

# SlimPulse - Gamma Ray

2 in. / 100 ft and 5 in. / 100 ft Measured Depth

# Schlumberger

## Recorded Mode, Composite Log

Company: Noble Energy

Well: Heartland C30-79-1HN

Field: Wattenberg

County: Weld

State: Colorado

Country: U.S.A.

Section: 25 APIN: 0512339555

Township: 04N Rig Name: PD 828

Range: 65W Rig Type: Top Drive

FL: NAD83 Colorado State Plane, Northern Zone, US Feet

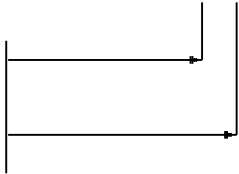
FL1: Latitude: N 40° 16' 36.22800" Northing: 1344918.576 ftUS

FL2: Longitude: W 104° 36' 12.52800" Easting: 3250139.854 ftUS

Log Measured From: - Drill Floor: 4861.00 ft

Ground Level: 4845.00 ft

Permanent Datum: - Mean Sea Level



Acquisition Dates: 29-Aug-2014 -- 07-Sep-2014

Other Services:

Log Interval: 741.00(ft) -- 16871.00(ft)

Directional Drilling

Index Types: Measured Depth

Surveys / Continuous D&I

Index Scales: 1:600 2" / 100', 1:240 5" / 100'

Downhole Temperature

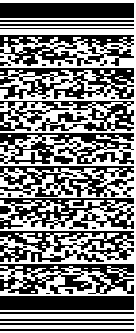
Depth Source: Driller's Depth

Downhole Shocks

Depth Sensor: PASON

Print Type: Final

Spud Date: 23-Aug-2014



## 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.

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Borehole Size/Casing Record

Bit						
Bit Size ( in )	8.75	6.125				
Top Driller ( ft )	16	7291				
Bottom Driller ( ft )	7291	16871				
Casing						
Size ( in )	9.625	7				
Weight ( lbm/ft )	36	26				
Inner Diameter ( in )	8.921	6.276				
Grade	J55	N/A				
Top Driller ( ft )	16	16				
Bottom Driller ( ft )	707	7281				

Operational Run Summary

Parameter ( unit )	Run 1	Run 2				
Date Log Started	29-Aug-2014	30-Aug-2014				
Time Log Started	09:15:58	12:13:08				
Date Log Finished	29-Aug-2014	07-Sep-2014				
Time Log Finished	16:32:09	05:17:58				
Bit Size ( in )	6.125	6.125				
Bit Start Depth ( ft )	7297.00	7444.00				
Bit Stop Depth ( ft )	7444.00	16871.00				
Top Log Interval ( ft )	7297.00	7398.00				
Bottom Log Interval ( ft )	7398.00	16826.00				
Max Hole Deviation ( deg )	86.39	90.62				
Azimuth of Max Deviation ( deg )	0.87	0.34				
Logging Unit Number	Command Center	Command Center				
Logging Unit Location	Zone 2	Zone 2				
Recorded By	J. Leslie	J. Leslie				
Witnessed By	D. Lipcovski	D. Lipcovski				
Service Order Number	14CCO0611	14CCO0611				

Borehole Fluids

Parameter( unit )	Run 1	Run 2				
Fluid Type	Water	Water				
Max Recorded Temperatures ( degF )	110	100				
Source of Sample	Active Tank	Active Tank				
Salinity ( ppm )	34972.17	34972.17				

Density ( lbm/gal )	10	Zoned				
Funnel Viscosity ( s )	41	33				
Fluid Loss ( cm3 )						
PH	8.5	10.1				
Source RMF	Pressed	Pressed				
RMC	Pressed	Pressed				
RM @ Meas Temp ( ohm.m@degF )	0.2 @ 68	0.2 @ 68				
RMF @ Meas Temp ( ohm.m@degF )	0.15 @ 68	0.15 @ 68				
RMC @ Meas Temp ( ohm.m@degF )						
RM @ BHT ( ohm.m@degF )	0.07 @ 212	0.07 @ 212				
RMF @ BHT ( ohm.m@degF )	0.05 @ 212	0.05 @ 212				
RMC @ BHT ( ohm.m@degF )	NaN @ 212	NaN @ 212				
Total Solid ( % )	10	5.7				
High Gravity Solids ( % )	6.5	2.3				

## Zoned Borehole Fluids

### Run 2

Parameter	Value	Start
Density	9.5	8/30/2014 12:13:08 PM
Density	10.1	9/3/2014 7:54:35 PM
Density	10	9/5/2014 6:32:21 PM

## Remarks and Equipment Summary

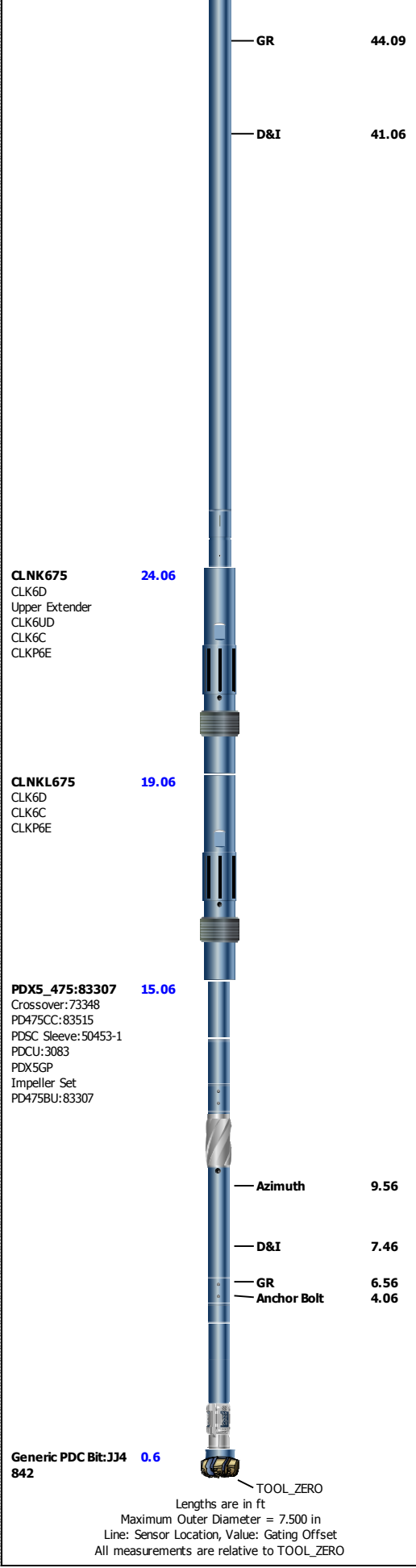
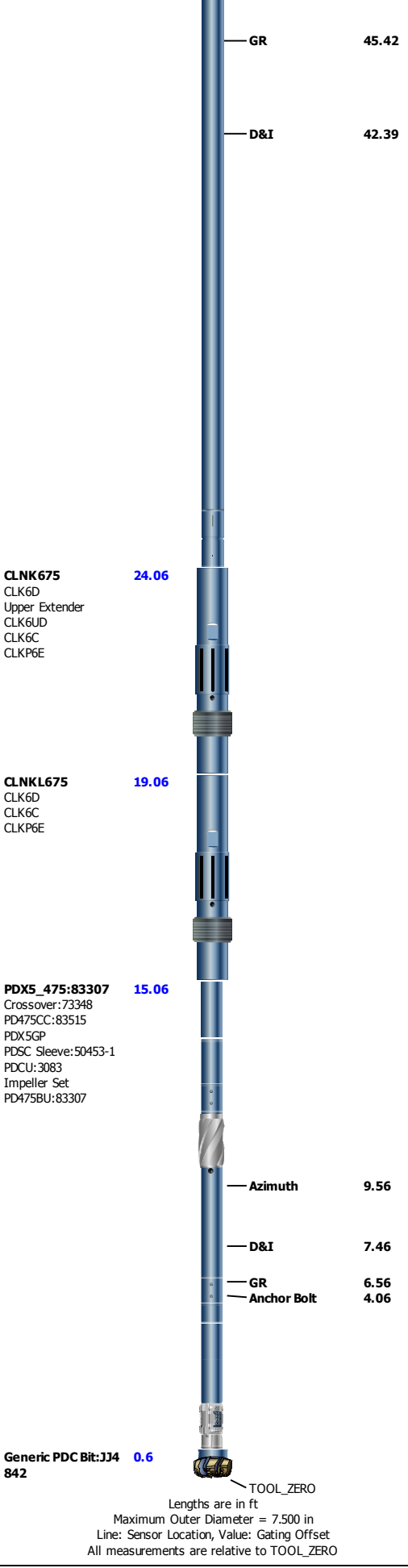
Data presented is from tool memory and acquired while drilling 7297 ft MD to 16871 ft MD.	
Depth Reference: Driller's Depth.	
Environmental Corrections: Gamma Ray is corrected for mud weight, collar thickness, and bit size. Barite and Potassium in the mud affect Gamma Ray readings.	
Run 1: Remarks	Run 2: Remarks
Run Objective: Drill Lateral Section.	Run Objective: Drill Lateral Section.
Bit to GR: 45.42 ft. Bit to D&I: 42.39 ft.	Bit to GR: 44.09 ft. Bit to D&I: 41.06 ft.
Drilled from: 7297 ft MD to 7444 ft MD. Logged from: 7297 ft MD to 7398 ft MD.	Drilled from: 7444 ft MD to 16871 ft MD. Logged from: 7398 ft MD to 16826 ft MD.
SlimPulse Software: SPEC V11.0 SlimPulse UGR Calibrated: June 24, 2014 SlimPulse UDI Calibrated: June 17, 2014	SlimPulse Software: SPEC V11.0 SlimPulse UGR Calibrated: Aug 9, 2014 SlimPulse UDI Calibrated: July 3, 2014
PathFinder A Schlumberger Co. Personnel: MWD: Jessica Leslie & Dennis Lipcovski. DD: Christopher Sisseck & Tony Butler.	PathFinder A Schlumberger Co. Personnel: MWD: Jessica Leslie & Dennis Lipcovski. DD: Christopher Sisseck & Tony Butler.
Reason for POOH: To change MWD.	Reason for POOH: Well TD.

### Run 1: Toolstring

Equip name	Length	MP name	Offset
SPULSE-GEN:DR20 300	57.92		
FLWSUB:DR15264			
SPCOLLAR:DR20300			
SPMA:3032			
SPEC:855			
SPBA:T1033355			
UBHO:475U117			

### Run 2: Toolstring

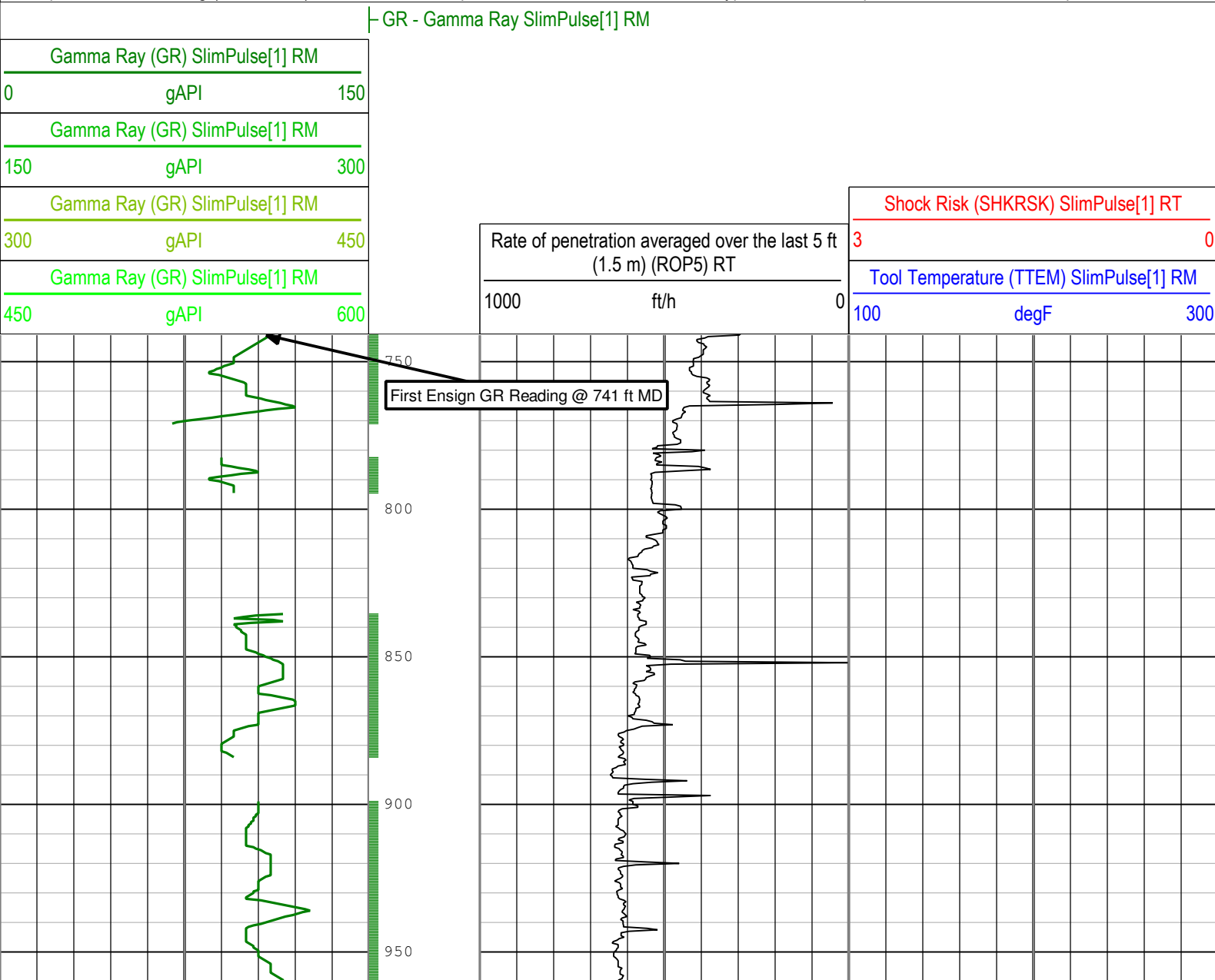
Equip name	Length	MP name	Offset
SPULSE-GEN:DR20 300	58.04		
FLWSUB:DR18532			
SPCOLLAR:DR20300			
SPMA:733			
SPEC:679			
SPBA:T1033355			
UBHO:475U117			

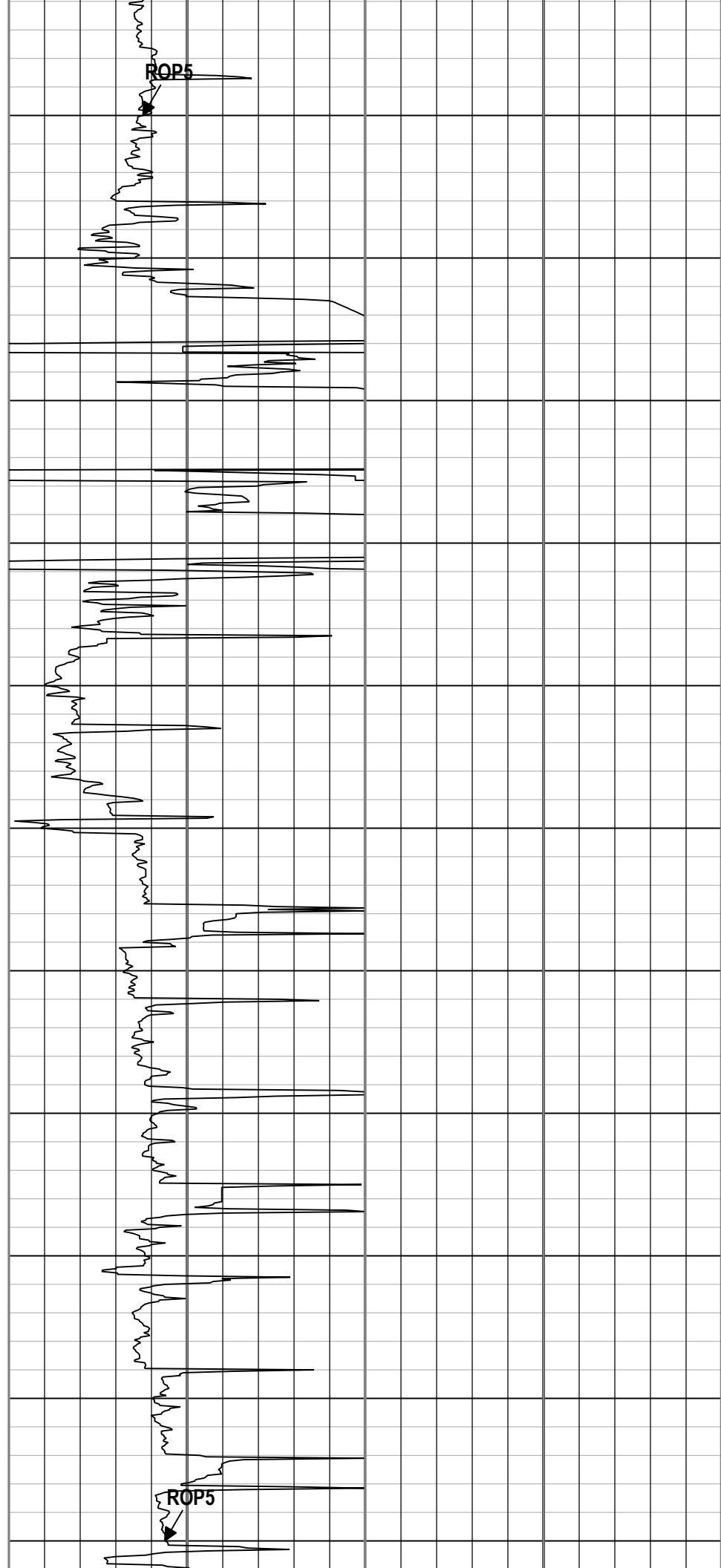
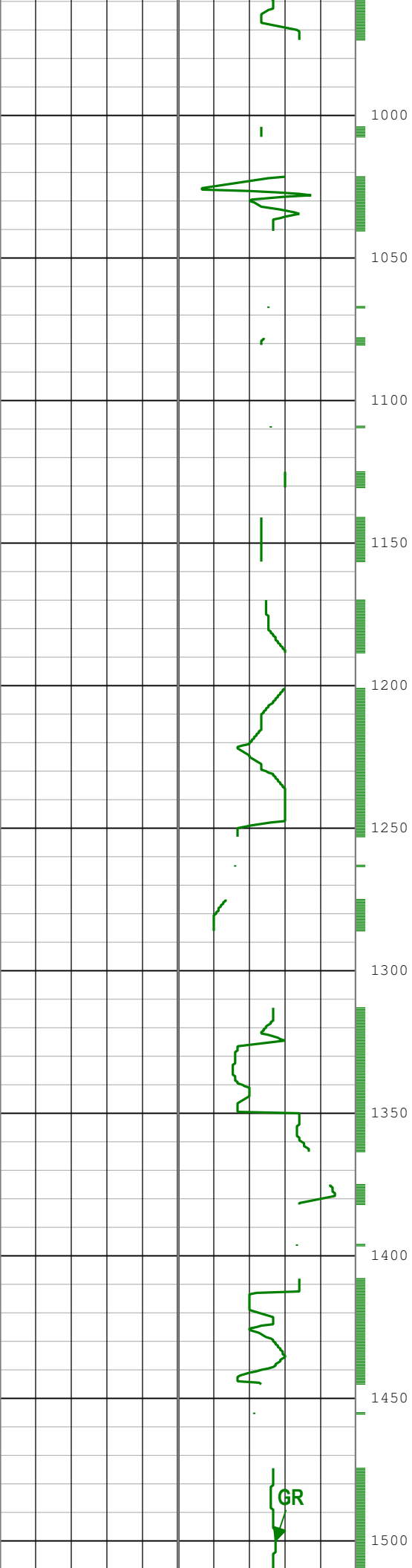


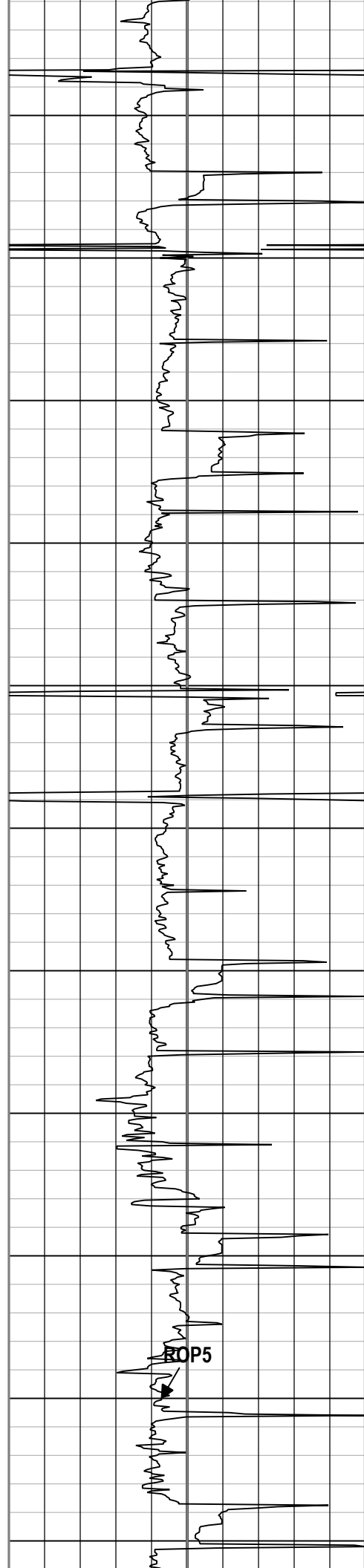
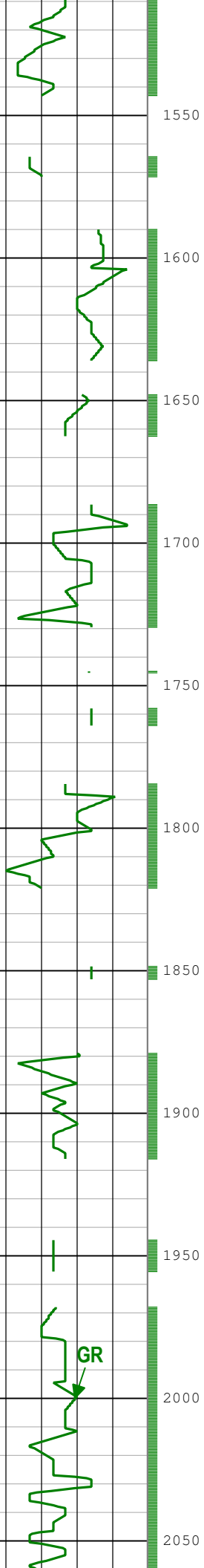
Acquisition System		Version	
MaxWell		4.0.9163.3000	
Application Patch		Patch-SP-10767_22480-4.0.9163.3001	
		Patch-NPD_ADN8D_SP3-23661-4.0.9530.3002	
		Patch-Hotfix_overwrite_survey_for_petrolink-23199-4.0.9530.3002	
		Patch-Hotfix_MRT_SP3-23306-4.0.9530.3002	
		Patch-Hotfix_ECO_SP3-23896-4.0.9530.3002	
Tool Elements	Description	Software Version	Firmware Version
DRILLING_SURFACE	DRILLING_SURFACE	4.0.9469.3000	
SPEC	SlimPulse Electronics Cartridge	4.0.9469.3000	

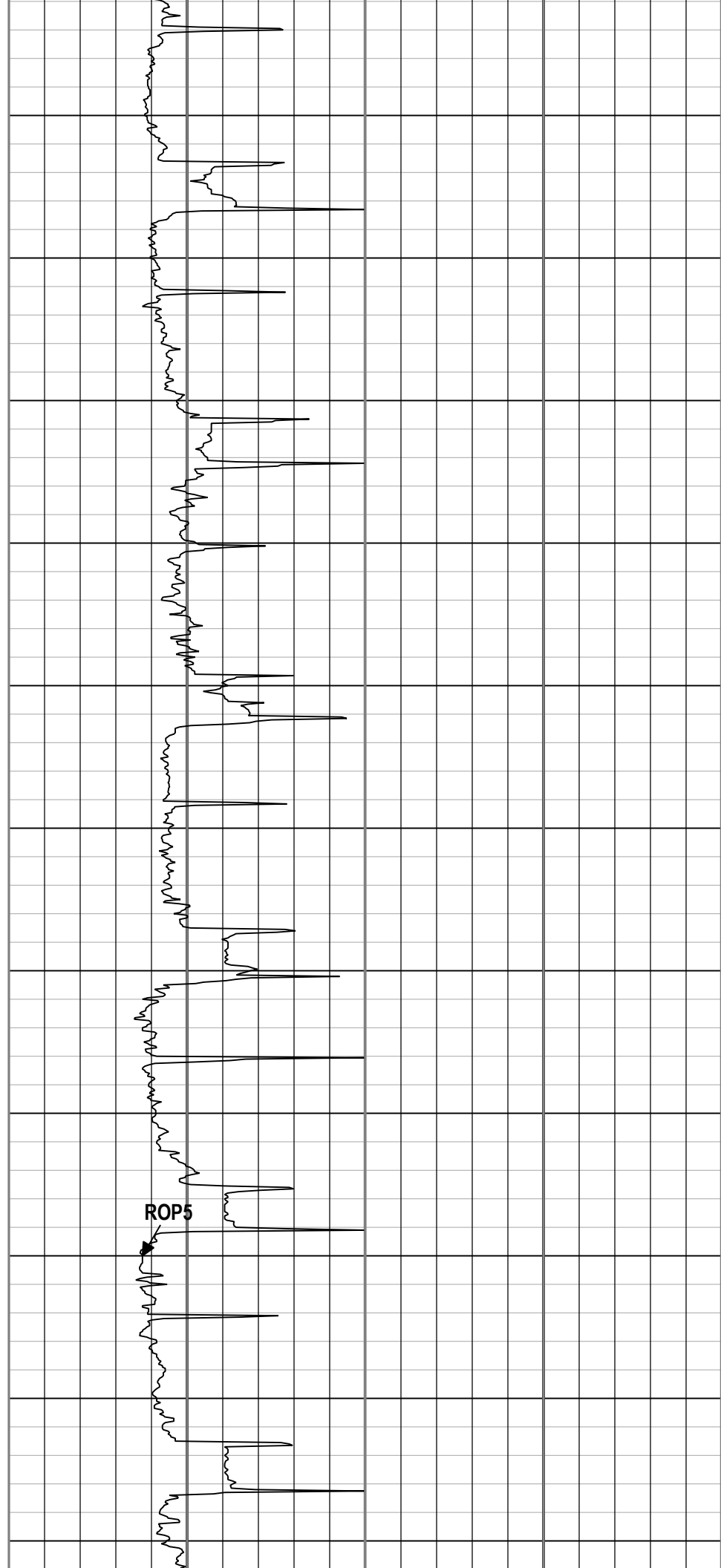
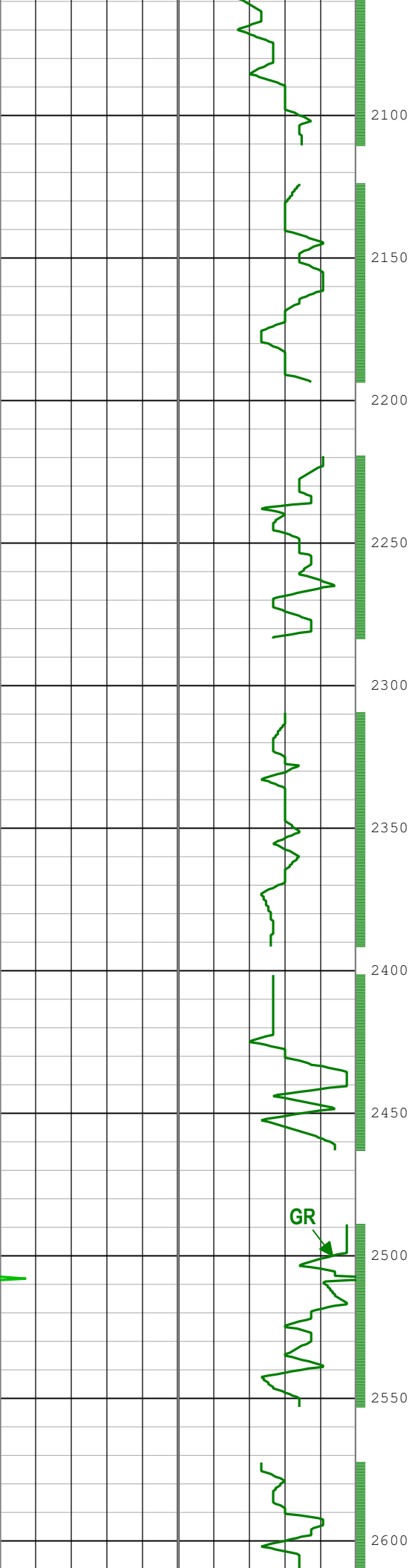
Composite Summary							
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Include Parallel Data
Run 1	Drilling	Down	7297.08 ft	7447.17 ft	29-Aug-2014 11:04:20 AM	29-Aug-2014 4:32:09 PM	No
Run 2	Drilling	Down	7444.83 ft	16998.00 ft	30-Aug-2014 3:11:05 PM	07-Sep-2014 5:17:58 AM	No
All depths are referenced to toolstring zero							

Log	Company:Noble Energy				Well:Heartland C30-79-1HN	
	UDComposite 2:S536					
Description:	Format: Log ( EOW_MD )	Index Scale: 2 in per 100 ft	Index Unit: ft	Index Type: Measured Depth	Creation Date: 08-Sep-2014 13:32:40	

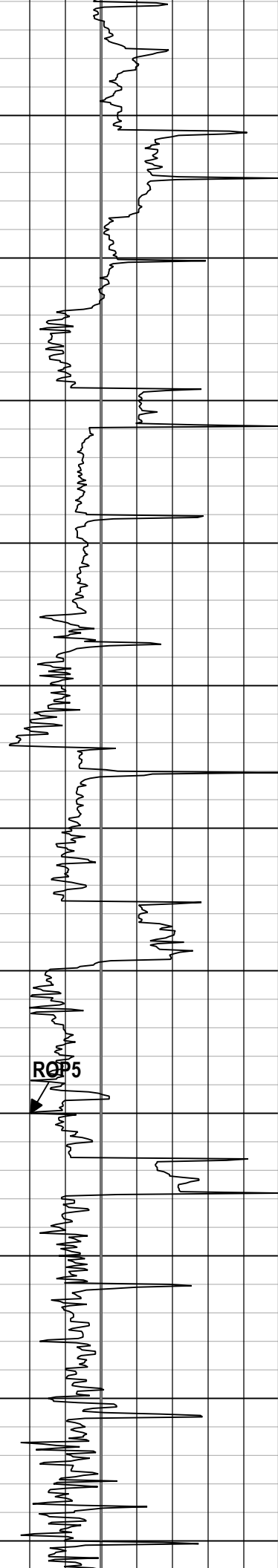
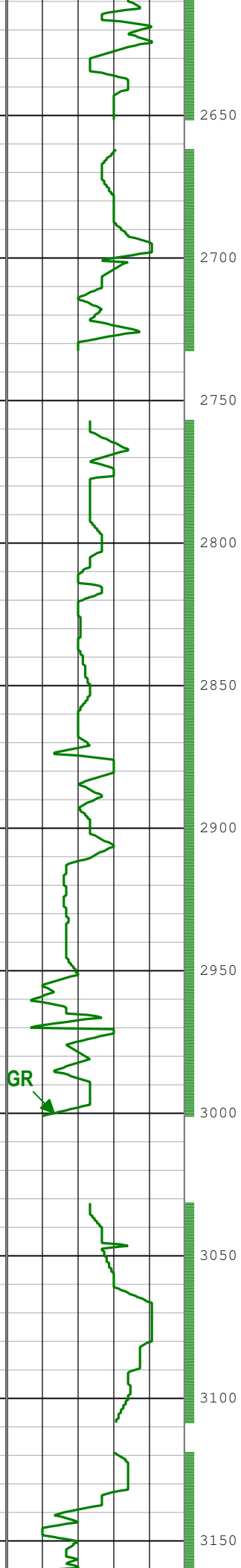


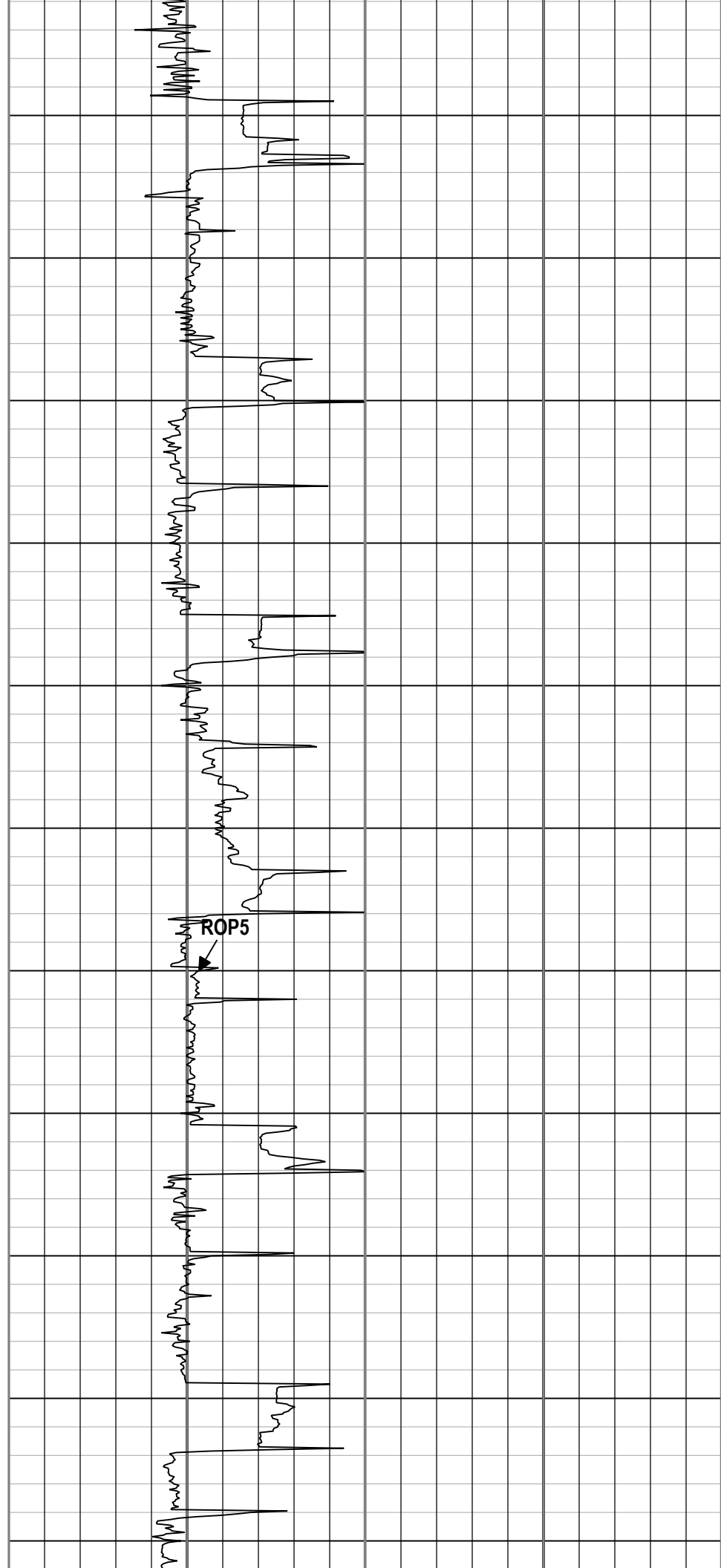
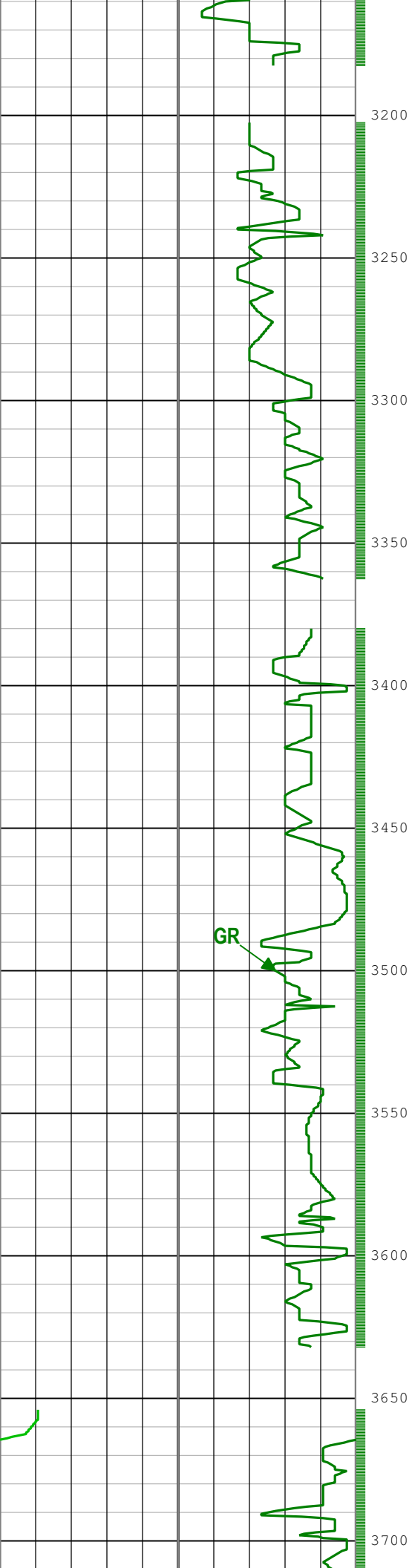


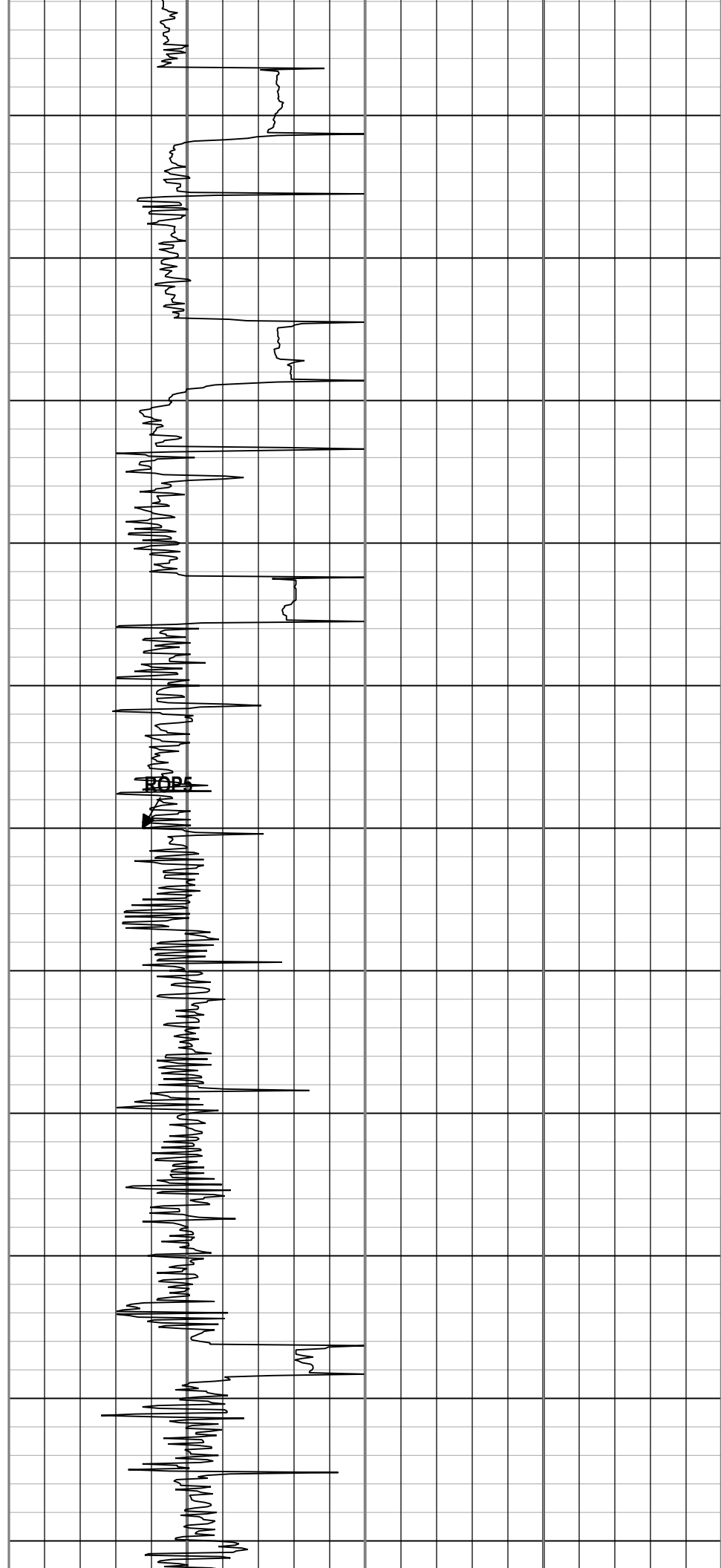
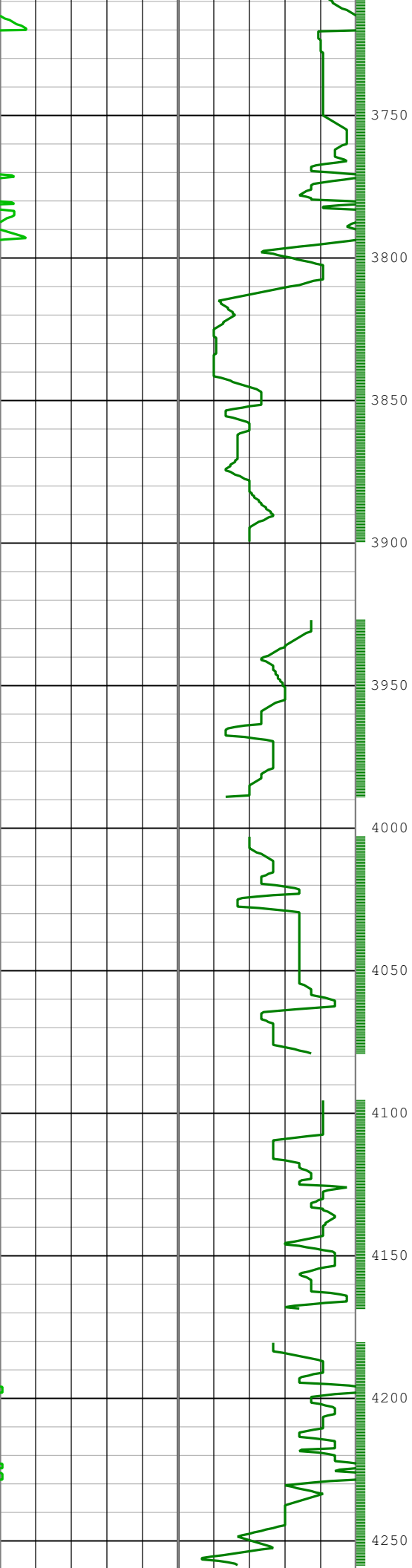


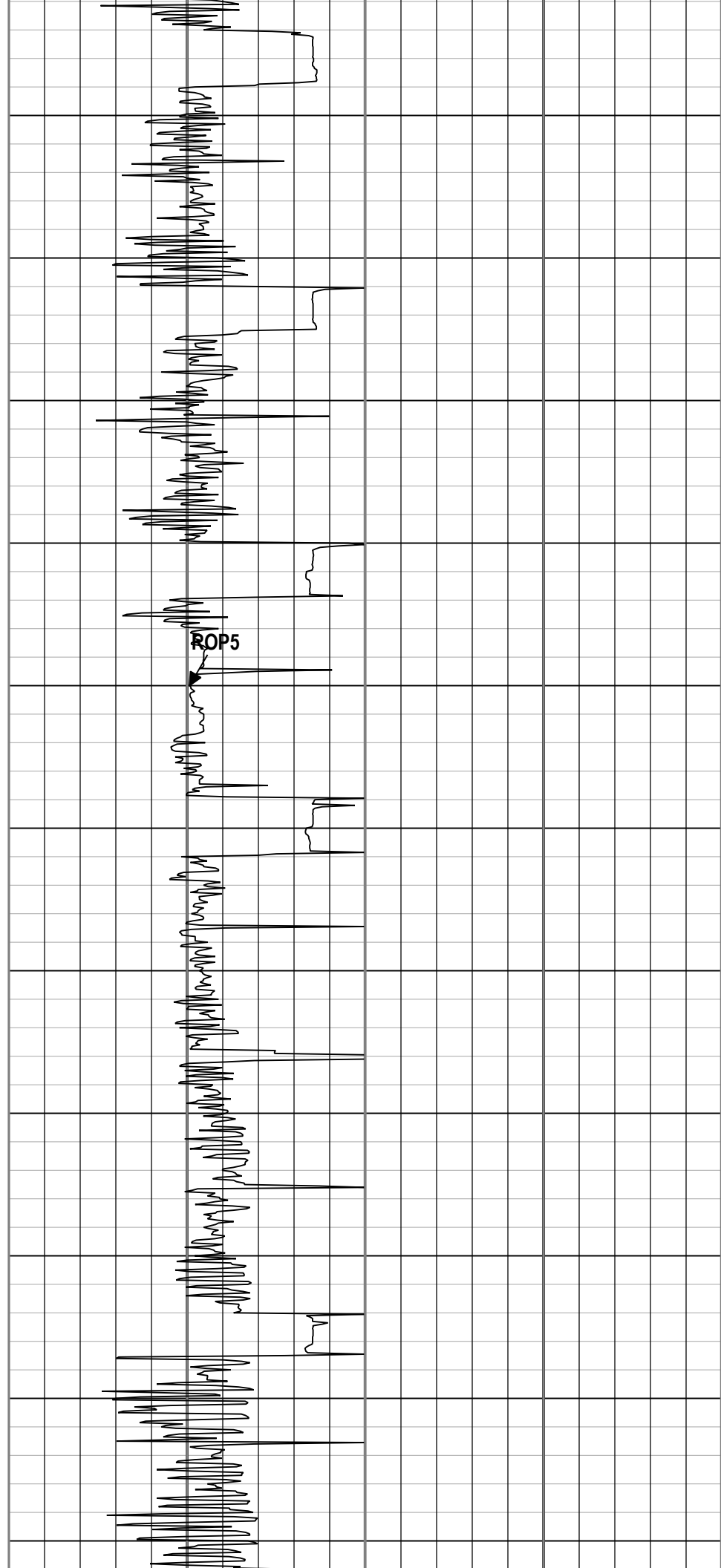
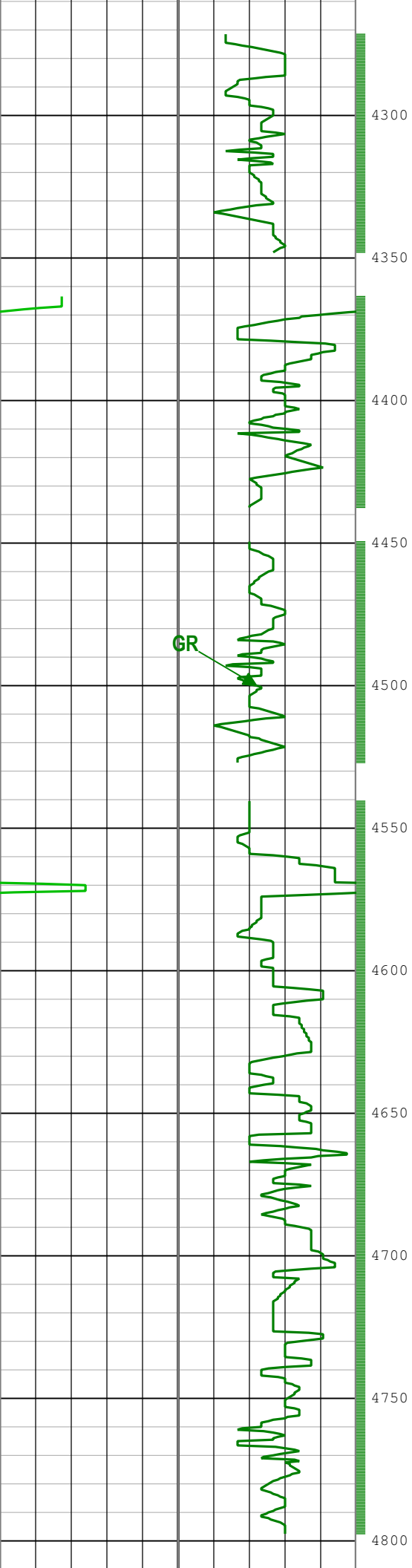


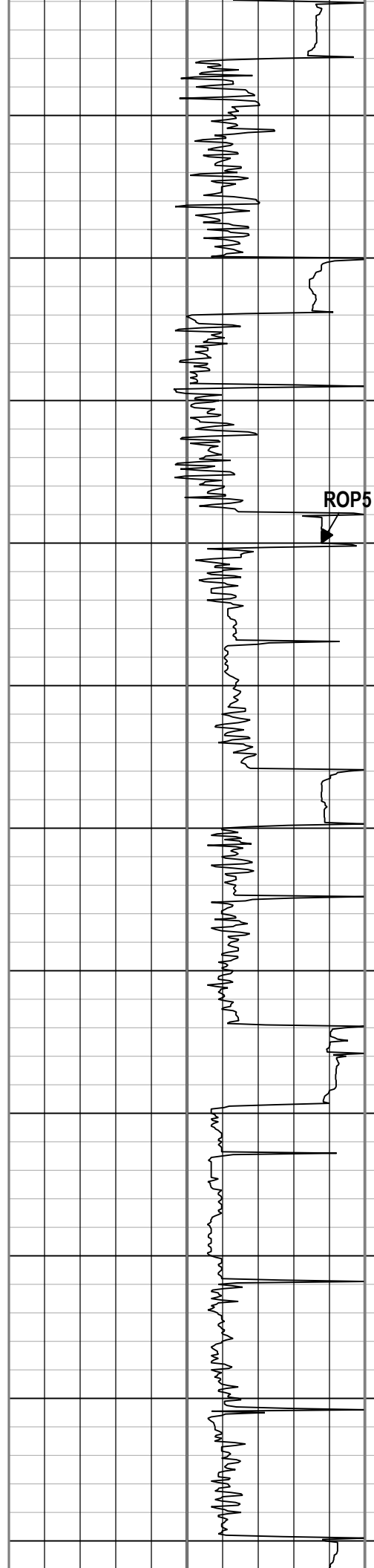
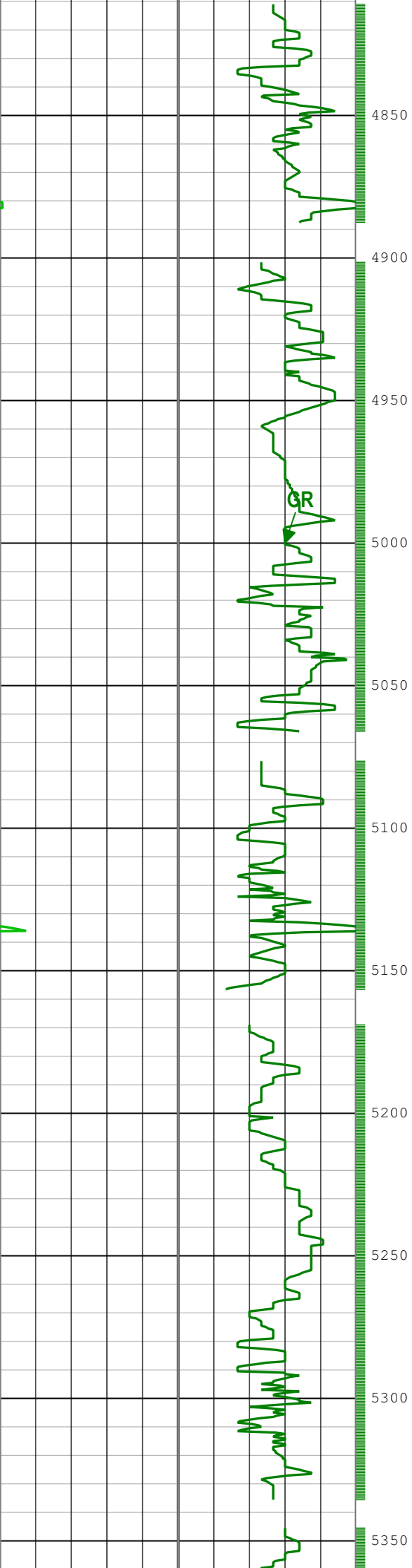


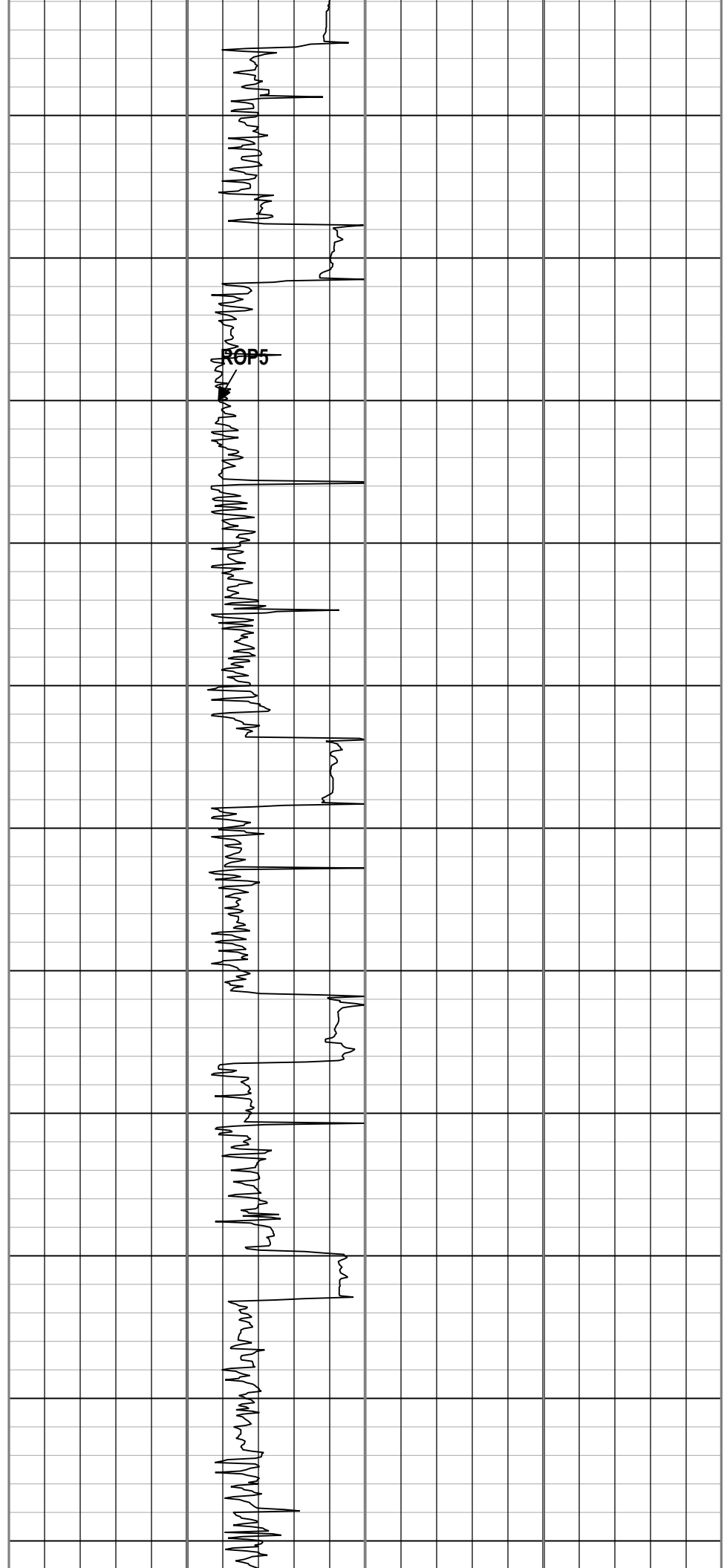
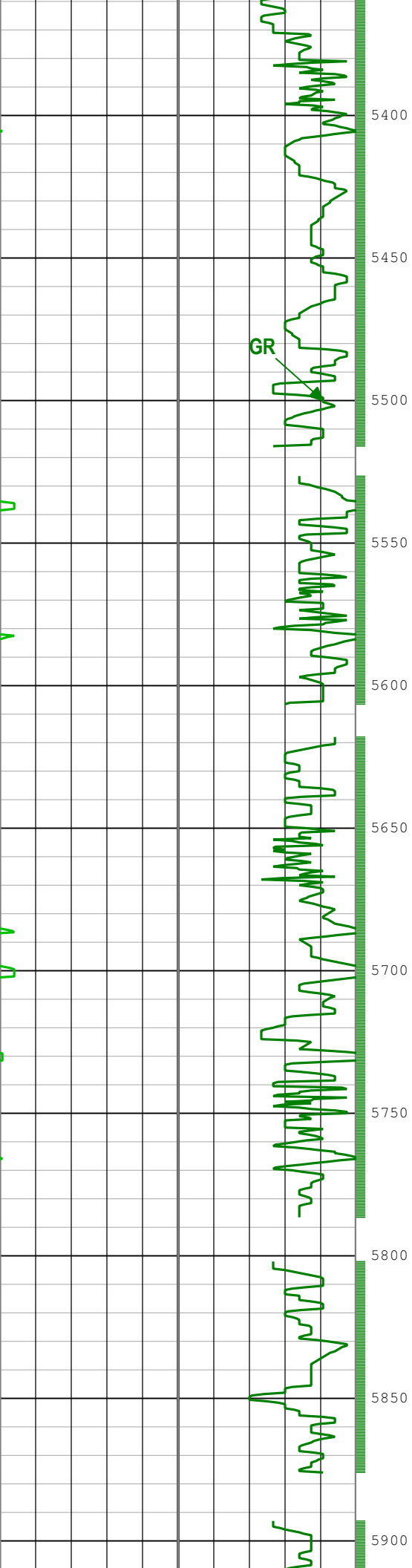


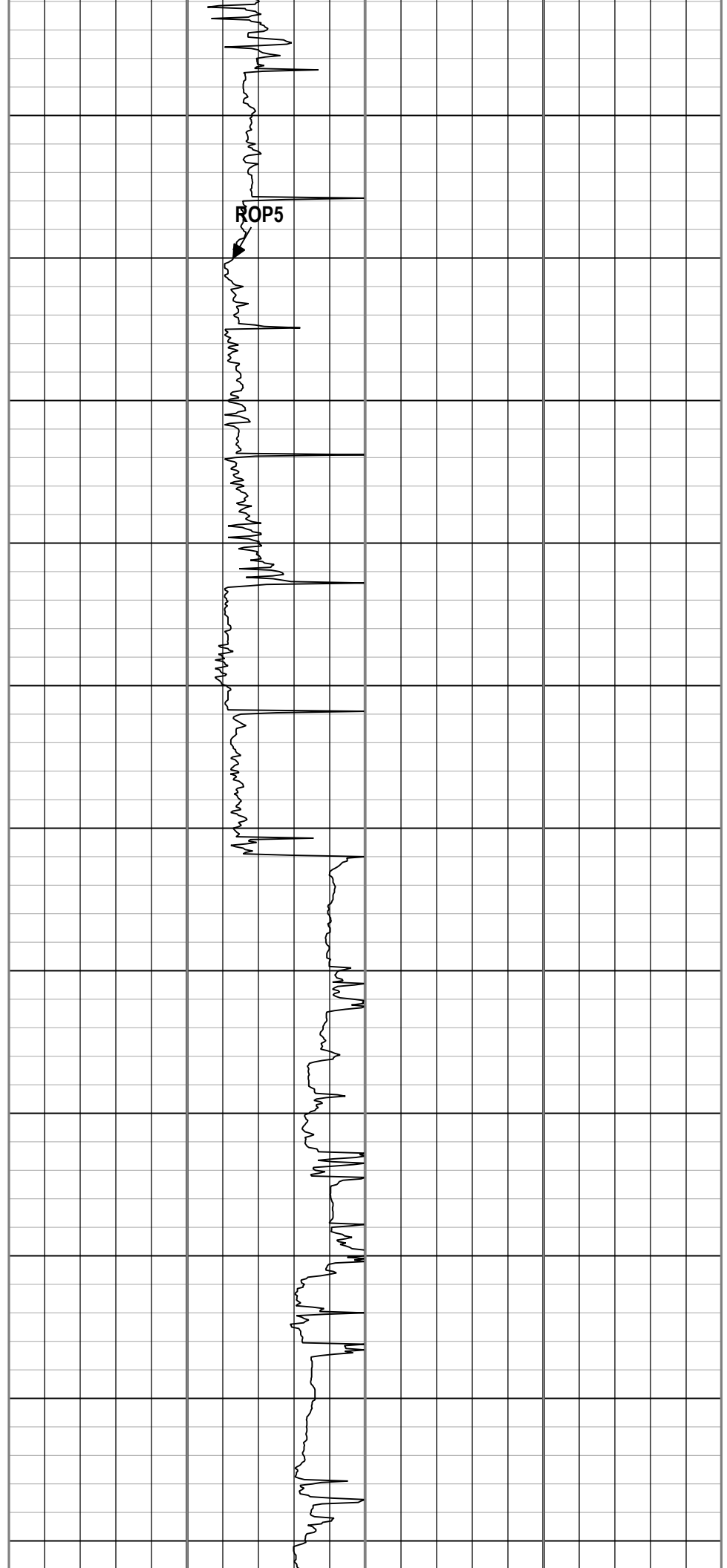
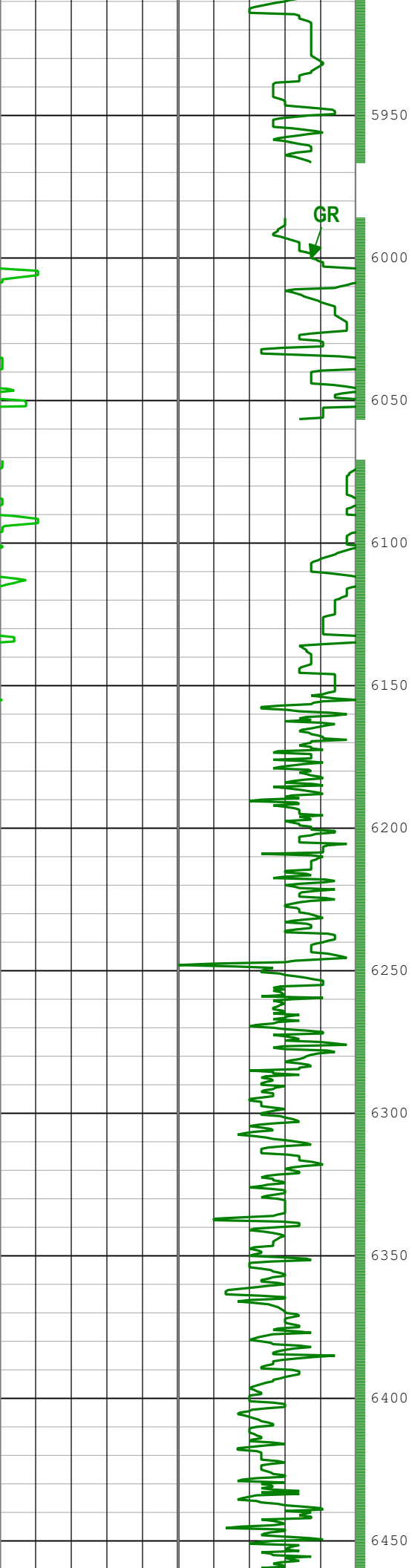


