

Company: Occidental Petroleum Corporation

Well: Acco-Terra-State #39

Field: Wattenberg

County: Weld Country: USA

Cement Bond Log
Variable Density Log
Gamma Ray - CCL

County: Weld
Field: Wattenberg
Location: CNE
Well: Acco-Terra-State #39
Company: Occidental Petroleum Corporation

Location:		Elev.:	K.B.	4981.00 ft
Permanent Datum:			G.L.	4968.00 ft
Log Measured From:			D.F.	4981.00 ft
Drilling Measured From:		Ground Level		4968.00 f
API Serial No.		Kelly Bushing		above Perm. Datum
05-123-07808		Kelly Bushing		
Max. Hole Deviation		Longitude:		Latitude:
		-104.66423 degrees		40.054787 degrees

Logging Date	20-Oct-2022
Run Number	One
Depth Driller	7908.00 ft
Schlumberger Depth	7908.00 ft
Bottom Log Interval	6500.00 ft
Top Log Interval	55.00 ft
Casing Fluid Type	Water
Salinity	
Density	8.5 lbm/gal
Fluid Level	8.00 ft
BIT/CASING/TUBING STRING	
Bit Size	7.88 in
From	986.00 ft
To	7908.00 ft
Casing/Tubing Size	4.5 in
Weight	11.6 lbm/ft
Grade	N/A
From	0.00 ft
To	7893.00 ft
Max Recorded Temperatures	165 degF
Logger on Bottom	20-Oct-2022
Time	09:20:00
Unit Number	9115
Location:	Ft. Morgan
Recorded By	E. Leslie/T. Mozena
Witnessed By	Ray Bishop

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.

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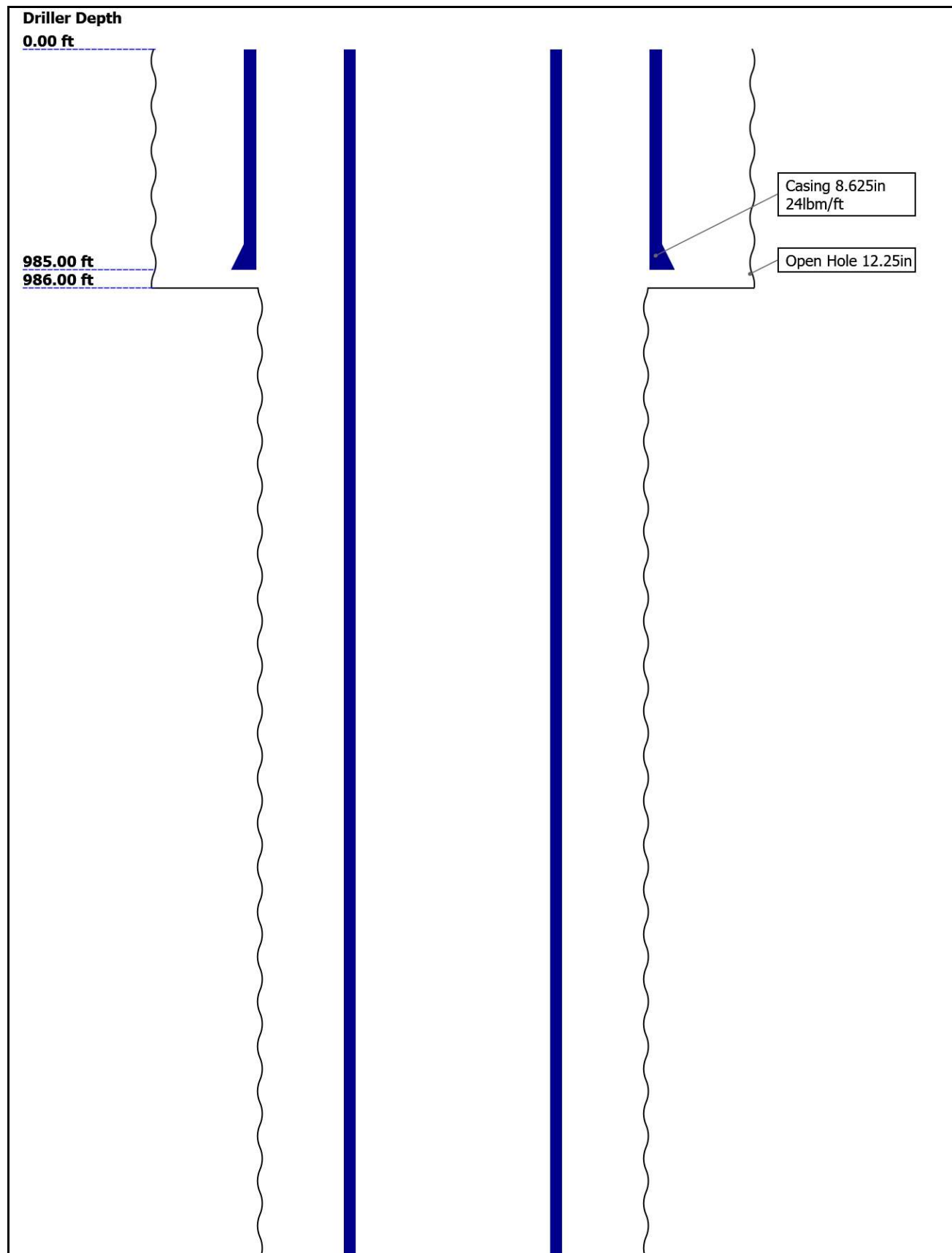
9.4 Log (DSLT ASLT_CBL-VDL)

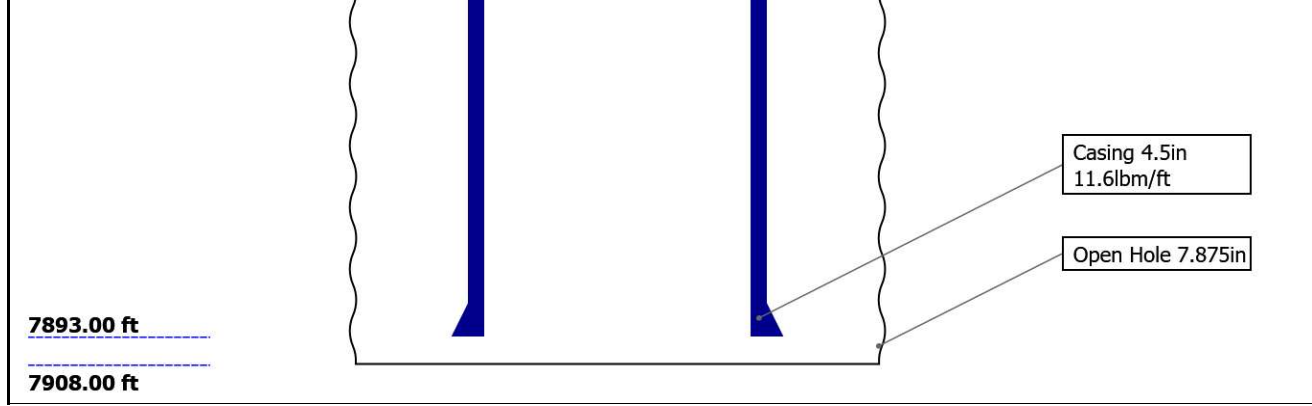
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10. Calibration Report

11. Tail

Well Sketch





Borehole Size/Casing/Tubing Record

Bit					
Bit Size (in)	12.25	7.875			
Top Driller (ft)	0	986			
Top Logger (ft)	0	986			
Bottom Driller (ft)	986	7908			
Bottom Logger (ft)	986	7908			
Casing					
Size (in)	8.625	4.5			
Weight (lbm/ft)	24	11.6			
Inner Diameter (in)	8.097	4			
Grade	N/A	N/A			
Top Driller (ft)	0	0			
Top Logger (ft)	0	0			
Bottom Driller (ft)	985	7893			
Bottom Logger (ft)	985	7893			

Remarks and Equipment Summary

One: Toolstring

One: Remarks

Equip name length
LEH-QT 49.07
 LEH-QT

MP name Offset



EDTC-B: 45.58
8624
 EDTH-B
 EDTG-A
 EDTC-B:
 8624

CTEM 42.08
 ACCZ 0.00
 HV 0.00
 Gamma Ray 40.21
 TelStar 39.08
 tus

ASLT-B: 39.08
8073
 ASLT-BB
 :8073

CBL_U 32.55
 P

Thank you for choosing Schlumberger!

Log run for casing and cement evaluation

Toolstring run centralized as per tool sketch

IBCS-A Sub ran with ICE Transducers

Log not run under pressure

Crew: E.Leslie, T.Mozena



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

Depth Summary

	One		
Depth Measuring Device			
Type	IDW-B		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Calibration Cable Type			
Wheel Correction 1	0		
Wheel Correction 2	0		
Tension Device			

Type	CMTD-B/A		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Number of Calibration Points	0		

Logging Cable			
Type	7-46ZVI-XS		
Serial Number	1234		
Length	24000.00 ft		
Conveyance Type	Wireline		
Rig Type	Workover		

One:Depth Control Parameters		Depth Control Remarks
Log Sequence	First Log In the Well	Schlumberger depth control procedures followed
Rig Up Length At Surface		IDW used as primary depth control system
Rig Up Length At Bottom		Z-Chart used as secondary depth control system
Rig Up Length Correction		
Stretch Correction		
Tool Zero Check At Surface		

One

Software Version

Acquisition System	Version
Maxwell 2022.1	12.1.217729.3100
Application Patch	Wireline_Hotfix-Mandatory-2022.1_12.1.220287
	Wireline_NPD-ThruBit-2022.1_12.1.219291

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[3]:Up	Up	34.80 ft	6504.72 ft	20-Oct-2022 9:10:13 AM	20-Oct-2022 11:04:37 AM	ON	4.44 ft	No

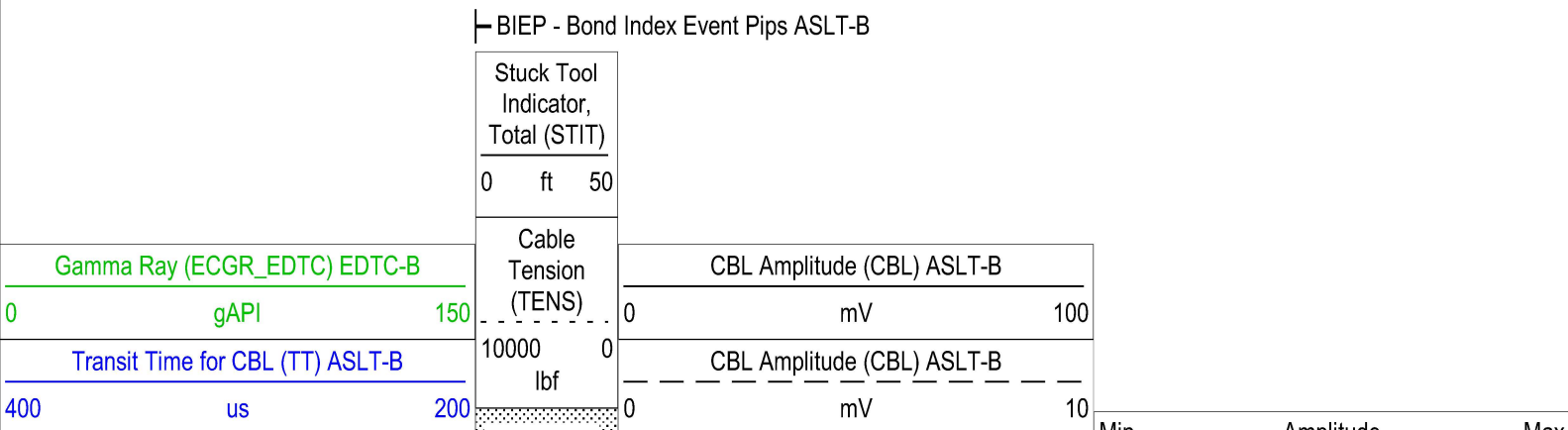
All depths are referenced to toolstring zero

Log

Company:Occidental Petroleum Corporation Well:Acco-Terra-State #39
One: Log[3]:Up:S011

Description: CBL_VDL Format: Log (DSLT ASLT_CBL-VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 20-Oct-2022 12:28:44

TIME_1900 - Time Marked every 60.00 (s)



Casing Collar Locator Ultrasonic (CCLU)
USIT-E

-19 in 1

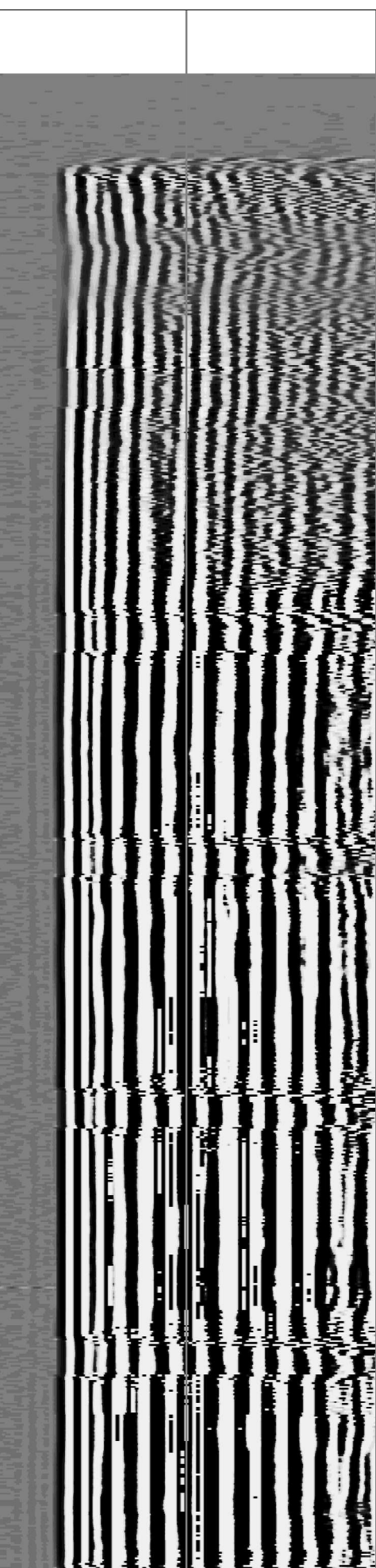
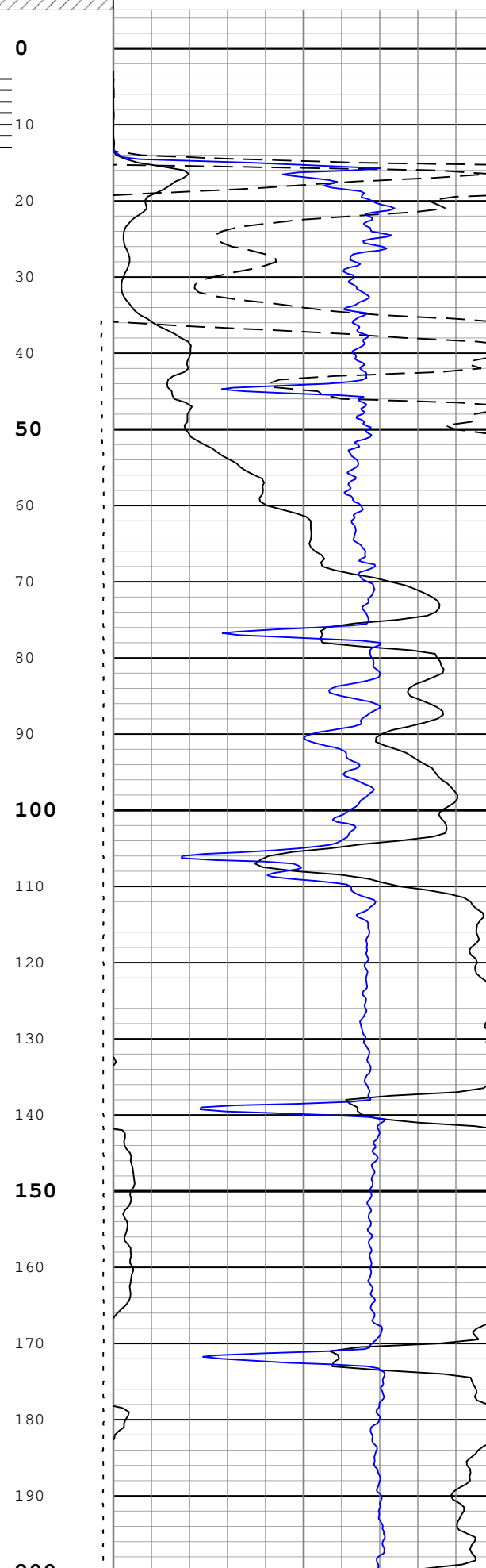
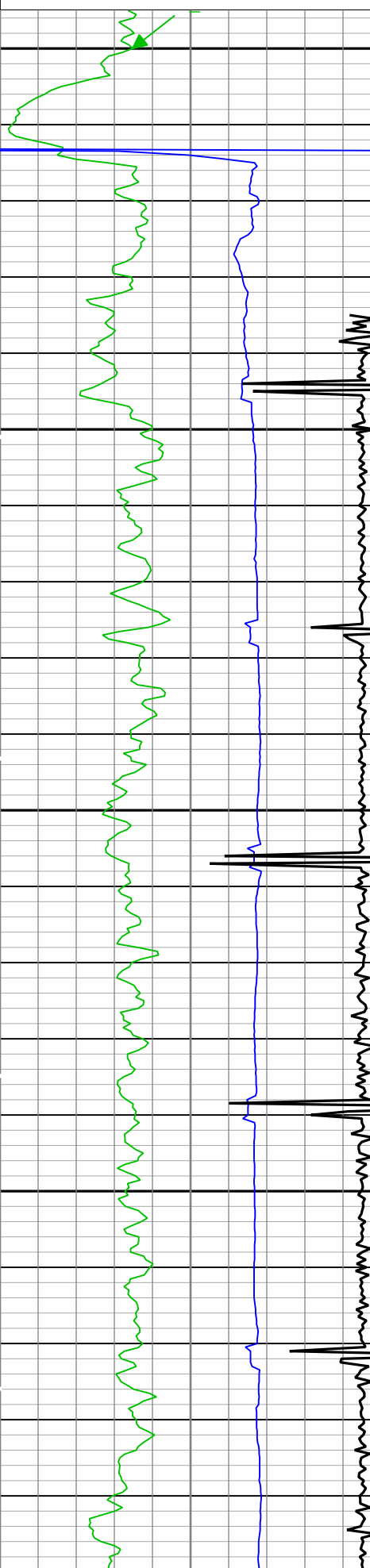
Cable Drag

