

**Build & Lateral**

Job #:

185215

Well ID:

16190994

Scale:

5" = 100 ft

Type:

MD

Well Site Information

Oil CompanyCrestone Peak Resources

Surface LocationS4-T1N-R65W

Well NameRuegge 3R-4H-N165

API05-123-46568 00

FieldDJ Basin

StateColorado

CountryUSA

Surface Coordinates

Well TypeHorizontal

Latitude40° 4' 31 N

Longitude140° 40' 14 W

N / S Coordinates1,271,357.121 usft

E / W Coordinates3,232,120.12 usft

Azimuth ReferenceTrue North

Grid Convergence0.54°

MWD Engineers

Lead HandAaron Clark

Second HandRon Kenyon

Perm DatumGroundElevation4,915.00 ft

Log depth measured from KB is23.00 ftabove perm datum.KB = 4,938.00 ft

Total Depth12,660.00 ftSpud DateJul/27/2018End DateJul/29/2018

(MD) Log IntervalStart Depth2,549.66 ftEnd Depth12,660.01 ft

Bore Hole Record

Hole SizeFromTo

13.50 in0.00 ft2,550.00 ft

8.50 in2,550.00 ft12,660.00 ft

Casing Record

TypeSizeWGTFromTo

LT&C9.63 in40lb.0.00 ft2,550.00 ft

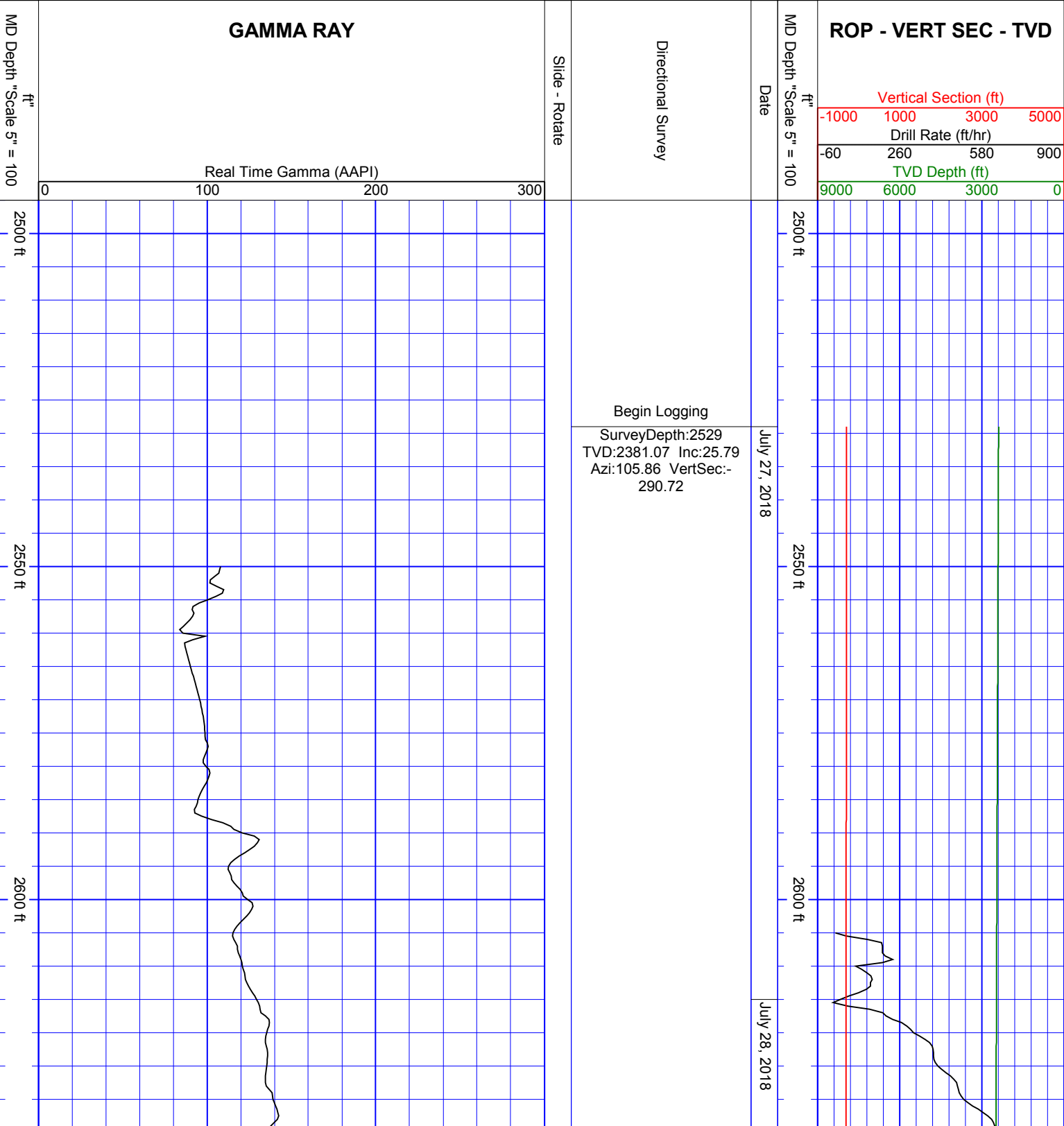
DWC-C-IS5.50 in20lb.0.00 ft12,660.00 ft

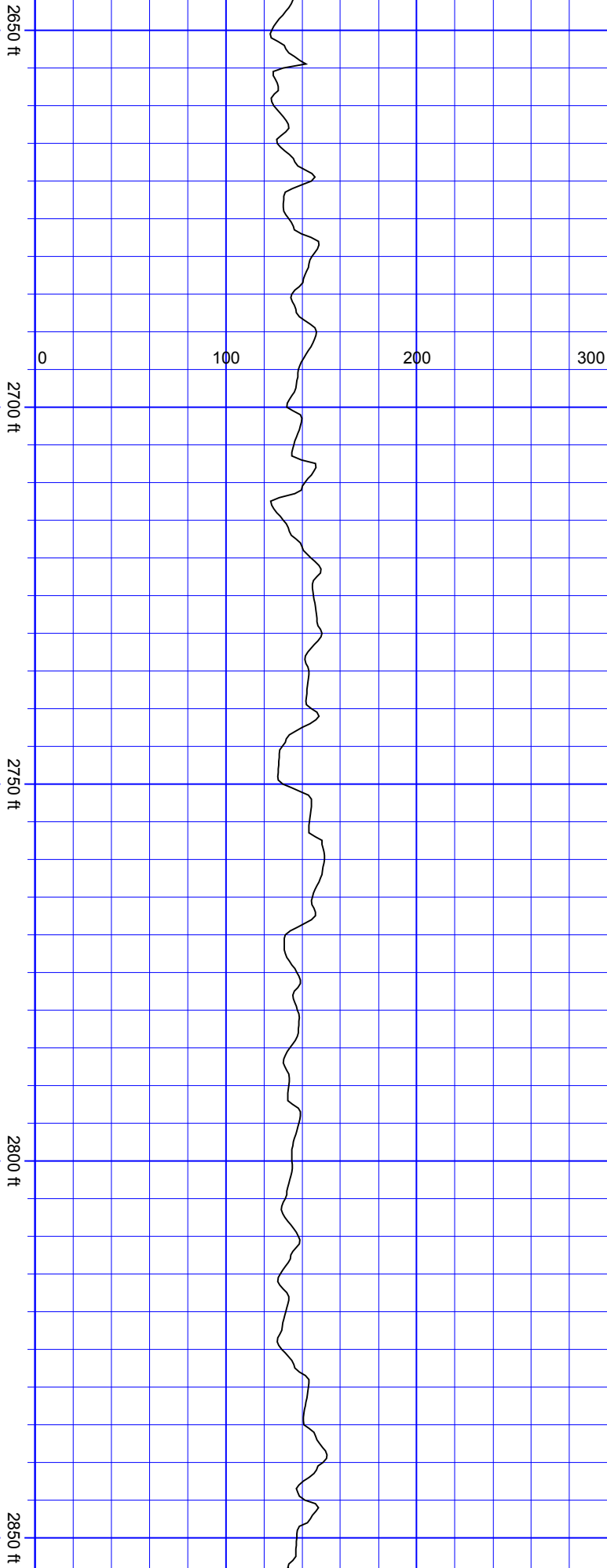
Run Data

Bit Run Number	1				
Start Date & Time	Jul/27/2018 20:00:00				
End Date & Time	Jul/30/2018 16:00:00				
Run Hours	69.00				
Depth In	2,550.00 ft				
Depth Out	12,660.00 ft				
Total Gamma Correction	5.78				
Gamma to Bit	55.65 ft				
Resistivity to Bit	N/A				
Mud Type	Oil Base				
Density	9.80 ppg				
Viscosity	49.00 sec/qt				
PH	N/A				
Fluid Loss	N/A				
K+ ppm	N/A				
CL- ppm	26,500.00 mg/L				
Max Mud Temp	243.00 °F				
Mud Report Depth	12,600.00 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.

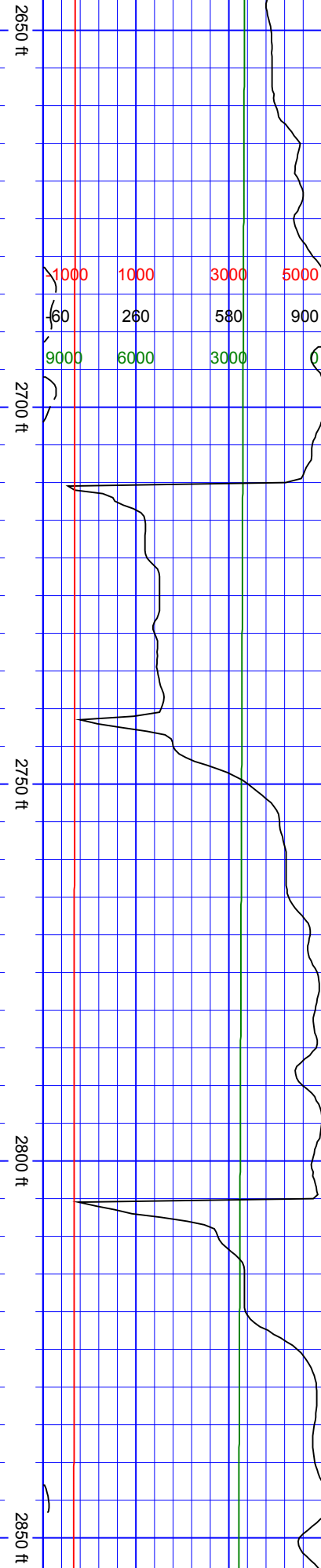




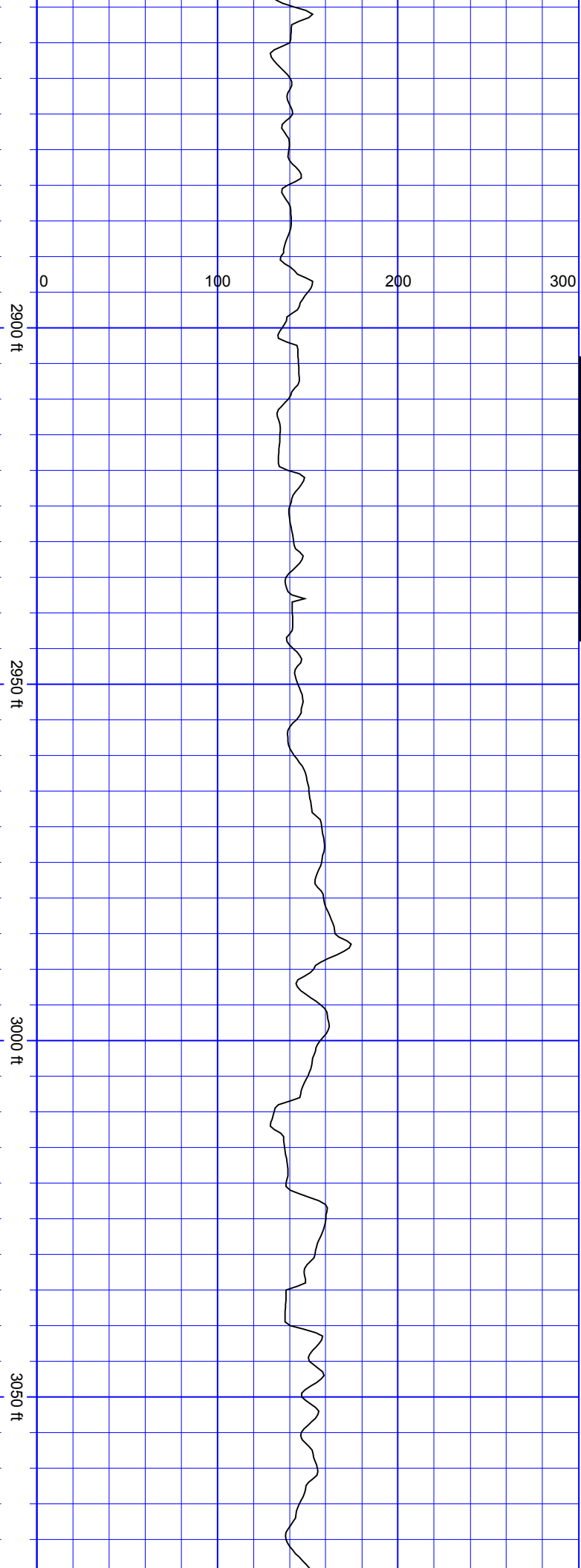
SurveyDepth:2653
TVD:2493.23 Inc:24.7
Azi:105.37 VertSec:-304.44

SurveyDepth:2748
TVD:2578.79 Inc:26.81
Azi:110.11 VertSec:-316.66

SurveyDepth:2843
TVD:2664.27 Inc:24.92
Azi:108.88 VertSec:-330.1

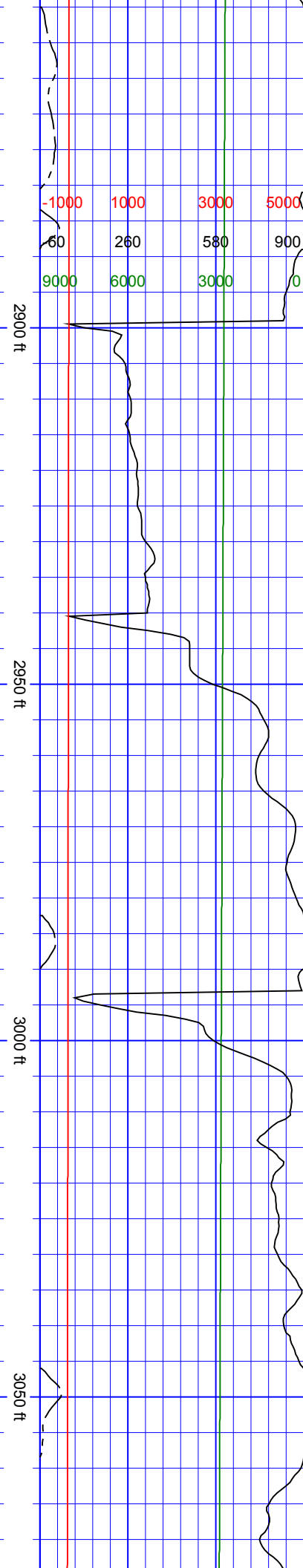


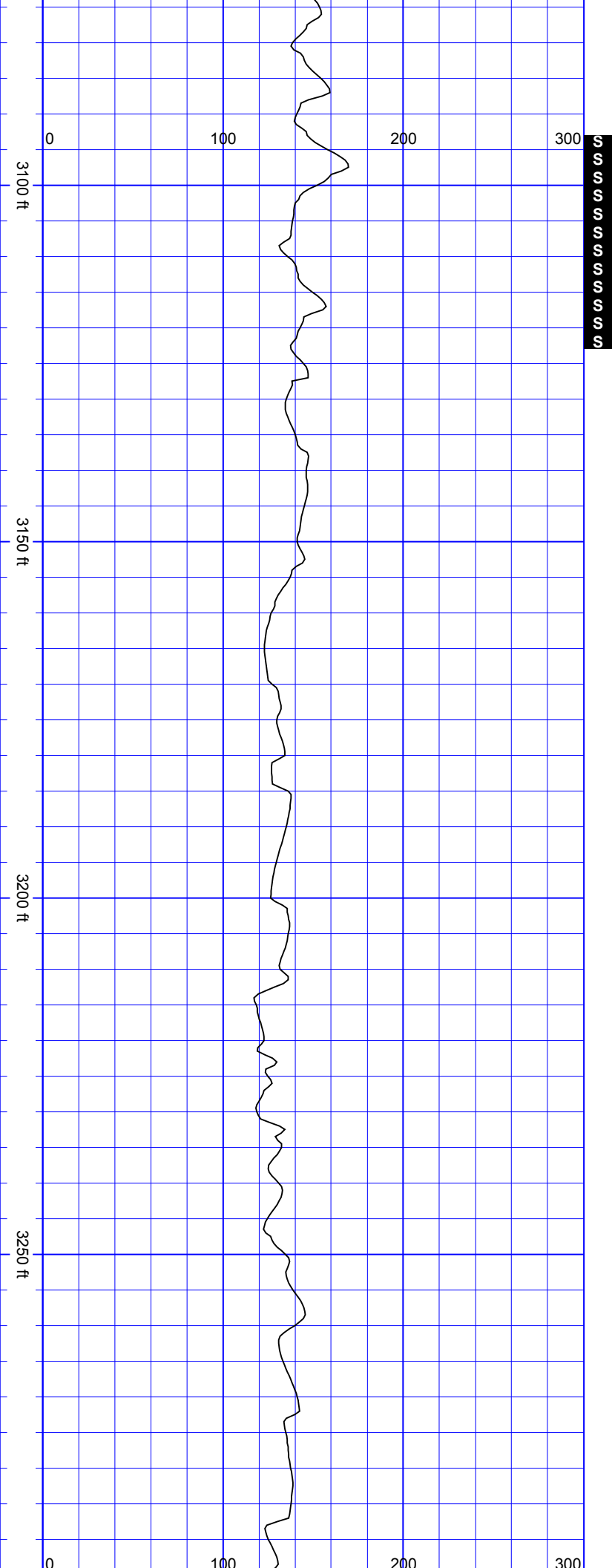
Red	Green	Black
1000	1000	3000
500	260	580
9000	6000	3000



SurveyDepth:2937
TVD:2749.09 Inc:26.24
Azi:117.85 VertSec:-
345.84

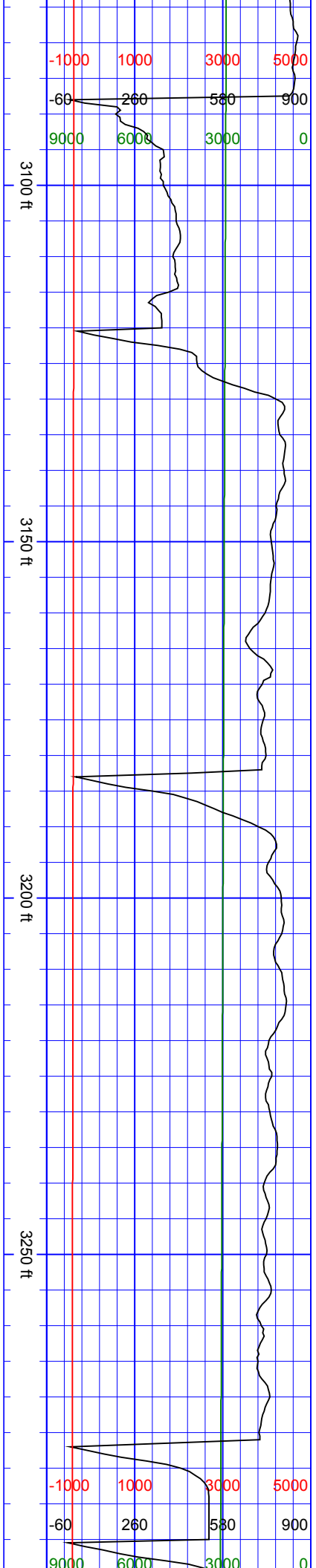
SurveyDepth:3032
TVD:2834.74 Inc:25.01
Azi:117.94 VertSec:-
364.69

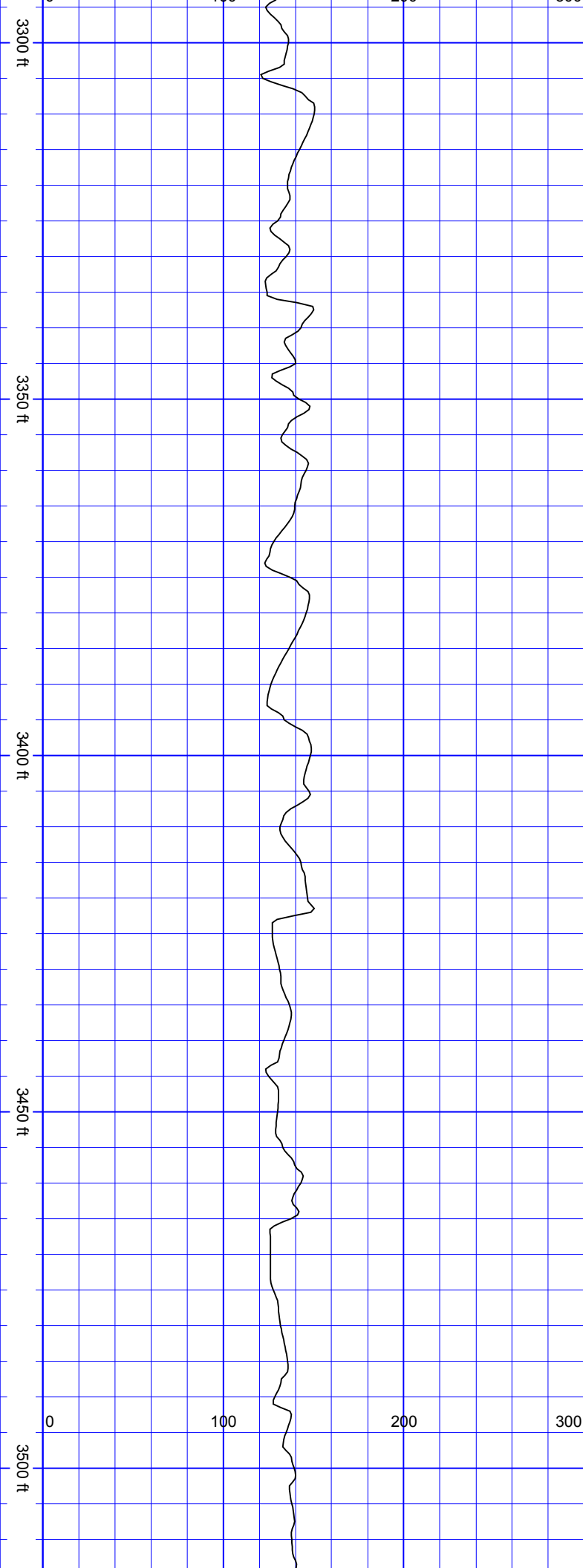




SurveyDepth:3127
TVD:2920.11 Inc:27.03
Azi:116.79 VertSec:-
383.45

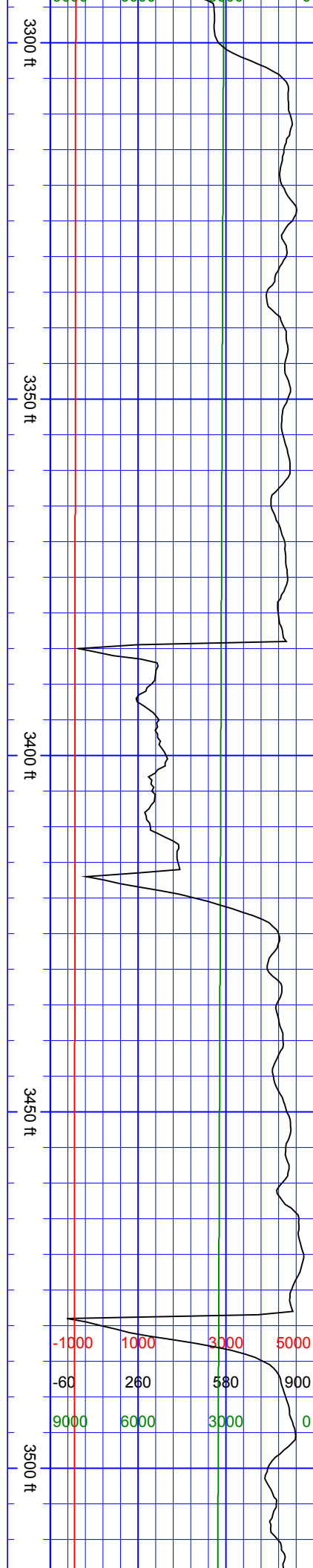
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TVD:3013.97 Inc:26.24
Azi:116.09 VertSec:-
403.98

