

Company: Crestone Peak Resources Operating LLC

Well: Lochbuie Land 2J-25H-D166

Field: Wattenberg

County: Weld State: Colorado

Digital Sonic Logging Tool

CBL with VDL

County:	Weld
Field:	Wattenberg
Location:	NWNW
Well:	Lochbuie Land 2J-25H-D166
Company:	Crestone Peak Resources Operating LLC
Location:	
NWNW	Elev.: K.B. 5089.00 ft
988 FNL 297 FWL	G.L. 5076.00 ft
	D.F. 5089.00 ft
Permanent Datum:	Ground Level
Log Measured From:	Kelly Bushing
Drilling Measured From:	Kelly Bushing
API Serial No.	Section: 25
05-123-47992	Township: 1N
	Range: 66

Logging Date	08-Jan-2019
Run Number	One
Depth Driller	2386.00 ft
Schlumberger Depth	2386.00 ft
Bottom Log Interval	2250.00 ft
Top Log Interval	27.00 ft
Casing Fluid Type	Water
Salinity	
Density	8.34 lbm/gal
Fluid Level	8.00 ft
BIT/CASING/TUBING STRING	
Bit Size	13.50 in
From	0.00 ft
To	2386.00 ft
Casing/Tubing Size	9.625 in
Weight	40 lbm/ft
Grade	N/A
From	0.00 ft
To	2371.00 ft
Max Recorded Temperatures	106.3 degF
Logger on Bottom	08-Jan-2019 21:50:00
Unit Number	OSL-CAR1 2215
Recorded By	Z. Hamidaddin / A. Voyage
Witnessed By	Ryan Rensink

Disclaimer

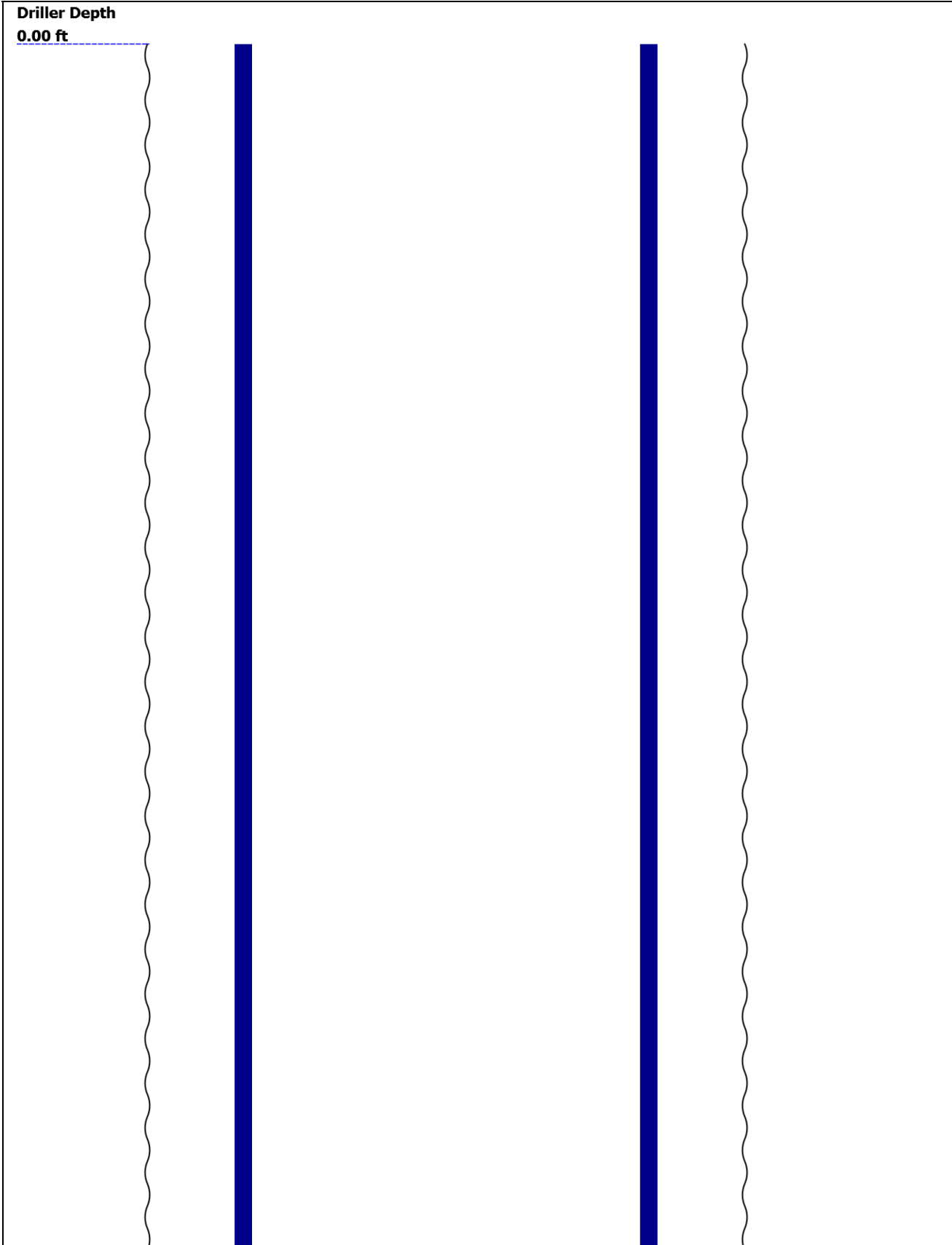
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Well Sketch




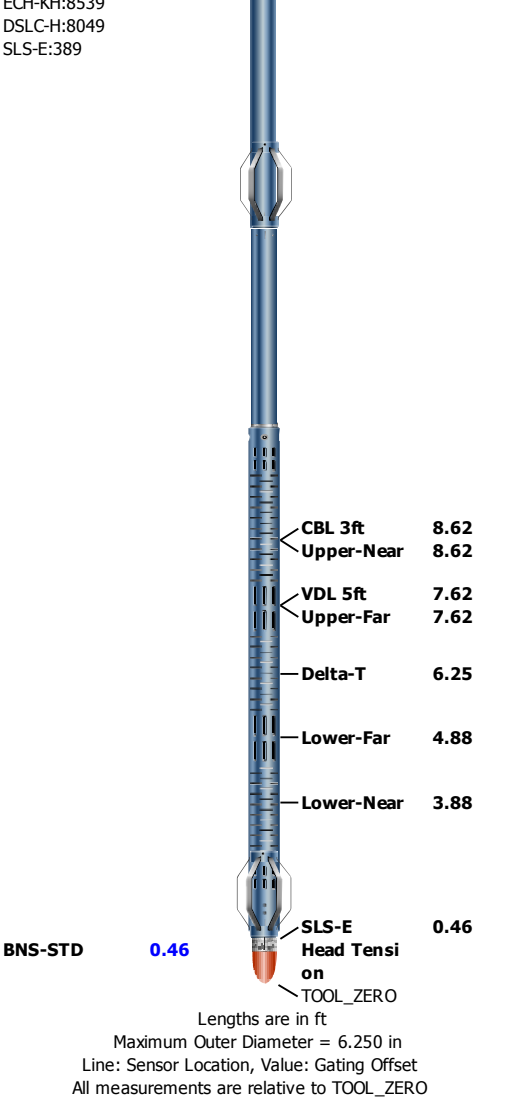


Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	13.5					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	2386					
Bottom Logger (ft)	2386					
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)	2386					
Bottom Logger (ft)	2386					

Remarks and Equipment Summary

One: Toolstring				One: Remarks	
Equip name LEH-QT:2148 LEH-QT:2148	Length 36.58	MP name	Offset	Thank you for choosing Schlumberger	
				Log objective is cement evaluation.	
				Toolstring run and centralized as per tool sketch	
				Log run under no pressure	
				Tool zeroed at KB = 13 ft.	
				Crew: Alex Schaab, Timothy Ludgate.	
DTC-H:8602 ECH-KC:9680 DTC-H:8602	33.1	CTEM HV	32.2 0.00		
SGT-N SGH-K:2605 SGC-TB SGD-TAA	30.1	TelStatus ToolStatus GR	30.1 30.1 29.18		
CAL-YA:213 CAL-YA:213	24.6	CCL	23.81		
DSLT-H:8049 ESL-KL:8520	21.1				



Depth Summary

	One		
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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		

