

Company: Caerus Operating LLC

Well: Puckett 23B-26

Field: Grand Valley

County: Garfield State: Colorado

Cement Bond Log			
RST Sigma Log			
Gamma Ray - Collar Locator Log			
Location:	Mesa F26	Elev.: K.B. 8352.00 ft	
		G.L. 8322.00 ft	
		D.F. 8352.00 ft	
Permanent Datum:		Ground Level	Elev.: 8322.00 f
Log Measured From:		Kelly Bushing	30.00 ft above Perm.Datum
Drilling Measured From:		Kelly Bushing	
API Serial No.	05045234190000	Section: 26	Township: 6S Range: 97W
Logging Date	23-Jul-2018		

Run Number	ONE		
Depth Driller	8849.40 ft		
Schlumberger Depth	8790.00 ft		
Bottom Log Interval	8790.00 ft		
Top Log Interval	2300.00 ft		
Casing Fluid Type	2% KCL Brine		
Salinity			
Density	8.49 lbm/gal		
Fluid Level	8.00 ft		
BIT/CASING/TUBING STRING			
Bit Size	8.75 in		
From	2519.20 ft		
To	8849.40 ft		
Casing/Tubing Size	4.5 in		
Weight	11.6 lbm/ft		
Grade	P110		
From	0.00 ft		
To	8849.40 ft		
Max Recorded Temperatures	232.5 degF		
Logger on Bottom	23-Jul-2018	02:22:00	
Unit Number	Location: Time		
Recorded By	Justin Ray	Evanston, Wyoming	
Witnessed By	Ryan Tompkins		

Disclaimer

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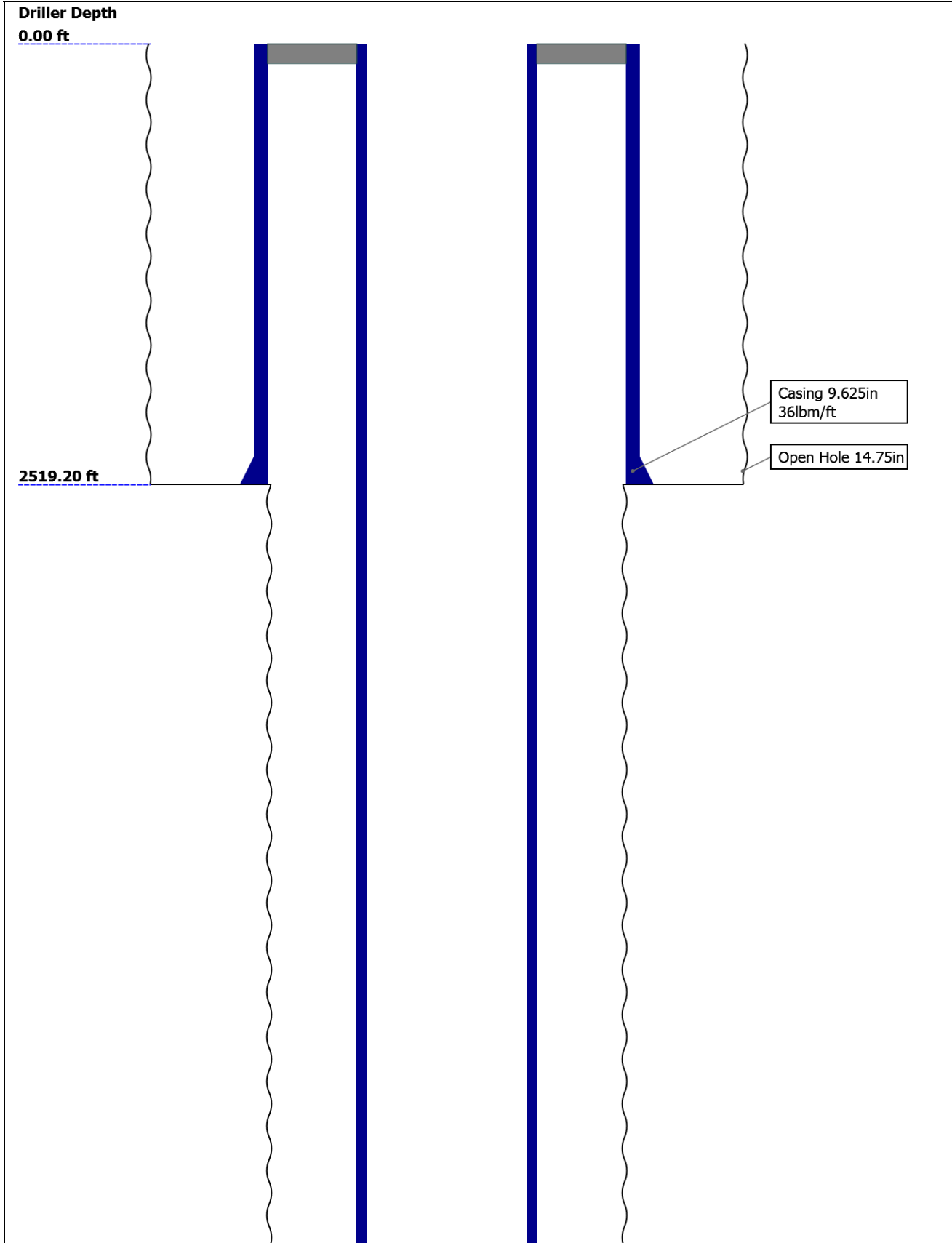
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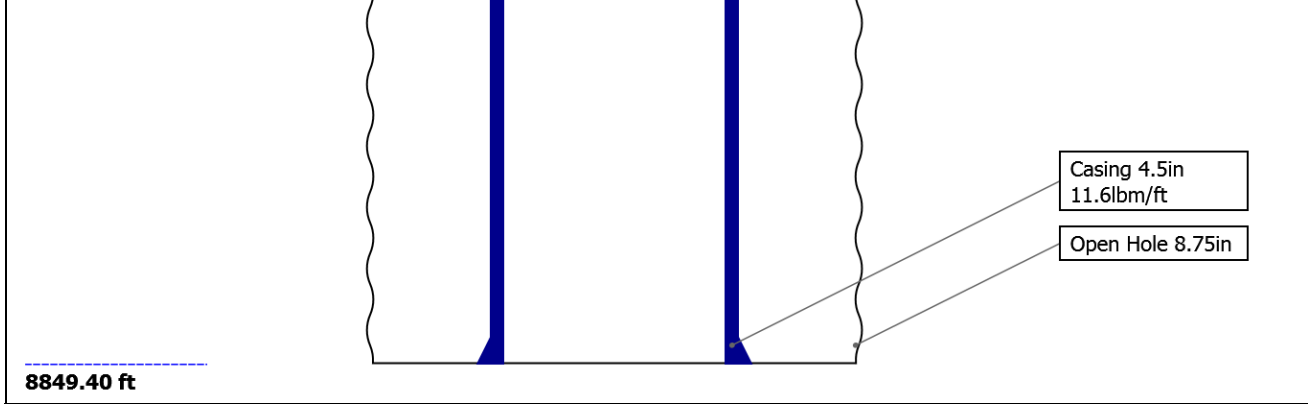
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Well Sketch



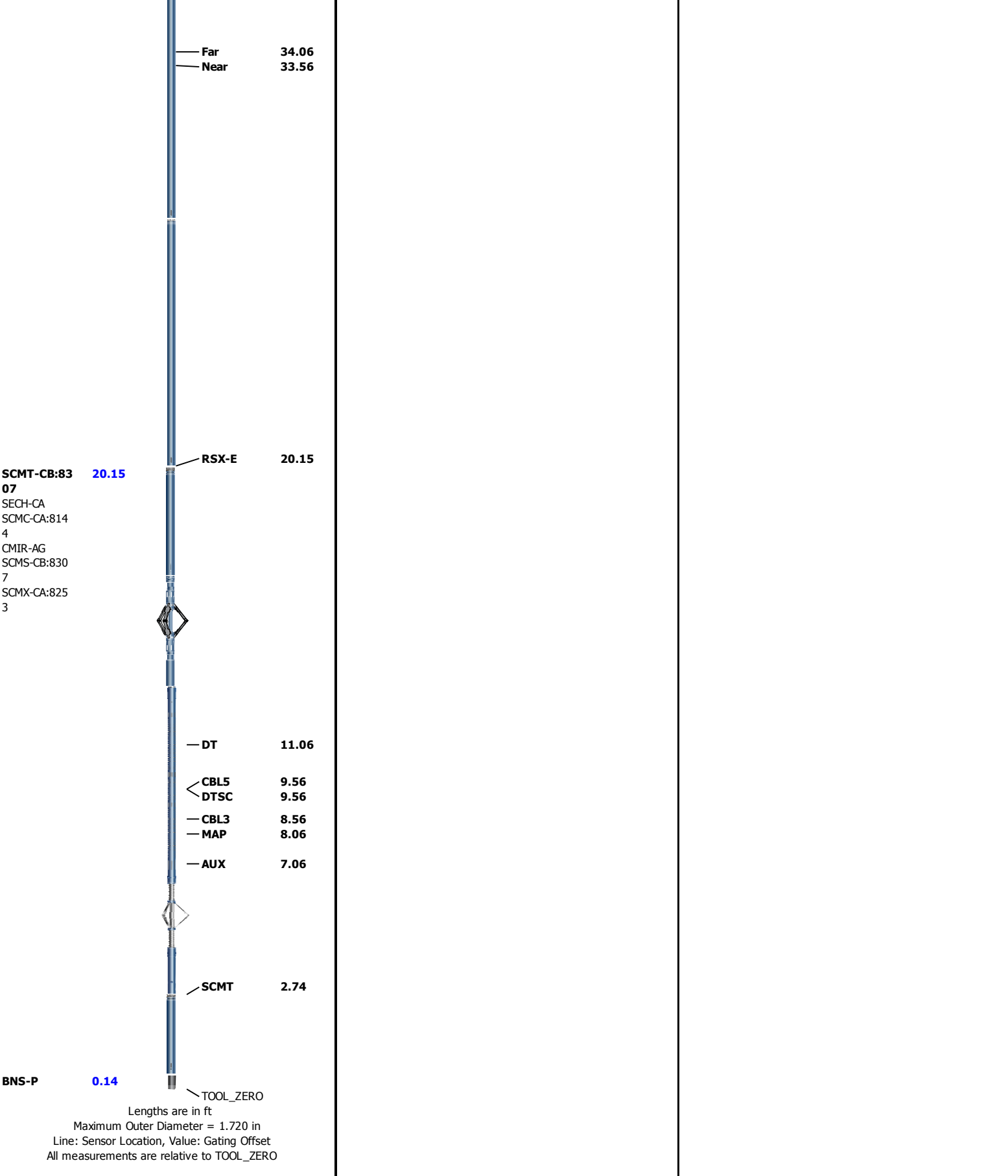


Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	14.75	8.75				
Top Driller (ft)	0	2519.2				
Top Logger (ft)	0	2519.2				
Bottom Driller (ft)	2519.2	8849.4				
Bottom Logger (ft)	2519.2	8849.4				
Casing						
Size (in)	9.625	4.5				
Weight (lbm/ft)	36	11.6				
Inner Diameter (in)	8.921	4				
Grade	J55	P110				
Top Driller (ft)	0	0				
Top Logger (ft)	0	0				
Bottom Driller (ft)	2519.2	8849.4				
Bottom Logger (ft)	2519.2	8849.4				

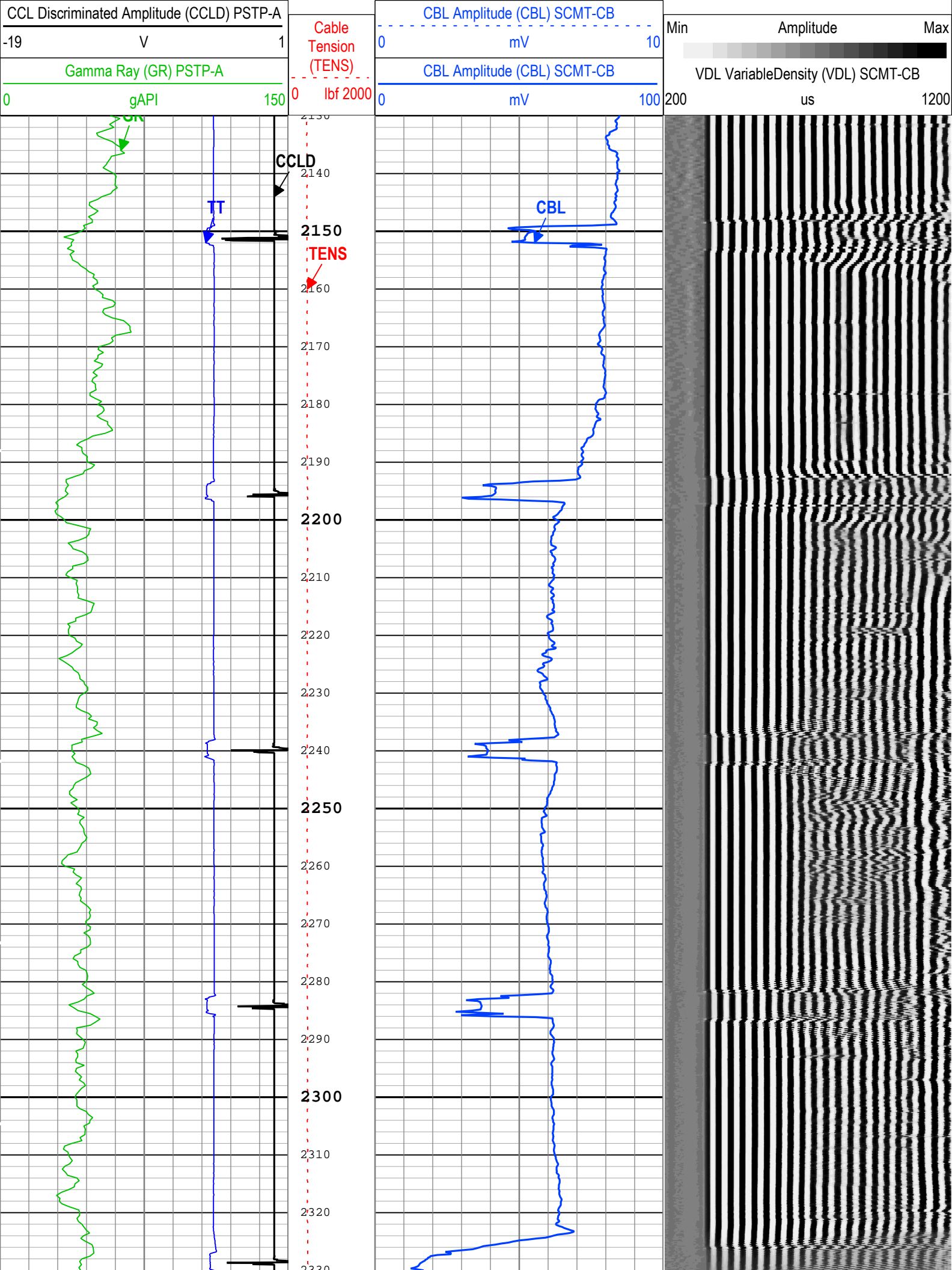
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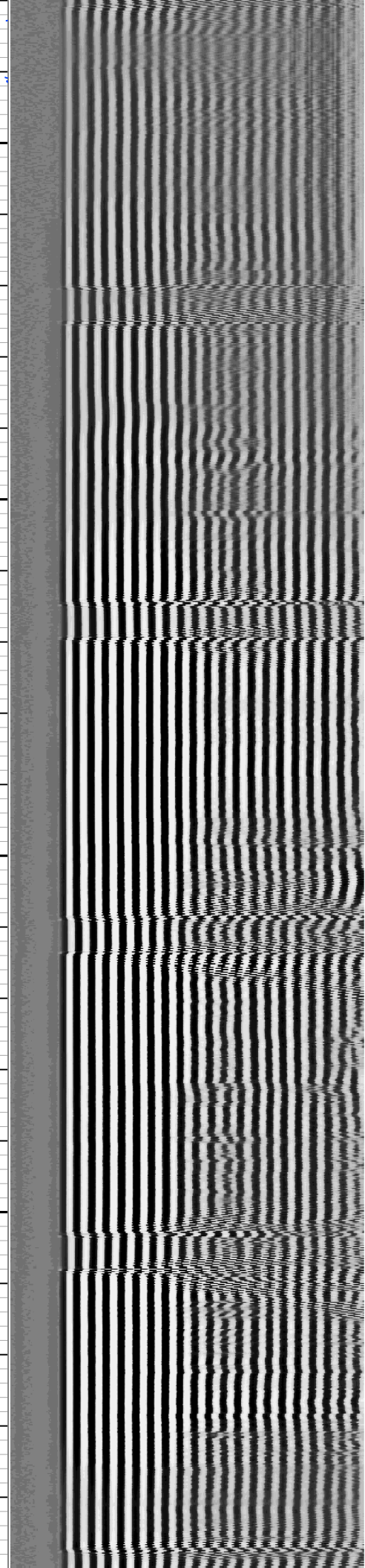
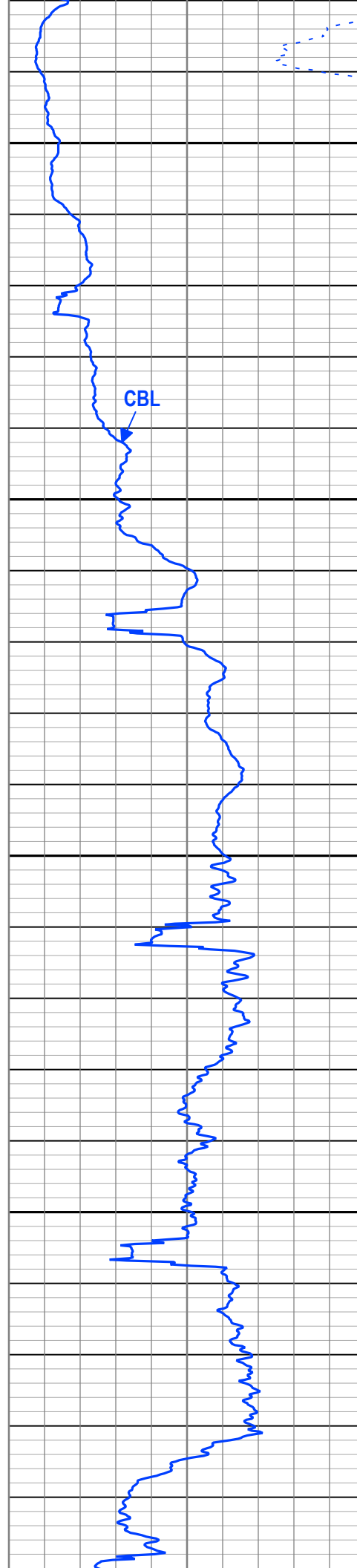
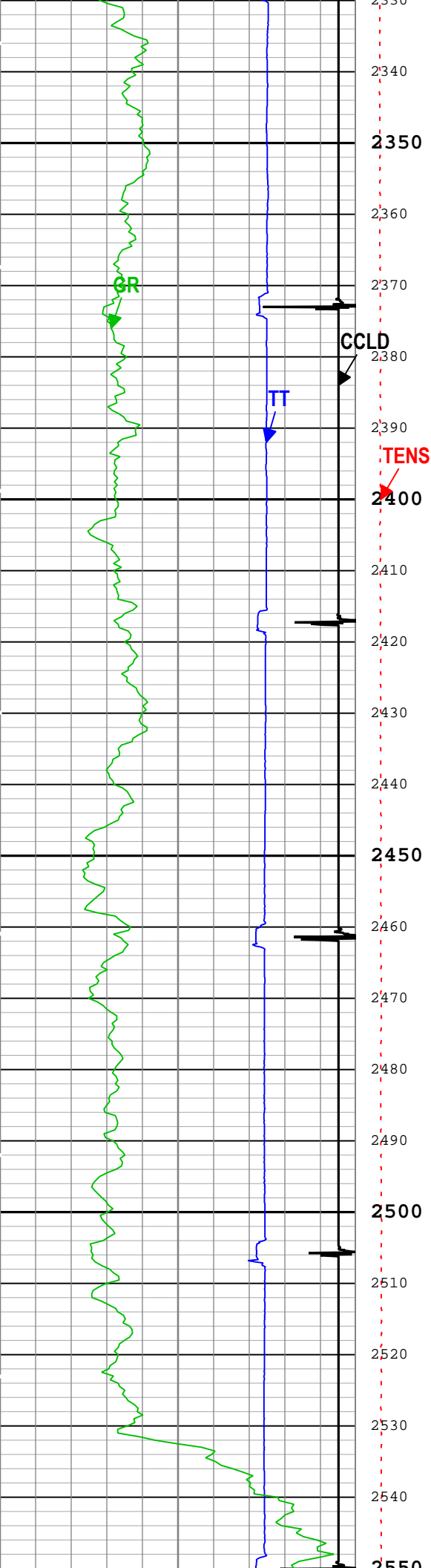
ONE: Toolstring				ONE: Remarks		
Equip name	Length	MP name	Offset	Tool string ran as per tool sketch		
PEH-E	53.4			3x Gemcos used for tool centralization		
				Max recorded temp of 232.5 deg F		
AH-38	51.72			Schlumberger TD @ 8790 ft		
PSTP-A:378	51.44			Thank you for choosing Schlumberger		
1						
PSC-A		GR	47.74			
PSTC-A:3781		PSTC	47.44			
PBMS-A:3781		PSTC Tool String Bottom	0.00			
Sapphire 10kP		Temperature	44.65			
SI:3781		Sapphire Pressure	44.54			
		CCL	43.92			
		PBMS	43.17			
RST-C:296	43.17					
RSCH-A:530						
RSC-E:544						
RSS-A:222						
MNTR-F:1356						
RSXH-A:288						
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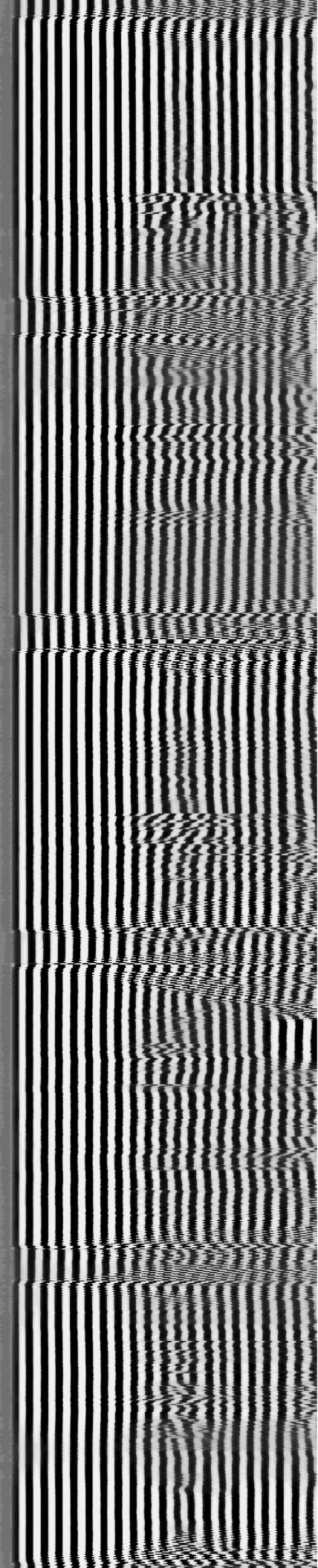
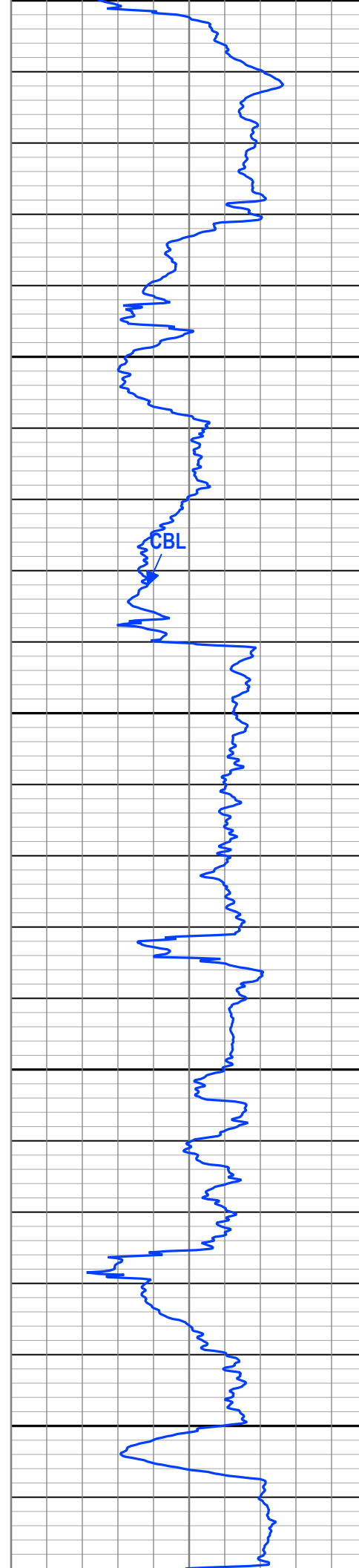
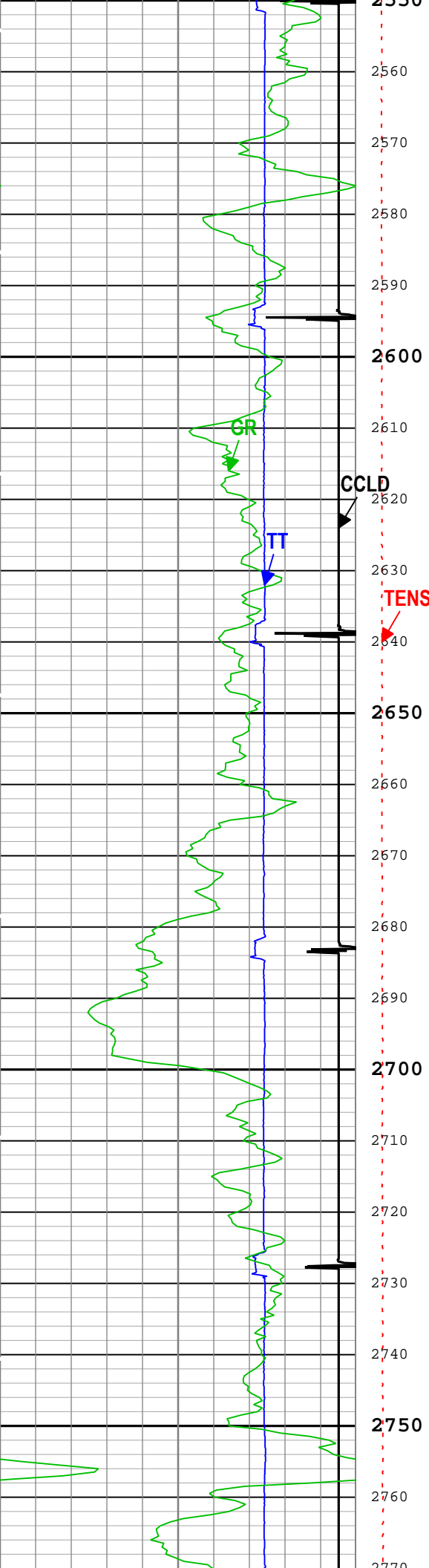


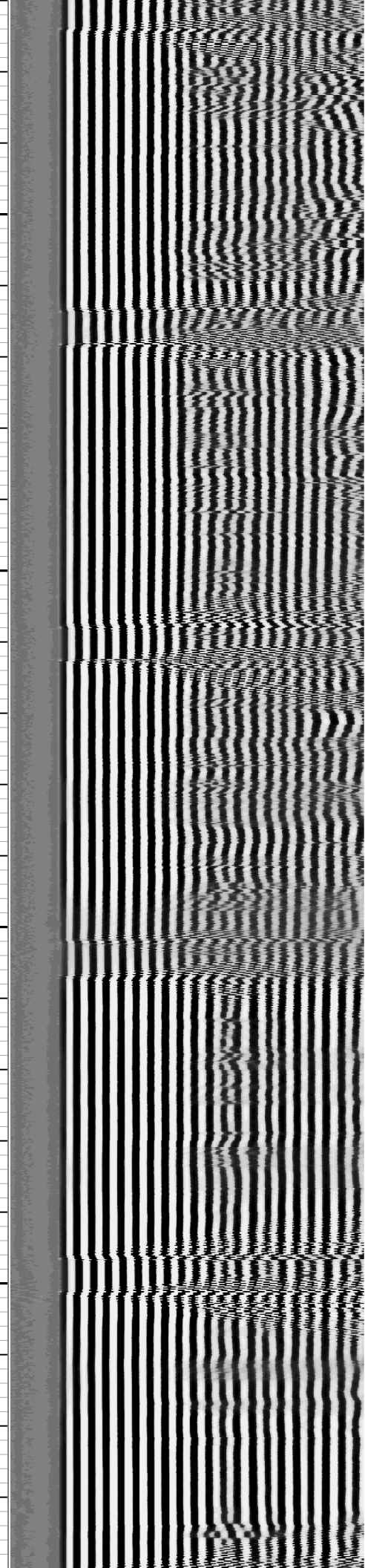
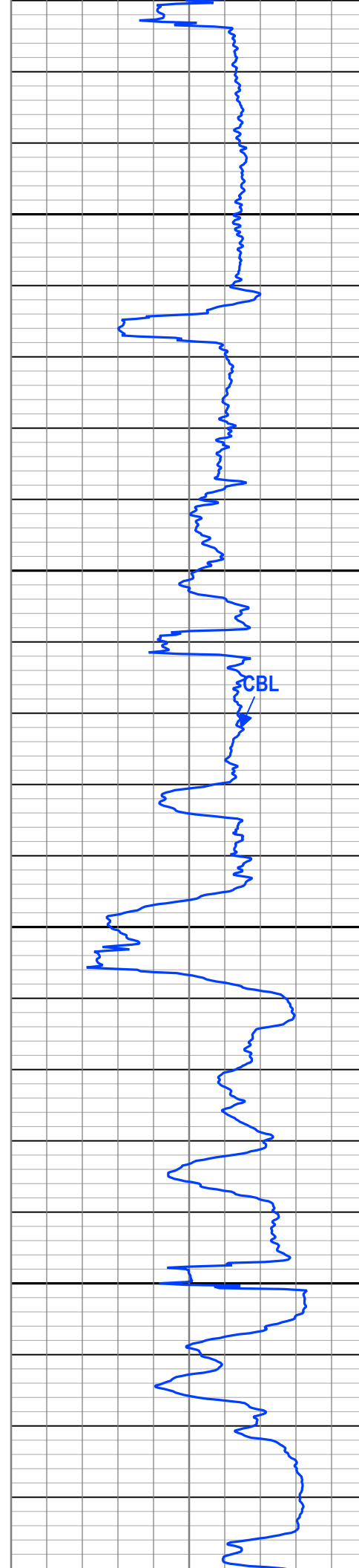
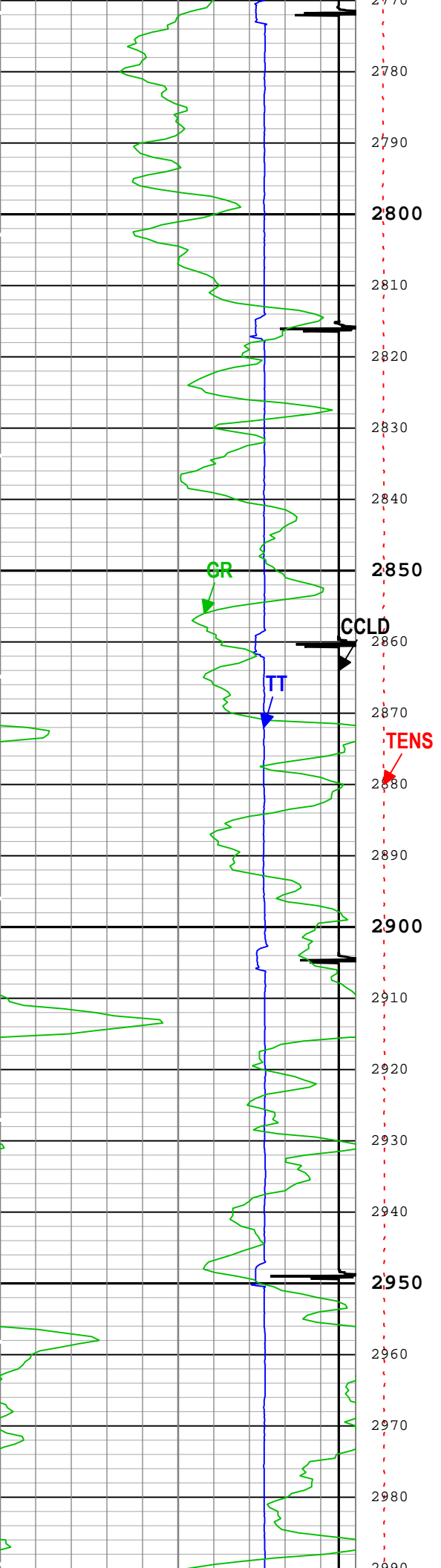
Depth Summary			
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Depth Measuring Device			
Type	IDW-B		
Serial Number	5979		
Calibration Date	09-Oct-2017		

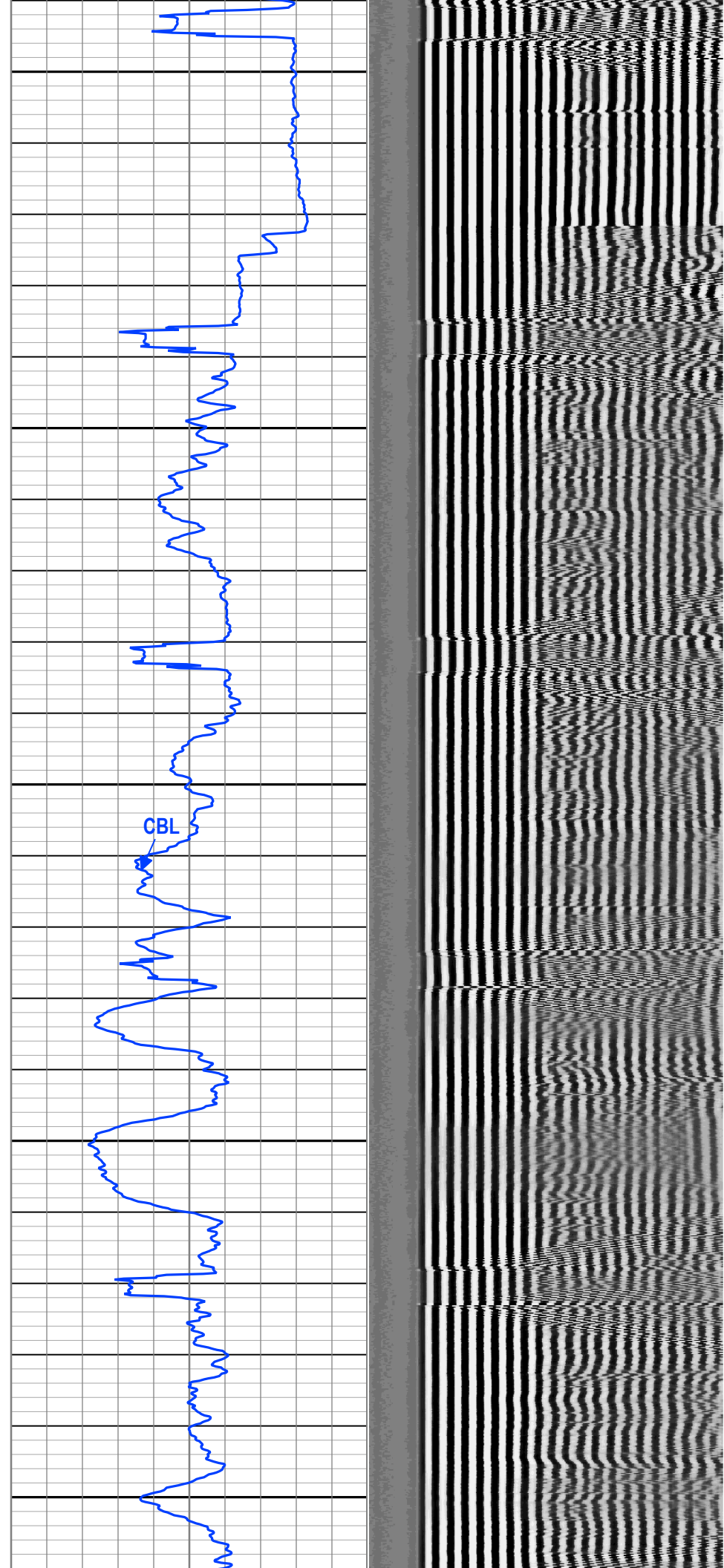
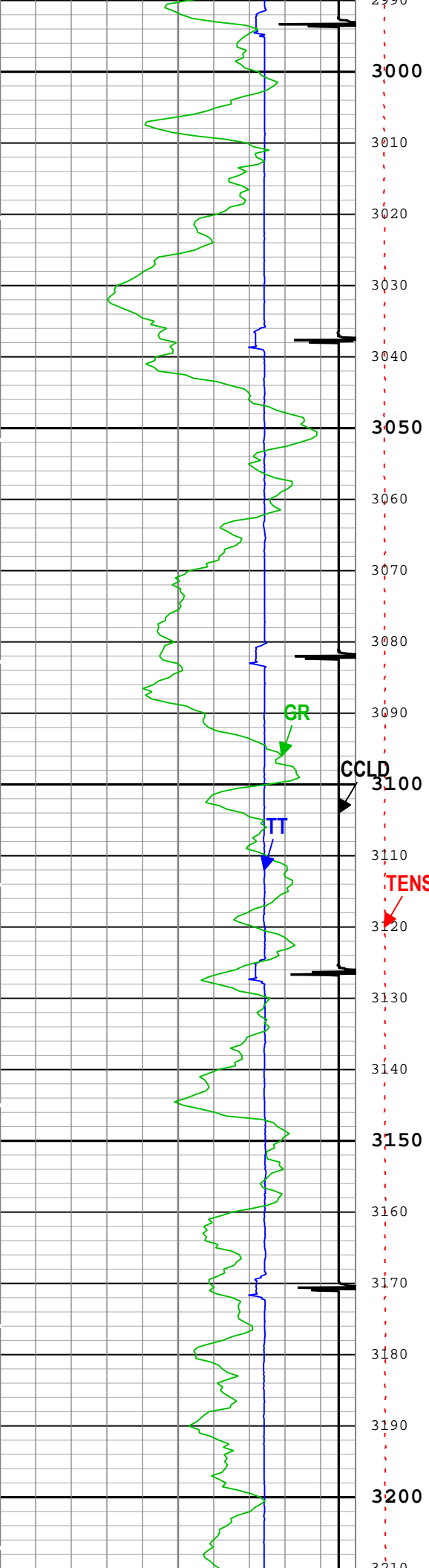
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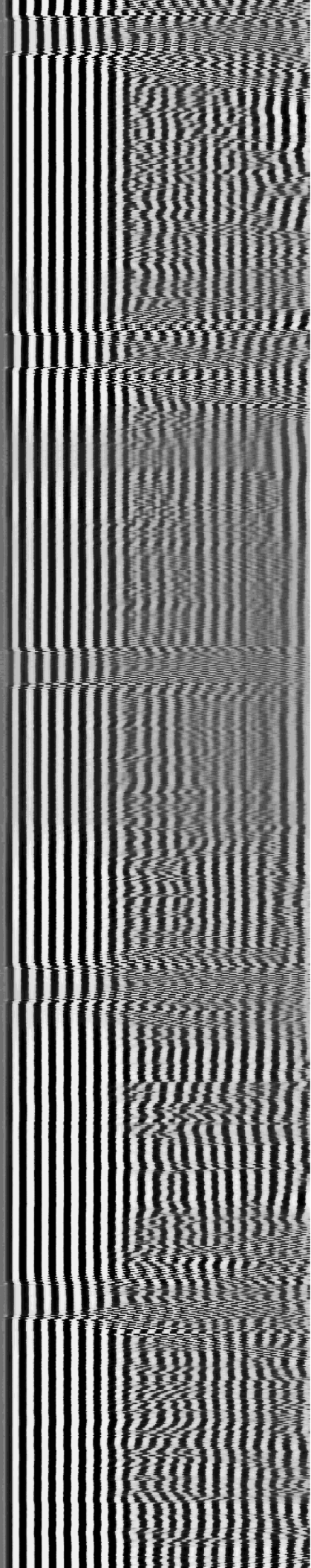
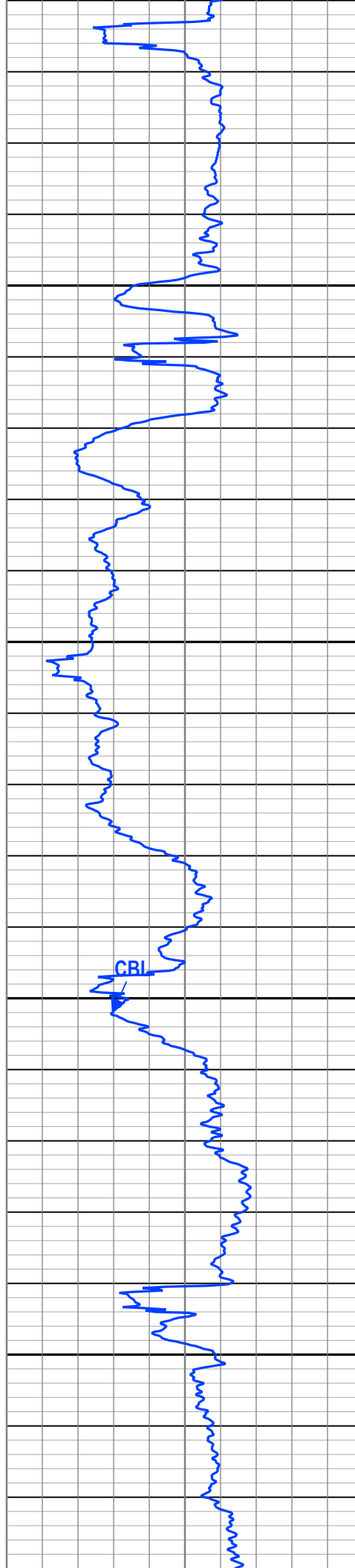
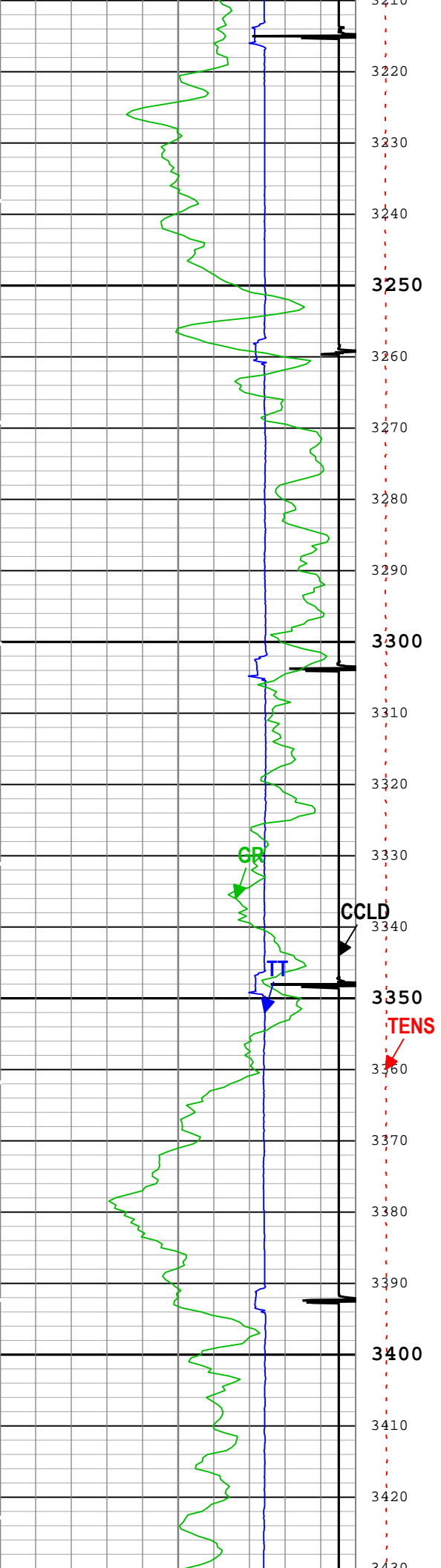


