Schlumberger

Company: Occidental Petroleum INC

Well: Frank 6-8

Field: Wattenberg

County: Weld State: Colorado

Cement Bond Log

Variable Density Log

Gamma Ray - CCL

County: Weld
Field: Wattenberg
Location: SENW Sec 8, T5N, R67W
Well: Frank 6-8
Company: Occidental Petroleum INC

Location: SENW Sec 8, T5N, R67W
SHL: 2624' FNL X 1599' FWL

Elev.: K.B. 4924.00 ft
G.L. 4912.00 ft
D.F.

Permanent Datum:	Ground Level	Elev.:	4912.00 f
Log Measured From:	Kelly Bushing	12.00 ft	above Perm.Datum
Drilling Measured From:	Kelly Bushing		

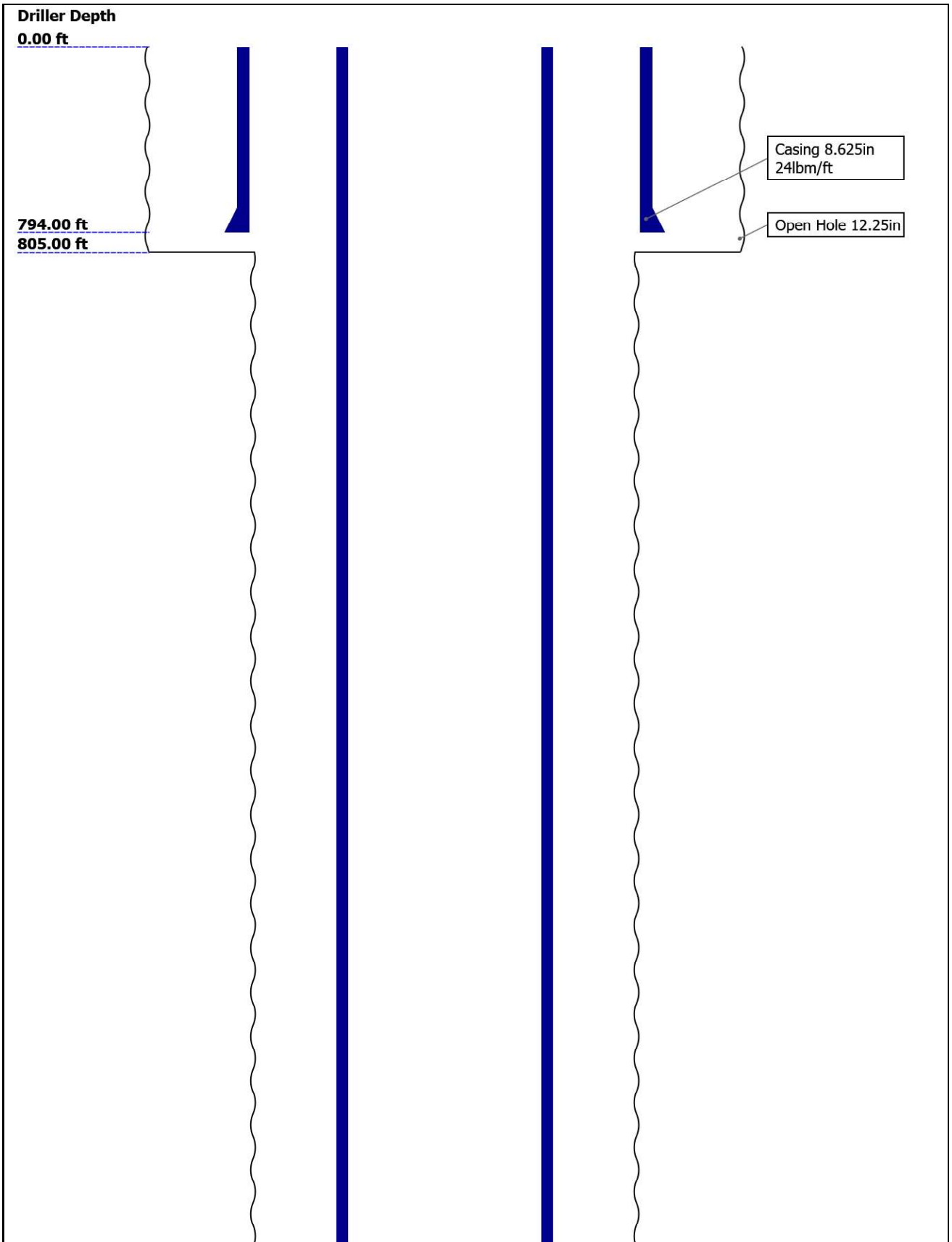
API Serial No.	Section:	Township:	Range:
05-123-26582-00	8	5N	67W

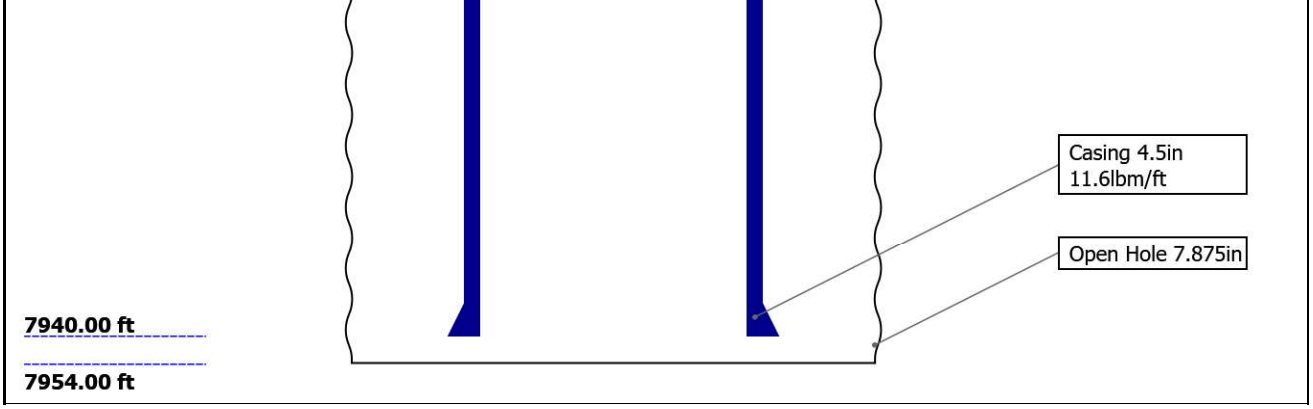
Logging Date		15-Mar-2022			
Run Number		One			
Depth Driller		7954.00 ft			
Schlumberger Depth		7954.00 ft			
Bottom Log Interval		6600.00 ft			
Top Log Interval		50.00 ft			
Casing Fluid Type		Water			
Salinity					
Density		8.5 lbm/gal			
Fluid Level		8.00 ft			
BIT/CASING/TUBING STRING					
Bit Size		7.88 in			
From		805.00 ft			
To		7954.00 ft			
Casing/Tubing Size		4.5 in			
Weight		11.6 lbm/ft			
Grade		N80			
From		0.00 ft			
To		7940.00 ft			
Max Recorded Temperatures		185 degF			
Logger on Bottom	Time	15-Mar-2022	09:00:00		
Unit Number	Location:	9108	Ft. Morgan		
Recorded By		Ruobing Wu			
Witnessed By		Victor Ildefonso			

Disclaimer

Contents

Well Sketch


Driller Depth
0.00 ft
794.00 ft
805.00 ft
Casing 8.625in
24lbm/ft
Open Hole 12.25in

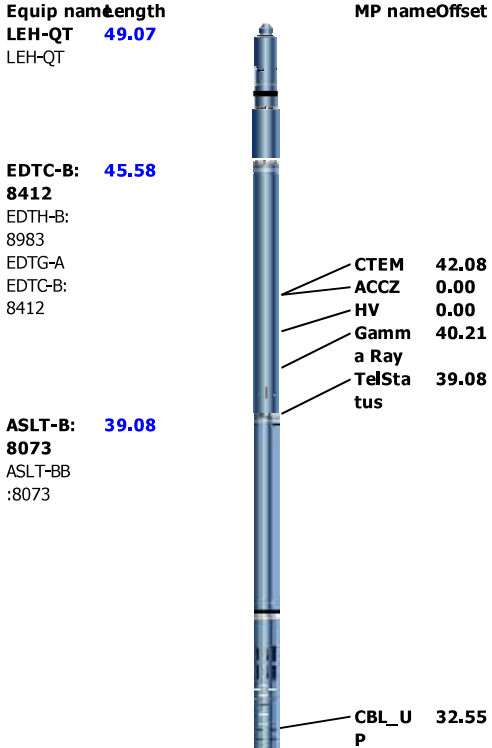


Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	12.25	7.875				
Top Driller (ft)	0	805				
Top Logger (ft)	0	805				
Bottom Driller (ft)	805	7954				
Bottom Logger (ft)	805	7954				
Casing						
Size (in)	8.625	4.5				
Weight (lbm/ft)	24	11.6				
Inner Diameter (in)	8.097	4				
Grade	K55	N80				
Top Driller (ft)	0	0				
Top Logger (ft)	0	0				
Bottom Driller (ft)	794	7940				
Bottom Logger (ft)	794	7940				

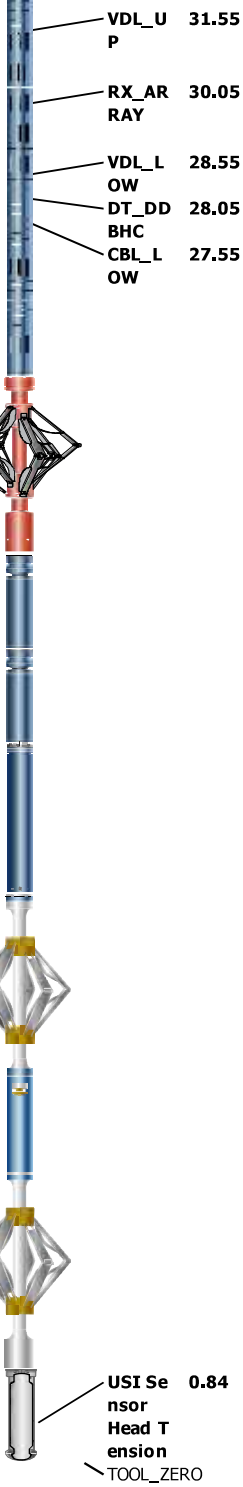
Remarks and Equipment Summary

One: Toolstring



One: Remarks

Log recorded in 10Deg, 6in Resolution; ASLT ran in Attenuation Mode
Log recorded without surface induced pressure from TD to 500ft, 500PSI 500ft to surf
Log correlated to CCL log dated 14-Mar-2022 Provided by client
Tool was run as per tool sketch
All logging intervals as per client request



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			

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

Logging Cable			
Type	7-39PI-XXS		
Serial Number	Shop		
Length	28000.00 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 2022.0	12.0.215014.3100
Application Patch	Wireline_Hotfix-Mandatory-2022.0_12.0.216515

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[5]:Up	Up	60.71 ft	6637.28 ft	15-Mar-2022 7:38:40 AM	15-Mar-2022 9:15:02 AM	ON	0.88 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Occidental Petroleum INC Well:Frank 6-8

One: Log[5]:Up:S005

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: 15-Mar-2022 12:11:15

BIEP - Bond Index Event Pips ASLT-B

TIME_1900 - Time Marked every 60.00 (s)

Stuck Tool Indicator, Total (STIT)

0 ft 50

Gamma Ray (ECGR_EDTC) EDTC-B

0 gAPI 150

Cable Tension (TENS)

10000 0 lbf

Transit Time for CBL (TT) ASLT-B

400 us 200

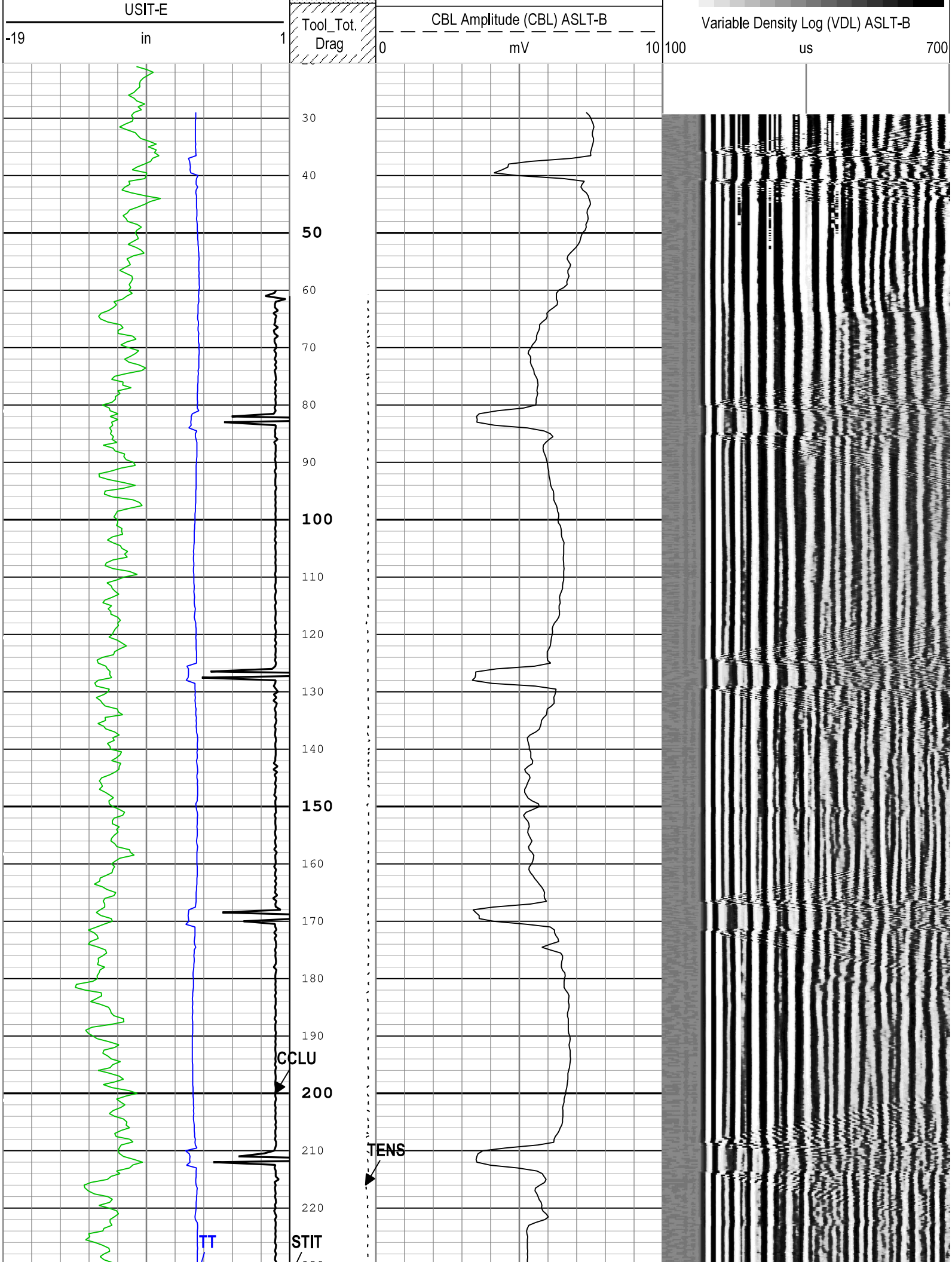
Cable Drag

CBL Amplitude (CBL) ASLT-B

0 mV 100

Casing Collar Locator Ultrasonic (CCLU)