One:Depth Control Parameters	Depth Control Remarks
Log Sequence	
First Log In the Well	
Rig Up Length At Surface	
Rig Up Length At Bottom	
Rig Up Length Correction	
Stretch Correction	
Tool Zero Check At Surface	

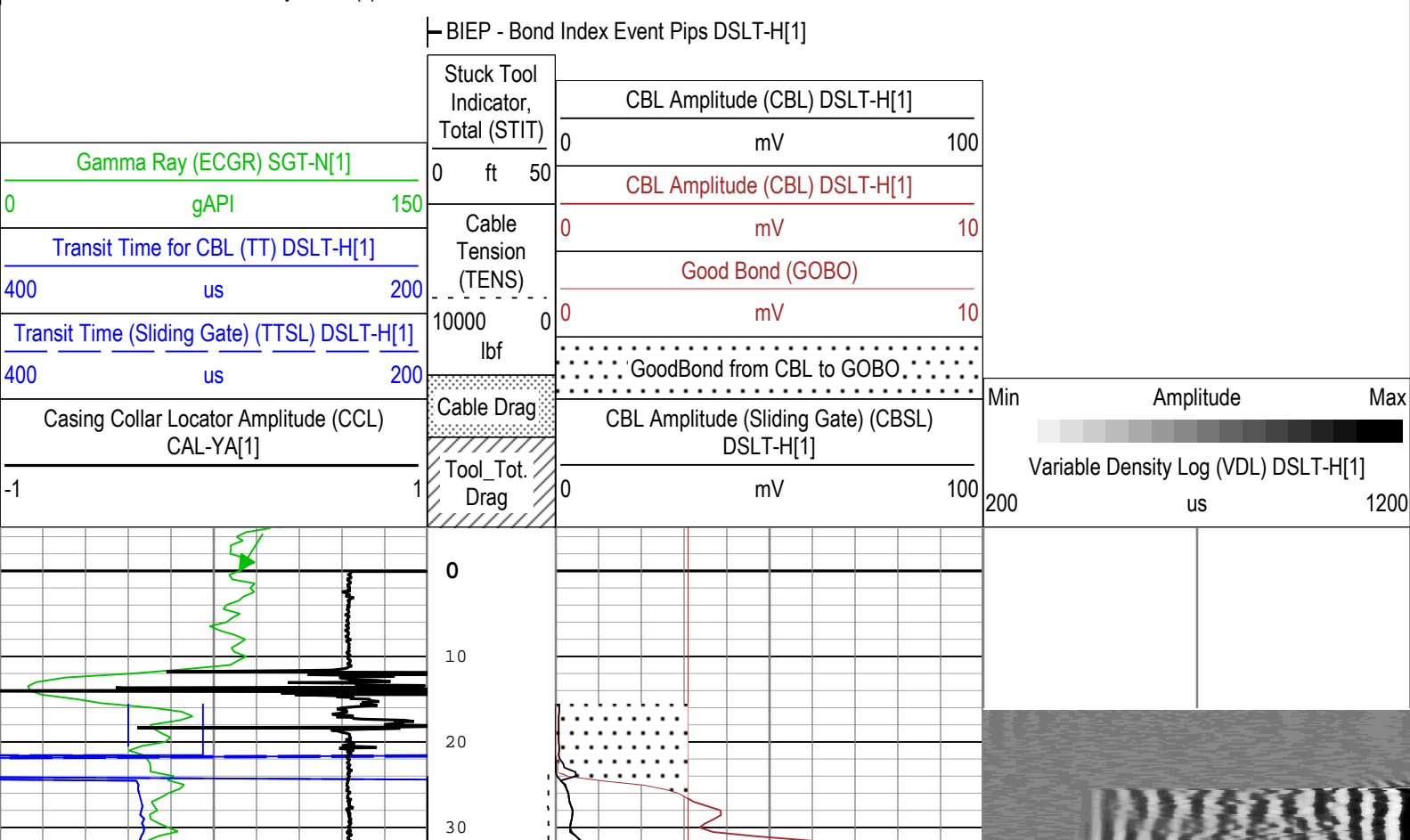
Software Version

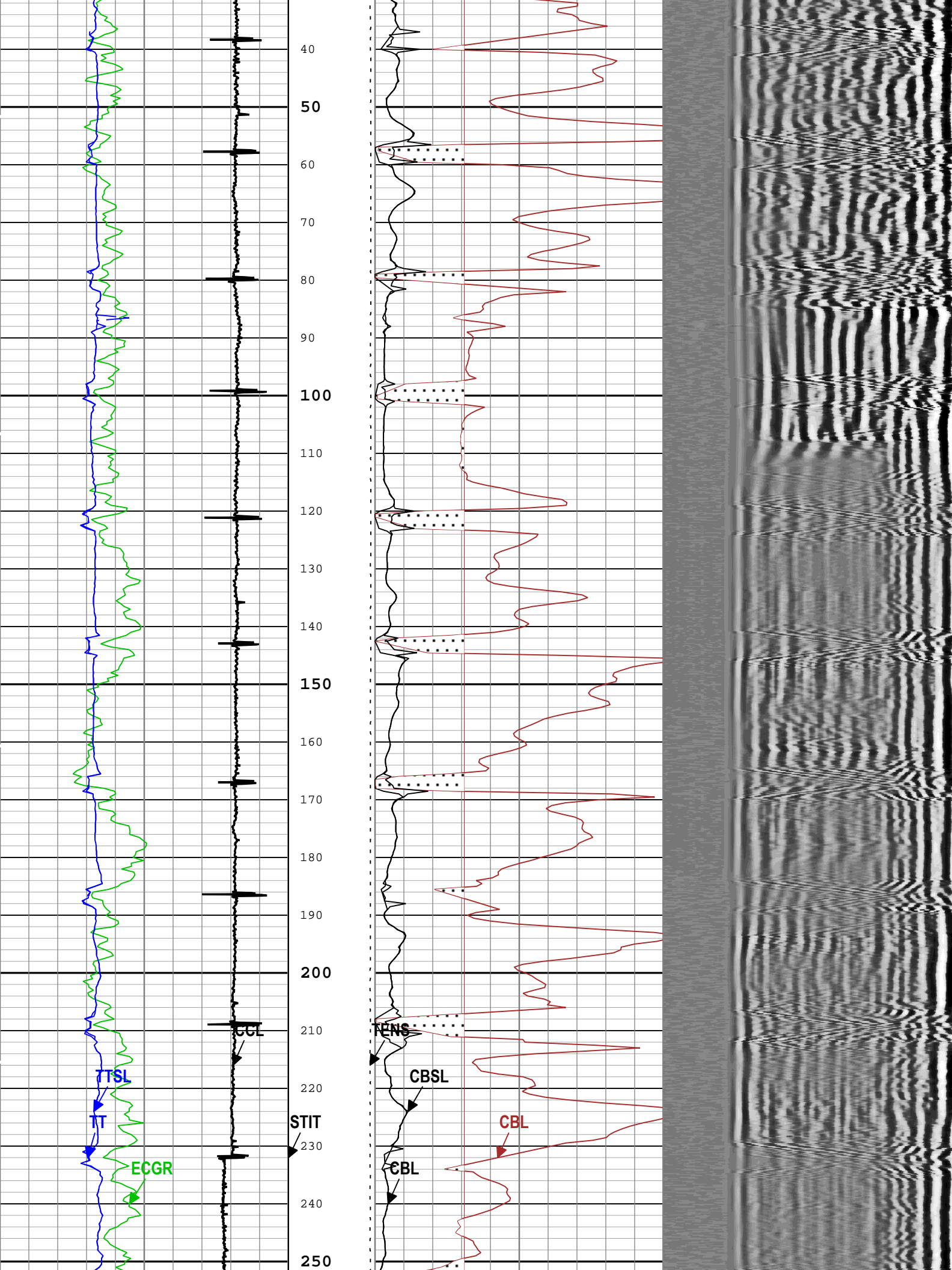
Composite Summary					

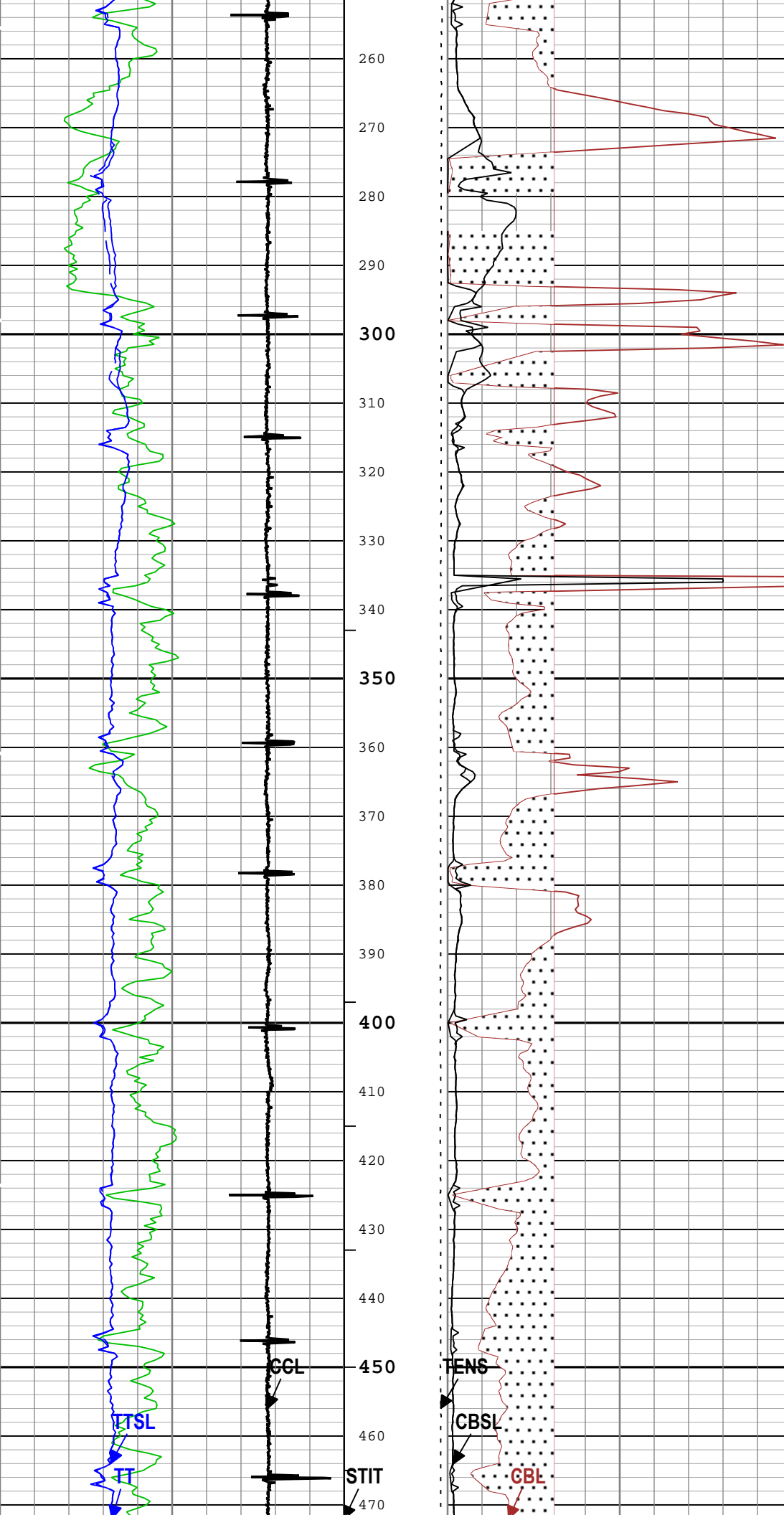
One	Log[2]:Up	Up	136.98 ft	2253.27 ft	08-Jan-2019 10:27:24 PM	08-Jan-2019 11:05:27 PM	ON	-4.46 ft	No
One	Log[3]:Up	Up	23.75 ft	281.52 ft	08-Jan-2019 11:06:36 PM	08-Jan-2019 11:11:34 PM	ON	-4.50 ft	No