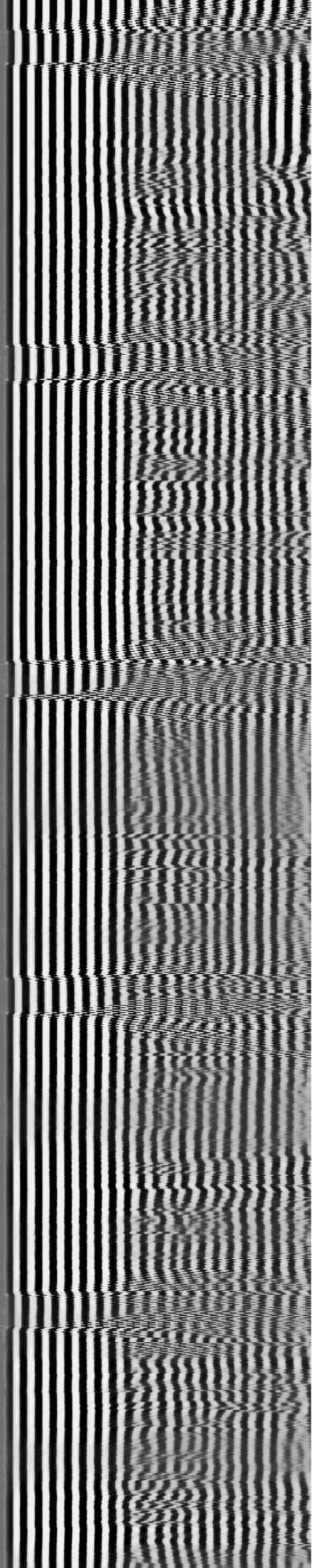
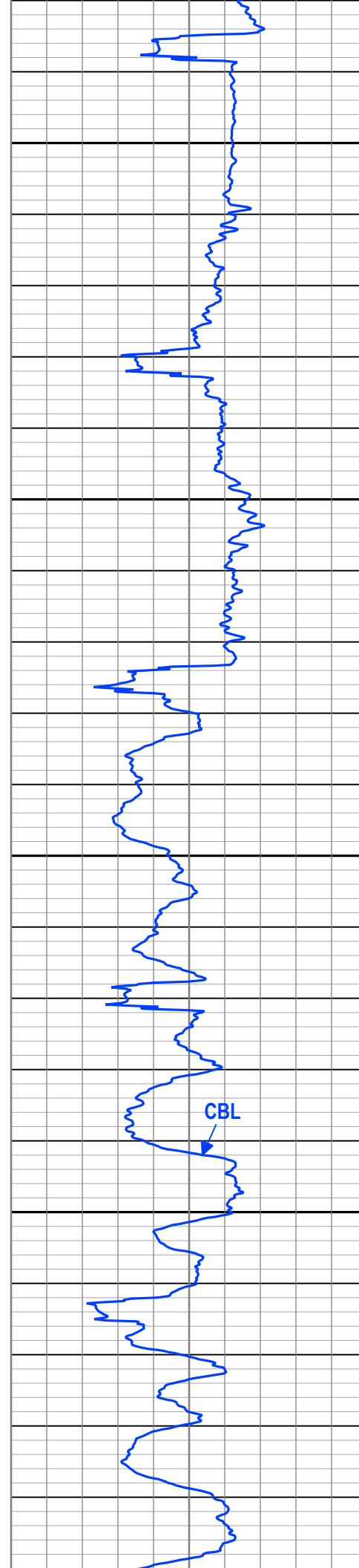
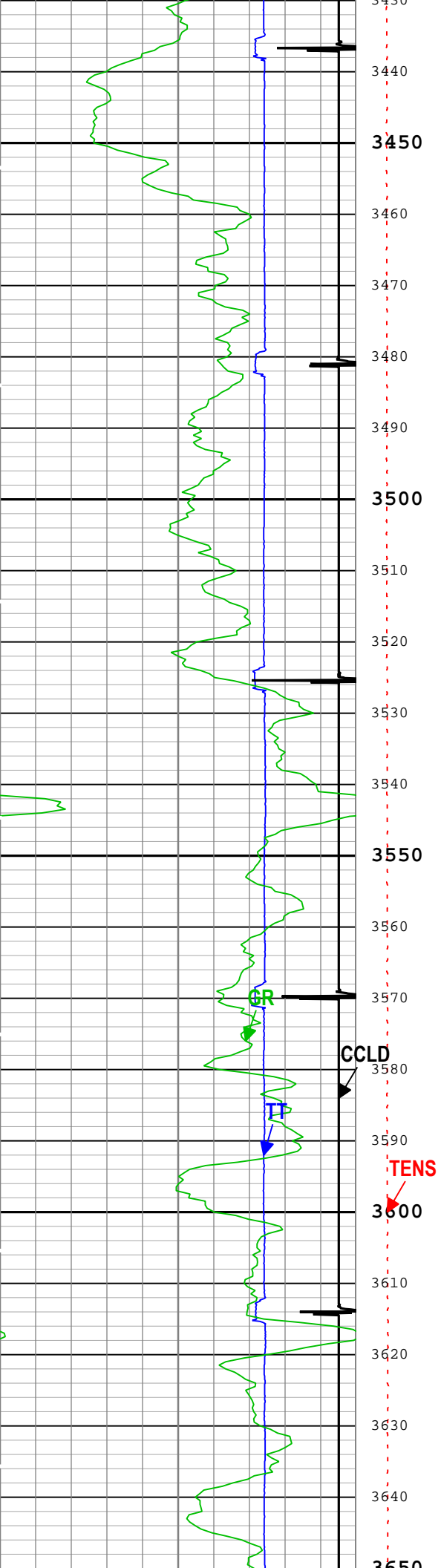


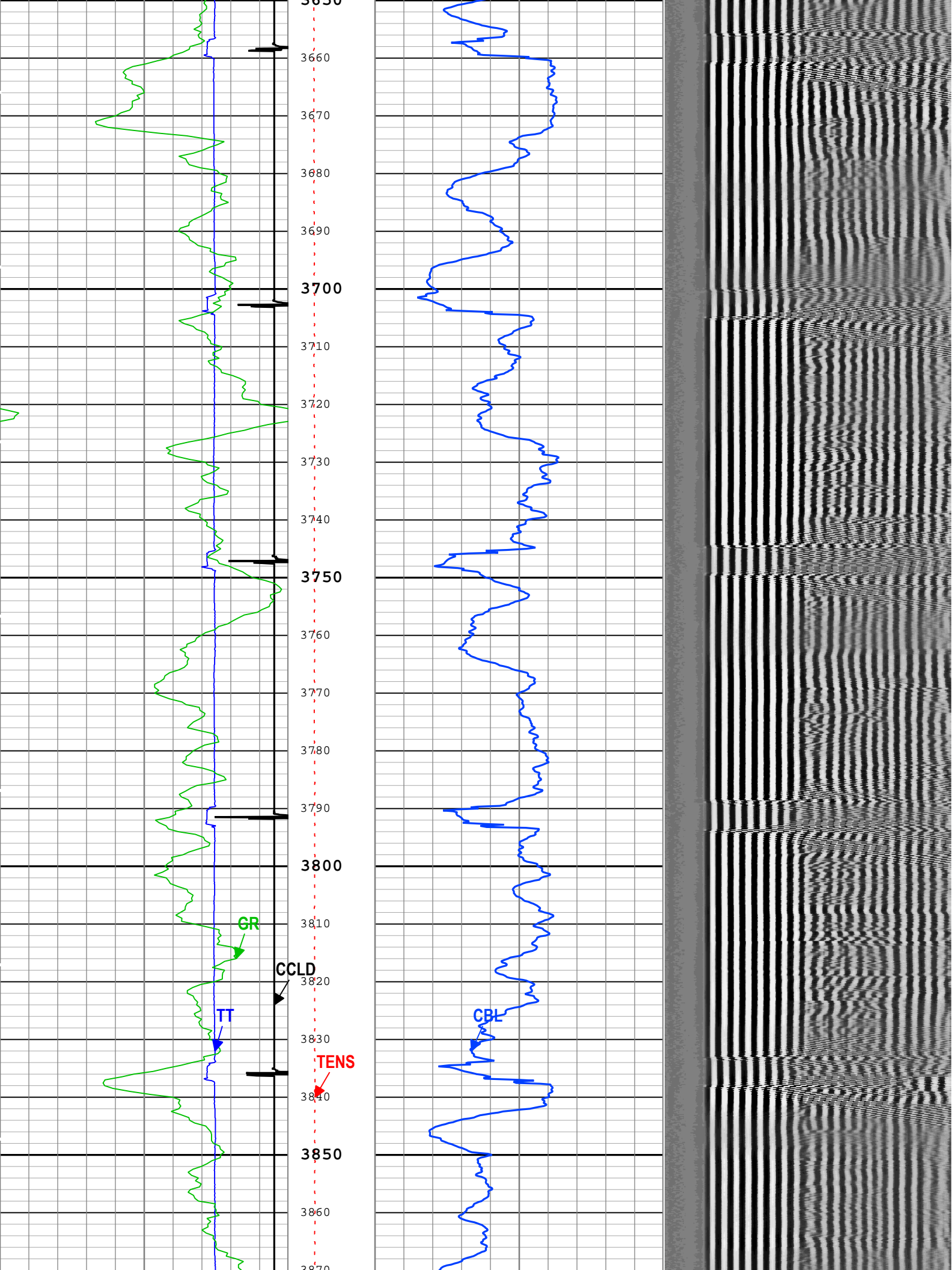


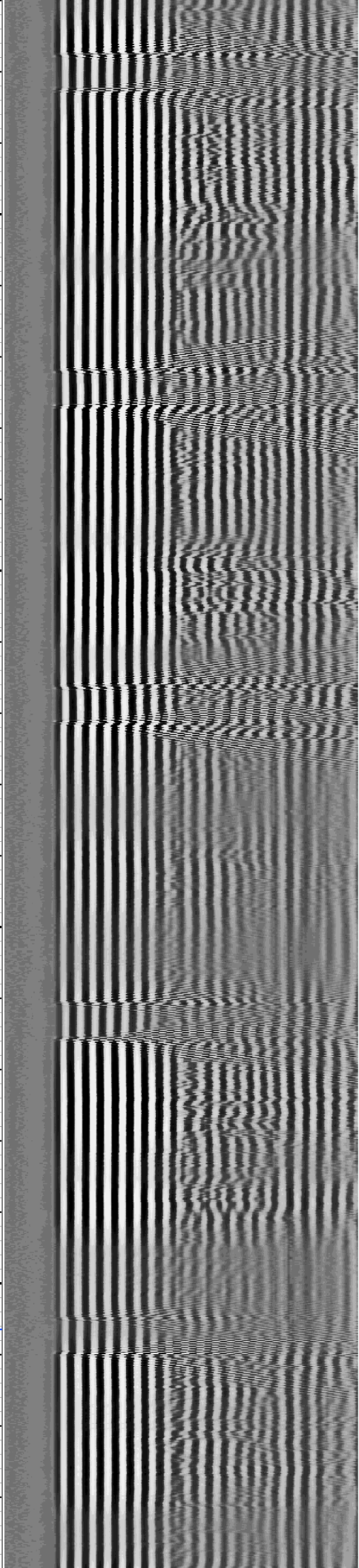
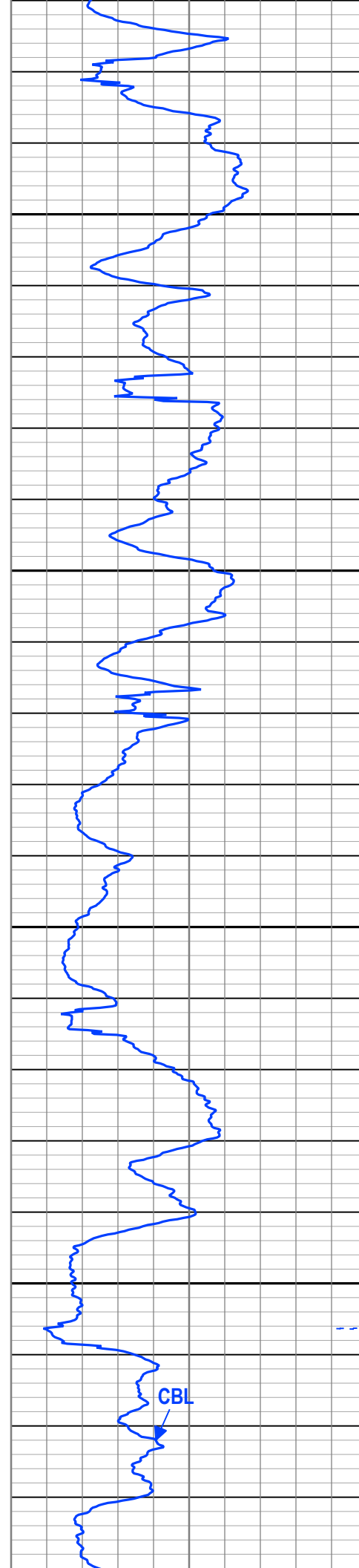
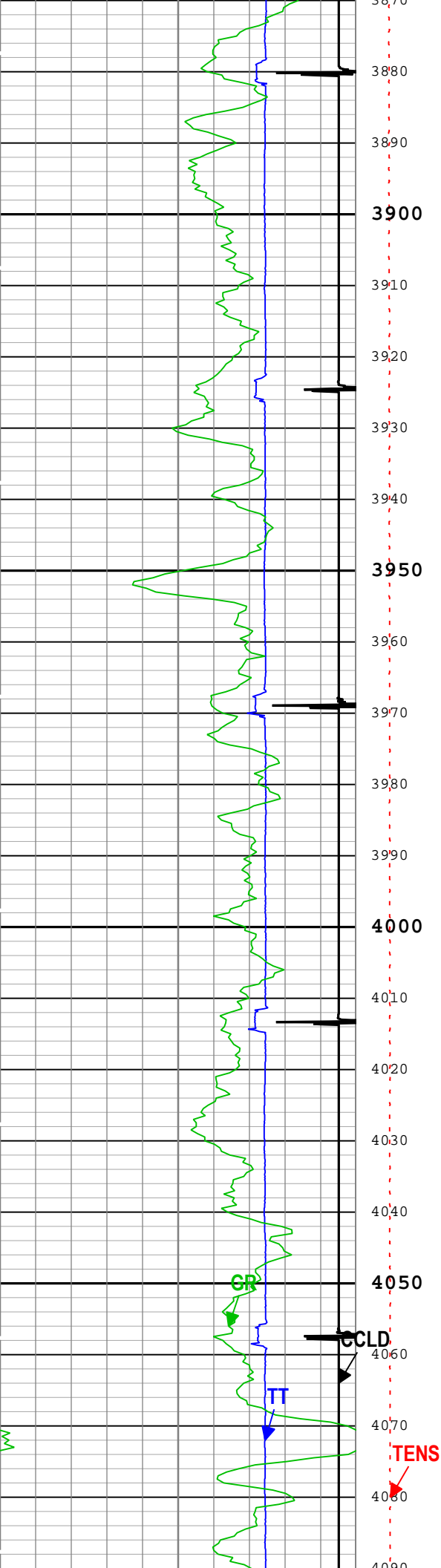


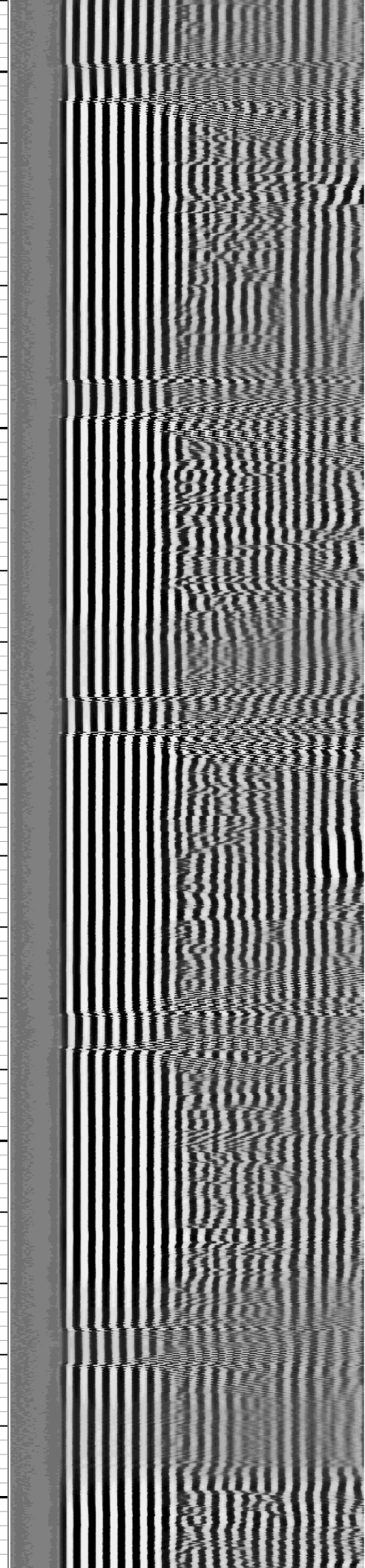
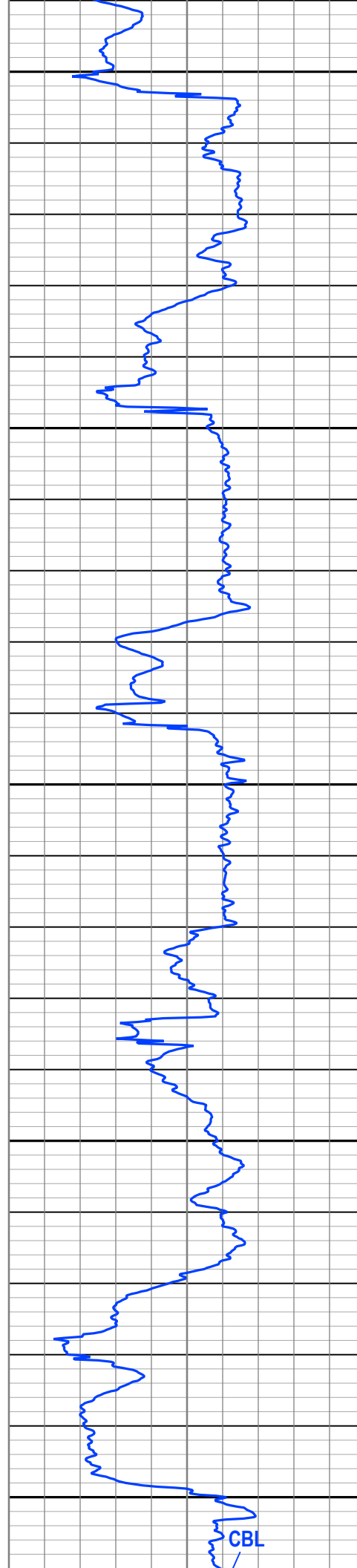
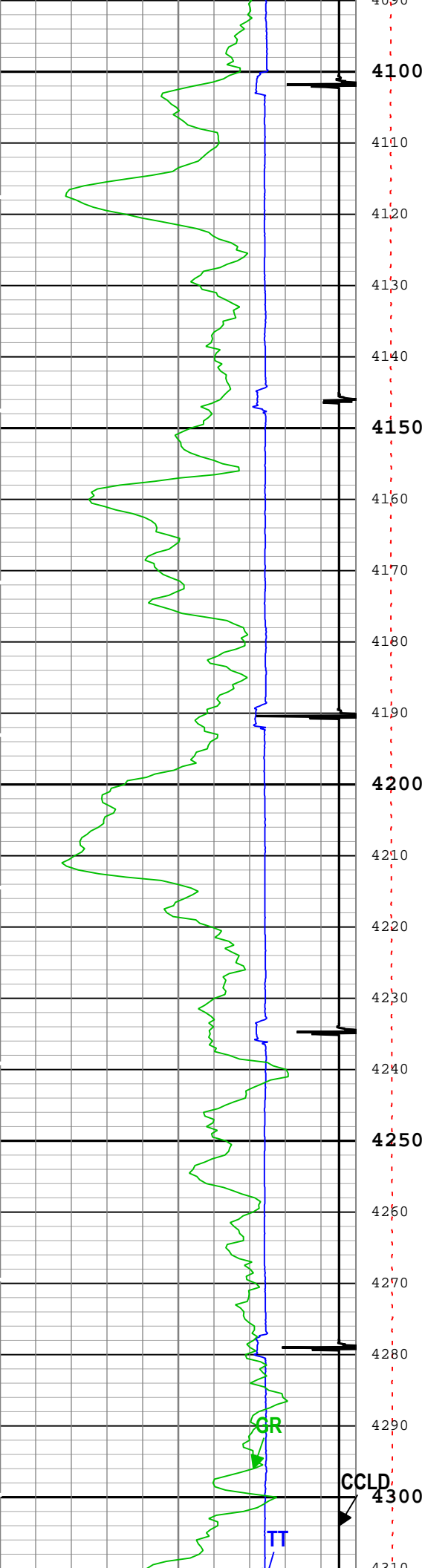


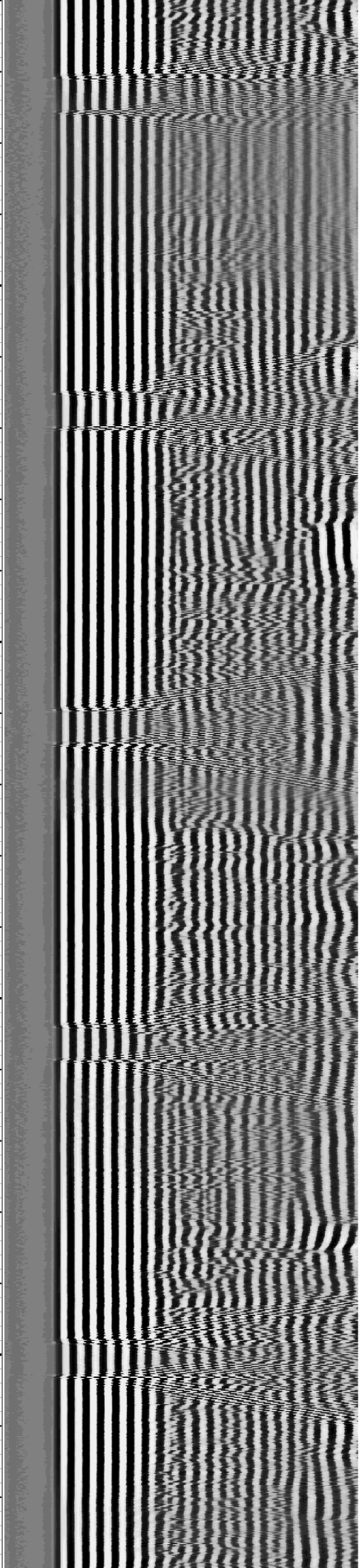
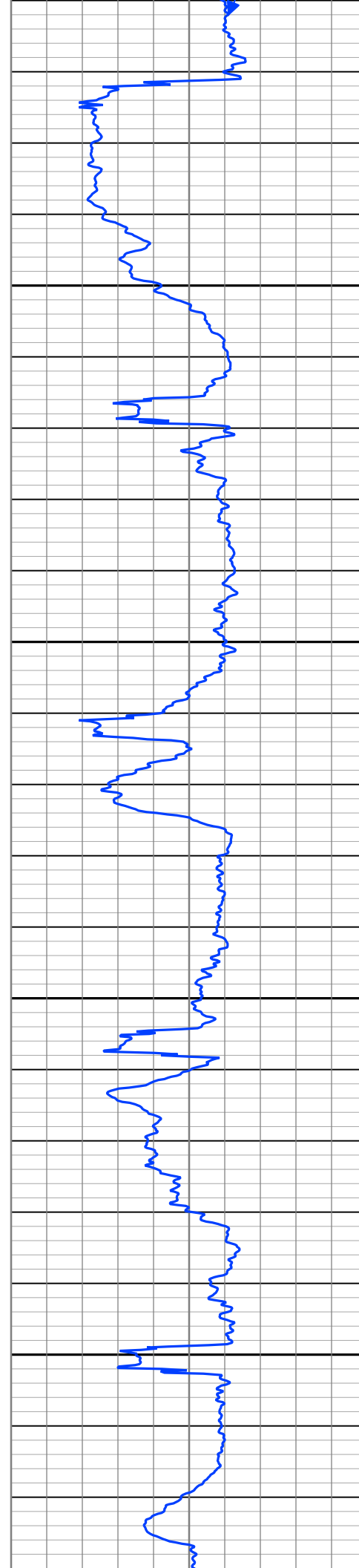
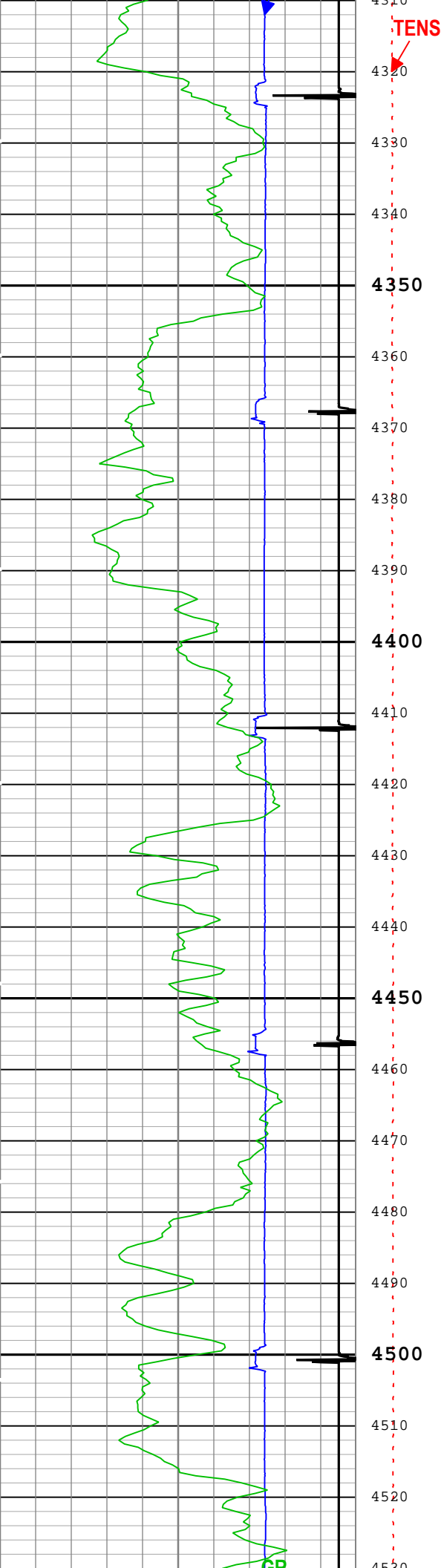


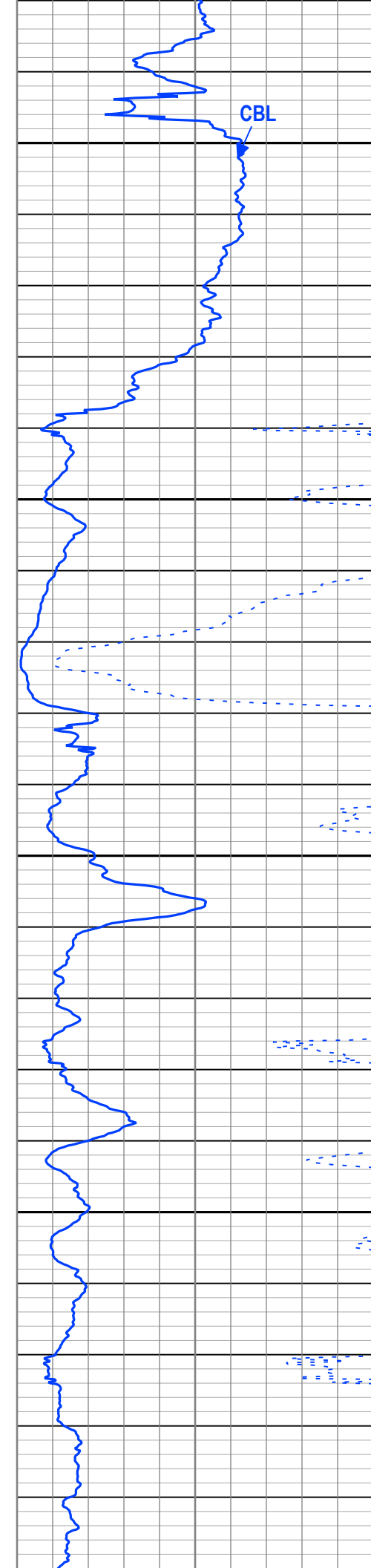
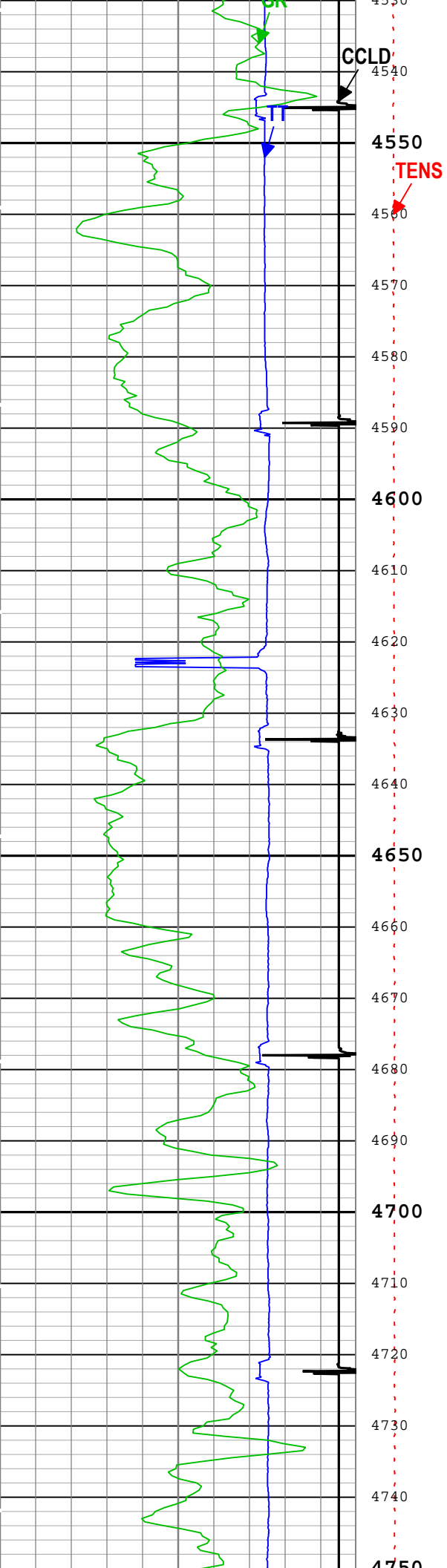


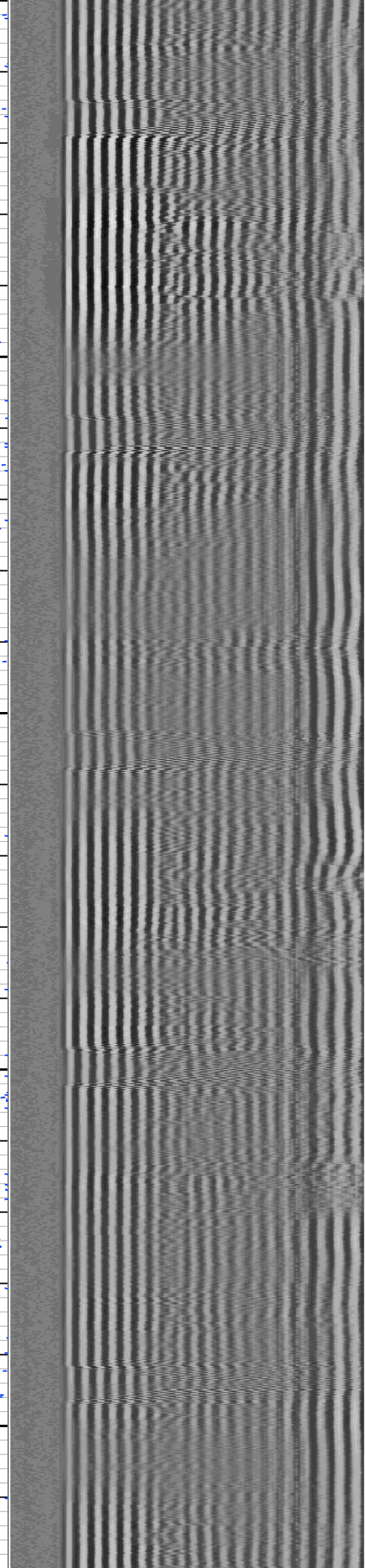
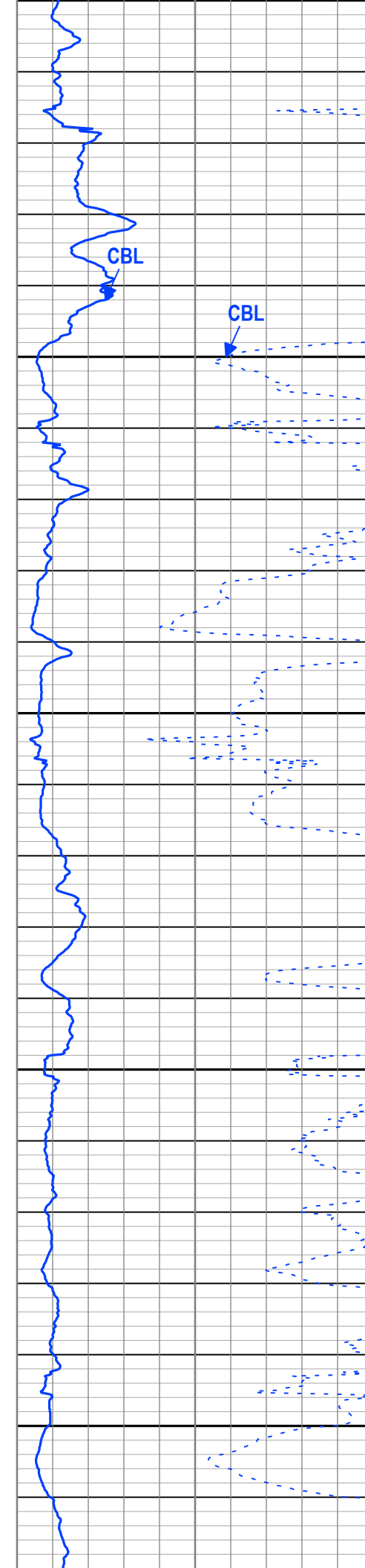
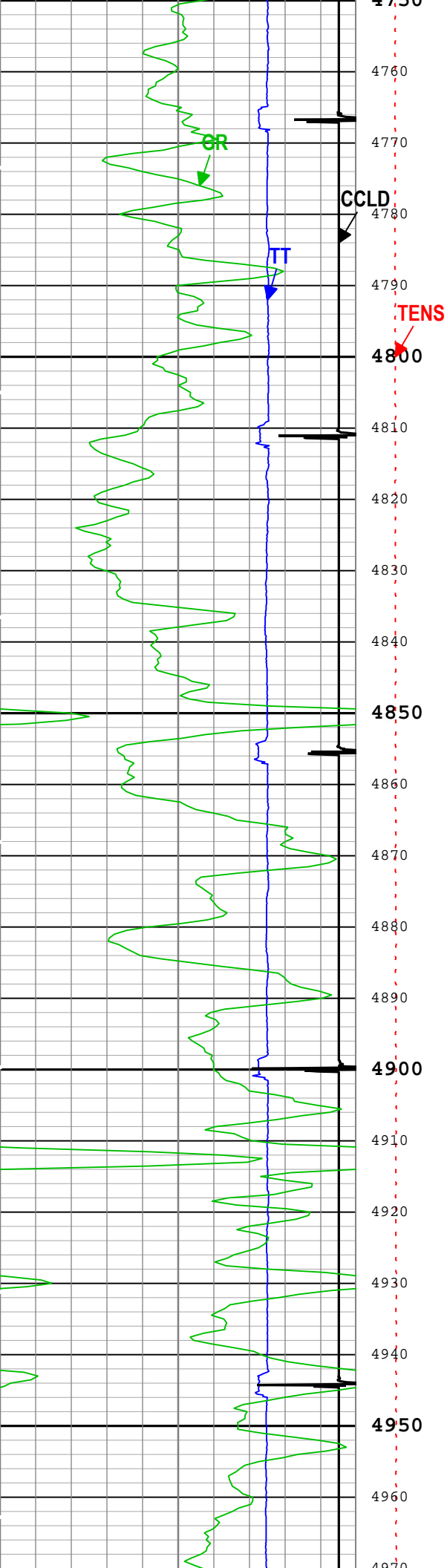


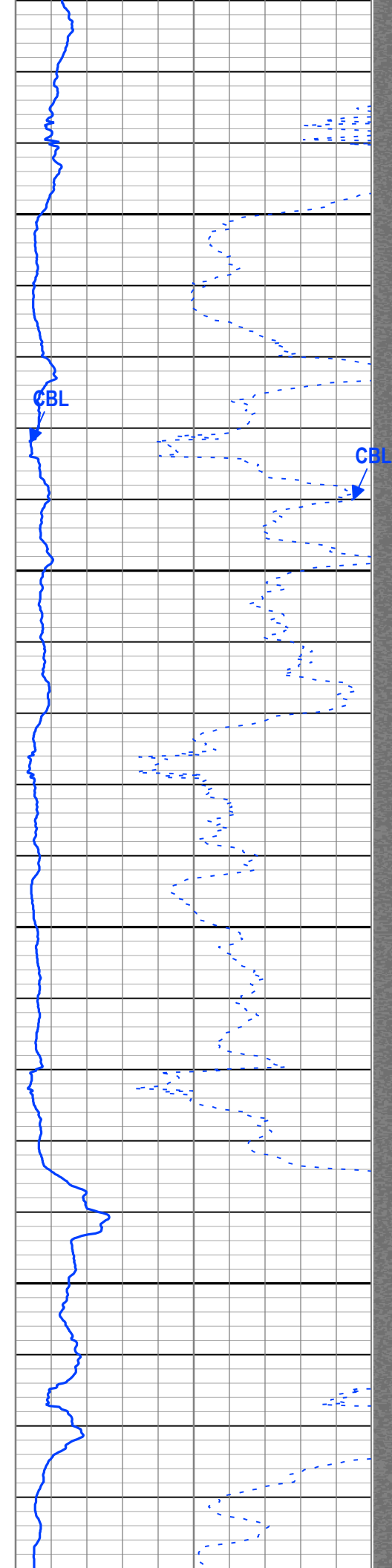
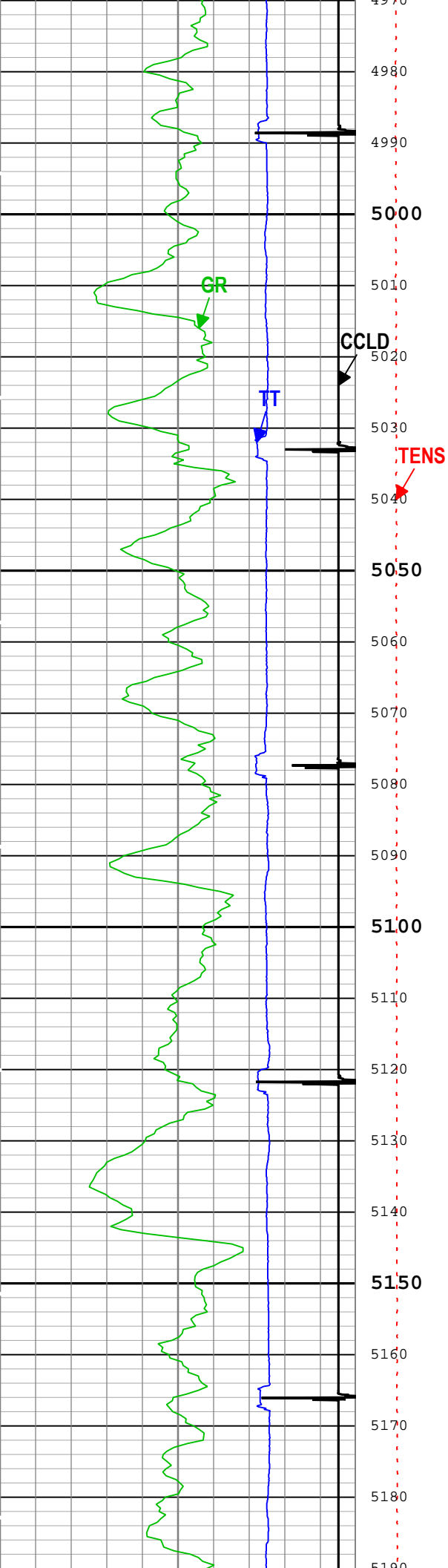


