

Company: Crestone Peak Resources Operating LLC

Well: Sam 3M-25H-M166

Field: Wattenberg

County: Weld State: Colorado

Cement Bond Log  
Surface Casing

Weld				
Field: Wattenberg				
Location: SWSW 25 1N6W				
Well: Sam 3M-25H-M166				
Company: Crestone Peak Resources Operating LLC				
Location:	SWSW 25 1N6W	Elev.: K.B. 5093.00 ft		
	1293' FSL & 310' FWL	G.L. 5080.00 ft		
	Permanent Datum:	Ground Level	Elev.: 5080.00 f	
	Log Measured From:	Kelly Bushing	13.00 ft above Perm.Datum	
Drilling Measured From:	Kelly Bushing			
	API Serial No.	Section:	Township:	Range:
	05-123-46130	25	1N	66W
Logging Date	25-Jun-2018			

Logging Date	25-Jun-2018			
Run Number	One			
Depth Driller	2500.00 ft			
Schlumberger Depth	2300.00 ft			
Bottom Log Interval	2300.00 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	2500.00 ft			
Casing/Tubing Size	9.625 in			
Weight	40 lbm/ft			
Grade	N/A			
From	0.00 ft			
To	2500.00 ft			
Max Recorded Temperatures				
Logger on Bottom				
Unit Number		Time		
2377		12:05:00		
Recorded By		Location:		
Alan Moreno / Rob Stelter		Fort Morgan		
Witnessed By				
Satch Bo				

Disclaimer

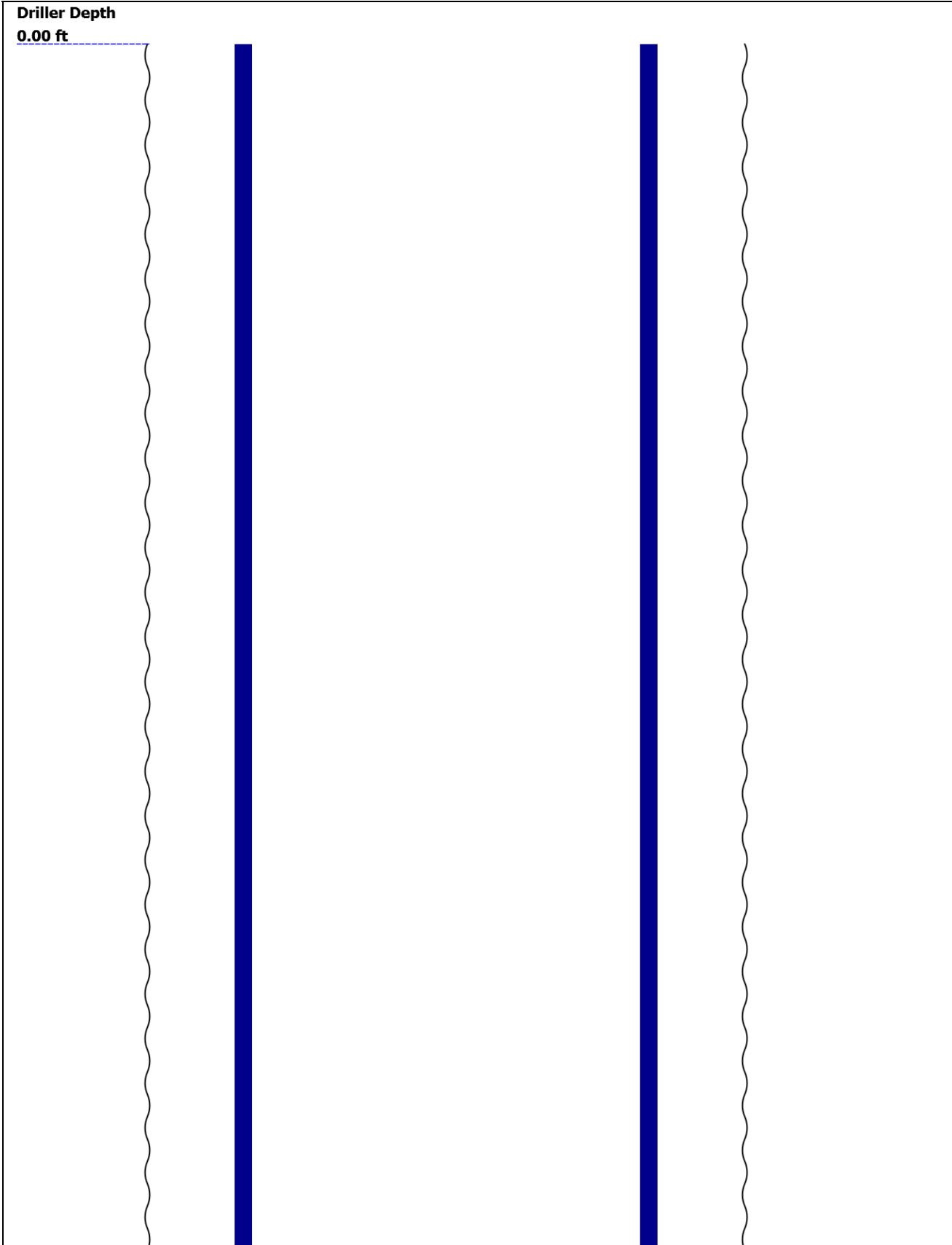
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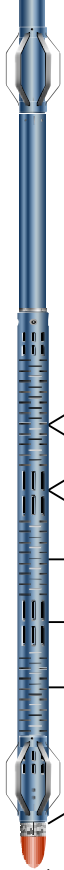
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Well Sketch







CBL 3ft 8.62  
Upper-Near 8.62  
VDL 5ft 7.62  
Upper-Far 7.62  
Delta-T 6.25  
Lower-Far 4.88  
Lower-Near 3.88

BNS-STD 0.46  
SLS-E Head Tension 0.46  
TOOL\_ZERO

Lengths are in ft  
Maximum Outer Diameter = 6.250 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