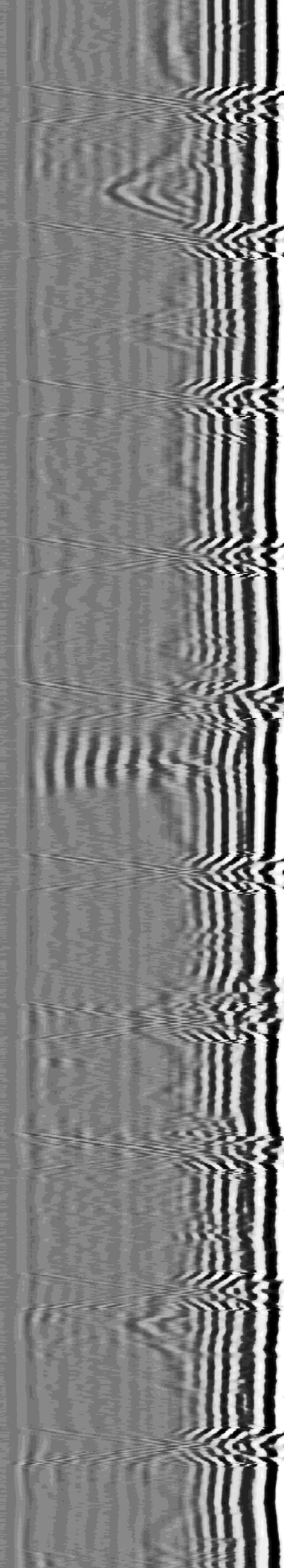
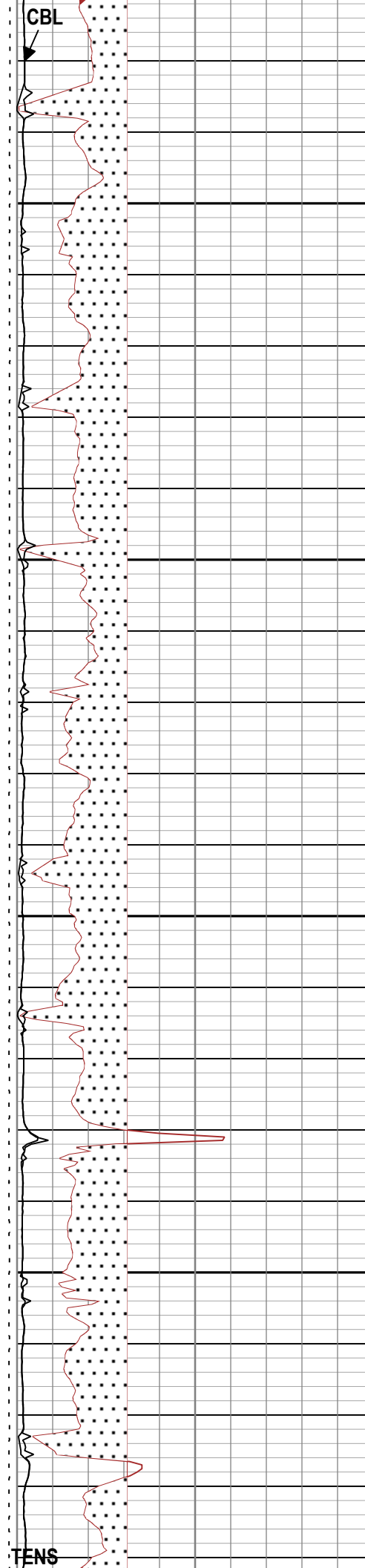
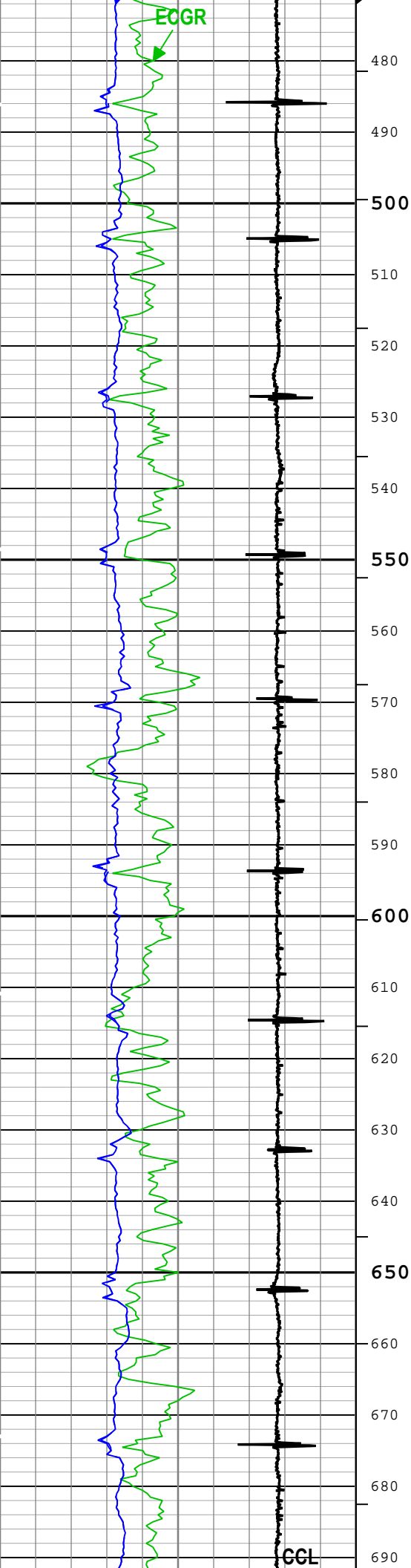
Log	Company:Crestone Peak Resources Operating LLC	Well:Lochbuie Land 2J-25H-D166	Main:S005