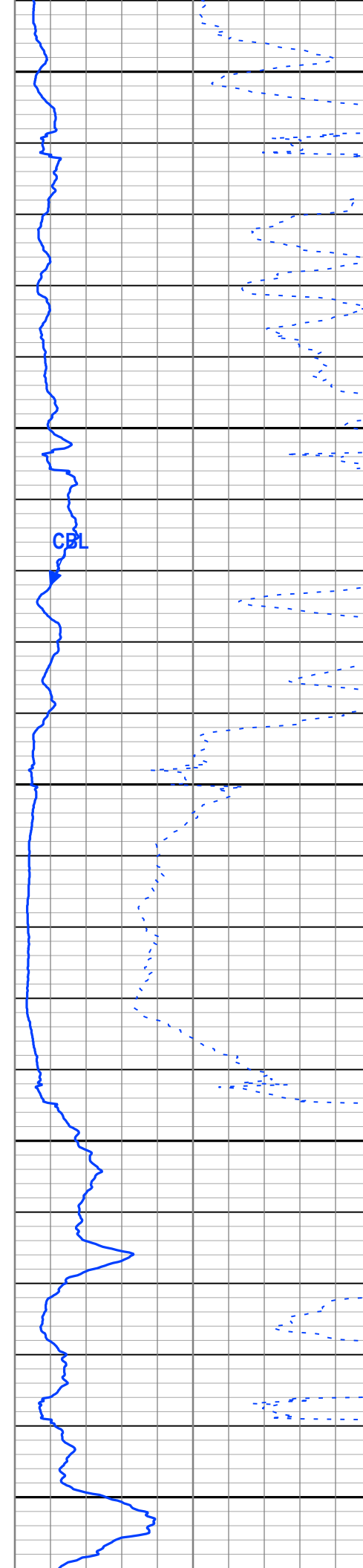
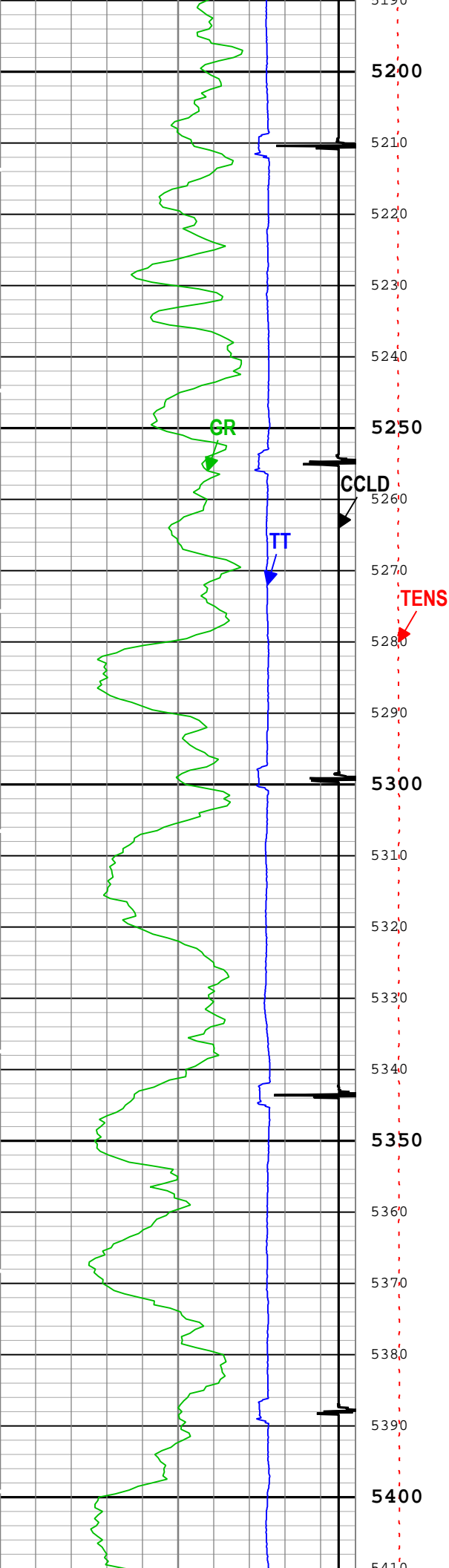


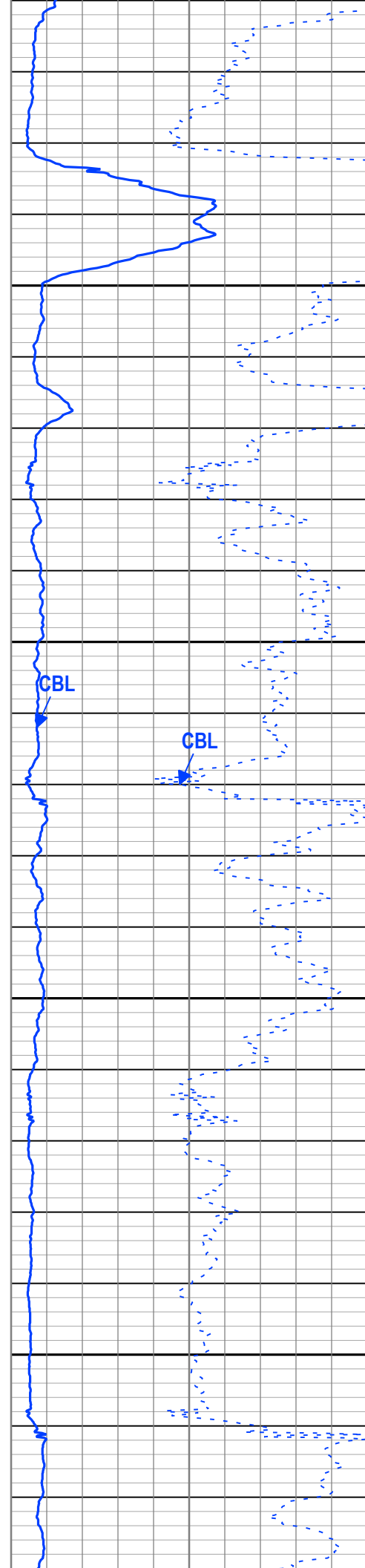
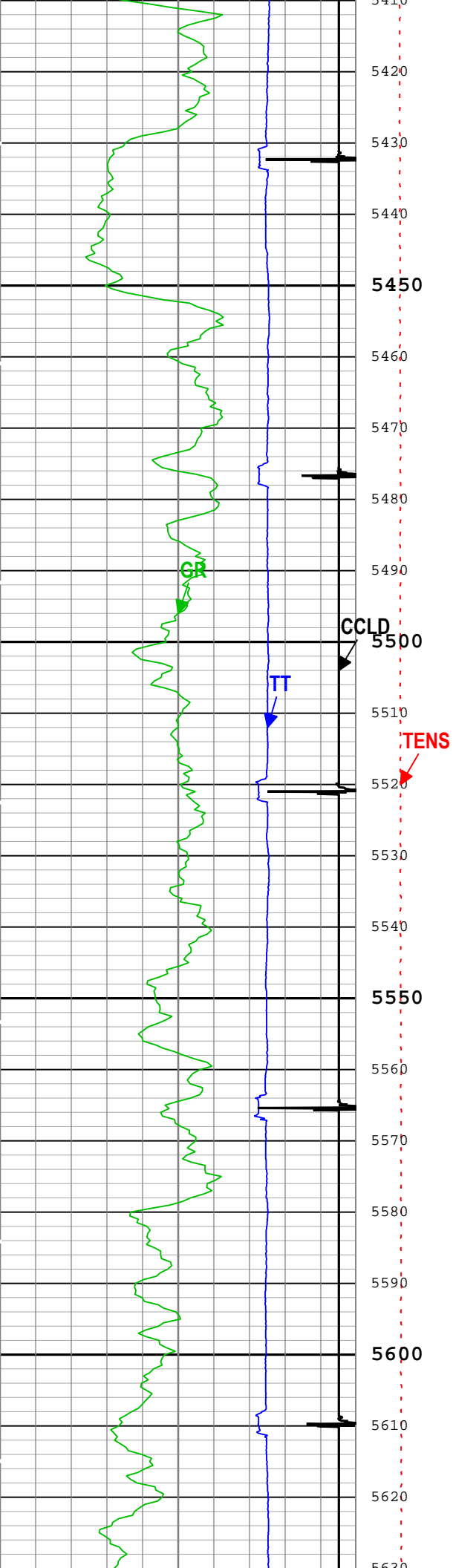


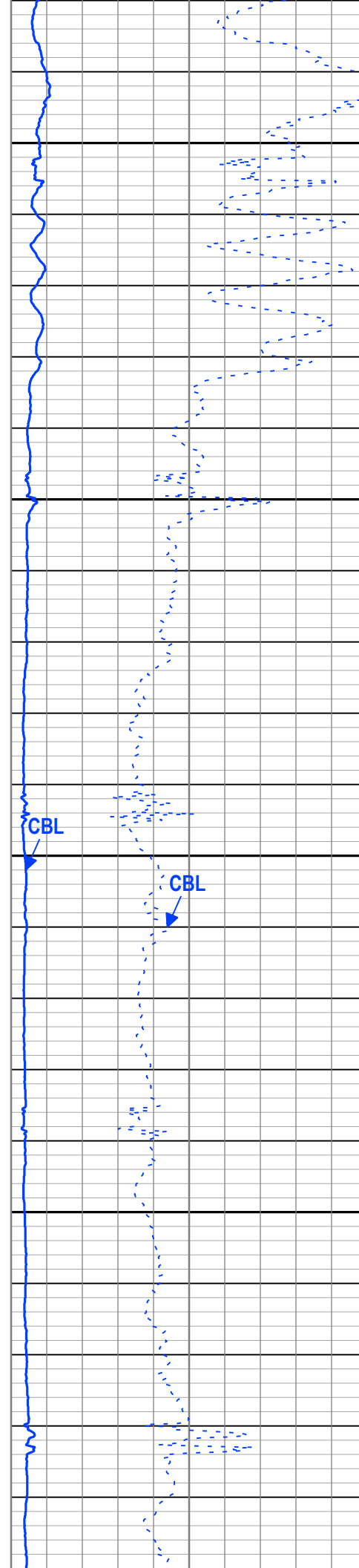
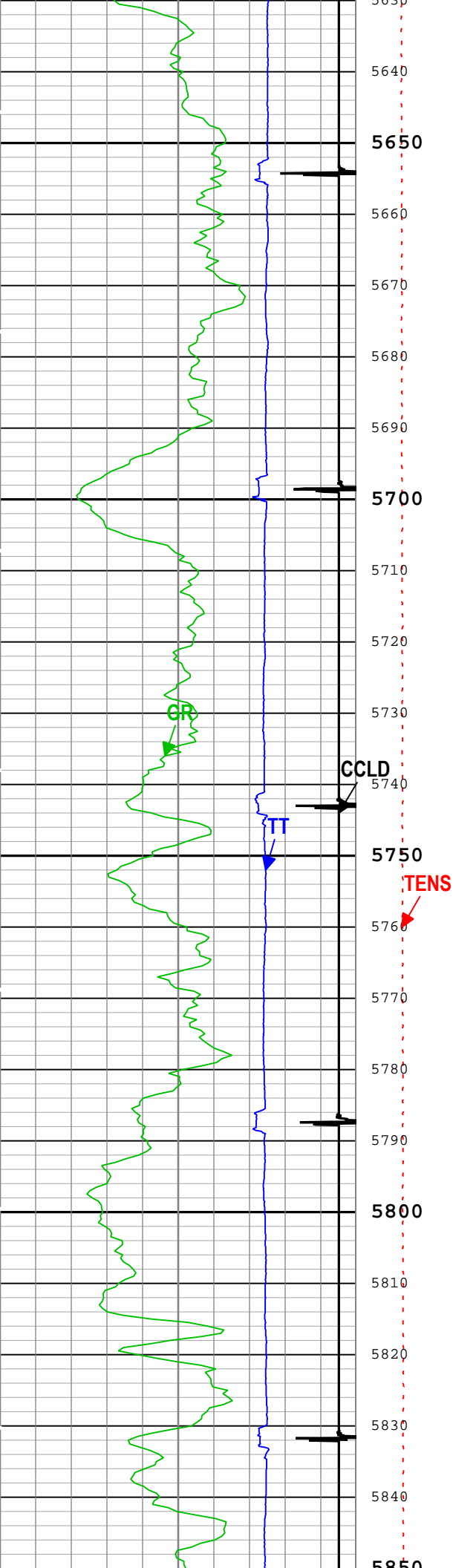


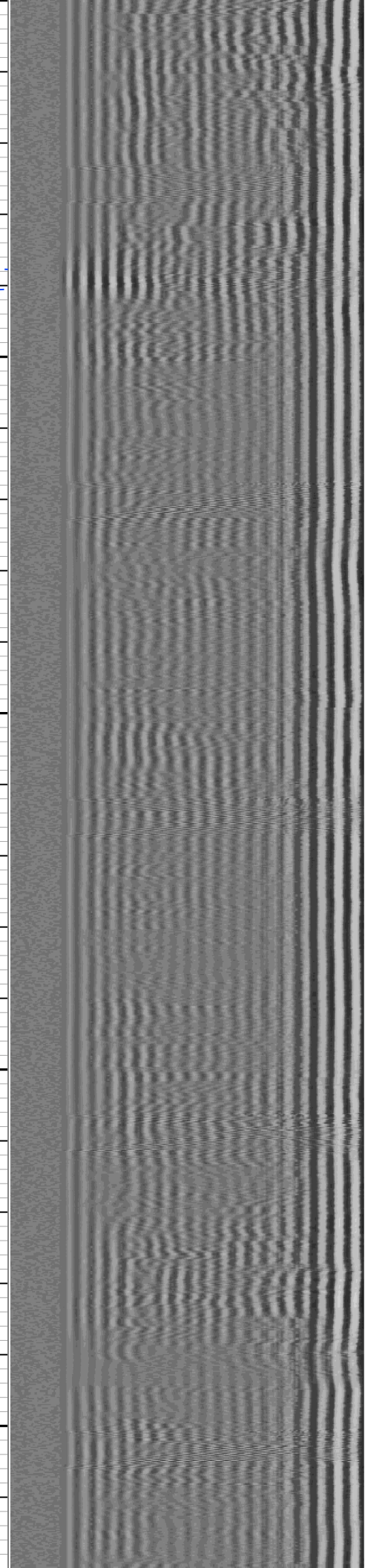
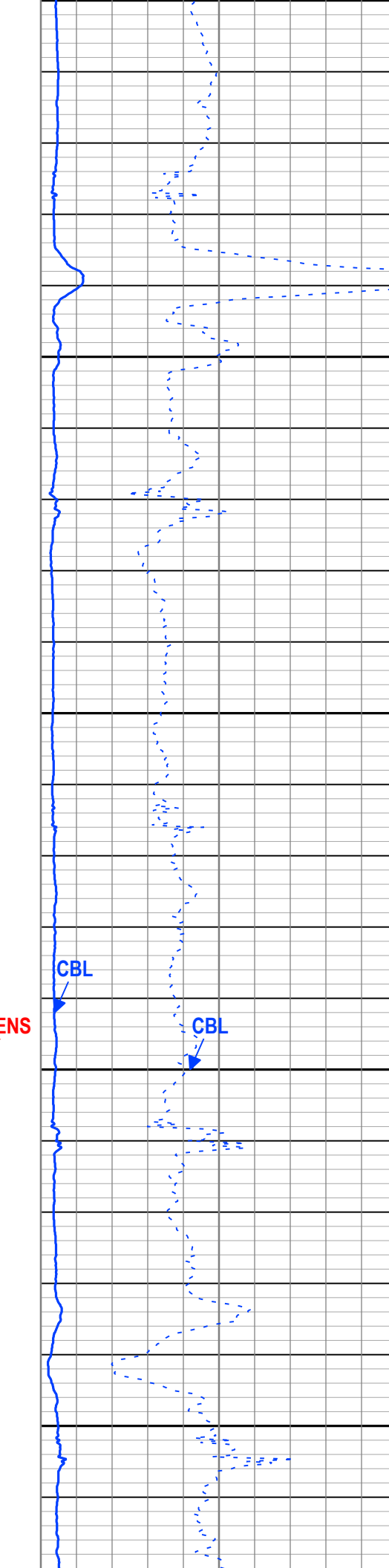
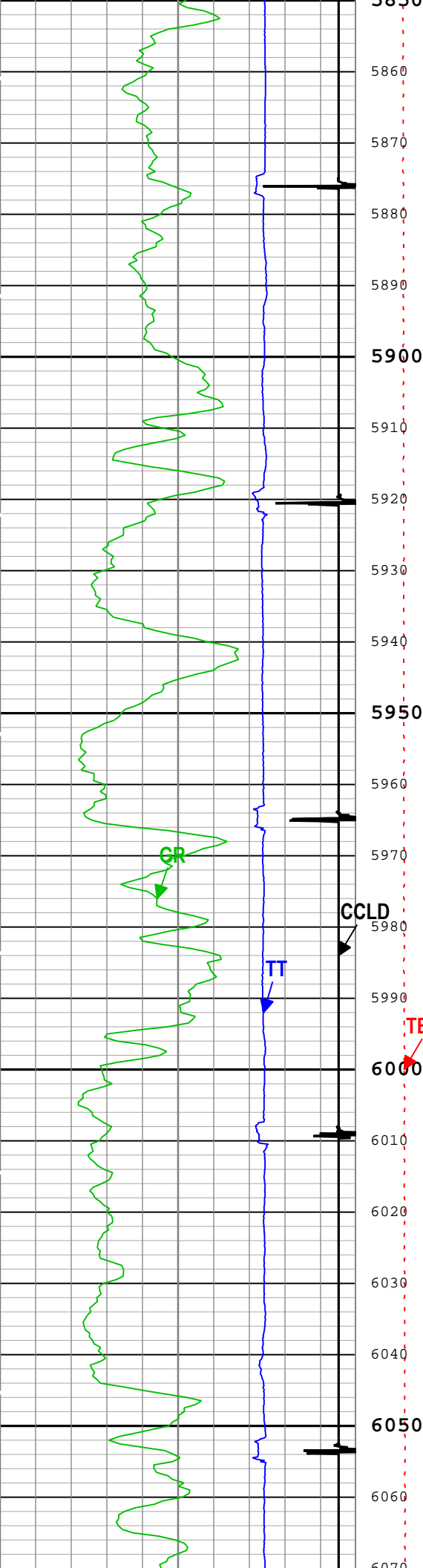


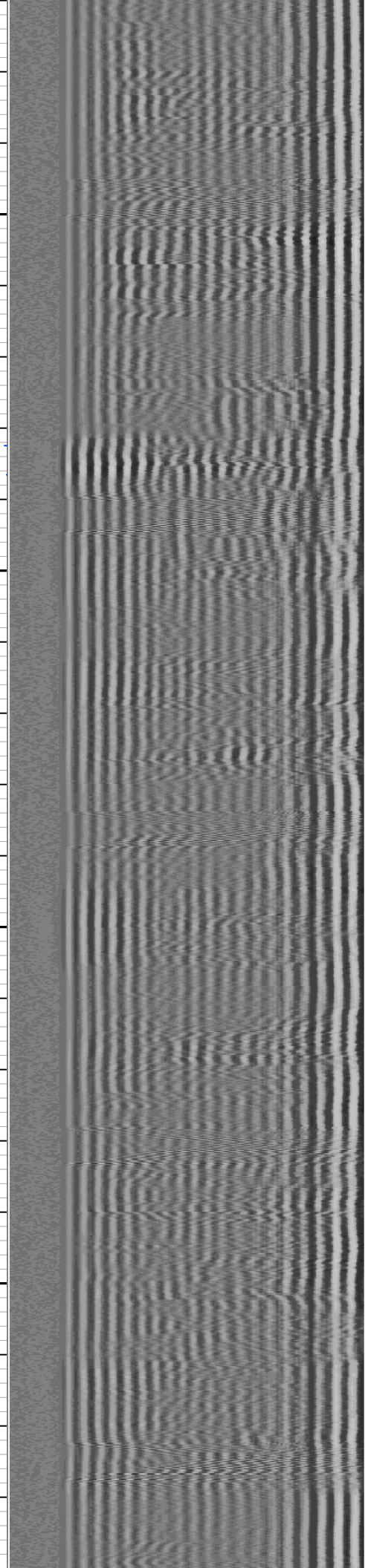
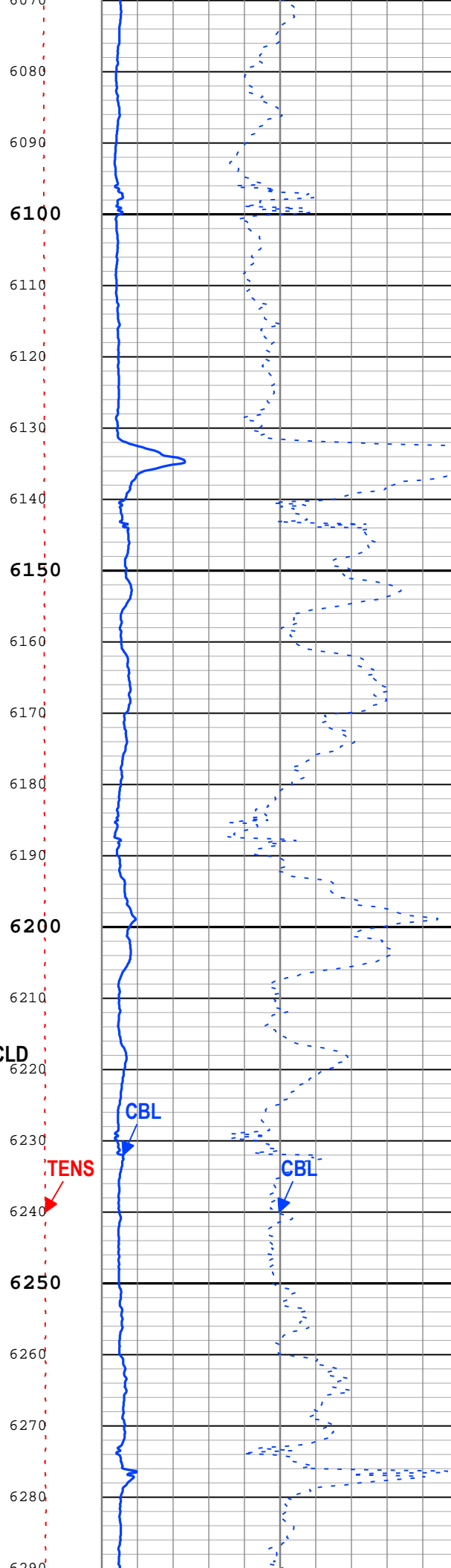
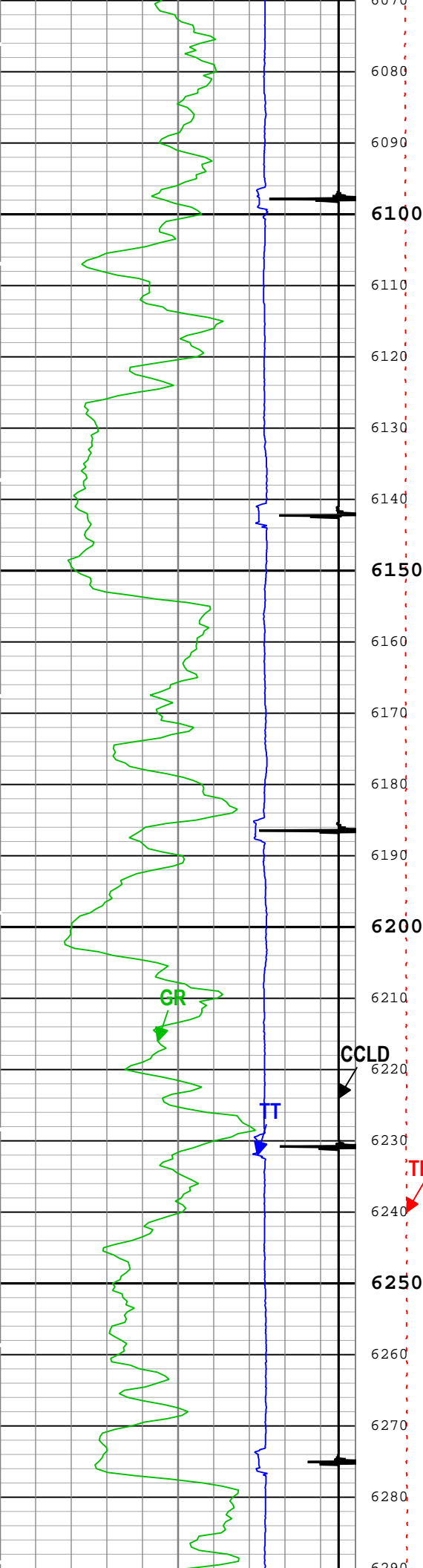


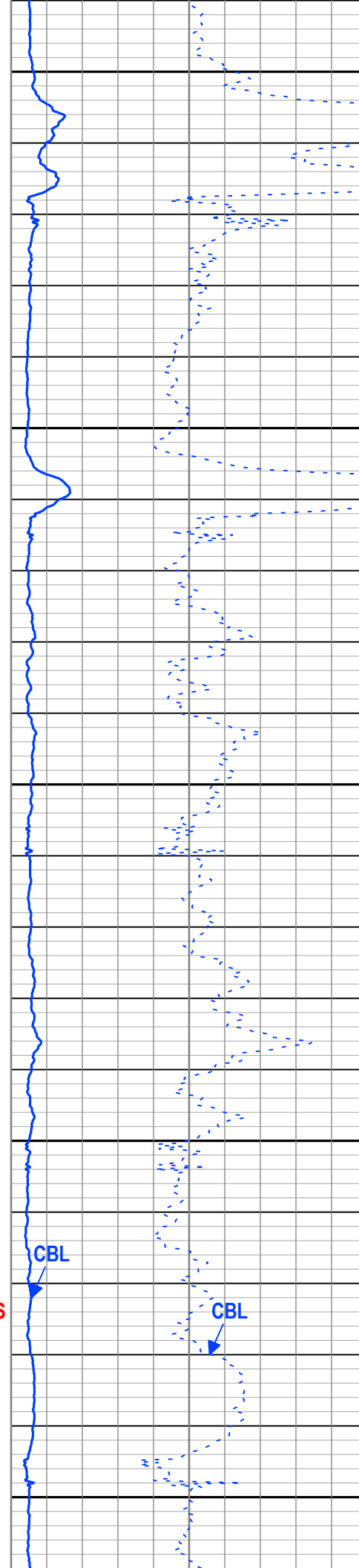
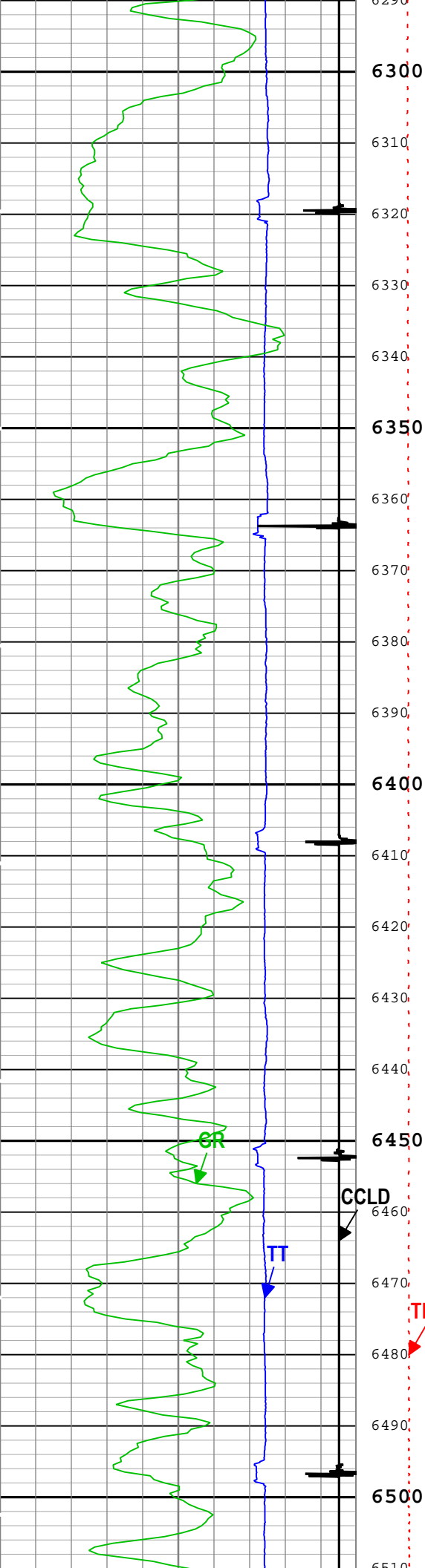




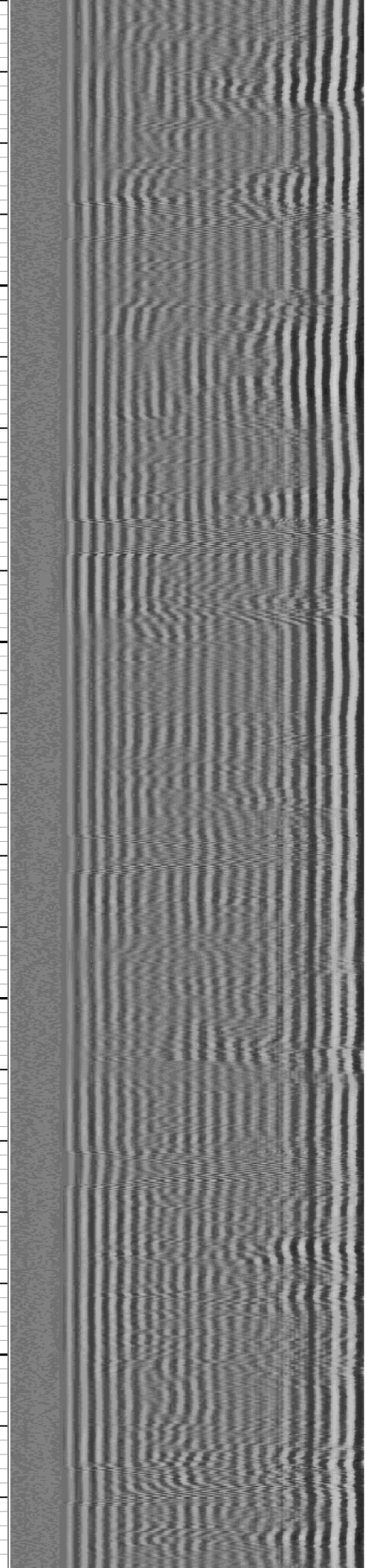
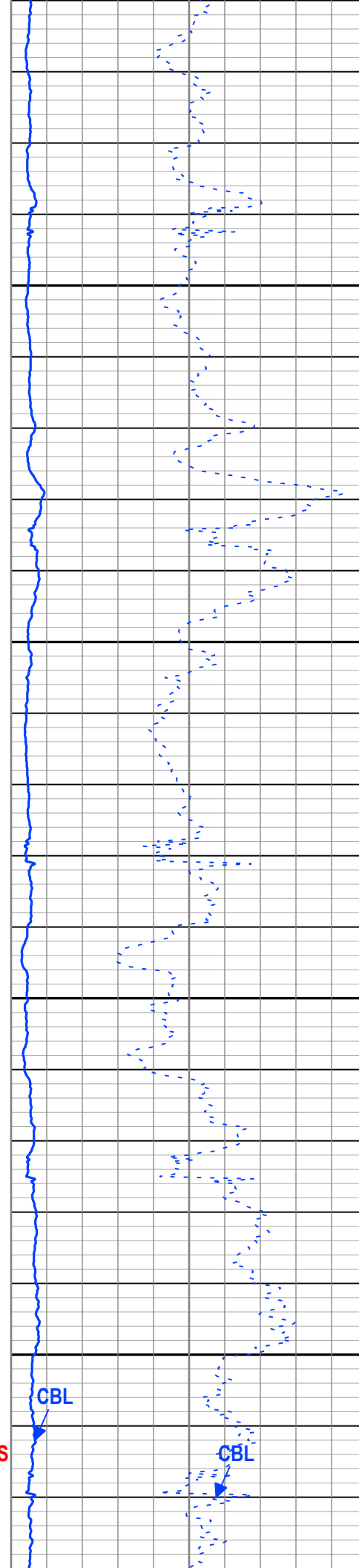
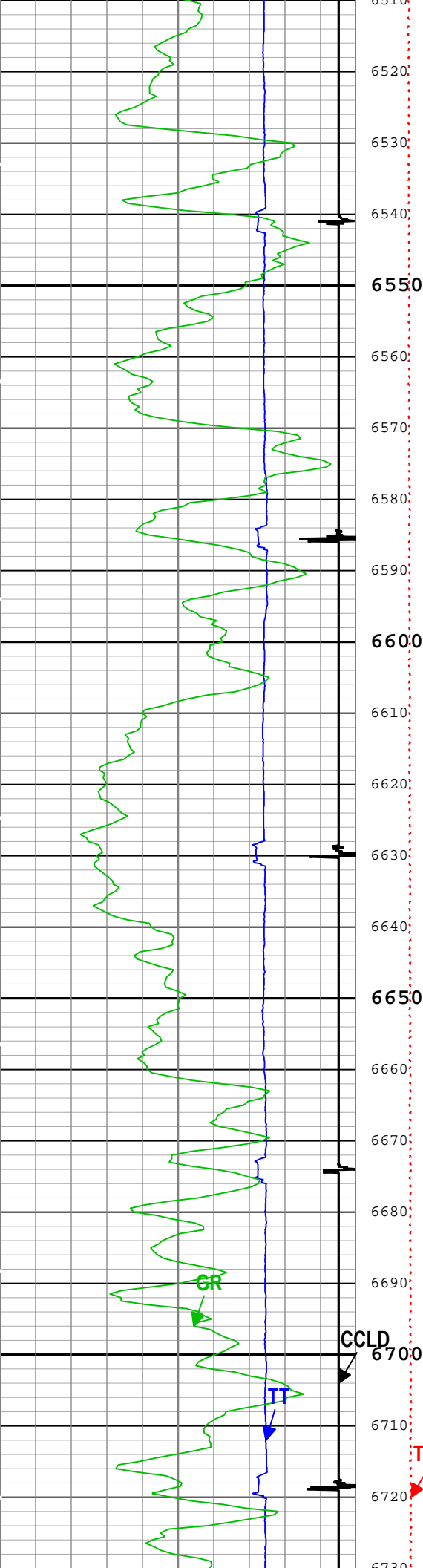


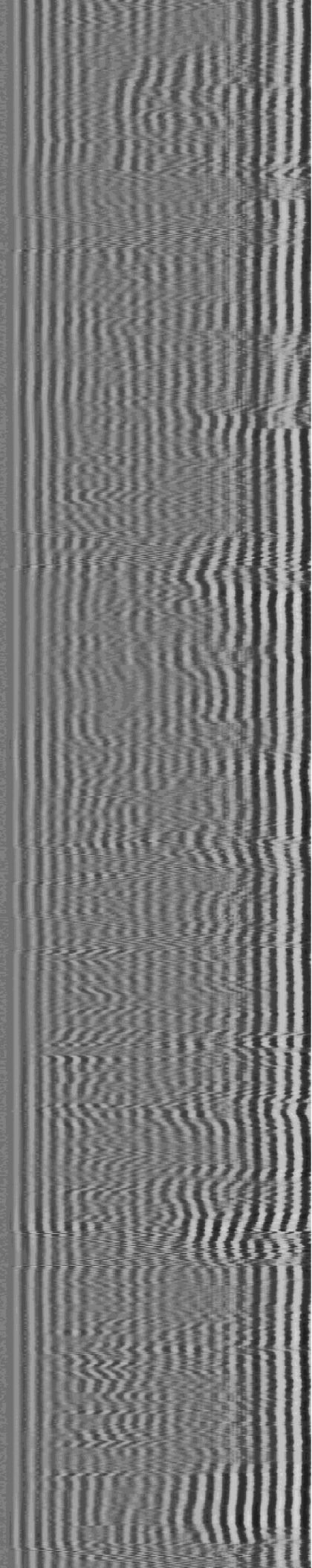
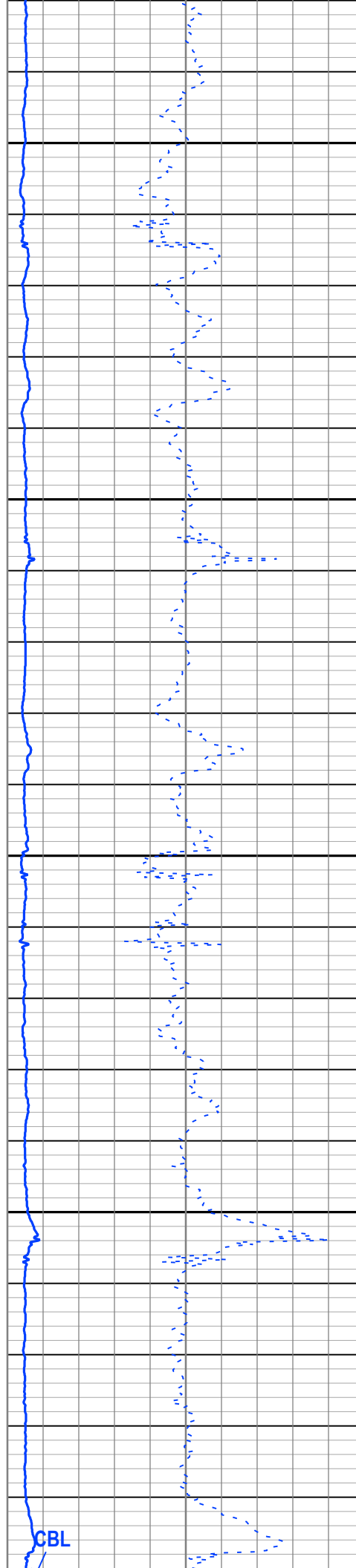
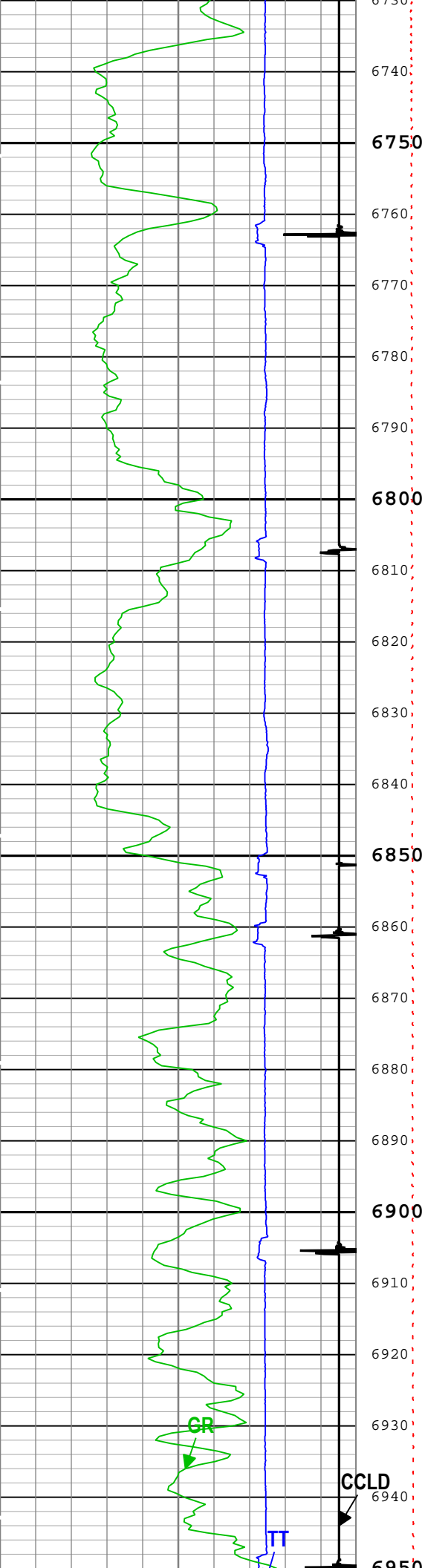


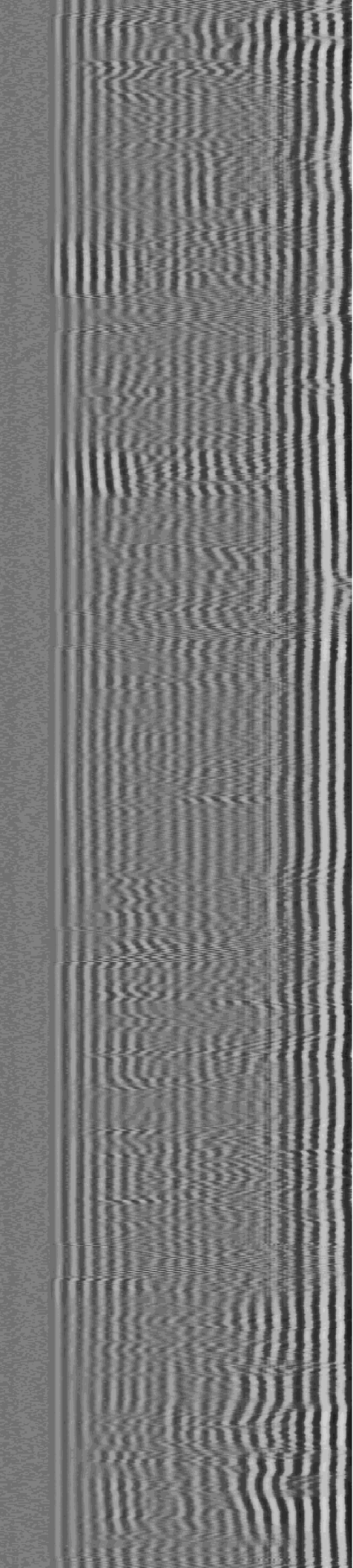
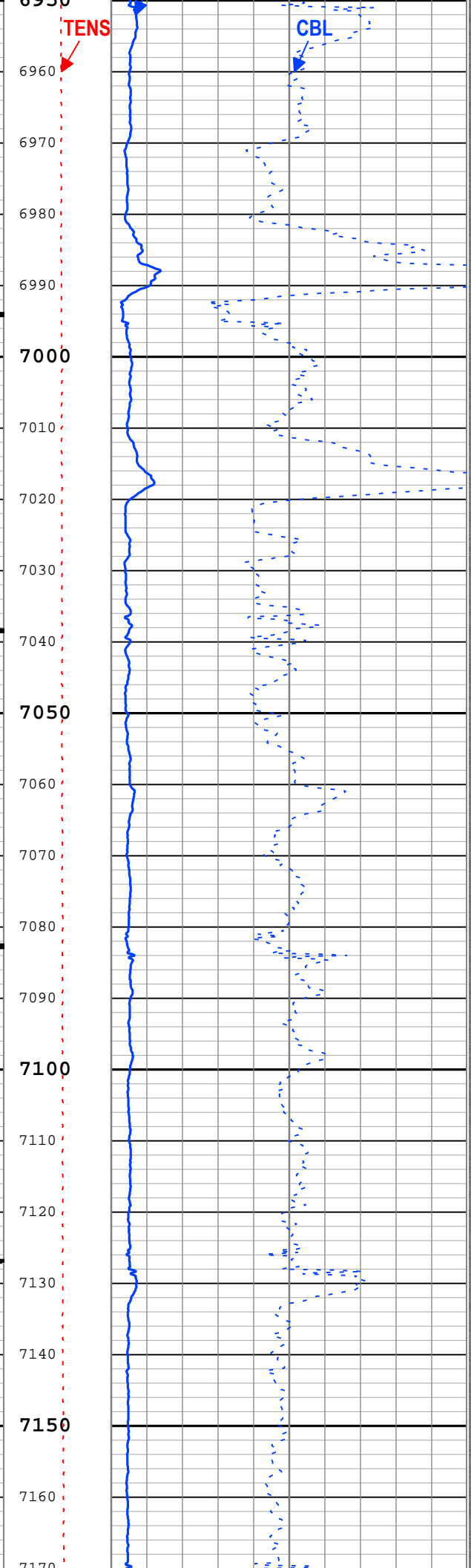
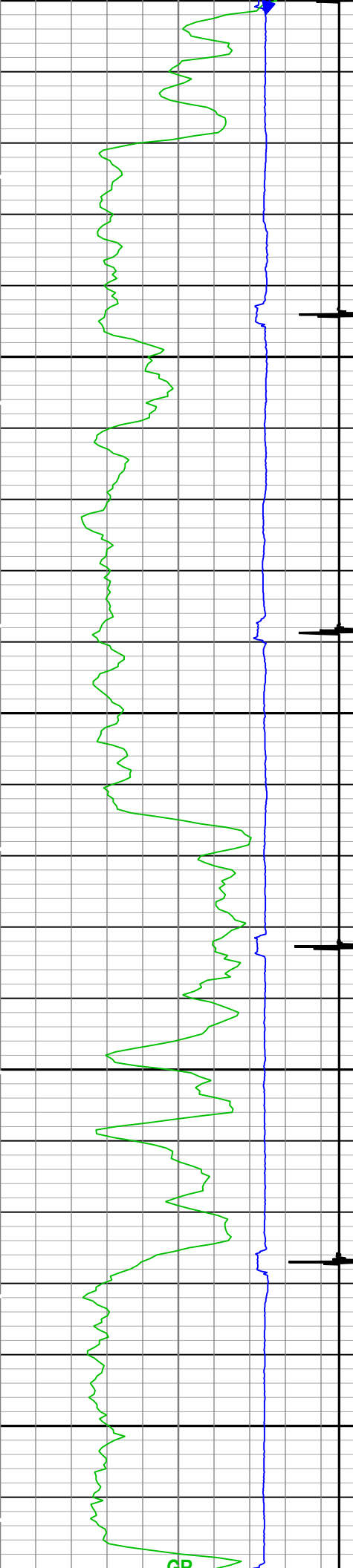