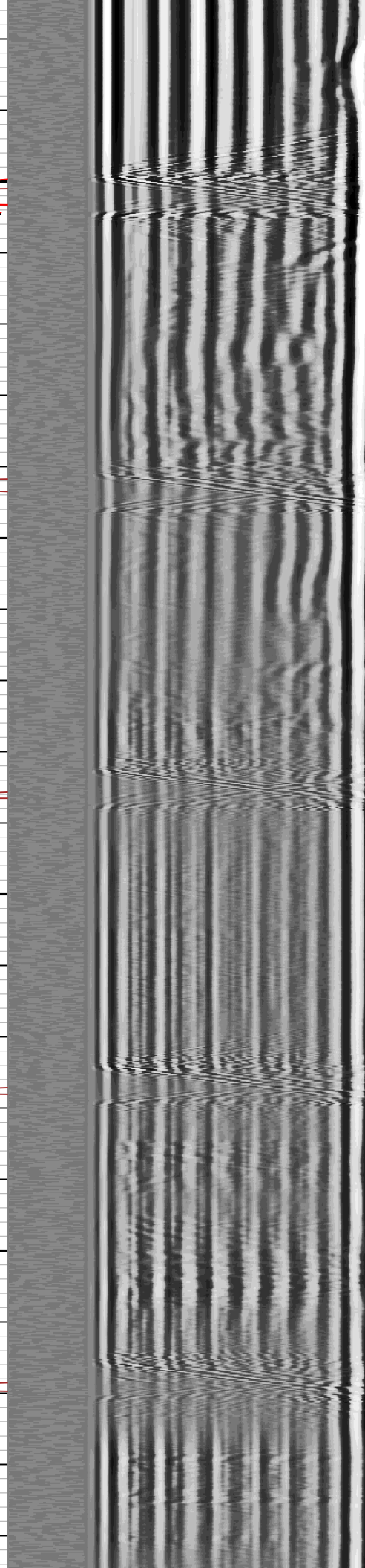
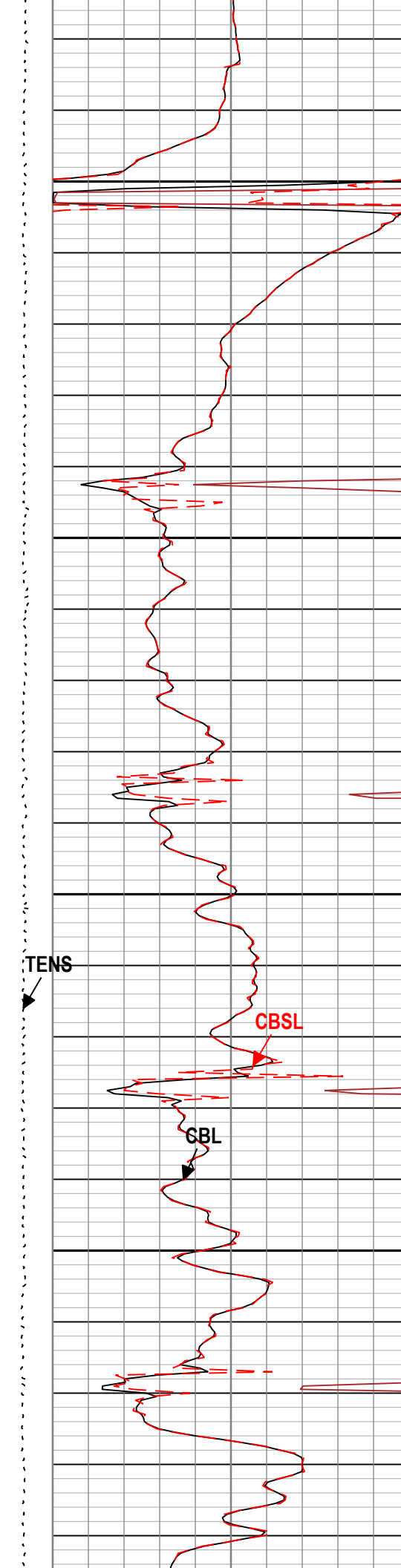
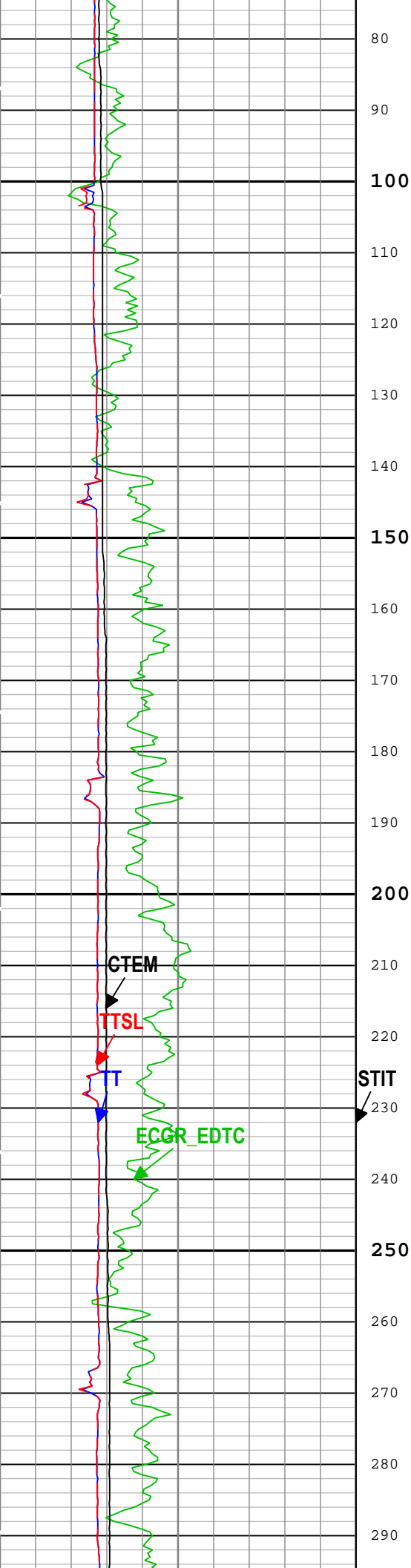
### Logging Cable

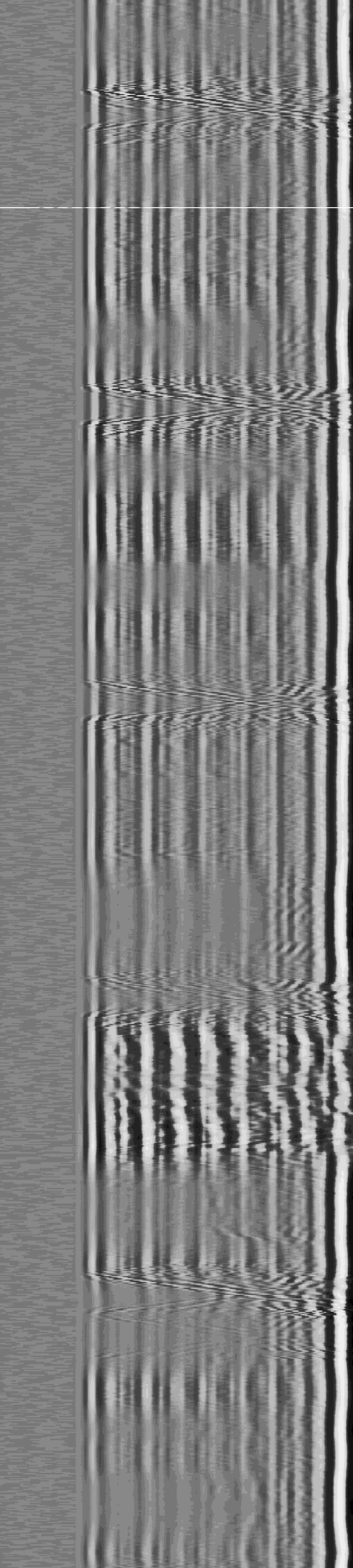
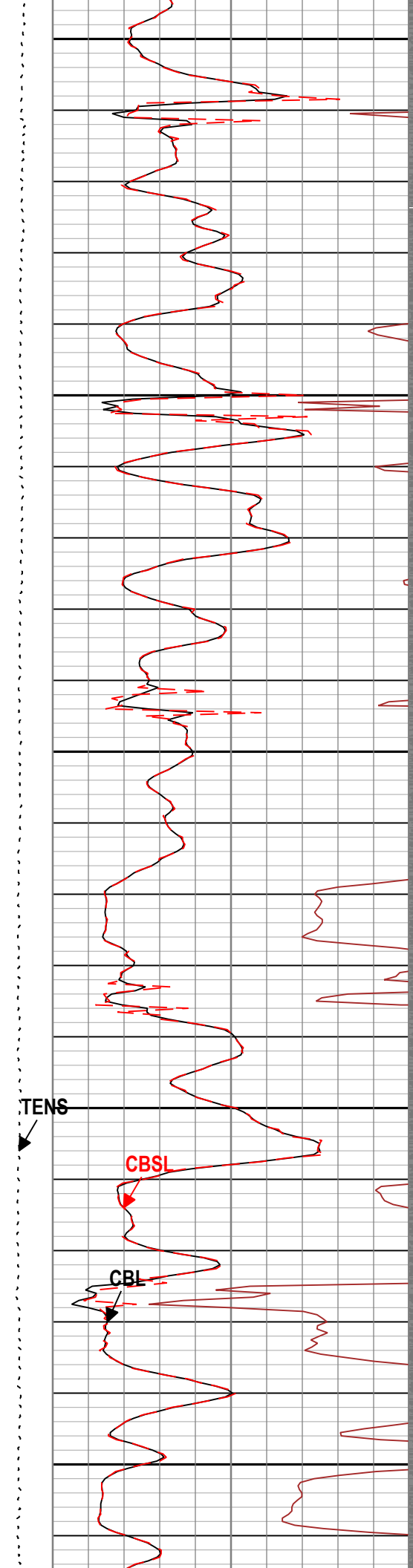
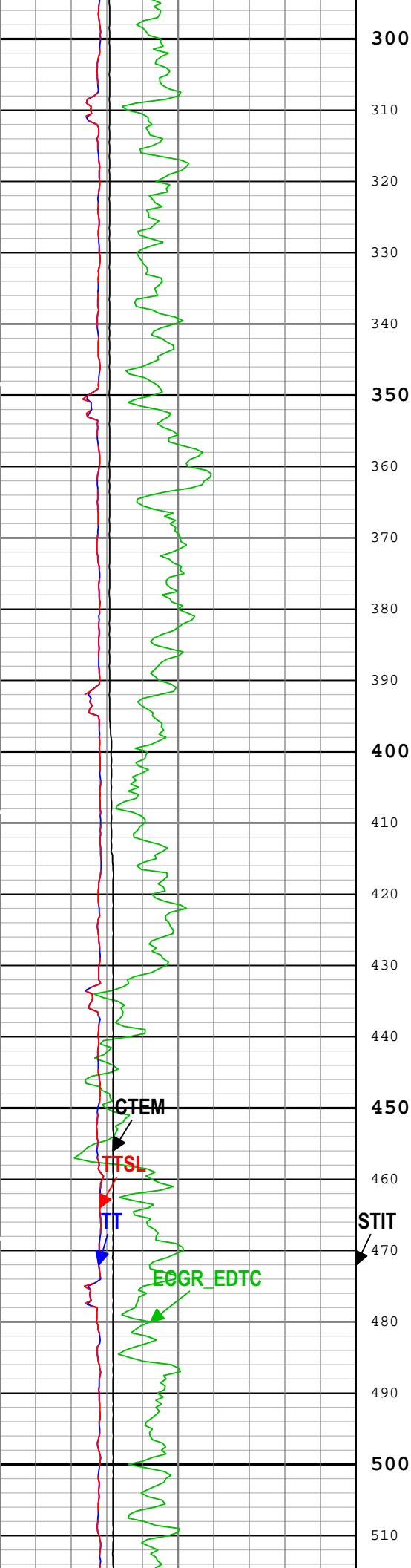
Type	7-46NT-XS
Serial Number	
Length	24000.00 ft
Conveyance Type	Wireline
Rig Type	