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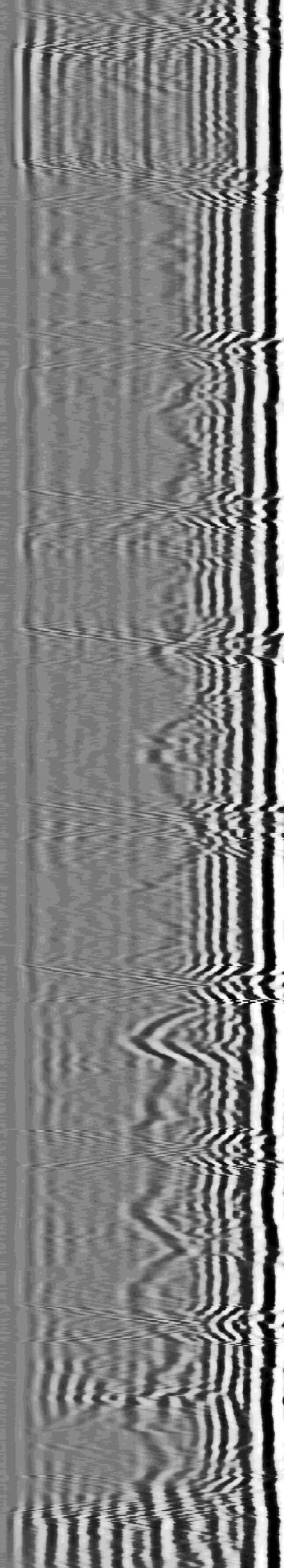
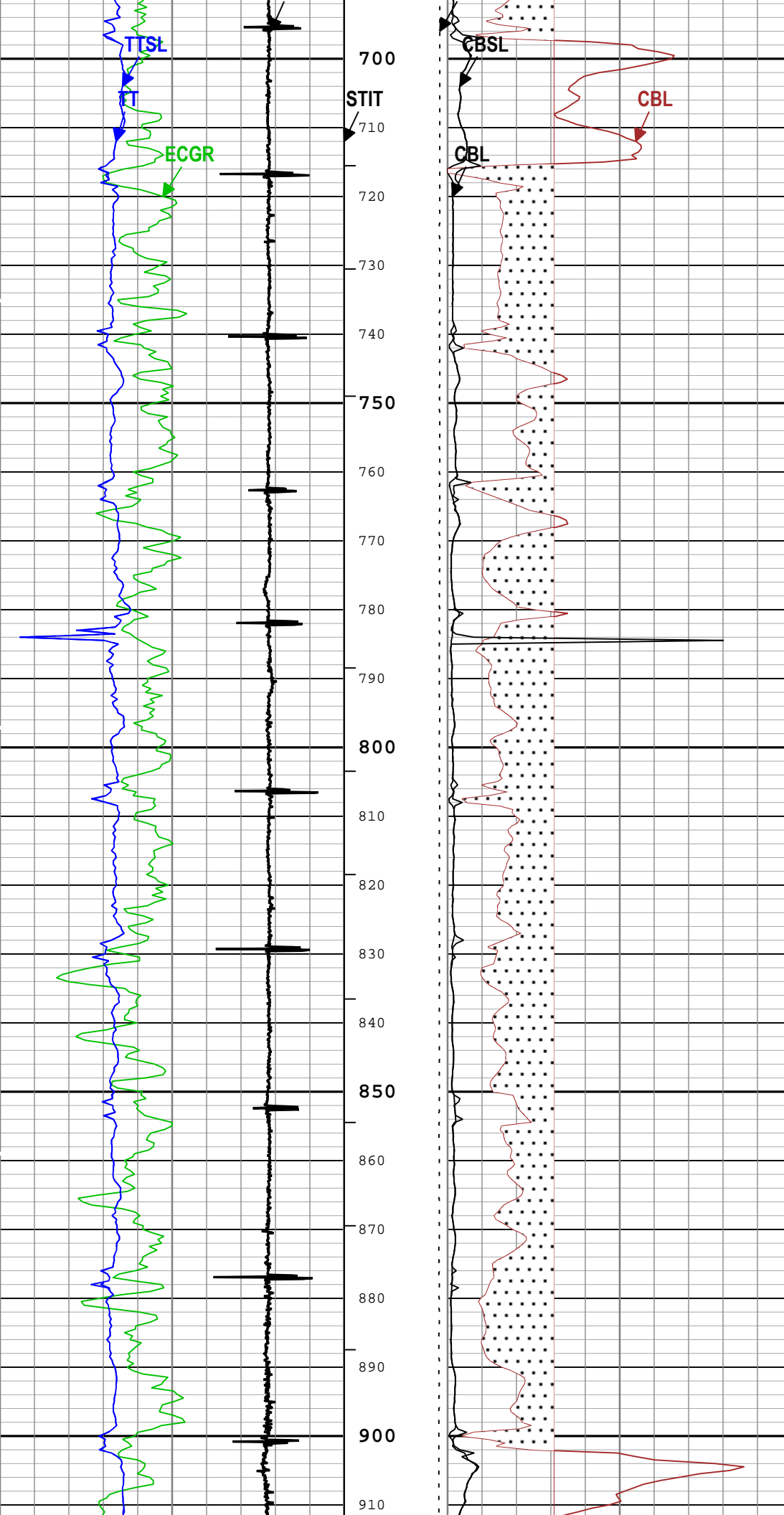
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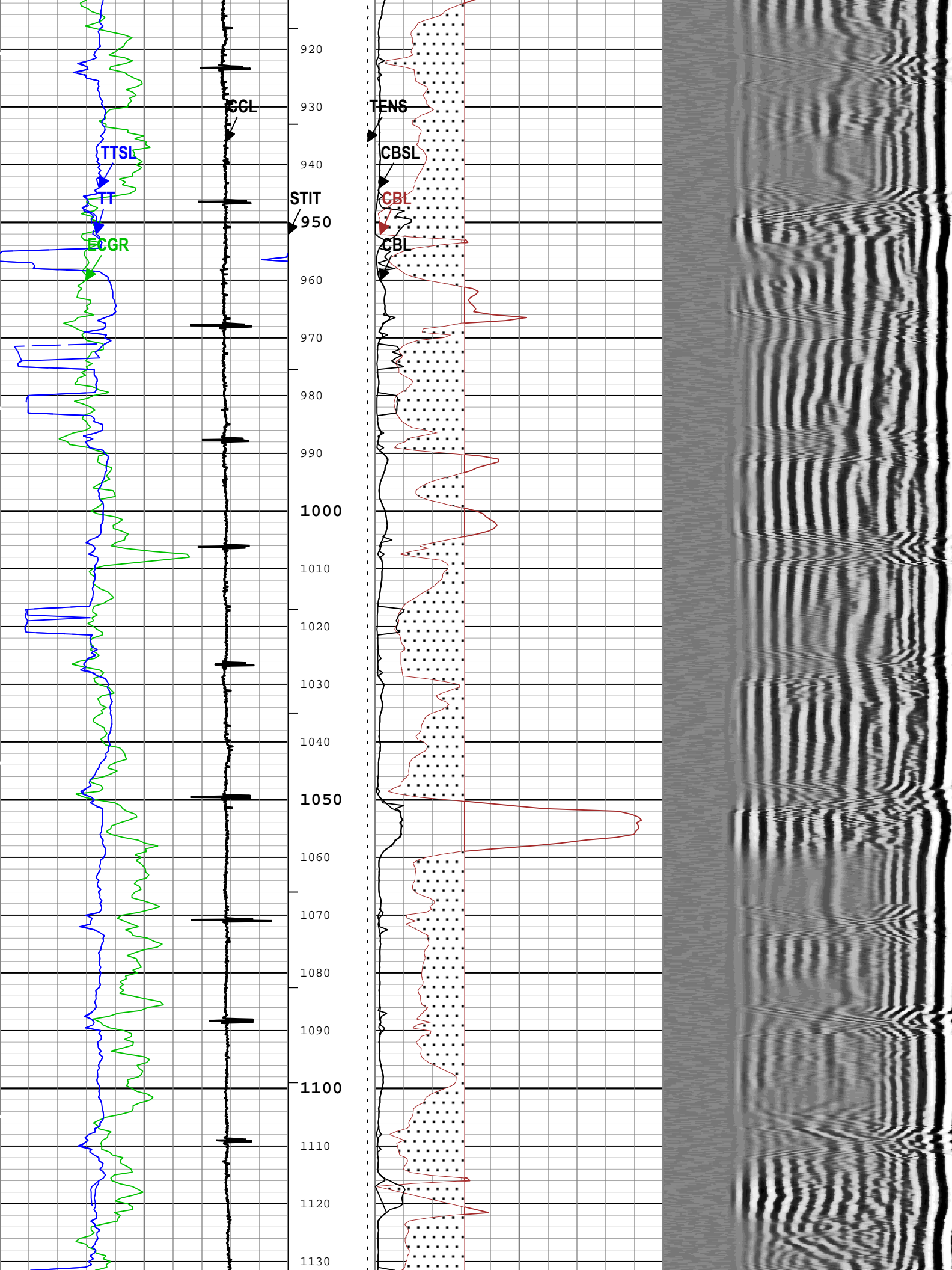