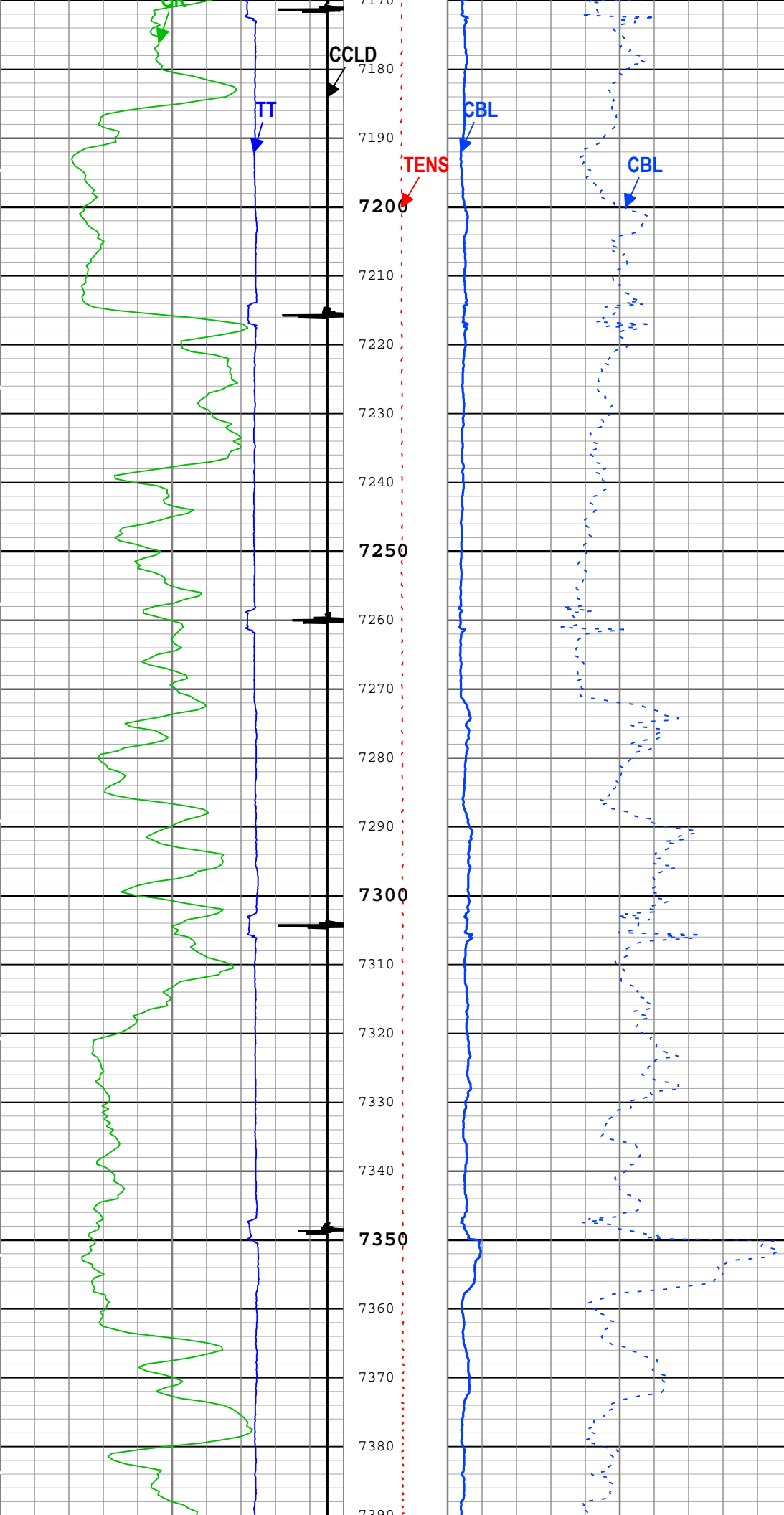


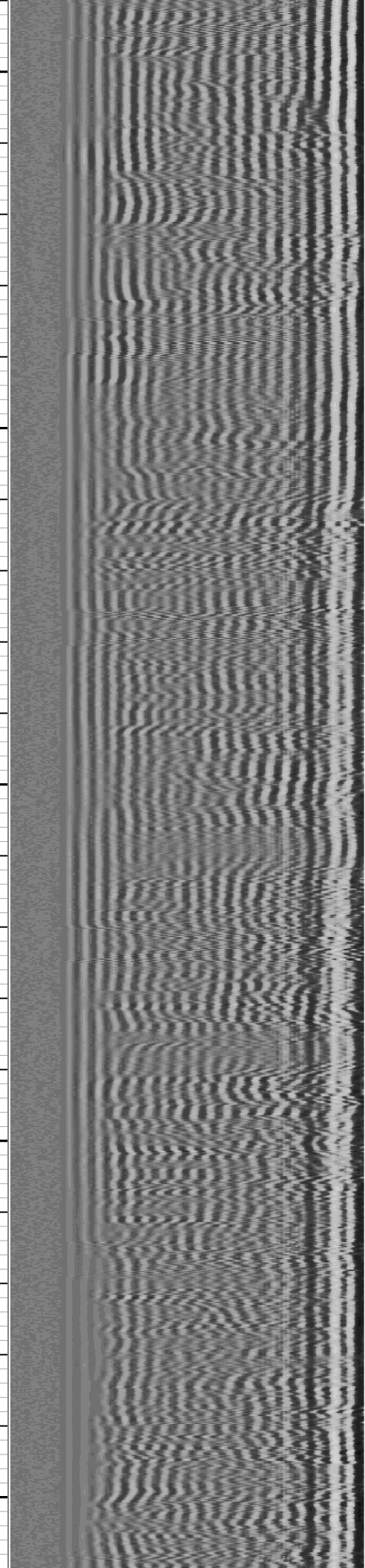
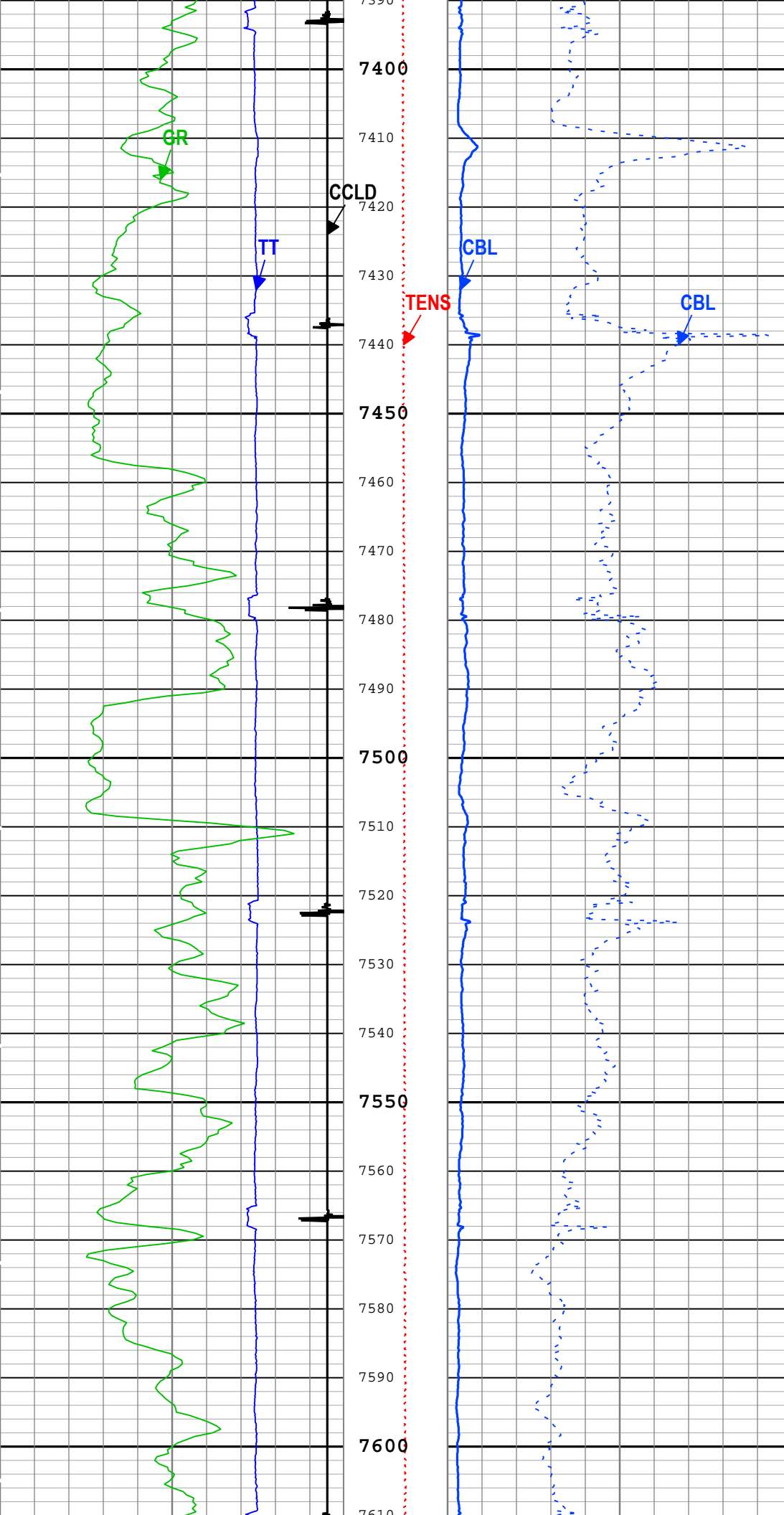
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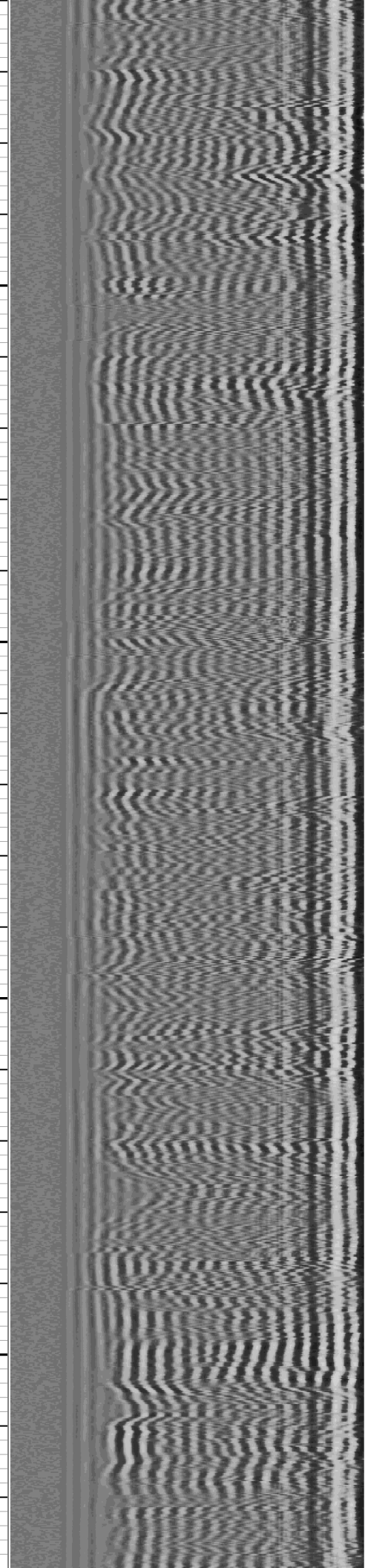
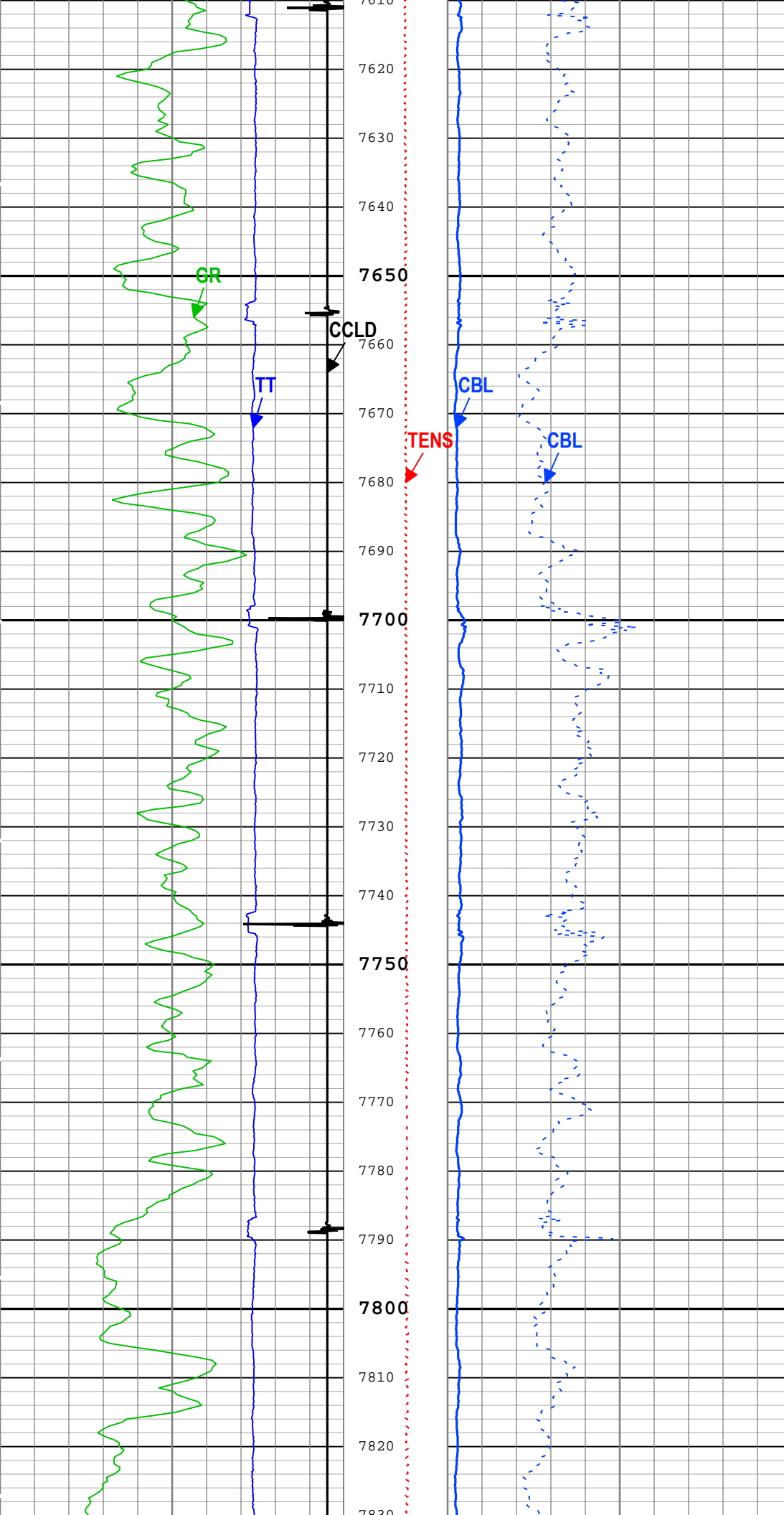


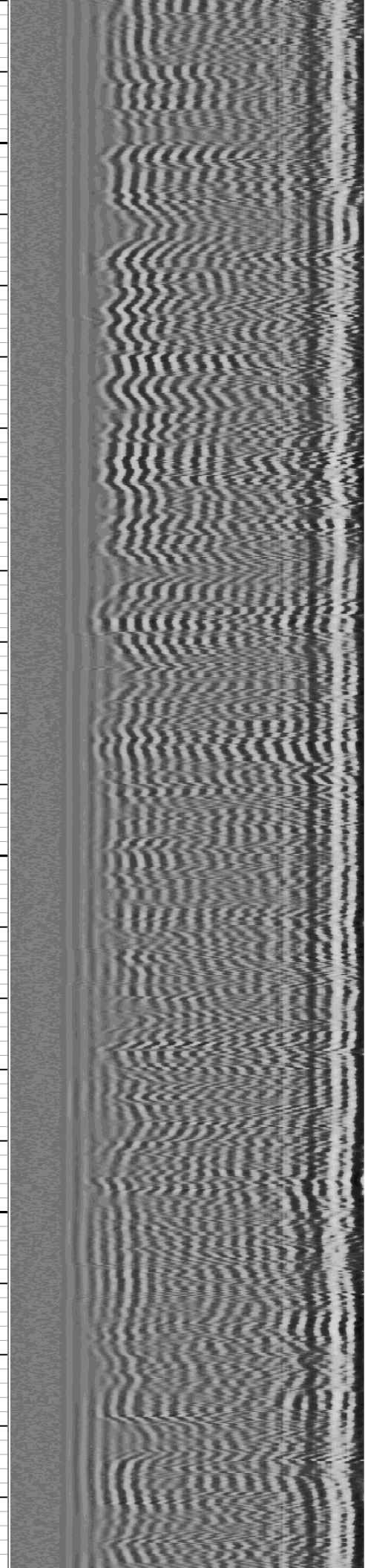
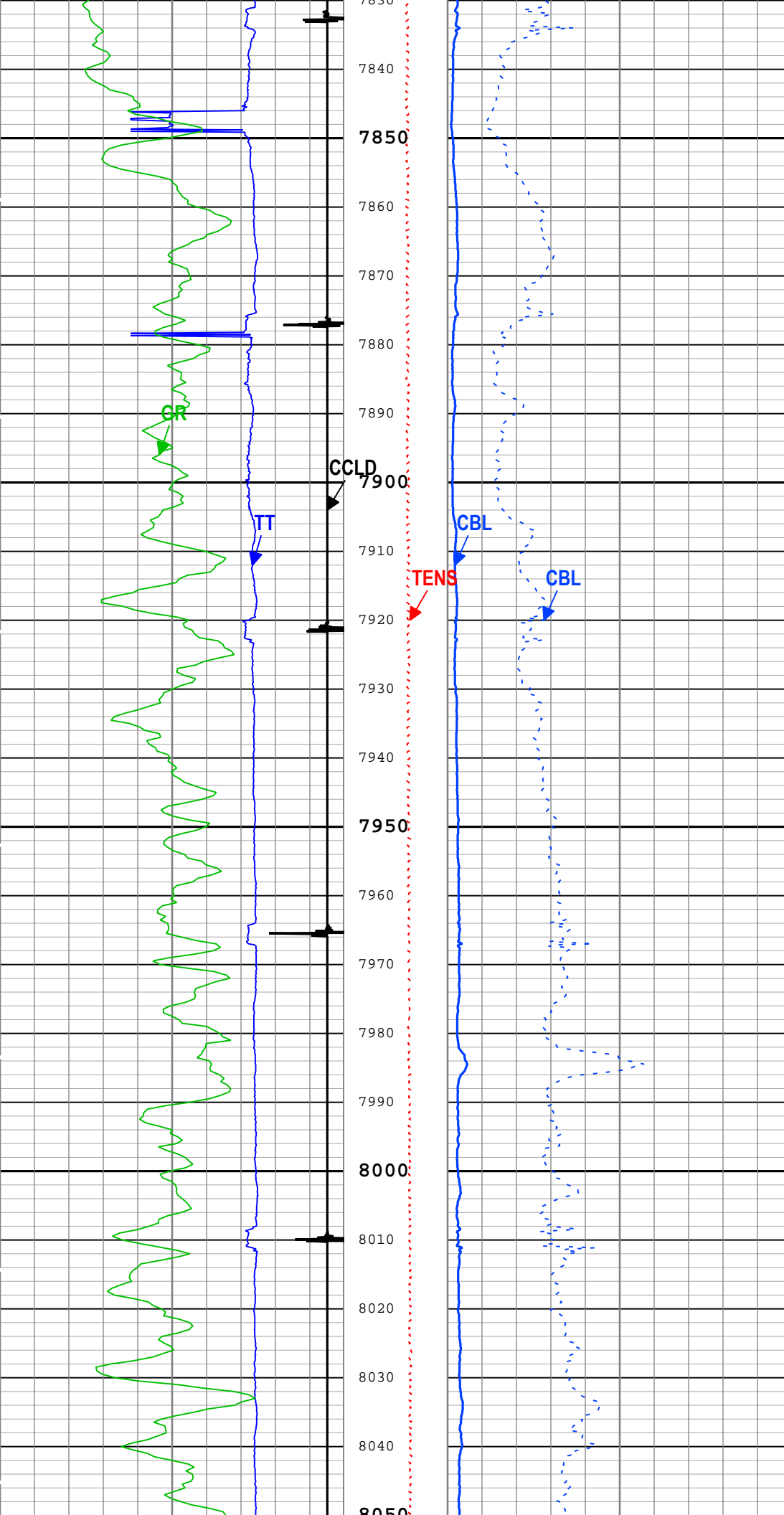


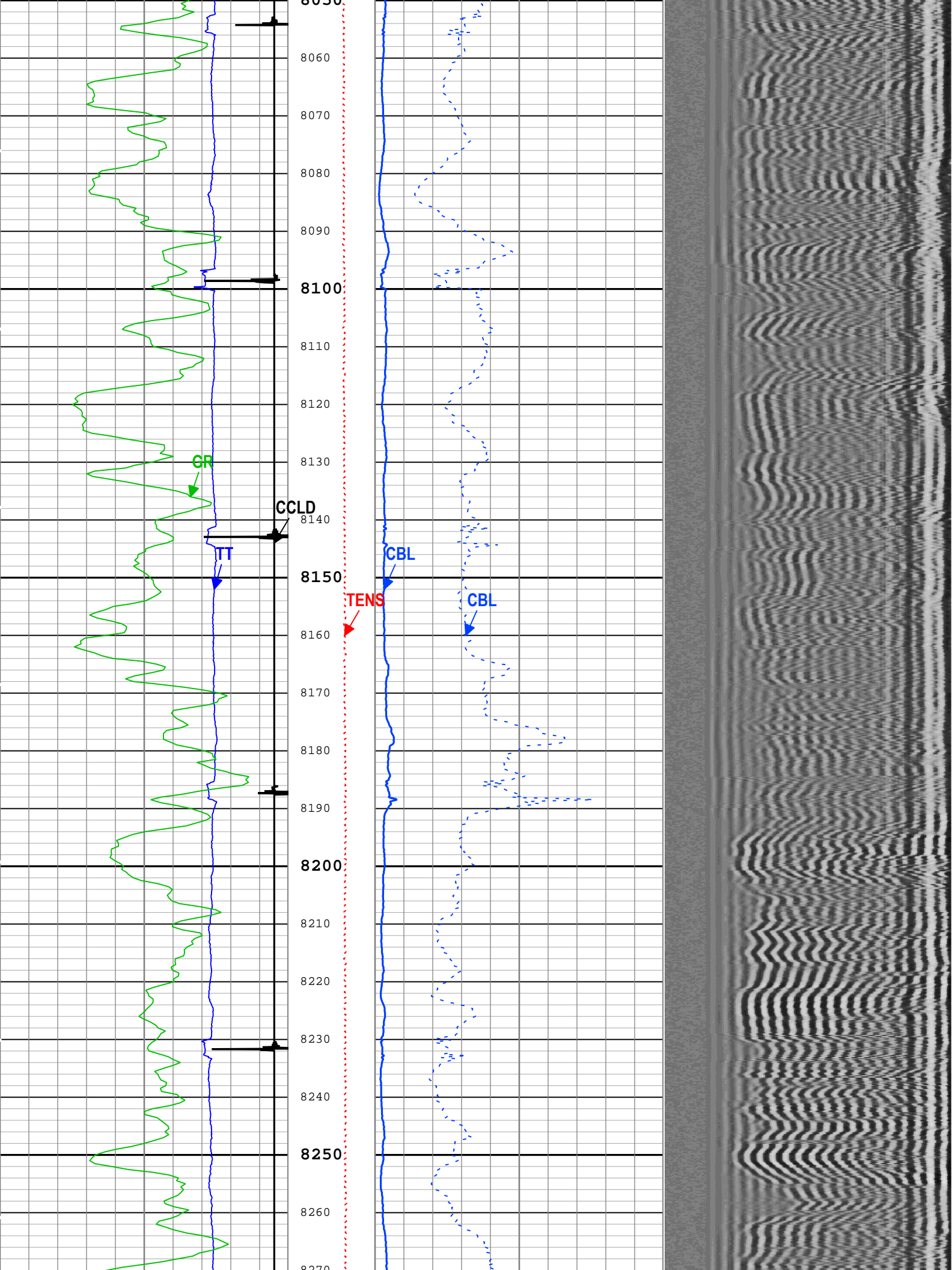


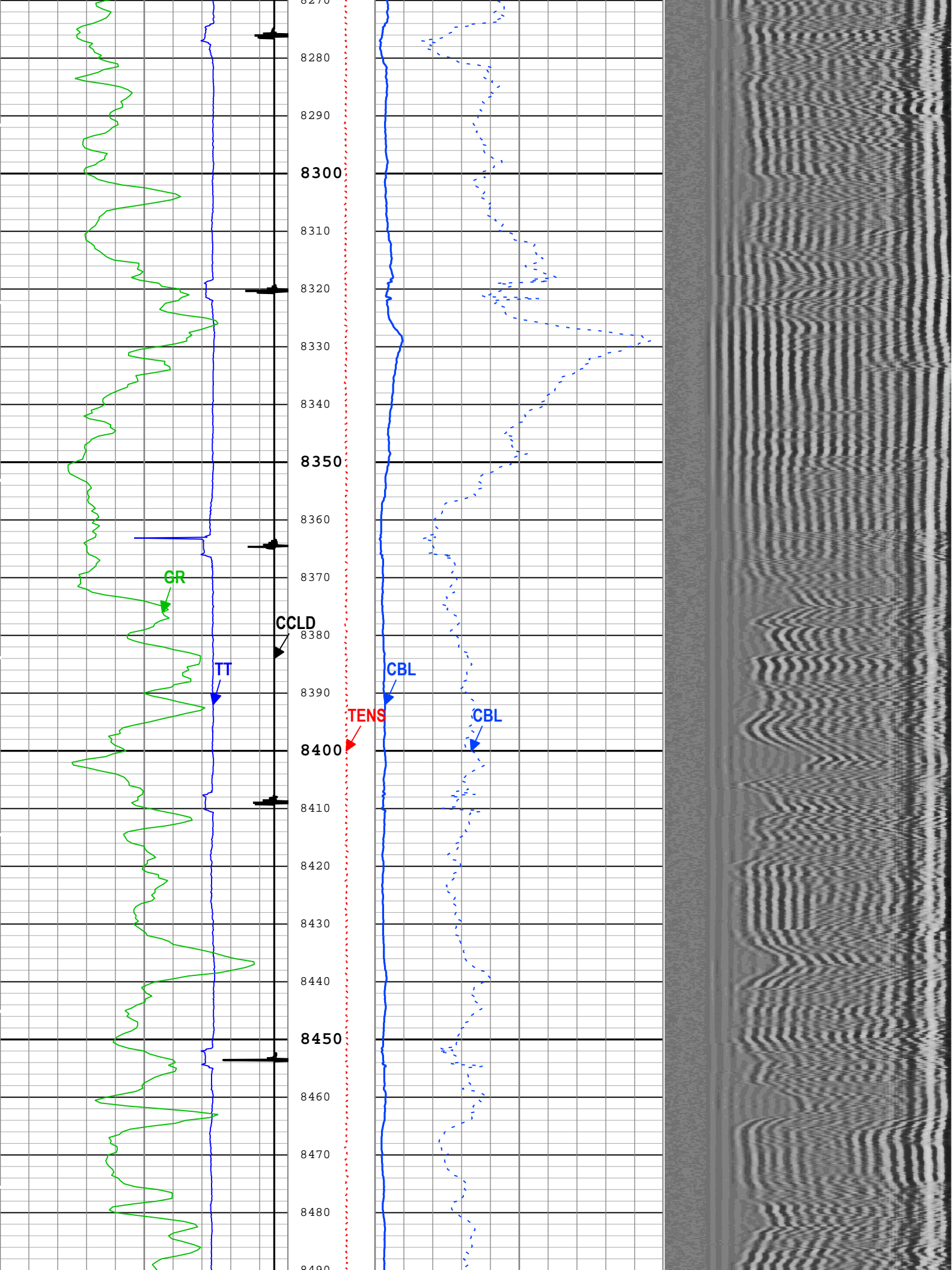


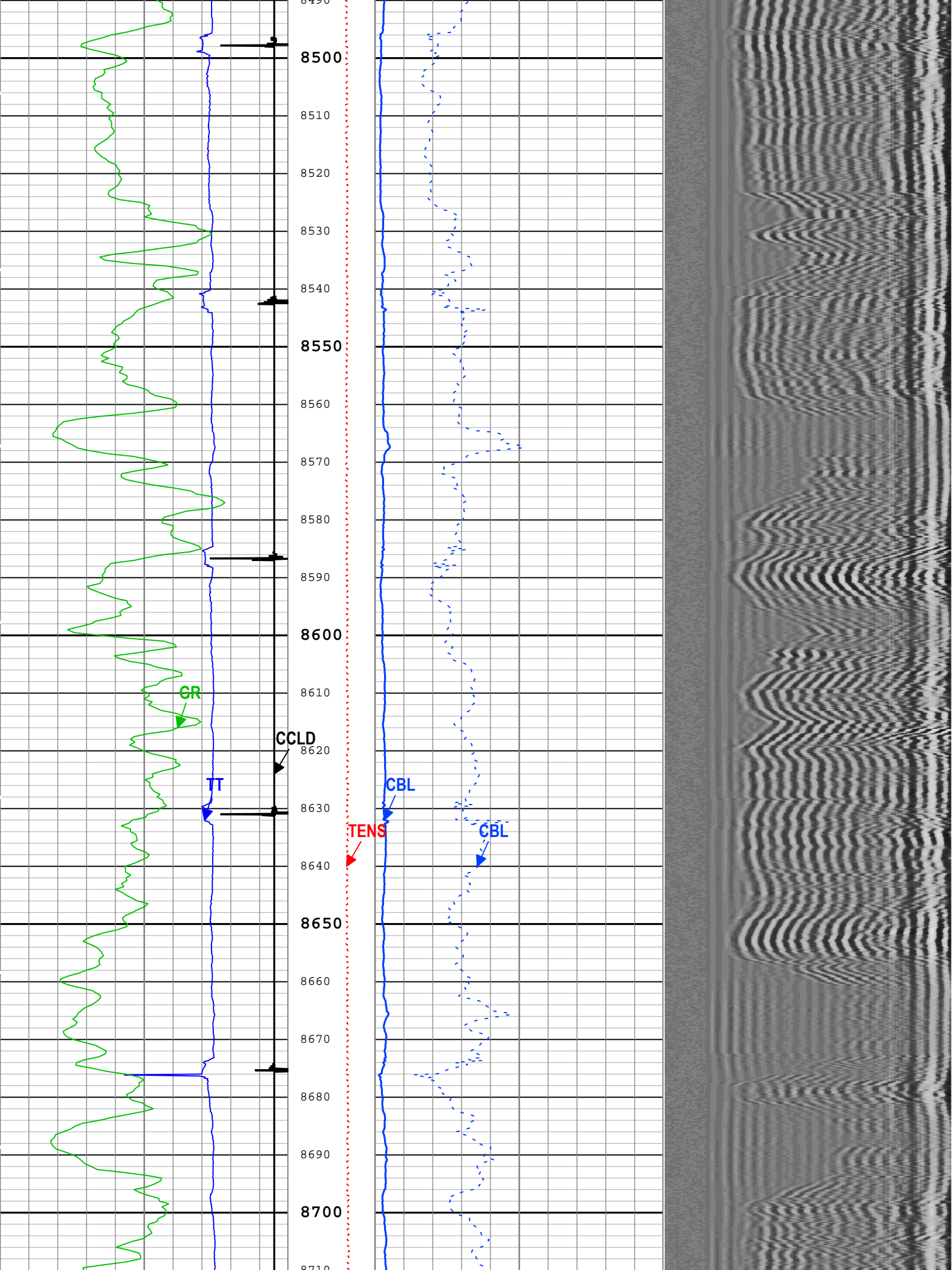


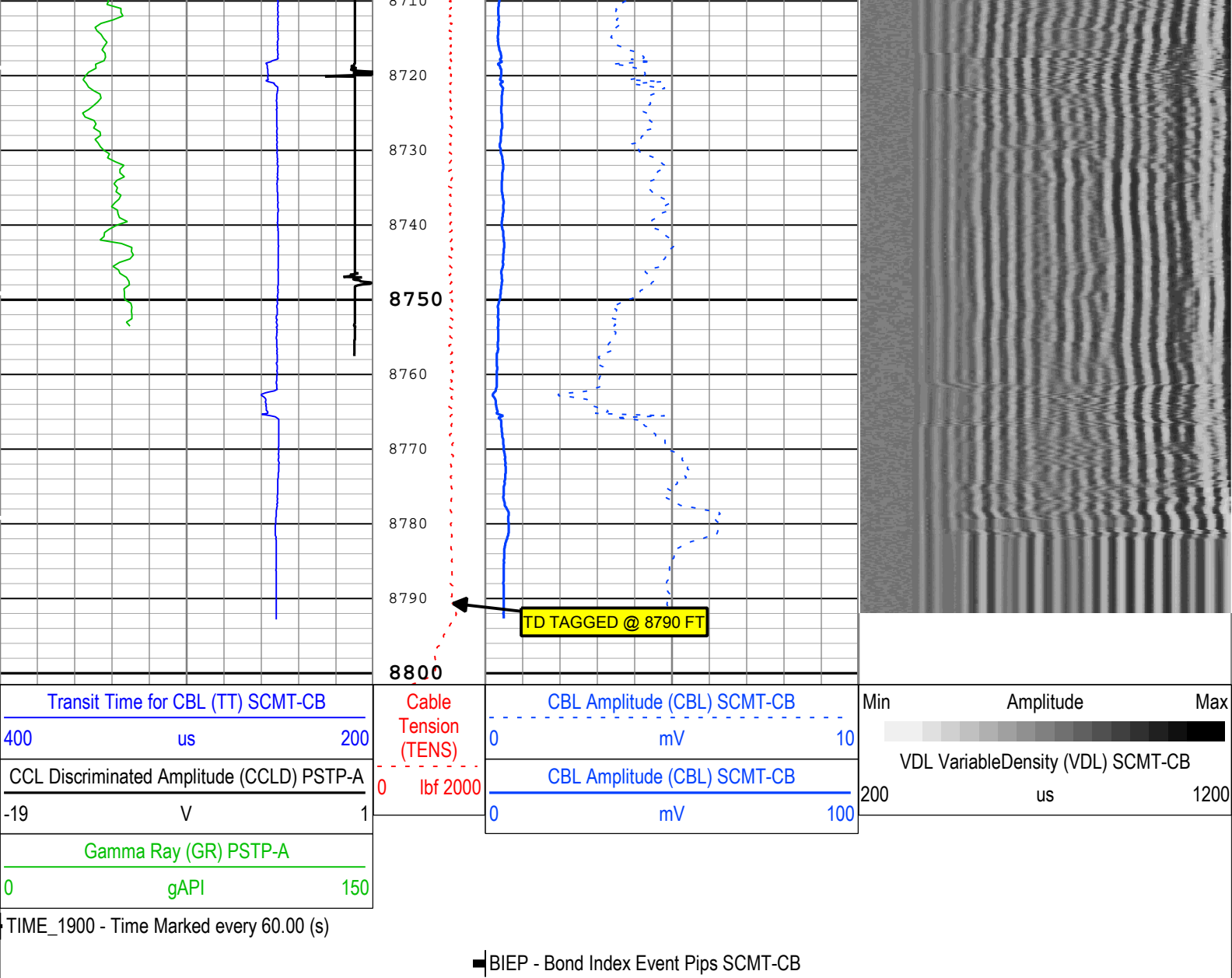












Description: Sonic CBL with VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 23-Jul-2018 06:05:49

Channel Processing Parameters				
ONE: Parameters				
Parameter	Description	Tool	Value	Unit
BHT	Bottom Hole Temperature	Borehole	212	degF
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	SCMT-CB	224	us
CBLG	CBL Gate Width	SCMT-CB	40	us
CBRA	CBL LQC Reference Amplitude in Free Pipe	SCMT-CB	80	mV
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.49	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
EDF	Elevation of Derrick Floor Above Permanent Datum	WLSESSION	30	ft
EPD	Elevation of Permanent Datum (PDAT) above Mean Sea Level	WLSESSION	8322	ft
GGRD	Geothermal Gradient	Borehole	1	0.01 degF/ft
GOBO_CURR	Good Bond in Arbitrary Cement	SCMT-CB	1.4	mV
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	GTEM_LINEST(RT)	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	SCMT-CB	16.92	dB/ft
MCI	Minimum Cemented Interval for Isolation	SCMT-CB	Depth Zoned	ft

MSA	Minimum Sonic Amplitude	SCMT-CB	0.51	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	SCMT-CB	0.51	mV
PDAT	Permanent Datum	WLSESSION	GL	
RUN_SNUM	Run Sequence Number	WSDRUN	1	
SHT	Surface Hole Temperature	Borehole	68	degF

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
MCI	14.81	2130	2519.2
MCI	1.25	2519.2	8801.5

All depths are actual.