One:Depth Control Parameters

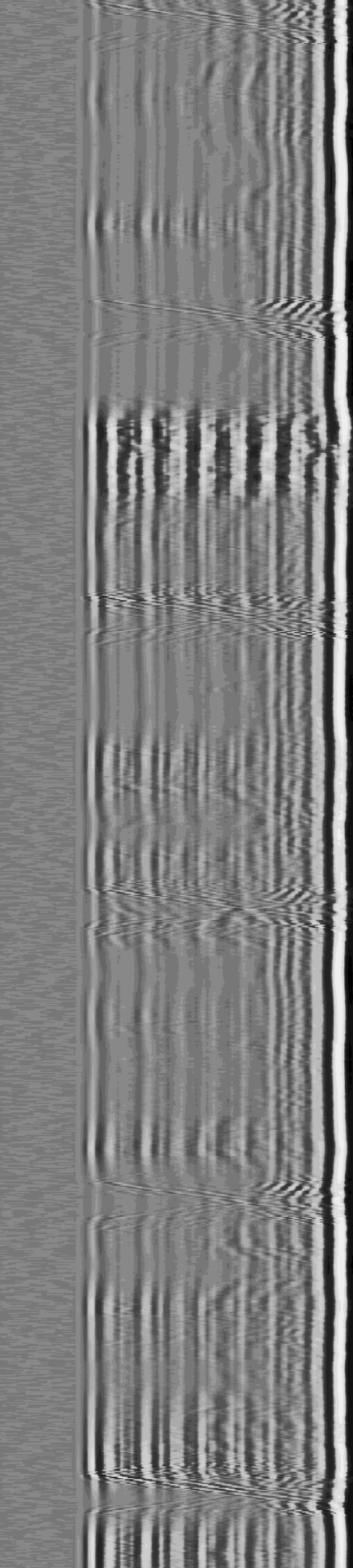
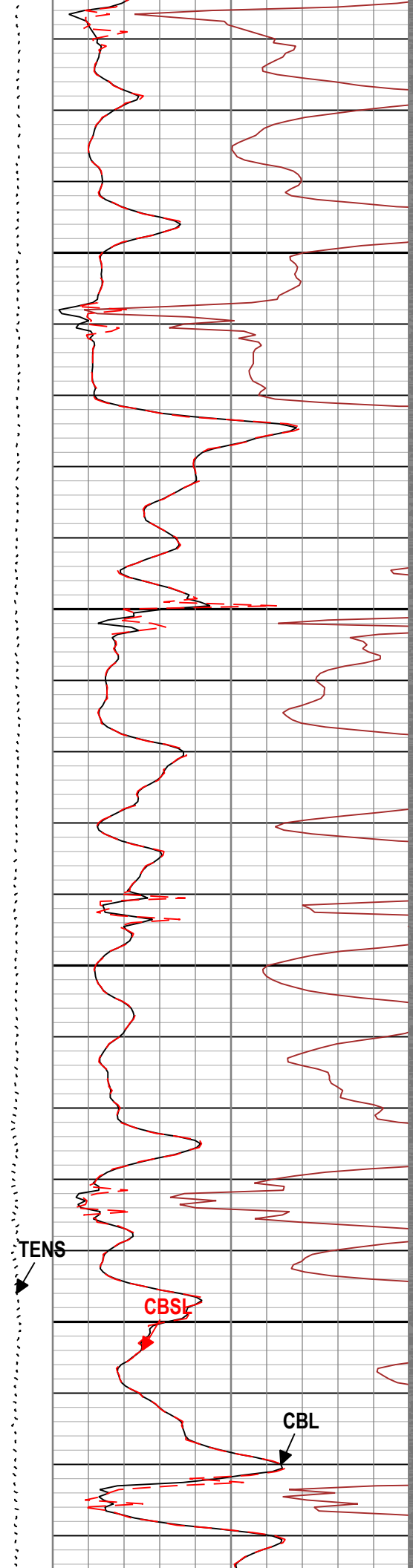
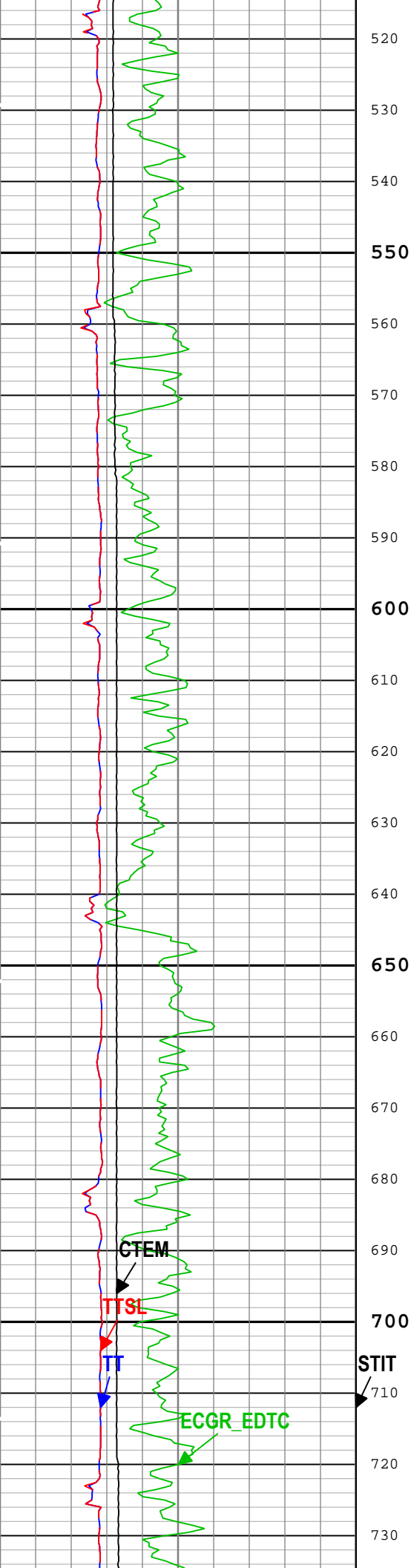
Depth Control Remarks



