

Company: Noble Energy Inc

Well: Vogler State D21-780

Field: Wattenberg

County: Weld State: Colorado

Neutron Log

Weld
Wattenberg
200' FNL & 660' FWL
Vogler State D21-780
Noble Energy Inc

Location:		200' FNL & 660' FWL Sec 21. T3N. 64W	Elev.: K.B. 4820.00 ft G.L. 4790.00 ft D.F. 4820.00 ft
Permanent Datum:	Ground Level		Elev.: 4790.00 f
Log Measured From:	Kelly Bushing		30.00 ft above Perm.Datum
Drilling Measured From:	Kelly Bushing		
API Serial No.	Section:	Township:	Range:
05-123-48572	21	3N	64W

Logging Date 14-Apr-2019

Run Number One

Depth Driller 17660.00 ft

Schlumberger Depth 6481.00 ft

Bottom Log Interval 6481.00 ft

Top Log Interval 75.00 ft

Casing Fluid Type Brine

Salinity

Density 8.4 lbm/gal

Fluid Level 8.00 ft

BIT/CASING/TUBING STRING

Bit Size 8.50 in

From 1946.00 ft

To 17660.00 ft

Casing/Tubing Size 5.5 in

Weight 17 lbm/ft

Grade P110

From 0.00 ft

To 17642.80 ft

Max Recorded Temperatures 219 degF

Logger on Bottom 14-Apr-2019 10:30:00

Unit Number Location: 2161 Fort Morgan

Recorded By Beatriz Guaita

Witnessed By Bill Mansfield

Disclaimer

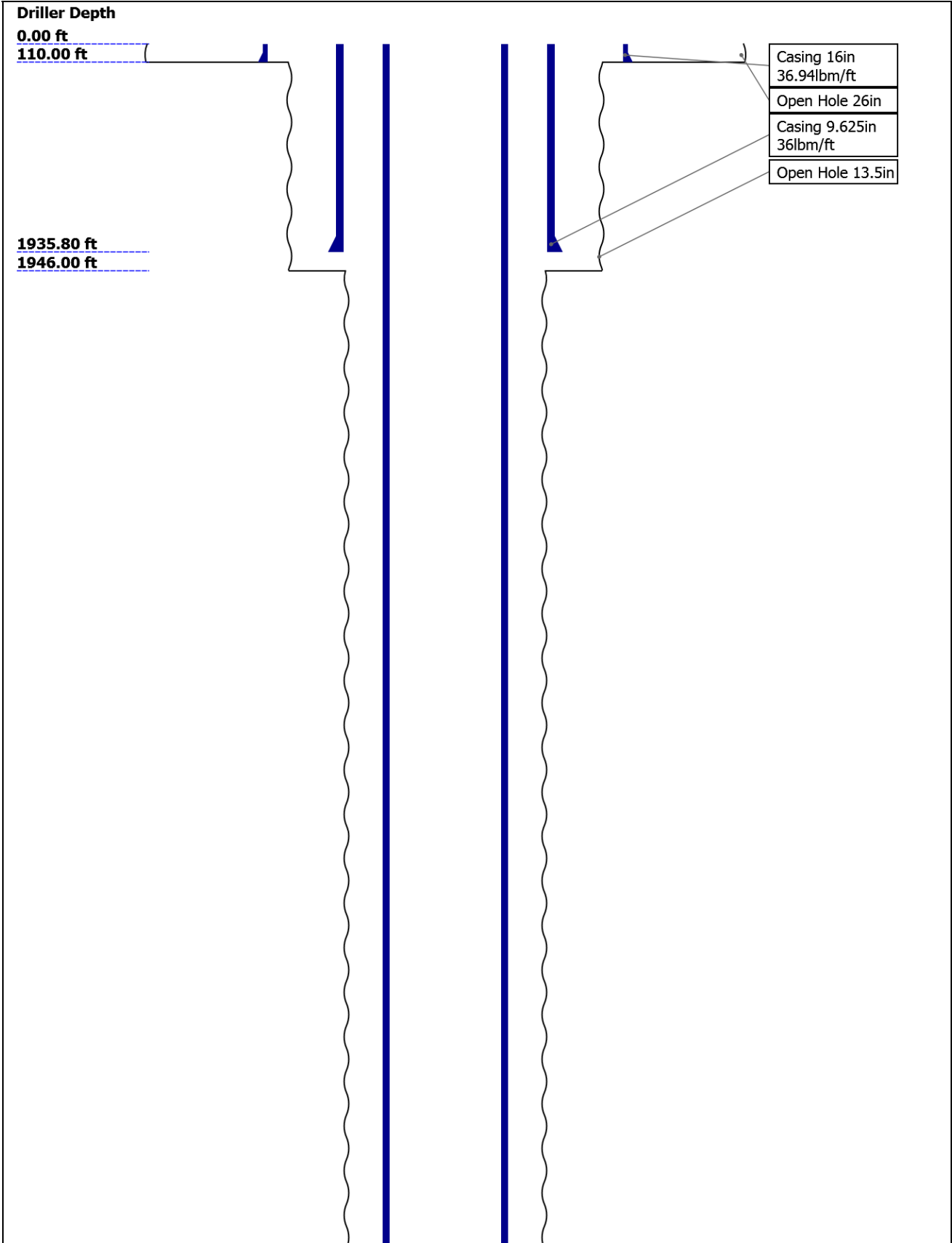
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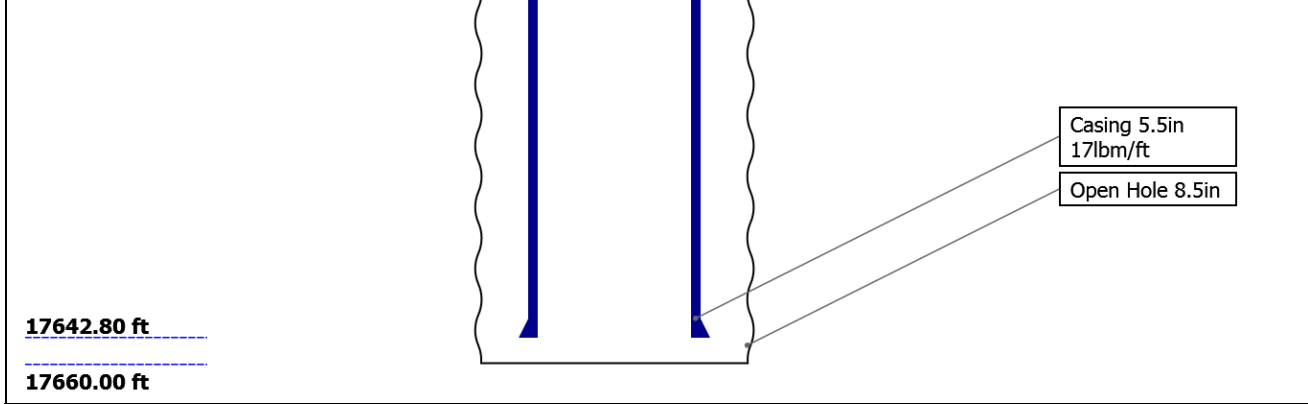
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Well Sketch





17642.80 ft
17660.00 ft

Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	26	13.5	8.5			
Top Driller (ft)	0	110	1946			
Top Logger (ft)	0	110	1946			
Bottom Driller (ft)	110	1946	17660			
Bottom Logger (ft)	110	1946	17660			
Casing						
Size (in)	16	9.625	5.5			
Weight (lbm/ft)	36.94	36	17			
Inner Diameter (in)	15.572	8.921	4.892			
Grade	N/A	J55	P110			
Top Driller (ft)	0	0	0			
Top Logger (ft)	0	0	0			
Bottom Driller (ft)	110	1935.8	17642.8			
Bottom Logger (ft)	110	1935.8	17642.8			

Remarks and Equipment Summary

One: Toolstring				One: Remarks	
<div><div>Equip nameLengthMP nameOffset</div><div>LEH-QT35.45LEH-QT</div><div>DTC-H:8631.9702ECH-KC:9680DTC-H:8602HGNS-B:128.97855HGNH:1870NSR-F:5070NPV-N:659HMCA-B:659HGNS-B:1855HACCZ-B:659</div><div>AH-10719.56</div></div> <div><div>CNLPorosity21.89</div><div>HGNS19.56</div><div>HMCA19.56</div><div>Accelerometer0.00</div></div>				Thank you for choosing Schlumberger!	
				Log run for cement evaluation	
				Toolstring run centralized using USIS	
				USRS-A sub run with USI-TX transducer	
				Main pass logged @ 2500psi; Repeat pass 0psi.	
				Log correlated to downlog	

2]

AH-107[17.56 17.56

1]

USIT-E:18 15.56 15.56

46

ECH-MFA:

2830

USAC-A:1

846

USIS-A:27

810

USSC-B

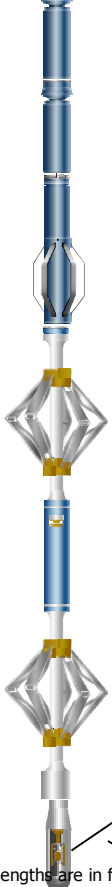
USRS-A:93

2

USI-SENS

OR:817

USI-TX



USI Sen 0.37

Tool Zero

Head Fe

nsion

Lengths are in ft

Maximum Outer Diameter = 6.250 in

Line: Sensor Location, Value: Gating Offset

All measurements are relative to TOOL_ZERO

Main Pass

Nuclear

Integration Summary

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
ICV	Integrated Cement Volume	GCSE_UP_PASS, GCSE_DOWN_PASS:One, FCD	0	ft3
IHV	Integrated Hole Volume	GCSE_UP_PASS, GCSE_DOWN_PASS:One	0	ft3

Software Version

Acquisition System	Version
Maxwell 2018 SP2	8.2.104493.3100

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[8]:Up	Up	4467.68 ft	6535.32 ft	14-Apr-2019 9:03:08 PM	14-Apr-2019 9:42:43 PM	ON	6.95 ft	Yes
One	Log[9]:Up	Up	43.09 ft	4658.09 ft	14-Apr-2019 9:51:51 PM	14-Apr-2019 11:21:27 PM	ON	6.63 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Noble Energy Inc Well:Vogler State D21-780

Main Pass:S007

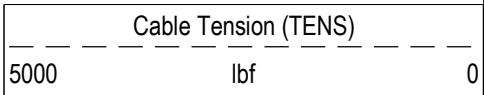
Description: AIT Basic Log Two Format: Log (Noble Nuclear) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 15-Apr-2019 00:12:57

Channel	Source	Sampling
GR	HGNS[1]:HGNS-B[1]:HGNS-B[1]	6in
ICV	Borehole	6in - RT
IHV	Borehole	6in - RT

NPOR HGNS[1]:HGNS-B[1]:HGNS-B[1] 6in
TENS WLWorkflow 6in
TIME_1900 WLWorkflow 0.1in

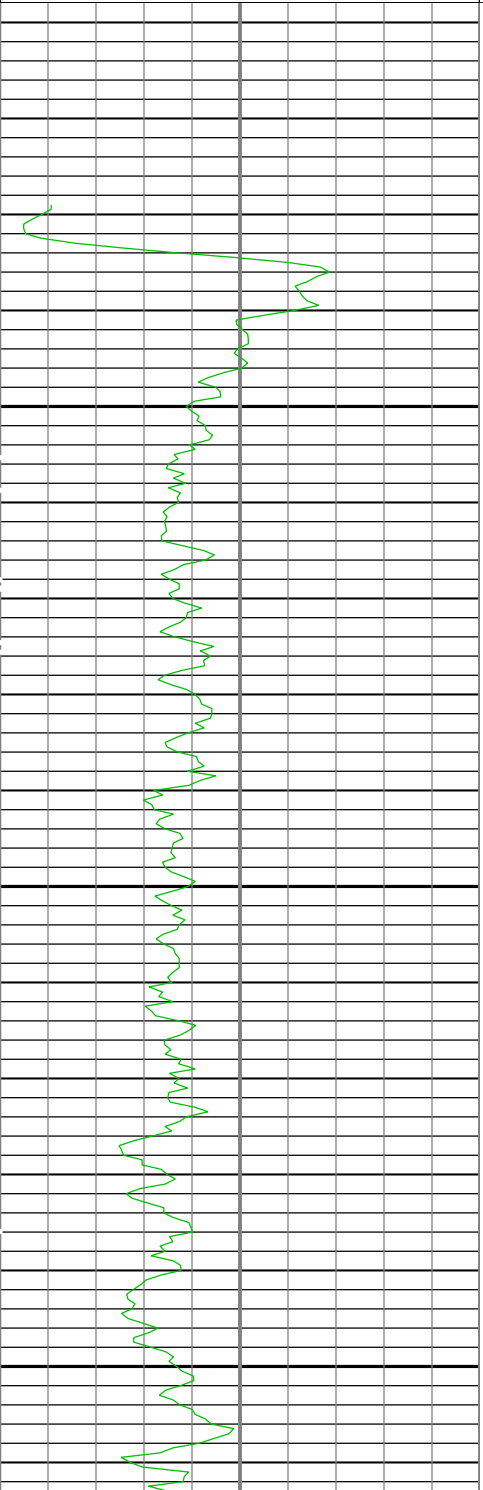
TIME_1900 - Time Marked every 60.00 (s)

- IHV - Integrated Hole Volume every 10.00 (ft3)
- IHV - Integrated Hole Volume every 100.00 (ft3)
- ICV - Integrated Cement Volume every 10.00 (ft3)
- ICV - Integrated Cement Volume every 100.00 (ft3)



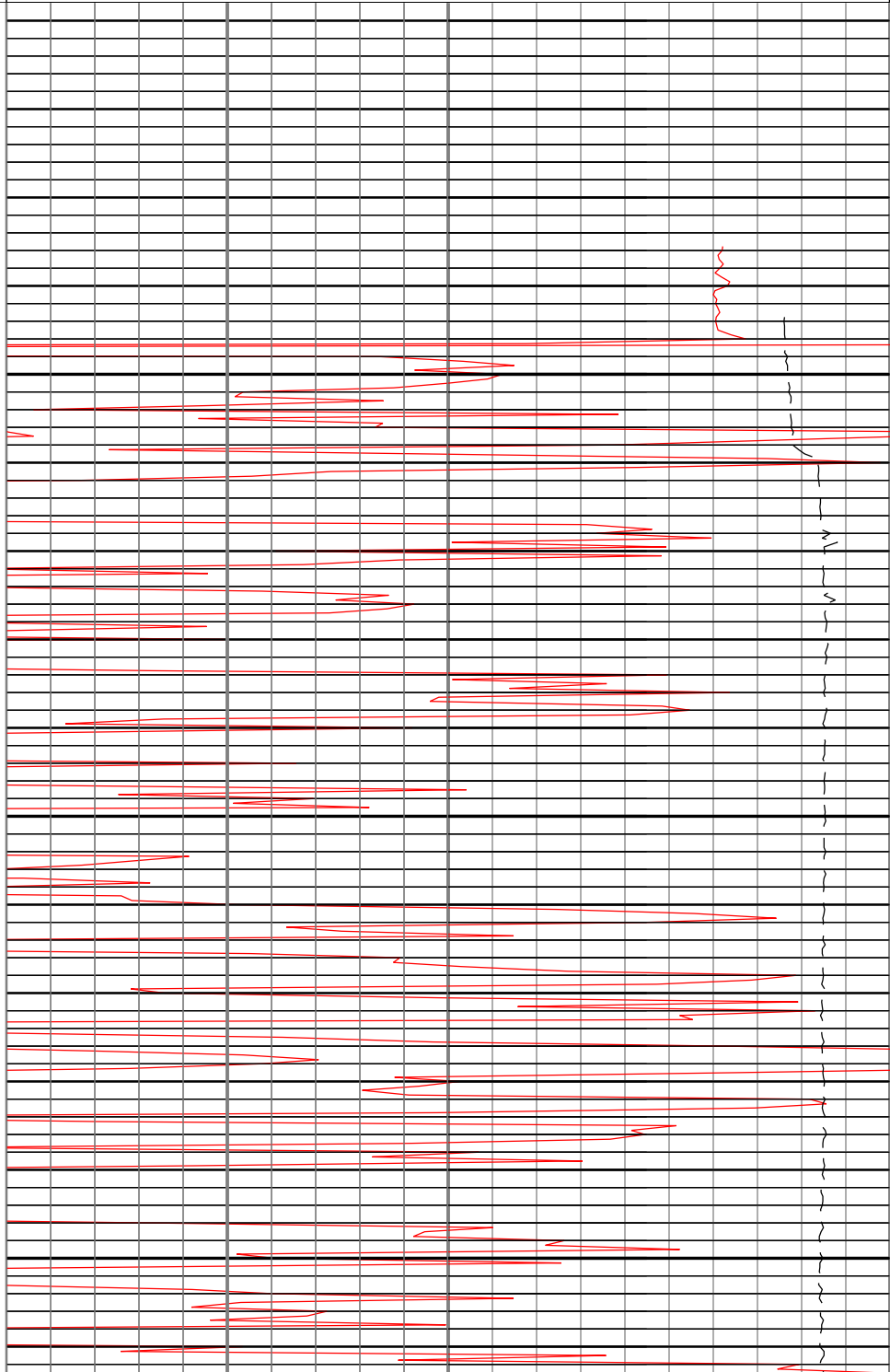
GR Backup

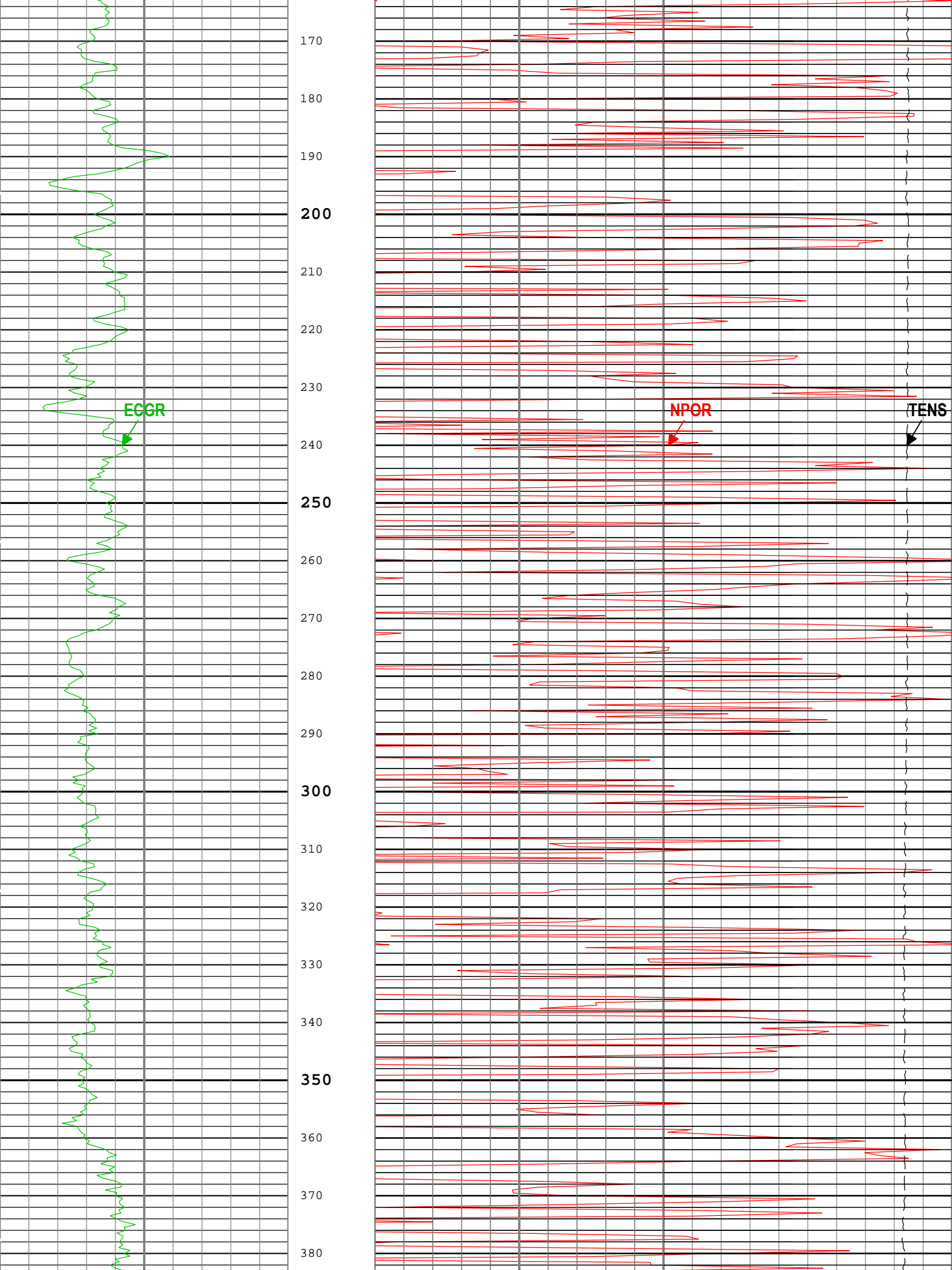
Gamma Ray (ECGR) HGNS[1]
0 gAPI 150

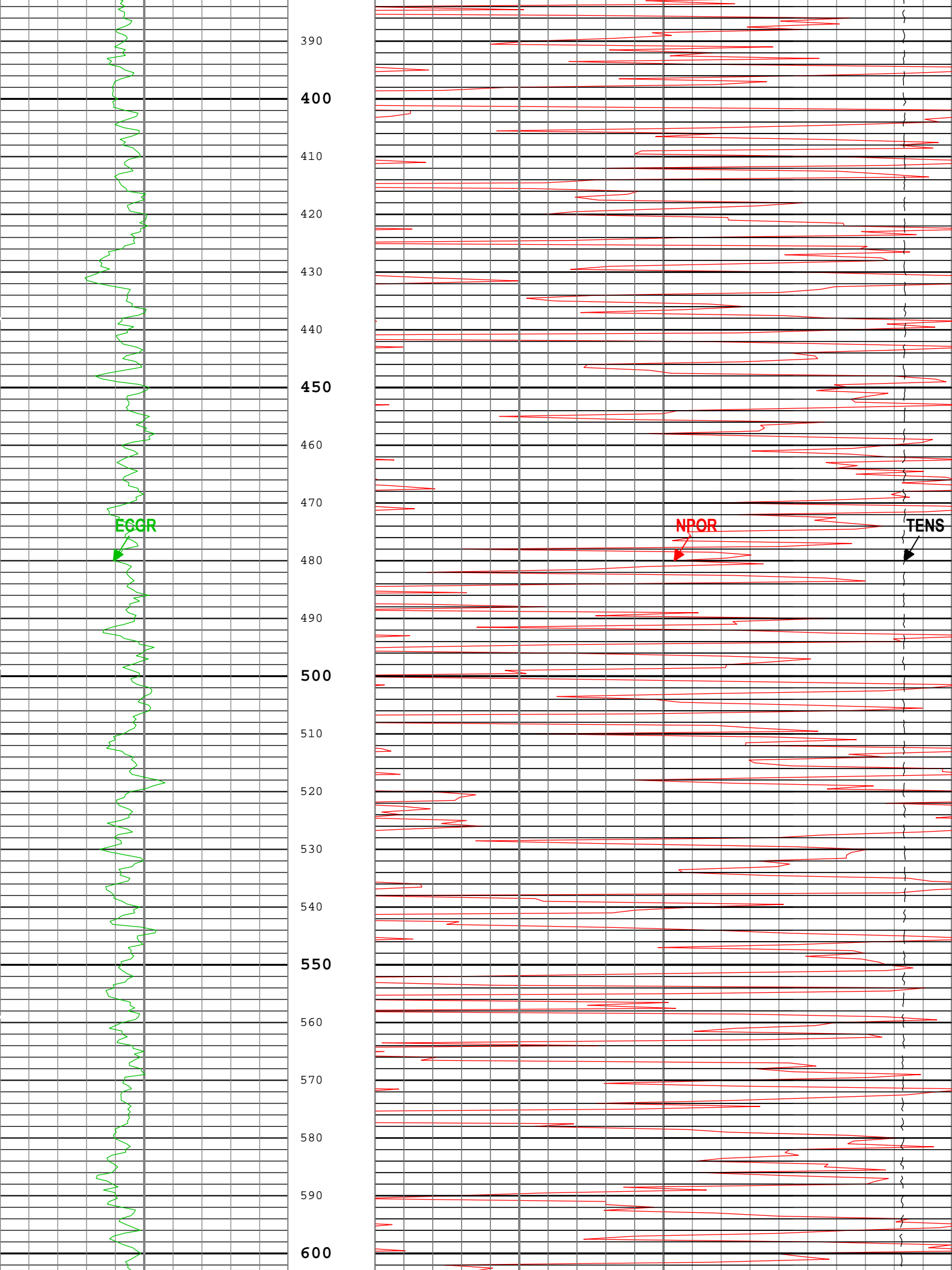


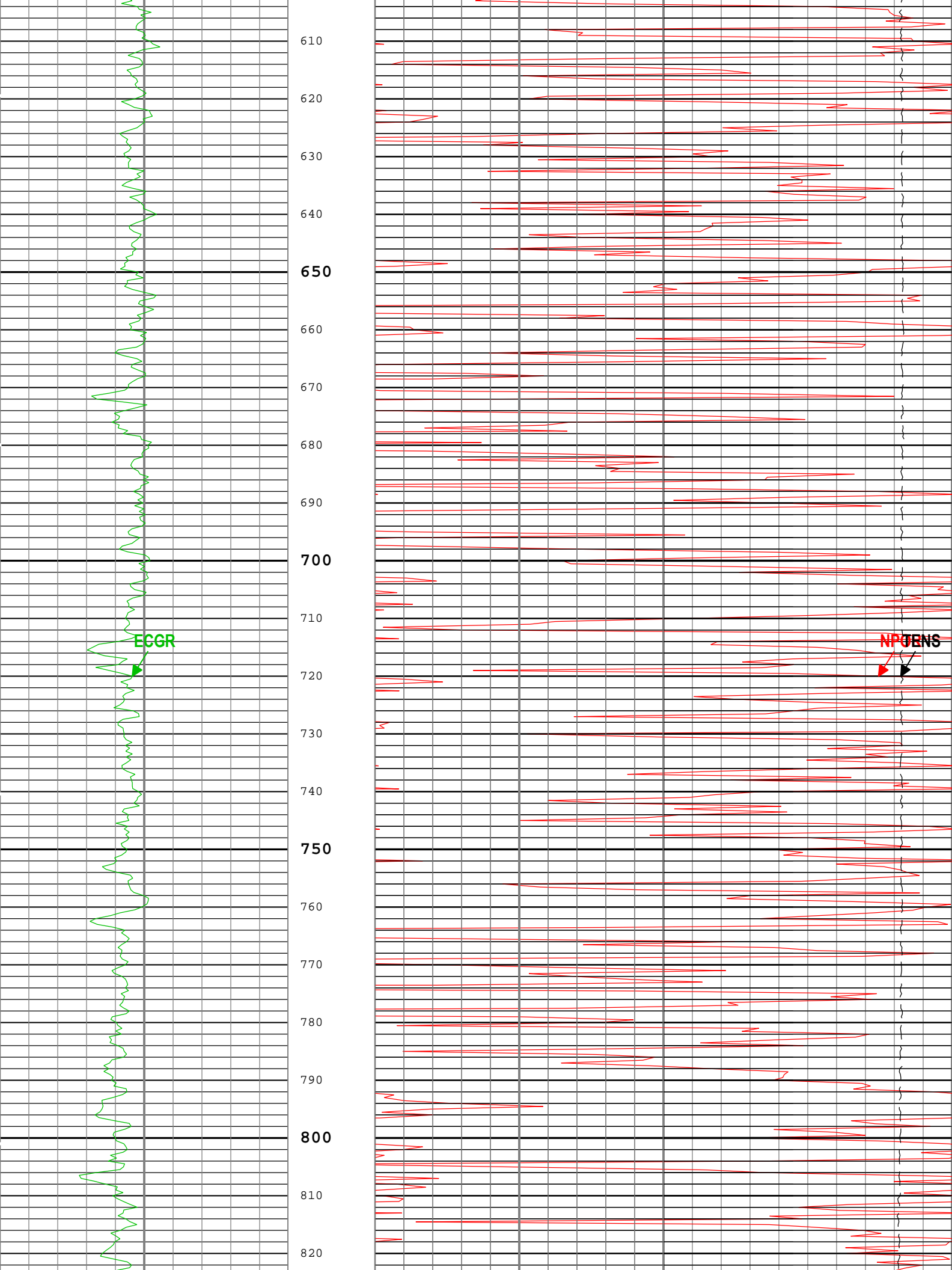
NPOR Backup

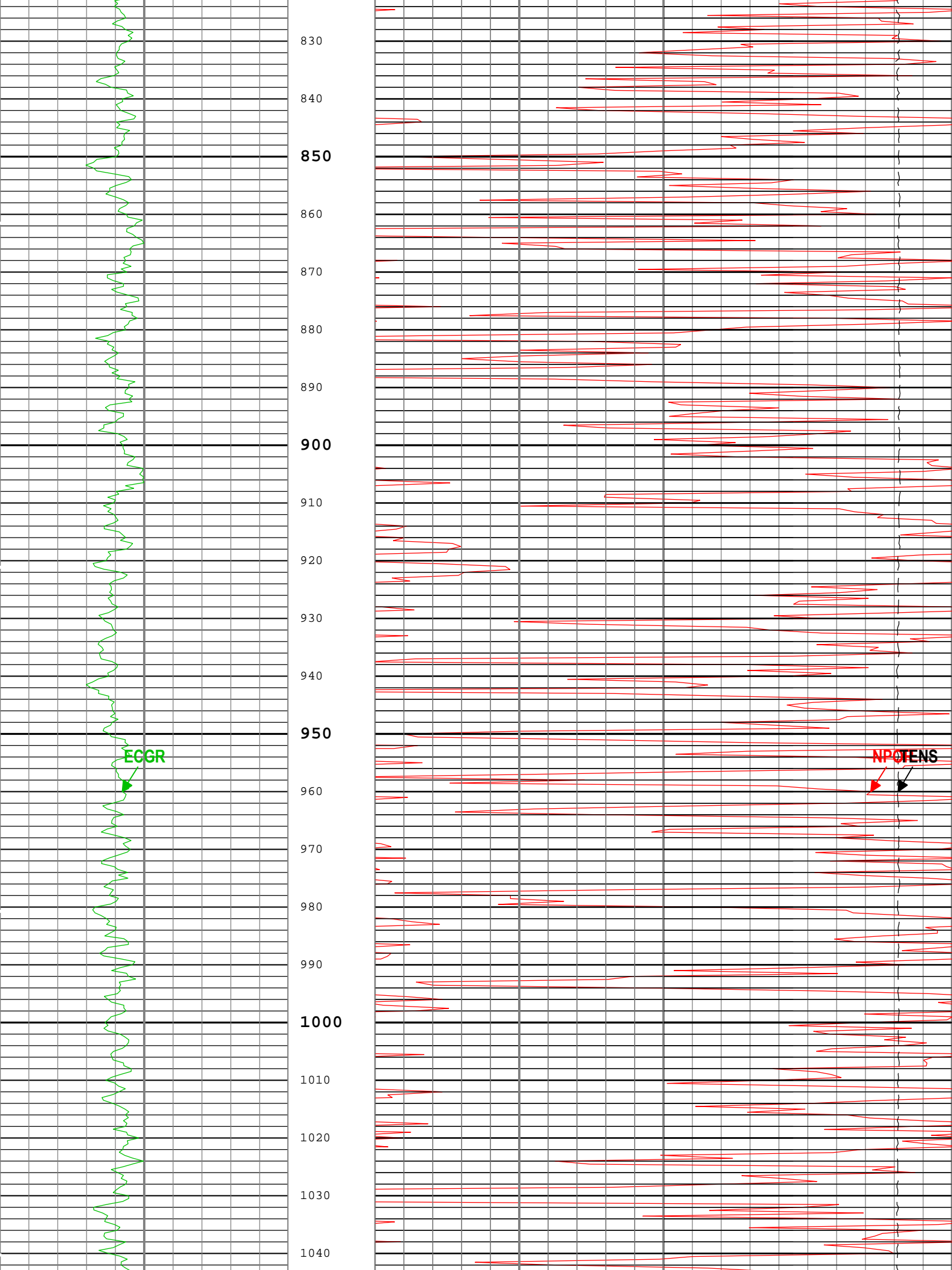
Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS[1]
0.45 ft3/ft3 -0.15