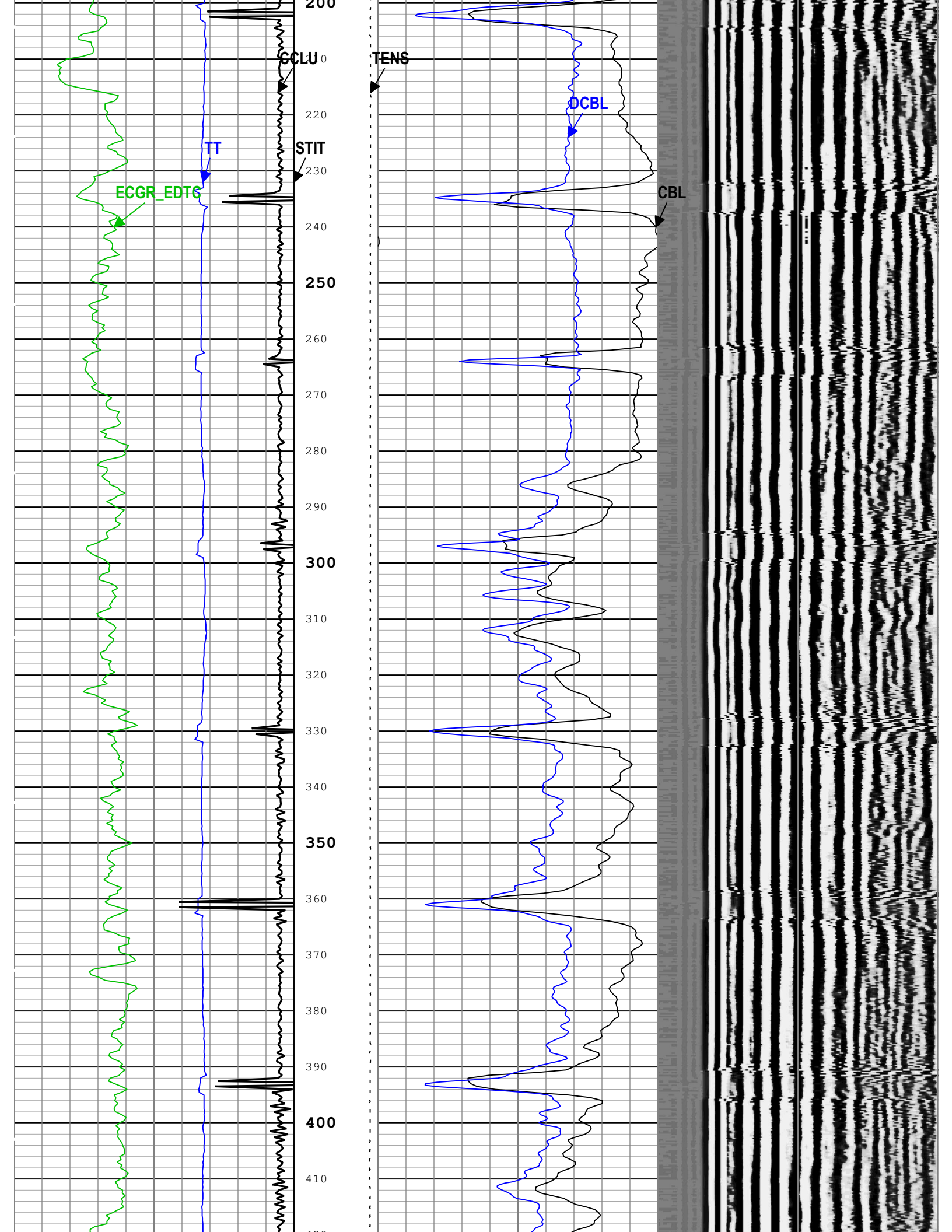
Tool_Tot.
Drag

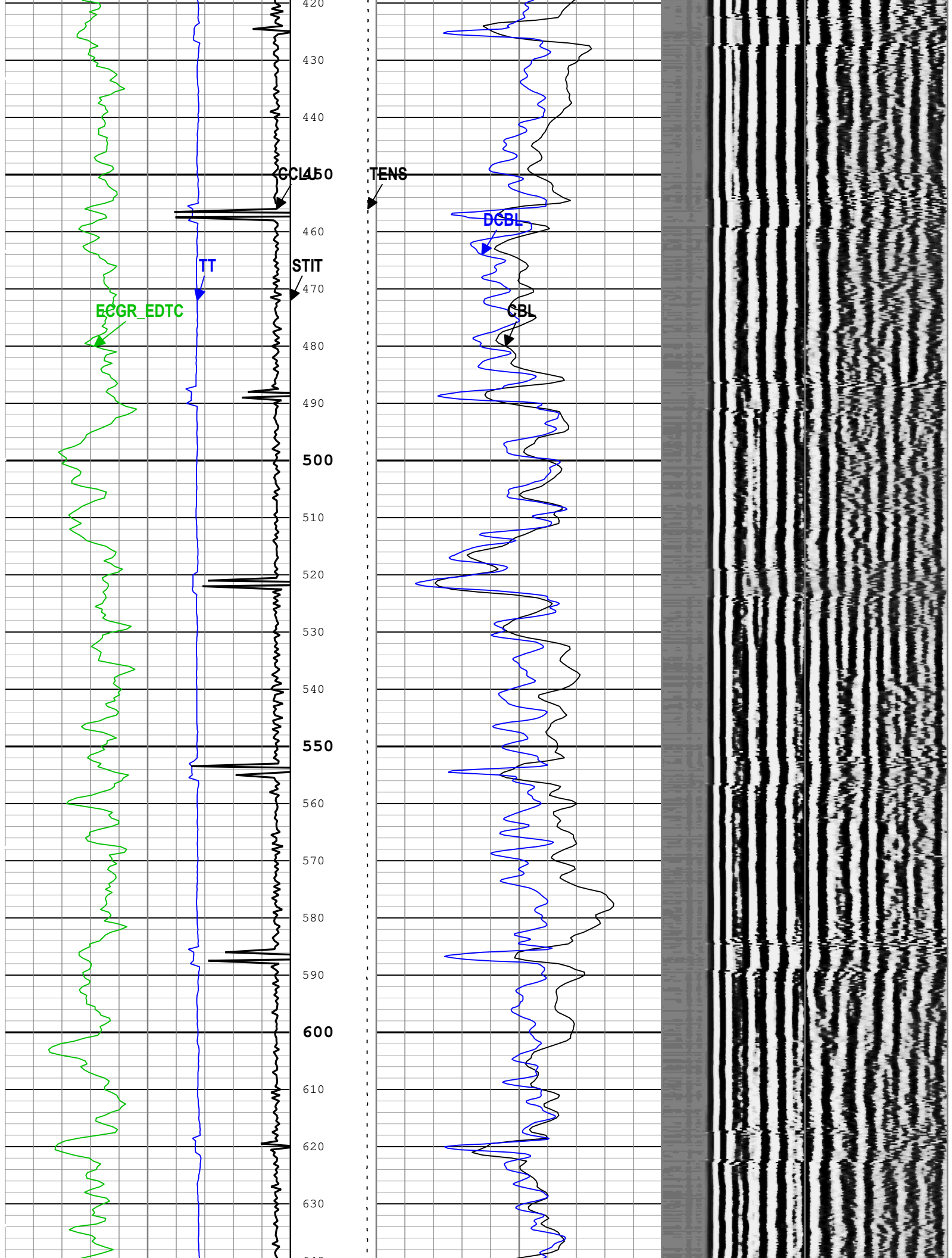
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(DCBL) ASLT-B

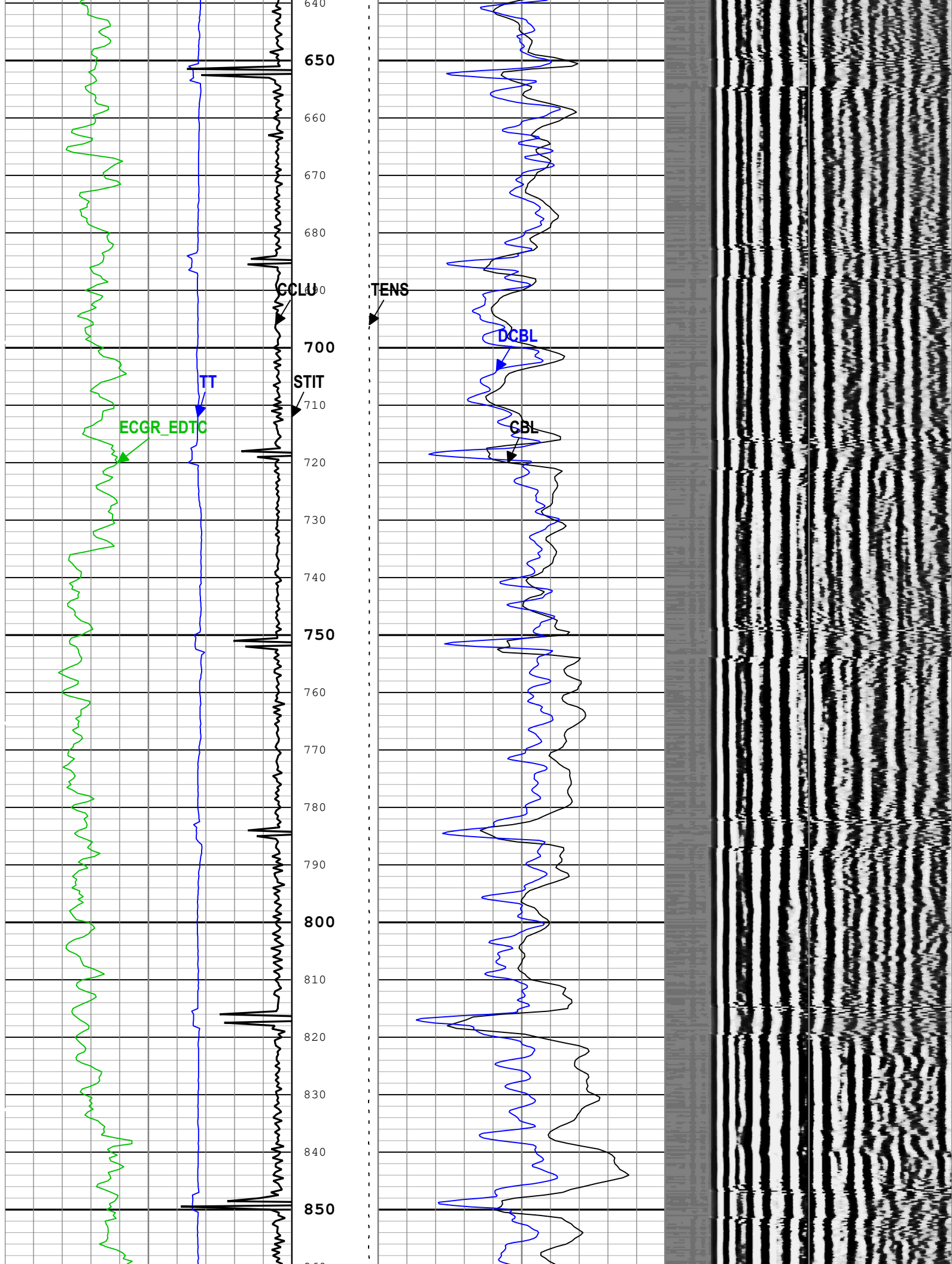
0 mV 100

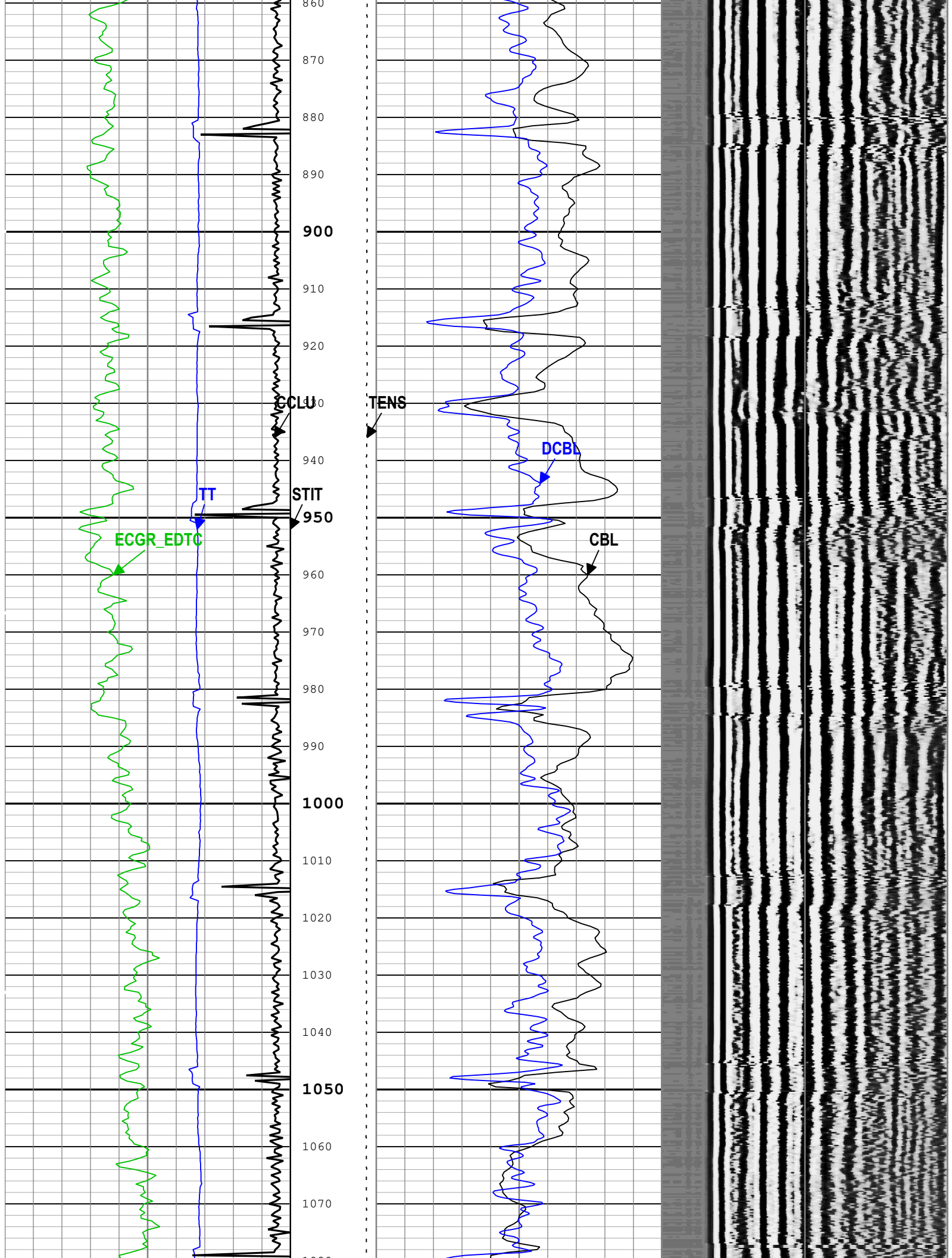
min Amplitude max
VDL VariableDensity (VDL) ASLT-B
200 us 1200

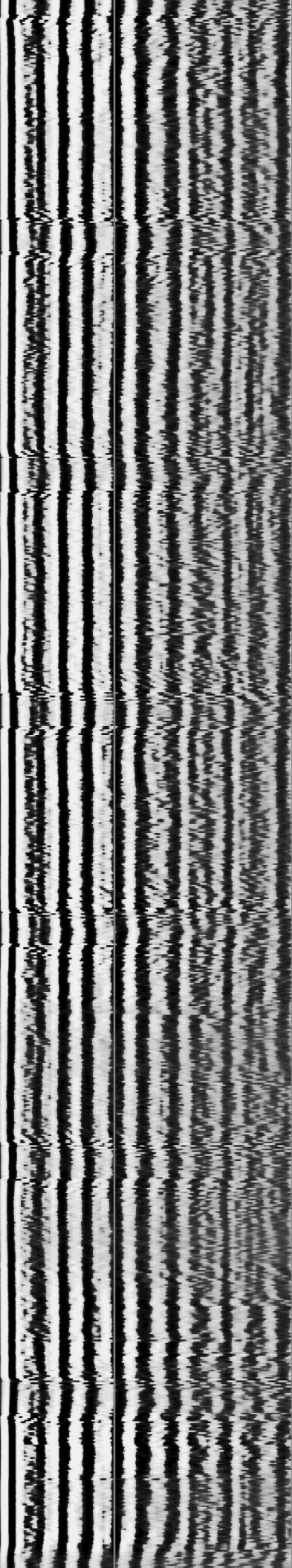
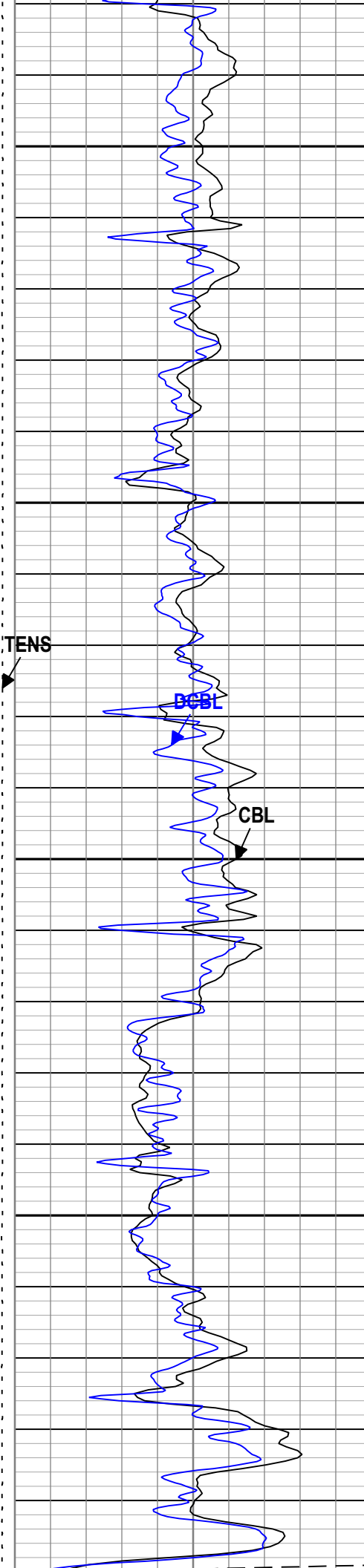
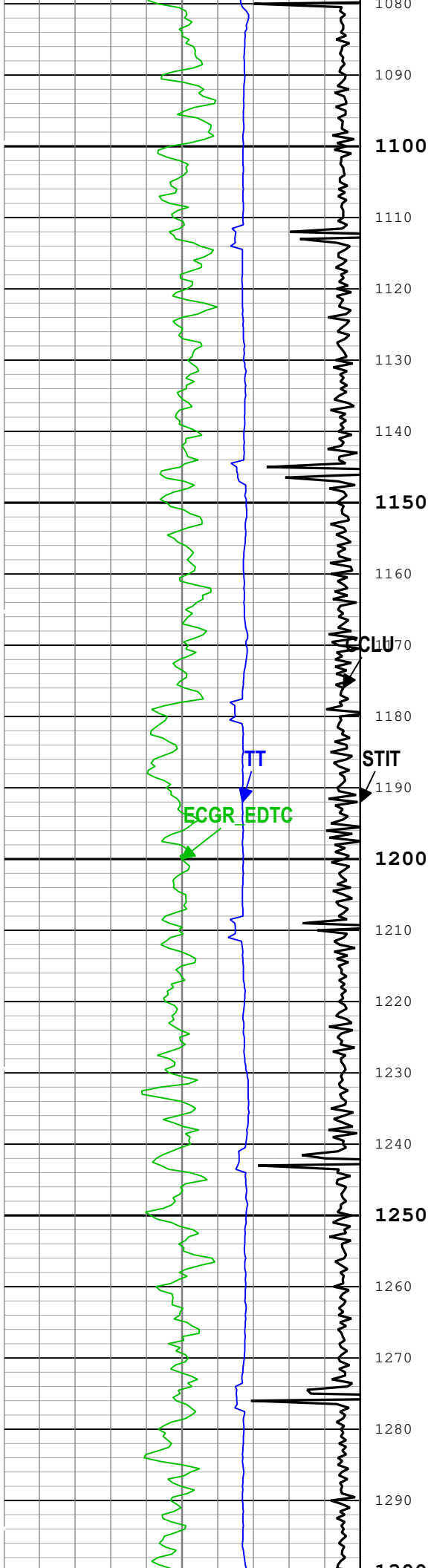