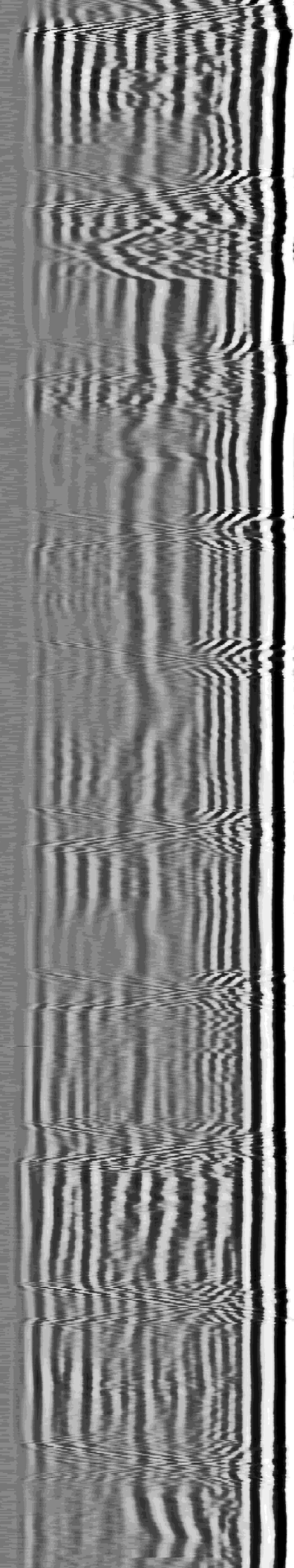
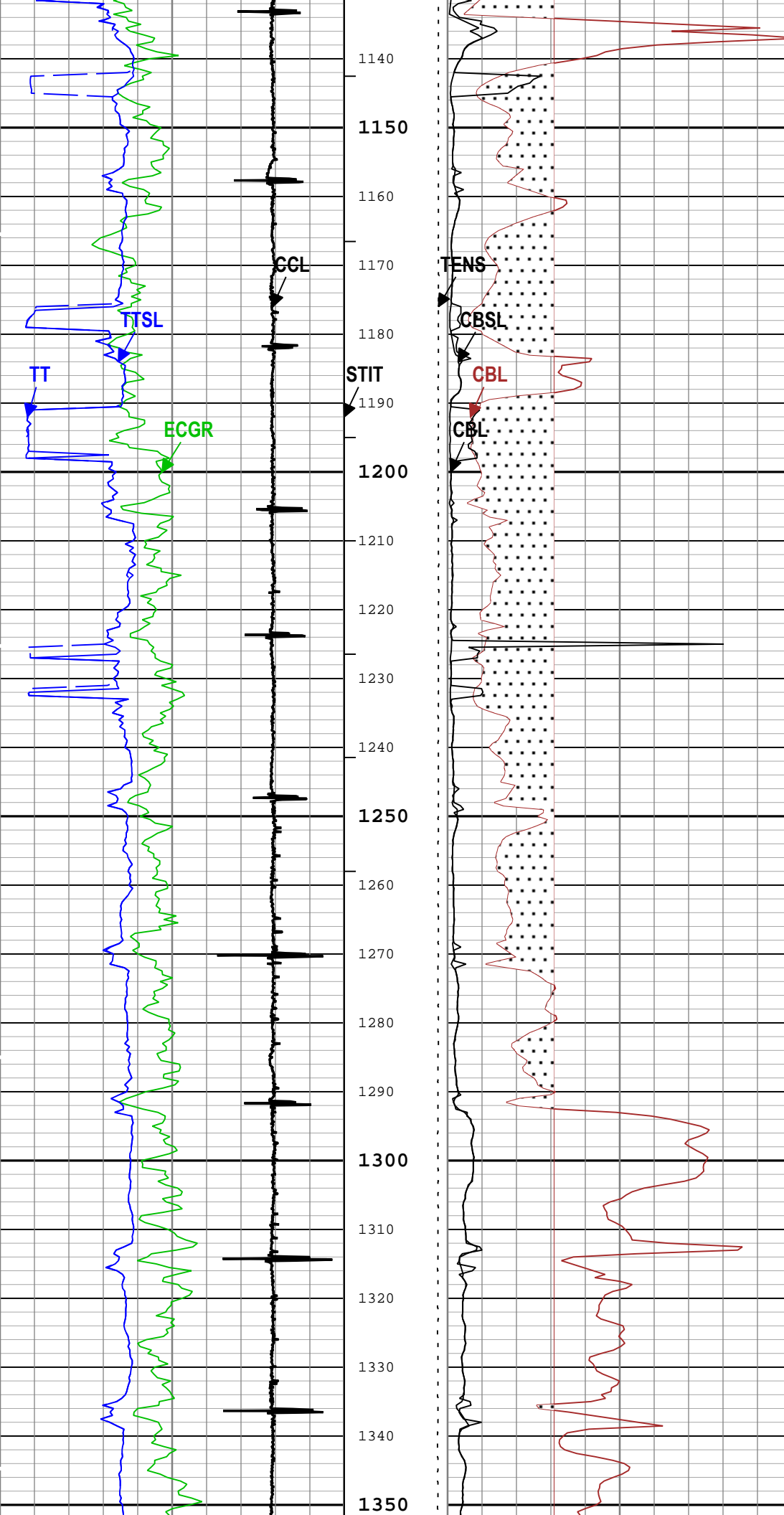


