



Build & Lateral

Job #:

185201

Well ID:

16190990

Scale:

5" = 100 ft

Type:

MD

Well Site Information

Oil CompanyCrestone Peak Resources

Surface LocationS4-T1N-R65W

Well NameRuegge 3N-4H-N165

API05-123-46571 00

FieldDJ Basin

StateColorado

CountryUSA

Surface Coordinates

Well TypeHorizontal

Latitude40° 4' 31

Longitude140° 40' 14

N / S Coordinates1,271,350.87 usft

E / W Coordinates3,232,080.61 usft

Azimuth ReferenceTrue North

Grid Convergence0.54°

MWD Engineers

Lead HandAaron Clark

Second HandBill Odell

Perm DatumGroundElevation4,915.00 ft

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

Total Depth12,160.00 ftSpud DateJul/11/2018End DateJul/14/2018

(MD) Log IntervalStart Depth2,440.00 ftEnd Depth12,160.04 ft

Bore Hole Record

Hole Size	From	To
-----------	------	----

13.50 in	0.00 ft	2,518.00 ft
----------	---------	-------------

8.50 in	2,518.00 ft	12,160.00 ft
---------	-------------	--------------

--	--	--

--	--	--

--	--	--

Casing Record

Type	Size	WGT	From	To
------	------	-----	------	----

LT&C	9.63 in	40lb.	0.00 ft	2,504.00 ft
------	---------	-------	---------	-------------

DWC/C-IS	5.50 in	20lb.	0.00 ft	12,149.00 ft
----------	---------	-------	---------	--------------

--	--	--	--	--

--	--	--	--	--

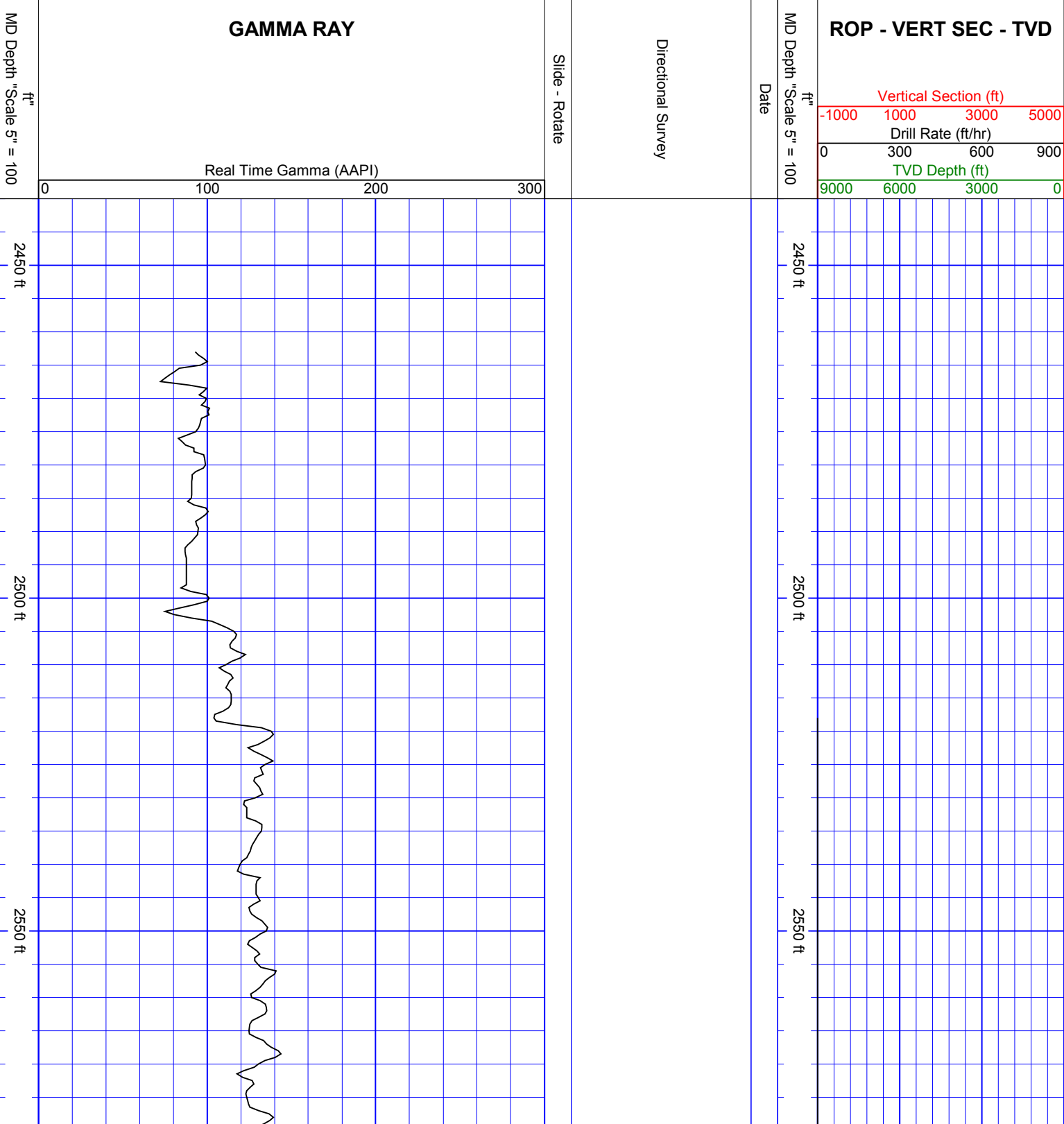
--	--	--	--	--

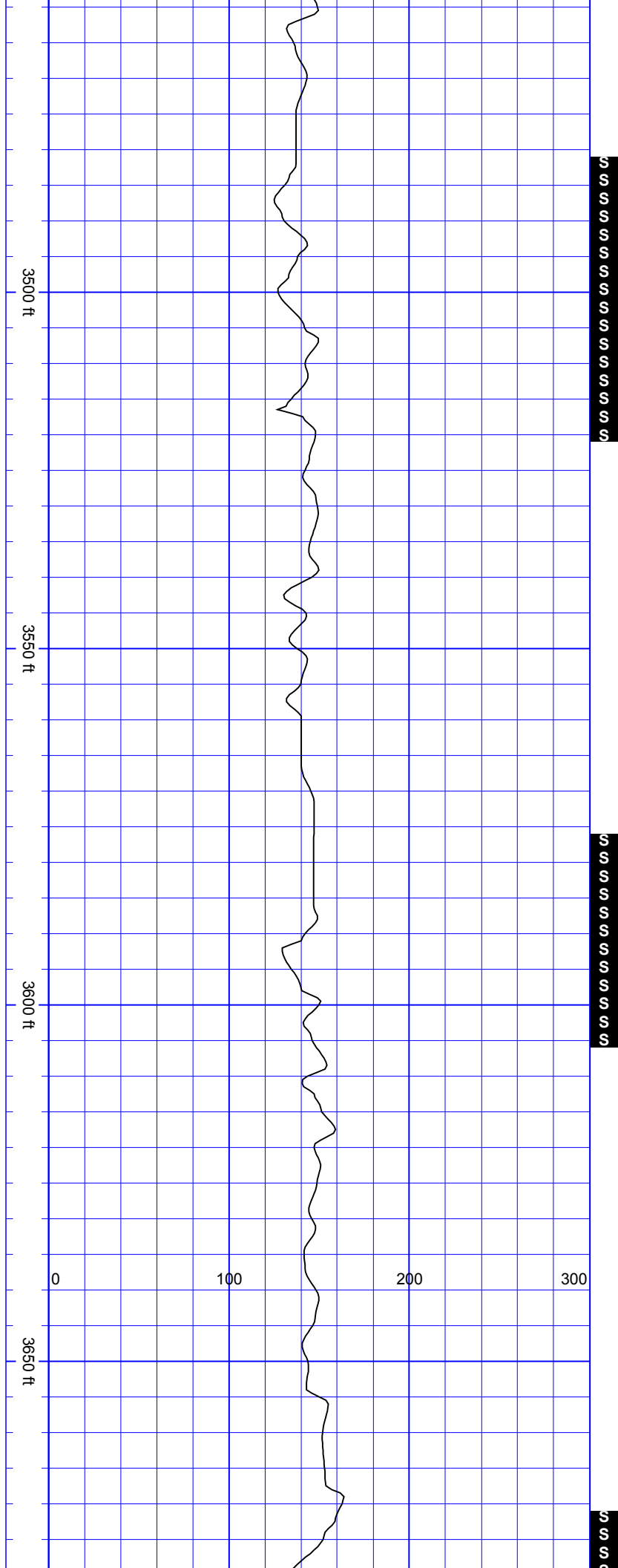
Run Data

Bit Run Number	1				
Start Date & Time	Jul/11/2018 17:30:00				
End Date & Time	Jul/14/2018 05:30:00				
Run Hours	60.00				
Depth In	2,518.00 ft				
Depth Out	12,160.00 ft				
Total Gamma Correction	5.27				
Gamma to Bit	55.26 ft				
Resistivity to Bit	N/A				
Mud Type	Oil Base				
Density	10.00 ppg				
Viscosity	44.00 sec/qt				
PH	N/A				
Fluid Loss	N/A				
K+ ppm	N/A				
CL- ppm	3600.00 mg/L				
Max Mud Temp	243.00 °F				
Mud Report Depth	11,500.00 ft				

Remarks

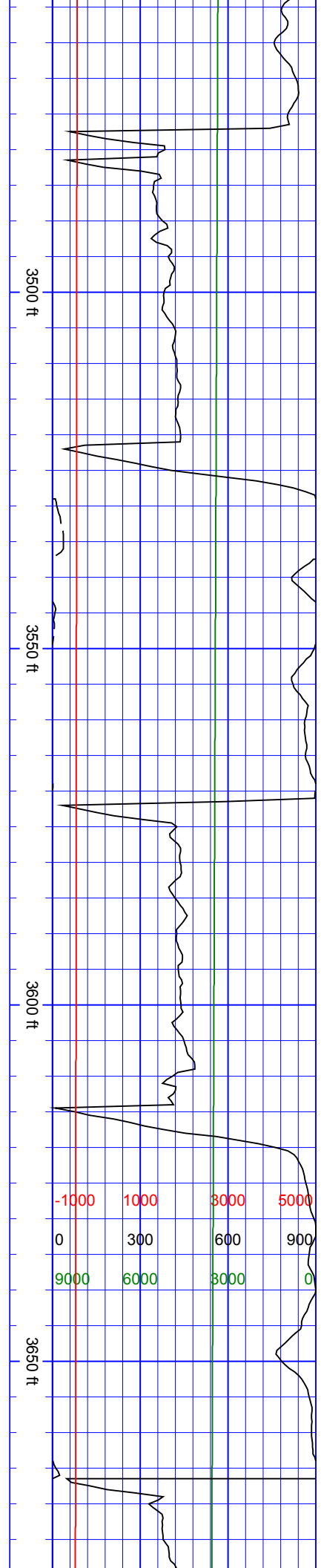
Interpretations of this data by Cathedral Energy Services will be of best judgment as to correctness. Cathedral Energy Services cannot and does not guarantee the accuracy or correctness of interpretations or any surveys derived therefrom. Cathedral Energy Services makes no warranties of performance,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

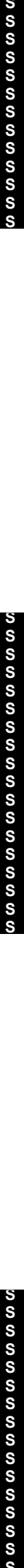
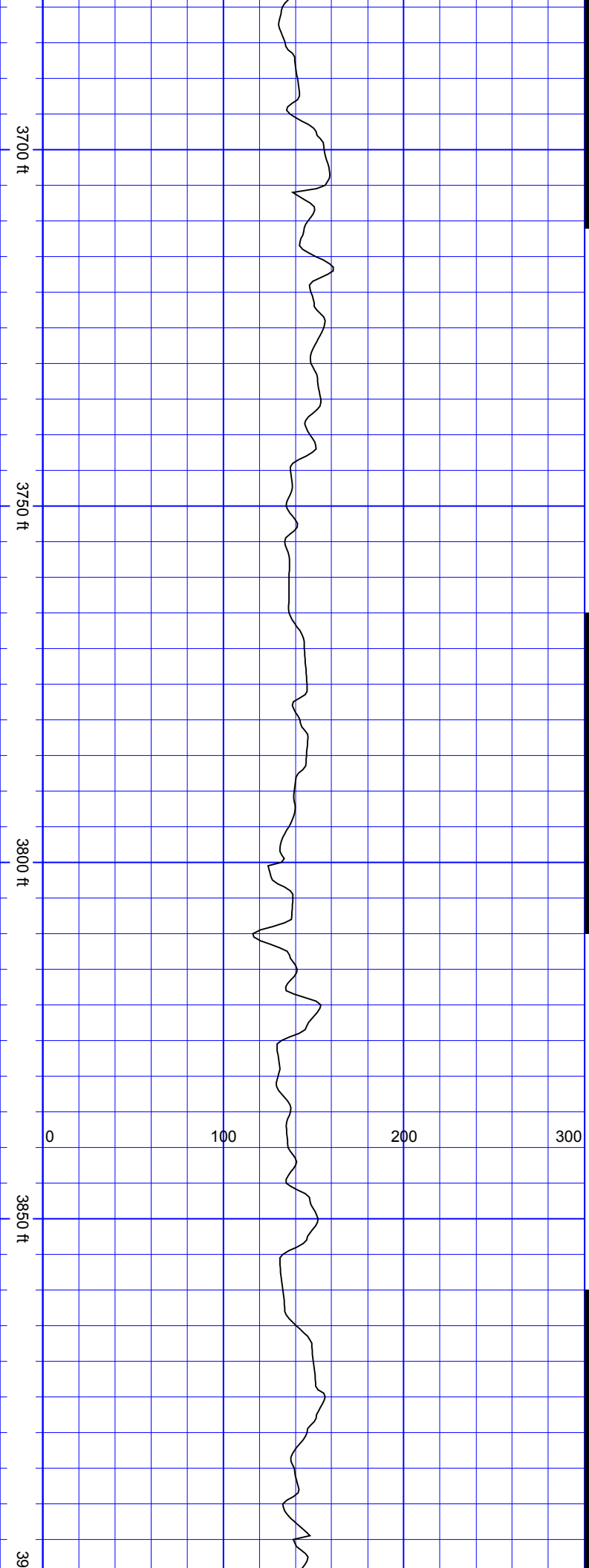




