

Company: Caerus Operating LLC

Well: NPR 24D-10 596

Field: NPR

County: Garfield State: Colorado

Cement Bond Log

Gamma Ray- Collar Locator Log

K10-596	Elev.:	K.B.	6733.00 ft
		G.L.	6709.00 ft
		D.F.	6733.00 ft
Permanent Datum:	Ground Level	Elev.:	6709.00 f
Log Measured From:	Kelly Bushing		above Perm.Datum
Drilling Measured From:	Kelly Bushing		
API Serial No.	Section:	Township:	Range:
05045237700000	10	5S	96W

Logging Date: 21-Sep-2018

Run Number: CBL-VDL

Depth Driller: 9759.00 ft

Schlumberger Depth: 9710.00 ft

Bottom Log Interval: 9710.00 ft

Top Log Interval: 2000.00 ft

Casing Fluid Type: 2% KCL water

Salinity:

Density: 8.49 lbn/gal

Fluid Level: 8.00 ft

BIT/CASING/TUBING STRING:

Bit Size: 8.75 in

From: 2438.00 ft

To: 9759.00 ft

Casing/Tubing Size: 4.5 in

Weight: 11.6 lbn/ft

Grade: P110

From: 0.00 ft

To: 9759.00 ft

Max Recorded Temperatures: 276.93 degF

Logger on Bottom: 21-Sep-2018

Unit Number: 3007

Recorded By: Beatriz Guaita

Witnessed By: Trent Ray

Disclaimer

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

Contents

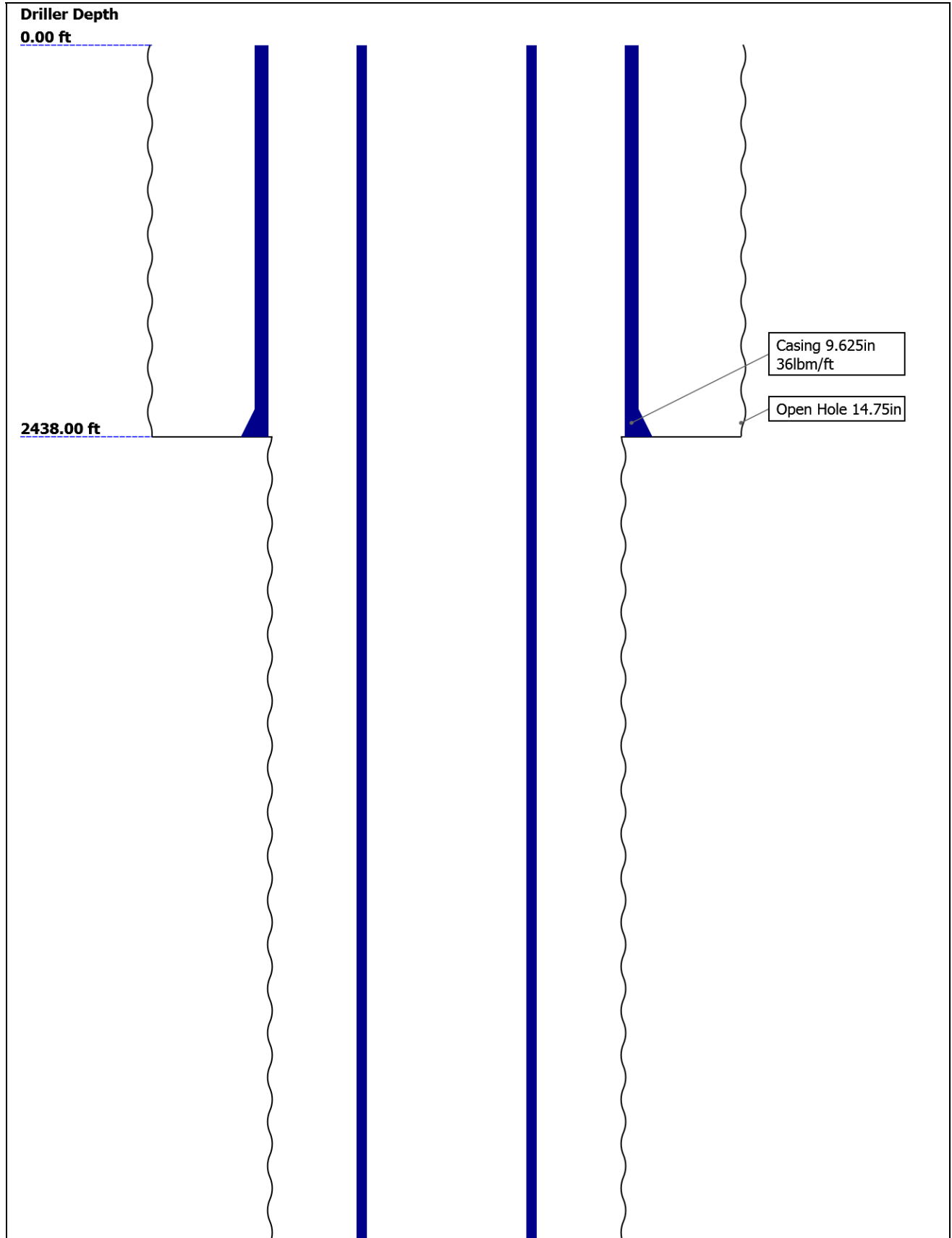
1. Header
2. Disclaimer
3. Contents
4. Well Sketch
5. Borehole Size/Casing/Tubing Record
6. Remarks and Equipment Summary
7. Depth Summary
8. CBL-VDL CBL-VDL Main Pass
 - 8.1 Integration Summary
 - 8.2 Software Version
 - 8.3 Composite Summary
 - 8.4 Log (Sonic CBL with VDL)
 - 8.5 Parameter Listing
9. CBL-VDL CBL-VDL Repeat Pass
 - 9.1 Integration Summary
 - 9.2 Software Version
 - 9.3 Composite Summary

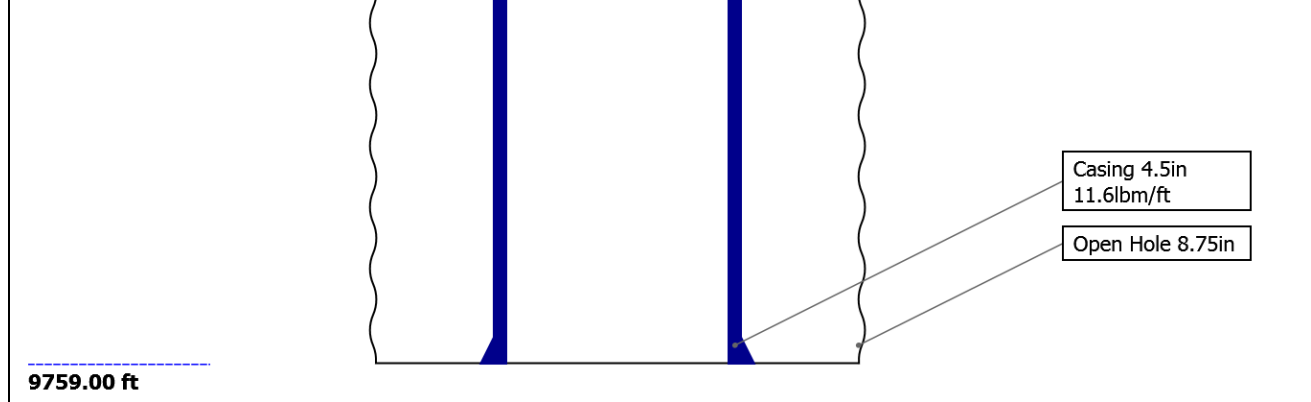
9.4 Log (Sonic CBL with VDL)

9.5 Parameter Listing

10. Tail

Well Sketch



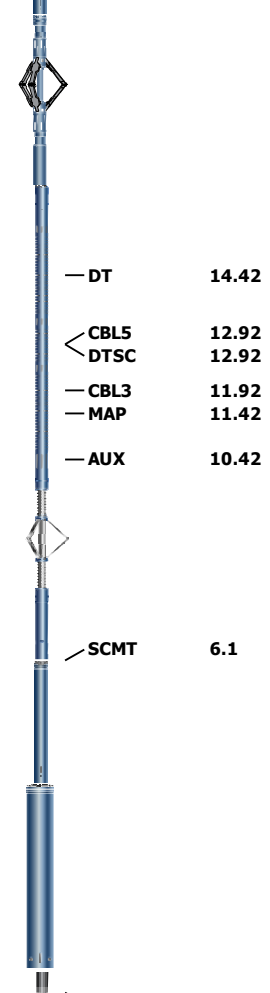


Borehole Size/Casing/Tubing Record

Bit					
Bit Size (in)	14.75	8.75			
Top Driller (ft)	0	2438			
Top Logger (ft)	0	2438			
Bottom Driller (ft)	2438	9759			
Bottom Logger (ft)	2438	9759			
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)	2438	9759			
Bottom Logger (ft)	2438	9759			

Remarks and Equipment Summary

CBL-VDL: Toolstring				CBL-VDL: Remarks	
Equip name	Length	MP name	Offset	Toolstring ran as per toolsketch.	
PEH-E	35.66			Max Temperature recorded : 276.93DegF.	
AH-38	33.97			SLB depth: 9710ft	
PSTP-B:282	33.69	GR	29.99	Thank you for choosing Schlumberger!	
6		PSTC	29.69		
PSC-A		PSTC Tool	0.00		
PSTC-A:2826		String Bot			
PBMS-B:2826		tom			
		Temperatu	26.94		
		re			
		CQG Press	26.59		
		ure			
		CCL	26.18		
		PBMS	25.43		
PPAT-A	25.43				
SCMT-CA:81	23.51				
81					
SECH-CA					
SCMC-CA:820					
1					
SCME-K					
SCMS-CA:818					



—DT 14.42
 < CBL5 12.92
 DTSC 12.92
 —CBL3 11.92
 —MAP 11.42
 —AUX 10.42
 / SCMT 6.1

Adaptor_Head 3.5
 BNS-P 0.14

TOOL_ZERO
 Lengths are in ft
 Maximum Outer Diameter = 1.688 in
 Line: Sensor Location, Value: Gating Offset
 All measurements are relative to TOOL_ZERO

Depth Summary

	CBL-VDL		
Depth Measuring Device			
Type	IDW-JA		
Serial Number	5979		
Calibration Date	10-jun-2017		
Calibrator Serial Number	IDWC-C-57		
Calibration Cable Type	1-25ZA-XXS		
Wheel Correction 1	-3		
Wheel Correction 2	-3		
Tension Device			
Type	CMTD-B/A		
Serial Number	5036		
Calibration Date	10-Sep-2018		
Calibrator Serial Number	112544A		
Number of Calibration Points	10		
Calibration Root Mean Square Error	21		
Calibration Peak Error	10		
Logging Cable			
Type	1-25ZA		

Serial Number	F112140		
Length	16800.00 ft		
Conveyance Type	Wireline		
Rig Type			

CBL-VDL:Depth Control Parameters		Depth Control Remarks	
Log Sequence	First Log In the Well	All Schlumberger depth control policies followed.	
Rig Up Length At Surface		IDW used as primary depth control.	
Rig Up Length At Bottom		Z-chart used as secondary depth control.	
Rig Up Length Correction		Log down used as a reference log.	
Stretch Correction			
Tool Zero Check At Surface			

CBL-VDL

CBL-VDL 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
CBL-VDL	Log[4]:Up	Up	1980.55 ft	9780.58 ft	21-Sep-2018 2:19:02 PM	21-Sep-2018 5:48:46 PM	ON	8.31 ft	No

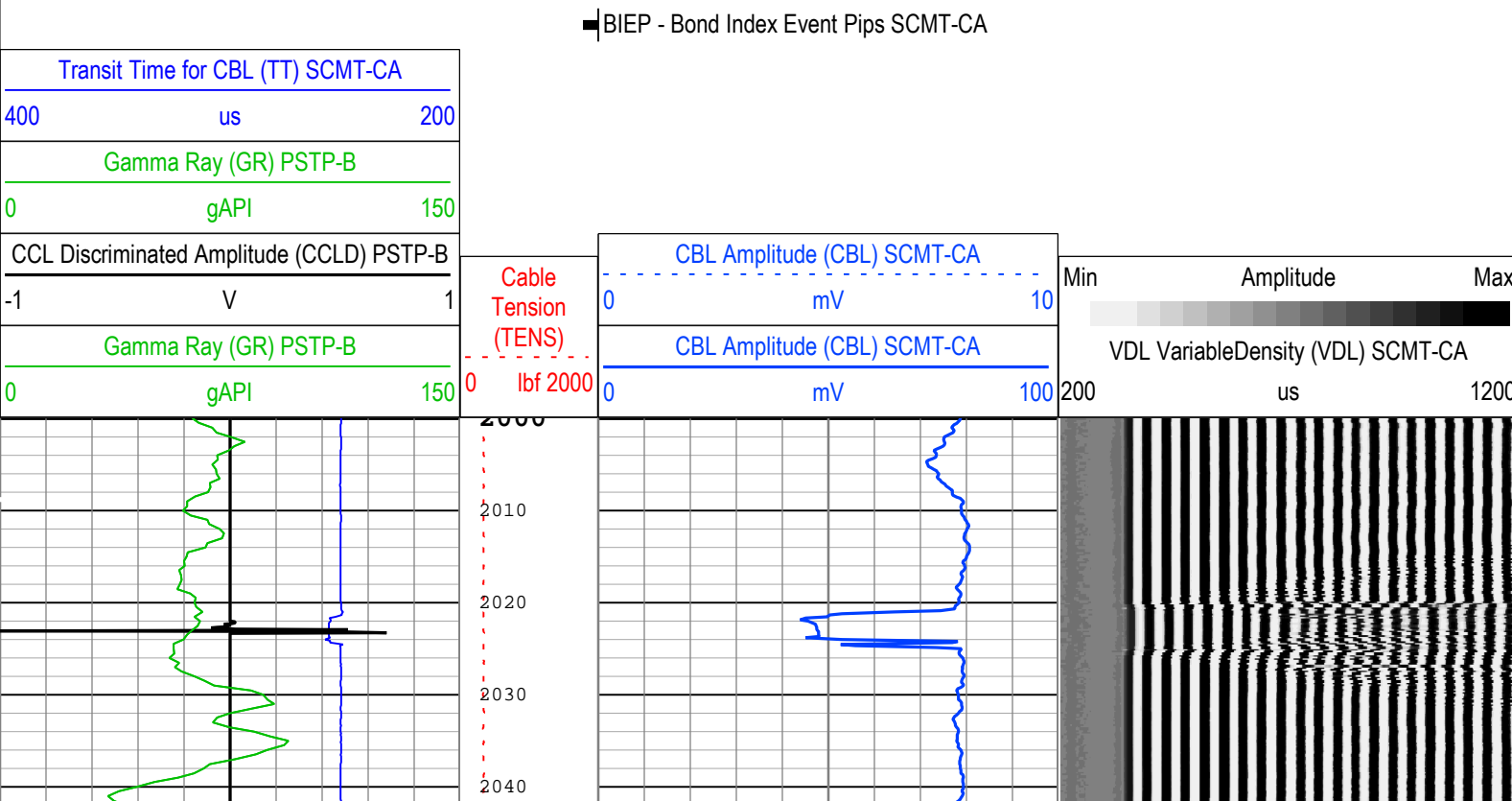
All depths are referenced to toolstring zero

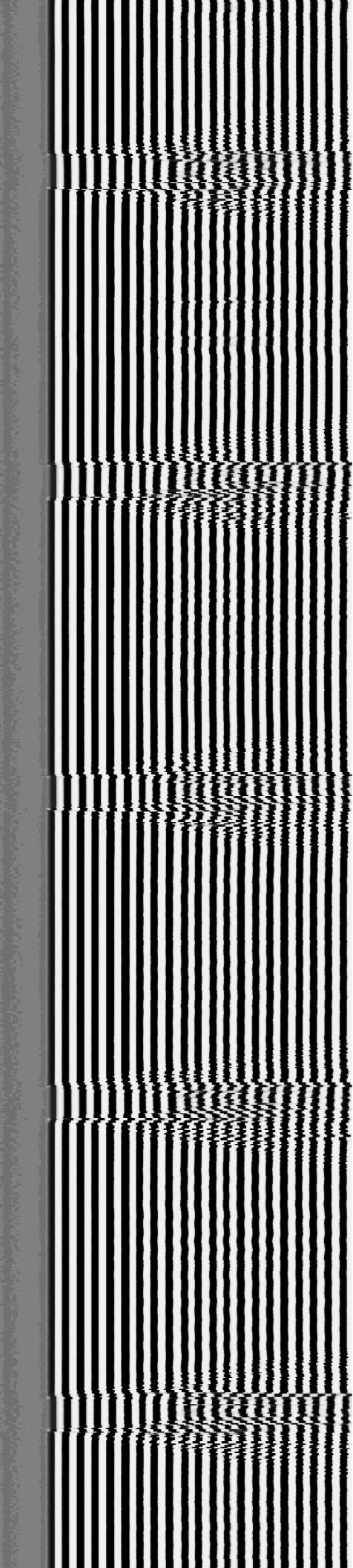
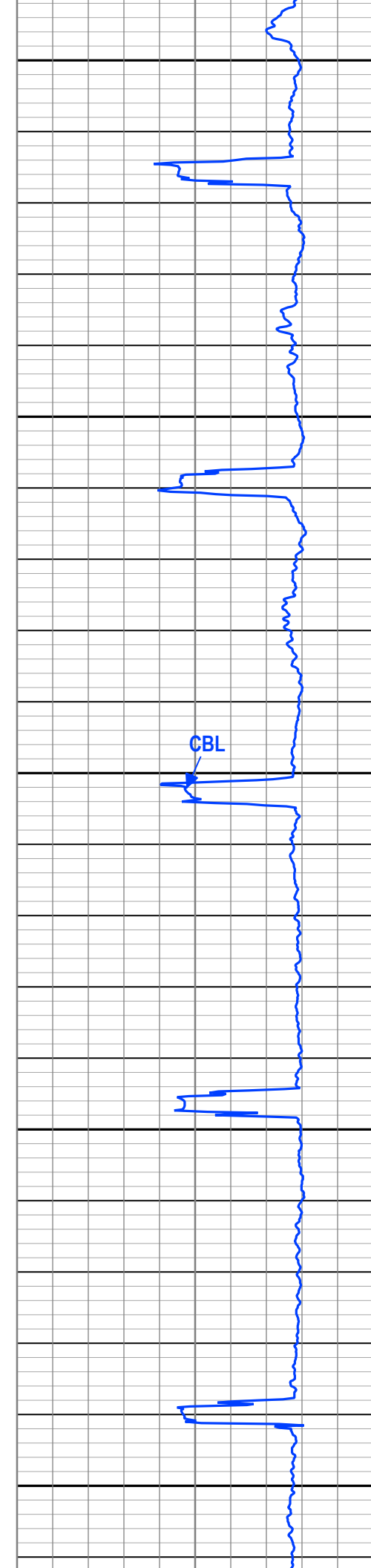
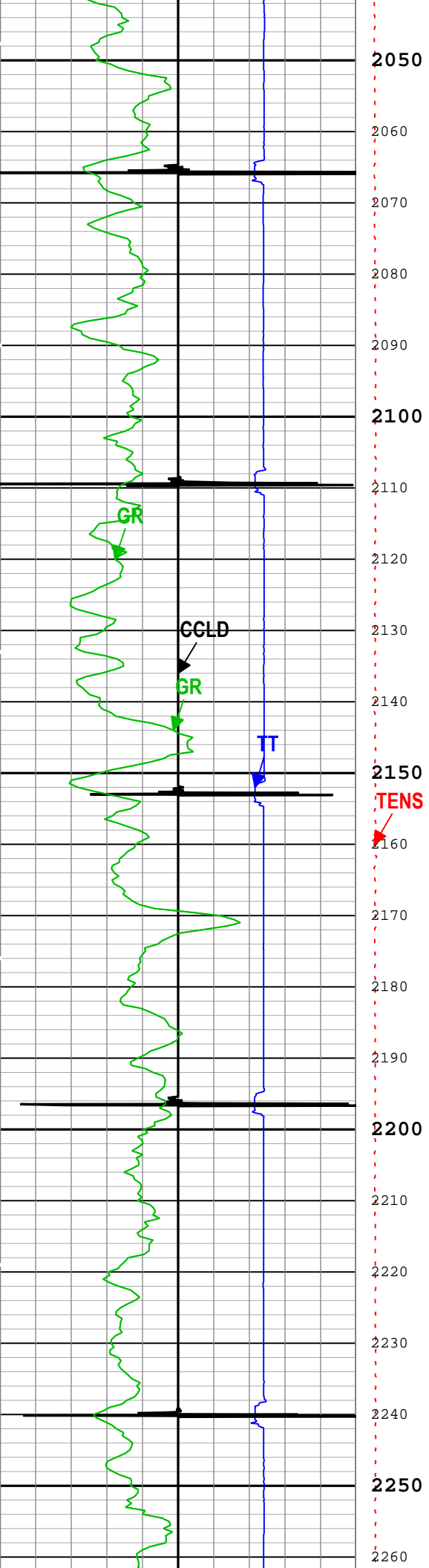
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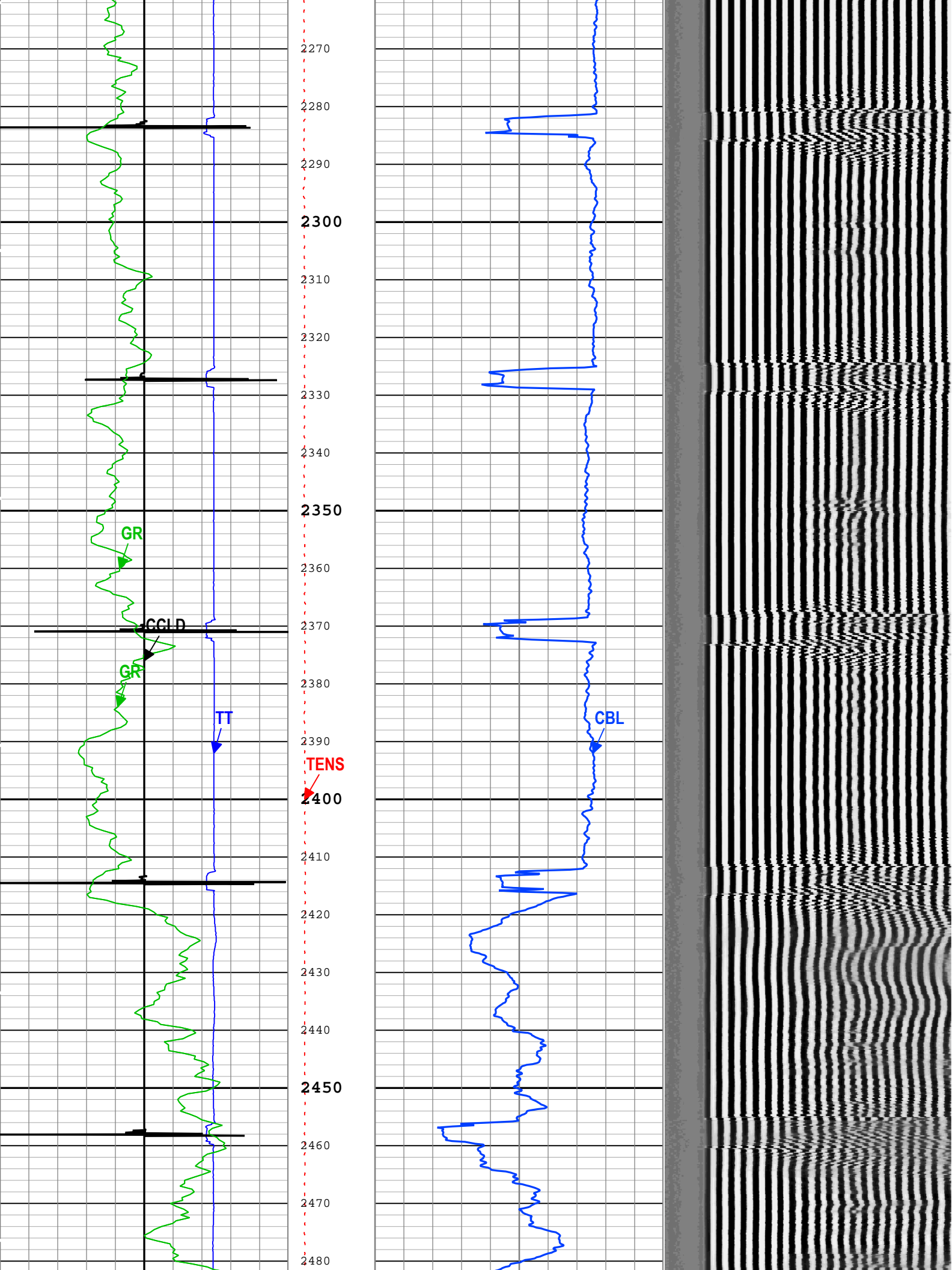
Company:Caerus Operating LLC Well:NPR 24D-10 596
CBL-VDL: Log[4]:Up:S004