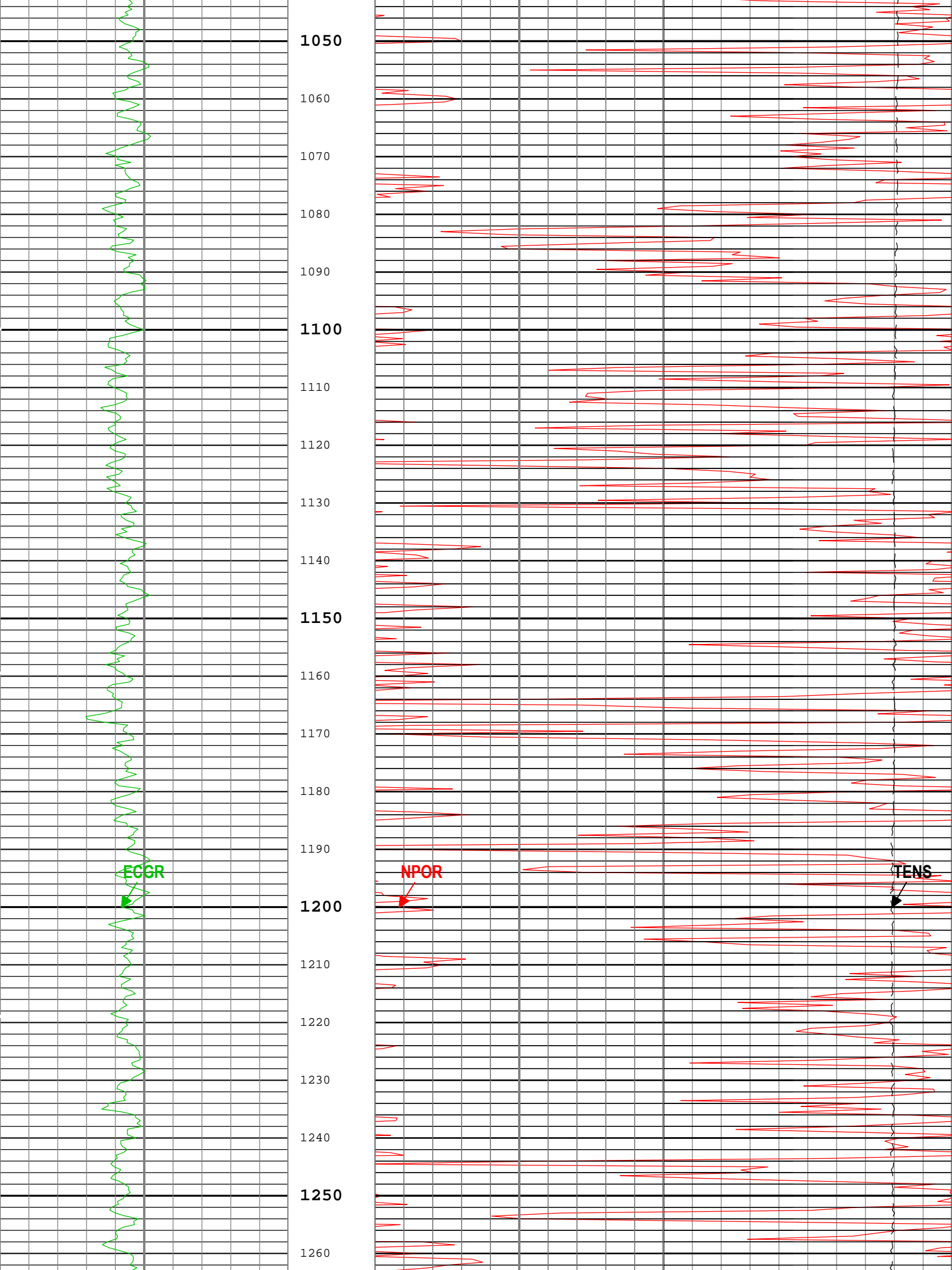


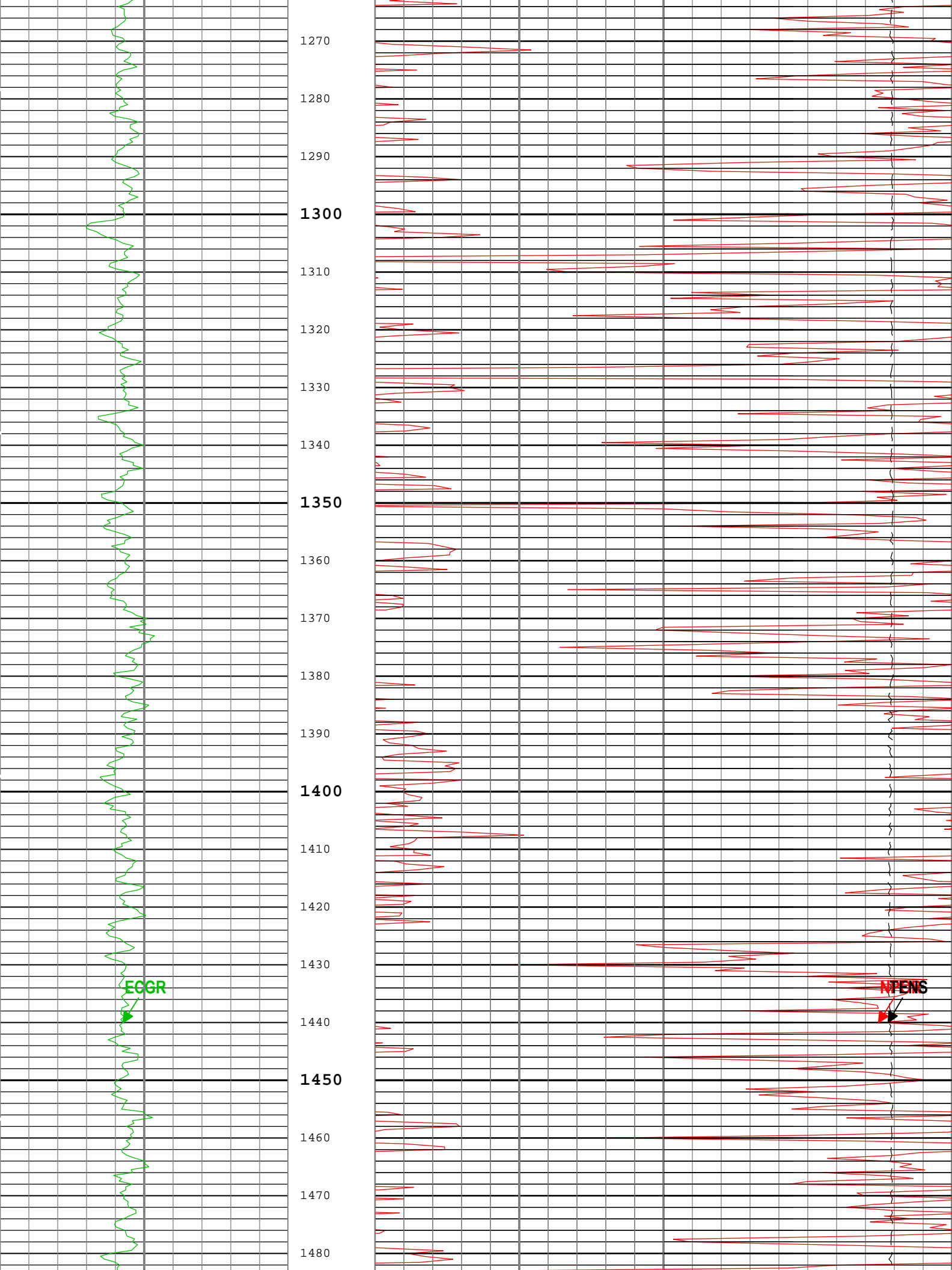


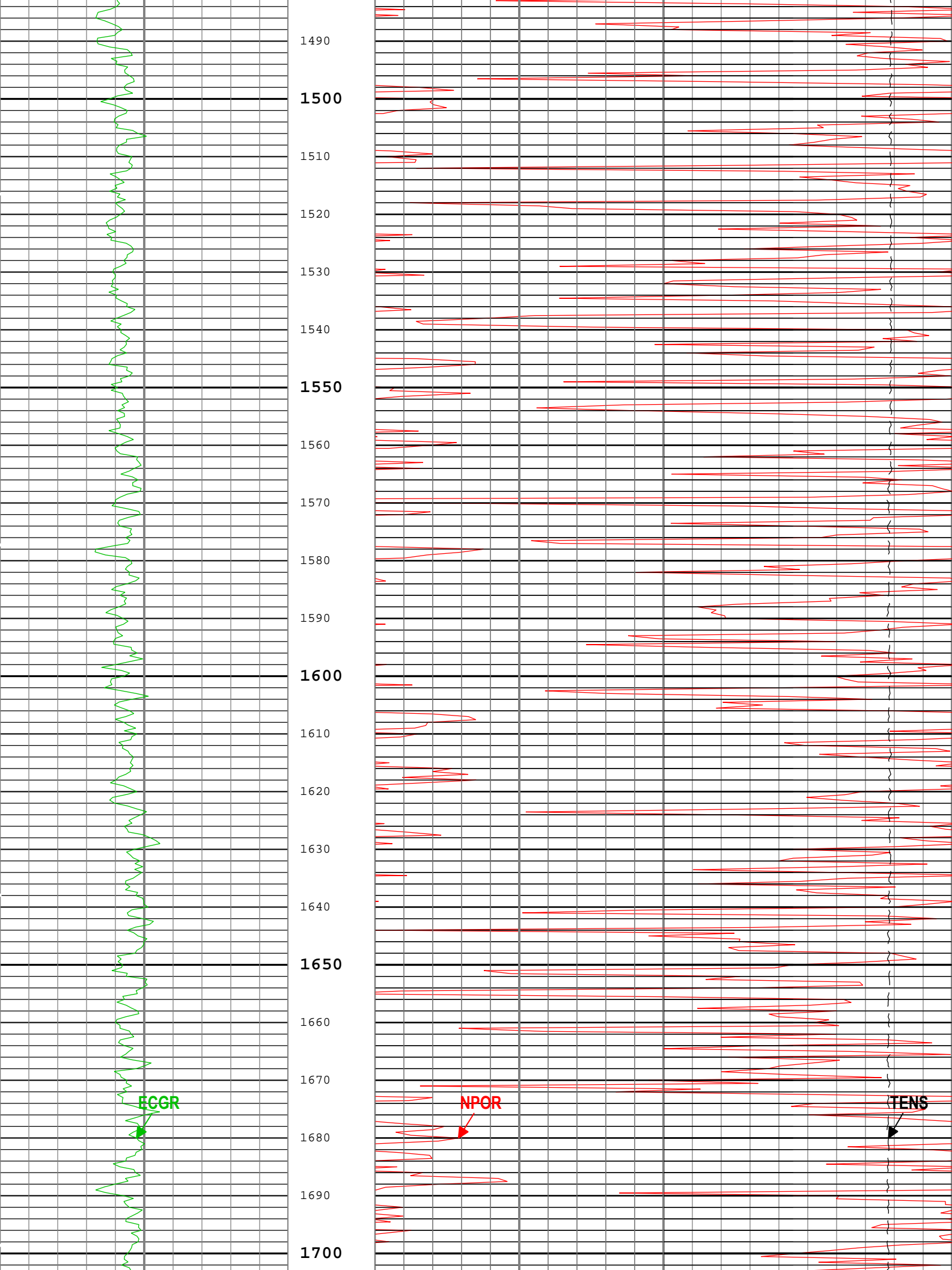


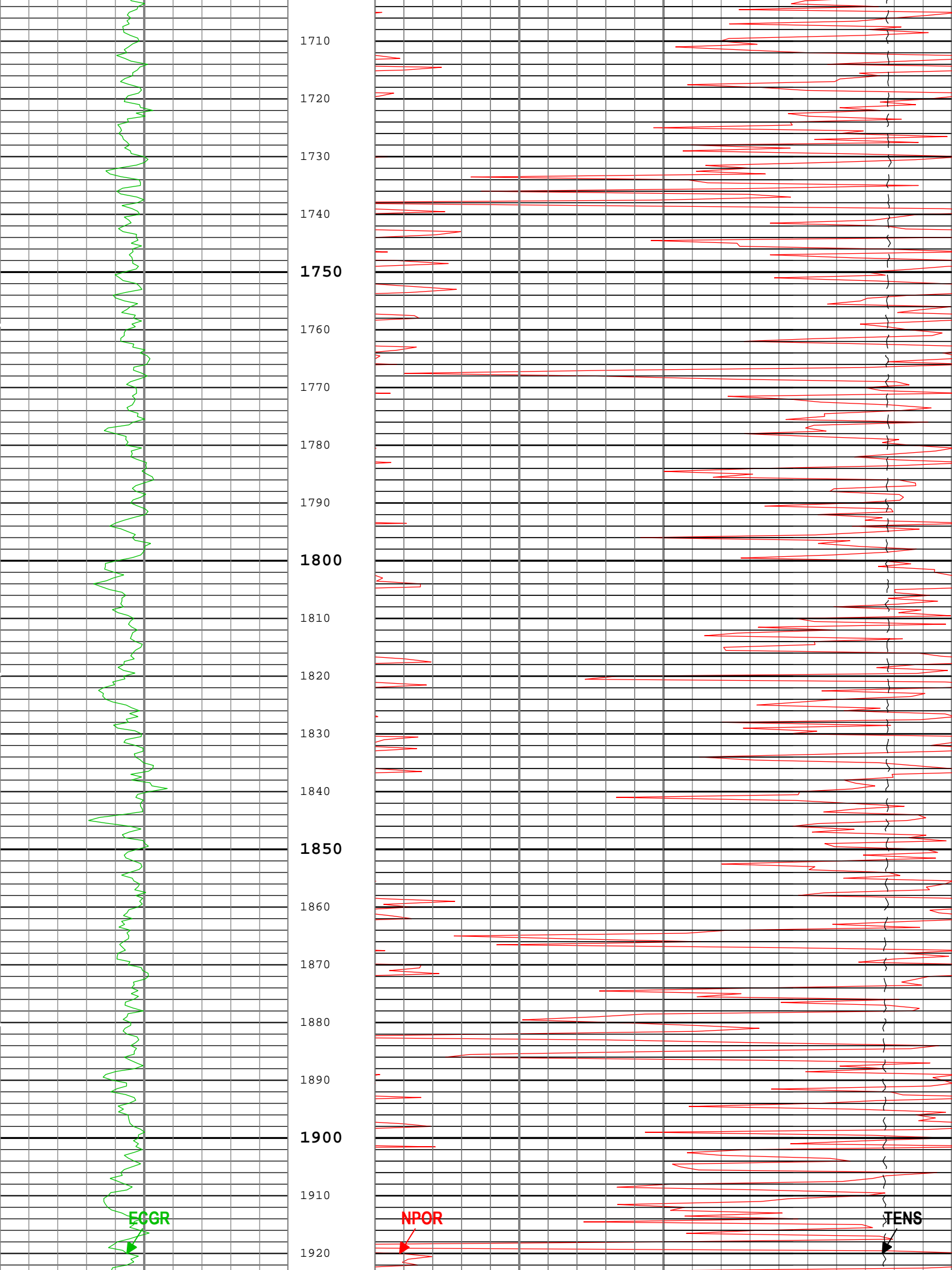


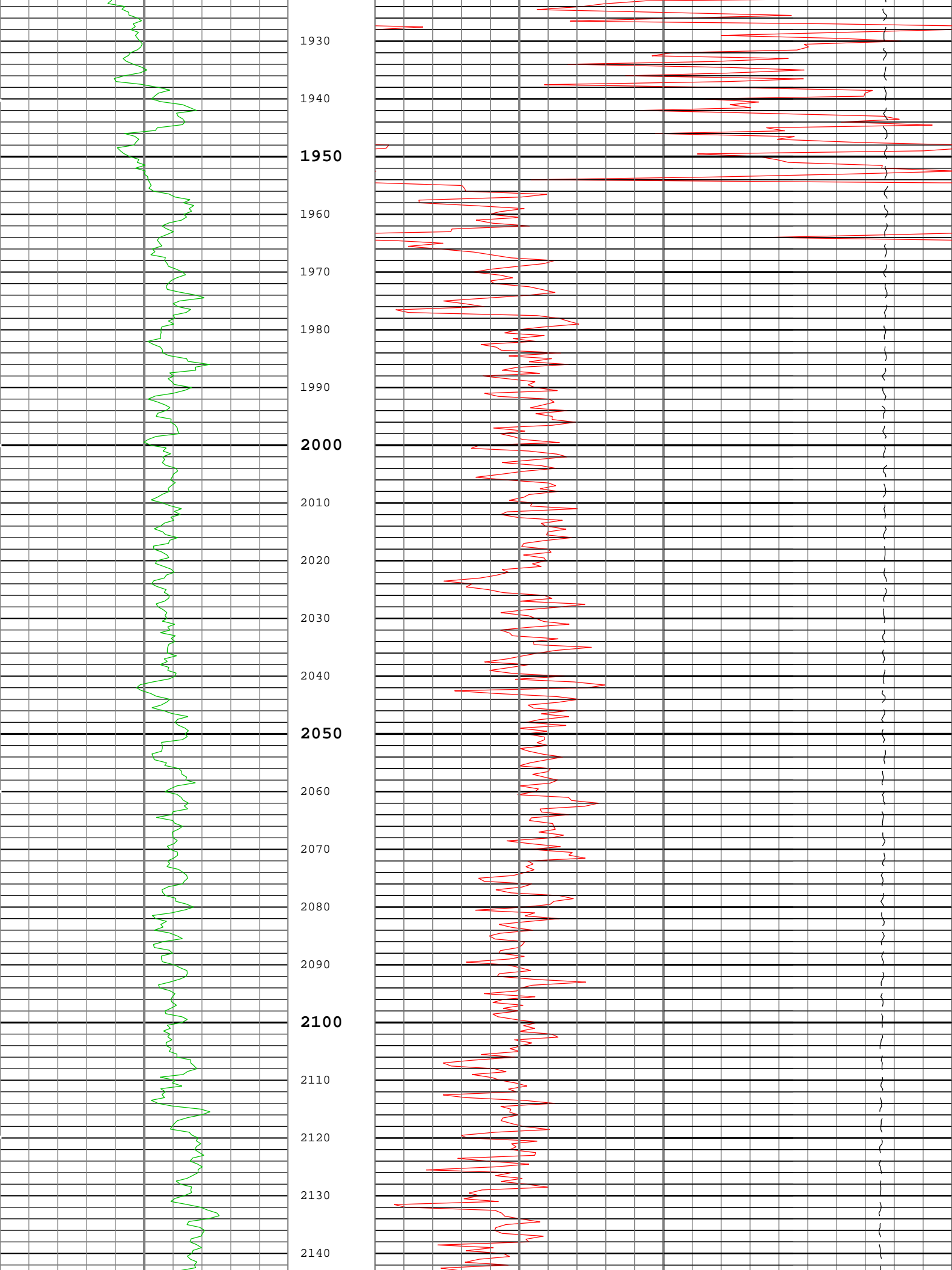


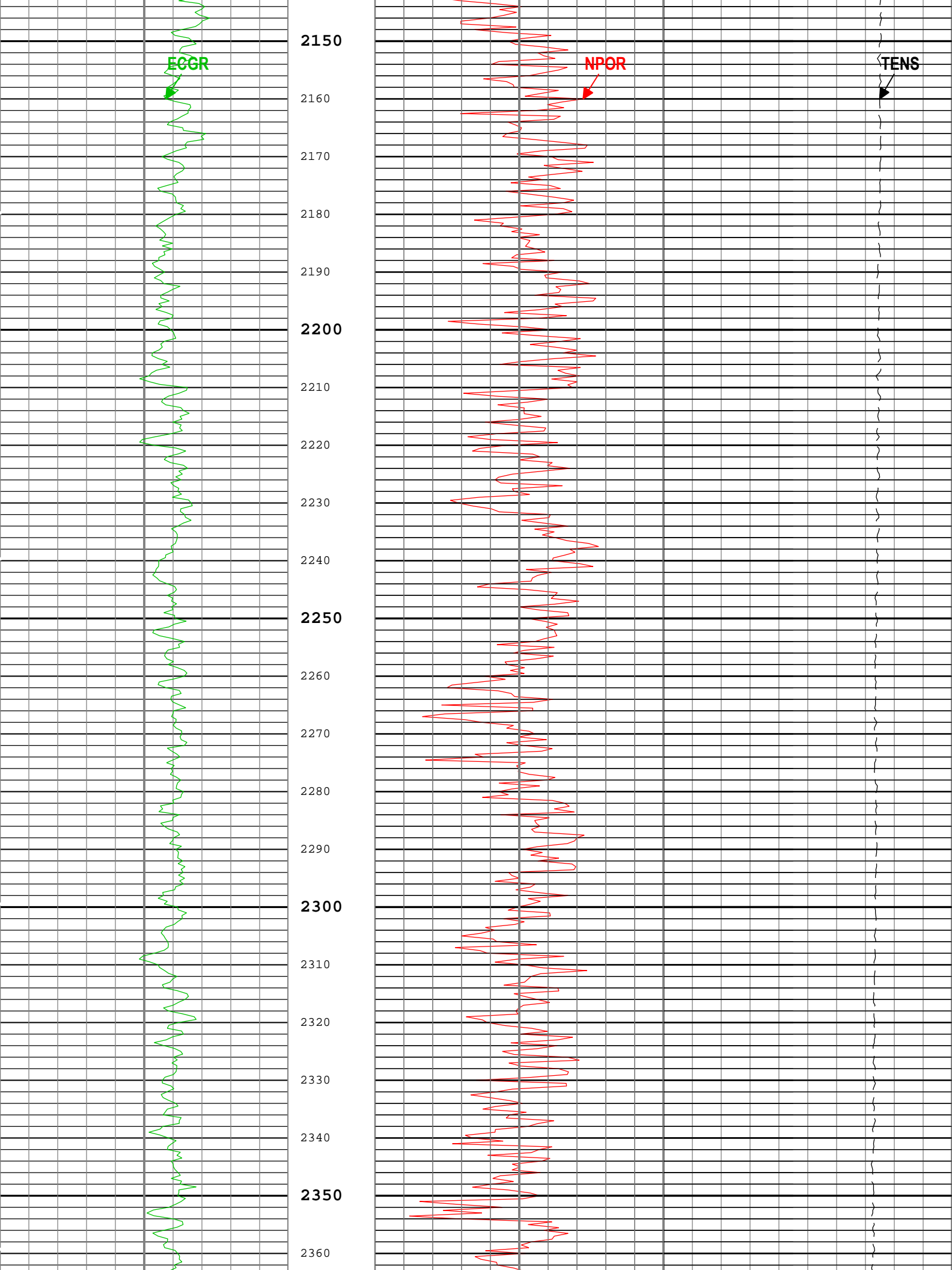


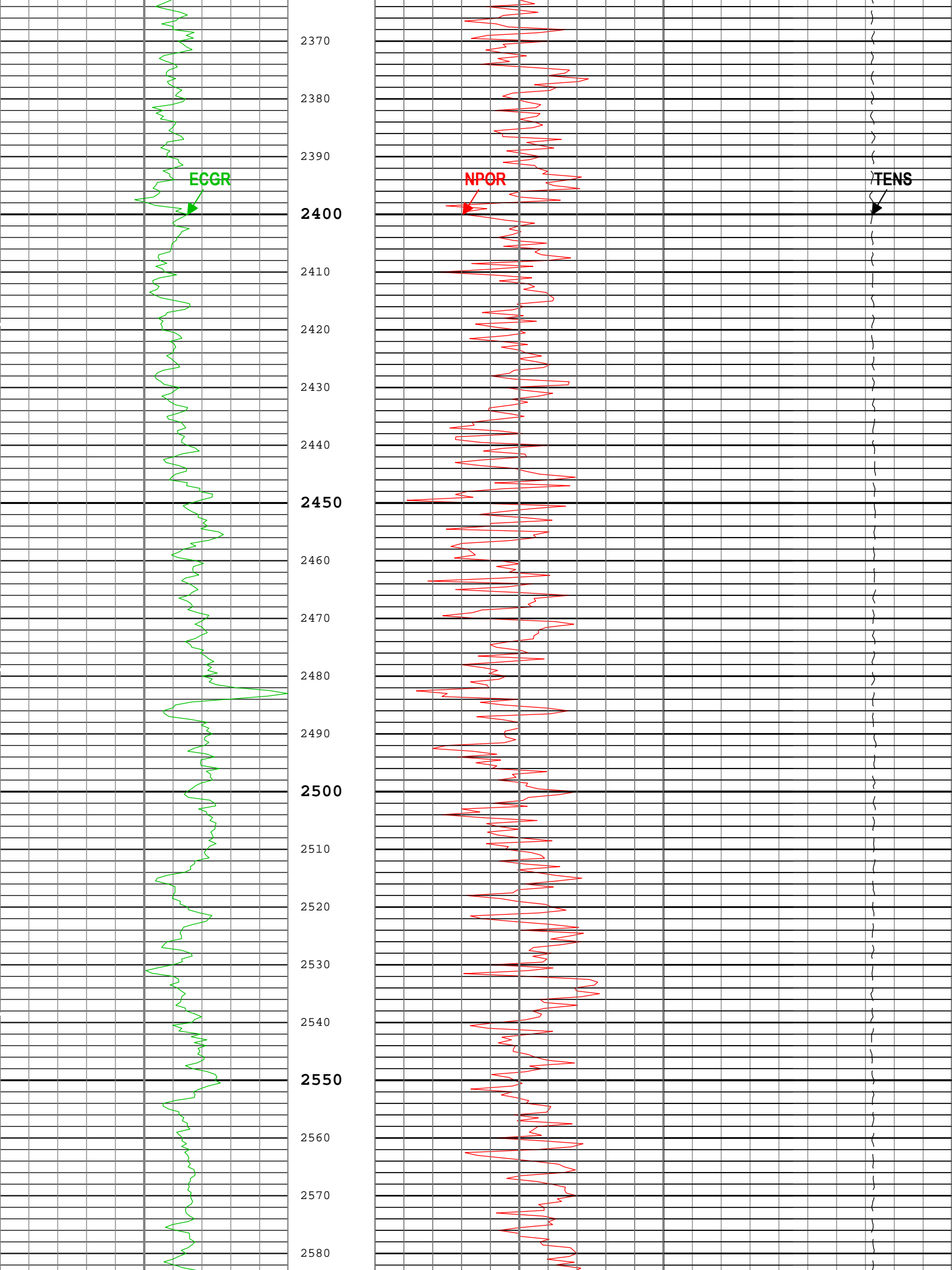


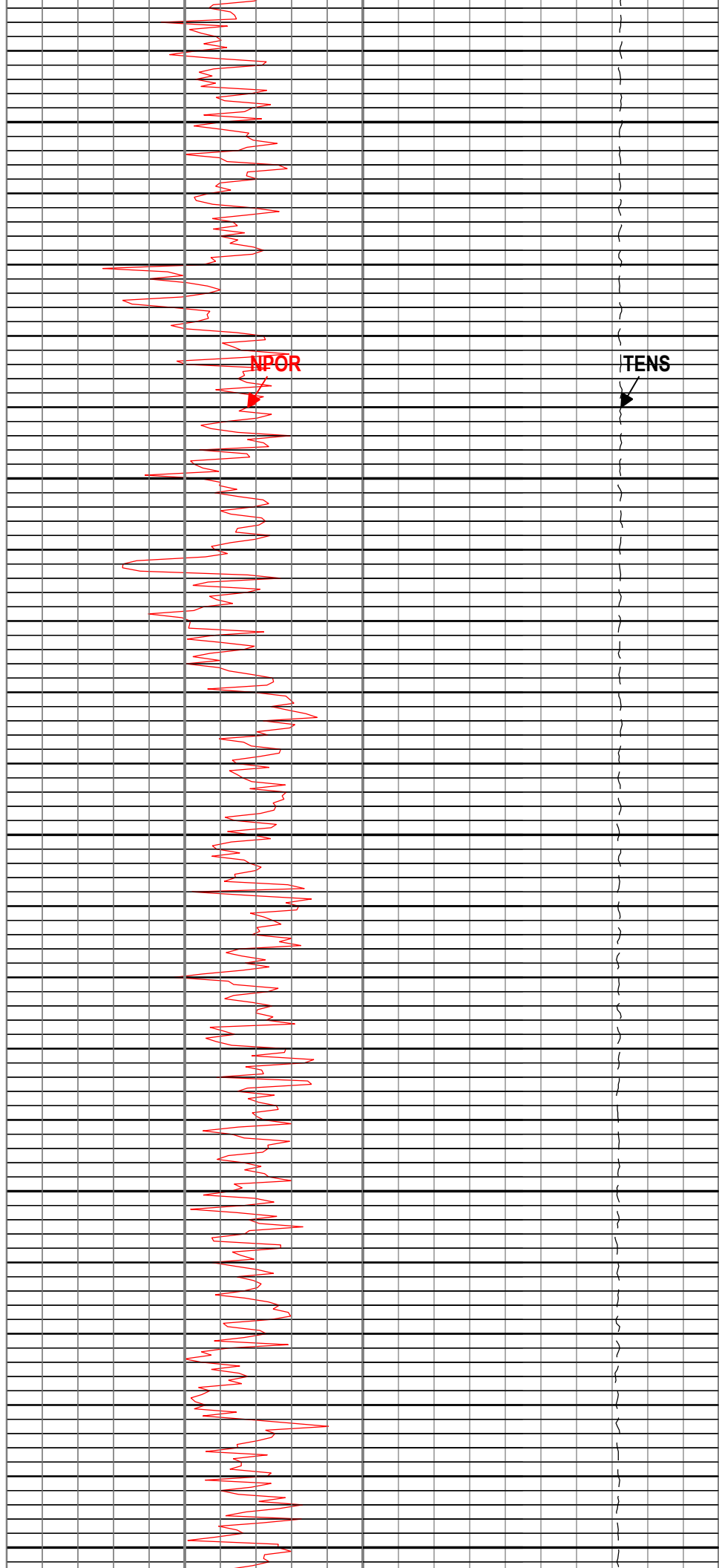
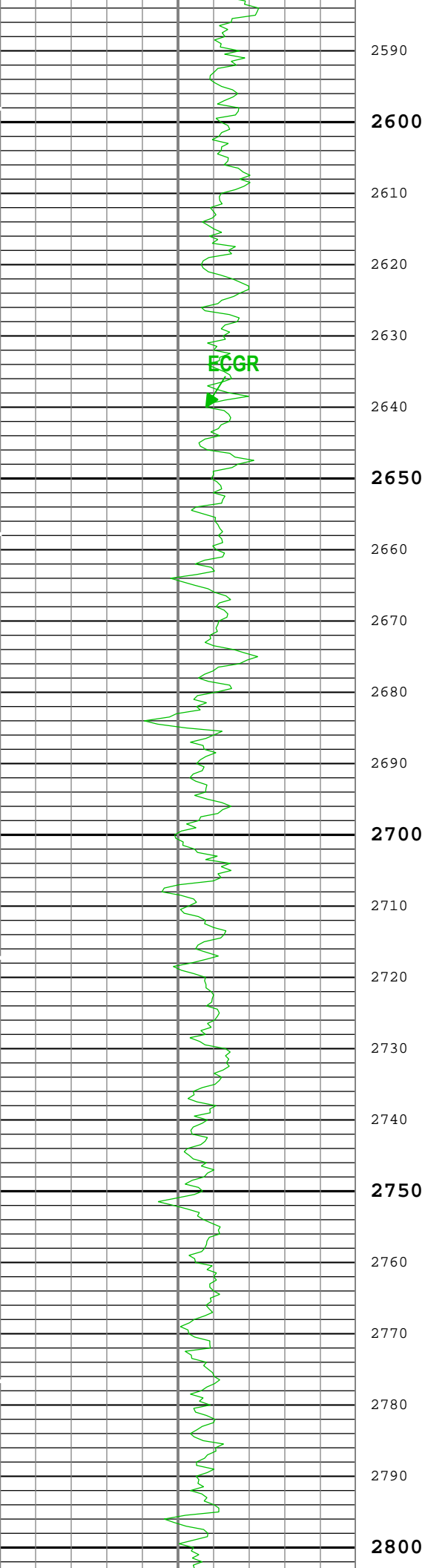


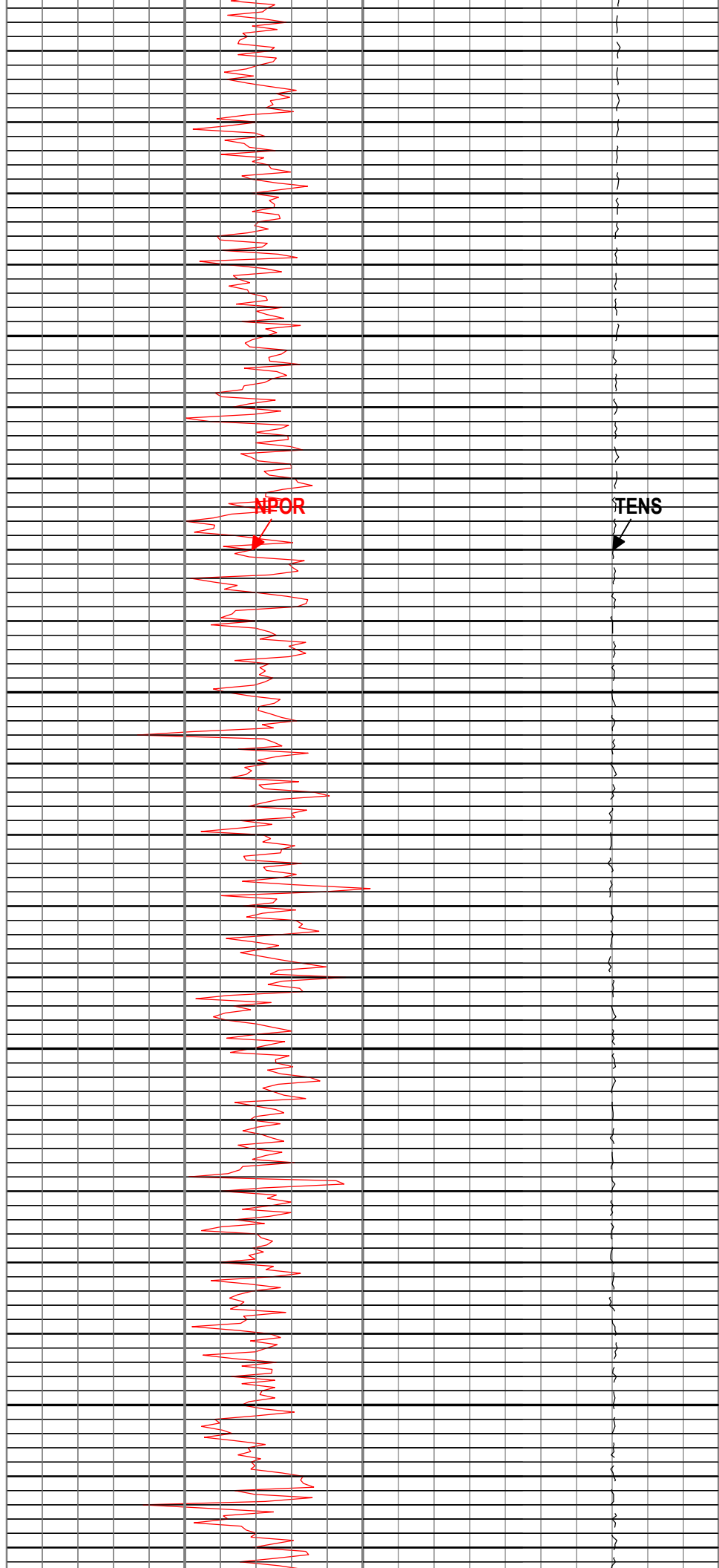
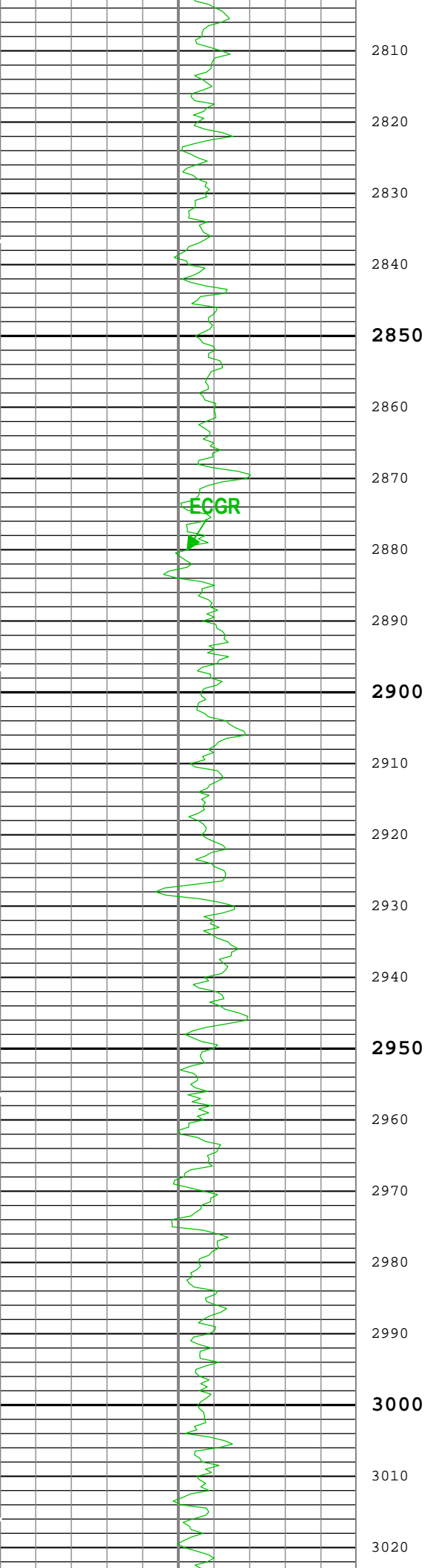


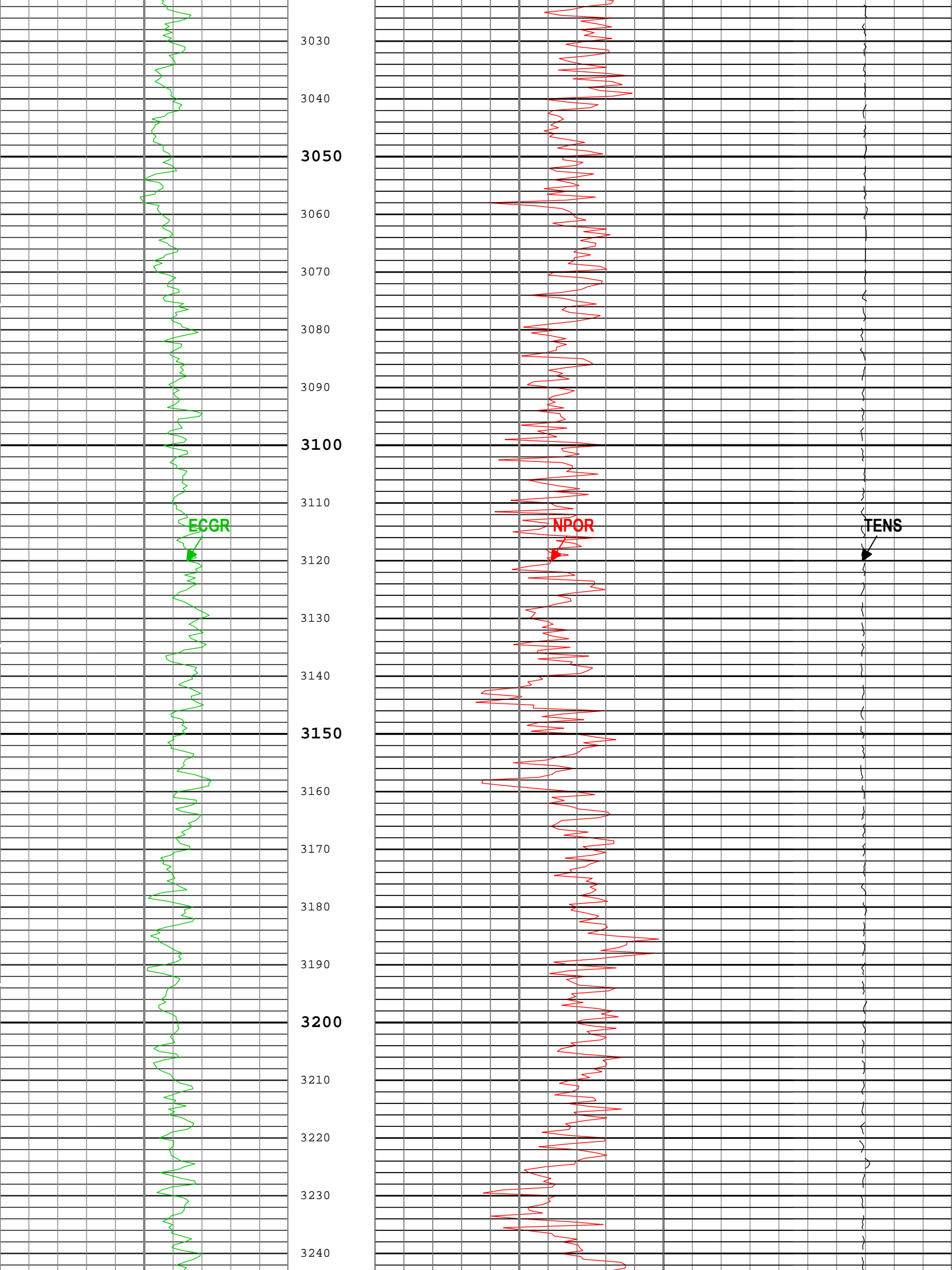


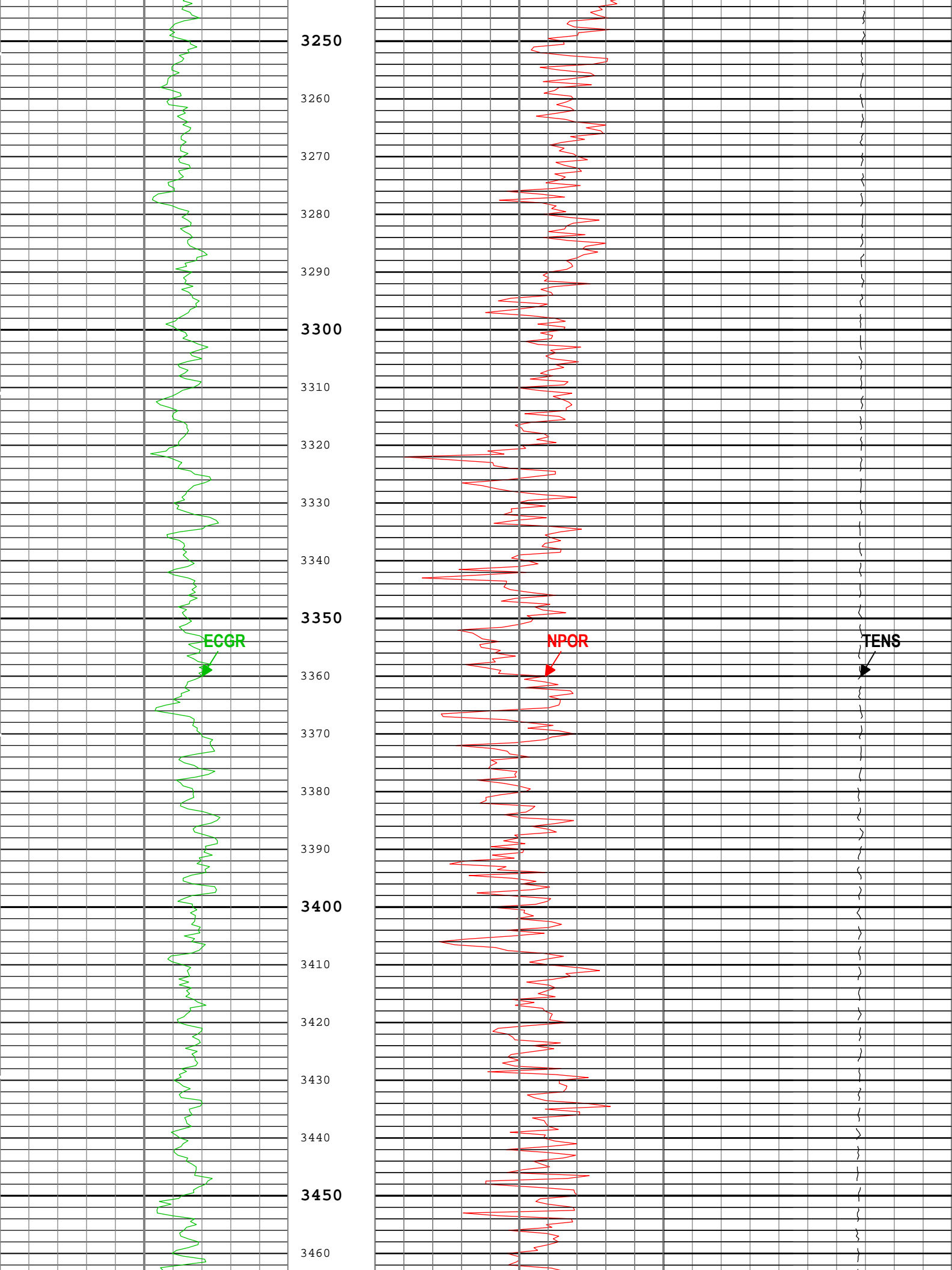


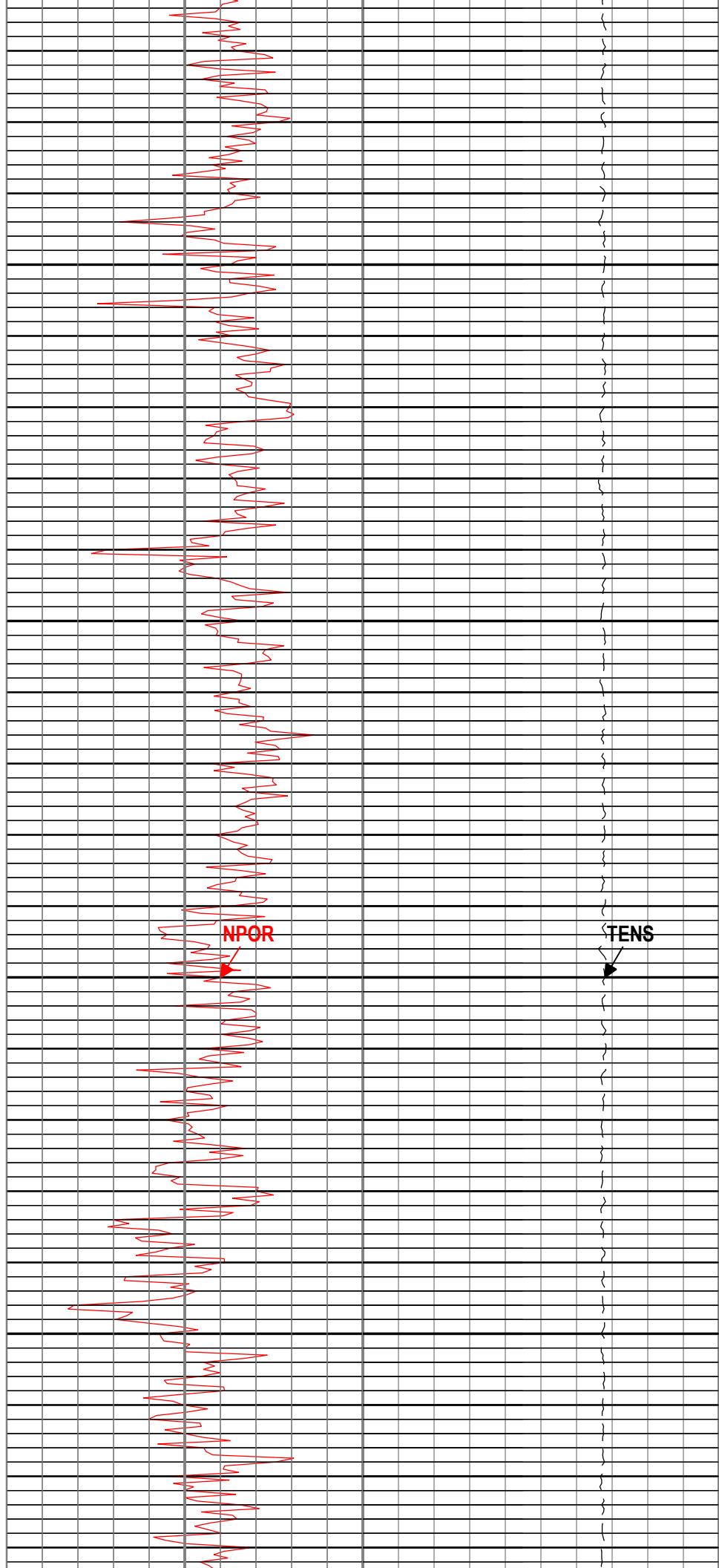
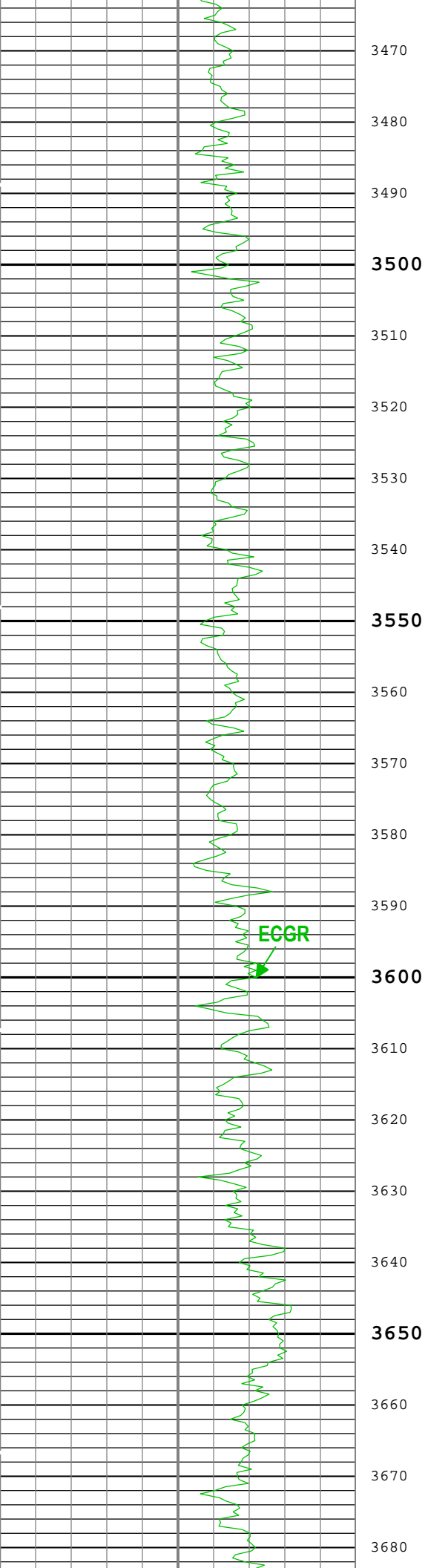


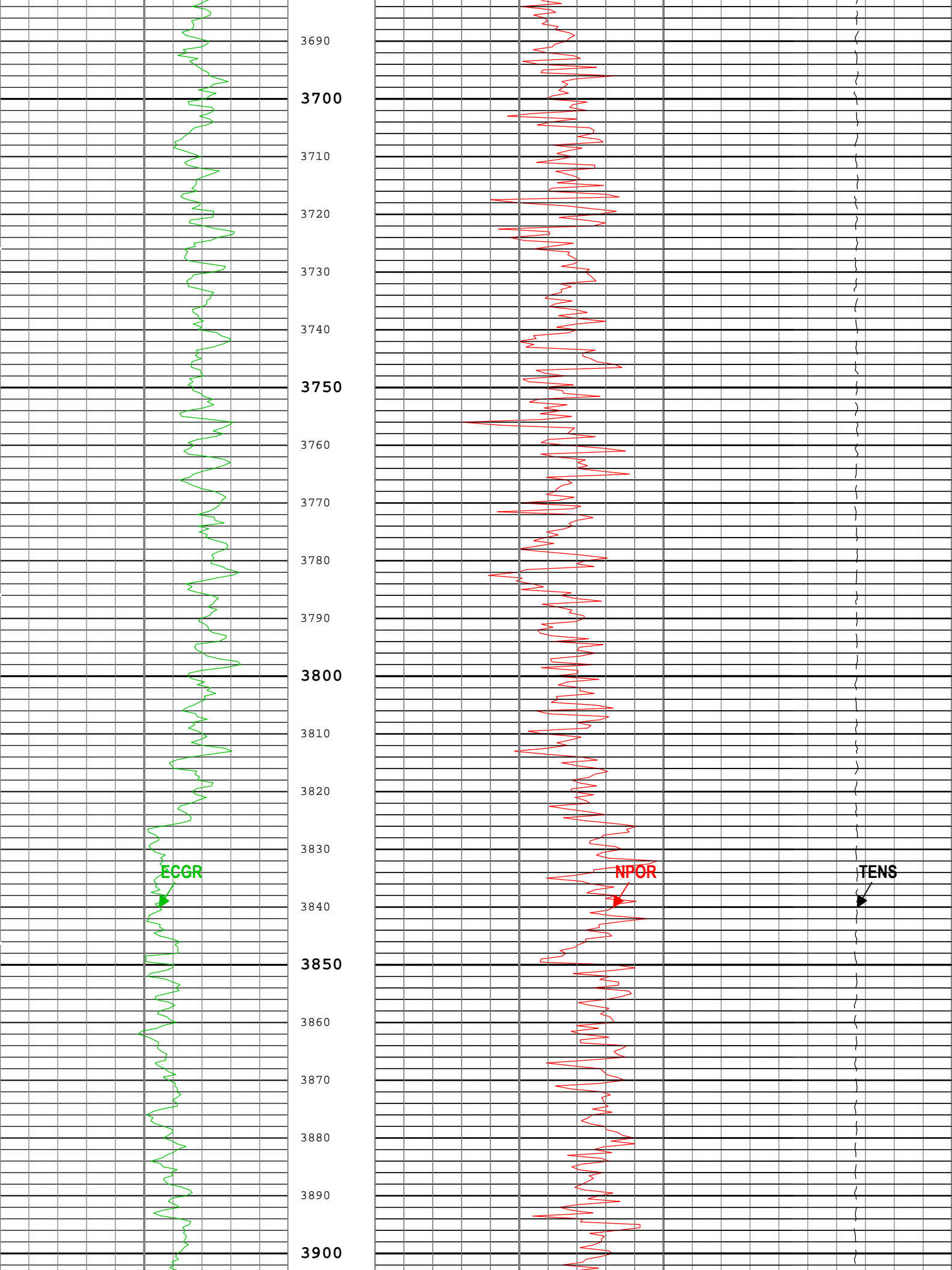


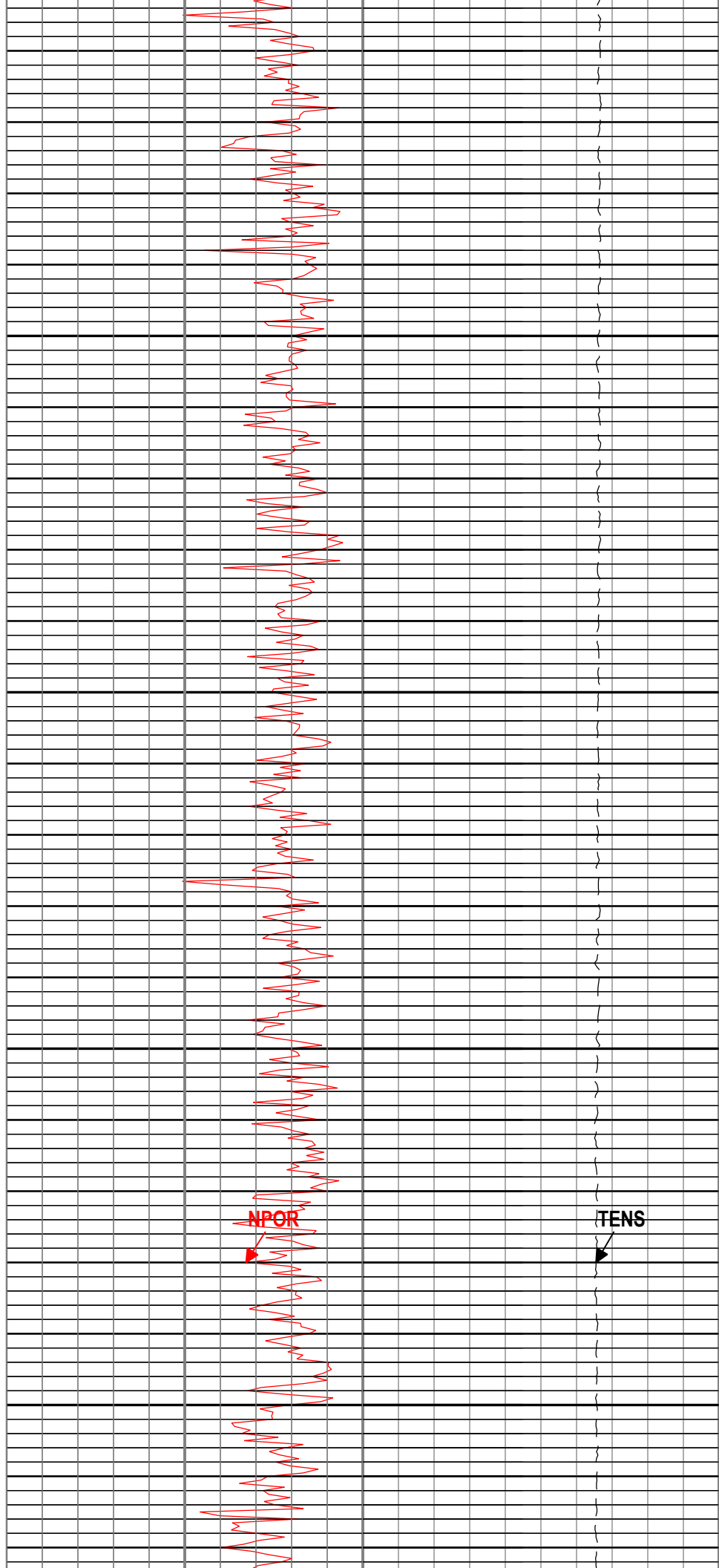
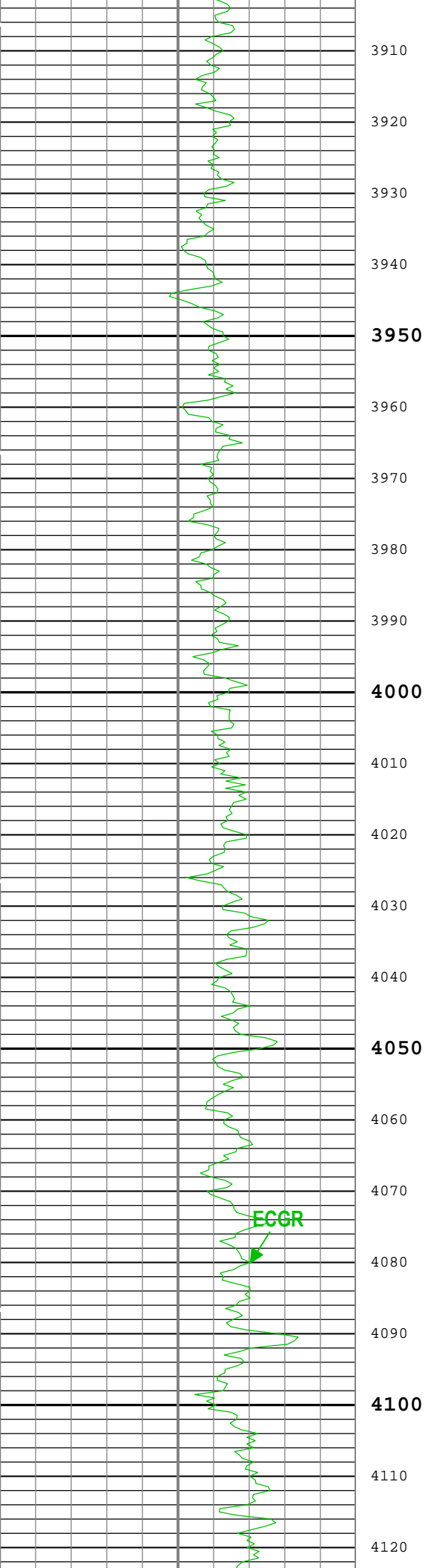


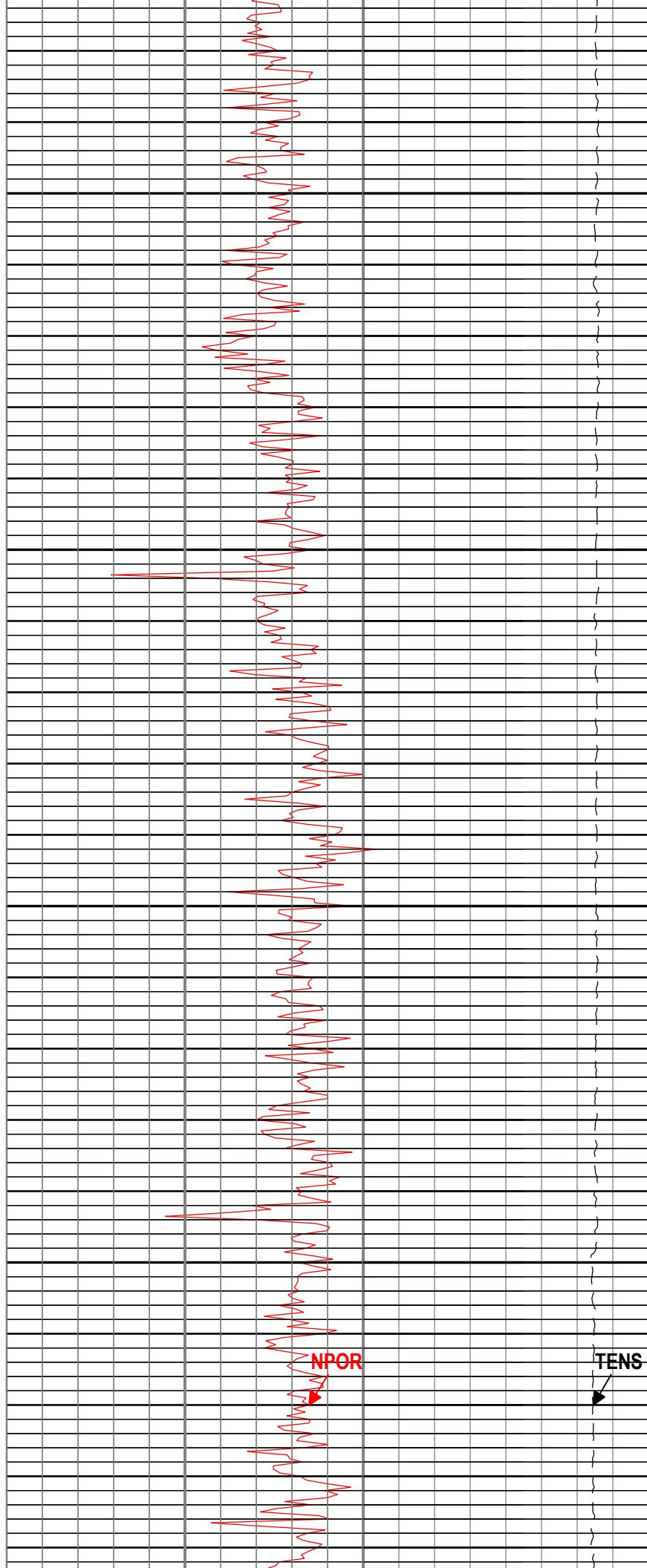
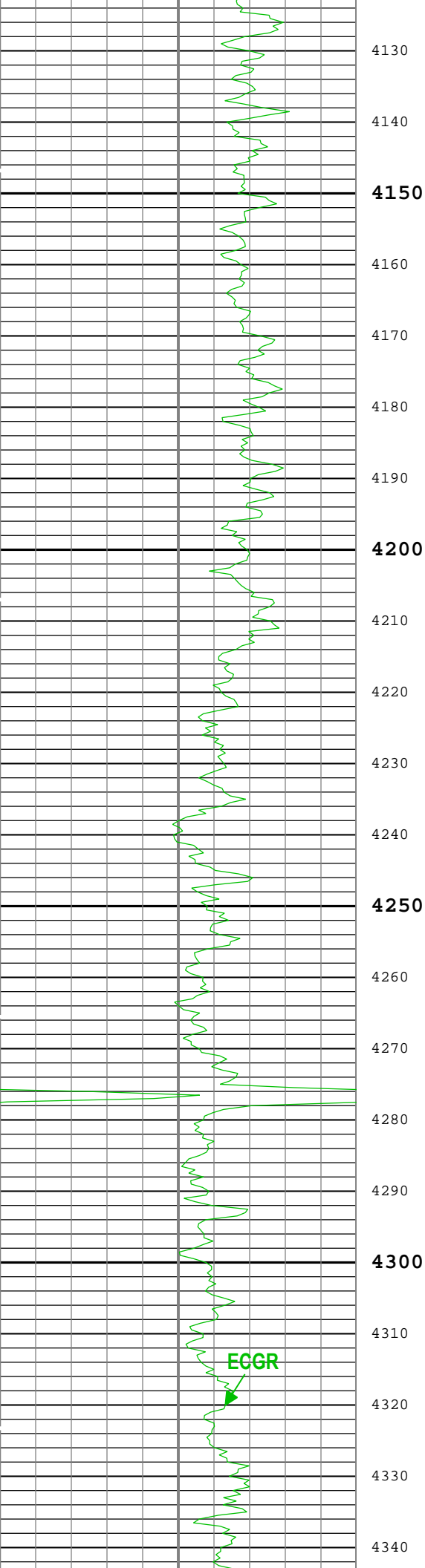


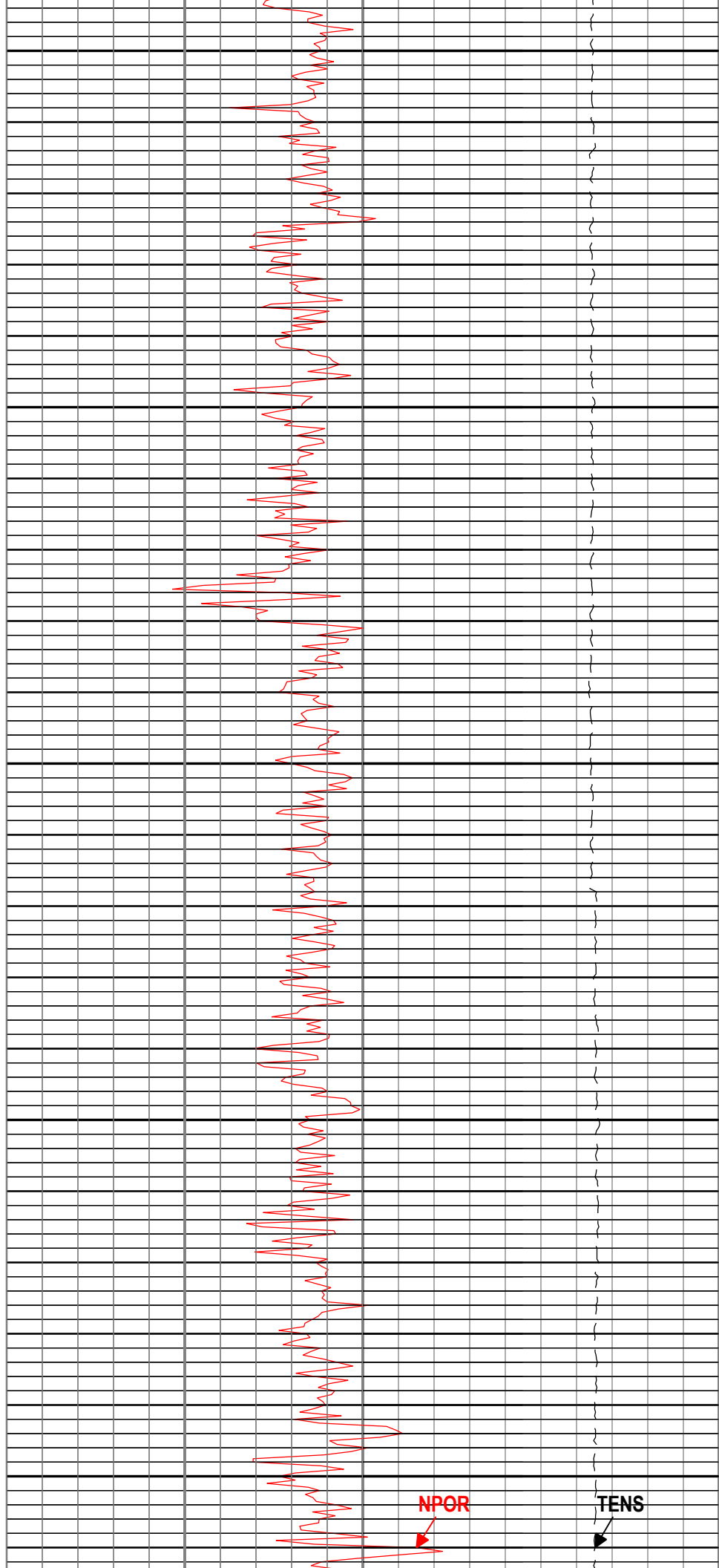
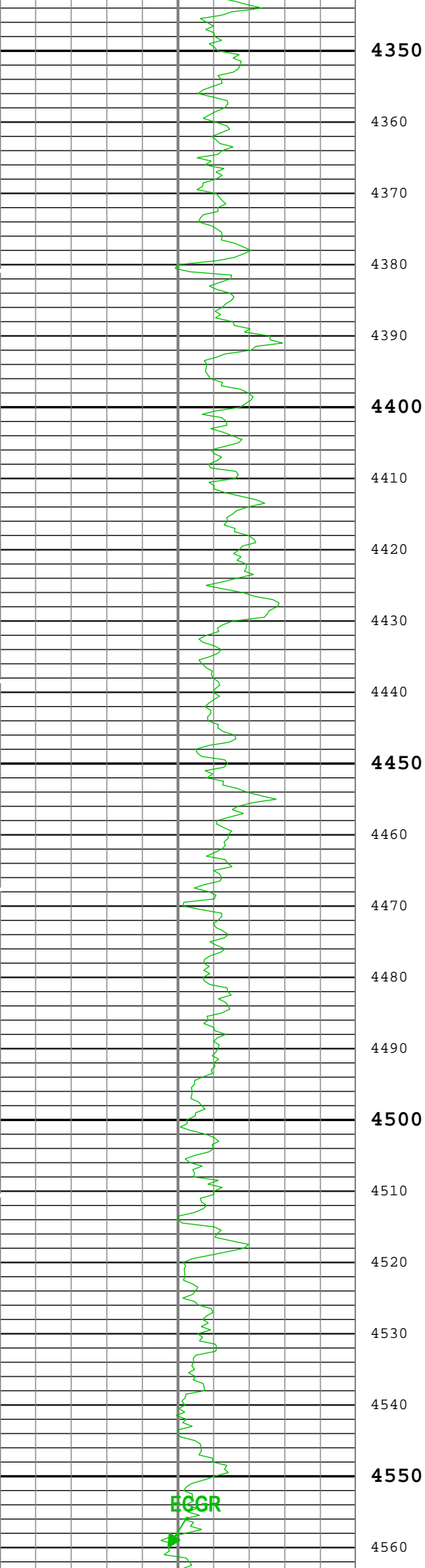


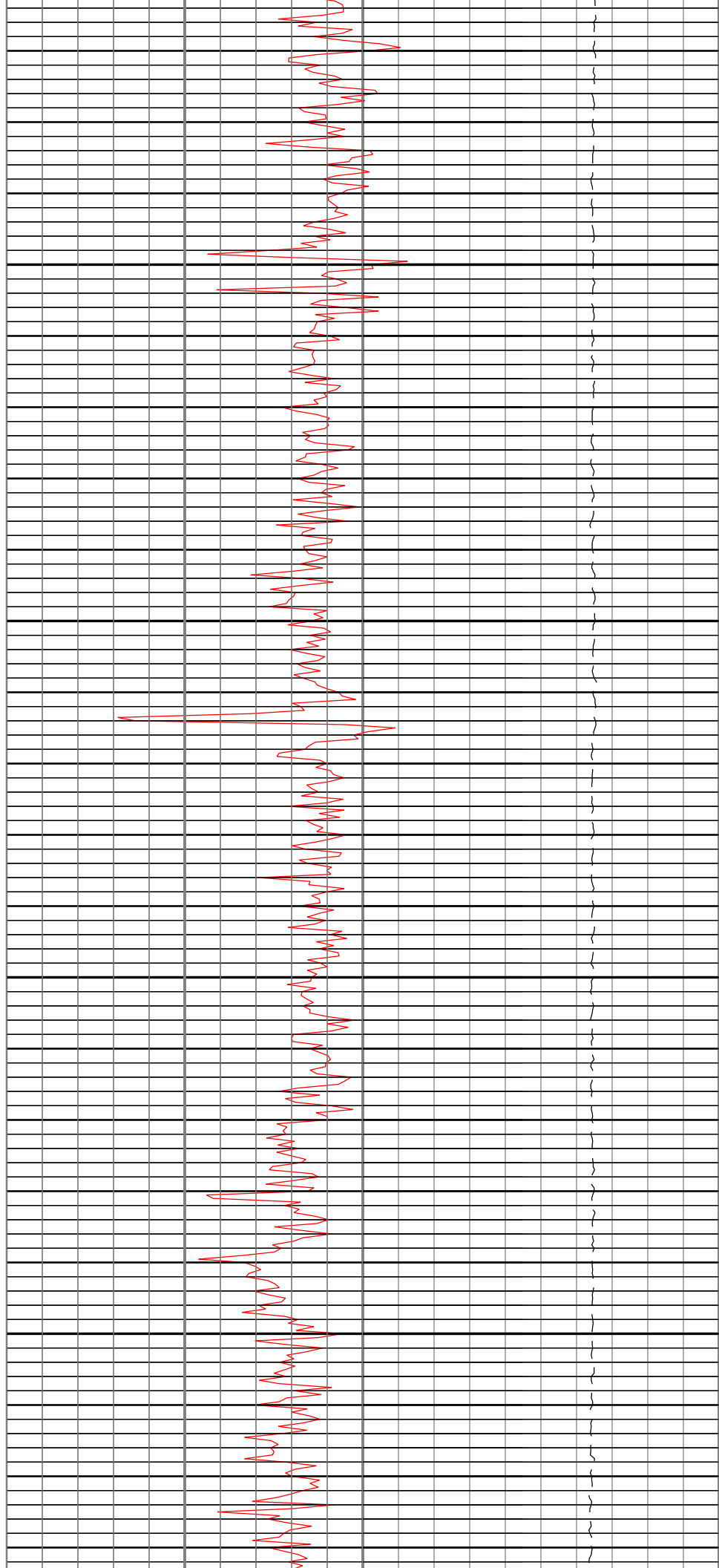
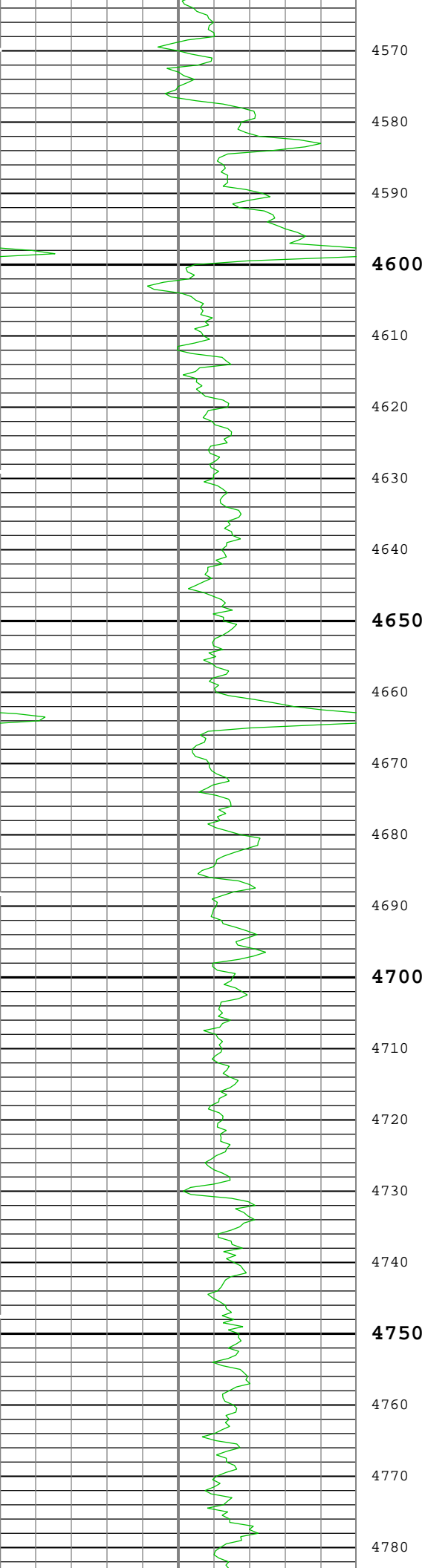