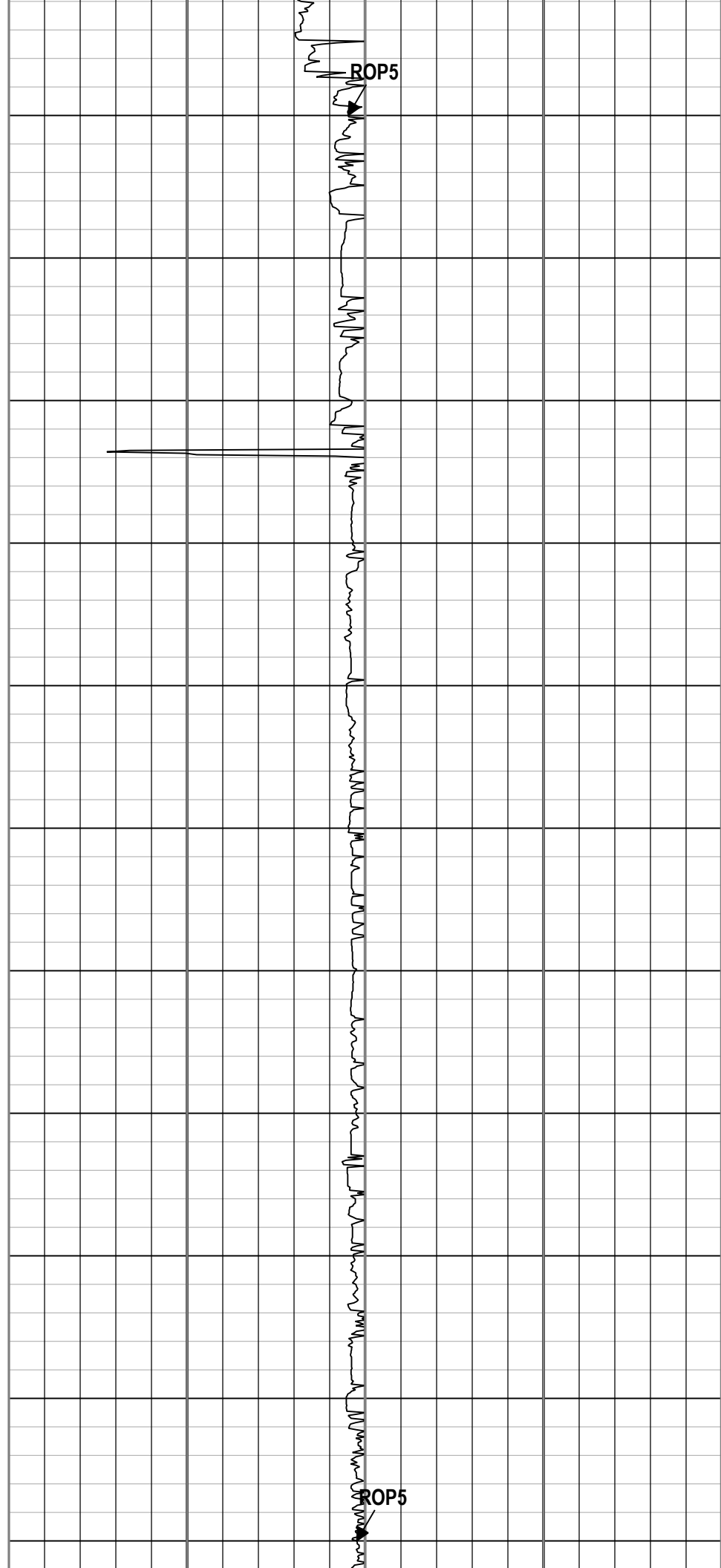
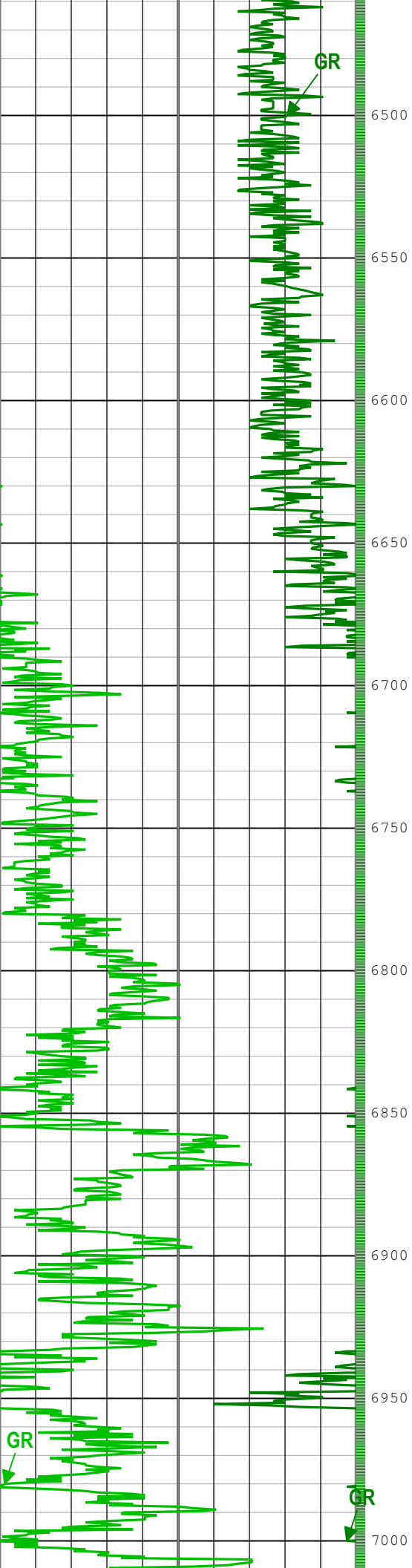




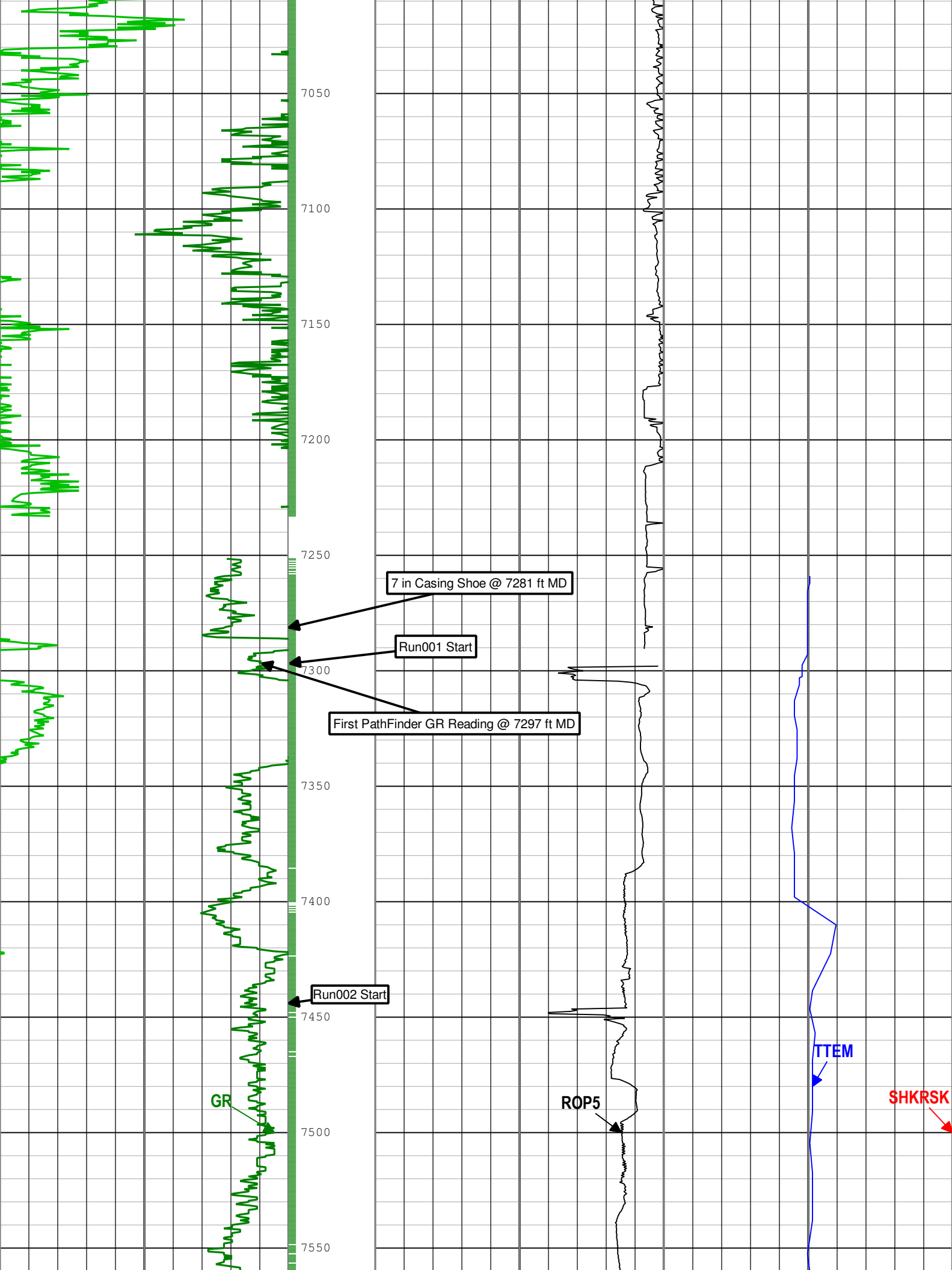


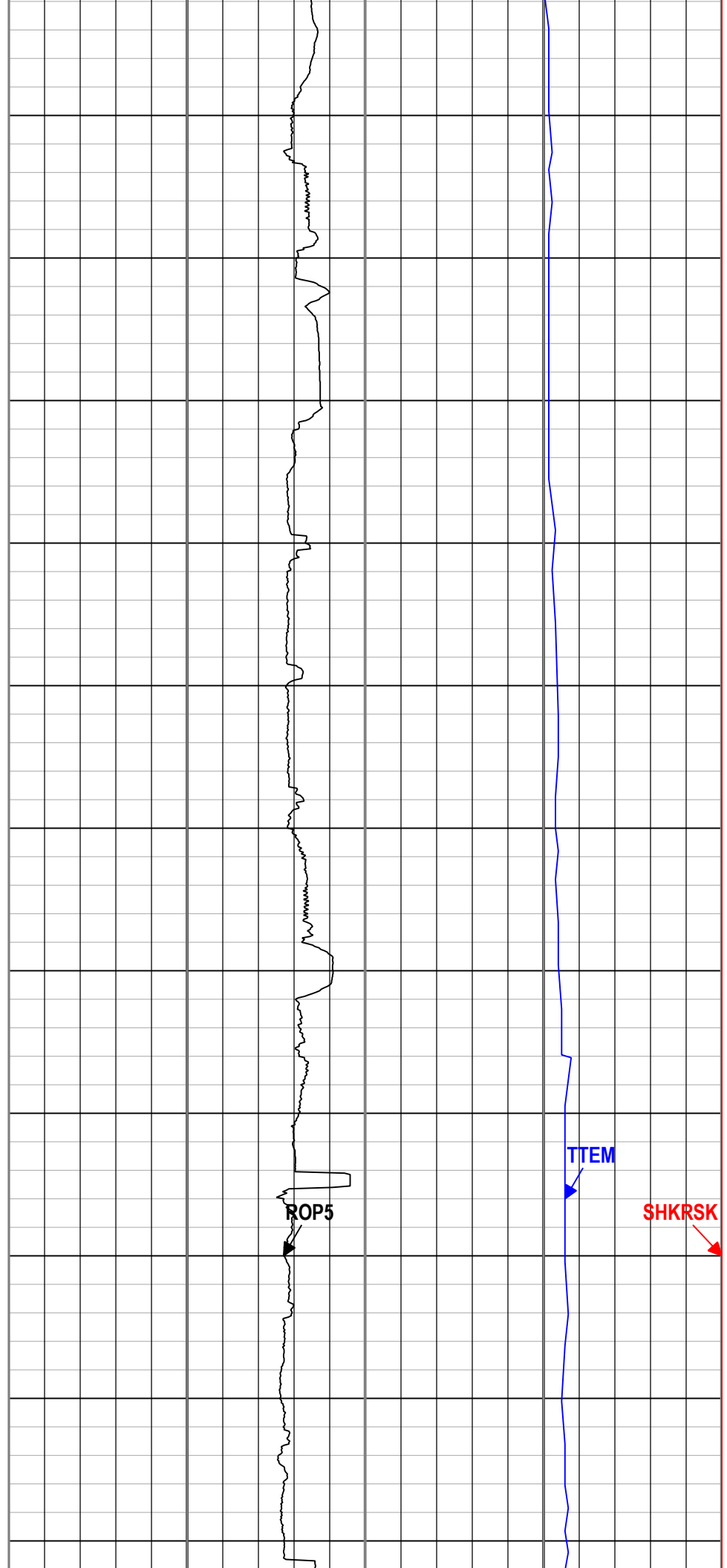
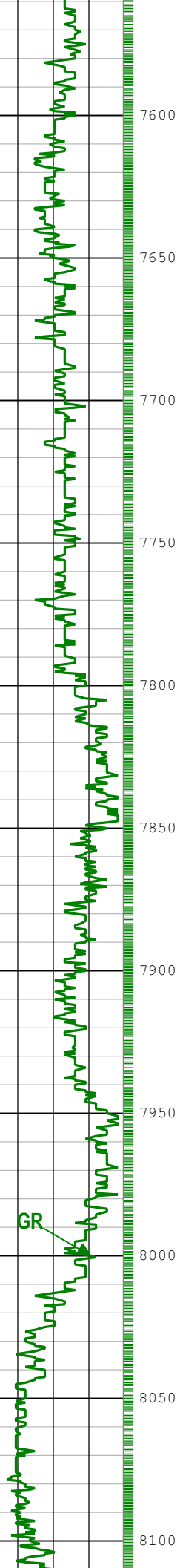


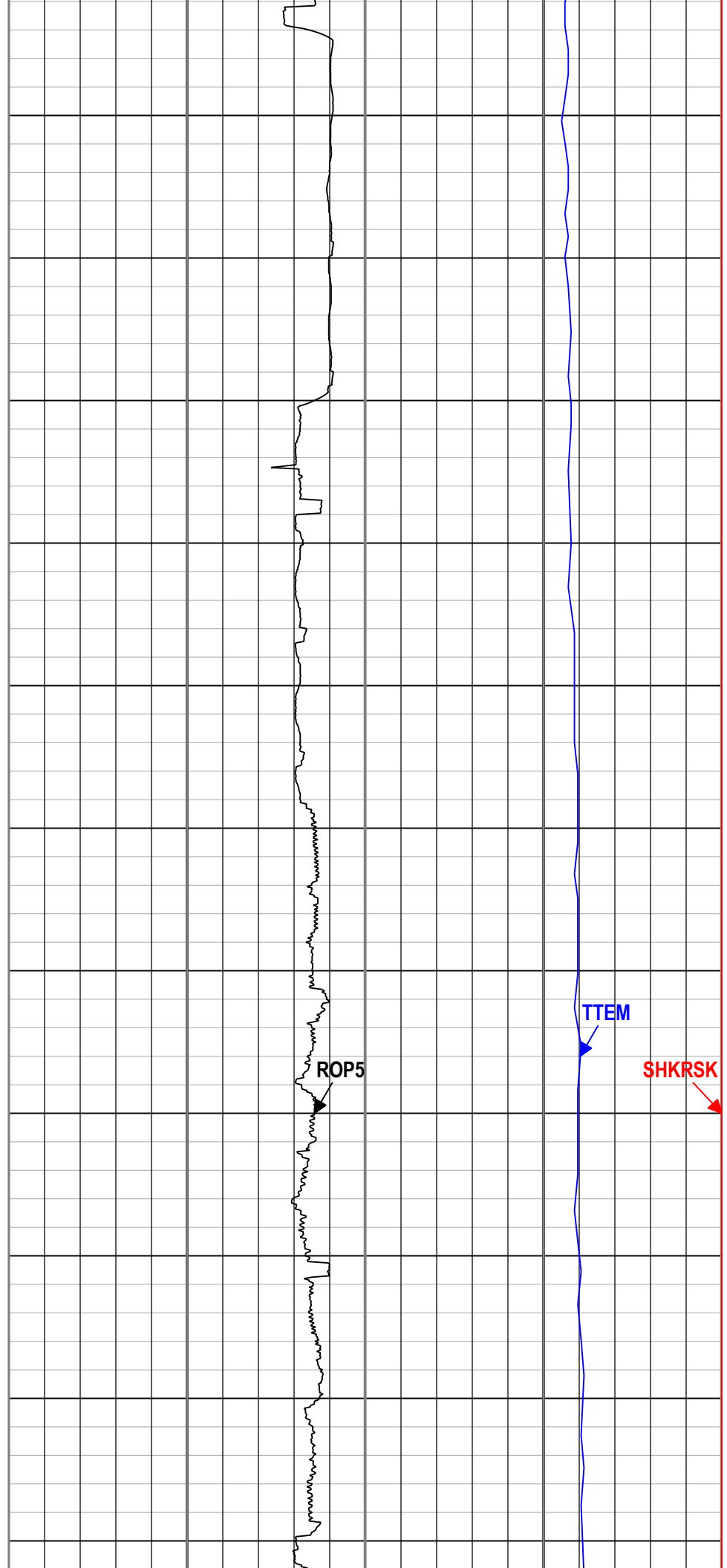
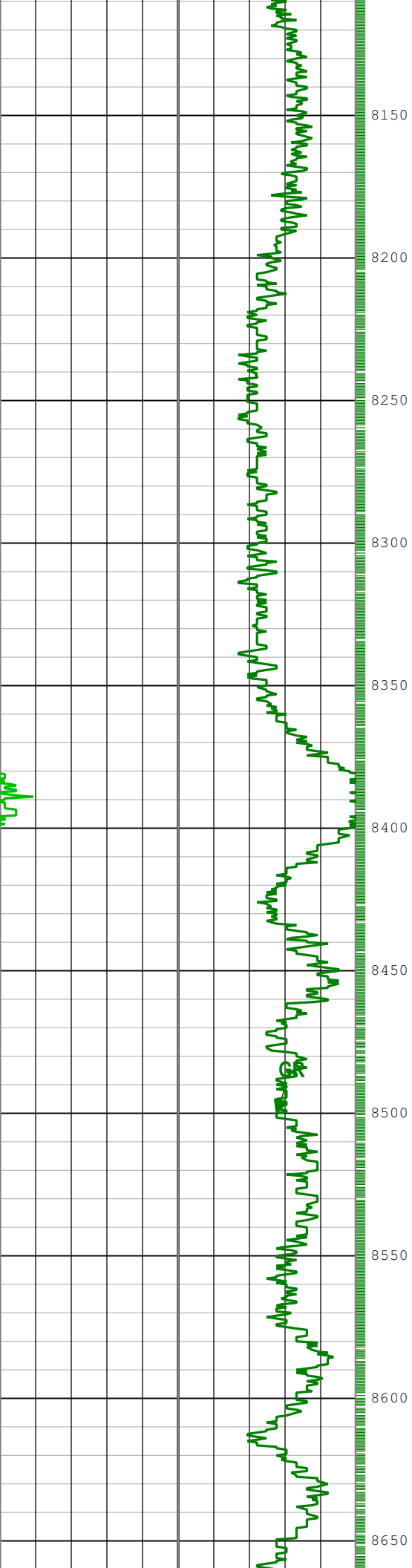


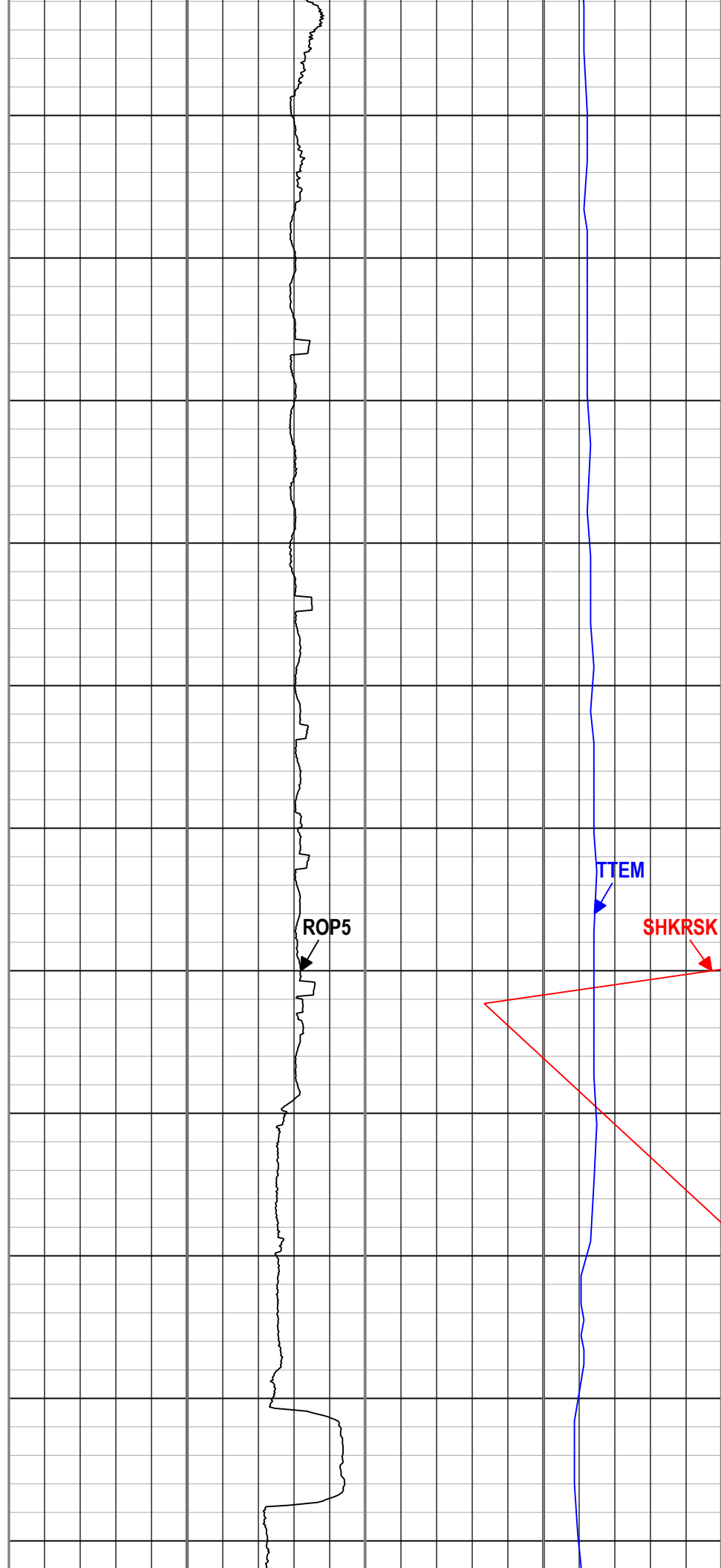
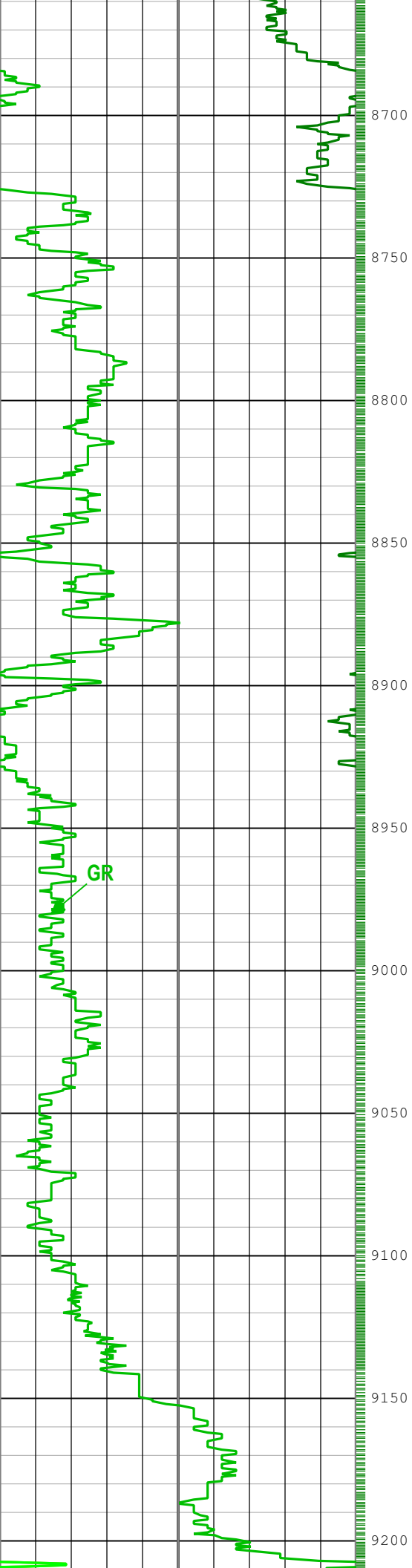


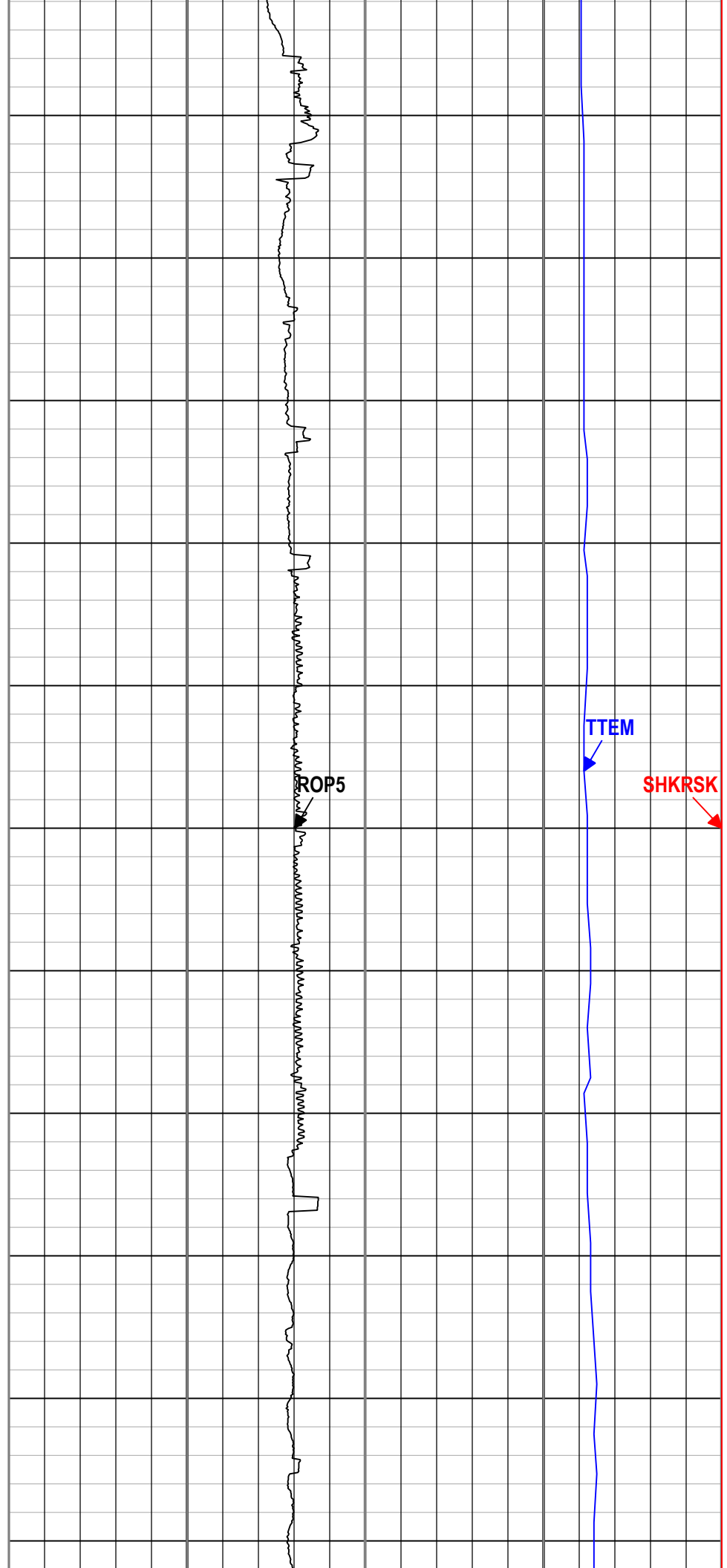
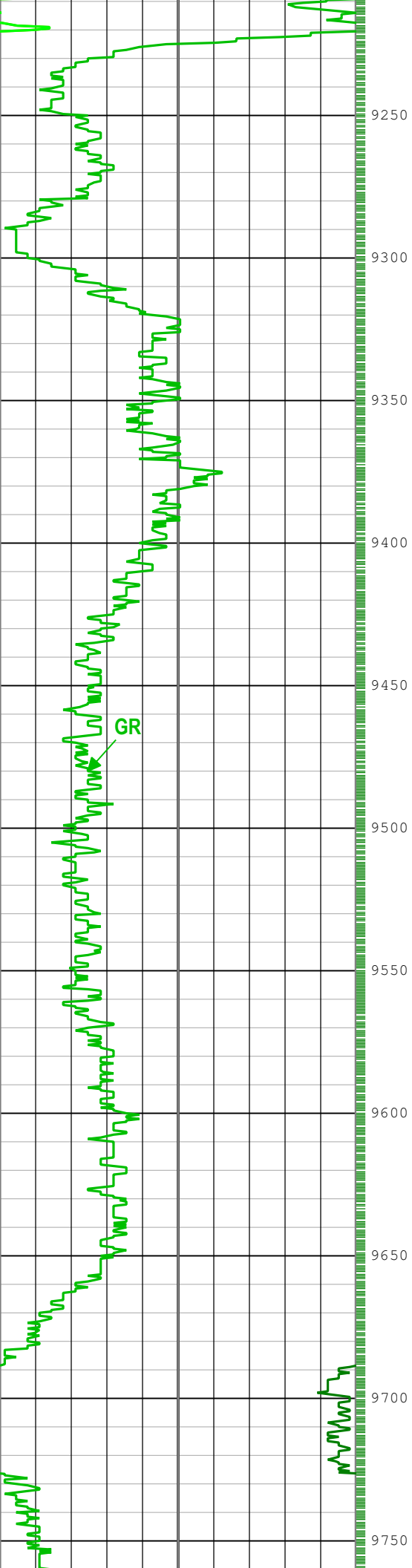


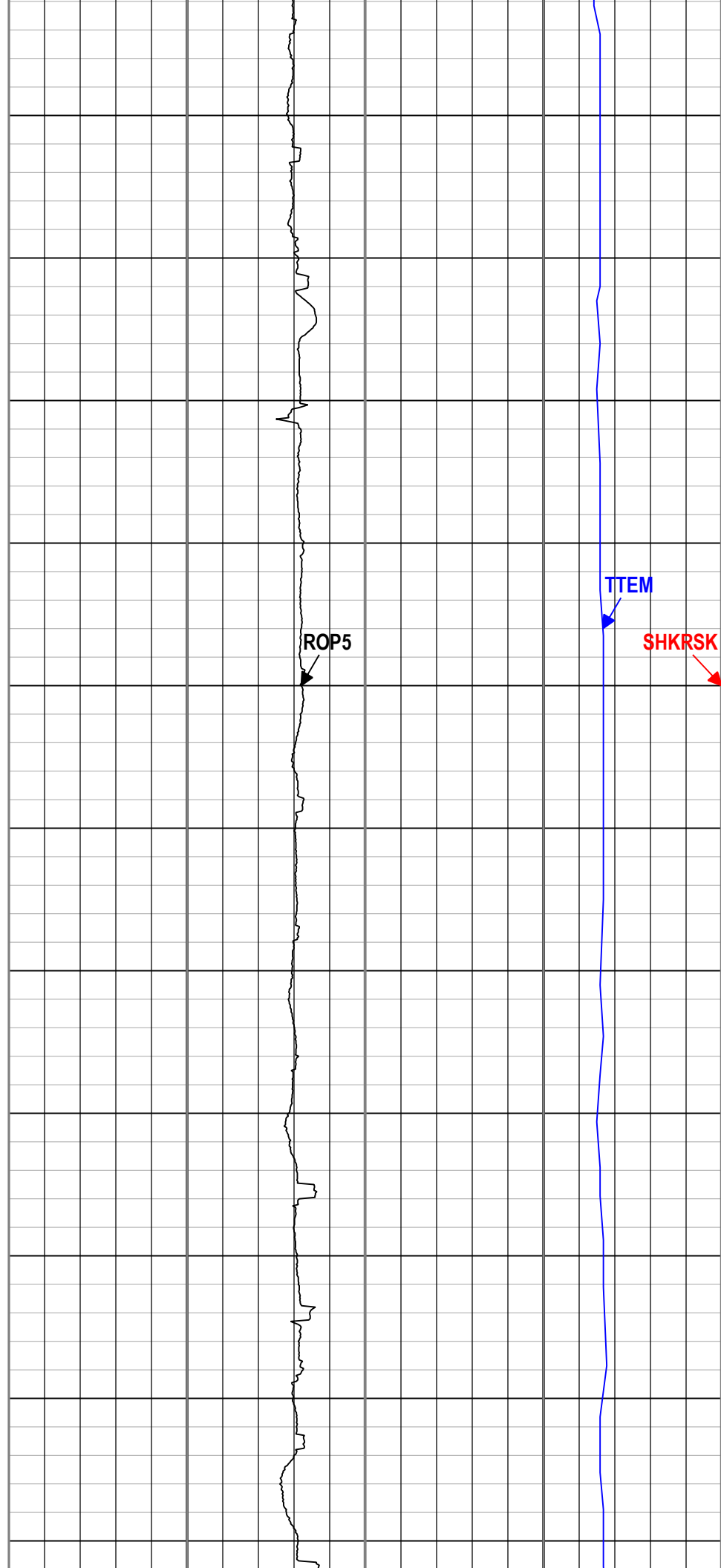
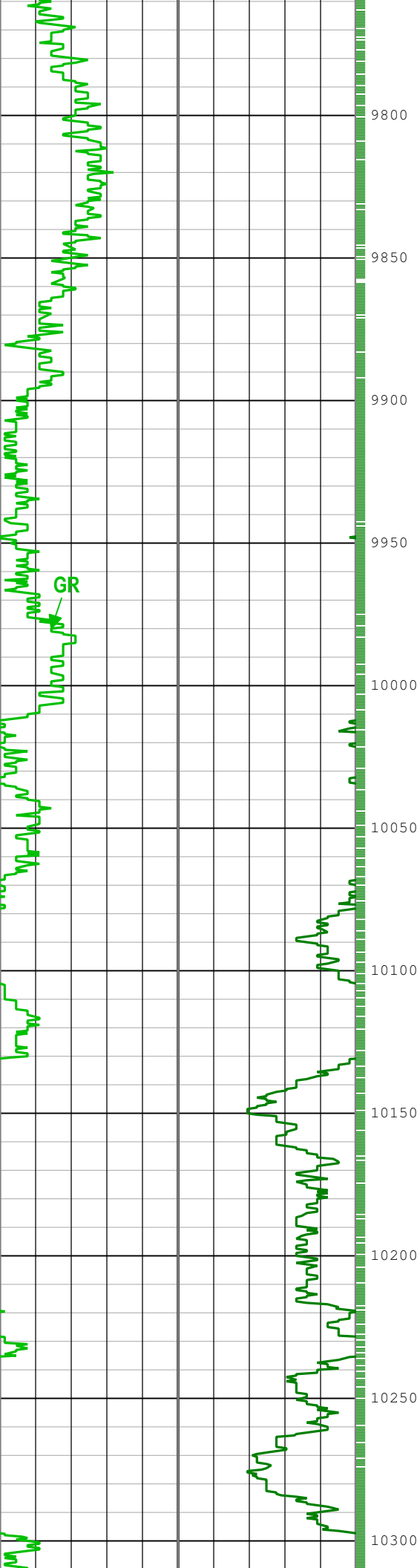


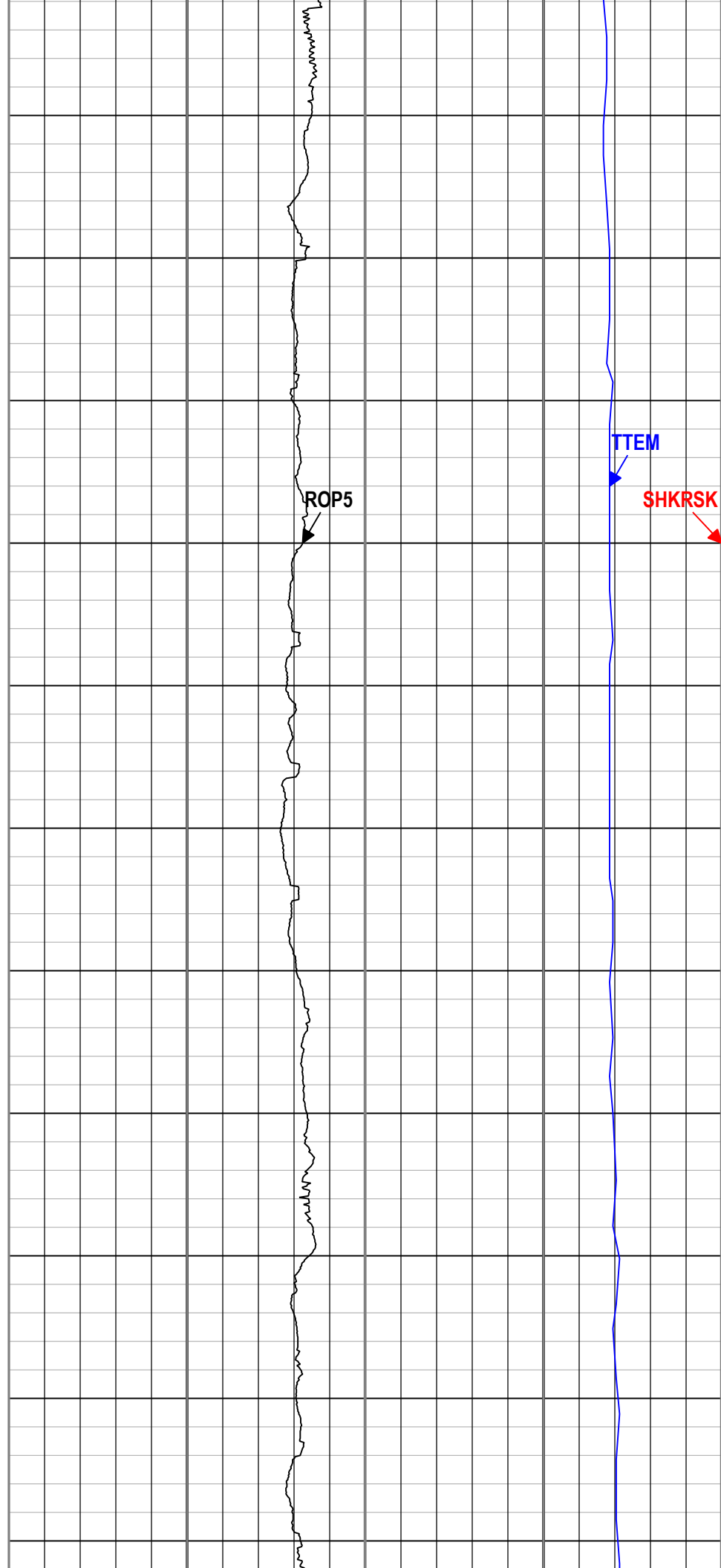
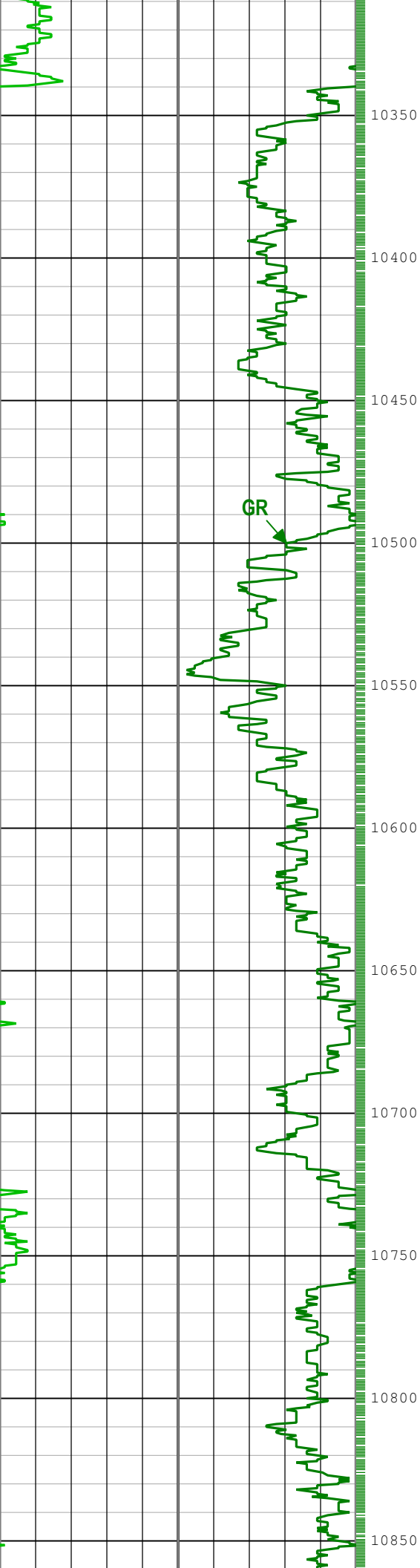


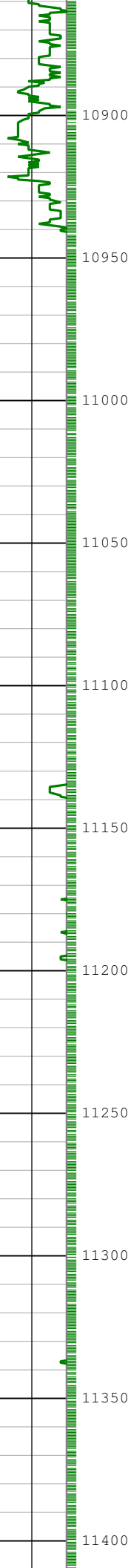
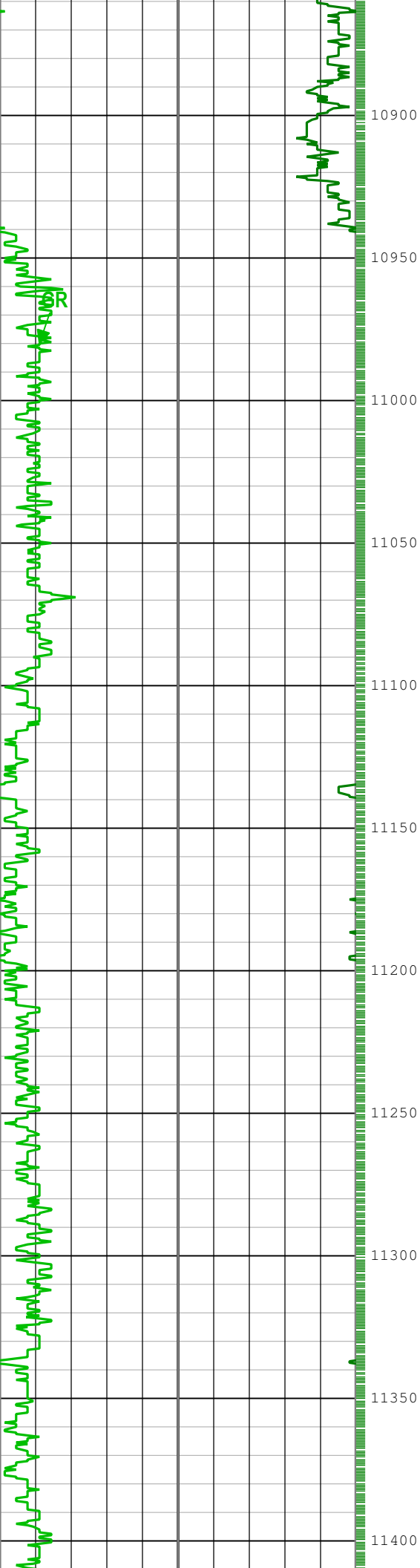










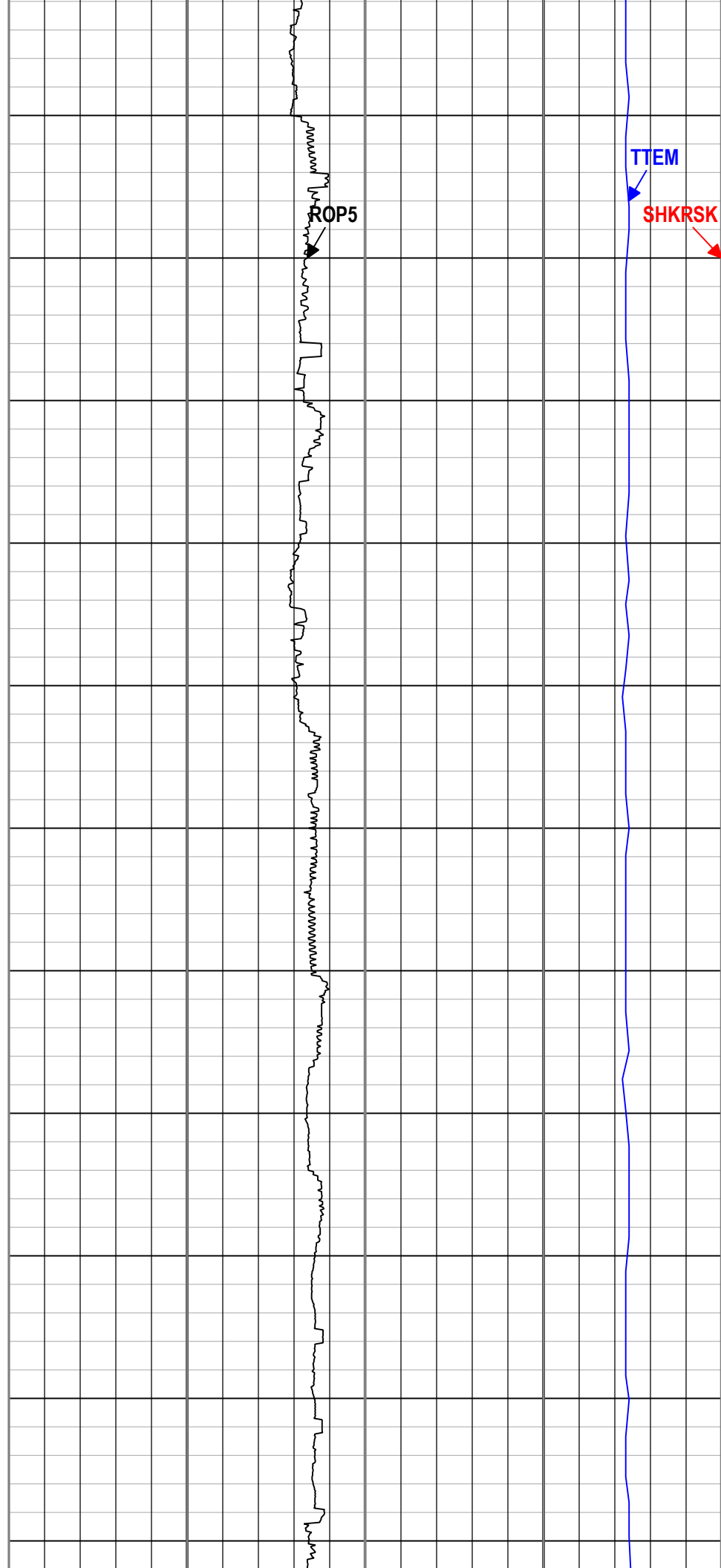
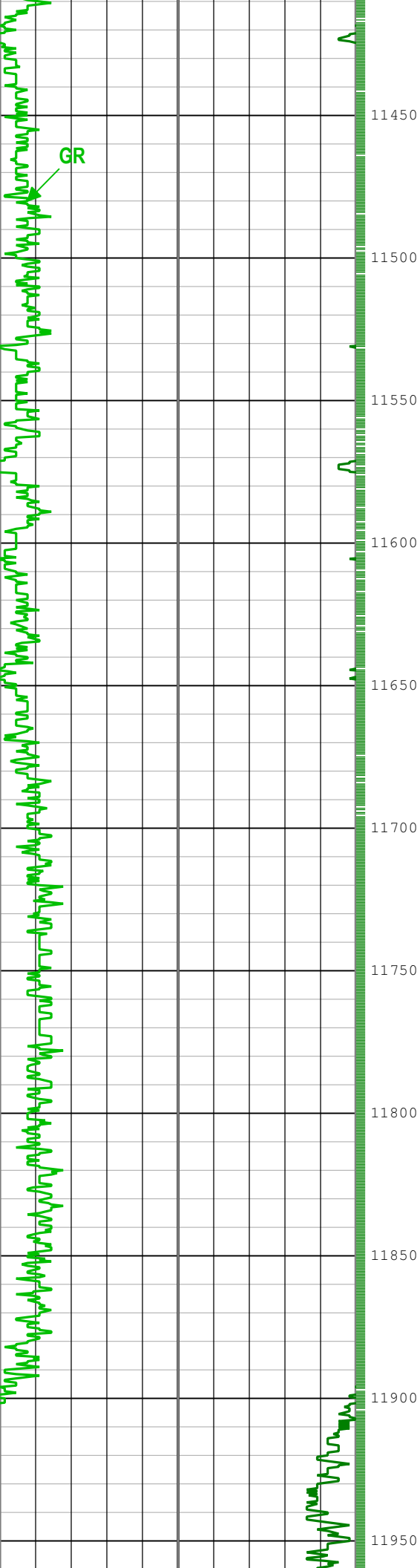


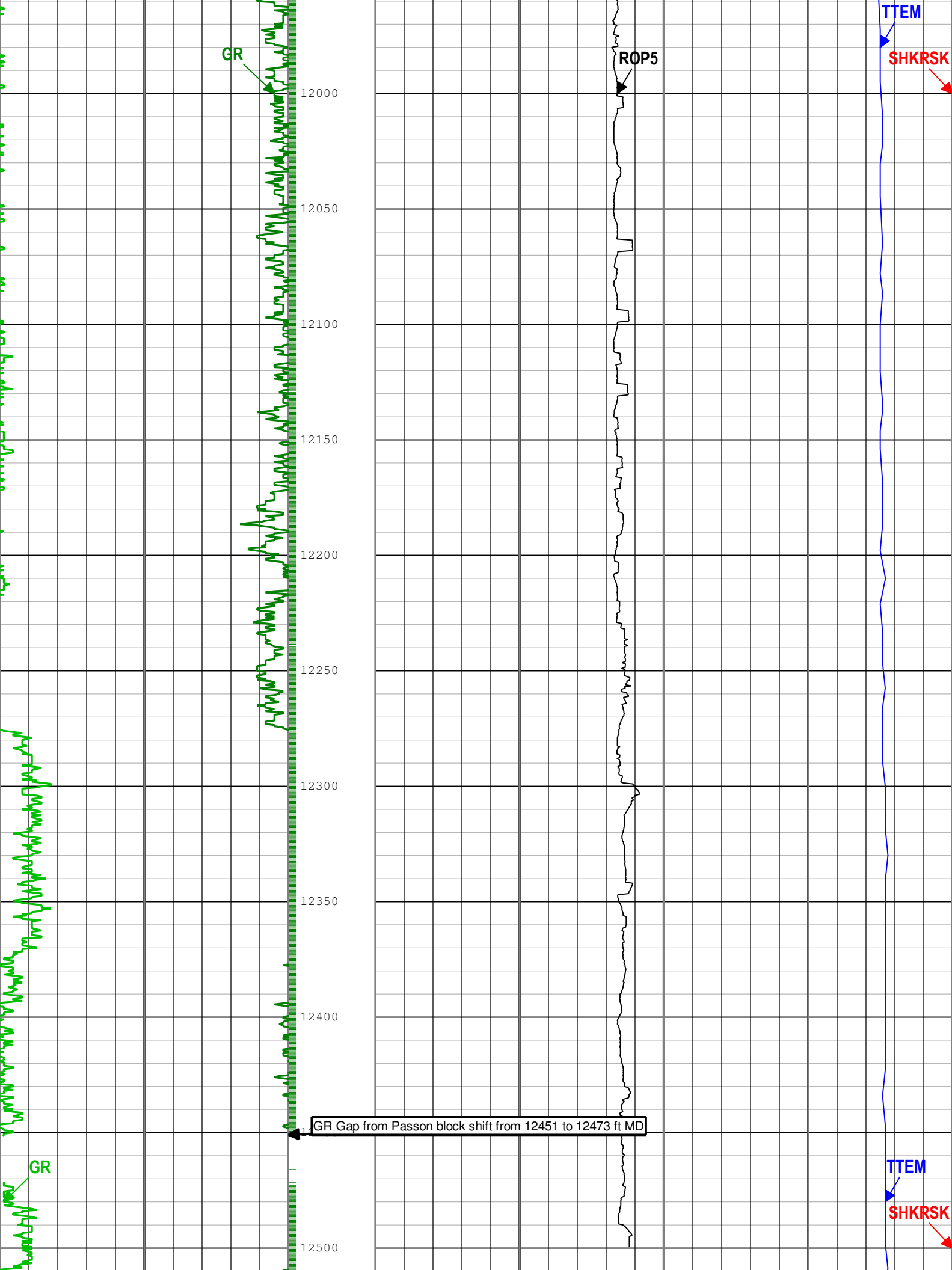
ROP5

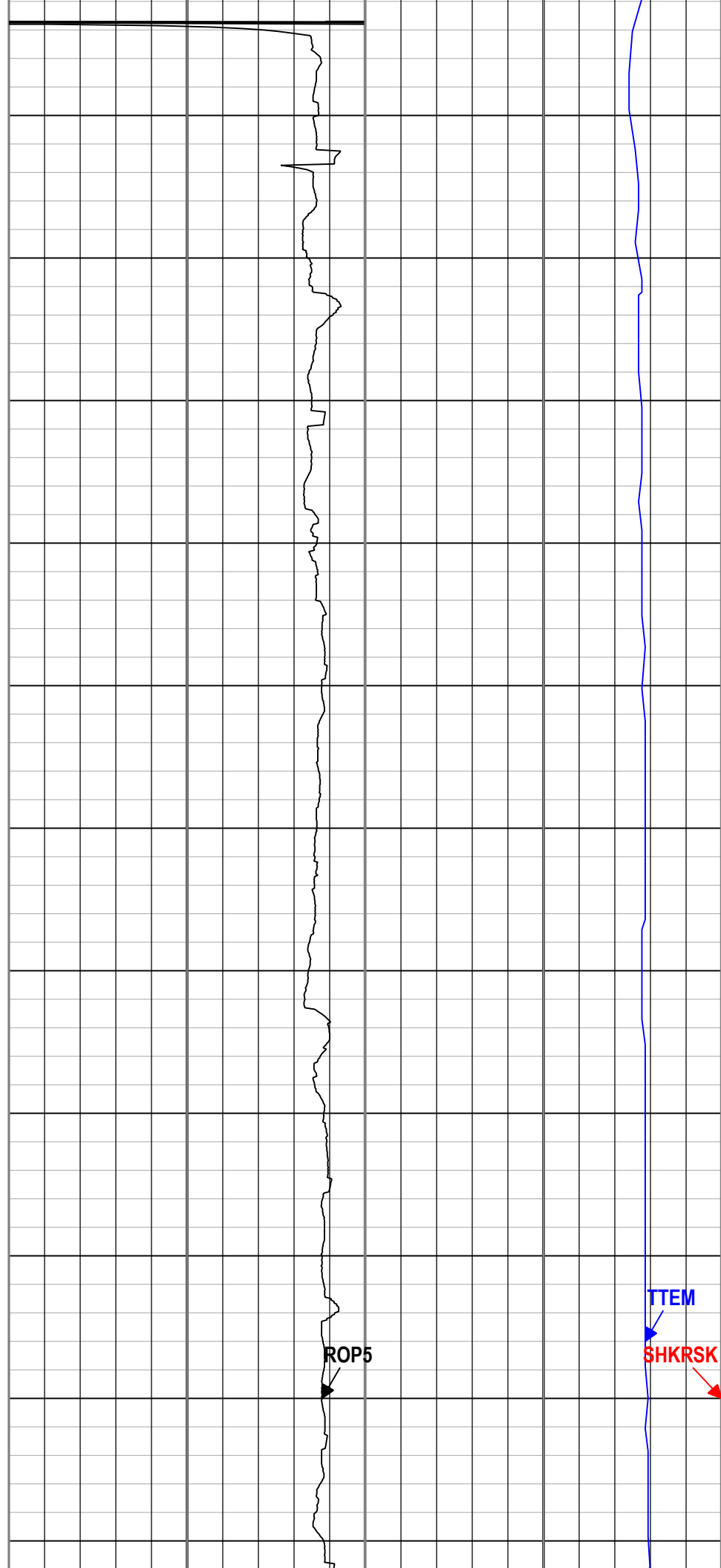
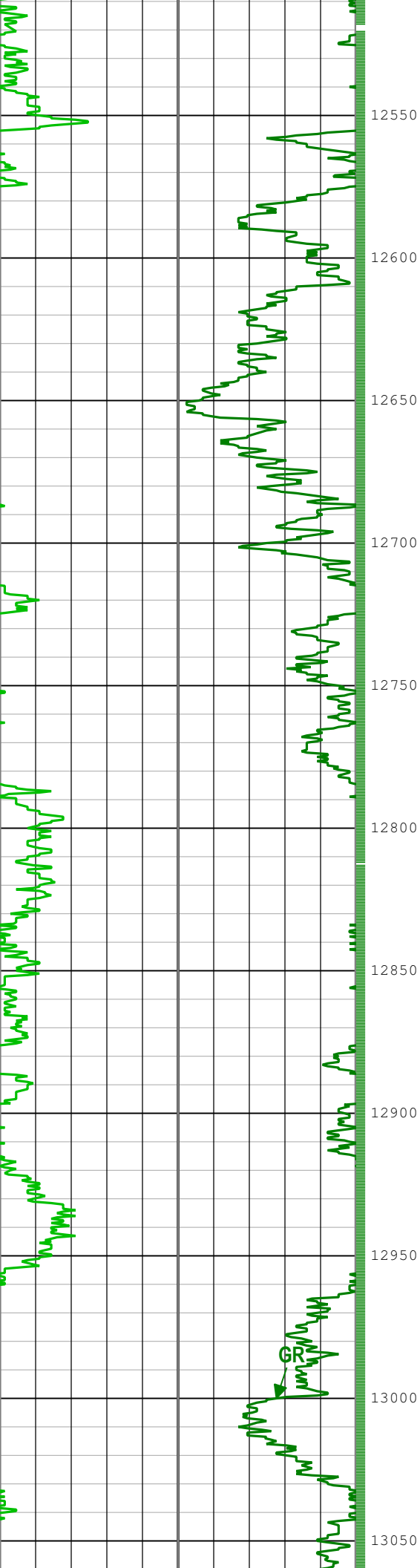
TTEM

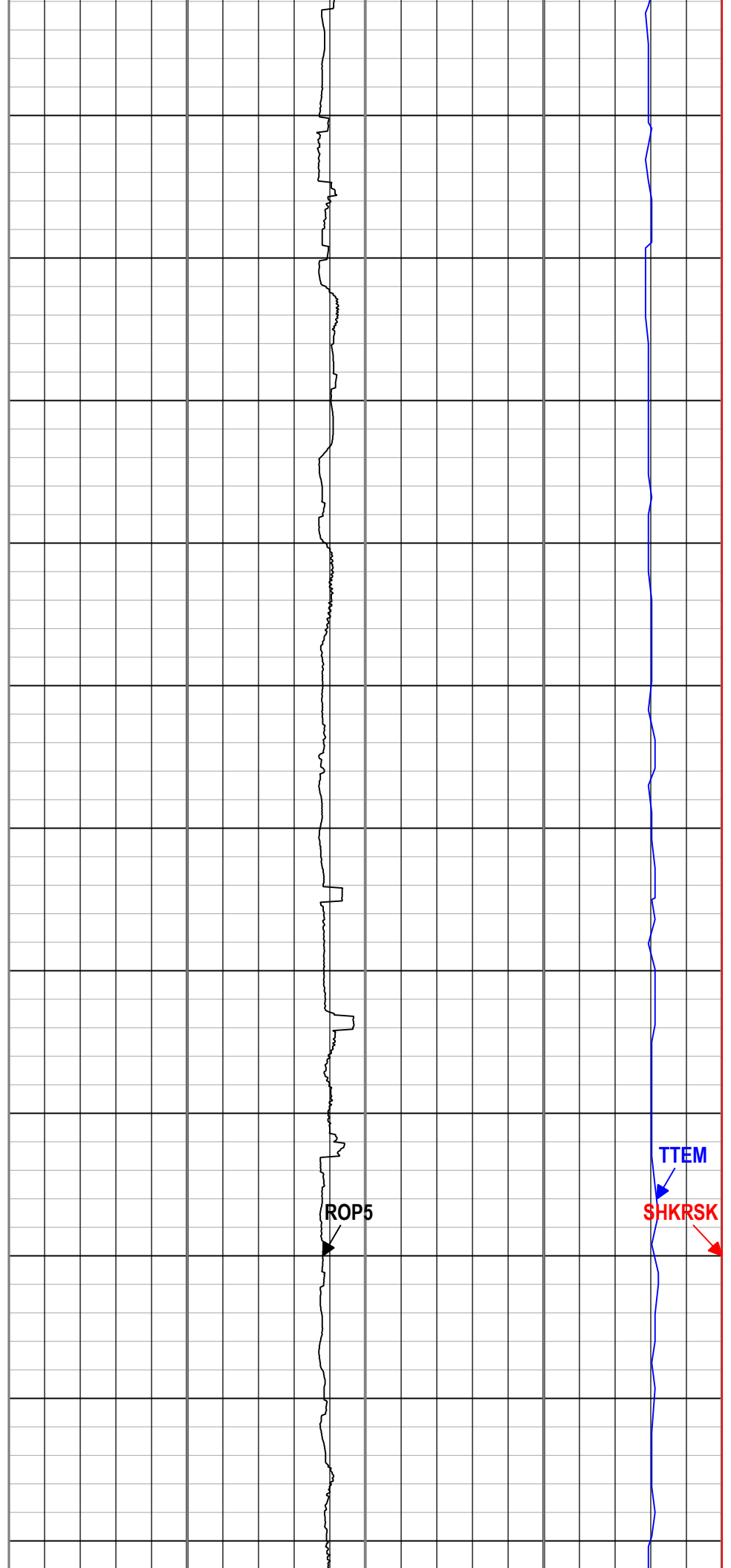
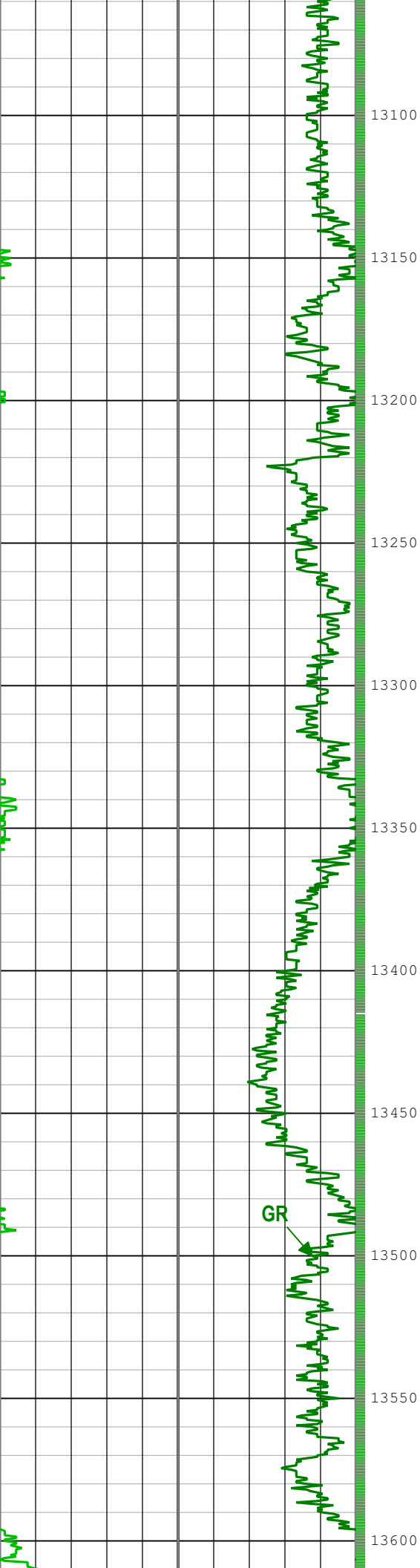
SHKRSK