Min Amplitude Max


USIT-E
-19
in
1
Tool_Tot.
Drag
CBL Amplitude (CBL) ASLT-B
0
mV
10
Variable Density Log (VDL) ASLT-B
100
us
700
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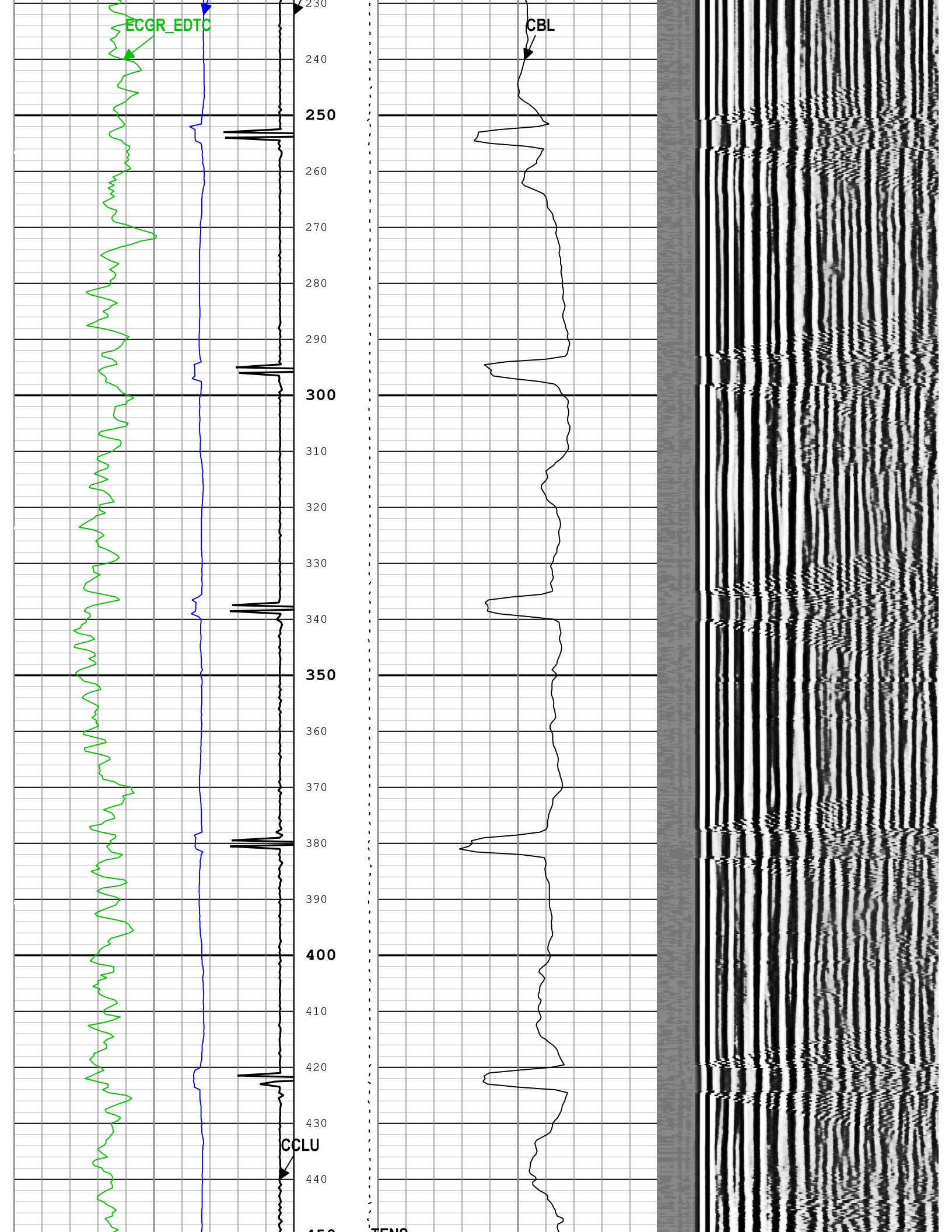
CCLU
200
210
TENS
220
TT
STIT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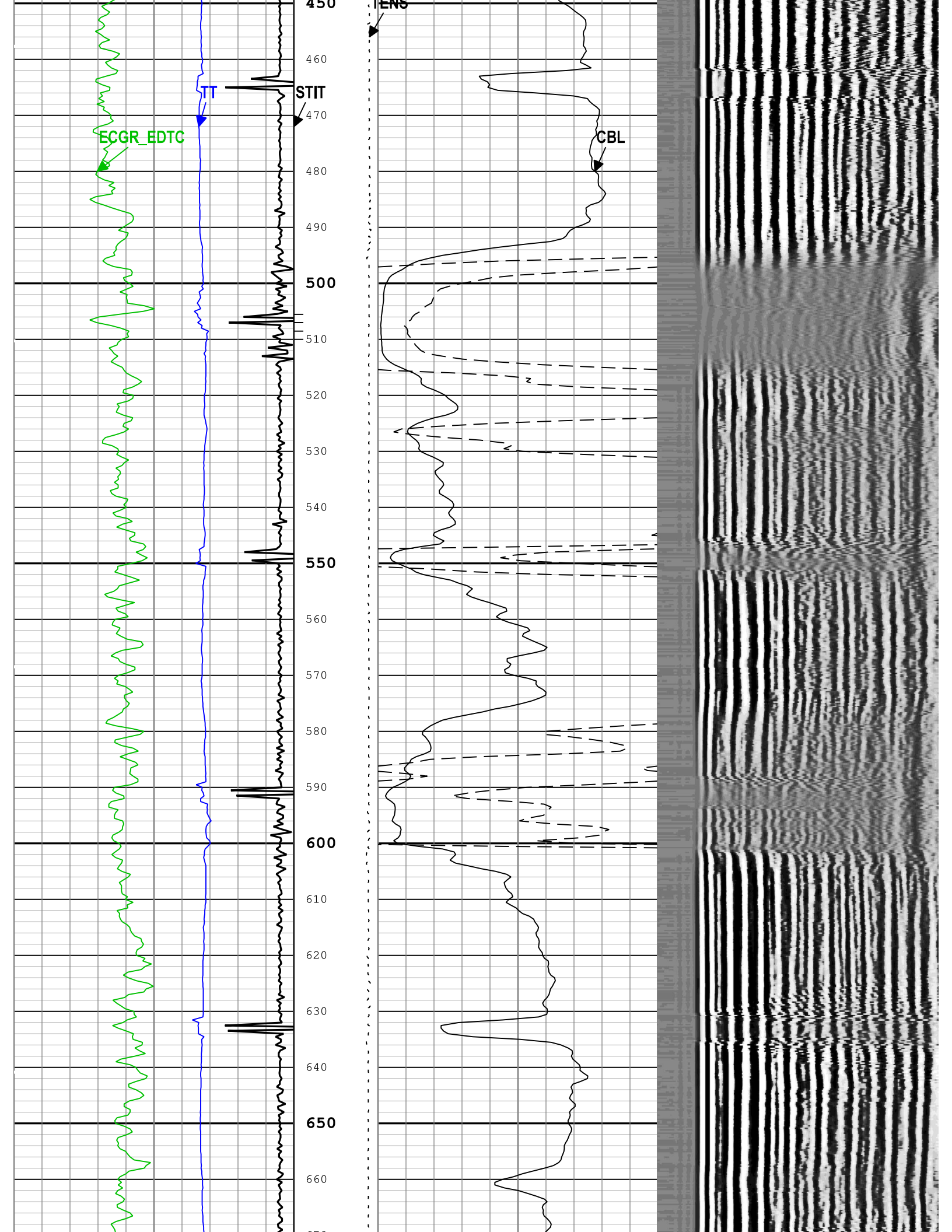
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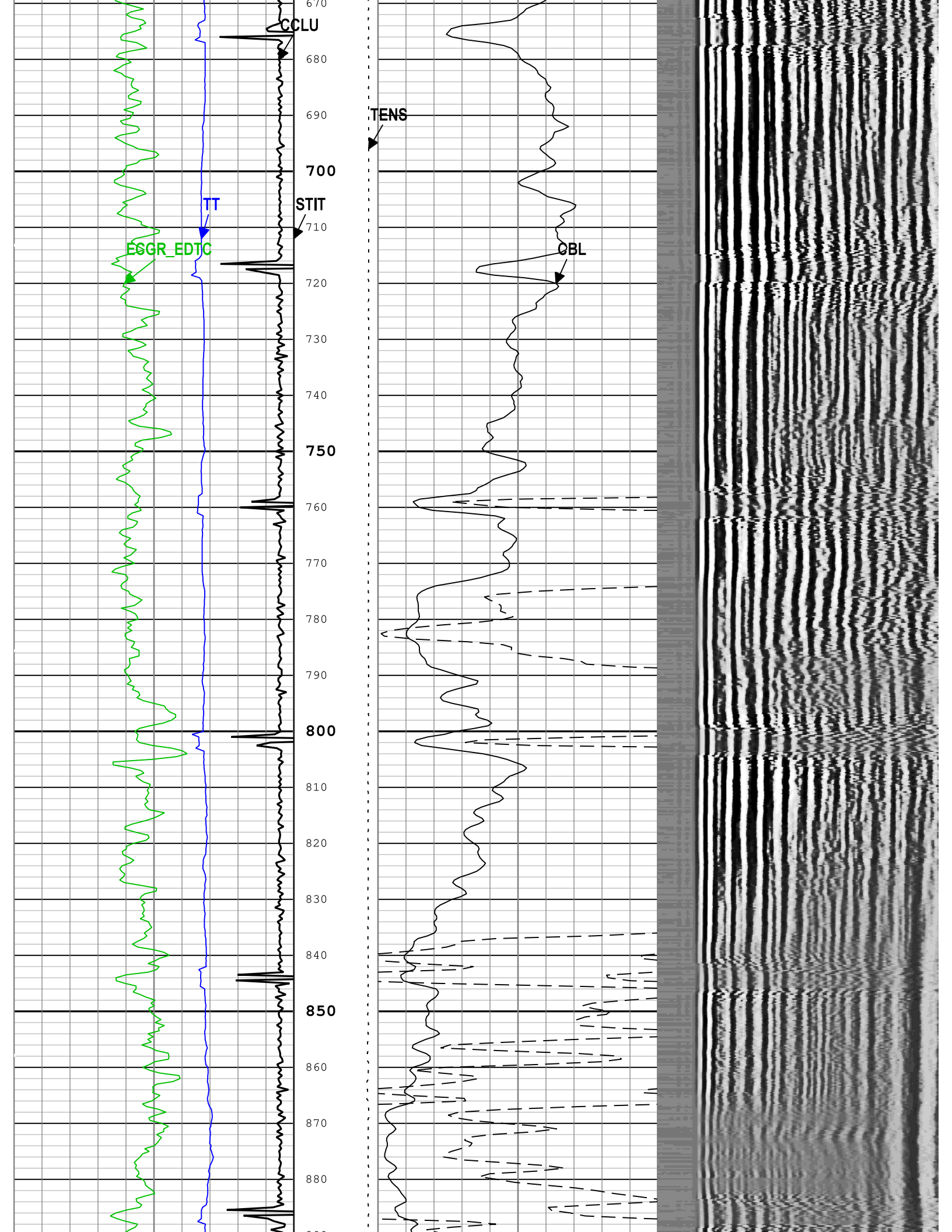
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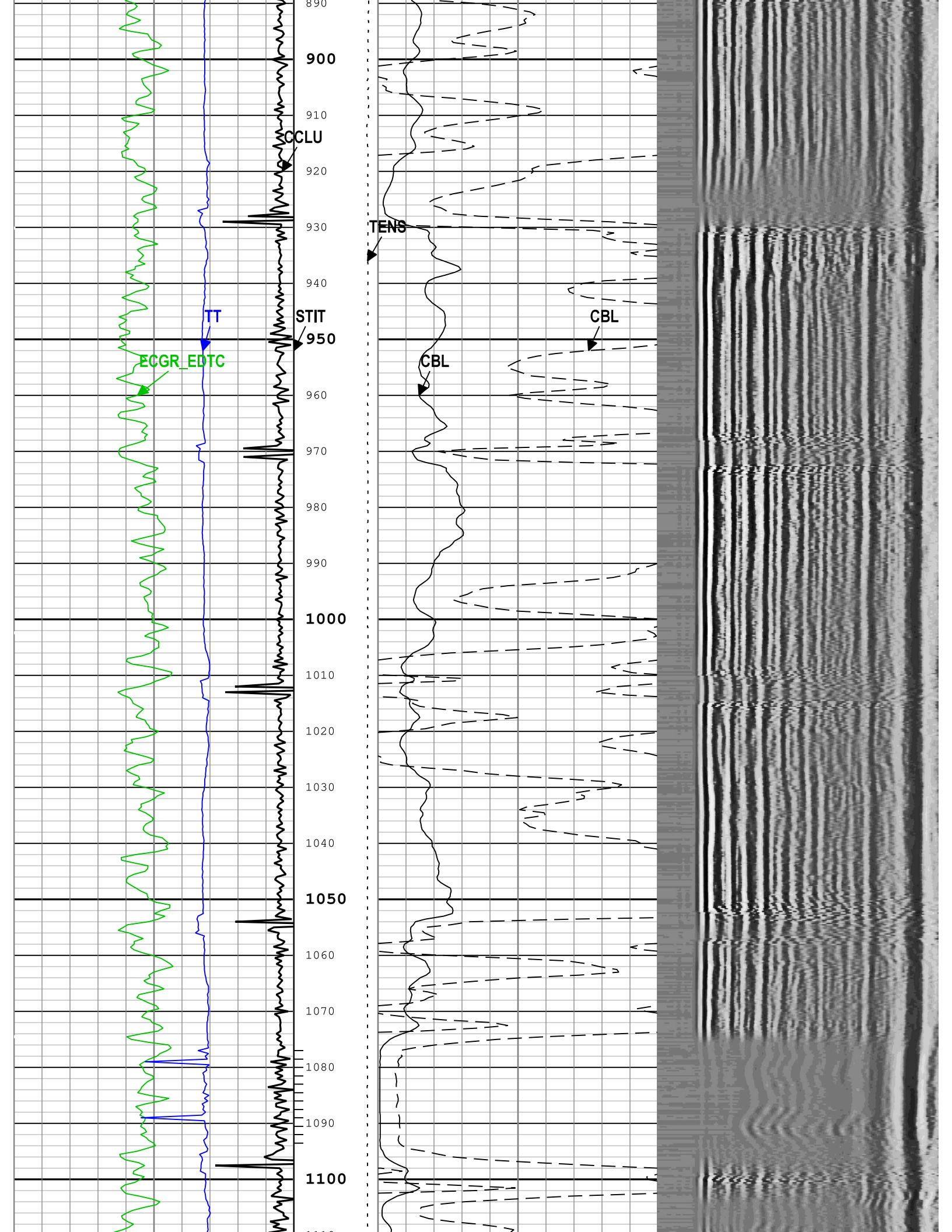