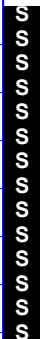
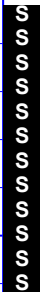
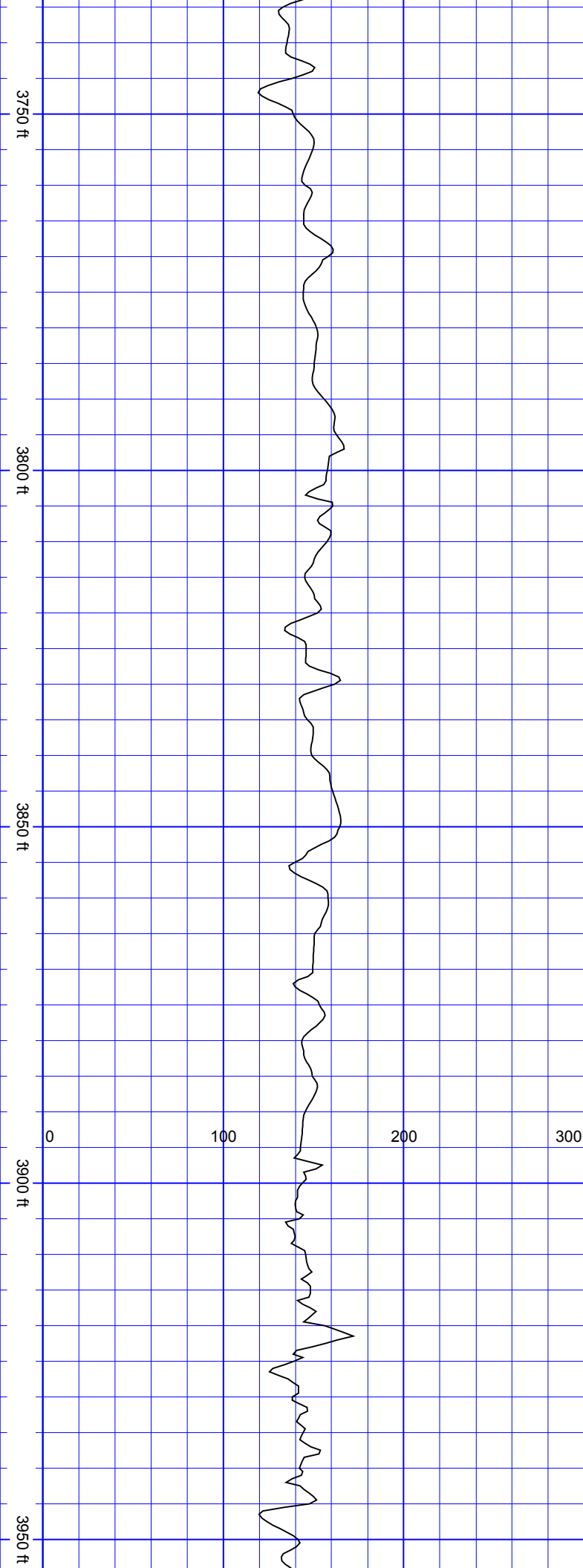




SurveyDepth:3326
TVD:3098.85 Inc:24.65
Azi:114.6 VertSec:-420.9

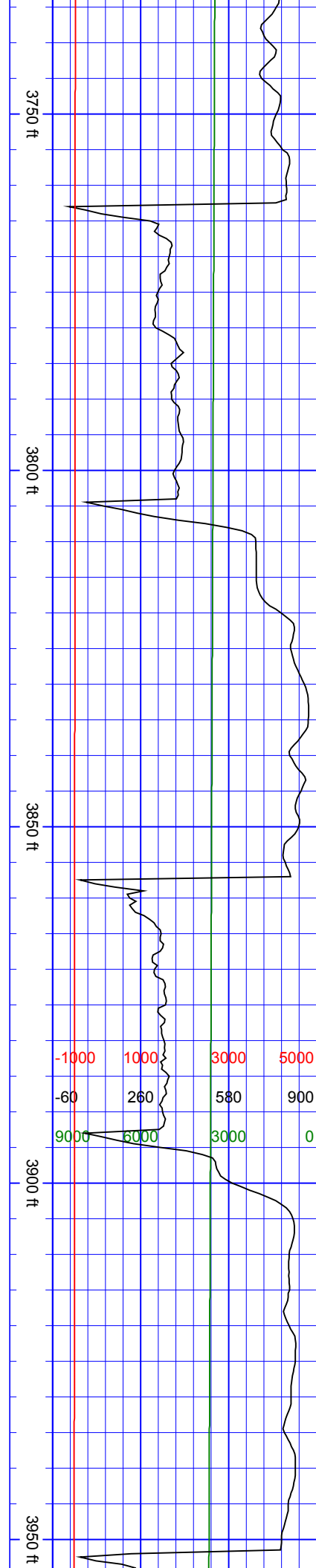
SurveyDepth:3421
TVD:3184.62 Inc:26.32
Azi:108.36 VertSec:-435.39

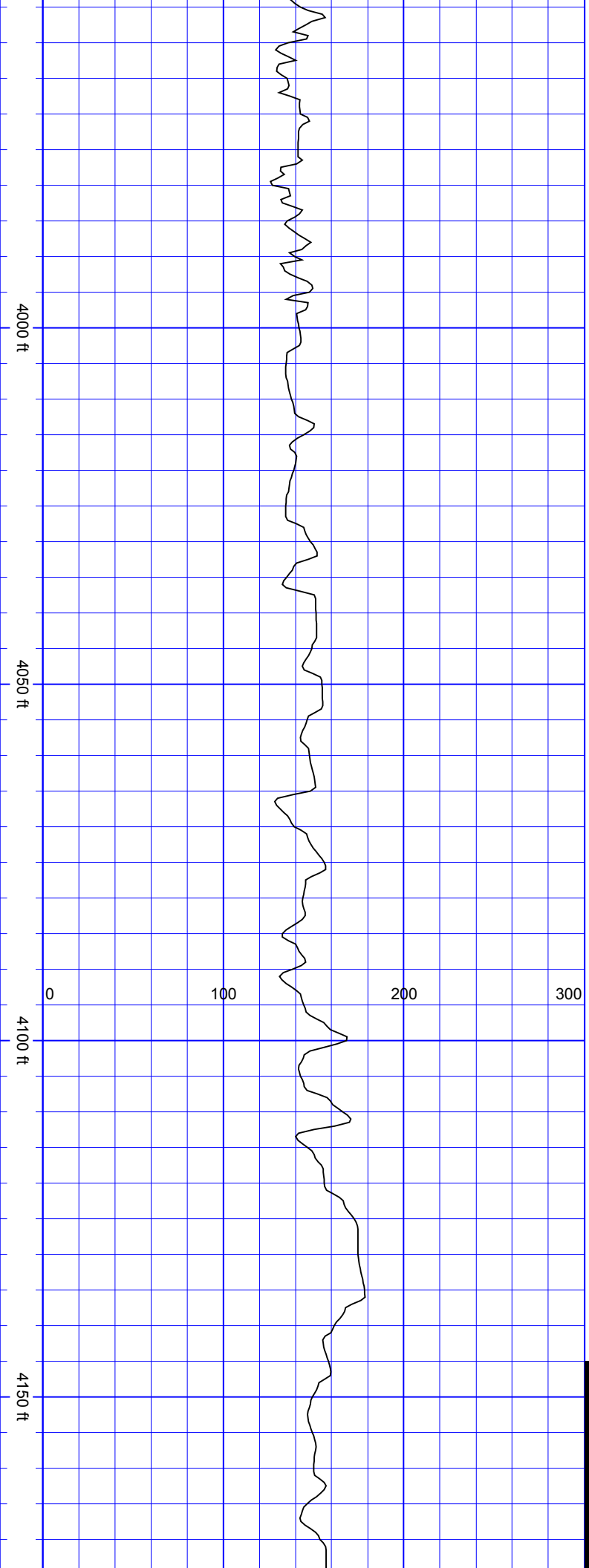




SurveyDepth:3800
TVD:3527.92 Inc:24.39
Azi:105.19 VertSec:-
487.77

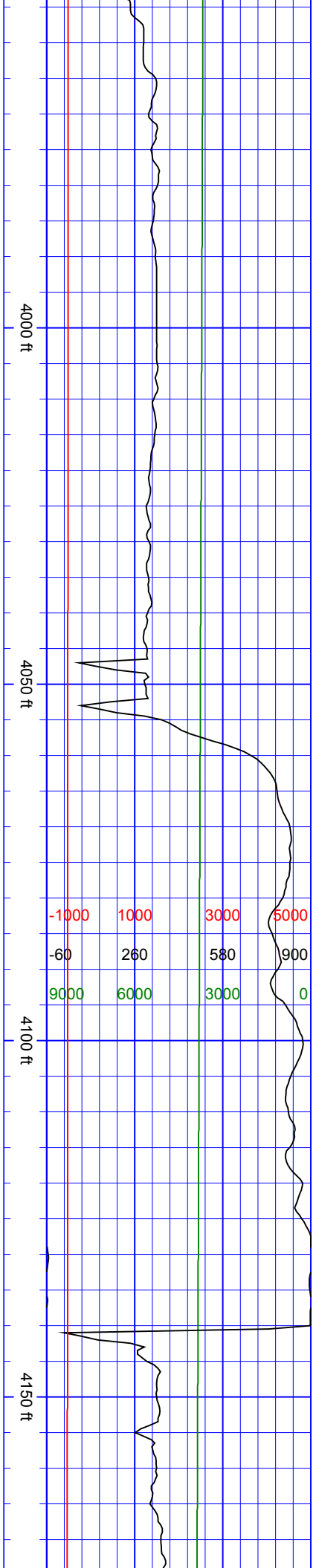
SurveyDepth:3895
TVD:3613.43 Inc:27.25
Azi:105.89 VertSec:-
498.45

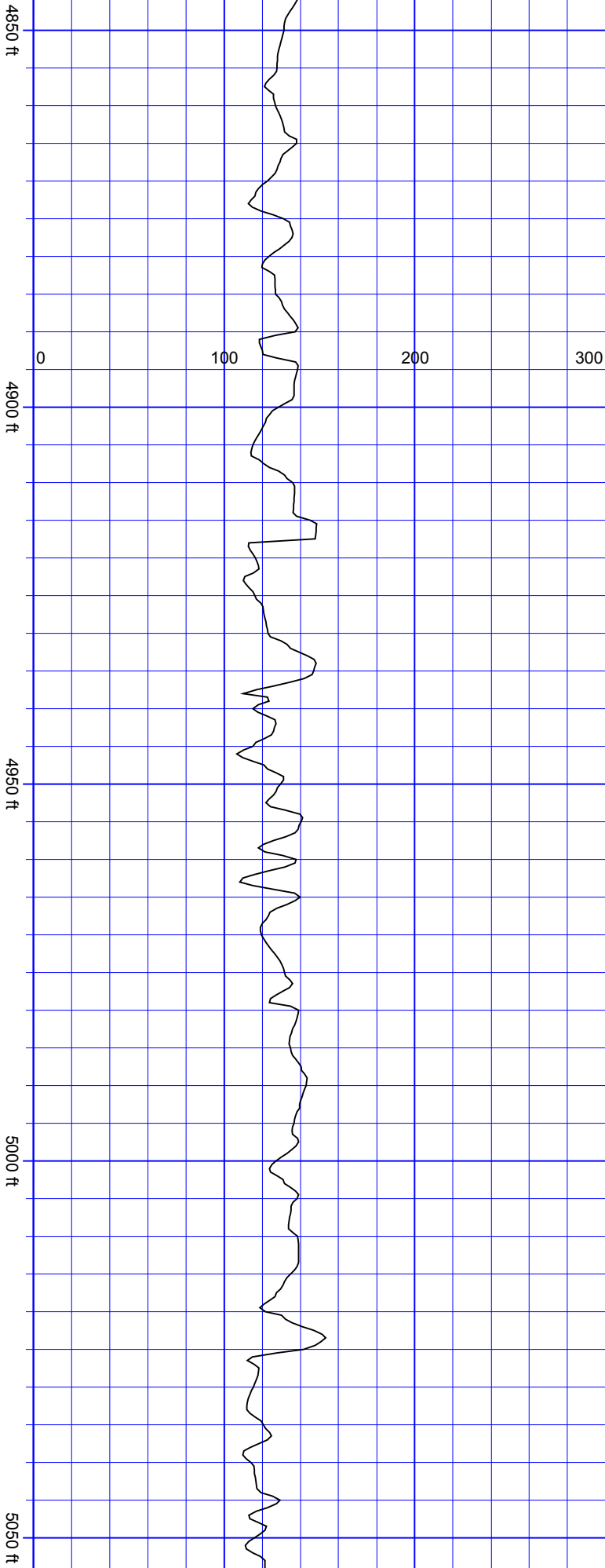




SurveyDepth:3989
TVD:3697.7 Inc:25.36
Azi:104.31 VertSec:-
508.91

SurveyDepth:4084
TVD:3784.36 Inc:22.98
Azi:102.38 VertSec:-
517.52

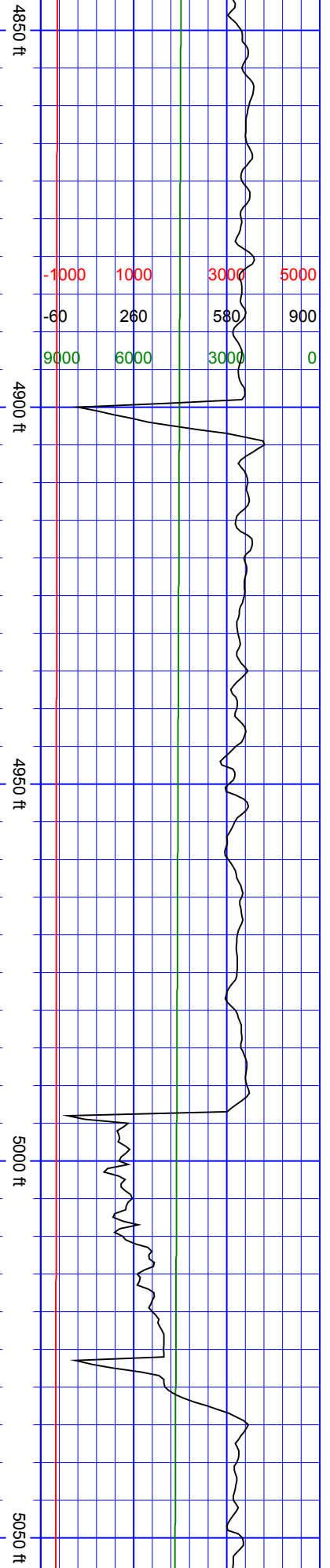


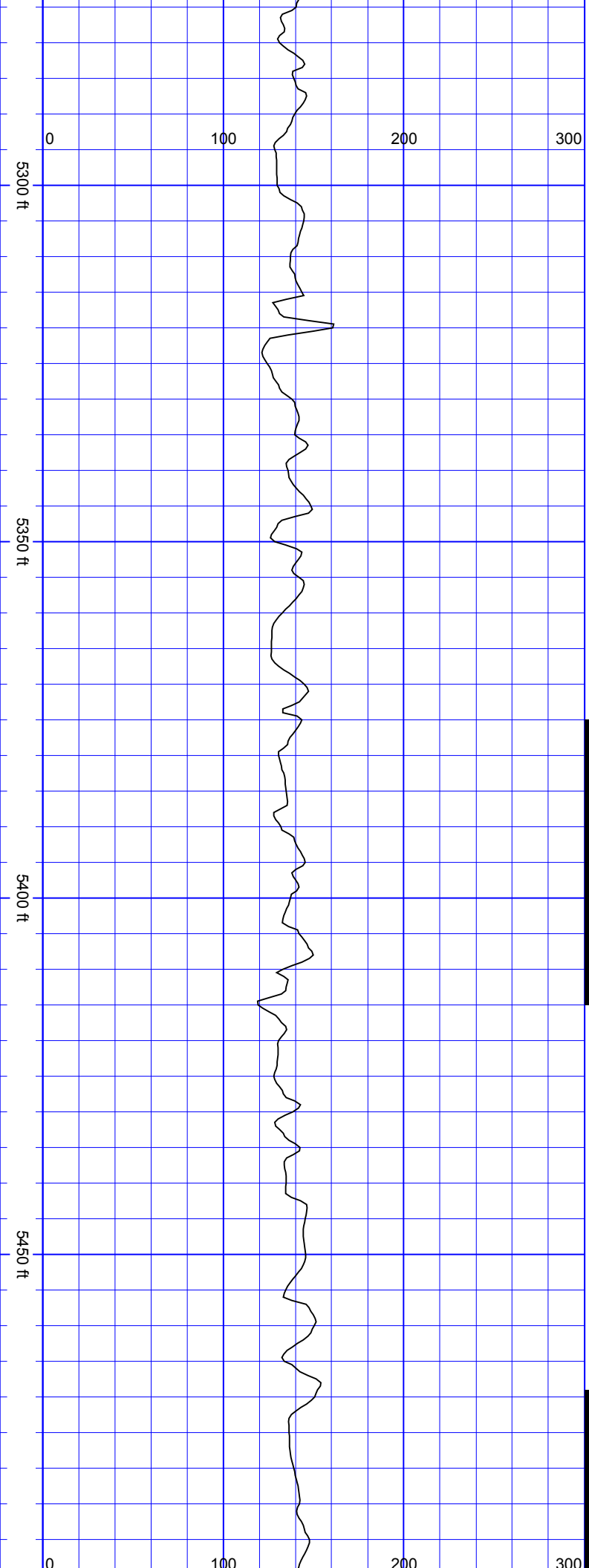


SurveyDepth:4841
TVD:4465.33 Inc:25.27
Azi:112.31 VertSec:-
639.46

SurveyDepth:4936
TVD:4551.76 Inc:23.77
Azi:111.17 VertSec:-
653.69

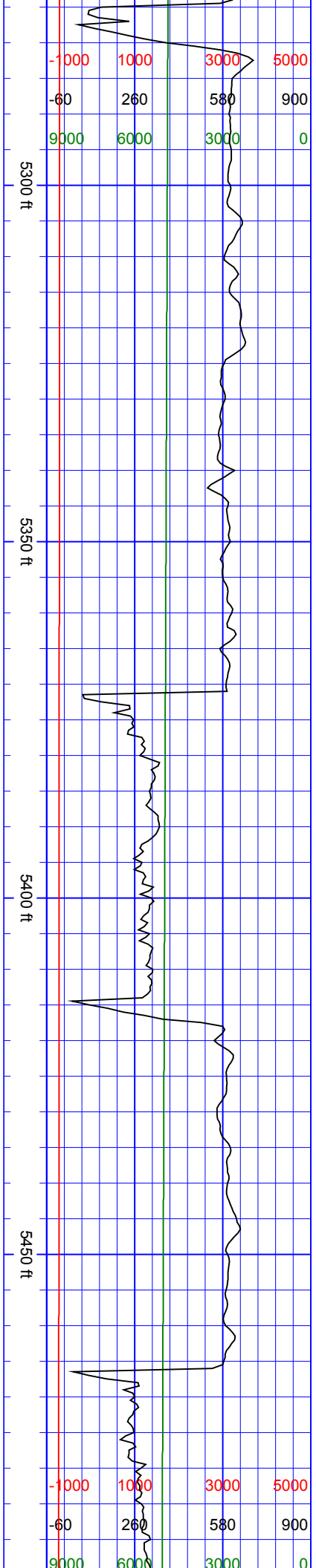
SurveyDepth:5031
TVD:4638.35 Inc:24.83
Azi:109.94 VertSec:-
667.03

