

Company: Crestone Peak Resources Operating LLC

Well: Sam 3C-25H-M166

Field: Wattenberg

County: Weld State: Colordao

Cement Bond Log

Weld		Elev.:		K.B.	5097.00 ft
Wattenberg		1393 FSL & 311 FWL		G.L.	5084.00 ft
NWSW 25-1N-66W				D.F.	5097.00 ft
Location:		Permanent Datum:	Ground Level	Elev.:	
Log Measured From:		Kelly Bushing		13.00 ft	
Drilling Measured From:		Kelly Bushing		above Perm.Datum	
API Serial No.		Section:	Township:	Range:	
05-123-46124		25	1N	66W	

Logging Date	23-Jun-2018	
Run Number	CBL	
Depth Driller	2439.00 ft	
Schlumberger Depth	2439.00 ft	
Bottom Log Interval	2263.00 ft	
Top Log Interval	50.00 ft	
Casing Fluid Type	Water	
Salinity		
Density	8.4 lbm/gal	
Fluid Level	8.00 ft	
BIT/CASING/TUBING STRING		
Bit Size	13.50 in	
From	0.00 ft	
To	2439.00 ft	
Casing/Tubing Size	9.625 in	
Weight	40 lbm/ft	
Grade	N/A	
From	0.00 ft	
To	2439.00 ft	
Max Recorded Temperatures	85 degF	
Logger on Bottom	23-Jun-2018	14:04:00
Unit Number	Location:	
Recorded By	L. Await	
Witnessed By	Satch Bo	

Disclaimer

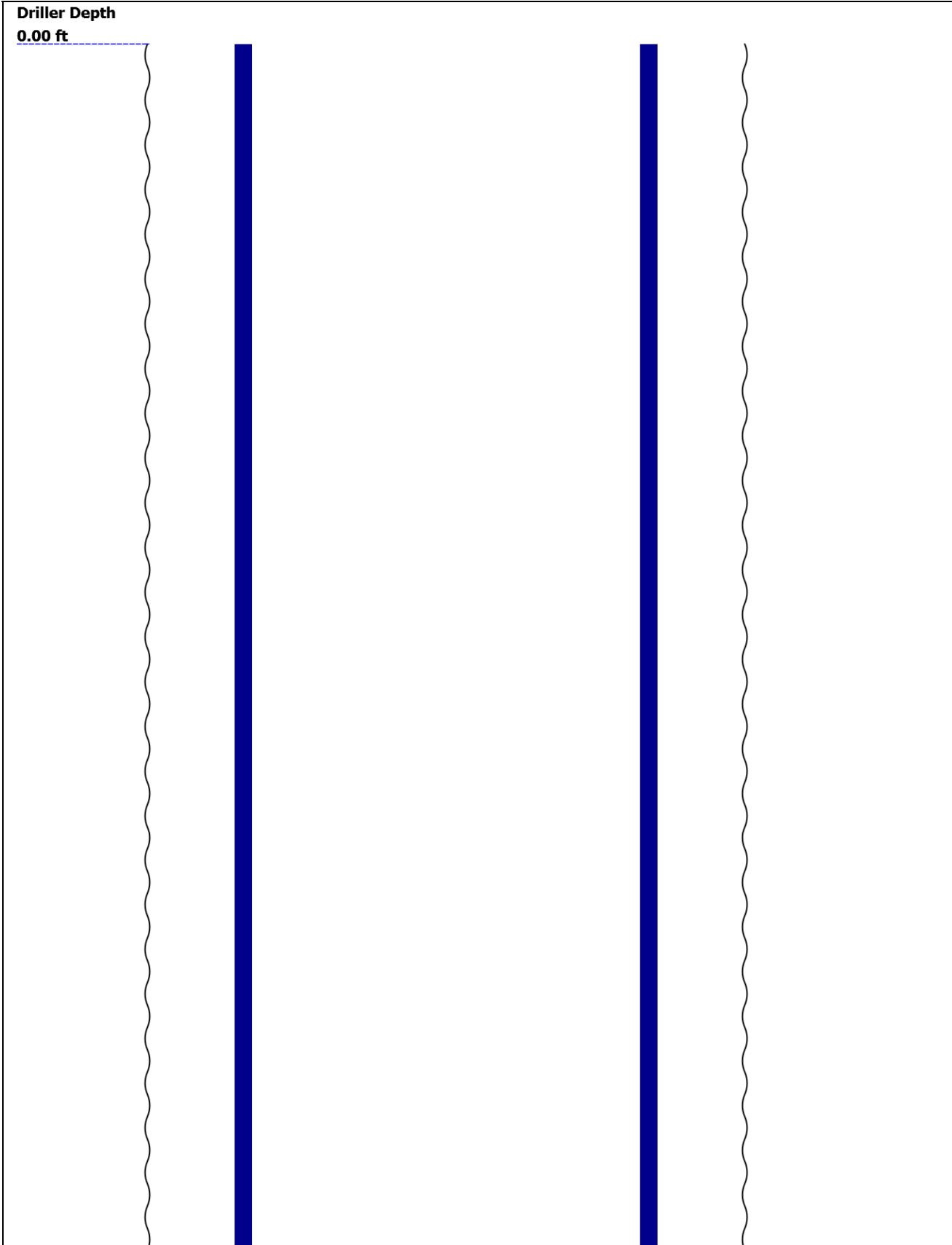
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Well Sketch





## Borehole Size/Casing/Tubing Record

Bit						
Bit Size ( in )	13.5					
Top Driller ( ft )	0					
Top Logger ( ft )	0					
Bottom Driller ( ft )	2439					
Bottom Logger ( ft )	2439					
Casing						
Size ( in )	9.625					
Weight ( lbm/ft )	40					
Inner Diameter ( in )	8.835					
Grade	N/A					
Top Driller ( ft )	0					
Top Logger ( ft )	0					
Bottom Driller ( ft )	2439					
Bottom Logger ( ft )	2439					

## Remarks and Equipment Summary

CBL: Toolstring				CBL: Remarks
<b>Equip name</b> <b>LEH-QT</b> LEH-QT	<b>Length</b> <b>34.62</b>	<b>MP name</b>	<b>Offset</b>	Thank you for choosing Schlumberger!
				Log run for cement evaluation
				Tools run centralized as per tool sketch
<b>EDTC-B:9316</b> EDTH-B EDTG-A EDTC-B:9316	<b>31.14</b>			Crew: Diego Saldana, Gary Lapp
		CTEM	27.64	
		ACCZ	0.00	
		HV	0.00	
		Gamma Ray	25.77	
<b>AH-184[2]</b>	<b>24.64</b>	TelStatus	24.64	
<b>AH-184[1]</b>	<b>22.64</b>			
<b>DSLT-H:8279</b> ECH-KH DSLCH:8279 SLS-E:1563	<b>20.64</b>			



Lengths are in ft

Maximum Outer Diameter = 3.625 in

Line: Sensor Location, Value: Gating Offset

All measurements are relative to TOOL\_ZERO

## Depth Summary

CBL

### Depth Measuring Device

Type	IDW-B		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Calibration Cable Type			
Wheel Correction 1	0		
Wheel Correction 2	0		