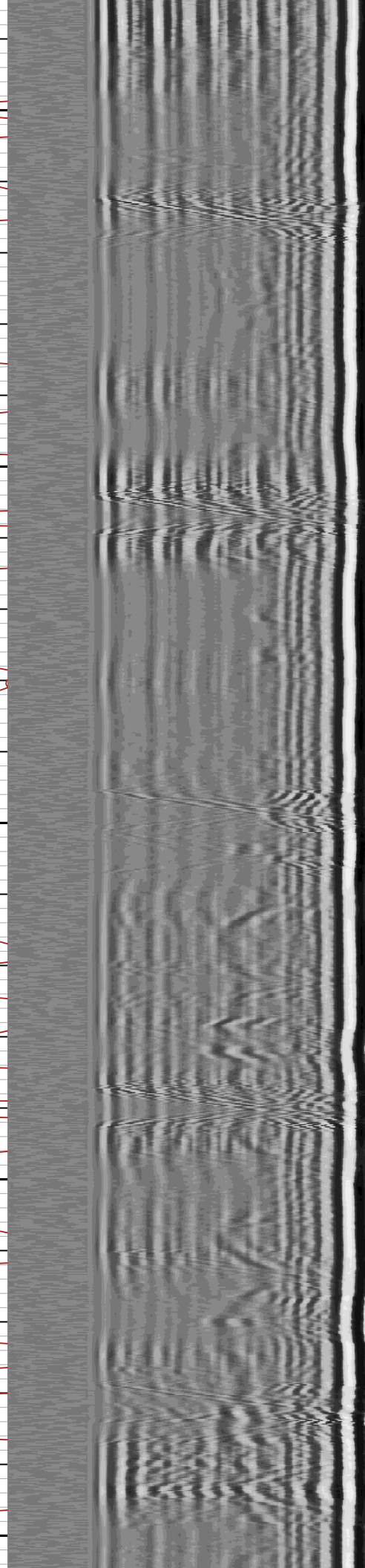
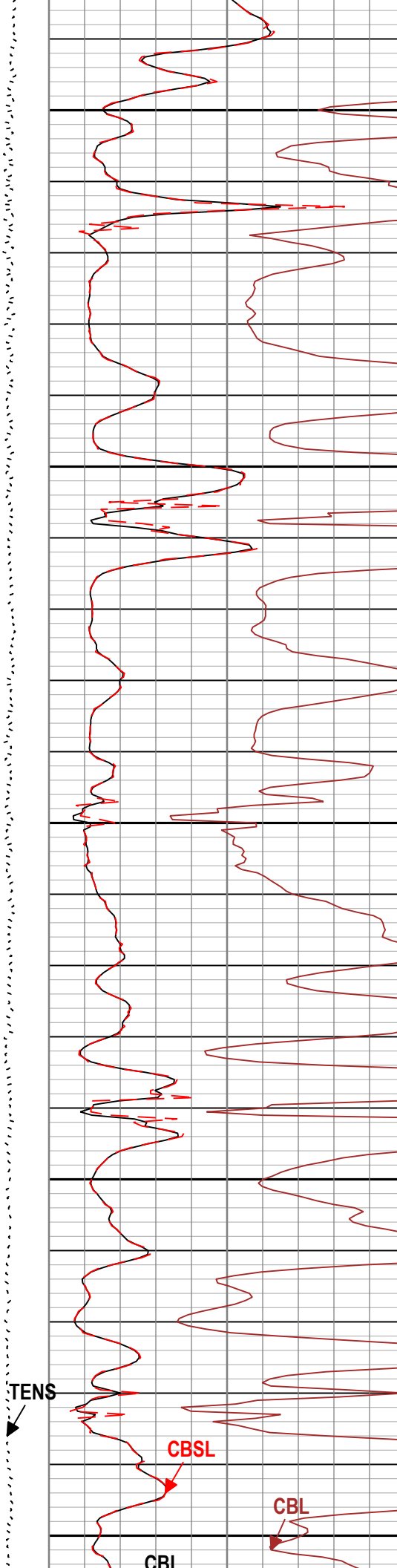
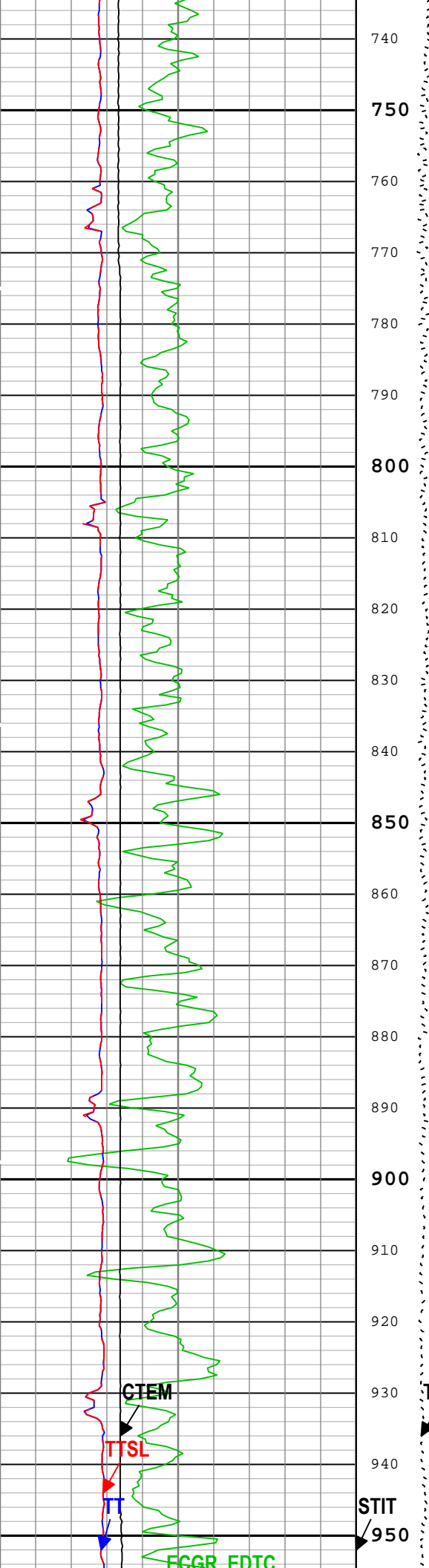


