
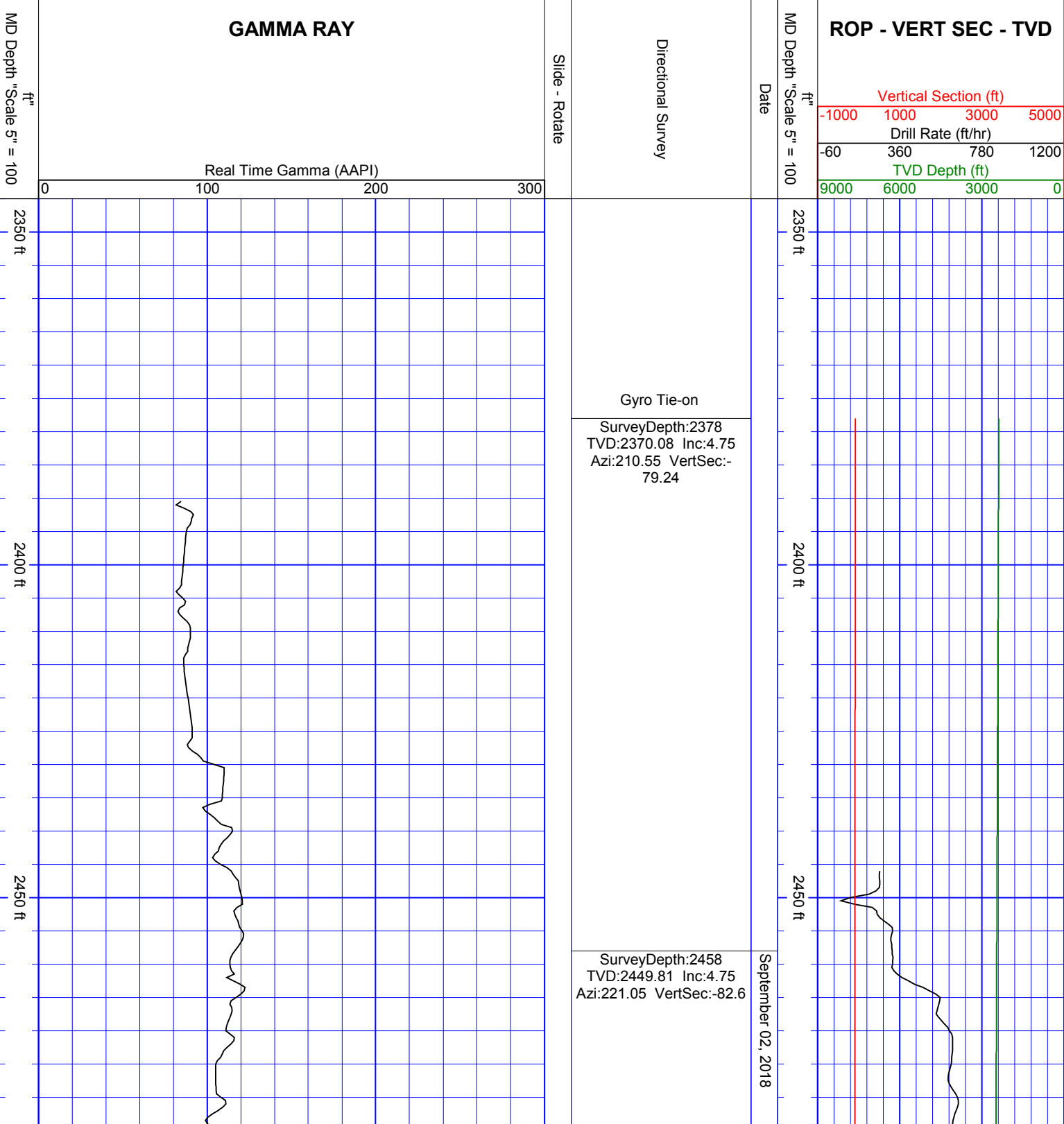


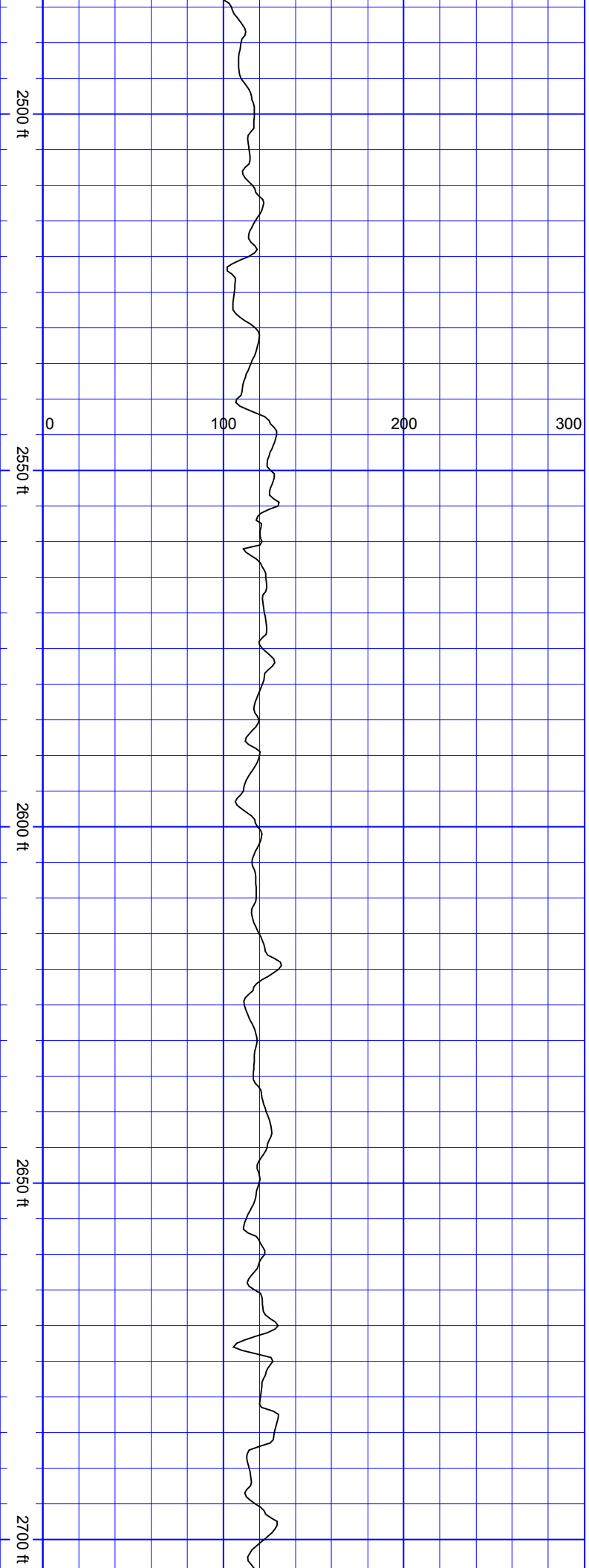
<div>CATHEDRAL</div>				<div>Build & Lateral</div> <div>Job #: 185256Well ID: 16190875</div> <div>Scale: 5" = 100 ftType: MD</div>			
Well Site Information							
Oil Company		Crestone Peak Resources					
Surface Location		S25-T1N-R66W					
Well Name		Sam 3J-25H-M166W					
API		05-123-46129- 00					
Field		DJ Basin					
State		Colorado					
Country		USA					
Surface Coordinates							
Well Type		Horizontal					
Latitude		40° 01' 7 N					
Longitude		104° 44' 2 W					
N / S Coordinates		1,250,566.77 usft					
E / W Coordinates		3,214,576.91 usft					
Azimuth Reference		True North					
Grid Convergence		0.51°					
MWD Engineers							
Lead Hand		Ron Kenyon					
Second Hand		Riley Rasmussen					
Perm Datum		Ground		Elevation		5,086.00 ft	
Log depth measured from KB is		23.00 ft		above perm datum.		KB = 5,109.00 ft	
Total Depth		11,890.00 ft		Spud Date		Sep/02/2018	
(MD) Log Interval		Start Depth		2,345.00 ft		End Date	
						Sep/06/2018	
				End Depth		11,891.16 ft	
Bore Hole Record							
Hole Size		From		To			
13.50 in		0.00 ft		2,440.00 ft			
8.50 in		2,440.00 ft		11,890.00 ft			
Casing Record							
Type		Size		WGT		From	
LT&C		9.63 in		40 lbs/ft		0.00 ft	
DWC/C-IS		5.50 in		20 lbs/ft		0.00 ft	

Run Data					
Bit Run Number	1	2	3		
Start Date & Time	Sep/02/2018 16:30:00	Sep/03/2018 11:30:00	Sep/04/2018 22:30:00		
End Date & Time	Sep/03/2018 10:30:00	Sep/04/2018 14:00:00	Sep/06/2018 21:30:00		
Run Hours	16.50	26.50	55.50		
Depth In	2,440.00 ft	4,619.00 ft	7,195.00 ft		
Depth Out	4,618.00 ft	7,195.00 ft	11,890.00 ft		
Total Gamma Correction	5.50	5.62	5.62		
Gamma to Bit	56.35 ft	56.43 ft	53.08 ft		
Resistivity to Bit	N/A	N/A	N/A		
Mud Type	Oil Base	Oil Base	Oil Base		
Density	9.55 ppg	9.40 ppg	9.80 ppg		
Viscosity	50.00 sec/qt	48.00 sec/qt	44.00 sec/qt		
PH	N/A	N/A	N/A		
Fluid Loss	N/A	N/A	N/A		
K+ ppm	N/A	N/A	N/A		
CL- ppm	35,000.00 mg/L	36,000.00 mg/L	36,000.00 mg/L		
Max Mud Temp	144.50 °F	178.30 °F	234.50 °F		
Mud Report Depth	3,911.00 ft	4,988.00 ft	11,890.00 ft		

Remarks

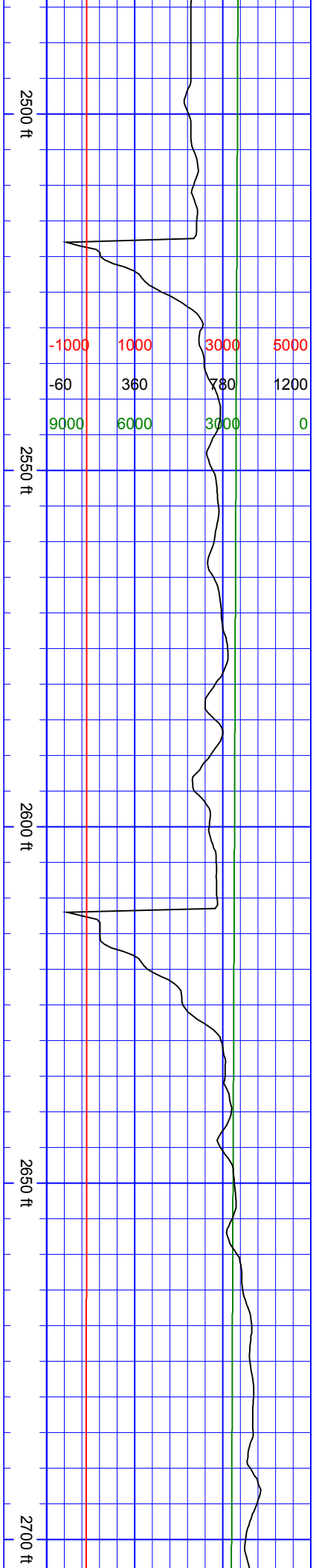
Interpretations of this data by Cathedral Energy Services will be of best judgment as to correctness. Cathedral Energy Services cannot and does not guarantee the accuracy or correctness of interpretations or any surveys derived therefrom. Cathedral Energy Services makes no warranties of performance,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

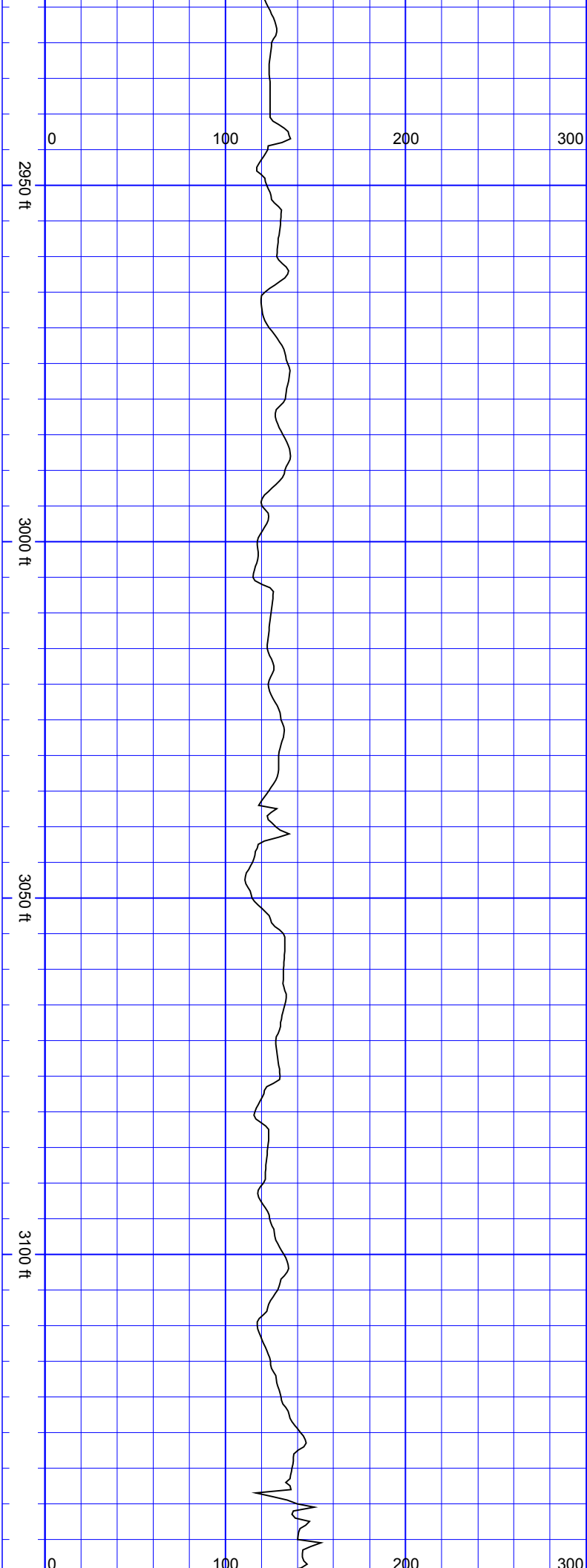




SurveyDepth:2552
TVD:2543.51 Inc:4.31
Azi:219.82 VertSec:-
86.88

SurveyDepth:2646
TVD:2637.27 Inc:3.91
Azi:222.11 VertSec:-90.8

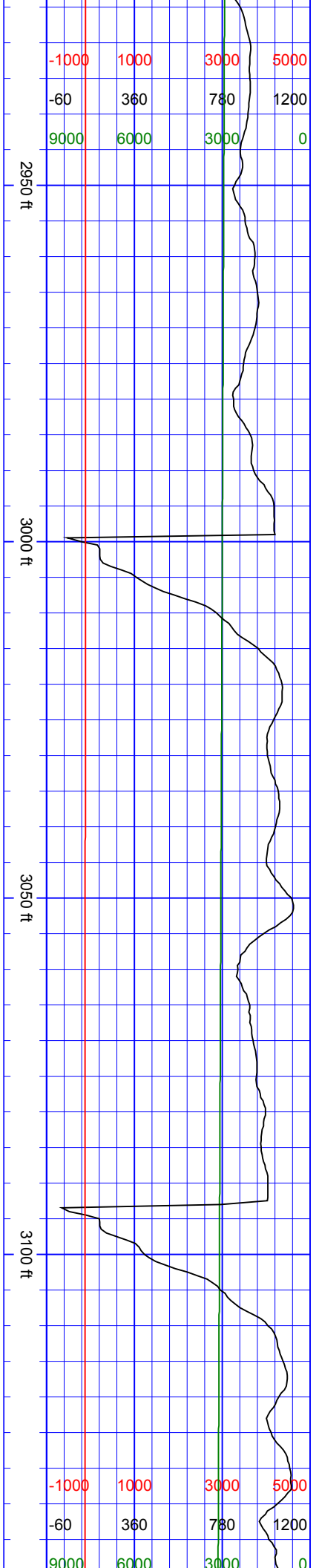


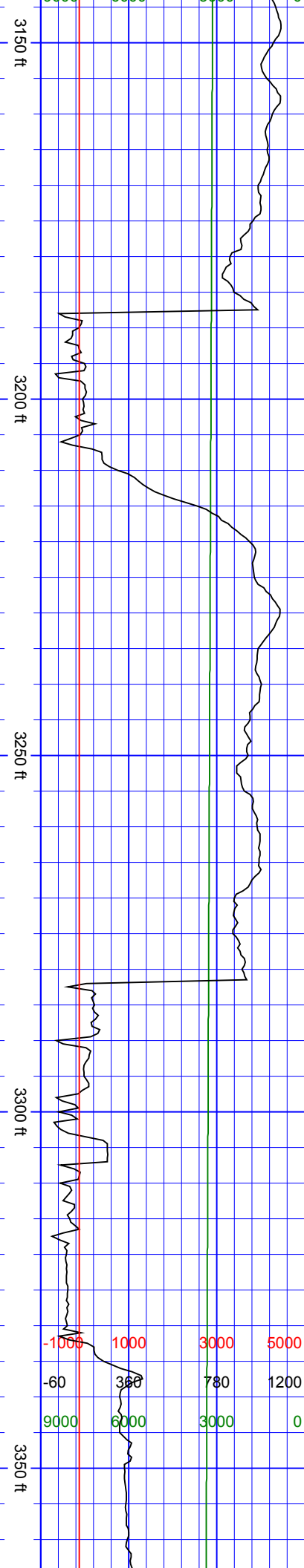


SurveyDepth:2940
TVD:2929.65 Inc:5.63
Azi:220.26 VertSec:-
108.32

SurveyDepth:3035
TVD:3024.26 Inc:4.7
Azi:220.44 VertSec:-
113.23

SurveyDepth:3130
TVD:3119.02 Inc:3.47
Azi:219.91 VertSec:-
117.11



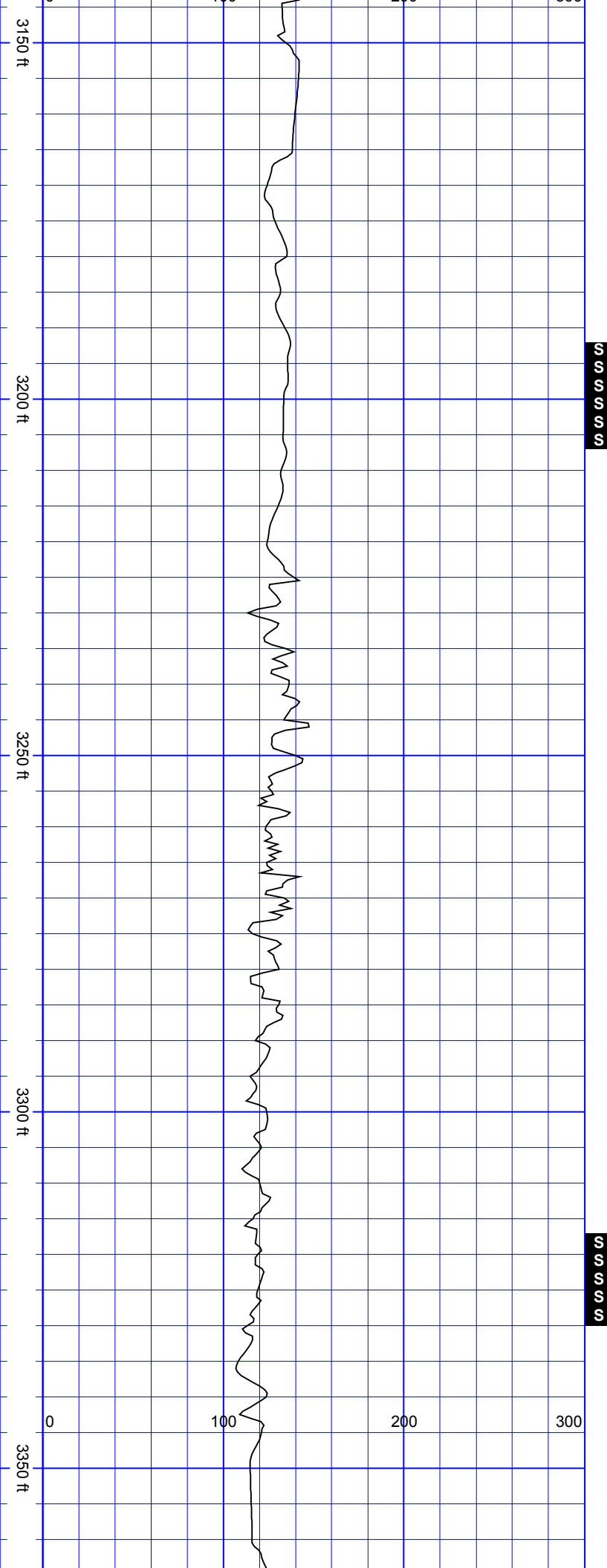


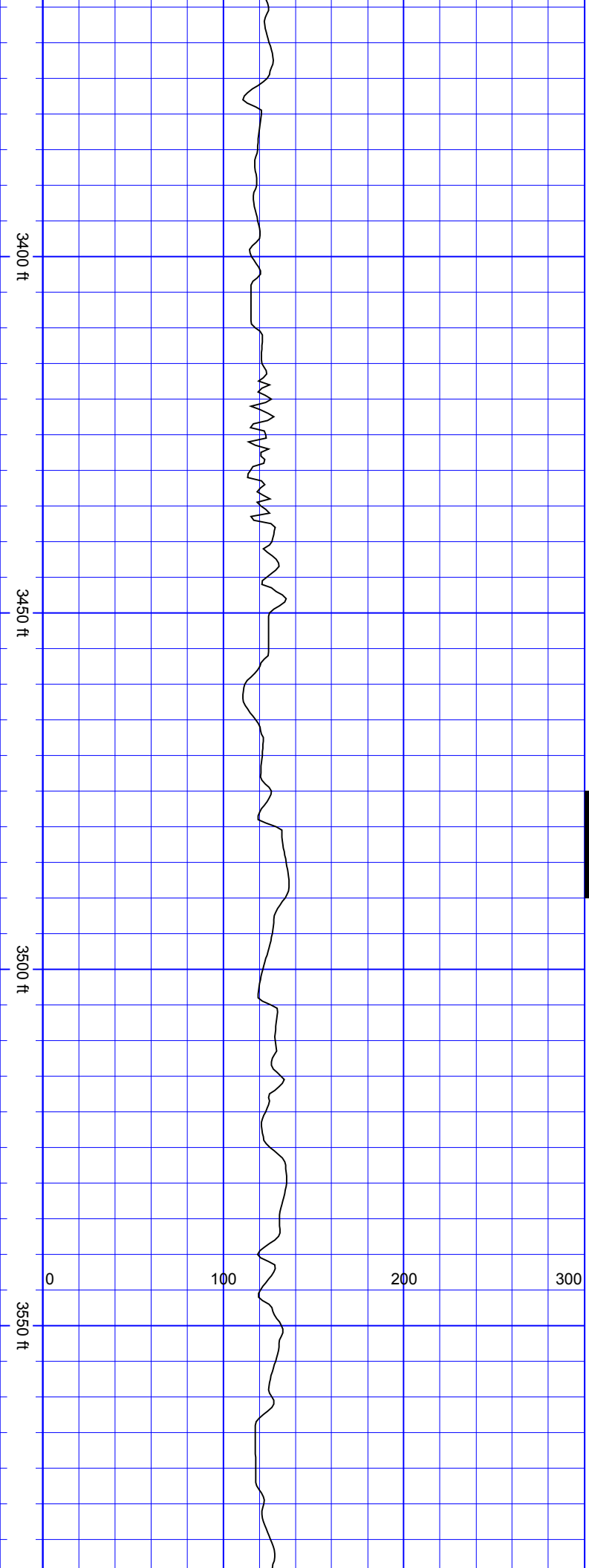
SurveyDepth:3224
 TVD:3212.86 Inc:3.21
 Azi:222.46 VertSec:-
 120.31