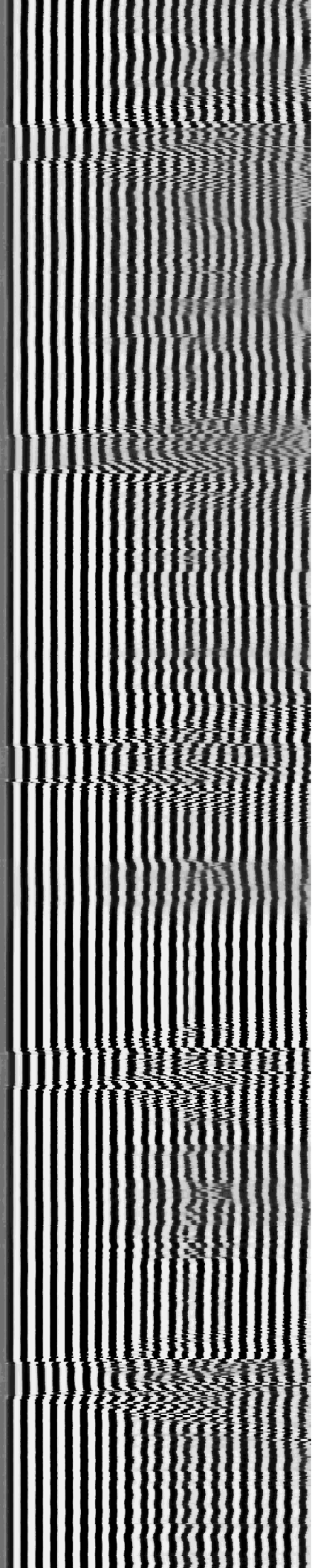
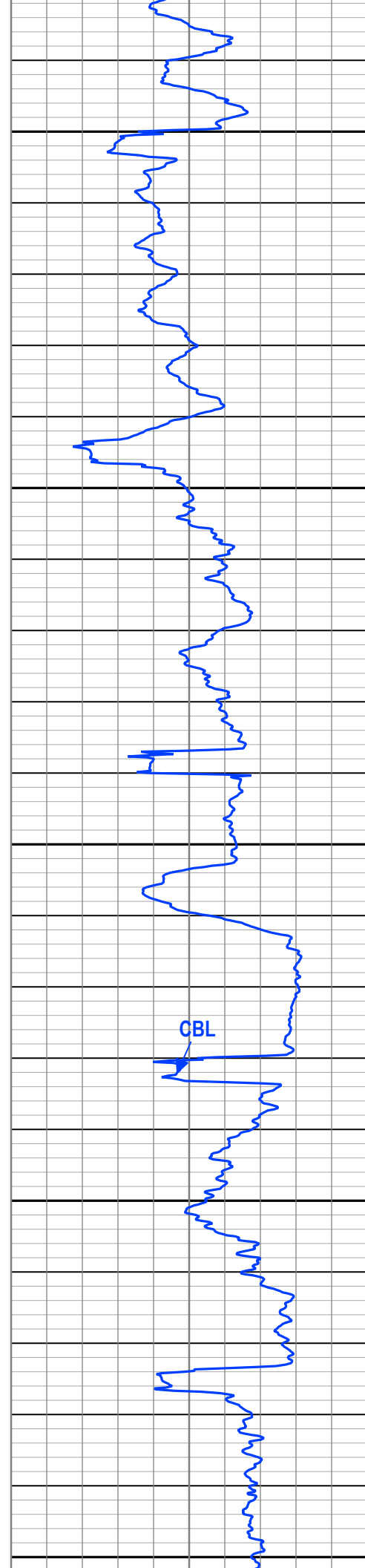
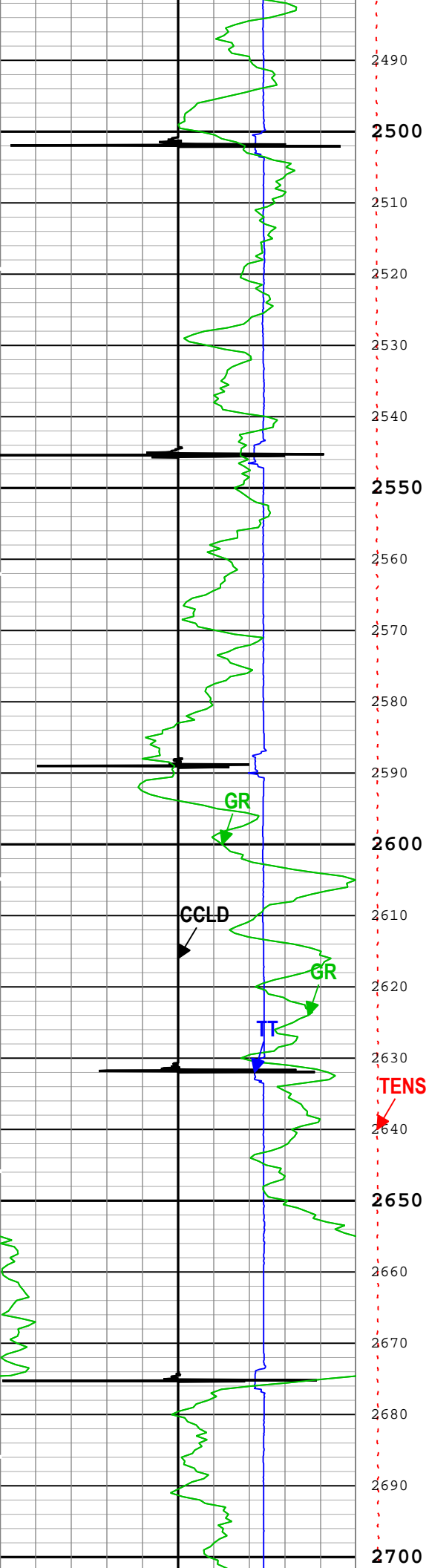
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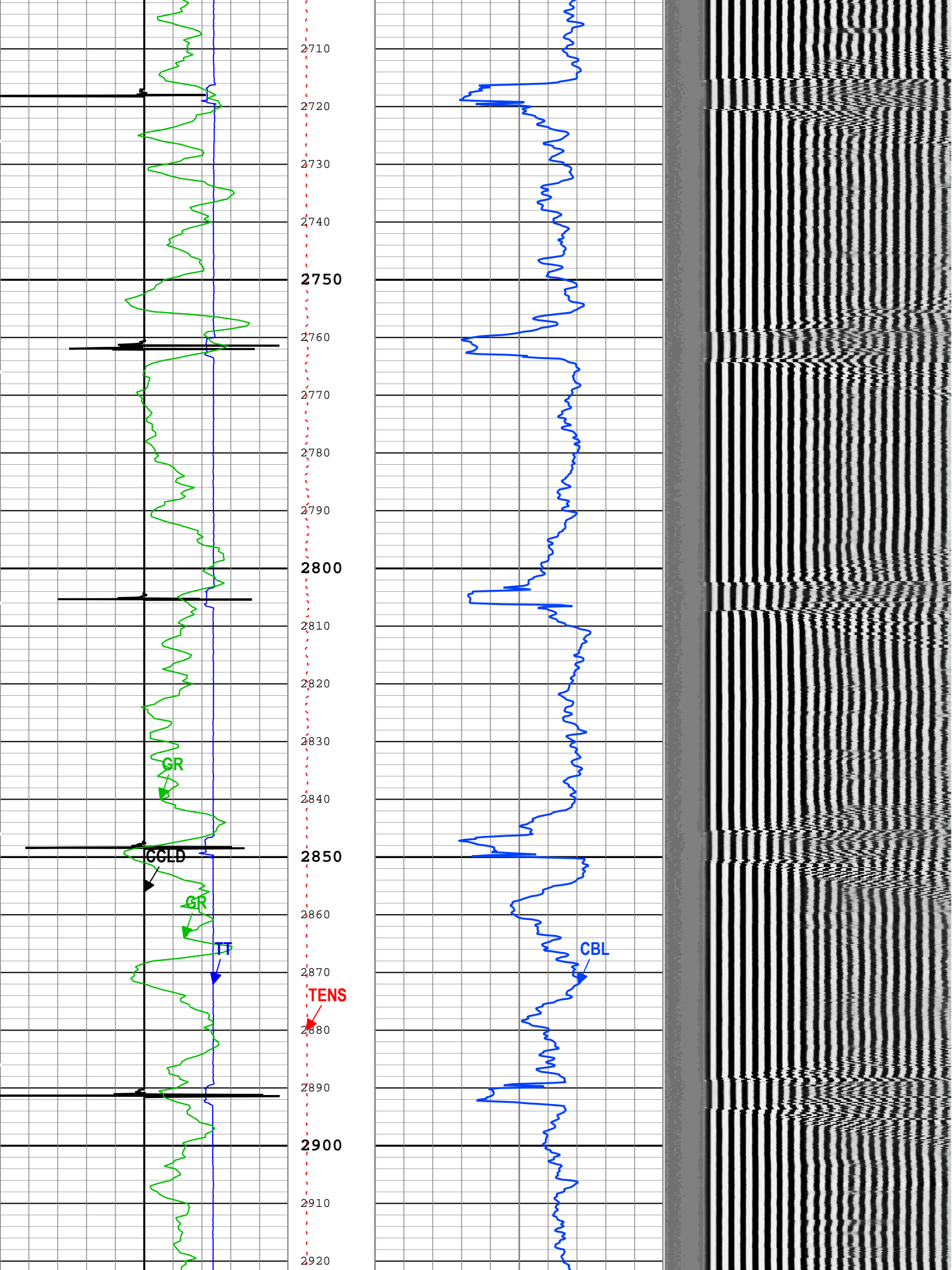
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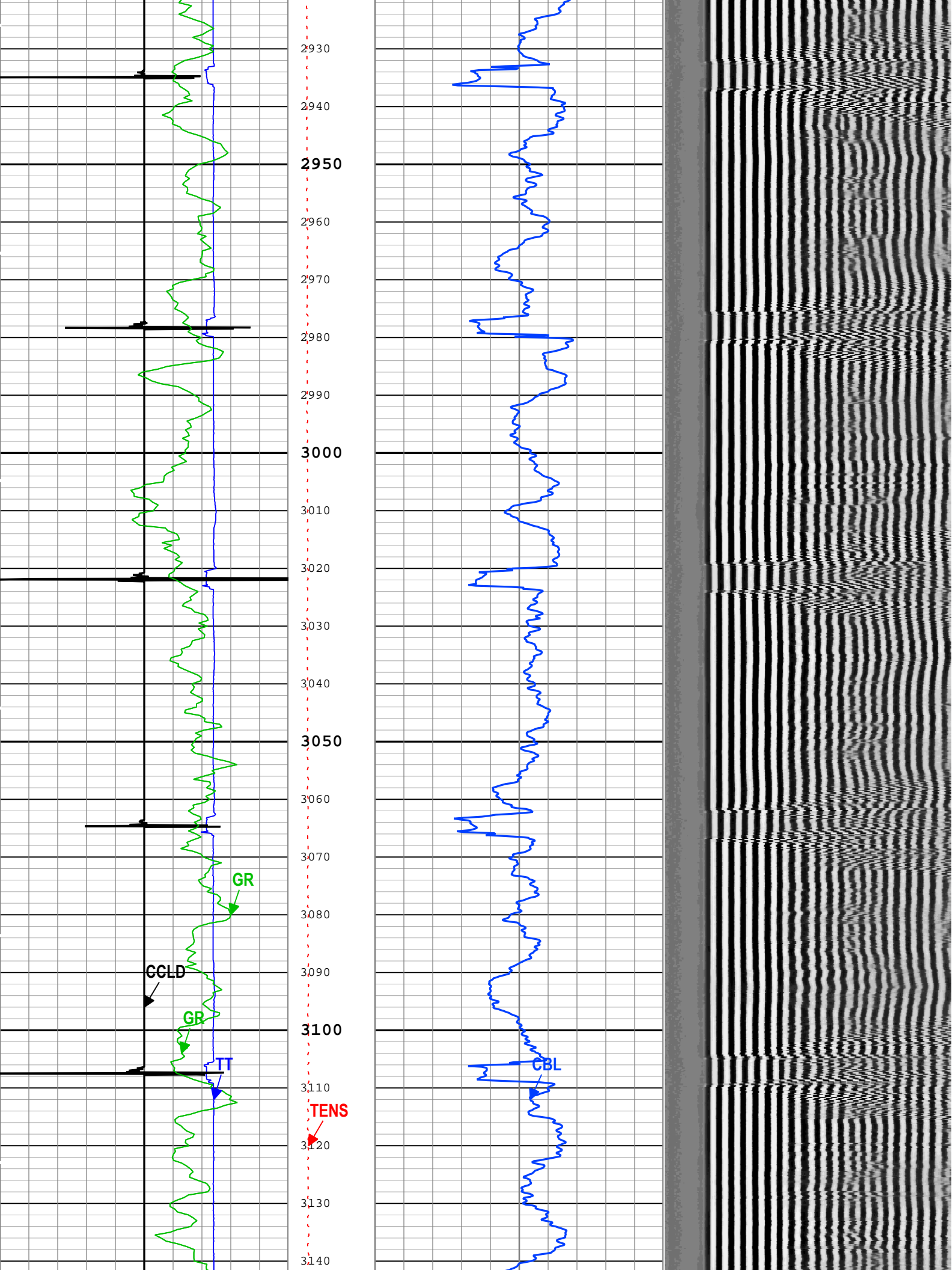


