

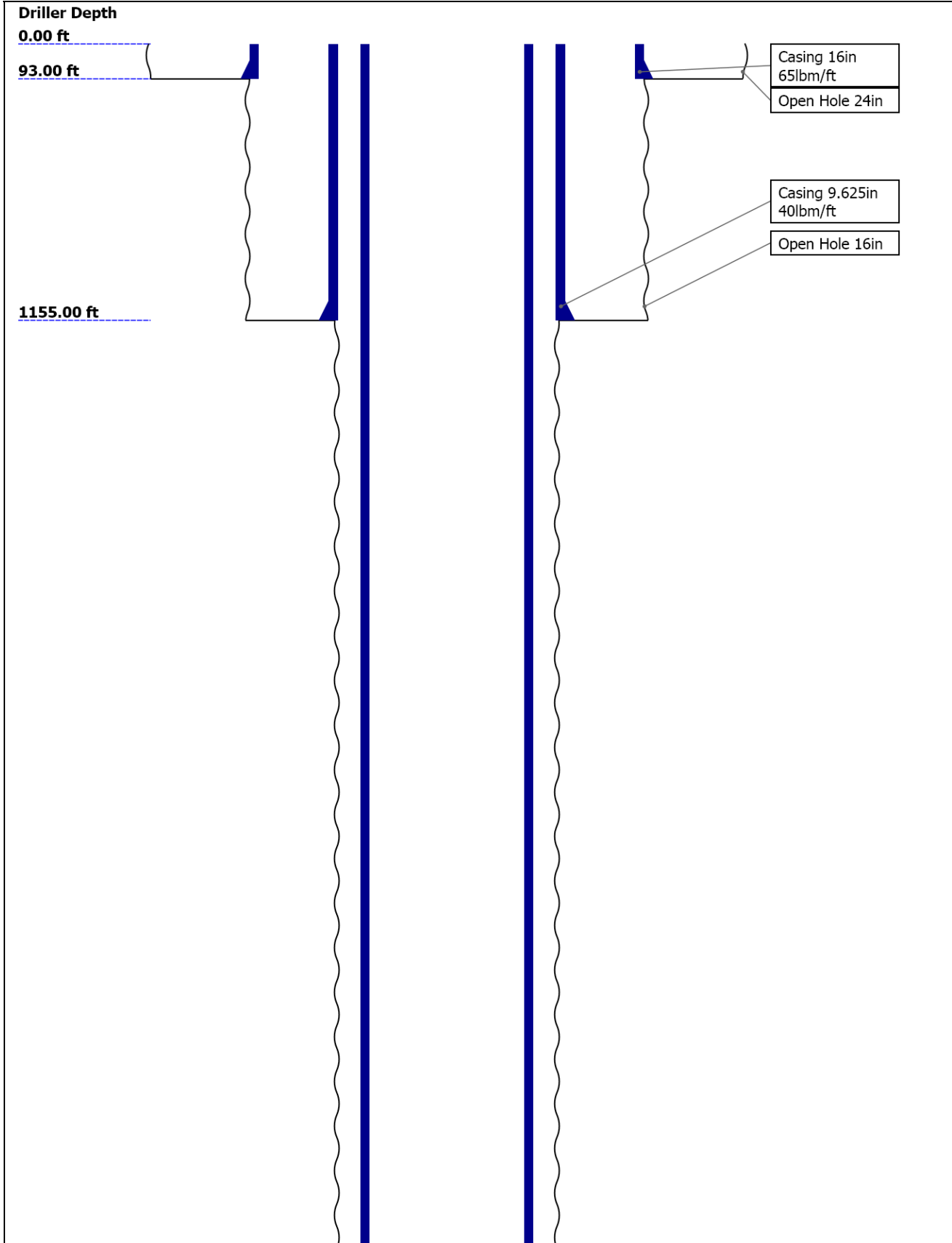
Schlumberger									
Company:		Encana Oil & Gas (USA)							
Well:		Ruhl 11-32H-B264							
Field:		Wattenberg							
County:		Weld		Country:		USA			
Slim Cement Mapping Tool									
SCMT									
Field Print									
Location:		NWNE 32 2N 64W		SHL: 307FNL 1508FEL		Elev.:		K.B. 5010.00 ft G.L. 4997.00 ft D.F.	
Permanent Datum:		Ground Level		Elev.:		4997.00 f			
Log Measured From:		Kelly Bushing		13.00 ft		above Perm.Datum			
Drilling Measured From:		Kelly Bushing							
API Serial No.		Max.Hole Deviation		Longitude:		Latitude:			
05-123-40275		0 deg		-104.57083 degrees		40.101448 degrees			
Logging Date		13-Feb-2015							
Run Number		Run 1							
Depth Driller		7586.00 ft							
Schlumberger Depth		7586.00 ft							
Bottom Log Interval		6593.00 ft							
Top Log Interval		73.00 ft							
Casing Fluid Type		Water							
Salinity		400 ppm							
Density		10.7 lbm/gal							
Fluid Level		8.00 ft							
BIT/CASING/TUBING STRING									
Bit Size		8.75 in							
From		1155.00 ft							
To		7586.00 ft							
Casing/Tubing Size		7 in							
Weight		26 lbm/ft							
Grade		P110							
From		0.00 ft							
To		7586.00 ft							
Max Recorded Temperatures		220 degF							
Logger on Bottom		13-Feb-2015		Time		21:00:00			
Unit Number		Location:		9108		Fort Morgan			
Recorded By		Tezla Hayduk							
Witnessed By		Davis							

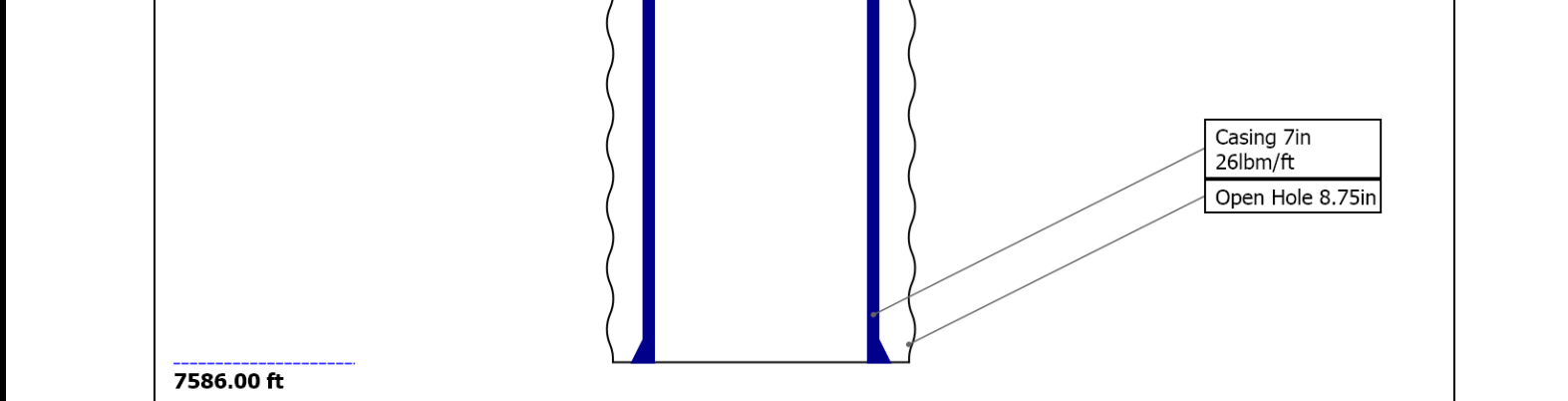
Disclaimer
THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE 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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- 10.3 Composite Summary
- 10.4 Log ( SCMT\_VDL\_Image )
- 10.5 Parameter Listing
- 11. Tail

Well Sketch





## Borehole Size/Casing/Tubing Record

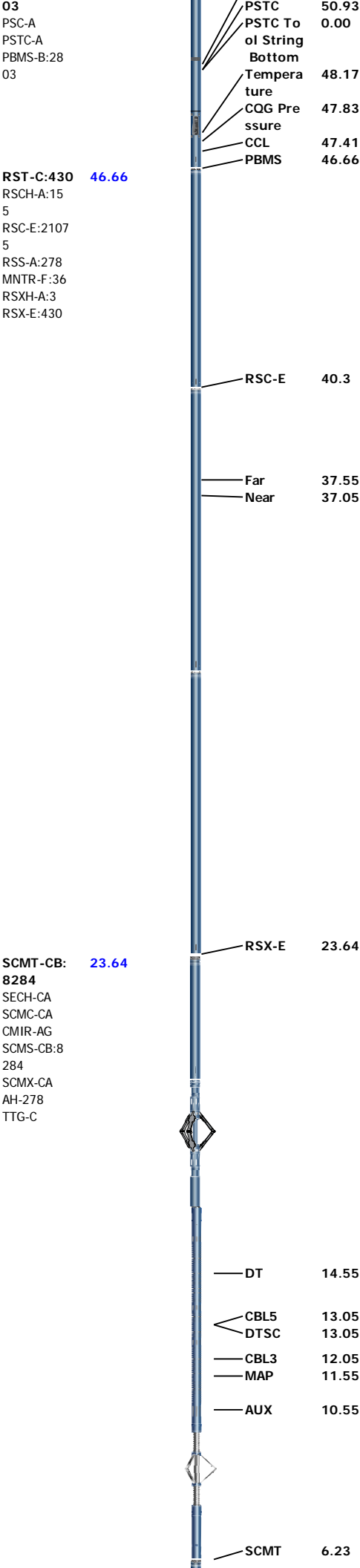
Bit						
Bit Size ( in )	24	16	8.75			
Top Driller ( ft )	0	93	1155			
Top Logger ( ft )	0	93	1155			
Bottom Driller ( ft )	93	1155	7586			
Bottom Logger ( ft )	93	1155	7586			
Casing						
Size ( in )	16	9.625	7			
Weight ( lbm/ft )	65	40	26			
Inner Diameter ( in )	15.25	8.835	6.276			
Grade	N/A	N80	P110			
Top Driller ( ft )	0	0	0			
Top Logger ( ft )	0	0	0			
Bottom Driller ( ft )	93	1155	7586			
Bottom Logger ( ft )	93	1155	7586			

## Borehole Fluids

Parameter( unit )	Run 1					
Fluid Type	Water					
Max Recorded Temperatures ( degF )	220					
Salinity ( ppm )	400					
Density ( lbm/gal )	10.7					
Date Logger on Bottom	13-Feb-2015					
Time Logger on Bottom	21:00:00					
Total Solid ( % )	12					
High Gravity Solids ( % )						

## Remarks and Equipment Summary

Run 1: Toolstring				Run 1: Remarks	
Equip name	Length	MP name	Offset	Toolstring ran as per tool sketch	
LEH-QT	59.00			Lead cement 12ppg, 4000ft to surface, Tail Cement 13ppg 7586-4000ft	
LEH-QT				TOC at 825ft	
AH-63	56.08				
AH-79	55.76				
PSTP-B:28	54.93	GR	51.22		





 <p><b>BNS-S</b>      <b>0.22</b></p> <p>TOOL_ZERO</p> <p>Lengths are in ft Maximum Outer Diameter = 3.375 in Line: Sensor Location, Value: Gating Offset All measurements are relative to TOOL_ZERO</p>			
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## Depth Summary

	Run 1		
--	-------	--	--

### Depth Measuring Device

Type	IDW-JA		
Serial Number	6780		
Calibration Date	12-Nov-2014		
Calibrator Serial Number			
Calibration Cable Type	7-46A-XS		
Wheel Correction 1	-2		
Wheel Correction 2	-2		

### Tension Device

Type	CMTD-B/A		
Serial Number	171		
Calibration Date	13-Feb-2015		
Calibrator Serial Number	78135A		
Number of Calibration Points	10		
Calibration Root Mean Square Error	12		
Calibration Peak Error	27		

### Logging Cable

Type	7-46A-XS		
Serial Number			
Length	18000.00 ft		
Conveyance Type	Wireline		
Rig Type	Land		

### Run 1:Depth Control Parameters

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

## Run 1

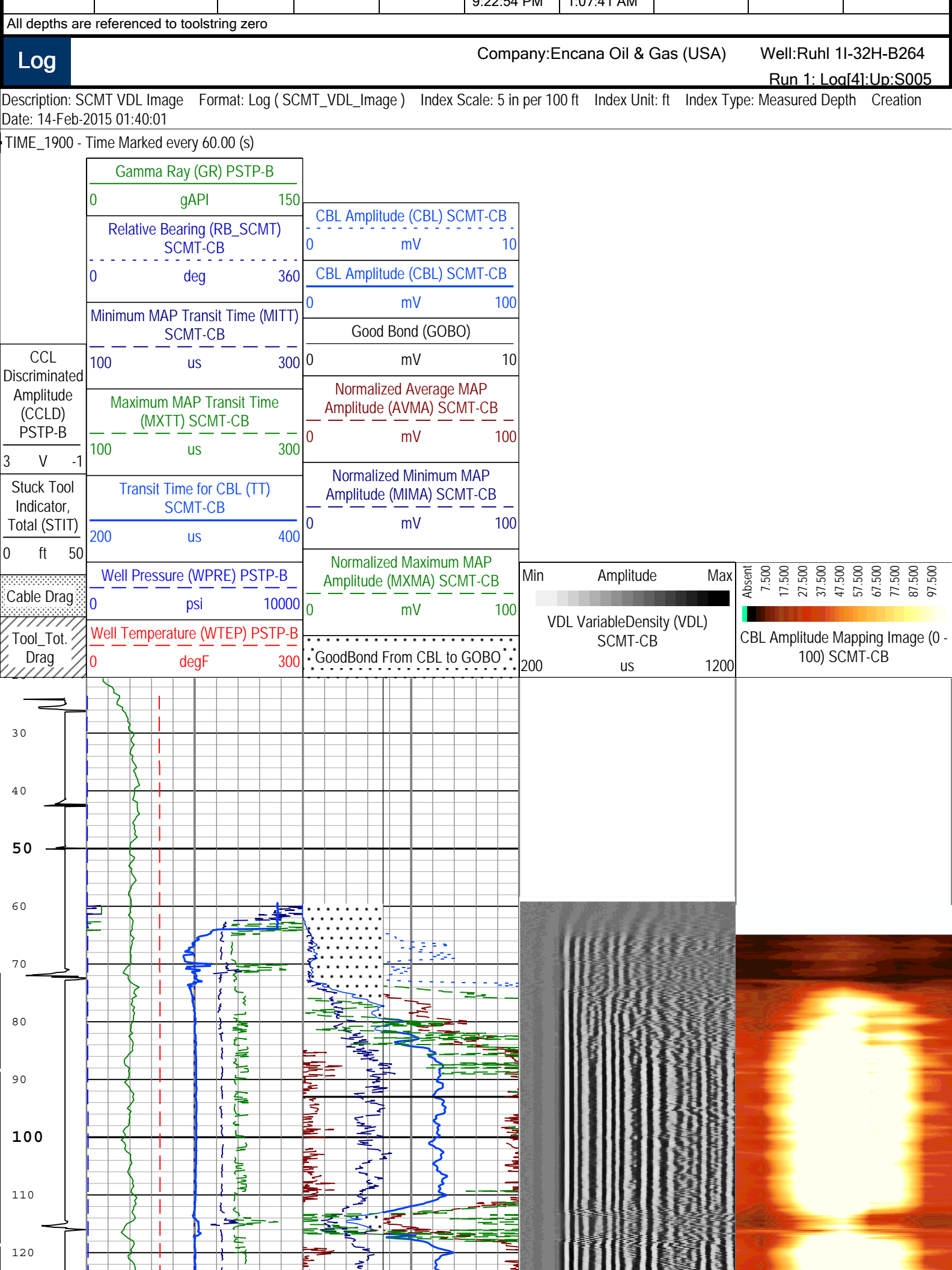
## SCMT Main

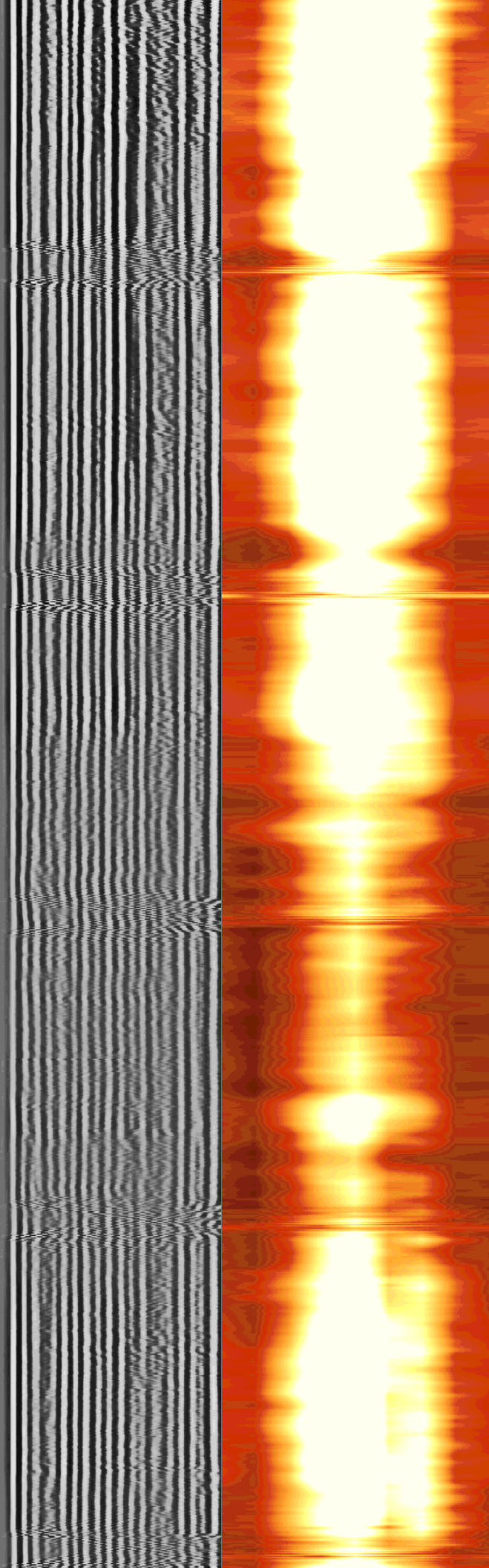
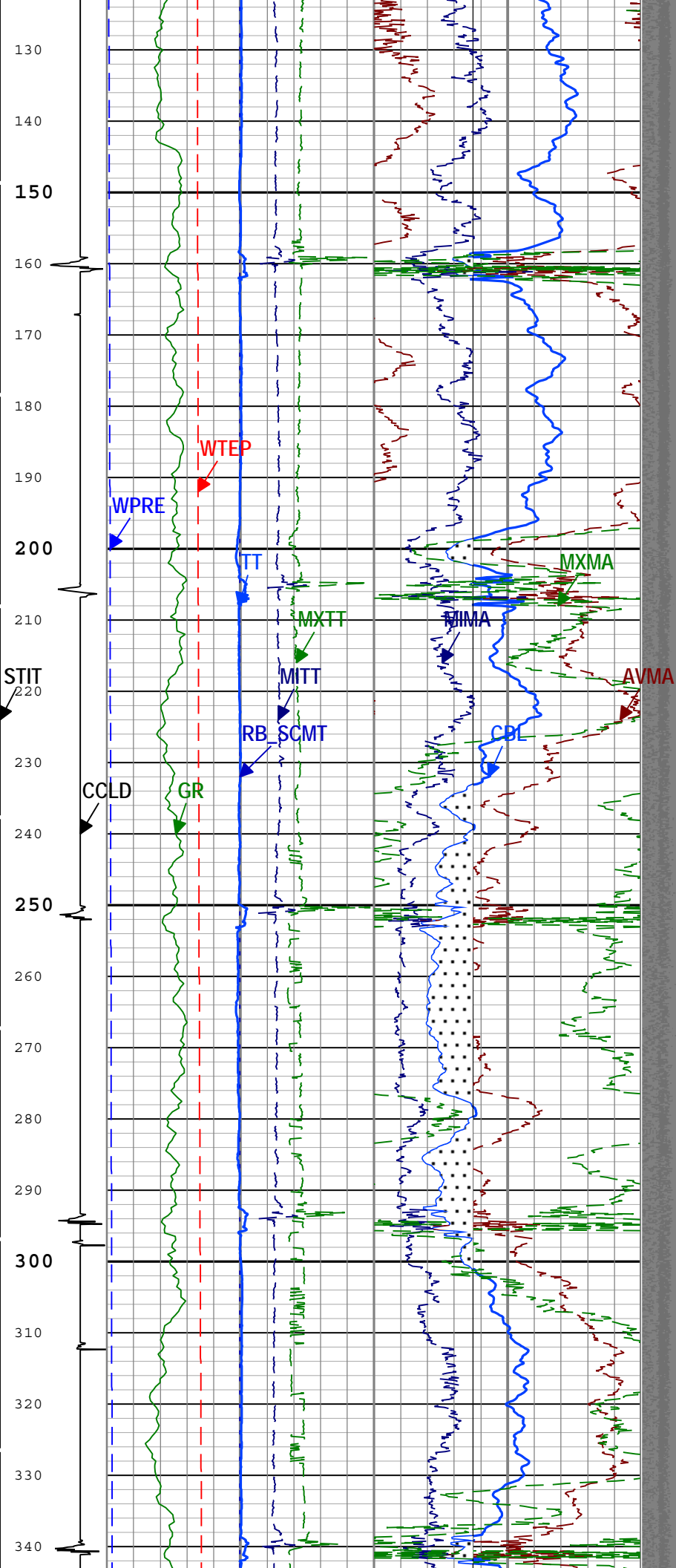
### Software Version