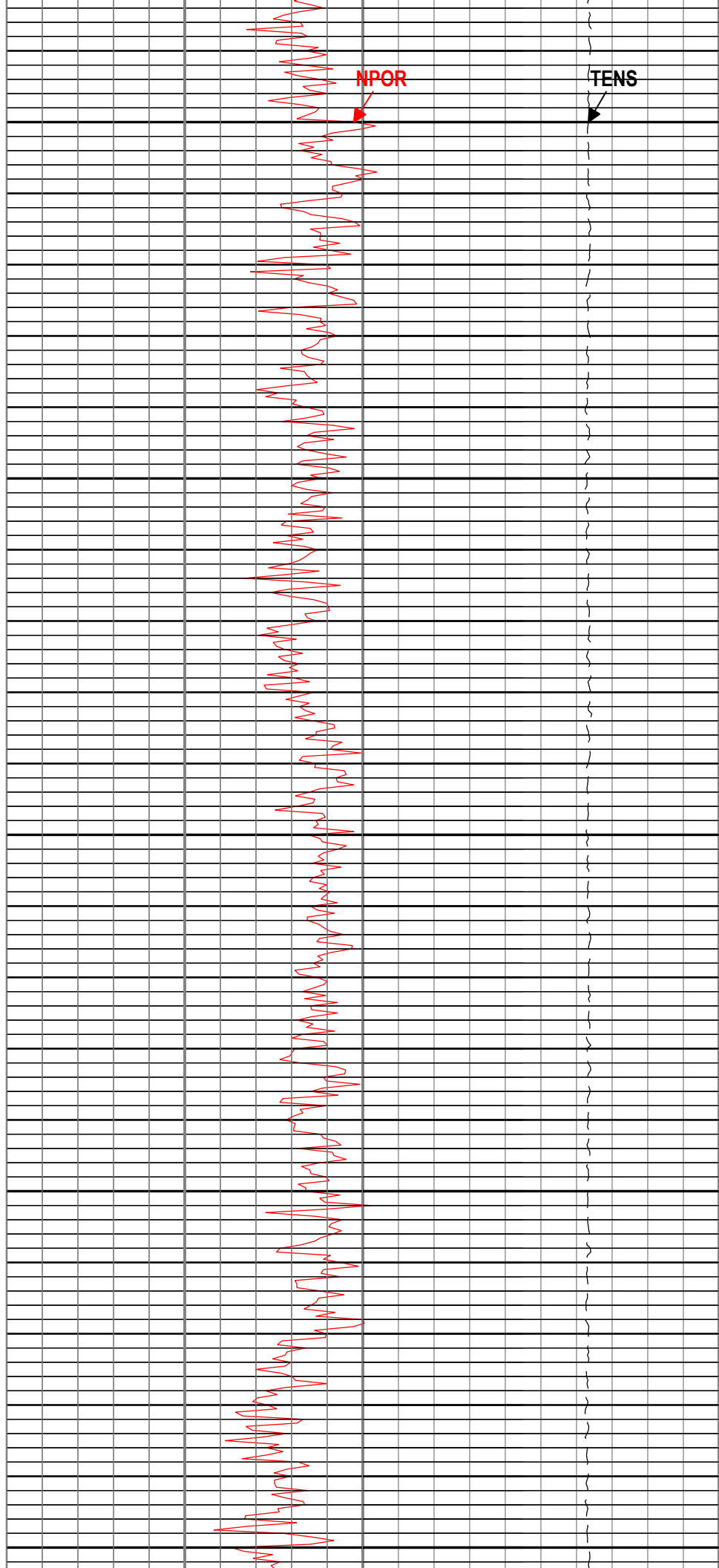
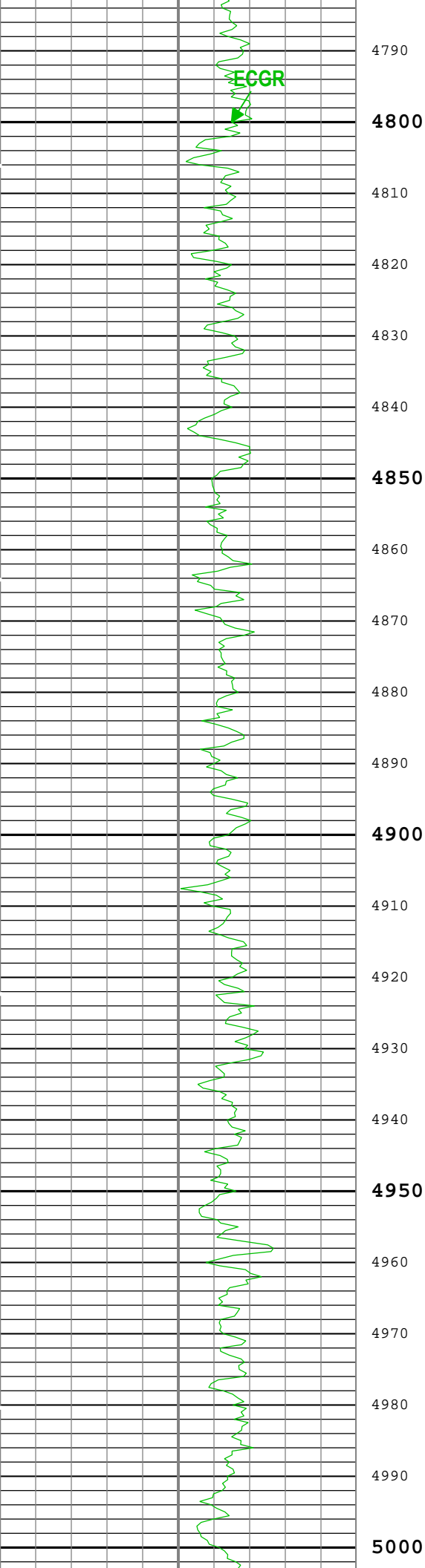


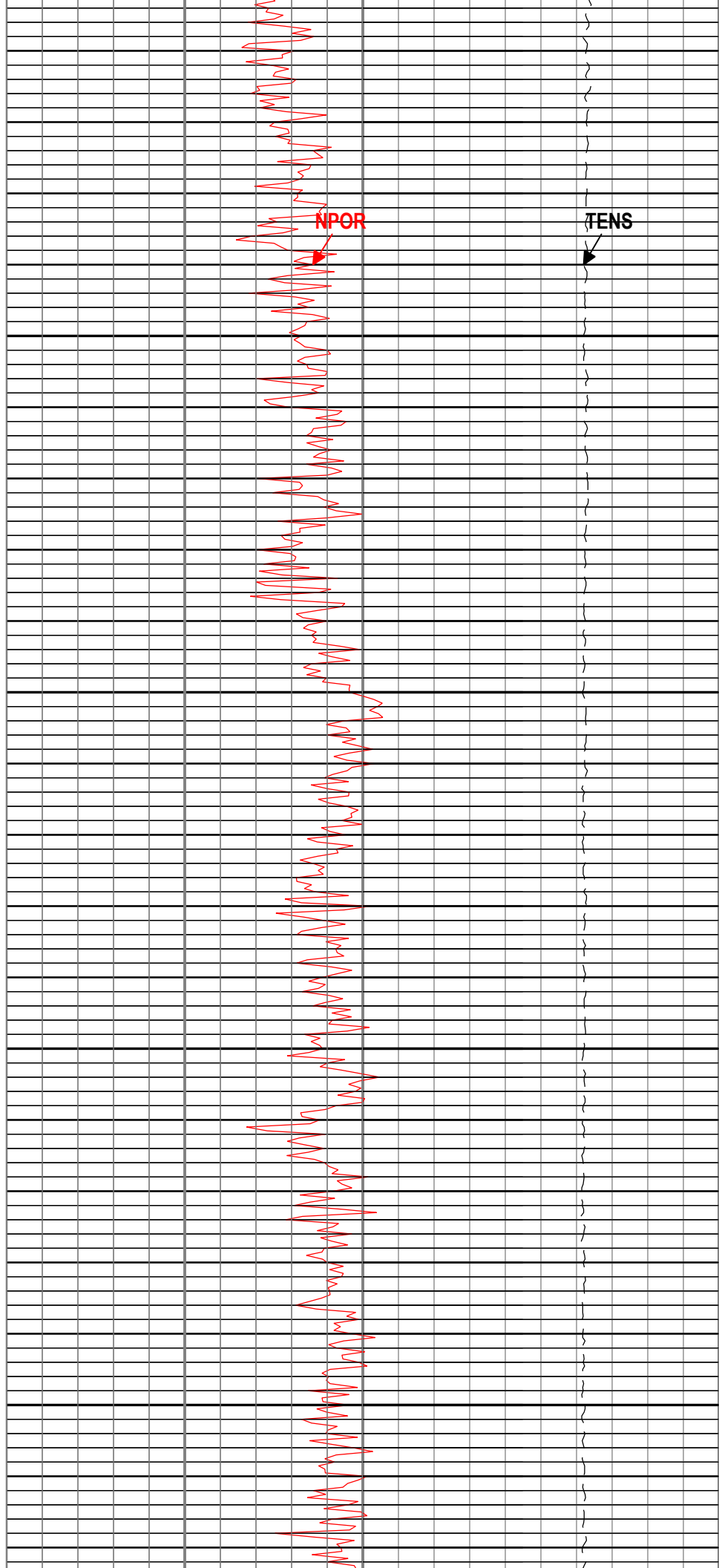
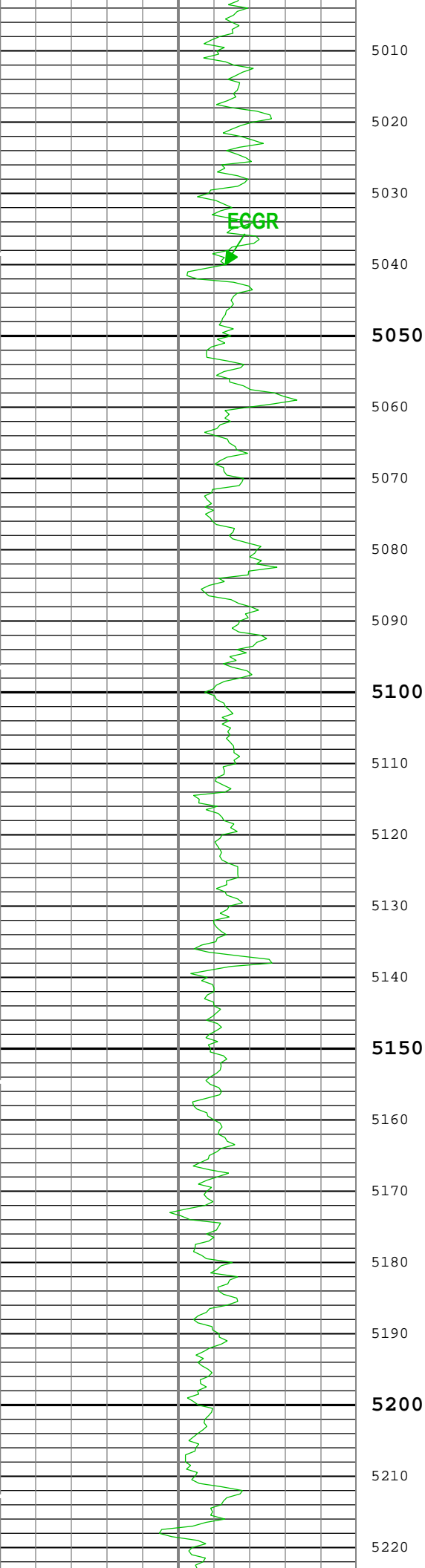


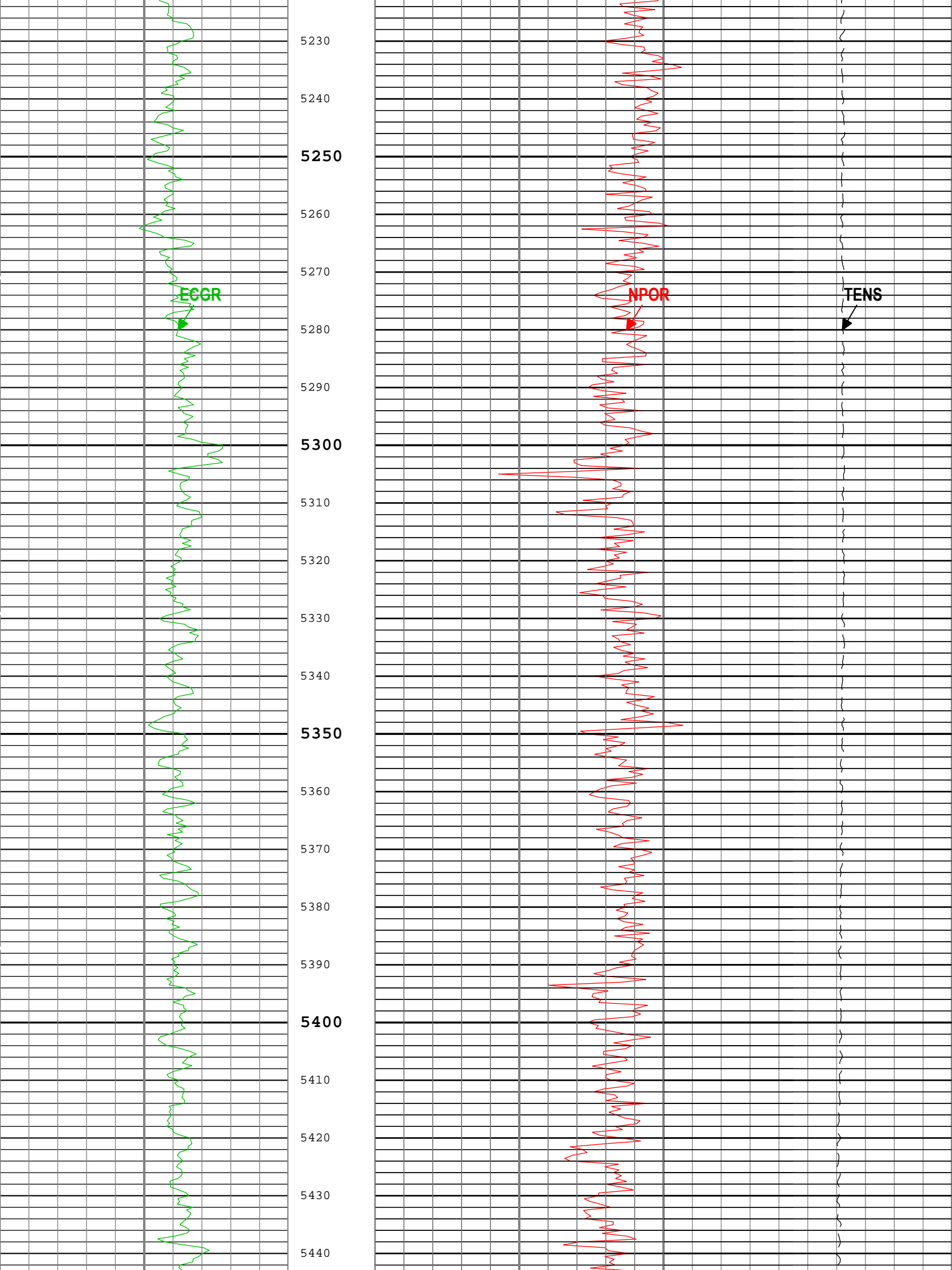


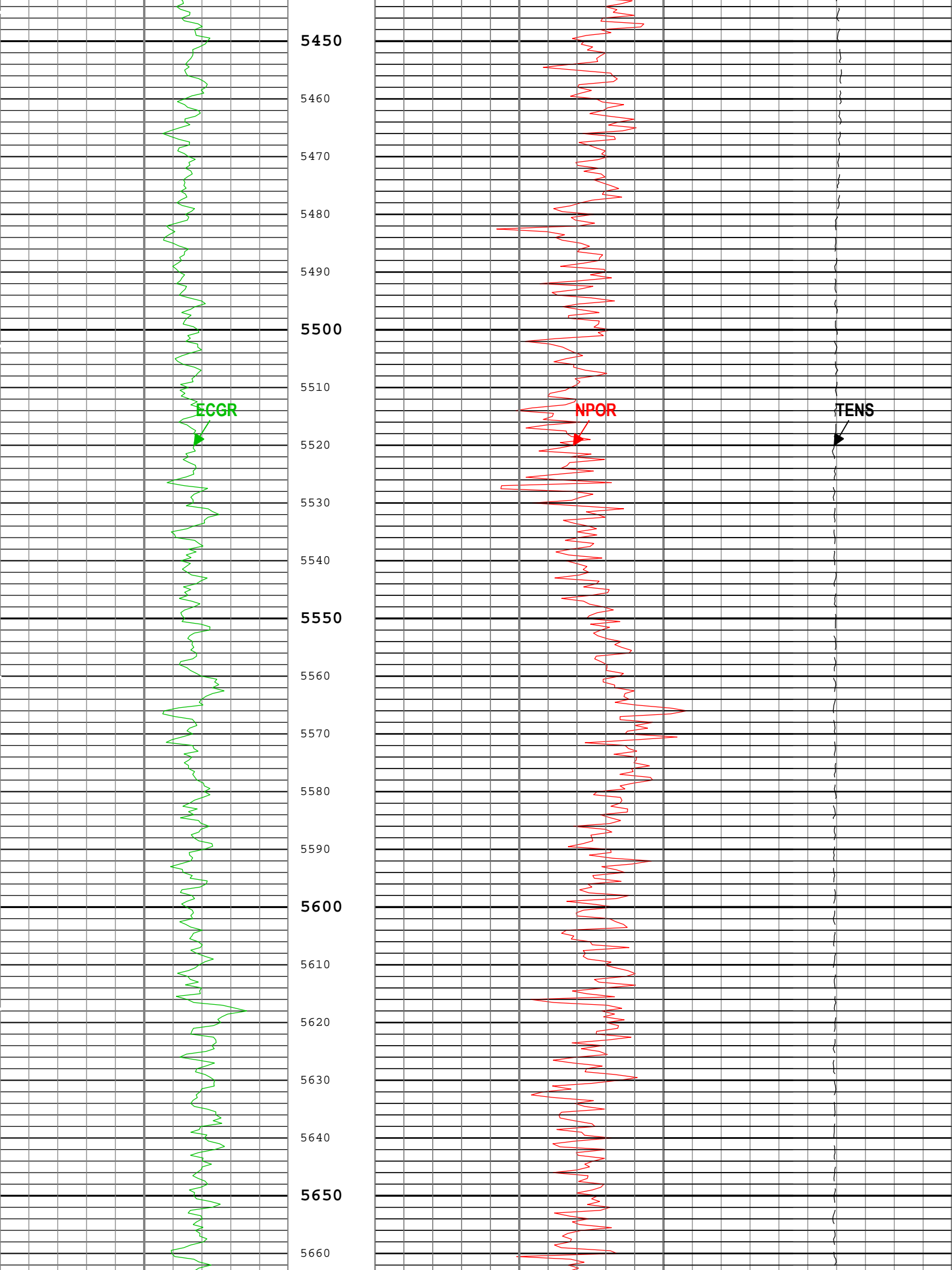


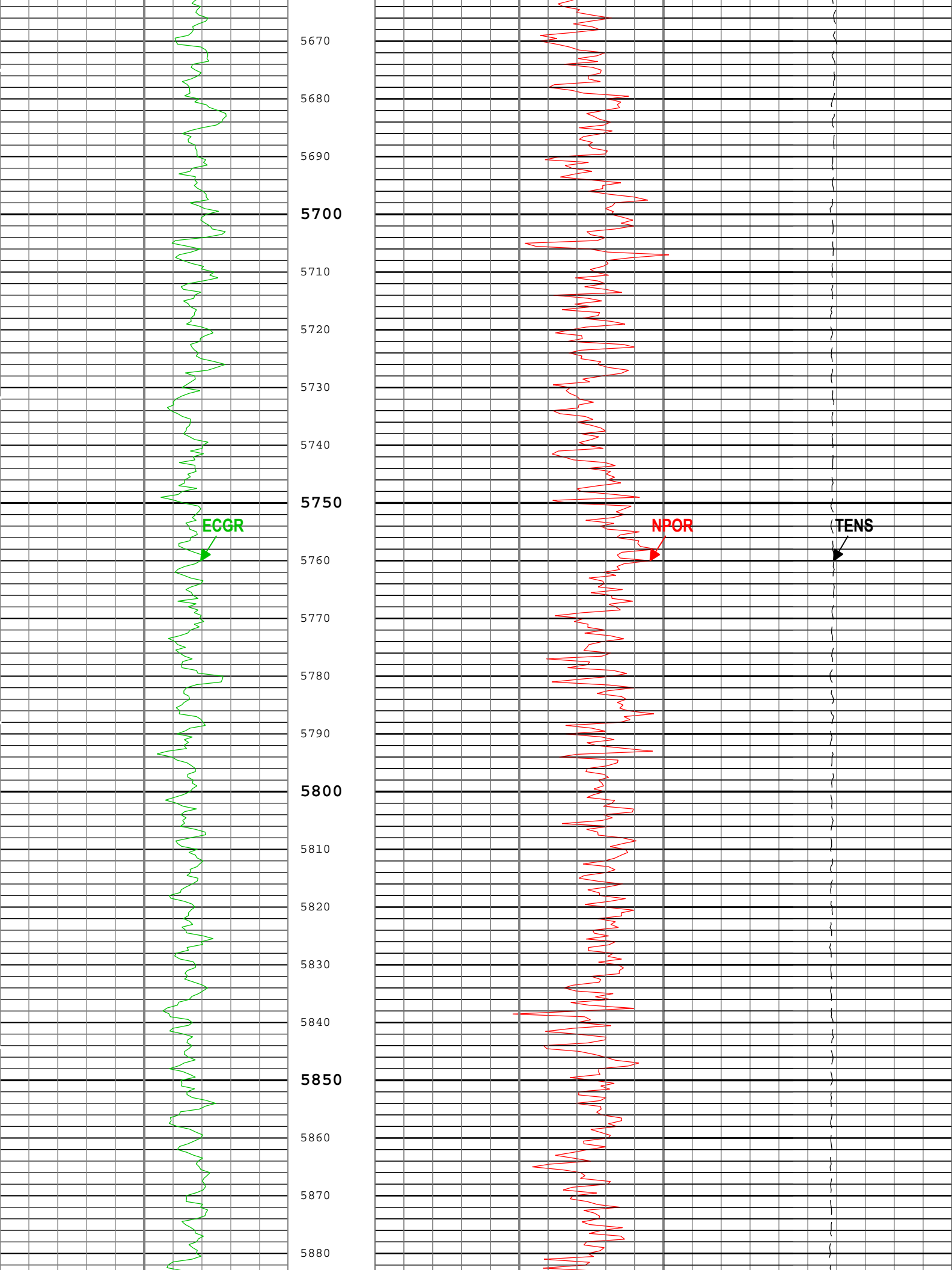


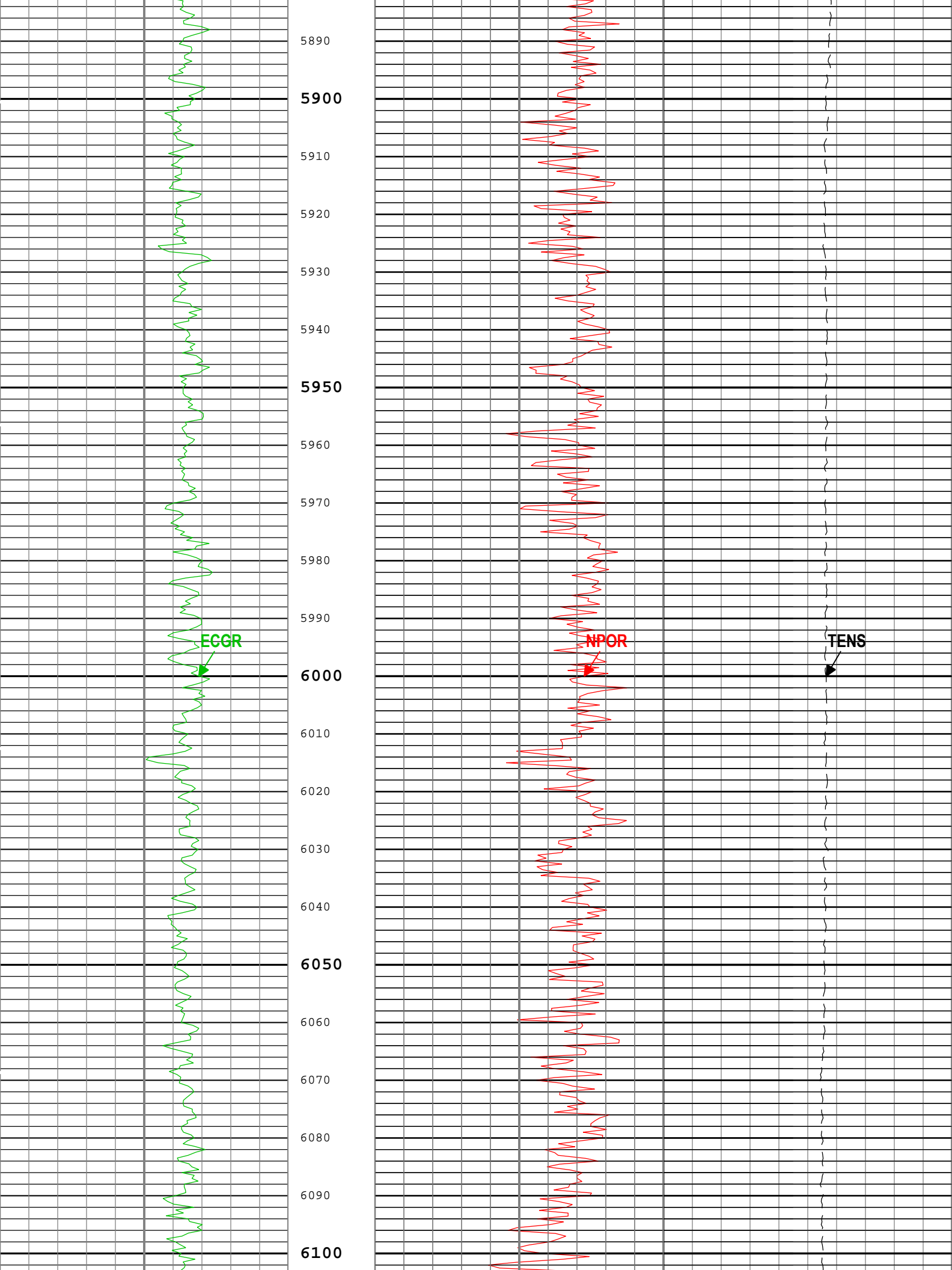


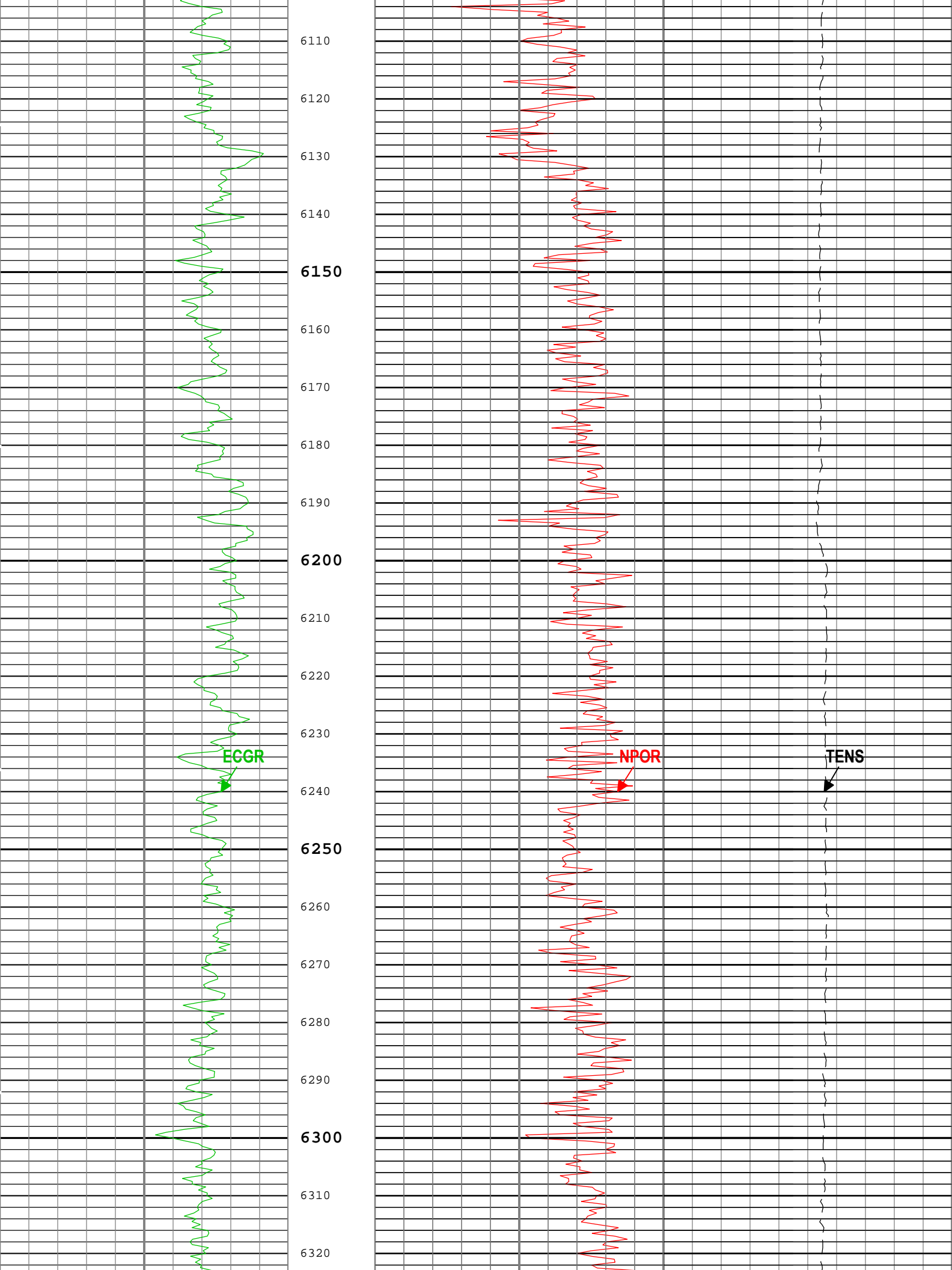


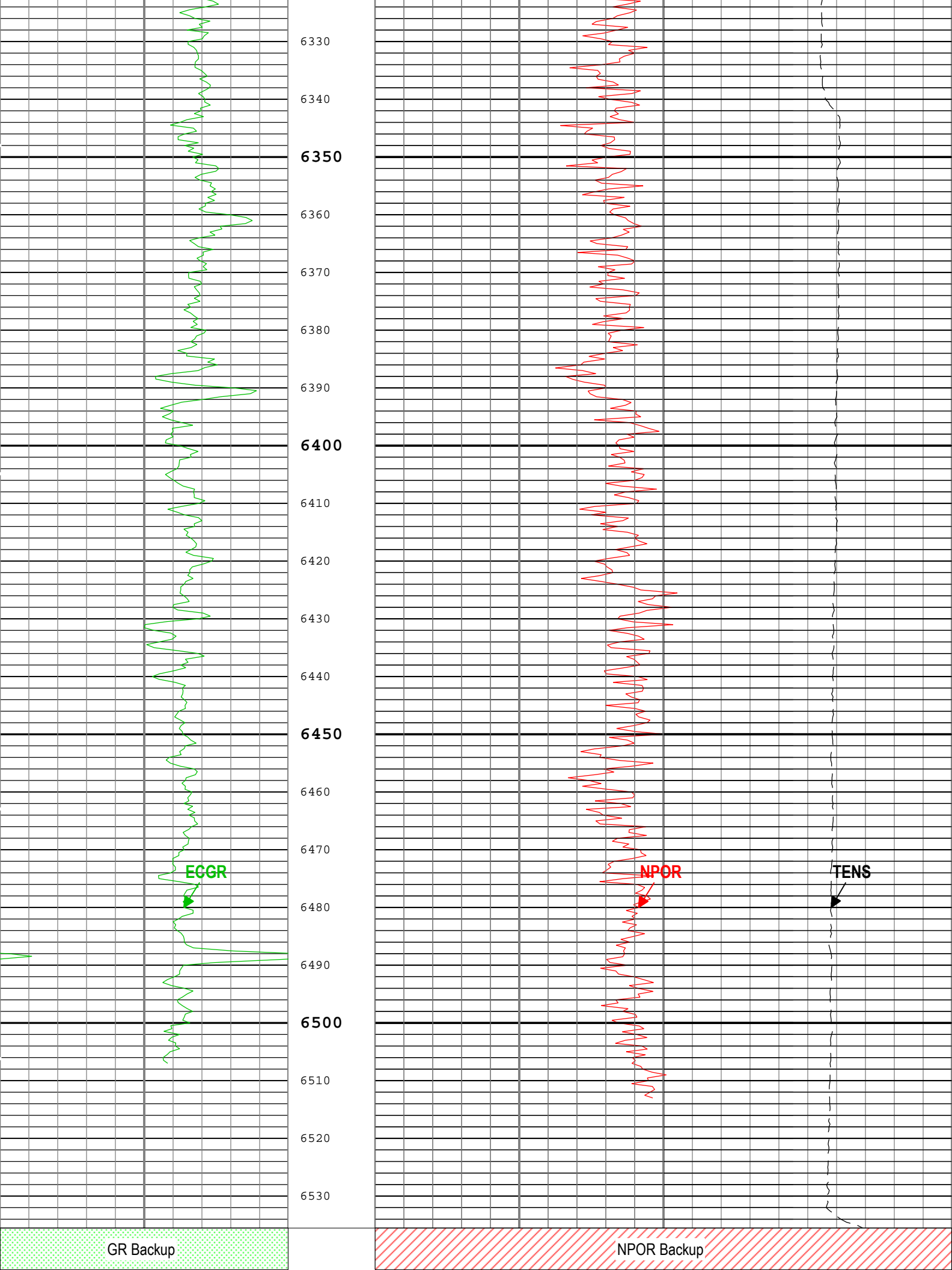












Gamma Ray (ECGR) HGNS[1]			Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS[1]		
0	gAPI	150	0.45	ft3/ft3	-0.15
<div><div>└─ ICV - Integrated Cement Volume every 100.00 (ft3)</div><div>└─ ICV - Integrated Cement Volume every 10.00 (ft3)</div><div>└─ IHV - Integrated Hole Volume every 100.00 (ft3)</div><div>└─ IHV - Integrated Hole Volume every 10.00 (ft3)</div></div>			<div><div>Cable Tension (TENS)</div><div>5000 lbf 0</div></div>		
TIME_1900 - Time Marked every 60.00 (s)					
Description: AIT Basic Log Two Format: Log (Noble Nuclear) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 15-Apr-2019 00:12:57					

Channel Processing Parameters				
One: Parameters				
Parameter	Description	Tool	Value	Unit
BARI(ISSBAR)	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BHT	Bottom Hole Temperature	Borehole	212	degF
BS	Bit Size	WLSESSION	Depth Zoned	in
BSAL	Borehole Salinity	Borehole	0	ppm
CBLO	Casing Bottom (Logger)	WLSESSION	17642.8	ft
CDEN	Cement Density	HGNS-B	2	g/cm3
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	5.5	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DFT_WATER	Drilling Fluid Water Type	Borehole	Brine	
EDF	Elevation of Derrick Floor Above Permanent Datum	WLSESSION	30	ft
EPD	Elevation of Permanent Datum (PDAT) above Mean Sea Level	WLSESSION	4790	ft
FSAL	Formation Salinity	Borehole	0	ppm
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
GGRD	Geothermal Gradient	Borehole	1	0.01 degF/ft
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	REMS(RT)	
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	GTEM_LINEST(RT)	
HSCO	Hole Size Correction Option	HGNS-B	Yes	
IMAR	Image Rotation	USIT-E	Off	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
MFST	Mud Filtrate Sample Temperature	Borehole	68	degF
MST	Mud Sample Temperature	Borehole	68	degF
PDAT	Permanent Datum	WLSESSION	GL	
RMFS	Resistivity of Mud Filtrate Sample	Borehole	0.15	ohm.m
RMS	Resistivity of Mud Sample	Borehole	0.2	ohm.m
SHT	Surface Hole Temperature	Borehole	68	degF
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0.1	Mrayl
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-E	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-E	FreePipe Norm.	
One: Depth Zoned Parameters				

OneDepth Zoned Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	26	8	110
BS	13.5	110	1946
BS	8.5	1946	6535.32

All depth are actual.

Tool Control Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UPAT	USIT Emission Pattern	USIT-E	Pattern 500 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 6.0 in	

Main Pass

Nuclear Repeat Analysis

Software Version

Acquisition System	Version
Maxwell 2018 SP2	8.2.104493.3100

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[4]:Up	Up	1995.25 ft	2498.20 ft	14-Apr-2019 7:53:29 PM	14-Apr-2019 8:02:37 PM	ON	2.53 ft	Yes
One	Log[8]:Up	Up	4467.68 ft	6535.32 ft	14-Apr-2019 9:03:08 PM	14-Apr-2019 9:42:43 PM	ON	6.95 ft	Yes
One	Log[9]:Up	Up	43.09 ft	4658.09 ft	14-Apr-2019 9:51:51 PM	14-Apr-2019 11:21:27 PM	ON	6.63 ft	Yes

All depths are referenced to toolstring zero

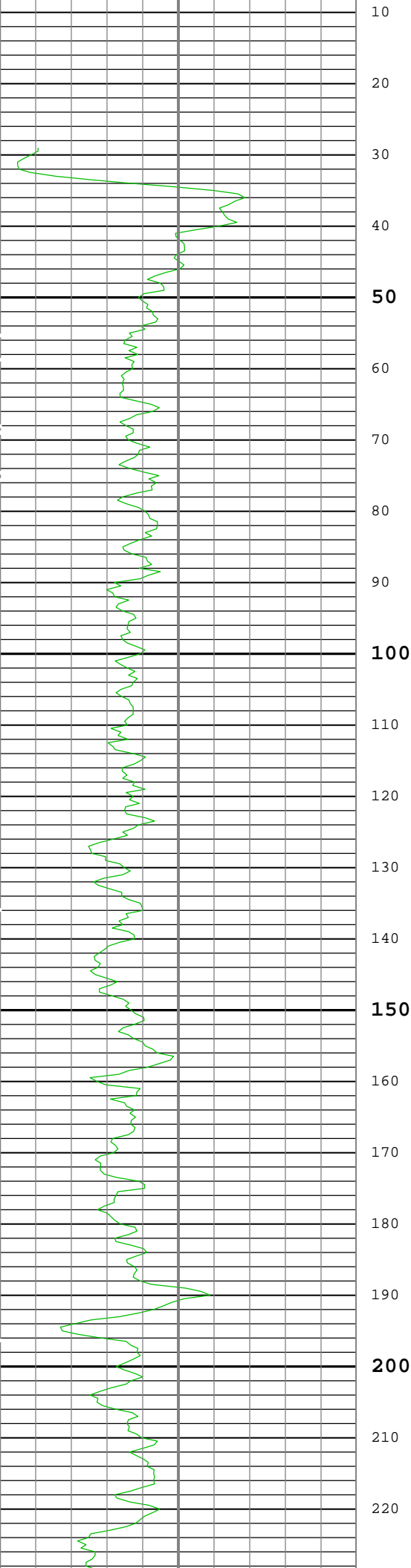
Log	Company:Noble Energy Inc Well:Vogler State D21-780 Main Pass:S007
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Description: AIT Basic Log Two Format: Noble Nuclear RA Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 15-Apr-2019 00:13:02

— IHV - Integrated Hole Volume every 10.00 (ft3)
— IHV - Integrated Hole Volume every 100.00 (ft3)
— ICV - Integrated Cement Volume every 10.00 (ft3)
TIME_1900 - Time Marked every 60.00 (s)
— ICV - Integrated Cement Volume every 100.00 (ft3)

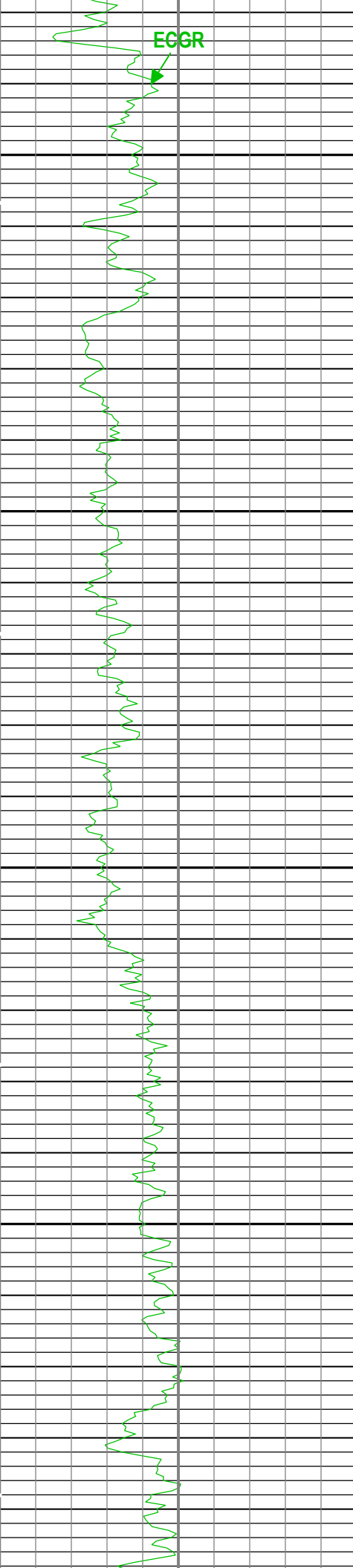
	Main To Repeat
	Repeat To Main
	Cable Tension (TENS)
5000	lbf

Main To Repeat	Main To Repeat
Repeat To Main	Repeat To Main
Gamma Ray (ECGR) HGNS[1]	Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS[1]
0 gAPI 150	0.45 ft3/ft3 -0.15



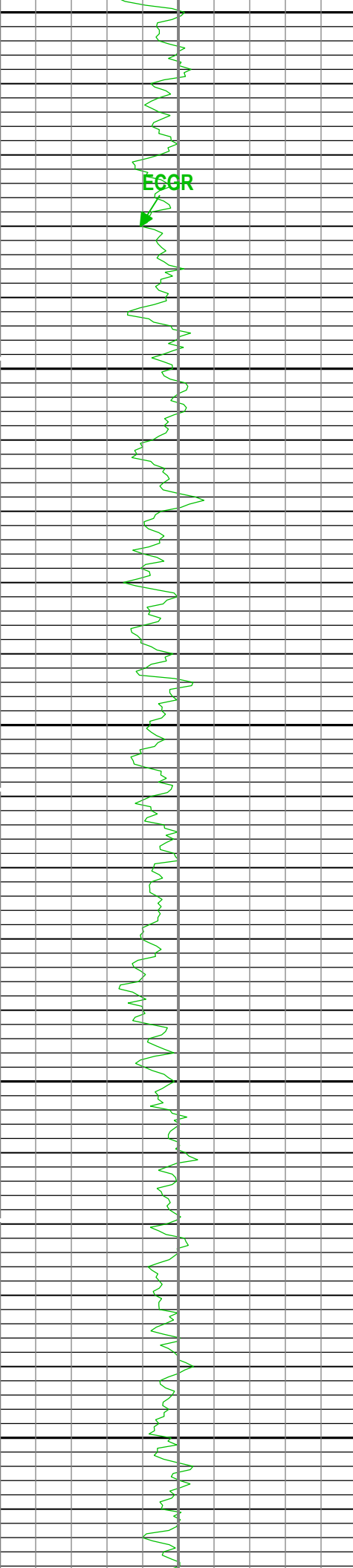
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440





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610

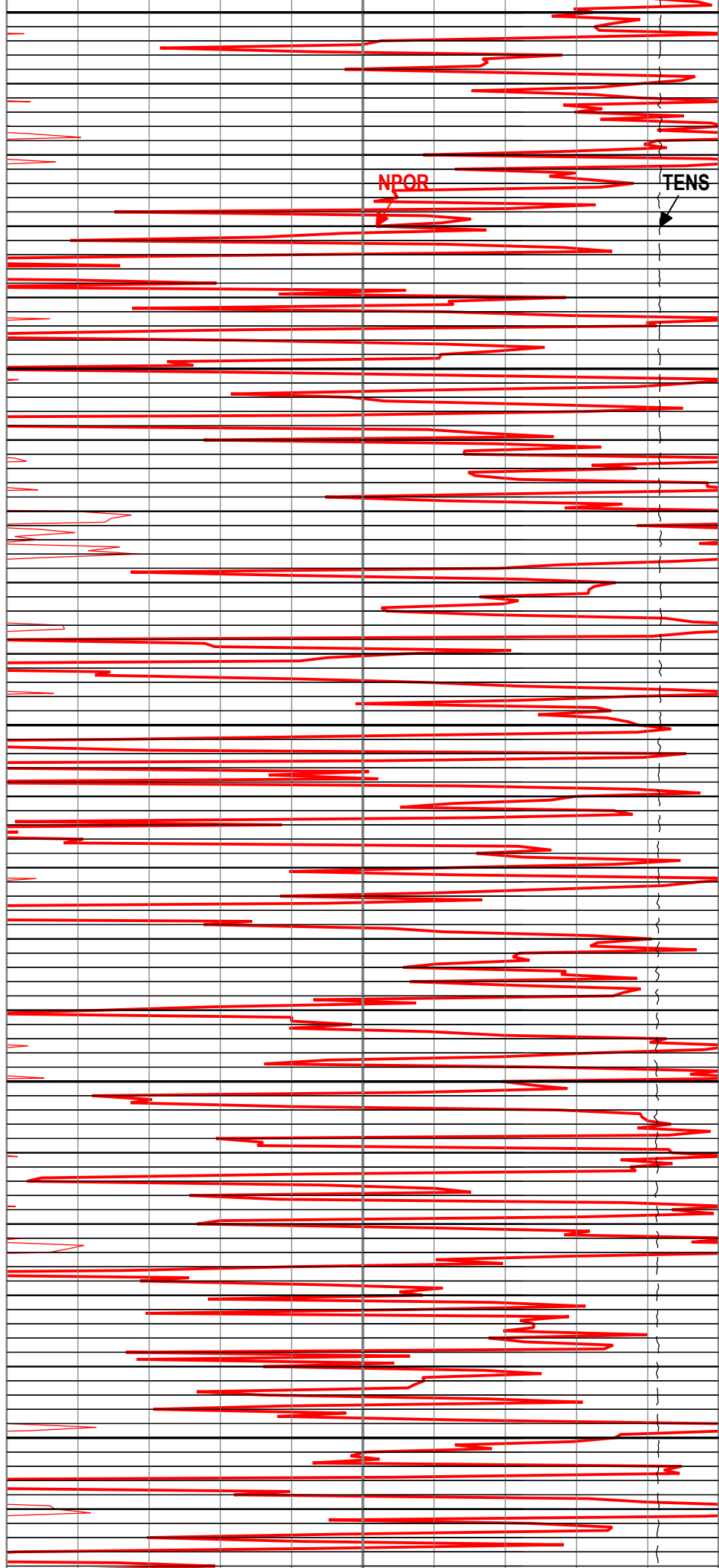
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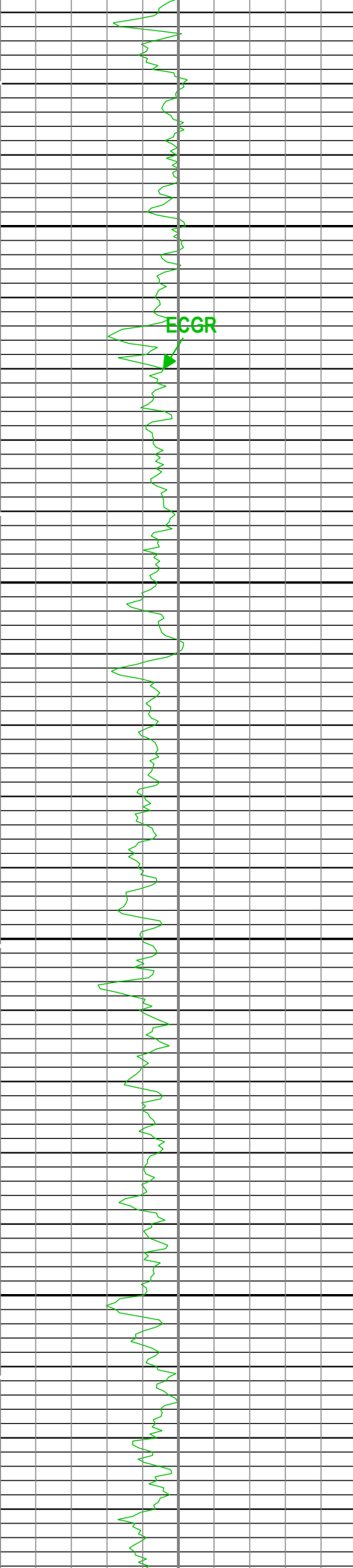
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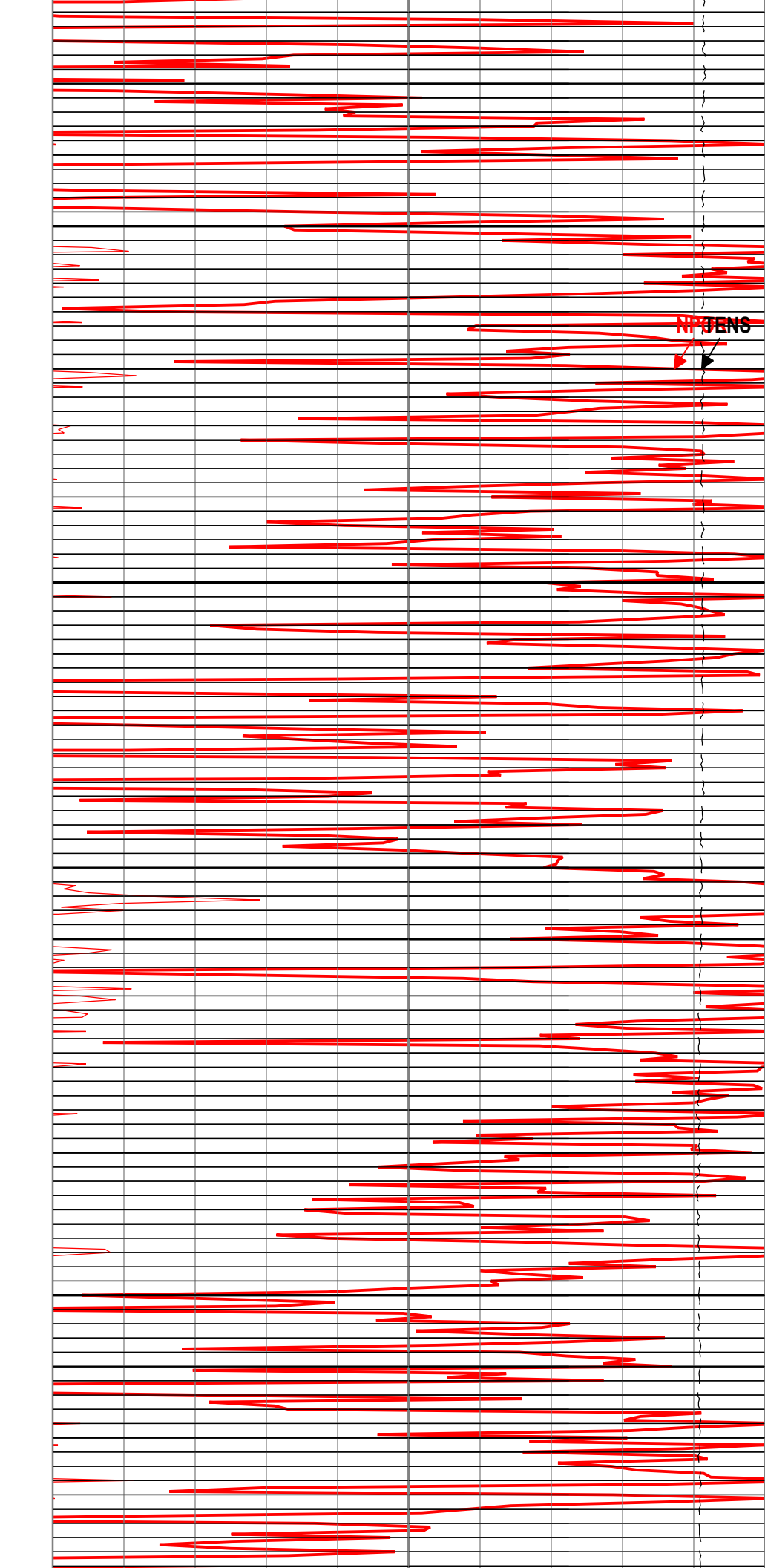
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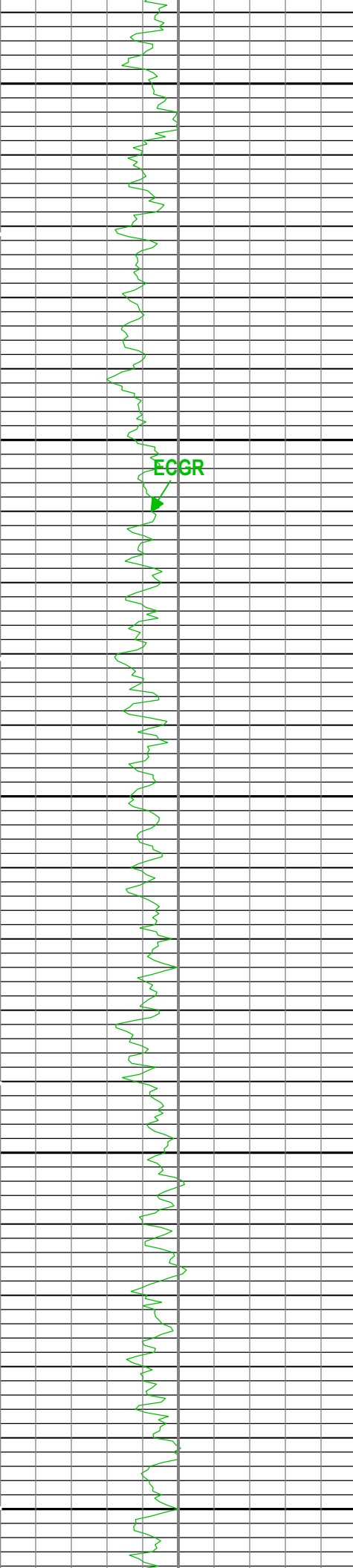
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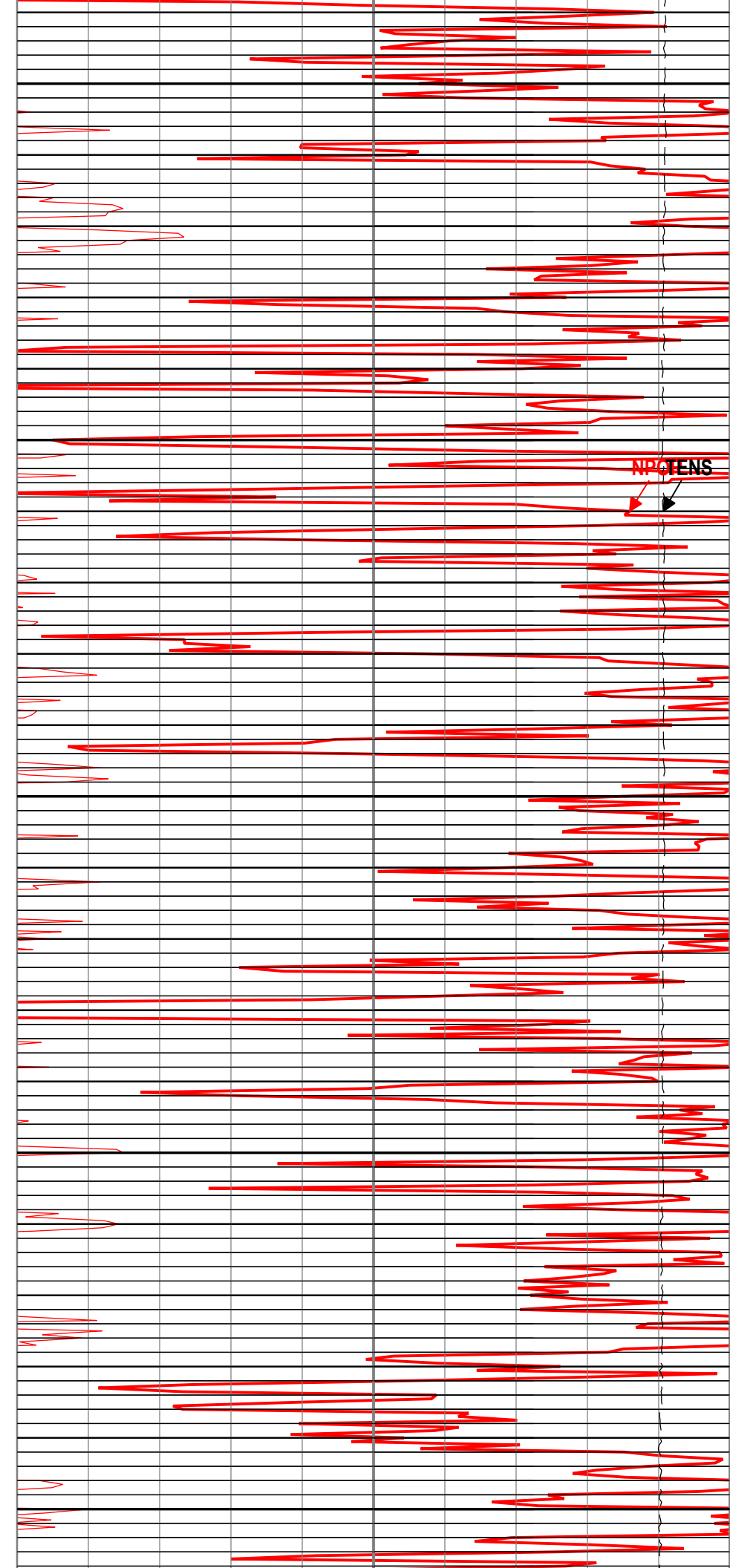