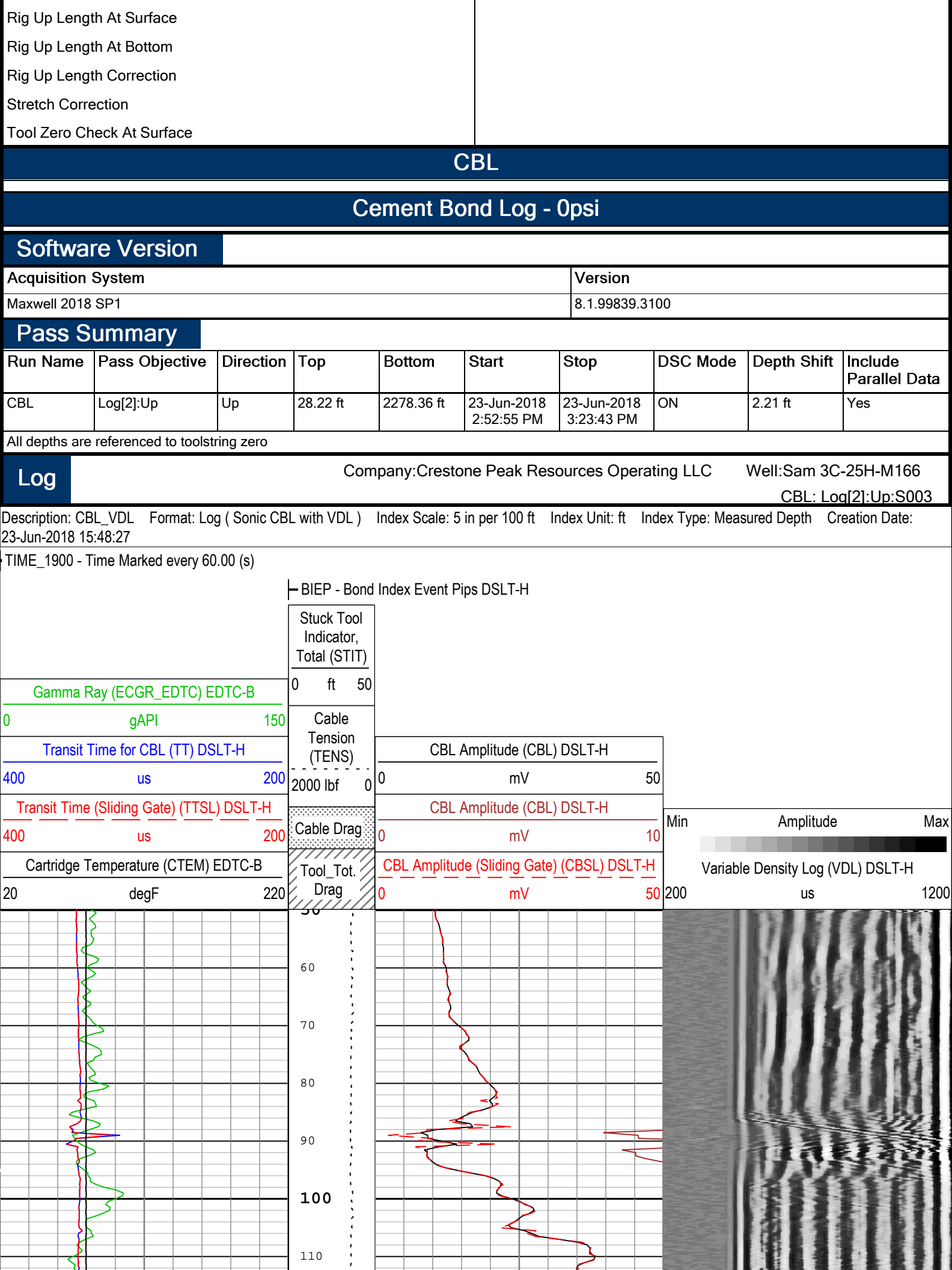
### Tension Device

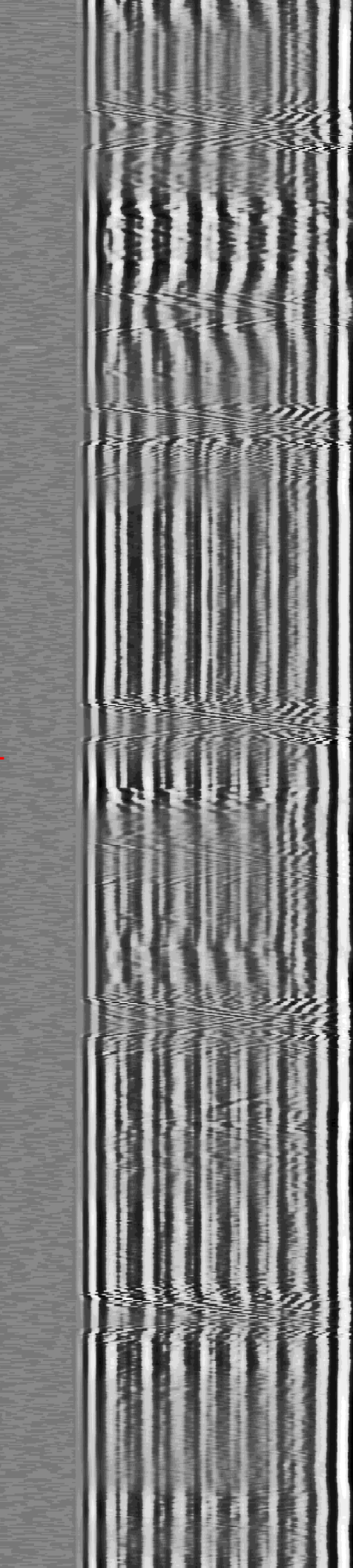
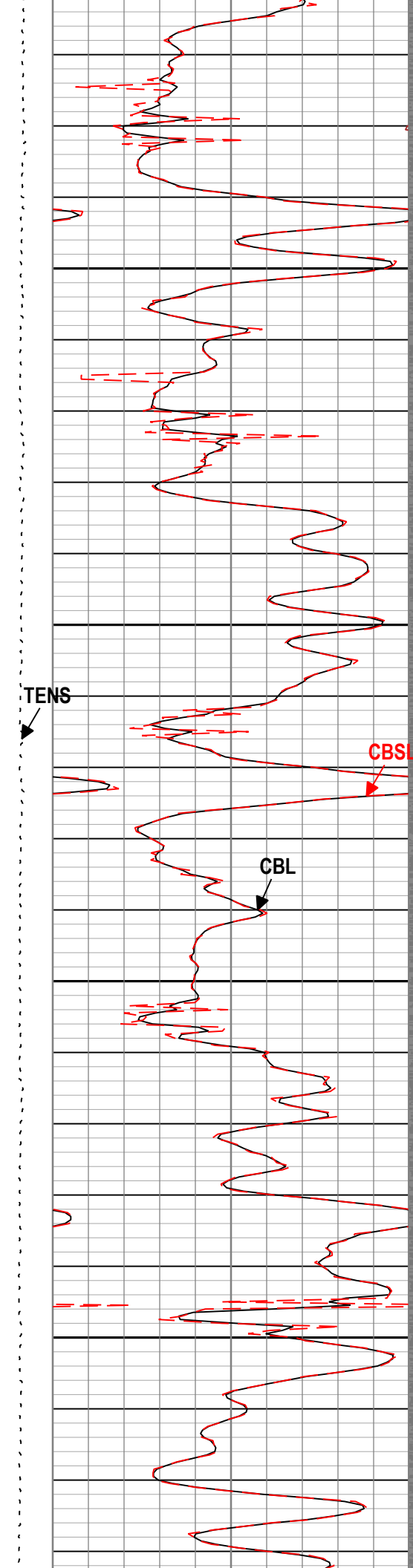
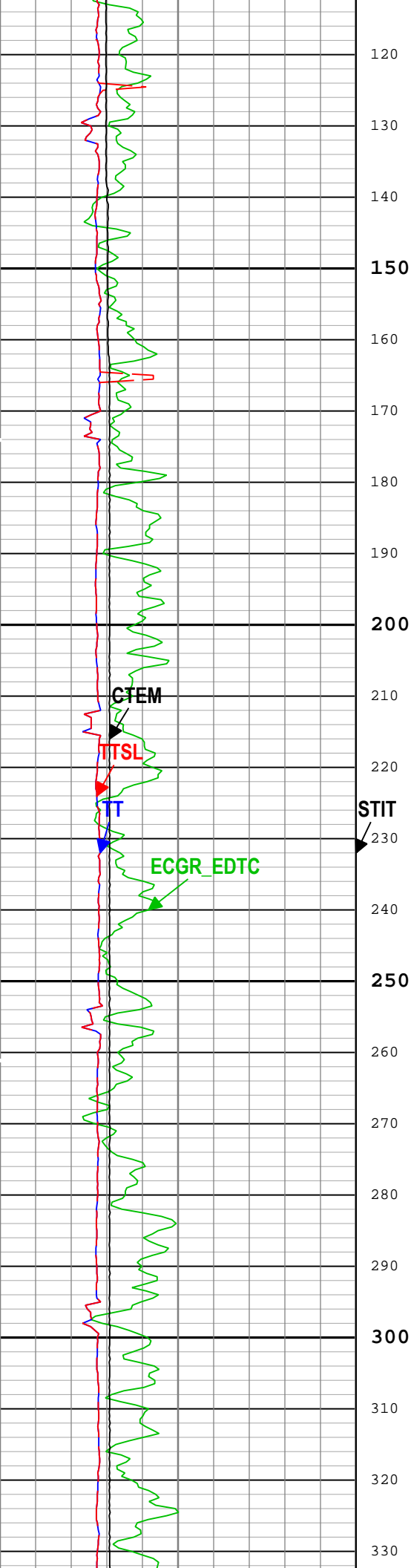
Type	CMTD-B/A		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Number of Calibration Points	0		