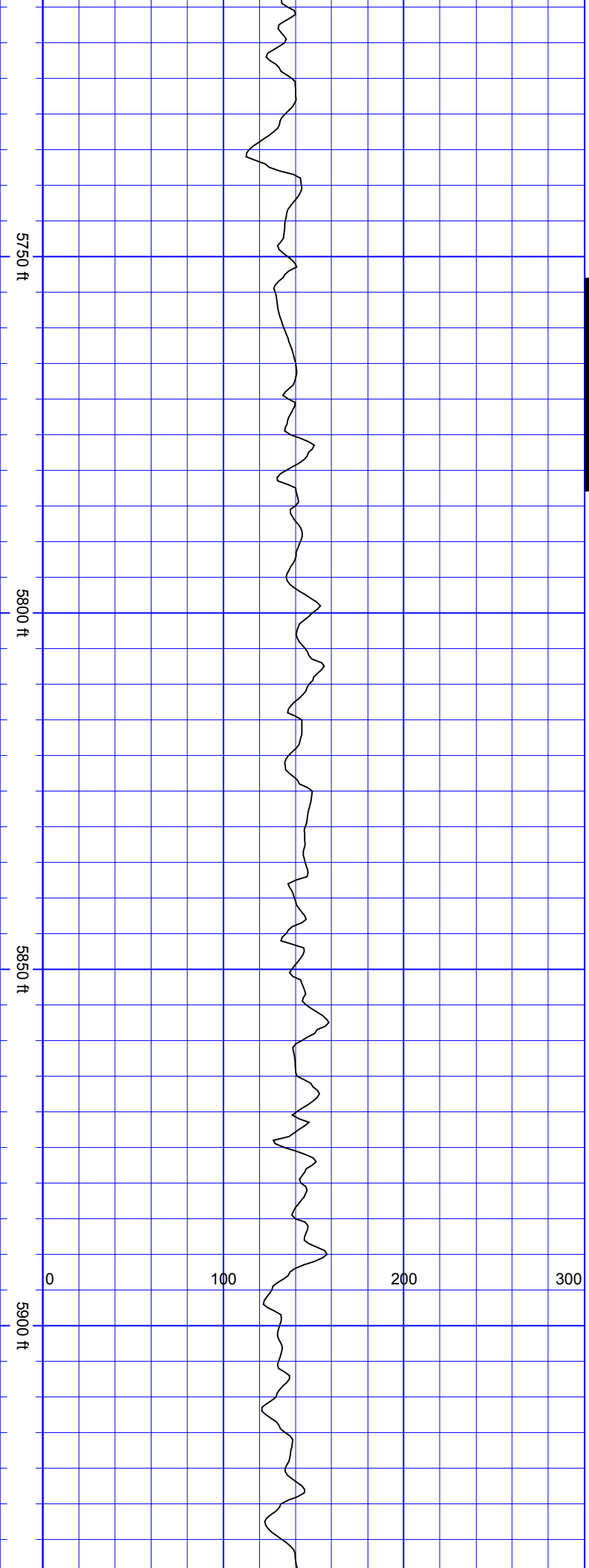




SurveyDepth:5314
TVD:4893.68 Inc:23.2
Azi:104.05 VertSec:-
702.98

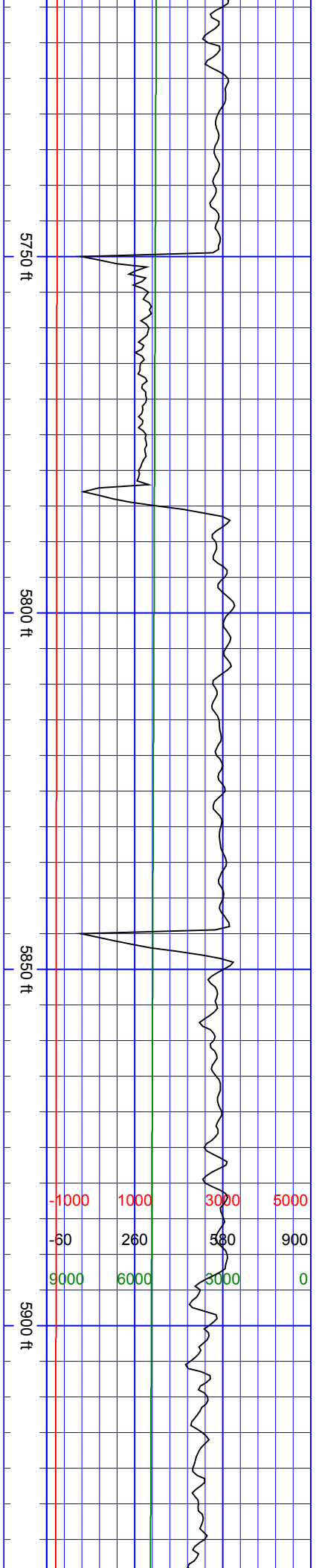
SurveyDepth:5408
TVD:4979.84 Inc:23.95
Azi:108.36 VertSec:-
713.12

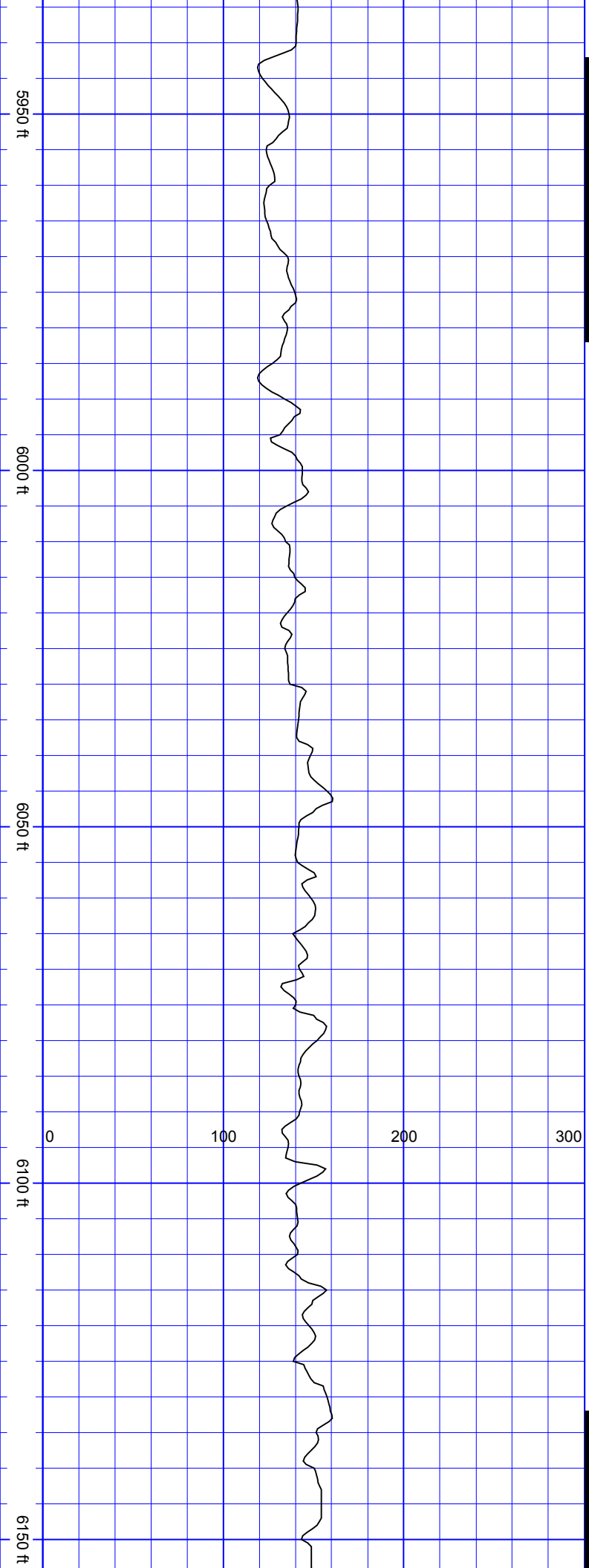




SurveyDepth:5786
TVD:5322.44 Inc:27.86
Azi:110.38 VertSec:-
767.26

SurveyDepth:5881
TVD:5407.52 Inc:24.96
Azi:107.92 VertSec:-
780.75

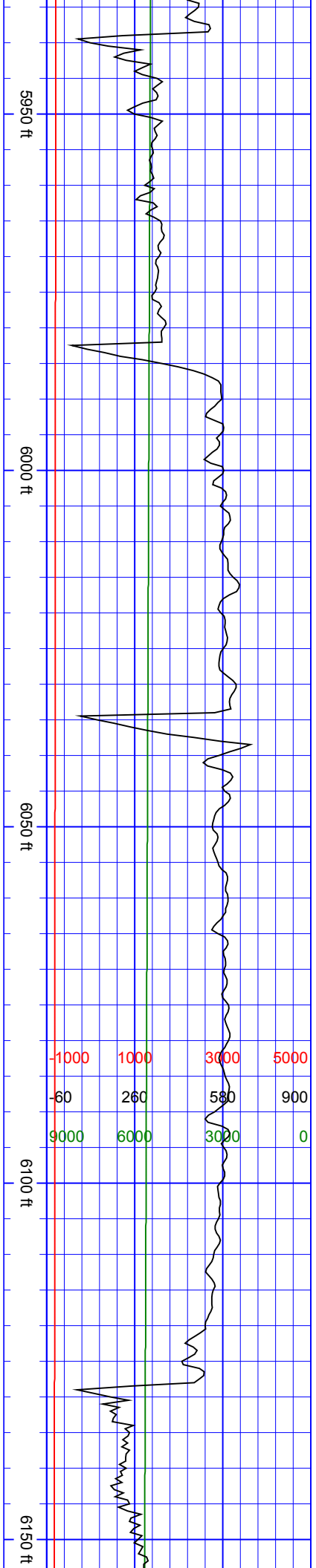


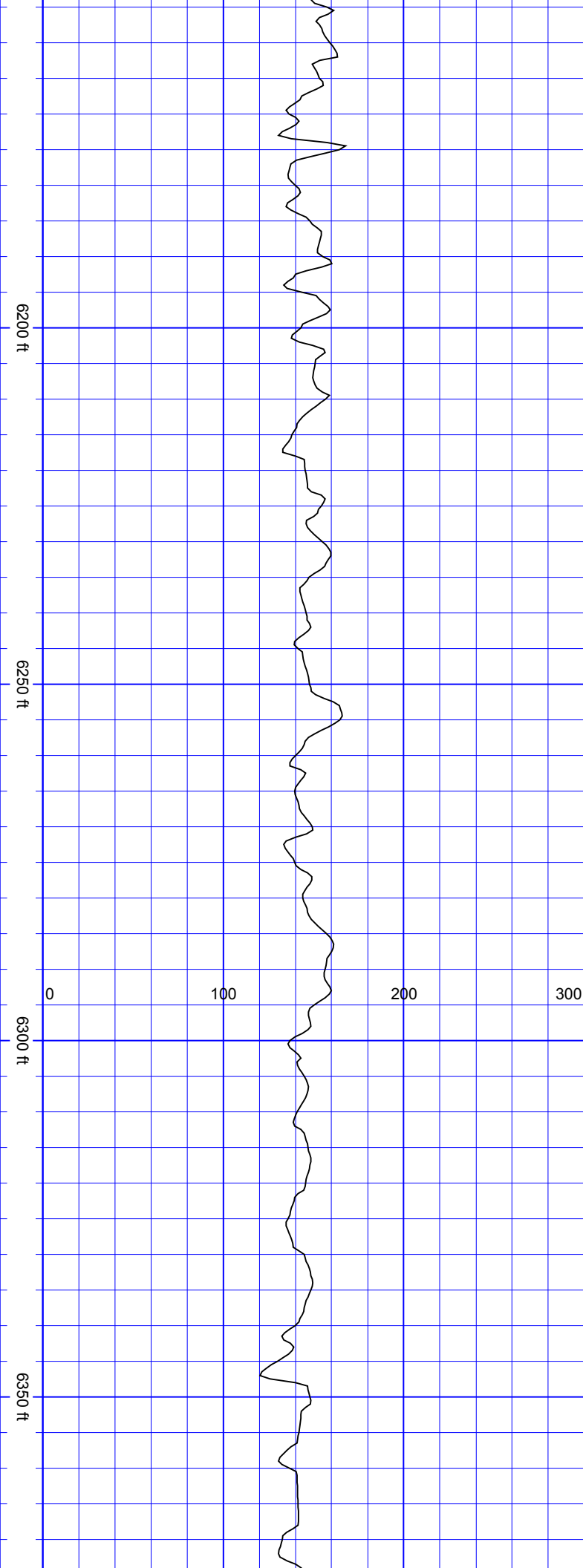


SurveyDepth:5976
TVD:5493.12 Inc:26.46
Azi:112.31 VertSec:-794.56



SurveyDepth:6071
TVD:5579.14 Inc:23.77
Azi:110.47 VertSec:-808.9

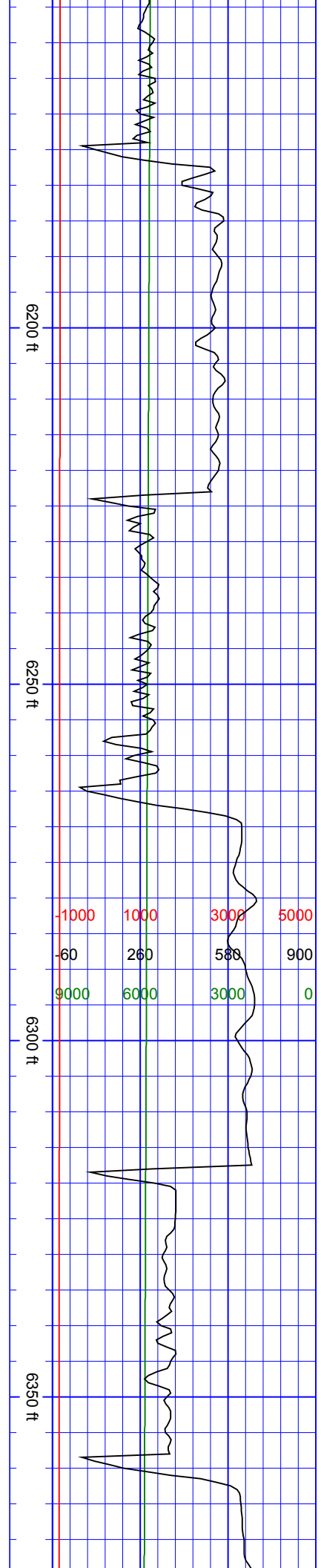


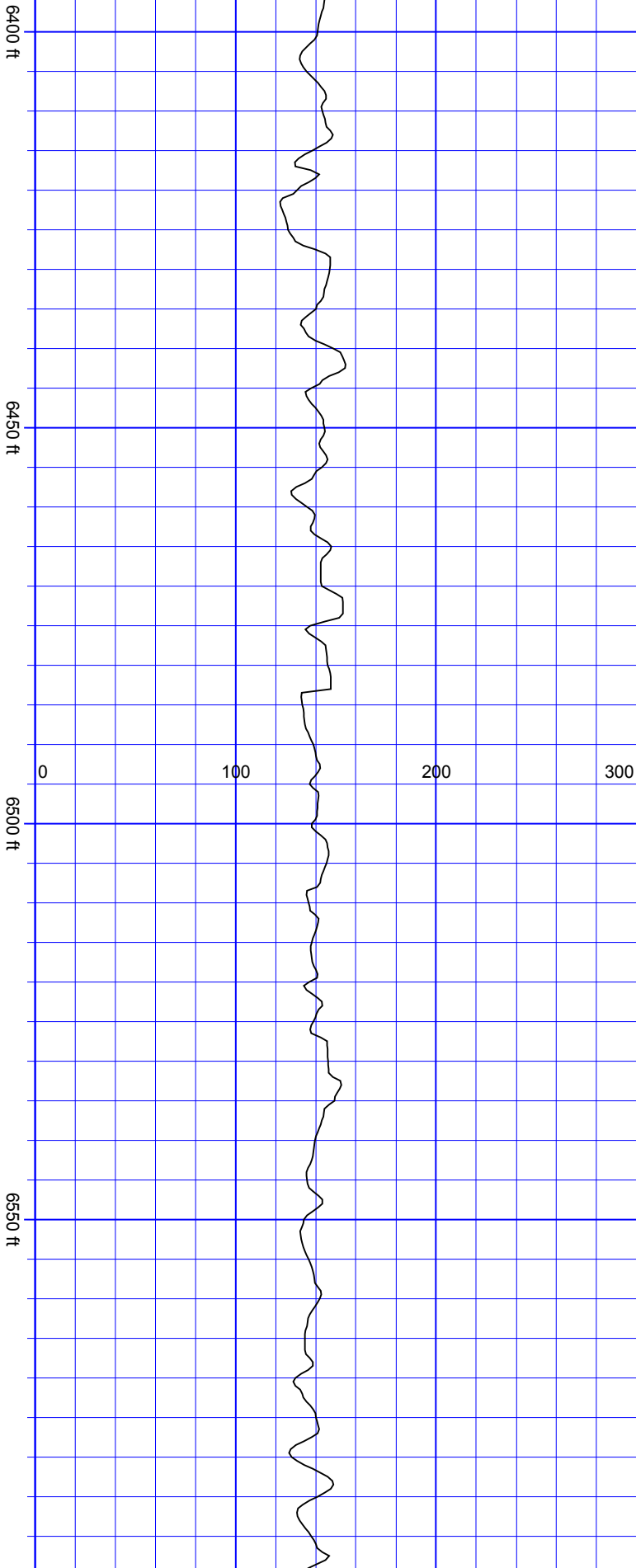


SurveyDepth:6166
TVD:5666.31 Inc:23.07
Azi:108.36 VertSec:-821.1

SurveyDepth:6261
TVD:5753.34 Inc:24.21
Azi:105.81 VertSec:-831.89

SurveyDepth:6356
TVD:5839.56 Inc:25.44
Azi:105.54 VertSec:-842.27

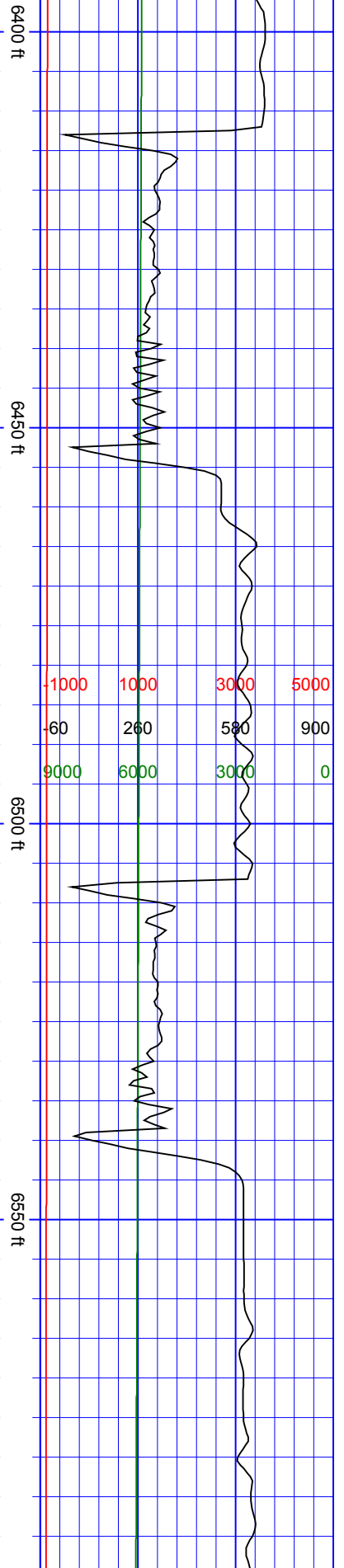


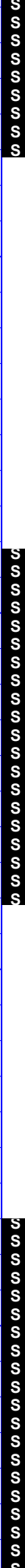
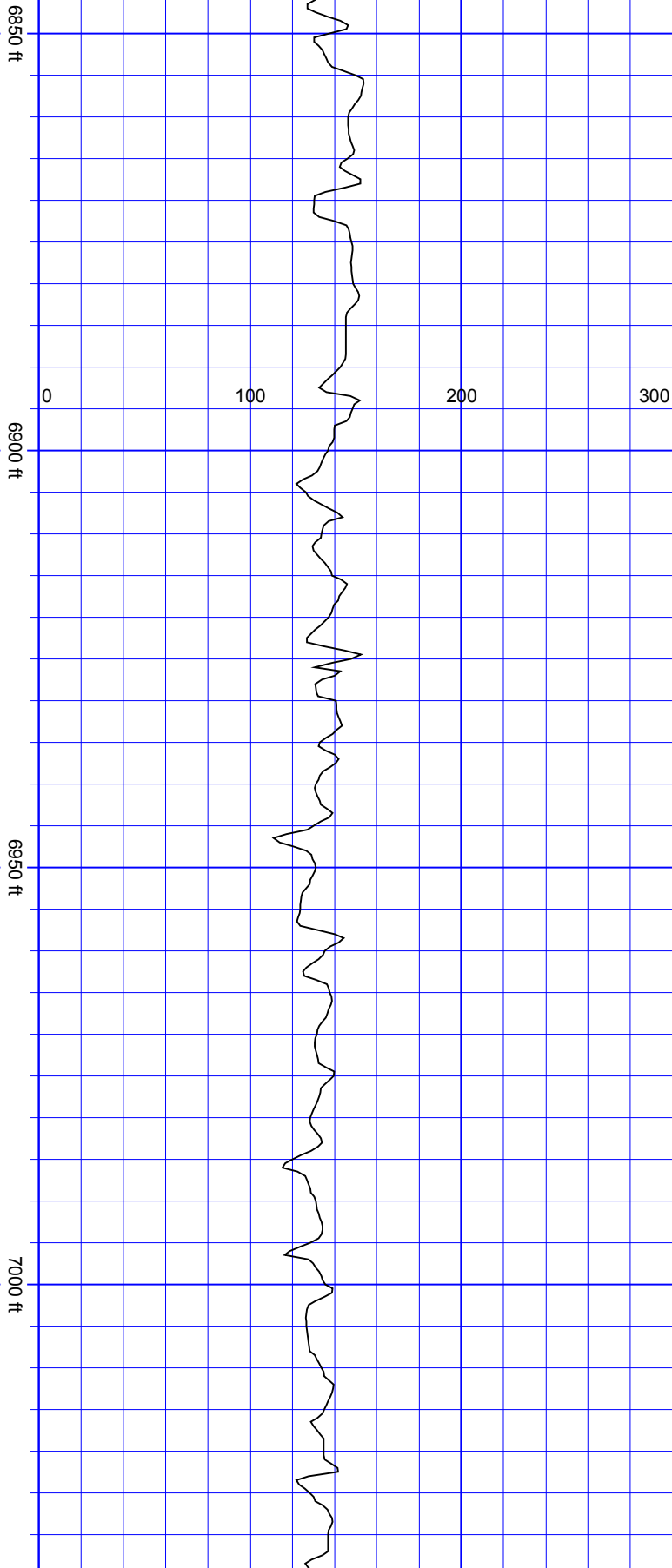