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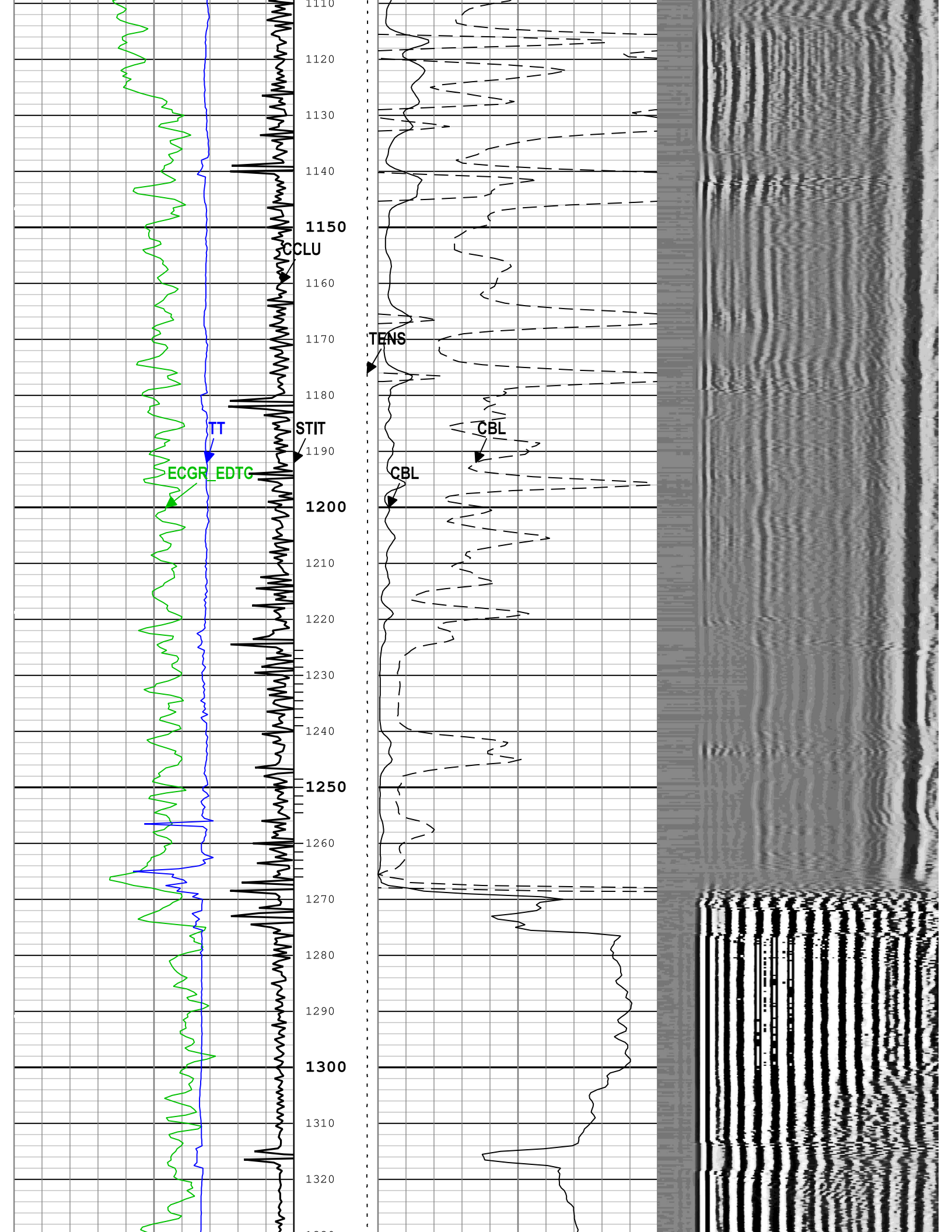
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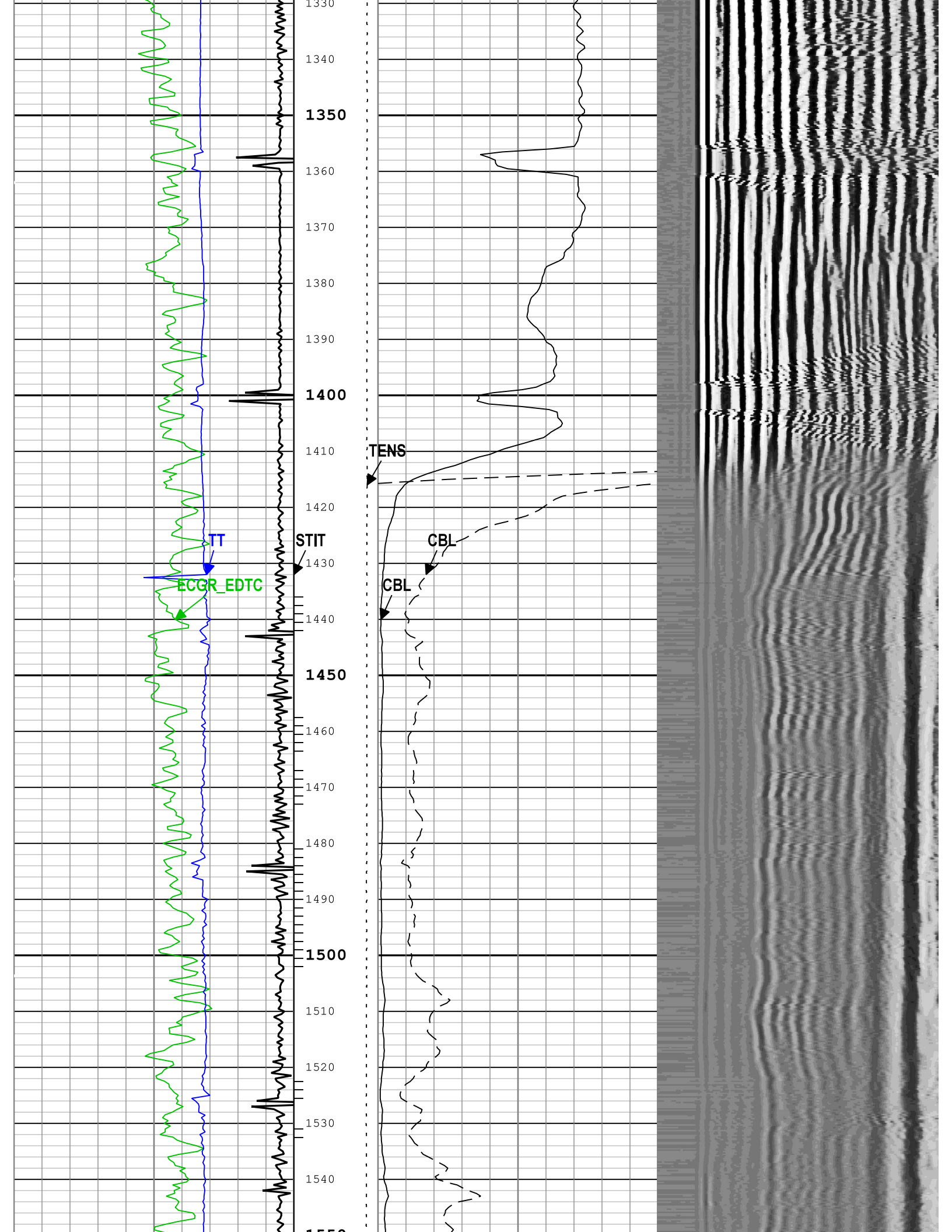
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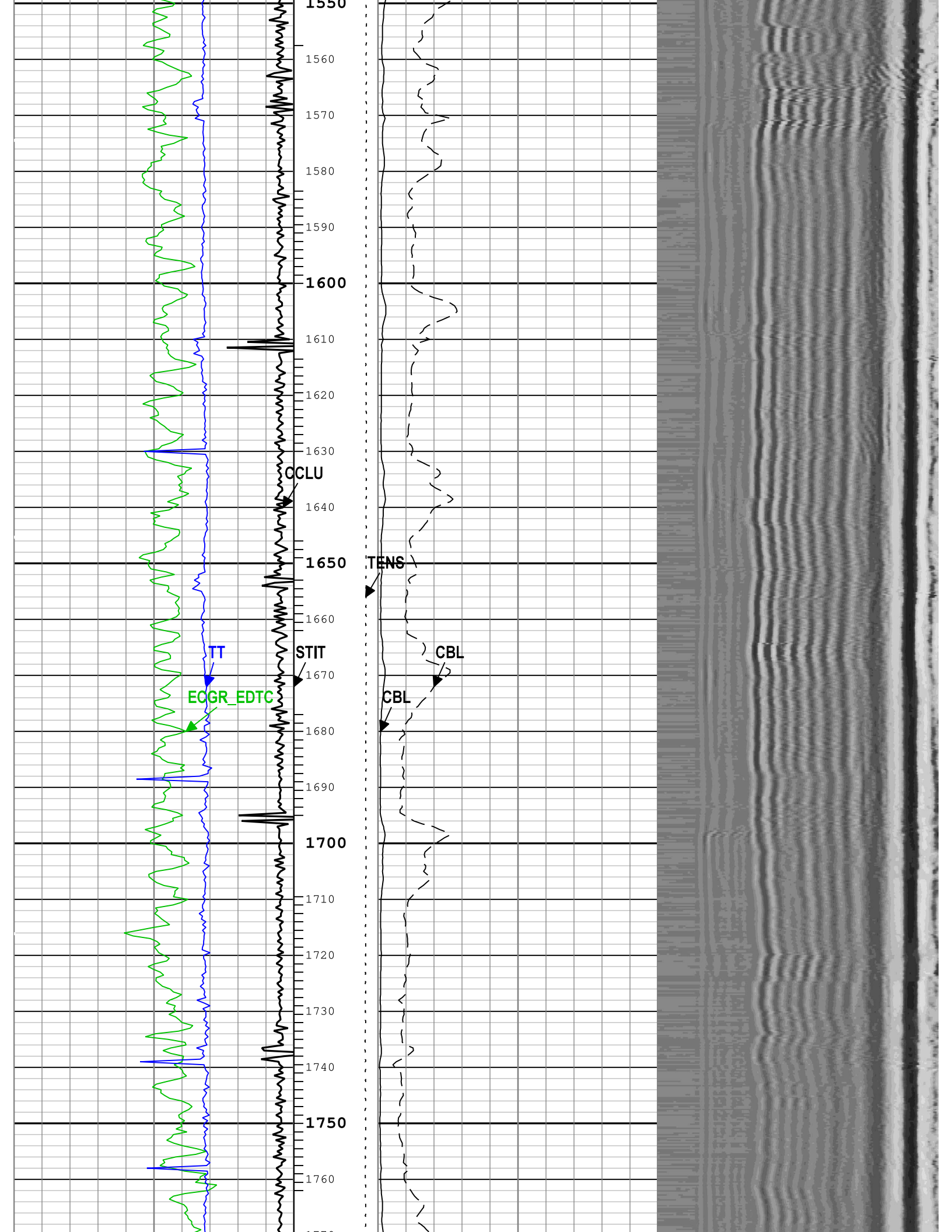
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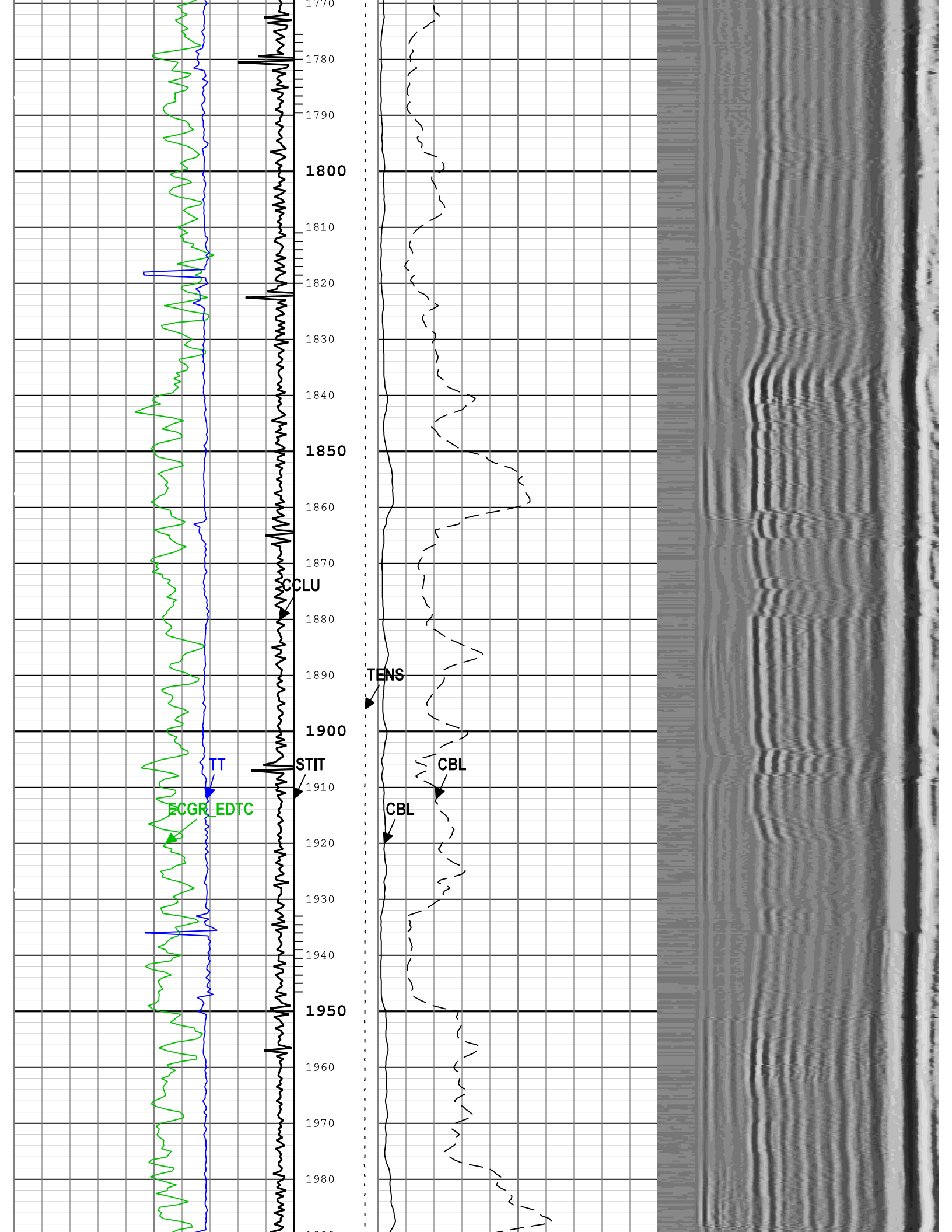
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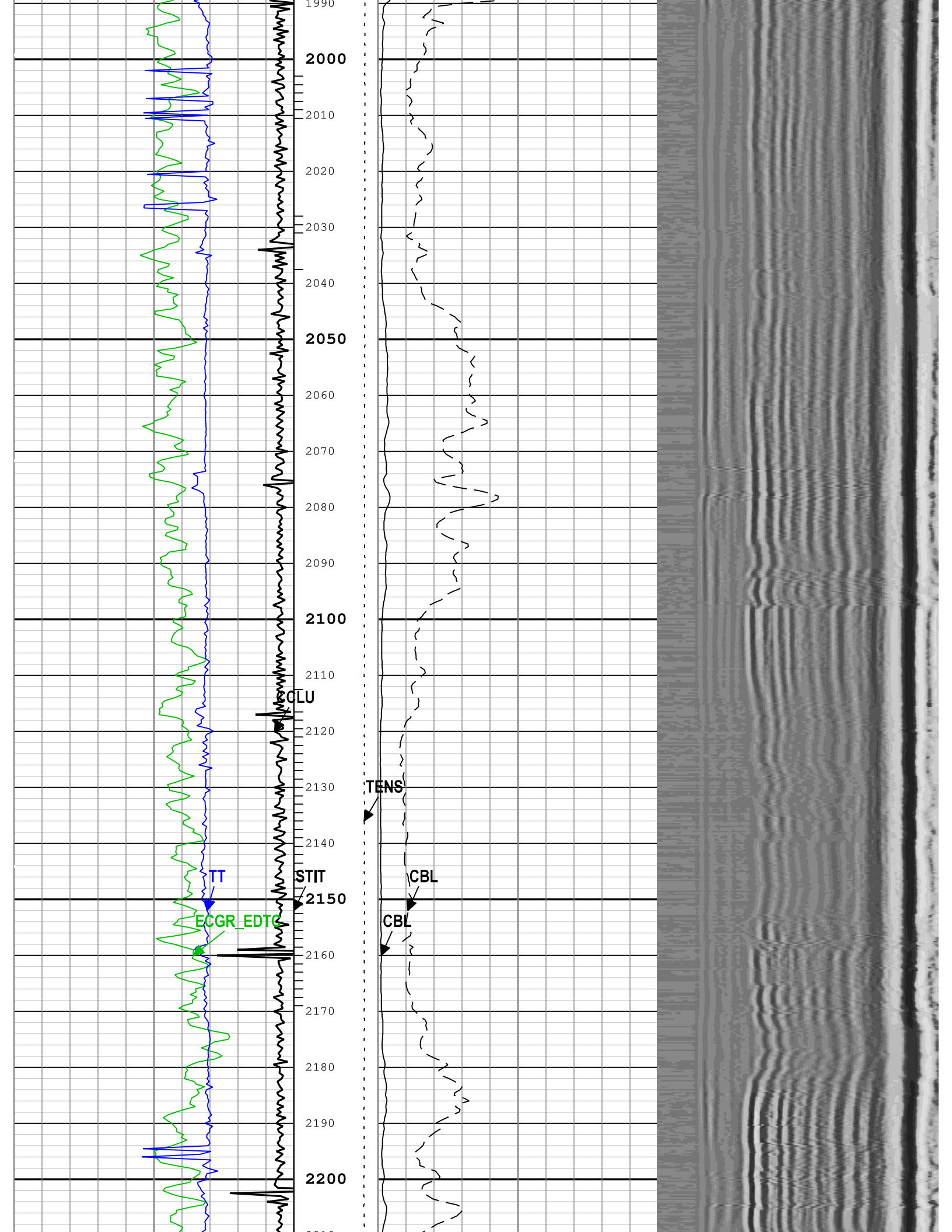
