

Schlumberger

Telescope Gamma Ray

1 in. / 100 ft and 5 in. / 100 ft True Vertical Depth

Recorded Mode Log

Company: ExxonMobil Oil Corporation

Well: PCU 296 6B1

Field: Piceance Creek

County: Rio Blanco

State: Colorado

Country: United States

Section: 6

Township: 2S

Range: 96W

APIN: 051031154600

Rig Name: H&P 215

Rig Type: Land Rig

FL: NDA27 Colorado State Planes, Northern Zone, US Foot

FL1: Latitude: N 39° 54' 19.064" Y: 219913 ft US

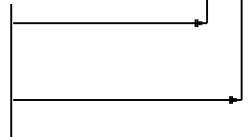
FL2: Longitude: W 108° 12' 15.612" X: 1241416 ft US

Log Measured From - Drill Floor: 7394.0 ft

Ground Level: 7367.0 ft



Permanent Datum - Mean Sea Level



Acquisition Dates: 18 Dec 10 to 24 Dec 10

Other Services:

Print Interval: 73.0(ft) to 4600.0(ft)

Directional Drilling

Index Types: True Vertical Depth

Index Scales: 1:1200 1" / 100', 1:240 5" / 100'

Depth Source: Driller's Depth

Depth Sensor: DES

Conveyance: Drill Pipe

Print Type: Final

Spud Date: 19-Dec-2010



Disclaimer

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

Content

1. Header
2. Disclaimer
3. Contents
4. Well Sketch
5. Borehole Size/Casing/Tubing Record
6. Operational Run Summary
7. Borehole Fluids
8. Remarks and Equipment Summary
9. Run001 1 in. / 100 ft TVD Log
 - 9.1 Integration Summary
 - 9.2 Software Version
 - 9.3 Composite Summary
 - 9.4 Log (Telescope Gamma Ray TVD RM)
 - 9.5 Parameter Listing
10. Run001 5 in. / 100 ft TVD Log
 - 10.1 Integration Summary
 - 10.2 Software Version

- 10.3 Composite Summary
- 10.4 Log (TeleScope Gamma Ray TVD RM)
- 10.5 Parameter Listing
- 11. Calibration Report
- 12. Survey Record
- 13. Tail

Well Sketch

Driller Depth

0.00 ft

120.00 ft

Casing 17in
85lbm/ft



Borehole Size/Casing Record

Bit						
Bit Size (in)	14.75					
Bottom Driller (ft)	4530.42					
Casing						
Size (in)	17					
Weight (lbm/ft)	85					
Inner Diameter (in)	16.058					
Top Driller (ft)	0					
Bottom Driller (ft)	120					

Operational Run Summary

Parameter (unit)	Run001					
Date Log Started	18-Dec-2010					
Time Log Started	20:48:15					
Date Log Finished	24-Dec-2010					
Time Log Finished	12:44:16					
Bit Size (in)	14.750					
Bit Start Depth (ft)	143.00					
Bit Stop Depth (ft)	4530.42					
Top Log Interval (ft)	73.00					
Bottom Log Interval (ft)	4459.00					
Max Hole Deviation (deg)	17.99					
Azimuth of Max Deviation (deg)	120.65					
Logging Unit Number	93					
Logging Unit Location	Zone 2					
Recorded By	KEitel					
Witnessed By	GNegron					
Service Order Number	10RCB0439					

Borehole Fluids

Parameter (unit)	Run001					
Type Fluid	Water					
Max Recorded Temperature (degF)	146					

Source of Sample	Active Tank					
Salinity (ppm)	34972.17					
Density (lbm/gal)	Zoned					
Viscosity (s)	56					
Fluid Loss (cm3)	0					
pH	9.5					
Source Rmf						
Source Rmc	Pressed					
Rm @ Meas Temp (ohm.m@degF)	0.2 @ 68					
Rmf @ Meas Temp (ohm.m@degF)	0.15 @ 68					
Rmc @ Meas Temp (ohm.m@degF)	0 @ 68					
Rm @ BHT (ohm.m@degF)	0.10 @ 146					
Rmf @ BHT (ohm.m@degF)	0.07 @ 146					
Rmc @ BHT (ohm.m@degF)	0 @ 146					

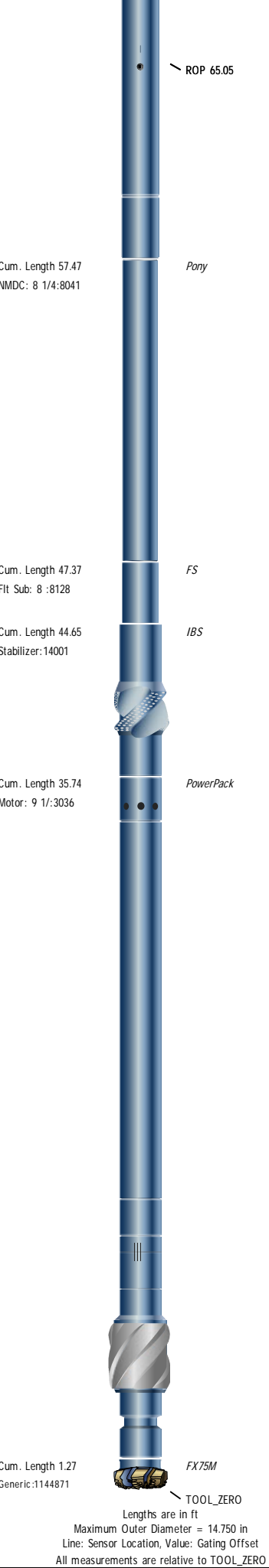
Zoned Borehole Fluids

Run001

Parameter	Value	Start
Density	9.3	12/18/2010 8:48:15 PM
Density	9	12/19/2010 11:00:00 PM
Density	8.9	12/20/2010 11:00:00 AM
Density	9	12/21/2010 11:00:00 AM
Density	9.10	12/21/2010 11:00:00 PM
Density	9.2	12/22/2010 11:00:00 PM
Density	9.05	12/23/2010 11:00:00 AM
Density	9.45	12/23/2010 11:00:00 PM
Density	9.7	12/24/2010 11:00:00 AM

Remarks and Equipment Summary

Run001: Toolstring		Run001: Remarks
<div><div><div>Cum. Length 88.56</div><div>TELE825:E3096</div><div>MSSU825:0825-000</div><div>Upper Extender</div><div>MDC825:E3096</div><div>MMA:2687</div><div>MDI</div><div>PMGR:276</div><div>PMEA:1017</div><div>MTA:2587</div><div>MTK825</div><div>MSSD825:0800-000</div><div>Lower Extender,</div></div><div><div>PUP_GR</div><div>D&I 72.76</div><div>GR 70.64</div></div></div>	Data presented is from tool memory and acquired from 144 ft to 4530 ft MD	
	Depth Reference: Drillers Depth	
	Gamma Ray is filtered but not environmentally corrected	
	Barite in mud affects Gamma Ray readings	
	Run objective: drill surface section of well	
	Bit size: 14.75 in	
	Drilled from 144 ft to 4530 ft MD	
	Reason POOH: Section TD	
	TeleScope Software Version 9.5C18	
	Note on Calibration Report: Tool calibration is not incorrect. Calibration year for tool was entered incorrectly by Technician.	



1 in. / 100 ft TVD Log

Integration Summary

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
-------------------	--------------------	-----------------	--------------	------

Software Version

Acquisition System			Version	
MaxWell			2.0.6803.0	
Application Patch			SP-20100528-2.0.6803.1089	
Tool Elements	Description	Software Version	Firmware Version	
DRILLING_SURFACE	DRILLING_SURFACE	2.0.6803.1089		
PMGR	TeleScope - M10 Gamma Ray Assembly	2.0.6803.0		

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Acquisition Start Date	Acquisition Start Time
Run001	Drilling	Down	143.00 ft	4530.42 ft	18-Dec-2010	20:48:15

All depths are referenced to toolstring zero

Log

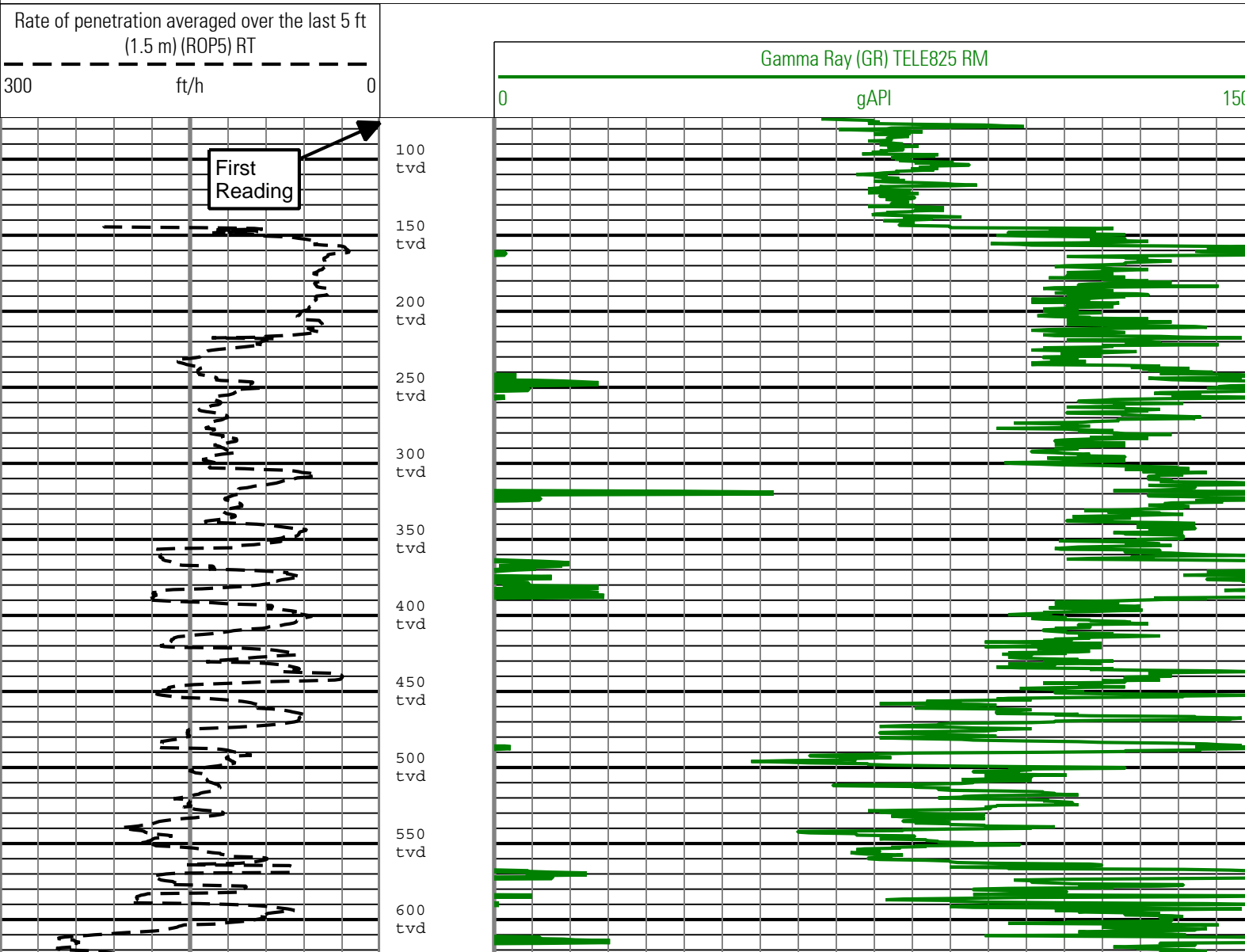
Run001: Drilling 6F61CC1B-BFF6-47D1-972C-617F0AB99552

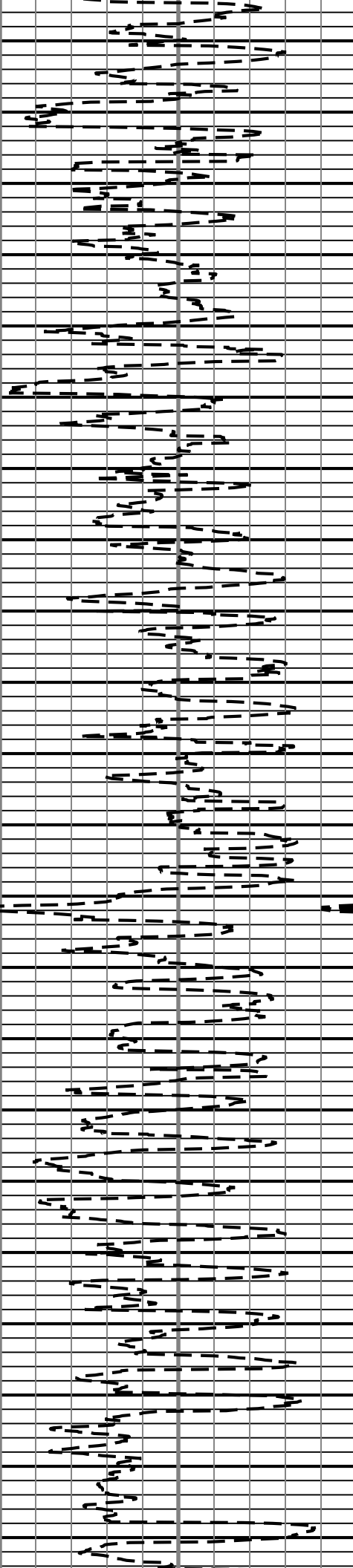
Description: TeleScope Gamma Ray Depth Format: Log (TeleScope Gamma Ray TVD RM) Index Scale: 1 in per 100 ft Index Unit: ft Index Type: TVD