SurveyDepth:3515
TVD:3392.17 Inc:17.97
Azi:124.7 VertSec:-
443.04

SurveyDepth:3610
TVD:3482.62 Inc:17.67
Azi:127.34 VertSec:-
459.88

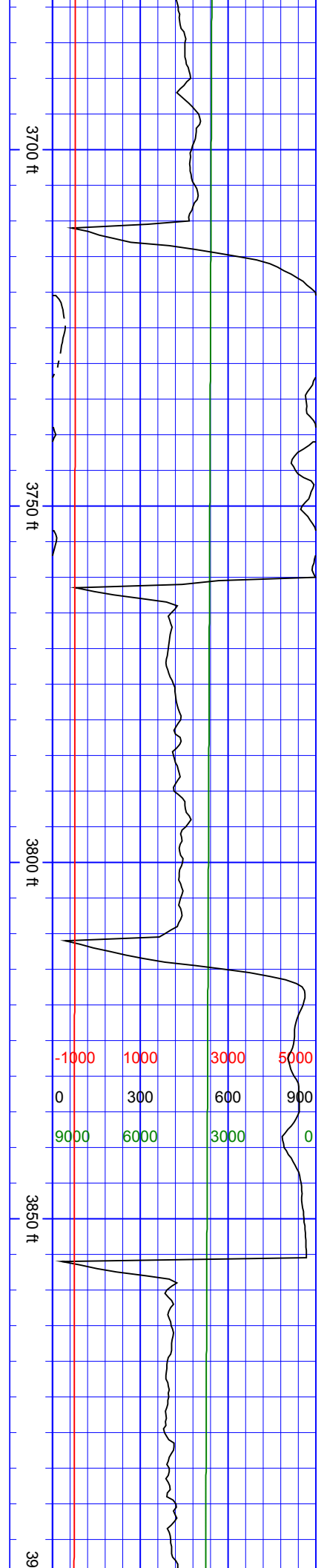


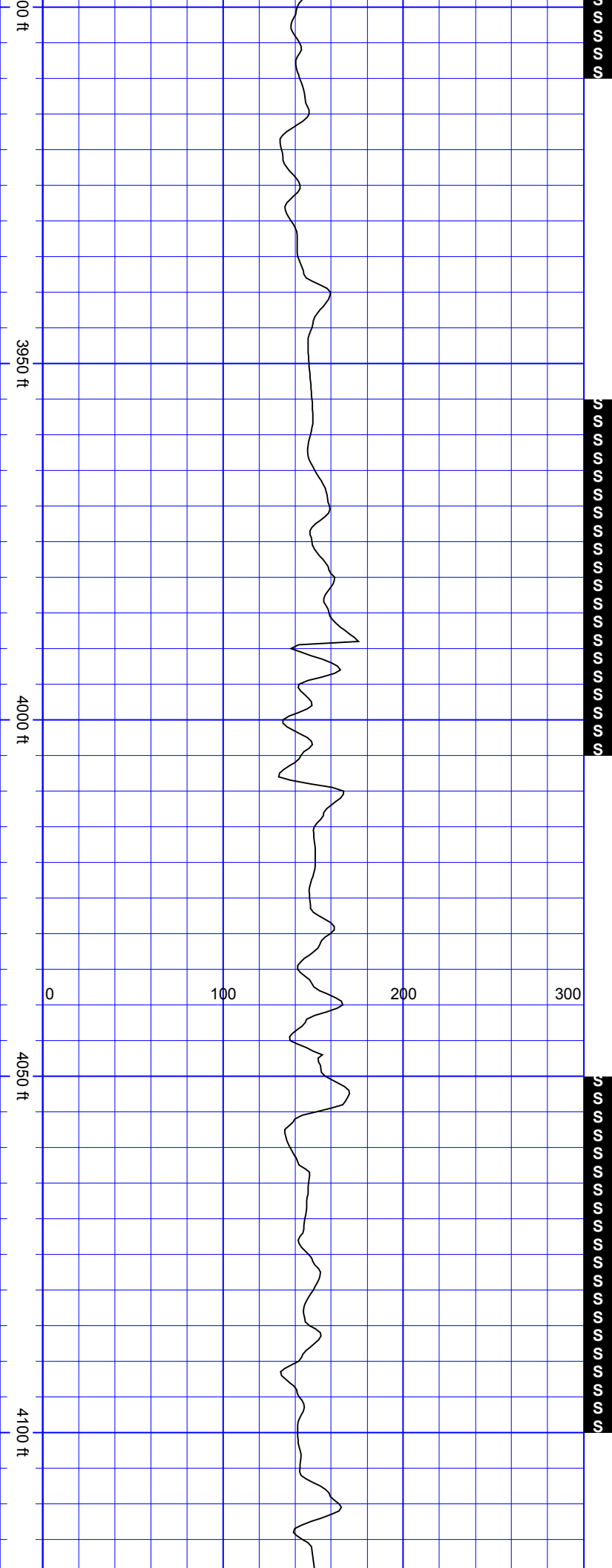


SurveyDepth:3704
TVD:3572.47 Inc:16.52
Azi:121.72 VertSec:-
475.33

SurveyDepth:3799
TVD:3663.38 Inc:17.23
Azi:117.67 VertSec:-
488.72

SurveyDepth:3894
TVD:3753.9 Inc:18.11

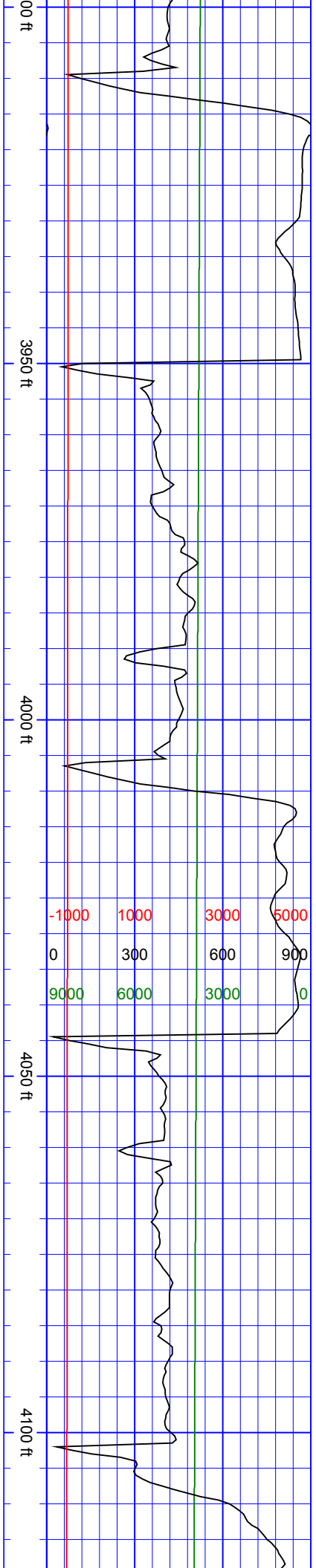


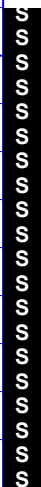
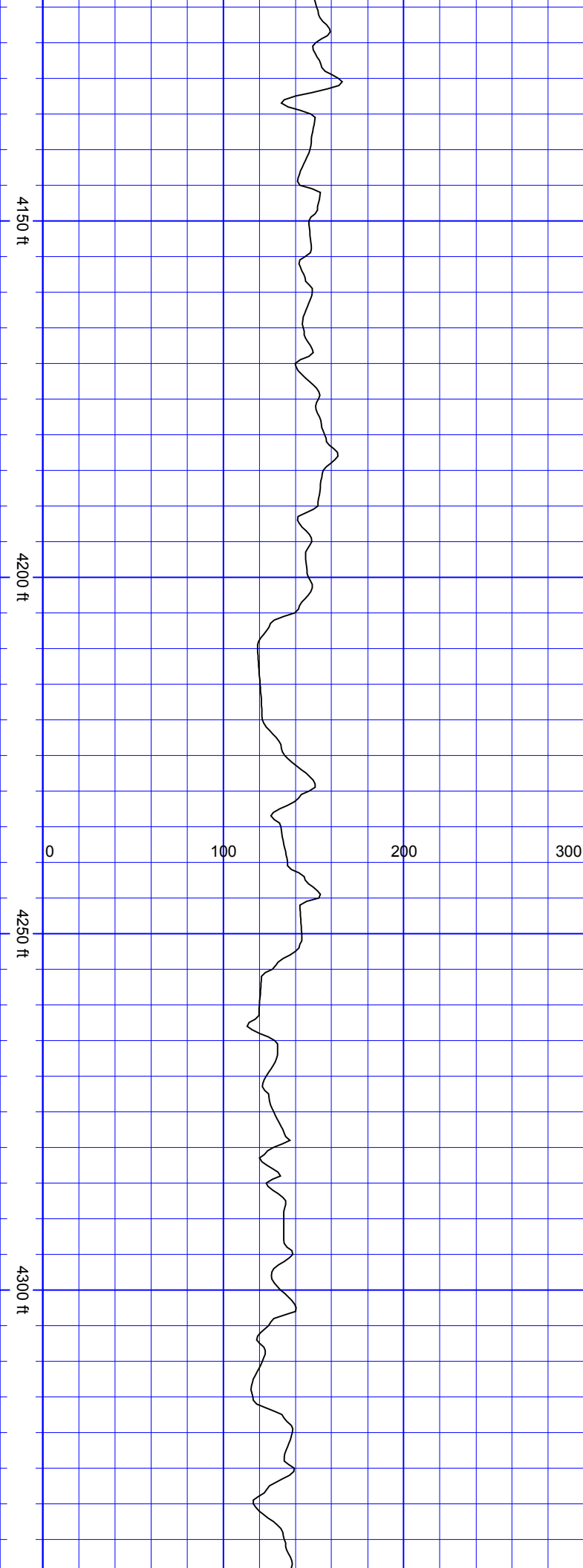


Azi:118.99 VertSec:-502.14

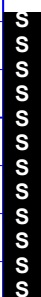
SurveyDepth:3989
TVD:3844.27 Inc:17.8
Azi:120.92 VertSec:-516.5

SurveyDepth:4084
TVD:3934.46 Inc:18.85
Azi:123.47 VertSec:-532.16

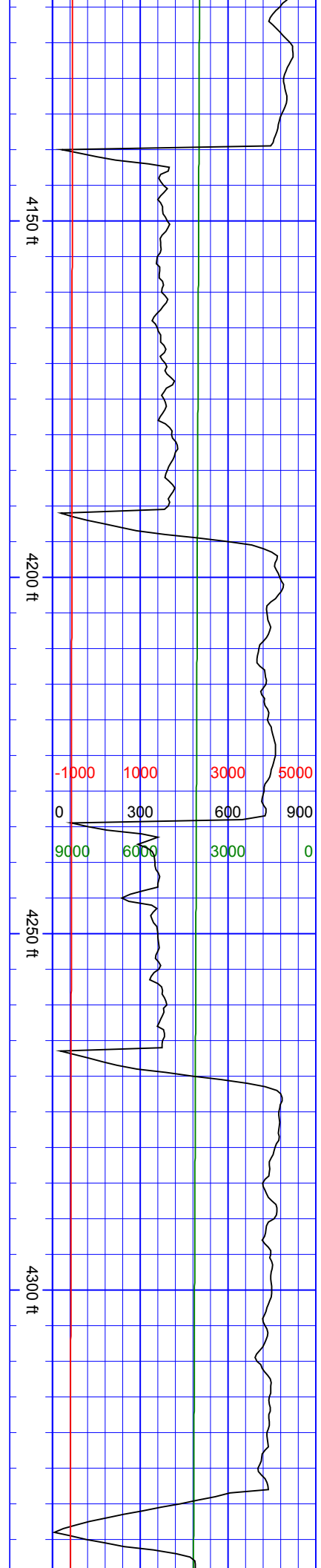


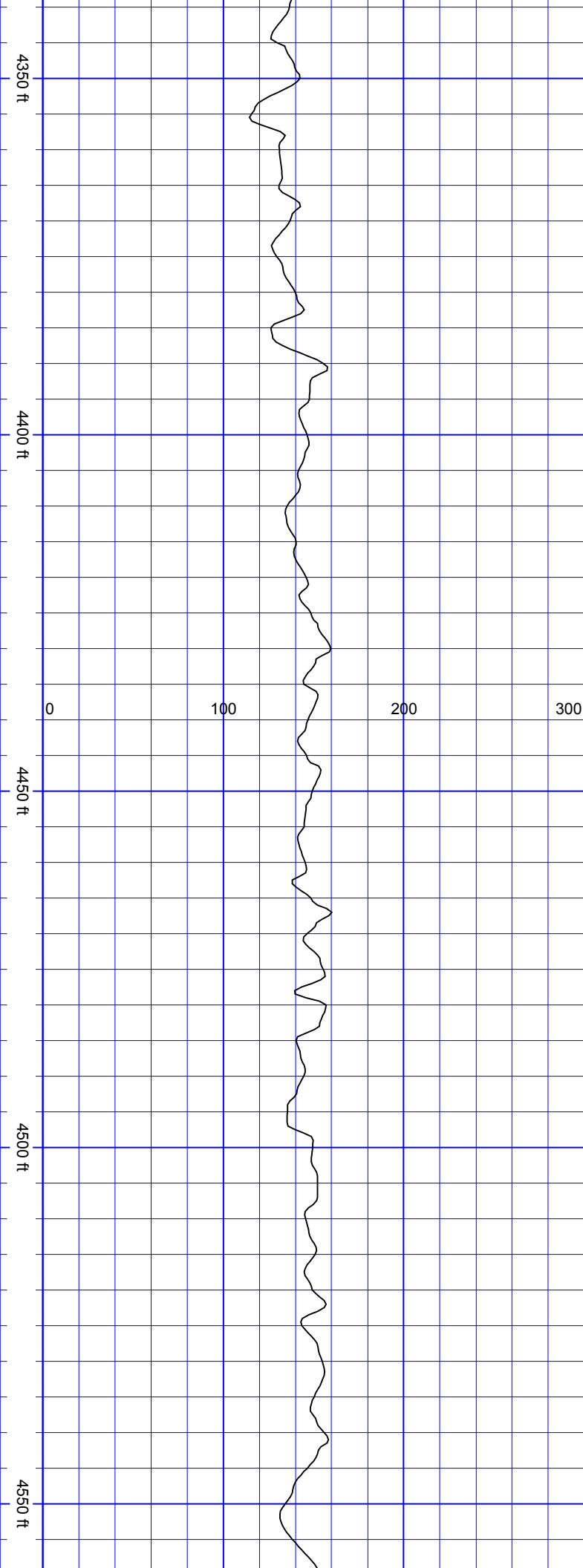


SurveyDepth:4178
TVD:4022.87 Inc:20.83
Azi:125.67 VertSec:-
550.02



SurveyDepth:4273
TVD:4110.78 Inc:23.69
Azi:126.11 VertSec:-
570.82

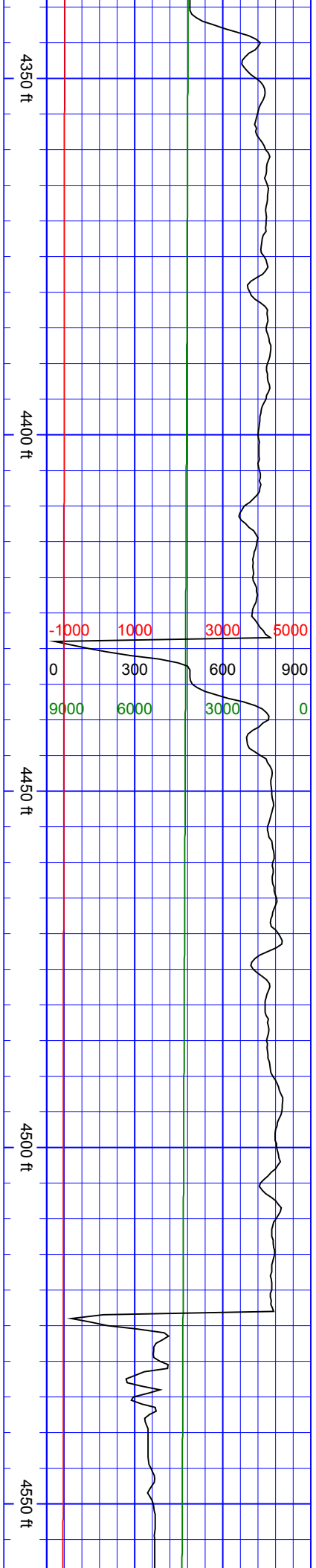




SurveyDepth:4367
TVD:4197.31 Inc:22.32
Azi:125.32 VertSec:-
591.96

SurveyDepth:4462
TVD:4286.57 Inc:17.62
Azi:122.15 VertSec:-
609.77

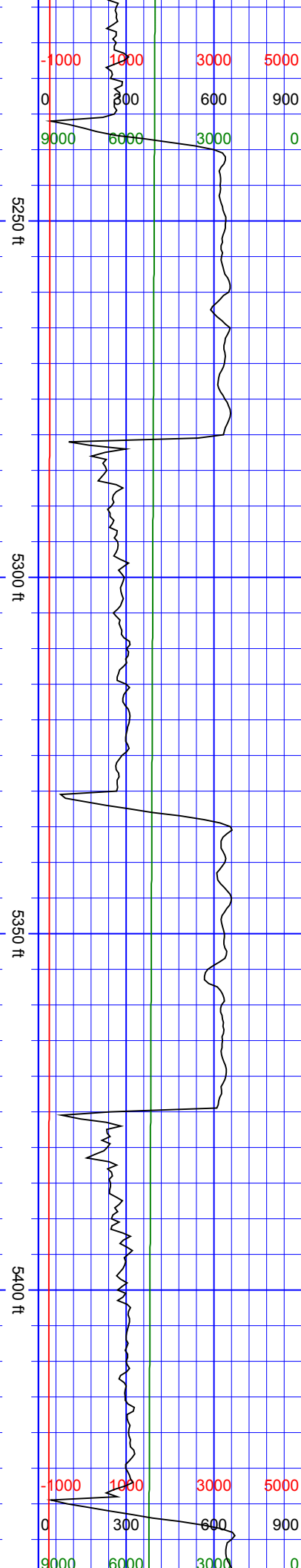
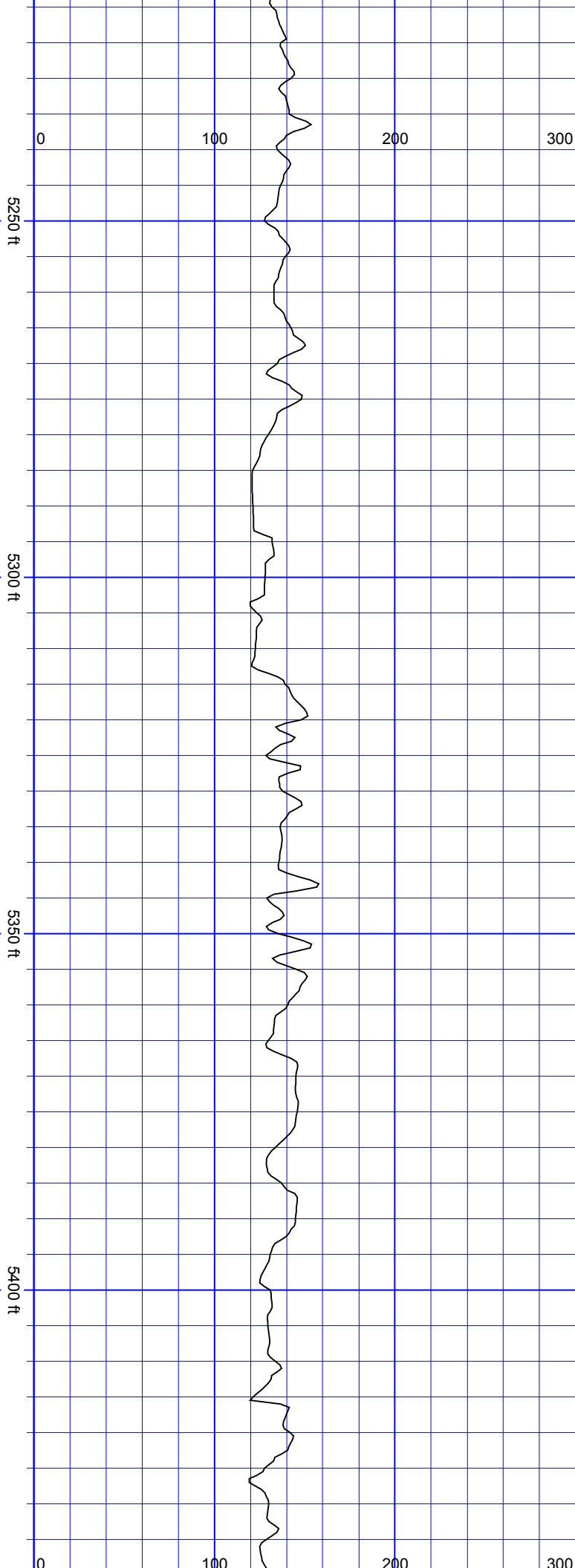
SurveyDepth:4557

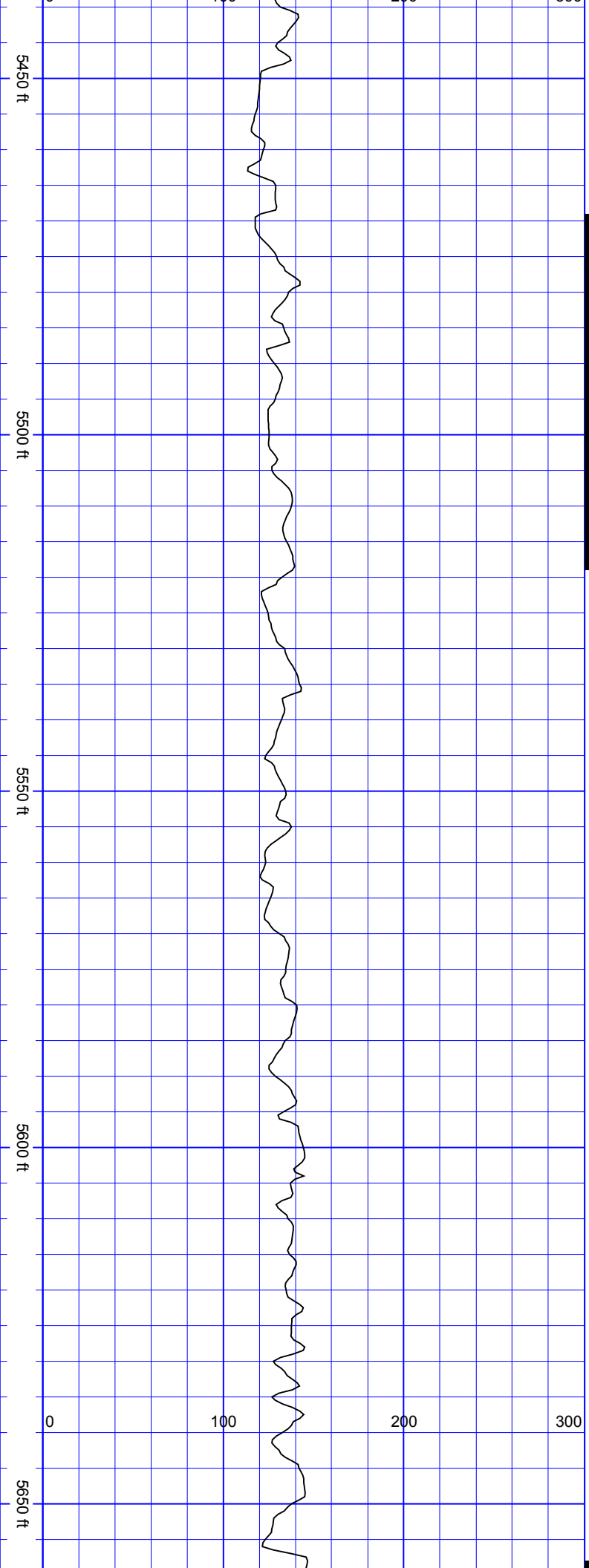


SurveyDepth:5219
TVD:5006.19 Inc:16.08
Azi:113.89 VertSec:-
733.87

SurveyDepth:5313
TVD:5096.19 Inc:17.49
Azi:109.67 VertSec:-
743.64

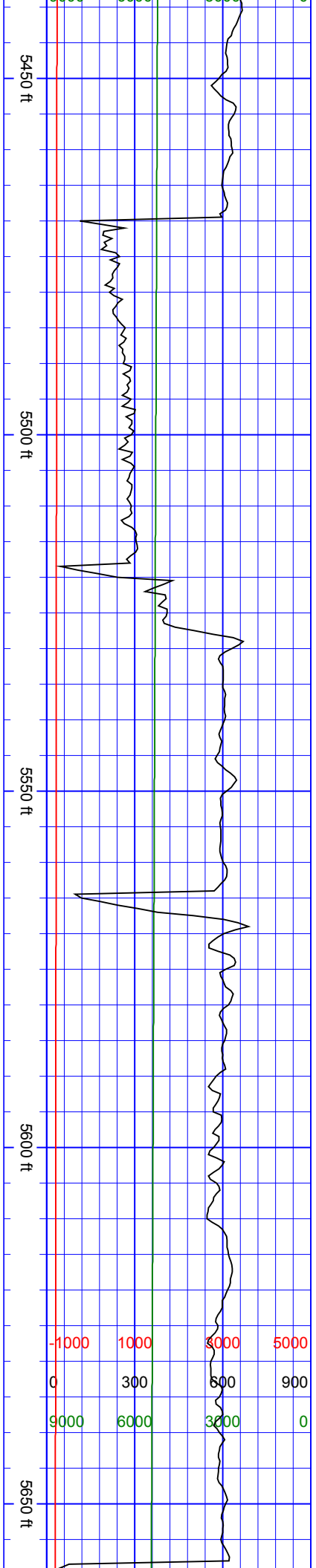
SurveyDepth:5408
TVD:5186.41 Inc:19.03
Azi:117.06 VertSec:-
755.21

