Schlumberger

Company: Noble Energy Inc

Well: Crow Creek AA01-743

Field: Wattenberg

County: Weld State: Colorado

County: Weld
Field: Wattenberg
Location: NWNE Sec. 1, T6N, R63W
Well: Crow Creek AA01-743
Company: Noble Energy Inc

Compensated Neutron

USIT-Lite

Location:				
NWNE Sec. 1, T6N, R63W		Elev.:	K.B.	4859.00 ft
SHL: 290' FNL & 2238' FEL			G.L.	4835.00 ft
Lat/Long: 40.522070/-104.382890			D.F.	4858.00 ft
Permanent Datum:	Ground Level	Elev.:		4835.00 f
Log Measured From:	Kelly Bushing	24.00 ft		above Perm.Datum
Drilling Measured From:	Kelly Bushing			

API Serial No.	Section:	Township:	Range:
05-123-40161-0000	1	6N	63W

Logging Date	27-Feb-2015		
Run Number	Run 1		
Depth Driller	11906.00 ft		
Schlumberger Depth	6570.00 ft		
Bottom Log Interval	6570.00 ft		
Top Log Interval	60.00 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	2258.00 ft		
To	6570.00 ft		
Casing/Tubing Size	5.5 in		
Weight	20 lbm/ft		
Grade	P110		
From	24.00 ft		
To	11902.00 ft		
Max Recorded Temperatures			
Logger on Bottom Time			
Unit Number Location:	3022	Fort Morgan, CO	
Recorded By	Keri Ondrus		
Witnessed By			

Disclaimer

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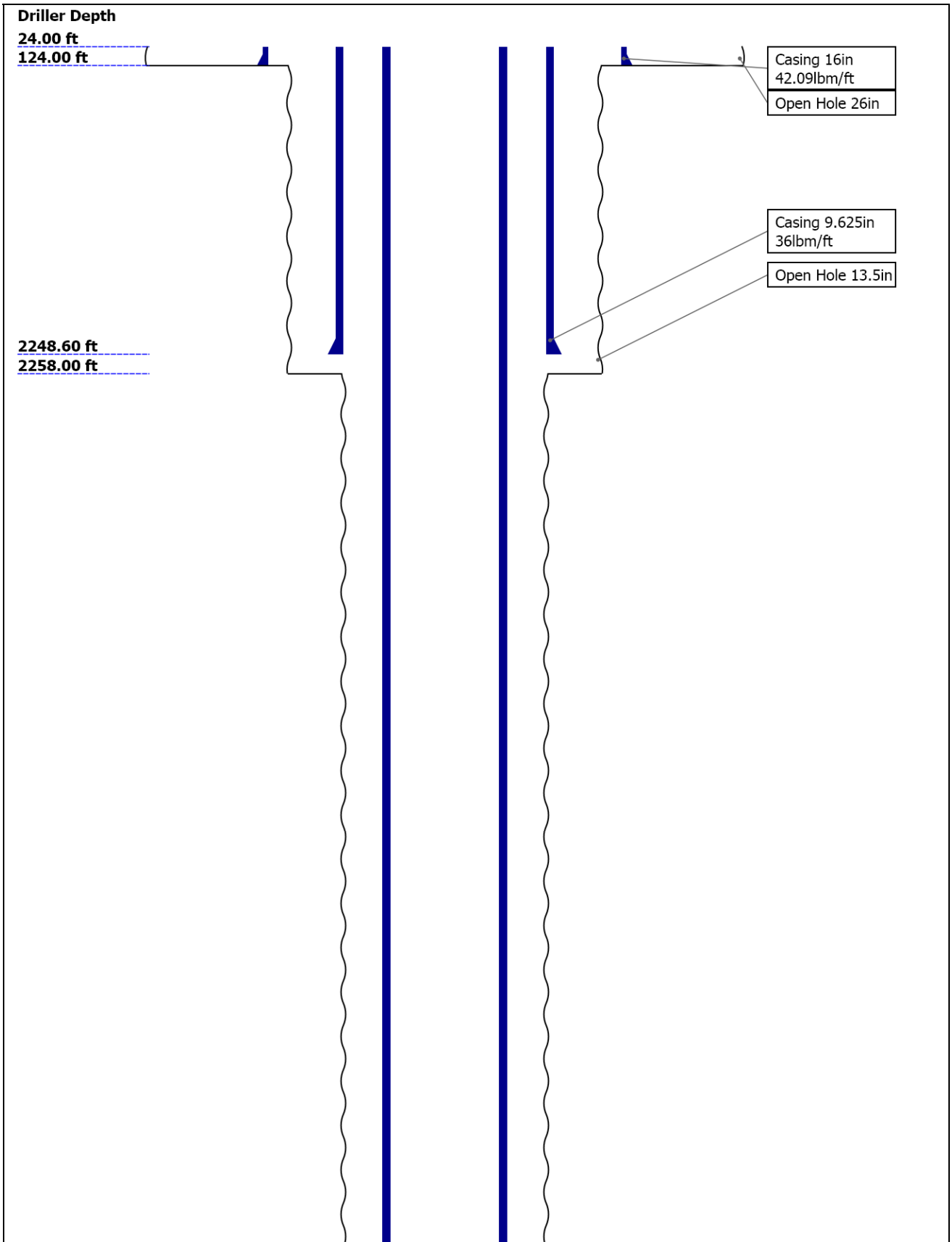
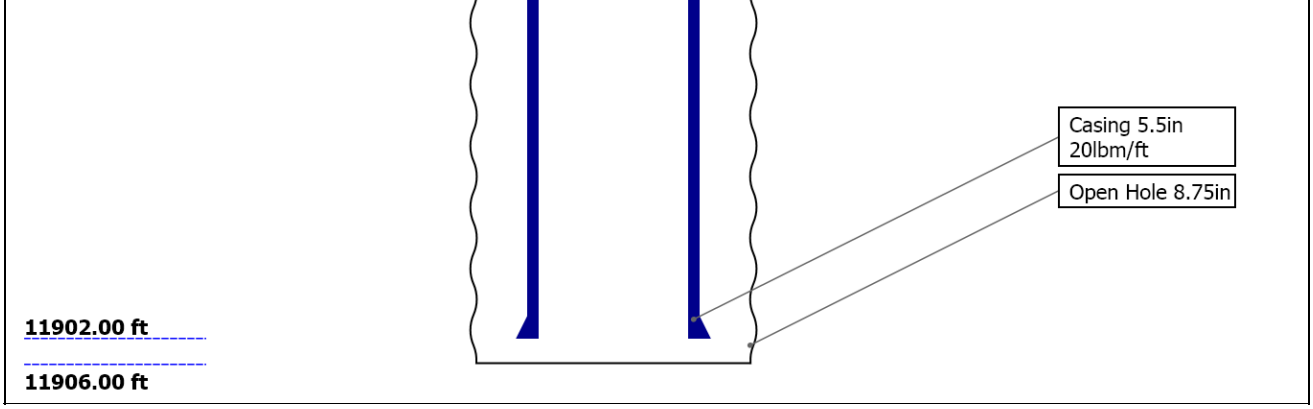
Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	26	13.5	8.75			
Top Driller (ft)	24	124	2258			
Top Logger (ft)	24	124	2258			
Bottom Driller (ft)	124	2258	11906			
Bottom Logger (ft)	124	2258	6570			
Casing						
Size (in)	16	9.625	5.5			
Weight (lbm/ft)	42.09	36	20			
Inner Diameter (in)	15.511	8.921	4.778			
Grade	N/A	J55	P110			
Top Driller (ft)	24	24	24			
Top Logger (ft)	24	24	24			
Bottom Driller (ft)	124	2248.6	11902			
Bottom Logger (ft)	124	2248.6	11902			

Operational Run Summary

Parameter (unit)	Run 1					
Date Log Started	27-Feb-2015					
Time Log Started	10:35:23					
Date Log Finished	27-Feb-2015					
Time Log Finished	17:02:06					
Top Log Interval (ft)	60.00					
Bottom Log Interval (ft)	5570.00					
Total Depth (ft)	6570.00					
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					

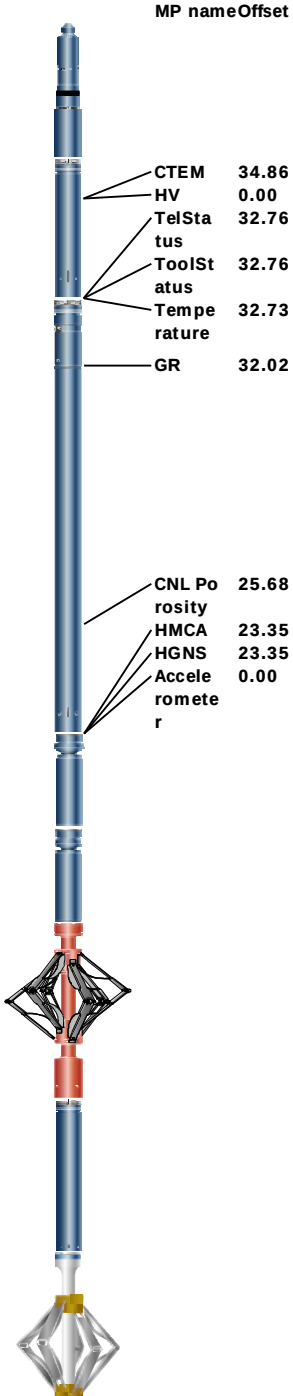
Witnessed By						
Service Order Number	BX19-00239					

Borehole Fluids

Parameter(unit)	Run 1					
Fluid Type	Water					
Max Recorded Temperatures (degF)	NaN					
Salinity (ppm)	0					
Density (lbm/gal)	8.7					
Date Logger on Bottom	NaN					
Time Logger on Bottom	NaN					
Total Solid (%)						
High Gravity Solids (%)						

Remarks and Equipment Summary

Run 1: Toolstring



Run 1: Remarks

This is the first run in hole.

Toolstring run as per toolsketch.

Log Objective: Cement Evaluation

Estimated TOC @ 1950'. Expected TOC @ 650'.

13.6 PPG single slurry cement.

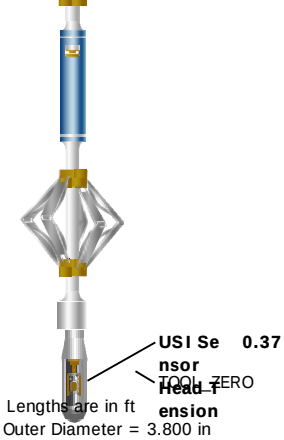
5.5" casing from surface to TD; logged down until tension reflected cable weight - approx. 6800'.

Bottom log interval at 6570' because data below this point was poor quality and sub would not spin below 6660'.

Bottom hole temperature was 220.04 degF.

Thank you for choosing Schlumberger Wireline!

SLB Crew: Ian Derry, Jay Musgrave, and Keri Ondrus.



Lengths are in ft
Maximum Outer Diameter = 3.800 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

Depth Summary

	Run 1		
Depth Measuring Device			
Type	IDW-B		
Serial Number	7234		
Calibration Date	13-Feb-2015		
Calibrator Serial Number			
Calibration Cable Type	7-39 PLXS		
Wheel Correction 1	-4		
Wheel Correction 2	-2		
Tension Device			
Type	CMTD-B/A		
Serial Number	1109		
Calibration Date	12-Feb-2015		
Calibrator Serial Number	78135A		
Number of Calibration Points	10		
Calibration Root Mean Square Error	7		
Calibration Peak Error	13		
Logging Cable			
Type	7-39P-LXS		
Serial Number	U711136		
Length	17300.00 ft		
Conveyance Type	Wireline		
Rig Type	Crane		

Run 1:Depth Control Parameters		Depth Control Remarks
Log Sequence	First Log In the Well	All Schlumberger depth control procedures followed.
Rig Up Length At Surface		IDW used as primary depth control device.
Rig Up Length At Bottom		Z-chart used as secondary depth control device.
Rig Up Length Correction		
Stretch Correction	7.22 ft	
Tool Zero Check At Surface		

Run 1

Integration Summary

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

Software Version

Acquisition System	Version
Maxwell	5.1.33858.3100
Application Patch	Maxwell_Hotfix-USIT-SP1_5.1.38189

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run 1	Main[7]:Up	Up	64.22 ft	6664.94 ft	27-Feb-2015 3:05:22 PM	27-Feb-2015 5:01:38 PM	ON	4.01 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Noble Energy Inc Well:Crow Creek AA01-743

Run 1: Main[7]:Up:S006

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: 27-Feb-2015 18:46:33

Channel	Source	Sampling
CCLU	USIT-E:USRS:USI-SENSOR	3in
GR	HGNS-H:HGNS-H:HGNS-H	6in
ICV	Borehole	6in
IHV	Borehole	6in
NPOR	HGNS-H:HGNS-H:HGNS-H	6in
TENS	WLWorkflow	6in
TIME_1900	WLWorkflow	0.1in

IHV - Integrated Hole Volume every 10.00 (ft3)

IHV - Integrated Hole Volume every 100.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

ICV - Integrated Cement Volume every 10.00 (ft3)

ICV - Integrated Cement Volume every 100.00 (ft3)

GR Backup

Gamma Ray (ECGR) HGNS-H

0 gAPI 150

Casing Collar Locator Ultrasonic (CCLU) USIT-E

-19 in 1

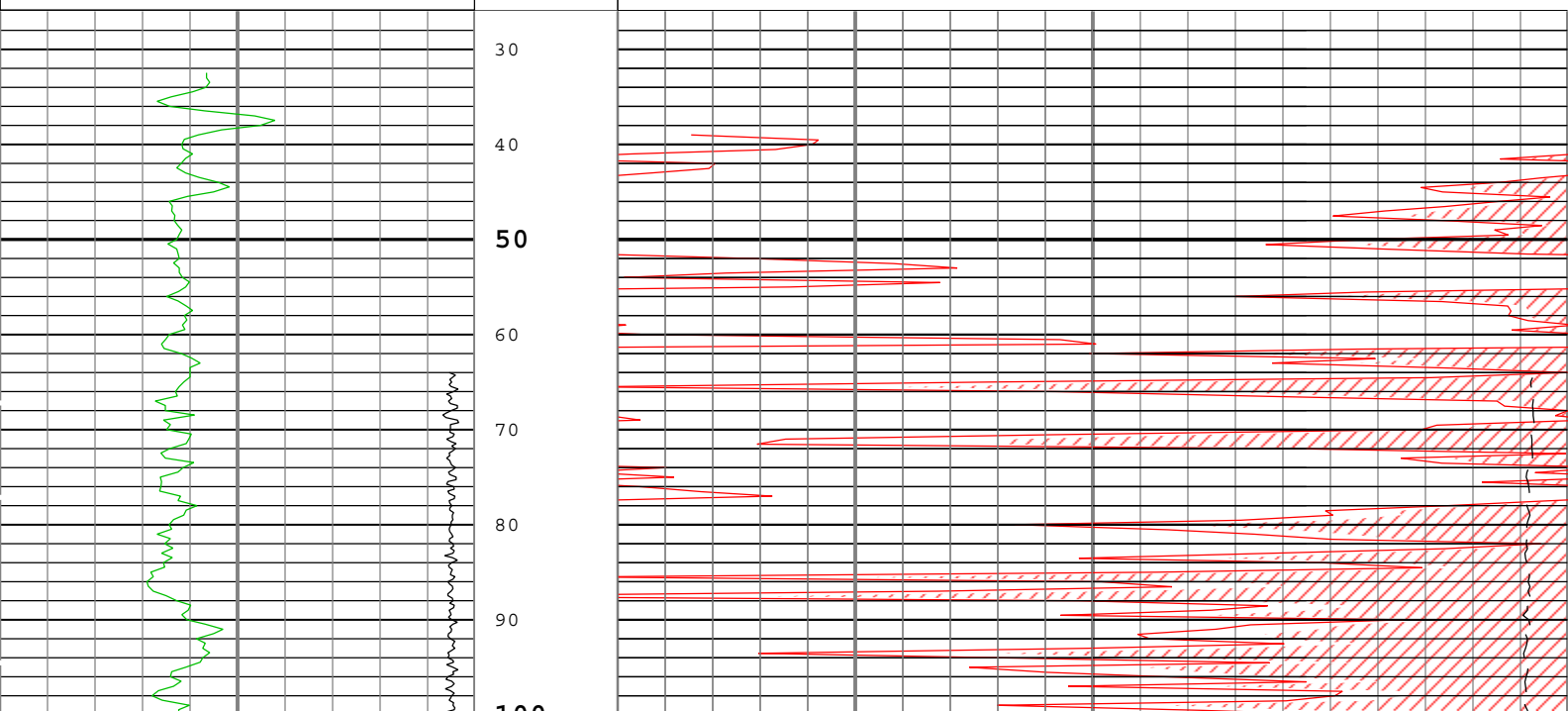
Cable Tension (TENS)