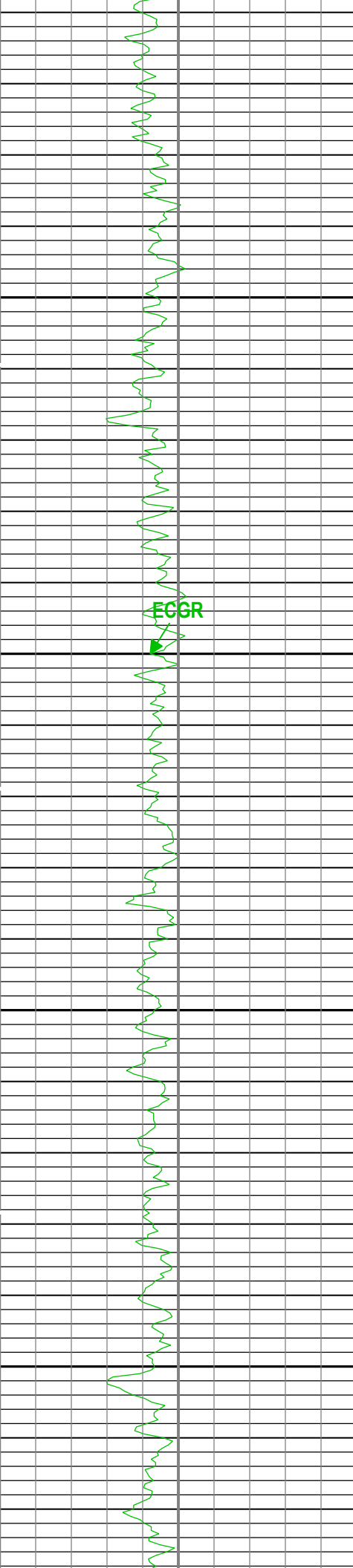
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ECGR

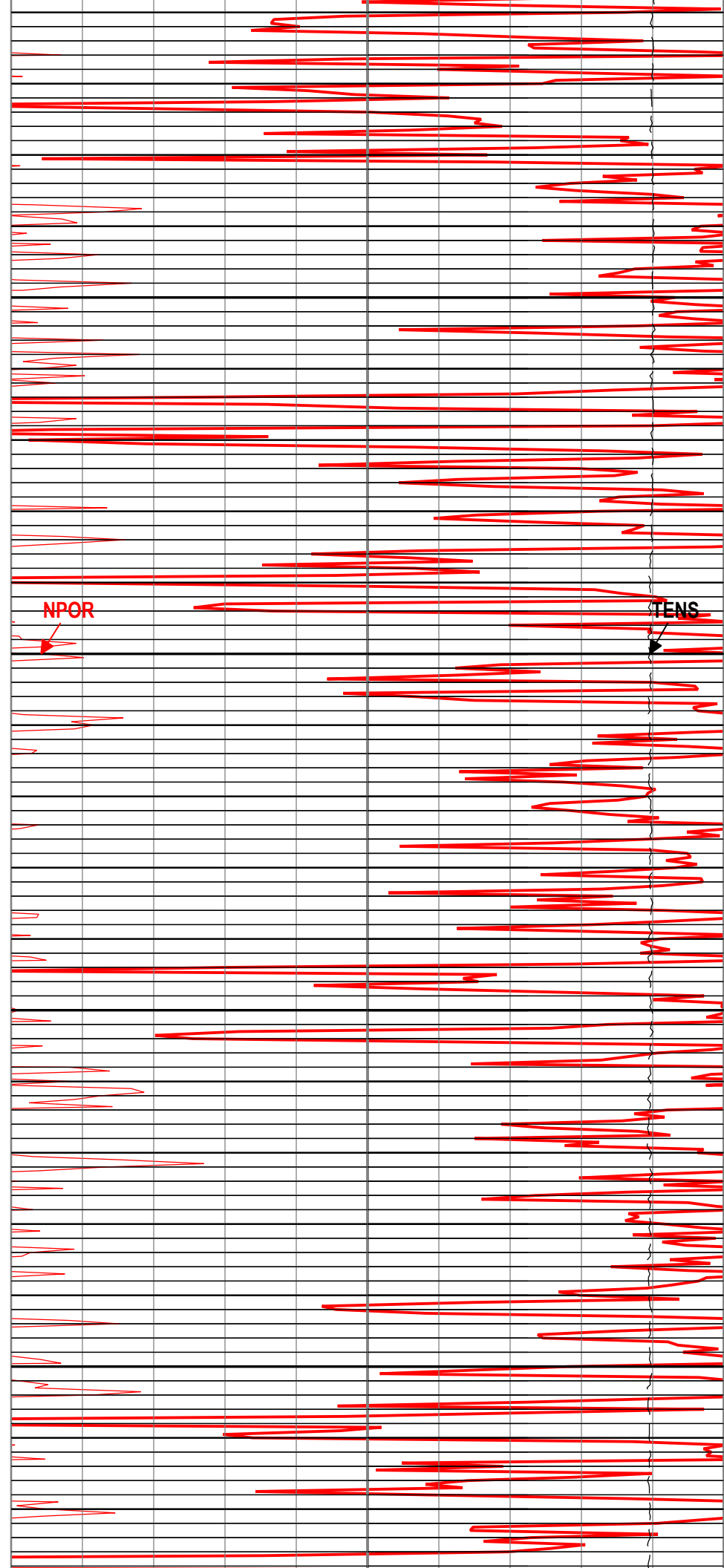


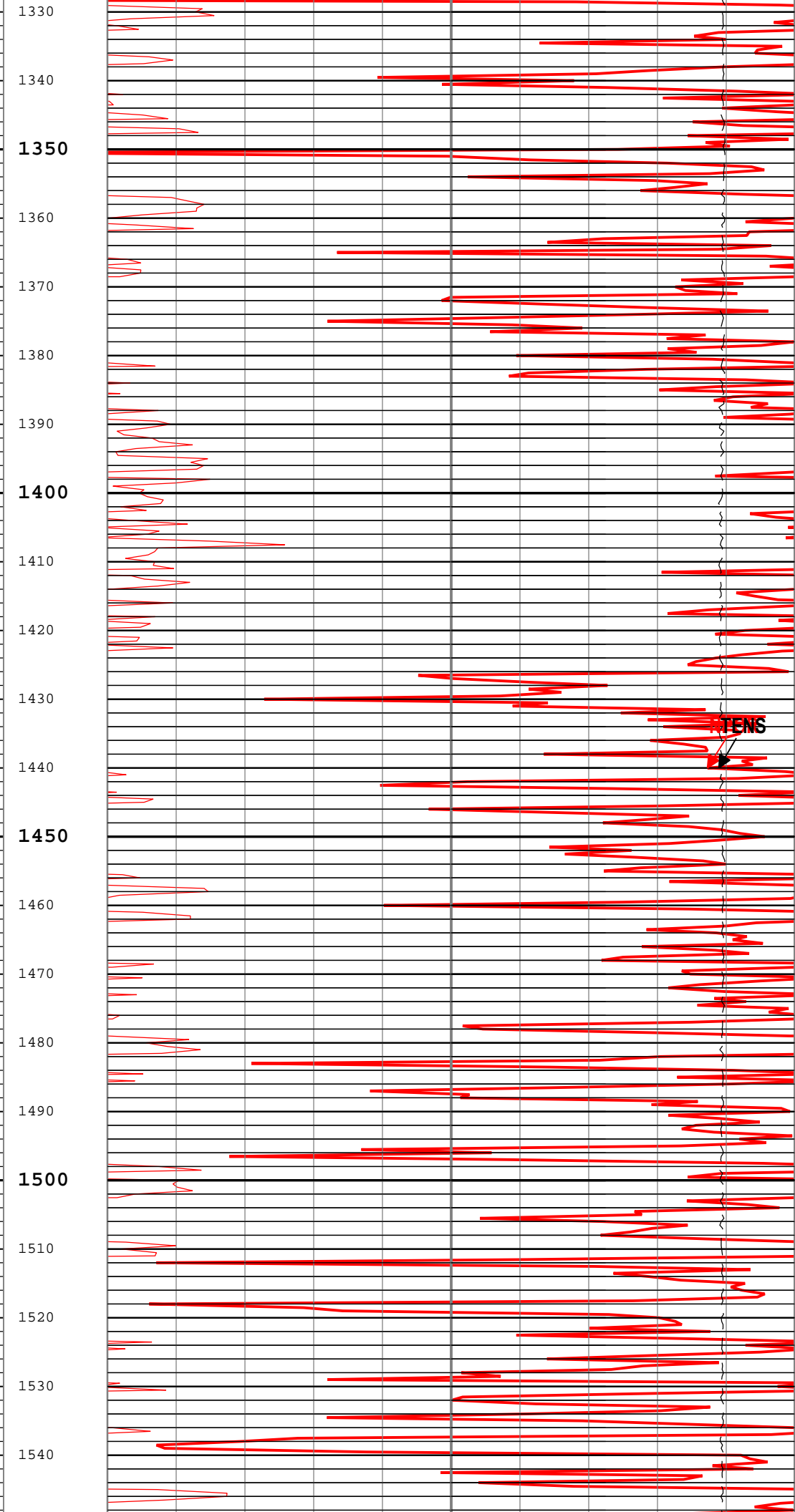
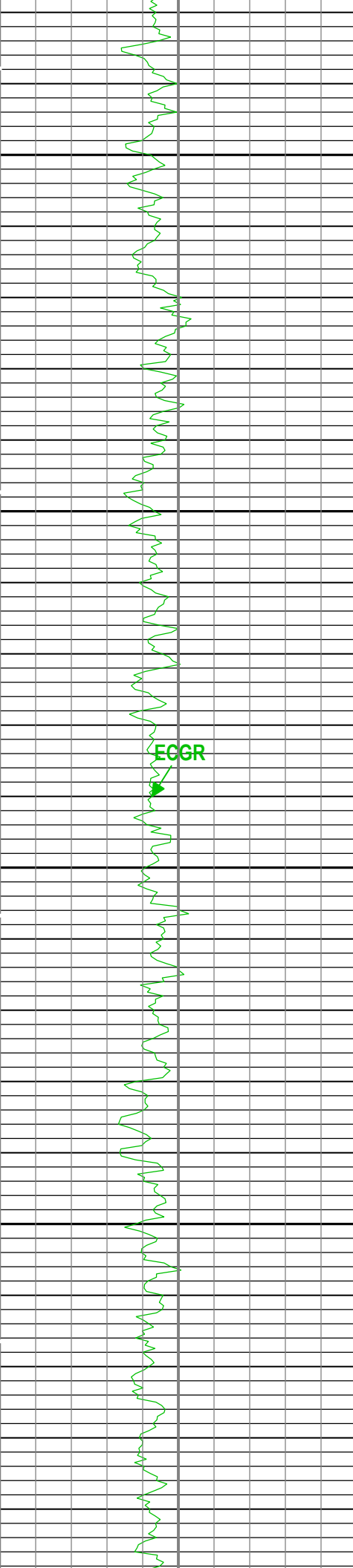
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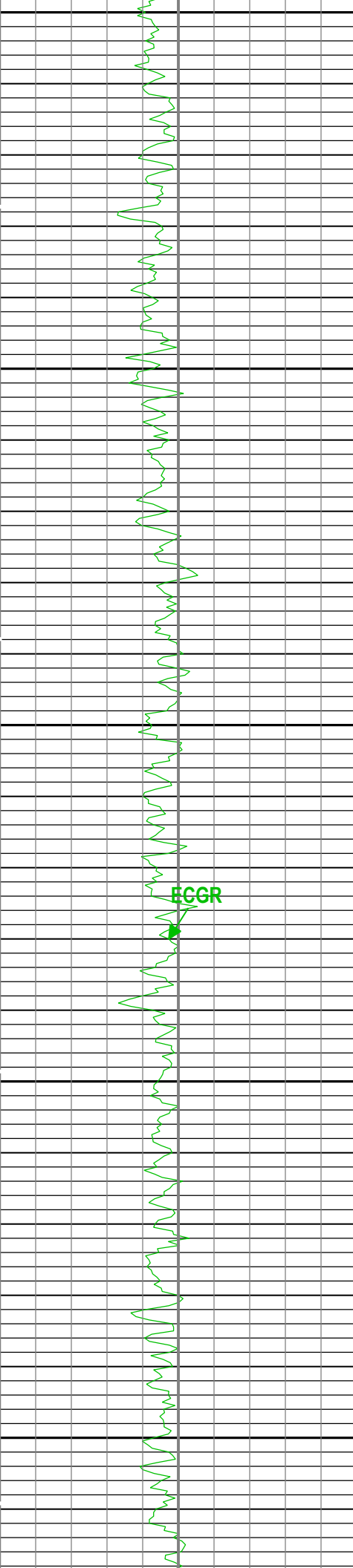
NPOR



TENS







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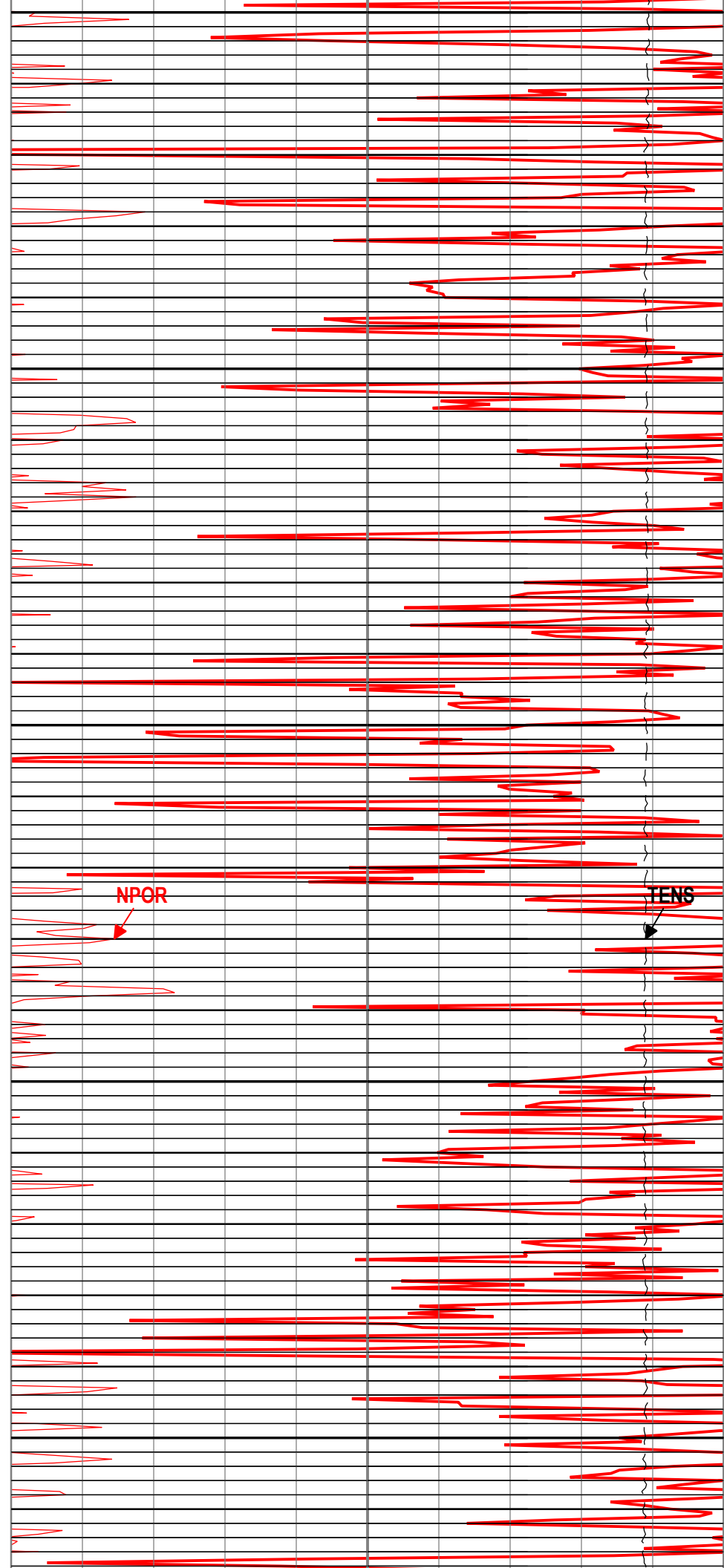
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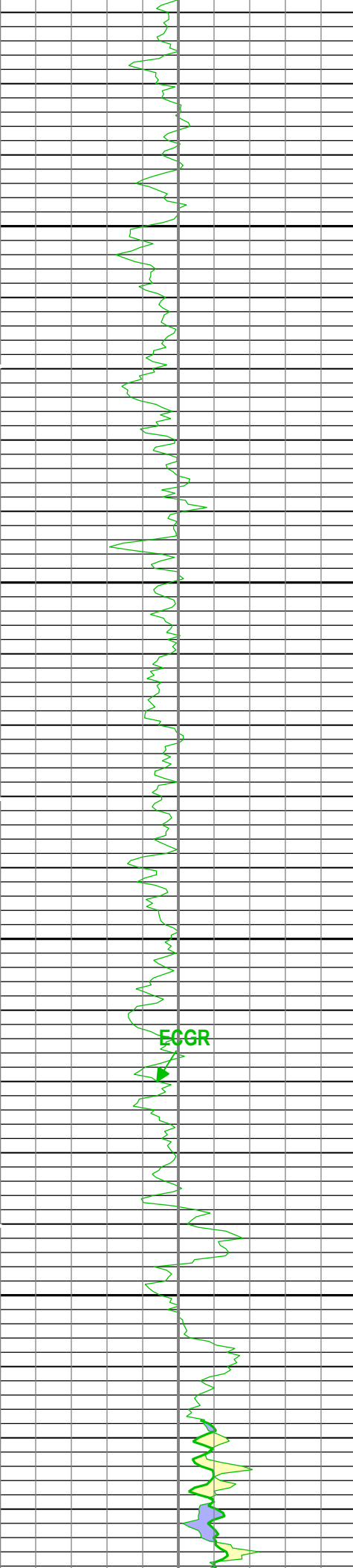
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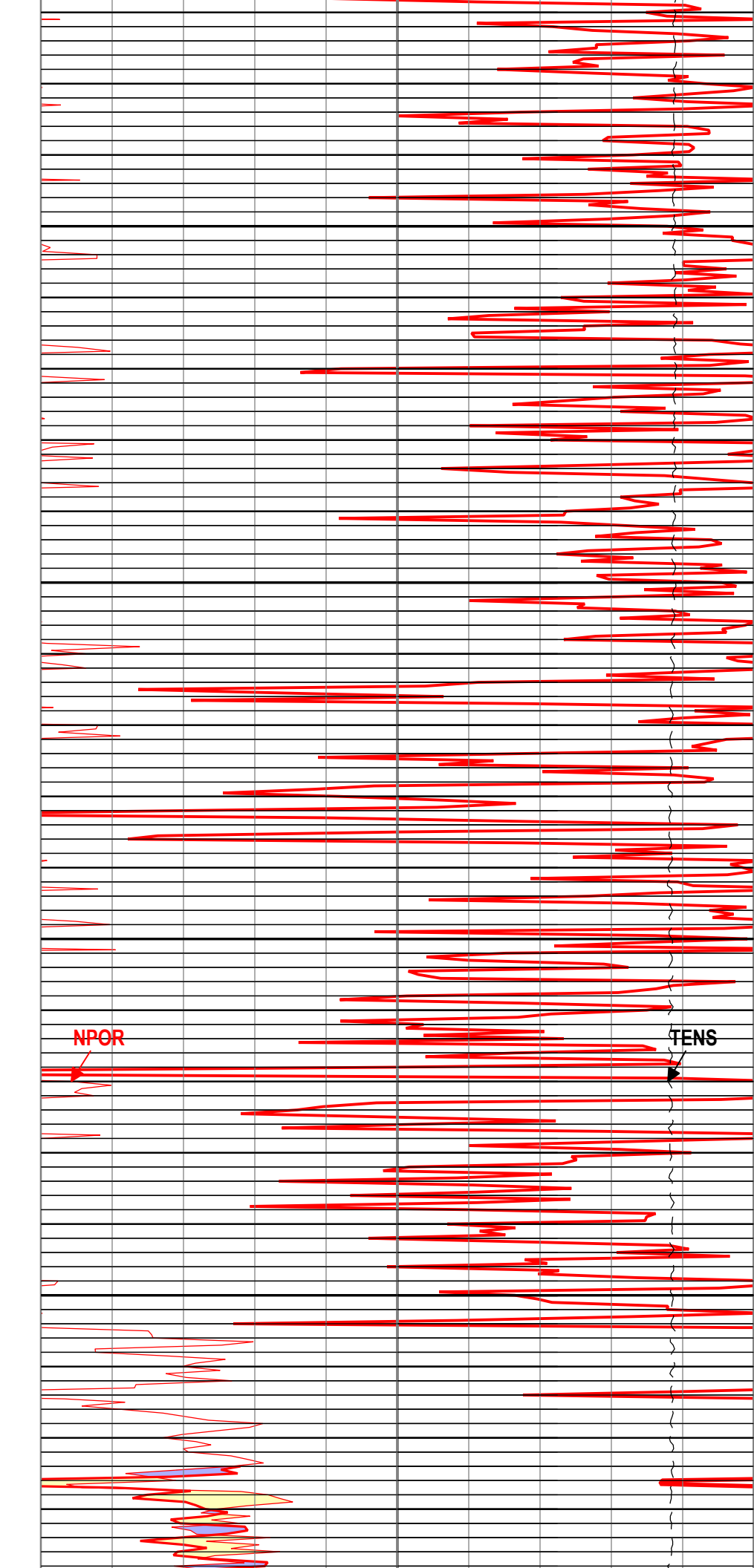
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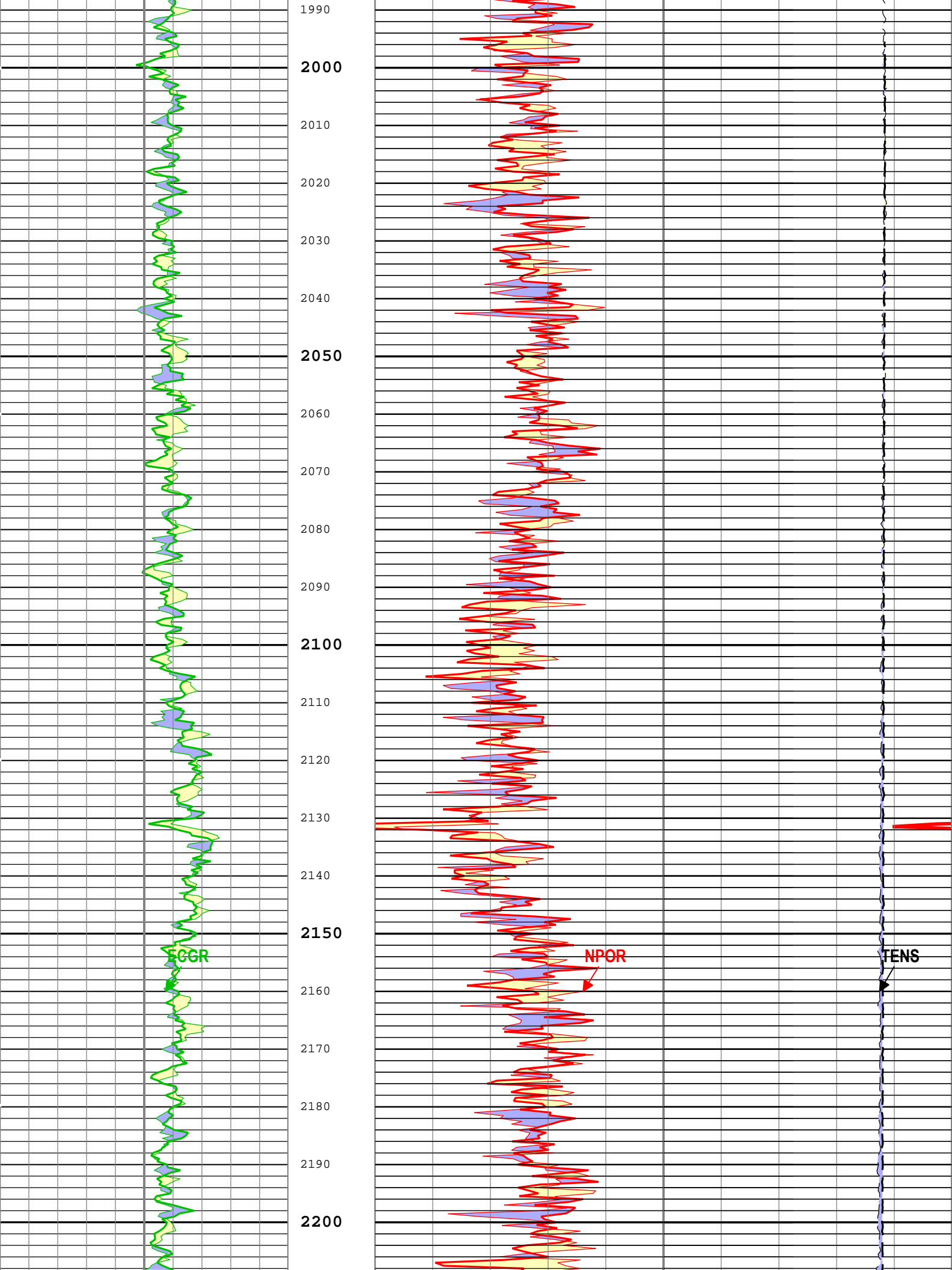


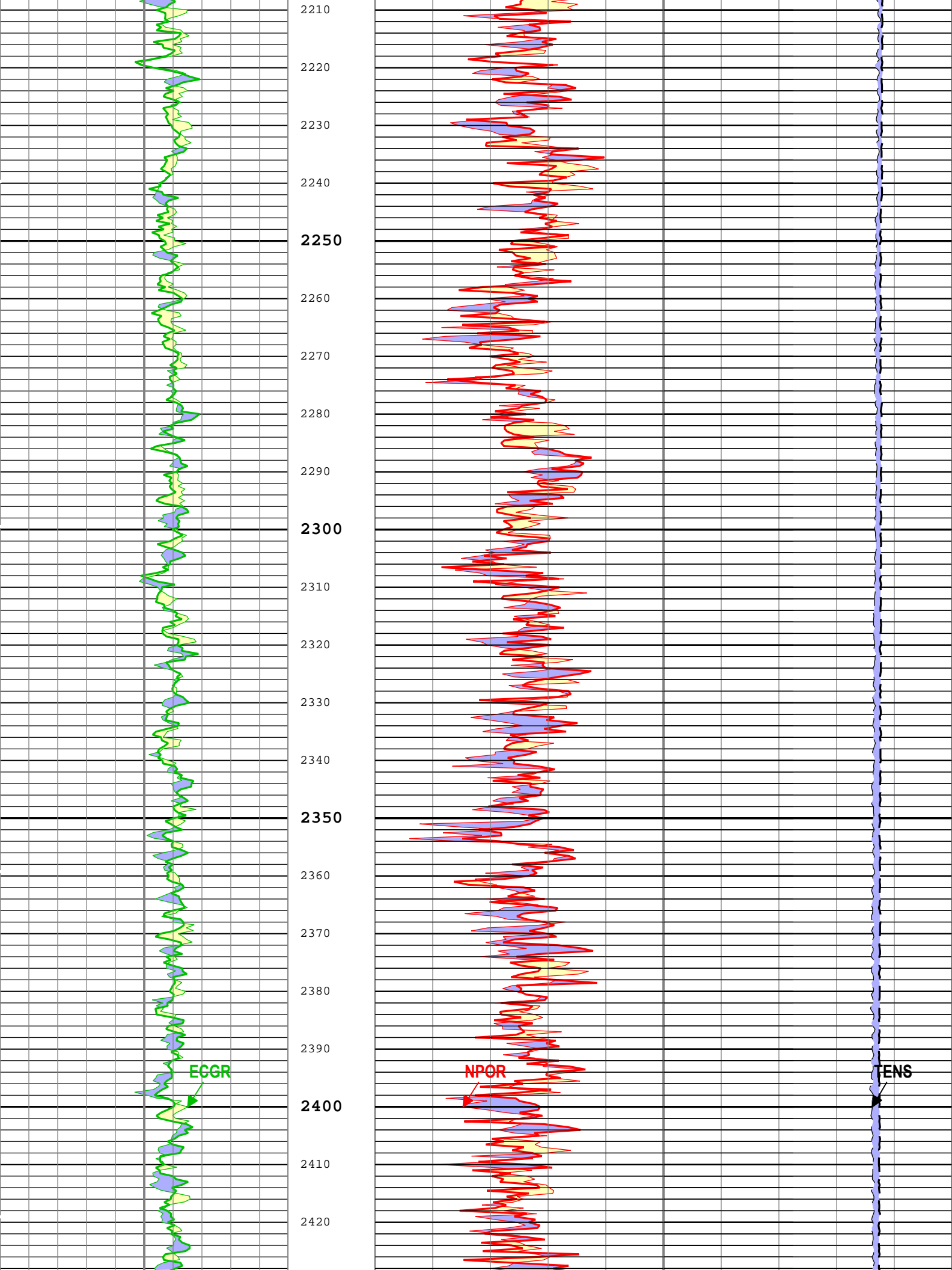
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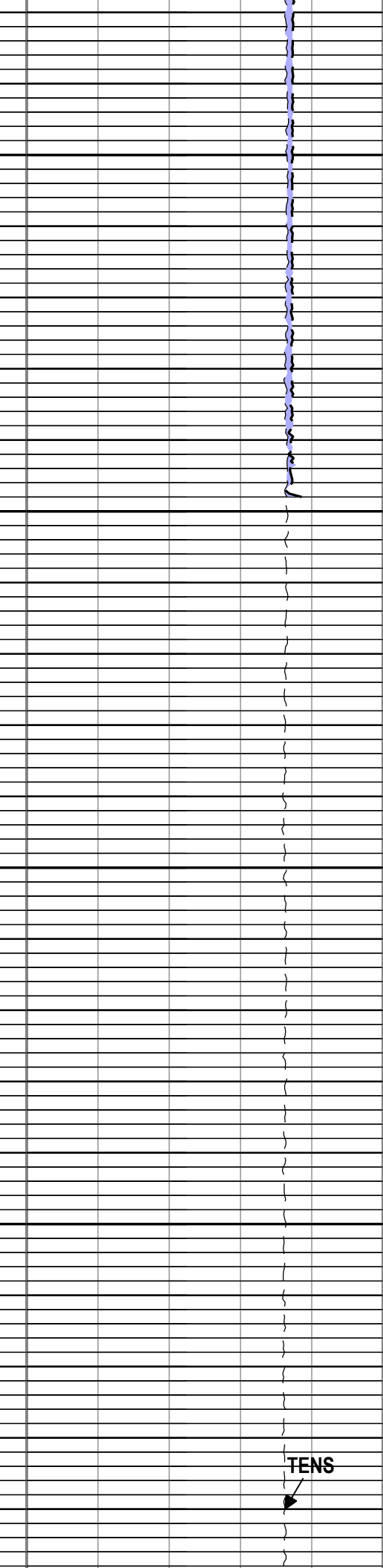
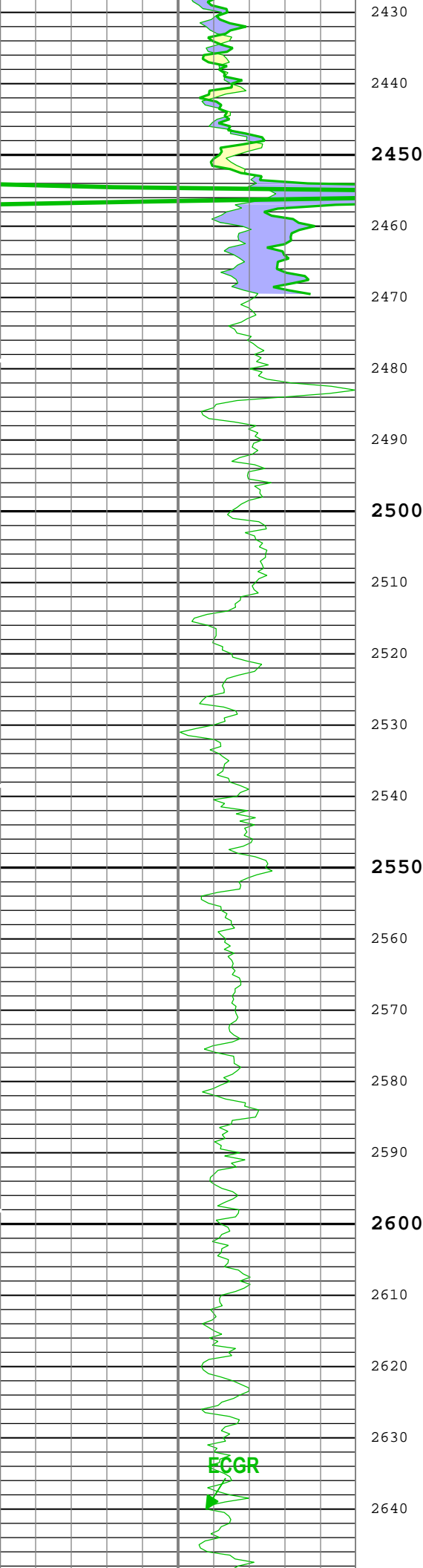


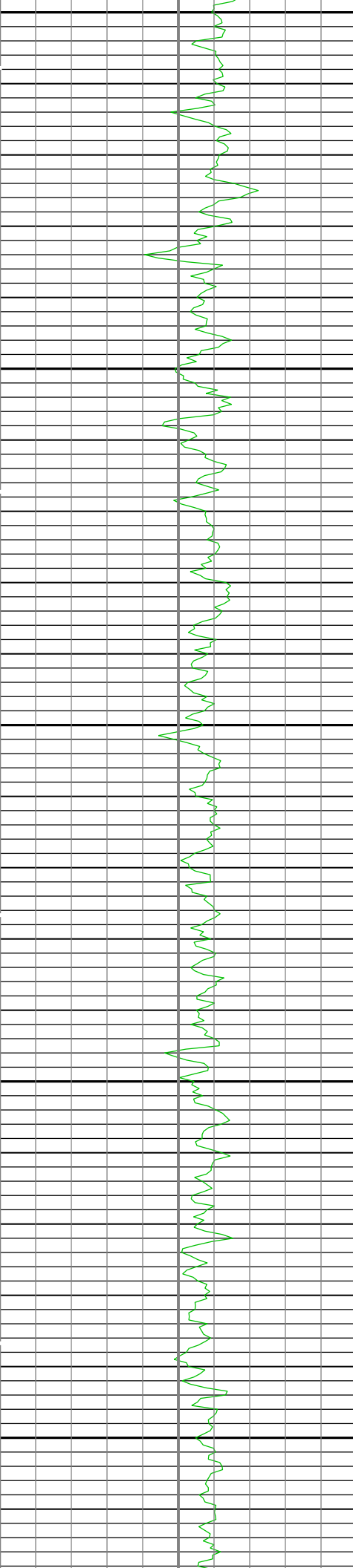
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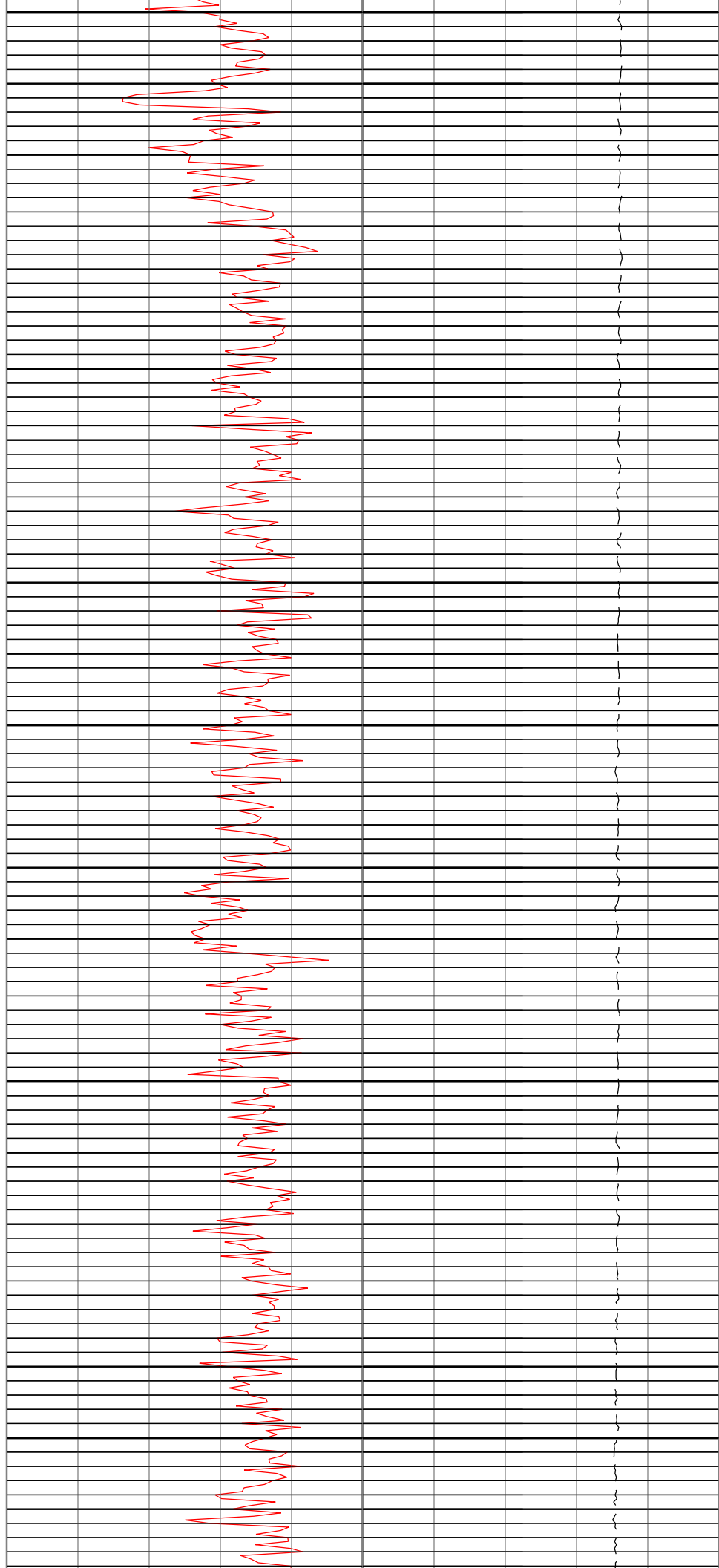
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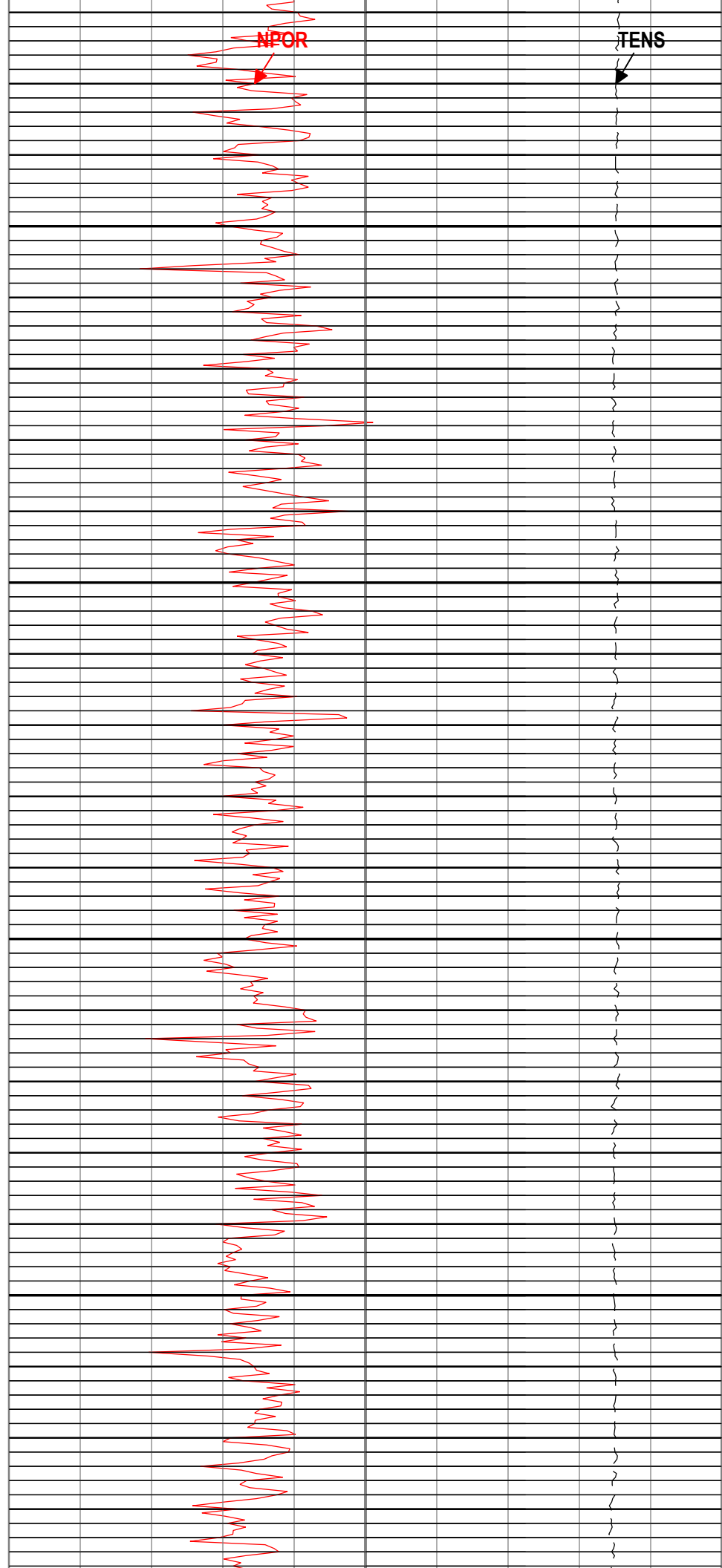
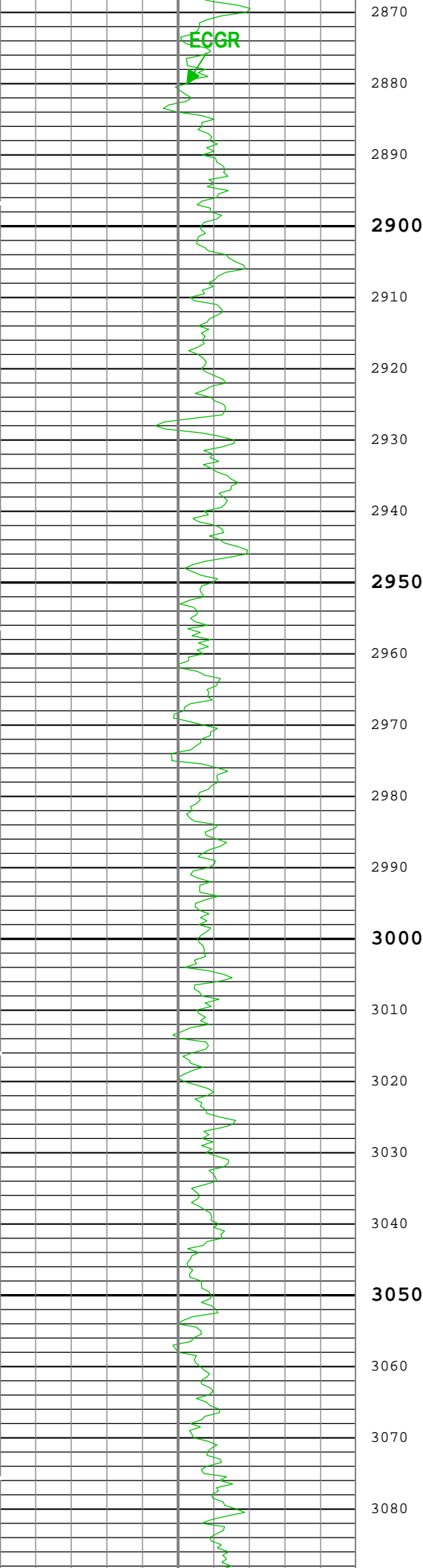
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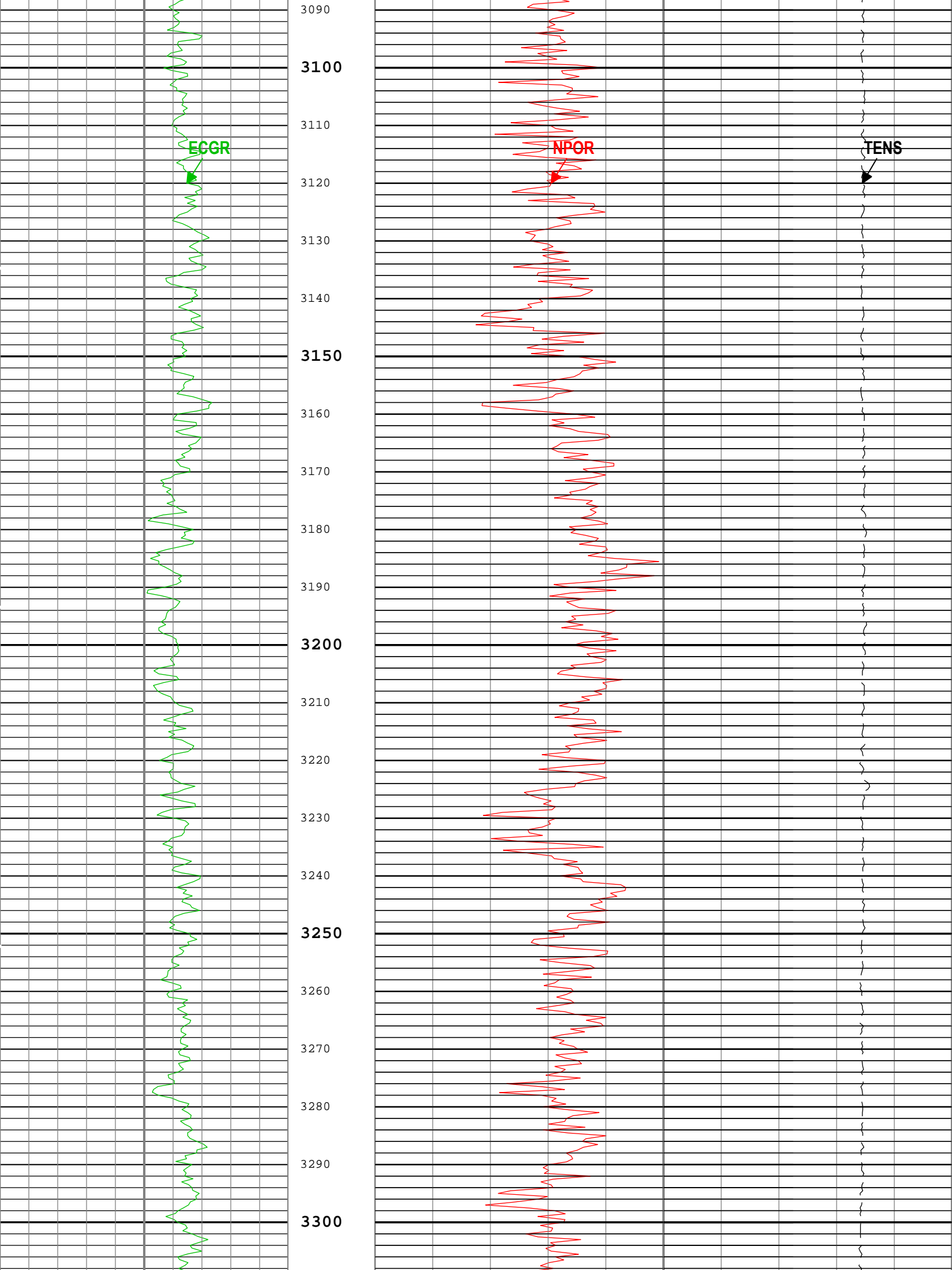
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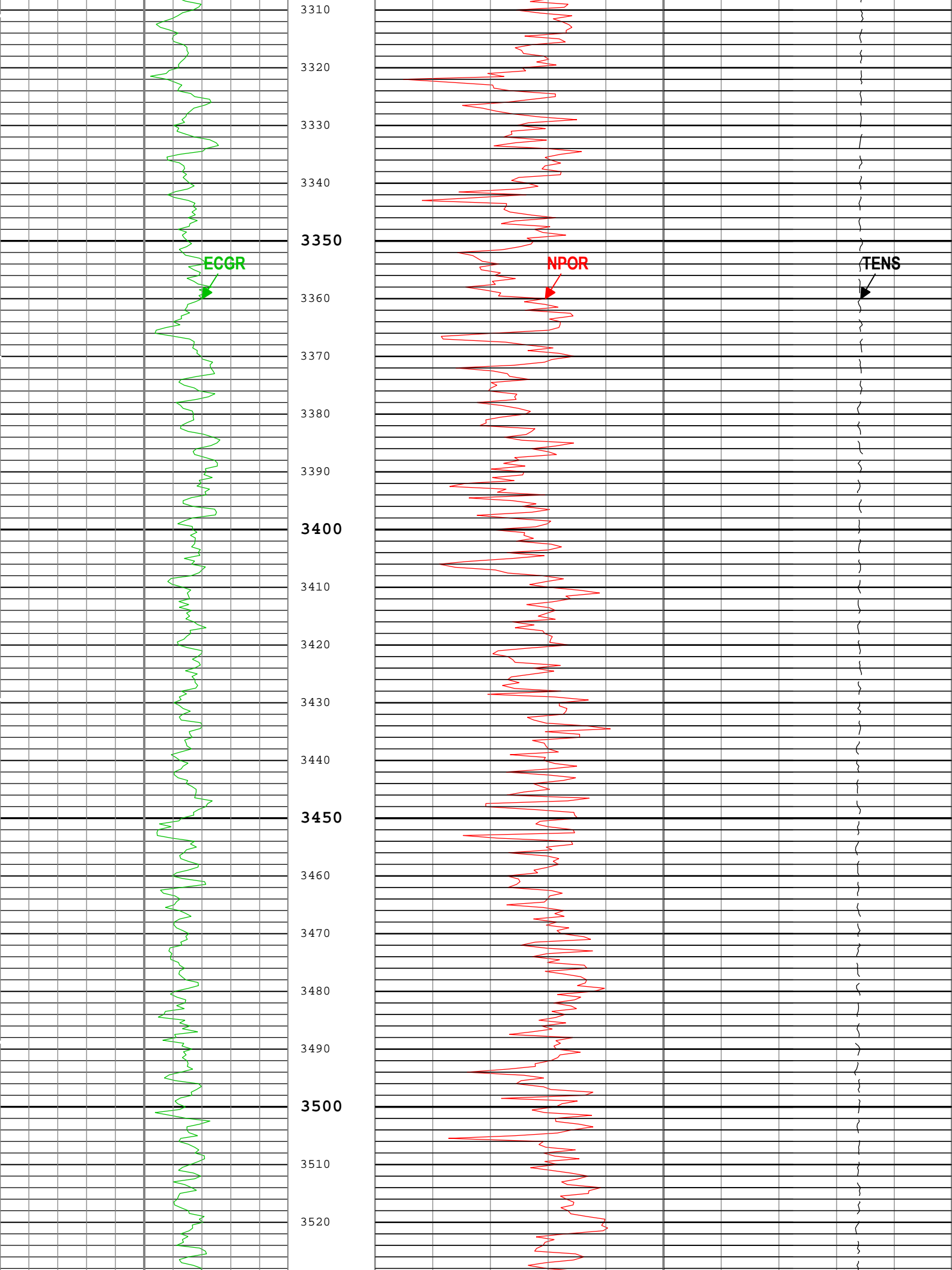
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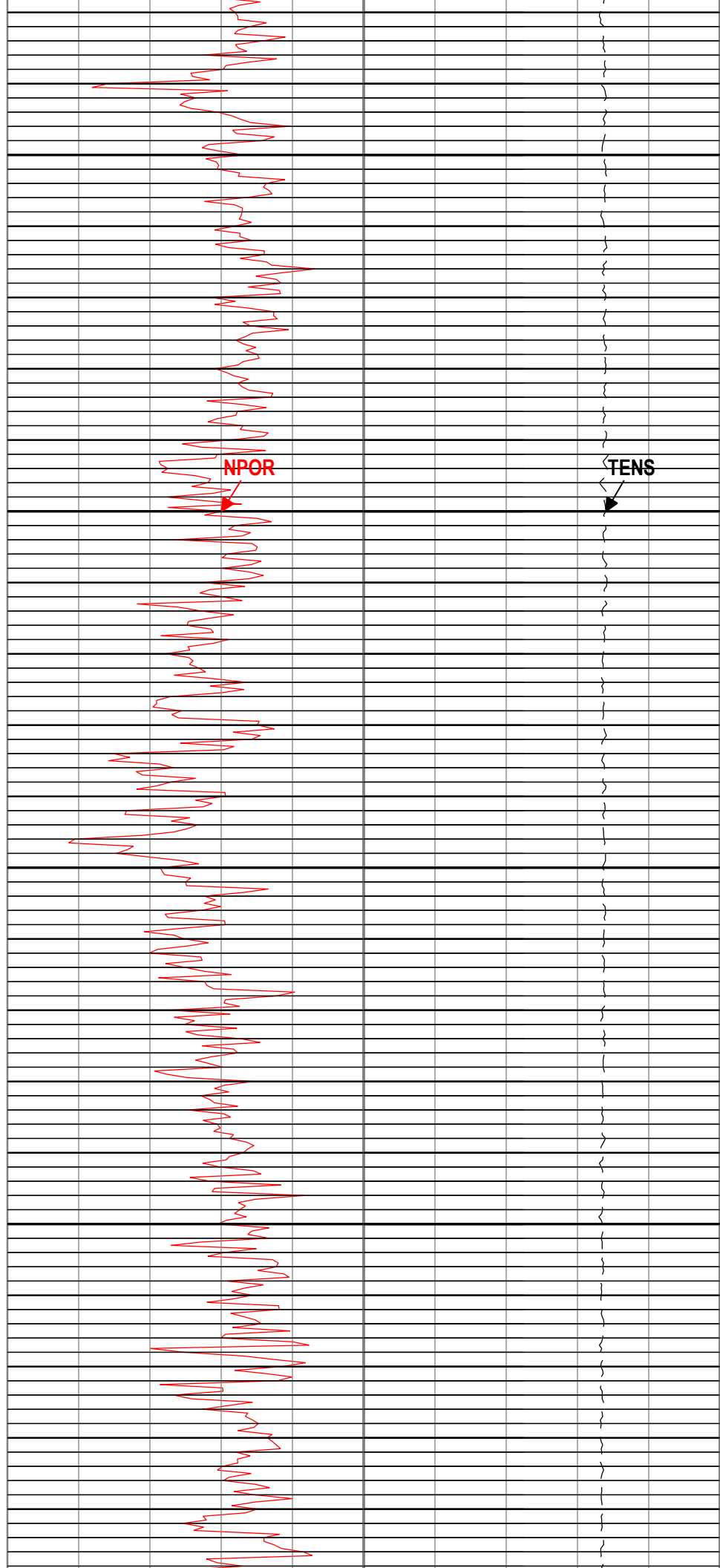
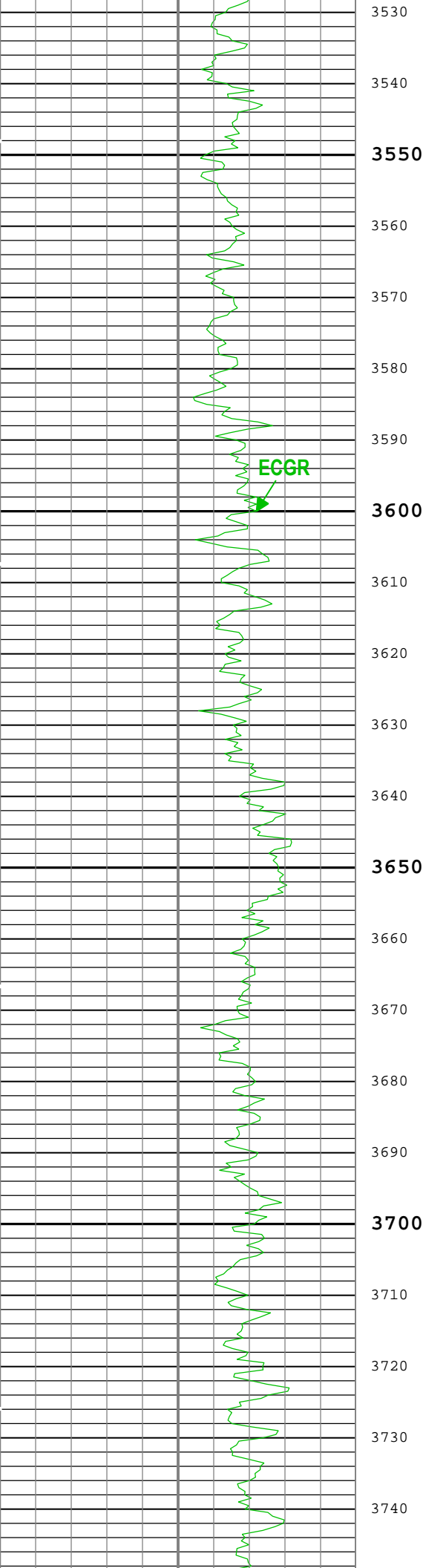
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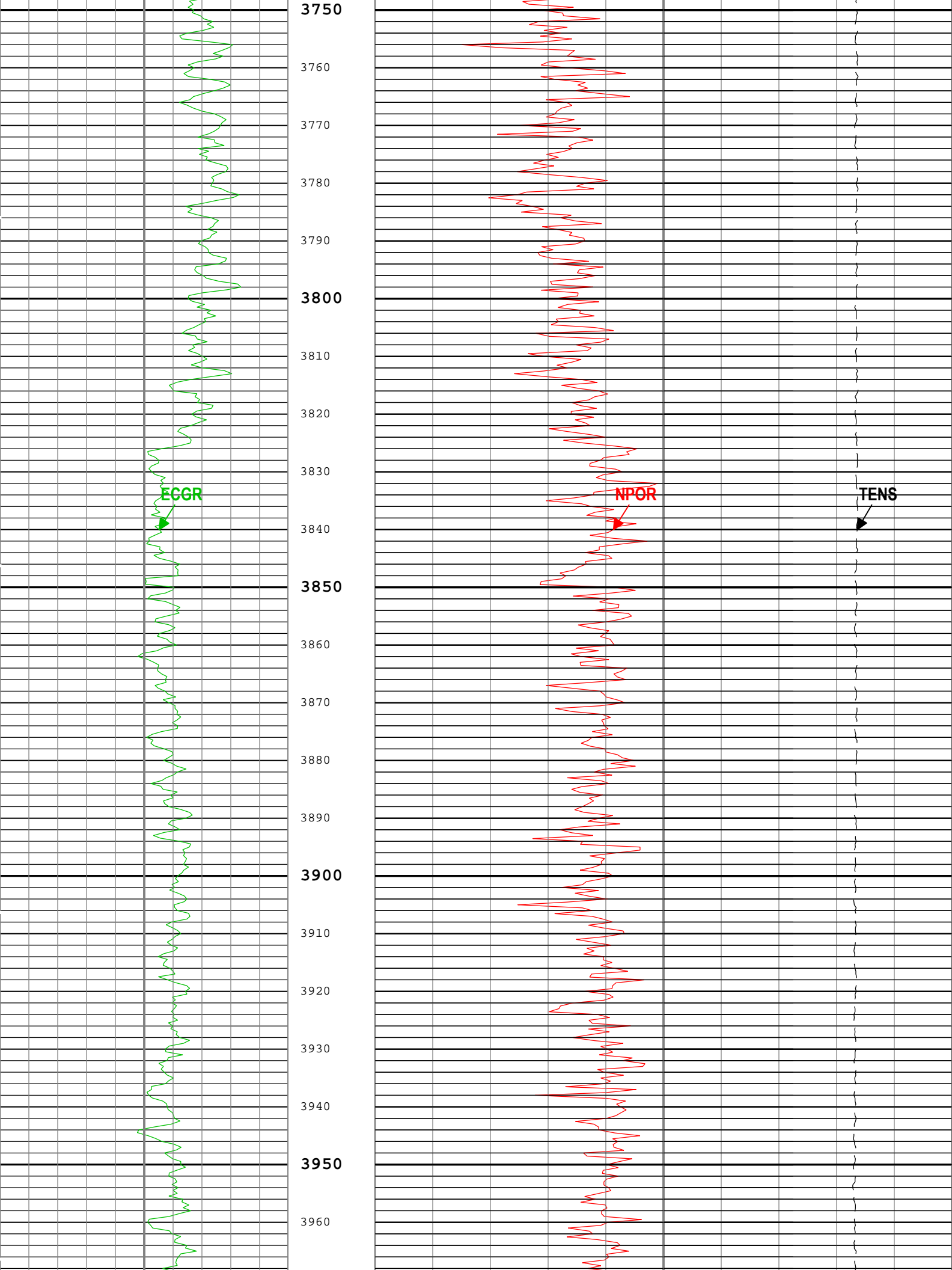