-1000	1000	3000	5000
-60	300	780	1200
9000	6000	3000	0

September 03, 2018

SurveyDepth:3319
 TVD:3307.75 Inc:2.42
 Azi:209.27 VertSec:-
 122.74

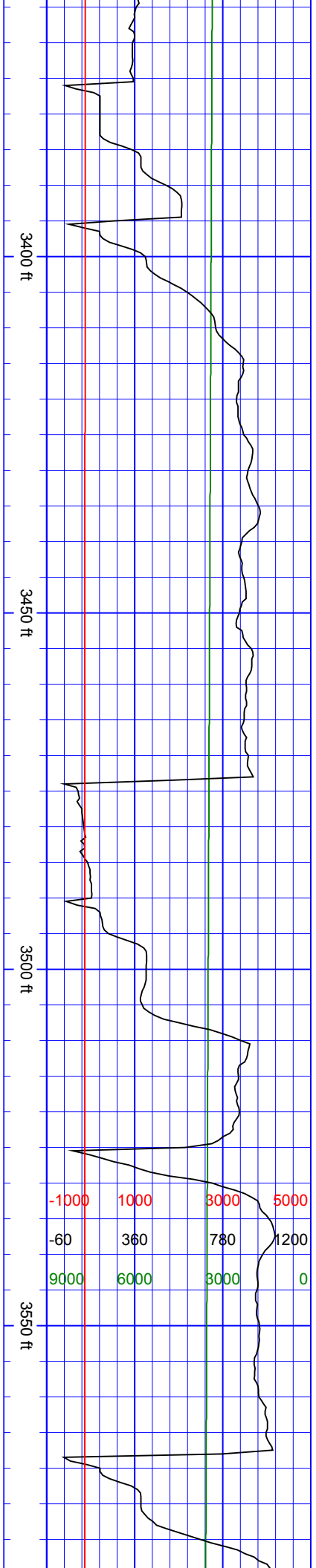


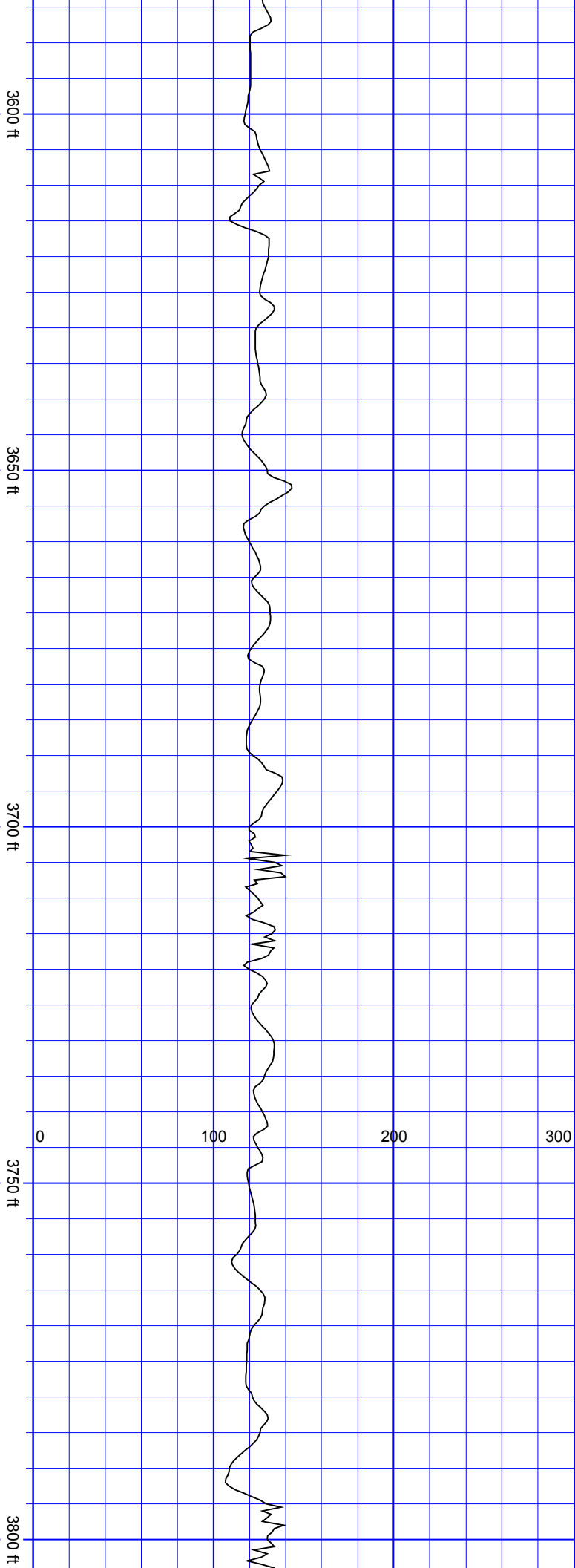


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SurveyDepth:3413
TVD:3401.65 Inc:2.86
Azi:196.27 VertSec:-
123.99

SurveyDepth:3509
TVD:3497.39 Inc:5.41
Azi:215.16 VertSec:-
126.7

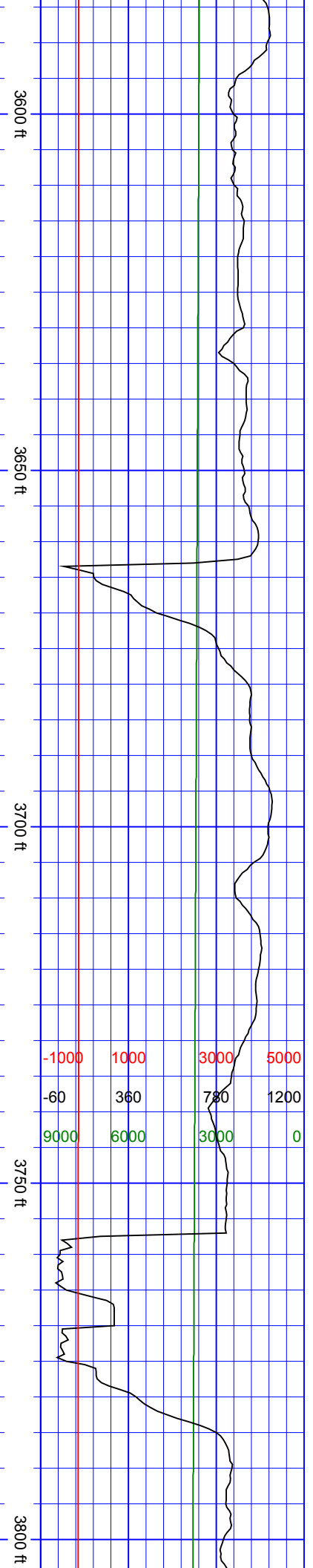


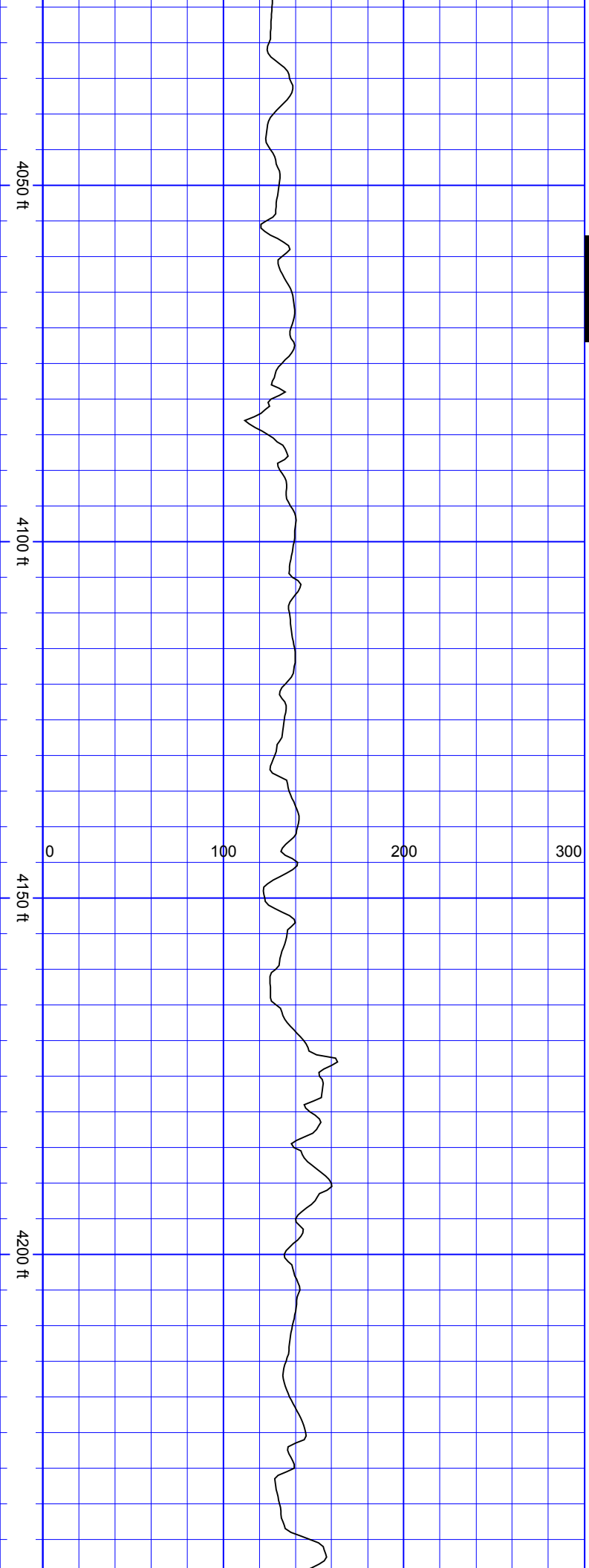


SurveyDepth:3604
TVD:3592.04 Inc:4.44
Azi:214.9 VertSec:-
130.75

SurveyDepth:3698
TVD:3685.82 Inc:3.43
Azi:212.53 VertSec:-
133.84

SurveyDepth:3792
TVD:3779.67 Inc:3.12
Azi:216.92 VertSec:-
136.47

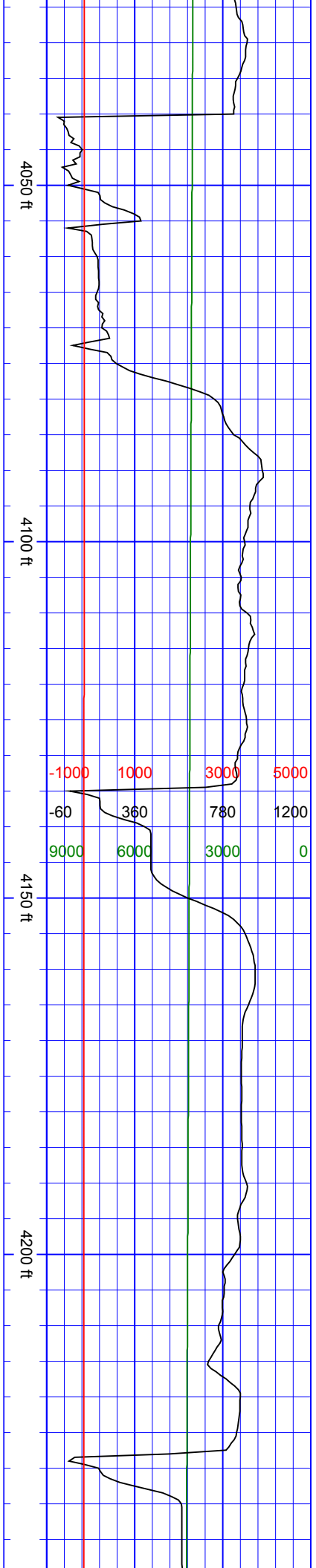


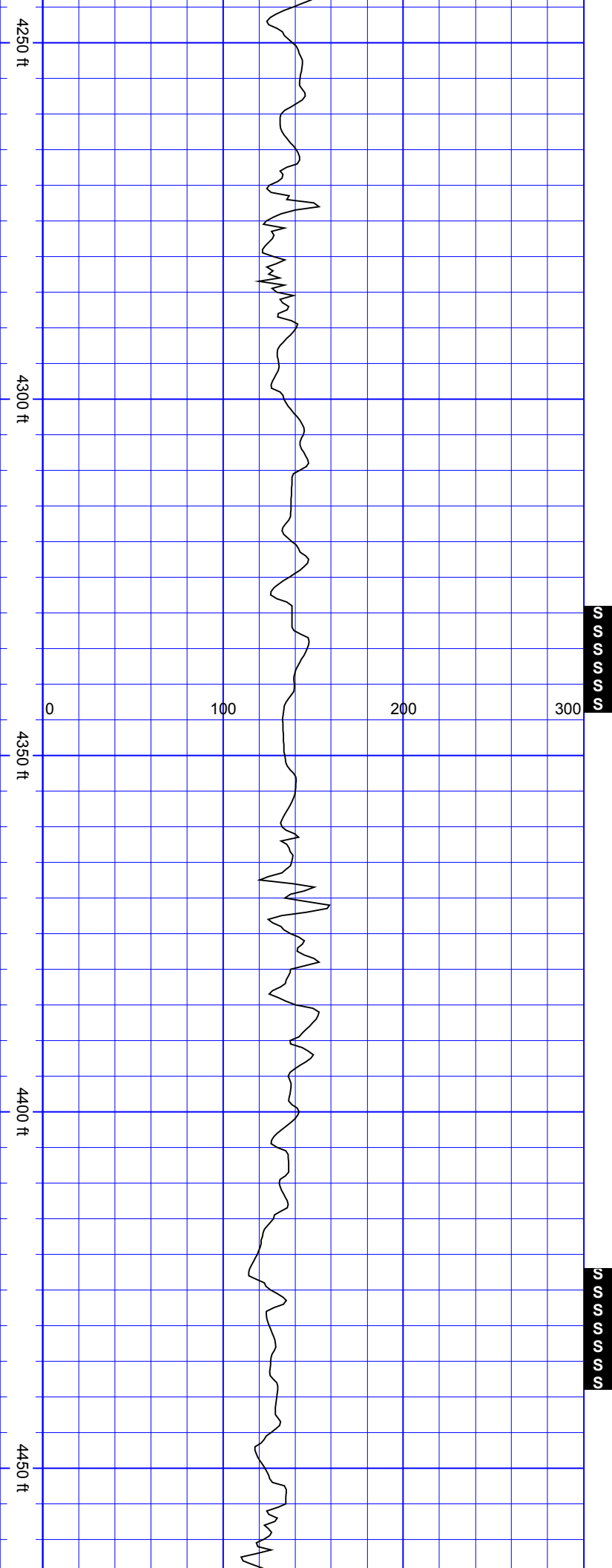


SSSSSS

SurveyDepth:4076
TVD:4063.08 Inc:5.45
Azi:214.72 VertSec:-
143.85

SurveyDepth:4171
TVD:4157.72 Inc:4.53
Azi:219.91 VertSec:-
148.2

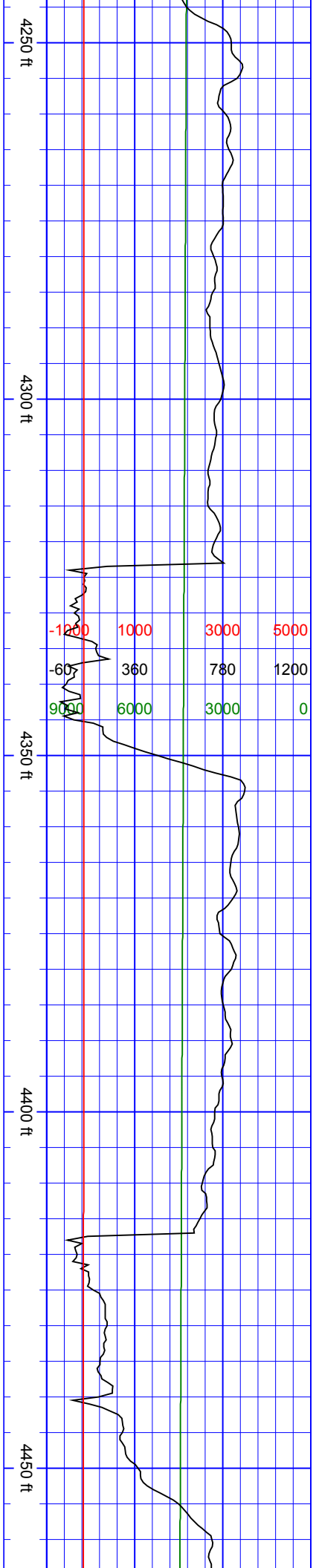


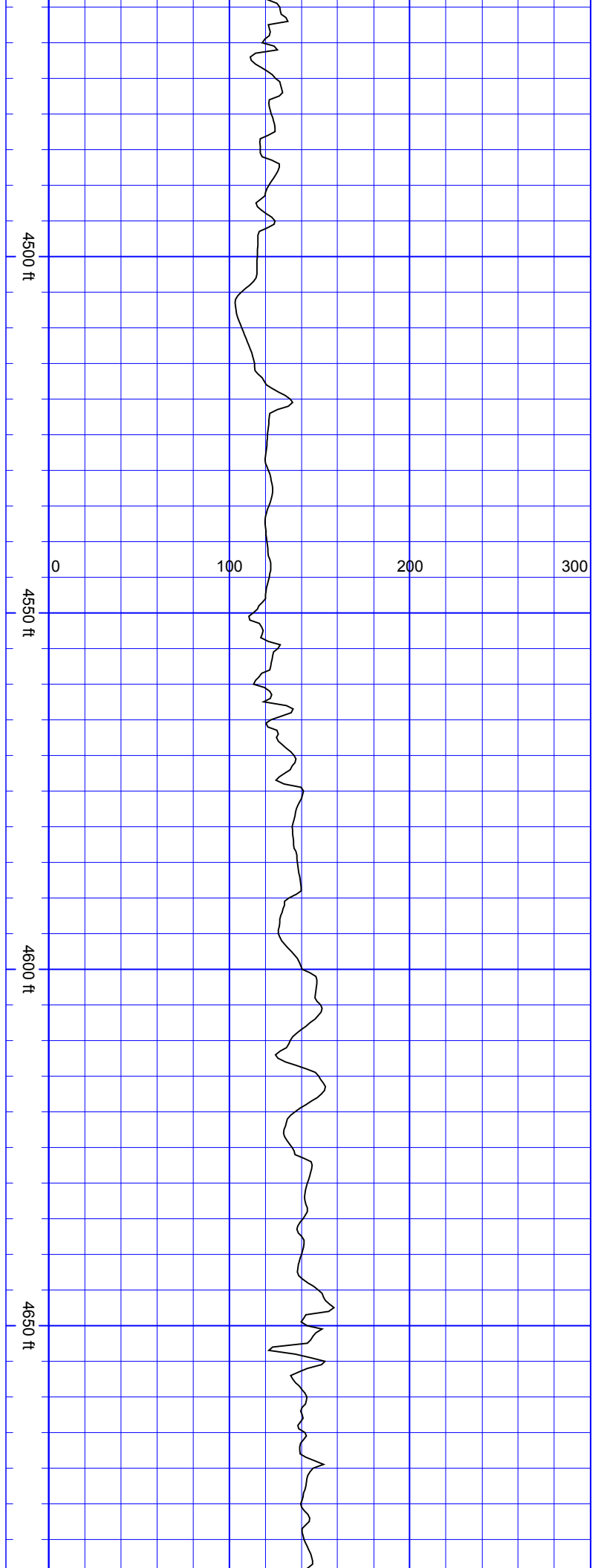


SurveyDepth:4265
TVD:4251.48 Inc:3.6
Azi:221.84 VertSec:-
152.06

SurveyDepth:4360
TVD:4346.34 Inc:2.64
Azi:214.46 VertSec:-
154.91

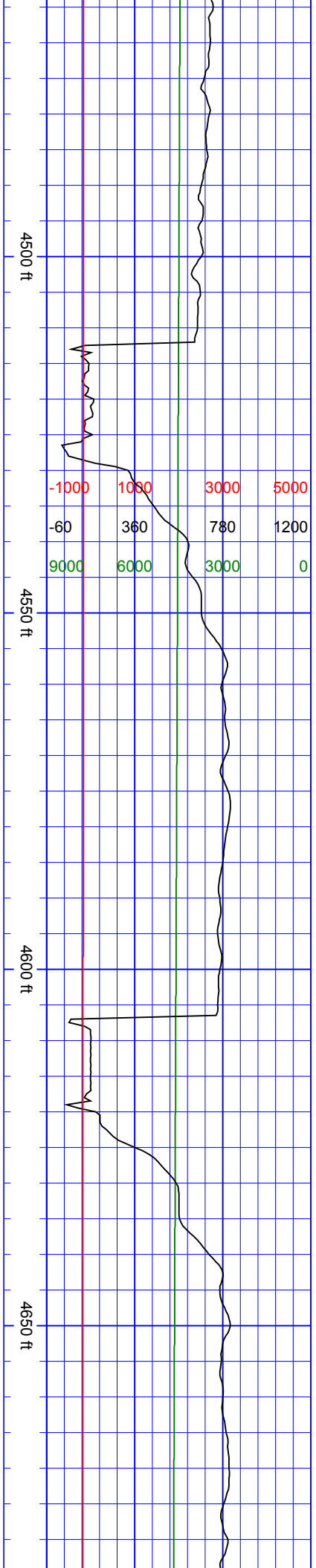
SurveyDepth:4455
TVD:4441.13 Inc:4.75
Azi:218.85 VertSec:-
158.15