Creation Date: 07-Jan-2011 11:13:34

GR TELE825:TELE825:PMGR 6in - RM

ROP5 DRILLING_SURFACE 6in - RT





650
tvd

700
tvd

750
tvd

800
tvd

850
tvd

900
tvd

950
tvd

1000
tvd

1050
tvd

1100
tvd

1150
tvd

1200
tvd

1250
tvd

1300
tvd

1350
tvd

1400
tvd

1450
tvd

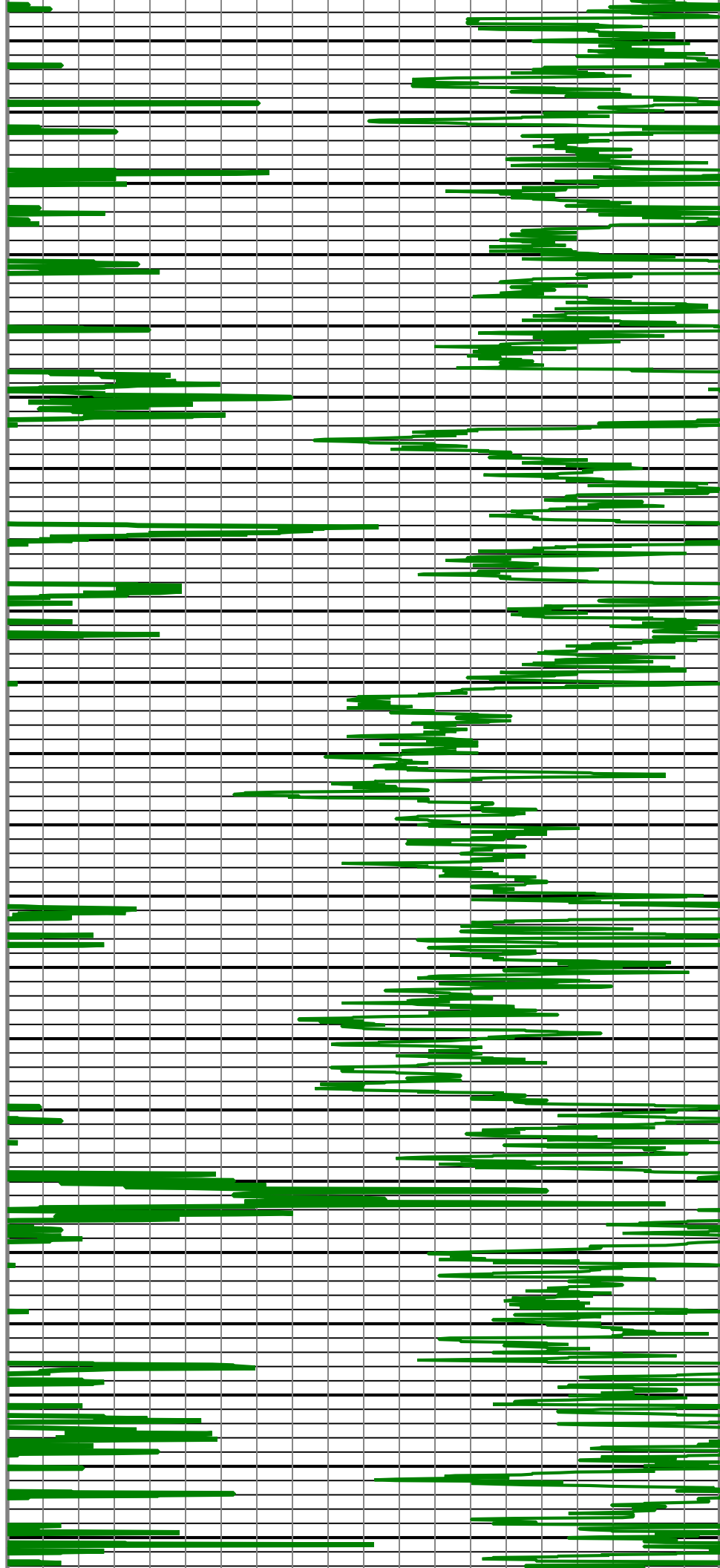
1500
tvd

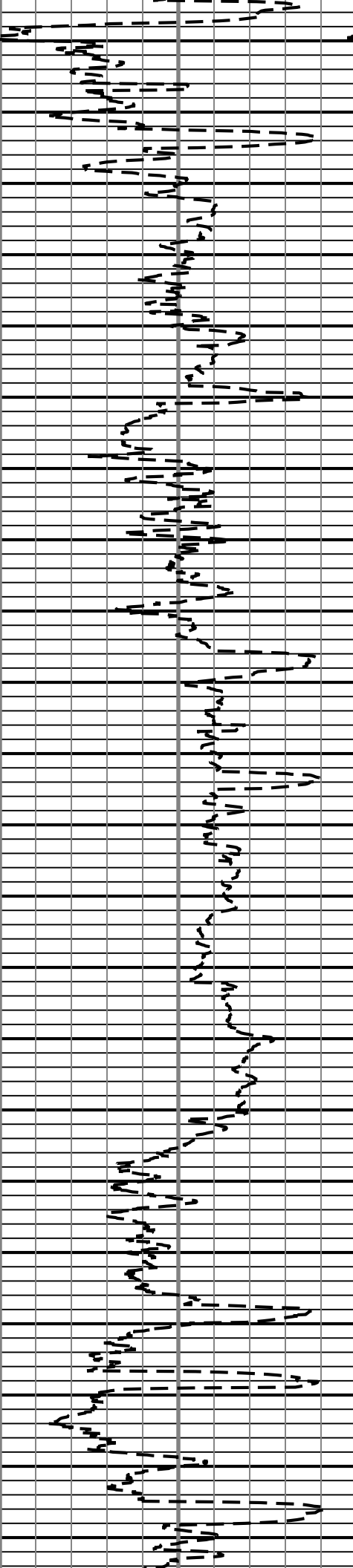
1550
tvd

1600
tvd

1650
tvd

1700
tvd





1750
tvd

1800
tvd

1850
tvd

1900
tvd

1950
tvd

2000
tvd

2050
tvd

2100
tvd

2150
tvd

2200
tvd

2250
tyd

2300
tyd

2350
tyd

2400
tyd

2450
tyd

2500
tyd

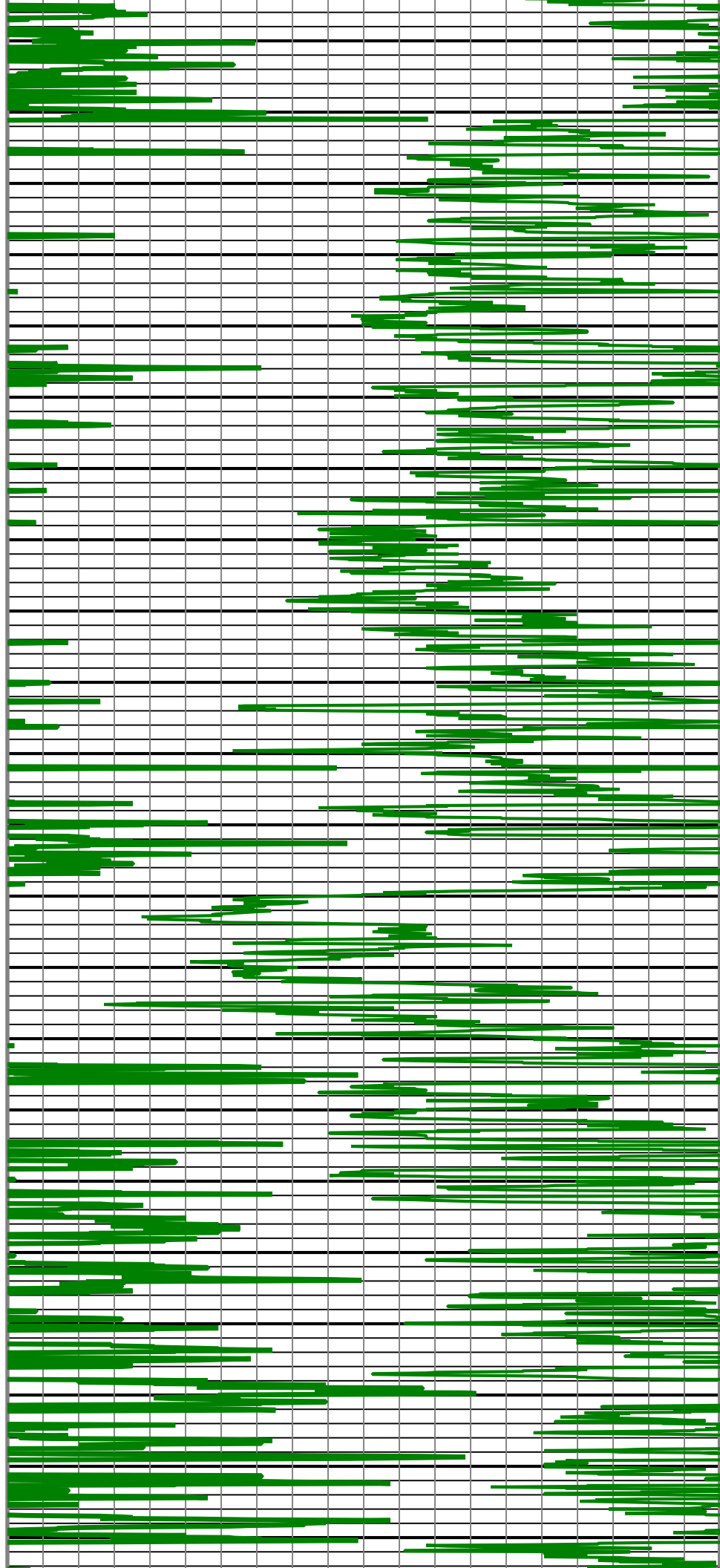
2550
 44442600
 1000

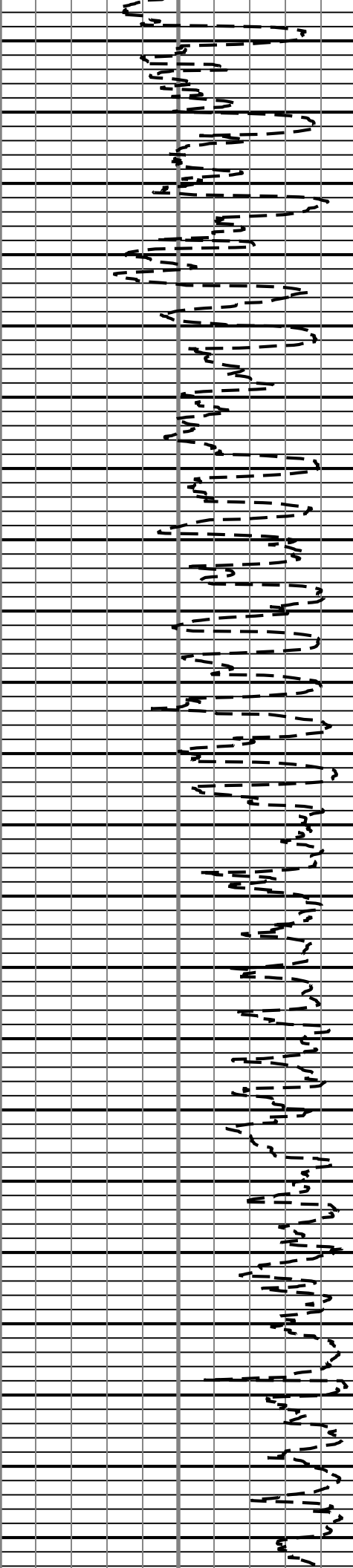
2650

2700

2750

2800





2850
tvd

2900
tvd

2950
tvd

3000
tvd

3050
tvd

3100
tvd

3150
tvd

3200
tvd

3250
tvd

3300
tvd

3350
tvd

3400
tvd

3450
tvd

3500
tvd

3550
tvd

3600
tvd

3650
tvd

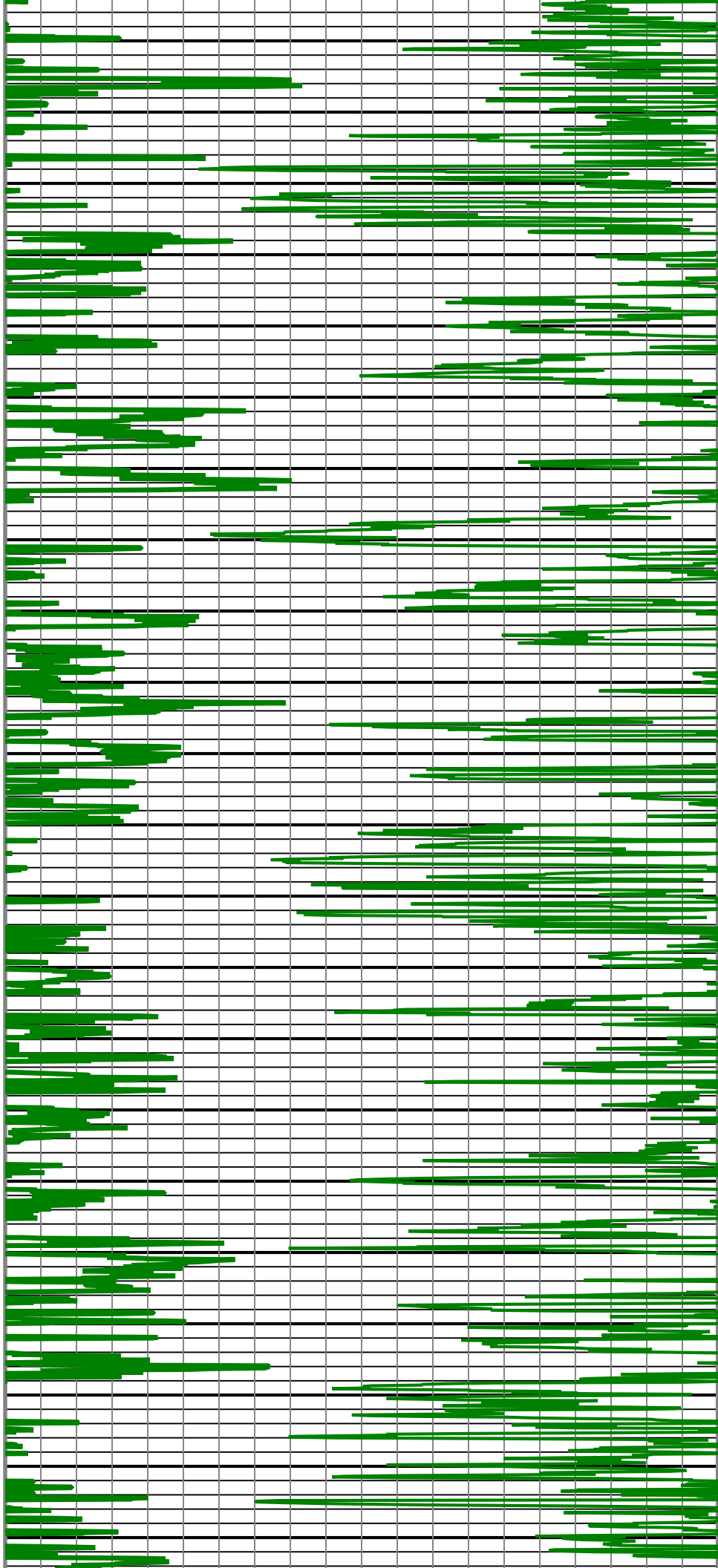
3700
tvd

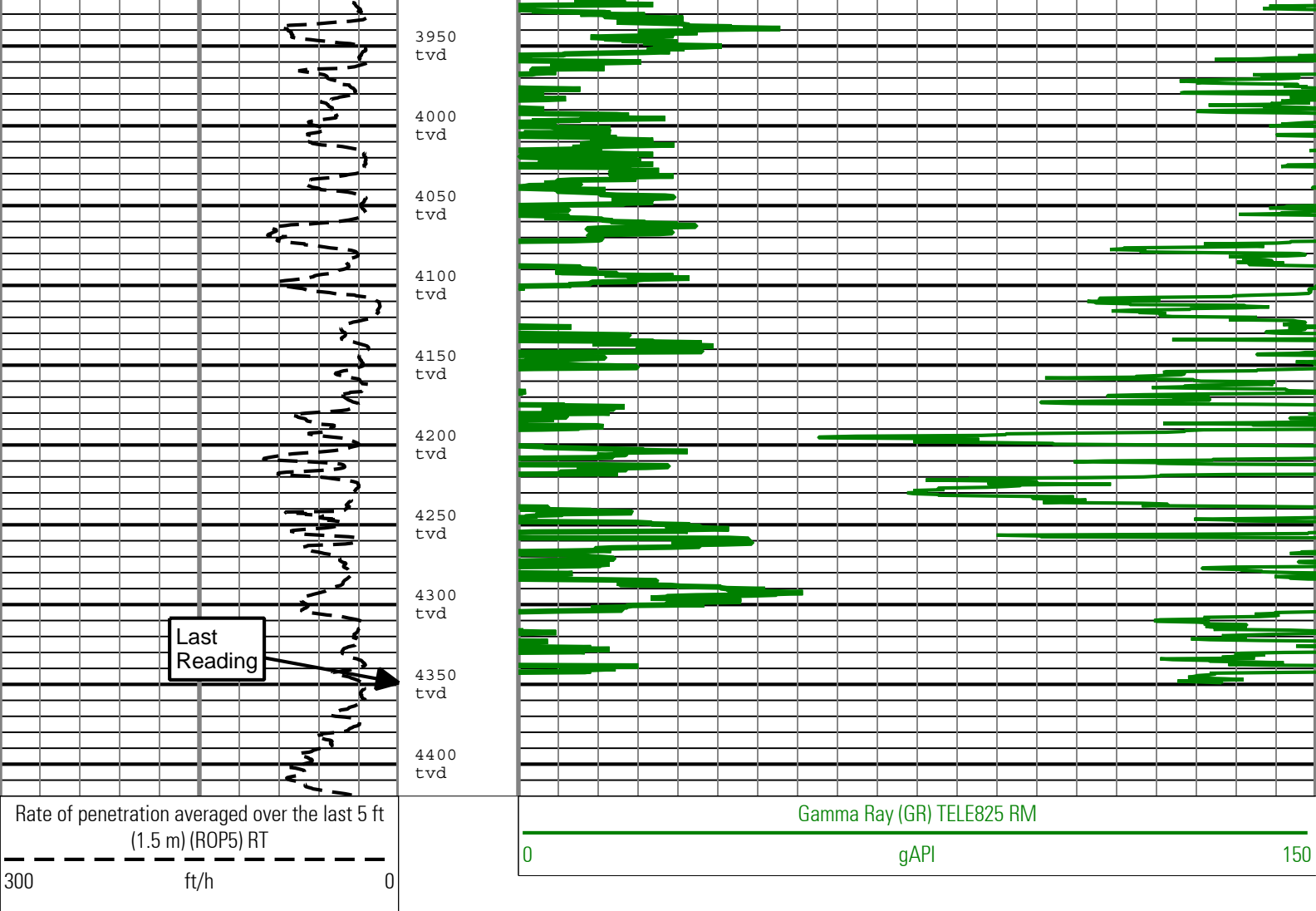
3750
tvd

3800
tvd

3850
tvd

3900
tvd





Description: TeleScope Gamma Ray Depth Format: Log (TeleScope Gamma Ray TVD RM) Index Scale: 1 in per 100 ft Index Unit: ft Index Type: TVD
Creation Date: 07-Jan-2011 11:13:34

