

Company: Caerus Operating LLC

Well: NPR 13B-10 596

Field: NPR

County: Garfield State: Colorado

Cement Bond Log

RST Sigma Log

Gamma Ray - Collar Locator Log

Location: K10-596
Well: NPR 13B-10 596
Company: Caerus Operating LLC

Location: K10-596		Elev.: K.B. 6733.00 ft	
Permanent Datum: Log Measured From: Kelly Bushing		G.L. 6709.00 ft	
Drilling Measured From: Kelly Bushing		D.F. 6733.00 ft	
API Serial No. 05045237660000	Section: 10	Township: 5S	Range: 96W

Logging Date: 06-Sep-2018

Run Number: ONE

Depth Driller: 9547.00 ft

Schlumberger Depth: 9484.50 ft

Bottom Log Interval: 9484.50 ft

Top Log Interval: 2300.00 ft

Casing Fluid Type: Water

Salinity: Water

Density: 8.5 lbm/gal

Fluid Level: 8.00 ft

BIT/CASING/TUBING STRING

Bit Size: 8.75 in

From: 2400.00 ft

To: 9547.00 ft

Casing/Tubing Size: 4.5 in

Weight: 11.6 lbm/ft

Grade: P110

From: 0.00 ft

To: 9547.00 ft

Max Recorded Temperatures: 272.02 degF

Logger on Bottom: 06-Sep-2018

Unit Number: 3108

Recorded By: Justin Ray

Witnessed By: Trent Ray

Time: 10:40:00

Location: Evanson, WY

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	10.5 Parameter Listing
2. Disclaimer	11. ONE RST Sigma Repeat Pass
3. Contents	11.1 Integration Summary
4. Well Sketch	11.2 Software Version
5. Borehole Size/Casing/Tubing Record	11.3 Composite Summary
6. Remarks and Equipment Summary	11.4 Log (RST SIGMA Answer)
7. Depth Summary	11.5 Parameter Listing
8. Main Pass CBL-VDL Main Pass	12. Tail
8.1 Integration Summary	
8.2 Software Version	
8.3 Composite Summary	
8.4 Log (Sonic CBL with VDL)	
8.5 Parameter Listing	
9. ONE 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. Main Pass RST Sigma Main Pass

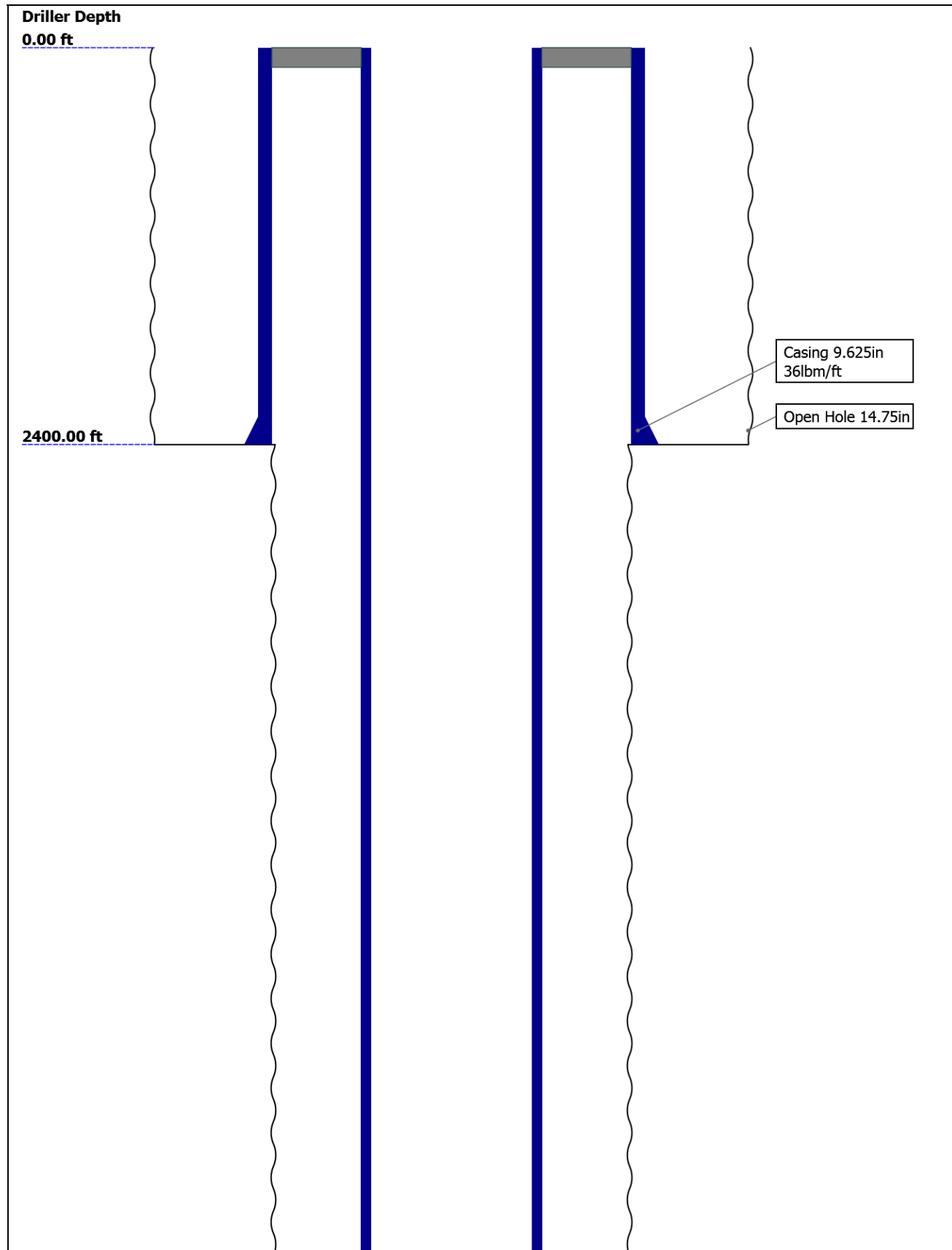
10.1 Integration Summary

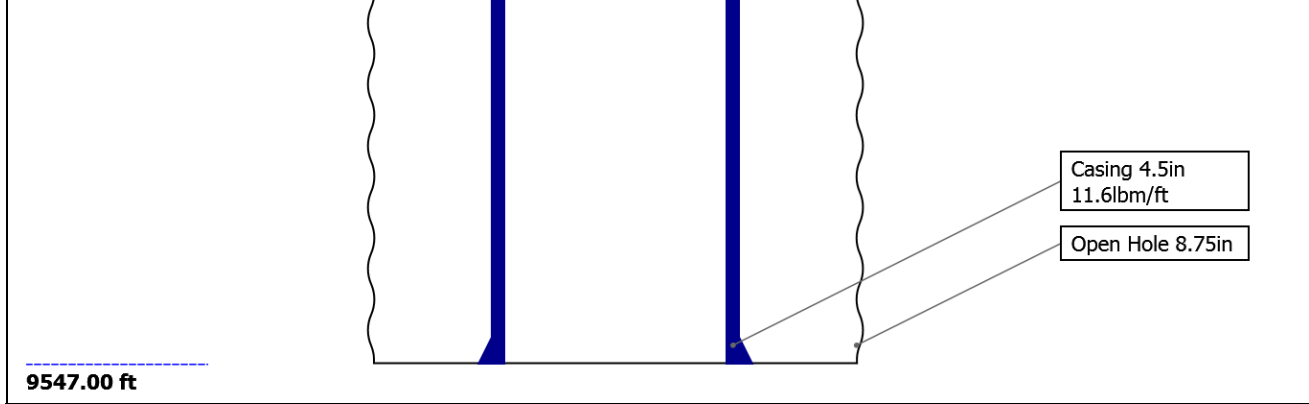
10.2 Software Version

10.3 Composite Summary

10.4 Log (RST SIGMA Answer)

Well Sketch





Borehole Size/Casing/Tubing Record

Bit					
Bit Size (in)	14.75	8.75			
Top Driller (ft)	0	2400			
Top Logger (ft)	0	2400			
Bottom Driller (ft)	2400	9547			
Bottom Logger (ft)	2400	9547			
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)	2400	9547			
Bottom Logger (ft)	2400	9547			

Remarks and Equipment Summary

ONE: Toolstring				ONE: Remarks
Equip name	Length	MP name	Offset	Tool string ran as per tool sketch
PEH-E	53.4			RST Mode: SIGMA
				Matrix: Sandstone
AH-38	51.72			Max Recorded Temp: 272.02 Deg F
PSTP-A:378	51.44			Schlumberger Depth: 9484.5 FT
1		GR	47.74	Thank you for choosing Schlumberger
PSC-A:3781		PSTC	47.44	
PSTC-A:3781		PSTC Tool	0.00	
PBMS-A:3781		String Bot		
Sapphire 10kP		tom		
SI		Temperatu	44.65	
		re		
		Sapphire P	44.54	
		ressure		
		CCL	43.92	
		PBMS	43.17	
RST-C:296	43.17			
RSCH-A:530				
RSC-E:544				
RSS-A:222				
MNTR-F:1356				
-50031				
RSXH-A:288				
RSX-E:296				
		RSC-E	36.82	



SCMT-CB:82 20.15
37
 SECH-CA:814
 9
 SCMC-CA:815
 0
 CMIR-AG
 SCMS-CB:823
 7
 SCMx-CA:c81
 49

BNS-P 0.14

Lengths are in ft
 Maximum Outer Diameter = 1.720 in
 Line: Sensor Location, Value: Gating Offset
 All measurements are relative to TOOL_ZERO

Depth Summary

	ONE		
Depth Measuring Device			
Type	IDW-B		
Serial Number	6693		
Calibration Date	02-Feb-2018		

Calibrator Serial Number	JA		
Calibration Cable Type	IDWC-C-57		
Wheel Correction 1	-4		
Wheel Correction 2	-4		

Tension Device

Type	CMTD-B/A		
Serial Number	1127		
Calibration Date	25-Jul-2018		
Calibrator Serial Number	112544		
Number of Calibration Points	10		
Calibration Root Mean Square Error	1320		
Calibration Peak Error	25		

Logging Cable

Type	1-25ZA-XXS		
Serial Number	F112140		
Length	17500.00 ft		
Conveyance Type	Wireline		
Rig Type	MAST		

ONE:Depth Control Parameters

Log Sequence	First Log In the Well	Depth Control Remarks
Rig Up Length At Surface		All Schlumberger depth control procedures followed
Rig Up Length At Bottom		IDW used as primary depth control device
Rig Up Length Correction		Z-Chart used as secondary depth control device
Stretch Correction	4.04 ft	Log correlated to down log
Tool Zero Check At Surface	24.00 ft	

Main Pass

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

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[6]:Up	Up	4351.54 ft	9503.45 ft	06-Sep-2018 10:20:59 AM	06-Sep-2018 1:17:56 PM	ON	5.64 ft	No
ONE	Log[8]:Up	Up	2211.46 ft	4706.18 ft	06-Sep-2018 1:39:31 PM	06-Sep-2018 3:00:34 PM	ON	5.45 ft	No

All depths are referenced to toolstring zero

Log

Company:Caerus Operating LLC Well:NPR 13B-10 596

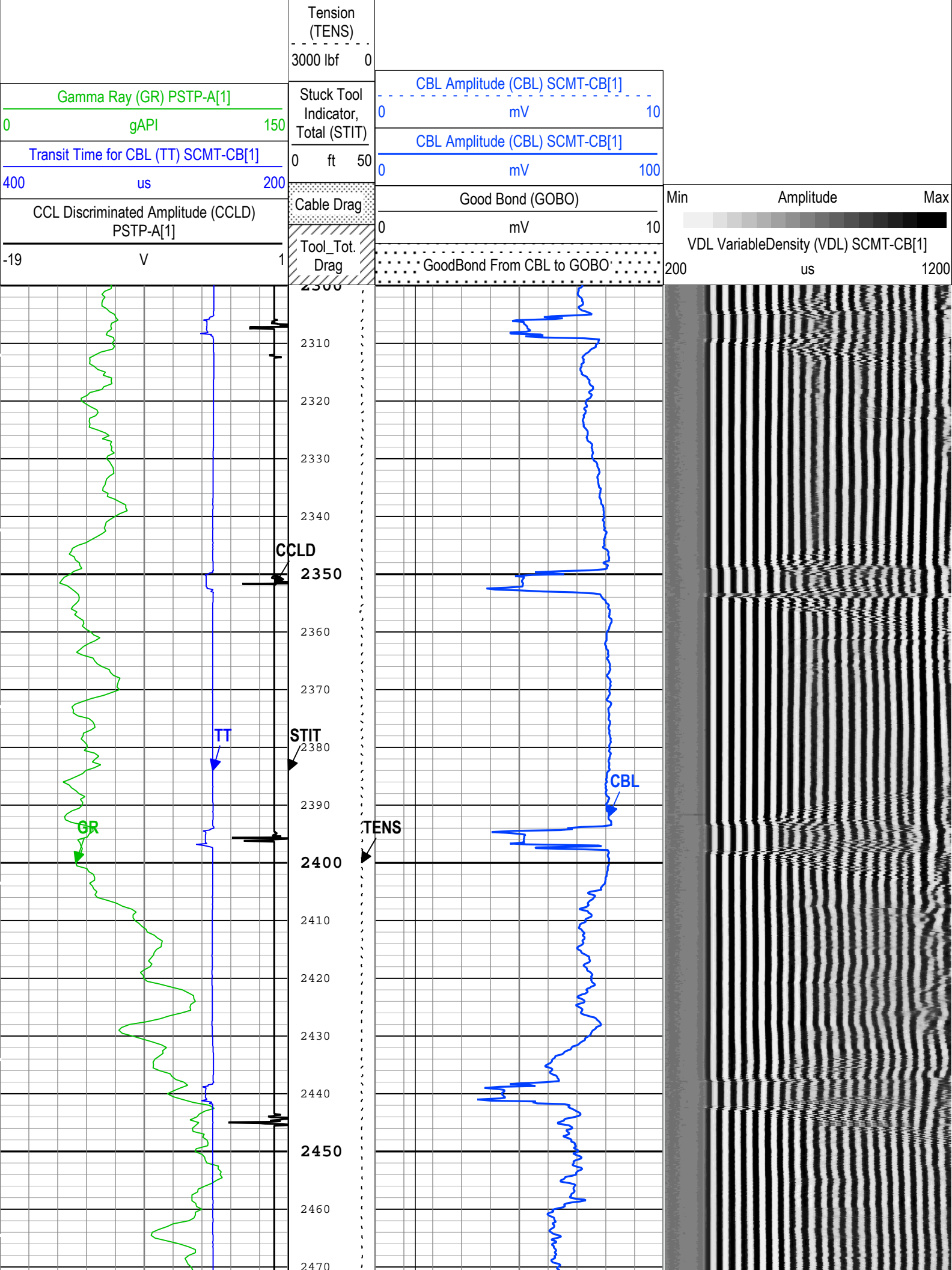
Main Pass:S008

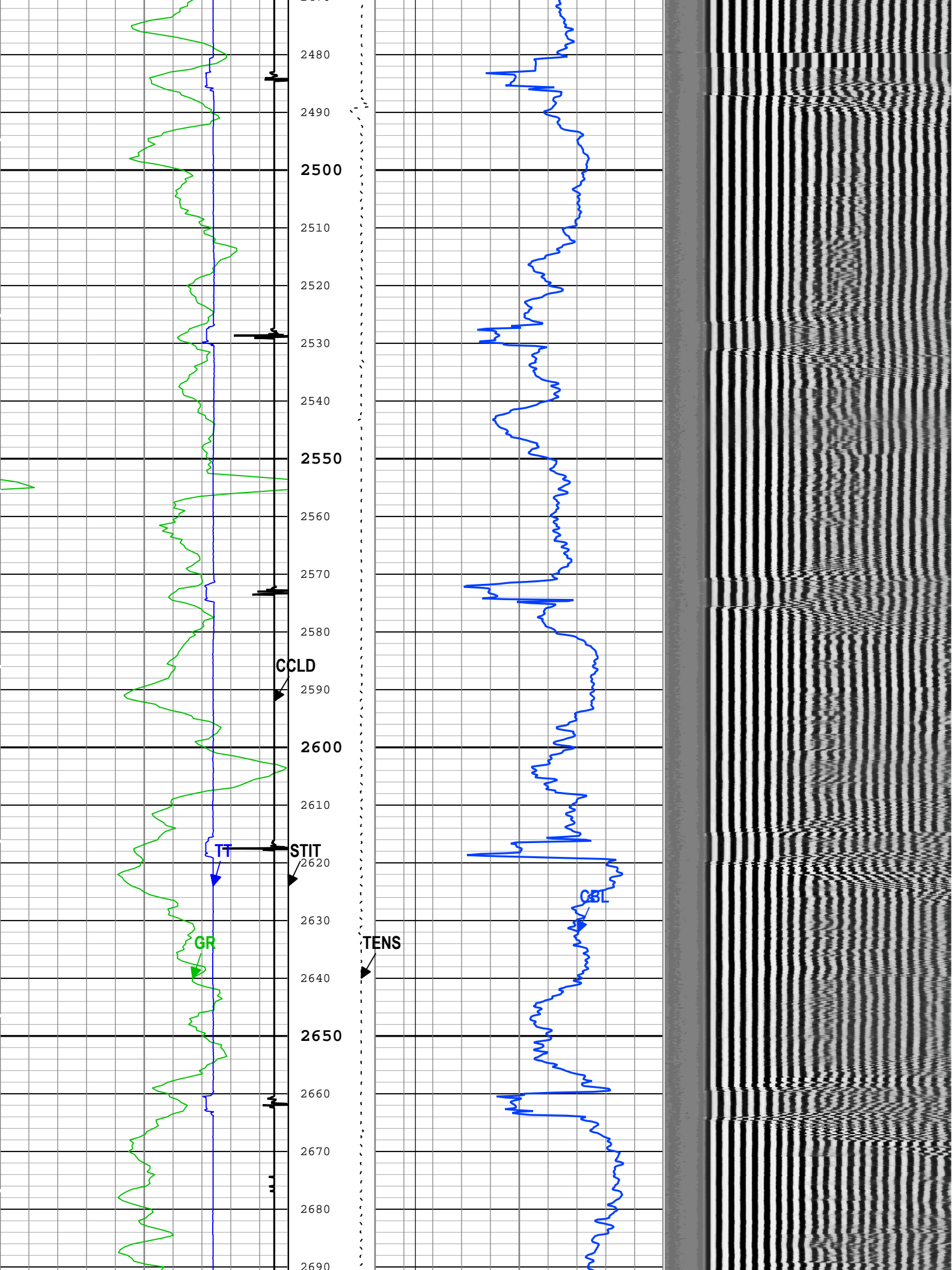
Description: Sonic CBL with VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 06-Sep-2018 15:25:15

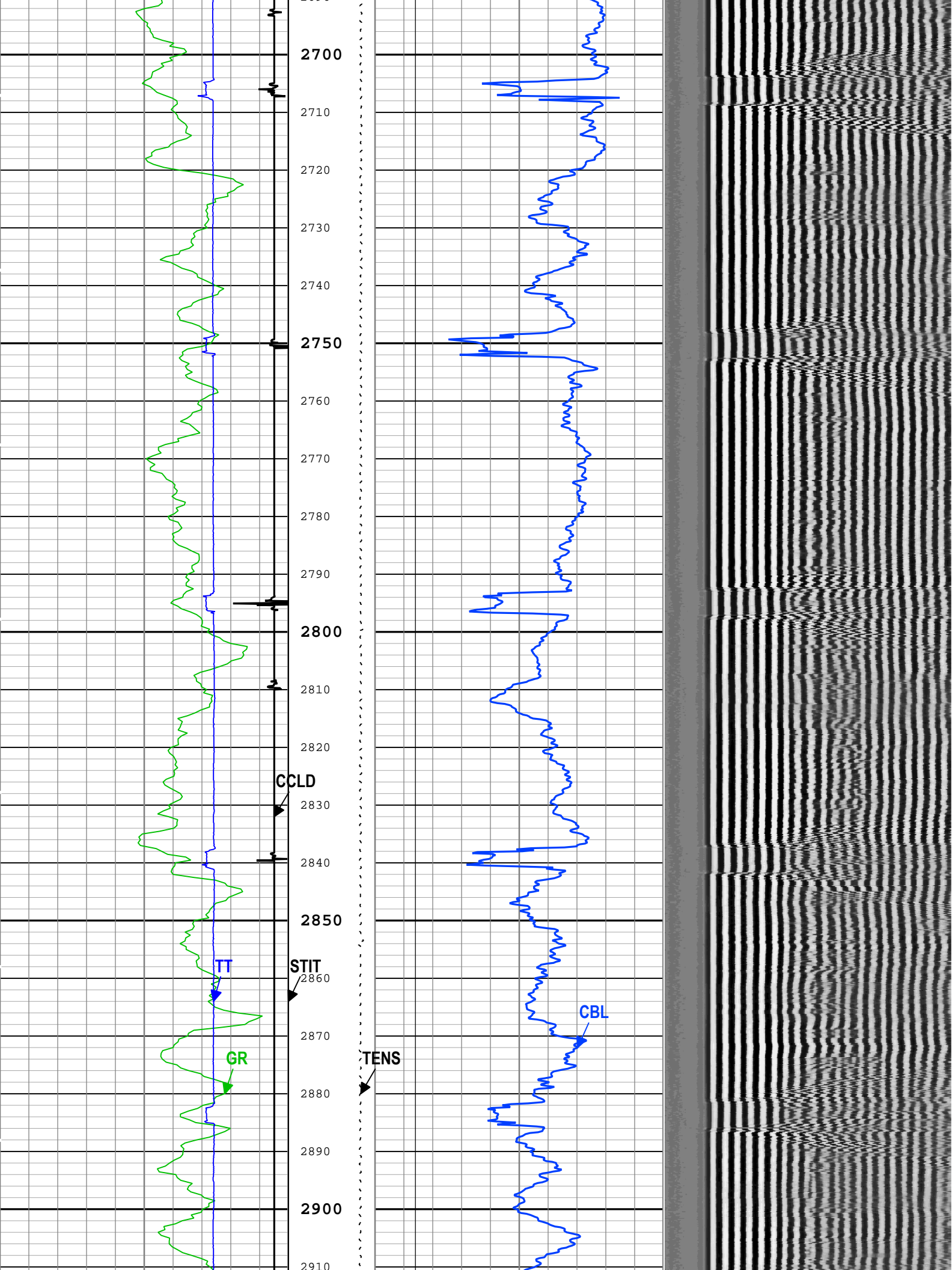
■ BIEP - Bond Index Event Pips SCMT-CB[1]

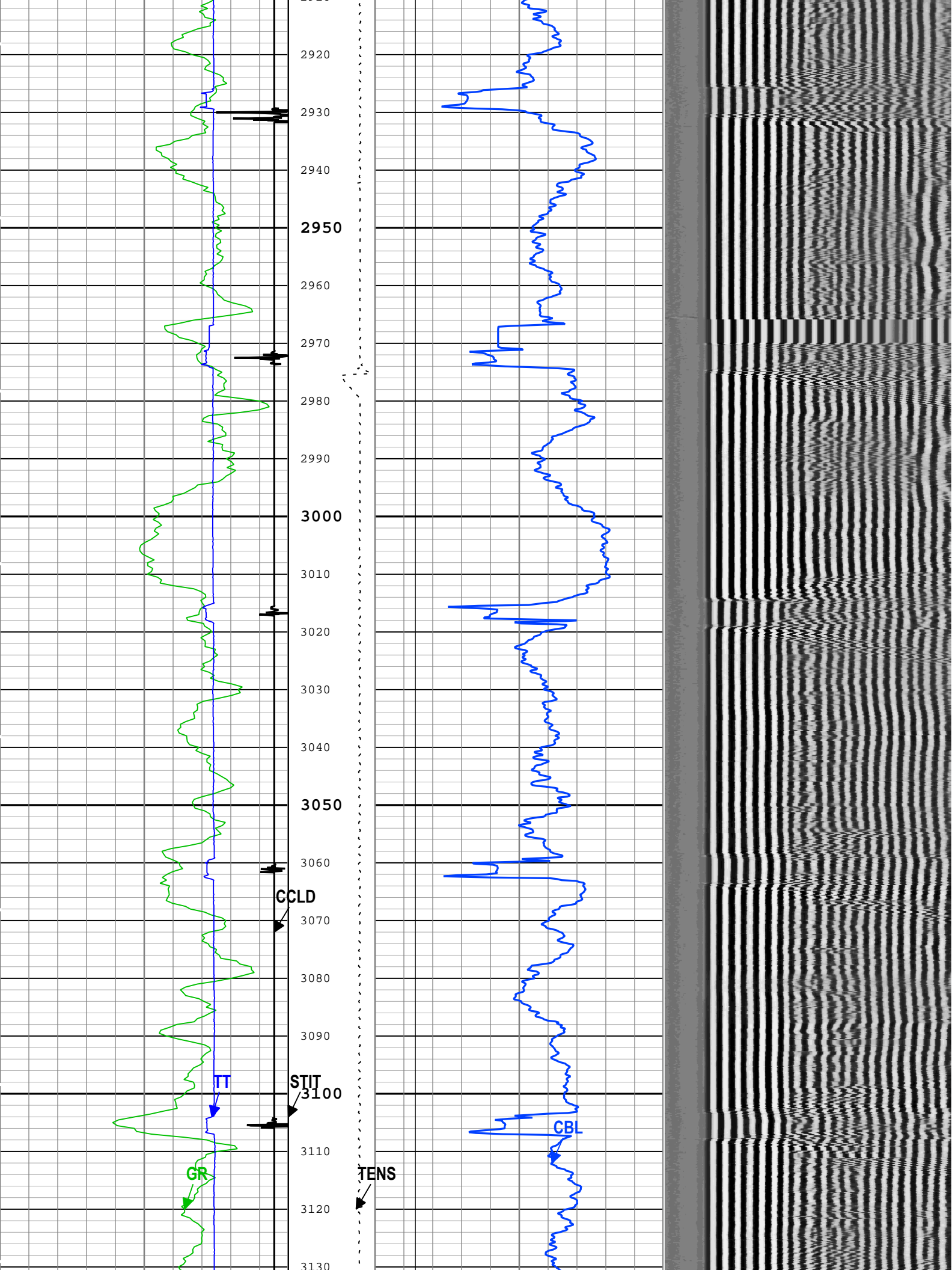
TIME_1900 - Time Marked every 60.00 (s)