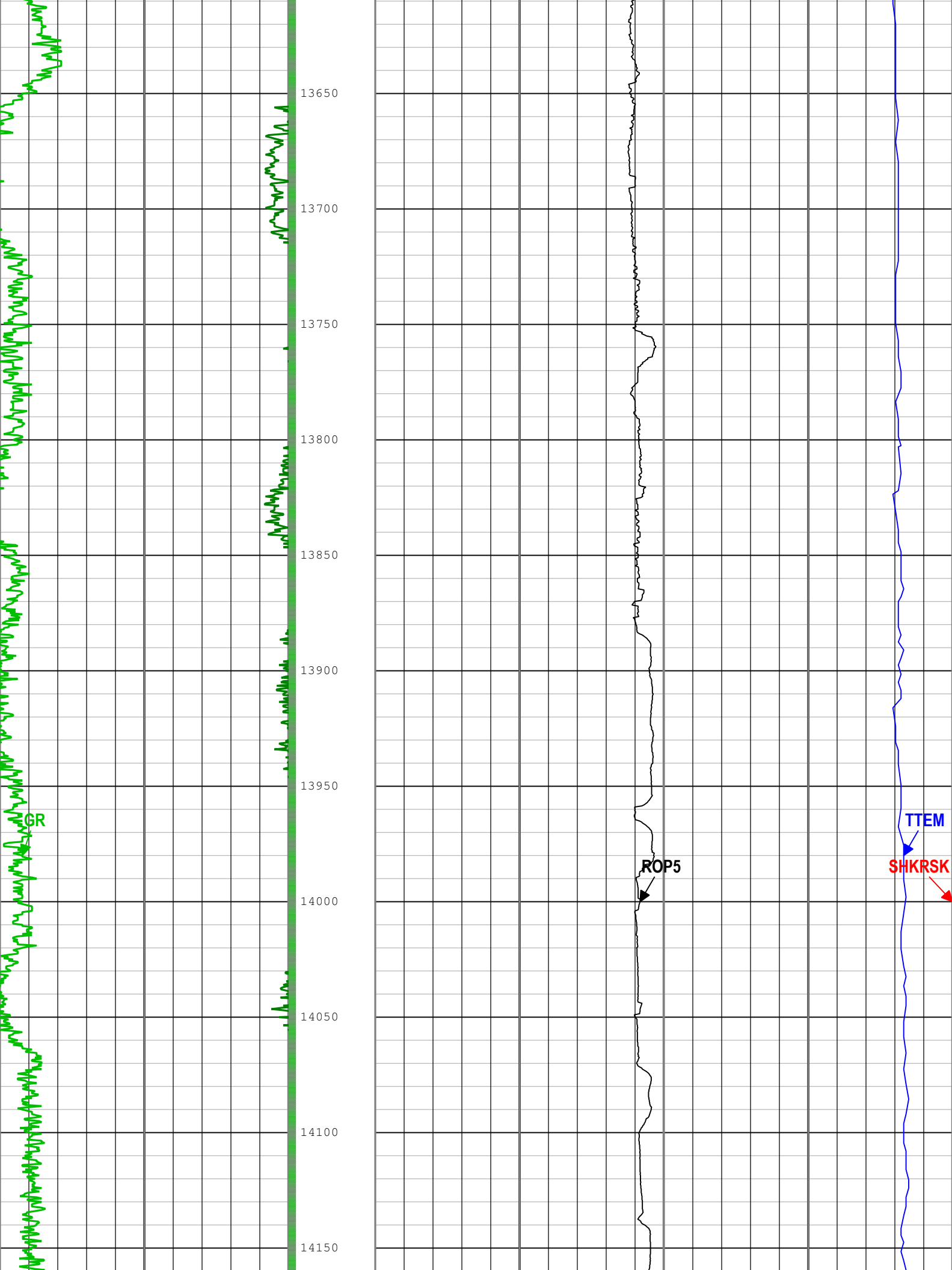


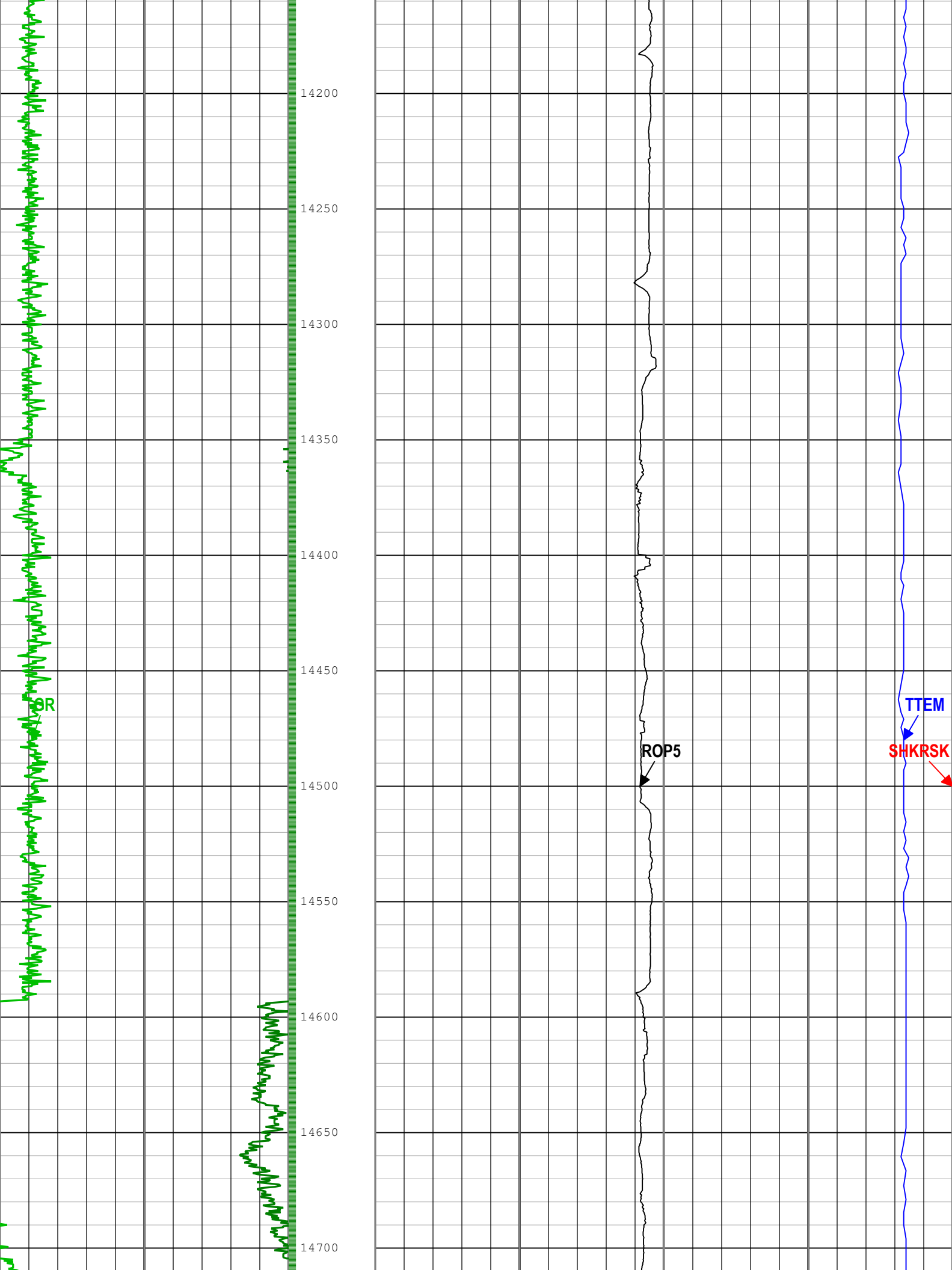


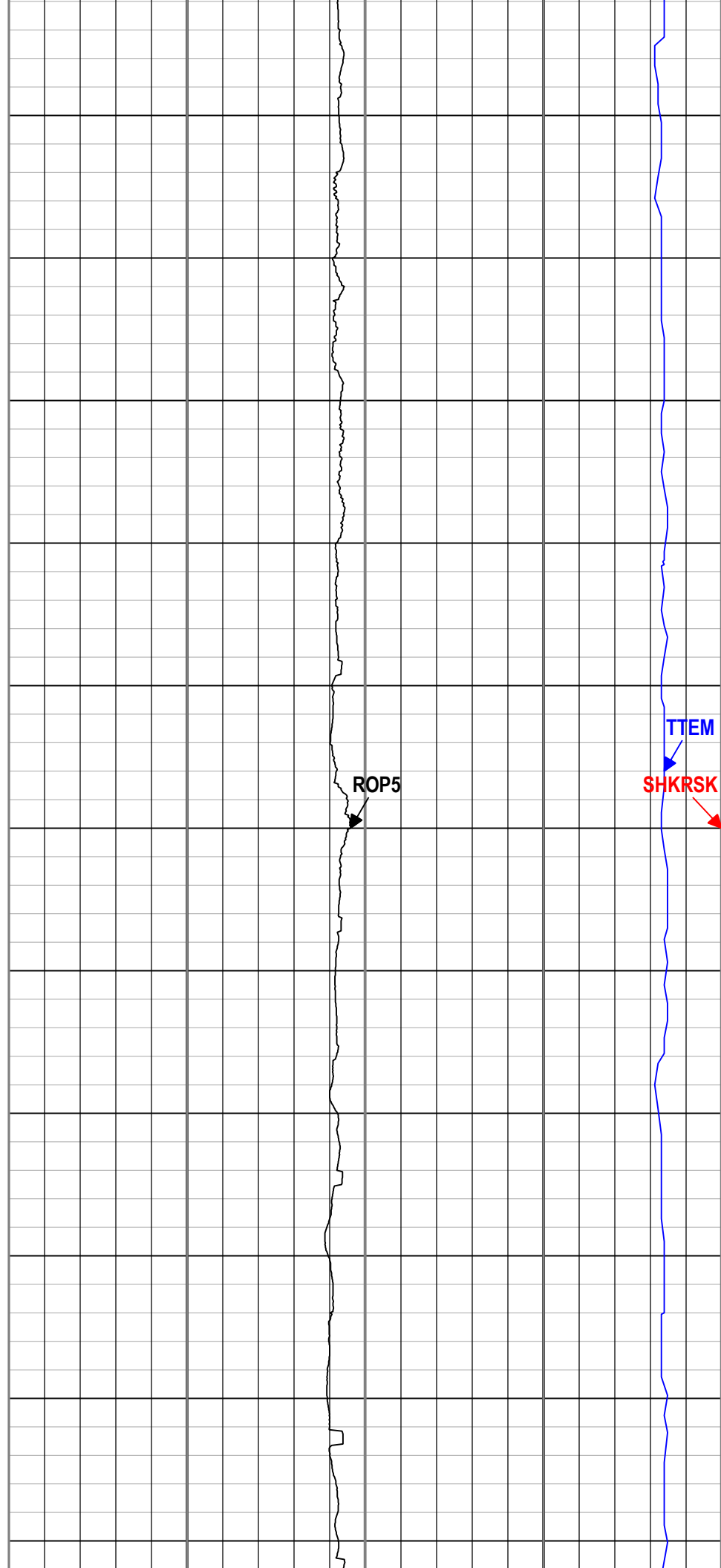
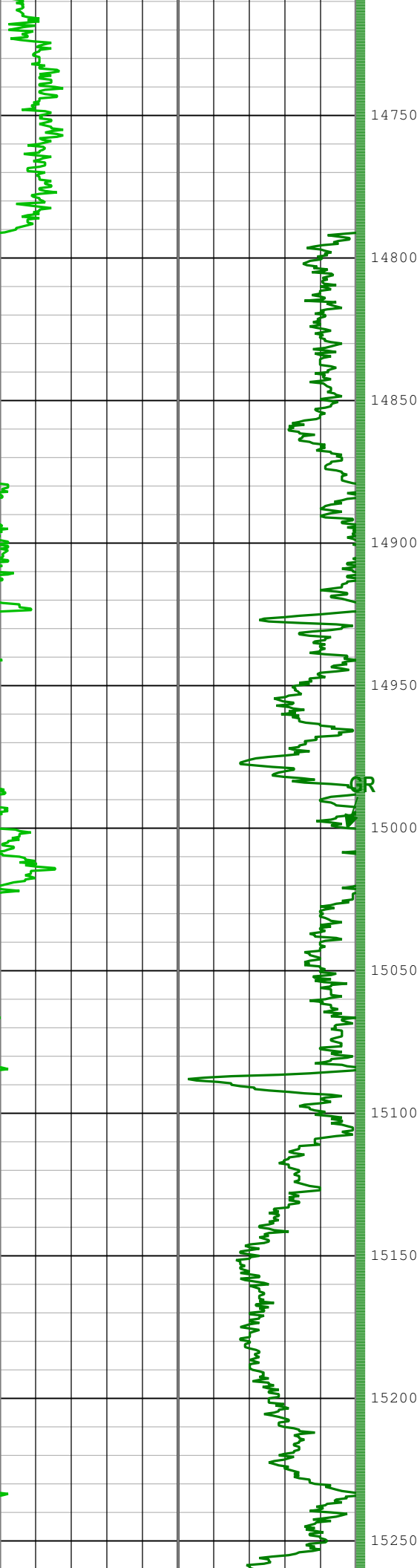


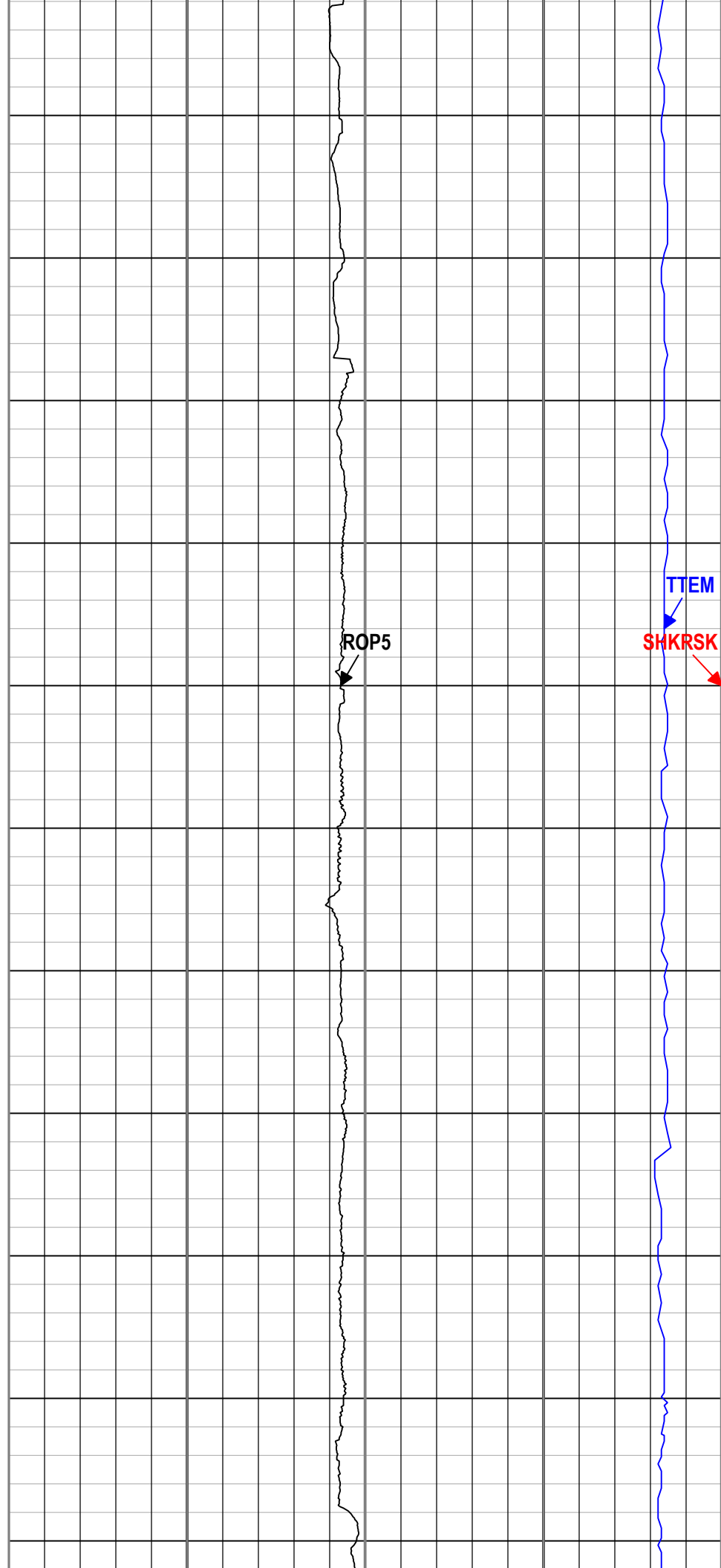
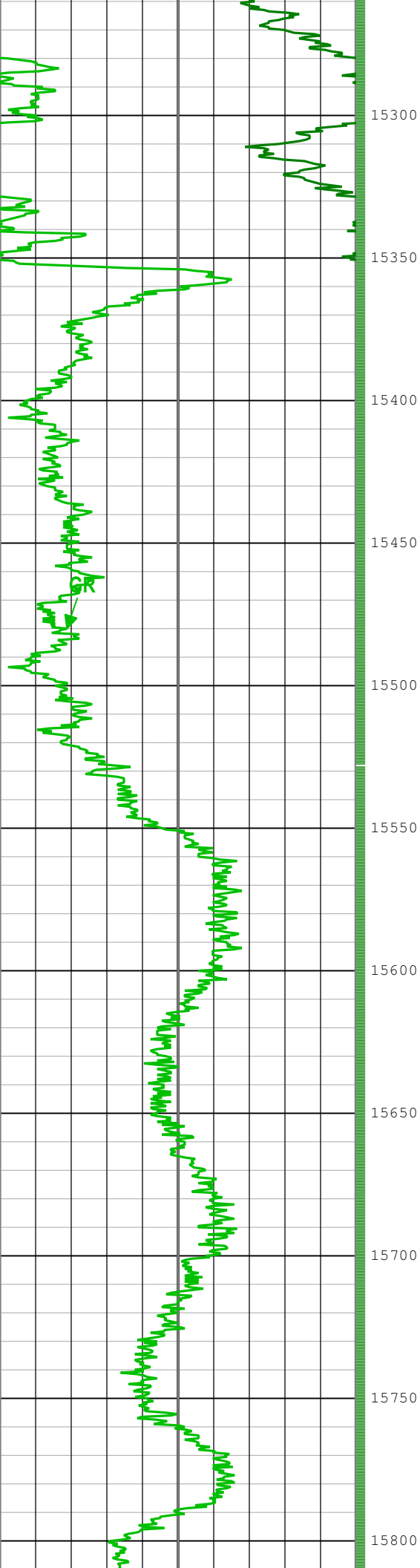










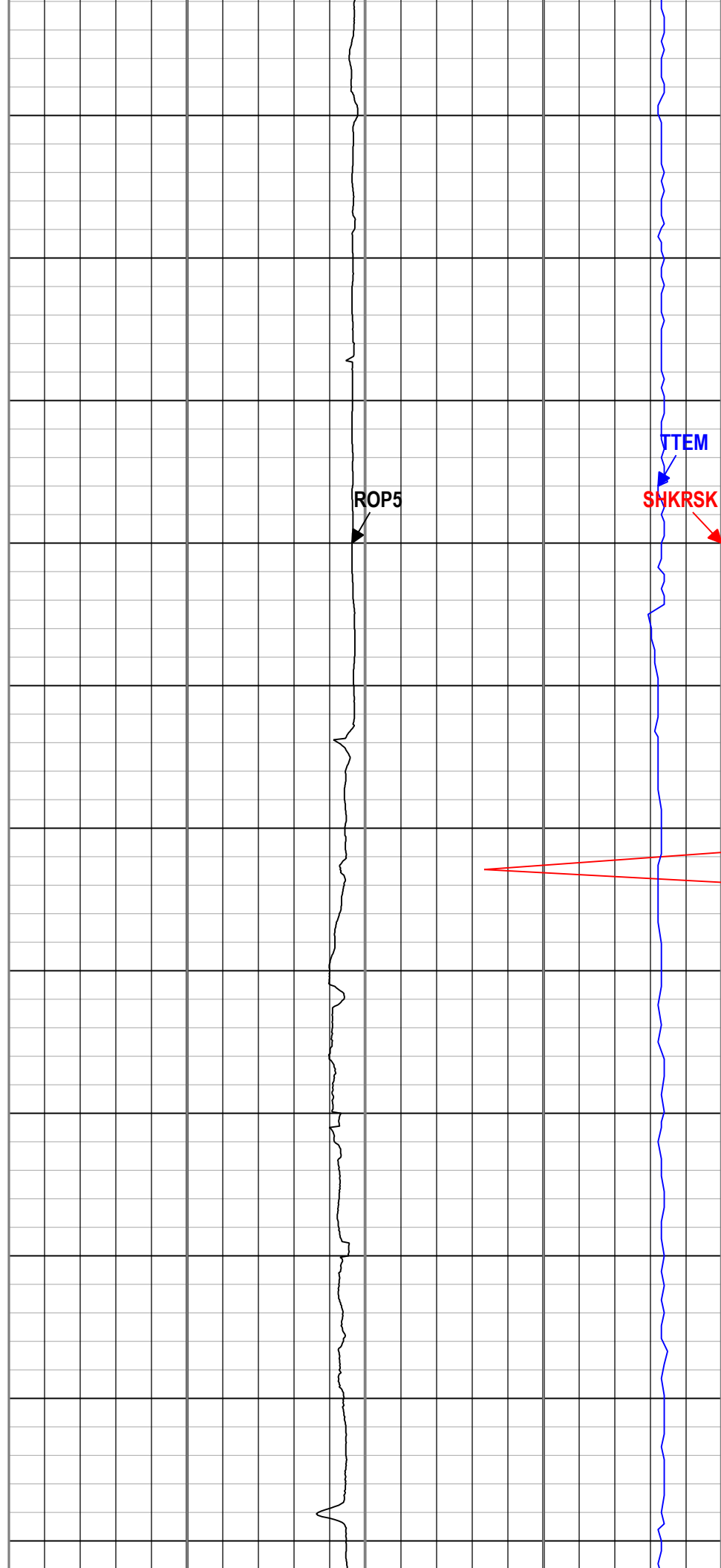
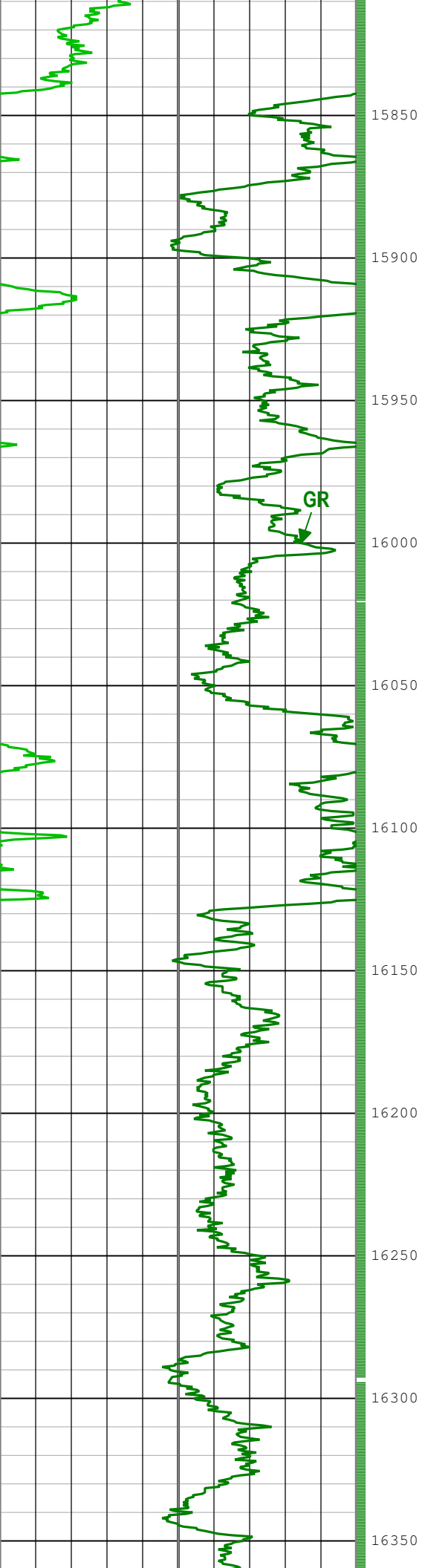


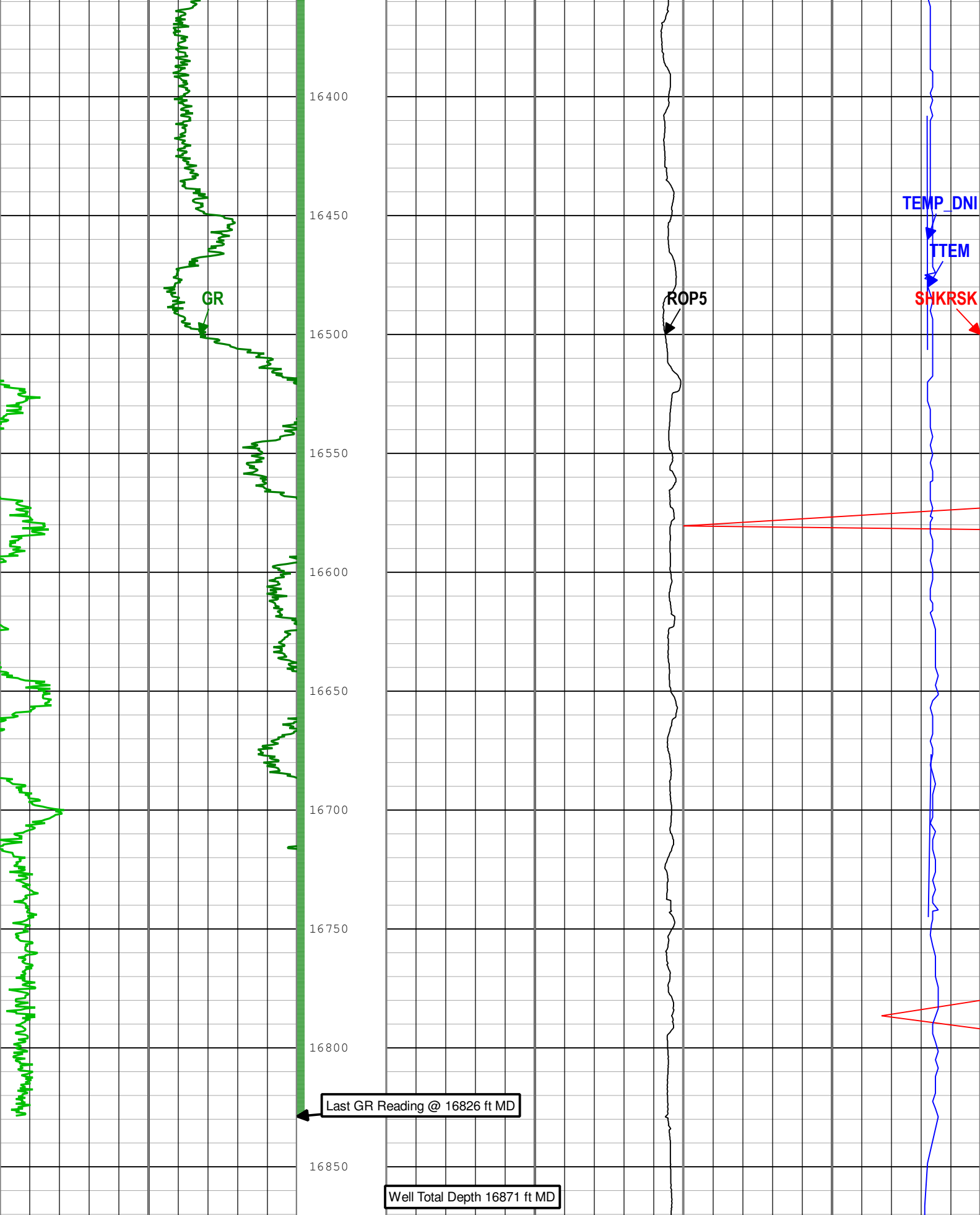
ROP5

TTEM

SHKRSK







Gamma Ray (GR) SlimPulse[1] RM		Rate of penetration averaged over the last 5 ft (1.5 m) (ROP5) RT		Shock Risk (SHKRSK) SlimPulse[1] RT	
0	gAPI	150		3	0
Gamma Ray (GR) SlimPulse[1] RM		1000 ft/h		Tool Temperature (TTEM) SlimPulse[1] RM	

150	gAPI	300	100	degF	300
Gamma Ray (GR) SlimPulse[1] RM					
300	gAPI	450			
Gamma Ray (GR) SlimPulse[1] RM					
450	gAPI	600			
			└ GR - Gamma Ray SlimPulse[1] RM		
Description:    Format: Log ( EOW_MD )    Index Scale: 2 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 08-Sep-2014 13:32:40					

Channel Processing Parameters

Run 1: Parameters				
Parameter	Description	Tool	Value	Unit
BS	Bit Size	DNMSESSION	Depth Zoned	in
DFD	Drilling Fluid Density	Borehole	10	lbm/gal
GR_SRC	GR Source Selection	SPULSE-GEN	GAMMA_EXT	

Run 1Depth Zoned Parameters			
Parameter	Value	Start ( ft )	Stop ( ft )
BS	8.75	7239.16	7291
BS	6.125	7291	7447.17
All depth are actual.			

Run 2: Parameters				
Parameter	Description	Tool	Value	Unit
BS	Bit Size	DNMSESSION	6.125	in
DFD	Drilling Fluid Density	Borehole	Time Zoned	lbm/gal
GR_SRC	GR Source Selection	SPULSE-GEN	GAMMA_EXT	

Run 2Time Zoned Parameters

Pass Drilling					
Parameter	Value	Start Time	Stop Time	Start Depth ( ft )	Stop Depth ( ft )
DFD	9.5	30-Aug-2014 15:11:05	03-Sep-2014 19:54:35	7444.83	14852.5
DFD	10.1	03-Sep-2014 19:54:35	05-Sep-2014 18:32:21	14852.5	16519
DFD	10	05-Sep-2014 18:32:21	07-Sep-2014 05:17:58	16519	16998
All depth are at tool zero.					

Tool Control Parameters

UDComposite 2

Software Version

Acquisition System		Version
MaxWell		4.0.9163.3000
Application Patch		Patch-SP-10767_22480-4.0.9163.3001
		Patch-NPD_ADN8D_SP3-23661-4.0.9530.3002
		Patch-Hotfix_overwrite_survey_for_petrolink-23199-4.0.9530.3002
		Patch-Hotfix_MRT_SP3-23306-4.0.9530.3002
		Patch-Hotfix_ECO_SP3-23896-4.0.9530.3002

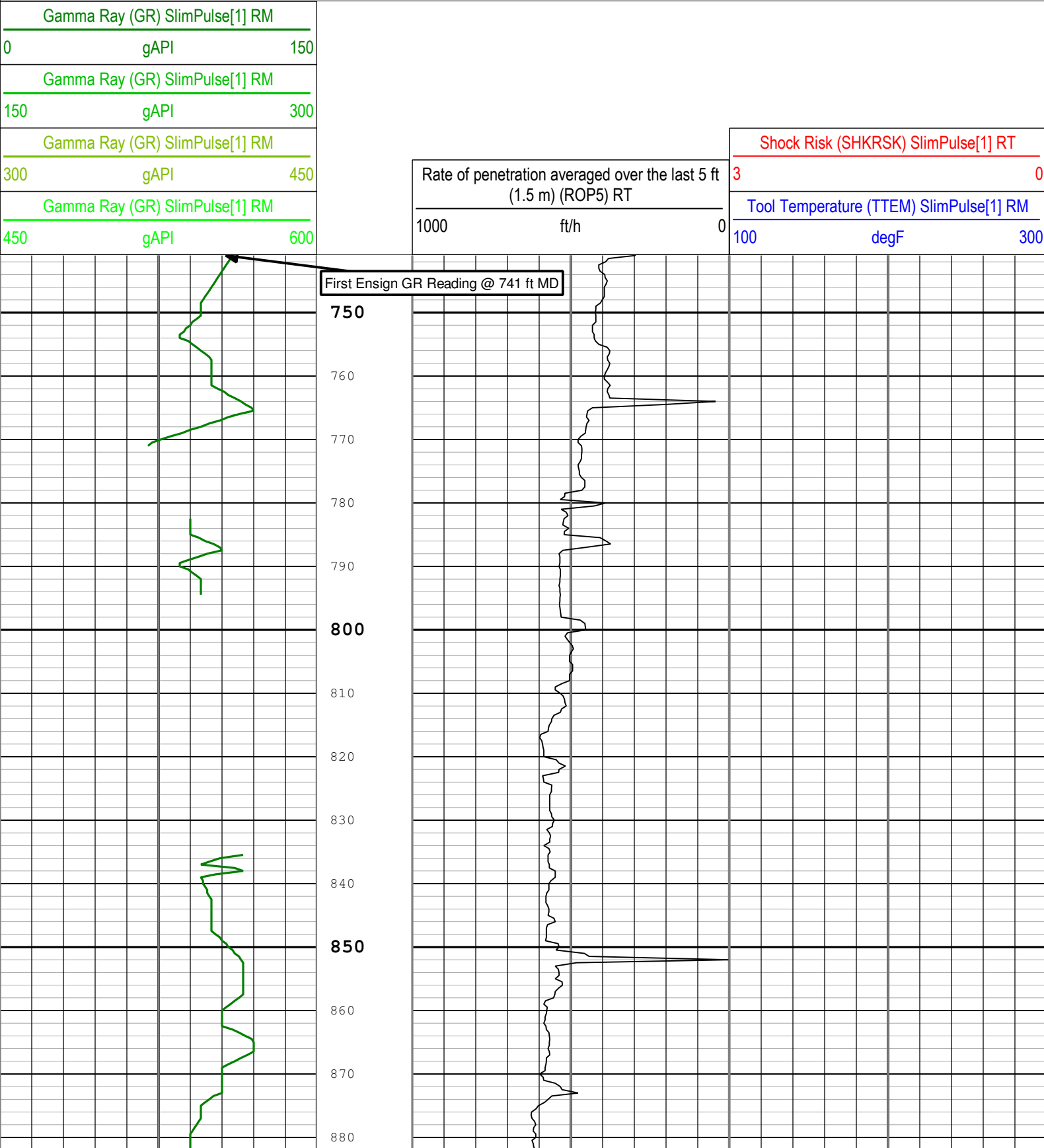
Tool Elements	Description	Software Version	Firmware Version
DRILLING_SURFACE	DRILLING_SURFACE	4.0.9469.3000	
SPEC	SlimPulse Electronics Cartridge	4.0.9469.3000	

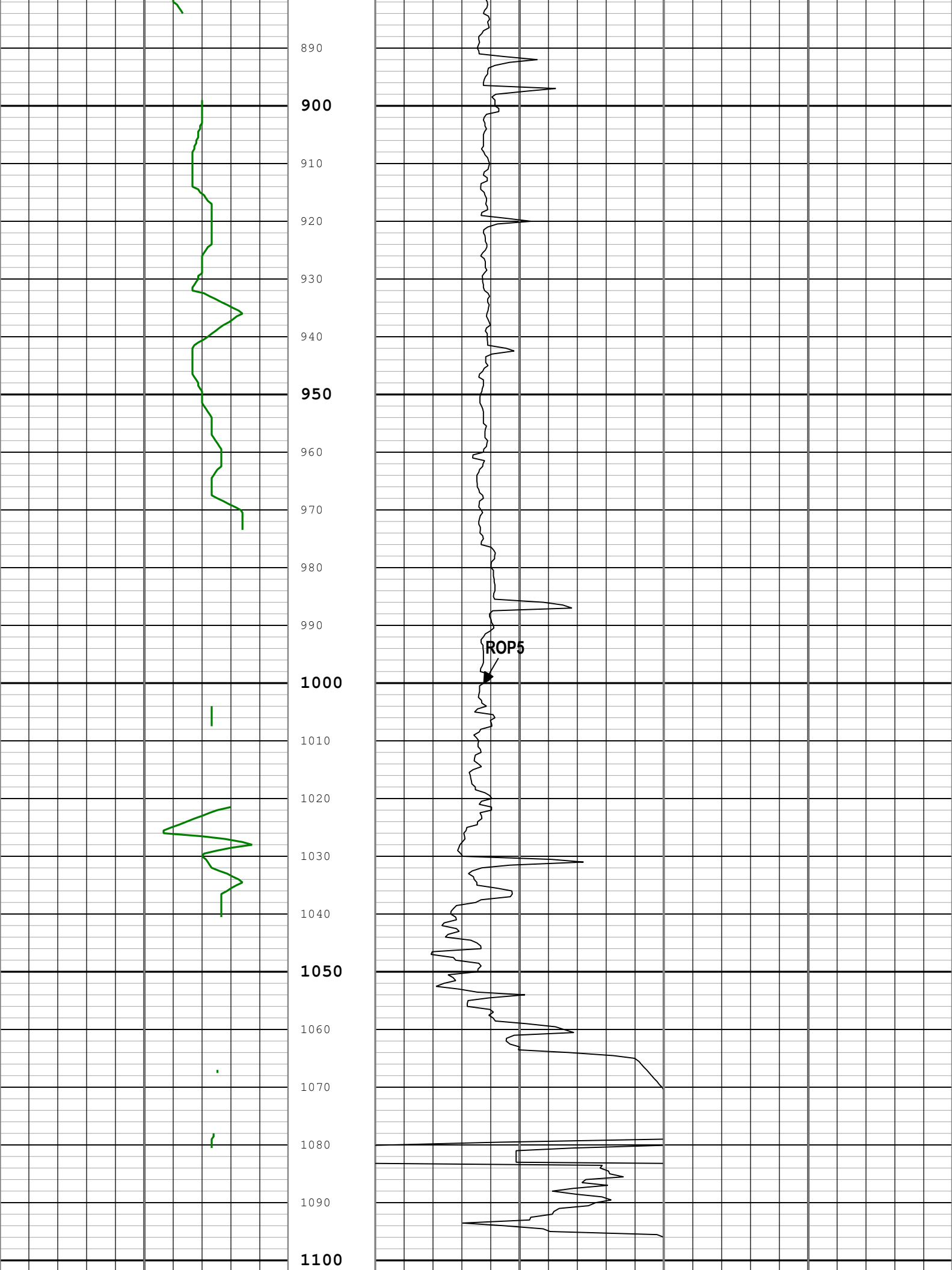
Composite Summary							
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Include Parallel Data
Run 1	Drilling	Down	7297.08 ft	7447.17 ft	29-Aug-2014 11:04:20 AM	29-Aug-2014 4:32:09 PM	No
Run 2	Drilling	Down	7444.83 ft	16998.00 ft	30-Aug-2014 3:11:05 PM	07-Sep-2014 5:17:58 AM	No

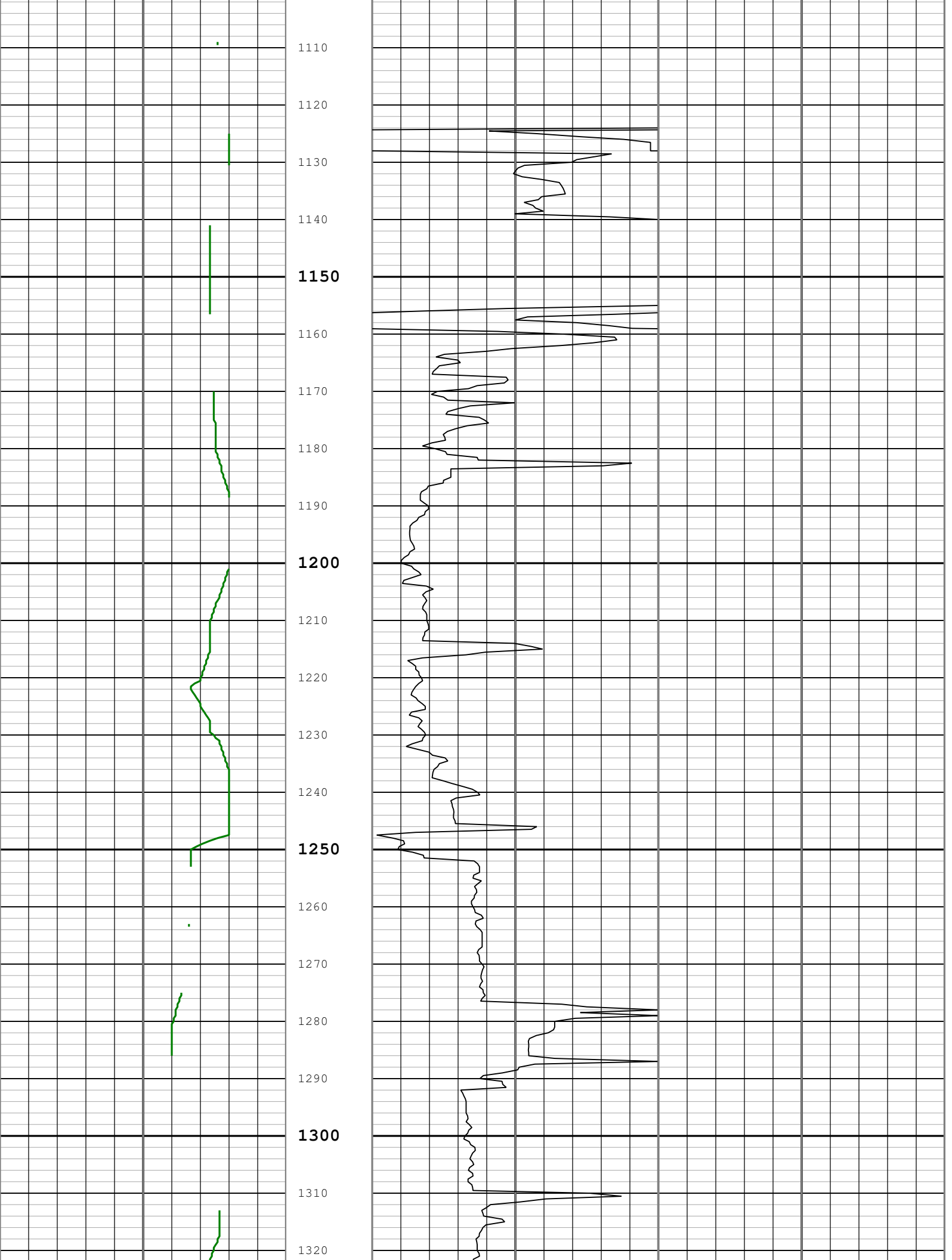
All depths are referenced to toolstring zero

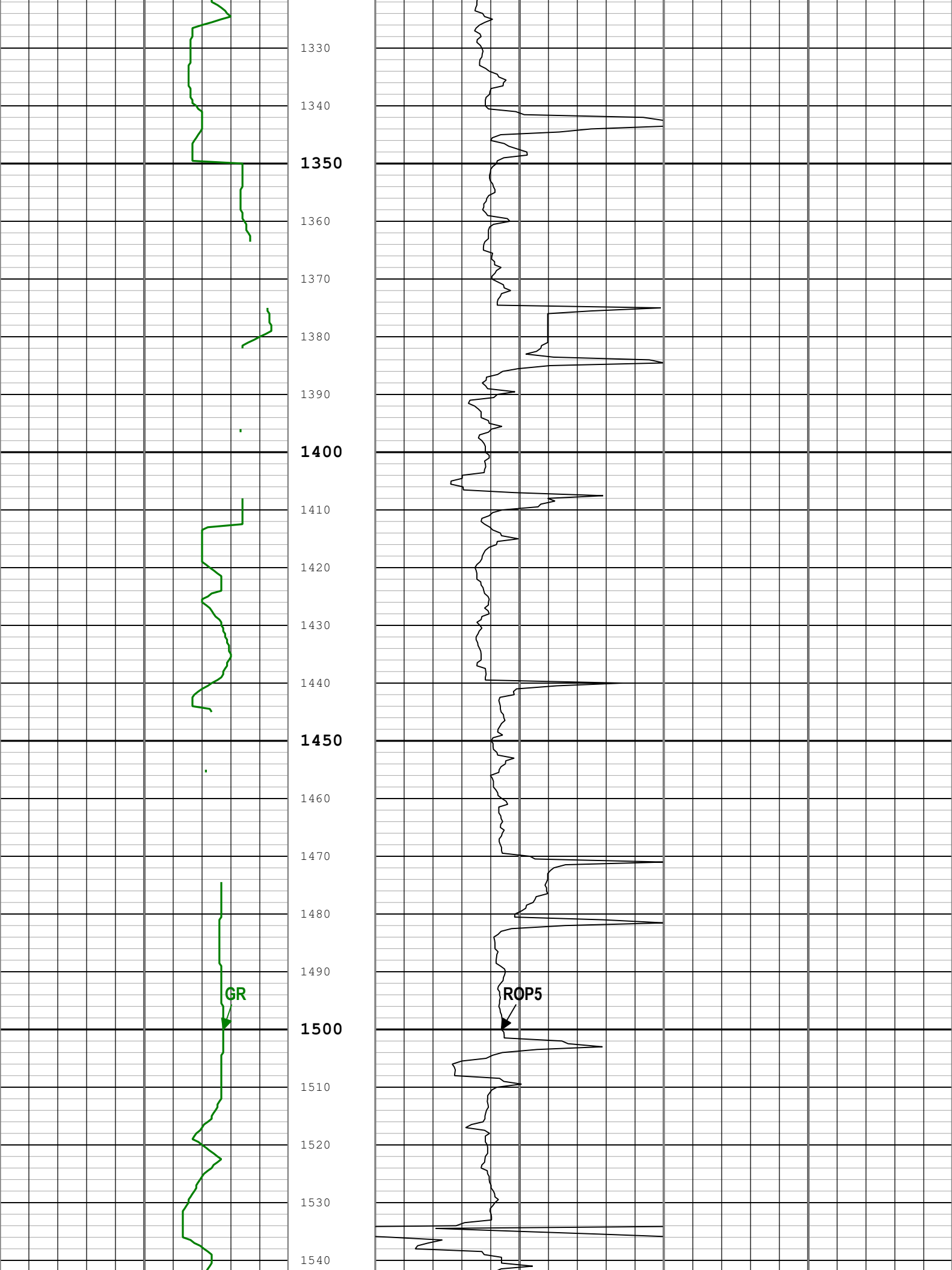
Log	Company:Noble Energy	Well:Heartland C30-79-1HN	UDComposite 2:S536
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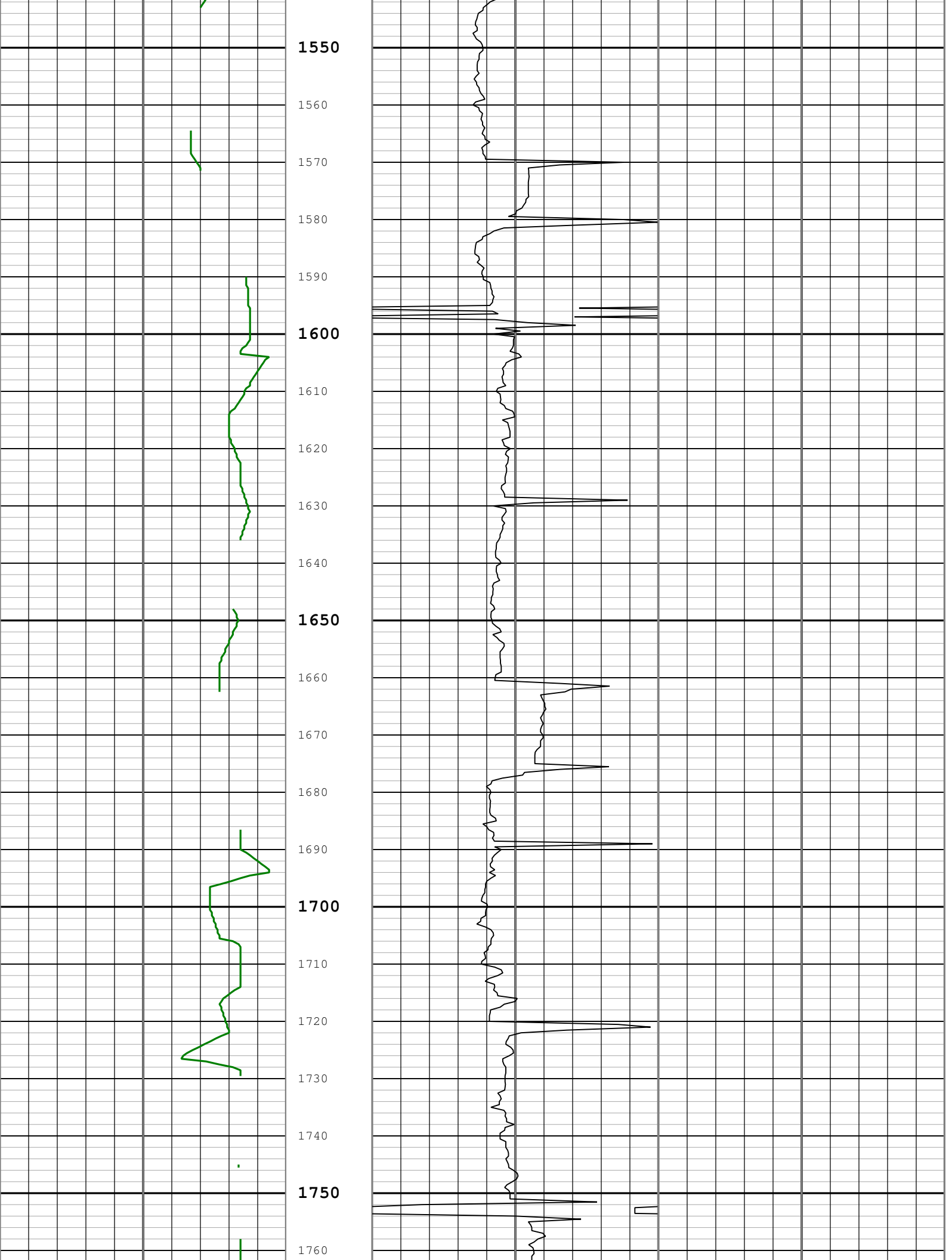
Description:    Format: Log ( EOW\_MD )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 08-Sep-2014 13:32:44