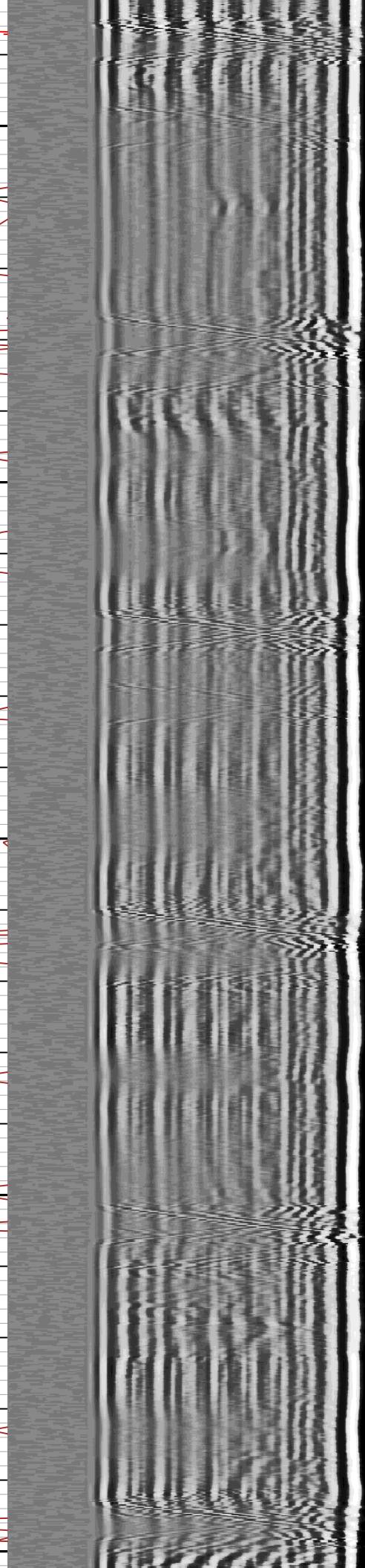
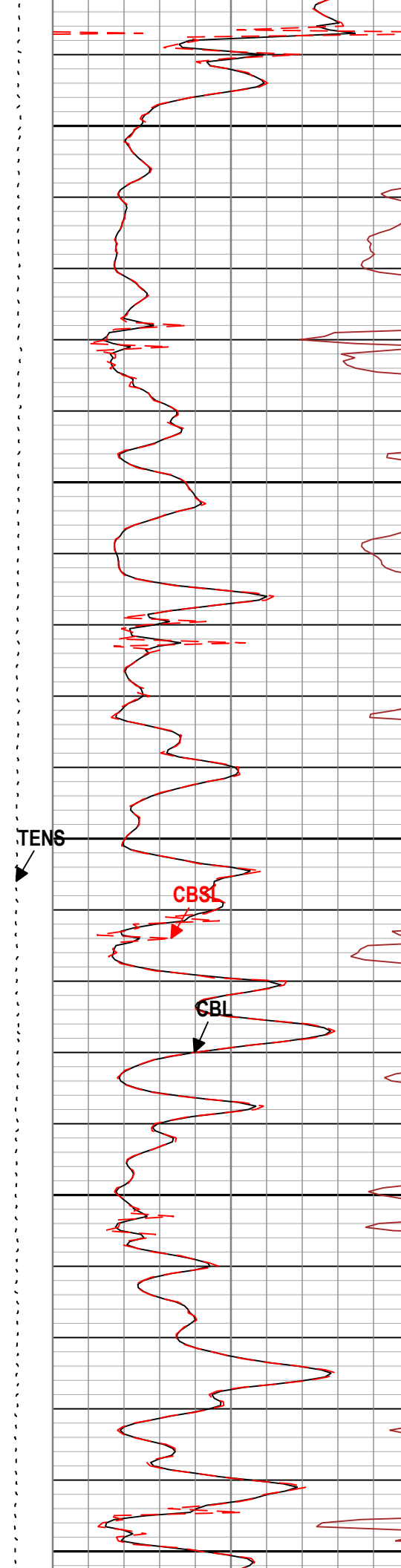
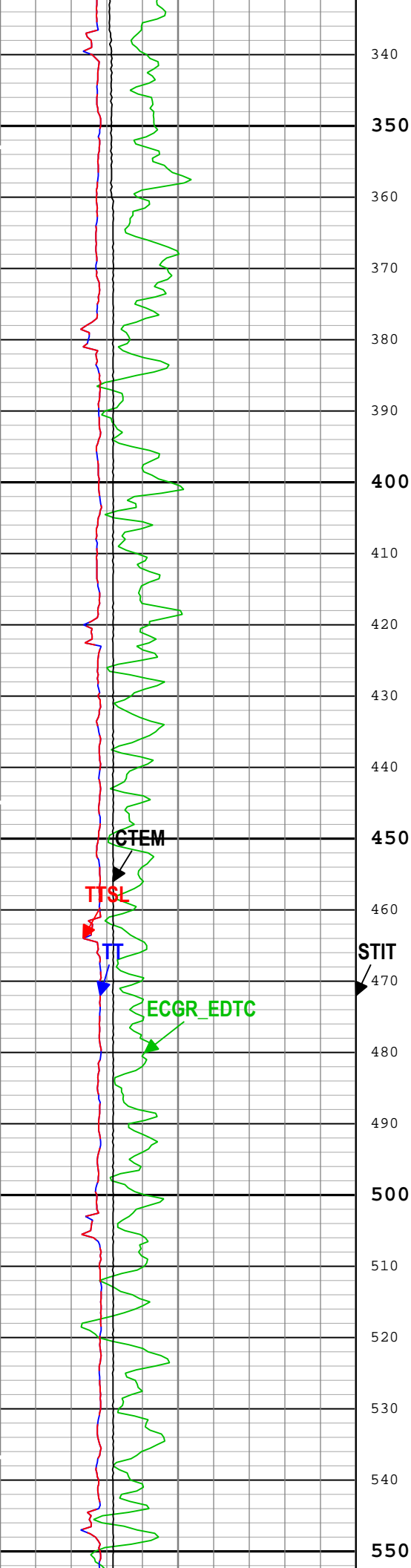
### Logging Cable

Type	7-46NT-XS		
Serial Number			
Length	24000.00 ft		
Conveyance Type	Wireline		
Rig Type			