Acquisition System	Version
Maxwell	5.1.33858.3100

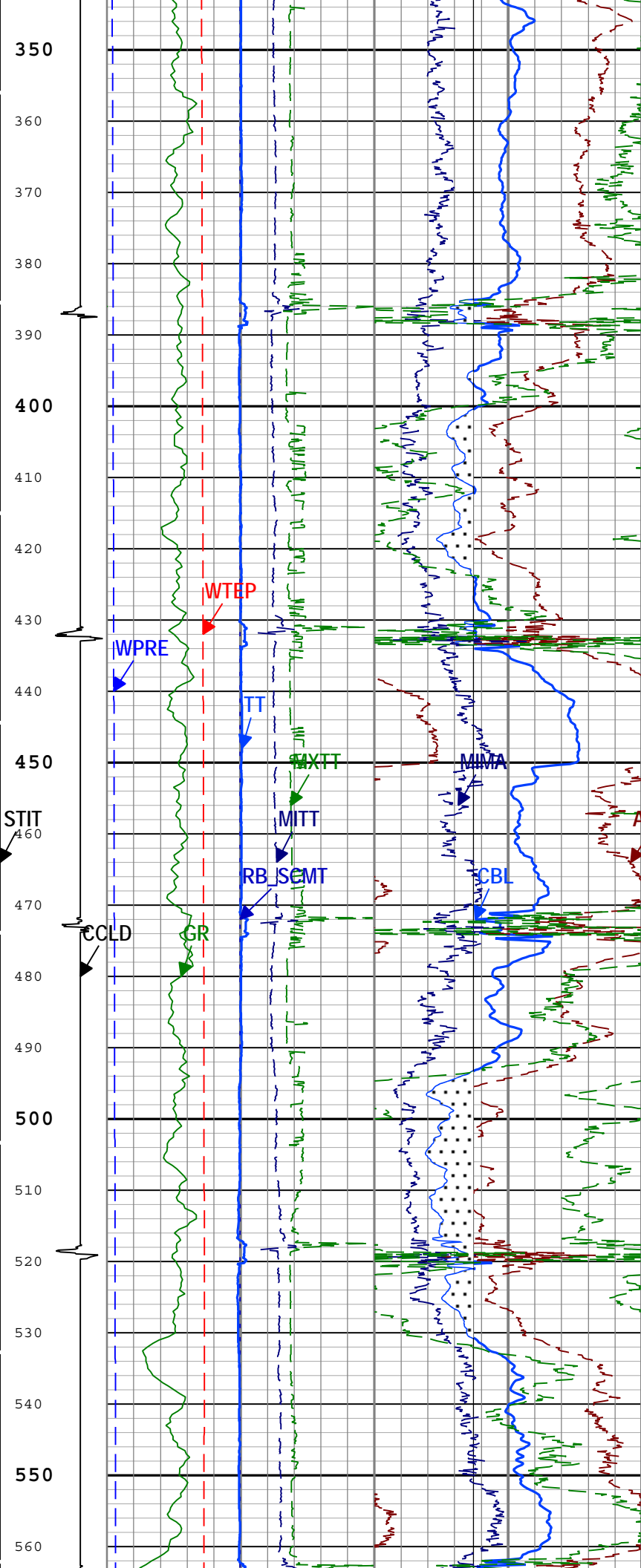
### Pass Summary

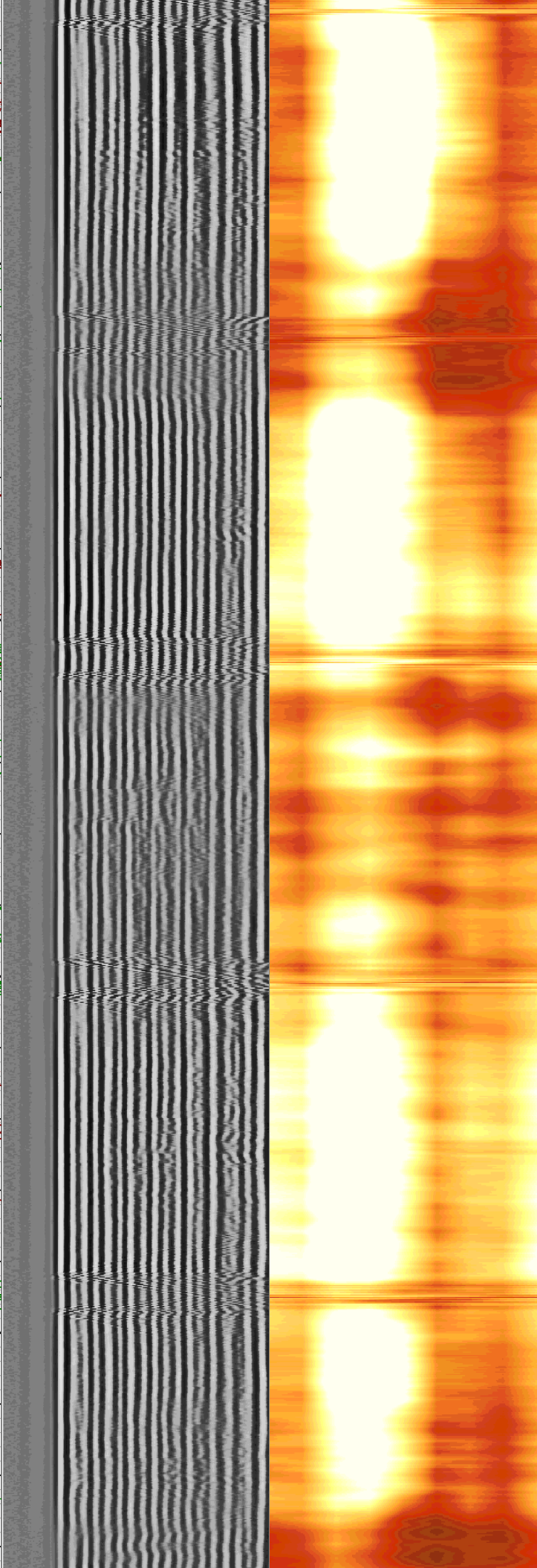
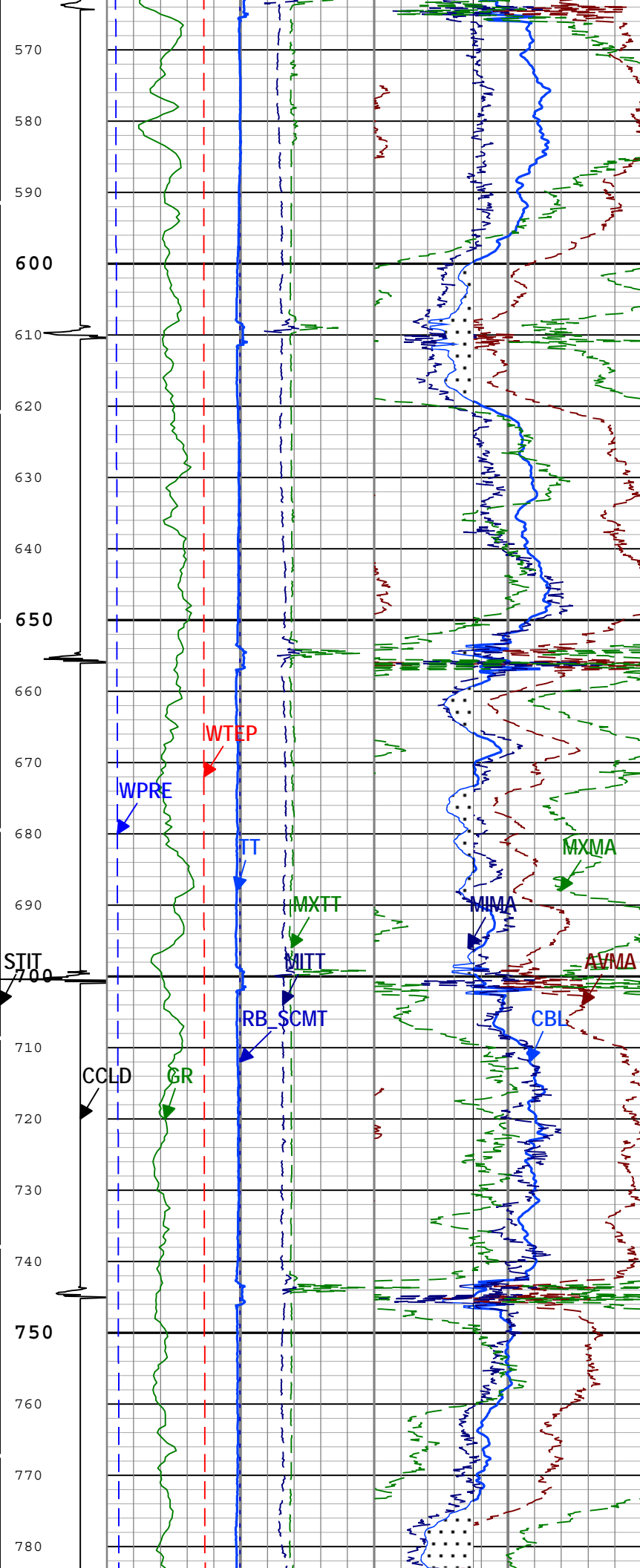
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run 1	Log[4]:Up	Up	71.24 ft	6604.94 ft	13-Feb-2015 9:22:54 PM	14-Feb-2015 1:07:11 AM	ON	3.79 ft	Yes



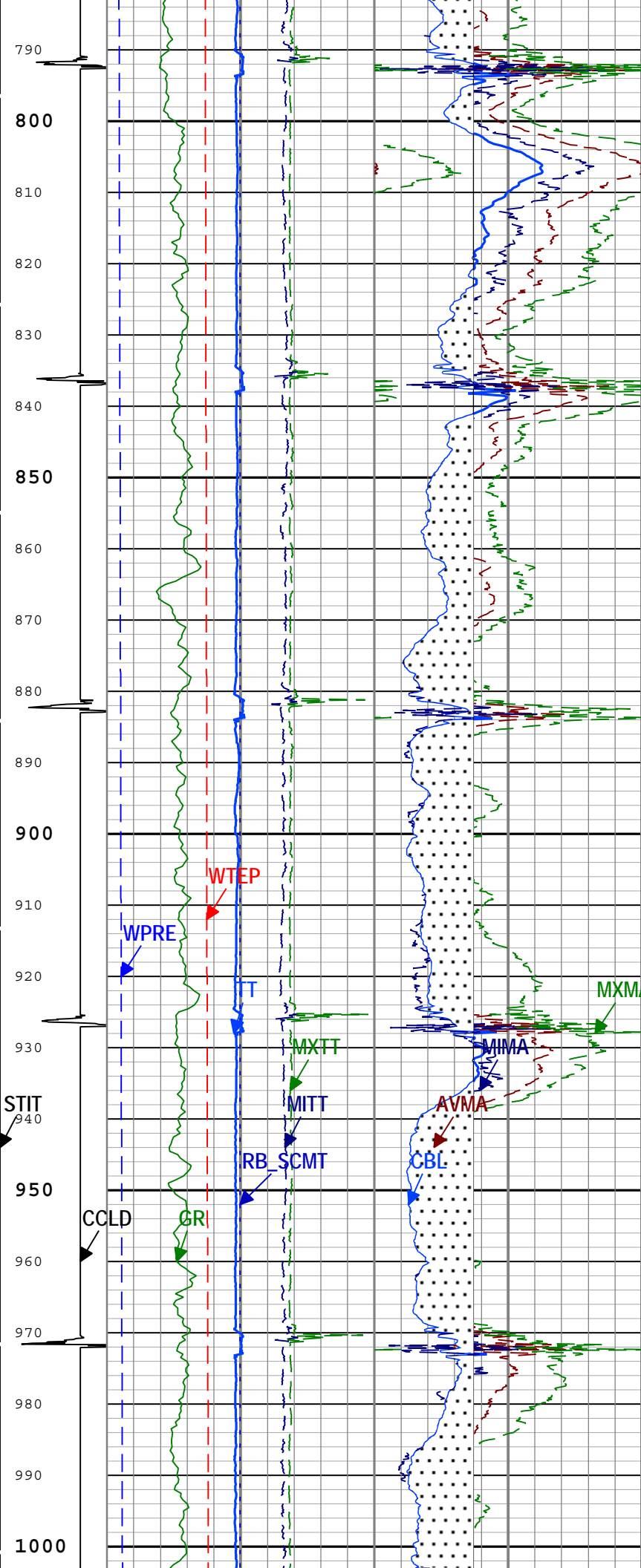


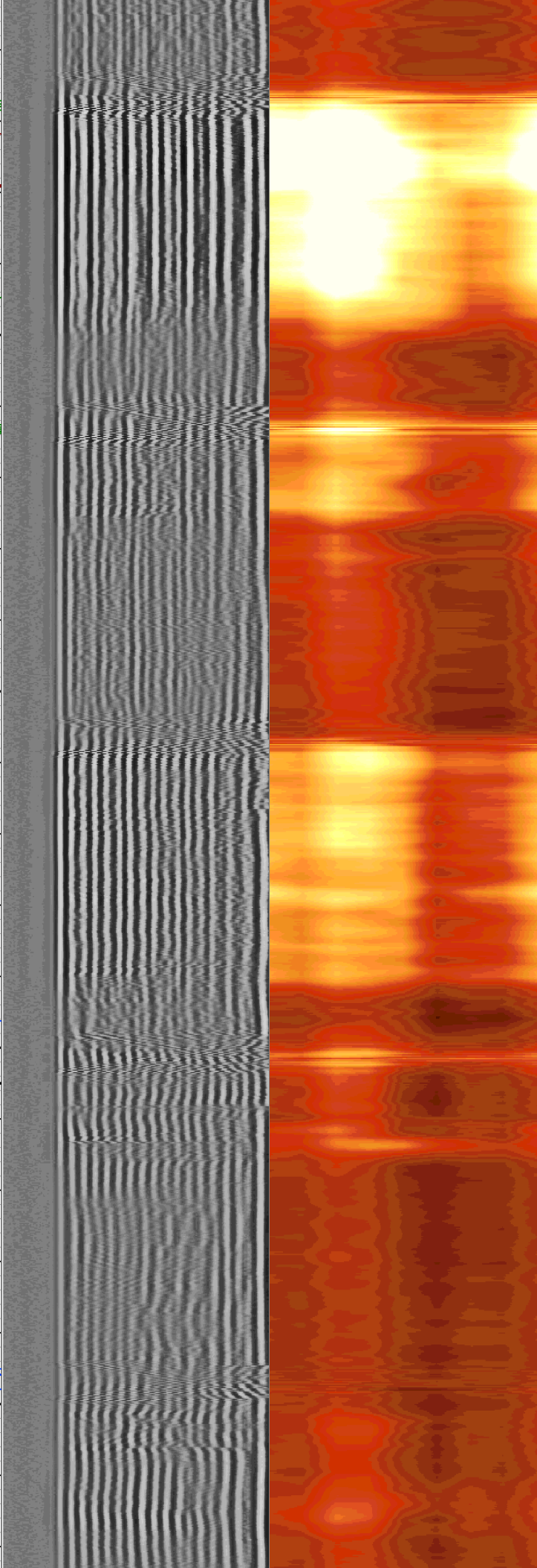
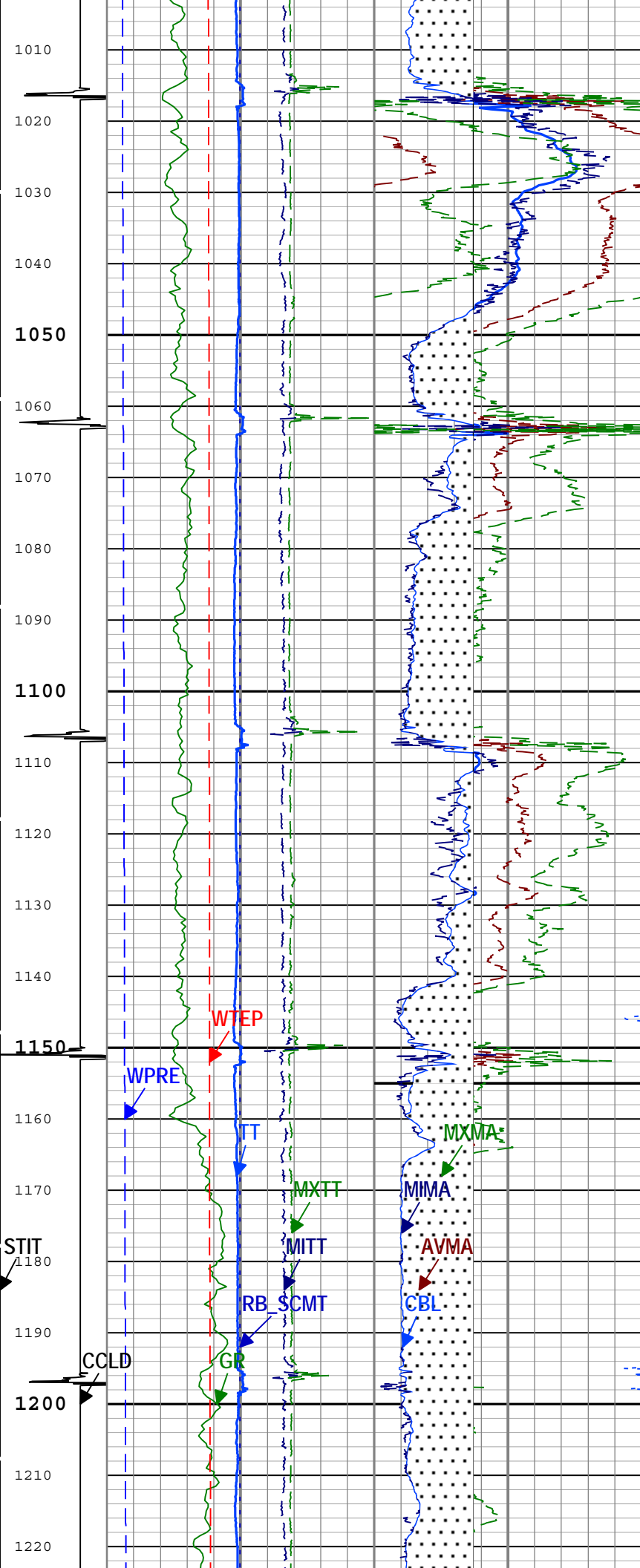