SurveyDepth:6451
TVD:5924.75 Inc:27.11
Azi:110.03 VertSec:-
854.74



SurveyDepth:6545
TVD:6008.1 Inc:27.95
Azi:111.52 VertSec:-
869.74

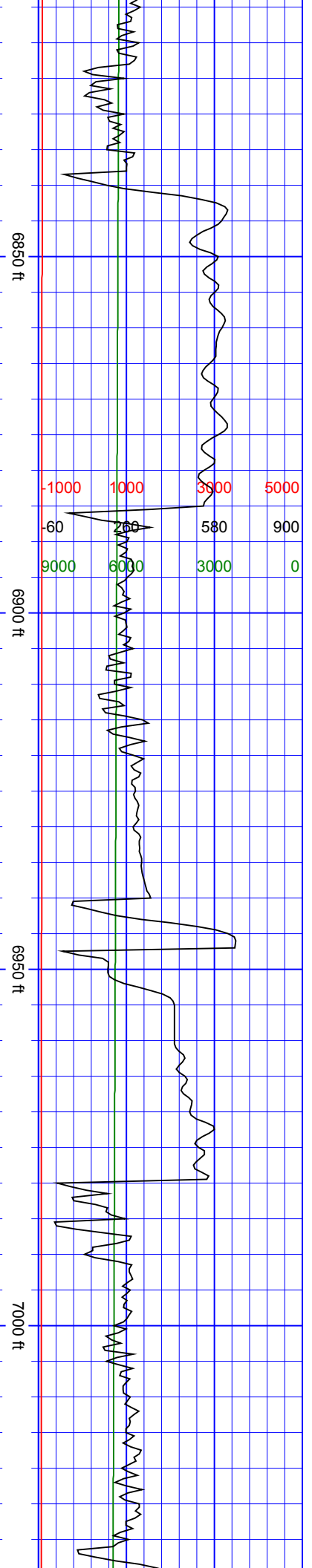


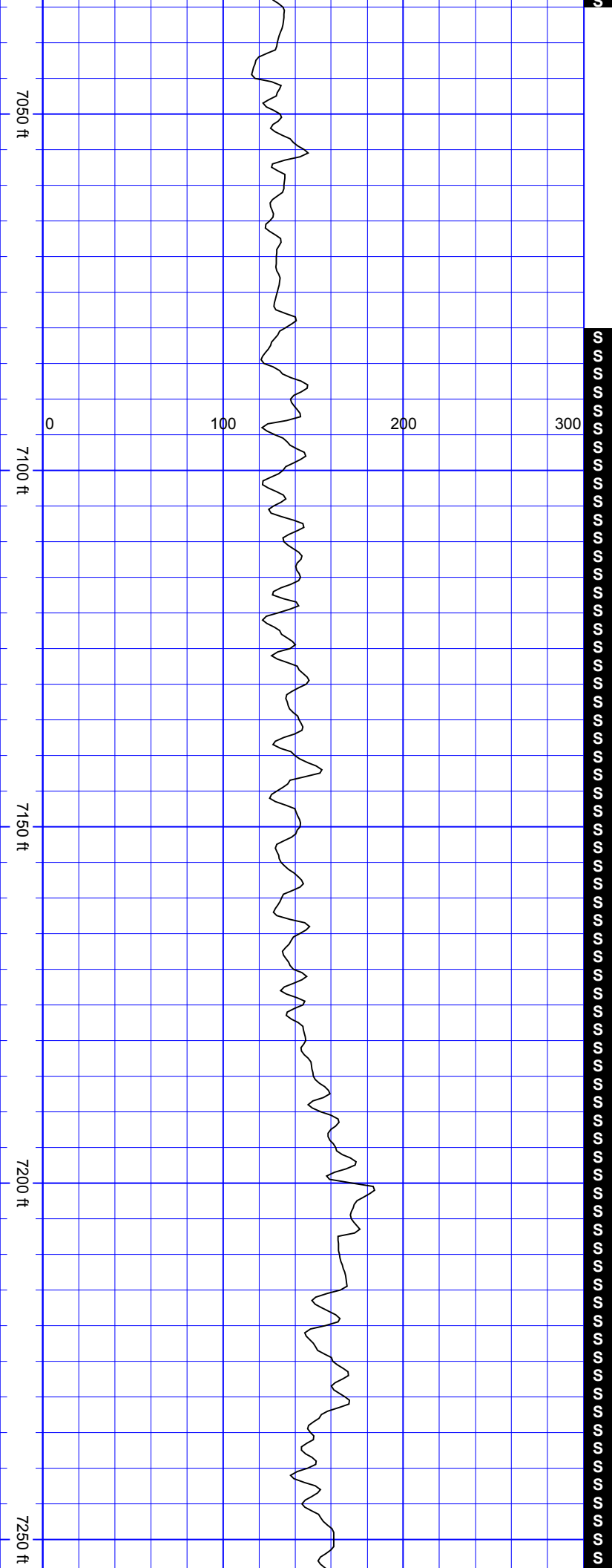


SurveyDepth:6830
TVD:6264.62 Inc:25.36
Azi:109.32 VertSec:-
910.77

SurveyDepth:6924
TVD:6349.98 Inc:24.17
Azi:105.1 VertSec:-
922.06

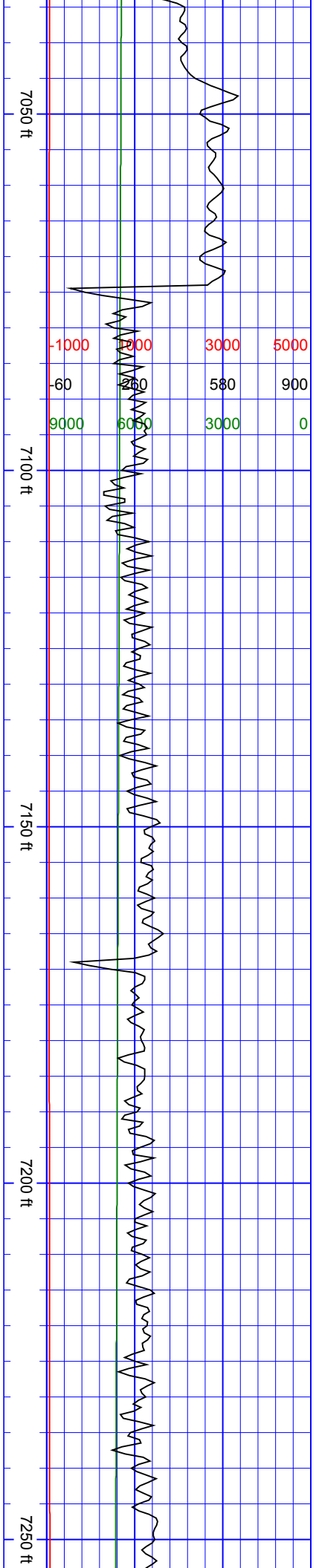
SurveyDepth:7019
TVD:6435.85 Inc:26.46
Azi:105.37 VertSec:-
932.33

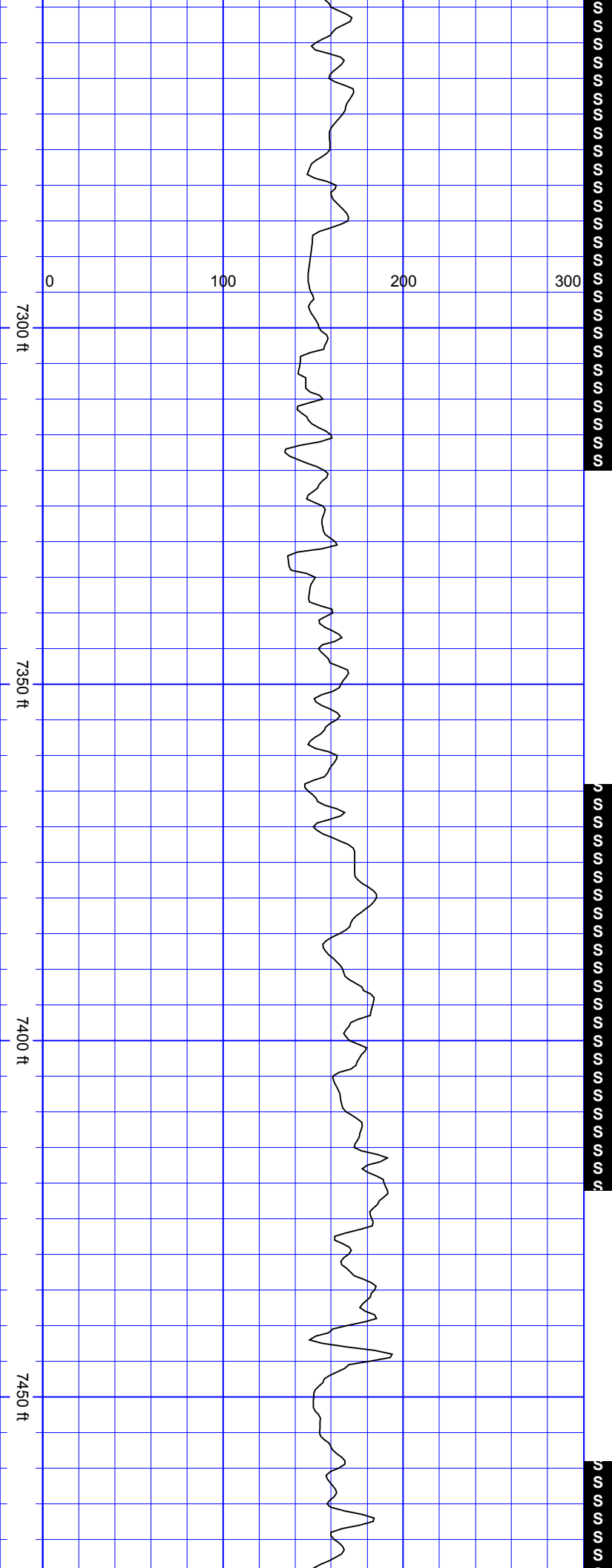




SurveyDepth:7114
TVD:6520.92 Inc:26.5
Azi:95.96 VertSec:-
939.72

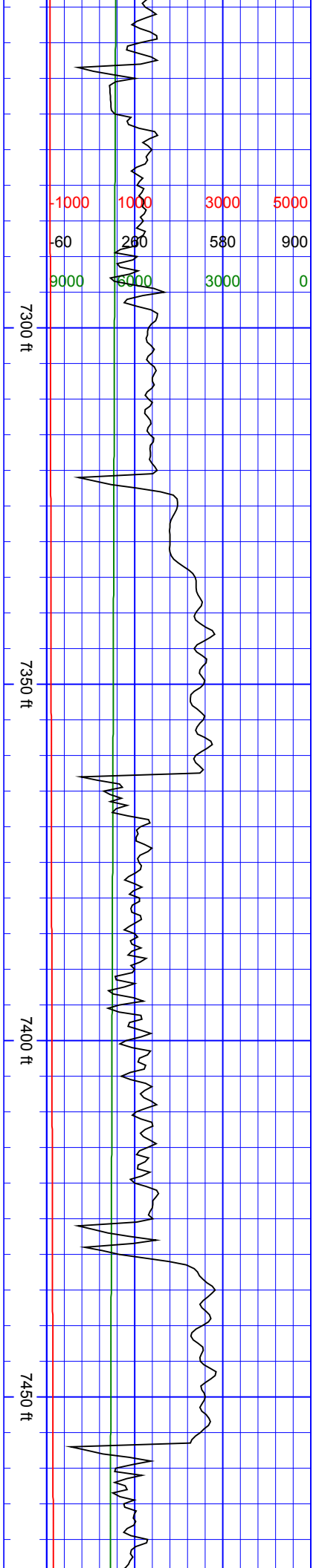
SurveyDepth:7208
TVD:6604.05 Inc:29.84
Azi:71.35 VertSec:-
933.95

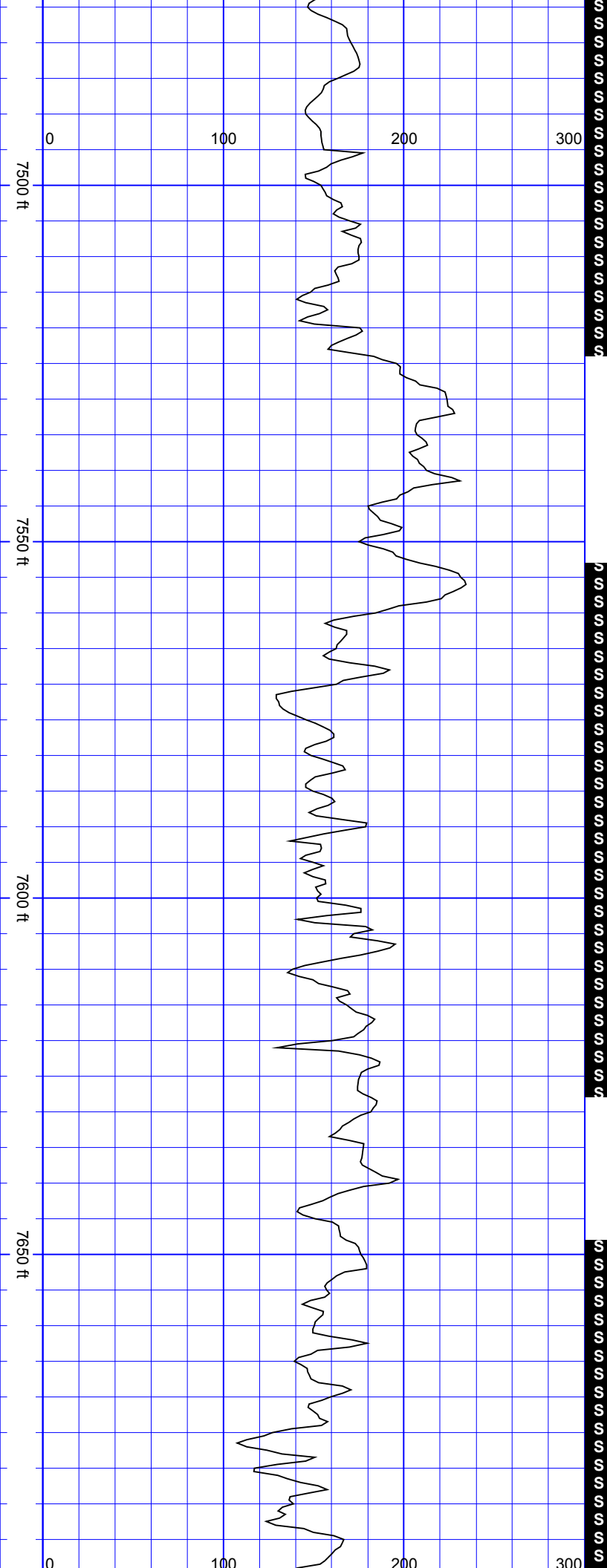




SurveyDepth:7303
TVD:6684.74 Inc:34.23
Azi:53.95 VertSec:-
910.16

SurveyDepth:7398
TVD:6763.41 Inc:34.01
Azi:47.8 VertSec:-876.15

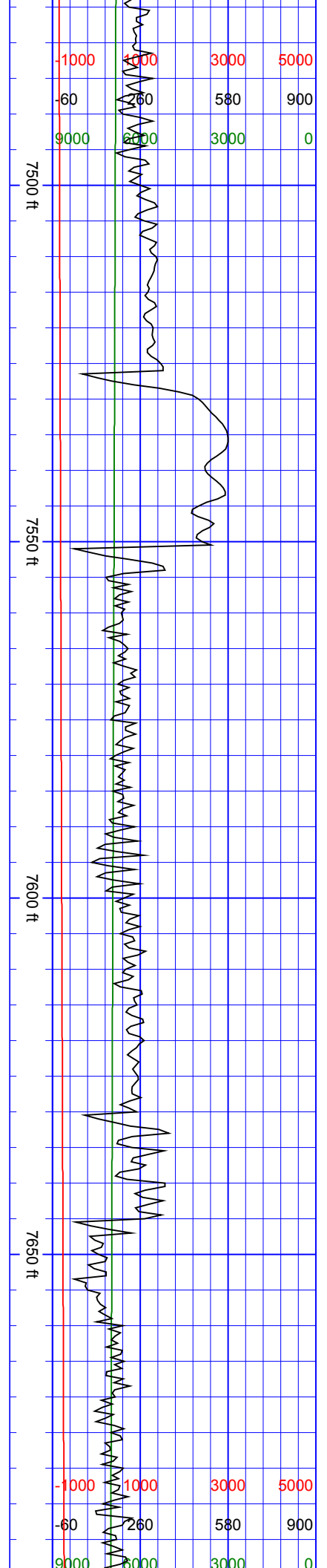




SurveyDepth:7492
TVD:6841.48 Inc:33.84
Azi:36.9 VertSec:-837.17

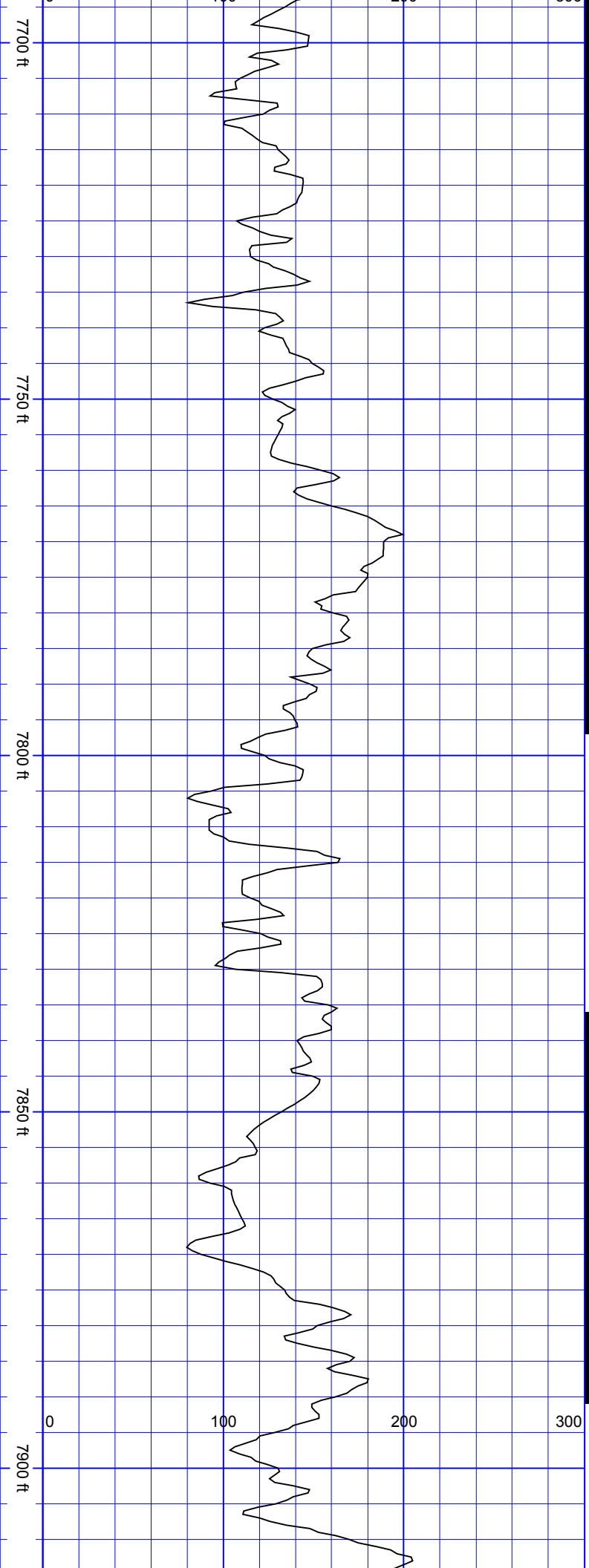
SurveyDepth:7587
TVD:6918.99 Inc:36.83
Azi:32.15 VertSec:-791.57

SurveyDepth:7681
TVD:6990.38 Inc:44.3
Azi:25.91 VertSec:-737.79



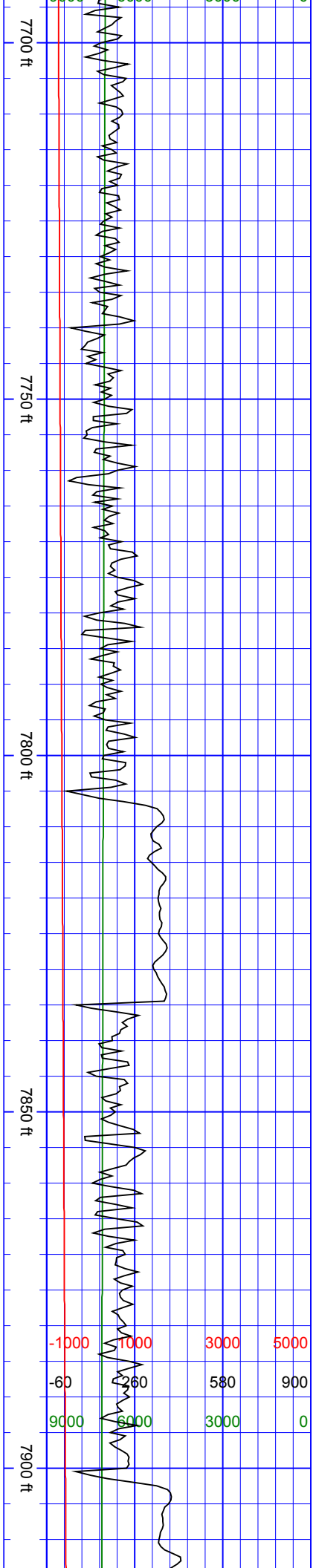
Distance (ft)	Depth (ft)	Inc (ft)	Azi (deg)	VertSec (ft)
0	7500	33.84	36.9	-837.17
100	7550	36.83	32.15	-791.57
200	7600	44.3	25.91	-737.79
300	7650			

Distance (ft)	Depth (ft)	Inc (ft)	Azi (deg)	VertSec (ft)
0	7500	33.84	36.9	-837.17
100	7550	36.83	32.15	-791.57
200	7600	44.3	25.91	-737.79
300	7650			



SurveyDepth:7775
TVD:7051.07 Inc:55.15
Azi:20.9 VertSec:-671.73

SurveyDepth:7870
TVD:7100.42 Inc:62.23
Azi:18.71 VertSec:-595.12



7950 ft

8000 ft

8050 ft

8100 ft

0 100 200 300



SurveyDepth:7965
TVD:7138.89 Inc:69.96
Azi:15.54 VertSec:-
511.92

SurveyDepth:8060
TVD:7169.56 Inc:72.38
Azi:11.24 VertSec:-
424.26

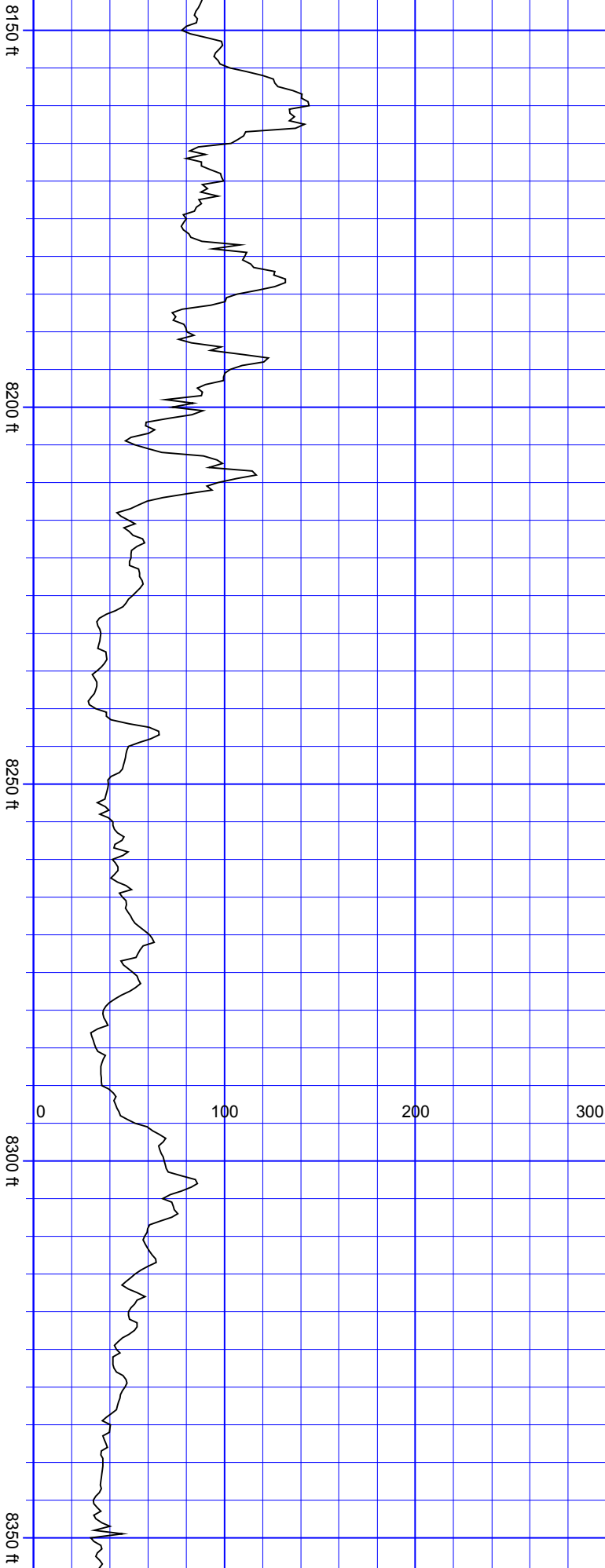
7950 ft

8000 ft

8050 ft

8100 ft

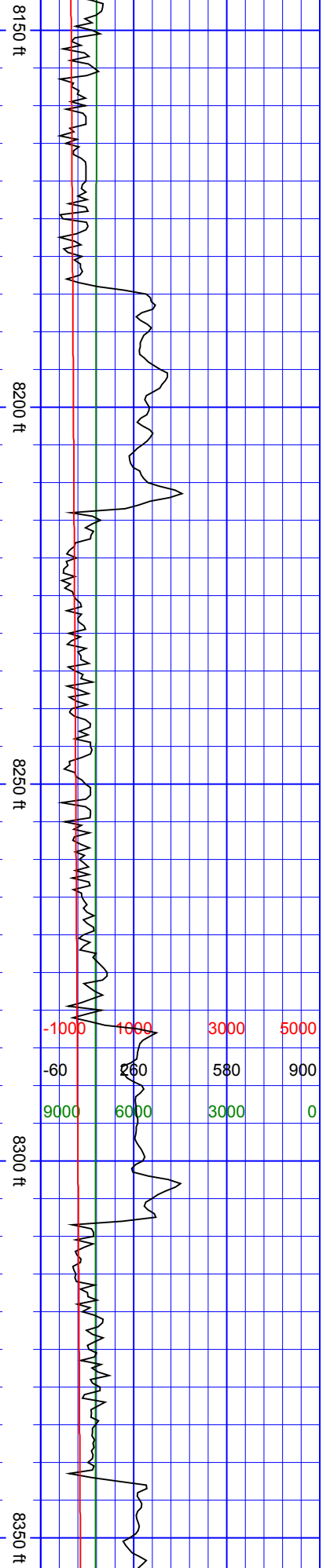
-1000	1000	3000	5000
-60	260	580	900
9000	6000	3000	0