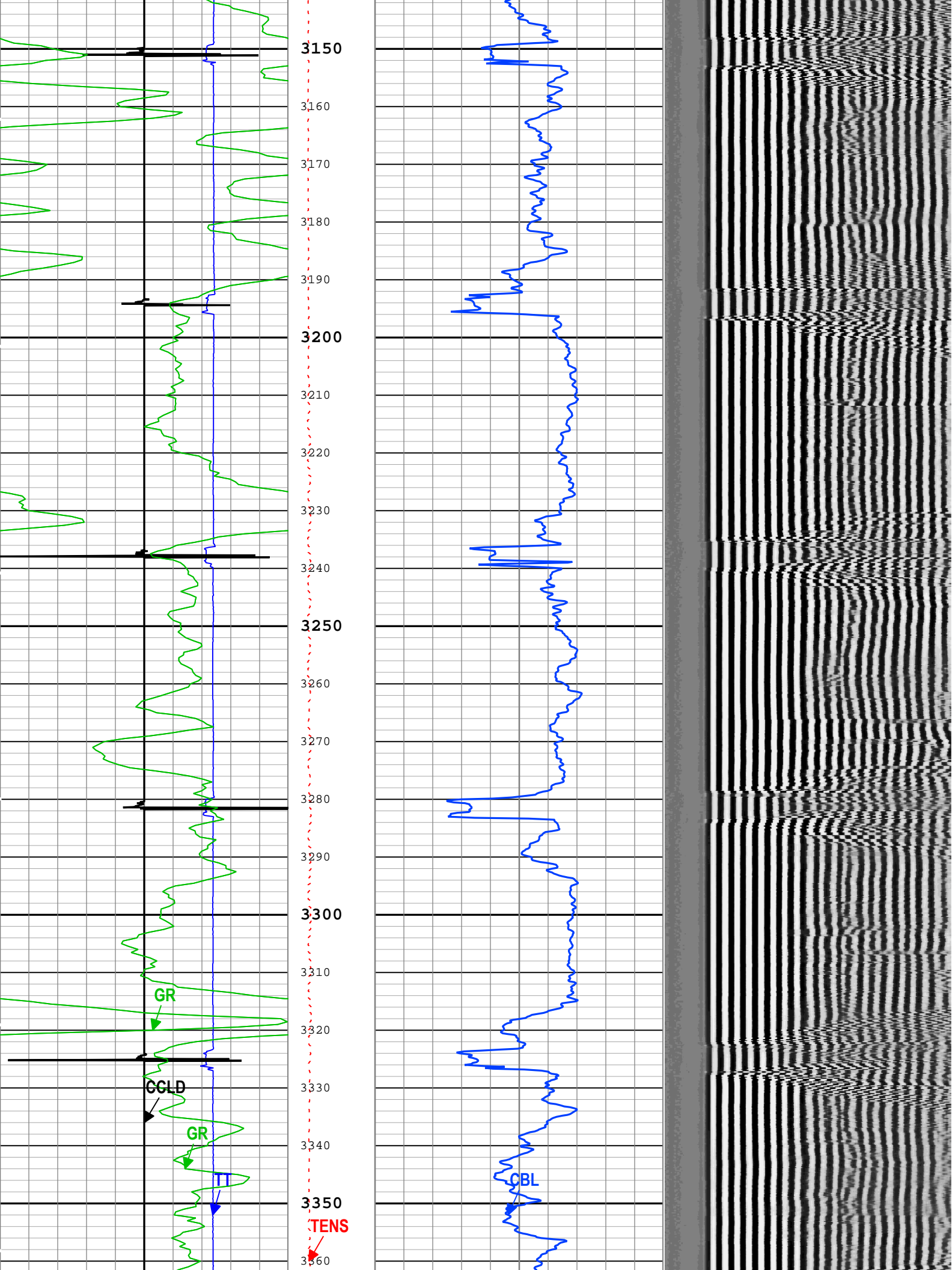


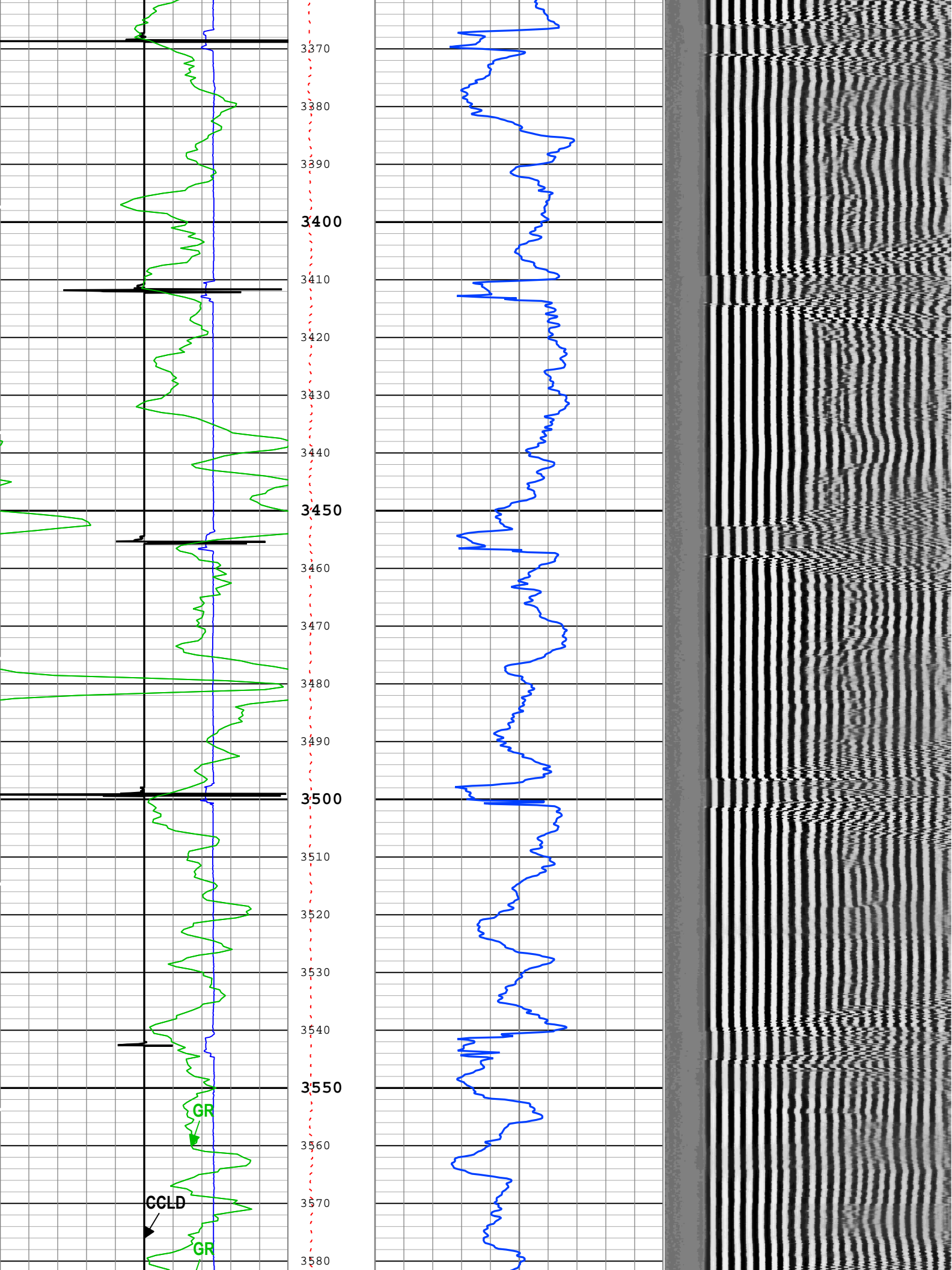


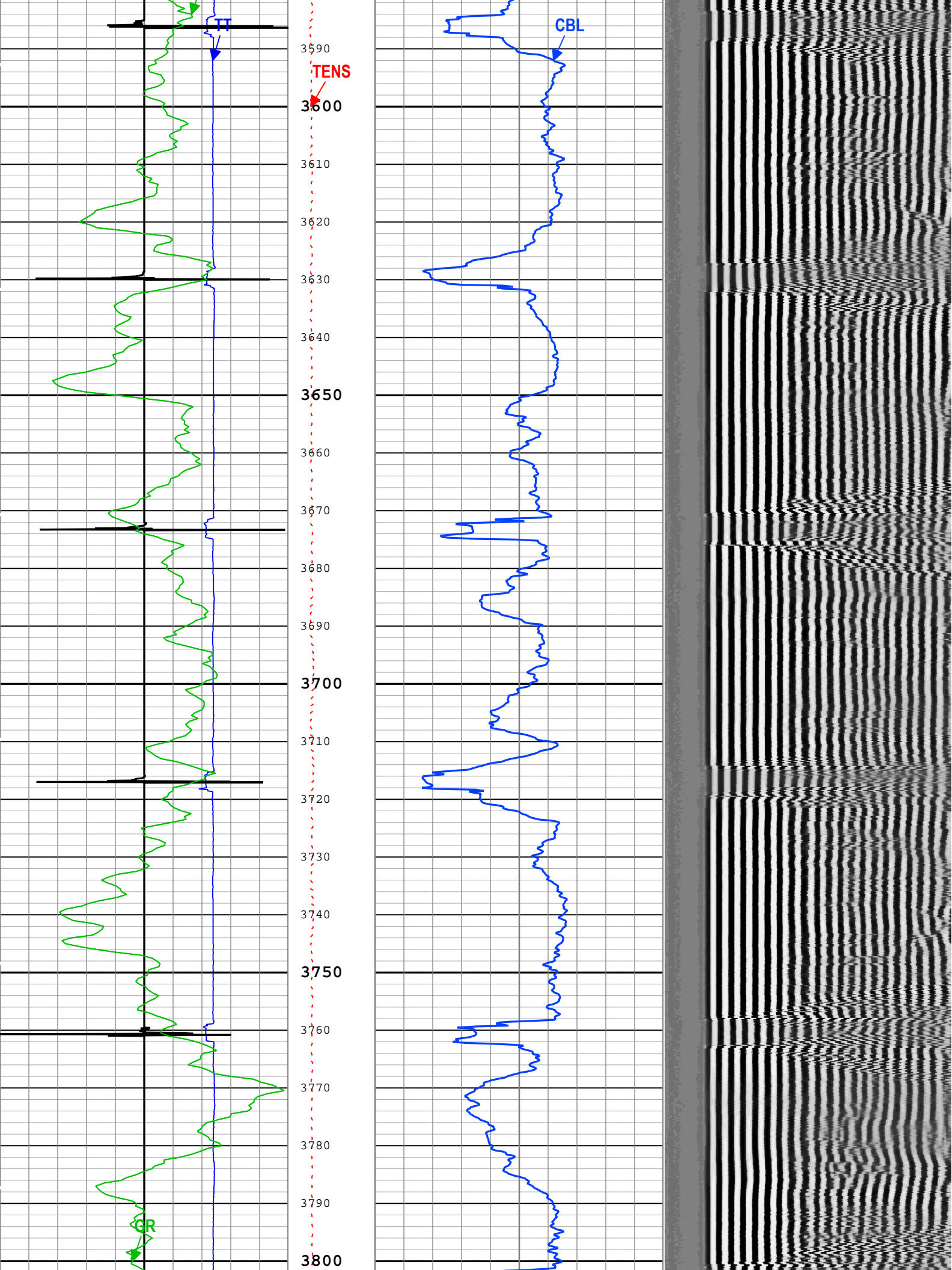


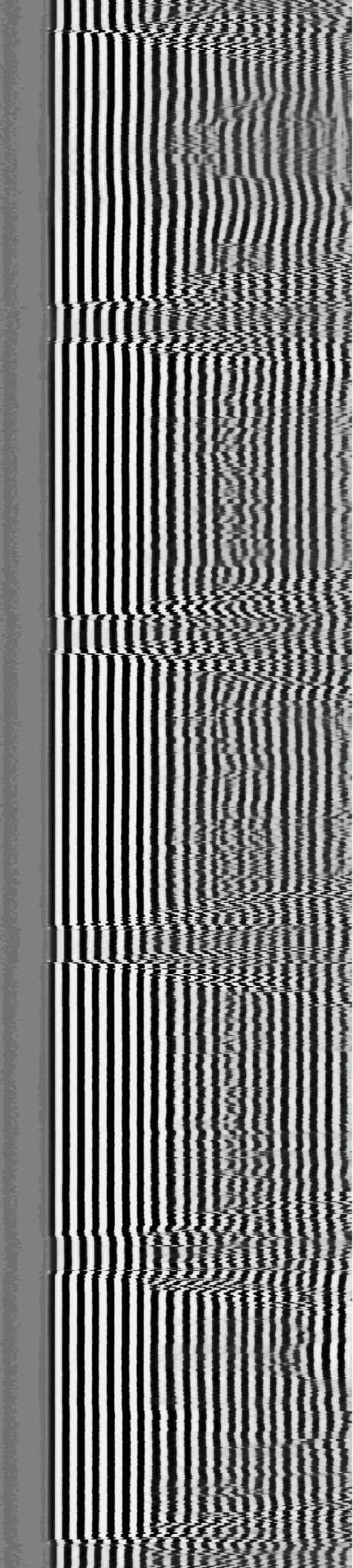
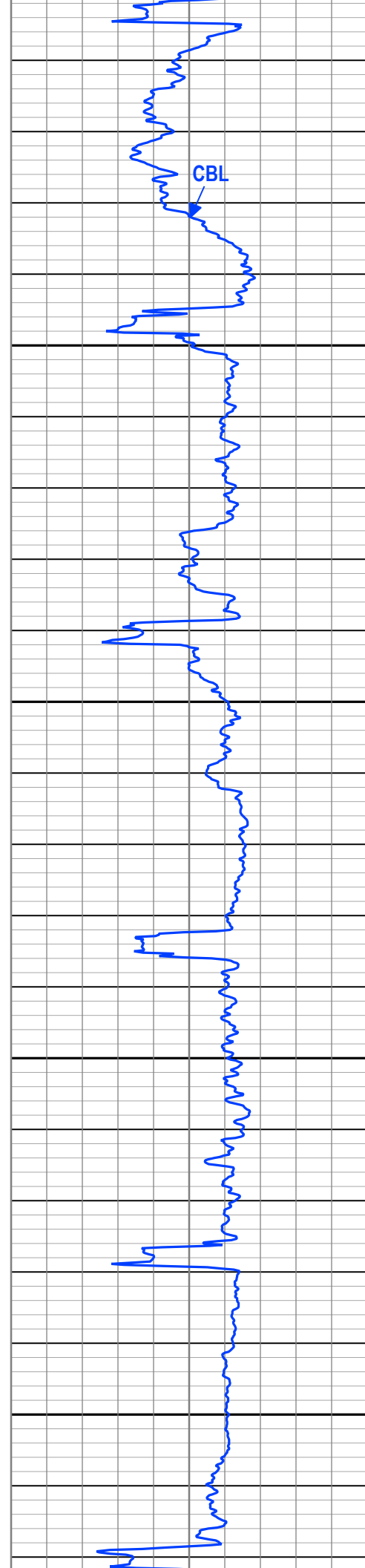
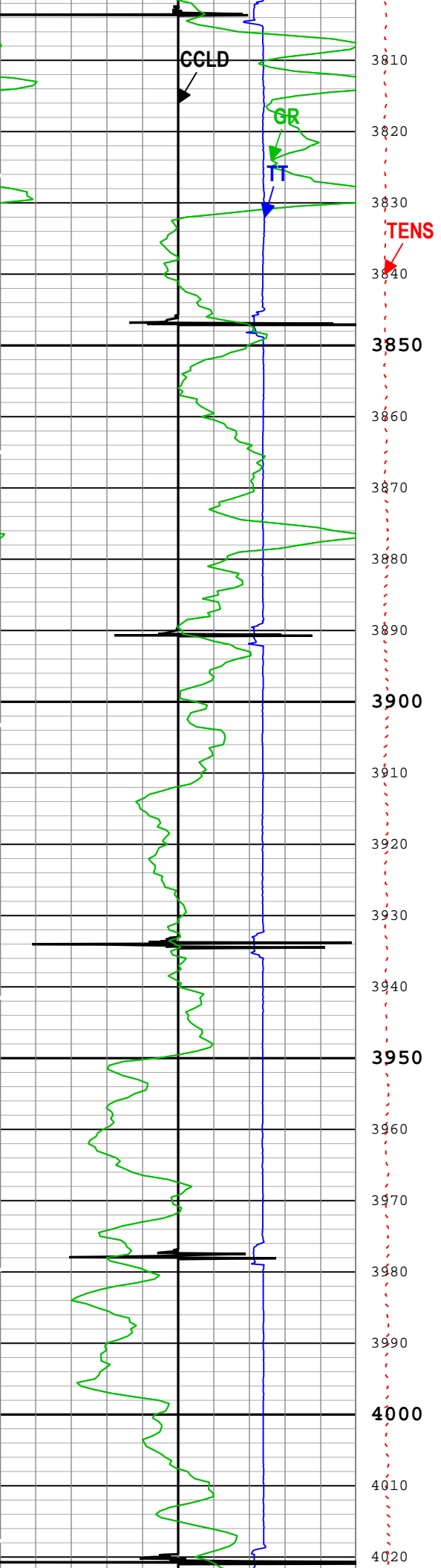


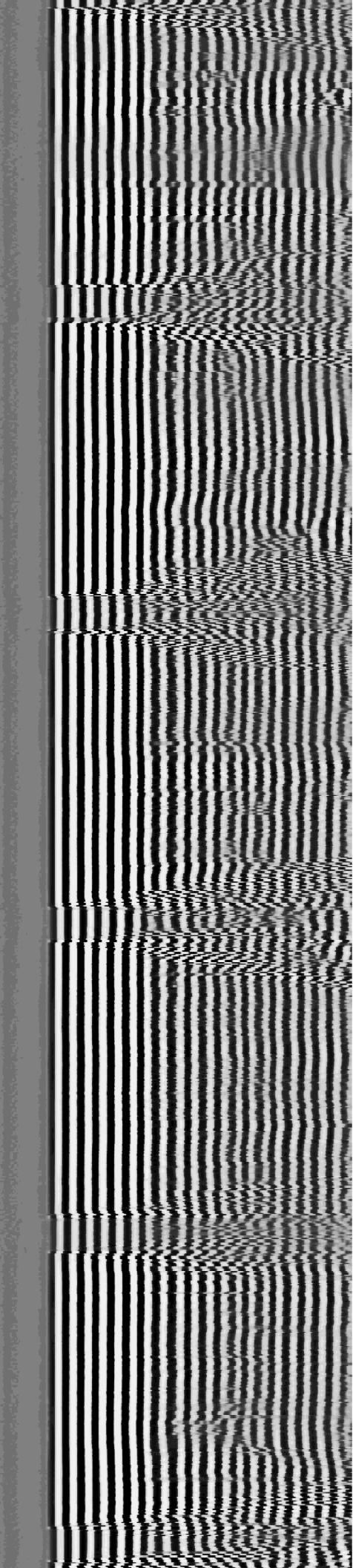
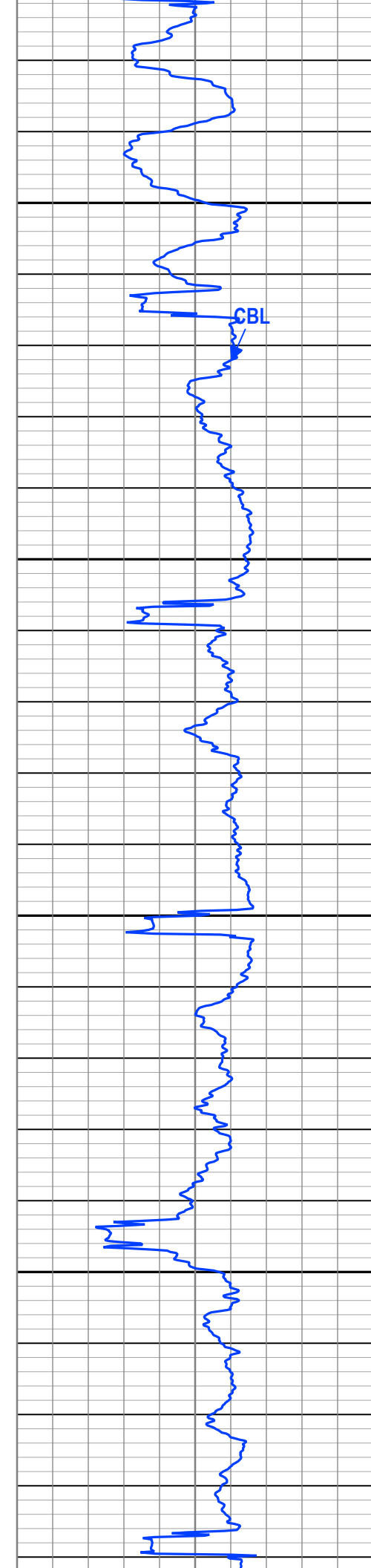
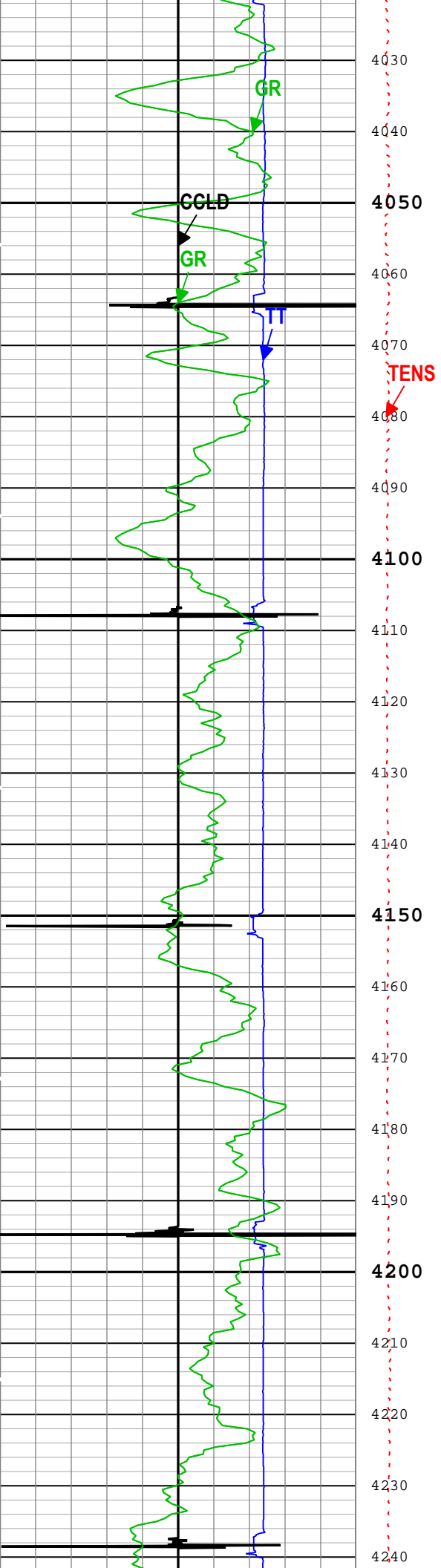


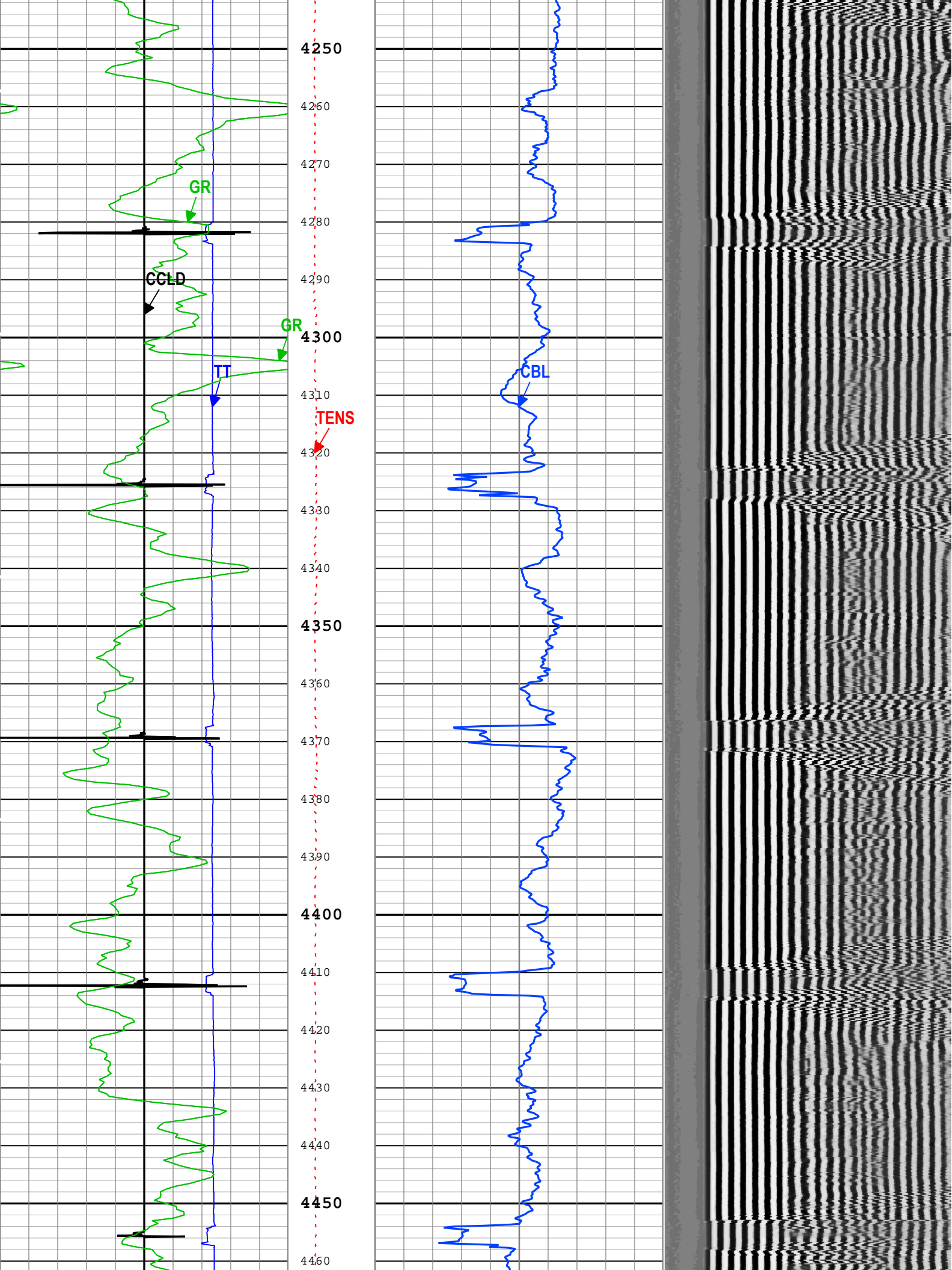


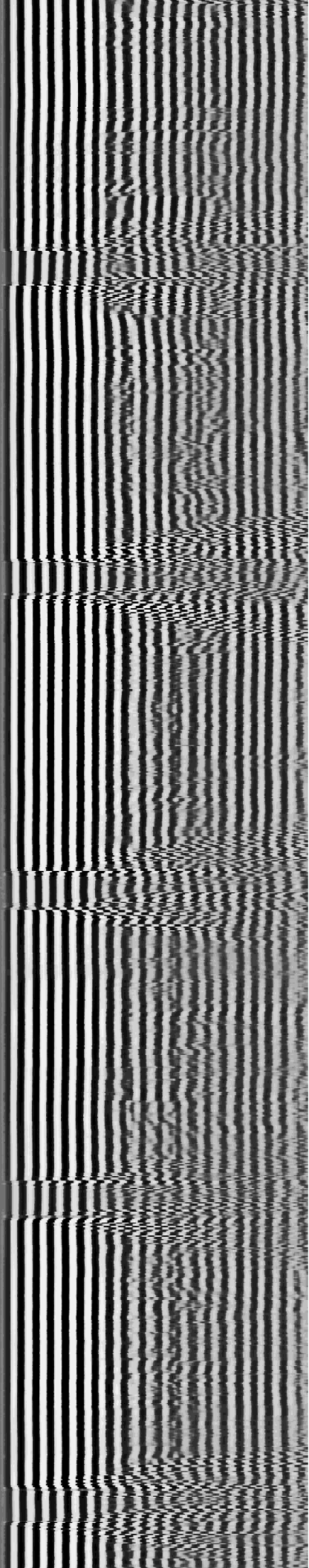
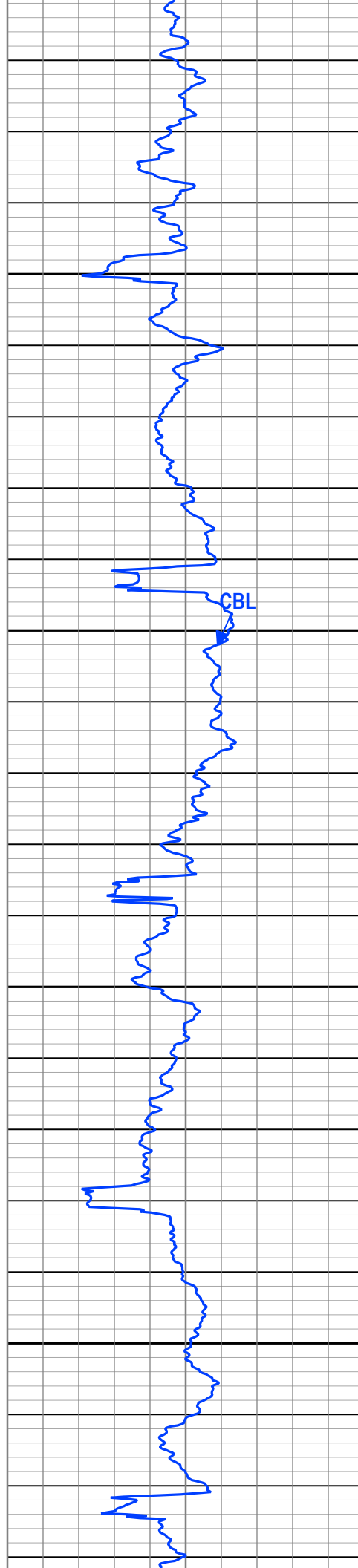
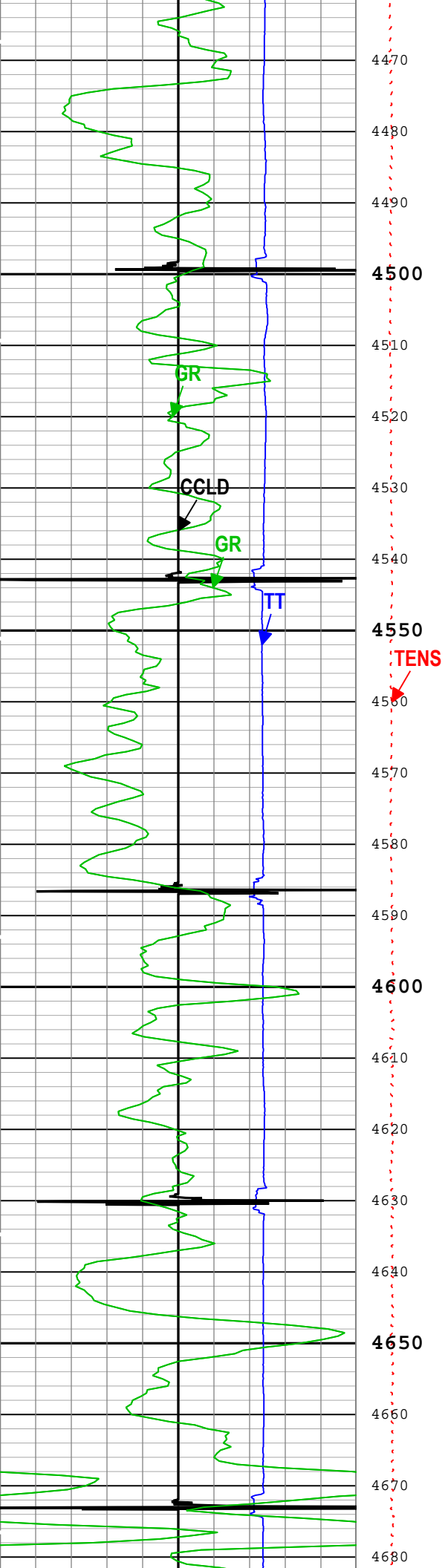