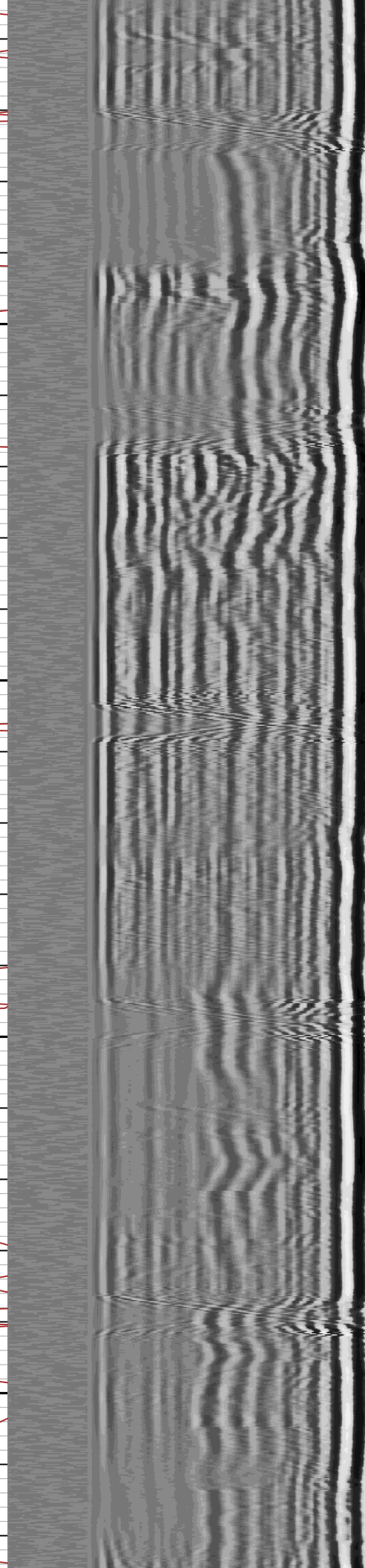
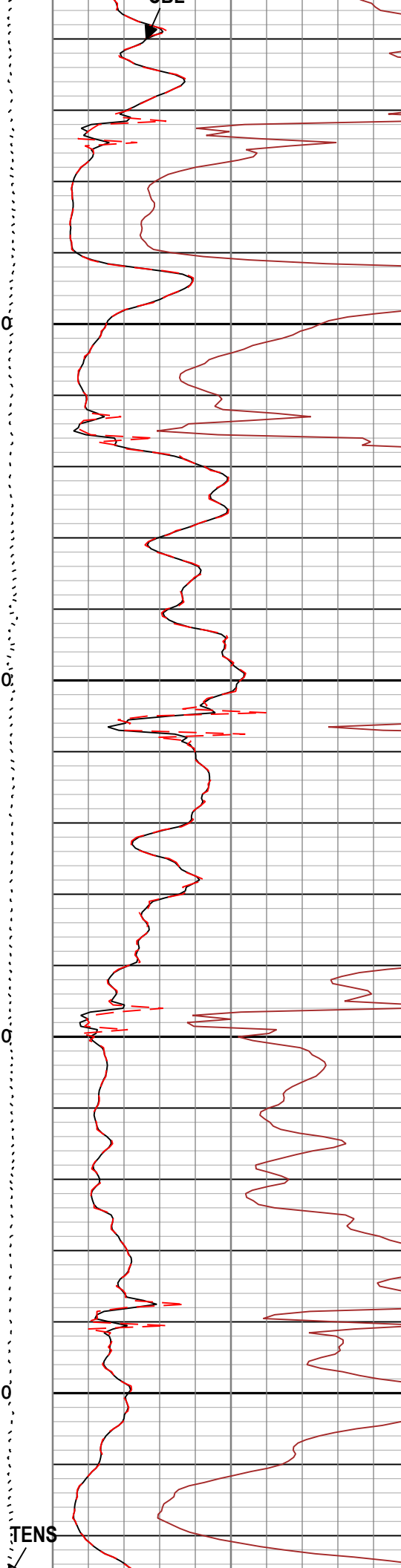
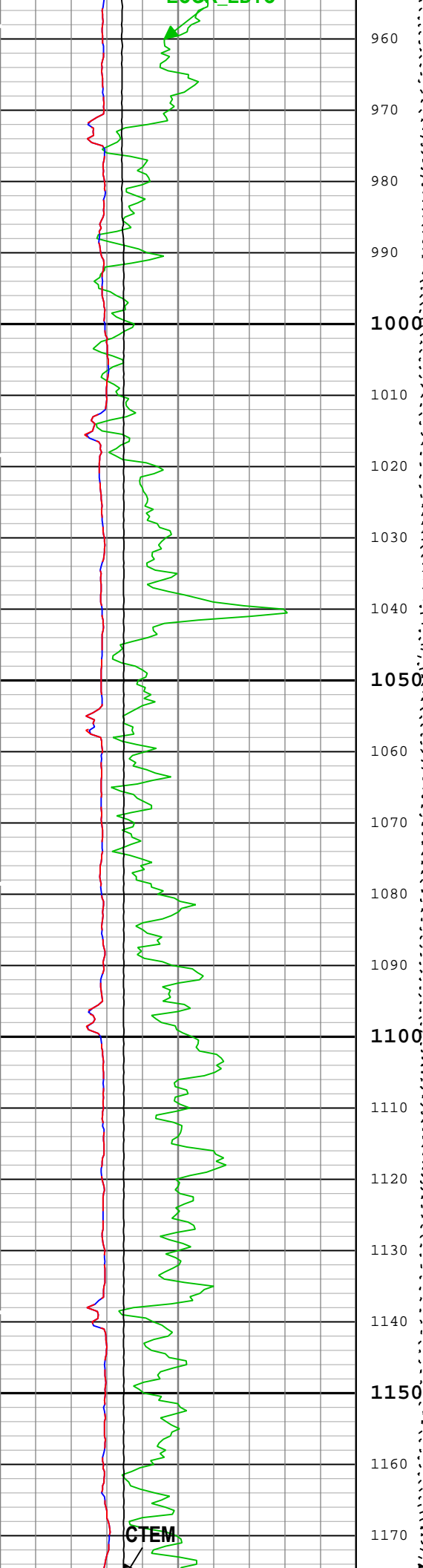


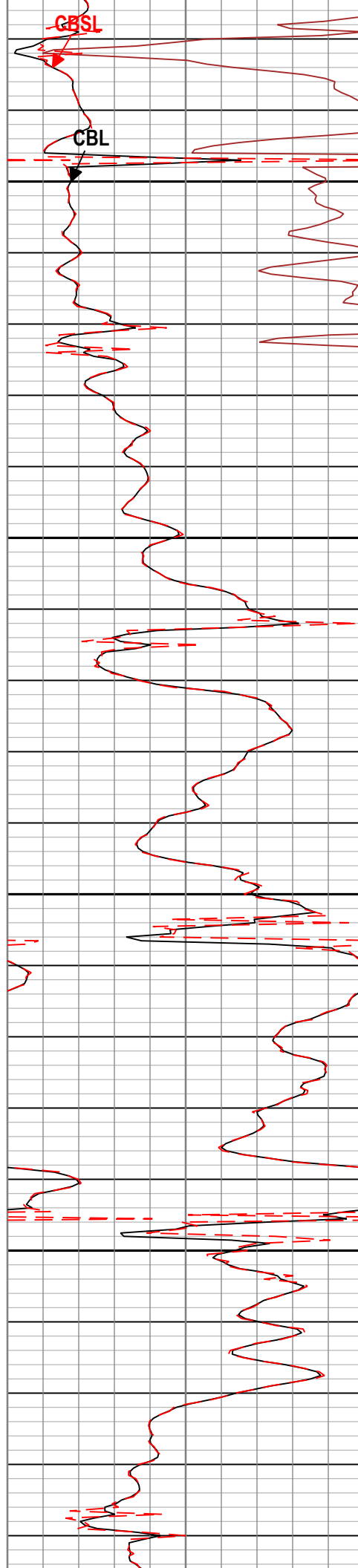
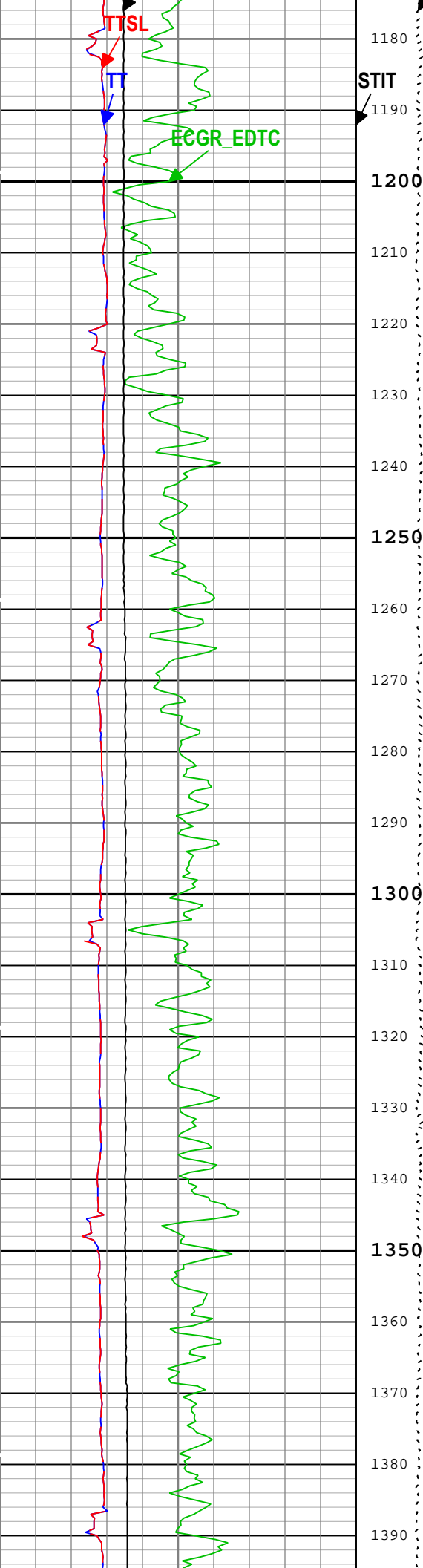