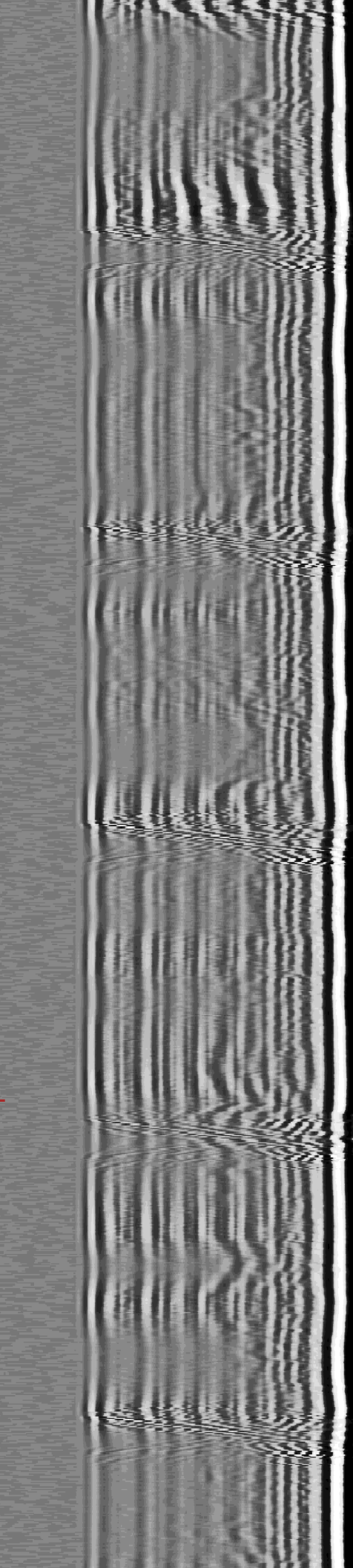
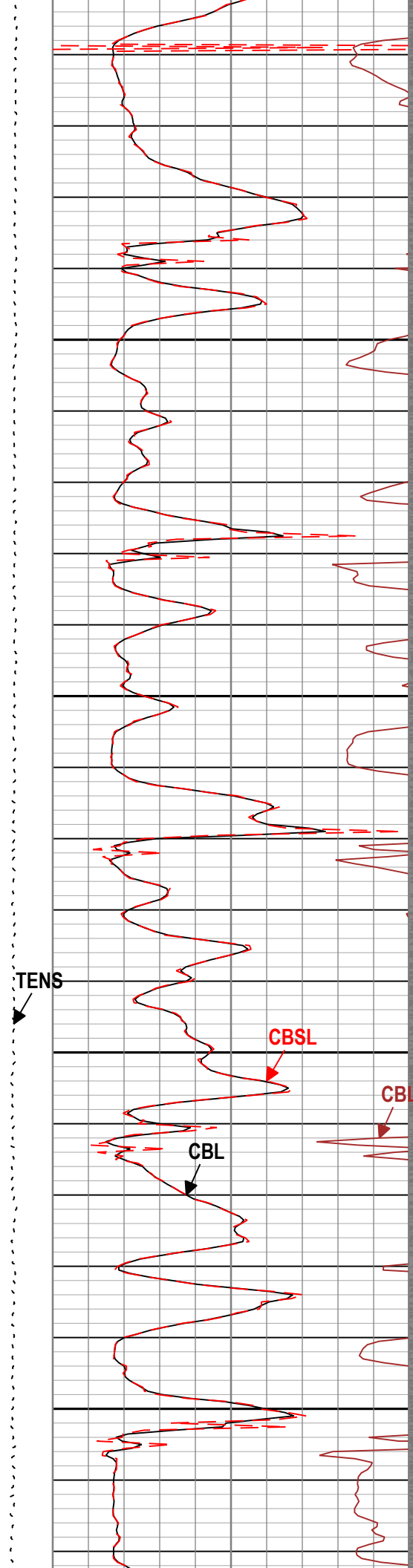
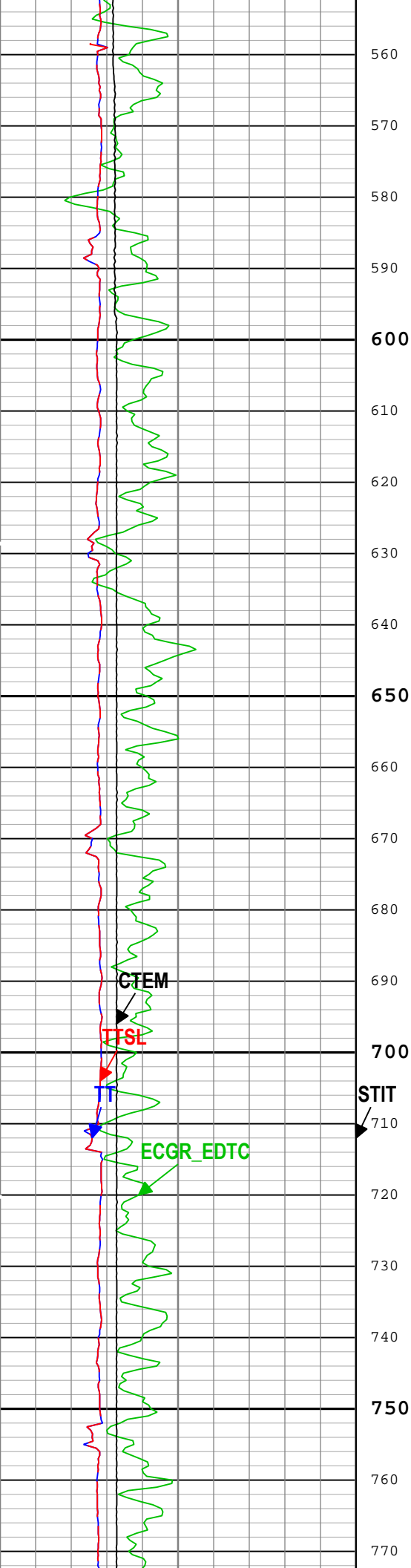
CBL:Depth Control Parameters		Depth Control Remarks	
Log Sequence	First Log In the Well		