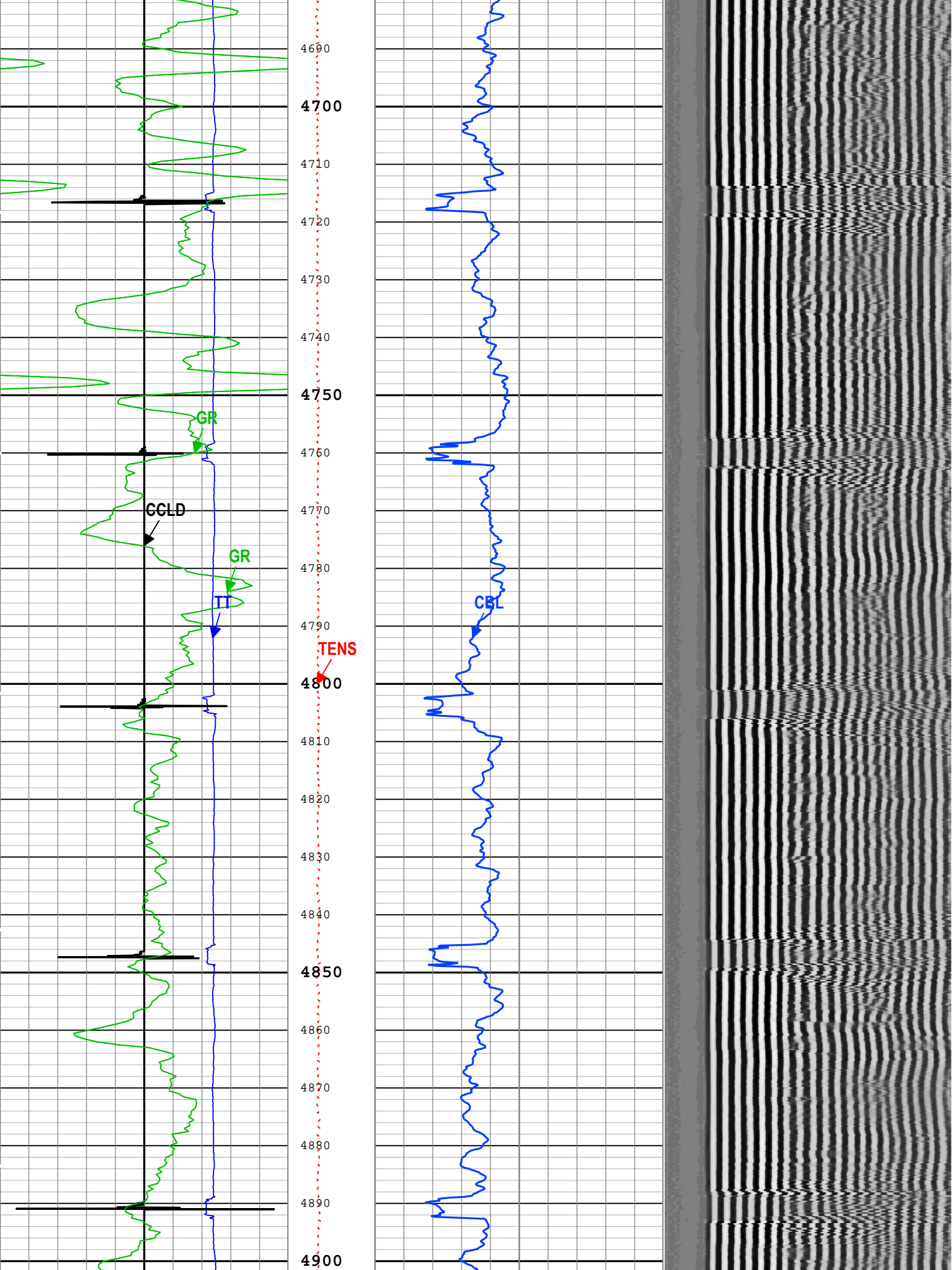


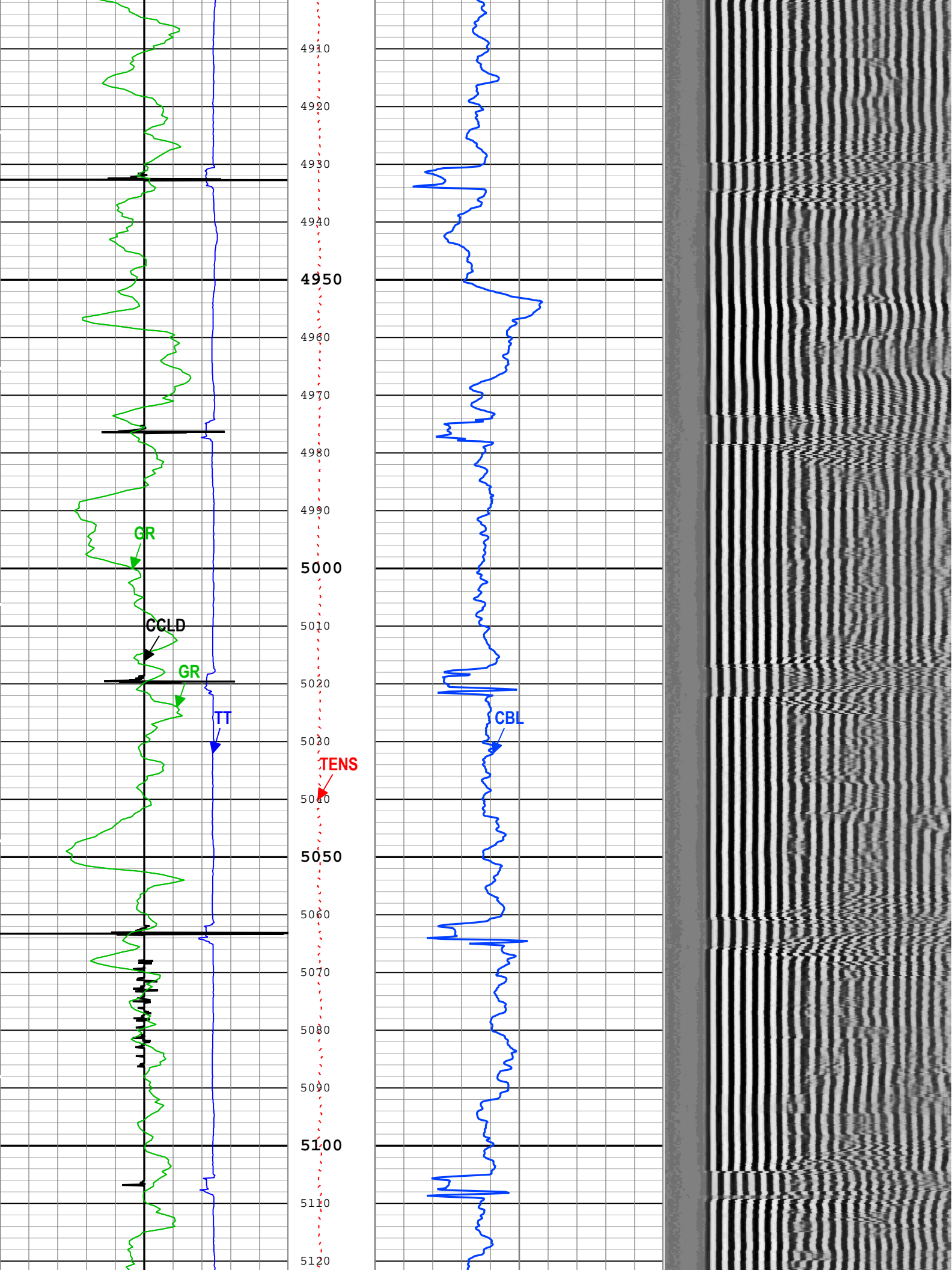


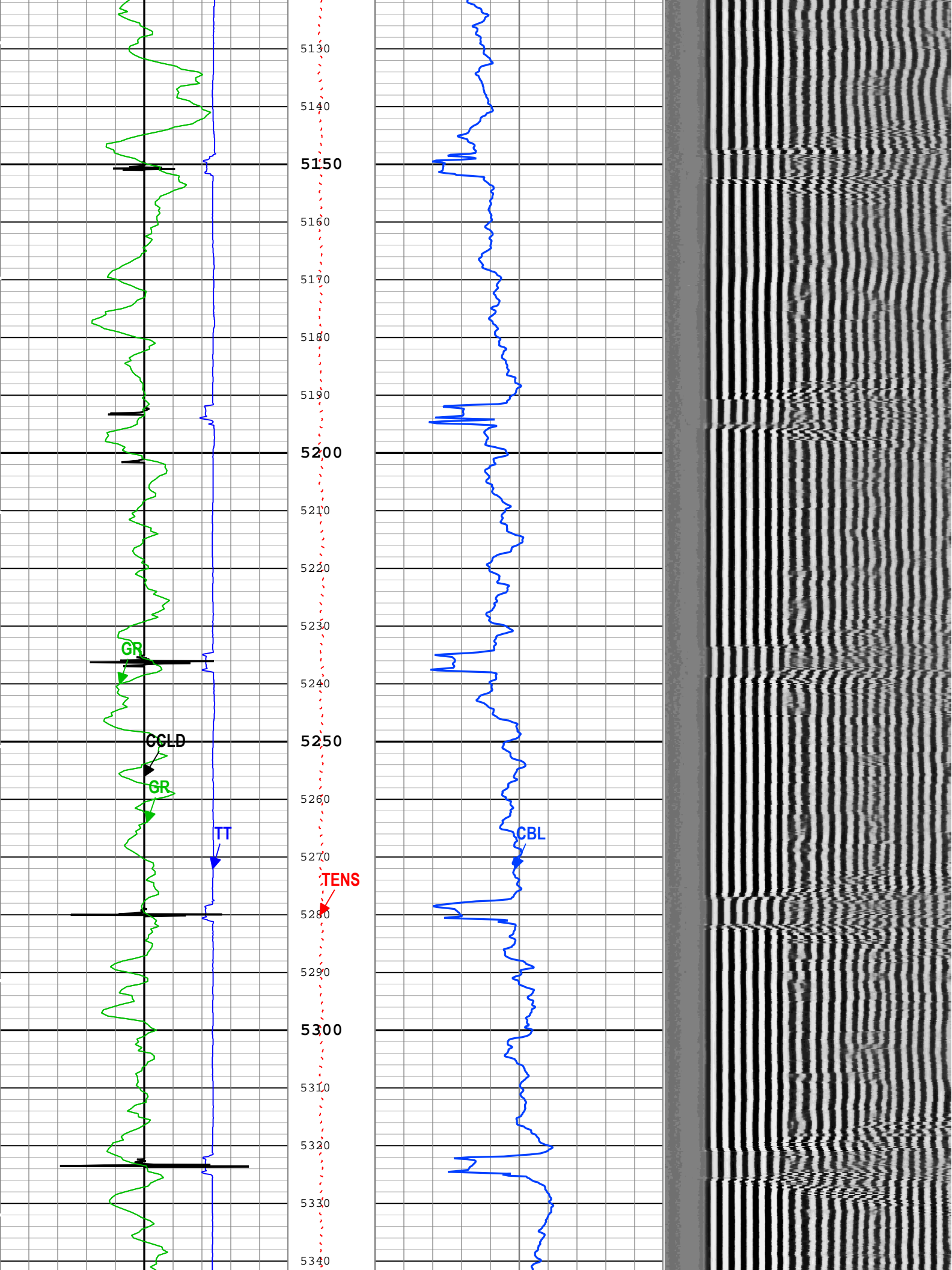


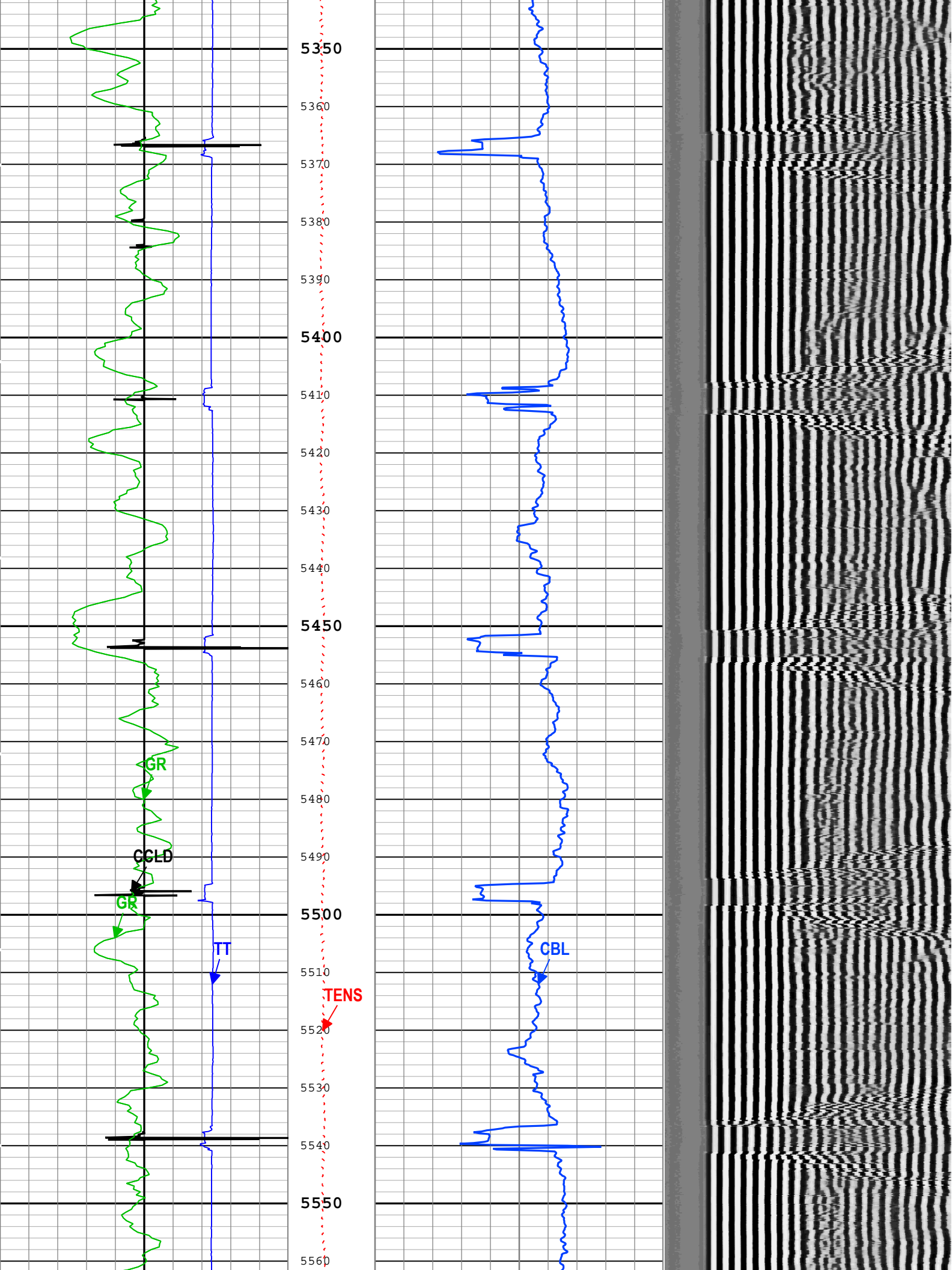


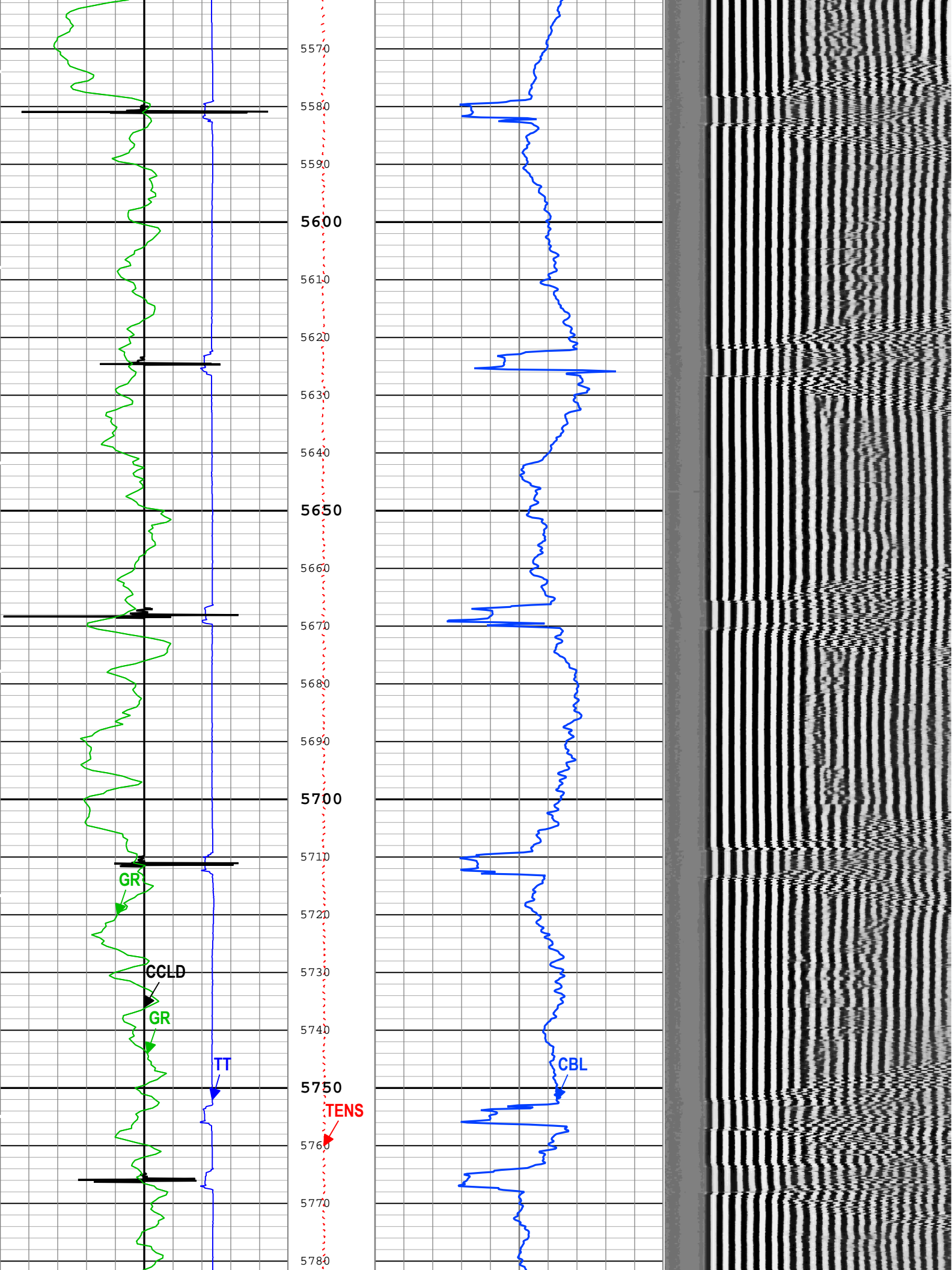


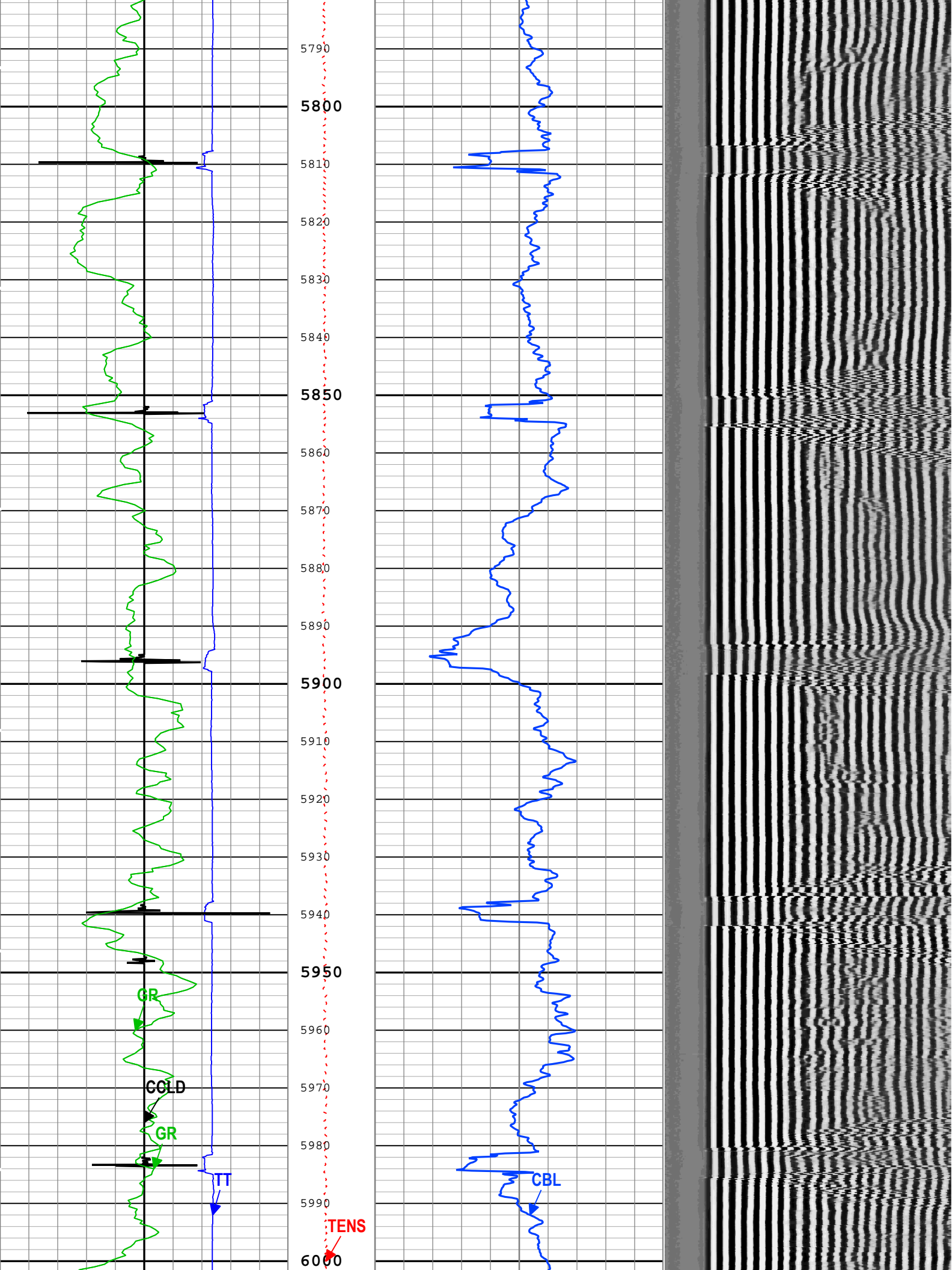


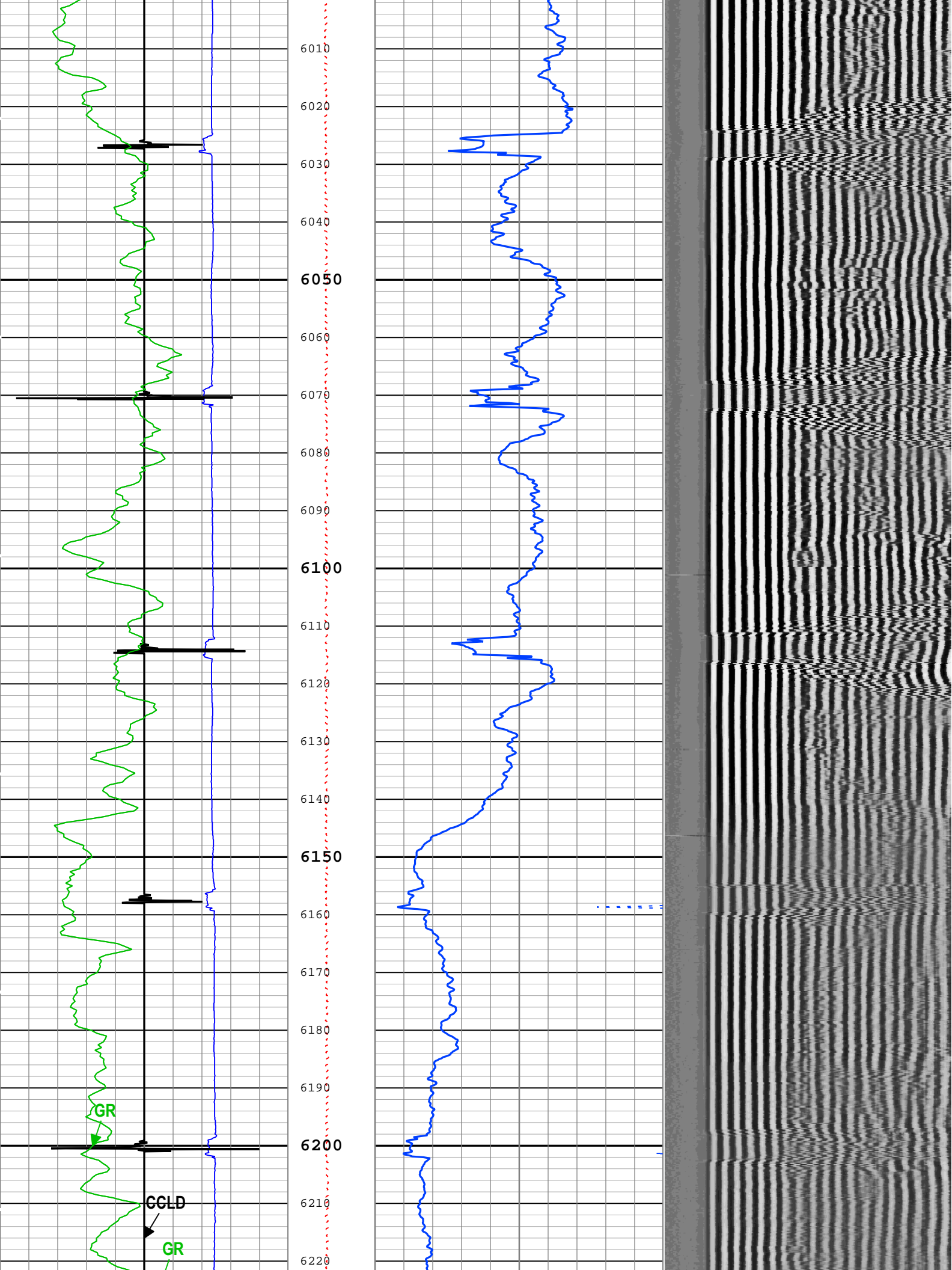


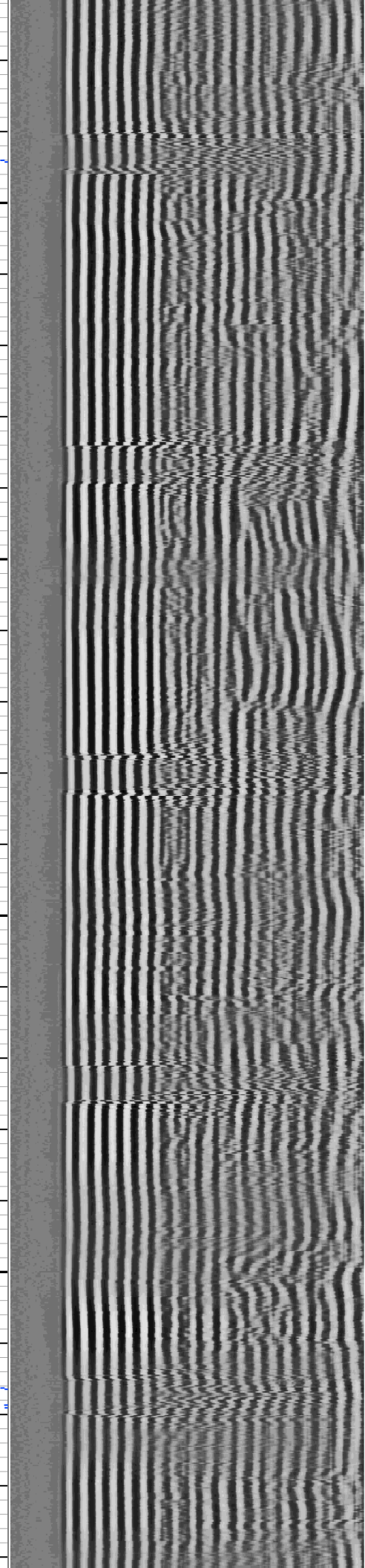
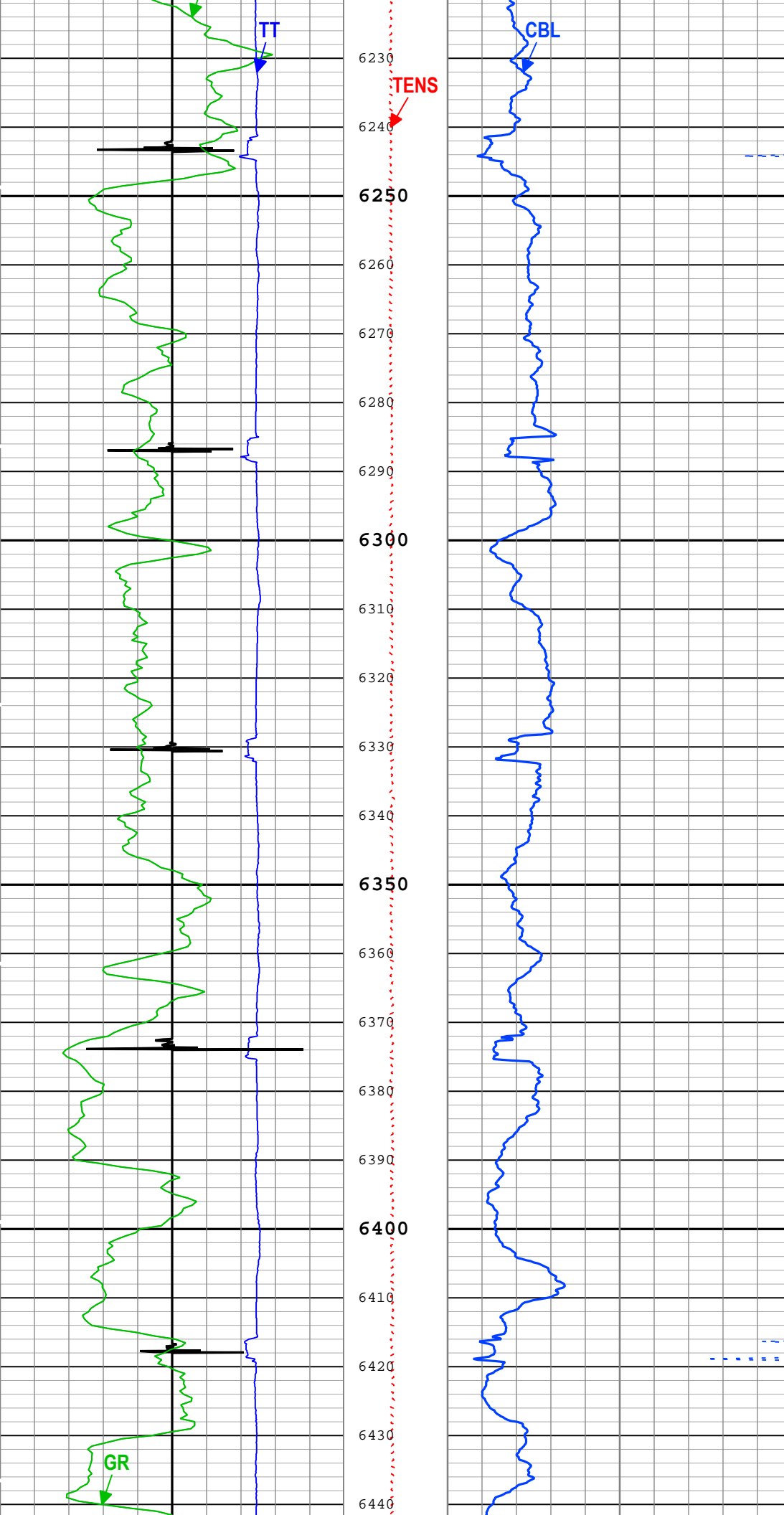