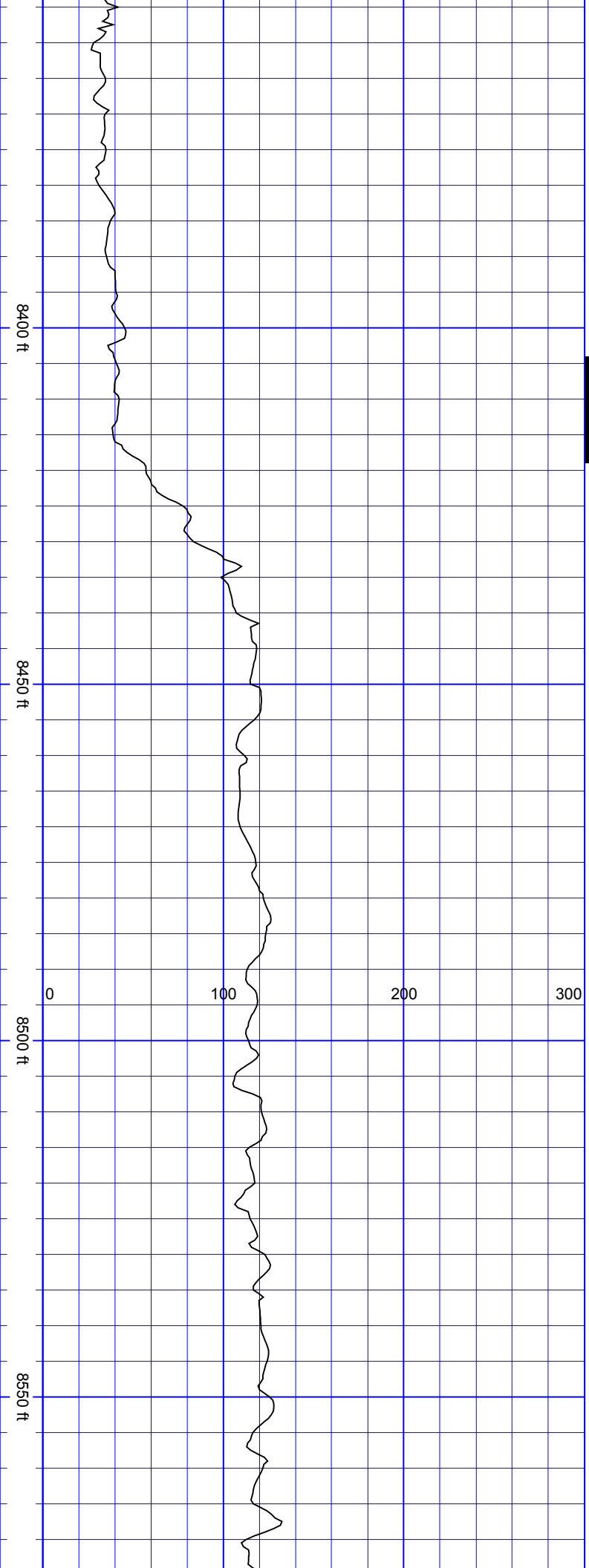


SurveyDepth:8154
TVD:7196.51 Inc:74.31
Azi:7.72 VertSec:-335.31

SurveyDepth:8248
TVD:7216.96 Inc:80.55
Azi:6.23 VertSec:-244.17

SurveyDepth:8343
TVD:7226.01 Inc:88.51
Azi:1.83 VertSec:-149.88

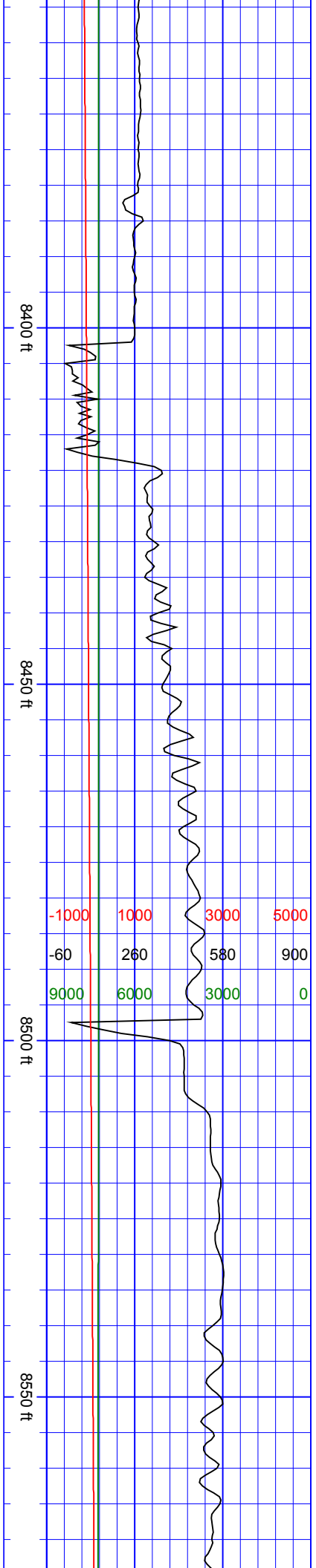


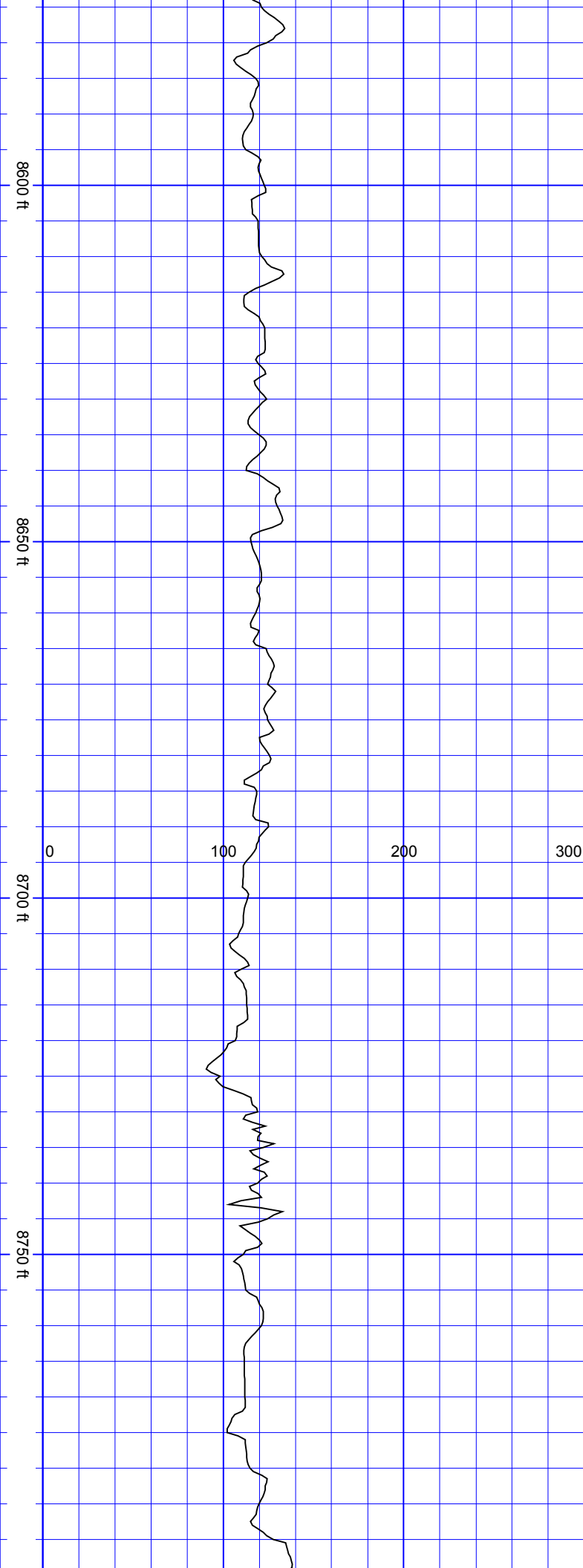


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SurveyDepth:8438
TVD:7229 Inc:87.89
Azi:358.05 VertSec:-
54.95

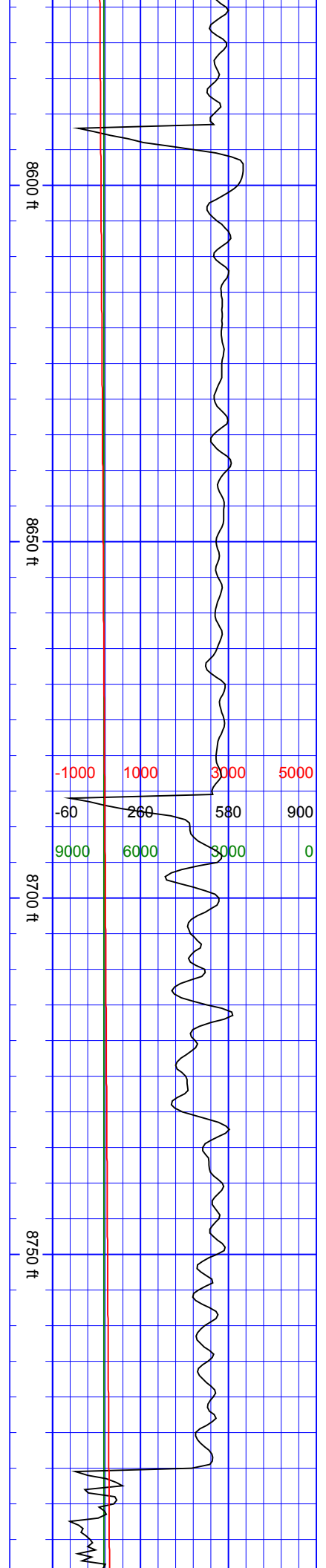
SurveyDepth:8533
TVD:7232.5 Inc:87.89
Azi:357.26
VertSec:39.86

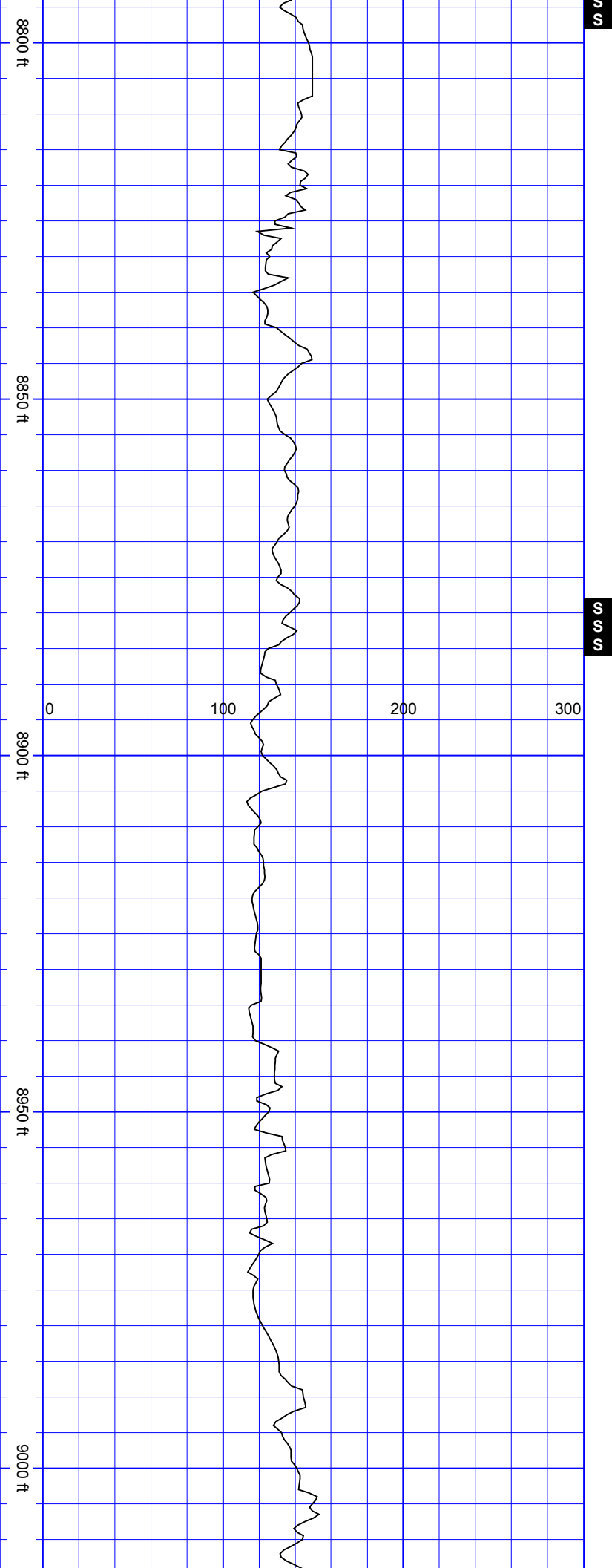




SurveyDepth:8627
TVD:7235.42 Inc:88.55
Azi:357 VertSec:133.65

SurveyDepth:8722
TVD:7237.64 Inc:88.77
Azi:356.12
VertSec:228.39



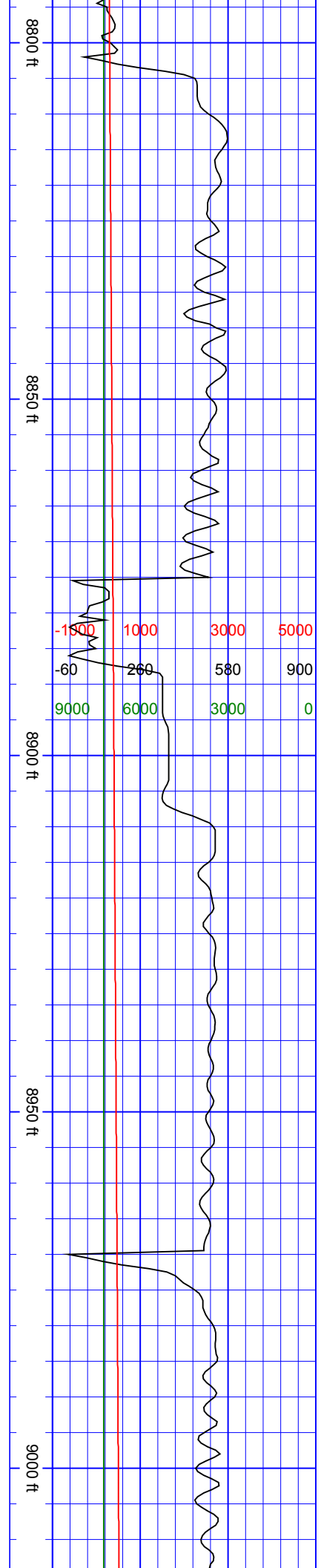


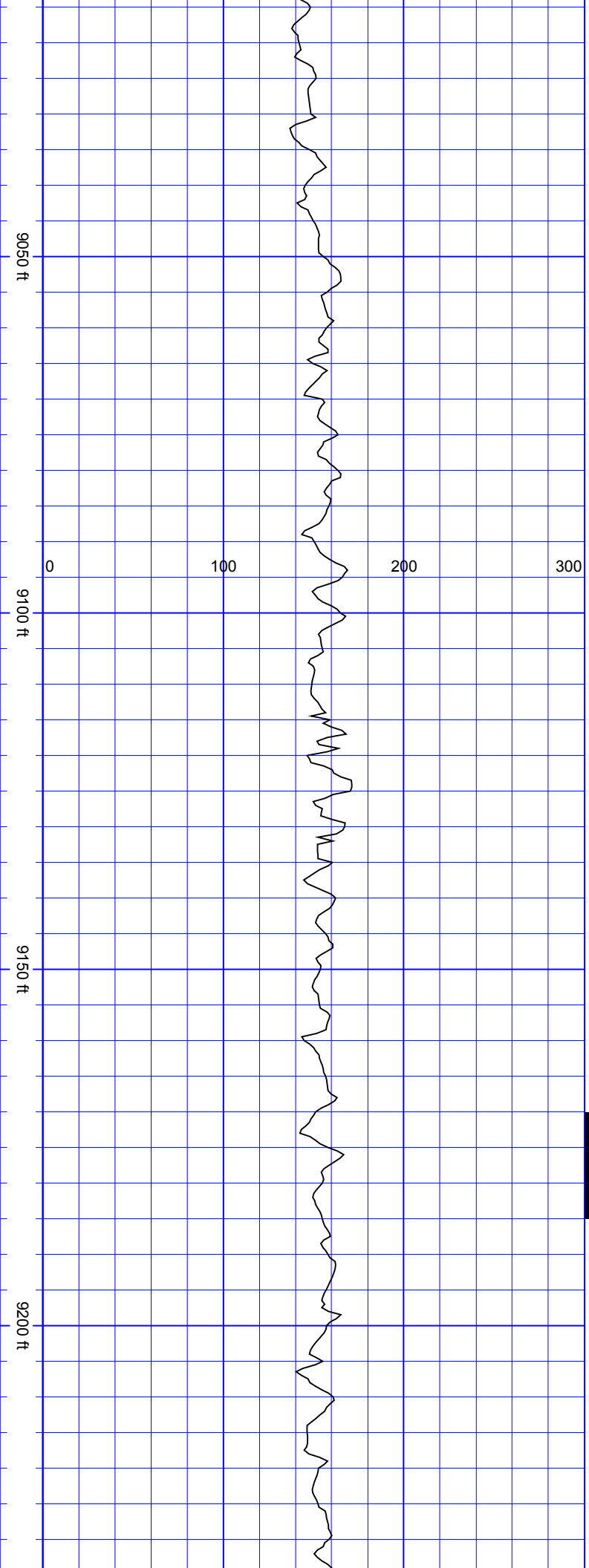
SurveyDepth:8817
TVD:7240.73 Inc:87.5
Azi:358.93
VertSec:323.19

SS

SurveyDepth:8911
TVD:7243.82 Inc:88.73
Azi:0.43 VertSec:417.12

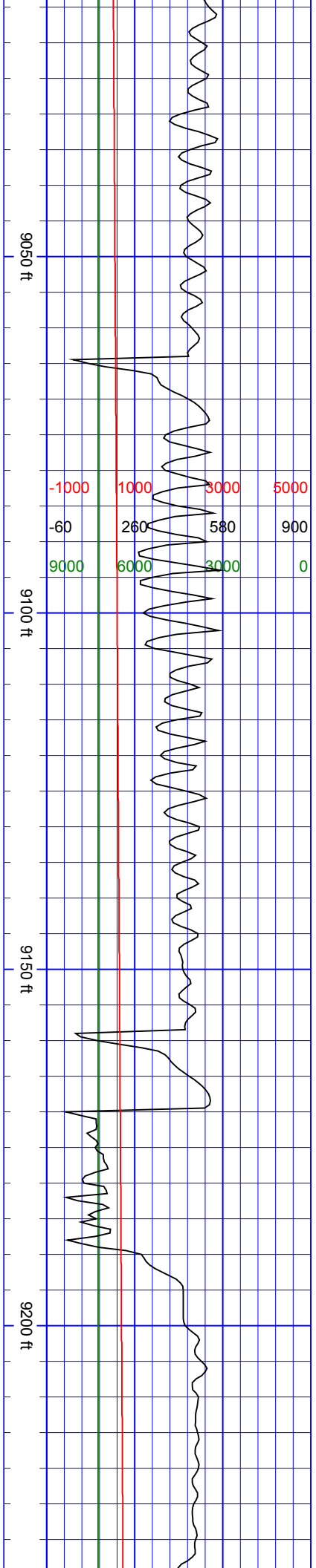
SurveyDepth:9006
TVD:7245.38 Inc:89.39
Azi:359.9 VertSec:512.1