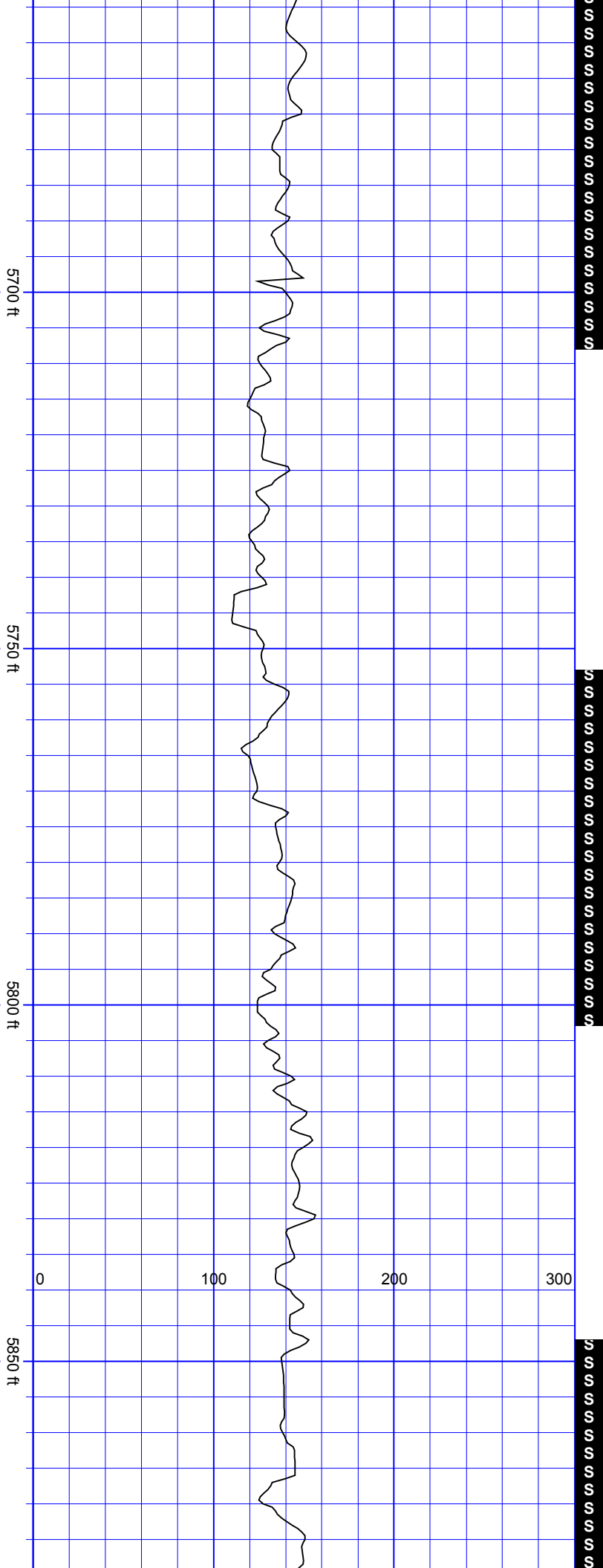




SurveyDepth:5503
TVD:5275.79 Inc:20.65
Azi:124.79 VertSec:-
771.54

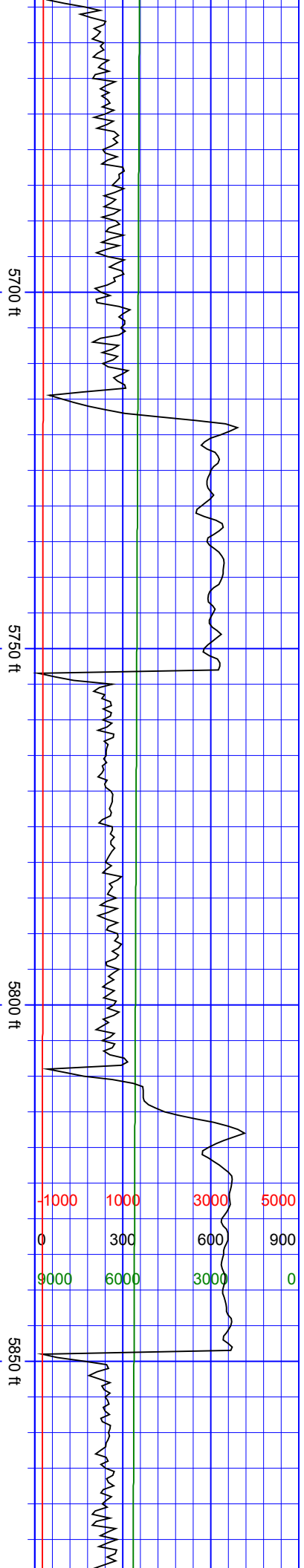
SurveyDepth:5597
TVD:5365.03 Inc:15.86
Azi:126.2 VertSec:-
788.34

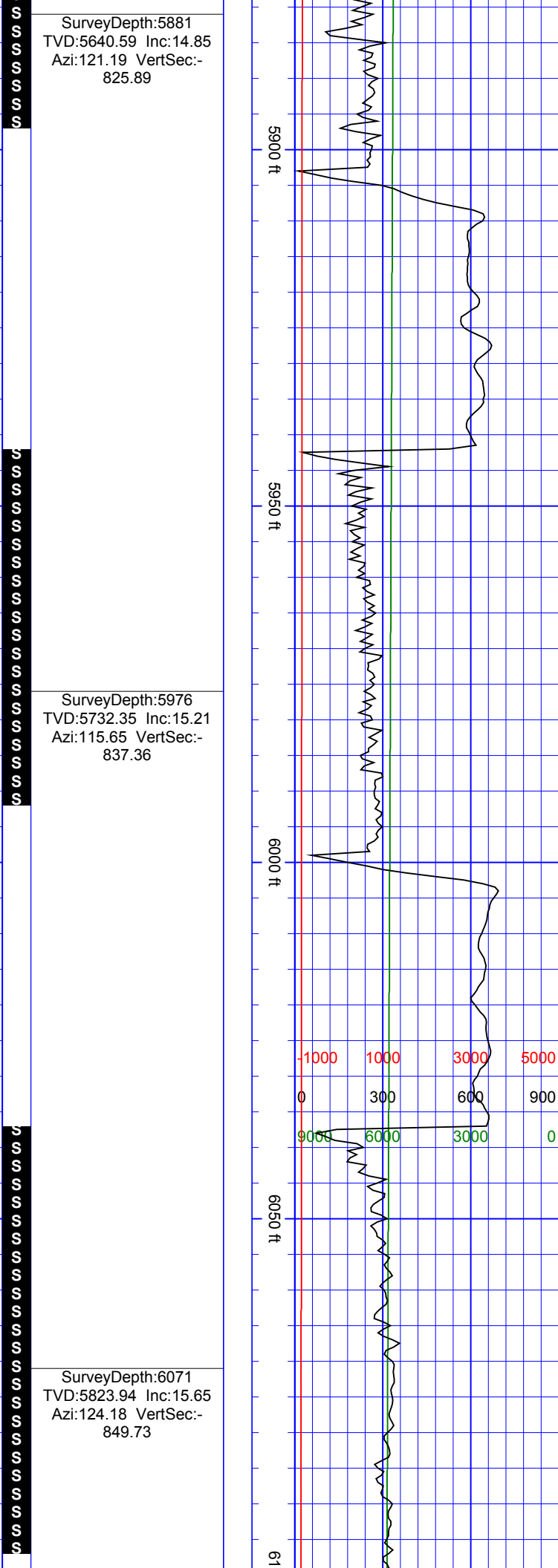
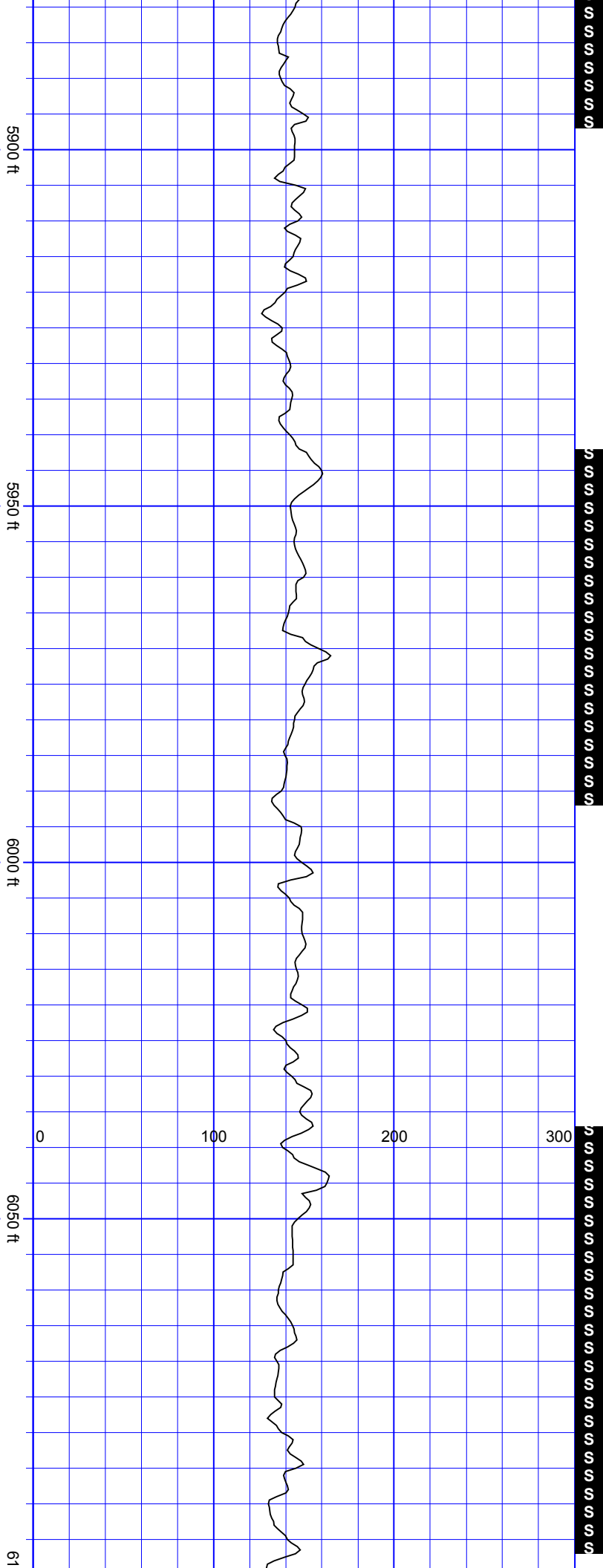


