

Company: Noble Energy Inc

Well: Colt A13-655

Field: Wattenberg

County: Weld State: Colorado

Platform Express

Triple Combo

County:	Weld
Field:	Wattenberg
Location:	SWNW Sec. 17, T6N, R63W
Well:	Colt A13-655
Company:	Noble Energy Inc
Location:	
SWNW Sec. 17, T6N, R63W	Elev.: K.B. 4685.00 ft
SHL: 2157' FNL & 424' FWL	G.L. 4661.00 ft
Lat/Long: 40.487820/-104.468810	D.F. 4684.00 ft
Permanent Datum:	Ground Level
Log Measured From:	Kelly Bushing
Drilling Measured From:	Kelly Bushing
API Serial No.	Section: 17
05-123-40908-0000	Township: 6N
	Range: 63W

Logging Date	01-May-2015
Run Number	Run 1
Depth Driller	7081.00 ft
Schlumberger Depth	6905.00 ft
Bottom Log Interval	6905.00 ft
Top Log Interval	50.00 ft
Casing Fluid Type	Water
Salinity	
Density	8.7 lbm/gal
Fluid Level	8.00 ft
BIT/CASING/TUBING STRING	
Bit Size	8.75 in
From	926.00 ft
To	6905.00 ft
Casing/Tubing Size	7 in
Weight	26 lbm/ft
Grade	P110
From	24.10 ft
To	7071.10 ft
Max Recorded Temperatures	226.59 degF
Logger on Bottom	01-May-2015
Unit Number	3022
Recorded By	Keri Ondrus
Witnessed By	

Disclaimer

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12.1 Integration Summary

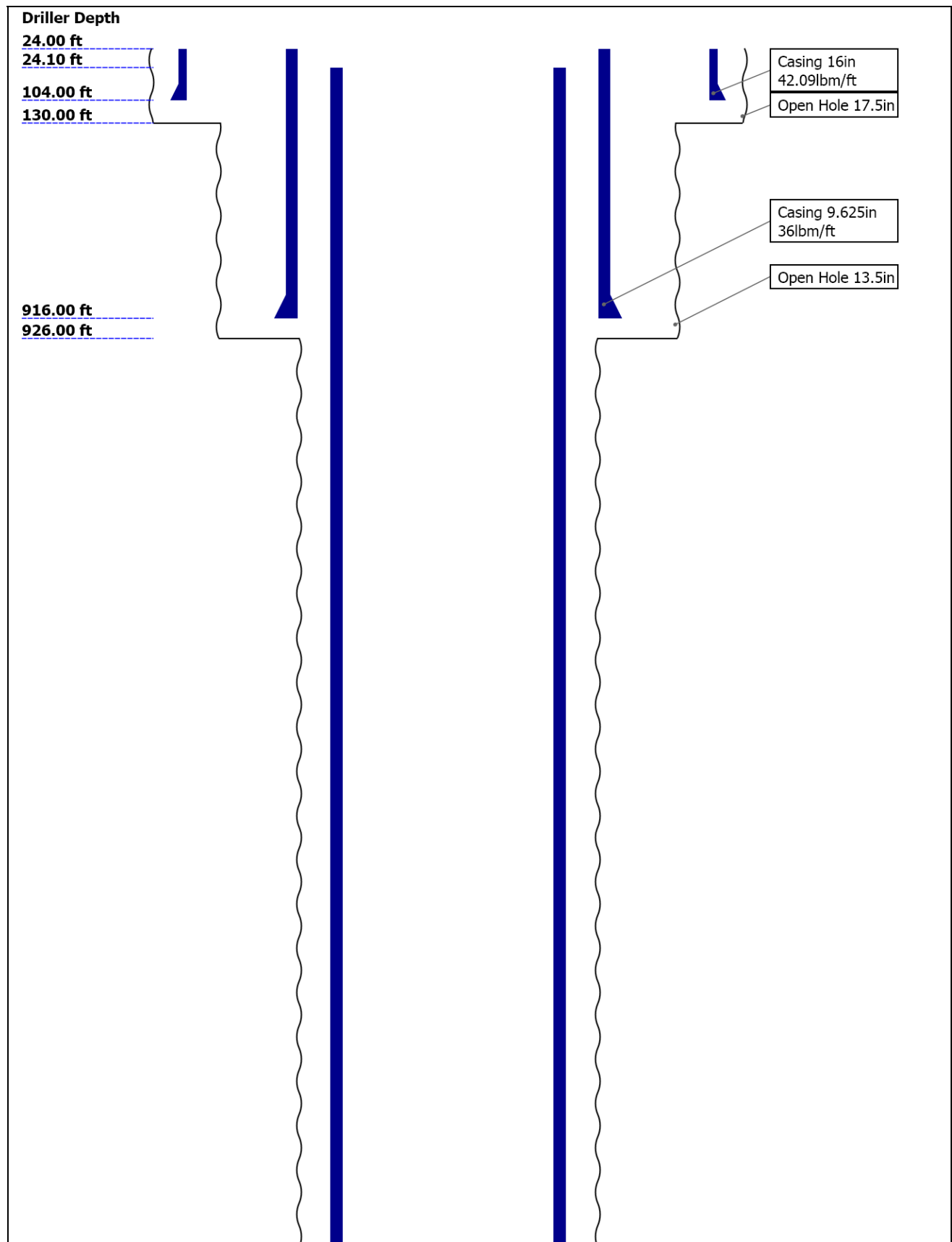
12.2 Software Version

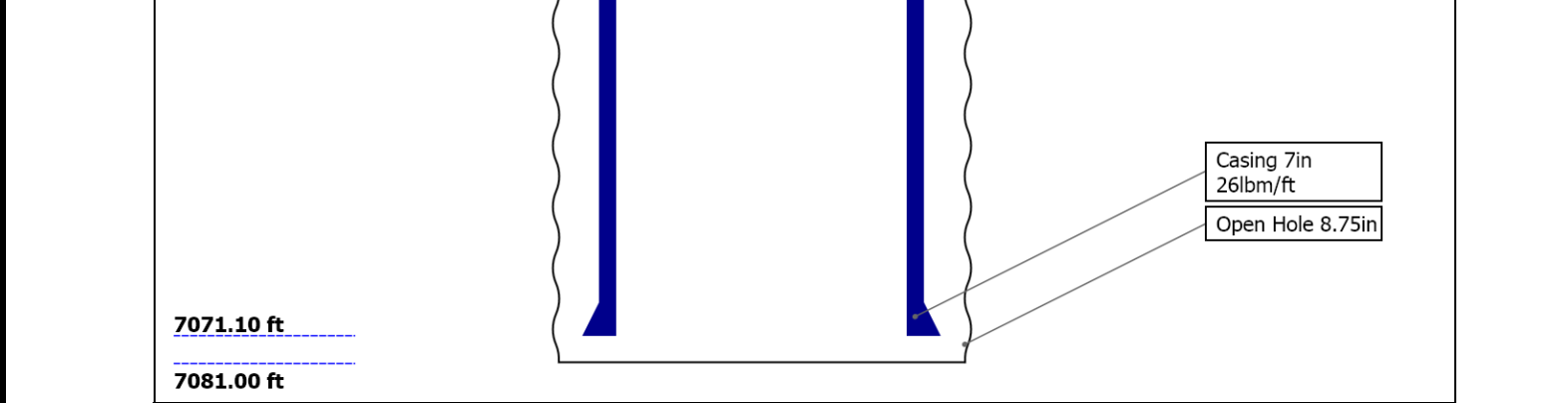
12.3 Composite Summary

12.4 Log (Import of PEX LQC HGNS)

12.5 Parameter Listing

Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	17.5	13.5	8.75			
Top Driller (ft)	24	130	926			
Top Logger (ft)	24	130	926			
Bottom Driller (ft)	130	926	7081			
Bottom Logger (ft)	130	926	6905			
Casing						
Size (in)	16	9.625	7			
Weight (lbm/ft)	42.09	36	26			
Inner Diameter (in)	15.511	8.921	6.276			
Grade	N/A	J55	P110			
Top Driller (ft)	24	24	24.1			
Top Logger (ft)	24	24	24.1			
Bottom Driller (ft)	104	916	7071.1			
Bottom Logger (ft)	104	916	7071.1			

Operational Run Summary

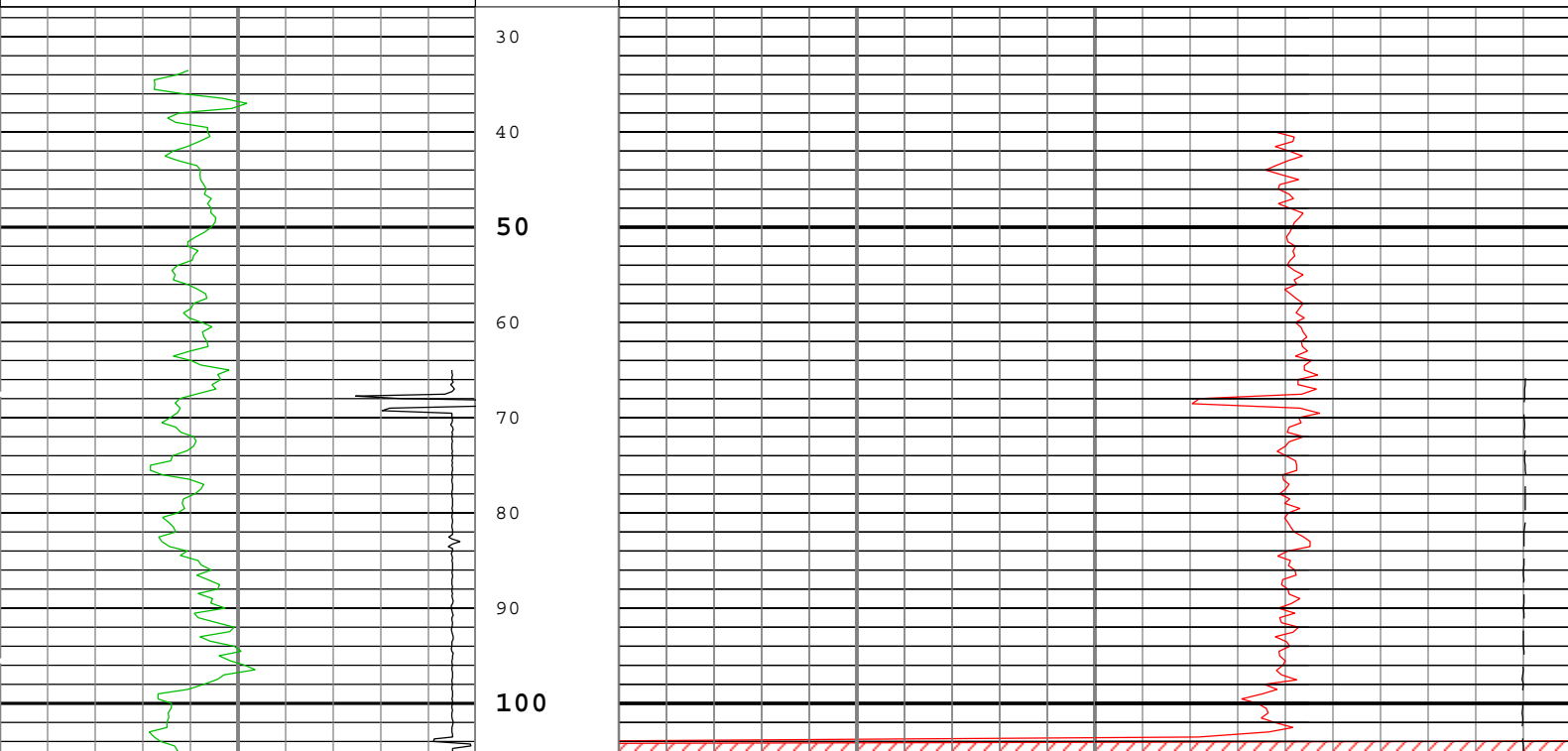
Parameter (unit)	Run 1					
Date Log Started	01-May-2015					
Time Log Started	08:47:43					
Date Log Finished	01-May-2015					
Time Log Finished	11:43:47					
Top Log Interval (ft)	50.00					
Bottom Log Interval (ft)	6905.00					
Total Depth (ft)	6905.00					
Max Hole Deviation (deg)	0.00					
Azimuth of Max Deviation (deg)	0.00					
Bit Size (in)	8.750					
Logging Unit Number	3022					
Logging Unit Location	Fort Morgan, CO					
Recorded By	Keri Ondrus					

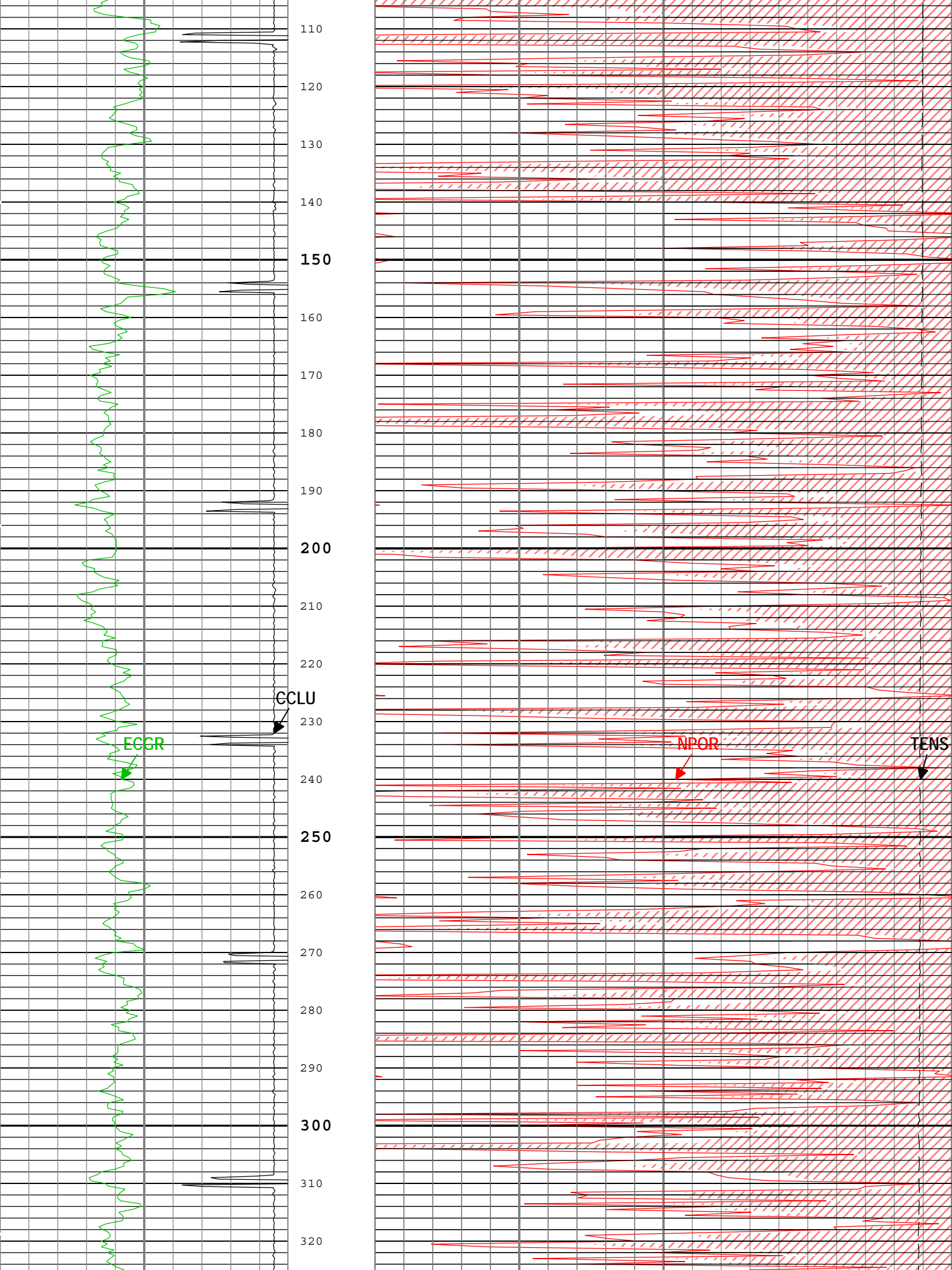
Borehole Fluids

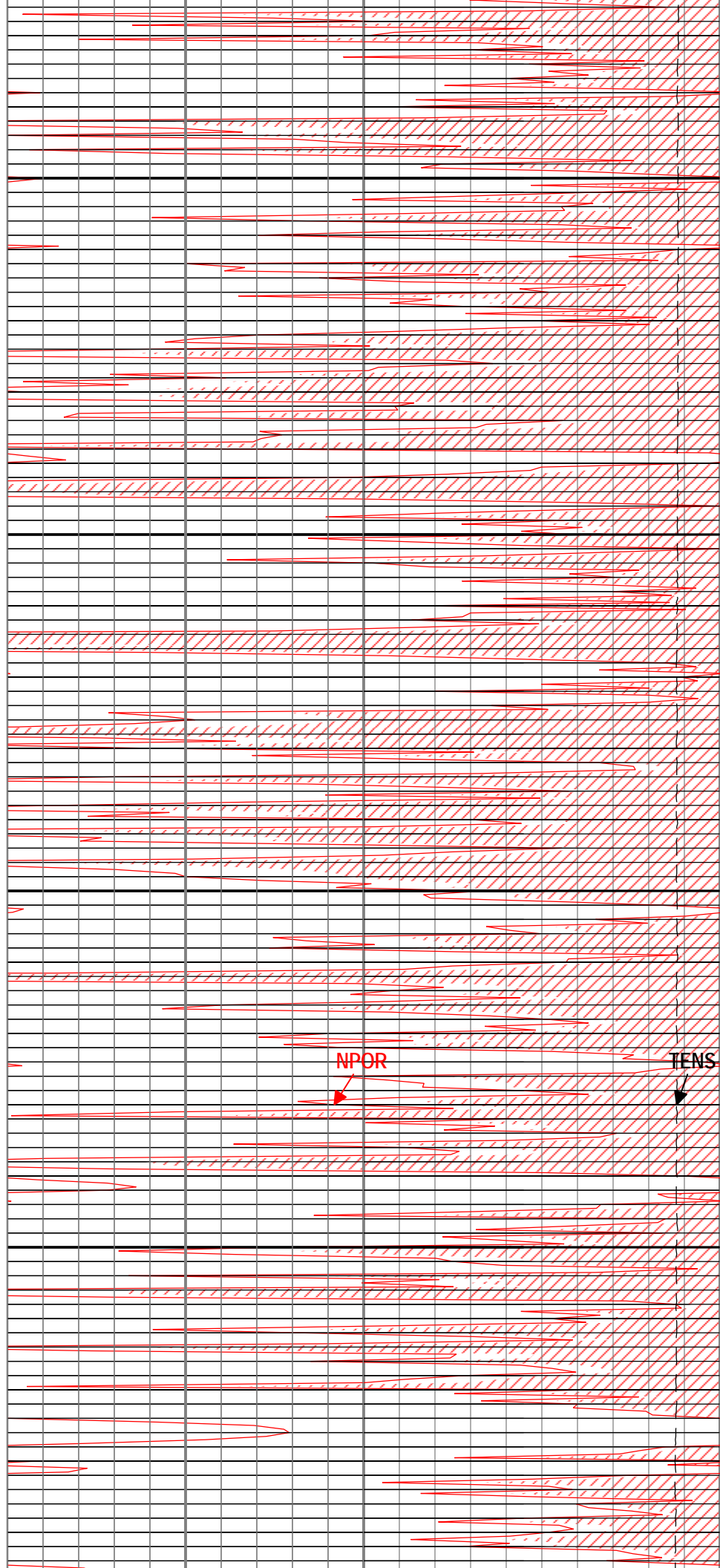
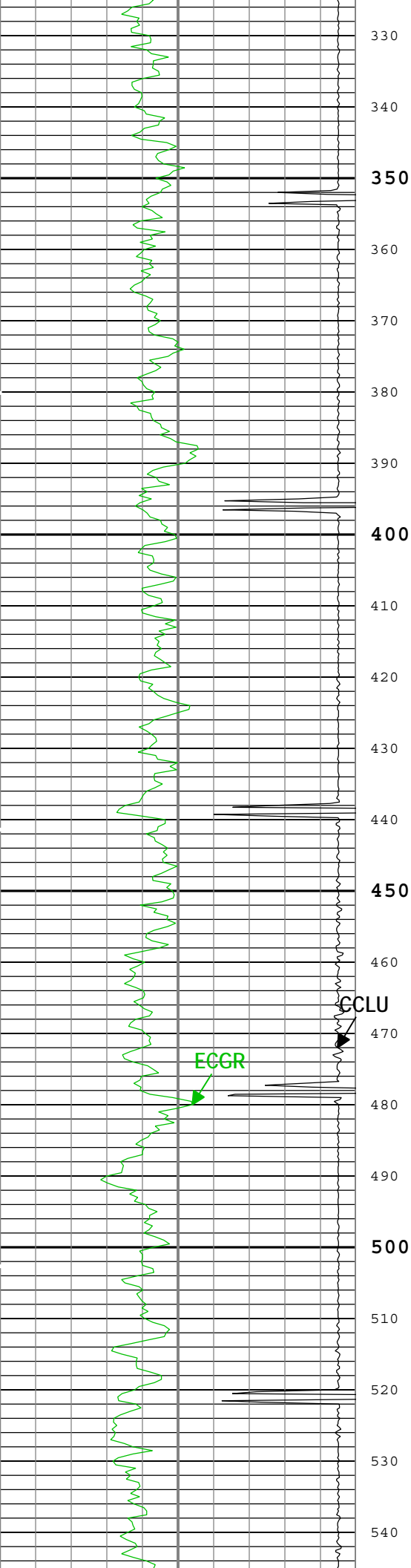
Parameter(unit)	Run 1					
Fluid Type	Water					
Max Recorded Temperatures (degF)	226.59					
Salinity (ppm)	0					
Density (lbm/gal)	8.7					
Date Logger on Bottom	01-May-2015					
Time Logger on Bottom	09:47:00					
Total Solid (%)						
High Gravity Solids (%)						

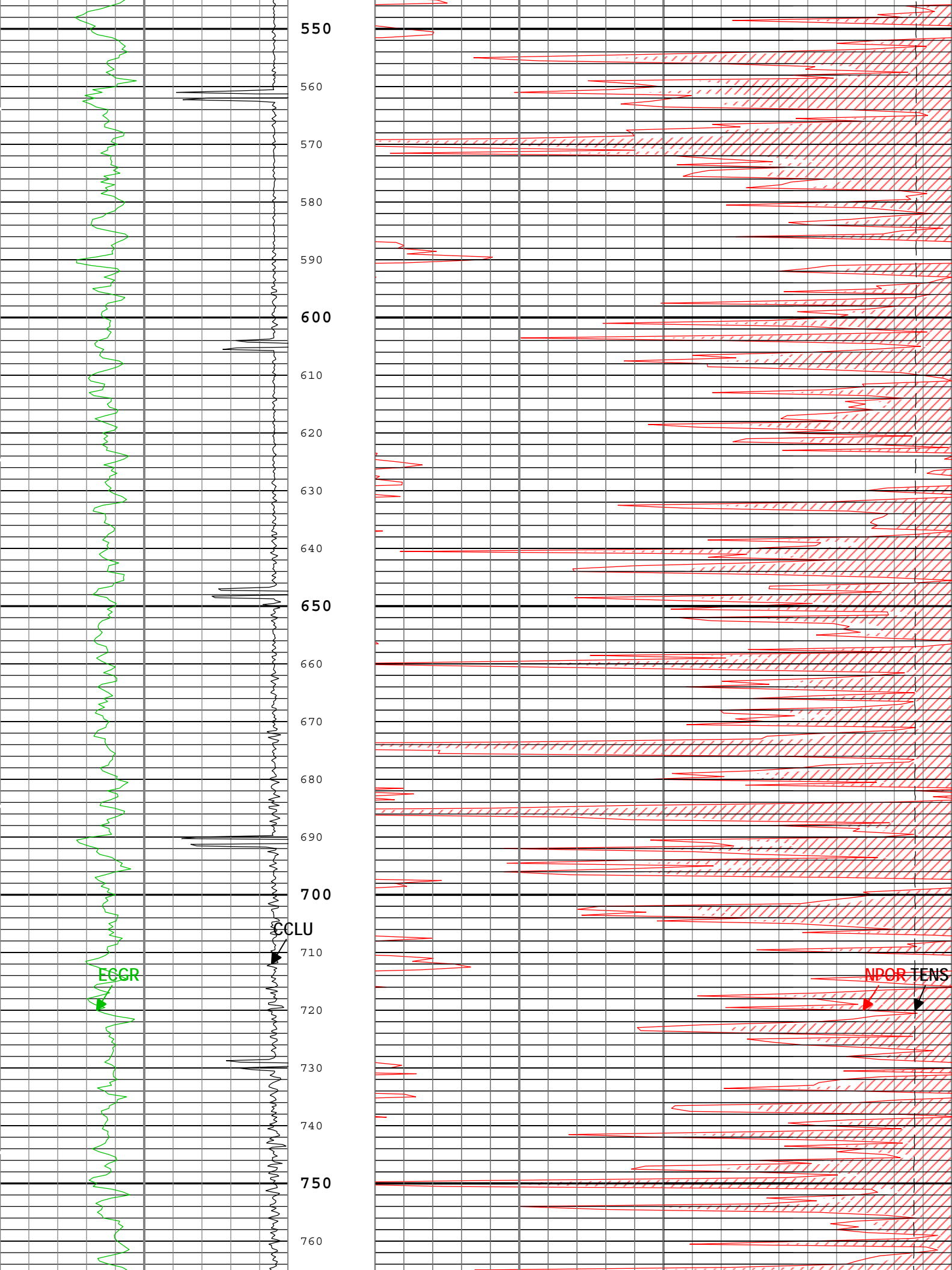
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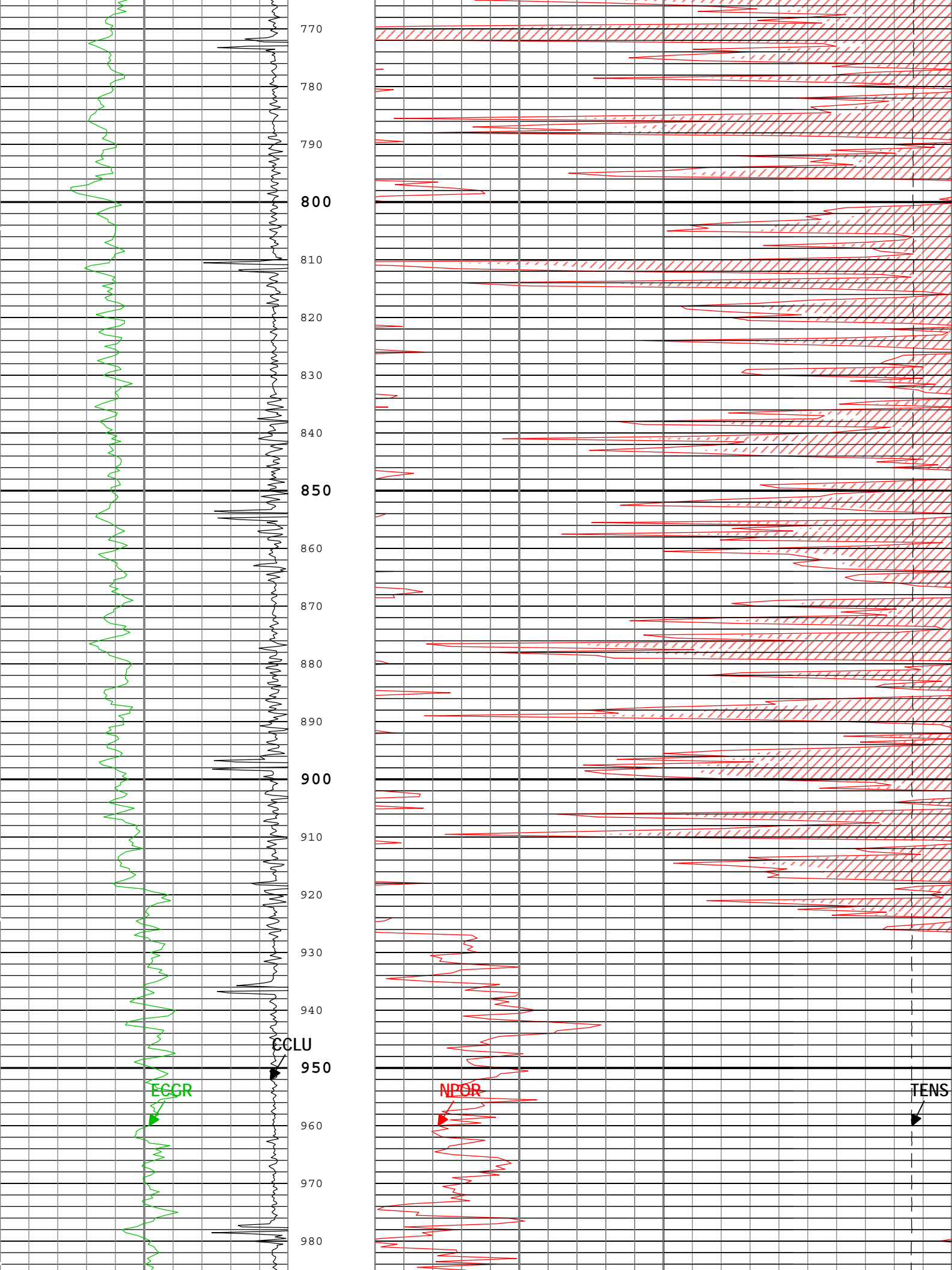
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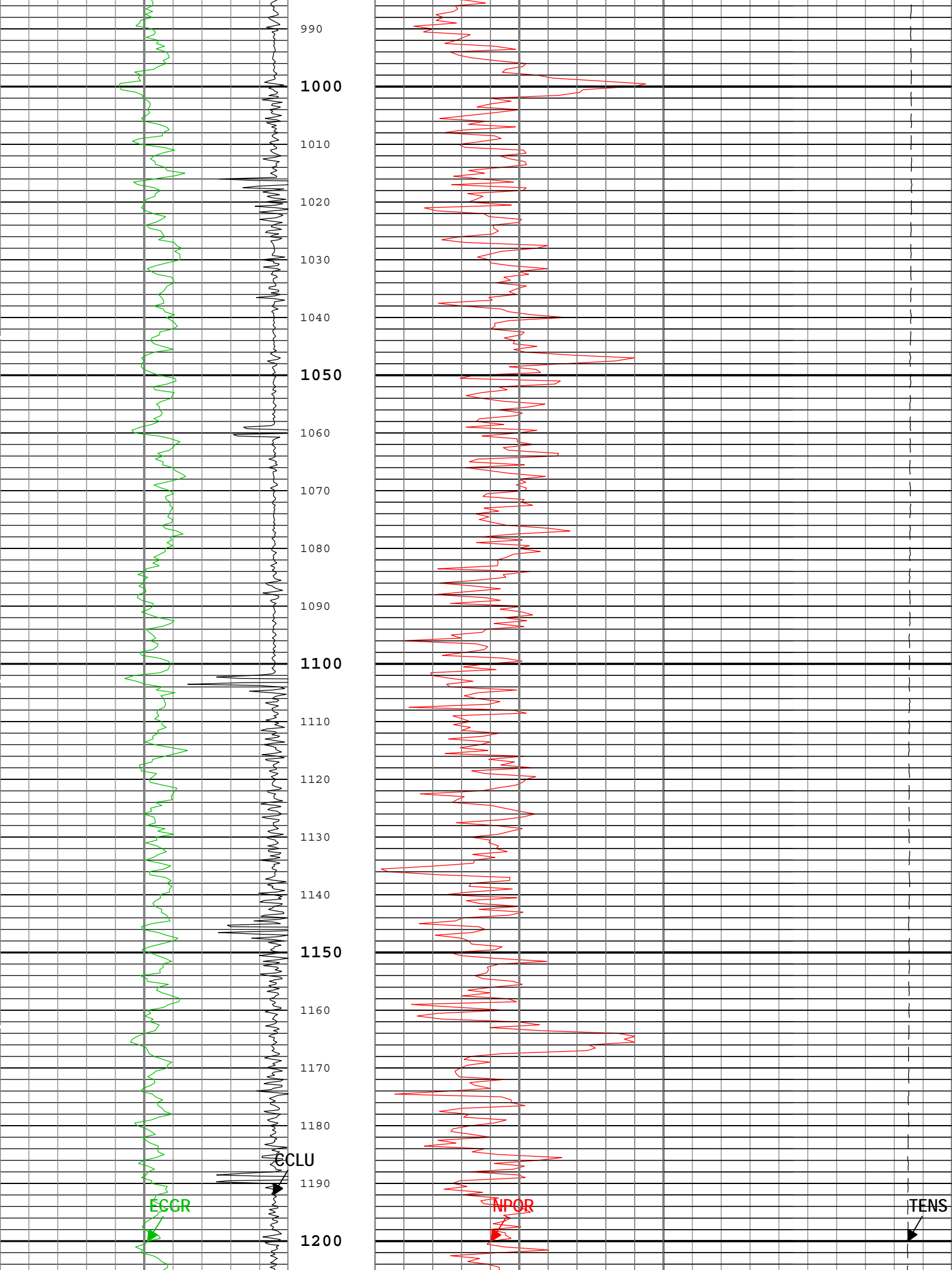


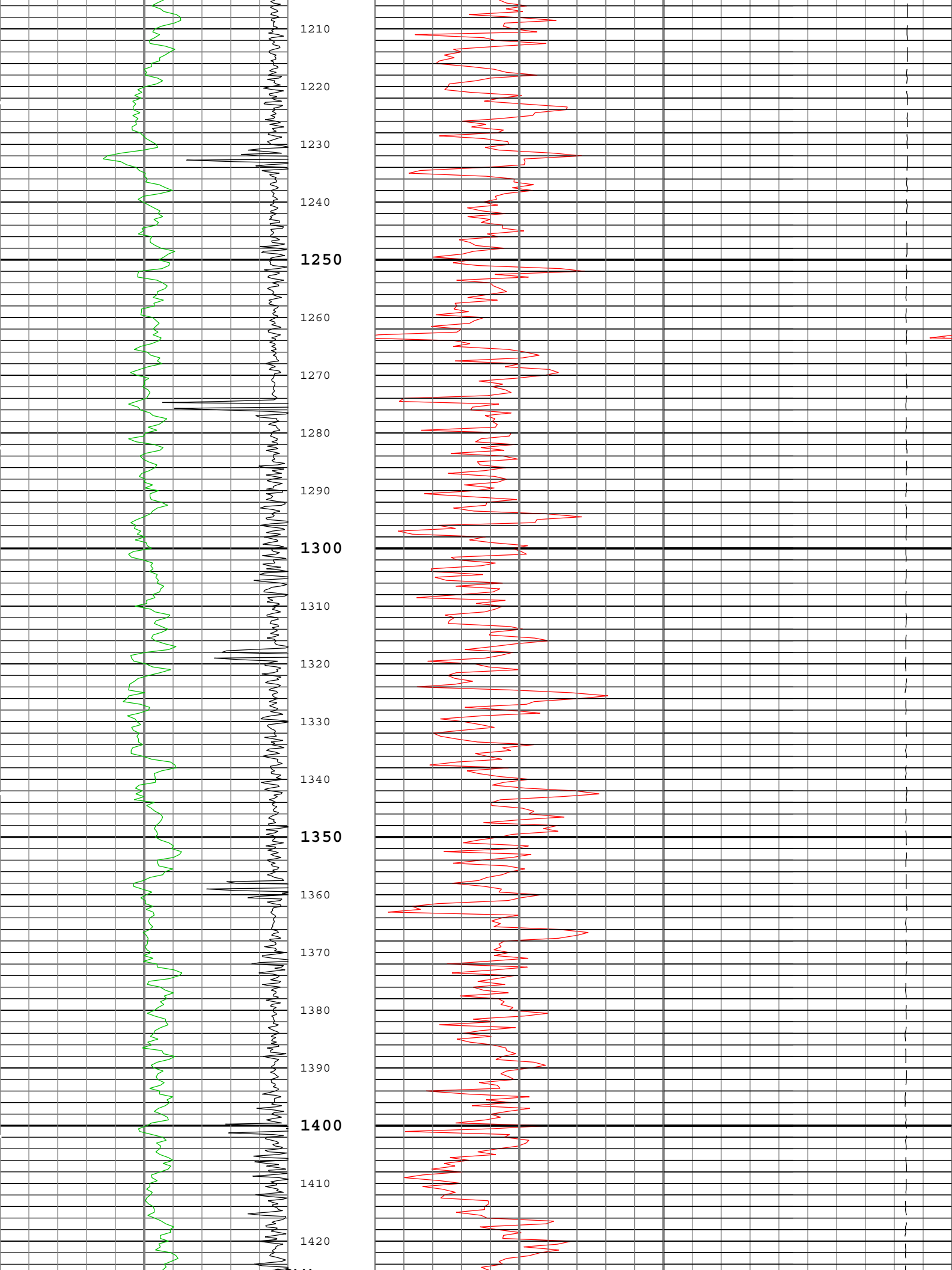


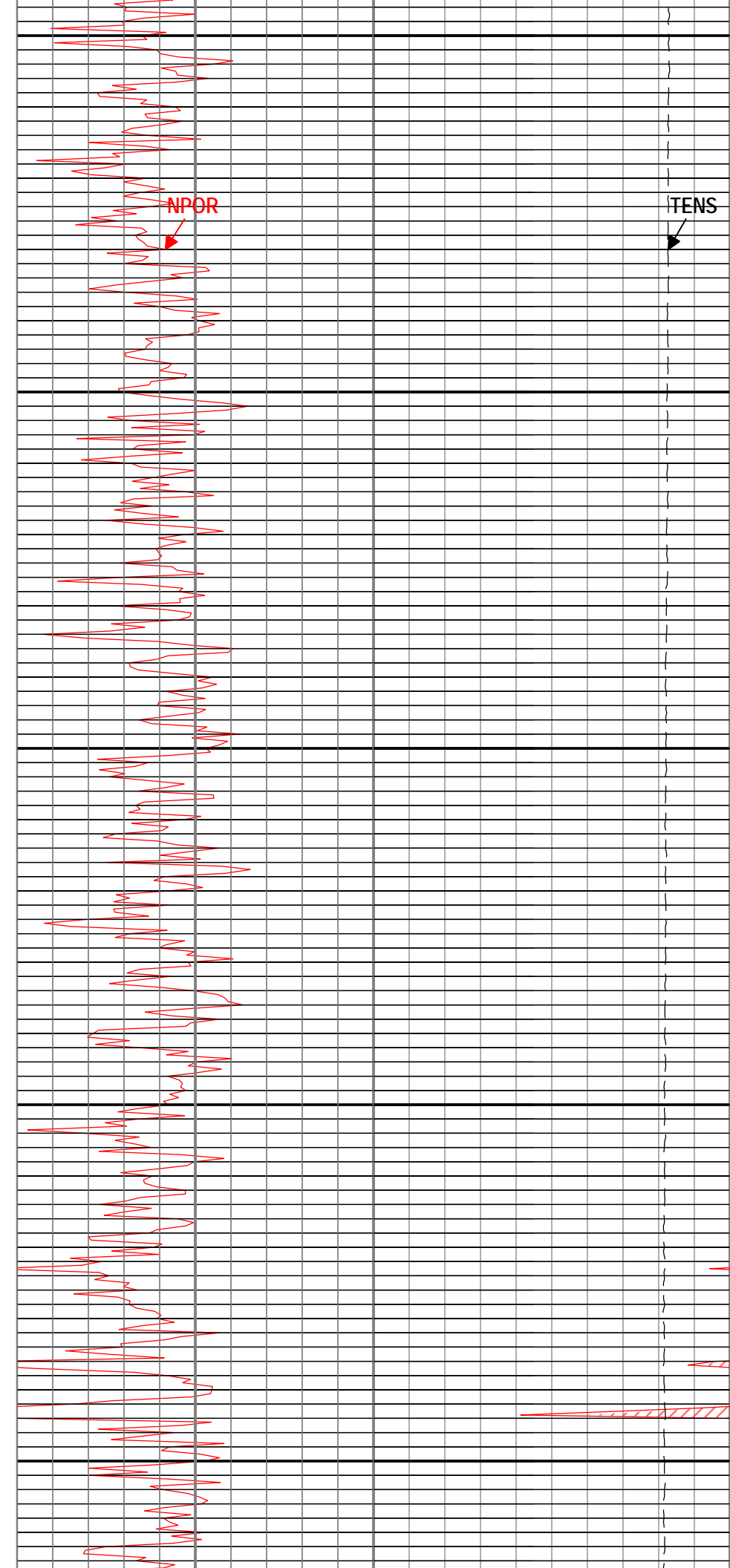
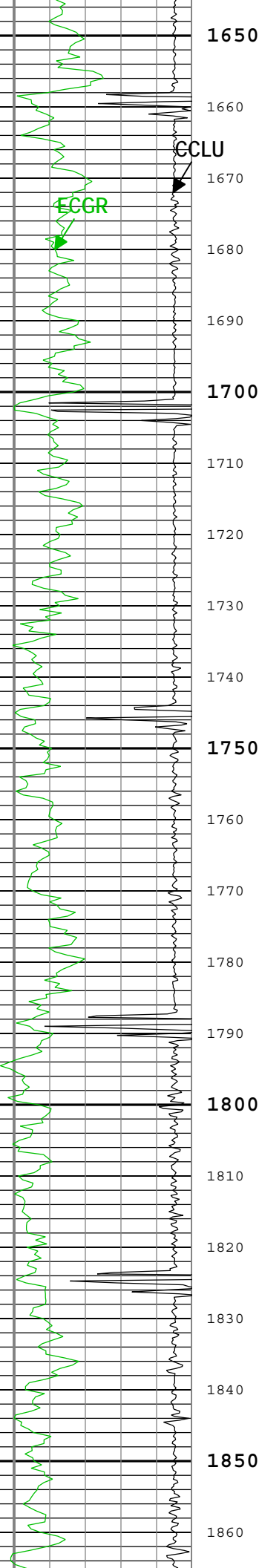