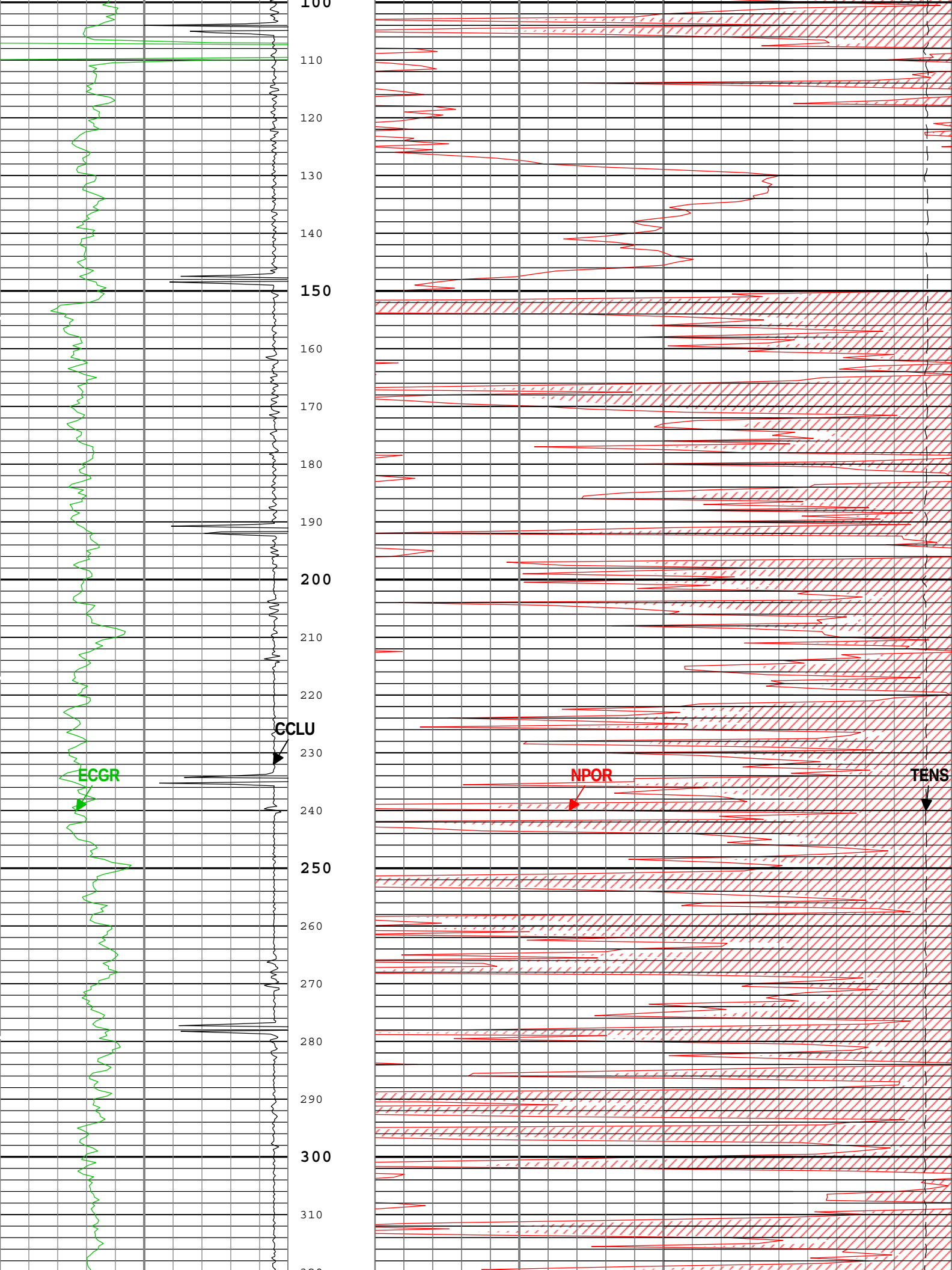
5000 lbf 0

NPOR Backup

Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H

0.45 ft3/ft3 -0.15

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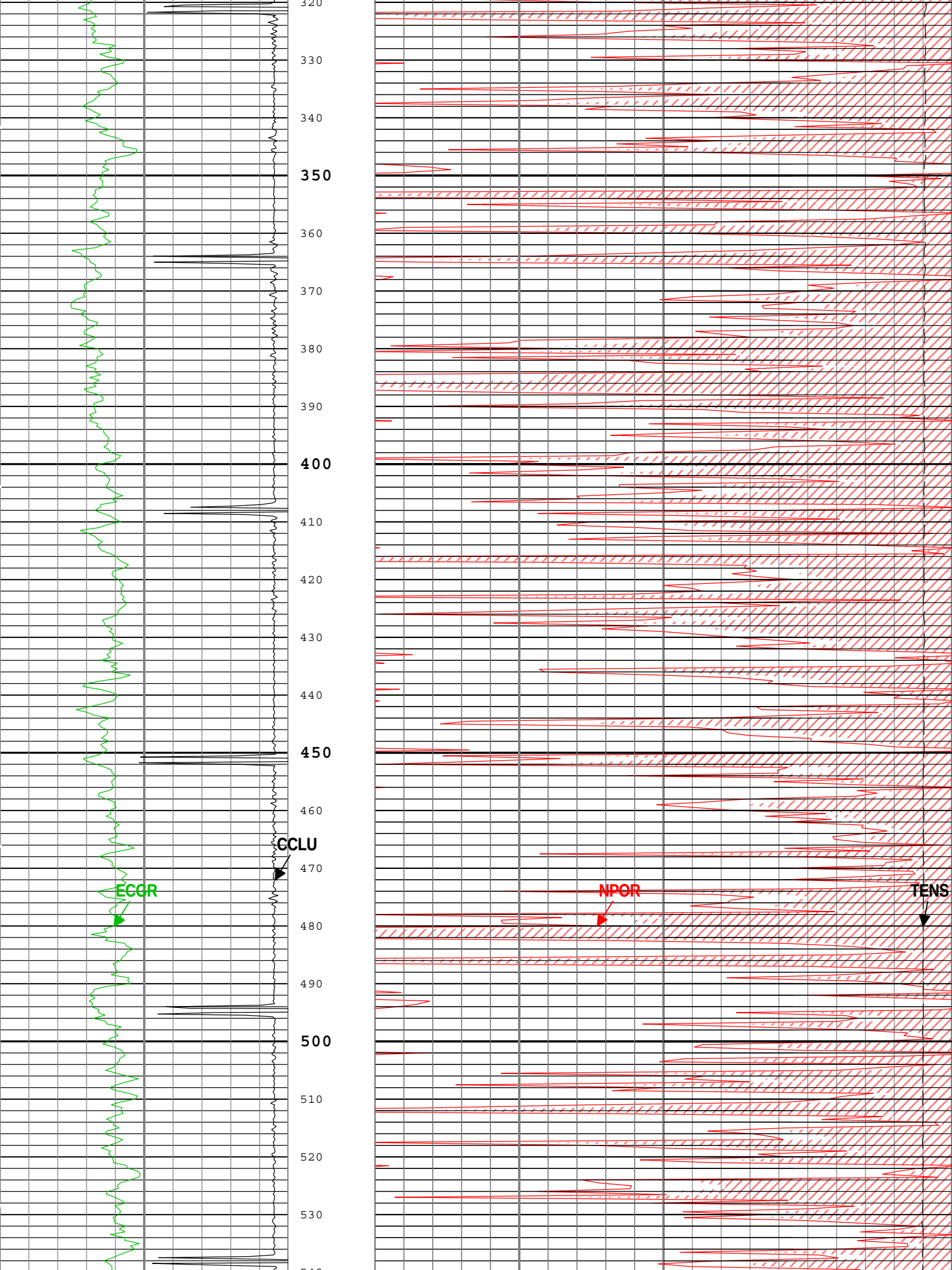
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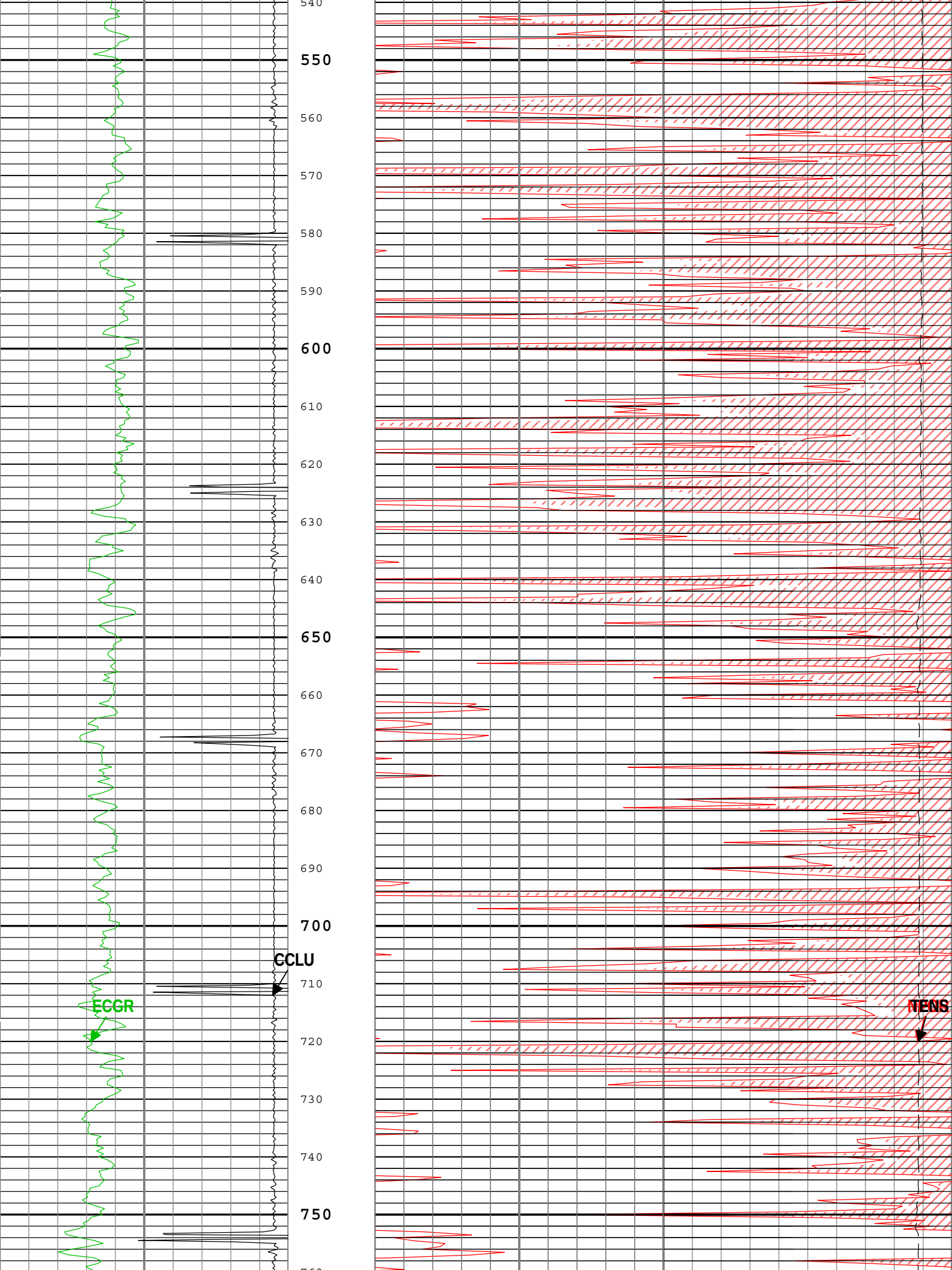
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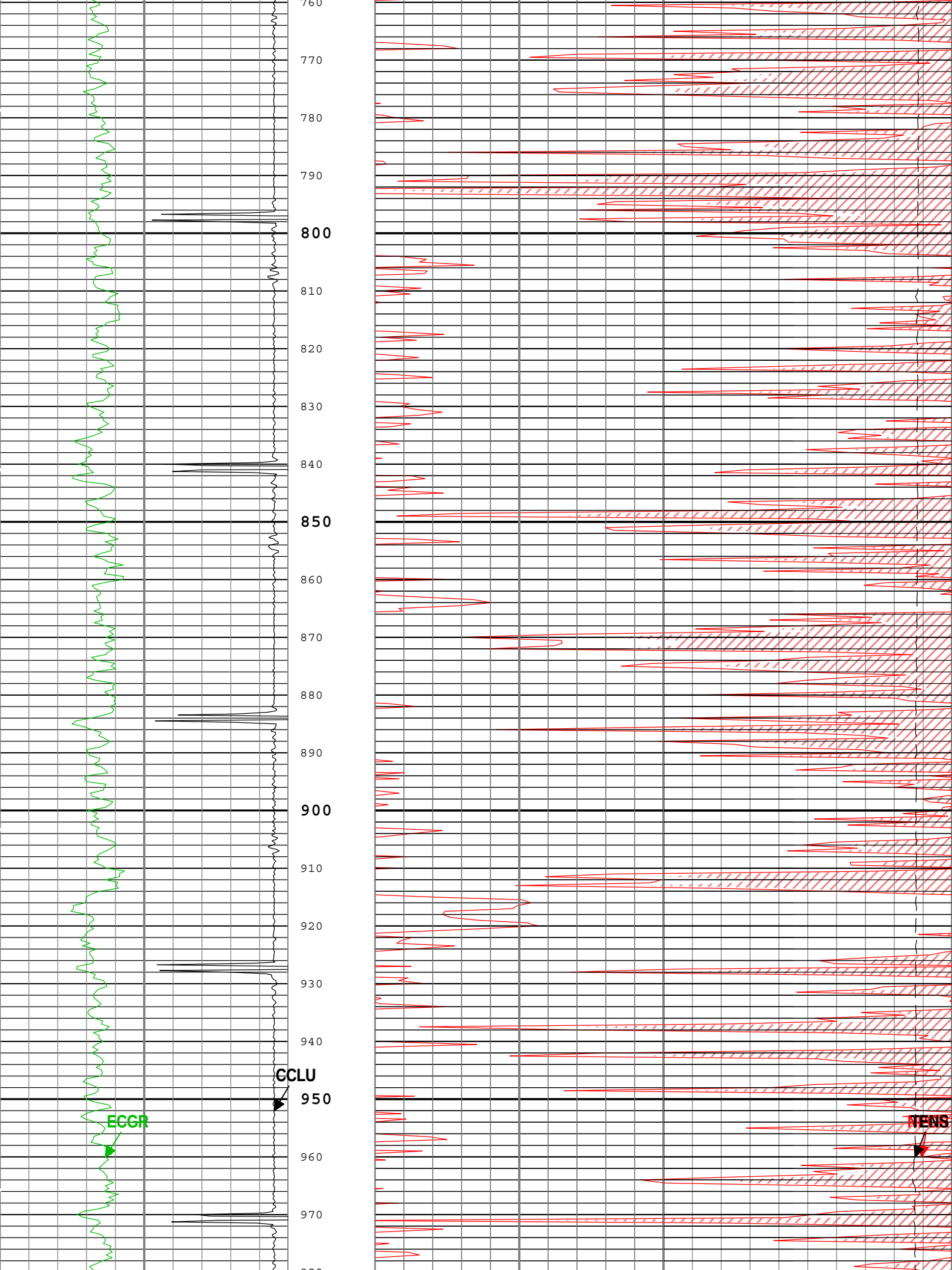
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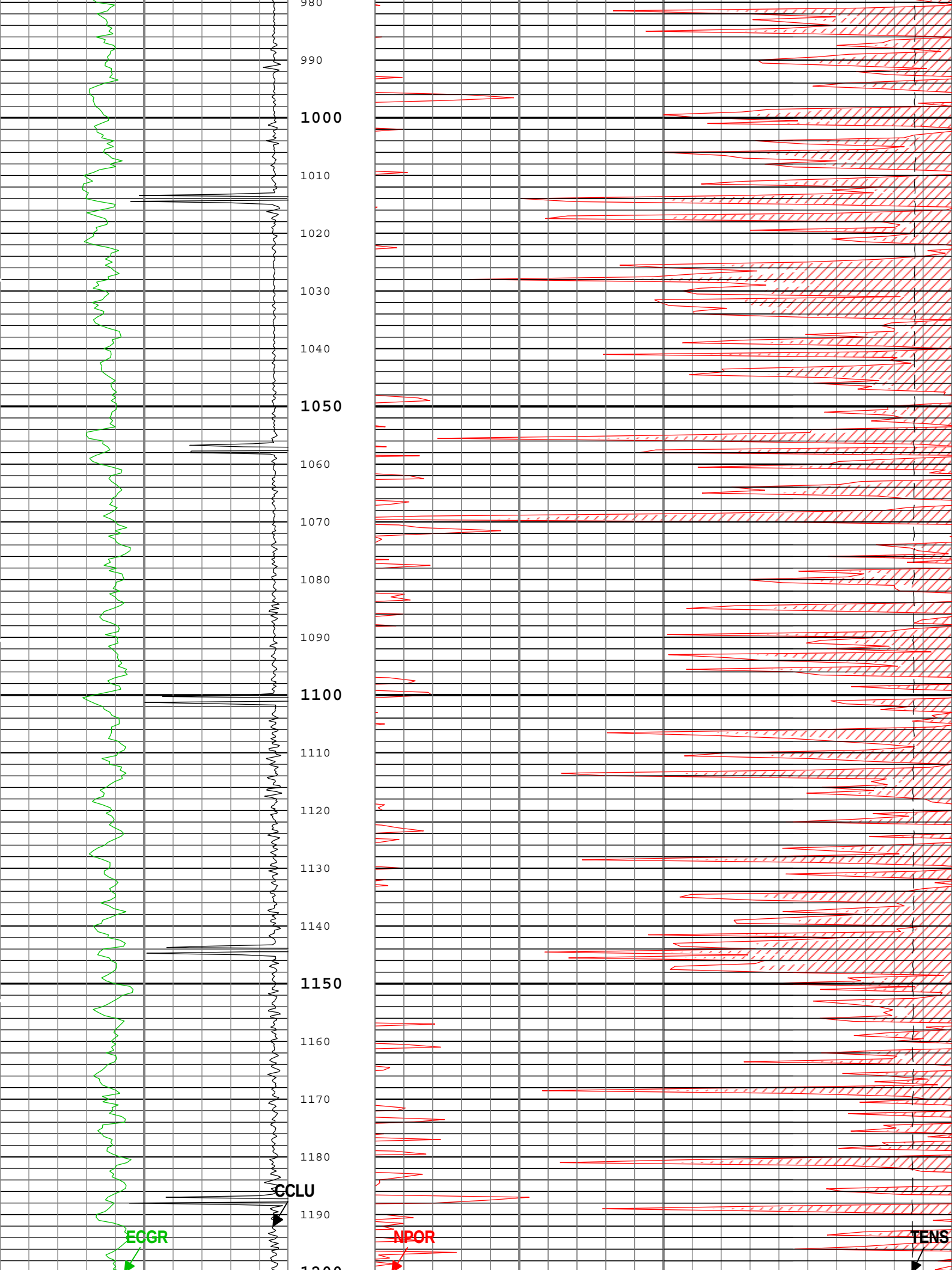
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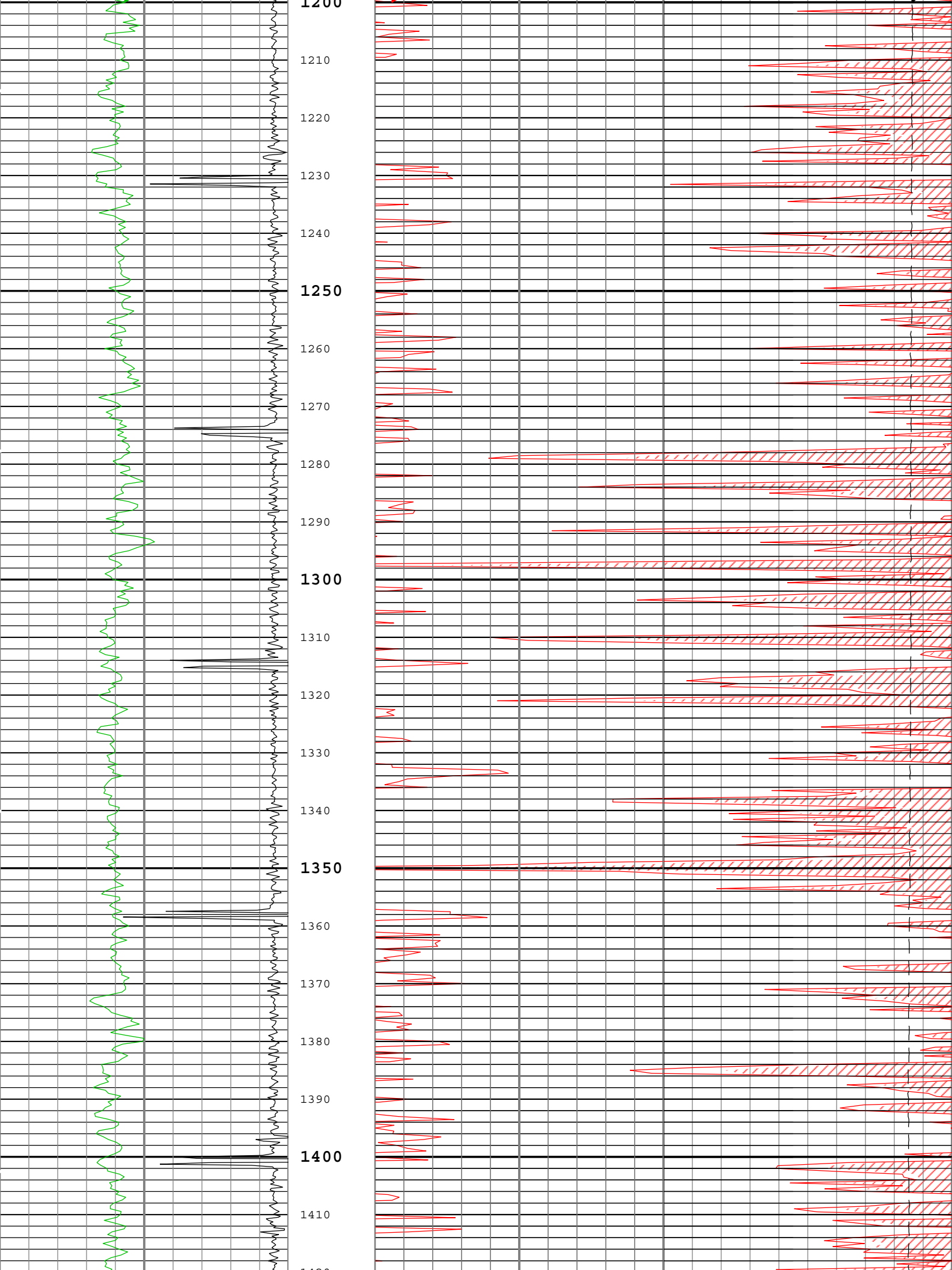