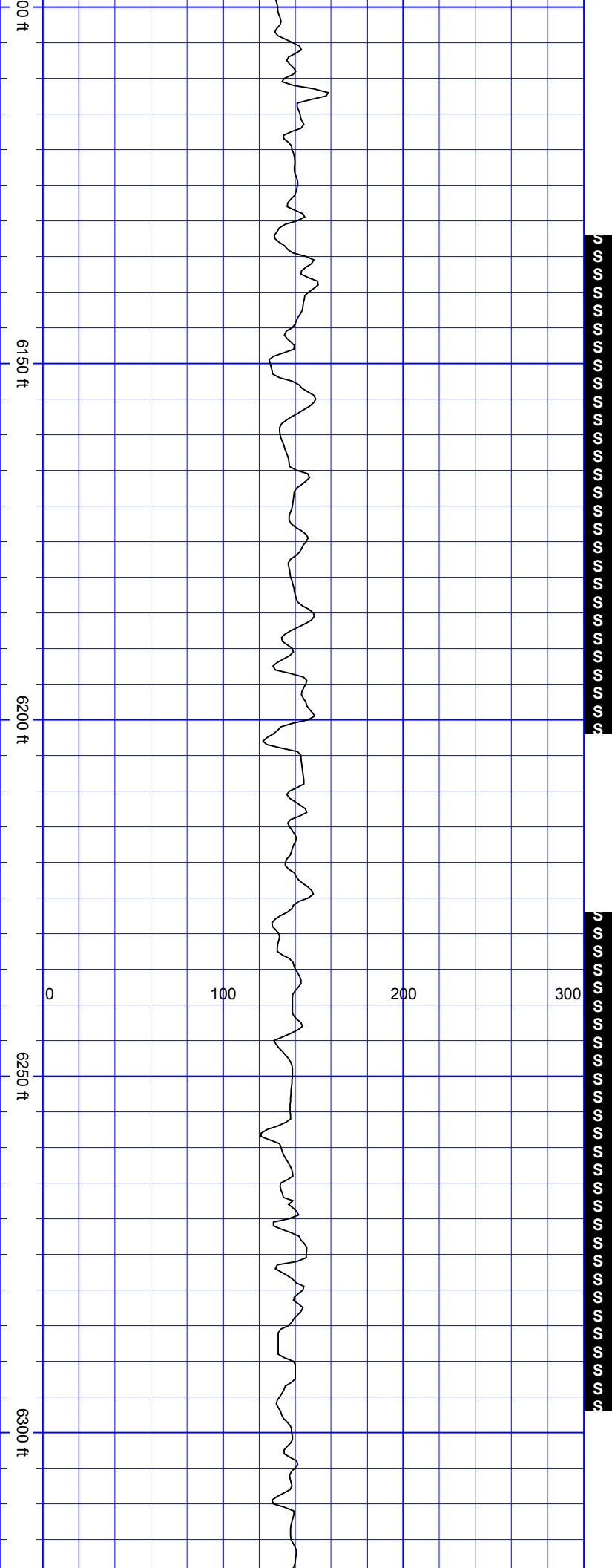


SurveyDepth:5692
TVD:5456.96 Inc:13.32
Azi:125.23 VertSec:-
802.12

SurveyDepth:5786
TVD:5548.44 Inc:13.27
Azi:122.33 VertSec:-
813.95

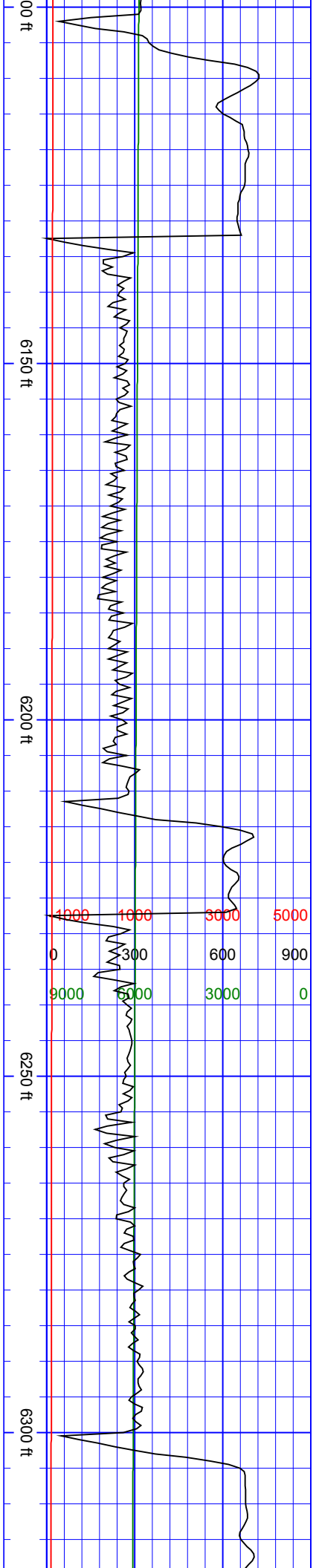






SurveyDepth:6166
TVD:5915.25 Inc:16.44
Azi:132.17 VertSec:-
865.74

SurveyDepth:6261
TVD:6006.16 Inc:17.27
Azi:134.55 VertSec:-
884.45



6350 ft

6400 ft

6450 ft

6500 ft

0 100 200 300

SurveyDepth:6356
TVD:6097.13 Inc:16.3
Azi:125.85 VertSec:-
901.94

SurveyDepth:6451
TVD:6188.2 Inc:16.88
Azi:113.98 VertSec:-
915.12

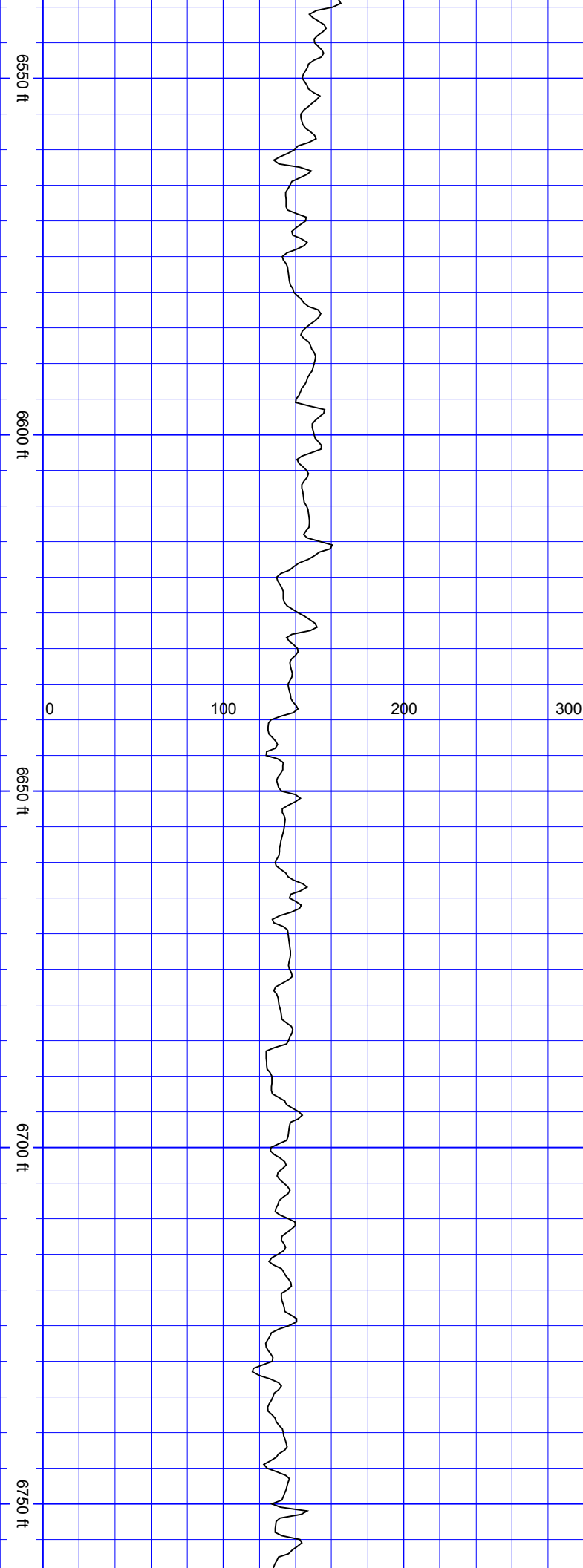
6350 ft

6400 ft

6450 ft

6500 ft

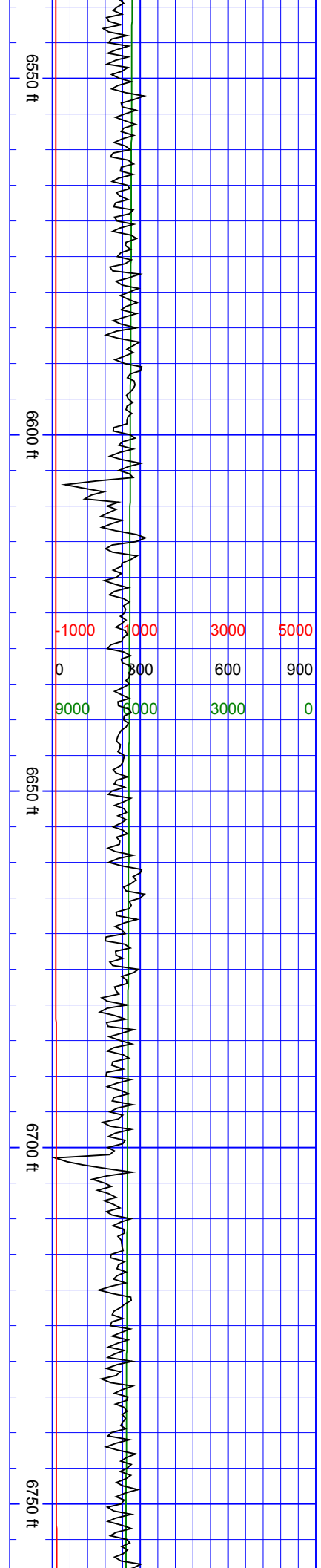
-1000	0	1000	2000	3000	4000	5000
0	300	600	900			
9000	6000	3000	0			



SurveyDepth:6545
TVD:6278.46 Inc:15.82
Azi:95.96 VertSec:-
921.74

SurveyDepth:6640
TVD:6369.71 Inc:16.83
Azi:74.08 VertSec:-
919.04

SurveyDepth:6734
TVD:6459.13 Inc:19.29
Azi:57.56 VertSec:-906.7



6800 ft

6850 ft

6900 ft

6950 ft

0 100 200 300

SurveyDepth:6829
TVD:6548.98 Inc:18.85
Azi:42.53 VertSec:-
886.72

SurveyDepth:6924
TVD:6638.21 Inc:21.49
Azi:26.79 VertSec:-
859.67

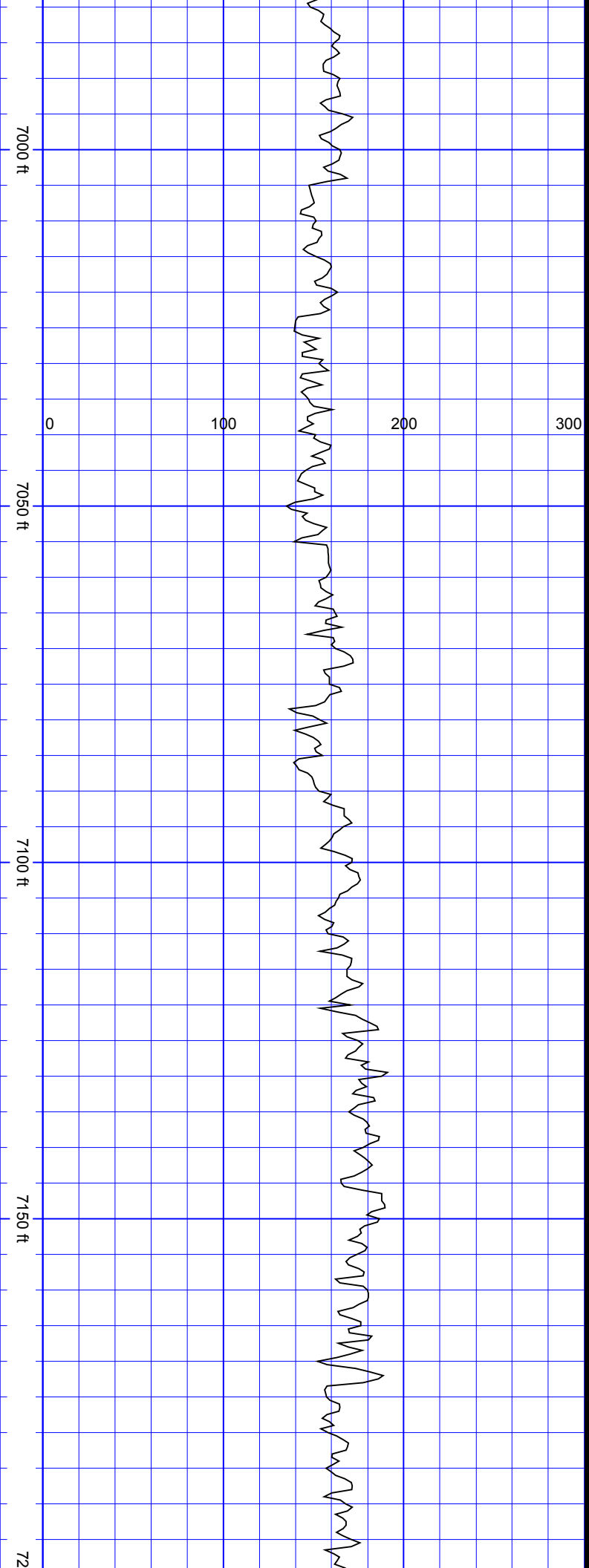
6800 ft

6850 ft

6900 ft

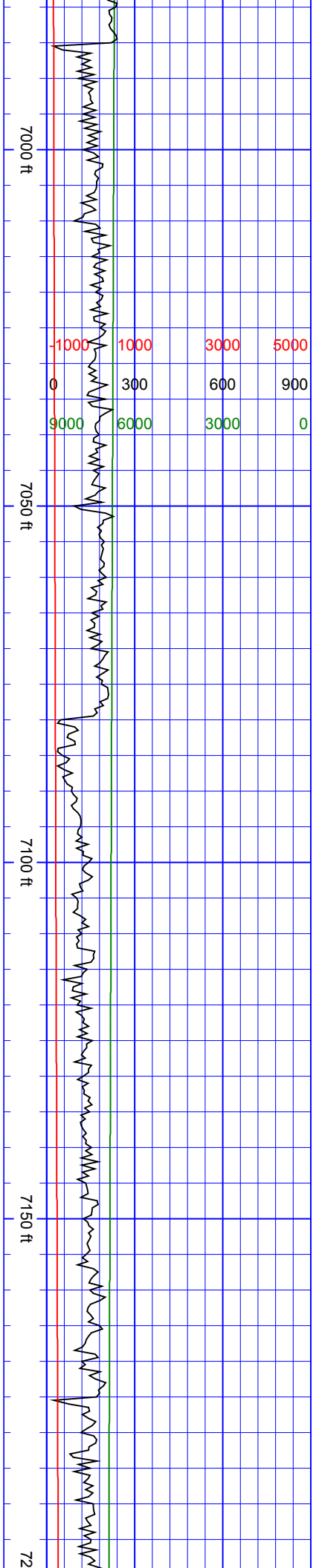
6950 ft

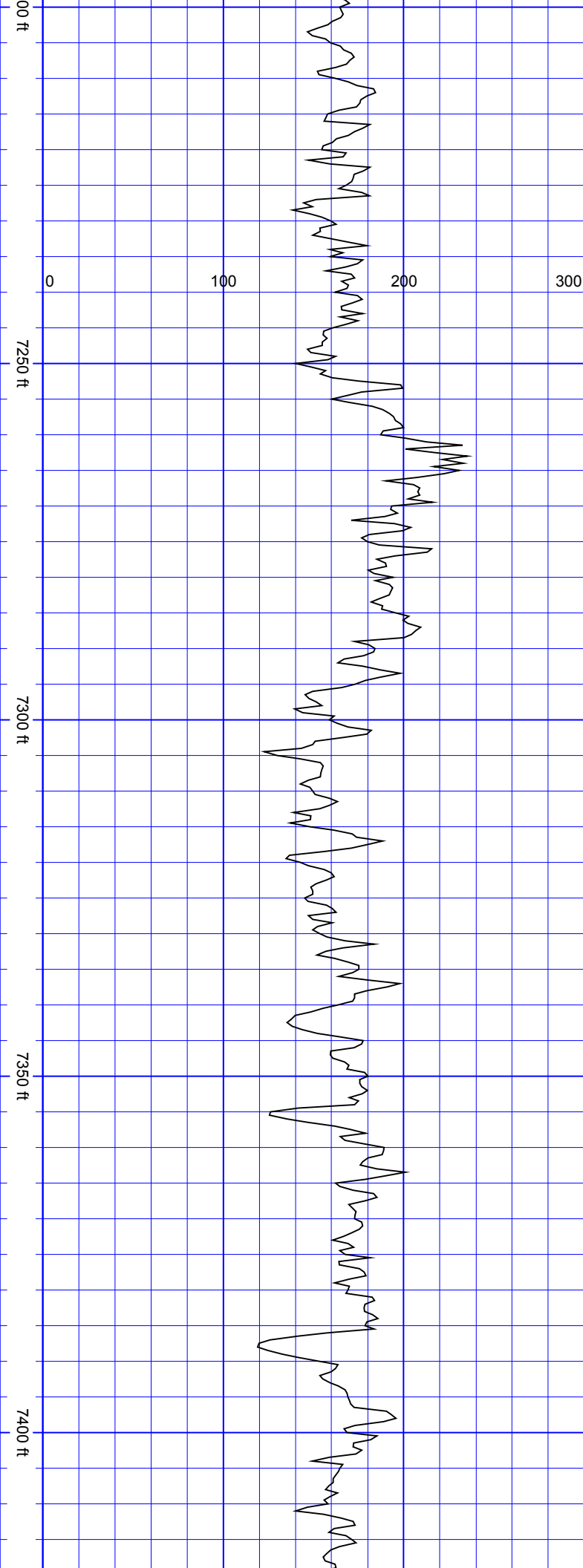
-1000	1000	3000	5000
0	300	600	900
9000	6000	3000	0



SurveyDepth:7019
TVD:6725.02 Inc:26.37
Azi:22.93 VertSec:-
824.51

SurveyDepth:7113
TVD:6806.79 Inc:32.65
Azi:20.73 VertSec:-
781.35

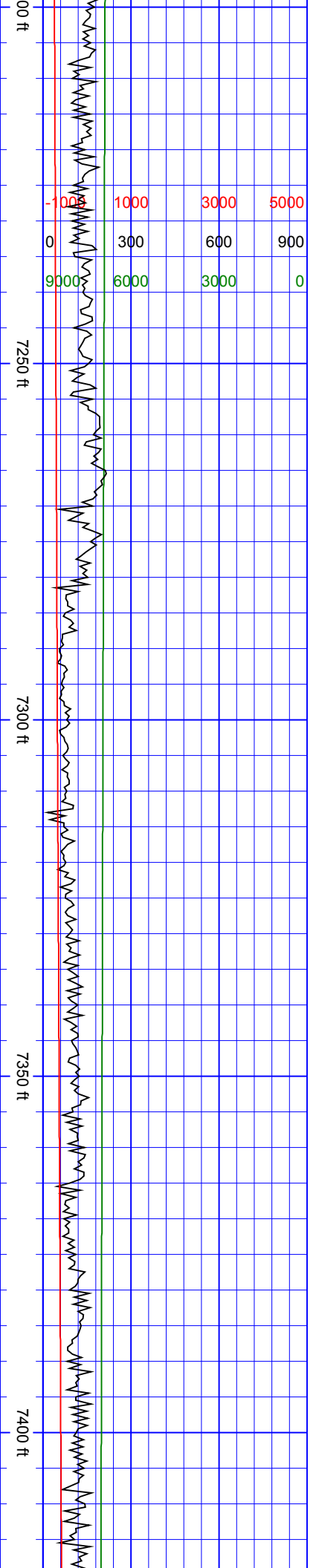


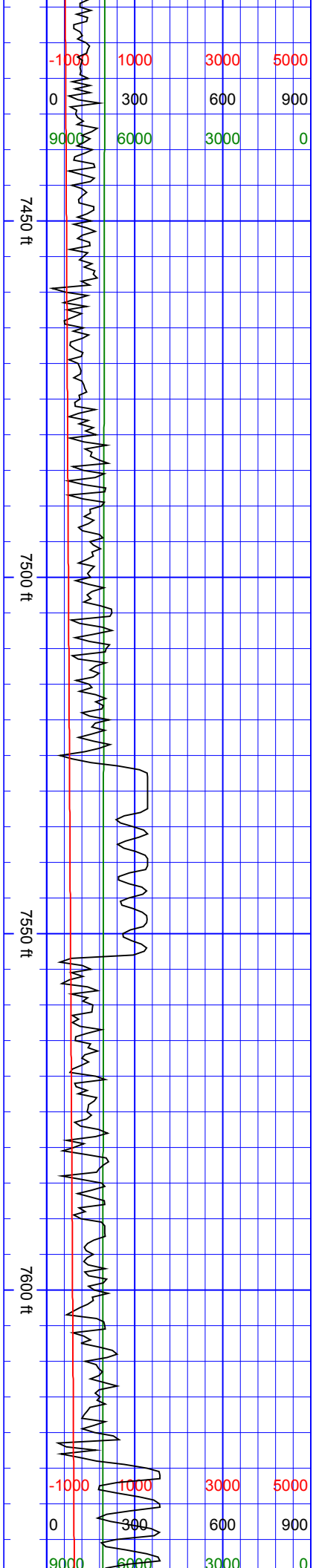
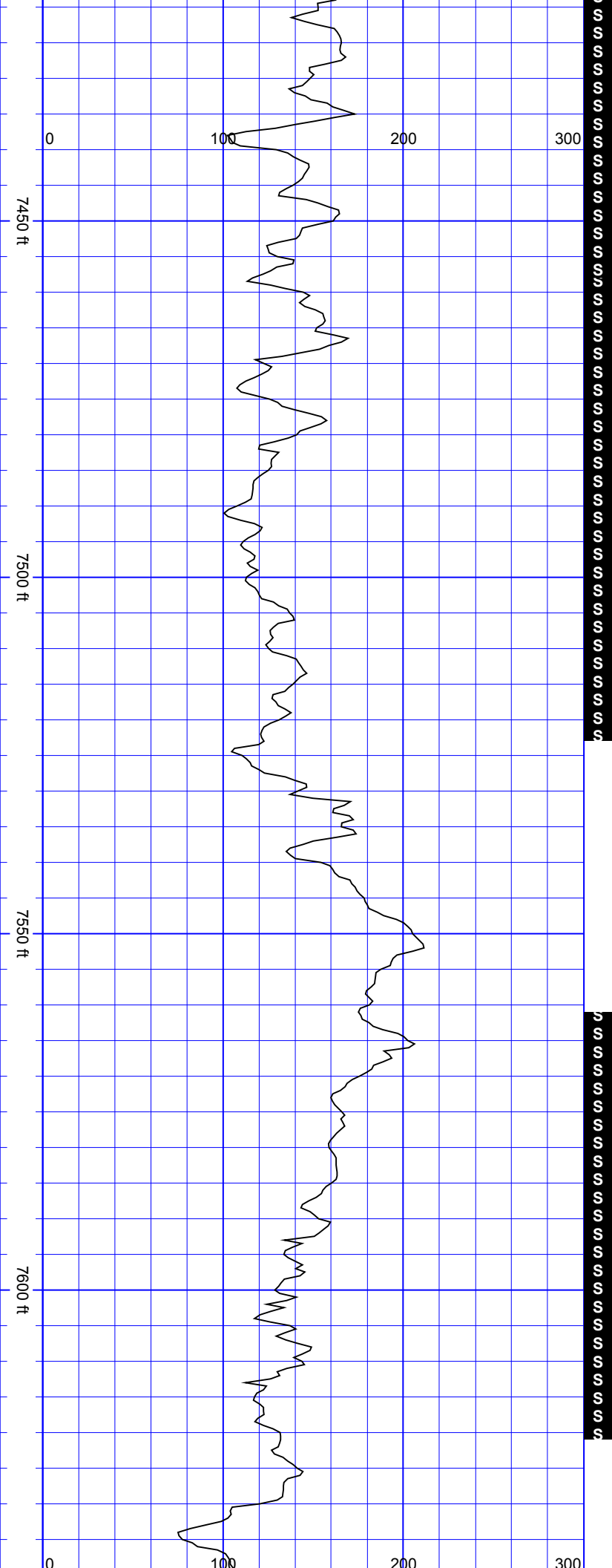


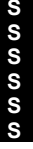
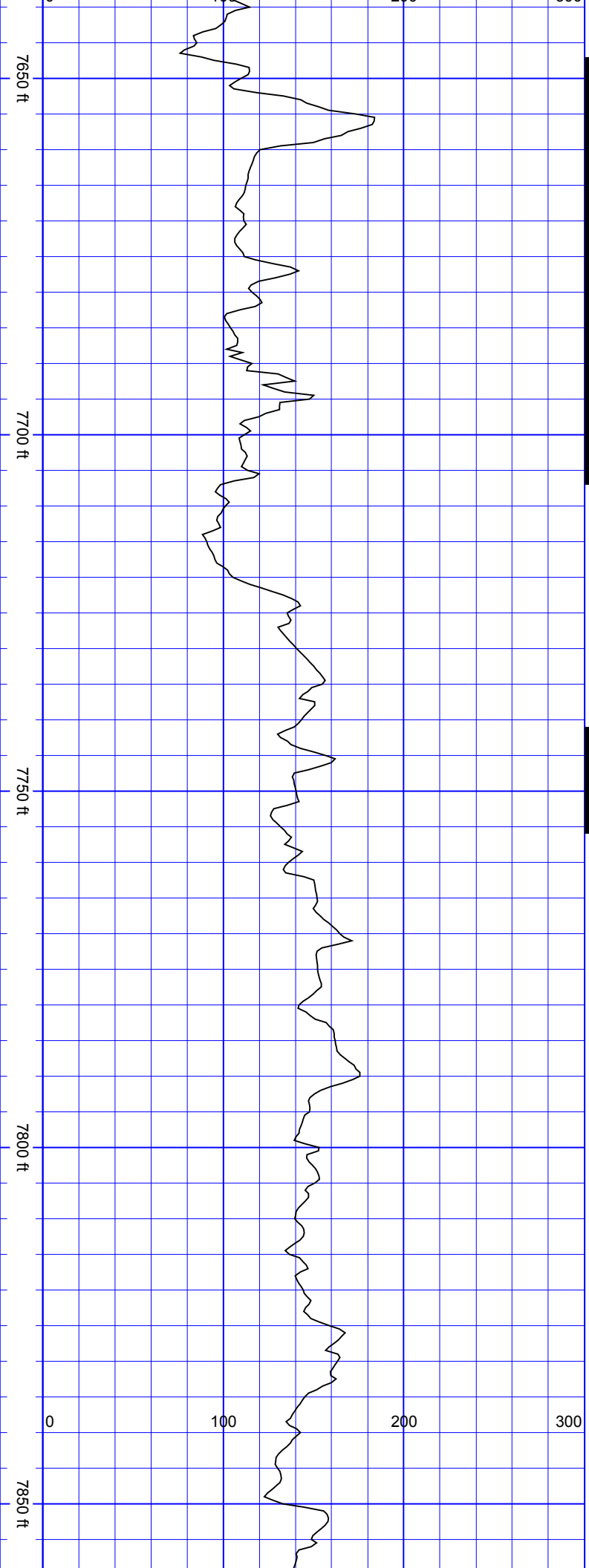
SurveyDepth:7208
TVD:6882.79 Inc:40.96
Azi:22.49 VertSec:-
728.31