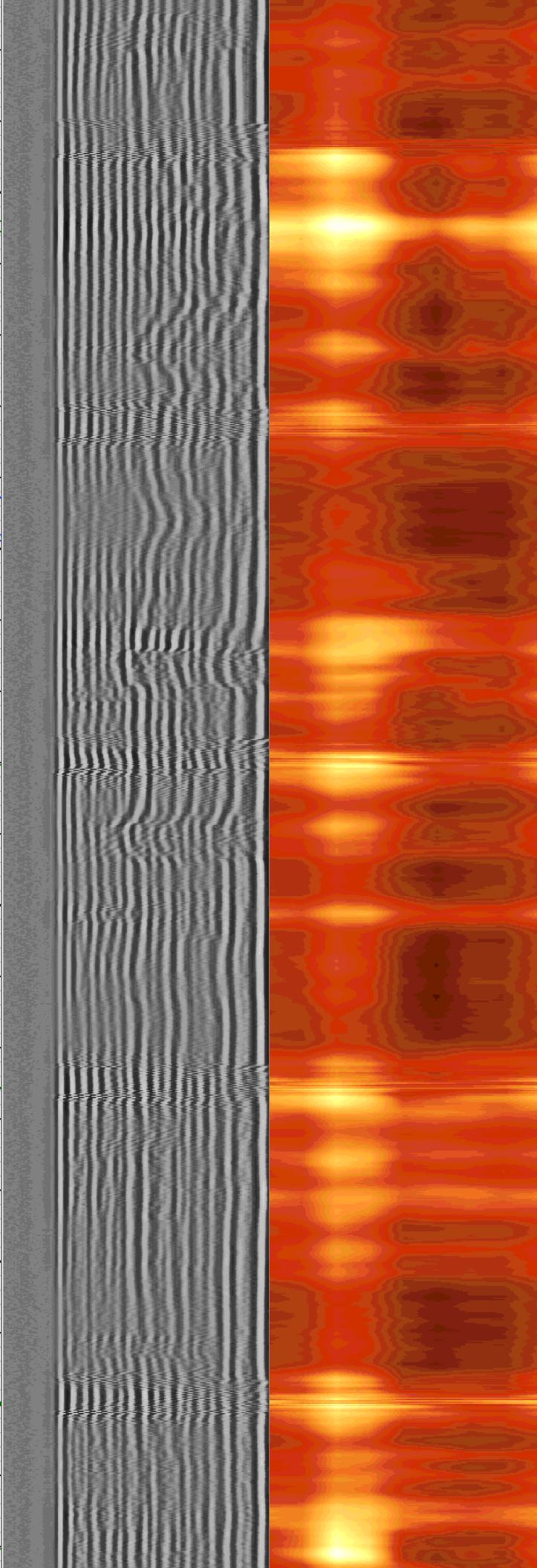
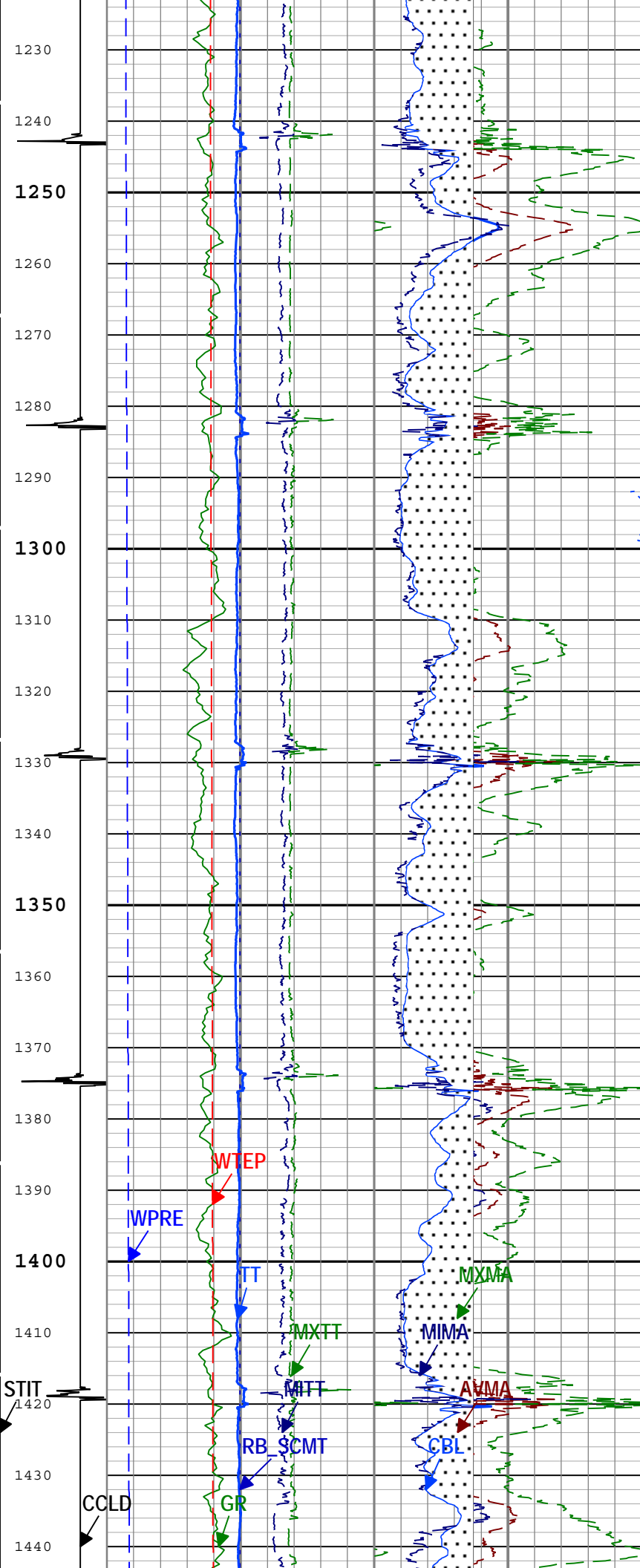




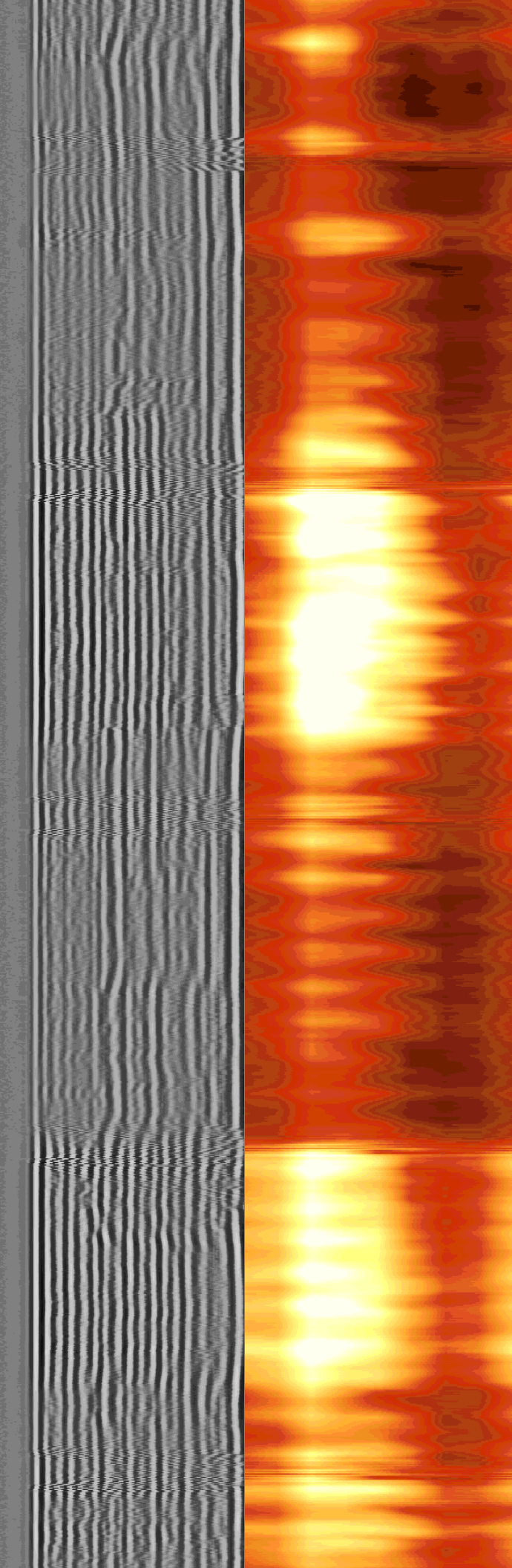
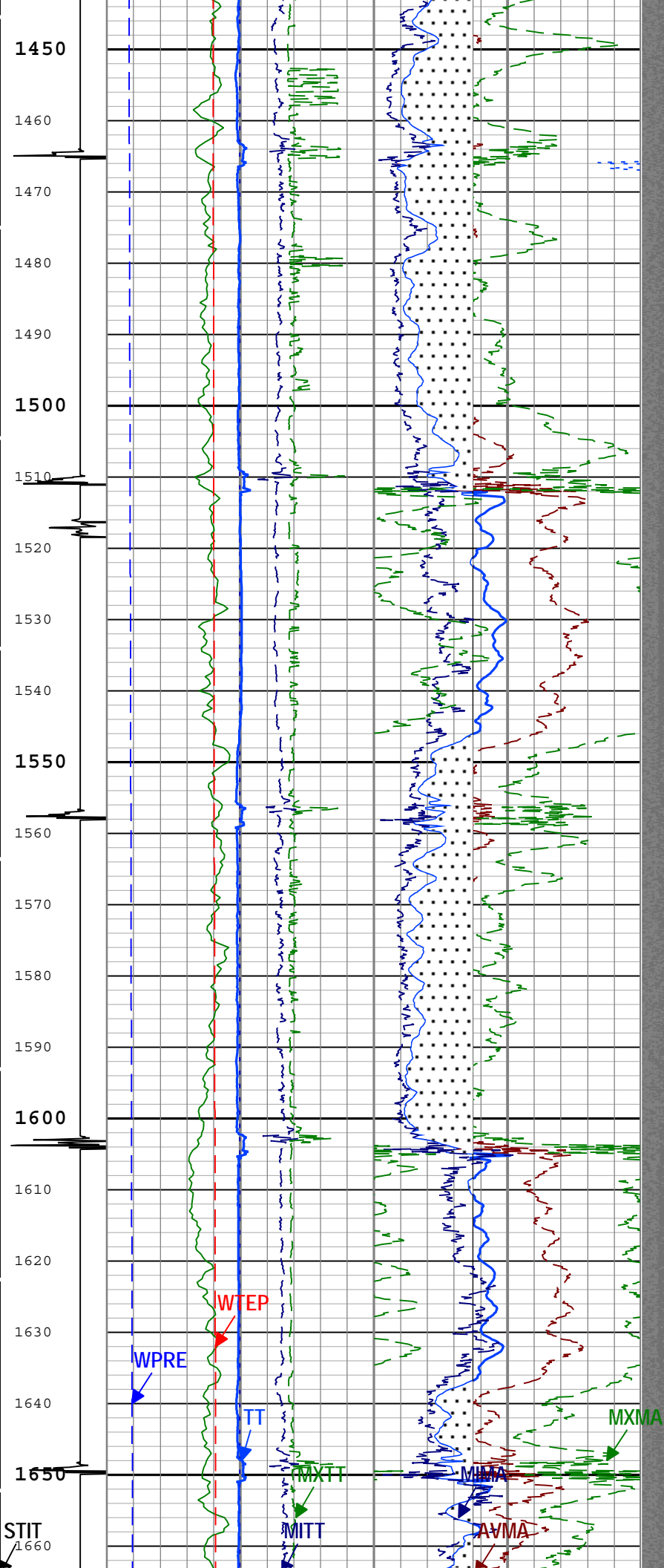


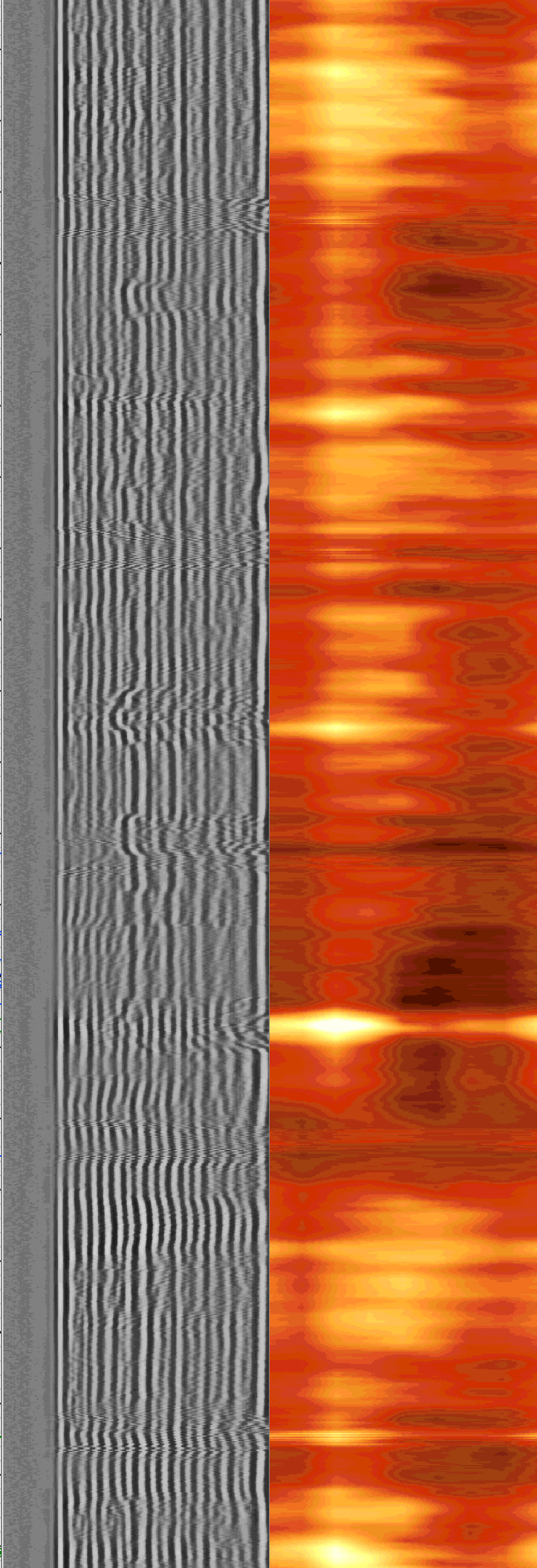
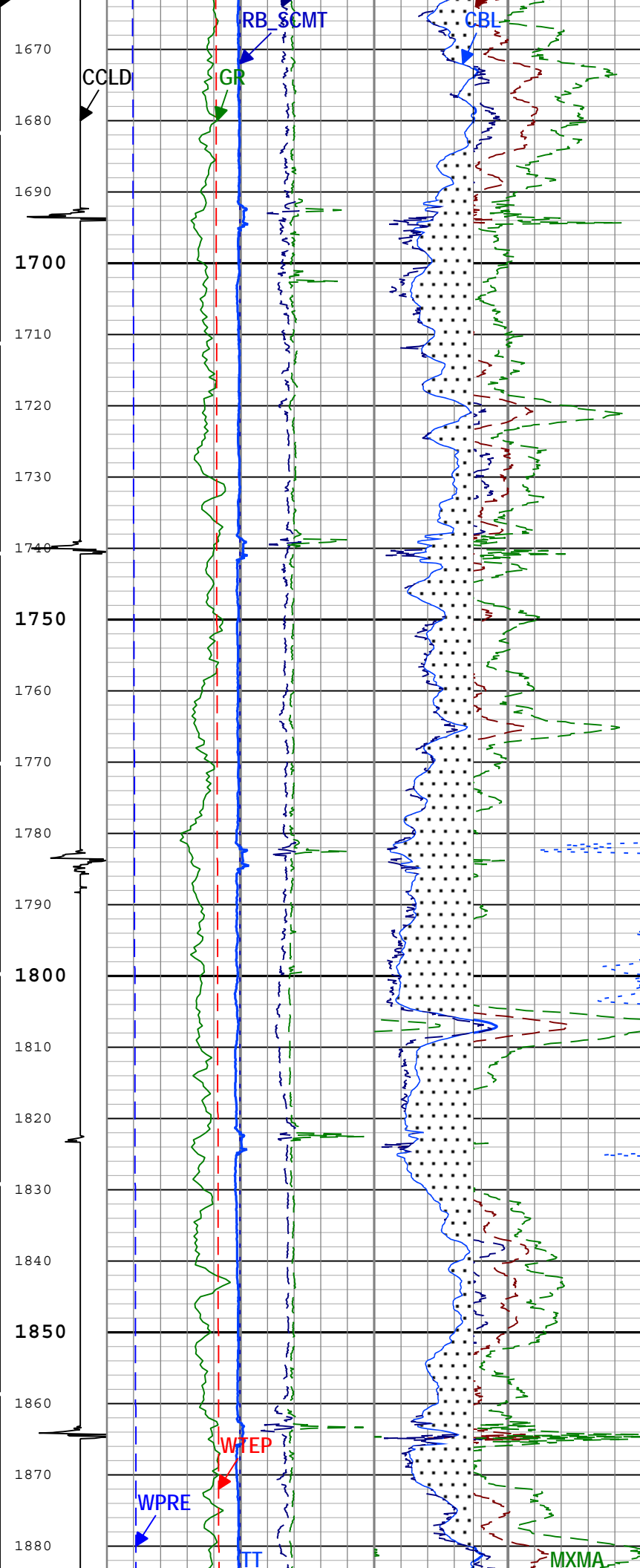