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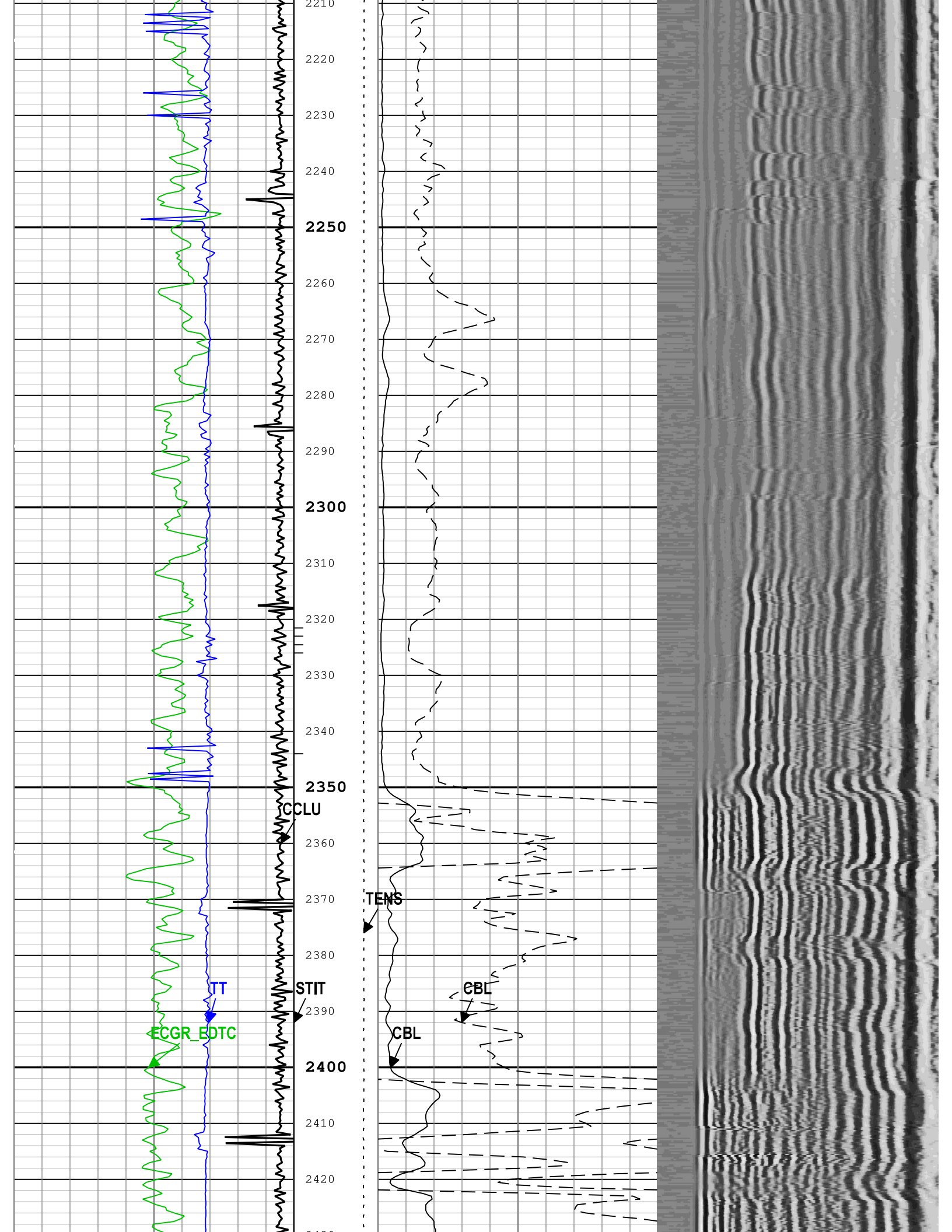
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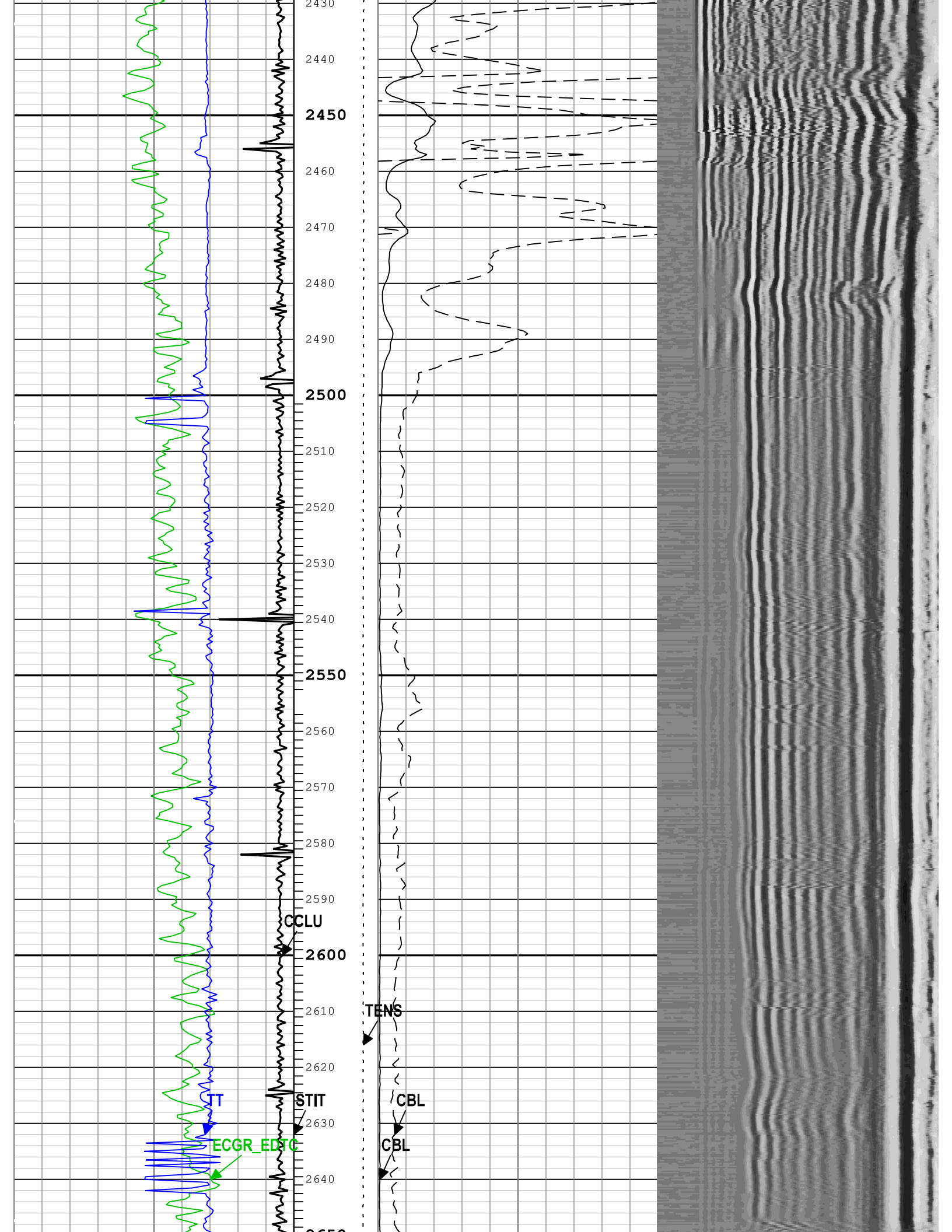
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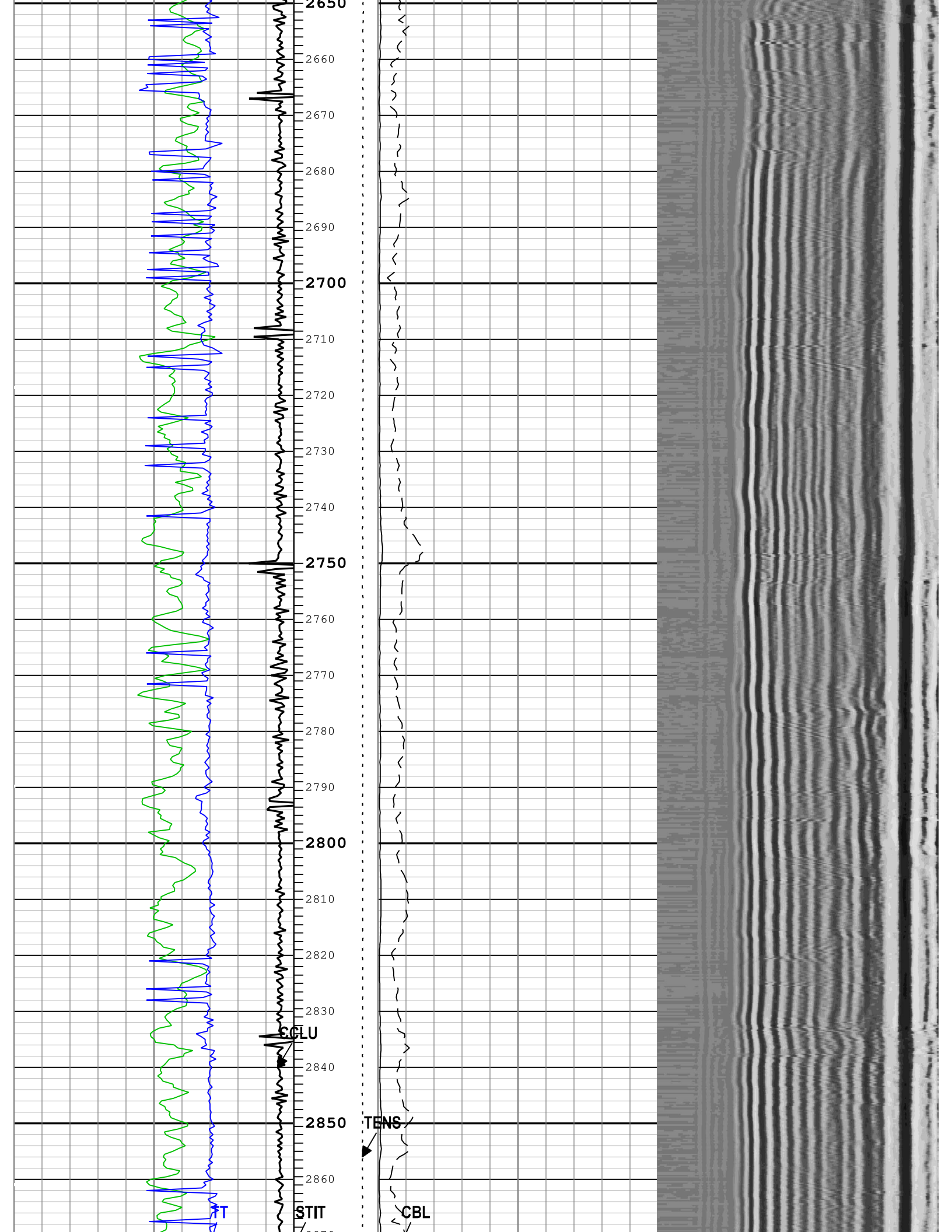
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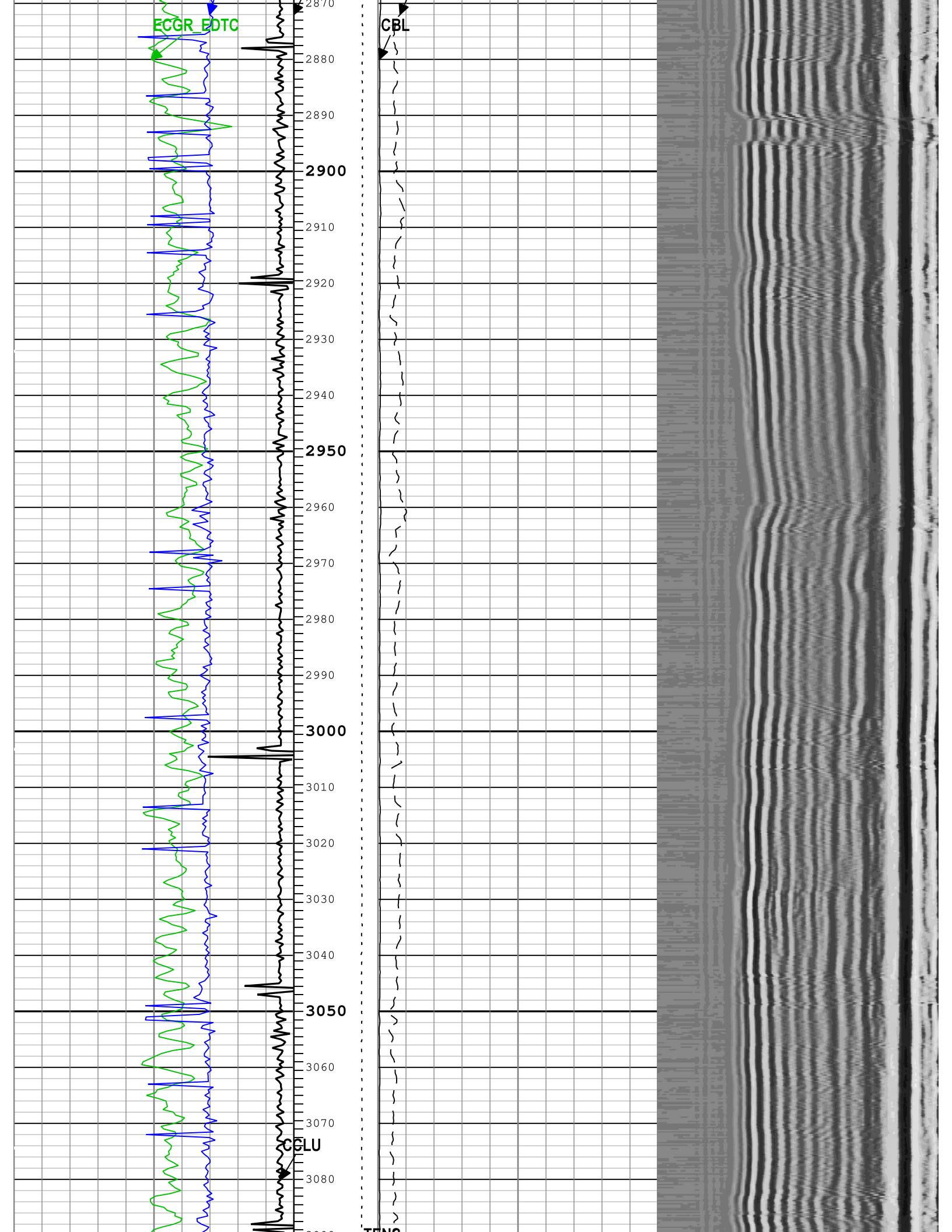
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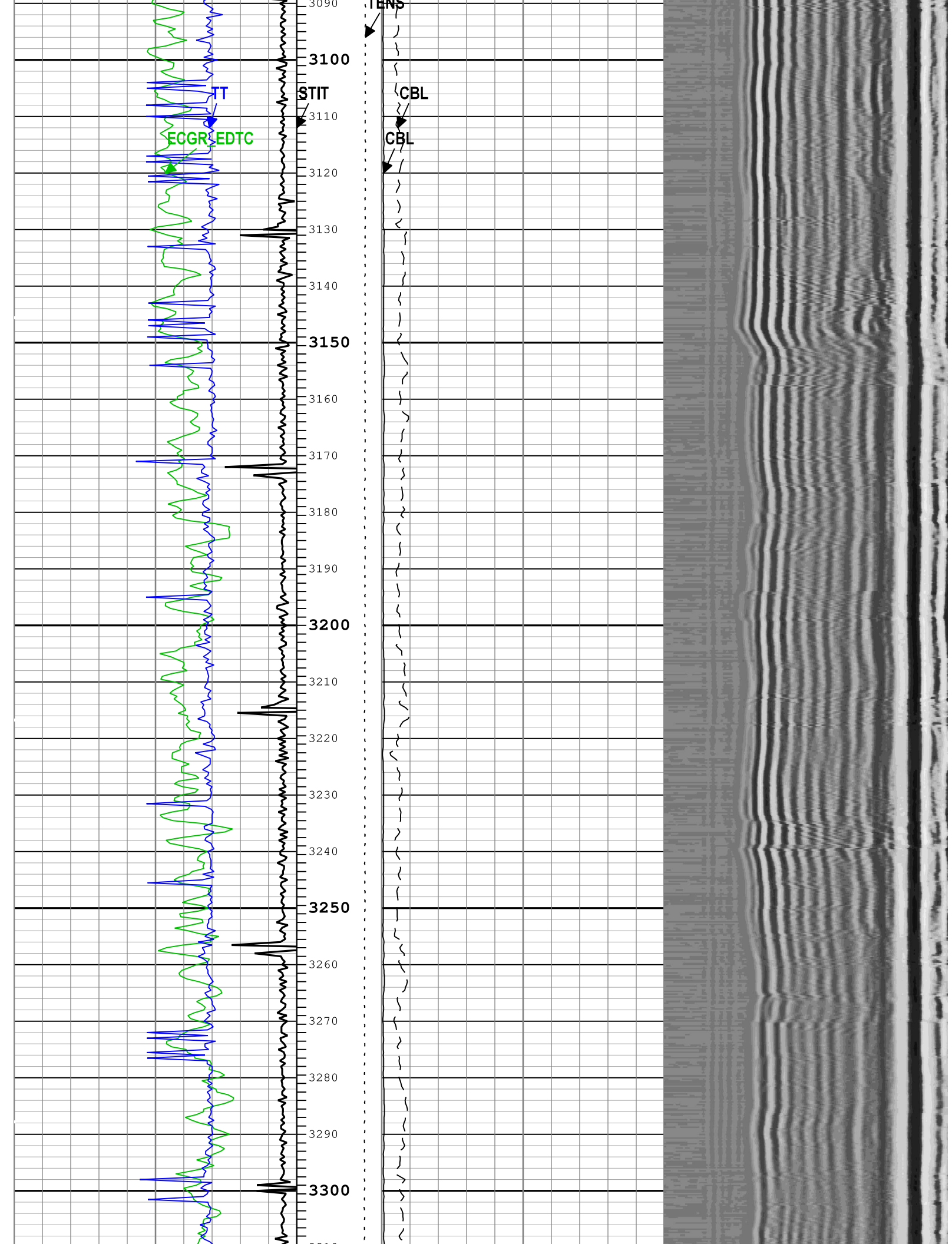
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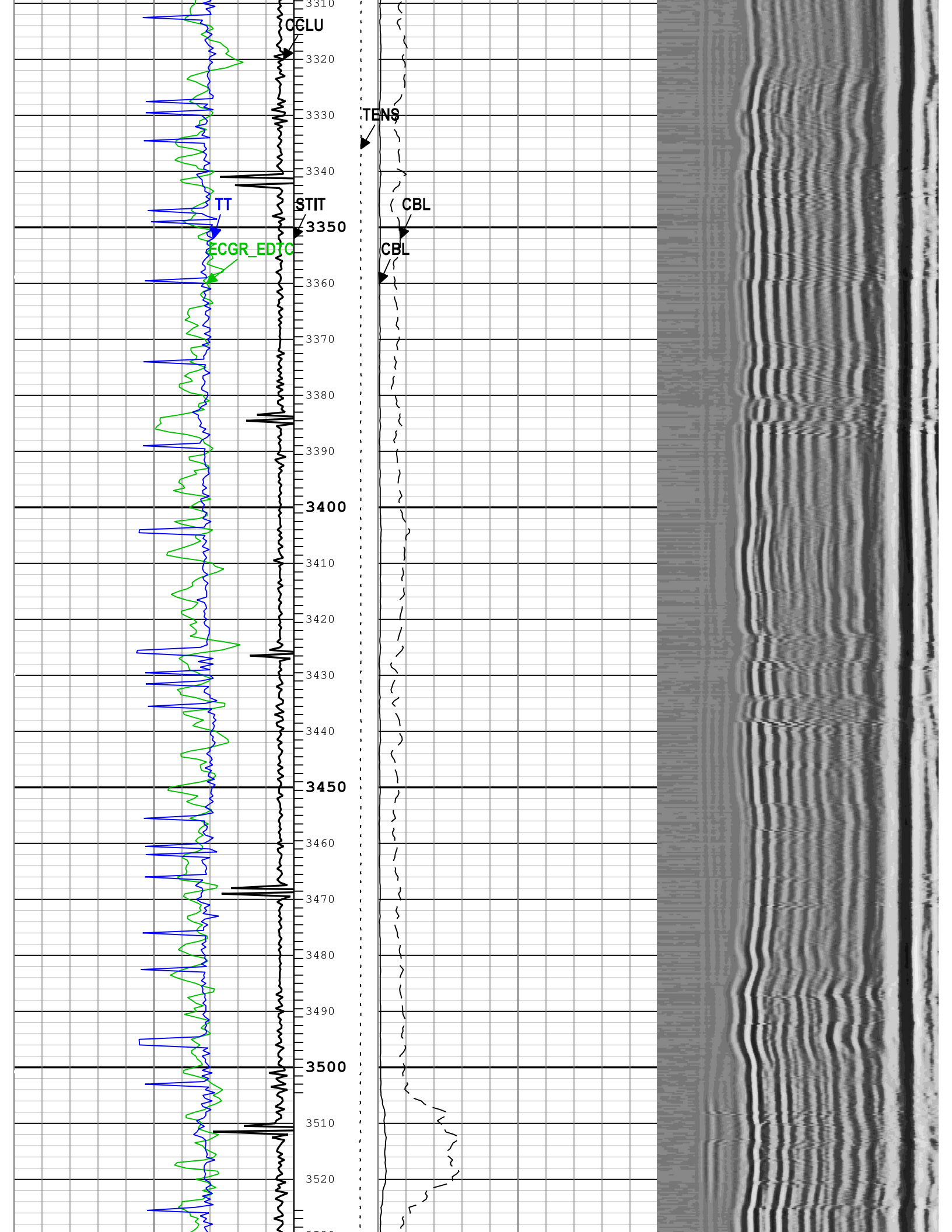