SurveyDepth:7303
TVD:6949.46 Inc:49.79
Azi:19.94 VertSec:-
665.06

SurveyDepth:7397
TVD:7003.34 Inc:60.16
Azi:17.3 VertSec:-591.94

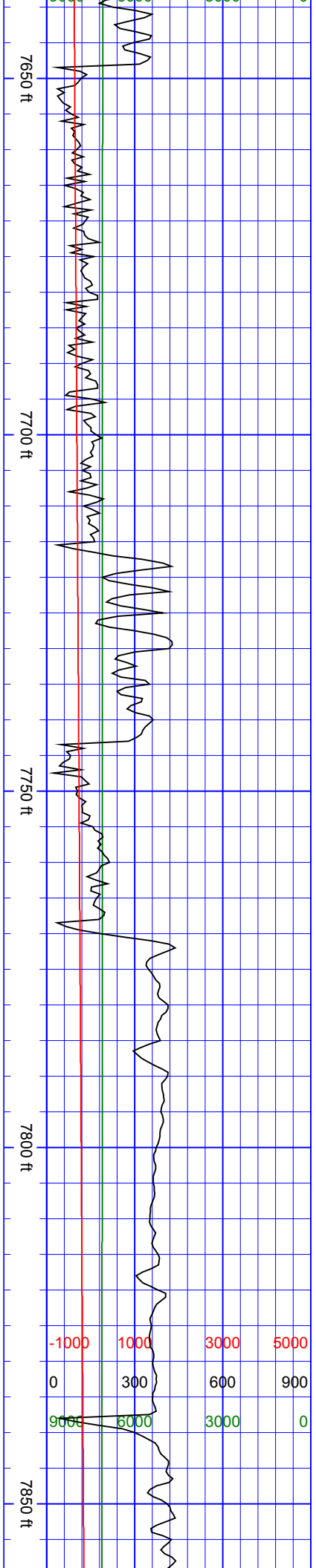


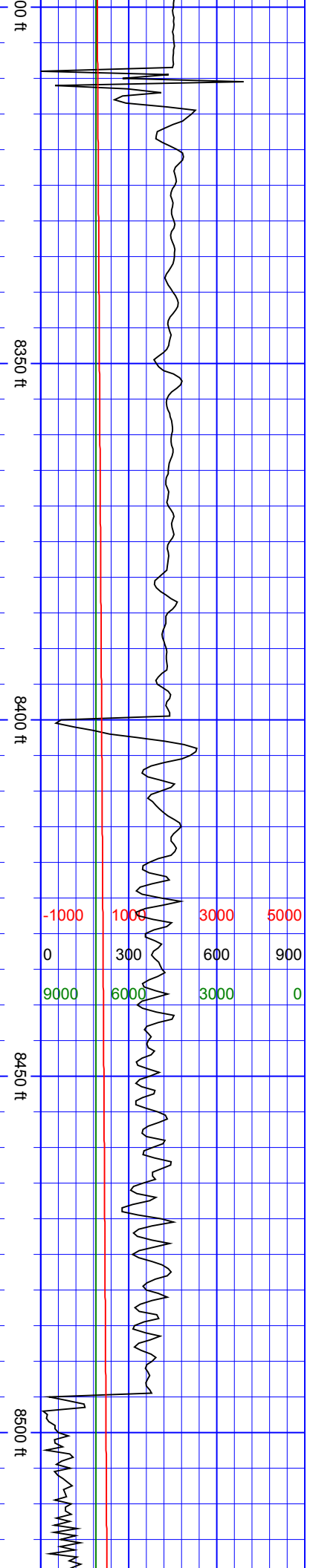




SurveyDepth:7680
TVD:7090.68 Inc:81.69
Azi:6.67 VertSec:-329.08

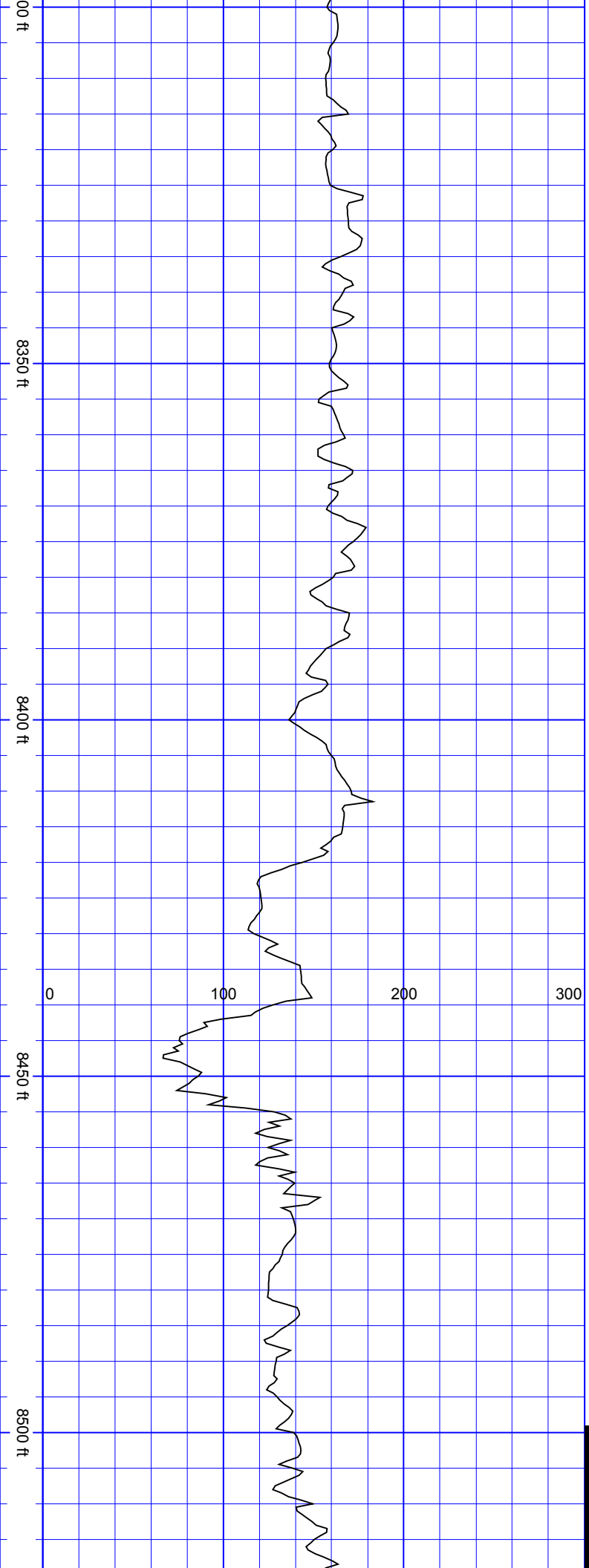
SurveyDepth:7775
TVD:7100.14 Inc:86.88
Azi:2.62 VertSec:-234.84





SurveyDepth:8343
TVD:7117.63 Inc:90.62
Azi:3.59 VertSec:332.45

SurveyDepth:8438
TVD:7116.72 Inc:90.48
Azi:4.29 VertSec:427.29



SS

SurveyDepth:8532
TVD:7116.18 Inc:90.18
Azi:359.64
VertSec:521.23

SurveyDepth:8627
TVD:7116.14 Inc:89.87
Azi:359.81
VertSec:616.22

SurveyDepth:8722
TVD:7117.01 Inc:89.08
Azi:359.9
VertSec:711.21

8550 ft

8600 ft

0 100 200 300

8650 ft

8700 ft

1

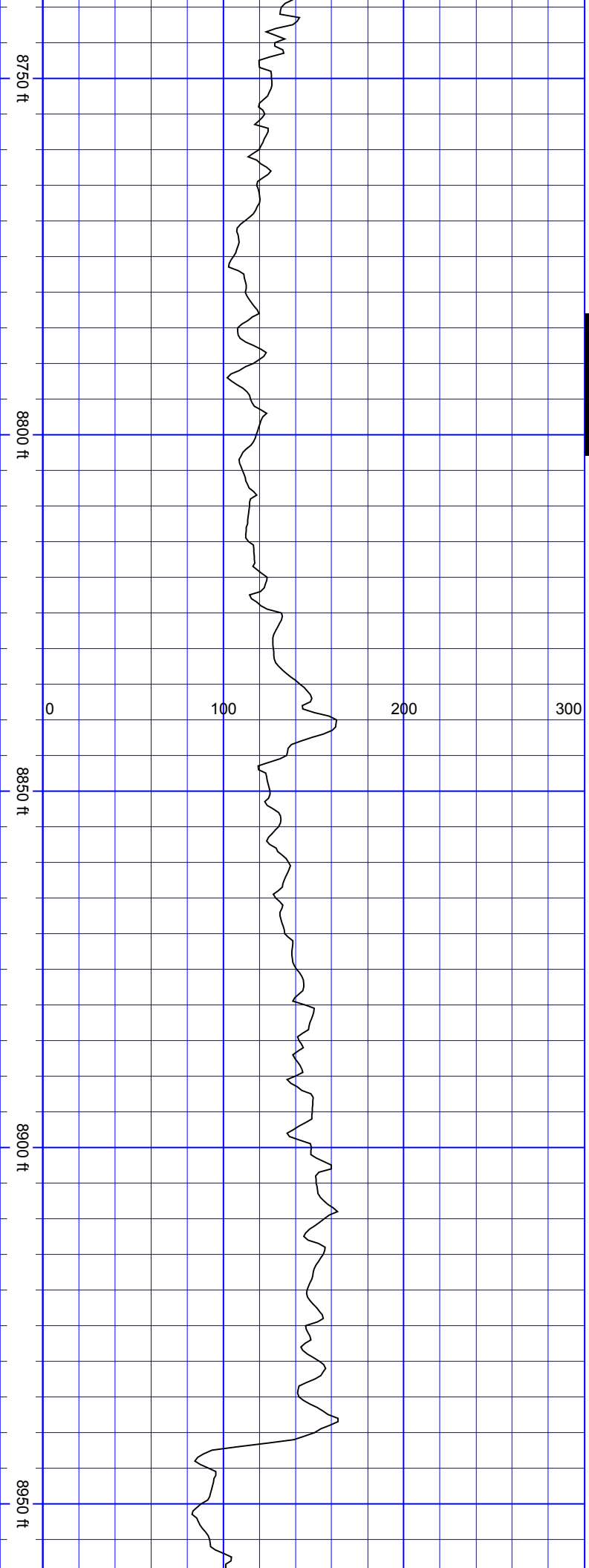
8550 ft

8600 ft

8650 ft

8700 ft

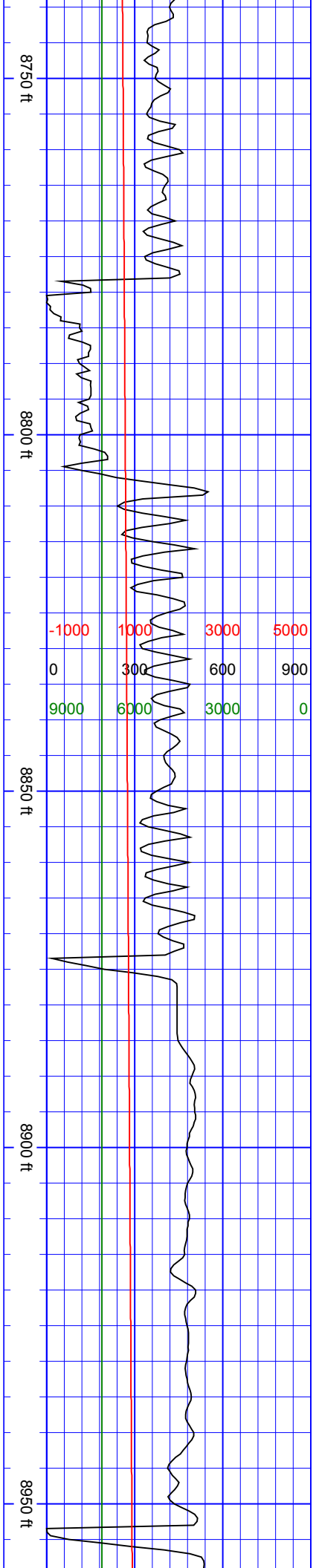
-1000	1000	3000	5000
0	300	600	900
9000	6000	3000	0

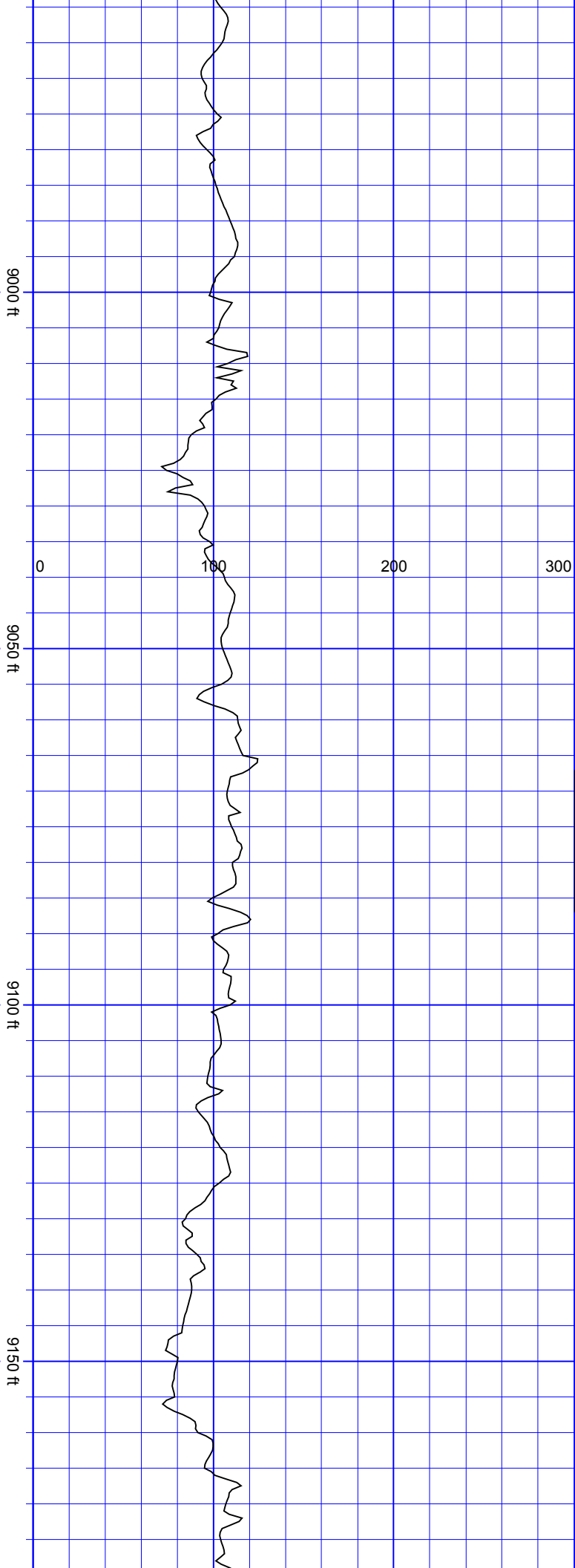


SSSSSSSS

SurveyDepth:8816
TVD:7116.46 Inc:91.58
Azi:359.55
VertSec:805.19

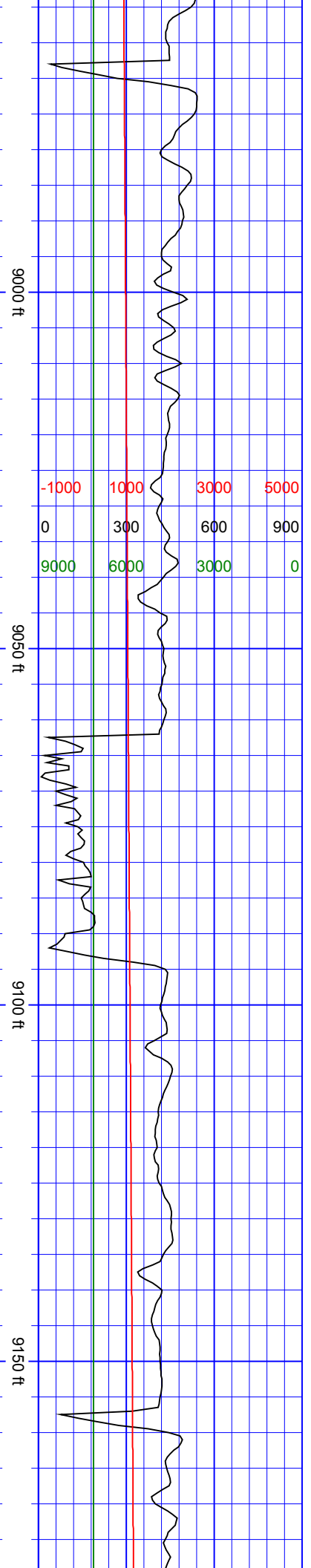
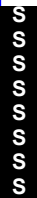
SurveyDepth:8911
TVD:7114.28 Inc:91.06
Azi:0.07 VertSec:900.15