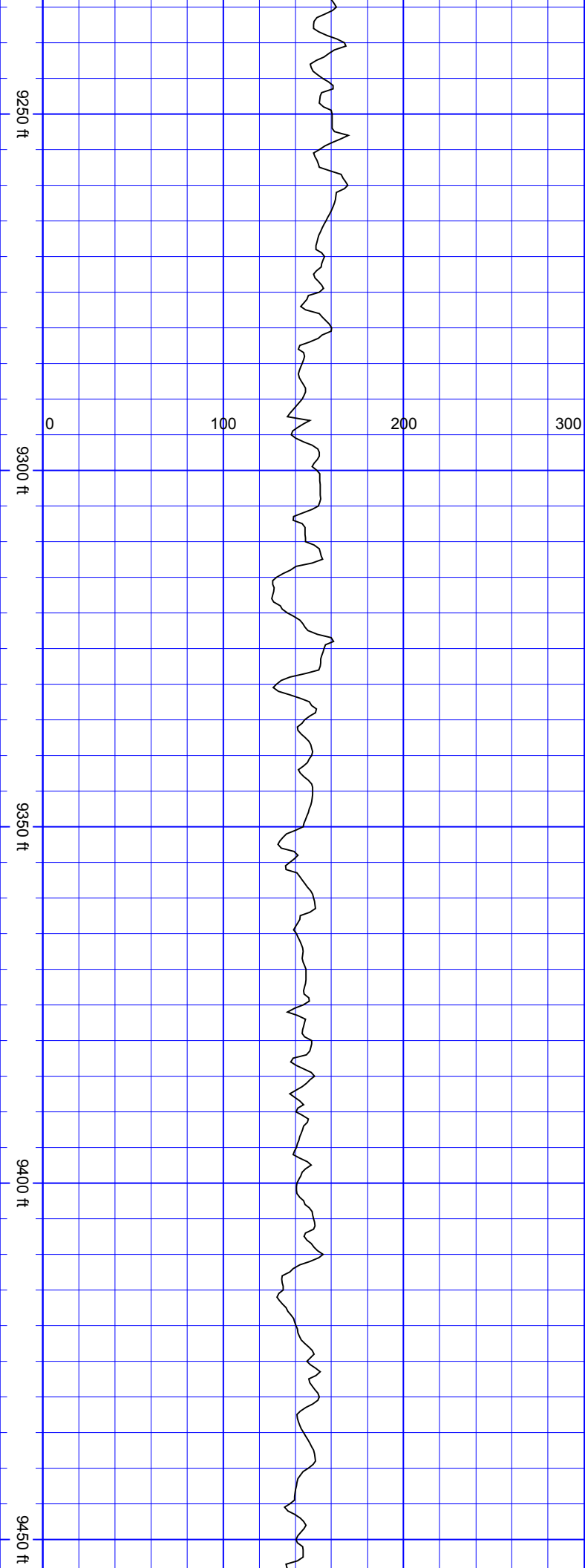




SurveyDepth:9100
TVD:7246.06 Inc:89.78
Azi:359.72
VertSec:606.09

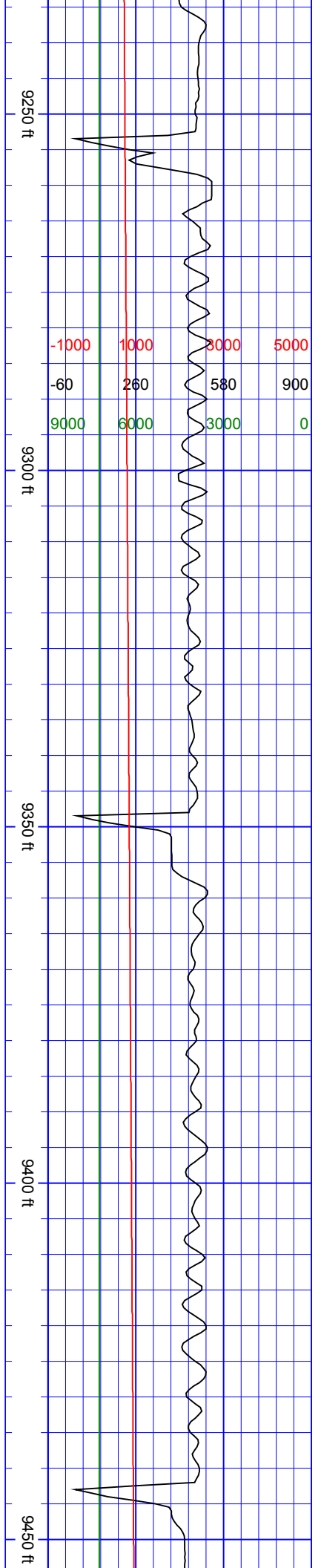
SurveyDepth:9195
TVD:7246.75 Inc:89.39
Azi:2.54 VertSec:701.08