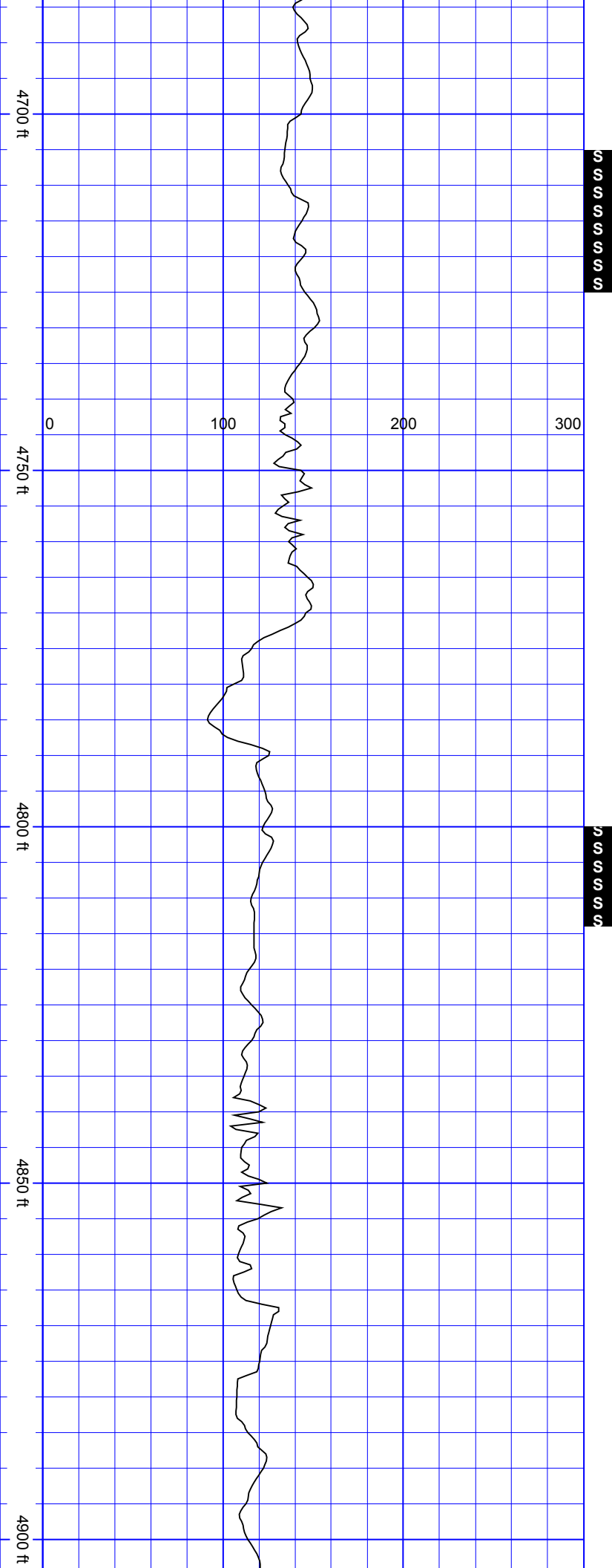




158.13

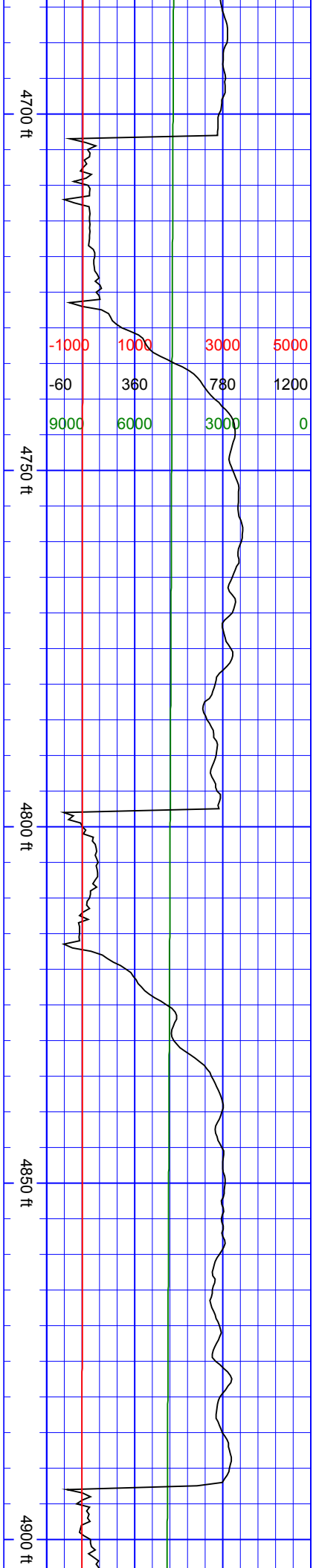
SurveyDepth:4549 TVD:4534.73 Inc:5.85 Azi:231.86 VertSec:- 163.78
SurveyDepth:4643 TVD:4628.26 Inc:5.67 Azi:239.16 VertSec:- 171.01

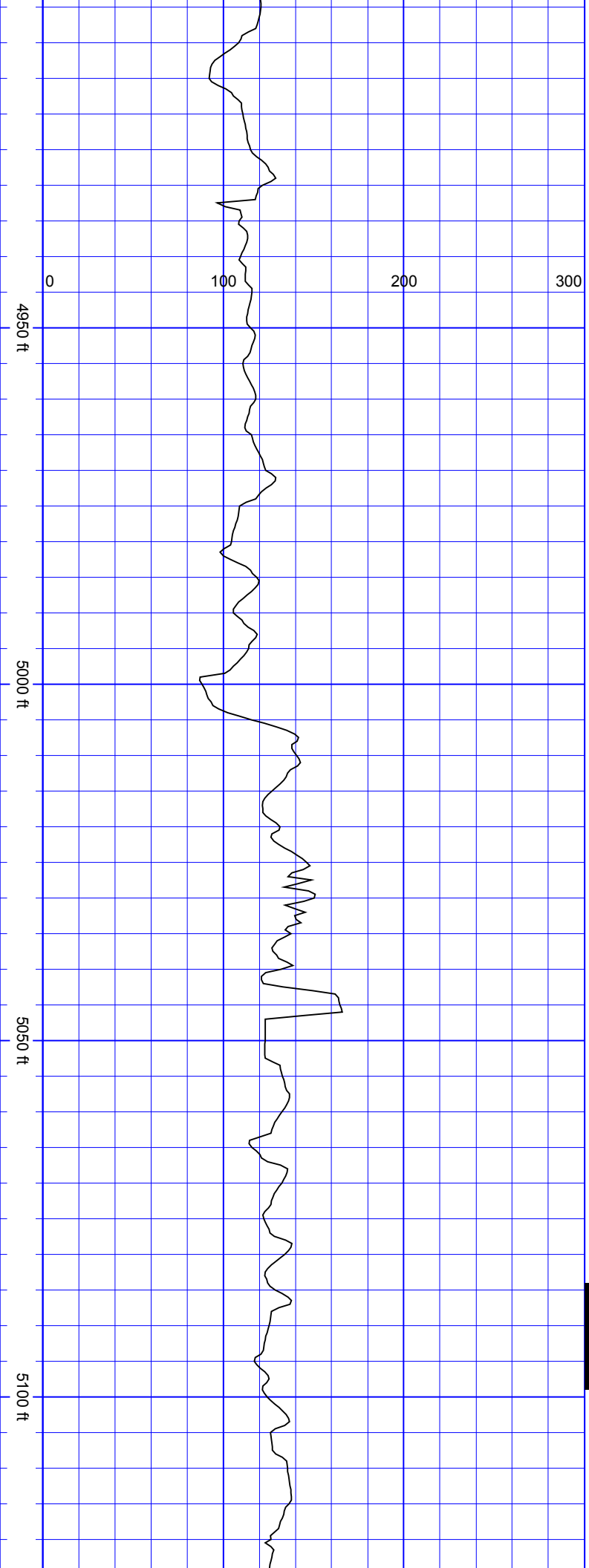




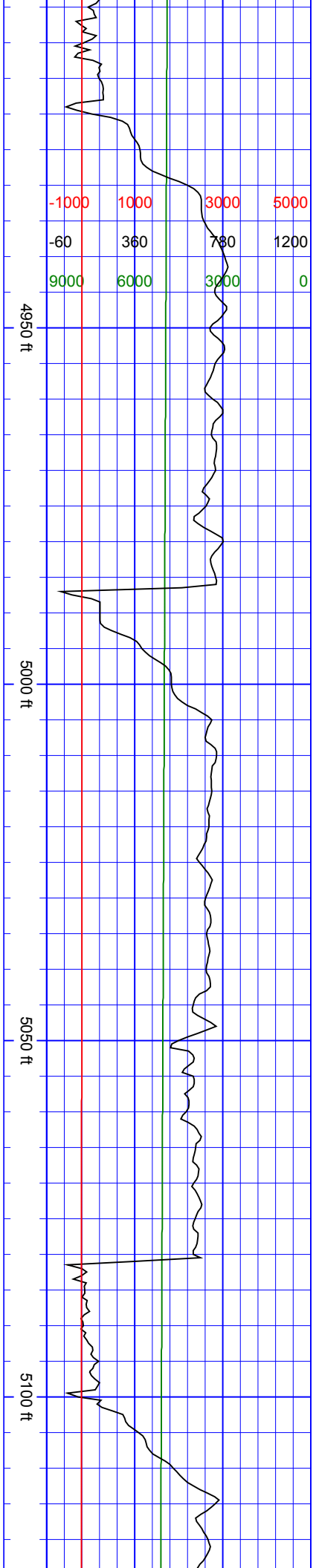
SurveyDepth:4738
TVD:4722.82 Inc:5.41
Azi:233.44 VertSec:-178.14

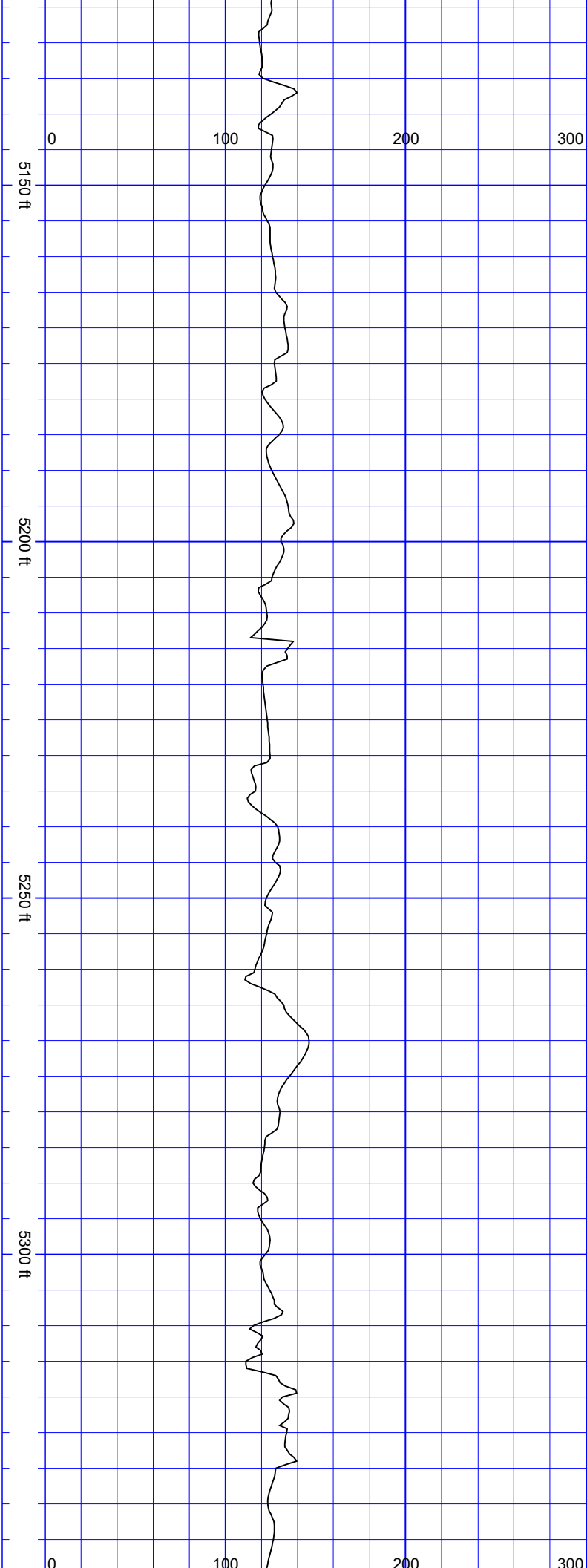
SurveyDepth:4832
TVD:4816.24 Inc:7.25
Azi:232.92 VertSec:-185.82





SurveyDepth:4927 TVD:4910.57 Inc:6.46 Azi:216.92 VertSec:- 193.06	SurveyDepth:5022 TVD:5005.03 Inc:5.8 Azi:218.24 VertSec:- 198.47	SurveyDepth:5117 TVD:5099.51 Inc:6.2 Azi:201.01 VertSec:-
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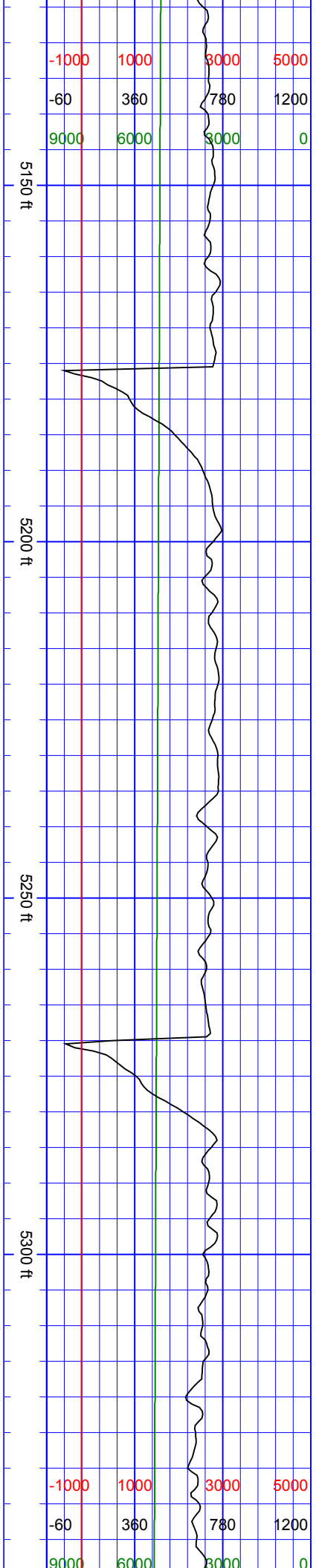


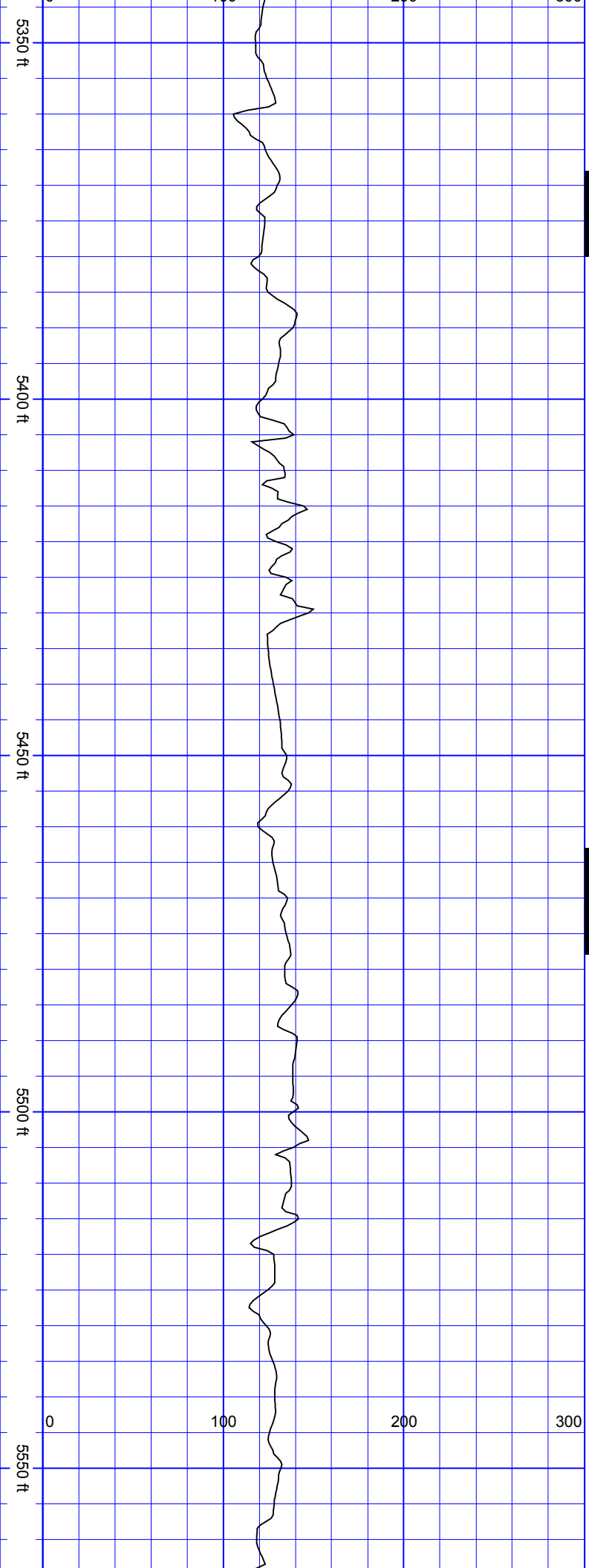


202.47

SurveyDepth:5211
TVD:5193.07 Inc:4.88
Azi:204.53 VertSec:-
205.17

SurveyDepth:5306
TVD:5287.79 Inc:3.87
Azi:208.48 VertSec:-
207.76



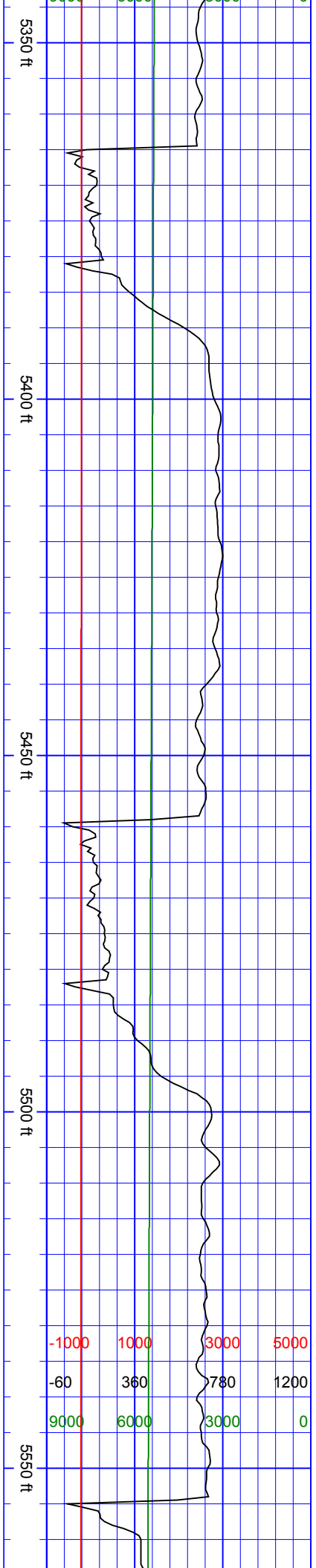


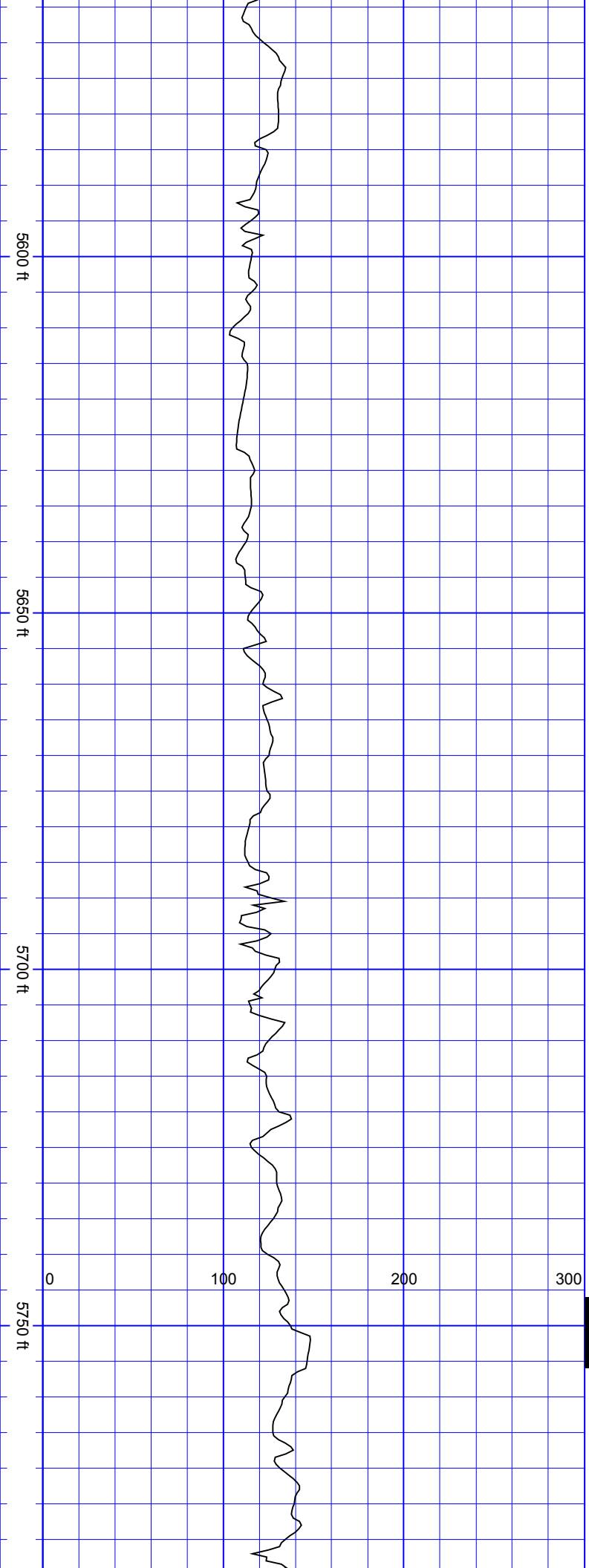
SSSSSS

SurveyDepth:5401
TVD:5382.6 Inc:3.52
Azi:206.46 VertSec:-
210.08

SSSSSS

SurveyDepth:5495
TVD:5476.32 Inc:5.27
Azi:200.66 VertSec:-
212.27



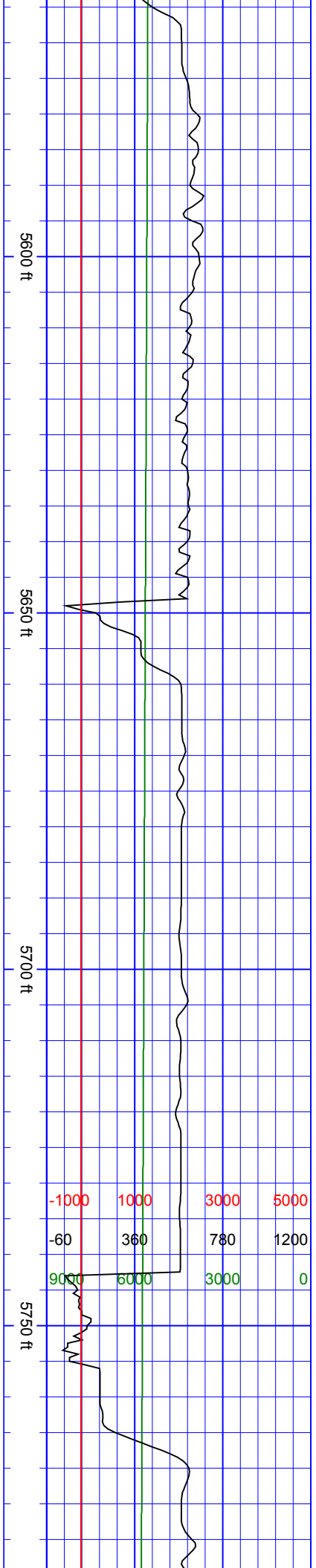


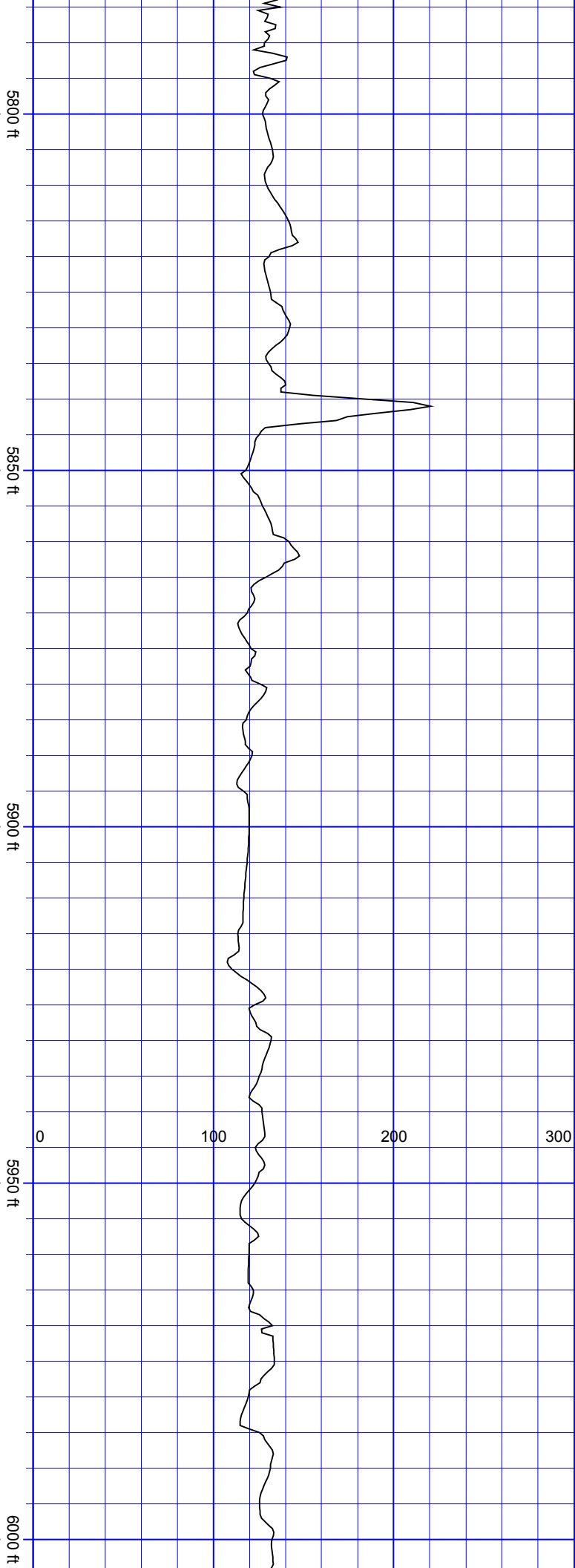
SurveyDepth:5589
TVD:5569.97 Inc:4.61
Azi:203.3 VertSec:-
214.58