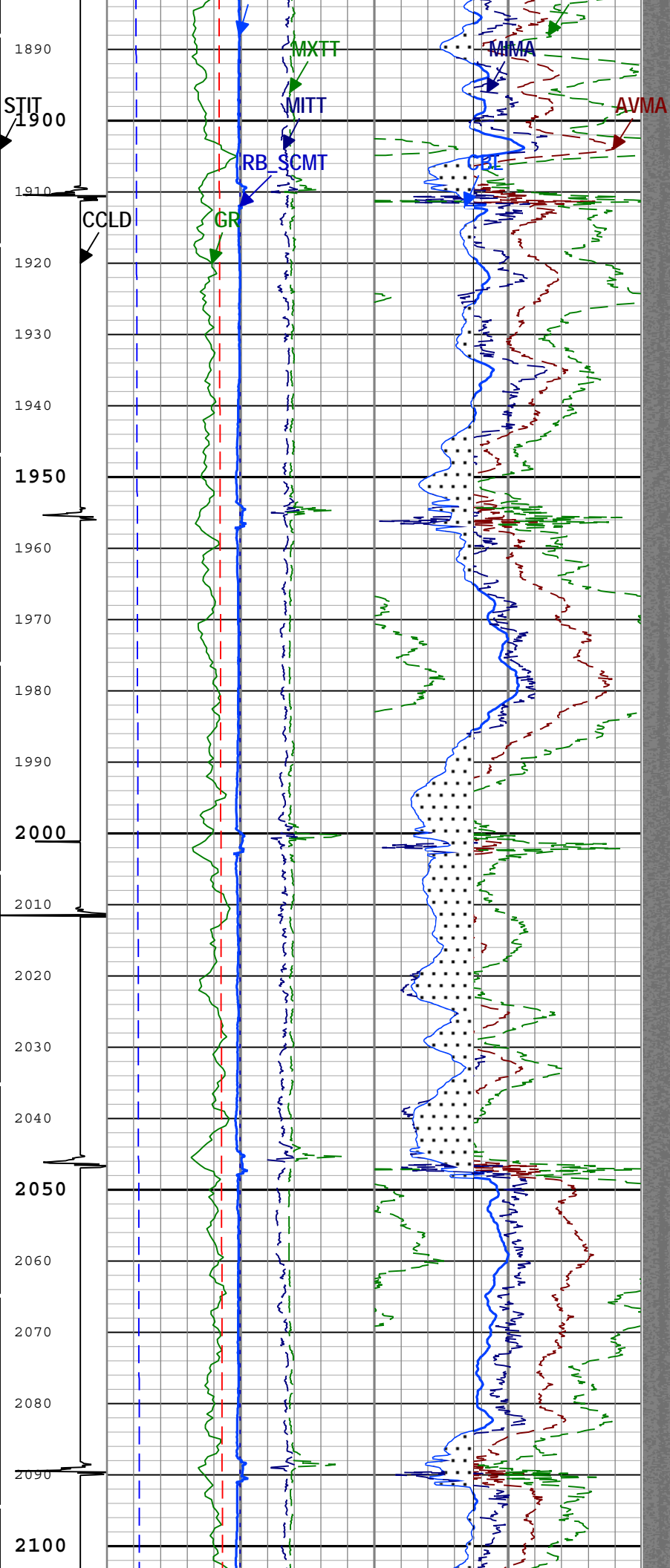


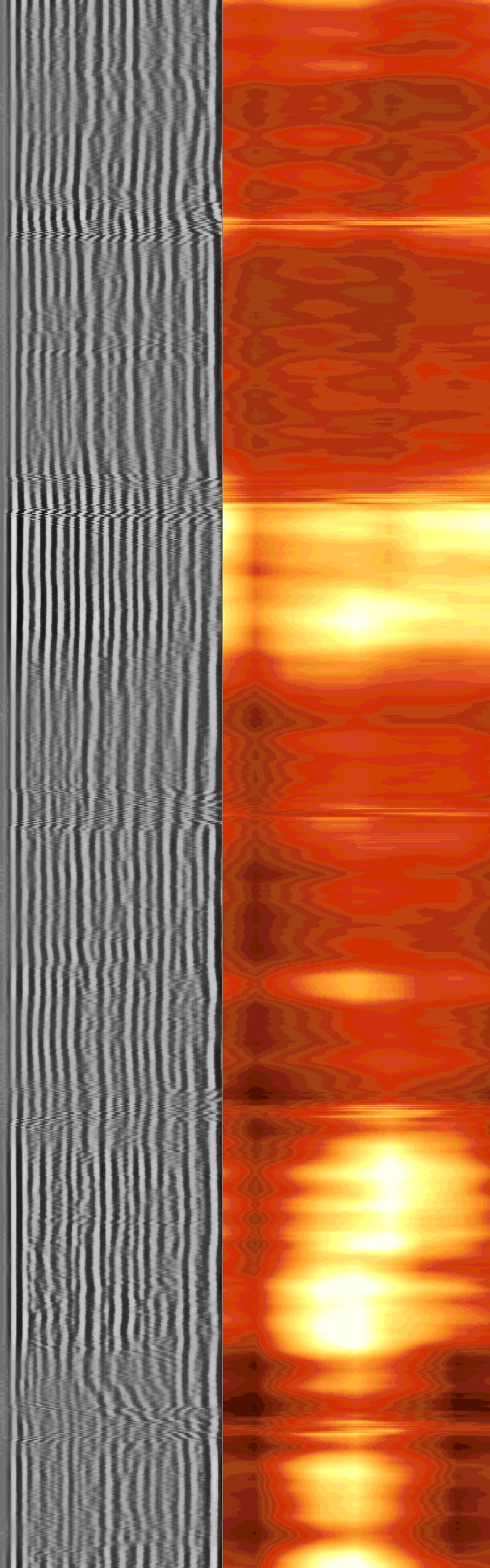
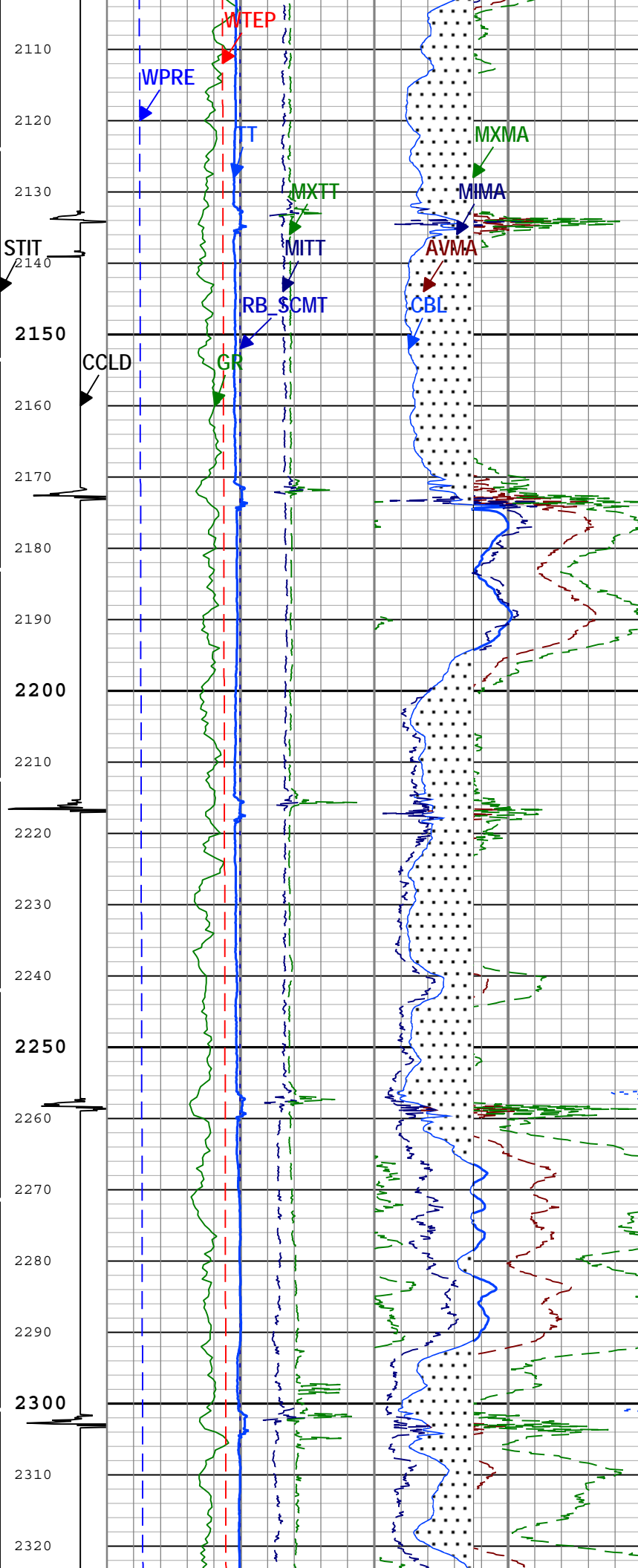




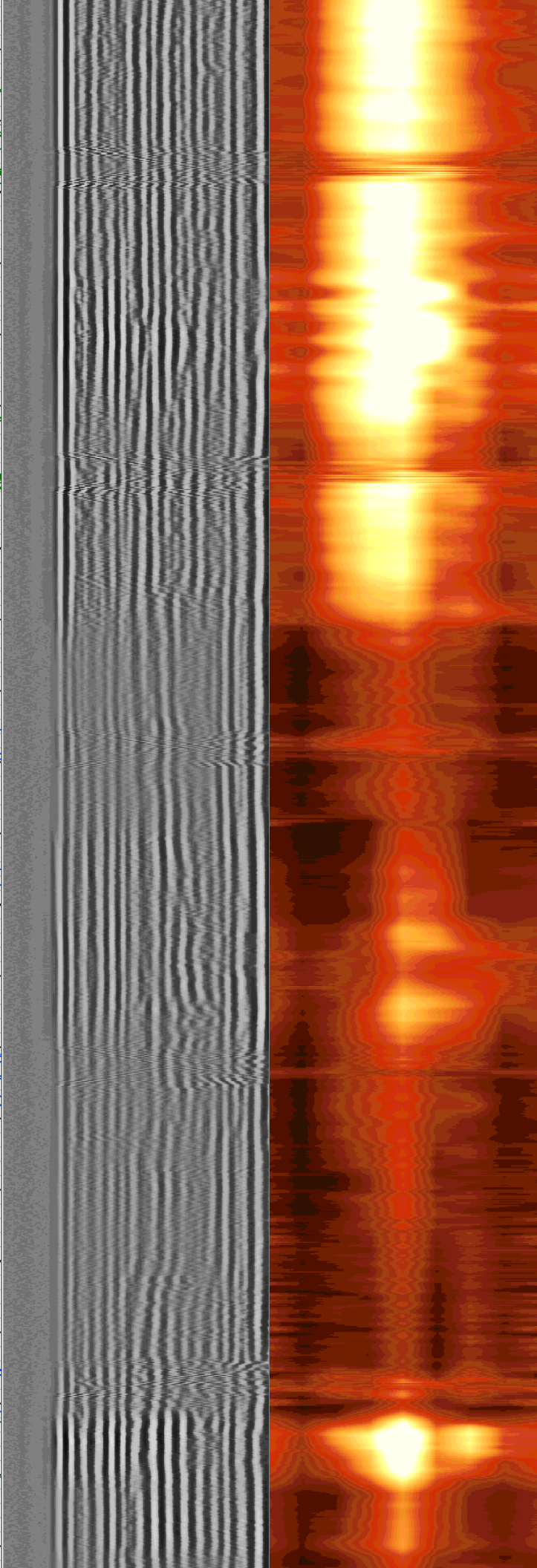
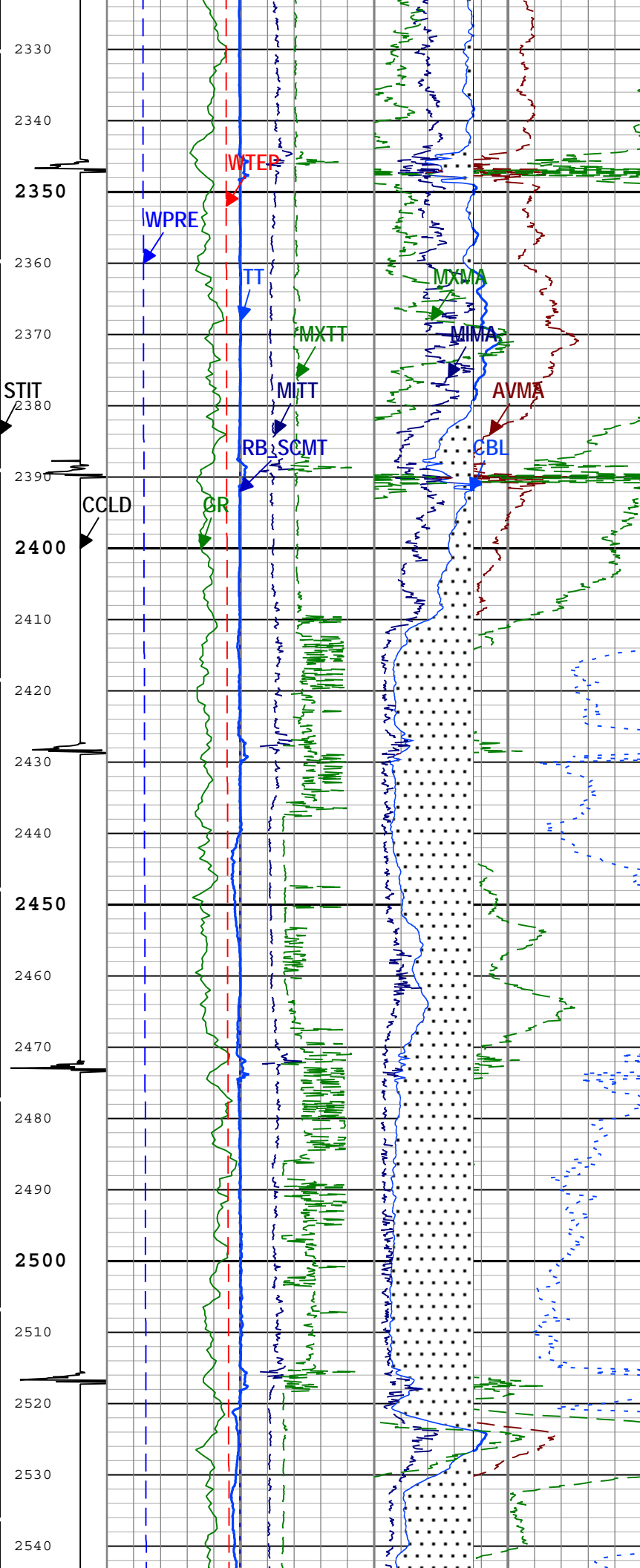


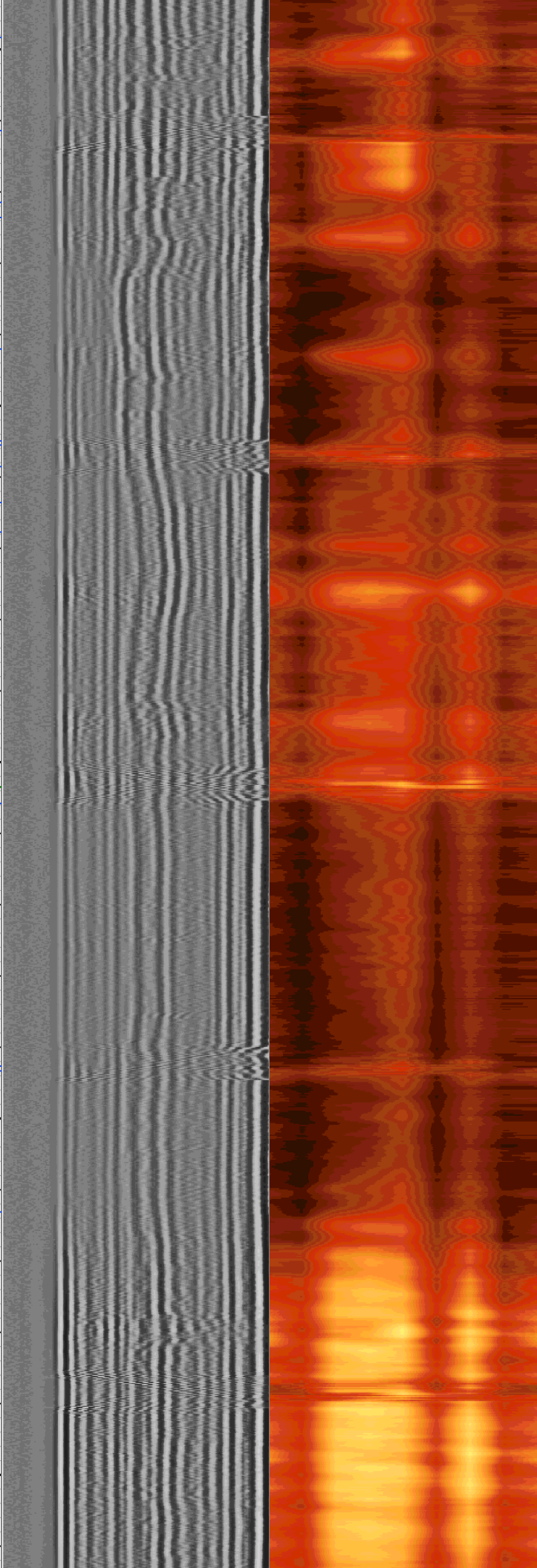
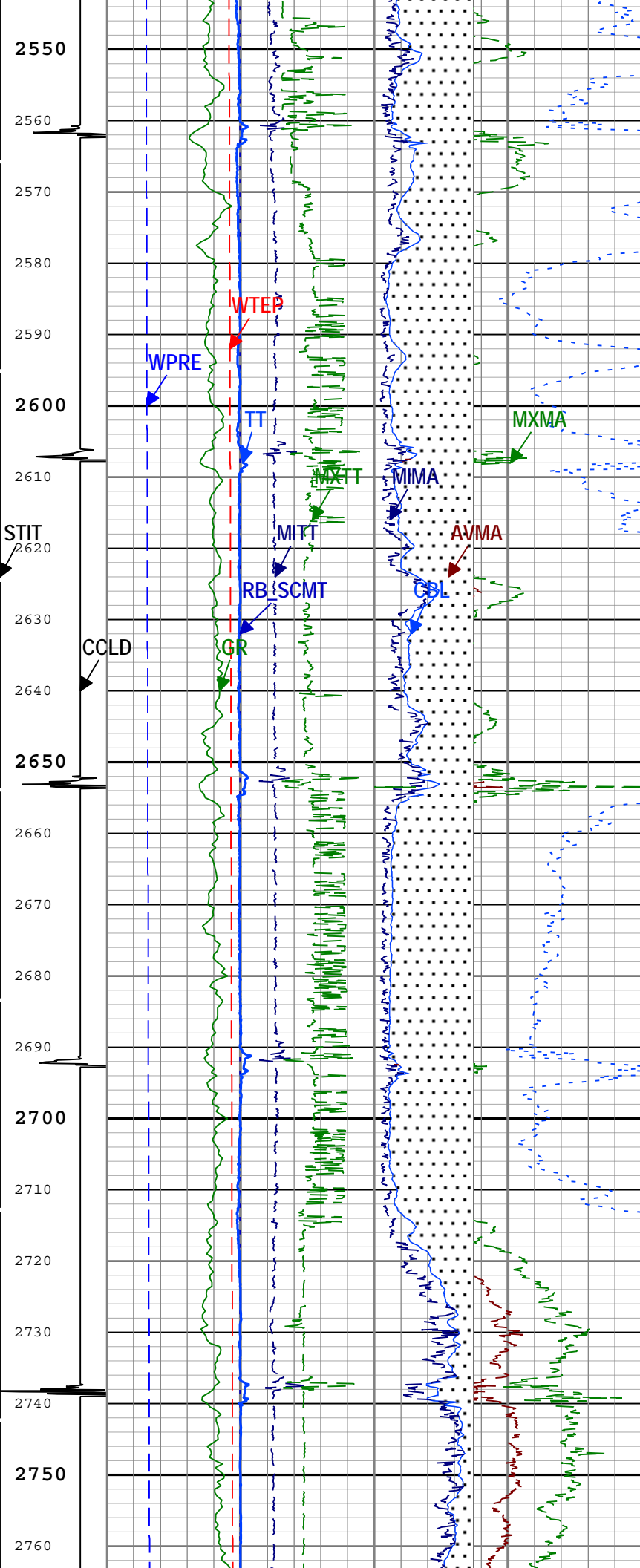




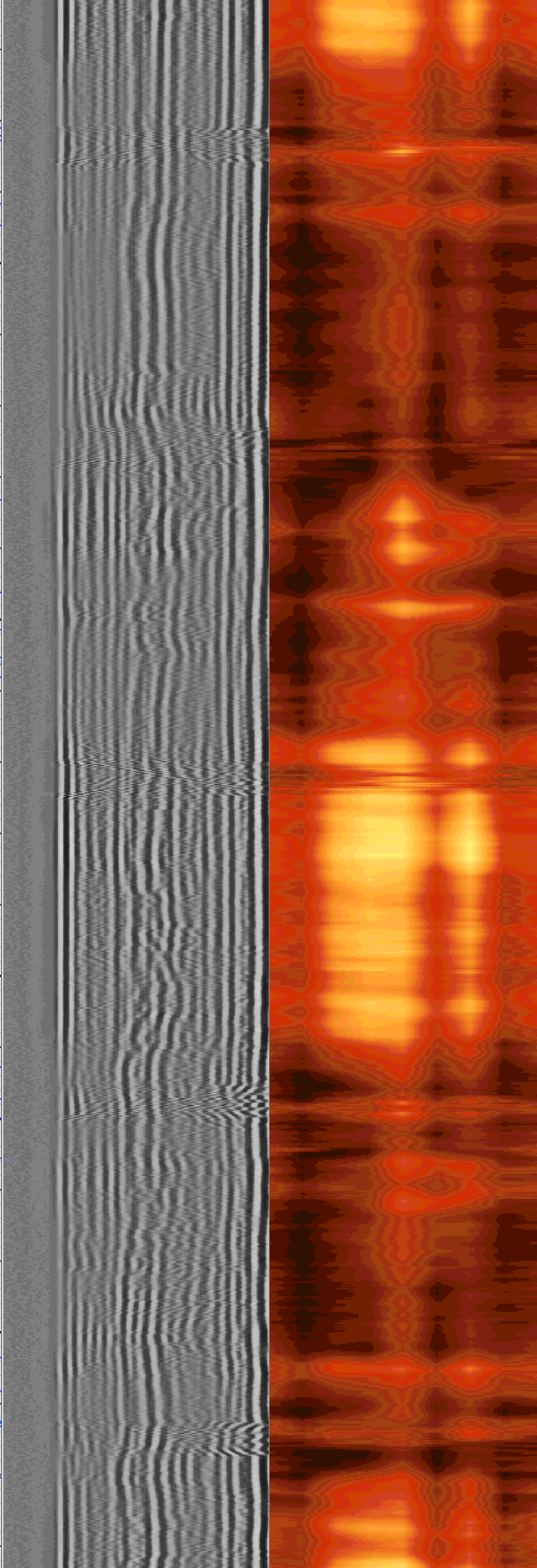
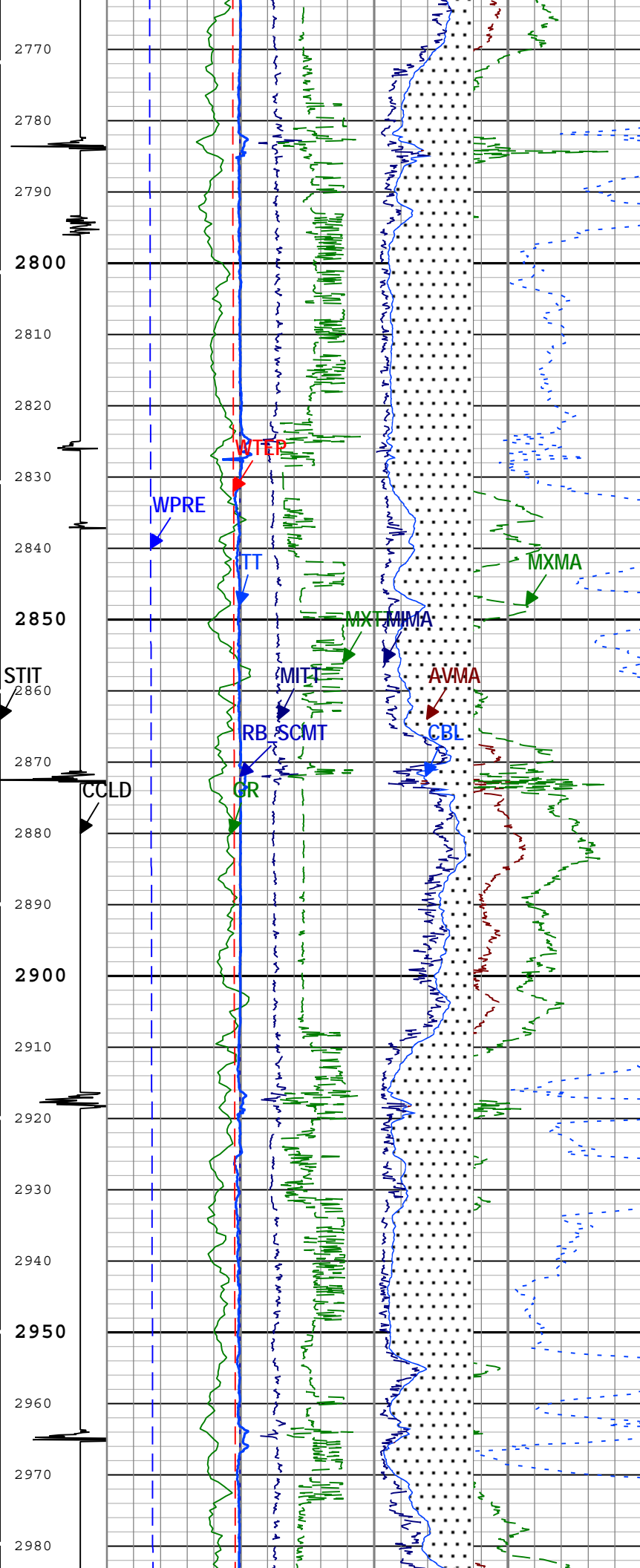