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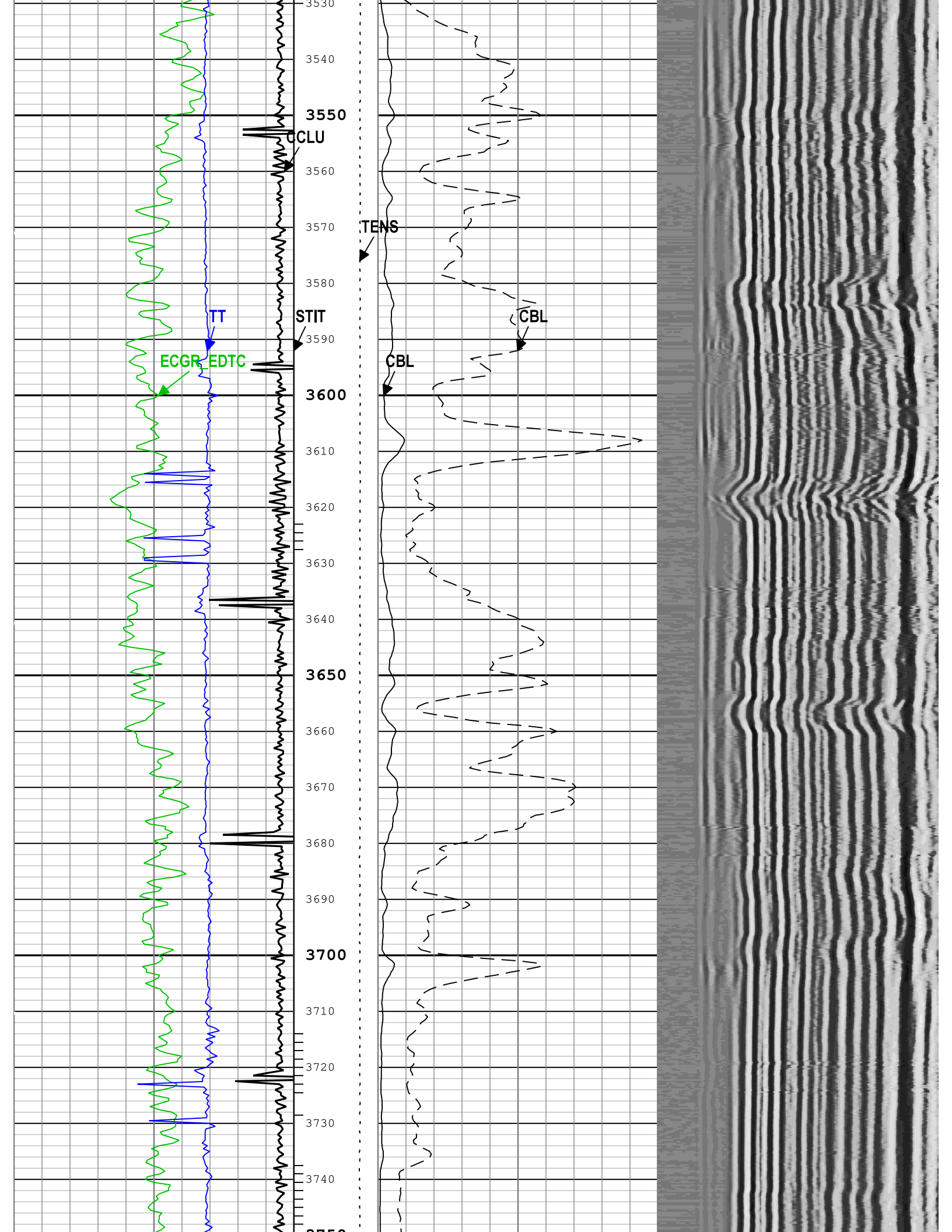
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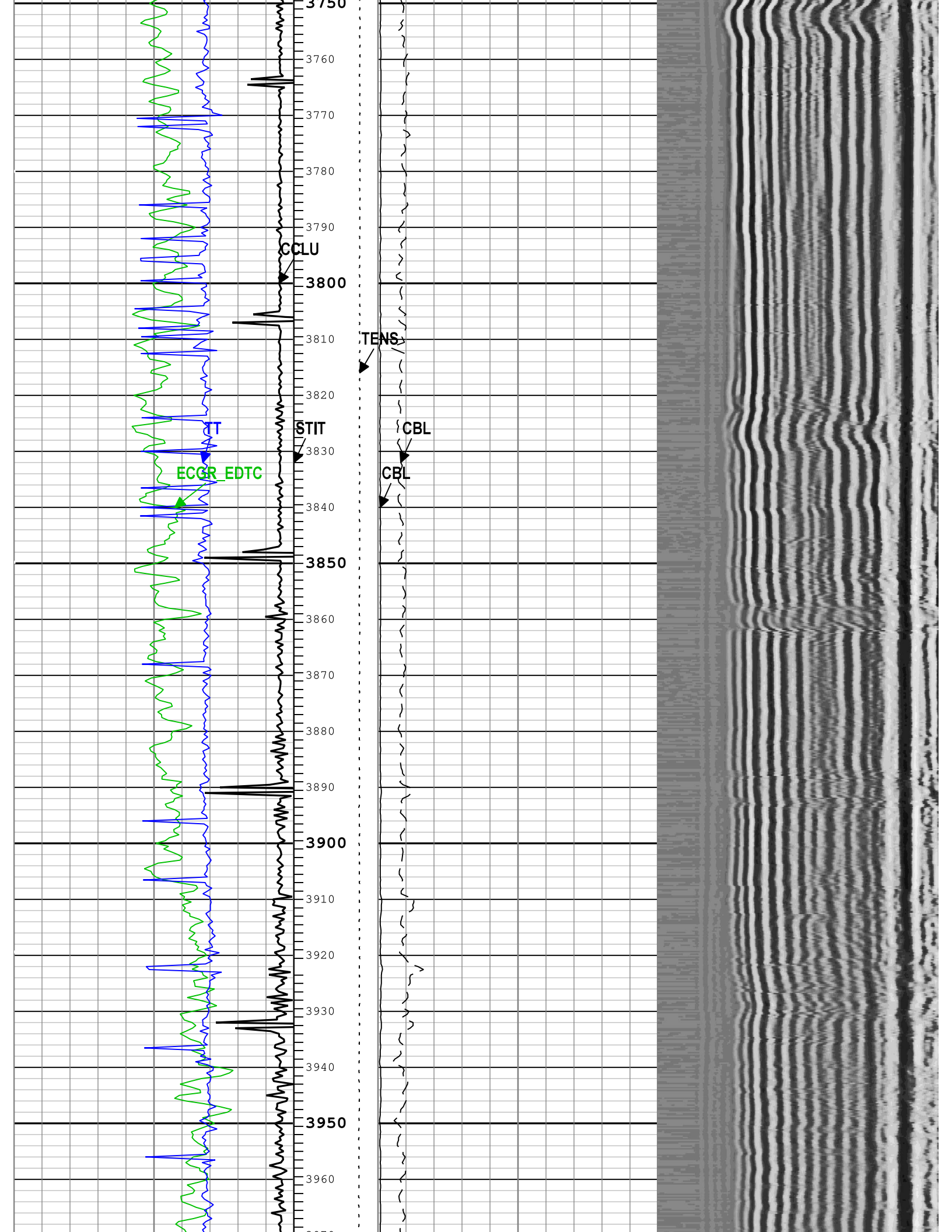
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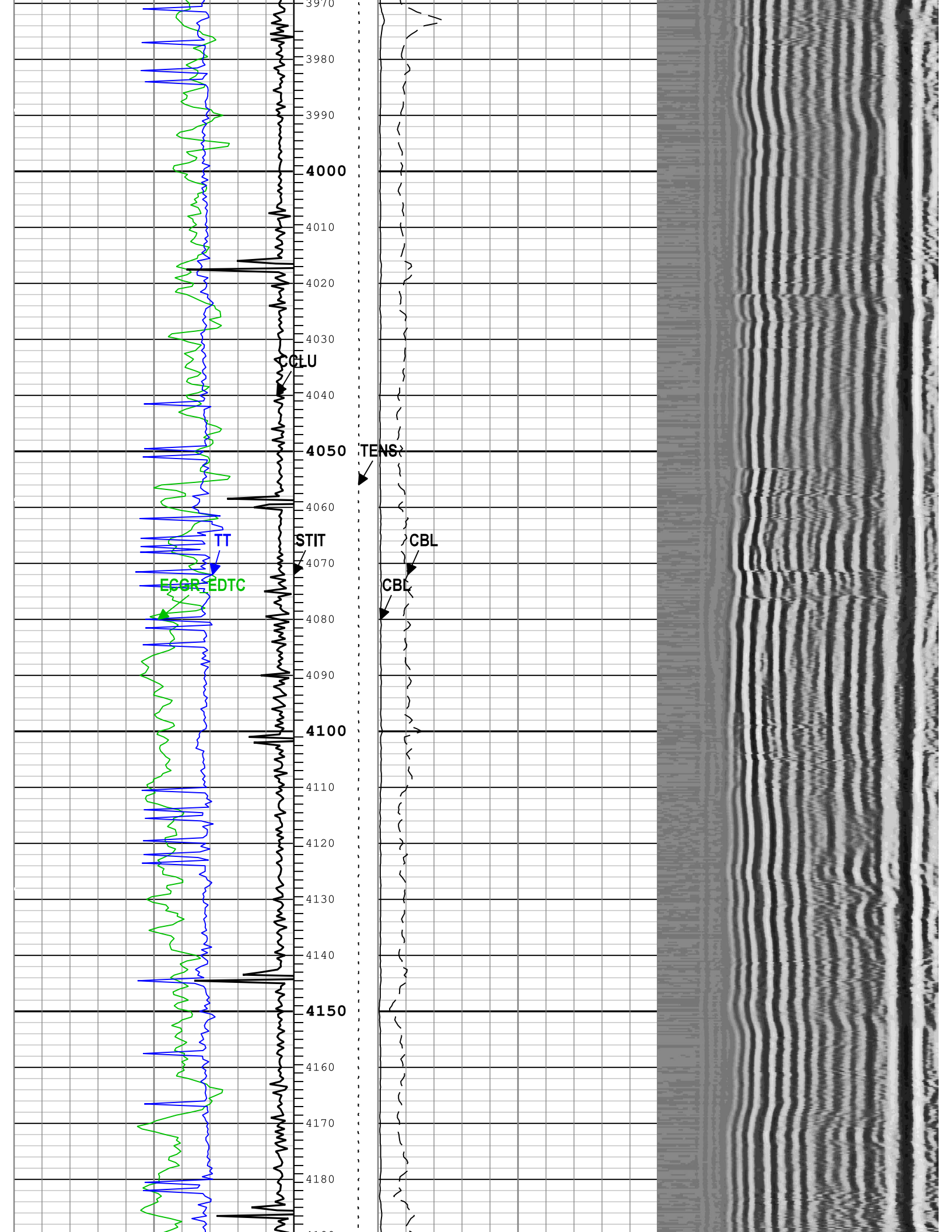
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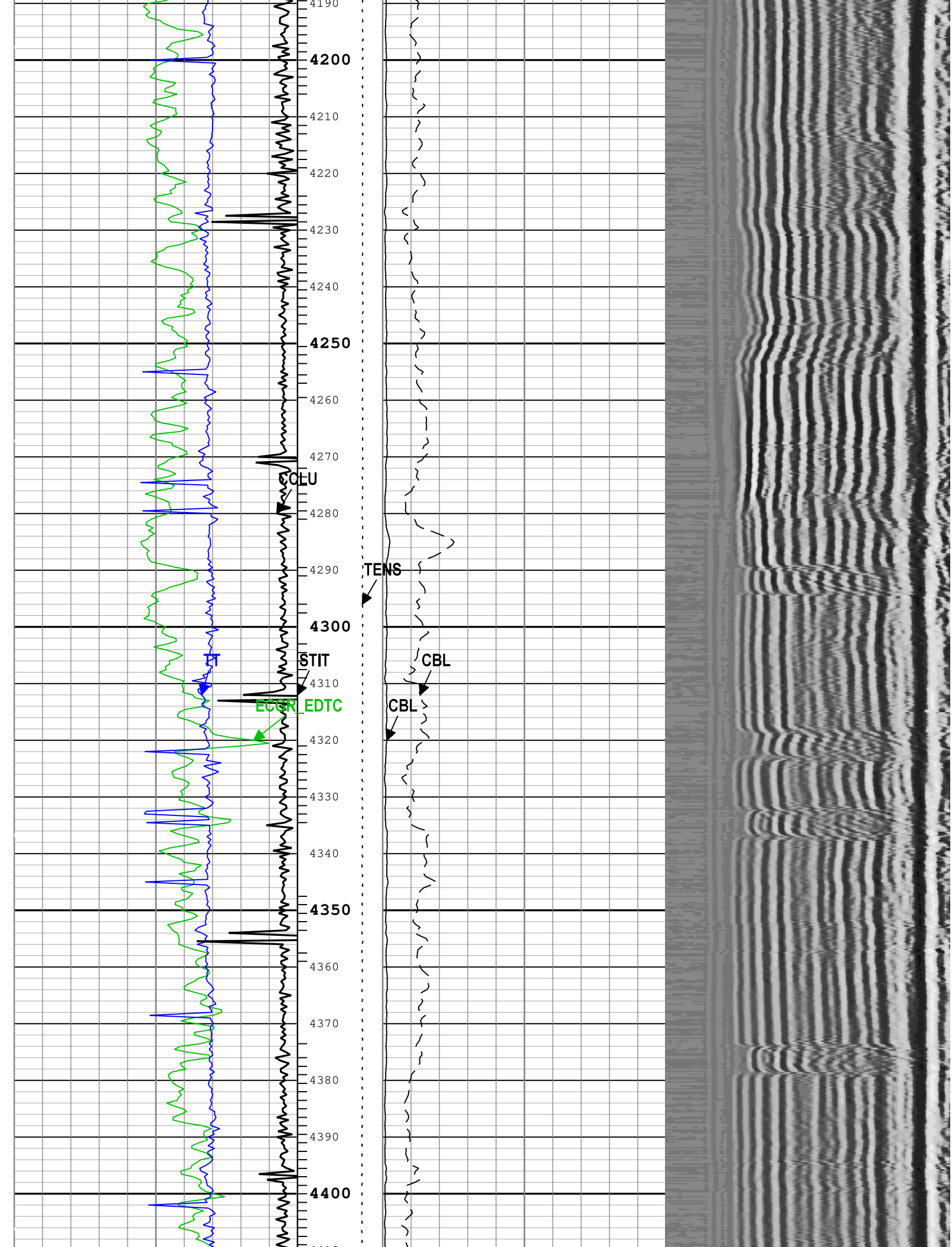
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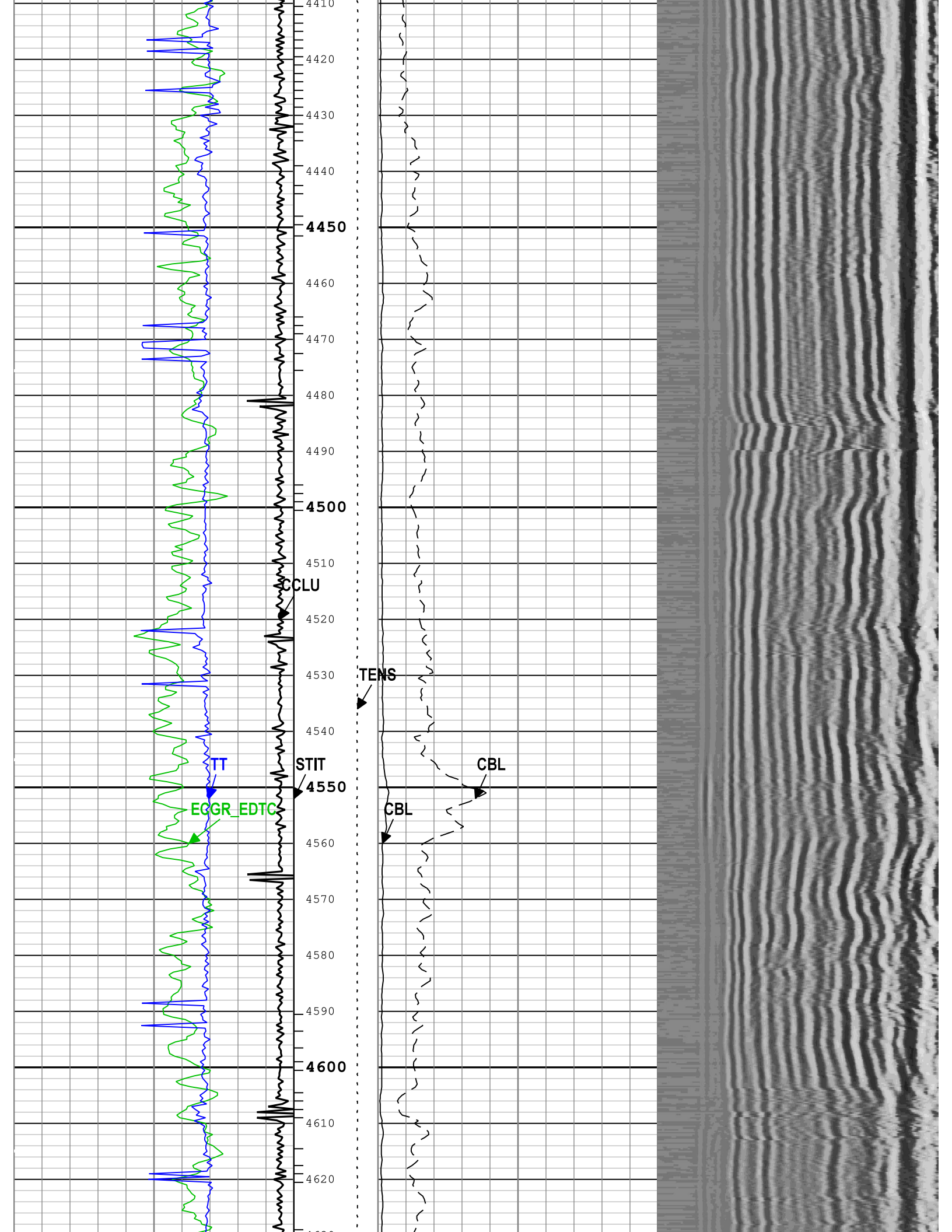