SurveyDepth:5684
TVD:5664.71 Inc:3.87
Azi:206.55 VertSec:-
216.93

SurveyDepth:5778
TVD:5758.44 Inc:4.75
Azi:205.59 VertSec:-
218.00

SSSS

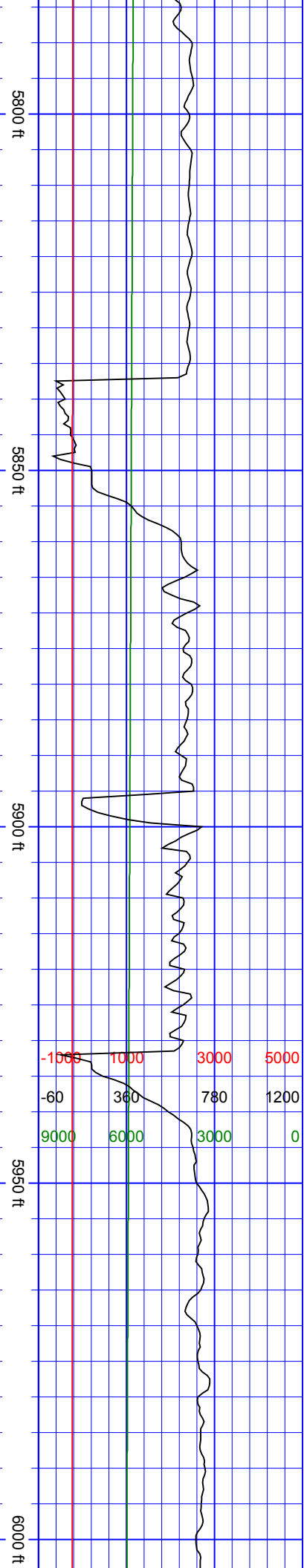




Azi:205.58 VertSec:-219.43

SurveyDepth:5873
TVD:5853.06 Inc:5.54
Azi:209.36 VertSec:-222.66

SurveyDepth:5968
TVD:5947.71 Inc:4.22
Azi:210.86 VertSec:-226.04



6050 ft

6100 ft

6150 ft

6200 ft

0 100 200 300

S
S
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S
S

SurveyDepth:6062
TVD:6041.53 Inc:2.94
Azi:205.93 VertSec:-
228.39

SurveyDepth:6157
TVD:6136.39 Inc:3.3
Azi:219.47 VertSec:-
230.78

S
S

6050 ft

6100 ft

6150 ft

6200 ft

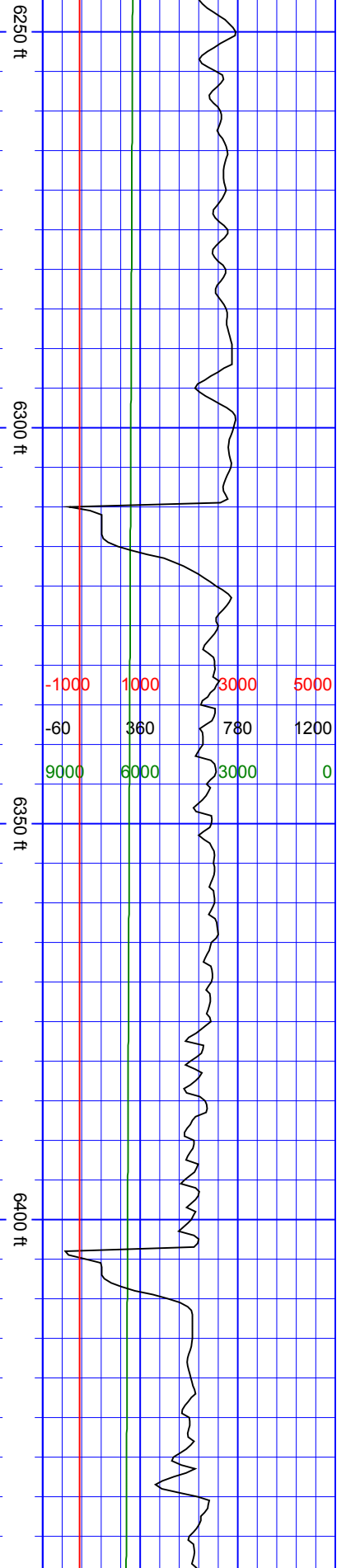
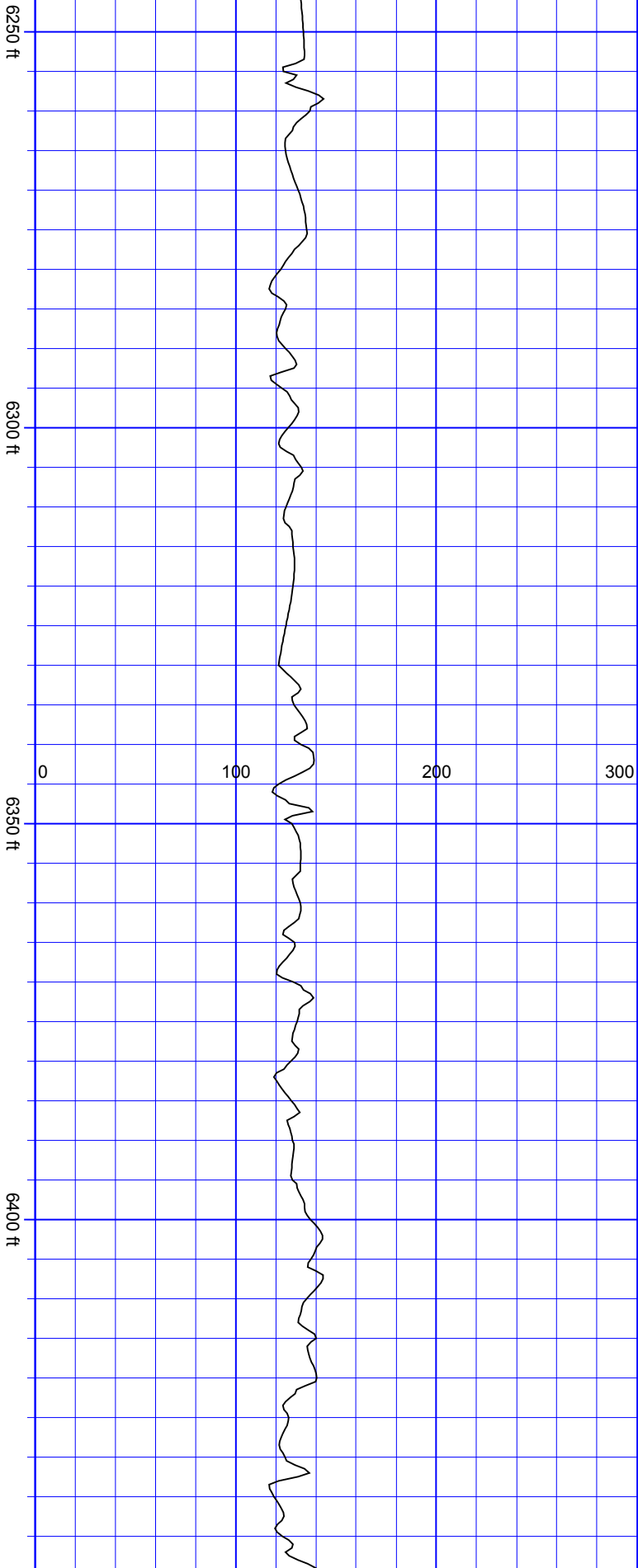
-1200	1000	3000	5000
-60	360	780	1200
9000	6000	3000	0

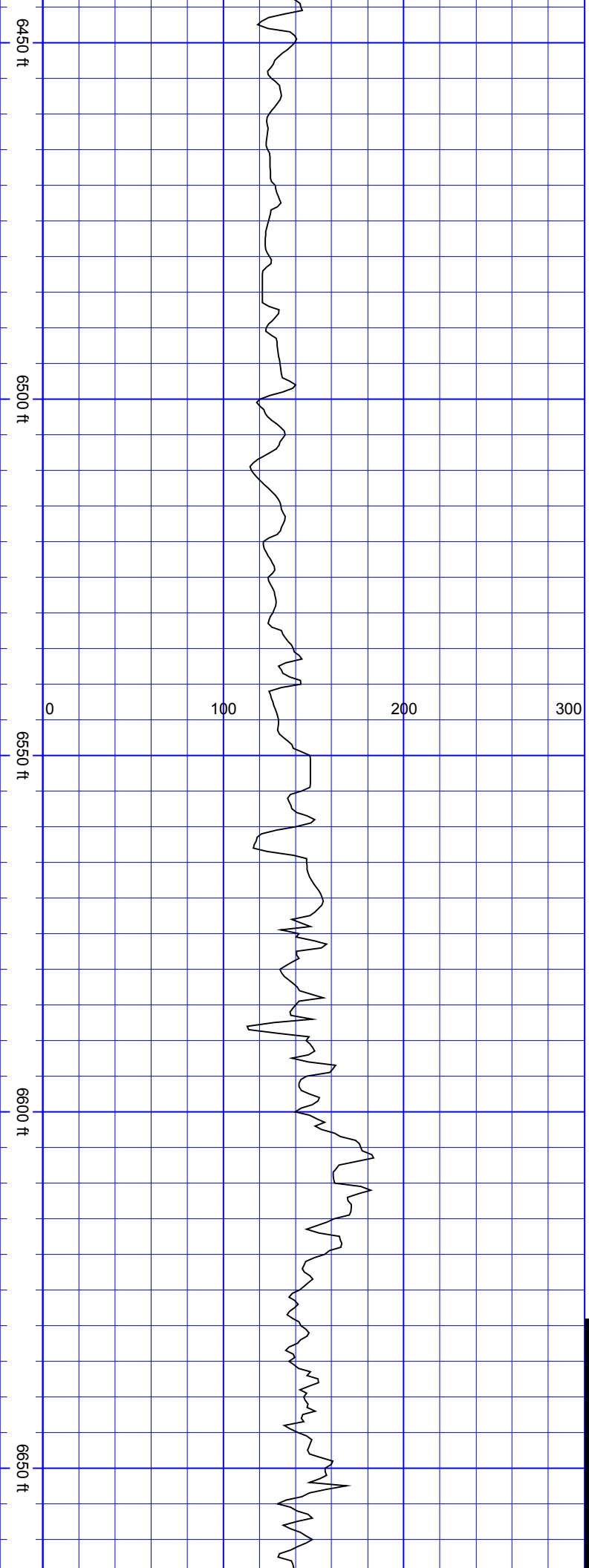
SSSS

SurveyDepth:6252
TVD:6231.16 Inc:4.61
Azi:207.25 VertSec:-
233.75

SurveyDepth:6346
TVD:6324.9 Inc:3.96
Azi:198.55 VertSec:-
235.91

SurveyDepth:6441

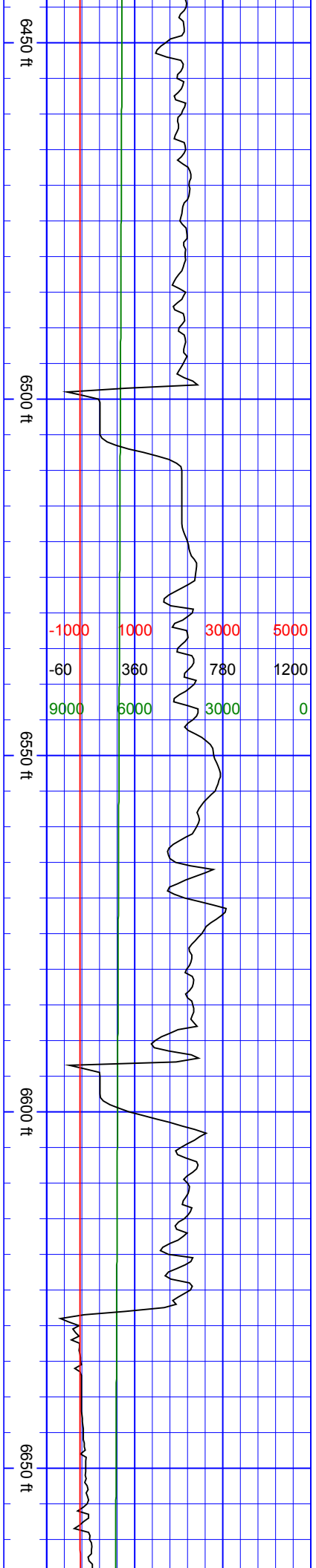


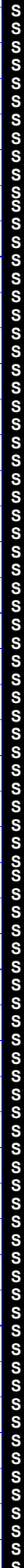
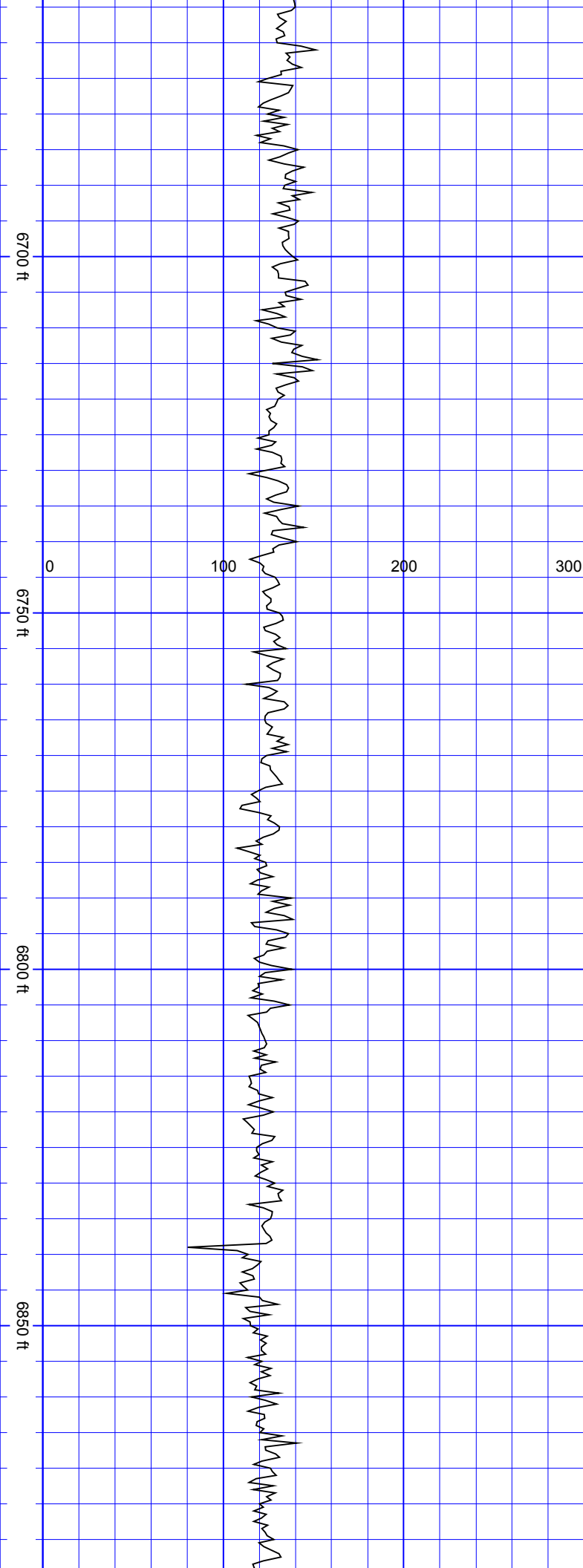


TVD:6419.7 Inc:3.38
Azi:188.09 VertSec:-
236.8

SurveyDepth:6535
TVD:6513.58 Inc:2.37
Azi:183.61 VertSec:-
236.87

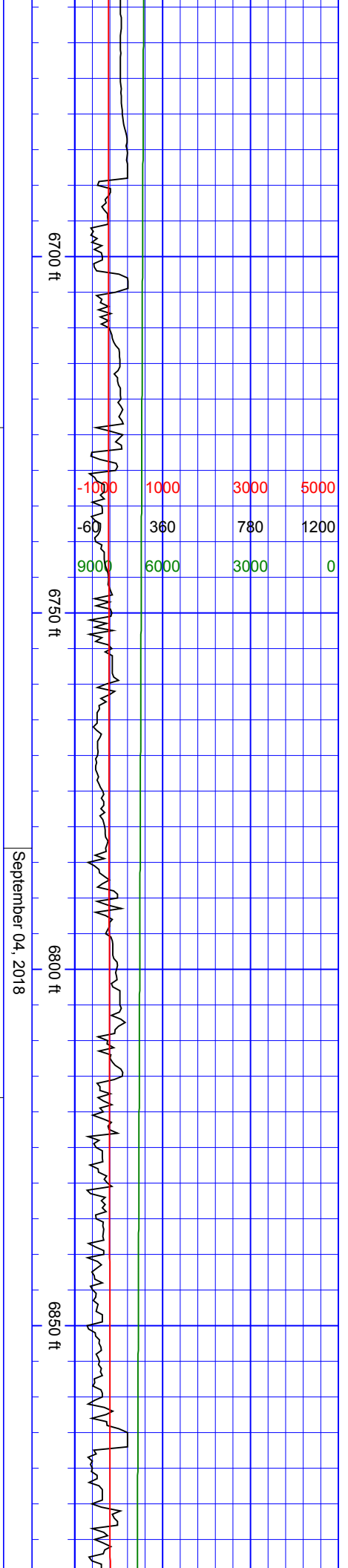
SurveyDepth:6630
TVD:6608.5 Inc:2.51
Azi:153.55 VertSec:-
235.72