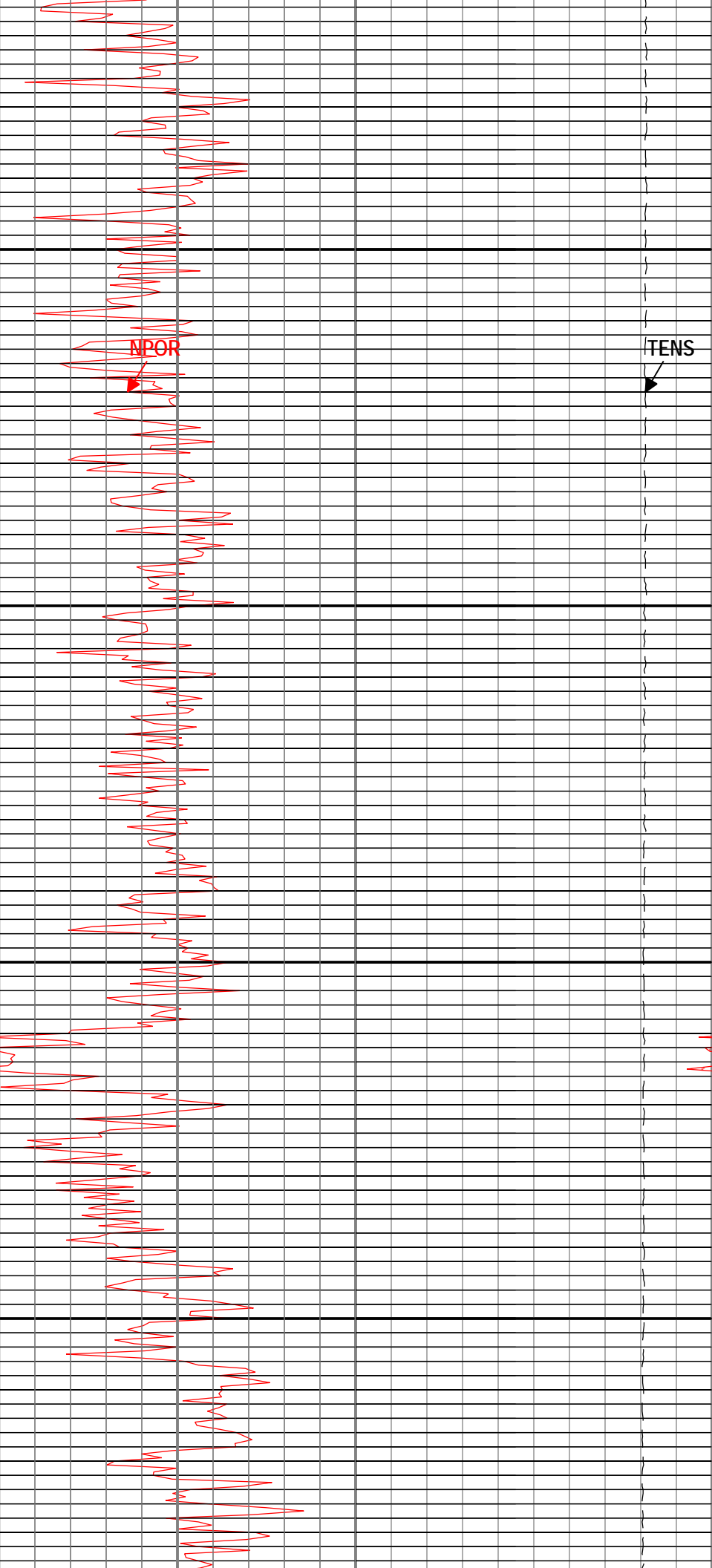
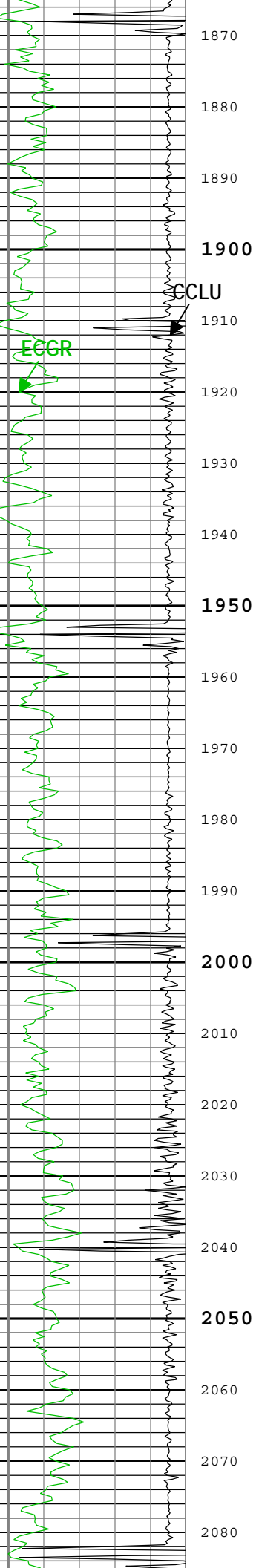


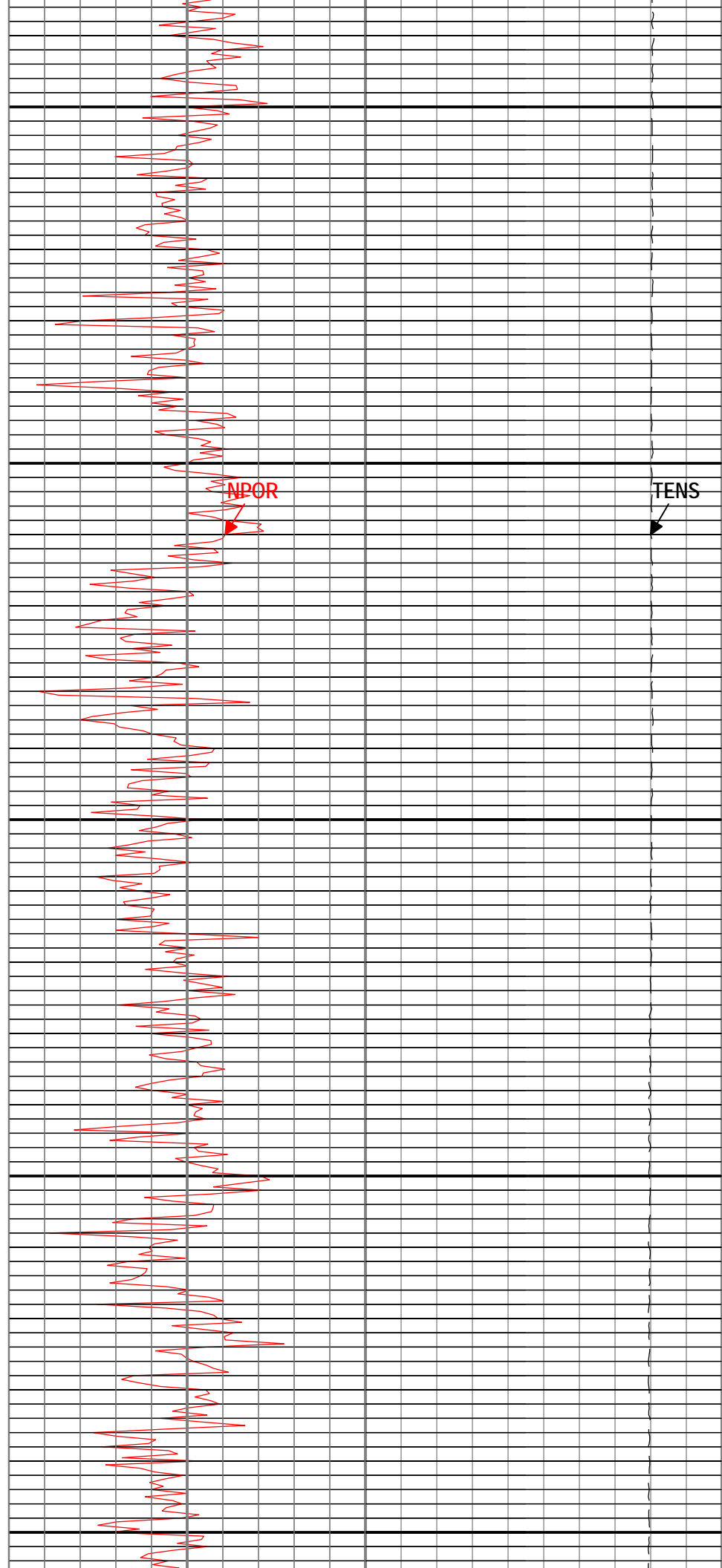
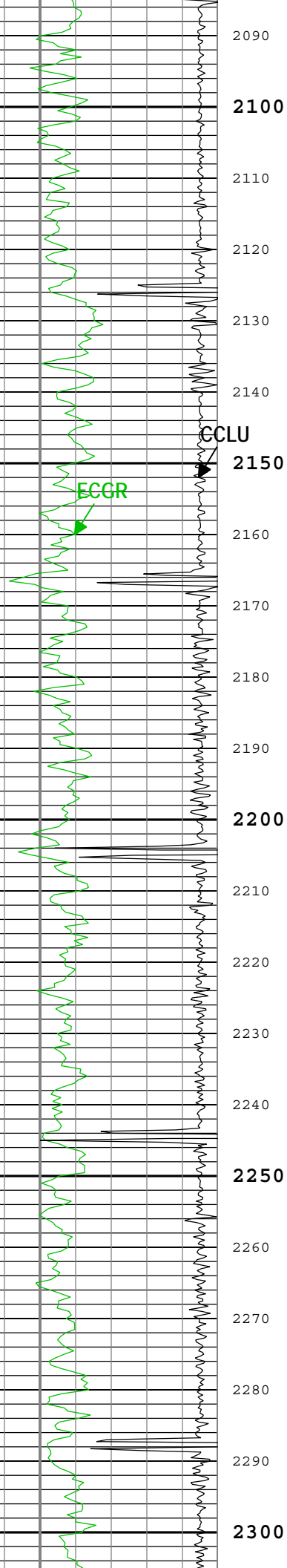


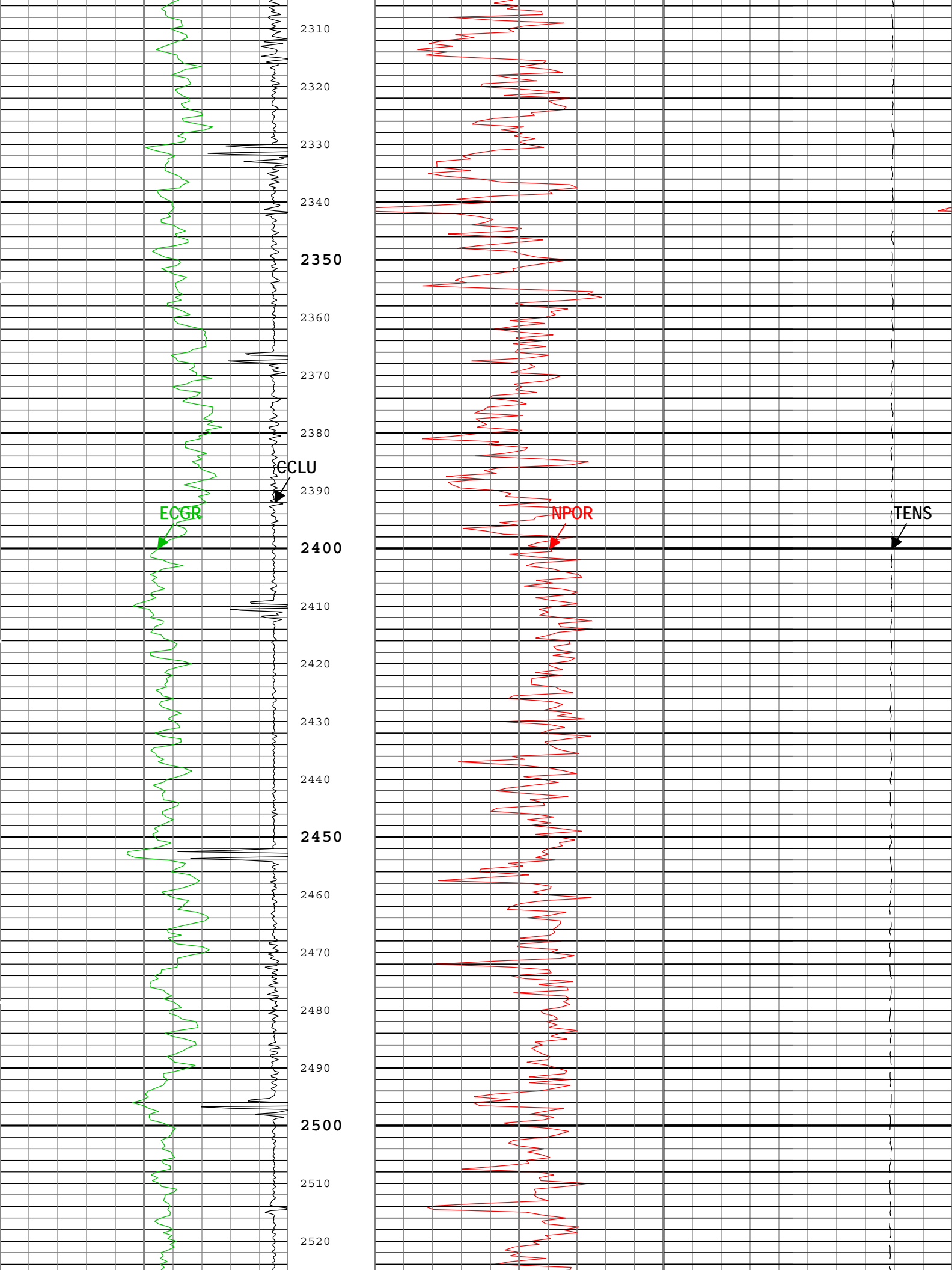


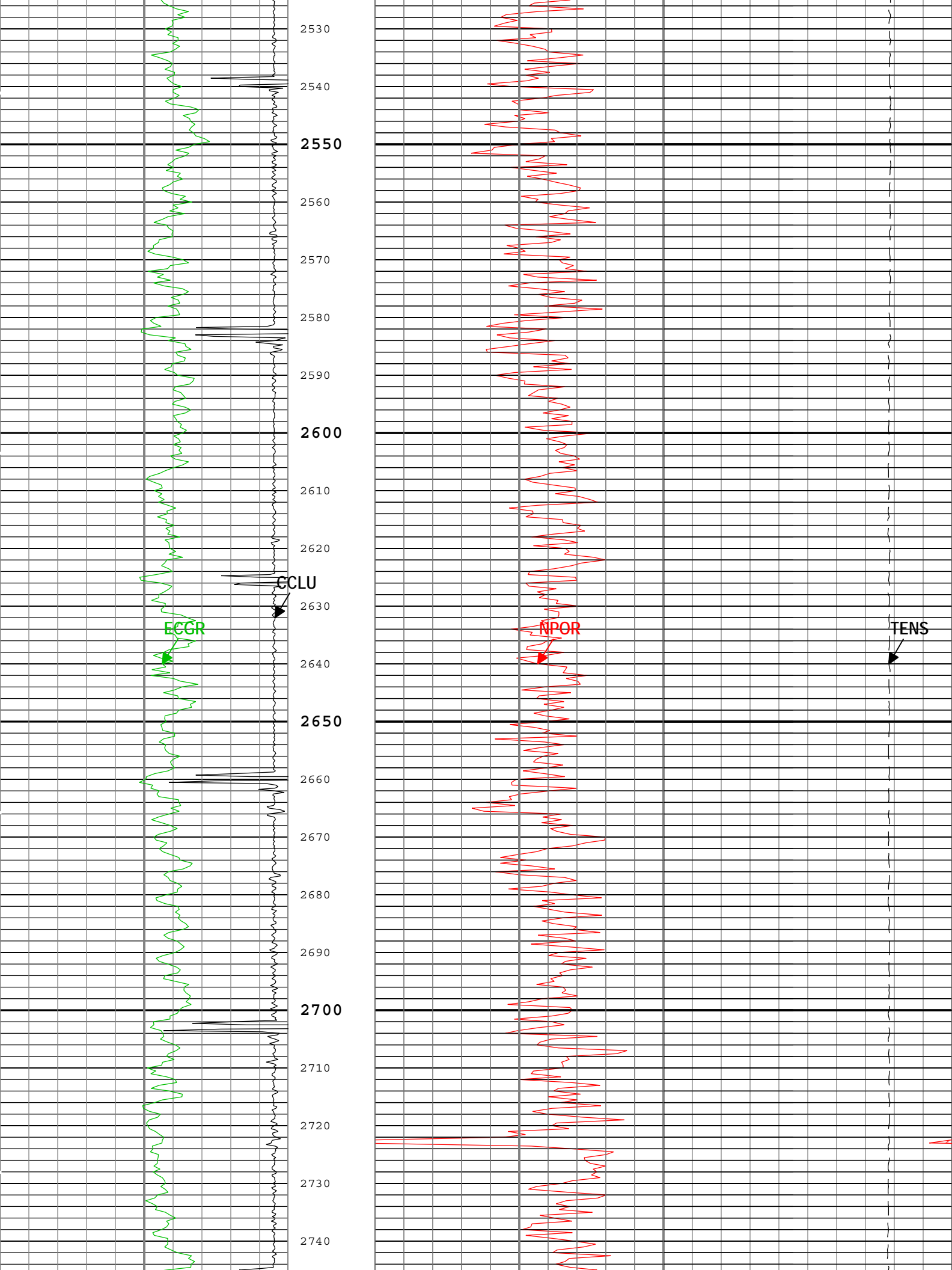


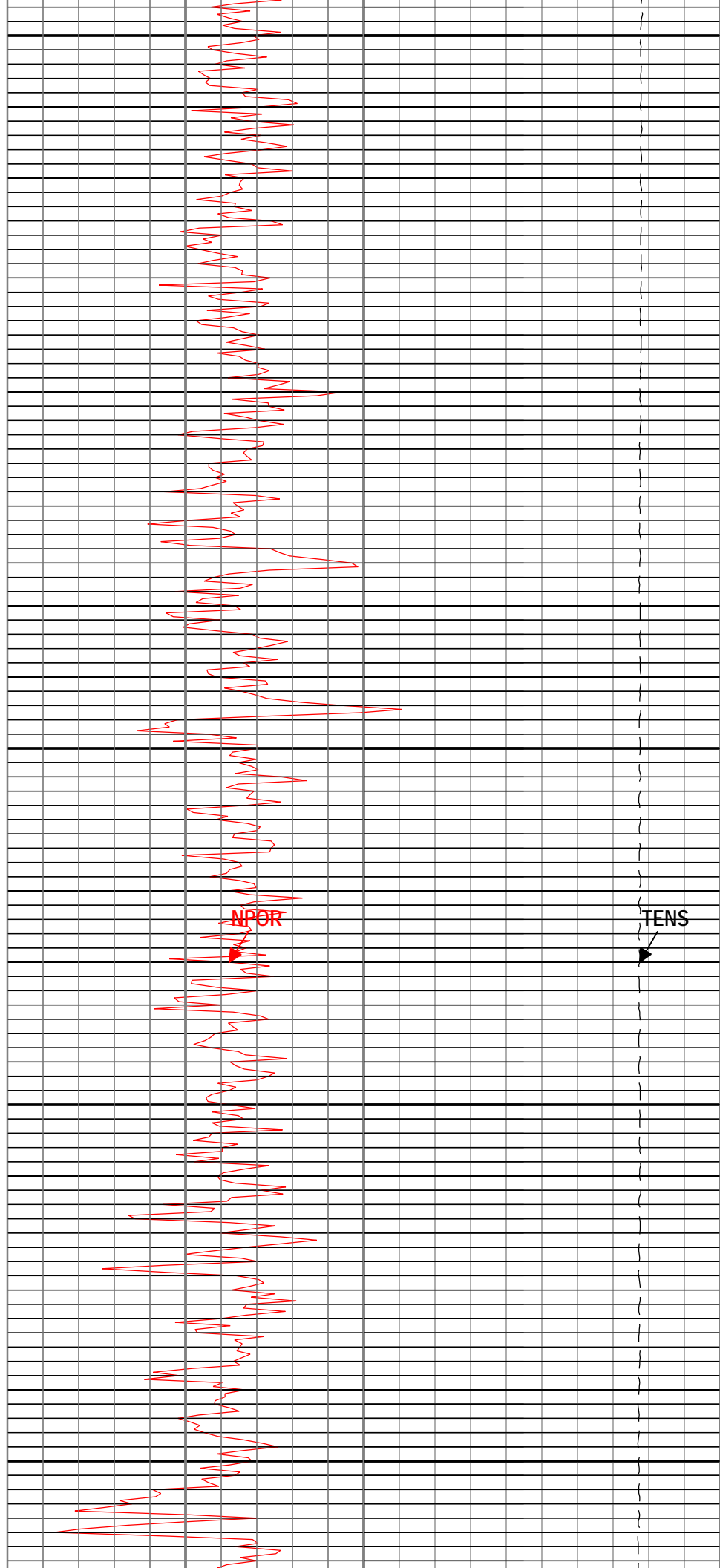
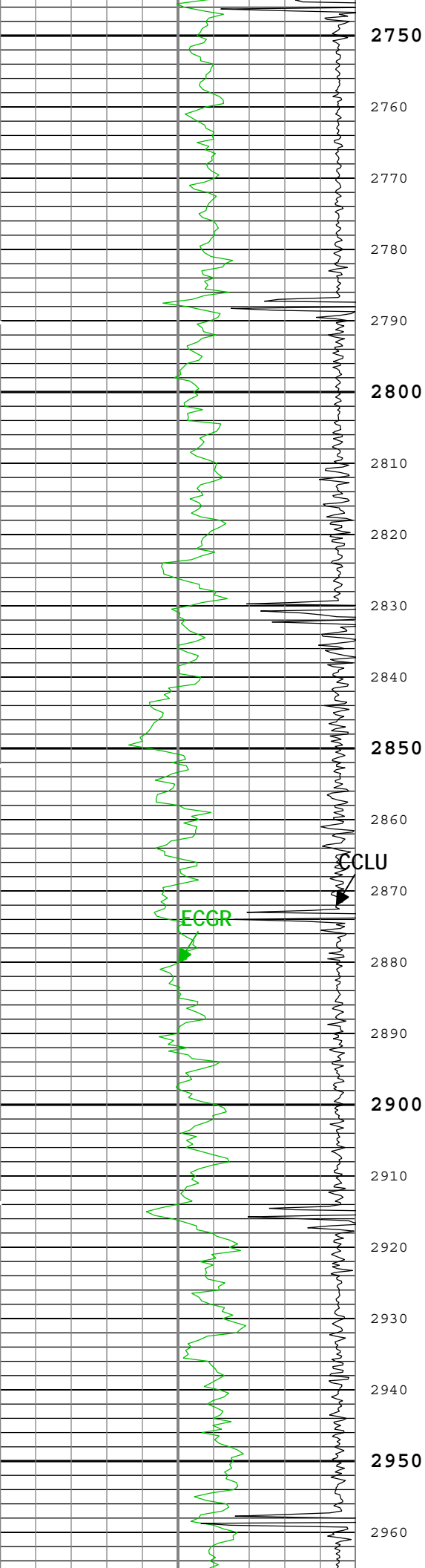