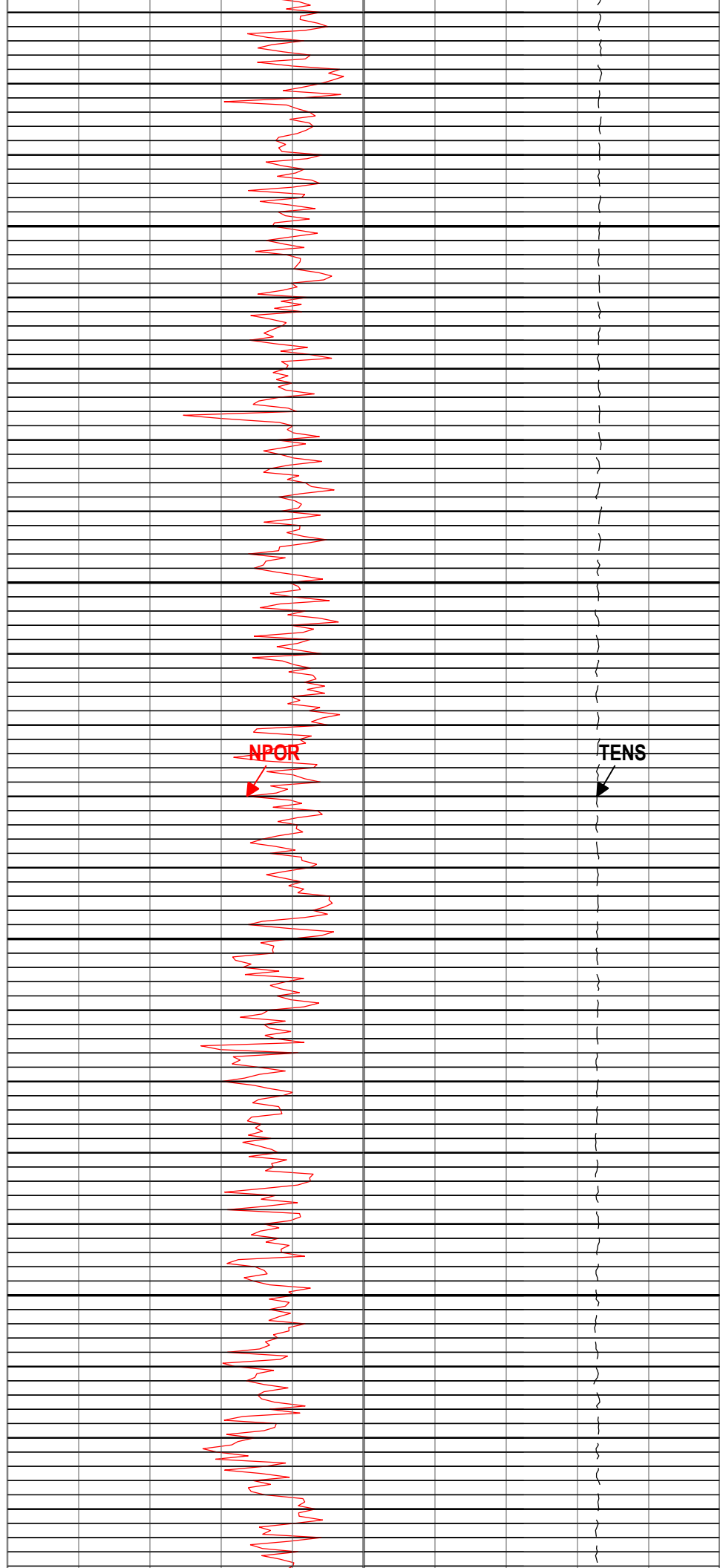
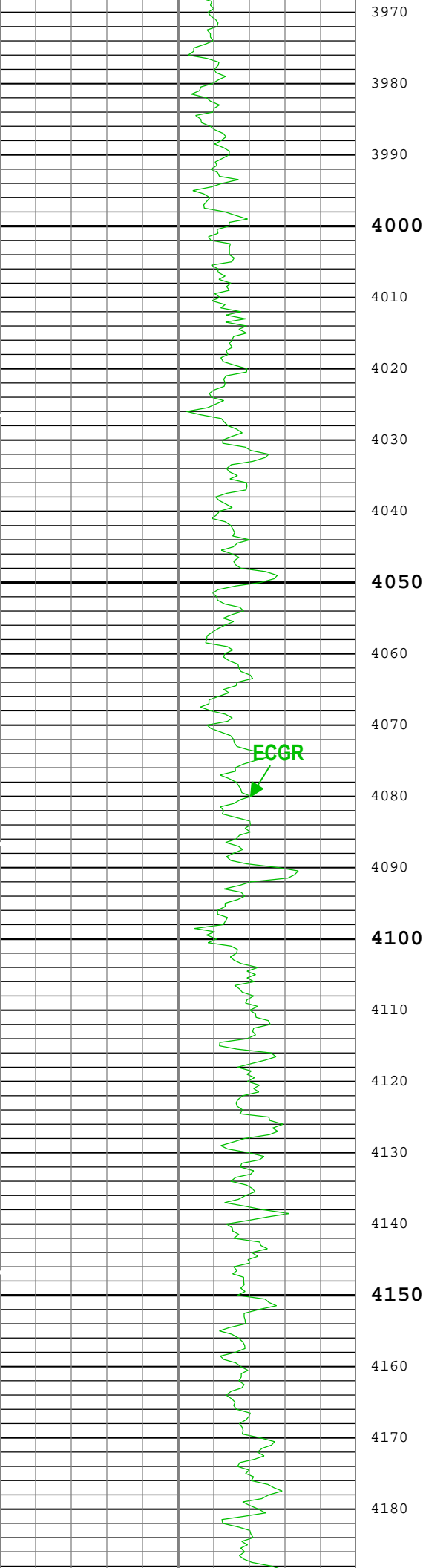


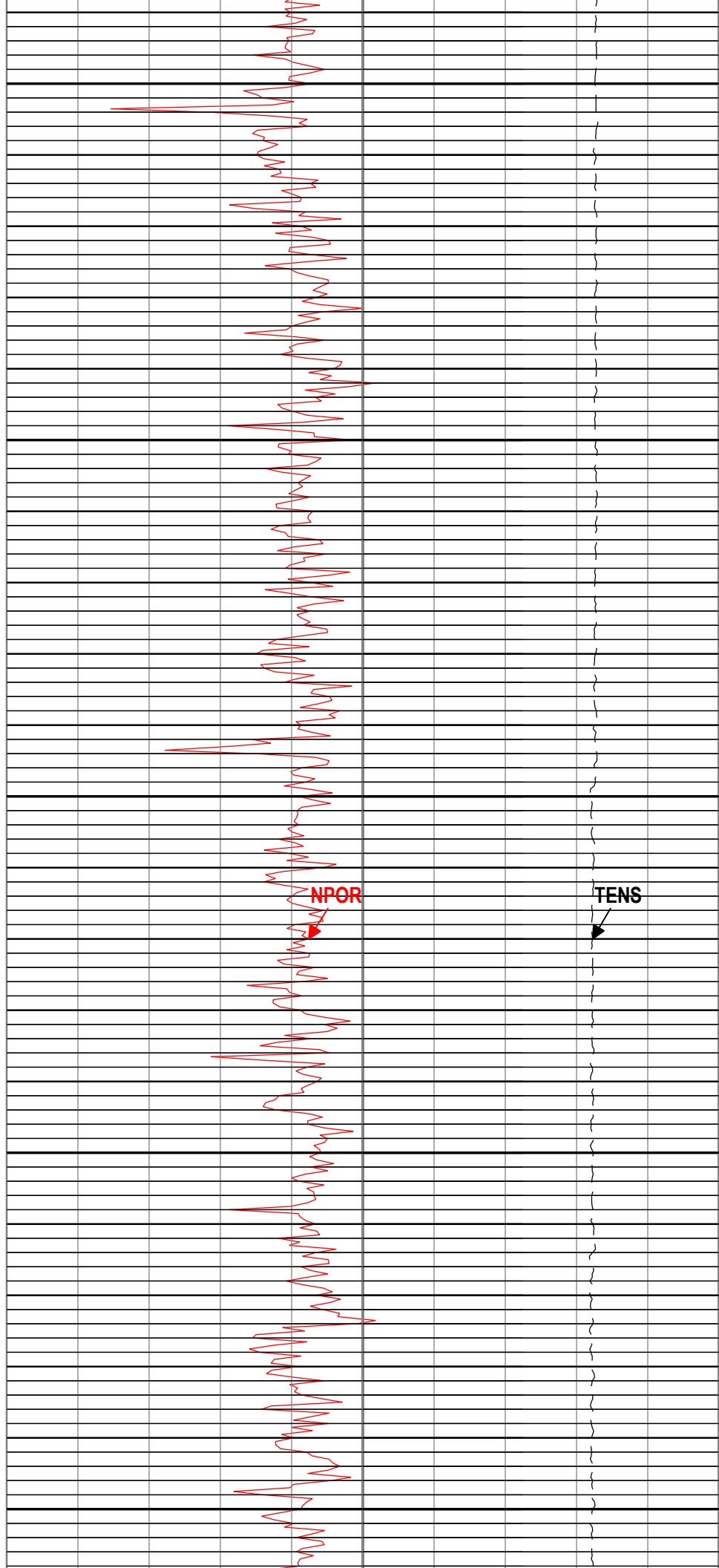
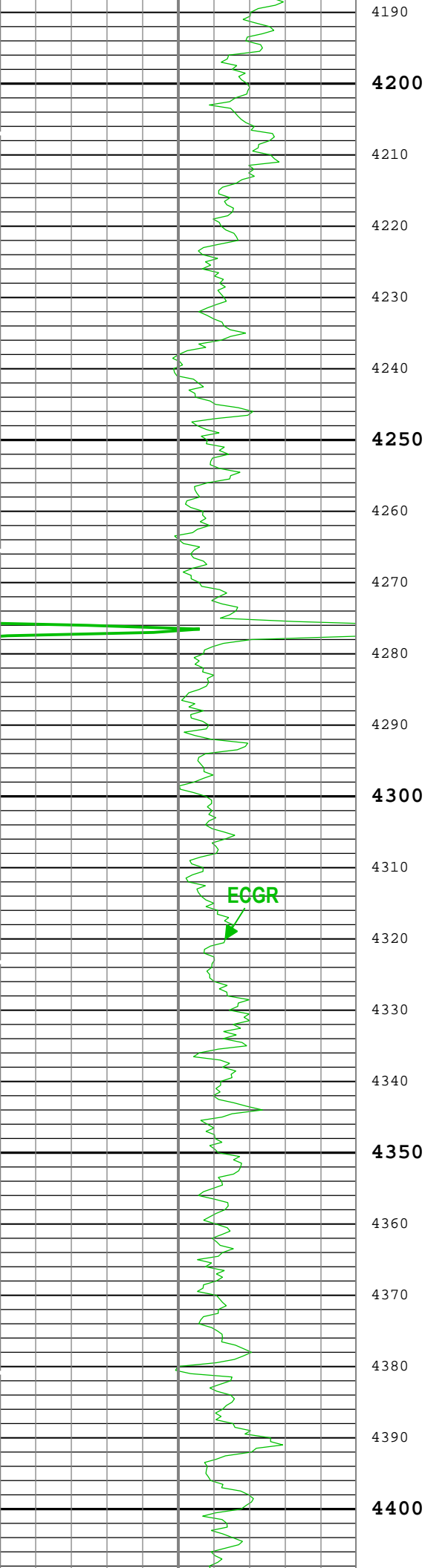


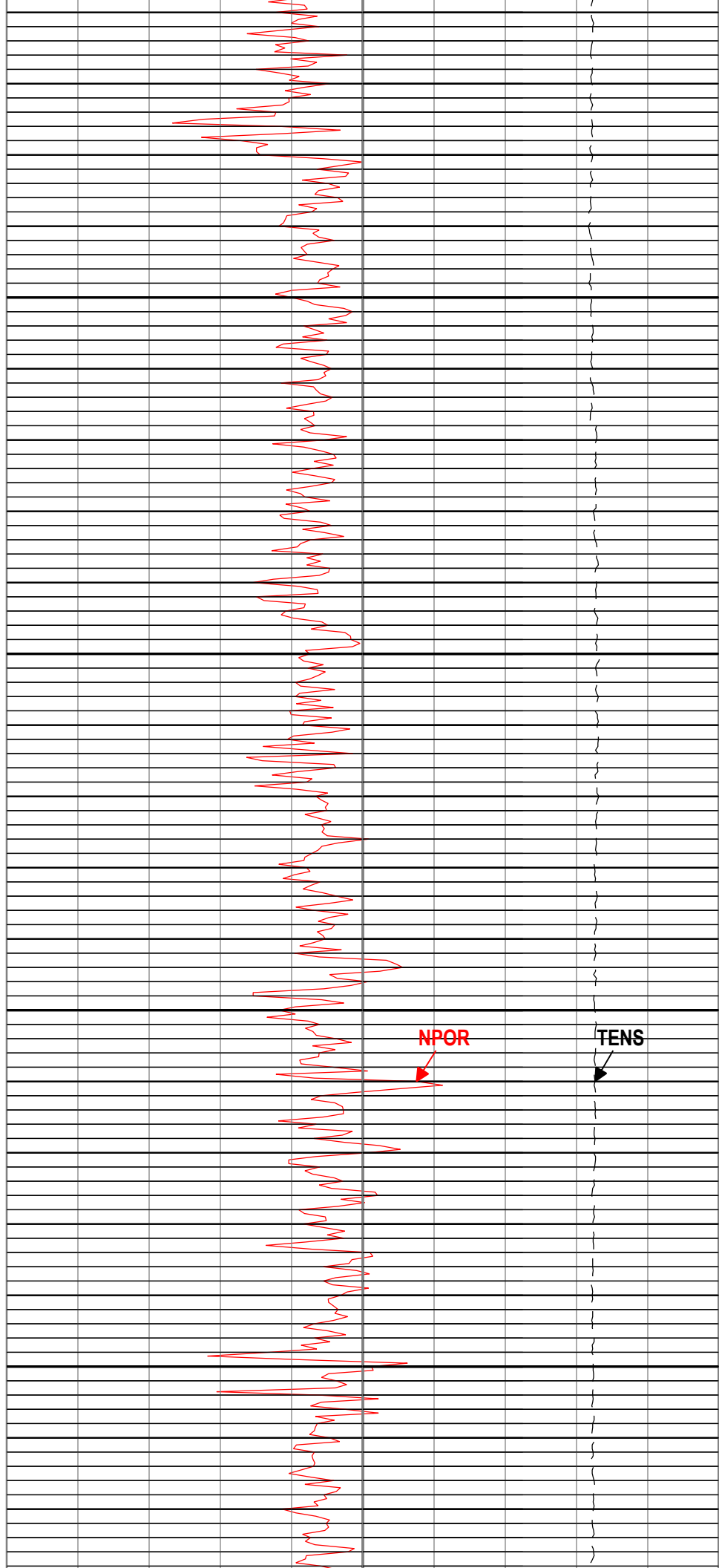
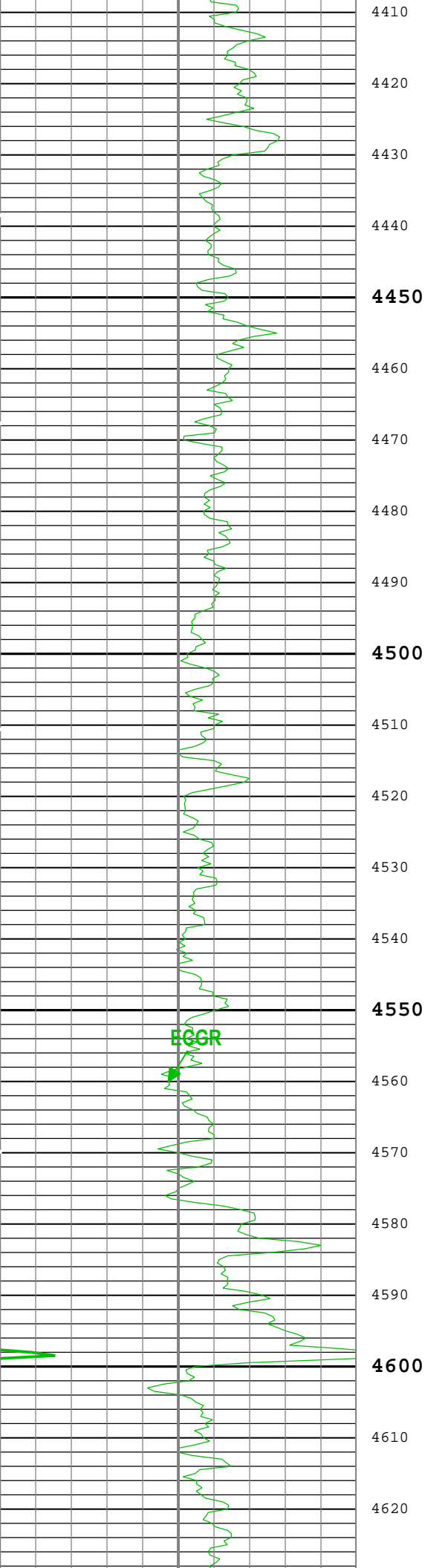




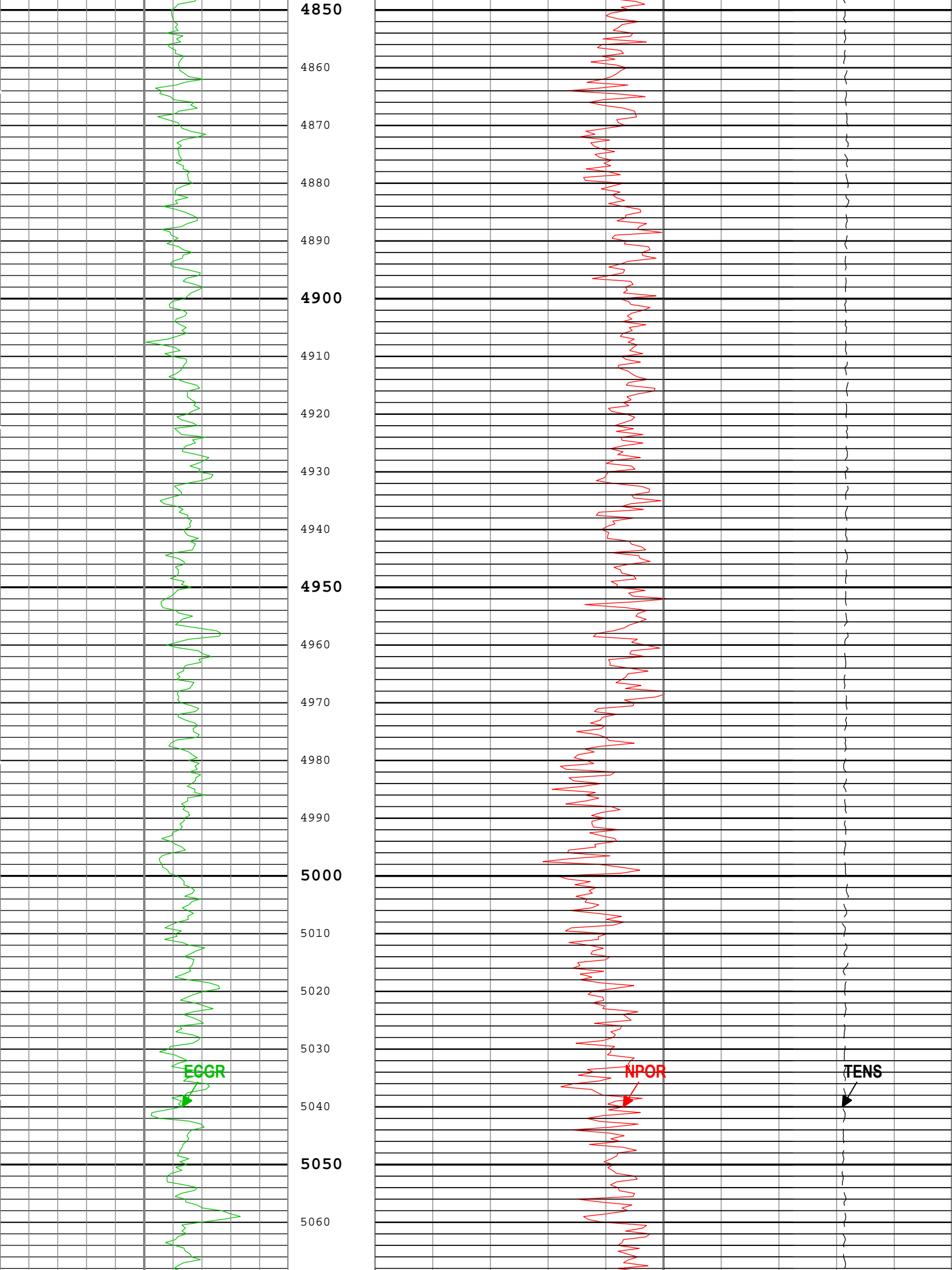




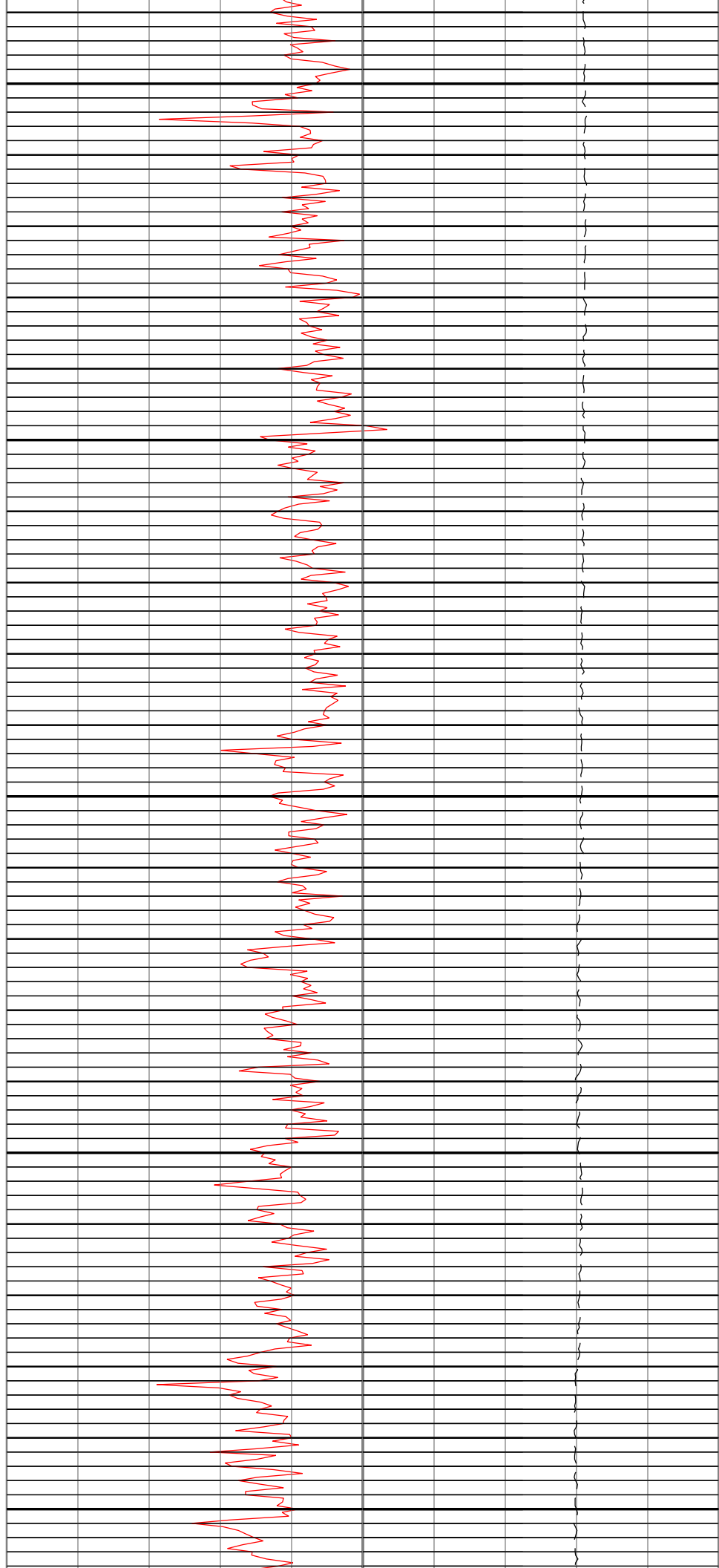
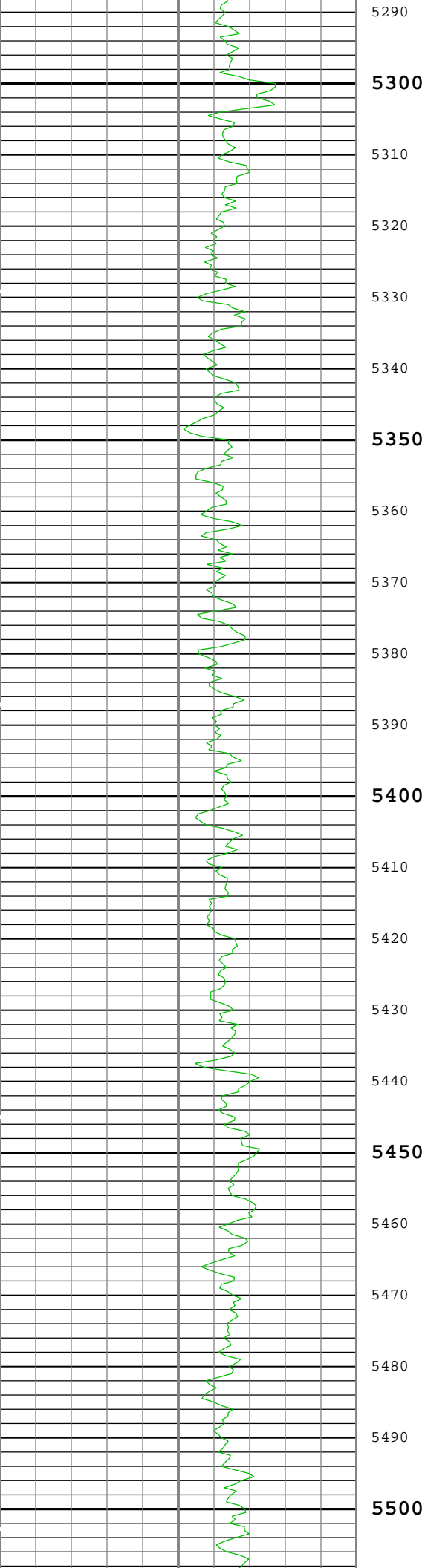


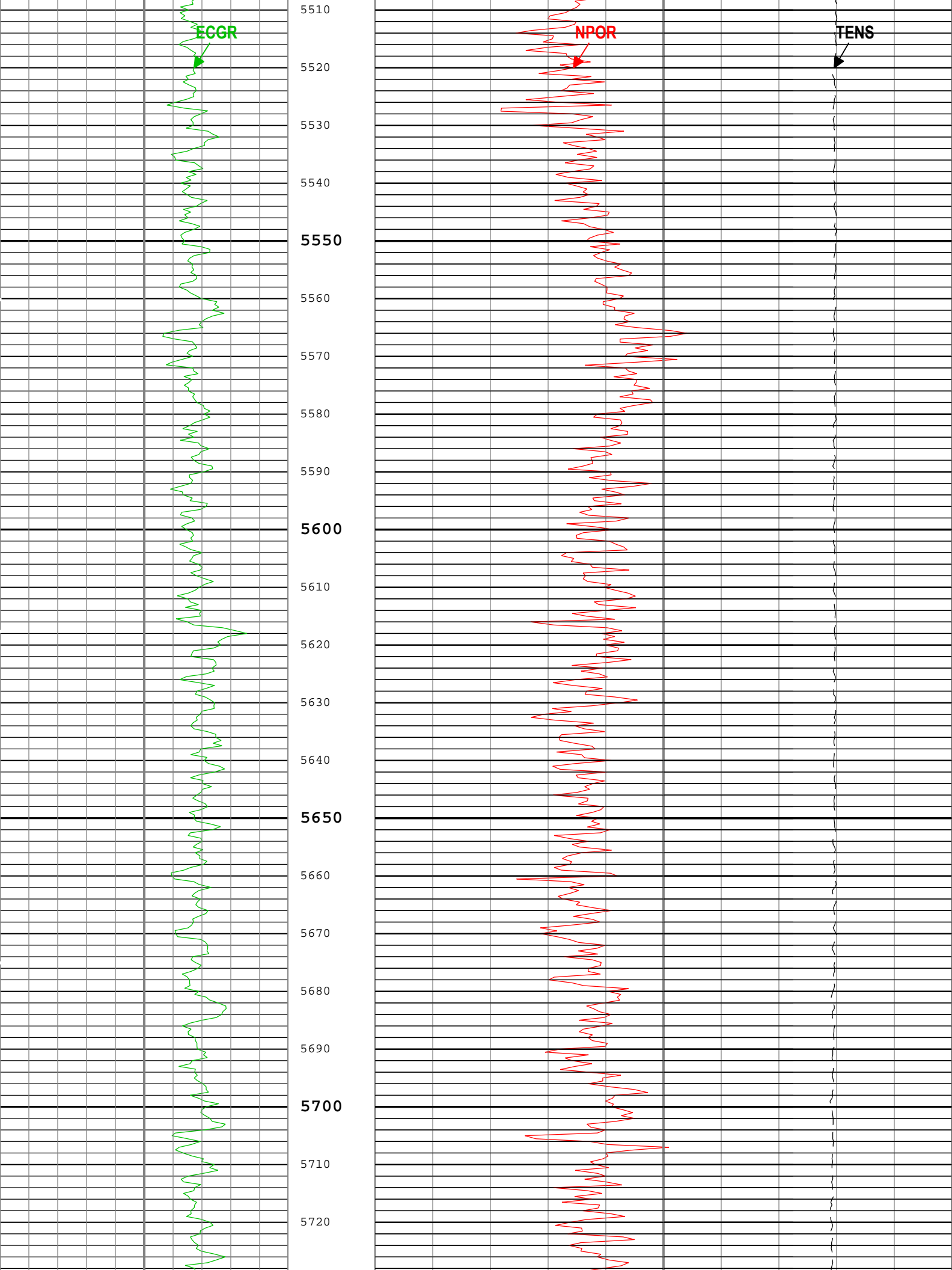


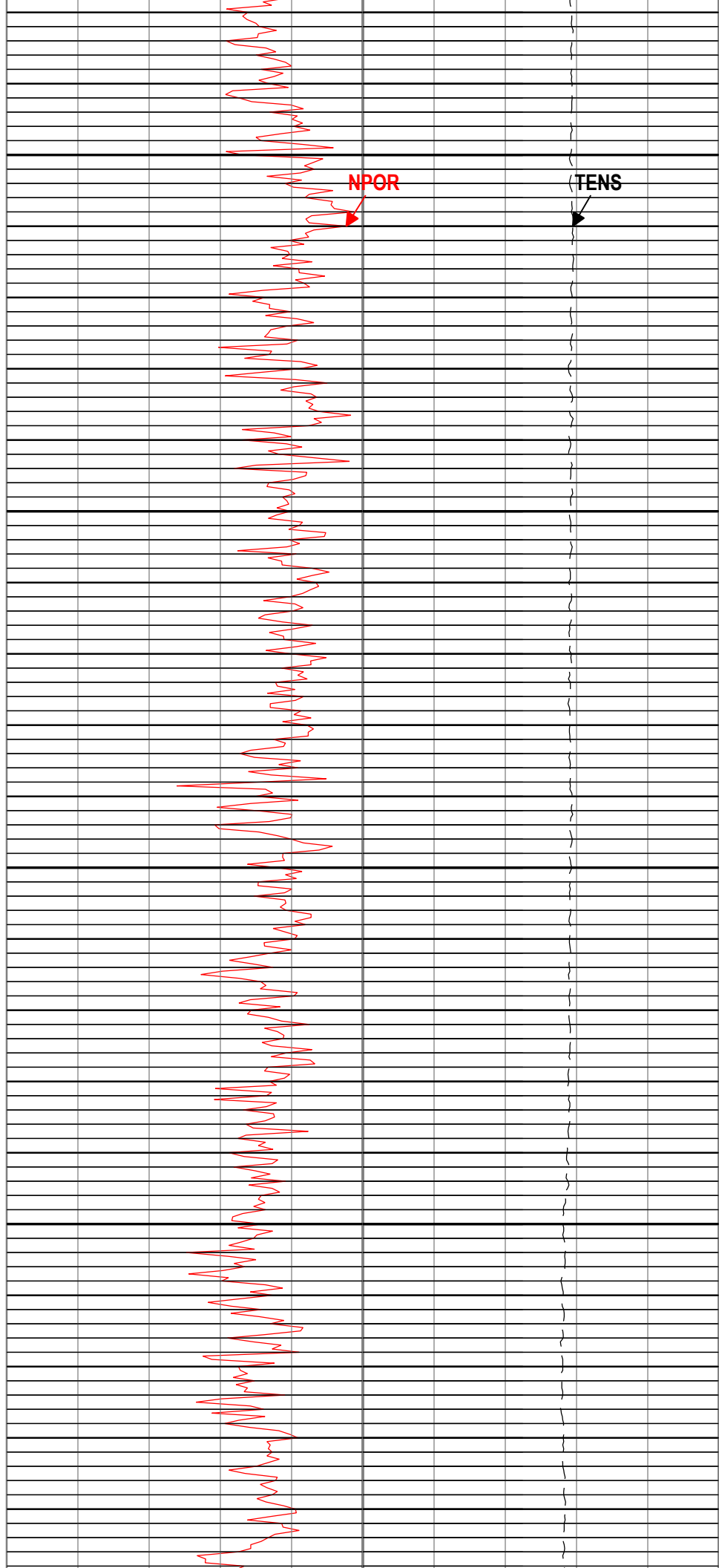
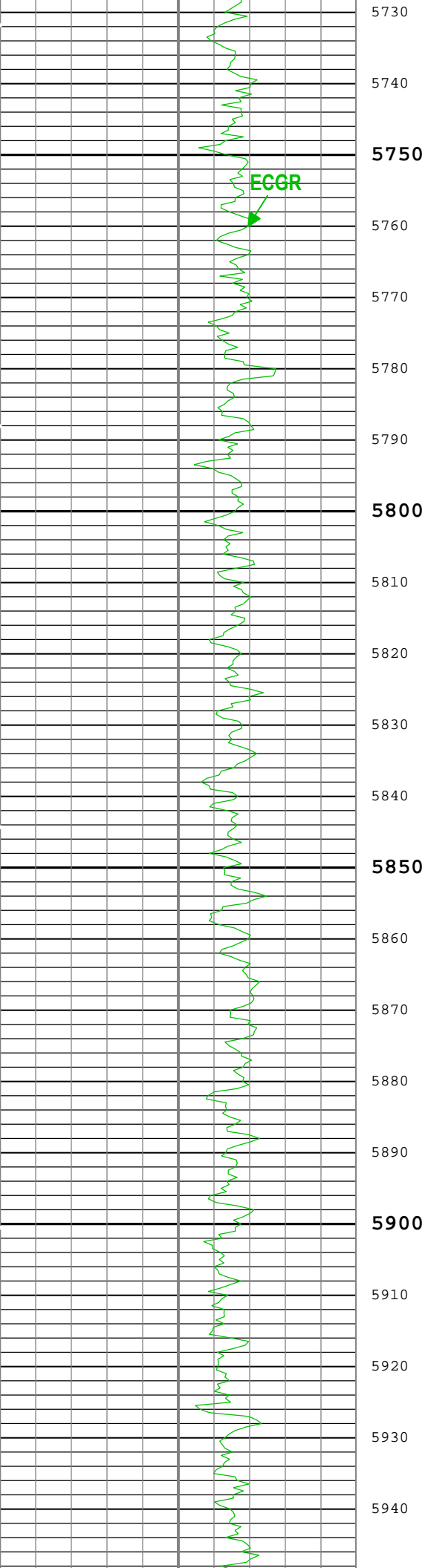


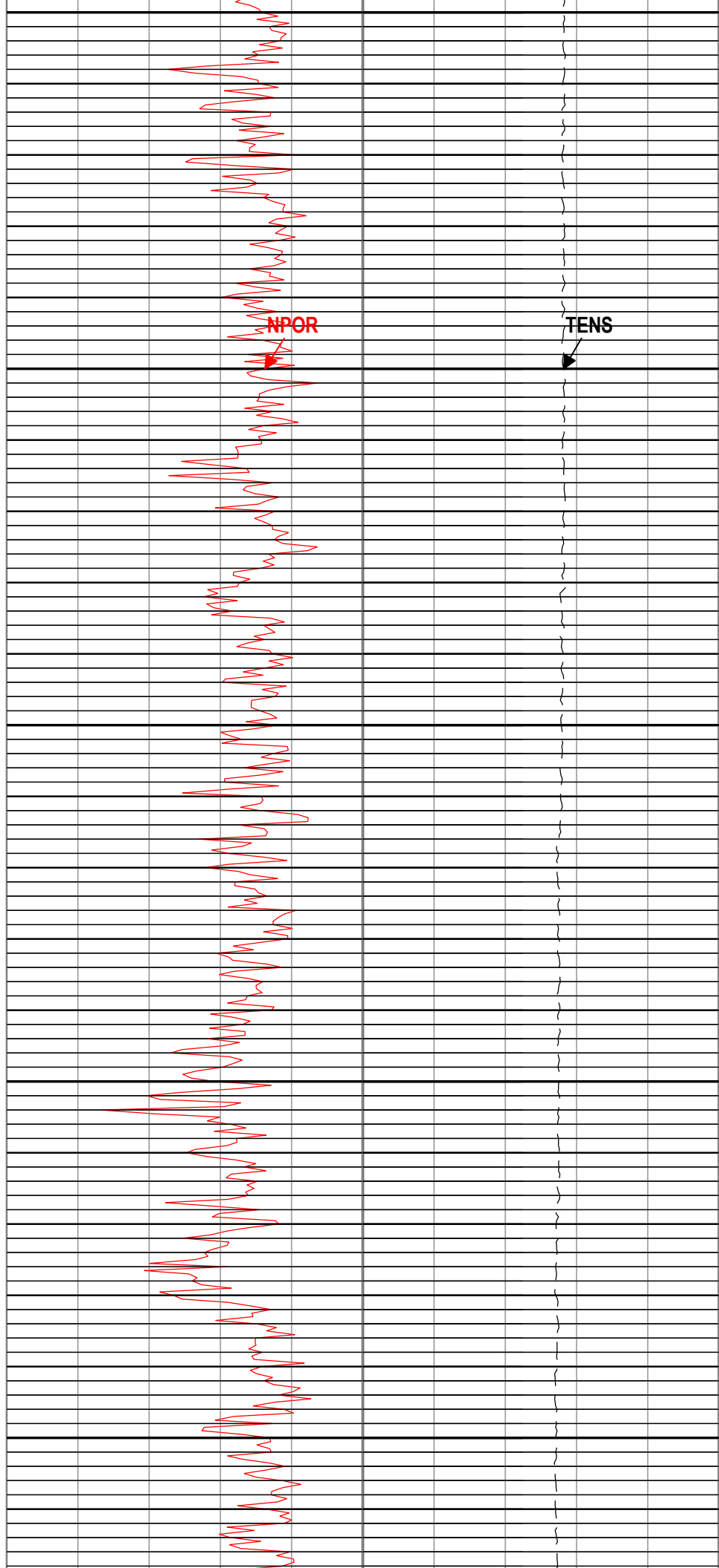
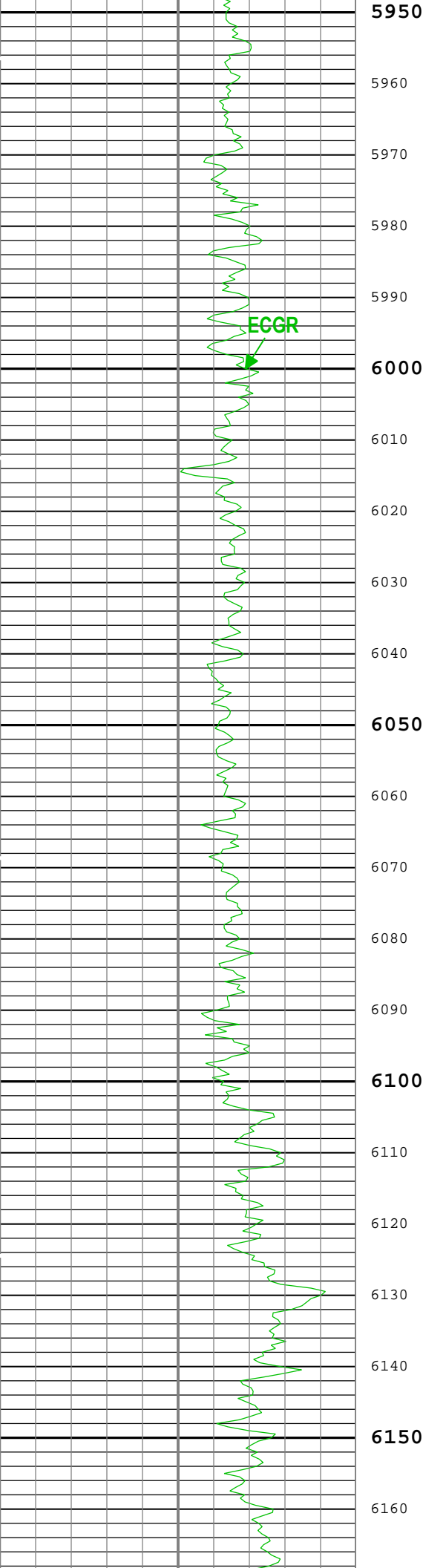