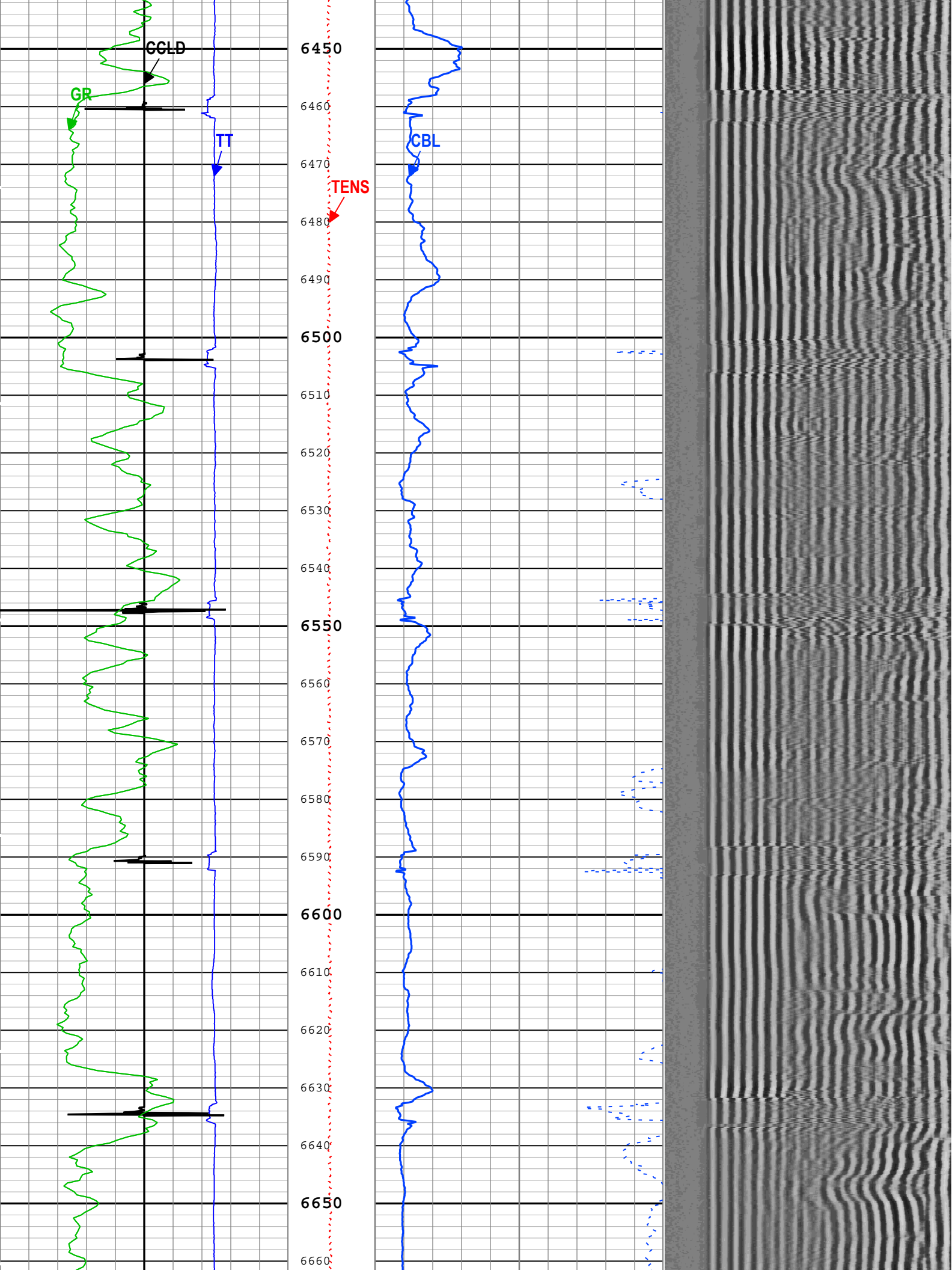


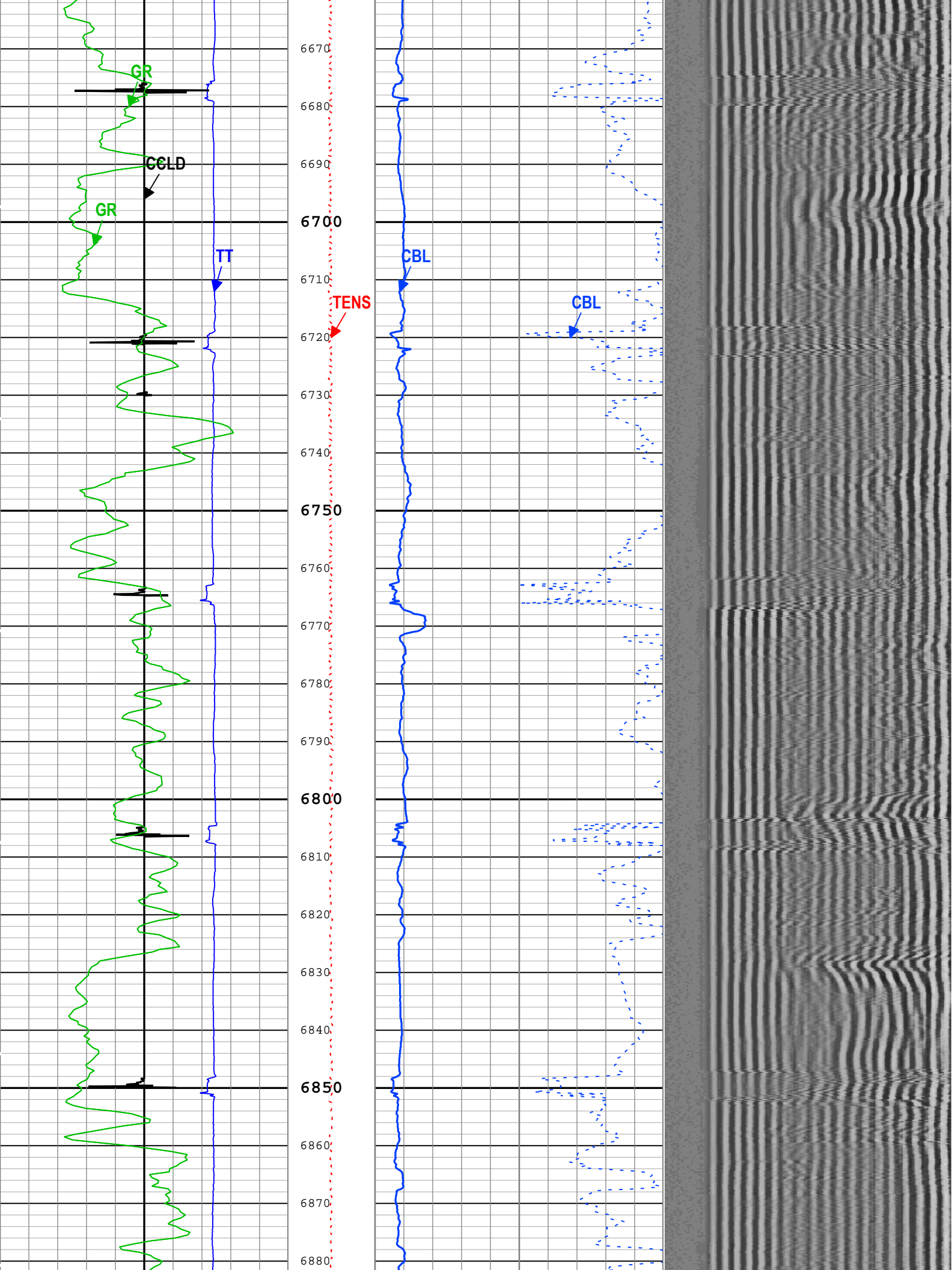


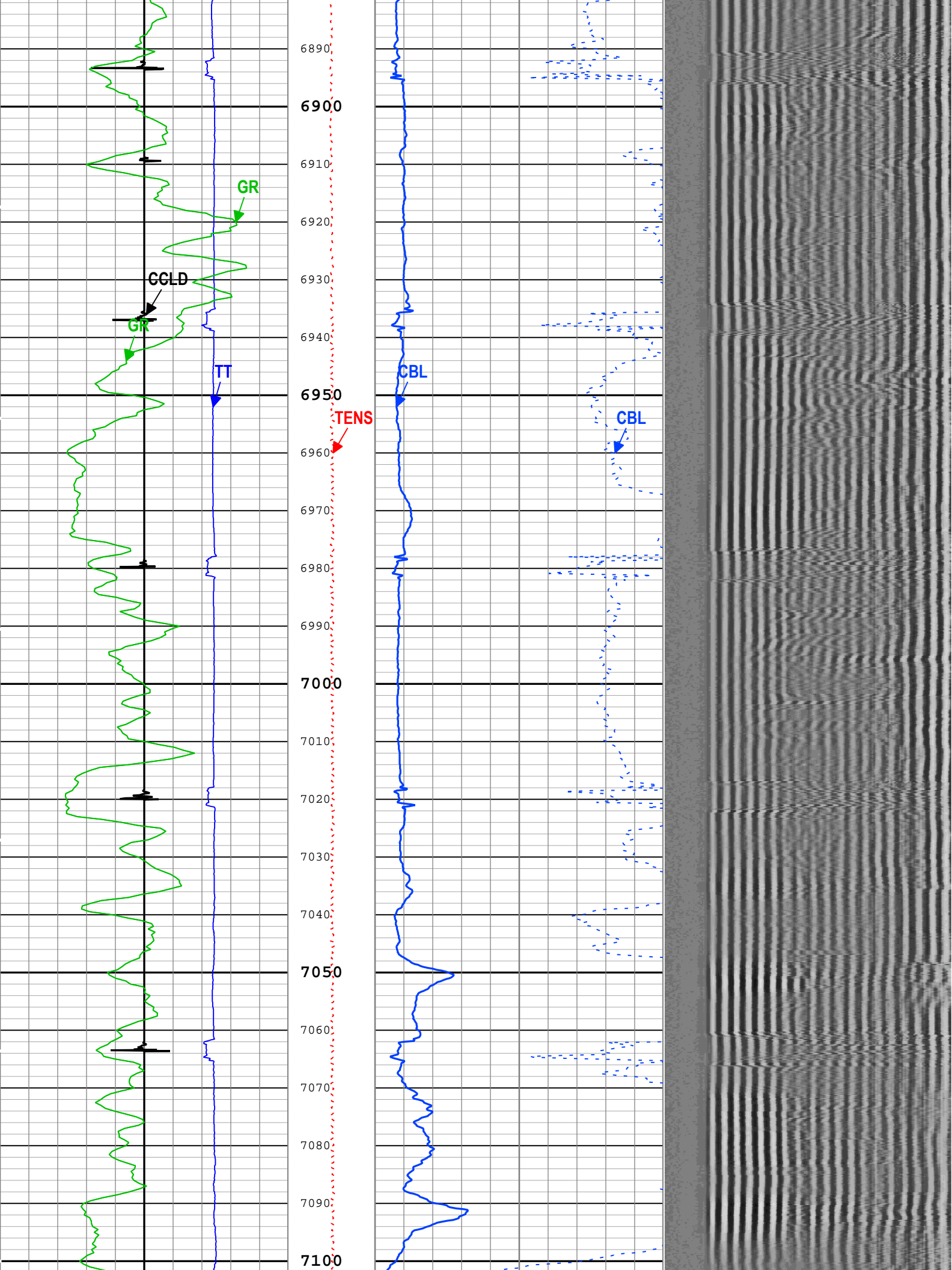


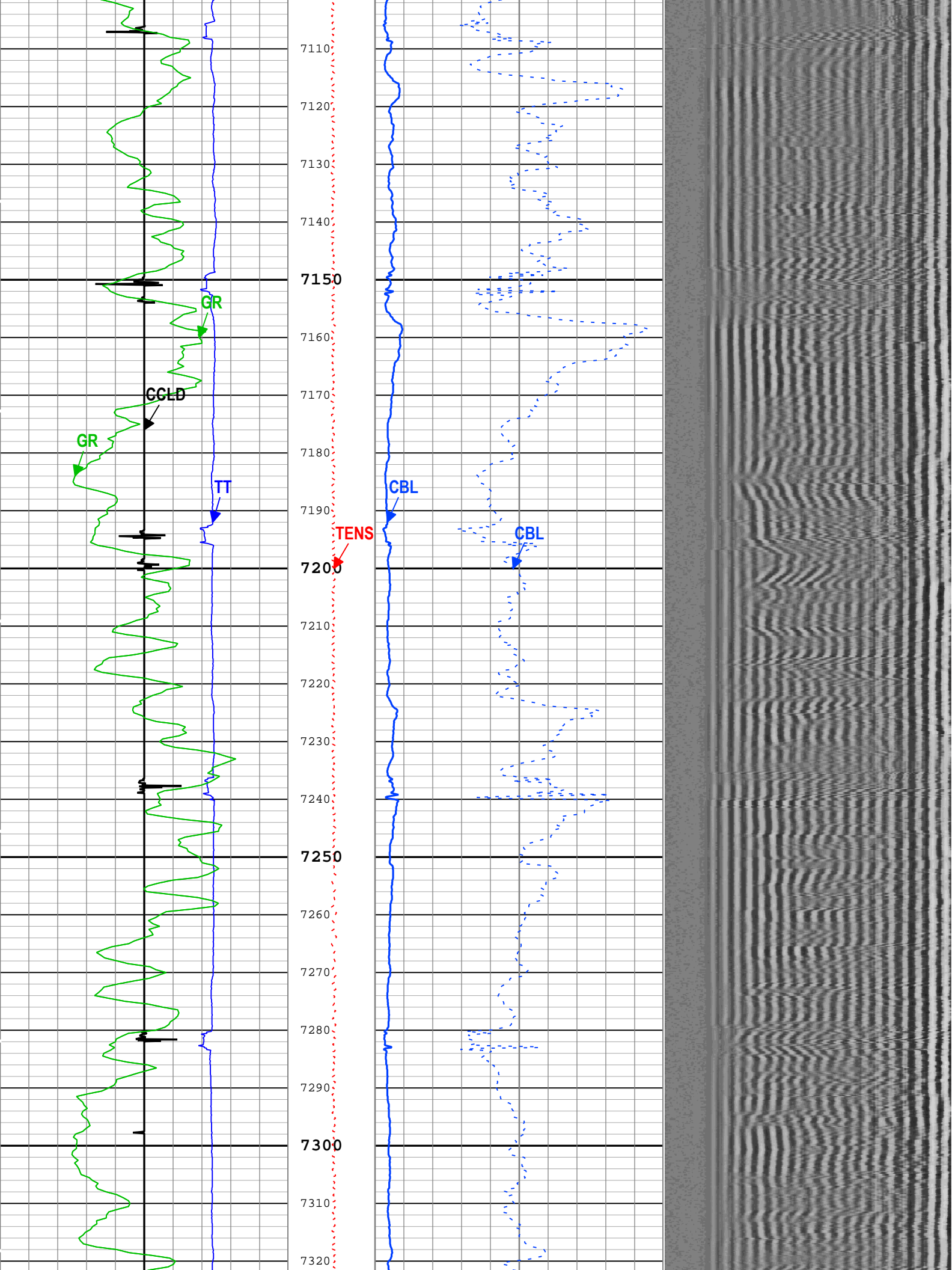


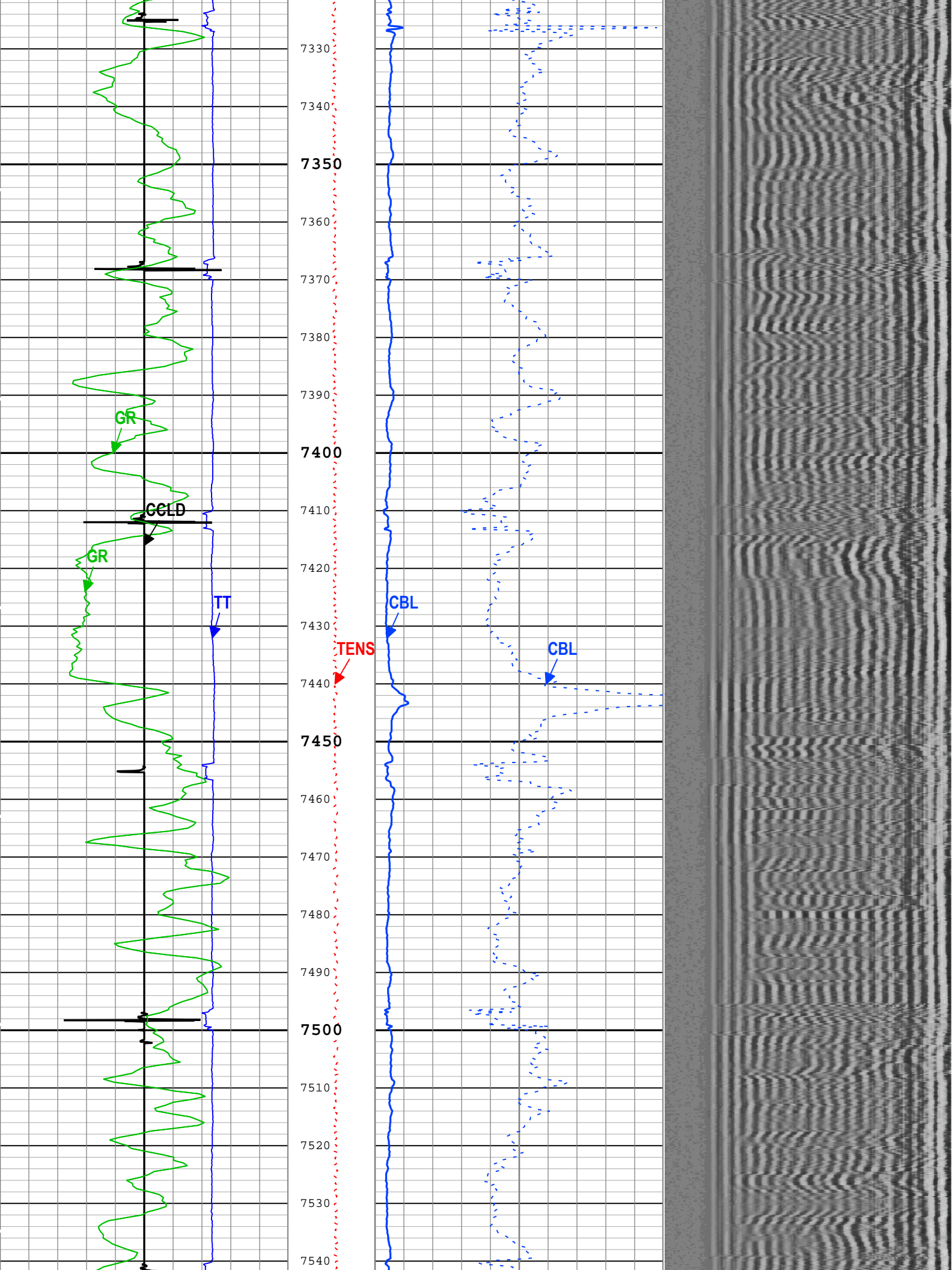


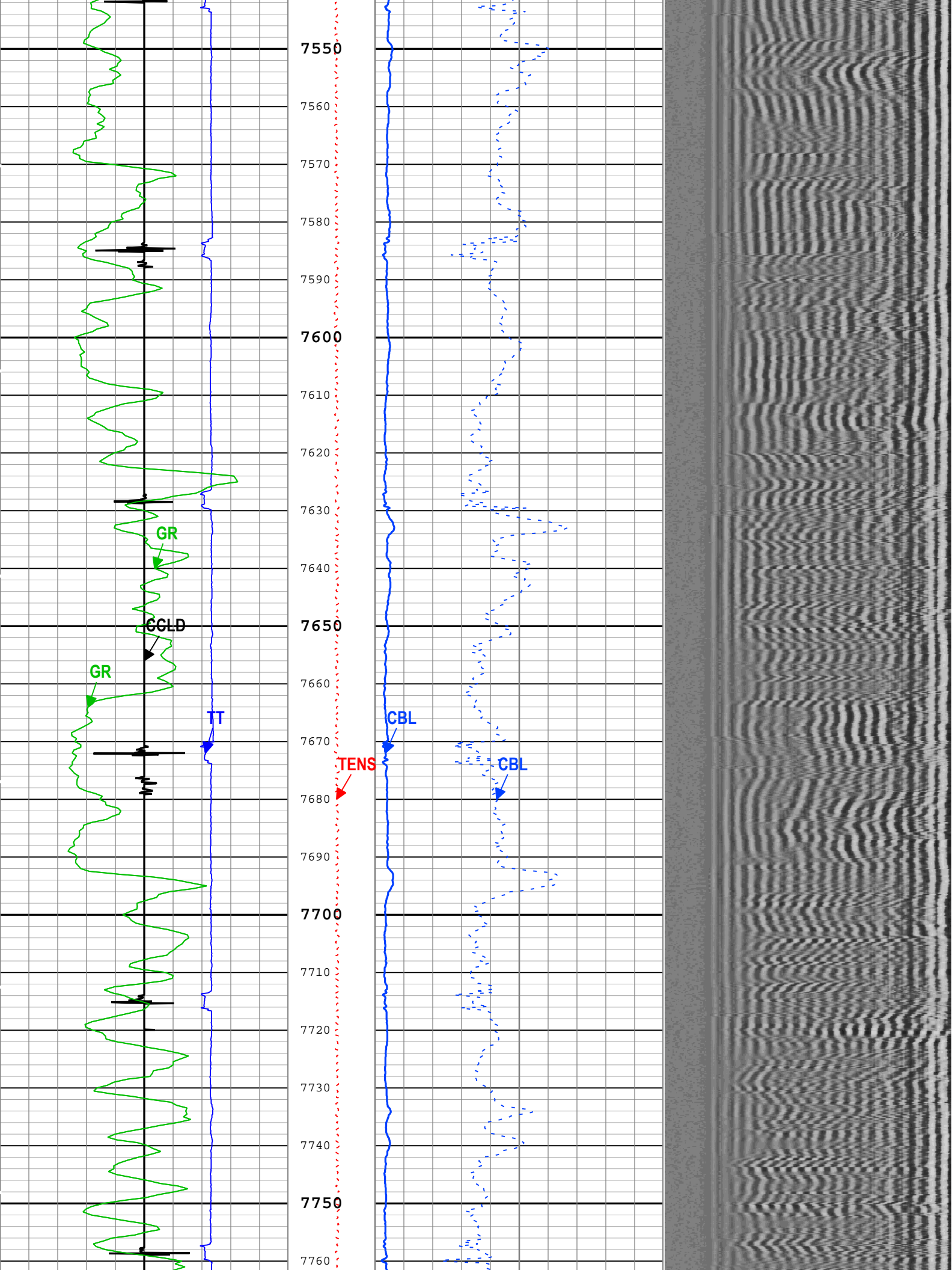