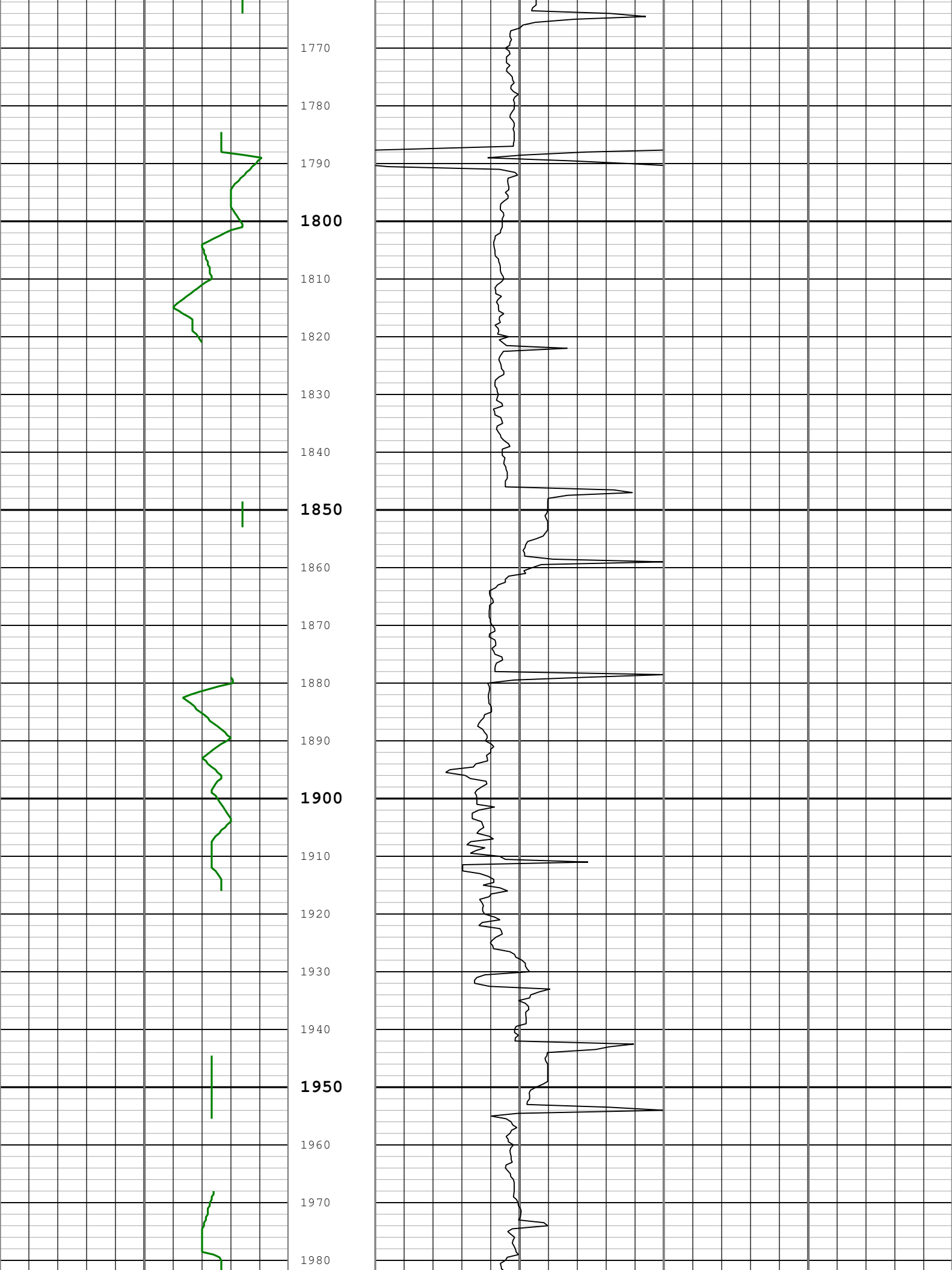


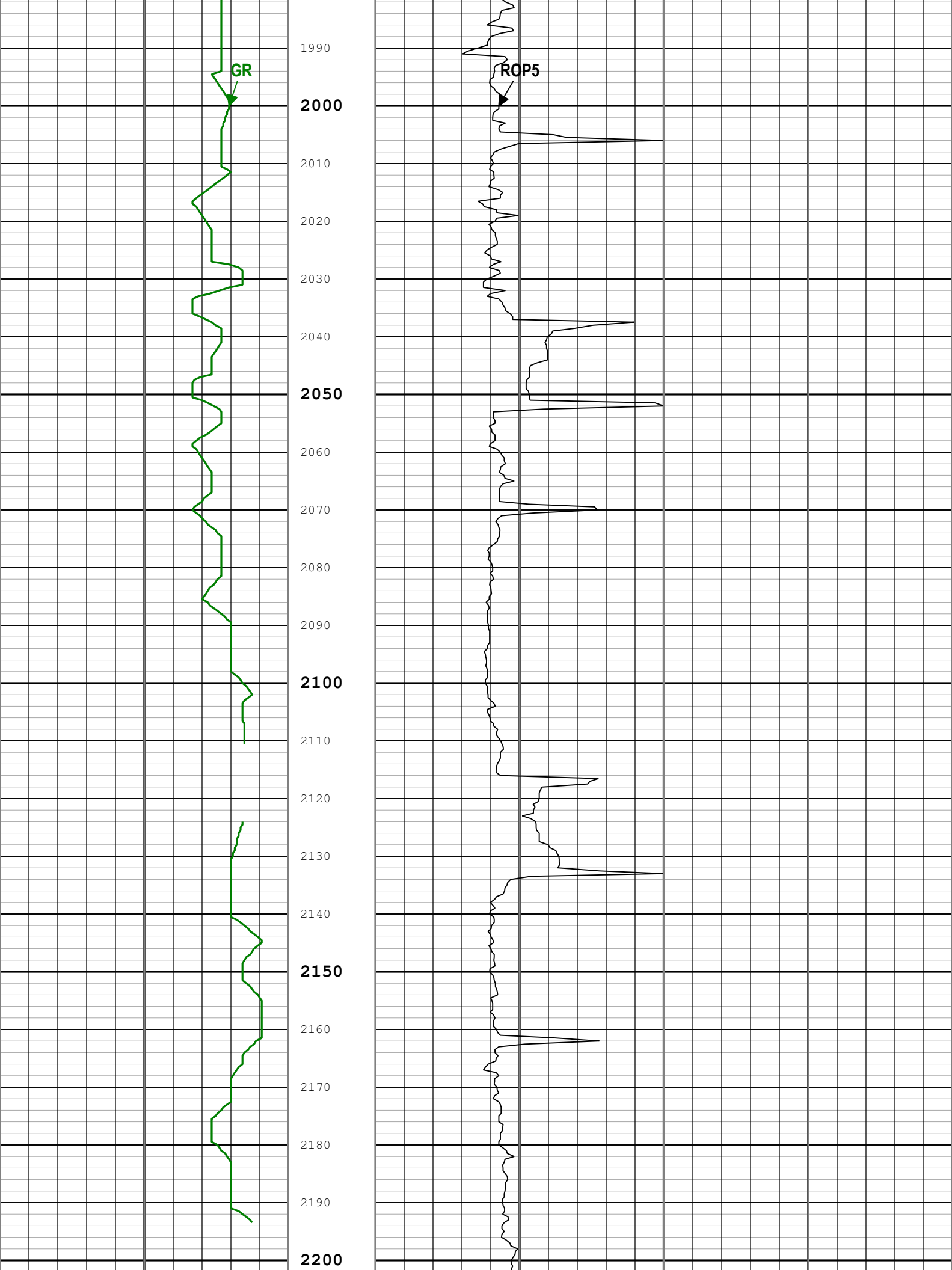


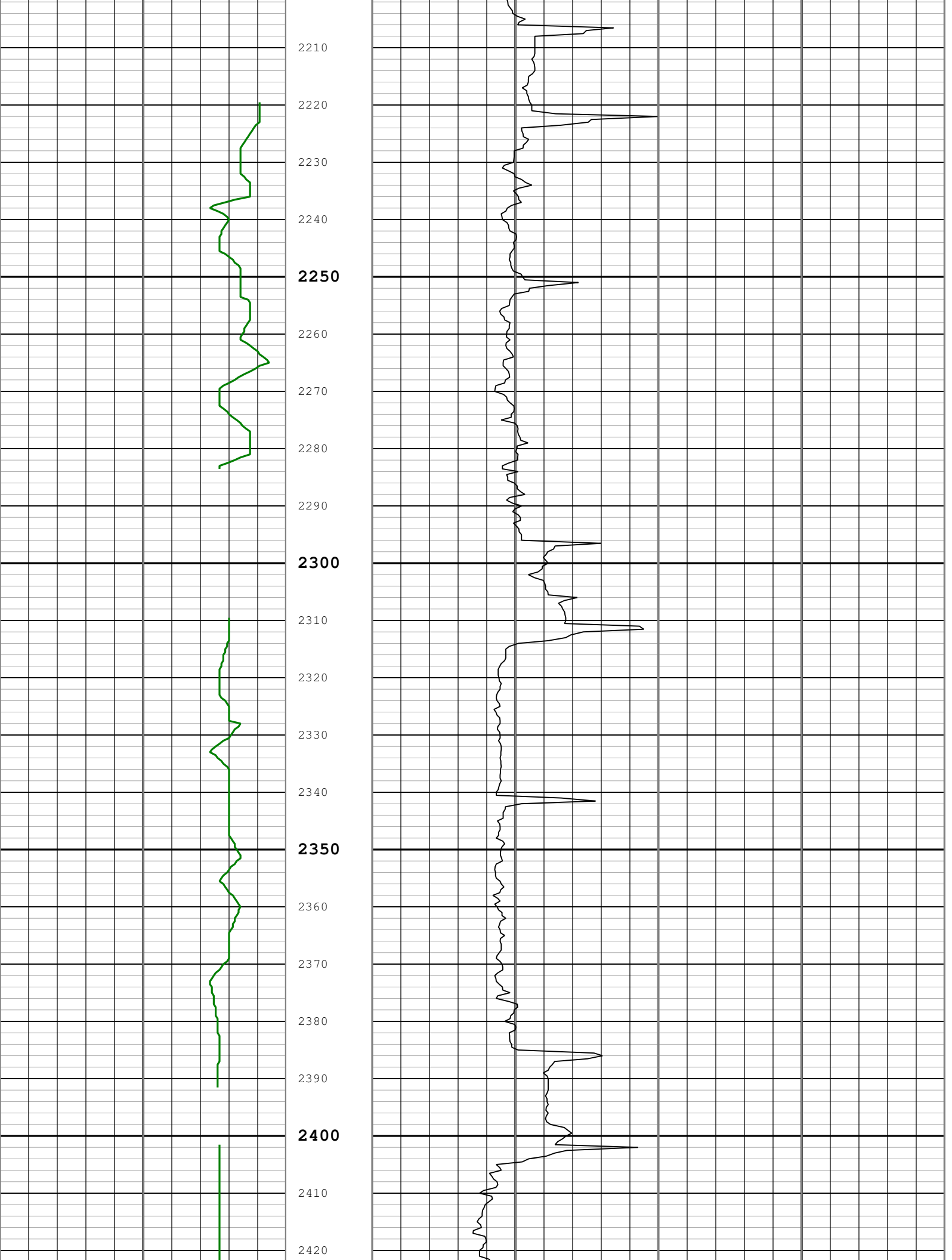


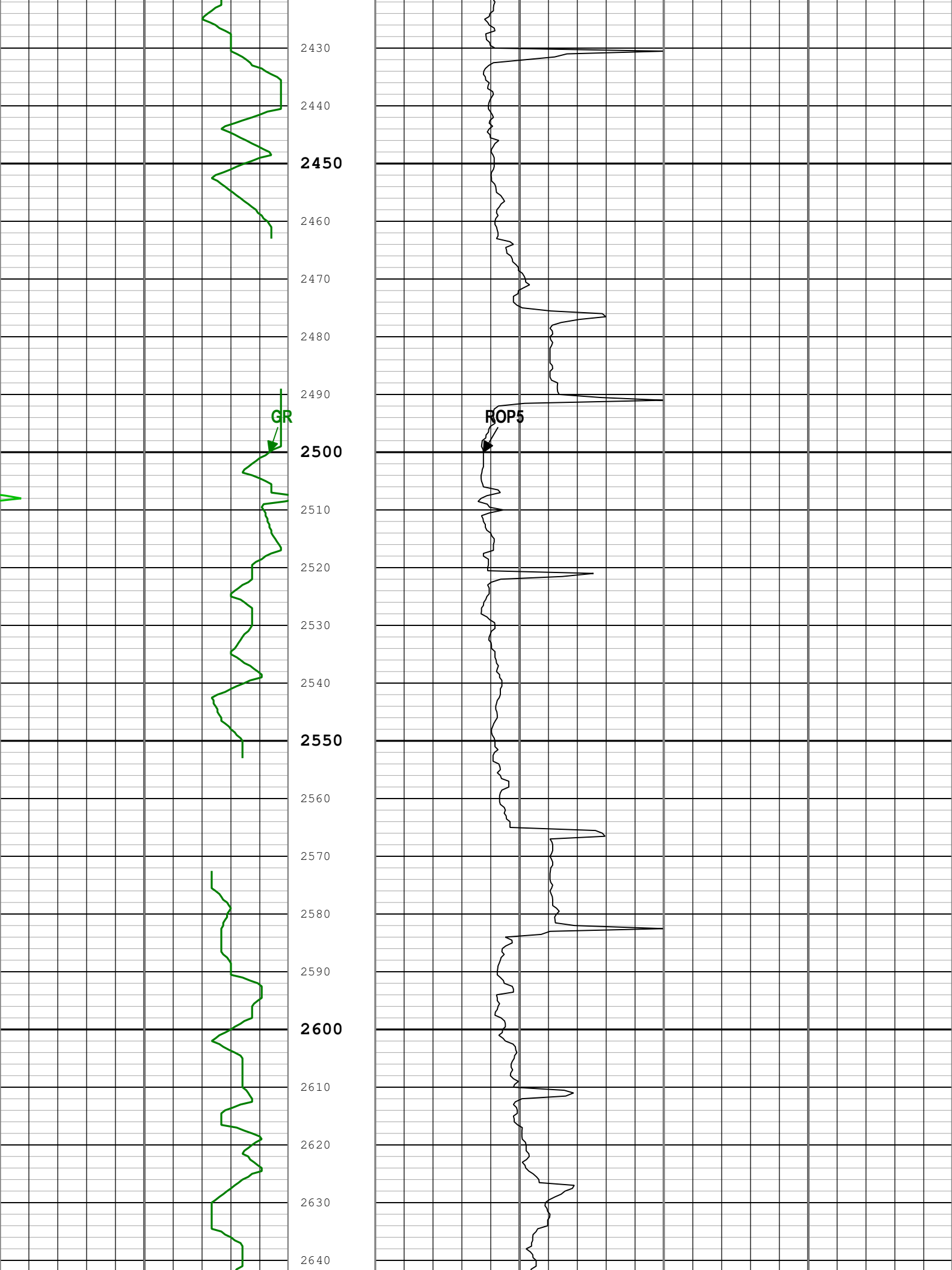


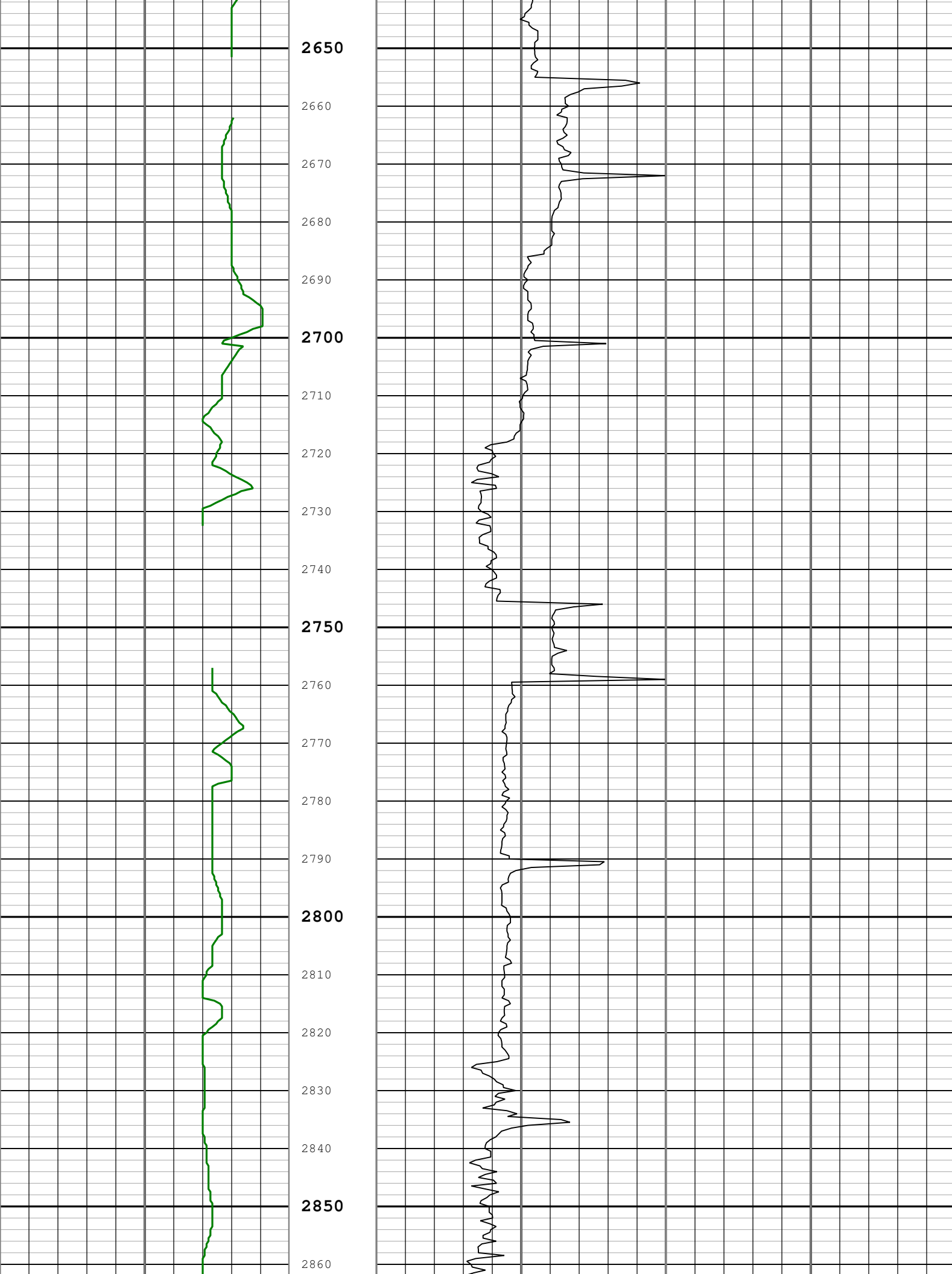


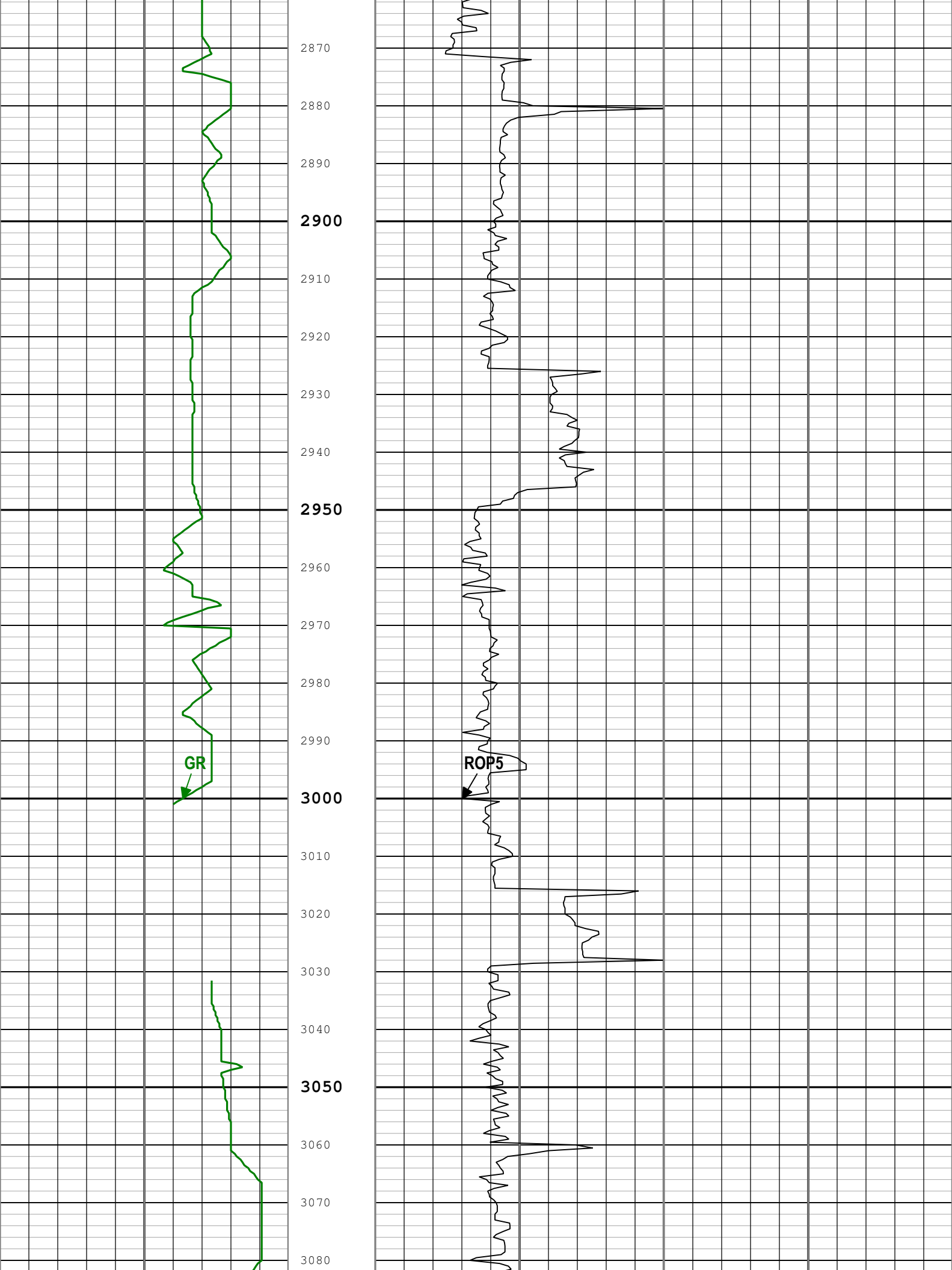


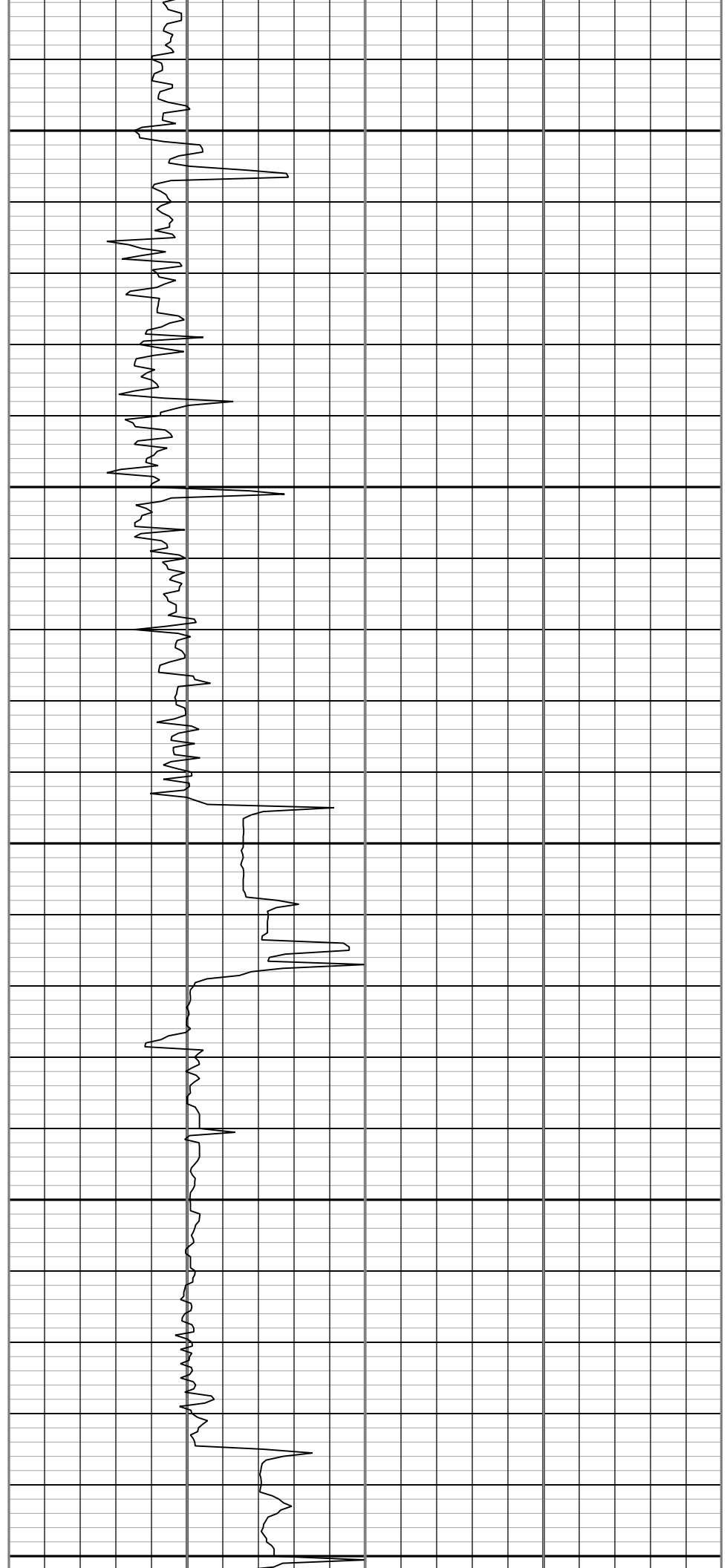
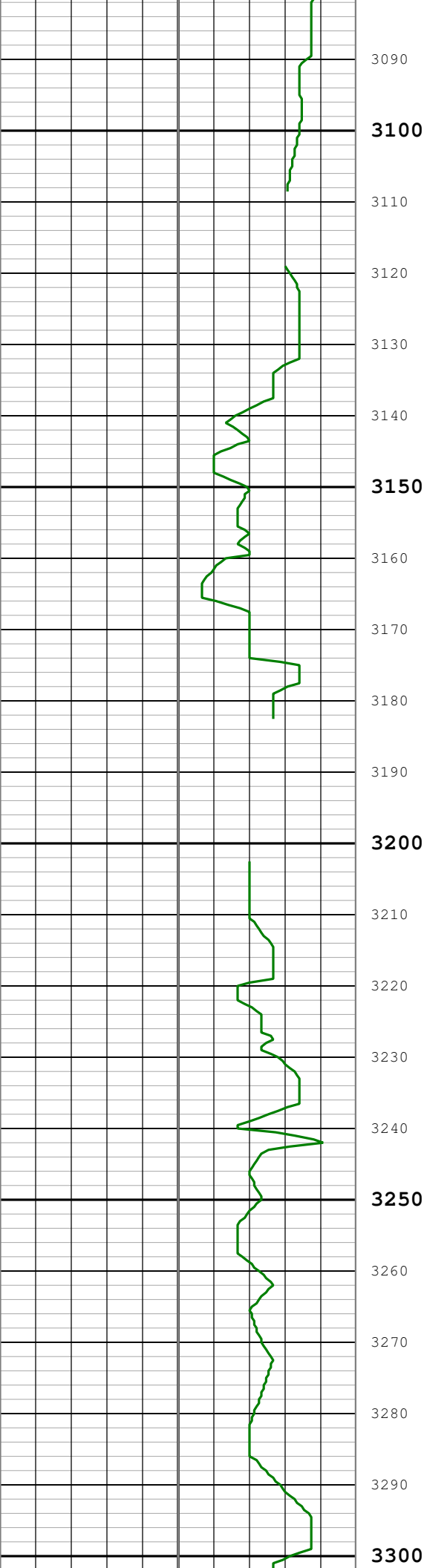


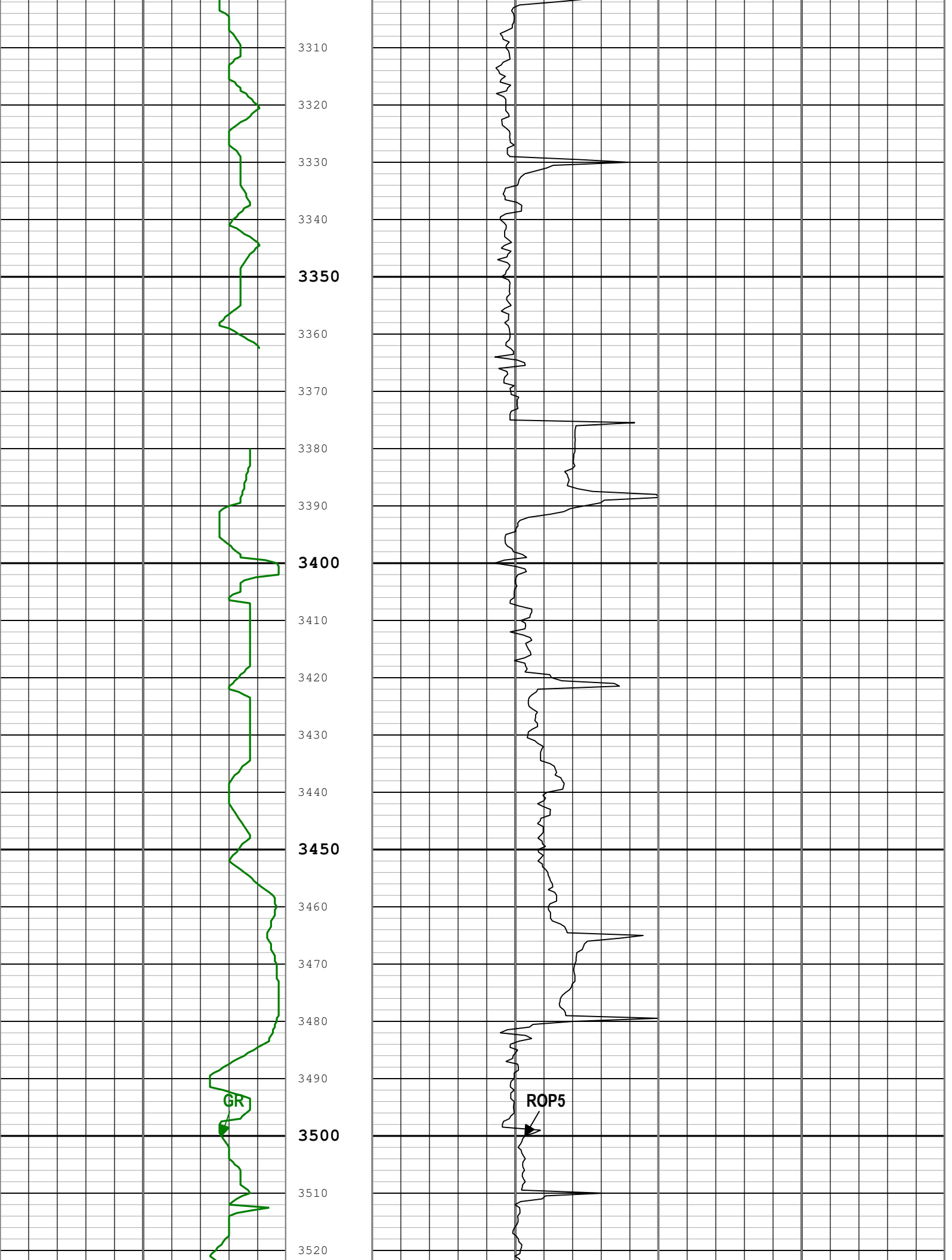




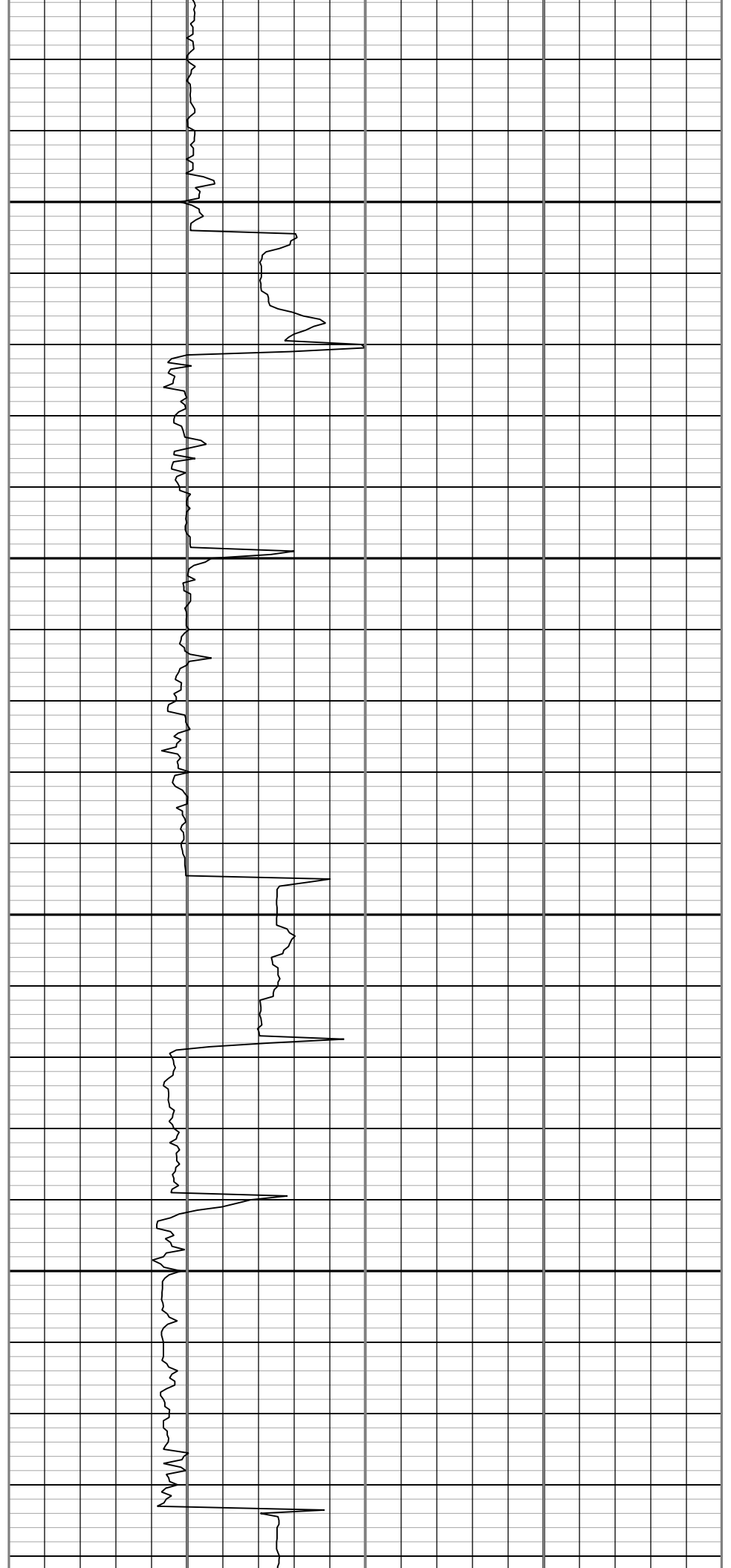
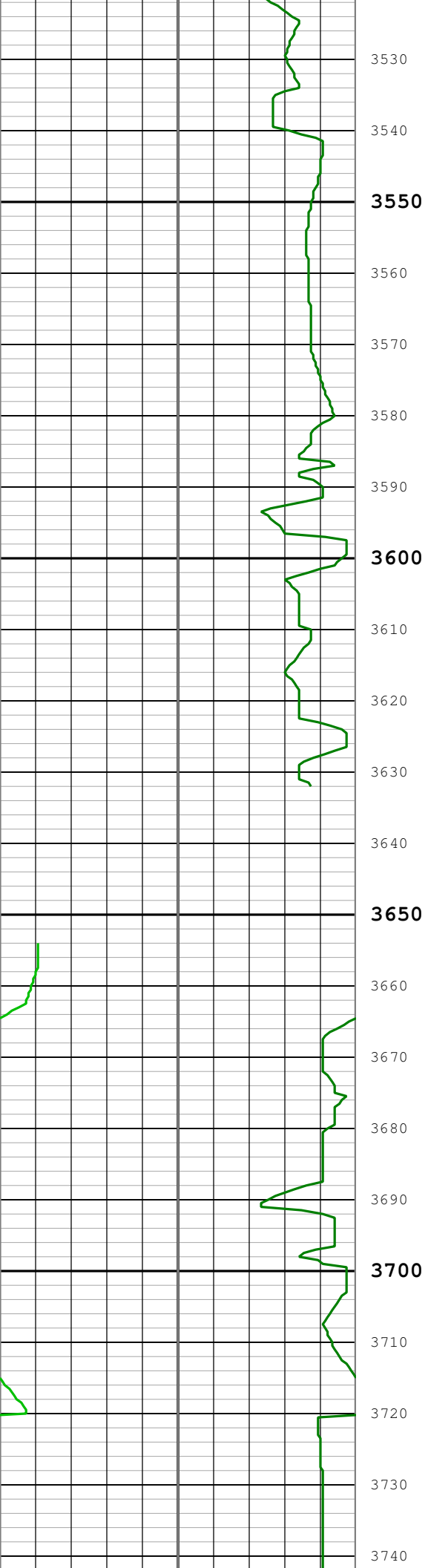


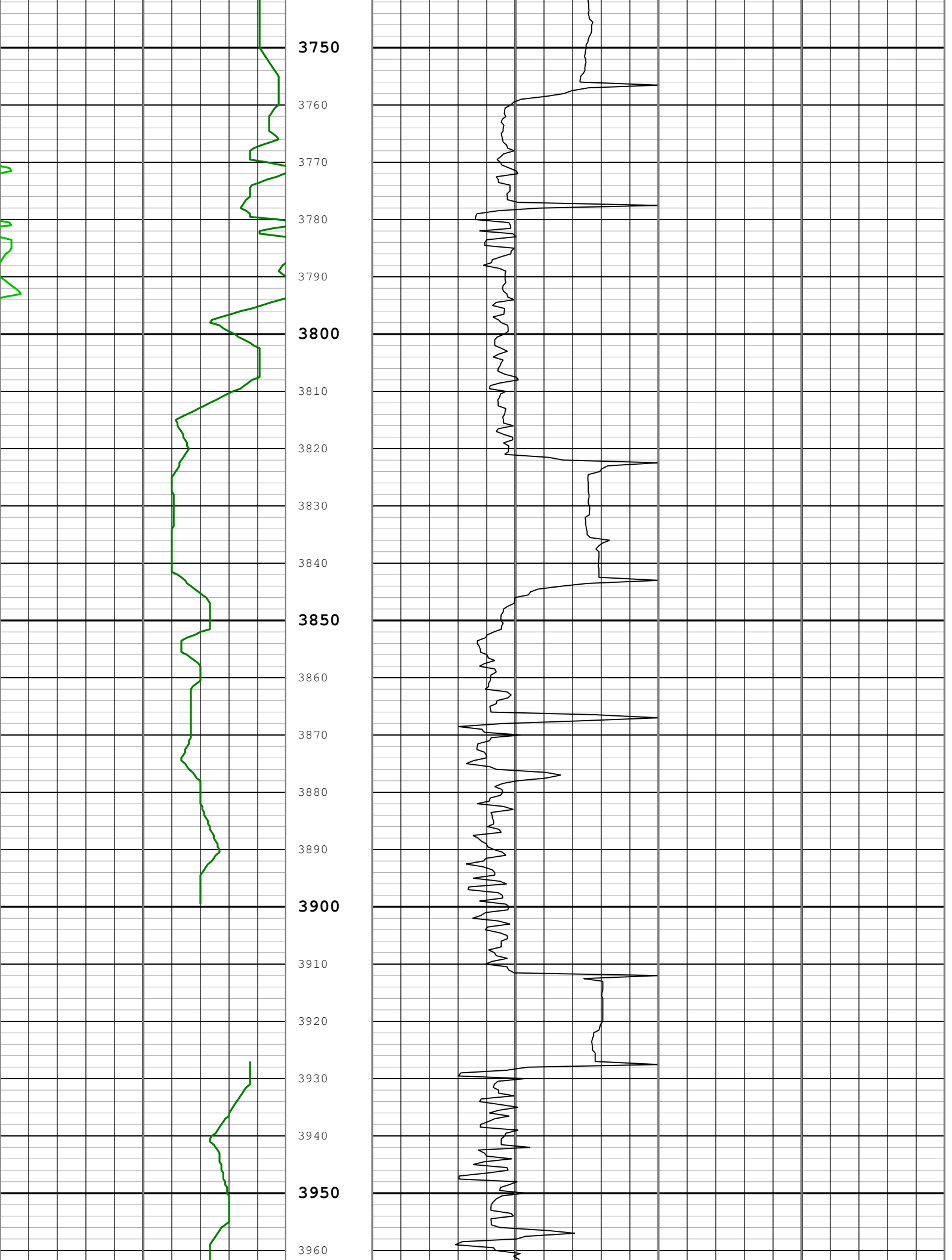


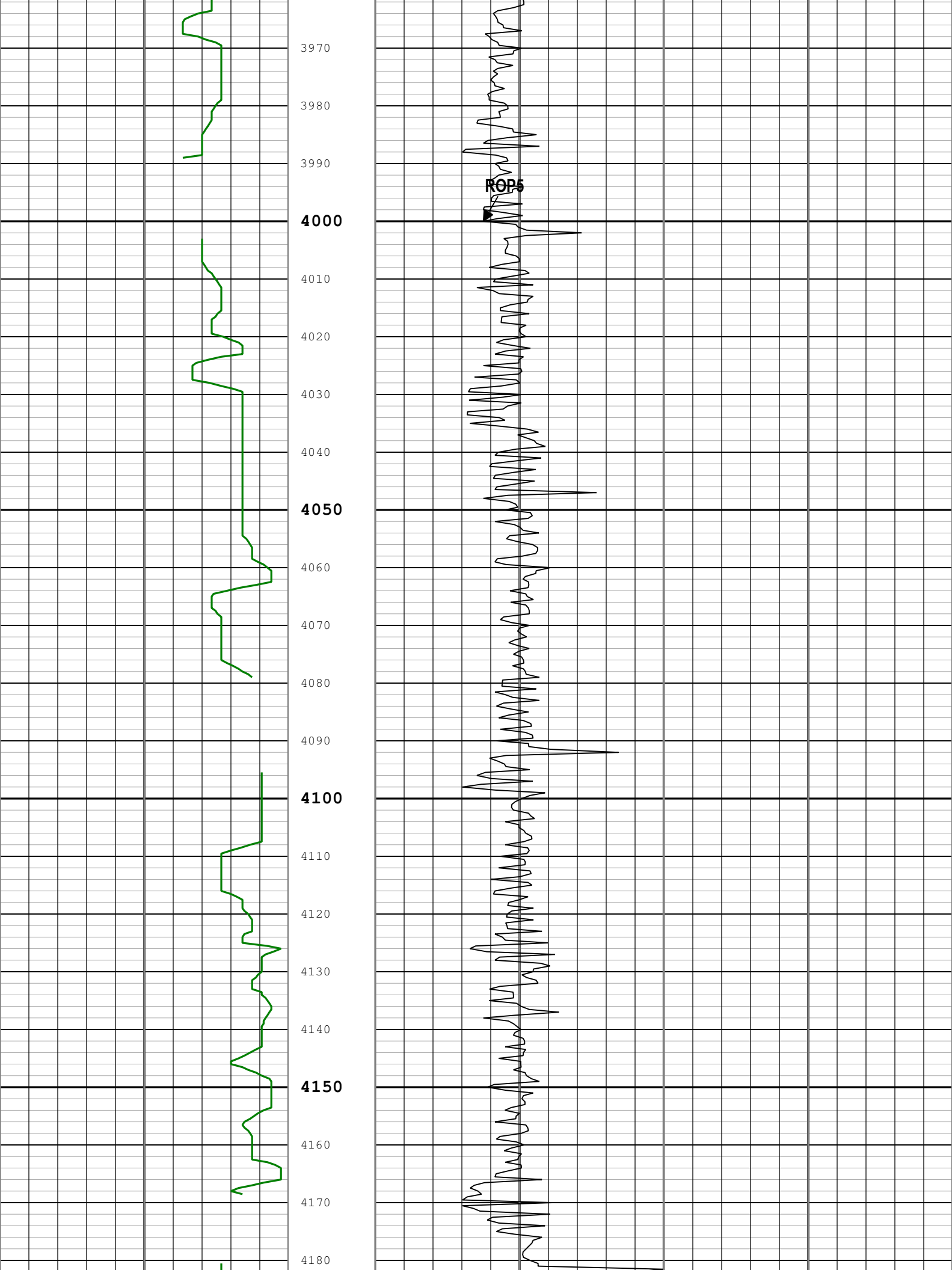


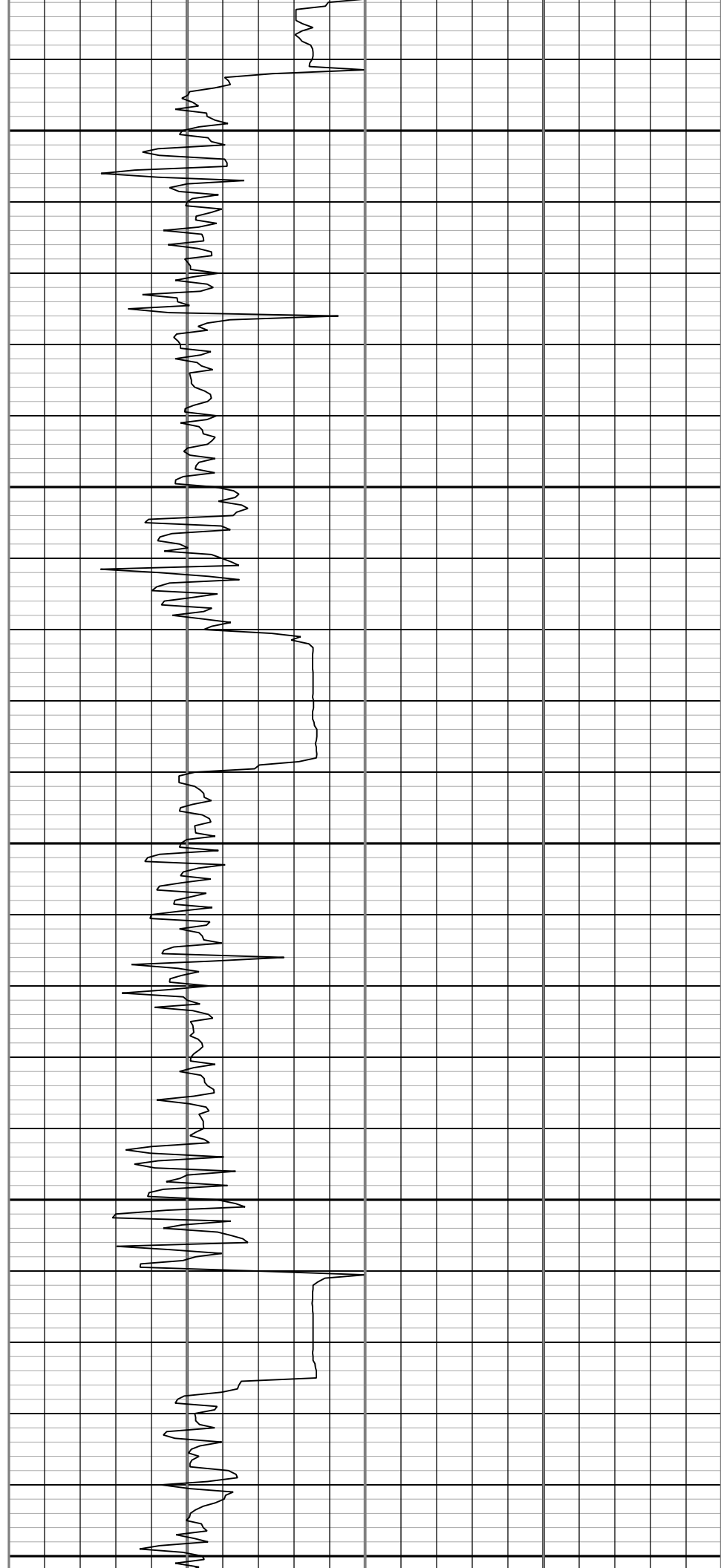
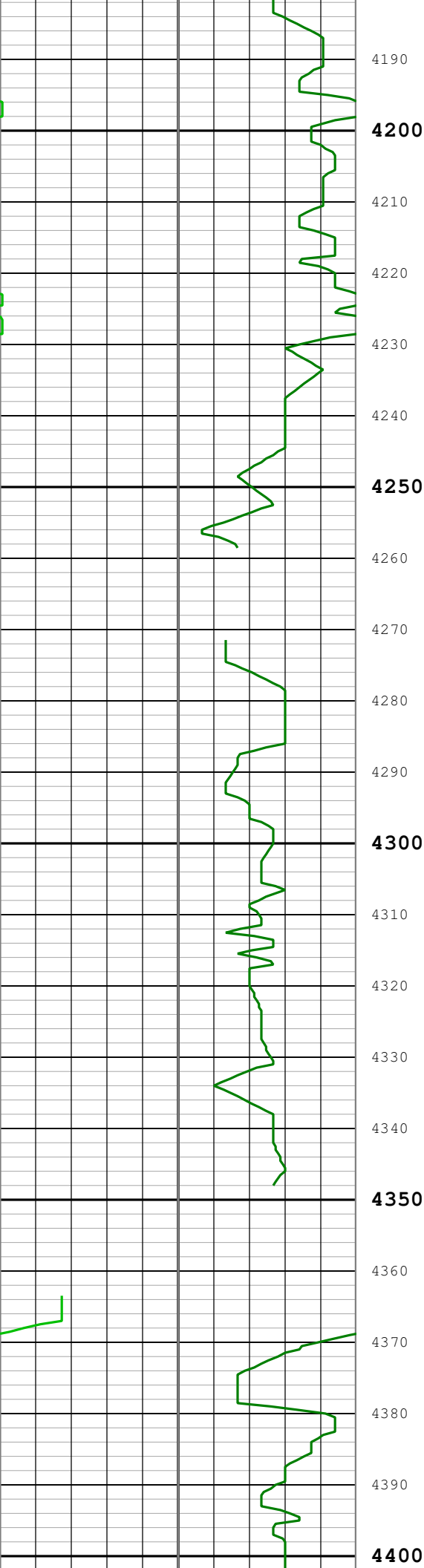


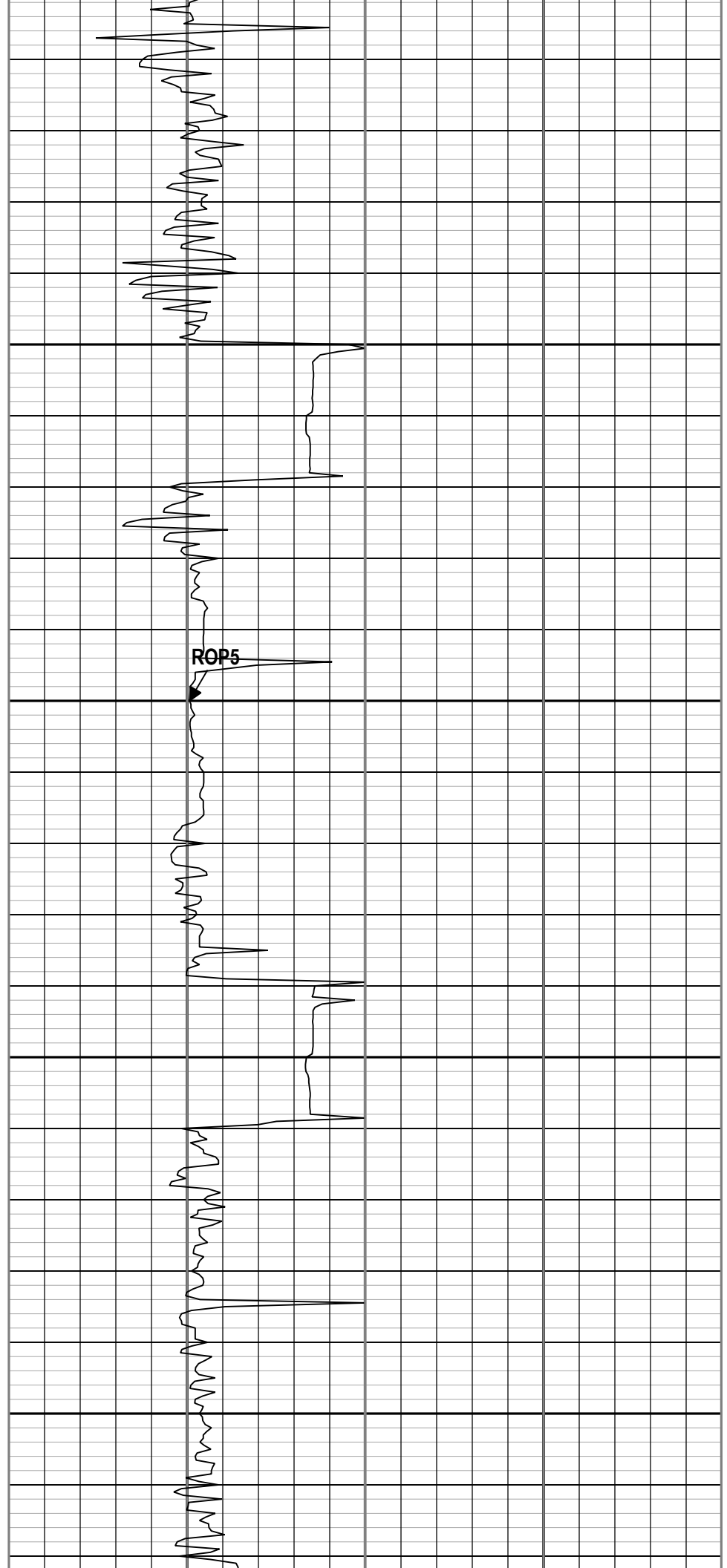
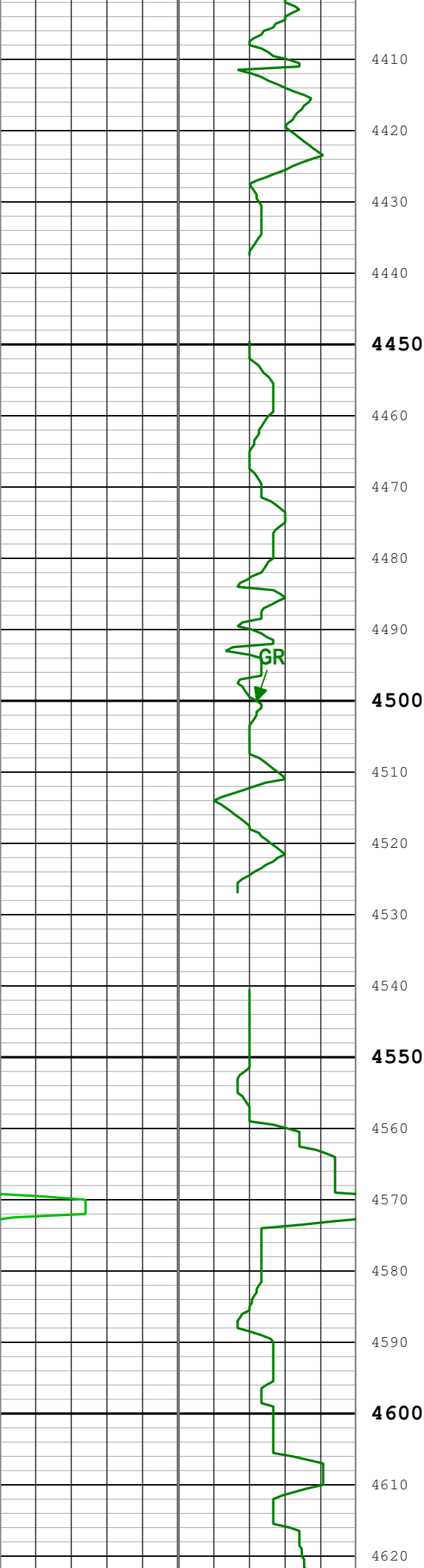


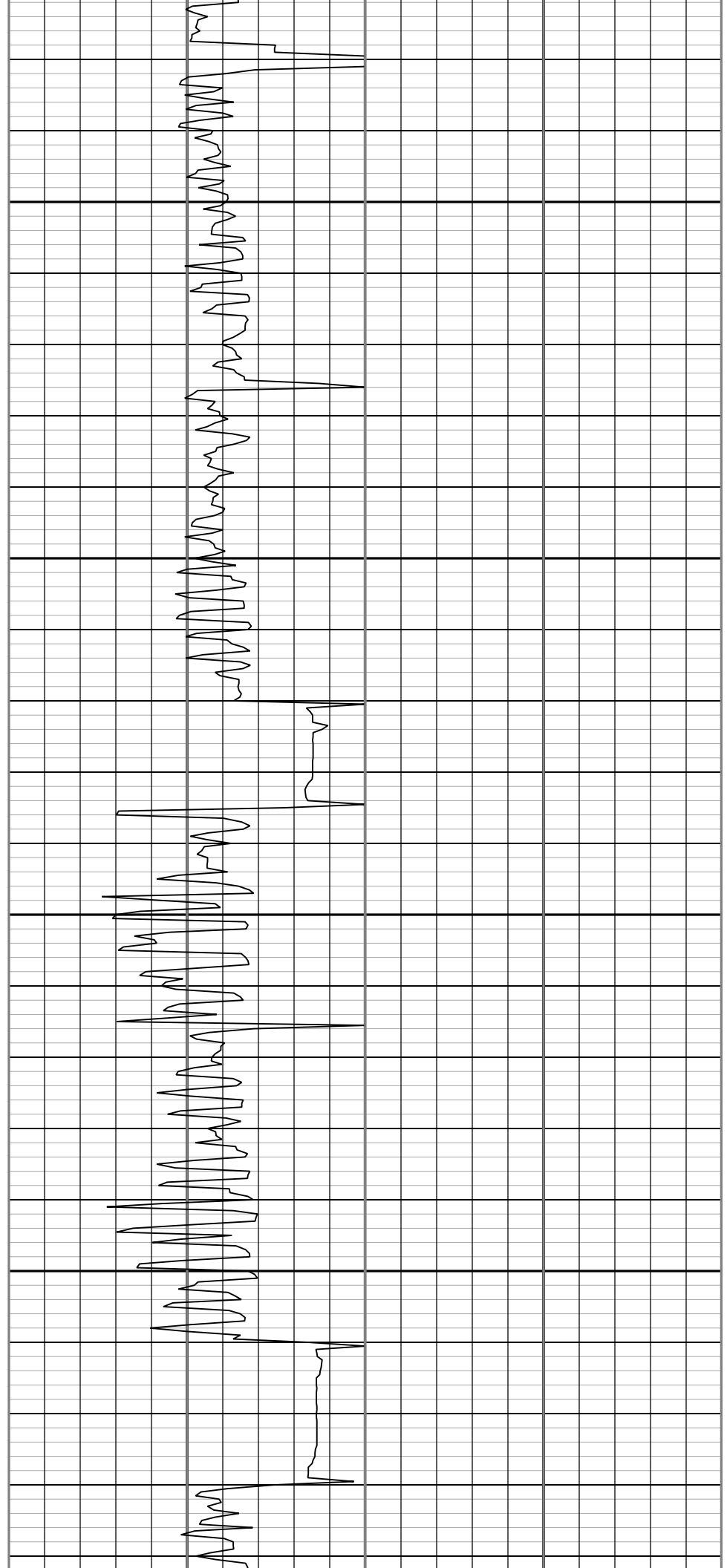
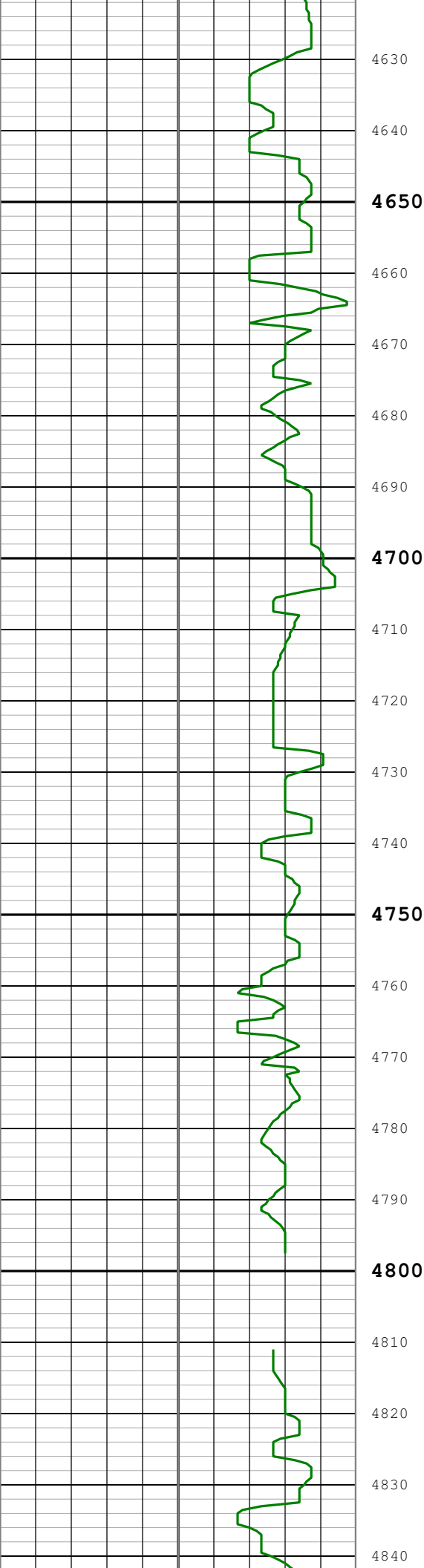


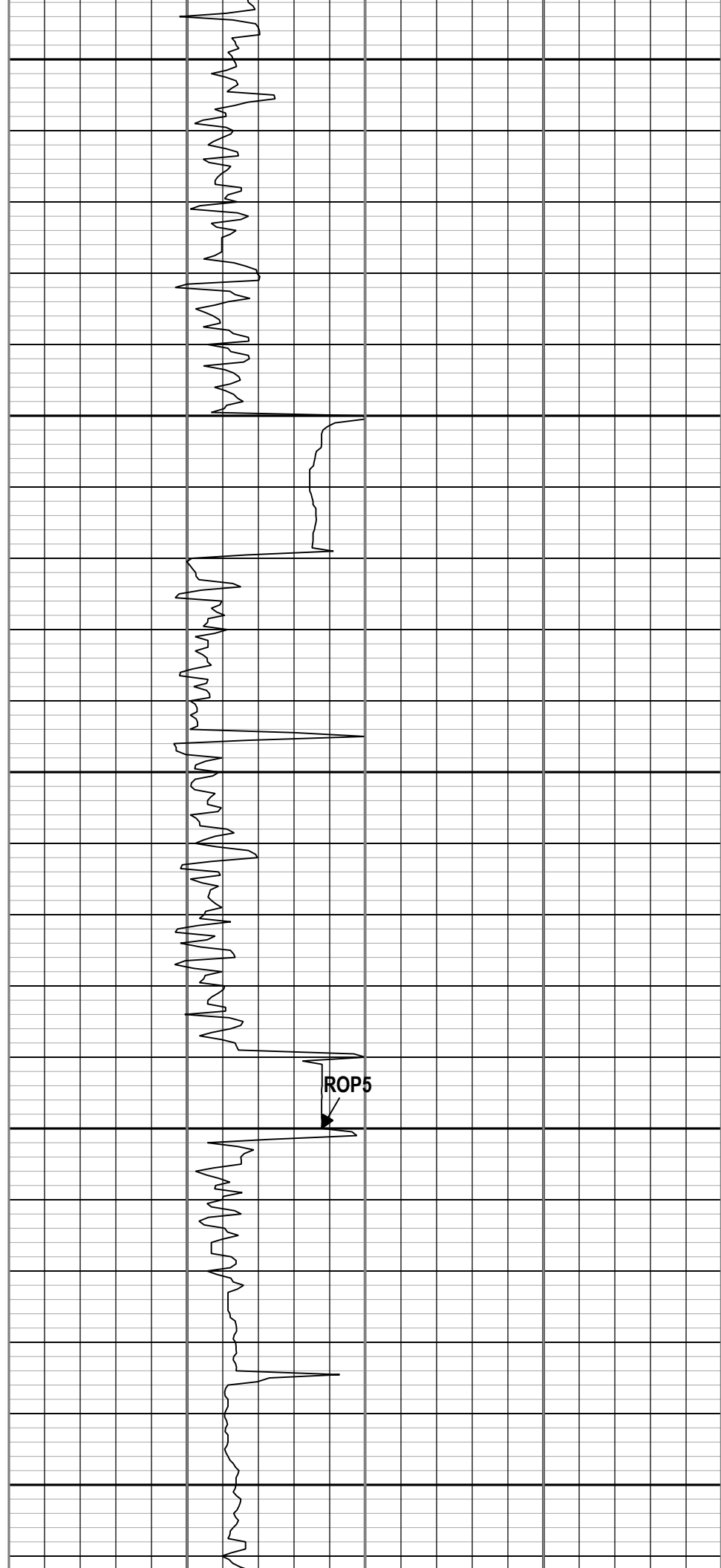
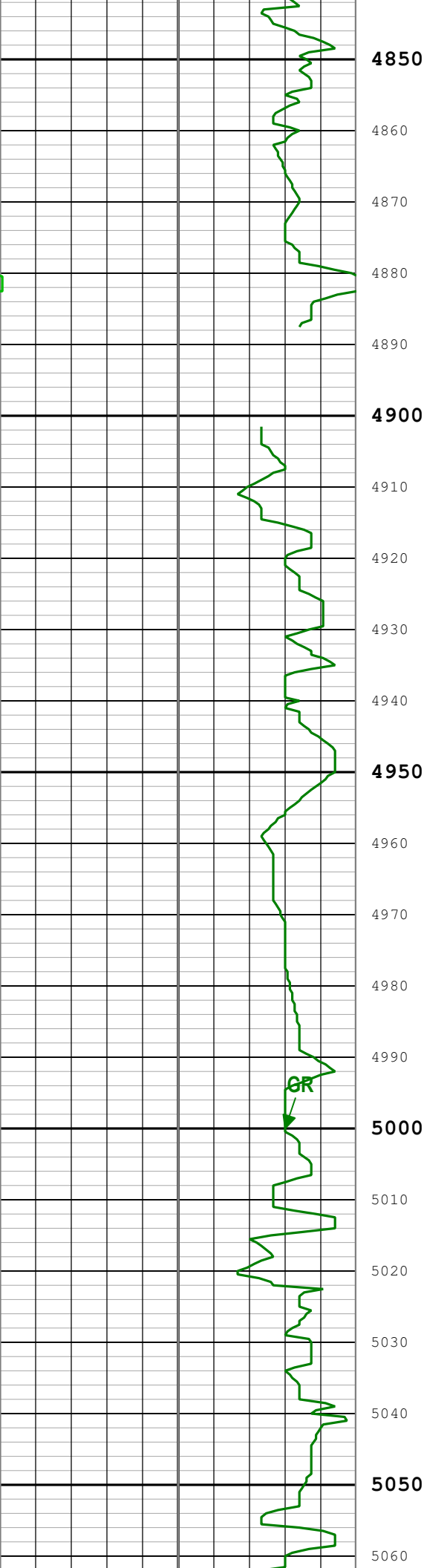


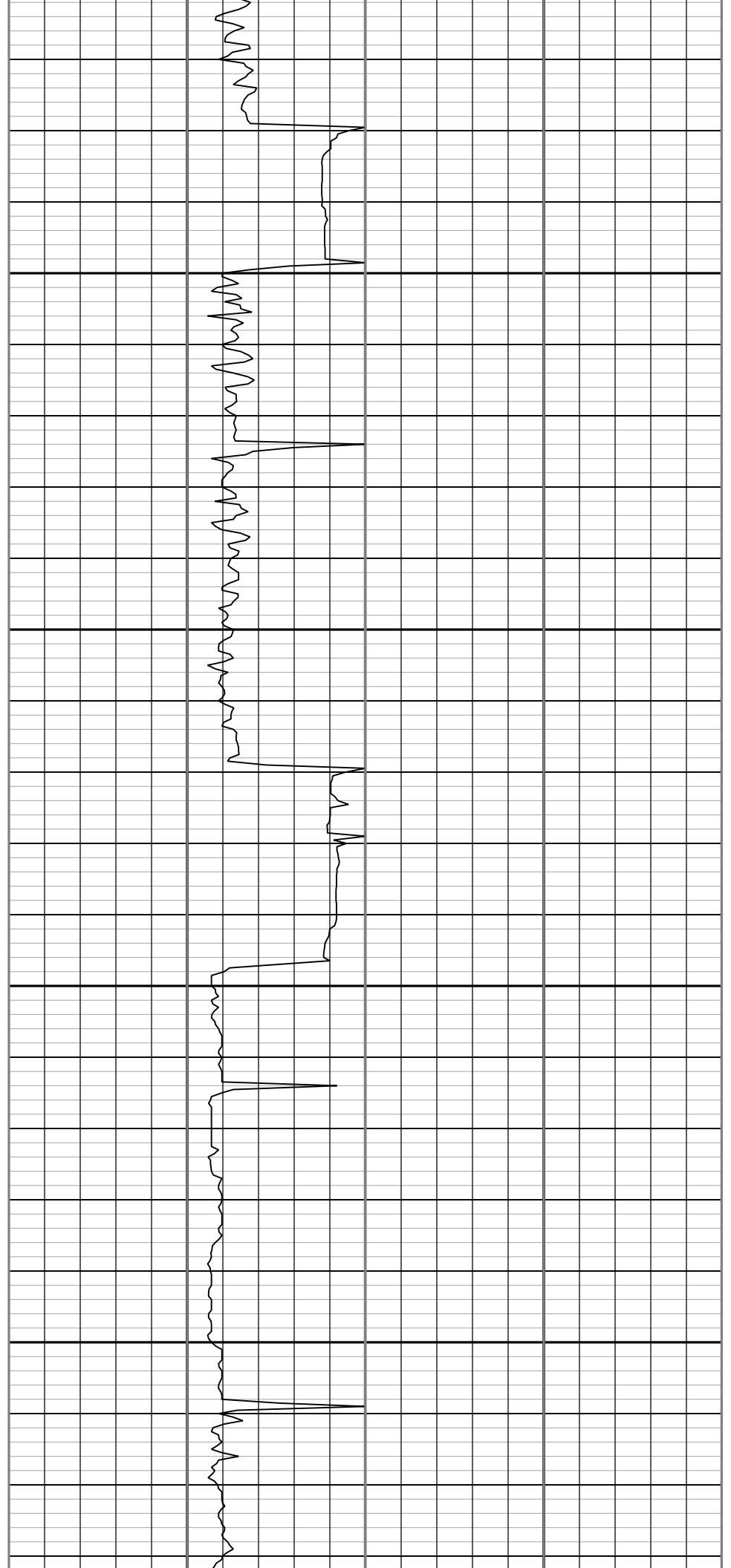
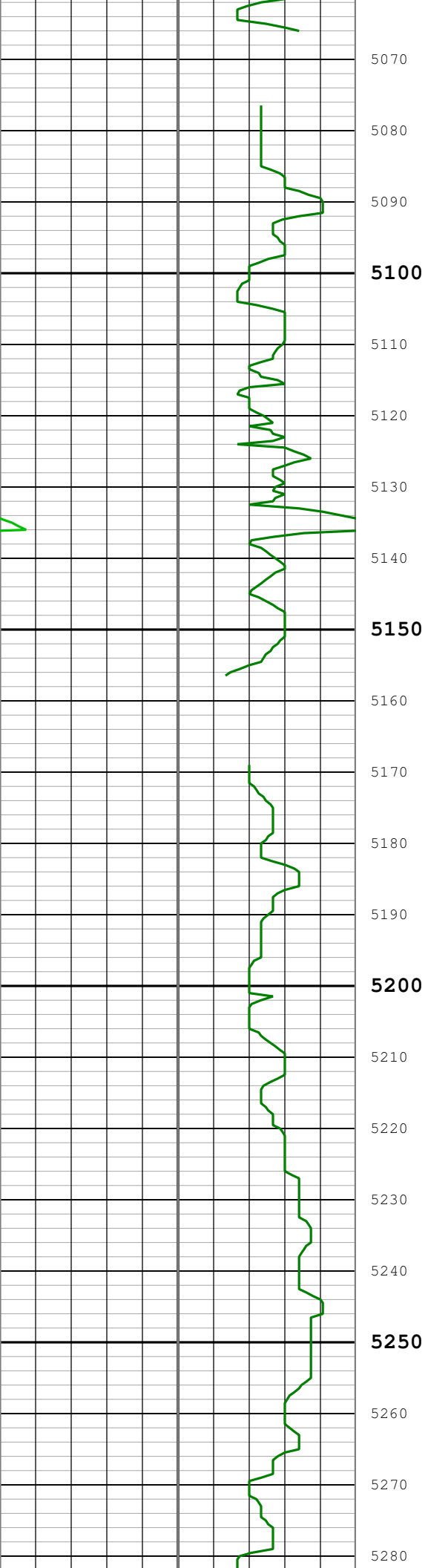