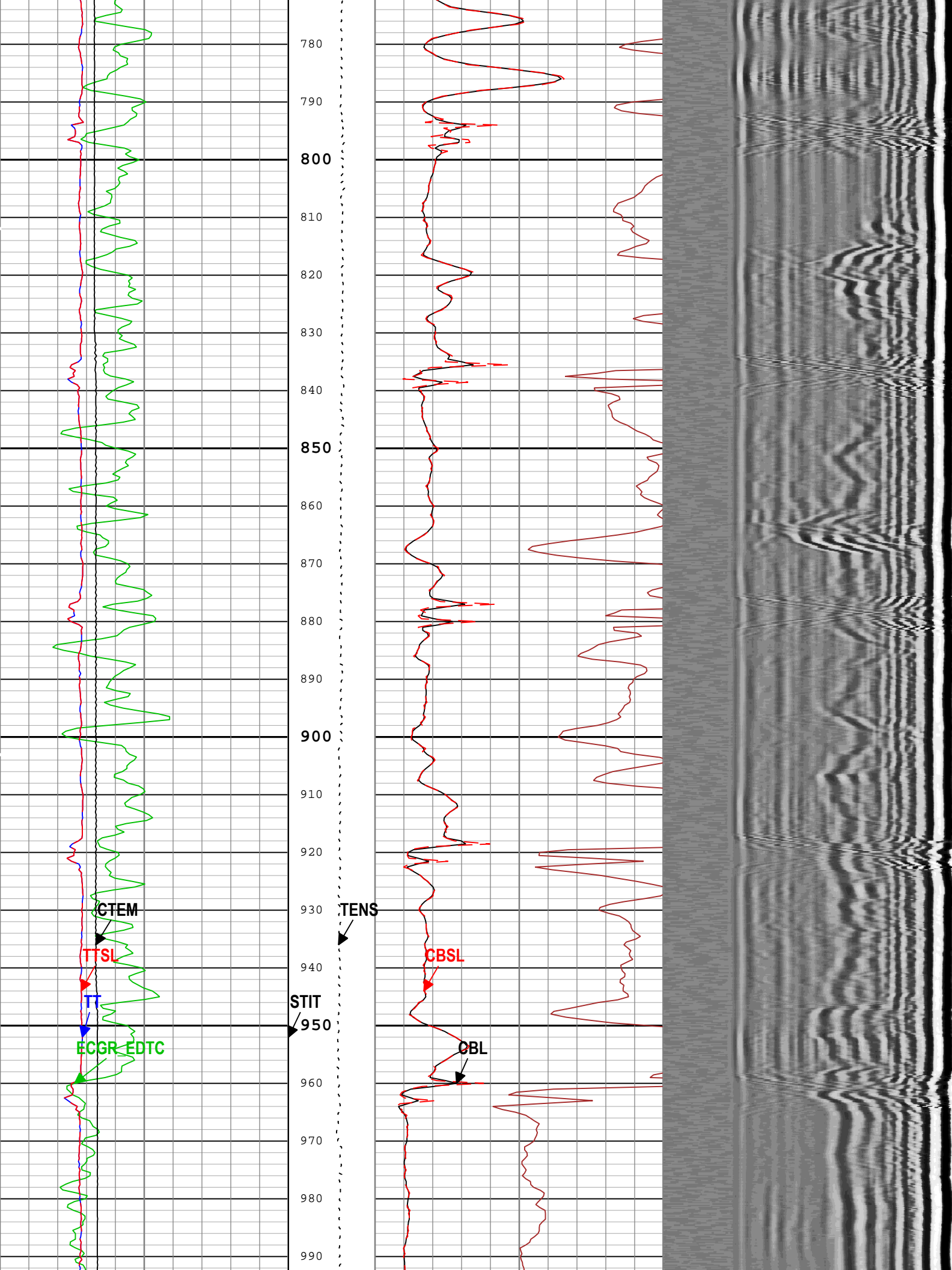


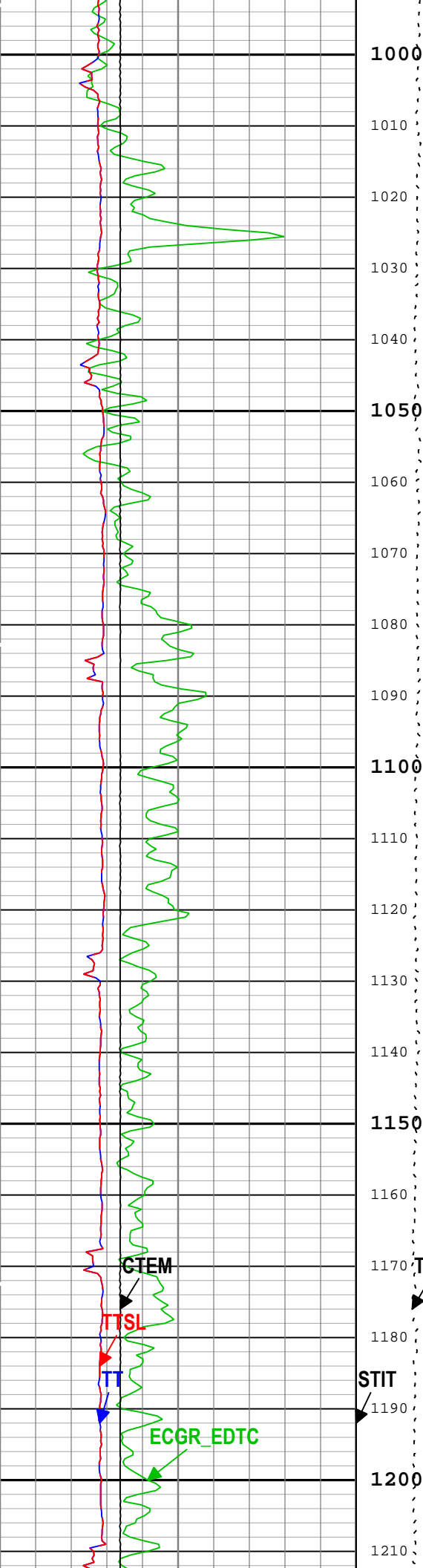












1000

1010

1020

1030

1040

1050

1060

1070

1080

1090

1100

1110

1120

1130

1140

1150

1160

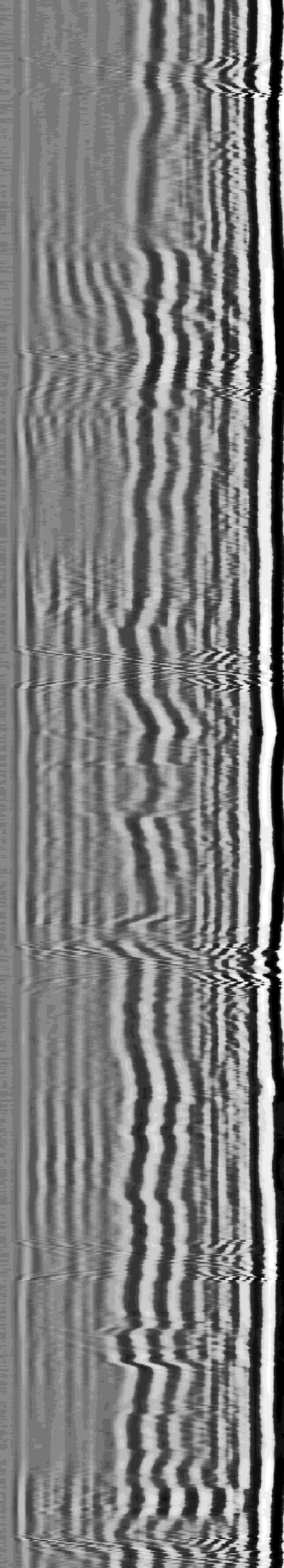
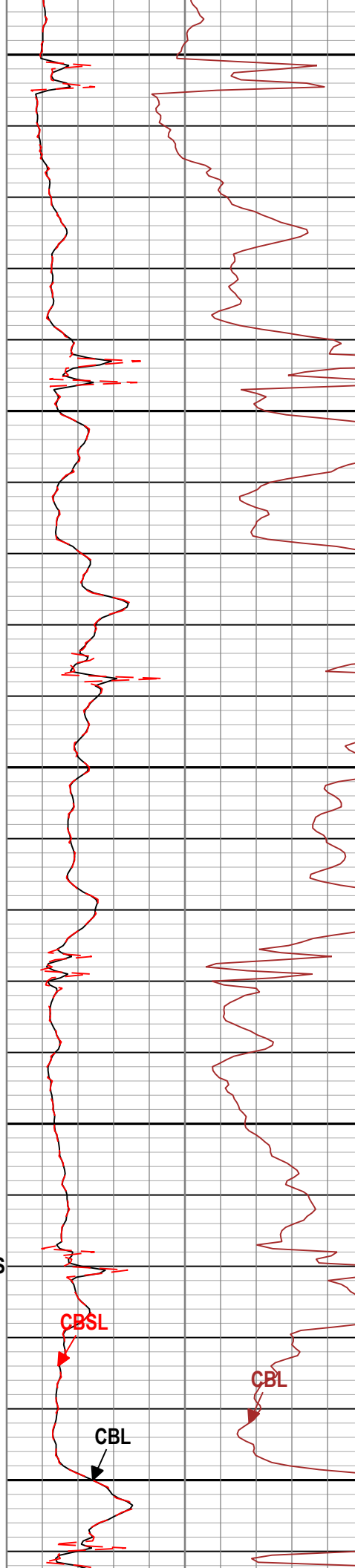
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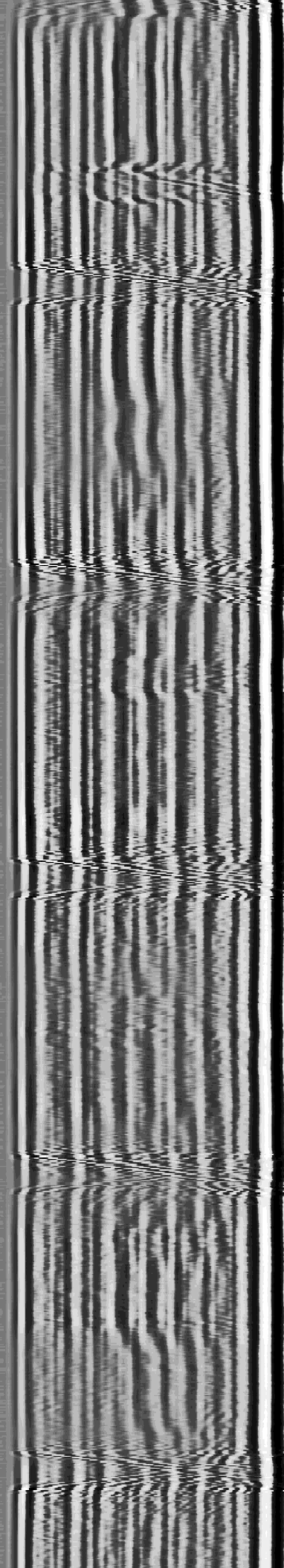
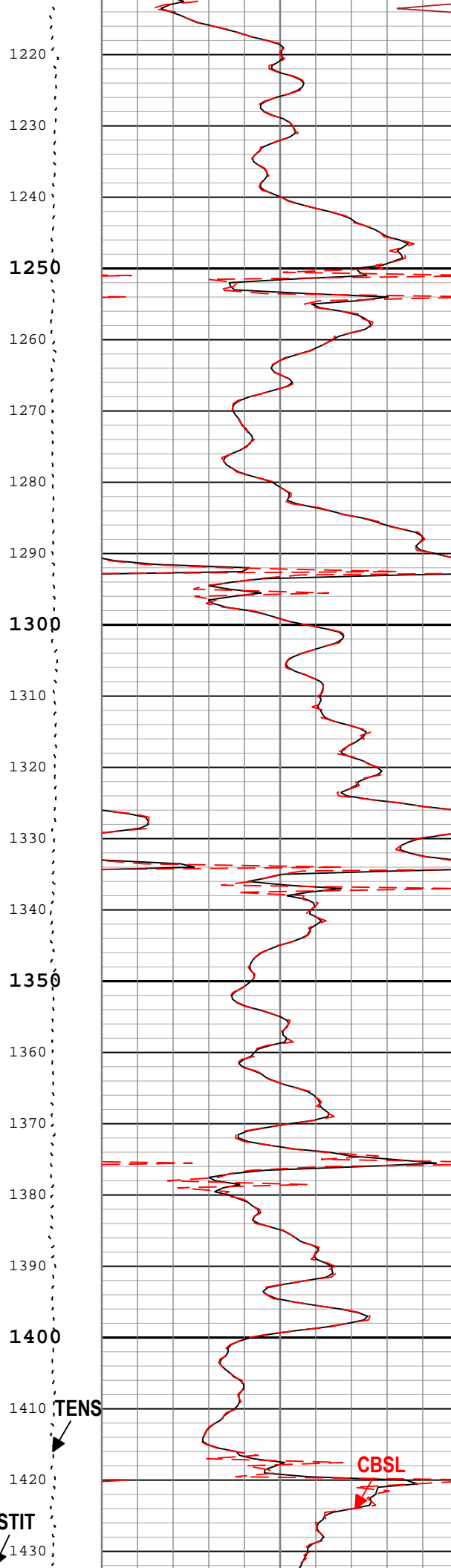
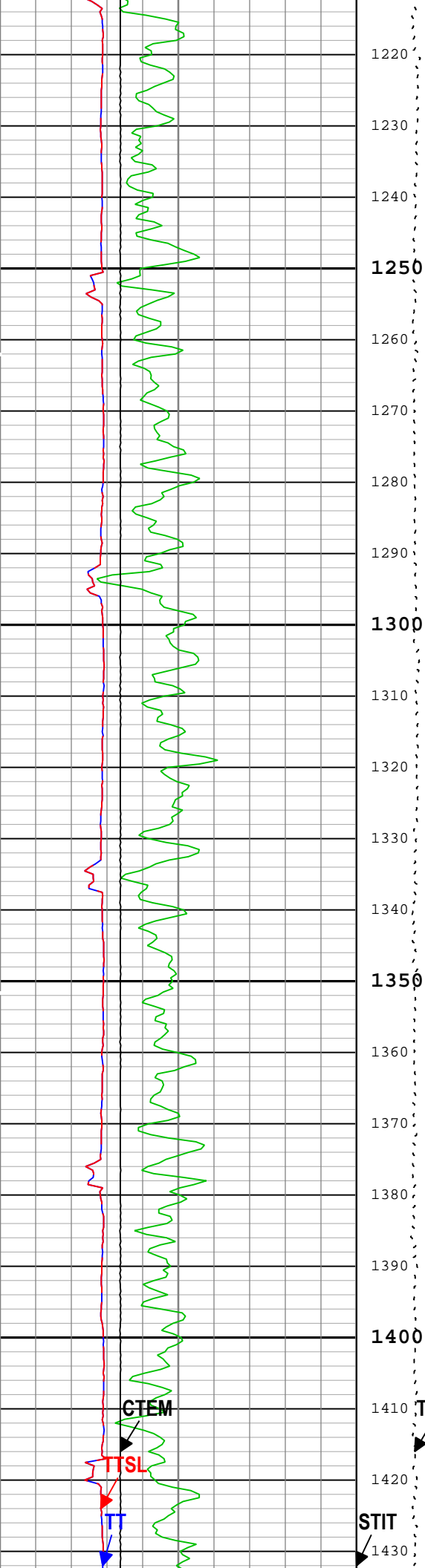
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1190 STIT