Channel Processing Parameters					
Parameter	Description	ToolPath	Value	Unit	
BS	Bit Size	COMPLETION	14.75	in	
DFD	Drilling Fluid Density	Borehole	Time Zoned	lbm/gal	
Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
DFD	9.3	18-Dec-2010 20:48:15	19-Dec-2010 23:00:00	143	1235.92
DFD	9	19-Dec-2010 23:00:00	20-Dec-2010 11:00:00	1235.92	2050.5
DFD	8.9	20-Dec-2010 11:00:00	21-Dec-2010 11:00:00	2050.5	3394.92
DFD	9	21-Dec-2010 11:00:00	21-Dec-2010 23:00:00	3394.92	3709.92
DFD	9.1	21-Dec-2010 23:00:00	22-Dec-2010 23:00:00	3709.92	3820.75
DFD	9.2	22-Dec-2010 23:00:00	23-Dec-2010 11:00:00	3820.75	4062.17
DFD	9.05	23-Dec-2010 11:00:00	23-Dec-2010 23:00:00	4062.17	4350.17
DFD	9.45	23-Dec-2010 23:00:00	24-Dec-2010 12:44:16	4350.17	4530.42

All depth are at tool zero.

Tool Control Parameters	
Run001	
5 in. / 100 ft TVD Log	

Integration Summary

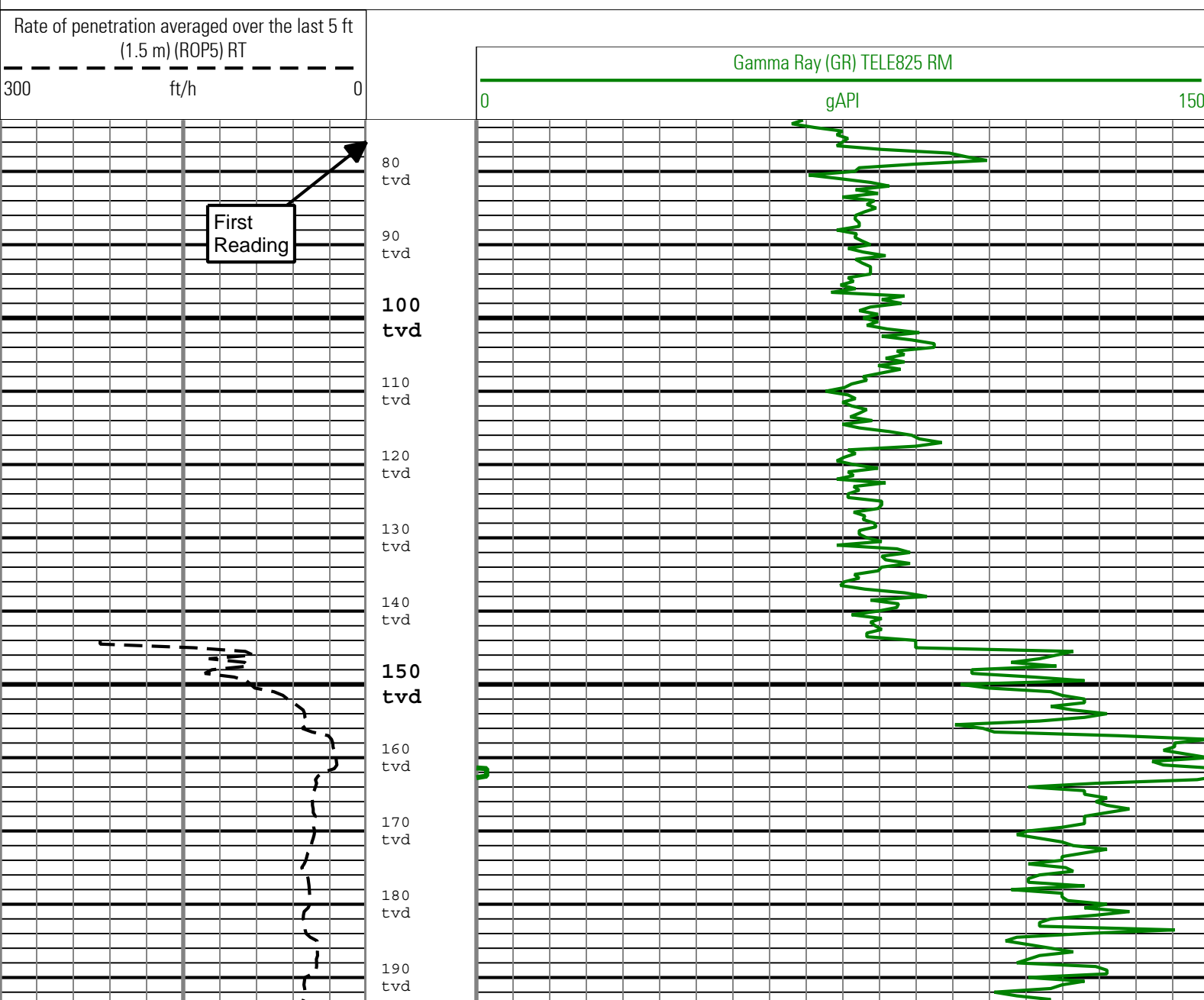
Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
Software Version				
Acquisition System		Version		
MaxWell		2.0.6803.0		
Application Patch		SP-20100528-2.0.6803.1089		
Tool Elements	Description	Software Version	Firmware Version	
DRILLING_SURFACE	DRILLING_SURFACE	2.0.6803.1089		
PMGR	TeleScope - M10 Gamma Ray Assembly	2.0.6803.0		

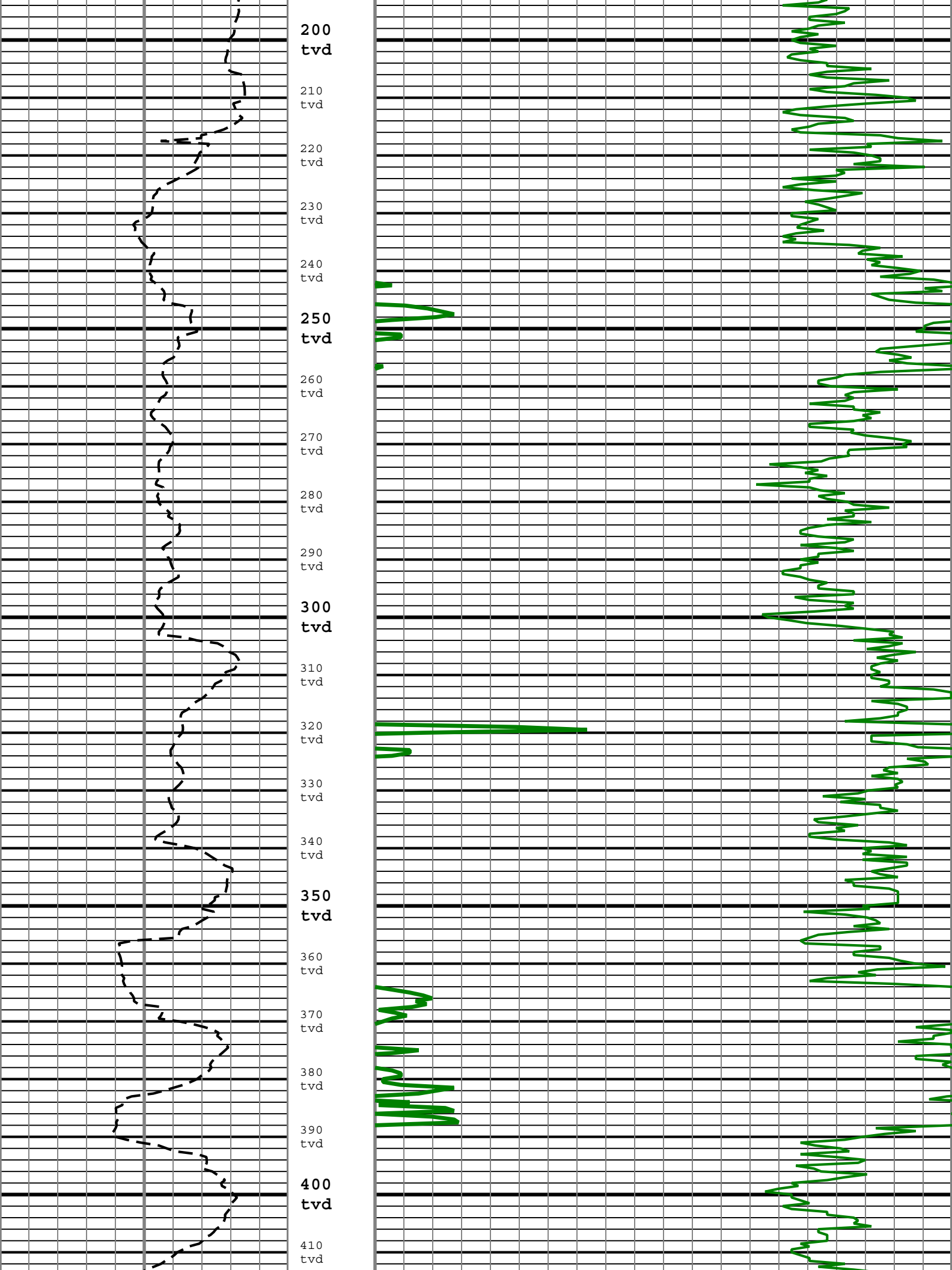
Pass Summary						
Run Name	Pass Objective	Direction	Top	Bottom	Acquisition Start Date	Acquisition Start Time
Run001	Drilling	Down	143.00 ft	4530.42 ft	18-Dec-2010	20:48:15
All depths are referenced to toolstring zero						

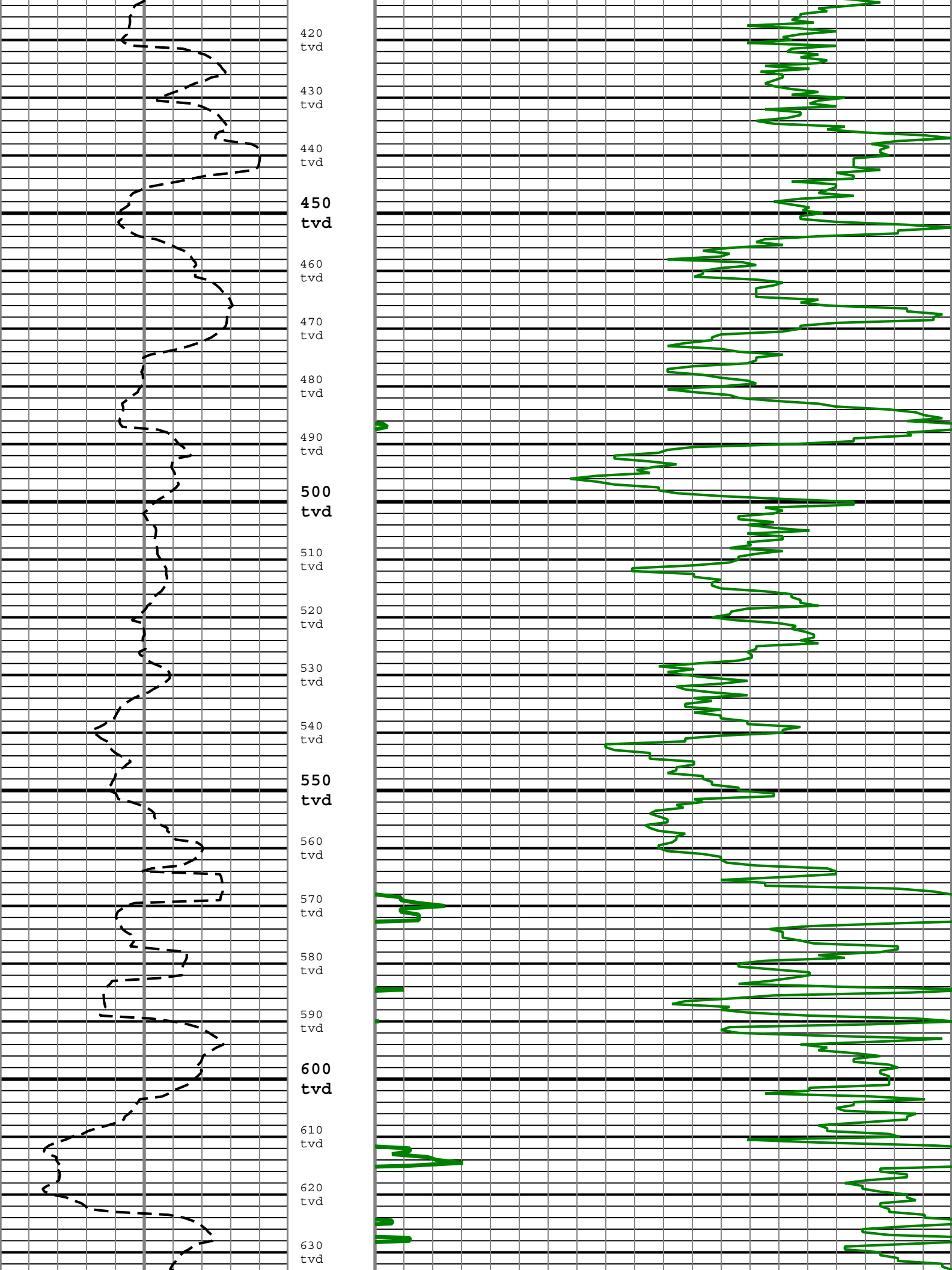
Log	Run001: Drilling 6F61CC1B-BFF6-47D1-972C-617F0AB99552
-----	---