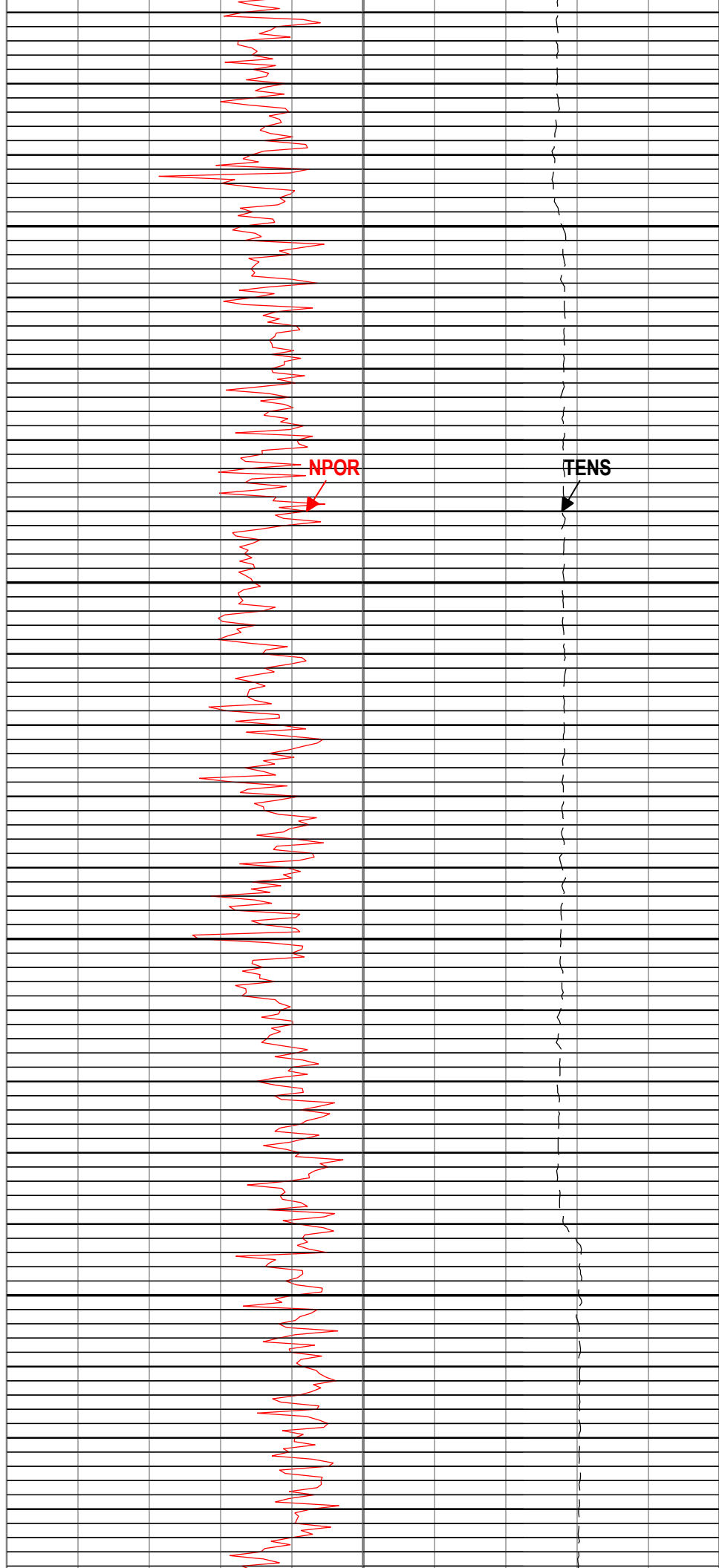
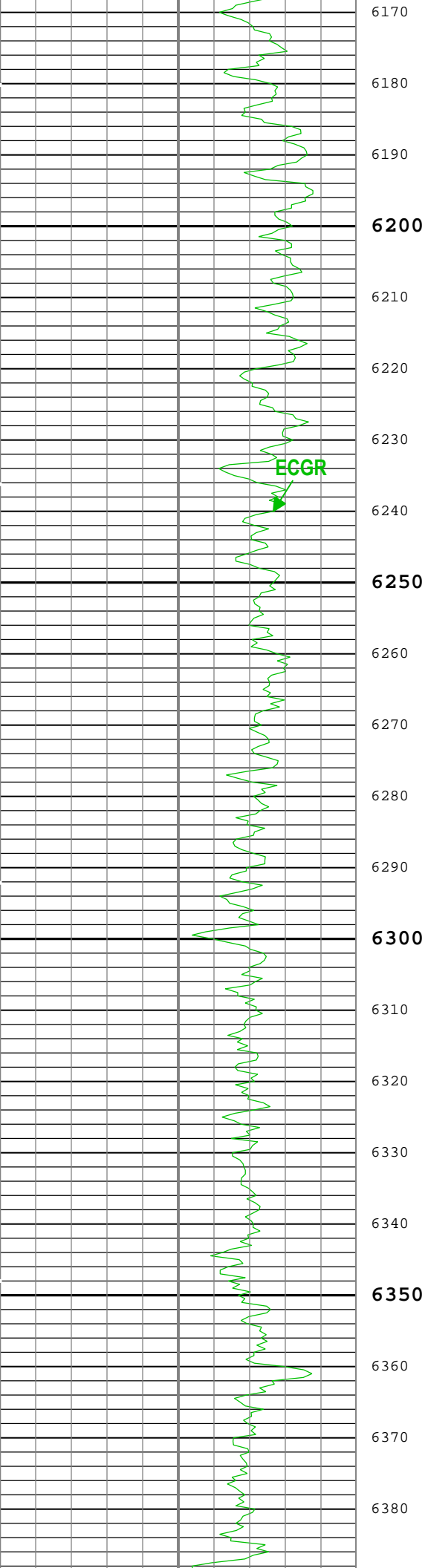


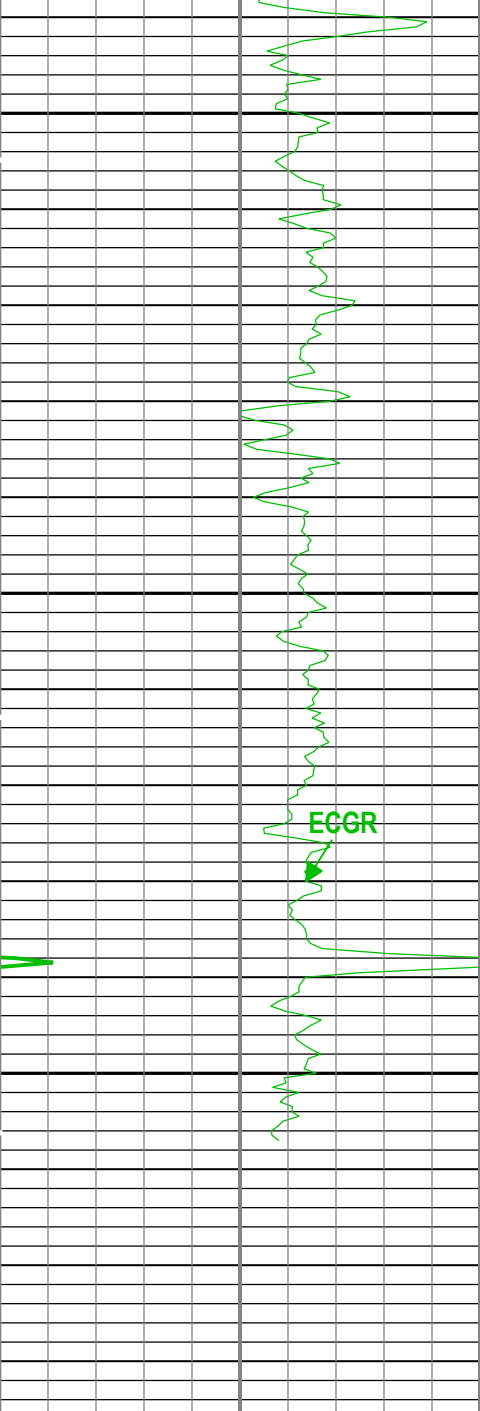




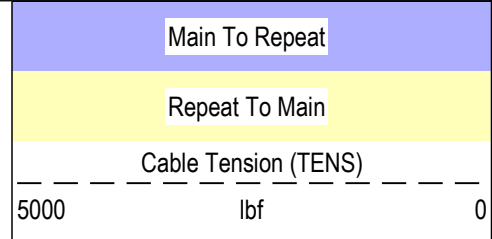
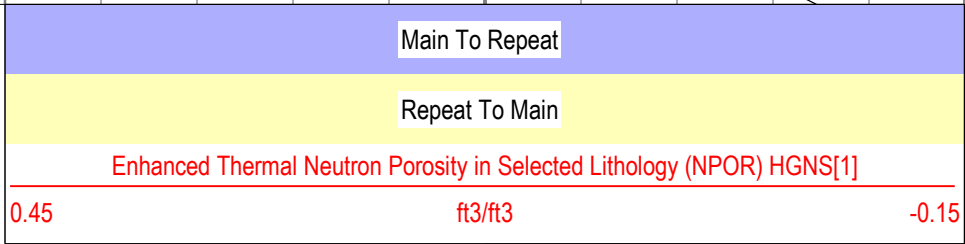
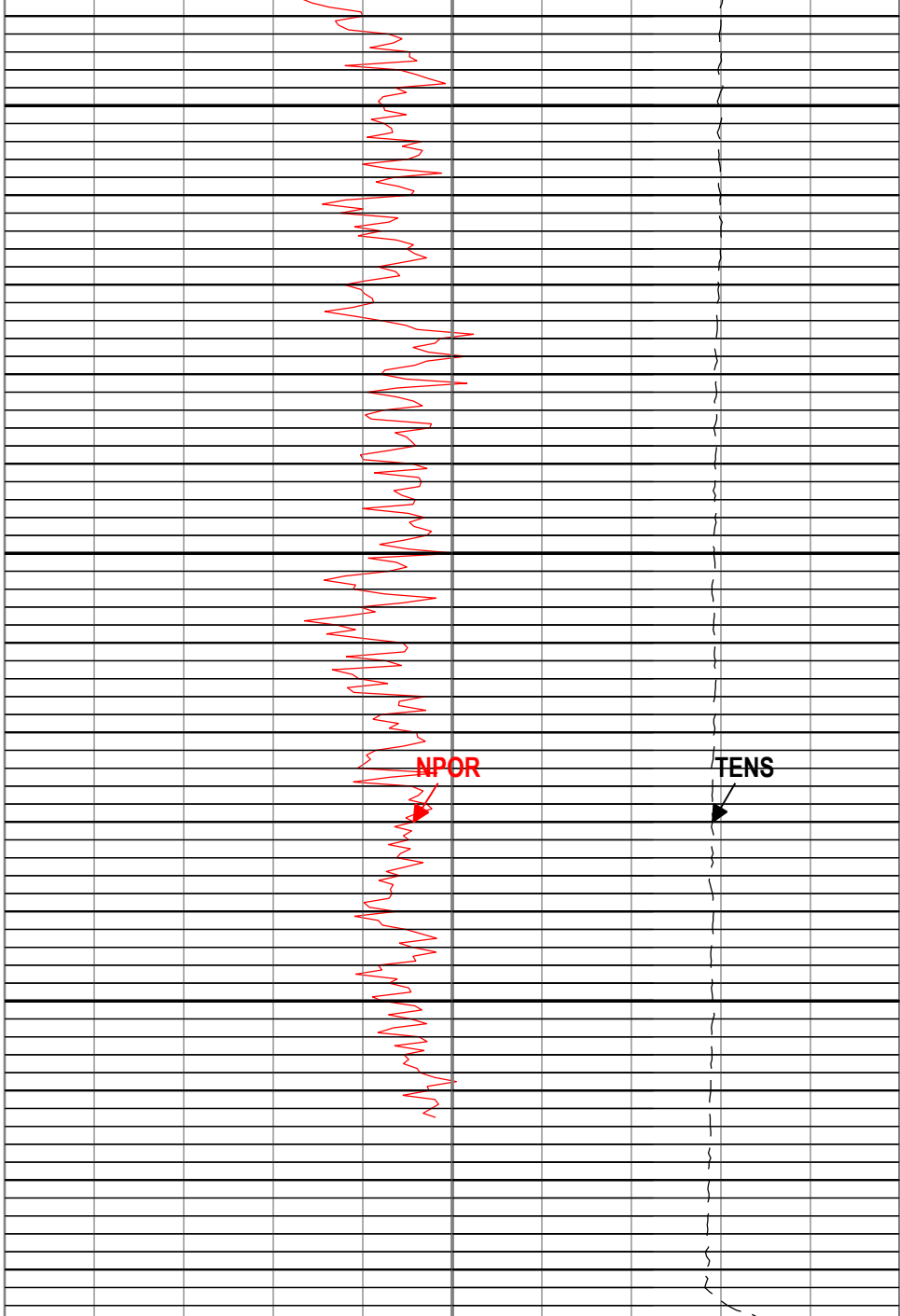
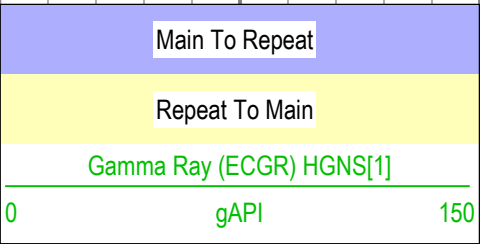








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ICV - Integrated Cement Volume every 100.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

ICV - Integrated Cement Volume every 10.00 (ft3)

IHV - Integrated Hole Volume every 100.00 (ft3)

IHV - Integrated Hole Volume every 10.00 (ft3)

Channel Processing Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
BARI(ISSBAR)	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BHT	Bottom Hole Temperature	Borehole	212	degF
BS	Bit Size	WLSESSION	Depth Zoned	in
BSAL	Borehole Salinity	Borehole	0	ppm
CBLO	Casing Bottom (Logger)	WLSESSION	17642.8	ft
CDEN	Cement Density	HGNS-B	2	g/cm3
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	5.5	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DFT_WATER	Drilling Fluid Water Type	Borehole	Brine	
EDF	Elevation of Derrick Floor Above Permanent Datum	WLSESSION	30	ft
EPD	Elevation of Permanent Datum (PDAT) above Mean Sea Level	WLSESSION	4790	ft
FSAL	Formation Salinity	Borehole	0	ppm
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
GGRD	Geothermal Gradient	Borehole	1	0.01 degF/ft
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	REMS(RT)	
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	GTEM_LINEST(RT)	
HSCO	Hole Size Correction Option	HGNS-B	Yes	
IMAR	Image Rotation	USIT-E	Off	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
MFST	Mud Filtrate Sample Temperature	Borehole	68	degF
MST	Mud Sample Temperature	Borehole	68	degF
PDAT	Permanent Datum	WLSESSION	GL	
RMFS	Resistivity of Mud Filtrate Sample	Borehole	0.15	ohm.m
RMS	Resistivity of Mud Sample	Borehole	0.2	ohm.m
SHT	Surface Hole Temperature	Borehole	68	degF
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0.1	Mrayl
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-E	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-E	FreePipe Norm.	

OneDepth Zoned Parameters

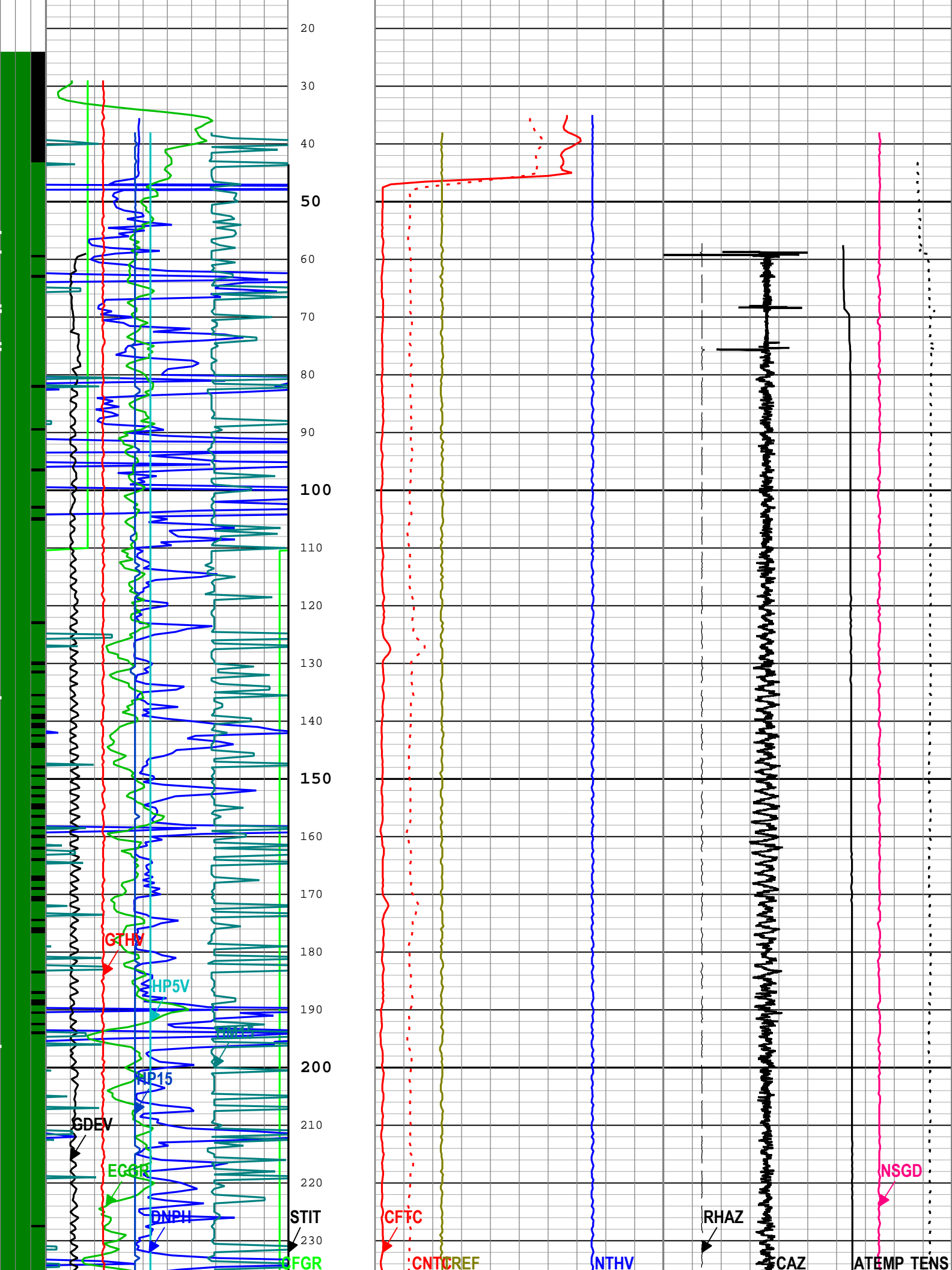
Parameter	Value	Start (ft)	Stop (ft)
BS	26	8	110
BS	13.5	110	1946
BS	8.5	1946	6535.32
All depth are actual.			

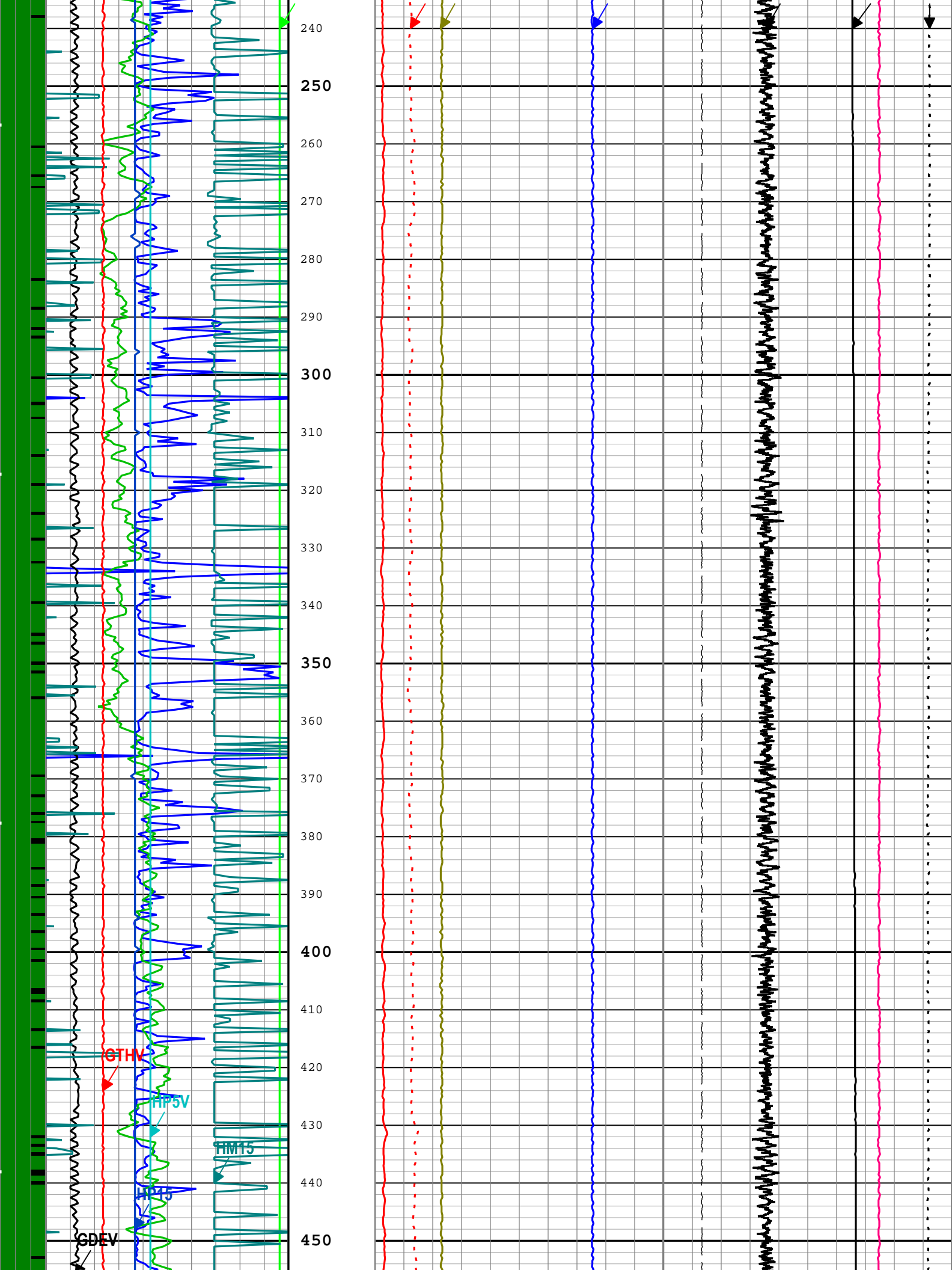
Tool Control Parameters

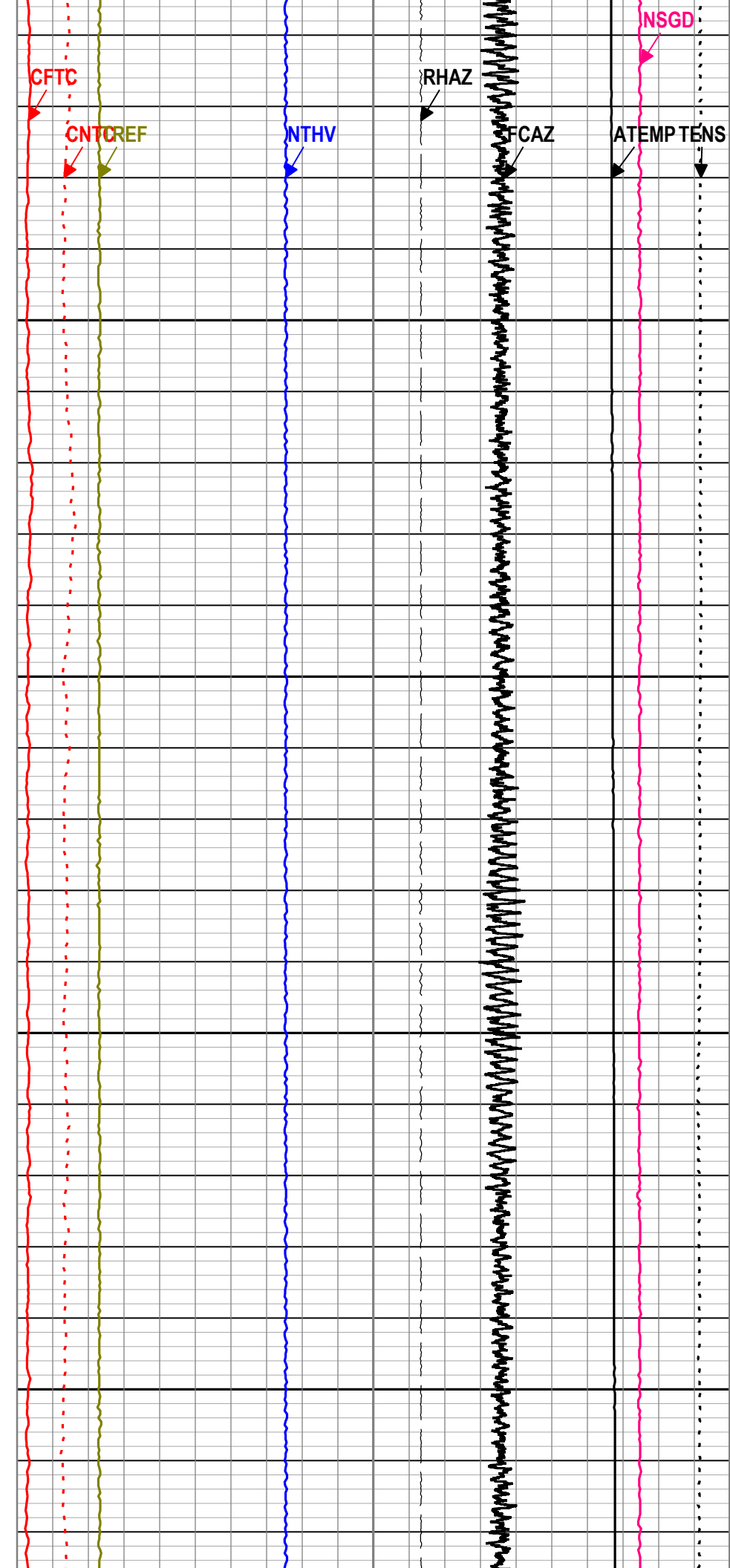
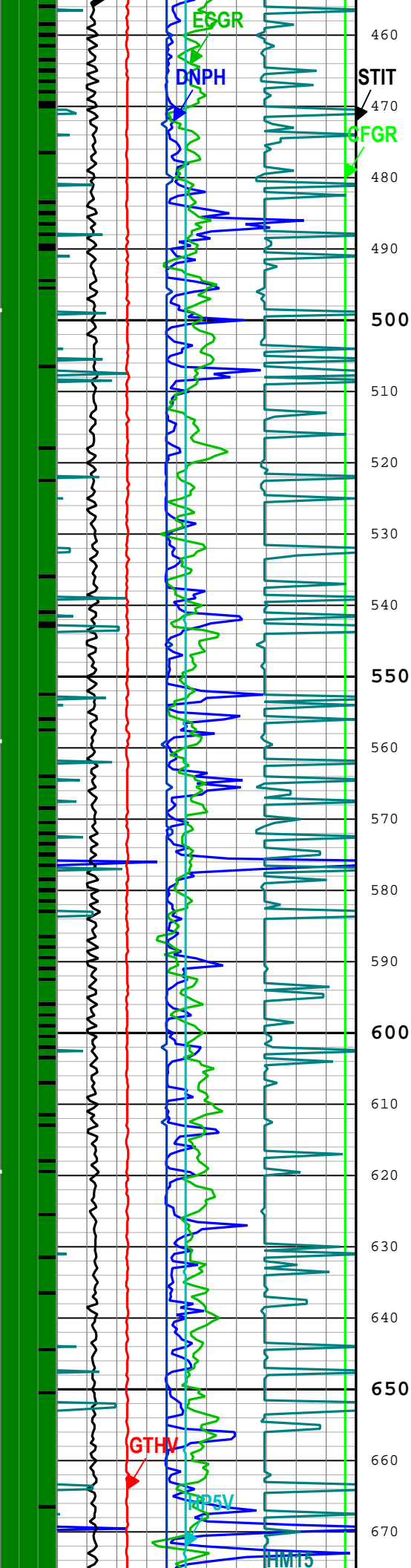
One: Parameters

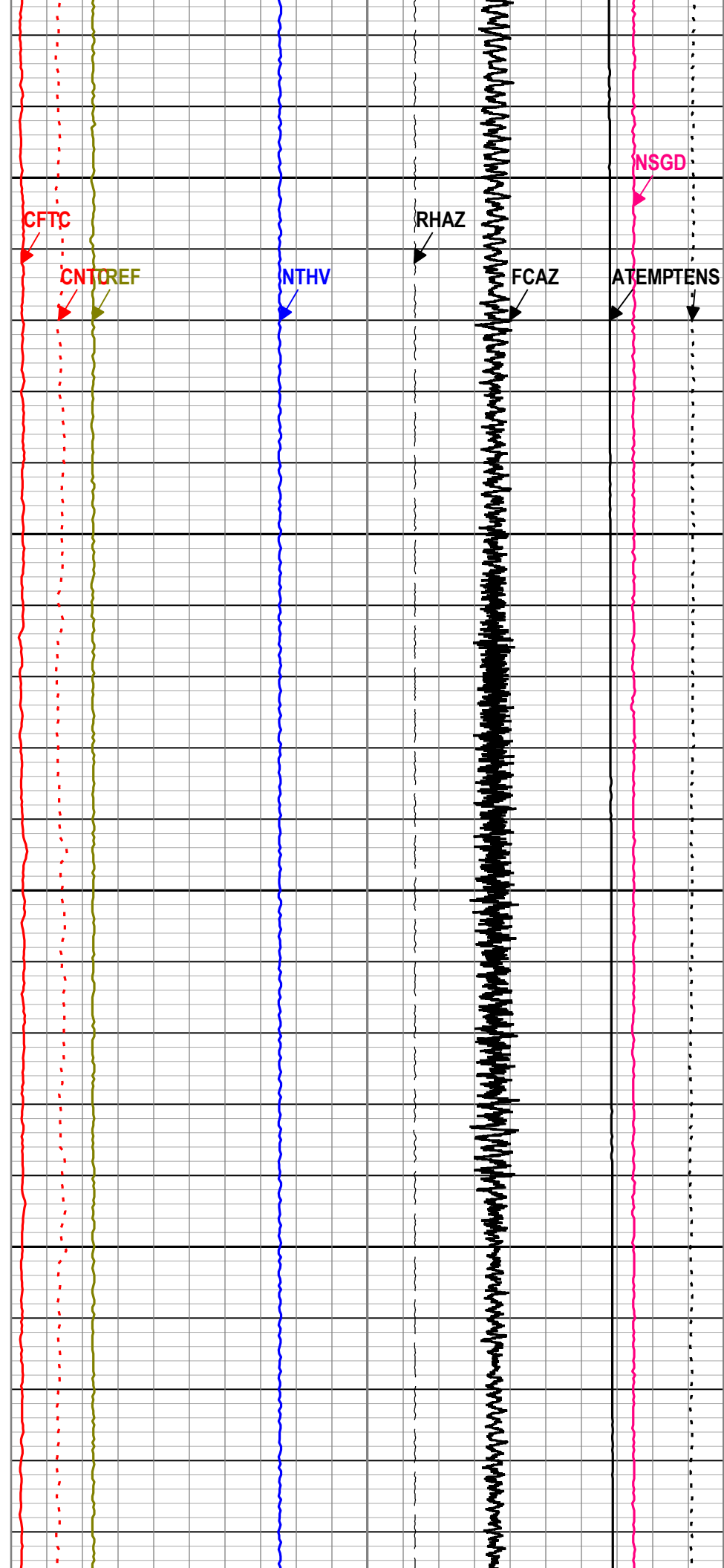
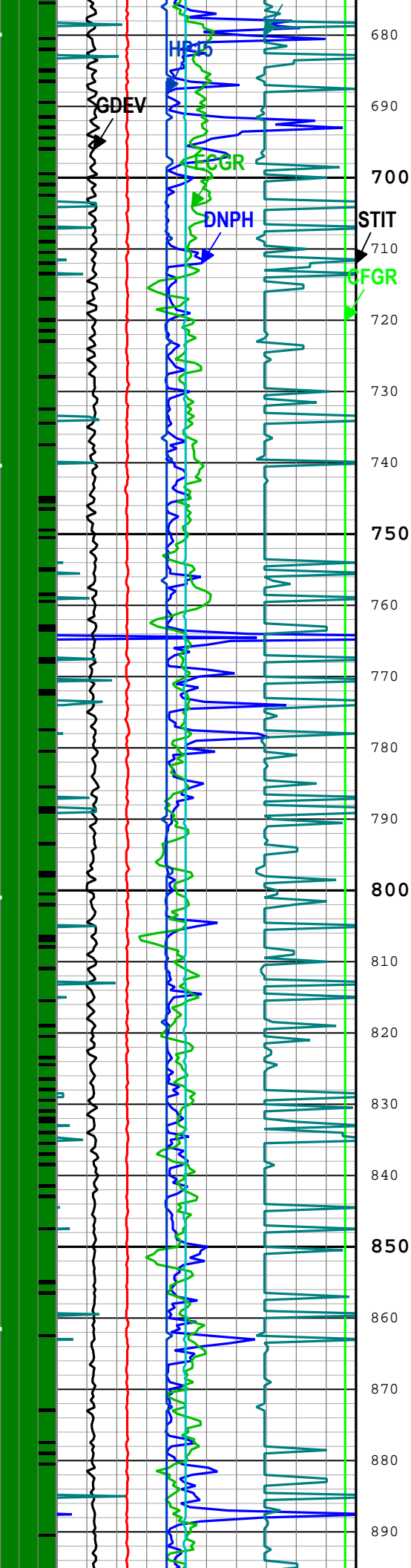
Parameter	Description	Tool	Value	Unit
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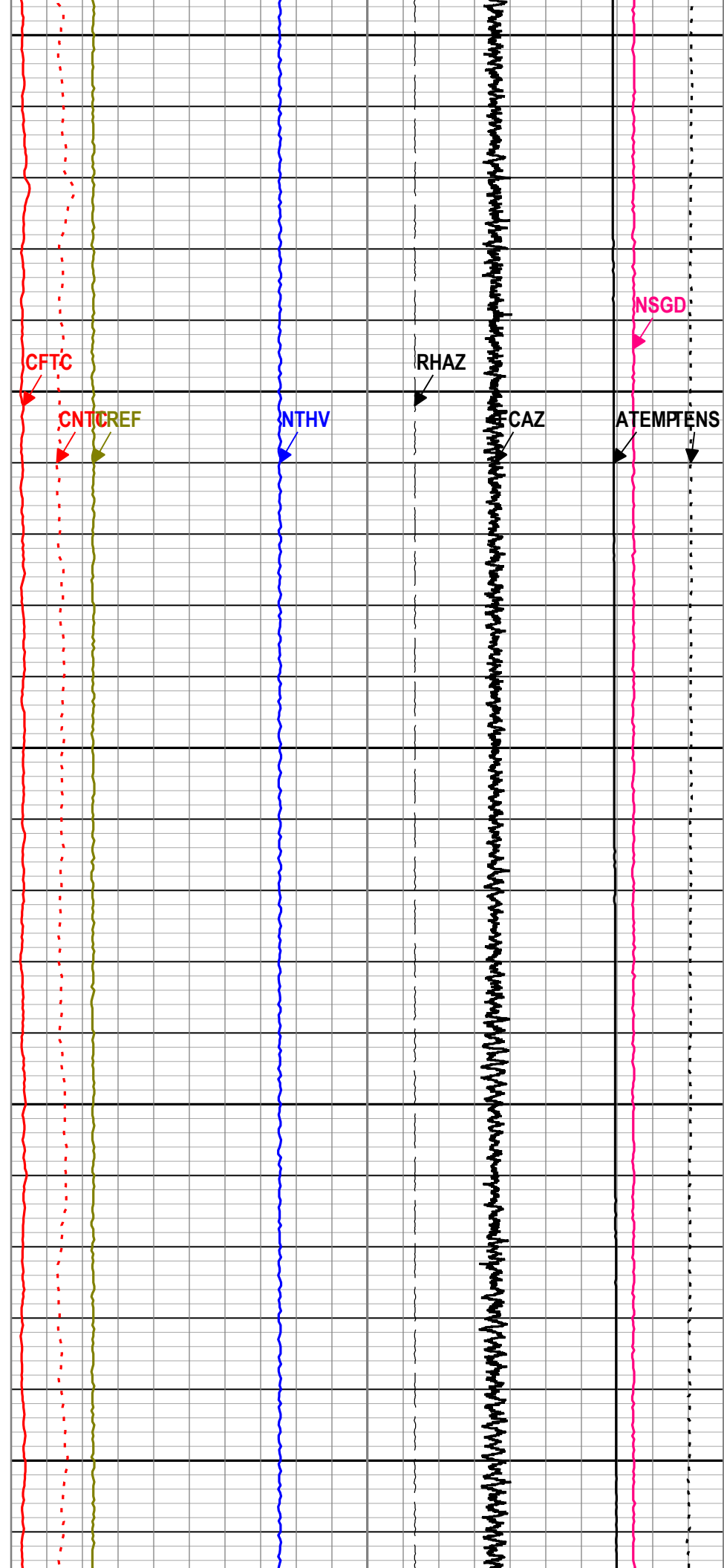
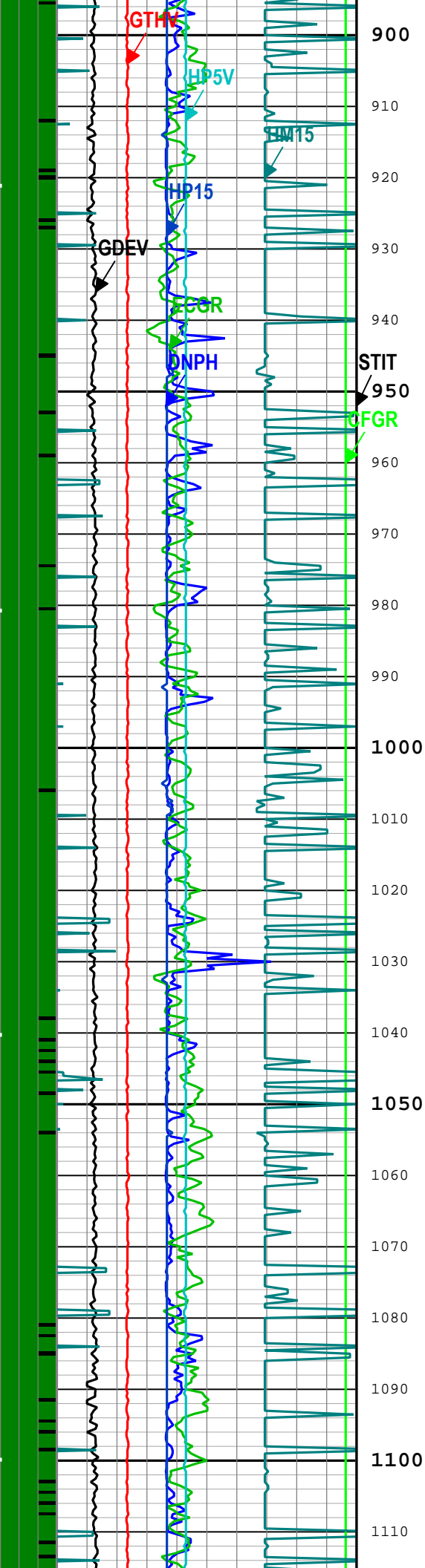
MAX_LOG_SPEED	Toolstring Maximum Logging Speed			WLSESSION	3600	ft/h			
ULOG	Logging Objective			USIT-E	MEASUREMENT				
UPAT	USIT Emission Pattern			USIT-E	Pattern 500 KHz				
UWKM	USIT Working Mode			USIT-E	Uncompressed 10 deg at 6.0 in				
Main Pass									
Software Version									
Acquisition System				Version					
Maxwell 2018 SP2				8.2.104493.3100					
Composite Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[8]:Up	Up	4467.68 ft	6535.32 ft	14-Apr-2019 9:03:08 PM	14-Apr-2019 9:42:43 PM	ON	6.95 ft	Yes
One	Log[9]:Up	Up	43.09 ft	4658.09 ft	14-Apr-2019 9:51:51 PM	14-Apr-2019 11:21:27 PM	ON	6.63 ft	Yes
All depths are referenced to toolstring zero									
Log		Company:Noble Energy Inc			Well:Vogler State D21-780			Main Pass:S007	
Description: HGNS LQC for Platform Express Format: Log (PEX LQC HGNS) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth									
Creation Date: 15-Apr-2019 00:13:08									
Hardware Flag Image (HHQFI) HGNS[1]									
1 - HGNS H/W Flag - : <div><div></div></div> HGNS hardware valid <div><div></div></div> HGNS hardware error									
2 - Porosity Flag - : <div><div></div></div> Porosity valid <div><div></div></div> Porosity error									
3 - Accelerometer Flag - : <div><div></div></div> Accelerometer valid <div><div></div></div> Accelerometer error									
TIME_1900 - Time Marked every 60.00 (s)									
Hardw are Flag Image (HHQ FI) HGNS [1]	Gamma Ray Correction Coefficient (CFGR) HGNS[1]		0.5		1.5				
	Difference between Corrected Thermal Neutron Porosity and Uncorrected (DNPH) HGNS[1]		-0.1		m3/m3		0.1		
	Gamma Ray (ECGR) HGNS[1]		0		gAPI		150		
	Sonde Deviation (GDEV) HGNS[1]		-10		deg		90		
	+15 V Supply (HP15) HGNS[1]		14.5		V		15.5		
	-15 V Supply (HM15) HGNS[1]		-15.5		V		-14.5		
	5V Logic Power Supply (HP5V) HGNS[1]		4.5		V		5.5		
	Gamma Ray Test High Voltage (GTHV) HGNS[1]		2000		V		3000		
	1		3						