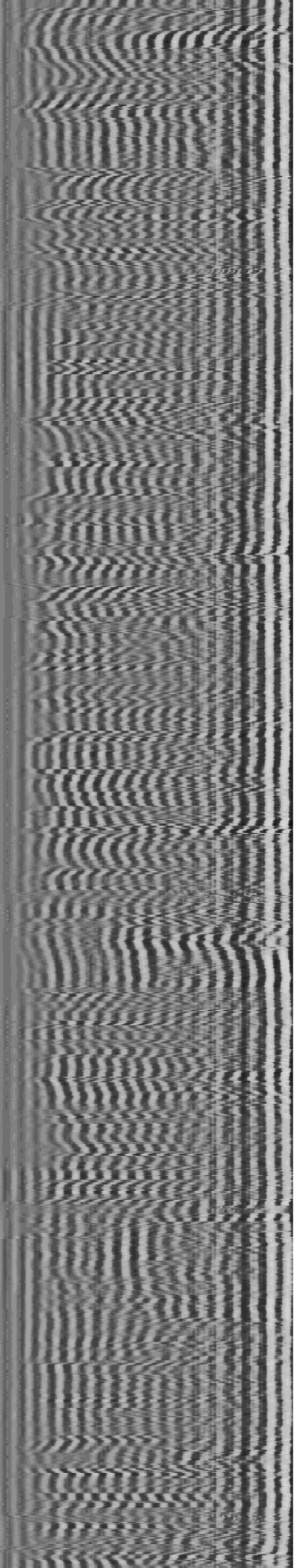
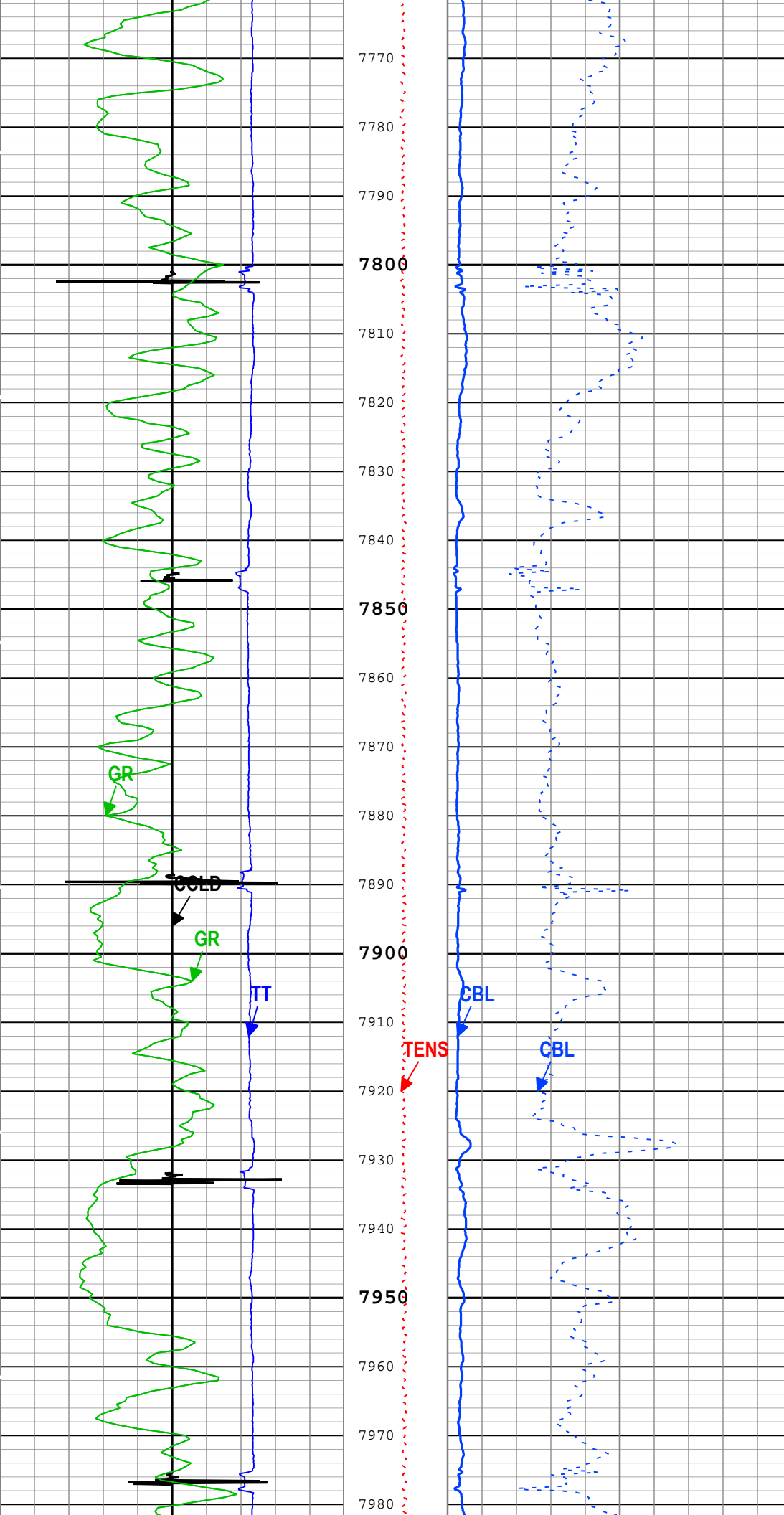


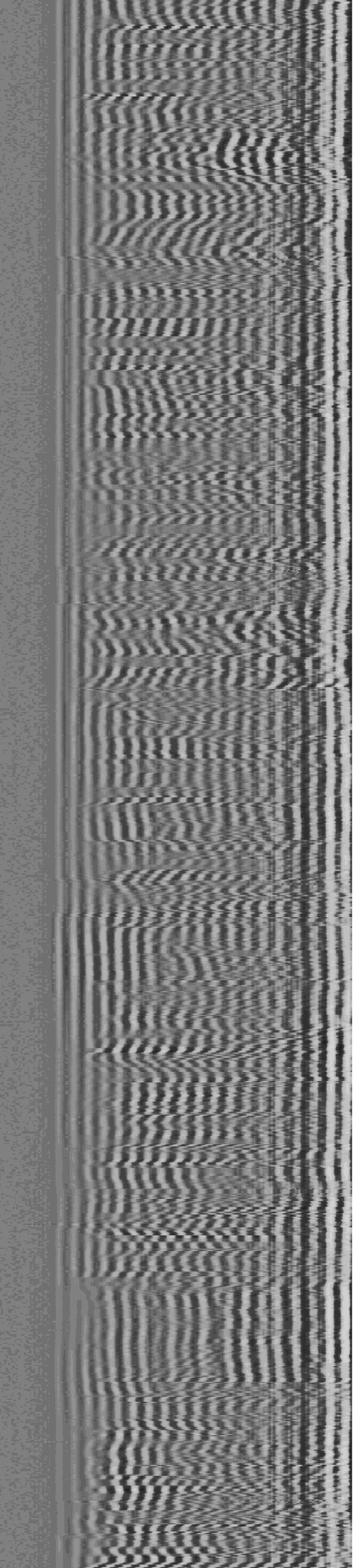
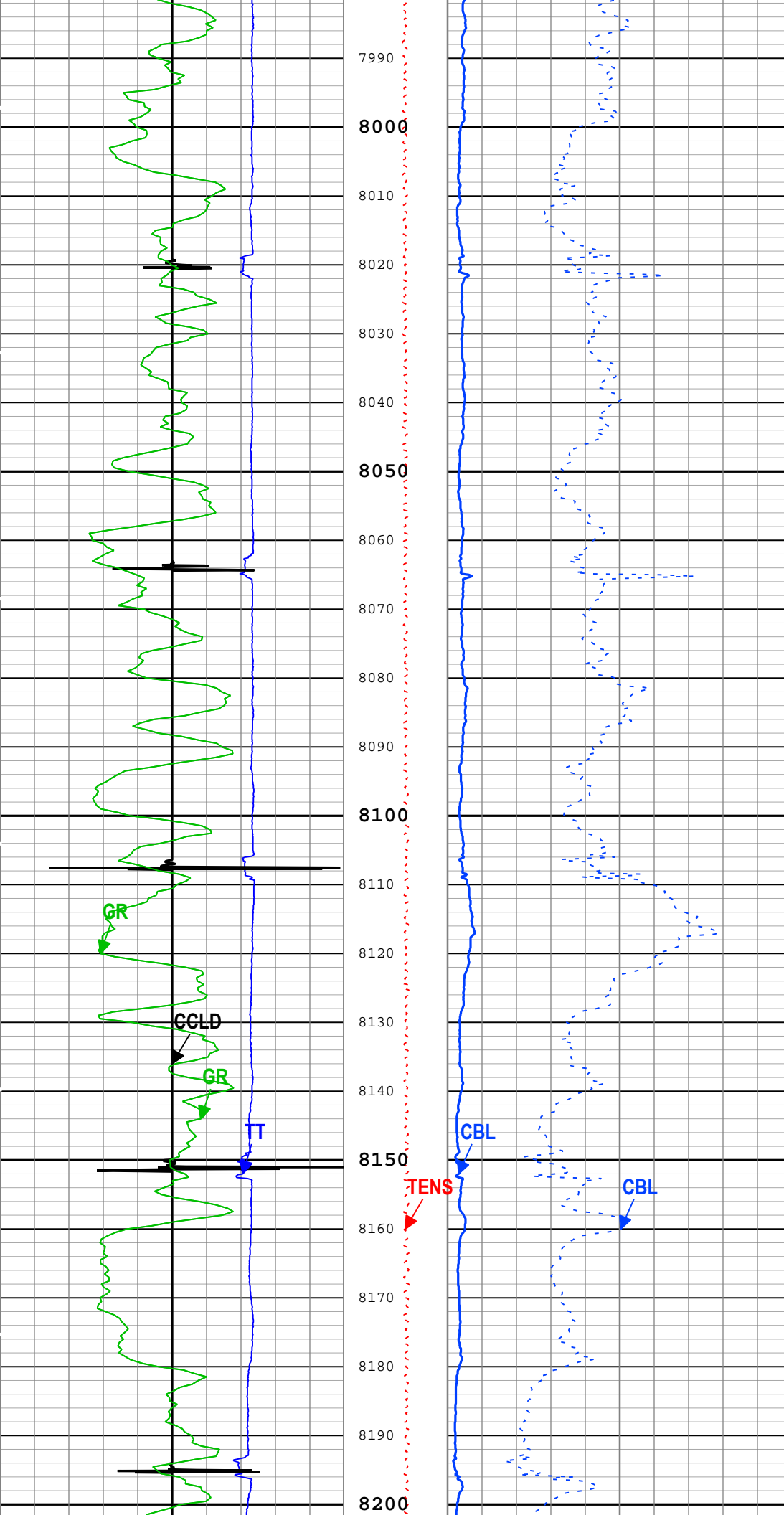


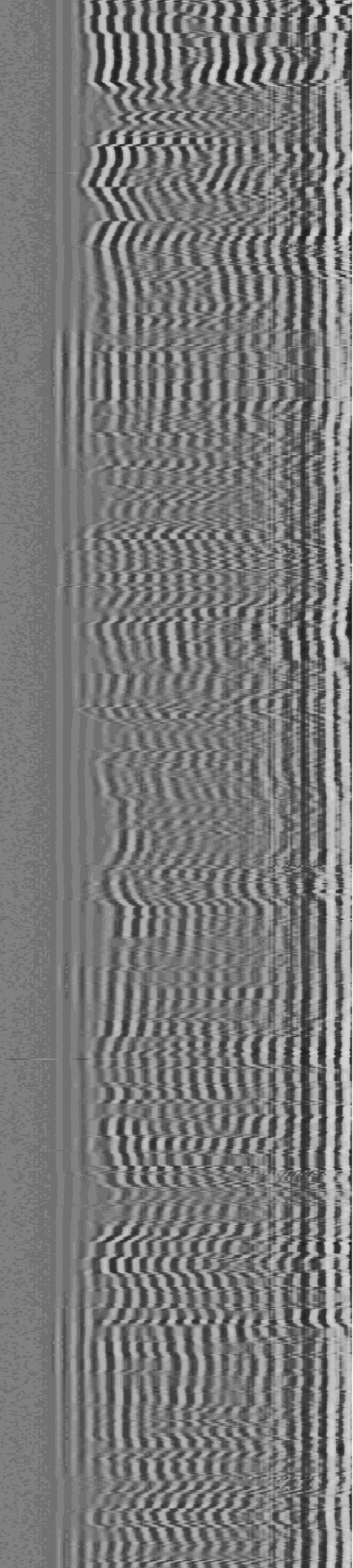
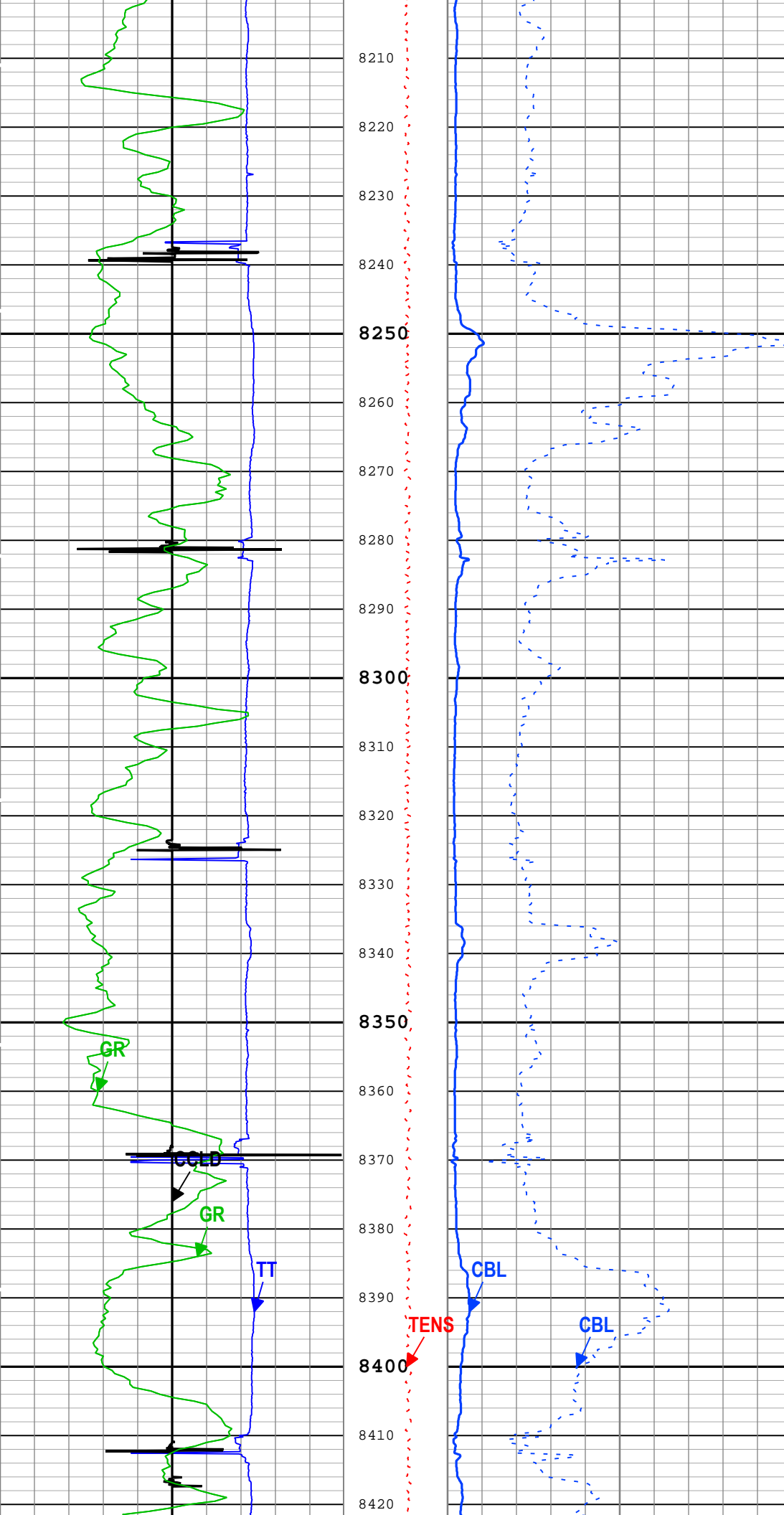