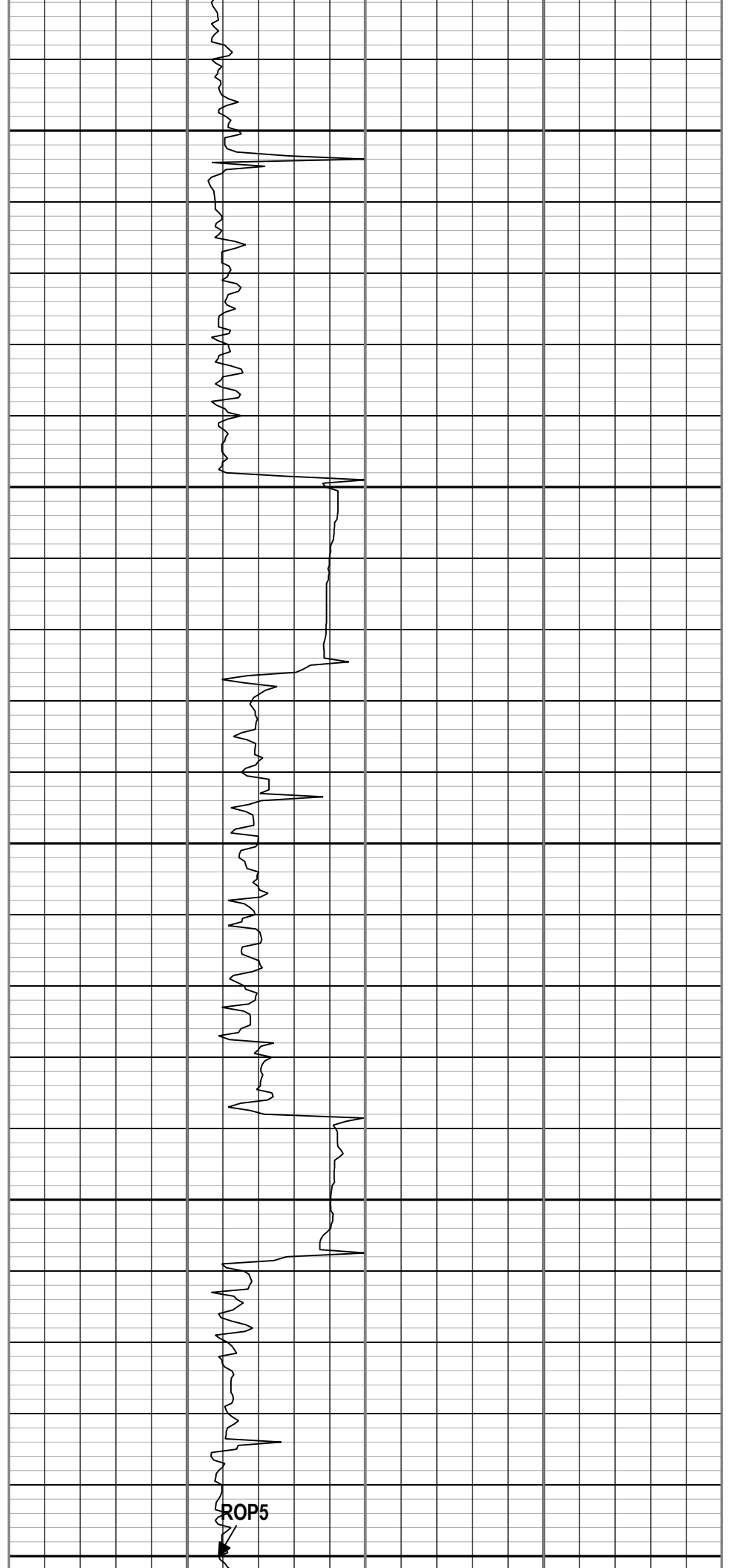
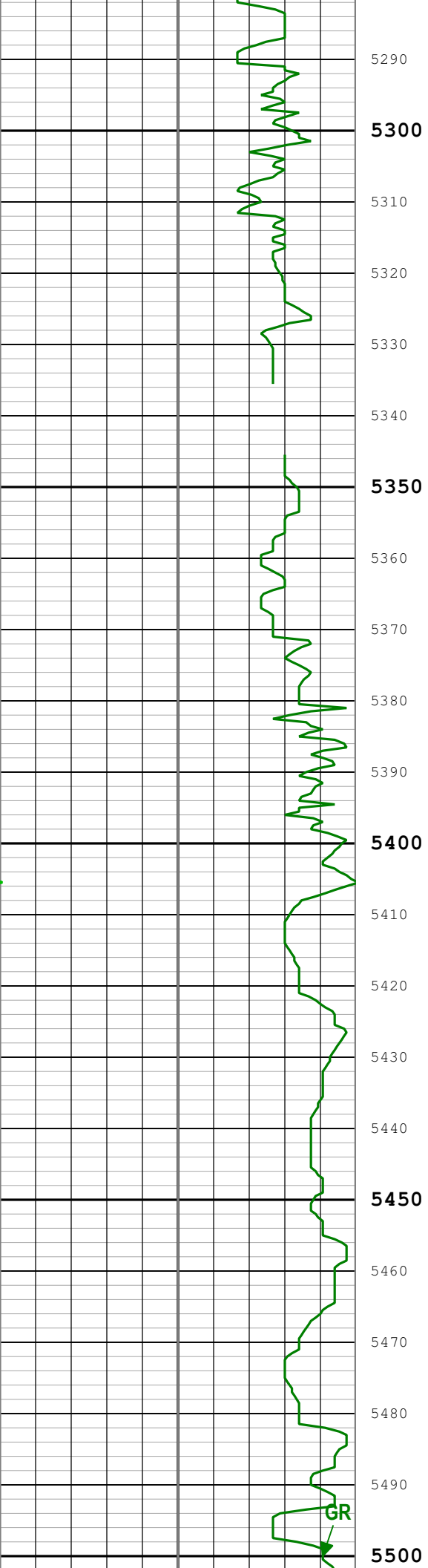


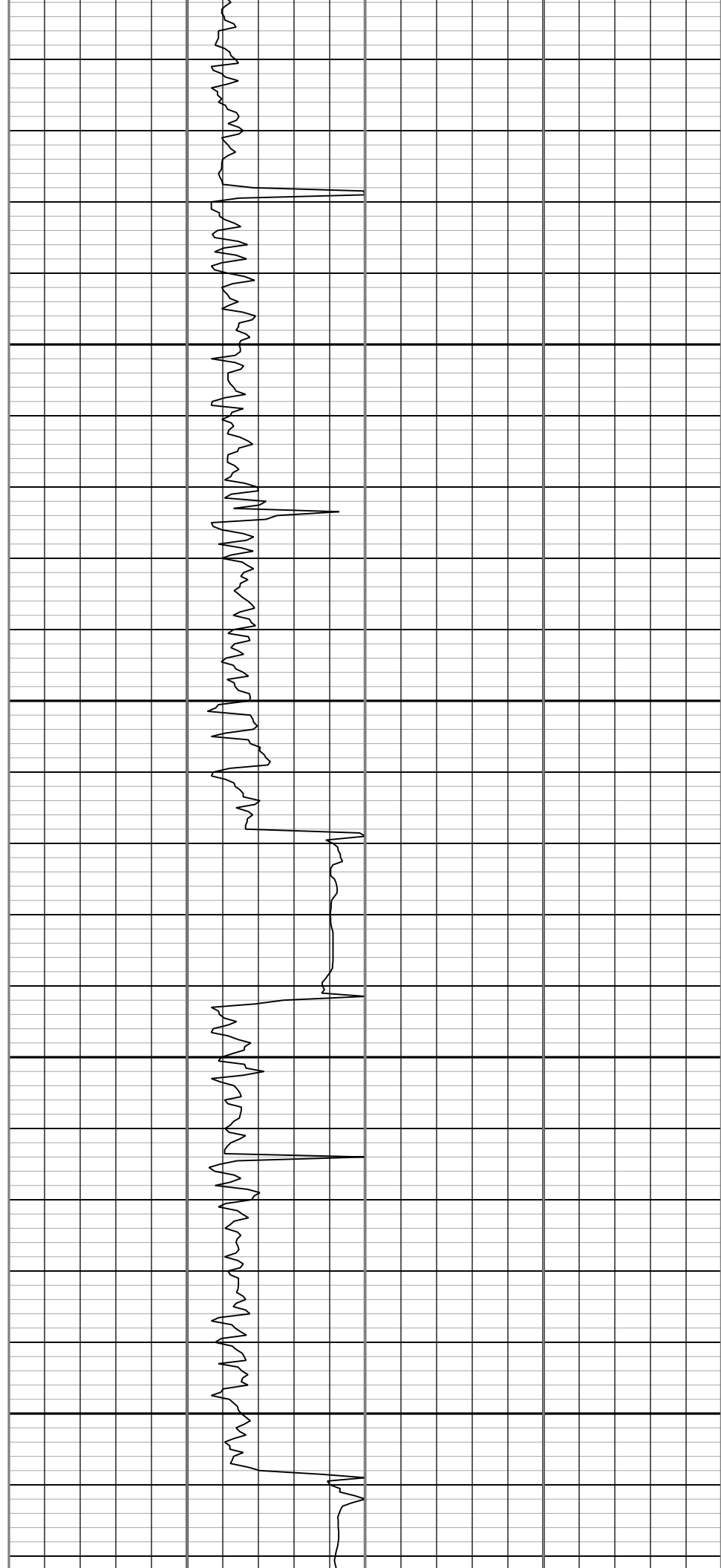
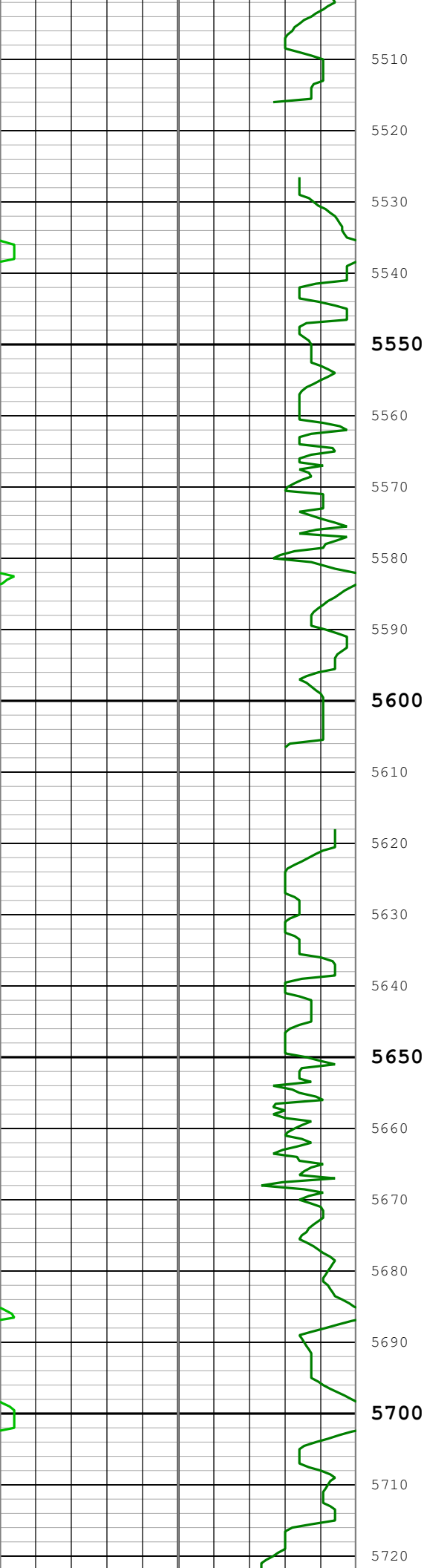


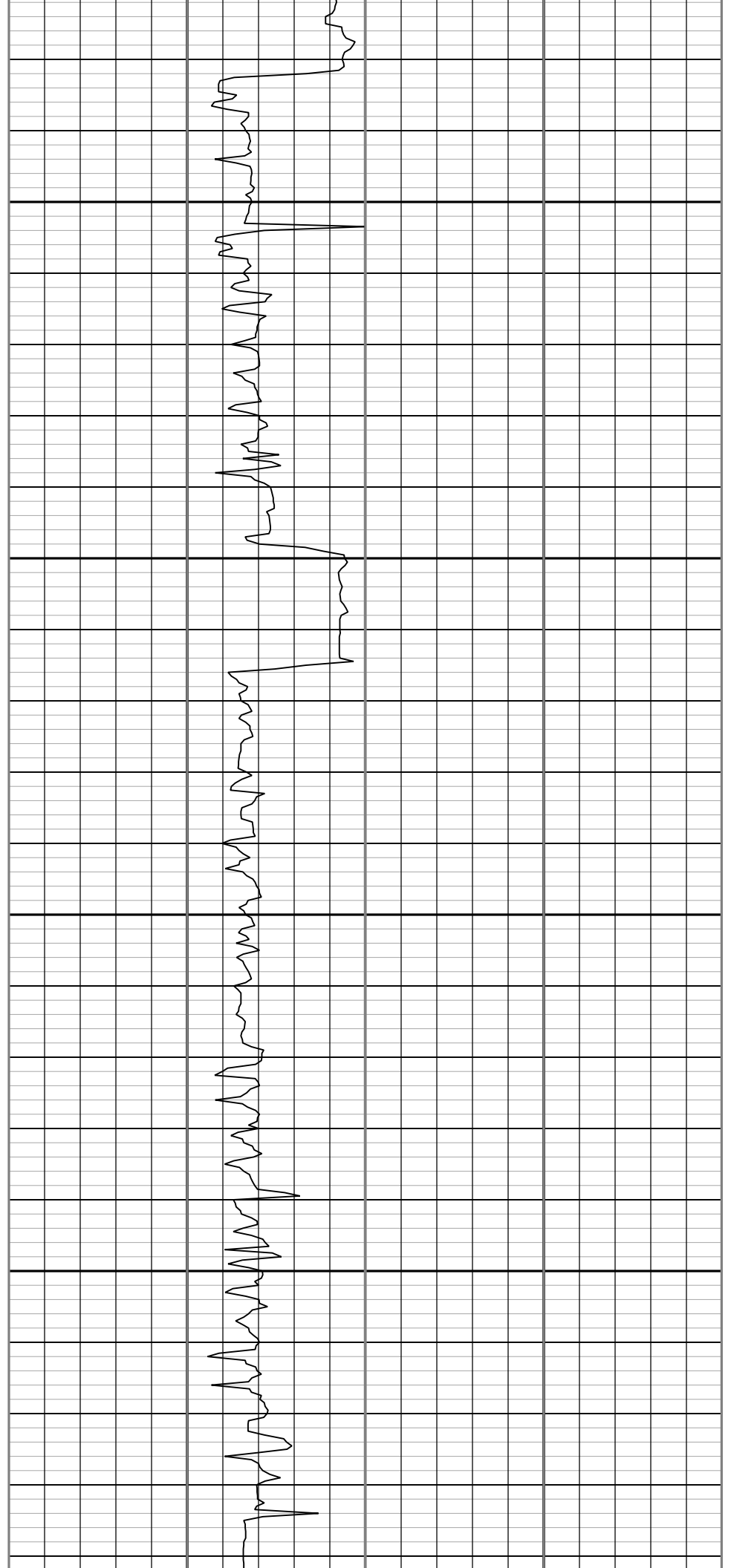
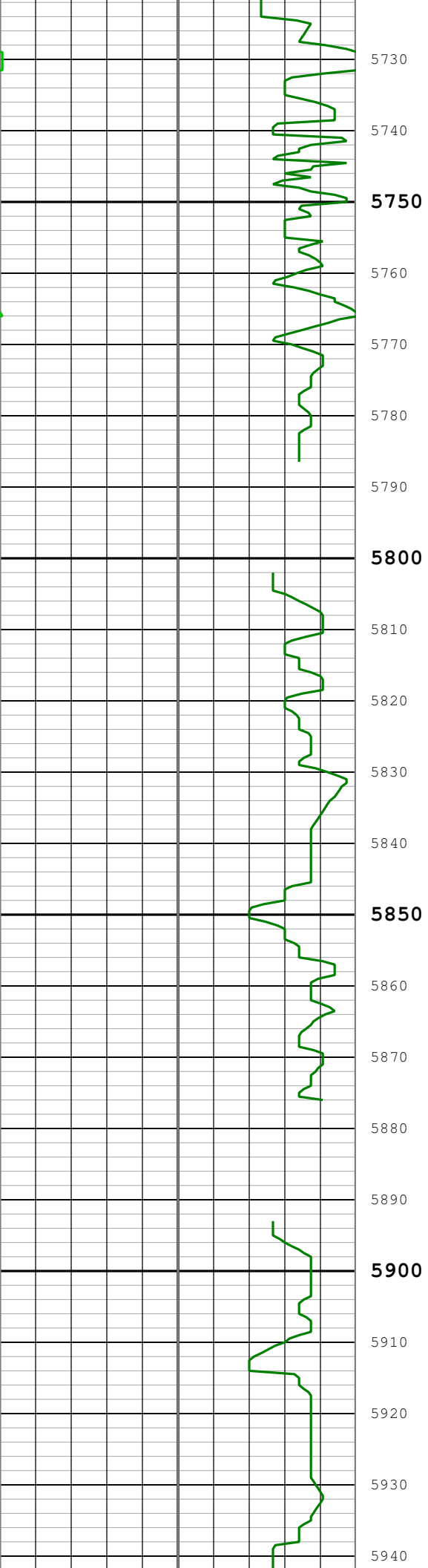


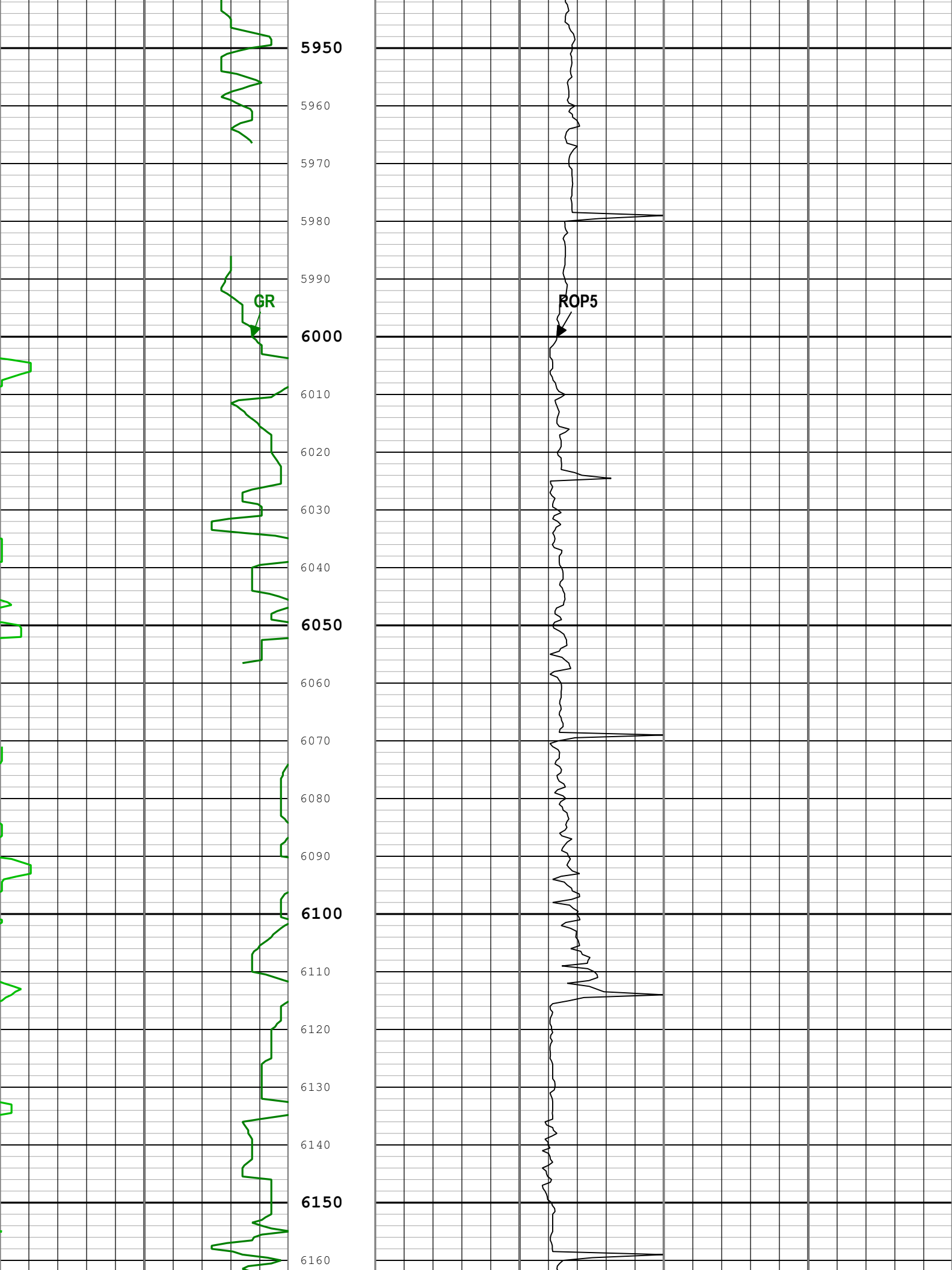


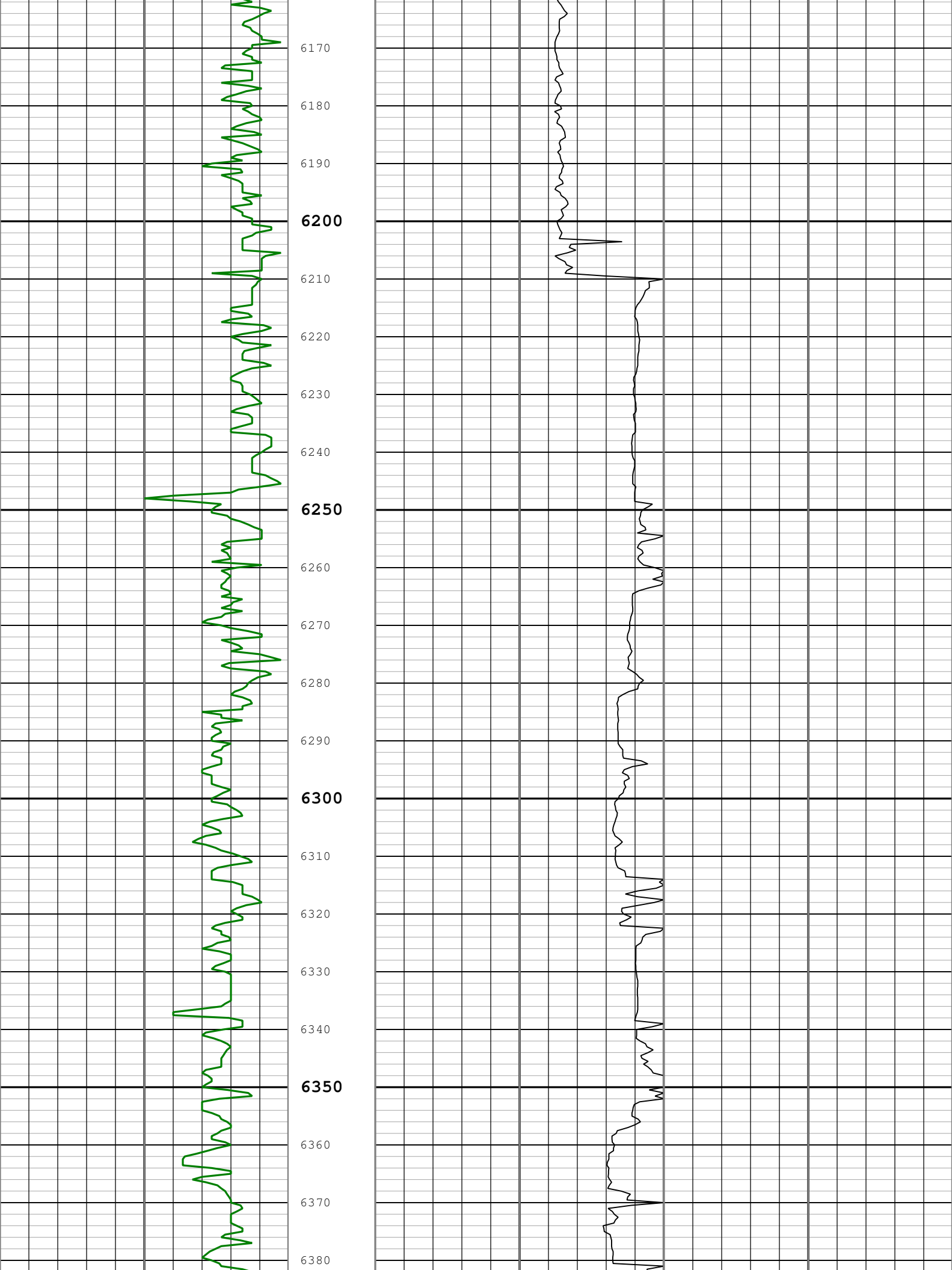


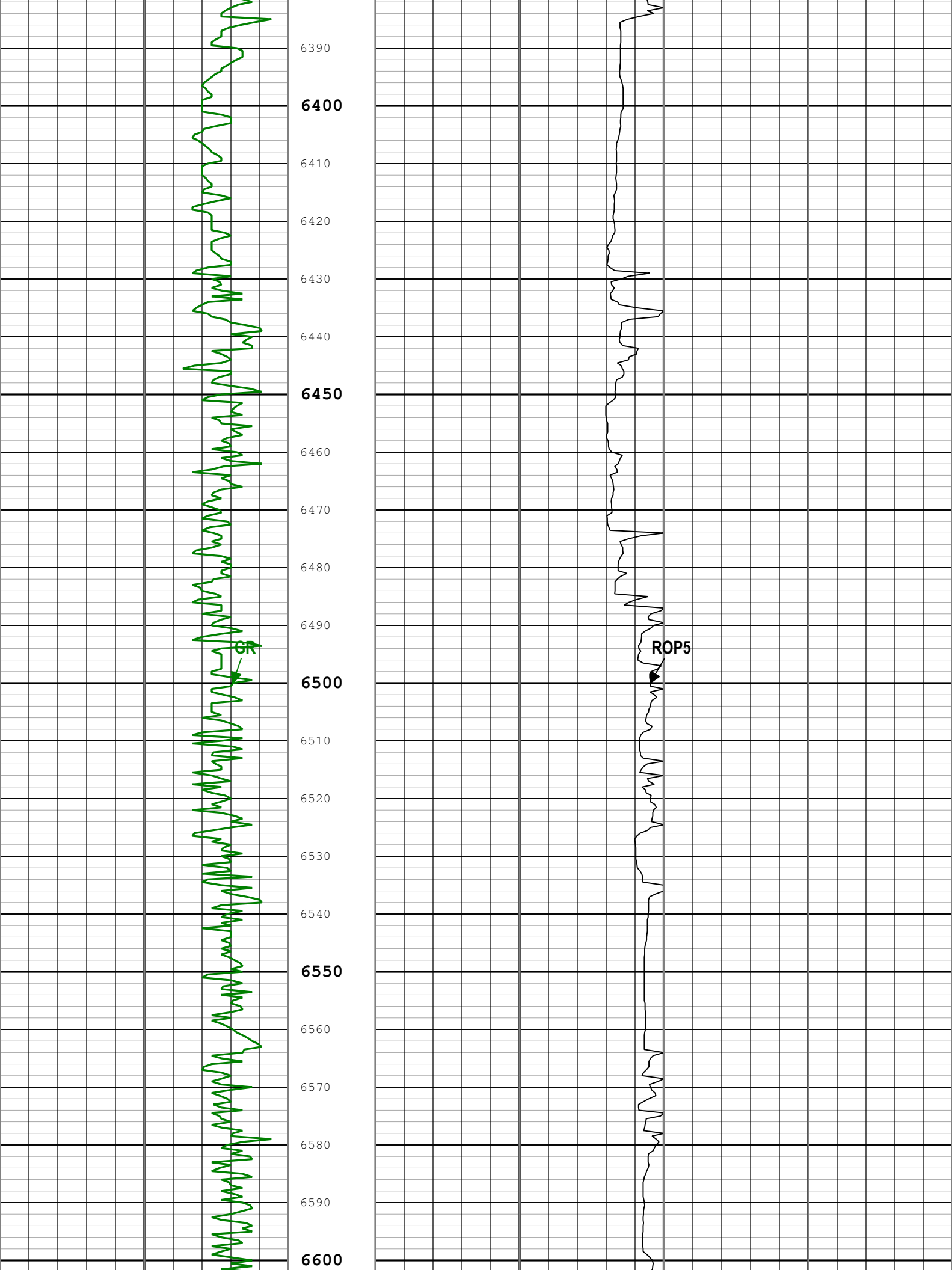


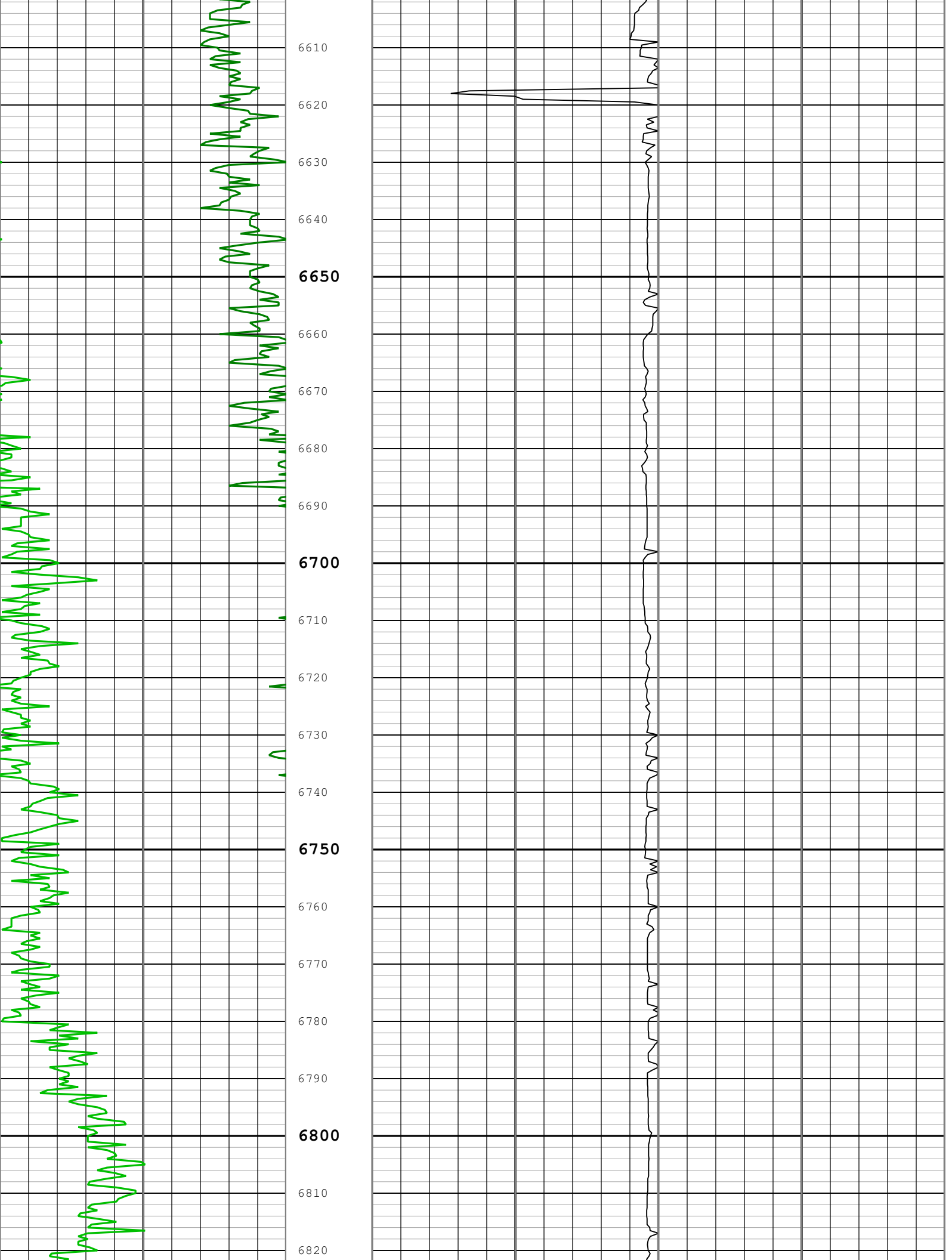


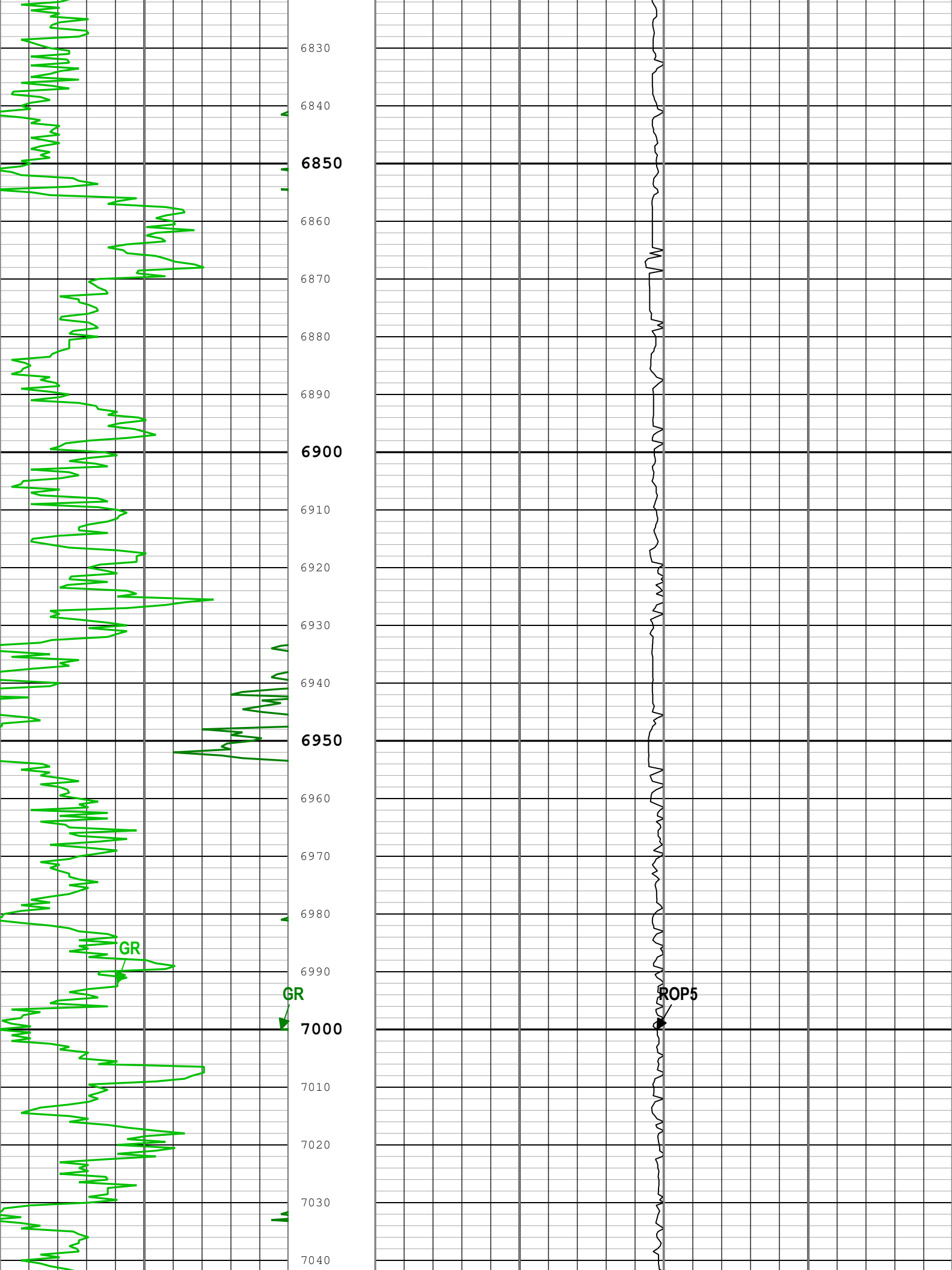




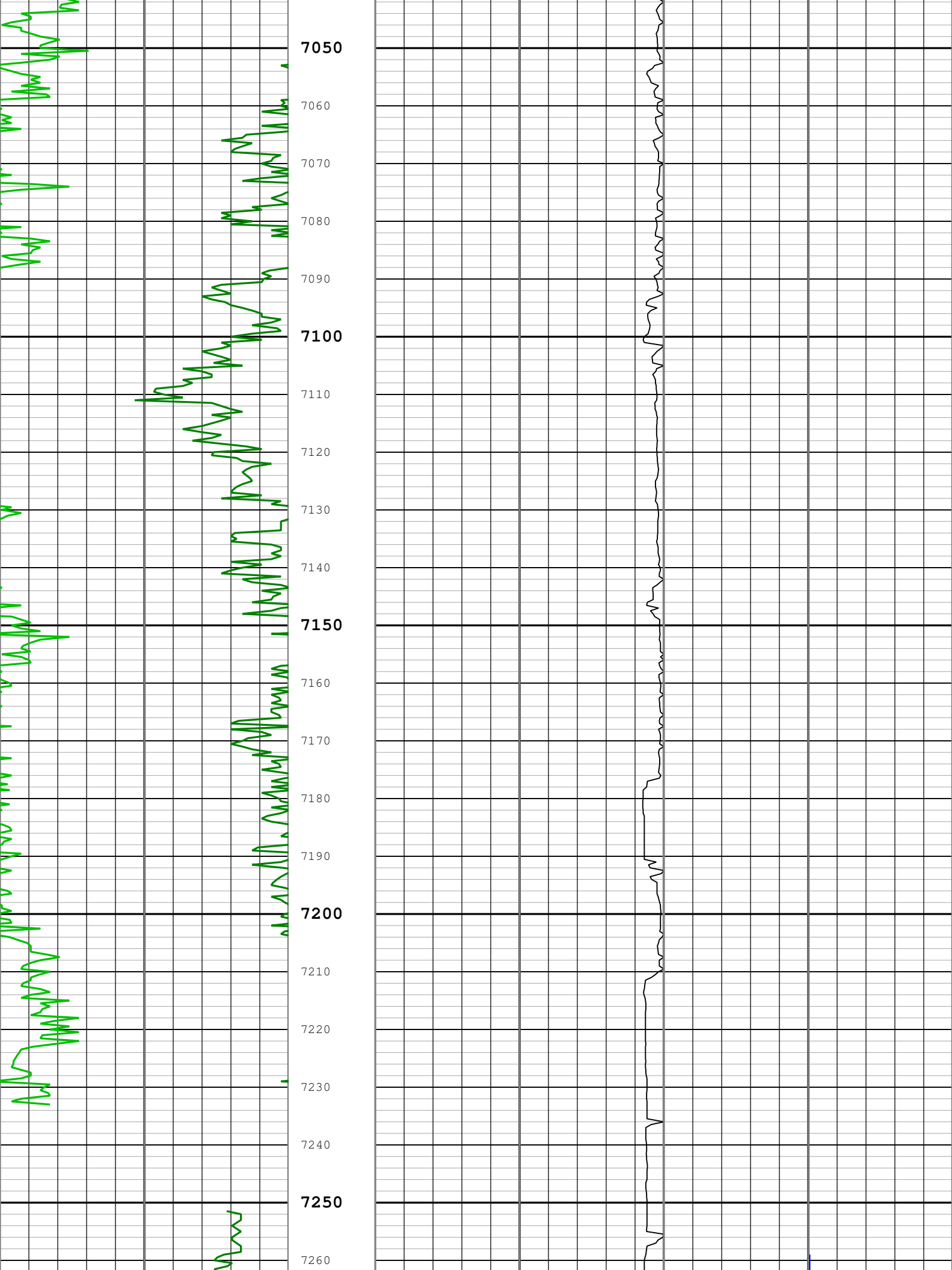


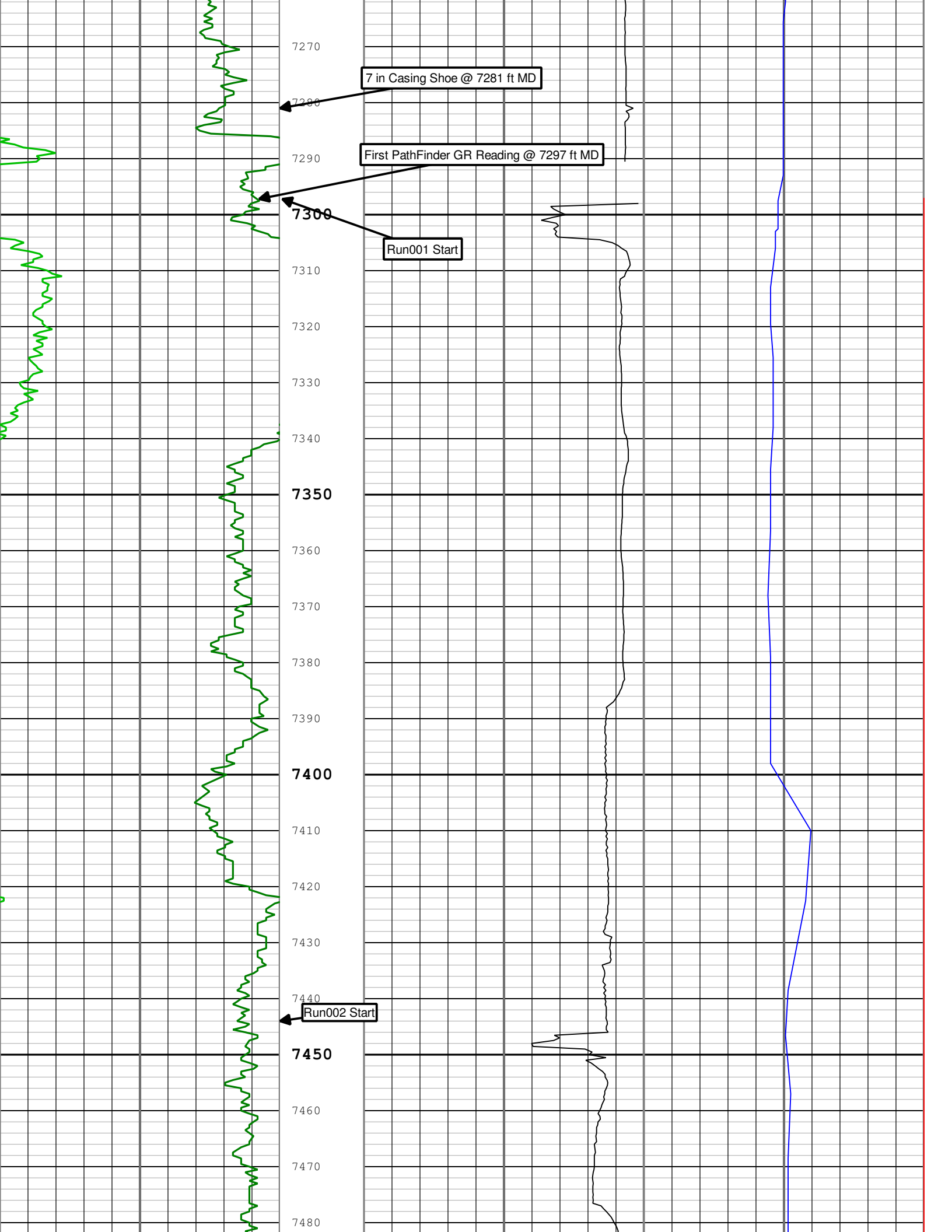


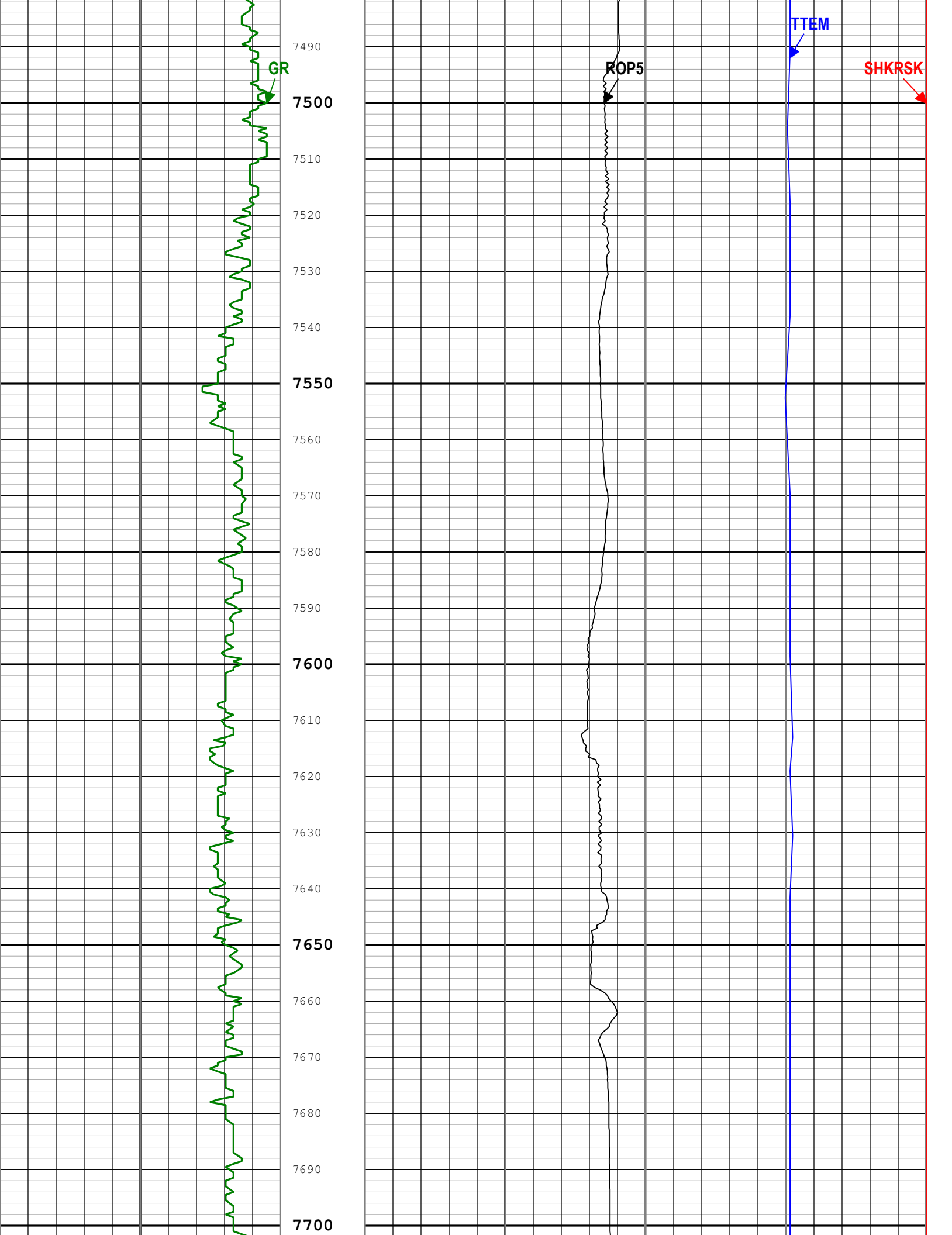


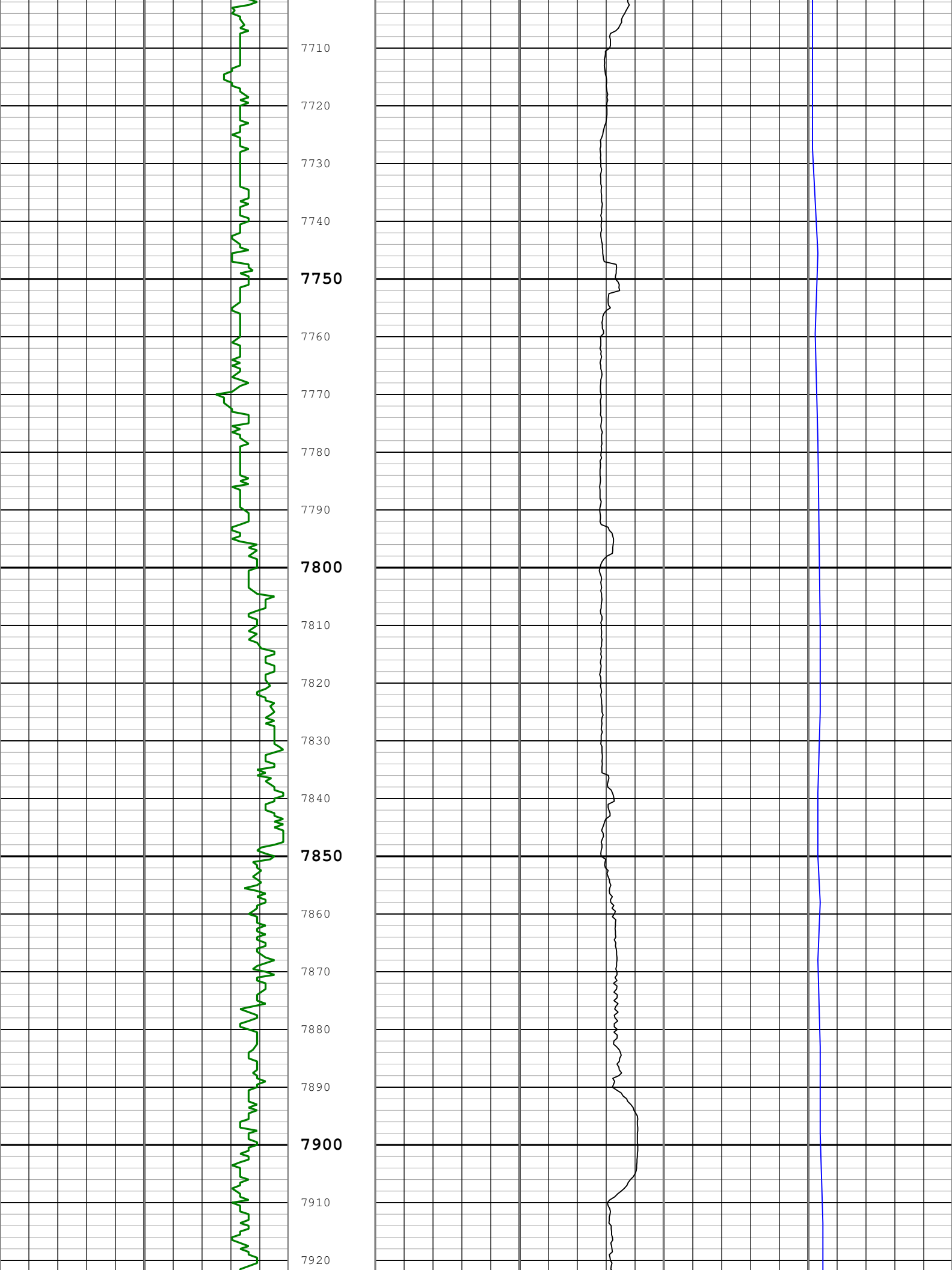


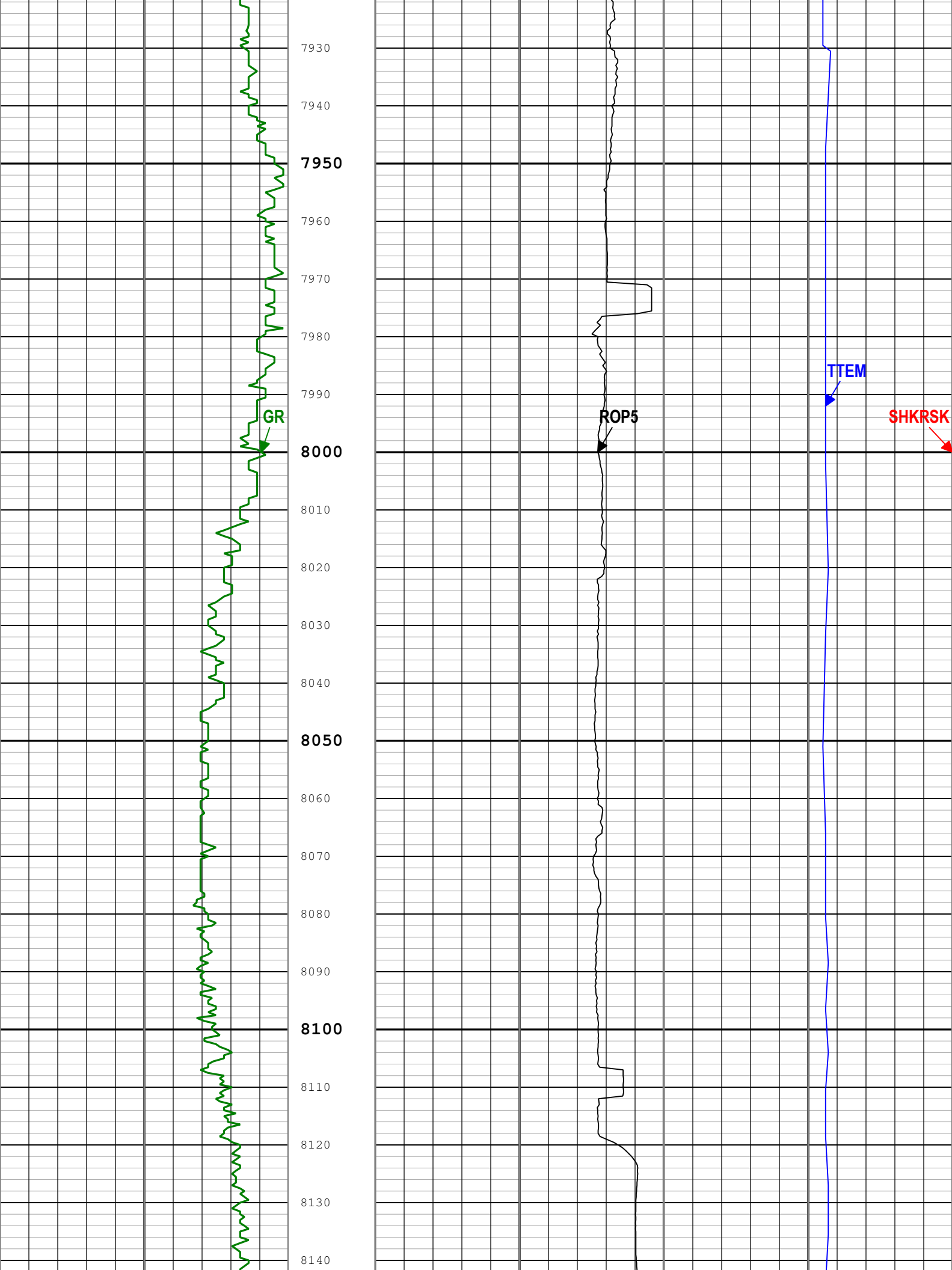


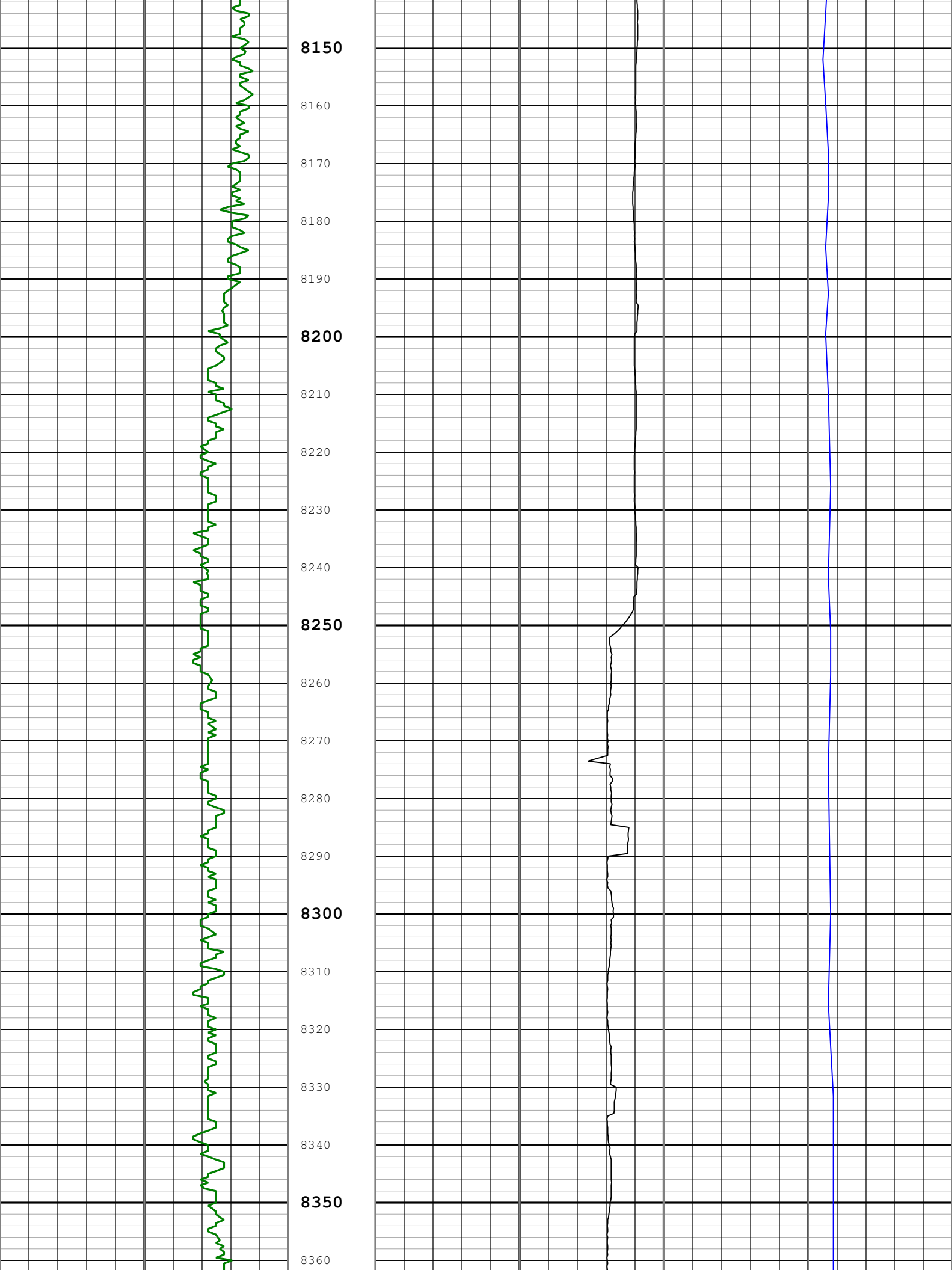


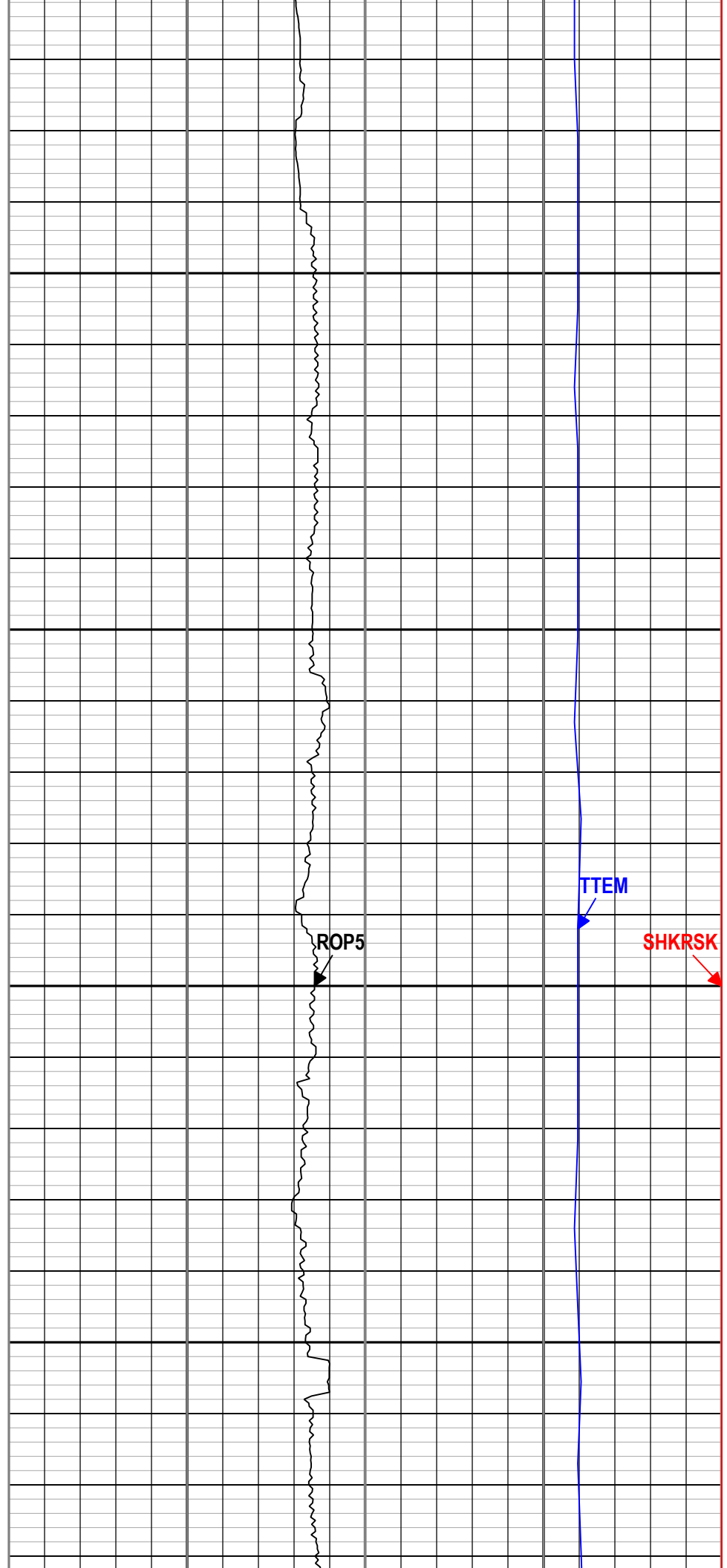
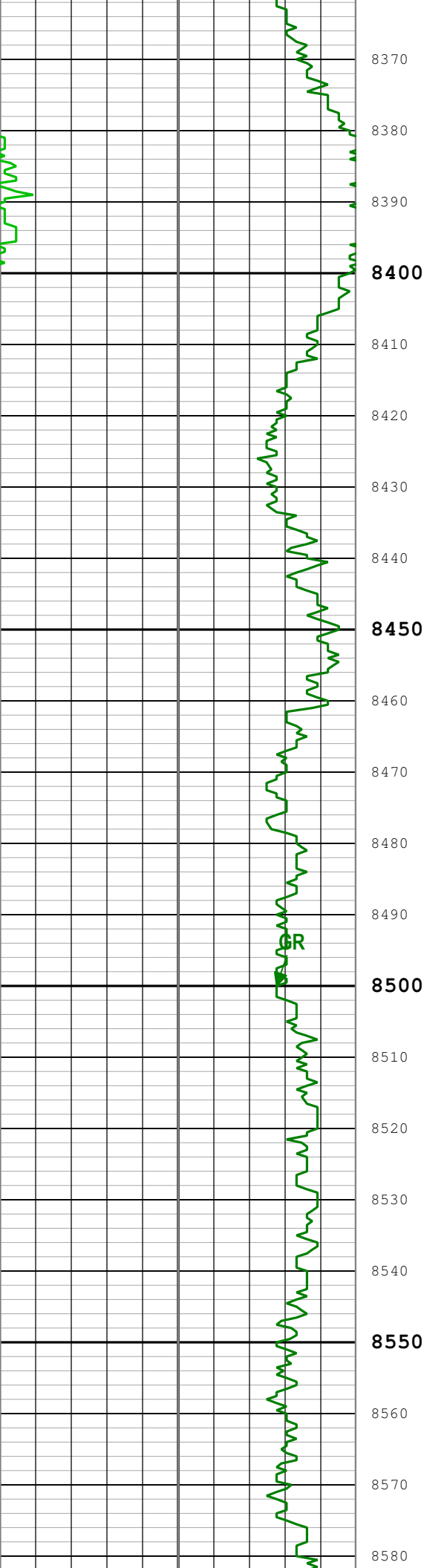


