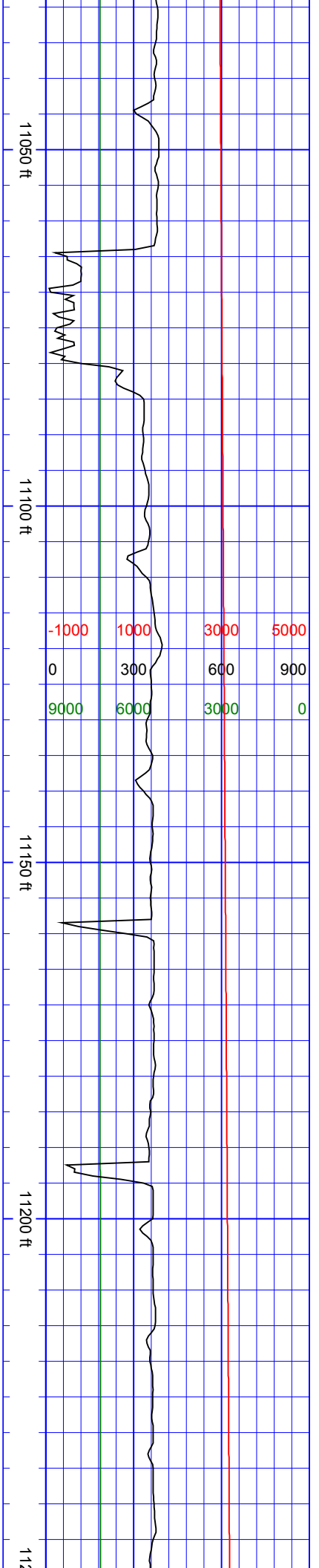
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SurveyDepth:11093
TVD:7138.27 Inc:91.93
Azi:0.08
VertSec:3032.87