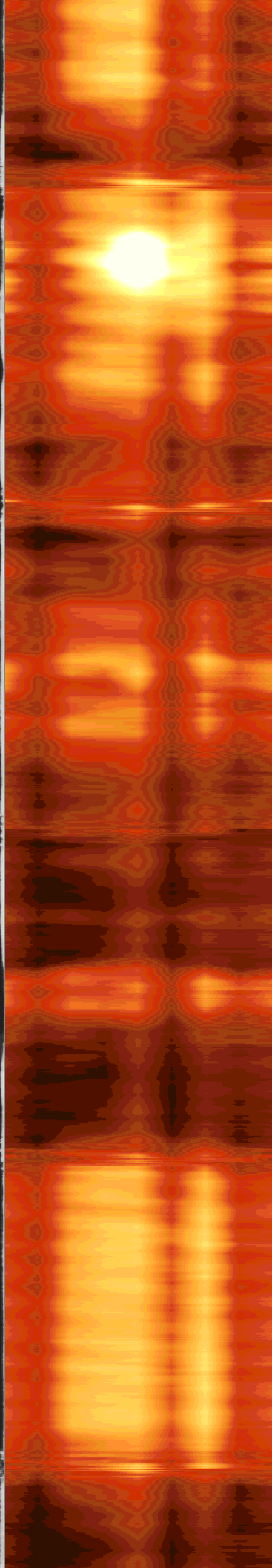
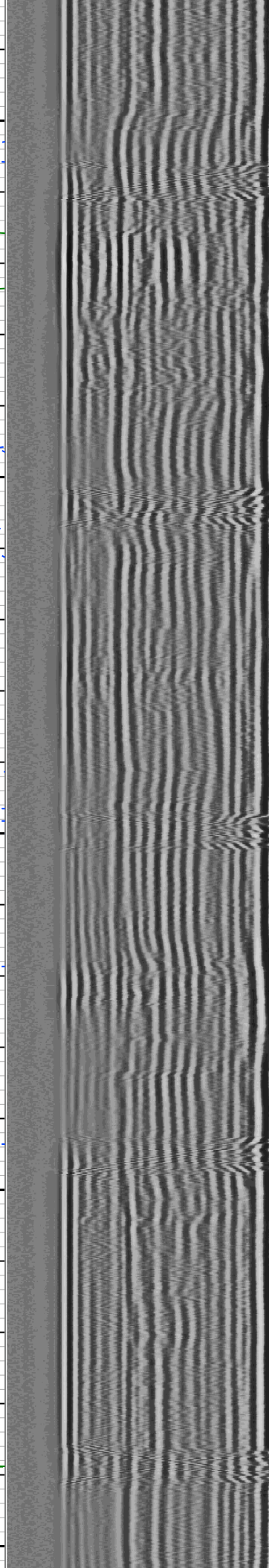
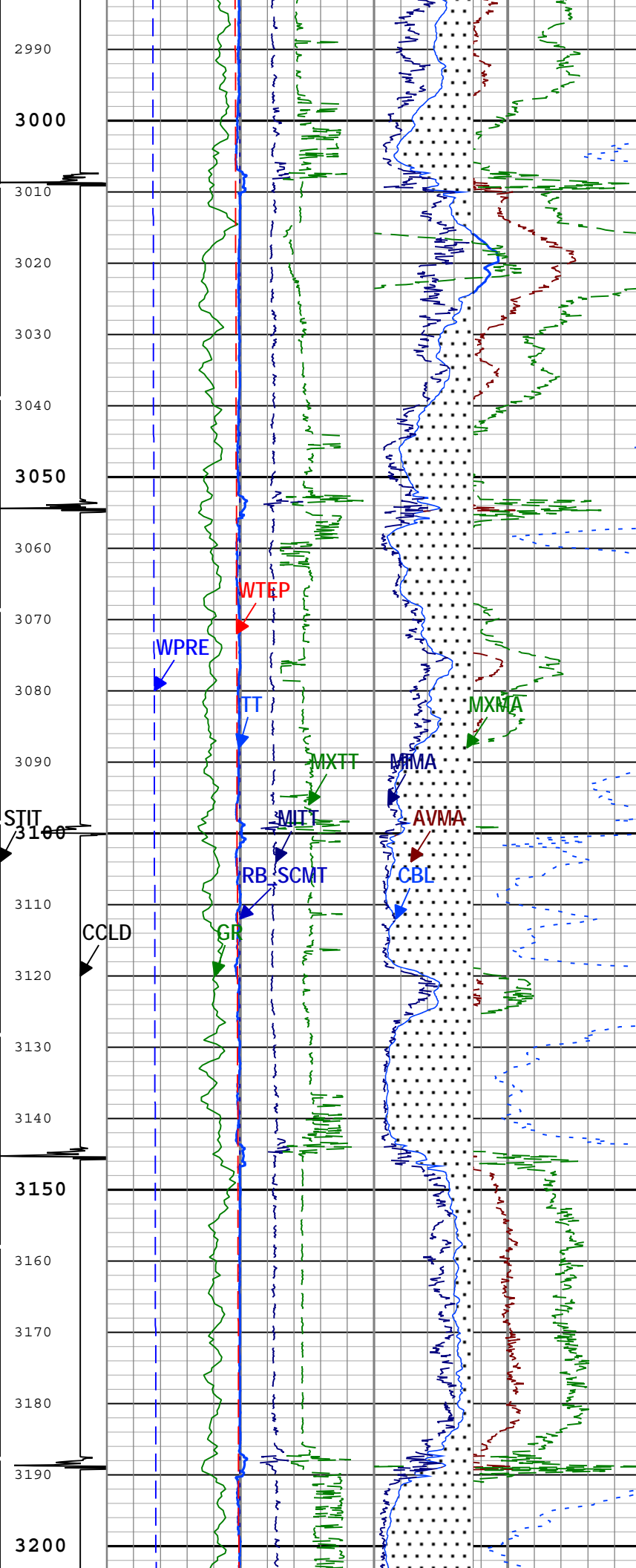




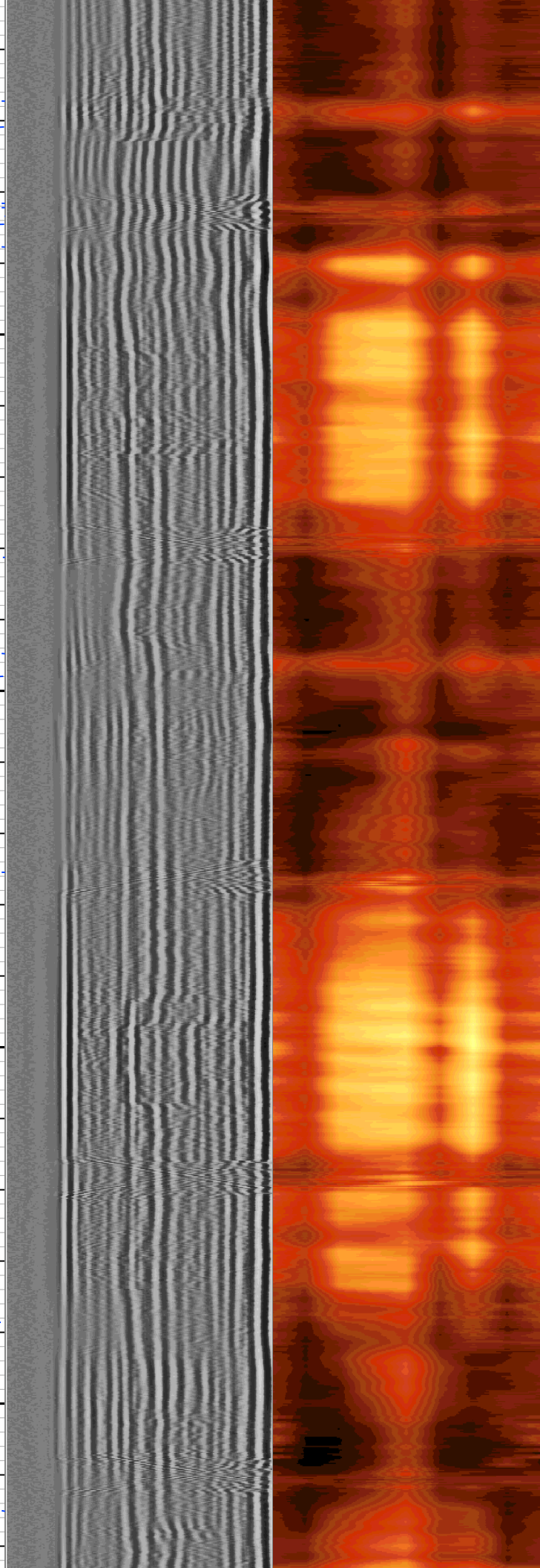
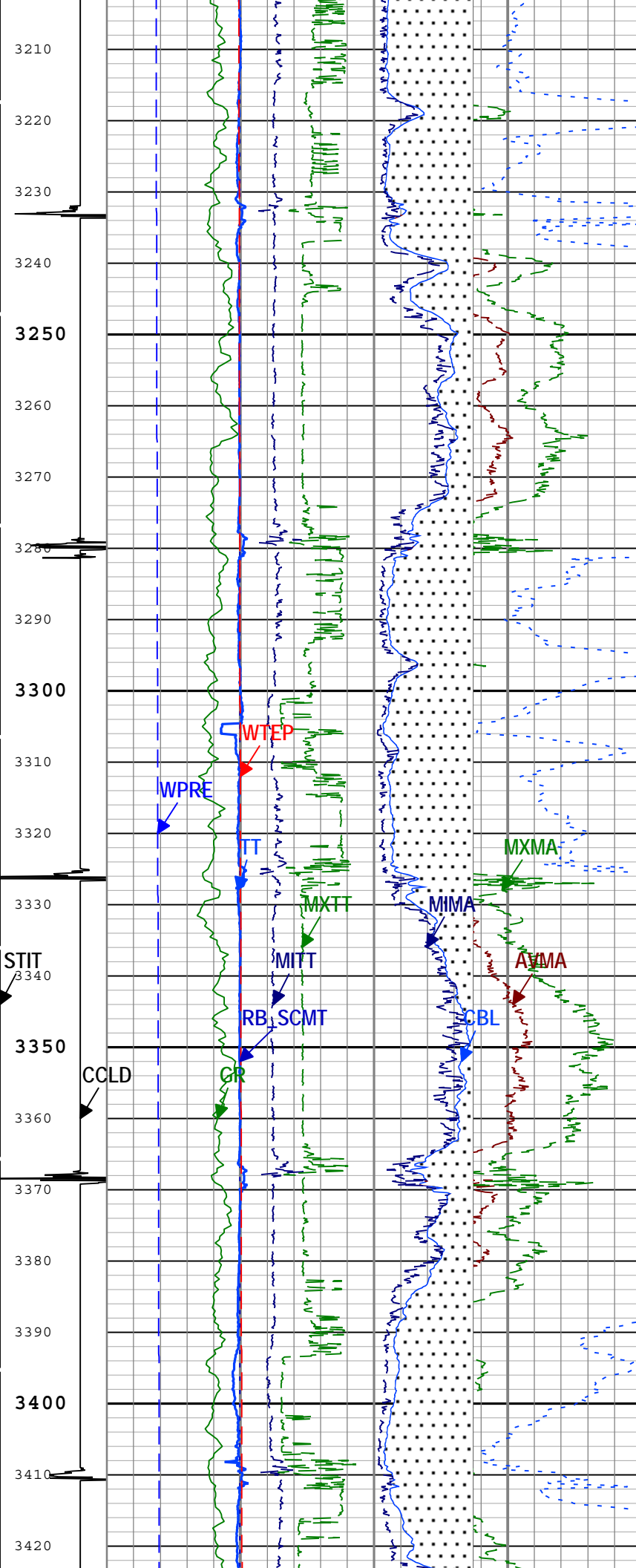


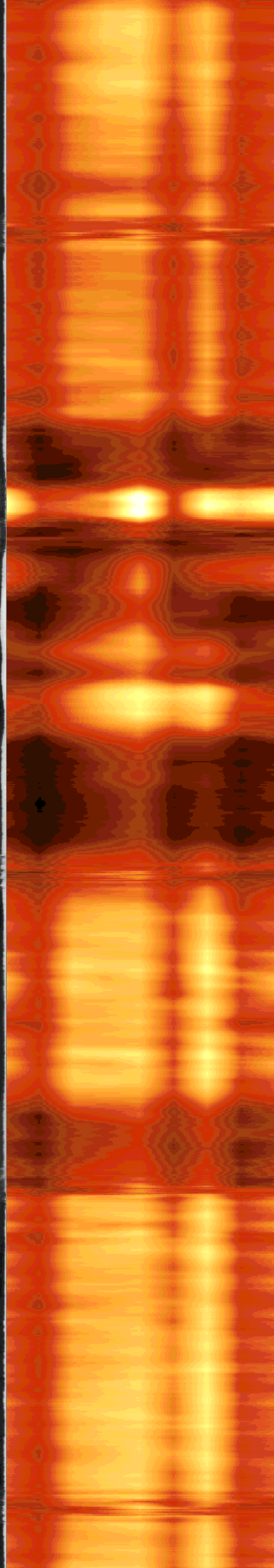
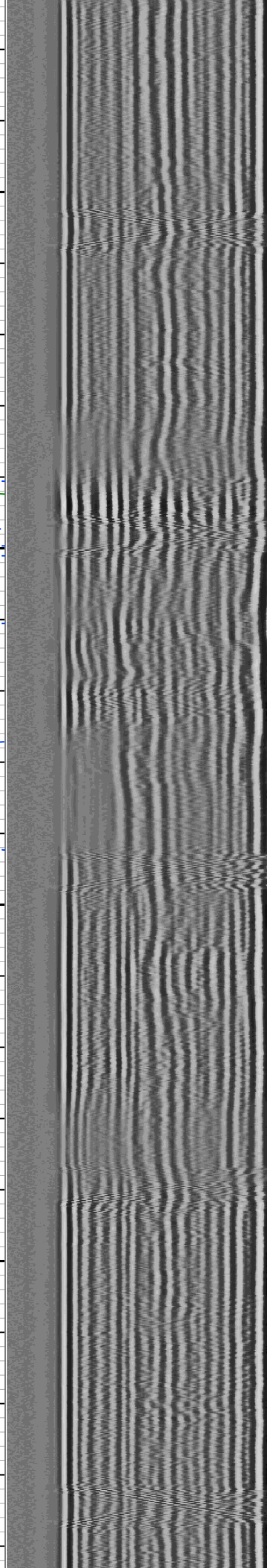
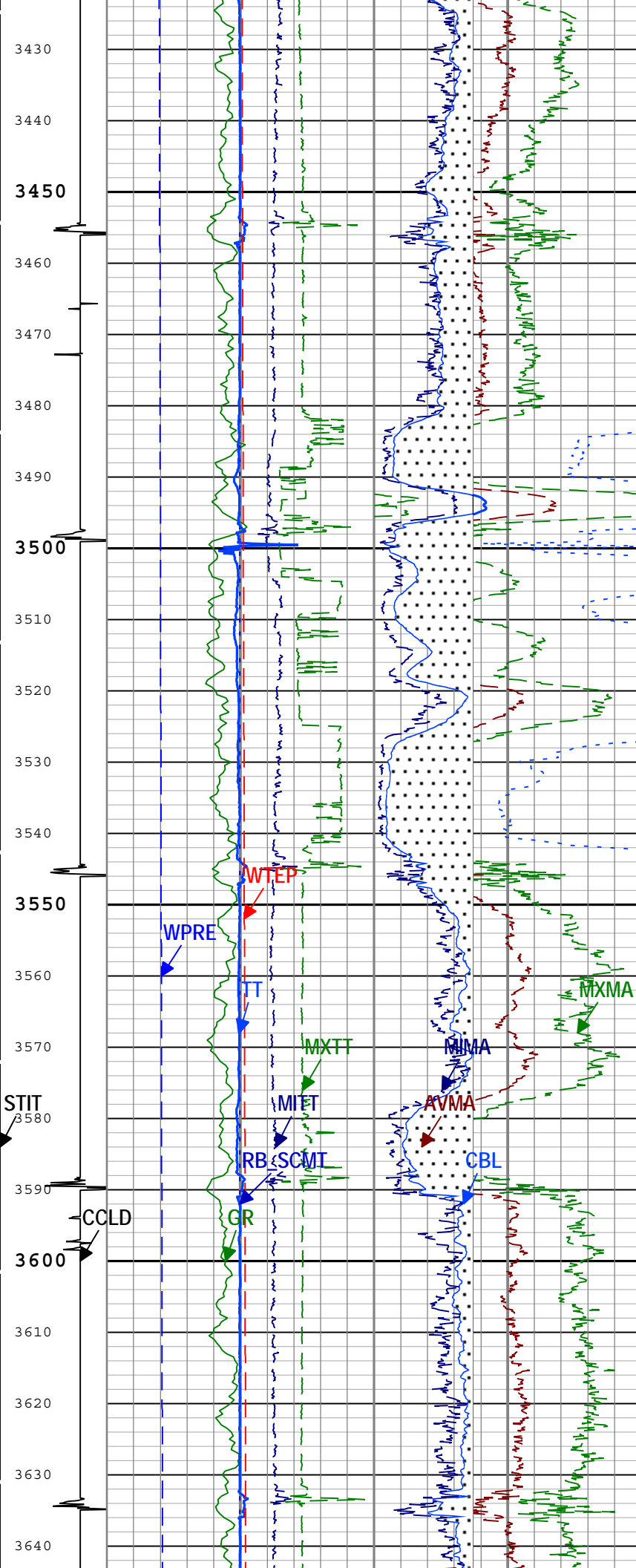