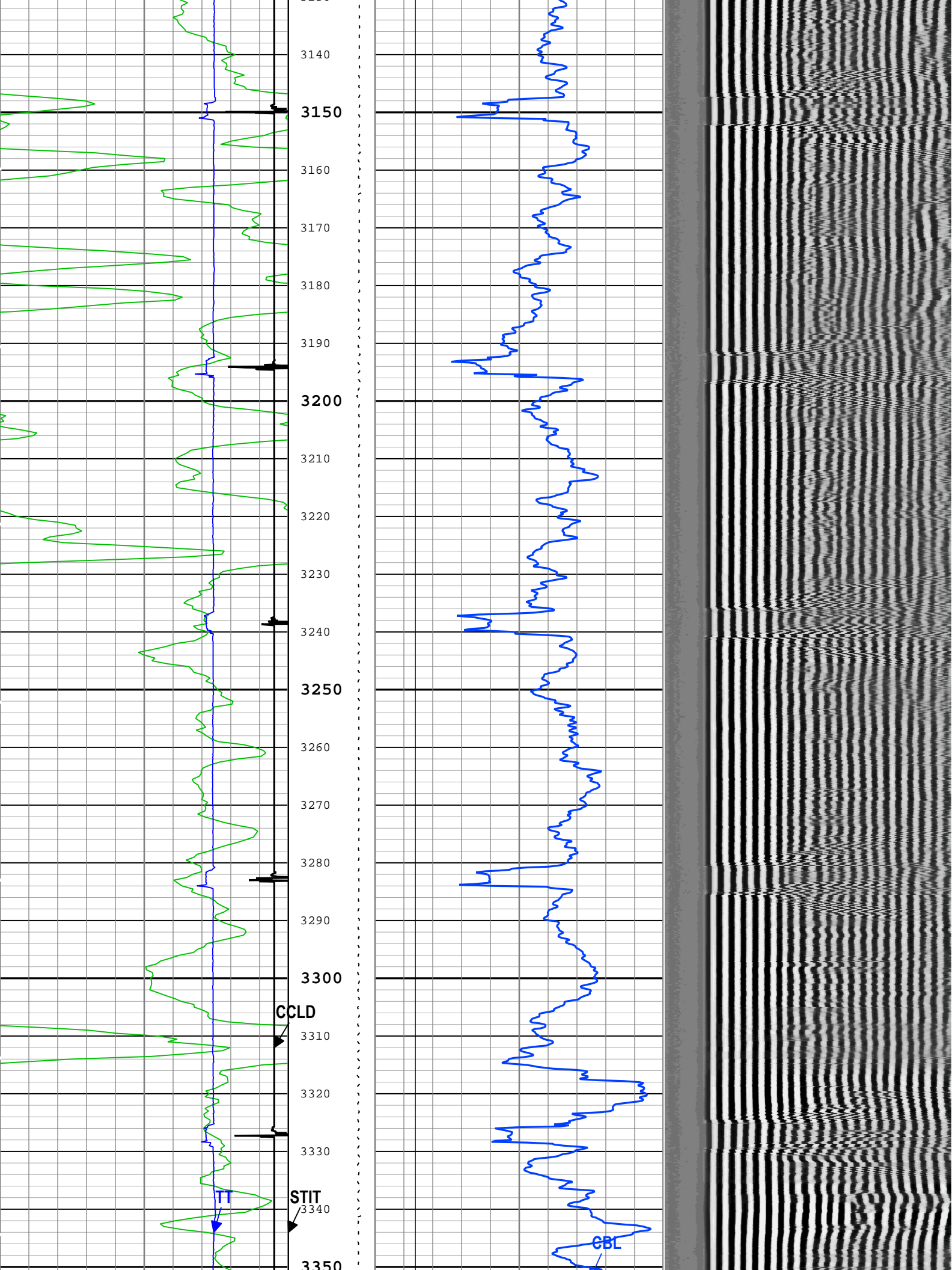
Cable

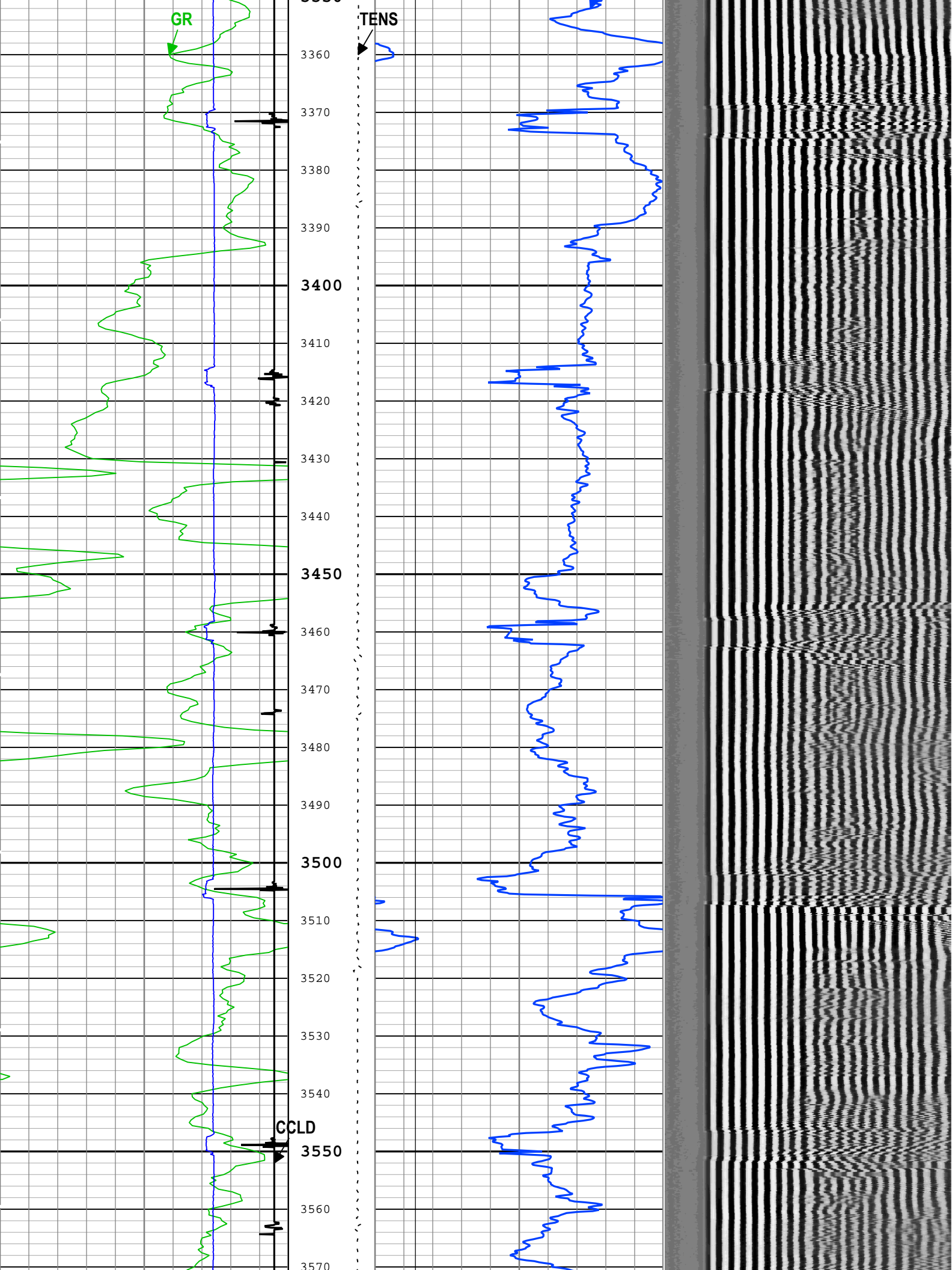


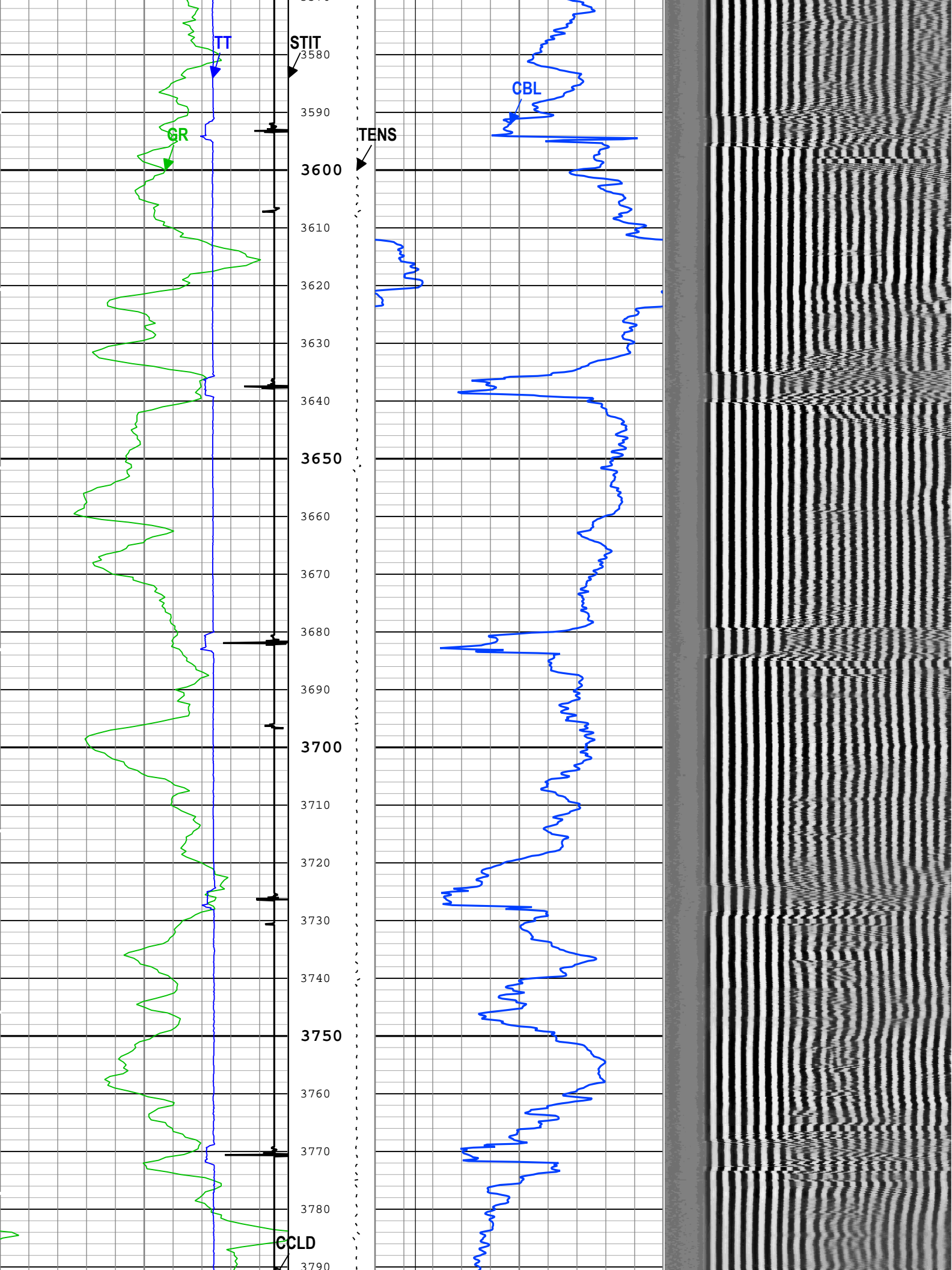


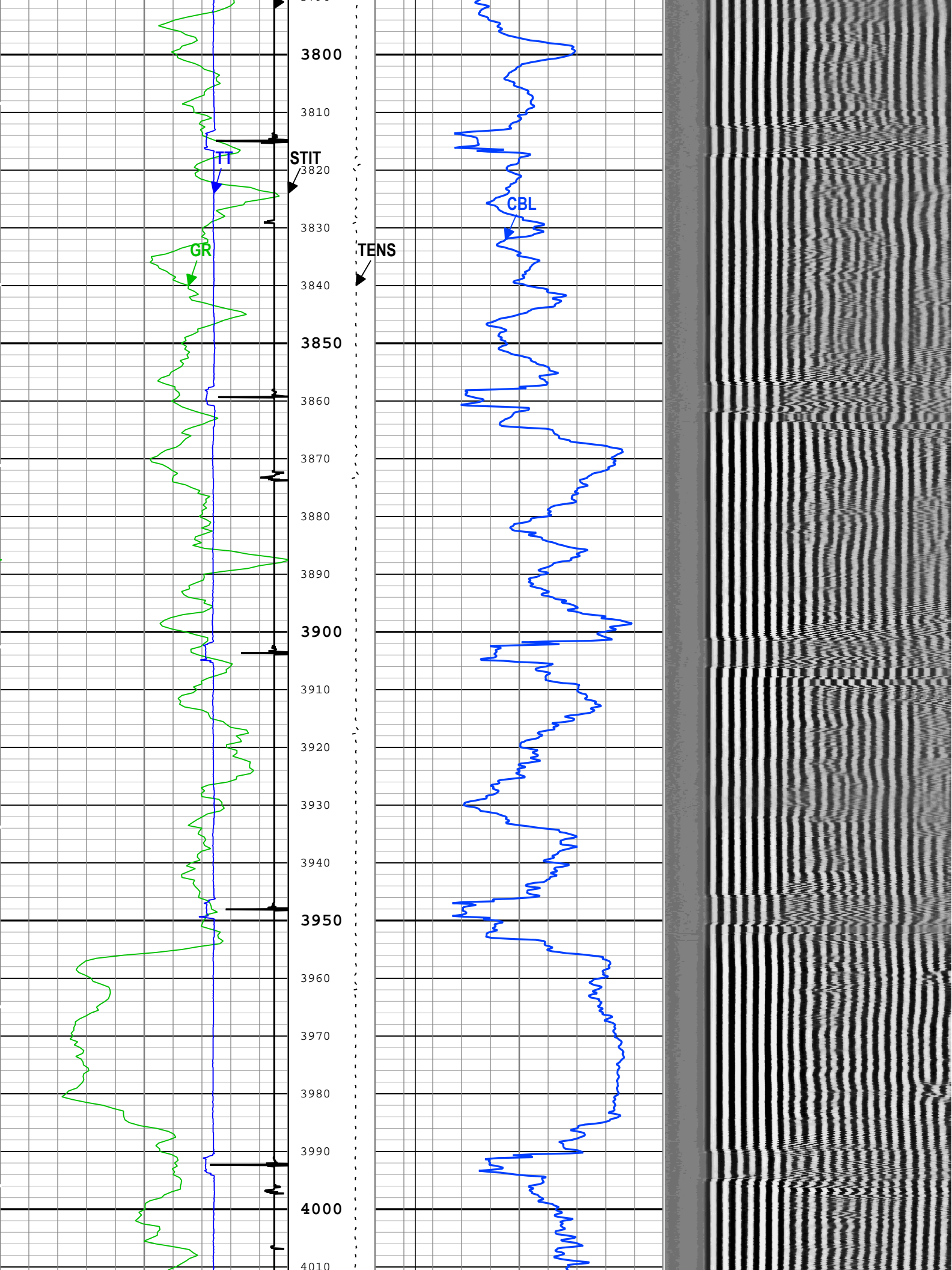


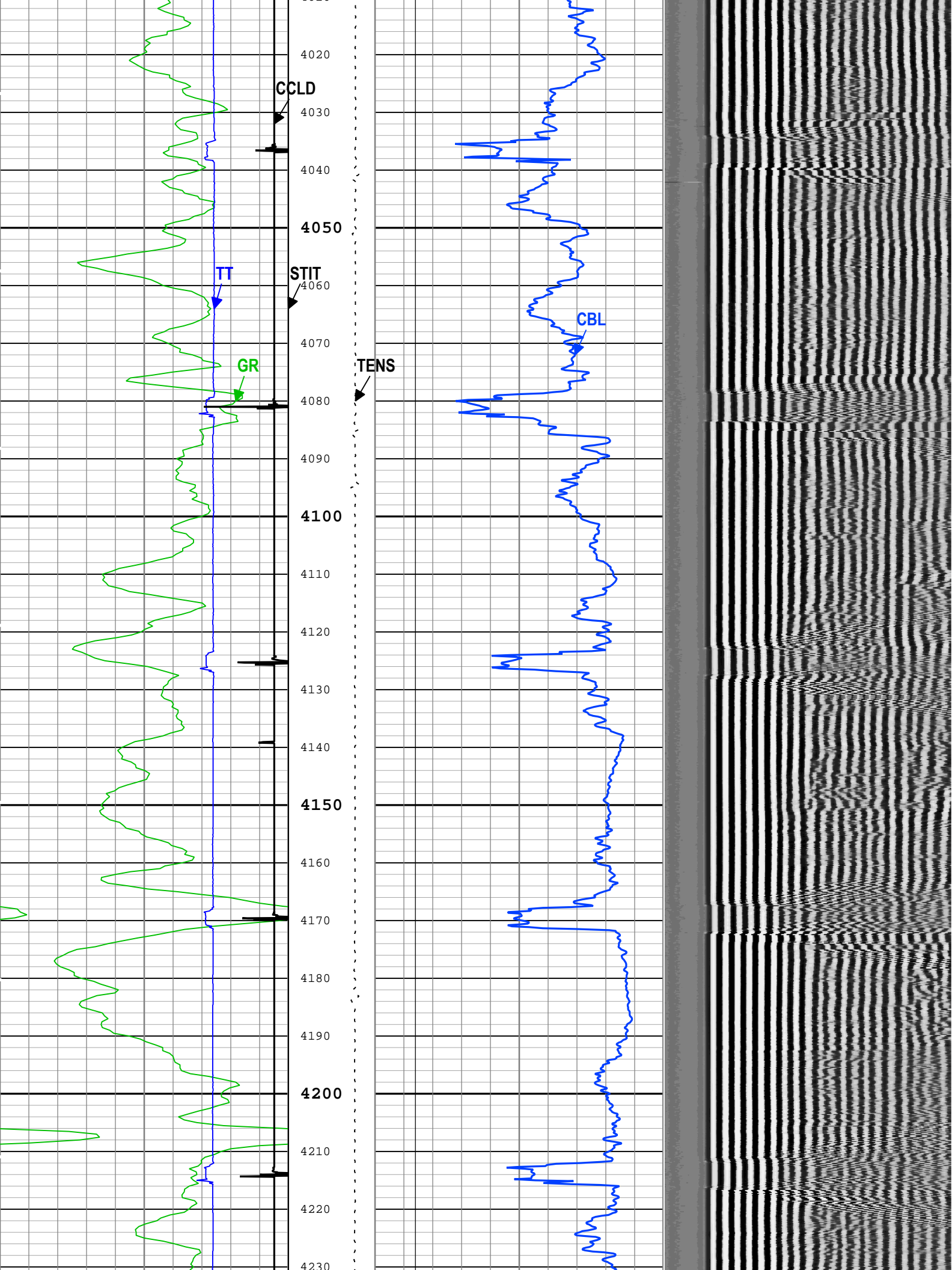


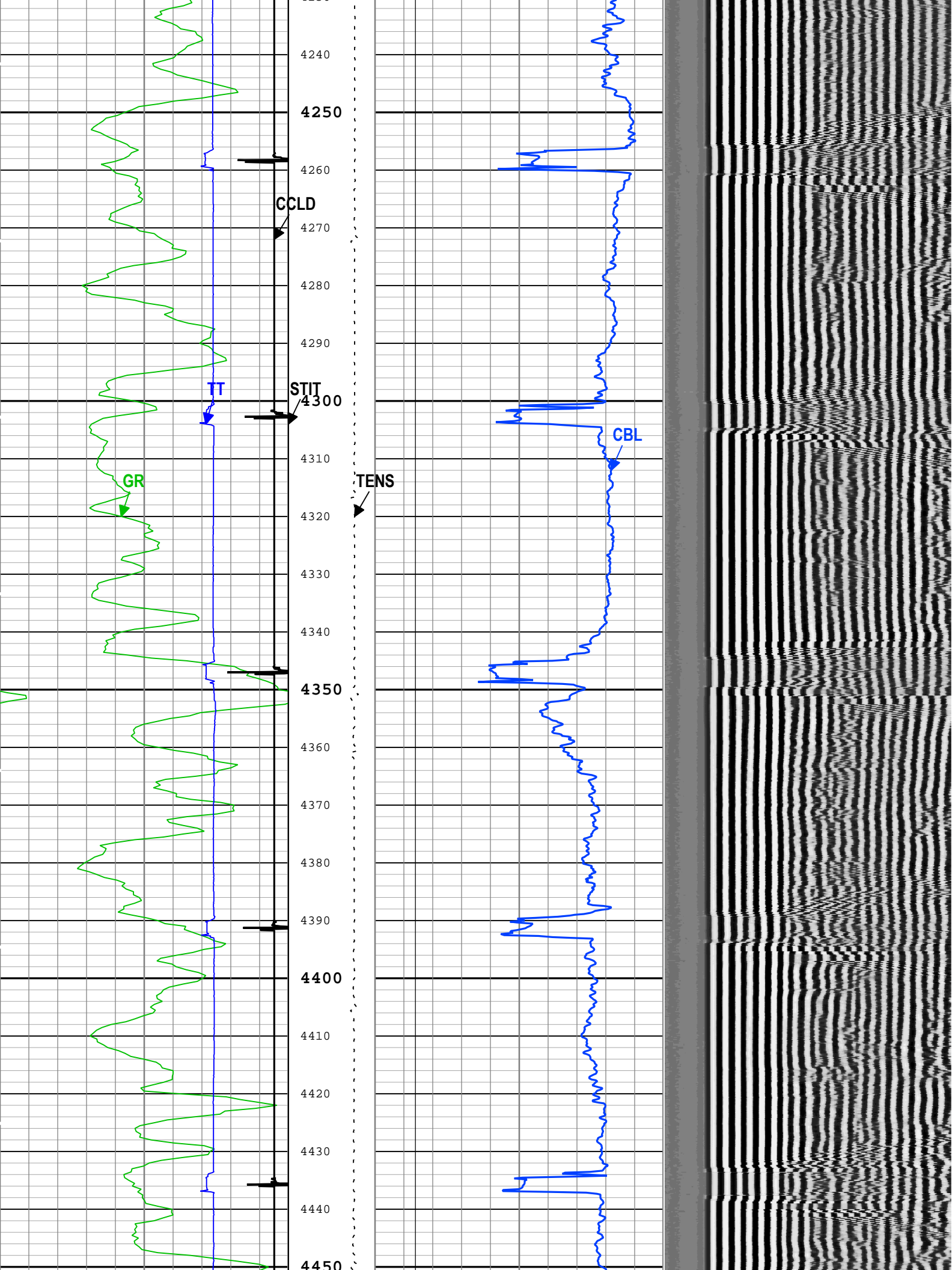


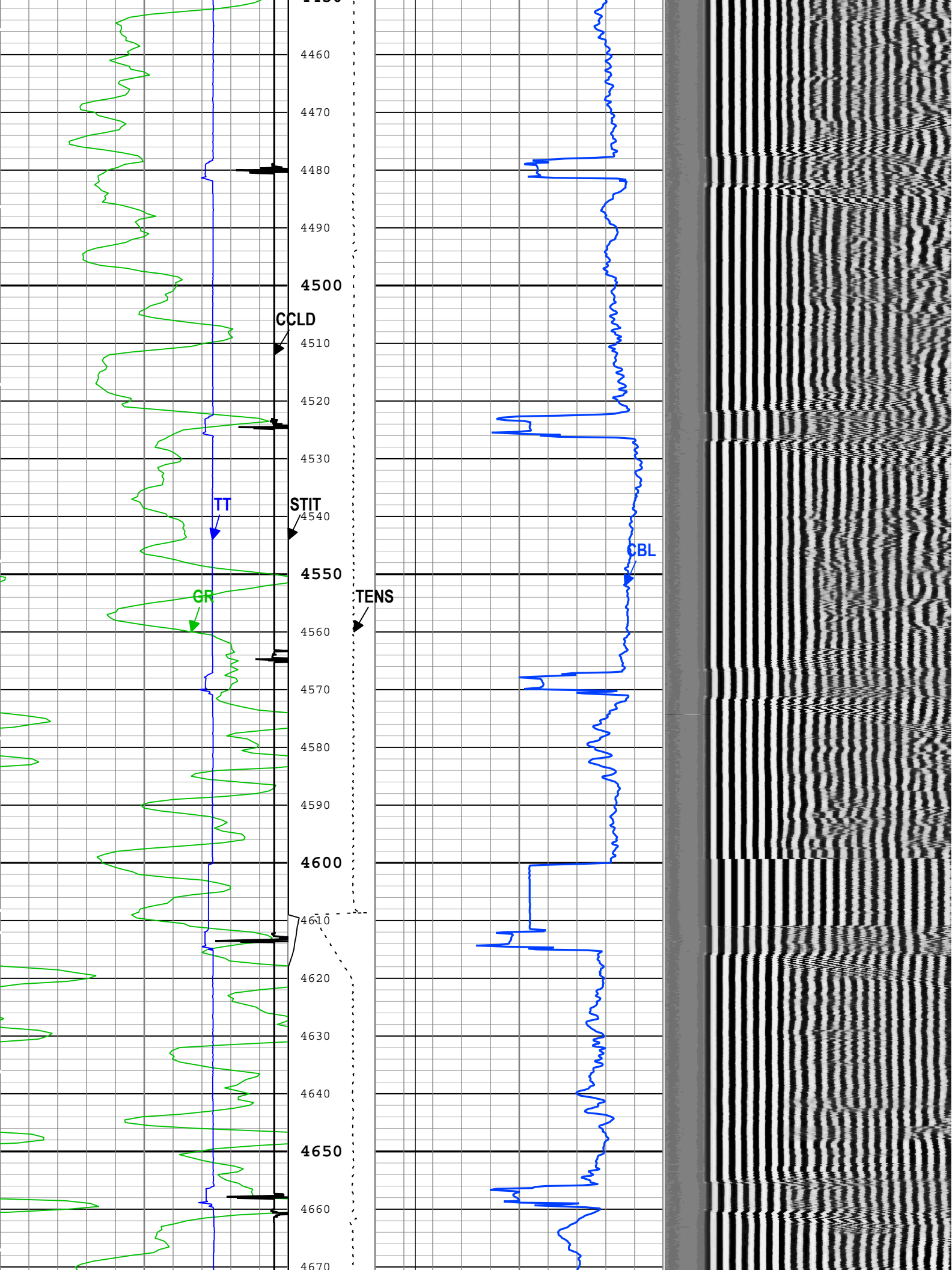


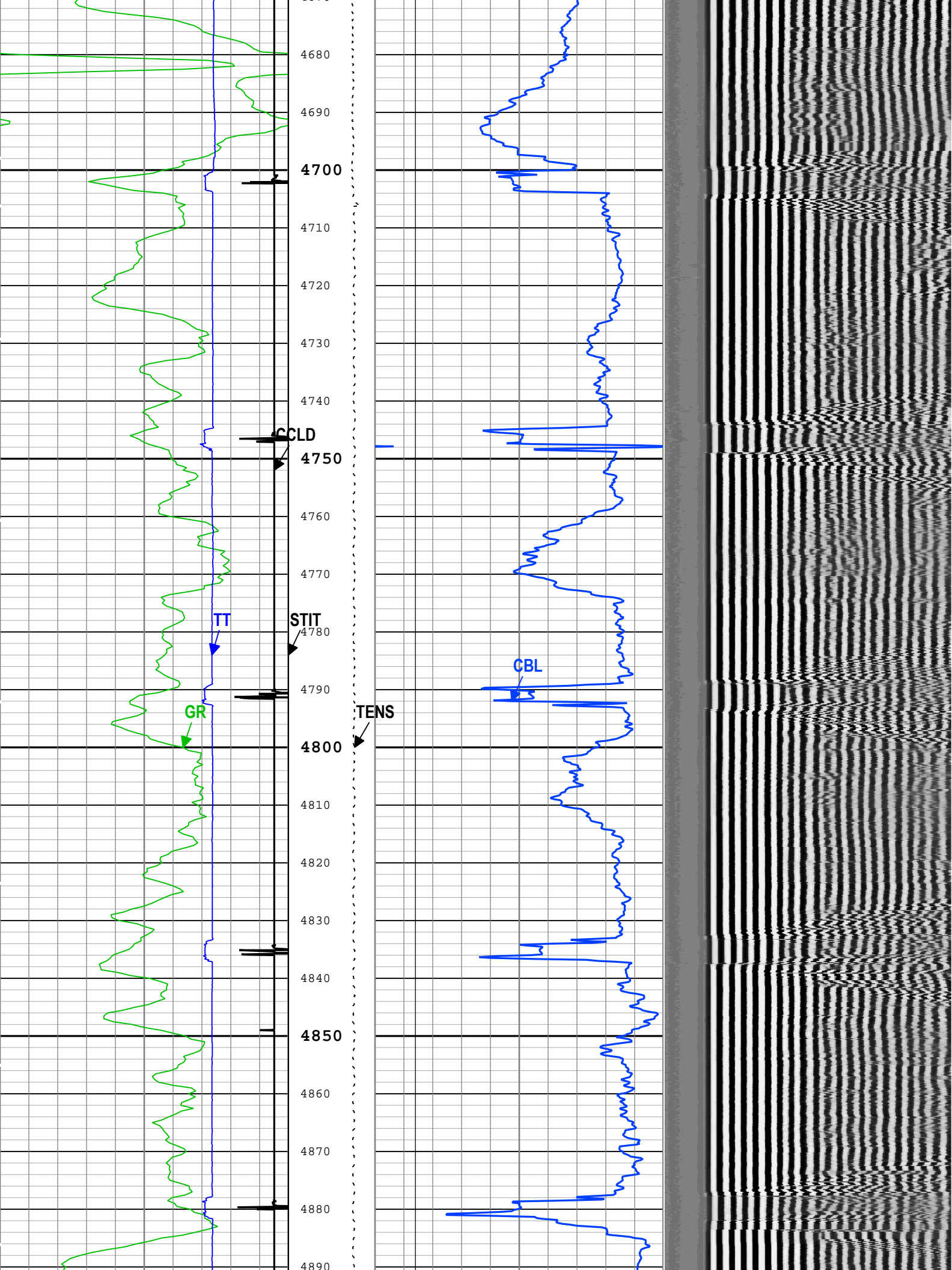


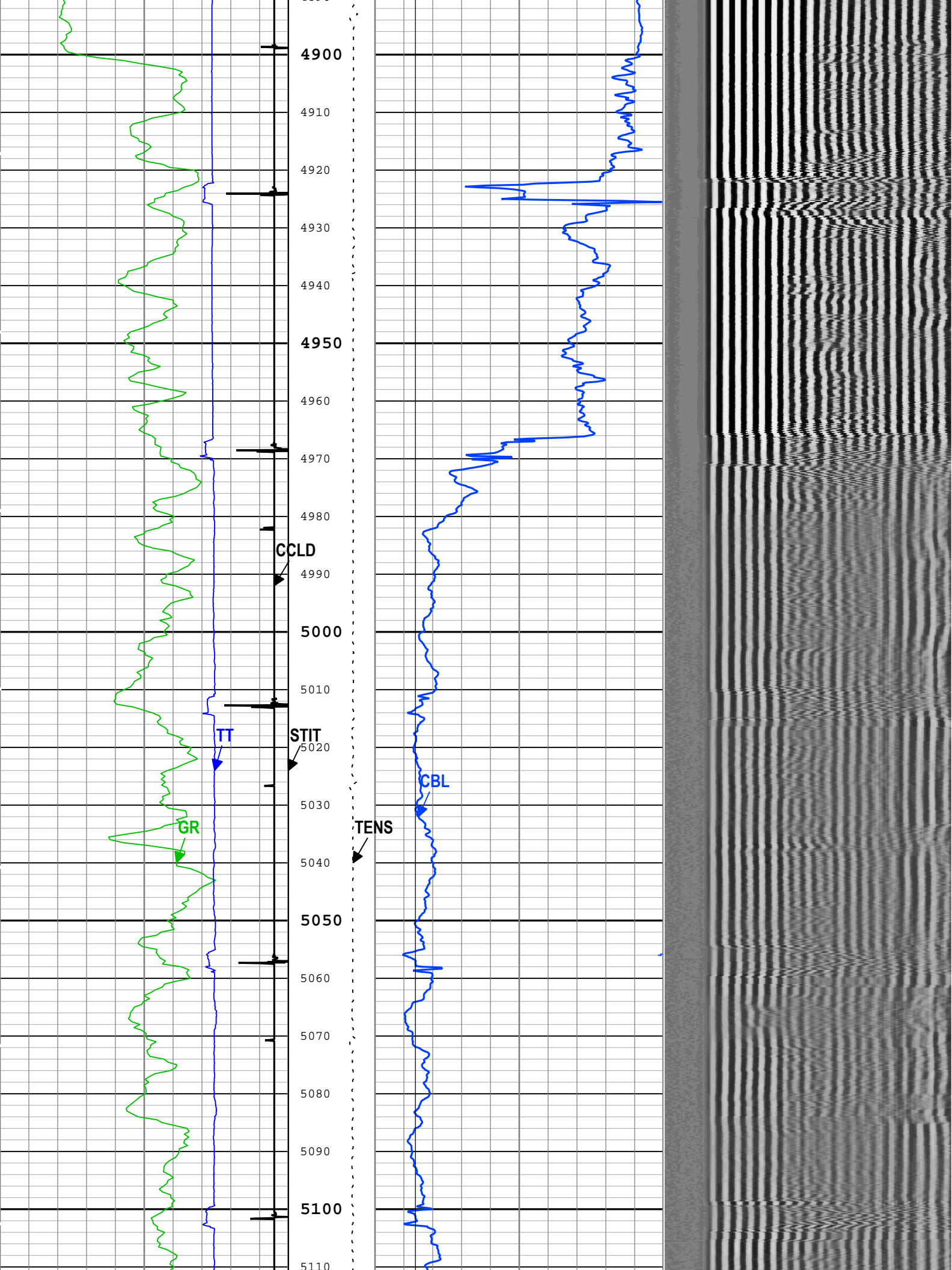


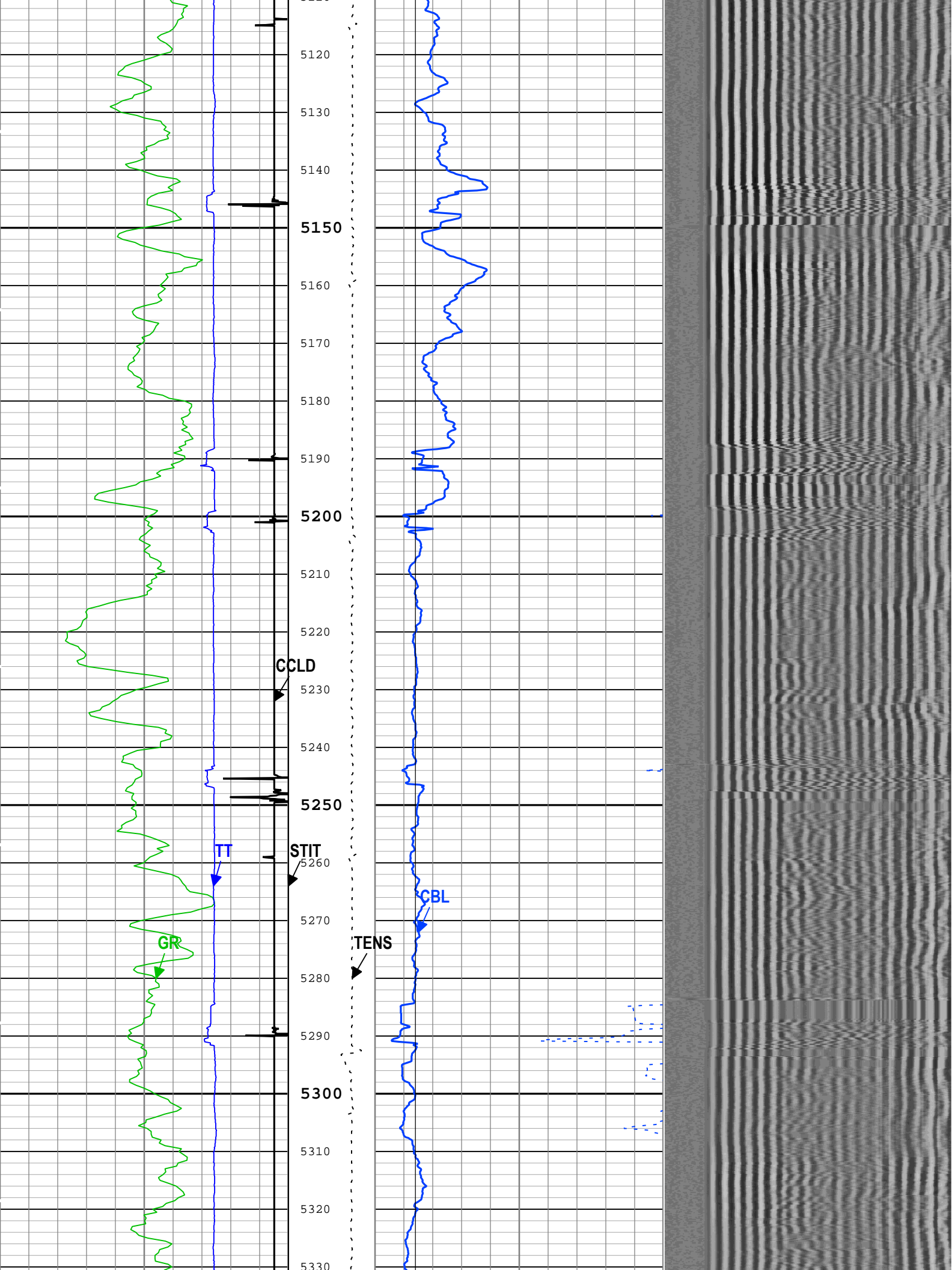


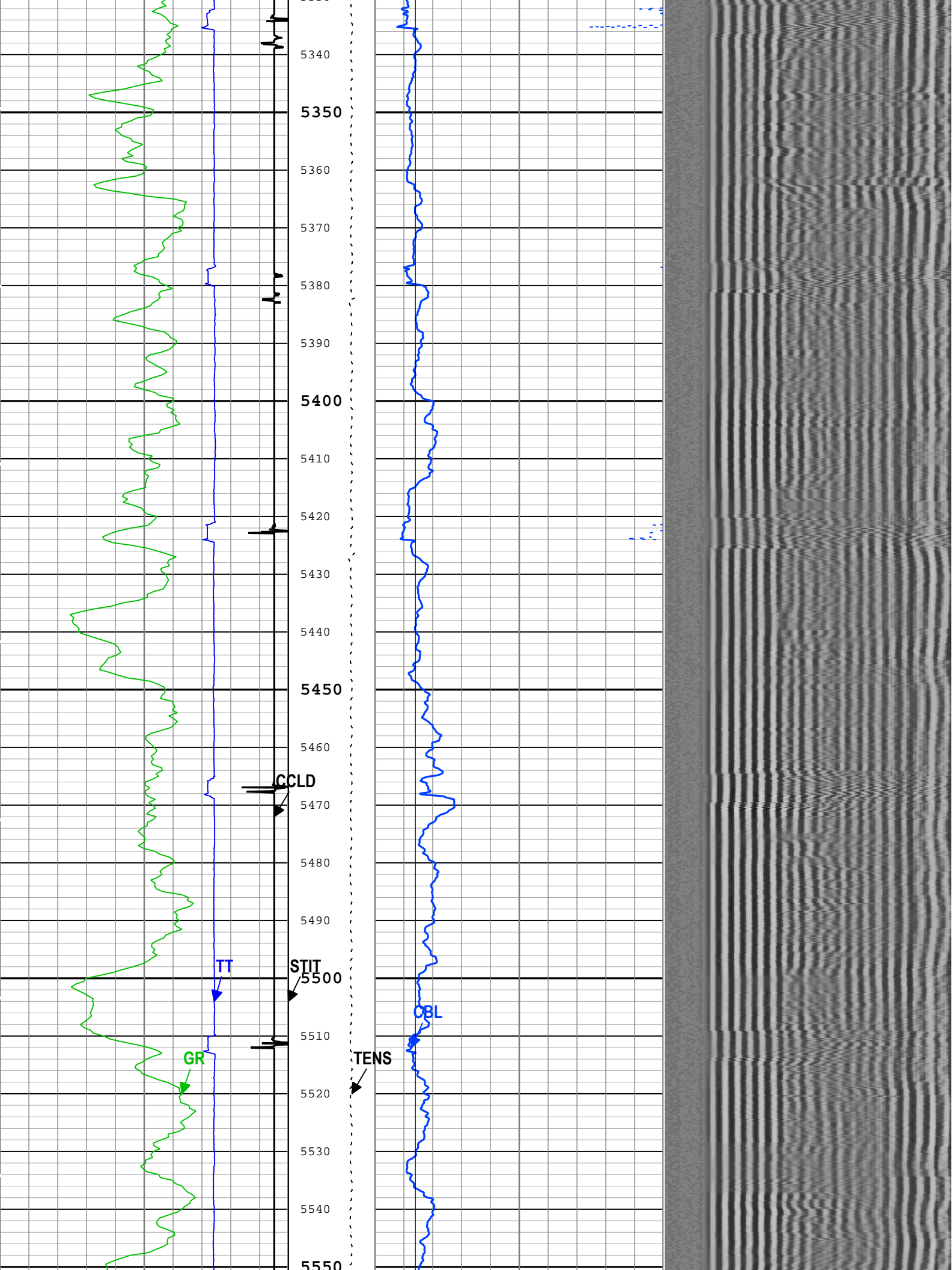


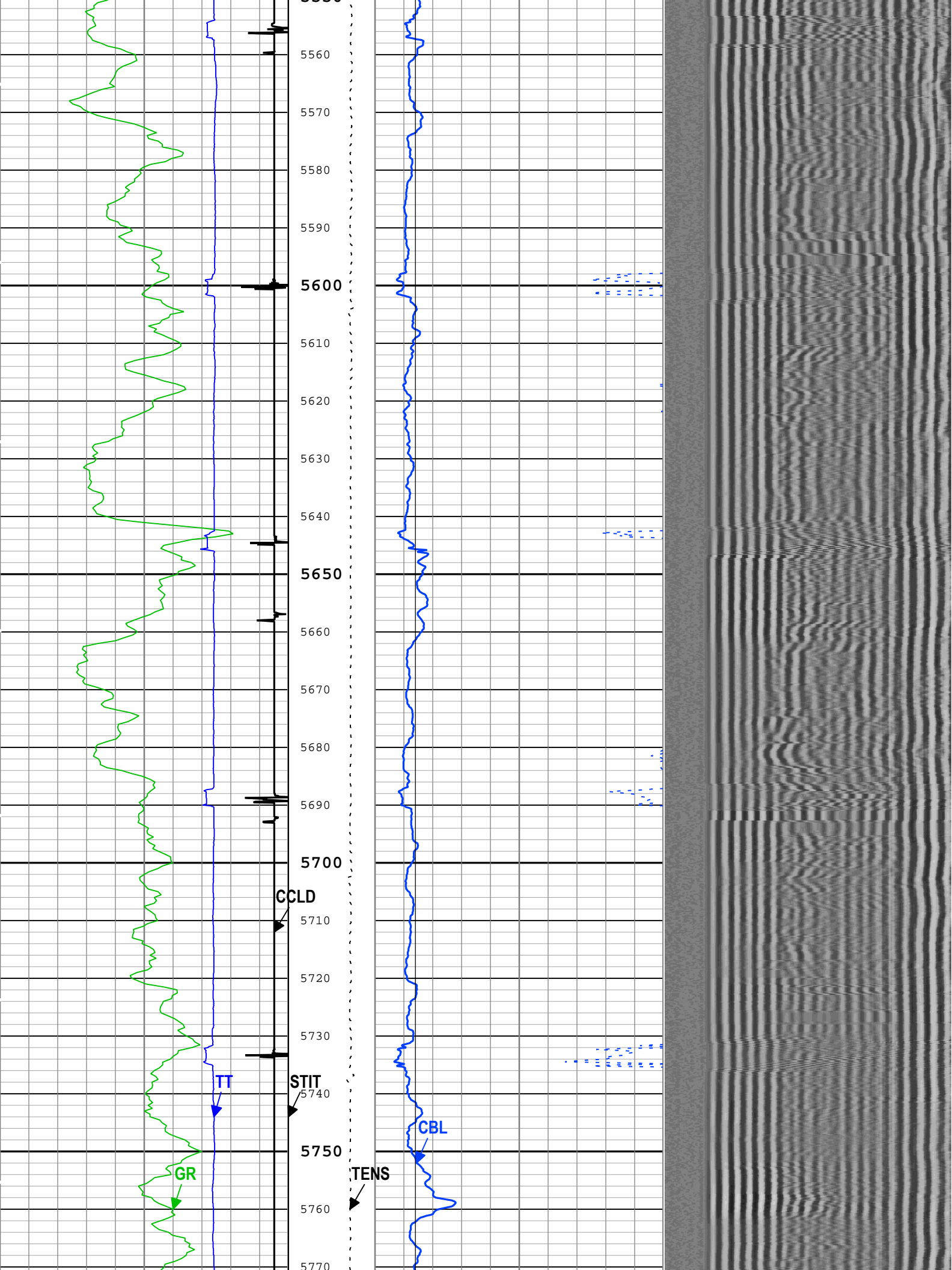


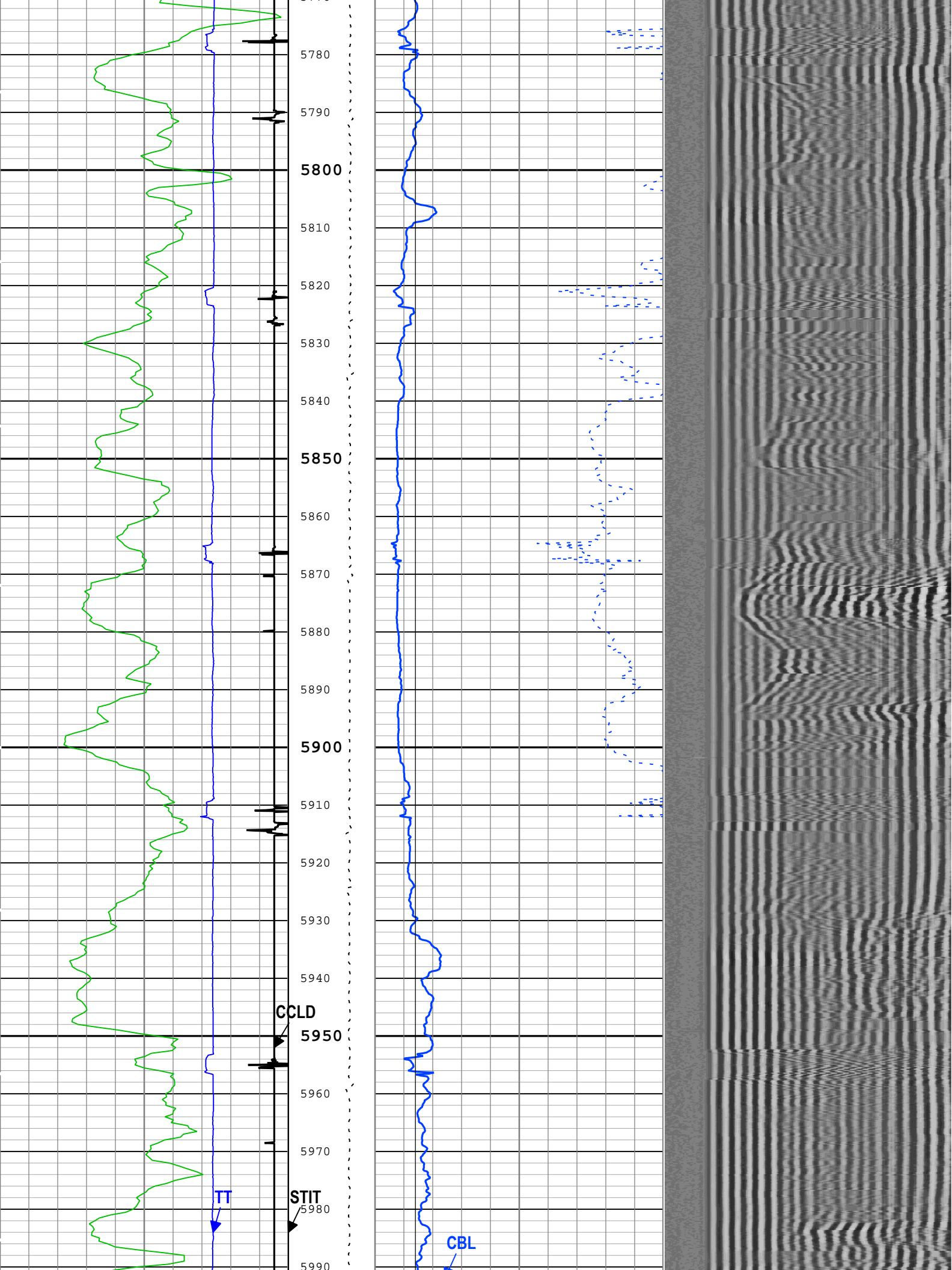


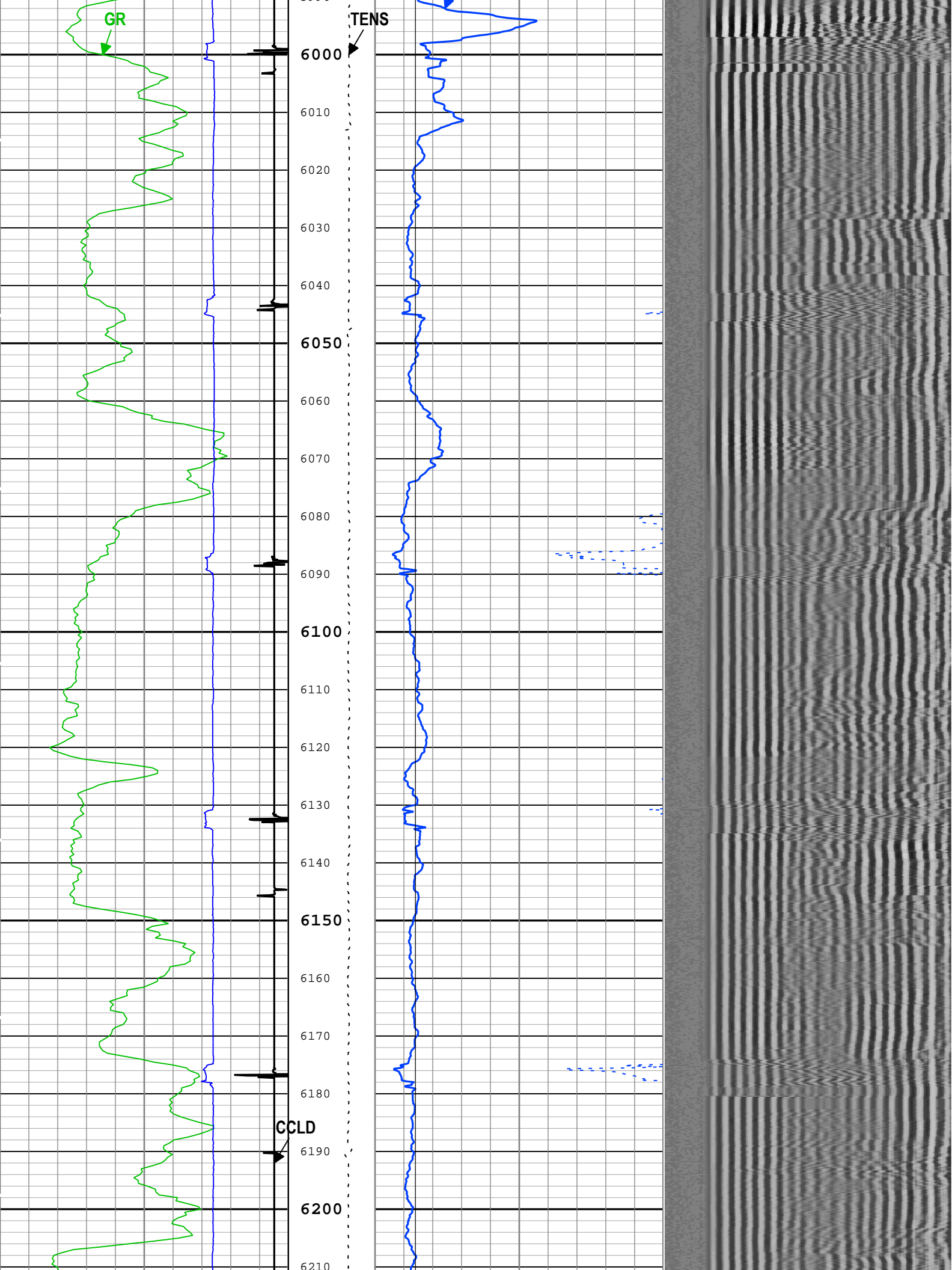


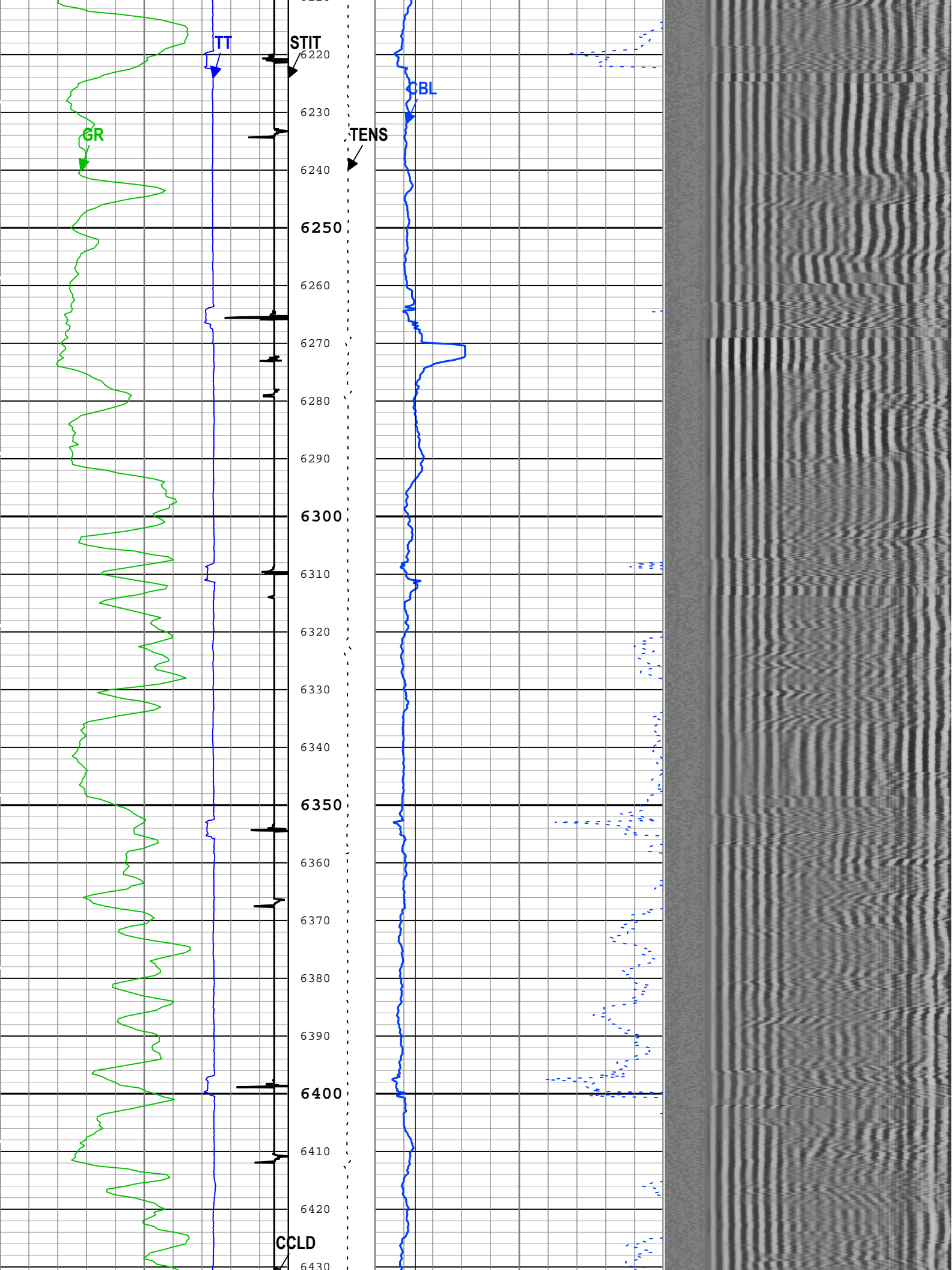


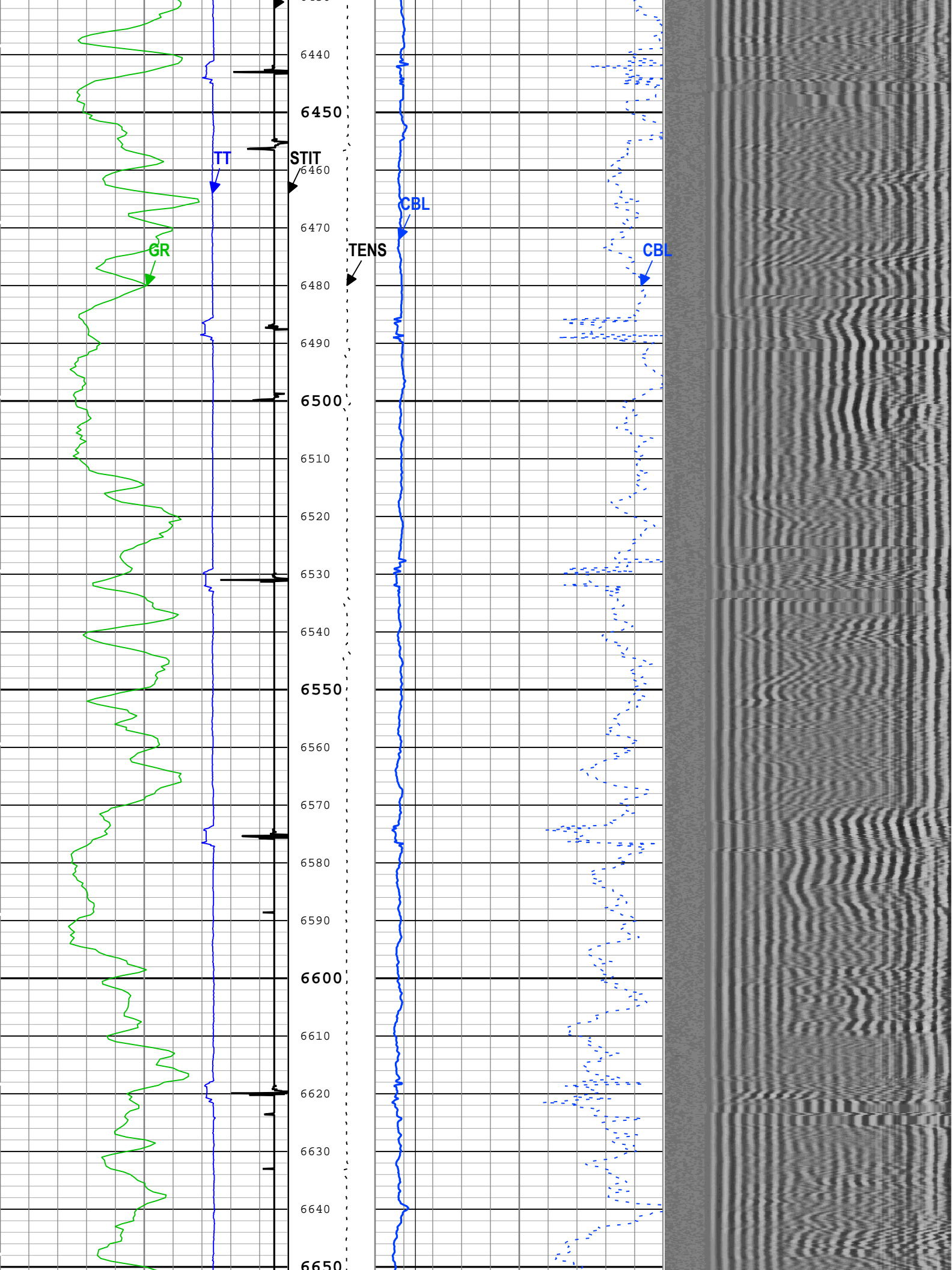


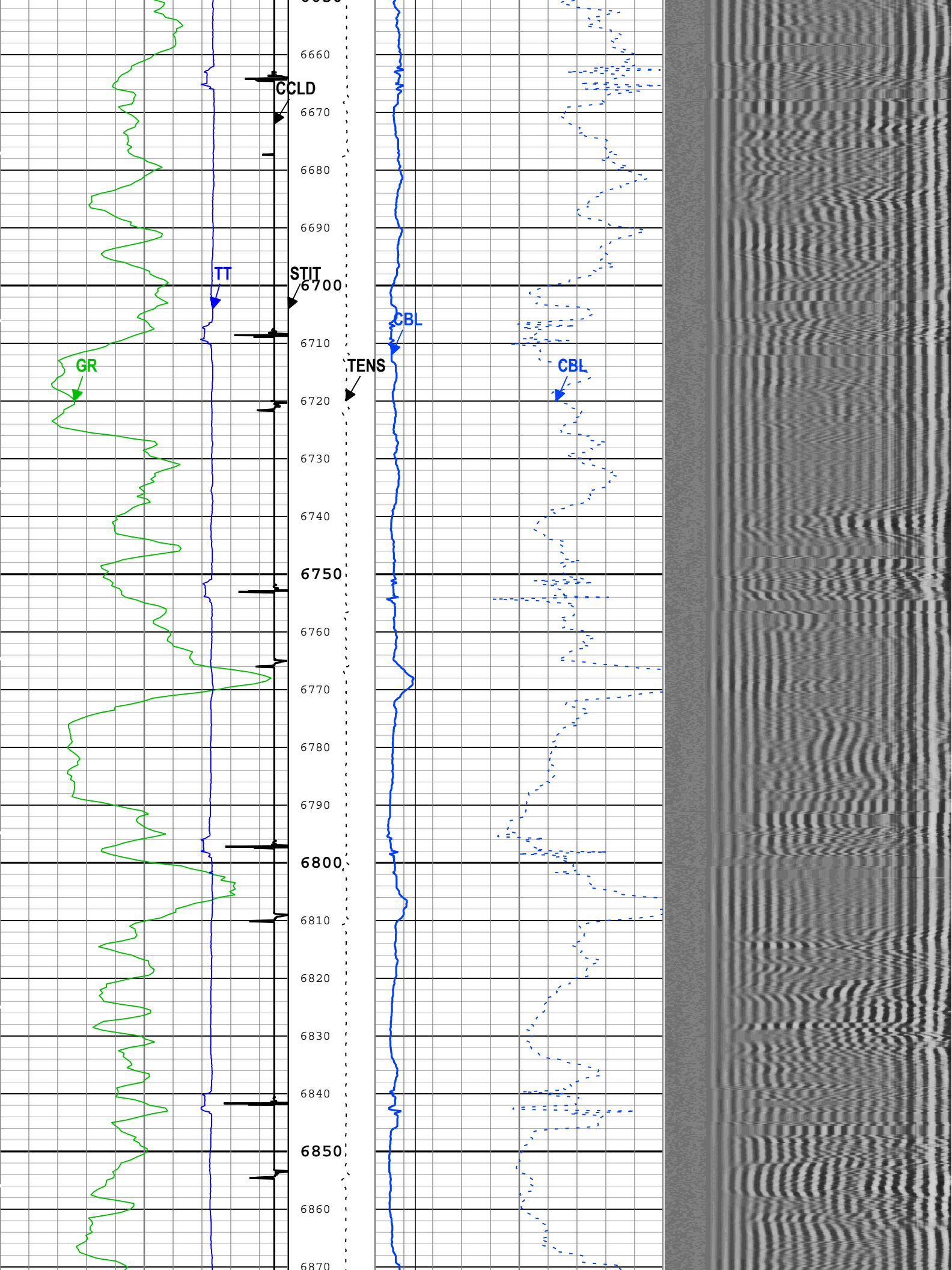


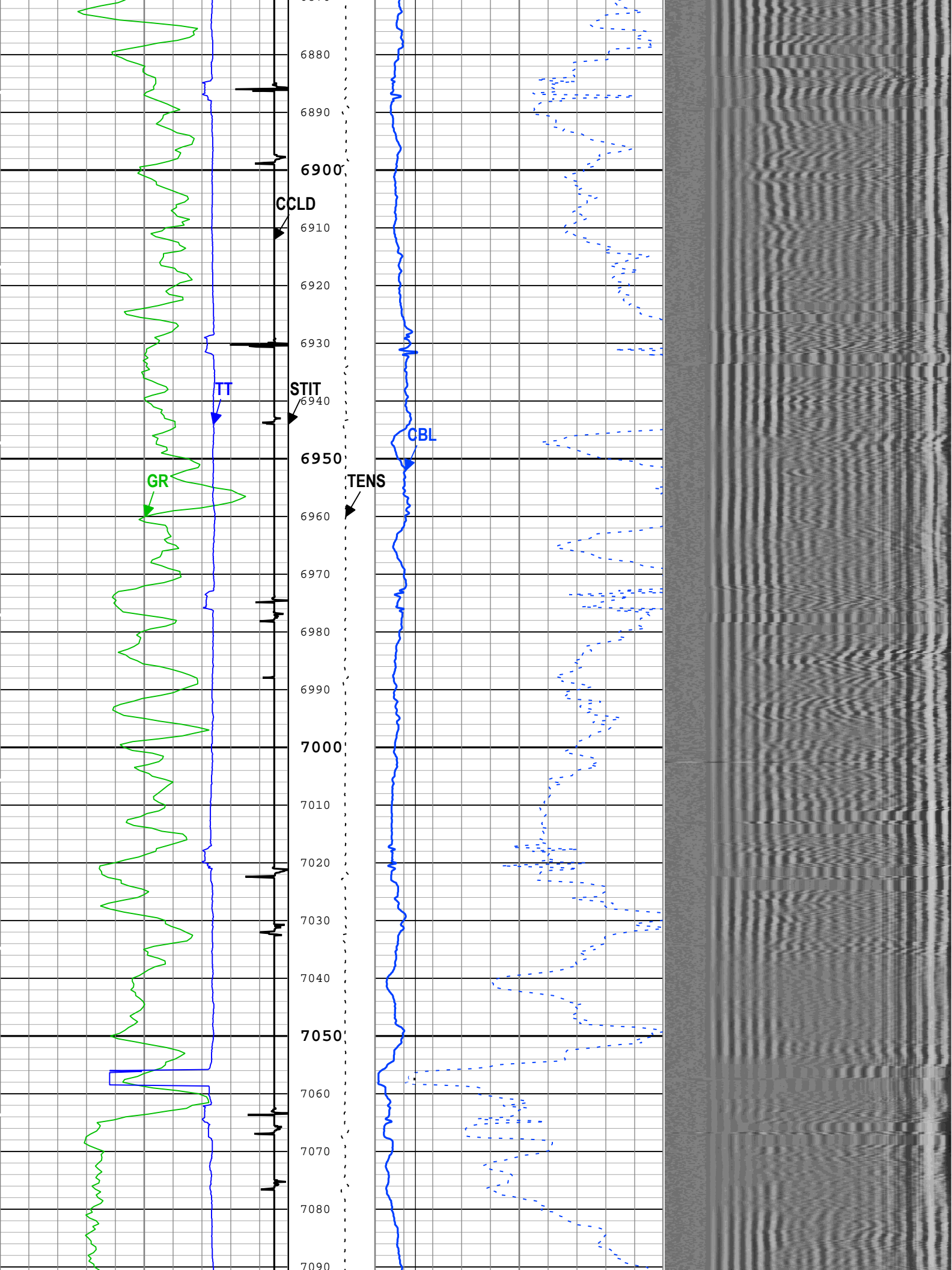


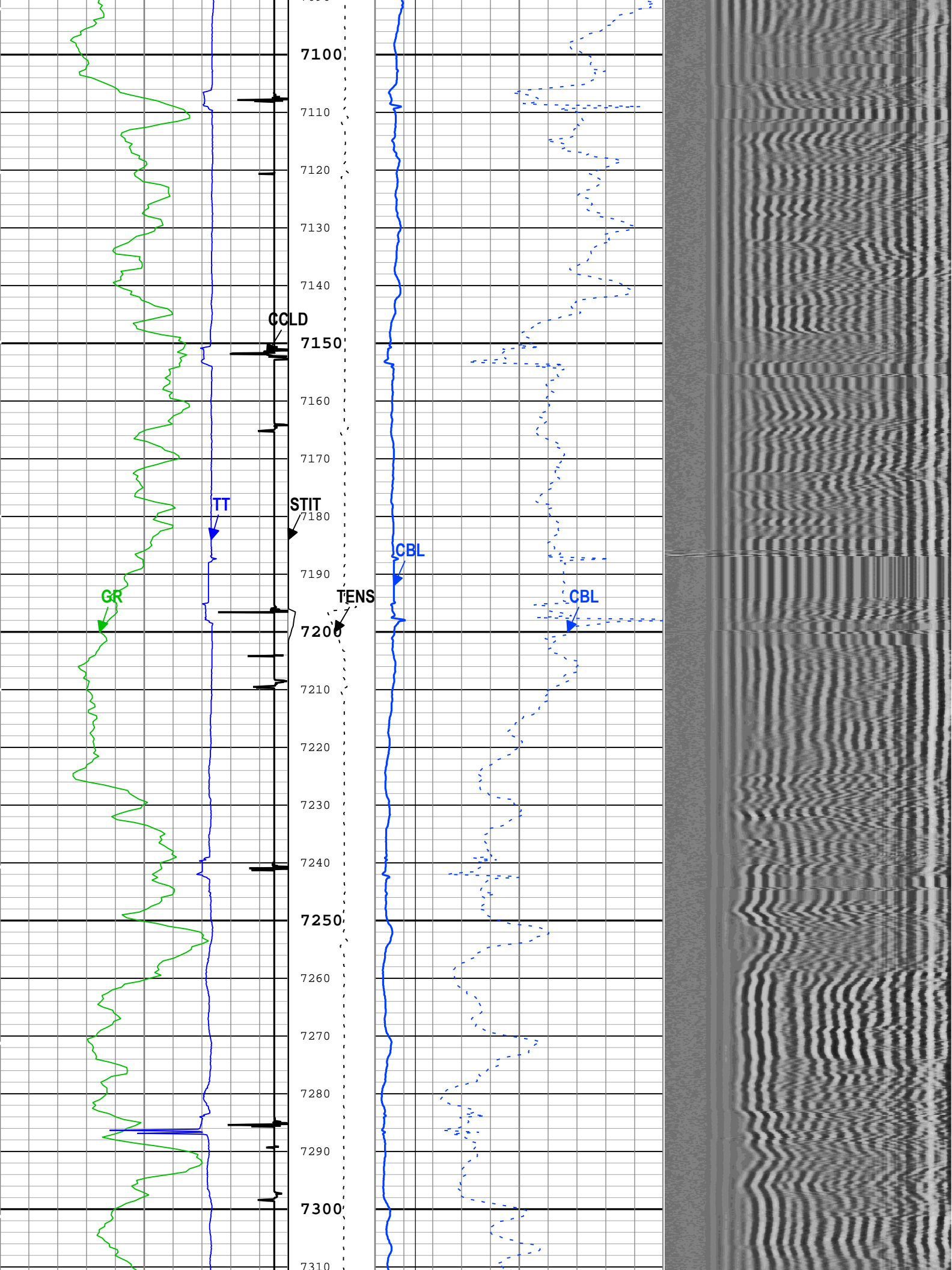


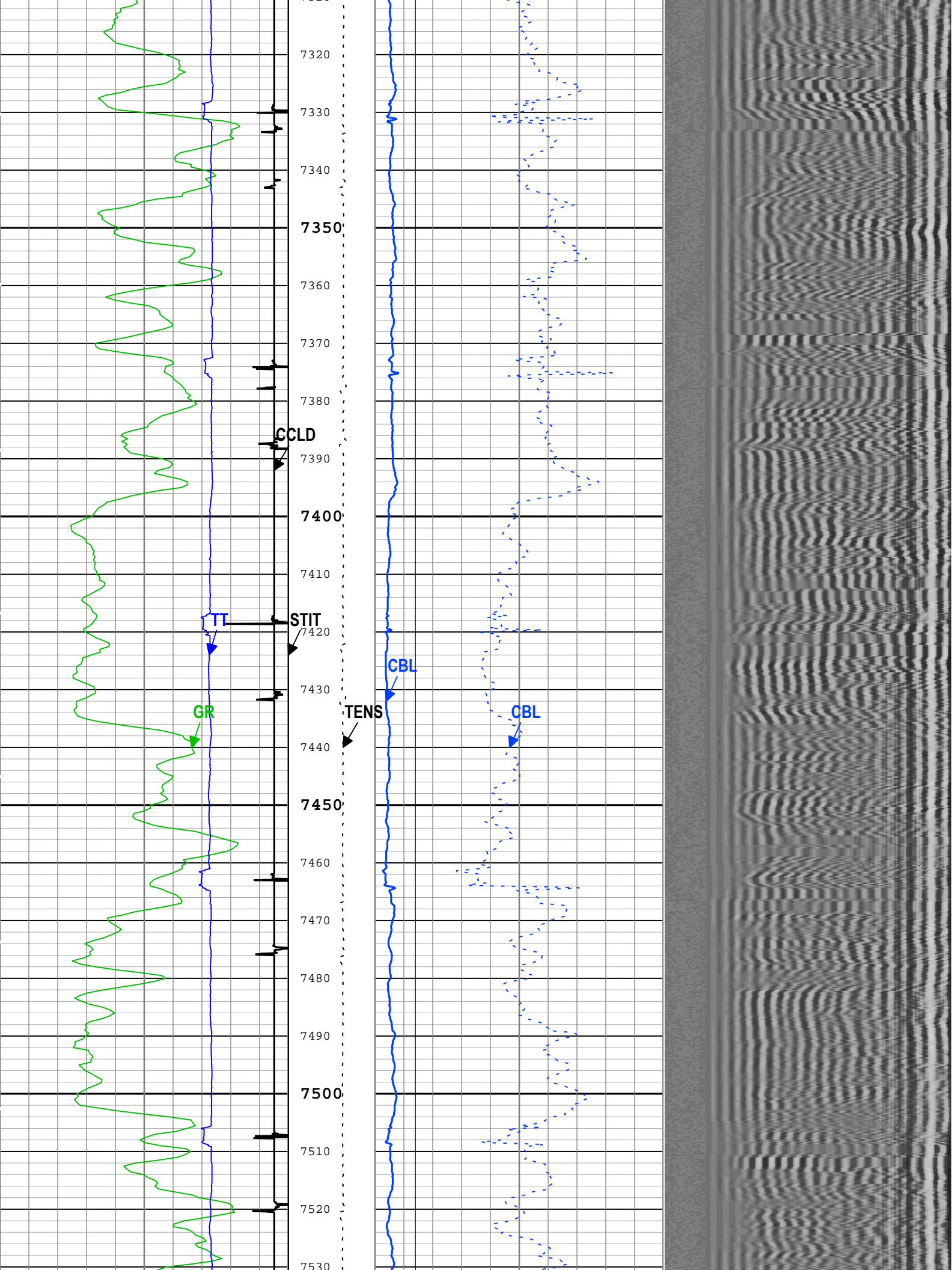


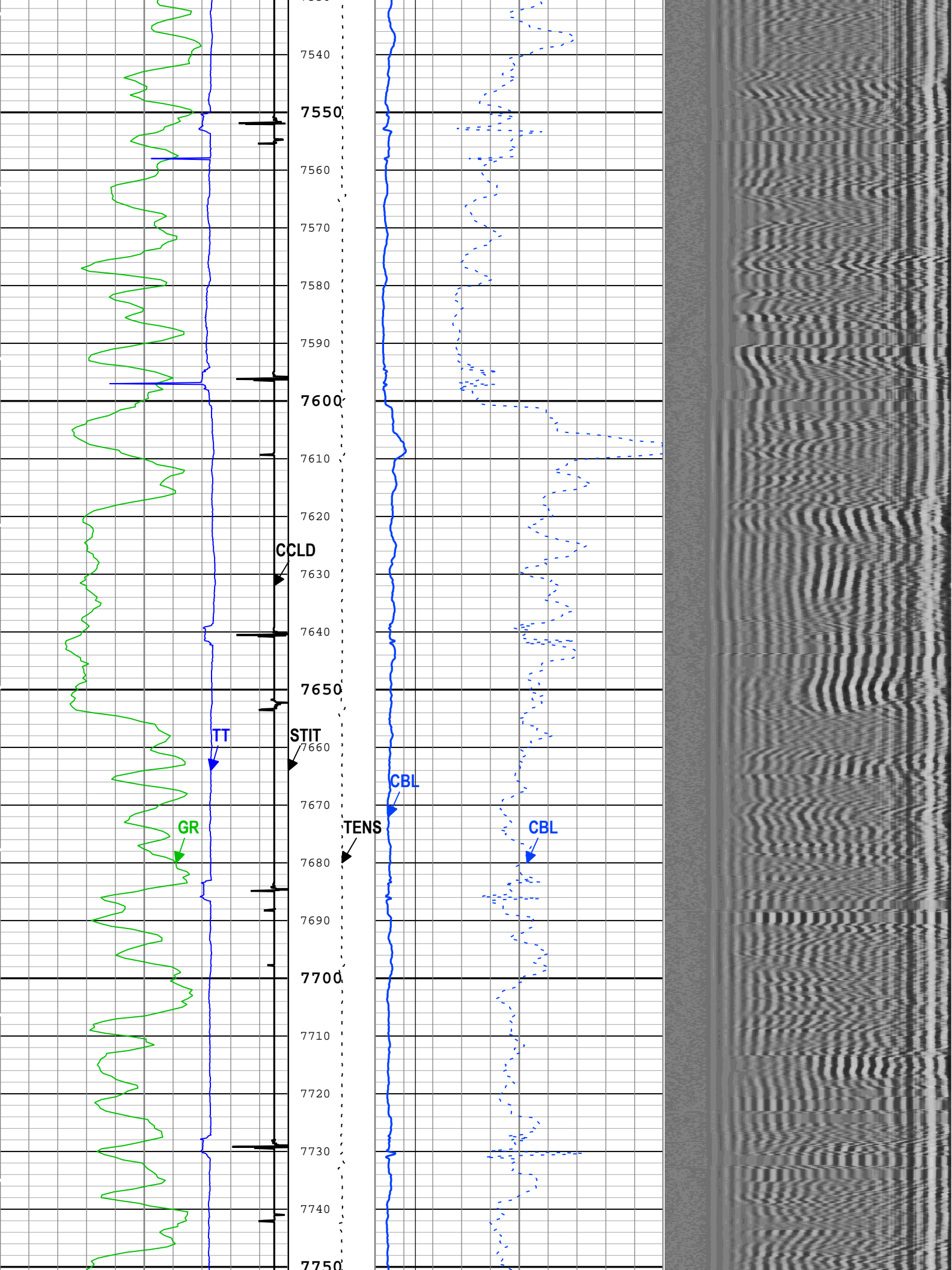


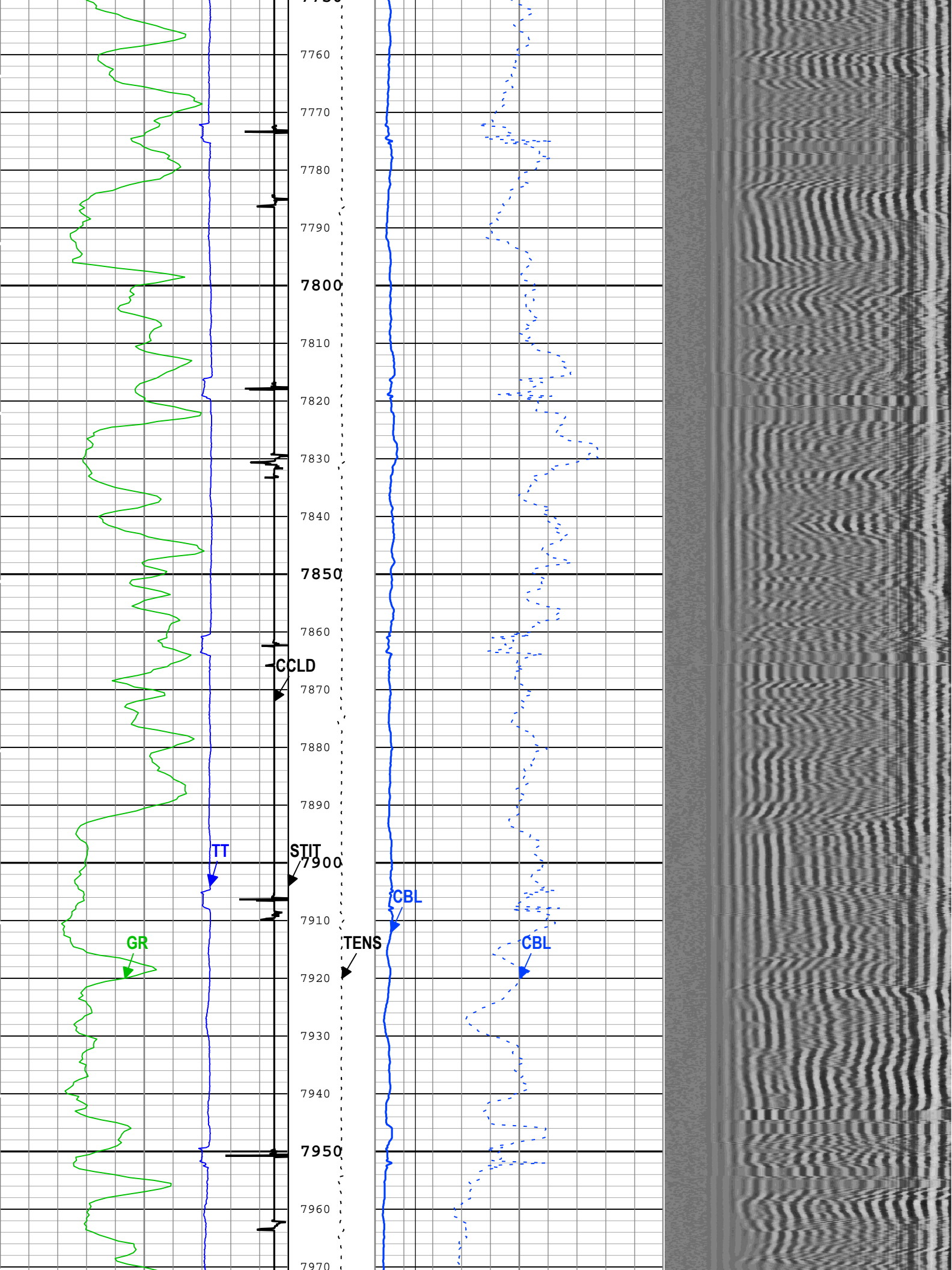


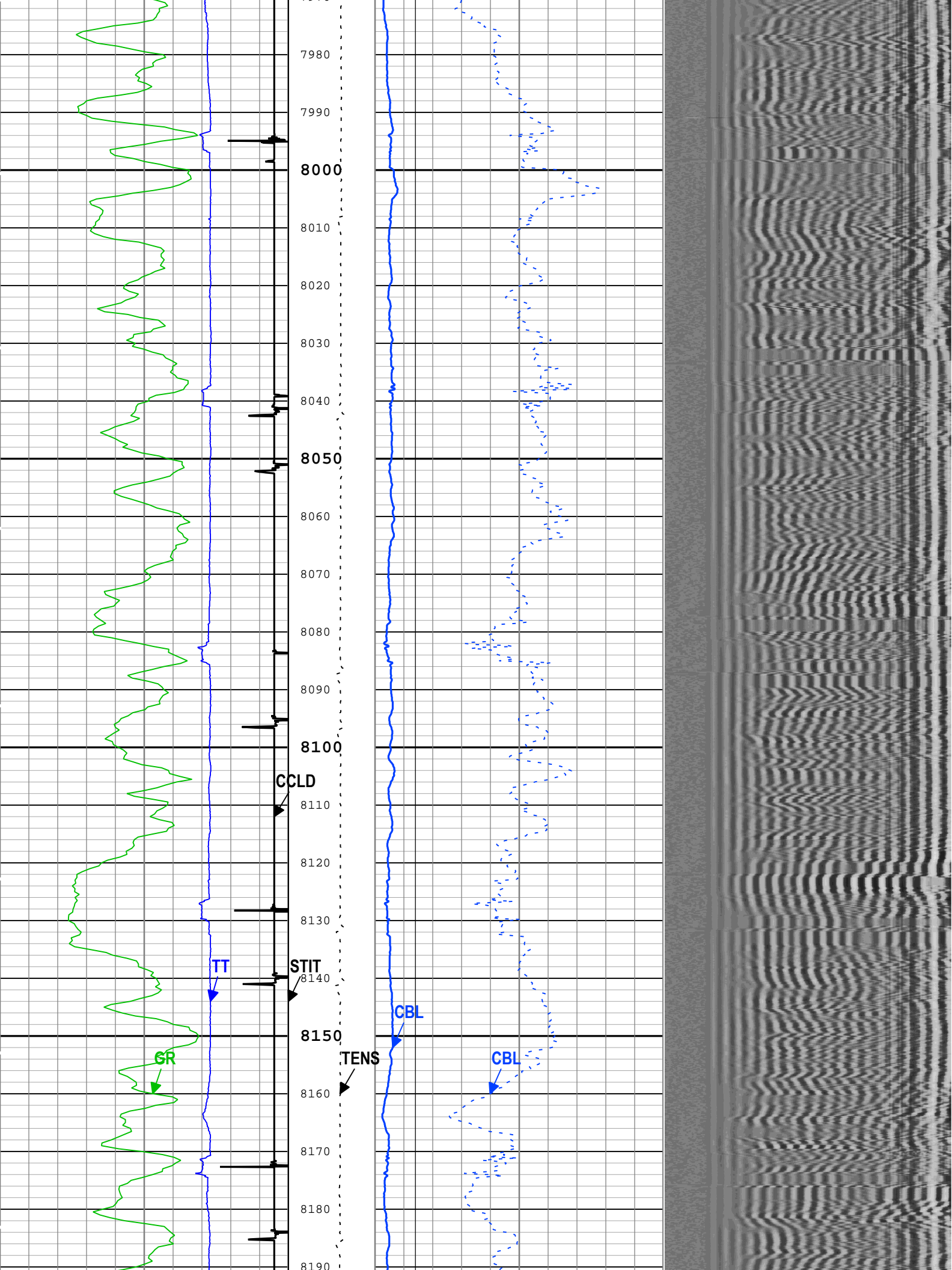


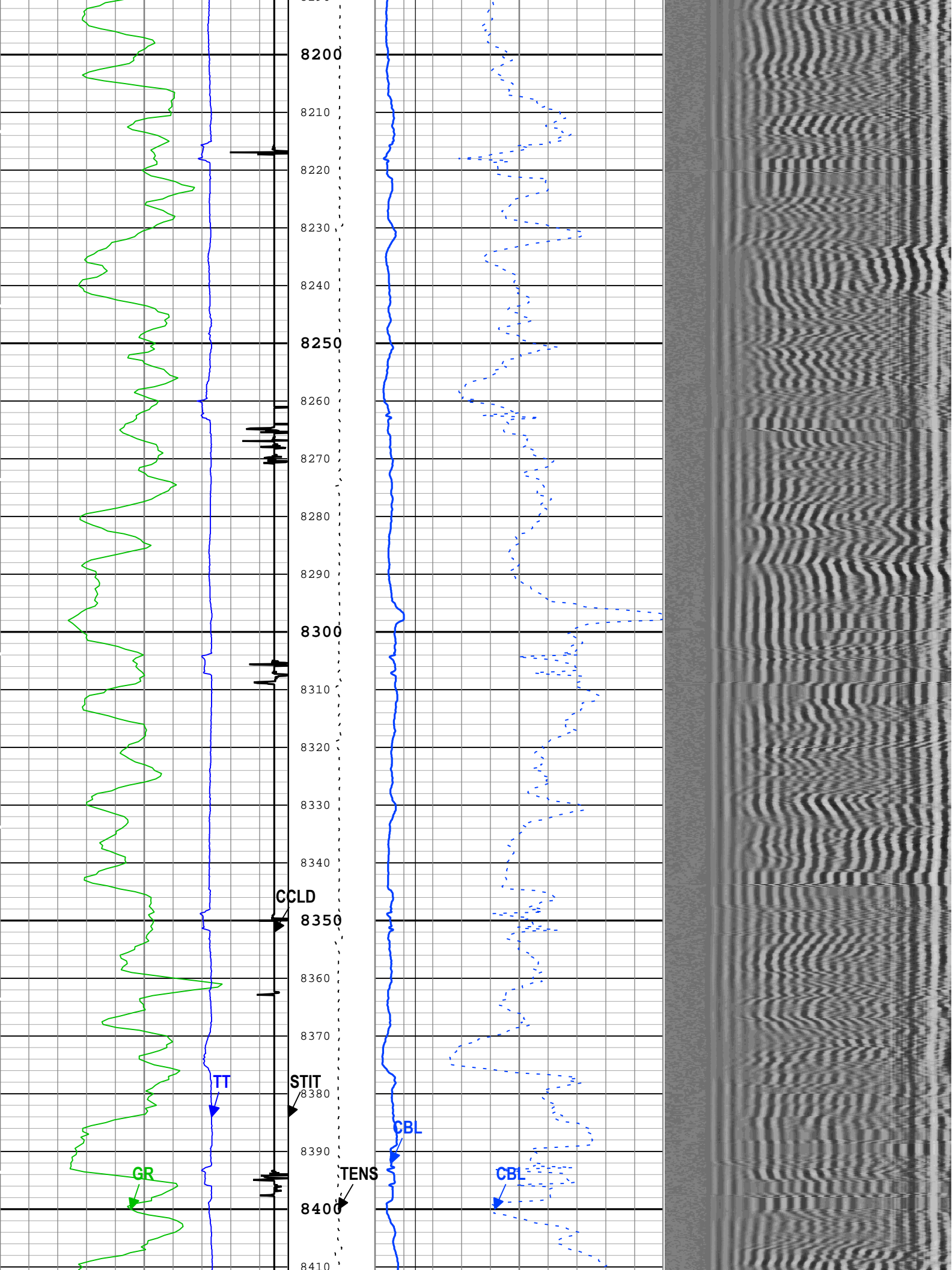


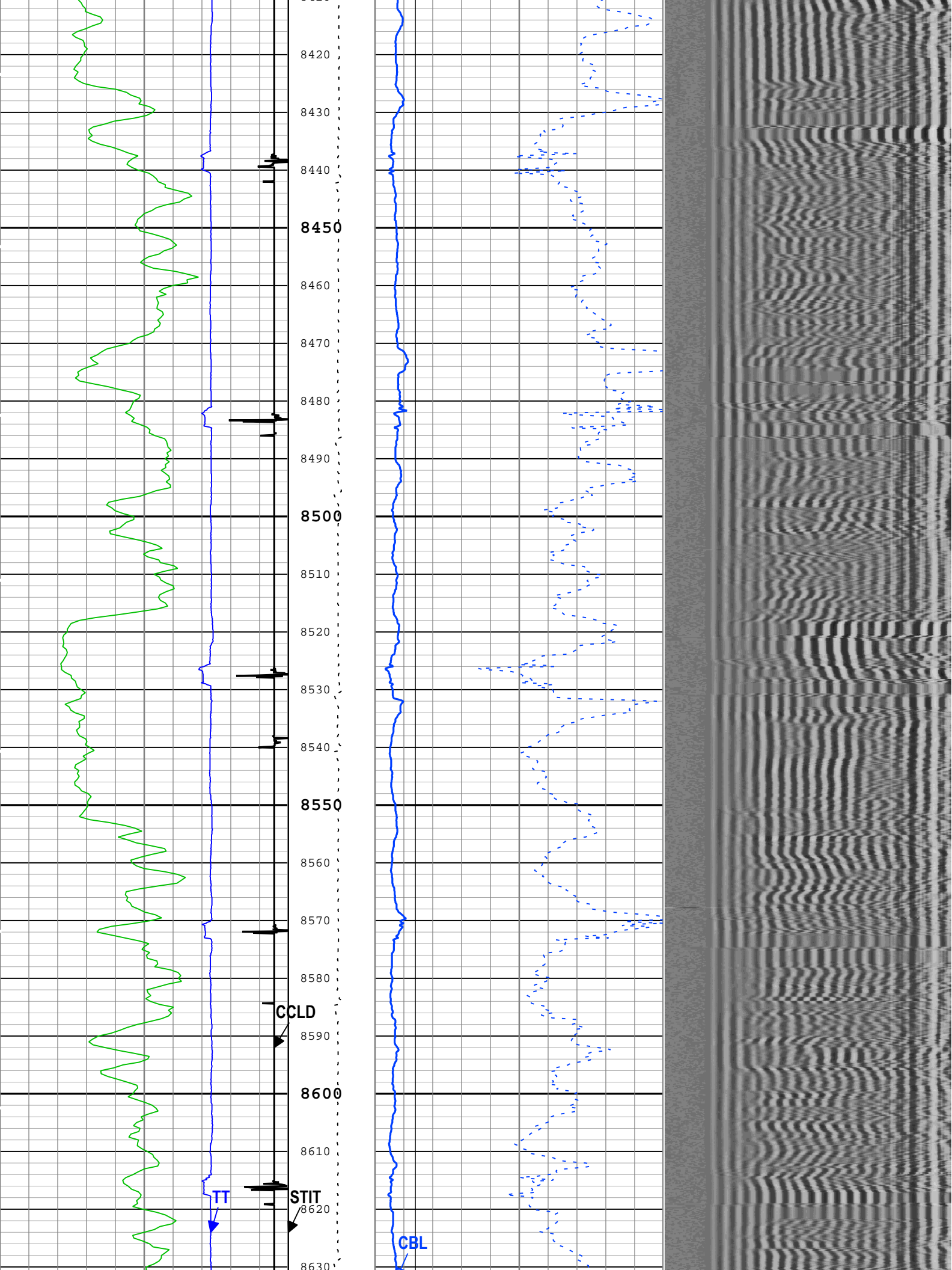


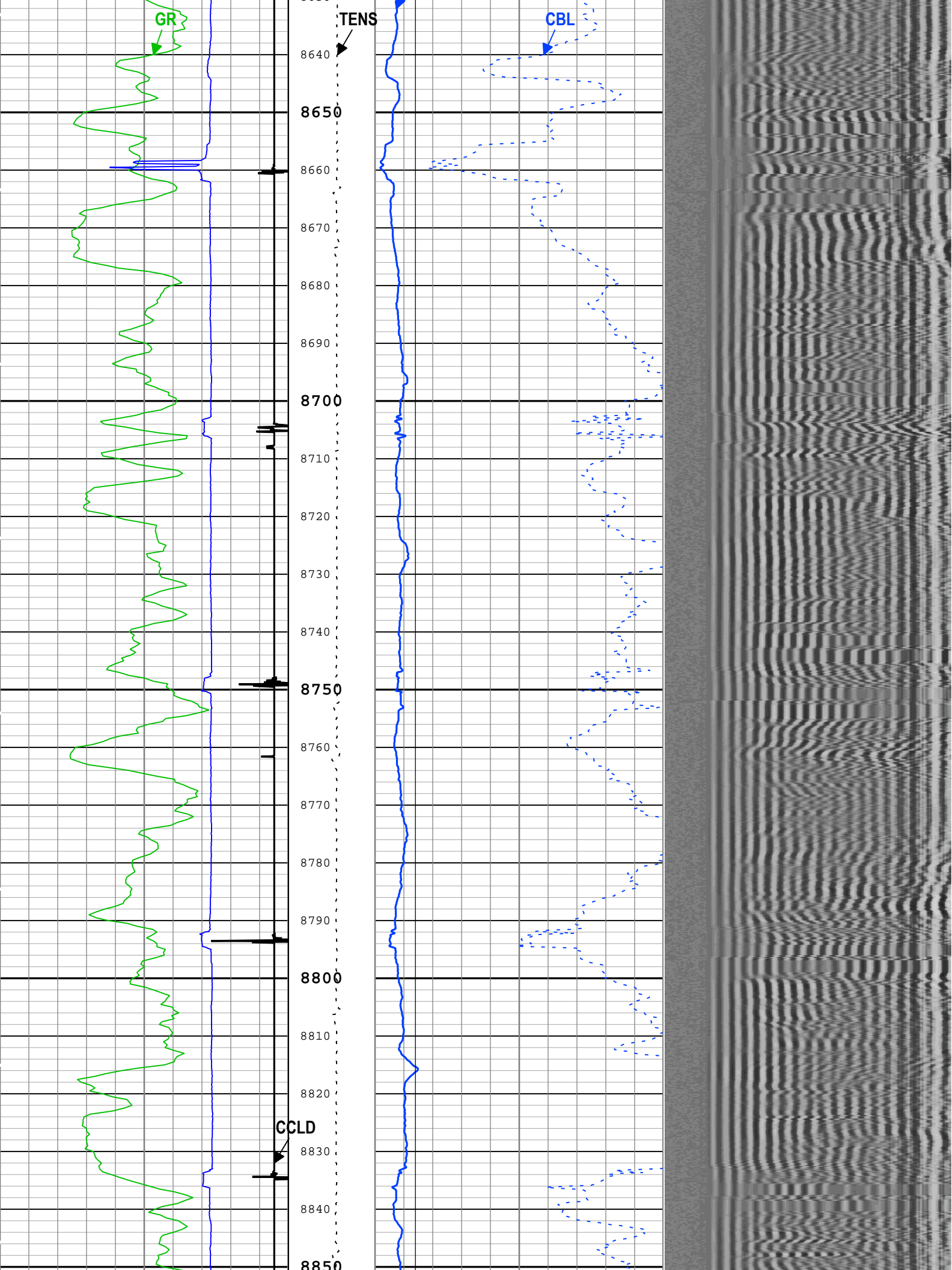


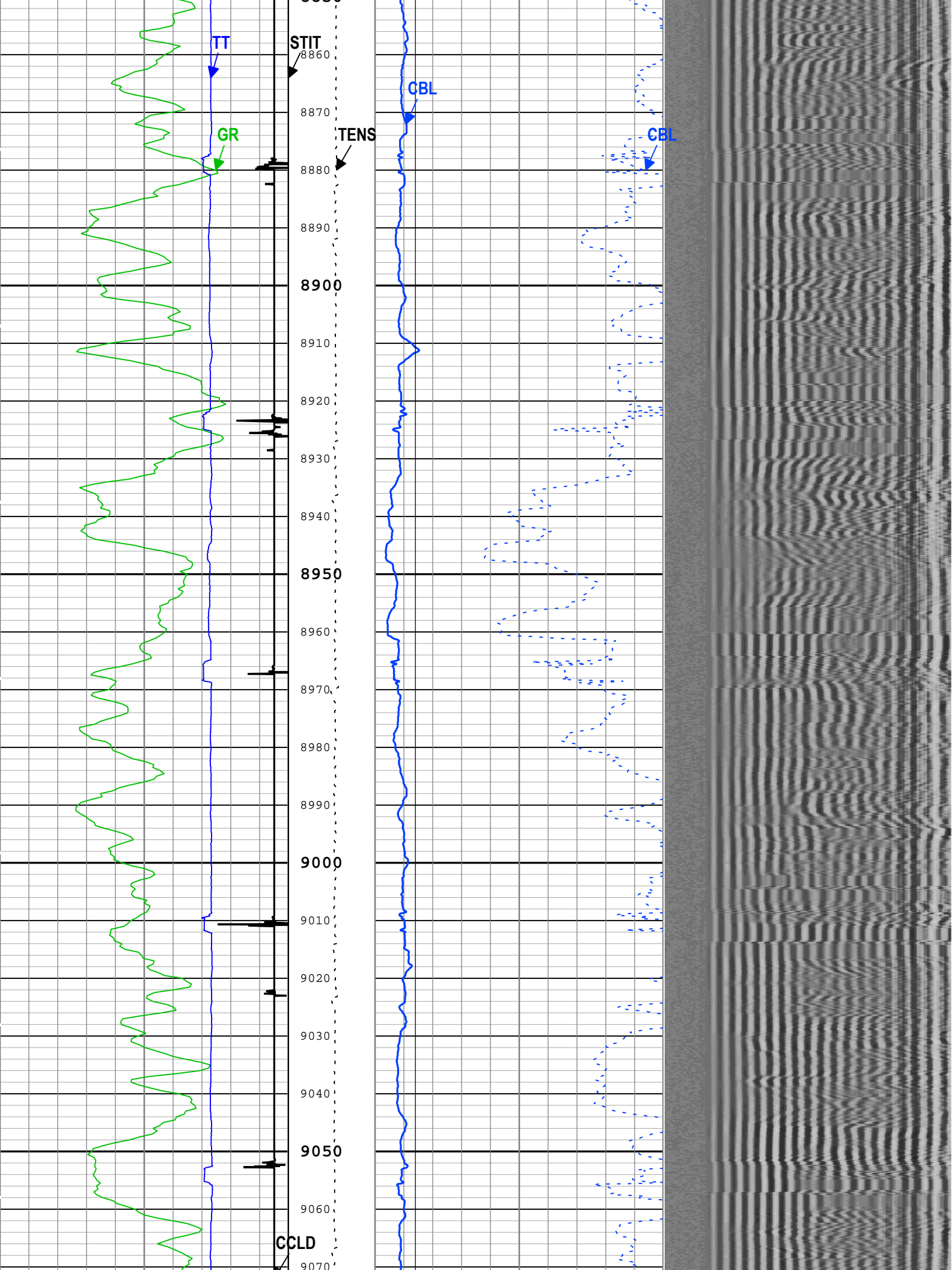


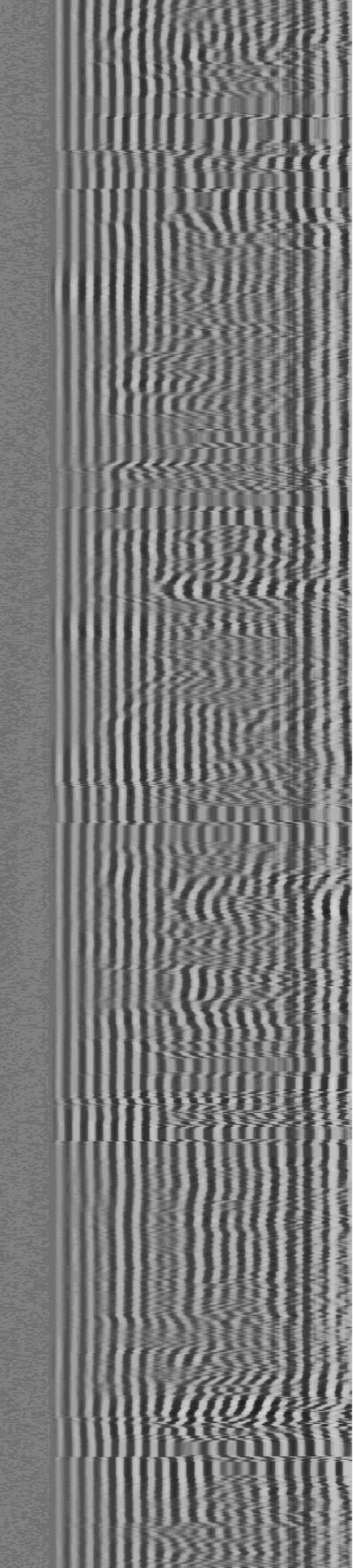
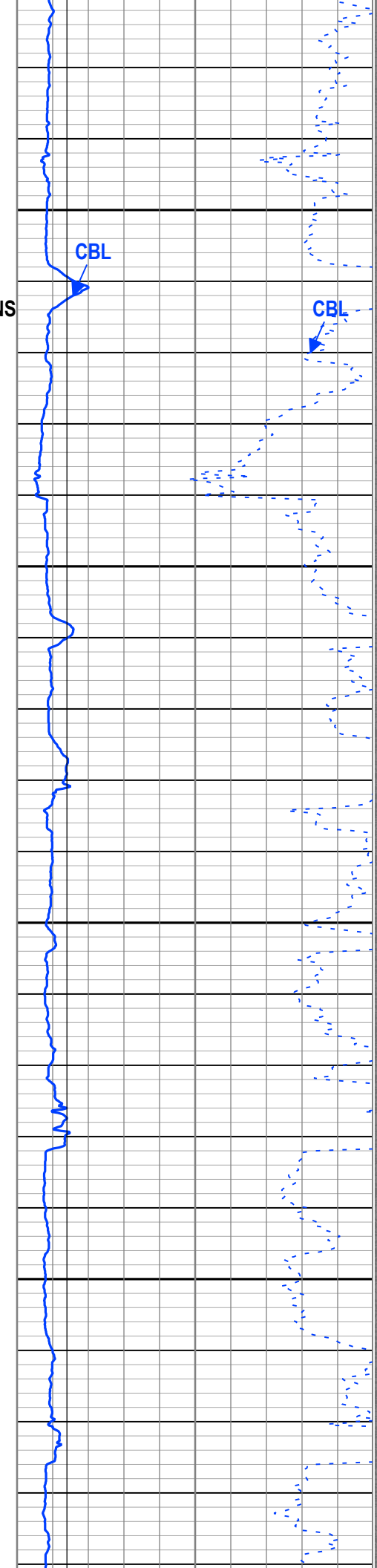
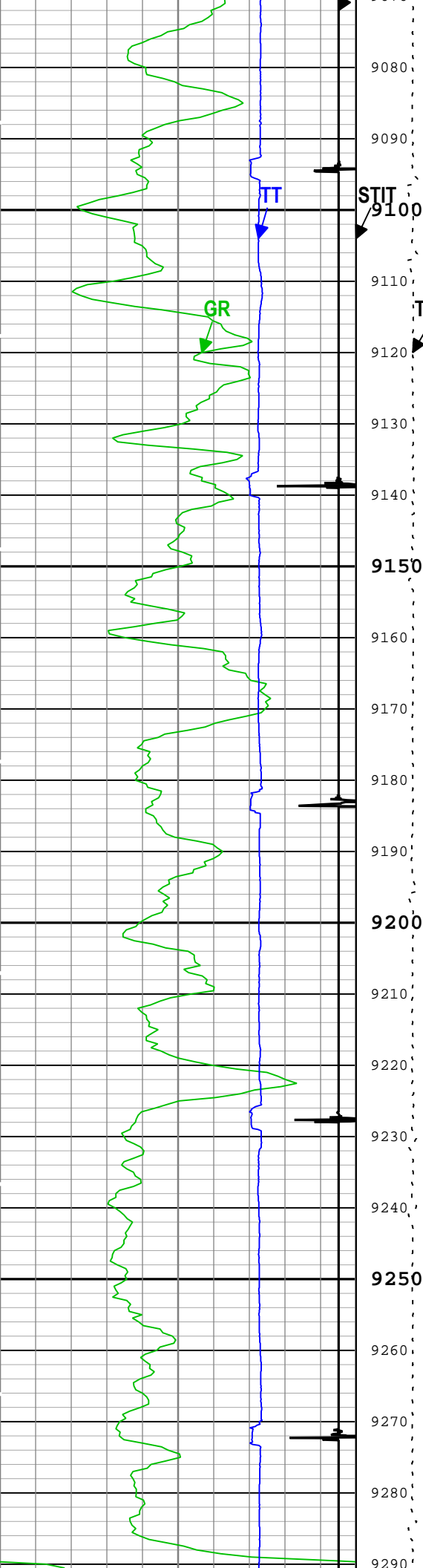


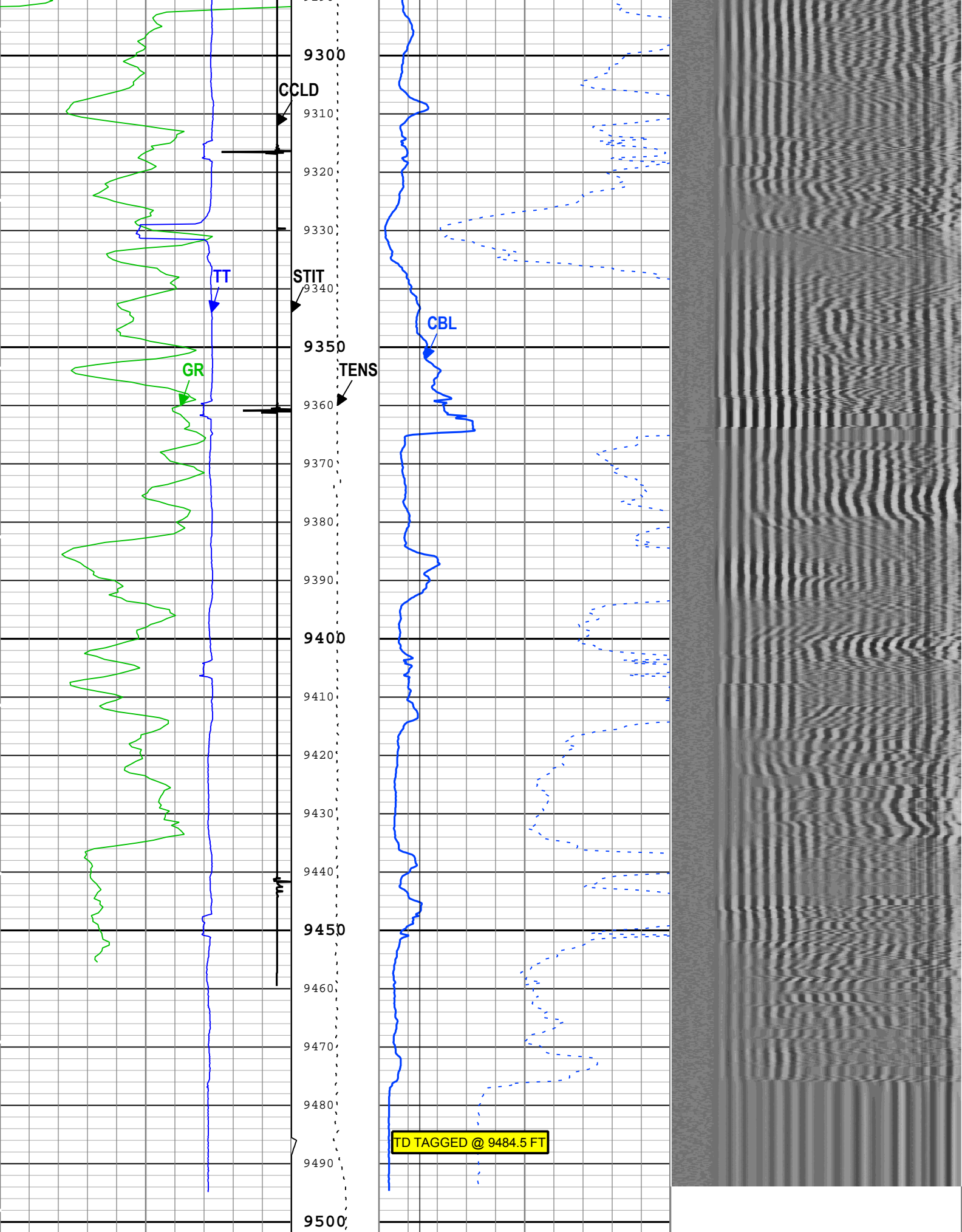












Gamma Ray (GR) PSTP-A[1]

Cable Tension

CBL Amplitude (CBL) SCMT-CB[1]

Min

Amplitude

Max



Transit Time for CBL (TT) SCMT-CB[1]		(TENS)	CBL Amplitude (CBL) SCMT-CB[1]		VDL VariableDensity (VDL) SCMT-CB[1]	
400	us	3000 lbf	0	mV	200	1200
CCL Discriminated Amplitude (CCLD) PSTP-A[1]		Stuck Tool Indicator, Total (STIT)	Good Bond (GOBO)			
-19	V	0 ft 50	0	mV	10	
		Cable Drag	GoodBond From CBL to GOBO			
		Tool_Tot. Drag				

TIME_1900 - Time Marked every 60.00 (s)