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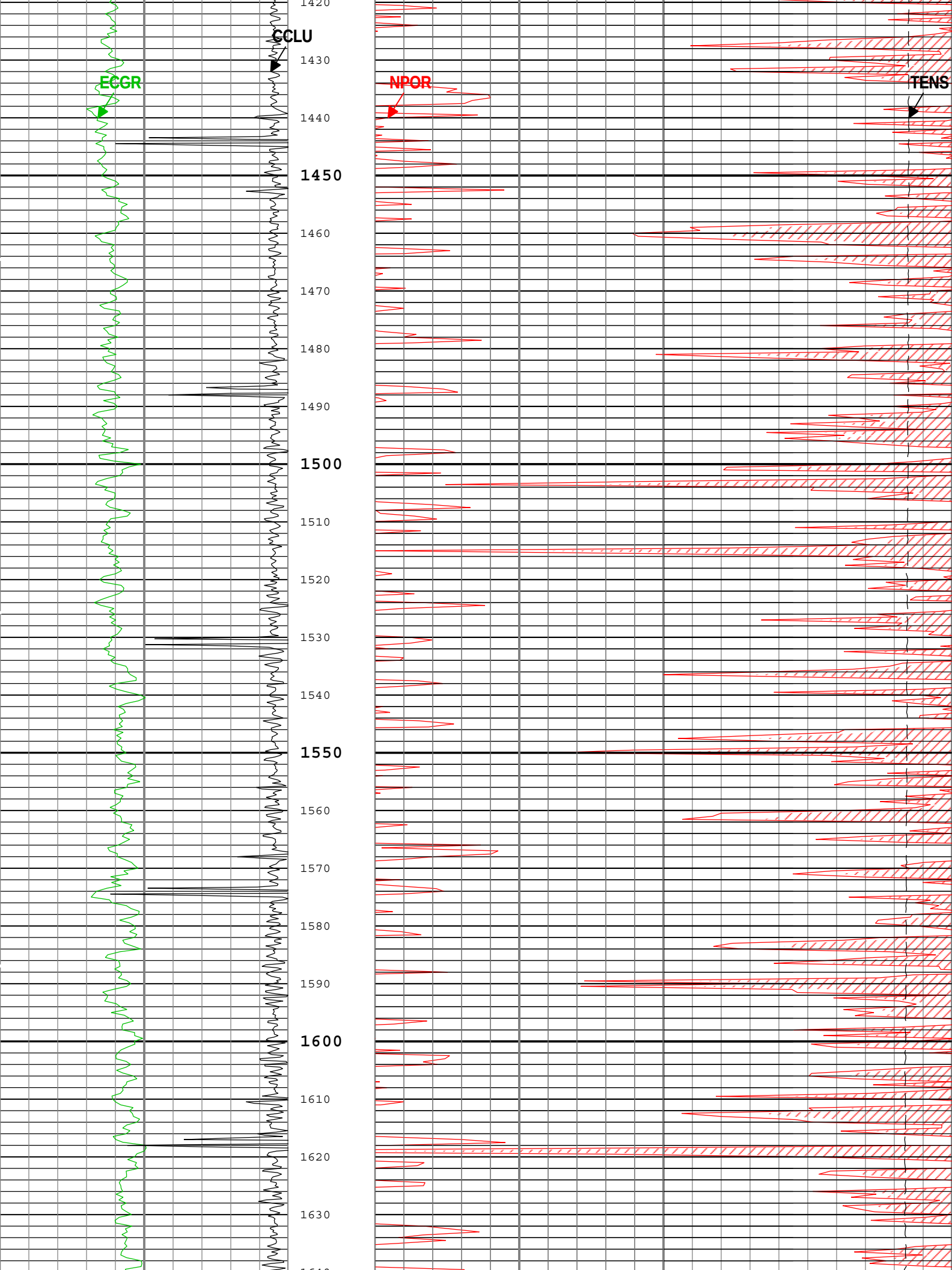
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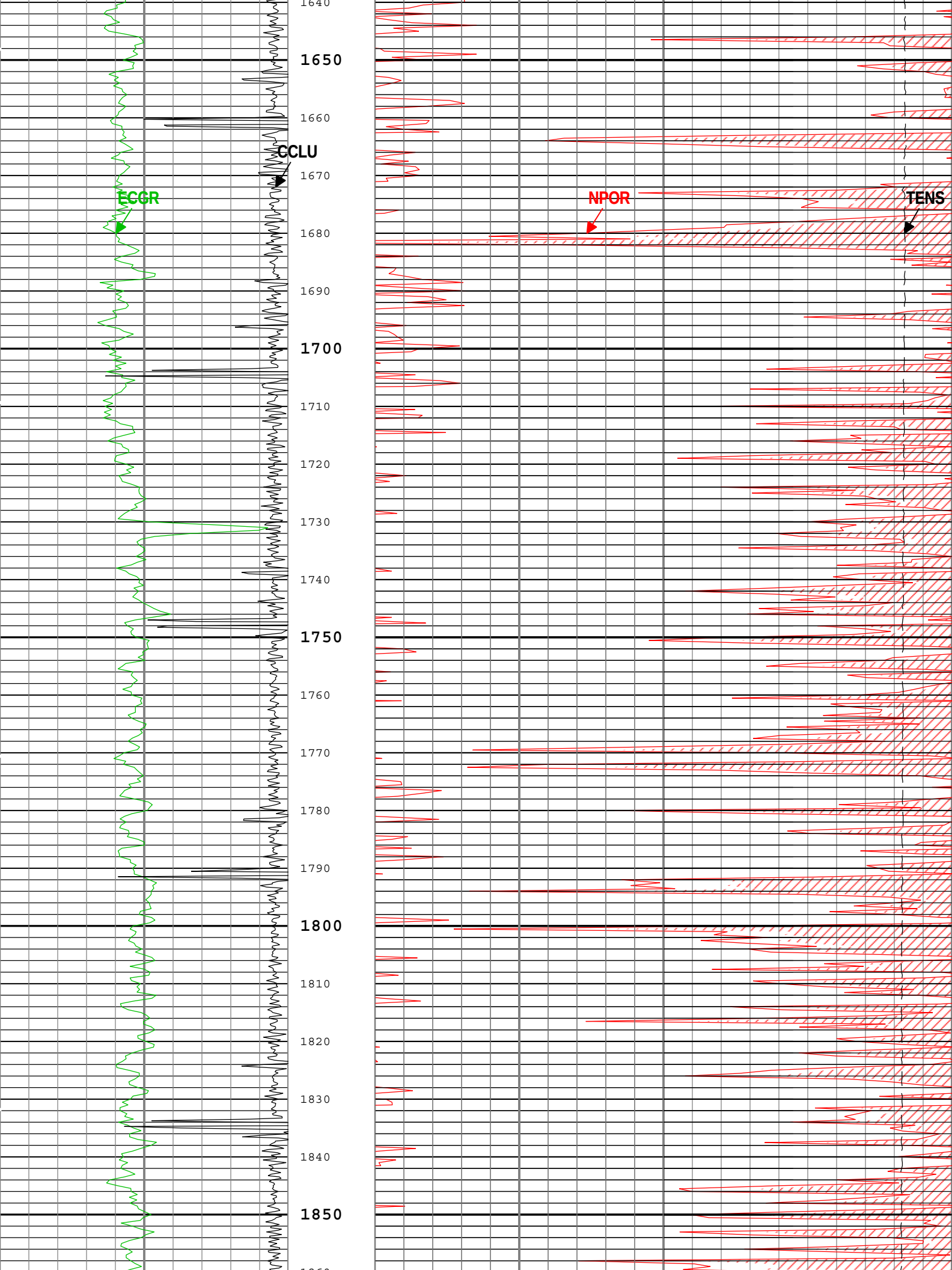
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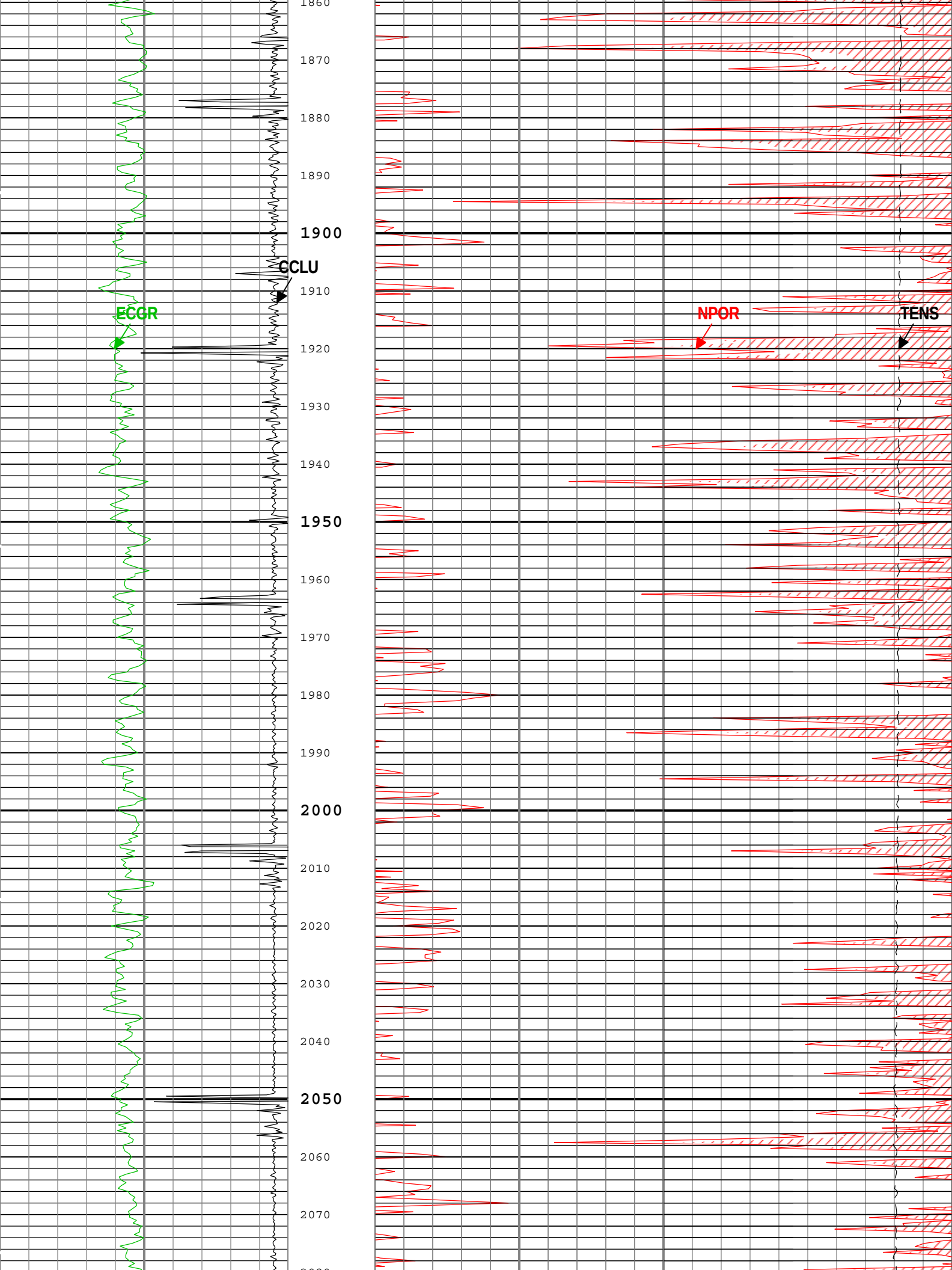
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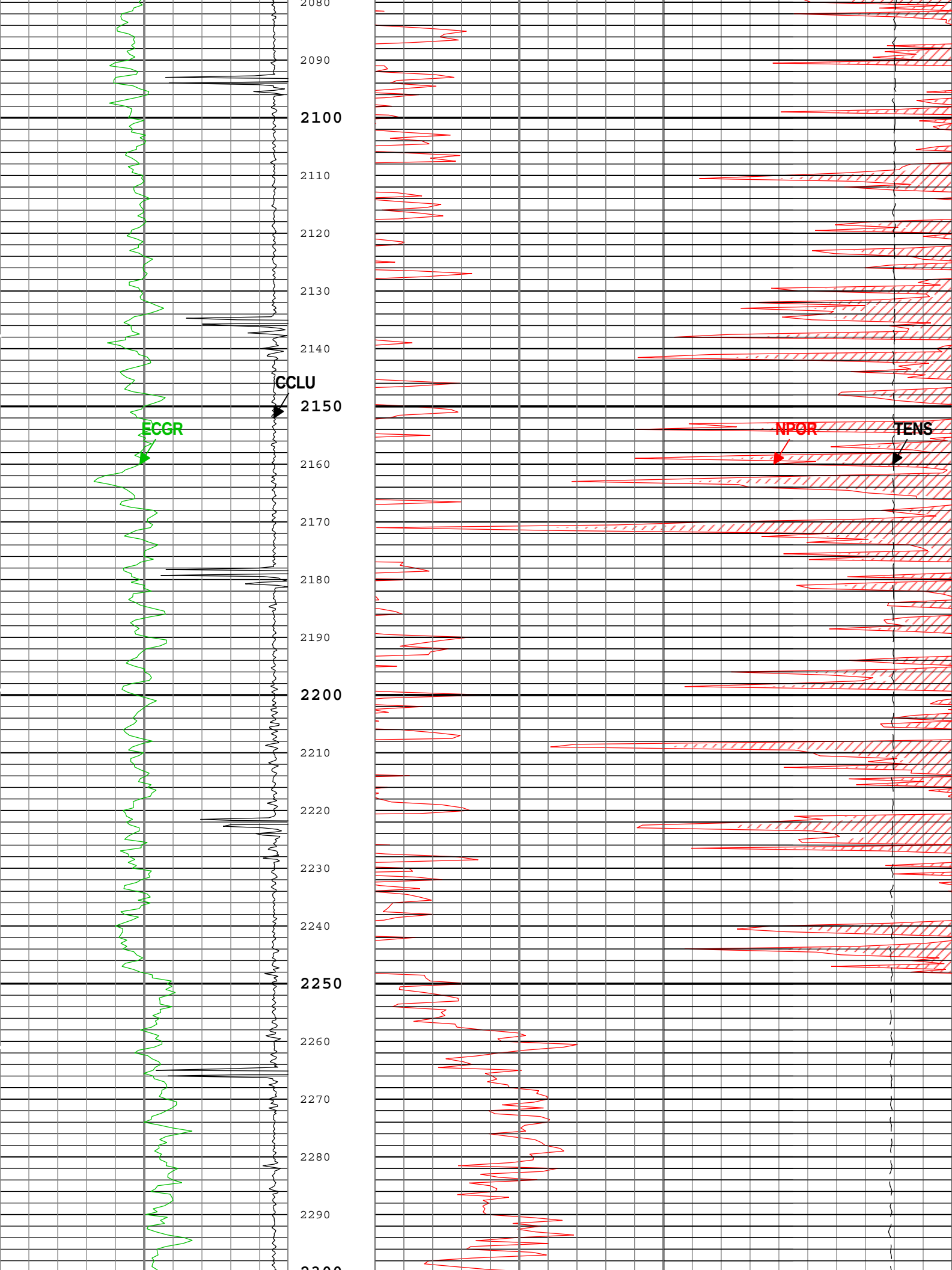
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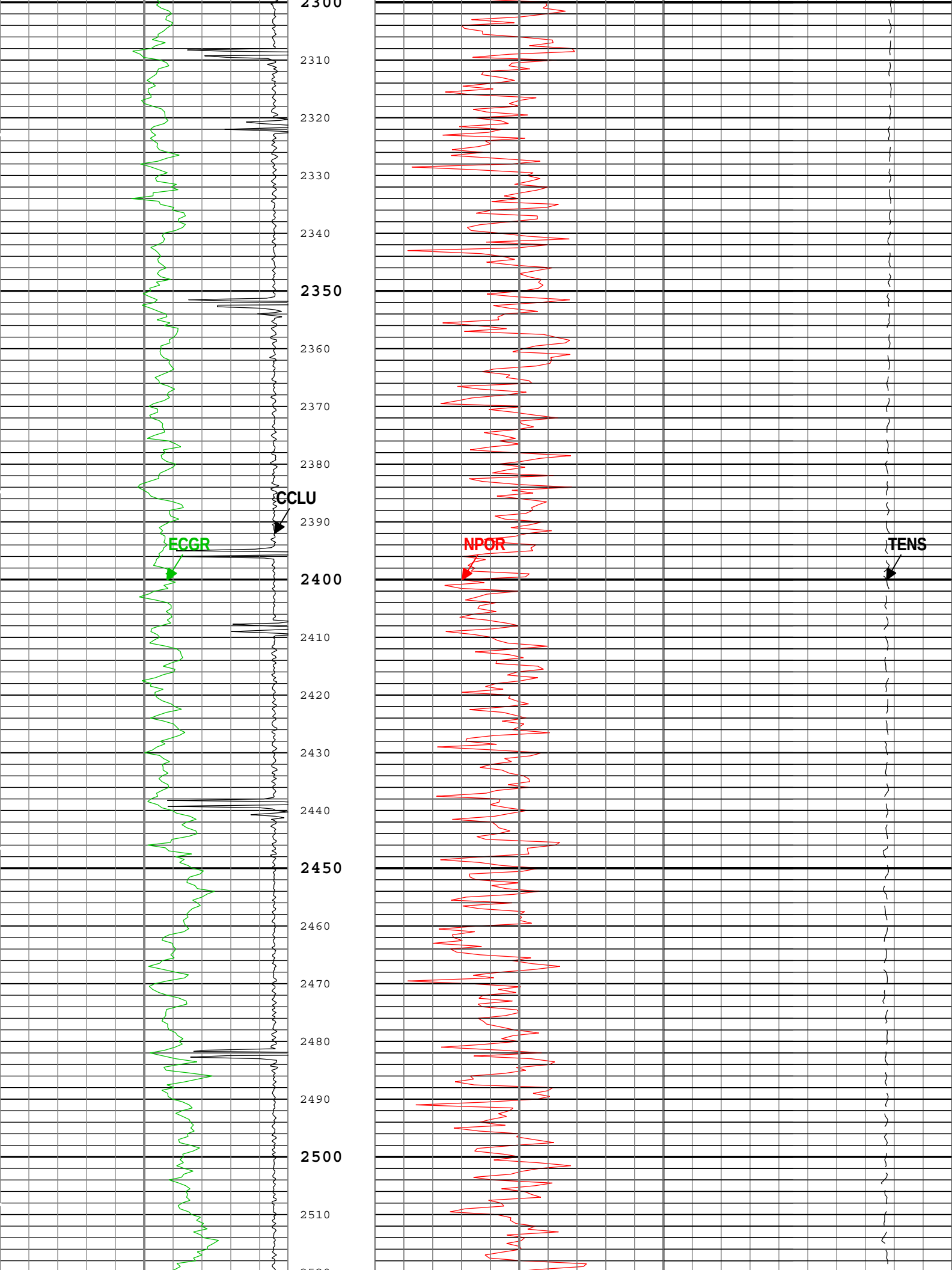
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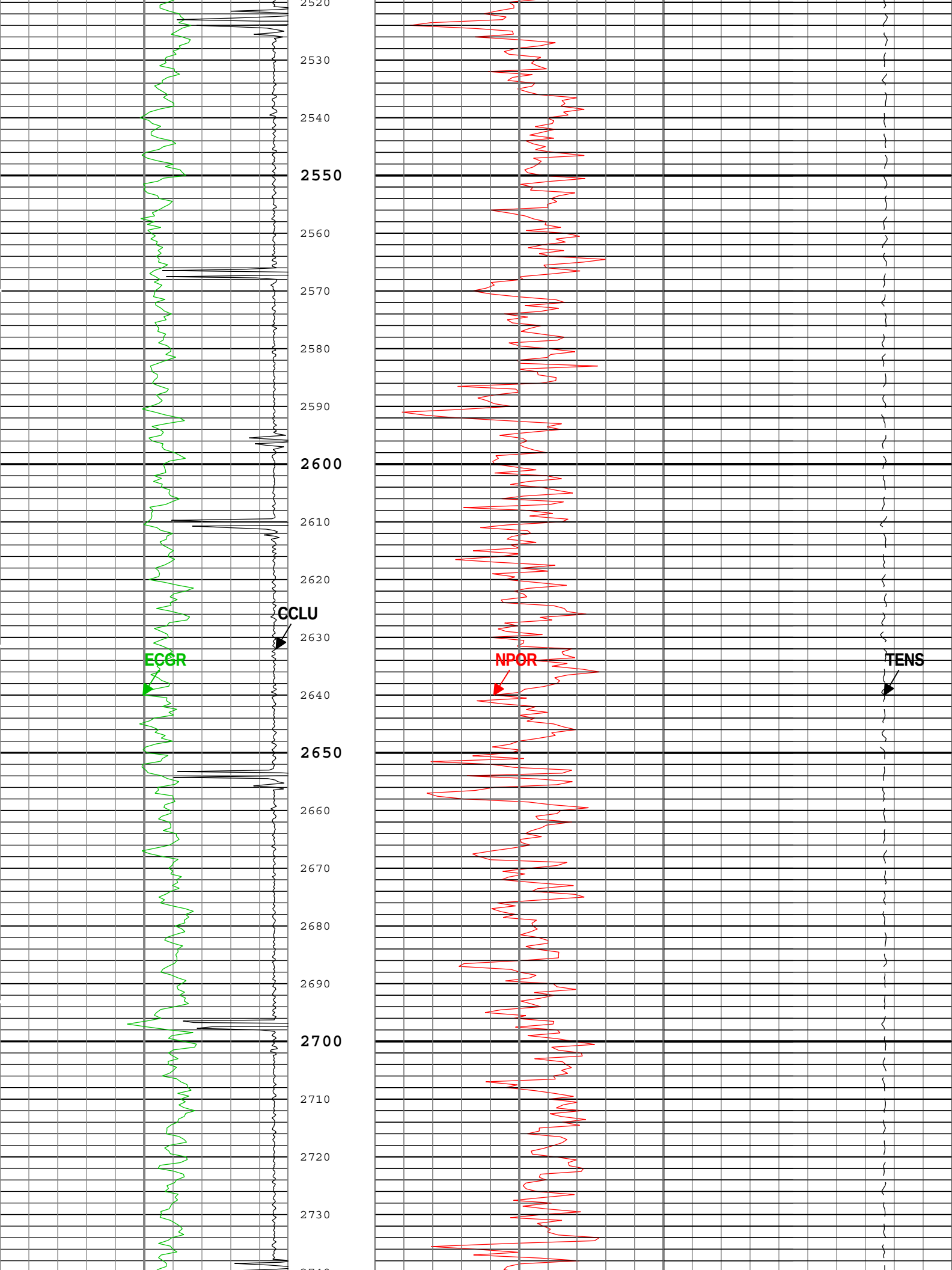