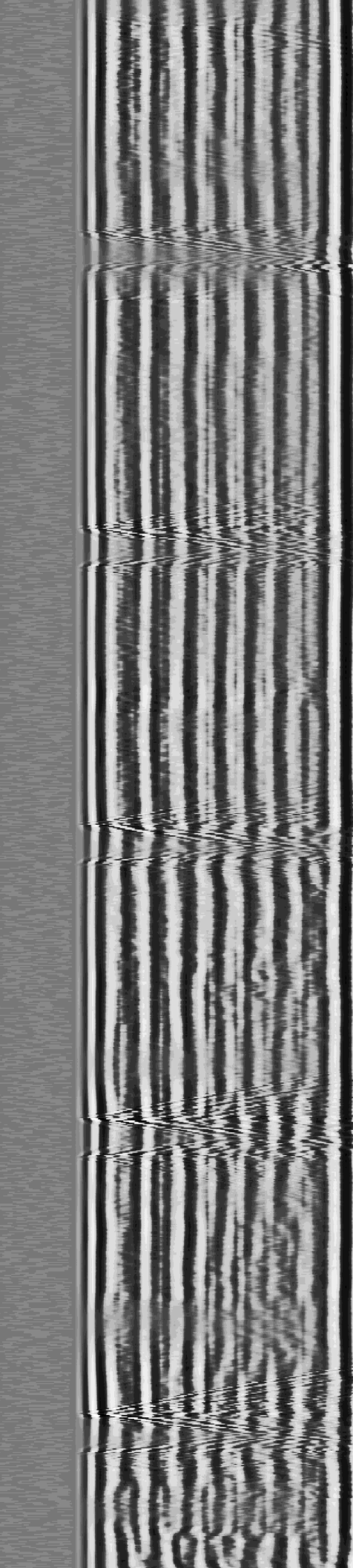
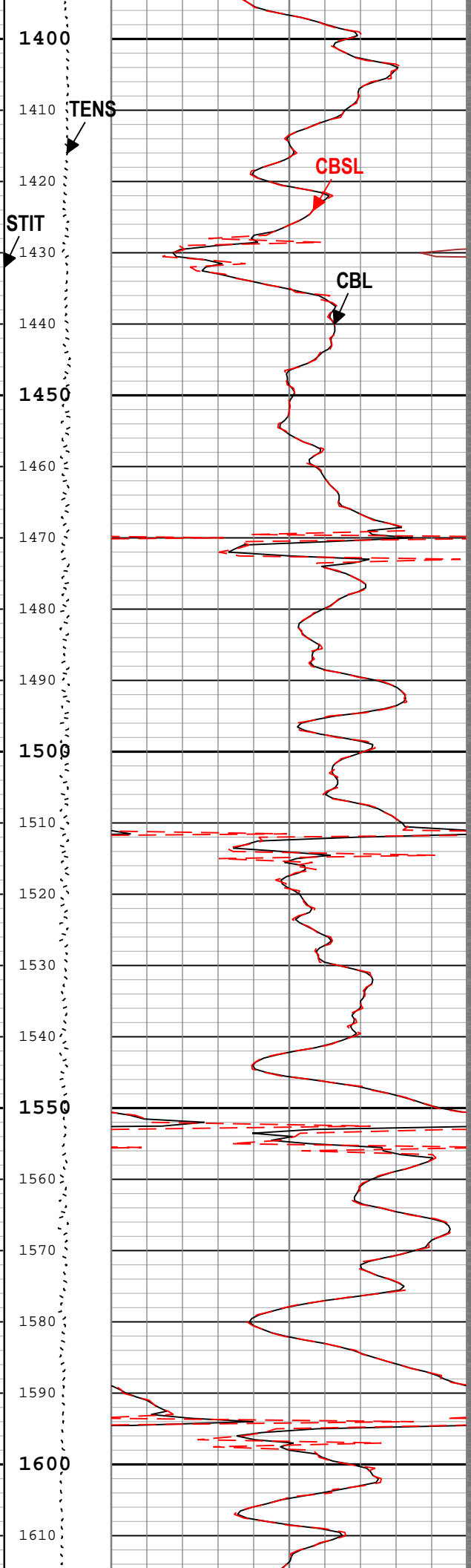
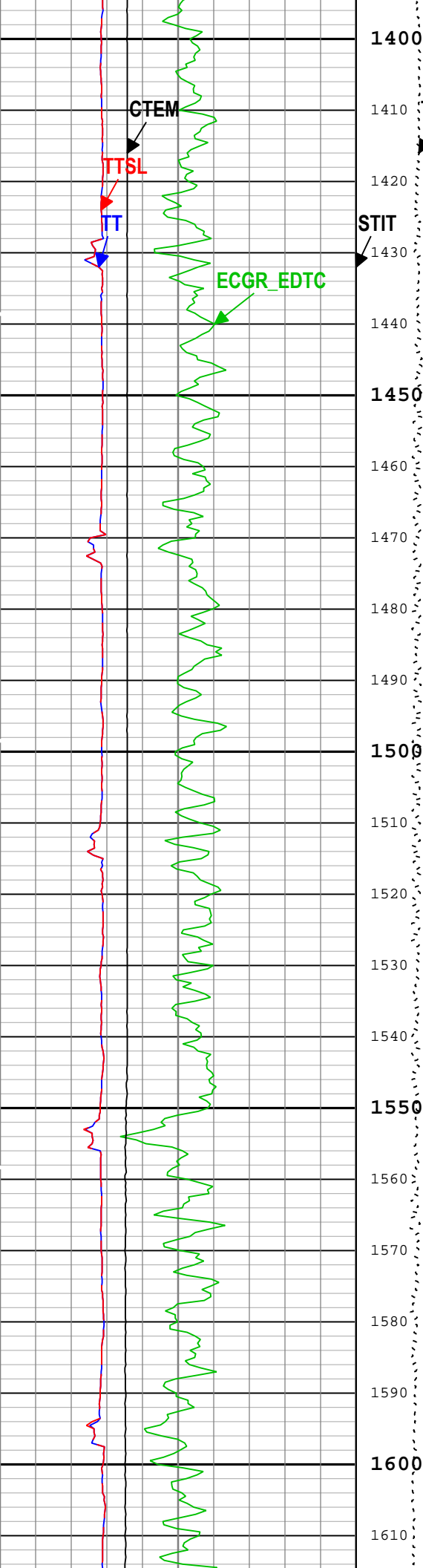


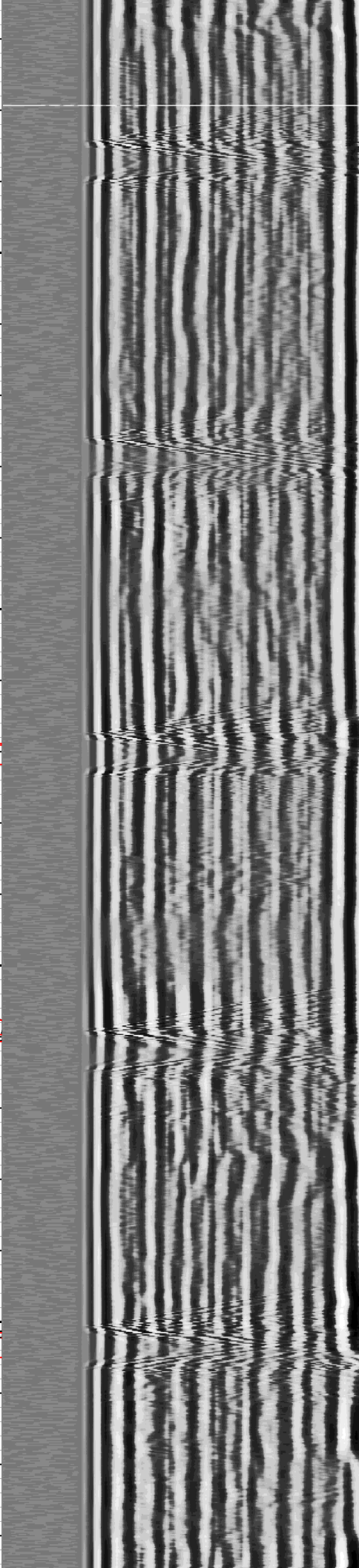
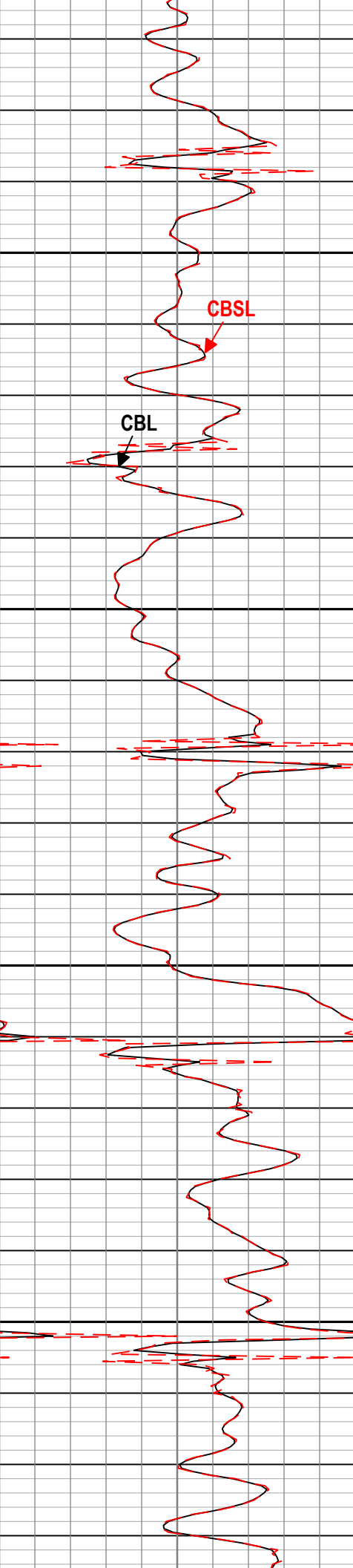
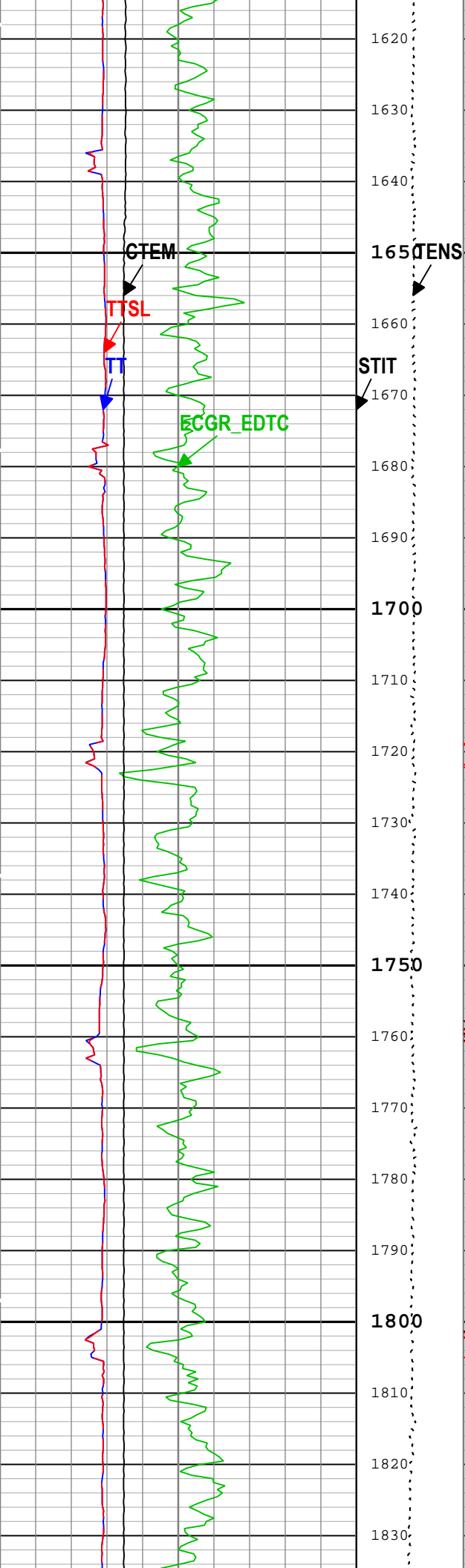