■ BIEP - Bond Index Event Pips SCMT-CB[1]

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: 06-Sep-2018 15:25:15

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
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.25	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.5	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
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-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
TD	Total Measured Depth	Borehole	9484.5	ft

ONE Depth Zoned Parameters

Parameter	Value	Start (ft)	Stop (ft)
MCI	14.81	2300	2400
MCI	1.25	2400	9503.42

All depth 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	Time Zoned	

ONETime Zoned Parameters

Pass Log[6]:Up

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
PCCG	24 dB	06-Sep-2018 10:20:59	06-Sep-2018 11:03:34	9503.45	8316.53
PCCG	36 dB	06-Sep-2018 11:03:34	06-Sep-2018 11:03:54	8316.53	8306.58
PCCG	24 dB	06-Sep-2018 11:03:54	06-Sep-2018 13:17:56	8306.58	4351.54

Pass Log[8]:Up

PCCG	24 dB	06-Sep-2018 13:39:41	06-Sep-2018 15:00:34	4706.18	2211.46
------	-------	----------------------	----------------------	---------	---------

All depth are at tool zero.

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[5]:Up	Up	9151.29 ft	9495.23 ft	06-Sep-2018 10:03:45 AM	06-Sep-2018 10:16:25 AM	ON	4.04 ft	No

All depths are referenced to toolstring zero

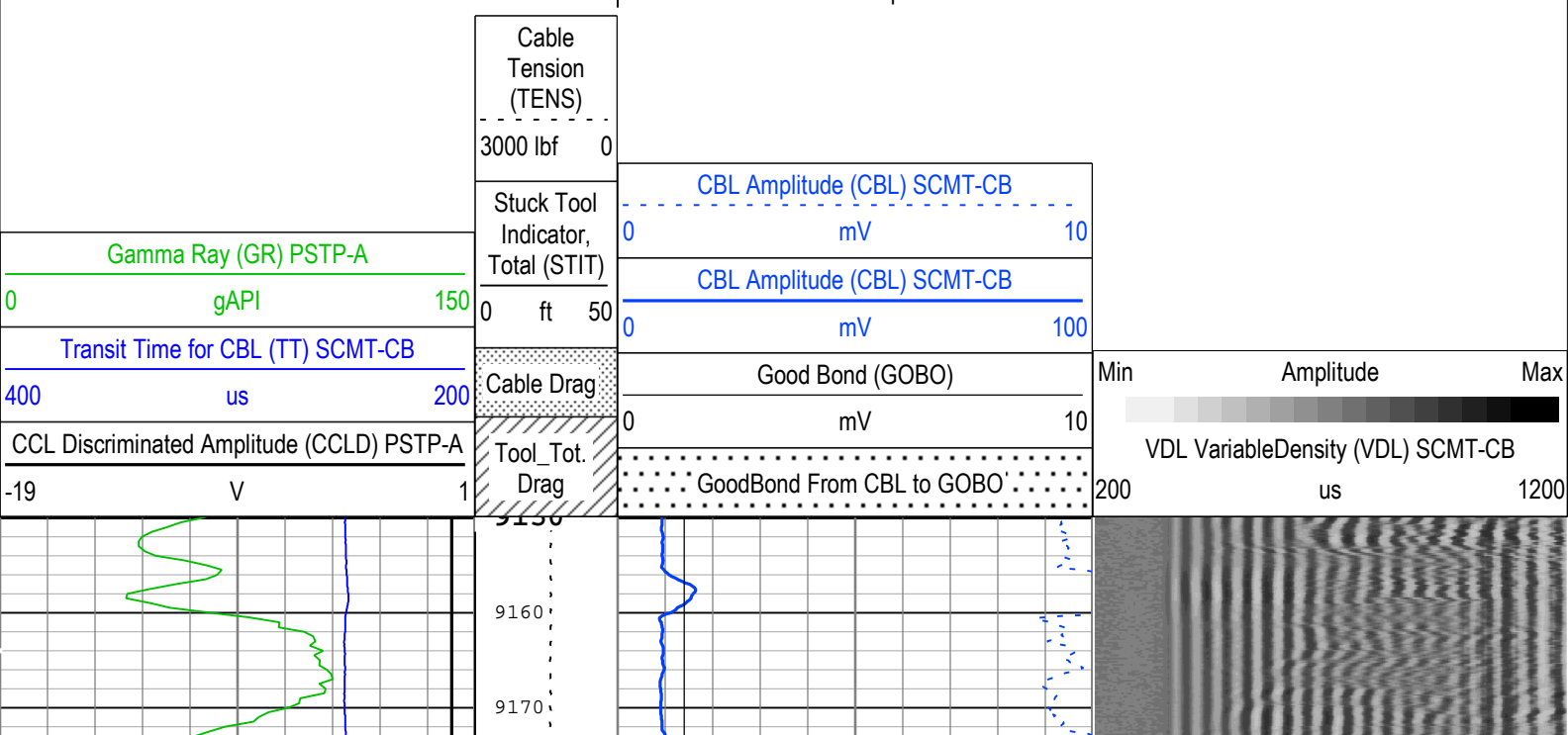
Log

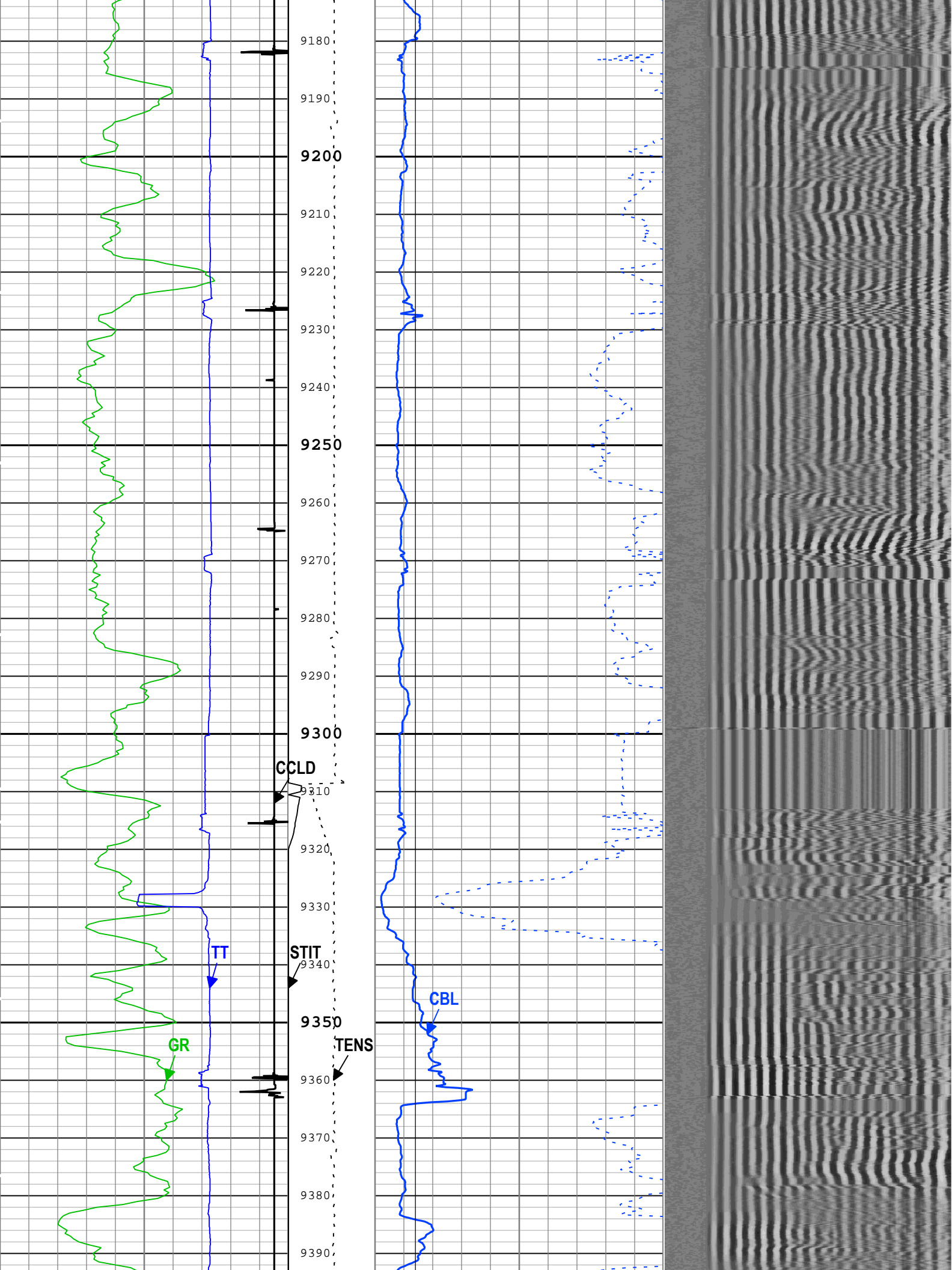
Company:Caerus Operating LLC Well:NPR 13B-10 596
ONE: Log[5]:Up:S008

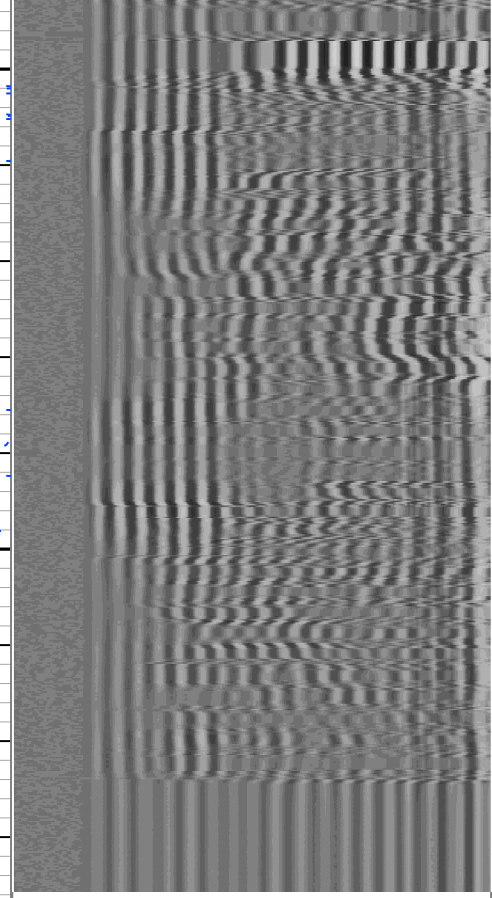
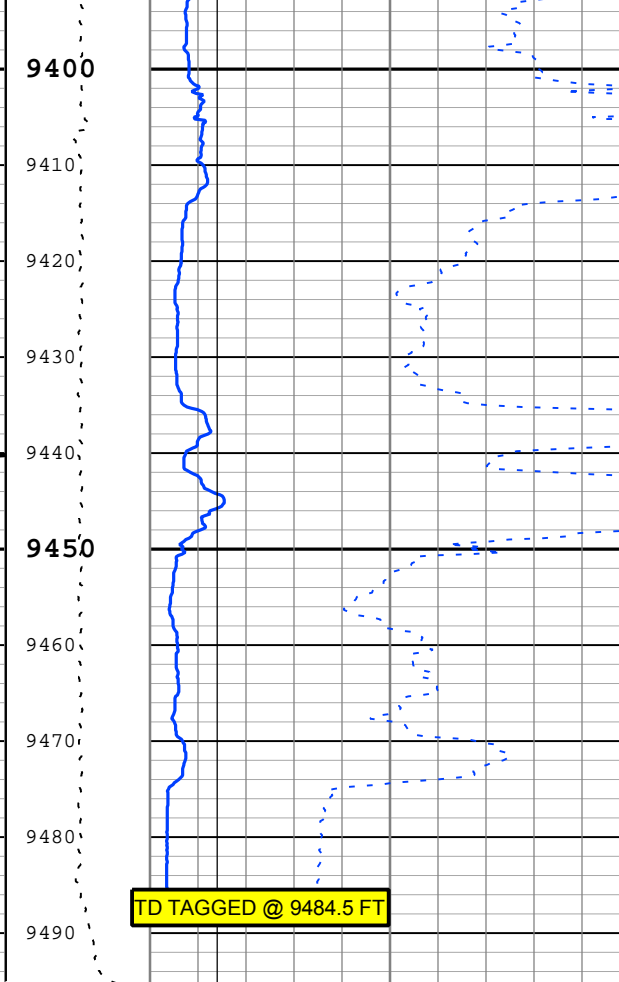
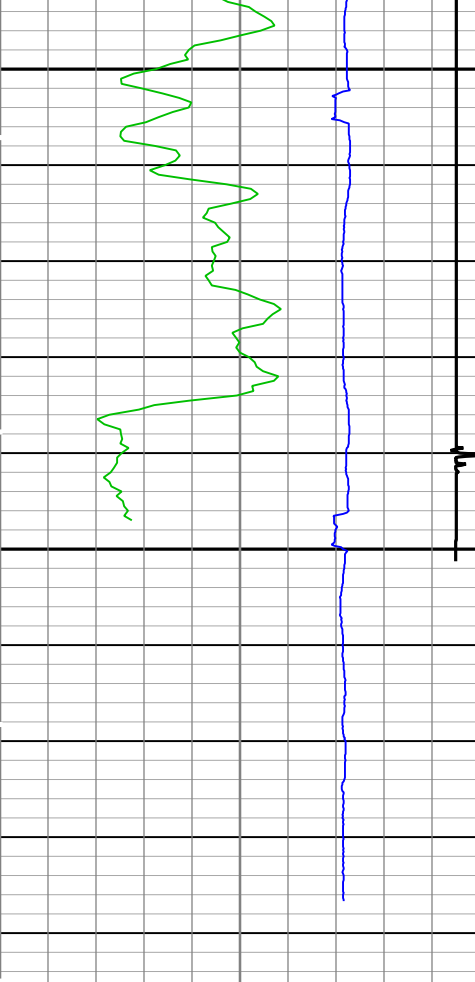
Description: Sonic CBL with VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 06-Sep-2018 15:25:24

TIME_1900 - Time Marked every 60.00 (s)