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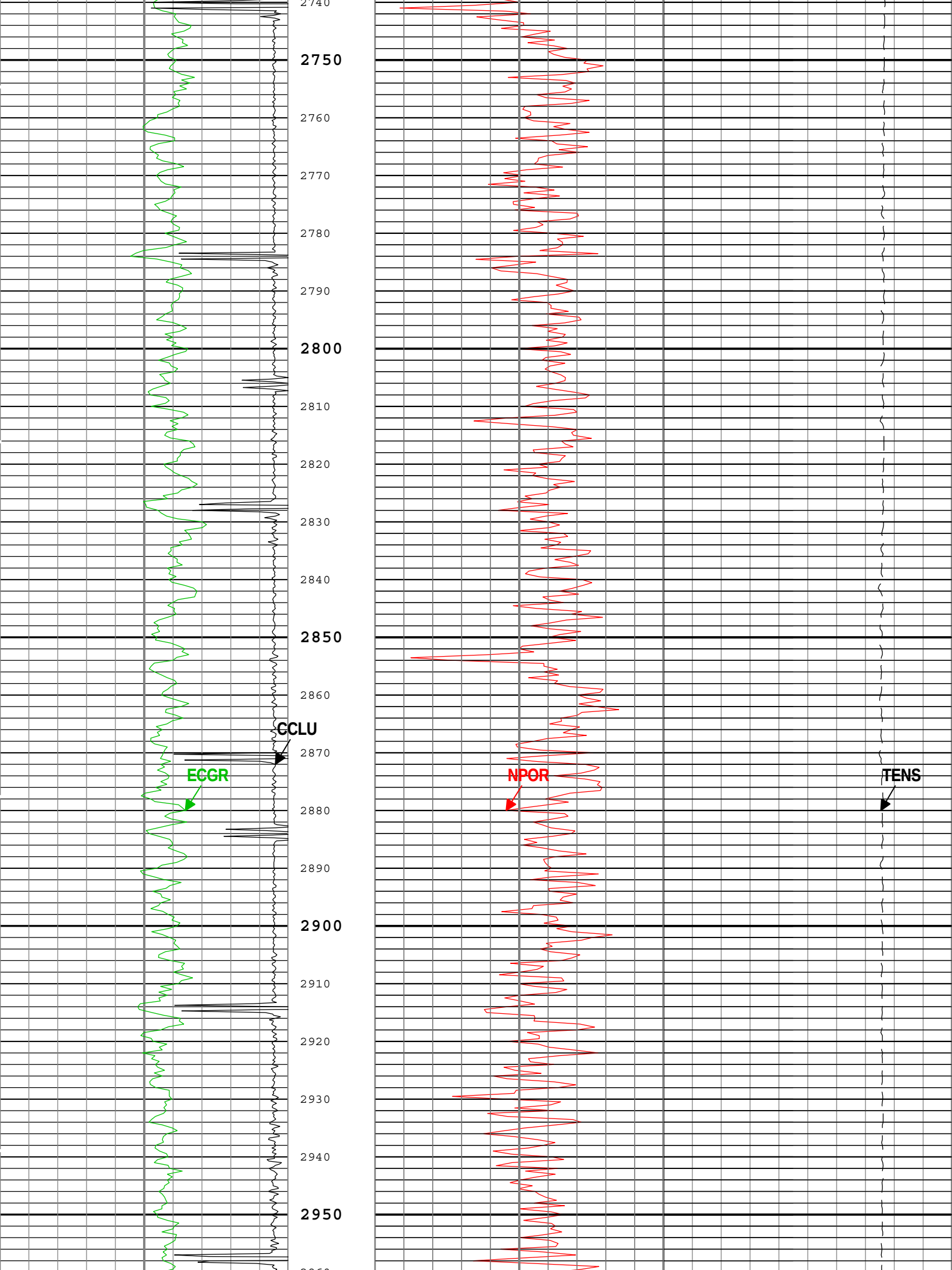
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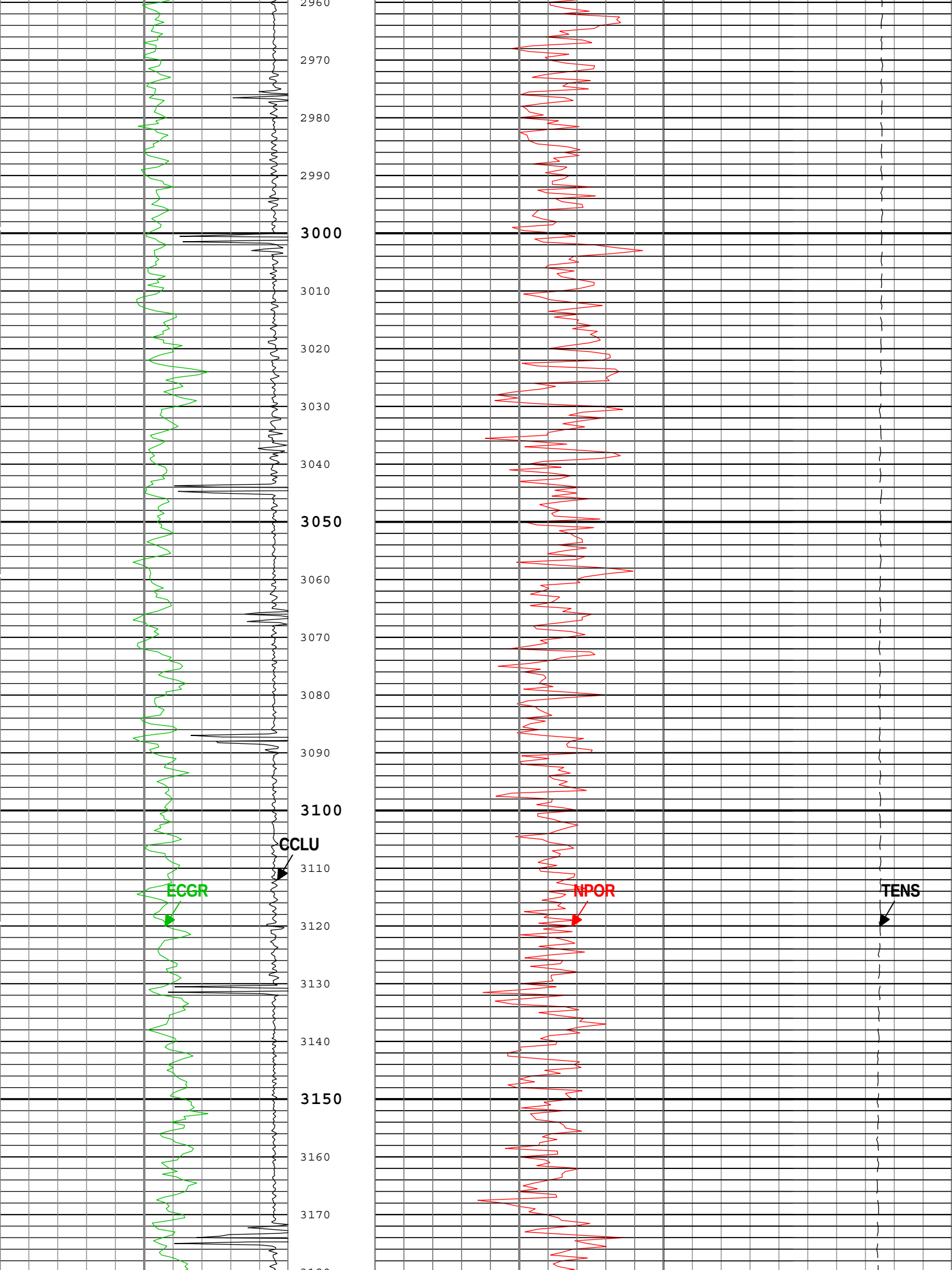
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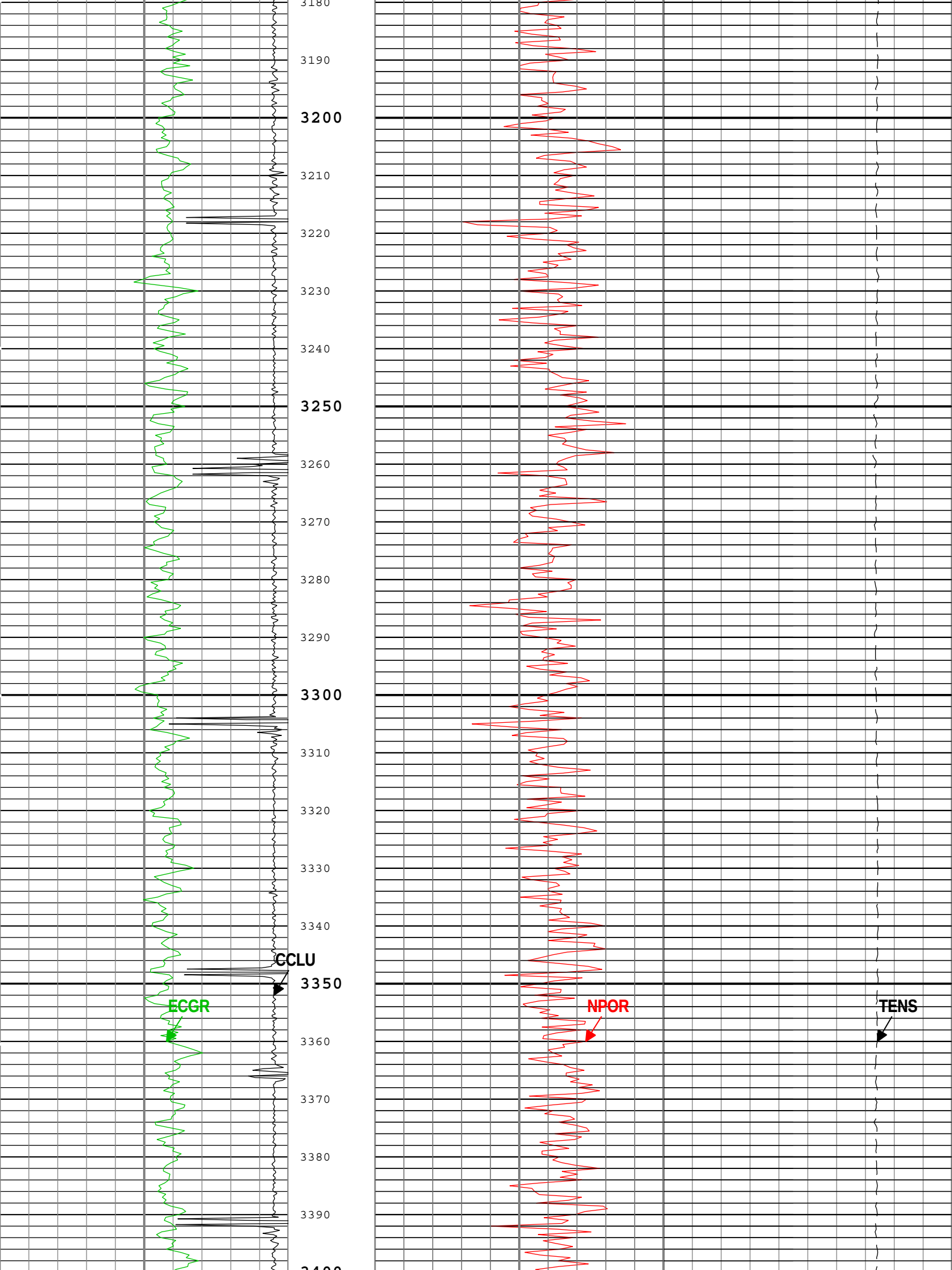
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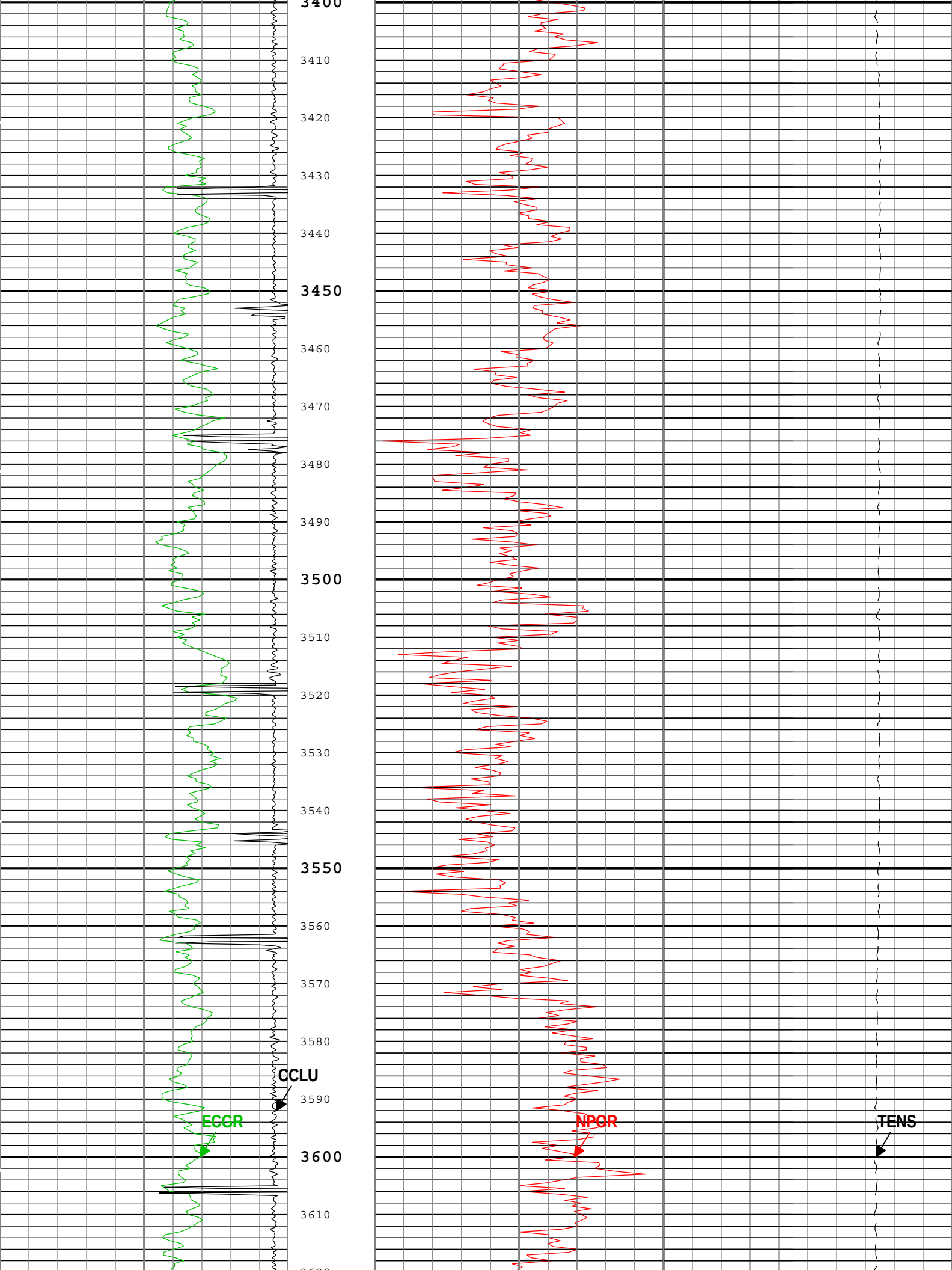
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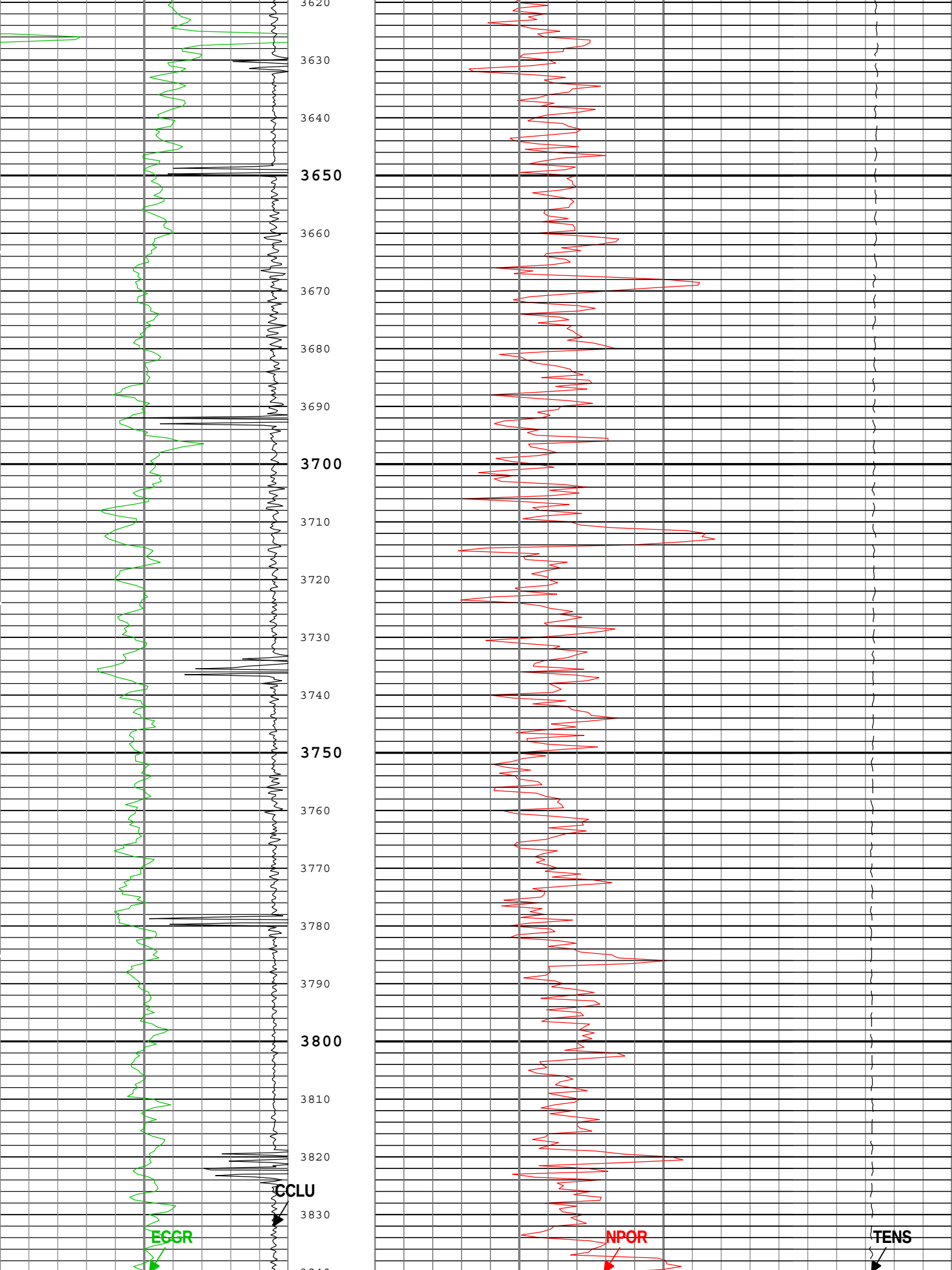
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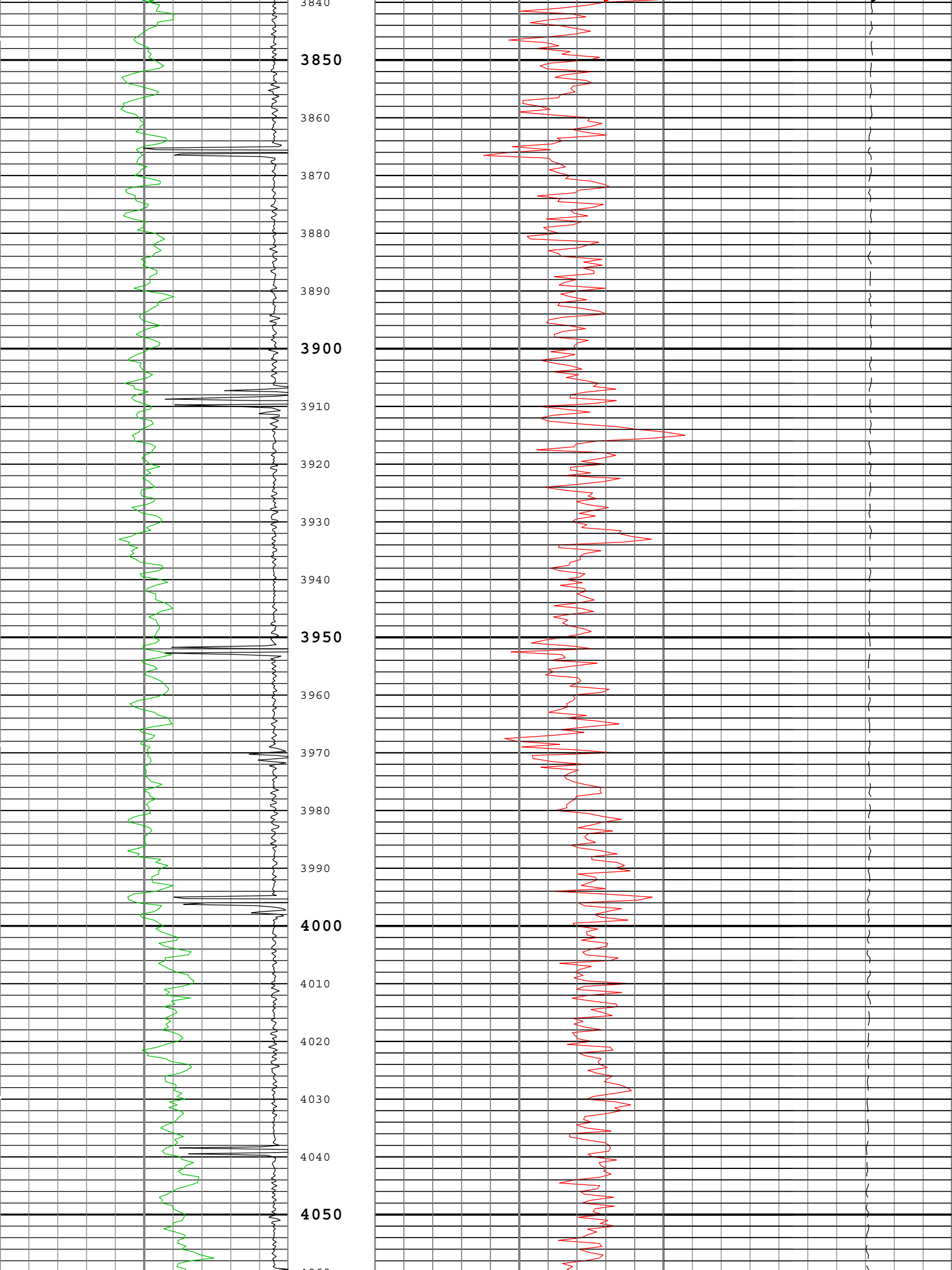