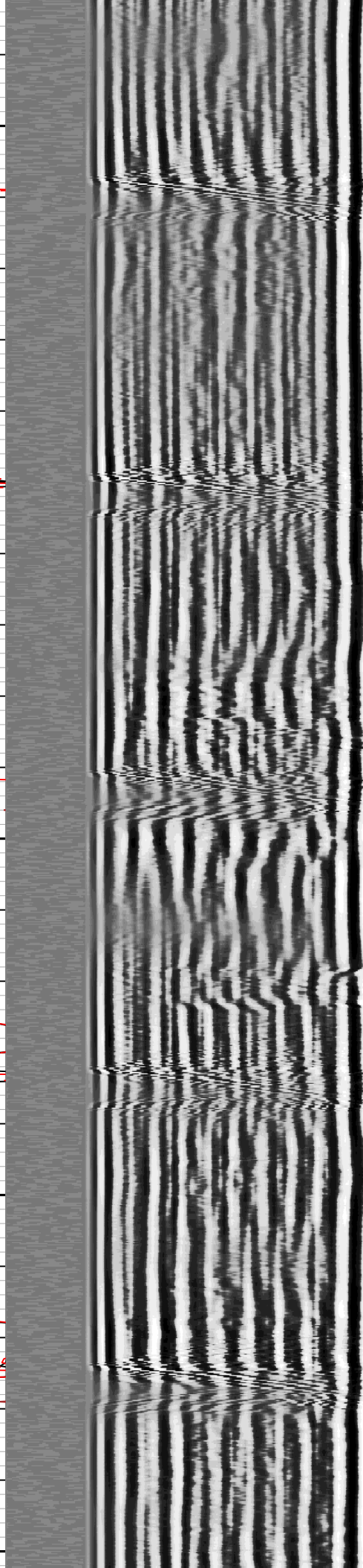
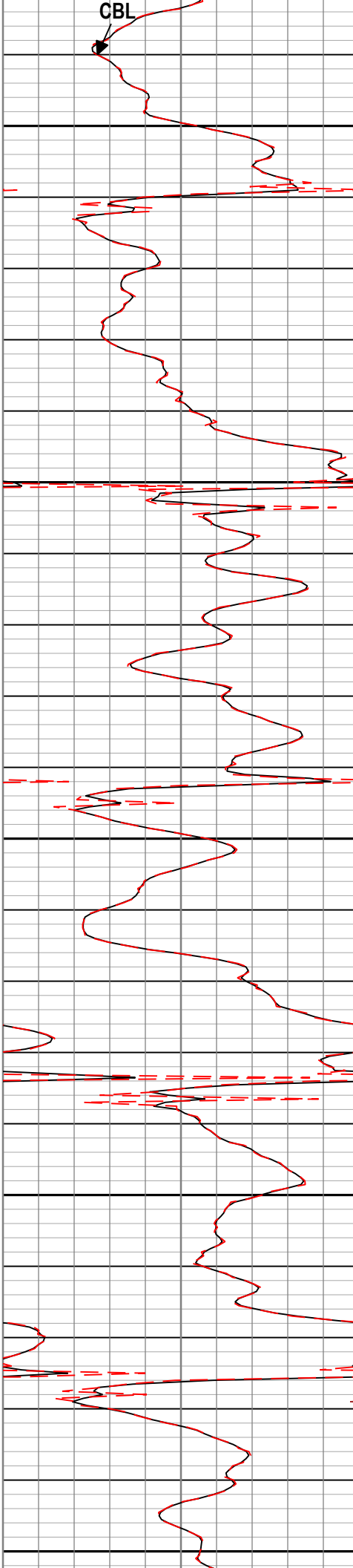
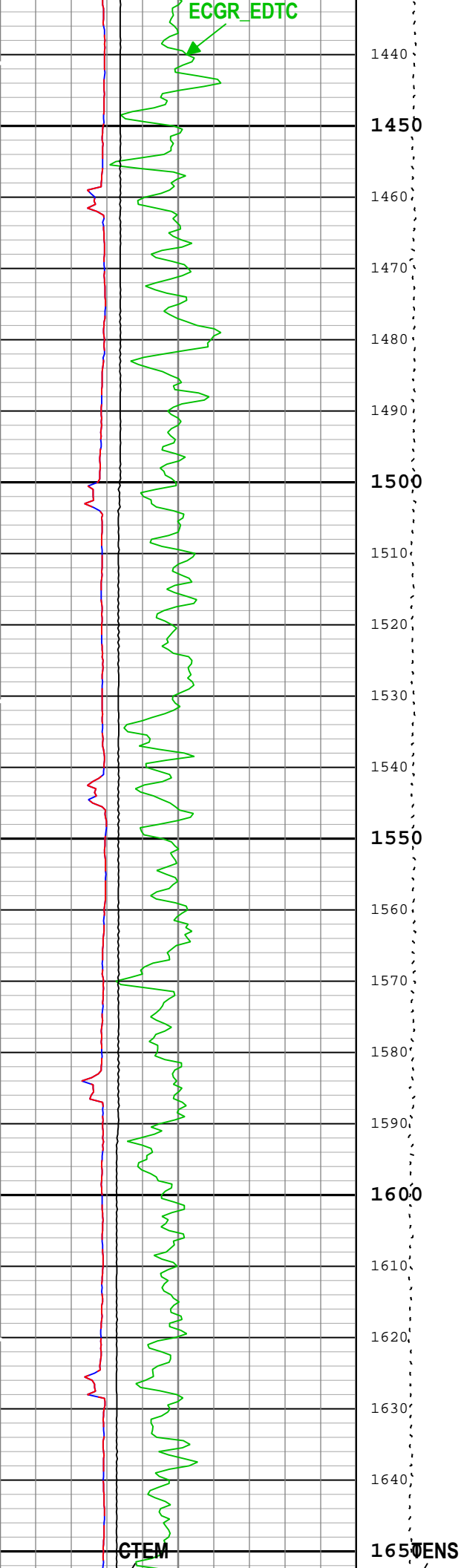
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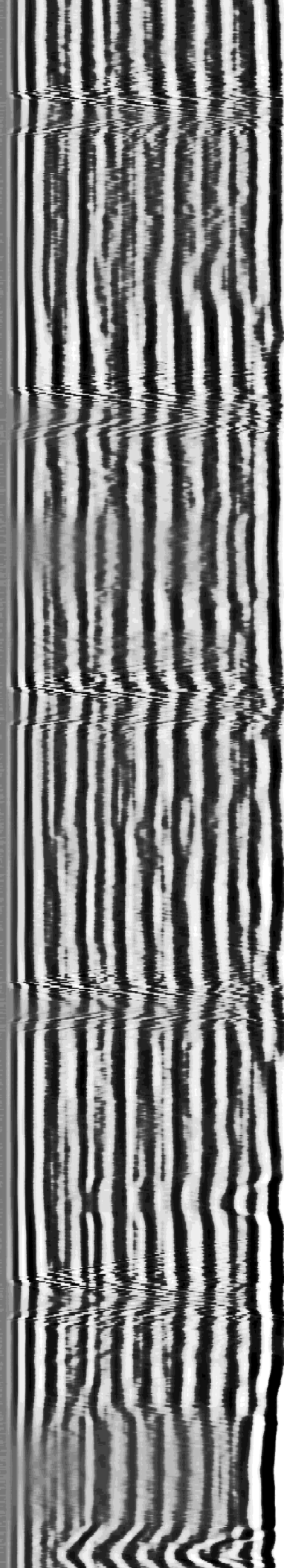
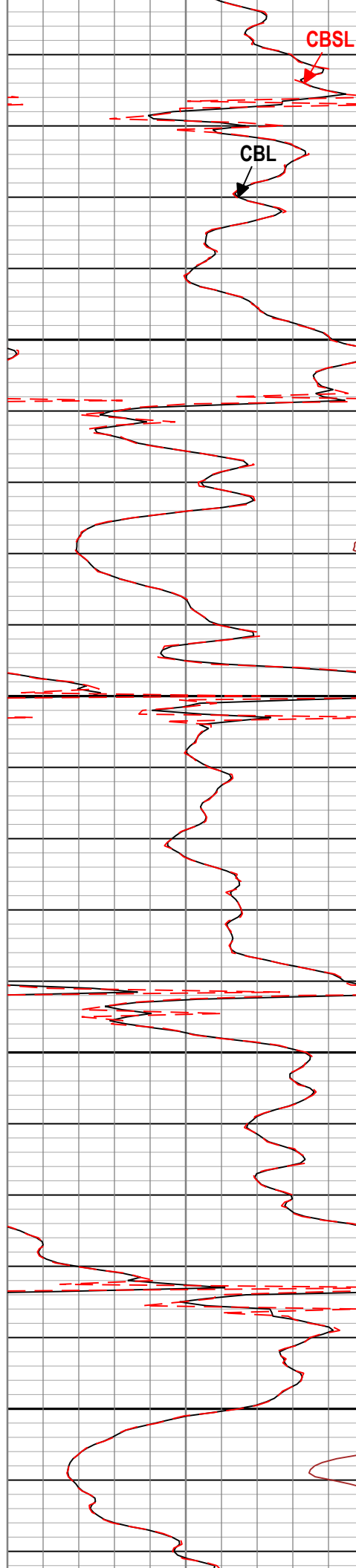