Tool Control Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
CMTM	SCMT Operating Mode	SCMT-CB	Log	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	150	ft/h
PCCG	PSP Downhole CCL Gain	PSTP-A	24 dB	

ONE

CBL-VDL Repeat Pass

Software Version

Acquisition System	Version
Maxwell 2018 SP1	8.1.99839.3100
Application Patch	Wireline_Hotfix-Mandatory-2018SP1_8.1.102865

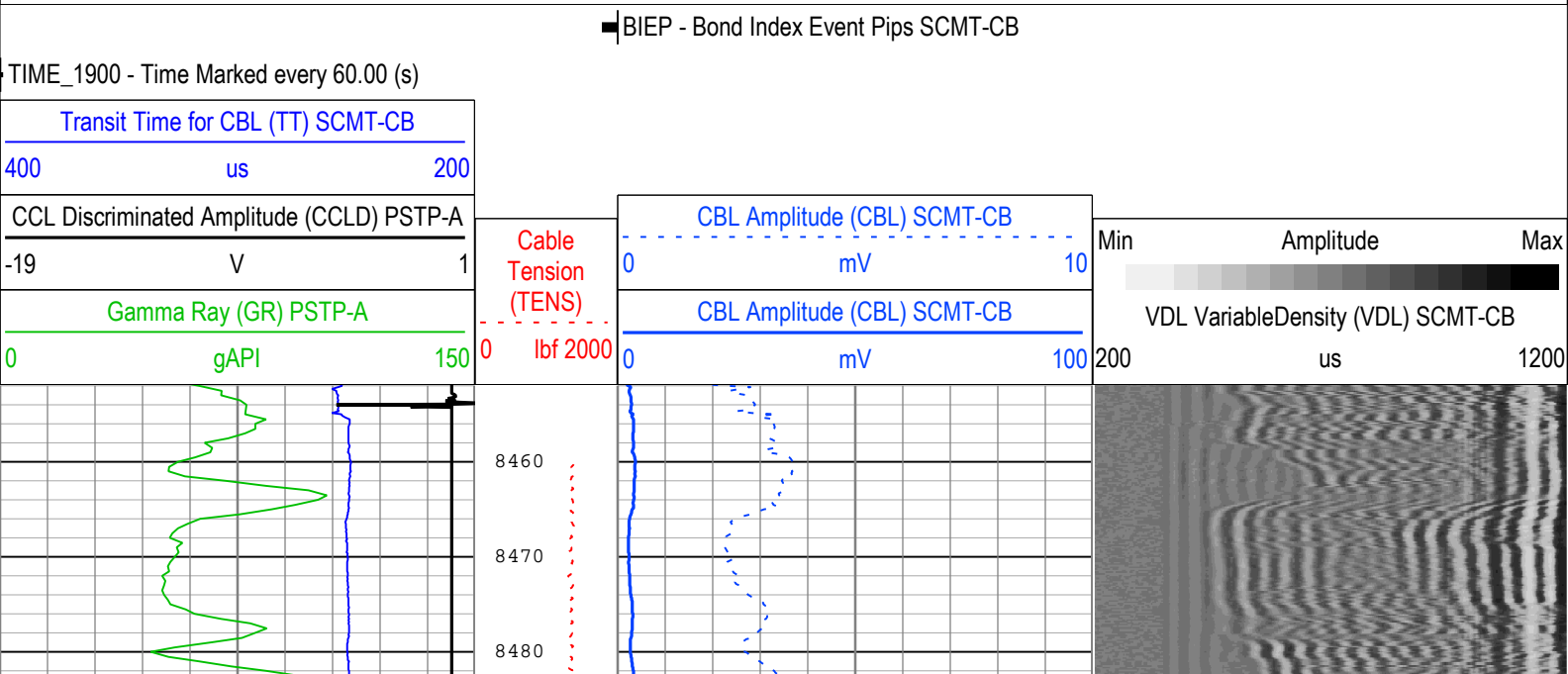
Pass Summary

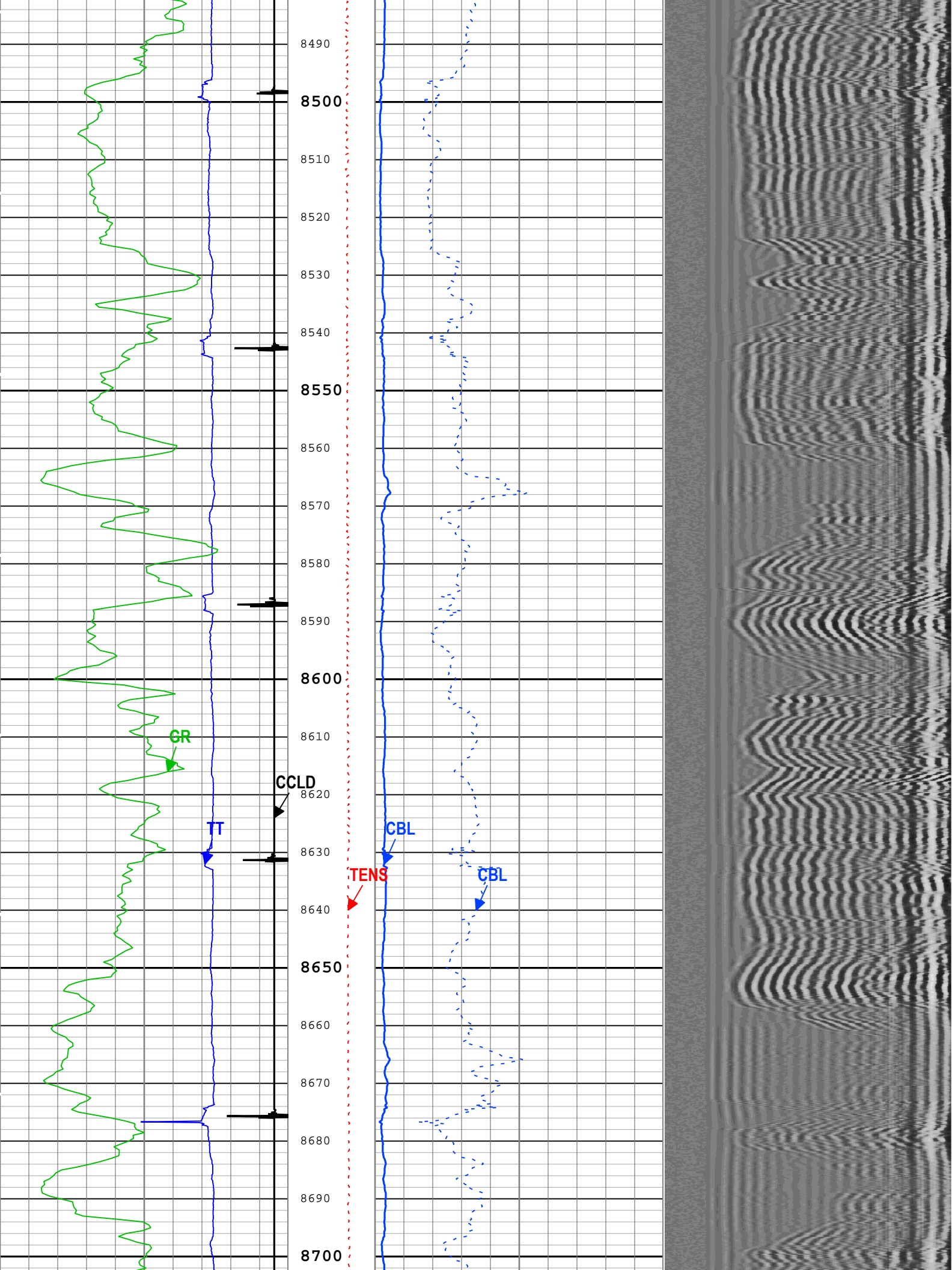
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[3]:Up	Up	8460.18 ft	8799.63 ft	23-Jul-2018 2:02:38 AM	23-Jul-2018 2:16:46 AM	ON	5.92 ft	No

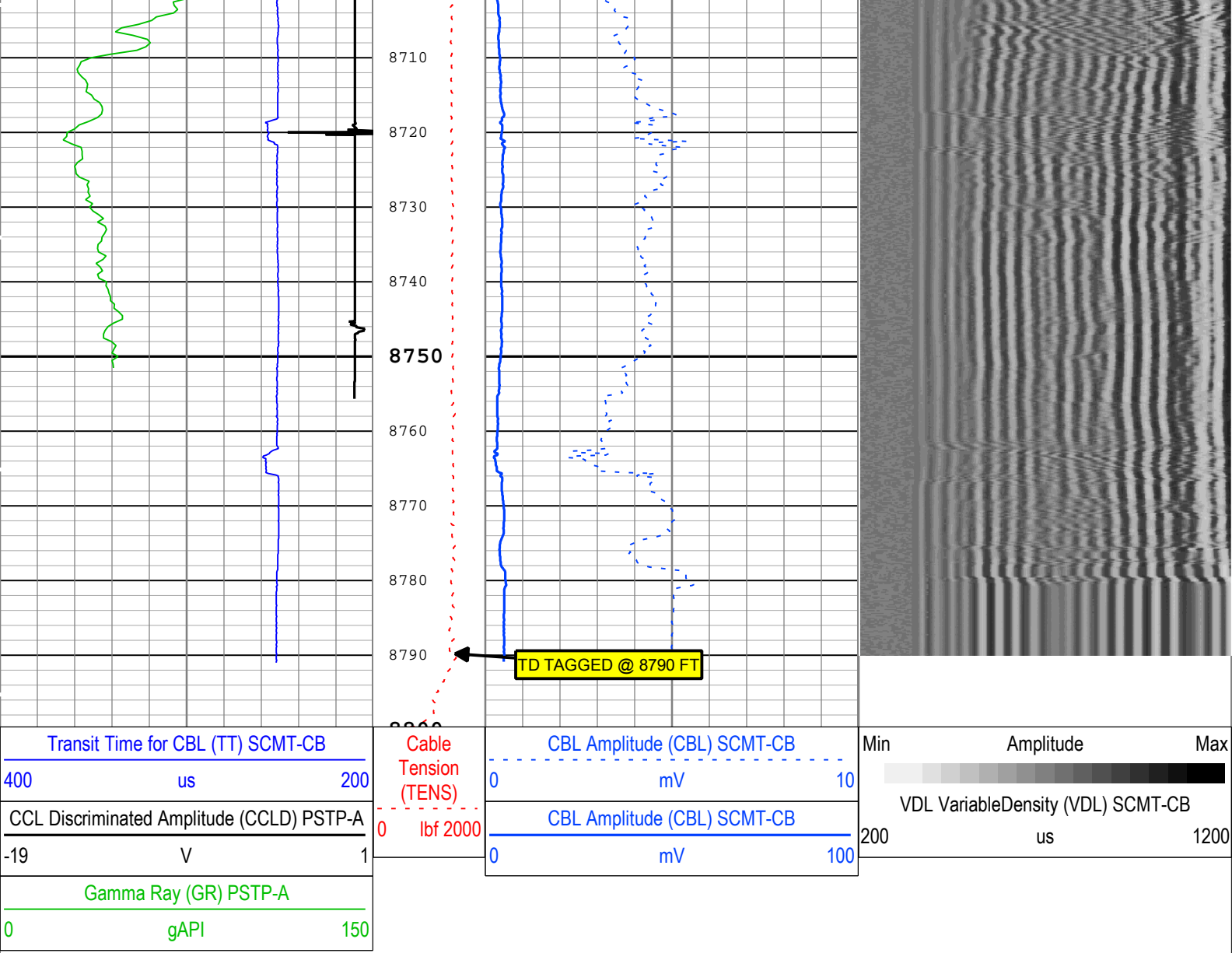
All depths are referenced to toolstring zero

Log	Company:Caerus Operating LLC Well:Puckett 23B-26 ONE: Log[3]:Up:S003
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Description: Sonic CBL with VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 23-Jul-2018 06:05:56







TIME_1900 - Time Marked every 60.00 (s)

■ BIEP - Bond Index Event Pips SCMT-CB

Description: Sonic CBL with VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 23-Jul-2018 06:05:56

Channel Processing Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
BHT	Bottom Hole Temperature	Borehole	212	degF
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	SCMT-CB	224	us
CBLG	CBL Gate Width	SCMT-CB	40	us
CBRA	CBL LQC Reference Amplitude in Free Pipe	SCMT-CB	80	mV
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.49	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
EDF	Elevation of Derrick Floor Above Permanent Datum	WLSESSION	30	ft
EPD	Elevation of Permanent Datum (PDAT) above Mean Sea Level	WLSESSION	8322	ft
GGRD	Geothermal Gradient	Borehole	1	0.01 degF/ft
GOBO_CURR	Good Bond in Arbitrary Cement	SCMT-CB	1.4	mV
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	GTEM_LINEST(RT)	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	SCMT-CB	16.92	dB/ft

MCI	Minimum Cemented Interval for Isolation	SCMT-CB	1.25	ft
MSA	Minimum Sonic Amplitude	SCMT-CB	0.51	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	SCMT-CB	0.51	mV
PDAT	Permanent Datum	WLSESSION	GL	
RUN_SNUM	Run Sequence Number	WSDRUN	1	
SHT	Surface Hole Temperature	Borehole	68	degF

Tool Control Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
CMTM	SCMT Operating Mode	SCMT-CB	Log	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	150	ft/h
PCCG	PSP Downhole CCL Gain	PSTP-A	24 dB	

ONE

CBL-VDL Free Pipe

Software Version

Acquisition System	Version
Maxwell 2018 SP1	8.1.99839.3100
Application Patch	Wireline_Hotfix-Mandatory-2018SP1_8.1.102865

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[1]:Up	Up	978.72 ft	1202.19 ft	23-Jul-2018 1:23:20 AM	23-Jul-2018 1:27:23 AM	ON	0.00 ft	No

All depths are referenced to toolstring zero

Log

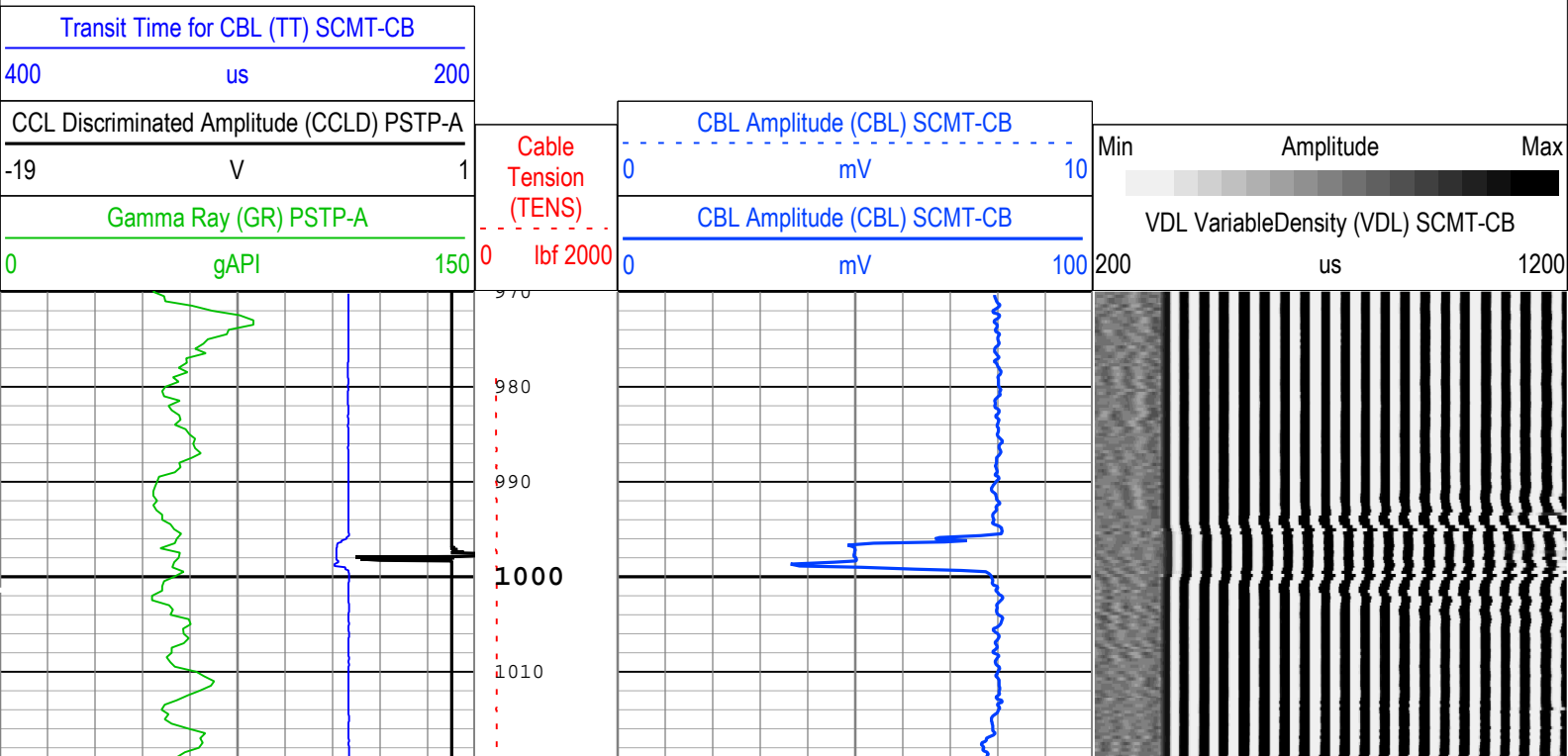
Company:Caerus Operating LLC Well:Puckett 23B-26

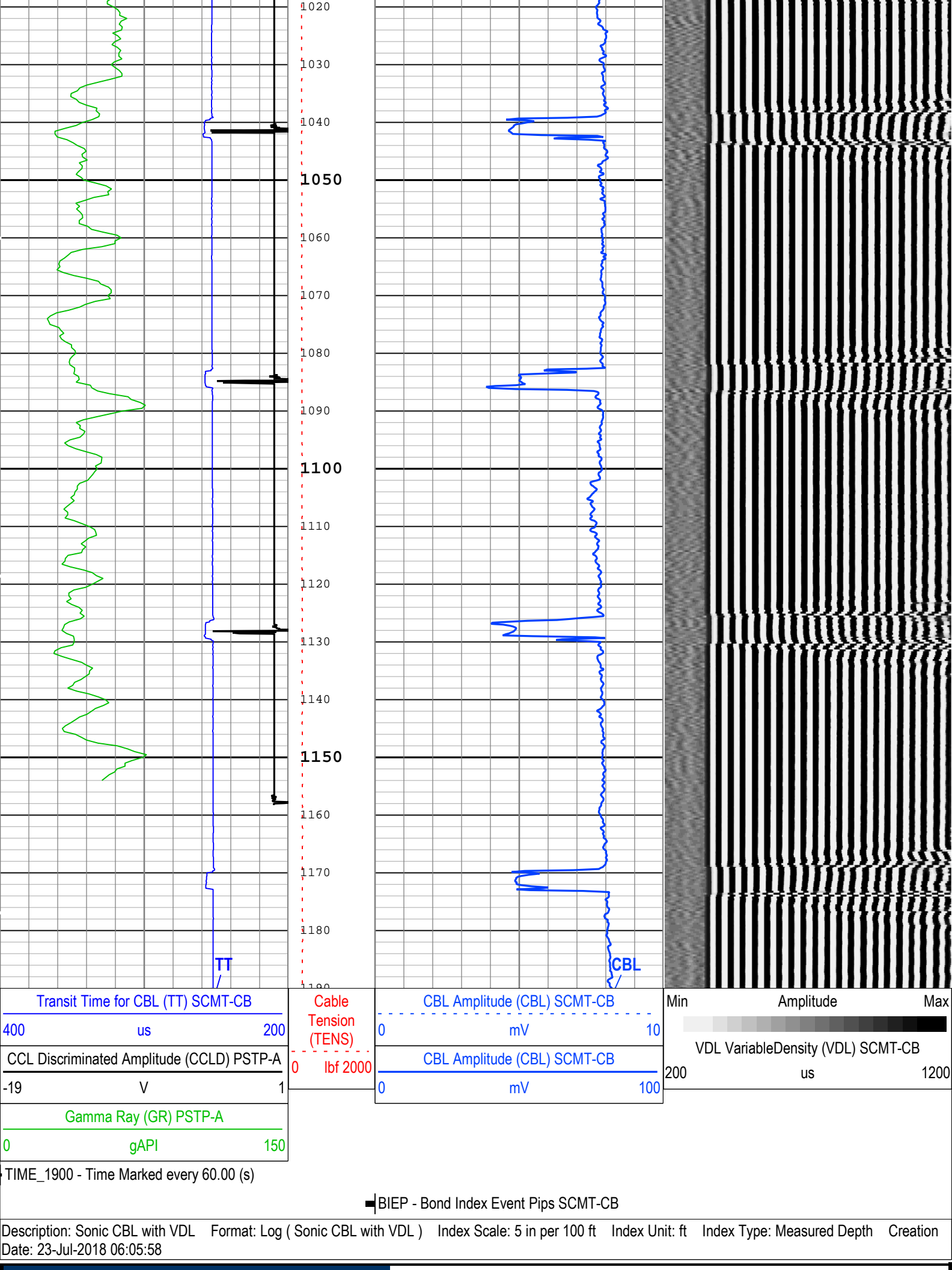
ONE: Log[1]:Up:S003

Description: Sonic CBL with VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 23-Jul-2018 06:05:58

■ BIEP - Bond Index Event Pips SCMT-CB

TIME_1900 - Time Marked every 60.00 (s)





Channel Processing Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
BHT	Bottom Hole Temperature	Borehole	212	degF
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	SCMT-CB	224	us
CBLG	CBL Gate Width	SCMT-CB	40	us
CBRA	CBL LQC Reference Amplitude in Free Pipe	SCMT-CB	80	mV
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.49	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
EDF	Elevation of Derrick Floor Above Permanent Datum	WLSESSION	30	ft
EPD	Elevation of Permanent Datum (PDAT) above Mean Sea Level	WLSESSION	8322	ft
GGRD	Geothermal Gradient	Borehole	1	0.01 degF/ft
GOBO_CURR	Good Bond in Arbitrary Cement	SCMT-CB	1.4	mV
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	GTEM_LINEST(RT)	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	SCMT-CB	16.92	dB/ft
MCI	Minimum Cemented Interval for Isolation	SCMT-CB	14.81	ft
MSA	Minimum Sonic Amplitude	SCMT-CB	0.51	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	SCMT-CB	0.51	mV
PDAT	Permanent Datum	WLSESSION	GL	
RUN_SNUM	Run Sequence Number	WSDRUN	1	
SHT	Surface Hole Temperature	Borehole	68	degF

Tool Control Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
CMTM	SCMT Operating Mode	SCMT-CB	Log	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	150	ft/h
PCCG	PSP Downhole CCL Gain	PSTP-A	24 dB	

ONE

RST Sigma Main Pass

Software Version

Acquisition System	Version
Maxwell 2018 SP1	8.1.99839.3100
Application Patch	Wireline_Hotfix-Mandatory-2018SP1_8.1.102865

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[4]:Up	Up	2125.44 ft	8801.49 ft	23-Jul-2018 2:21:31 AM	23-Jul-2018 6:00:02 AM	ON	0.00 ft	No

All depths are referenced to toolstring zero

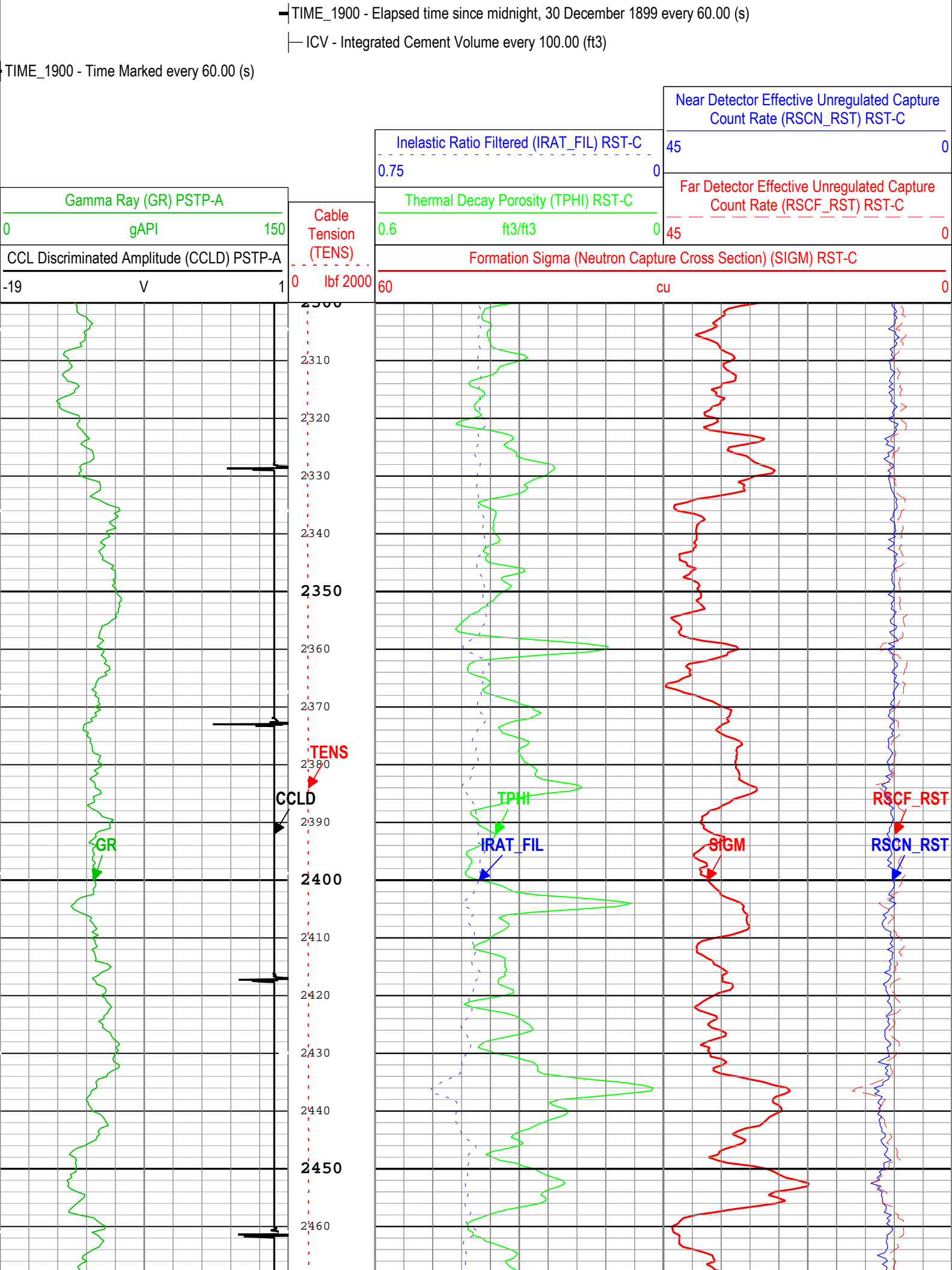
Log	Company:Caerus Operating LLC	Well:Puckett 23B-26
		ONE: Log[4]:Up:S003

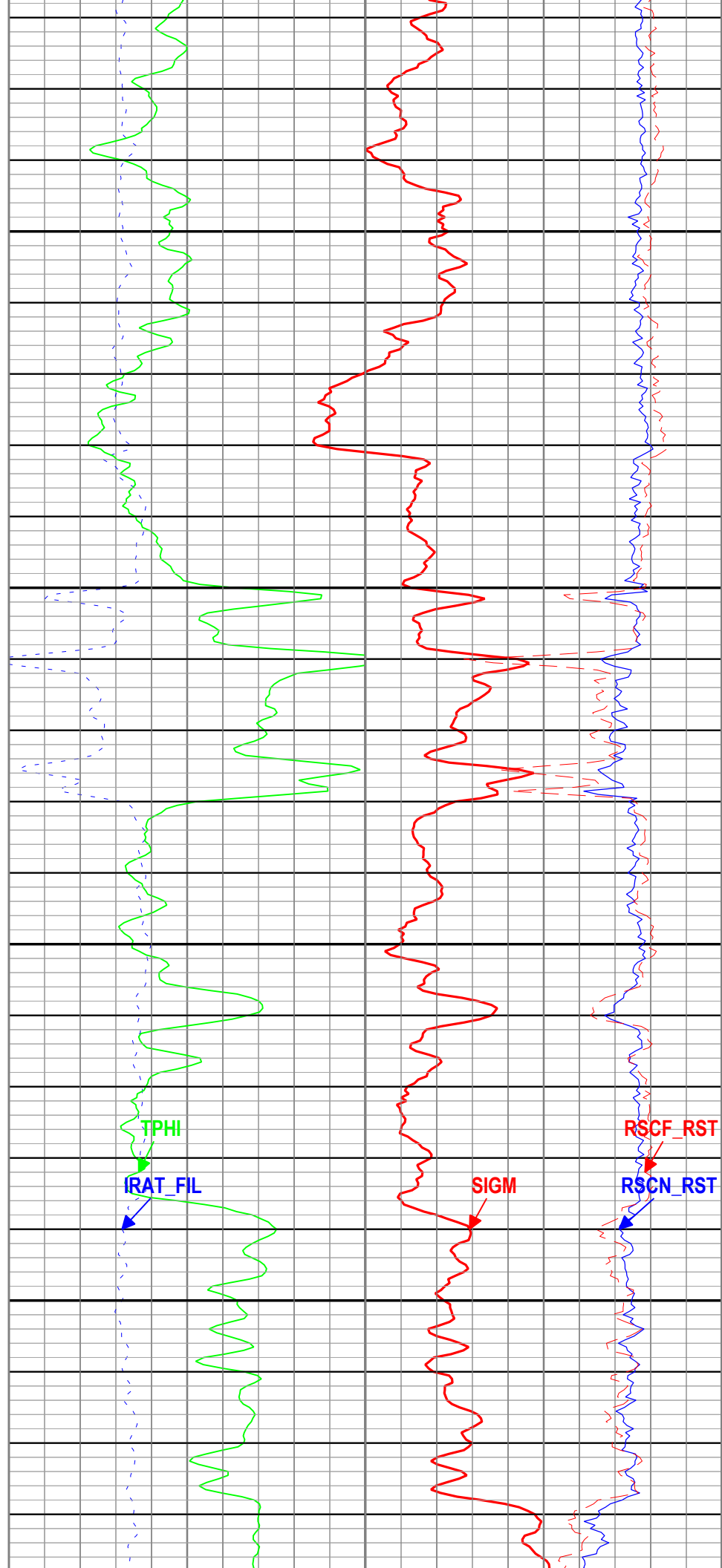
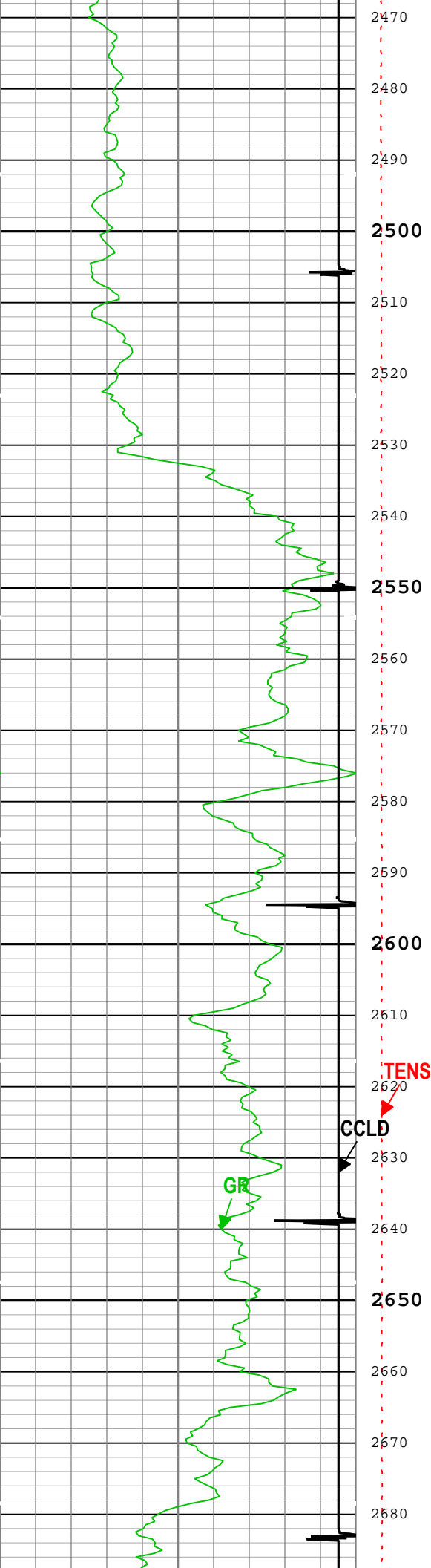
Description: RST SIGMA Answer Format: Log (RST SIGMA Answer) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 23-Jul-2018 06:05:59

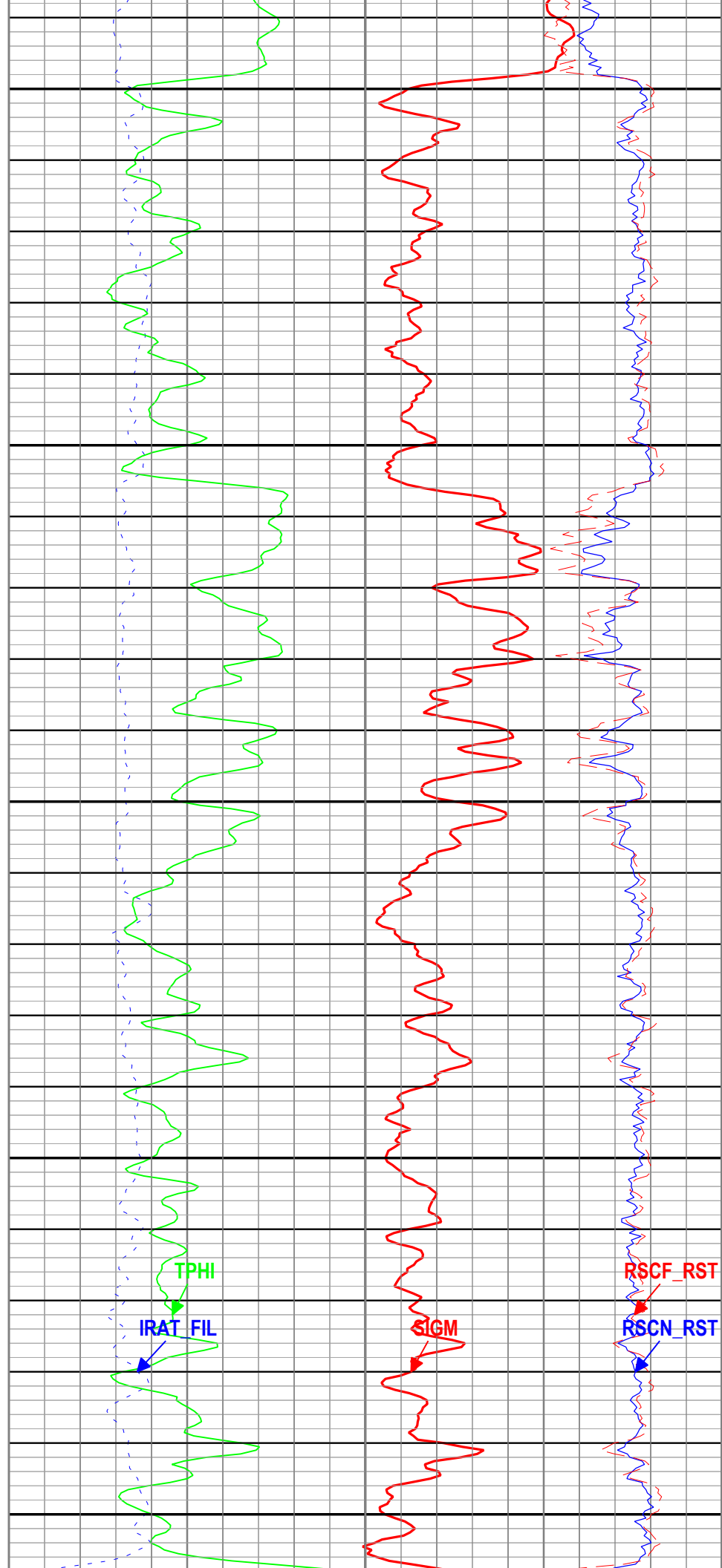
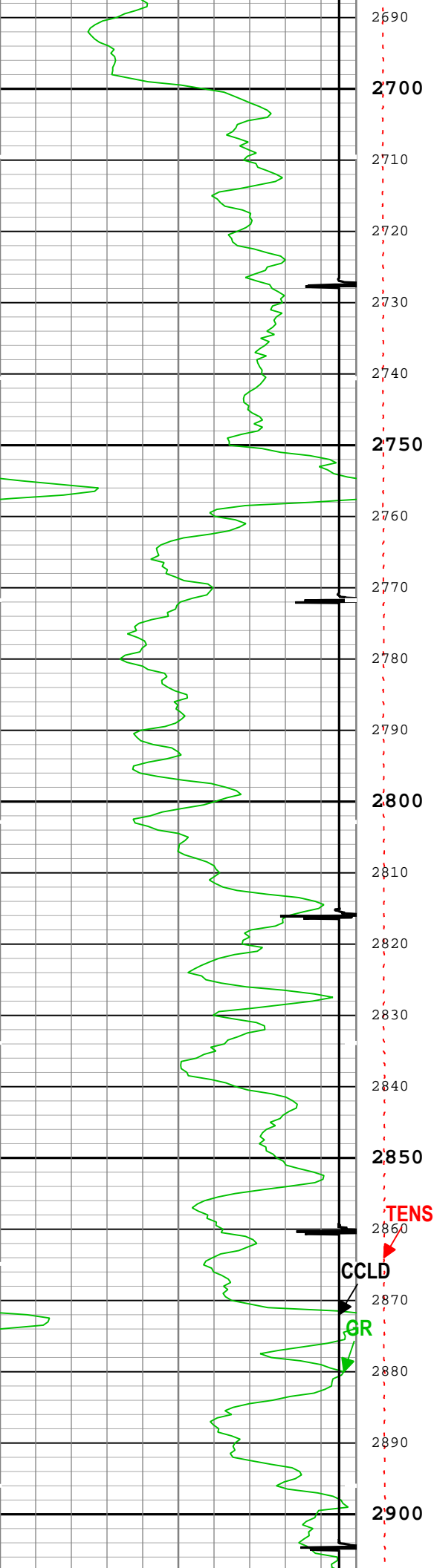
—IHV - Integrated Hole Volume every 10.00 (ft3)

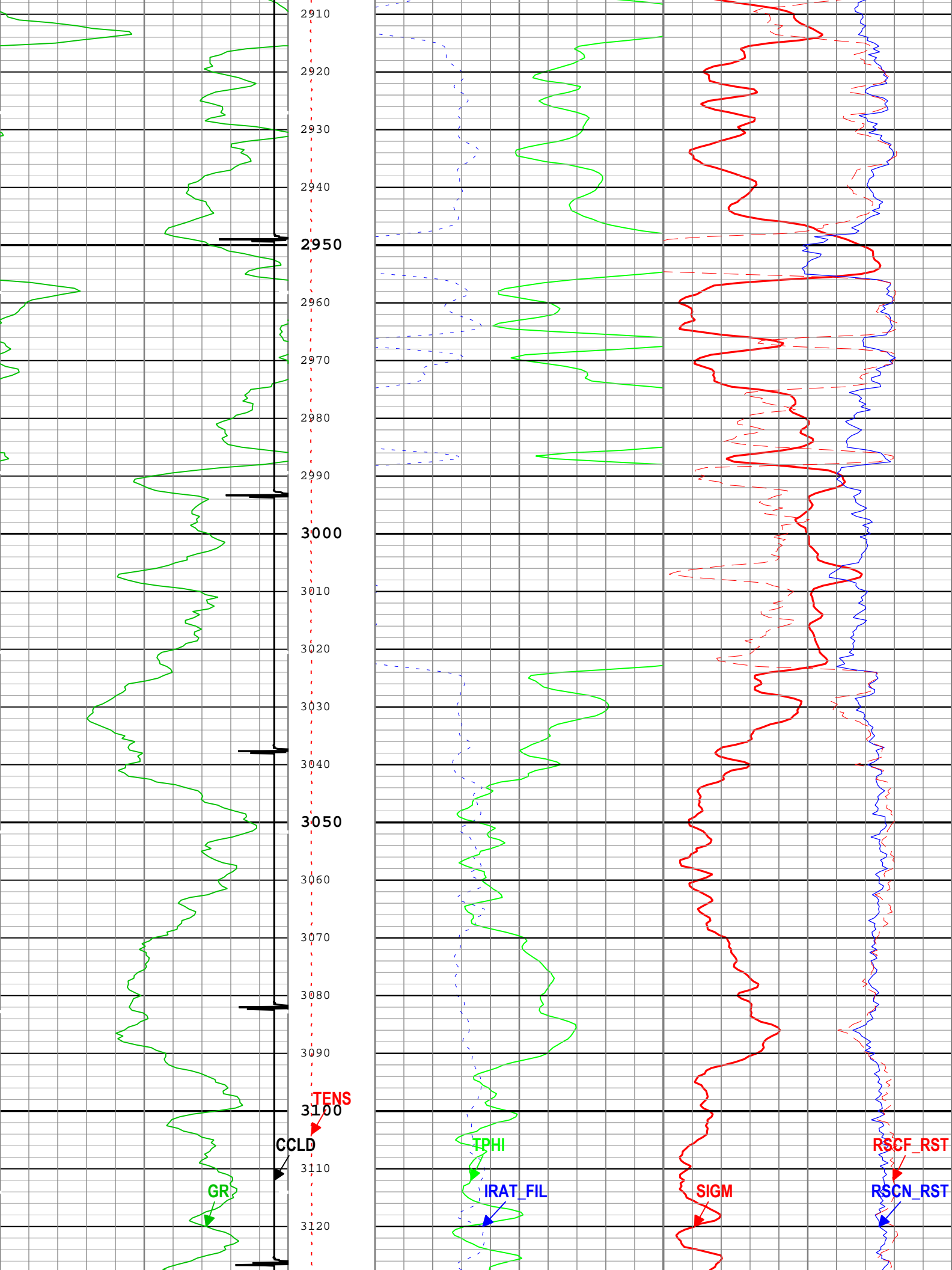
—IHV - Integrated Hole Volume every 100.00 (ft3)

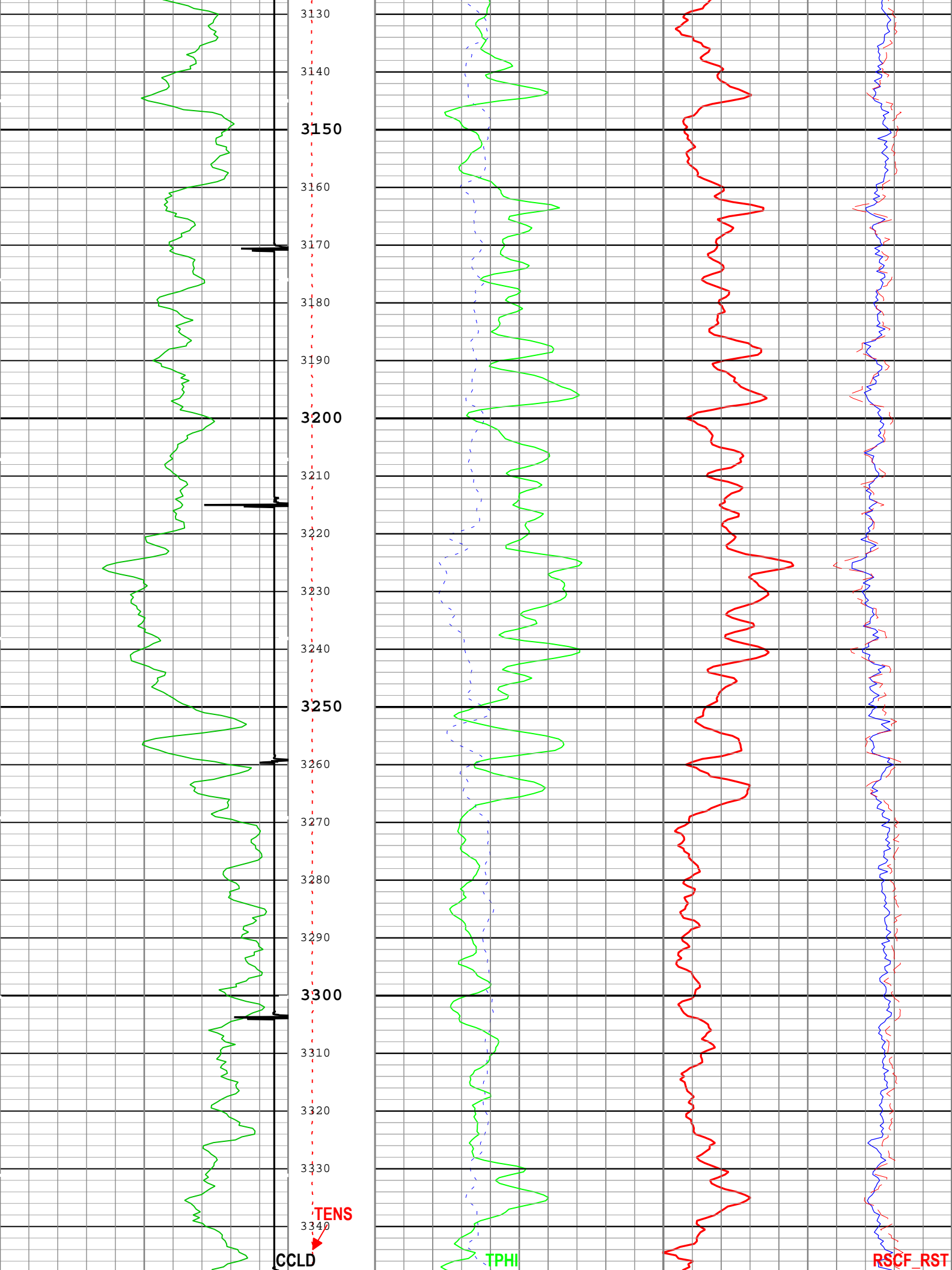
—ICV - Integrated Cement Volume every 10.00 (ft3)