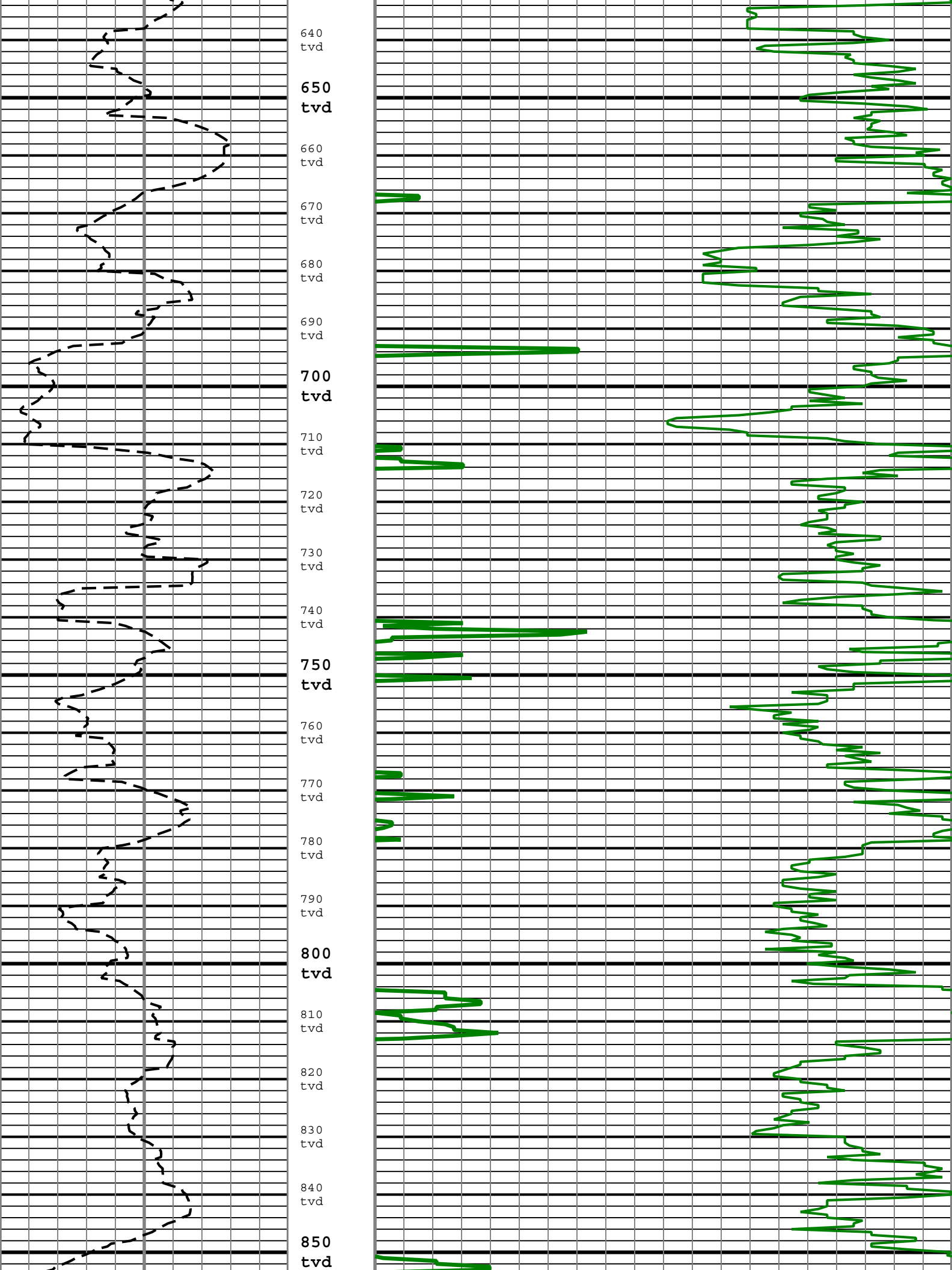
Description: TeleScope Gamma Ray Depth Format: Log (TeleScope Gamma Ray TVD RM) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: TVD
Creation Date: 07-Jan-2011 11:13:36

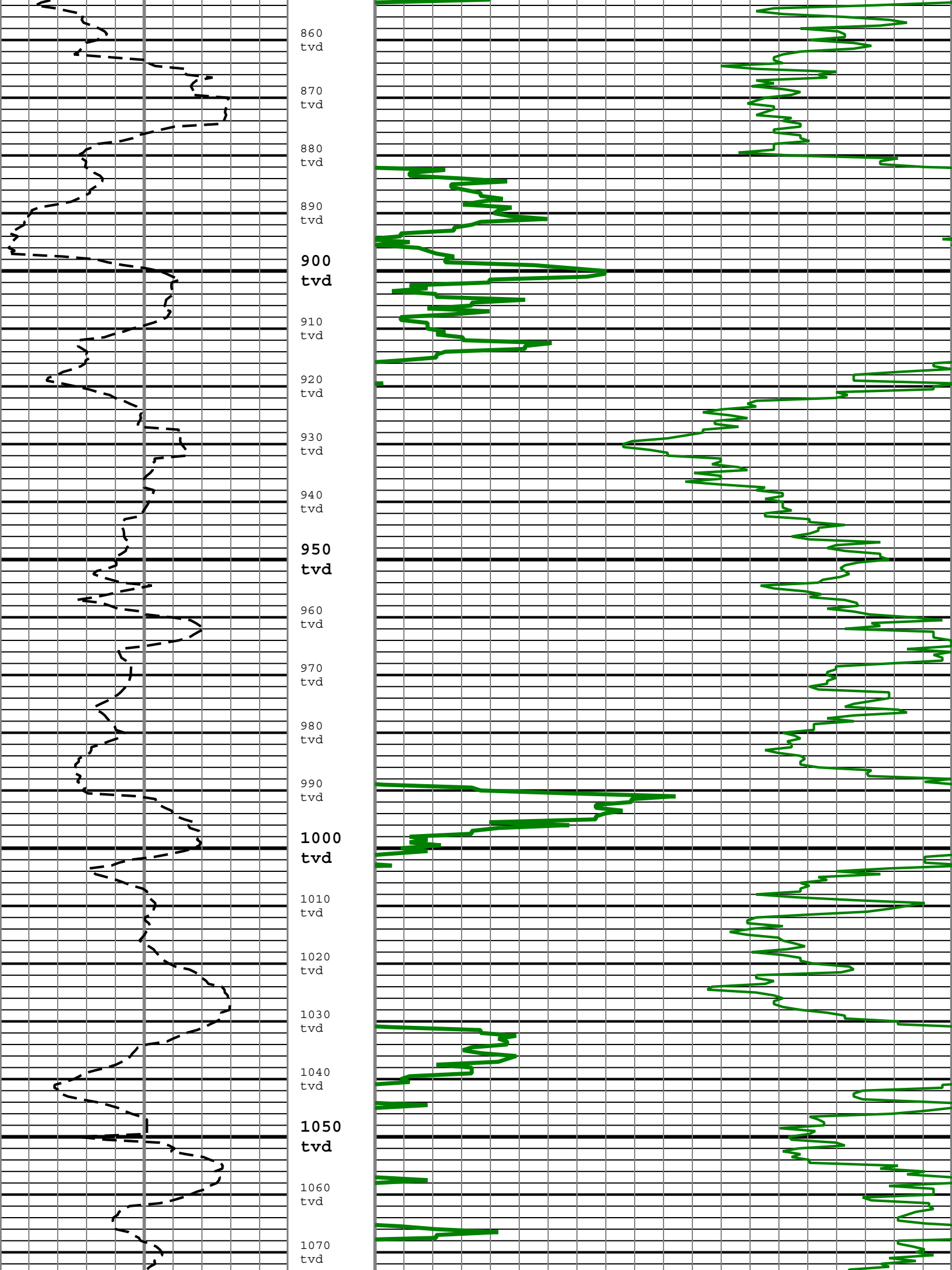
GR TELE825:TELE825:PMGR 6in - RM
ROP5 DRILLING_SURFACE 6in - RT