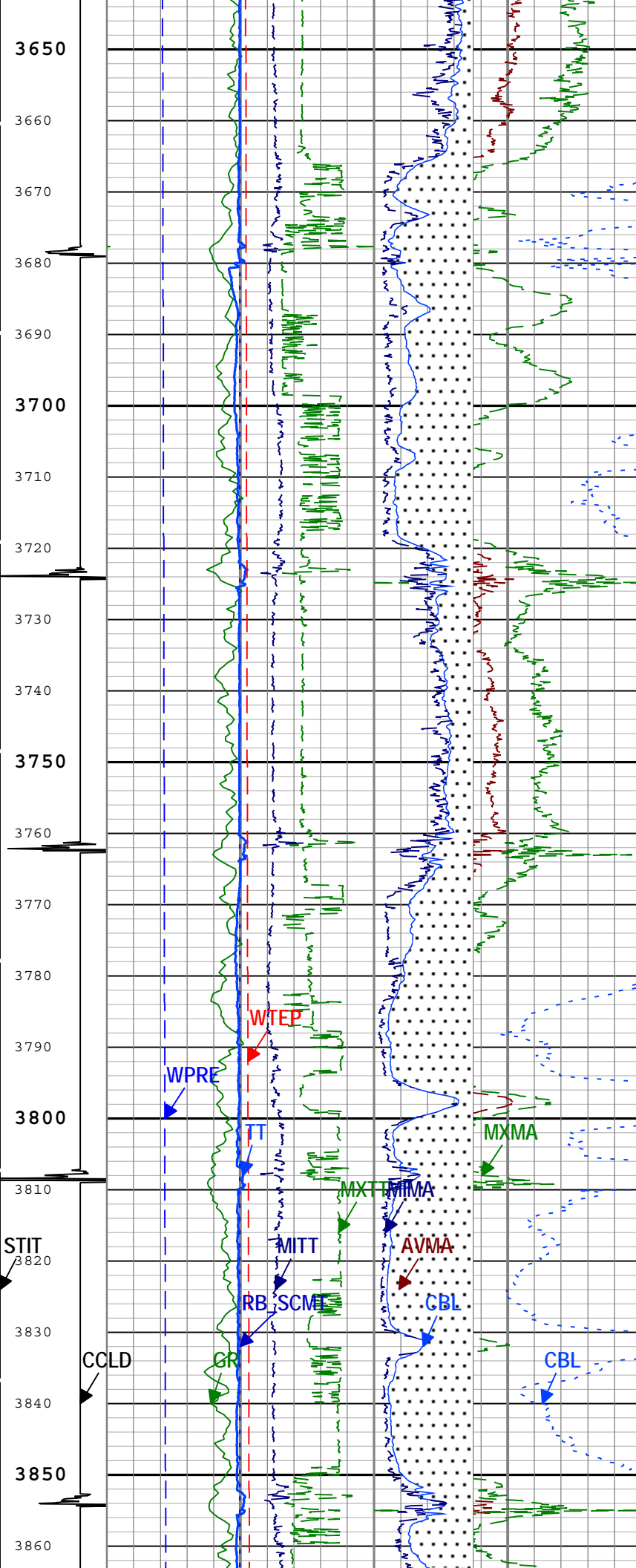


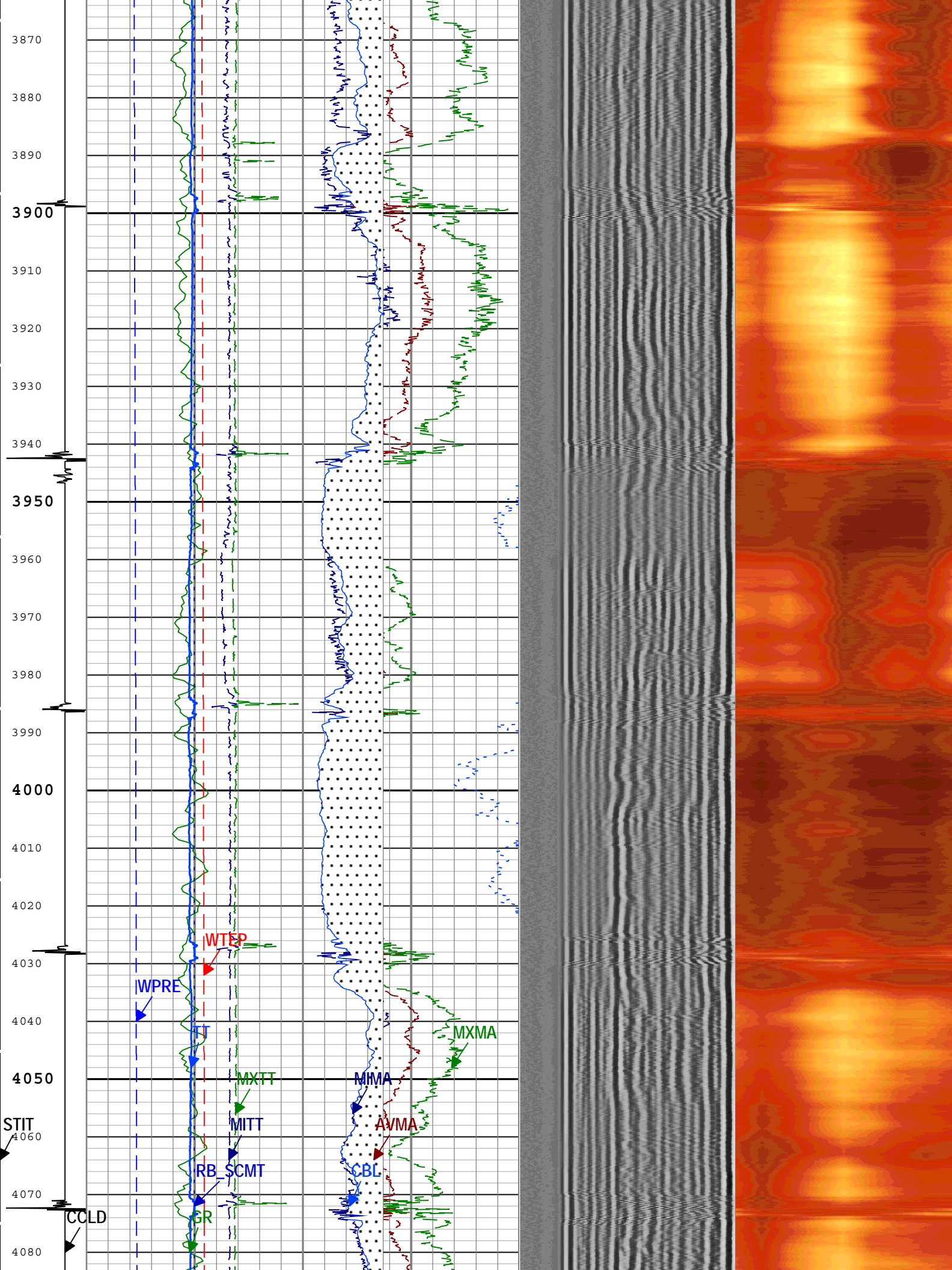




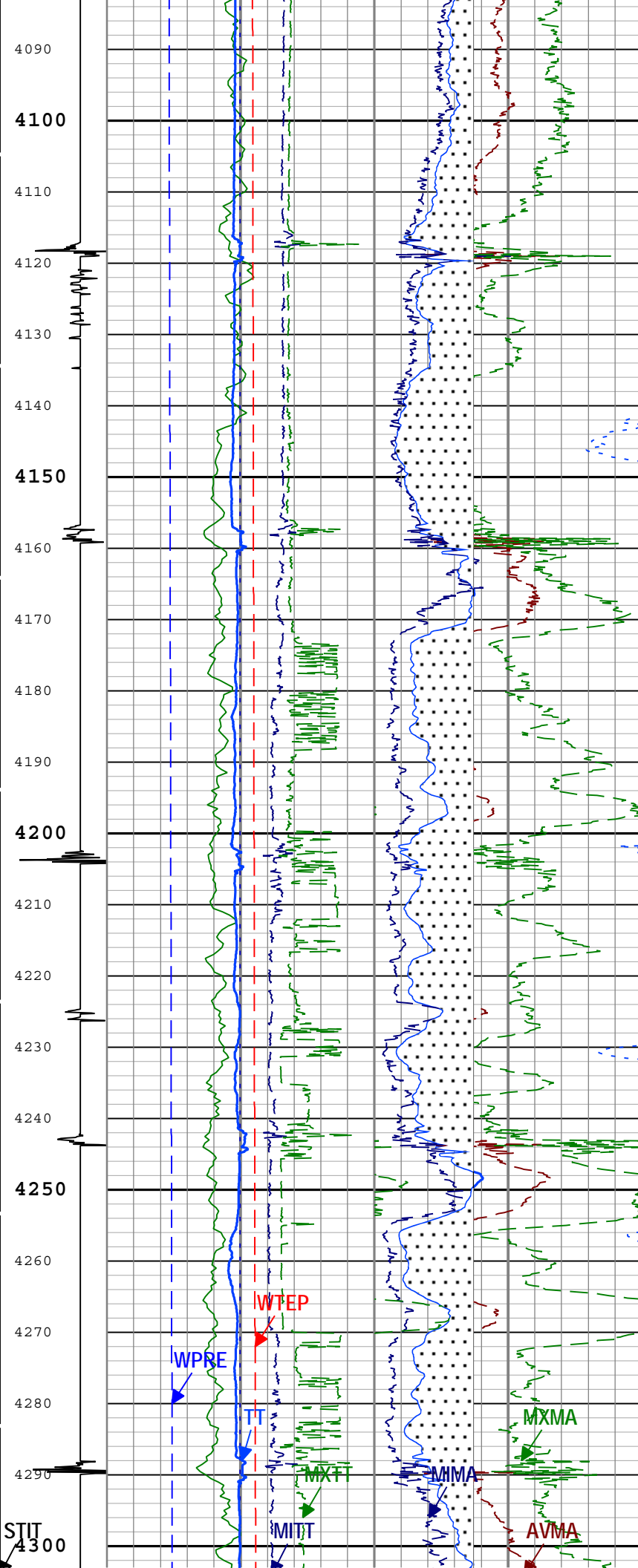


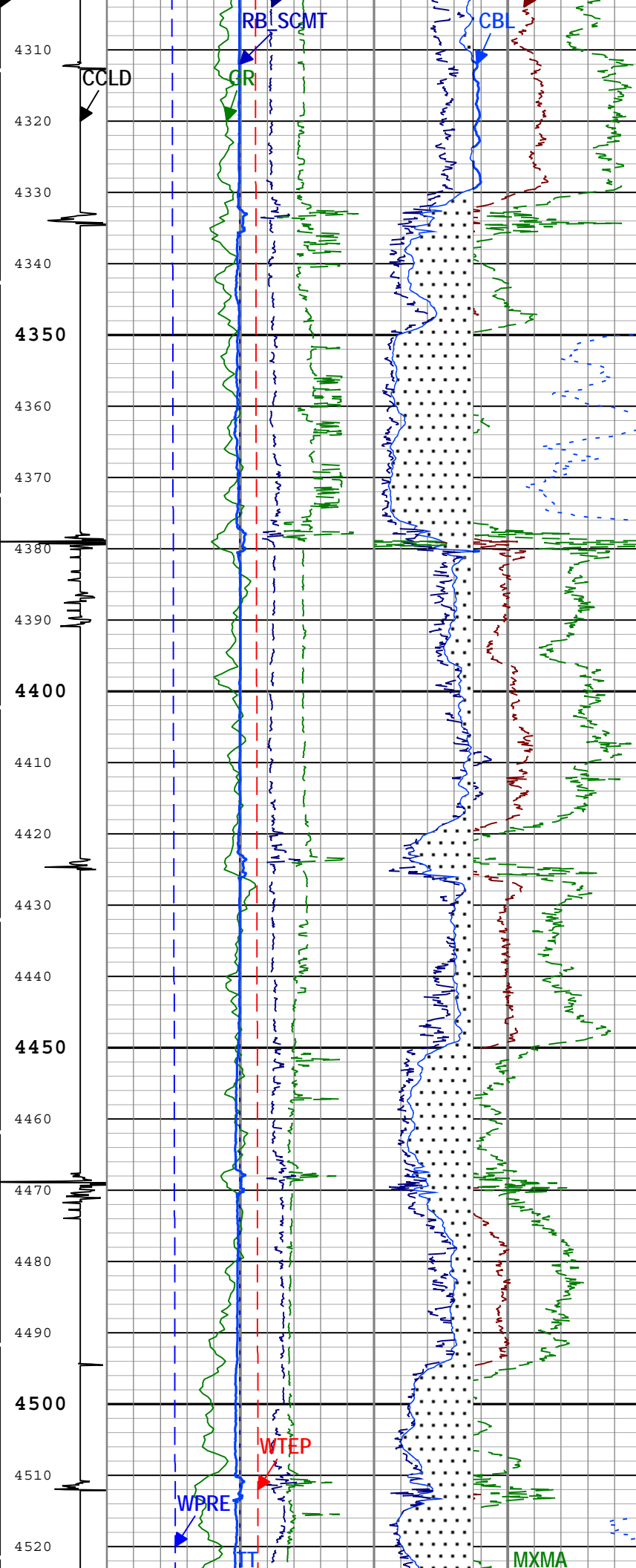




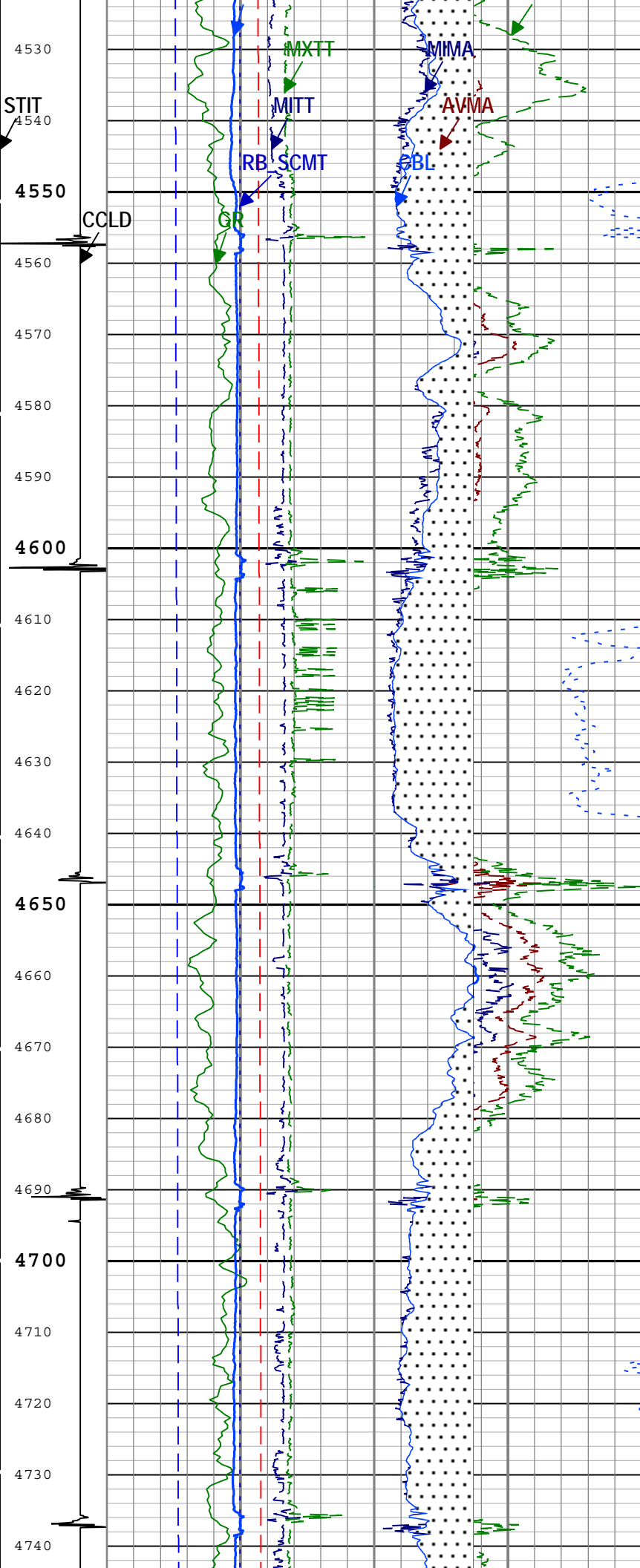


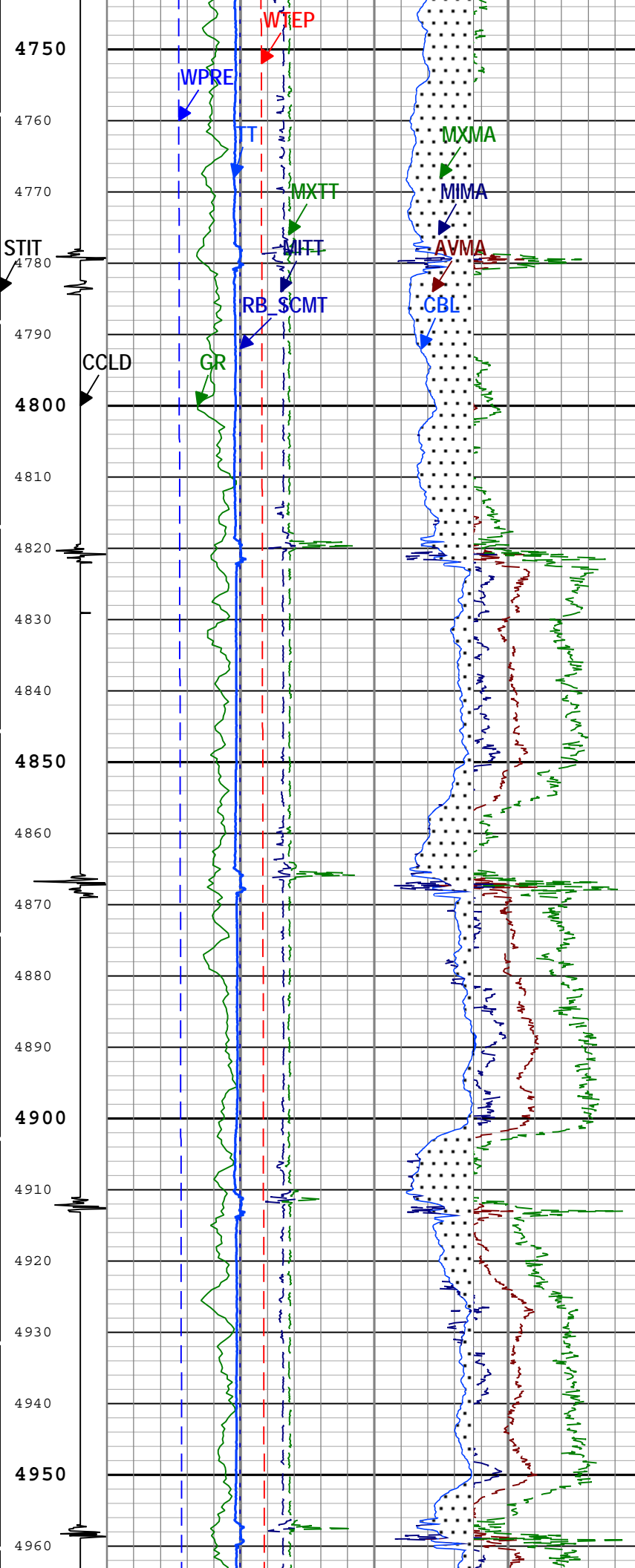




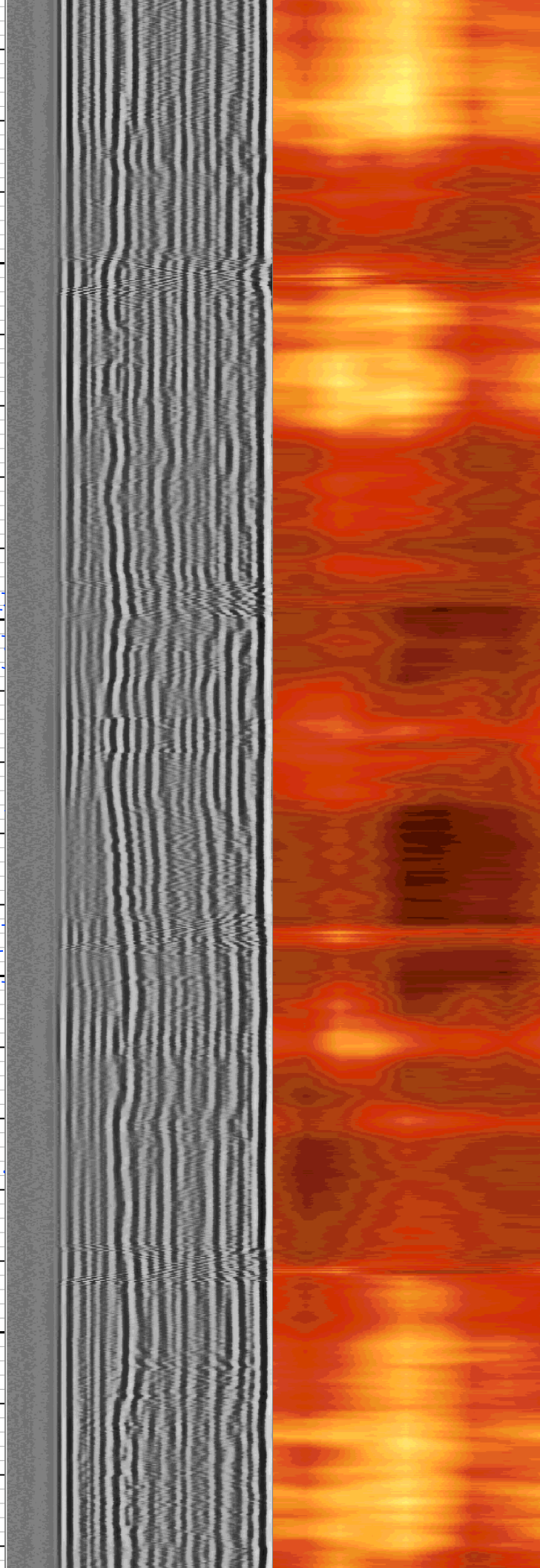
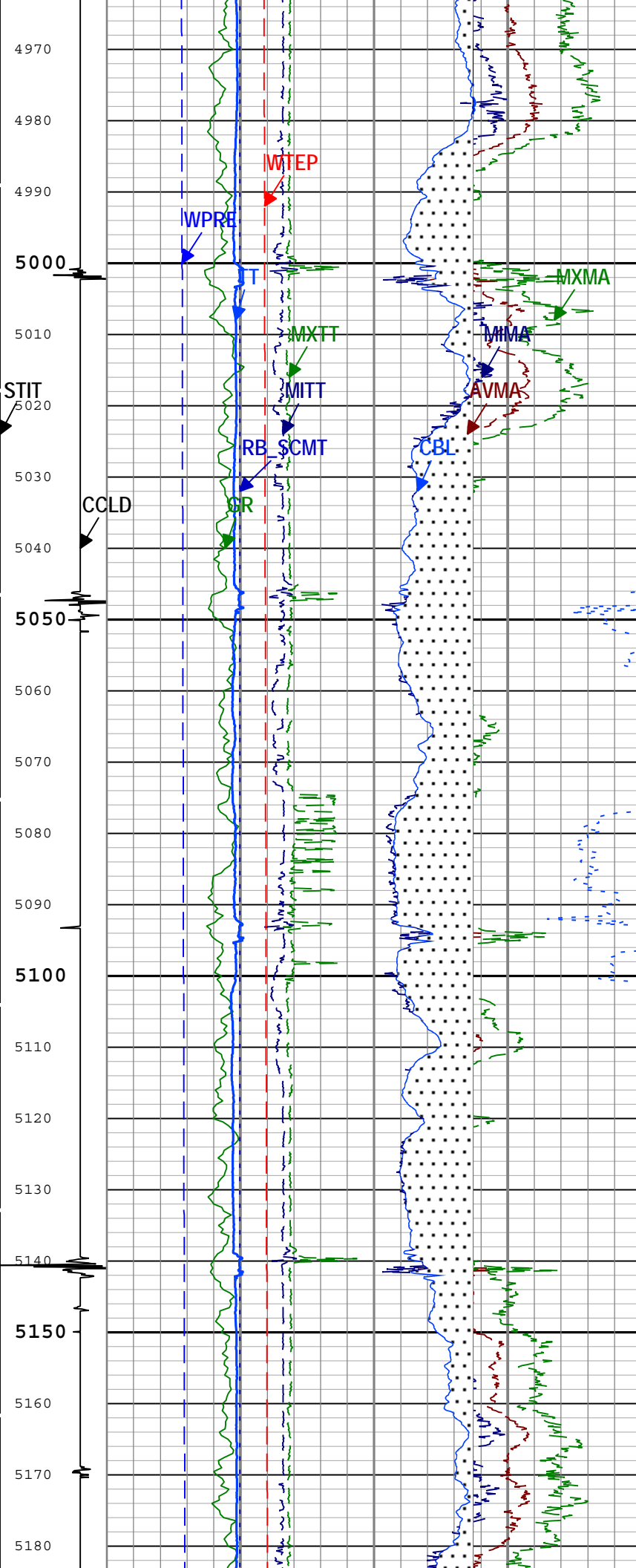