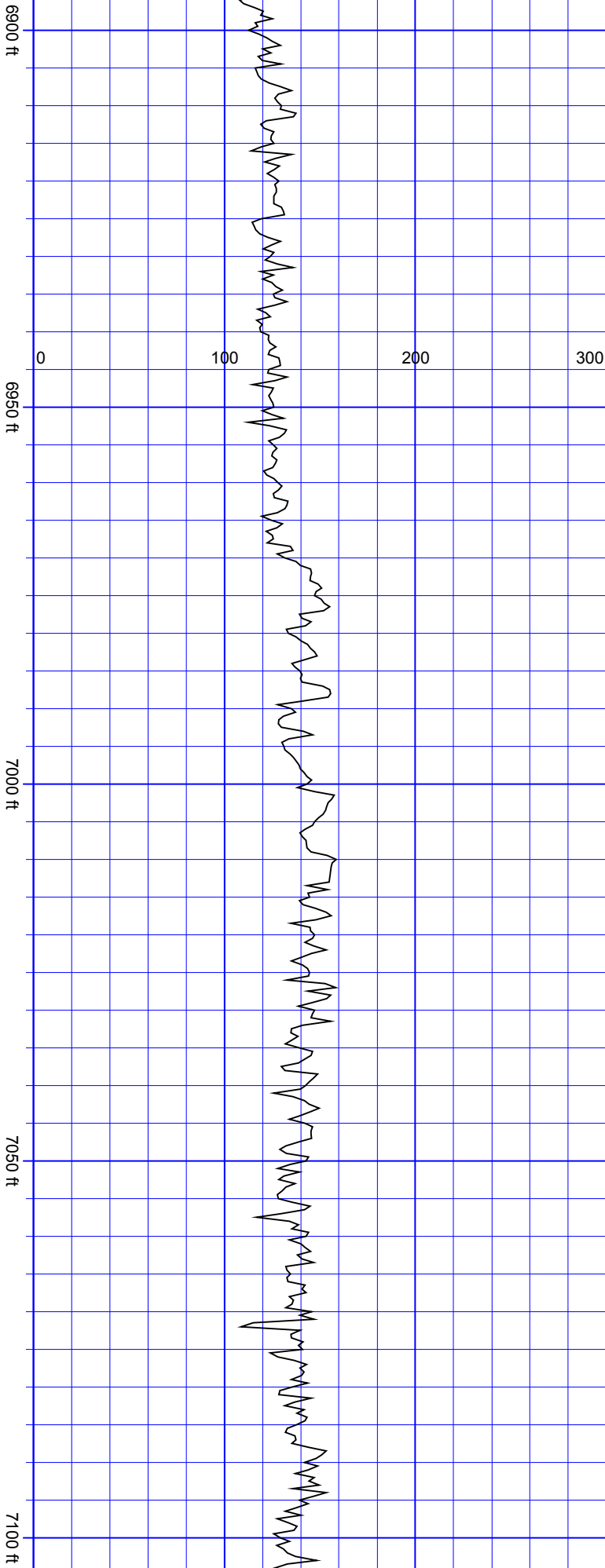




SurveyDepth:6724
TVD:6701.67 Inc:11.91
Azi:122.26 VertSec:-
225.97

SurveyDepth:6818
TVD:6792.91 Inc:15.86
Azi:121.91 VertSec:-
205.84

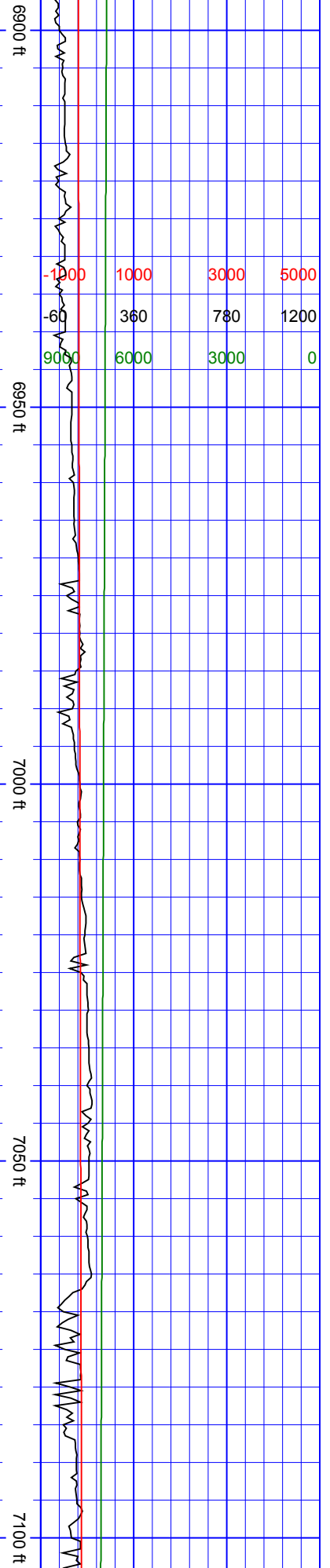




SurveyDepth:6913
TVD:6883.75 Inc:18.15
Azi:124.81 VertSec:-
181.36

SurveyDepth:7007
TVD:6970.73 Inc:26.28
Azi:133.78 VertSec:-
152.28

SurveyDepth:7102

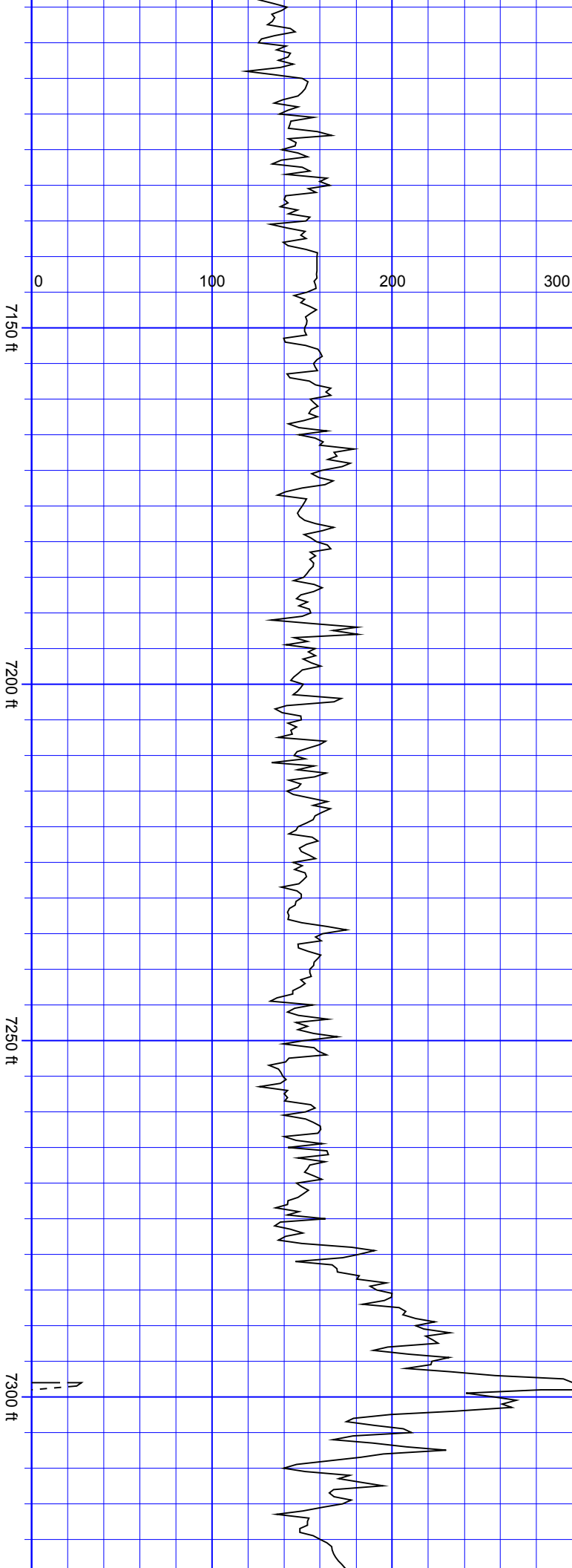
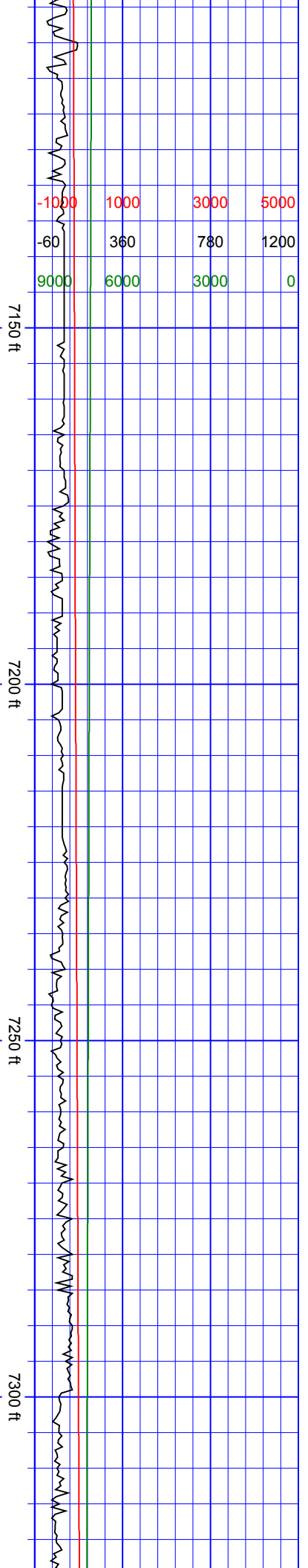


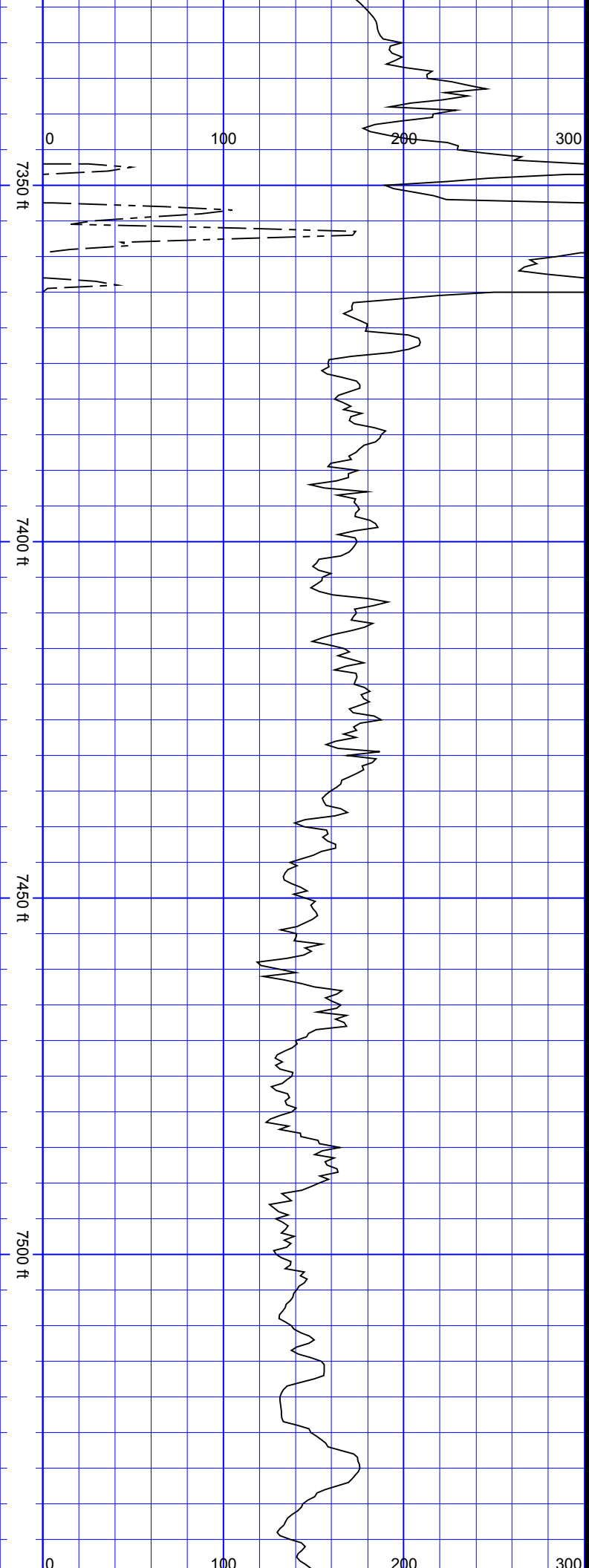
TVD:7053 Inc:33.57
Azi:132.99 VertSec:-
114.99

SurveyDepth:7196
TVD:7127.67 Inc:41.22
Azi:125.25 VertSec:-67.5

SurveyDepth:7291
TVD:7194.67 Inc:49.22
Azi:112.42 VertSec:-5.79

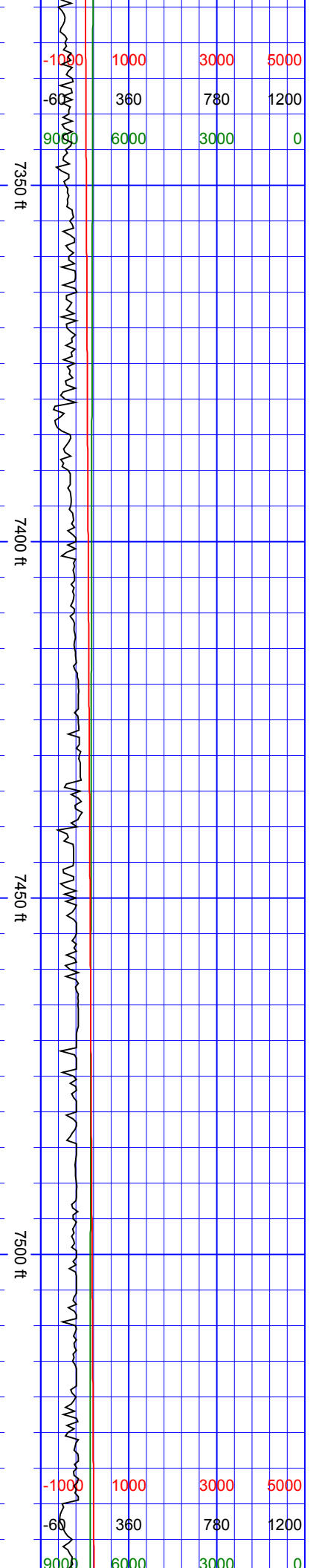
September 05, 2018

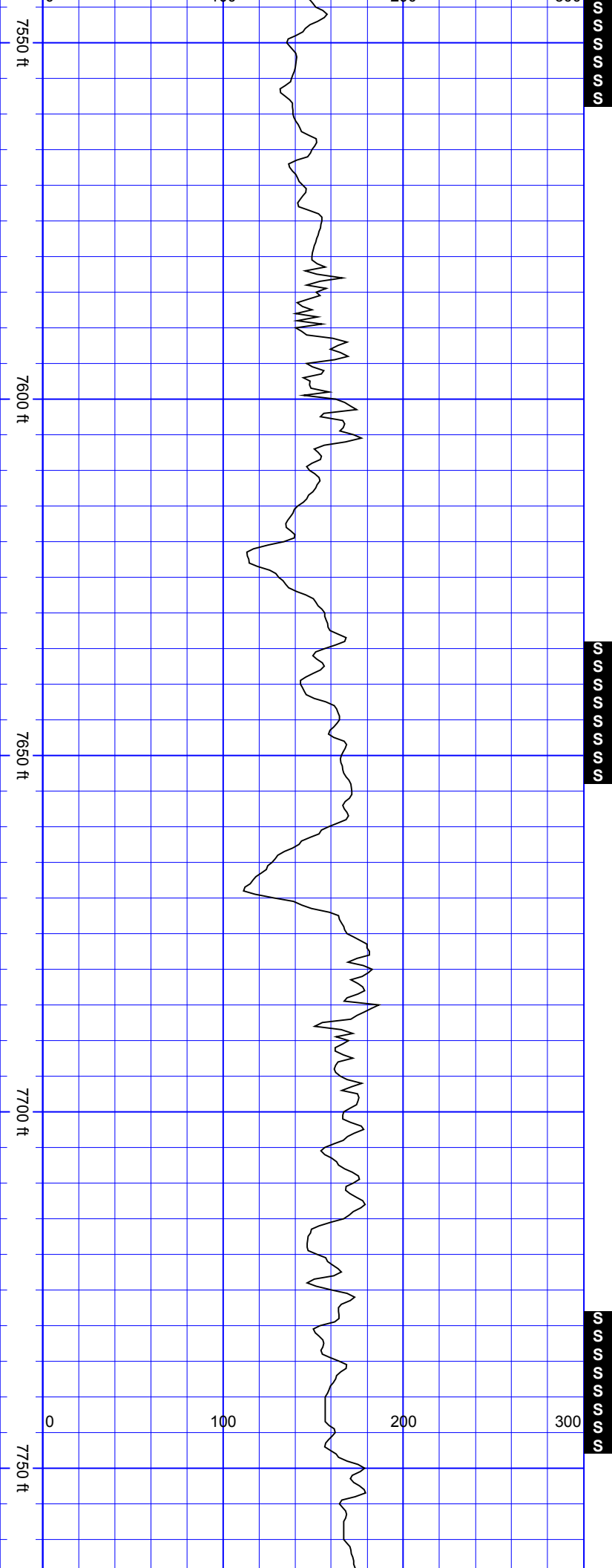




SurveyDepth:7385
TVD:7249.96 Inc:58.84
Azi:100.03
VertSec:68.67

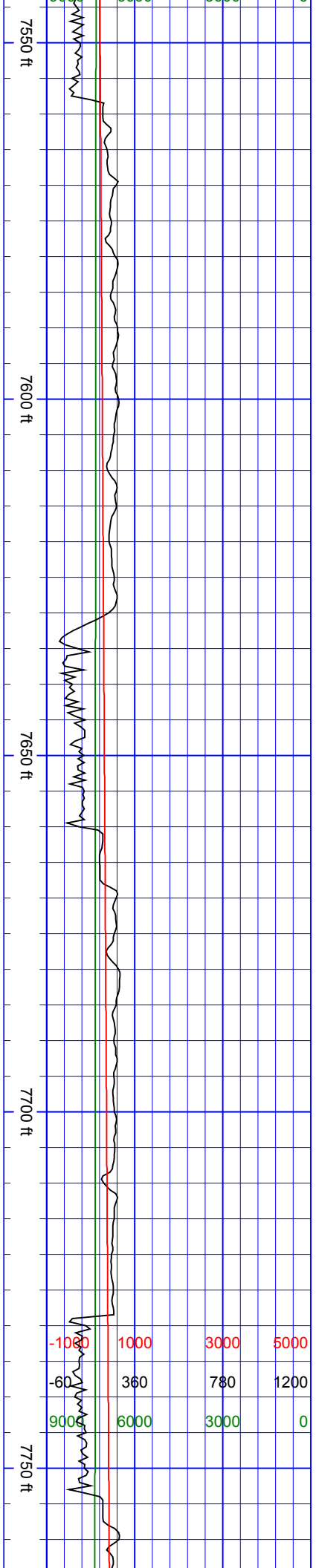
SurveyDepth:7480
TVD:7292.5 Inc:68.03
Azi:89.39
VertSec:153.37

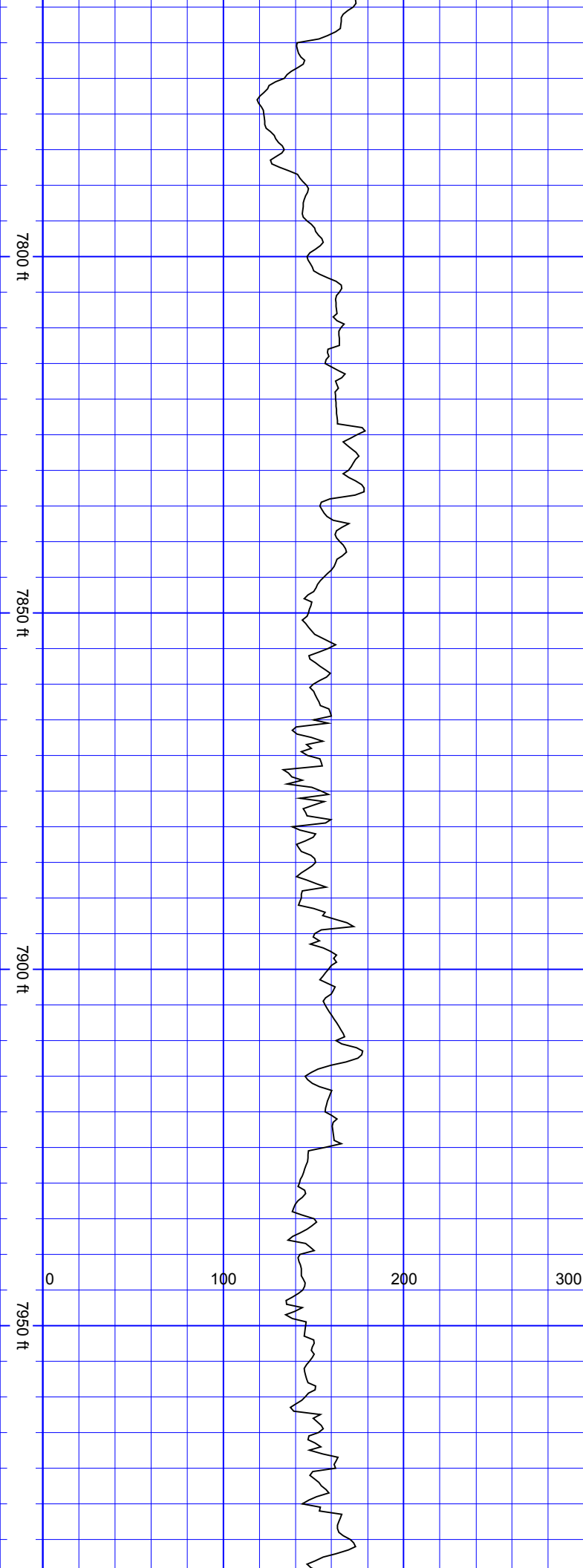




SurveyDepth:7575
TVD:7319.55 Inc:78.84
Azi:86.14
VertSec:243.49

SurveyDepth:7669
TVD:7335.79 Inc:81.26
Azi:86.49
VertSec:334.94



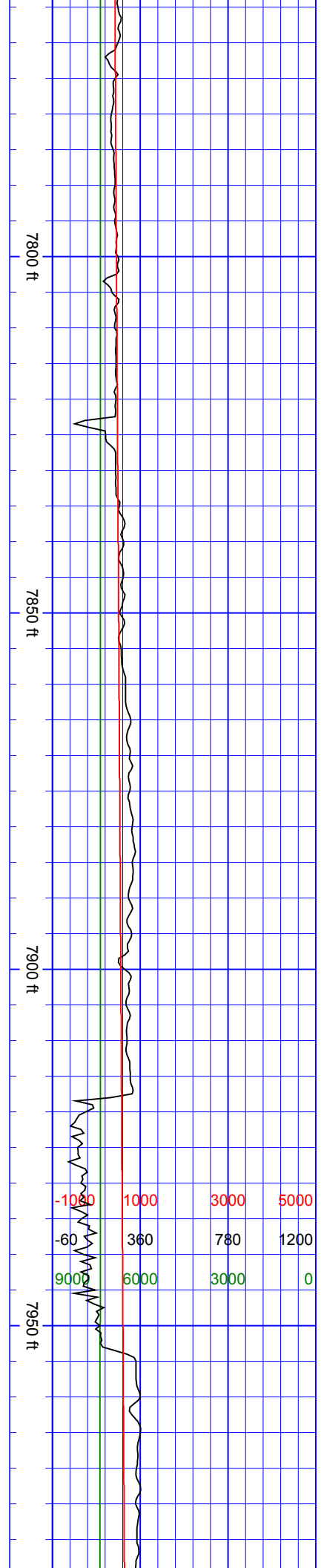


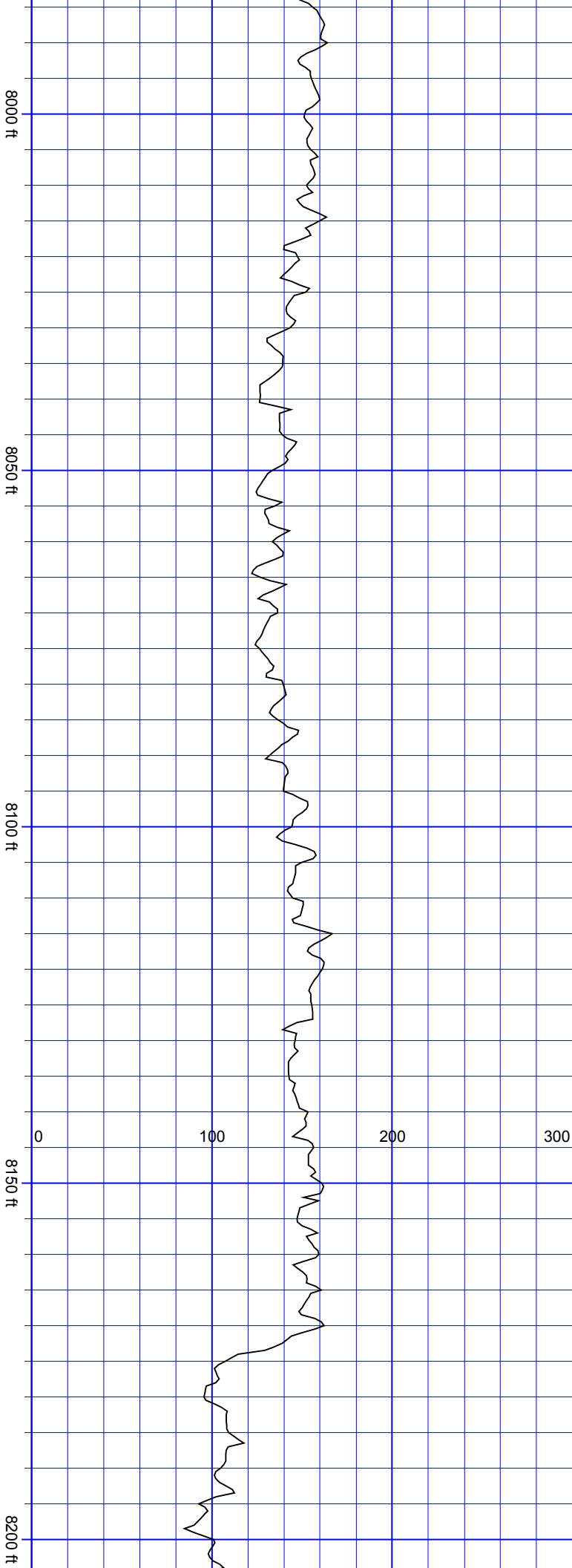
SurveyDepth:7764
TVD:7347.56 Inc:84.51
Azi:85.7 VertSec:427.98