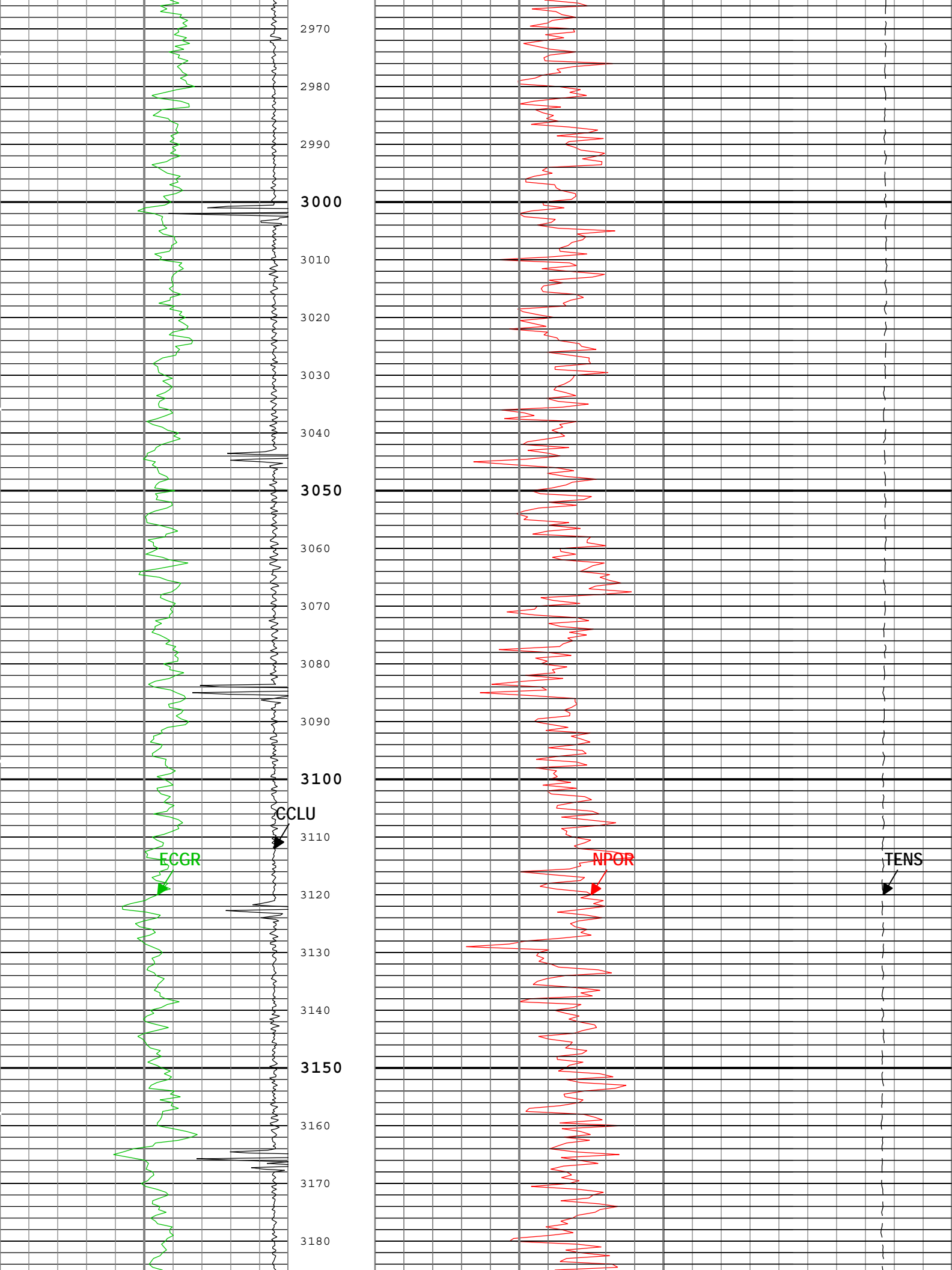


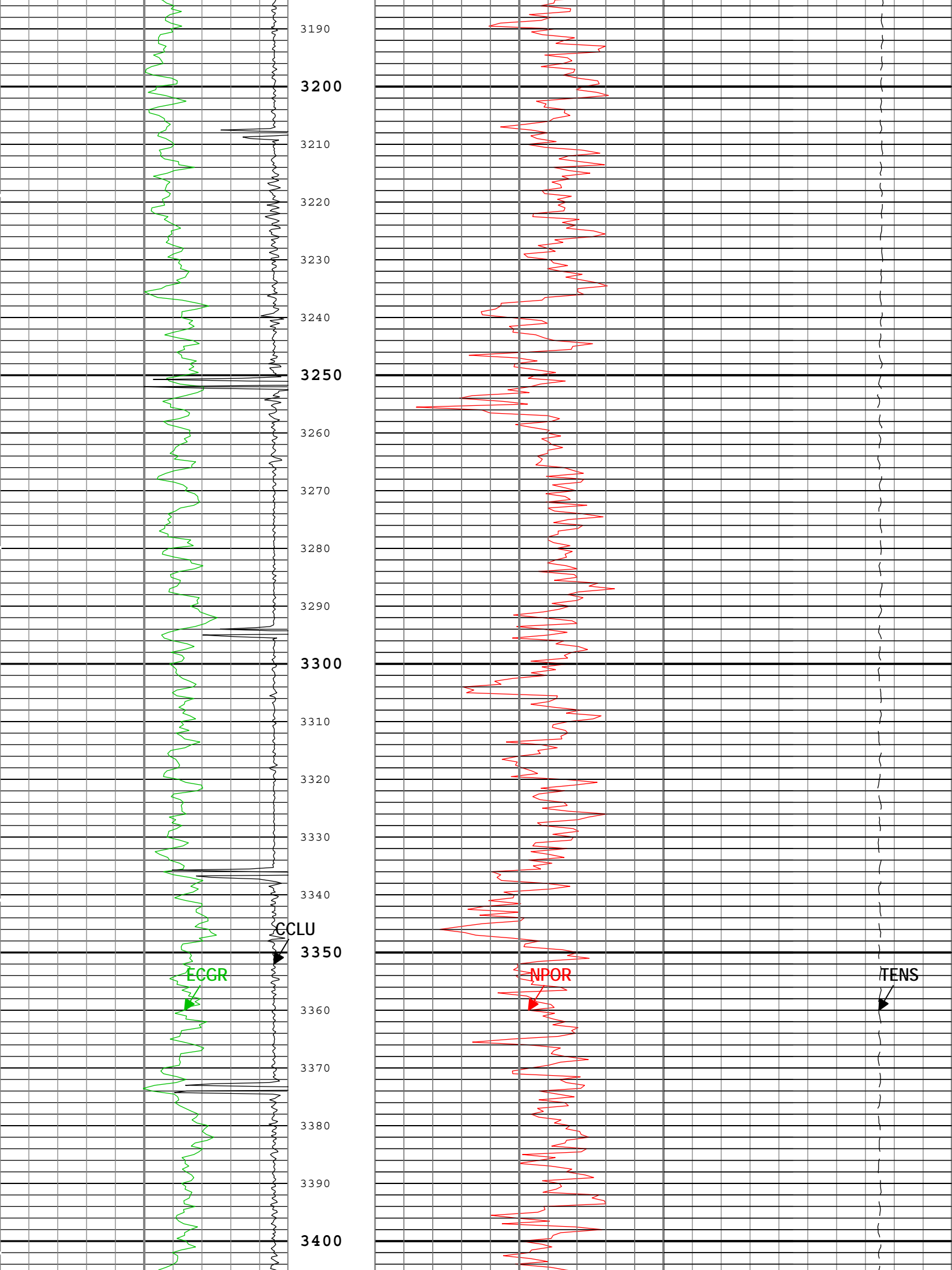


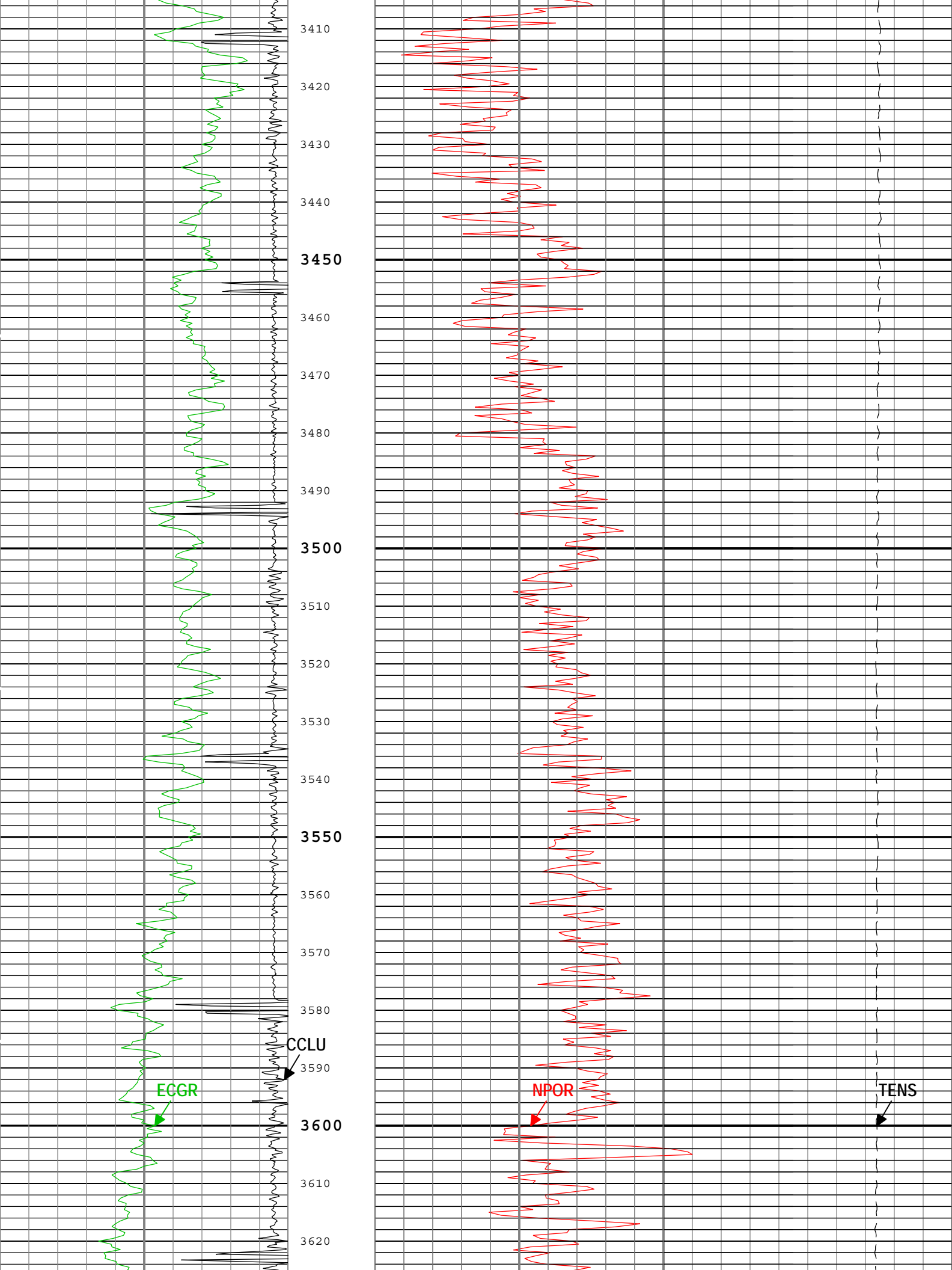


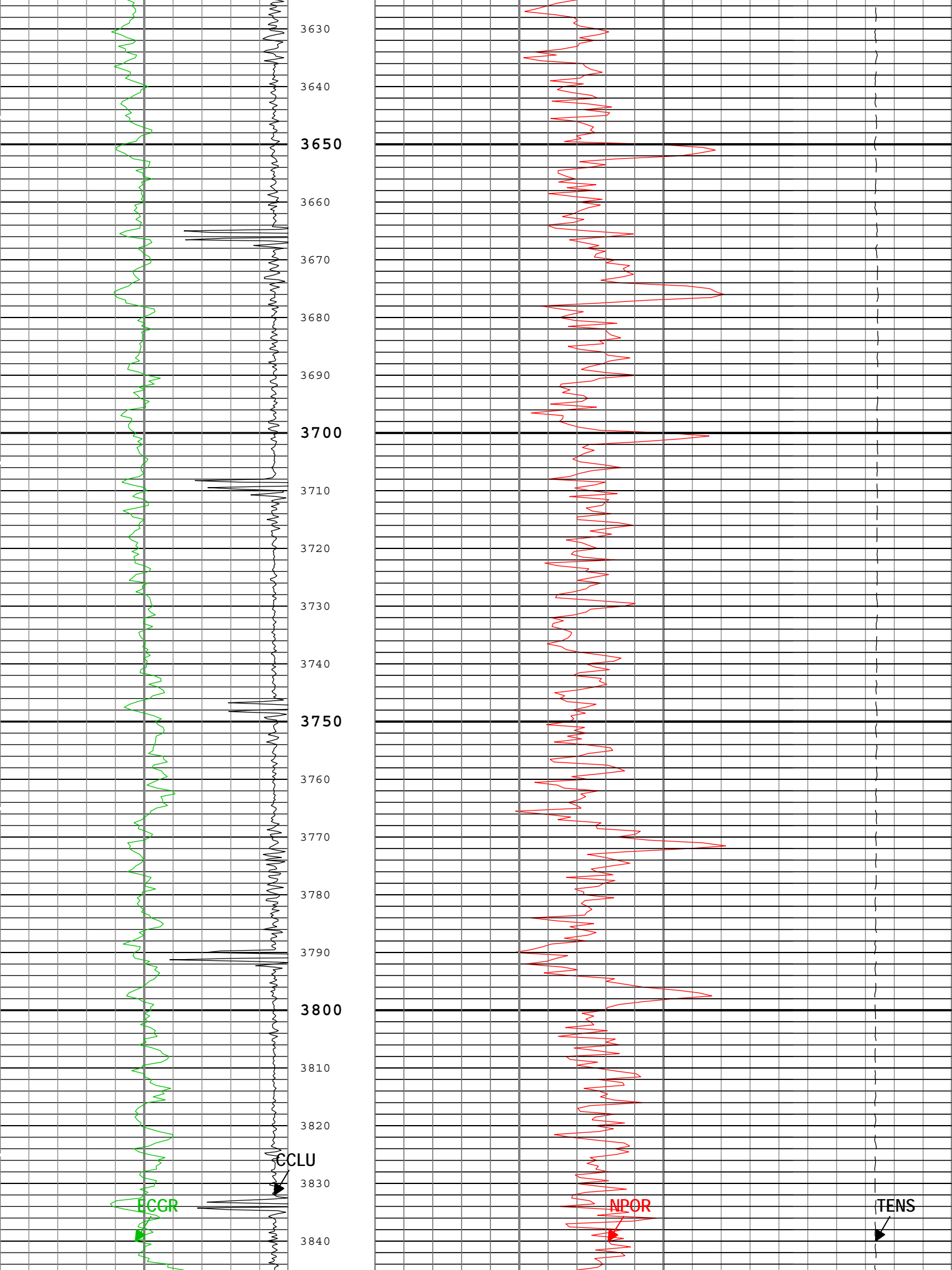


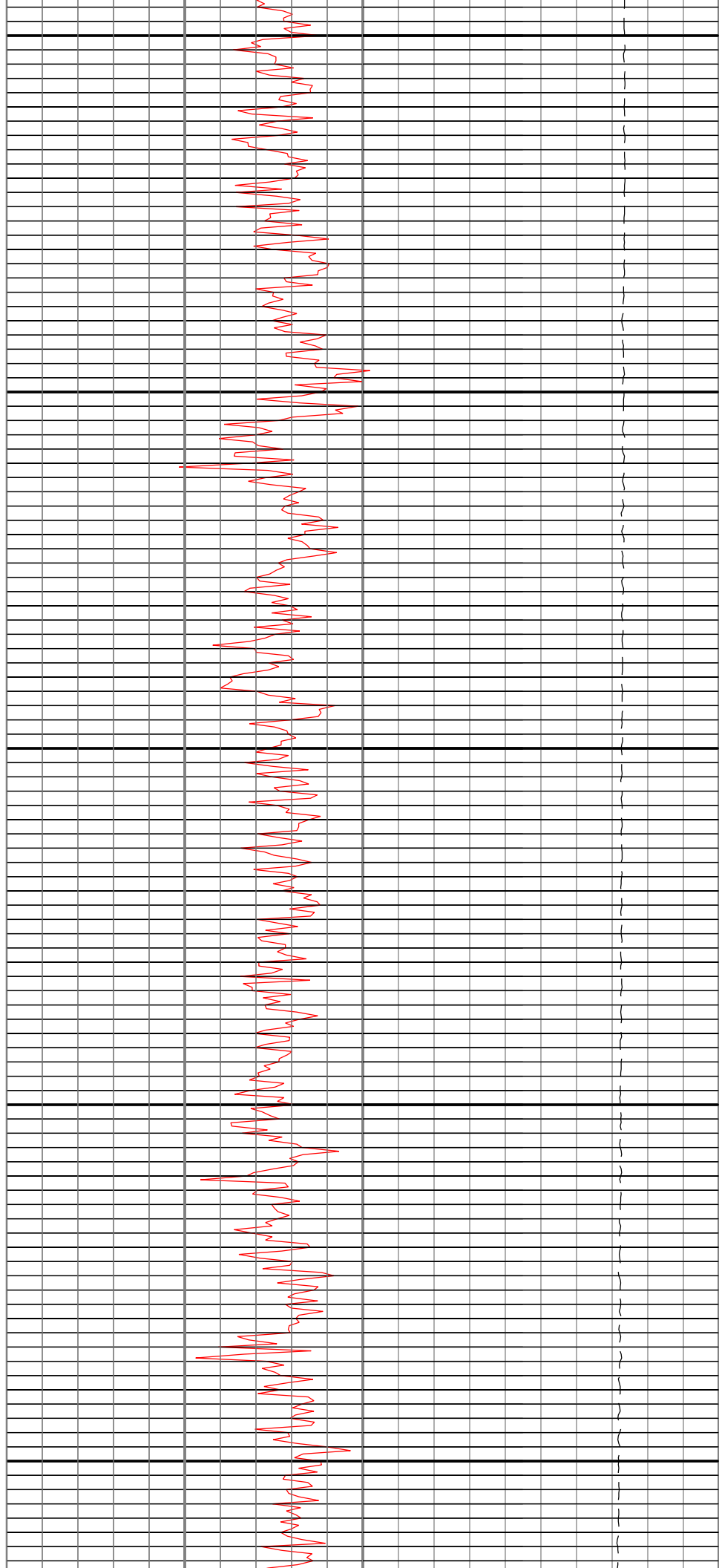
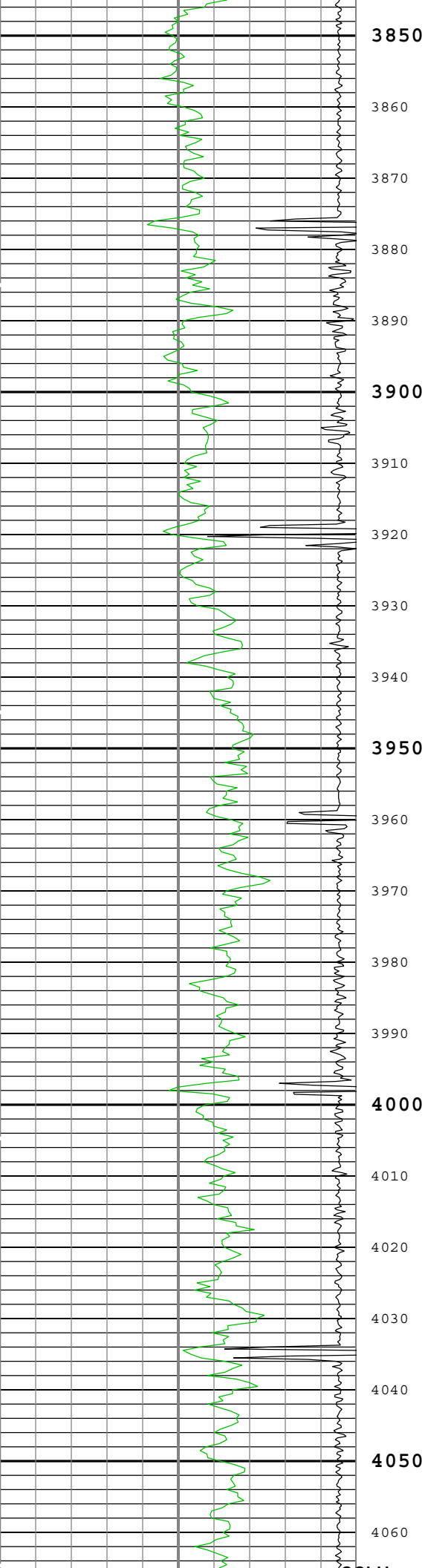


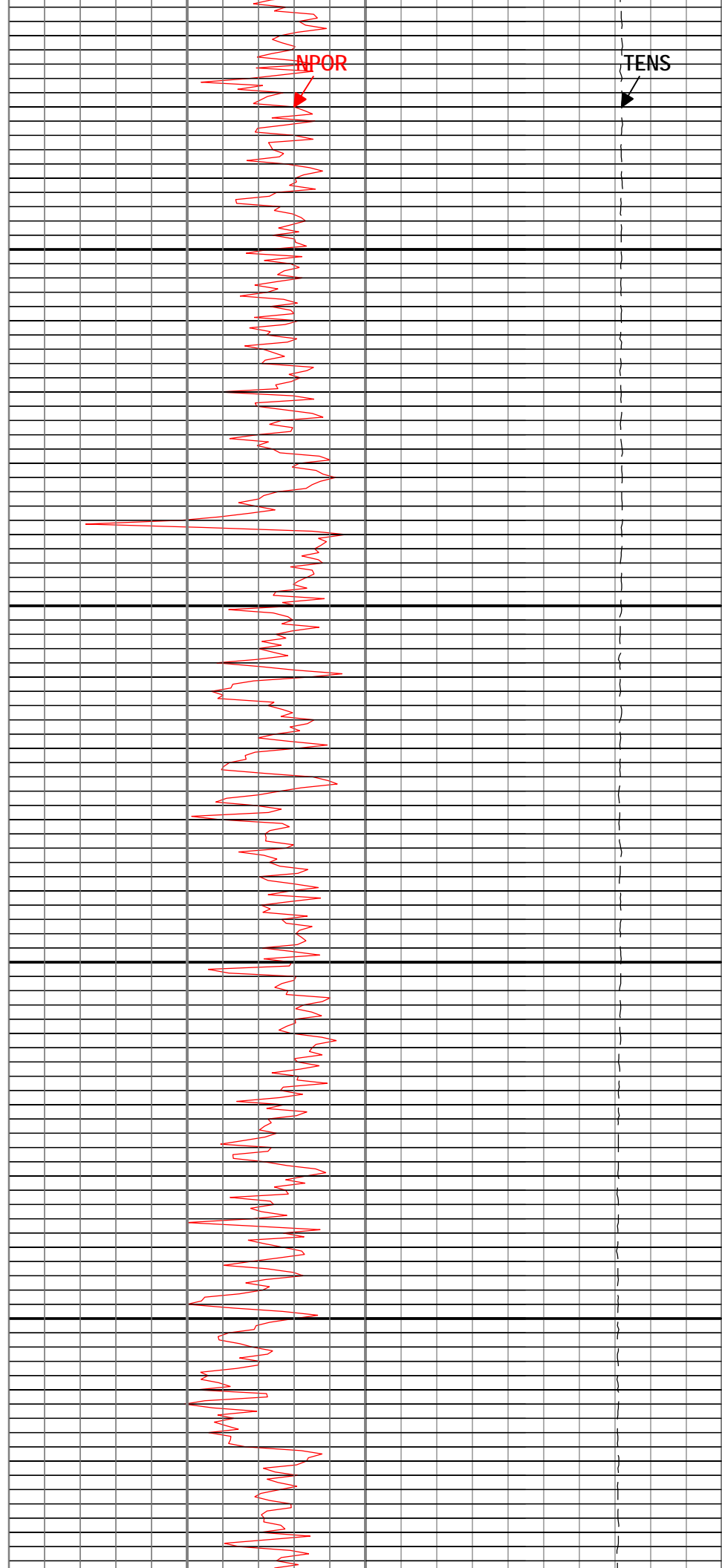
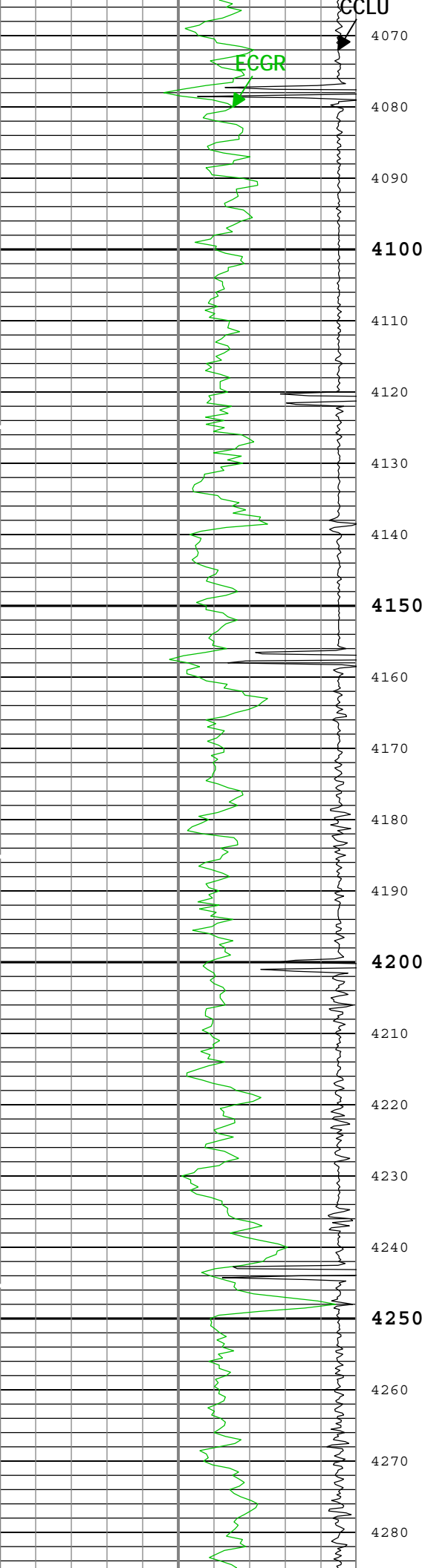


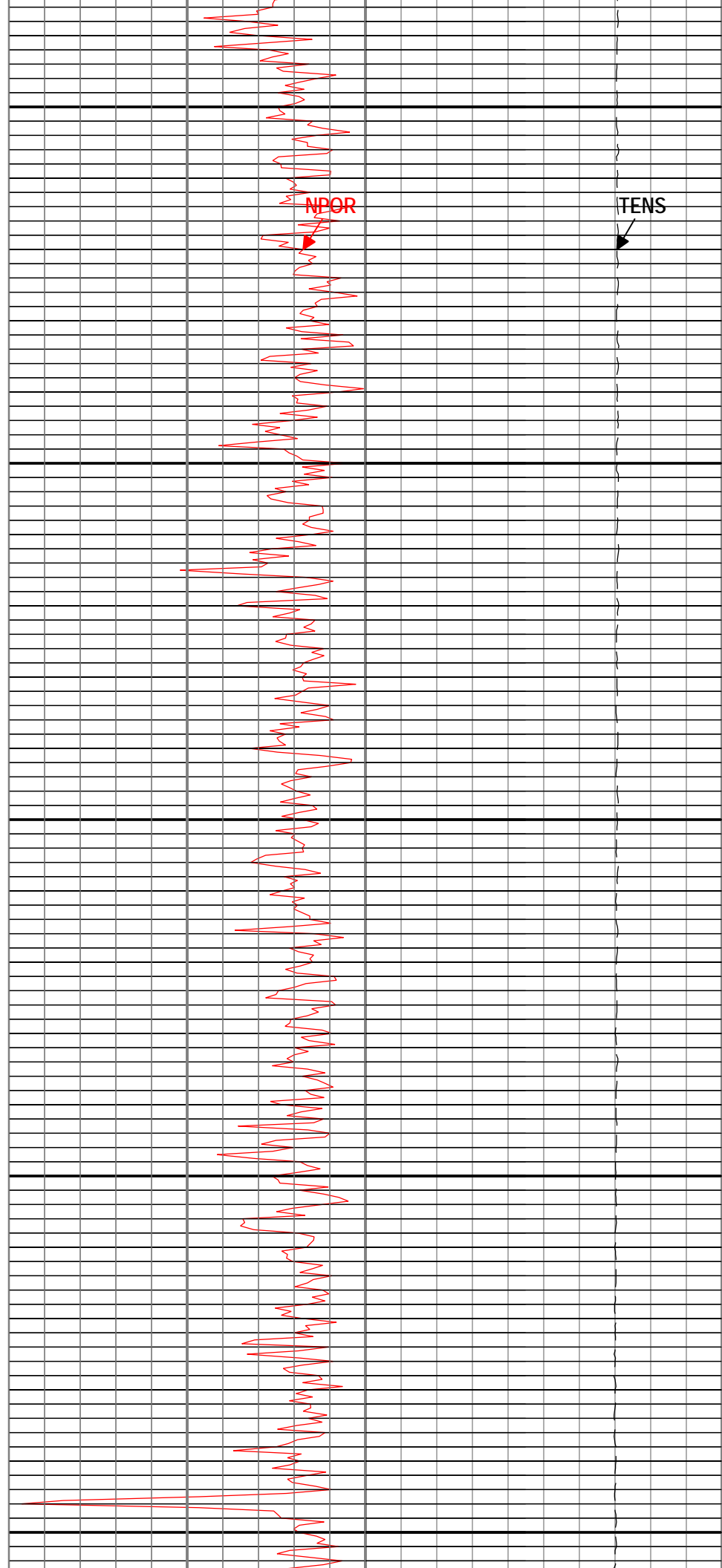
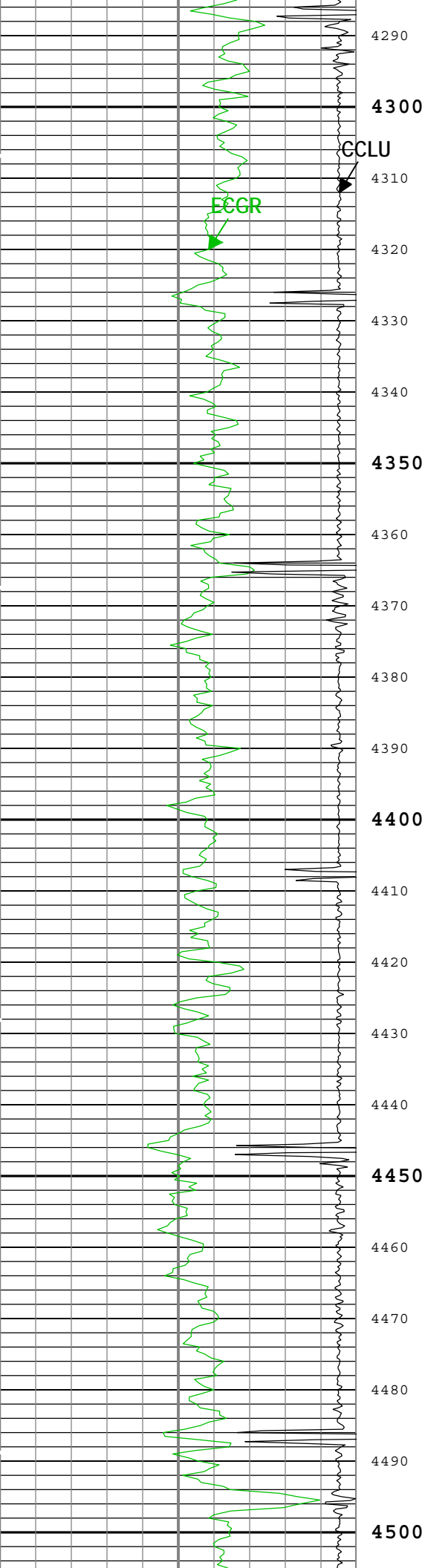


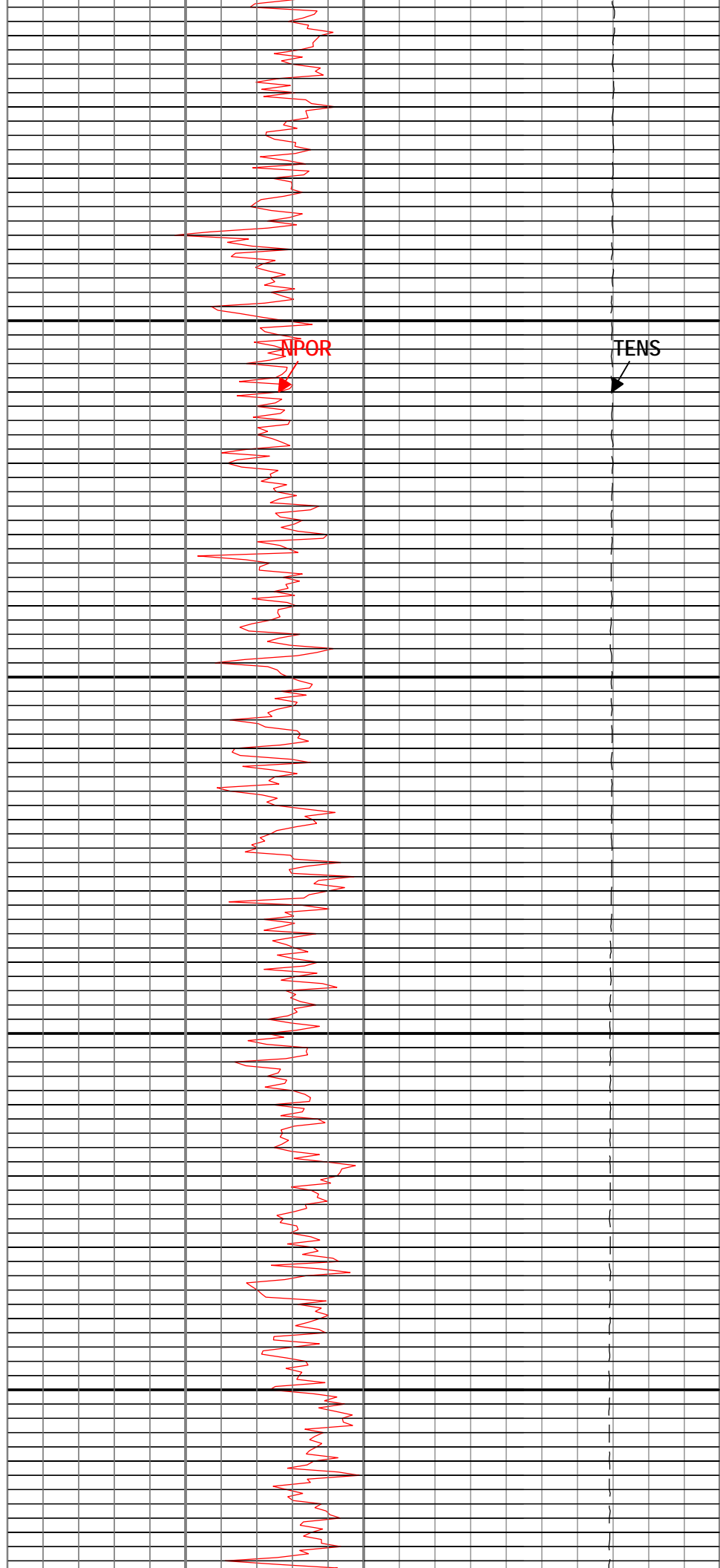
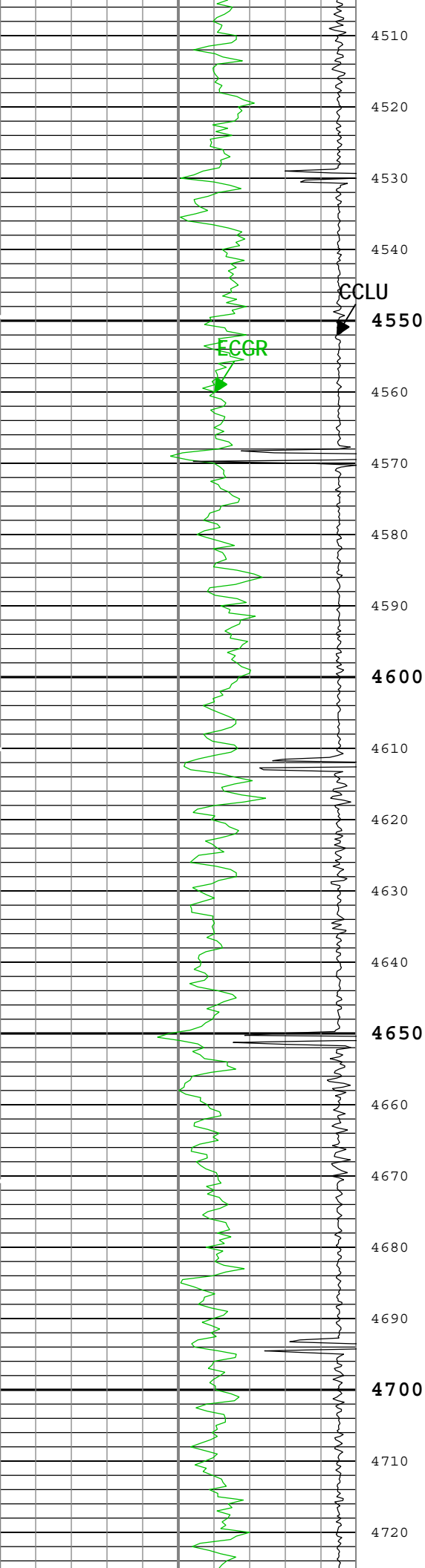


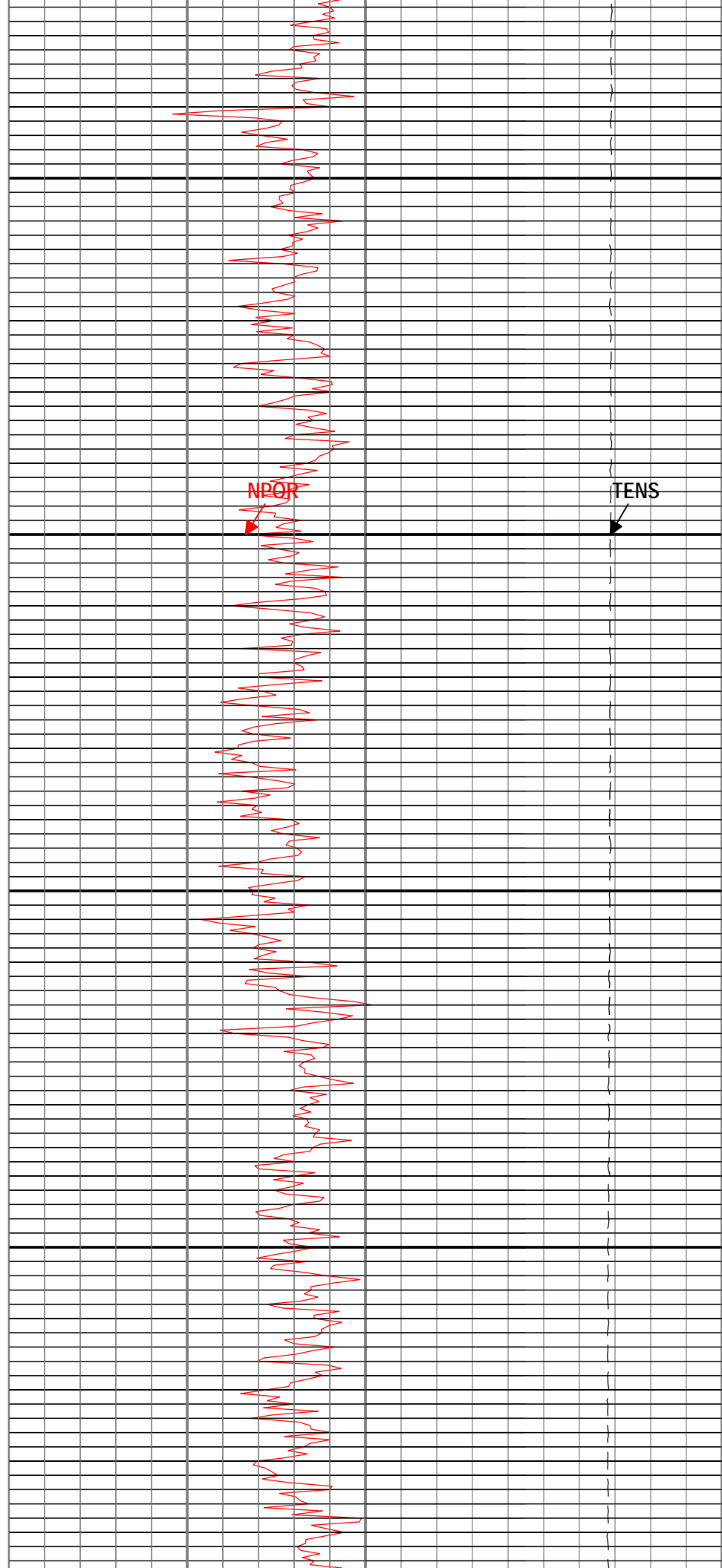
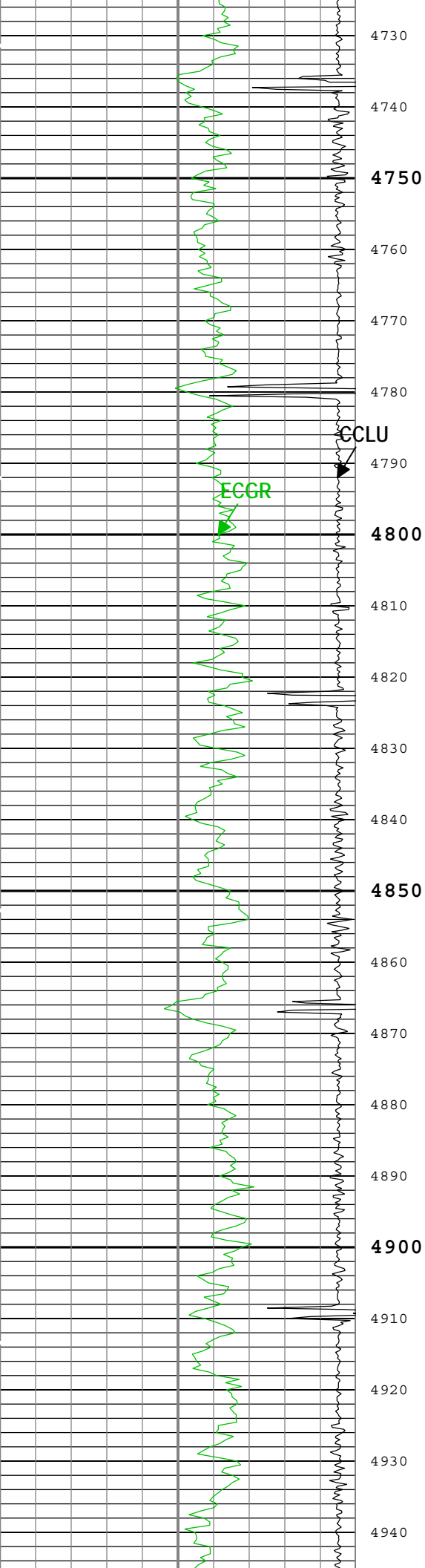


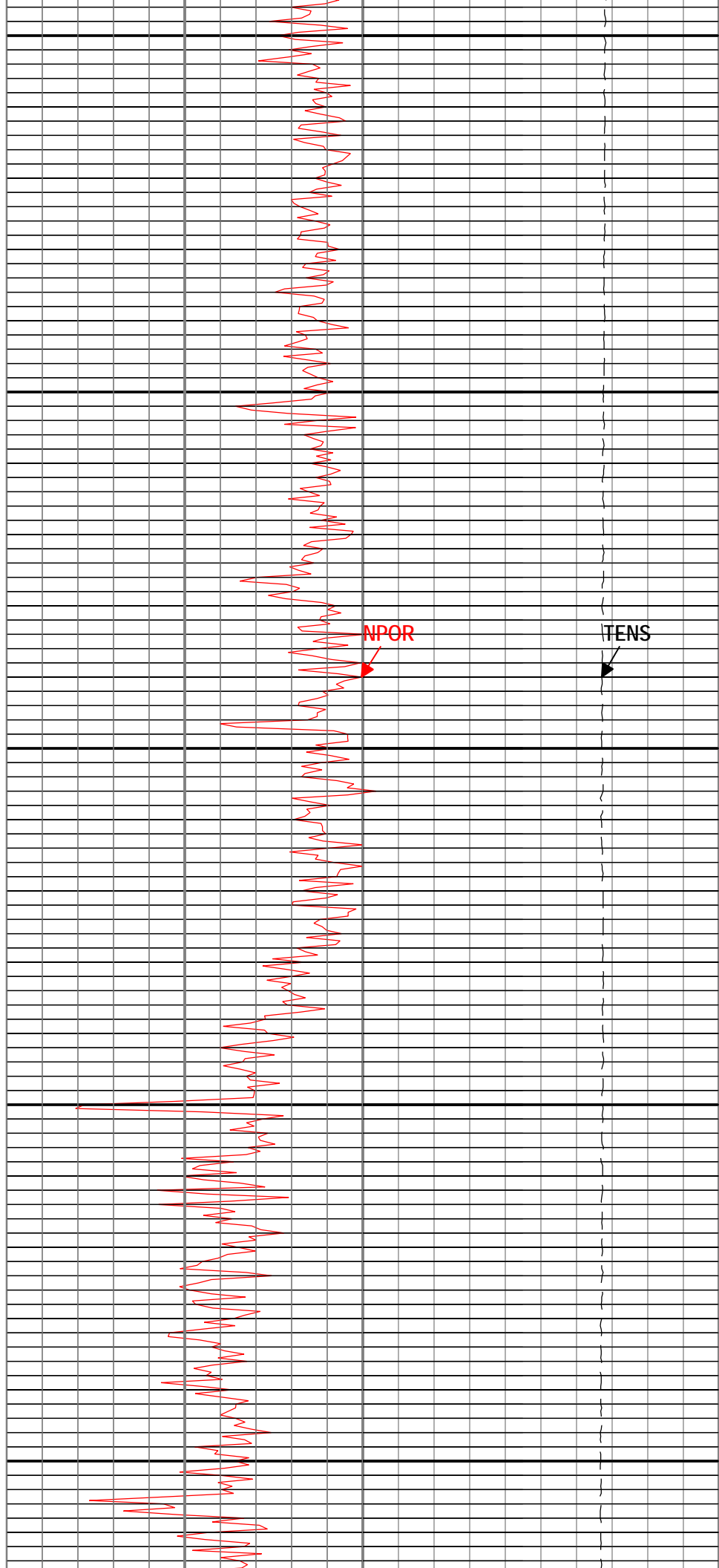
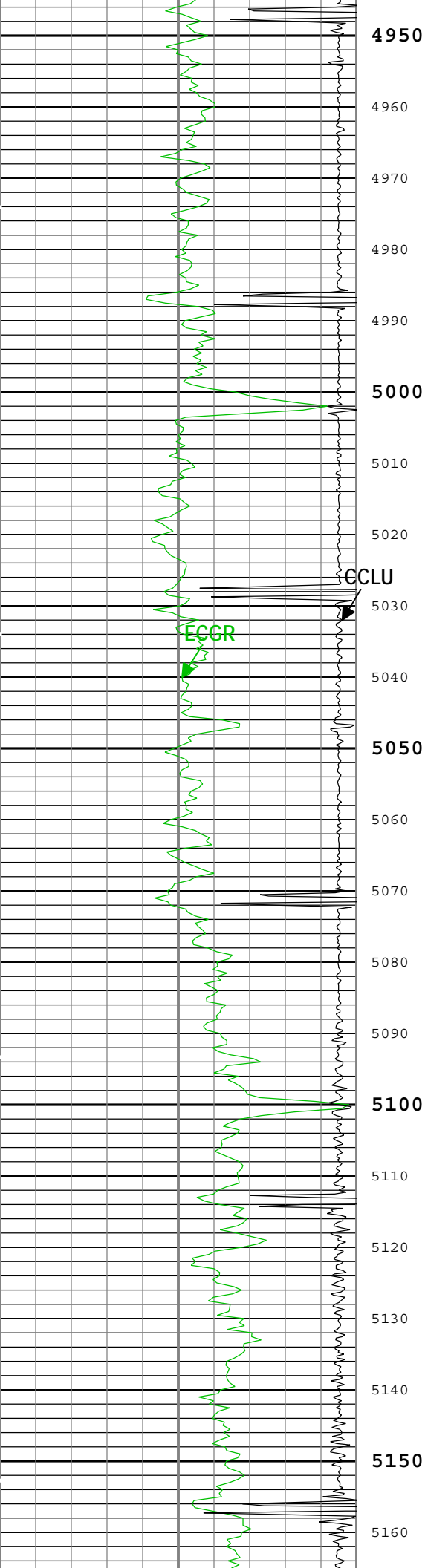