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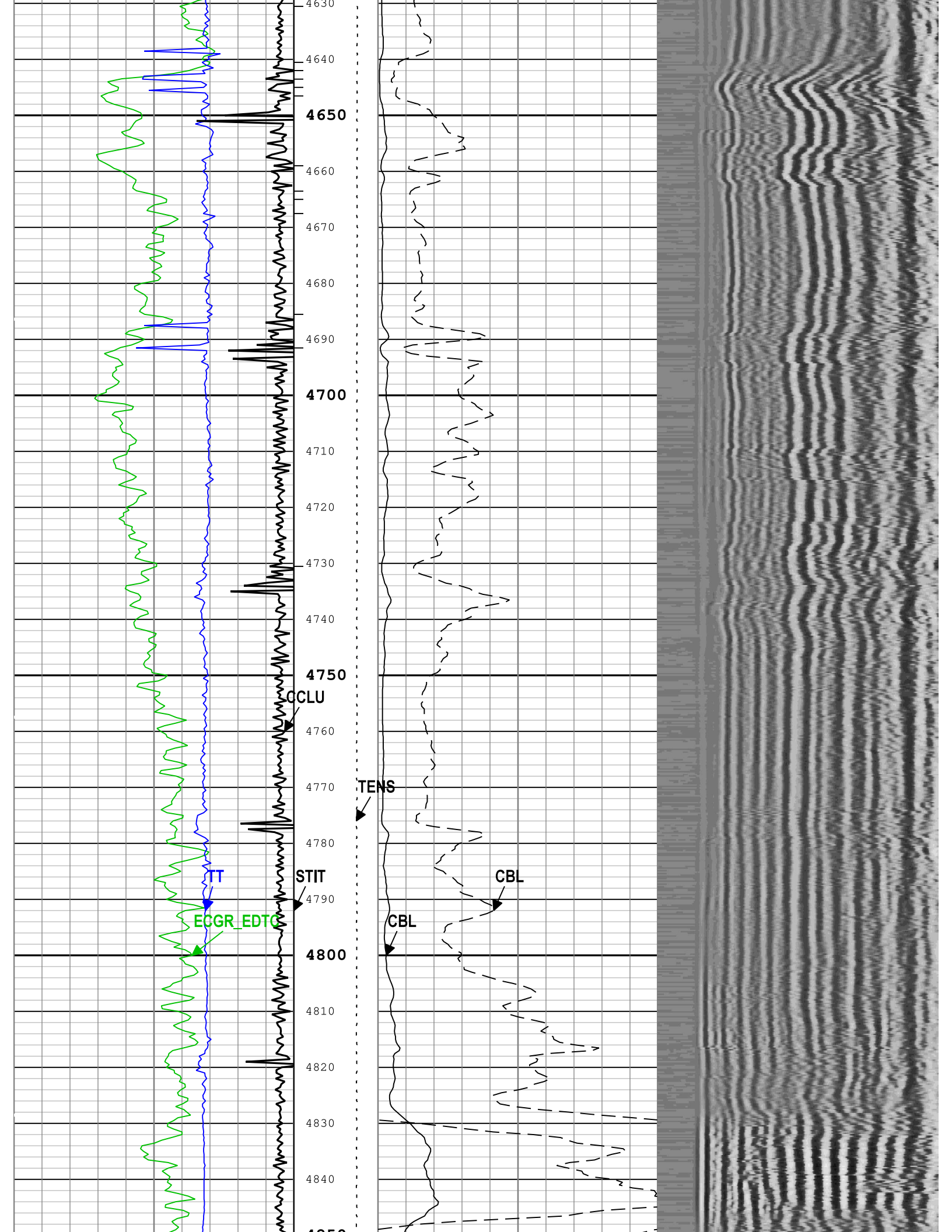
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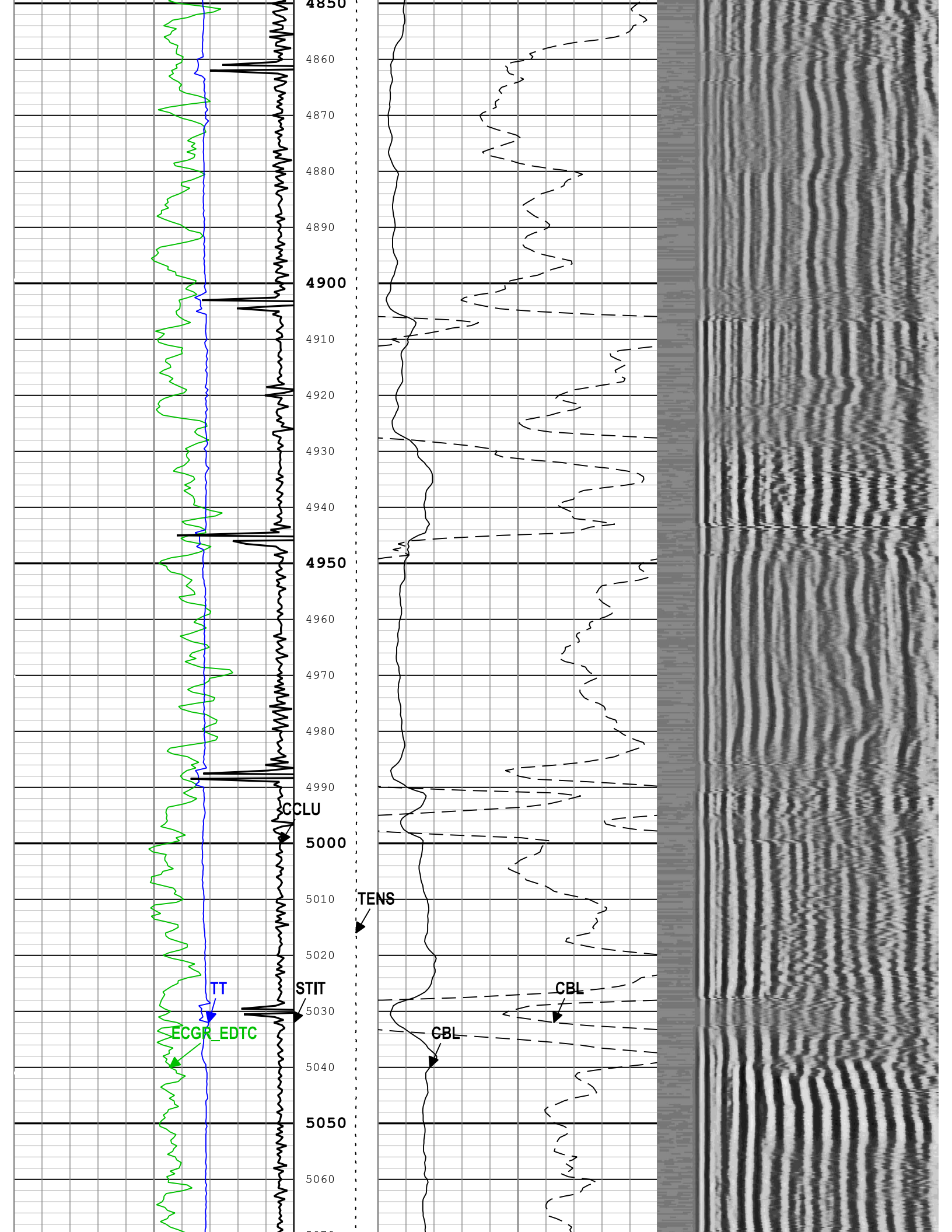
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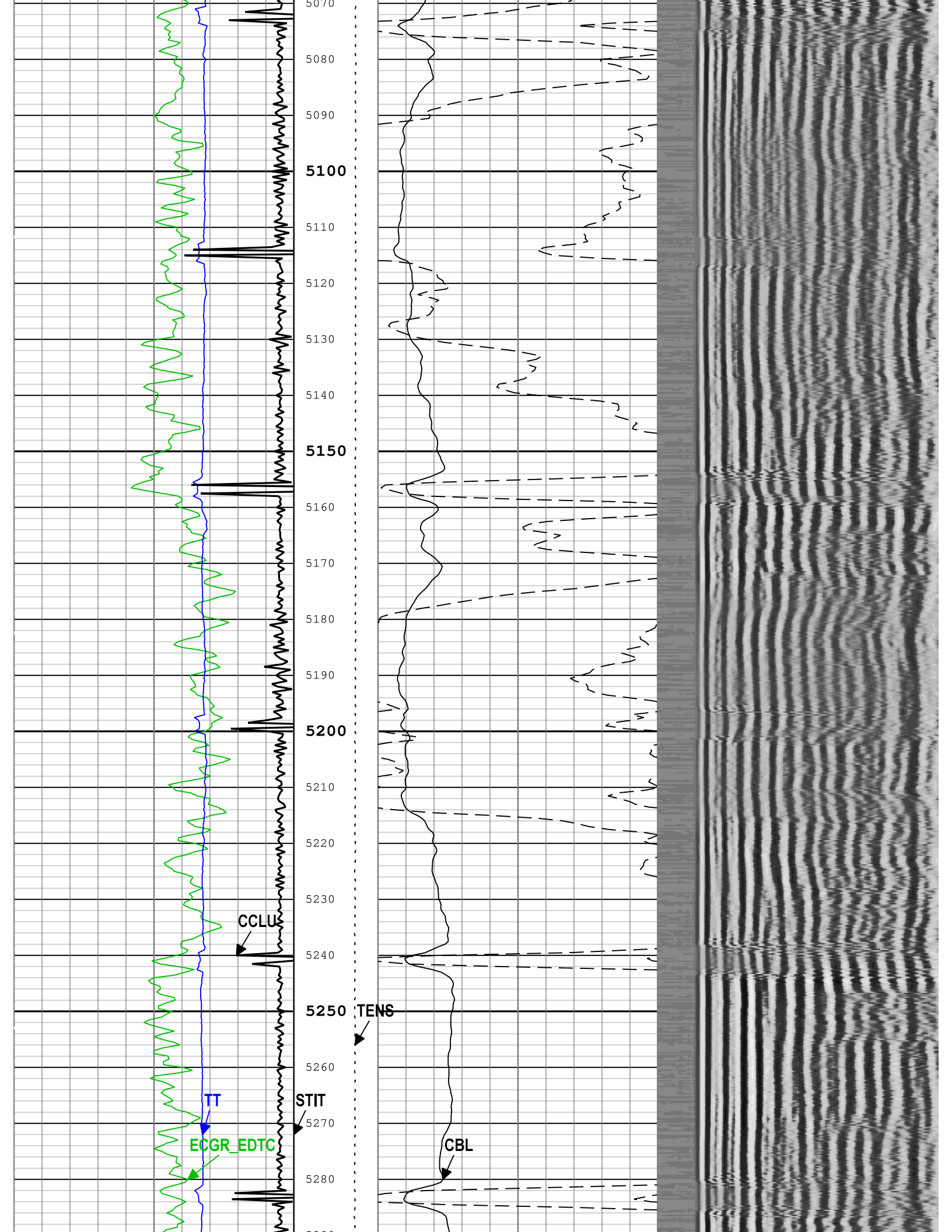
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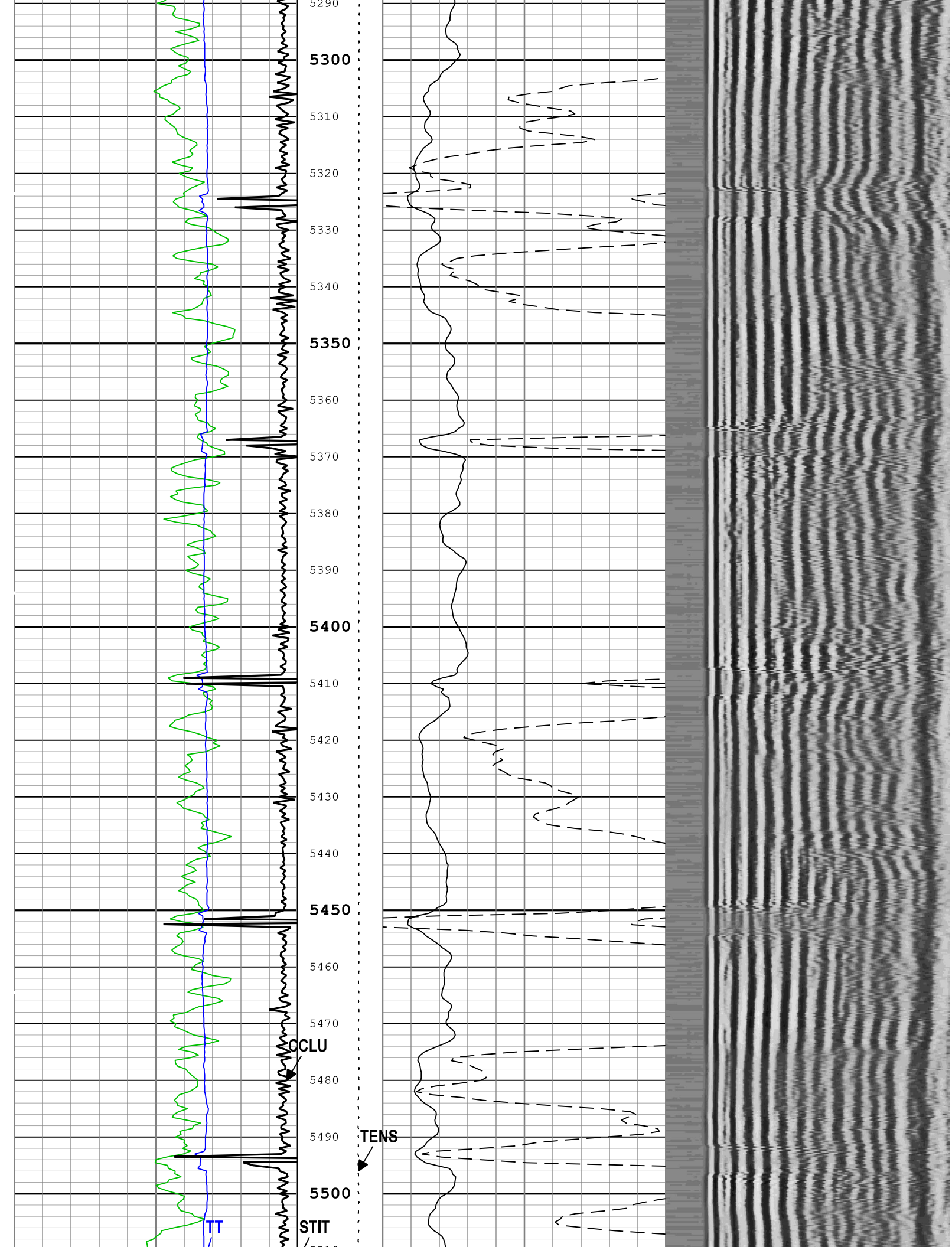
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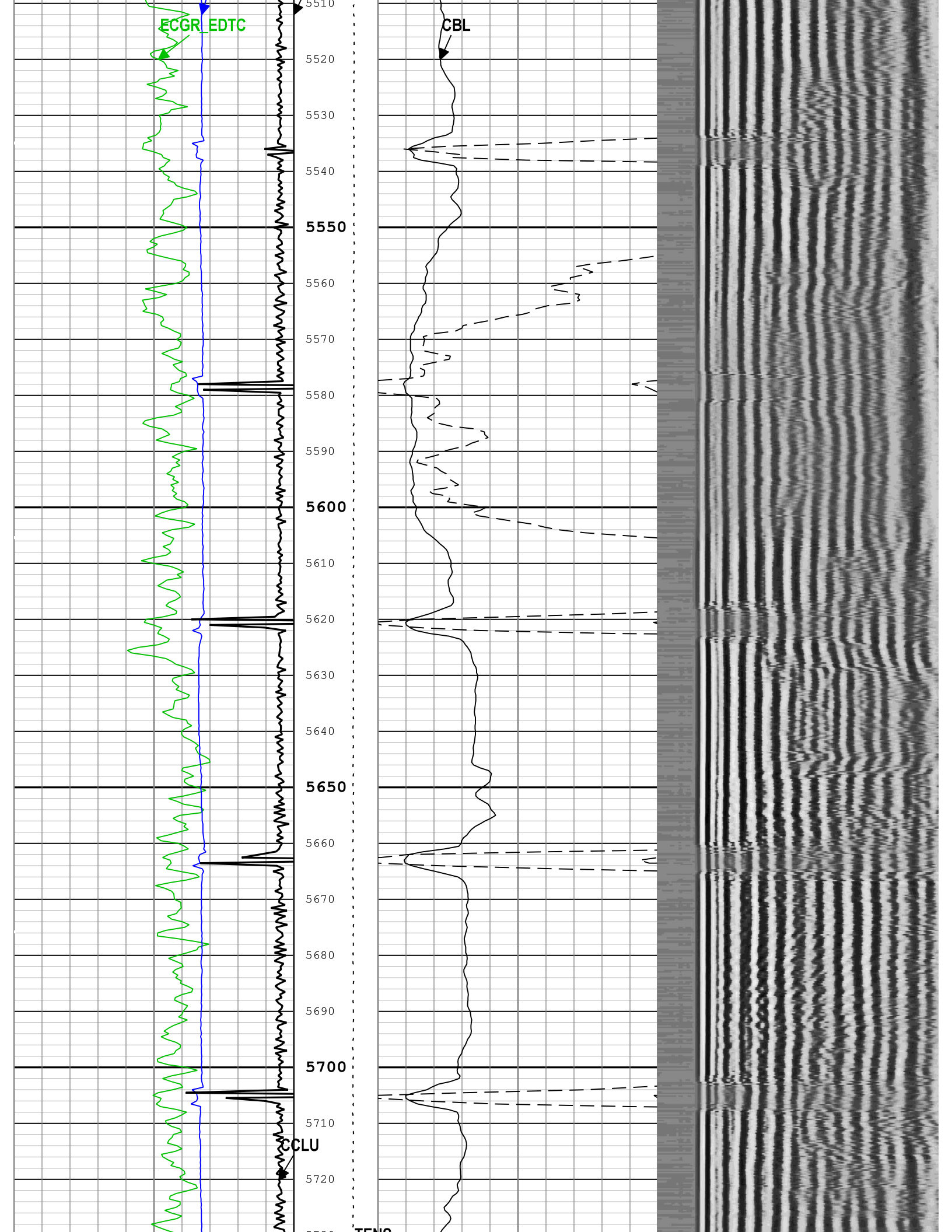
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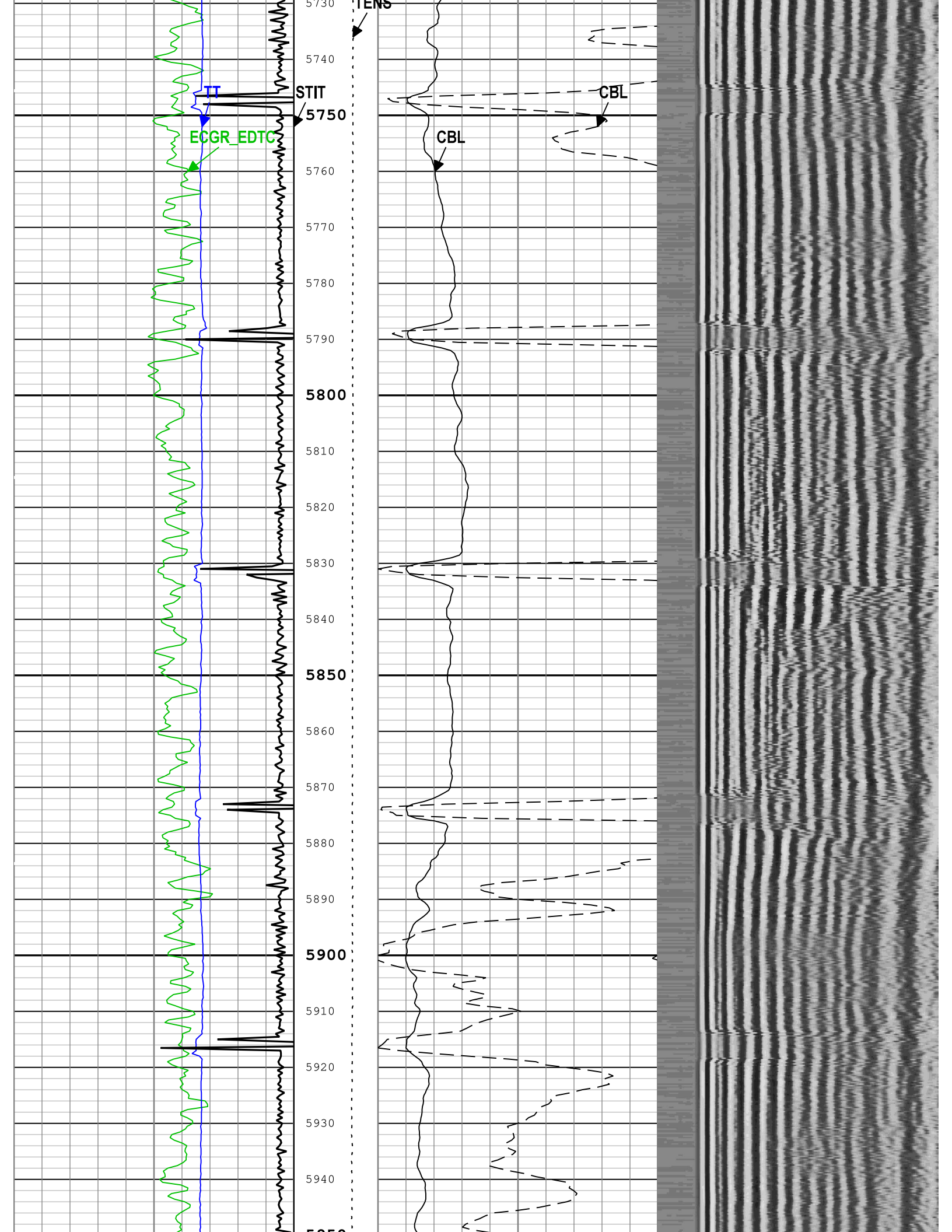