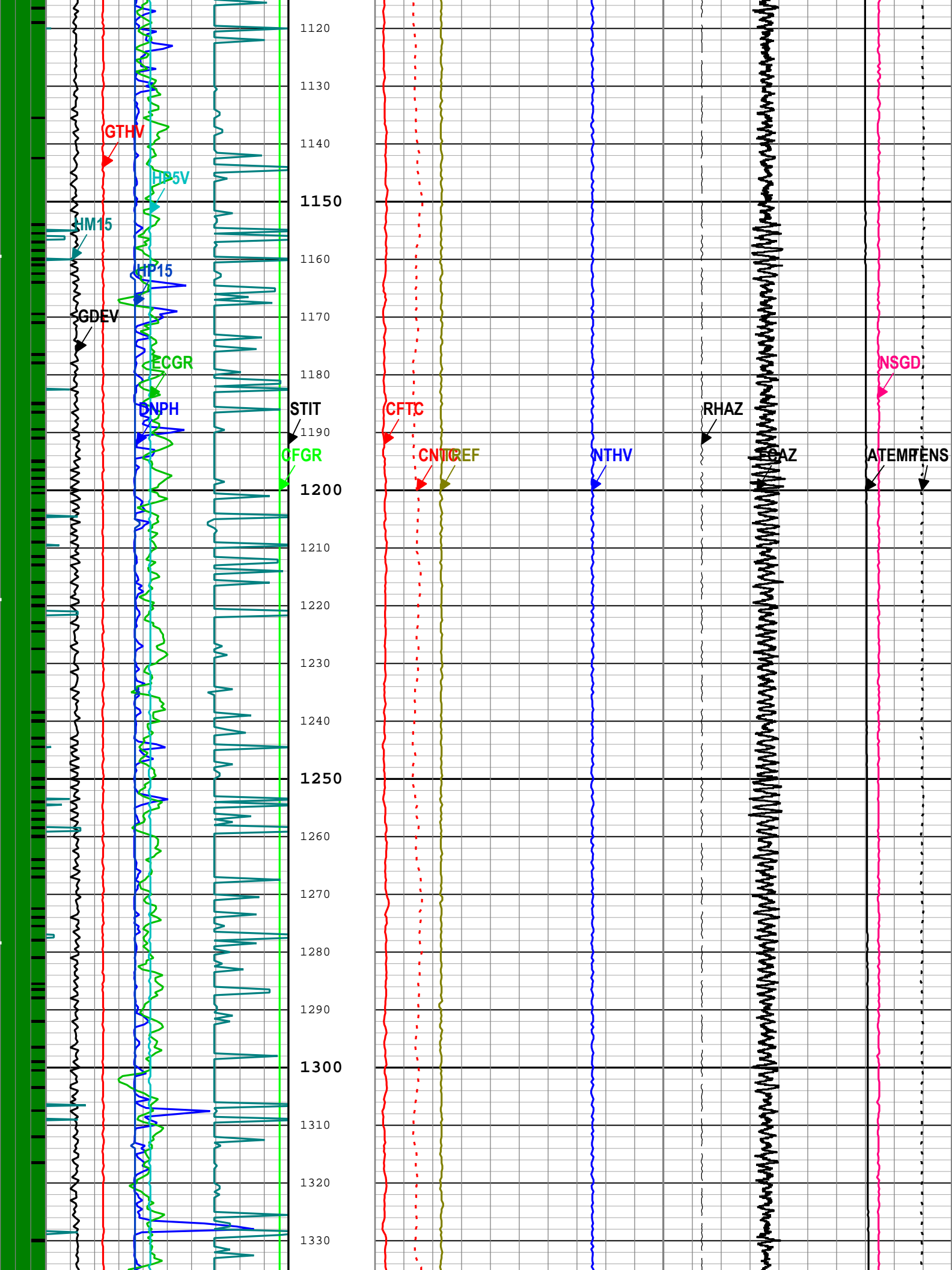


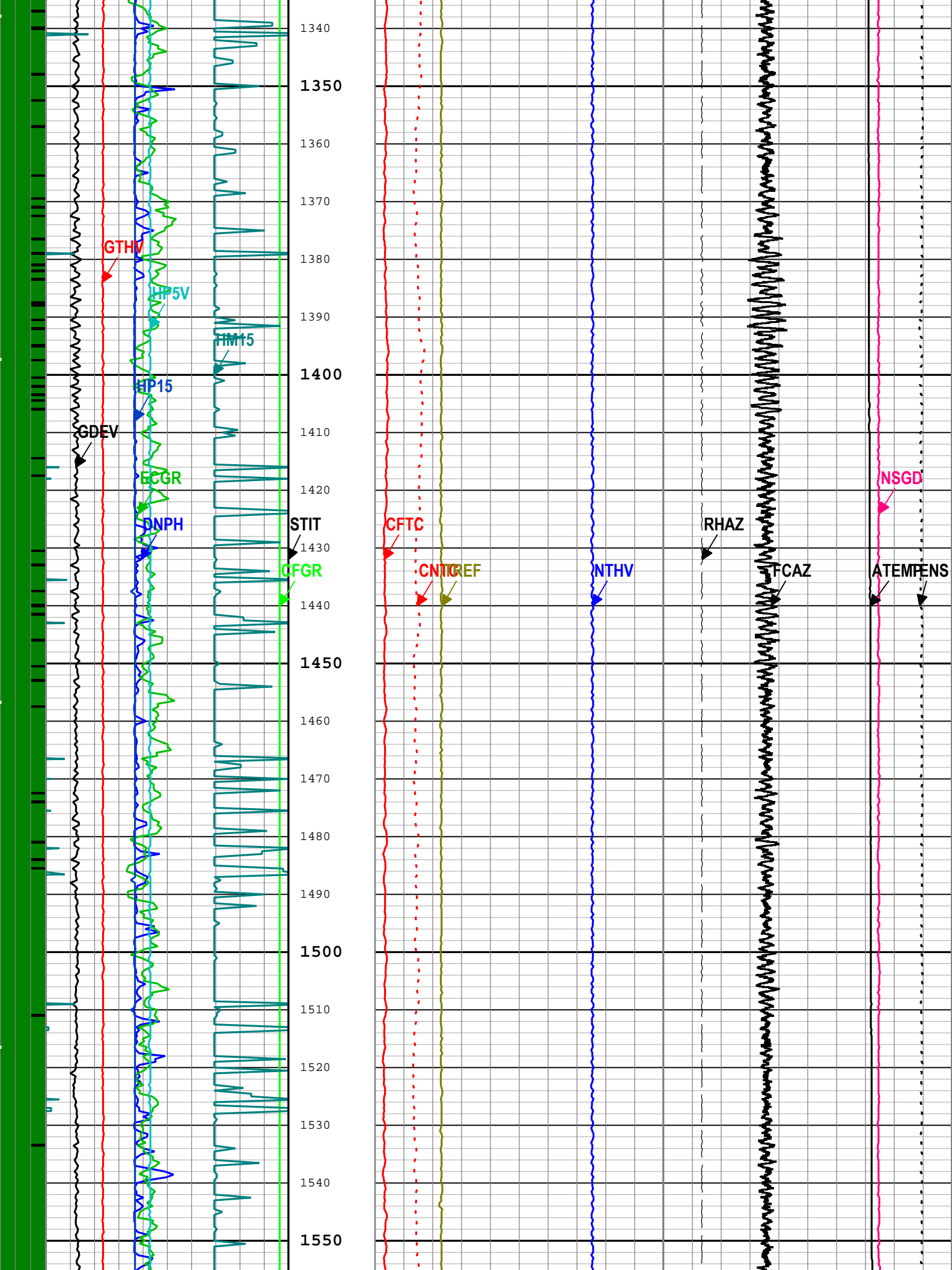


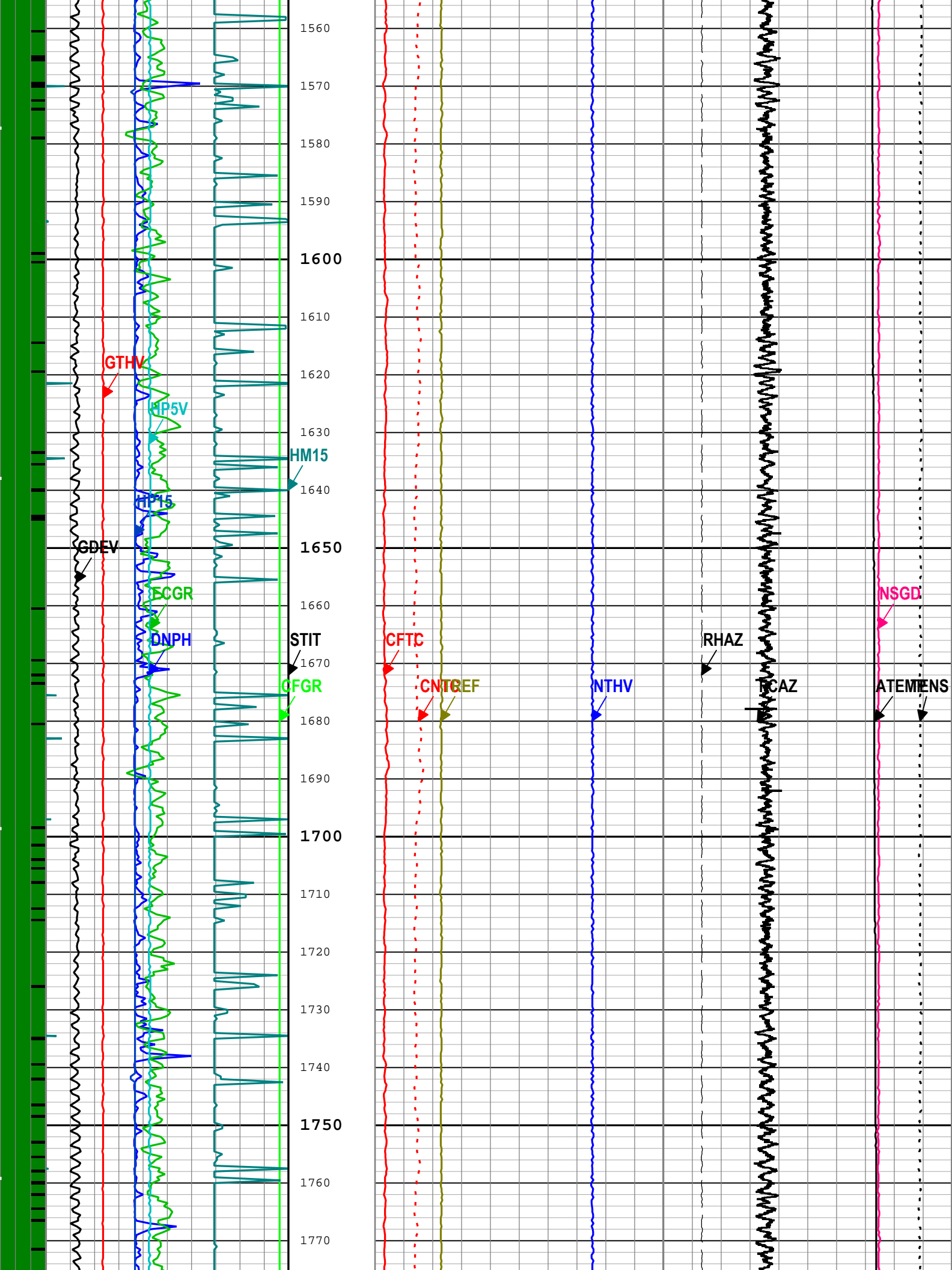


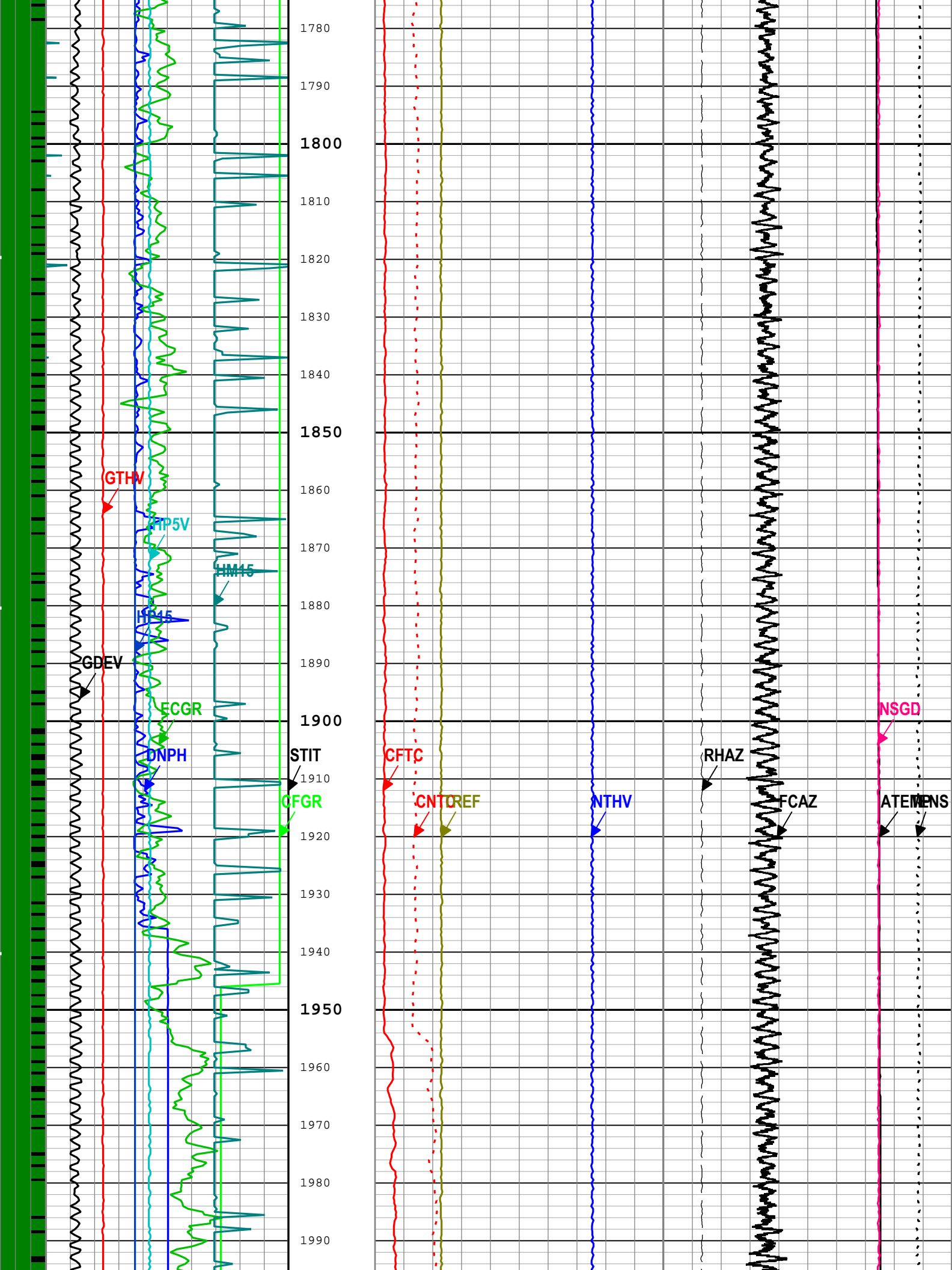


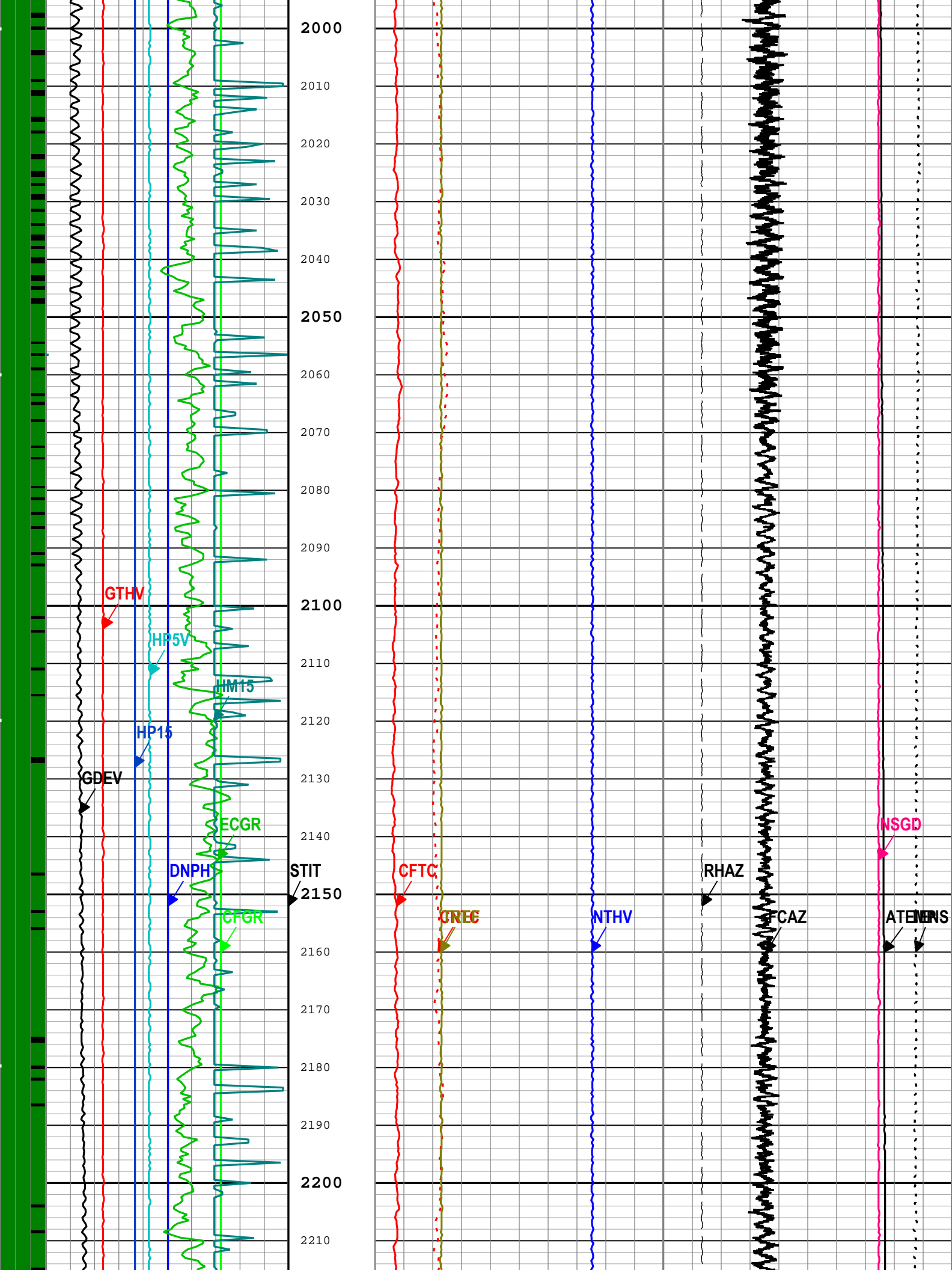


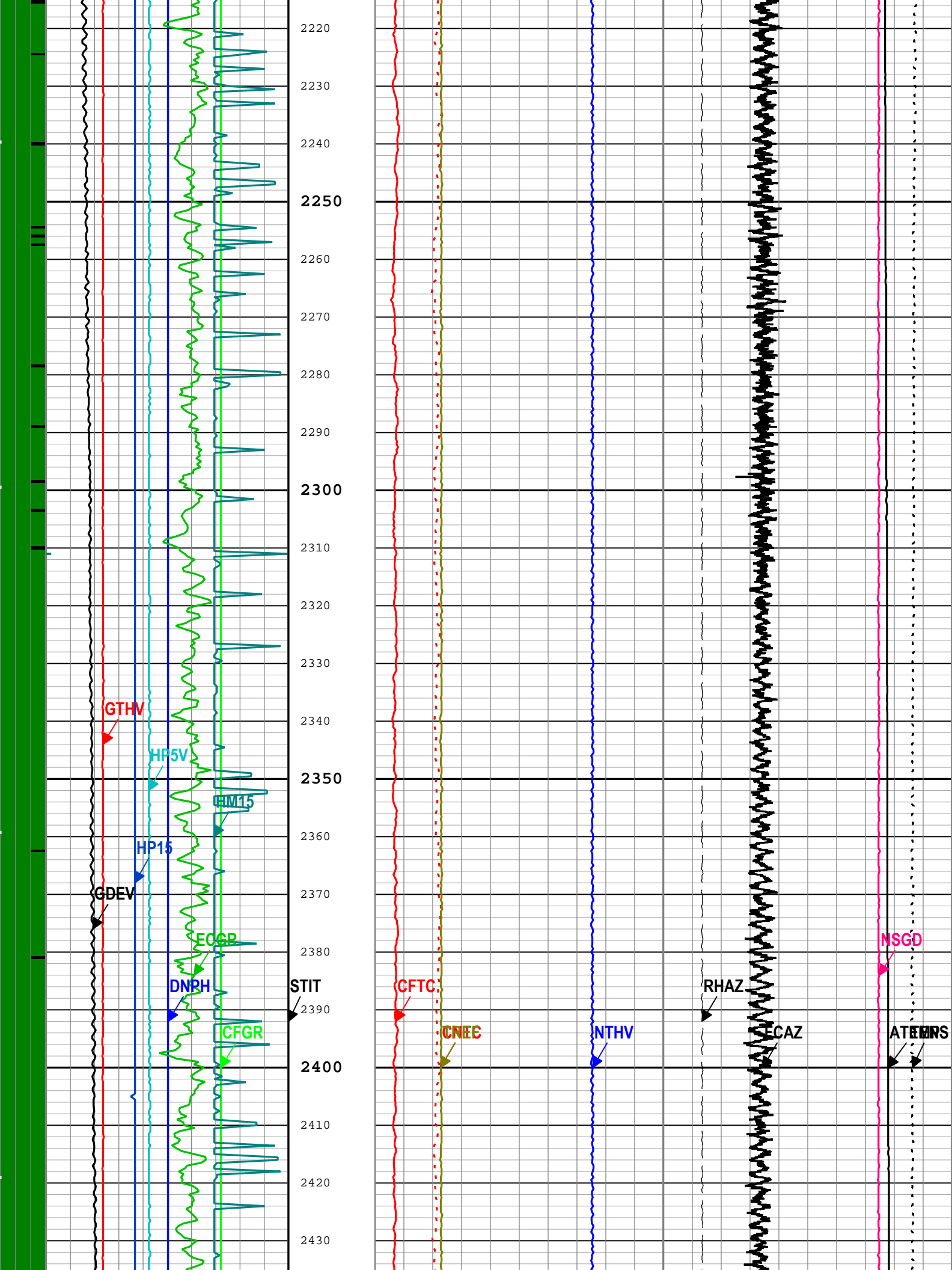


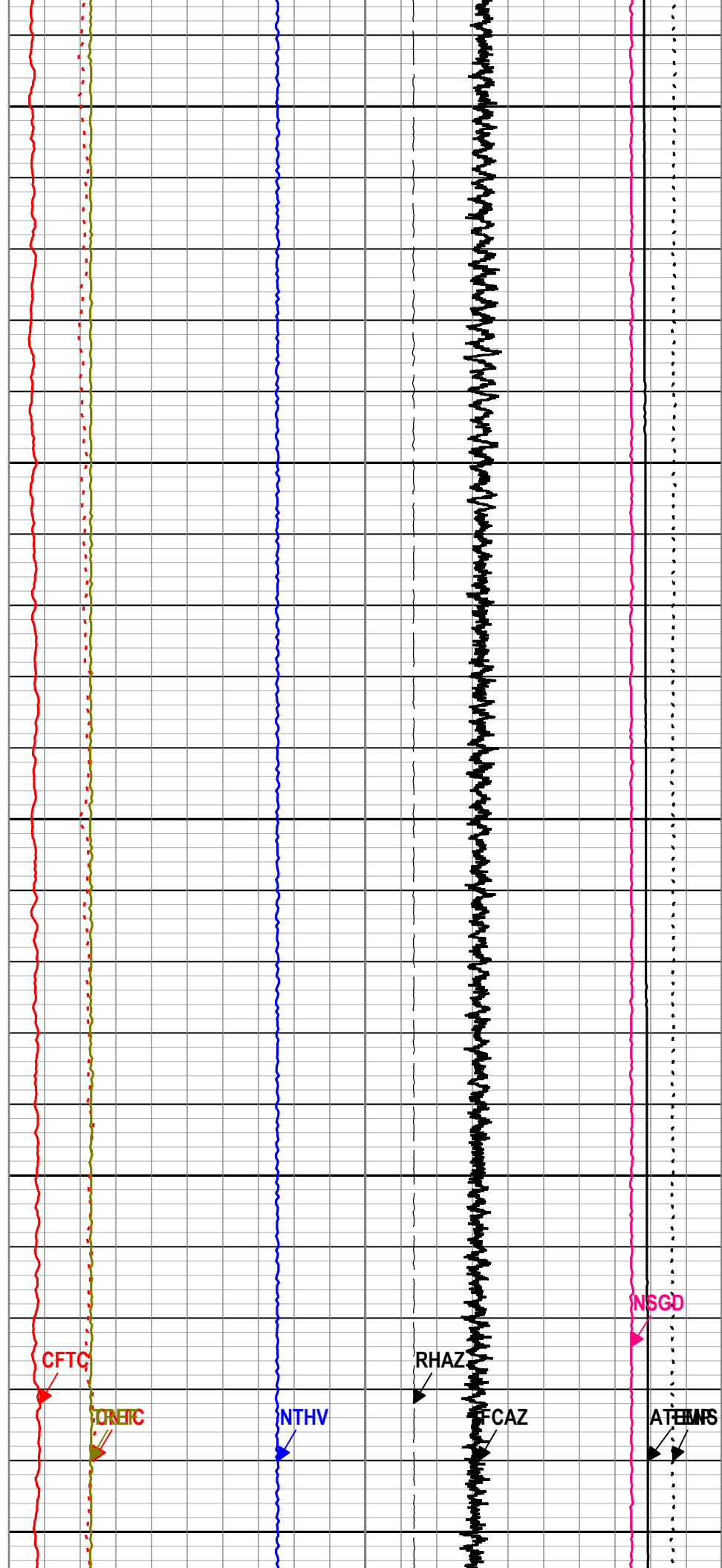
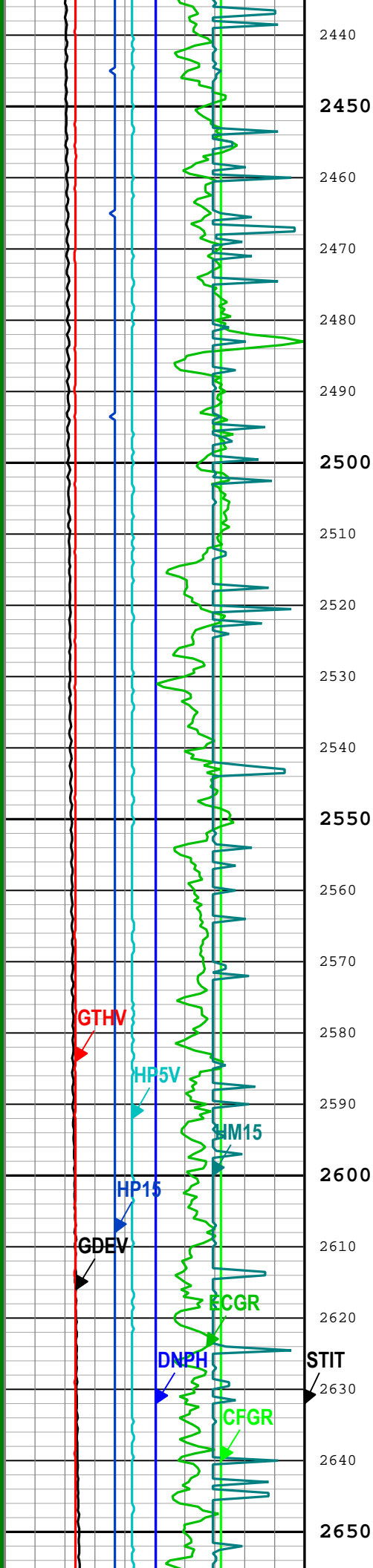


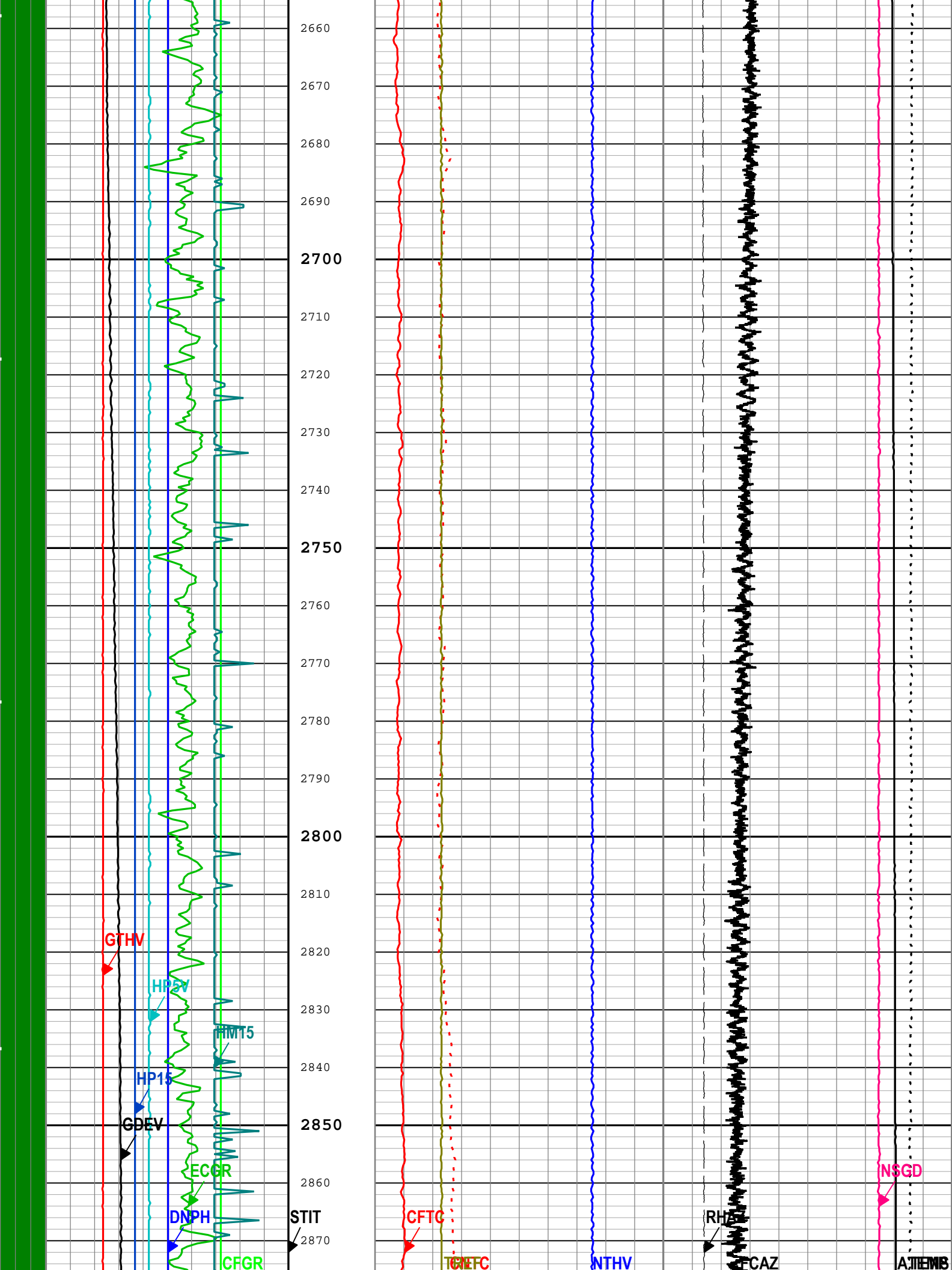


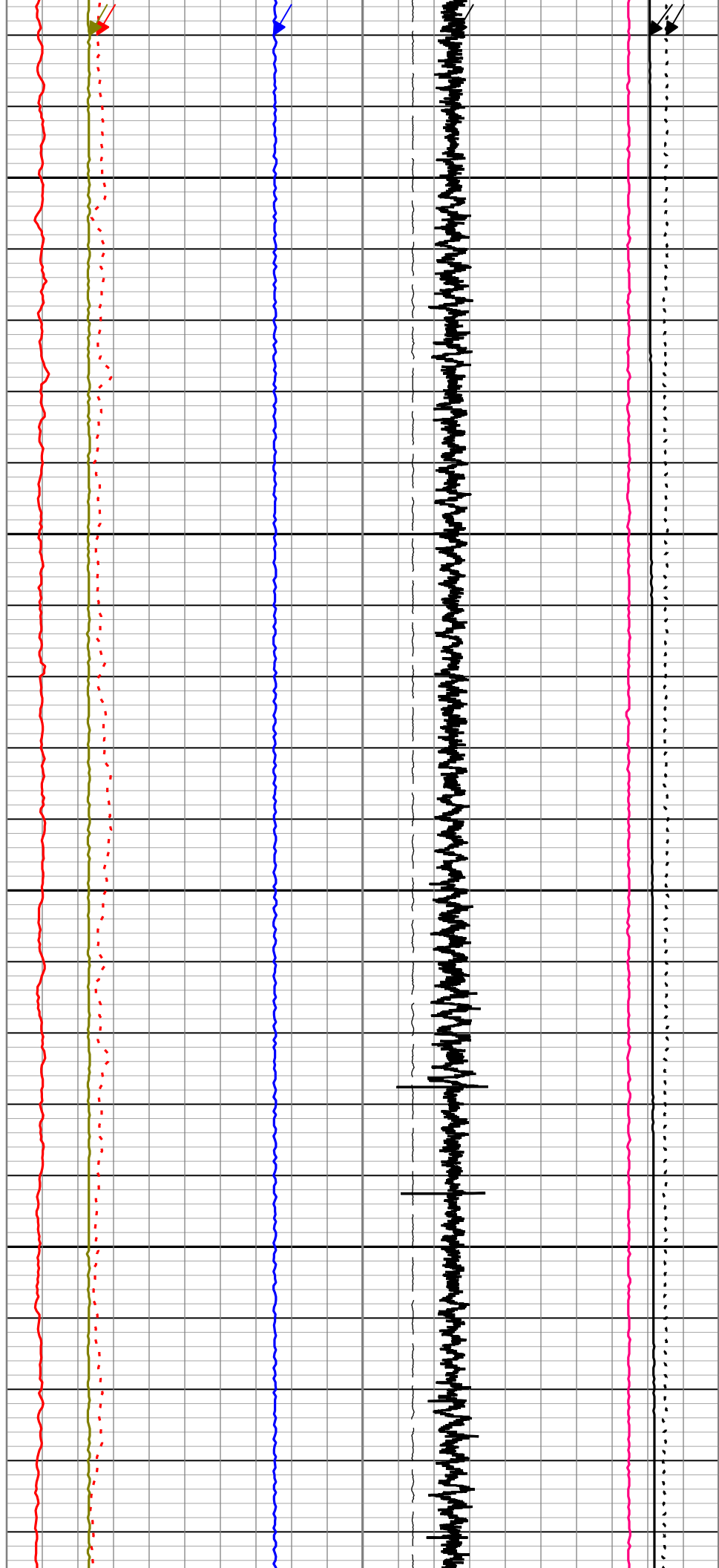
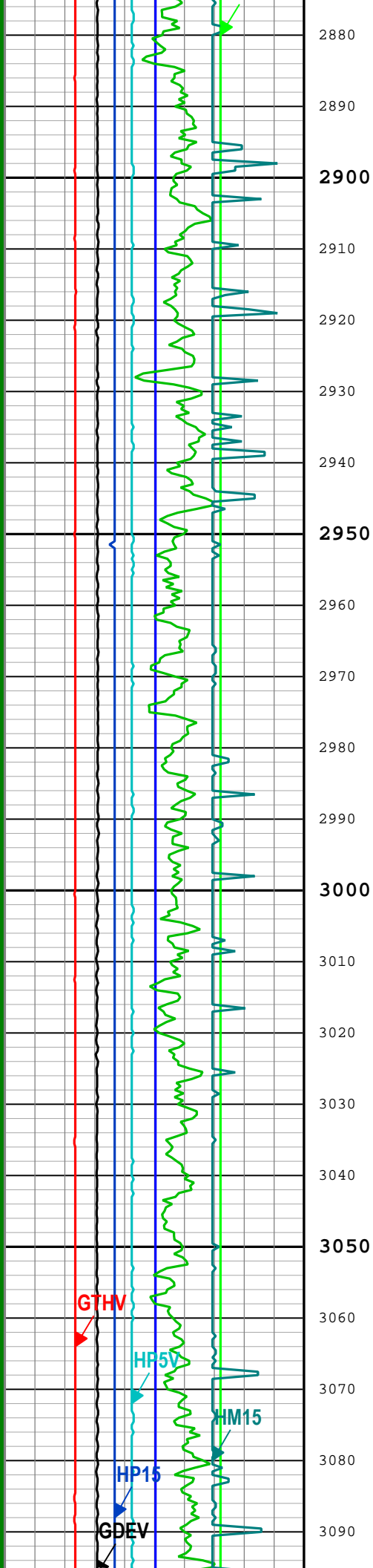


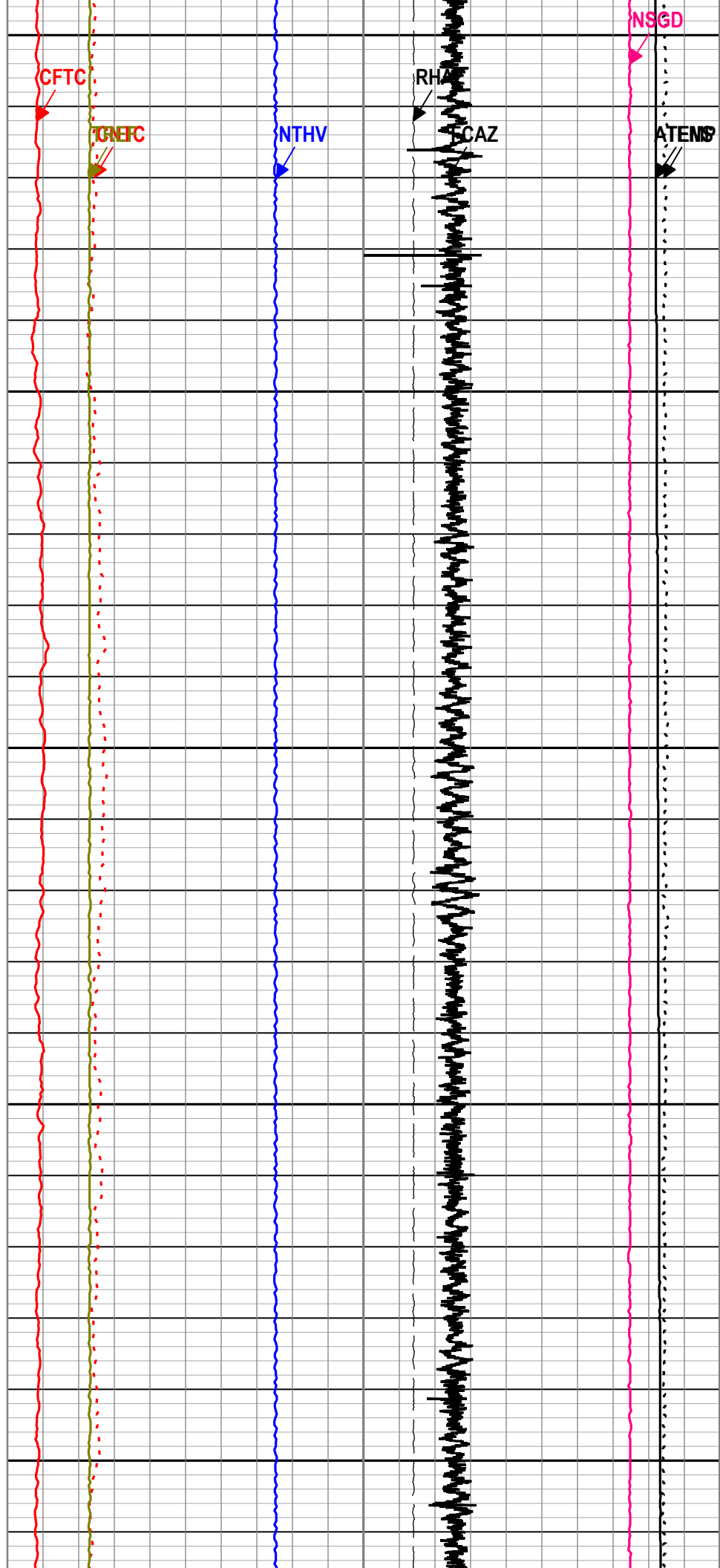
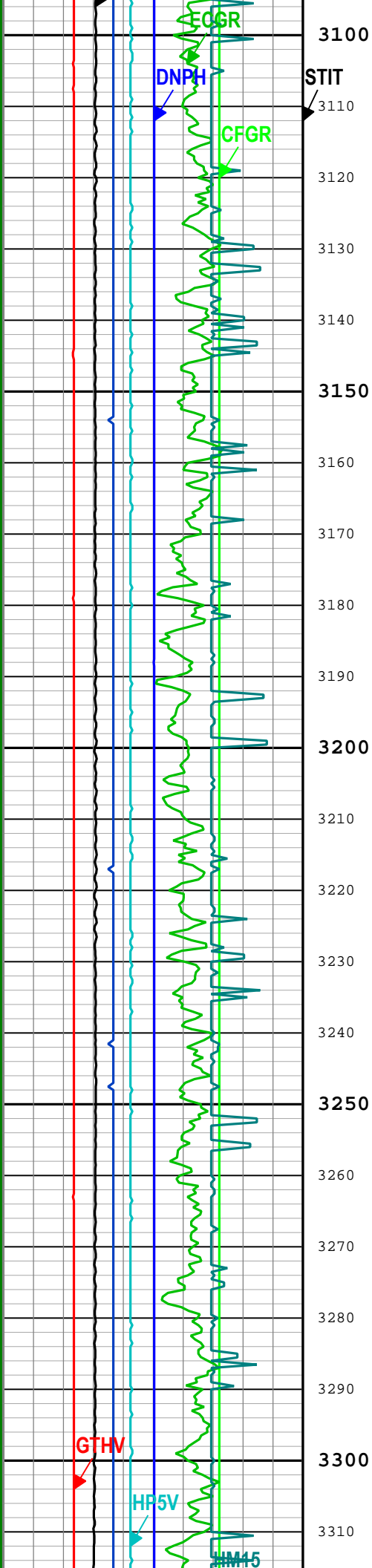


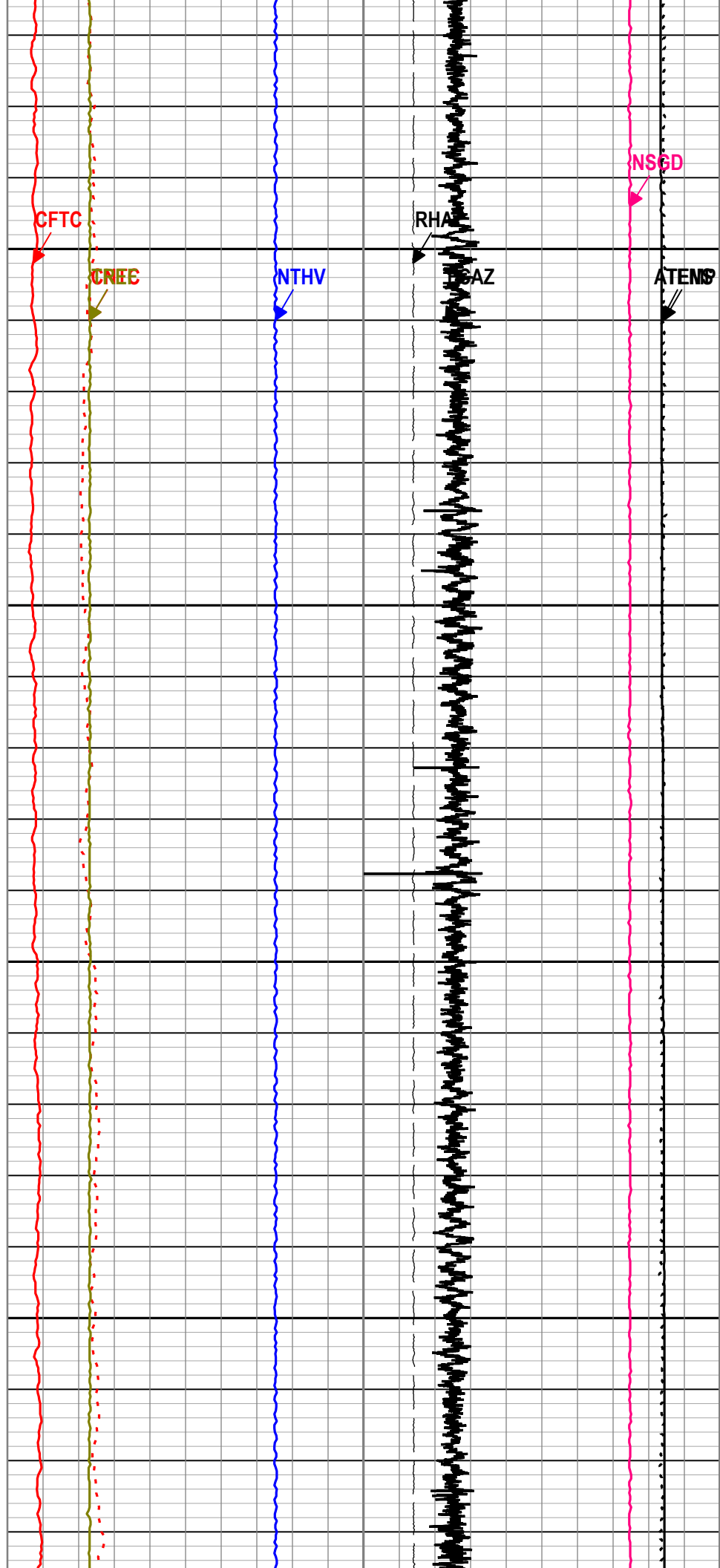
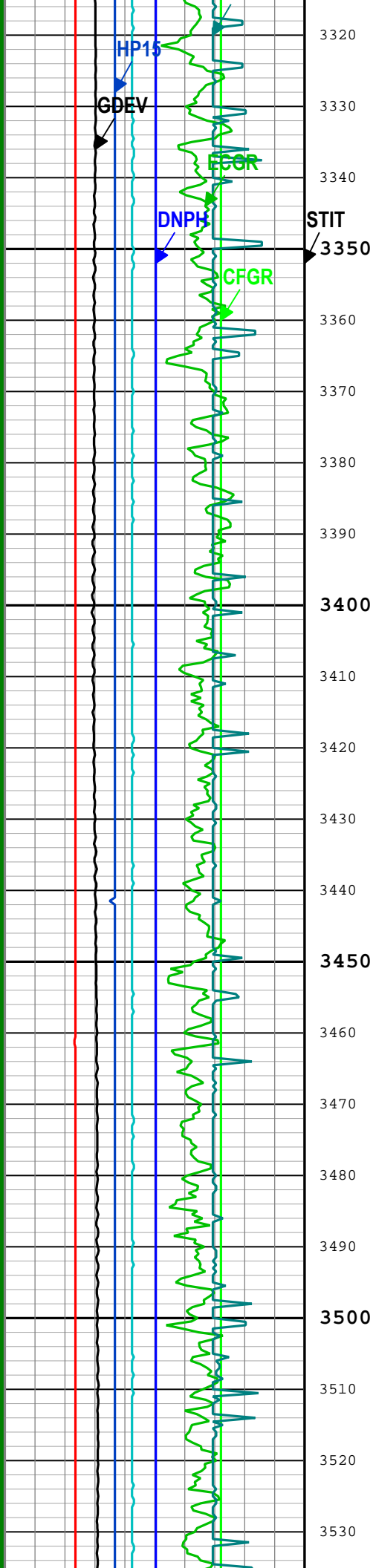


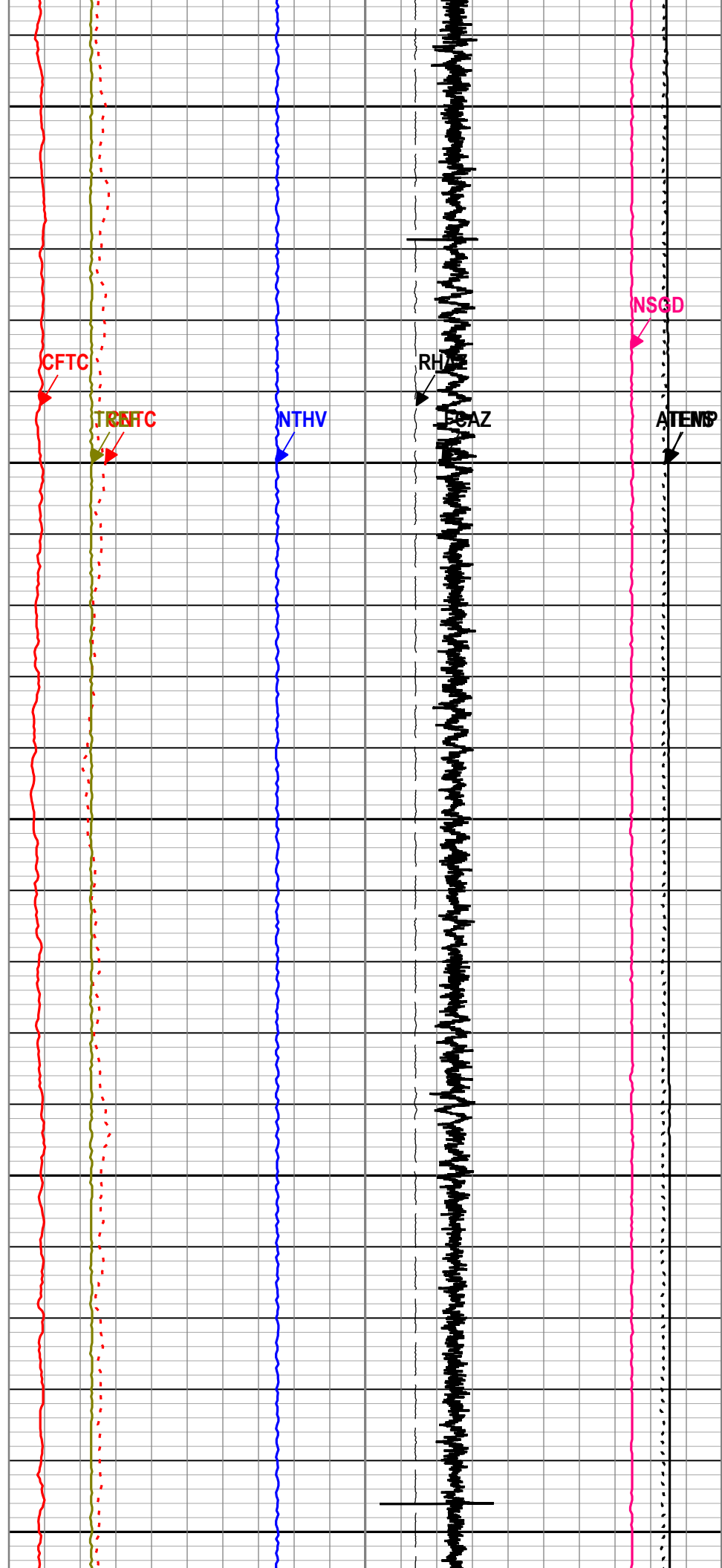
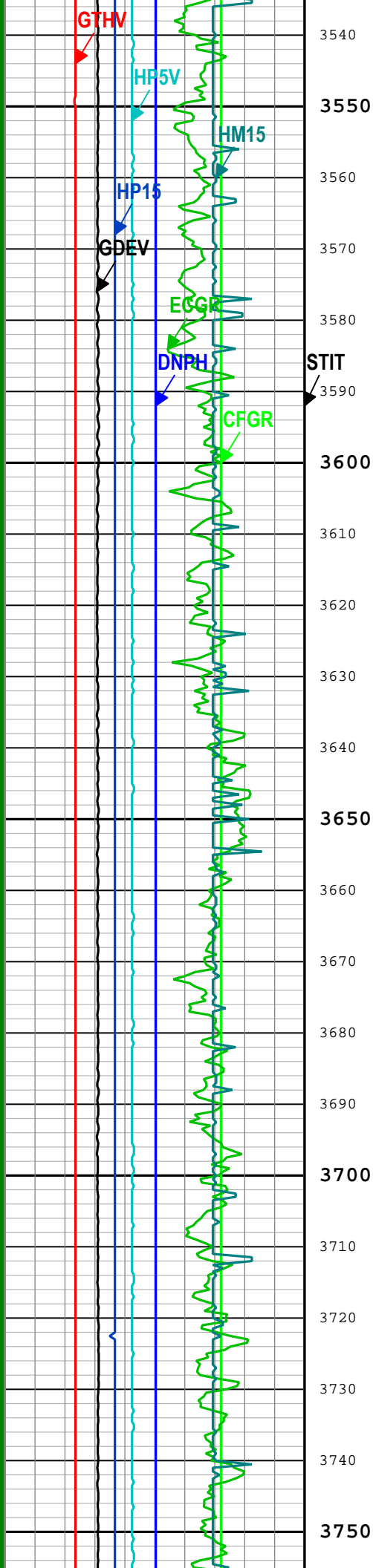


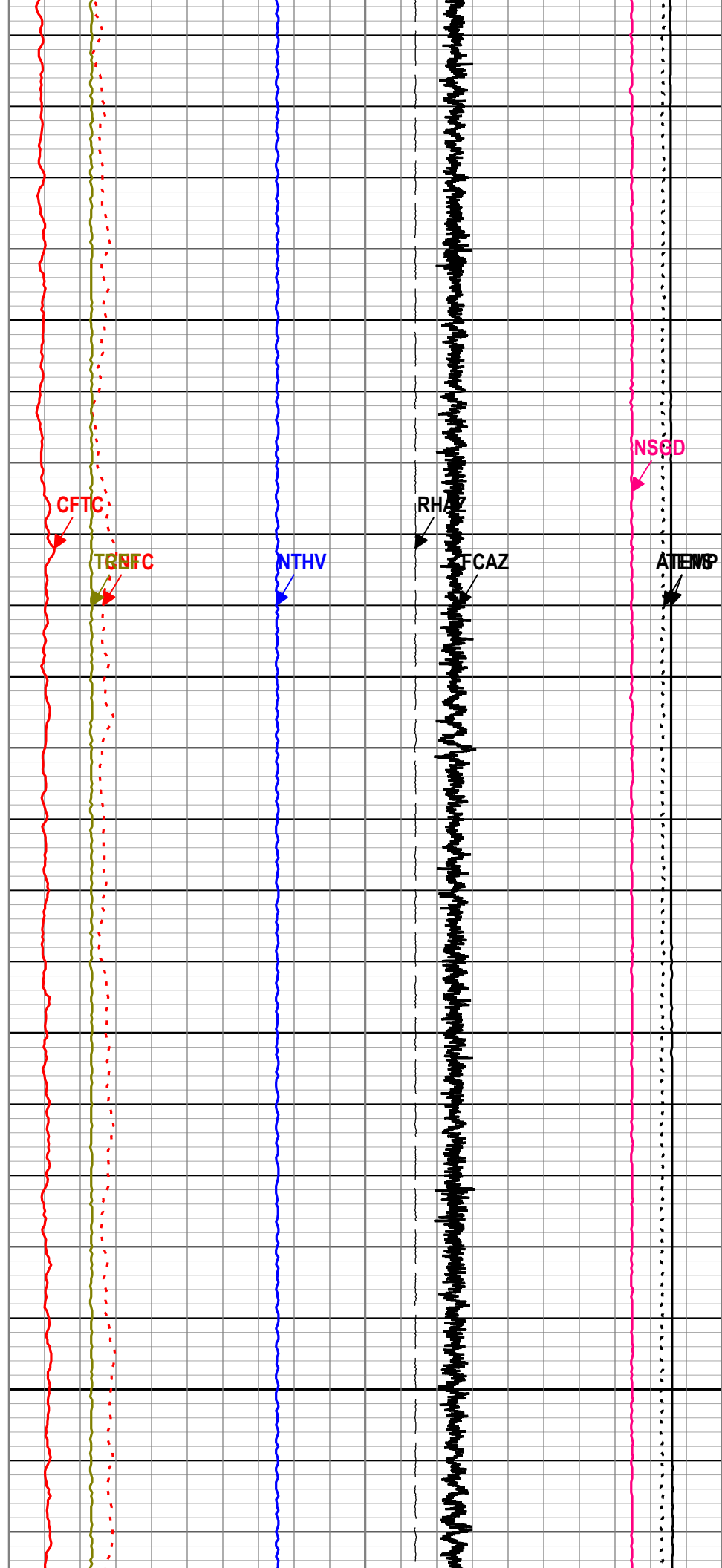
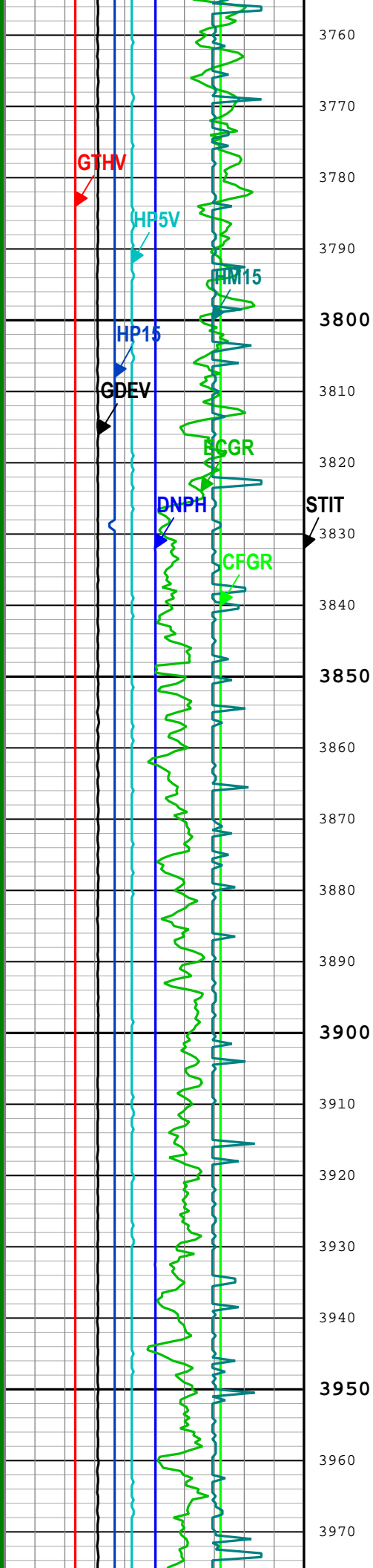


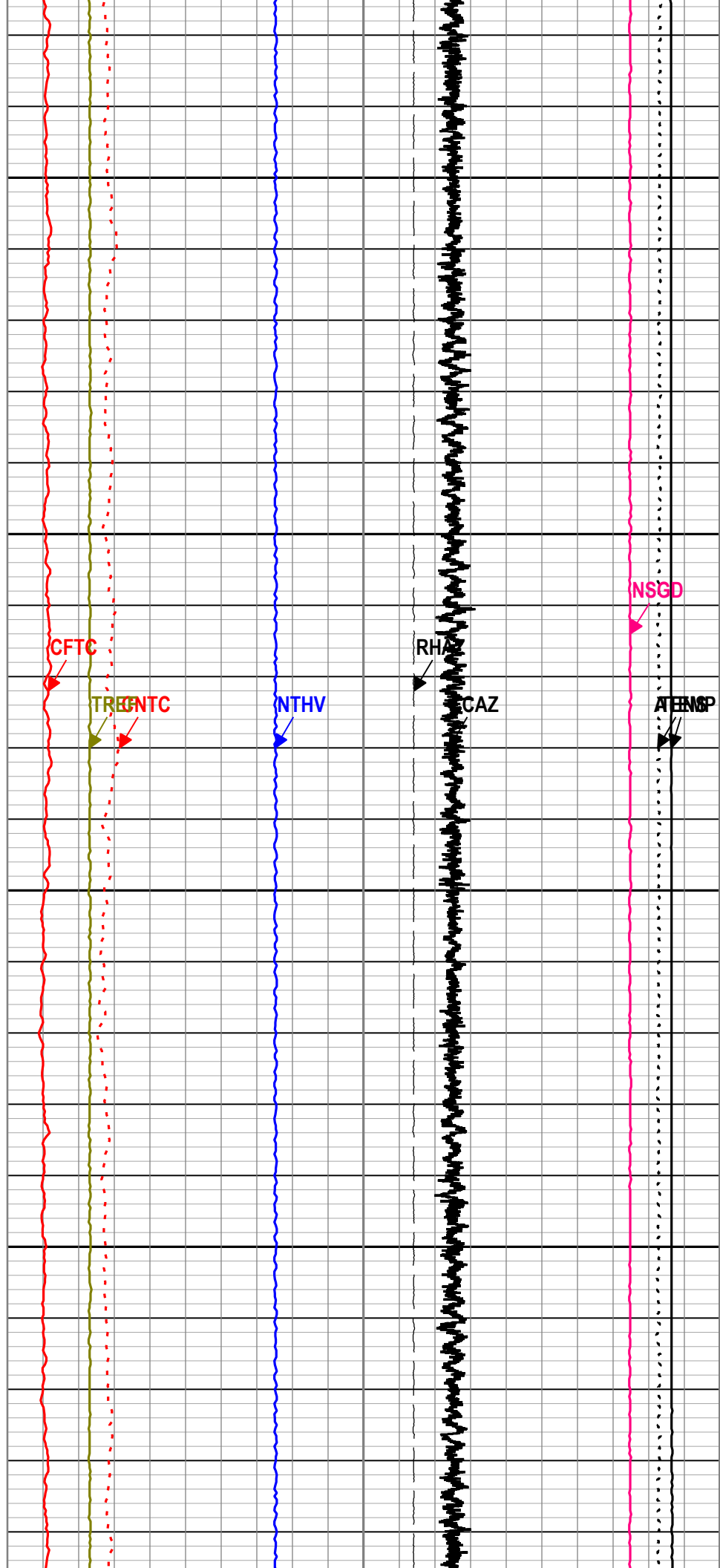
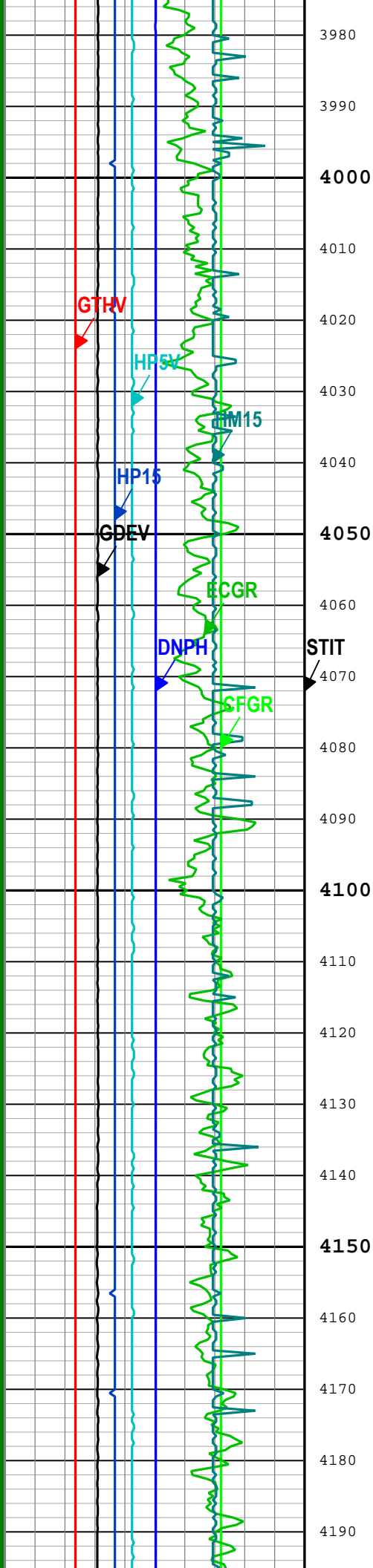