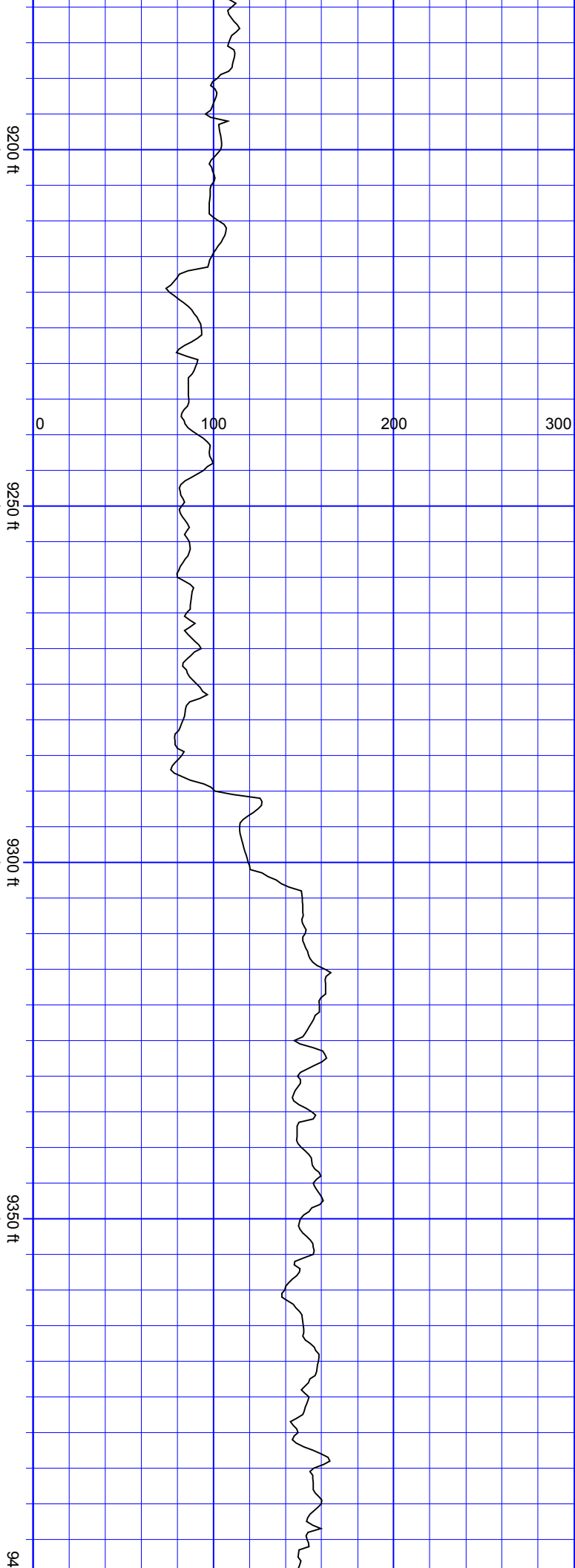




SurveyDepth:9006
TVD:7113.47 Inc:89.91
Azi:359.28
VertSec:995.14

SurveyDepth:9100
TVD:7112.72 Inc:91.01
Azi:359.28
VertSec:1089.11

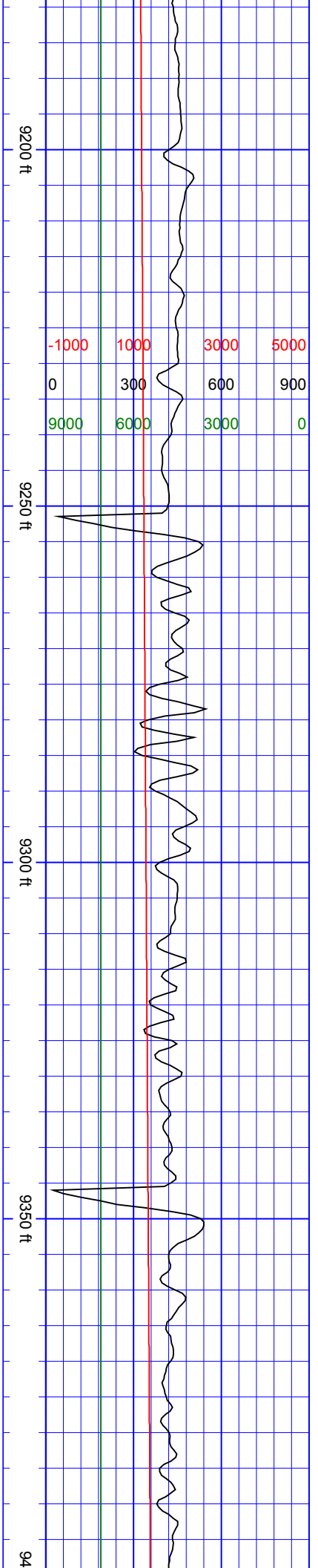


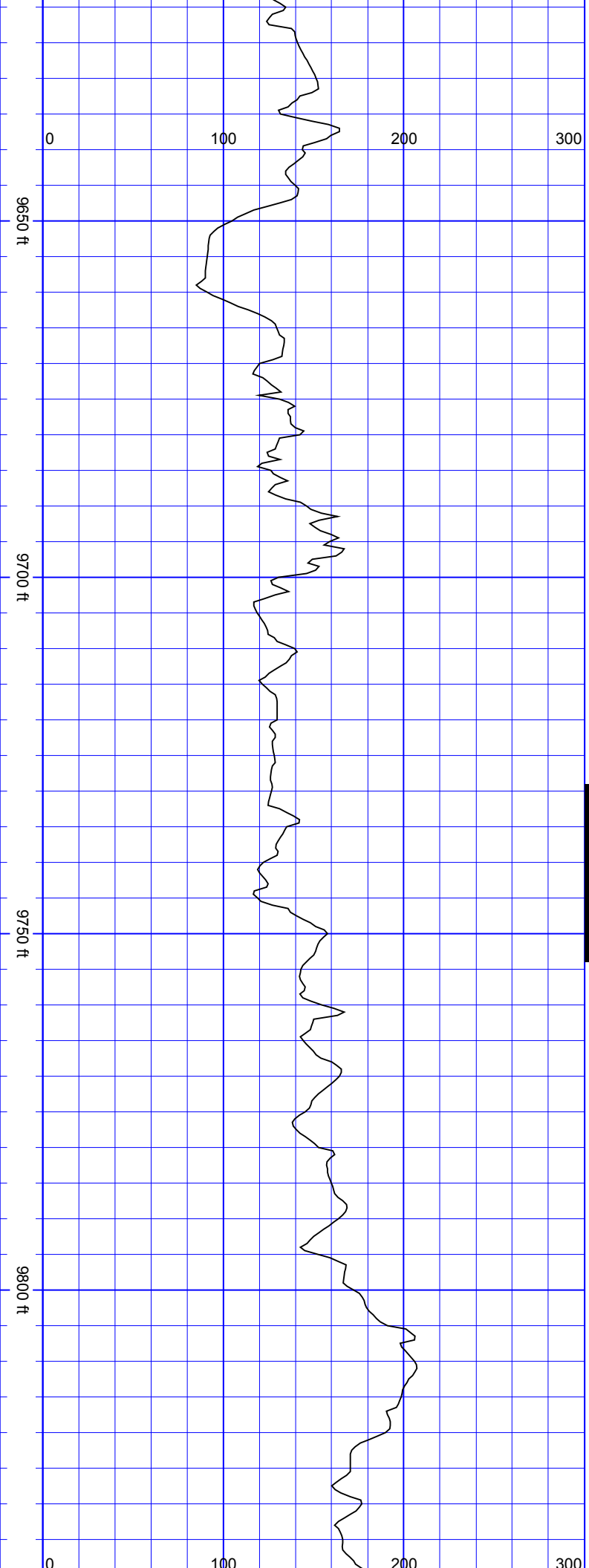


SurveyDepth:9195
TVD:7110.68 Inc:91.45
Azi:359.64
VertSec:1184.07

SurveyDepth:9289
TVD:7108.45 Inc:91.27
Azi:359.81
VertSec:1278.03

SurveyDepth:9384
TVD:7106.85 Inc:90.66
Azi:359.64 VertSec:1373

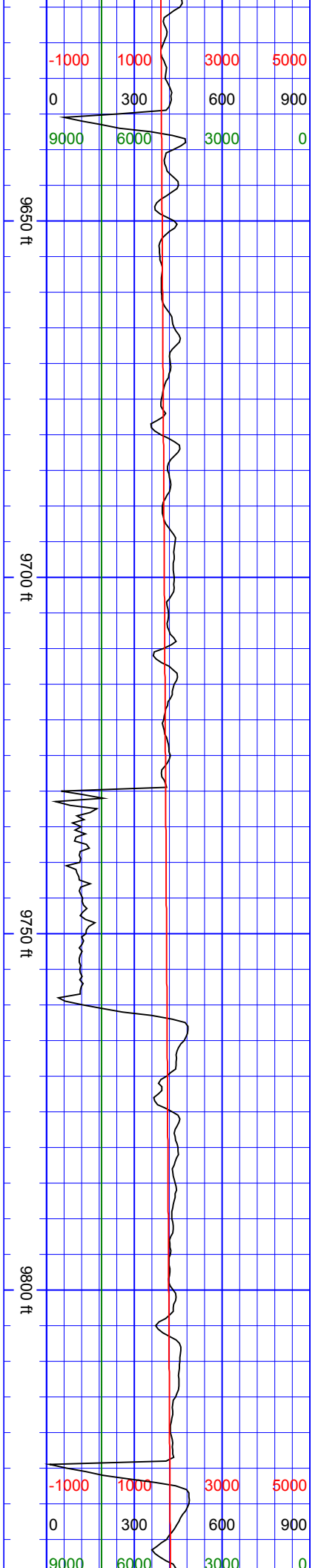


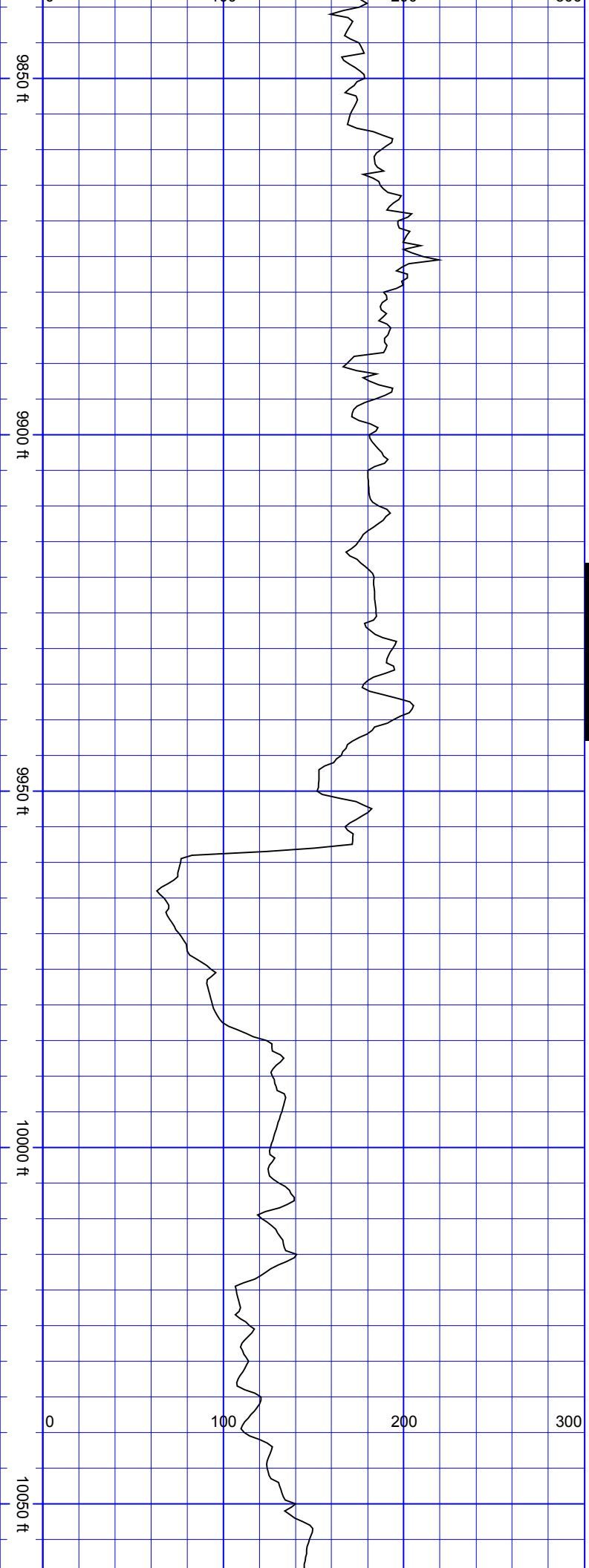


SurveyDepth:9668
TVD:7105.16 Inc:88.64
Azi:359.81
VertSec:1656.93

SurveyDepth:9763
TVD:7107.24 Inc:88.86
Azi:2.36 VertSec:1751.9

S
S
S
S
S
S
S
S
S
S

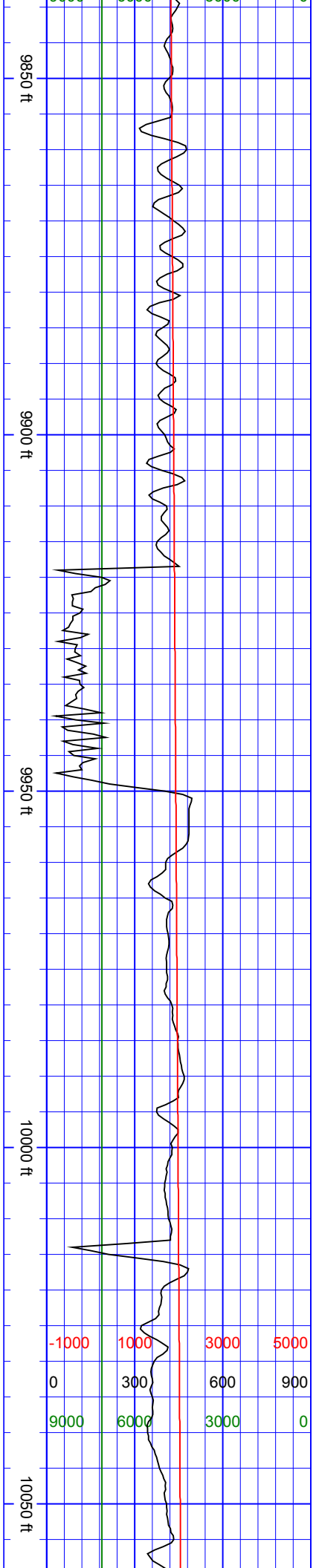


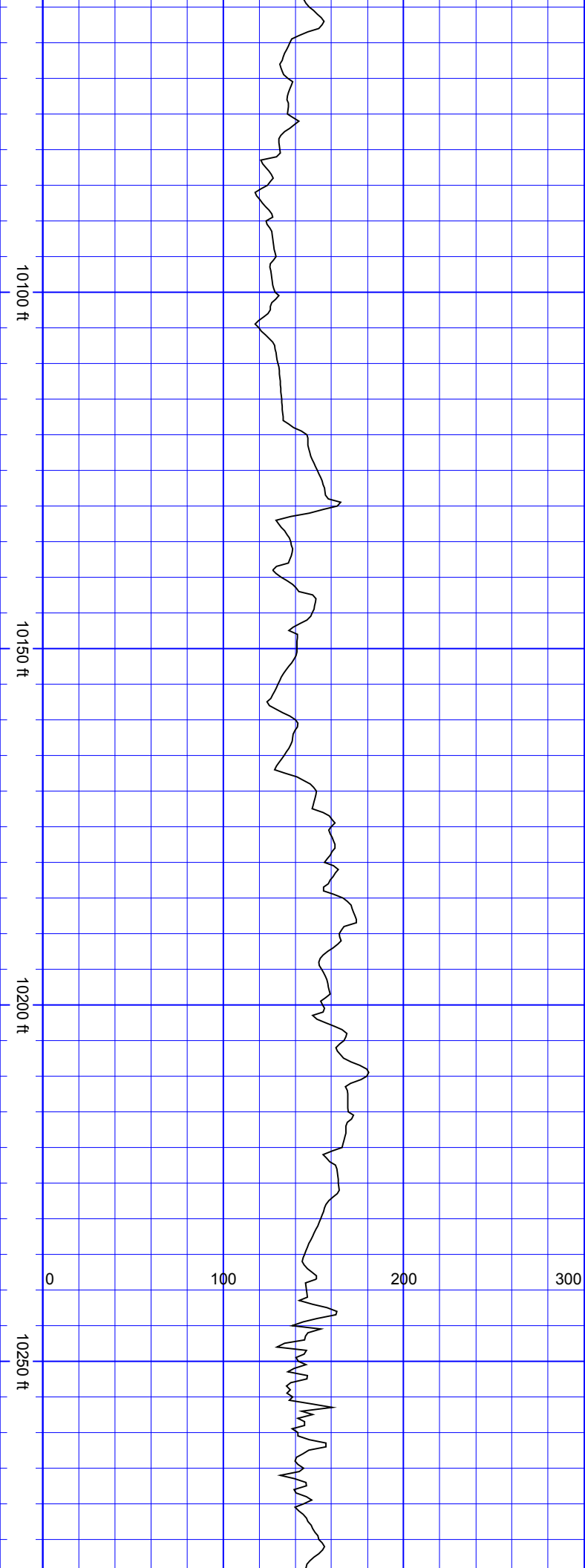


SurveyDepth:9857
TVD:7109.21 Inc:88.73
Azi:2.36
VertSec:1845.84

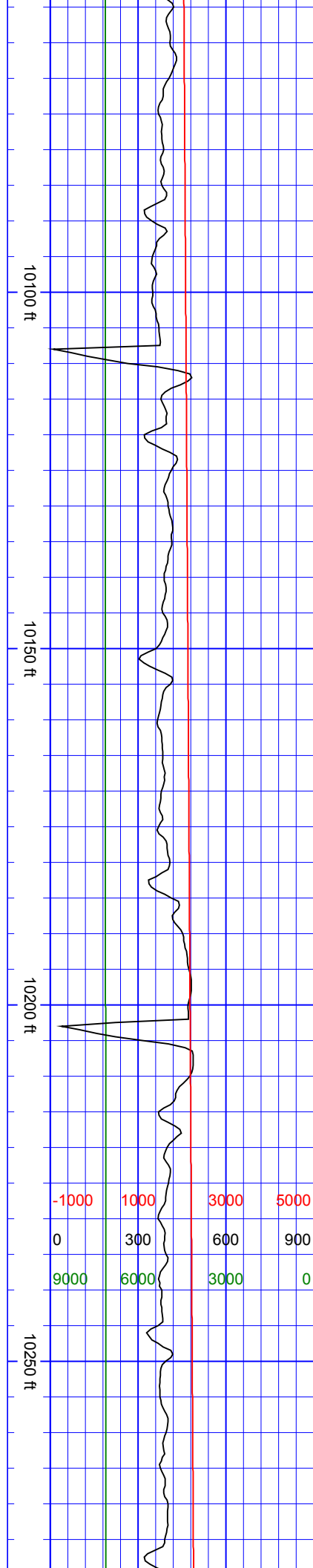
SurveyDepth:9952
TVD:7109.28 Inc:91.19
Azi:2.1 VertSec:1940.79