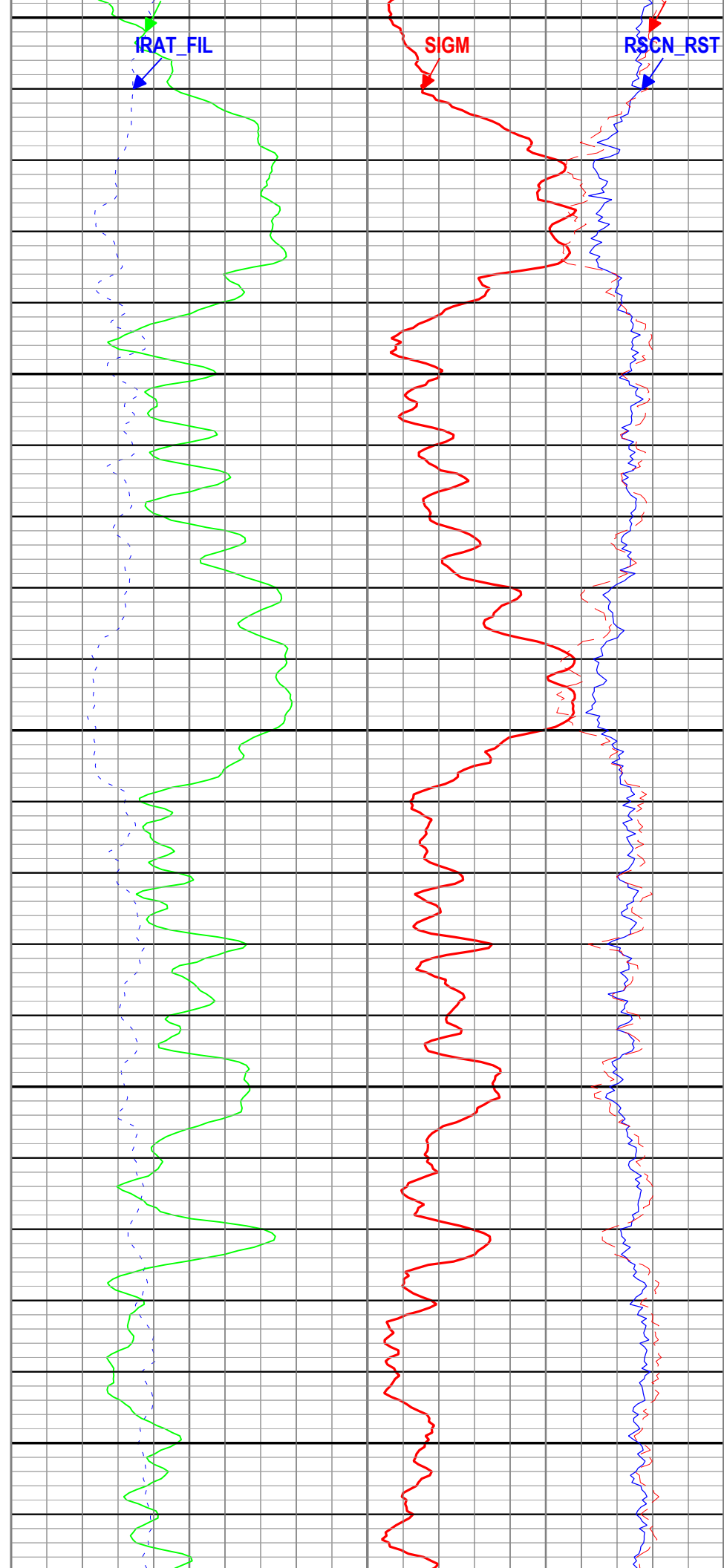
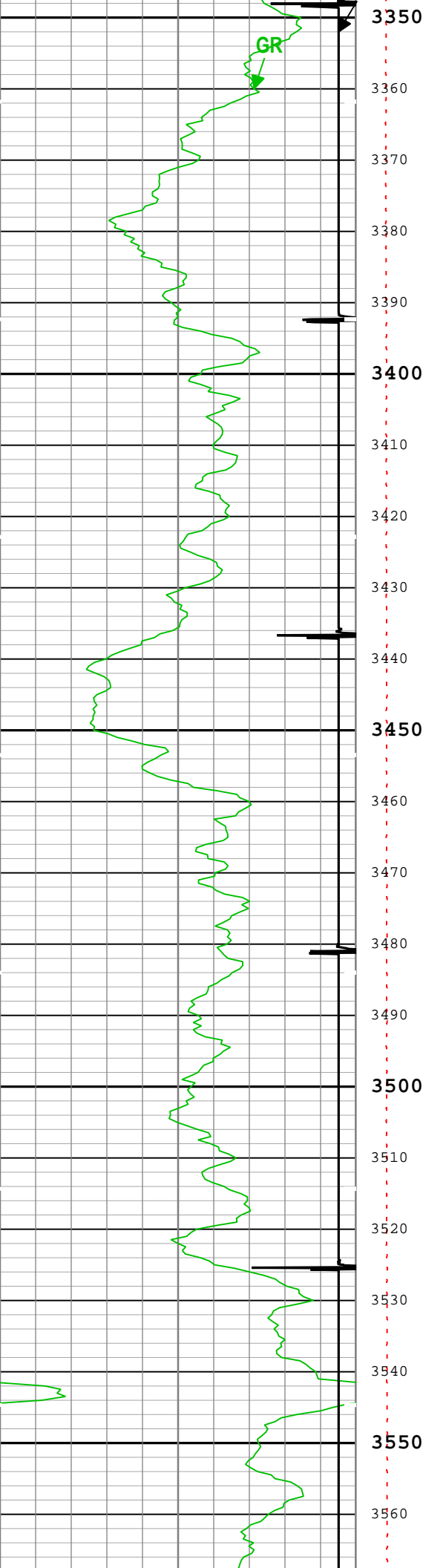


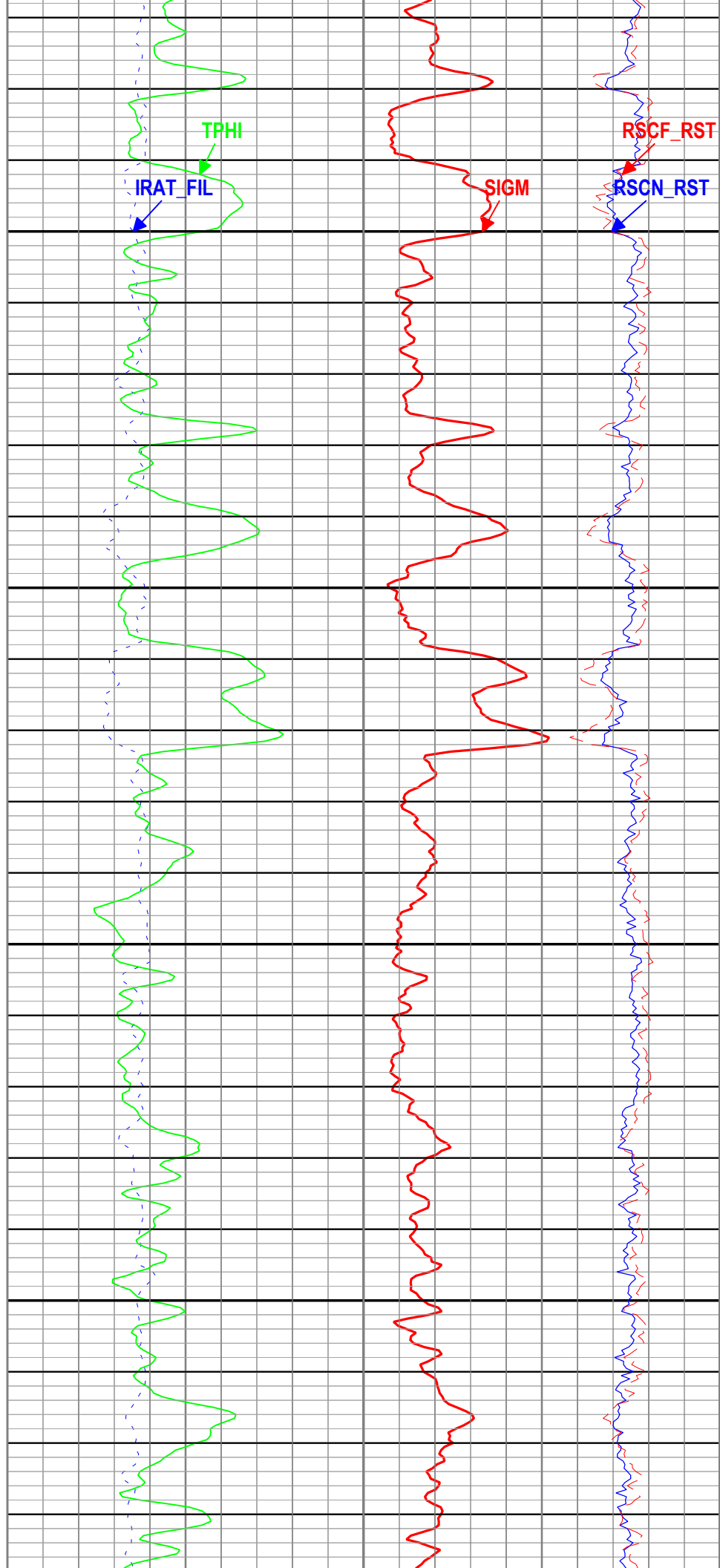
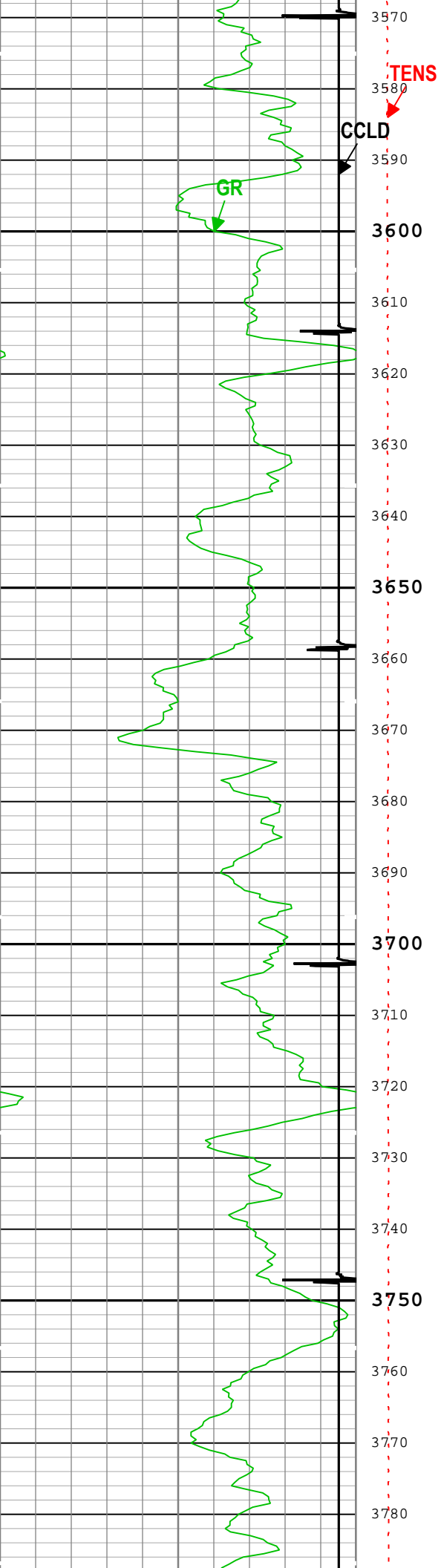


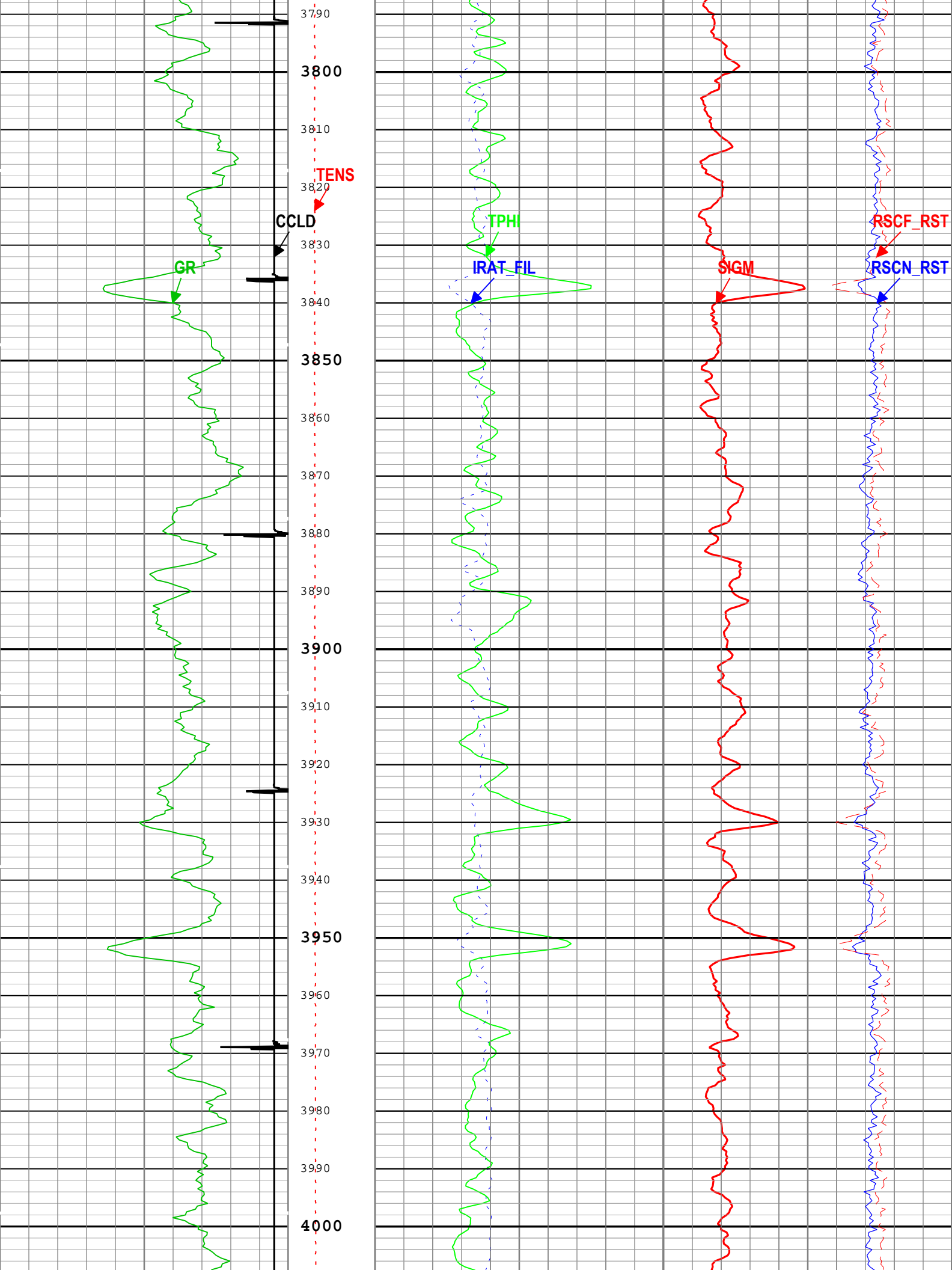


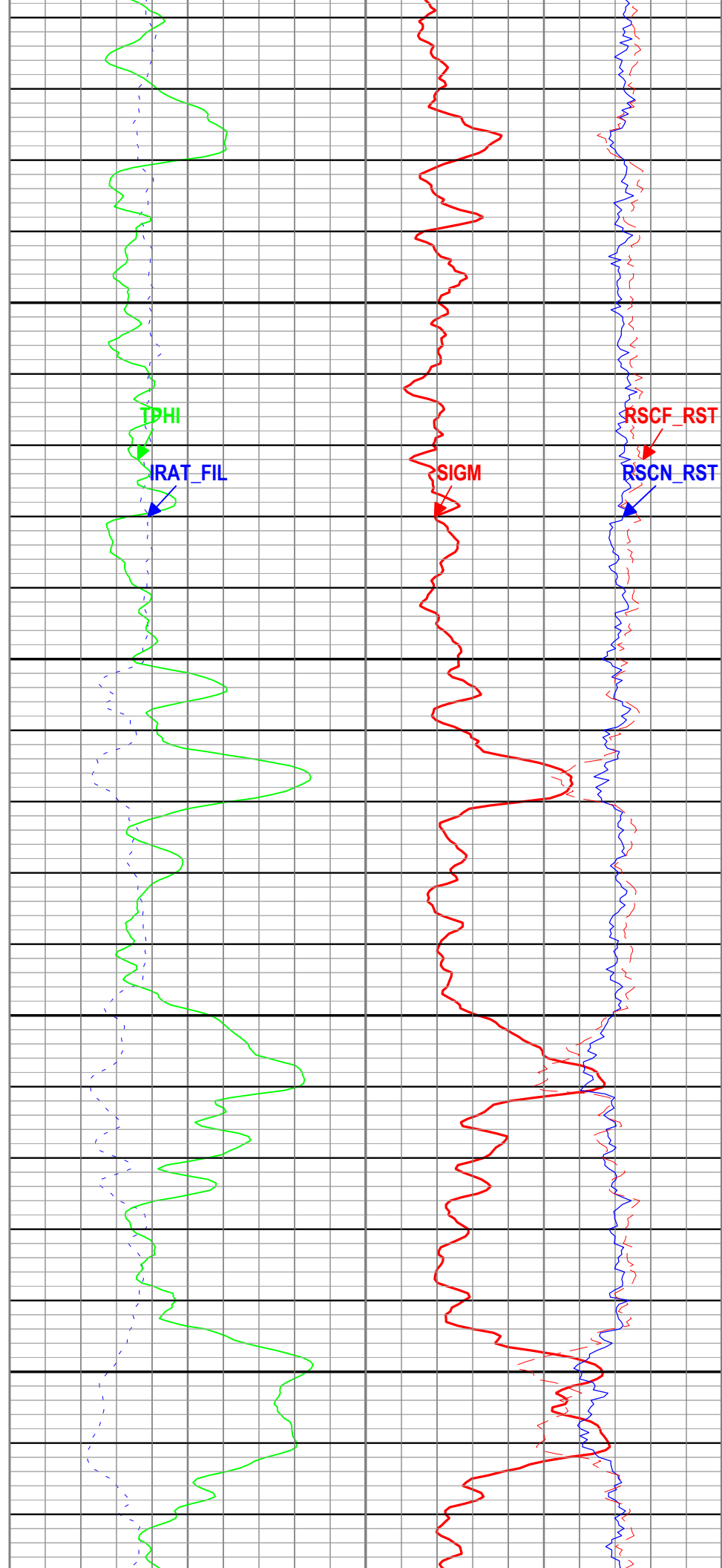
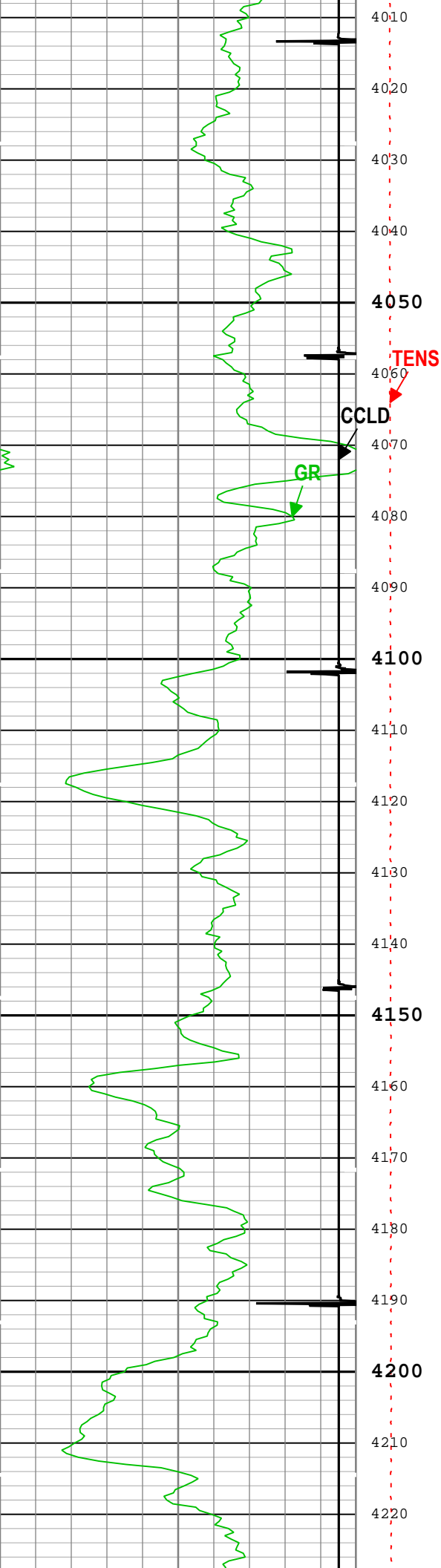


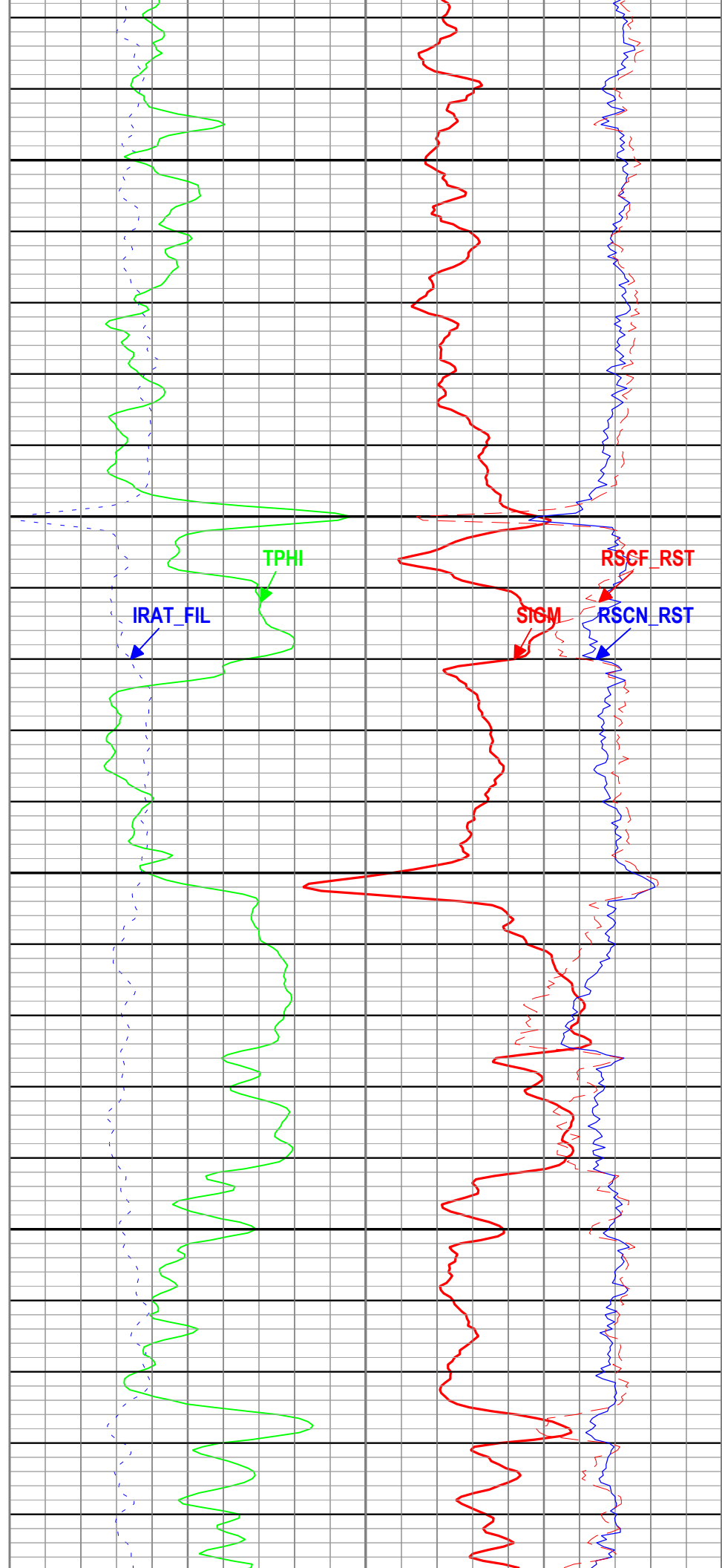
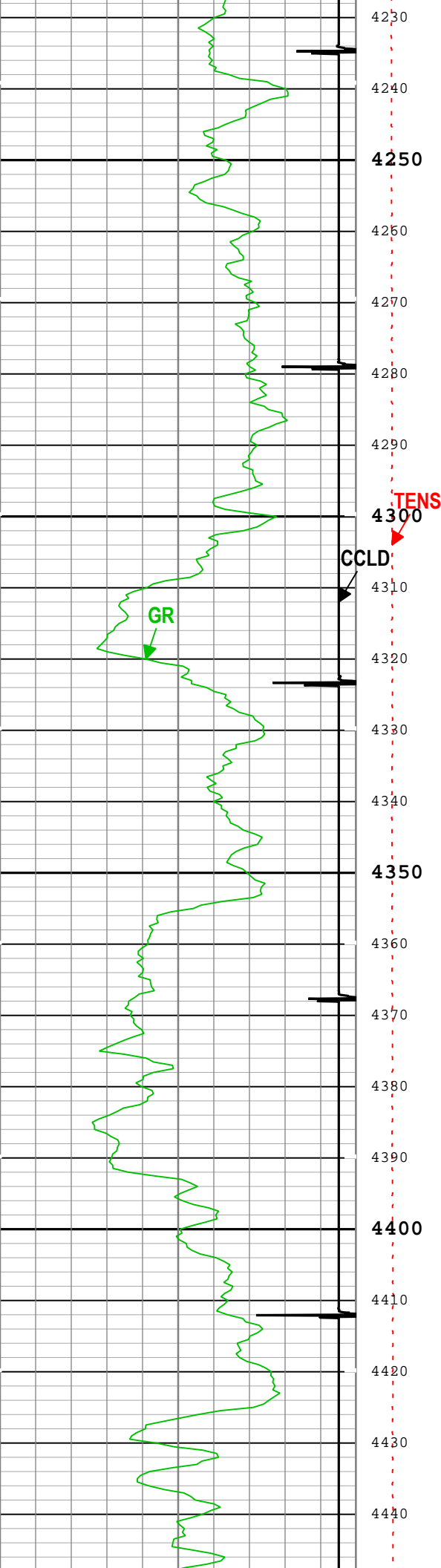


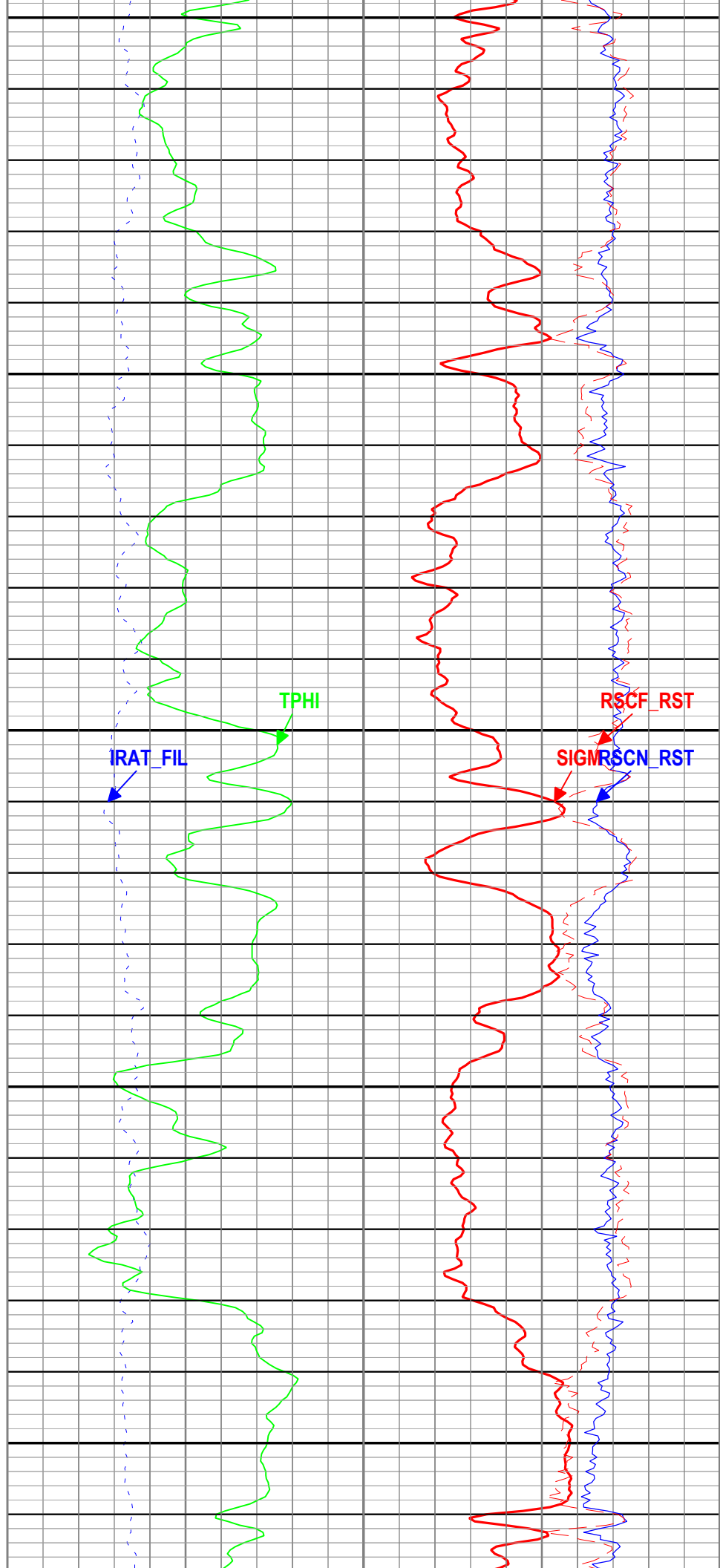
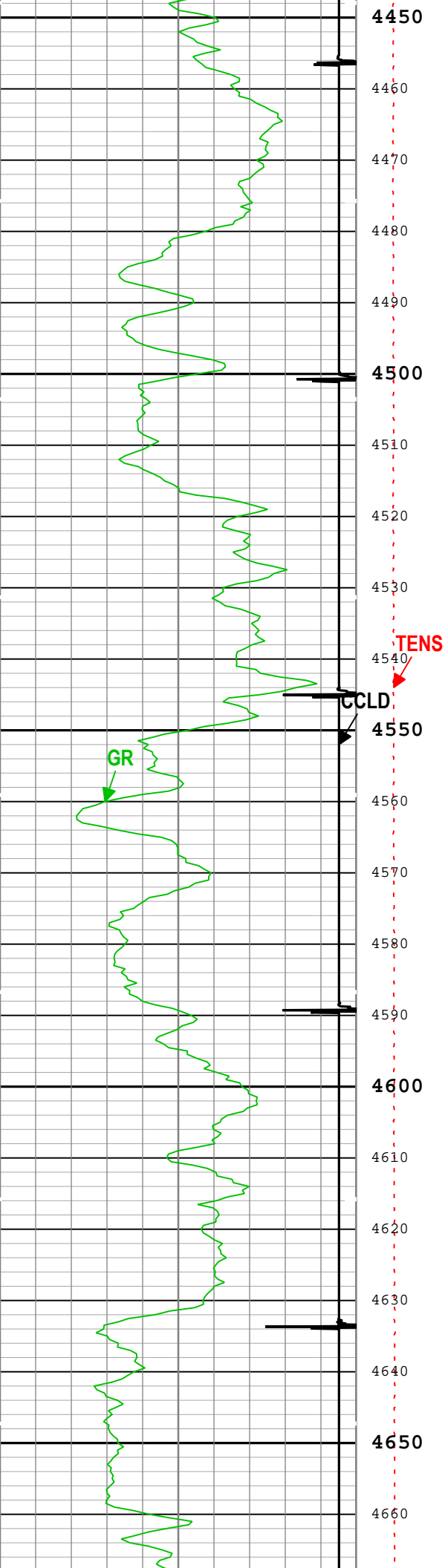


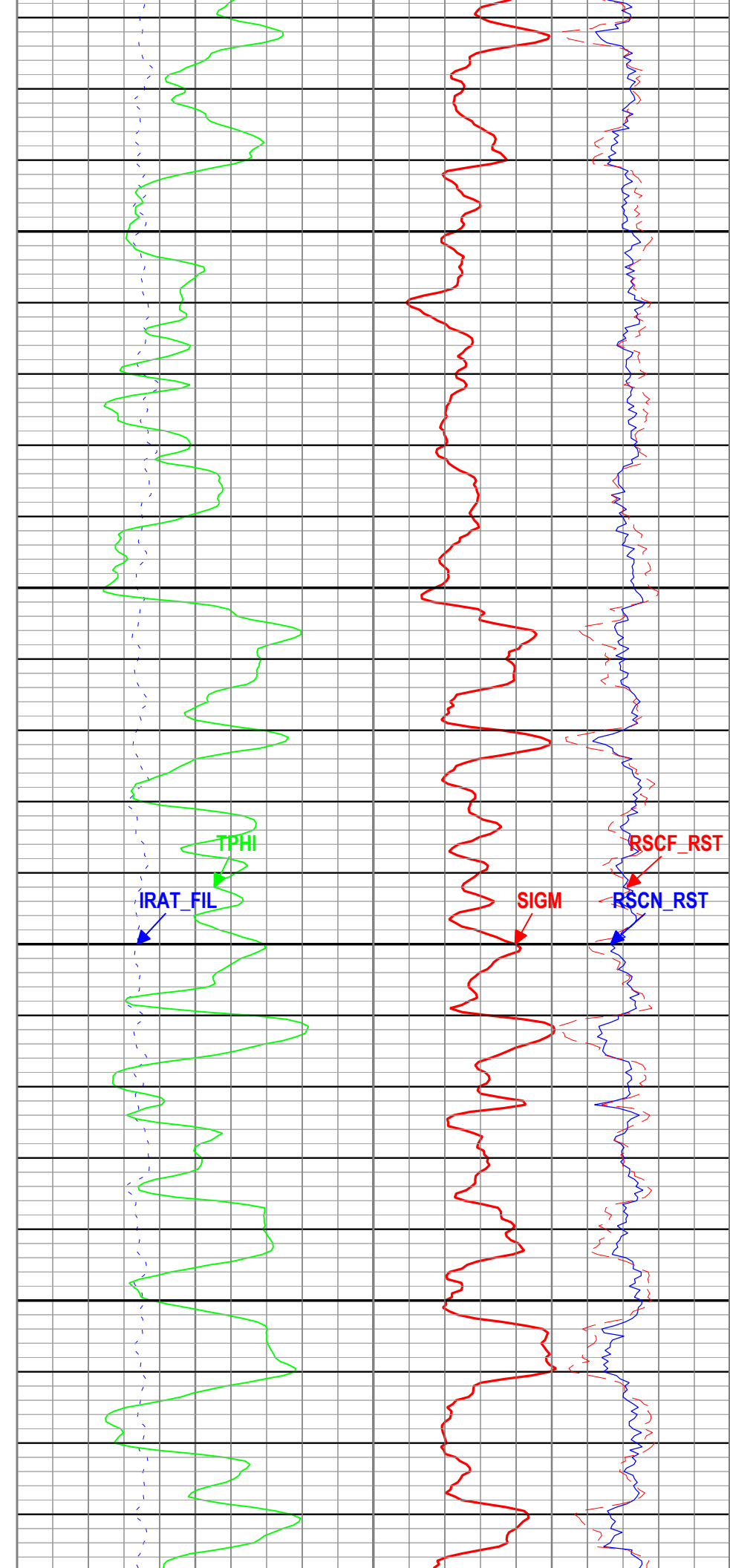
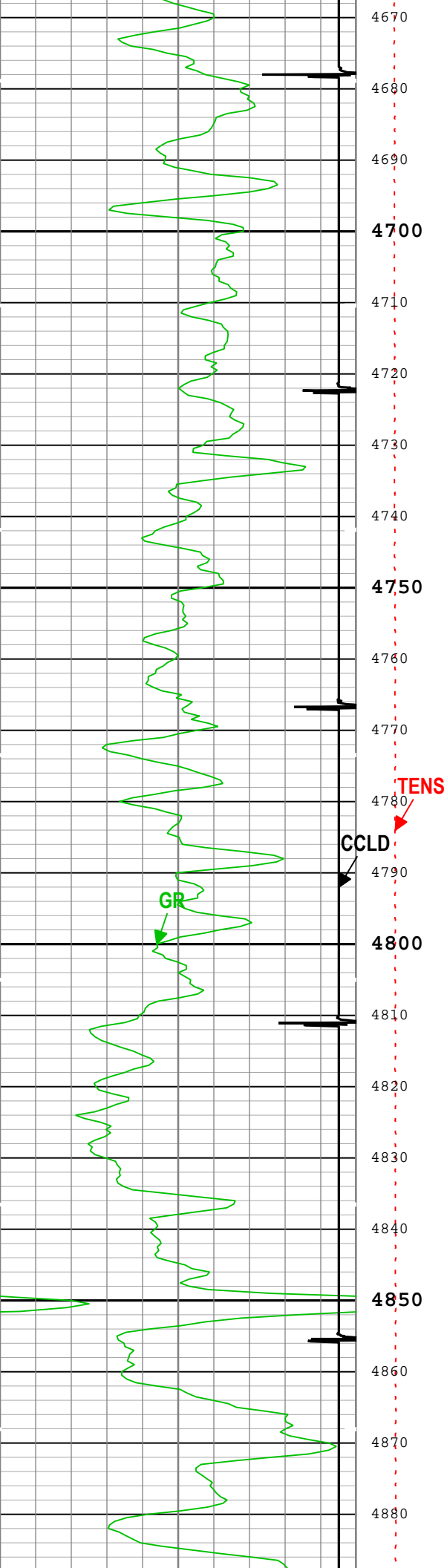


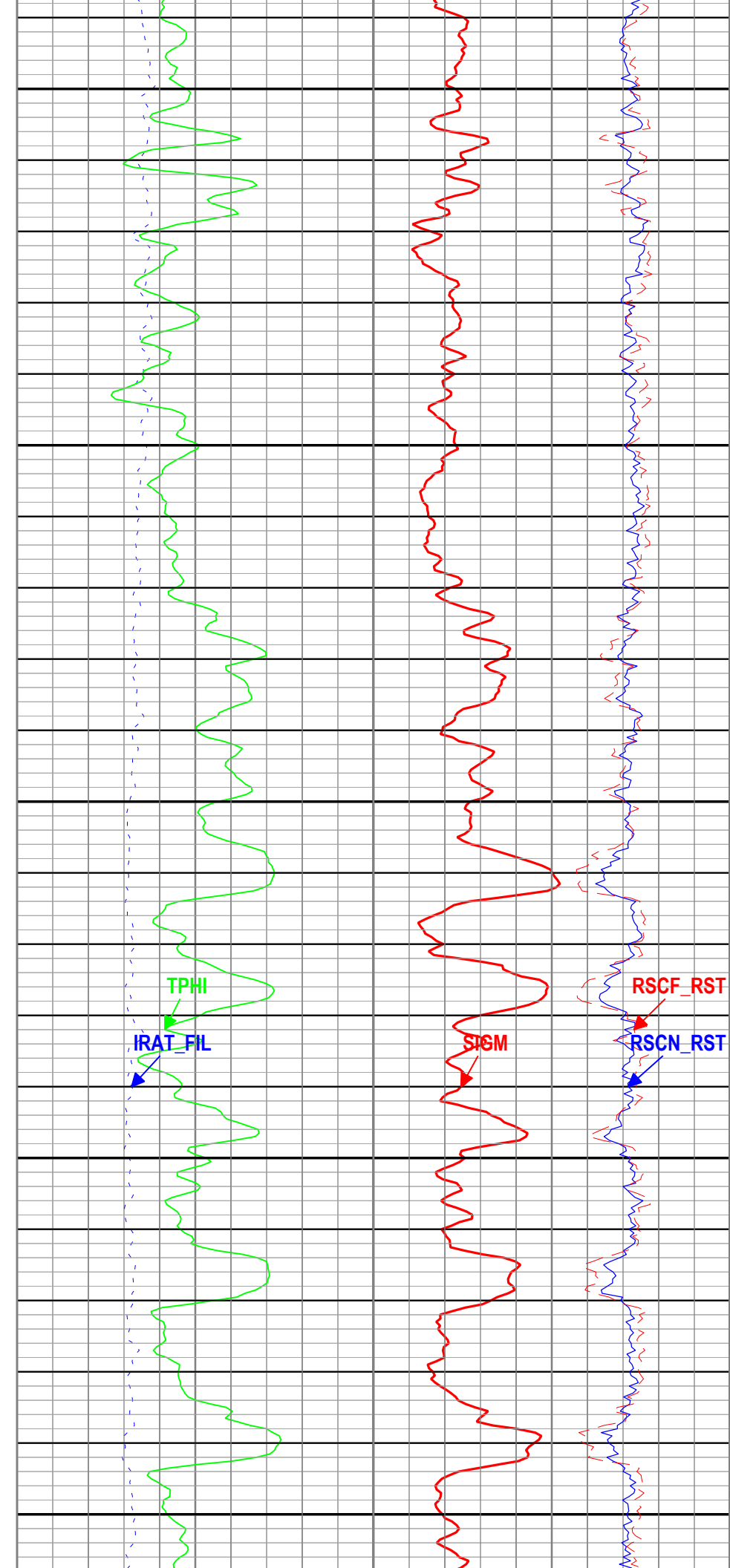
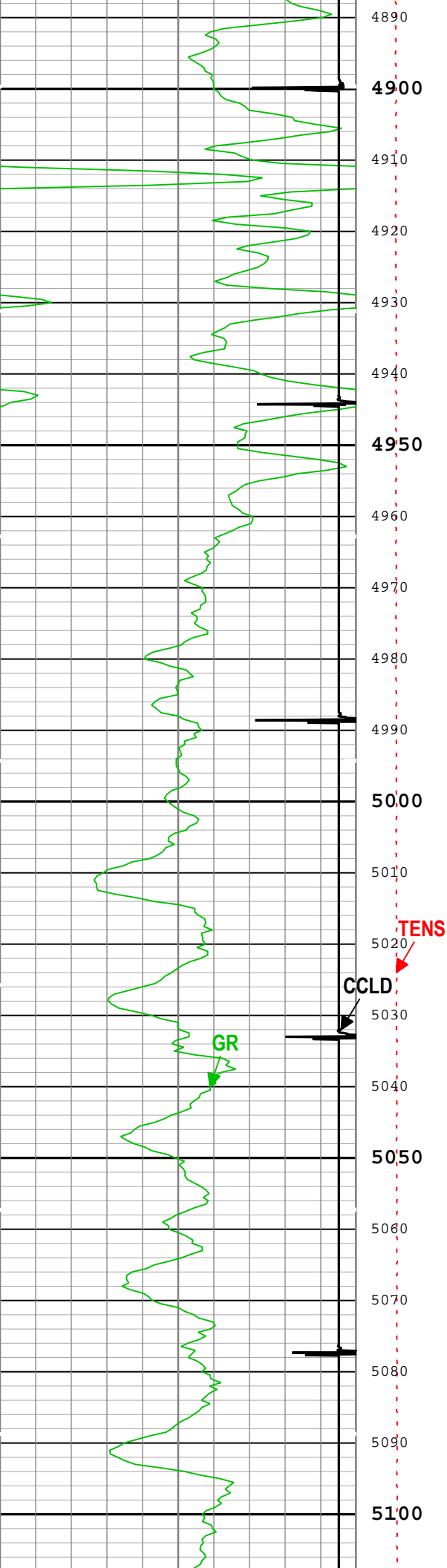