■ BIEP - Bond Index Event Pips SCMT-CB



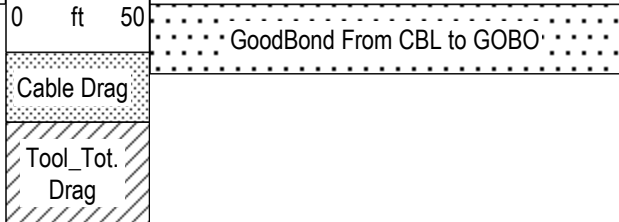




Gamma Ray (GR) PSTP-A		
0	gAPI	150
Transit Time for CBL (TT) SCMT-CB		
400	us	200
CCL Discriminated Amplitude (CCLD) PSTP-A		
-19	V	1

Cable Tension (TENS)	0	3000 lbf
Stuck Tool Indicator, Total (STIT)	0	50 ft
CBL Amplitude (CBL) SCMT-CB	0	10 mV
Good Bond (GOBO)	0	10 mV

Min	Amplitude	Max
200	us	1200



■ BIEP - Bond Index Event Pips SCMT-CB

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: 06-Sep-2018 15:25:24

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
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.25	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.5	lbm/gal

DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
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-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
TD	Total Measured Depth	Borehole	9484.5	ft

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	

Main Pass

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

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[6]:Up	Up	4351.54 ft	9503.45 ft	06-Sep-2018 10:20:59 AM	06-Sep-2018 1:17:56 PM	ON	5.64 ft	No
ONE	Log[8]:Up	Up	2211.46 ft	4706.18 ft	06-Sep-2018 1:39:31 PM	06-Sep-2018 3:00:34 PM	ON	5.45 ft	No

All depths are referenced to toolstring zero

Log

Company:Caerus Operating LLC Well:NPR 13B-10 596

Main Pass:S008

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: 06-Sep-2018 15:25:26

TIME_1900 - Time Marked every 60.00 (s)

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

—| IHV - Integrated Hole Volume every 10.00 (ft3)

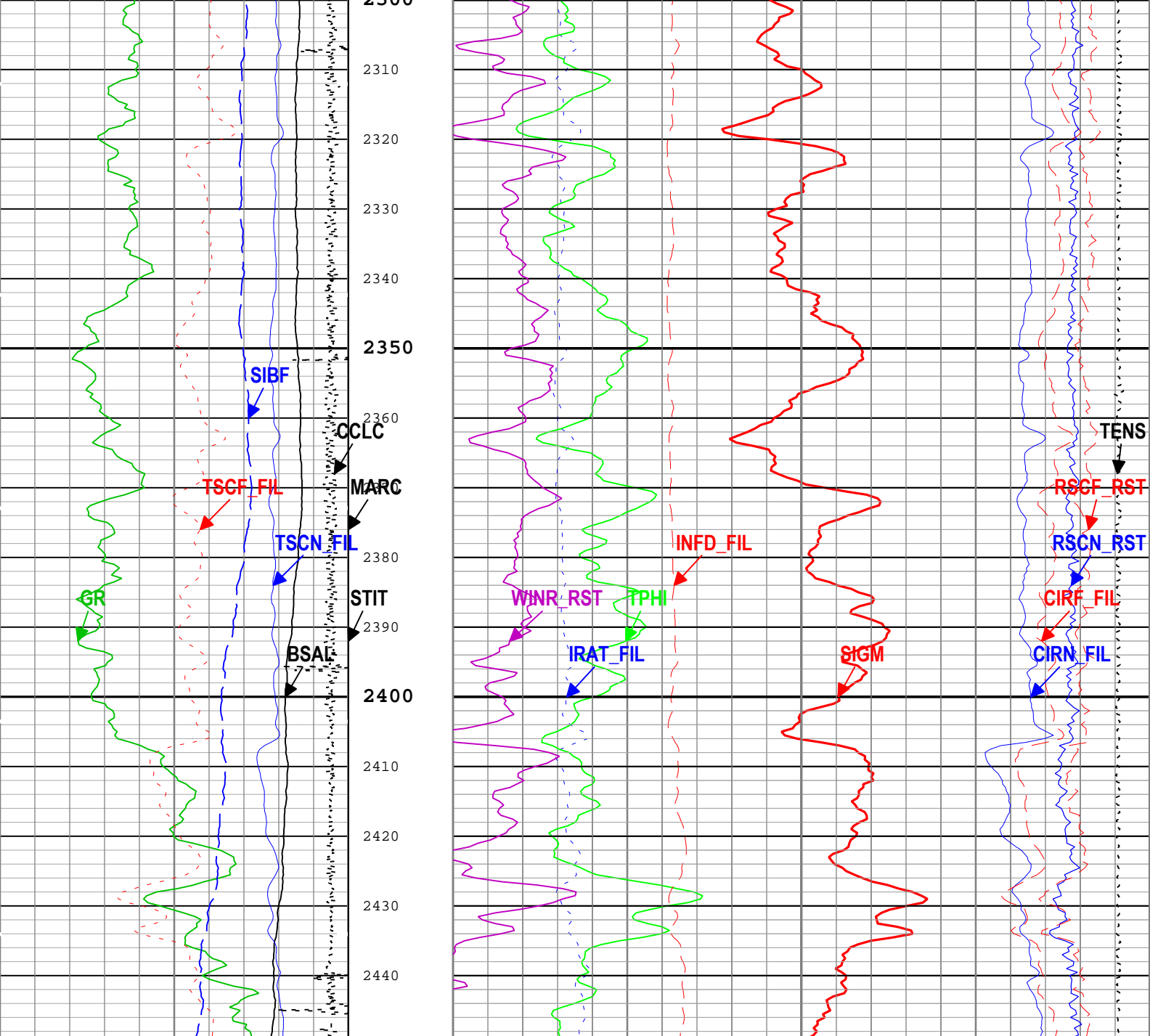
—| IHV - Integrated Hole Volume every 100.00 (ft3)

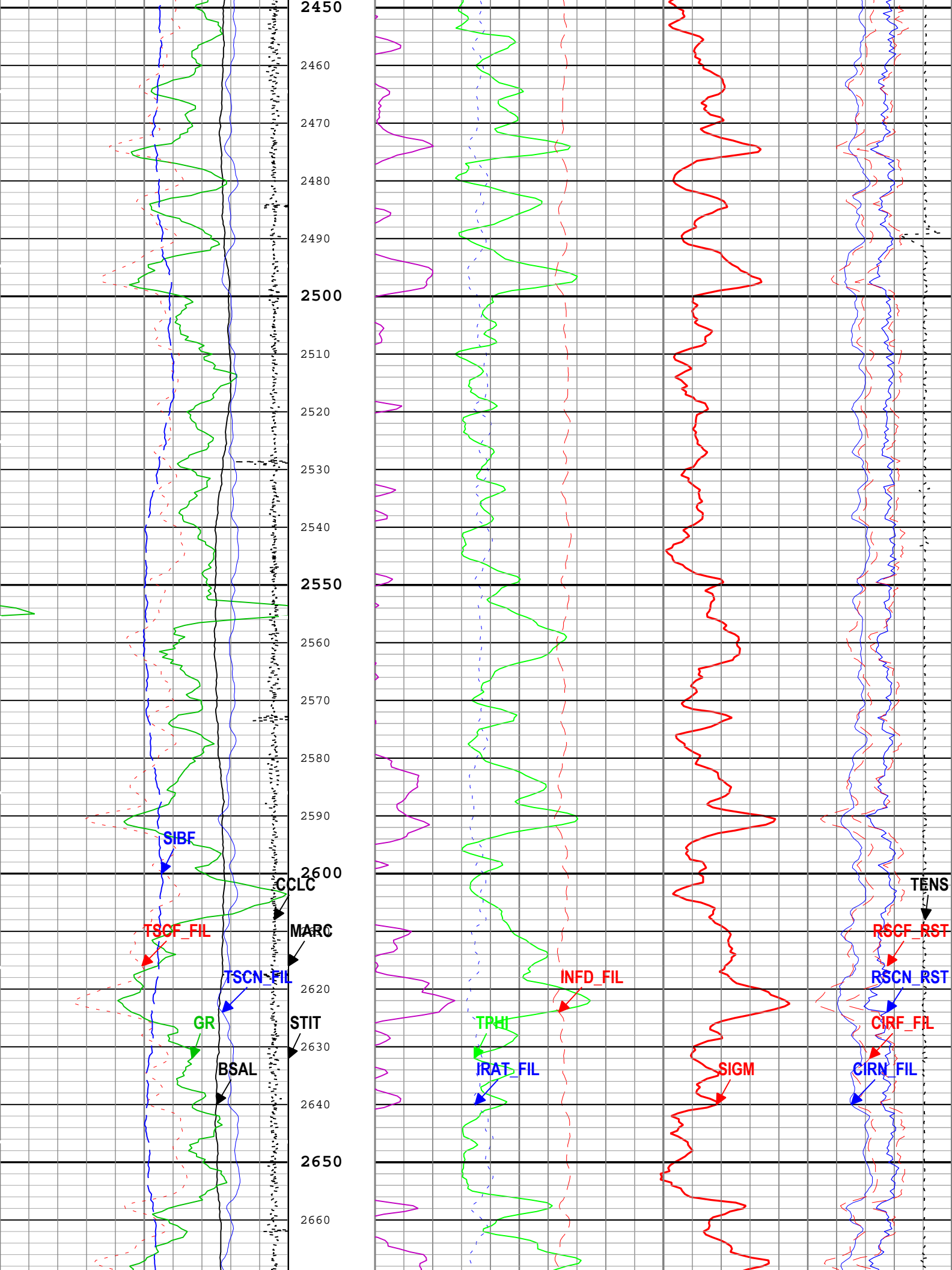
| ICV - Integrated Cement Volume every 10.00 (ft3)