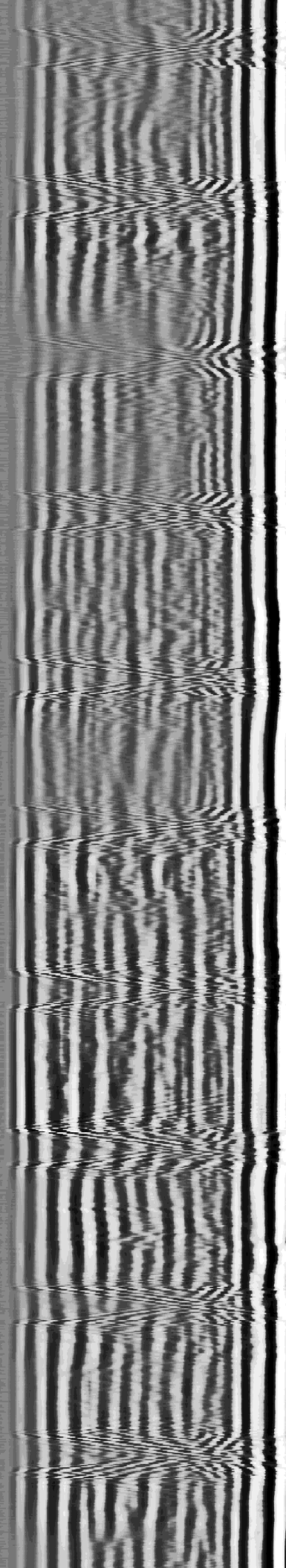
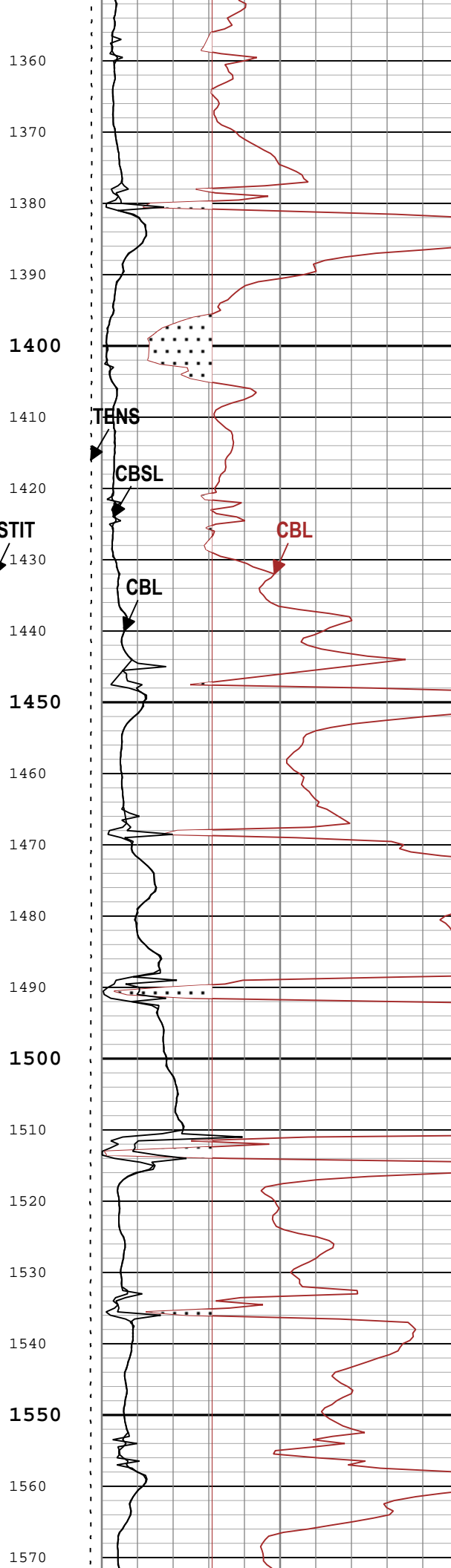
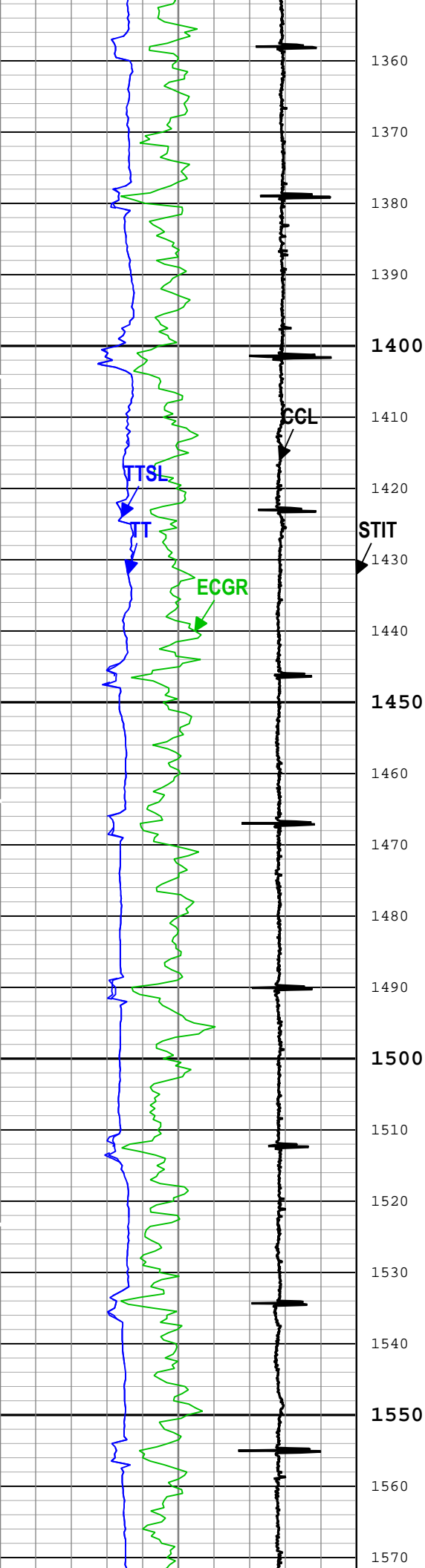


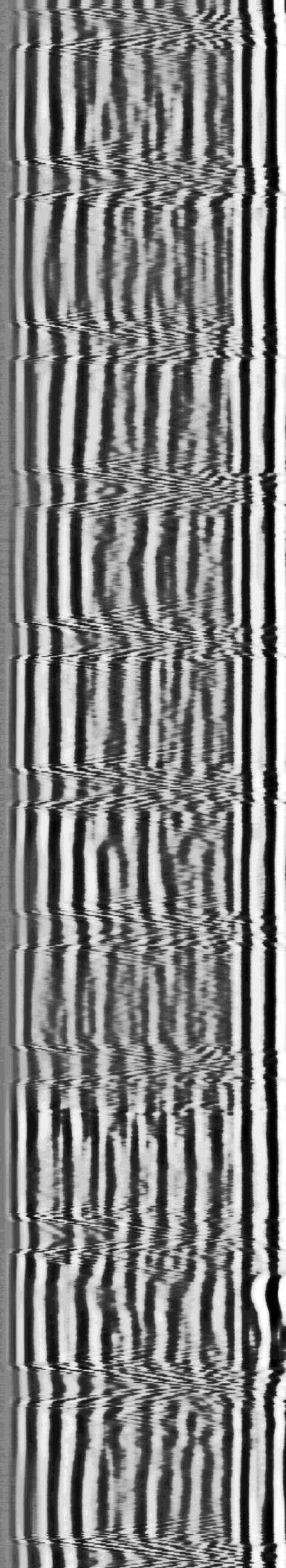
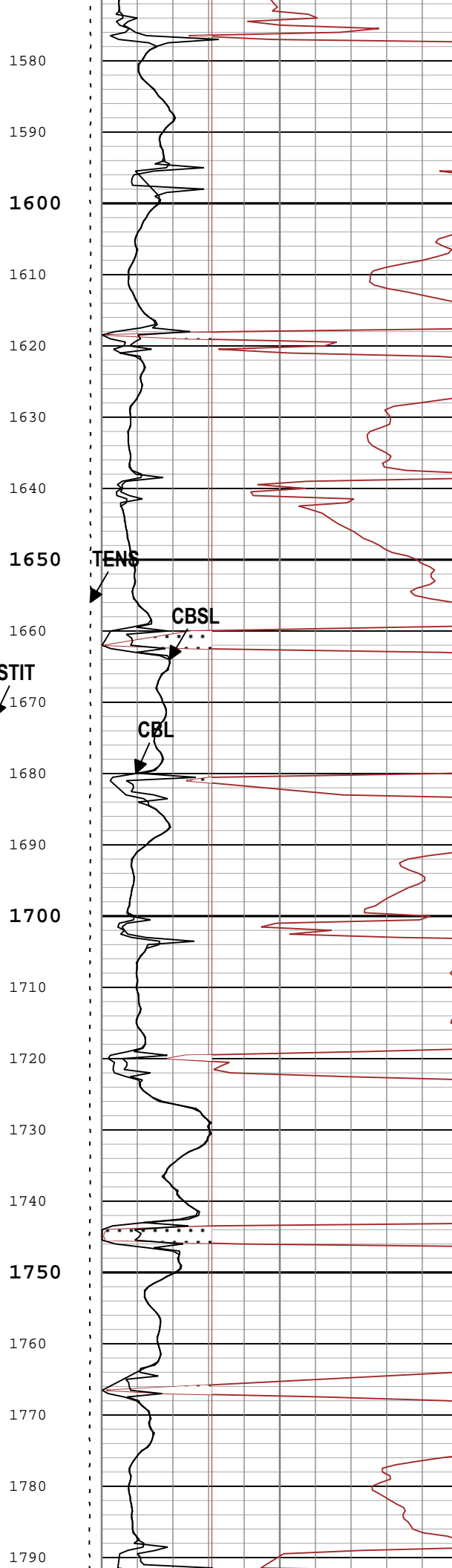
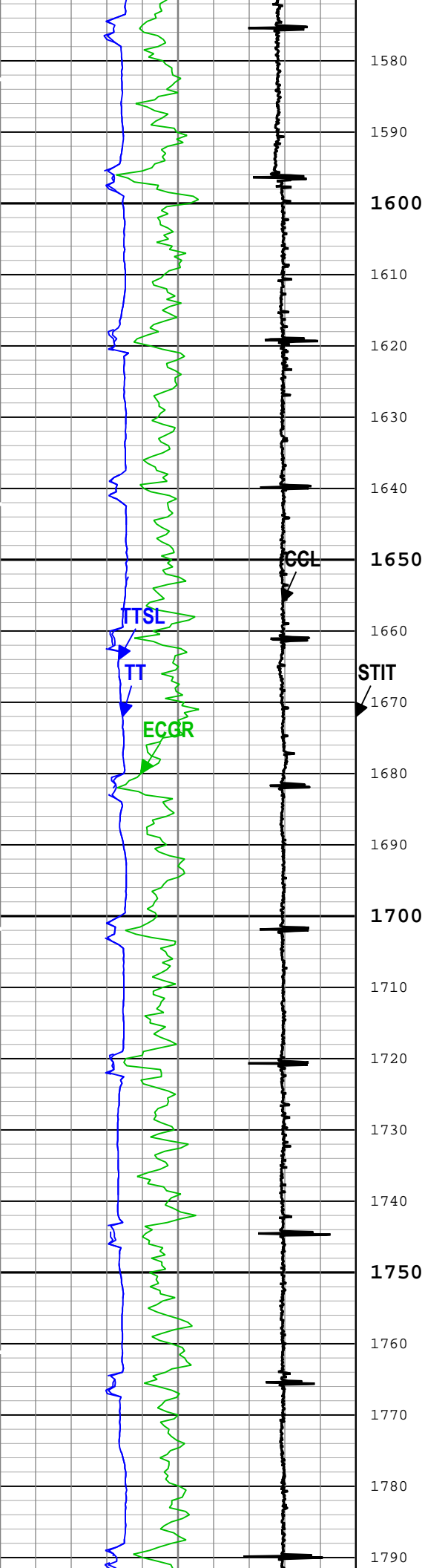