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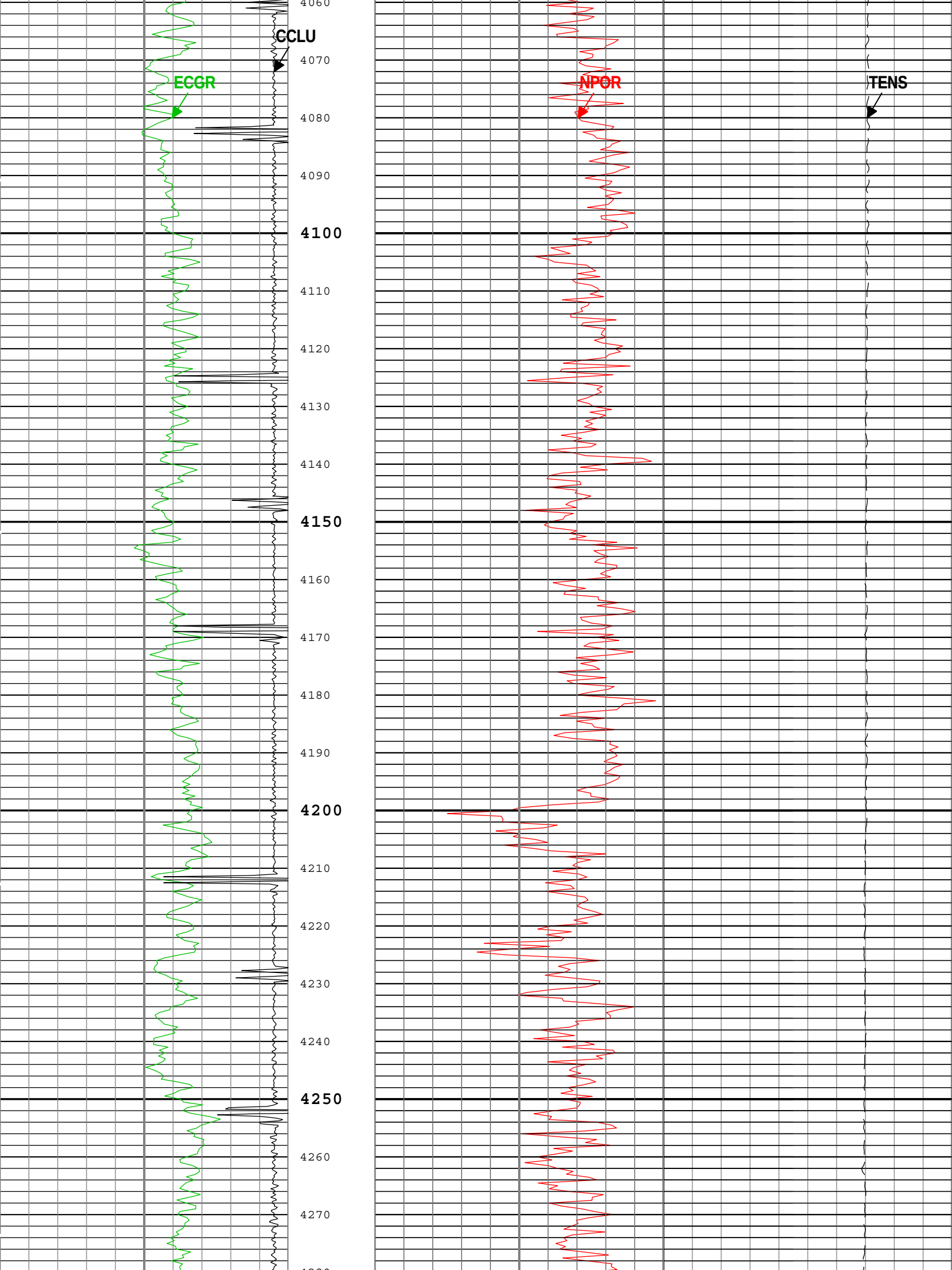
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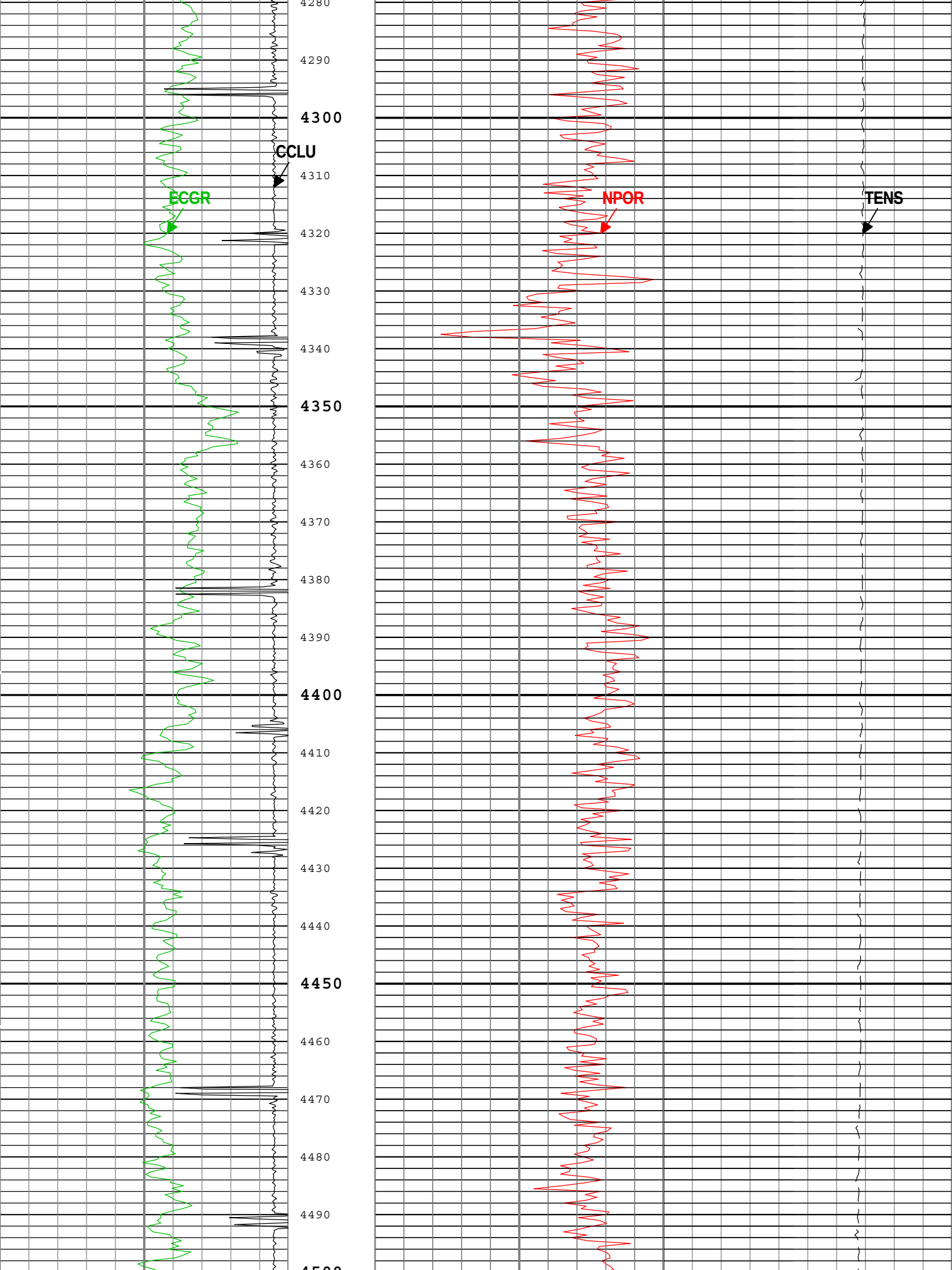
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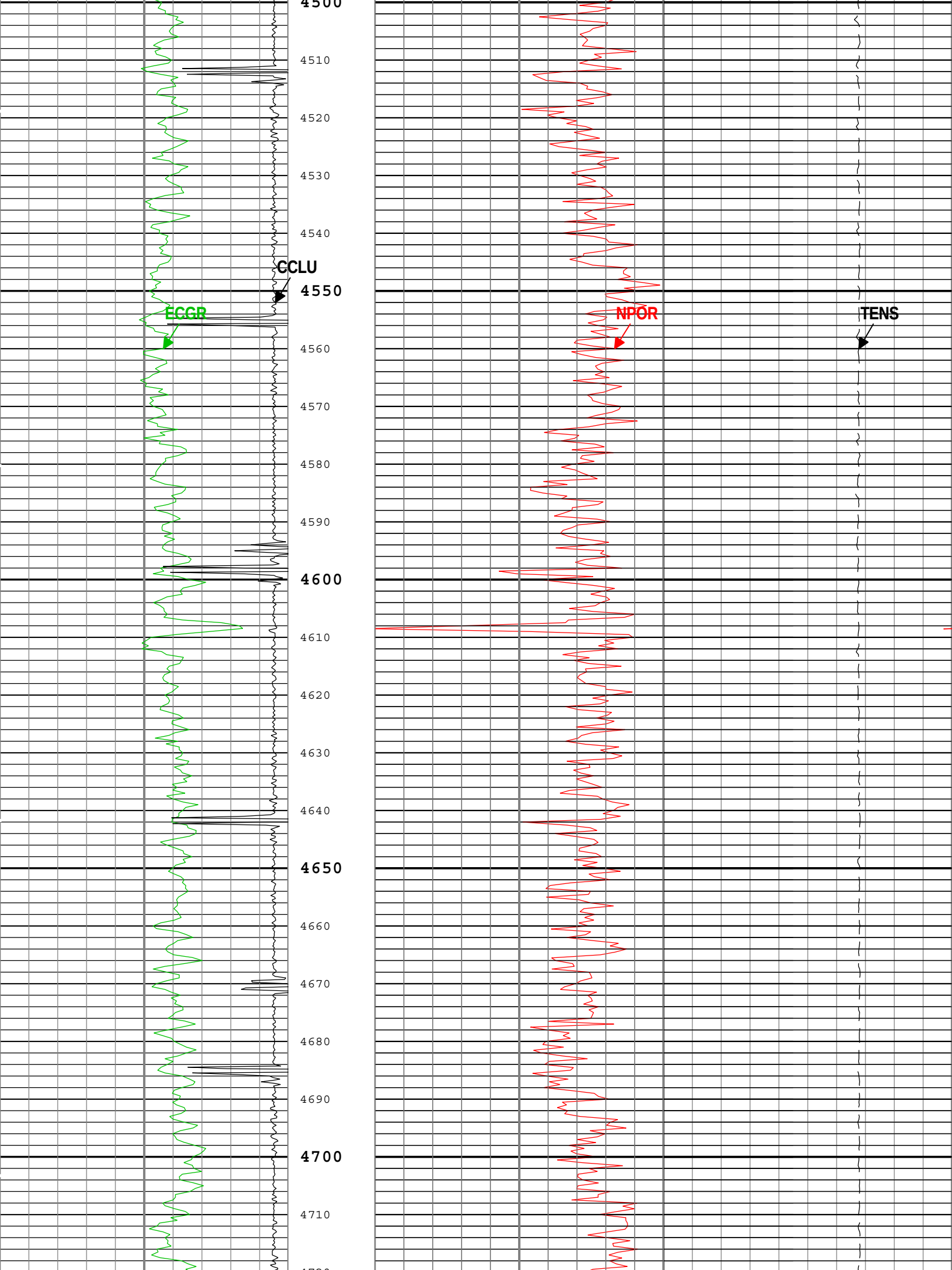
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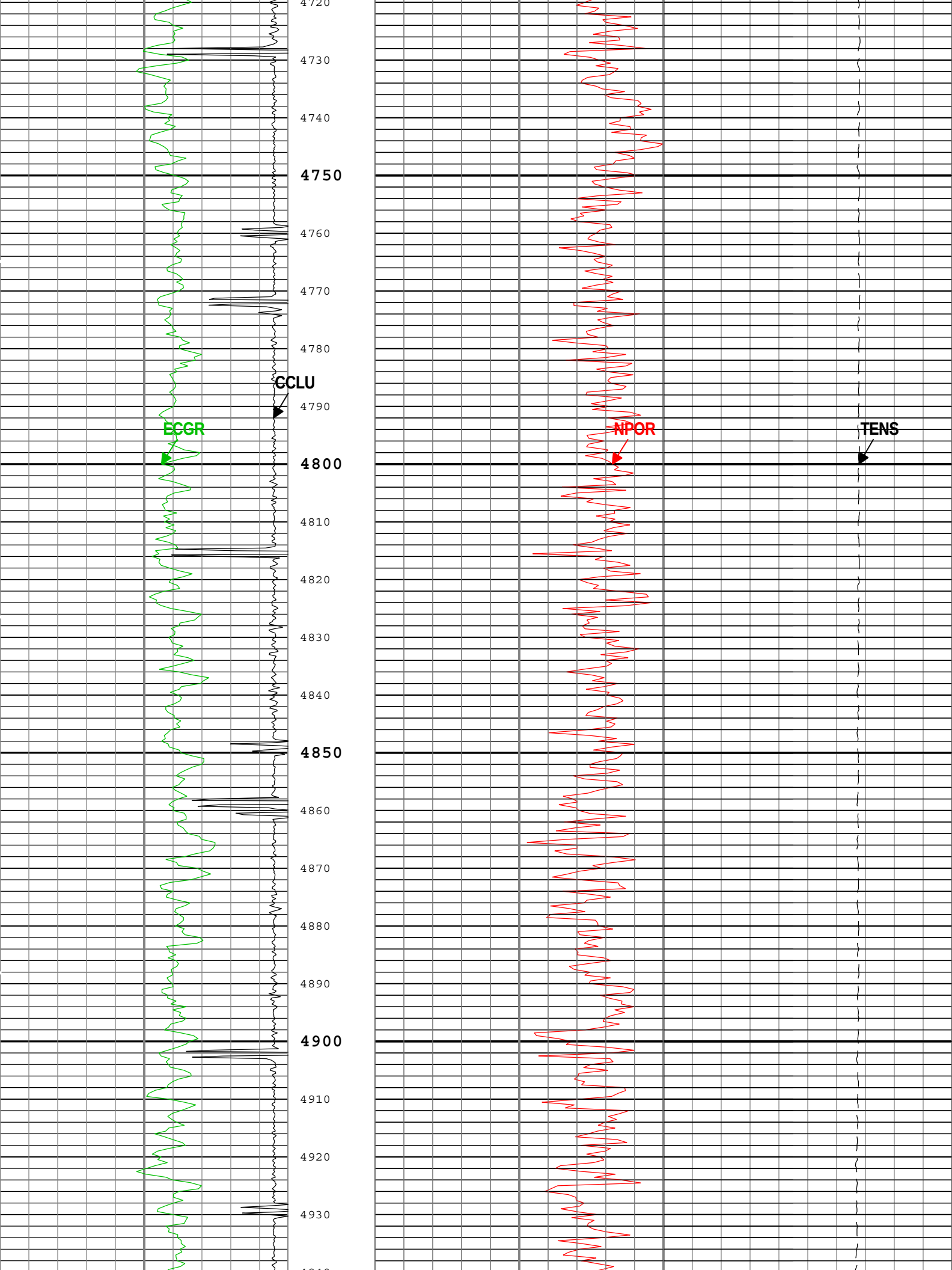
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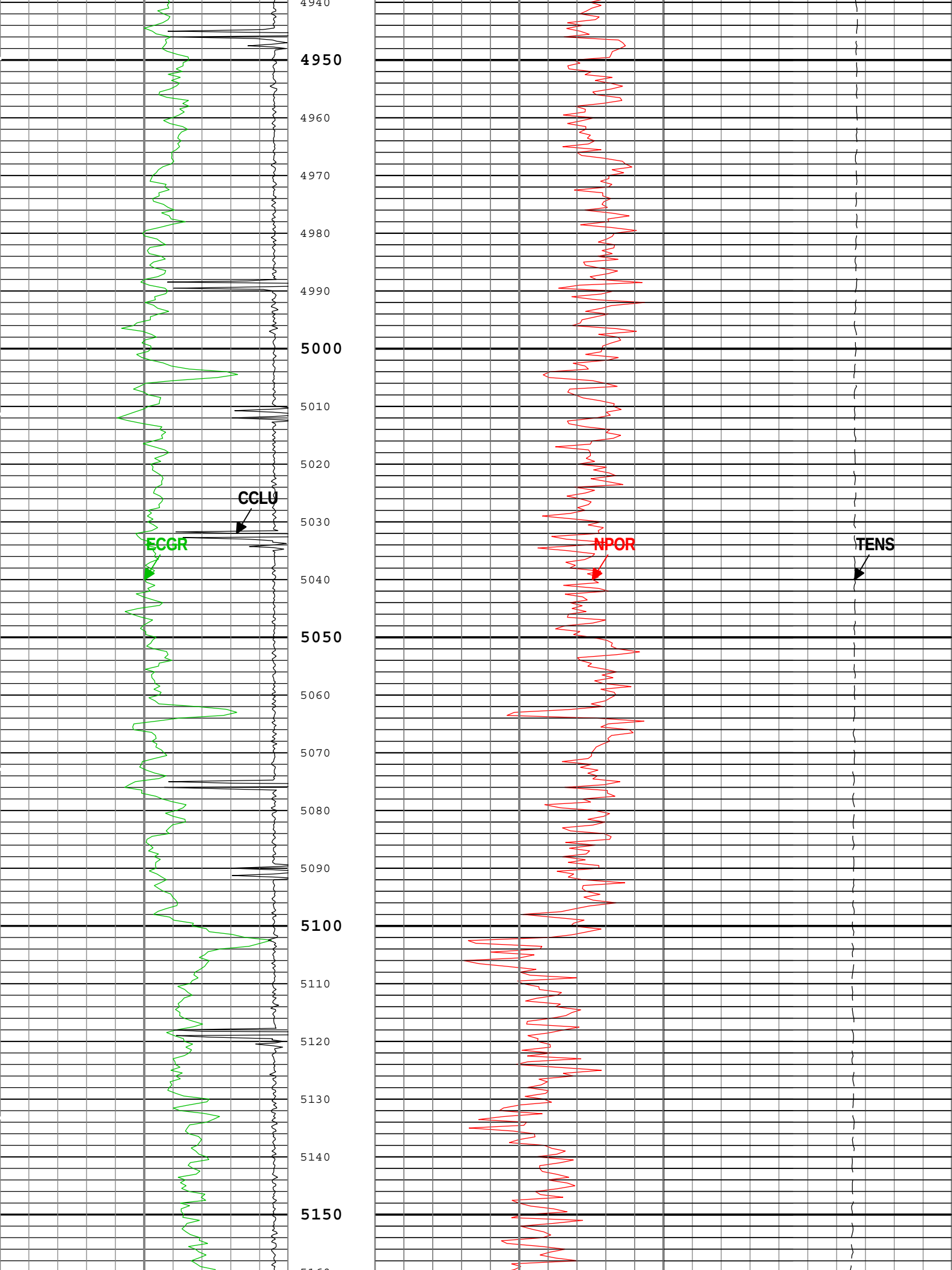
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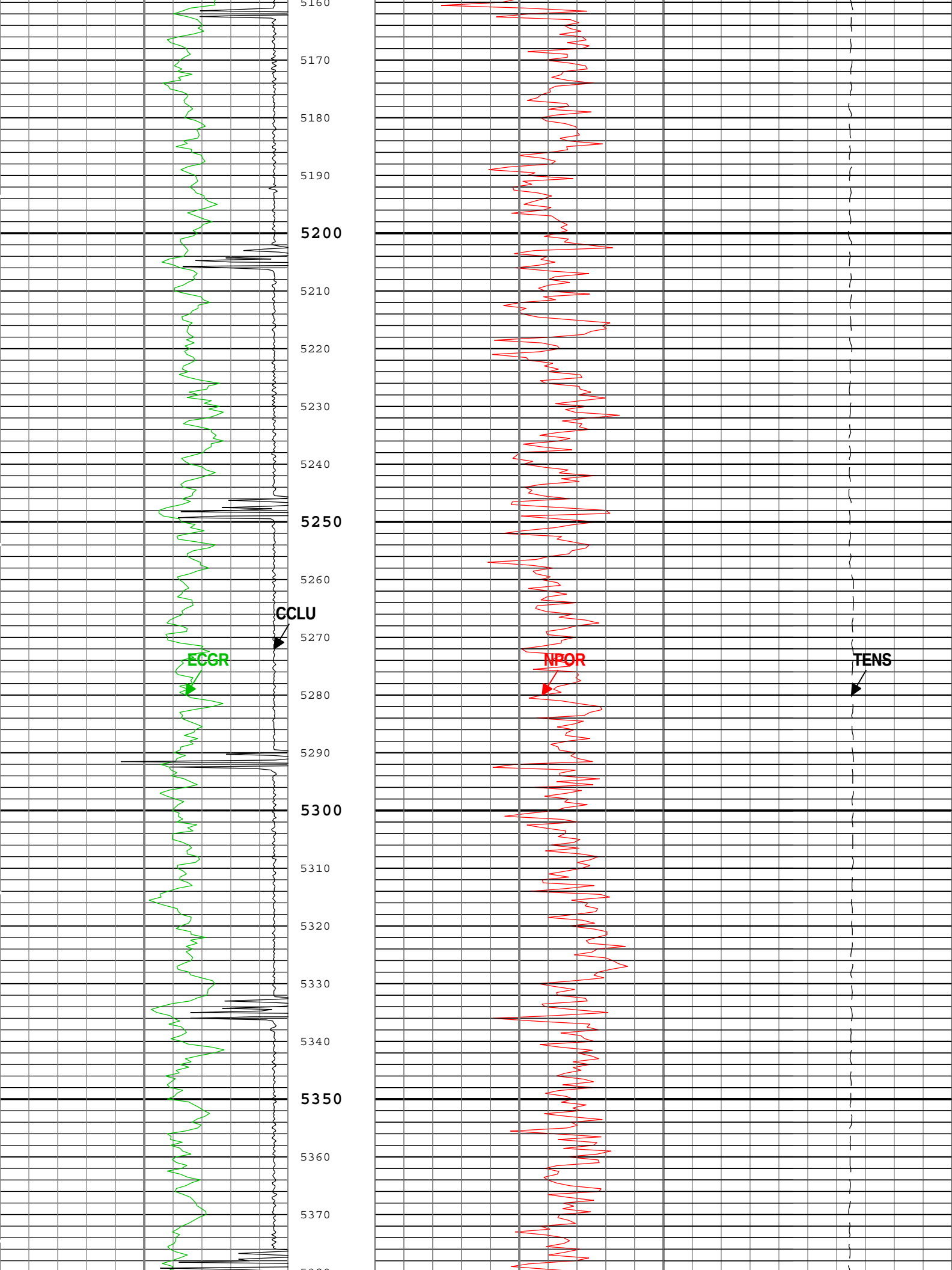