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STIT
ECGR_EDTC
CBL
CBL
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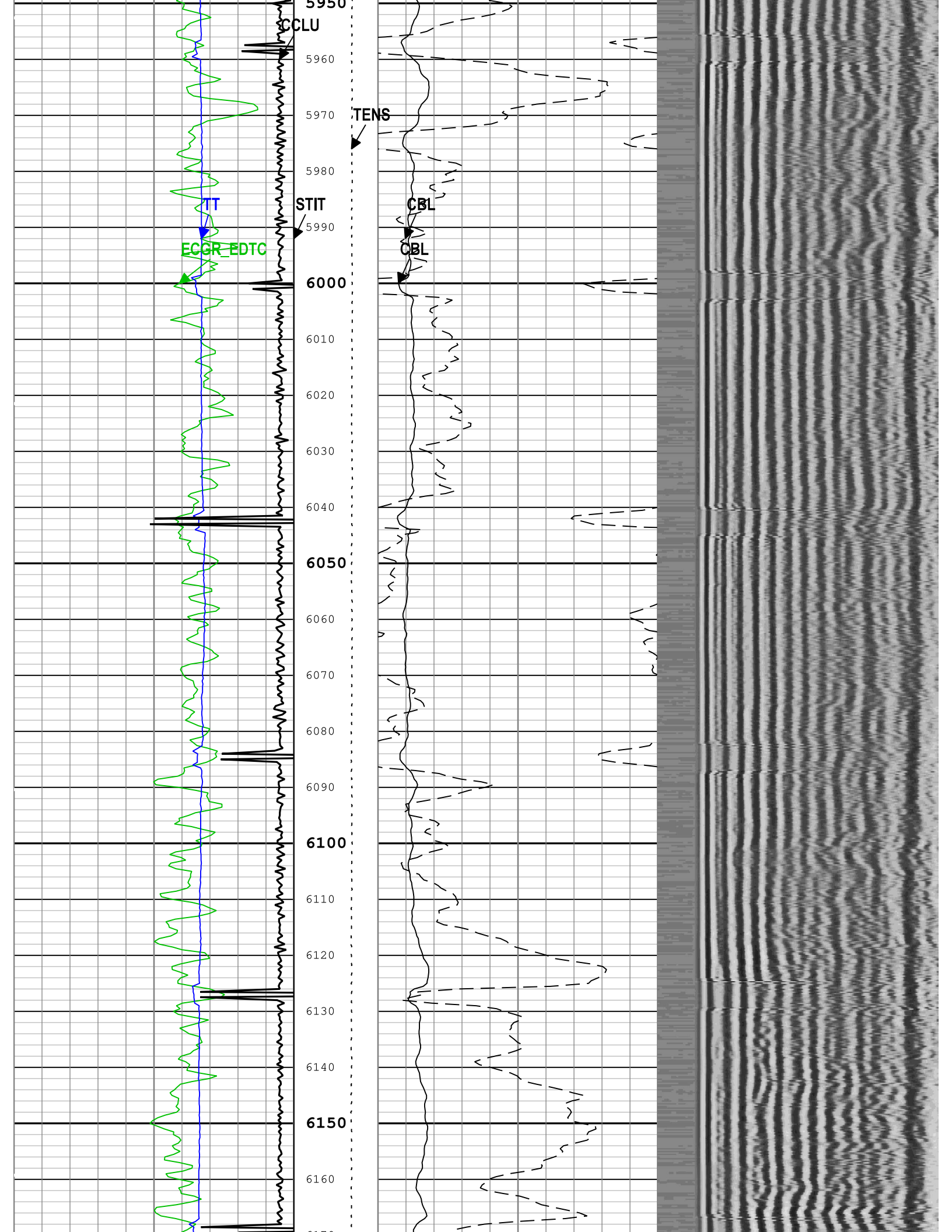
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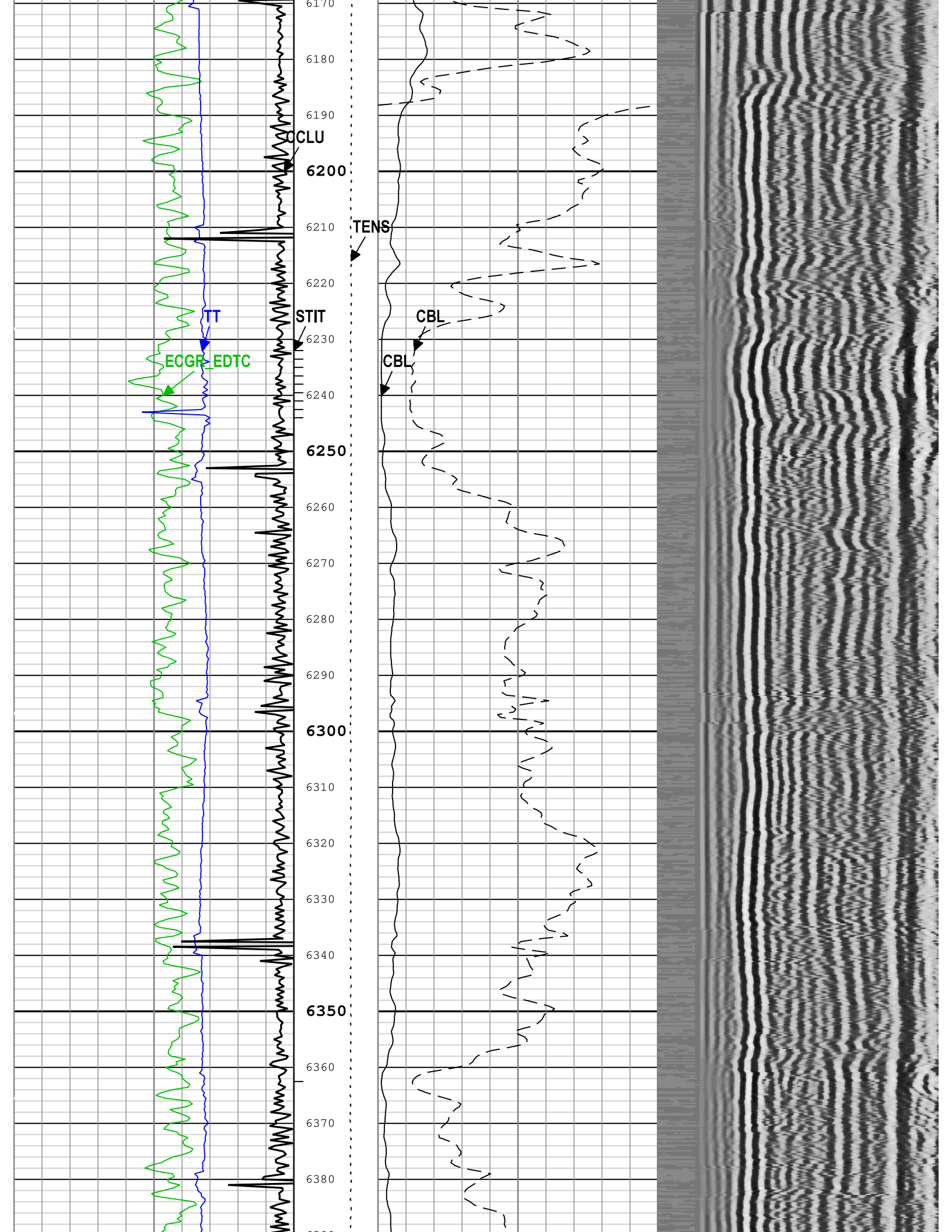
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ECGR_EDTC
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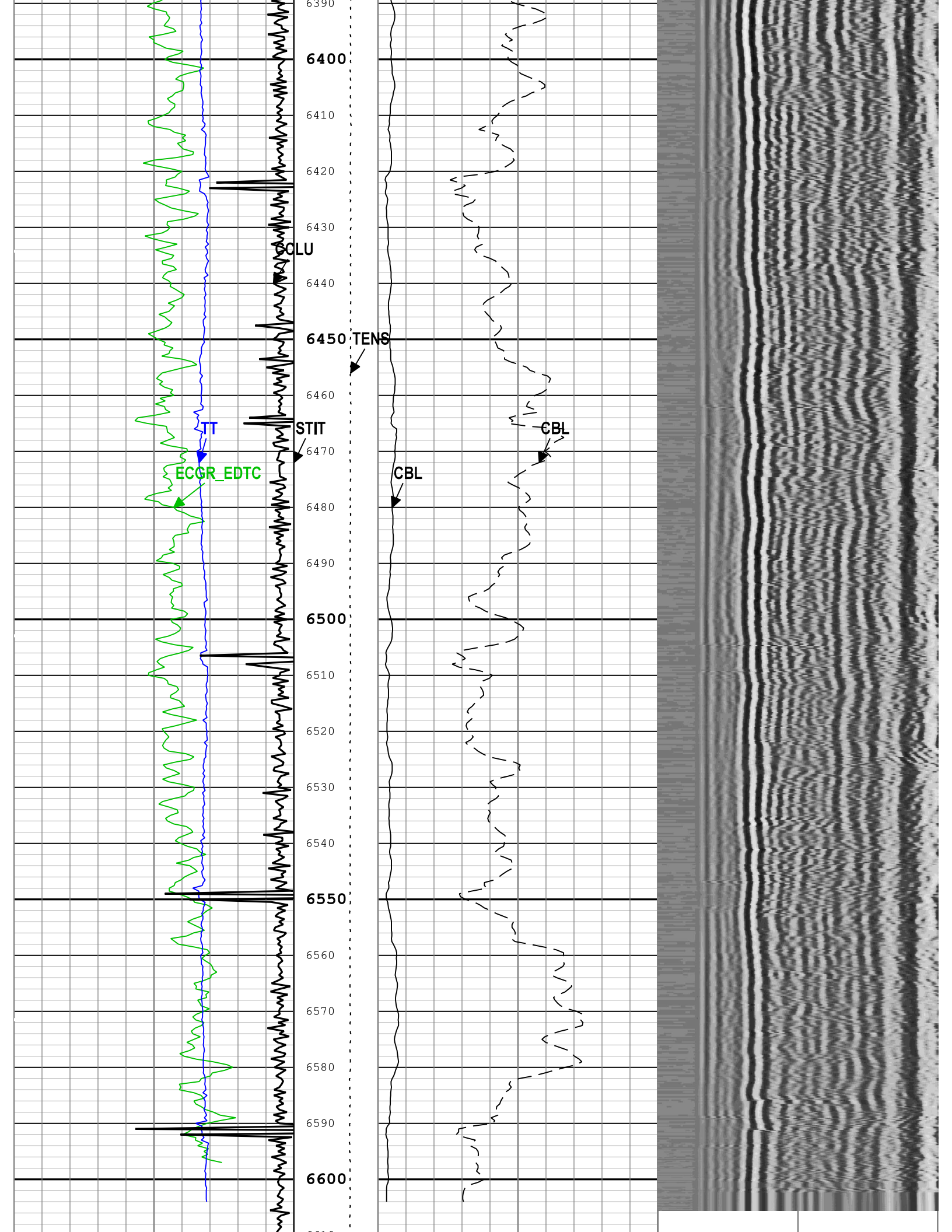
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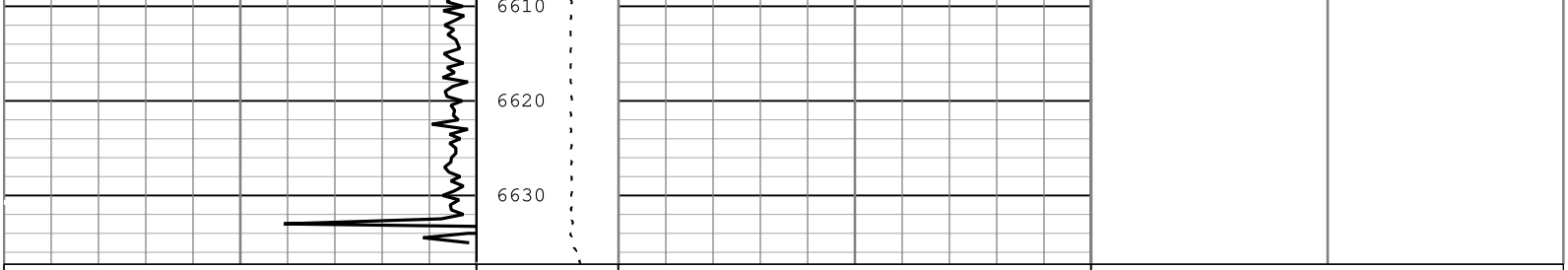