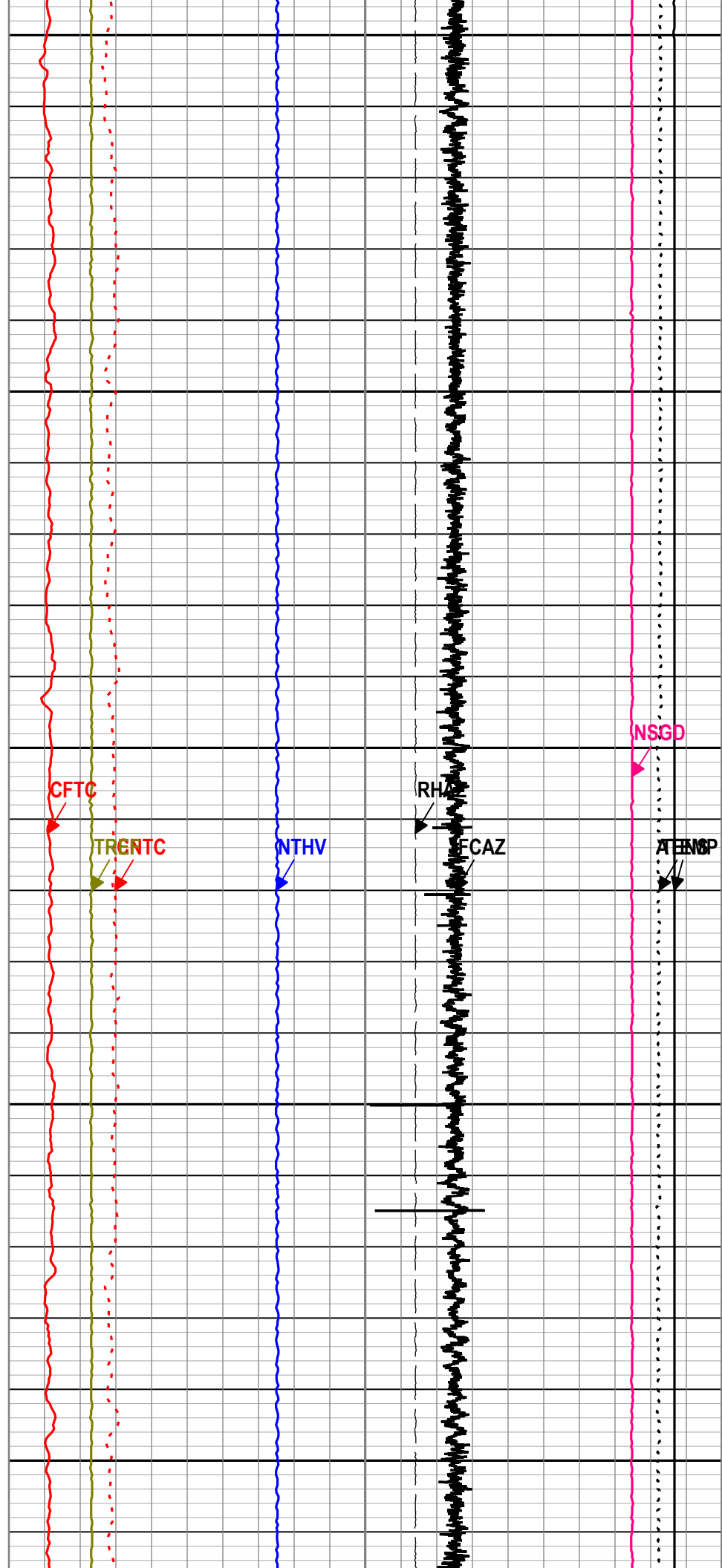
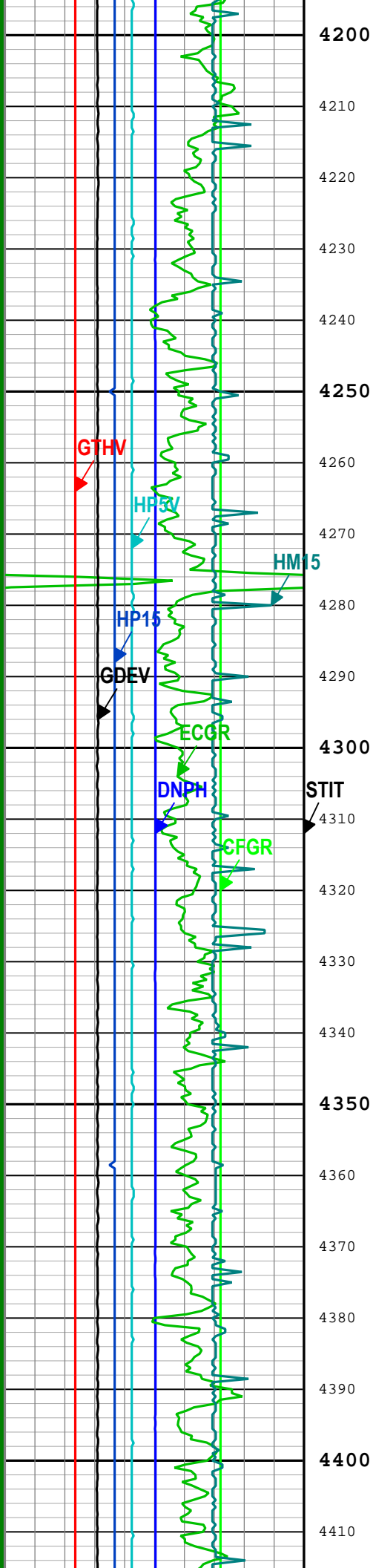


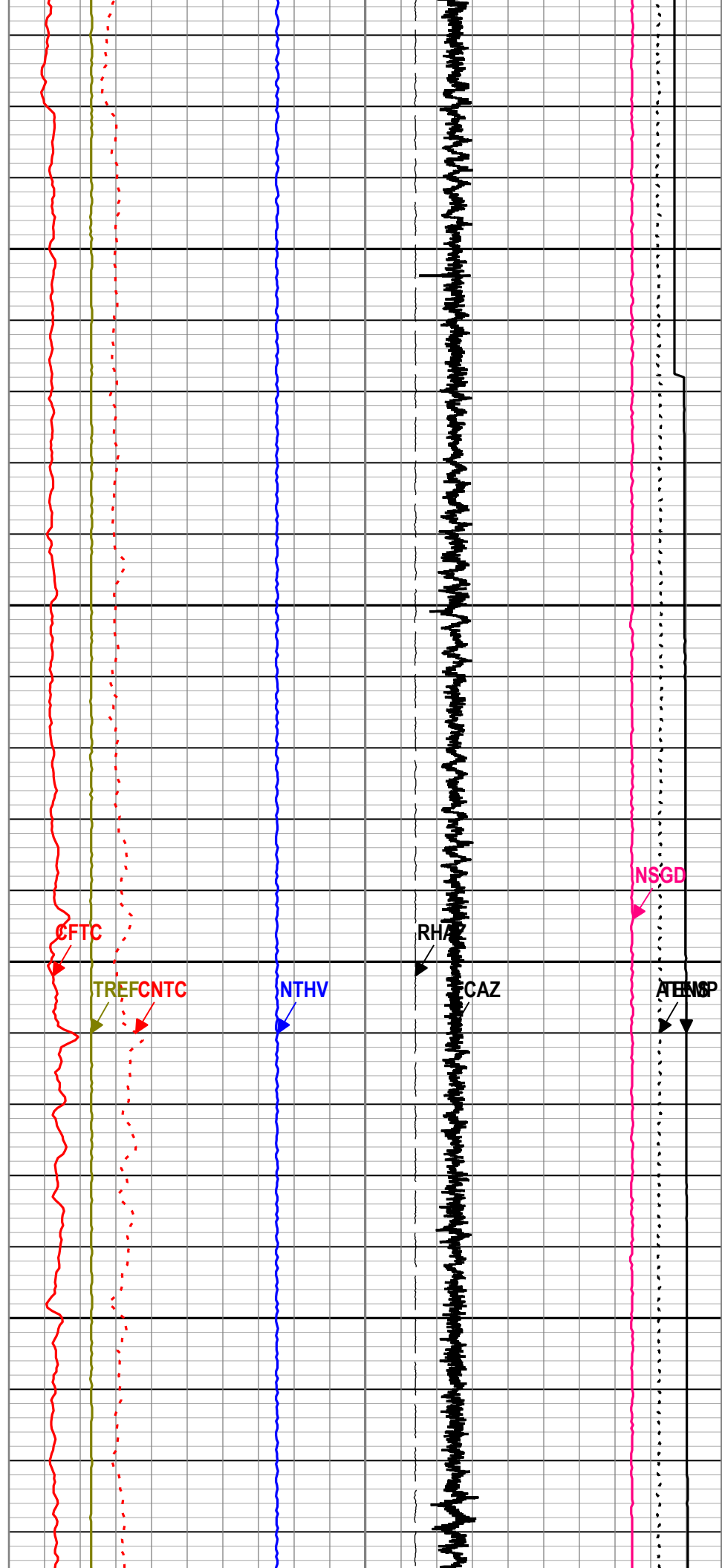
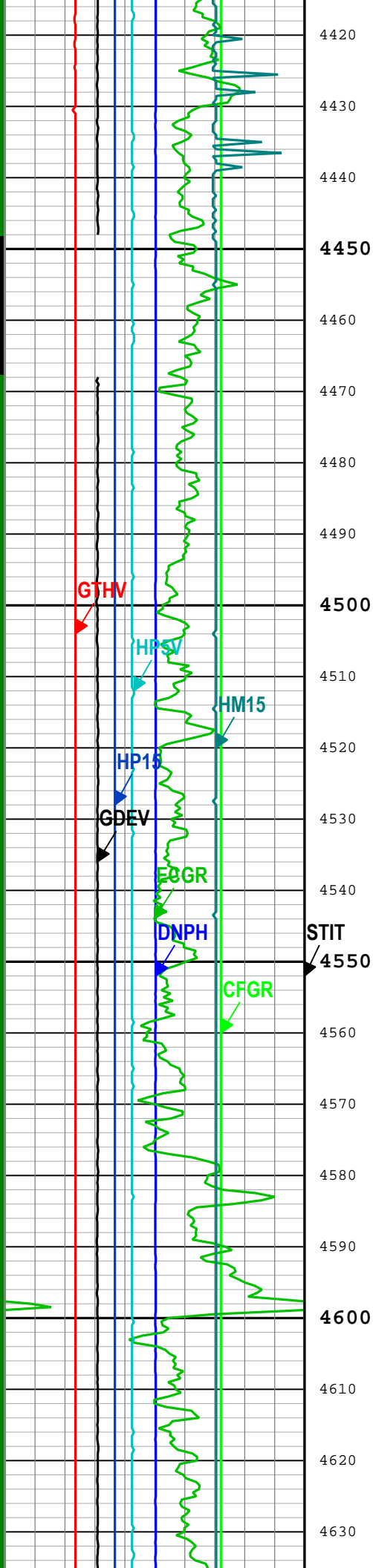


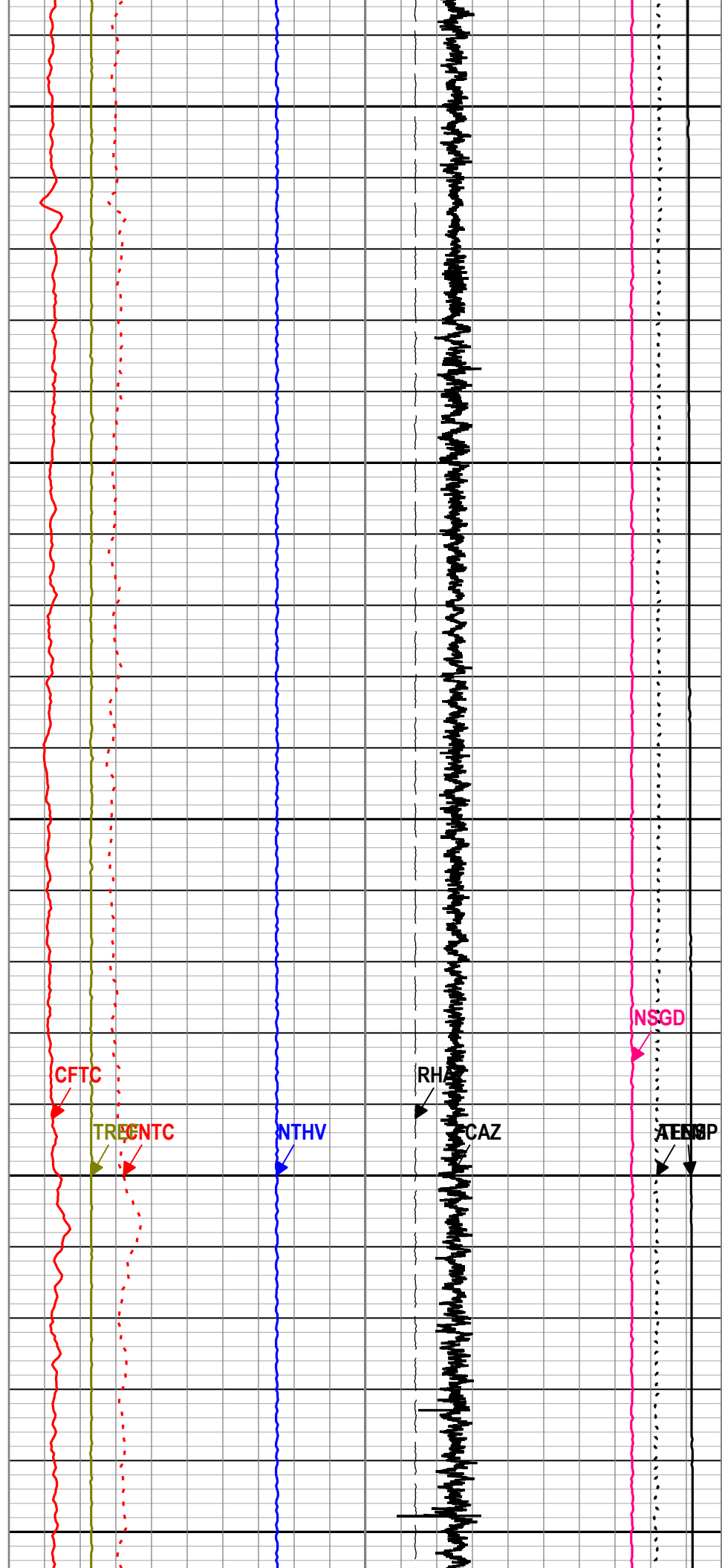
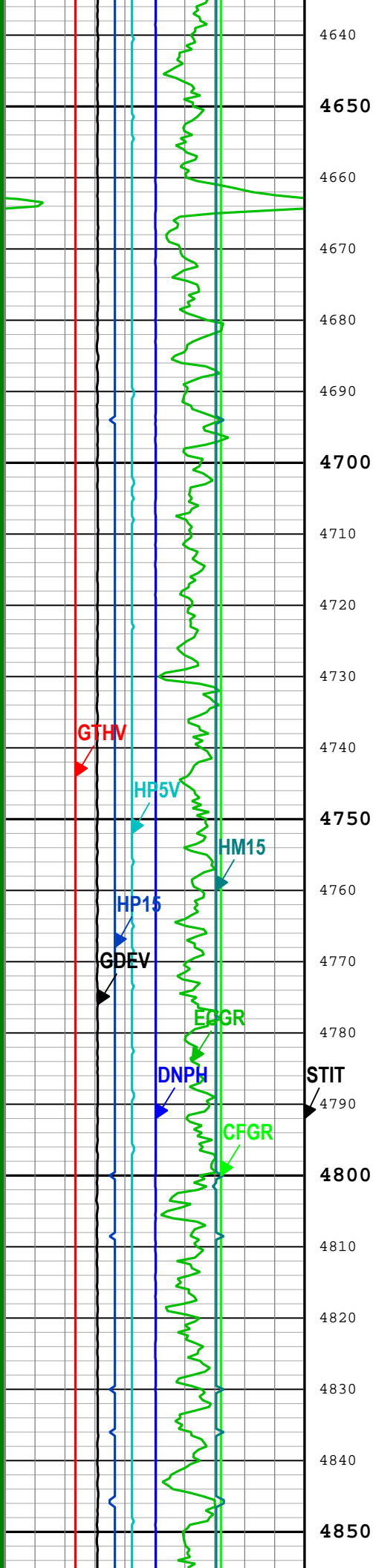


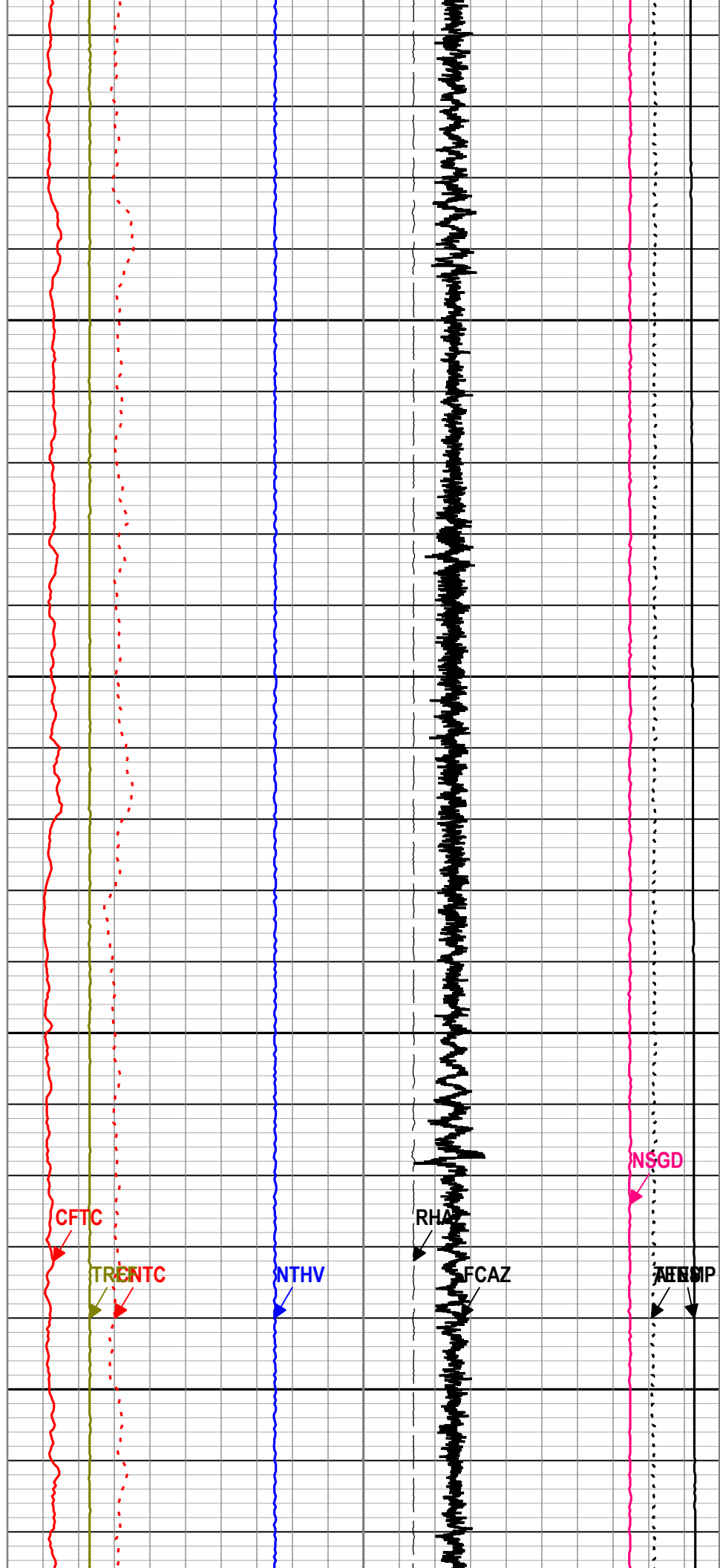
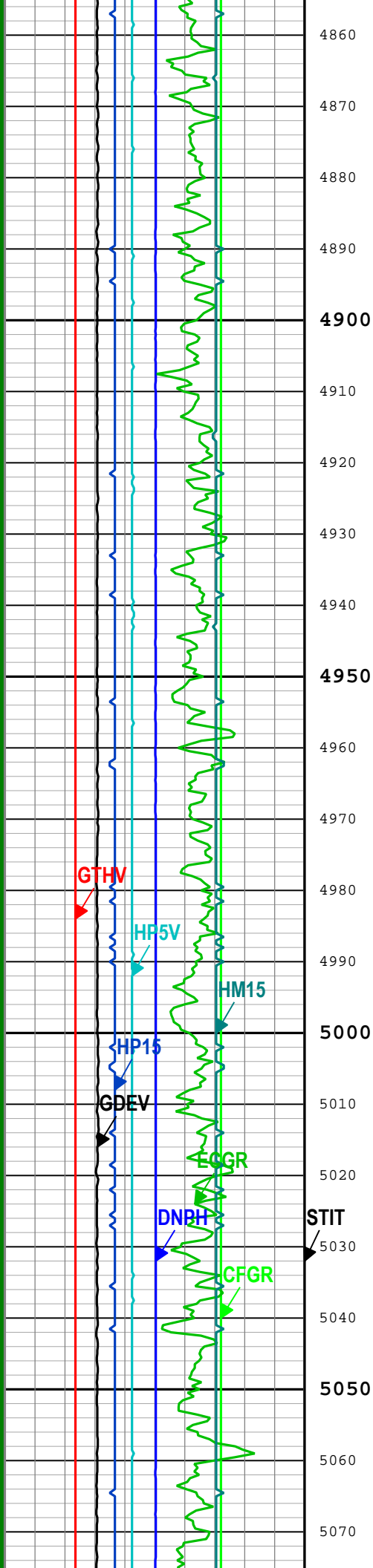


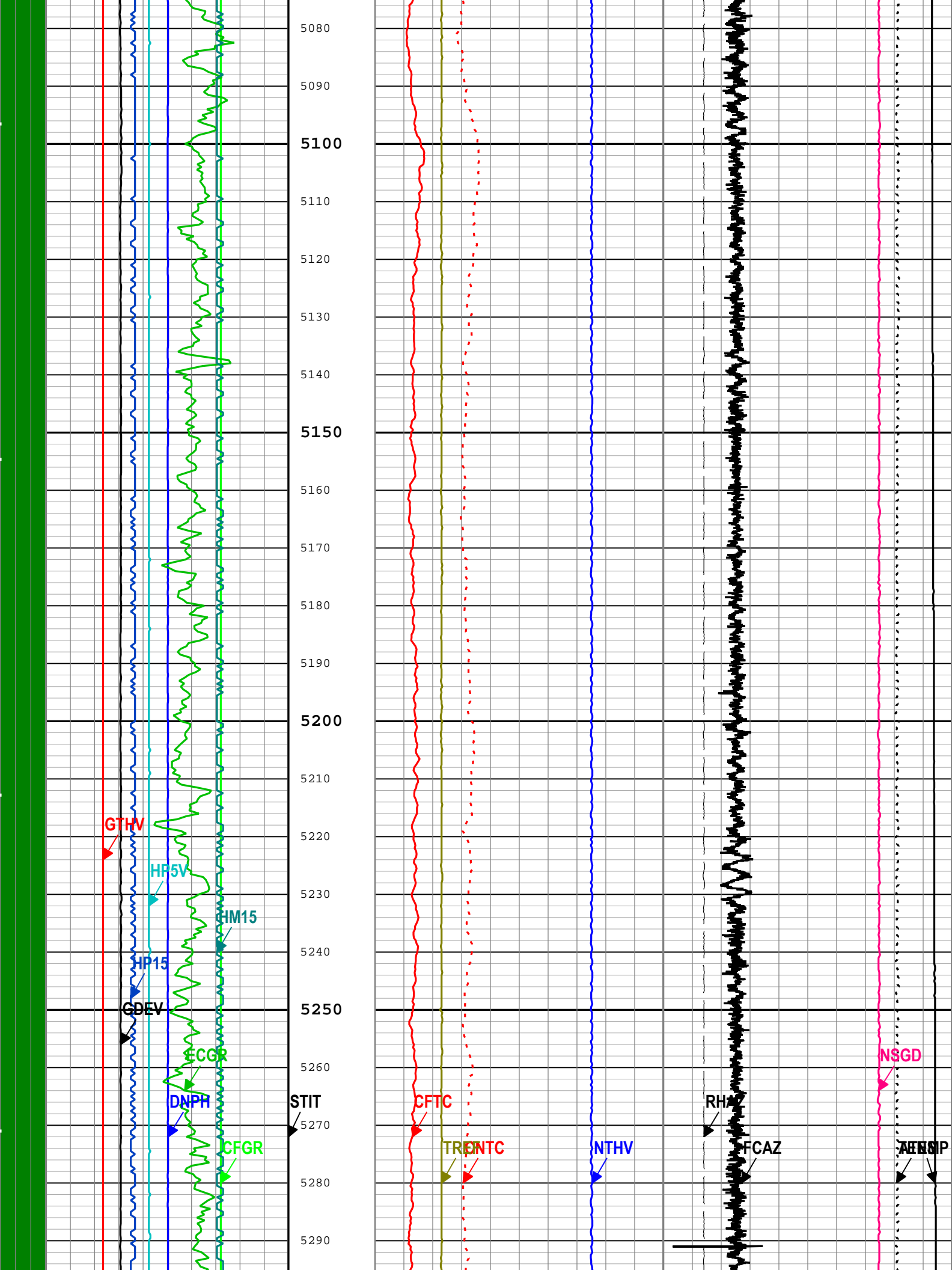


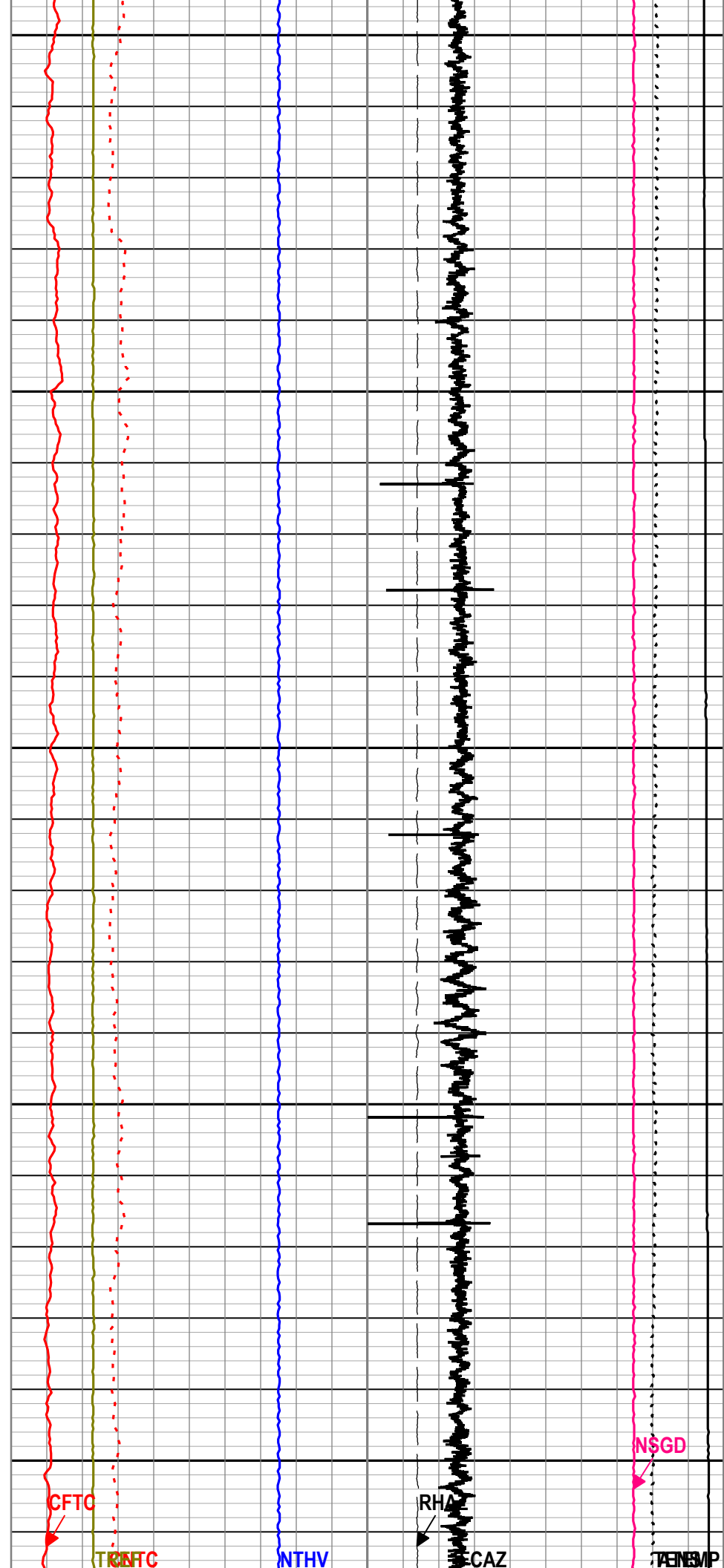
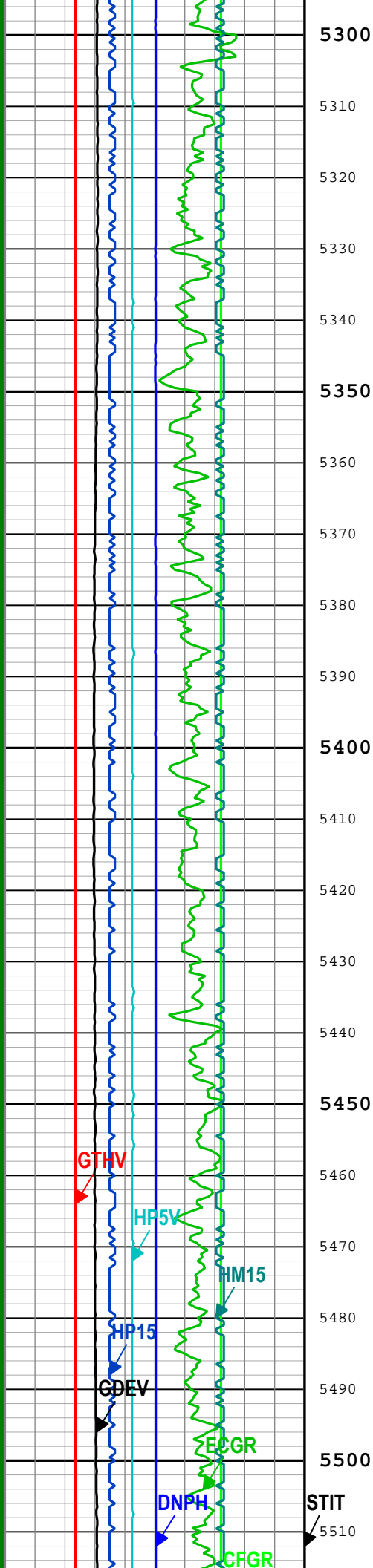


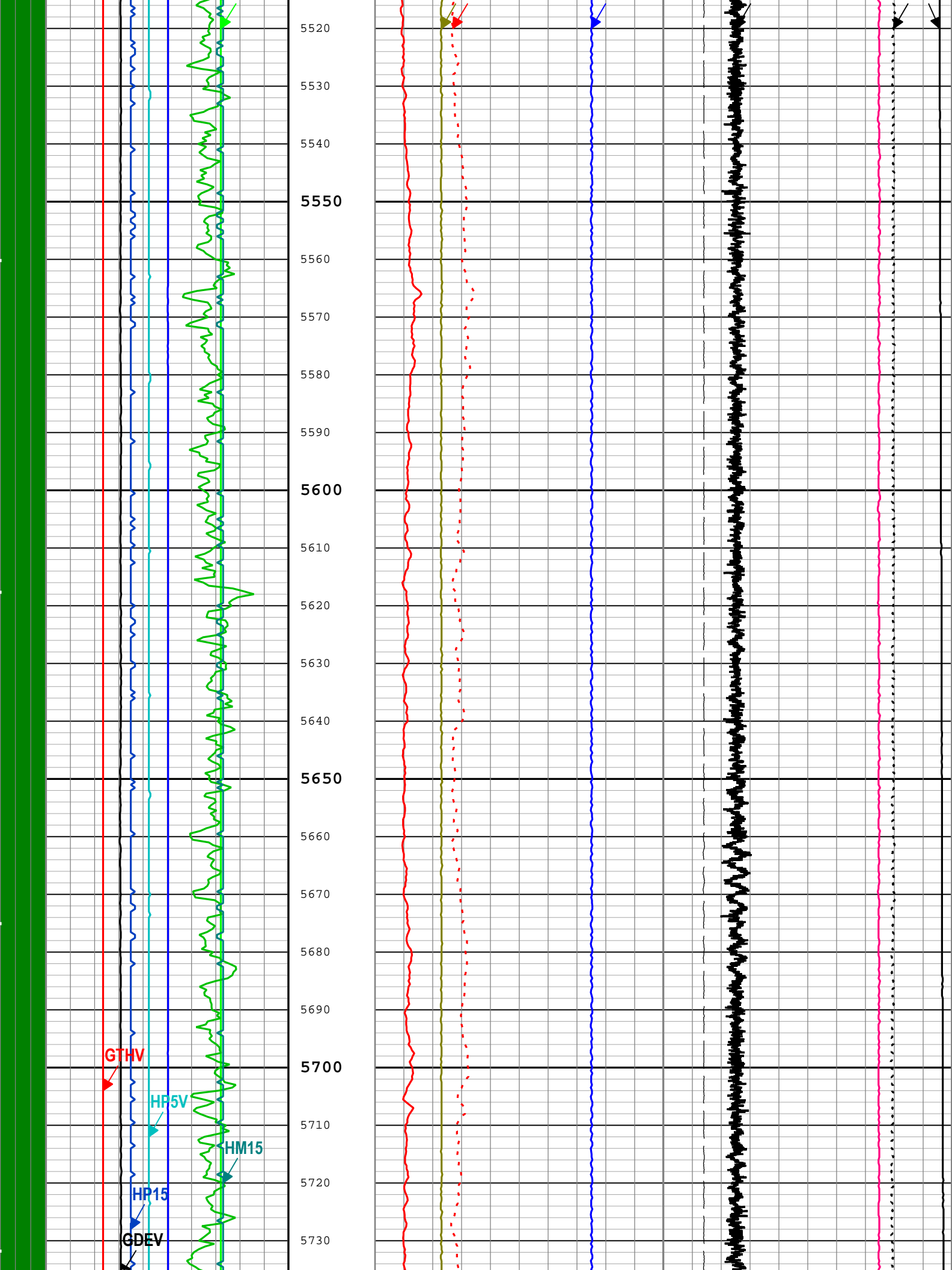


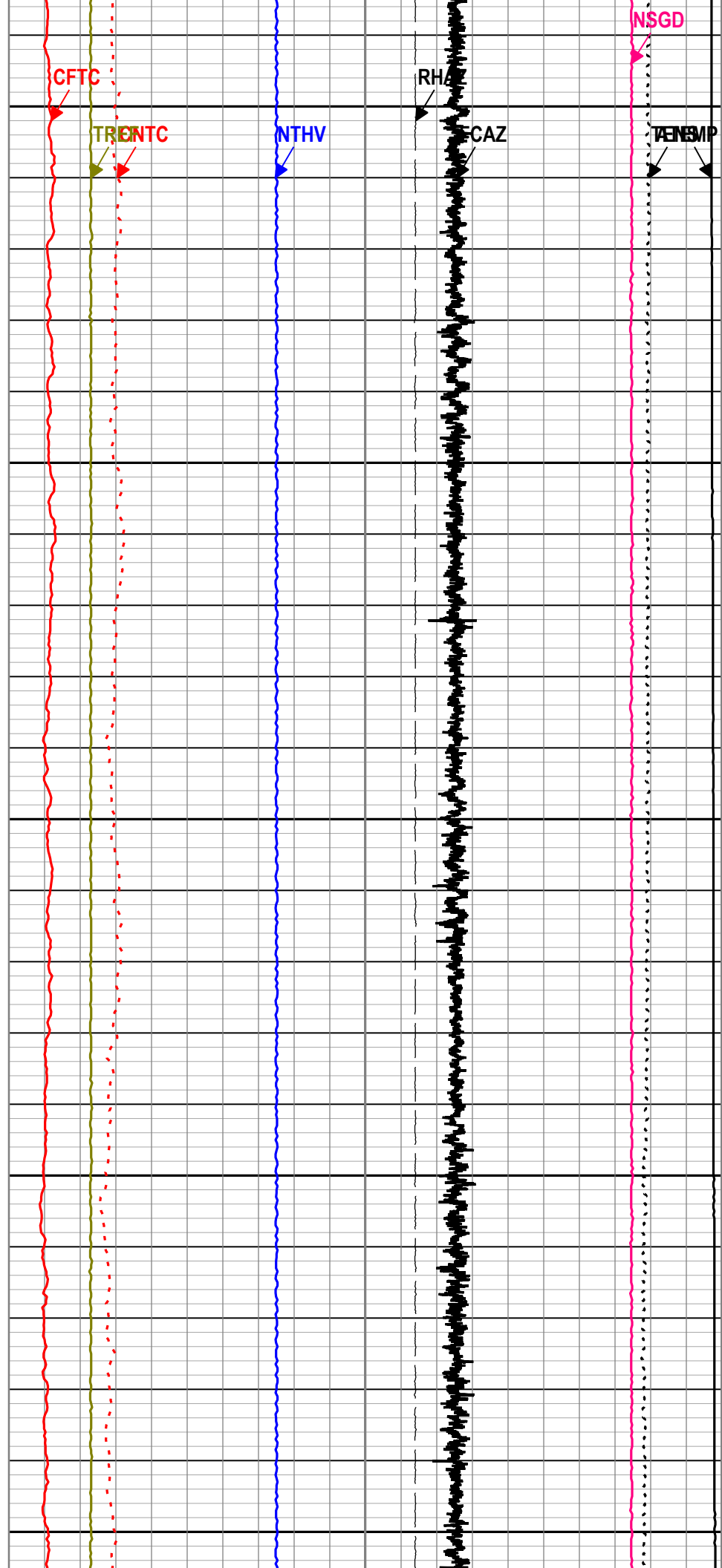
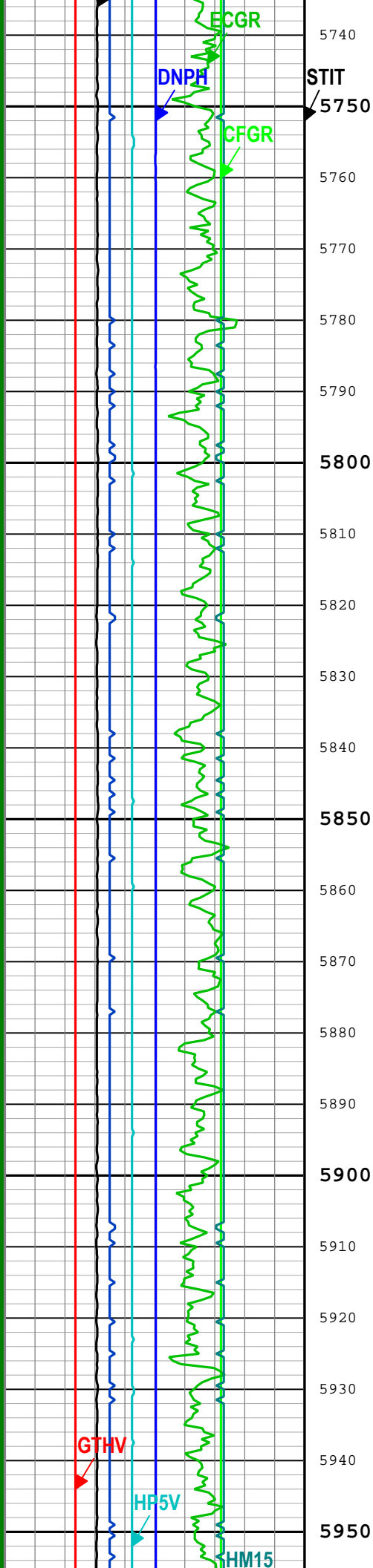


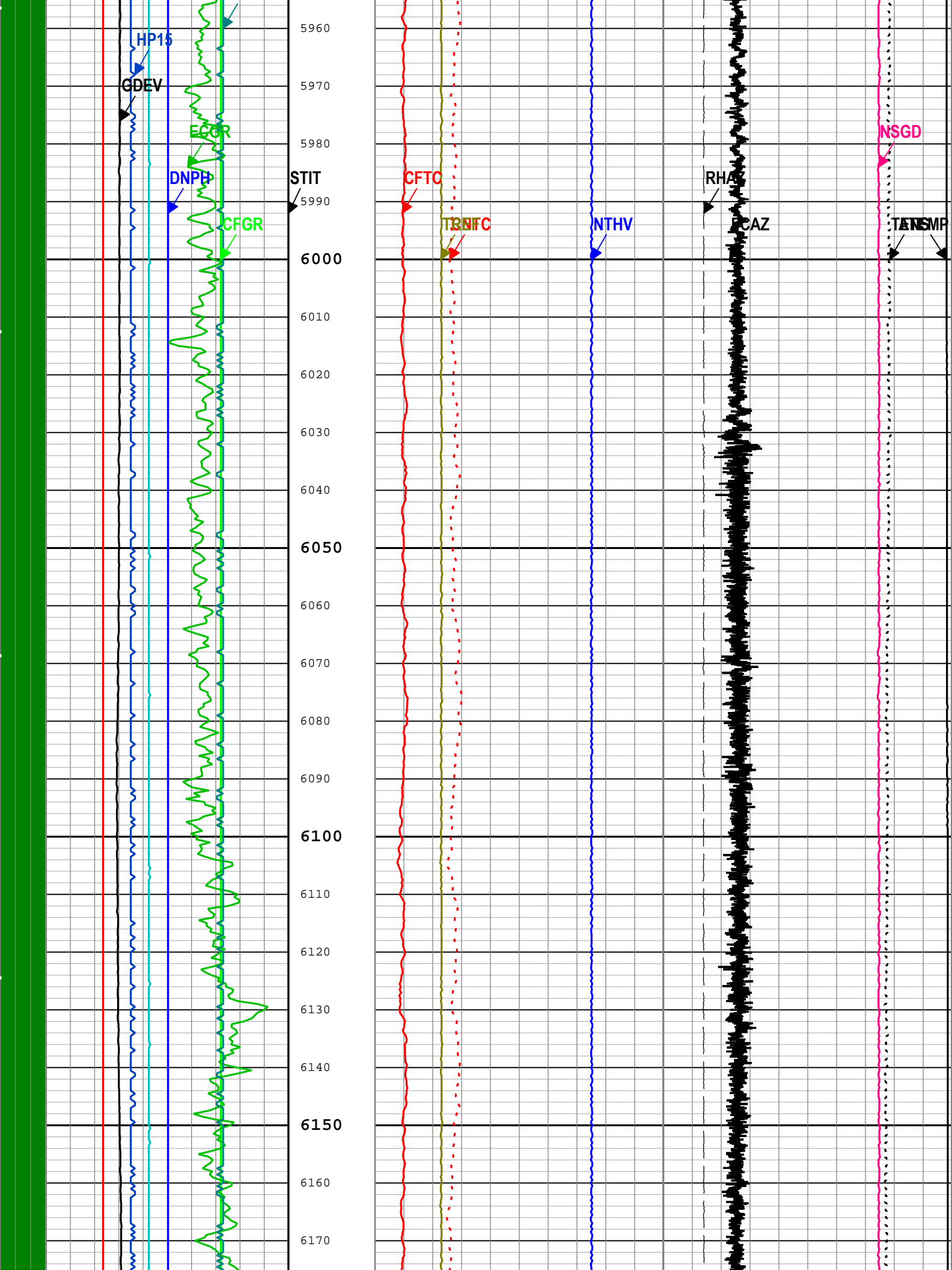


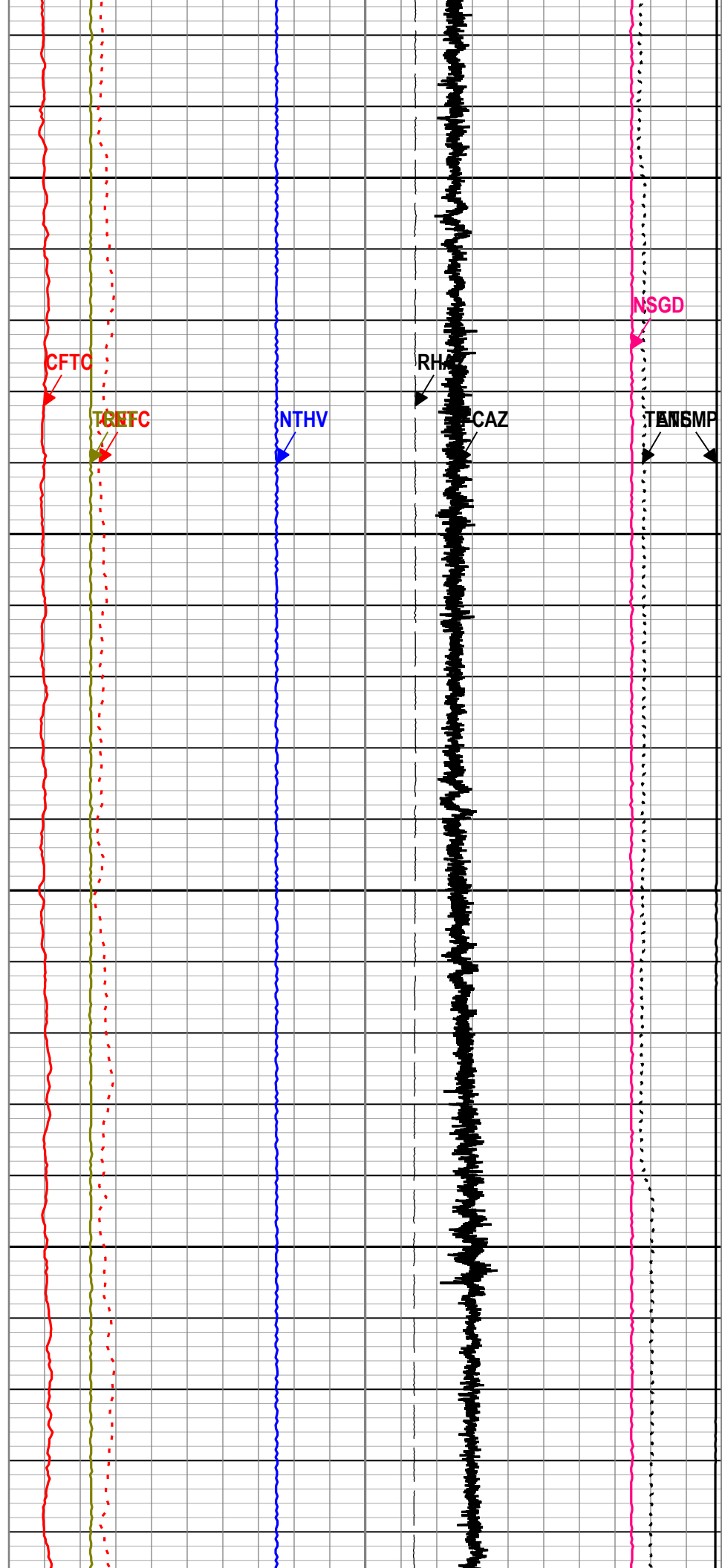
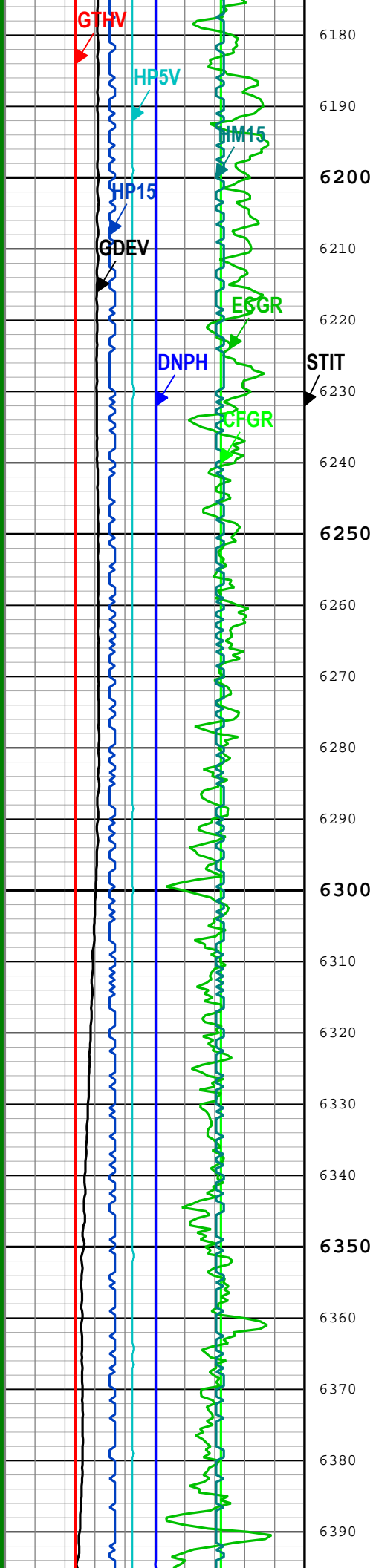


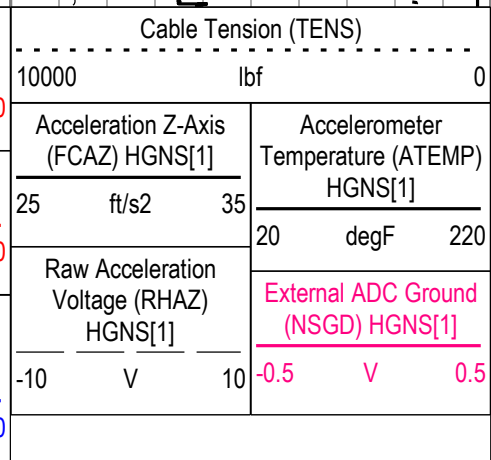
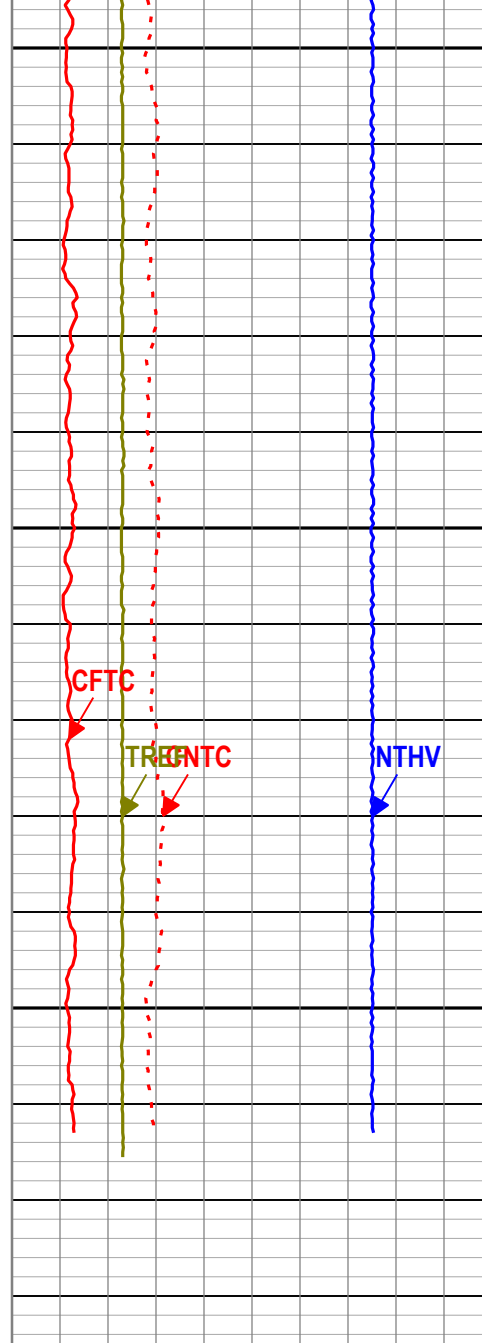












4.5	V	5.5
Gamma Ray Test High Voltage (GTHV) HGNS[1]		
2000	V	3000

TIME_1900 - Time Marked every 60.00 (s)

Hardware Flag Image (HHQFI) HGNS[1]

- 1 - HGNS H/W Flag - :

HGNS hardware valid

HGNS hardware error
- 2 - Porosity Flag - :

Porosity valid

Porosity error
- 3 - Accelerometer Flag - :

Accelerometer valid

Accelerometer error

Description: HGNS LQC for Platform Express Format: Log (PEX LQC HGNS) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 15-Apr-2019 00:13:08

Channel Processing Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
BARI(ISSBAR)	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BHT	Bottom Hole Temperature	Borehole	212	degF
BS	Bit Size	WLSESSION	Depth Zoned	in
BSAL	Borehole Salinity	Borehole	0	ppm
CBLO	Casing Bottom (Logger)	WLSESSION	17642.8	ft
CDEN	Cement Density	HGNS-B	2	g/cm3
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DFT_WATER	Drilling Fluid Water Type	Borehole	Brine	
EDF	Elevation of Derrick Floor Above Permanent Datum	WLSESSION	30	ft
EPD	Elevation of Permanent Datum (PDAT) above Mean Sea Level	WLSESSION	4790	ft
FSAL	Formation Salinity	Borehole	0	ppm
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
GGRD	Geothermal Gradient	Borehole	1	0.01 degF/ft
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	REMS(RT)	
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	GTEM_LINEST(RT)	
HSCO	Hole Size Correction Option	HGNS-B	Yes	
IMAR	Image Rotation	USIT-E	Off	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
MFST	Mud Filtrate Sample Temperature	Borehole	68	degF
MST	Mud Sample Temperature	Borehole	68	degF
PDAT	Permanent Datum	WLSESSION	GL	
RMFS	Resistivity of Mud Filtrate Sample	Borehole	0.15	ohm.m
RMS	Resistivity of Mud Sample	Borehole	0.2	ohm.m
SHT	Surface Hole Temperature	Borehole	68	degF
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0.1	Mrayl
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-E	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-E	FreePipe Norm.	

OneDepth Zoned Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	26	15	110
BS	13.5	110	1946
BS	8.5	1946	6535.32

All depth are actual.

Tool Control Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
HMCA_BOARD_TYPE	HMCA Board Type	HGNS-B	0	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UPAT	USIT Emission Pattern	USIT-E	Pattern 500 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 6.0 in	

Company:	Noble Energy Inc	Schlumberger
Well:	Vogler State D21-780	
Field:	Wattenberg	
County:	Weld	
State:	Colorado	

Neutron Log