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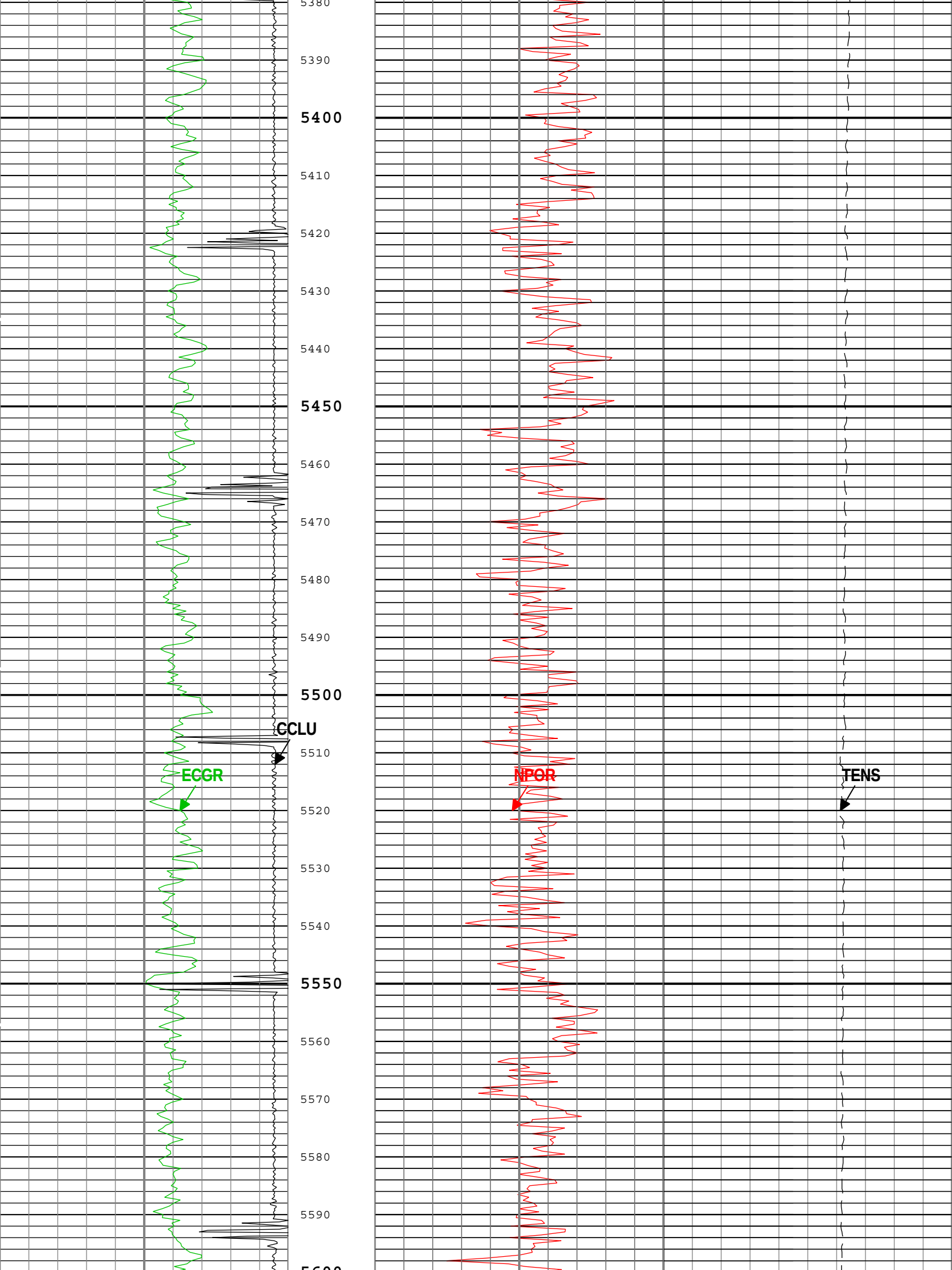
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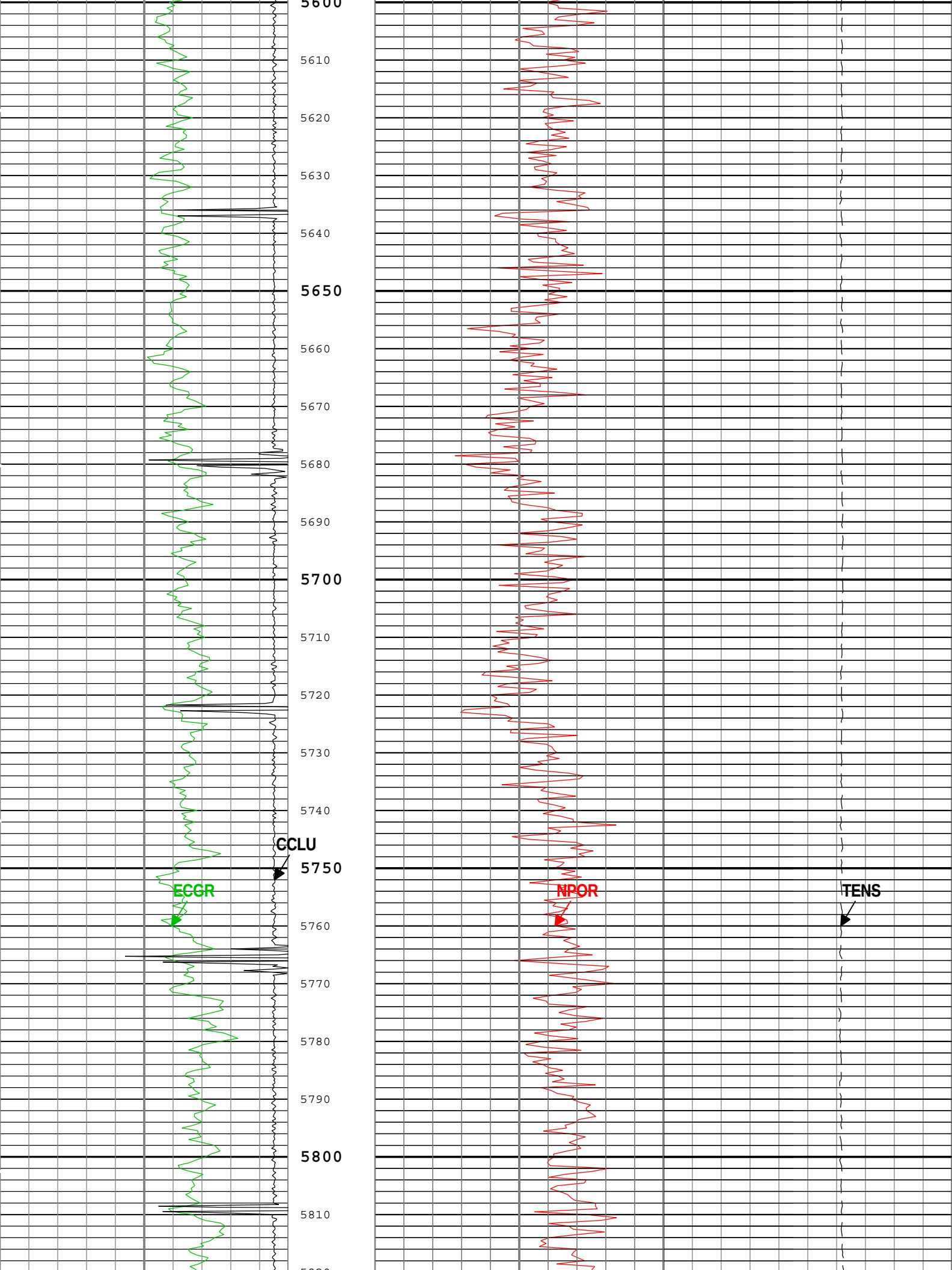
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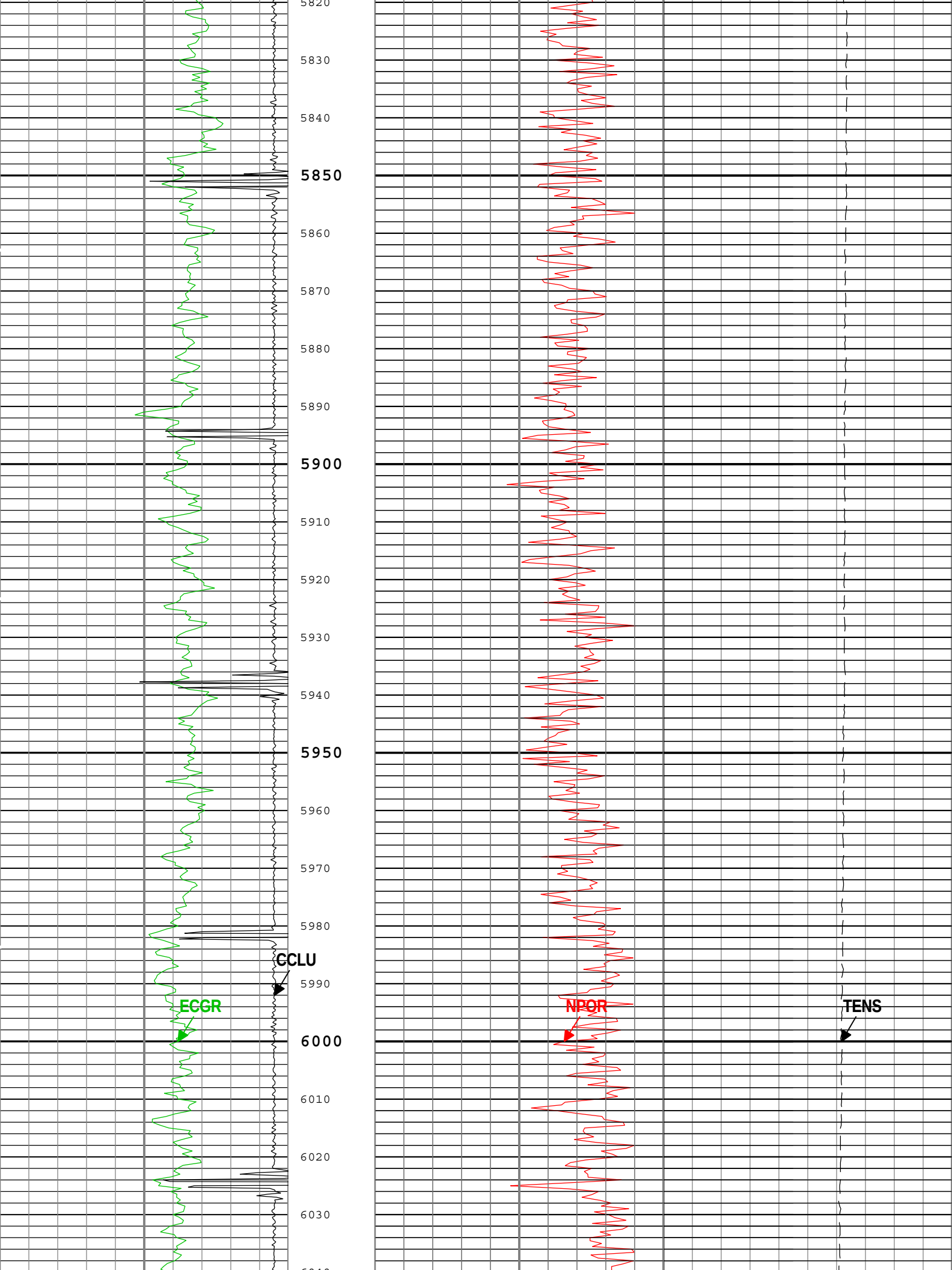
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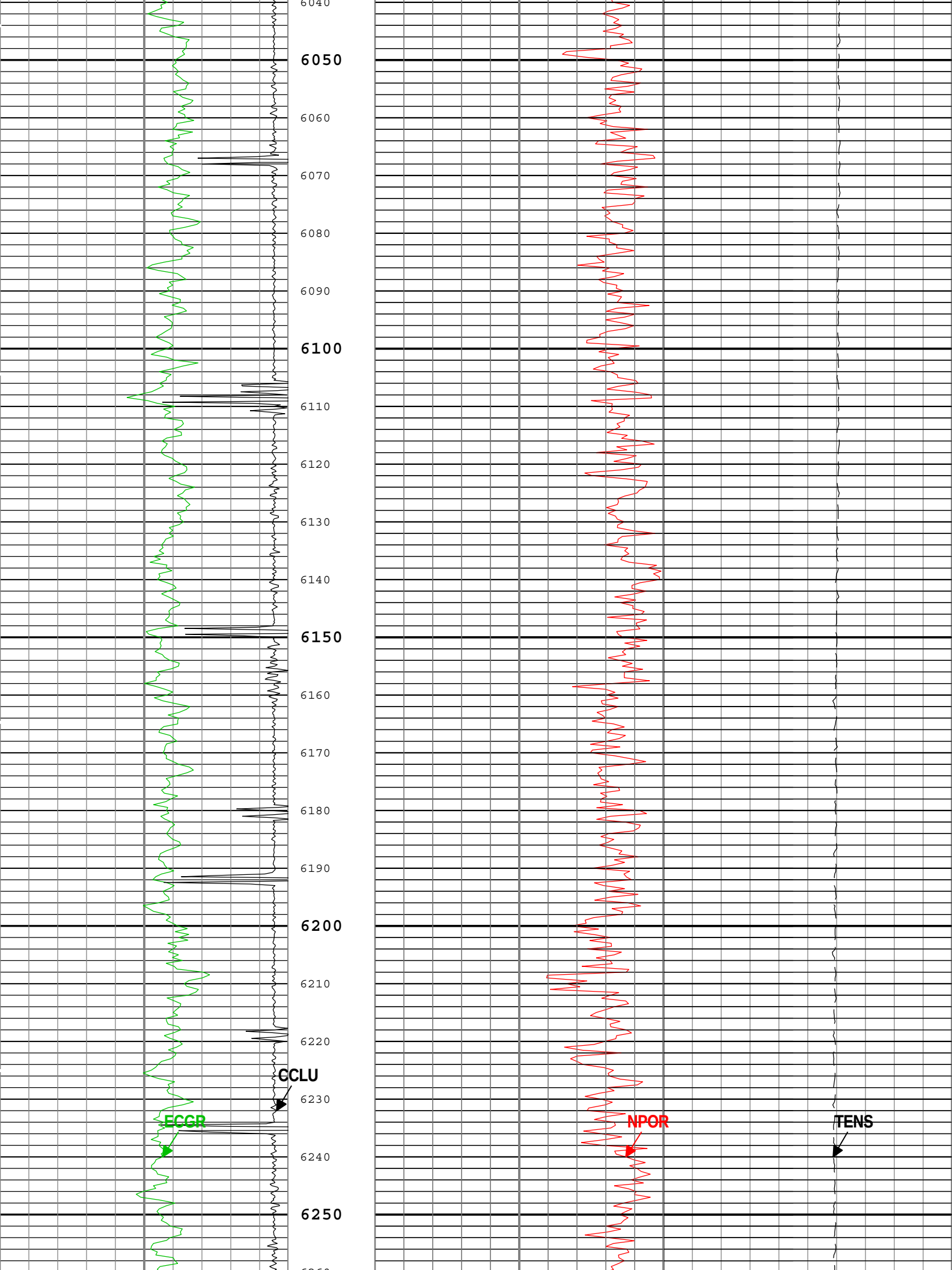
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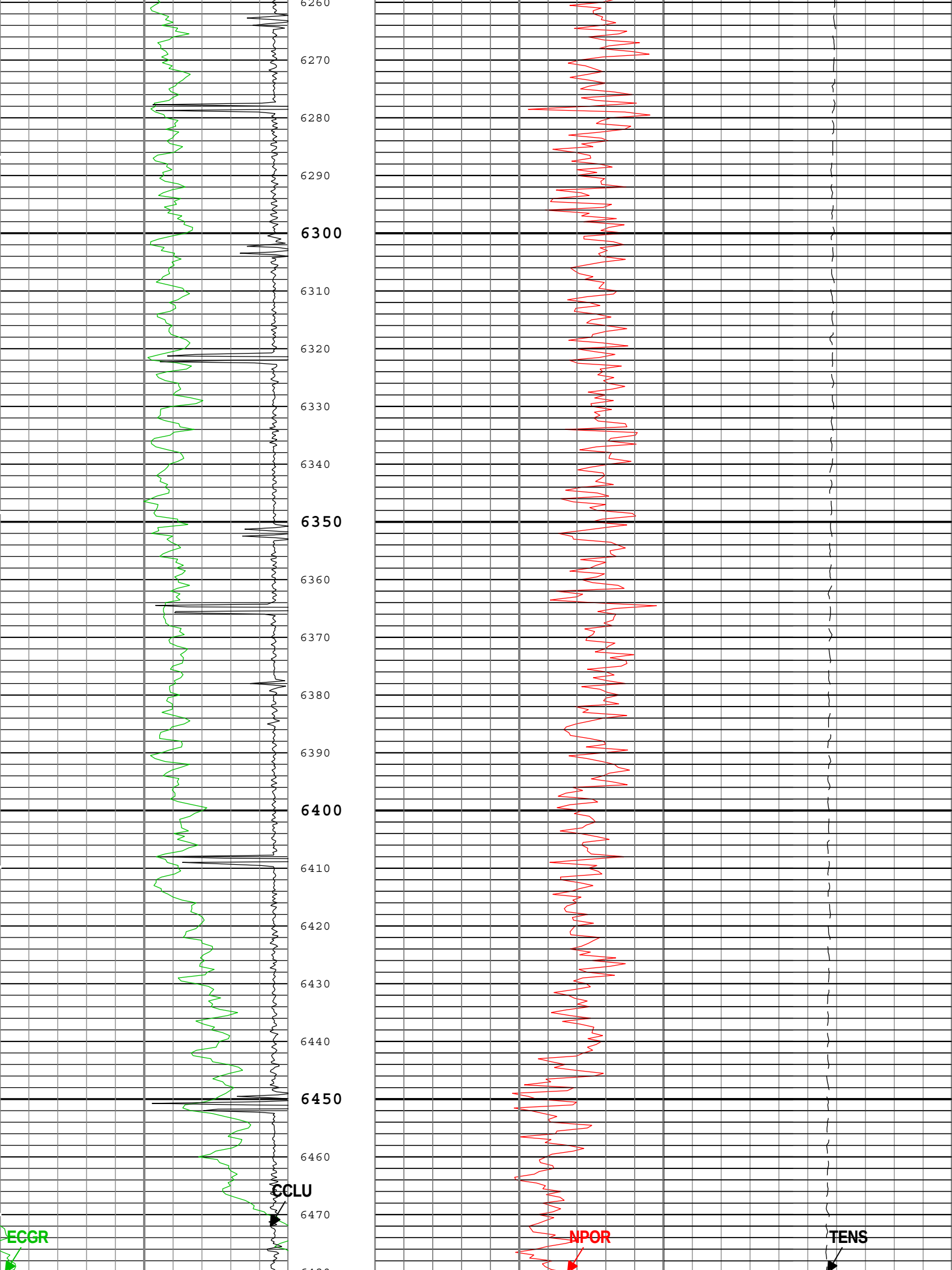
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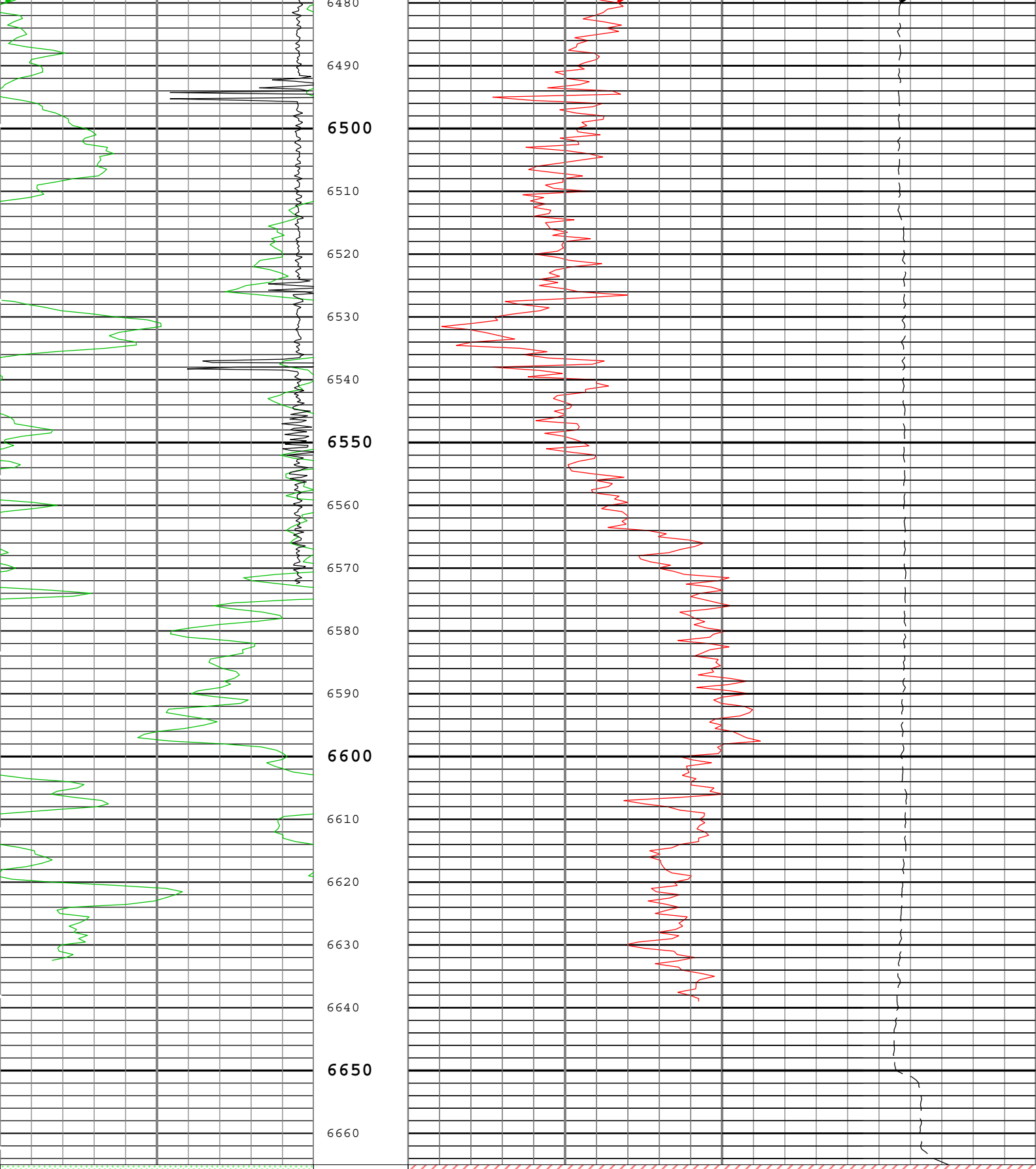
CCLU
6470
ECGR
NPOR
TENS