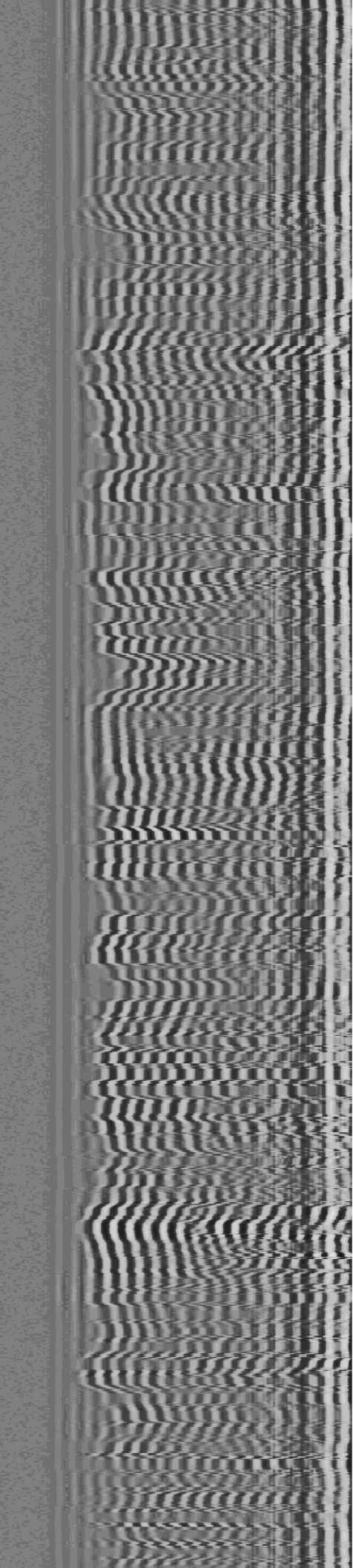
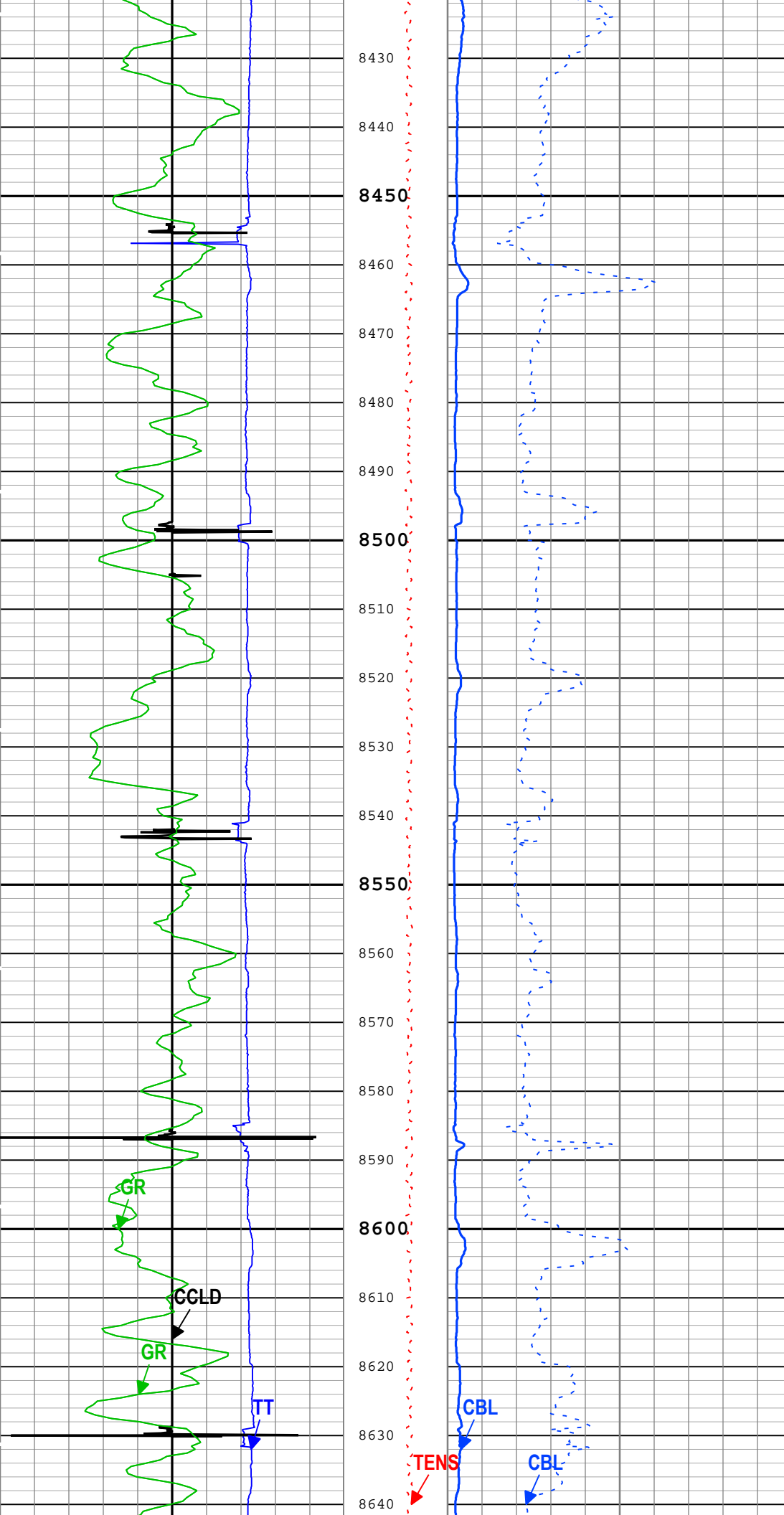


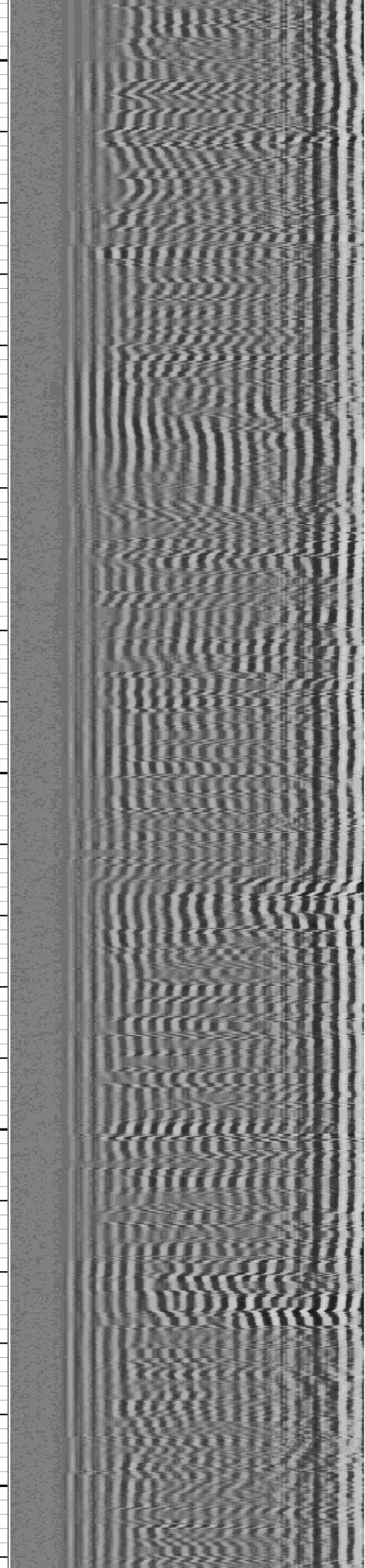
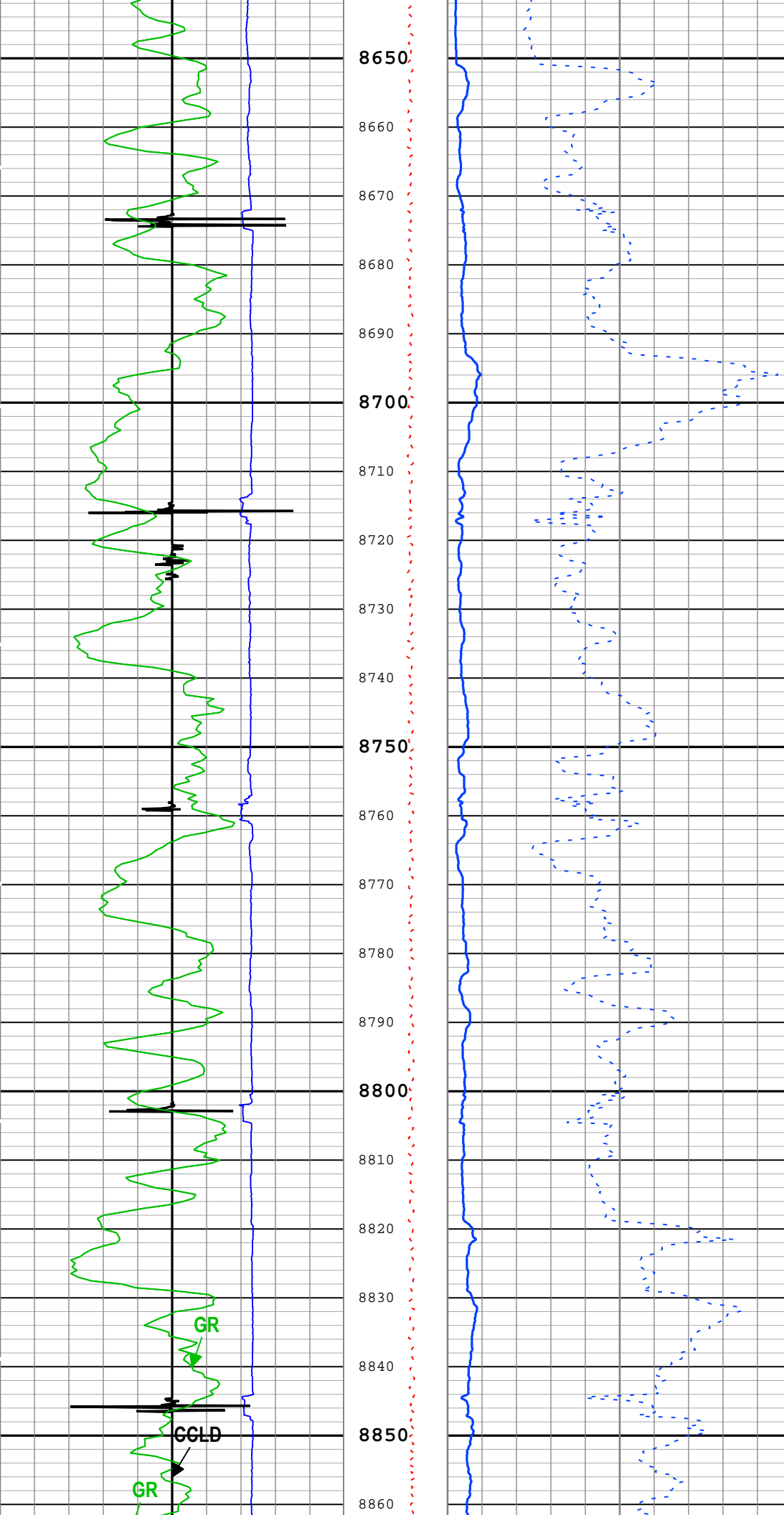