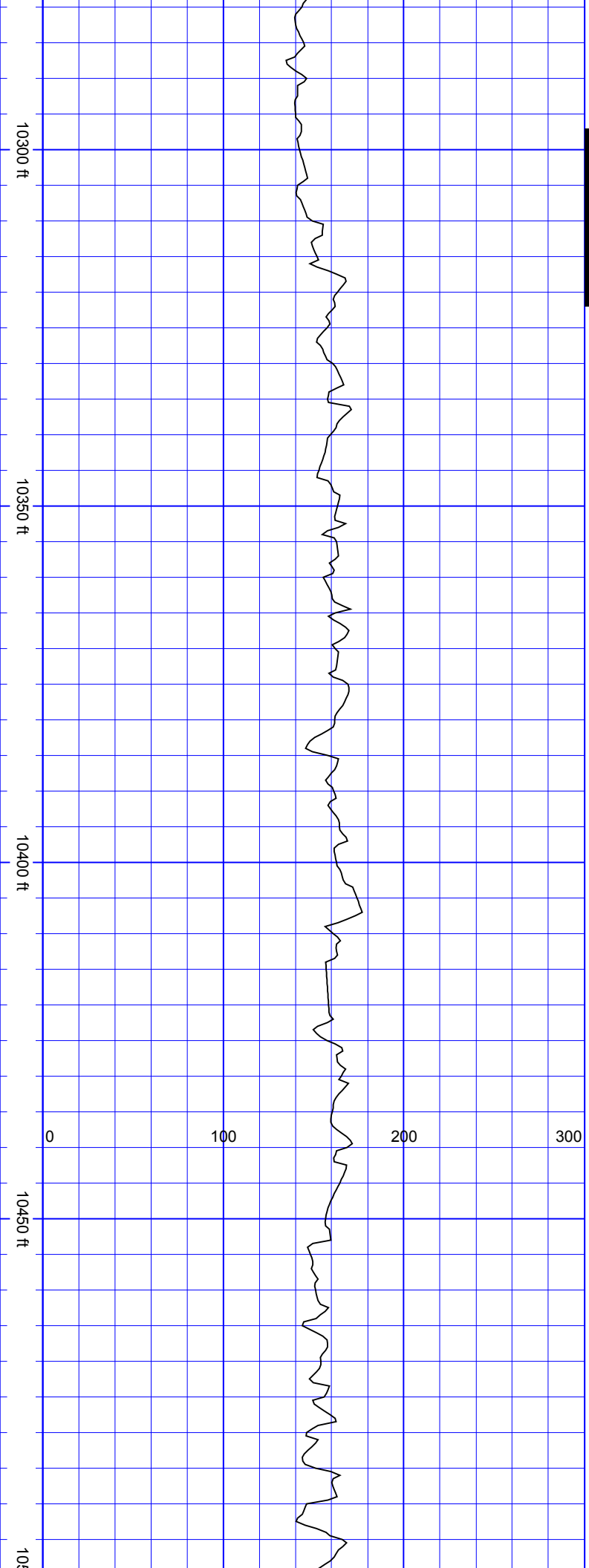
SurveyDepth:10046
TVD:7106.57 Inc:92.11
Azi:1.57
VertSec:2034.73





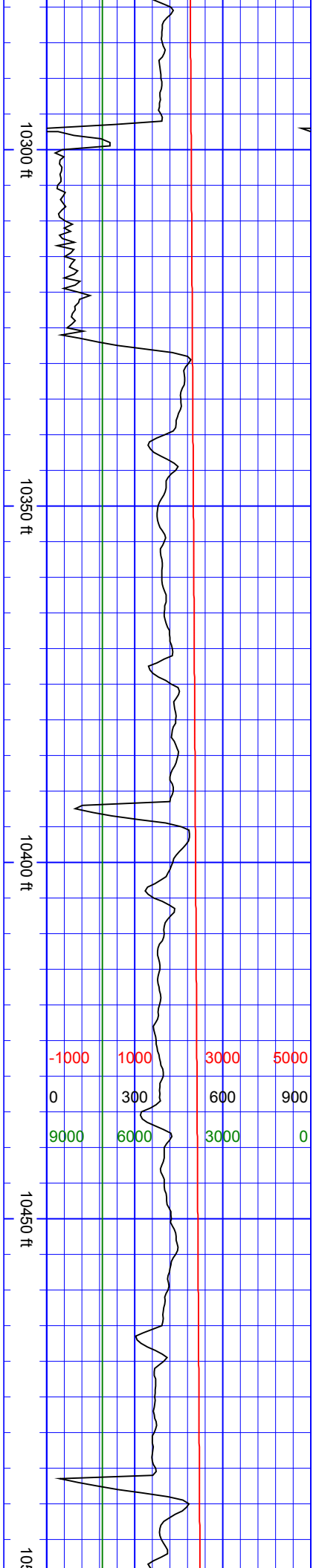
SurveyDepth:10141 TVD:7103.73 Inc:91.32 Azi:0.87 VertSec:2129.68	SurveyDepth:10236 TVD:7102.09 Inc:90.66 Azi:359.55 VertSec:2224.66
---	---

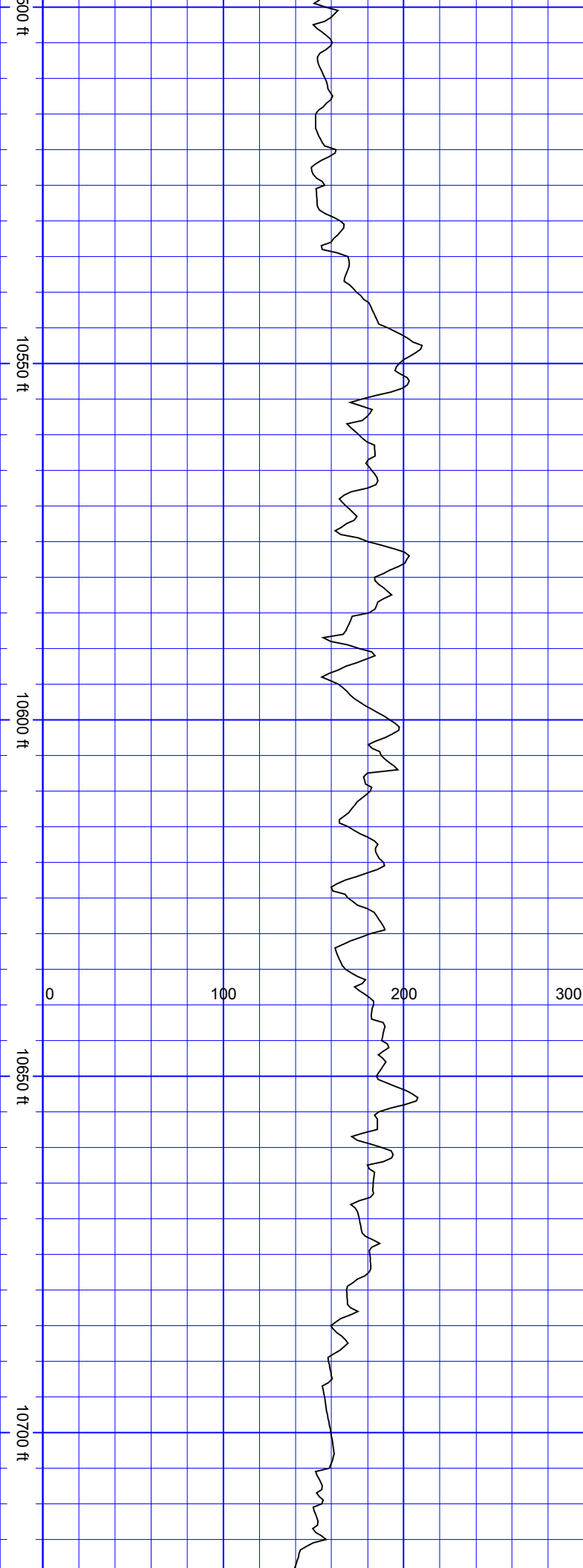




SurveyDepth:10330
TVD:7100 Inc:91.89
Azi:2.97
VertSec:2318.61

SurveyDepth:10425
TVD:7097.48 Inc:91.14
Azi:1.48
VertSec:2413.54

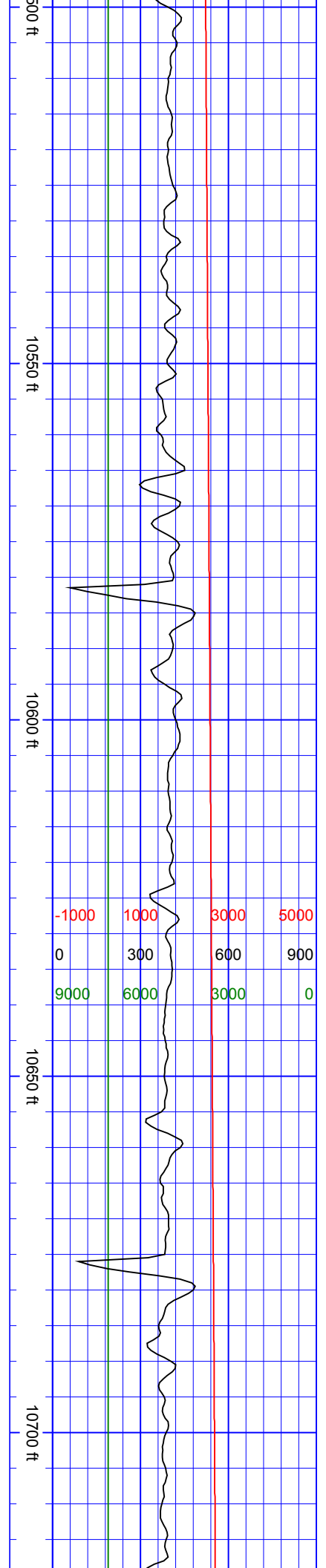


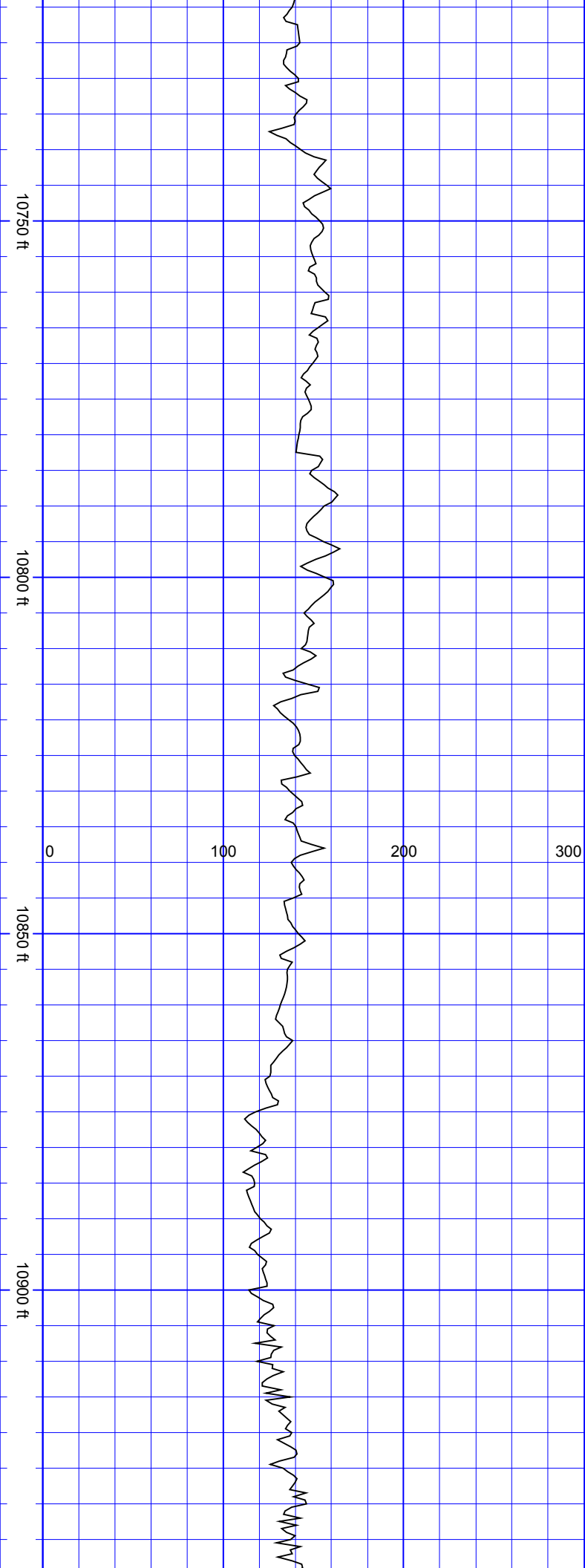


SurveyDepth:10520
TVD:7095.19 Inc:91.63
Azi:1.83
VertSec:2508.49

SurveyDepth:10614
TVD:7092.48 Inc:91.67
Azi:1.31
VertSec:2602.44

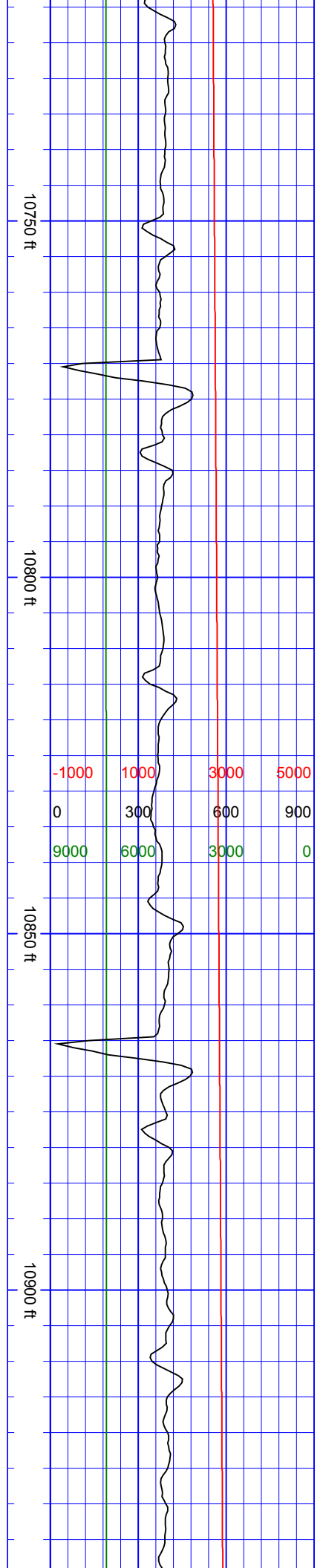
SurveyDepth:10709
TVD:7089.64 Inc:91.76
Azi:0.16
VertSec:2697.39