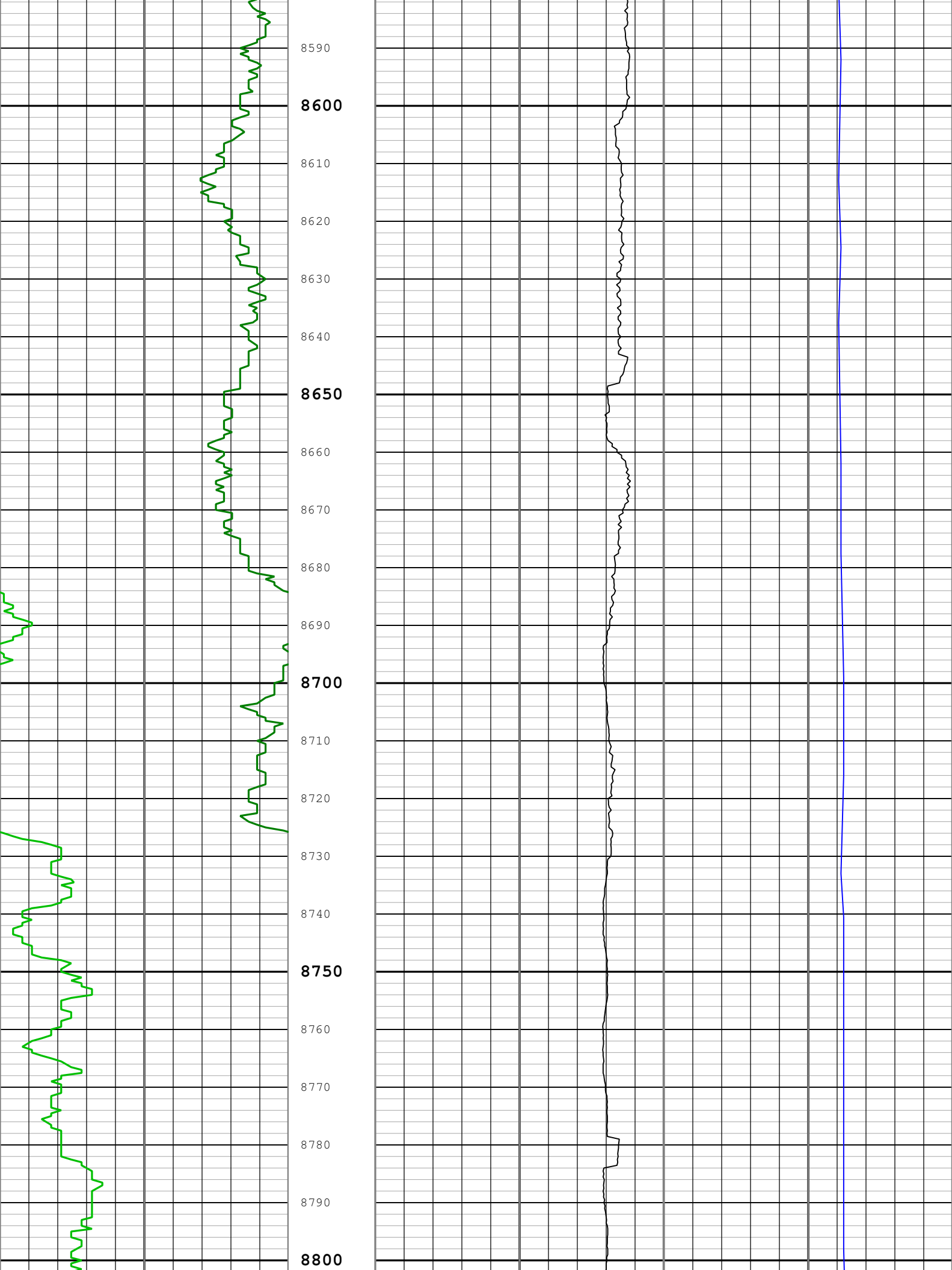




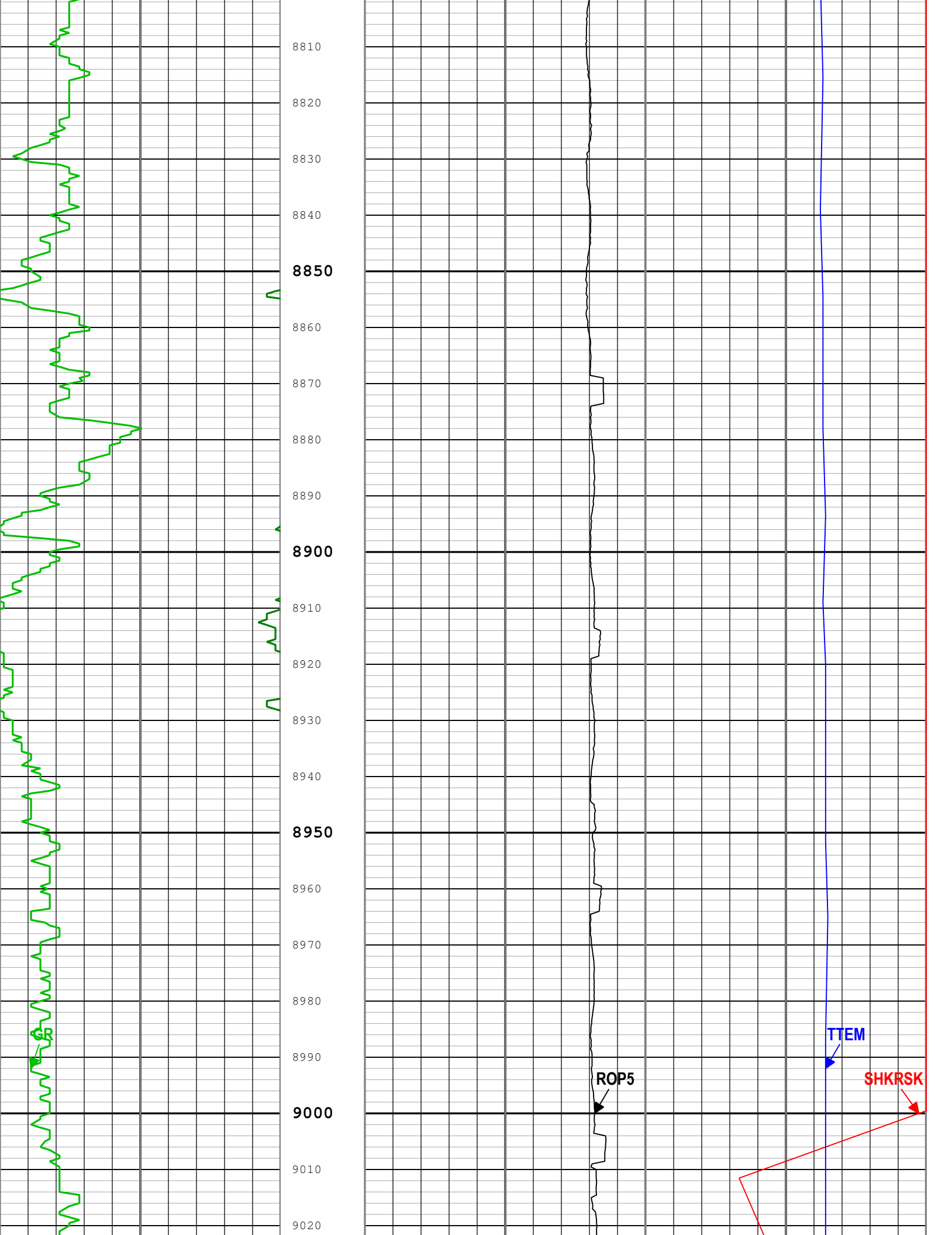


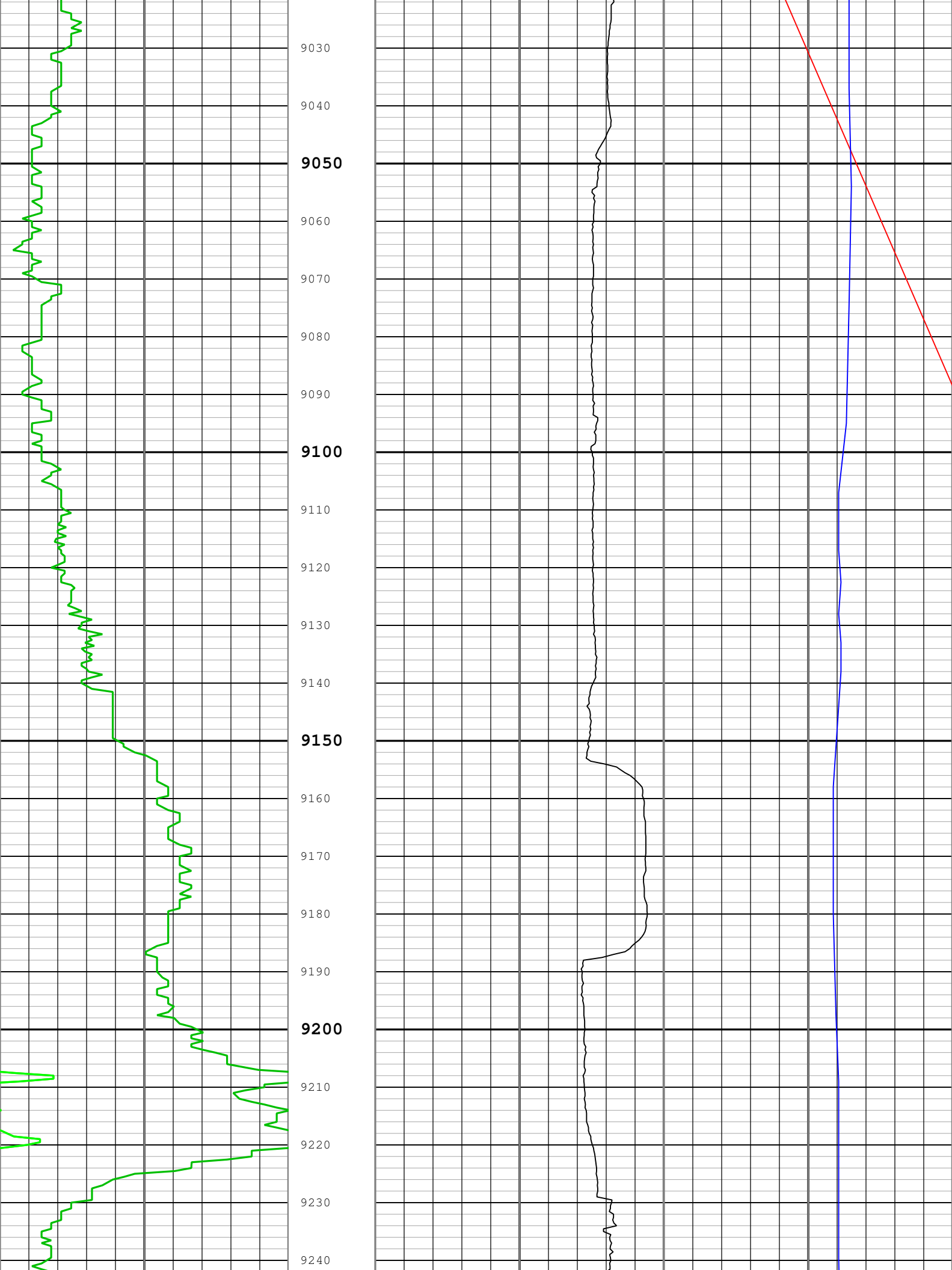


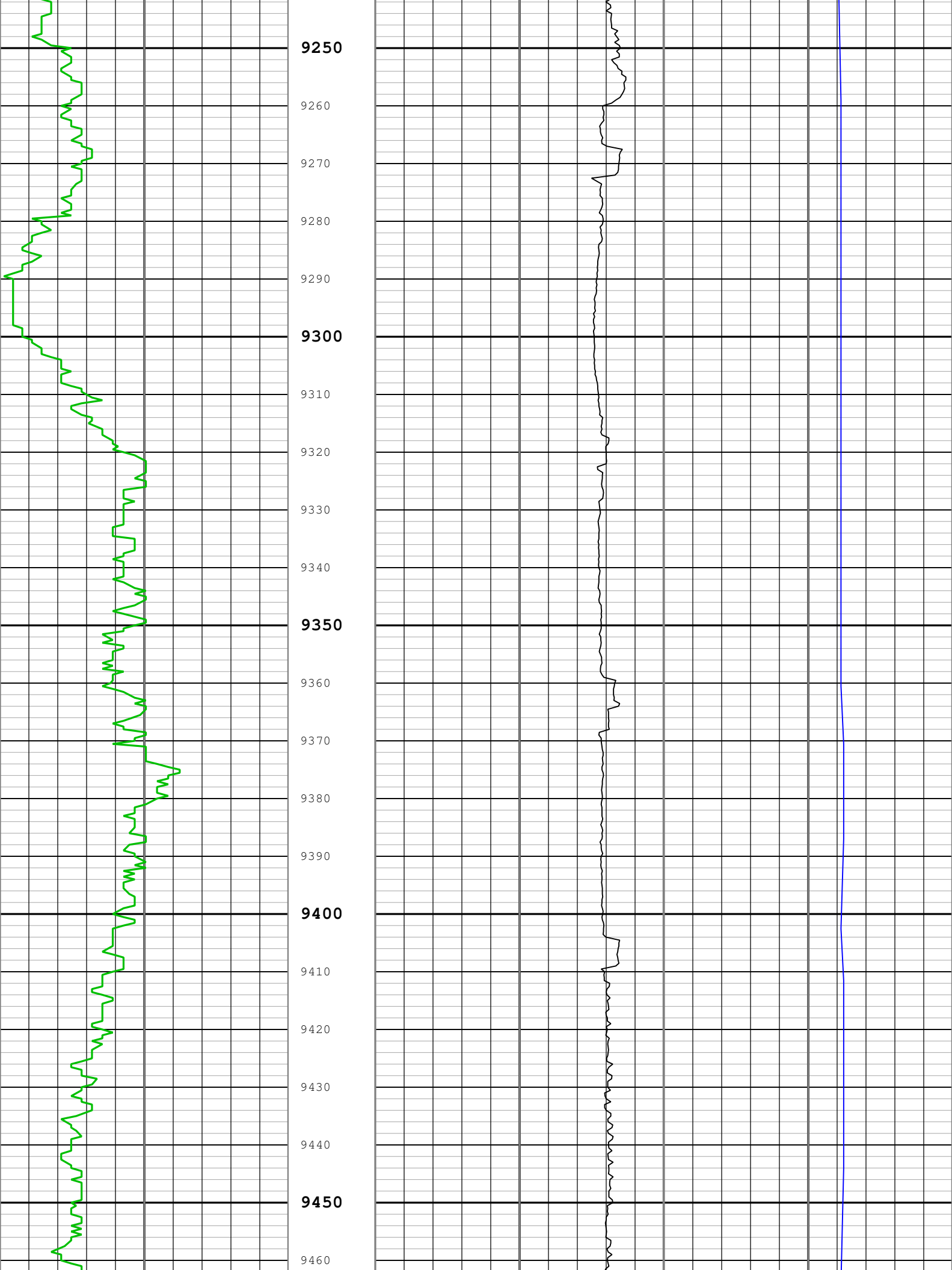


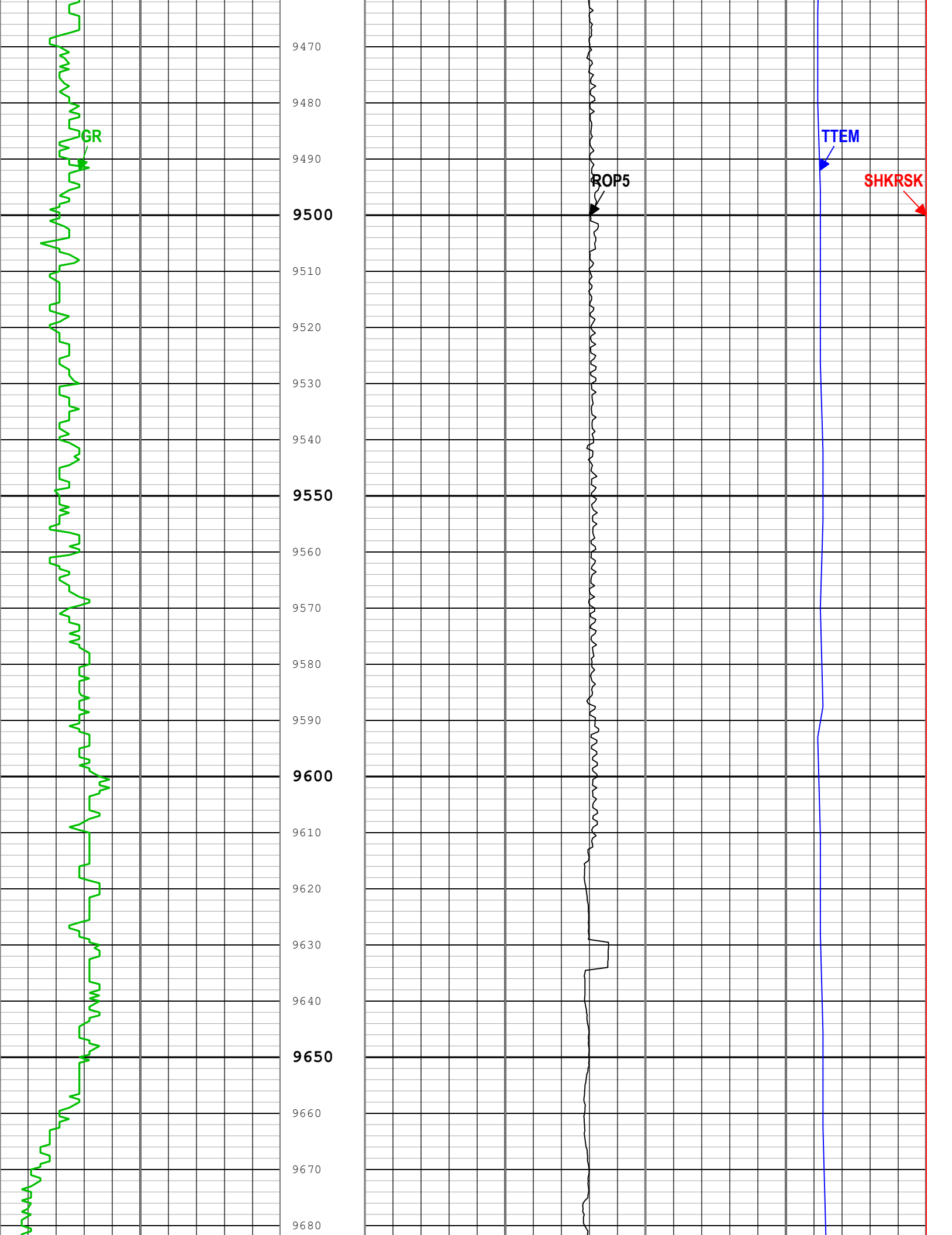


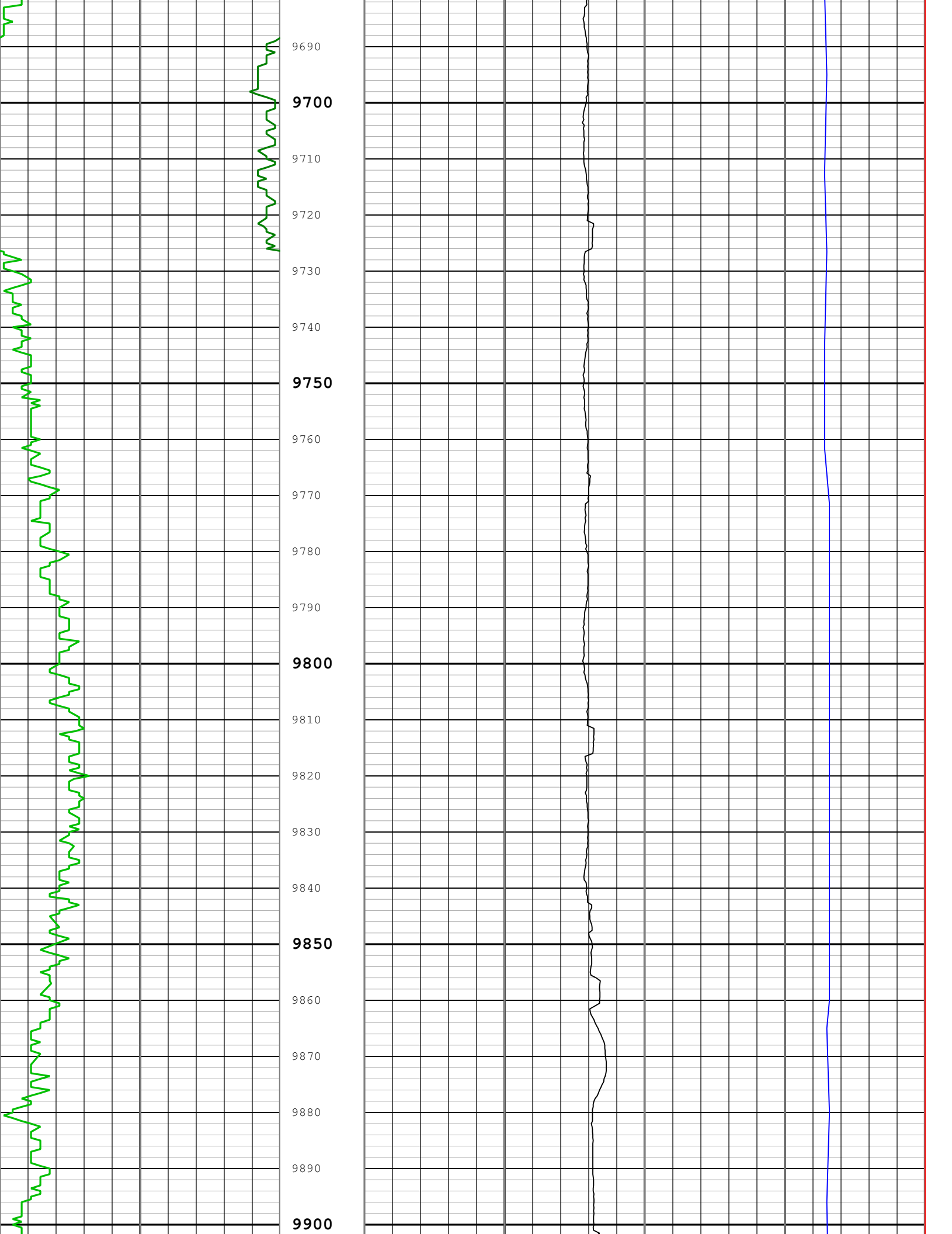


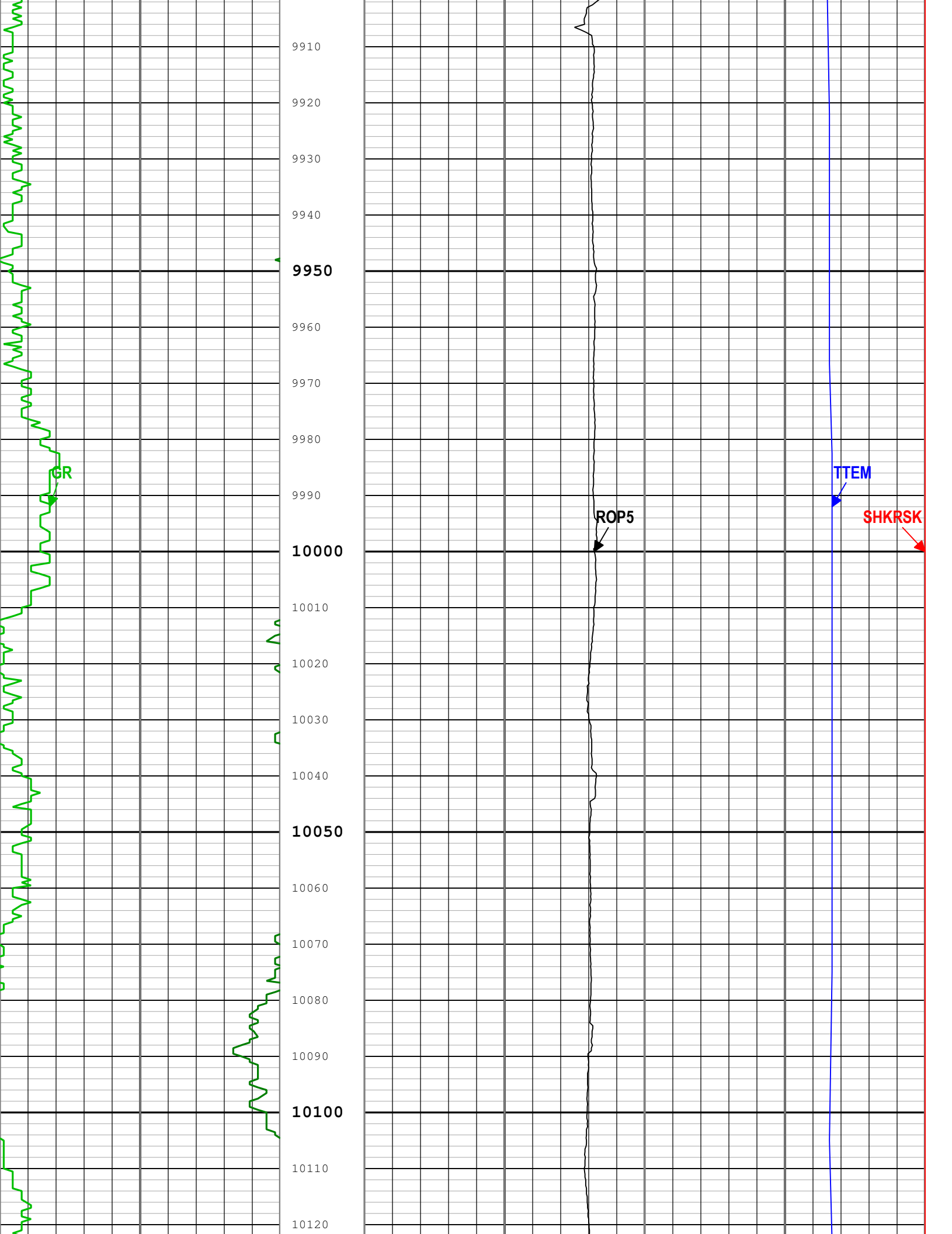


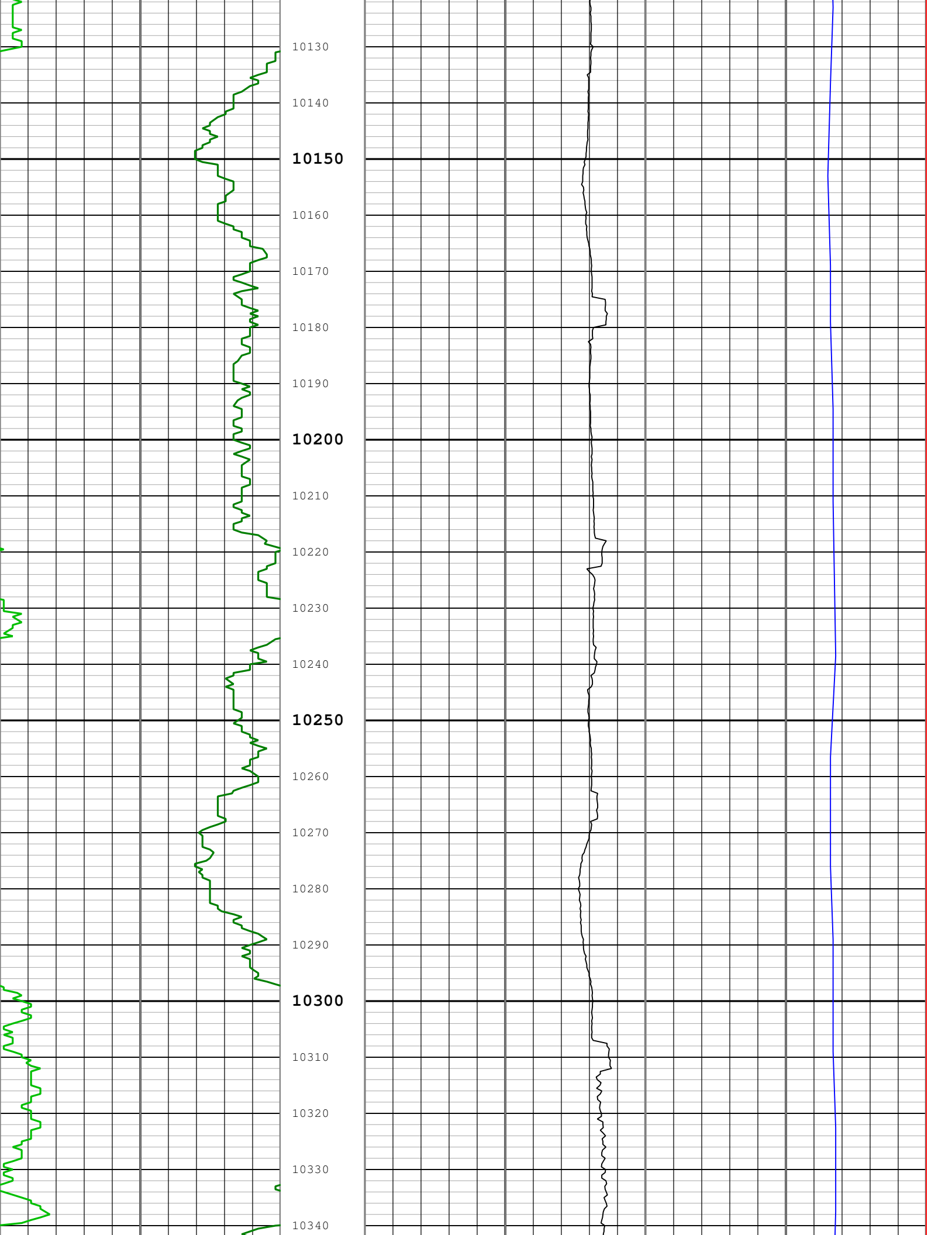


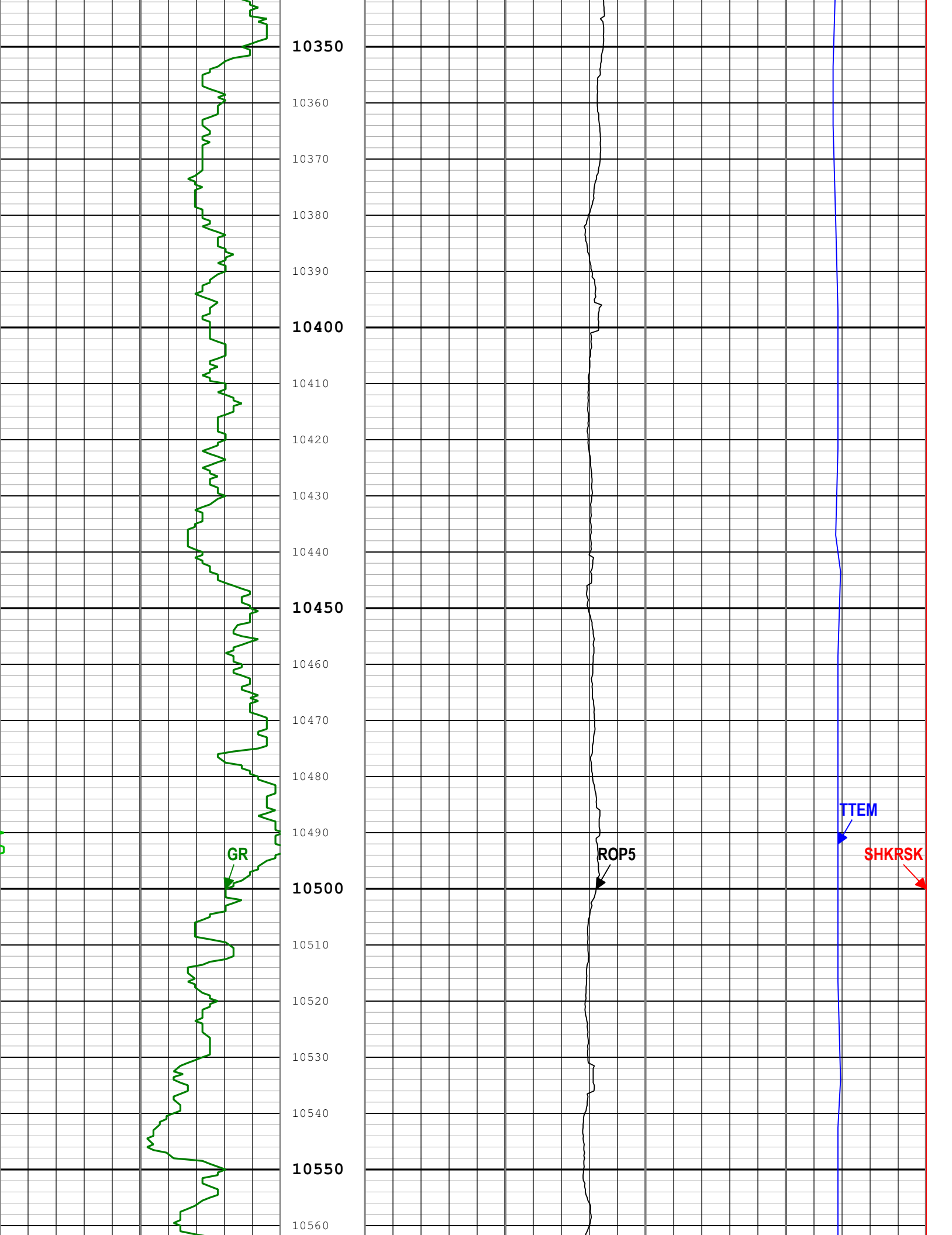




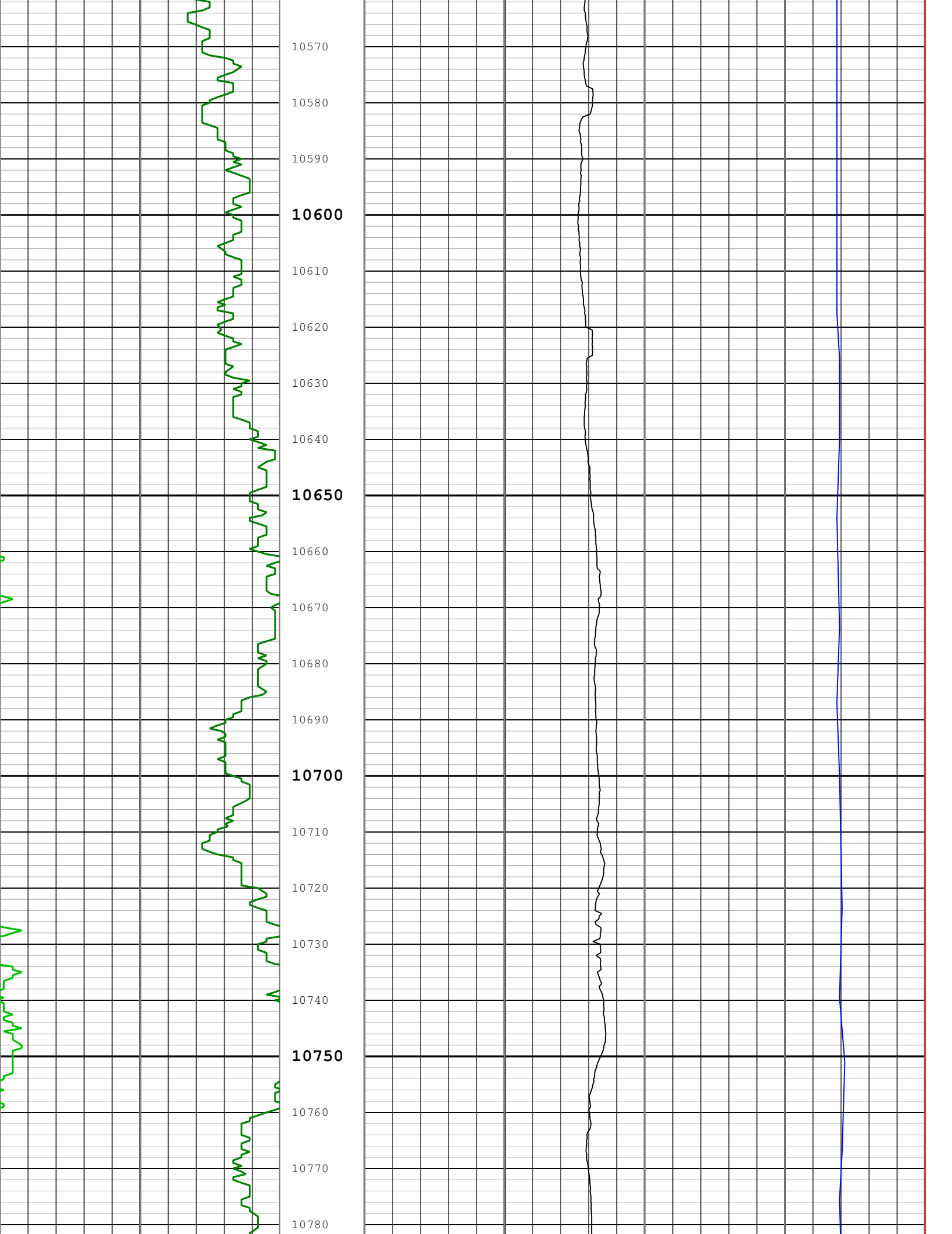


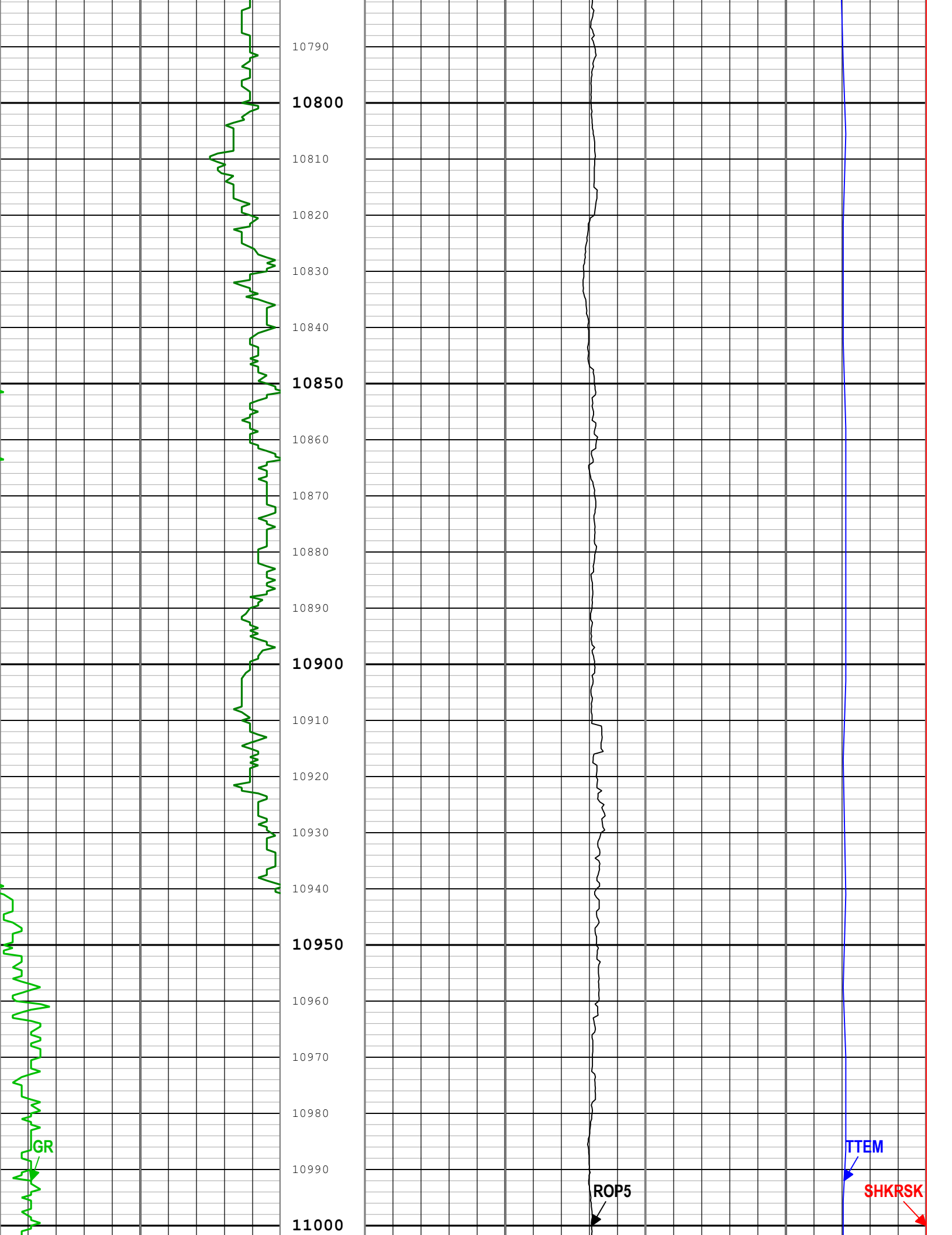


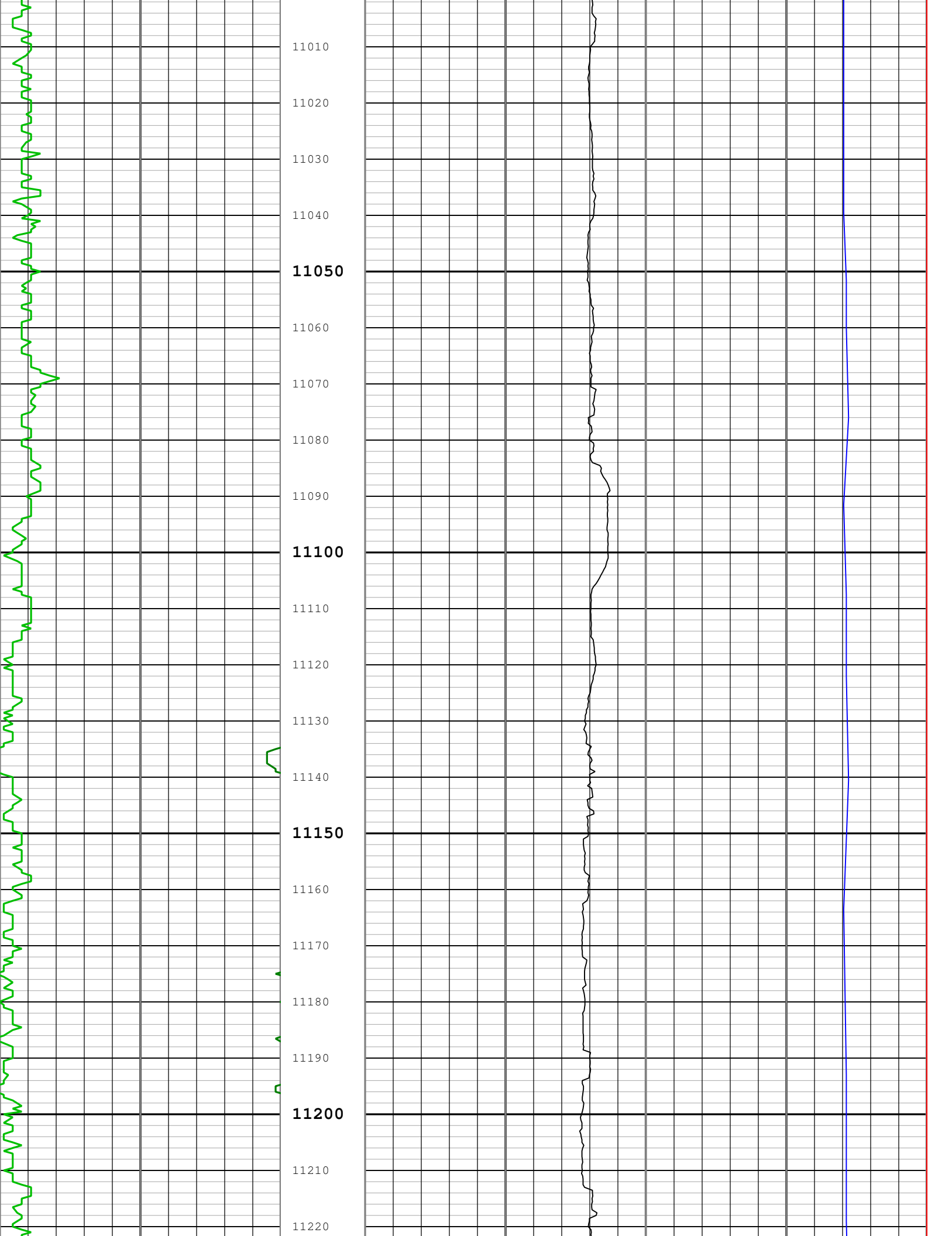


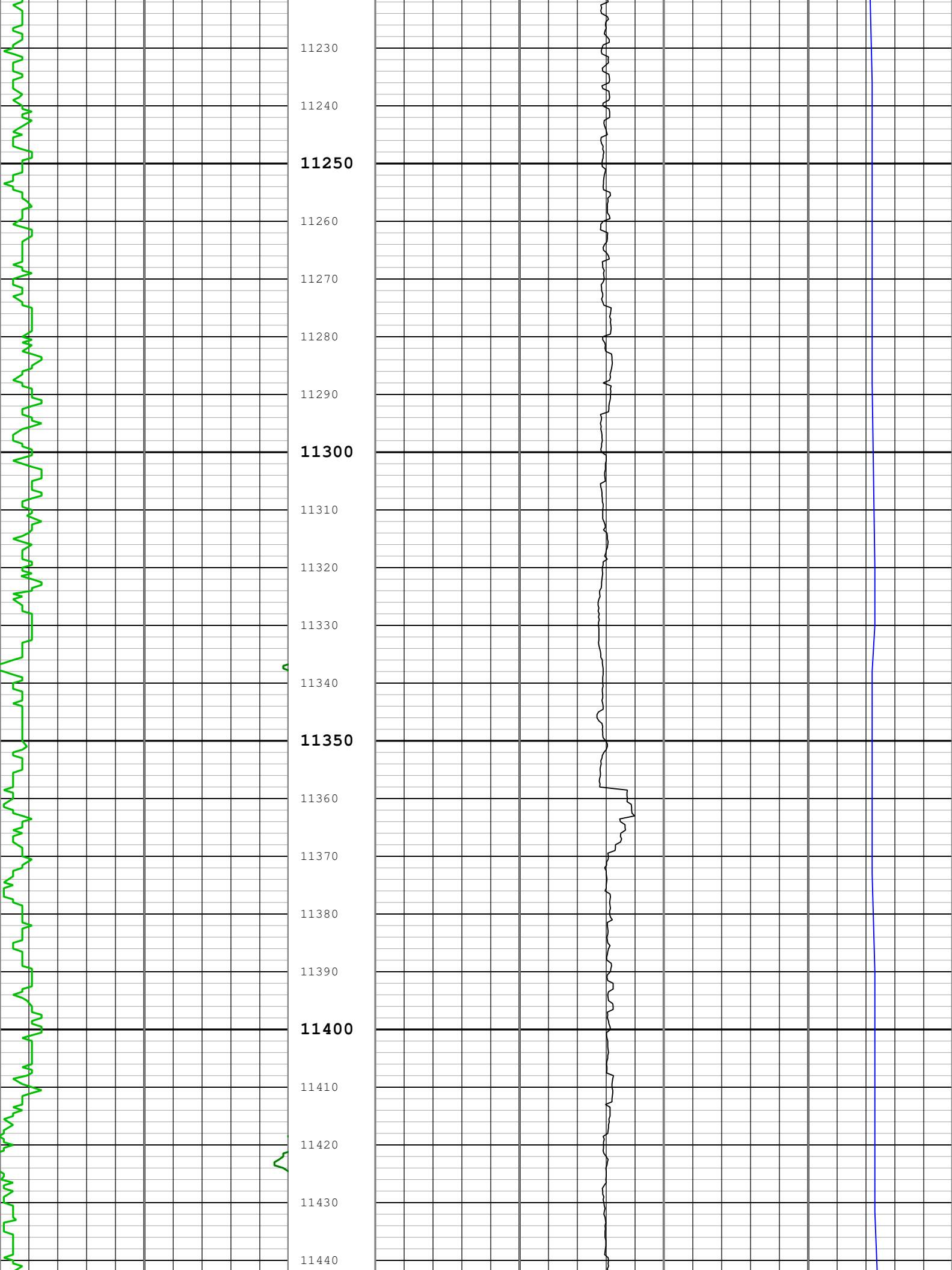


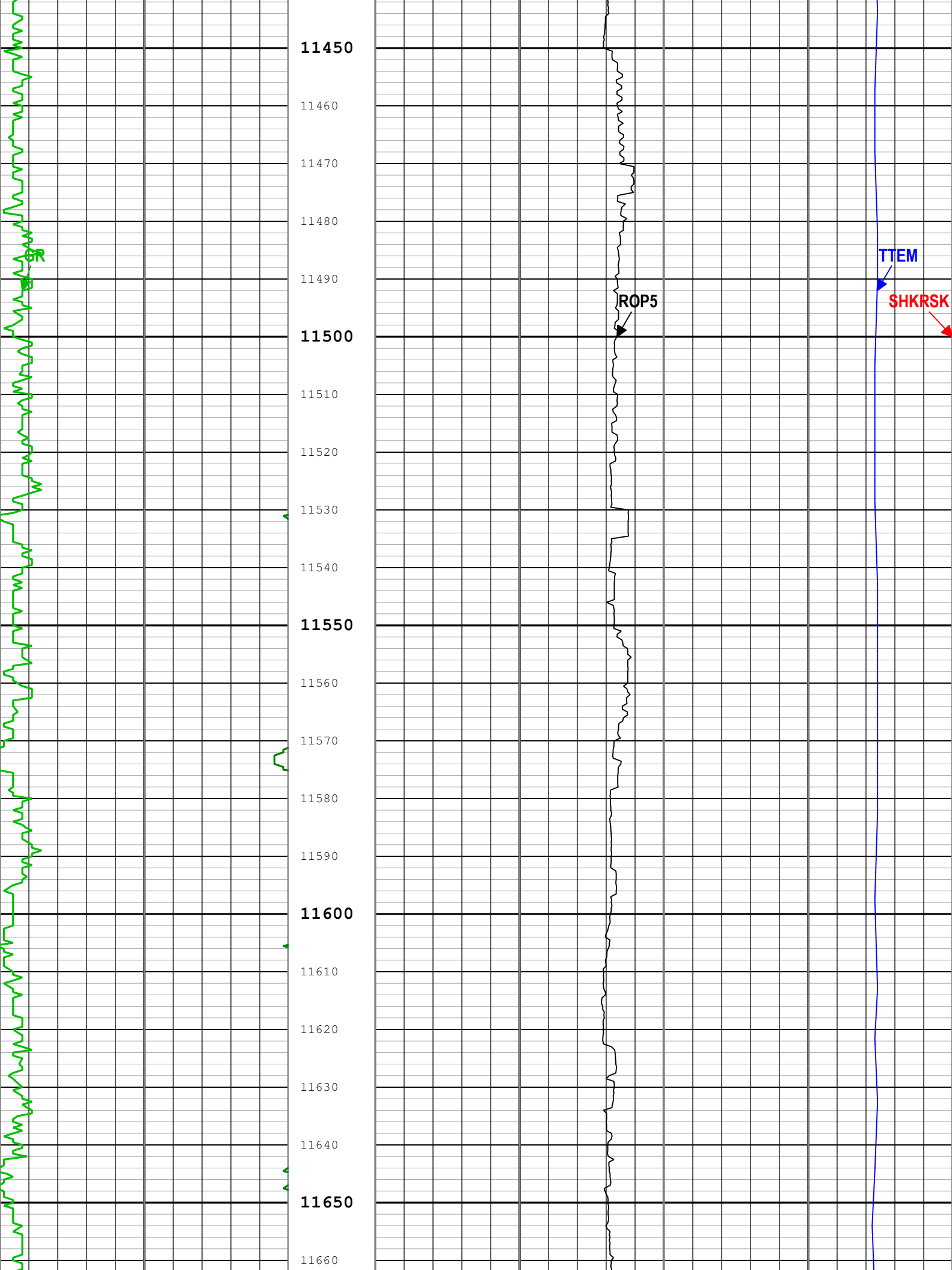


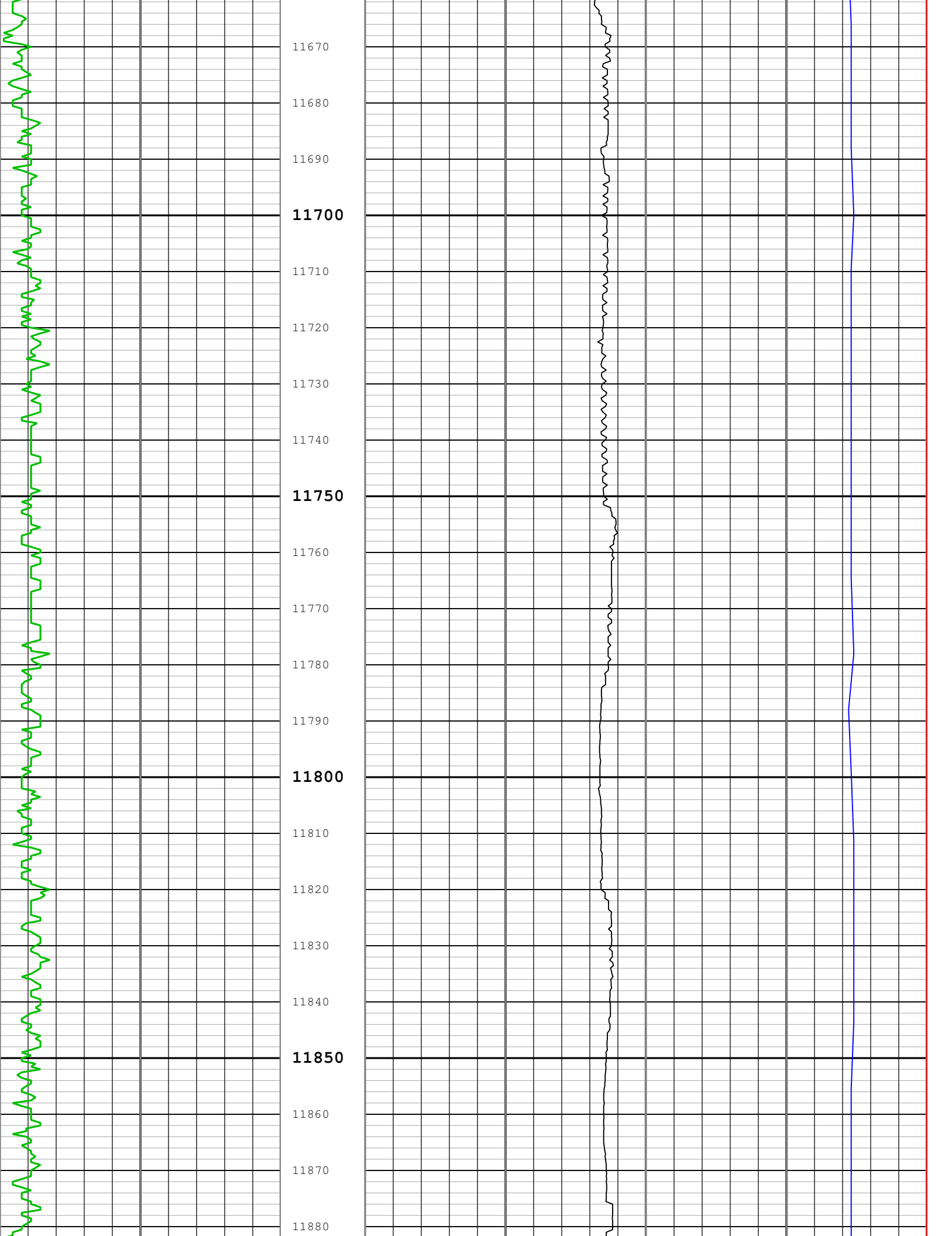


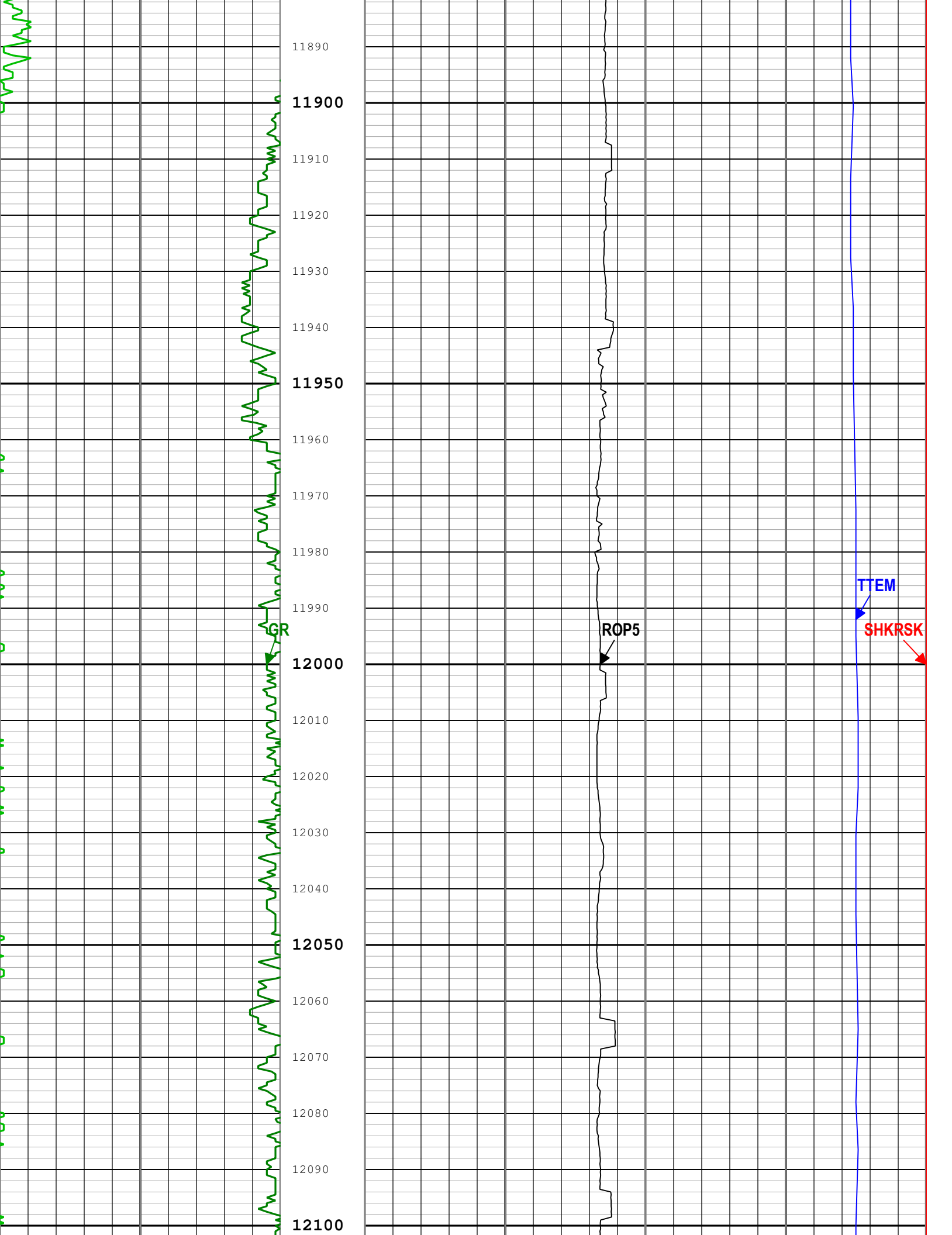


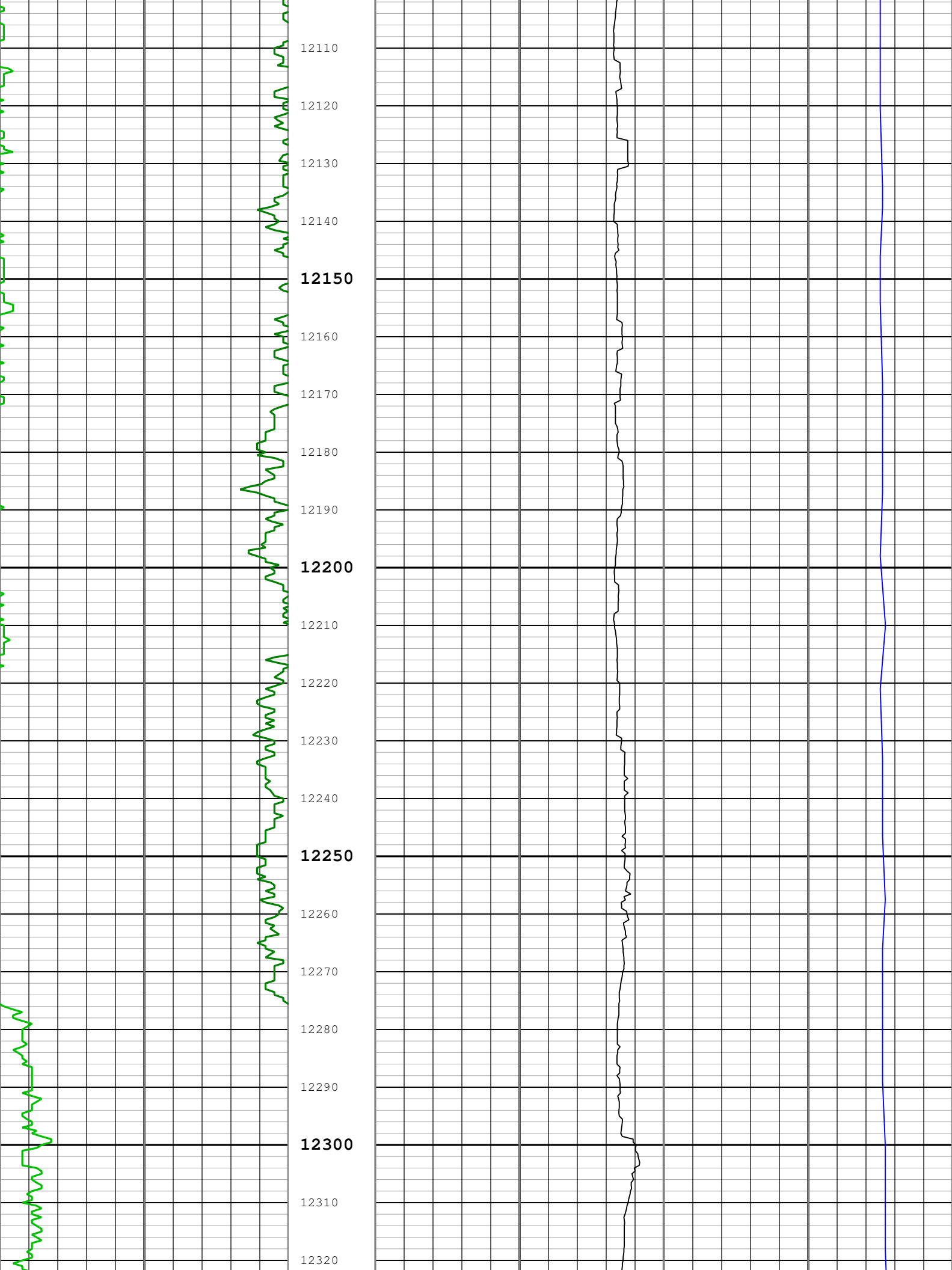




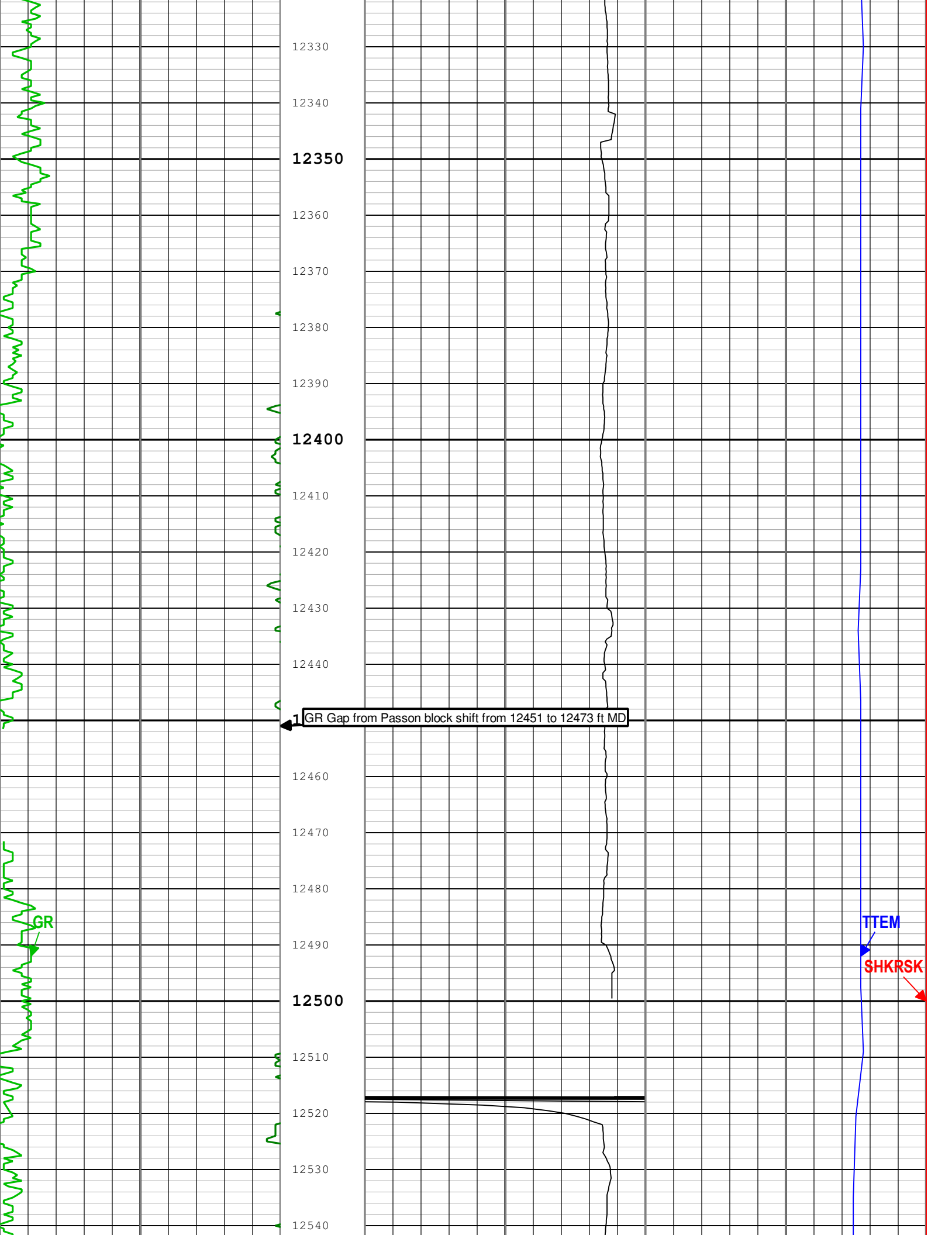


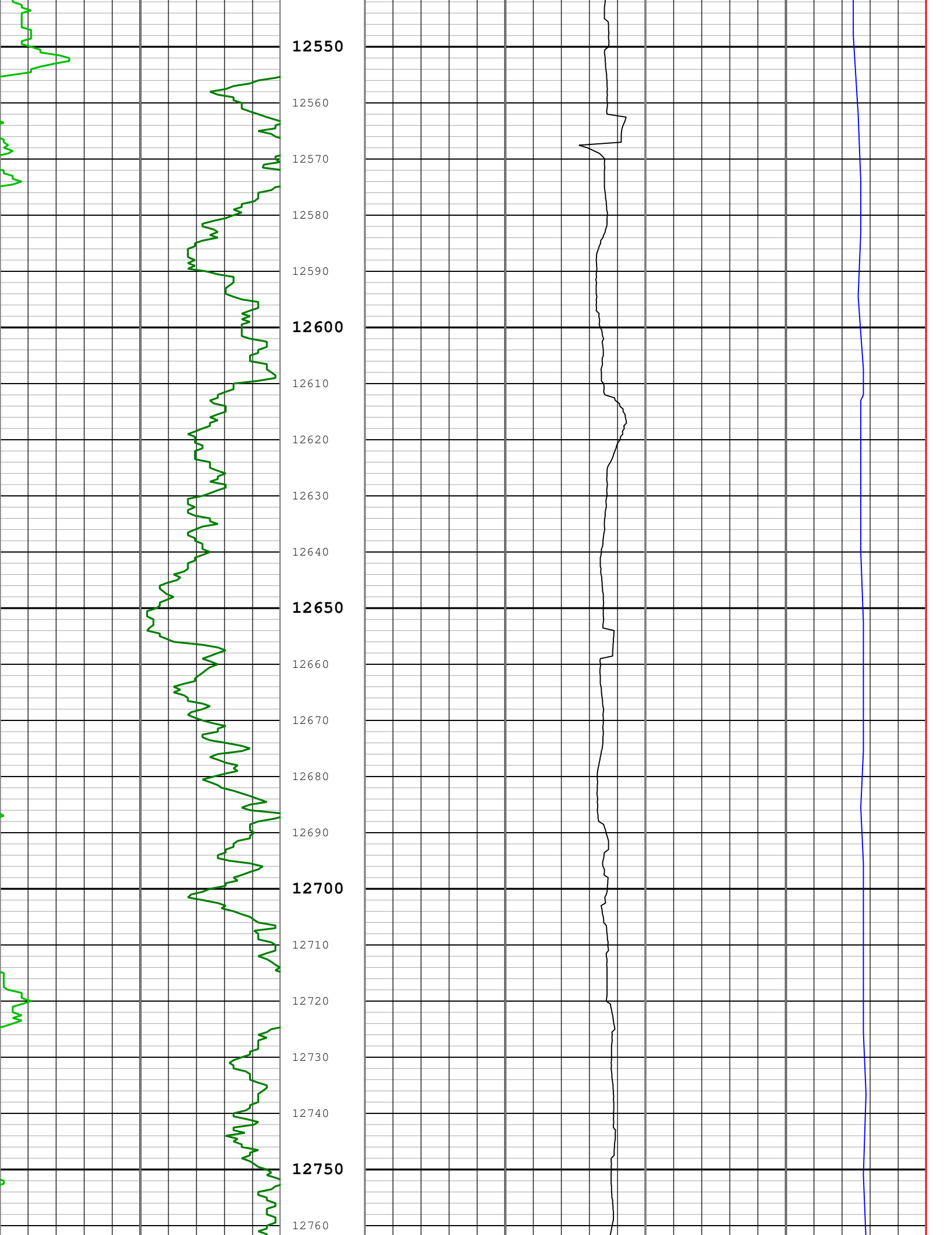


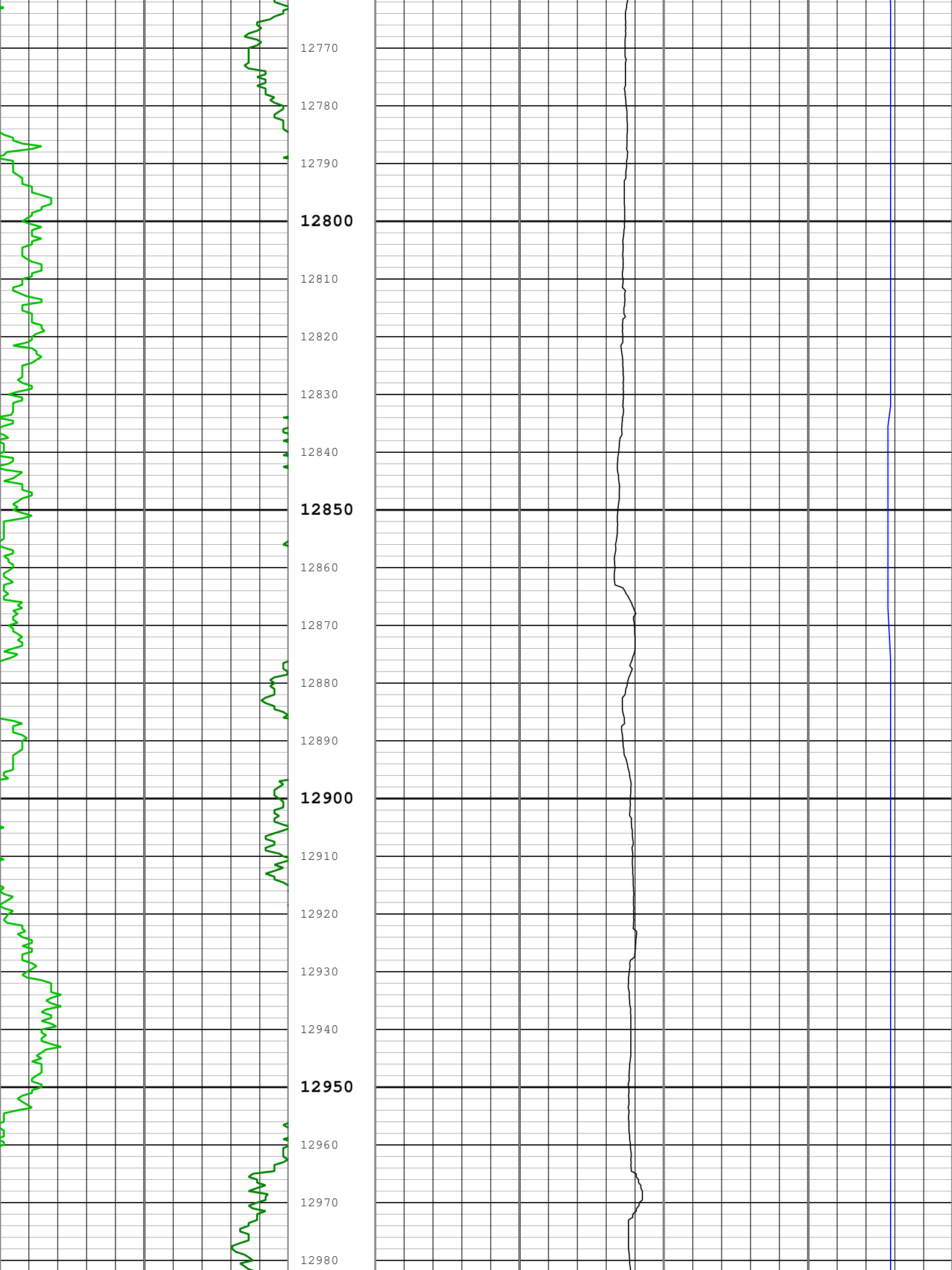


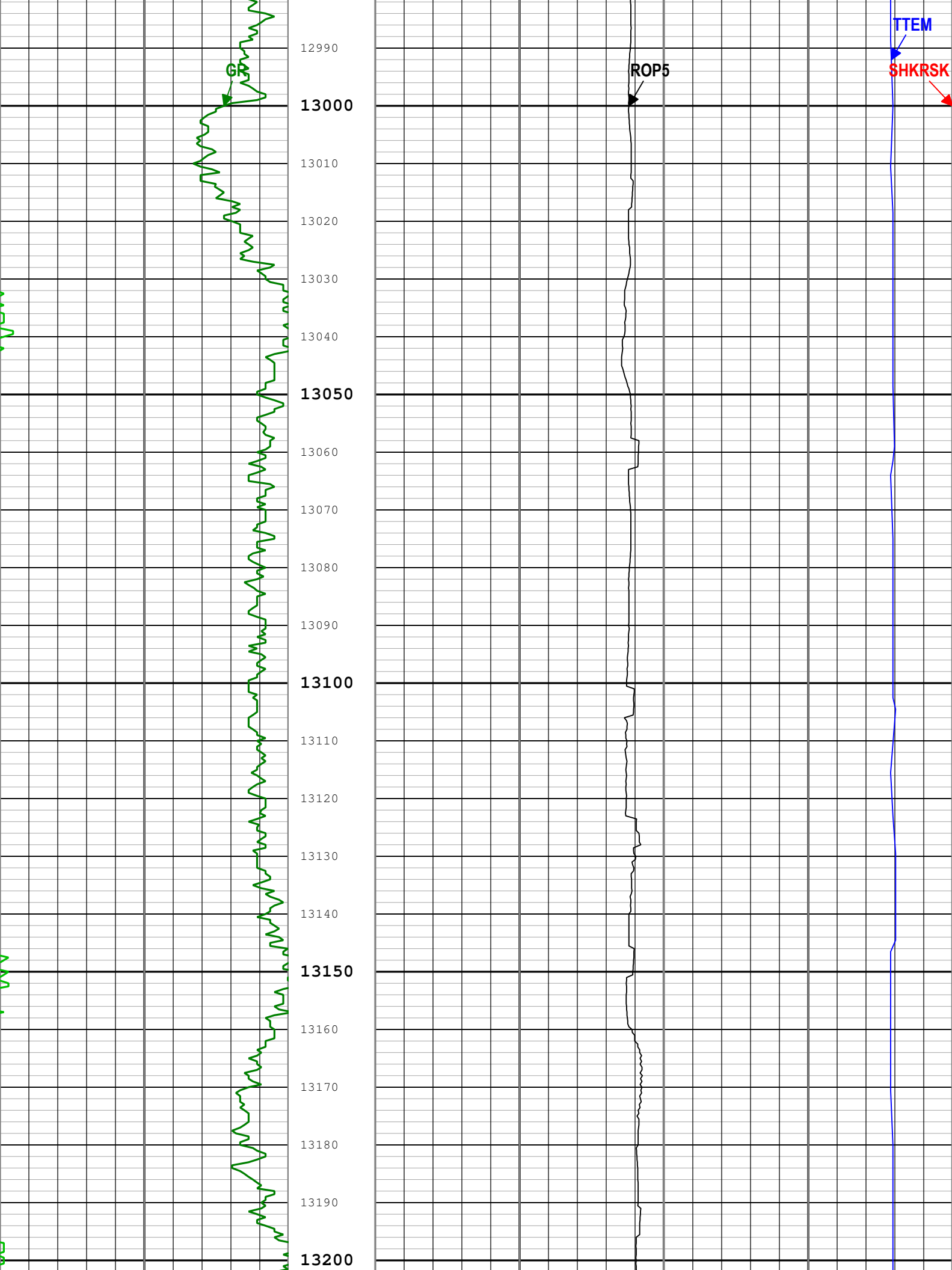


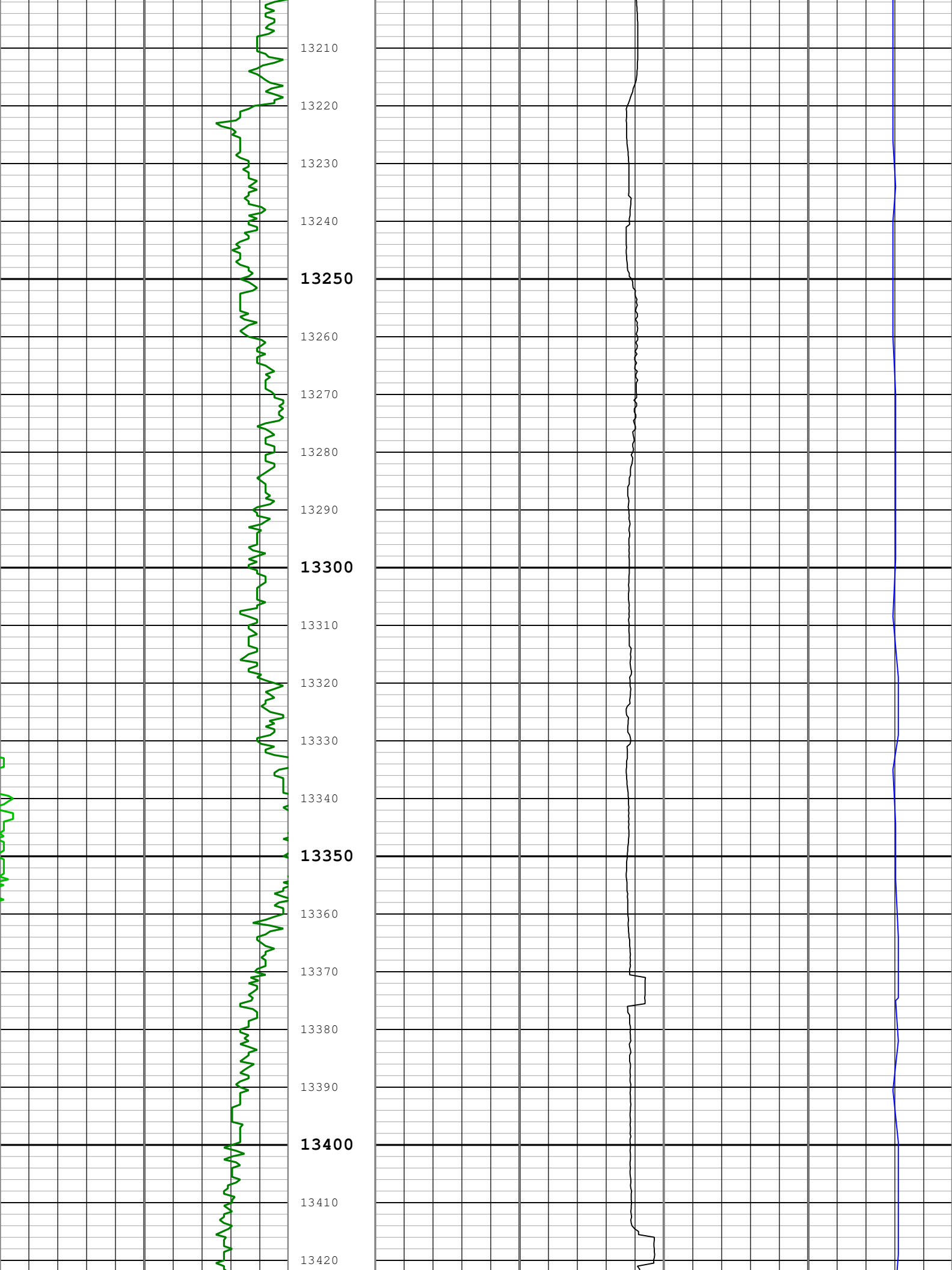


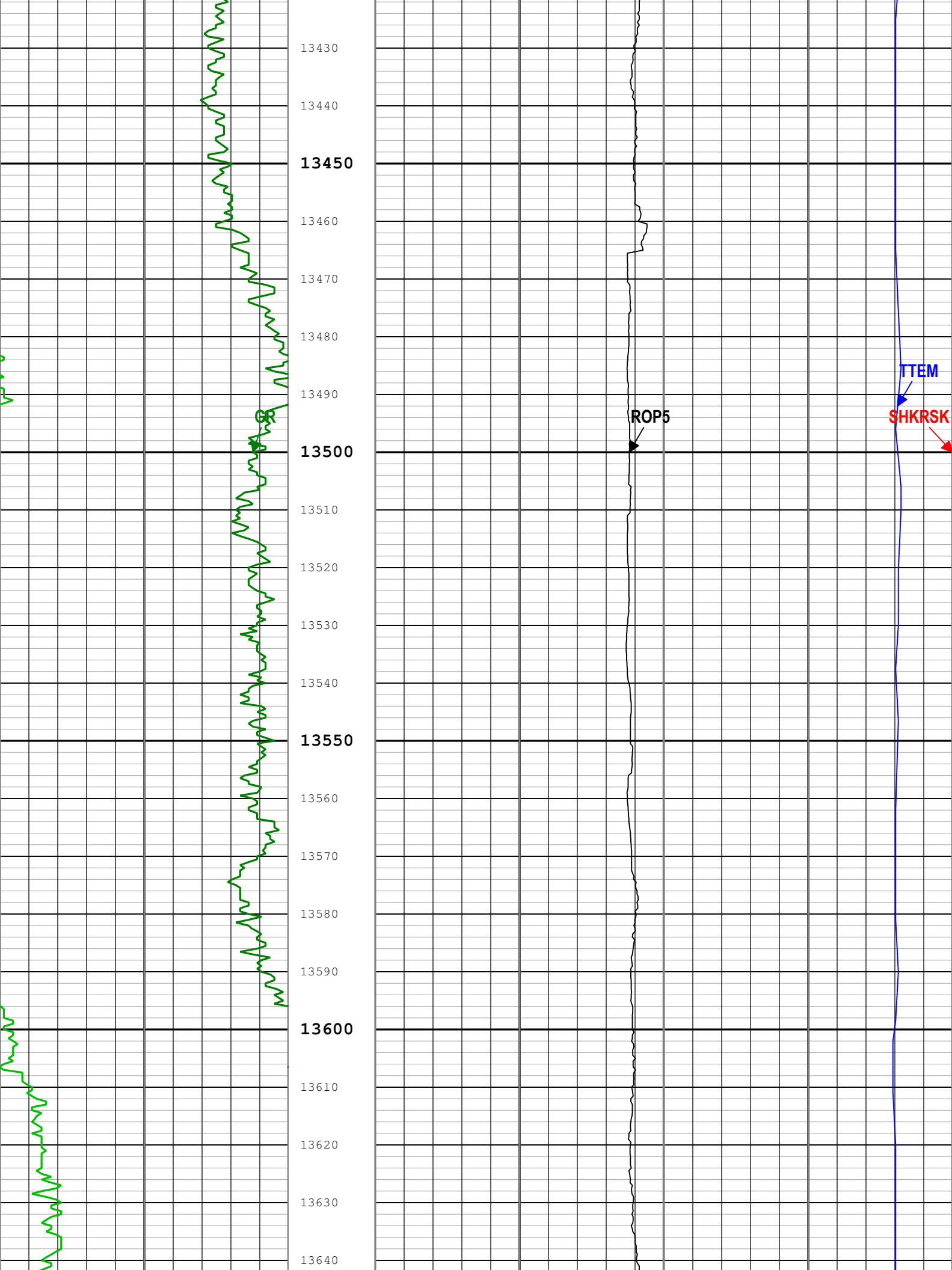


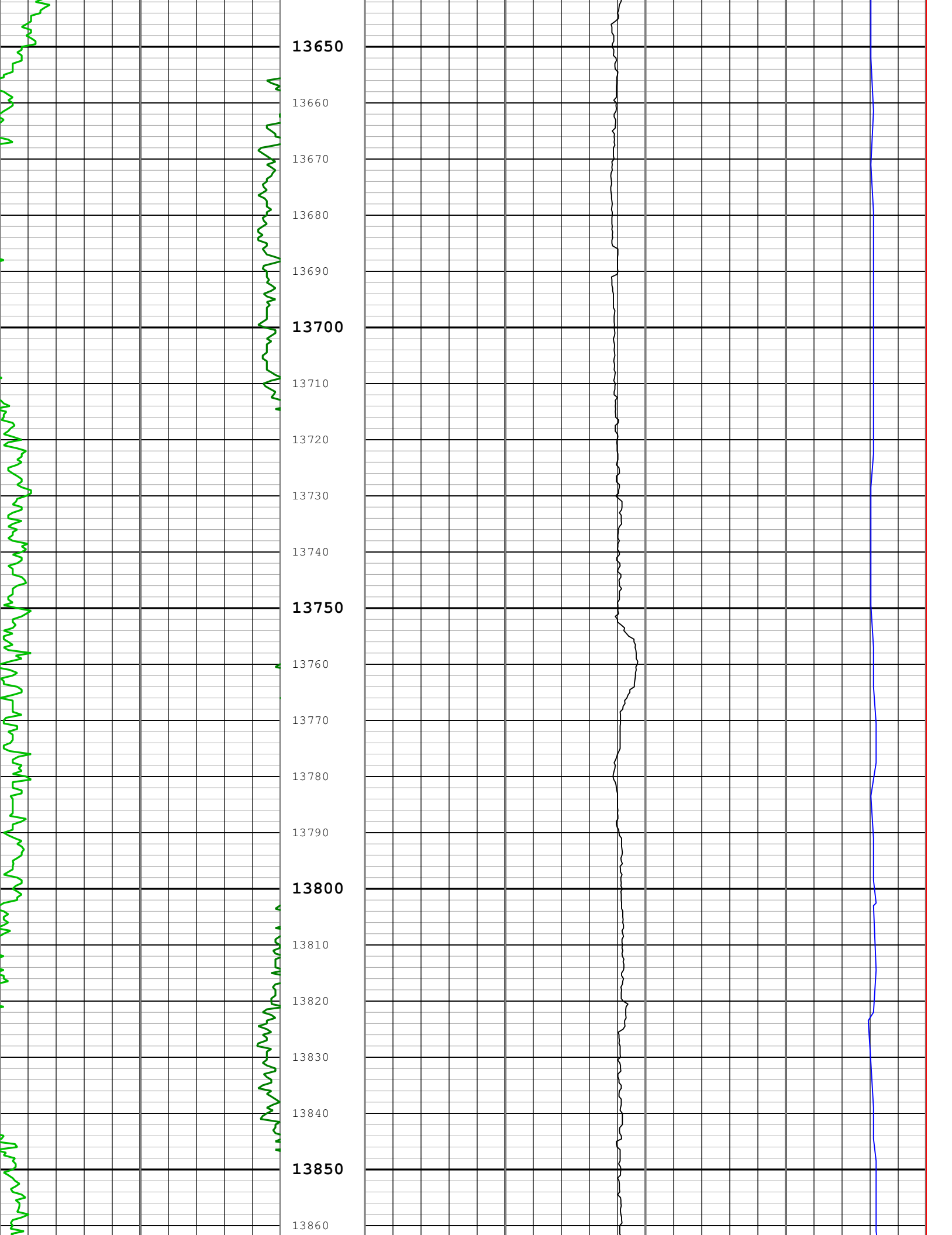


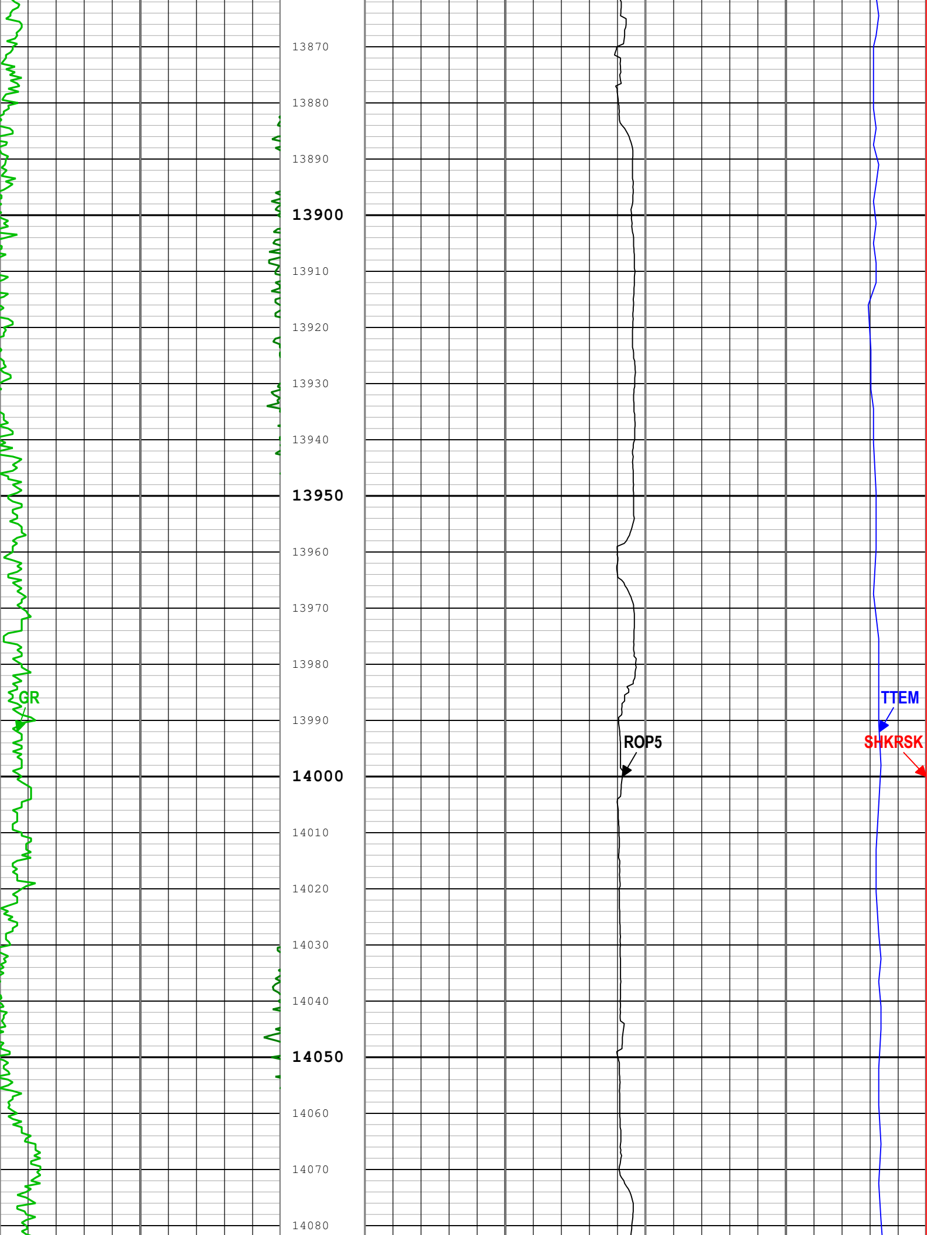




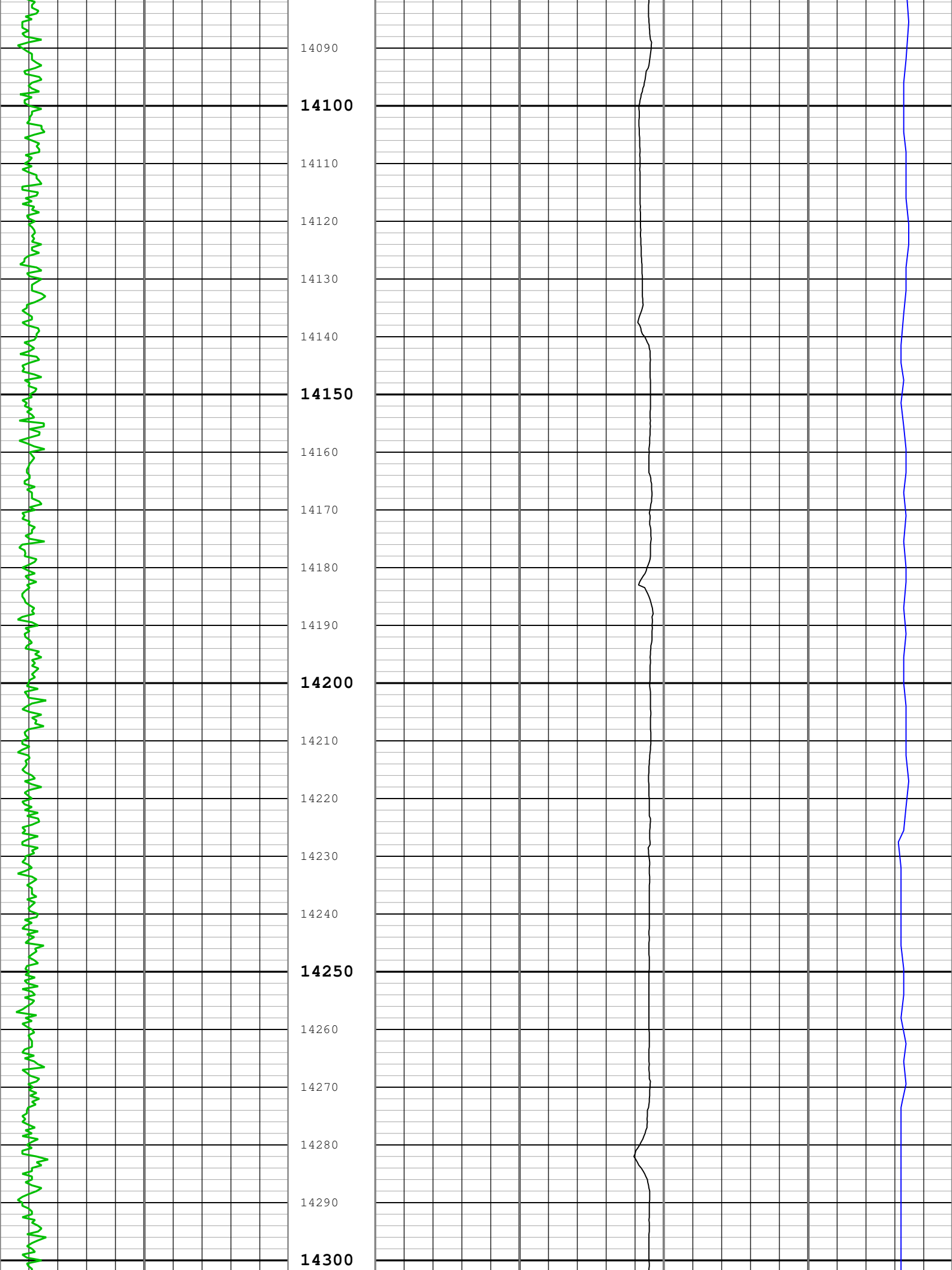


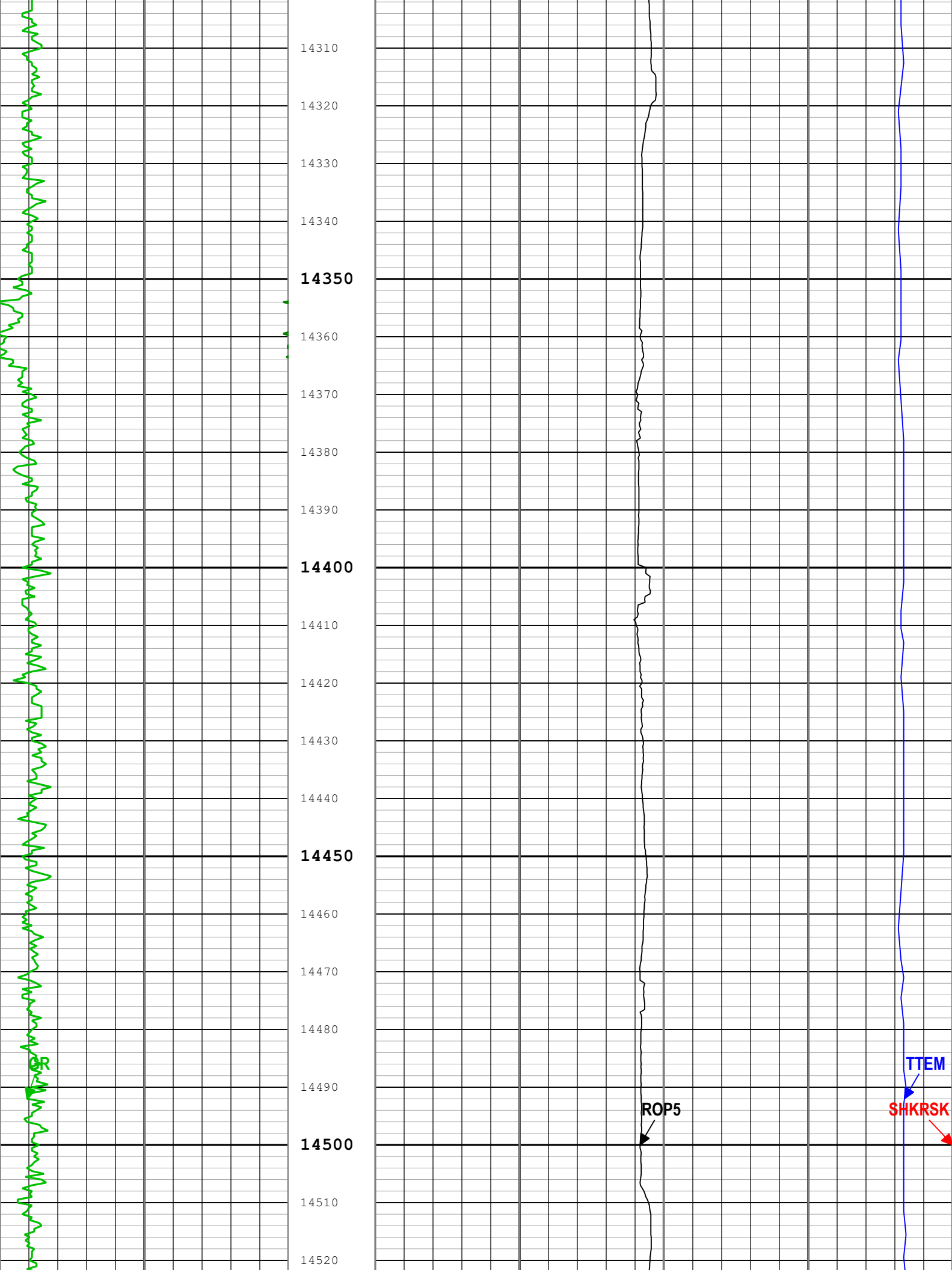


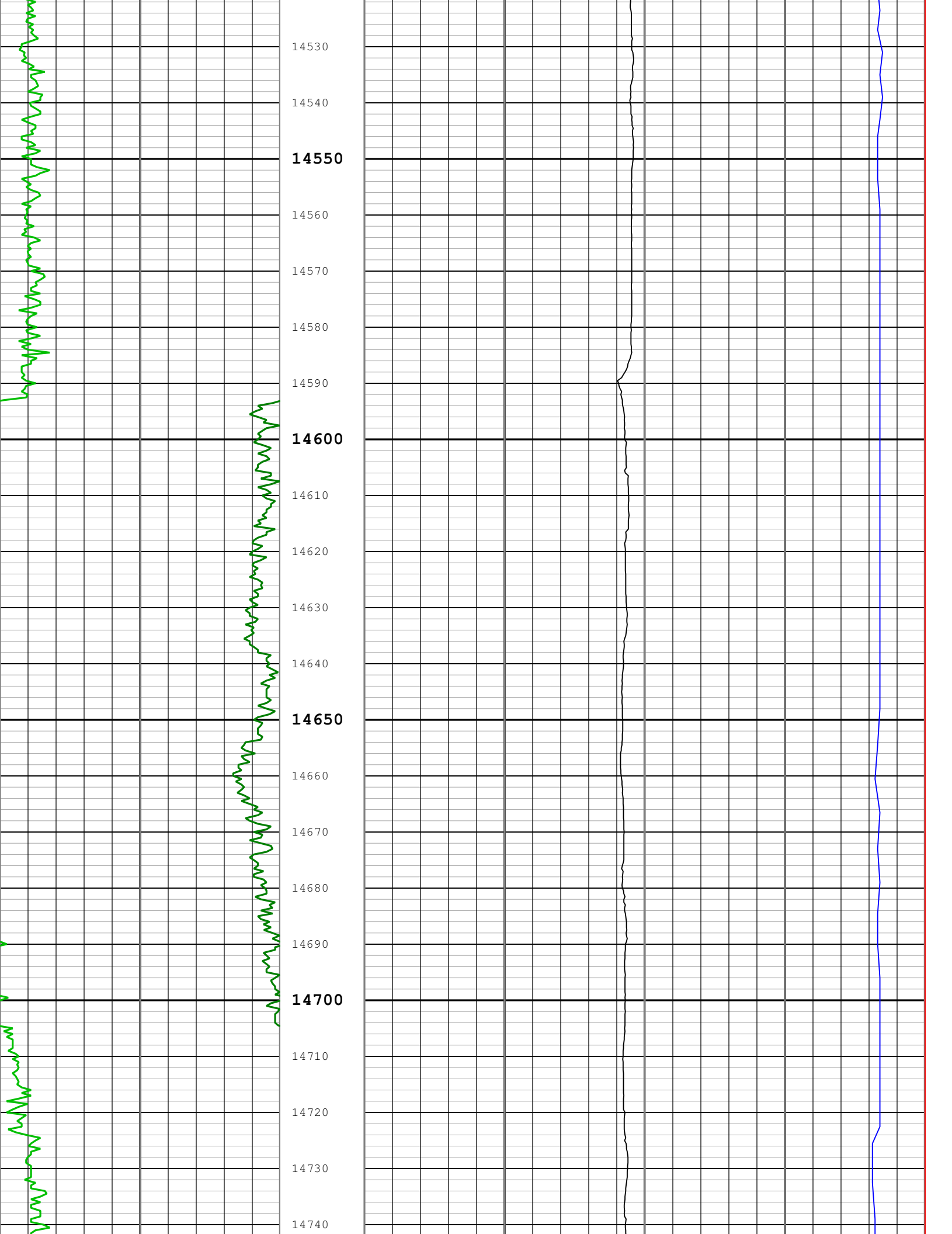


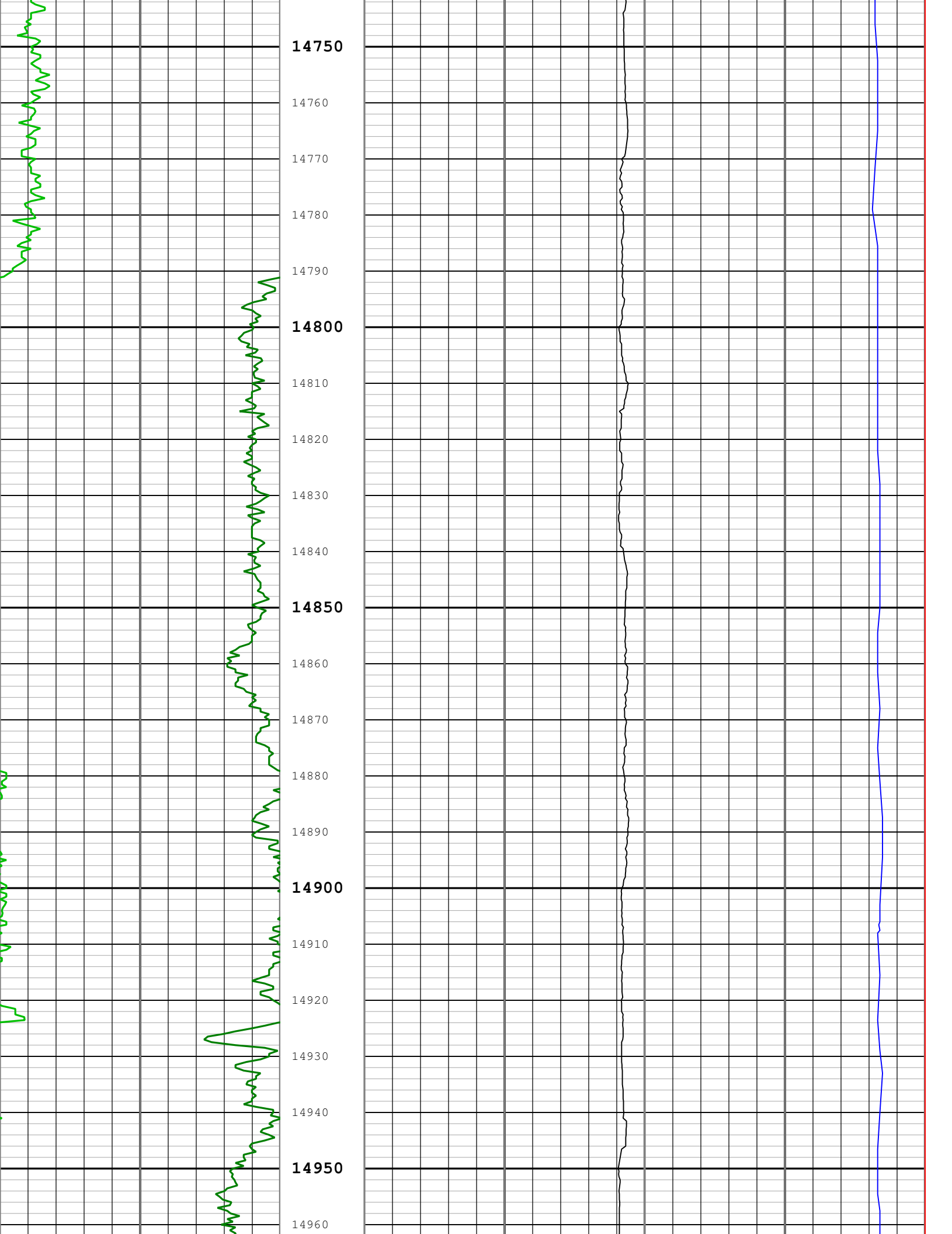


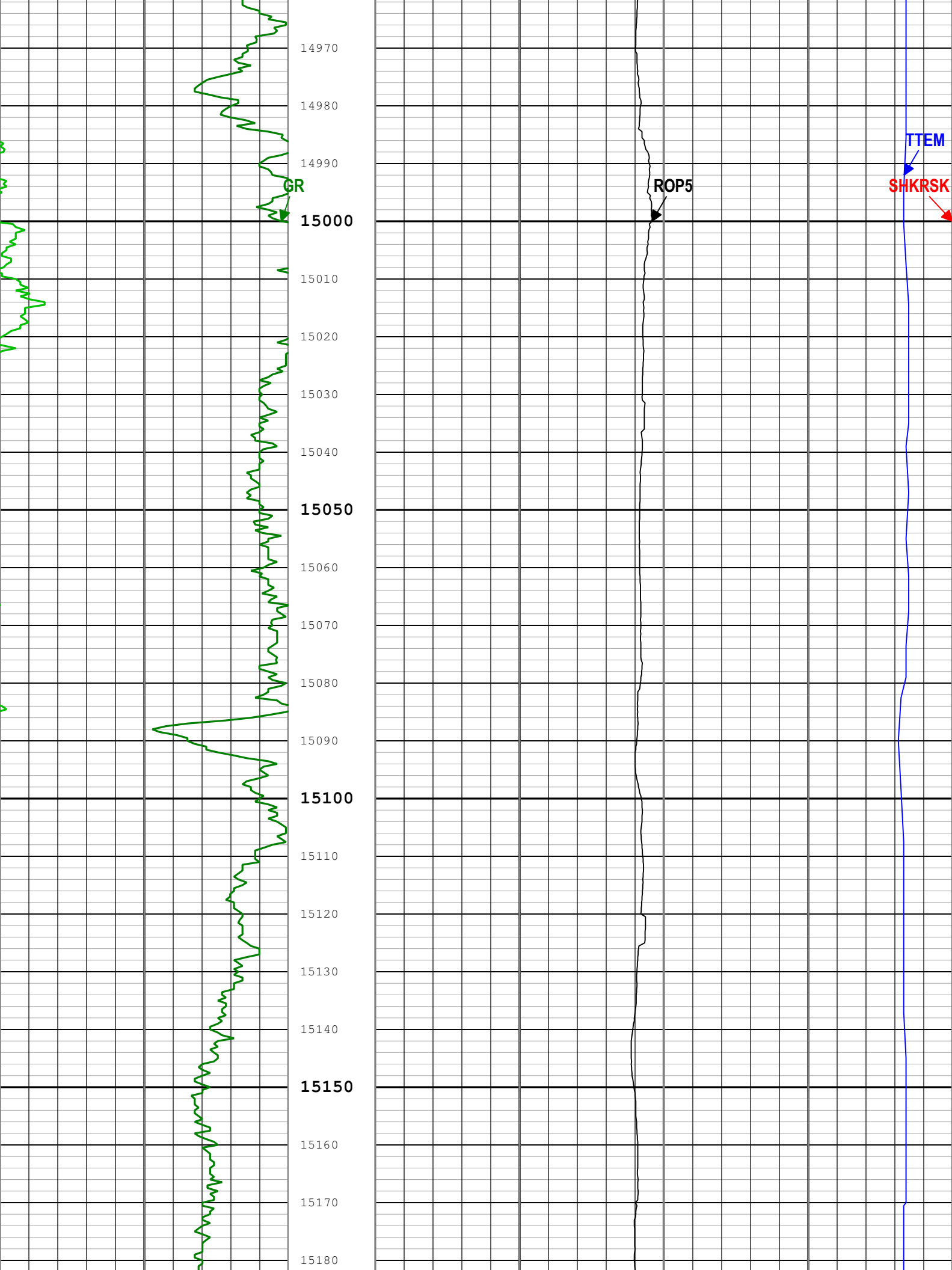


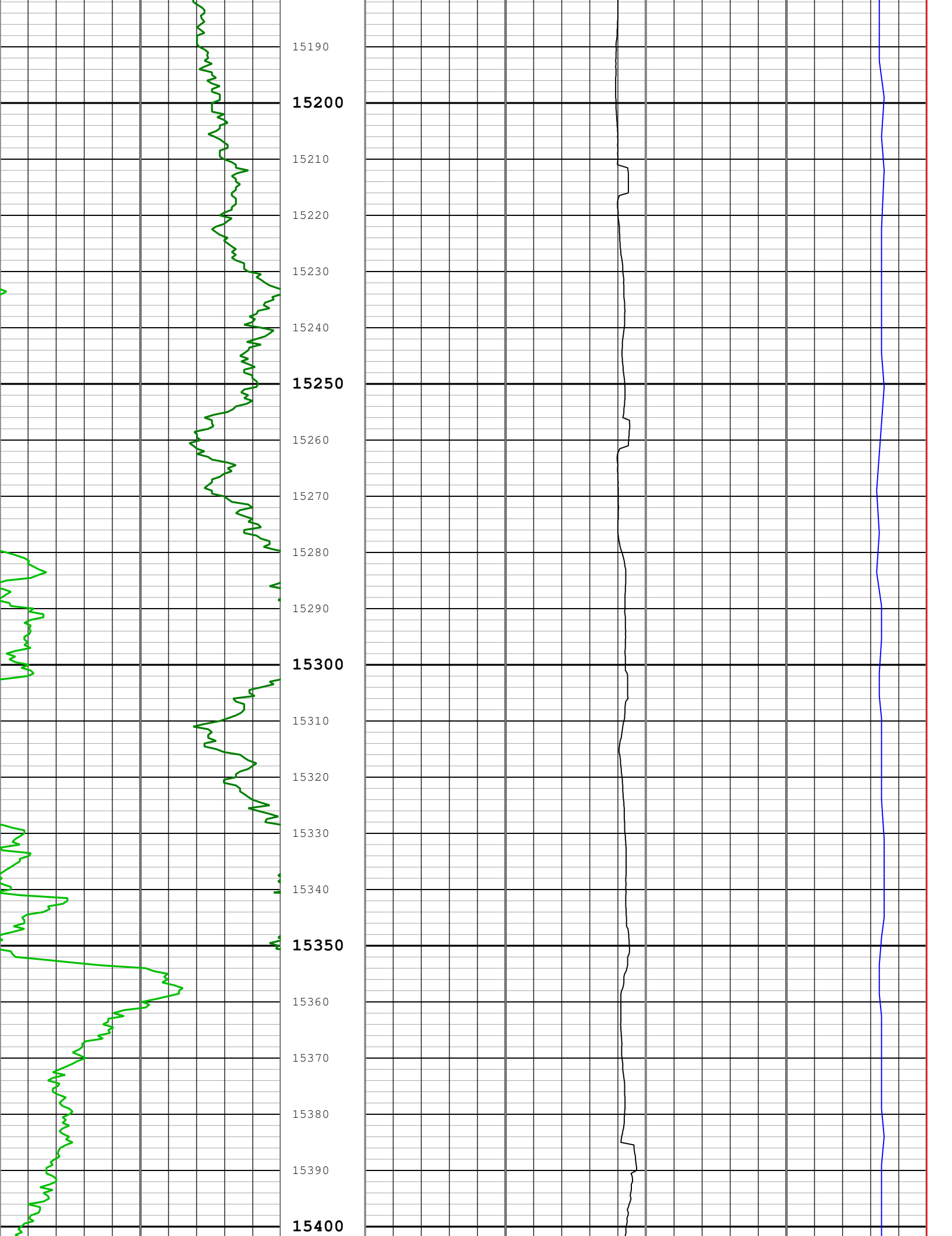


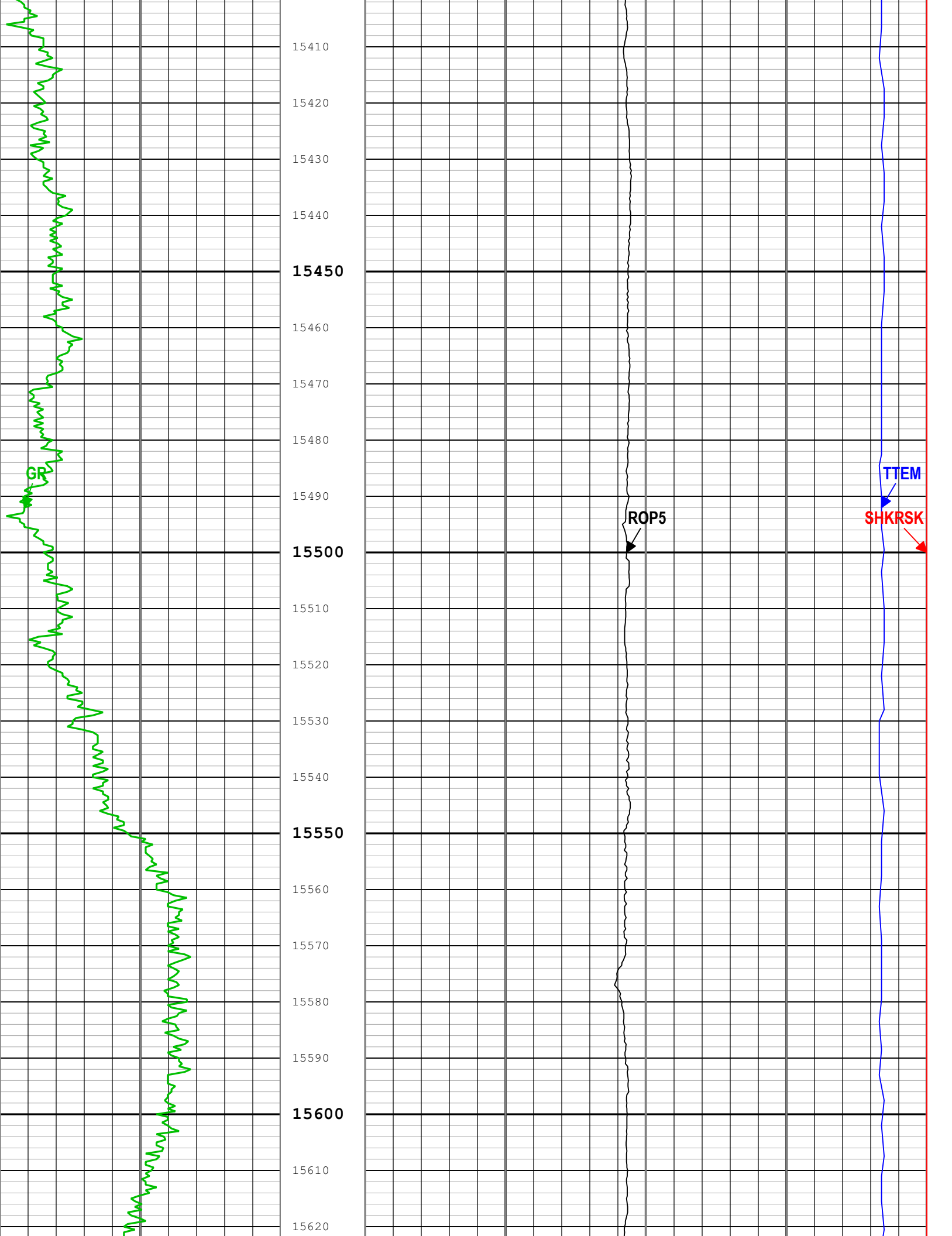


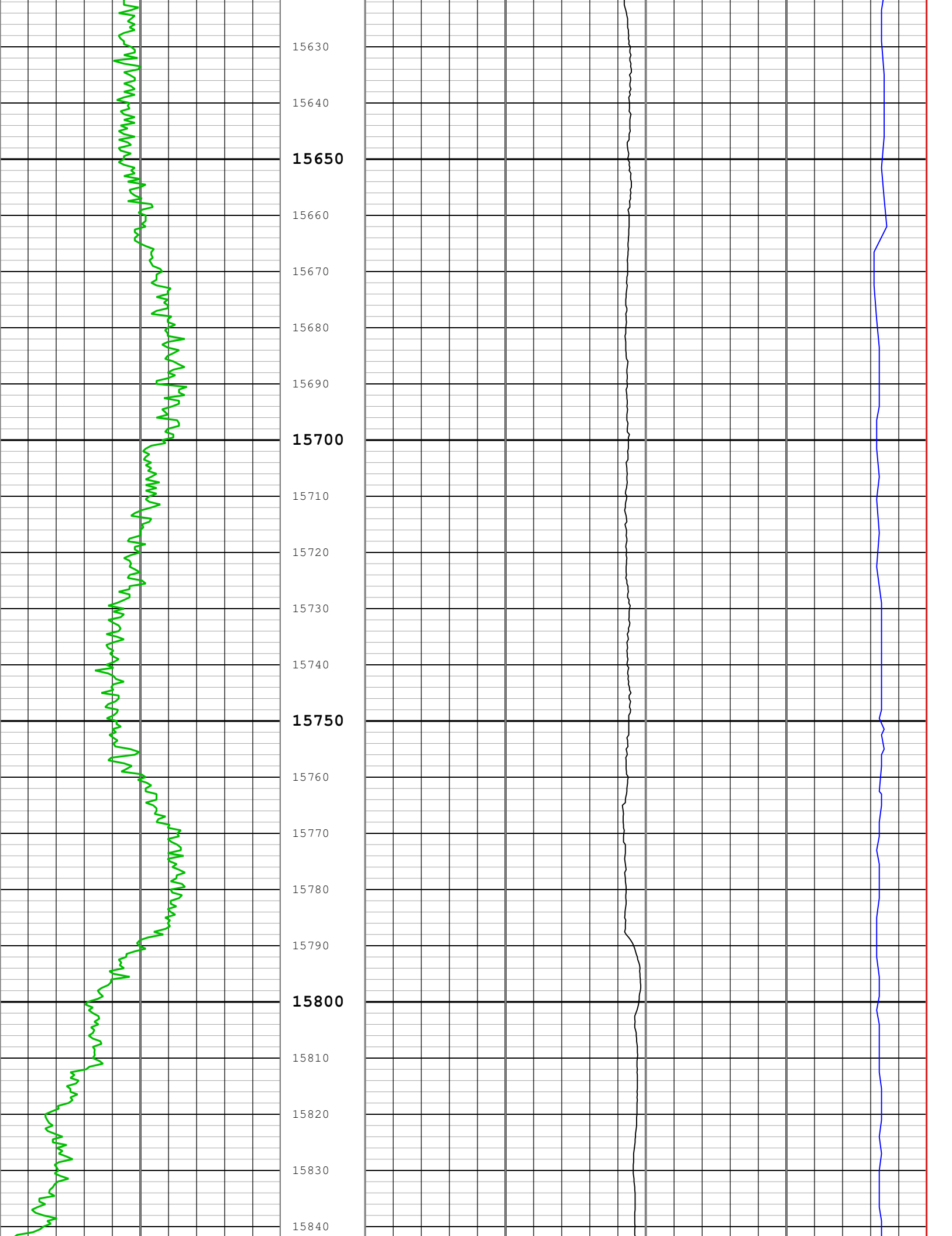




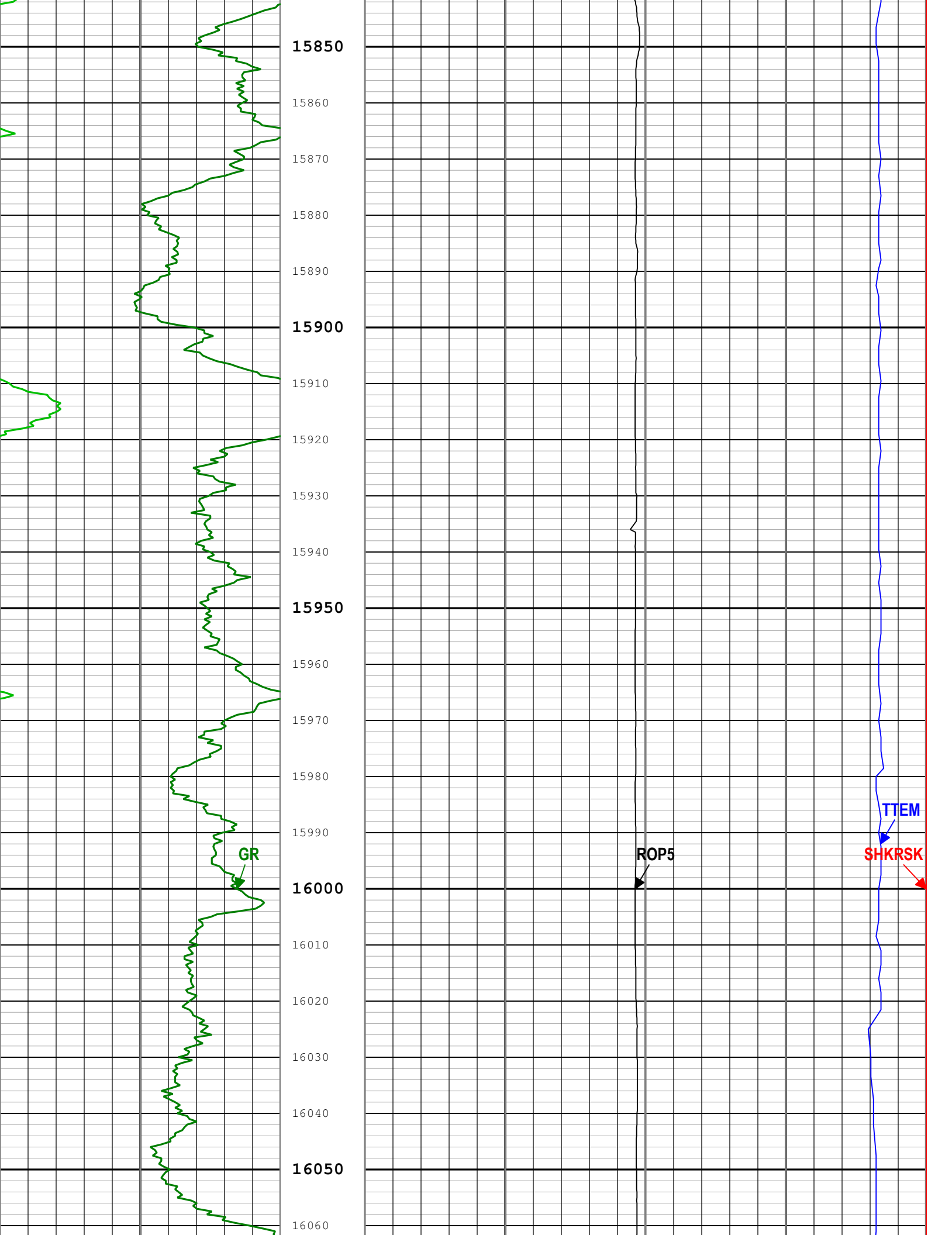


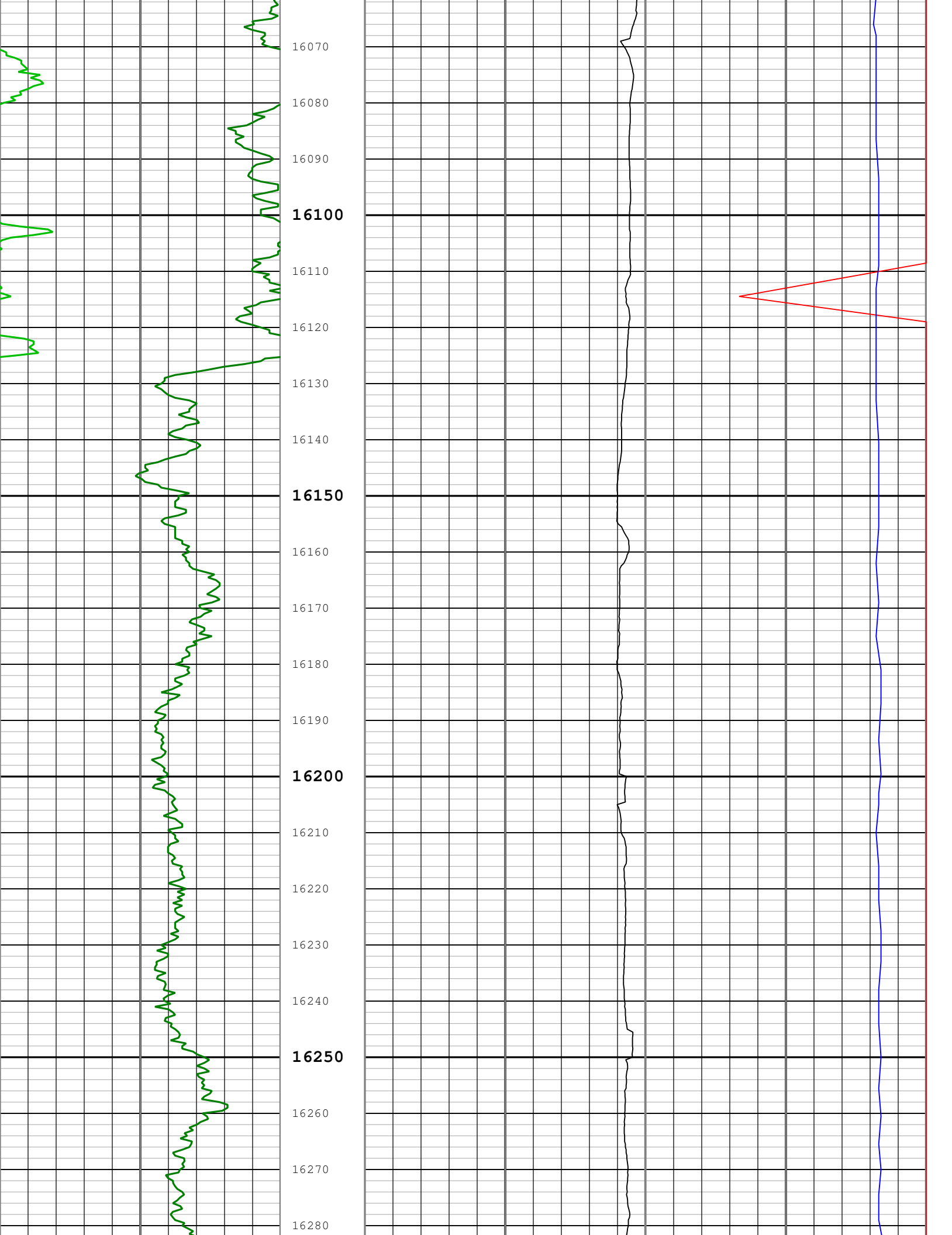


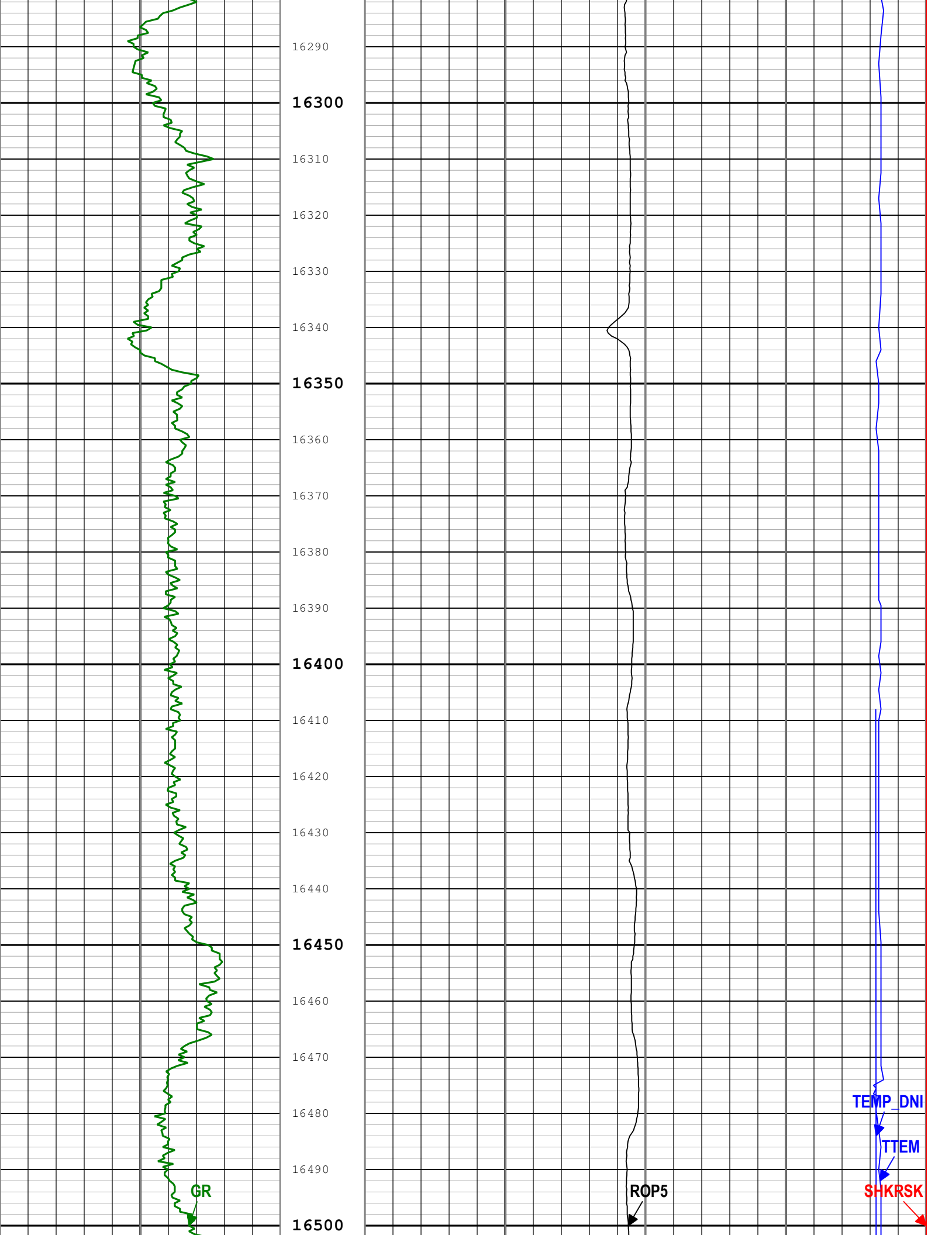


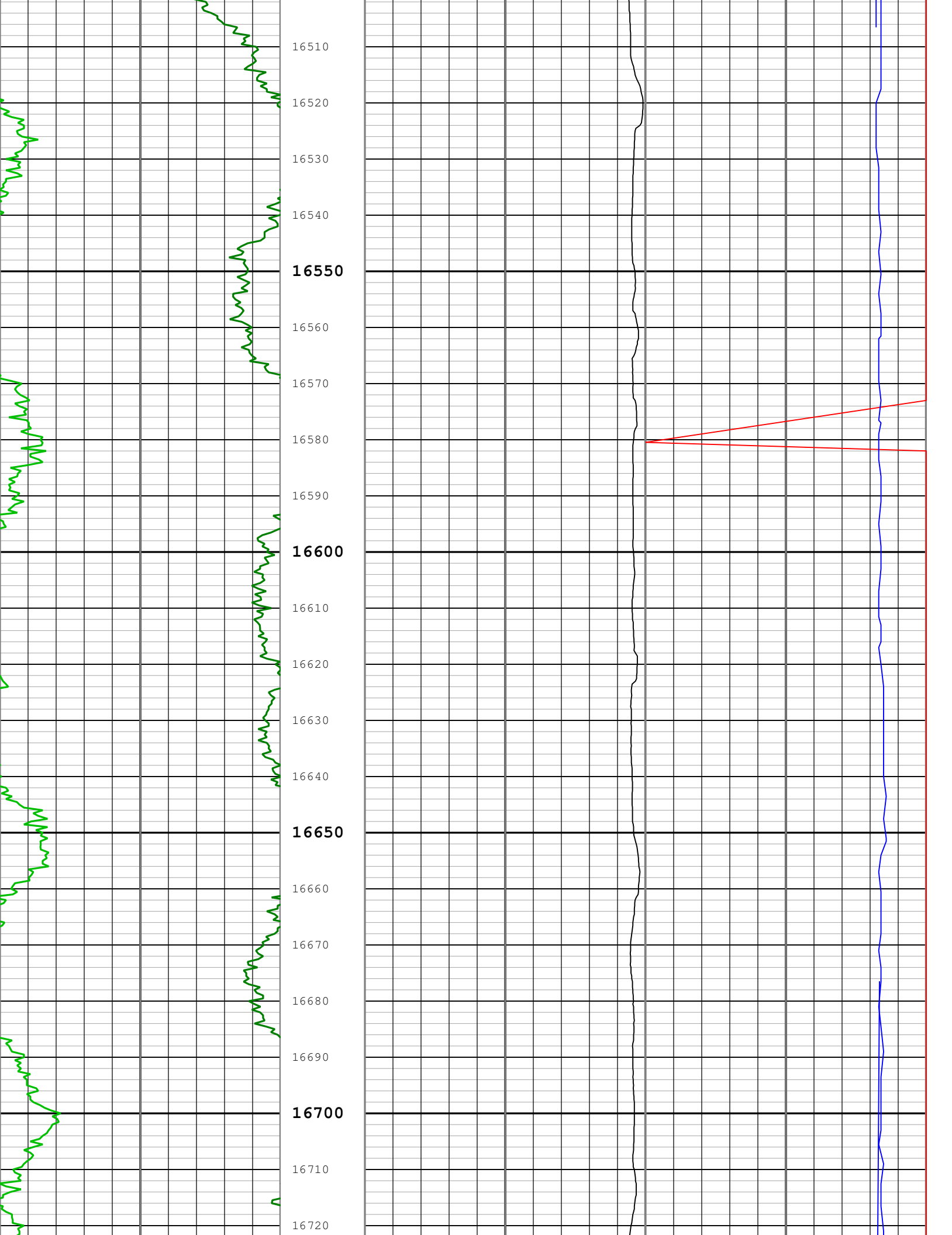


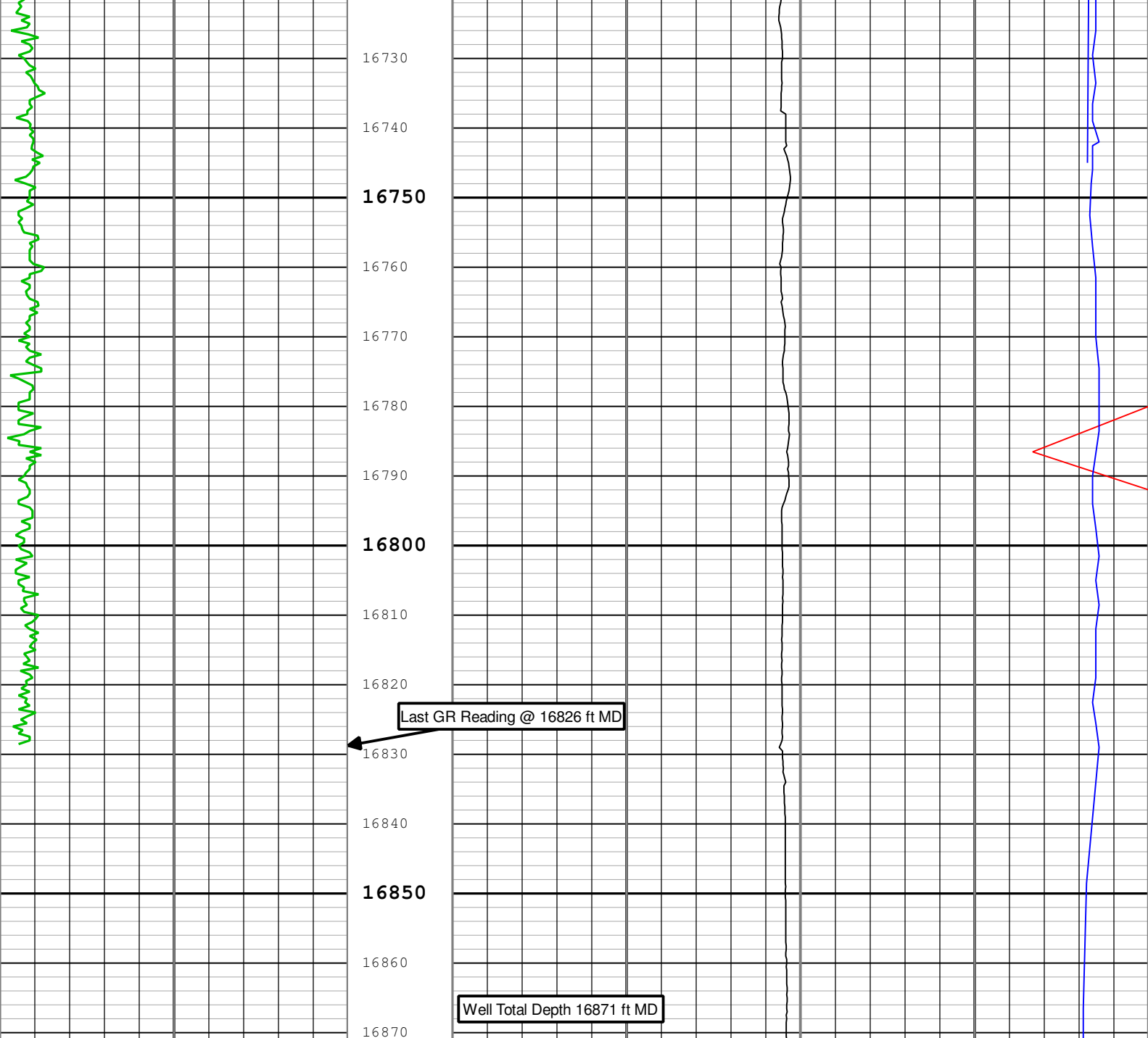












Gamma Ray (GR) SlimPulse[1] RM		Rate of penetration averaged over the last 5 ft (1.5 m) (ROP5) RT		Shock Risk (SHKRSK) SlimPulse[1] RT	
0	gAPI	150	1000	ft/h	0
Gamma Ray (GR) SlimPulse[1] RM				Tool Temperature (TTEM) SlimPulse[1] RM	
150	gAPI	300		100	degF
Gamma Ray (GR) SlimPulse[1] RM					
300	gAPI	450			
Gamma Ray (GR) SlimPulse[1] RM					
450	gAPI	600			

Description: Format: Log ( EOW\_MD ) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Sep-2014 13:32:44

## Channel Processing Parameters

### Run 1: Parameters

Parameter	Description	Tool	Value	Unit
BS	Bit Size	DNMSESSION	Depth Zoned	in
DFD	Drilling Fluid Density	Borehole	10	lbm/gal

GR_SRC		GR Source Selection		SPULSE-GEN		GAMMA_EXT									
Run 1Depth Zoned Parameters															
Parameter		Value		Start ( ft )				Stop ( ft )							
BS		8.75		7239.16				7291							
BS		6.125		7291				7447.17							
All depth are actual.															
Run 2: Parameters															
Parameter		Description				Tool		Value			Unit				
BS		Bit Size				DNMSESSION		6.125			in				
DFD		Drilling Fluid Density				Borehole		Time Zoned			lbm/gal				
GR_SRC		GR Source Selection				SPULSE-GEN		GAMMA_EXT							
Run 2Time Zoned Parameters															
Pass Drilling															
Parameter		Value		Start Time		Stop Time		Start Depth ( ft )			Stop Depth ( ft )				
DFD		9.5		30-Aug-2014 15:11:05		03-Sep-2014 19:54:35		7444.83			14852.5				
DFD		10.1		03-Sep-2014 19:54:35		05-Sep-2014 18:32:21		14852.5			16519				
DFD		10		05-Sep-2014 18:32:21		07-Sep-2014 05:17:58		16519			16998				
All depth are at tool zero.															
Tool Control Parameters															
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 :		0.58 deg													
Rig Location															
Latitude :		40° 16' 36.228" N				Longitude :		104° 36' 12.528" W							
Tie In Point															
Measured Depth:		0.00 ft		Inclination:		0.00 deg		Azimuth:		0.00 deg					
True Vertical 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:		3.08 deg					
D&I Inits Computed and Values Used - Run 1															
Geomagnetic Model :		BGGM 2014				Geomagnetic Date :		28-Aug-2014							
Computed Location B :		52642.21 nT +/- 300.00nT				Used Location B :		52566.00 nT +/- 300.00nT							
Computed Location G :		999.53 mgn +/- 2.50mgn				Used Location G :		999.53 mgn +/- 2.50mgn							
Computed Magnetic Dip :		66.86 deg +/- 0.45deg				Used Magnetic Dip :		66.83 deg +/- 0.45deg							
Computed Magnetic Dec :		8.42 deg				Used Magnetic Dec :		8.45 deg							
Computed Total Correction :		7.84 deg				Used Total Correction :		7.87 deg							
D&I Inits Computed and Values Used - Run 2															
Geomagnetic Model :		BGGM 2014				Geomagnetic Date :		30-Aug-2014							
Computed Location B :		52641.47 nT +/- 300.00nT				Used Location B :		52566.00 nT +/- 300.00nT							
Computed Location G :		999.53 mgn +/- 2.50mgn				Used Location G :		999.53 mgn +/- 2.50mgn							
Computed Magnetic Dip :		66.86 deg +/- 0.45deg				Used Magnetic Dip :		66.83 deg +/- 0.45deg							
Computed Magnetic Dec :		8.42 deg				Used Magnetic Dec :		8.45 deg							
Computed Total Correction :		7.84 deg				Used Total Correction :		7.87 deg							
Survey Quality Index															
9 : Manual				28 : Tie-In Point											
Survey Correction Index															
0 : No correction															
Survey Description Index															
0 : Not Flagged Survey				7 : Projection to Bit											
Seq	MD	Incl	Azim	Course	TVD	V Sec	N/ -S	E/ -W	Closure	at Azim	DLS	Tool Type	QI	CI	DI
	(ft)	(deg)	(deg)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(deg)	dea/100ft				

1	0.00	0.00	0.00	----	0.00	0.00	0.00	0.00	0.00	90.00	0.00	TIP	28	0	0
2	300.00	0.20	117.60	300.00	300.00	-0.22	-0.24	0.46	0.52	117.60	0.07	Other	9	0	0
3	699.00	0.20	126.60	399.00	699.00	-0.89	-0.98	1.64	1.90	120.87	0.01	Other	9	0	0
4	754.00	0.60	357.40	55.00	754.00	-0.66	-0.75	1.70	1.87	113.75	1.35	Other	9	0	0
5	843.00	0.50	337.80	89.00	842.99	0.16	0.08	1.54	1.54	87.20	0.24	Other	9	0	0
6	933.00	0.70	330.90	90.00	932.99	0.98	0.92	1.12	1.44	50.64	0.24	Other	9	0	0
7	1023.00	0.80	325.80	90.00	1022.98	1.94	1.92	0.50	1.97	14.61	0.13	Other	9	0	0
8	1131.00	0.90	320.60	108.00	1130.97	3.17	3.20	-0.46	3.22	351.78	0.12	Other	9	0	0
9	1225.00	1.10	316.40	94.00	1224.95	4.33	4.42	-1.55	4.69	340.65	0.23	Other	9	0	0
10	1319.00	1.00	30.70	94.00	1318.94	5.68	5.78	-1.76	6.04	343.10	1.35	Other	9	0	0
11	1413.00	0.80	138.60	94.00	1412.93	5.94	5.99	-0.90	6.07	351.43	1.55	Other	9	0	0
12	1508.00	2.20	127.90	95.00	1507.90	4.42	4.38	0.97	4.49	12.55	1.50	Other	9	0	0
13	1601.00	3.60	130.20	93.00	1600.78	1.64	1.39	4.61	4.82	73.17	1.51	Other	9	0	0
14	1696.00	4.20	114.20	95.00	1695.56	-1.41	-1.96	10.06	10.24	101.00	1.30	Other	9	0	0
15	1791.00	5.10	107.60	95.00	1790.25	-3.73	-4.66	17.26	17.88	105.10	1.10	Other	9	0	0
16	1886.00	4.60	82.20	95.00	1884.92	-4.07	-5.42	25.06	25.66	102.20	2.30	Other	9	0	0
17	1981.00	5.50	76.30	95.00	1979.55	-2.03	-3.82	33.26	33.46	96.56	1.09	Other	9	0	0
18	2060.00	6.70	80.80	79.00	2058.10	0.04	-2.19	41.49	41.54	93.02	1.63	Other	9	0	0
19	2150.00	6.50	69.80	90.00	2147.51	3.17	0.41	51.45	51.44	89.55	1.42	Other	9	0	0
20	2240.00	7.80	77.60	90.00	2236.81	6.81	3.48	62.20	62.30	86.80	1.80	Other	9	0	0
21	2329.00	8.30	68.70	89.00	2324.93	11.08	7.11	74.08	74.41	84.52	1.51	Other	9	0	0
22	2419.00	8.10	70.80	90.00	2414.01	16.16	11.55	86.12	86.91	82.36	0.40	Other	9	0	0
23	2509.00	7.70	71.60	90.00	2503.16	20.77	15.54	97.83	99.05	80.97	0.46	Other	9	0	0
24	2599.00	8.00	77.00	90.00	2592.32	24.71	18.85	109.65	111.25	80.24	0.88	Other	9	0	0
25	2689.00	9.20	78.20	90.00	2681.30	28.30	21.73	122.80	124.70	79.96	1.35	Other	9	0	0
26	2779.00	10.60	81.20	90.00	2769.96	31.85	24.47	138.02	140.19	79.95	1.66	Other	9	0	0
27	2868.00	10.50	77.90	89.00	2857.46	35.65	27.42	154.04	156.46	79.91	0.69	Other	9	0	0
28	2958.00	10.70	83.30	90.00	2945.93	39.22	30.12	170.36	173.00	79.97	1.13	Other	9	0	0
29	3048.00	10.30	87.50	90.00	3034.42	41.42	31.44	186.70	189.34	80.44	0.96	Other	9	0	0
30	3138.00	9.00	86.20	90.00	3123.14	43.05	32.26	201.76	204.33	80.92	1.46	Other	9	0	0
31	3228.00	8.50	79.80	90.00	3212.10	45.42	33.91	215.33	217.98	81.05	1.22	Other	9	0	0
32	3318.00	8.00	83.00	90.00	3301.17	48.04	35.85	228.09	230.91	81.07	0.75	Other	9	0	0
33	3407.00	8.50	81.10	89.00	3389.25	50.49	37.62	240.74	243.67	81.12	0.64	Other	9	0	0
34	3497.00	7.90	83.40	90.00	3478.33	52.91	39.36	253.45	256.50	81.17	0.76	Other	9	0	0
35	3587.00	6.70	82.40	90.00	3567.59	54.92	40.77	264.80	267.91	81.25	1.34	Other	9	0	0
36	3677.00	6.90	83.10	90.00	3656.96	56.83	42.11	275.37	278.58	81.31	0.24	Other	9	0	0
37	3767.00	7.00	93.00	90.00	3746.30	57.77	42.47	286.22	289.34	81.56	1.33	Other	9	0	0
38	3857.00	7.90	98.00	90.00	3835.54	57.25	41.32	297.82	300.66	82.10	1.23	Other	9	0	0
39	3946.00	9.70	98.40	89.00	3923.49	56.03	39.38	311.29	313.78	82.79	2.02	Other	9	0	0
40	4036.00	9.50	96.50	90.00	4012.23	54.88	37.43	326.17	328.31	83.45	0.42	Other	9	0	0
41	4126.00	8.40	94.30	90.00	4101.14	54.30	36.10	340.11	342.03	83.94	1.28	Other	9	0	0
42	4216.00	7.10	94.80	90.00	4190.31	53.99	35.14	352.21	353.97	84.30	1.45	Other	9	0	0
43	4306.00	8.00	86.80	90.00	4279.53	54.51	35.02	364.00	365.68	84.50	1.54	Other	9	0	0
44	4396.00	7.90	81.10	90.00	4368.67	56.48	36.33	376.37	378.12	84.49	0.88	Other	9	0	0
45	4486.00	8.90	78.60	90.00	4457.70	59.50	38.66	389.30	391.21	84.33	1.18	Other	9	0	0
46	4576.00	10.00	78.60	90.00	4546.48	63.20	41.58	403.79	405.94	84.12	1.22	Other	9	0	0
47	4666.00	9.40	76.10	90.00	4635.19	67.30	44.89	418.58	421.00	83.88	0.81	Other	9	0	0
48	4755.00	8.90	77.90	89.00	4723.06	71.22	48.08	432.37	435.04	83.65	0.65	Other	9	0	0
49	4845.00	9.00	79.70	90.00	4811.97	74.67	50.80	446.10	448.98	83.50	0.33	Other	9	0	0
50	4935.00	8.70	81.30	90.00	4900.89	77.69	53.09	459.76	462.83	83.41	0.43	Other	9	0	0
51	5025.00	7.90	76.00	90.00	4989.95	80.89	55.61	472.49	475.75	83.29	1.23	Other	9	0	0
52	5115.00	8.00	81.40	90.00	5079.09	83.98	58.05	484.68	488.16	83.17	0.84	Other	9	0	0
53	5205.00	9.10	86.80	90.00	5168.09	86.02	59.38	497.98	501.51	83.20	1.51	Other	9	0	0
54	5294.00	7.30	81.70	89.00	5256.18	87.91	60.59	510.60	514.17	83.23	2.18	Other	9	0	0

55	5384.00	8.00	84.10	90.00	5345.37	90.01	62.06	522.49	526.15	83.23	0.85	Other	9	0	0
56	5474.00	7.70	86.00	90.00	5434.53	91.73	63.12	534.74	538.45	83.27	0.44	Other	9	0	0
57	5564.00	5.40	84.00	90.00	5523.94	93.15	63.99	544.96	548.72	83.30	2.57	Other	9	0	0
58	5654.00	5.20	91.00	90.00	5613.55	93.96	64.36	553.25	556.99	83.36	0.75	Other	9	0	0
59	5744.00	4.30	91.40	90.00	5703.24	94.21	64.20	560.70	564.37	83.47	1.00	Other	9	0	0
60	5834.00	4.10	96.50	90.00	5793.00	94.12	63.76	567.27	570.83	83.59	0.47	Other	9	0	0
61	5923.00	2.80	92.30	89.00	5881.84	93.95	63.31	572.61	576.08	83.69	1.49	Other	9	0	0
62	6013.00	1.50	98.90	90.00	5971.77	93.86	63.04	575.97	579.40	83.75	1.47	Other	9	0	0
63	6103.00	0.50	192.30	90.00	6061.76	93.36	62.47	577.05	580.41	83.82	1.79	Other	9	0	0
64	6238.00	1.40	306.90	135.00	6196.75	93.69	62.89	575.60	579.04	83.76	1.24	Other	9	0	0
65	6283.00	3.40	322.90	45.00	6241.71	95.02	64.28	574.36	577.95	83.61	4.64	Other	9	0	0
66	6328.00	4.60	325.80	45.00	6286.60	97.48	66.84	572.54	576.44	83.34	2.70	Other	9	0	0
67	6373.00	4.50	313.50	45.00	6331.46	100.06	69.55	570.25	574.48	83.05	2.18	Other	9	0	0
68	6418.00	6.30	317.20	45.00	6376.26	102.92	72.57	567.29	571.92	82.71	4.07	Other	9	0	0
69	6463.00	6.80	323.40	45.00	6420.96	106.69	76.52	564.02	569.19	82.27	1.92	Other	9	0	0
70	6508.00	7.70	339.60	45.00	6465.61	111.51	81.49	561.38	567.26	81.74	4.94	Other	9	0	0
71	6553.00	10.50	345.40	45.00	6510.04	118.18	88.28	559.30	566.21	81.03	6.54	Other	9	0	0
72	6597.00	12.60	351.20	44.00	6553.15	126.70	96.91	557.55	565.91	80.14	5.45	Other	9	0	0
73	6642.00	15.30	0.30	45.00	6596.82	137.43	107.70	556.83	567.16	79.05	7.71	Other	9	0	0
74	6687.00	20.90	3.60	45.00	6639.58	151.40	121.66	557.37	570.51	77.69	12.65	Other	9	0	0
75	6732.00	26.70	6.00	45.00	6680.73	169.54	139.74	558.93	576.15	75.96	13.06	Other	9	0	0
76	6777.00	32.20	6.80	45.00	6719.90	191.62	161.72	561.41	584.22	73.93	12.25	Other	9	0	0
77	6822.00	38.20	5.90	45.00	6756.66	217.50	187.49	564.26	594.59	71.62	13.38	Other	9	0	0
78	6867.00	44.40	4.40	45.00	6790.45	247.17	217.05	566.90	607.02	69.05	13.95	Other	9	0	0
79	6912.00	50.40	3.10	45.00	6820.90	280.27	250.09	569.05	621.59	66.28	13.50	Other	9	0	0