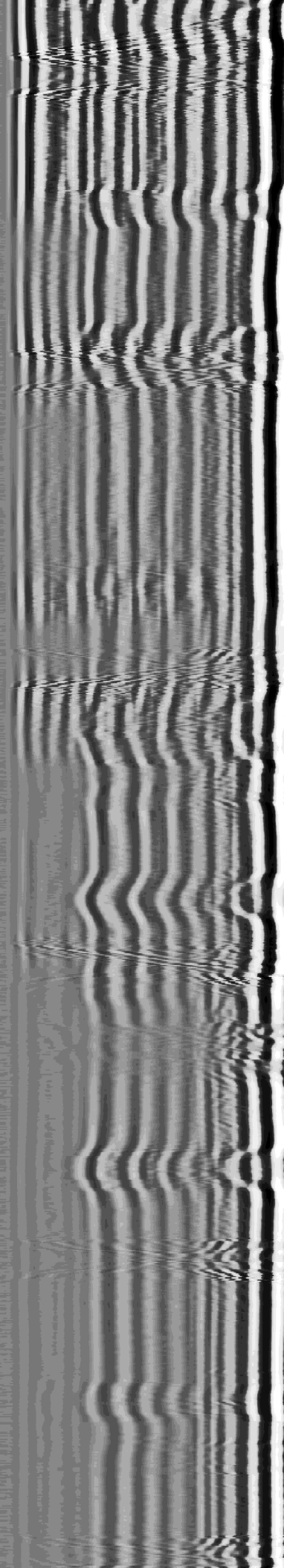
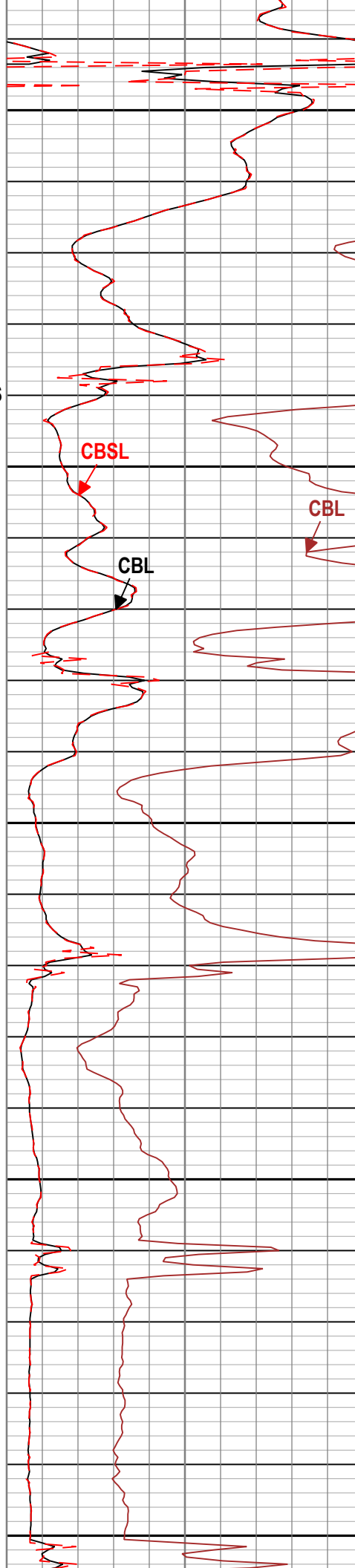
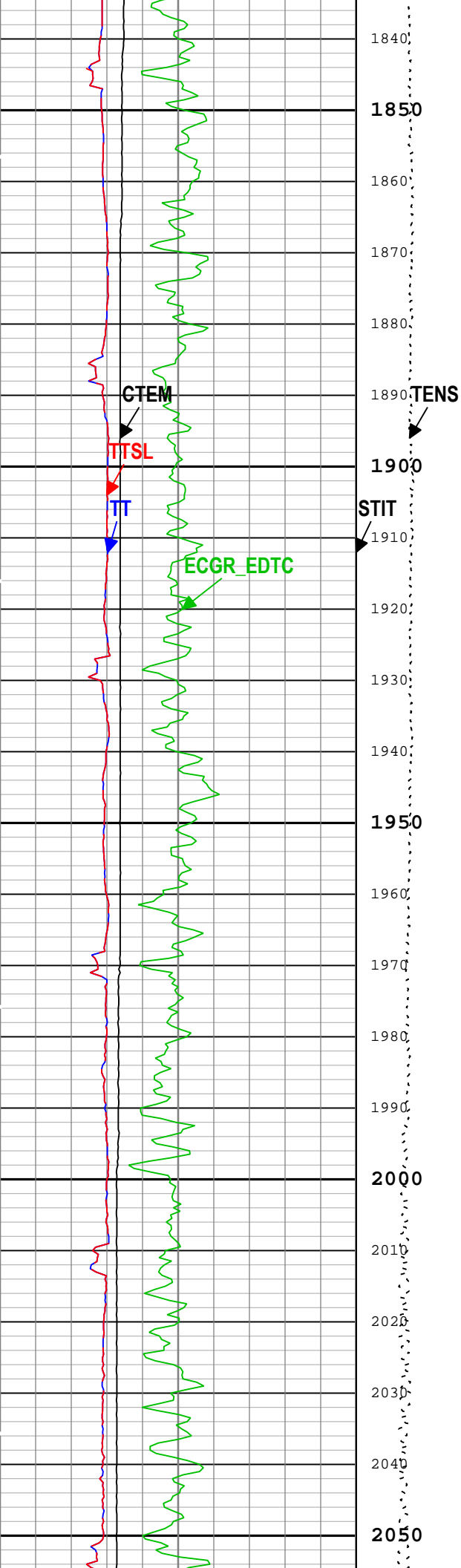