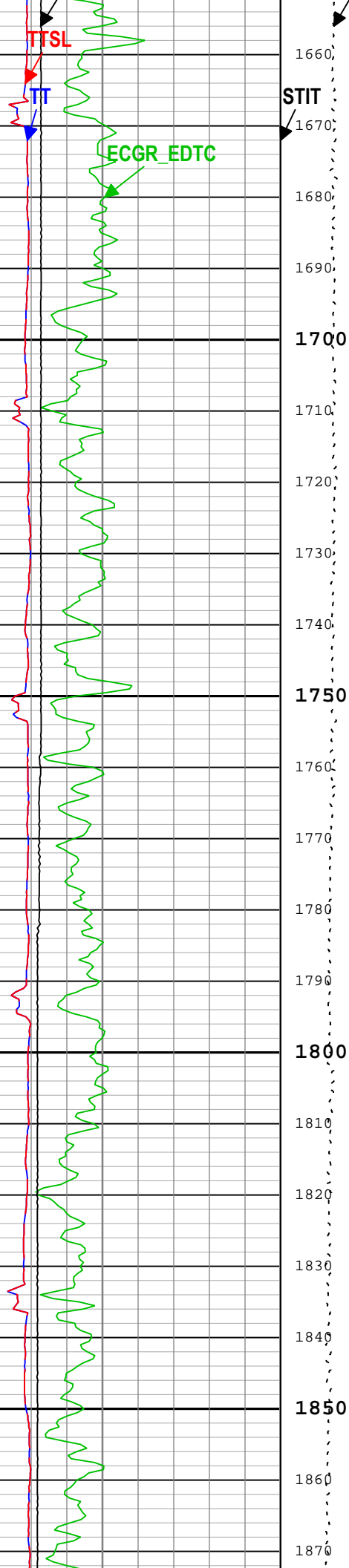
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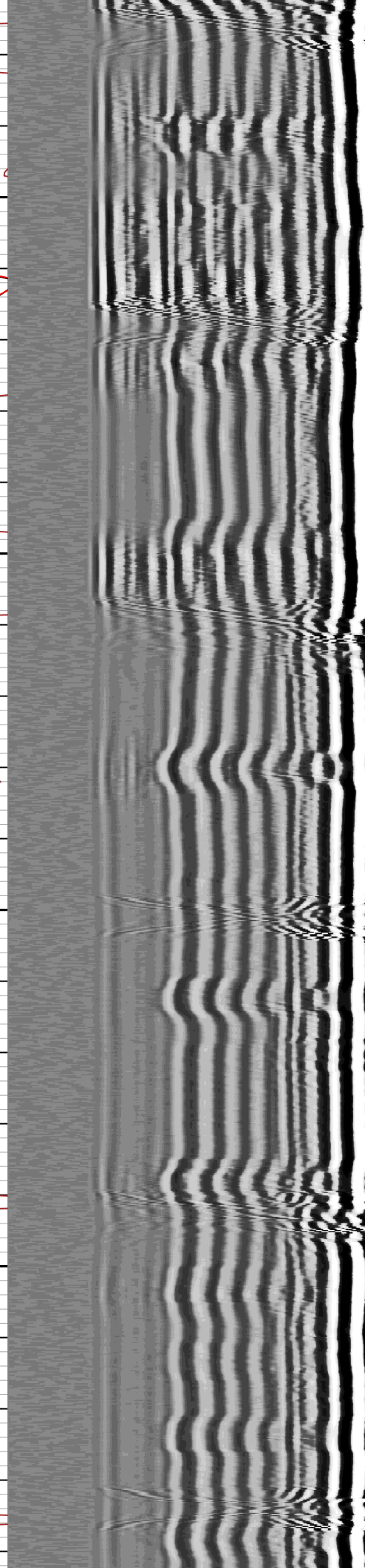
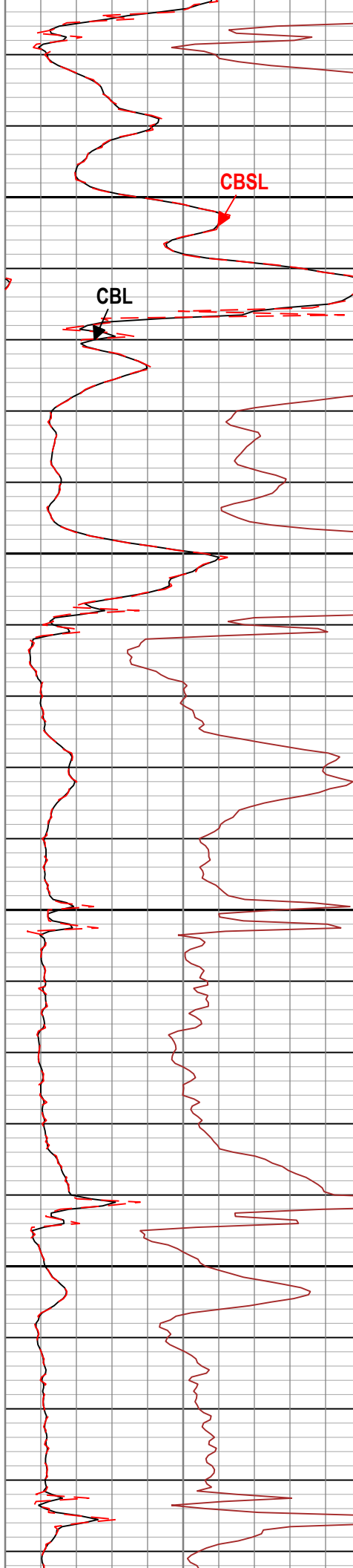
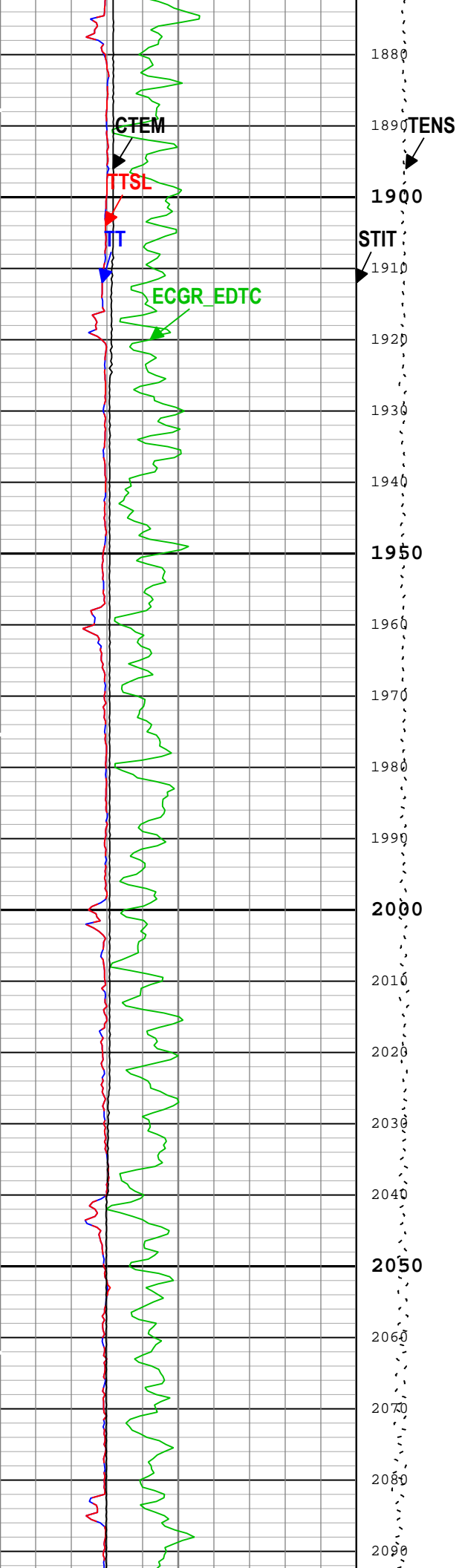