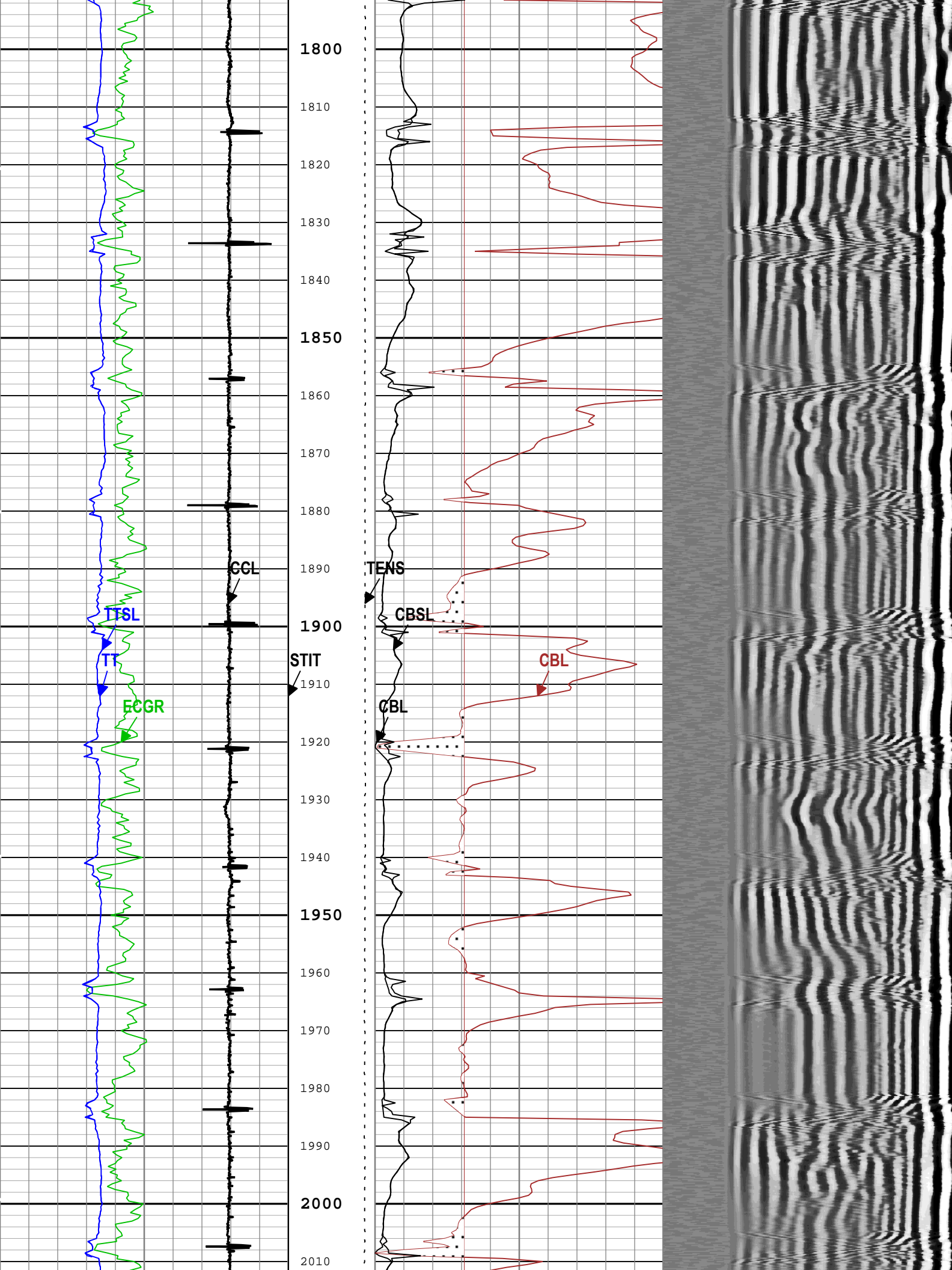


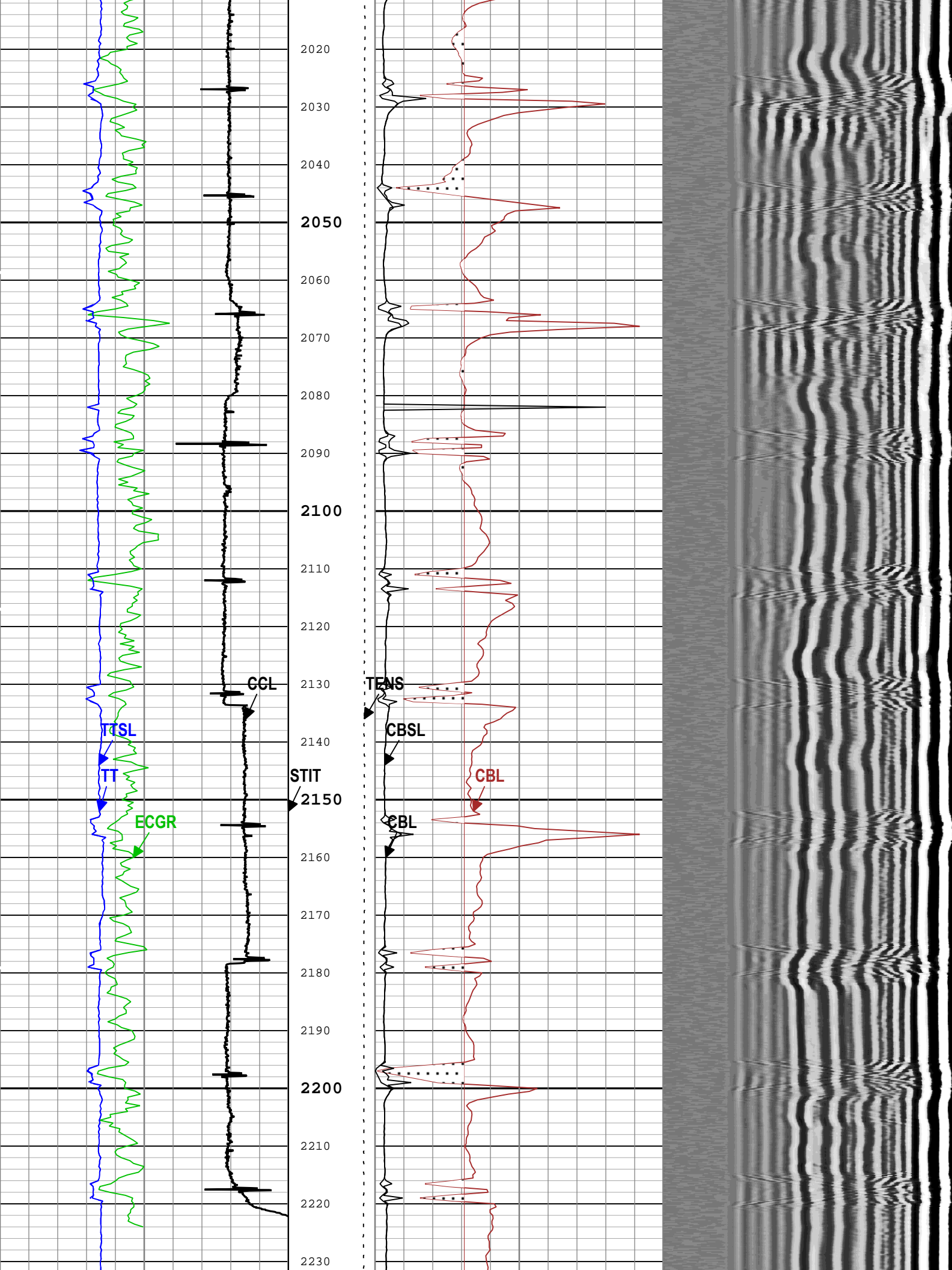


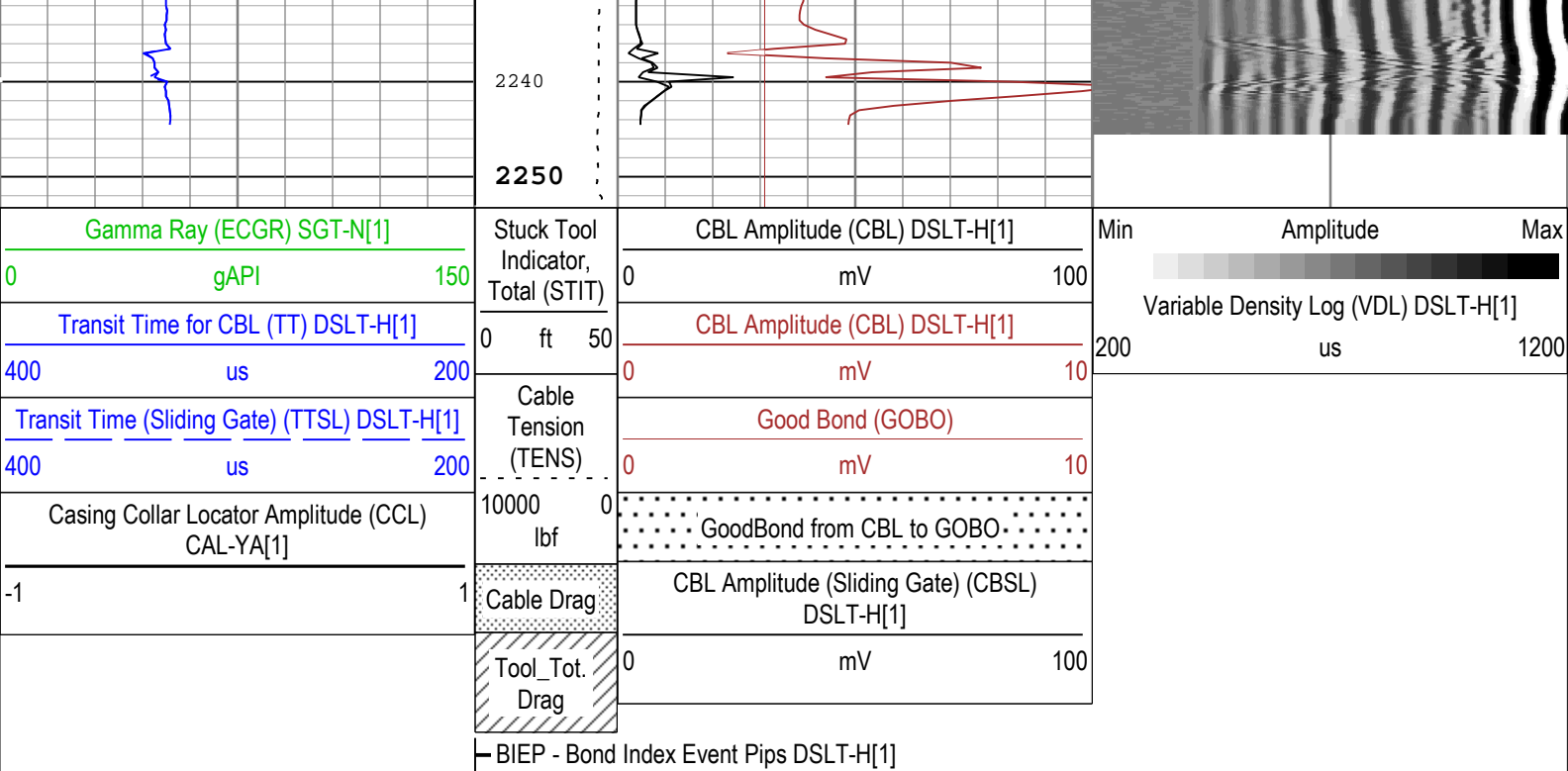












TIME_1900 - Time Marked every 60.00 (s)

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: 01-Jan-2008 00:29:52

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	13.5	in
CBLO	Casing Bottom (Logger)	WLSESSION	2386	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	DSLTH	52	mV
CCL_MULTIPLIER	Casing Collar Locator Multiplier	CAL-YA	15	
CDEN	Cement Density	SGT-N	2	g/cm3
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DETE	Delta-T Detection	DSLTH	E1	
DFD	Drilling Fluid Density	Borehole	8.34	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	305	us
SGAD	Sliding Gate Status	DSLTH	Off	
SGDT	Sliding Gate Delta-T	DSLTH	57	us/ft
VDLG	VDL Manual Gain	DSLTH	6.5	

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	3600	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

389

CBL Normalization - CBL Accumulations

Master (Measured): 15:00:27 27-Mar-2018

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Upper Far Amplitude		Master	4200.0	3200.0	3805.0		
Upper Near Raw Amplitude	mV	Master	33.000	27.000	31.807	43.000	
Lower Far Amplitude		Master	4200.0	3200.0	3601.3		
Lower Near Raw Amplitude	mV	Master	46.000	27.000	38.403	68.000	

CBL Normalization - CBL/VDL Coefficients

Master (Measured): 15:00:27 27-Mar-2018

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Correction Factor for UT		Master	3.500	2.700	3.647	4.300	
CBL Correction Factor for LT		Master	2.500	1.700	3.021	4.300	
VDL Ratio between UT and LT for CBLB Mode		Master	1.000		0.946		

CBL Free Pipe Adjustment - Free Pipe Measurement

Before (Manual Entry): 14:17:39 08-Jan-2019

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): 14:17:39 08-Jan-2019

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Adjustment Factor		Before	1.000	0.200	1.290	5.000	
Depth of Before Calibration	ft	Before			1.00		

Company: Crestone Peak Resources Operating LLC

Schlumberger

Well: Lochbuie Land 2J-25H-D166

Field: Wattenberg

County: Weld

State: Colorado

Digital Sonic Logging Tool

CBL with VDL