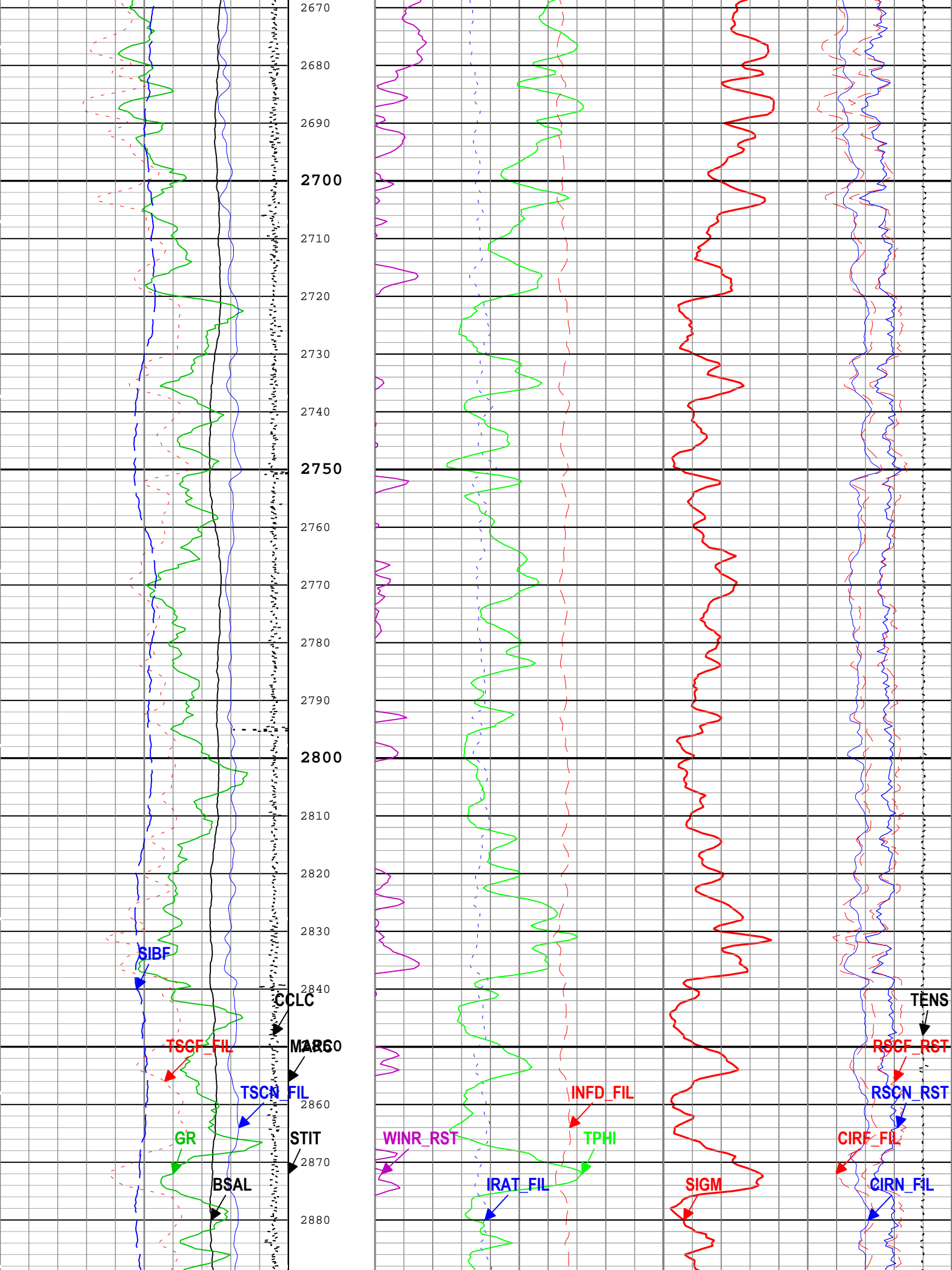
| ICV - Integrated Cement Volume every 100.00 (ft3)

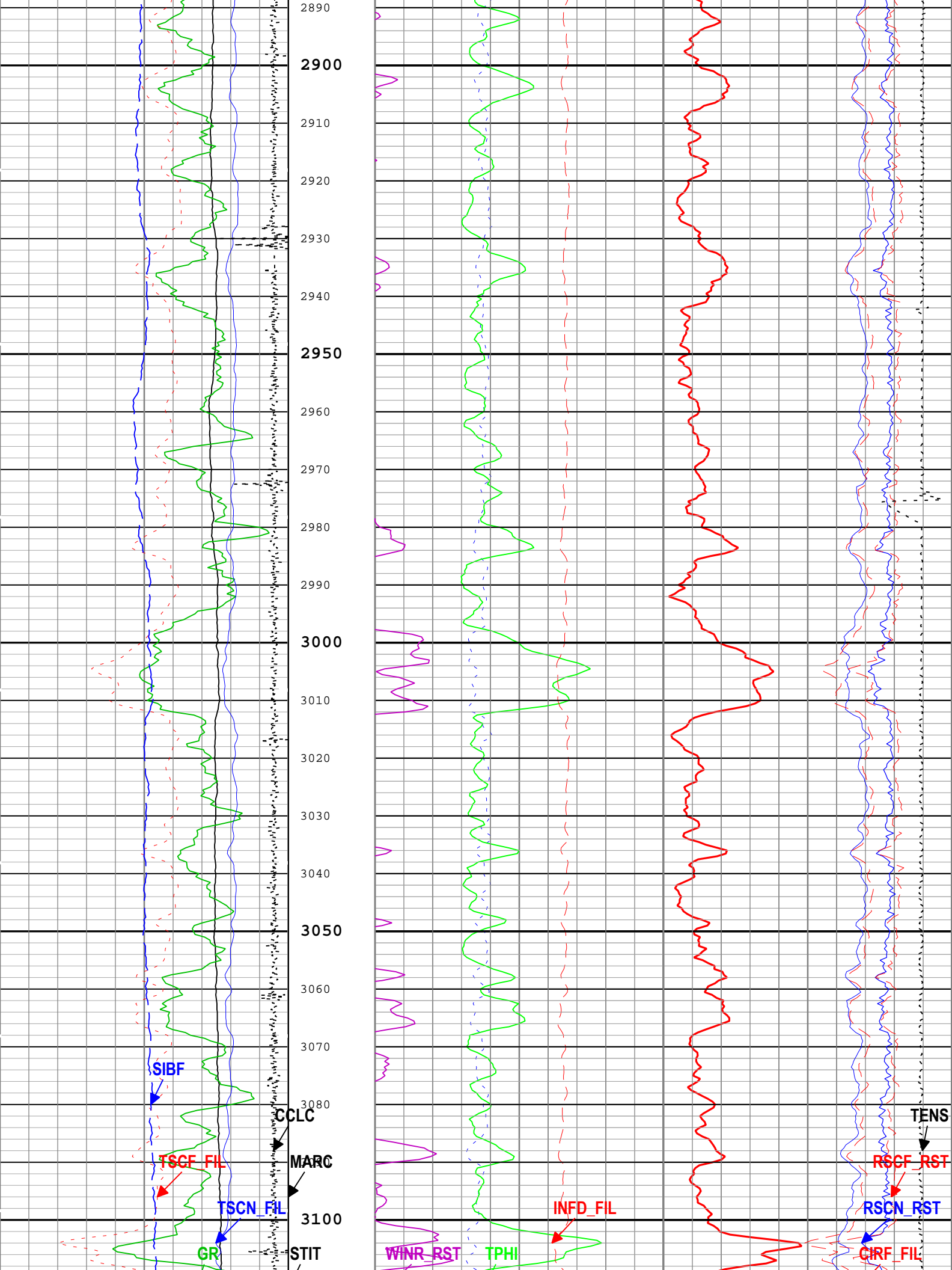
[Capture to Inelastic Ratio Near Filtered \(CIRN_FIL\) RST-C\[1\]](#)

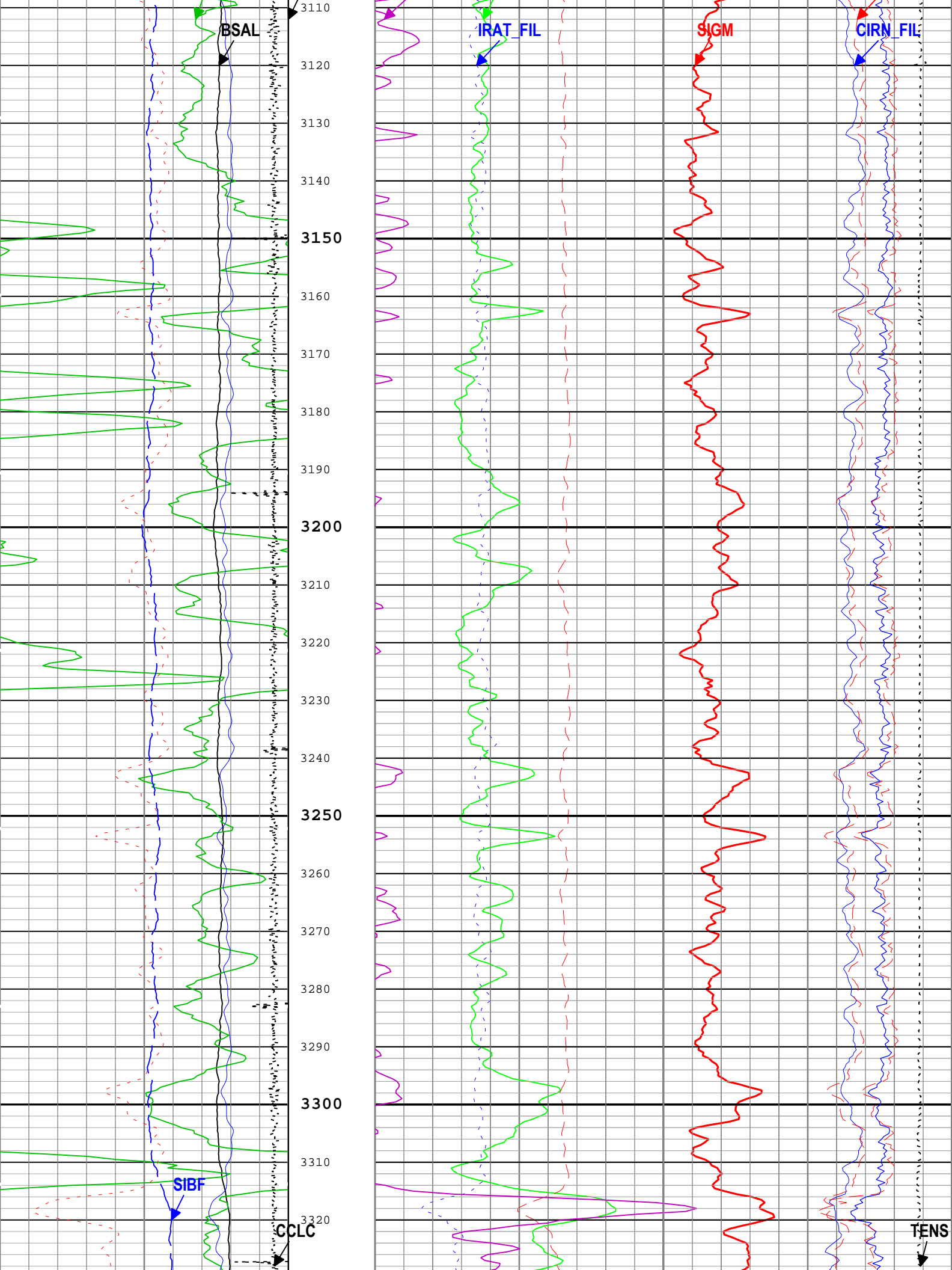
Borehole Salinity (BSAL) RST-C[1]			Stuck Tool Indicator, Total (STIT)		Capture to Inelastic Ratio Far Filtered (CIRF_FIL) RST-C[1]		
450	ppk	-50	0	ft	50	5	0
Gamma Ray (GR) PSTP-A[1]			Cable Drag From STIA to STIT		Near Detector Effective Unregulated Capture Count Rate (RSCN_RST) RST-C[1]		
0	gAPI	150	0.75			45	0
Total Selected Count Rate Near Detector Filtered (TSCN_FIL) RST-C[1]			Tool Tot. Drag From D3T to STIT		Far Detector Effective Unregulated Capture Count Rate (RSCF_RST) RST-C[1]		
30000	1/s	0	0.6	ft3/ft3		45	0
Total Selected Count Rate Far Detector Filtered (TSCF_FIL) RST-C[1]			Minitron Arc Count (MARC) RST-C[1]		Cable Tension (TENS)		
12000	1/s	0	60	cu		5000	0
CCL Computed Amplitude (CCLC) PSTP-A[1]			Formation Sigma (Neutron Capture Cross Section) (SIGM) RST-C[1]		Weighted Inelastic Ratio (WINR_RST) RST-C[1]		
-19	V	1	0	cu		0	0.4
Sigma Borehole Fluid (SIBF) RST-C[1]			0				
100	cu	0					

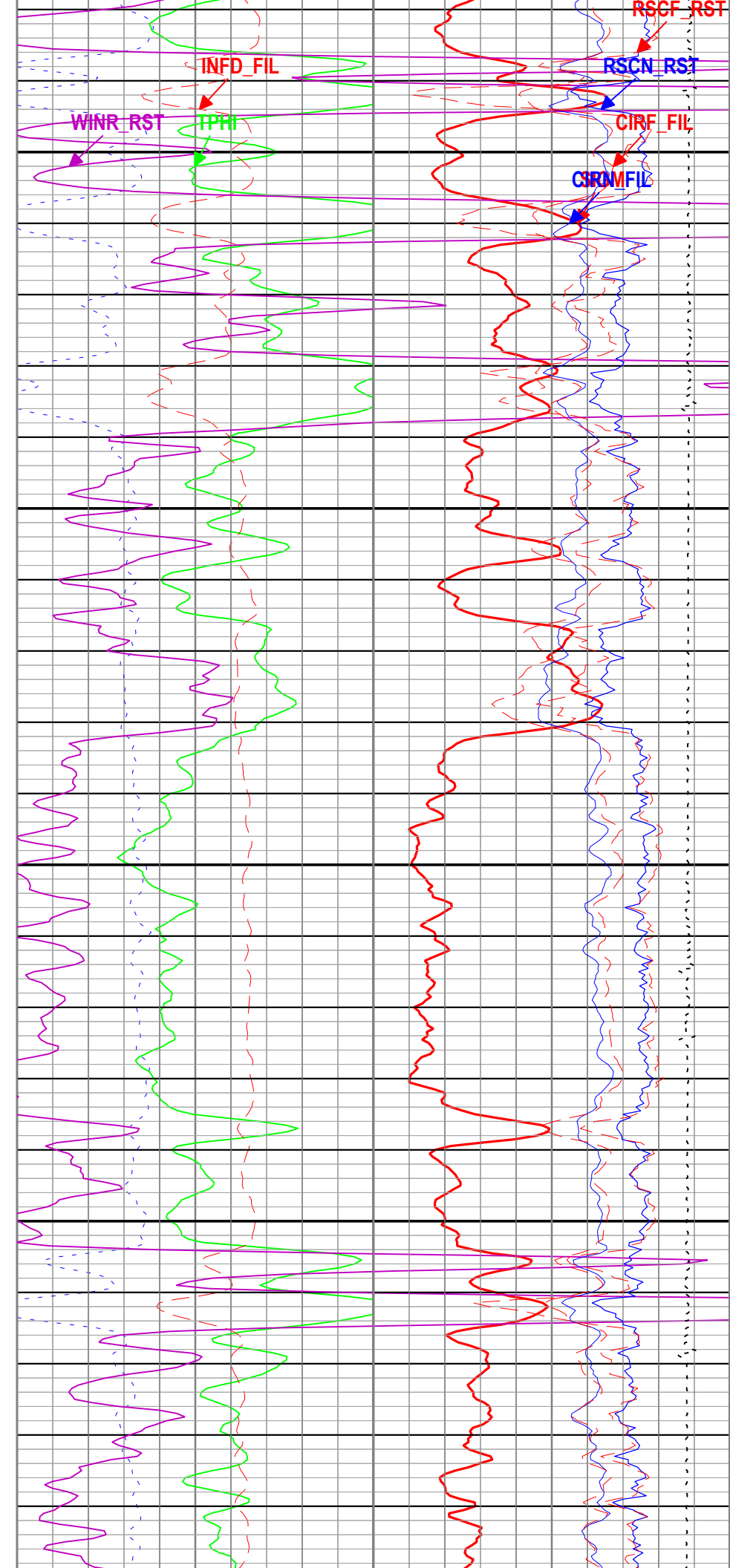
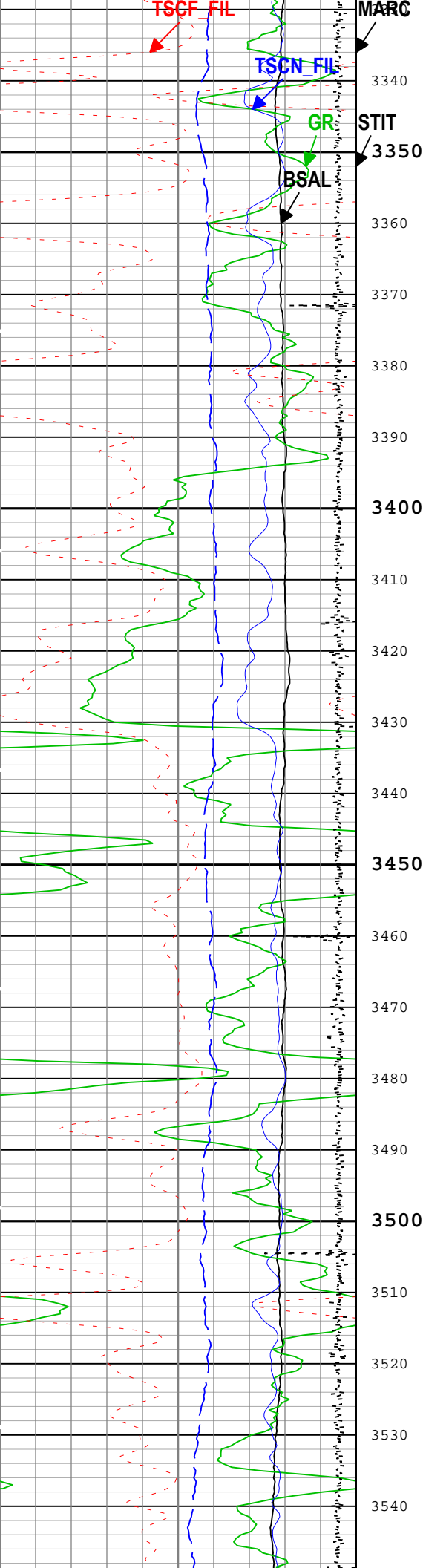


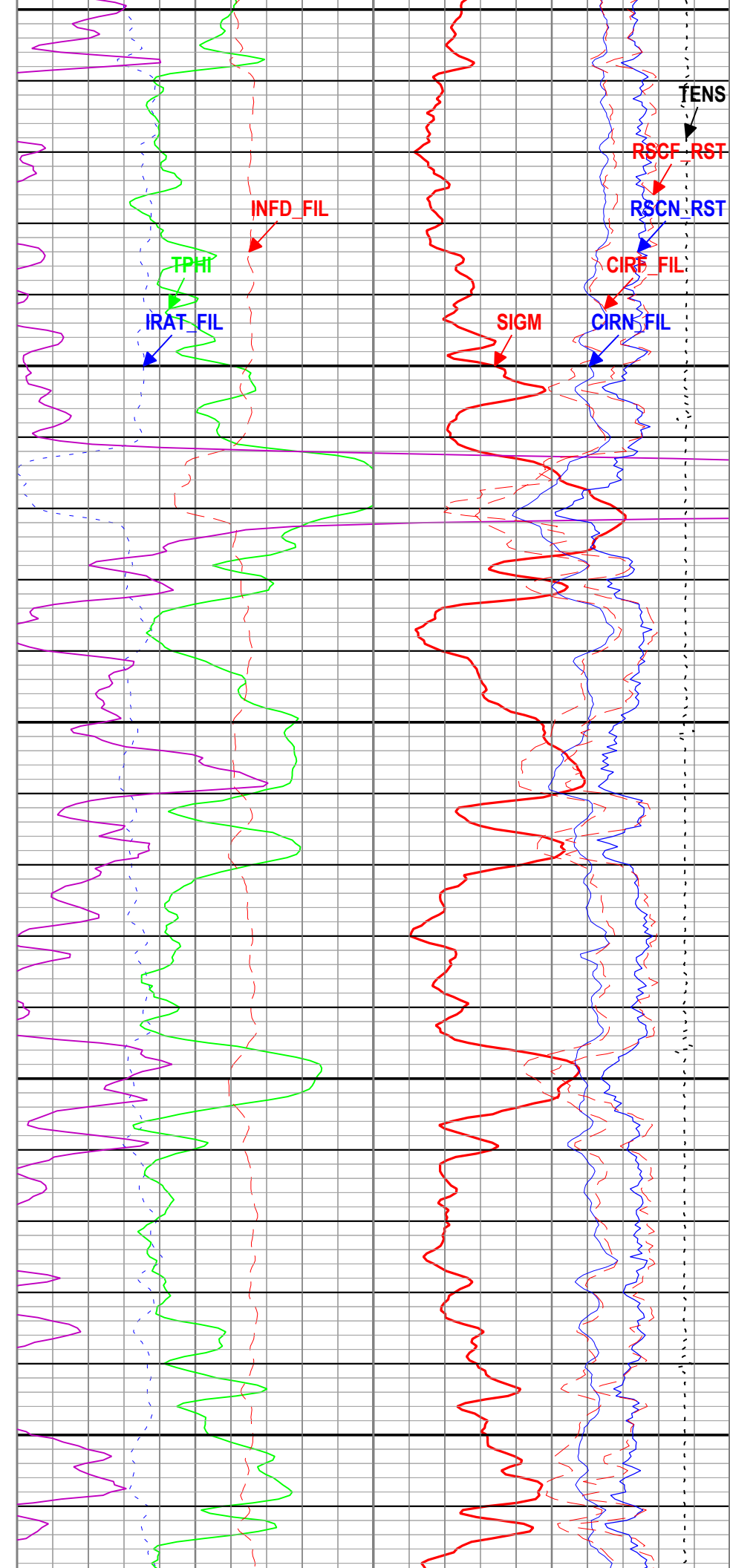
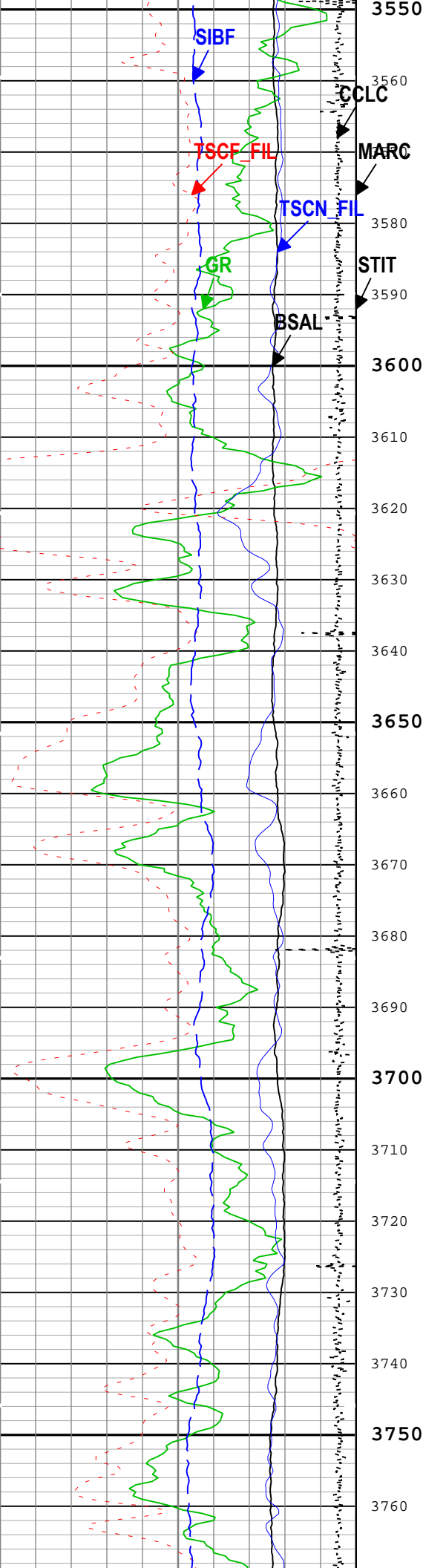


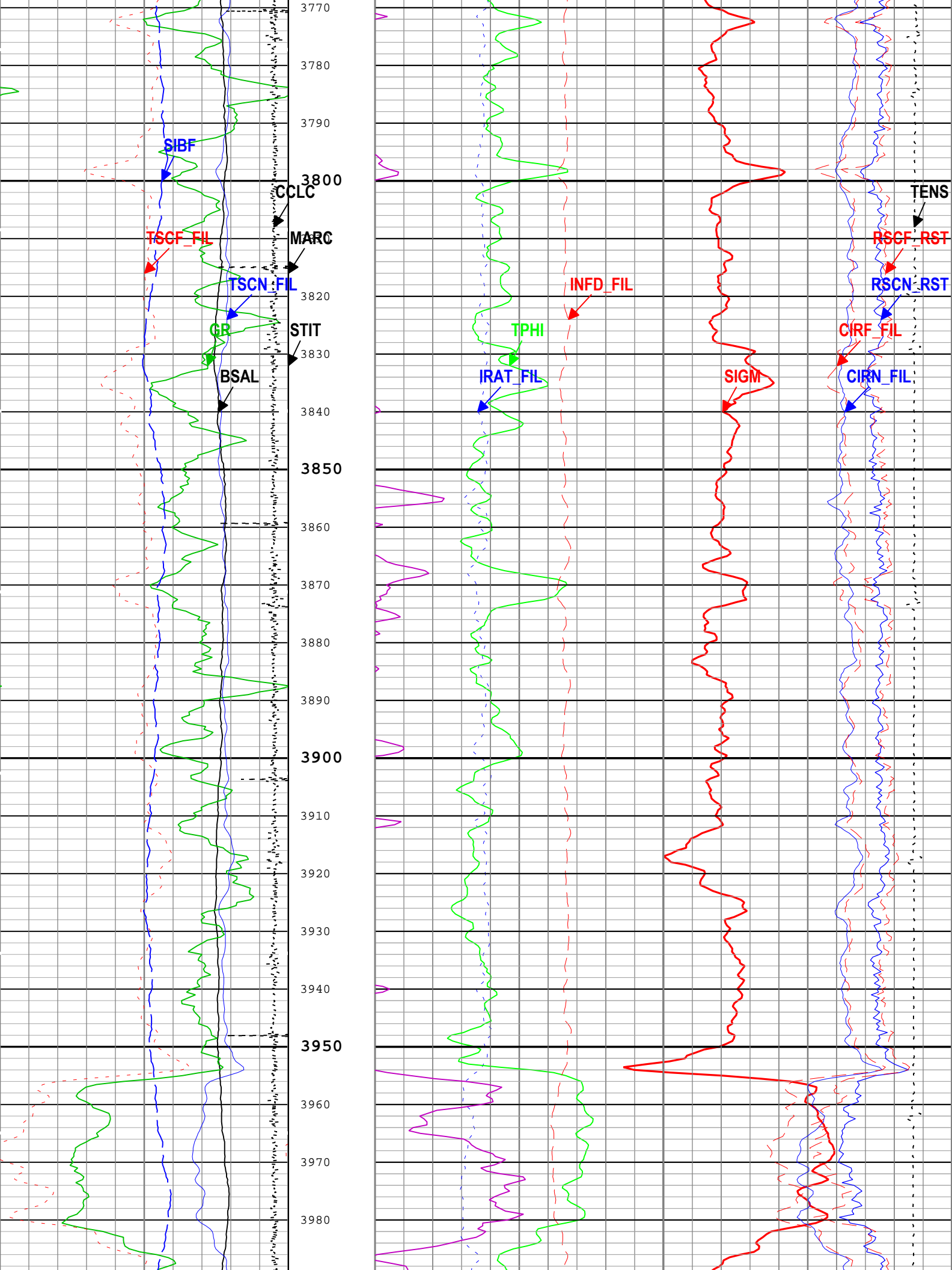


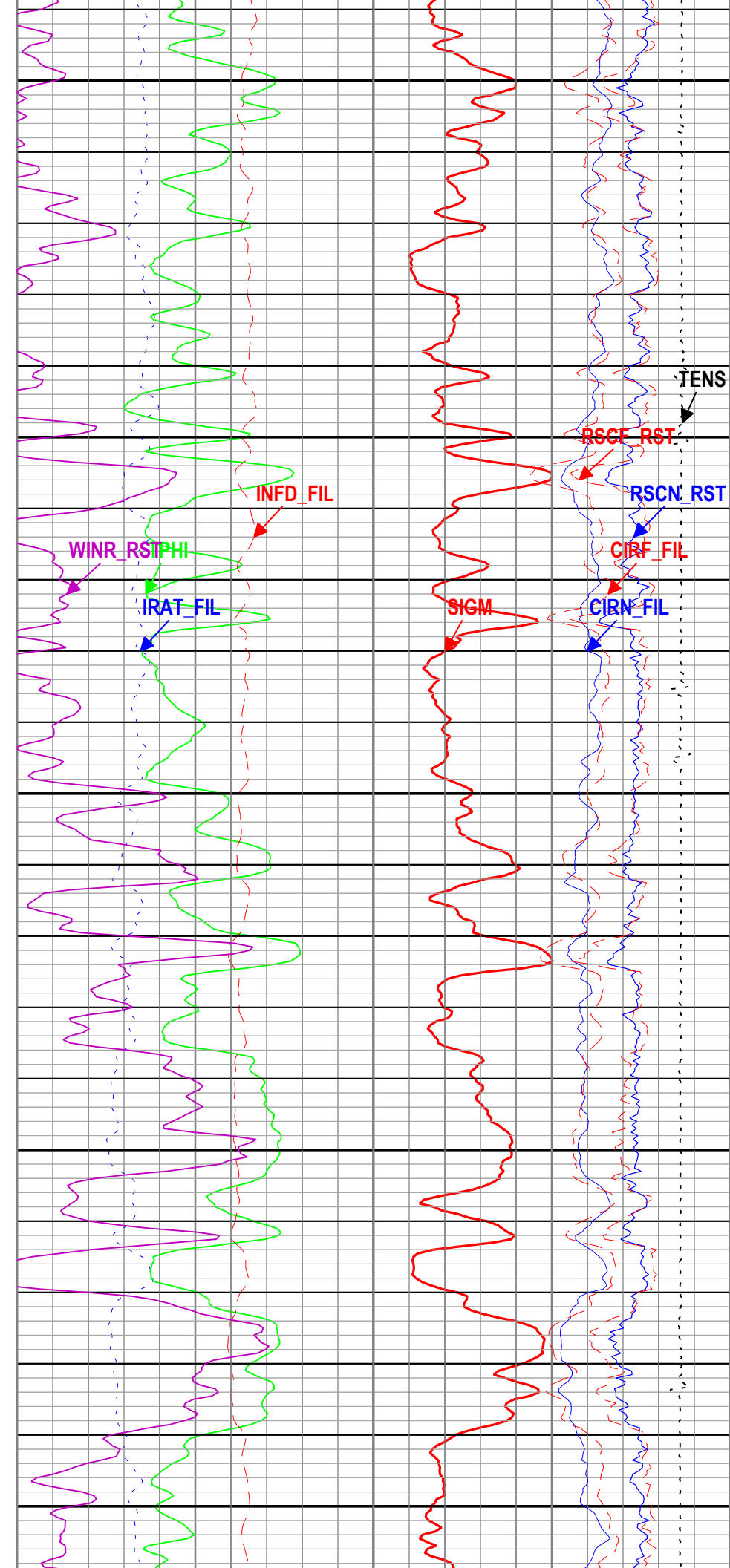
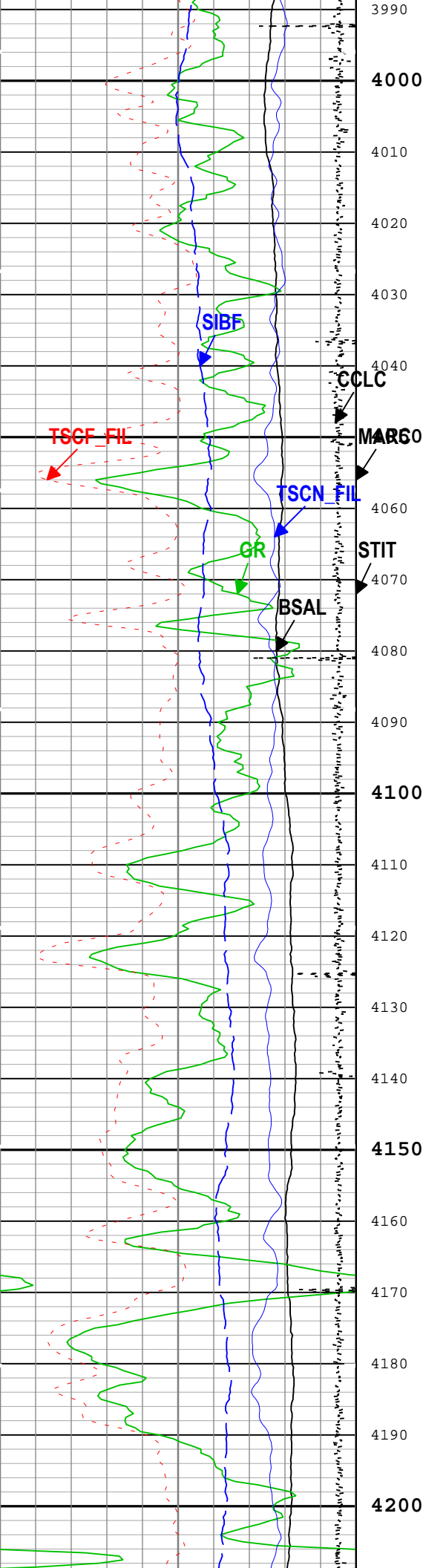