SurveyDepth:11187
TVD:7135.4 Inc:91.58
Azi:359.56
VertSec:3126.82

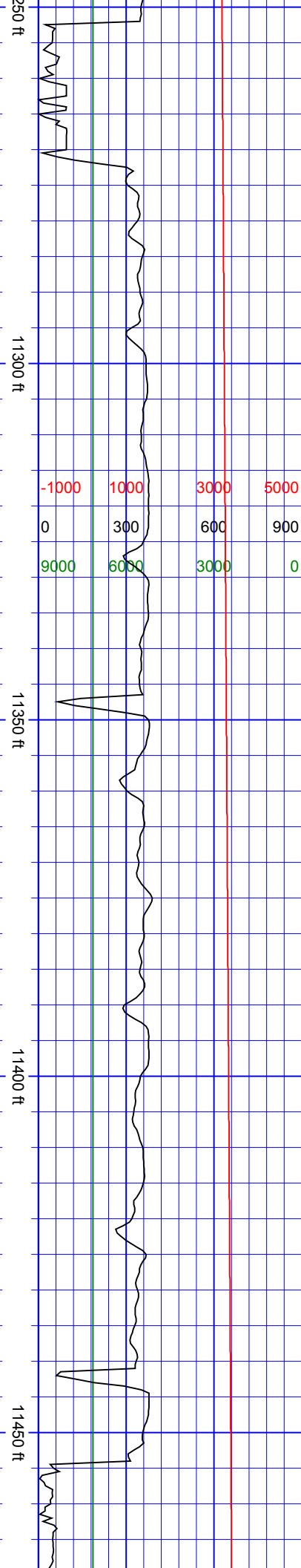
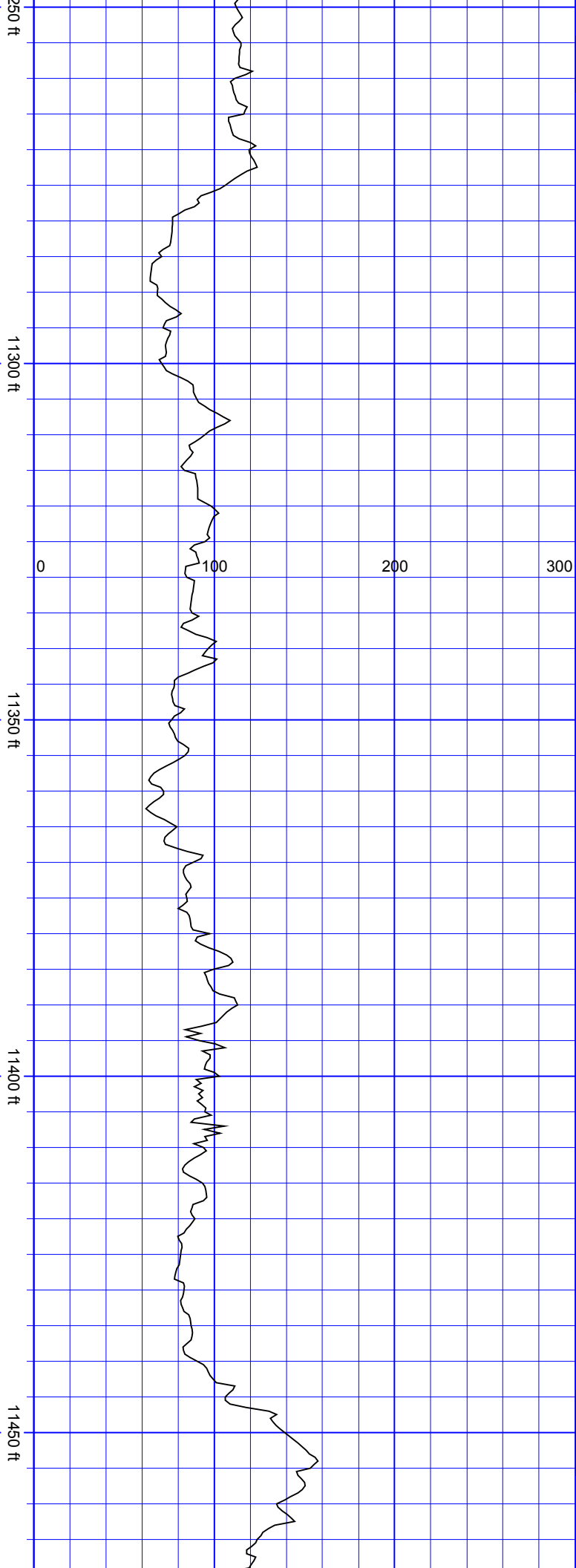


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SurveyDepth:11282
TVD:7131.5 Inc:93.12
Azi:359.38
VertSec:3221.73

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SurveyDepth:11377
TVD:7126.07 Inc:93.43
Azi:359.12
VertSec:3316.55



11500 ft

0 100 200 300

11550 ft

11600 ft

11650 ft

SurveyDepth:11471
TVD:7120.42 Inc:93.47
Azi:0.35
VertSec:3410.37

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SurveyDepth:11566
TVD:7115.72 Inc:92.2
Azi:1.75
VertSec:3505.24

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SurveyDepth:11660
TVD:7114.24 Inc:89.6
Azi:2.19
VertSec:3599.19