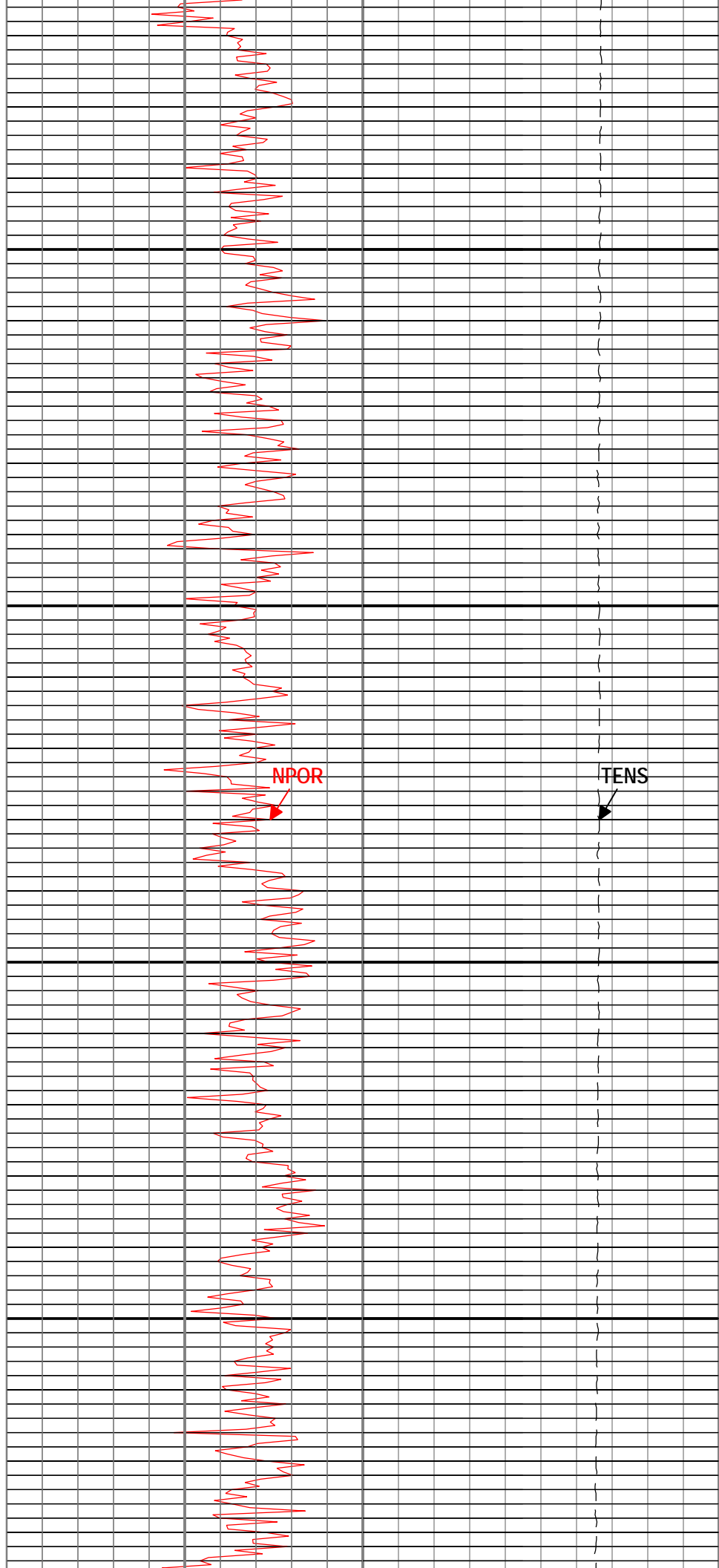
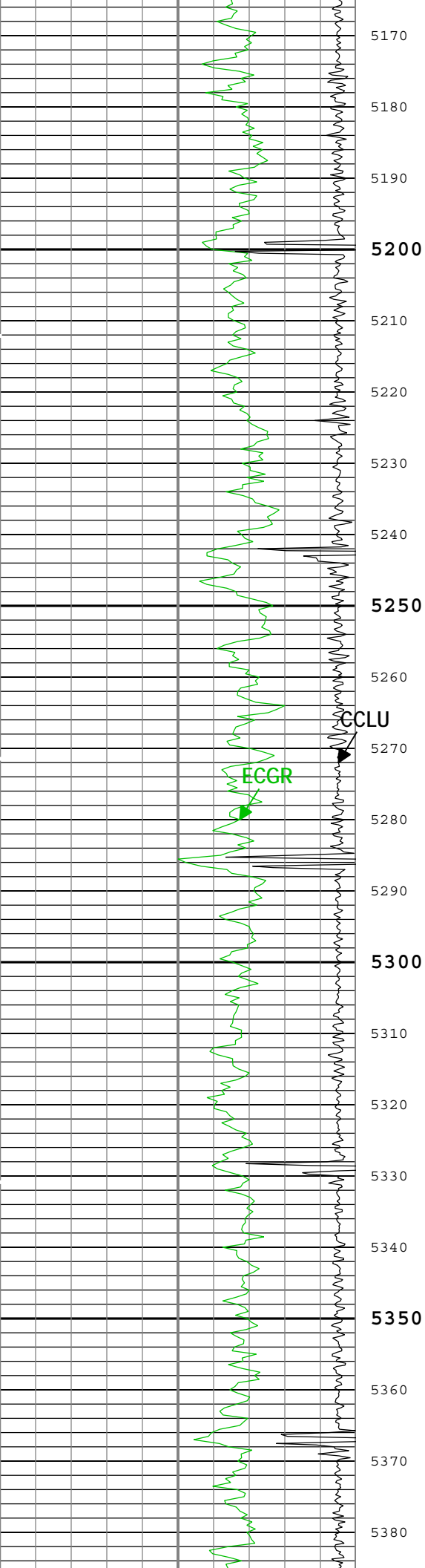


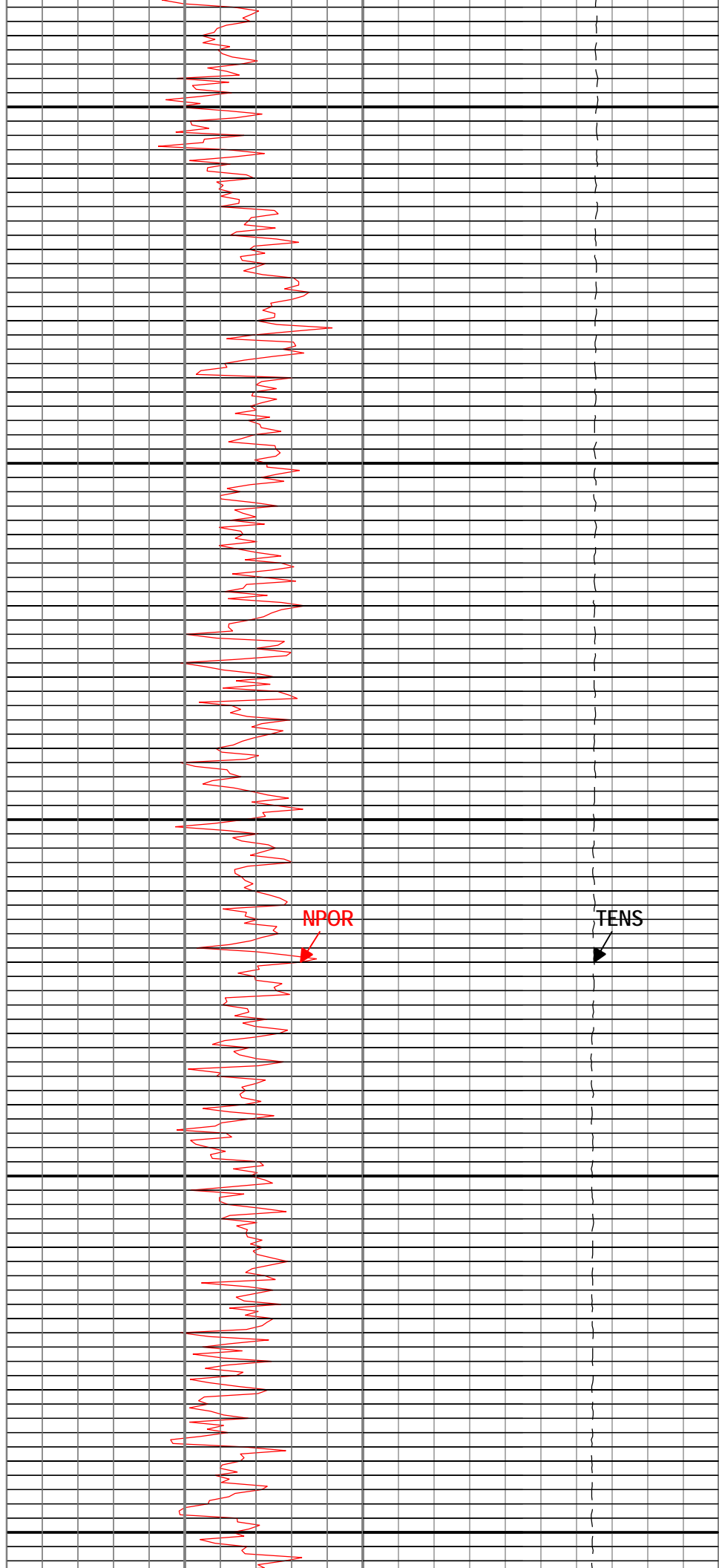
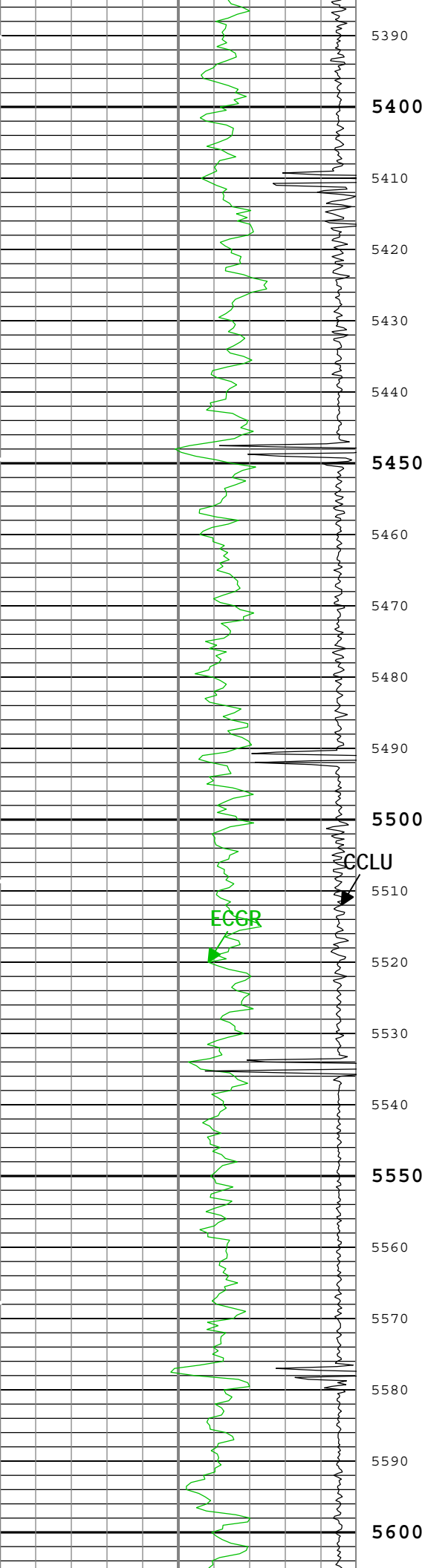


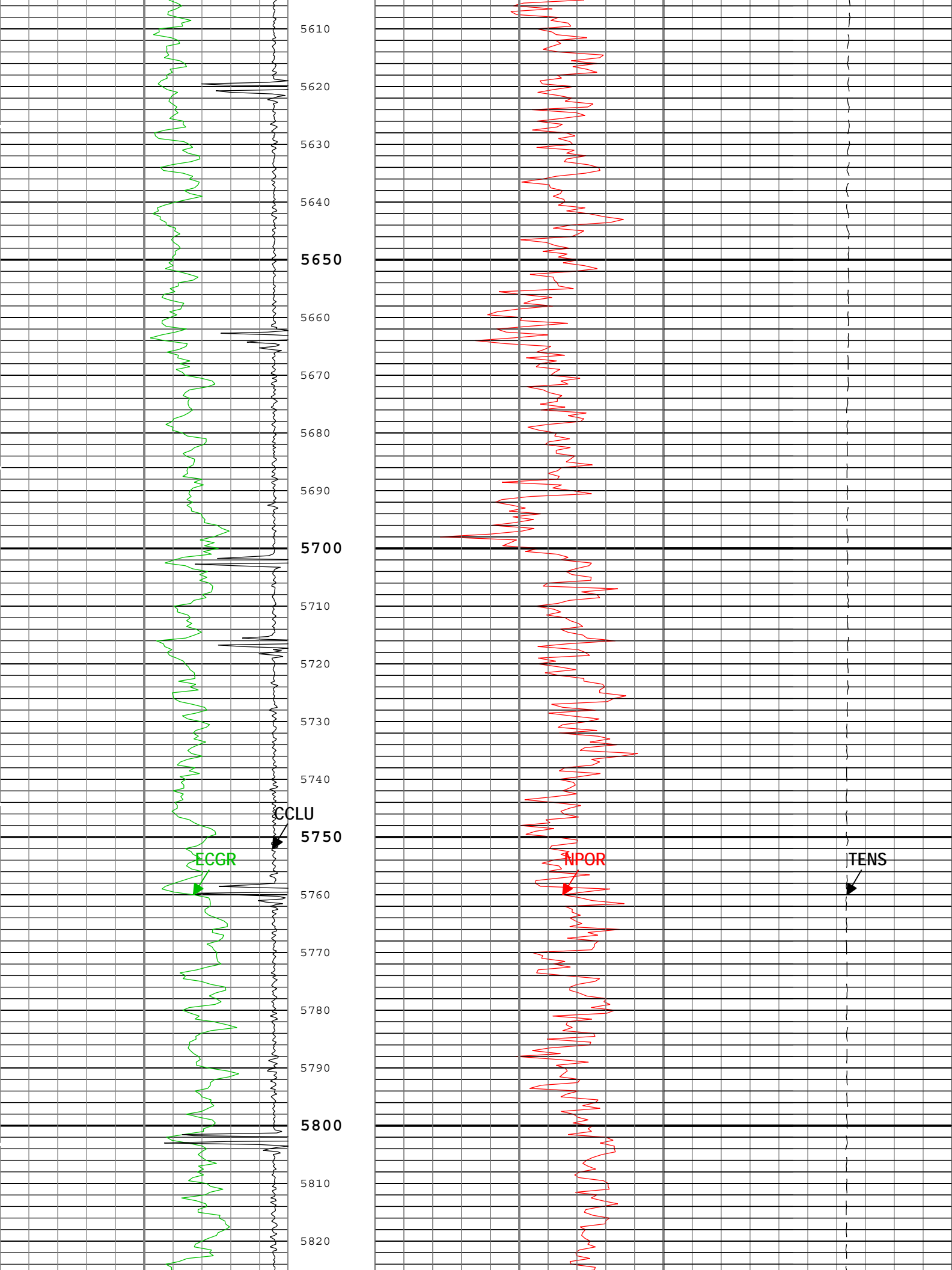


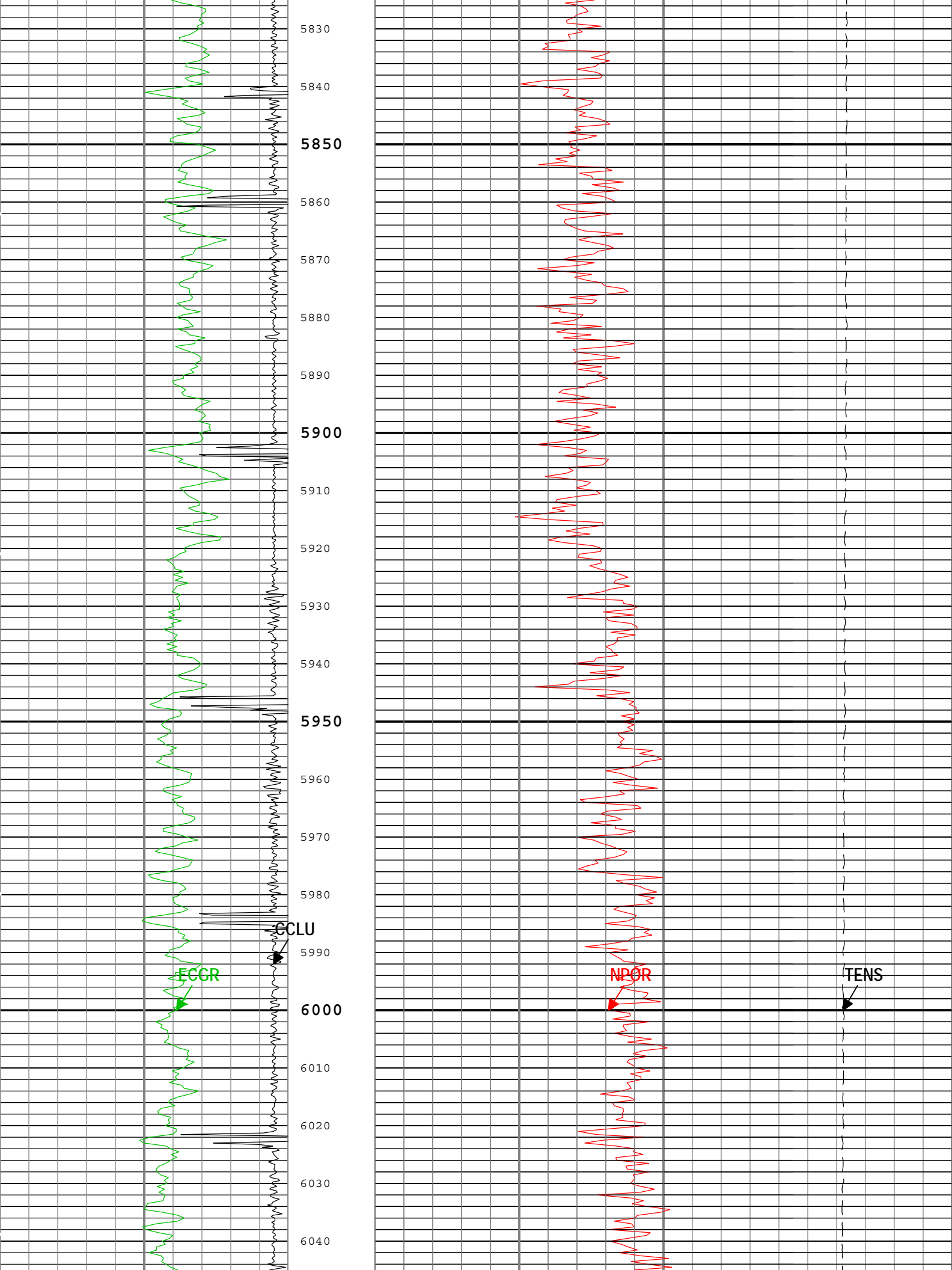


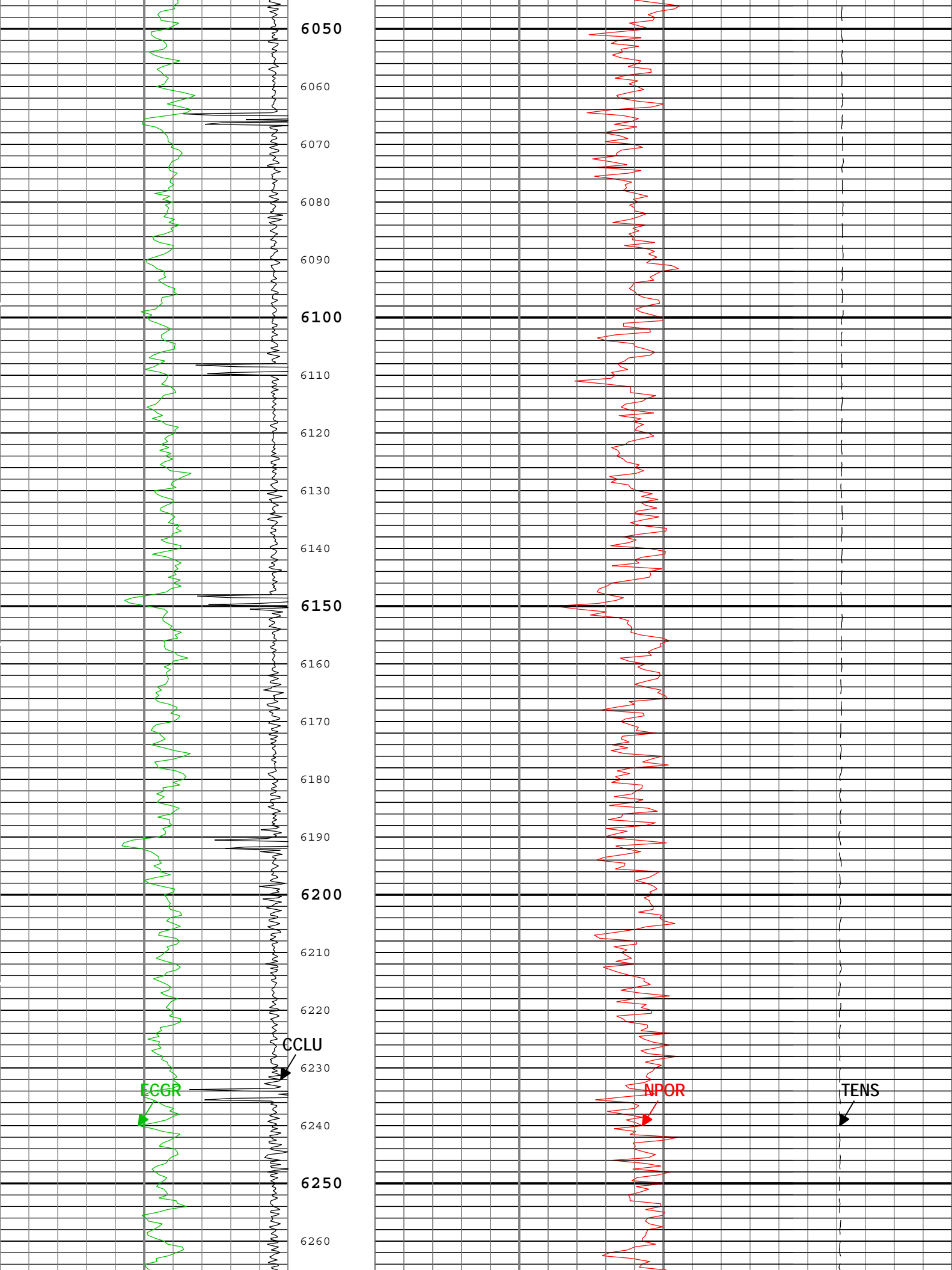


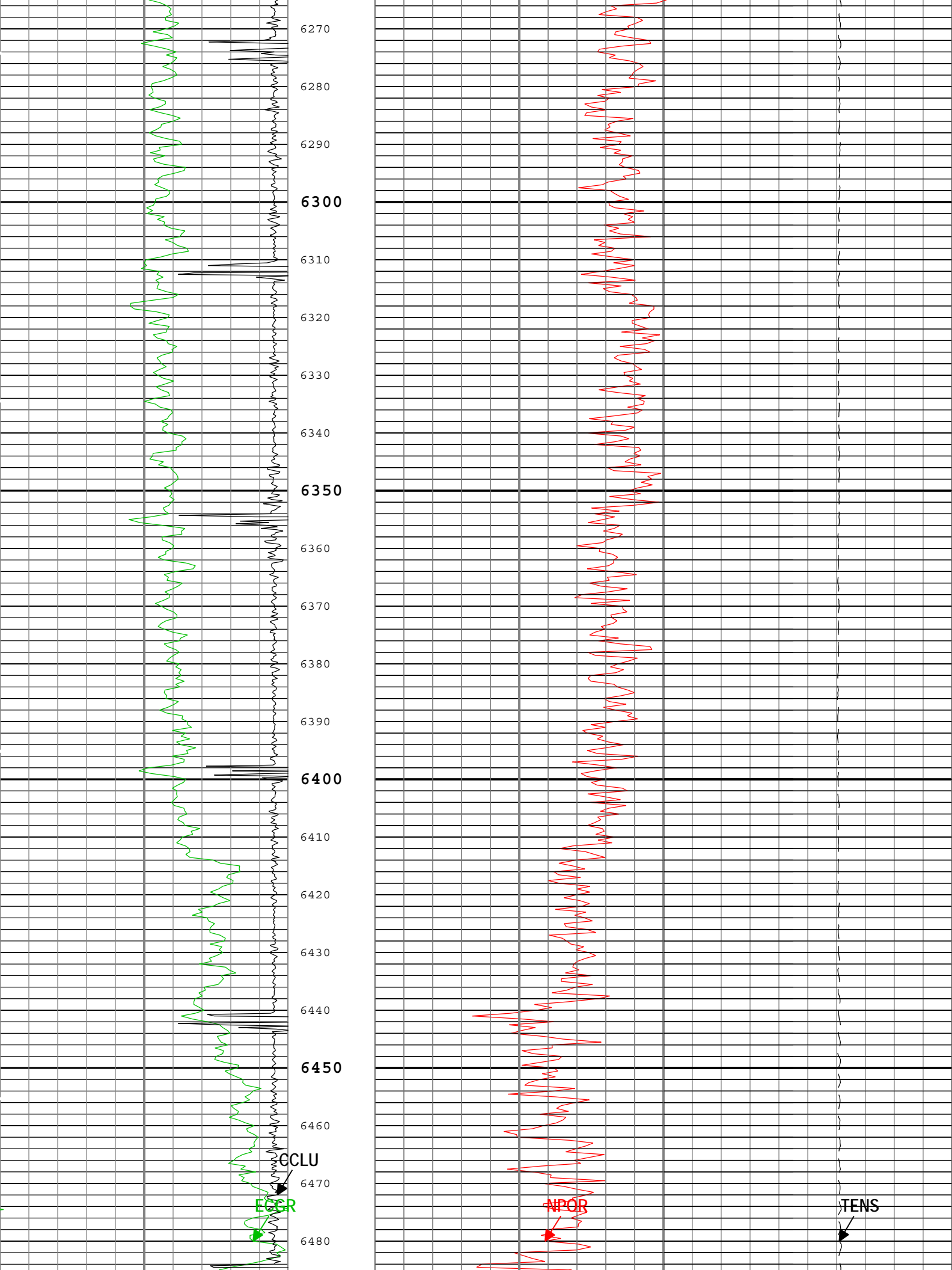


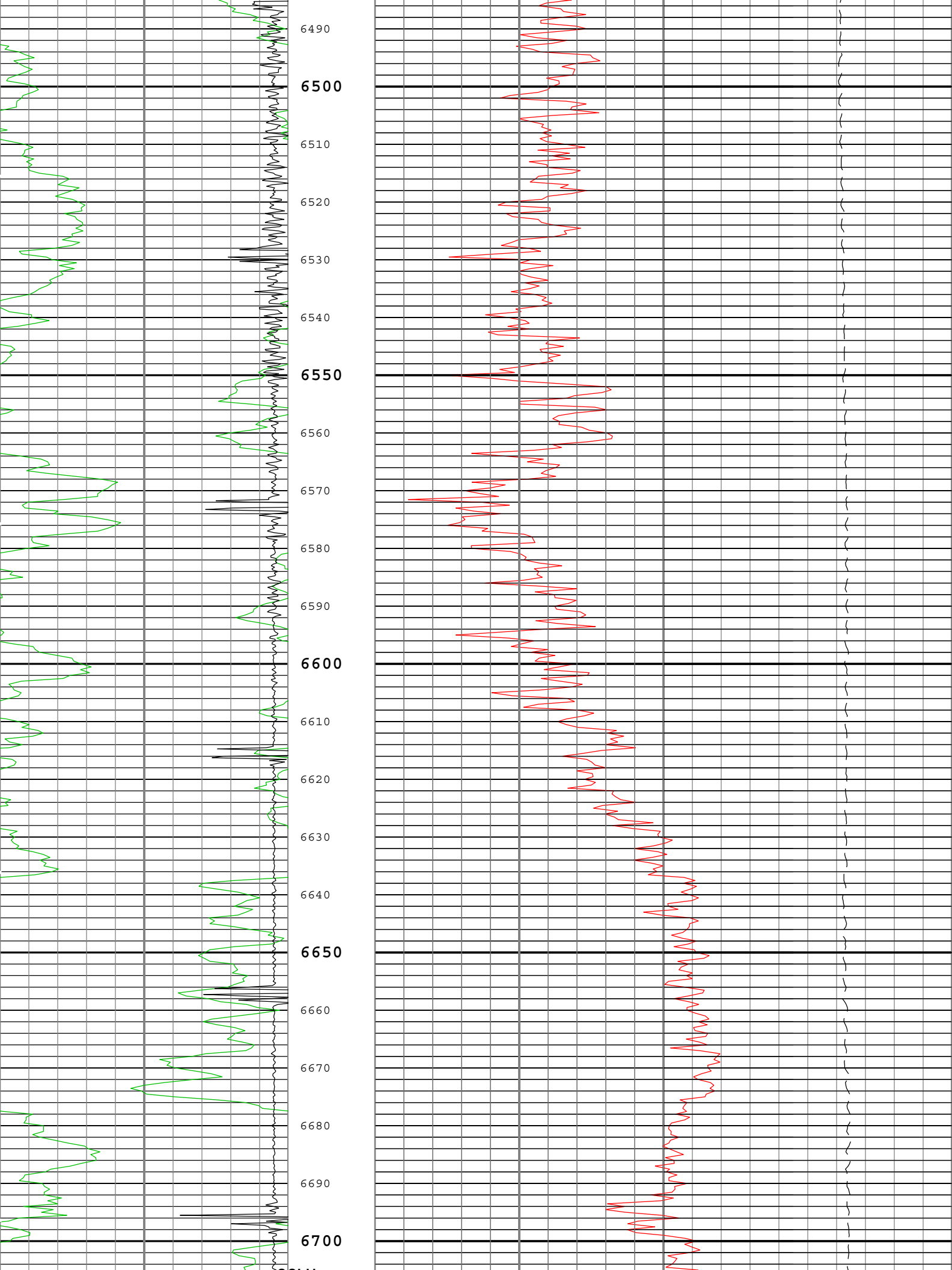


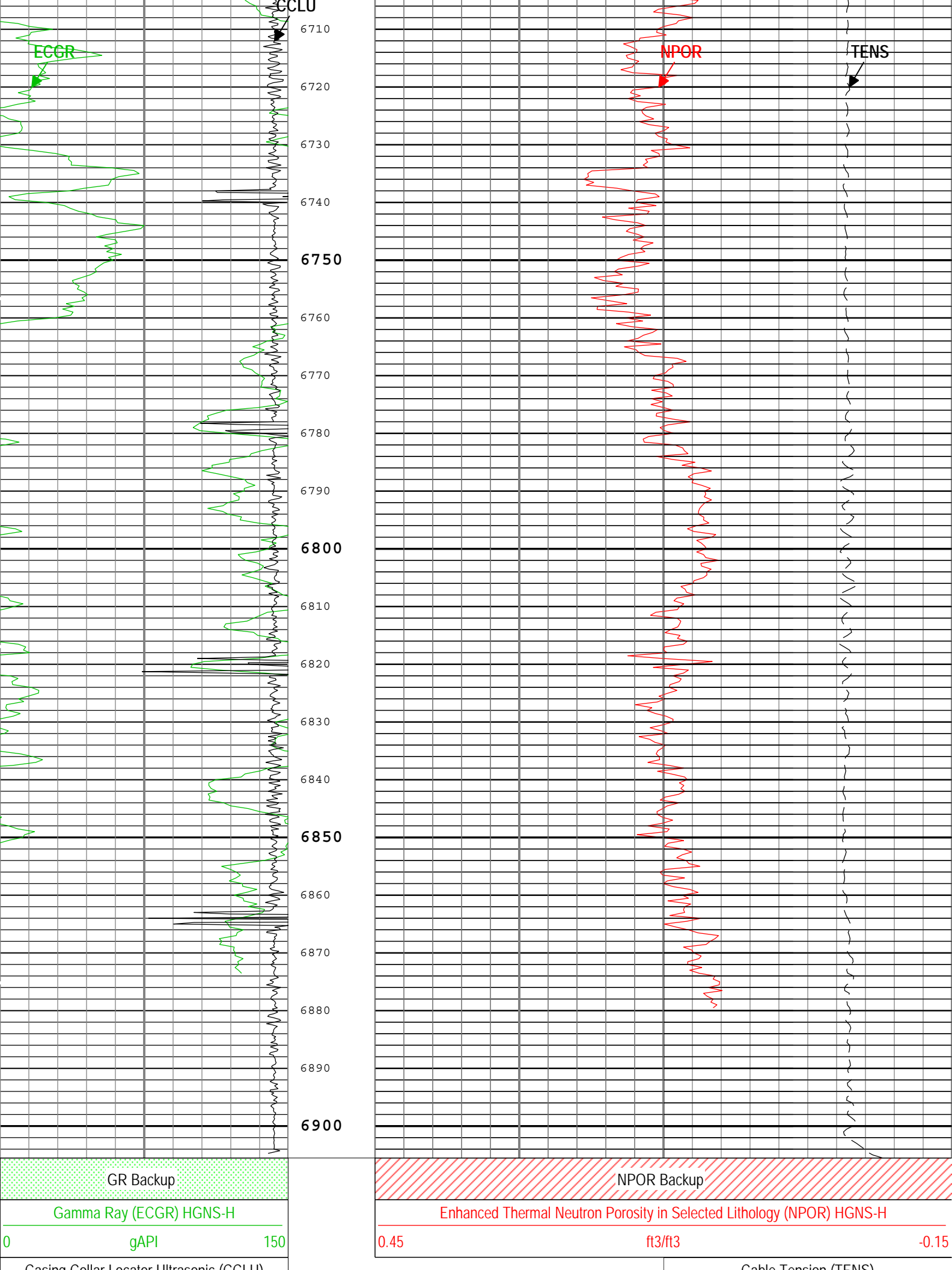












-19 in 1

Date: 01-May-2015 15:02:32

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BHT	Bottom Hole Temperature	Borehole	226.59	degF
BS	Bit Size	WLSESSION	Depth Zoned	in
BSAL	Borehole Salinity	Borehole	0	ppm
CBLO	Casing Bottom (Logger)	WLSESSION	7071.1	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Light Cement	
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	7	in
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.362	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.7	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
EDF	Elevation of Derrick Floor Above Permanent Datum	WLSESSION	23	ft
EPD	Elevation of Permanent Datum (PDAT) above Mean Sea Level	WLSESSION	4661	ft
FD	Fluid Density	USIT-E	1.2	g/cm3
FDII	FPM Data Interpolation Interval	USIT-E	0	ft
FSAL	Formation Salinity	Borehole	0	ppm
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS	
GGRD	Geothermal Gradient	Borehole	1	0.01 degF/ft
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	REMS	
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	GTEM_LINEST	
HEMA	Hematite Presence Flag	Borehole	No	
HSCO	Hole Size Correction Option	HGNS-H	Yes	
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	Off	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	22.5	us
MFST	Mud Filtrate Sample Temperature	Borehole	68	degF
MST	Mud Sample Temperature	Borehole	68	degF
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.07	
PDAT	Permanent Datum	WLSESSION	GL	
RMFS	Resistivity of Mud Filtrate Sample	Borehole	0.15	ohm.m
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
TD	Total Measured Depth	Borehole	6905	ft
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0.1	Mrayl
UFGDE	Fiberglass Density	USIT-E	1.95	g/cm3
UFGPS	Fiberglass Processing Selection	USIT-E	No	
UFGVL	Fiberglass Velocity	USIT-E	9678.48	ft/s
USI_FSOD	USIT USI Fluid Slowness Fits Casing Outer Diameter	USIT-E	0_OFF	
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-E	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-E	FreePipe Norm.	
ZMUD	Acoustic Impedance of Mud	Borehole	1.48	Mrayl

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	17.5	27	130
BS	13.5	130	926
BS	8.75	926	6905

All depth are actual.