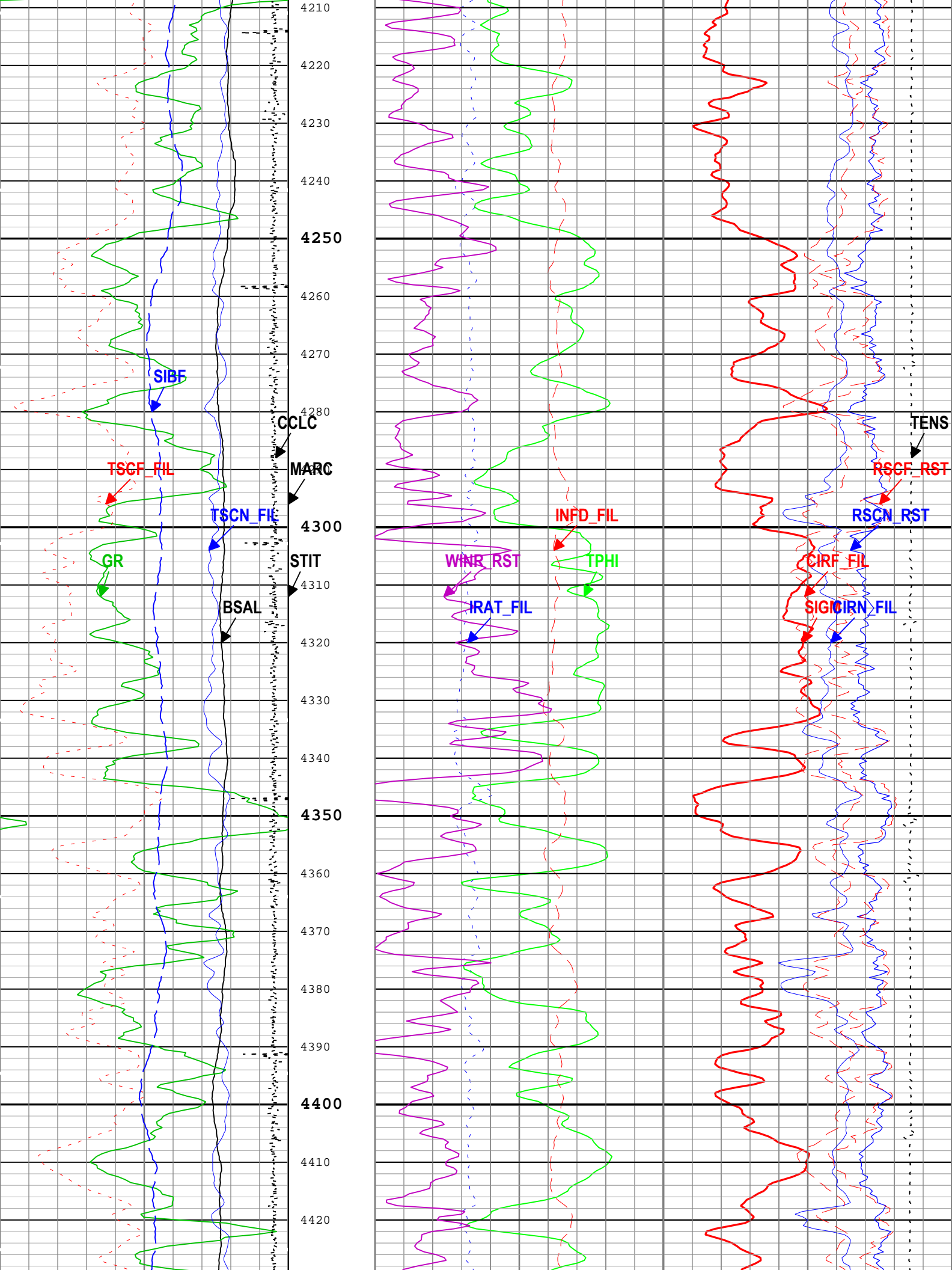


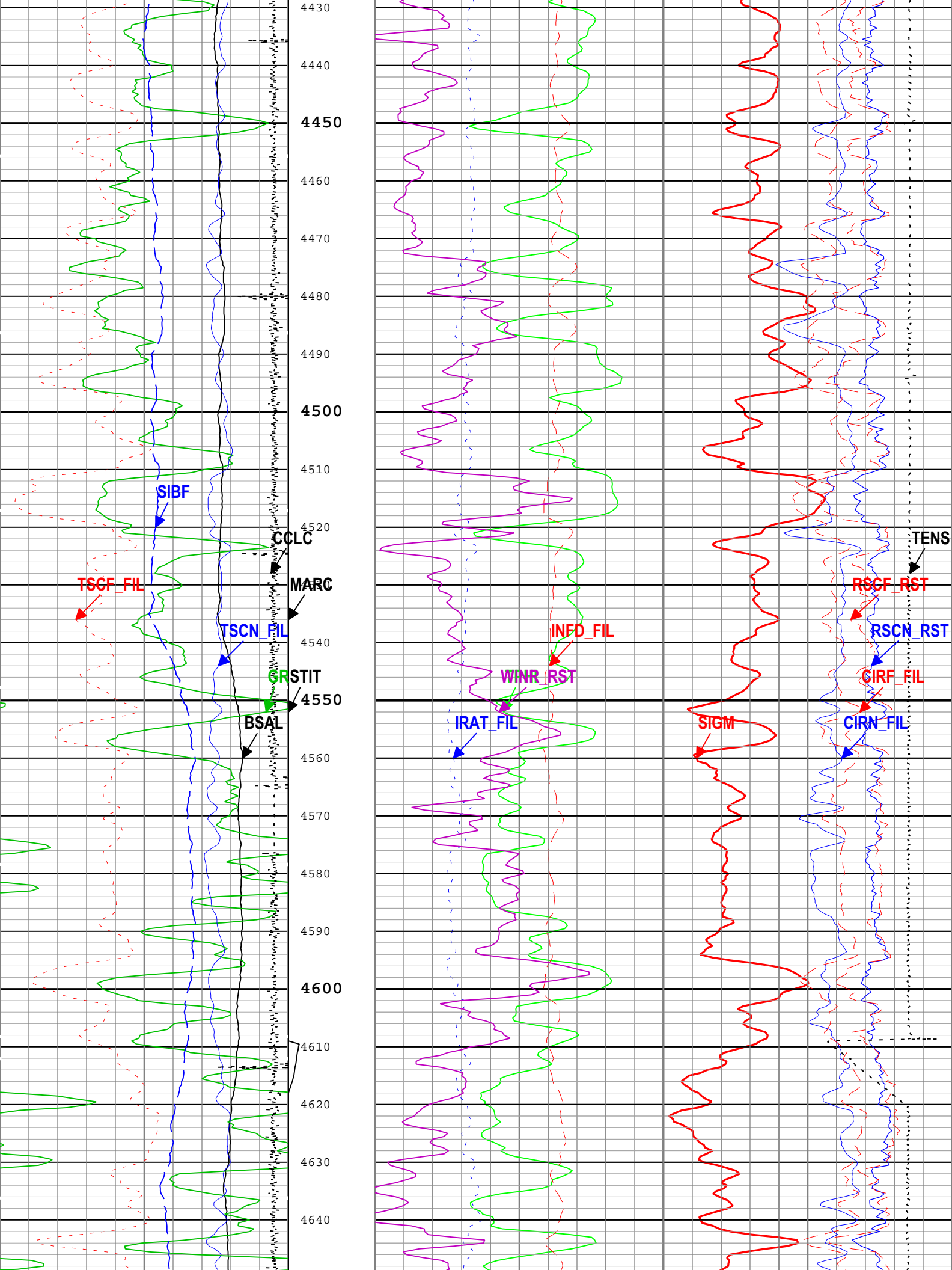


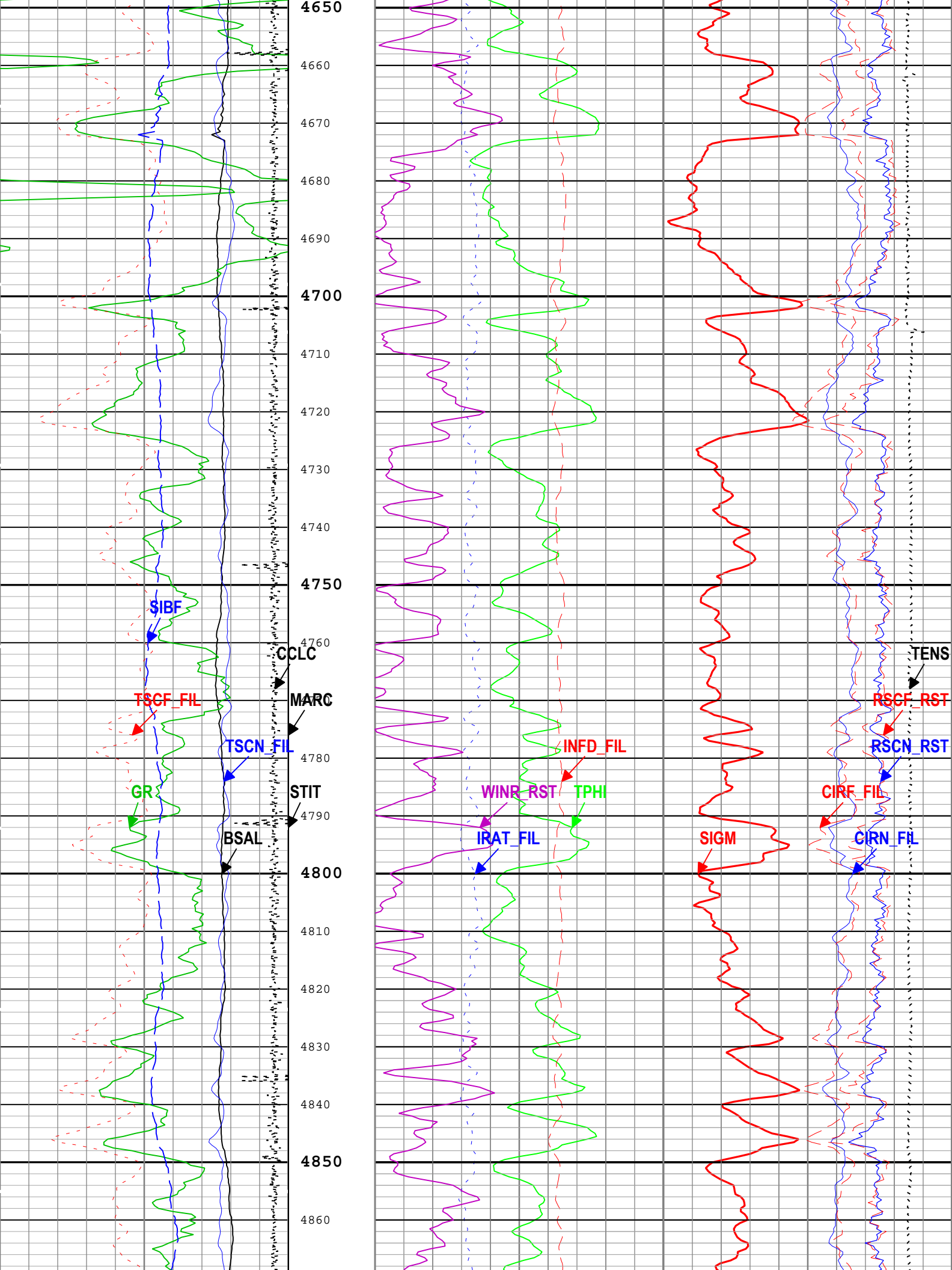


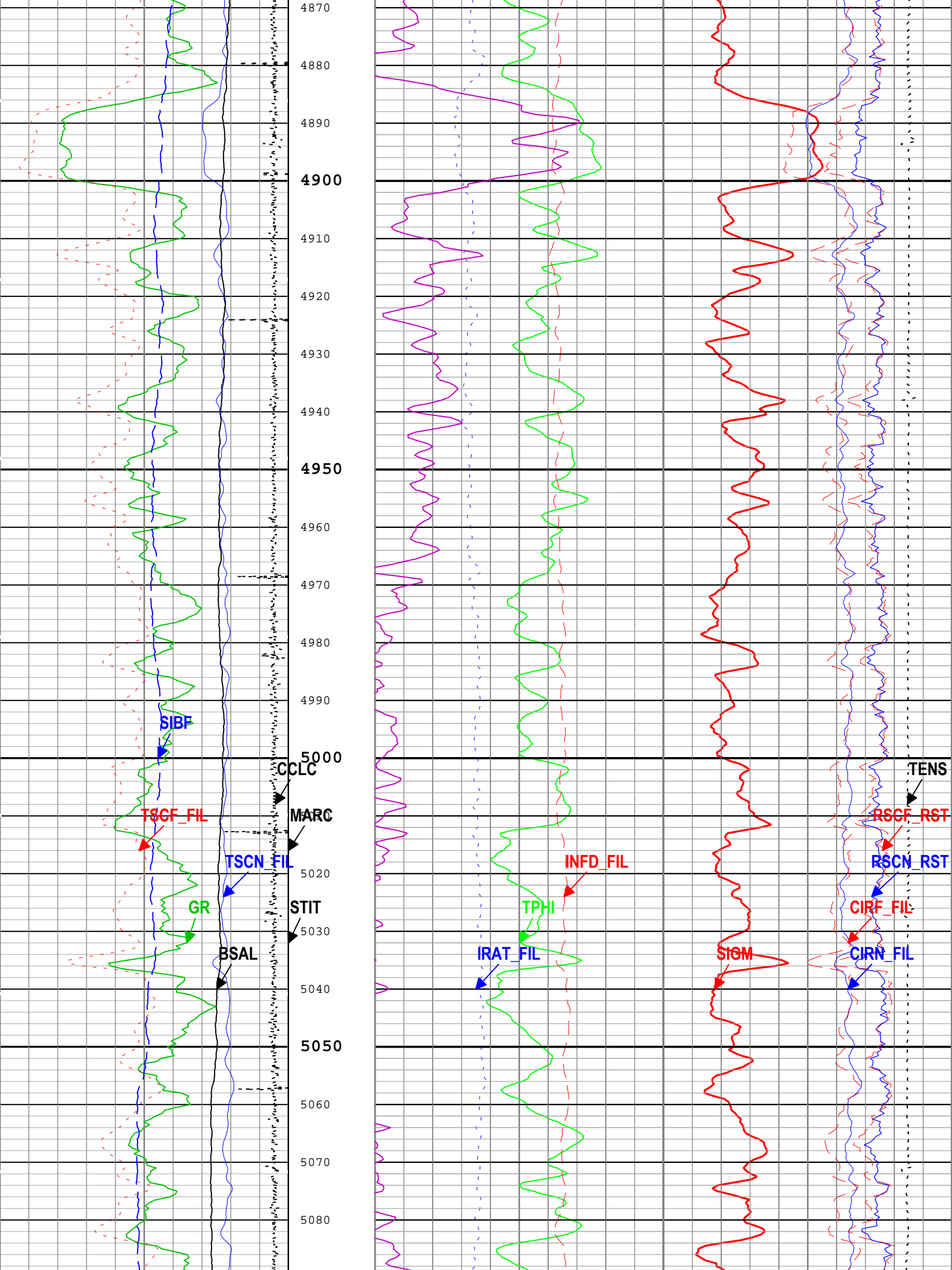


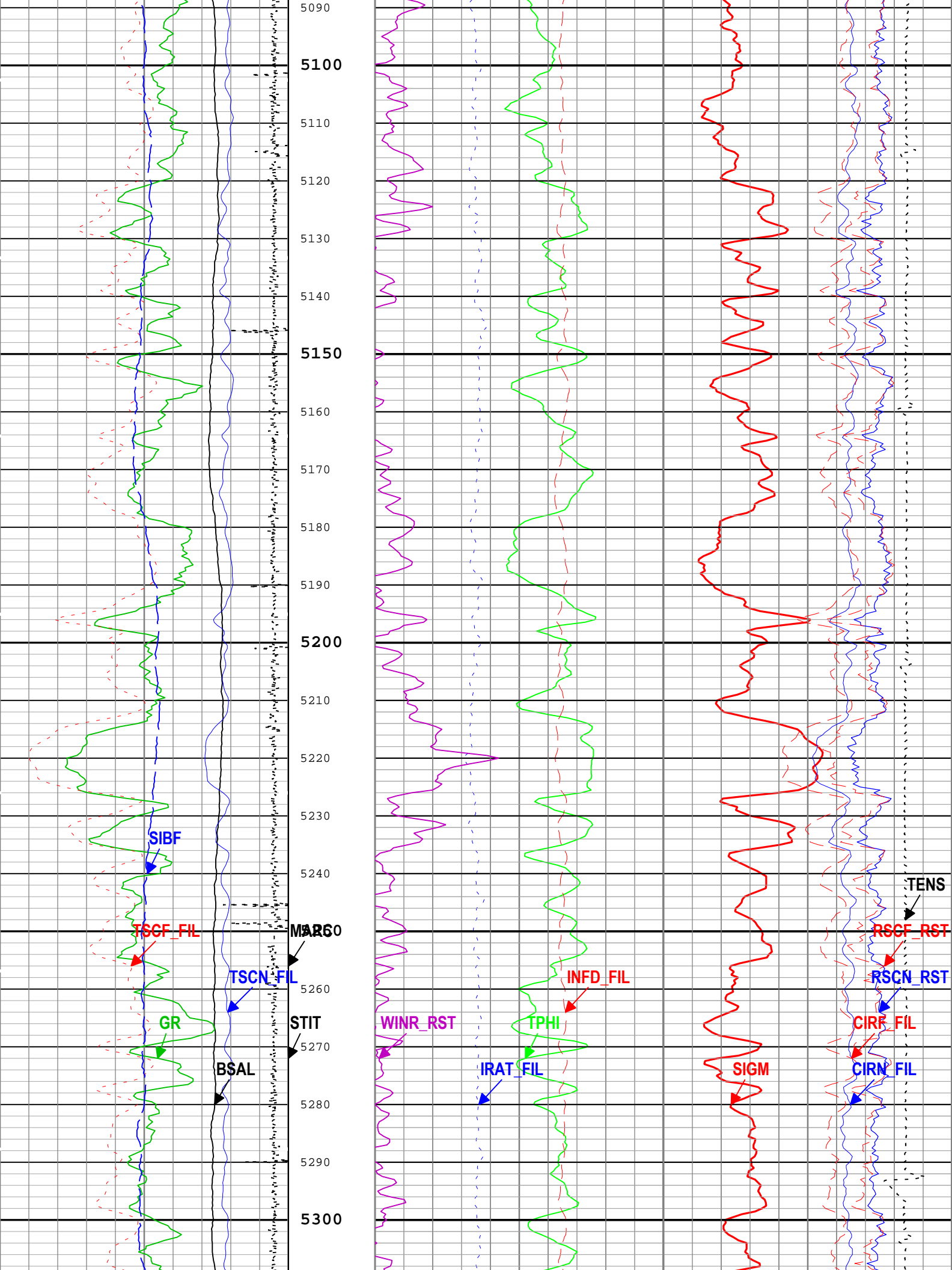


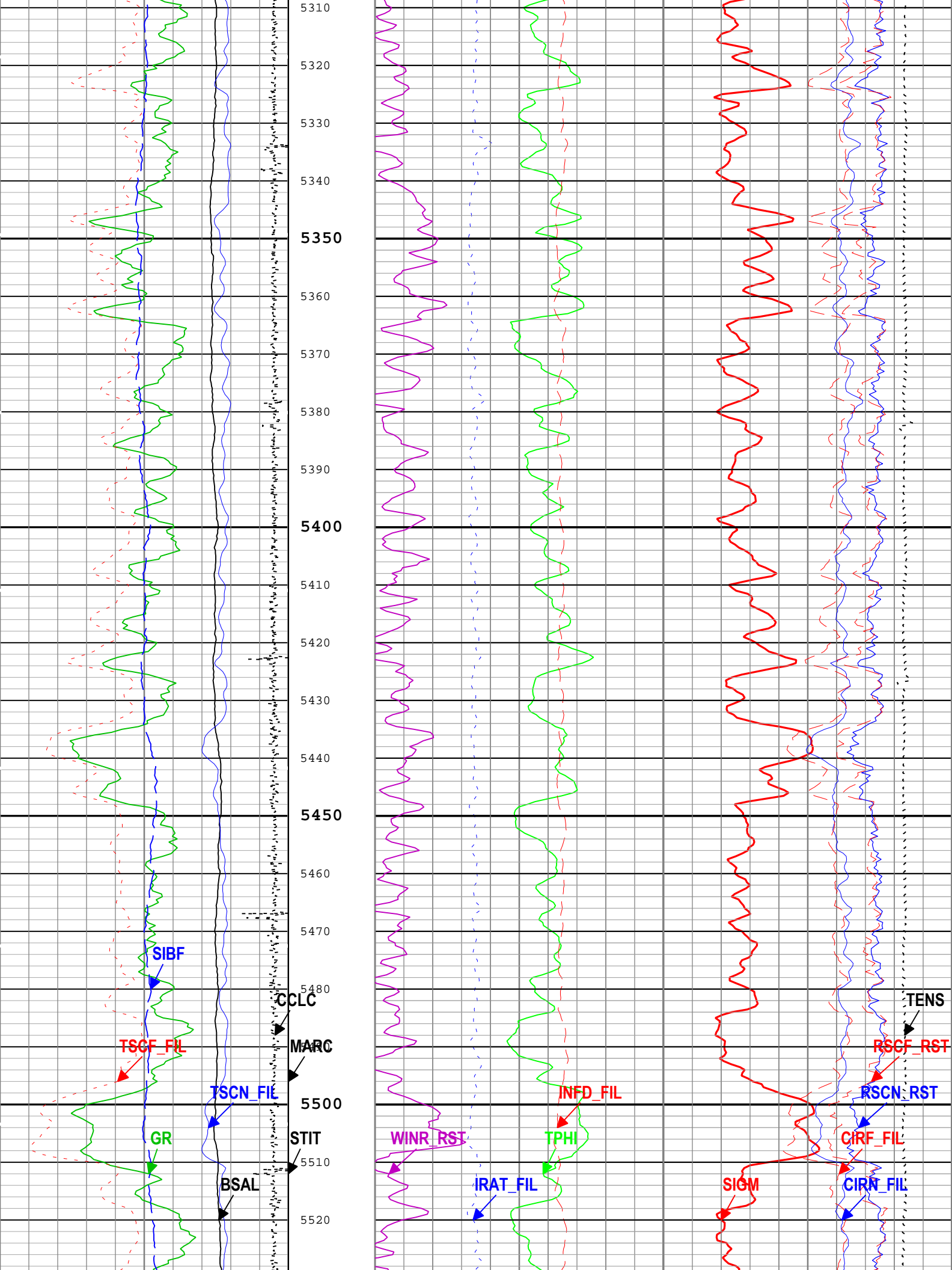


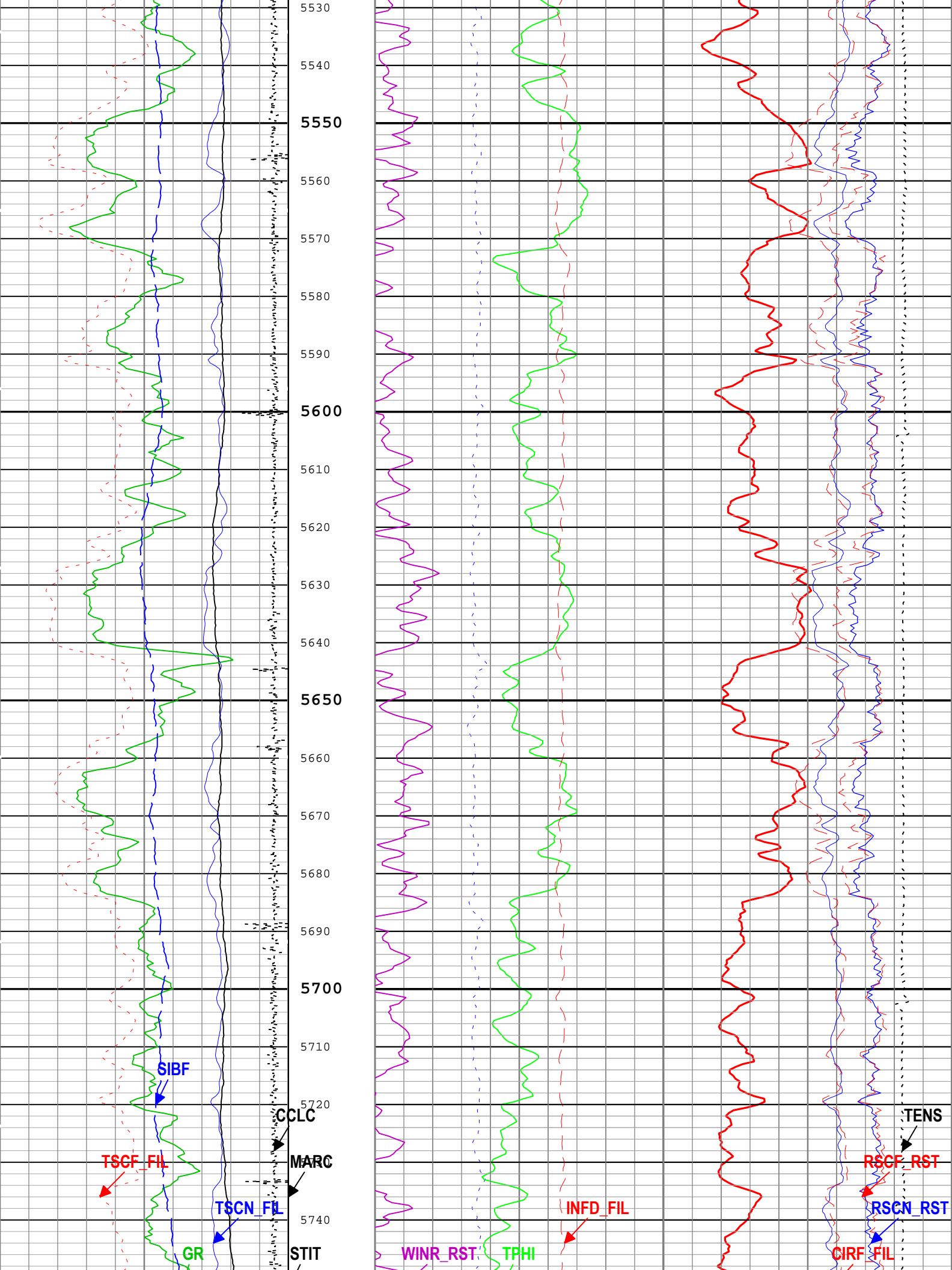


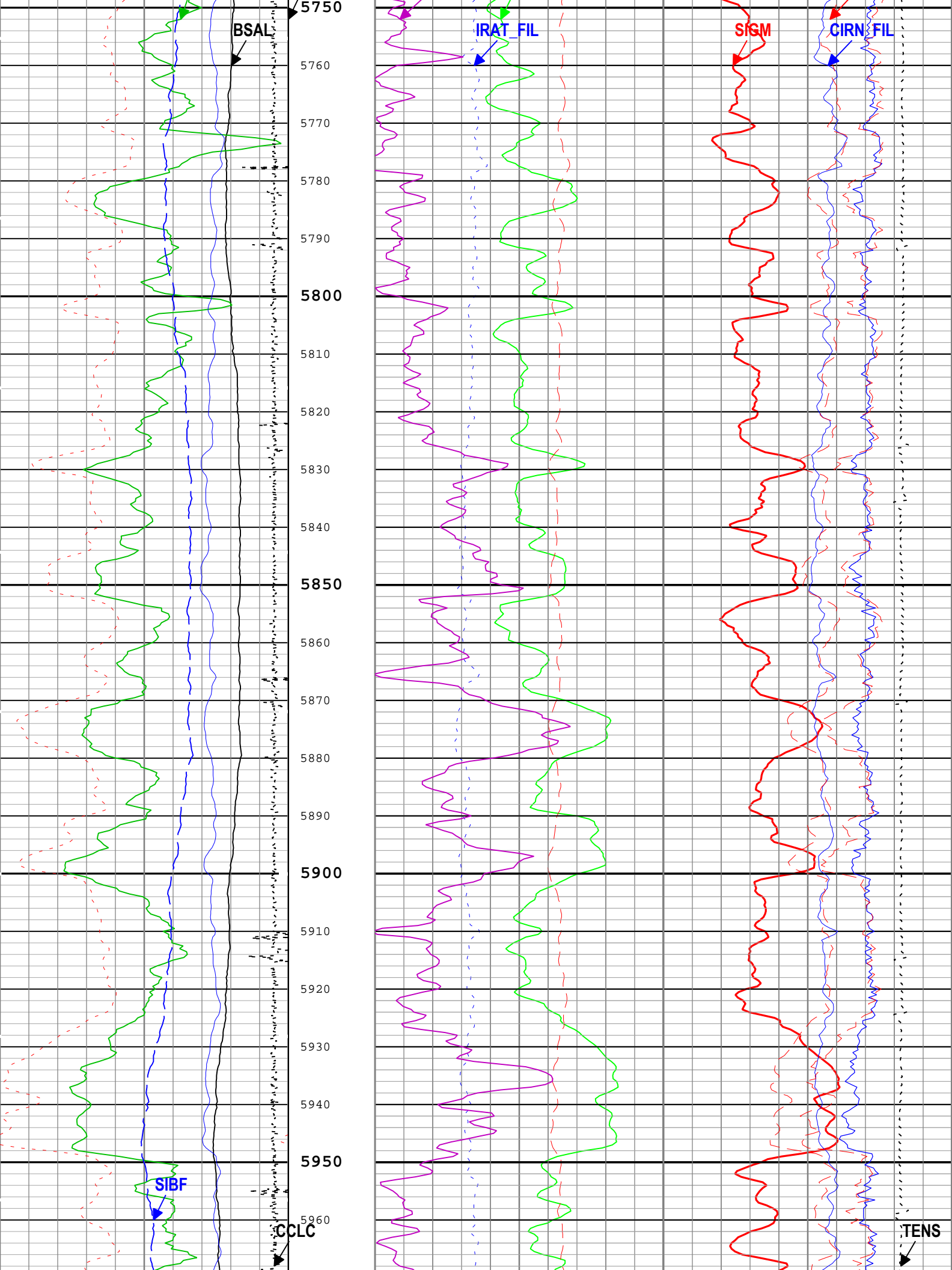


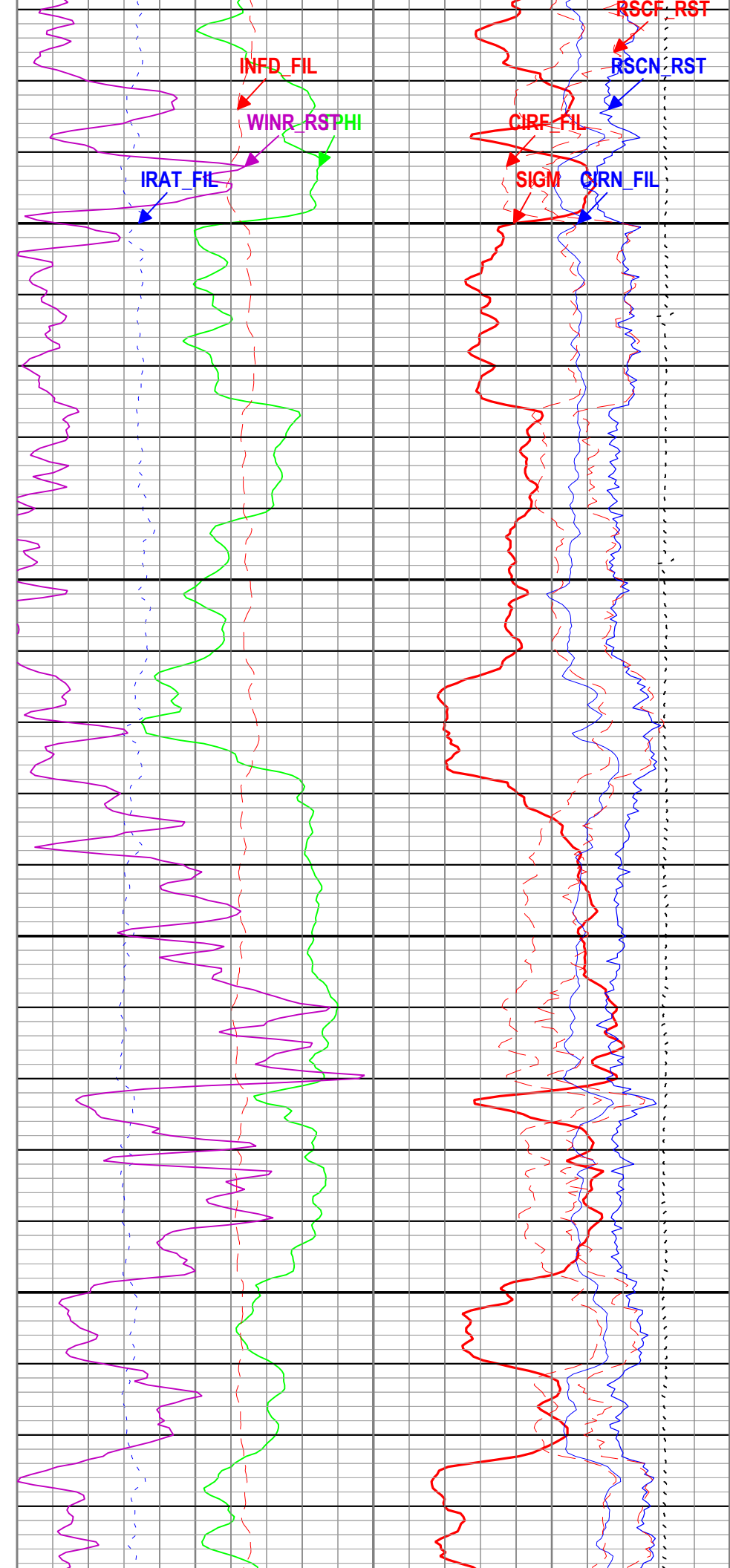
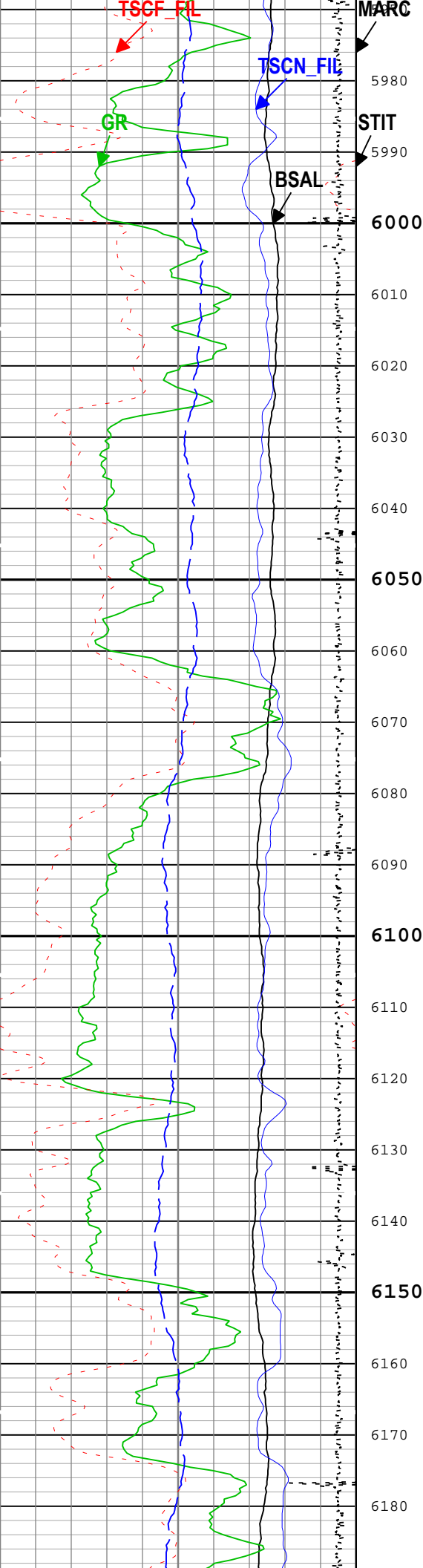


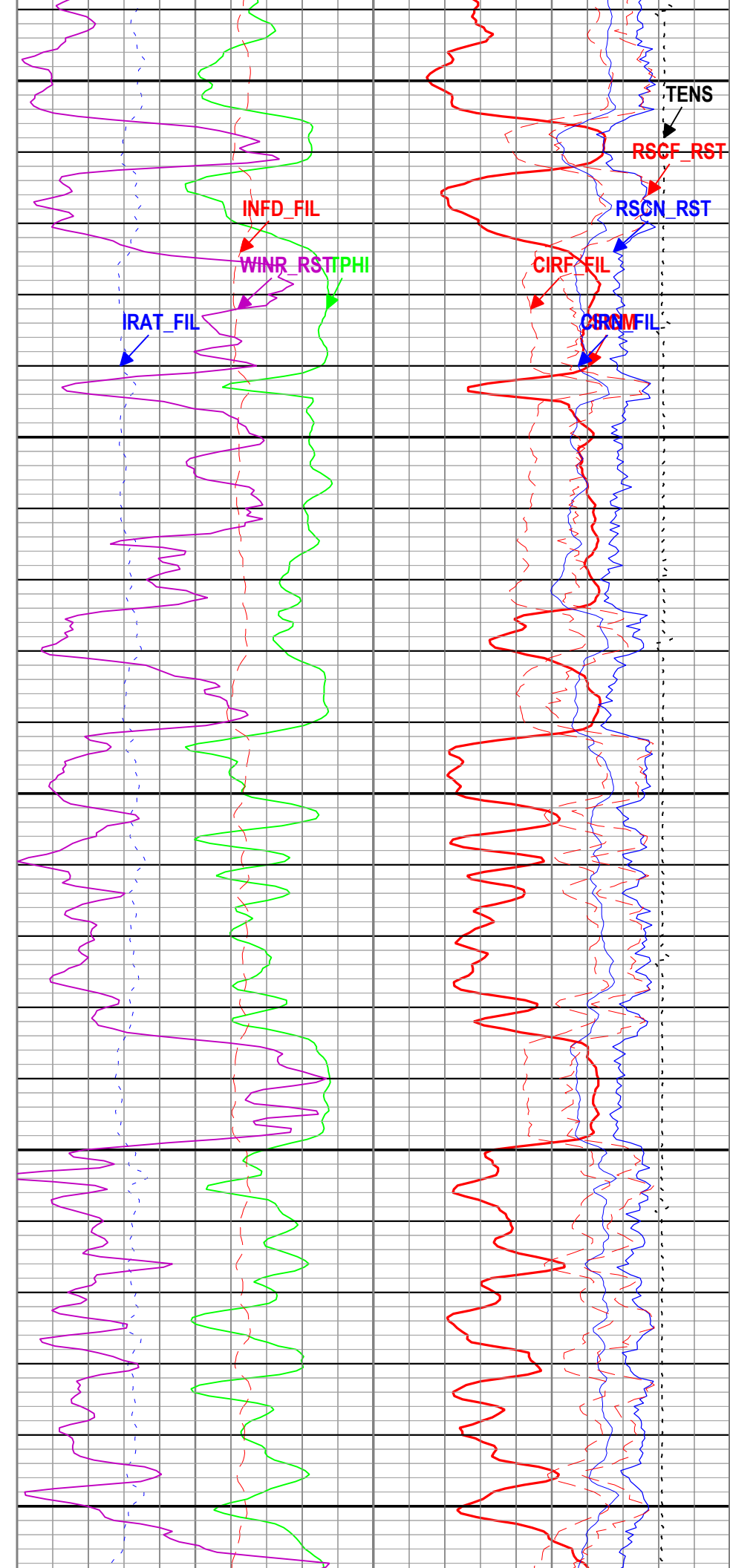
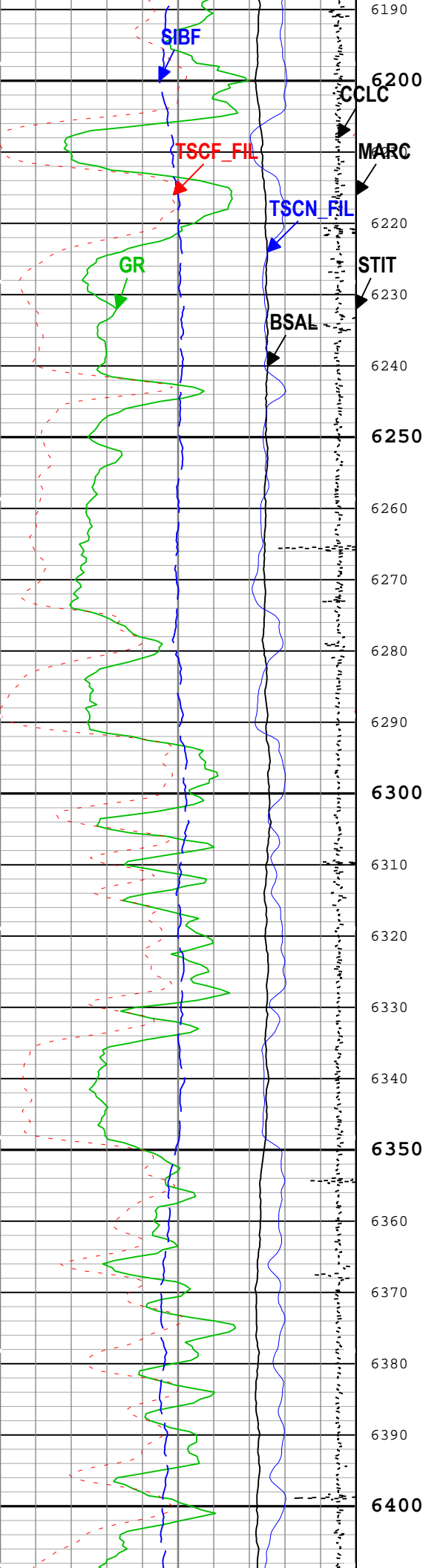


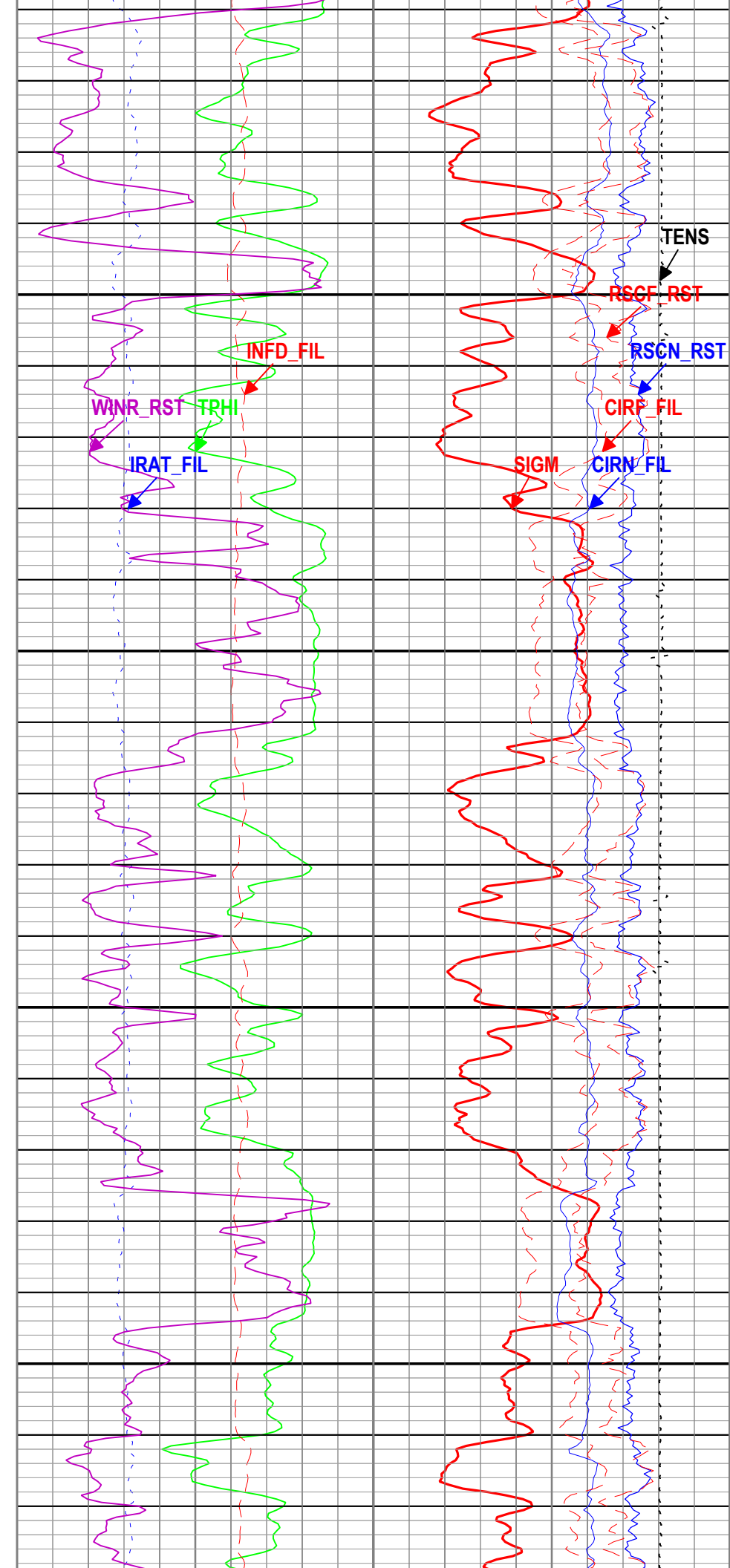
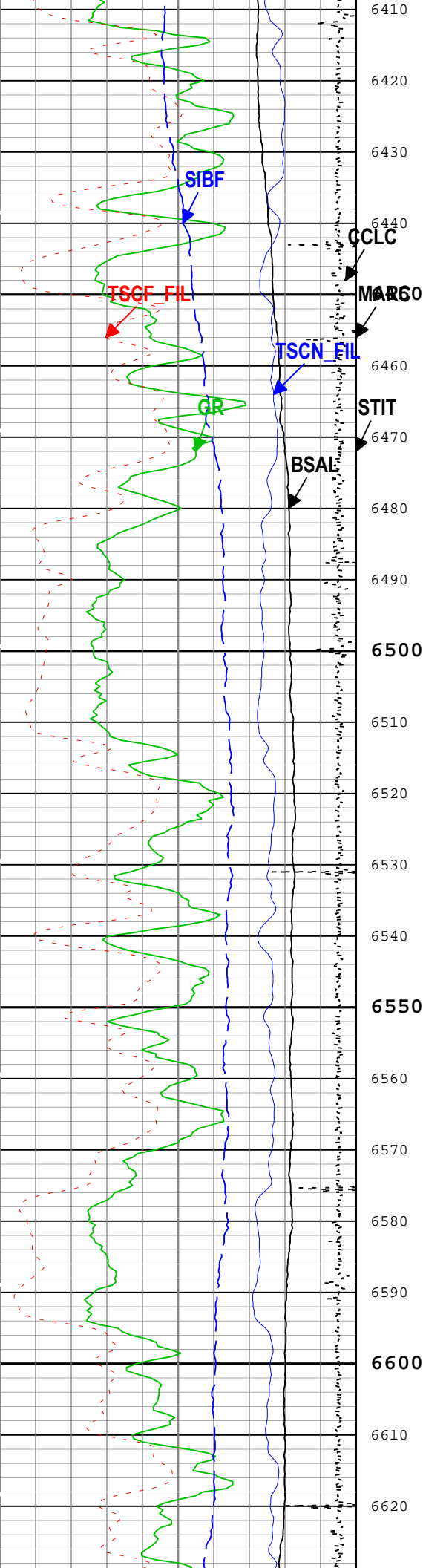