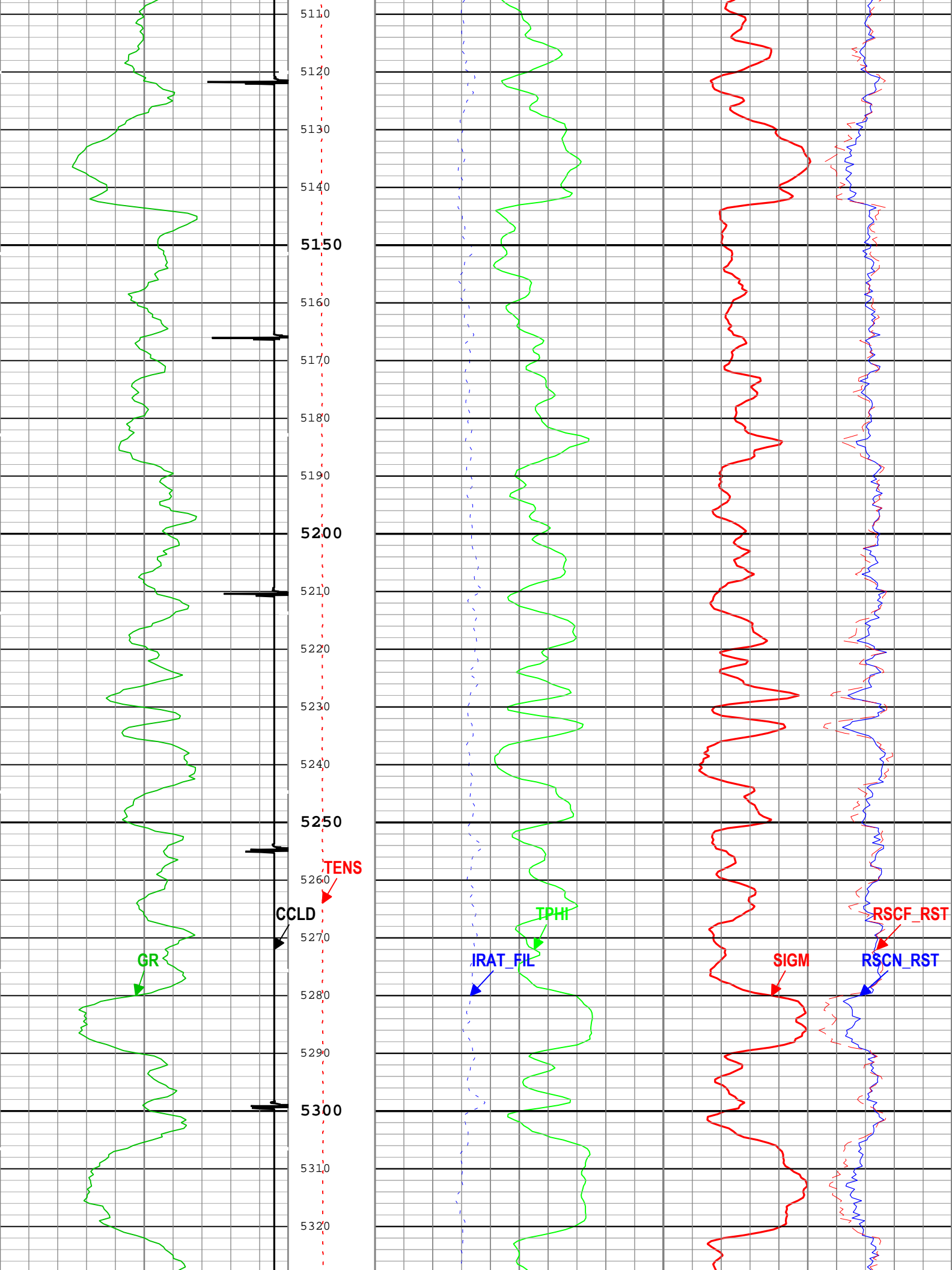


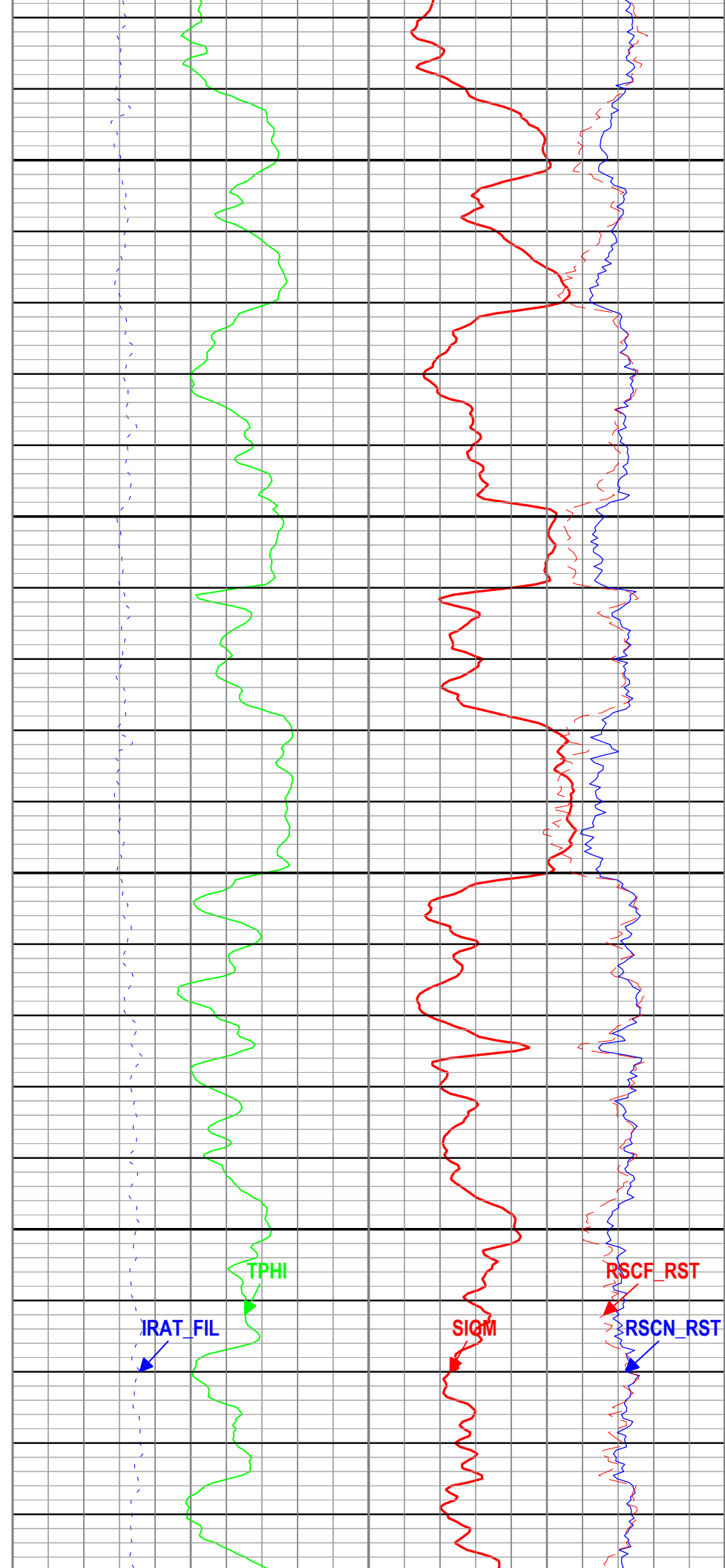
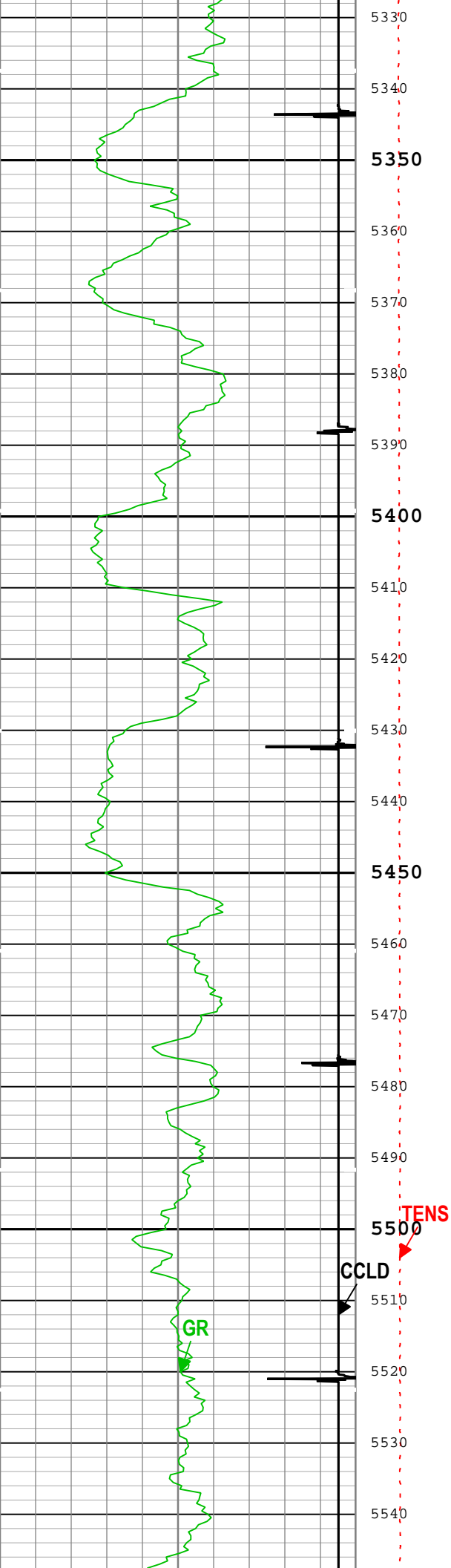


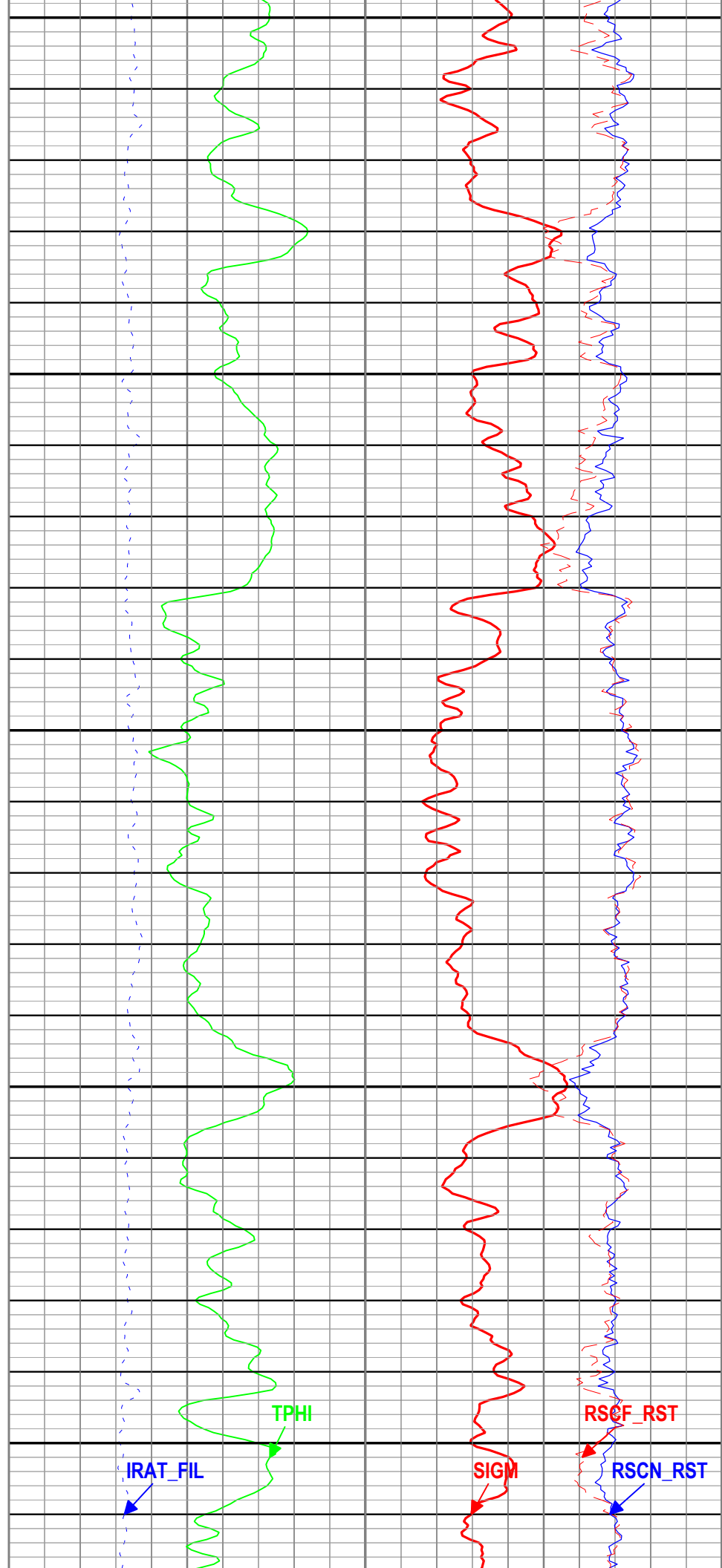
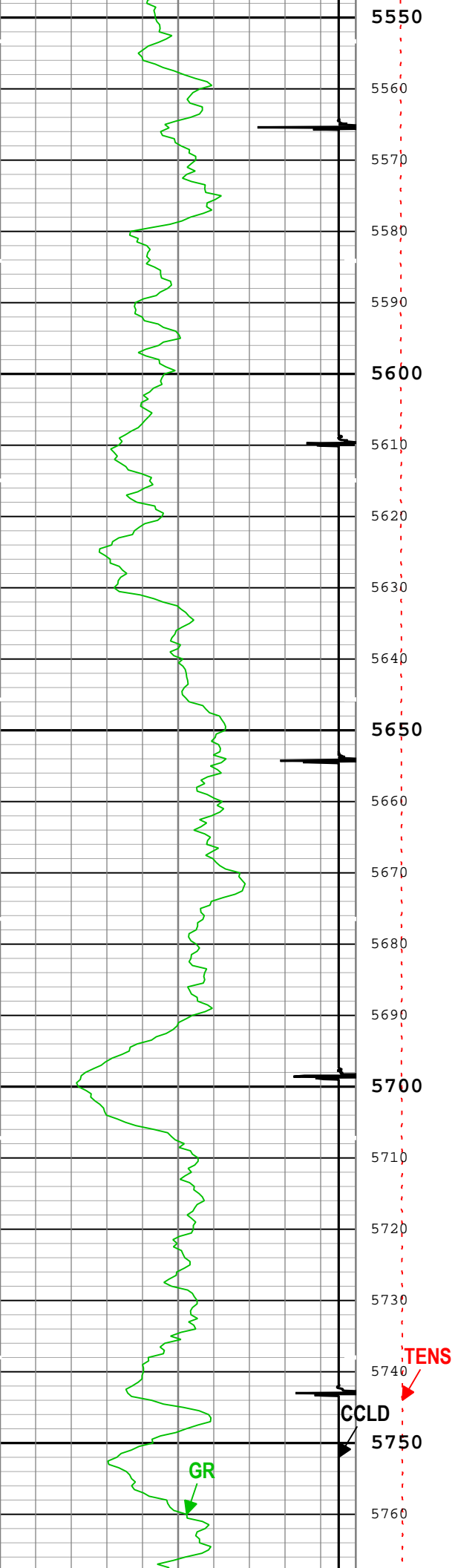


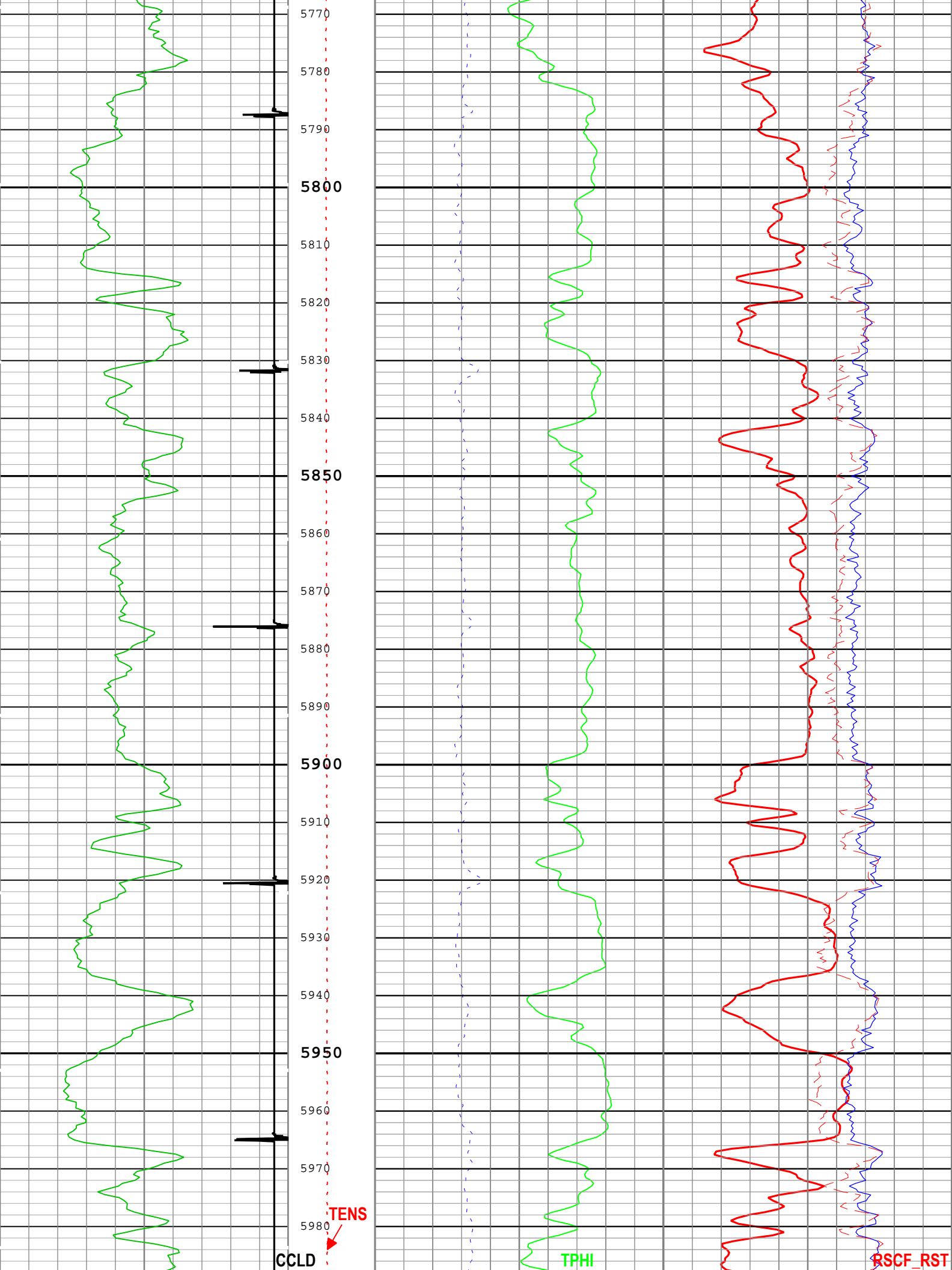


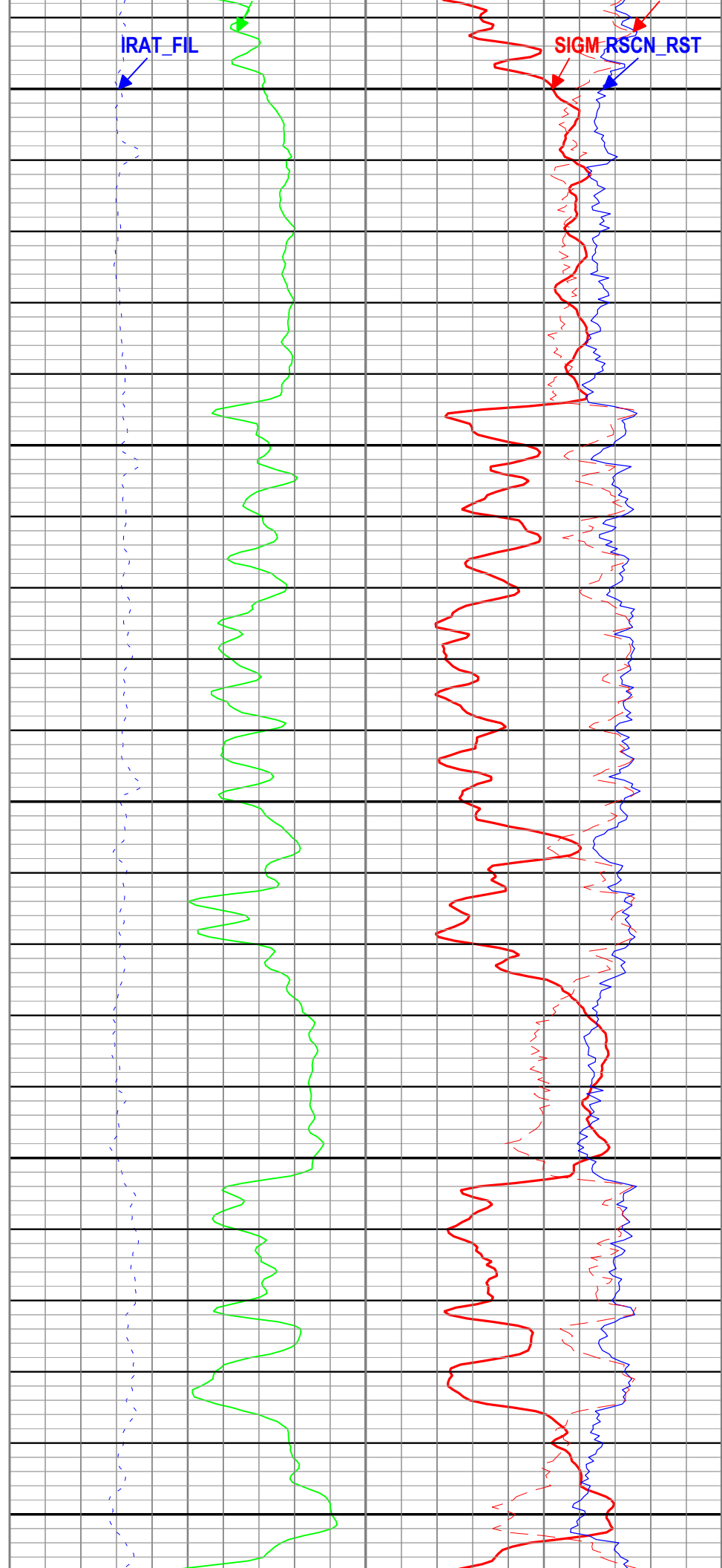
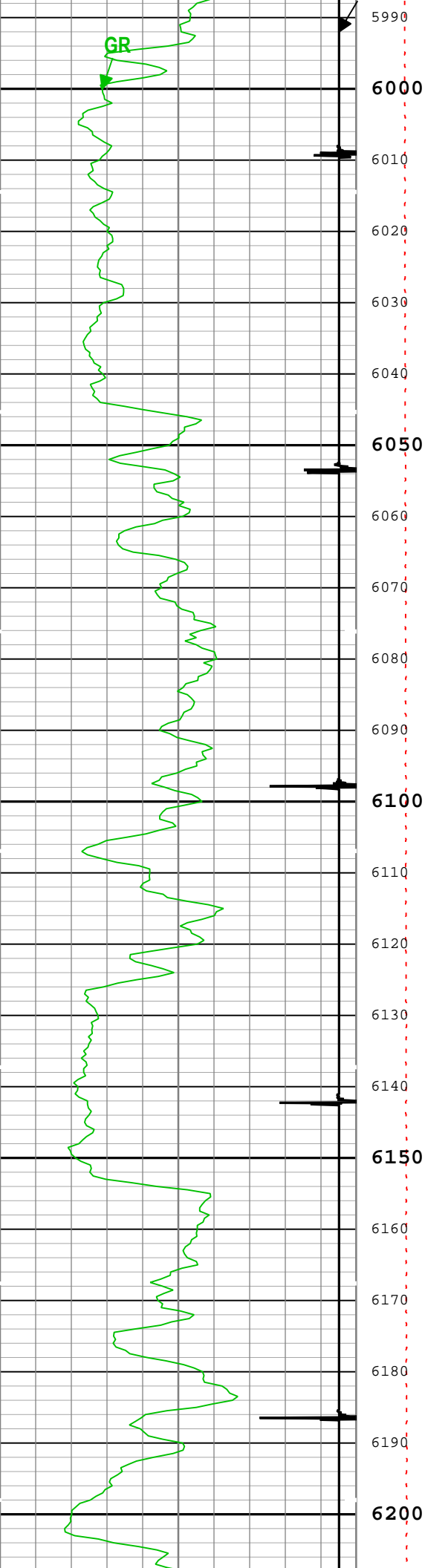


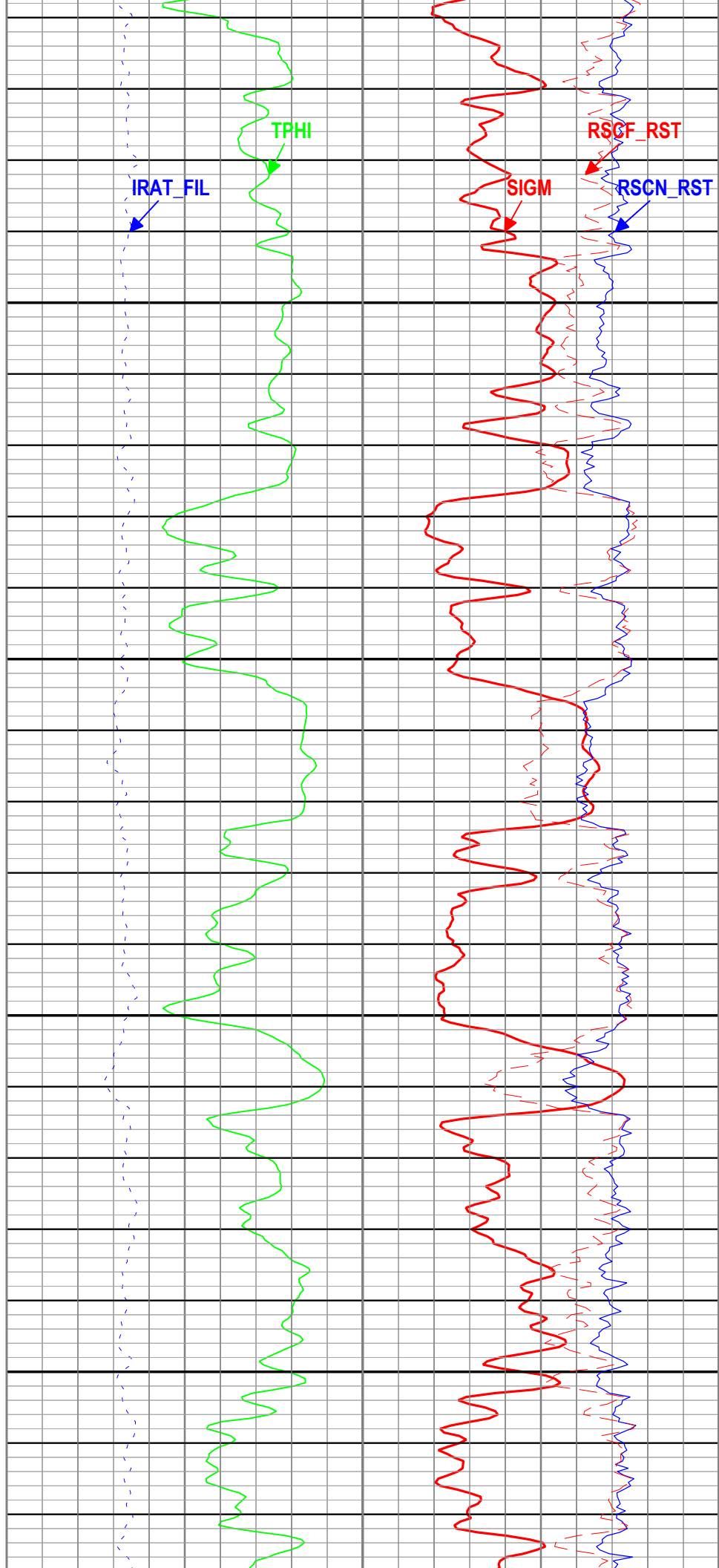
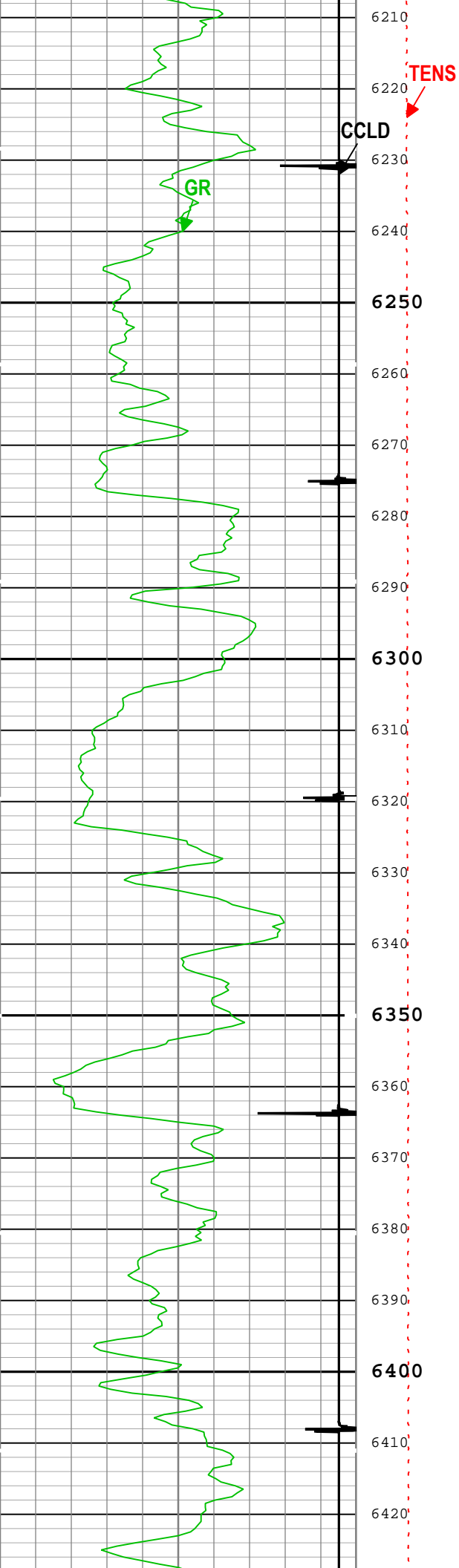


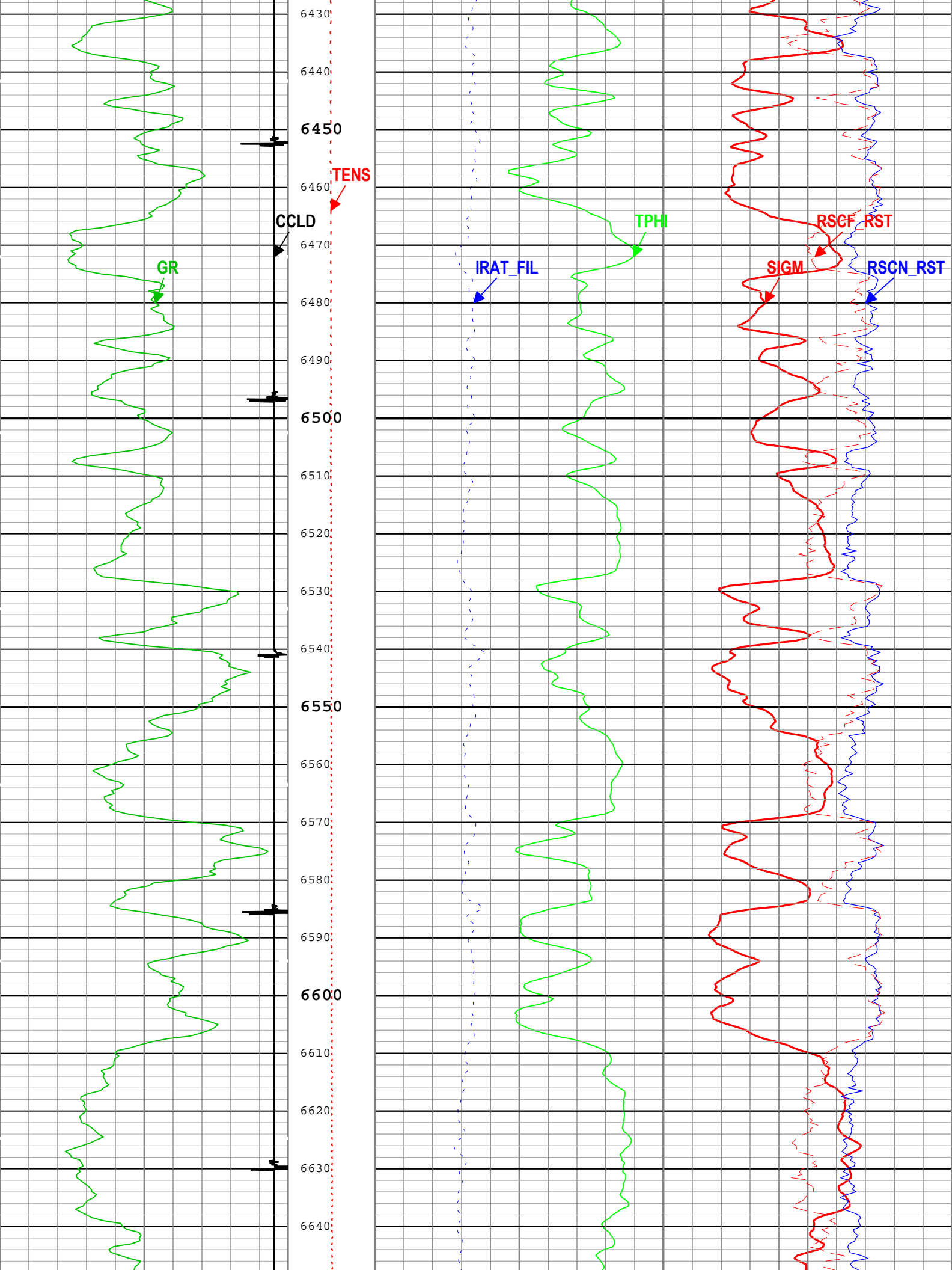


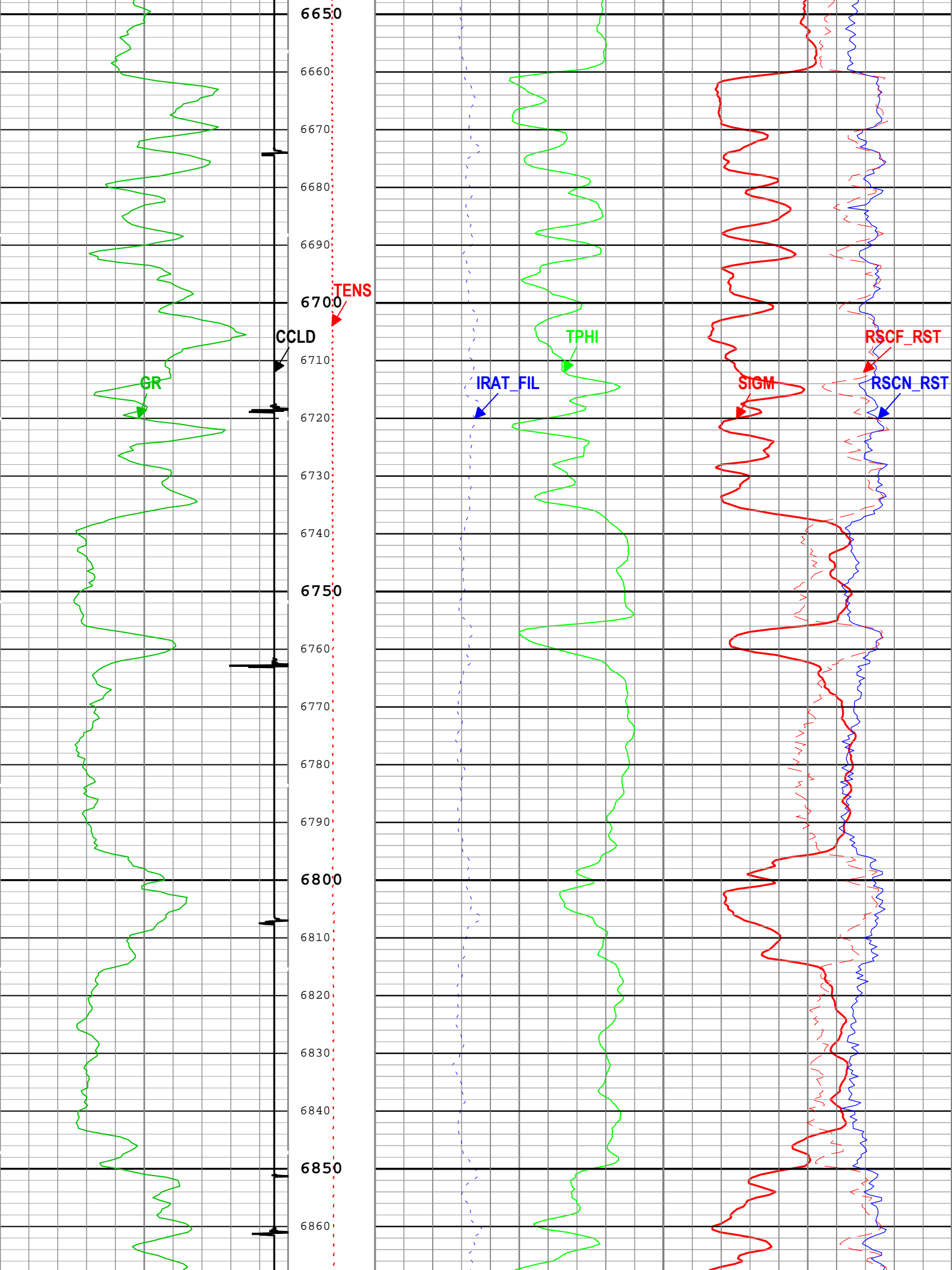


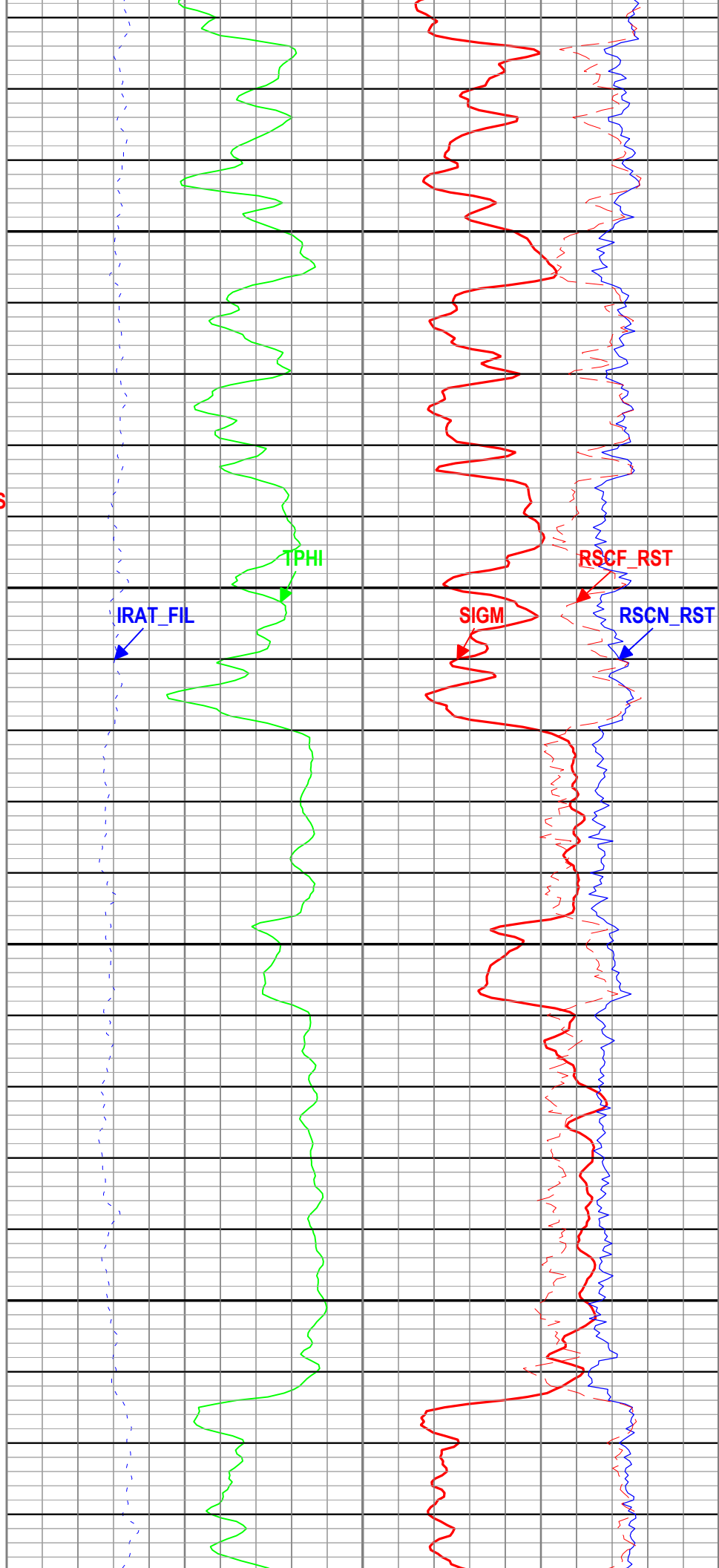
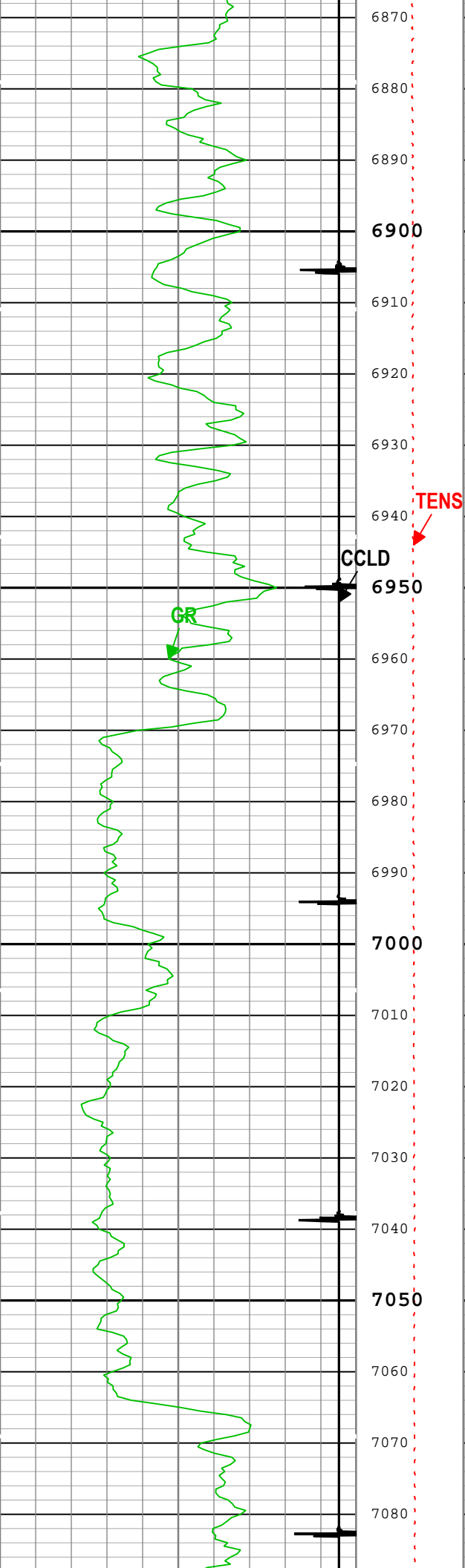