Tool Control Parameters

Run 1: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	48	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
HRES	Horizontal Resolution	USIT-E	10 deg	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h
TMUC	Type of Mud	USIT-E	BRI	
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
USFR	Ultrasonic Sampling Frequency	USIT-E	500000	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 3.0 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	6900	ft
VRES	Vertical Resolution	USIT-E	3.0 in	
WINB	Window Begin Time	USIT-E	Time Zoned	us
WINE	Window End Time	USIT-E	86.79	us

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	72	01-May-2015 09:39:06	01-May-2015 10:08:05	6905.72	5680.99
EMXV	70	01-May-2015 10:08:05	01-May-2015 10:11:20	5680.99	5488.16
EMXV	65	01-May-2015 10:11:20	01-May-2015 10:25:53	5488.16	4616.92
EMXV	62	01-May-2015 10:25:53	01-May-2015 10:41:00	4616.92	3705.14
EMXV	61	01-May-2015 10:41:00	01-May-2015 11:42:09	3705.14	65.21
WINB	28	01-May-2015 09:39:06	01-May-2015 09:53:50	6905.72	6525.08
WINB	26.2	01-May-2015 09:53:50	01-May-2015 09:53:52	6525.08	6522.72
WINB	23.2	01-May-2015 09:53:52	01-May-2015 11:42:09	6522.72	65.21

All depth are at tool zero.

Software Version

Acquisition System

Maxwell

Version

5.2.40990.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run 1	Repeat[2]:Up	Up	6400.31 ft	6903.87 ft	01-May-2015 9:23:44 AM	01-May-2015 9:32:44 AM	ON	3.66 ft	Yes
Run 1	Main[3]:Up	Up	65.21 ft	6905.73 ft	01-May-2015 9:39:06 AM	01-May-2015 11:42:09 AM	ON	5.49 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Noble Energy Inc Well:Colt A13-655

Run 1: Main[3]:Up:S005

Description: AIT Basic Log Two Format: Import of Noble Nuclear RA Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 01-May-2015 15:02:35

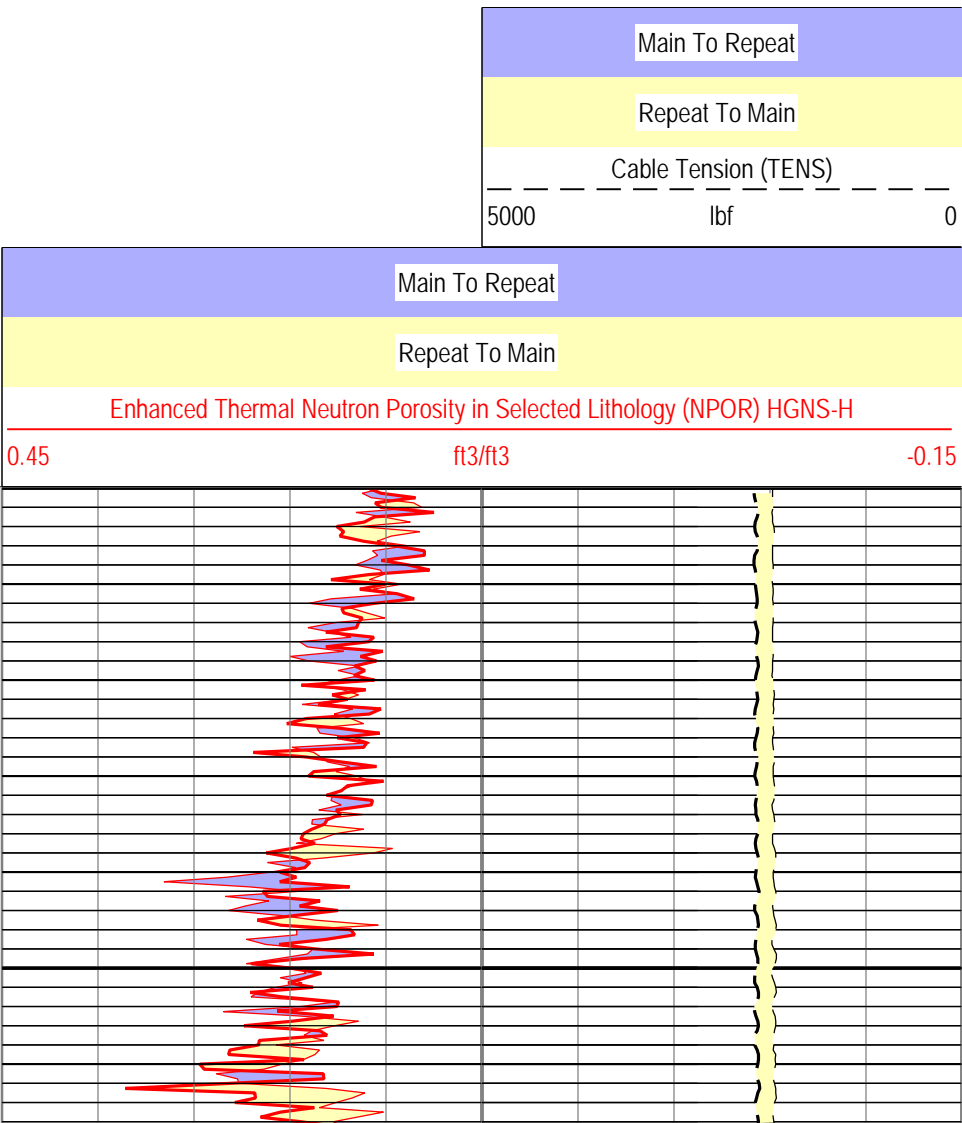
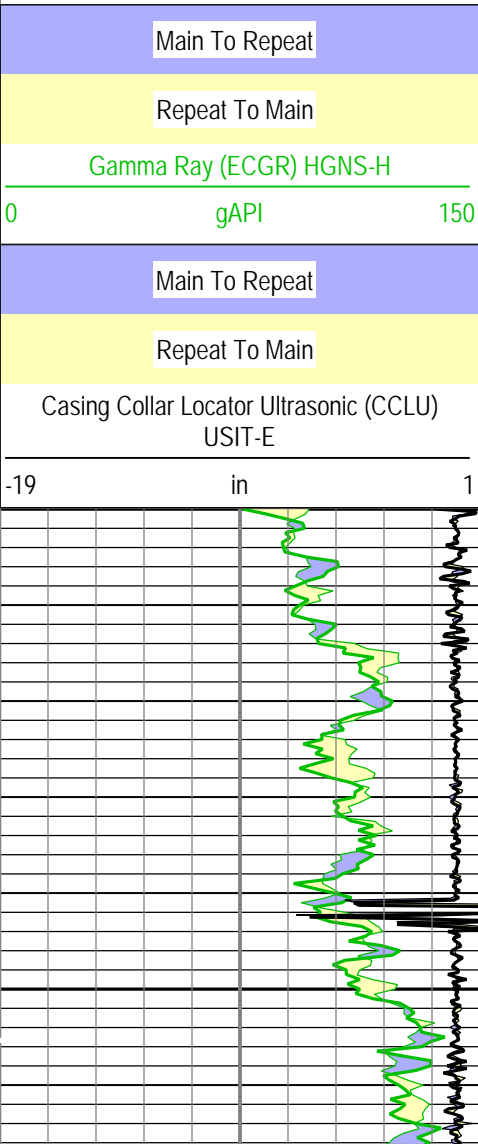
TIME_1900 - Time Marked every 60.00 (s)

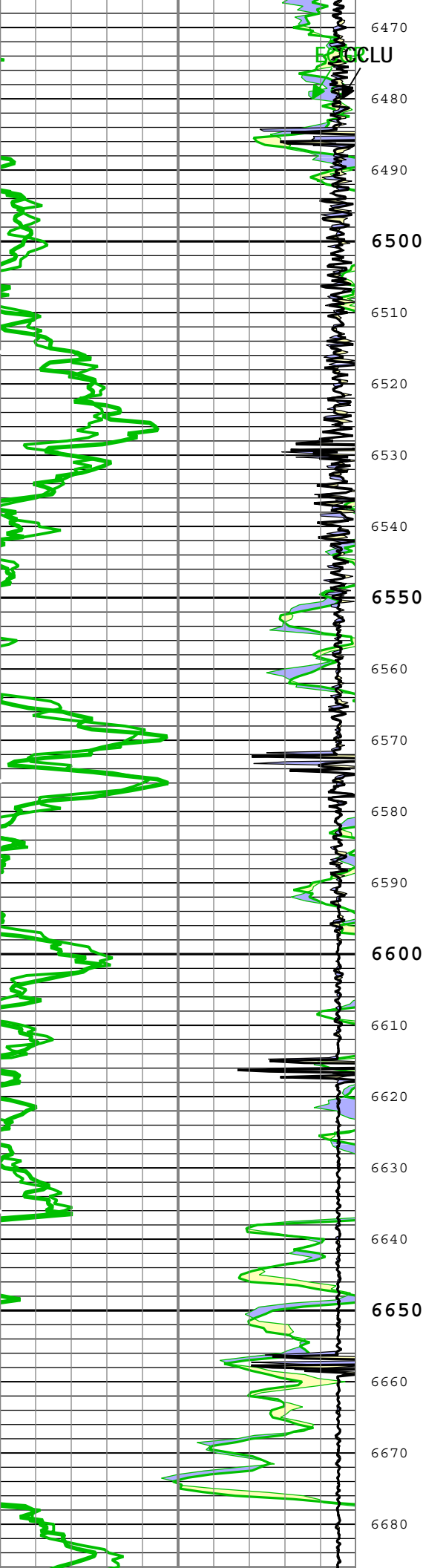
—IHV - Integrated Hole Volume every 10.00 (ft3)

—IHV - Integrated Hole Volume every 100.00 (ft3)

—ICV - Integrated Cement Volume every 10.00 (ft3)

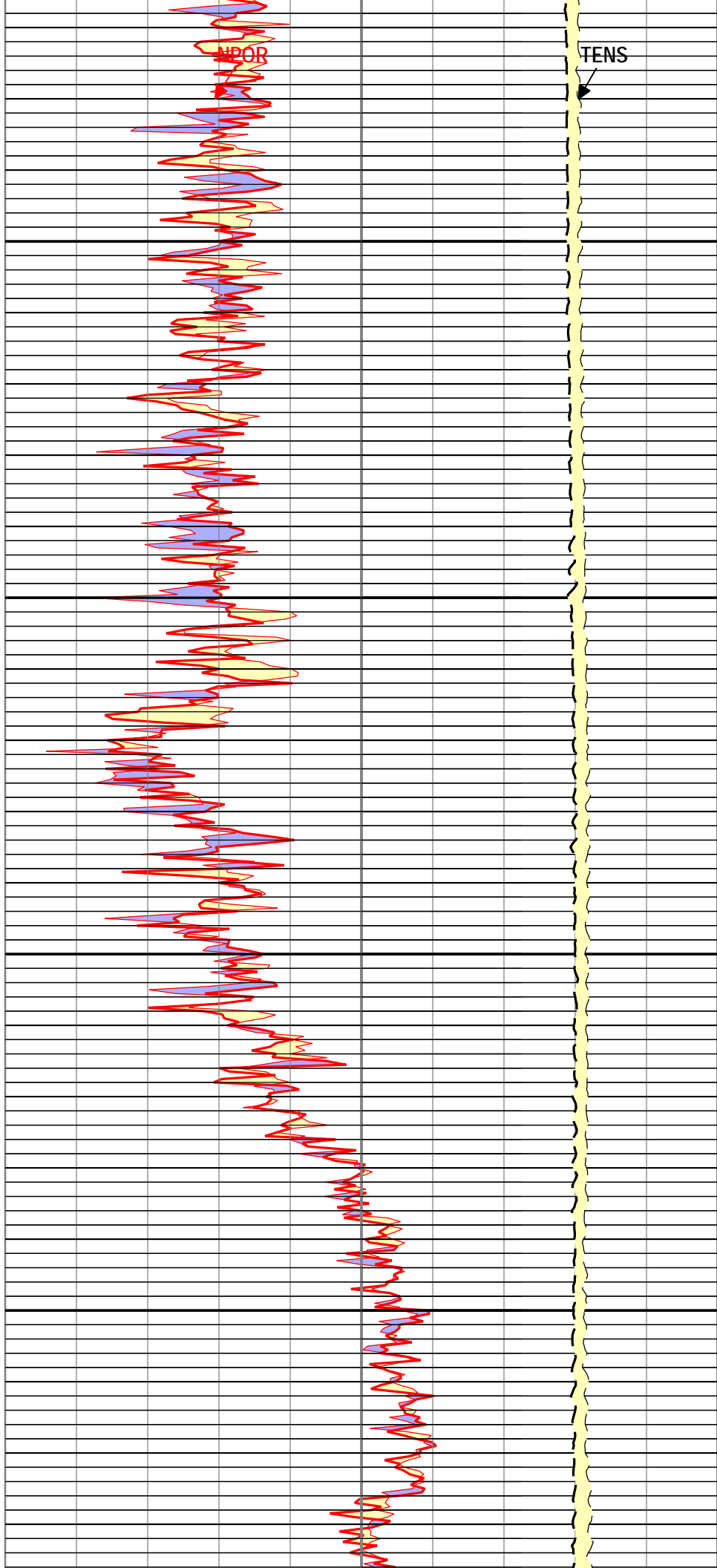
—ICV - Integrated Cement Volume every 100.00 (ft3)





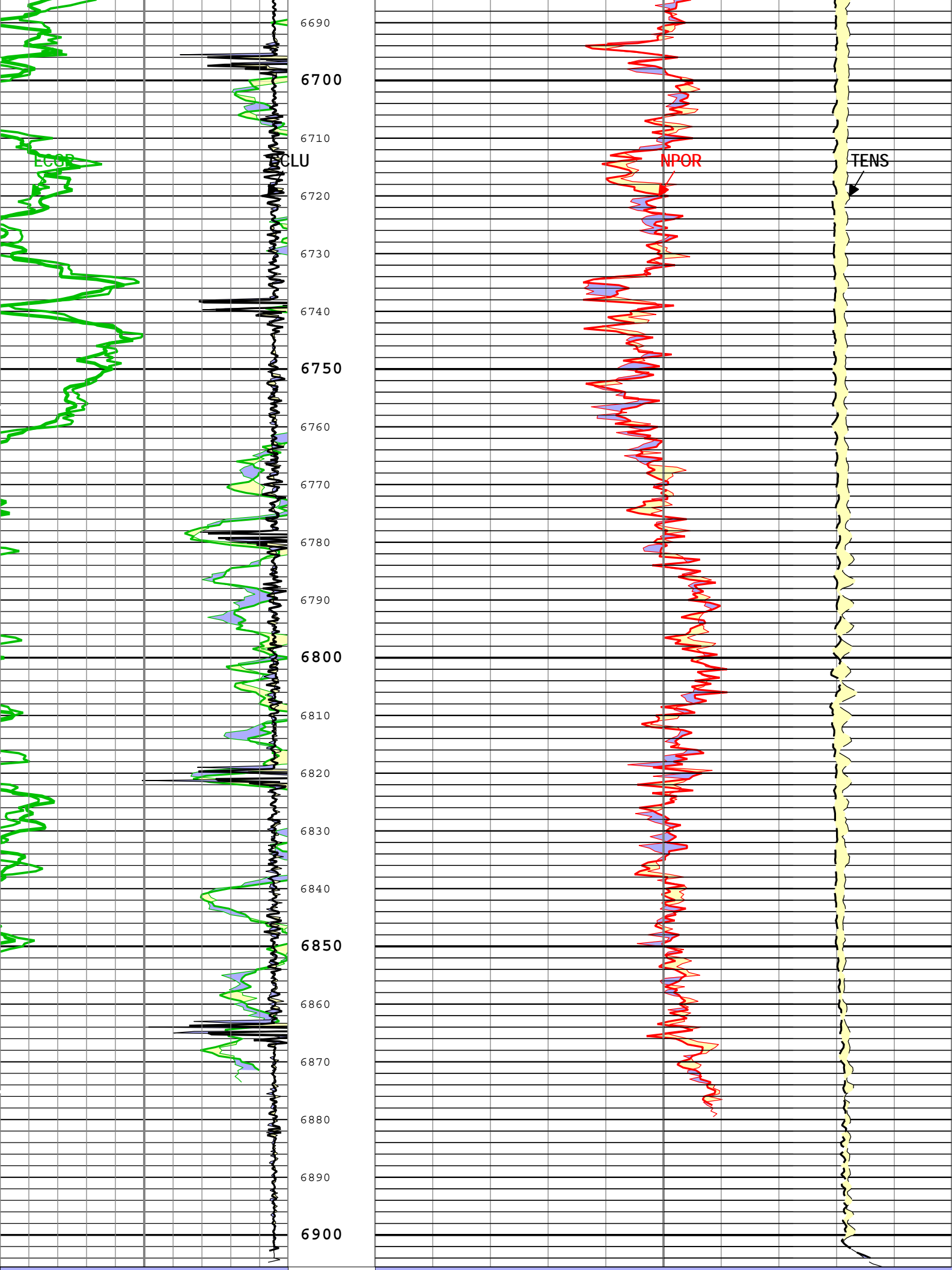
6470
6480
6490
6500
6510
6520
6530
6540
6550
6560
6570
6580
6590
6600
6610
6620
6630
6640
6650
6660
6670
6680

CCLU



NPOR

TENS



Main To Repeat			Main To Repeat		
Repeat To Main			Repeat To Main		
Gamma Ray (ECGR) HGNS-H			Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H		
0	gAPI	150	0.45	ft3/ft3	-0.15
Main To Repeat			Main To Repeat		
Repeat To Main			Repeat To Main		
Casing Collar Locator Ultrasonic (CCLU) USIT-E			Cable Tension (TENS)		
-19	in	1	5000	lbf	0
<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>					
TIME_1900 - Time Marked every 60.00 (s)					
Description: AIT Basic Log Two Format: Import of Noble Nuclear RA Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 01-May-2015 15:02:35					

Channel Processing Parameters				
Run 1: Parameters				
Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BHT	Bottom Hole Temperature	Borehole	226.59	degF
BS	Bit Size	WLSESSION	8.75	in
BSAL	Borehole Salinity	Borehole	0	ppm
CBLO	Casing Bottom (Logger)	WLSESSION	7071.1	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Light Cement	
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	7	in
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.362	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.7	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
EDF	Elevation of Derrick Floor Above Permanent Datum	WLSESSION	23	ft
EPD	Elevation of Permanent Datum (PDAT) above Mean Sea Level	WLSESSION	4661	ft
FD	Fluid Density	USIT-E	1.2	g/cm3
FDII	FPM Data Interpolation Interval	USIT-E	0	ft
FSAL	Formation Salinity	Borehole	0	ppm
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS	
GGRD	Geothermal Gradient	Borehole	1	0.01 degF/ft
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	REMS	
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	GTEM_LINEST	
HEMA	Hematite Presence Flag	Borehole	No	
HSCO	Hole Size Correction Option	HGNS-H	Yes	
ICE_PROCESS	ICE Processing	USIT-E	Yes	

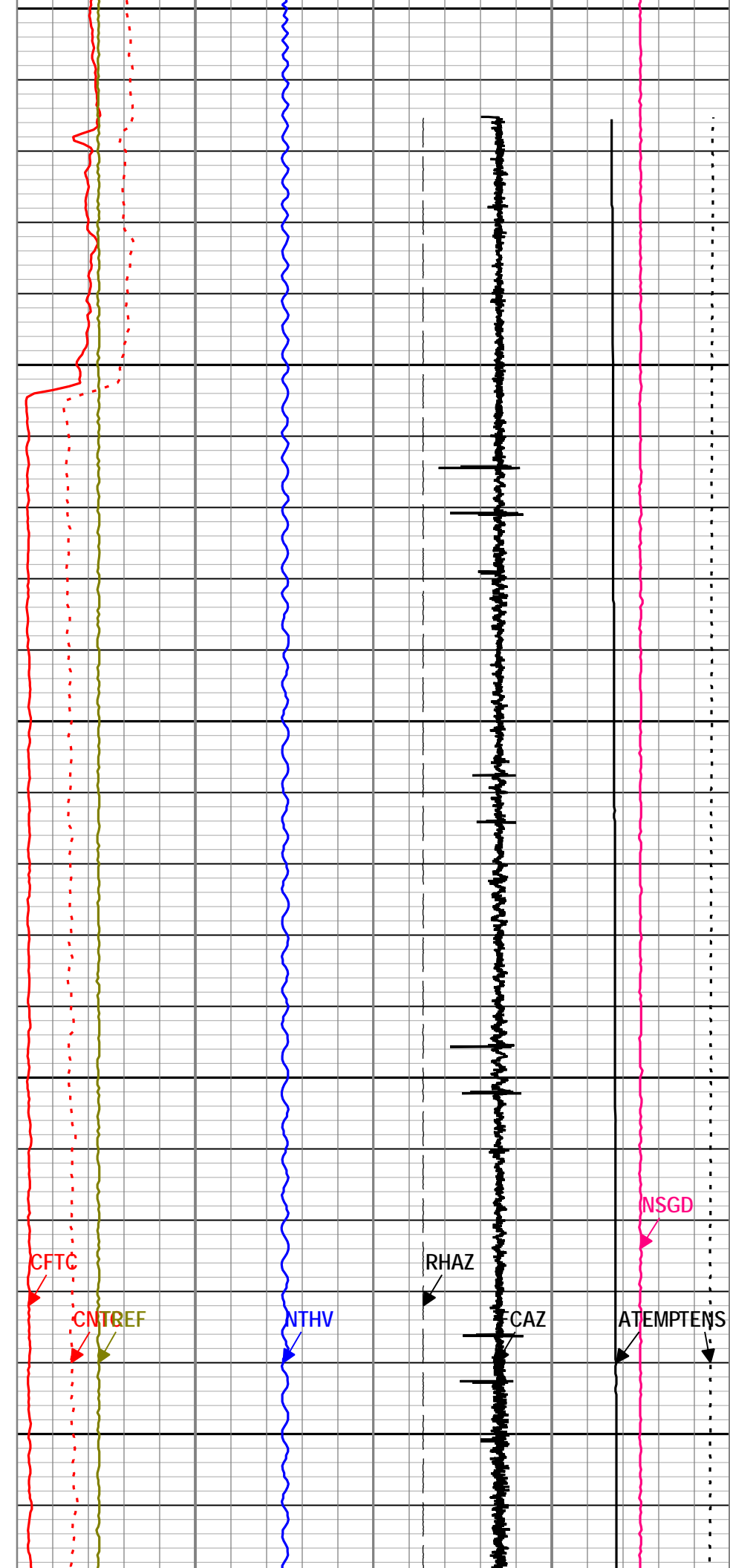
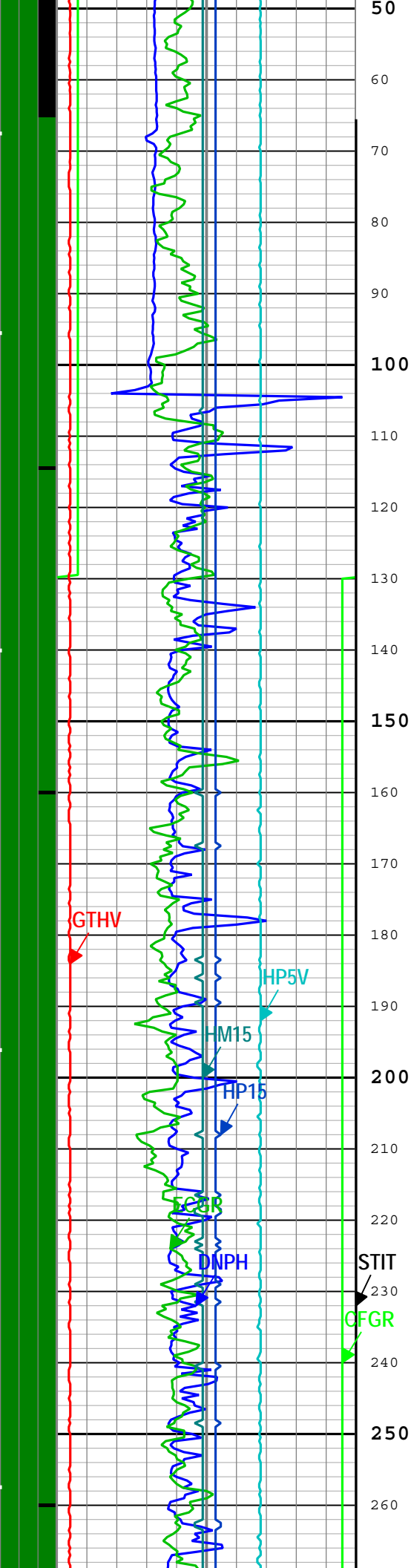
CE_PROCESS	CE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	Off	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	22.5	us
MFST	Mud Filtrate Sample Temperature	Borehole	68	degF
MST	Mud Sample Temperature	Borehole	68	degF
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.07	
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
TD	Total Measured Depth	Borehole	6905	ft
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0.1	Mrayl
UFGDE	Fiberglass Density	USIT-E	1.95	g/cm3
UFGPS	Fiberglass Processing Selection	USIT-E	No	
UFGVL	Fiberglass Velocity	USIT-E	9678.48	ft/s
USI_FSOD	USIT USI Fluid Slowness Fits Casing Outer Diameter	USIT-E	0_OFF	
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-E	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-E	FreePipe Norm.	
ZMUD	Acoustic Impedance of Mud	Borehole	1.48	Mrayl

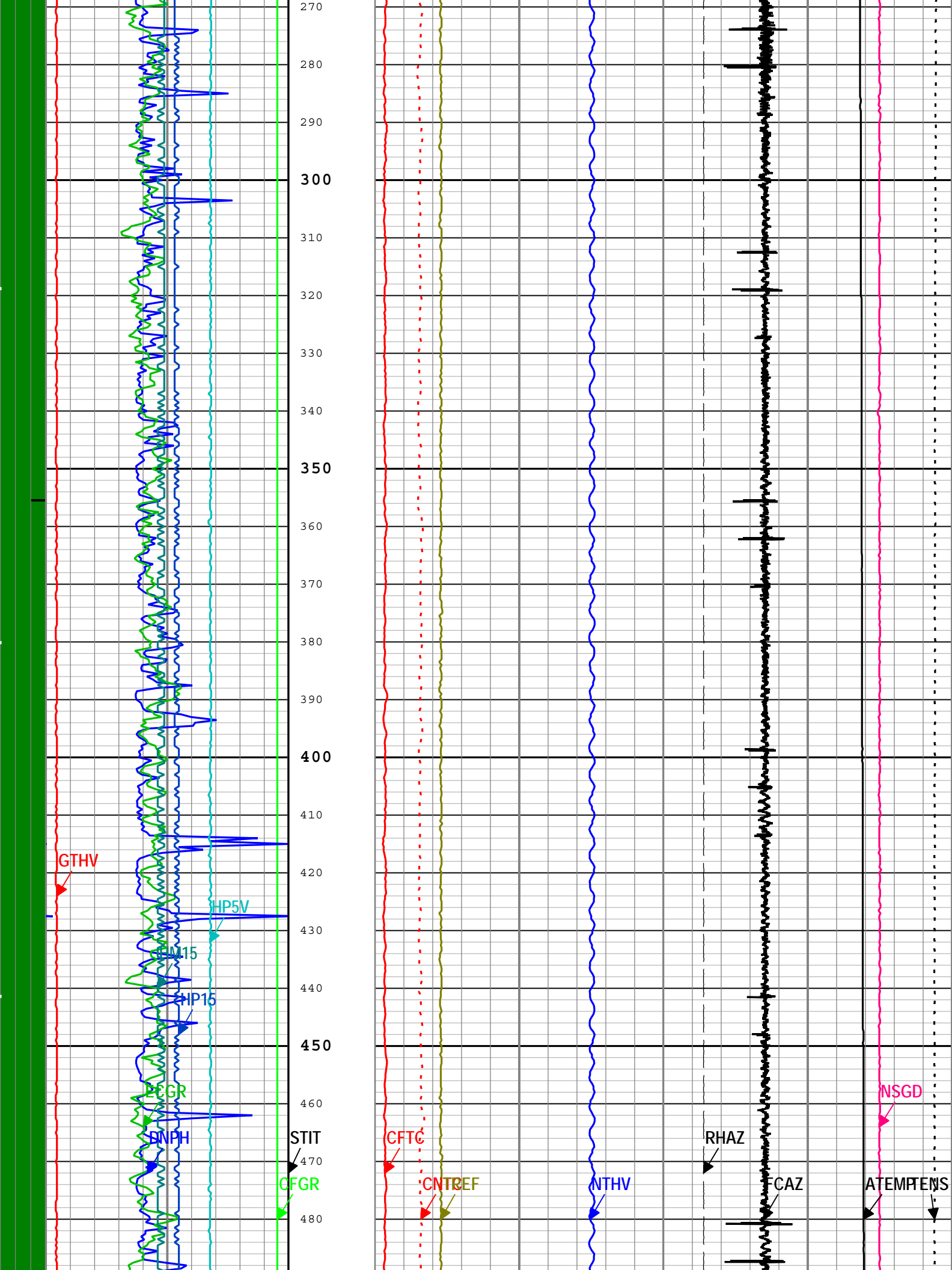
Tool Control Parameters

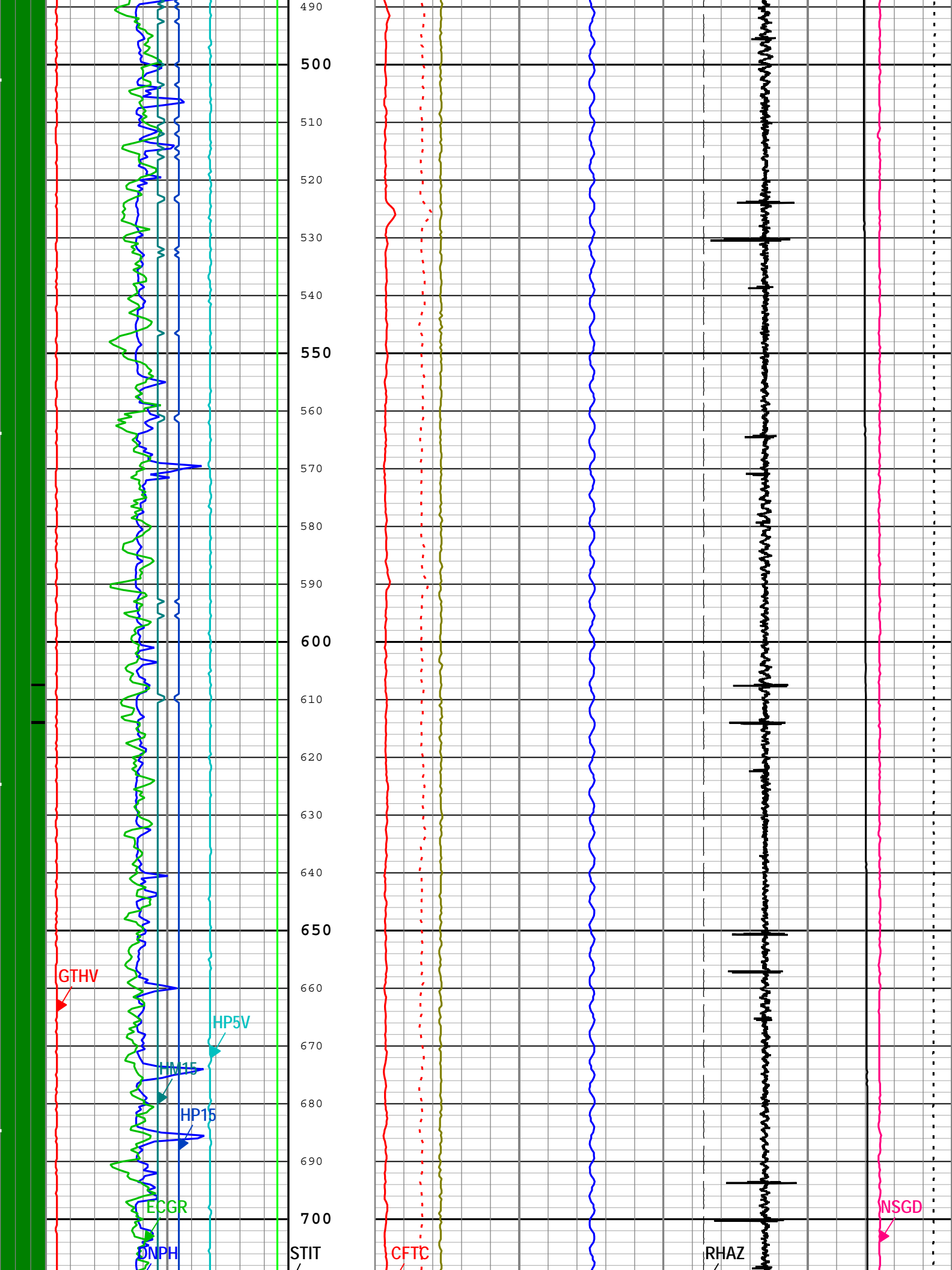
Run 1: Parameters				
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	48	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
HRES	Horizontal Resolution	USIT-E	10 deg	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h
TMUC	Type of Mud	USIT-E	BRI	
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
USFR	Ultrasonic Sampling Frequency	USIT-E	500000	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 3.0 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	6900	ft
VRES	Vertical Resolution	USIT-E	3.0 in	
WINB	Window Begin Time	USIT-E	Time Zoned	us
WINE	Window End Time	USIT-E	86.79	us

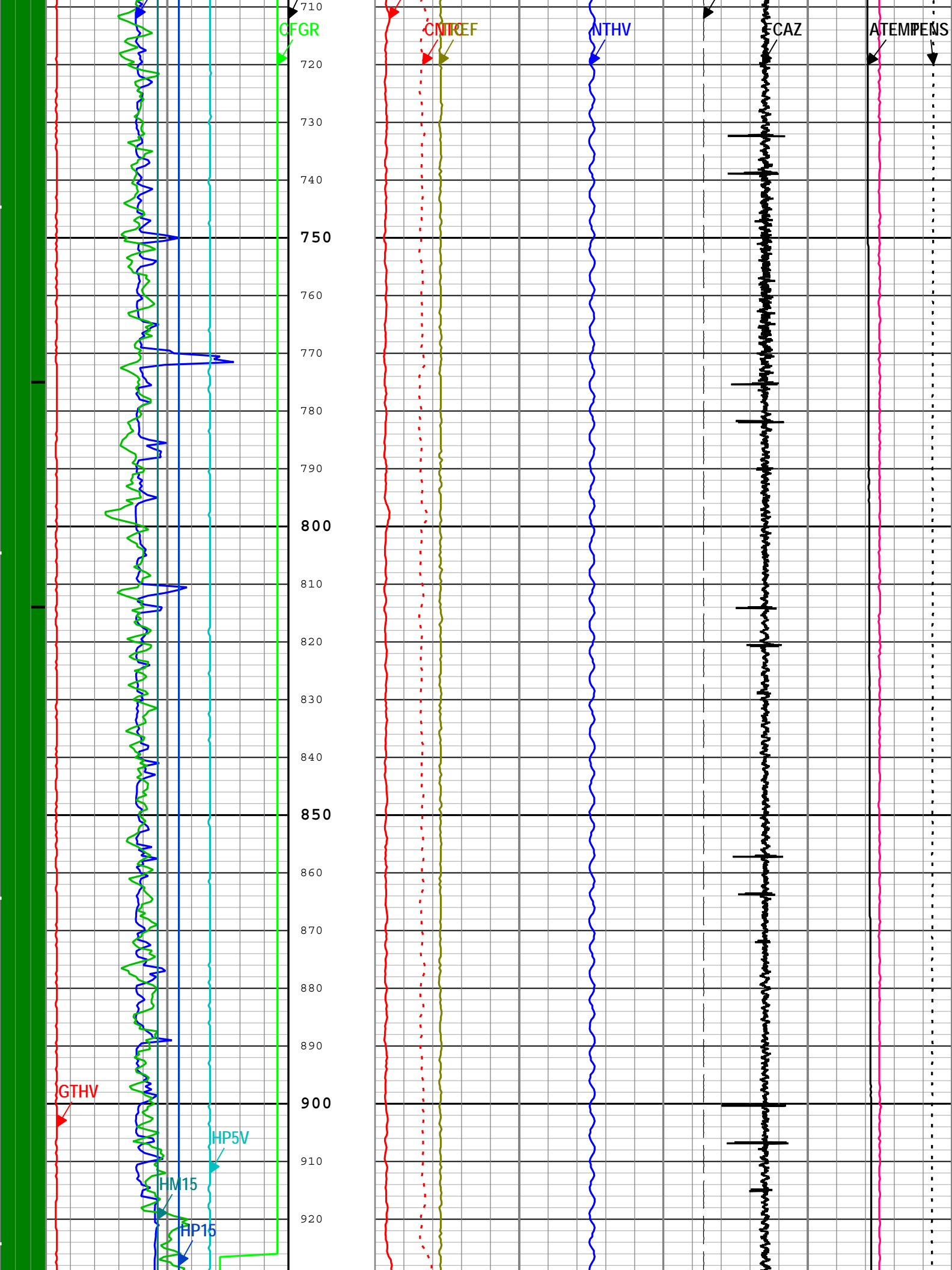
Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	72	01-May-2015 09:39:06	01-May-2015 10:08:05	6905.72	5680.99
EMXV	70	01-May-2015 10:08:05	01-May-2015 10:11:20	5680.99	5488.16
EMXV	65	01-May-2015 10:11:20	01-May-2015 10:25:53	5488.16	4616.92
EMXV	62	01-May-2015 10:25:53	01-May-2015 10:41:00	4616.92	3705.14
EMXV	61	01-May-2015 10:41:00	01-May-2015 11:42:09	3705.14	65.21
WINB	28	01-May-2015 09:39:06	01-May-2015 09:53:50	6905.72	6525.08
WINB	26.2	01-May-2015 09:53:50	01-May-2015 09:53:52	6525.08	6522.72