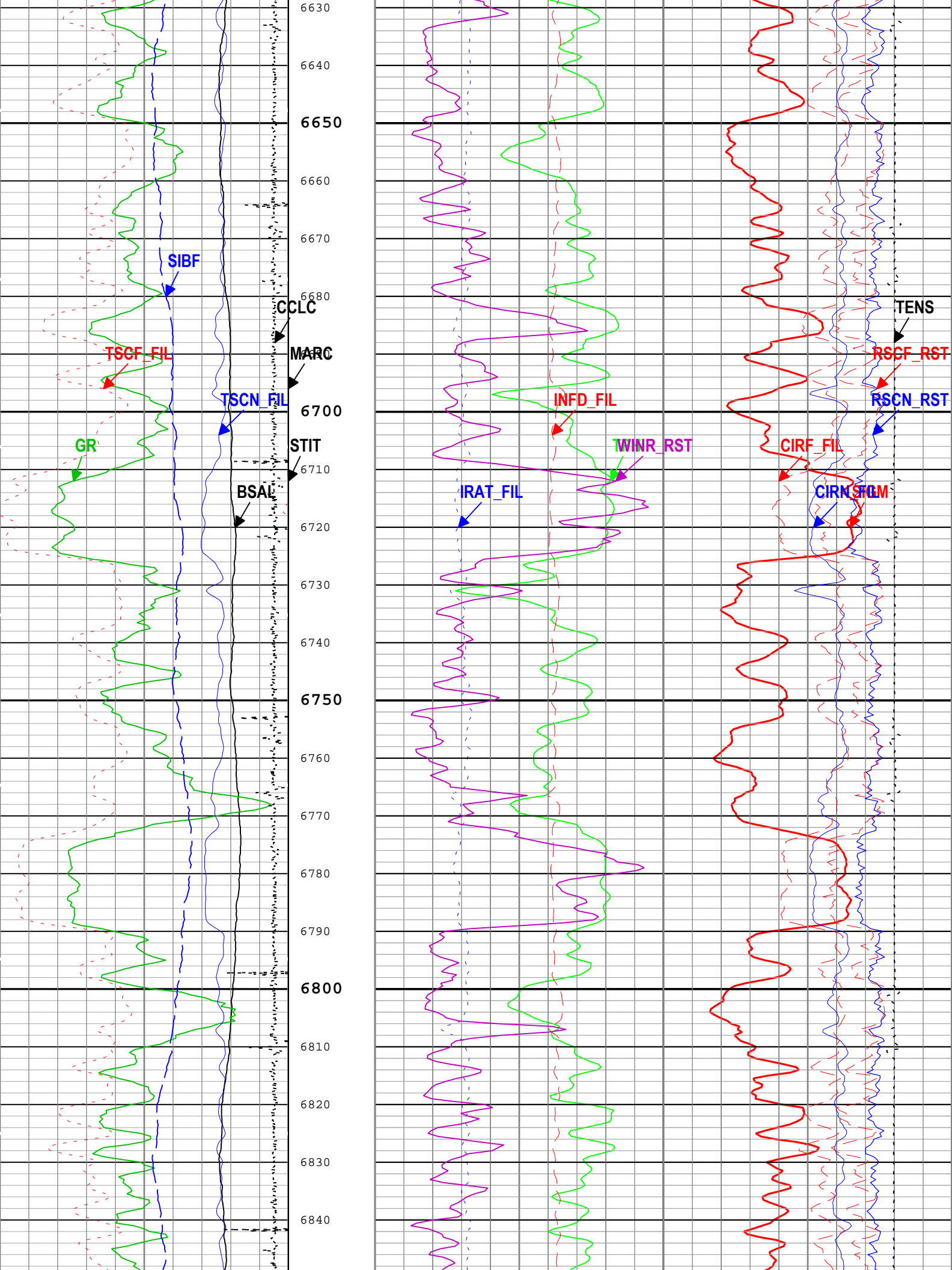


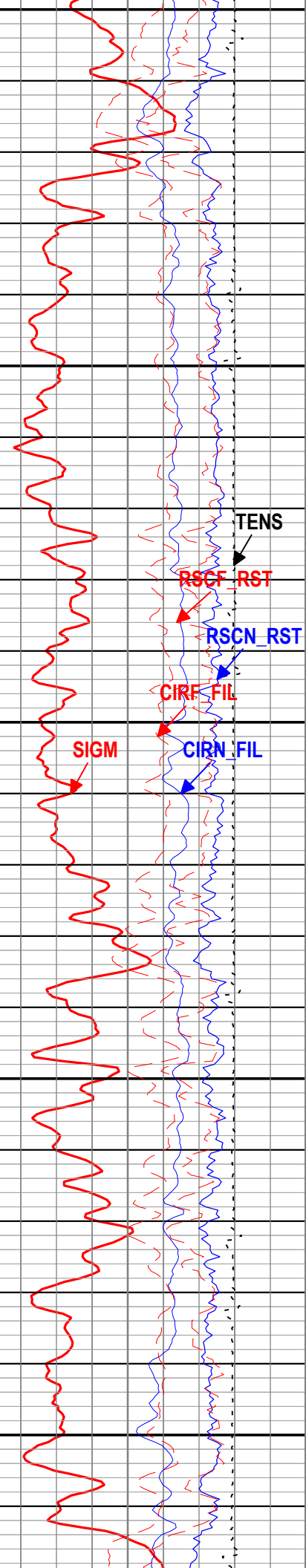
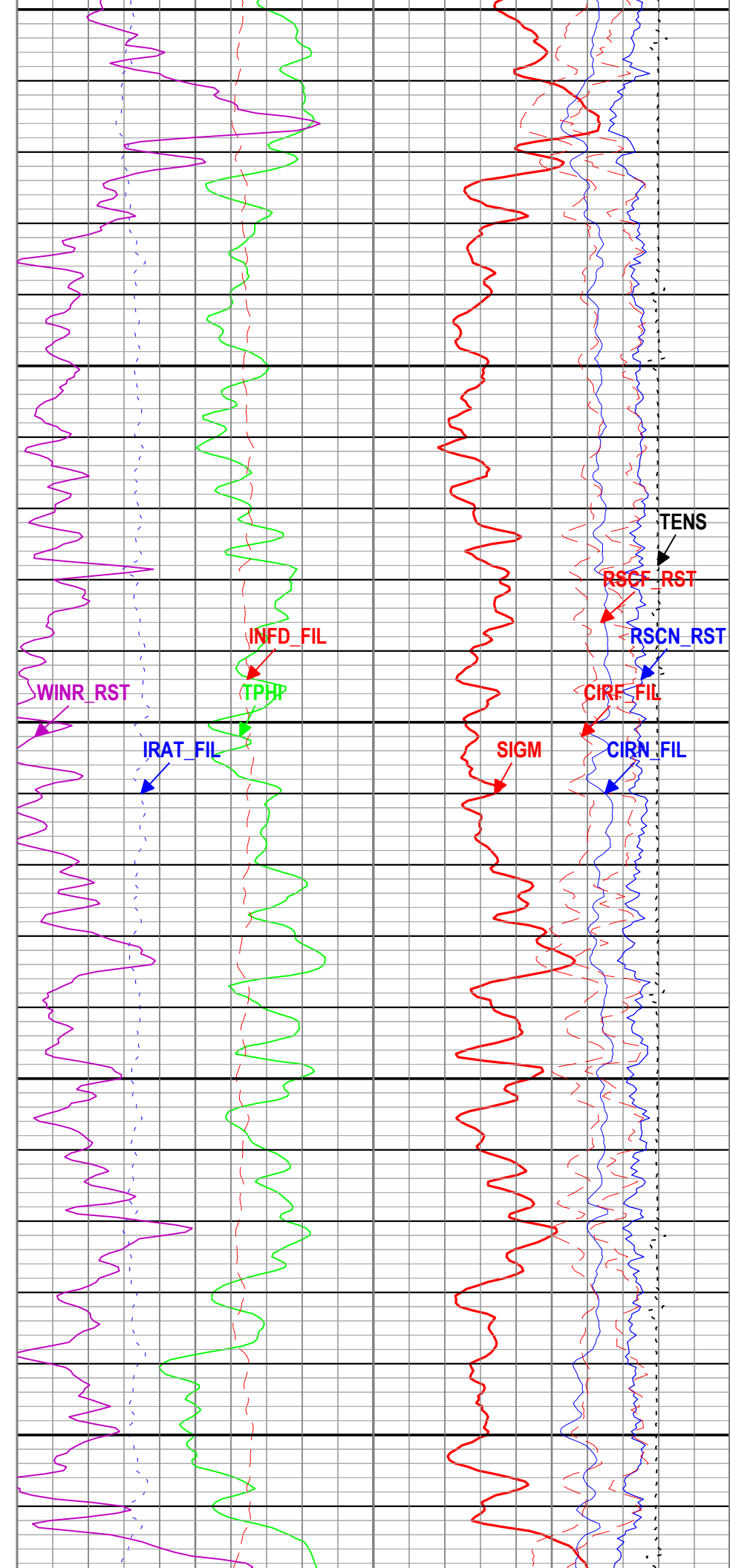
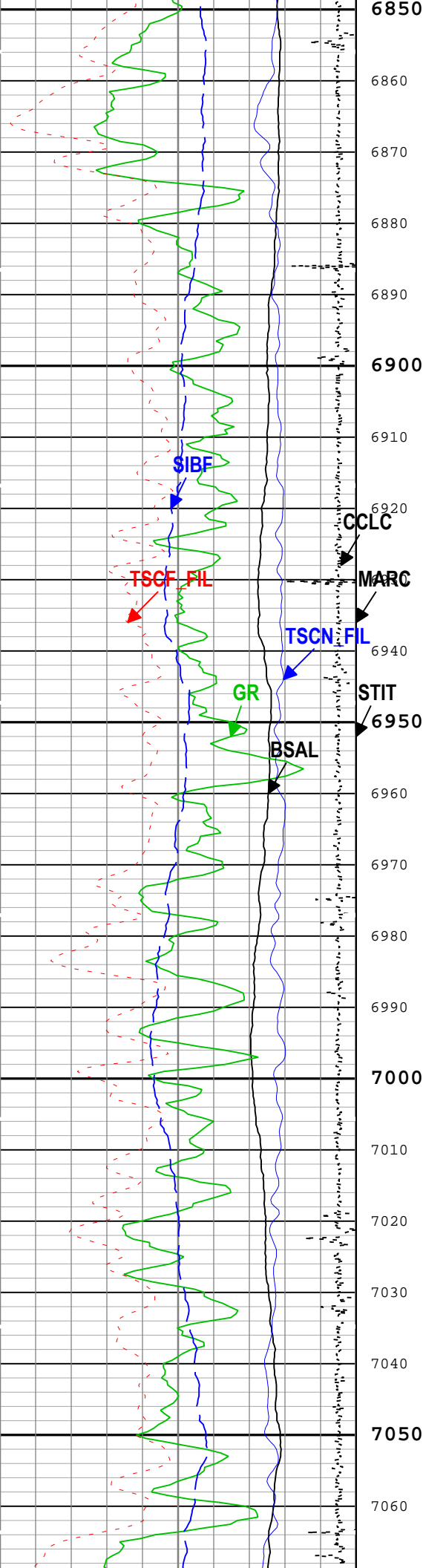












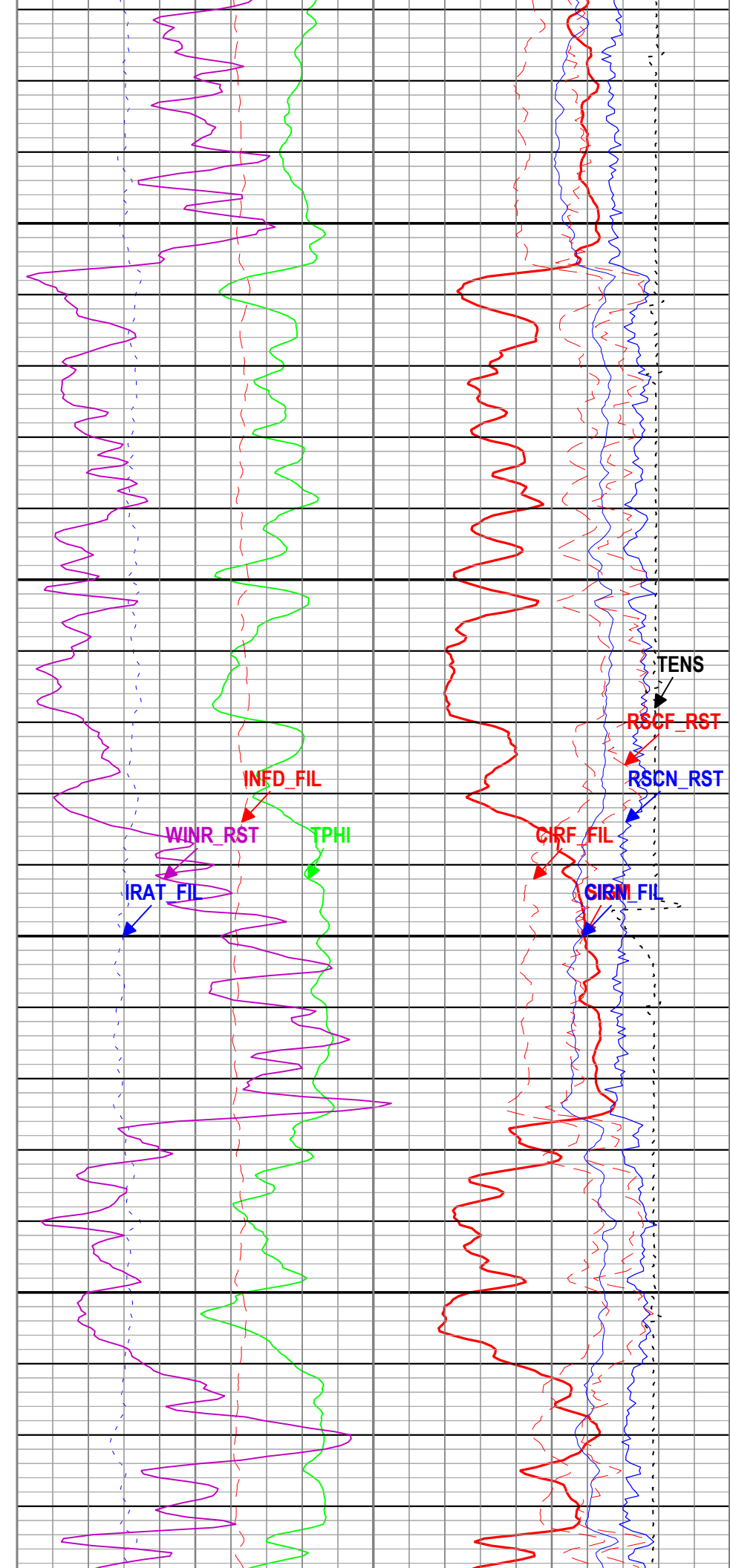
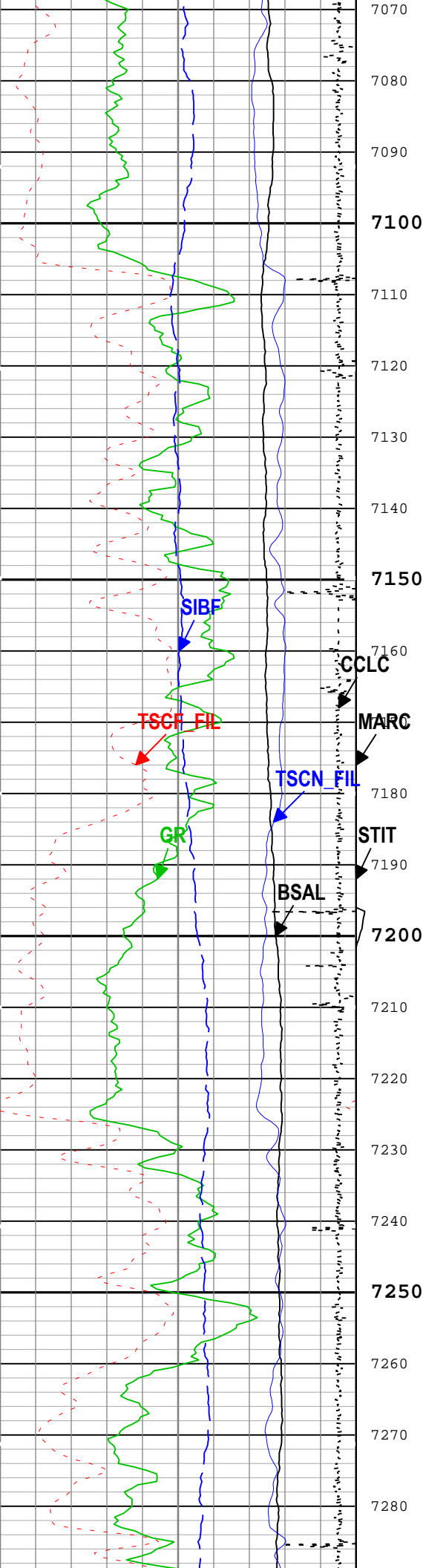
TENS

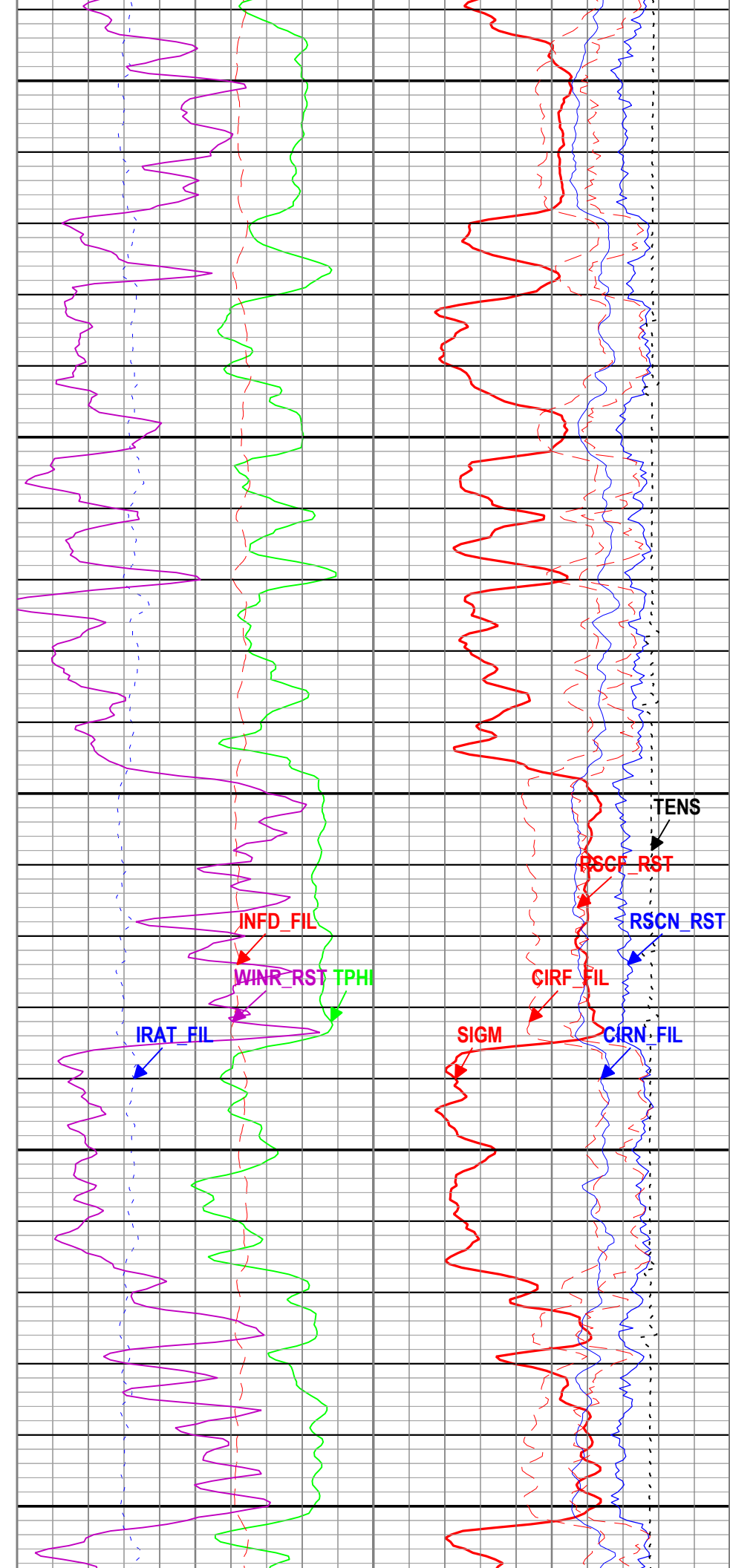
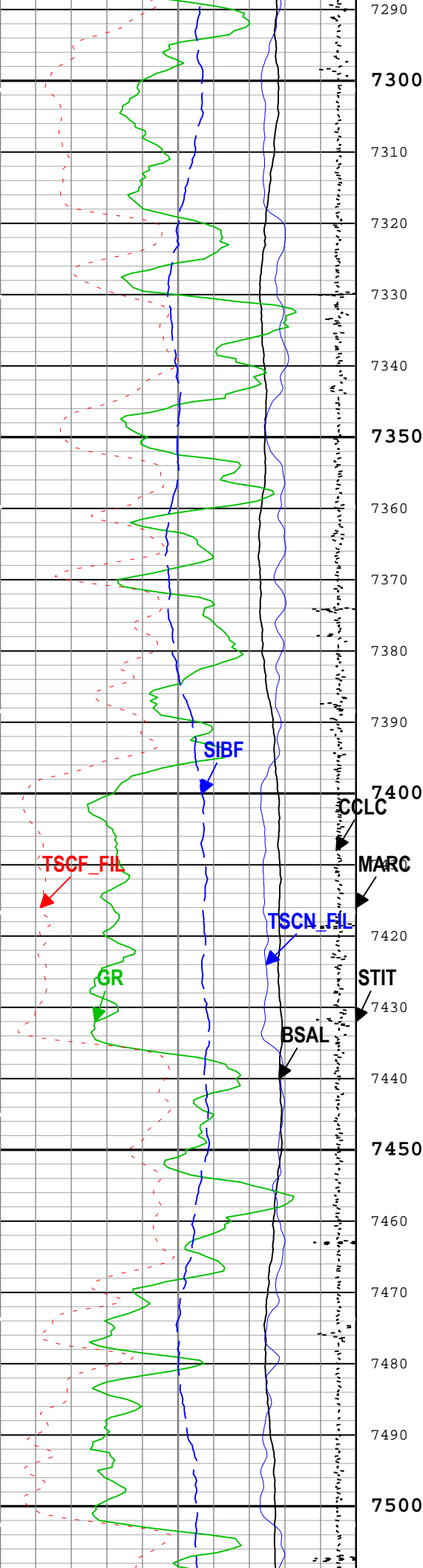
RSCF_RST

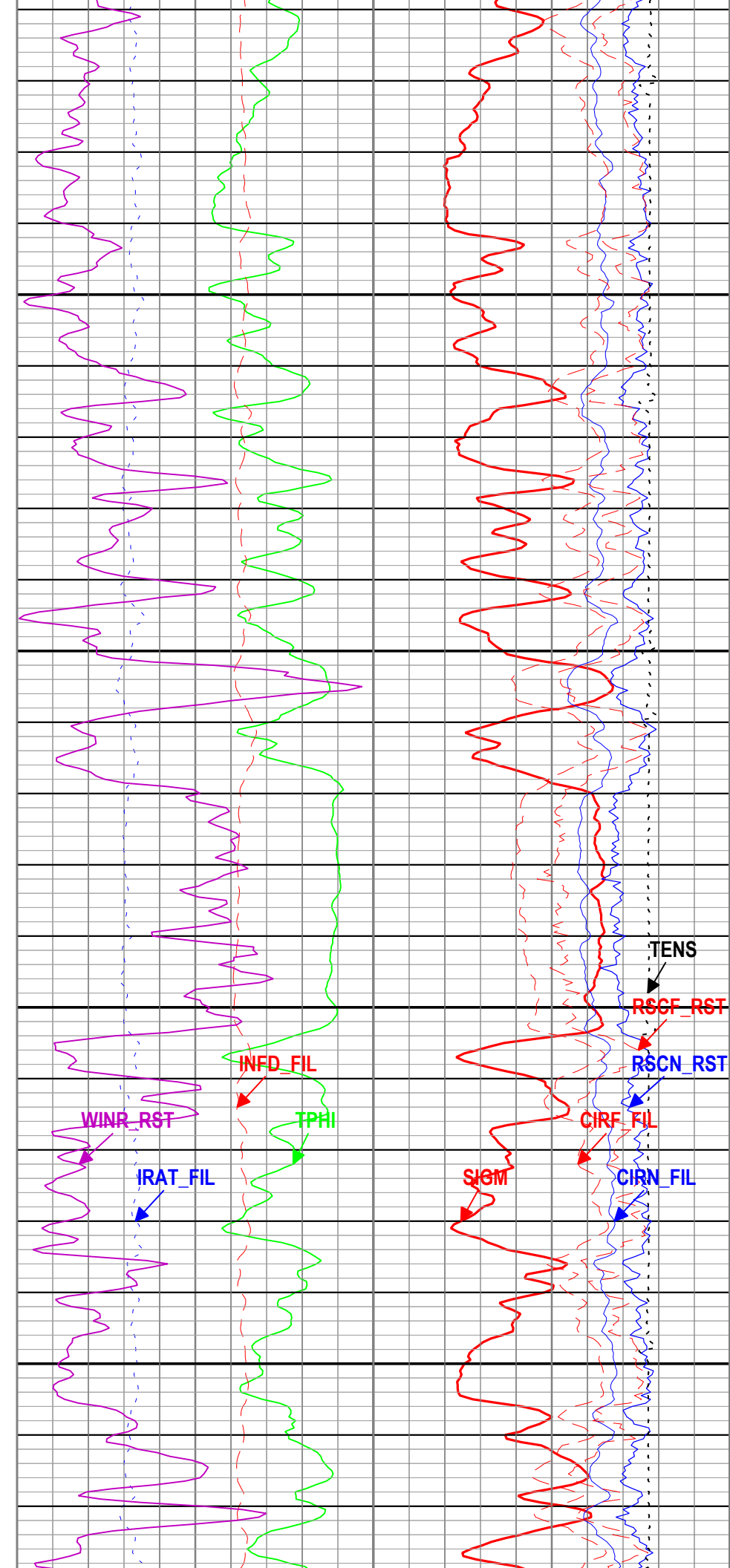
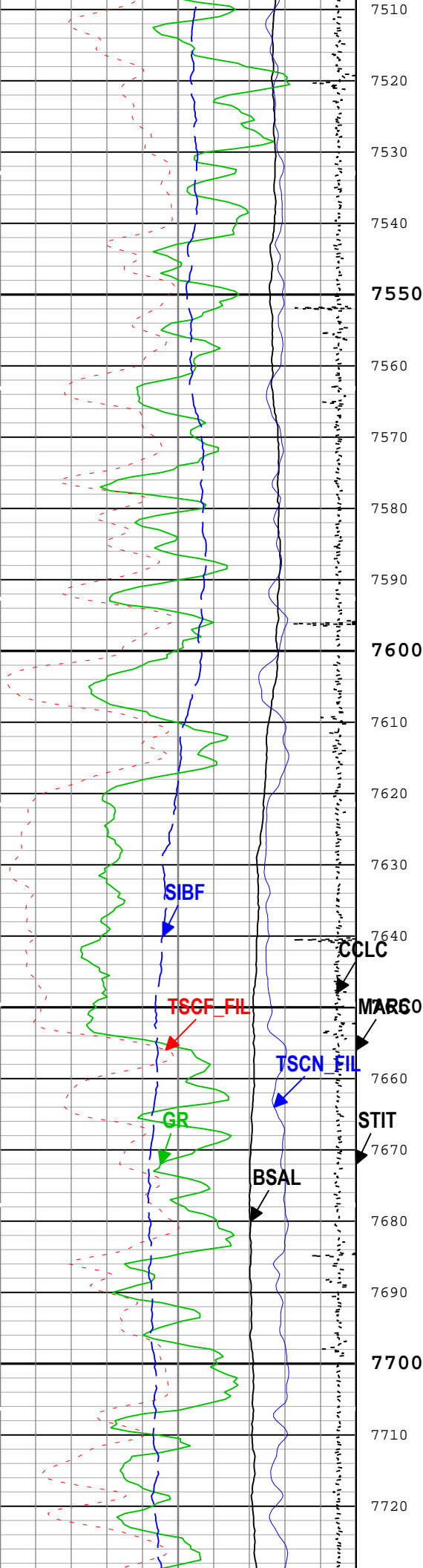
RSCN_RST

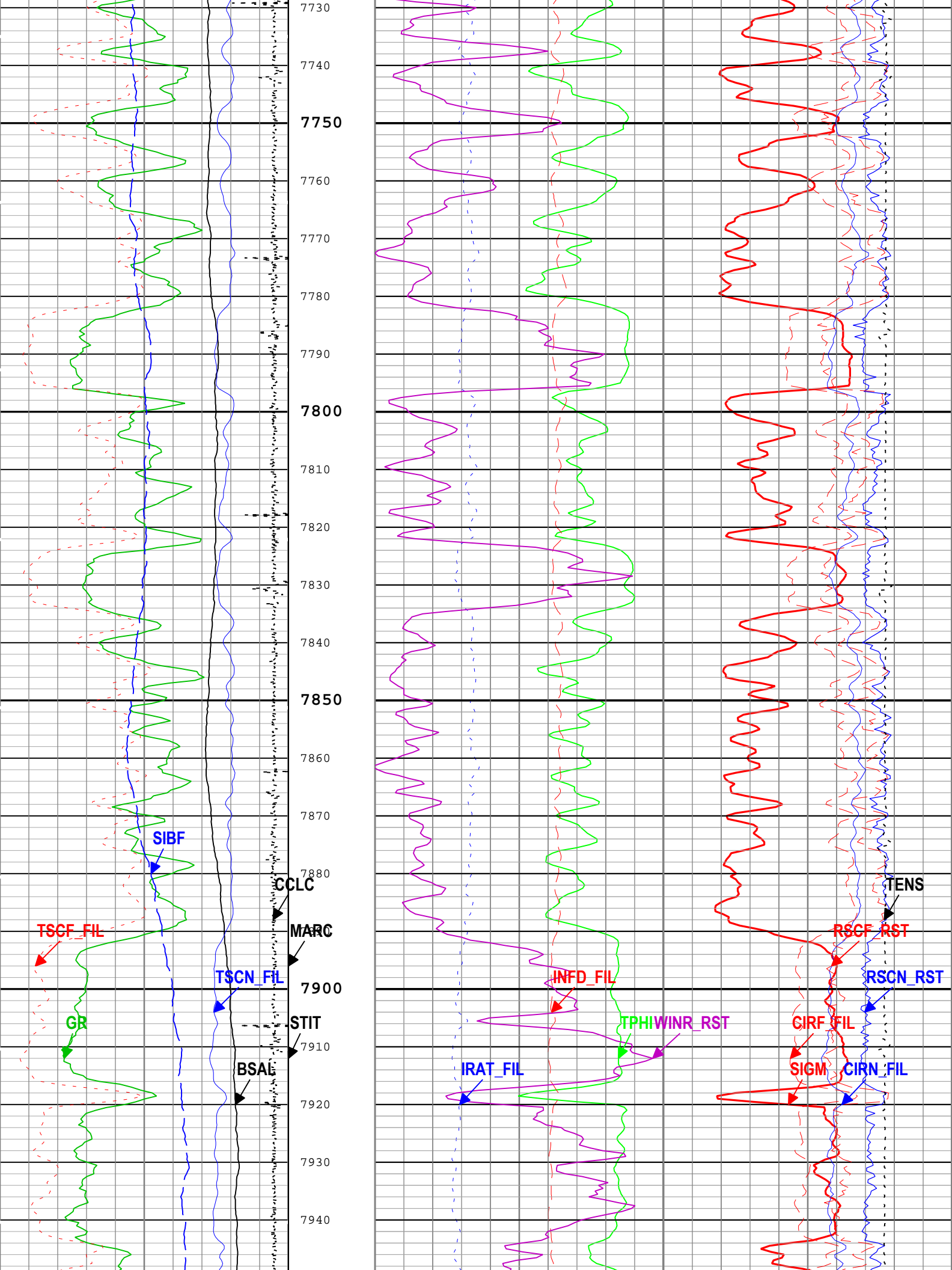
CIRF FIL

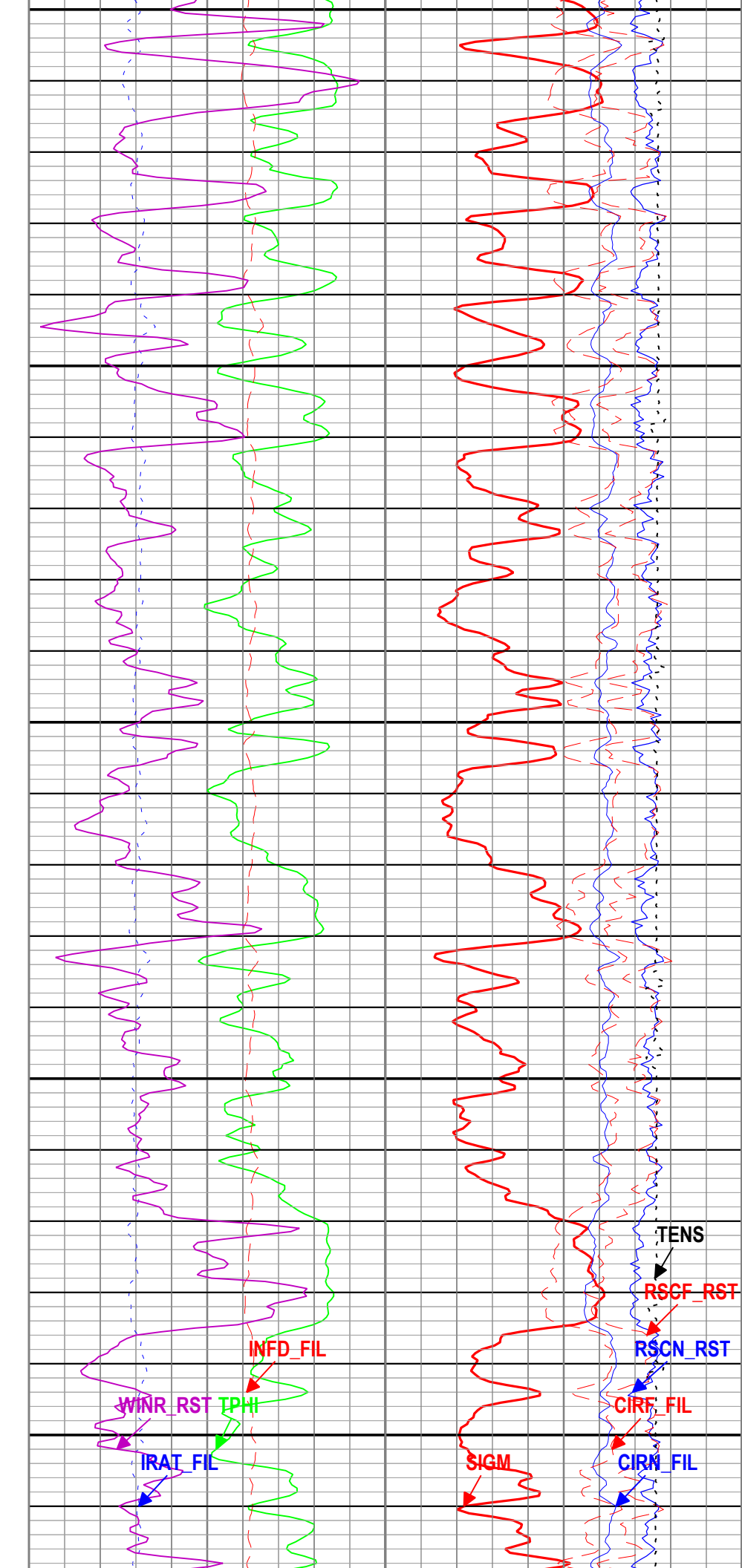
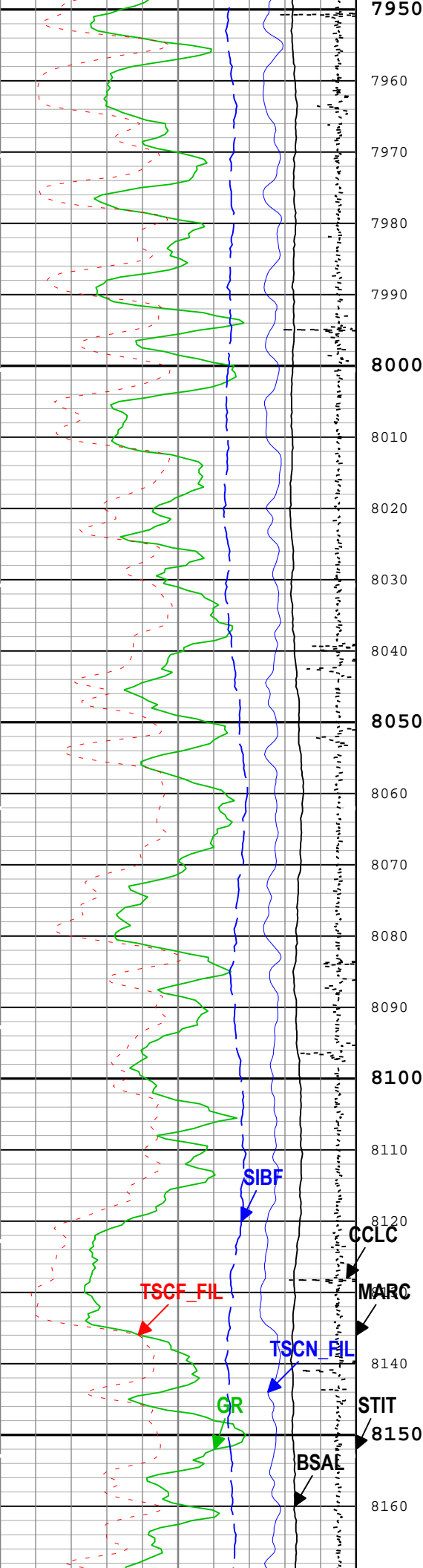
CIRN FIL