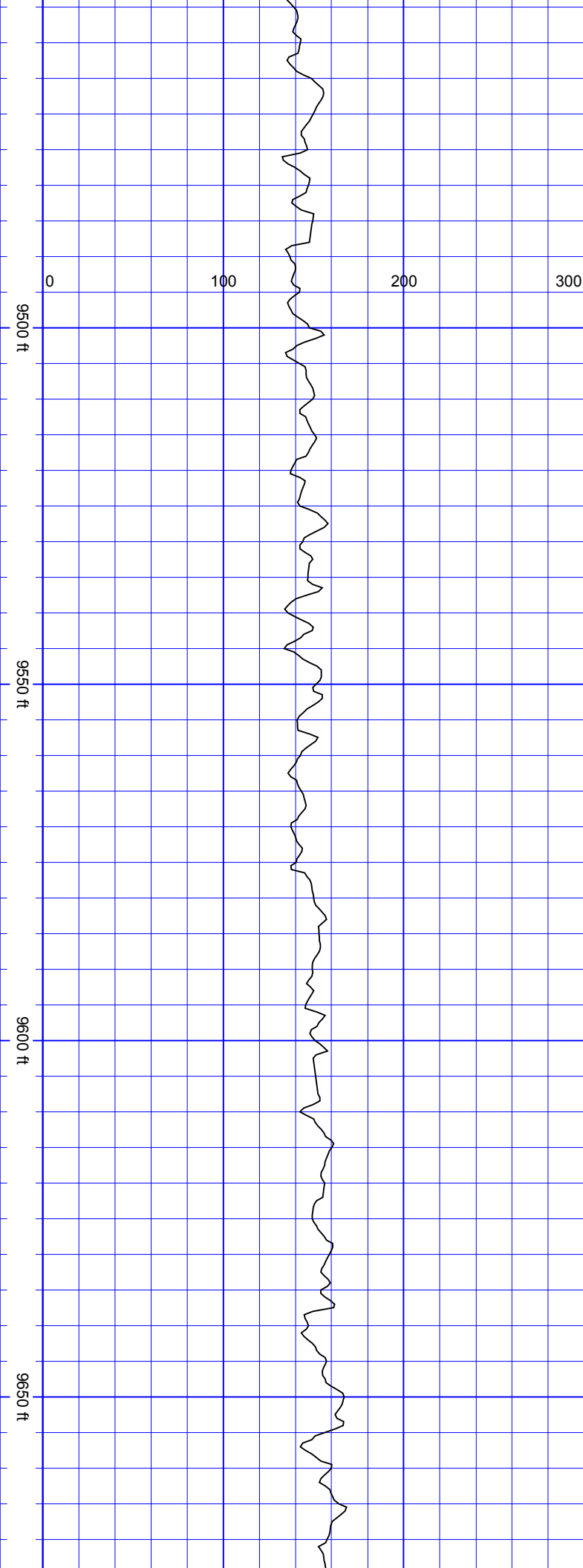




SurveyDepth:9290
TVD:7247.59 Inc:89.6
Azi:2.27 VertSec:796.03

SurveyDepth:9384
TVD:7248.24 Inc:89.6
Azi:2.1 VertSec:889.99

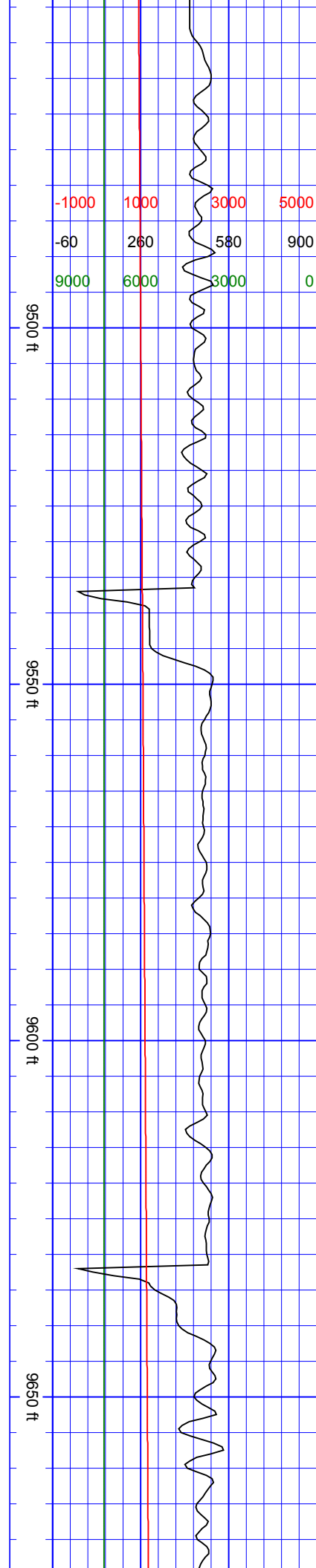


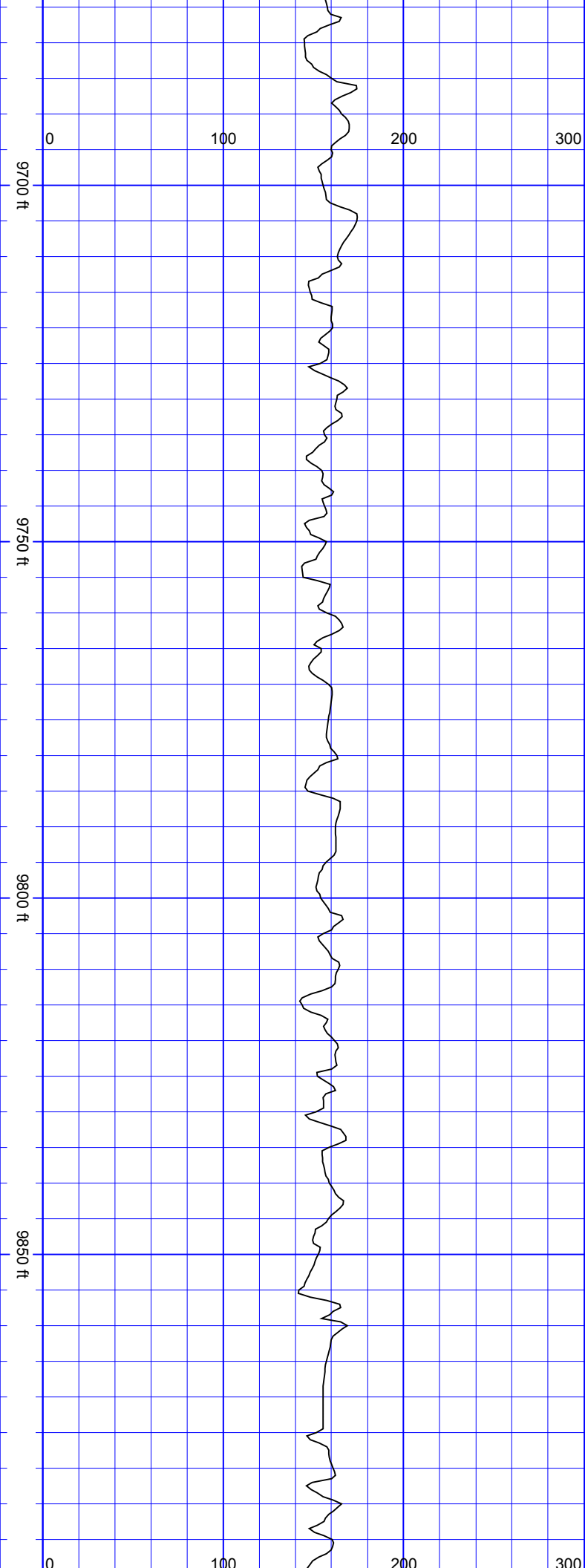


SurveyDepth:9479
TVD:7248.47 Inc:90.13
Azi:2.45 VertSec:984.94

SurveyDepth:9574
TVD:7247.63 Inc:90.88
Azi:2.54
VertSec:1079.89

SurveyDepth:9668
TVD:7246.29 Inc:90.75
Azi:2.64
VertSec:1174.80

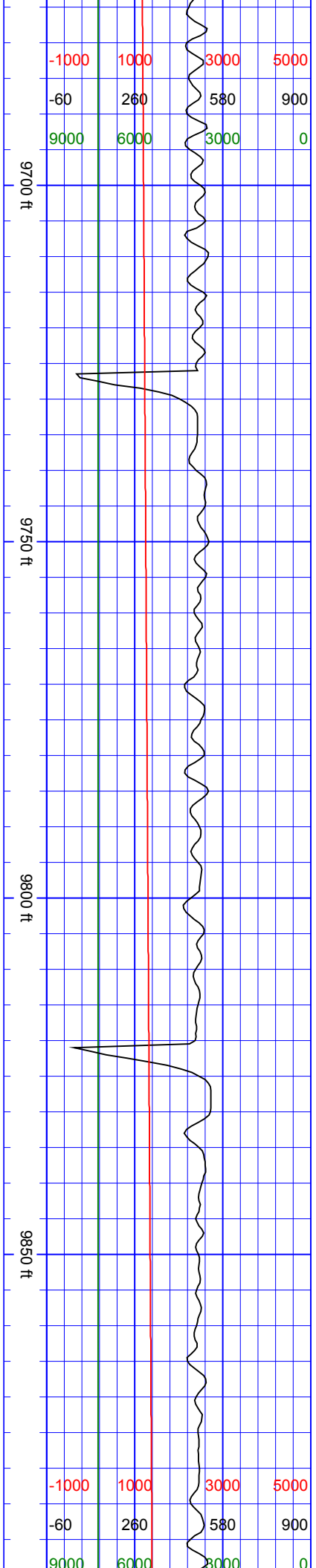


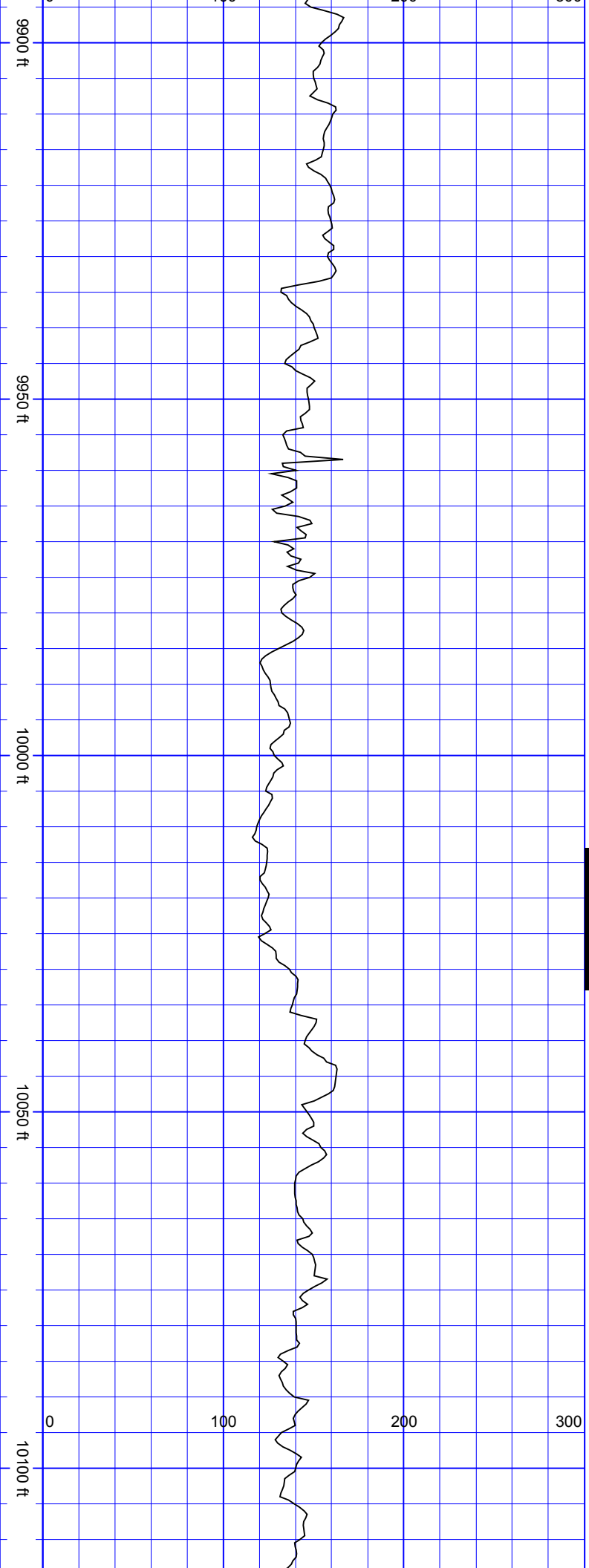


Azi:2.01
VertSec:1173.84

SurveyDepth:9763
TVD:7244.94 Inc:90.88
Azi:1.83 VertSec:1268.8

SurveyDepth:9858
TVD:7243.48 Inc:90.88
Azi:1.92
VertSec:1363.77

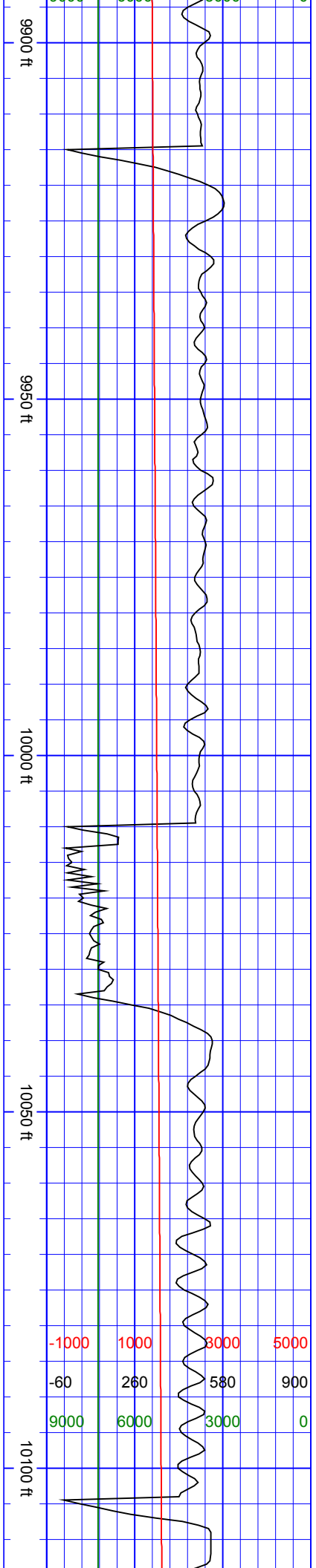


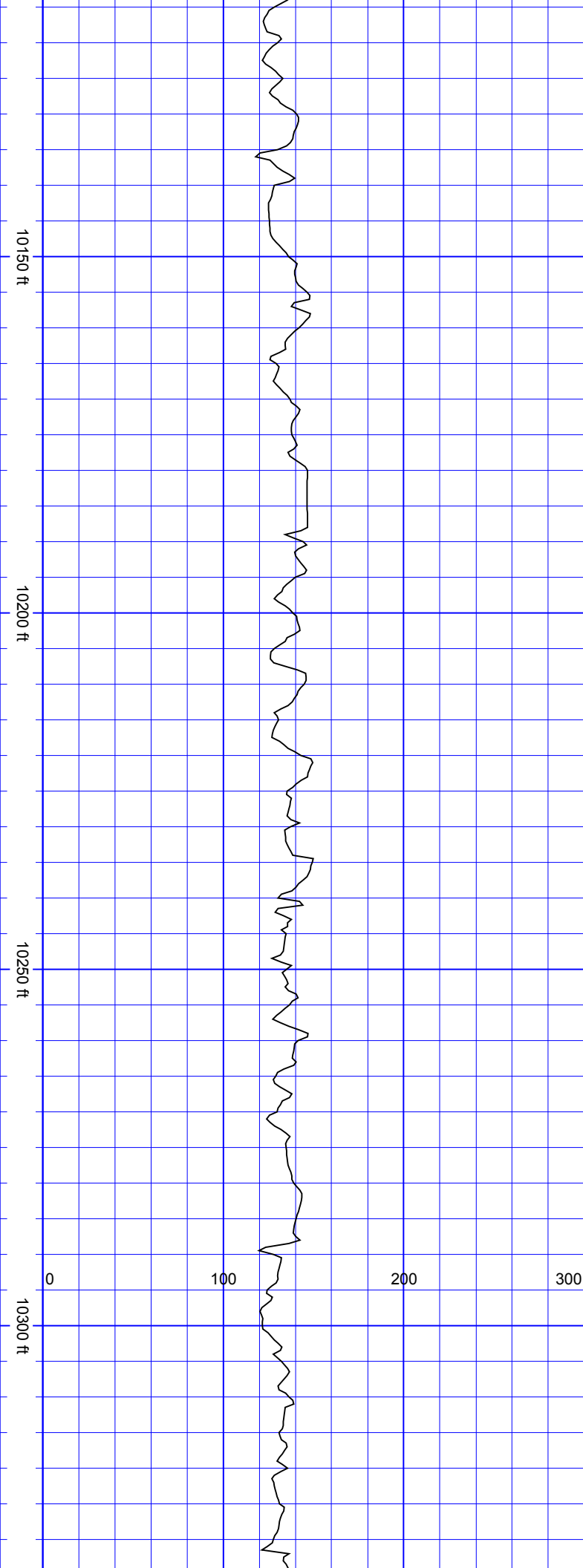


SurveyDepth:9952
TVD:7241.78 Inc:91.19
Azi:1.83
VertSec:1457.73

SSSSSSSS

SurveyDepth:10047
TVD:7242.65 Inc:87.76
Azi:2.01
VertSec:1552.68



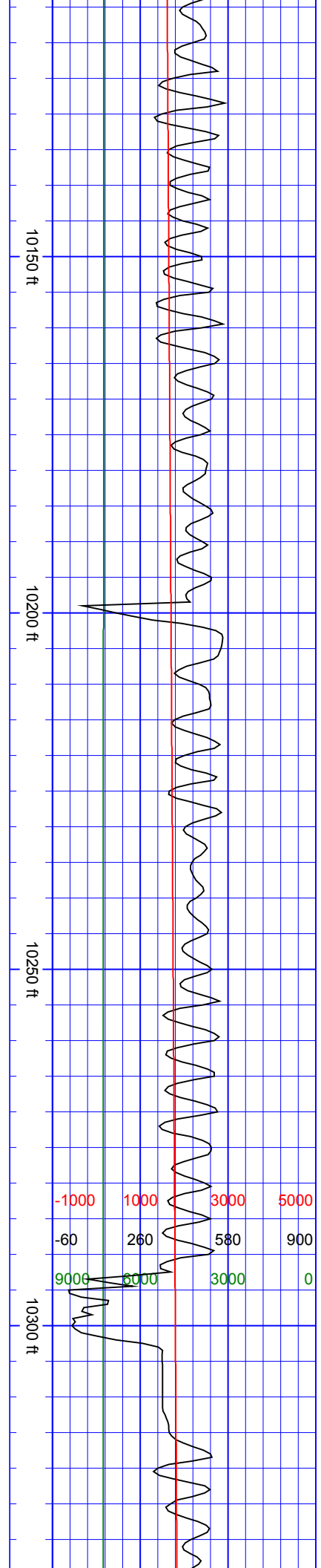


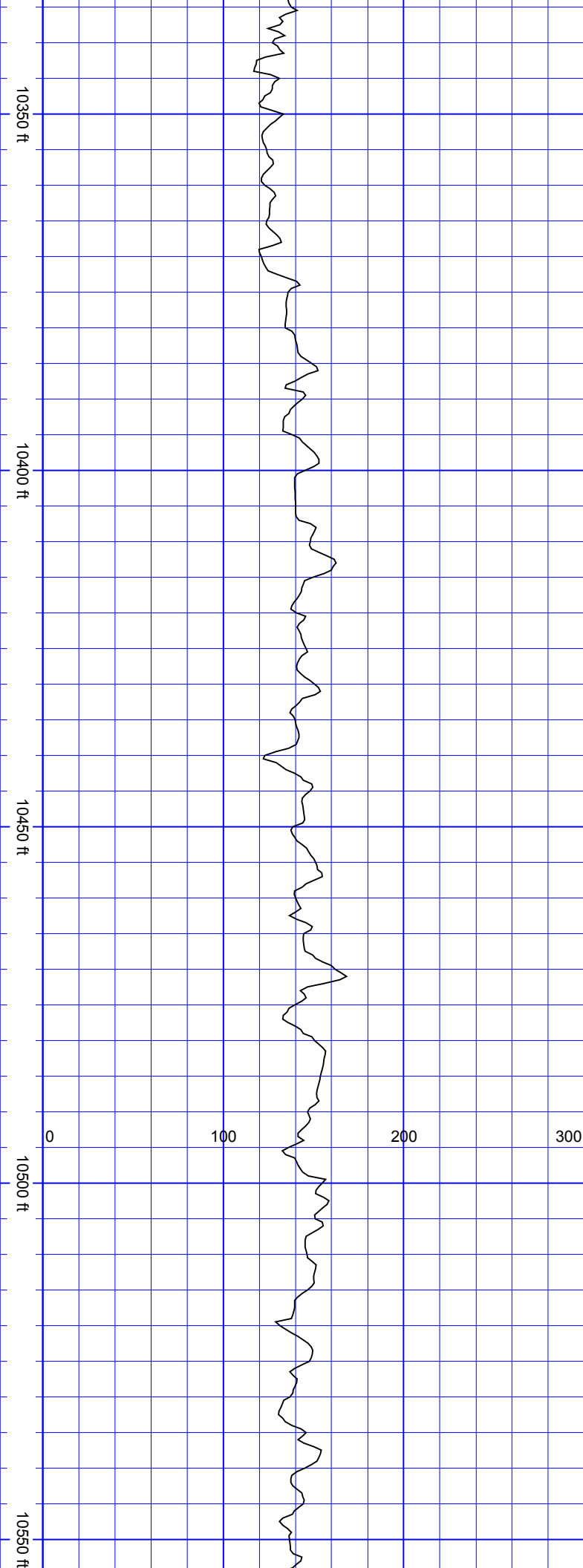
SS

SurveyDepth:10142
TVD:7246.37 Inc:87.76
Azi:2.1 VertSec:1647.58

SurveyDepth:10236
TVD:7249.94 Inc:87.89
Azi:1.83
VertSec:1741.49

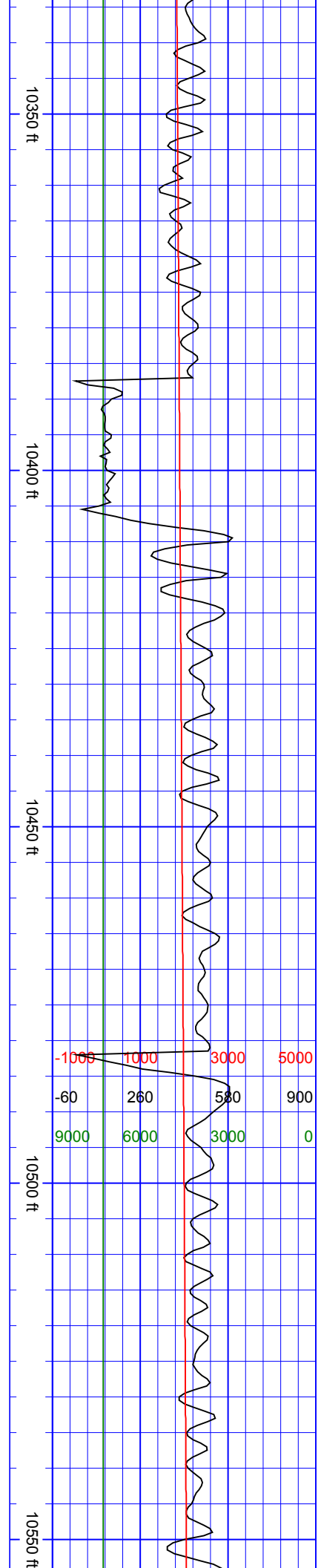
SurveyDepth:10331

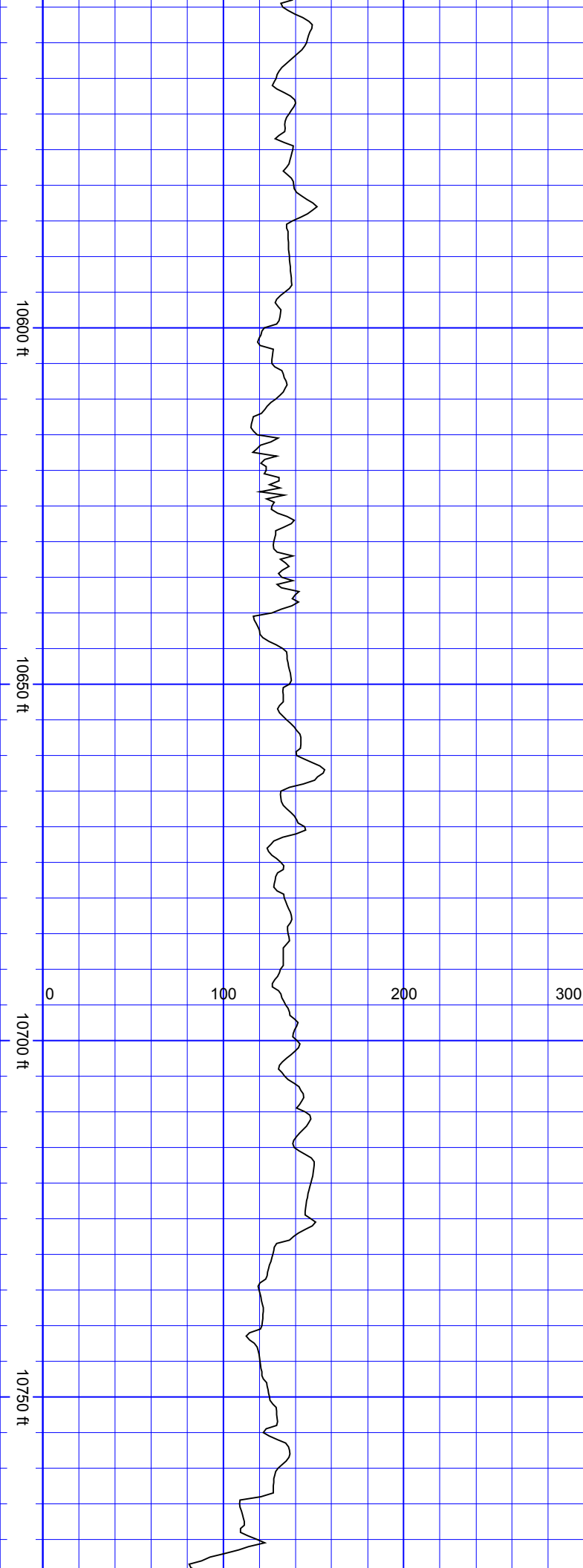




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TVD:7253.87 Inc:87.36 Azi:1.48 VertSec:1836.39	SurveyDepth:10425 TVD:7256.29 Inc:89.69 Azi:0.07 VertSec:1930.35	SurveyDepth:10520 TVD:7256.66 Inc:89.87 Azi:359.9 VertSec:2025.34
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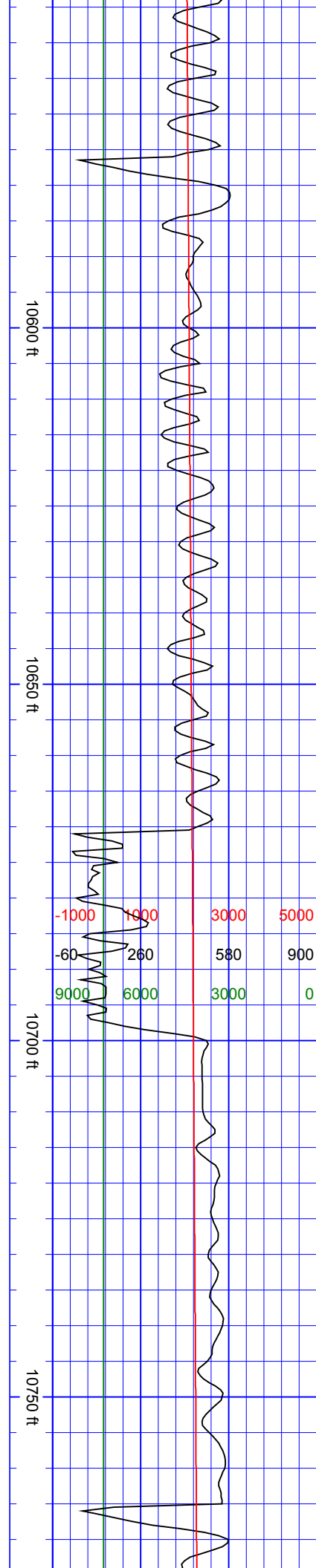


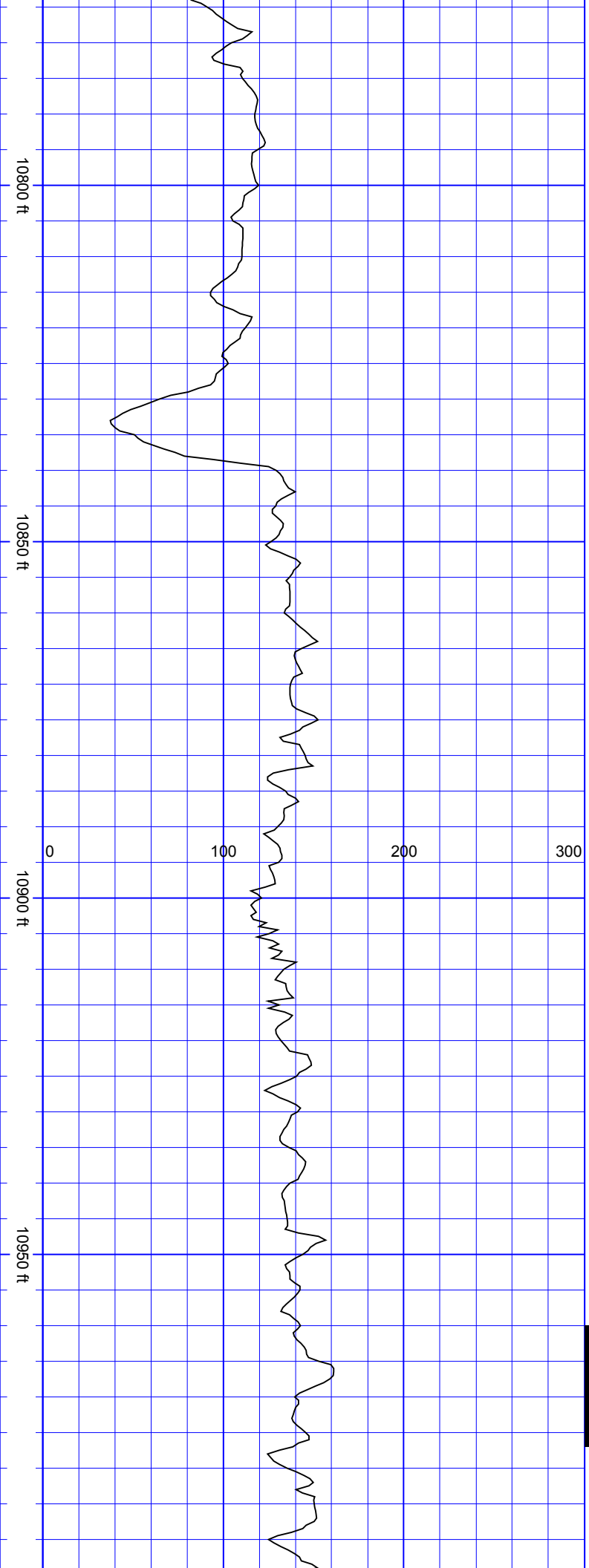


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SurveyDepth:10614
TVD:7257.02 Inc:89.69
Azi:359.02
VertSec:2119.32

SurveyDepth:10709
TVD:7256.51 Inc:90.92
Azi:358.49
VertSec:2214.27



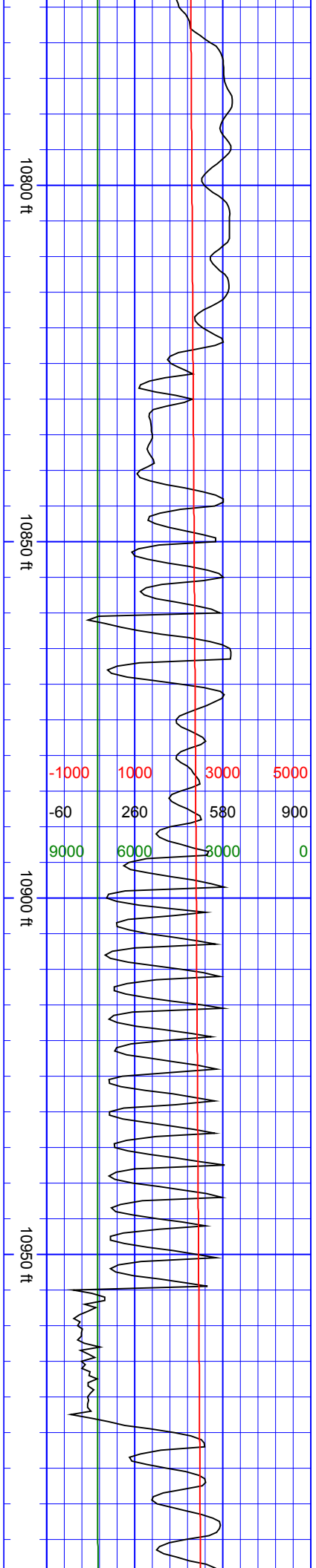


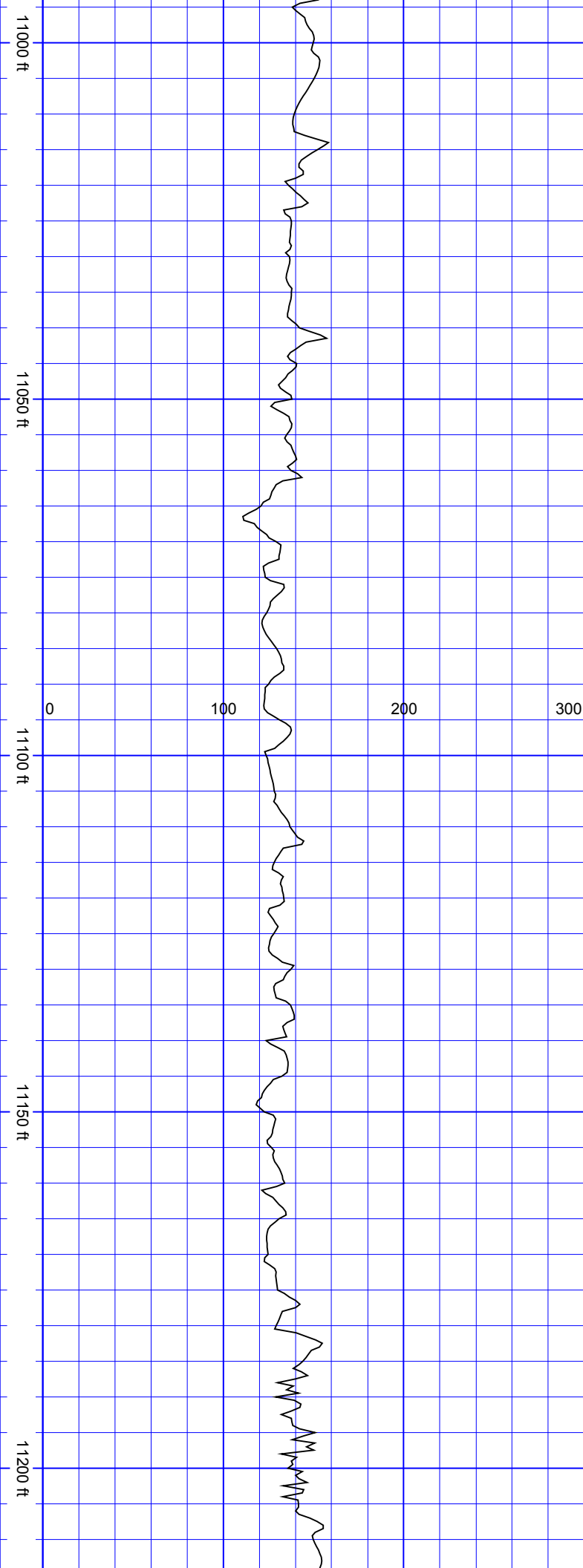
SurveyDepth:10804
TVD:7254.4 Inc:91.63
Azi:358.49
VertSec:2309.18

SurveyDepth:10899
TVD:7251.63 Inc:91.71
Azi:357.88
VertSec:2404.06

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SurveyDepth:10900

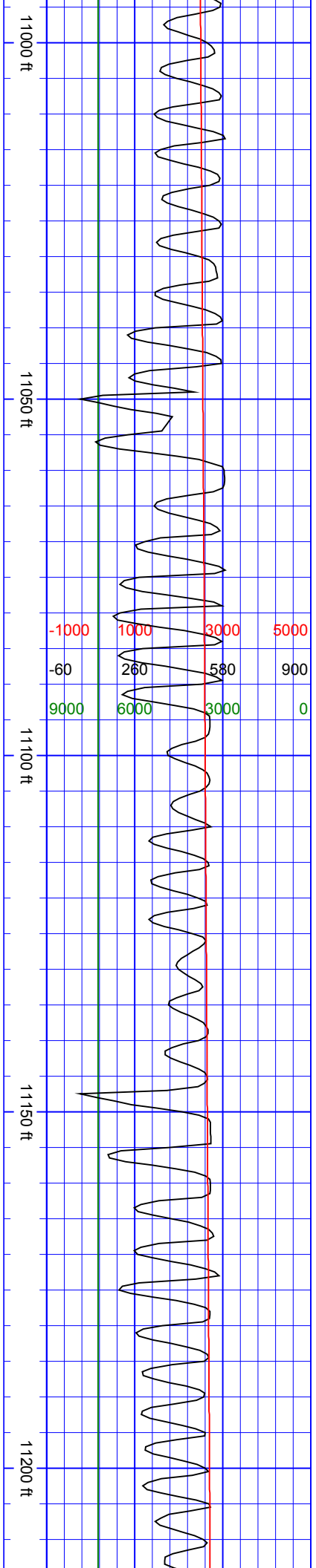


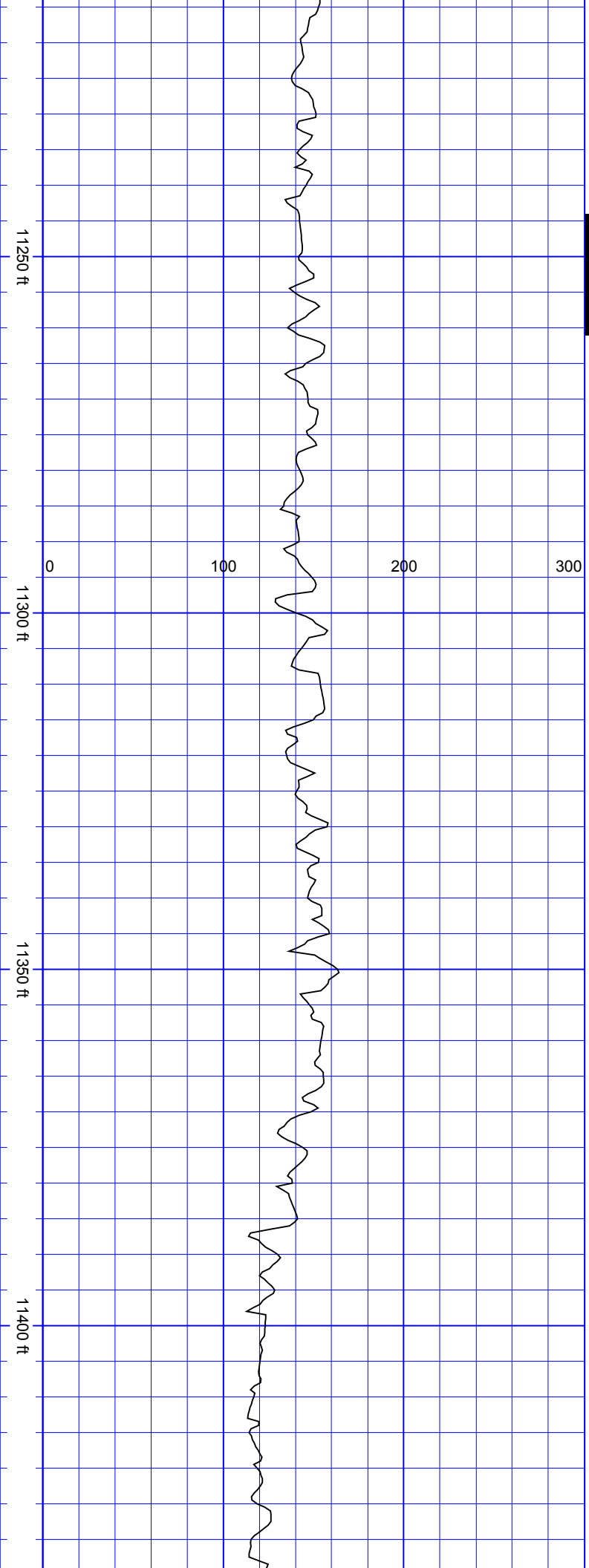


SurveyDepth:10993
TVD:7248.57 Inc:92.02
Azi:0.16
VertSec:2497.96

SurveyDepth:11088
TVD:7245.18 Inc:92.07
Azi:359.64
VertSec:2592.9

SurveyDepth:11183
TVD:7241.68 Inc:92.15
Azi:358.93
VertSec:2687.81

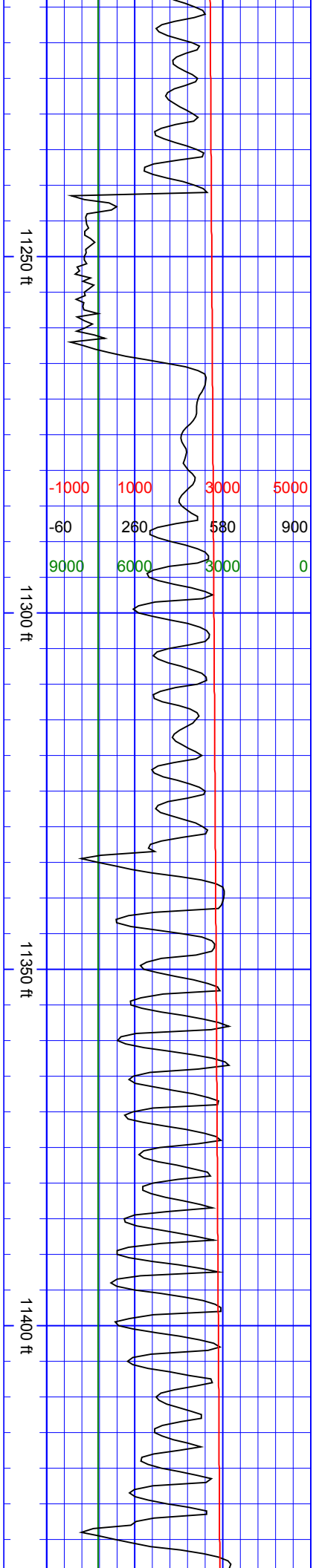


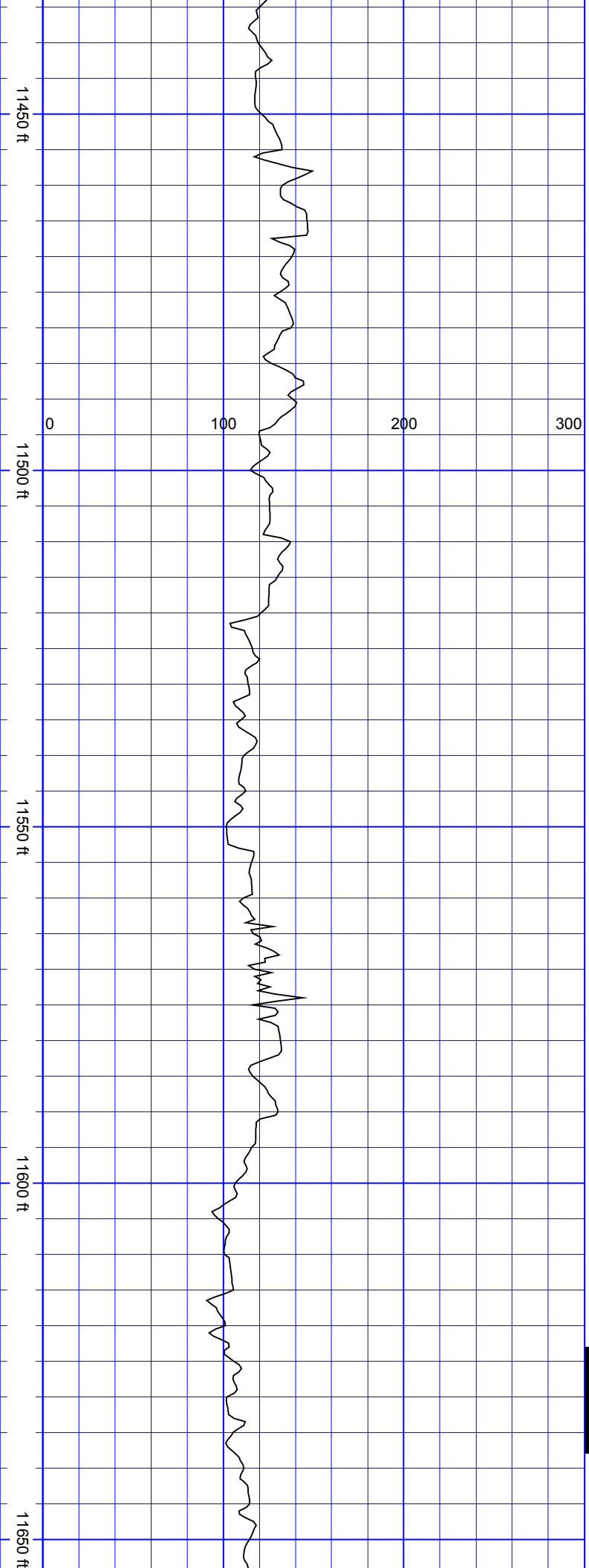


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SurveyDepth:11278
TVD:7238.59 Inc:91.58
Azi:2.01
VertSec:2782.74