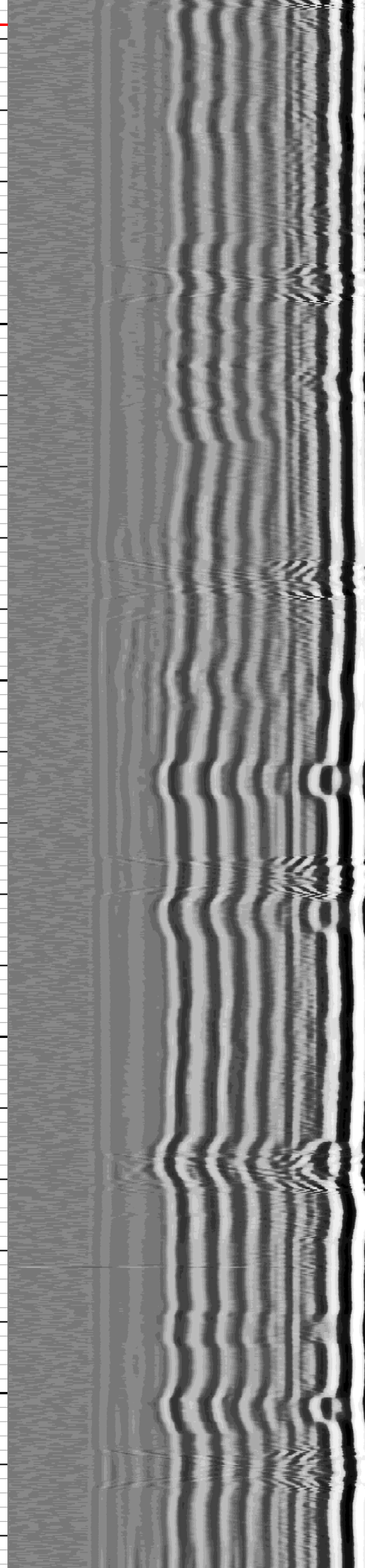
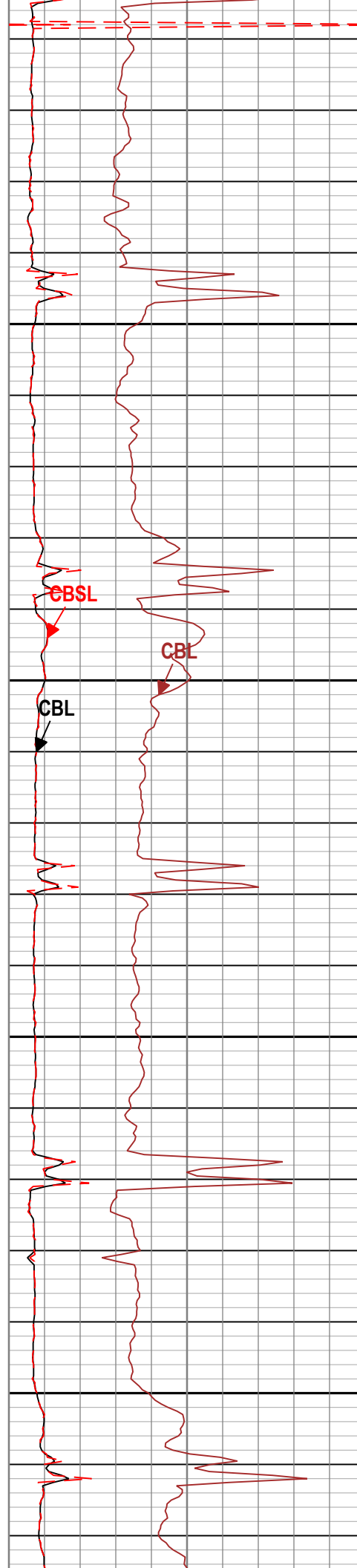
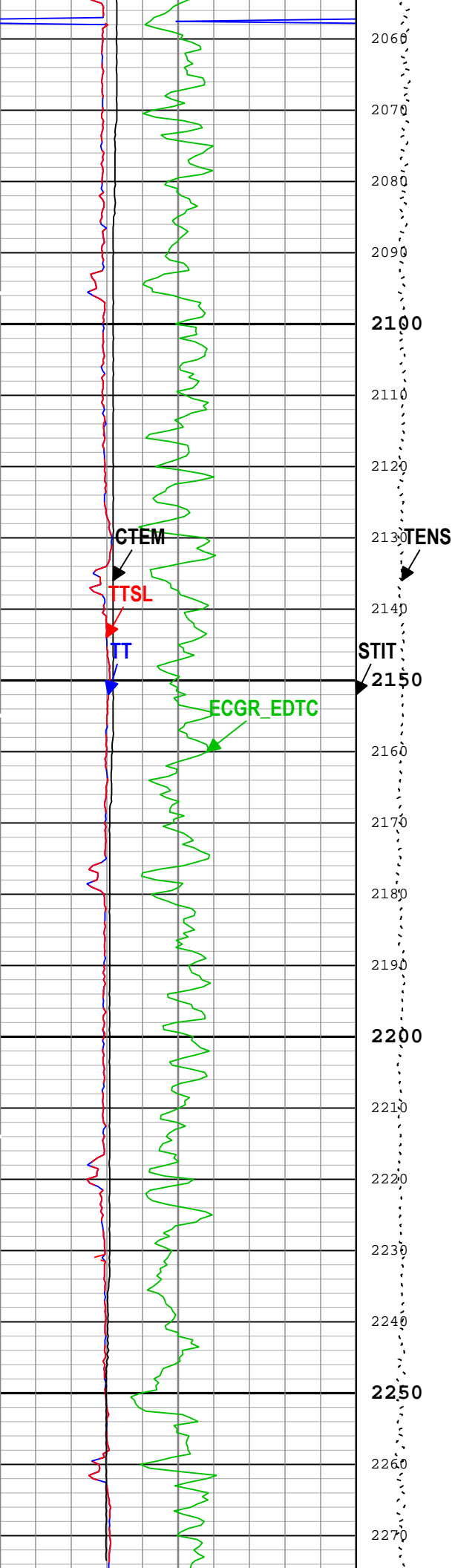




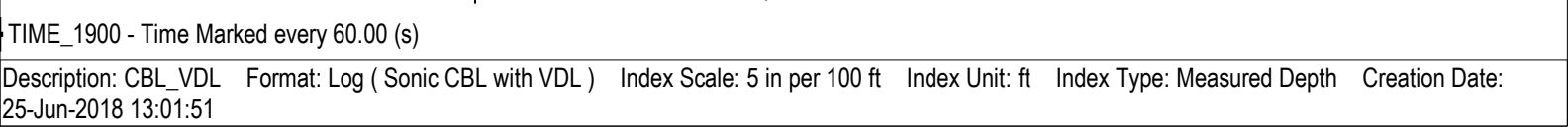












One: Parameters				
Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	13.5	in
CBLG	CBL Gate Width	DSLTH	61	us
CBLO	Casing Bottom (Logger)	WLSESSION	2500	ft
CBRA	CBL LQC Reference Amplitude 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	302	us
SGAD	Sliding Gate Status	DSLTH	Off	
SGDT	Sliding Gate Delta-T	DSLTH	57	us/ft
TD	Total Measured Depth	Borehole	2400	ft
VDLG	VDL Manual Gain	DSLTH	2.26	

## Tool Control Parameters

## One: Parameters

Parameter	Description	Tool	Value	Unit
MODE	DSLTL Acquisition Mode	DSLTL-H	CBL	
RATE	DSLTL Firing Rate	DSLTL-H	15 Hz	
DTFS	DSLTL Telemetry Frame Size	DSLTL-H	536	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	5000	ft/h
SGAI	Selectable Acquisition Gain	DSLTL-H	x1	

## Calibration Report

### DSLTL-H (Digitizing Sonic Logging Tool - H) Calibration - Run One

#### 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

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): 12:45:28 24-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): 12:45:28 24-Jun-2018

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Adjustment Factor		Before	1.000	0.200	0.980	5.000	
Depth of Before Calibration	ft	Before			50.72		

Company: Crestone Peak Resources Operating LLC

**Schlumberger**

Well: Sam 3M-25H-M166

Field: Wattenberg

County: Weld

State: Colorado

Cement Bond Log

Surface Casing