80	6957.00	56.50	2.30	45.00	6847.68	316.41	286.18	570.74	638.48	63.37	13.63	Other	9	0	0
81	7001.00	62.50	4.10	44.00	6870.00	354.30	324.01	572.87	658.17	60.51	14.08	Other	9	0	0
82	7046.00	67.40	3.60	45.00	6889.05	395.05	364.68	575.61	681.40	57.64	10.94	Other	9	0	0
83	7091.00	73.00	2.90	45.00	6904.29	437.37	406.93	578.00	706.89	54.85	12.53	Other	9	0	0
84	7136.00	78.20	1.50	45.00	6915.48	480.94	450.47	579.67	734.12	52.15	11.94	Other	9	0	0
85	7181.00	83.20	0.70	45.00	6922.75	525.30	494.86	580.52	762.83	49.55	11.25	Other	9	0	0
86	7236.00	85.80	0.70	55.00	6928.02	580.00	549.59	581.19	799.90	46.60	4.73	Other	9	0	0
87	7339.00	86.39	0.87	103.00	6935.03	682.68	652.34	582.59	874.64	41.77	0.60	SlimPulse	9	0	0
88	7381.00	86.87	0.33	42.00	6937.50	724.56	694.27	583.03	906.59	40.02	1.72	SlimPulse	9	0	0
89	7430.00	88.66	0.20	49.00	6939.41	773.47	743.23	583.26	944.75	38.12	3.66	SlimPulse	9	0	0
90	7475.00	90.62	0.34	45.00	6939.70	818.41	788.23	583.47	980.68	36.51	4.37	SlimPulse	9	0	0
91	7520.00	90.17	1.24	45.00	6939.39	863.37	833.22	584.09	1017.55	35.03	2.24	SlimPulse	9	0	0
92	7565.00	89.86	0.85	45.00	6939.37	908.34	878.21	584.91	1055.18	33.66	1.11	SlimPulse	9	0	0
93	7610.00	89.97	0.49	45.00	6939.44	953.30	923.21	585.44	1093.18	32.38	0.84	SlimPulse	9	0	0
94	7654.00	89.72	0.87	44.00	6939.56	997.26	967.21	585.96	1130.87	31.21	1.03	SlimPulse	9	0	0
95	7699.00	89.83	0.80	45.00	6939.74	1042.23	1012.20	586.62	1169.91	30.09	0.29	SlimPulse	9	0	0
96	7744.00	89.76	0.43	45.00	6939.90	1087.19	1057.20	587.10	1209.28	29.05	0.84	SlimPulse	9	0	0
97	7789.00	89.69	0.78	45.00	6940.11	1132.15	1102.19	587.58	1249.02	28.06	0.79	SlimPulse	9	0	0
98	7834.00	89.90	2.53	45.00	6940.27	1177.13	1147.17	588.88	1289.50	27.17	3.92	SlimPulse	9	0	0
99	7879.00	90.07	1.79	45.00	6940.29	1222.12	1192.14	590.57	1330.41	26.35	1.69	SlimPulse	9	0	0
100	7924.00	90.10	0.97	45.00	6940.22	1267.10	1237.13	591.65	1371.33	25.56	1.82	SlimPulse	9	0	0
101	7969.00	89.79	0.59	45.00	6940.26	1312.07	1282.12	592.27	1412.30	24.79	1.09	SlimPulse	9	0	0
102	8014.00	89.73	1.15	45.00	6940.45	1357.03	1327.12	592.95	1453.54	24.07	1.25	SlimPulse	9	0	0
103	8059.00	90.21	2.48	45.00	6940.47	1402.02	1372.09	594.38	1495.31	23.42	3.14	SlimPulse	9	0	0
104	8104.00	89.73	2.24	45.00	6940.50	1447.02	1417.06	596.23	1537.37	22.82	1.19	SlimPulse	9	0	0
105	8149.00	89.76	0.13	45.00	6940.70	1491.99	1462.04	597.16	1579.30	22.22	4.69	SlimPulse	9	0	0
106	8193.00	89.73	359.05	44.00	6940.89	1535.91	1506.04	596.84	1619.98	21.62	2.46	SlimPulse	9	0	0
107	8238.00	89.93	359.18	45.00	6941.03	1580.80	1551.04	596.15	1661.65	21.02	0.53	SlimPulse	9	0	0
108	8283.00	90.00	358.54	45.00	6941.06	1625.68	1596.03	595.25	1703.41	20.45	1.43	SlimPulse	9	0	0



109	8328.00	90.03	358.10	45.00	6941.04	1670.52	1641.01	593.94	1745.18	19.90	0.98	SlimPulse	9	0	0
110	8373.00	89.66	357.70	45.00	6941.17	1715.34	1685.98	592.29	1786.98	19.36	1.21	SlimPulse	9	0	0
111	8418.00	89.90	359.26	45.00	6941.34	1760.19	1730.96	591.09	1829.10	18.85	3.51	SlimPulse	9	0	0
112	8463.00	89.86	359.21	45.00	6941.43	1805.09	1775.95	590.49	1871.56	18.39	0.14	SlimPulse	9	0	0
113	8508.00	89.83	358.74	45.00	6941.55	1849.98	1820.95	589.69	1914.04	17.94	1.05	SlimPulse	9	0	0
114	8553.00	89.86	359.11	45.00	6941.68	1894.86	1865.94	588.84	1956.66	17.51	0.82	SlimPulse	9	0	0
115	8597.00	89.90	358.62	44.00	6941.77	1938.74	1909.93	587.97	1998.39	17.11	1.12	SlimPulse	9	0	0
116	8642.00	89.86	359.39	45.00	6941.86	1983.62	1954.92	587.19	2041.21	16.72	1.71	SlimPulse	9	0	0
117	8687.00	89.90	358.44	45.00	6941.96	2028.50	1999.91	586.34	2084.09	16.34	2.11	SlimPulse	9	0	0
118	8732.00	89.93	358.35	45.00	6942.02	2073.35	2044.90	585.08	2126.94	15.97	0.21	SlimPulse	9	0	0
119	8777.00	89.79	358.80	45.00	6942.13	2118.21	2089.88	583.96	2169.95	15.61	1.05	SlimPulse	9	0	0
120	8822.00	89.90	358.44	45.00	6942.25	2163.08	2134.87	582.87	2213.02	15.27	0.84	SlimPulse	9	0	0
121	8867.00	89.90	357.61	45.00	6942.33	2207.90	2179.84	581.32	2256.04	14.93	1.84	SlimPulse	9	0	0
122	8912.00	89.79	357.76	45.00	6942.45	2252.70	2224.80	579.51	2299.05	14.60	0.41	SlimPulse	9	0	0
123	8957.00	89.97	359.11	45.00	6942.55	2297.56	2269.79	578.28	2342.29	14.29	3.03	SlimPulse	9	0	0
124	9002.00	89.97	358.70	45.00	6942.57	2342.44	2314.78	577.42	2385.70	14.01	0.91	SlimPulse	9	0	0
125	9047.00	89.83	358.66	45.00	6942.65	2387.30	2359.77	576.38	2429.13	13.73	0.32	SlimPulse	9	0	0
126	9092.00	89.97	357.65	45.00	6942.73	2432.14	2404.74	574.93	2472.51	13.45	2.27	SlimPulse	9	0	0
127	9137.00	89.76	358.67	45.00	6942.84	2476.97	2449.72	573.49	2515.94	13.18	2.31	SlimPulse	9	0	0
128	9182.00	89.97	358.67	45.00	6942.94	2521.84	2494.71	572.44	2559.55	12.92	0.47	SlimPulse	9	0	0
129	9226.00	89.38	359.25	44.00	6943.19	2565.72	2538.70	571.64	2602.26	12.69	1.88	SlimPulse	9	0	0
130	9271.00	89.45	358.38	45.00	6943.65	2610.60	2583.69	570.71	2645.96	12.46	1.94	SlimPulse	9	0	0
131	9316.00	89.31	358.18	45.00	6944.14	2655.44	2628.66	569.36	2689.63	12.22	0.54	SlimPulse	9	0	0
132	9361.00	89.45	358.66	45.00	6944.62	2700.28	2673.64	568.12	2733.33	12.00	1.11	SlimPulse	9	0	0
133	9406.00	89.45	358.29	45.00	6945.06	2745.14	2718.62	566.92	2777.10	11.78	0.82	SlimPulse	9	0	0
134	9451.00	89.31	358.20	45.00	6945.54	2789.97	2763.60	565.55	2820.87	11.57	0.37	SlimPulse	9	0	0
135	9496.00	89.45	358.79	45.00	6946.03	2834.83	2808.58	564.36	2864.73	11.36	1.35	SlimPulse	9	0	0
136	9541.00	89.42	358.47	45.00	6946.47	2879.69	2853.57	563.29	2908.63	11.17	0.71	SlimPulse	9	0	0
137	9586.00	89.38	358.71	45.00	6946.95	2924.55	2898.55	562.18	2952.56	10.98	0.54	SlimPulse	9	0	0
138	9631.00	89.45	358.74	45.00	6947.41	2969.42	2943.54	561.18	2996.56	10.79	0.17	SlimPulse	9	0	0
139	9676.00	89.21	0.93	45.00	6947.93	3014.34	2988.53	561.05	3040.75	10.63	4.90	SlimPulse	9	0	0
140	9720.00	89.31	1.01	44.00	6948.50	3058.31	3032.52	561.80	3084.12	10.50	0.29	SlimPulse	9	0	0
141	9765.00	89.42	0.65	45.00	6949.00	3103.27	3077.51	562.45	3128.48	10.36	0.84	SlimPulse	9	0	0
142	9810.00	89.42	0.23	45.00	6949.45	3148.22	3122.51	562.79	3172.83	10.22	0.93	SlimPulse	9	0	0
143	9855.00	89.55	0.23	45.00	6949.86	3193.16	3167.51	562.97	3217.16	10.08	0.29	SlimPulse	9	0	0
144	9900.00	89.35	0.66	45.00	6950.29	3238.11	3212.50	563.32	3261.52	9.95	1.05	SlimPulse	9	0	0
145	9945.00	89.38	0.60	45.00	6950.79	3283.07	3257.50	563.82	3305.94	9.82	0.15	SlimPulse	9	0	0
146	9990.00	89.31	0.39	45.00	6951.30	3328.02	3302.49	564.21	3350.33	9.69	0.49	SlimPulse	9	0	0
147	10035.00	89.28	0.86	45.00	6951.86	3372.97	3347.49	564.70	3394.78	9.58	1.05	SlimPulse	9	0	0
148	10080.00	89.28	0.55	45.00	6952.42	3417.93	3392.48	565.25	3439.24	9.46	0.69	SlimPulse	9	0	0
149	10125.00	89.31	0.41	45.00	6952.98	3462.88	3437.48	565.63	3483.69	9.34	0.32	SlimPulse	9	0	0
150	10169.00	89.31	0.83	44.00	6953.51	3506.84	3481.47	566.10	3527.20	9.24	0.95	SlimPulse	9	0	0
151	10214.00	89.55	0.30	45.00	6953.95	3551.79	3526.47	566.55	3571.69	9.13	1.29	SlimPulse	9	0	0
152	10259.00	89.14	1.30	45.00	6954.47	3596.75	3571.46	567.18	3616.21	9.02	2.40	SlimPulse	9	0	0
153	10304.00	89.35	2.16	45.00	6955.06	3641.74	3616.43	568.53	3660.86	8.93	1.97	SlimPulse	9	0	0
154	10349.00	89.35	0.82	45.00	6955.57	3686.72	3661.41	569.70	3705.48	8.84	2.98	SlimPulse	9	0	0
155	10394.00	89.35	2.25	45.00	6956.08	3731.70	3706.39	570.91	3750.10	8.76	3.18	SlimPulse	9	0	0
156	10439.00	89.31	1.16	45.00	6956.61	3776.68	3751.37	572.25	3794.75	8.67	2.42	SlimPulse	9	0	0
157	10484.00	89.31	1.18	45.00	6957.15	3821.65	3796.36	573.17	3839.37	8.59	0.04	SlimPulse	9	0	0
158	10529.00	89.38	1.05	45.00	6957.66	3866.62	3841.35	574.04	3883.99	8.50	0.33	SlimPulse	9	0	0
159	10573.00	89.28	0.86	44.00	6958.18	3910.59	3885.34	574.78	3927.62	8.41	0.49	SlimPulse	9	0	0
160	10618.00	89.17	0.44	45.00	6958.79	3955.54	3930.33	575.29	3972.21	8.33	0.96	SlimPulse	9	0	0
161	10663.00	89.45	0.62	45.00	6959.33	4000.50	3975.32	575.70	4016.80	8.24	0.74	SlimPulse	9	0	0
162	10708.00	89.31	1.37	45.00	6959.82	4045.46	4020.31	576.48	4061.45	8.16	1.70	SlimPulse	9	0	0

162	10762.00	89.31	1.97	32.00	6969.32	4076.43	4020.37	578.18	4301.13	8.18	1.78	SlimPulse	9	0	0
163	10740.00	89.31	1.74	32.00	6960.20	4077.45	4052.30	577.35	4093.21	8.11	1.16	SlimPulse	9	0	0
164	10772.00	89.45	1.45	32.00	6960.55	4109.44	4084.29	578.24	4125.00	8.06	1.01	SlimPulse	9	0	0
165	10802.00	89.45	0.97	30.00	6960.84	4139.42	4114.28	578.88	4154.79	8.01	1.60	SlimPulse	9	0	0
166	10834.00	89.38	0.91	32.00	6961.16	4171.40	4146.27	579.40	4186.55	7.96	0.29	SlimPulse	9	0	0
167	10864.00	89.45	0.83	30.00	6961.47	4201.37	4176.27	579.86	4216.34	7.90	0.35	SlimPulse	9	0	0
168	10896.00	89.28	0.62	32.00	6961.82	4233.34	4208.26	580.26	4248.06	7.85	0.84	SlimPulse	9	0	0
169	10927.00	89.42	0.86	31.00	6962.18	4264.31	4239.26	580.66	4278.84	7.80	0.90	SlimPulse	9	0	0
170	10957.00	89.31	0.88	30.00	6962.51	4294.29	4269.25	581.12	4308.63	7.75	0.37	SlimPulse	9	0	0
171	10989.00	89.62	0.82	32.00	6962.81	4326.27	4301.25	581.59	4340.39	7.70	0.99	SlimPulse	9	0	0
172	11020.00	89.38	0.77	31.00	6963.08	4357.24	4332.24	582.02	4371.16	7.65	0.79	SlimPulse	9	0	0
173	11050.00	89.52	359.99	30.00	6963.37	4387.20	4362.24	582.22	4400.92	7.60	2.64	SlimPulse	9	0	0
174	11080.00	89.35	358.42	30.00	6963.66	4417.13	4392.24	581.80	4430.61	7.55	5.26	SlimPulse	9	0	0
175	11112.00	89.45	358.17	32.00	6964.00	4449.02	4424.22	580.85	4462.17	7.48	0.84	SlimPulse	9	0	0
176	11143.00	89.38	358.44	31.00	6964.31	4479.91	4455.20	579.94	4492.78	7.42	0.90	SlimPulse	9	0	0
177	11174.00	89.35	358.59	31.00	6964.66	4510.81	4486.19	579.13	4523.43	7.36	0.49	SlimPulse	9	0	0
178	11206.00	89.42	357.87	32.00	6965.00	4542.69	4518.18	578.14	4555.02	7.29	2.26	SlimPulse	9	0	0
179	11236.00	89.21	358.25	30.00	6965.36	4572.58	4548.16	577.13	4584.61	7.23	1.45	SlimPulse	9	0	0
180	11268.00	89.35	358.65	32.00	6965.76	4604.47	4580.14	576.26	4616.24	7.17	1.32	SlimPulse	9	0	0
181	11299.00	89.38	358.12	31.00	6966.10	4635.36	4611.13	575.39	4646.88	7.11	1.71	SlimPulse	9	0	0
182	11330.00	89.42	358.24	31.00	6966.43	4666.25	4642.11	574.41	4677.53	7.05	0.41	SlimPulse	9	0	0
183	11361.00	89.42	358.29	31.00	6966.74	4697.14	4673.09	573.47	4708.14	7.00	0.16	SlimPulse	9	0	0
184	11392.00	89.35	358.02	31.00	6967.08	4728.02	4704.08	572.47	4738.78	6.94	0.90	SlimPulse	9	0	0
185	11424.00	89.52	358.02	32.00	6967.39	4759.90	4736.06	571.36	4770.41	6.88	0.53	SlimPulse	9	0	0
186	11455.00	89.24	357.93	31.00	6967.73	4790.77	4767.03	570.27	4801.02	6.82	0.95	SlimPulse	9	0	0
187	11487.00	89.38	358.28	32.00	6968.11	4822.65	4799.01	569.21	4832.64	6.76	1.18	SlimPulse	9	0	0
188	11518.00	89.31	358.91	31.00	6968.47	4853.55	4830.00	568.45	4863.35	6.71	2.04	SlimPulse	9	0	0
189	11549.00	89.38	358.48	31.00	6968.82	4884.46	4860.99	567.74	4894.03	6.66	1.41	SlimPulse	9	0	0
190	11580.00	89.42	358.20	31.00	6969.15	4915.35	4891.98	566.85	4924.70	6.61	0.91	SlimPulse	9	0	0
191	11611.00	89.38	358.17	31.00	6969.47	4946.24	4922.96	565.86	4955.38	6.56	0.16	SlimPulse	9	0	0
192	11642.00	89.31	357.63	31.00	6969.82	4977.11	4953.94	564.73	4986.02	6.50	1.76	SlimPulse	9	0	0
193	11673.00	89.21	358.54	31.00	6970.22	5007.99	4984.92	563.69	5016.70	6.45	2.95	SlimPulse	9	0	0
194	11705.00	89.42	358.50	32.00	6970.61	5039.89	5016.90	562.87	5048.39	6.40	0.67	SlimPulse	9	0	0
195	11735.00	89.31	358.45	30.00	6970.94	5069.79	5046.89	562.07	5078.08	6.35	0.40	SlimPulse	9	0	0
196	11767.00	89.35	358.46	32.00	6971.31	5101.68	5078.88	561.20	5109.78	6.31	0.13	SlimPulse	9	0	0
197	11798.00	89.38	358.72	31.00	6971.66	5132.58	5109.87	560.44	5140.52	6.26	0.84	SlimPulse	9	0	0
198	11829.00	89.38	358.79	31.00	6971.99	5163.49	5140.86	559.77	5171.23	6.21	0.23	SlimPulse	9	0	0
199	11861.00	89.45	358.74	32.00	6972.32	5195.40	5172.85	559.08	5202.99	6.17	0.27	SlimPulse	9	0	0
200	11892.00	89.38	358.58	31.00	6972.64	5226.31	5203.84	558.35	5233.69	6.12	0.56	SlimPulse	9	0	0
201	11924.00	89.42	358.85	32.00	6972.97	5258.21	5235.83	557.64	5265.45	6.08	0.85	SlimPulse	9	0	0
202	11954.00	89.38	359.03	30.00	6973.29	5288.13	5265.82	557.08	5295.21	6.04	0.61	SlimPulse	9	0	0