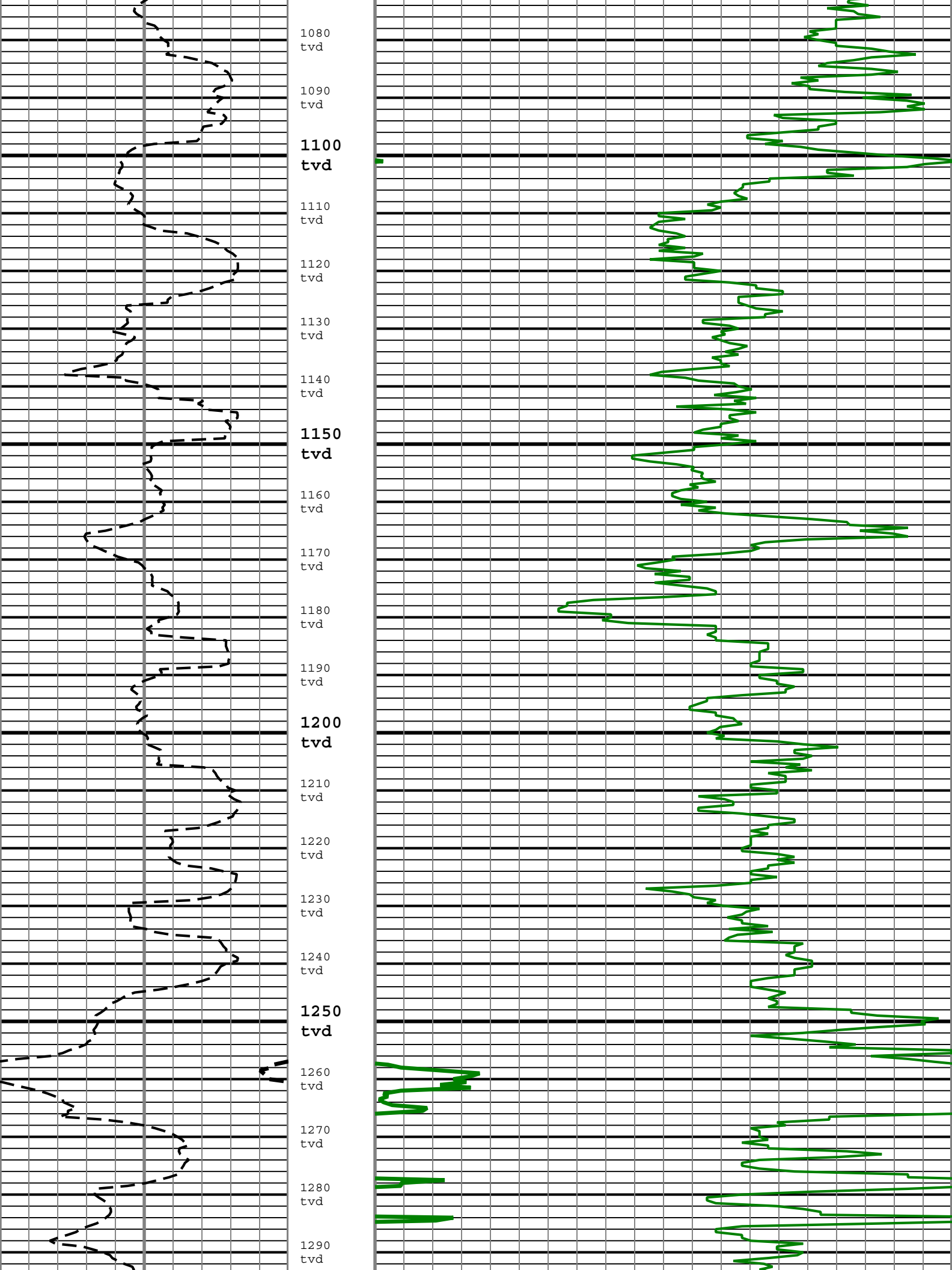


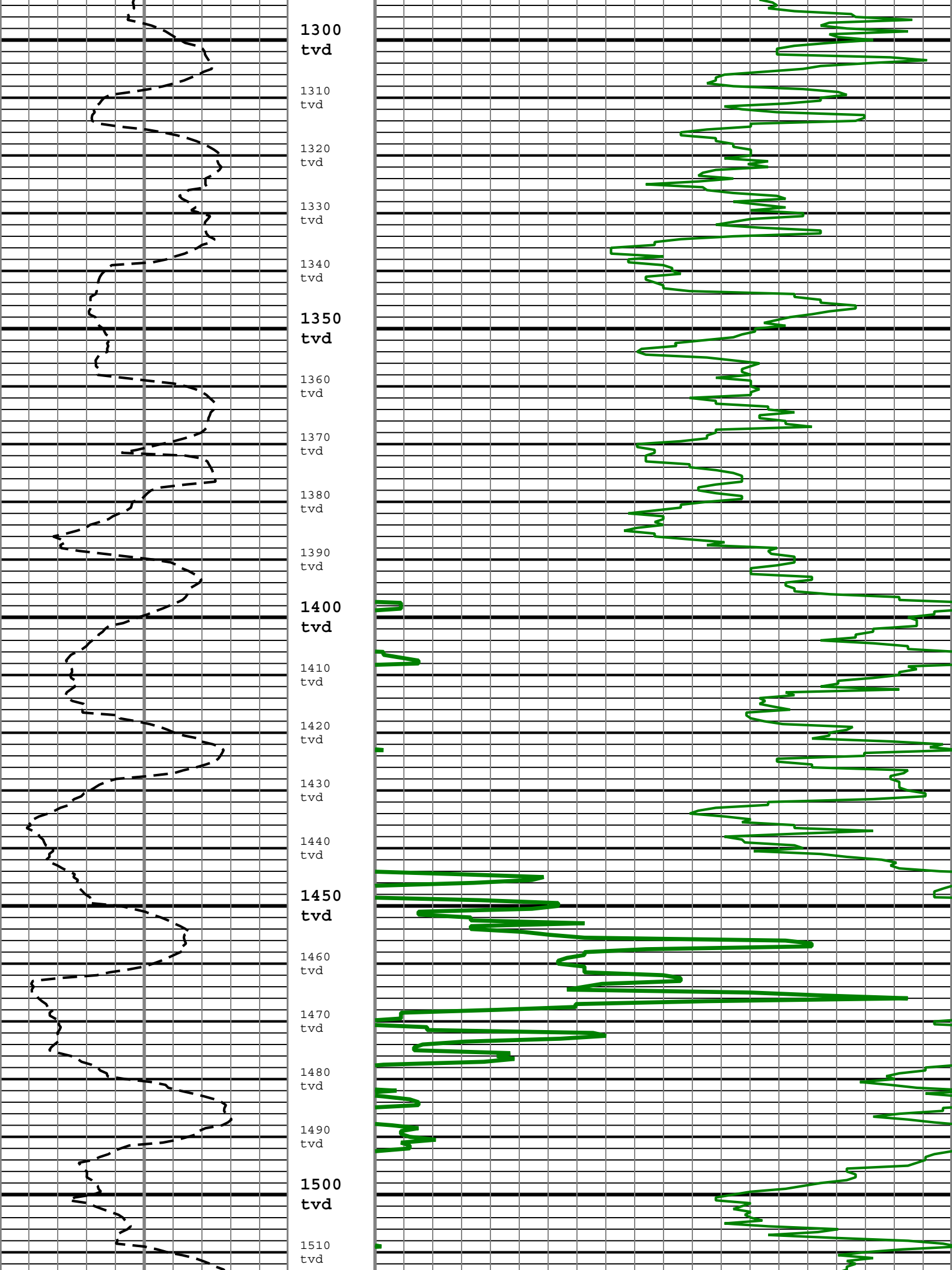


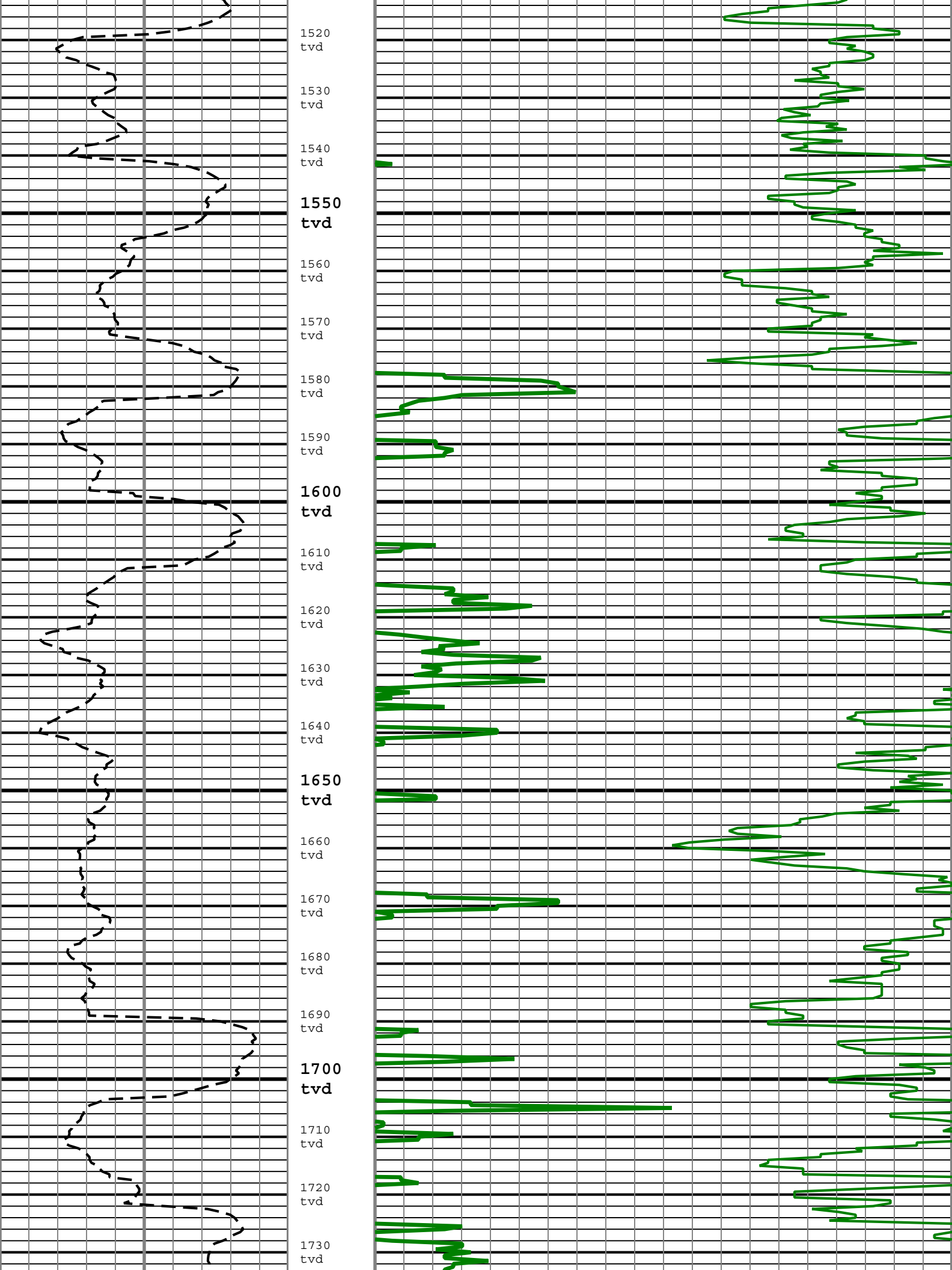


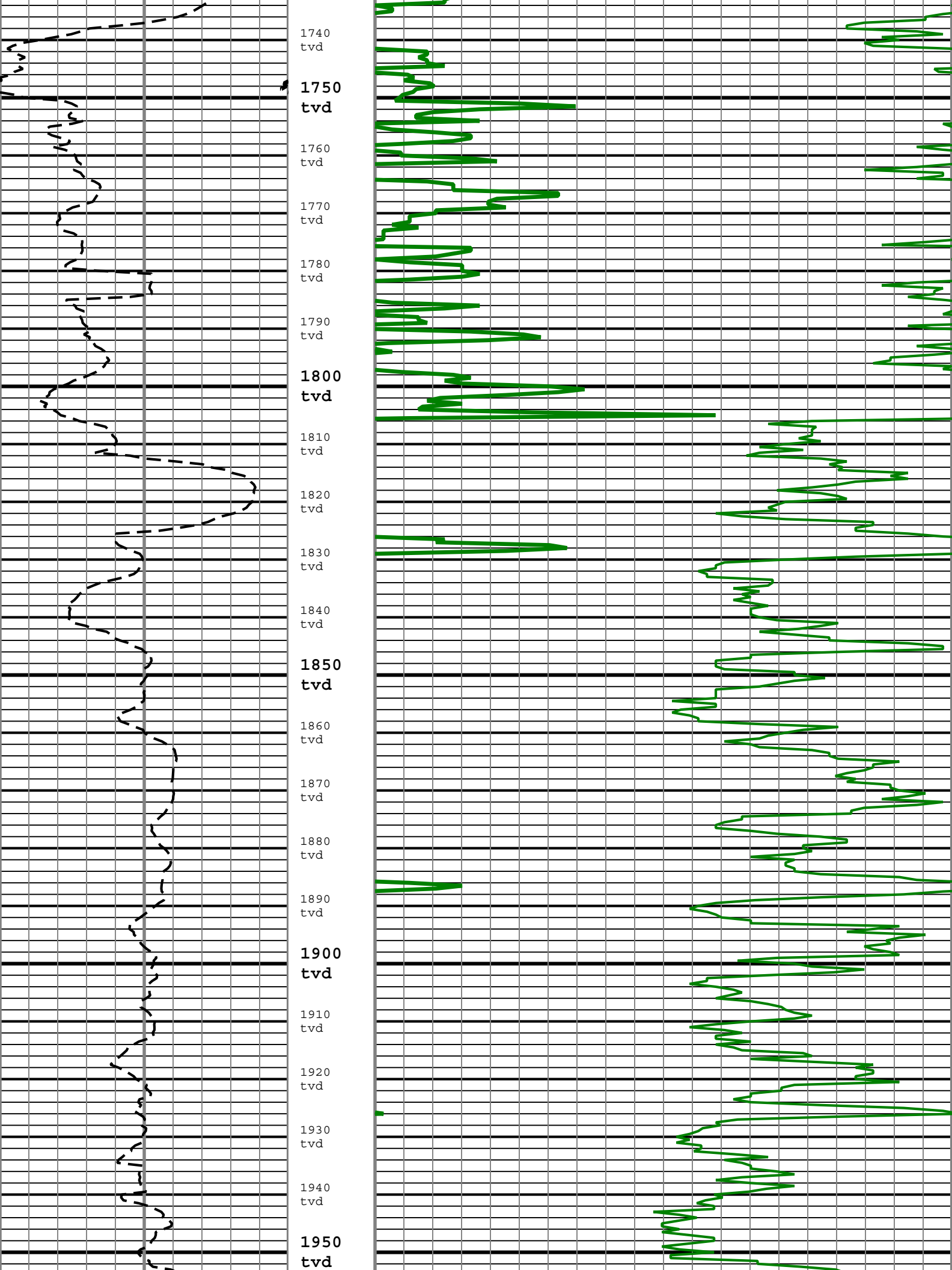


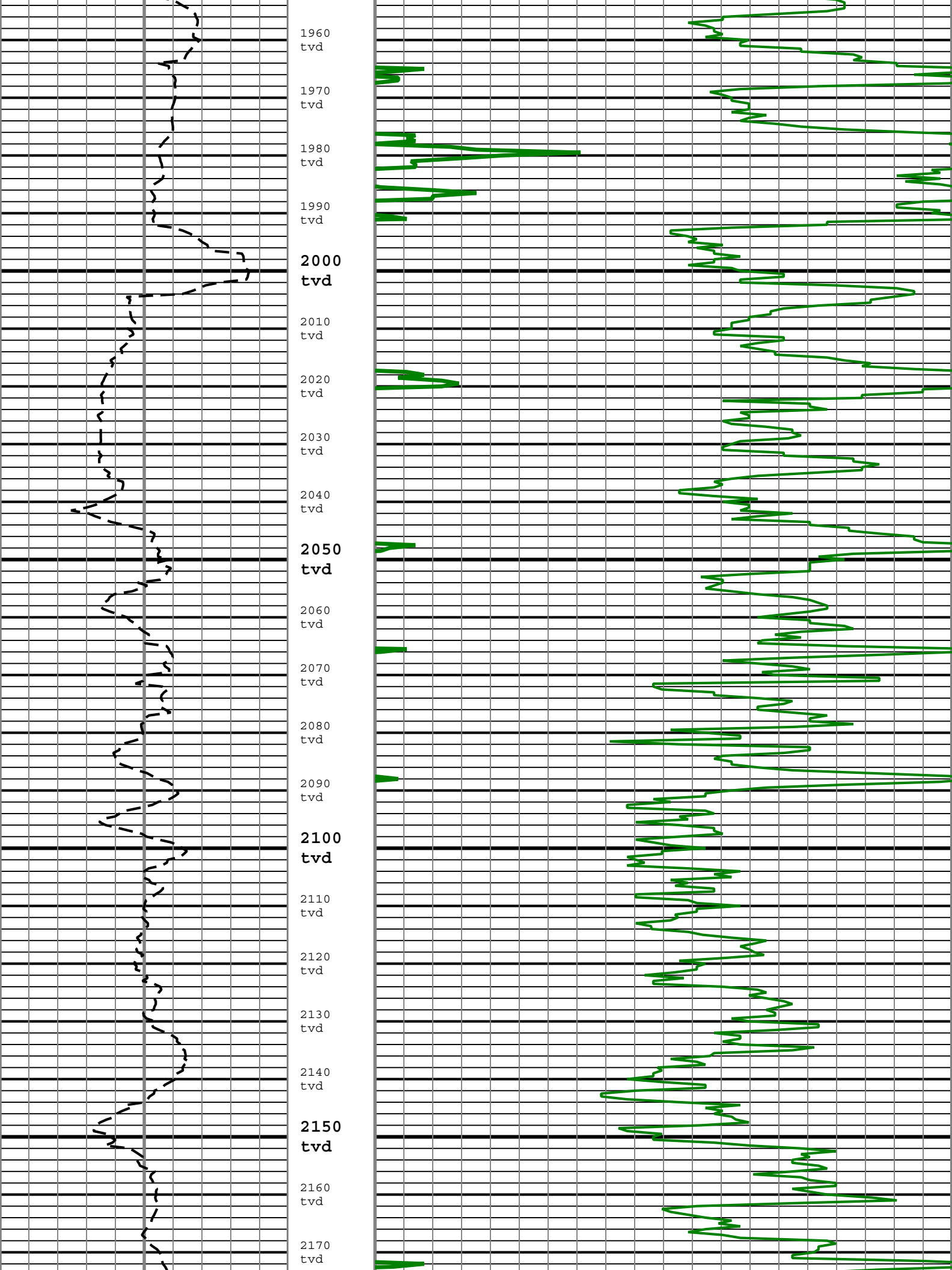


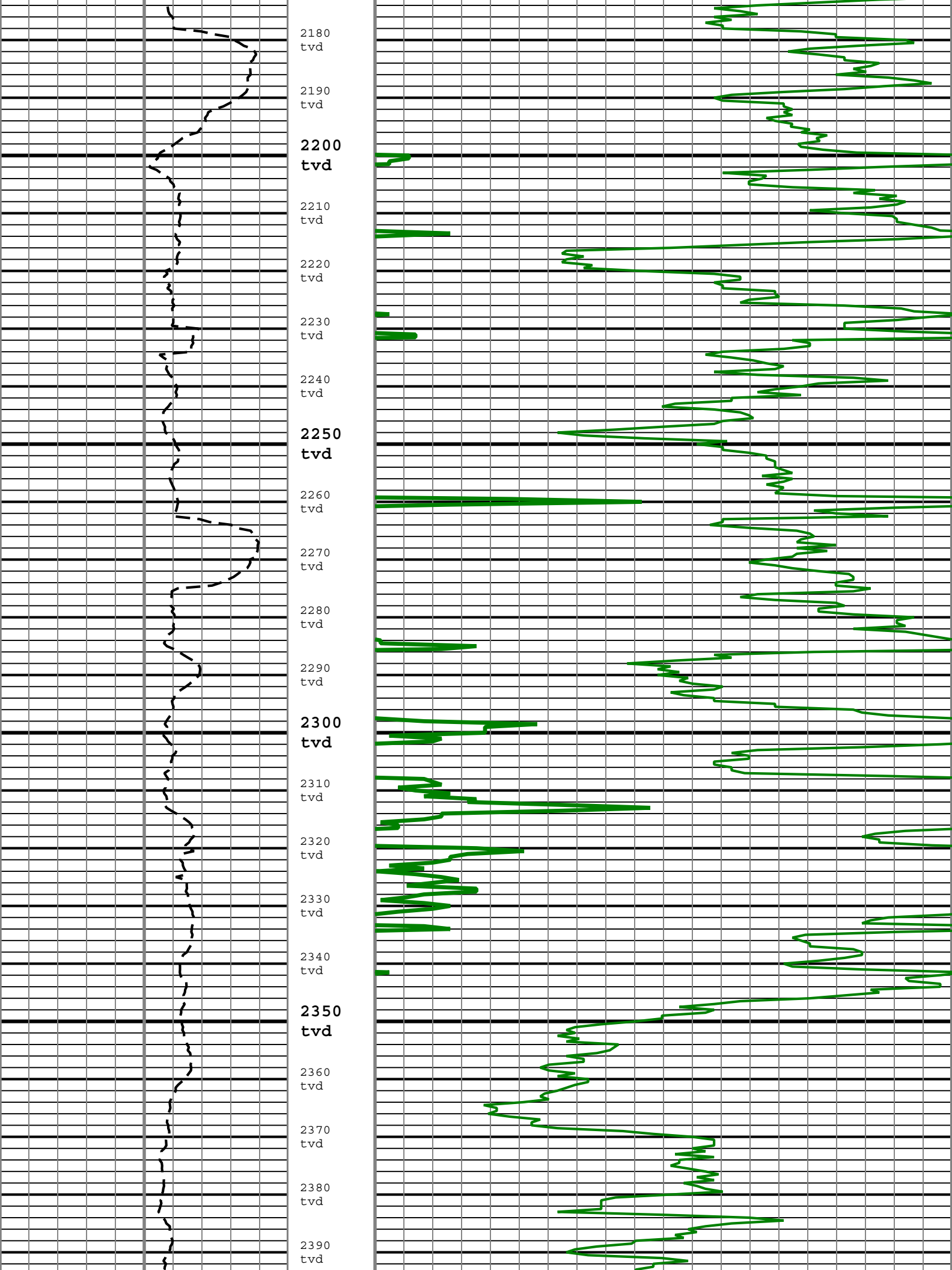


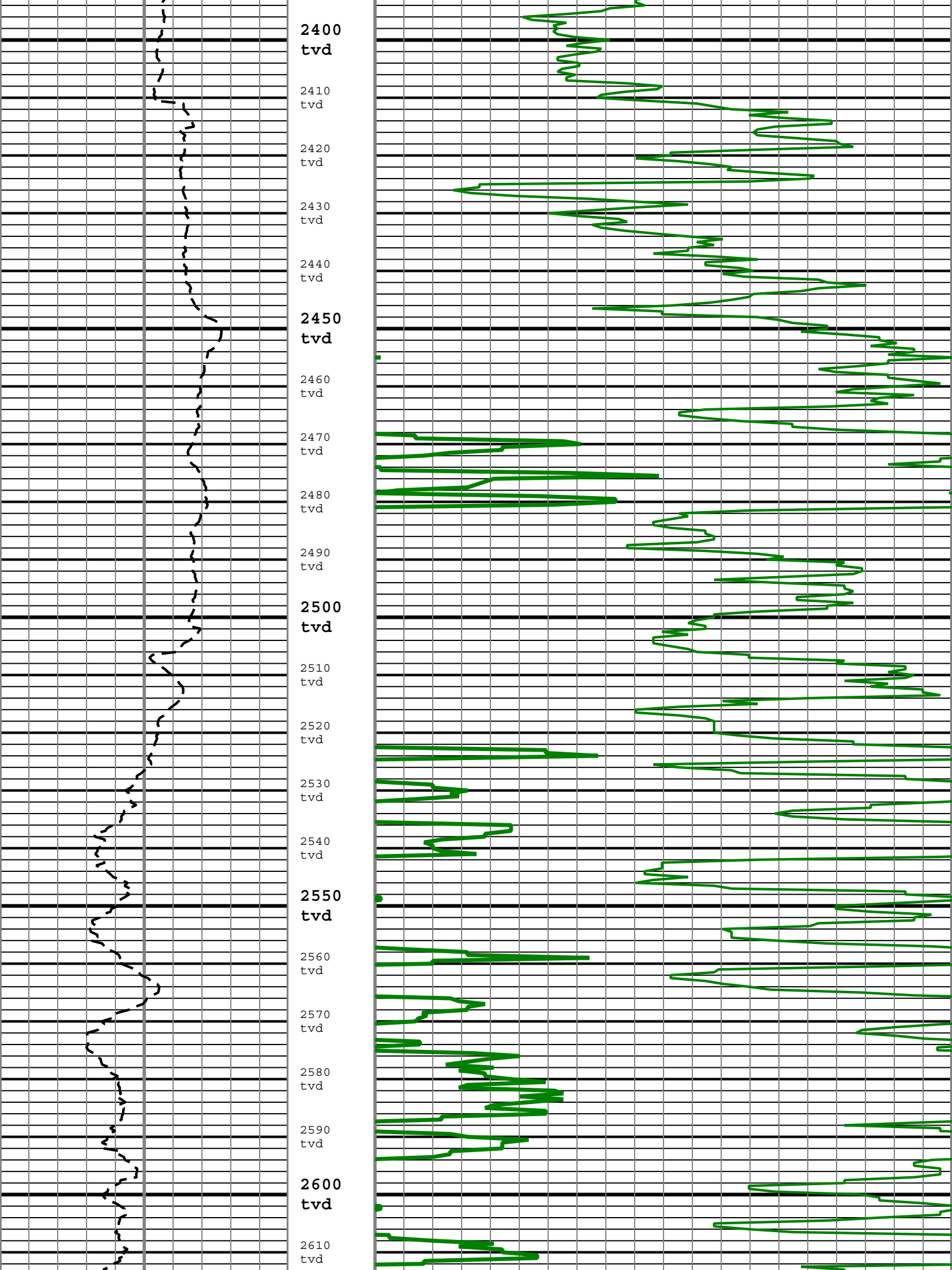


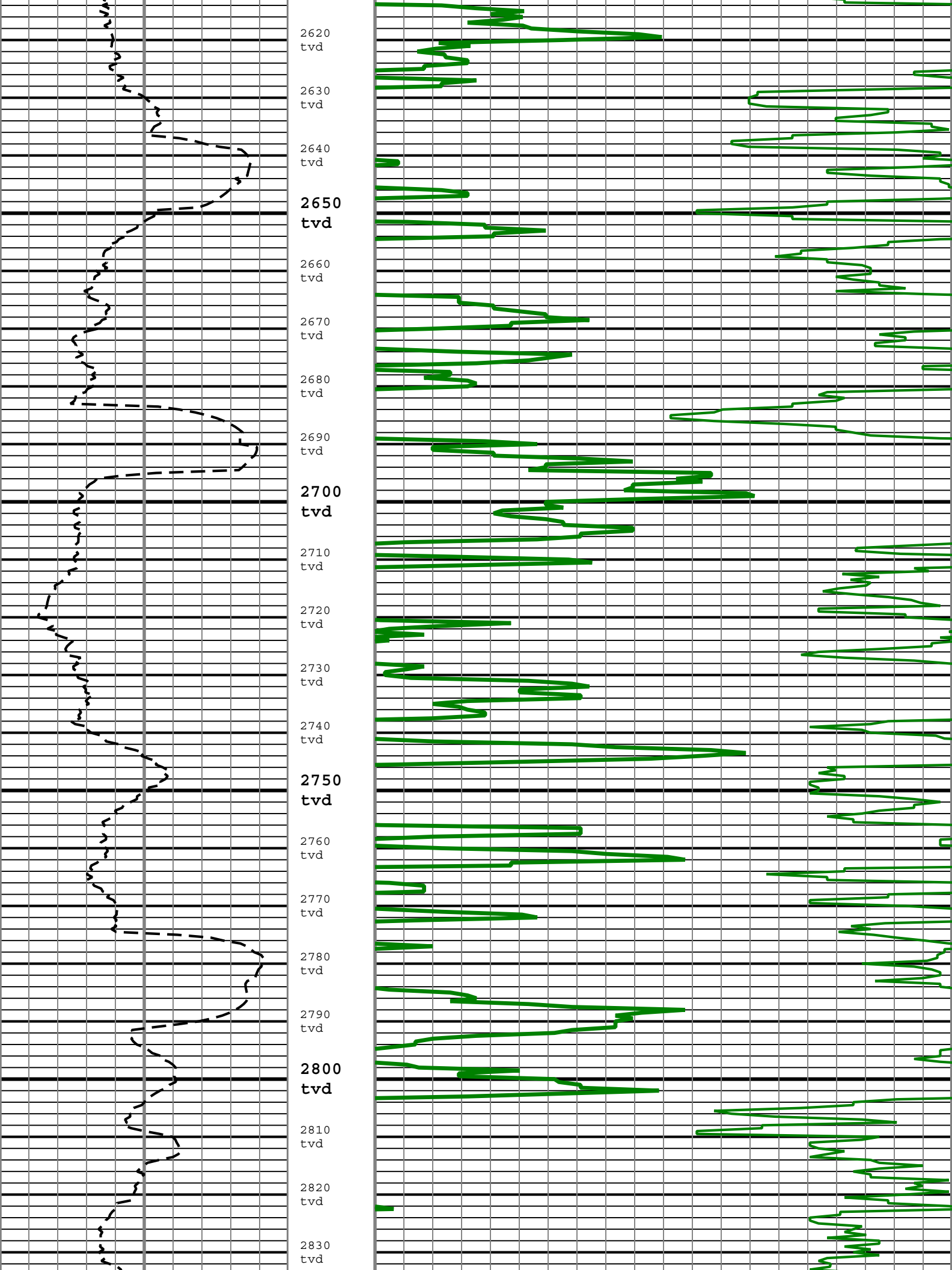


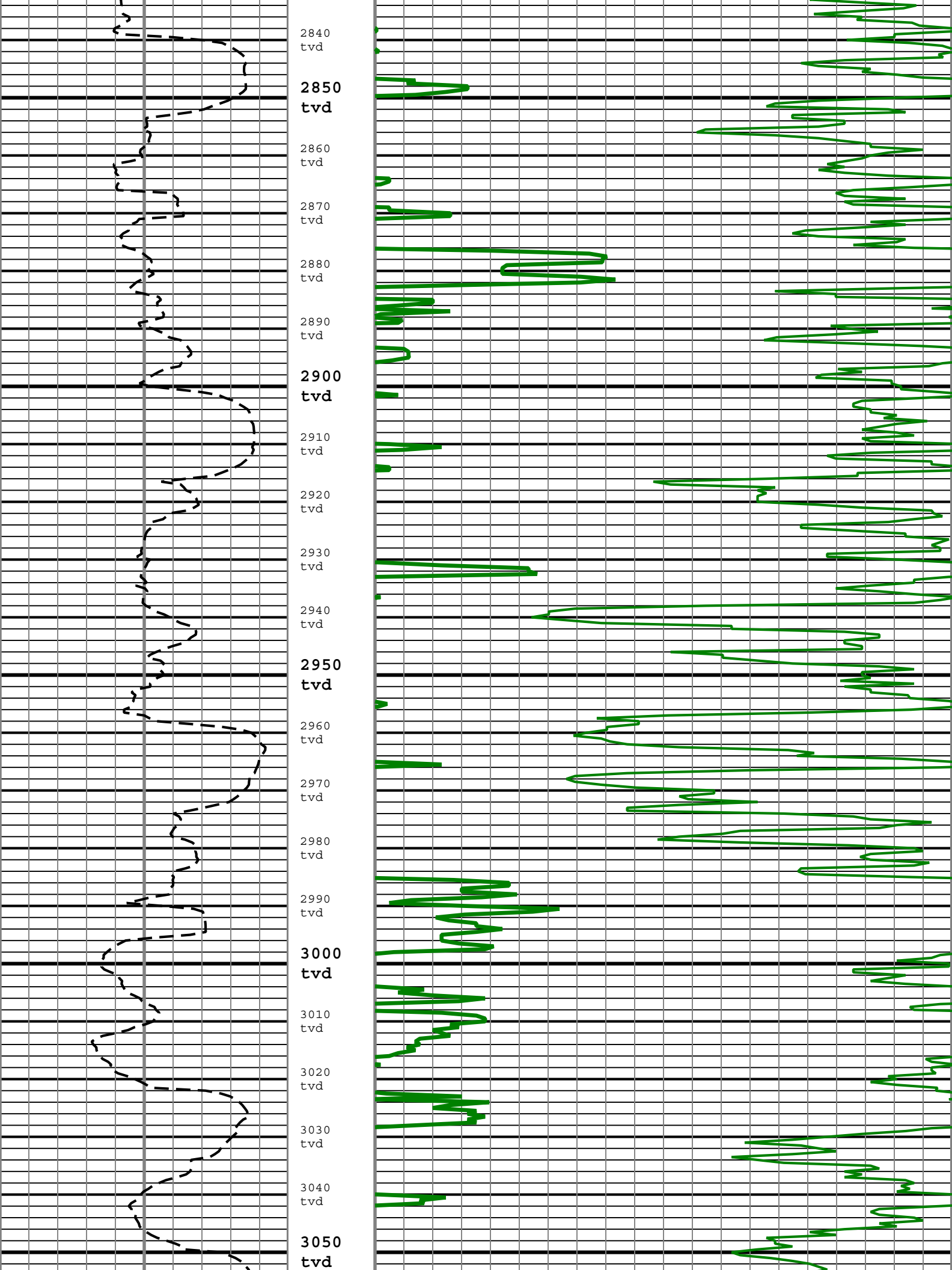


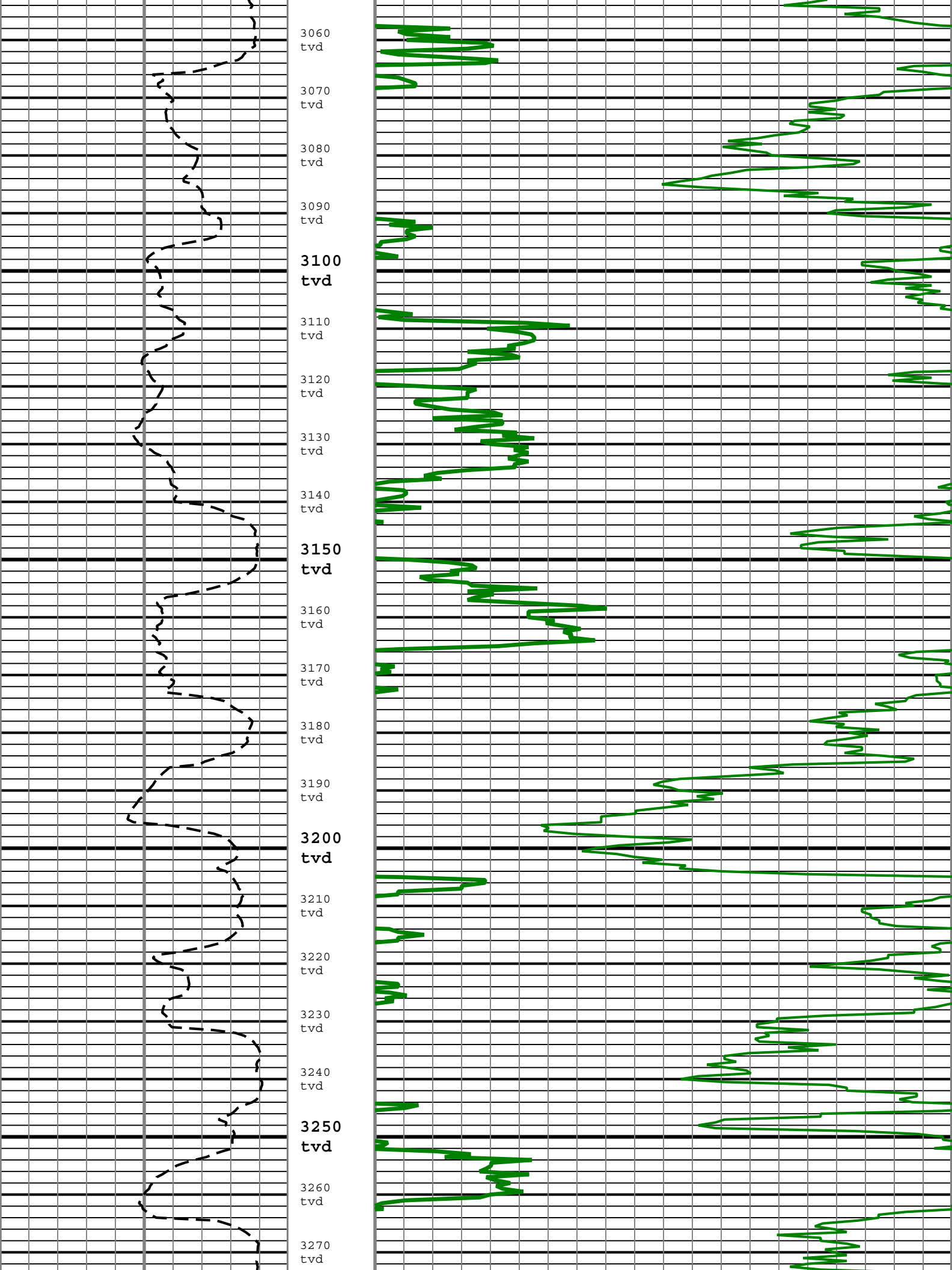


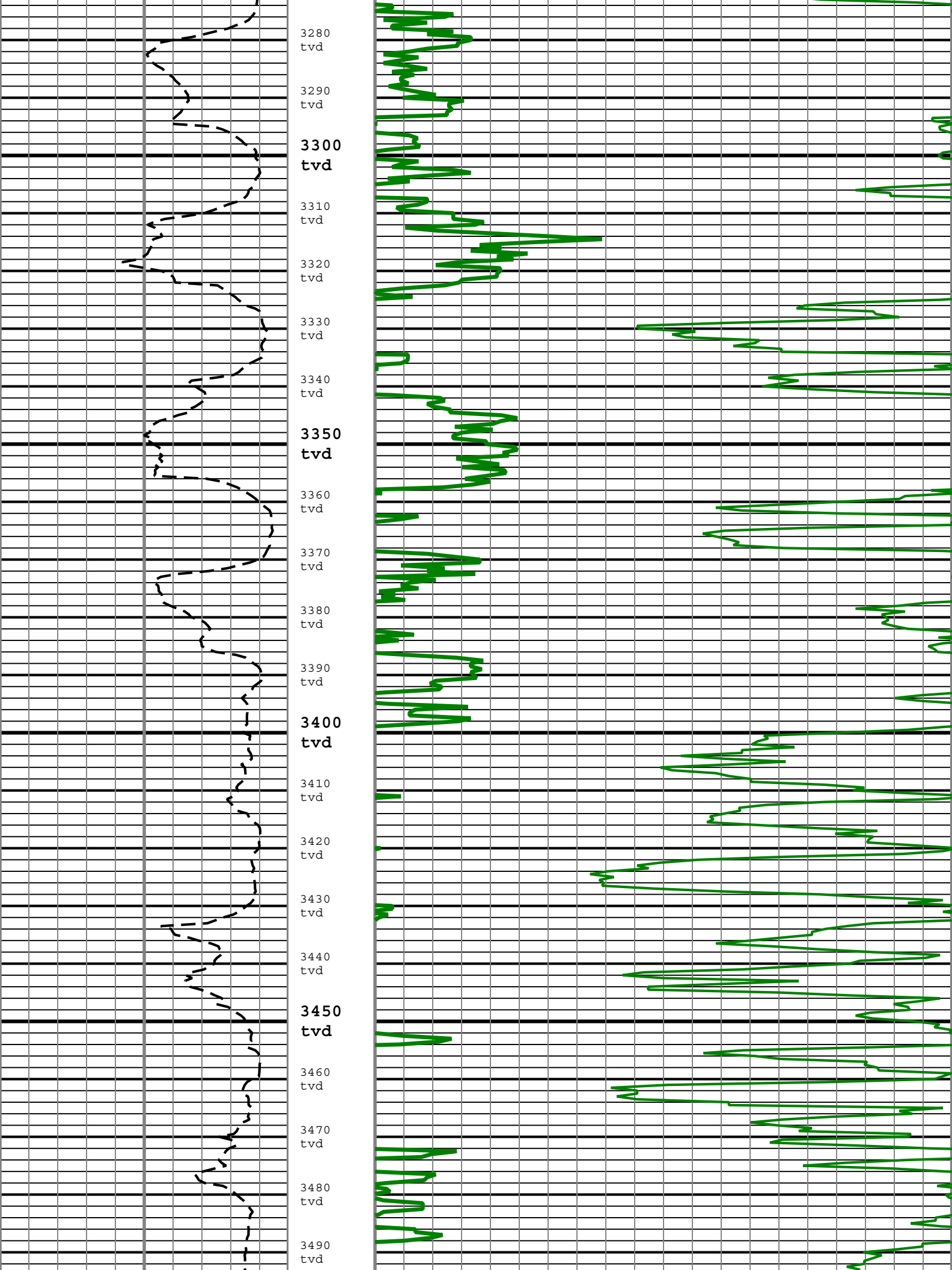


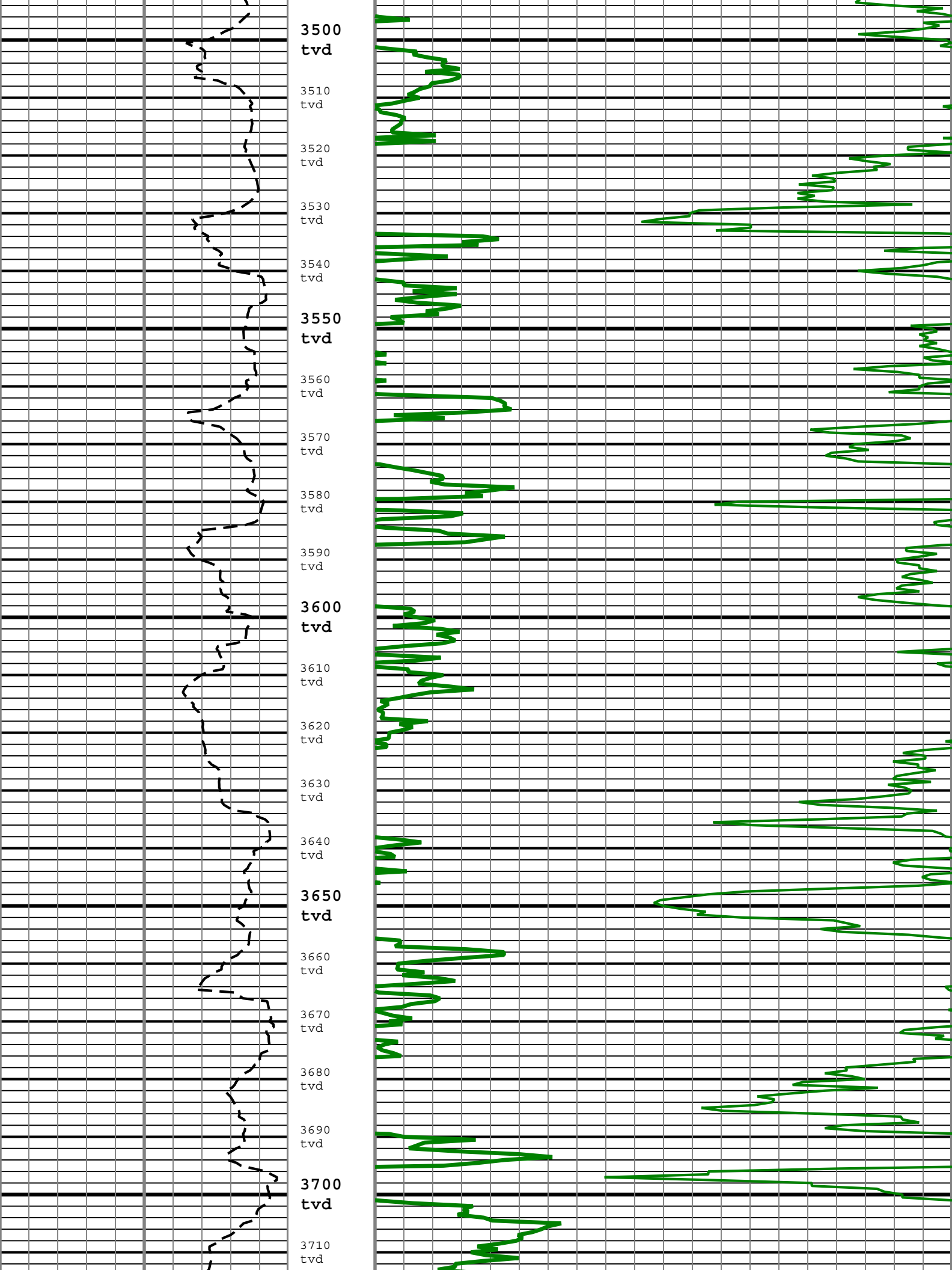


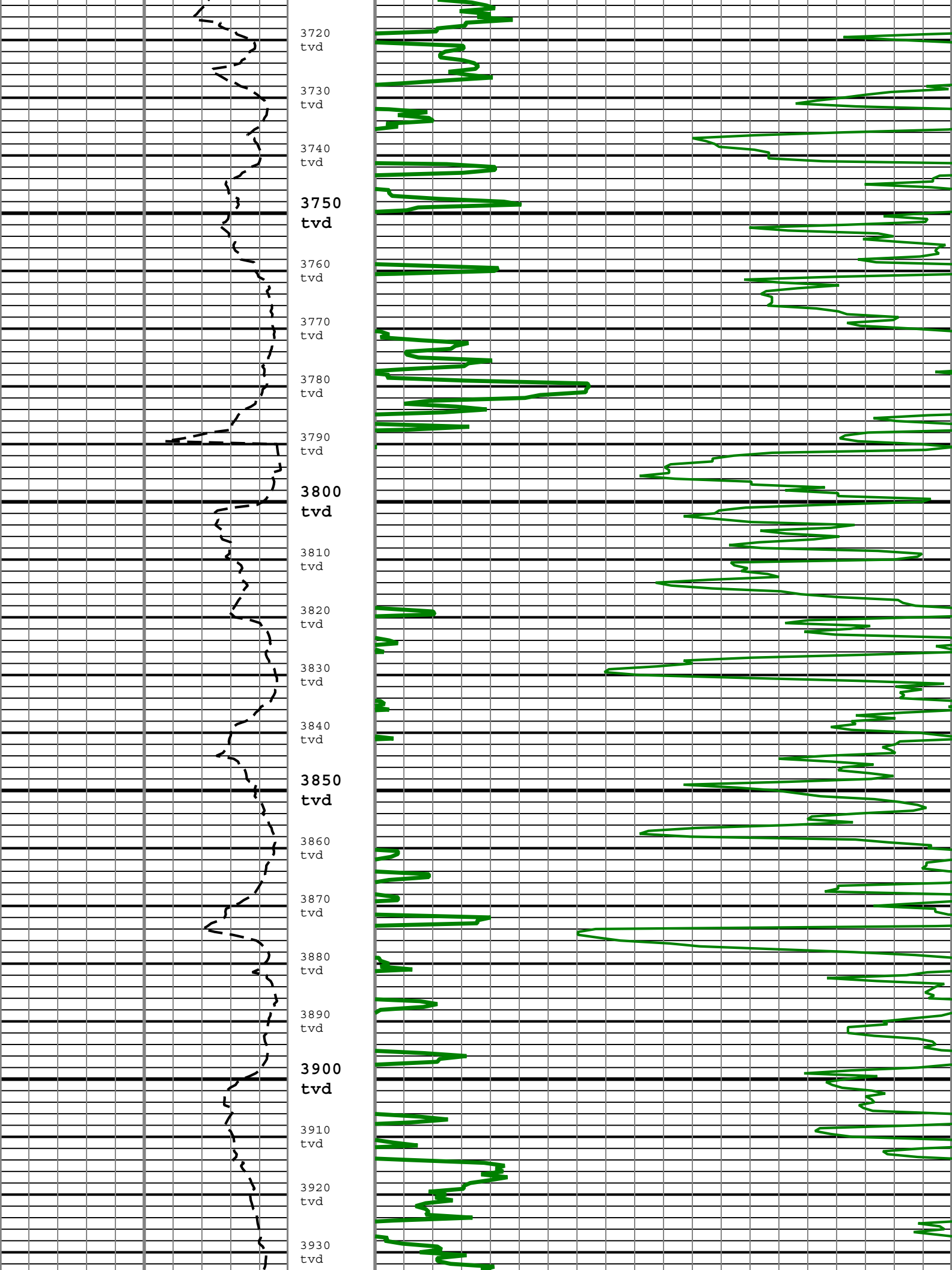


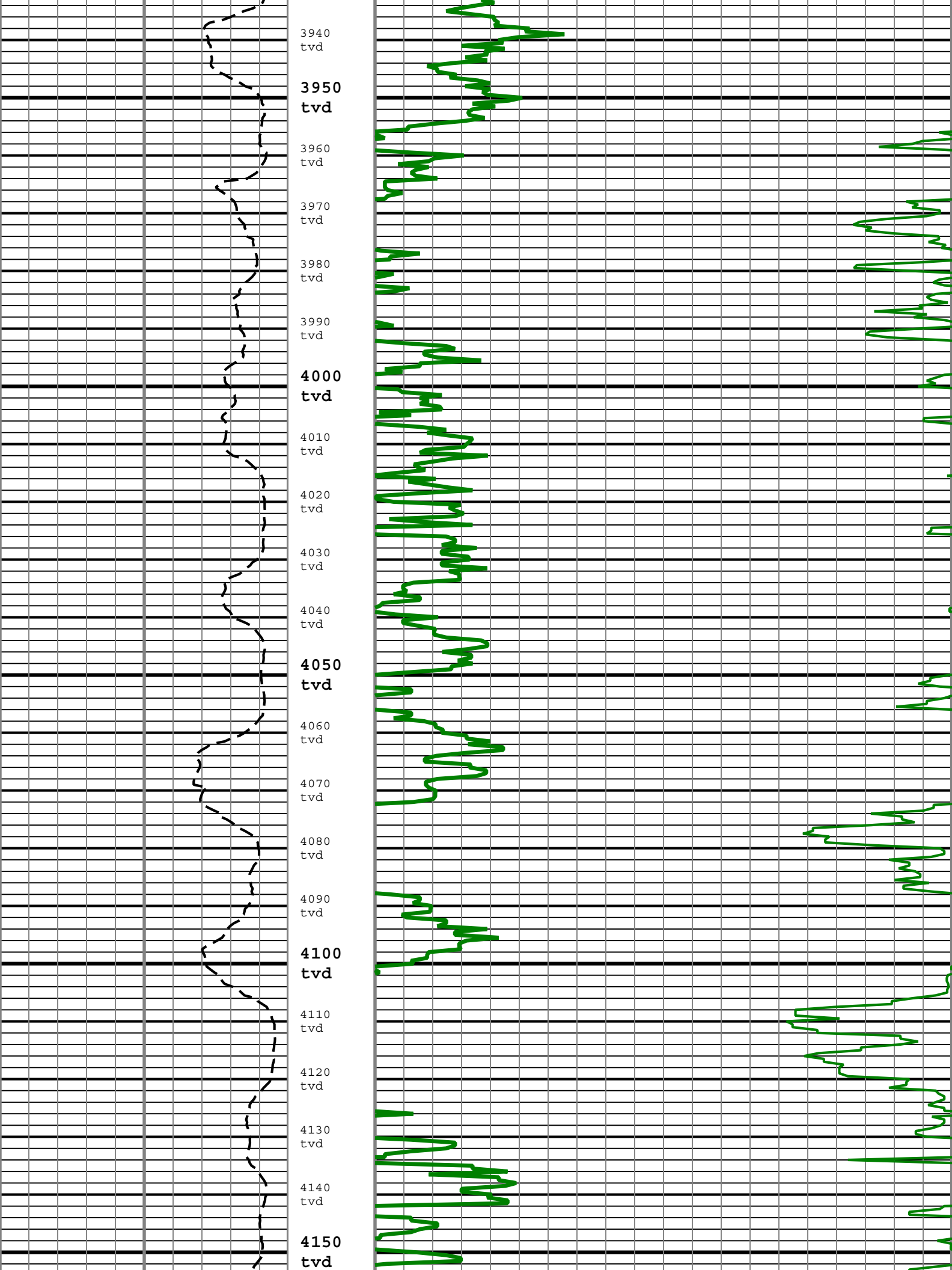


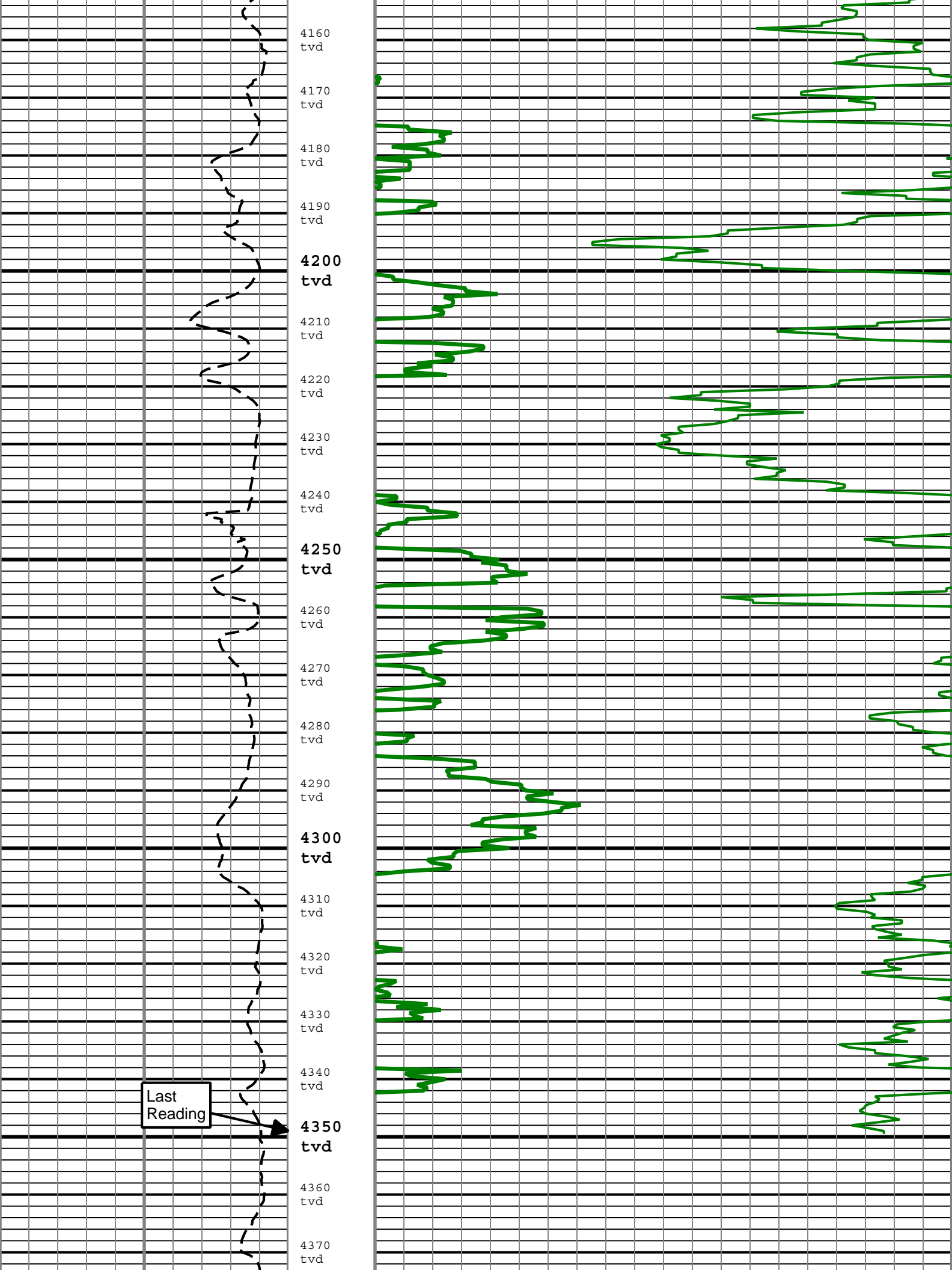


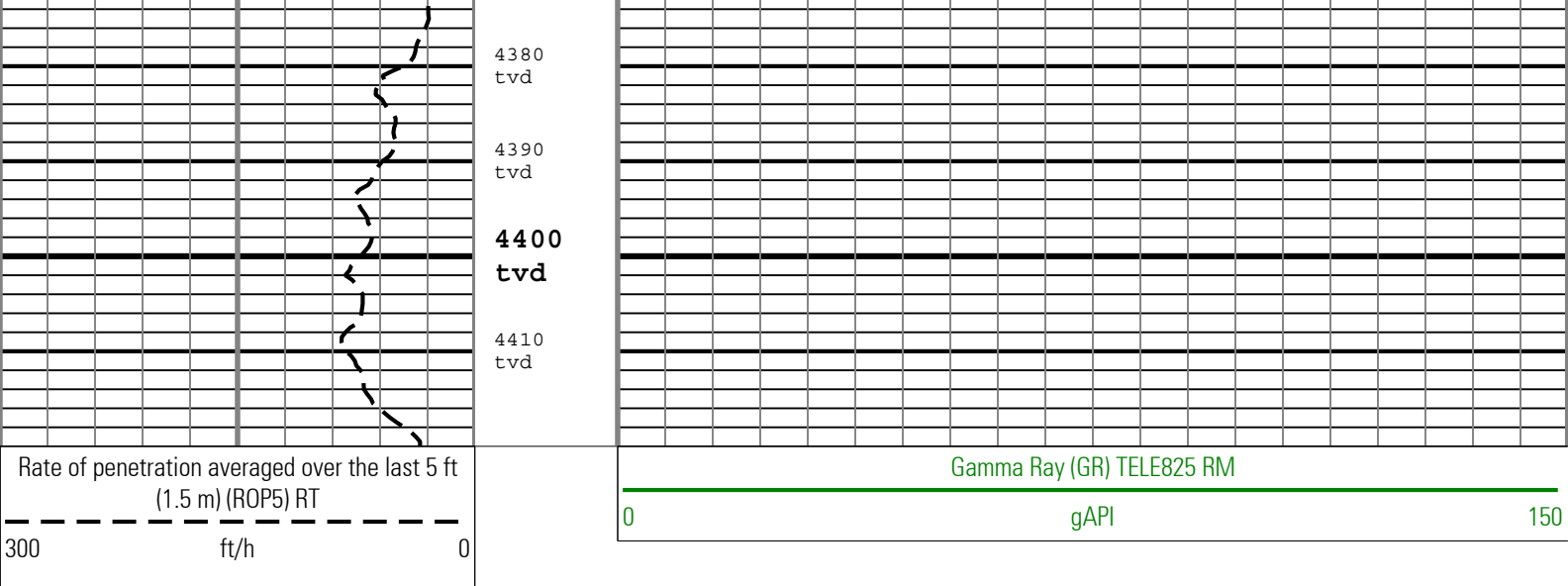












Description: TeleScope Gamma Ray Depth Format: Log (TeleScope Gamma Ray TVD RM) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: TVD
Creation Date: 07-Jan-2011 11:13:36

Channel Processing Parameters				
Parameter	Description	ToolPath	Value	Unit
BS	Bit Size	COMPLETION	14.75	in
DFD	Drilling Fluid Density	Borehole	Time Zoned	lbm/gal

Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
DFD	9.3	18-Dec-2010 20:48:15	19-Dec-2010 23:00:00	143	1235.92
DFD	9	19-Dec-2010 23:00:00	20-Dec-2010 11:00:00	1235.92	2050.5
DFD	8.9	20-Dec-2010 11:00:00	21-Dec-2010 11:00:00	2050.5	3394.92
DFD	9	21-Dec-2010 11:00:00	21-Dec-2010 23:00:00	3394.92	3709.92
DFD	9.1	21-Dec-2010 23:00:00	22-Dec-2010 23:00:00	3709.92	3820.75
DFD	9.2	22-Dec-2010 23:00:00	23-Dec-2010 11:00:00	3820.75	4062.17
DFD	9.05	23-Dec-2010 11:00:00	23-Dec-2010 23:00:00	4062.17	4350.17
DFD	9.45	23-Dec-2010 23:00:00	24-Dec-2010 12:44:16	4350.17	4530.42

All depth are at tool zero.

Tool Control Parameters	
Detailed Calibration Record	

TELE825 : TeleScope Calibration Gamma Ray Calibration - Run001			
Primary Set Components	Description	Tool Element	Serial Number
	Gamma Ray Cartridge	PMGR	276
Calibration Dates	Shop Calibration		
Date & Time / Date Validity	07-Jan-2009 03:12:30 PM - Expired Runs: Run001 OverDue: 527 days ,		
Calibration Source	Time Frame File		
Calibration Type: Gamma Ray: Blanket			
Description	Min/Nominal/Max	Shop	Unit
GR_GAIN Gamma Ray Calibration Gain	0.7500 / 1.0000 / 1.2500	0.9627	