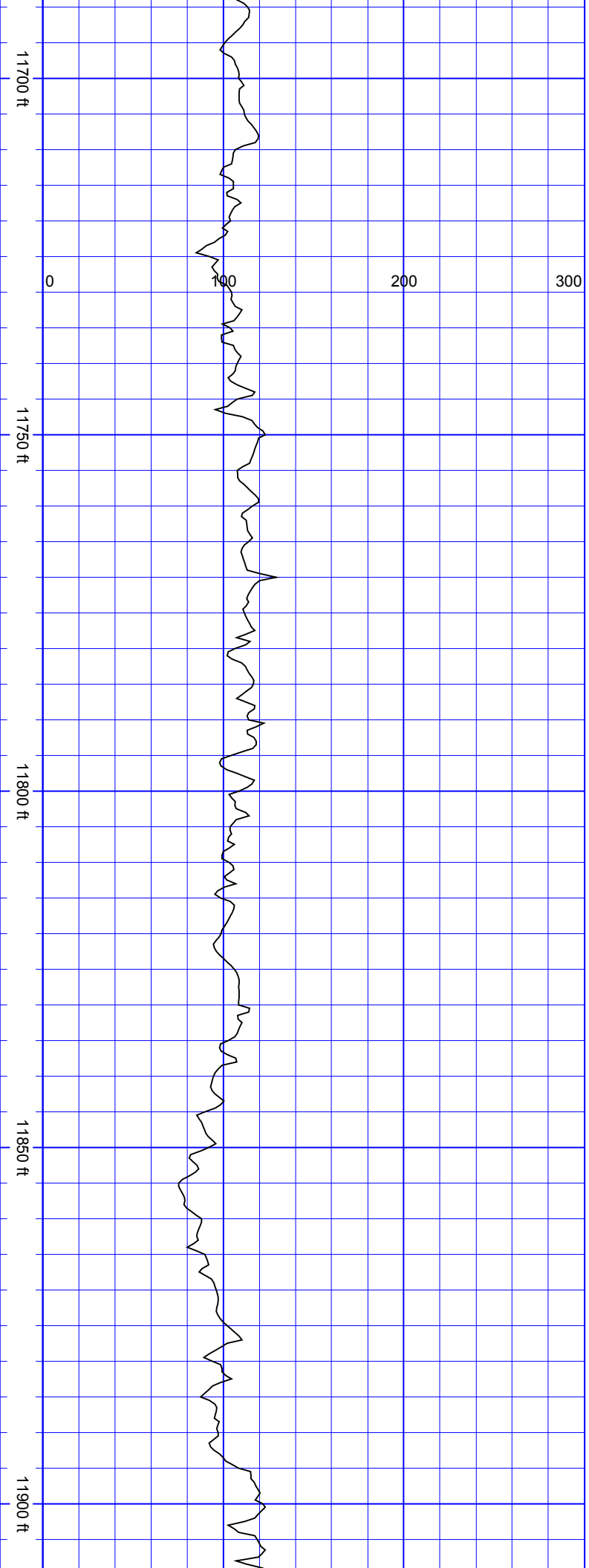
11500 ft

-1000	1000	3000	5000
0	300	600	900
9000	6000	3000	0

11550 ft

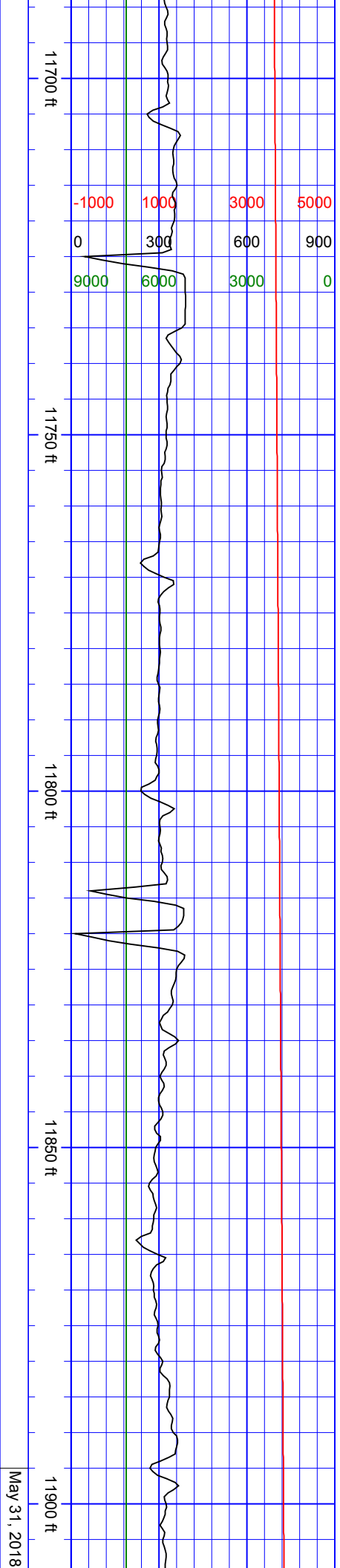
11600 ft

11650 ft

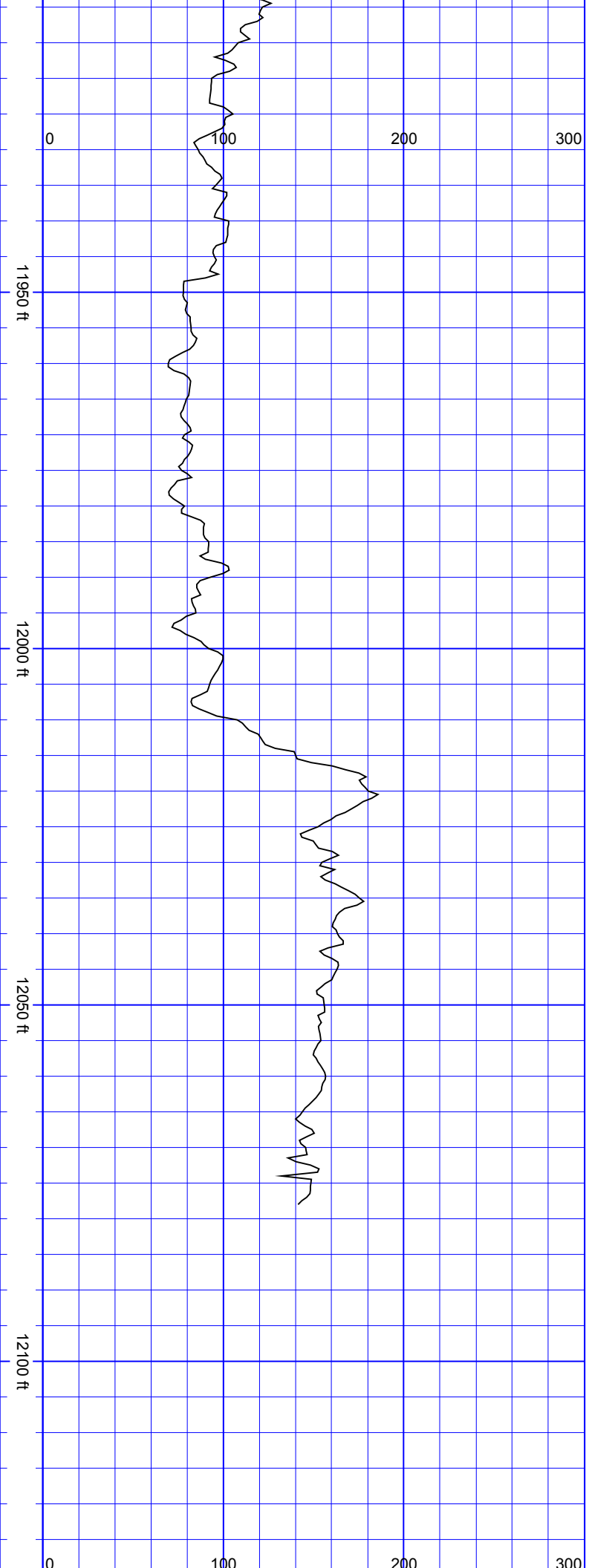


SurveyDepth:11756
TVD:7115.31 Inc:89.12
Azi:1.49
VertSec:3695.16

SurveyDepth:11850
TVD:7116.07 Inc:89.96
Azi:2.72
VertSec:3789.11



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SurveyDepth:11945 TVD:7116.07 Inc:90.04 Azi:2.46 VertSec:3884.05
SurveyDepth:12040 TVD:7115.7 Inc:90.4 Azi:3.34 VertSec:3978.96
SurveyDepth:12073 TVD:7115.58 Inc:90.04 Azi:3.69 VertSec:4011.92