203	11985.00	89.42	358.72	31.00	6973.61	5319.05	5296.81	556.47	5325.95	6.00	1.01	SlimPulse	9	0	0
204	12016.00	89.28	358.01	31.00	6973.96	5349.94	5327.80	555.59	5356.69	5.95	2.33	SlimPulse	9	0	0
205	12047.00	89.42	358.06	31.00	6974.31	5380.82	5358.78	554.53	5387.40	5.91	0.48	SlimPulse	9	0	0
206	12078.00	89.31	357.96	31.00	6974.66	5411.70	5389.76	553.45	5418.11	5.86	0.48	SlimPulse	9	0	0
207	12110.00	89.38	358.23	32.00	6975.02	5443.57	5421.74	552.39	5449.80	5.82	0.87	SlimPulse	9	0	0
208	12141.00	89.28	358.94	31.00	6975.39	5474.48	5452.73	551.62	5480.54	5.78	2.31	SlimPulse	9	0	0
209	12172.00	89.35	359.30	31.00	6975.76	5505.40	5483.72	551.14	5511.35	5.74	1.18	SlimPulse	9	0	0
210	12203.00	89.38	359.86	31.00	6976.10	5536.34	5514.72	550.92	5542.16	5.70	1.81	SlimPulse	9	0	0
211	12248.00	89.38	0.08	45.00	6976.59	5581.27	5559.72	550.89	5586.94	5.66	0.49	SlimPulse	9	0	0
212	12293.00	89.38	0.95	45.00	6977.07	5626.22	5604.71	551.30	5631.76	5.62	1.93	SlimPulse	9	0	0
213	12338.00	89.38	0.85	45.00	6977.56	5671.19	5649.70	552.00	5676.61	5.58	0.22	SlimPulse	9	0	0
214	12383.00	89.31	0.68	45.00	6978.07	5716.15	5694.70	552.60	5721.46	5.54	0.41	SlimPulse	9	0	0
215	12428.00	89.62	0.66	45.00	6978.49	5761.11	5739.69	553.13	5766.27	5.50	0.69	SlimPulse	9	0	0
216	12473.00	89.52	1.50	45.00	6978.82	5806.08	5784.68	554.01	5811.15	5.47	2.08	SlimPulse	9	0	0

216	12473.00	89.52	1.39	45.00	6978.83	5806.08	5784.68	534.01	5811.15	5.47	2.08	SlimPulse	9	0	0
217	12518.00	89.48	0.83	45.00	6979.23	5851.05	5829.67	554.96	5856.04	5.44	1.69	SlimPulse	9	0	0
218	12562.00	89.28	1.13	44.00	6979.70	5895.02	5873.66	555.72	5899.90	5.40	0.82	SlimPulse	9	0	0
219	12607.00	89.42	359.93	45.00	6980.21	5939.97	5918.65	556.13	5944.72	5.37	2.68	SlimPulse	9	0	0
220	12652.00	89.31	359.99	45.00	6980.71	5984.90	5963.65	556.10	5989.53	5.33	0.28	SlimPulse	9	0	0
221	12697.00	89.24	1.42	45.00	6981.28	6029.86	6008.64	556.66	6034.38	5.29	3.18	SlimPulse	9	0	0
222	12742.00	89.38	0.22	45.00	6981.82	6074.82	6053.63	557.30	6079.23	5.26	2.68	SlimPulse	9	0	0
223	12787.00	89.45	359.73	45.00	6982.28	6119.75	6098.63	557.28	6124.05	5.22	1.10	SlimPulse	9	0	0
224	12832.00	89.31	0.74	45.00	6982.77	6164.69	6143.63	557.46	6168.86	5.18	2.27	SlimPulse	9	0	0
225	12877.00	89.42	0.42	45.00	6983.27	6209.65	6188.62	557.92	6213.71	5.15	0.75	SlimPulse	9	0	0
226	12922.00	89.35	0.52	45.00	6983.75	6254.60	6233.62	558.29	6258.56	5.12	0.27	SlimPulse	9	0	0
227	12966.00	89.45	0.34	44.00	6984.21	6298.55	6277.61	558.62	6302.43	5.09	0.47	SlimPulse	9	0	0
228	13011.00	89.45	0.06	45.00	6984.64	6343.49	6322.61	558.78	6347.24	5.05	0.62	SlimPulse	9	0	0
229	13056.00	89.59	0.56	45.00	6985.02	6388.44	6367.61	559.02	6392.09	5.02	1.15	SlimPulse	9	0	0
230	13101.00	89.24	0.12	45.00	6985.48	6433.38	6412.61	559.29	6436.94	4.98	1.25	SlimPulse	9	0	0
231	13146.00	89.48	359.90	45.00	6985.98	6478.32	6457.60	559.29	6481.79	4.95	0.72	SlimPulse	9	0	0
232	13191.00	89.59	0.47	45.00	6986.35	6523.26	6502.60	559.44	6526.61	4.92	1.29	SlimPulse	9	0	0
233	13236.00	89.35	357.93	45.00	6986.76	6568.15	6547.59	558.81	6571.39	4.88	5.67	SlimPulse	9	0	0
234	13281.00	89.35	0.21	45.00	6987.27	6613.03	6592.58	558.08	6616.17	4.84	5.07	SlimPulse	9	0	0
235	13326.00	89.55	359.77	45.00	6987.71	6657.96	6637.58	558.07	6660.99	4.81	1.07	SlimPulse	9	0	0
236	13371.00	89.31	0.15	45.00	6988.15	6702.90	6682.58	558.04	6705.84	4.77	1.00	SlimPulse	9	0	0
237	13415.00	89.38	0.11	44.00	6988.66	6746.83	6726.57	558.14	6749.70	4.74	0.18	SlimPulse	9	0	0
238	13460.00	89.42	359.80	45.00	6989.13	6791.77	6771.57	558.11	6794.52	4.71	0.69	SlimPulse	9	0	0
239	13505.00	89.38	0.46	45.00	6989.60	6836.70	6816.57	558.21	6839.37	4.68	1.47	SlimPulse	9	0	0
240	13550.00	89.35	0.93	45.00	6990.10	6881.66	6861.56	558.75	6884.28	4.66	1.05	SlimPulse	9	0	0
241	13595.00	89.42	0.83	45.00	6990.58	6926.63	6906.55	559.45	6929.17	4.63	0.27	SlimPulse	9	0	0
242	13640.00	89.35	0.73	45.00	6991.06	6971.59	6951.55	560.06	6974.08	4.61	0.27	SlimPulse	9	0	0
243	13685.00	89.35	0.22	45.00	6991.57	7016.54	6996.54	560.43	7018.96	4.58	1.13	SlimPulse	9	0	0
244	13730.00	89.38	1.02	45.00	6992.07	7061.49	7041.54	560.92	7063.85	4.55	1.78	SlimPulse	9	0	0
245	13775.00	89.52	0.60	45.00	6992.51	7106.46	7086.53	561.55	7108.76	4.53	0.98	SlimPulse	9	0	0
246	13819.00	89.28	0.97	44.00	6992.97	7150.42	7130.52	562.16	7152.66	4.51	1.00	SlimPulse	9	0	0
247	13864.00	89.31	0.37	45.00	6993.52	7195.37	7175.52	562.68	7197.54	4.48	1.33	SlimPulse	9	0	0
248	13909.00	89.45	0.19	45.00	6994.01	7240.32	7220.51	562.90	7242.42	4.46	0.51	SlimPulse	9	0	0
249	13954.00	89.48	0.29	45.00	6994.43	7285.26	7265.51	563.09	7287.30	4.43	0.23	SlimPulse	9	0	0
250	13999.00	89.35	0.59	45.00	6994.89	7330.21	7310.51	563.44	7332.19	4.41	0.73	SlimPulse	9	0	0
251	14044.00	89.38	0.22	45.00	6995.38	7375.16	7355.50	563.76	7377.07	4.38	0.82	SlimPulse	9	0	0
252	14089.00	89.52	0.35	45.00	6995.82	7420.10	7400.50	563.98	7421.95	4.36	0.42	SlimPulse	9	0	0
253	14134.00	89.31	359.48	45.00	6996.28	7465.03	7445.50	563.91	7466.83	4.33	1.99	SlimPulse	9	0	0
254	14179.00	89.38	359.30	45.00	6996.79	7509.94	7490.49	563.43	7511.65	4.30	0.43	SlimPulse	9	0	0
255	14224.00	89.42	0.56	45.00	6997.26	7554.86	7535.49	563.38	7556.53	4.28	2.80	SlimPulse	9	0	0
256	14268.00	89.45	0.31	44.00	6997.70	7598.82	7579.48	563.71	7600.43	4.25	0.57	SlimPulse	9	0	0
257	14313.00	89.52	359.90	45.00	6998.10	7643.75	7624.48	563.79	7645.31	4.23	0.92	SlimPulse	9	0	0
258	14358.00	89.45	0.32	45.00	6998.50	7688.69	7669.48	563.88	7690.19	4.20	0.95	SlimPulse	9	0	0
259	14403.00	89.35	0.05	45.00	6998.98	7733.63	7714.48	564.03	7735.07	4.18	0.64	SlimPulse	9	0	0
260	14448.00	89.59	1.29	45.00	6999.39	7778.59	7759.47	564.55	7779.99	4.16	2.81	SlimPulse	9	0	0
261	14493.00	89.66	1.48	45.00	6999.69	7823.57	7804.46	565.64	7824.93	4.15	0.45	SlimPulse	9	0	0
262	14538.00	90.00	0.25	45.00	6999.82	7868.53	7849.45	566.32	7869.85	4.13	2.84	SlimPulse	9	0	0
263	14583.00	90.07	359.97	45.00	6999.79	7913.47	7894.45	566.41	7914.73	4.10	0.64	SlimPulse	9	0	0
264	14627.00	90.00	0.51	44.00	6999.77	7957.42	7938.45	566.59	7958.63	4.08	1.24	SlimPulse	9	0	0
265	14672.00	90.00	1.03	45.00	6999.77	8002.38	7983.45	567.20	8003.58	4.06	1.16	SlimPulse	9	0	0
266	14717.00	90.41	0.76	45.00	6999.60	8047.35	8028.44	567.90	8048.49	4.05	1.09	SlimPulse	9	0	0
267	14762.00	90.38	0.32	45.00	6999.29	8092.30	8073.44	568.32	8093.41	4.03	0.98	SlimPulse	9	0	0
268	14807.00	90.34	359.78	45.00	6999.01	8137.24	8118.44	568.36	8138.32	4.00	1.20	SlimPulse	9	0	0
269	14852.00	90.27	0.23	45.00	6998.77	8182.17	8163.44	568.37	8183.20	3.98	1.01	SlimPulse	9	0	0
270	14897.00	90.38	1.44	45.00	6998.52	8227.14	8208.43	569.02	8228.12	3.97	2.70	SlimPulse	9	0	0

271	14941.00	90.41	0.29	44.00	6998.21	8271.10	8252.42	569.69	8272.05	3.95	2.61	SlimPulse	9	0	0
272	14986.00	90.34	359.92	45.00	6997.92	8316.04	8297.42	569.77	8316.96	3.93	0.84	SlimPulse	9	0	0
273	15031.00	90.38	0.15	45.00	6997.64	8360.98	8342.42	569.80	8361.84	3.91	0.52	SlimPulse	9	0	0
274	15076.00	90.55	359.78	45.00	6997.27	8405.91	8387.42	569.77	8406.76	3.89	0.90	SlimPulse	9	0	0
275	15121.00	90.48	1.48	45.00	6996.87	8450.87	8432.41	570.26	8451.67	3.87	3.78	SlimPulse	9	0	0
276	15166.00	90.38	0.93	45.00	6996.53	8495.84	8477.40	571.21	8496.62	3.85	1.24	SlimPulse	9	0	0
277	15211.00	90.38	0.68	45.00	6996.23	8540.80	8522.40	571.84	8541.57	3.84	0.56	SlimPulse	9	0	0
278	15256.00	90.31	0.56	45.00	6995.96	8585.76	8567.39	572.33	8586.48	3.82	0.31	SlimPulse	9	0	0
279	15301.00	90.55	0.42	45.00	6995.62	8630.71	8612.39	572.71	8631.40	3.80	0.62	SlimPulse	9	0	0
280	15346.00	90.41	358.50	45.00	6995.25	8675.62	8657.38	572.29	8676.28	3.78	4.28	SlimPulse	9	0	0
281	15391.00	90.34	358.60	45.00	6994.95	8720.48	8702.37	571.15	8721.10	3.76	0.27	SlimPulse	9	0	0
282	15435.00	90.17	358.17	44.00	6994.75	8764.33	8746.35	569.91	8764.90	3.73	1.05	SlimPulse	9	0	0
283	15480.00	90.48	358.94	45.00	6994.50	8809.19	8791.33	568.78	8809.71	3.70	1.84	SlimPulse	9	0	0
284	15525.00	90.45	358.91	45.00	6994.13	8854.07	8836.33	567.93	8854.56	3.68	0.09	SlimPulse	9	0	0
285	15570.00	90.34	358.24	45.00	6993.82	8898.93	8881.31	566.81	8899.38	3.65	1.51	SlimPulse	9	0	0
286	15615.00	90.34	358.67	45.00	6993.56	8943.78	8926.29	565.60	8944.19	3.63	0.96	SlimPulse	9	0	0
287	15660.00	90.48	358.59	45.00	6993.23	8988.65	8971.28	564.52	8989.01	3.60	0.36	SlimPulse	9	0	0
288	15705.00	90.38	358.31	45.00	6992.90	9033.50	9016.26	563.31	9033.83	3.58	0.66	SlimPulse	9	0	0
289	15750.00	89.11	358.52	45.00	6993.10	9078.35	9061.24	562.06	9078.64	3.55	2.86	SlimPulse	9	0	0
290	15795.00	89.42	359.44	45.00	6993.67	9123.23	9106.23	561.26	9123.52	3.53	2.16	SlimPulse	9	0	0
291	15840.00	89.38	358.76	45.00	6994.15	9168.12	9151.22	560.55	9168.37	3.51	1.51	SlimPulse	9	0	0
292	15885.00	89.28	358.12	45.00	6994.67	9212.97	9196.20	559.33	9213.19	3.48	1.44	SlimPulse	9	0	0
293	15930.00	89.24	358.13	45.00	6995.25	9257.80	9241.17	557.86	9258.01	3.45	0.09	SlimPulse	9	0	0
294	15975.00	89.28	357.95	45.00	6995.83	9302.62	9286.14	556.32	9302.79	3.43	0.41	SlimPulse	9	0	0
295	16019.00	89.42	358.93	44.00	6996.33	9346.47	9330.13	555.12	9346.62	3.40	2.25	SlimPulse	9	0	0
296	16064.00	89.21	357.85	45.00	6996.87	9391.32	9375.10	553.86	9391.44	3.38	2.44	SlimPulse	9	0	0
297	16109.00	88.63	357.17	45.00	6997.72	9436.10	9420.05	551.90	9436.22	3.35	1.99	SlimPulse	9	0	0
298	16154.00	88.73	359.18	45.00	6998.76	9480.92	9465.02	550.47	9481.00	3.33	4.47	SlimPulse	9	0	0
299	16199.00	88.90	359.30	45.00	6999.69	9525.81	9510.00	549.87	9525.89	3.31	0.46	SlimPulse	9	0	0
300	16244.00	88.90	358.99	45.00	7000.55	9570.69	9554.99	549.20	9570.77	3.29	0.69	SlimPulse	9	0	0
301	16289.00	88.83	359.39	45.00	7001.44	9615.58	9599.98	548.56	9615.65	3.27	0.90	SlimPulse	9	0	0
302	16334.00	88.87	358.20	45.00	7002.35	9660.45	9644.96	547.62	9660.50	3.25	2.65	SlimPulse	9	0	0
303	16379.00	88.83	357.69	45.00	7003.25	9705.26	9689.92	546.00	9705.28	3.23	1.14	SlimPulse	9	0	0
304	16424.00	88.76	358.71	45.00	7004.20	9750.08	9734.88	544.59	9750.10	3.20	2.27	SlimPulse	9	0	0
305	16469.00	88.83	358.59	45.00	7005.14	9794.94	9779.86	543.53	9794.95	3.18	0.31	SlimPulse	9	0	0
306	16514.00	88.80	358.50	45.00	7006.07	9839.79	9824.84	542.39	9839.80	3.16	0.21	SlimPulse	9	0	0
307	16559.00	88.76	358.39	45.00	7007.03	9884.63	9869.81	541.17	9884.65	3.14	0.26	SlimPulse	9	0	0
308	16604.00	88.80	0.76	45.00	7007.99	9929.53	9914.80	540.83	9929.53	3.12	5.27	SlimPulse	9	0	0
309	16648.00	88.80	1.18	44.00	7008.91	9973.49	9958.78	541.58	9973.49	3.11	0.95	SlimPulse	9	0	0
310	16693.00	88.87	0.40	45.00	7009.82	10018.45	10003.77	542.20	10018.44	3.10	1.74	SlimPulse	9	0	0
311	16738.00	89.42	1.35	45.00	7010.50	10063.41	10048.76	542.89	10063.42	3.09	2.44	SlimPulse	9	0	0
312	16783.00	89.24	1.41	45.00	7011.02	10108.39	10093.74	543.97	10108.40	3.08	0.42	SlimPulse	9	0	0
313	16828.00	89.38	0.86	45.00	7011.56	10153.36	10138.73	544.86	10153.35	3.08	1.26	SlimPulse	9	0	0
314	16871.00	89.38	0.86	43.00	7012.03	10196.32	10181.72	545.51	10196.33	3.07	0.00	Other	9	0	7

Calibration Report

SPULSE-GEN (SlimPulse with Generic Collar) Calibration - Run 1									
Primary Equipment :									
Elec. cartridge, 150C max with GR				SPEC			855		
GRGain - Gamma Ray: Blanket									
Master (Time Frame File): 12:00:00 24-Jun-2014									
Measurement		Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div></div>	
Gamma Ray Calibration Gain			Master	1.0000	0.9000	1.0964	1.1000	<div><div></div><div></div><div></div></div>	

SPULSE-GEN (SlimPulse with Generic Collar) Calibration - Run 2

Primary Equipment :	Elec. cartridge, 150C max with GR	SPEC	679
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GRGain - Gamma Ray: Blanket

Master (Time Frame File):	12:00:00 09-Aug-2014						
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Gamma Ray Calibration Gain		Master	1.0000	0.9000	1.0699	1.1000	

Company:	Noble Energy	
Well:	Heartland C30-79-1HN	
Field:	Wattenberg	
County:	Weld	
State:	Colorado	
Country:	U.S.A.	



SlimPulse - Gamma Ray



2 in. / 100 ft and 5 in. / 100 ft Measured Depth