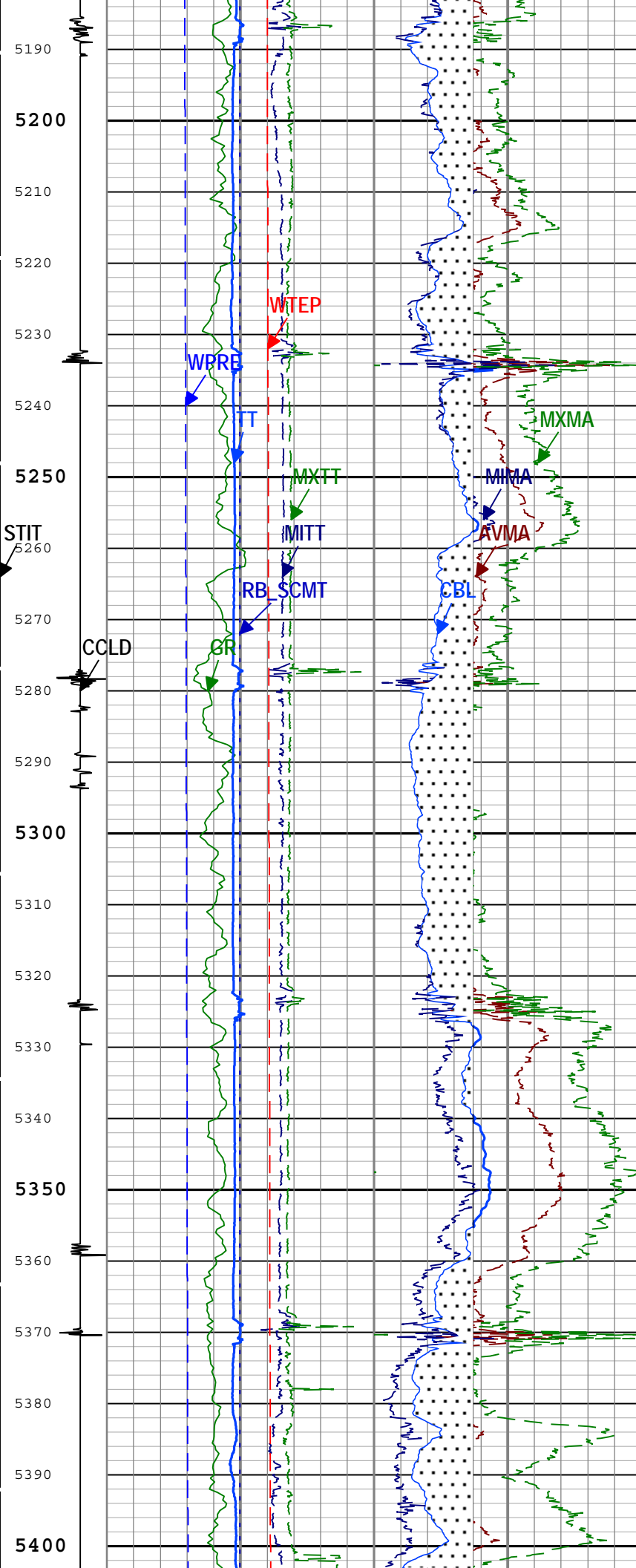




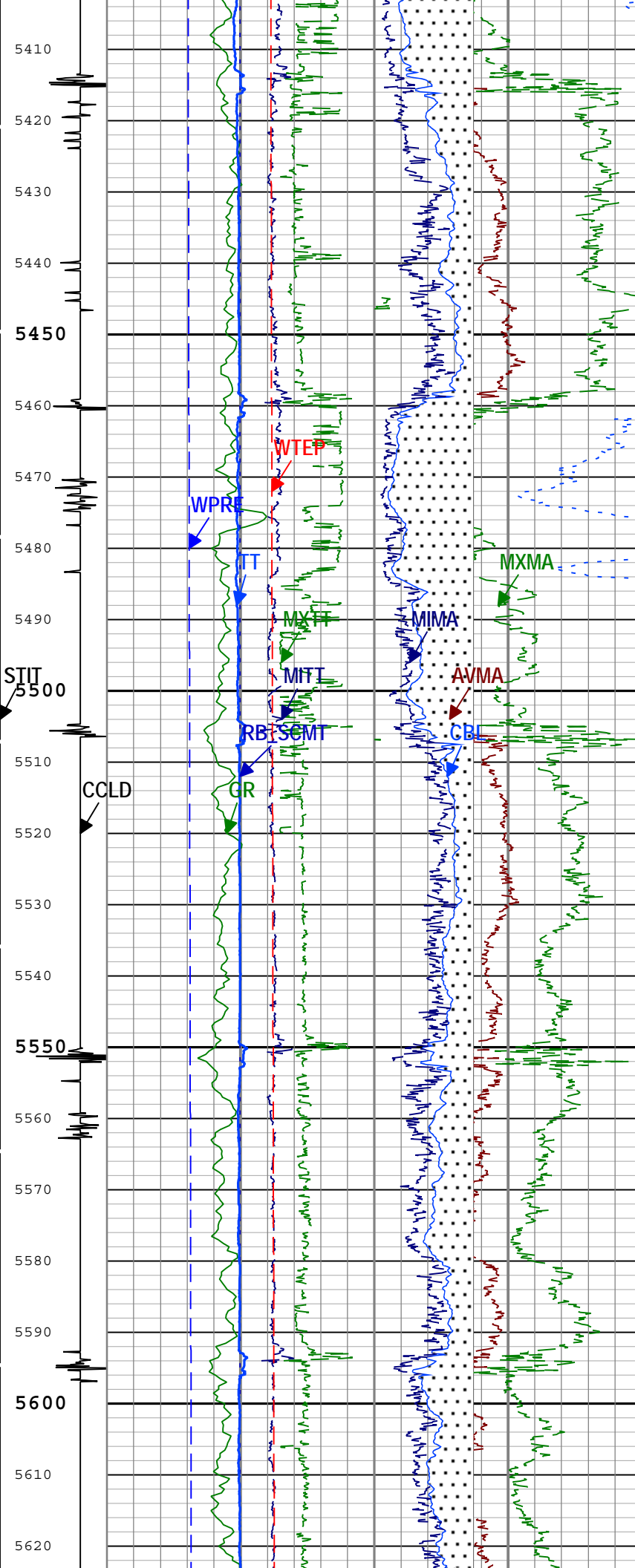






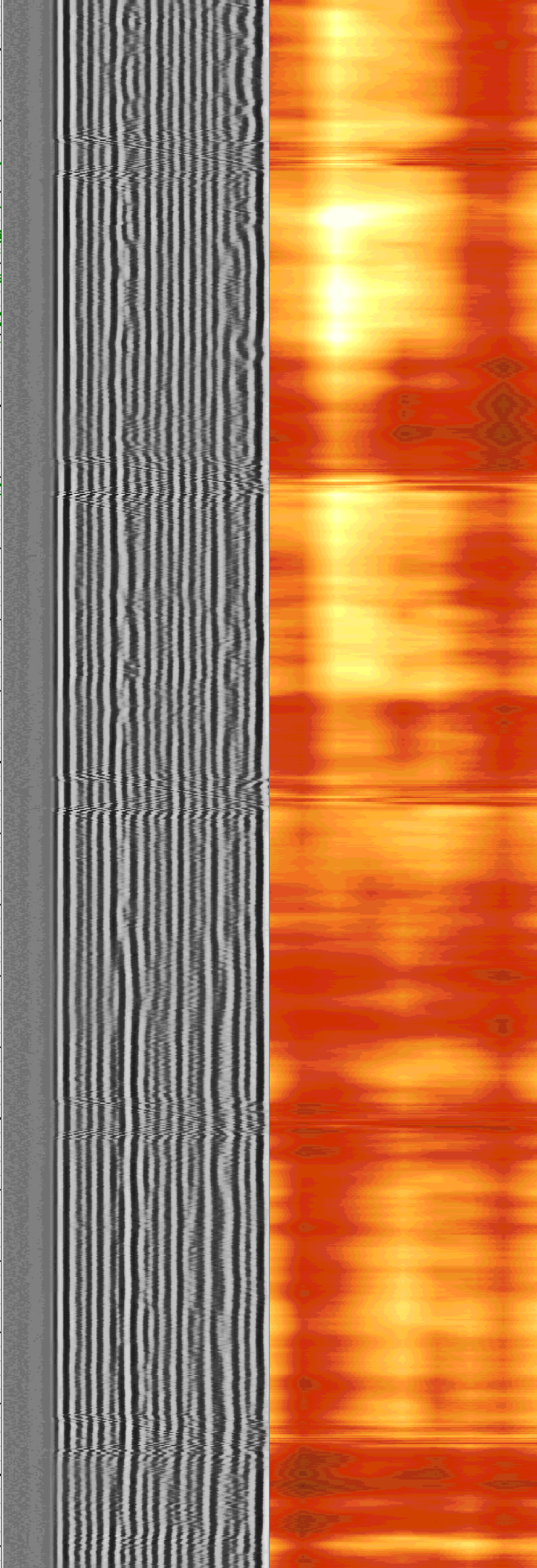
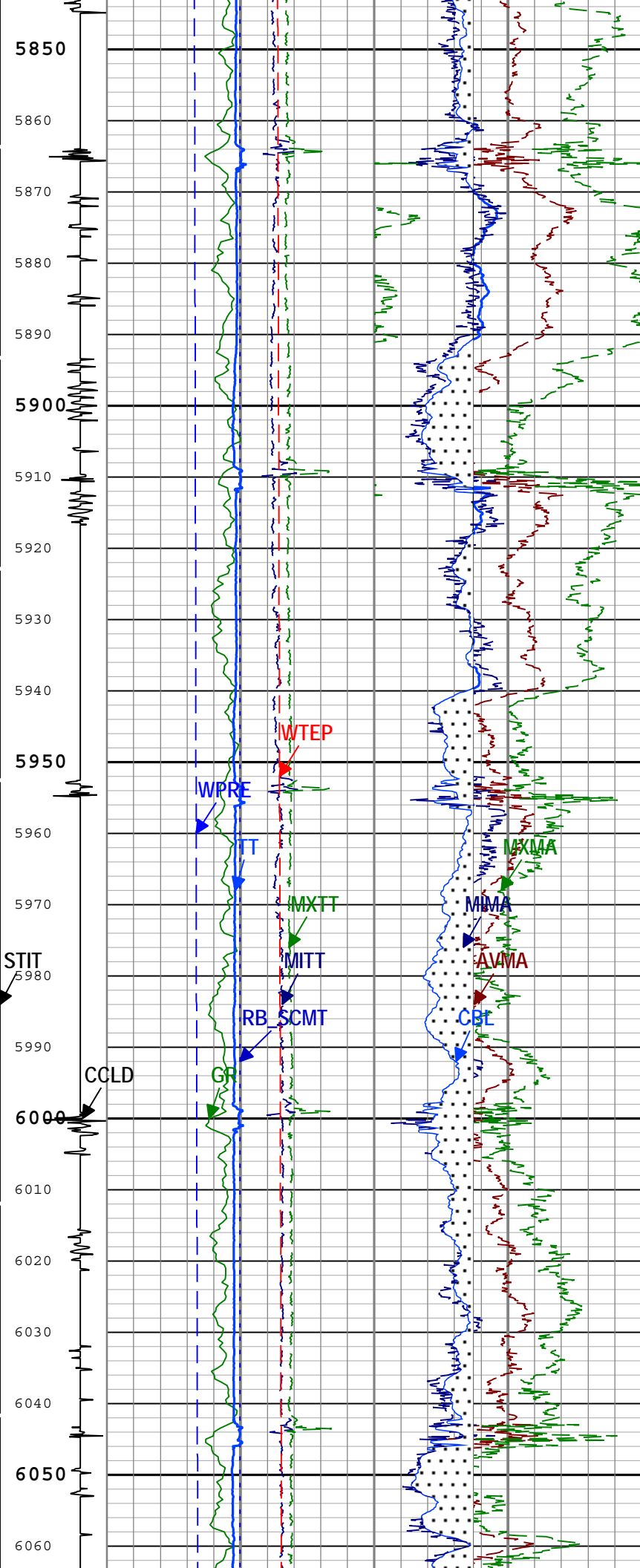


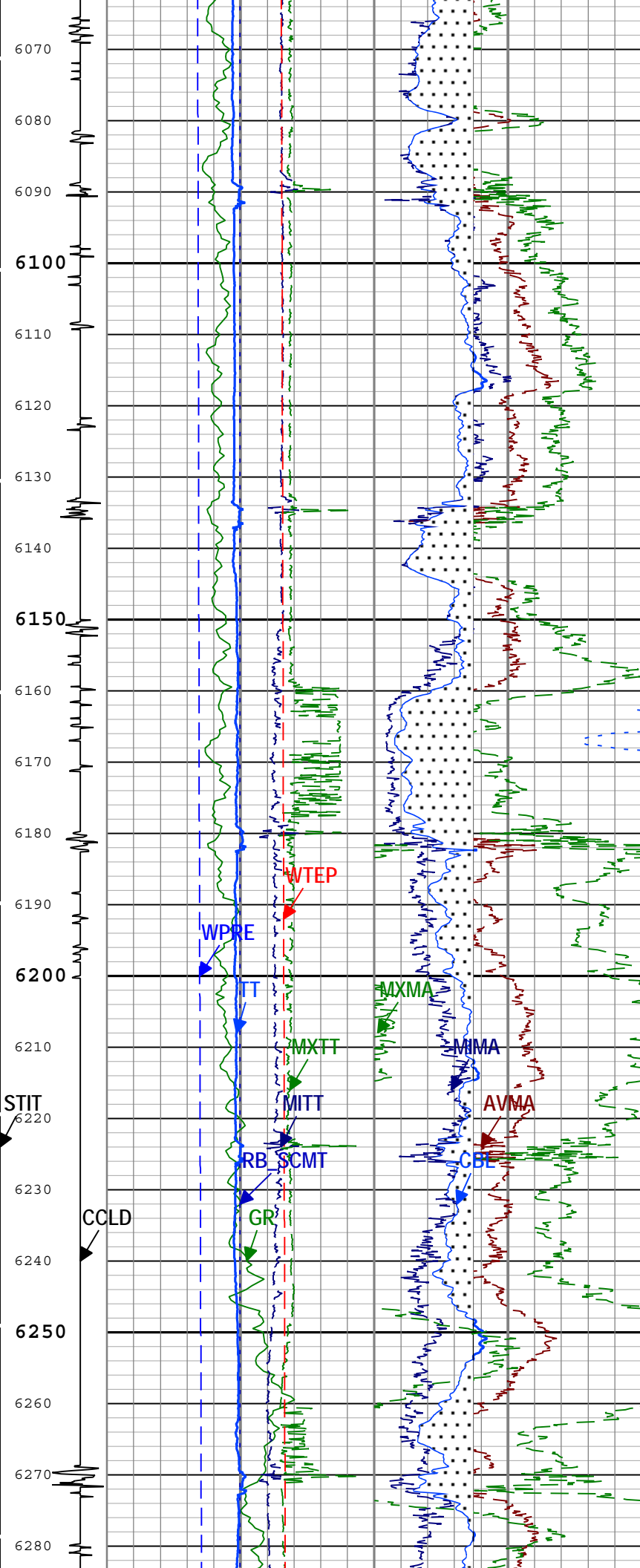




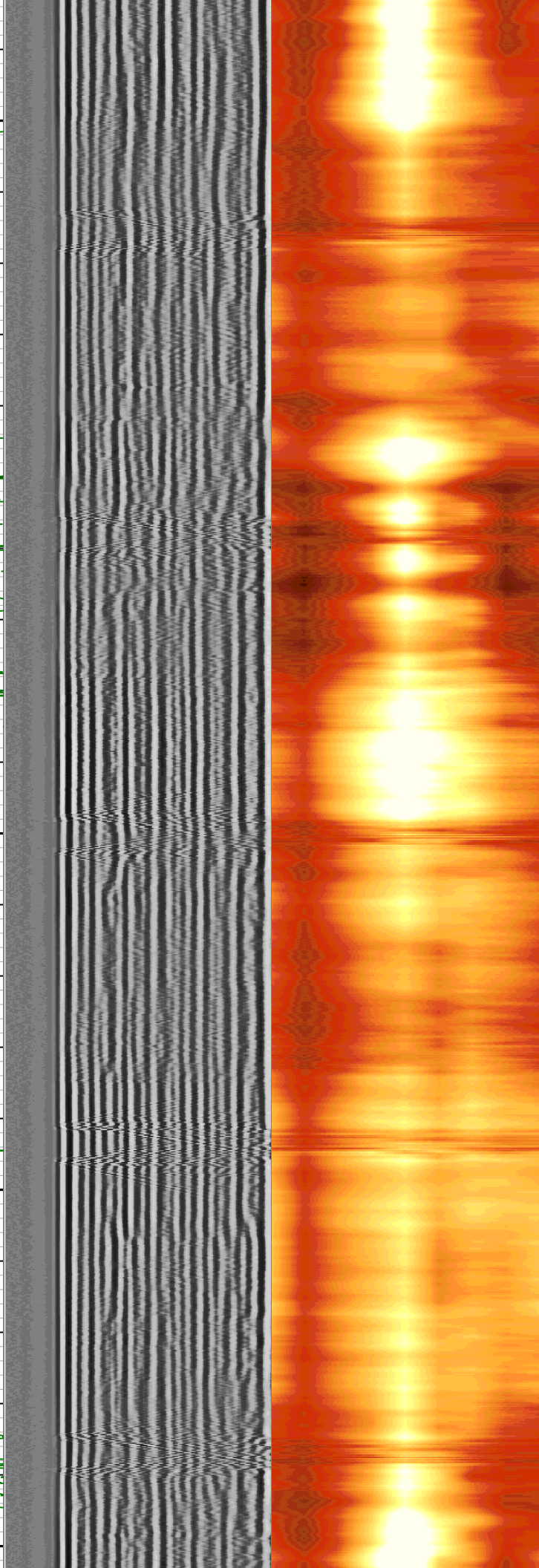
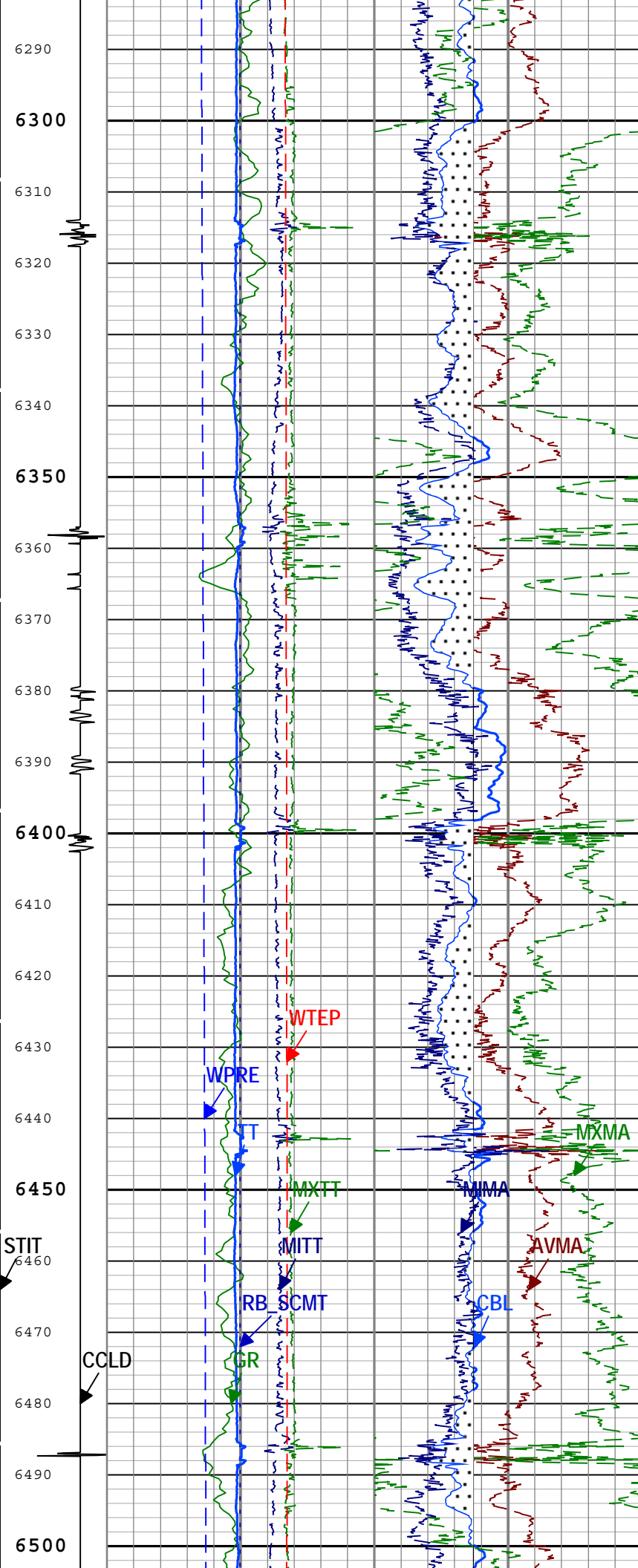