GR Backup

Gamma Ray (ECGR) HGNS-H

0 gAPI 150

NPOR Backup

Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H

0.45 ft3/ft3 -0.15

Casing Collar Locator Ultrasonic (CCLU)
USIT-E

-19 in 1

Cable Tension (TENS)

5000 lbf 0

ICV - Integrated Cement Volume every 100.00 (ft3)

ICV - Integrated Cement Volume every 100.00 (ft3)

ICV - Integrated Cement Volume every 10.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

IHV - Integrated Hole Volume every 100.00 (ft3)

IHV - Integrated Hole Volume every 10.00 (ft3)

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: 27-Feb-2015 18:46:33

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	212	degF
BS	Bit Size	WLSESSION	Depth Zoned	in
BSAL	Borehole Salinity	Borehole	0	ppm
CBLO	Casing Bottom (Logger)	WLSESSION	11902	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	5.5	in
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.361	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	4835	ft
FCD	Future Casing (Outer) Diameter	WLSESSION	0	in
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	22.44	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	1.21	
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	6570	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	Manual	
ZMUD	Acoustic Impedance of Mud	Borehole	Depth Zoned	Mrayl

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	26	26	124
BS	13.5	124	2258
BS	8.75	2258	6570
ZMUD	1.68	26	95
ZMUD	1.7	95	165
ZMUD	1.69	165	180
ZMUD	1.65	180	185
ZMUD	1.63	185	233
ZMUD	1.61	233	315
ZMUD	1.63	315	450
ZMUD	1.64	450	700
ZMUD	1.65	700	950
ZMUD	1.66	950	1330
ZMUD	1.67	1330	1475
ZMUD	1.68	1475	1700
ZMUD	1.69	1700	2025
ZMUD	1.7	2025	2350
ZMUD	1.71	2350	2800
ZMUD	1.72	2800	3150
ZMUD	1.73	3150	3675
ZMUD	1.74	3675	4500
ZMUD	1.75	4500	6310
ZMUD	1.76	6310	6665

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	36	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
EMXV	EMEX Voltage	USIT-E	125	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	

UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 3.0 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	6610	ft
VRES	Vertical Resolution	USIT-E	3.0 in	
WINB	Window Begin Time	USIT-E	Time Zoned	us
WINE	Window End Time	USIT-E	Time Zoned	us

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
WINB	23.11	27-Feb-2015 15:05:22	27-Feb-2015 15:08:00	6664.94	6662.28
WINB	21.04	27-Feb-2015 15:08:00	27-Feb-2015 15:08:03	6662.28	6660.94
WINB	19.38	27-Feb-2015 15:08:03	27-Feb-2015 15:08:10	6660.94	6658.08
WINB	18.13	27-Feb-2015 15:08:10	27-Feb-2015 15:09:48	6658.08	6617.08
WINB	22.28	27-Feb-2015 15:09:48	27-Feb-2015 15:09:58	6617.08	6612.42
WINB	20.21	27-Feb-2015 15:09:58	27-Feb-2015 17:01:38	6612.42	64.22
WINE	80.42	27-Feb-2015 15:05:22	27-Feb-2015 15:08:20	6664.94	6653.89
WINE	82.91	27-Feb-2015 15:08:20	27-Feb-2015 15:08:23	6653.89	6652.87
WINE	86.23	27-Feb-2015 15:08:23	27-Feb-2015 15:09:44	6652.87	6618.91
WINE	89.55	27-Feb-2015 15:09:44	27-Feb-2015 15:09:50	6618.91	6615.94
WINE	93.29	27-Feb-2015 15:09:50	27-Feb-2015 17:01:38	6615.94	64.22

All depth are at tool zero.