SurveyDepth:11372
TVD:7235.89 Inc:91.71
Azi:1.83
VertSec:2876.68

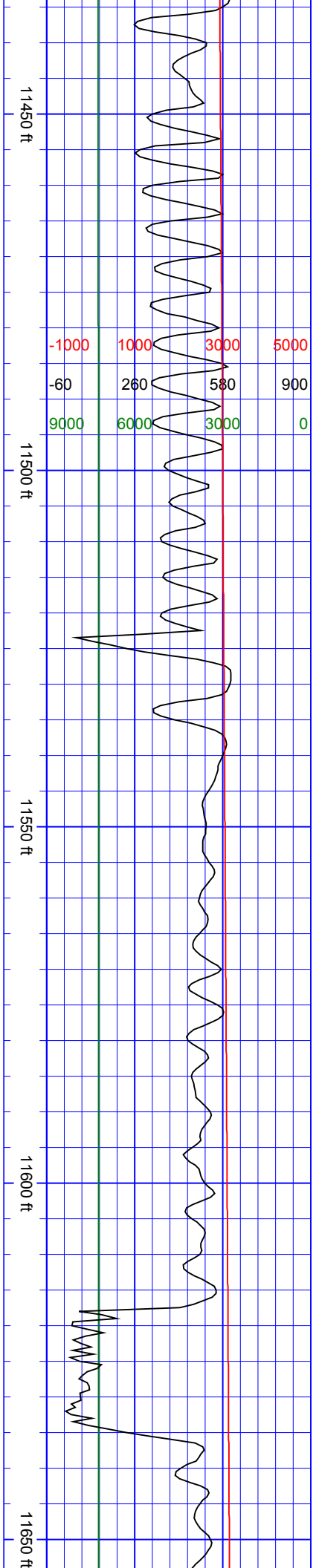


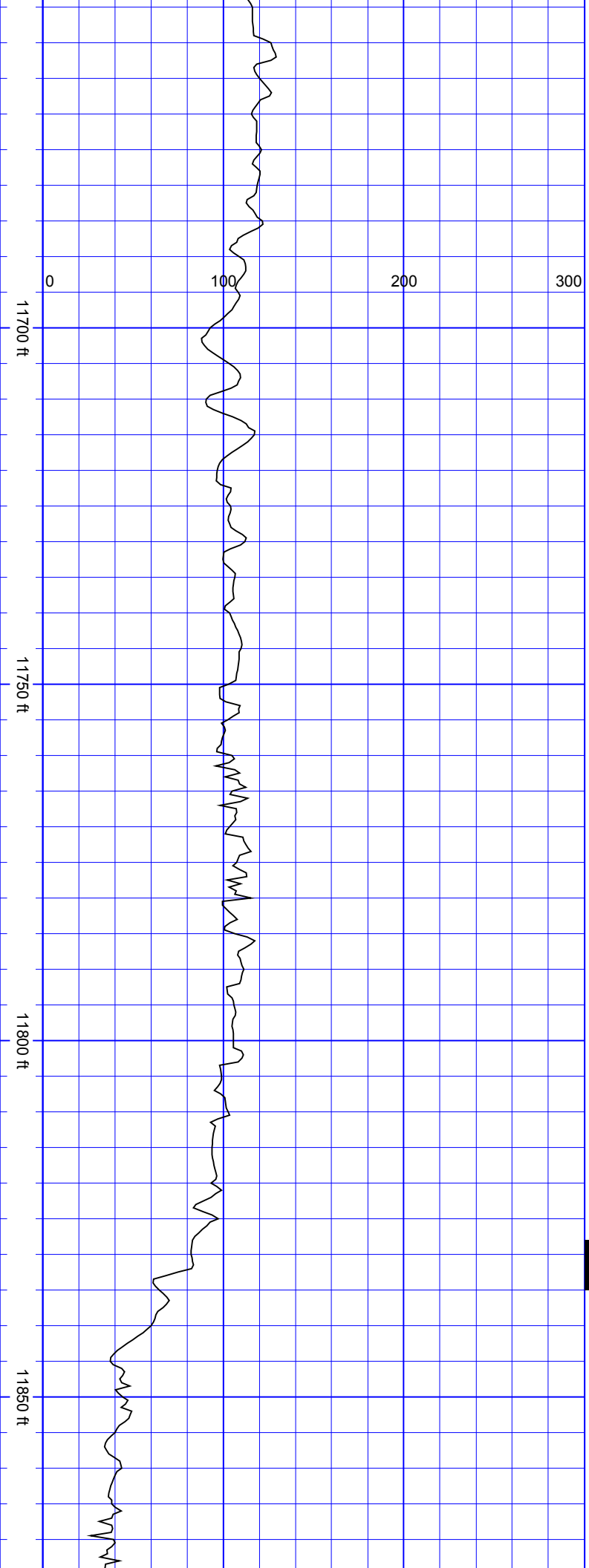


SurveyDepth:11467
TVD:7232.91 Inc:91.89
Azi:1.31
VertSec:2971.62

SurveyDepth:11562
TVD:7229.38 Inc:92.37
Azi:0.51
VertSec:3066.55

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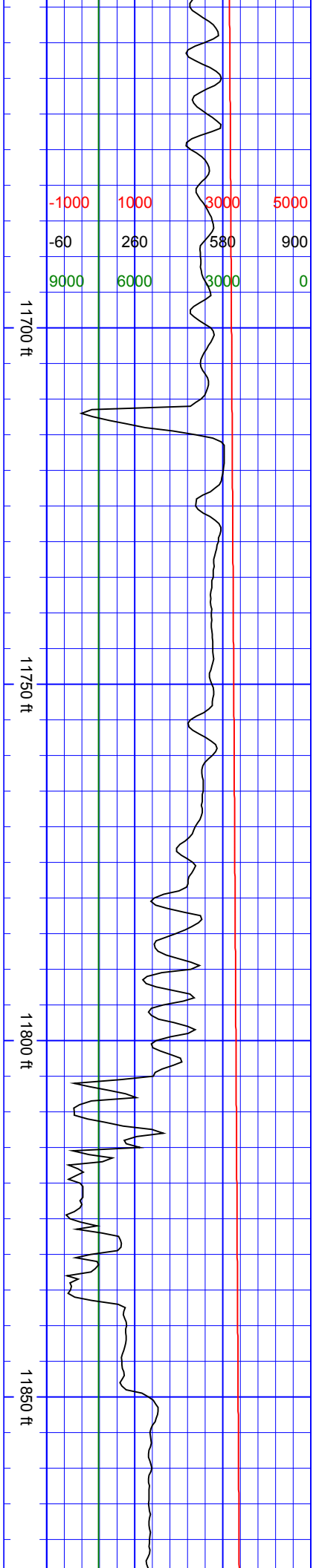


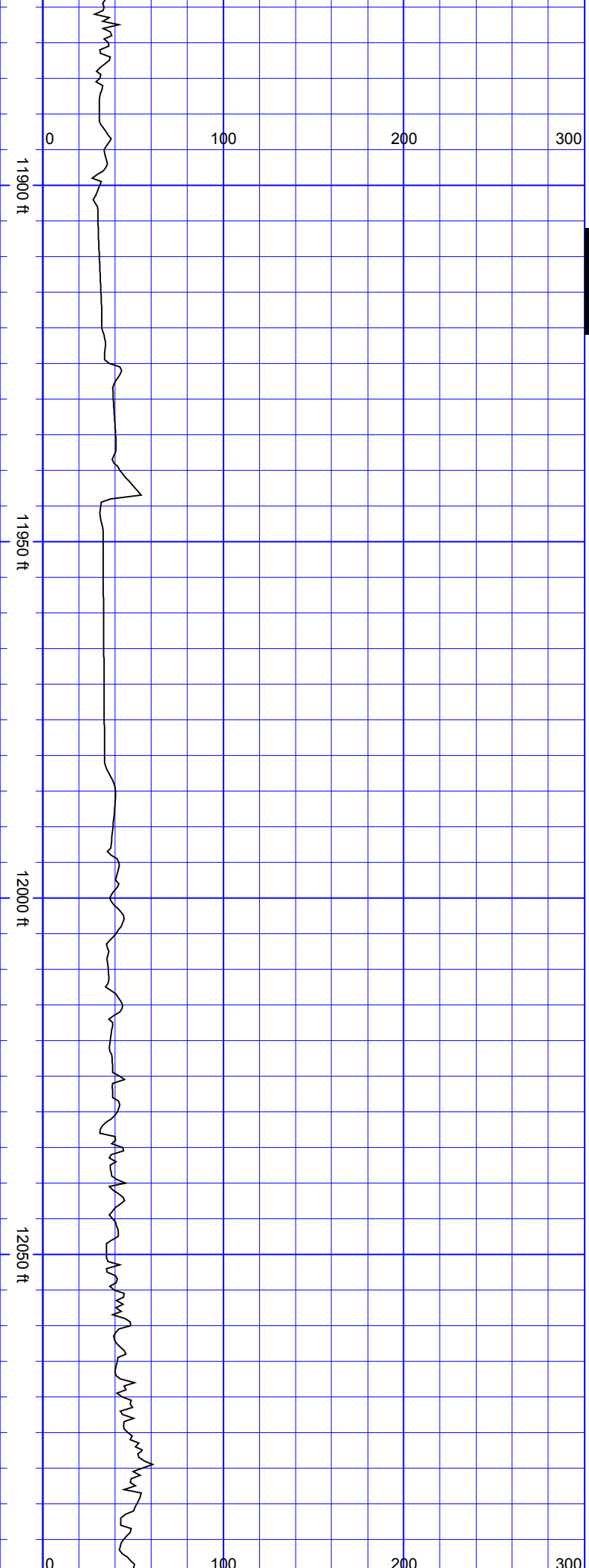
SurveyDepth:11656
TVD:7227.36 Inc:90.09
Azi:0.51
VertSec:3160.52

SurveyDepth:11751
TVD:7226.63 Inc:90.79
Azi:359.81
VertSec:3255.52

SurveyDepth:11845
TVD:7225.91 Inc:90.09
Azi:359.55
VertSec:3349.5

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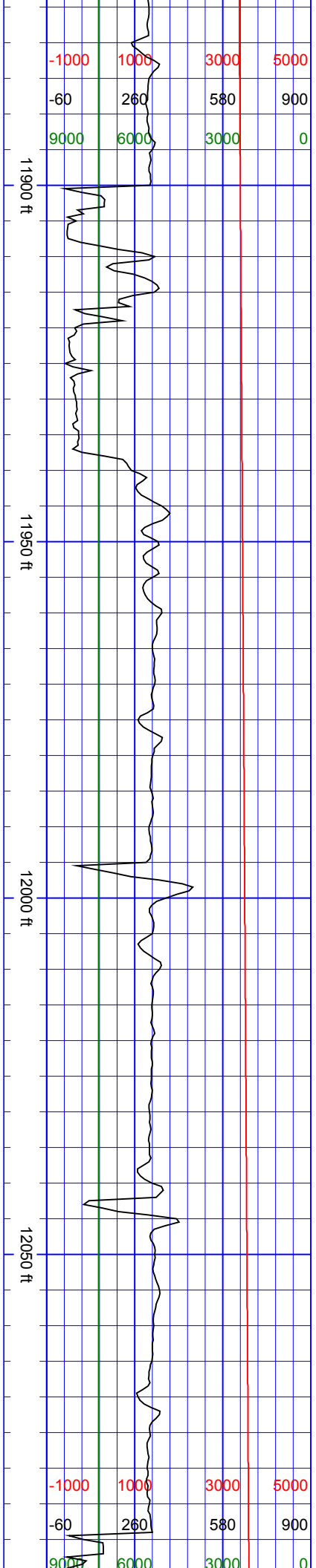


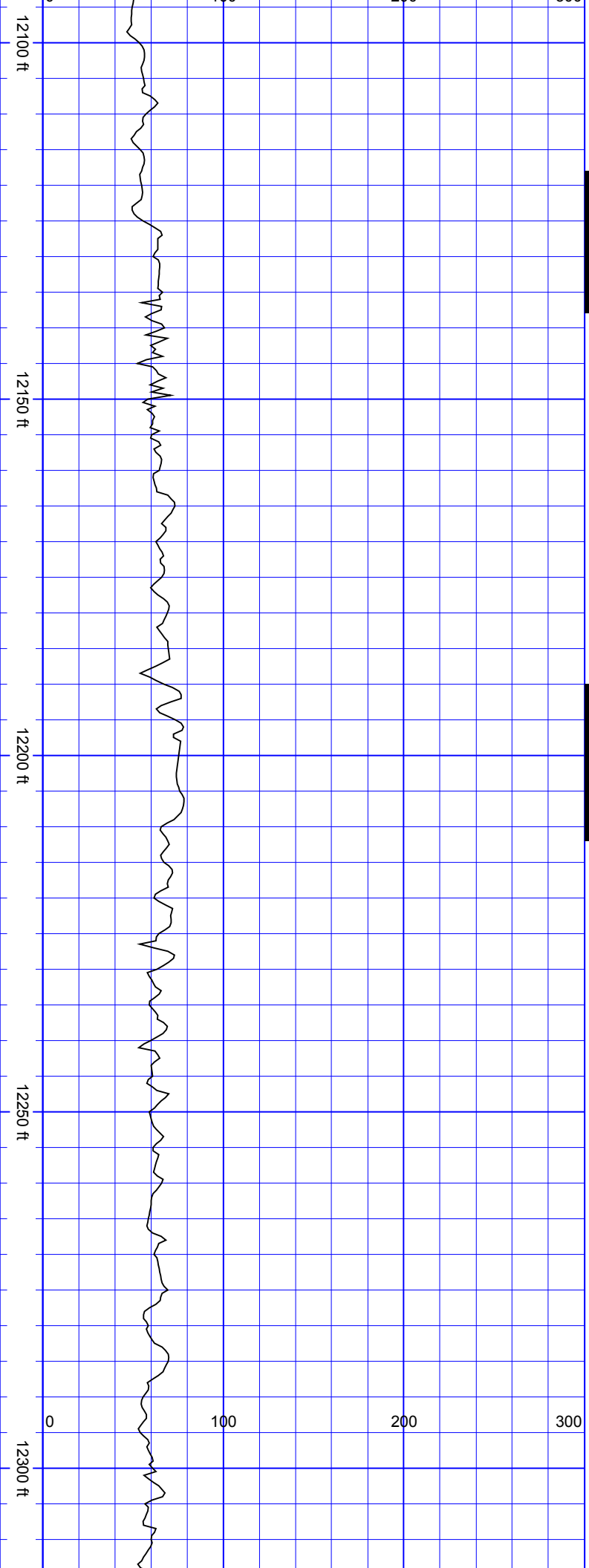


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SurveyDepth:11939
TVD:7226.01 Inc:89.78
Azi:0.07
VertSec:3443.49

SurveyDepth:12034
TVD:7226.09 Inc:90.13
Azi:359.81
VertSec:3538.49



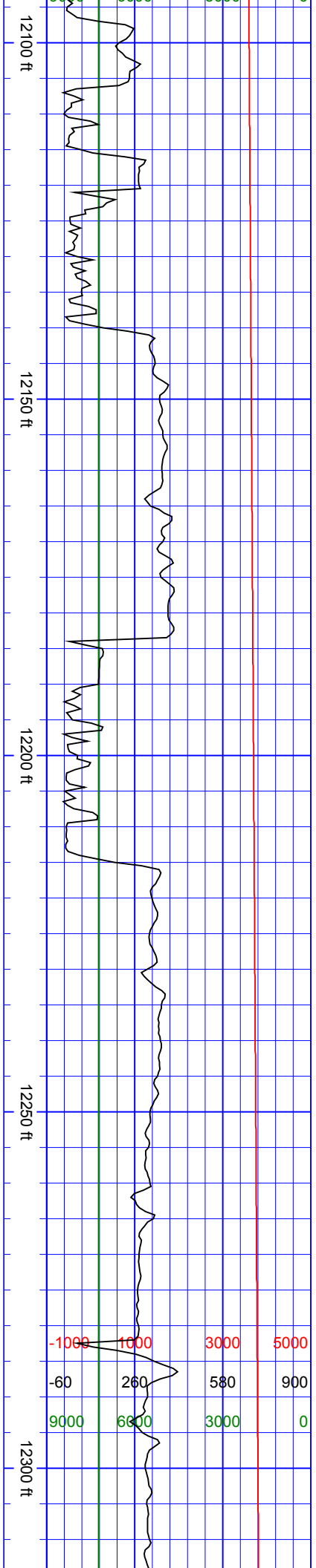


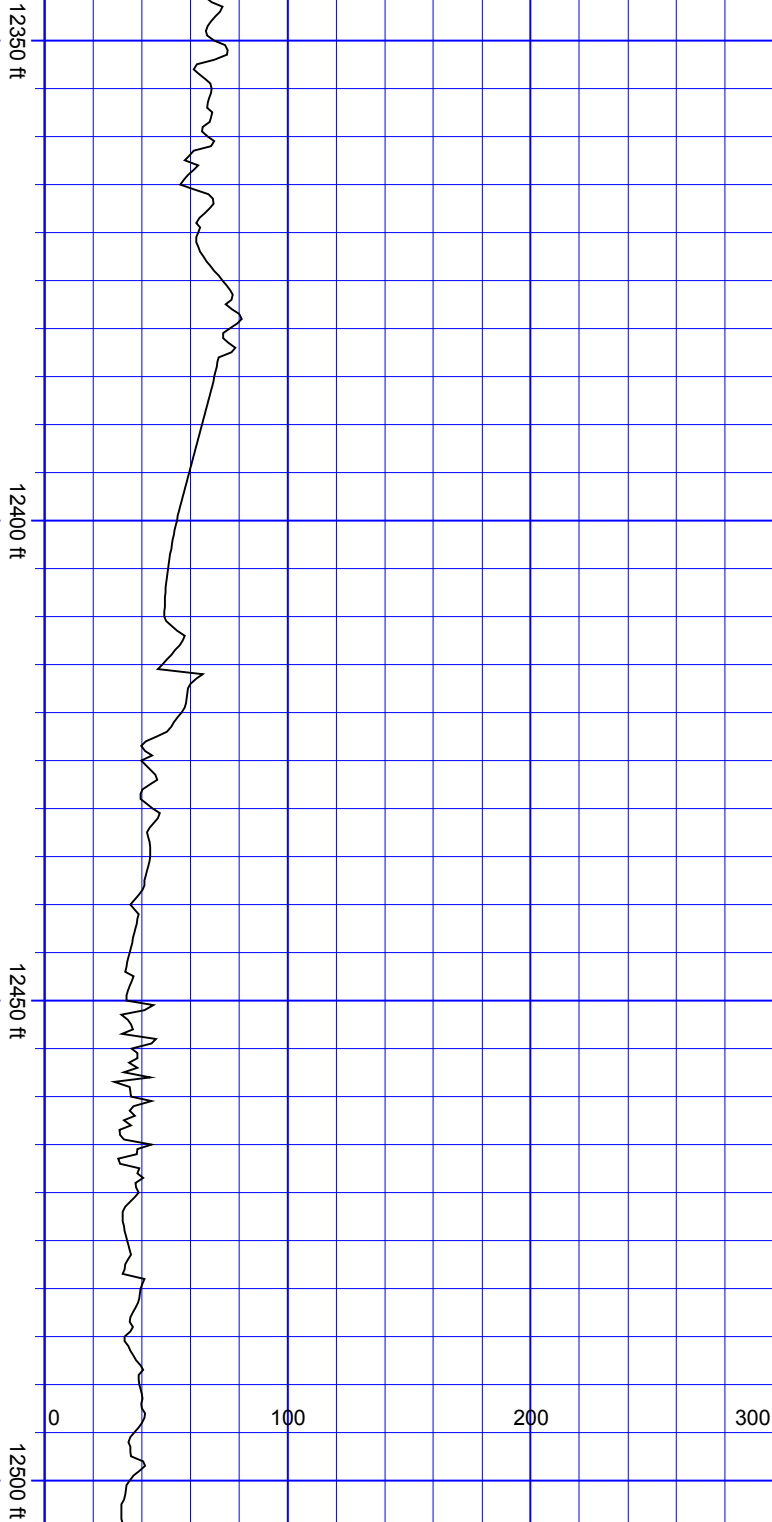
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SurveyDepth:12129
TVD:7225.58 Inc:90.48
Azi:358.84
VertSec:3633.46

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SurveyDepth:12224
TVD:7225.84 Inc:89.21
Azi:2.27
VertSec:3728.44





SurveyDepth:12318
TVD:7226.45 Inc:90.04
Azi:2.18 VertSec:3822.4

SurveyDepth:12413
TVD:7225.51 Inc:91.1
Azi:1.66
VertSec:3917.37

SurveyDepth:12506
TVD:7222.62 Inc:92.46
Azi:1.04
VertSec:4010.31

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