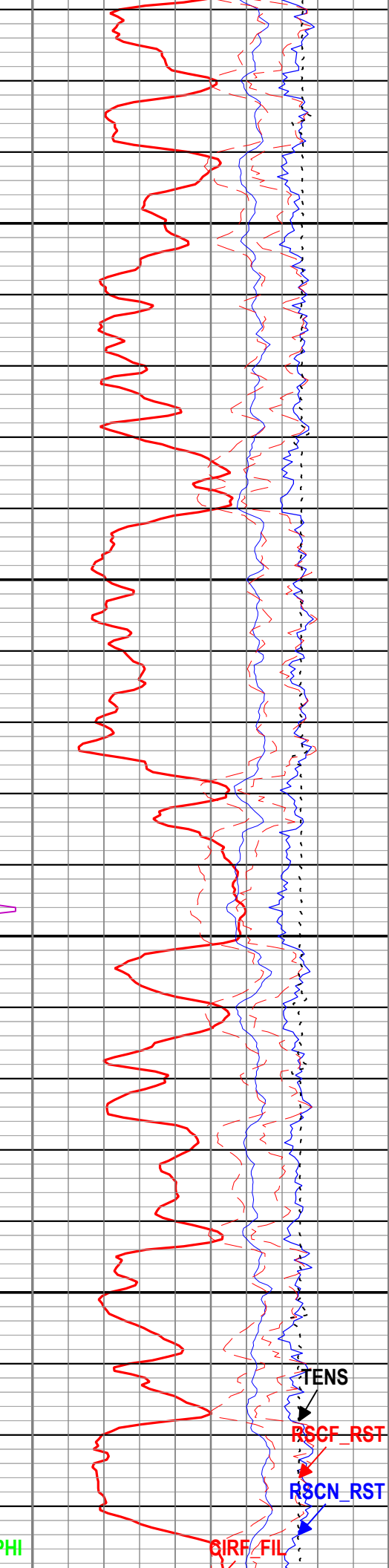
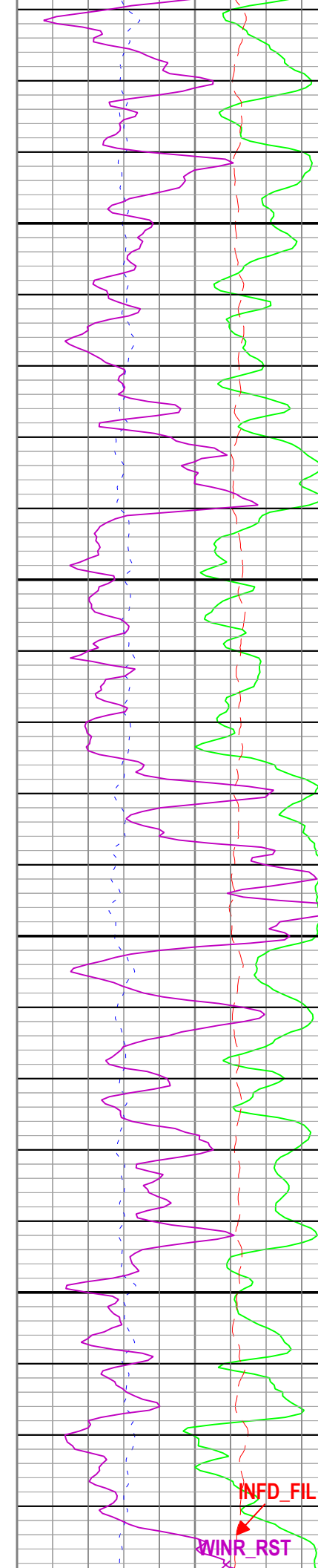
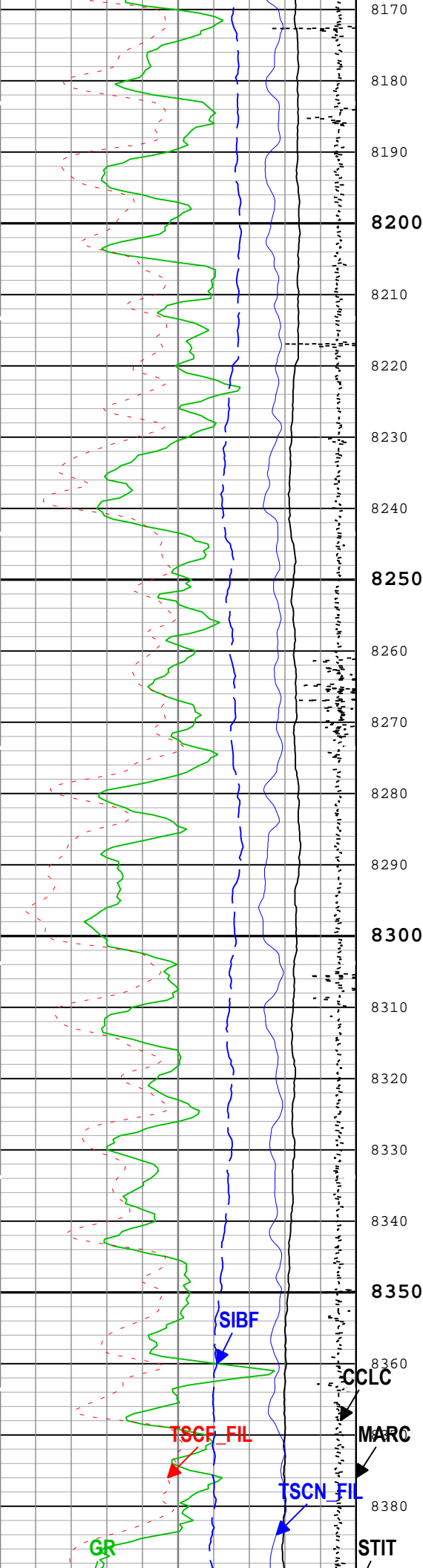


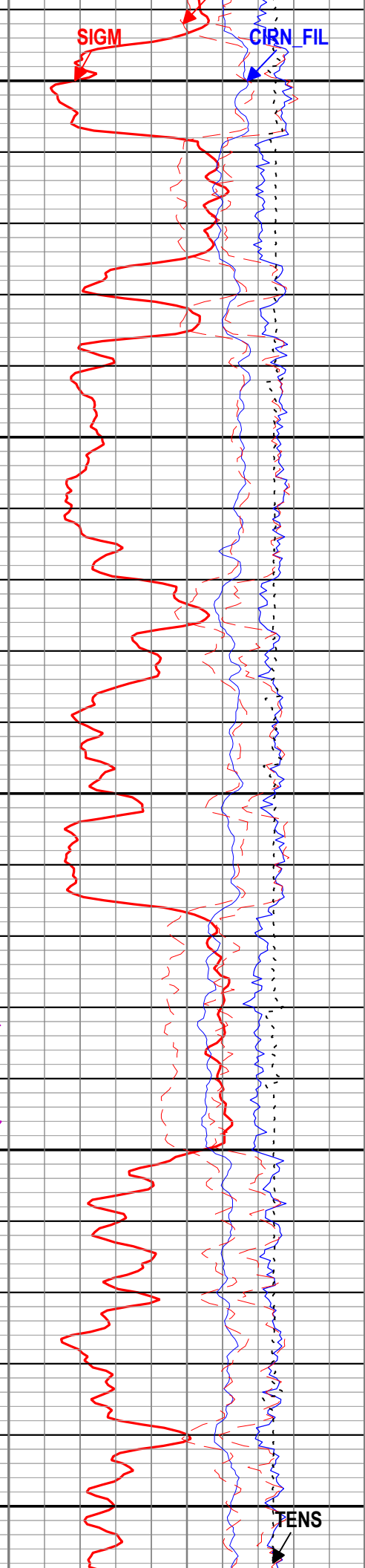
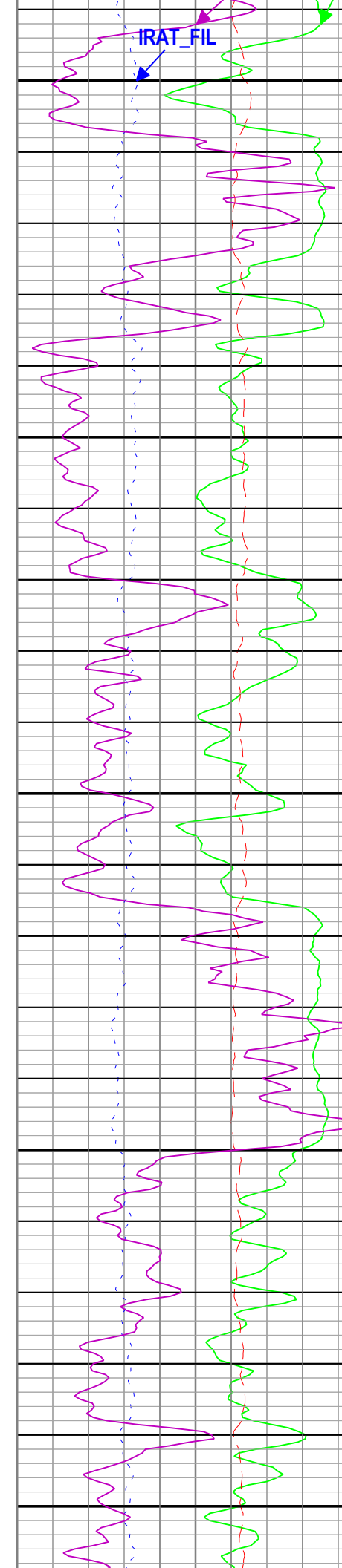
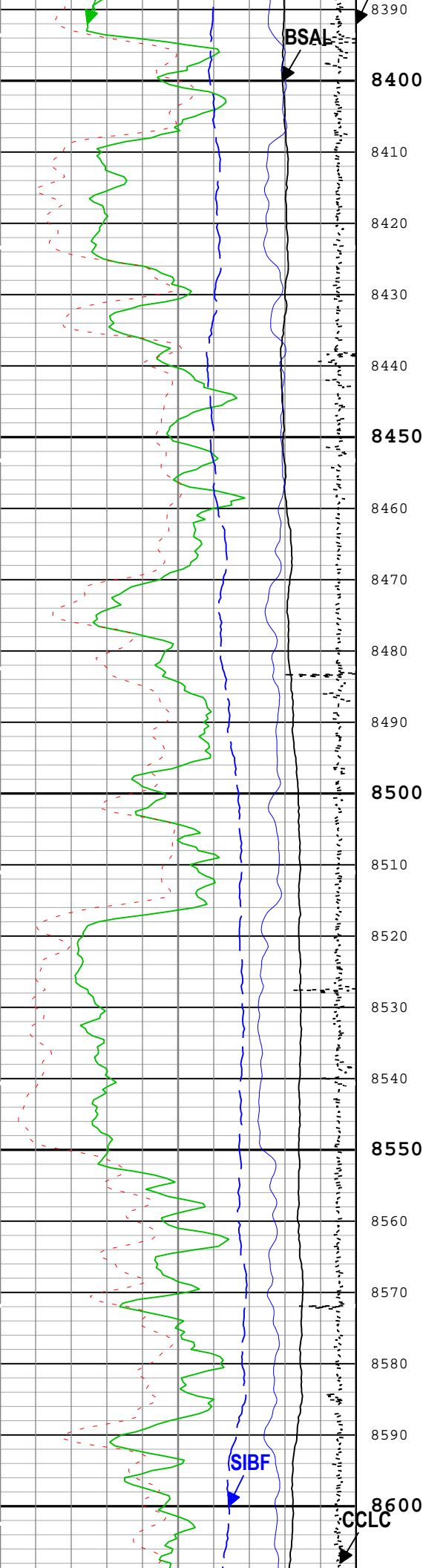




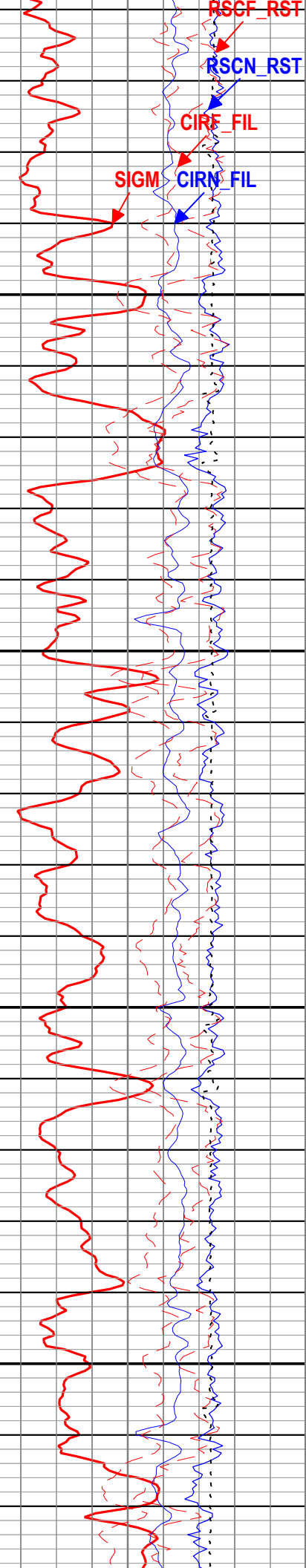
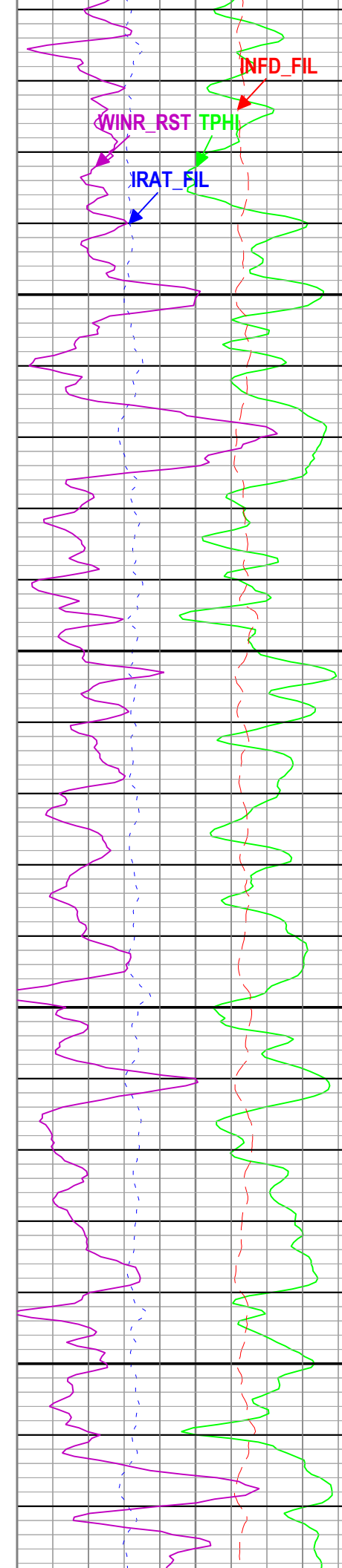
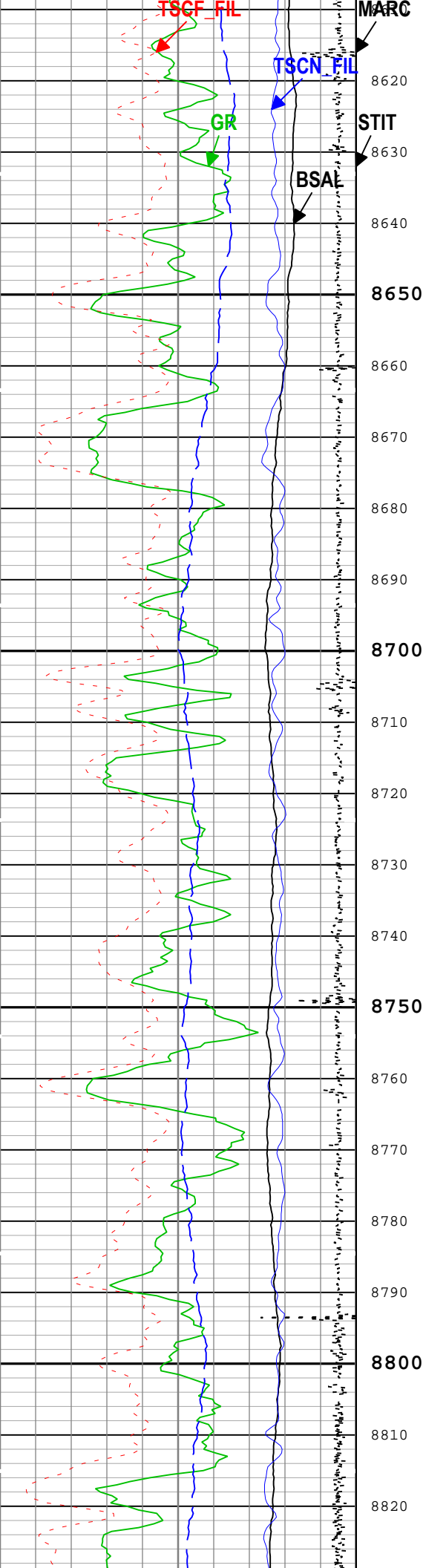


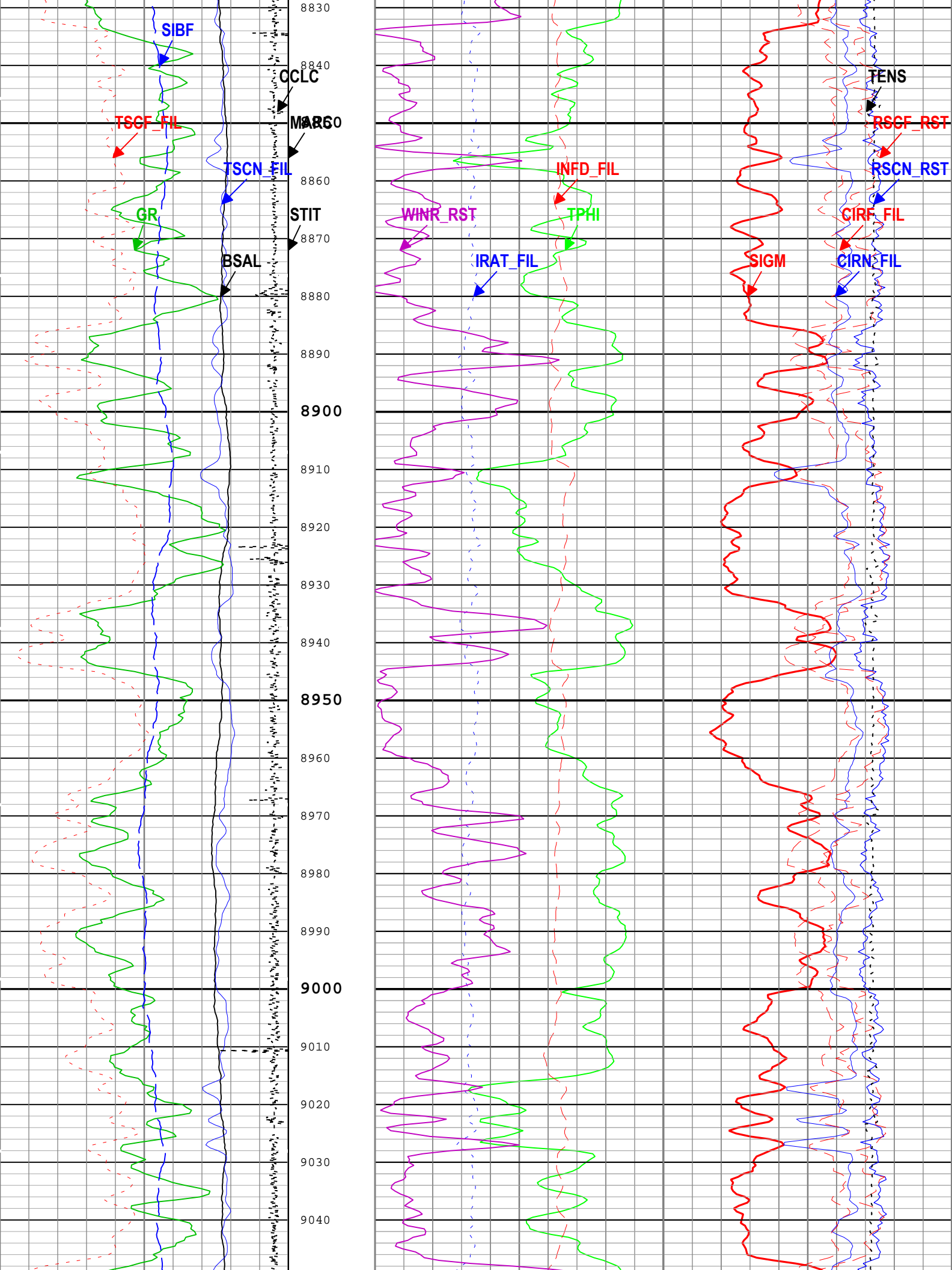


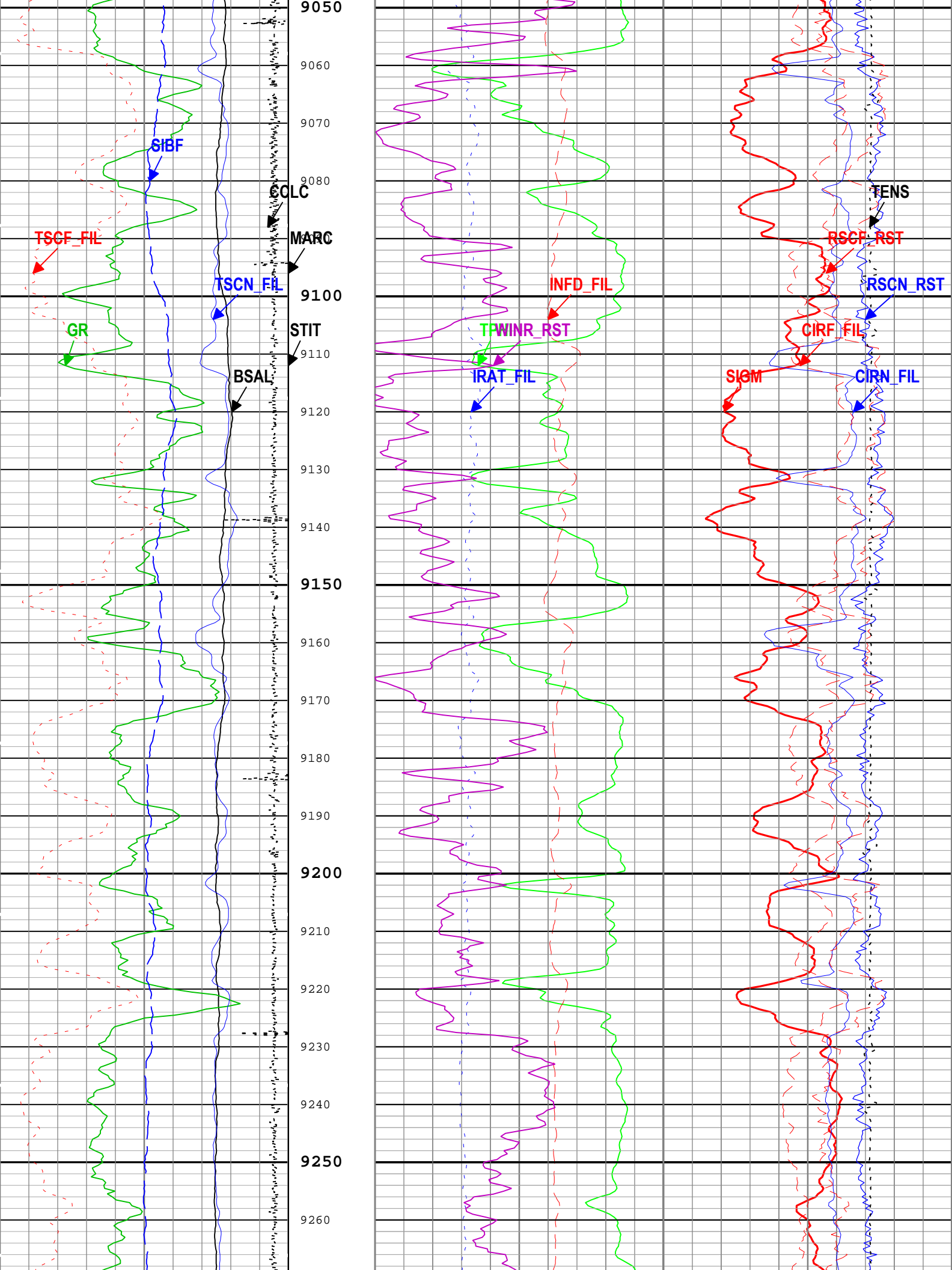


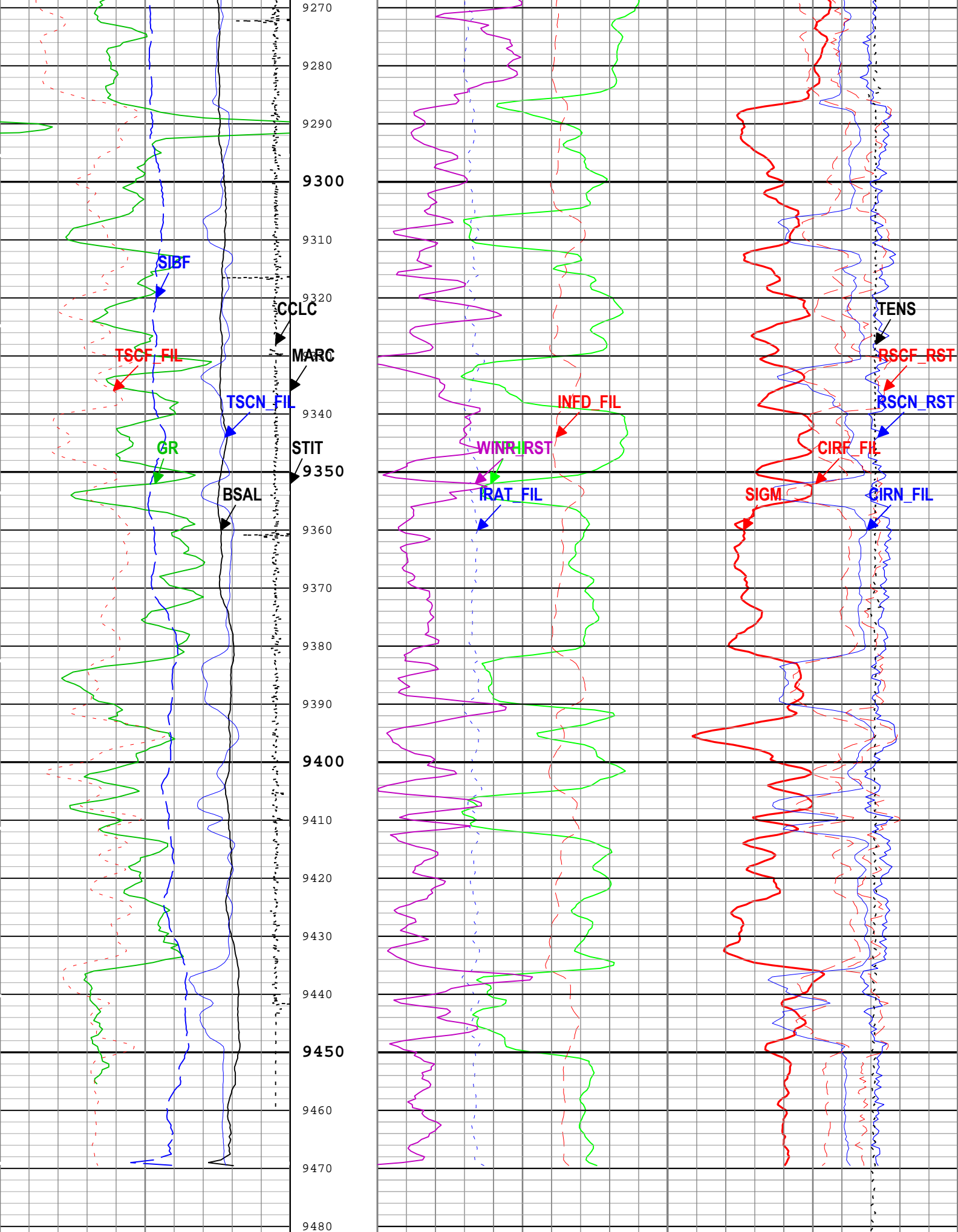


TENS









TD TAGGED @ 9484.5 FT

9490			9500		
Borehole Salinity (BSAL) RST-C[1]			Stuck Tool Indicator, Total (STIT)		
450	ppk	-50	60	cu	
Gamma Ray (GR) PSTP-A[1]			Formation Sigma (Neutron Capture Cross Section) (SIGM) RST-C[1]		
0	gAPI	150	0	Weighted Inelastic Ratio (WINR_RST) RST-C[1]	
Total Selected Count Rate Near Detector Filtered (TSCN_FIL) RST-C[1]			Cable Drag From STIA to STIT		
30000	1/s	0	0.75	0	Capture to Inelastic Ratio Near Filtered (CIRN_FIL) RST-C[1]
Total Selected Count Rate Far Detector Filtered (TSCF_FIL) RST-C[1]			Tool_Tot. Drag From D3T to STIT		
12000	1/s	0	0.6	0	Capture to Inelastic Ratio Far Filtered (CIRF_FIL) RST-C[1]
CCL Computed Amplitude (CCLC) PSTP-A[1]			Gross Inelastic Count Rate Far Detector Filtered (INFD_FIL) RST-C[1]		
-19	V	1	10000	1/s	0
Sigma Borehole Fluid (SIBF) RST-C[1]			Minitron Arc Count (MARC) RST-C[1]		
100	cu	0	0	5	Near Detector Effective Unregulated Capture Count Rate (RSCN_RST) RST-C[1]
			Far Detector Effective Unregulated Capture Count Rate (RSCF_RST) RST-C[1]		
			Cable Tension (TENS)		
			5000	lbf	0

— ICV - Integrated Cement Volume every 100.00 (ft3)

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

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: 06-Sep-2018 15:25:26

Channel Processing Parameters

ONE: 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	
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	SANDSTONE	
TD	Total Measured Depth	Borehole	9484.5	ft

ONEDepth Zoned Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	14.75	2300	2400
BS	8.75	2400	9503.45

All depth are actual.

Tool Control Parameters

ONE: 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	Time Zoned	
RST_DLM	Depth Log Mode	RST-C	Sigma	

ONETime Zoned Parameters

Pass Log[6]:Up

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
PCCG	24 dB	06-Sep-2018 10:20:59	06-Sep-2018 11:03:34	9503.45	8316.53
PCCG	36 dB	06-Sep-2018 11:03:34	06-Sep-2018 11:03:54	8316.53	8306.58
PCCG	24 dB	06-Sep-2018 11:03:54	06-Sep-2018 13:17:56	8306.58	4351.54

Pass Log[8]:Up

PCCG	24 dB	06-Sep-2018 13:39:41	06-Sep-2018 15:00:34	4706.18	2211.46
------	-------	----------------------	----------------------	---------	---------

All depth are at tool zero.

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

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[5]:Up	Up	9151.29 ft	9495.23 ft	06-Sep-2018 10:03:45 AM	06-Sep-2018 10:16:25 AM	ON	4.04 ft	No

All depths are referenced to toolstring zero

Log

Company:Caerus Operating LLC Well:NPR 13B-10 596

ONE: Log[5]:Up:S008

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: 06-Sep-2018 15:25:31

TIME_1900 - Time Marked every 60.00 (s)

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

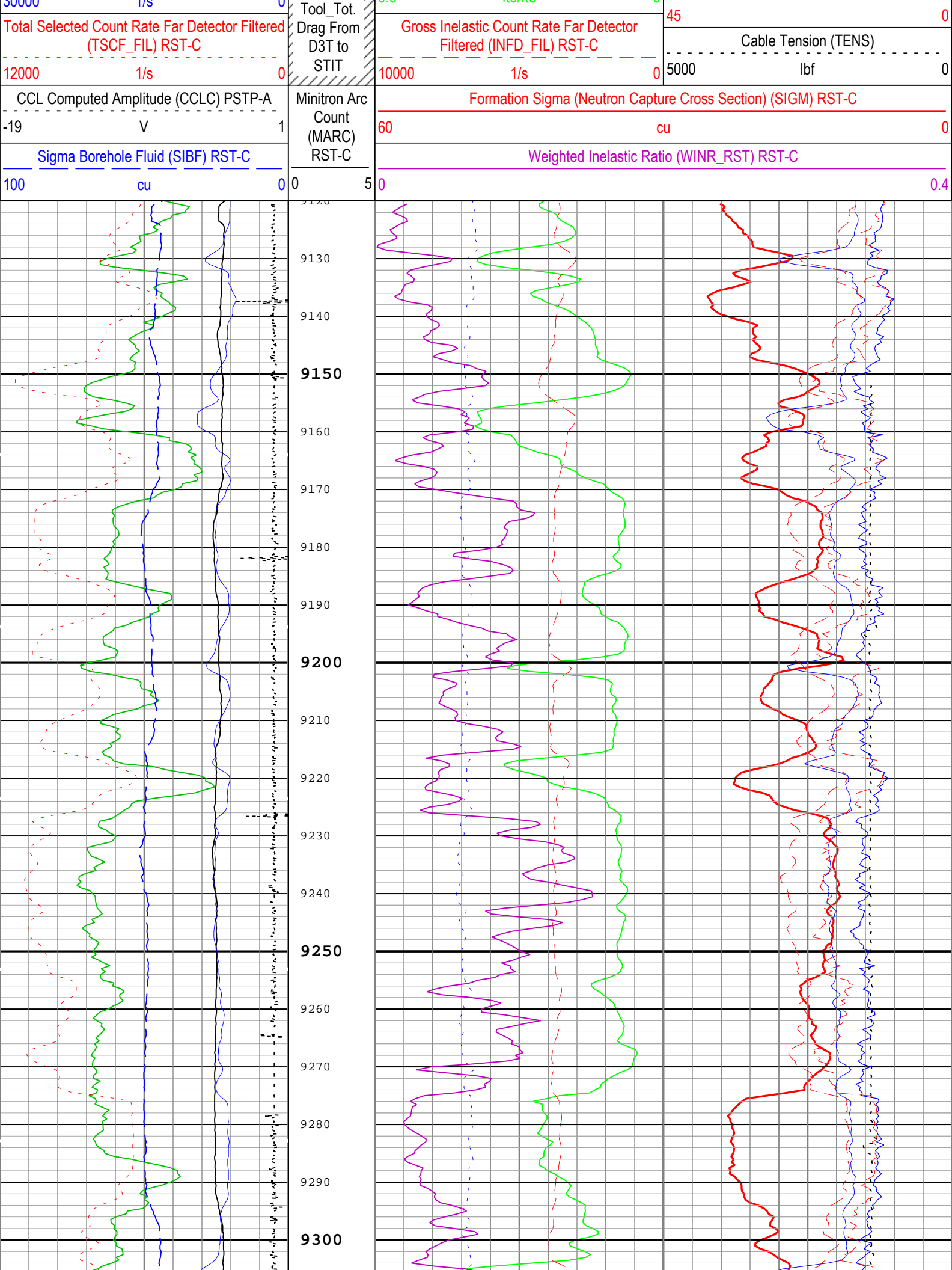
IHV - Integrated Hole Volume every 10.00 (ft3)

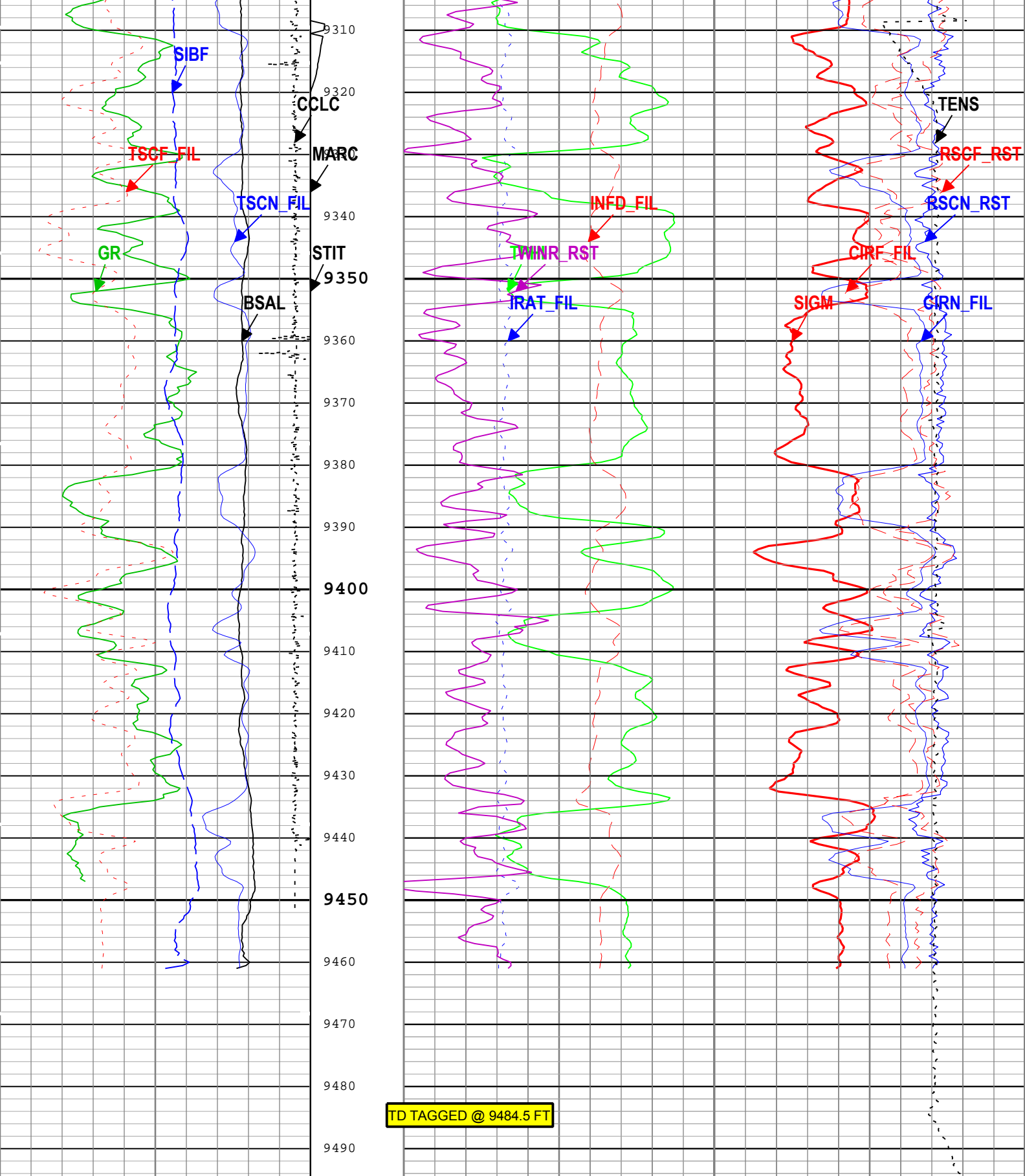
IHV - Integrated Hole Volume every 100.00 (ft3)

ICV - Integrated Cement Volume every 10.00 (ft3)

ICV - Integrated Cement Volume every 100.00 (ft3)

Borehole Salinity (BSAL) RST-C		Stuck Tool Indicator, Total (STIT)	Capture to Inelastic Ratio Near Filtered (CIRN_FIL) RST-C	
450	ppk -50		2.5	0
Gamma Ray (GR) PSTP-A		Cable Drag From STIA to STIT	Capture to Inelastic Ratio Far Filtered (CIRF_FIL) RST-C	
0	gAPI 150		5	0
Total Selected Count Rate Near Detector Filtered (TSCN_FIL) RST-C		Inelastic Ratio Filtered (IRAT_FIL) RST-C	Near Detector Effective Unregulated Capture Count Rate (RSCN_RST) RST-C	
20000	1/c 0		0.75	45
		Thermal Decay Porosity (TPHI) RST-C	Far Detector Effective Unregulated Capture Count Rate (RSCF_RST) RST-C	
			0.6	0





Borehole Salinity (BSAL) RST-C		Stuck Tool Indicator, Total (STIT)	Formation Sigma (Neutron Capture Cross Section) (SIGM) RST-C	
450	ppk -50		60	cu 0
Gamma Ray (GR) PSTP-A		Cable Drag From STIA to STIT	Weighted Inelastic Ratio (WINR_RST) RST-C	
0	gAPI 150		0	0.4
Total Selected Count Rate Near Detector Filtered (TSCN_FIL) RST-C		Cable Drag From STIA to STIT	Inelastic Ratio Filtered (IRAT_FIL) RST-C	
20000	1/0		0.75	0
			Capture to Inelastic Ratio Near Filtered (CIRN_FIL) RST-C	
			0.5	

00000	1/s	0	Thermal Decay Porosity (TPHI) RST-C	2.5
Total Selected Count Rate Far Detector Filtered (TSCF_FIL) RST-C		0	0.6	ft3/ft3
12000	1/s	0	Gross Inelastic Count Rate Far Detector Filtered (INFD_FIL) RST-C	5
CCL Computed Amplitude (CCLC) PSTP-A		1	10000	1/s
-19	V	1		45
Sigma Borehole Fluid (SIBF) RST-C		0		45
100	cu	0		45
		0		5000
		5		lbf
				0

- ICV - Integrated Cement Volume every 100.00 (ft3)
- 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 - Elapsed time since midnight, 30 December 1899 every 60.00 (s)

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: 06-Sep-2018 15:25:31

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	
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	SANDSTONE	
TD	Total Measured Depth	Borehole	9484.5	ft

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: NPR 13B-10 596

Field: NPR

County: Garfield

State: Colorado

Cement Bond Log

RST Sigma Log

Gamma Ray - Collar Locator Log