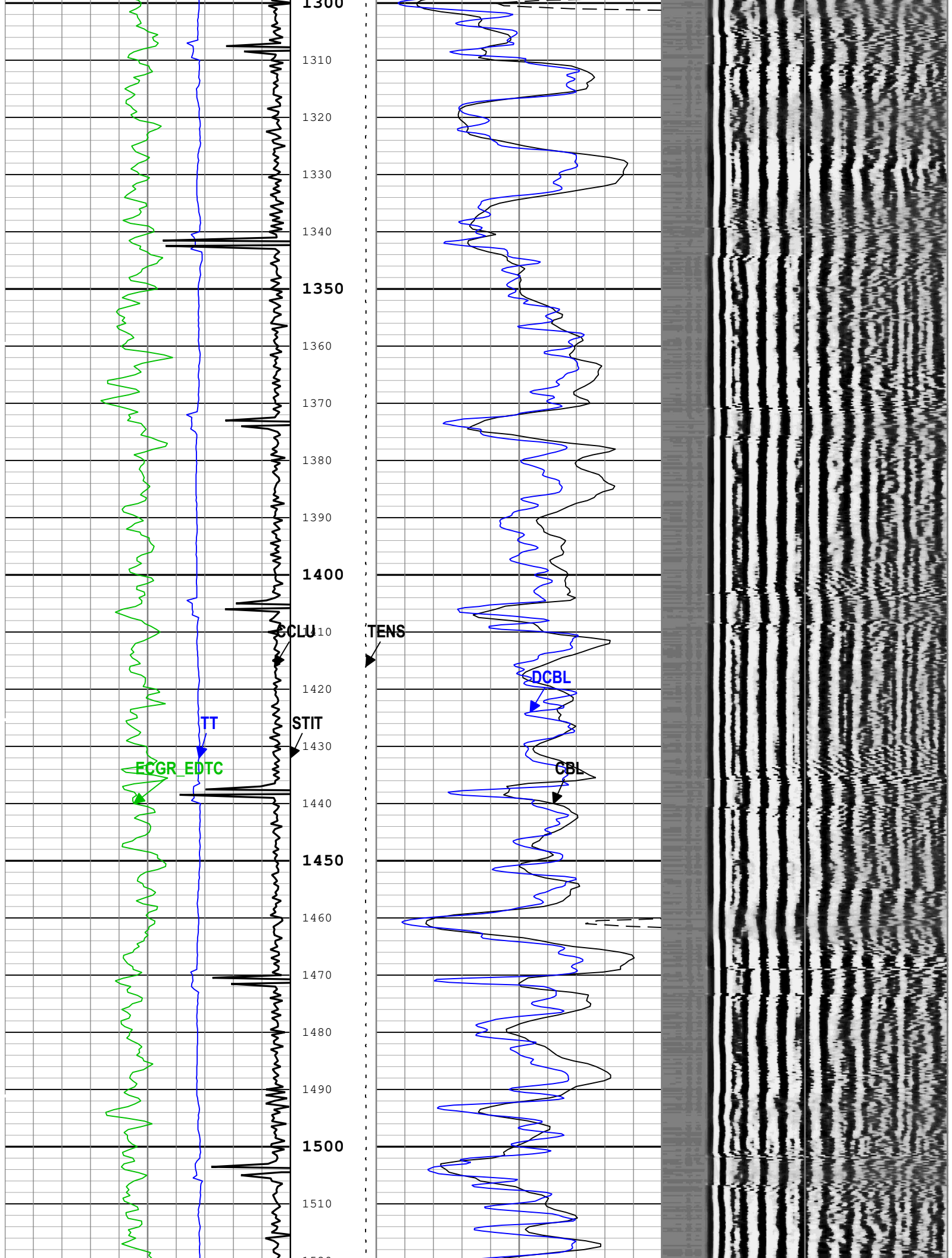


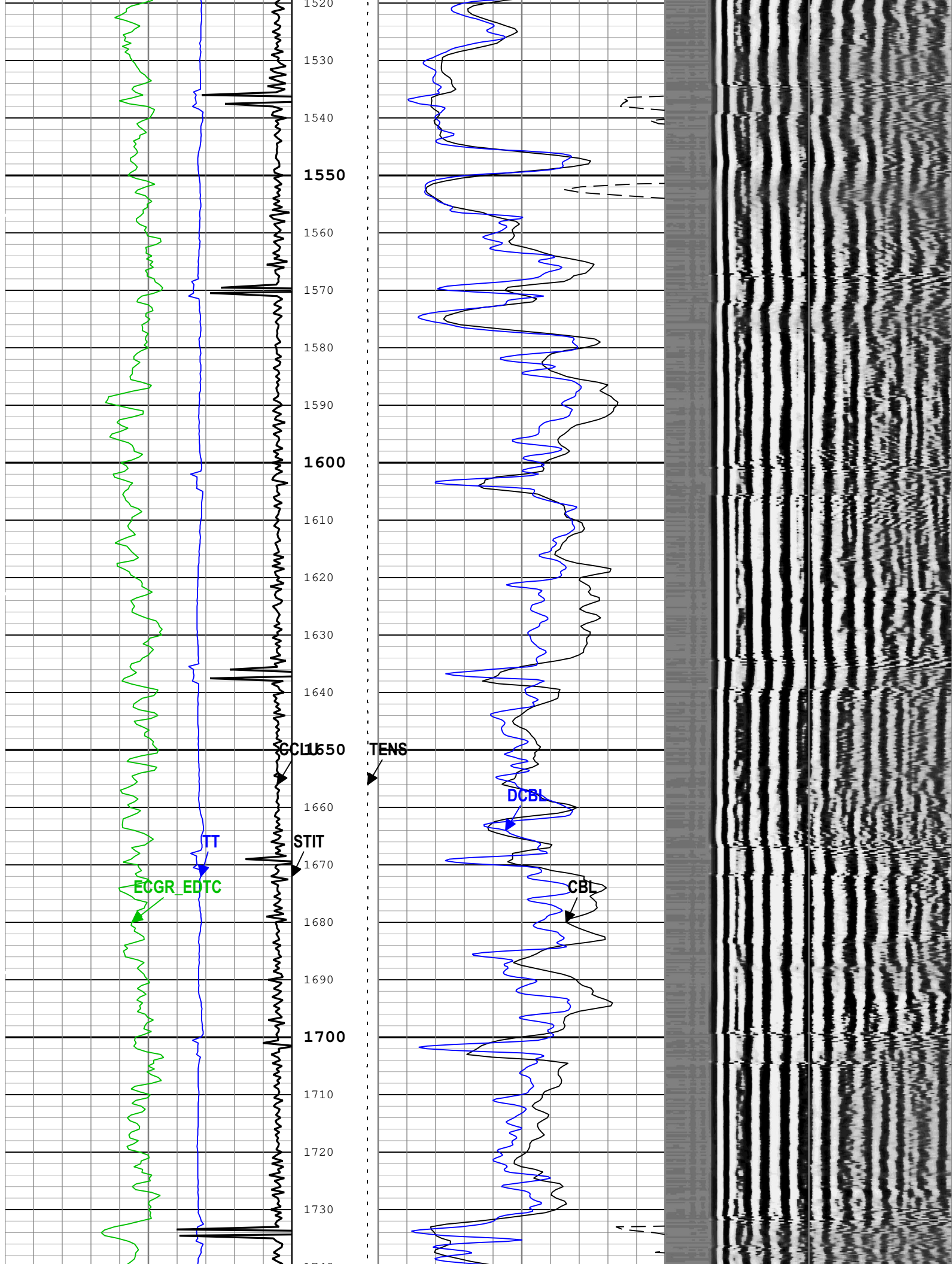


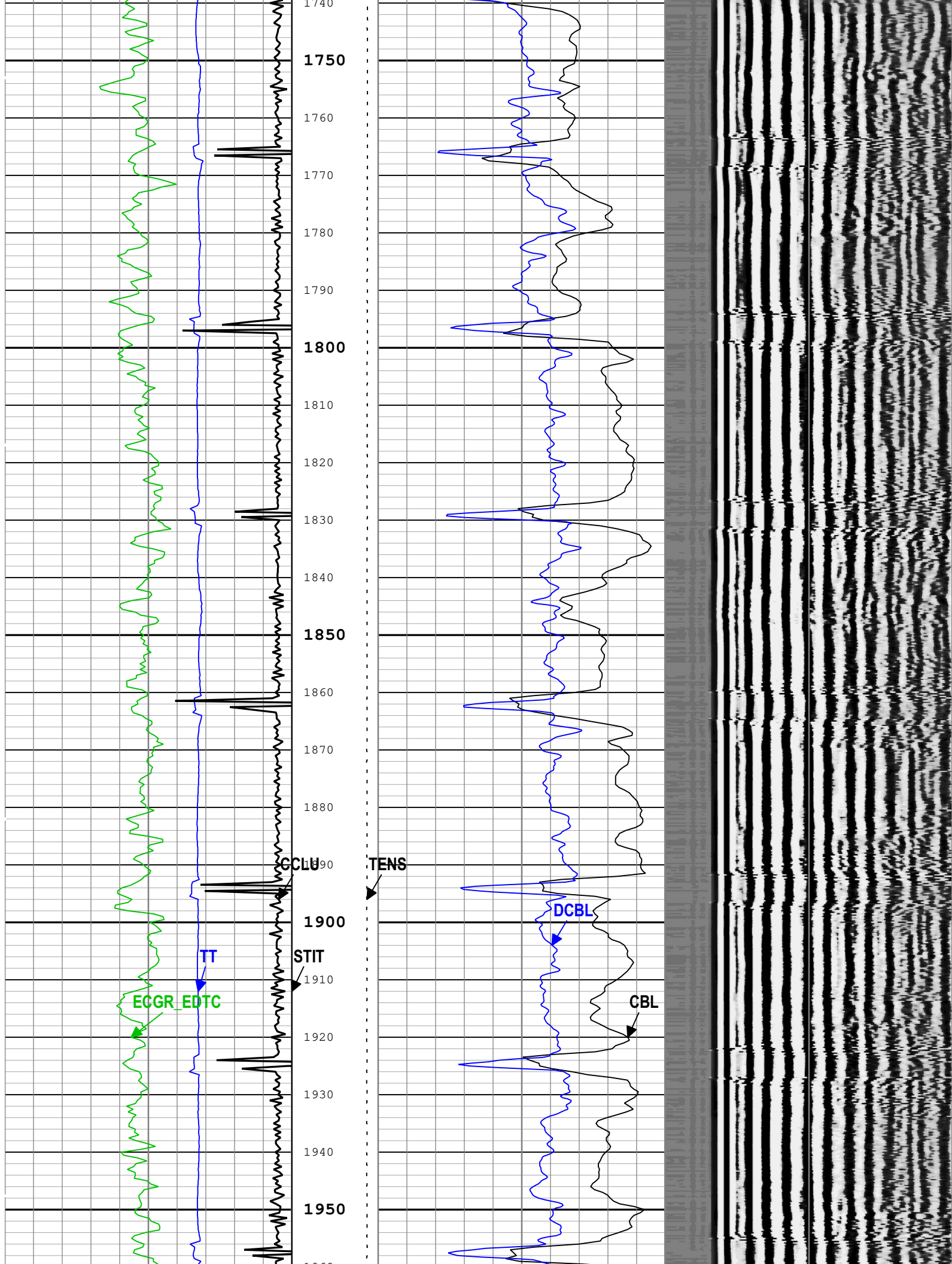


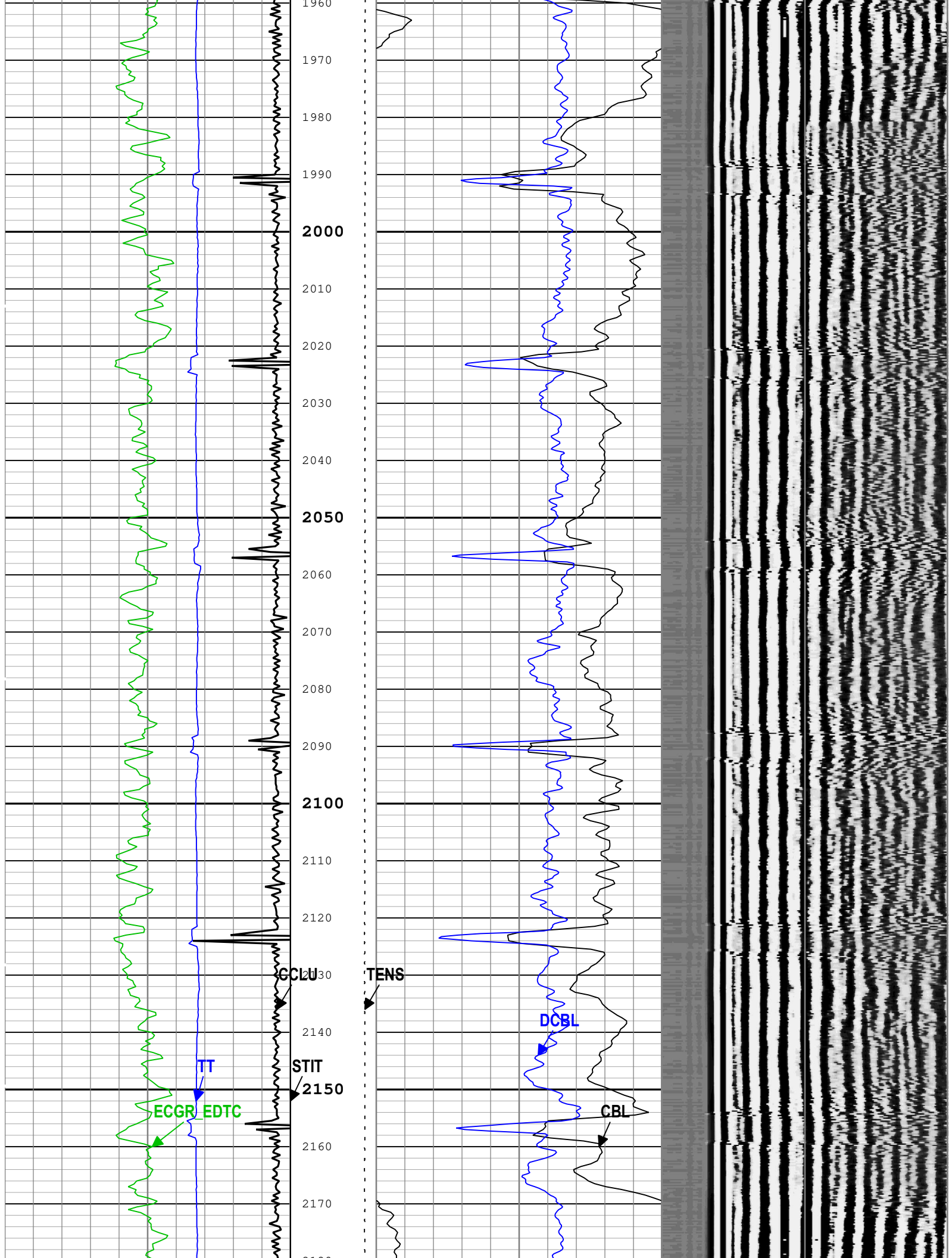


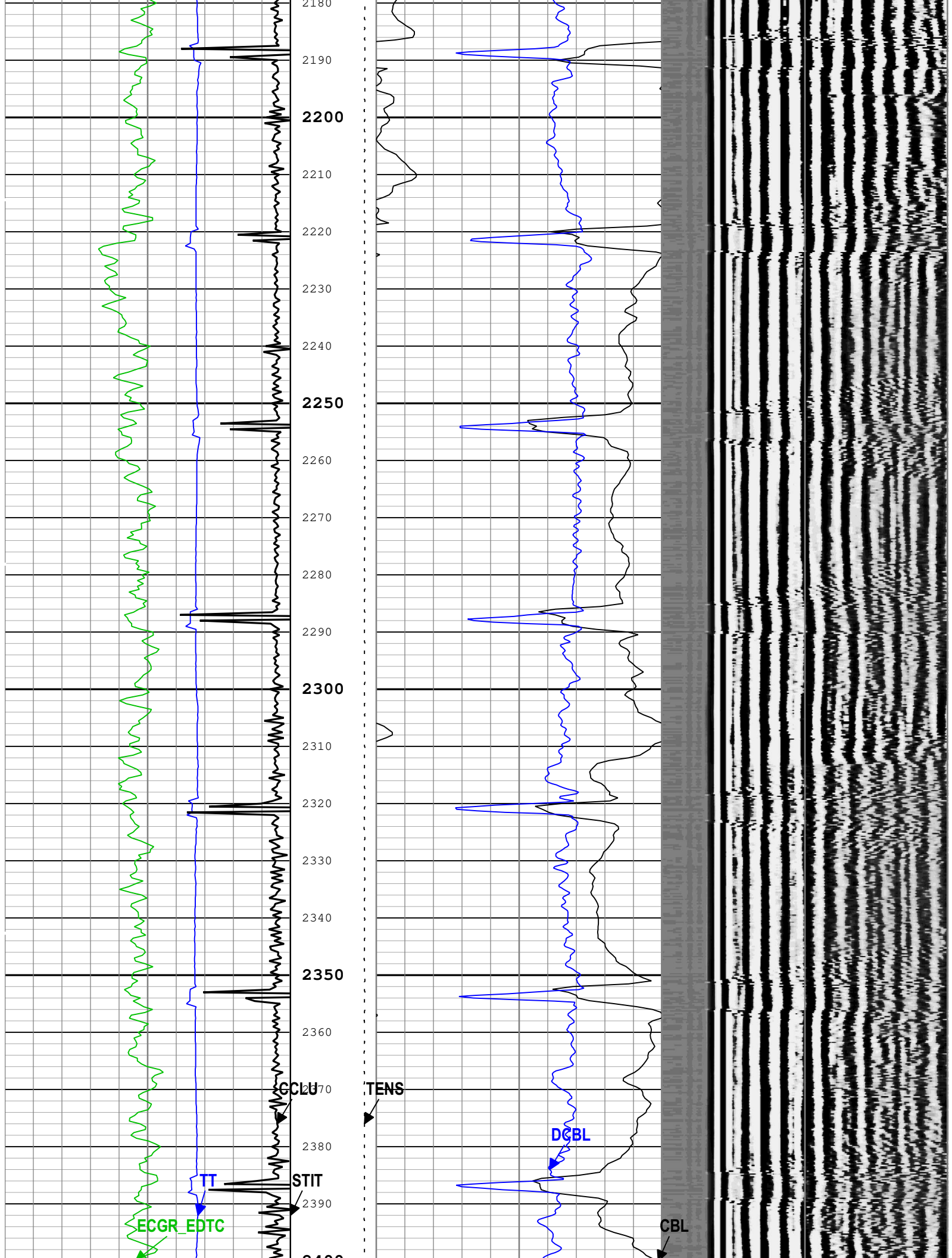


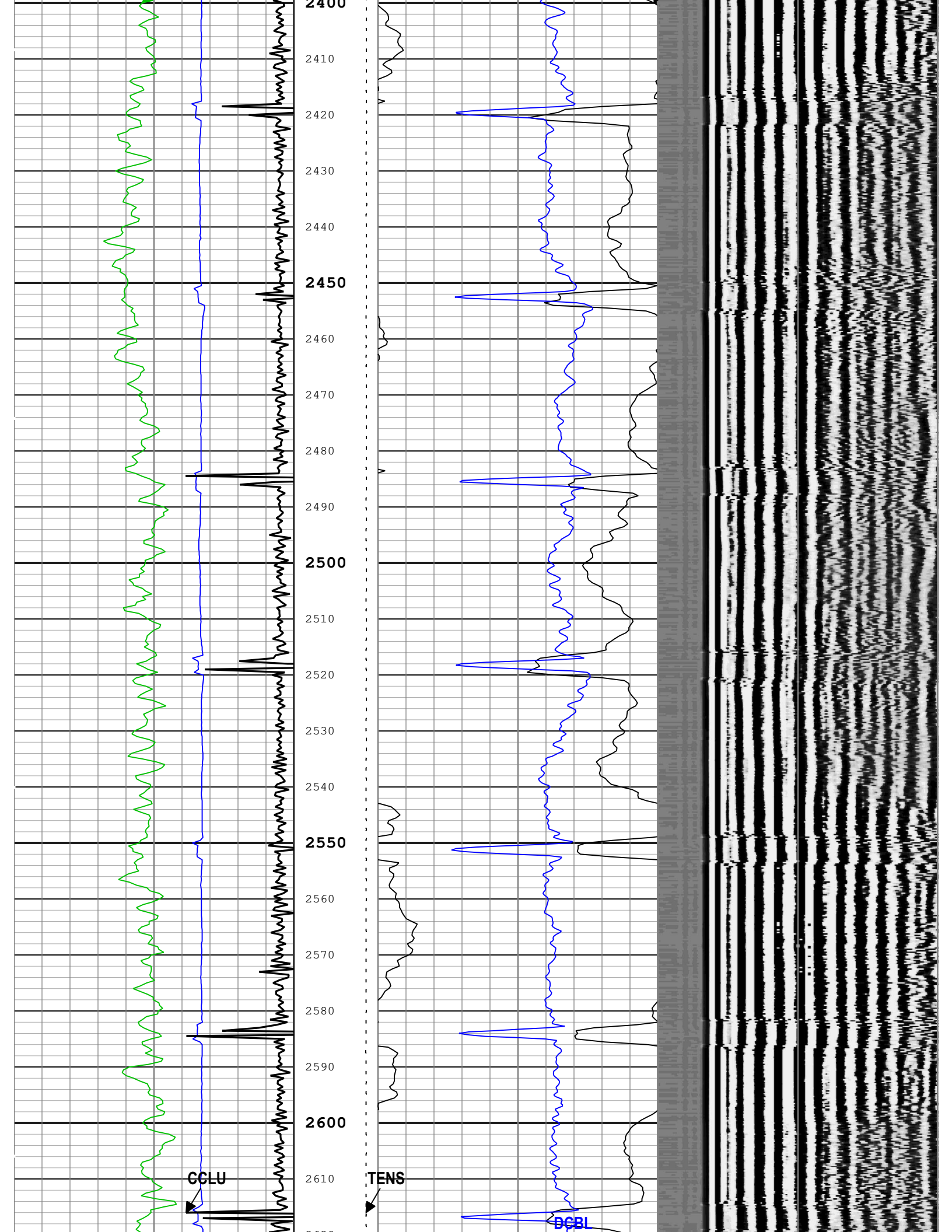


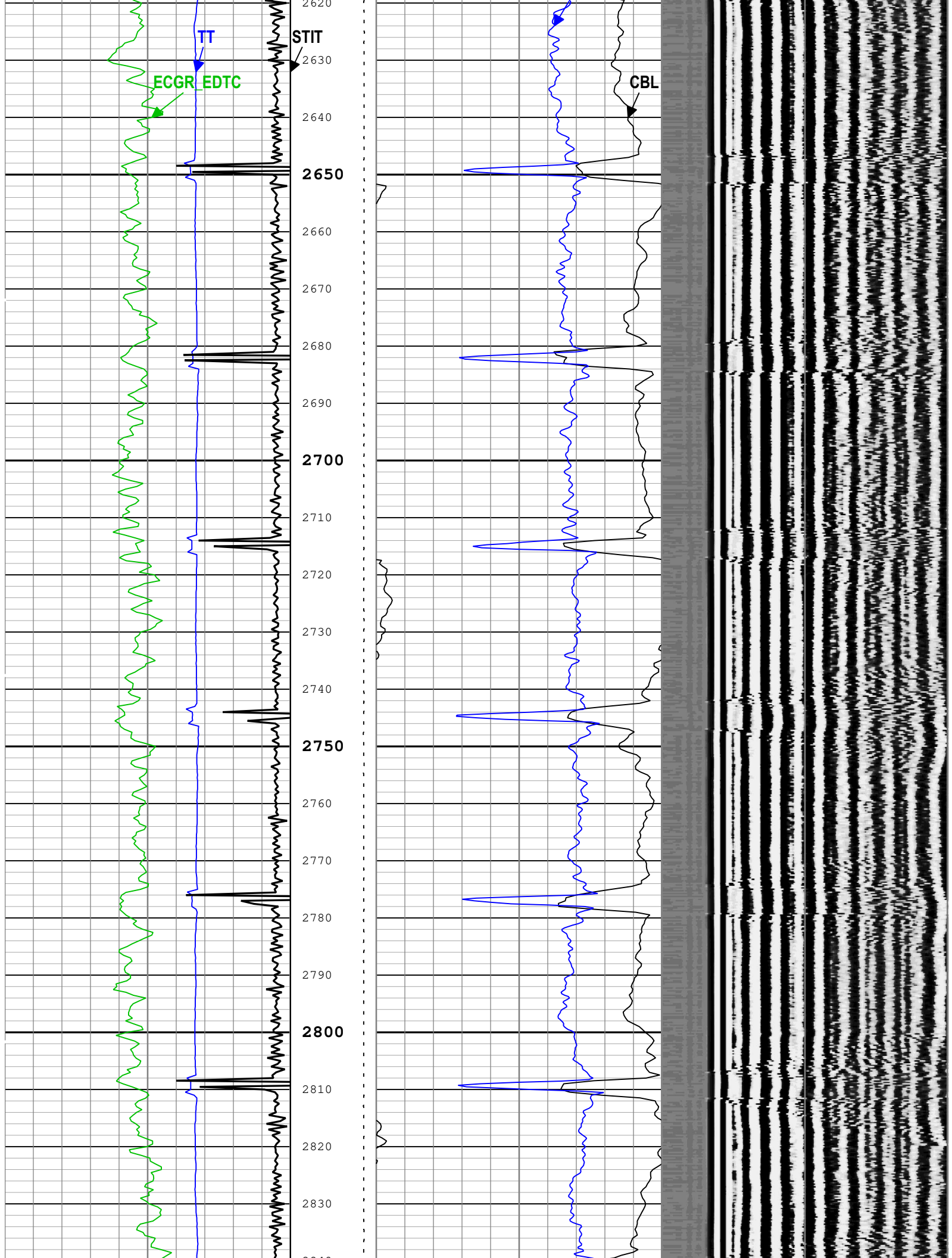


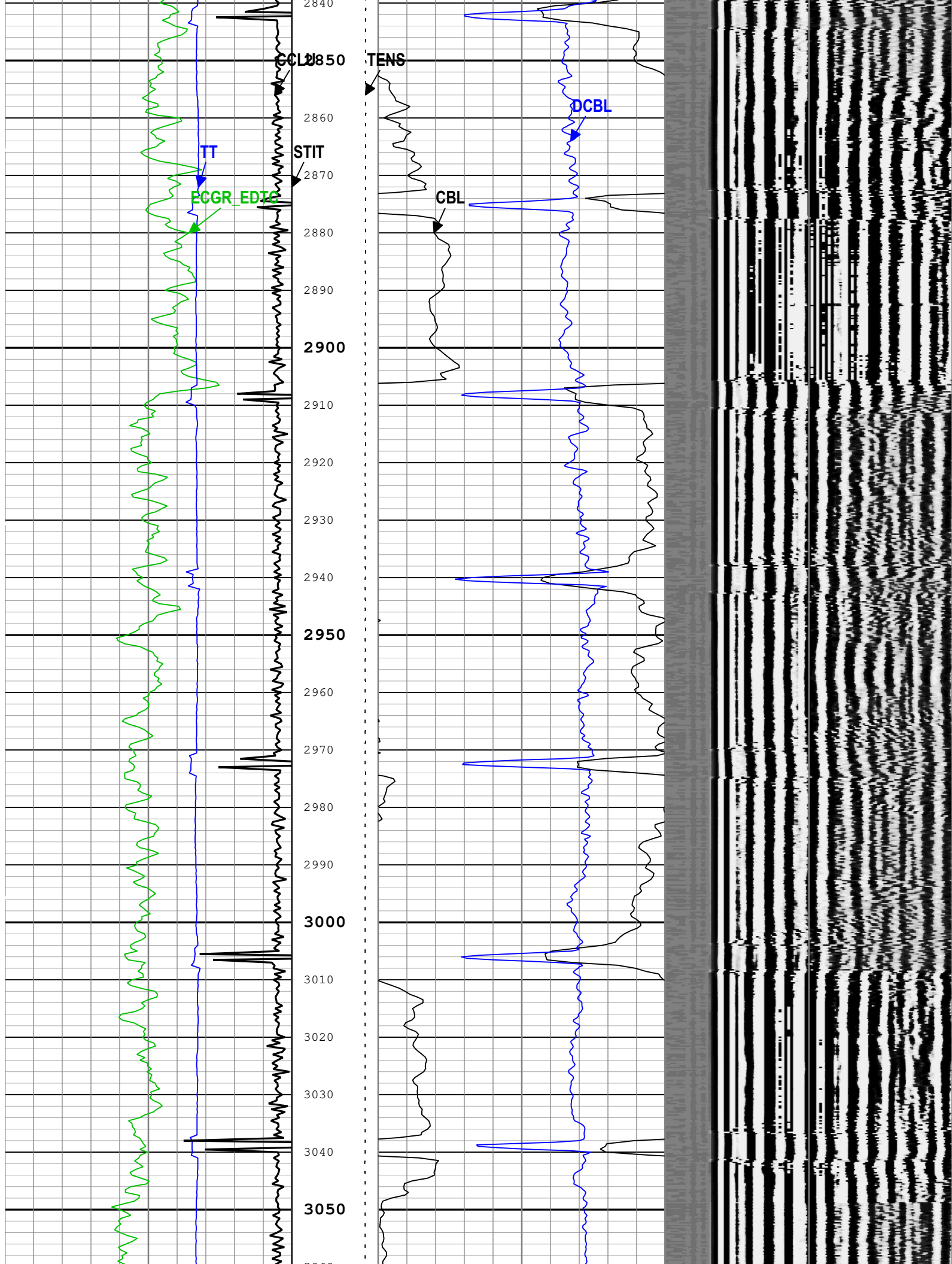


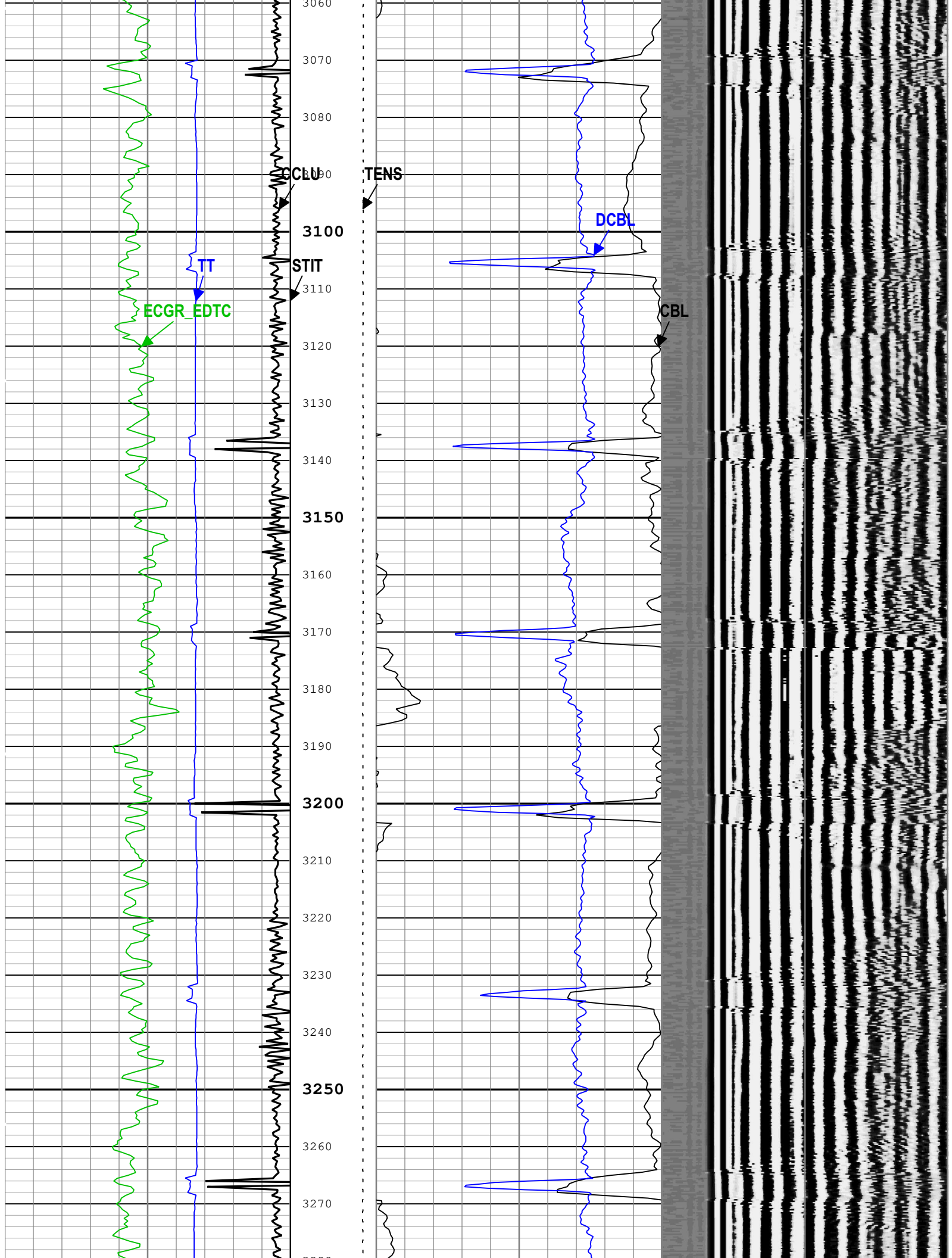


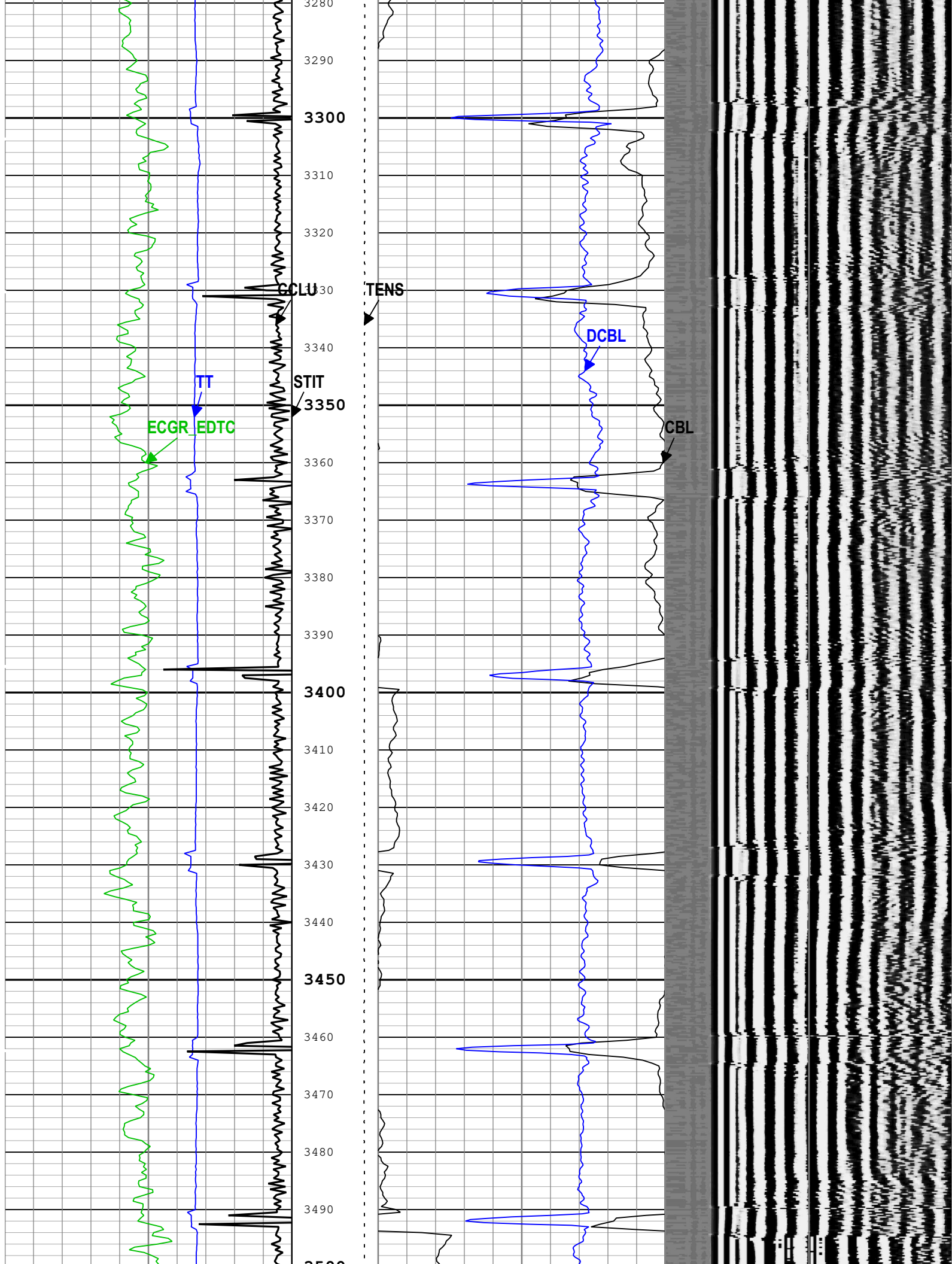


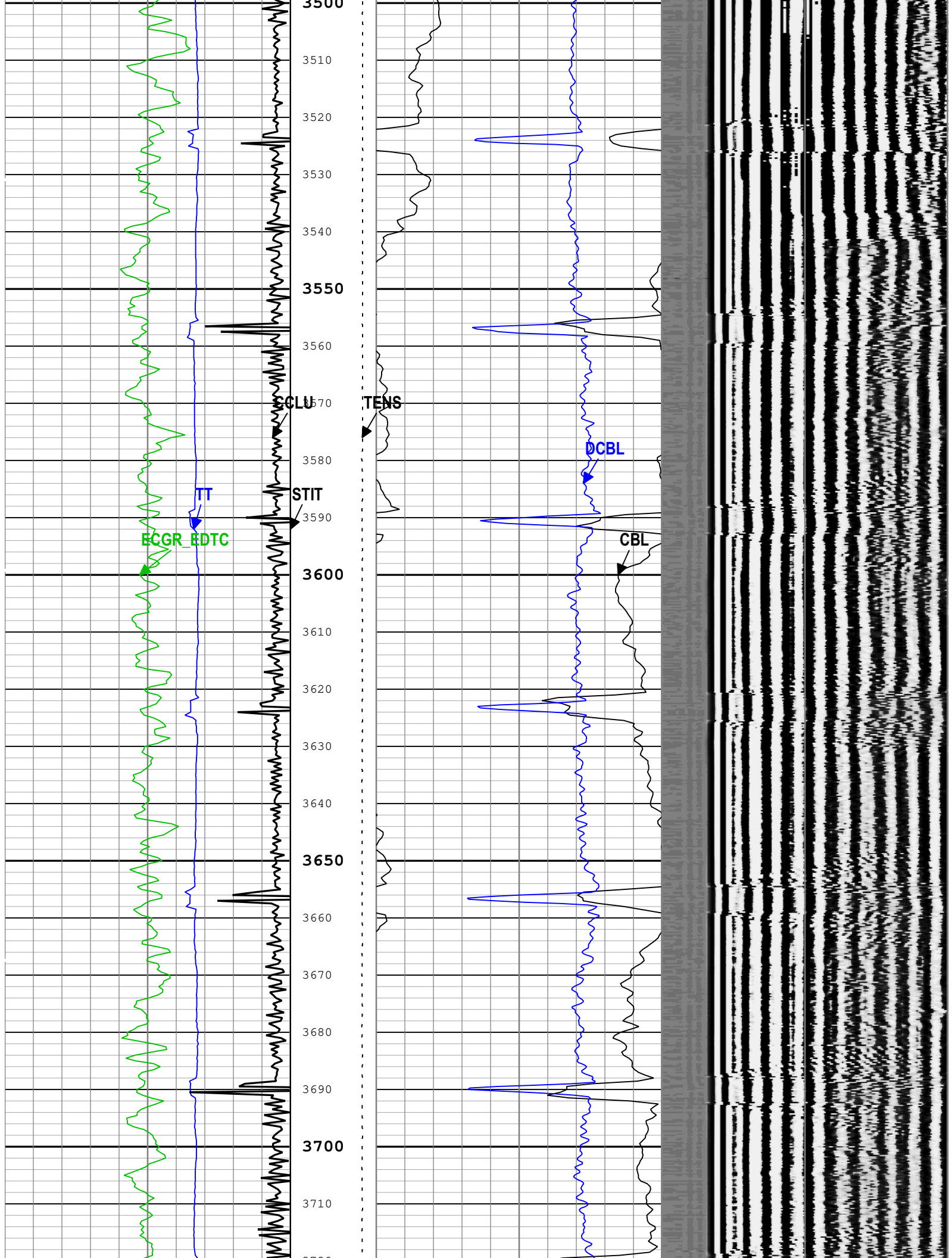


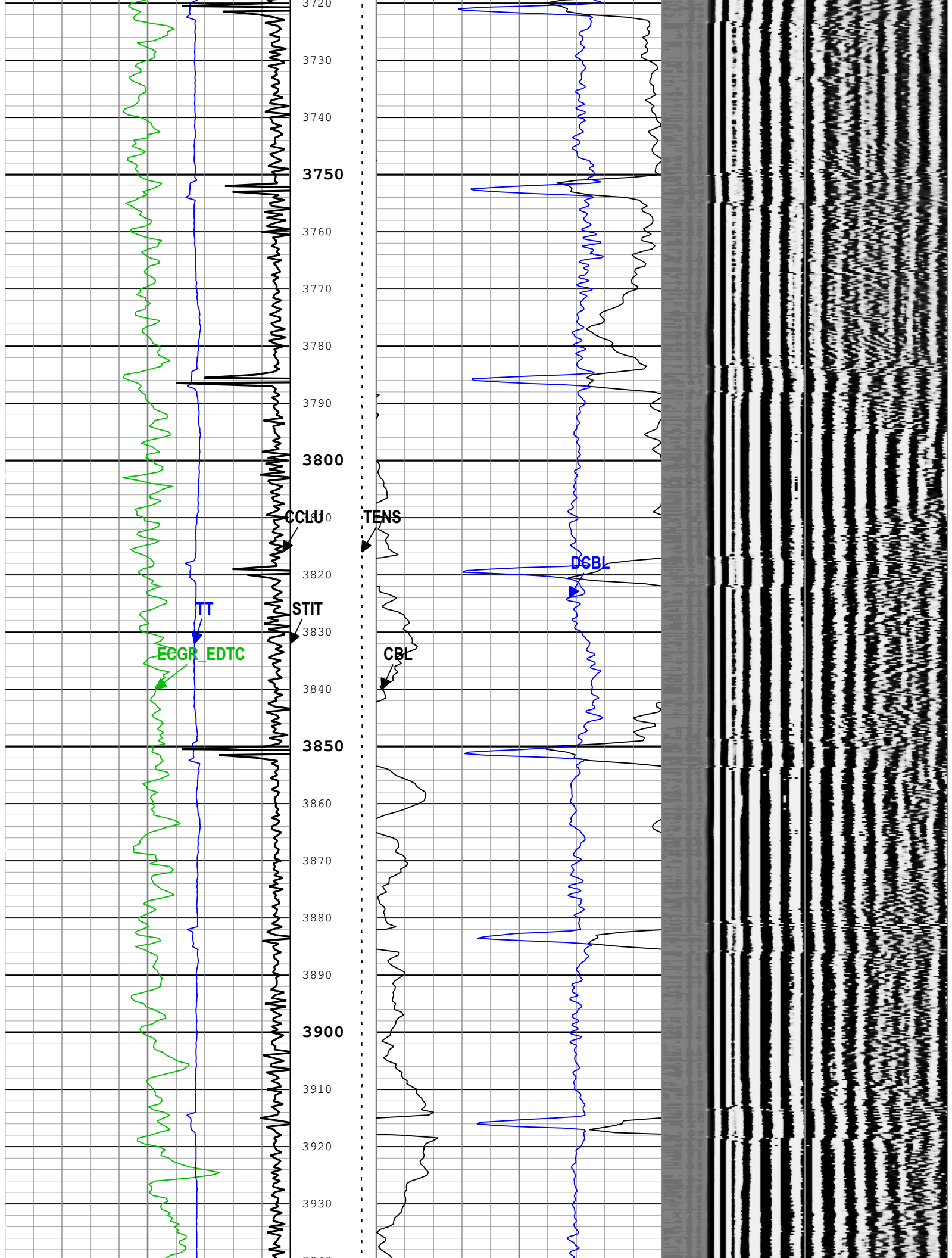


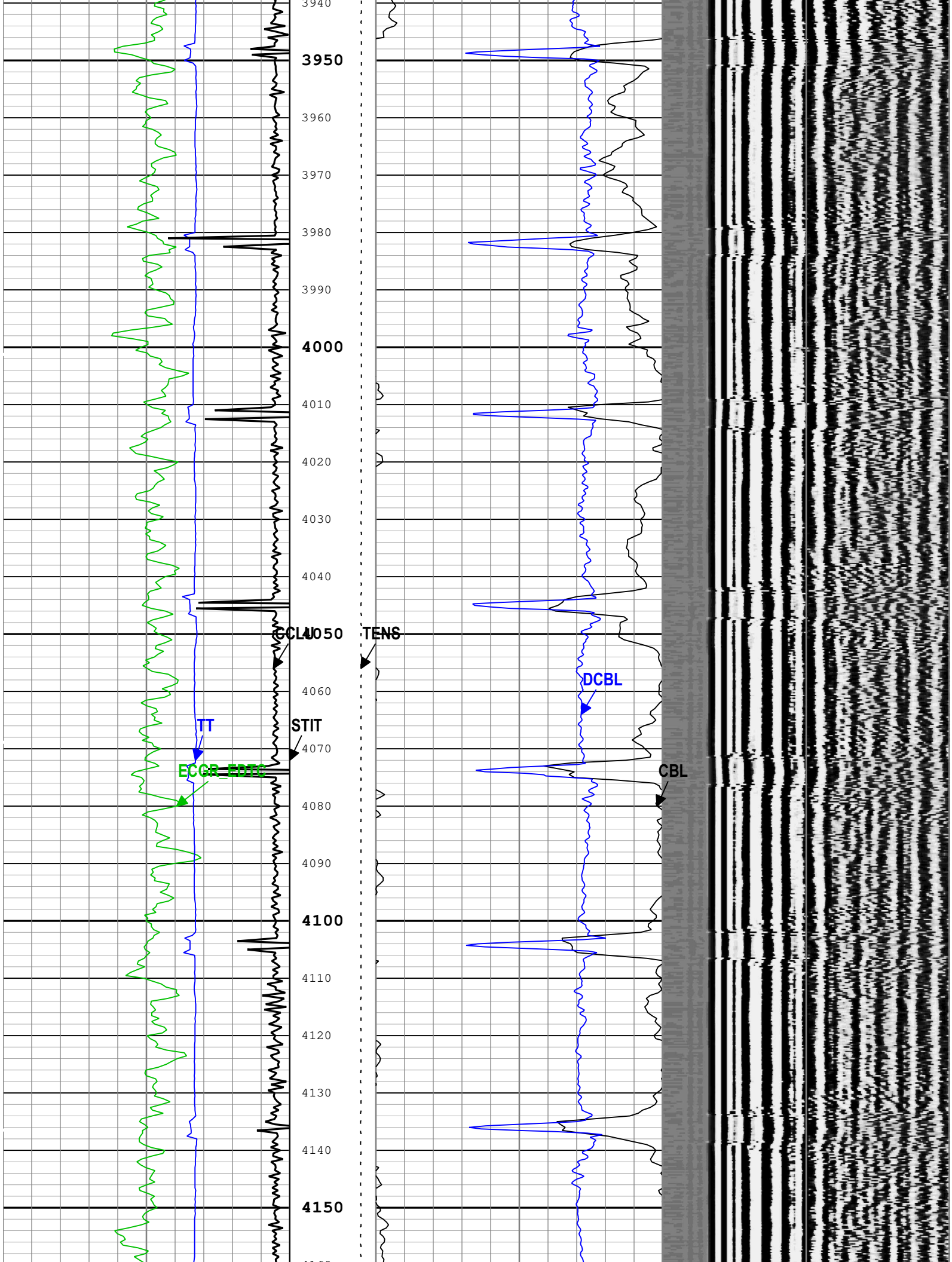


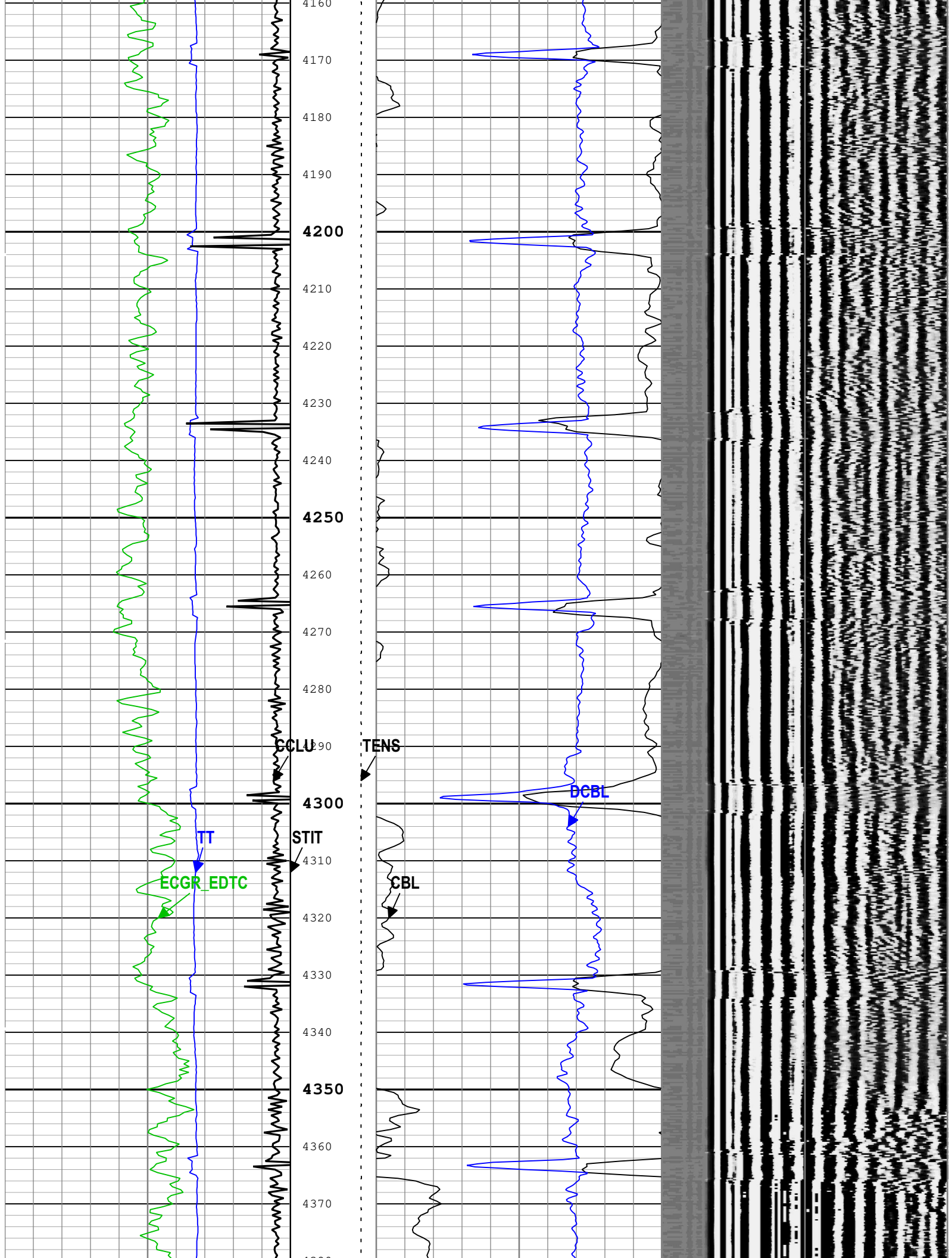


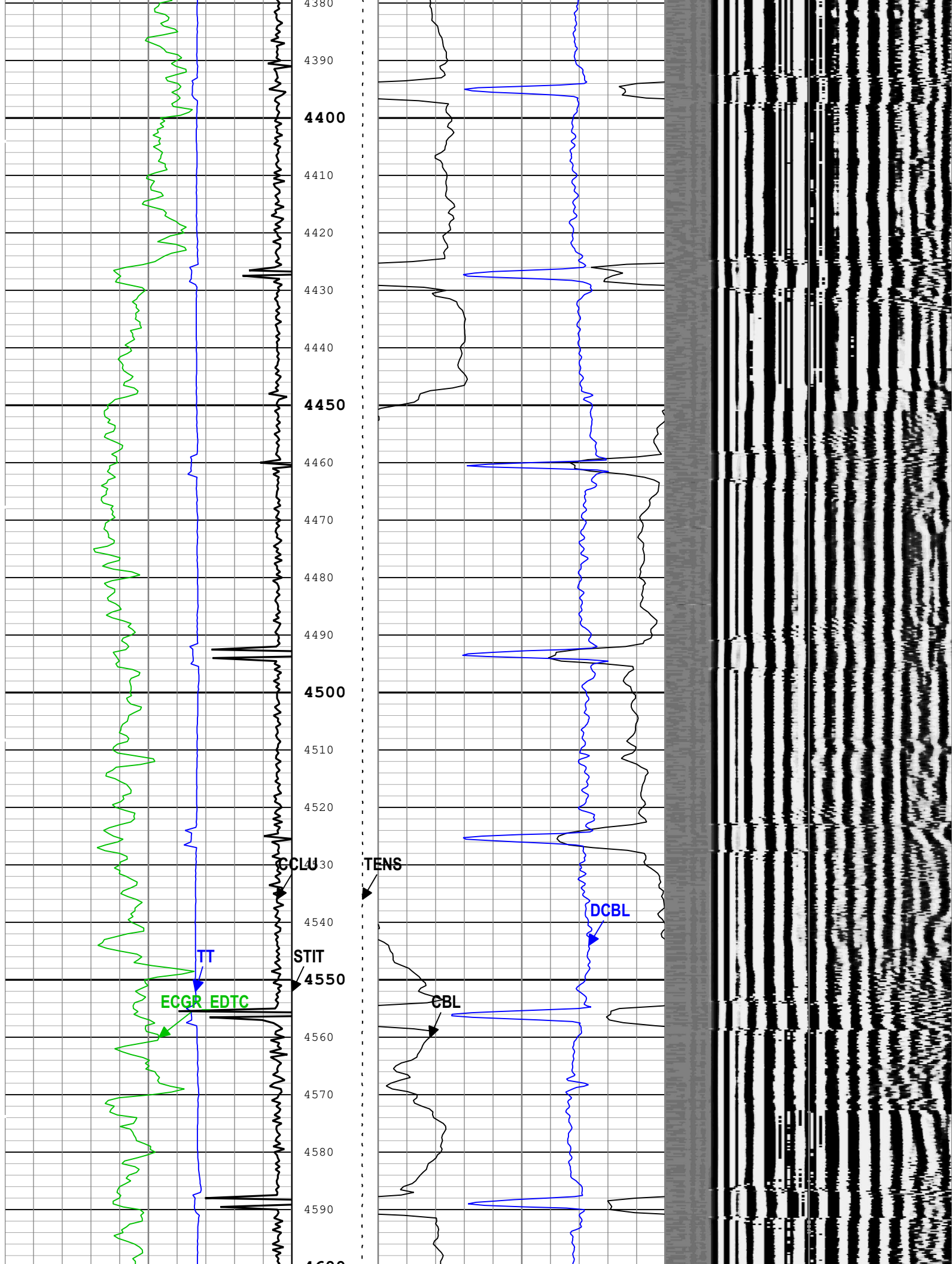


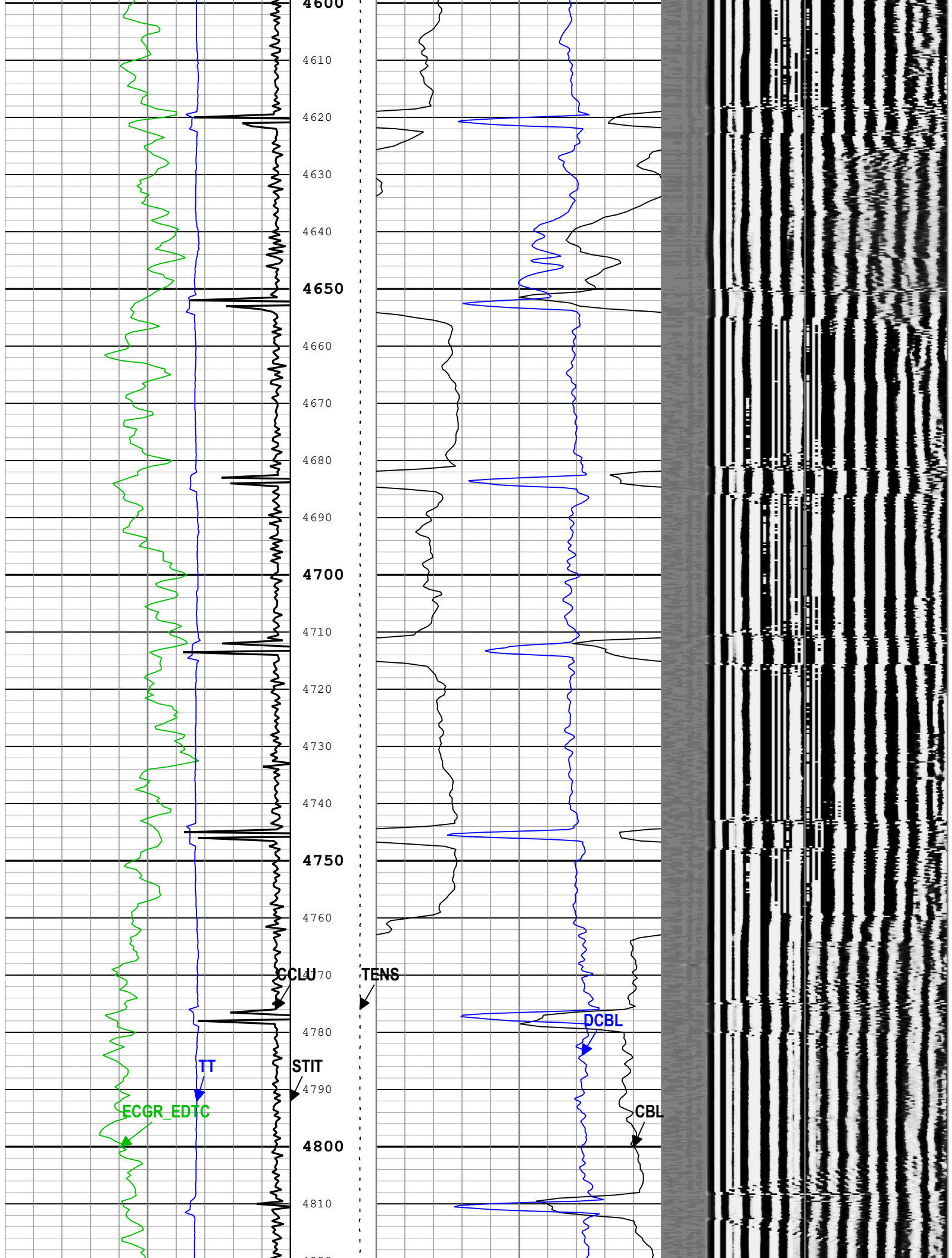


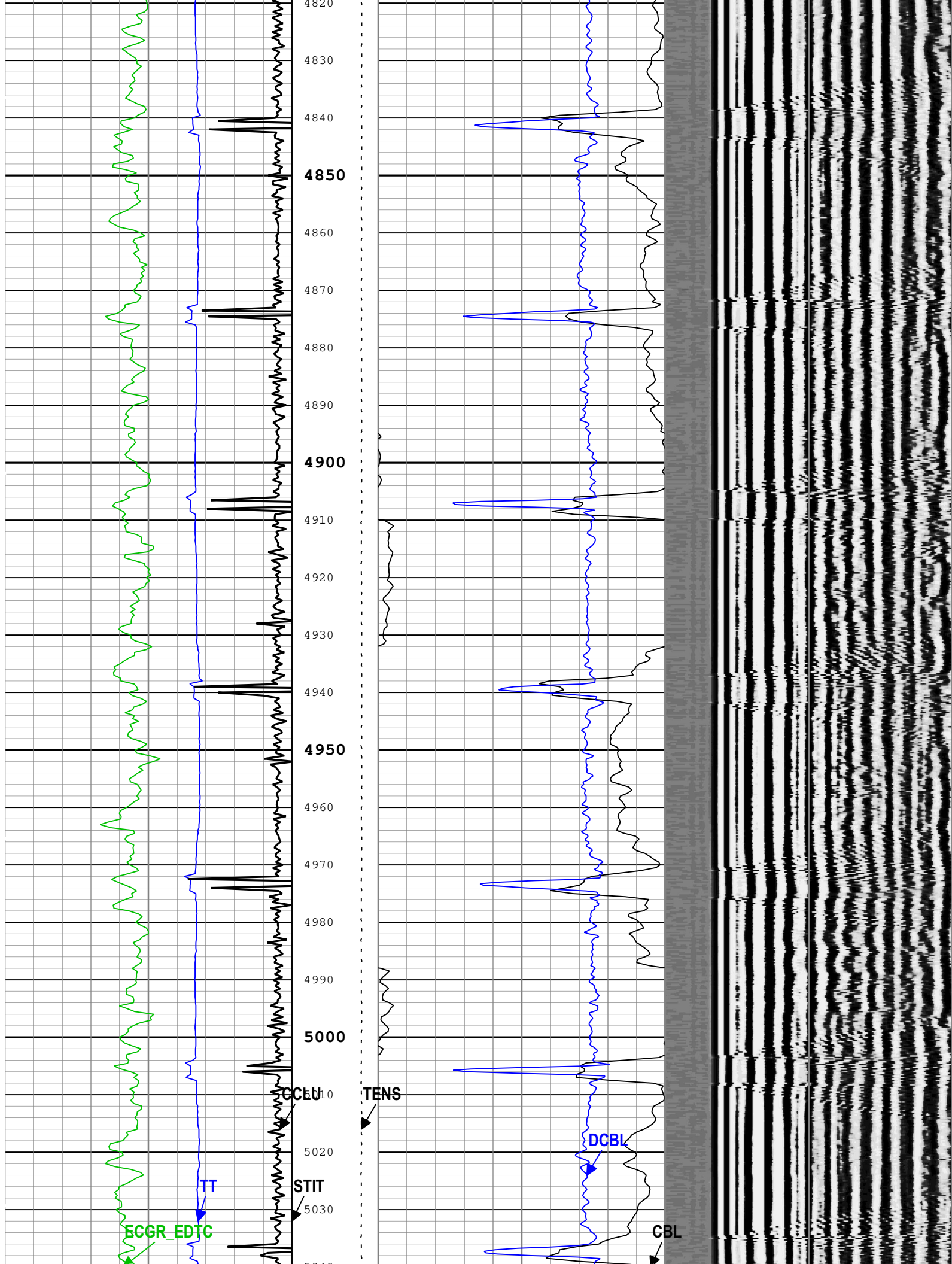