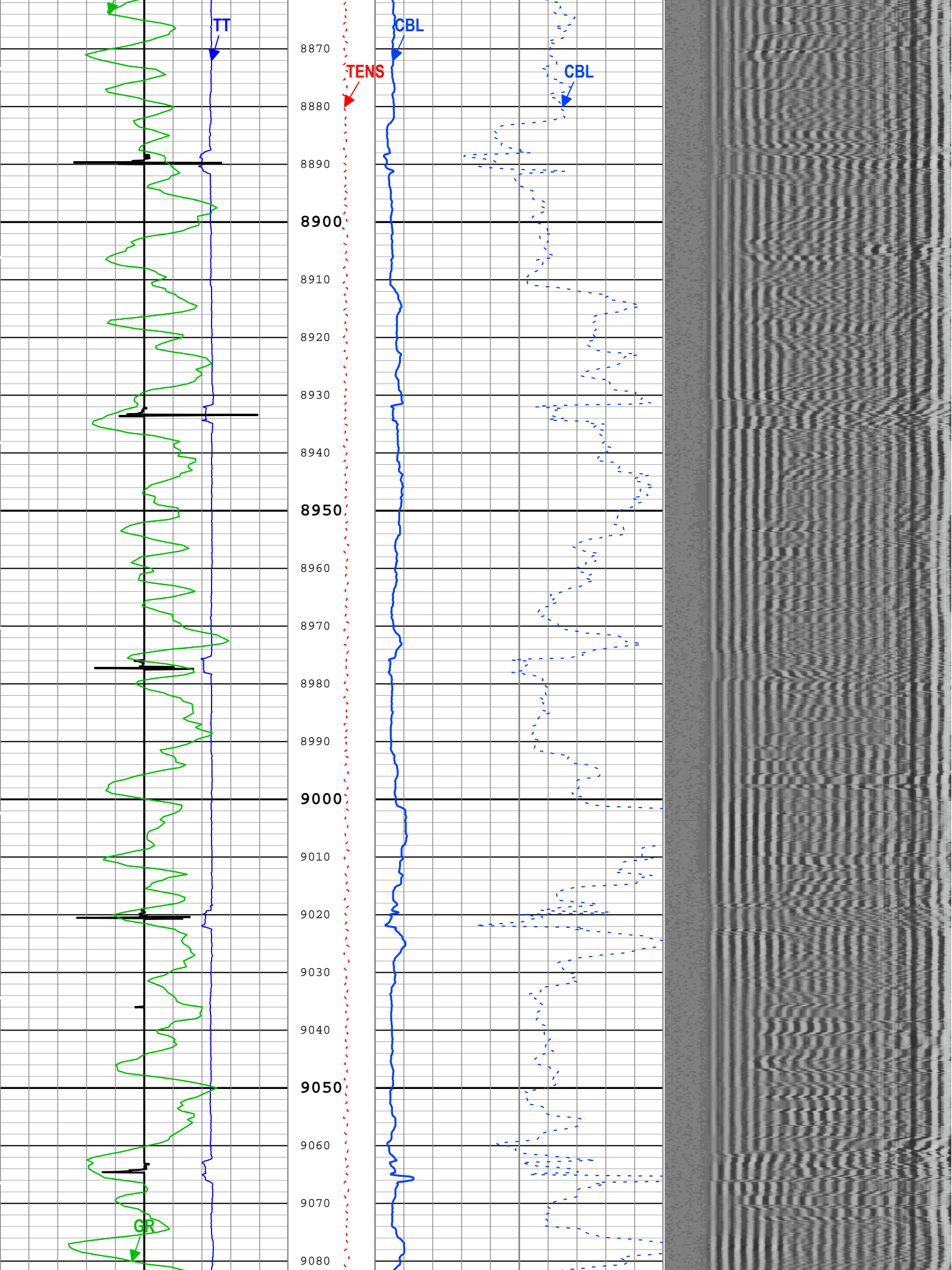


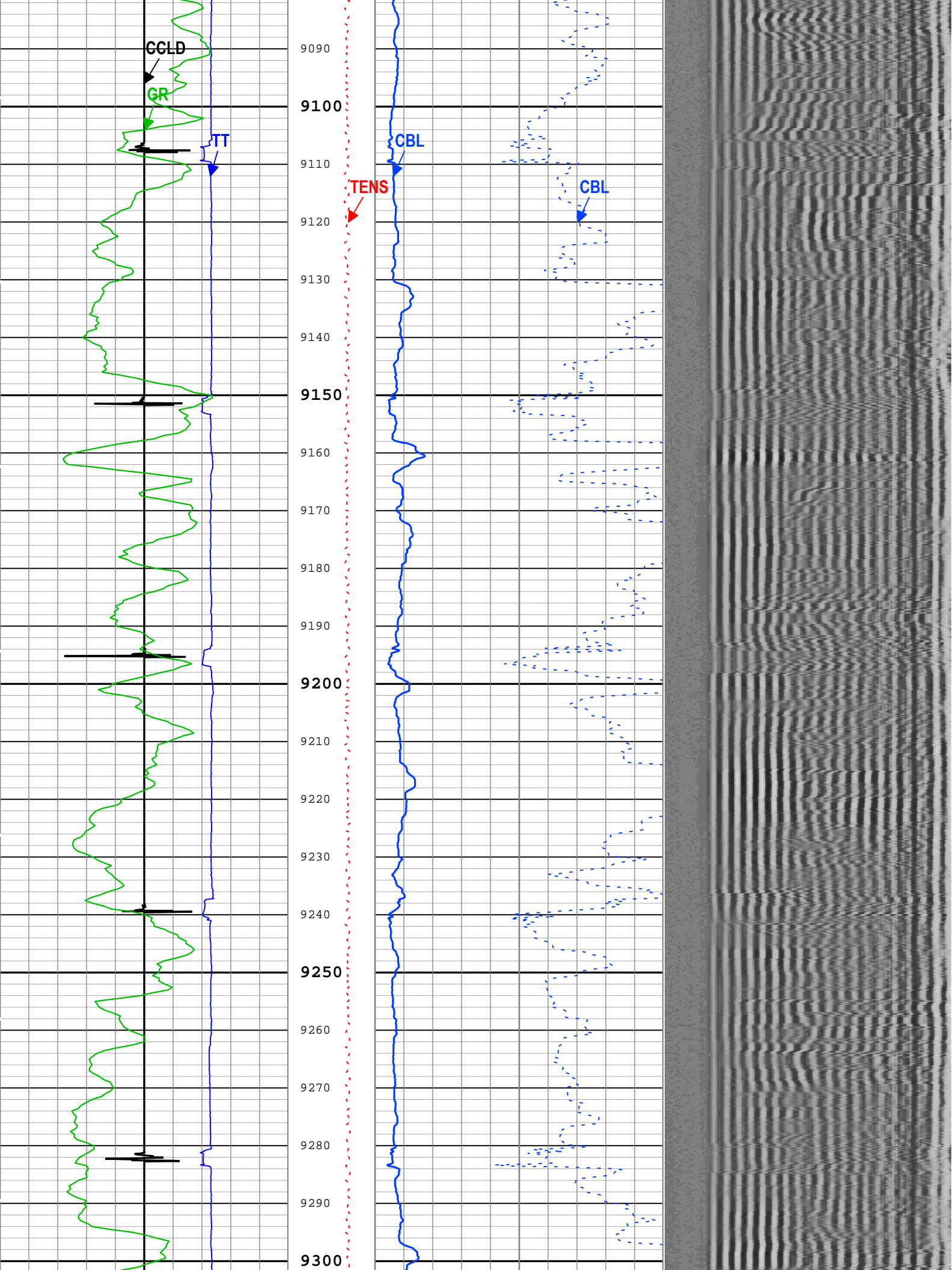


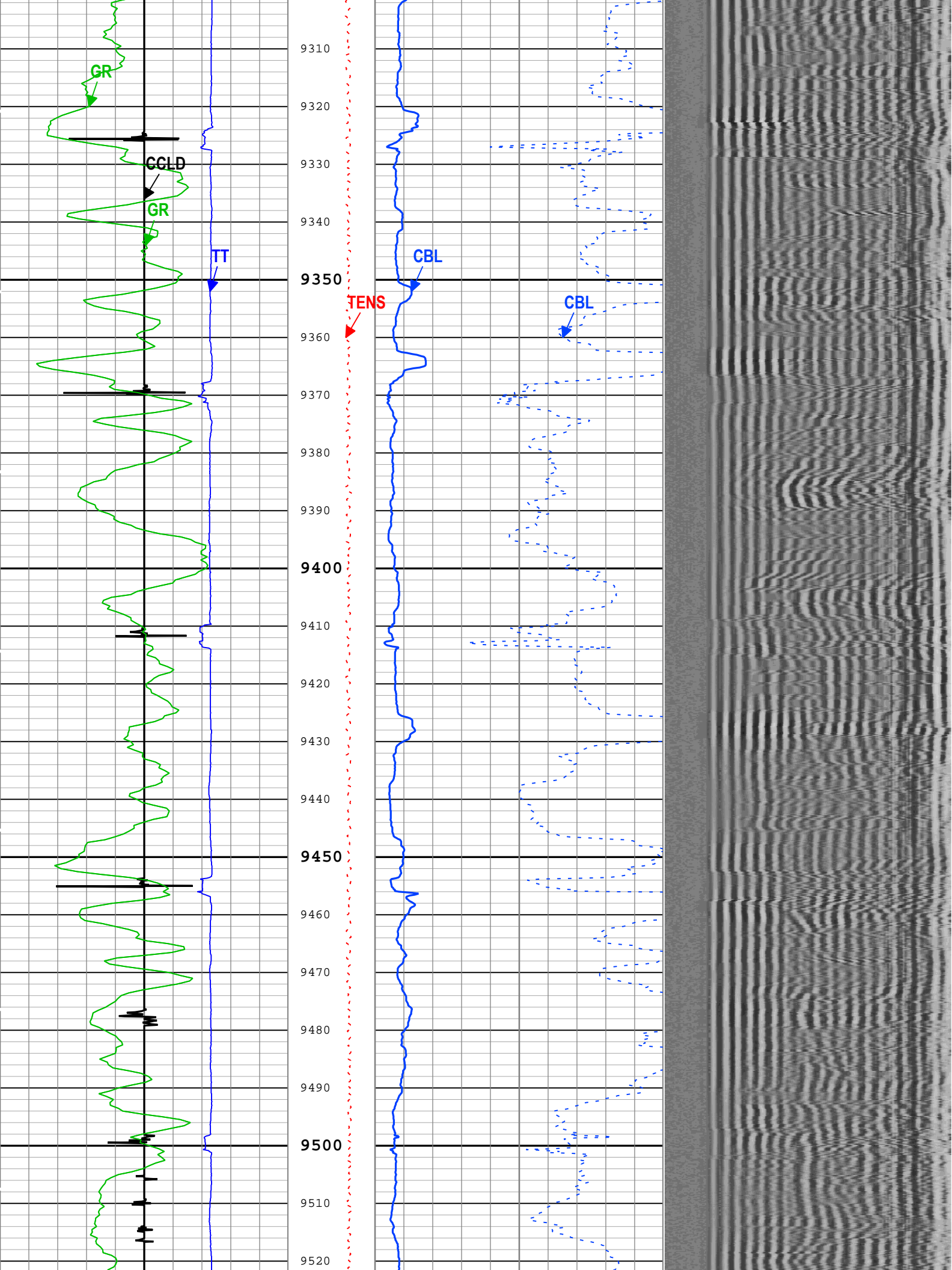


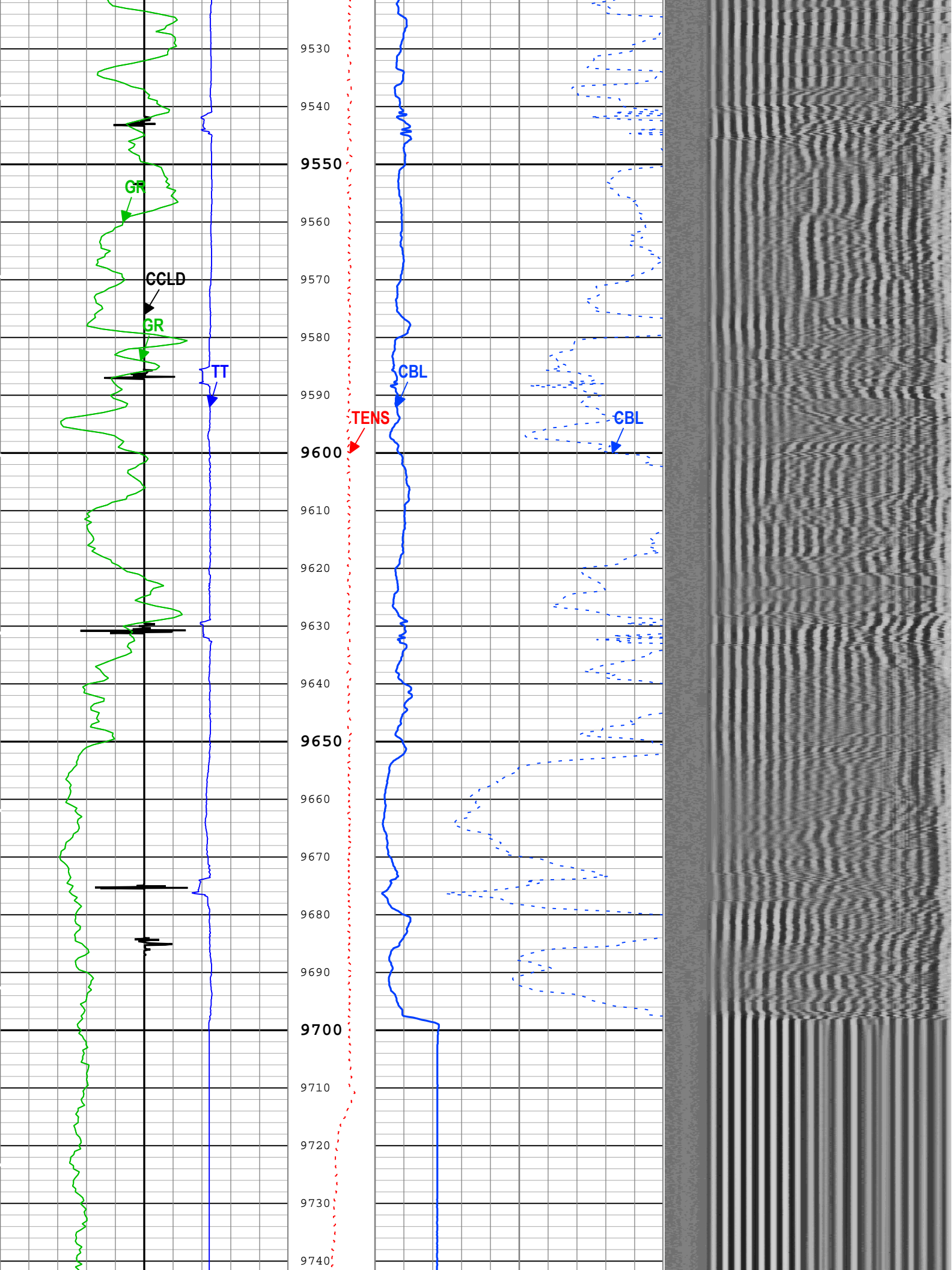


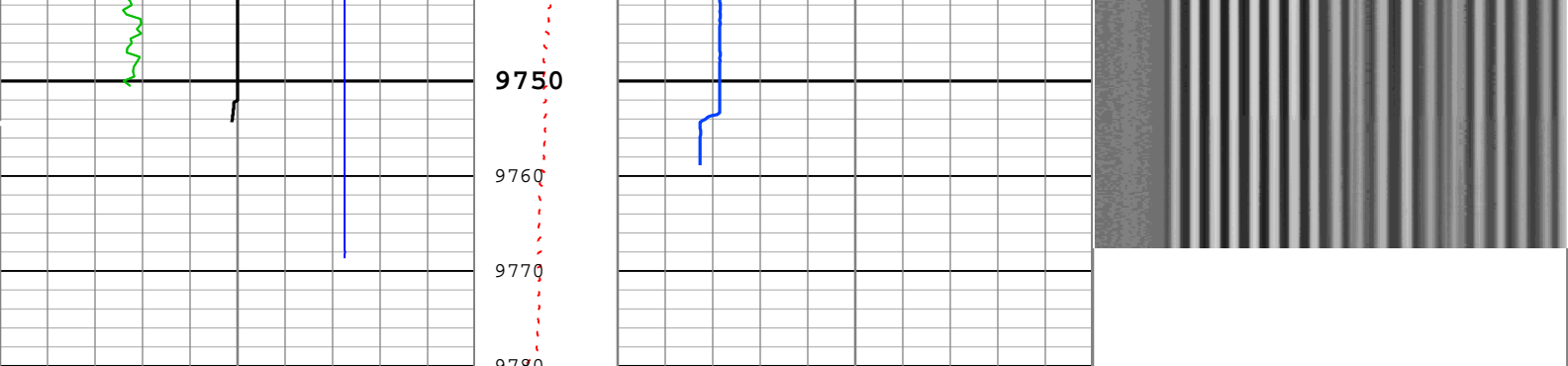












Transit Time for CBL (TT) SCMT-CA		
400	us	200
Gamma Ray (GR) PSTP-B		
0	gAPI	150
CCL Discriminated Amplitude (CCLD) PSTP-B		
-1	V	1
Gamma Ray (GR) PSTP-B		
0	gAPI	150

Cable Tension (TENS)		
0	lbf 2000	
CBL Amplitude (CBL) SCMT-CA		
0	mV	10
CBL Amplitude (CBL) SCMT-CA		
0	mV	100

Min	Amplitude	Max
200	us	1200
VDL VariableDensity (VDL) SCMT-CA		

■ BIEP - Bond Index Event Pips SCMT-CA

TIME_1900 - Time Marked every 60.00 (s)

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: 21-Sep-2018 18:33:16

Channel Processing Parameters

CBL-VDL: 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-CA	224	us
CBLG	CBL Gate Width	SCMT-CA	41	us
CBRA	CBL LQC Reference Amplitude in Free Pipe	SCMT-CA	Depth Zoned	mV
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	24	ft
EPD	Elevation of Permanent Datum (PDAT) above Mean Sea Level	WLSESSION	6709	ft
GGRD	Geothermal Gradient	Borehole	1	0.01 degF/ft
GOBO_CURR	Good Bond in Arbitrary Cement	SCMT-CA	Depth Zoned	mV
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	GTEM_LINEST(RT)	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	SCMT-CA	Depth Zoned	dB/ft
MCI	Minimum Cemented Interval for Isolation	SCMT-CA	Depth Zoned	ft
MSA	Minimum Sonic Amplitude	SCMT-CA	Depth Zoned	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	SCMT-CA	Depth Zoned	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)
CBRA	80	2000	9759
CBRA	0	9759	9780.58
GOBO_CURR	1.4	2000	9759
GOBO_CURR	0	9759	9780.58

GOBO_CURR	0	9759	9780.58
MATT_CURR	16.92	2000	9759
MATT_CURR	0	9759	9780.58
MCI	14.81	2000	2438
MCI	1.25	2438	9759
MCI	0	9759	9780.58
MSA	0.51	2000	9759
MSA	0	9759	9780.58
MSA_CURR	0.51	2000	9759
MSA_CURR	0	9759	9780.58

All depth are actual.

Tool Control Parameters

CBL-VDL: Parameters

Parameter	Description	Tool	Value	Unit
CMTM	SCMT Operating Mode	SCMT-CA	Log	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	1800	ft/h
PCCG	PSP Downhole CCL Gain	PSTP-B	12 dB	

CBL-VDL

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
CBL-VDL	Log[2]:Up	Up	9414.60 ft	9753.23 ft	21-Sep-2018 1:58:07 PM	21-Sep-2018 2:09:32 PM	ON	7.27 ft	No

All depths are referenced to toolstring zero

Log

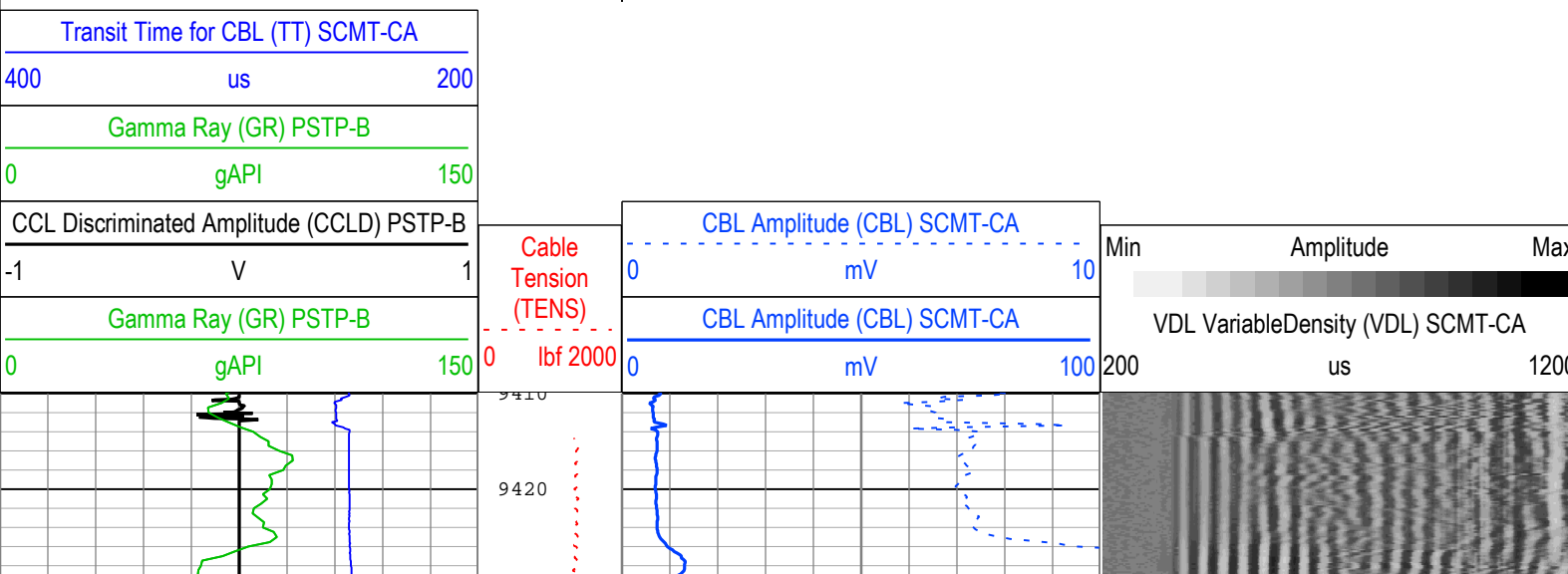
Company:Caerus Operating LLC Well:NPR 24D-10 596

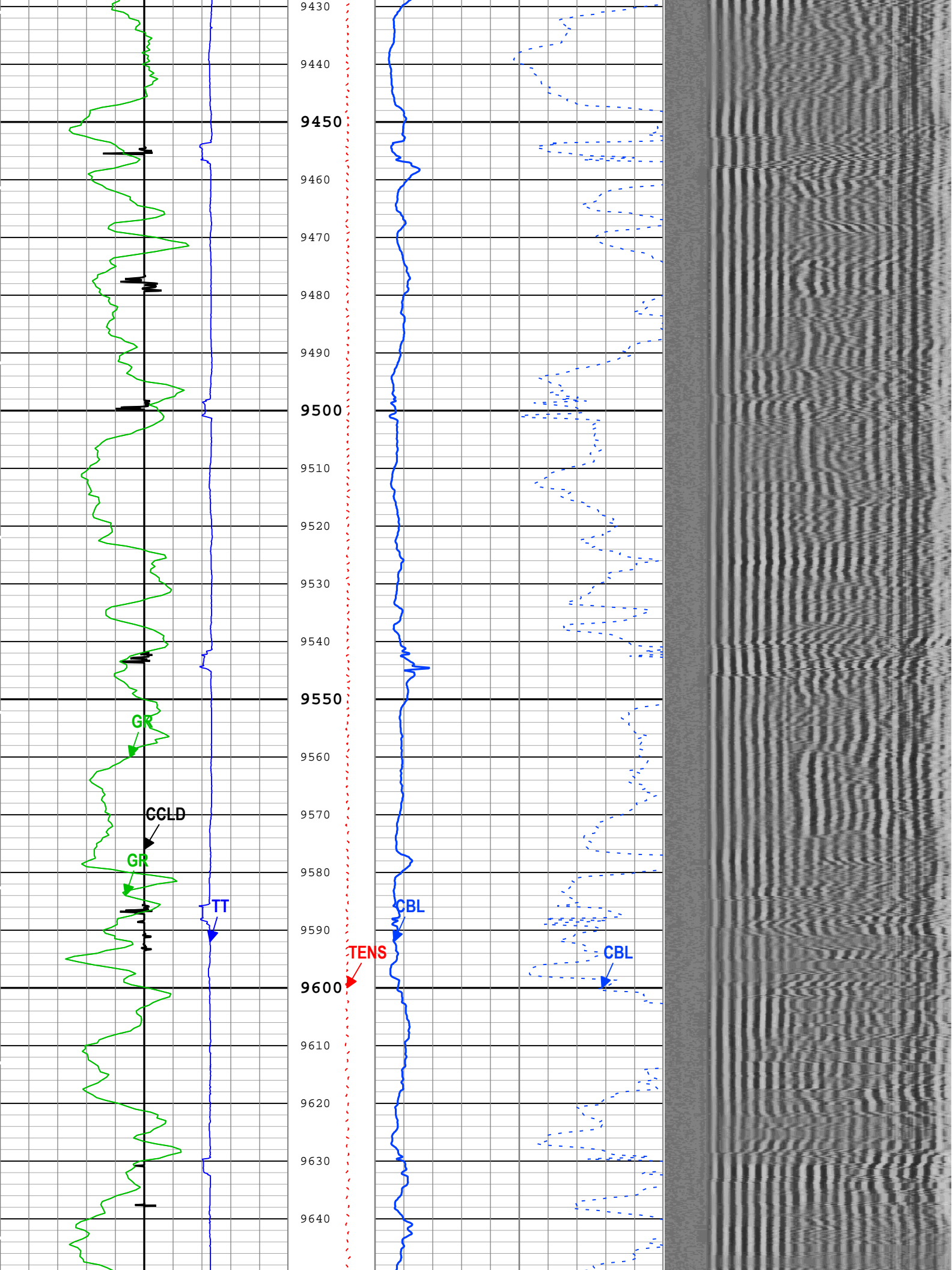
CBL-VDL: Log[2]:Up:S004

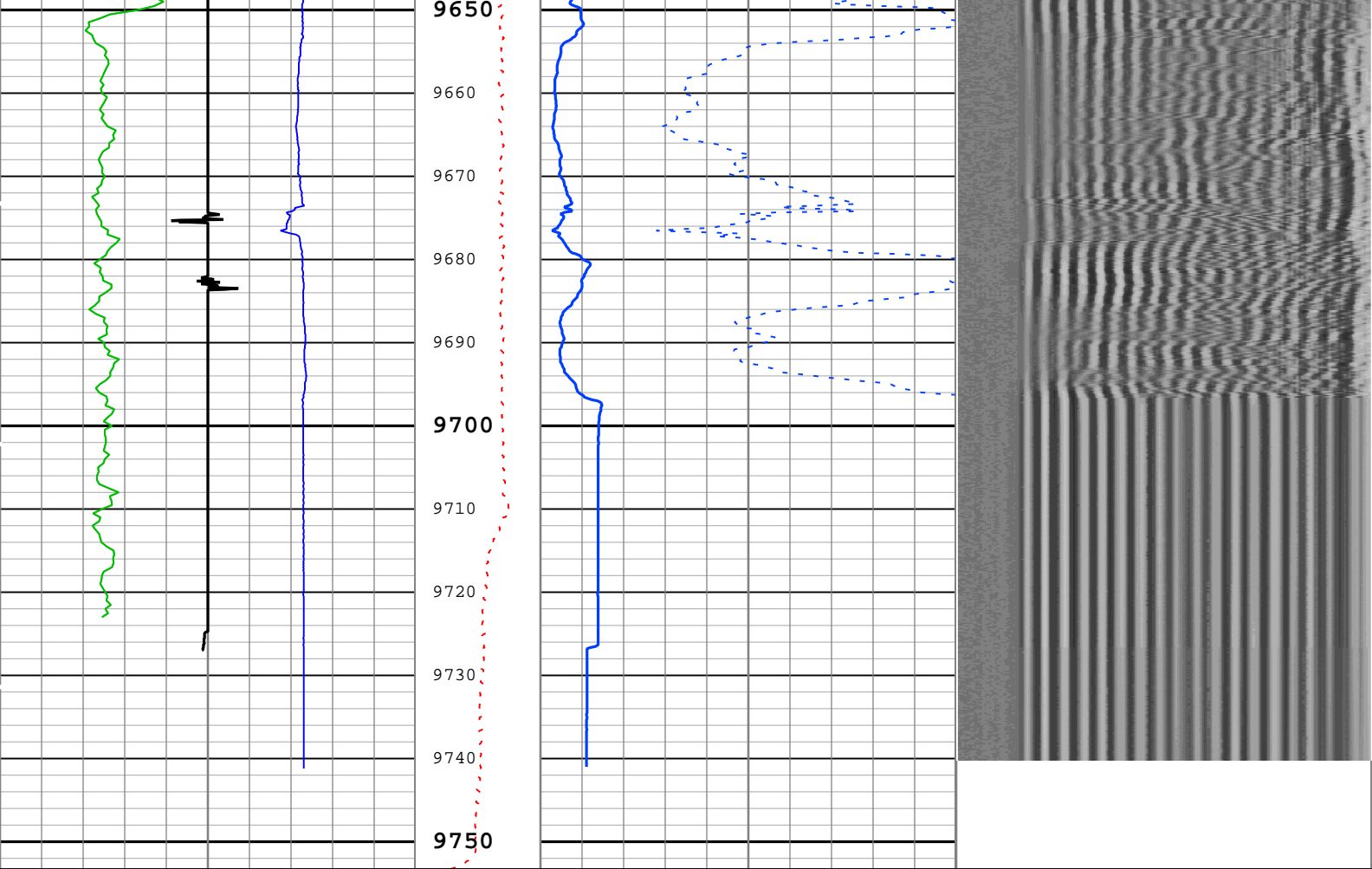
Description: Sonic CBL with VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 21-Sep-2018 18:33:23

TIME_1900 - Time Marked every 60.00 (s)

■ BIEP - Bond Index Event Pips SCMT-CA

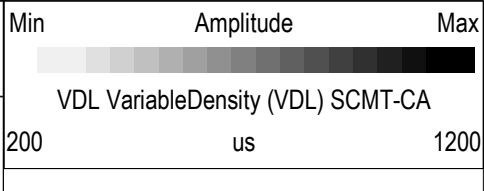






Transit Time for CBL (TT) SCMT-CA		
400	us	200
Gamma Ray (GR) PSTP-B		
0	gAPI	150
CCL Discriminated Amplitude (CCLD) PSTP-B		
-1	V	1
Gamma Ray (GR) PSTP-B		
0	gAPI	150

Cable Tension (TENS)		
0	lbf 2000	10
CBL Amplitude (CBL) SCMT-CA		
0	mV	100



■ BIEP - Bond Index Event Pips SCMT-CA

TIME_1900 - Time Marked every 60.00 (s)

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: 21-Sep-2018 18:33:23

Channel Processing Parameters

CBL-VDL: 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-CA	224	us
CBLG	CBL Gate Width	SCMT-CA	41	us
CBRA	CBL LQC Reference Amplitude in Free Pipe	SCMT-CA	80	mV
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	24	ft
EPD	Elevation of Permanent Datum (PDAT) above Mean Sea Level	WLSESSION	6709	ft
GGRD	Geothermal Gradient	Borehole	1	0.01 degF/ft

GOBO_CURR	Good Bond in Arbitrary Cement	SCMT-CA	1.4	mV
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	GTEM_LINEST(RT)	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	SCMT-CA	16.92	dB/ft
MCI	Minimum Cemented Interval for Isolation	SCMT-CA	1.25	ft
MSA	Minimum Sonic Amplitude	SCMT-CA	0.51	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	SCMT-CA	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

CBL-VDL: Parameters

Parameter	Description	Tool	Value	Unit
CMTM	SCMT Operating Mode	SCMT-CA	Log	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	1800	ft/h
PCCG	PSP Downhole CCL Gain	PSTP-B	12 dB	

Company: Caerus Operating LLC

Schlumberger

Well: NPR 24D-10 596

Field: NPR

County: Garfield

State: Colorado

Cement Bond Log

Gamma Ray- Collar Locator Log