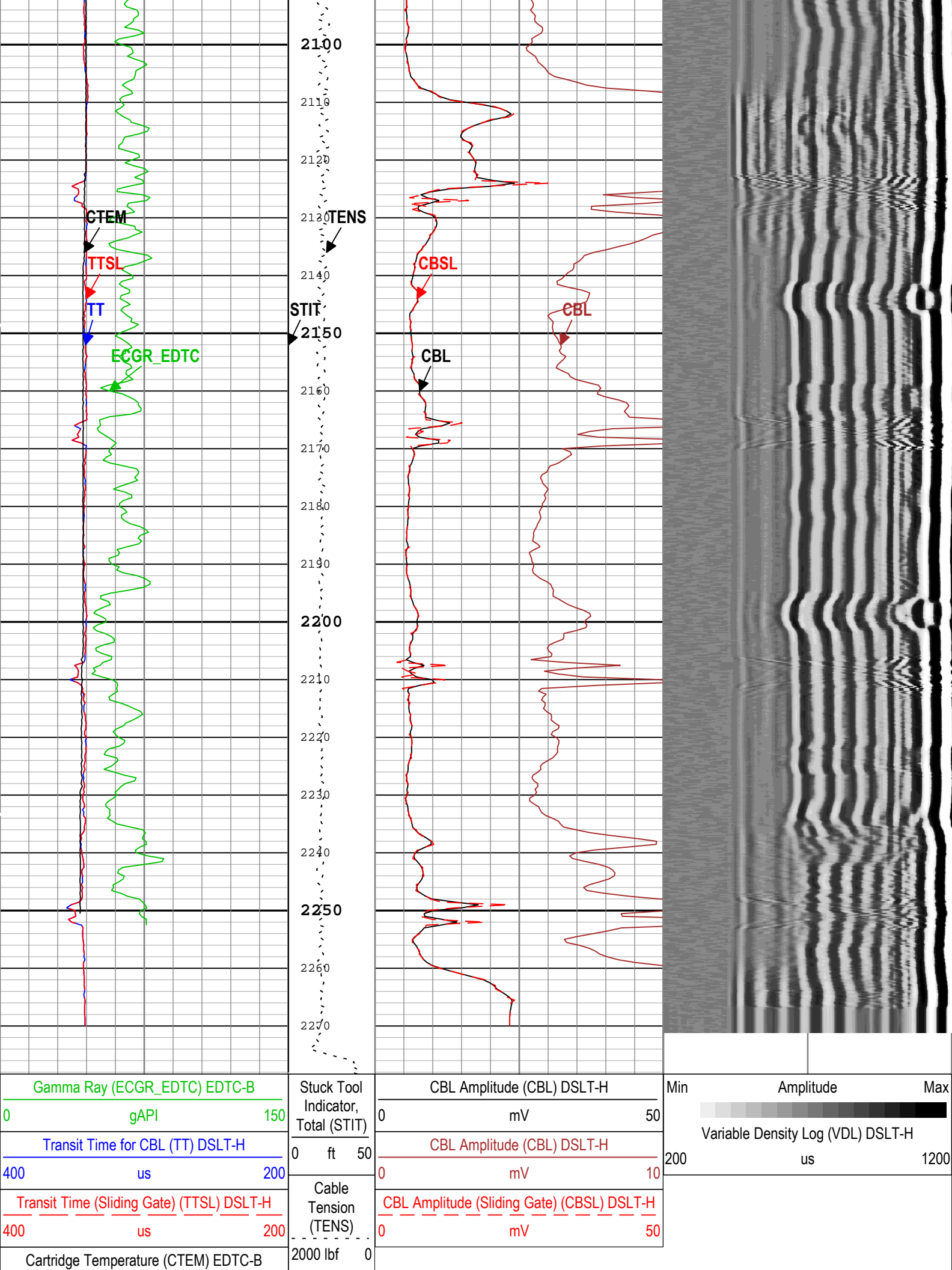








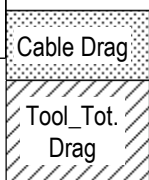




20

degF

220



└─ BIEP - Bond Index Event Pips DSLT-H

TIME\_1900 - Time Marked every 60.00 (s)

Description: CBL\_VDL   Format: Log ( Sonic CBL with VDL )   Index Scale: 5 in per 100 ft   Index Unit: ft   Index Type: Measured Depth   Creation Date: 23-Jun-2018 15:48:27

Channel Processing Parameters

CBL: Parameters

Parameter	Description	Tool	Value	Unit
AMSG	Auxiliary Minimum Sliding Gate	DSLTH	299	us
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BS	Bit Size	WLSESSION	13.5	in
CBLG	CBL Gate Width	DSLTH	59	us
CBLO	Casing Bottom (Logger)	WLSESSION	2439	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	DSLTH	52	mV
CDEN	Cement Density	EDTC-B	2	g/cm3
DETE	Delta-T Detection	DSLTH	E1	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
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_CURR	Good Bond in Arbitrary Cement	DSLTH	3.09	mV
MAHTR	Manual High Threshold Reference for first arrival detection	DSLTH	120	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	DSLTH	10.91	dB/ft
MCI	Minimum Cemented Interval for Isolation	DSLTH	14.81	ft
MNHTR	Minimum High Threshold Reference for first arrival detection	DSLTH	100	
MSA	Minimum Sonic Amplitude	DSLTH	1.53	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	DSLTH	1.53	mV
NMSG	Near Minimum Sliding Gate	DSLTH	312	us
NMXG	Near Maximum Sliding Gate	DSLTH	366	us
SGAD	Sliding Gate Status	DSLTH	Off	
SGDT	Sliding Gate Delta-T	DSLTH	59	us/ft
TD	Total Measured Depth	Borehole	2439	ft

Tool Control Parameters

CBL: Parameters

Parameter	Description	Tool	Value	Unit
MODE	DSLTH Acquisition Mode	DSLTH	CBL	
RATE	DSLTH Firing Rate	DSLTH	15 Hz	
DTFS	DSLTH Telemetry Frame Size	DSLTH	536	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	5000	ft/h

Calibration Report

DSLTH (Digitizing Sonic Logging Tool - H) Calibration - Run CBL

Primary Equipment :

Sonic Logging Sonde E supports 3'-5'BHC DT and CBL/VDL

SLS-E

1563

CBL Normalization - CBL Accumulations

Master (Manual Entry):

12:37:57 23-Jun-2018

Master (Manual Entry): 12:37:57 23-Jun-2018							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Upper Far Amplitude - 0		Master	----	----	----	----	
Upper Near Raw Amplitude - 0	mV	Master	----	----	----	----	
Lower Far Amplitude - 0		Master	----	----	----	----	
Lower Near Raw Amplitude - 0	mV	Master	----	----	----	----	
CBL Normalization - CBL/VDL Coefficients							
Master (Manual Entry): 12:37:57 23-Jun-2018							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Correction Factor for UT		Master	3.500	2.700	3.431	4.300	
CBL Correction Factor for LT		Master	2.500	1.700	2.712	4.300	
VDL Ratio between UT and LT for CBLB Mode		Master	1.000		1.350		
CBL Free Pipe Adjustment - Free Pipe Measurement							
Before (Manual Entry): 15:46:49 23-Jun-2018							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Amplitude - 0	mV	Before	----	----	----	----	
CBL Reference Amplitude (CBRA) - 0	mV	Before	----	----	----	----	
Measurement Depth - 0	ft	Before	----	----	----	----	
CBL Free Pipe Adjustment - CBL Amplitude Coefficient							
Before (Manual Entry): 15:46:49 23-Jun-2018							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Adjustment Factor		Before	1.000	0.200	1.468	5.000	
Depth of Before Calibration	ft	Before			50.72		

Company:	Crestone Peak Resources Operating LLC	Schlumberger
Well:	Sam 3C-25H-M166	
Field:	Wattenberg	
County:	Weld	
State:	Colordao	
Cement Bond Log		