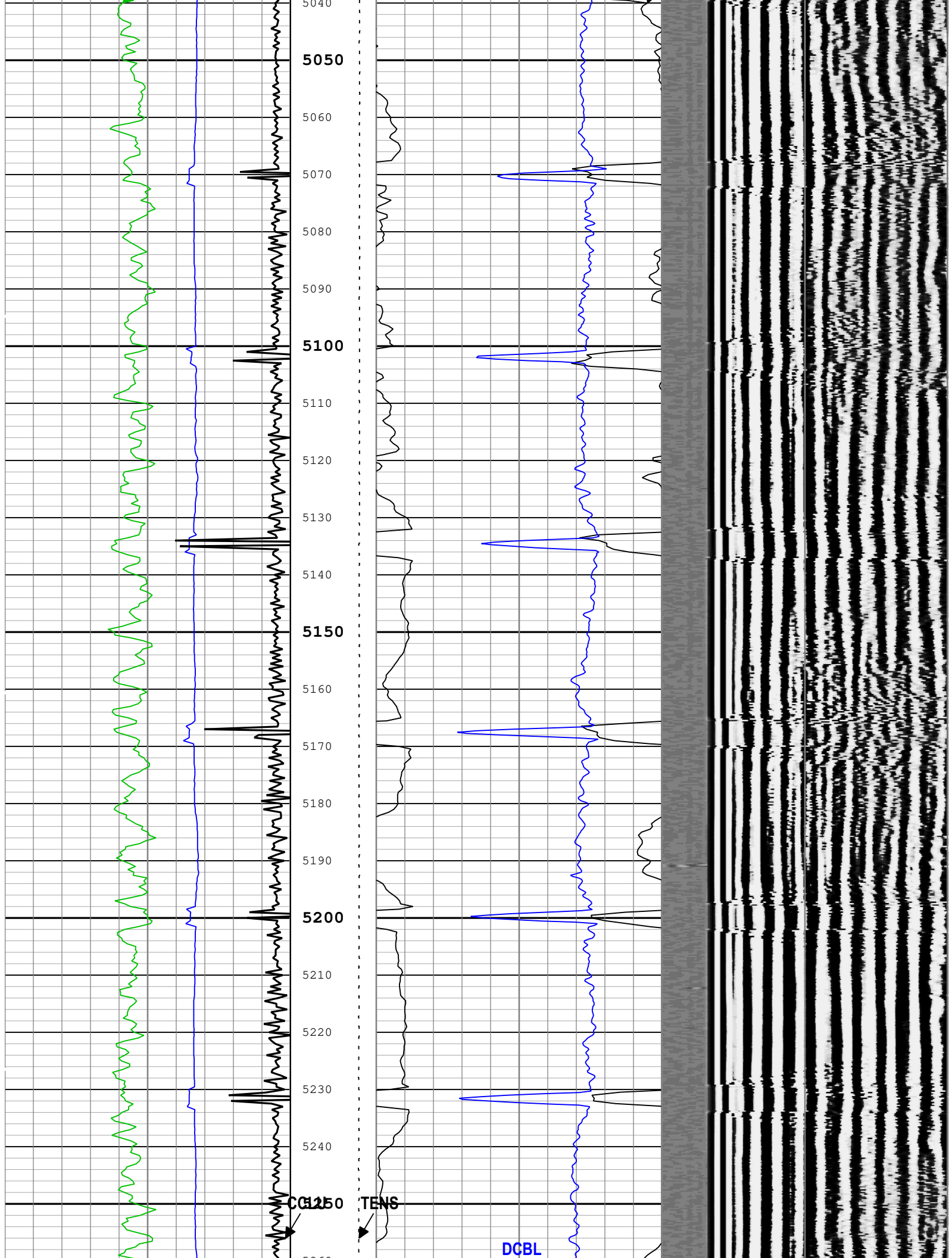


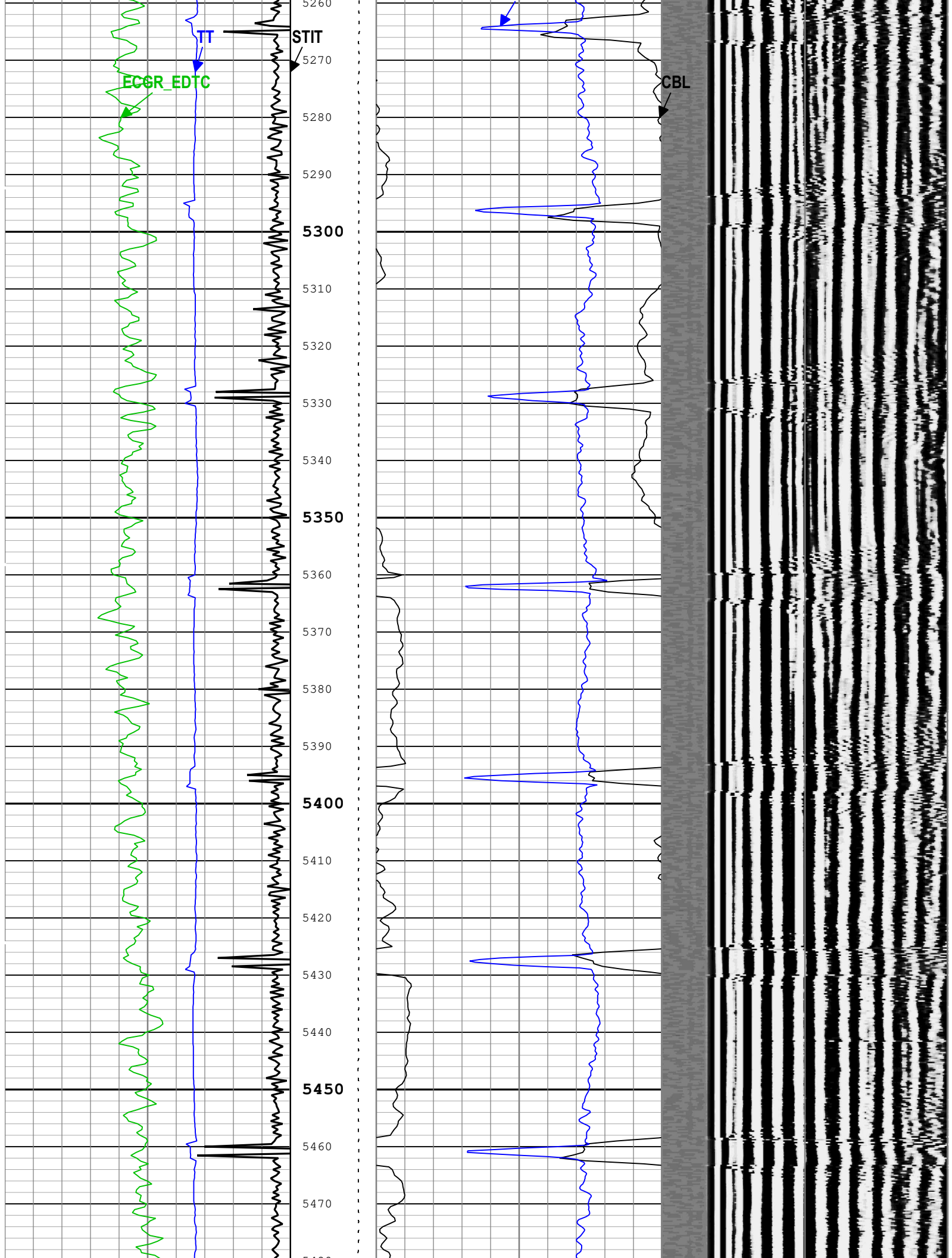


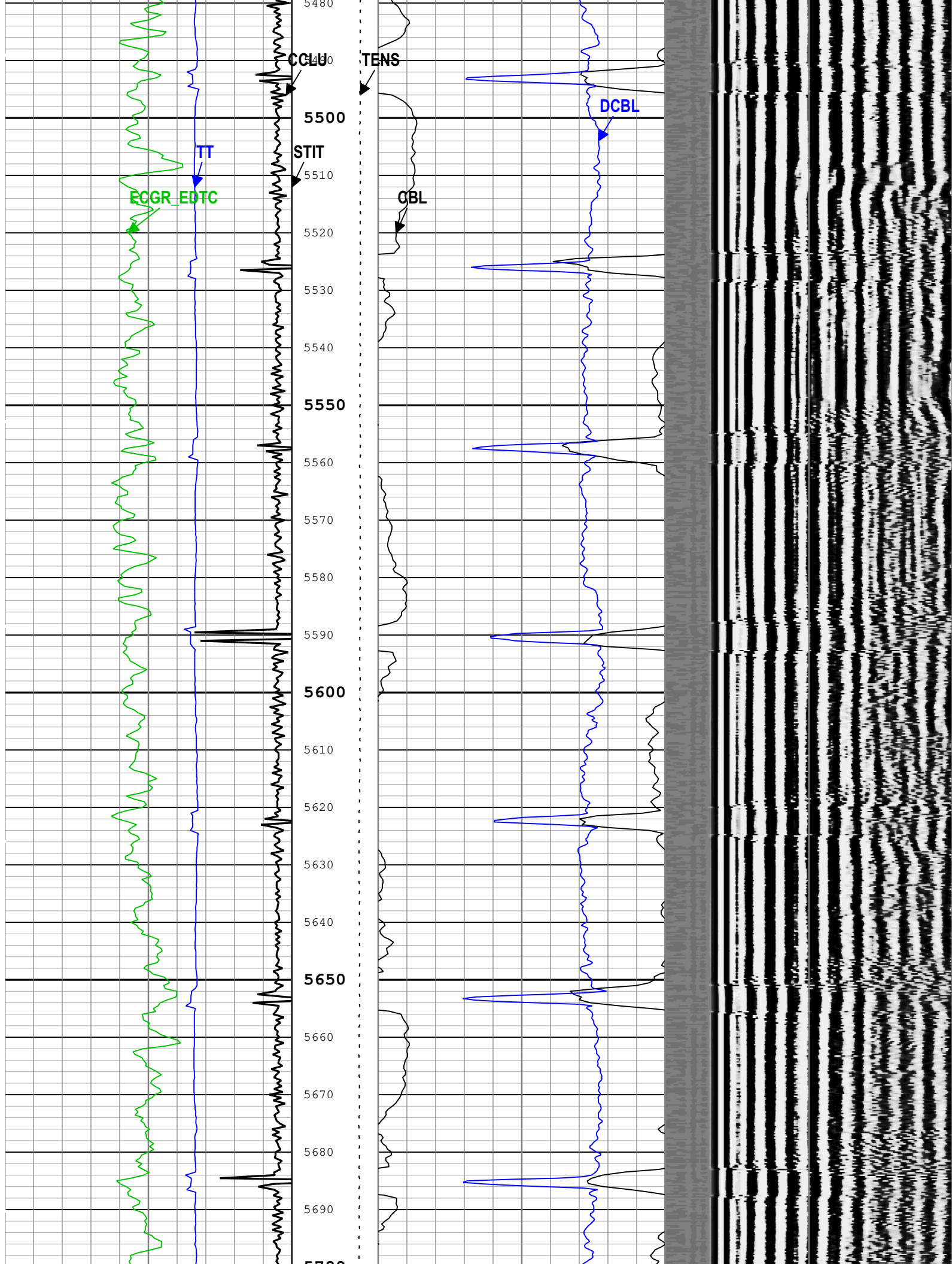


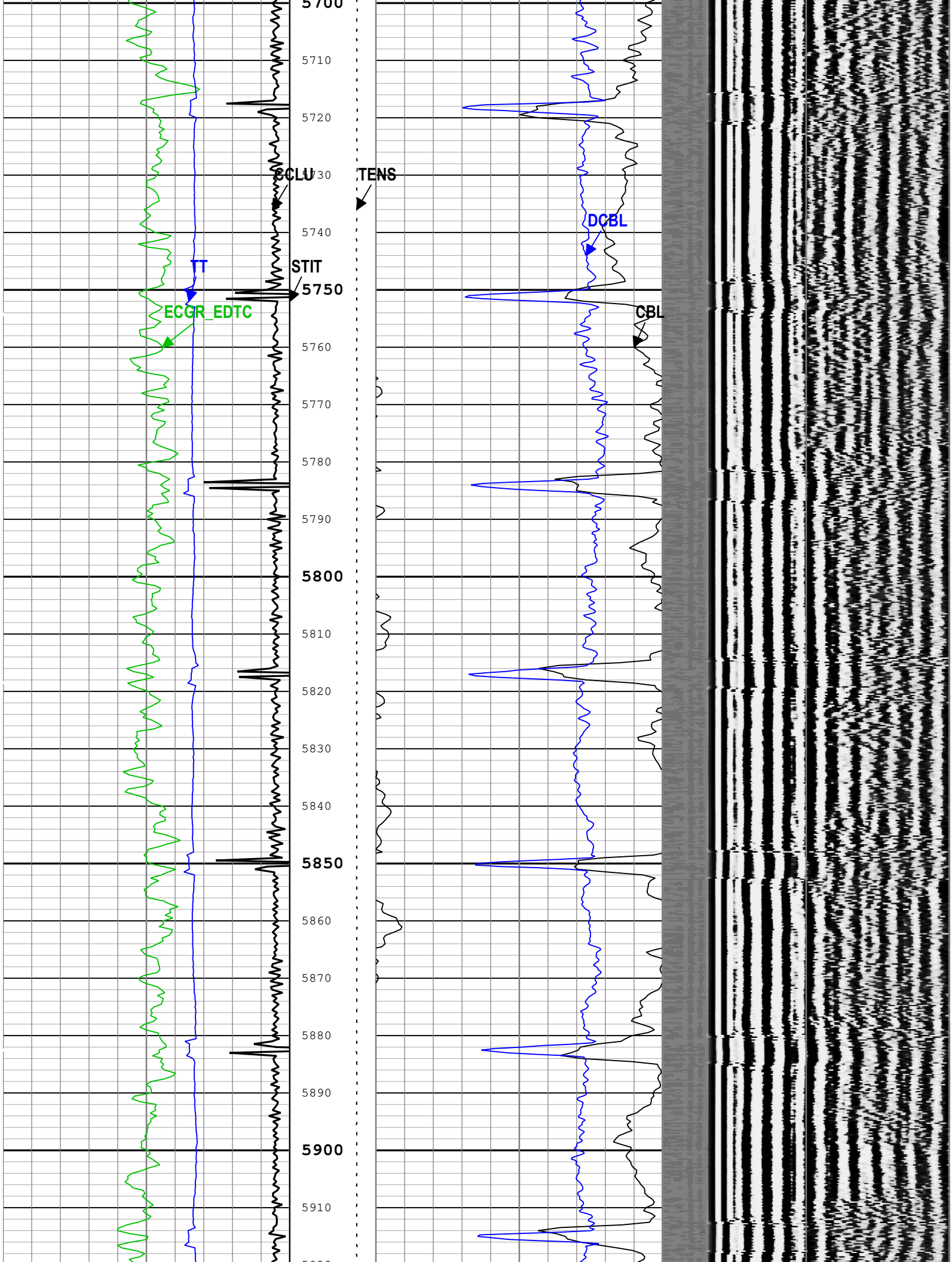


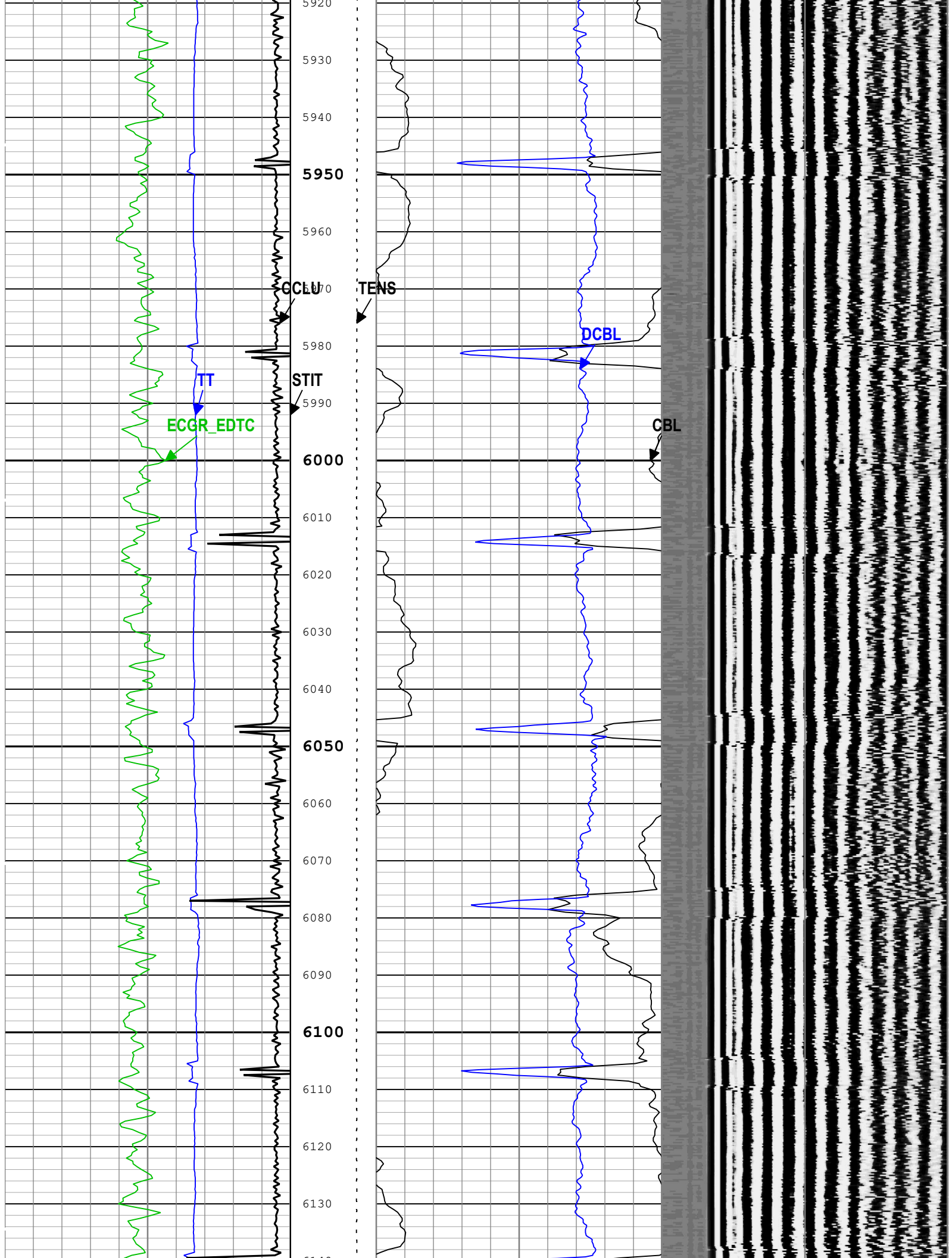


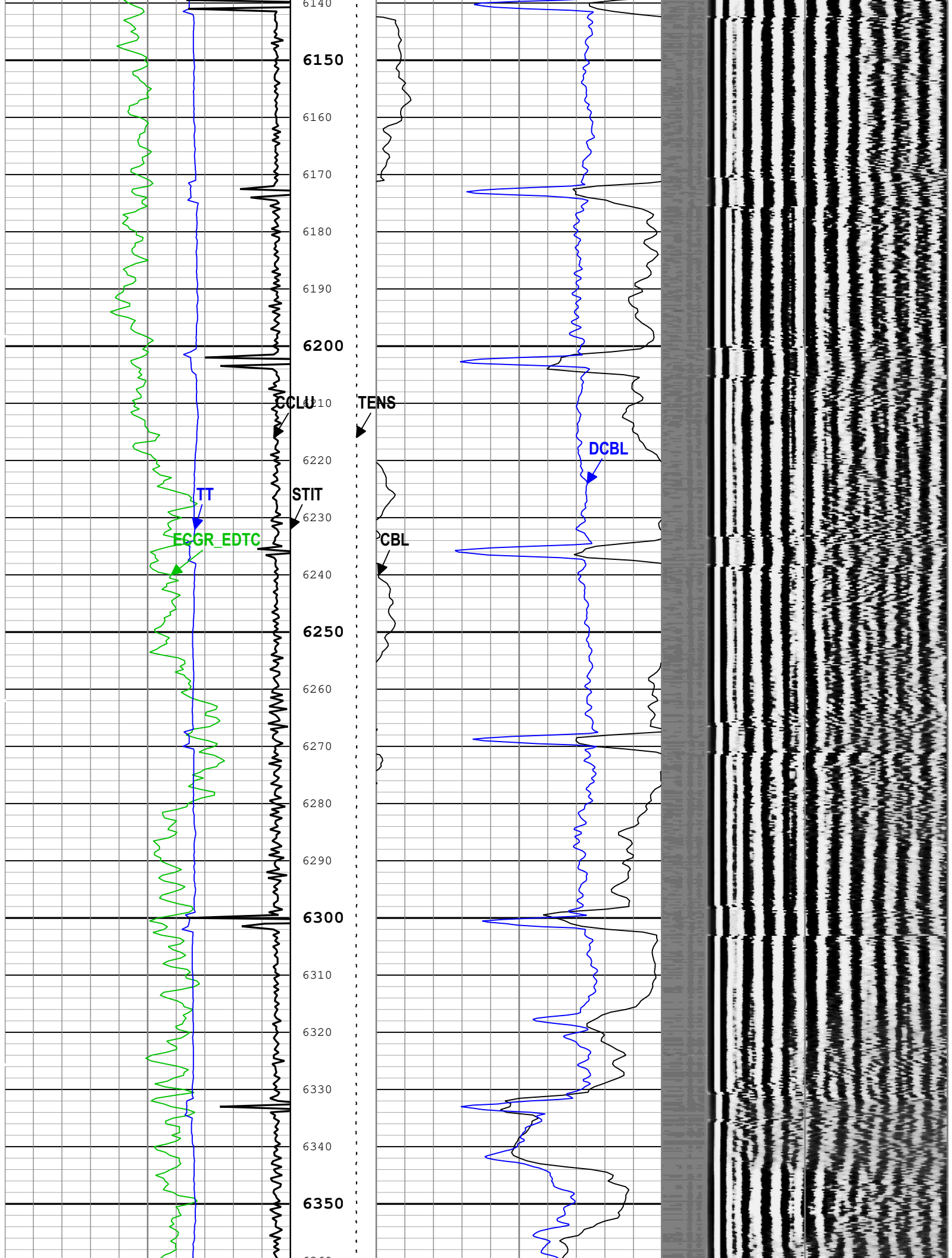


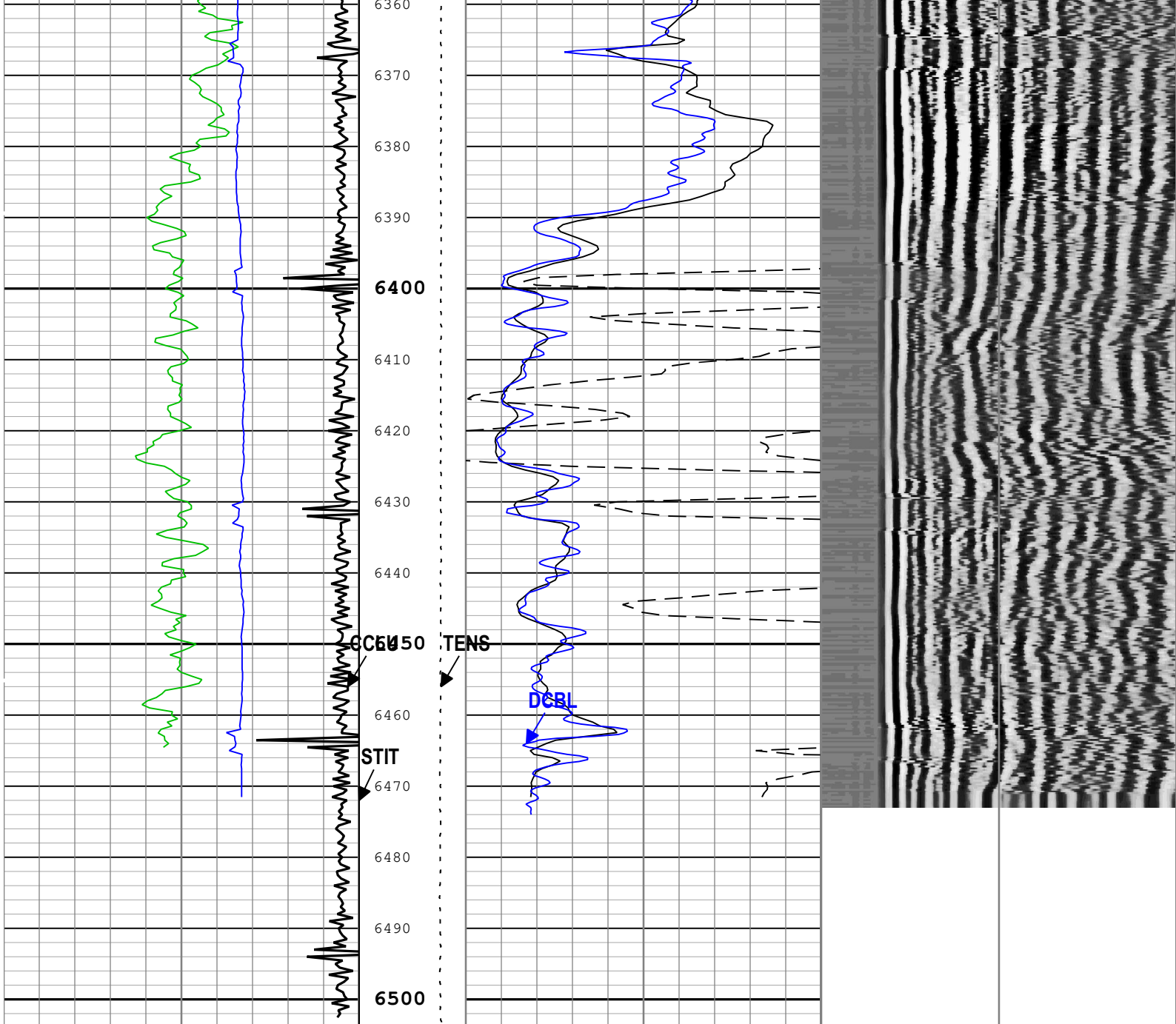












Gamma Ray (ECGR_EDTC) EDTC-B 0 gAPI 150	Stuck Tool Indicator, Total (STIT) 0 ft 50	CBL Amplitude (CBL) ASLT-B 0 mV 100	Min	Amplitude	Max
Transit Time for CBL (TT) ASLT-B 400 us 200	Cable Tension (TENS) 10000 0 lbf	CBL Amplitude (CBL) ASLT-B 0 mV 10	200	VDL VariableDensity (VDL) ASLT-B	1200
Casing Collar Locator Ultrasonic (CCLU) USIT-E -19 in 1	Cable Drag	Synthetic CBL from Discriminated Attenuation (DCBL) ASLT-B 0 mV 100			