SurveyDepth:7859
TVD:7356.4 Inc:84.81
Azi:84.91
VertSec:521.14

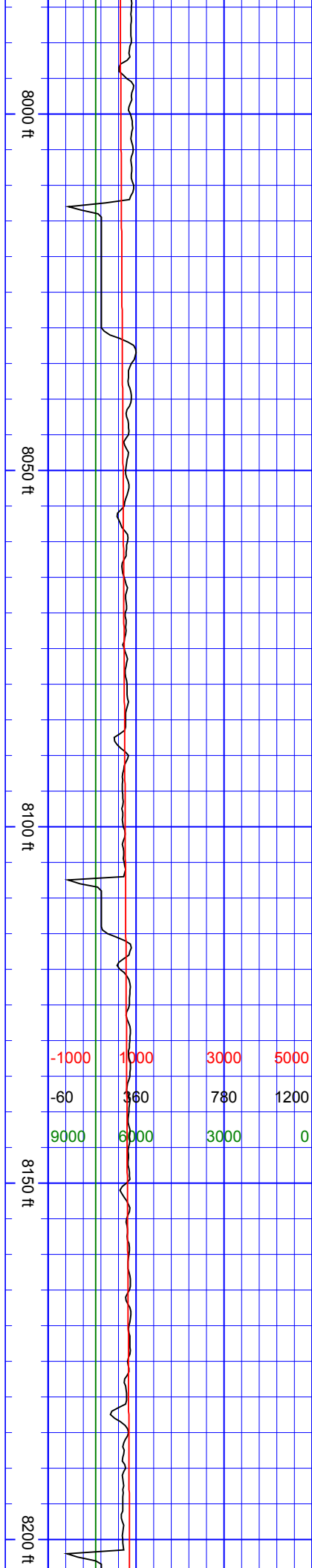


SurveyDepth:7953
TVD:7362.38 Inc:87.89
Azi:84.73
VertSec:613.38





SurveyDepth:8048 TVD:7365.66 Inc:88.15 Azi:84.38 VertSec:706.66	SurveyDepth:8142 TVD:7368.16 Inc:88.81 Azi:83.24 VertSec:798.75
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8250 ft

8300 ft

8350 ft

8400 ft

0 100 200 300

SurveyDepth:8237
TVD:7369.51 Inc:89.56
Azi:82.8 VertSec:891.57

SSSSSSSS

SurveyDepth:8331
TVD:7370.77 Inc:88.9
Azi:85.17
VertSec:983.74

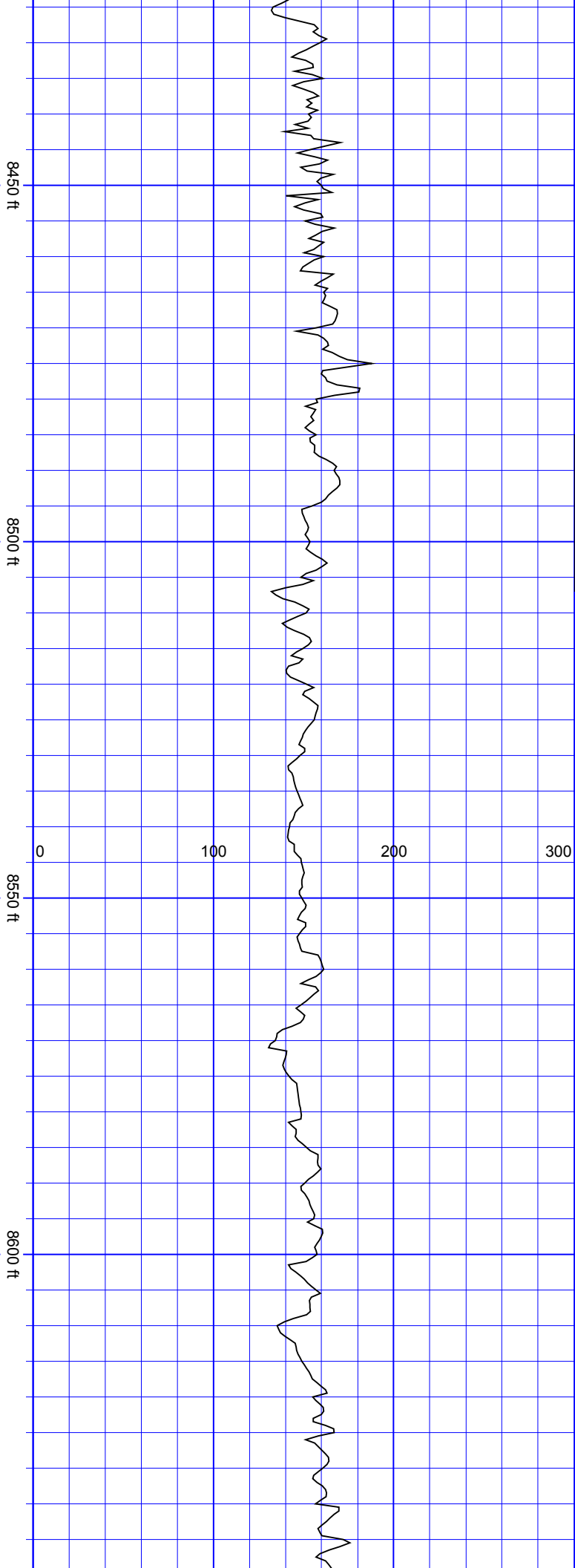
8250 ft

8300 ft

8350 ft

8400 ft

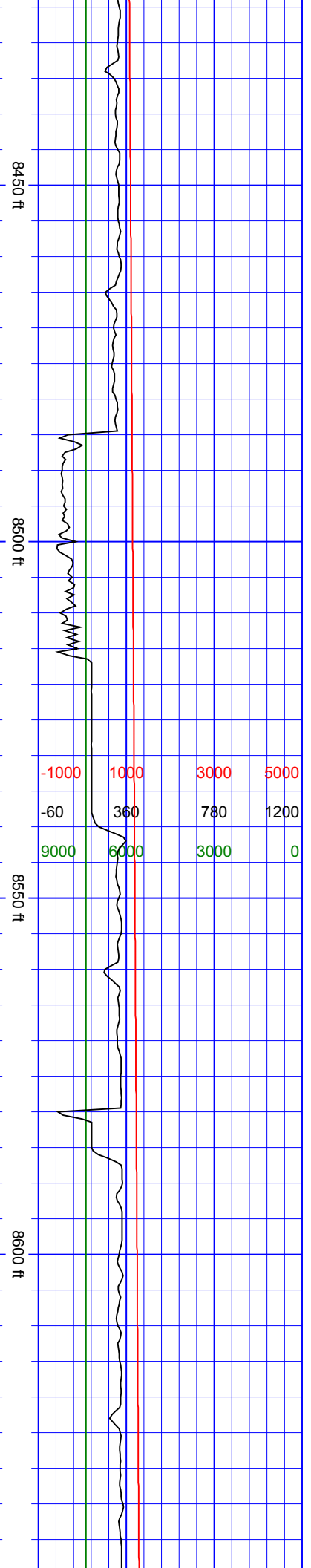
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-60	860	780	1200
9000	6000	3000	0

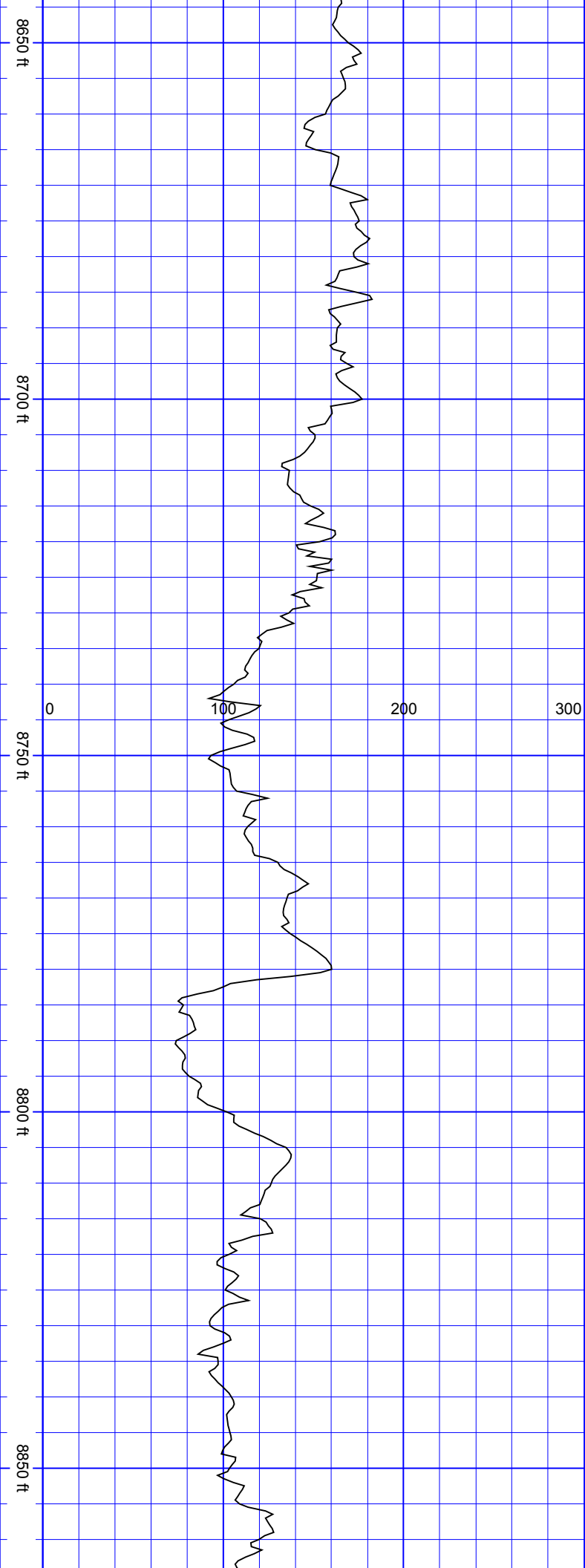


SurveyDepth:8426
TVD:7371.72 Inc:89.96
Azi:84.82
VertSec:1077.21

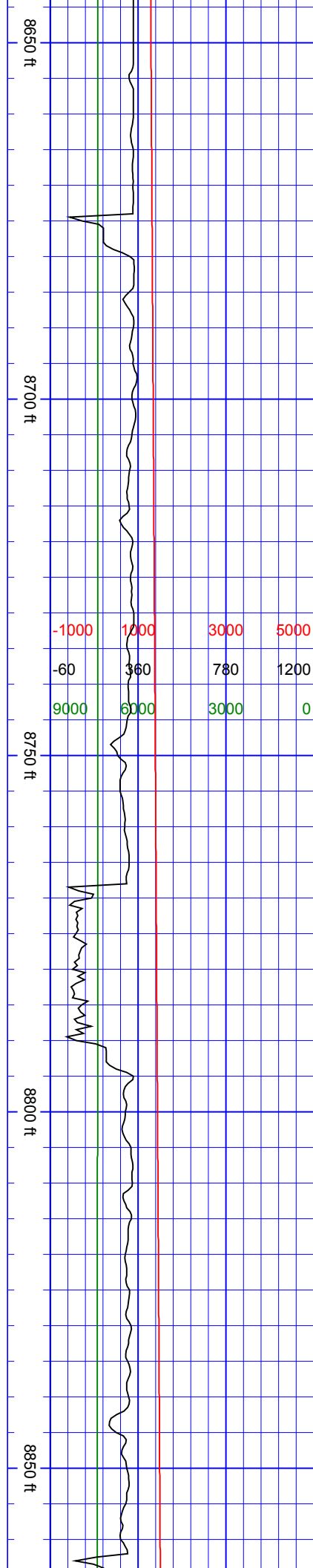
SurveyDepth:8520
TVD:7372.97 Inc:88.51
Azi:87.99
VertSec:1170.06

SurveyDepth:8614
TVD:7374.87 Inc:89.17
Azi:87.63
VertSec:1263.24





SurveyDepth:8709 TVD:7375.67 Inc:89.87 Azi:87.11 VertSec:1357.33
SurveyDepth:8803 TVD:7378.19 Inc:87.06 Azi:87.02 VertSec:1450.32



8900 ft

8950 ft

9000 ft

9050 ft

SurveyDepth:8898
TVD:7383.36 Inc:86.7
Azi:86.84
VertSec:1544.18



SurveyDepth:8993
TVD:7386.82 Inc:89.12
Azi:88.25
VertSec:1638.24

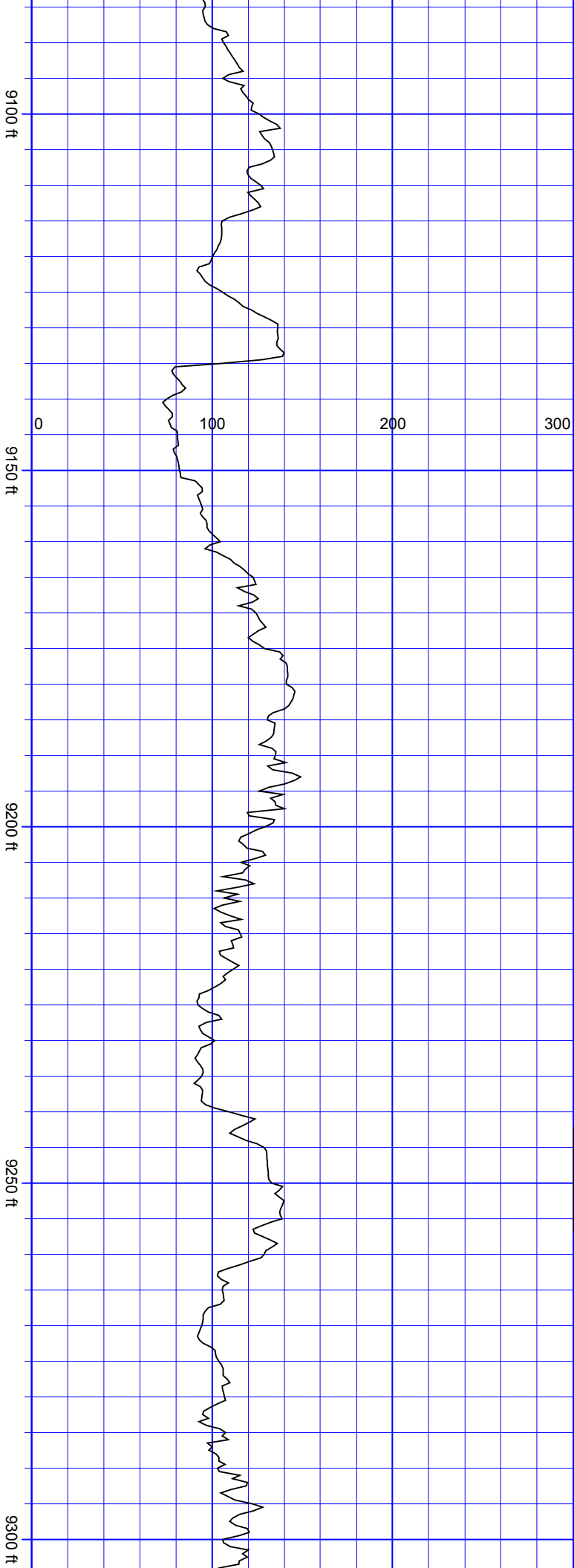
8900 ft

8950 ft

9000 ft

9050 ft

-1000	1000	3000	5000
-60	360	780	1200
9000	6000	3000	0

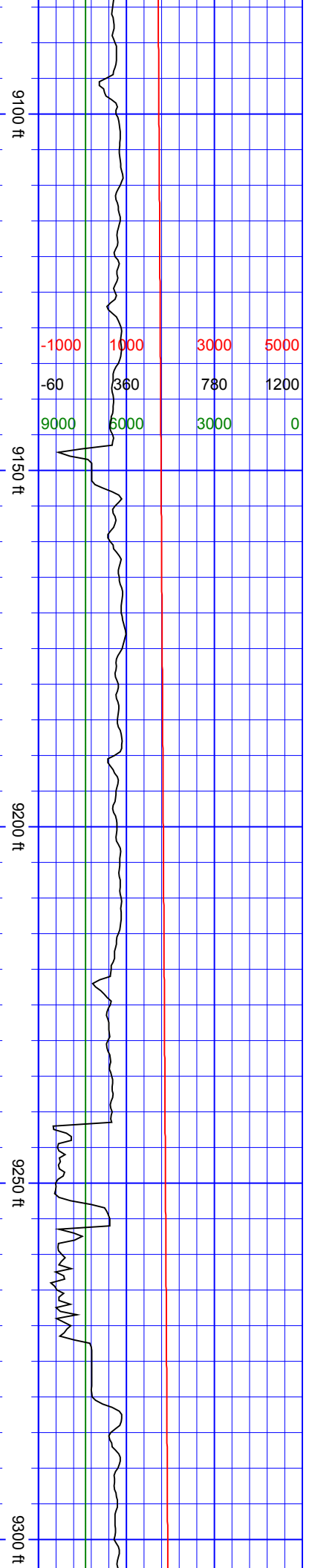


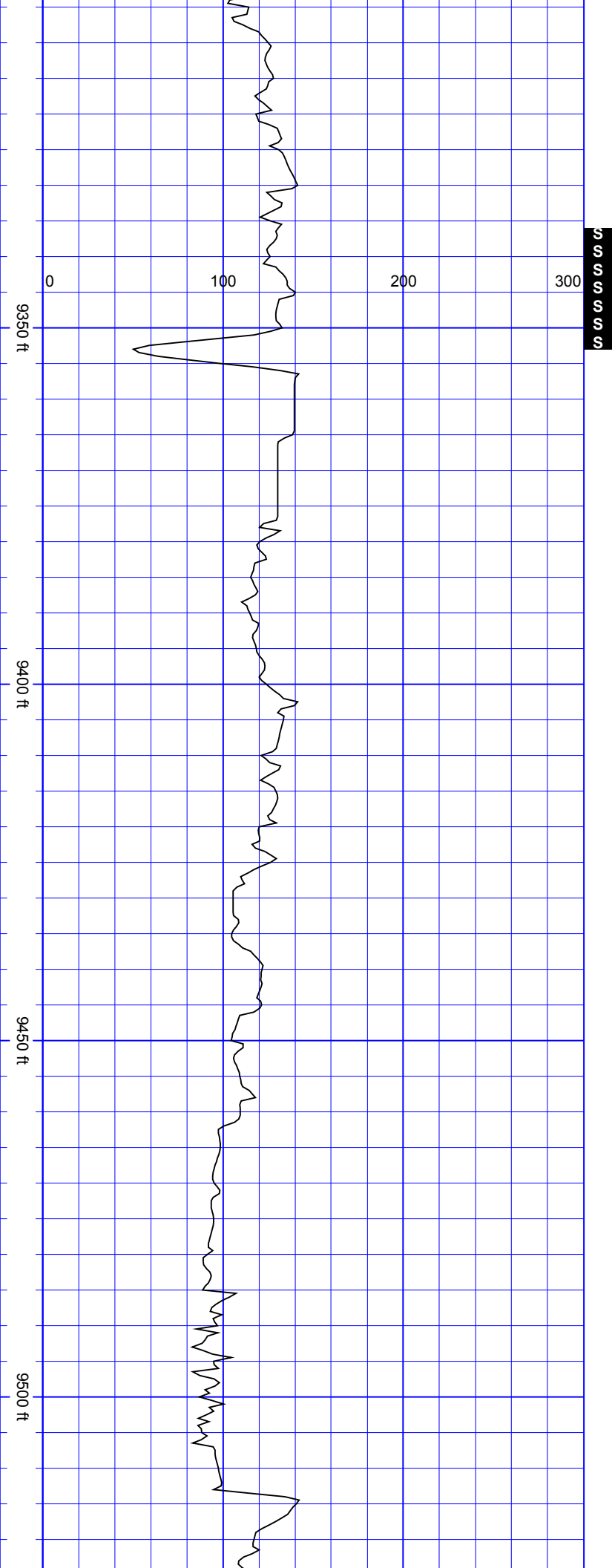
SurveyDepth:9088
TVD:7387.45 Inc:90.13
Azi:87.9
VertSec:1732.49

SurveyDepth:9183
TVD:7386.14 Inc:91.45
Azi:87.72
VertSec:1826.67

SurveyDepth:9277
TVD:7383.79 Inc:91.41
Azi:90.27
VertSec:1920.07

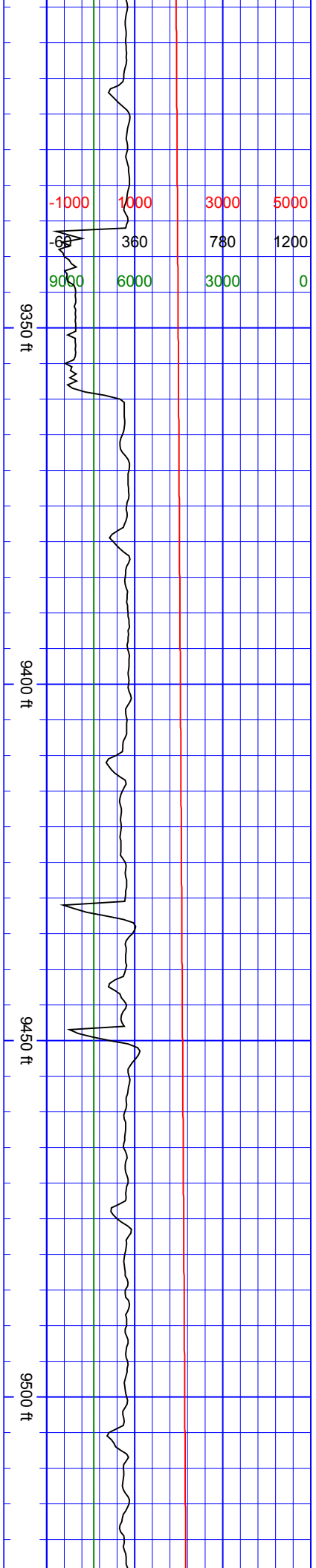
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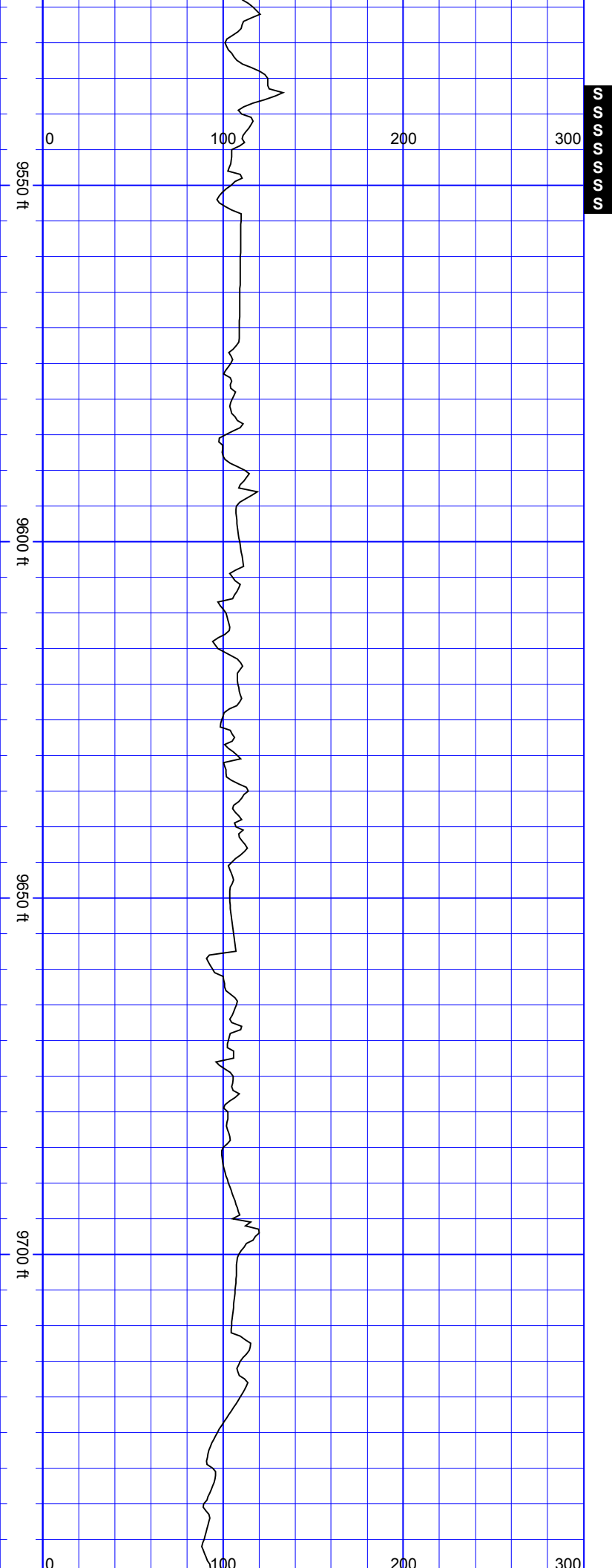