Survey Record

Survey Calculation			
Method :	Minimum Radius of Curvature	DLS Method :	Lubinski
North Reference :	Grid North	Total Correction Formula :	Magnetic Dec - Grid Convergence
Grid Convergence :	-1.75 deg		

Rig Location														
Latitude :		39° 54' 19.064" N				Longitude :		108° 12' 15.612" W						
Tie In Point														
Measured Depth:		0.00 ft		Inclination:		0.00 deg		Azimuth:		0.00 deg				
True Veritcal Depth:		0.00 ft		North Displacement:		0.00 ft		East Displacement:		0.00 ft				
N/-S VSec Origin:		0.00 ft		E/-W VSec Origin:		0.00 ft		Vertical Section Azimuth:		118.36 deg				
D&I Inits Computed and Values Used - Run001														
Geomagnetic Model :		BGGM 2010				Geomagnetic Date :		10-Dec-2010						
Computed Location B :		52472.48 nT +/- 300.00nT				Used Location B :		52472.48 nT +/- 300.00nT						
Computed Location G :		1.00 gn +/- 0.00gn				Used Location G :		1.00 gn +/- 0.00gn						
Computed Magnetic Dip :		66.07 deg +/- 0.45deg				Used Magnetic Dip :		66.07 deg +/- 0.45deg						
Computed Magnetic Dec :		10.58 deg				Used Magnetic Dec :		10.58 deg						
Computed Total Correction :		12.33 deg				Used Total Correction :		12.33 deg						
Survey Quality Index														
2 : Long, failed mag criteria		19 : Manual, DMAG-Corrected Survey				20 : Manual, Secondary Tie-In Point								
25 : Manual, Projection to Bit														
Survey Correction Index														
0 : No correction														
Seq	MD (ft)	Incl (deg)	Azim (deg)	Course (ft)	TVD (ft)	V Sec (ft)	N/ -S (ft)	E/ -W (ft)	Closure (ft)	at Azi (deg)	DLS deg/100f	Tool Type	QI	CI
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.00	0.00	TIP		
2	27.00	0.00	0.00	27.00	27.00	0.00	0.00	0.00	0.00	90.00	0.00	Other	20	
3	138.00	0.97	237.31	111.00	137.99	-0.46	-0.51	-0.79	0.95	237.31	0.88	TeleScope	2	0
4	229.00	1.14	61.12	91.00	228.99	-0.34	-0.49	-0.65	0.82	233.07	2.32	TeleScope	2	0
5	321.00	1.51	77.69	92.00	320.96	1.08	0.21	1.34	1.35	81.01	0.58	TeleScope	2	0
6	411.00	2.13	104.06	90.00	410.92	3.60	0.06	4.12	4.13	89.17	1.14	TeleScope	2	0
7	503.00	3.48	114.86	92.00	502.81	8.04	-1.53	8.31	8.46	100.42	1.57	TeleScope	2	0