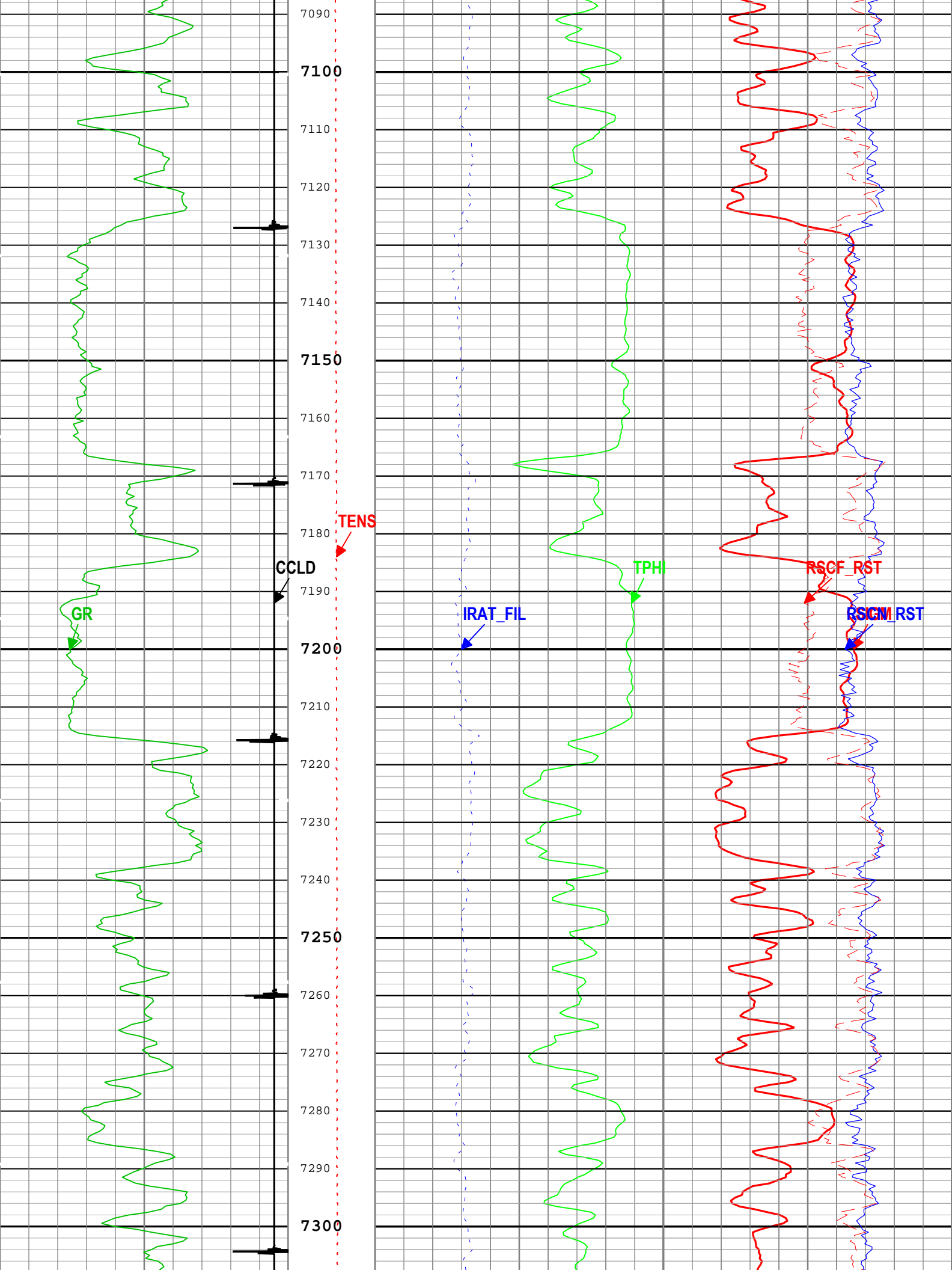


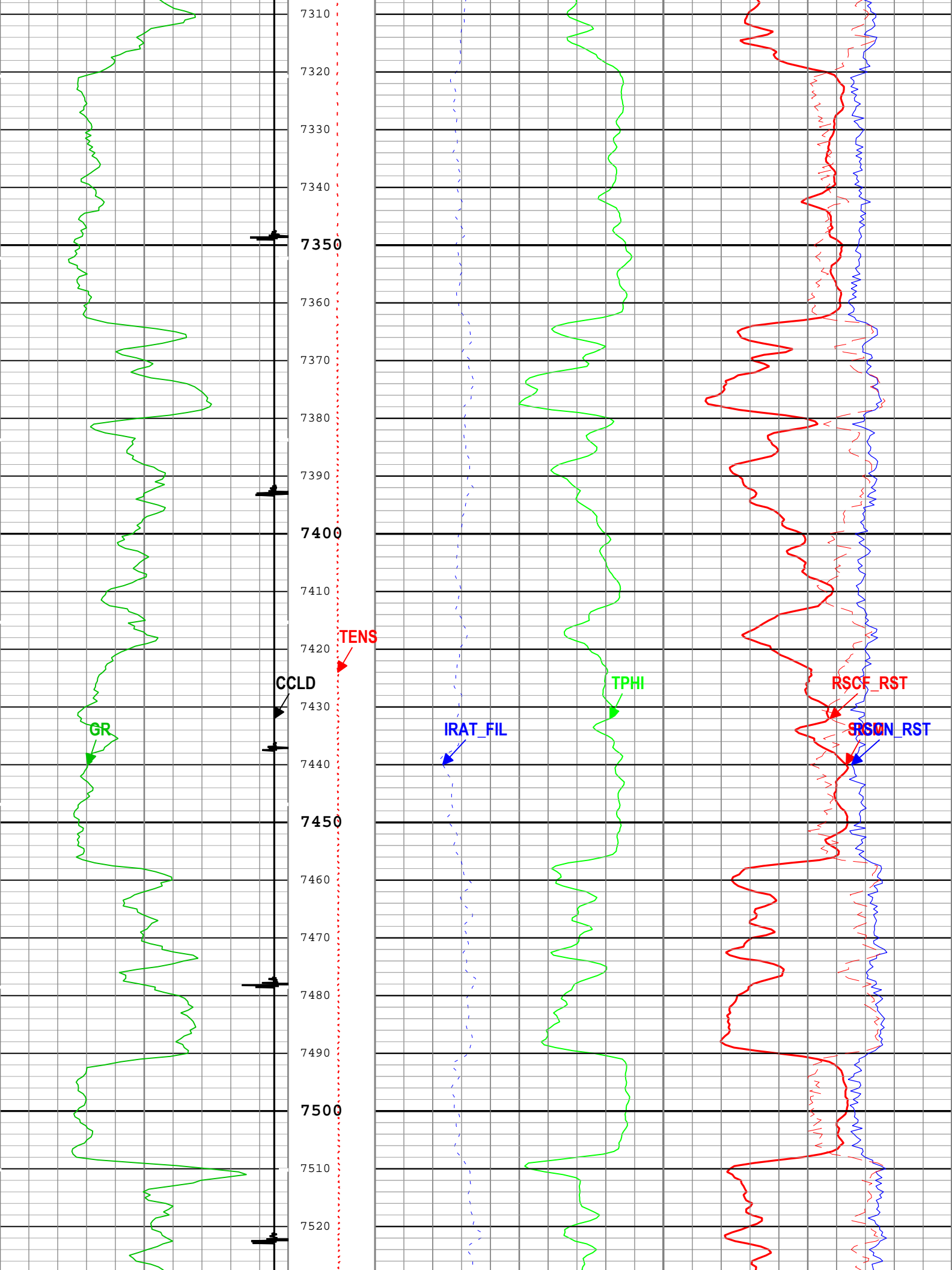


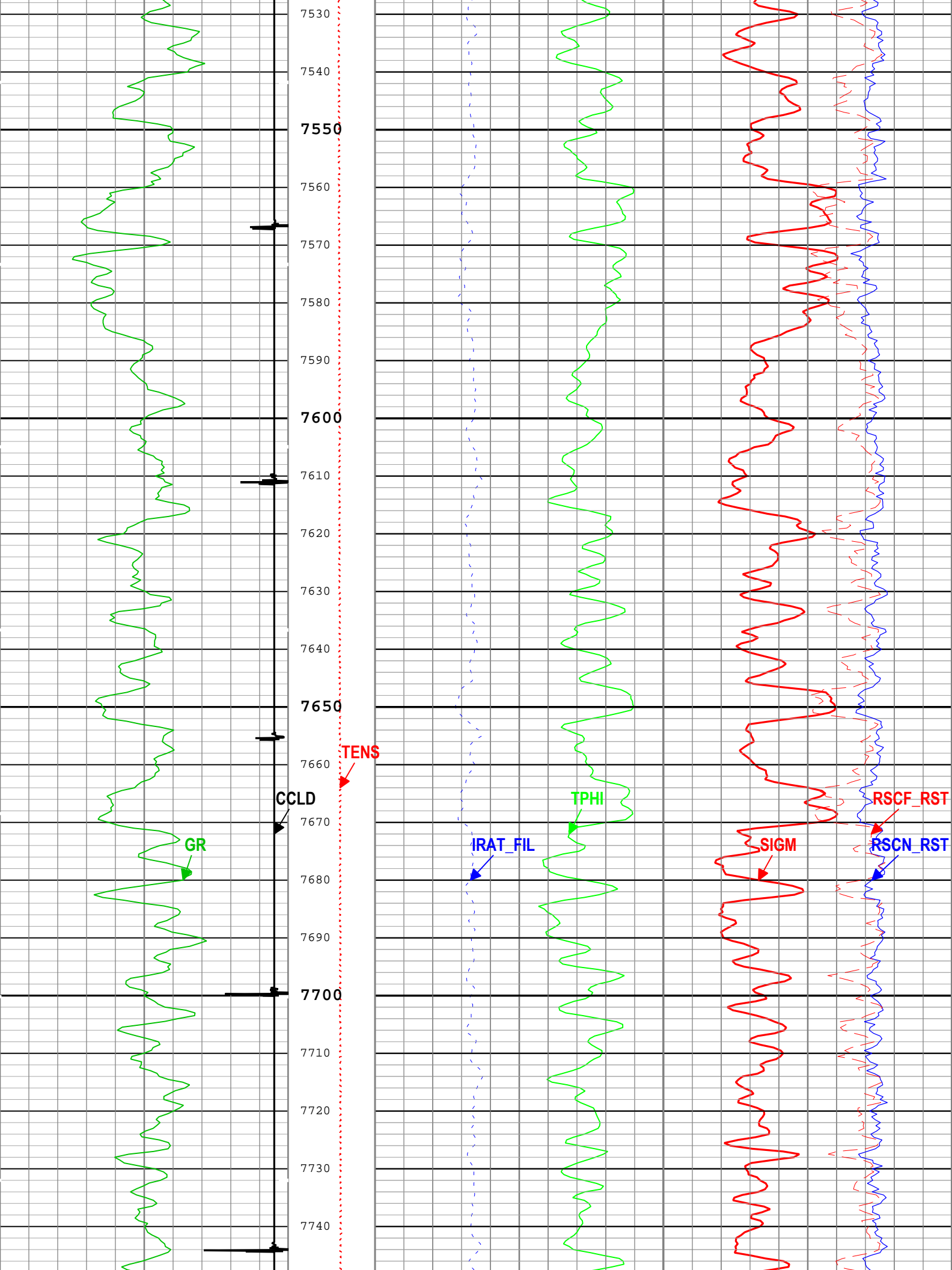


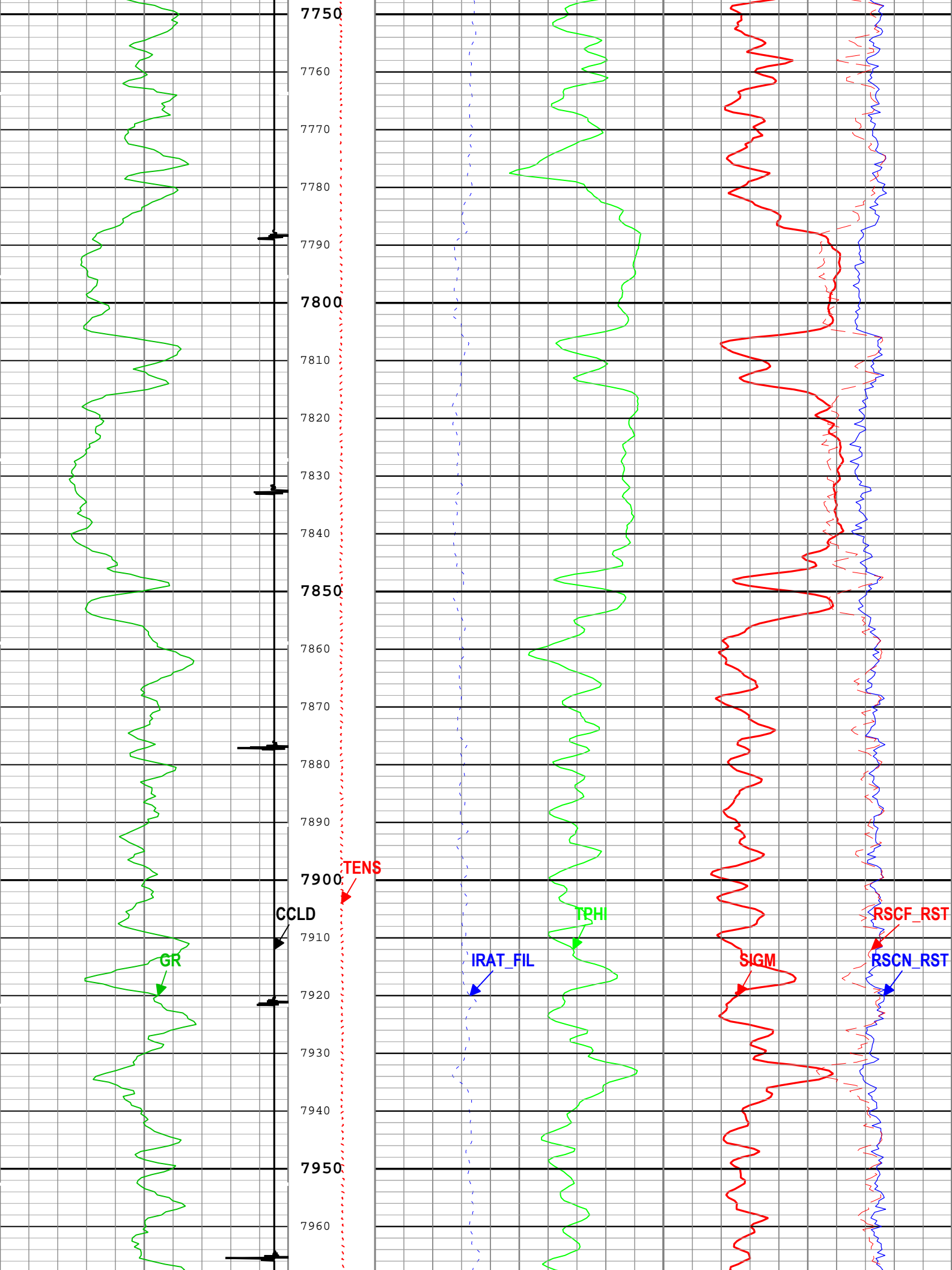


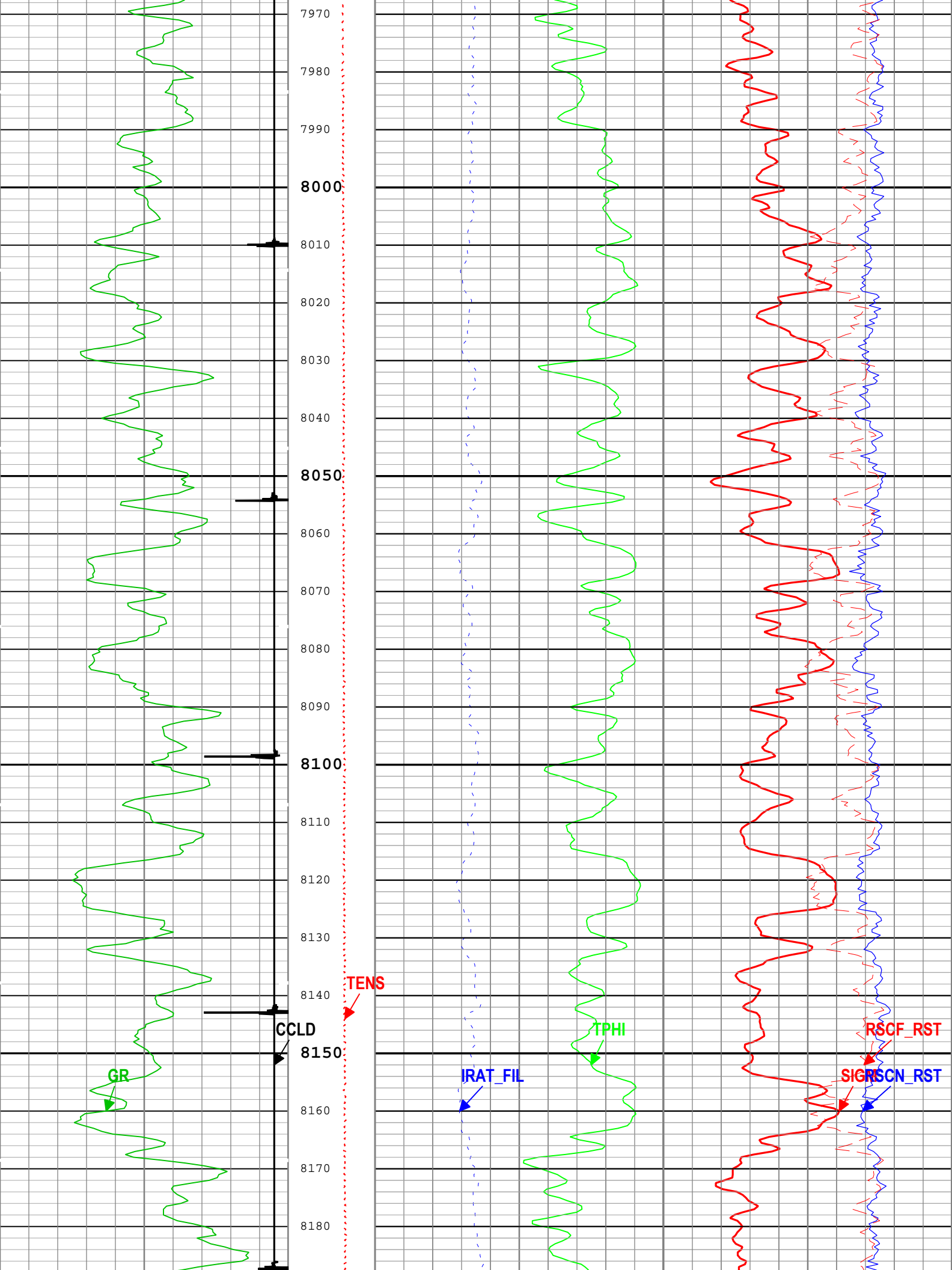


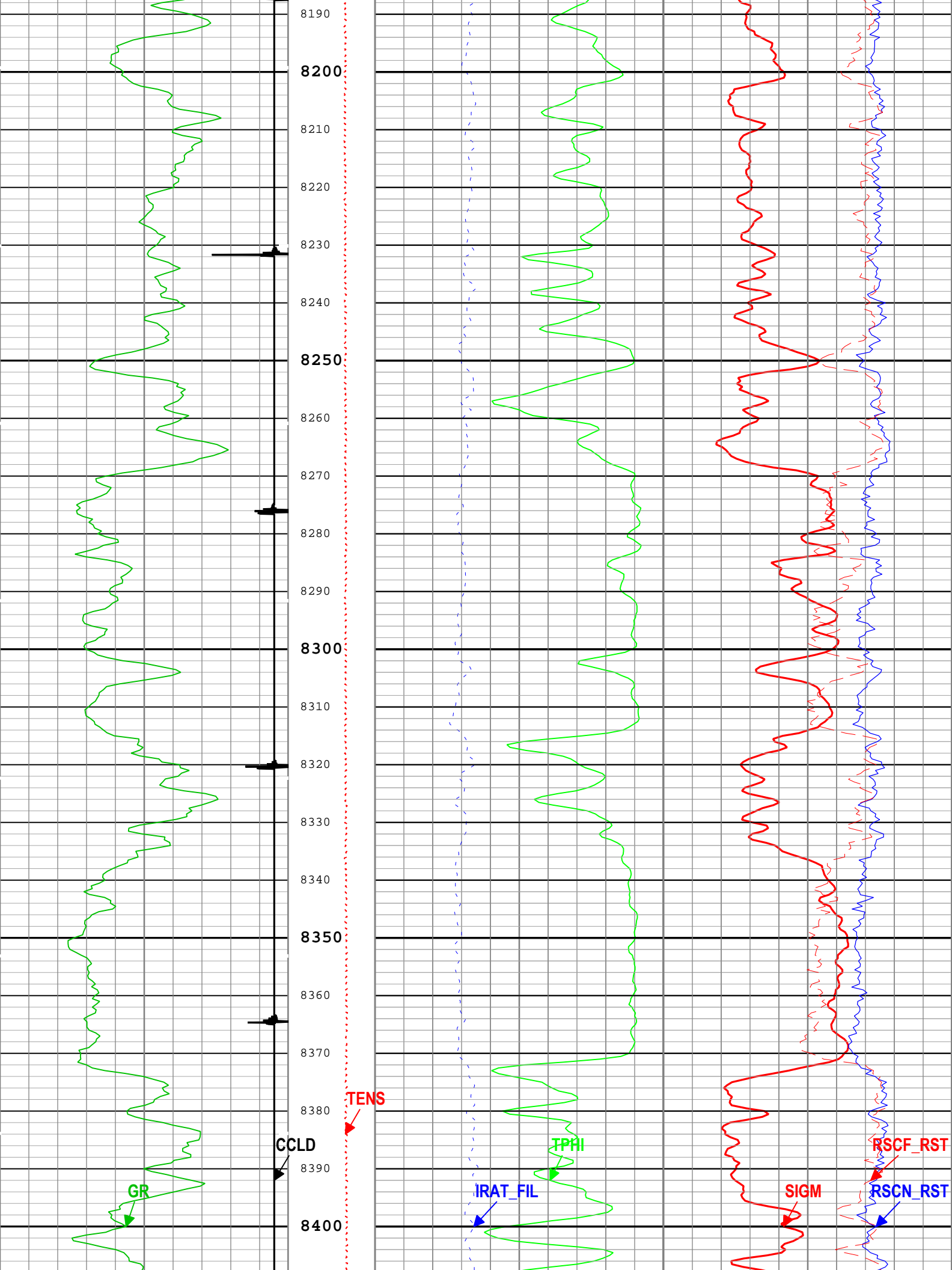


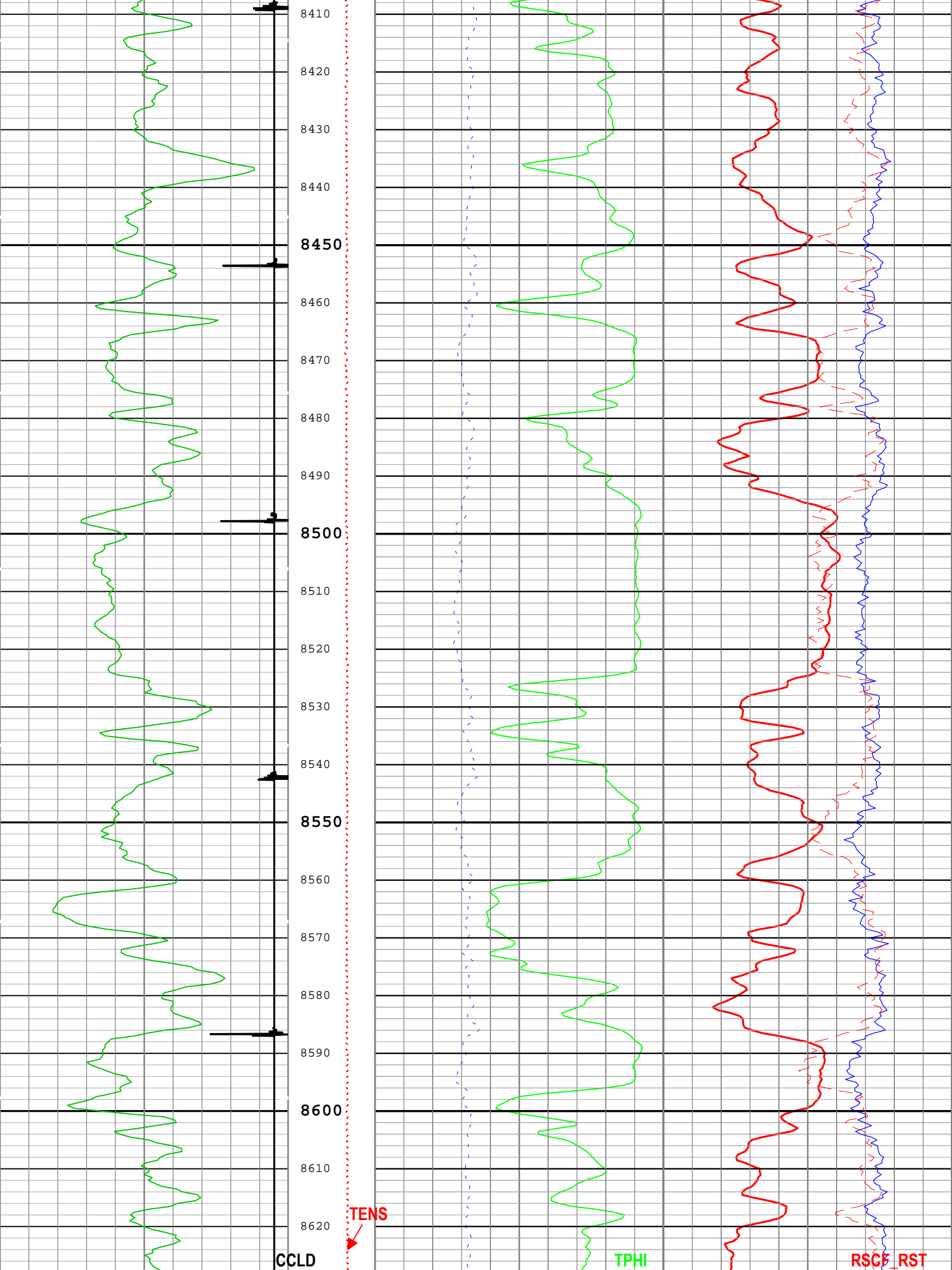


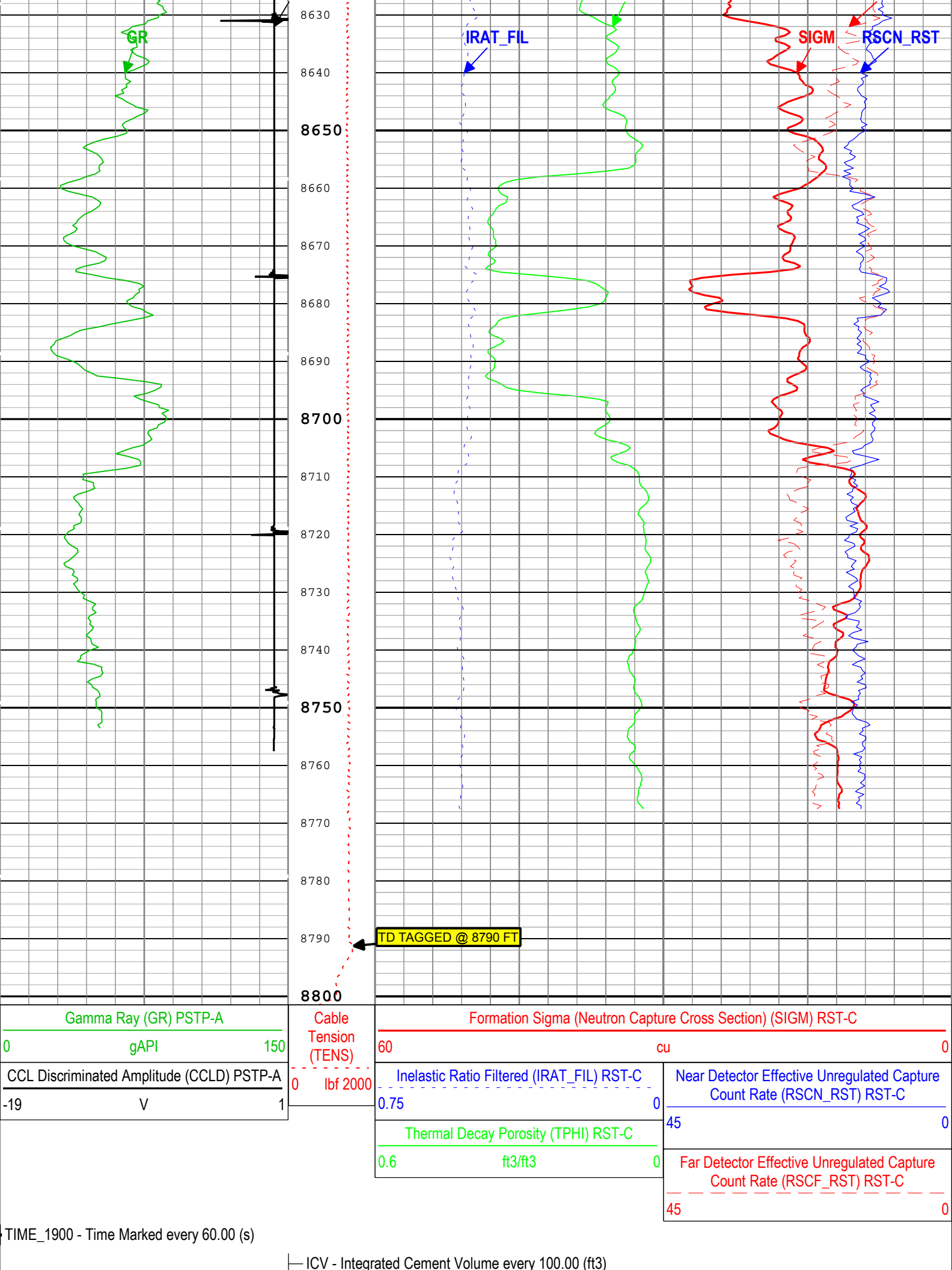












—IHV - Integrated Hole Volume every 10.00 (ft3)

Channel Processing Parameters

Parameter	Description	Tool	Value	Unit
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	Depth Zoned	in
BSAL	Borehole Salinity	Borehole	0	ppm
BSALOPT	Borehole Salinity Option	RST-C	Unknown	
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	SANDSTONE	

All depth are actual.

Tool Control Parameters

Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	150	ft/h
PCCG	PSP Downhole CCL Gain	PSTP-A	24 dB	
RST_DLM	Depth Log Mode	RST-C	Sigma	

ONE

RST Sigma Repeat Pass

Software Version

Acquisition System	Version
Maxwell 2018 SP1	8.1.99839.3100
Application Patch	Wireline_Hotfix-Mandatory-2018SP1_8.1.102865

Pass Summary

All depths are referenced to toolstring zero

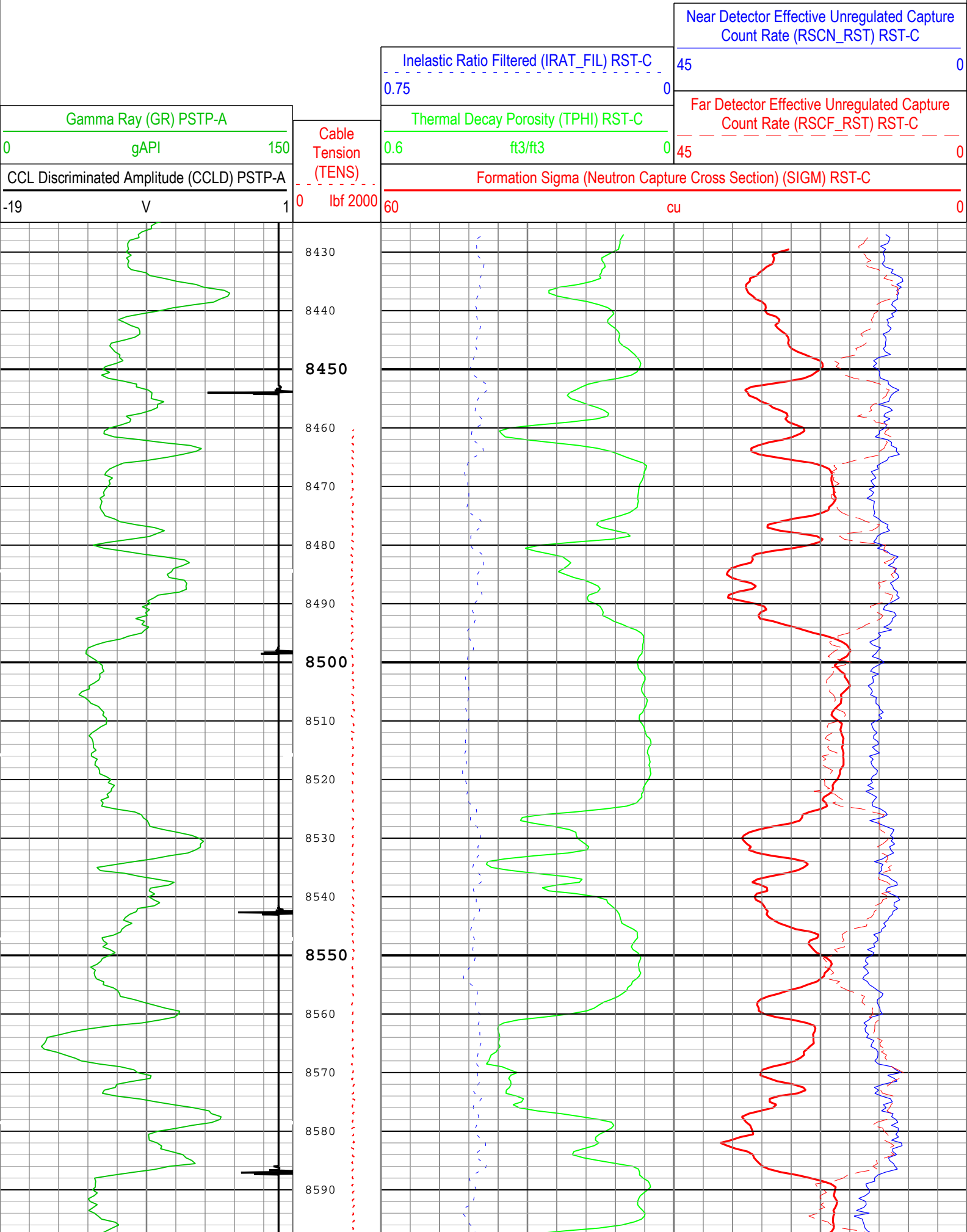
Log

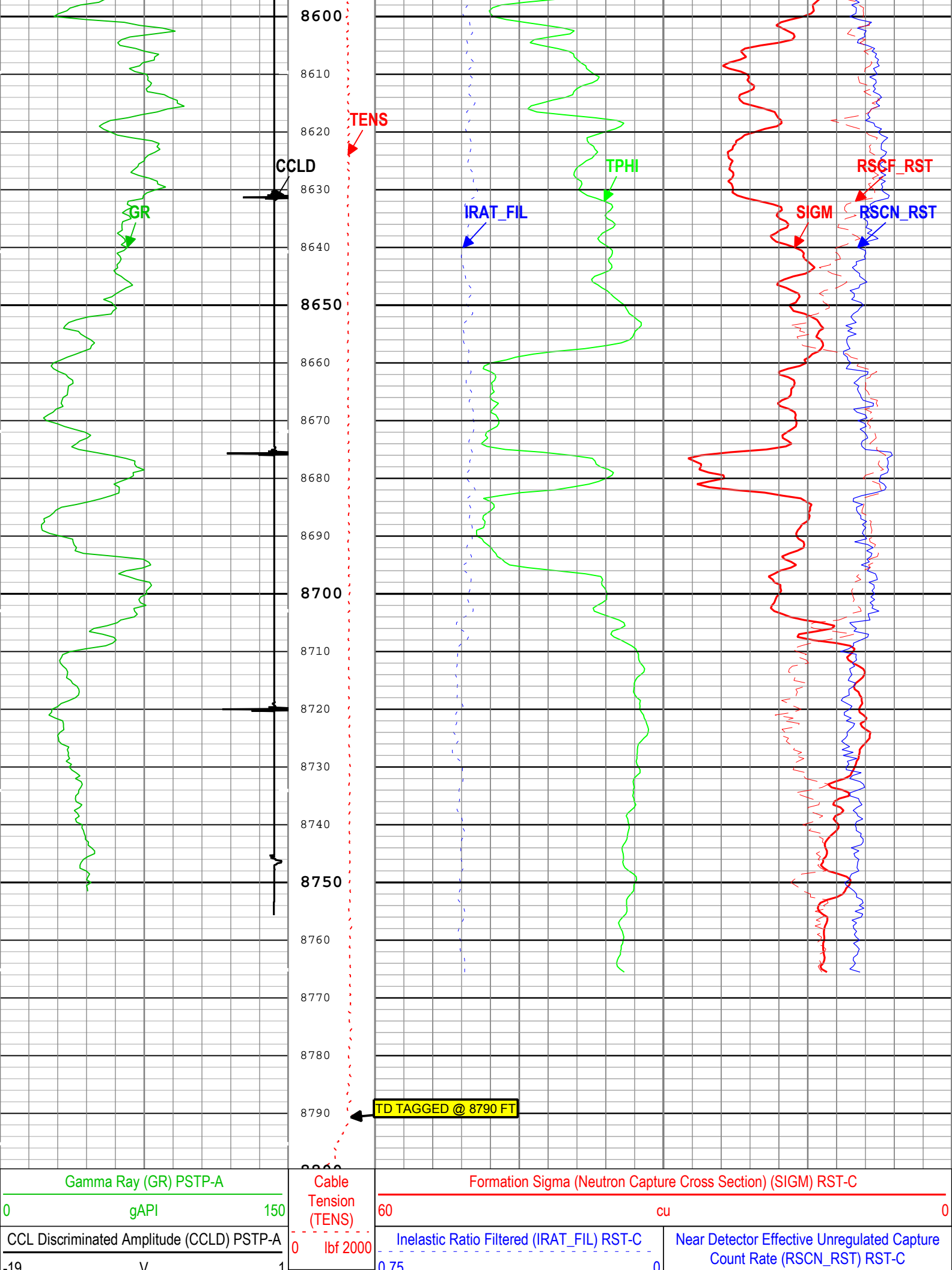
ONE: Log[3]:Up:S003

└ ICV - Integrated Cement Volume every 10.00 (ft3)

TIME_1900 - Elapsed time since midnight, 30 December 1899 every 60.00 (s)

ICV - Integrated Cement Volume every 100.00 (ft3)





Gamma Ray (GR) PSTP-A
0 gAPI 150
CCL Discriminated Amplitude (CCLD) PSTP-A
-19 V 1

Cable
Tension
(TENS)
0 lbf 2000

Formation Sigma (Neutron Capture Cross Section) (SIGM) RST-C
60 cu 0
Inelastic Ratio Filtered (IRAT_FIL) RST-C
0.75 0

Near Detector Effective Unregulated Capture
Count Rate (RSCN_RST) RST-C

		0.75	0	45	0
		Thermal Decay Porosity (TPHI) RST-C			
		0.6	ft3/ft3	0	
				Far Detector Effective Unregulated Capture Count Rate (RSCF_RST) RST-C	
				45	0
		ICV - Integrated Cement Volume every 100.00 (ft3)			
		TIME_1900 - Elapsed time since midnight, 30 December 1899 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)			
		TIME_1900 - Time Marked every 60.00 (s)			
Description: RST SIGMA Answer Format: Log (RST SIGMA Answer) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 23-Jul-2018 06:06:02					

Channel Processing Parameters				
ONE: Parameters				
Parameter	Description	Tool	Value	Unit
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	8.75	in
BSAL	Borehole Salinity	Borehole	0	ppm
BSALOPT	Borehole Salinity Option	RST-C	Unknown	
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	SANDSTONE	
Tool Control Parameters				
ONE: Parameters				
Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	150	ft/h
PCCG	PSP Downhole CCL Gain	PSTP-A	24 dB	
RST_DLM	Depth Log Mode	RST-C	Sigma	

Company:	Caerus Operating LLC	Schlumberger
Well:	Puckett 23B-26	
Field:	Grand Valley	
County:	Garfield	

State: Colorado

Cement Bond Log

RST Sigma Log

Gamma Ray - Collar Locator Log