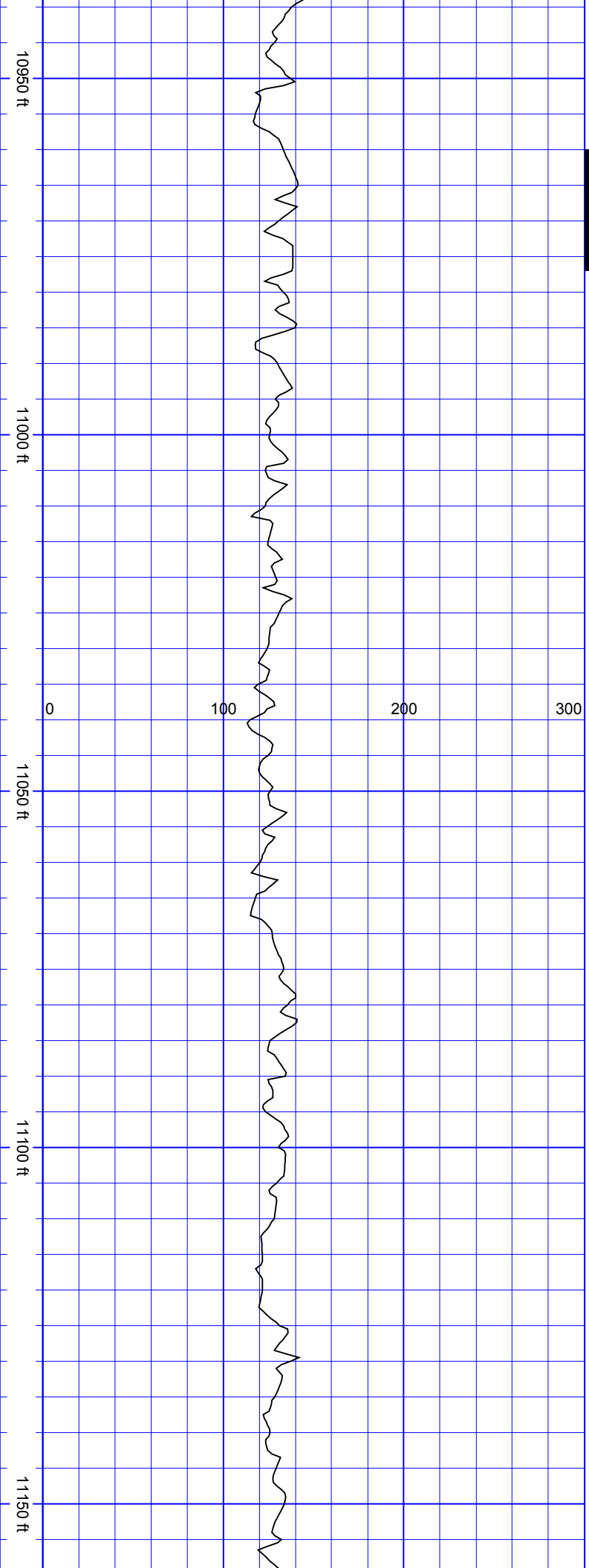




SurveyDepth:10804
TVD:7086.94 Inc:91.49
Azi:359.81
VertSec:2792.35

SurveyDepth:10899
TVD:7083.96 Inc:92.11
Azi:0.16 VertSec:2887.3

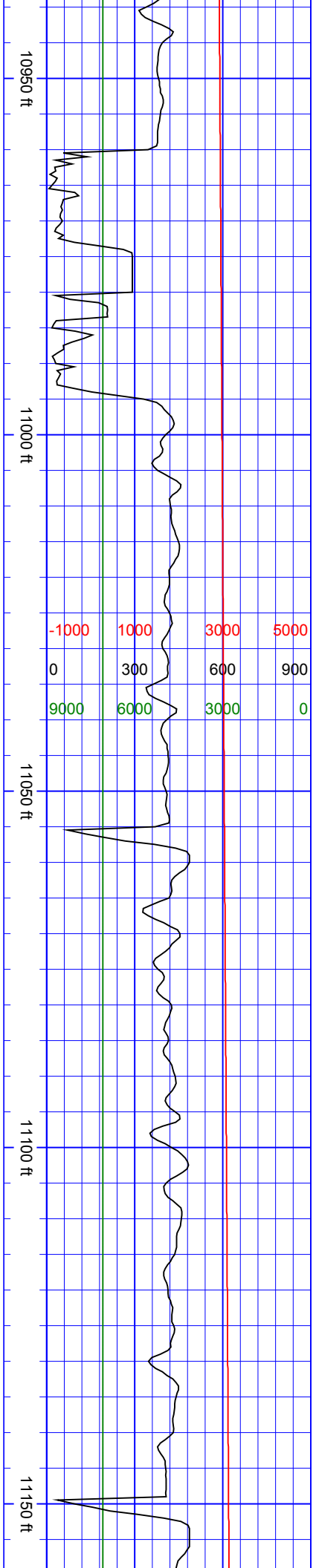


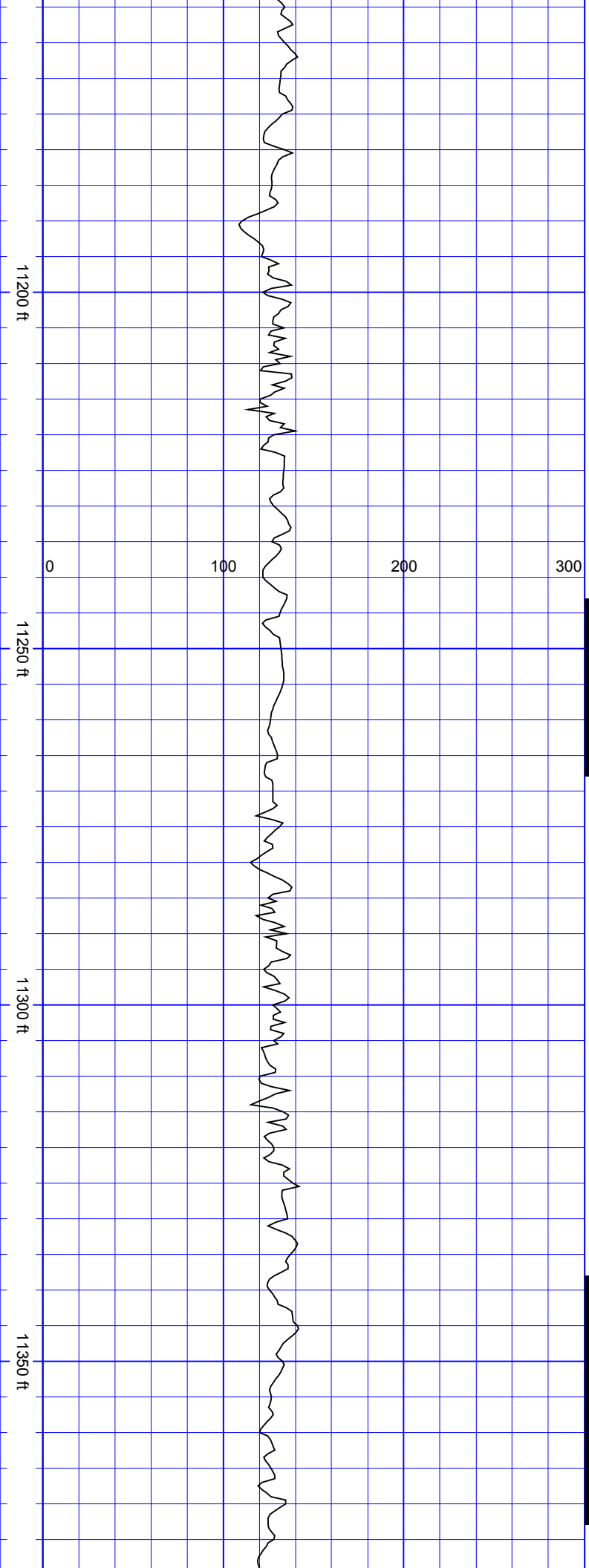


SSSSSS

SurveyDepth:10993
TVD:7082.02 Inc:90.26
Azi:359.9
VertSec:2981.27

SurveyDepth:11088
TVD:7081.51 Inc:90.35
Azi:0.51
VertSec:3076.27





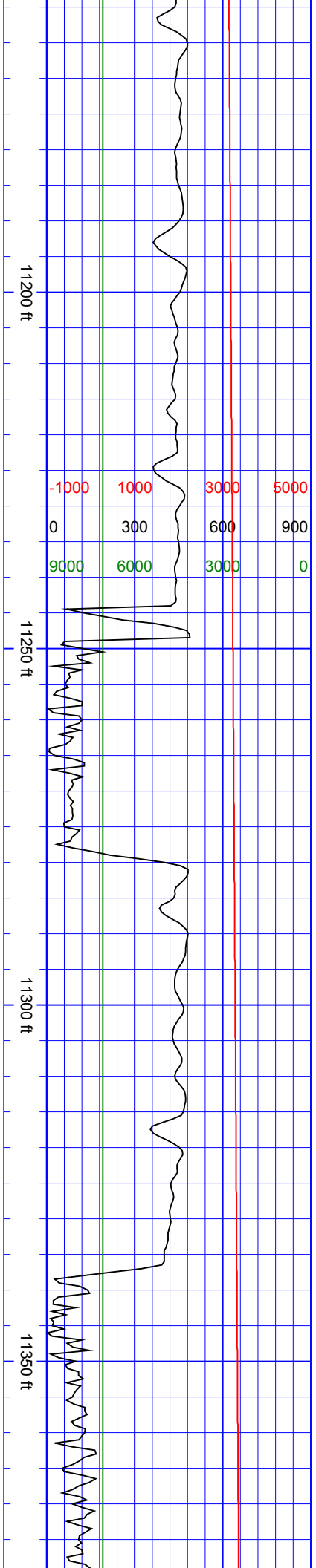
SurveyDepth:11182
TVD:7081.72 Inc:89.39
Azi:355.5
VertSec:3170.14

S
S
S
S
S
S
S
S
S
S

SurveyDepth:11277
TVD:7083.61 Inc:88.33
Azi:352.08
VertSec:3264.44

S
S
S
S
S
S
S
S
S
S

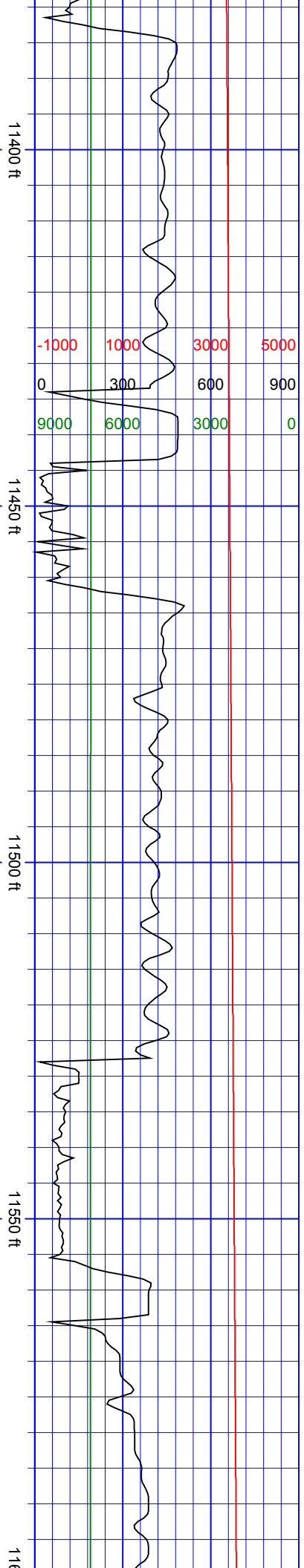
SurveyDepth:11372
TVD:7085.29 Inc:89.65
Azi:358.32

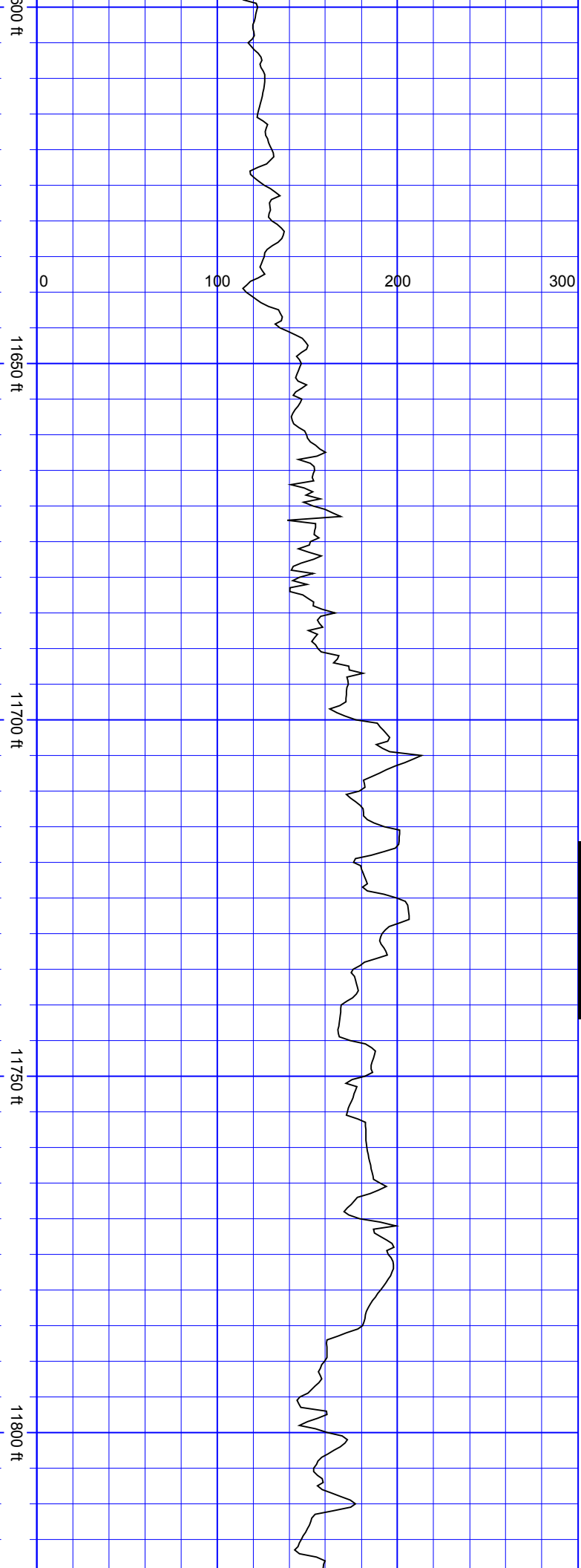


SSSSS

S S S S S S S S

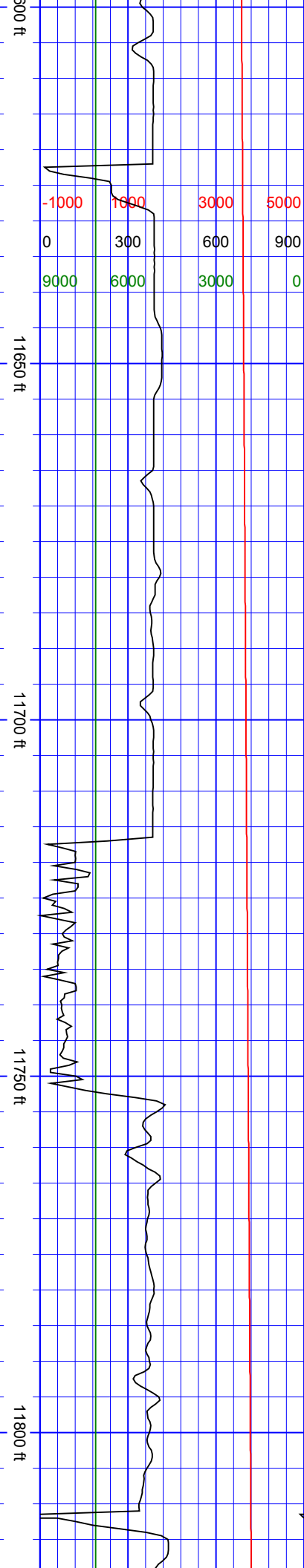
-1000	1000	3000	5000
0	300	600	900
9000	6000	3000	0

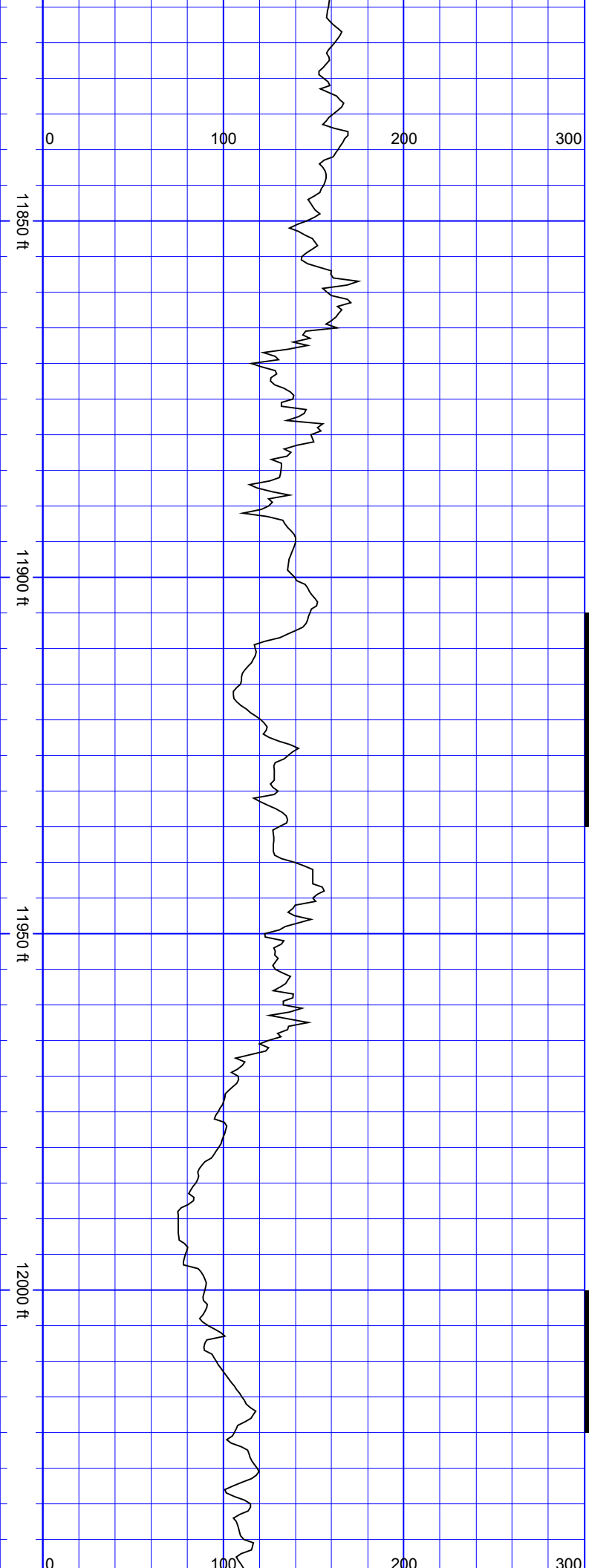




SurveyDepth:11656
TVD:7091.57 Inc:86.88
Azi:2.36
VertSec:3642.75

SurveyDepth:11750
TVD:7095.76 Inc:88.02
Azi:3.77
VertSec:3736.57

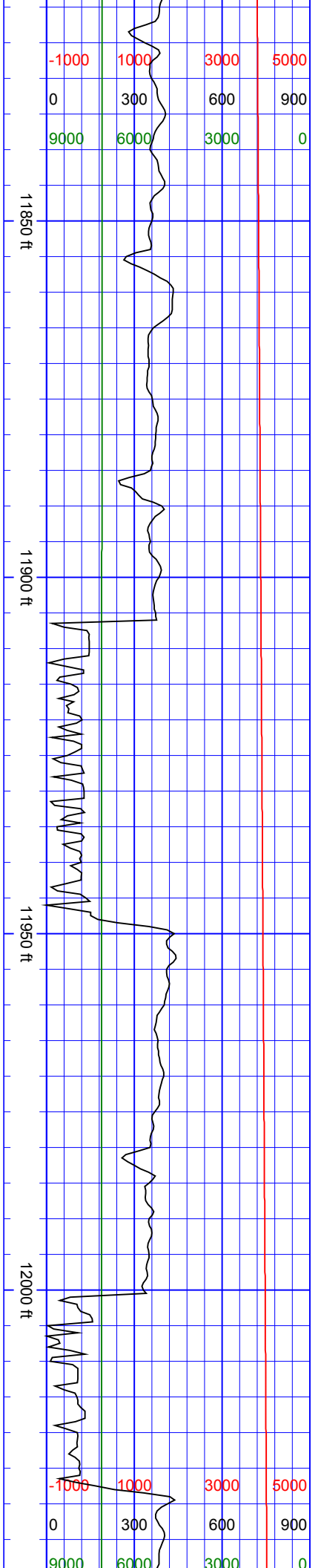


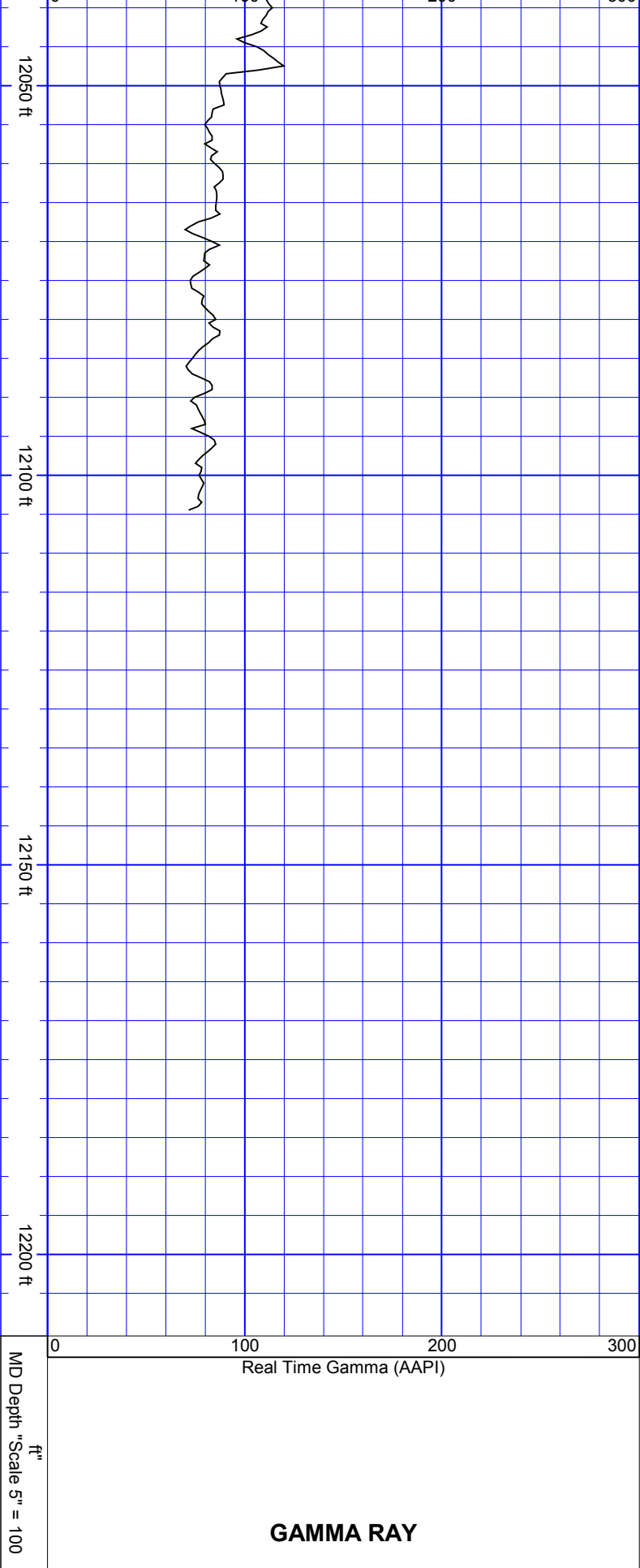


SurveyDepth:11844
TVD:7100.44 Inc:86.27
Azi:3.68
VertSec:3830.31

SurveyDepth:11939
TVD:7104.55 Inc:88.77
Azi:5.26
VertSec:3924.99

SurveyDepth:12033
TVD:7104.26 Inc:91.58
Azi:9.05
VertSec:4010.00





Azi:3.85
VertSec:4018.75

SurveyDepth:12099
TVD:7101.81 Inc:92.68
Azi:4.29
VertSec:4084.58

Extrapolation to Bit
SurveyDepth:12160
TVD:7098.96 Inc:92.68
Azi:4.29
VertSec:4145.39

Directional Survey

Slide - Rotate