8	514.00	3.59	116.44	11.00	513.79	8.72	-1.82	8.92	9.12	101.55	1.38	TeleScope	2	0
9	604.00	5.14	122.11	90.00	603.52	15.56	-5.22	14.86	15.75	109.36	1.78	TeleScope	19	
10	695.00	6.90	124.69	91.00	694.02	25.06	-10.50	22.81	25.10	114.72	1.96	TeleScope	19	
11	791.00	8.45	124.38	96.00	789.16	37.81	-17.76	33.37	37.80	118.03	1.62	TeleScope	19	
12	886.00	10.11	118.23	95.00	882.91	53.09	-25.65	46.48	53.08	118.89	2.03	TeleScope	19	
13	981.00	11.43	114.18	95.00	976.24	70.81	-33.45	62.42	70.80	118.19	1.60	TeleScope	19	
14	1076.00	12.93	118.06	95.00	1069.10	90.83	-42.31	80.38	90.85	117.76	1.80	TeleScope	19	
15	1169.00	13.84	119.89	93.00	1159.57	112.36	-52.75	99.21	112.37	118.00	1.08	TeleScope	19	
16	1265.00	13.87	120.45	96.00	1252.78	135.33	-64.30	119.08	135.33	118.37	0.14	TeleScope	19	
17	1358.00	14.60	121.69	93.00	1342.92	158.18	-76.11	138.67	158.17	118.76	0.85	TeleScope	19	
18	1454.00	15.29	124.28	96.00	1435.68	182.84	-89.59	159.42	182.87	119.33	1.00	TeleScope	19	
19	1548.00	16.14	122.82	94.00	1526.16	208.20	-103.65	180.64	208.27	119.85	1.00	TeleScope	19	
20	1642.00	16.41	122.66	94.00	1616.39	234.47	-117.90	202.80	234.58	120.17	0.29	TeleScope	19	
21	1738.00	17.07	121.86	96.00	1708.33	262.05	-132.66	226.19	262.20	120.39	0.73	TeleScope	19	
22	1832.00	17.72	122.31	94.00	1798.03	290.09	-147.58	249.99	290.32	120.56	0.71	TeleScope	19	
23	1927.00	17.99	120.65	95.00	1888.45	319.18	-162.79	274.83	319.42	120.64	0.61	TeleScope	19	
24	2021.00	17.82	120.32	94.00	1977.90	348.06	-177.45	299.74	348.33	120.63	0.21	TeleScope	19	
25	2116.00	17.78	118.30	95.00	2068.35	377.09	-191.67	325.06	377.36	120.53	0.65	TeleScope	19	
26	2210.00	17.81	119.15	94.00	2157.85	405.81	-205.47	350.25	406.07	120.40	0.28	TeleScope	19	
27	2305.00	17.37	118.89	95.00	2248.41	434.52	-219.40	375.35	434.78	120.31	0.47	TeleScope	19	
28	2400.00	17.00	118.55	95.00	2339.17	462.59	-232.89	399.97	462.83	120.21	0.40	TeleScope	19	
29	2495.00	17.05	117.88	95.00	2430.01	490.40	-246.04	424.48	490.62	120.10	0.21	TeleScope	19	
30	2589.00	16.57	117.26	94.00	2519.99	517.59	-258.62	448.57	517.78	119.97	0.55	TeleScope	19	