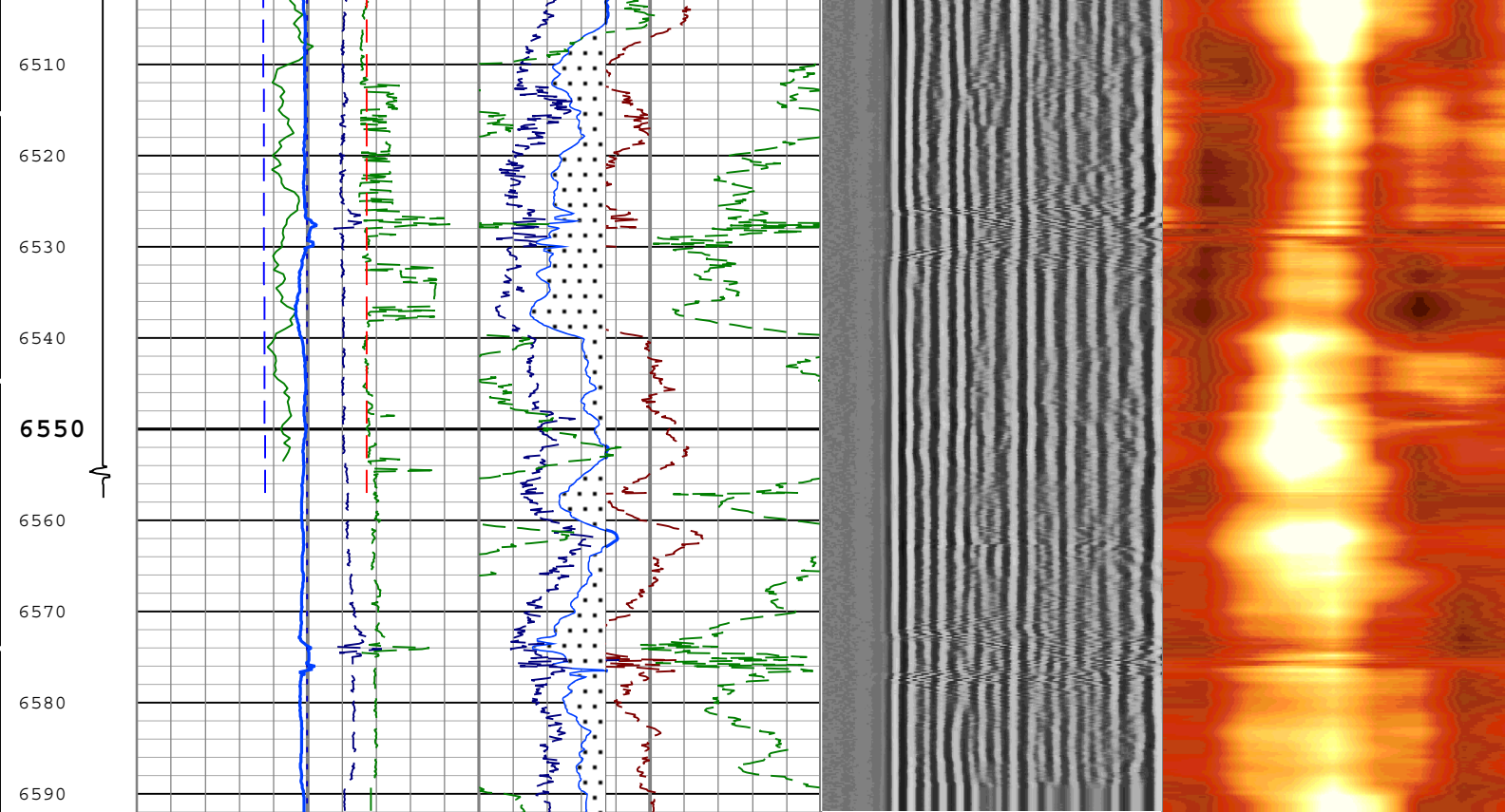












6600								
CCL Discriminated Amplitude (CCLD) PSTP-B	Gamma Ray (GR) PSTP-B 0 gAPI 150		CBL Amplitude (CBL) SCMT-CB 0 mV 10		Min	Amplitude	Max	<div>Absent 7.500 17.500 27.500 37.500 47.500 57.500 67.500 77.500 87.500 97.500</div> <div>VDL VariableDensity (VDL) SCMT-CB</div> <div>CBL Amplitude Mapping Image (0 - 100) SCMT-CB</div>
3 V -1	Relative Bearing (RB_SCMT) SCMT-CB 0 deg 360		CBL Amplitude (CBL) SCMT-CB 0 mV 100		200	us	1200	
Stuck Tool Indicator, Total (STIT)	Minimum MAP Transit Time (MITT) SCMT-CB 100 us 300		Good Bond (GOBO) 0 mV 10					
0 ft 50	Maximum MAP Transit Time (MXTT) SCMT-CB 100 us 300		Normalized Average MAP Amplitude (AVMA) SCMT-CB 0 mV 100					
Cable Drag	Transit Time for CBL (TT) SCMT-CB 200 us 400		Normalized Minimum MAP Amplitude (MIMA) SCMT-CB 0 mV 100					
Tool_Tot. Drag	Well Pressure (WPRE) PSTP-B 0 psi 10000		Normalized Maximum MAP Amplitude (MXMA) SCMT-CB 0 mV 100					
	Well Temperature (WTEP) PSTP-B 0 degF 300		GoodBond From CBL to GOBO					

TIME\_1900 - Time Marked every 60.00 (s)

Description: SCMT VDL Image    Format: Log ( SCMT\_VDL\_Image )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 14-Feb-2015 01:40:01

## Channel Processing Parameters

### Run 1: Parameters

Parameter	Description	Tool	Value	Unit
-----------	-------------	------	-------	------



BHT	Bottom Hole Temperature	Borehole	220	degF
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	SCMT-CB	276.8	us
CBLG	CBL Gate Width	SCMT-CB	42	us
CBRA	CBL LQC Reference Amplitude in Free Pipe	SCMT-CB	62	mV
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.362	in
DFD	Drilling Fluid Density	Borehole	10.7	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
EPD	Elevation of Permanent Datum (PDAT) above Mean Sea Level	WLSESSION	4997	ft
GGRD	Geothermal Gradient	Borehole	1	0.01 degF/ft
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	GTEM_LINEST	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	SCMT-CB	213.81	us
MMSA	MAP Minimum Sonic Amplitude	SCMT-CB	10.86	mV
MSA	Minimum Sonic Amplitude	SCMT-CB	1.84	mV
PDAT	Permanent Datum	WLSESSION	GL	
RUN_SNUM	Run Sequence Number	WSDRUN	2	
SHT	Surface Hole Temperature	Borehole	68	degF
TD	Total Measured Depth	Borehole	6600	ft

Tool Control Parameters

Run 1: Parameters

Parameter	Description	Tool	Value	Unit
CMTM	SCMT Operating Mode	SCMT-CB	Log	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	150	ft/h

Run 1

SCMT Repeat

Software Version

Acquisition System	Version
Maxwell	5.1.33858.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run 1	Log[3]:Up	Up	6276.70 ft	6605.01 ft	13-Feb-2015 8:56:22 PM	13-Feb-2015 9:12:52 PM	ON	4.03 ft	Yes

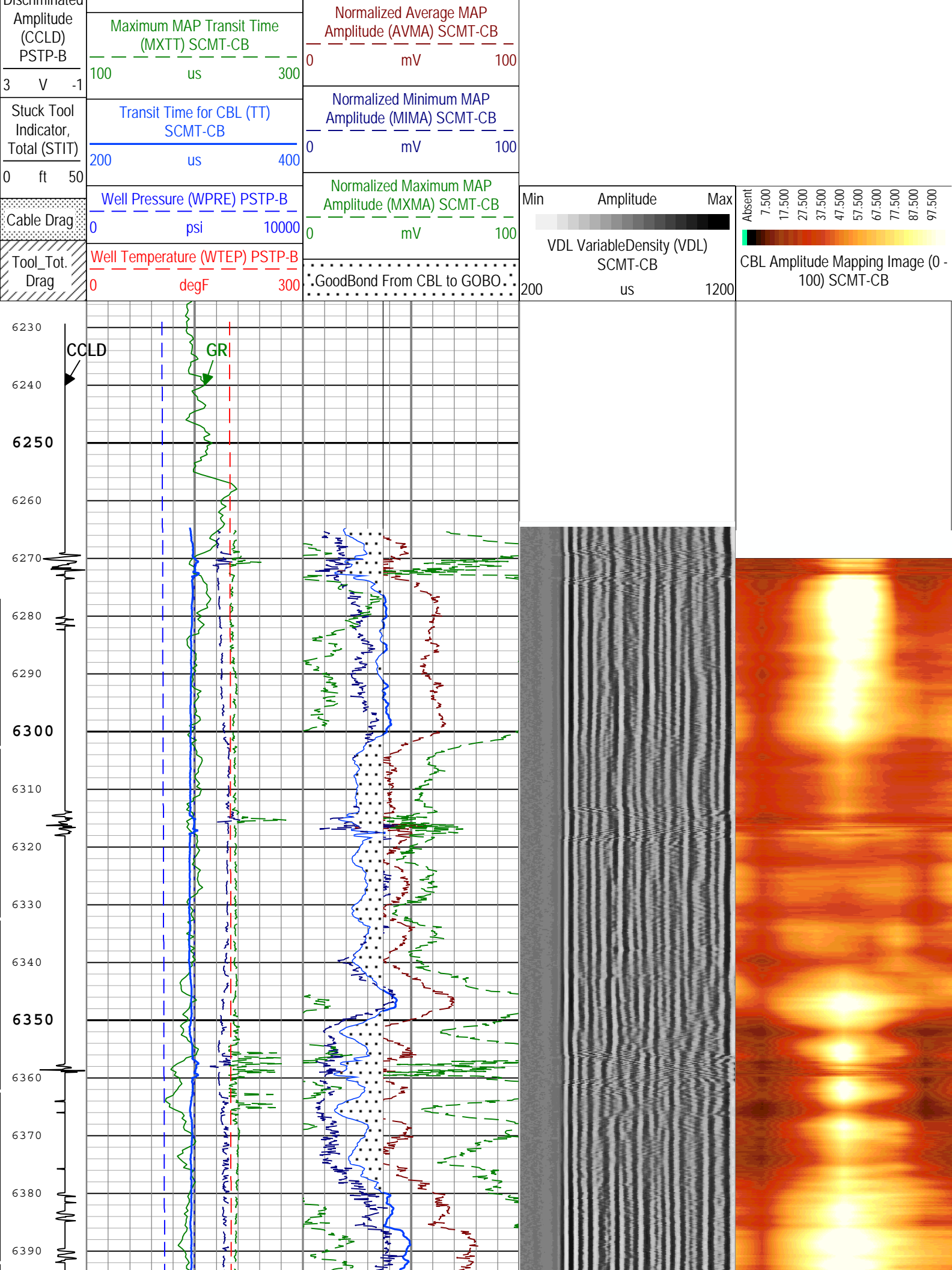
All depths are referenced to toolstring zero

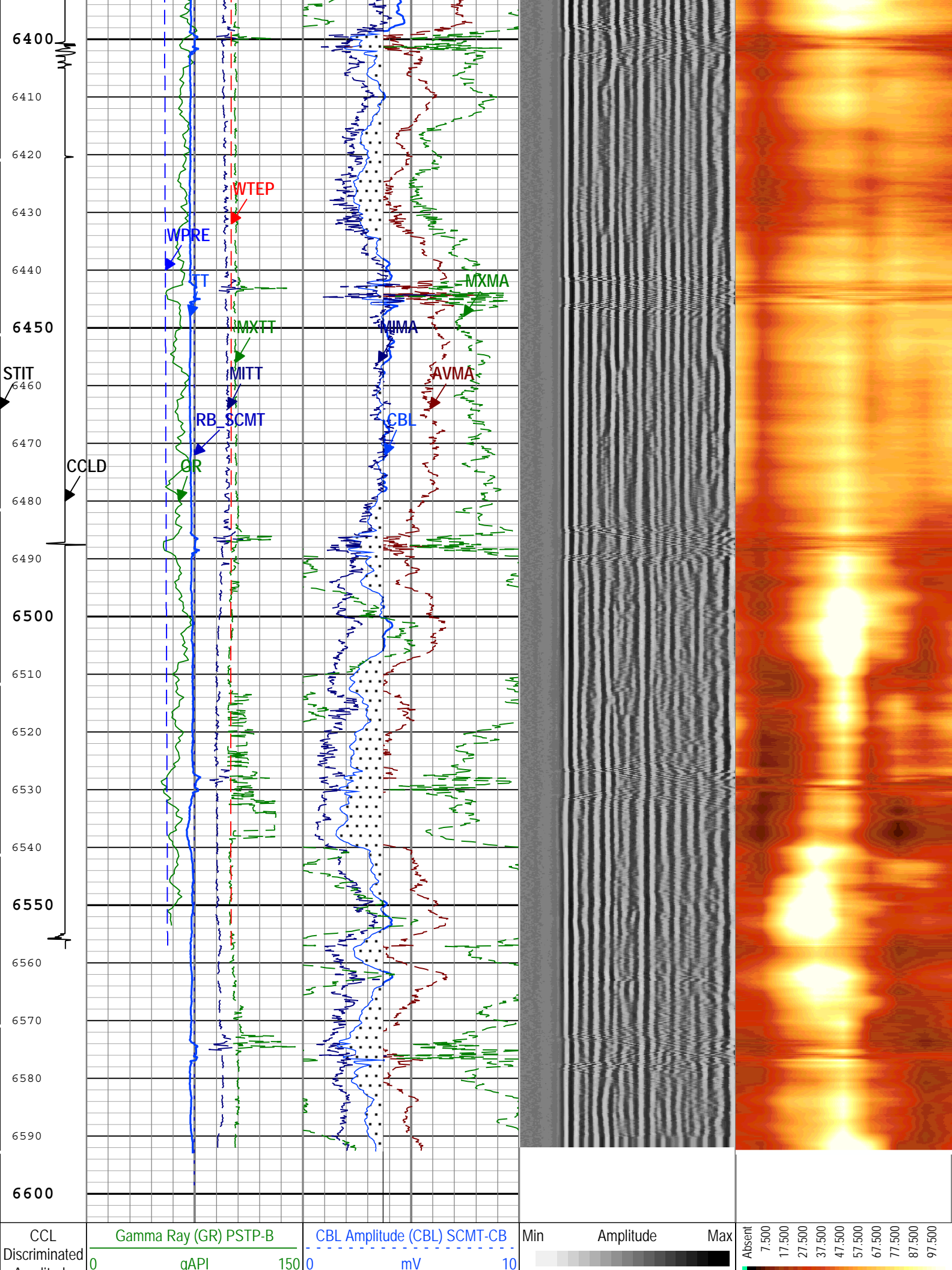
Log	Company:Encana Oil & Gas (USA)      Well:Ruhl 1I-32H-B264 Run 1: Log[3]:Up:S005
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Description: SCMT VDL Image    Format: Log ( SCMT\_VDL\_Image )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 14-Feb-2015 01:40:09

TIME\_1900 - Time Marked every 60.00 (s)

	Gamma Ray (GR) PSTP-B					
	0	gAPI		150		
	Relative Bearing (RB_SCMT) SCMT-CB			CBL Amplitude (CBL) SCMT-CB		
	deg			mV		
	0			360		
	Minimum MAP Transit Time (MITT) SCMT-CB			CBL Amplitude (CBL) SCMT-CB		
				mV		
				100		
CCL Discriminated	Good Bond (GOBO)					
	100	us		300	mV	
	0			10		







Amplitude (CCLD) PSTP-B	Relative Bearing (RB_SCMT) SCMT-CB	CBL Amplitude (CBL) SCMT-CB	VDL VariableDensity (VDL) SCMT-CB	CBL Amplitude Mapping Image (0 - 100) SCMT-CB
3 V -1	0 deg 360	0 mV 100	200 us 1200	
Stuck Tool Indicator, Total (STIT)	Minimum MAP Transit Time (MITT) SCMT-CB	Good Bond (GOBO)		
0 ft 50	100 us 300	0 mV 10		
Cable Drag	Maximum MAP Transit Time (MXTT) SCMT-CB	Normalized Average MAP Amplitude (AVMA) SCMT-CB		
Tool_Tot. Drag	100 us 300	0 mV 100		
	Transit Time for CBL (TT) SCMT-CB	Normalized Minimum MAP Amplitude (MIMA) SCMT-CB		
	200 us 400	0 mV 100		
	Well Pressure (WPRE) PSTP-B	Normalized Maximum MAP Amplitude (MXMA) SCMT-CB		
	0 psi 10000	0 mV 100		
	Well Temperature (WTEP) PSTP-B	GoodBond From CBL to GOBO		
	0 degF 300			

TIME\_1900 - Time Marked every 60.00 (s)

Description: SCMT VDL Image    Format: Log ( SCMT\_VDL\_Image )    Index Scale: 5 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 14-Feb-2015 01:40:09

Channel Processing Parameters				
Run 1: Parameters				
Parameter	Description	Tool	Value	Unit
BHT	Bottom Hole Temperature	Borehole	220	degF
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	SCMT-CB	276.8	us
CBLG	CBL Gate Width	SCMT-CB	42	us
CBRA	CBL LQC Reference Amplitude in Free Pipe	SCMT-CB	62	mV
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.362	in
DFD	Drilling Fluid Density	Borehole	10.7	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
EPD	Elevation of Permanent Datum (PDAT) above Mean Sea Level	WLSESSION	4997	ft
GGRD	Geothermal Gradient	Borehole	1	0.01 degF/ft
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	GTEM_LINEST	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	SCMT-CB	213.81	us
MMSA	MAP Minimum Sonic Amplitude	SCMT-CB	10.86	mV
MSA	Minimum Sonic Amplitude	SCMT-CB	1.84	mV
PDAT	Permanent Datum	WLSESSION	GL	
RUN_SNUM	Run Sequence Number	WSDRUN	2	
SHT	Surface Hole Temperature	Borehole	68	degF
TD	Total Measured Depth	Borehole	6600	ft
Tool Control Parameters				
Run 1: Parameters				
Parameter	Description	Tool	Value	Unit
CMTM	SCMT Operating Mode	SCMT-CB	Log	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	150	ft/h

Company:	Encana Oil & Gas (USA)	Schlumberger
Well:	Ruhl 11-32H-B264	
Field:	Wattenberg	
County:	Weld	
Country:	USA	
Slim Cement Mapping Tool		
SCMT		
Field Print		