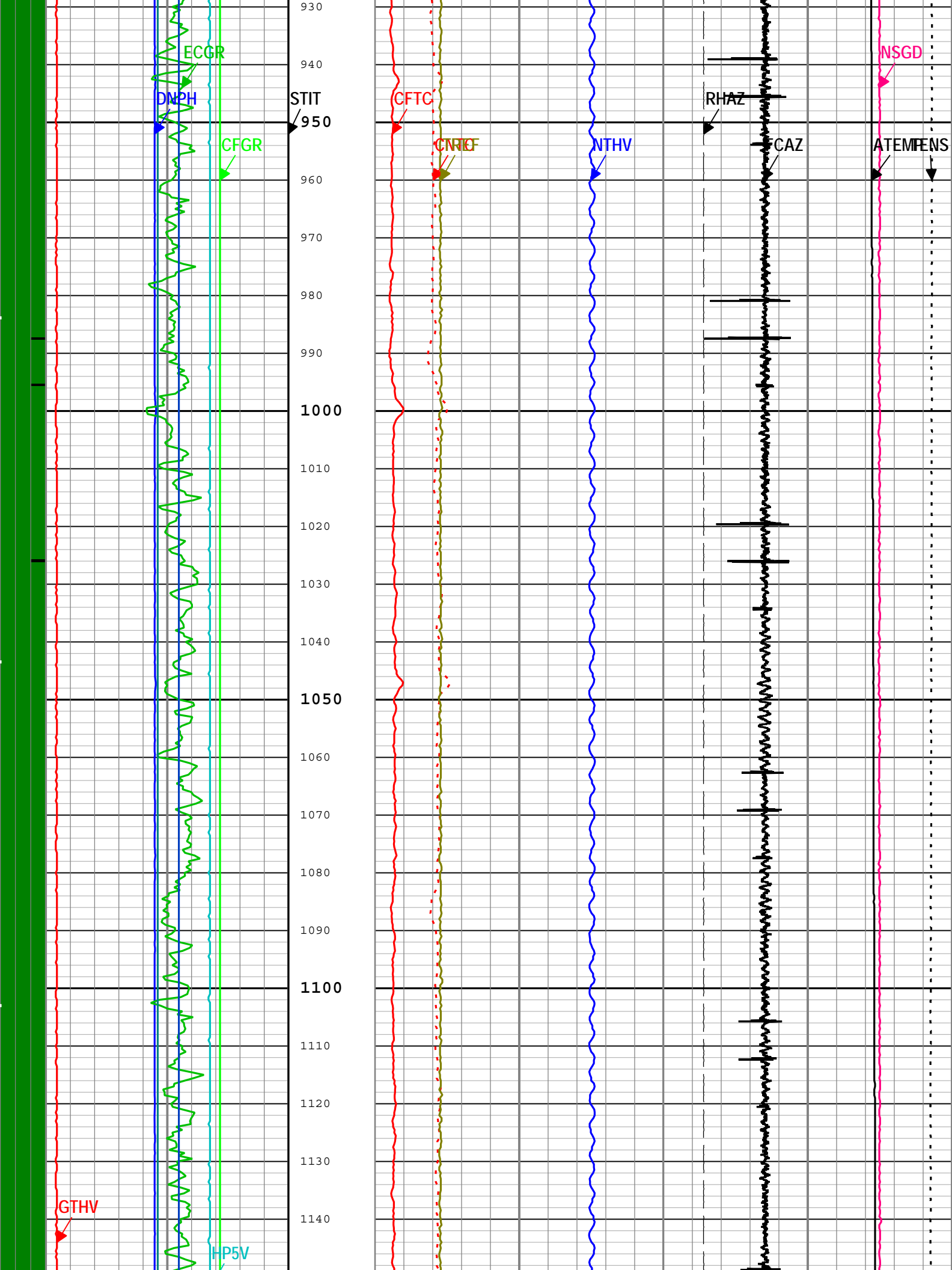
WINB	23.2	01-May-2015 09:53:52	01-May-2015 11:42:09	6522.72	65.21				
All depth are at tool zero.									
Run 1									
Software Version									
Acquisition System				Version					
Maxwell				5.2.40990.3100					
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run 1	Main[3]:Up	Up	65.21 ft	6905.73 ft	01-May-2015 9:39:06 AM	01-May-2015 11:42:09 AM	ON	5.49 ft	Yes
All depths are referenced to toolstring zero									
Log		Company:Noble Energy Inc				Well:Colt A13-655			
						Run 1: Main[3]:Up:S005			
Description: HGNS LQC for Platform Express						Format: Log (Import of PEX LQC HGNS)			
Index Scale: 5 in per 100 ft						Index Unit: ft			
Index Type: Measured									
Depth						Creation Date: 01-May-2015 15:02:37			
Hardware Flag Image (HHQFI)									
1 - HGNS H/W Flag - :		<div></div> HGNS hardware valid	<div></div> HGNS hardware error						
2 - Porosity Flag - :		<div></div> Porosity valid	<div></div> Porosity error						
3 - Accelerometer Flag - :		<div></div> Accelerometer valid	<div></div> Accelerometer error						
TIME_1900 - Time Marked every 60.00 (s)									
<div>Gamma Ray Correction Coefficient (CFGR) HGNS-H</div> <div>0.51.5</div>									
<div>Difference between Corrected Thermal Neutron Porosity and Uncorrected (DNPH) HGNS-H</div> <div>-0.1m3/m30.1</div>									
<div>Gamma Ray (ECGR) HGNS-H</div> <div>0gAPI150</div>									
<div>Sonde Deviation (GDEV) HGNS-H</div> <div>-10deg90</div>									
<div>+15 V Supply (HP15) HGNS-H</div> <div>14.5V15.5</div>									
<div>-15 V Supply (HM15) HGNS-H</div> <div>-15.5V-14.5</div>									
<div>5V Logic Power Supply (HP5V) HGNS-H</div> <div>4.5V5.5</div>									
<div>Gamma Ray Test High Voltage (GTHV) HGNS-H</div> <div>2000V3000</div>									
<div>Stuck Tool Indicator, Total (STIT)</div> <div>0ft50</div>									
<div>ToolDrag</div> <div>40</div>									
			<div>External ADC Reference (TREF) HGNS-H</div> <div>4.5V5.5</div>			<div>Neutron Test High Voltage (NTHV) HGNS-H</div> <div>1000V2000</div>			
			<div>Corrected Near Thermal Count Rate (CNTC) HGNS-H</div> <div>01/s7500</div>			<div>Acceleration Z-Axis (FCAZ) HGNS-H</div> <div>25ft/s235</div>			
			<div>Corrected Far Thermal Count Rate (CFTC) HGNS-H</div> <div>01/s7500</div>			<div>Accelerometer Temperature (ATEMP) HGNS-H</div> <div>20degF220</div>			
						<div>Raw Acceleration Voltage (RHAZ) HGNS-H</div> <div>-10V10</div>			
						<div>External ADC Ground (NSGD) HGNS-H</div> <div>-0.5V0.5</div>			
						<div>Cable Tension (TENS)</div> <div>10000lbf0</div>			
<div>Hardw are Flag Image (HHQ FI)</div> <div>13</div>									