	Tool_Tot. Drag				
	BIEP - Bond Index Event Pips ASLT-B				

Channel Processing Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
BARI(ISSBAR)	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	Depth Zoned	in
CBAF_D	CBL Adjustment Factor	ASLT-B	1	
CBLO	Casing Bottom (Logger)	WLSESSION	7893	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	ASLT-B	80	mV
CDEN	Cement Density	USIT-E	0	g/cm3
CLEN	Cement Density	EDTC-B	2	g/cm3
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
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	
DTF	Delta-T Fluid	Borehole	189	us/ft
DTMD	Borehole Fluid Slowness	Borehole	195	us/ft
FCF	CBL Fluid Compensation Factor	ASLT-B	0.65	
FD	Fluid Density	USIT-E	1.2	g/cm3
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
GOBO	Good Bond	ASLT-B	1.36	mV
GOBO_CURR	Good Bond in Arbitrary Cement	ASLT-B	1.36	mV
HEMA	Hematite Presence Flag	Borehole	No	
IBC_FRP_OFFSET	IBC Flexural Offset from Free Pipe	USIT-E	9.17	dB/m
IBC_FVEL_SEL	IBC Fluid Velocity Selection	USIT-E	Automatic	
IBC_OFFSET_SEL	IBC Flexural Offset Selector	USIT-E	UFAO	
IBC_ZMUD_SEL	IBC Mud Impedance Selection	USIT-E	Theoretical	
IMAR	Image Rotation	USIT-E	Off	
MATT	Maximum Attenuation	ASLT-B	16.92	dB/ft
MATT_CURR	Maximum Attenuation in Arbitrary Cement	ASLT-B	16.92	dB/ft
MCI	Minimum Cemented Interval for Isolation	ASLT-B	1.25	ft
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	15.37	us
MSA	Minimum Sonic Amplitude	ASLT-B	0.49	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	ASLT-B	0.49	mV
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.14	
MUD_N_INV	IBC Inversion Mud Normalization Factor	USIT-E	1.15	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.14	
RUN_SNUM	Run Sequence Number	WSDRUN	1	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.67	Mrayl
U-USIT_UFAO	USIT Flexural Attenuation Offset	USIT-E	9.17	dB/m
UFSFILT	Ultrasonic Flexural Surface Filter	USIT-E	LPF 250k	
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	ThirdInterfaceEcho	
ZMUD	Acoustic Impedance of Mud	Borehole	1.6	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
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BS	12.25	0	986
BS	7.875	986	6504.75

All depth are actual.