SurveyDepth:9372
TVD:7382.65 Inc:89.96
Azi:88.34
VertSec:2014.54

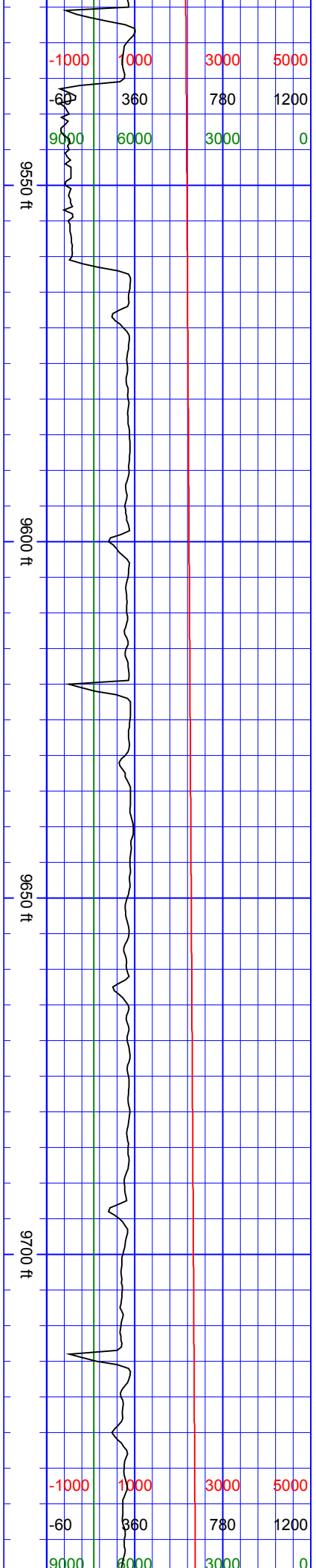
SurveyDepth:9467
TVD:7382.06 Inc:90.75
Azi:88.07
VertSec:2108.81

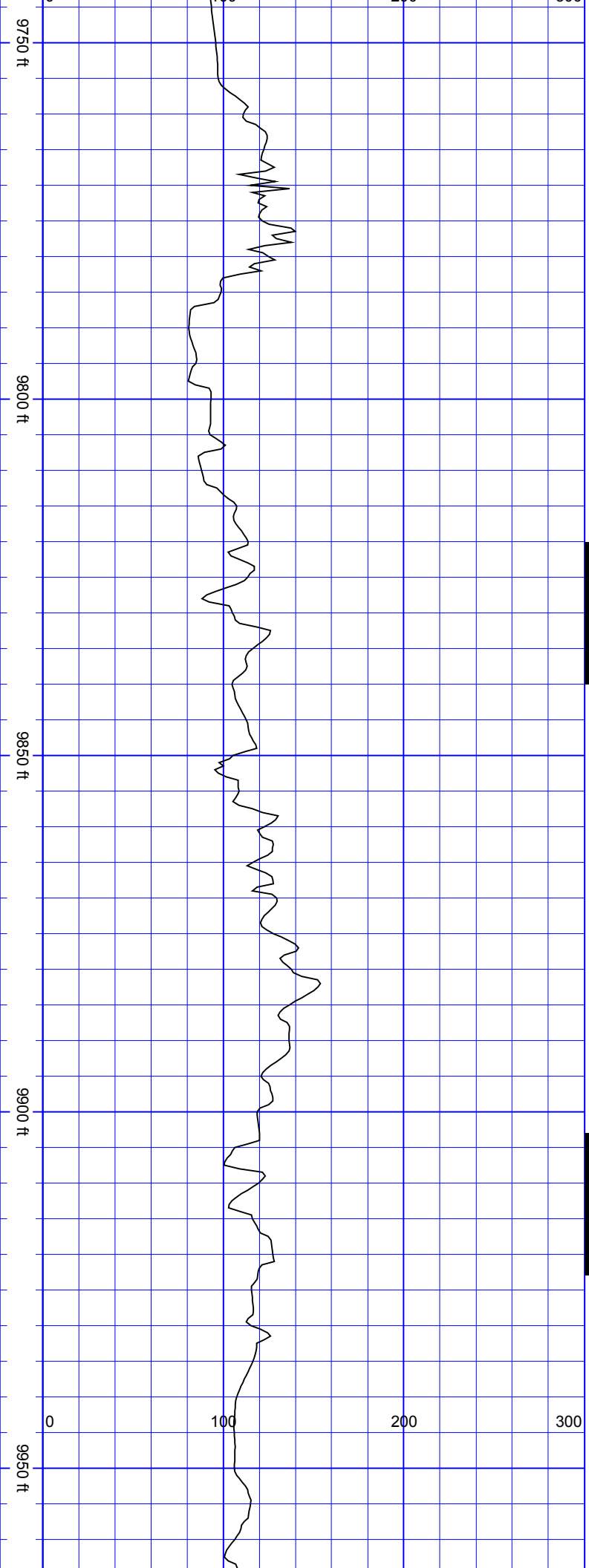




SurveyDepth:9561
TVD:7381.92 Inc:89.43
Azi:86.05
VertSec:2201.84

SurveyDepth:9655
TVD:7382.96 Inc:89.3
Azi:84.82
VertSec:2294.45

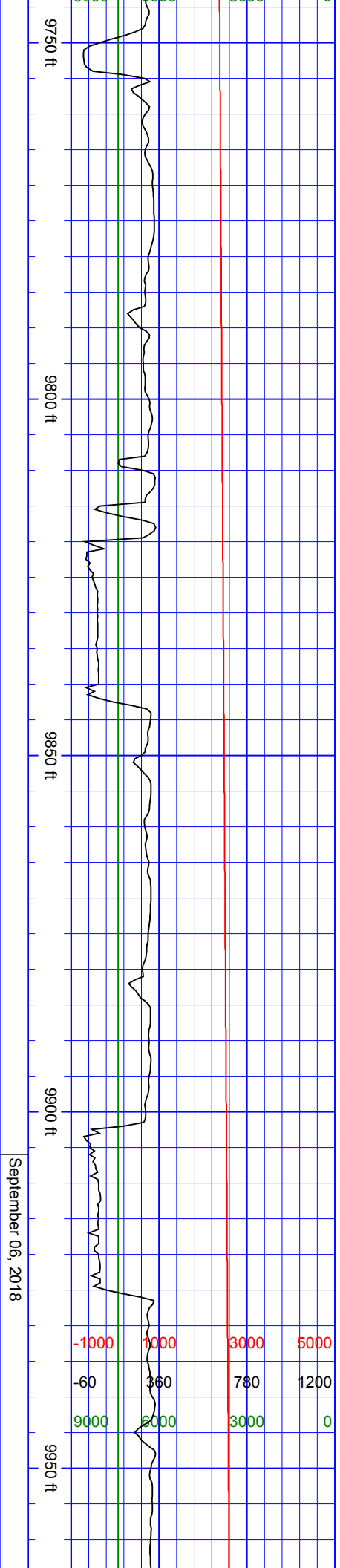


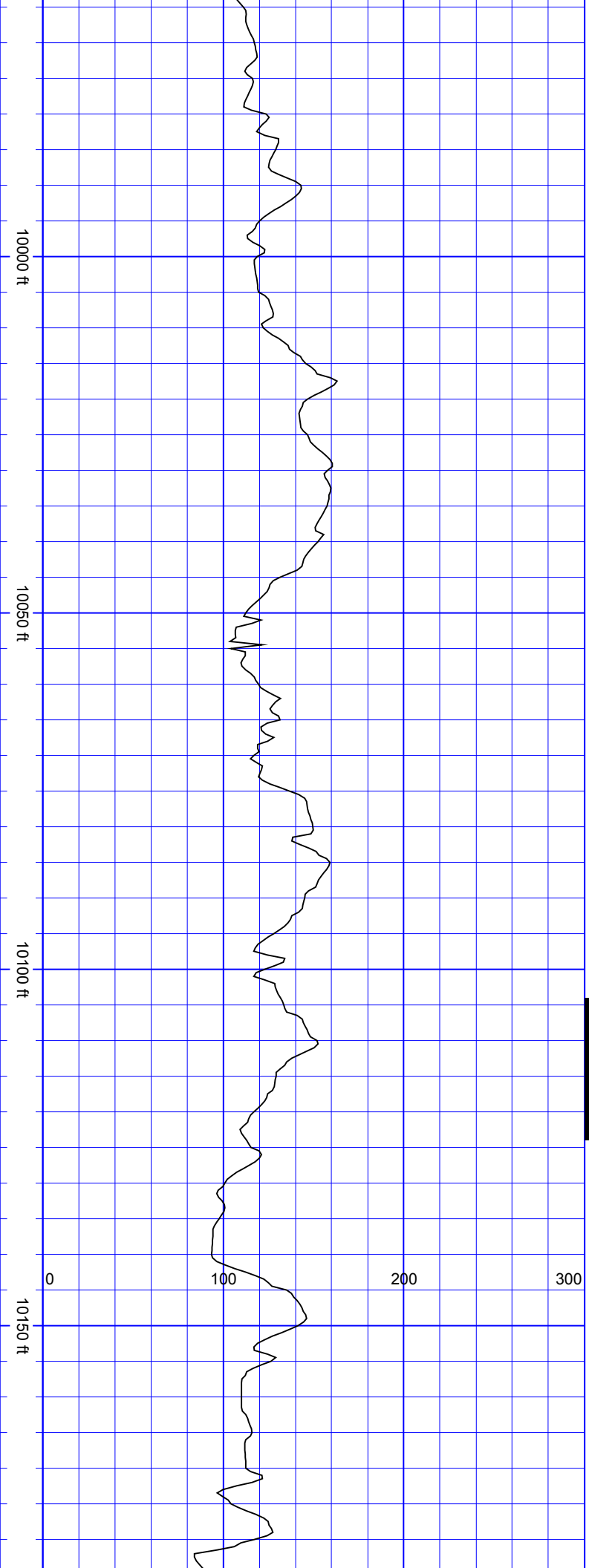


SurveyDepth:9750
TVD:7383.32 Inc:90.26
Azi:84.56
VertSec:2387.83

SurveyDepth:9844
TVD:7383.26 Inc:89.82
Azi:87.46
VertSec:2480.59

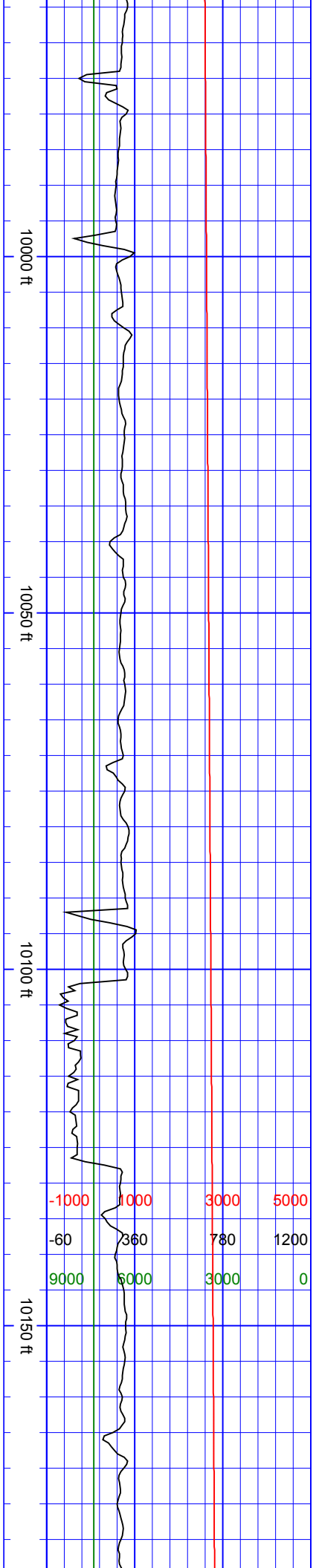
SurveyDepth:9939
TVD:7384.58 Inc:88.59
Azi:89.83
VertSec:2574.94

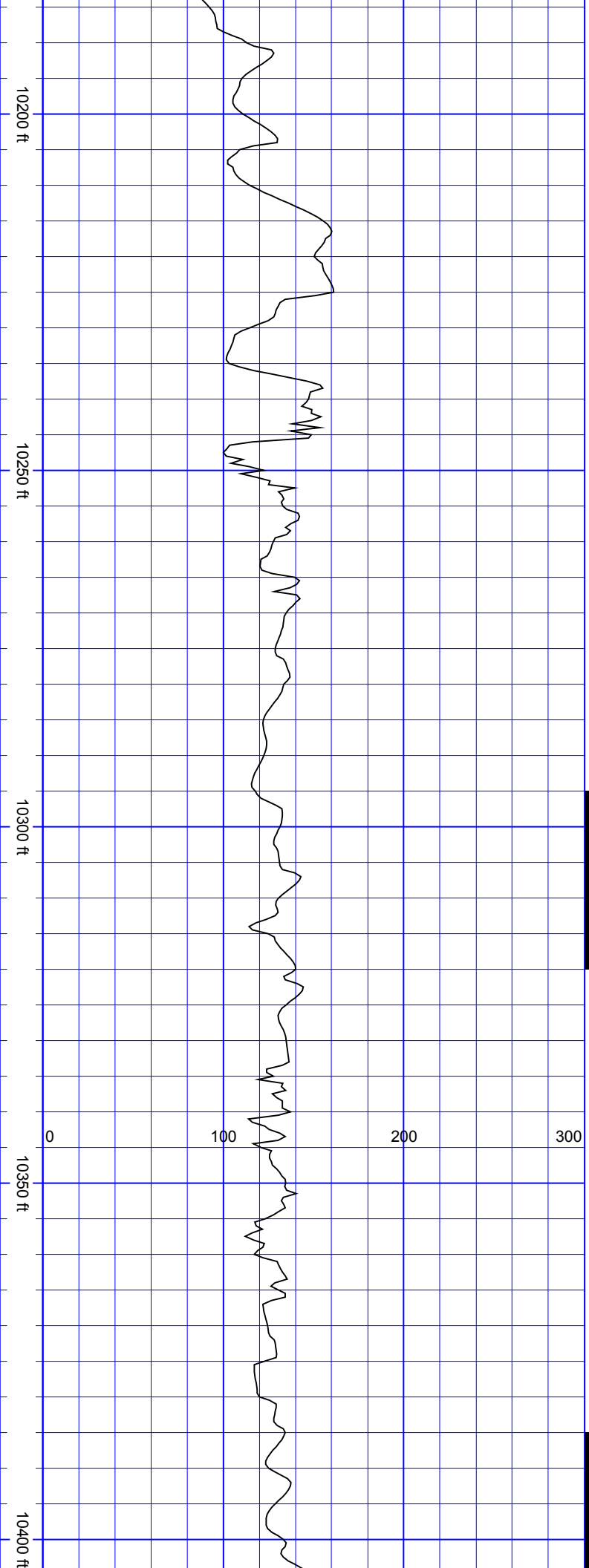




SurveyDepth:10033
TVD:7386.38 Inc:89.21
Azi:89.22
VertSec:2668.45

SurveyDepth:10128
TVD:7387.48 Inc:89.47
Azi:91.41
VertSec:2763.08



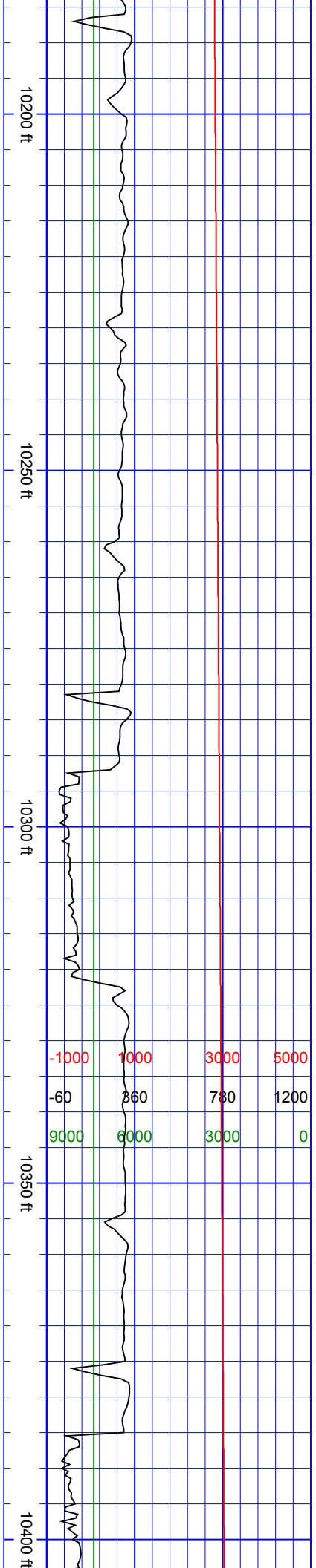


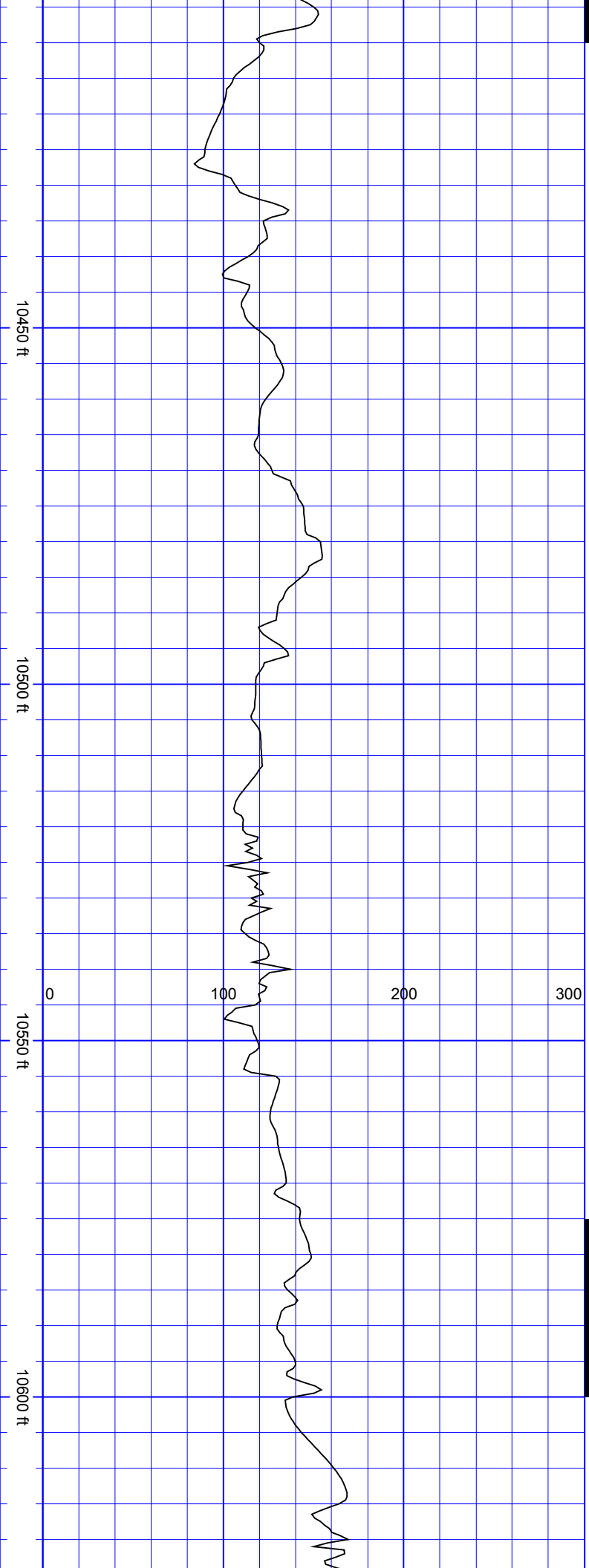
SurveyDepth:10223
TVD:7386.53 Inc:91.67
Azi:91.15
VertSec:2857.83

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SurveyDepth:10318
TVD:7385.07 Inc:90.09
Azi:91.15
VertSec:2952.57

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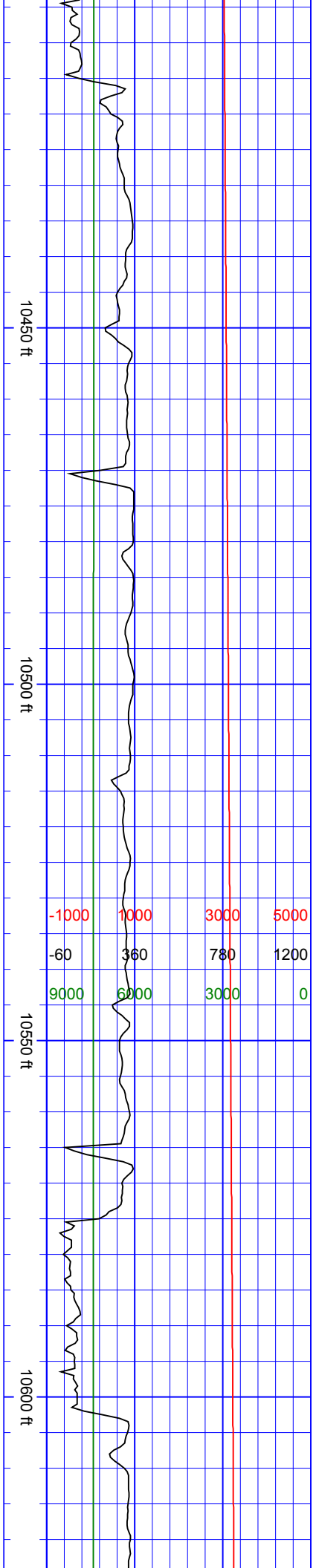




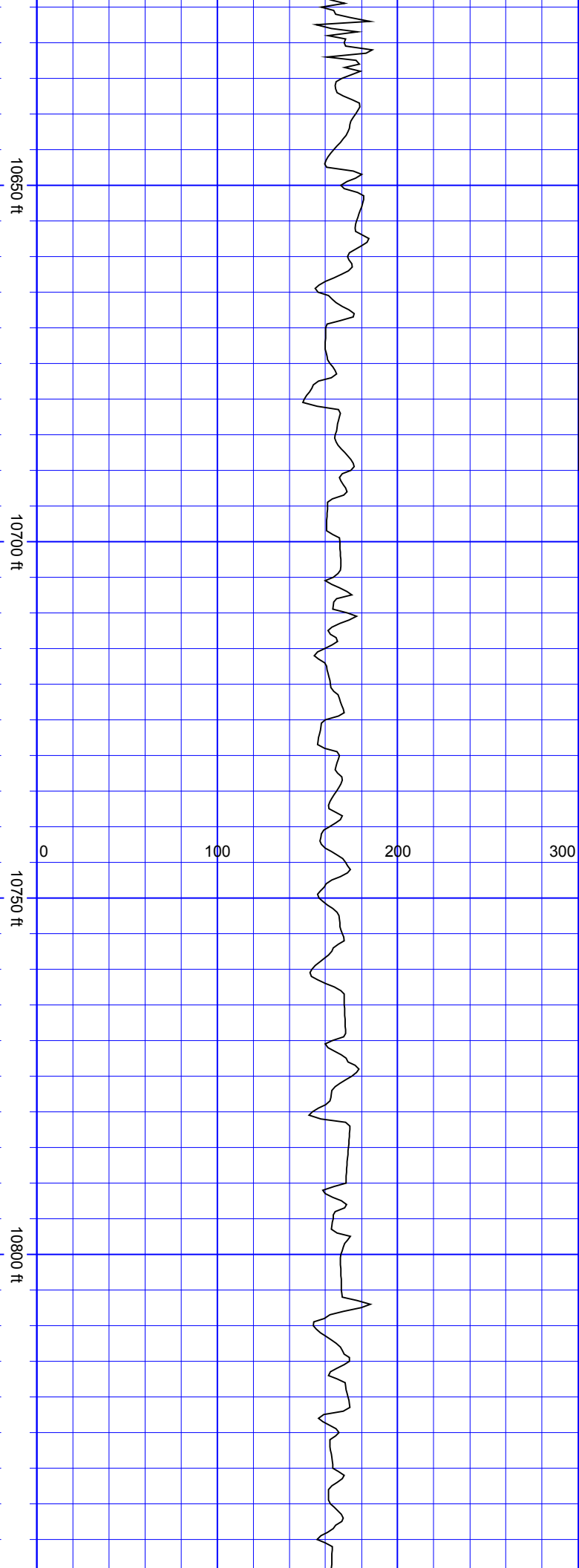
SurveyDepth:10412
TVD:7388.56 Inc:85.65
Azi:92.73
VertSec:3046.32