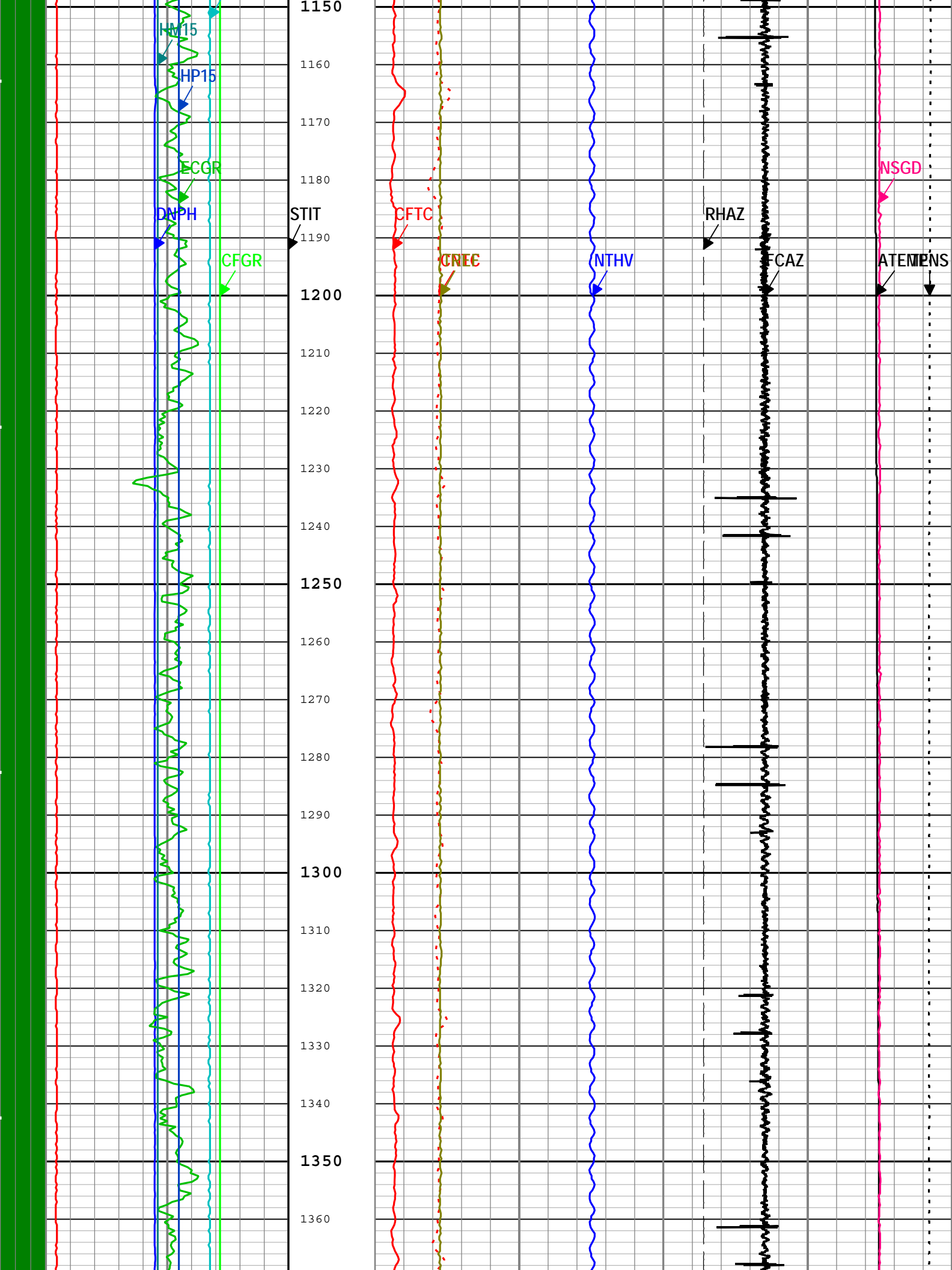


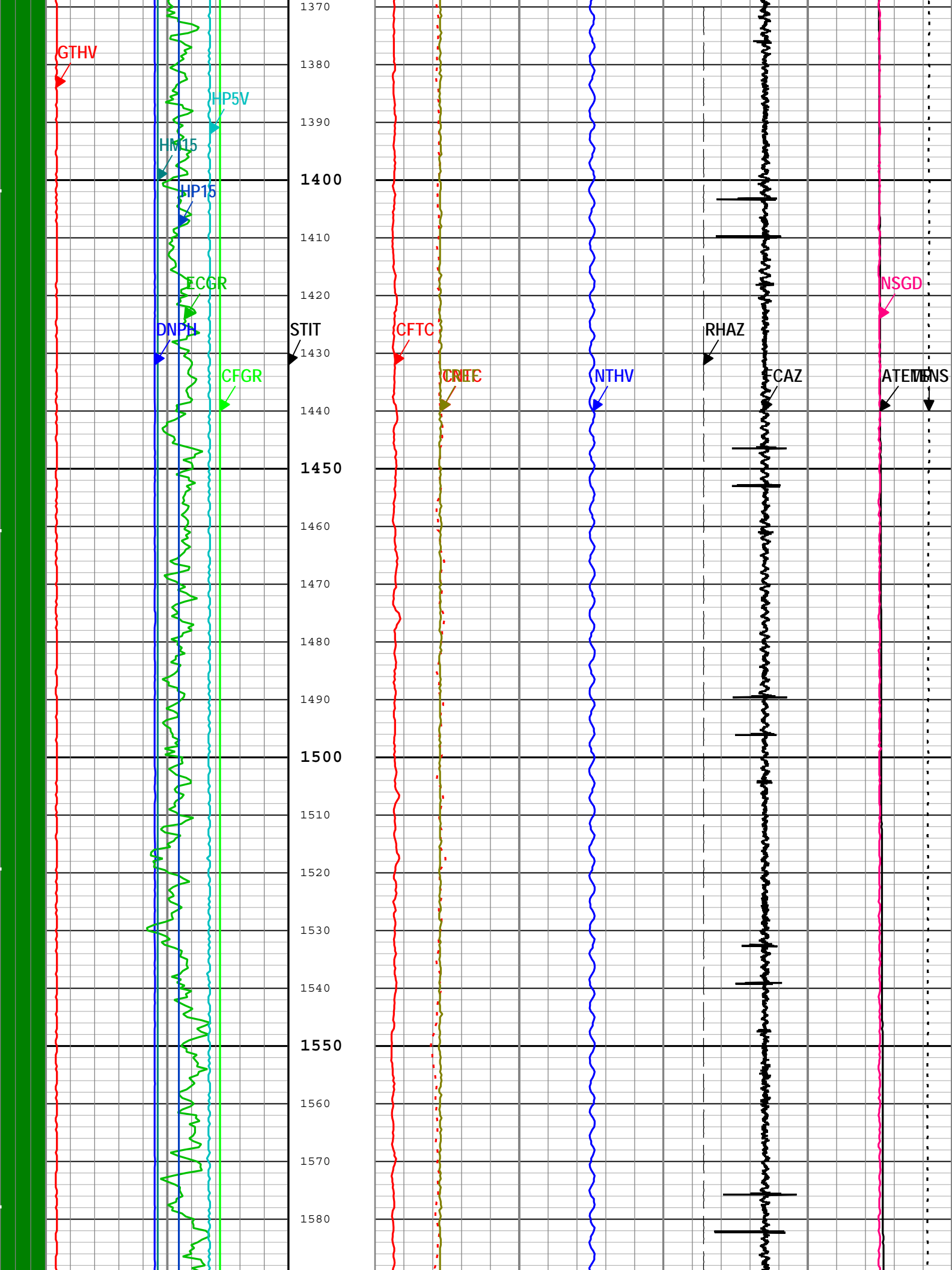


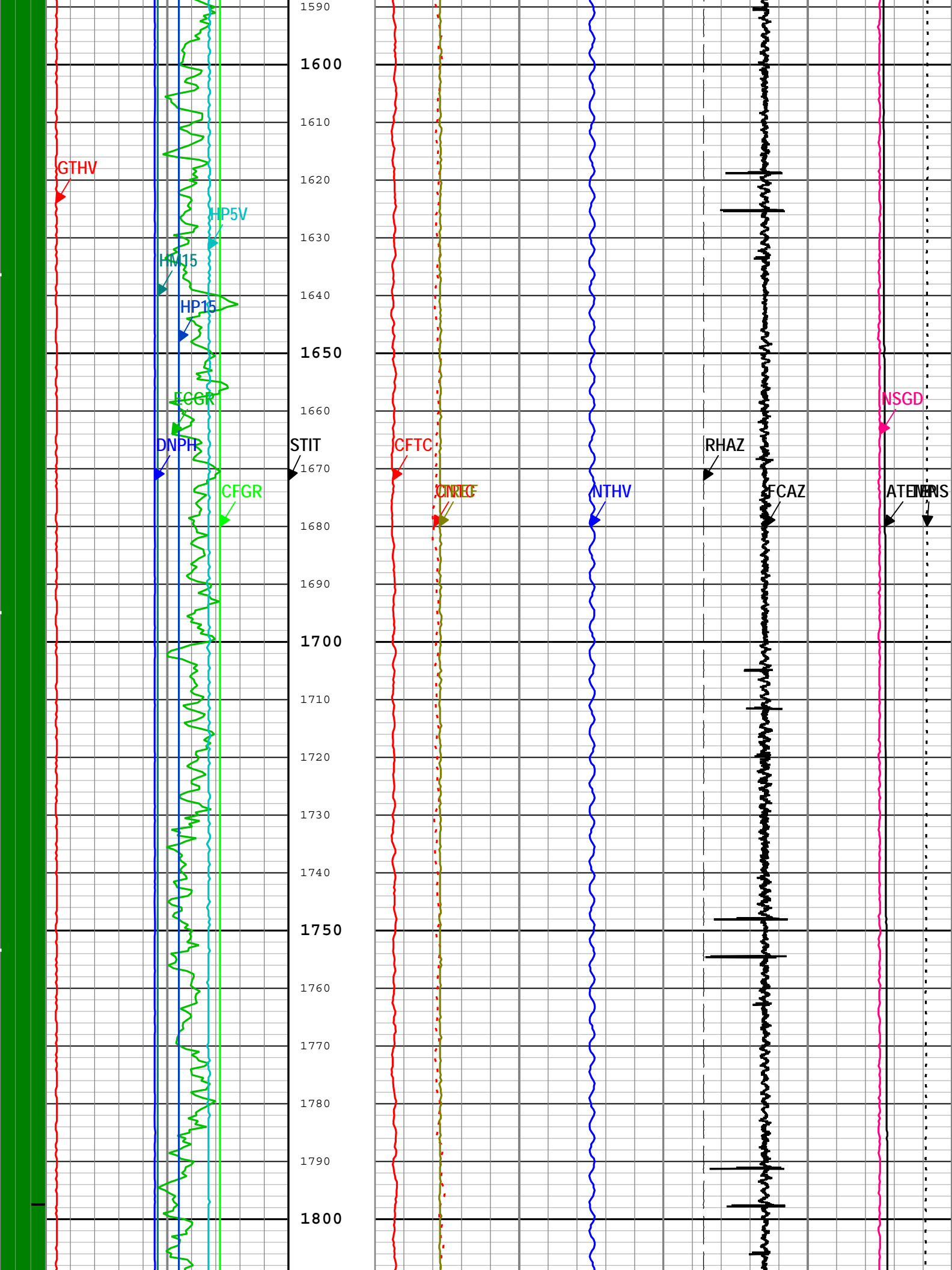


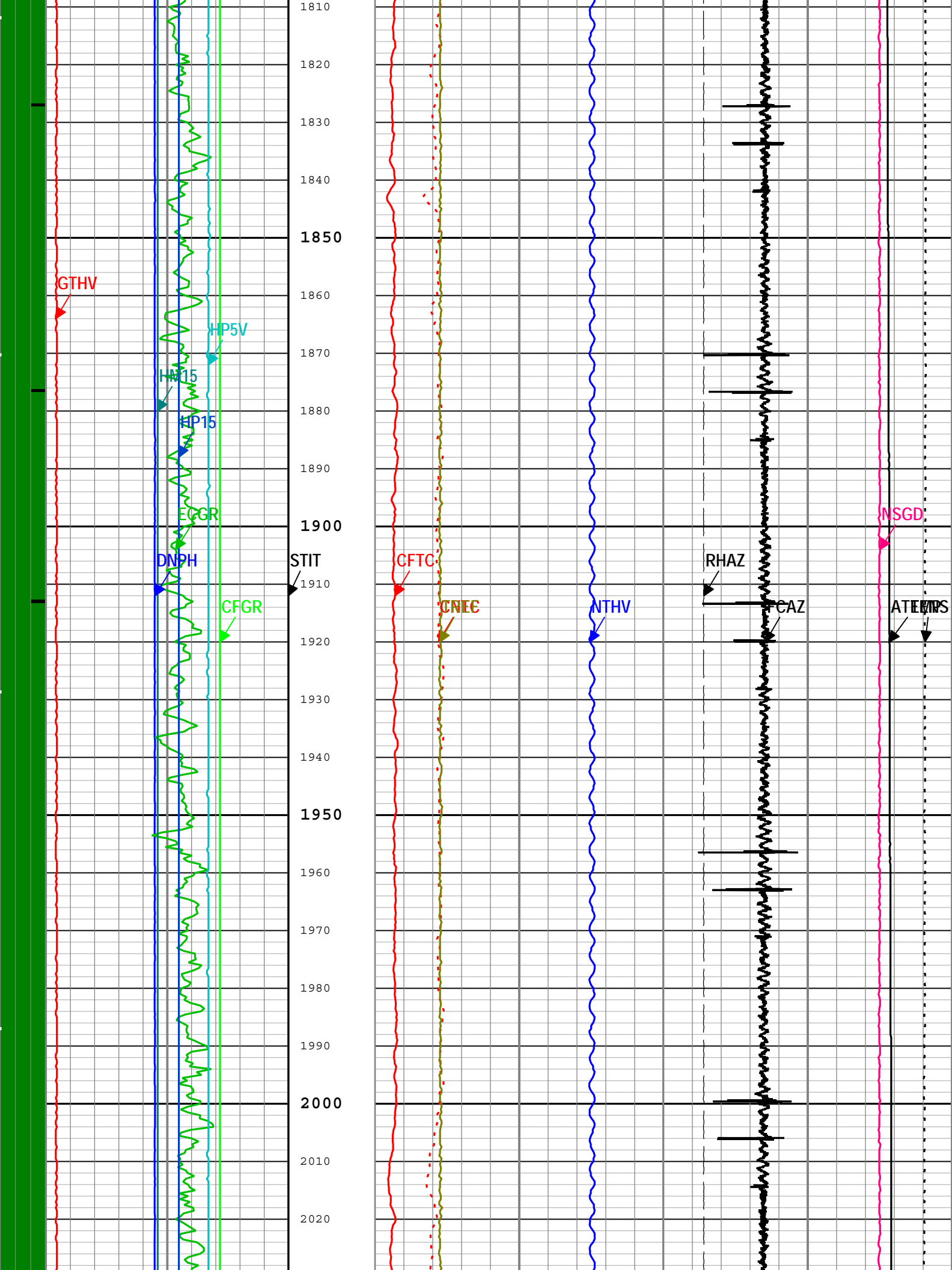


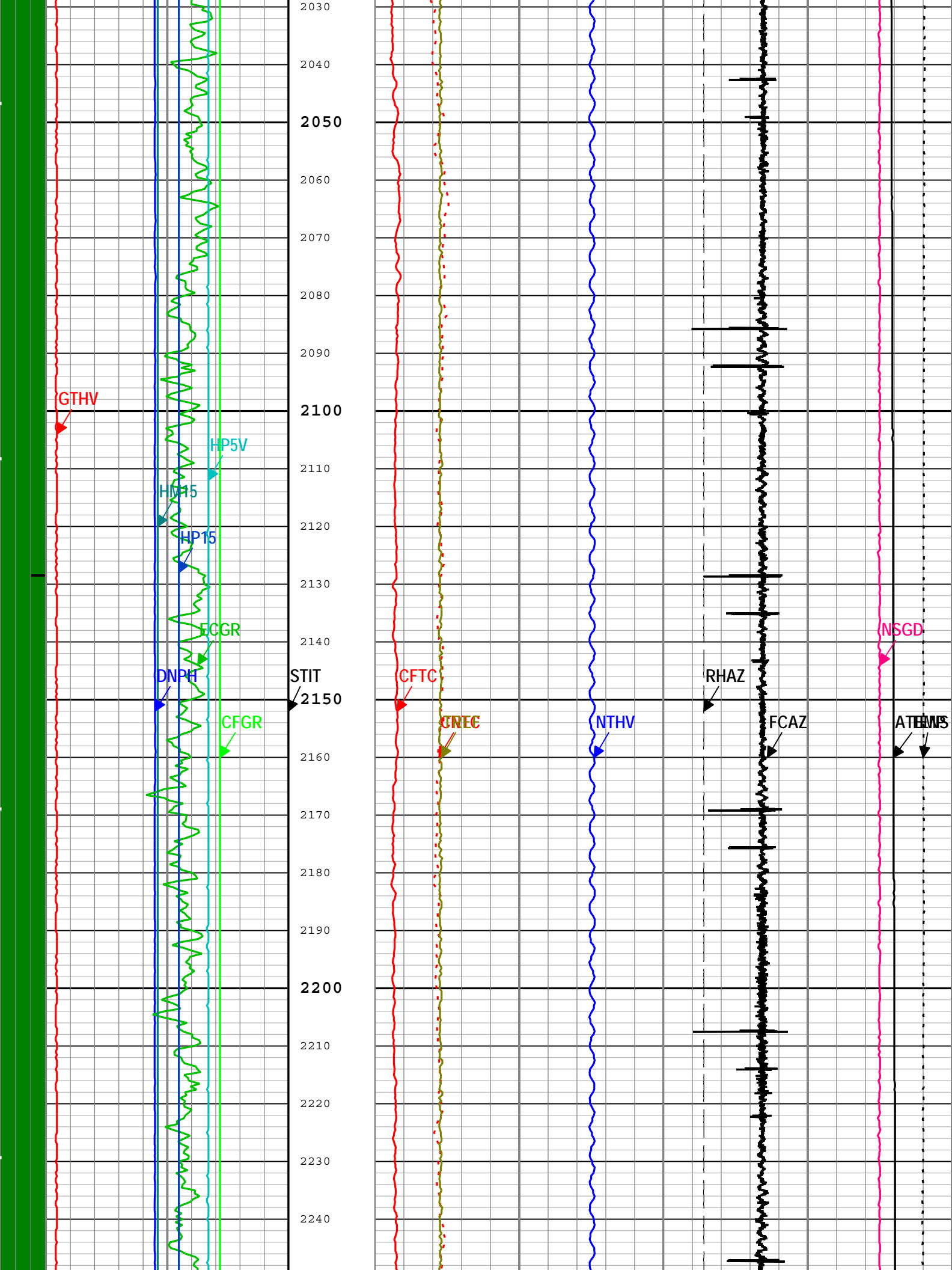


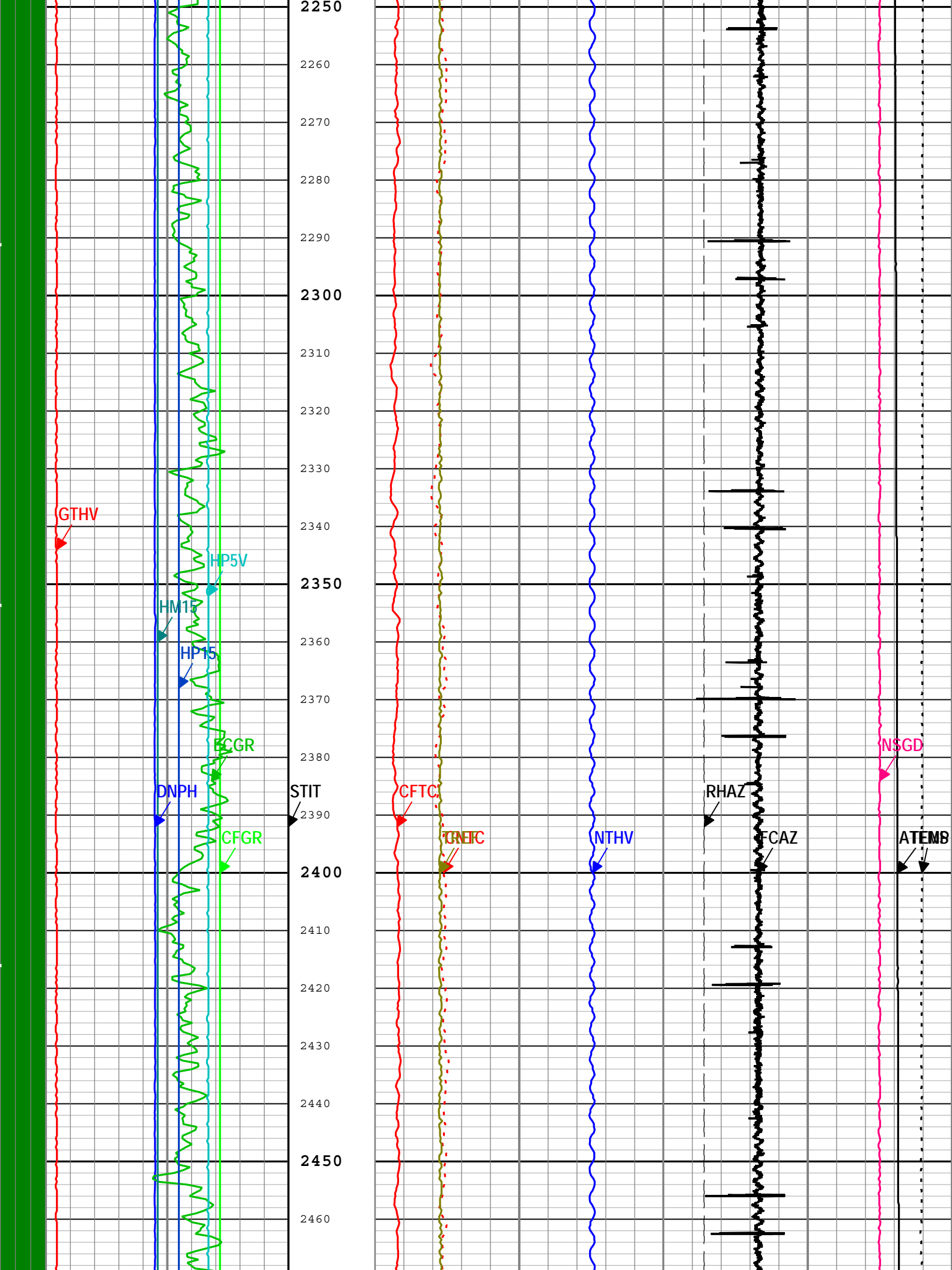


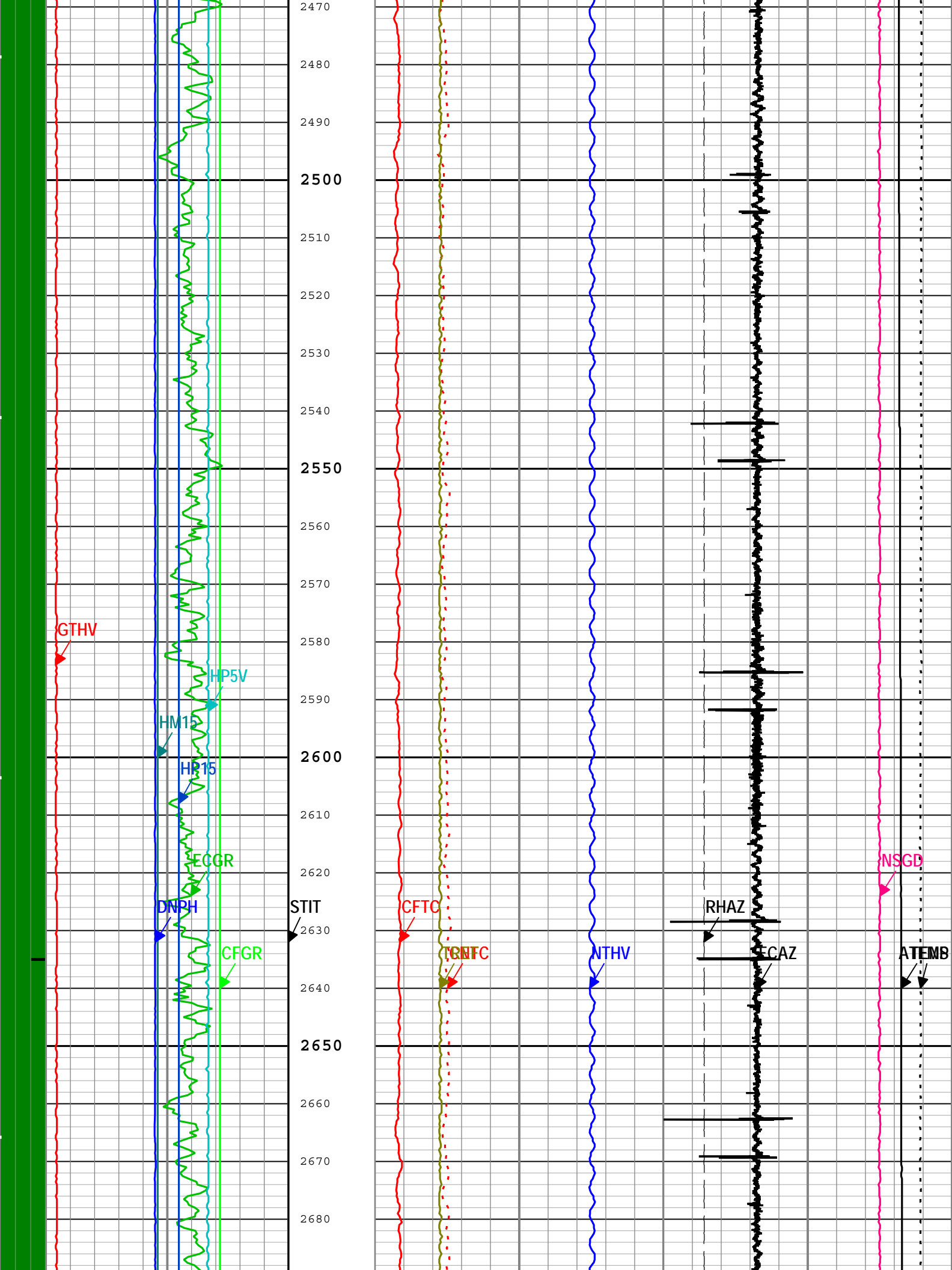


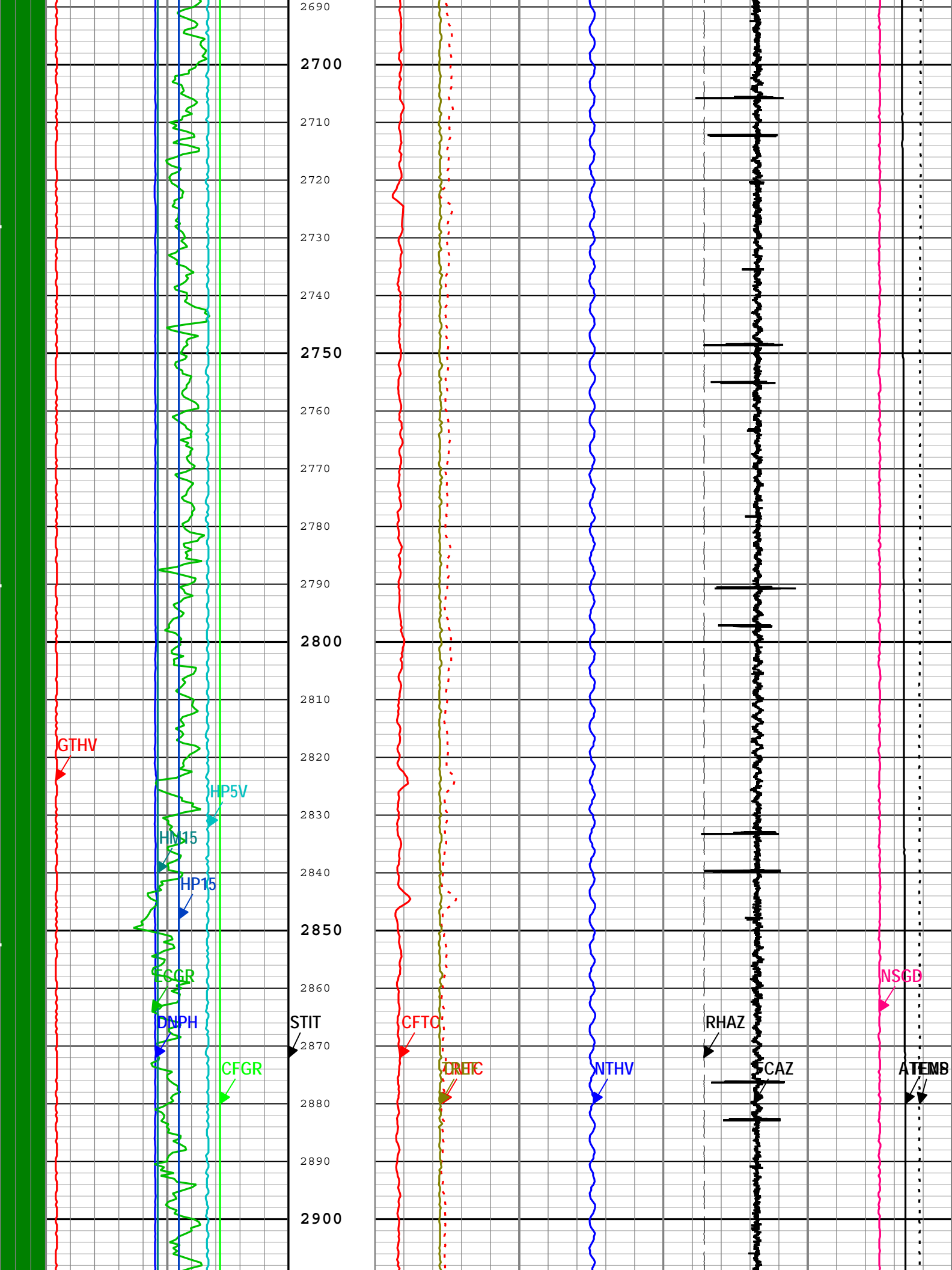


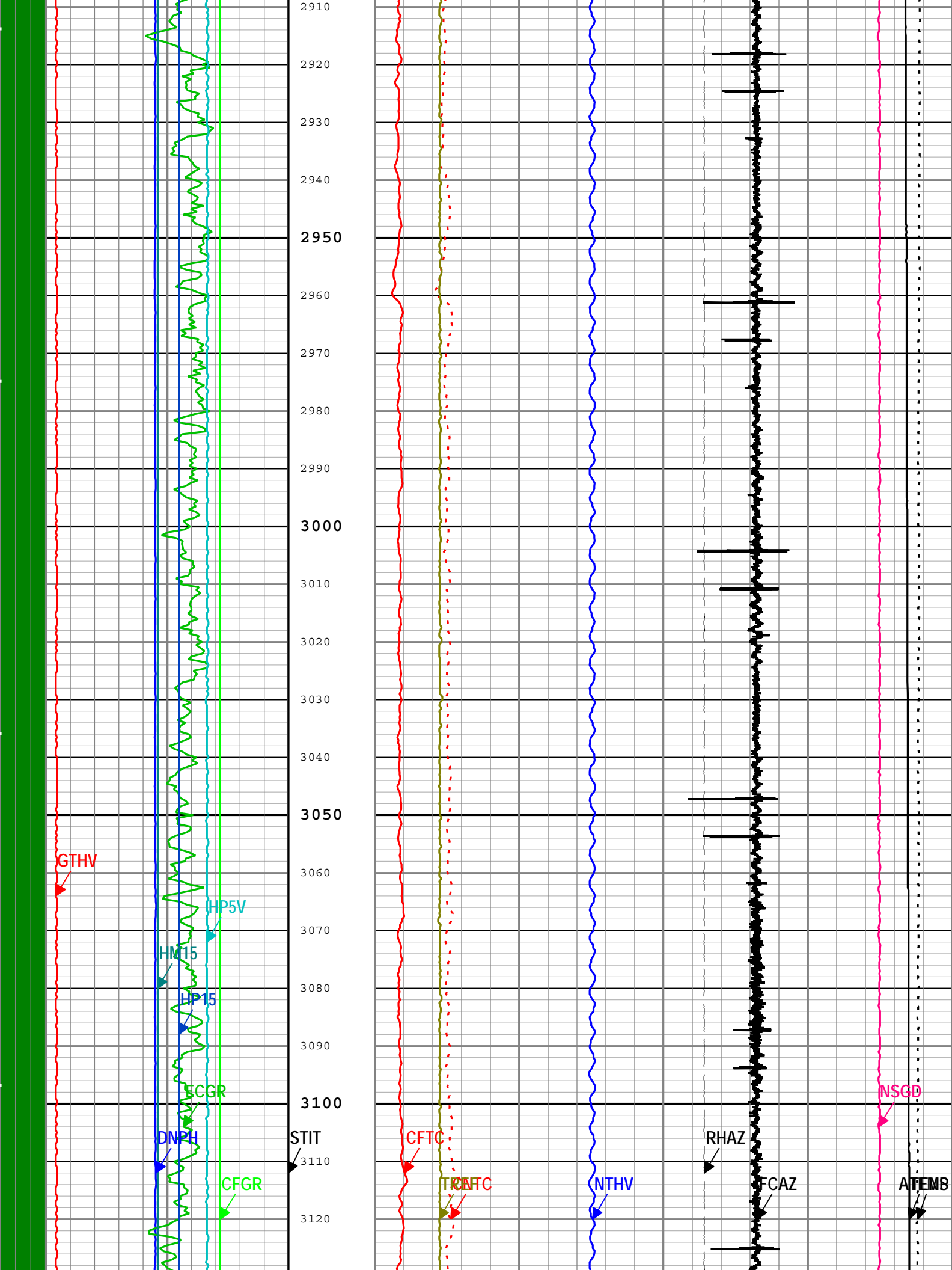


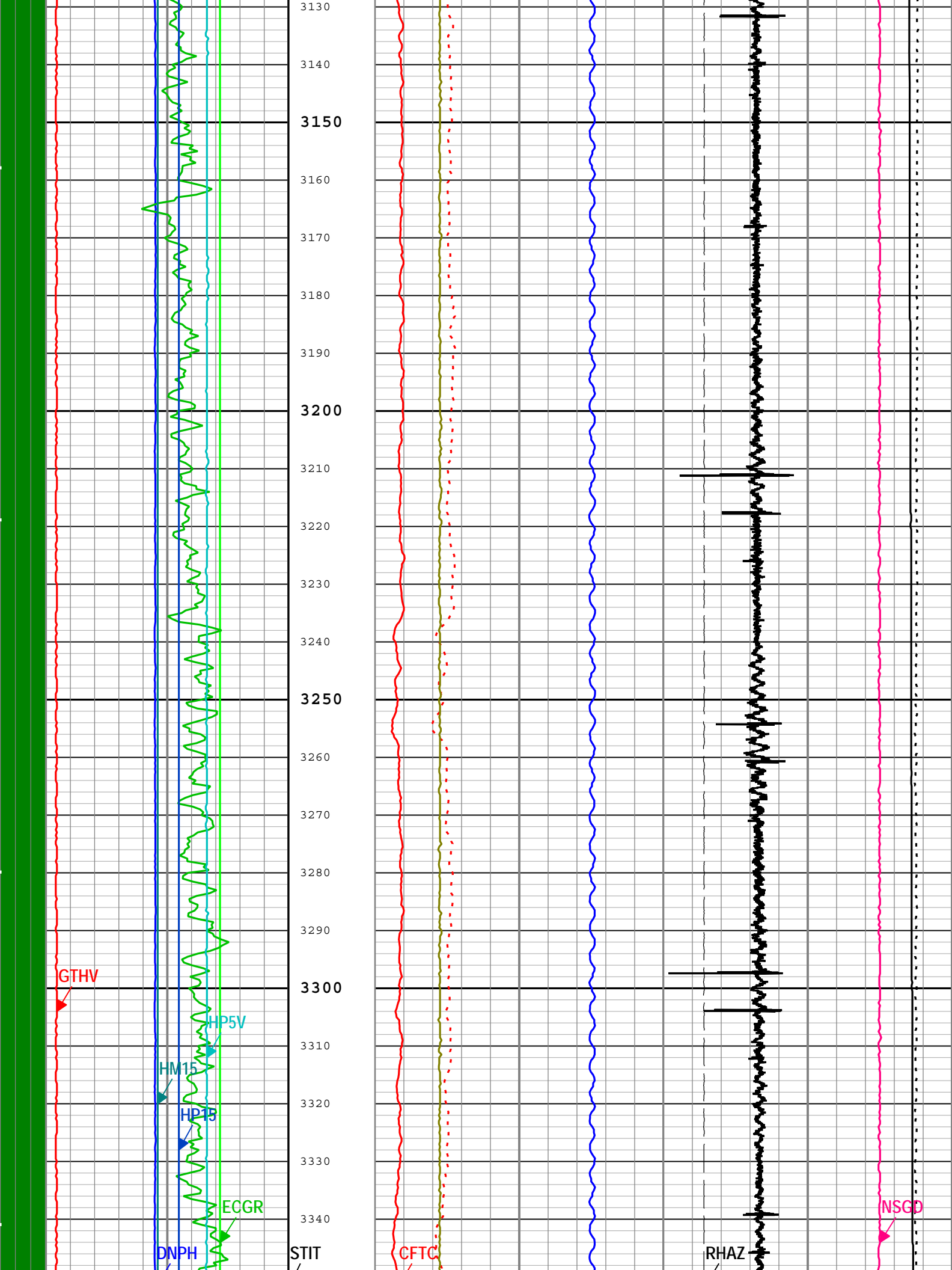


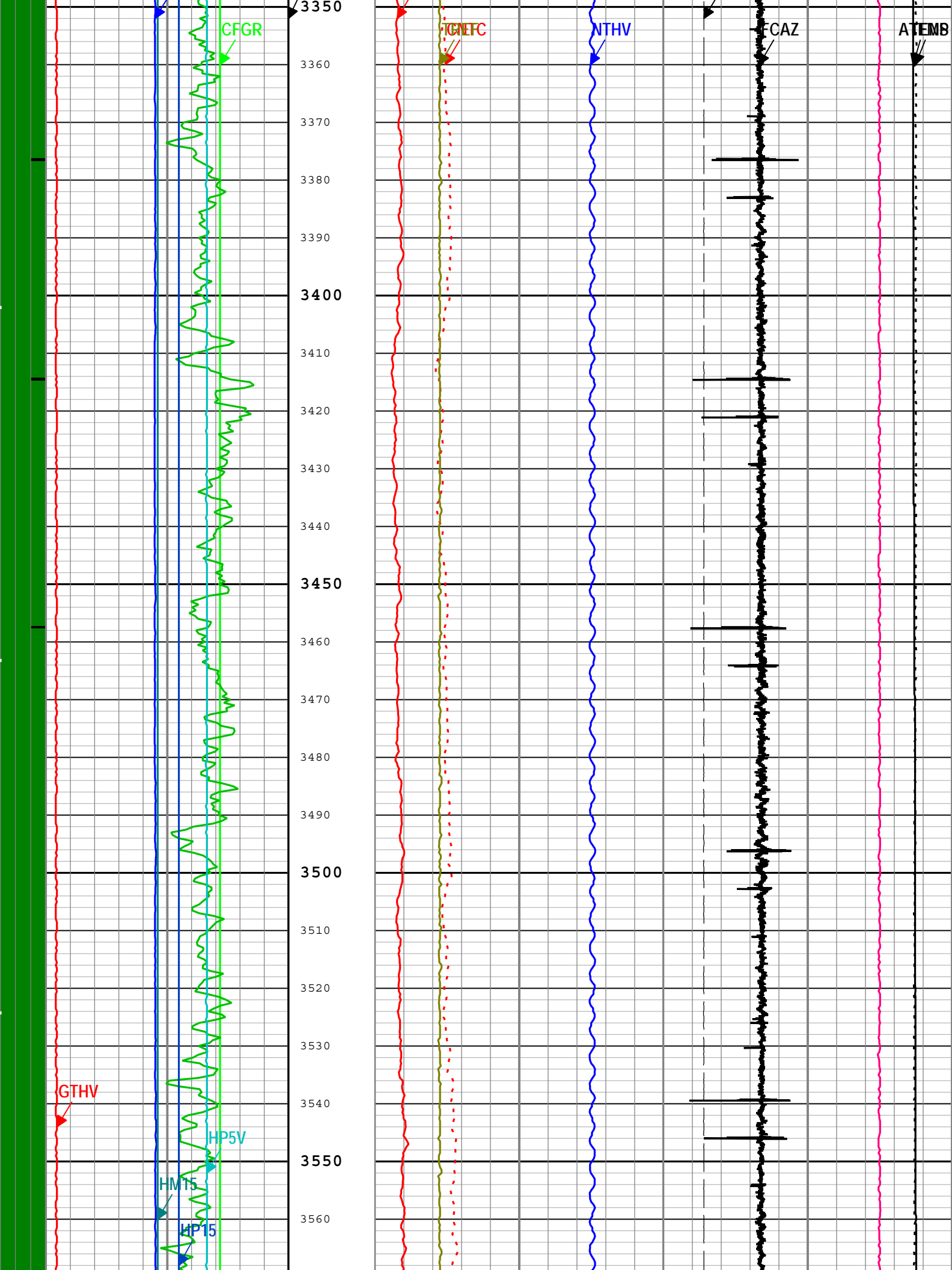


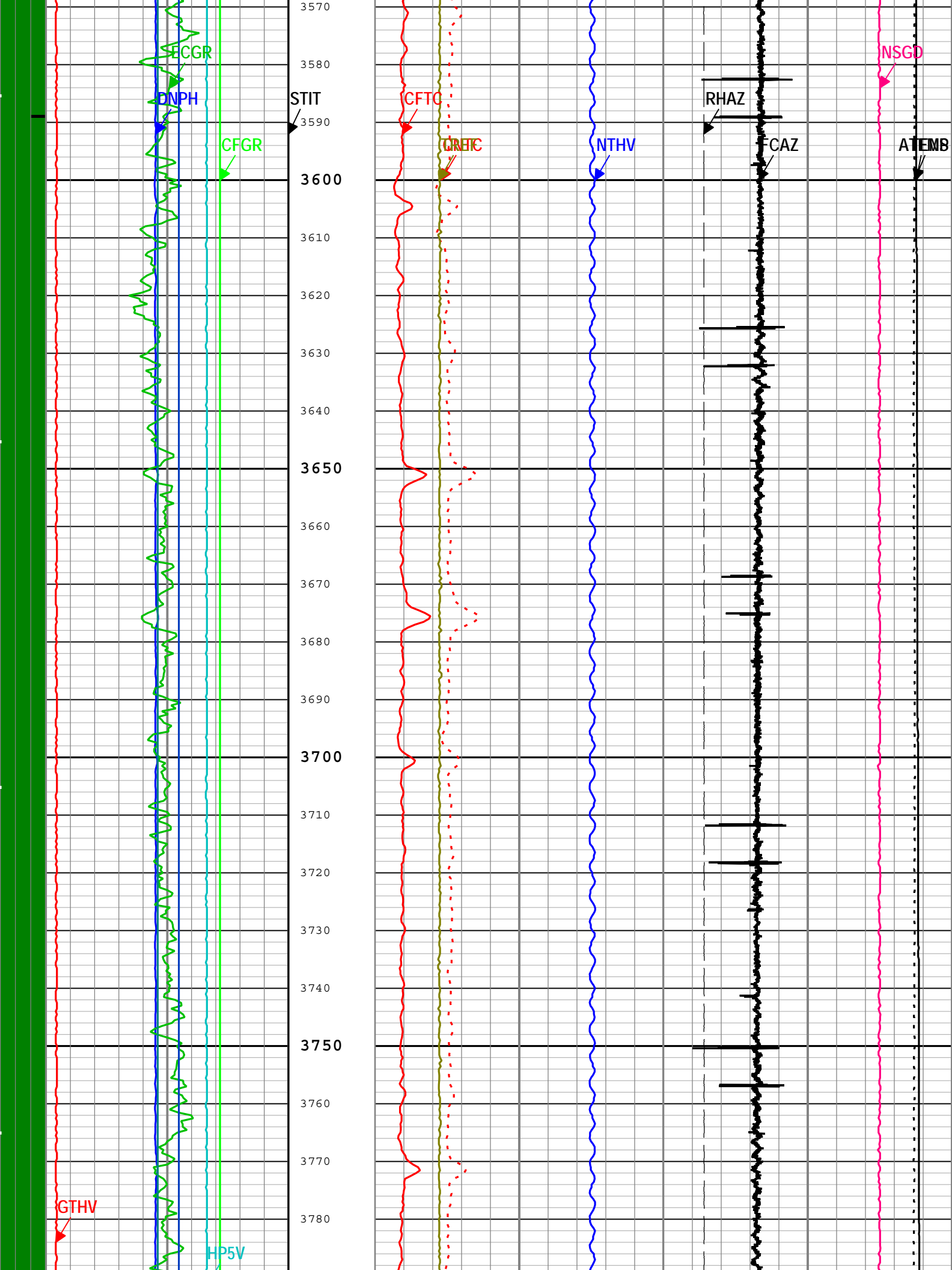


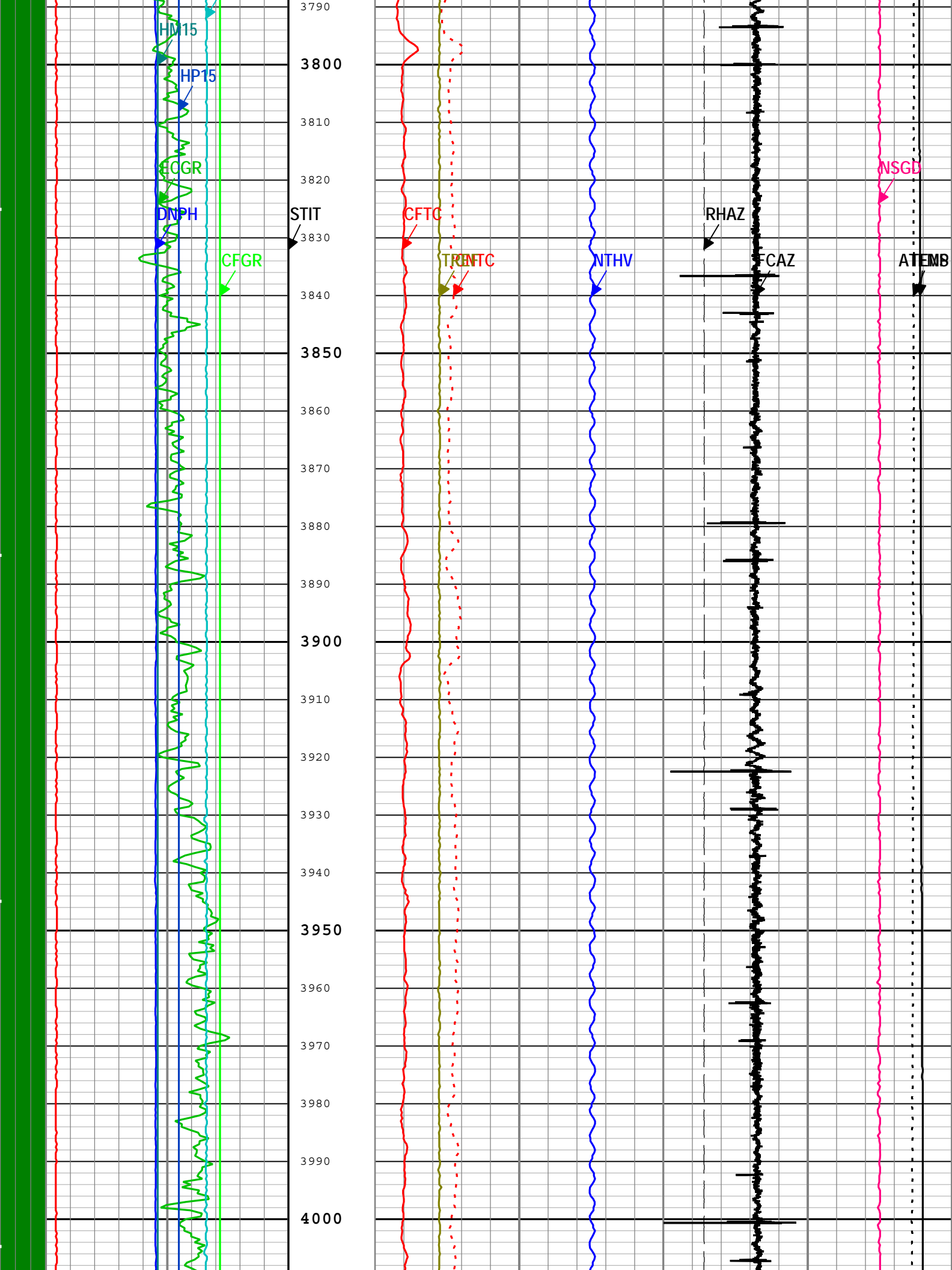


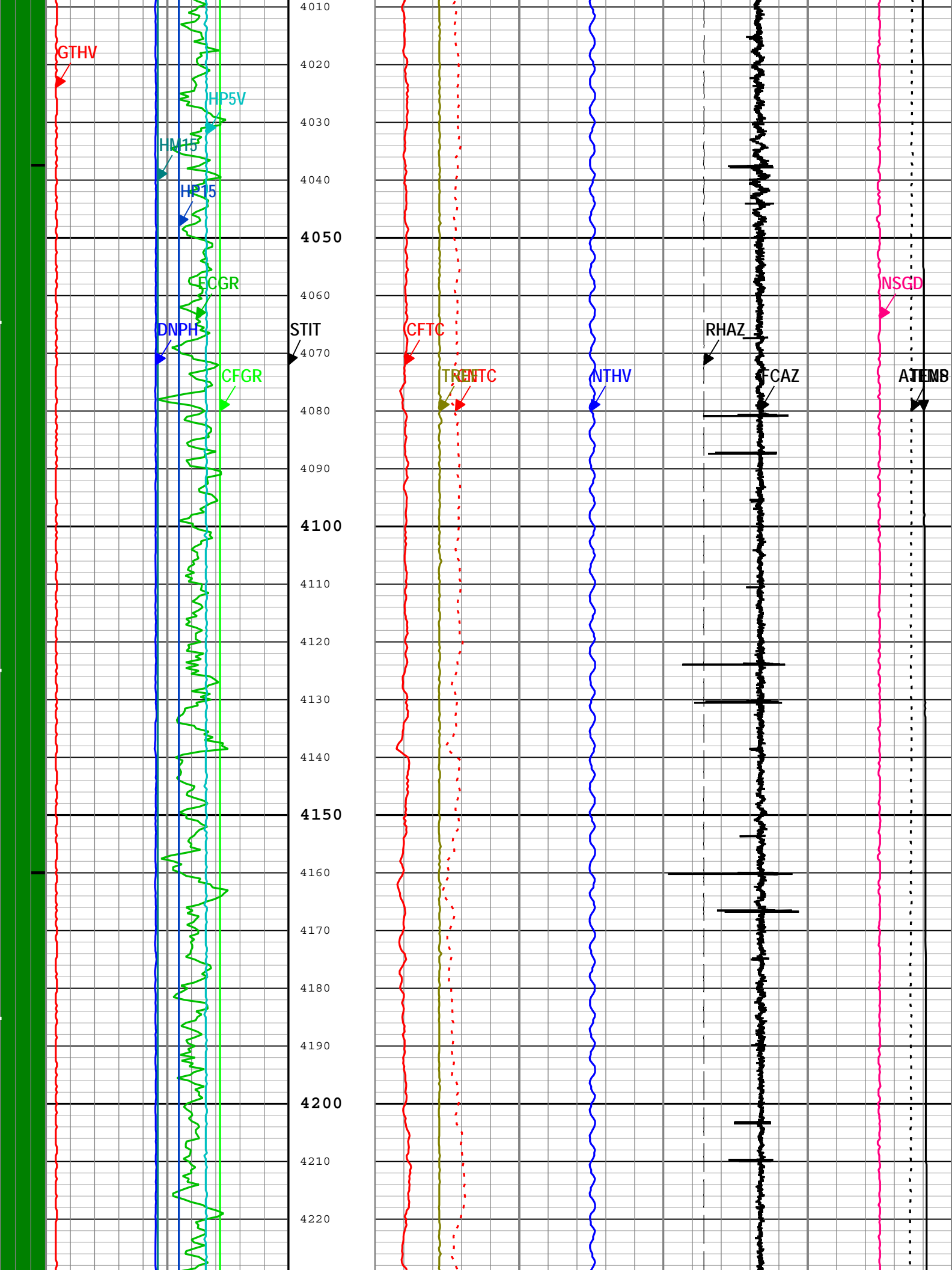


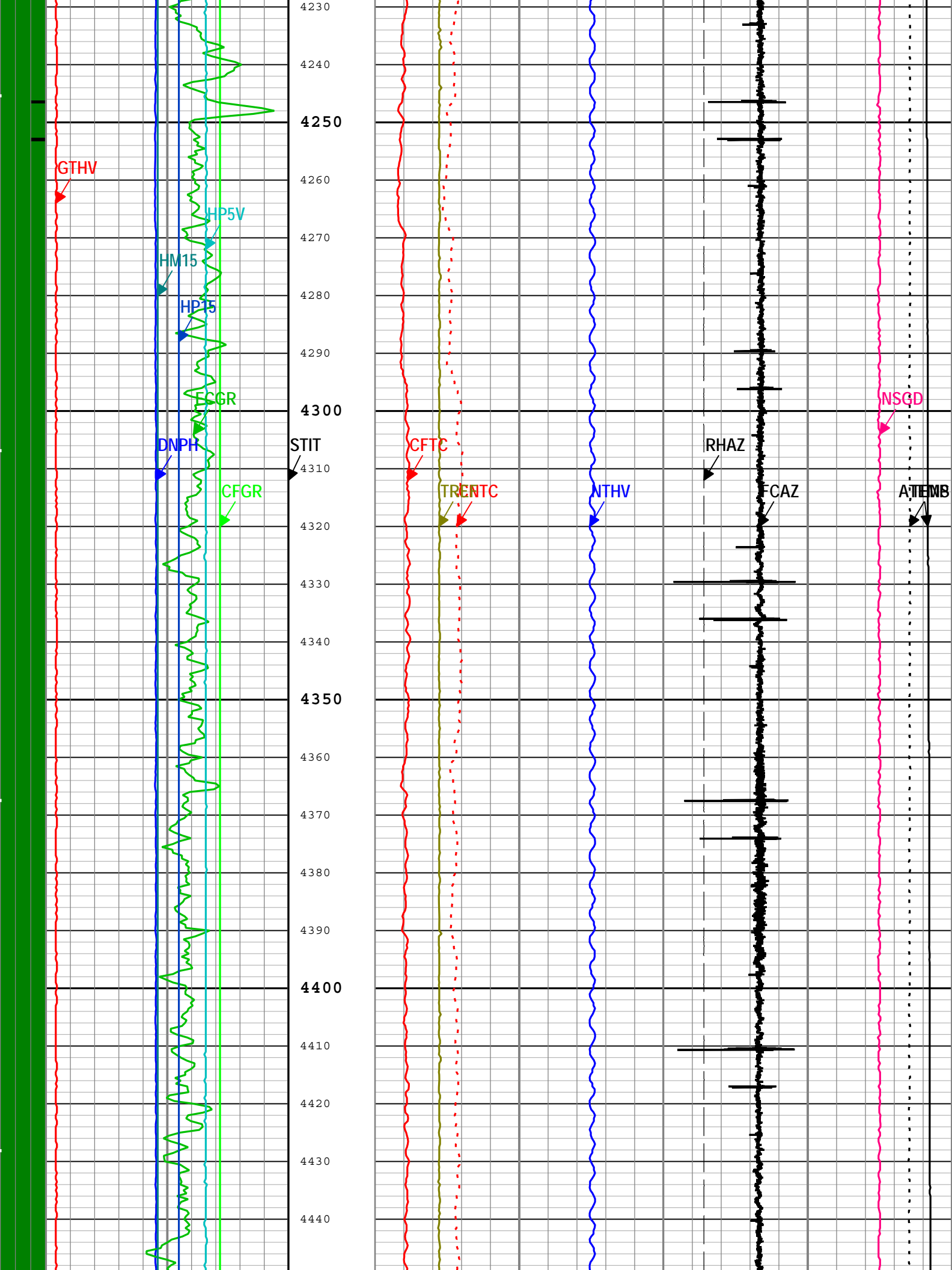


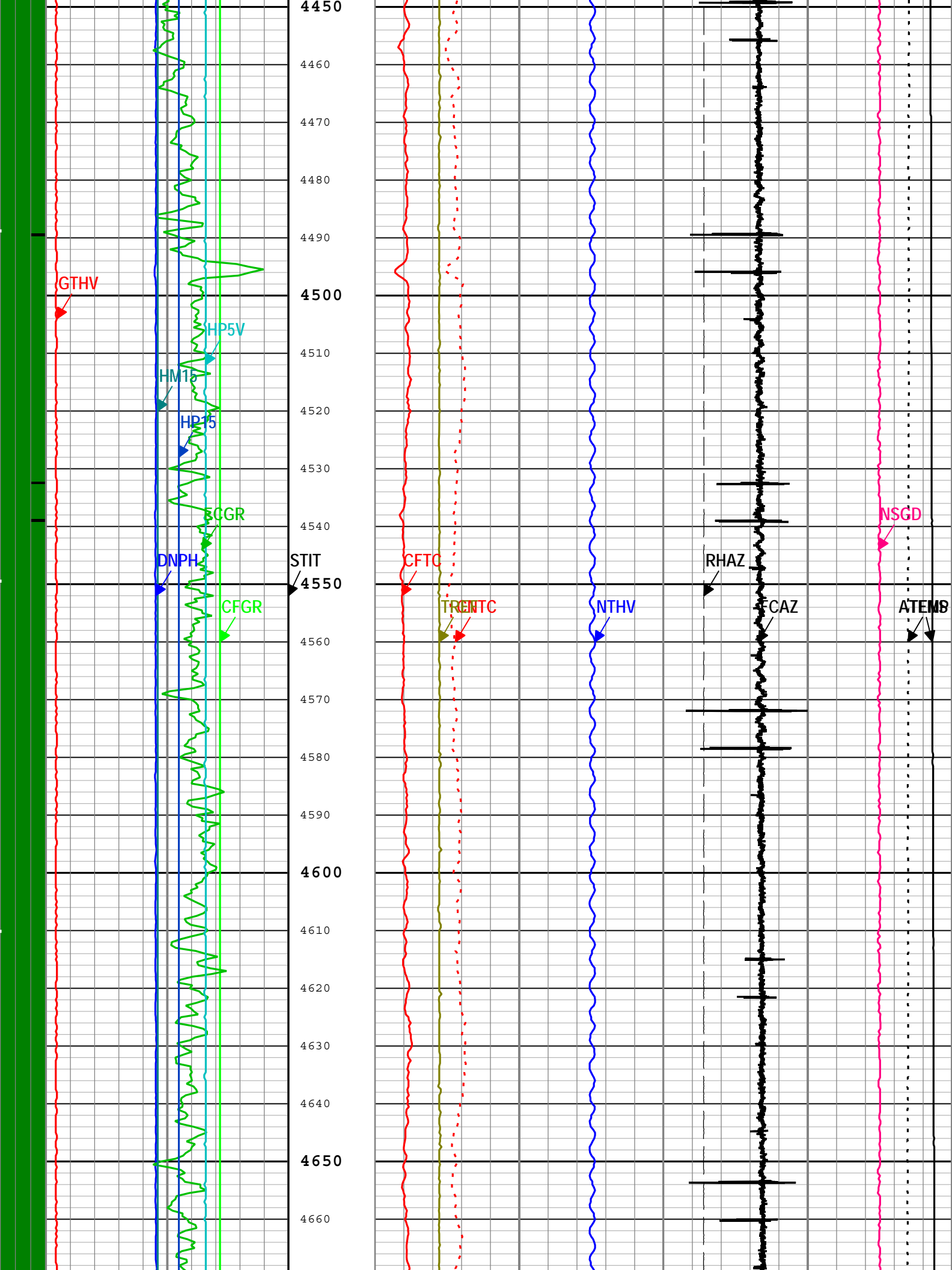


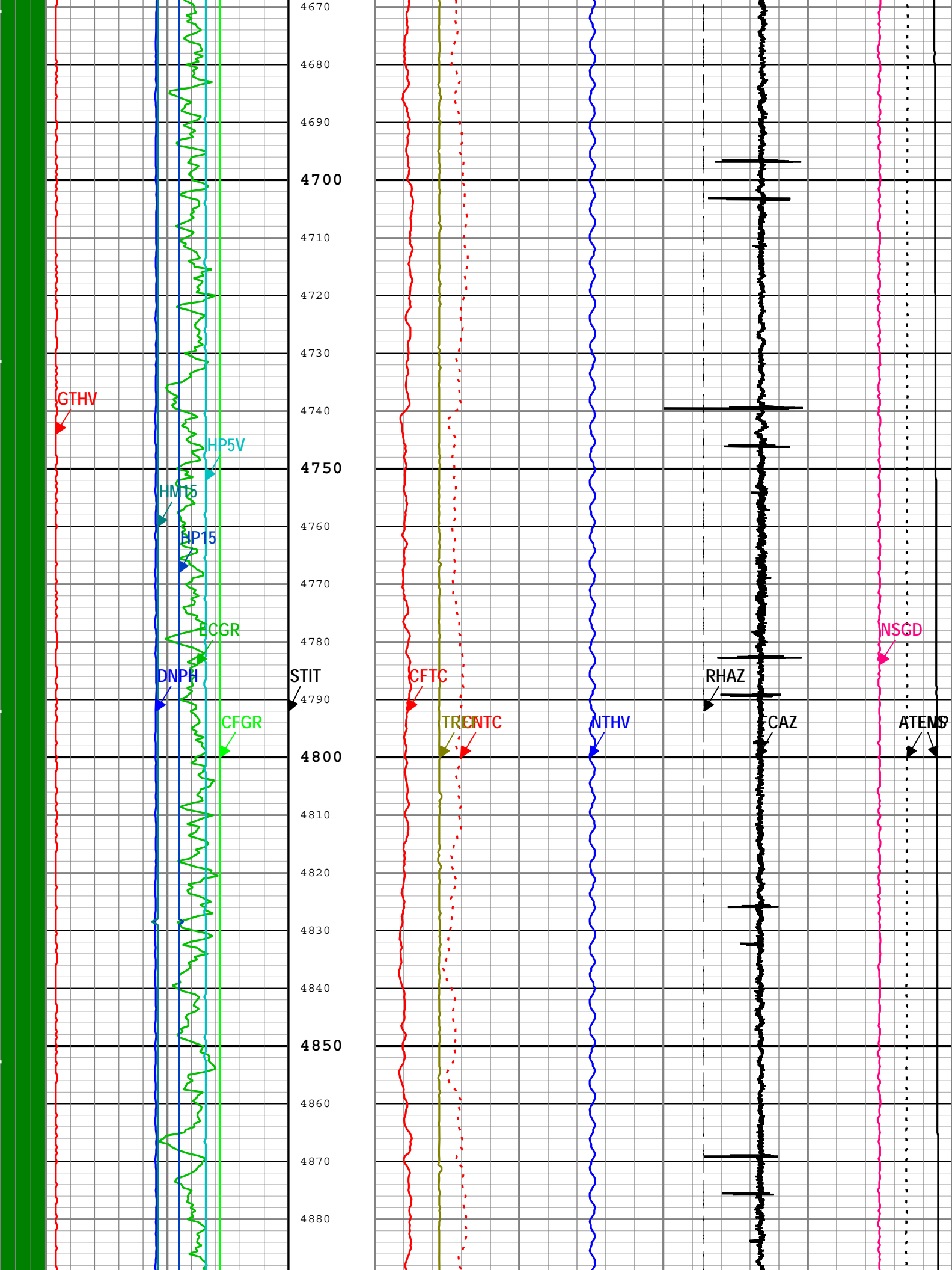


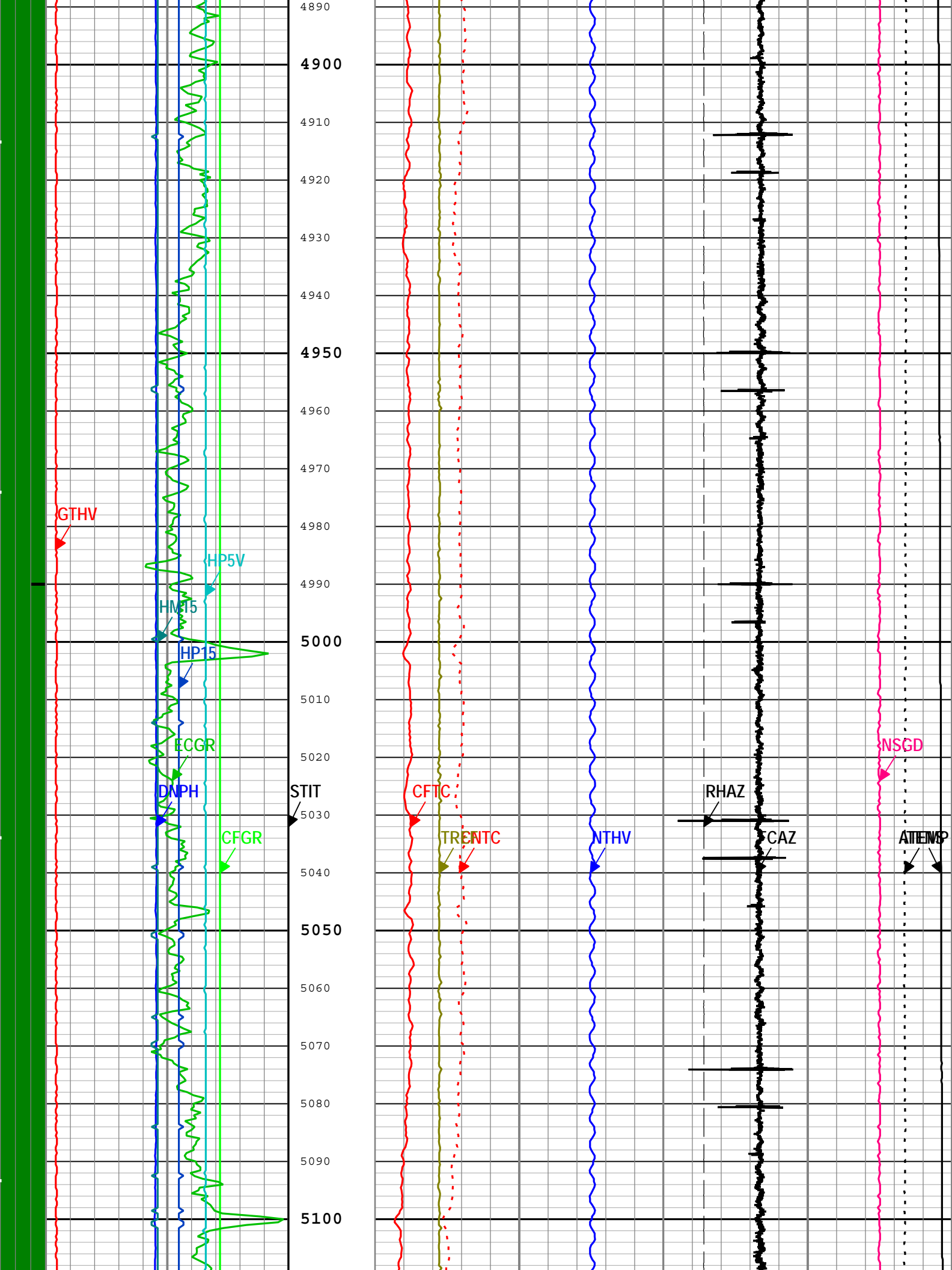


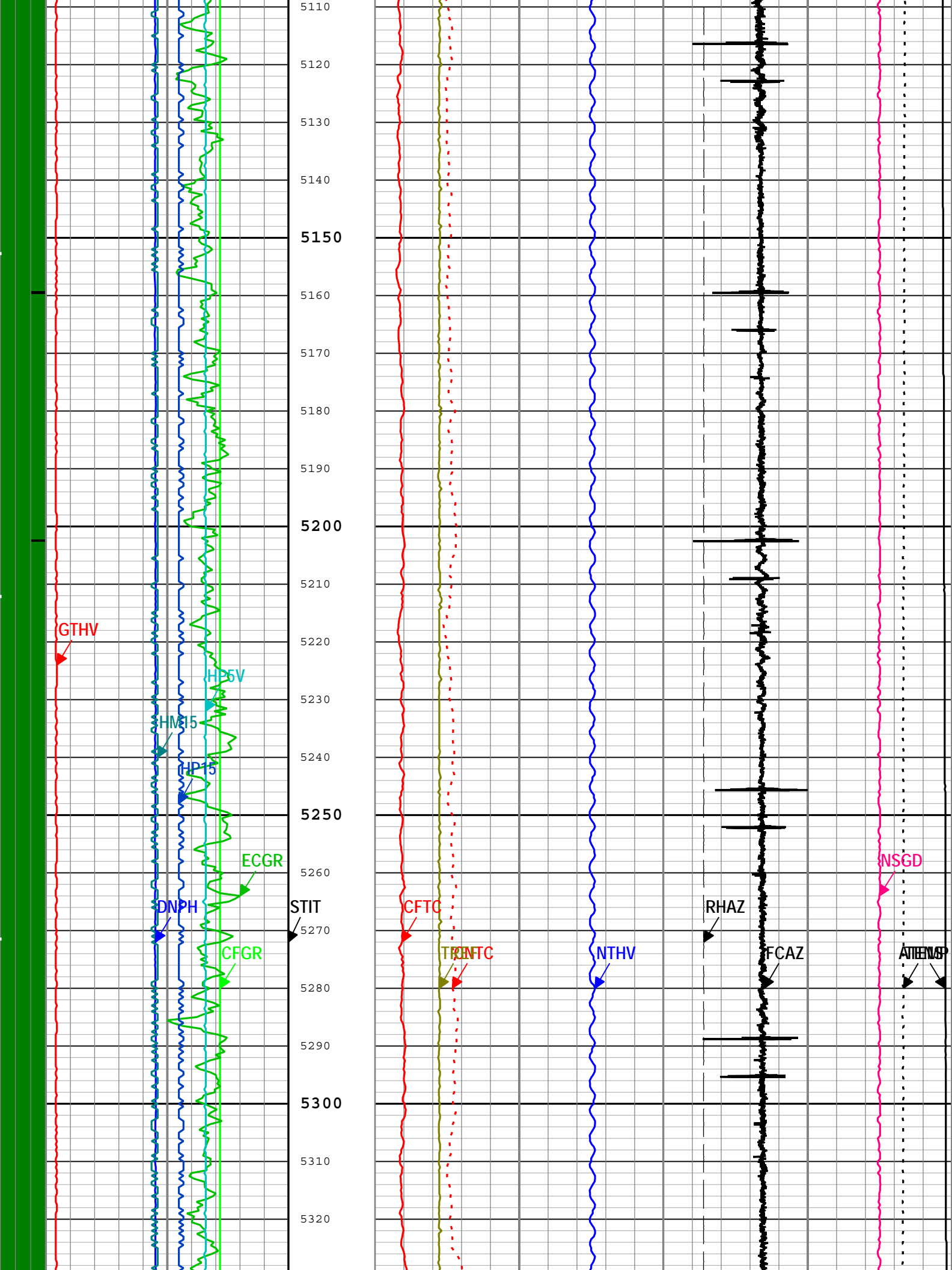


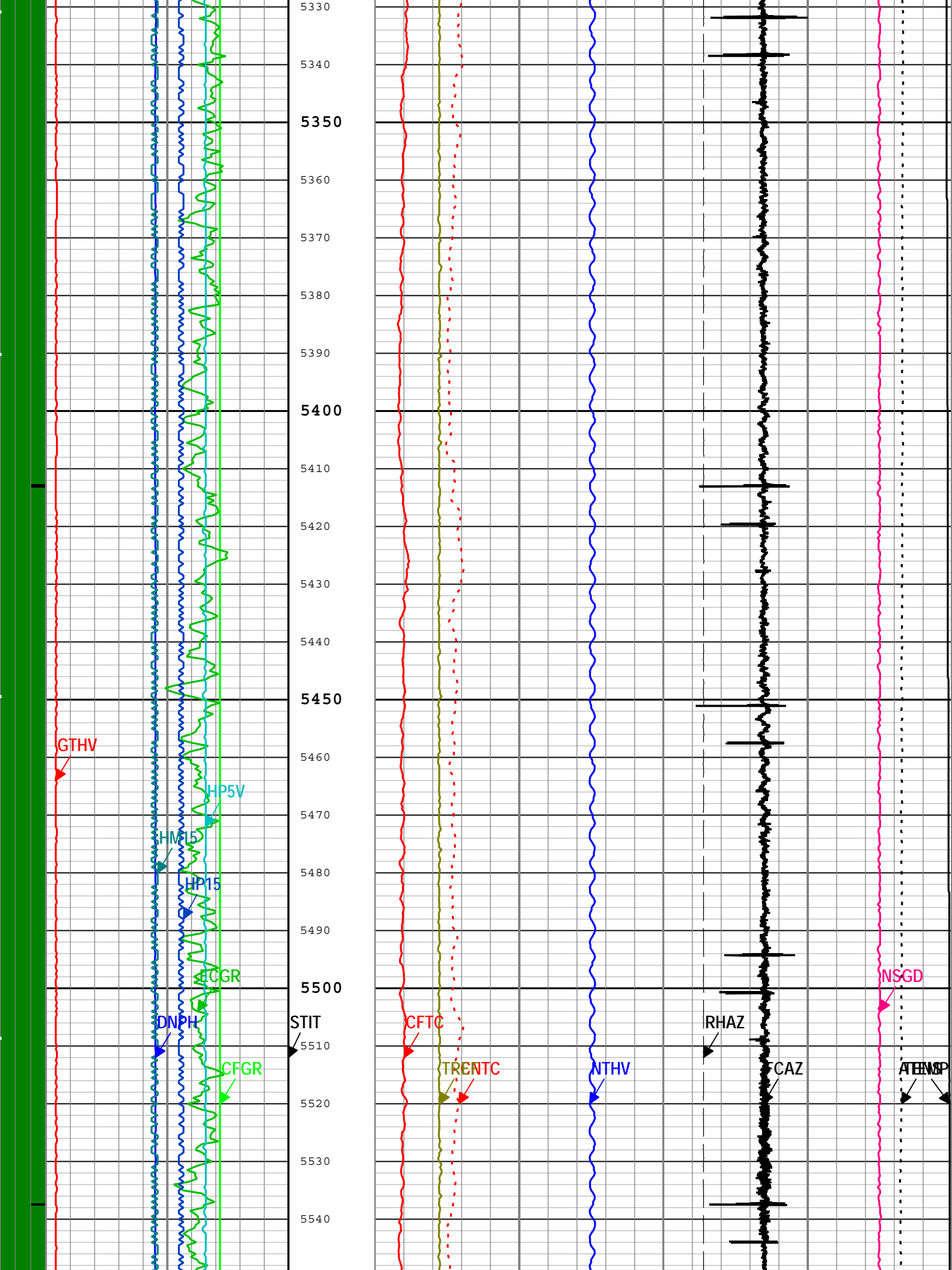


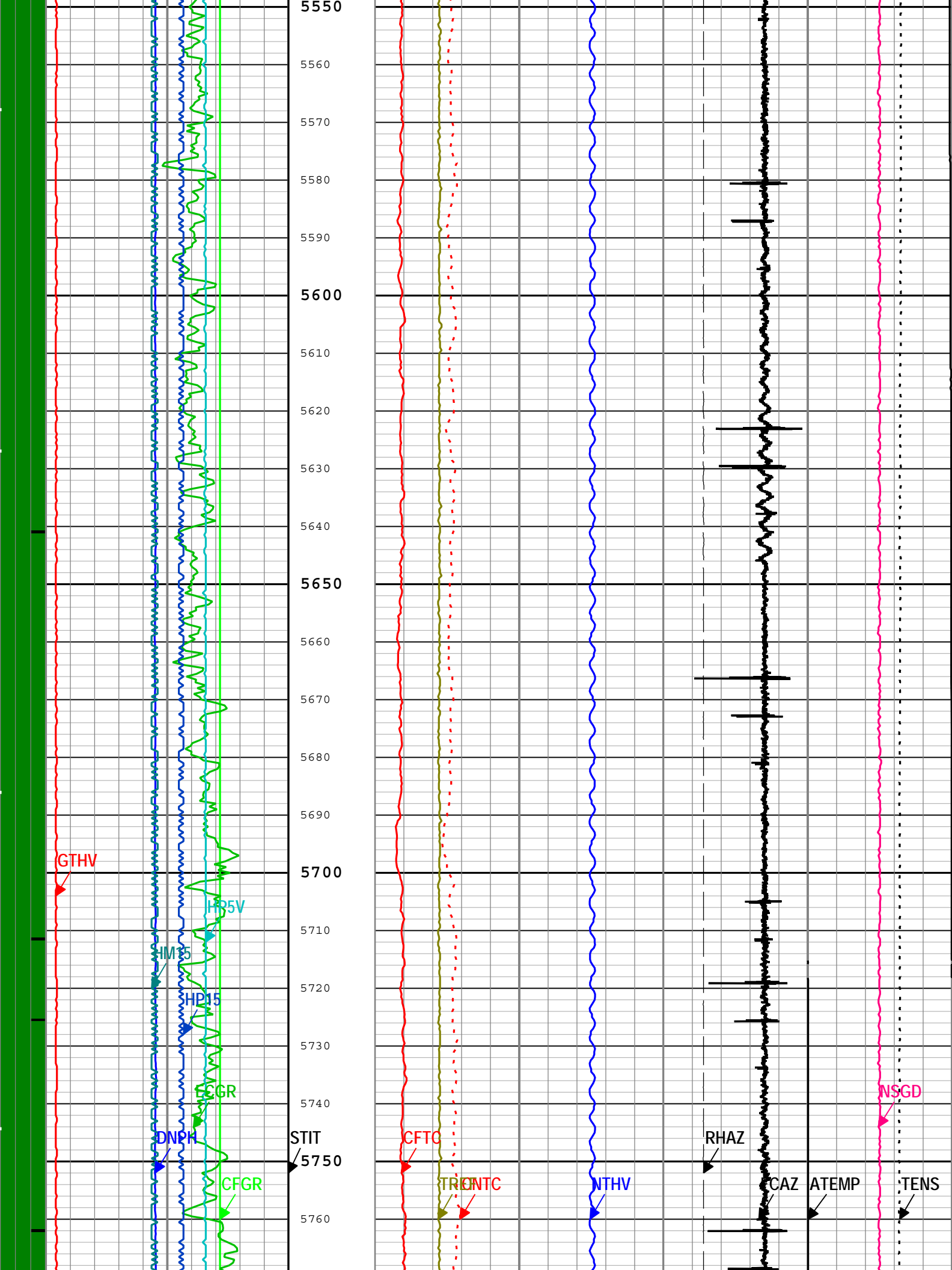


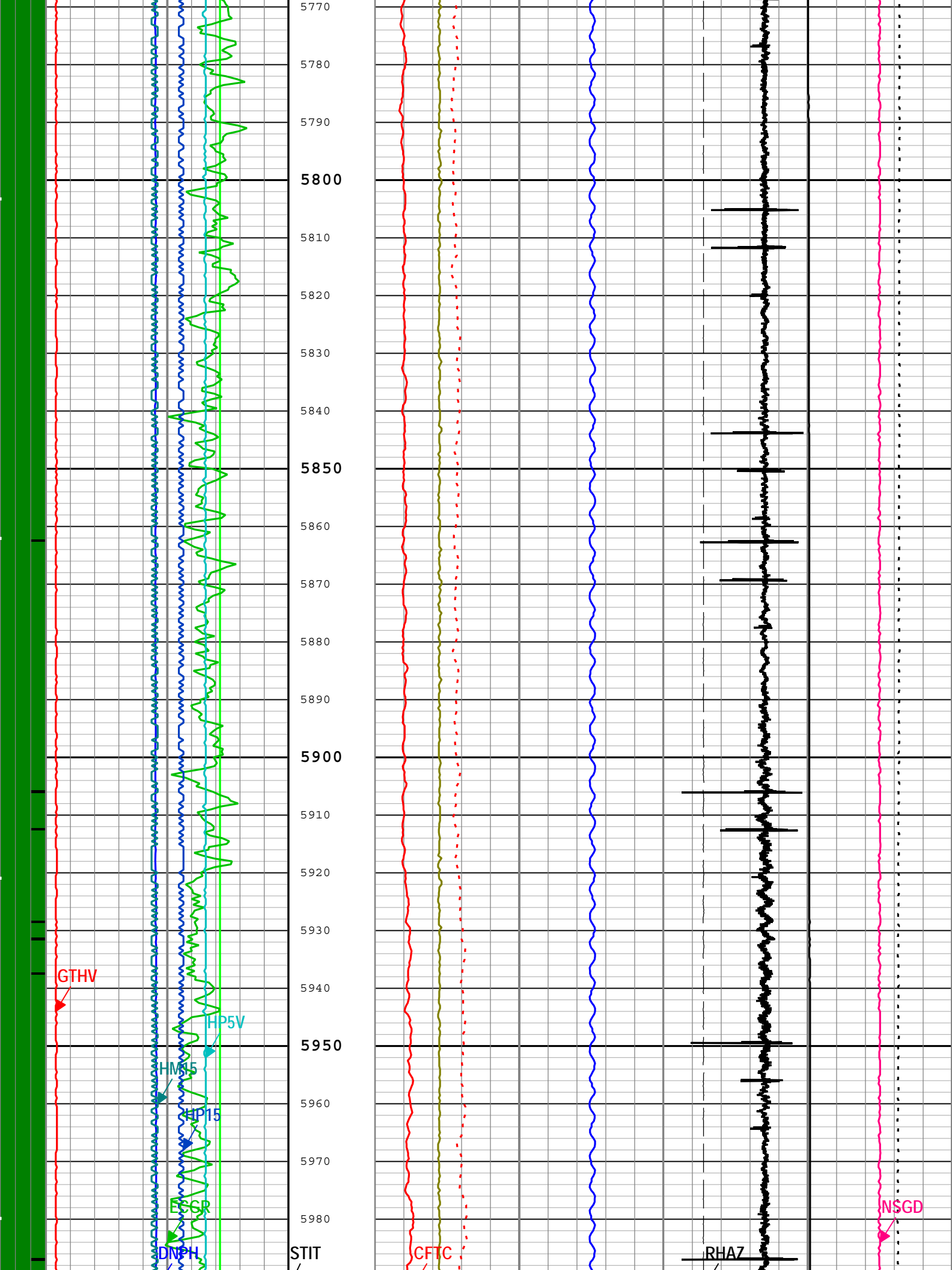


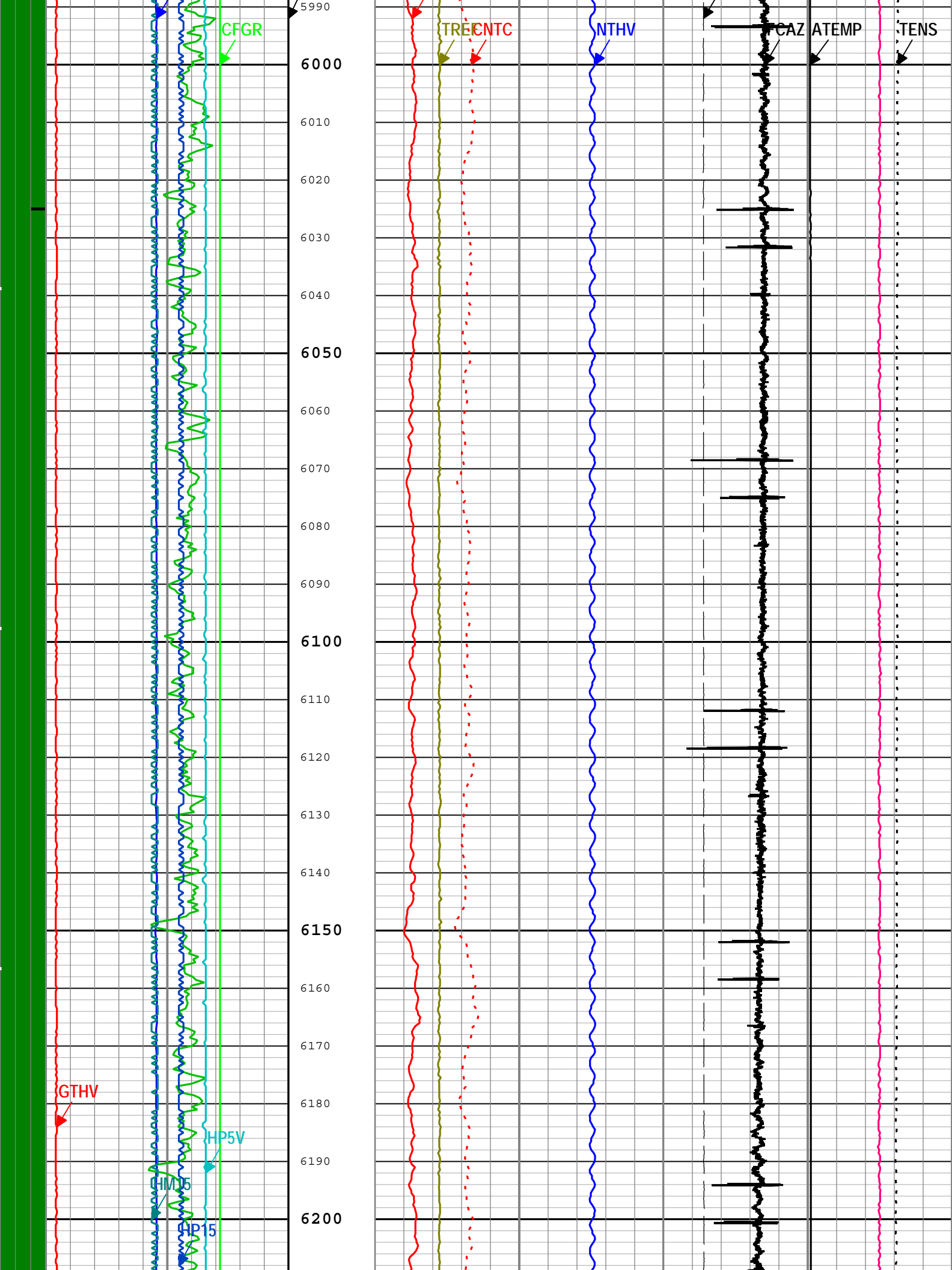


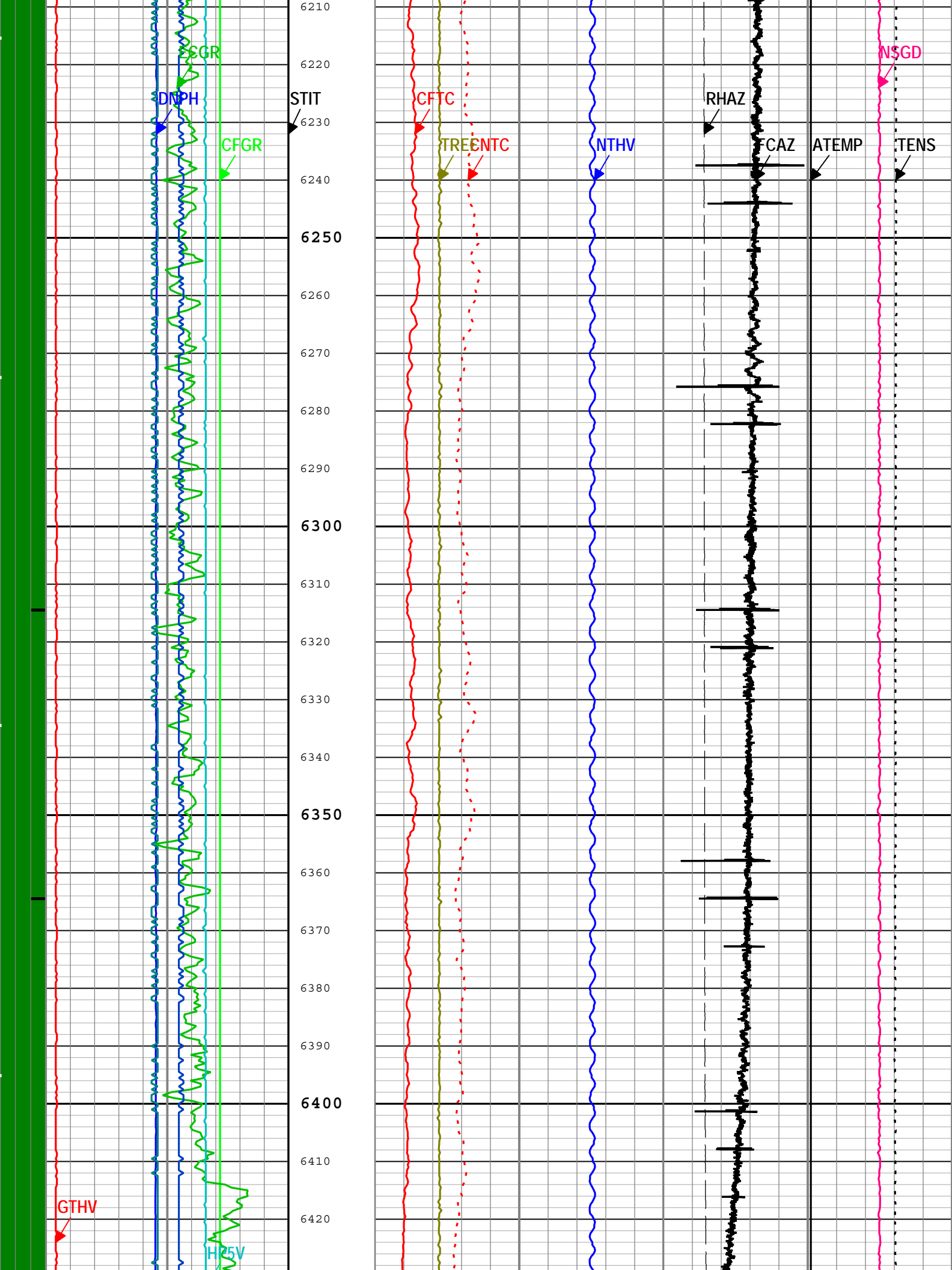


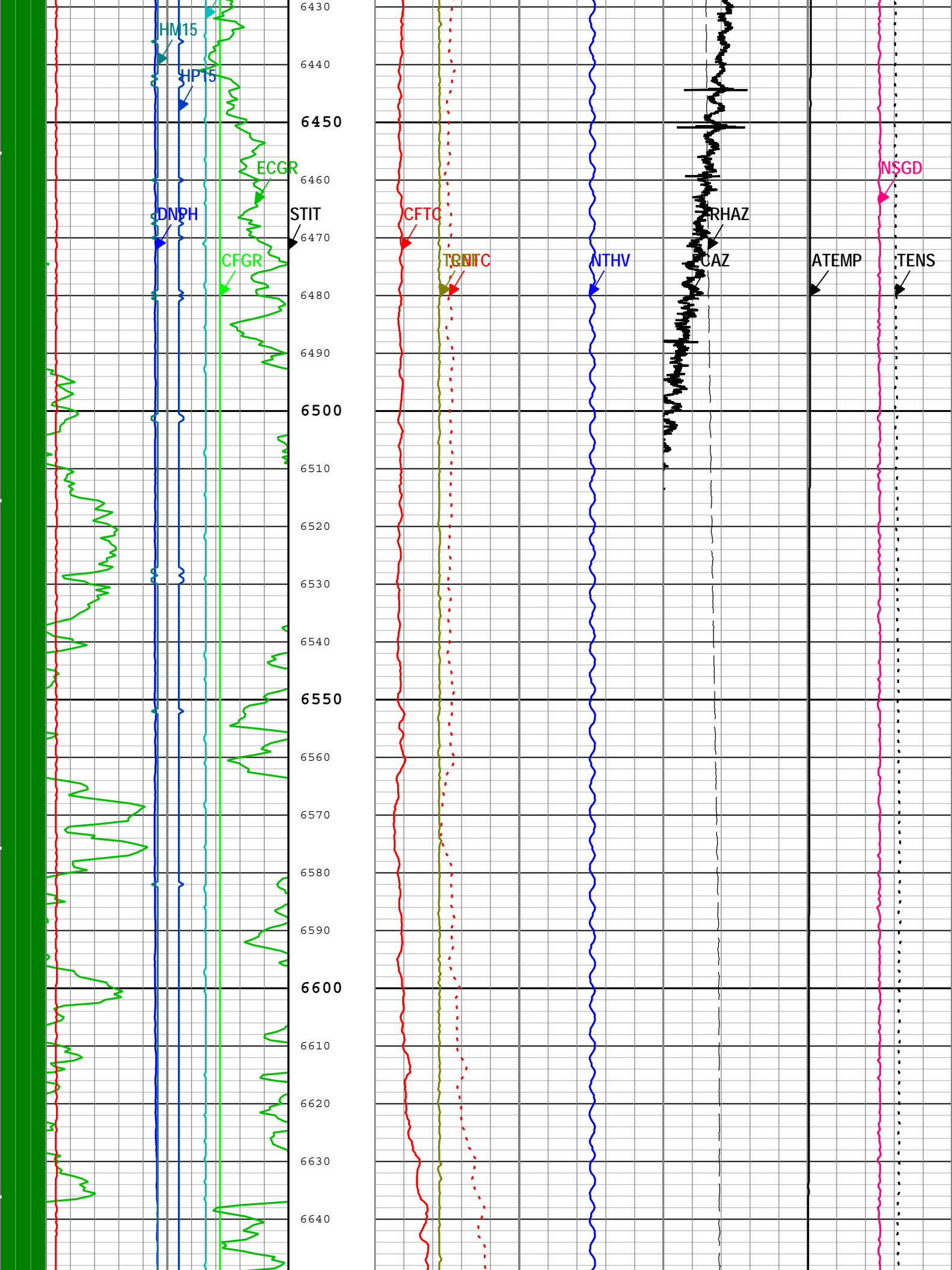


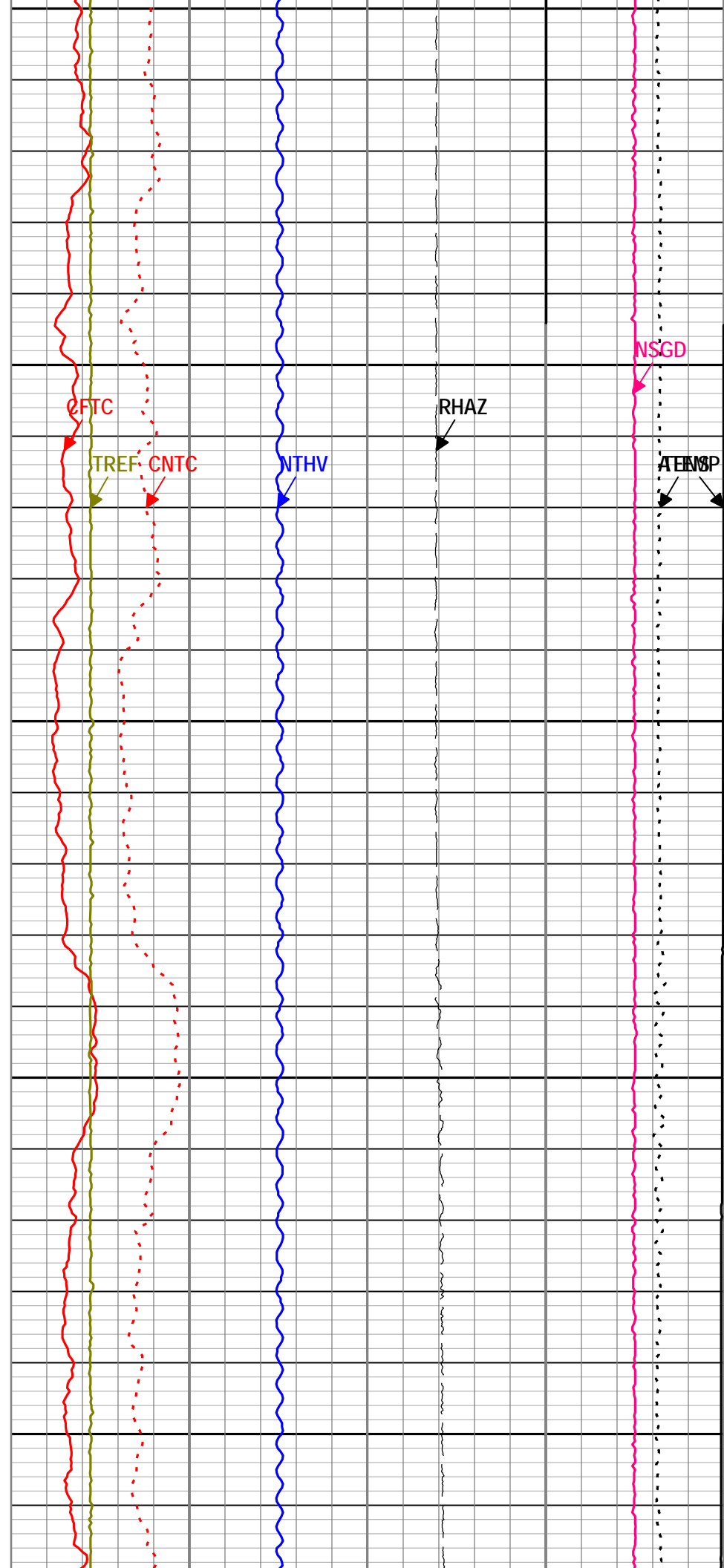
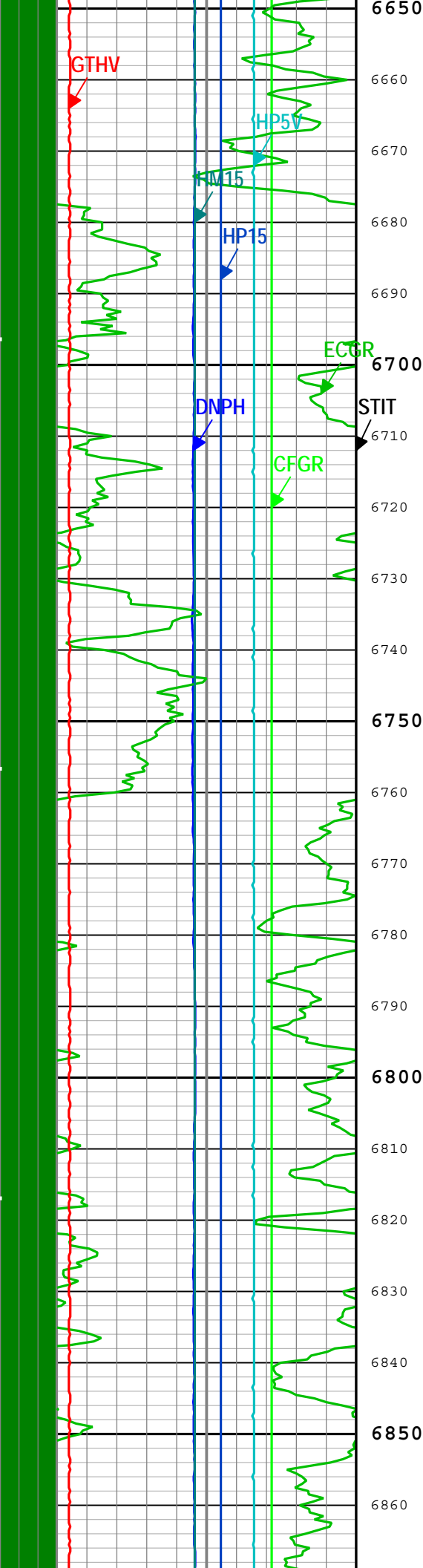


















Hardw are Flag Image (HHQ FI) 13	Gamma Ray Correction Coefficient (CFGR) HGNS-H			Stuck Tool Indicator, Total (STIT) 0ft50	Corrected Near Thermal Count Rate (CNTC) HGNS-H			Cable Tension (TENS)			
	0.5		1.5		01/s7500			10000lbf0			
	Difference between Corrected Thermal Neutron Porosity and Uncorrected (DNPH) HGNS-H			ToolDrag	Corrected Far Thermal Count Rate (CFTC) HGNS-H			Acceleration Z-Axis (FCAZ) HGNS-H		Accelerometer Temperature (ATEMP) HGNS-H	
	-0.1	m3/m3	0.1		01/s7500			25ft/s235	20degF220		
	Gamma Ray (ECGR) HGNS-H			External ADC Reference (TREF) HGNS-H		Neutron Test High Voltage (NTHV) HGNS-H		Raw Acceleration Voltage (RHAZ) HGNS-H		External ADC Ground (NSGD) HGNS-H	
	0	gAPI	150	4.5V5.5	1000V2000	-10V10	-0.5V0.5				
	Sonde Deviation (GDEV) HGNS-H										
	-10	deg	90								
	+15 V Supply (HP15) HGNS-H										
	14.5	V	15.5								
-15 V Supply (HM15) HGNS-H											
-15.5	V	-14.5									
5V Logic Power Supply (HP5V) HGNS-H											
4.5	V	5.5									
Gamma Ray Test High Voltage (GTHV) HGNS-H											
2000	V	3000									

Hardware Flag Image (HHQFI)

- | | | | | |
|----------------------------|---|---------------------|---|---------------------|
| 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 (Import of PEX LQC HGNS)	Index Scale: 5 in per 100 ft	Index Unit: ft	Index Type: Measured
Depth	Creation Date: 01-May-2015 15:02:37				

Channel Processing Parameters	
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Run 1: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BHT	Bottom Hole Temperature	Borehole	226.59	degF
BS	Bit Size	WLSESSION	Depth Zoned	in
BSAL	Borehole Salinity	Borehole	0	ppm
CBLO	Casing Bottom (Logger)	WLSESSION	7071.1	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Light Cement	

DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.7	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
EDF	Elevation of Derrick Floor Above Permanent Datum	WLSESSION	23	ft
EPD	Elevation of Permanent Datum (PDAT) above Mean Sea Level	WLSESSION	4661	ft
FSAL	Formation Salinity	Borehole	0	ppm
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS	
GGRD	Geothermal Gradient	Borehole	1	0.01 degF/ft
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	REMS	
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	GTEM_LINEST	
HSCO	Hole Size Correction Option	HGNS-H	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
TD	Total Measured Depth	Borehole	6905	ft
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0.1	Mrayl