Tool Control Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	48	dB
EMXV	EMEX Voltage	USIT-E	10	V
IBC_ACQTYPE	IBC Acquisition type	USIT-E	1 MHz	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	30	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	4010	ft/h
MODE	SSLT Firing Mode	ASLT-B	Attenuation	
UPAT	USIT Emission Pattern	USIT-E	Pattern 750 KHz	
UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in	
U-USIT_UTAN	Transducer Angles	USIT-E	33_DEG	
VDM	SSLT VDL Display Mode	ASLT-B	R5	
VRES	Vertical Resolution	USIT-E	6.0 in	

One

Software Version

Acquisition System	Version
Maxwell 2022.1	12.1.217729.3100
Application Patch	Wireline_Hotfix-Mandatory-2022.1_12.1.220287
	Wireline_NPD-ThruBit-2022.1_12.1.219291

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[1]:Up	Up	297.84 ft	495.21 ft	20-Oct-2022 8:25:34 AM	20-Oct-2022 8:31:10 AM	ON	-0.83 ft	No

All depths are referenced to toolstring zero

Log

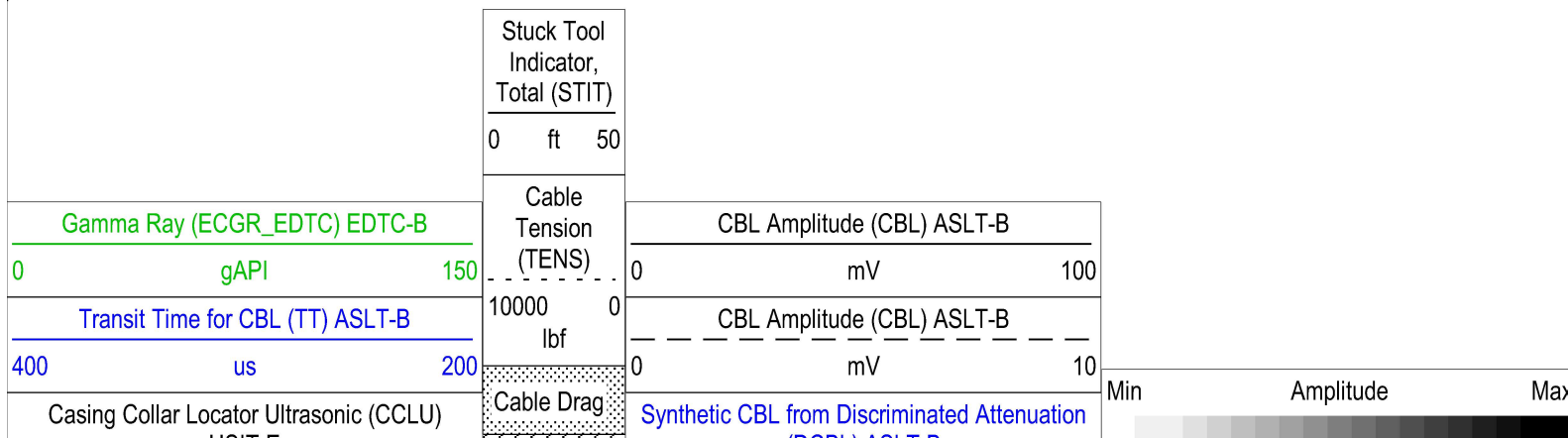
Company:Occidental Petroleum Corporation Well:Acco-Terra-State #39

One: Log[1]:Up:S011

Description: CBL_VDL Format: Log (DSLT ASLT_CBL-VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 20-Oct-2022 12:28:52

└ BIEP - Bond Index Event Pips ASLT-B

TIME_1900 - Time Marked every 60.00 (s)



US11-E

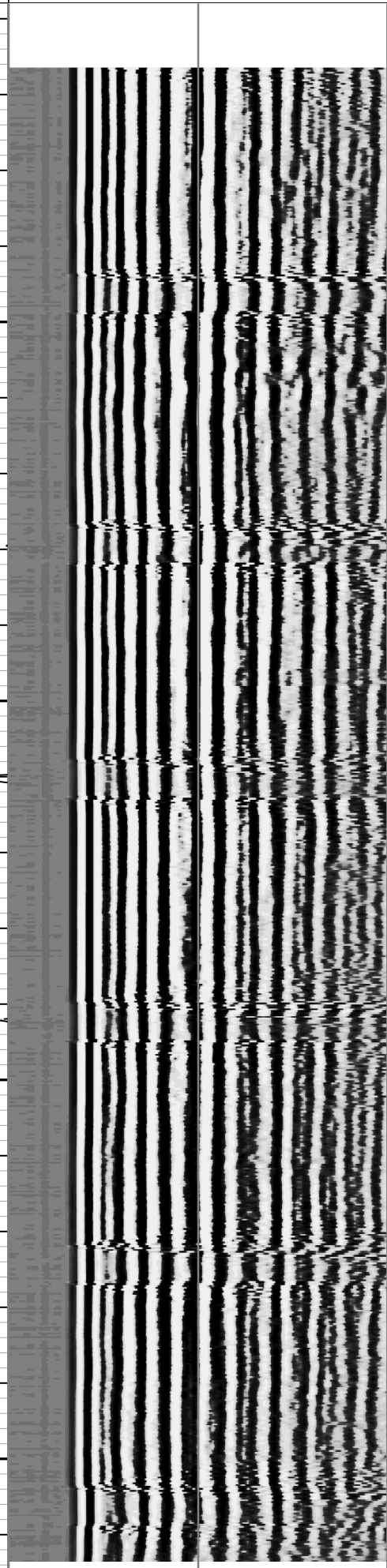
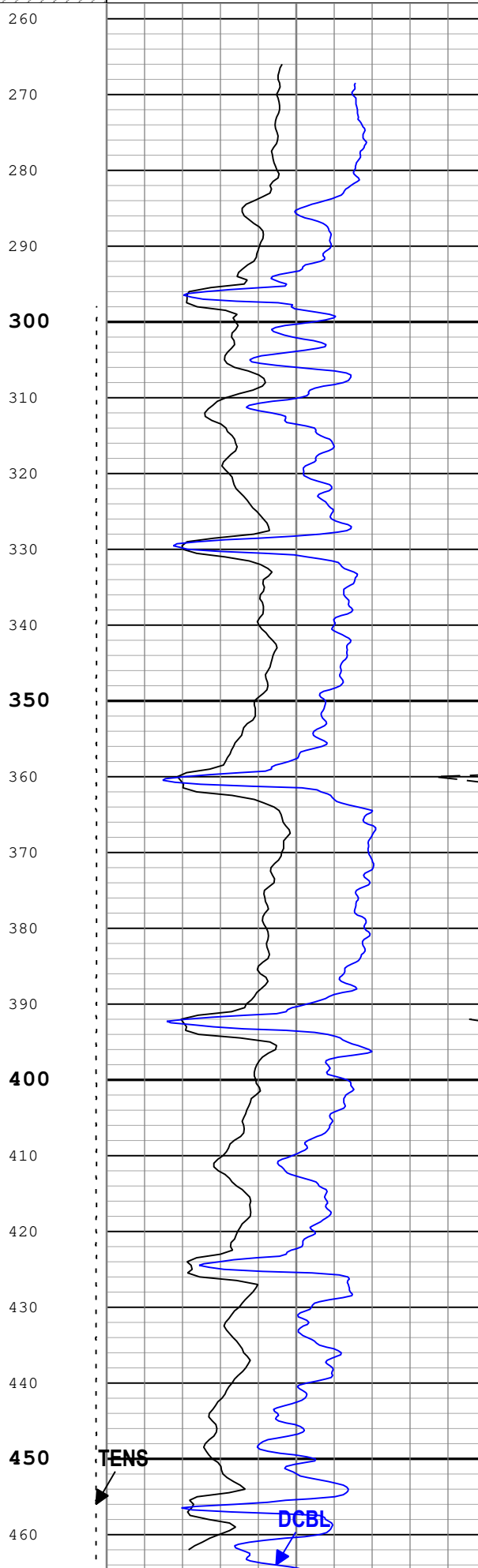
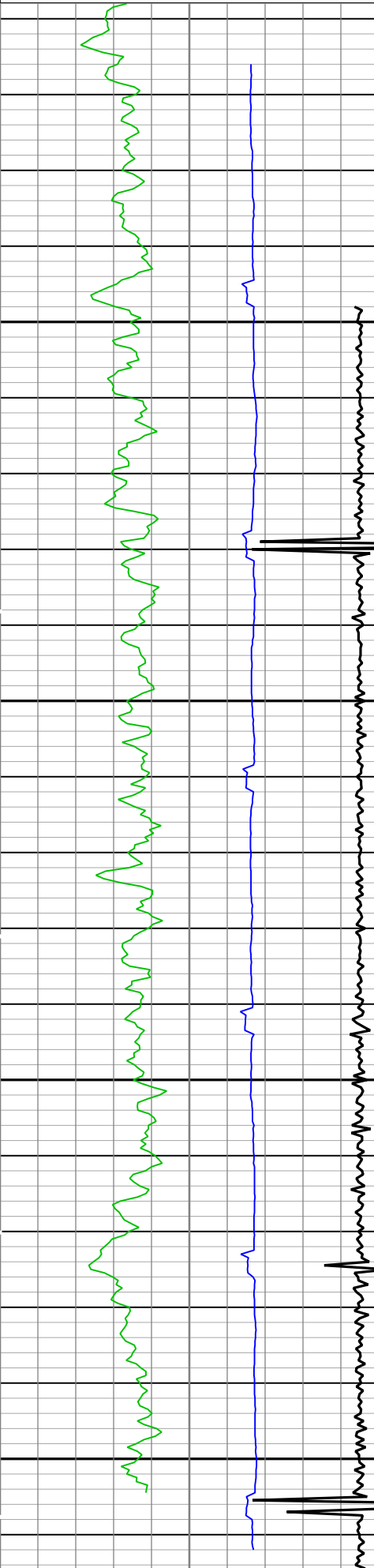
-19 in 1

Tool_Tot.
Drag

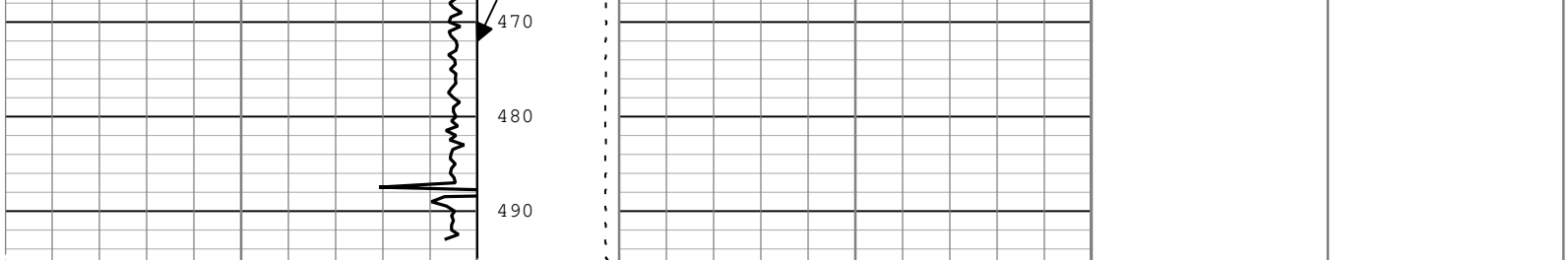
(DCBL) ASLT-B
0 mV 100

VDL VariableDensity (VDL) ASLT-B

200 us 1200



STIT



Gamma Ray (ECGR_EDTC) EDTC-B	Stuck Tool Indicator, Total (STIT)	CBL Amplitude (CBL) ASLT-B	Min	Amplitude	Max
0 gAPI 150	0 ft 50	0 mV 100	200	us	1200
Transit Time for CBL (TT) ASLT-B	Cable Tension (TENS)	CBL Amplitude (CBL) ASLT-B	VDL Variable Density (VDL) ASLT-B		
400 us 200	10000 0 lbf	0 mV 10			
Casing Collar Locator Ultrasonic (CCLU) USIT-E	Cable Drag	Synthetic CBL from Discriminated Attenuation (DCBL) ASLT-B			
-19 in 1	Tool_Tot. Drag	0 mV 100			

TIME_1900 - Time Marked every 60.00 (s)

— BIEP - Bond Index Event Pips ASLT-B

Description: CBL_VDL Format: Log (DSLT ASLT_CBL-VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 20-Oct-2022 12:28:52

Channel Processing Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
BARI(ISSBAR)	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	12.25	in
CBAF_D	CBL Adjustment Factor	ASLT-B	1	
CBLO	Casing Bottom (Logger)	WLSESSION	7893	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	ASLT-B	80	mV
CDEN	Cement Density	USIT-E	0	g/cm3
CDEN	Cement Density	EDTC-B	2	g/cm3
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
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	
DTF	Delta-T Fluid	Borehole	189	us/ft
DTMD	Borehole Fluid Slowness	Borehole	195	us/ft
FCF	CBL Fluid Compensation Factor	ASLT-B	0.65	
FD	Fluid Density	USIT-E	1.2	g/cm3
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
GOBO	Good Bond	ASLT-B	1.36	mV
GOBO_CURR	Good Bond in Arbitrary Cement	ASLT-B	1.36	mV
HEMA	Hematite Presence Flag	Borehole	No	
IBC_FRP_OFFSET	IBC Flexural Offset from Free Pipe	USIT-E	9.17	dB/m
IBC_FLUID_SEL	IBC Fluid Velocity Selection	USIT-E	Automatic	

IBC_VEL_SEL	IBC Fluid Velocity Selection	USIT-E	Automatic	
IBC_OFFSET_SEL	IBC Flexural Offset Selector	USIT-E	UFAO	
IBC_ZMUD_SEL	IBC Mud Impedance Selection	USIT-E	Theoretical	
IMAR	Image Rotation	USIT-E	Off	
MATT	Maximum Attenuation	ASLT-B	16.92	dB/ft
MATT_CURR	Maximum Attenuation in Arbitrary Cement	ASLT-B	16.92	dB/ft
MCI	Minimum Cemented Interval for Isolation	ASLT-B	1.25	ft
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	15.37	us
MSA	Minimum Sonic Amplitude	ASLT-B	0.49	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	ASLT-B	0.49	mV
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.14	
MUD_N_INV	IBC Inversion Mud Normalization Factor	USIT-E	1.15	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.14	
RUN_SNUM	Run Sequence Number	WSDRUN	1	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.67	Mrayl
U-USIT_UFAO	USIT Flexural Attenuation Offset	USIT-E	9.17	dB/m
UFSFILT	Ultrasonic Flexural Surface Filter	USIT-E	LPF 250k	
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	ThirdInterfaceEcho	
ZMUD	Acoustic Impedance of Mud	Borehole	1.6	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Tool Control Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	48	dB
EMXV	EMEX Voltage	USIT-E	5	V
IBC_ACQTYPE	IBC Acquisition type	USIT-E	1 MHz	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	30	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	4010	ft/h
MODE	SSLT Firing Mode	ASLT-B	Attenuation	
UPAT	USIT Emission Pattern	USIT-E	Pattern 750 KHz	
UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in	
U-USIT_UTAN	Transducer Angles	USIT-E	33_DEG	
VDM	SSLT VDL Display Mode	ASLT-B	R5	
VRES	Vertical Resolution	USIT-E	6.0 in	

Calibration Report

ASLT-B (Array Sonic Logging Tool - B) Calibration - Run One

Primary Equipment :

Array Sonic Logging Tool - BB

ASLT-BB

8073

CBL Amplitude Normalization - CBL Accumulations

Master:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Sonic Amplitude Upper Transmitter - Receiver 5 (SA_U5) - 0		Master	----	----	----	----	<input type="text"/>
Sonic Raw Amplitude Upper Transmitter - Receiver 1 (RA_U1) - 0	mV	Master	----	----	----	----	<input type="text"/>
Sonic Amplitude Lower Transmitter - Receiver 1 (SA_L1) - 0		Master	----	----	----	----	<input type="text"/>
Sonic Raw Amplitude Lower Transmitter - Receiver 5 (RA_L5) - 0	mV	Master	----	----	----	----	<input type="text"/>

CBL Amplitude Normalization - CBL/VDL Coefficients

Master:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<input type="text"/>	<input type="text"/>
CBL Correction Factor for Upper Transmitter (CBCF_UT)		Master	0.500	----	NOT DONE	----	<input type="text"/>	<input type="text"/>
CBL Correction Factor for Lower Transmitter (CBCF_LT)		Master	0.500	----	NOT DONE	----	<input type="text"/>	<input type="text"/>
VDL Ratio between UT and LT for CBLB Mode (VDR)		Master	1.000	----	NOT DONE	----	<input type="text"/>	<input type="text"/>

Company: Occidental Petroleum Corporation

Schlumberger

Well: Acco-Terra-State #39

Field: Wattenberg

County: Weld

Country: USA

Cement Bond Log

Variable Density Log

Gamma Ray - CCL