SurveyDepth:10507
TVD:7396.5 Inc:84.77
Azi:92.29
VertSec:3140.88

SurveyDepth:10602
TVD:7403.05 Inc:87.32
Azi:91.85
VertSec:3235.5



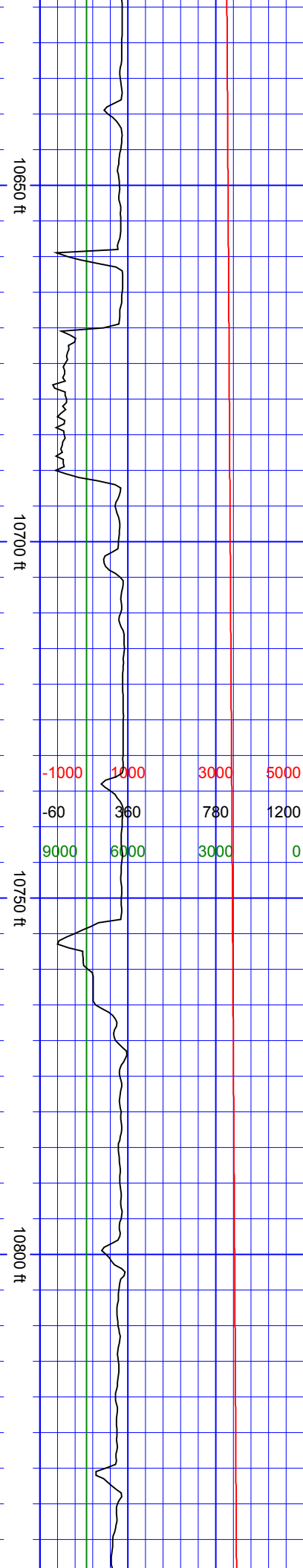
-1000	1000	3000	5000
-60	360	780	1200
9000	6000	3000	0

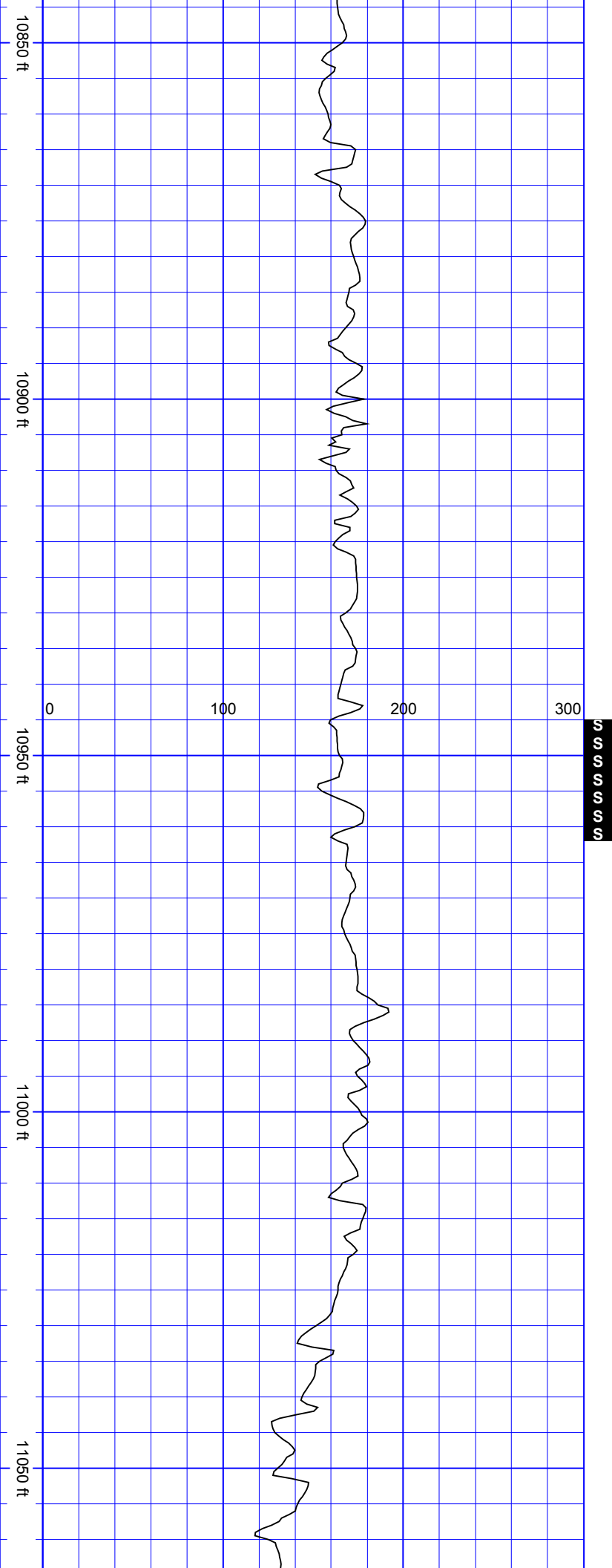


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SurveyDepth:10697
TVD:7405.09 Inc:90.22
Azi:91.68
VertSec:3330.29

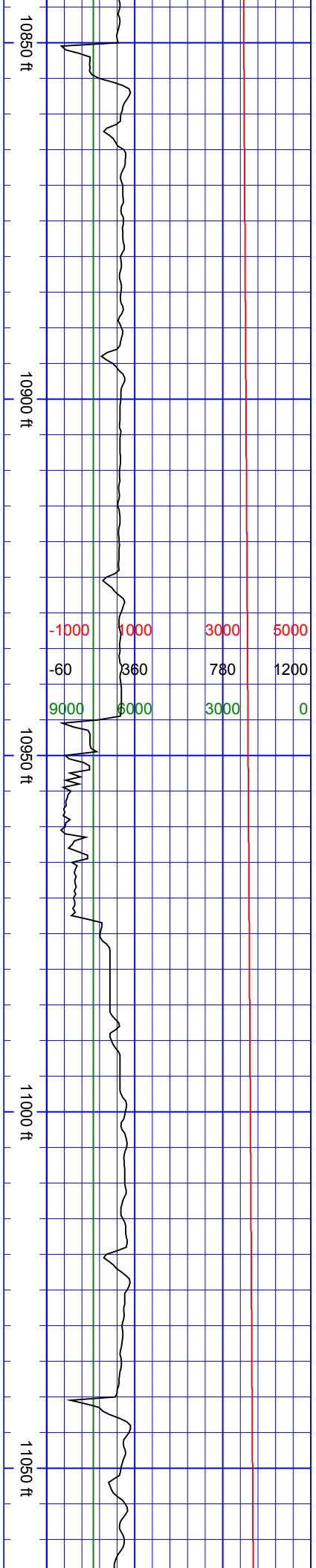
SurveyDepth:10791
TVD:7404.8 Inc:90.13
Azi:90.53
VertSec:3424.03

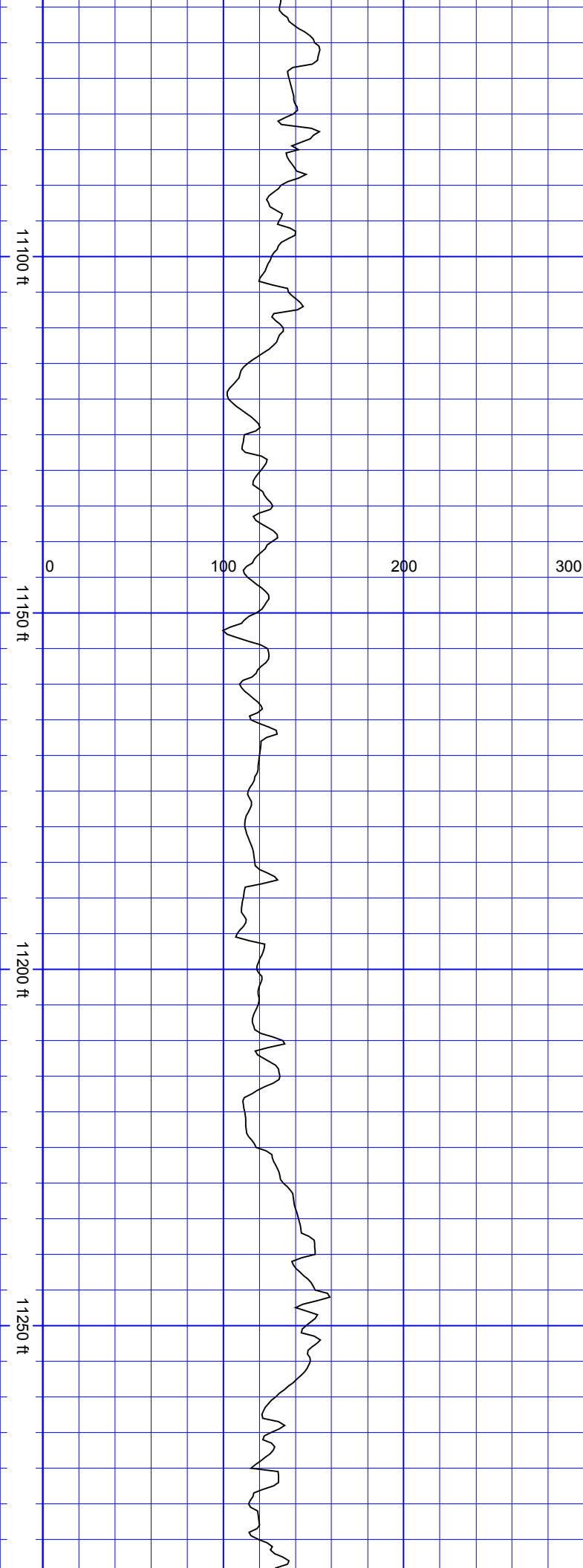




SurveyDepth:10886
TVD:7404.77 Inc:89.91
Azi:89.48
VertSec:3518.63

SurveyDepth:10981
TVD:7402.8 Inc:92.46
Azi:89.22
VertSec:3613.09



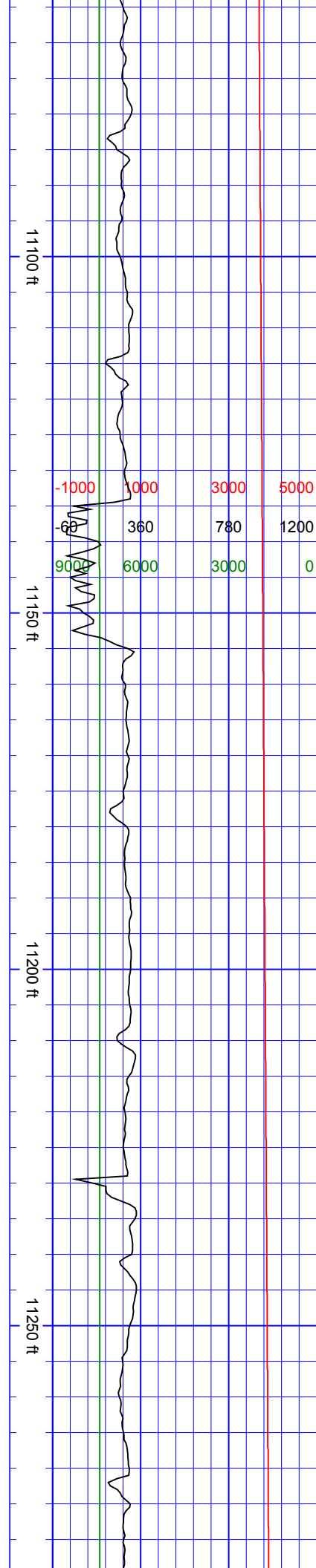


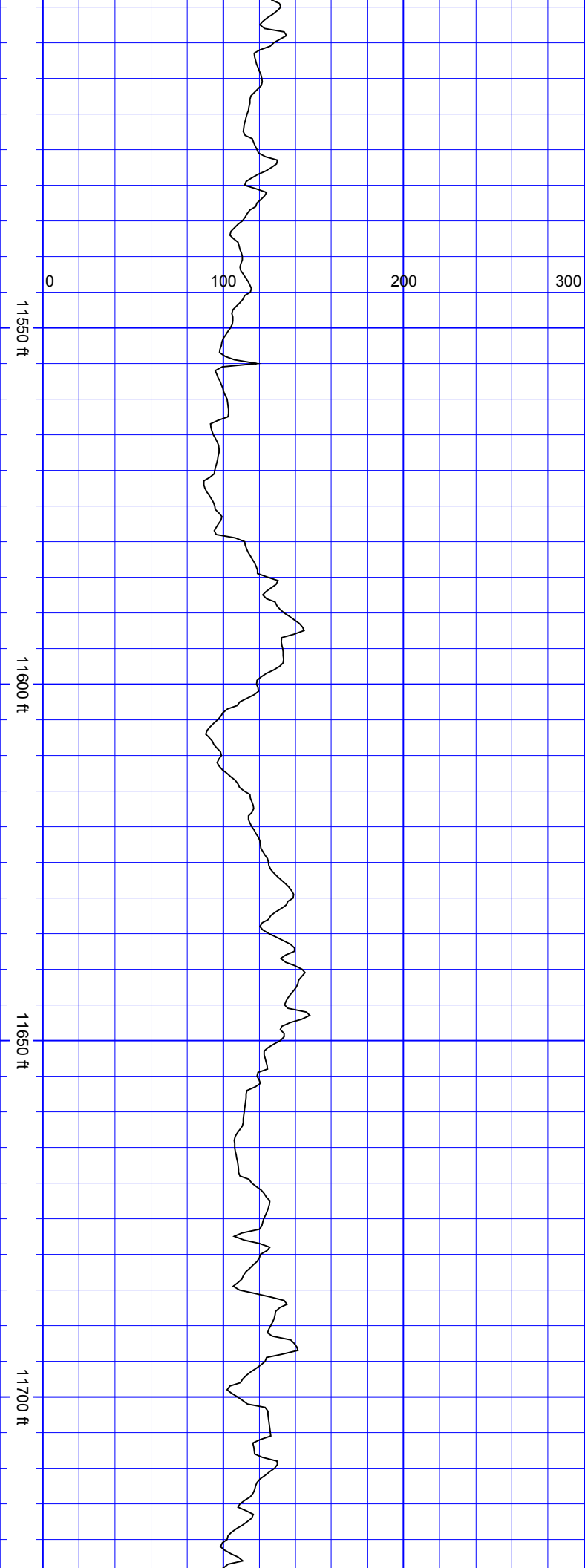
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SurveyDepth:11075
TVD:7398.15 Inc:93.21
Azi:88.69
VertSec:3706.41

SurveyDepth:11170
TVD:7393.23 Inc:92.73
Azi:89.39
VertSec:3800.72

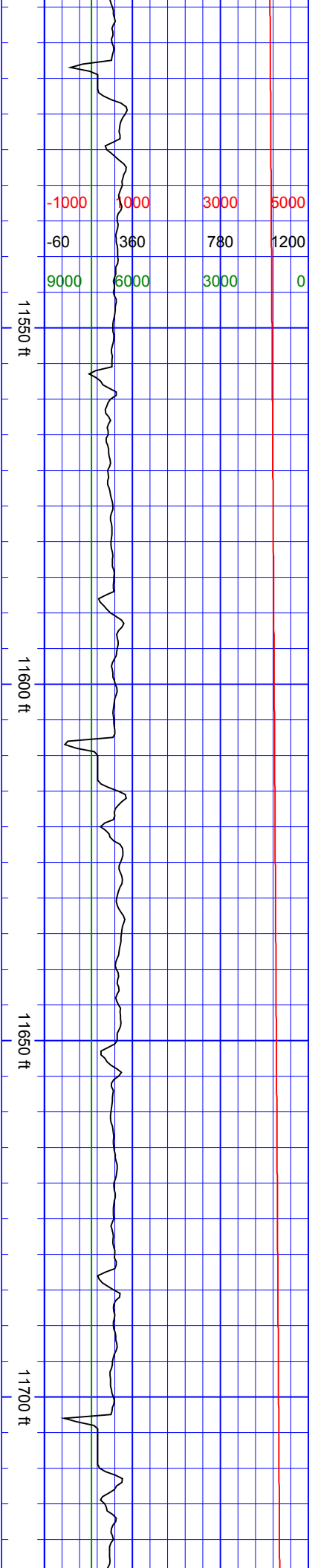
SurveyDepth:11264
TVD:7388.72 Inc:92.77
Azi:89.04
VertSec:3894.08

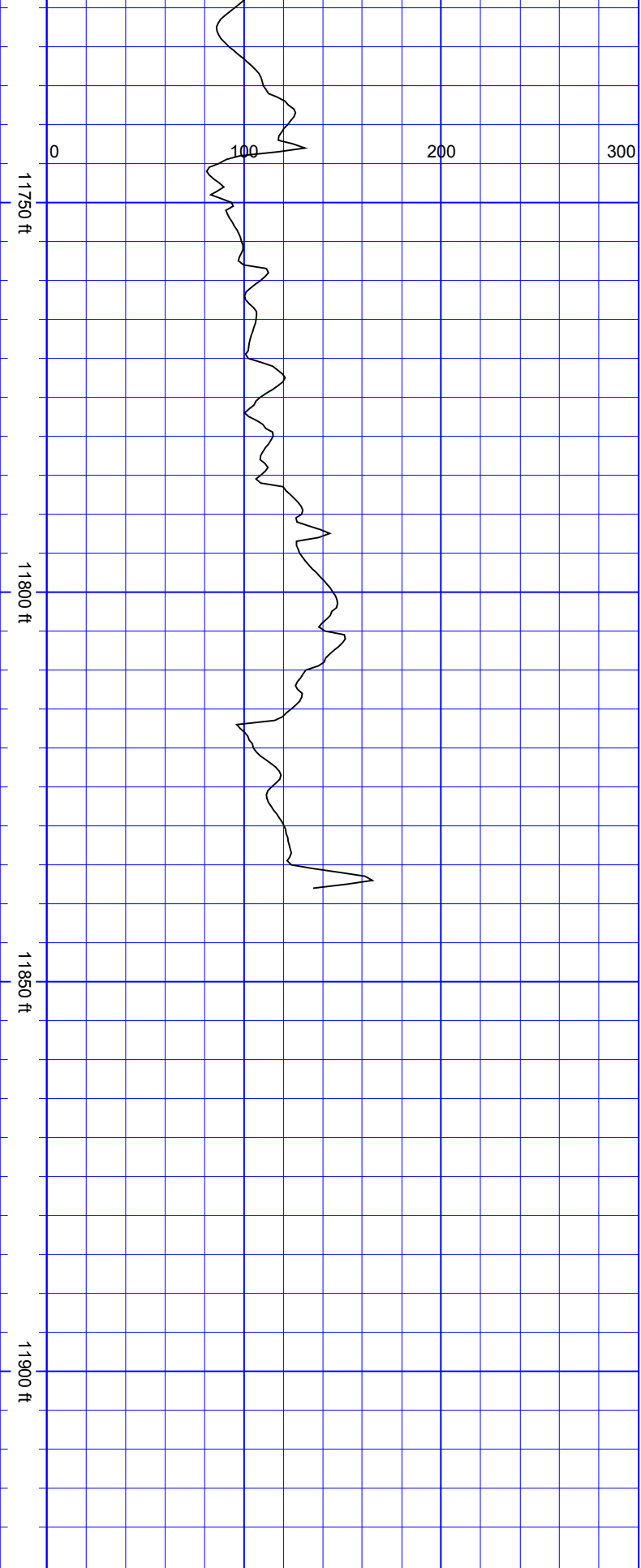




SurveyDepth:11549
TVD:7386.08 Inc:89.82
Azi:90.89
VertSec:4177.97

SurveyDepth:11643
TVD:7385.69 Inc:90.66
Azi:90.89
VertSec:4271.7





SurveyDepth:11737
TVD:7383.7 Inc:91.76
Azi:91.15
VertSec:4365.41

SurveyDepth:11831
TVD:7379.96 Inc:92.81
Azi:90.45
VertSec:4459.05

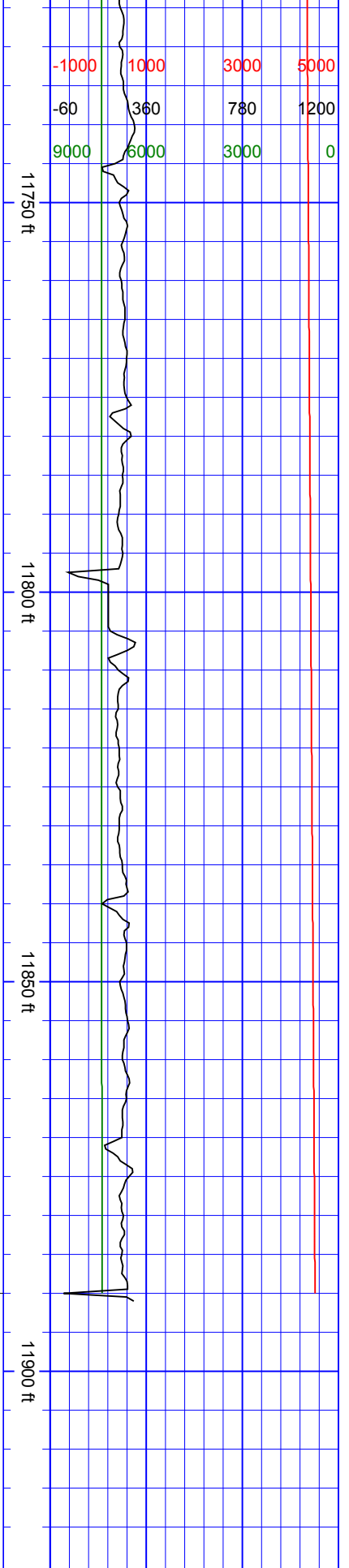
Extrapolation to Bit
SurveyDepth:11890
TVD:7377.06 Inc:92.81
Azi:90.45
VertSec:4517.77

Slide - Rot

Directional S

September 06, 2018

Date



TVD Depth (ft)	Drill Rate (ft/hr)	Vertical Section (ft)
-1000	-60	-1000
1000	360	1000
3000	780	3000
5000	1200	5000

TVD Depth (ft)	Drill Rate (ft/hr)	Vertical Section (ft)
9000	-60	-1000
6000	360	1000
3000	780	3000
0	1200	5000

MD Depth "Scale" ft

MD Depth "Scale" ft

3.5" = 100	GAMMA RAY	ate	urvey	3.5" = 100	ROP - VERT SEC - TVD
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