Run 1

Software Version

Acquisition System	Version
Maxwell	5.1.33858.3100
Application Patch	Maxwell_Hotfix-USIT-SP1_5.1.38189

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run 1	Repeat[6]:Up	Up	5956.51 ft	6601.92 ft	27-Feb-2015 2:40:10 PM	27-Feb-2015 2:51:59 PM	ON	2.09 ft	Yes
Run 1	Main[7]:Up	Up	64.22 ft	6664.94 ft	27-Feb-2015 3:05:22 PM	27-Feb-2015 5:01:38 PM	ON	4.01 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Noble Energy Inc Well:Crow Creek AA01-743

Run 1: Main[7]:Up:S006

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: 27-Feb-2015 18:46:37

IHV - Integrated Hole Volume every 10.00 (ft3)

IHV - Integrated Hole Volume every 100.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

ICV - Integrated Cement Volume every 10.00 (ft3)

ICV - Integrated Cement Volume every 100.00 (ft3)

Main To Repeat

Repeat To Main

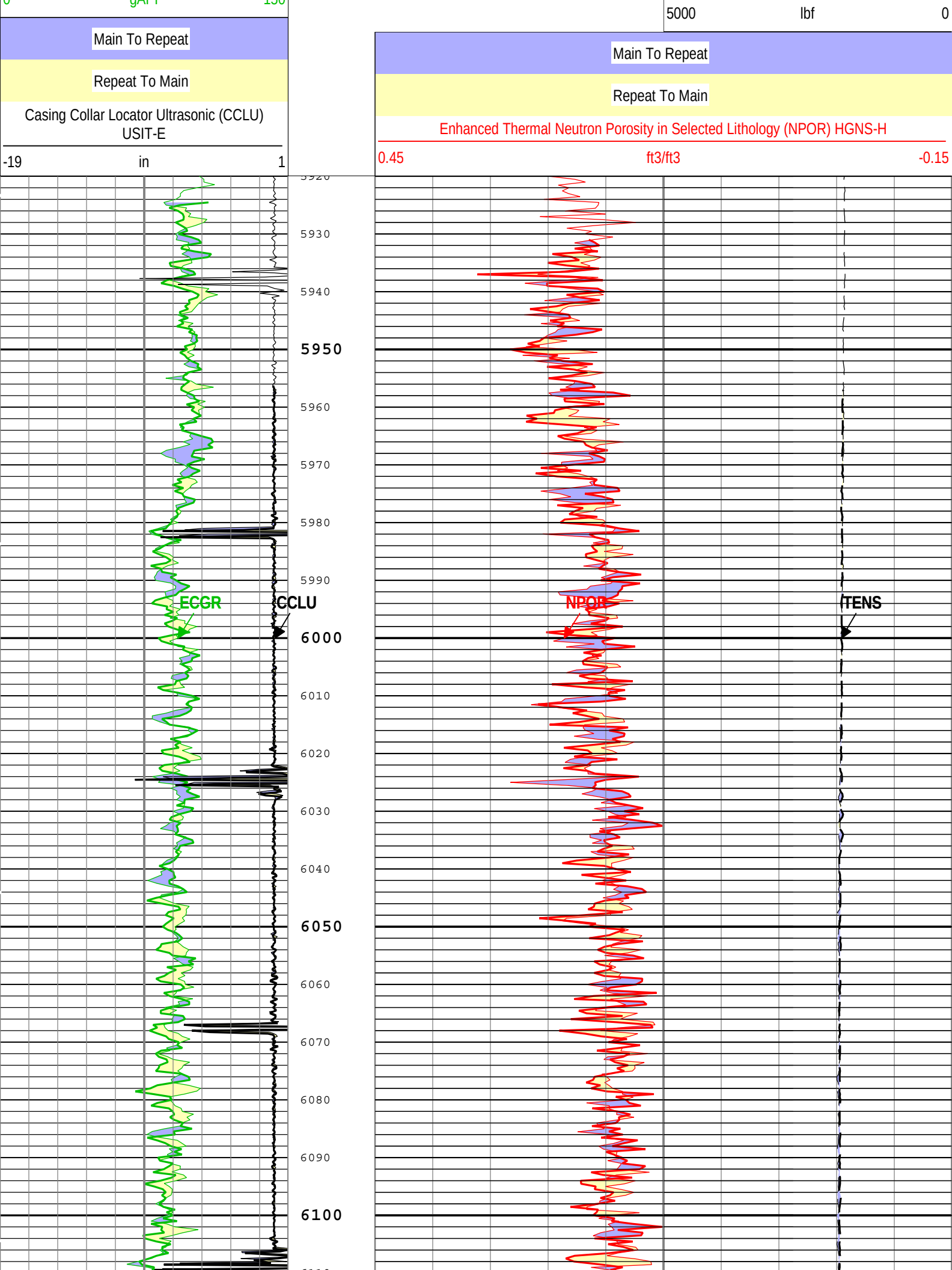
Gamma Ray (ECGR) HGNS-H

0 gAPI 150

Main To Repeat

Repeat To Main

Cable Tension (TENS)


gAPI
150
5000
lbf
0
Main To Repeat
Repeat To Main
Casing Collar Locator Ultrasonic (CCLU)
USIT-E
-19
in
1
Main To Repeat
Repeat To Main
Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H
0.45
ft3/ft3
-0.15
5930
5940
5950
5960
5970
5980
5990
6000
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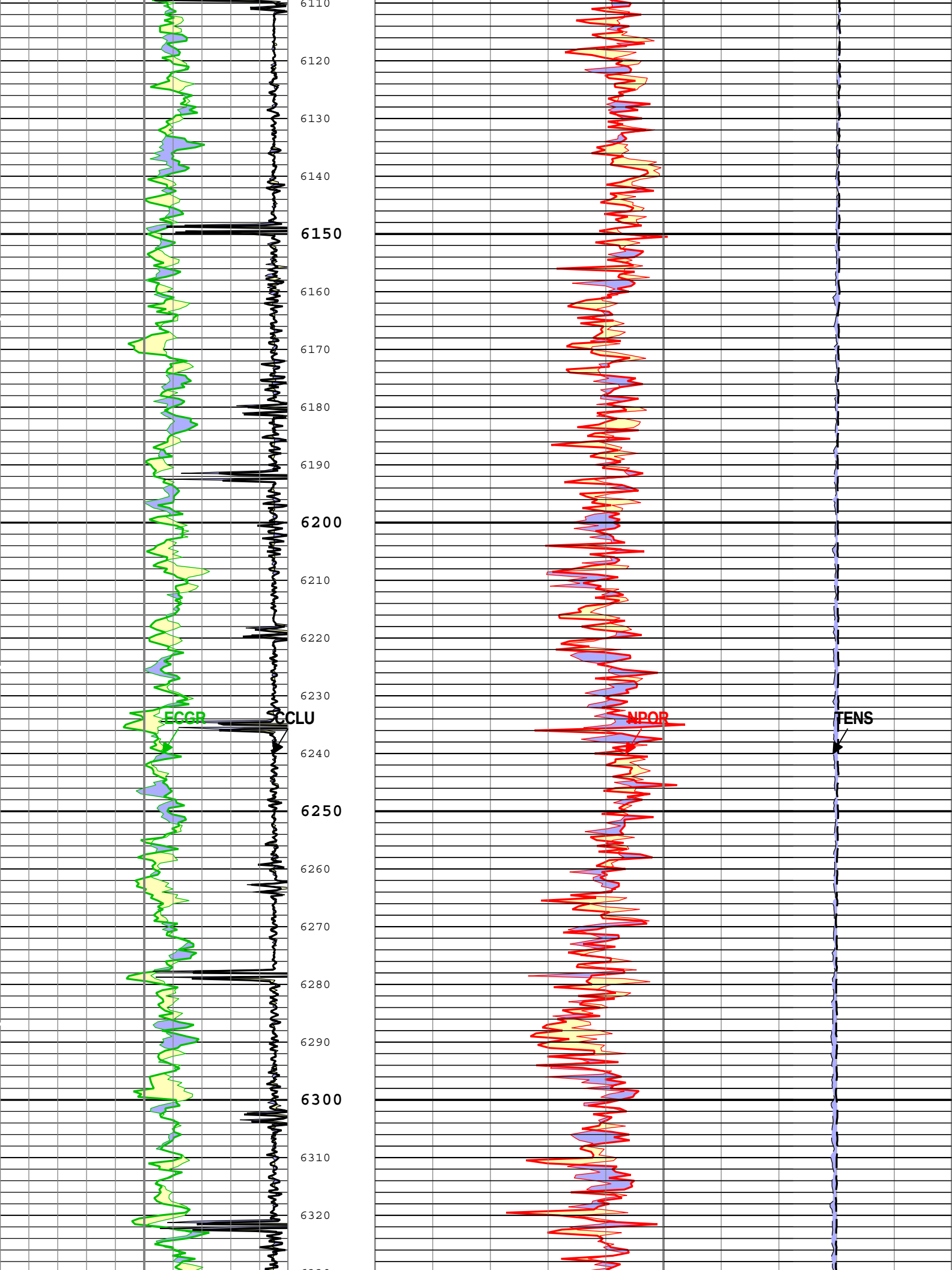
CCLU
NPOR
TENS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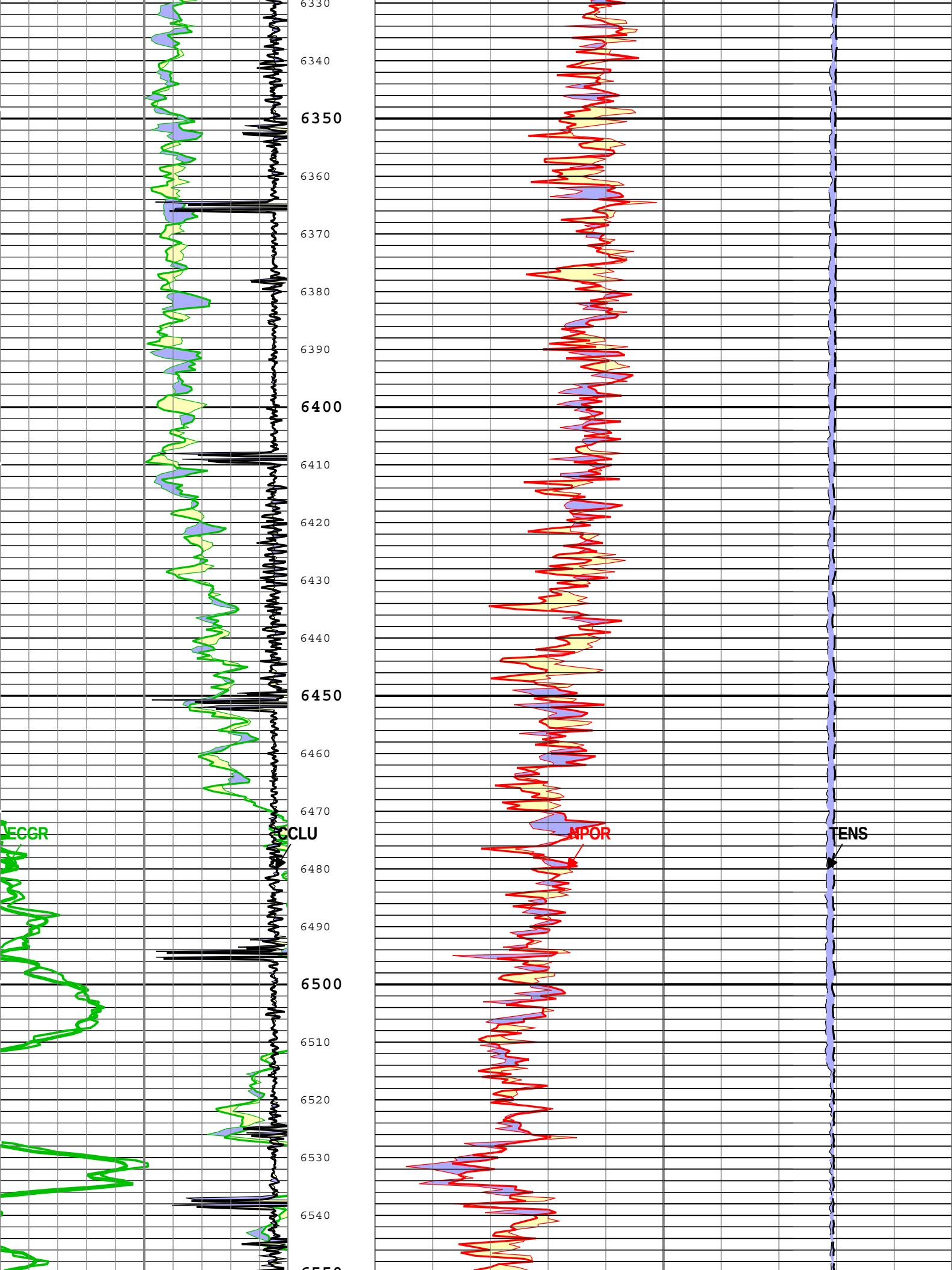
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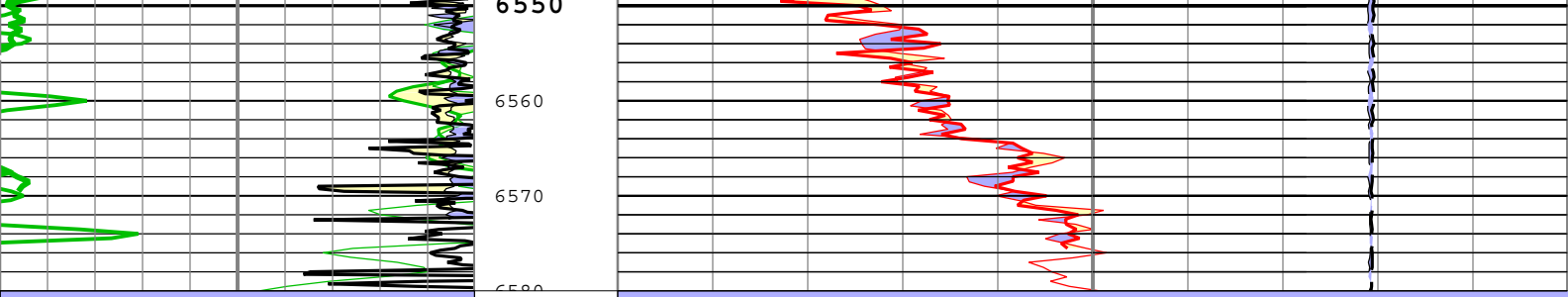
CCLU
NPOR
TENS



Main To Repeat

Repeat To Main

Gamma Ray (ECGR) HGNS-H

0 gAPI 150

Main To Repeat

Repeat To Main

Enhanced Thermal Neutron Porosity in Selected Lithology (NPOR) HGNS-H

0.45 ft3/ft3 -0.15

Main To Repeat

Repeat To Main

Casing Collar Locator Ultrasonic (CCLU) USIT-E

-19 in 1

Main To Repeat

Repeat To Main

Cable Tension (TENS)

5000 lbf 0

ICV - Integrated Cement Volume every 100.00 (ft3)

ICV - Integrated Cement Volume every 10.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

IHV - Integrated Hole Volume every 100.00 (ft3)

IHV - Integrated Hole Volume every 10.00 (ft3)

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: 27-Feb-2015 18:46:37

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	212	degF
BS	Bit Size	WLSESSION	8.75	in
BSAL	Borehole Salinity	Borehole	0	ppm
CBLO	Casing Bottom (Logger)	WLSESSION	11902	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	5.5	in
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.361	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	4835	ft
FCD	Future Casing (Outer) Diameter	WLSESSION	0	in
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	22.44	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	1.21	
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	6570	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	Manual	
ZMUD	Acoustic Impedance of Mud	Borehole	Depth Zoned	Mrayl

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
ZMUD	1.75	5920	6310
ZMUD	1.76	6310	6580

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	36	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
EMXV	EMEX Voltage	USIT-E	125	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	6610	ft

VRES	Vertical Resolution	USIT-E	3.0 in	
WINB	Window Begin Time	USIT-E	Time Zoned	us
WINE	Window End Time	USIT-E	Time Zoned	us

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
WINB	23.11	27-Feb-2015 15:05:22	27-Feb-2015 15:08:00	6664.94	6662.28
WINB	21.04	27-Feb-2015 15:08:00	27-Feb-2015 15:08:03	6662.28	6660.94
WINB	19.38	27-Feb-2015 15:08:03	27-Feb-2015 15:08:10	6660.94	6658.08
WINB	18.13	27-Feb-2015 15:08:10	27-Feb-2015 15:09:48	6658.08	6617.08
WINB	22.28	27-Feb-2015 15:09:48	27-Feb-2015 15:09:58	6617.08	6612.42
WINB	20.21	27-Feb-2015 15:09:58	27-Feb-2015 17:01:38	6612.42	64.22
WINE	80.42	27-Feb-2015 15:05:22	27-Feb-2015 15:08:20	6664.94	6653.89
WINE	82.91	27-Feb-2015 15:08:20	27-Feb-2015 15:08:23	6653.89	6652.87
WINE	86.23	27-Feb-2015 15:08:23	27-Feb-2015 15:09:44	6652.87	6618.91
WINE	89.55	27-Feb-2015 15:09:44	27-Feb-2015 15:09:50	6618.91	6615.94
WINE	93.29	27-Feb-2015 15:09:50	27-Feb-2015 17:01:38	6615.94	64.22

All depth are at tool zero.

Calibration Report

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	

Auxiliary Equipment :

HGNS Accelerometer, 150 degC	HACCZ-H	6991
AmBe Neutron Logging Source	NSR-F	2554

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-May-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	-----	-----	-4298.000	-----
Accelerometer Coefficients - 1		Master	-----	-----	50.180	-----
Accelerometer Coefficients - 2		Master	-----	-----	-0.002	-----
Accelerometer Coefficients - 3		Master	-----	-----	0.000	-----
Accelerometer Coefficients - 4		Master	-----	-----	2.754	-----
Accelerometer Coefficients - 5		Master	-----	-----	0.000	-----
Accelerometer Coefficients - 6		Master	-----	-----	0.000	-----
Accelerometer Coefficients - 7		Master	-----	-----	0.000	-----
Accelerometer Coefficients - 8		Master	-----	-----	300.500	-----
Accelerometer Coefficients - 9		Master	-----	-----	0.994	-----

HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM): 16:56:48 16-Jan-2015 Before (Measured): 18:38:24 26-Feb-2015

Master (EEPROM): 10:50:48 10-Jan-2015 Before (Measured): 18:38:24 26-Feb-2015

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Near Zero Measurement	1/s	Master	0	5.0	28.2	40.0
		Before	0	5.0	28.9	40.0
		Before-Master	-----	-4.2	0.7	4.2
Far Zero Measurement	1/s	Master	0	5.0	27.7	40.0
		Before	0	5.0	29.1	40.0
		Before-Master	-----	-4.2	1.4	4.2
Near Plus Measurement	1/s	Master	6031.0	4700.0	5579.0	6900.0
		Before	-----	-----	-----	-----
		Before-Master	-----	-----	-----	-----
Far Plus Measurement	1/s	Master	2793.0	1900.0	2301.0	2900.0
		Before	-----	-----	-----	-----
		Before-Master	-----	-----	-----	-----
Near Corrected Plus Measurement	1/s	Master		4700.0	5613.0	6900.0
		Before	-----	-----	-----	-----
		Before-Master	-----	-----	-----	-----
Far Corrected Plus Measurement	1/s	Master		1900.0	2307.0	2900.0
		Before	-----	-----	-----	-----
		Before-Master	-----	-----	-----	-----

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured): 18:40:45 26-Feb-2015

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
RGR Zero Measurement	gAPI	Before	30.0	0	78.6	120.0
RGR Plus Measurement	gAPI	Before	185.4	157.1	175.6	206.3
GR Calibration Gain		Before	0.89	0.80	0.94	1.05

Company:	Noble Energy Inc
Well:	Crow Creek AA01-743
Field:	Wattenberg
County:	Weld
State:	Colorado

Schlumberger

Compensated Neutron

USIT-Lite