UFGDE	Fiberglass Density	USIT-E	1.95	g/cm3
UFGPS	Fiberglass Processing Selection	USIT-E	No	
UFGVL	Fiberglass Velocity	USIT-E	9678.48	ft/s
USI_FSOD	USIT USI Fluid Slowness Fits Casing Outer Diameter	USIT-E	0_OFF	
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-E	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-E	FreePipe Norm.	

Depth Zone Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BS	17.5	33.5	130
BS	13.5	130	926
BS	8.75	926	6905
All depth are actual.			

Tool Control Parameters	
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Run 1: Parameters				
Parameter	Description	Tool	Value	Unit
HMCA_BOARD_TYPE	HMCA Board Type	HGNS-H	1	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 3.0 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	6900	ft
VRES	Vertical Resolution	USIT-E	3.0 in	
WINB	Window Begin Time	USIT-E	Time Zoned	us
WINE	Window End Time	USIT-E	86.79	us

HGNS-H (HILT Gamma-Ray and Neutron Sonde, 150 degC) Calibration - Run 1

Primary Equipment :

HILT Gamma-Ray and Neutron Sonde, 150 degC	HGNS-H	4810
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Auxiliary Equipment :

HGNS Accelerometer, 150 degC	HACCZ-H	5955
AmBe Neutron Logging Source	NSR-F	5215

Calibration Parameter :

Water Temperature	
Housing Size	
JIG-BKG (Jig minus background reference)	165

HGNS Accelerometer Calibration - Accelerometer Accumulations

Before:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
AZ Vertical Measurement - 0	ft/s2	Before	----	----	----	----	

HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

Master (EEPROM): 00:00:00 15-Jan-2007

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Accelerometer Manufacturer		Master			QAT_160		
Accelerometer Reference Temperature	degF	Master		30.2	77.0	122.0	
Accelerometer Coefficients - 0		Master	----	----	1155.700	----	
Accelerometer Coefficients - 1		Master	----	----	26.890	----	
Accelerometer Coefficients - 2		Master	----	----	-0.008	----	
Accelerometer Coefficients - 3		Master	----	----	0.000	----	
Accelerometer Coefficients - 4		Master	----	----	2.748	----	
Accelerometer Coefficients - 5		Master	----	----	0.000	----	
Accelerometer Coefficients - 6		Master	----	----	0.000	----	
Accelerometer Coefficients - 7		Master	----	----	0.000	----	
Accelerometer Coefficients - 8		Master	----	----	298.600	----	
Accelerometer Coefficients - 9		Master	----	----	0.983	----	

HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM): 13:54:00 05-Feb-2015 Before (Measured): 22:12:21 30-Apr-2015

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	24.2	40.0	
		Before	0	5.0	24.4	40.0	
		Before-Master	----	-3.6	0.2	3.6	
Far Zero Measurement	1/s	Master	0	5.0	28.1	40.0	
		Before	0	5.0	28.7	40.0	
		Before-Master	----	-4.2	0.6	4.2	
Near Plus Measurement	1/s	Master	6031.0	4700.0	5190.0	6900.0	
		Before	----	----	----	----	
		Before-Master	----	----	----	----	
Far Plus Measurement	1/s	Master	2793.0	1900.0	2159.0	2900.0	
		Before	----	----	----	----	
		Before-Master	----	----	----	----	
Near Corrected Plus Measurement	1/s	Master		4700.0	5328.0	6900.0	
		Before	----	----	----	----	
		Before-Master	----	----	----	----	
Far Corrected Plus Measurement	1/s	Master		1900.0	2235.0	2900.0	
		Before	----	----	----	----	
		Before-Master	----	----	----	----	

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured): 22:13:24 30-Apr-2015

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before	30.0	0	85.1	120.0	
RGR Plus Measurement	gAPI	Before	185.4	157.1	165.7	206.3	
GR Calibration Gain		Before	0.89	0.80	1.00	1.05	

Company:	Noble Energy Inc	Schlumberger
Well:	Colt A13-655	
Field:	Wattenberg	
County:	Weld	
State:	Colorado	
Platform Express		
Triple Combo		