31	2683.00	15.82	117.07	94.00	2610.26	543.80	-270.59	471.90	543.96	119.83	0.80	TeleScope	19	
32	2778.00	15.07	117.64	95.00	2701.83	569.09	-282.22	494.37	569.26	119.72	0.81	TeleScope	19	
33	2873.00	14.45	119.28	95.00	2793.69	593.29	-293.74	515.65	593.44	119.67	0.79	TeleScope	19	
34	2968.00	14.46	119.01	95.00	2885.69	617.00	-305.29	536.36	617.16	119.65	0.07	TeleScope	19	
35	3063.00	15.04	119.51	95.00	2977.56	641.19	-317.12	557.46	641.34	119.63	0.63	TeleScope	19	
36	3158.00	16.11	119.46	95.00	3069.07	666.69	-329.67	579.67	666.86	119.63	1.13	TeleScope	19	
37	3252.00	16.70	118.33	94.00	3159.24	693.24	-342.49	602.91	693.41	119.60	0.71	TeleScope	19	
38	3347.00	15.99	116.60	95.00	3250.40	719.96	-354.83	626.62	720.11	119.52	0.91	TeleScope	19	
39	3442.00	14.95	113.95	95.00	3341.96	745.26	-365.66	649.52	745.37	119.38	1.32	TeleScope	19	
40	3536.00	13.70	113.51	94.00	3433.03	768.44	-375.03	670.81	768.54	119.21	1.33	TeleScope	19	
41	3631.00	11.09	113.79	95.00	3525.81	788.76	-383.20	689.49	788.81	119.06	2.75	TeleScope	19	
42	3727.00	9.62	111.80	96.00	3620.25	805.94	-389.90	705.39	805.97	118.93	1.58	TeleScope	19	
43	3819.00	8.73	110.32	92.00	3711.07	820.49	-395.18	719.07	820.51	118.79	1.00	TeleScope	19	
44	3915.00	7.33	107.85	96.00	3806.12	833.72	-399.59	731.74	833.73	118.64	1.50	TeleScope	19	
45	4009.00	5.17	106.22	94.00	3899.56	843.76	-402.61	741.51	843.77	118.50	2.31	TeleScope	19	
46	4104.00	3.35	105.87	95.00	3994.29	850.66	-404.57	748.30	850.66	118.40	1.91	TeleScope	2	0
47	4199.00	1.72	96.86	95.00	4089.20	854.70	-405.50	752.38	854.69	118.32	1.77	TeleScope	2	0
48	4293.00	0.67	73.00	94.00	4183.18	856.39	-405.51	754.30	856.40	118.26	1.21	TeleScope	2	0
49	4388.00	0.76	78.14	95.00	4278.17	857.26	-405.22	755.45	857.25	118.21	0.12	TeleScope	2	0
50	4457.00	0.80	80.79	69.00	4347.16	857.99	-405.04	756.37	858.01	118.17	0.07	TeleScope	2	0
51	4530.00	0.80	80.79	73.00	4420.16	858.80	-404.88	757.38	858.79	118.13	0.00	Other	25	

Company: ExxonMobil Oil Corporation

Well: PCU 296 6B1

Field: Piceance Creek

County: Rio Blanco

State: Colorado

Country: United States



Schlumberger

TeleScope Gamma Ray

1 in. / 100 ft and 5 in. / 100 ft True Vertical Depth

Recorded Mode Log