Gamma Ray (ECGR_EDTC) EDTC-B
0 gAPI 150

Transit Time for CBL (TT) ASLT-B
400 us 200

Casing Collar Locator Ultrasonic (CCLU) USIT-E
-19 in 1

Stuck Tool Indicator, Total (STIT)
0 ft 50

Cable Tension (TENS)
10000 0
lbf

Cable Drag

Tool_Tot. Drag

CBL Amplitude (CBL) ASLT-B
0 mV 100

CBL Amplitude (CBL) ASLT-B
0 mV 10

Min Amplitude Max

Variable Density Log (VDL) ASLT-B
100 us 700

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: 15-Mar-2022 12:11:15

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	Open	
BS	Bit Size	WLSESSION	Depth Zoned	in
CBAF_D	CBL Adjustment Factor	ASLT-B	1	
CBLO	Casing Bottom (Logger)	WLSESSION	7940	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	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
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	1.35	mV
GOBO_CURR	Good Bond in Arbitrary Cement	ASLT-B	1.35	mV
HEMA	Hematite Presence Flag	Borehole	No	
IBC_FRP_OFFSET	IBC Flexural Offset from Free Pipe	USIT-E	15.96	dB/m
IBC_FVEL_SEL	IBC Fluid Velocity Selection	USIT-E	Automatic	
IBC_OFFSET_SEL	IBC Flexural Offset Selector	USIT-E	IBC_FRP_OFFSET	
IBC_ZMUD_SEL	IBC Mud Impedance Selection	USIT-E	FreePipe Norm	

IBC_ZMUD_SEL	IBC Mud Impedance Selection	USIT-E	FreePipe Norm.	
IMAR	Image Rotation	USIT-E	Off	
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	1.29	
RUN_SNUM	Run Sequence Number	WSDRUN	1	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0	Mrayl
U-USIT_UFAO	USIT Flexural Attenuation Offset	USIT-E	0	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	1.54	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)
BS	12.25	20.5	805
BS	7.875	805	6637.25

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	36	dB
EMXV	EMEX Voltage	USIT-E	80	V
HRES	Horizontal Resolution	USIT-E	10 deg	
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	2000	ft/h
MODE	SSLT Firing Mode	ASLT-B	Attenuation	
RATE	Firing Rate	ASLT-B	8.93	Hz
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

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[2]:Up	Up	1168.43 ft	1444.98 ft	15-Mar-2022 7:00:59 AM	15-Mar-2022 7:09:20 AM	ON	-5.31 ft	Yes
One	Log[5]:Up	Up	60.71 ft	6637.28 ft	15-Mar-2022 7:38:40 AM	15-Mar-2022 9:15:02 AM	ON	0.88 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Occidental Petroleum INC Well:Frank 6-8

One: Log[2]:Up:S005

Description: CBL_VDL Format: Log (DSLT ASLT_CBL-VDL RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 15-Mar-2022 12:11:22

TIME_1900 - Time Marked every 60.00 (s)

BIEP - Bond Index Event Pips ASLT-B

Main To Repeat

Repeat To Main

Casing Collar Locator Ultrasonic (CCLU) USIT-E

-19 in 1

Main To Repeat

Repeat To Main

Gamma Ray (ECGR_EDTC) EDTC-B

0 gAPI 150

Main To Repeat

Repeat To Main

Transit Time for CBL (TT) ASLT-B

400 us 200

Main To Repeat

Repeat To Main

Cable Tension (TENS)

10000 0 lbf

Main To Repeat

Repeat To Main

Stuck Tool Indicator, Total (STIT)

0 ft 50

Main To Repeat

Repeat To Main

CBL Amplitude (CBL) ASLT-B

0 mV 10

Main To Repeat

Repeat To Main

CBL Amplitude (CBL) ASLT-B

0 mV 100

Min Amplitude Max

Variable Density Log (VDL) ASLT-B

100 us 600

1200

1210

1220

1230

1240

1250

1260

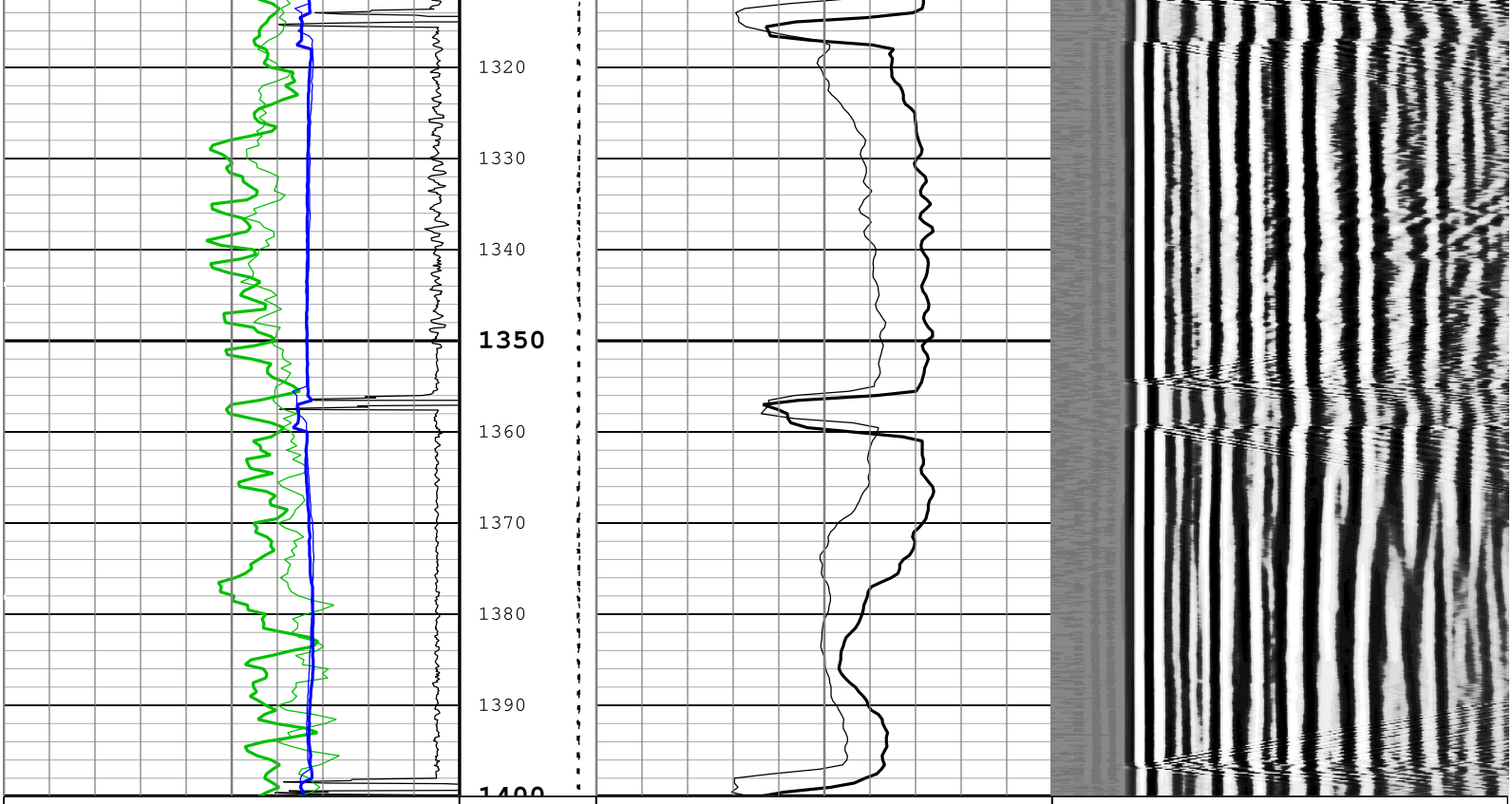
1270

1280

1290

1300

1310



Main To Repeat

Repeat To Main

Casing Collar Locator Ultrasonic (CCLU) USIT-E

-19 in 1

Main To Repeat

Repeat To Main

Gamma Ray (ECGR_EDTC) EDTC-B

0 gAPI 150

Main To Repeat

Repeat To Main

Transit Time for CBL (TT) ASLT-B

400 us 200

Main To Repeat

Repeat To Main

Cable Tension (TENS)

10000 0 lbf

Main To Repeat

Repeat To Main

Stuck Tool Indicator, Total (STIT)

0 ft 50

Main To Repeat

Repeat To Main

CBL Amplitude (CBL) ASLT-B

0 mV 10

Main To Repeat

Repeat To Main

CBL Amplitude (CBL) ASLT-B

0 mV 100

Min Amplitude Max

Variable Density Log (VDL) ASLT-B

100 us 600

BIEP - Bond Index Event Pips ASLT-B

TIME_1900 - Time Marked every 60.00 (s)

Description: CBL_VDL Format: Log (DSLT ASLT_CBL-VDL RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 15-Mar-2022 12:11:22

Company:	Occidental Petroleum INC
Well:	Frank 6-8
Field:	Wattenberg
County:	Weld
State:	Colorado

Schlumberger

Cement Bond Log
Variable Density Log
Gamma Ray - CCL