

Company: ENCANA OIL & GAS (USA) INC

Well: BENJAMIN FEDERAL 28-13C2 (K28NW)

Field: MAMM CREEK

County: GARFIELD

State: COLORADO

County: GARFIELD

Field: MAMM CREEK

Location: SHL: NESW 1611 FSL 2425 FWL

Well: BENJAMIN FEDERAL 28-13C2

Company: ENCANA OIL & GAS (USA) INC

CEMENT BOND LOG

CBL - VDL - MAP IMAGE

GAMMA RAY - CCL

SHL: NESW 1611 FSL 2425 FWL

BHL: 25 FSL 240 FWL

Elev.: K.B. 5965.00 ft

G.L. 5943.00 ft

D.F. 5964.00 ft

Permanent Datum: GROUND LEVEL

Elev.: 5943.00 ft

Log Measured From: KELLY BUSHING

22.00 ft above Perm. Datum

Drilling Measured From: KELLY BUSHING

API Serial No. 05-045-20179-0000

Section 33

Township 6S

Range 93W

Logging Date	12-Jun-2011								
Run Number	TWO								
Depth Driller	9160 ft								
Schlumberger Depth	9078 ft								
Bottom Log Interval	9069.1 ft								
Top Log Interval	200 ft								
Casing Fluid Type	WATER								
Salinity									
Density	8.4 lbm/gal								
Fluid Level	22 ft								
BIT/CASING/TUBING STRING									
Bit Size	8.750 in								
From	22 ft								
To	9160 ft								
Casing/Tubing Size	4.500 in								
Weight	11.6 lbm/ft								
Grade	E80/P110								
From	22 ft								
To	9149 ft								
Maximum Recorded Temperatures	237 degF								
Logger On Bottom	12-Jun-2011	Time	6:54						
Unit Number	391	Location	GRAND JUNCTION						
Recorded By	SHOWKAT HOSSAIN								
Witnessed By	UNATTENDED								

PVT DATA		Run 1	Run 2	Run
Oil Density				
Water Salinity				
Gas Gravity				
Bo				
Bw				
1/Bq				
Bubble Point Pressure				
Bubble Point Temperature				
Solution GOR				
Maximum Deviation				
CEMENTING DATA				
Primary/Squeeze		Primary		
Casing String No				
Lead Cement Type				
Volume				
Density				
Water Loss				
Additives				
Tail Cement Type				
Volume				
Density				
Water Loss				
Additives				
Expected Cement Top				
Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Fluid Type				
Salinity				
Density				
Fluid Level				
BIT/CASING/TUBING STRING				
Bit Size				
From				
To				
Casing/Tubing Size				
Weight				
Grade				
From				
To				
Maximum Recorded Temperatures				
Logger On Bottom				
Unit Number				
Recorded By				
Witnessed By				

DEPTH SUMMARY LISTING

Date Created: 12-JUN-2011 7:22:55

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-C	Type:	1-25ZT
Serial Number:	391	Serial Number:	5006	Serial Number:	391
Calibration Date:	09-NOV-2011	Calibration Date:	27-MAY-2011	Length:	15000 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	174878	<div>Conveyance Method: Wireline</div> <div>Rig Type: LAND</div>	
Calibration Cable Type:	1-25ZT	Number of Calibration Points:	10		
Wheel Correction 1:	-5	Calibration RMS:	3		
Wheel Correction 2:	-4	Calibration Peak Error:	6		

Depth Control Parameters

Log Sequence:	Subsequent Trip To the Well
Reference Log Name:	TEMPERATURE LOG
Reference Log Run Number:	ONE
Reference Log Date:	17-APR-2011
Subsequent Trip Down Log Correction:	-2.00 FT

Depth Control Remarks

1. ALL SCHLUMBERGER DEPTH CONTROL POLICIES FOLLOWED.
2. IDW USED AS PRIMARY DEPTH CONTROL.
3. Z-CHART AND DRUM COUNTER USED AS SECONDARY DEPTH CONTROL.
- 4.
- 5.
- 6.

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 OF 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.

OTHER SERVICES1 OS1: RST SIGMA OS2: OS3: OS4: OS5:	OTHER SERVICES2 OS1: OS2: OS3: OS4: OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
THIS IS FIRST RUN IN WELL.	
TOOL RAN AS PER TOOL SKETCH.	
THIS LOG CORRELATED TO SCHLUMBERGER TEMPERATURE LOG RAN ON 17-APR-2011 AS RUN ONE.	
TD TAGGED AT: 9078 FT	
MAXIMUM RECORDED PRESSURE AT TD: 3630.1 PSIA	
MAXIMUM RECORDED TEMPERATURE AT TD: 236.8 DEGE	

SHORT JOINTS: 6823 FT – 6844 FT & 7832 FT – 7853 FT					
EXPECTED FREE PIPE AMPLITUDE: 80 mV					
CBL TRANSIT TIME CYCLE SKIPPING IN ZONES OF GOOD CEMENT DUE TO LOW SIGNAL AMPLITUDE.					
AFE: 10142522					
THANK YOU FOR CHOOSING SCHLUMBERGER.					
CREW: W. AZIZ, J. ROSA, AND J. MOORE					
RUN 1			RUN 2		
SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:			SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:		
BOC2-00071 19C0-187 22 ft					
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP
EQUIPMENT DESCRIPTION					
RUN 1			RUN 2		
SURFACE EQUIPMENT					
WITM-A 3412 PSC_16MHZ 3412					
DOWNHOLE EQUIPMENT					
MH-22 MH-22 391		53.6			
AH-38	Detail MT TelStatus CTEM	51.8			
PSPT		51.8			
PSC-A 1772 PSPT-A 1772 PSTC-A 1772 PBMS-A 1772					
10k_Sapphire_Mano 1772	GR	48.1			
RTD_Thermometer 1772					
GR	Well_Temp	45.0			
CCL 1772	Manometer	44.9			
PBMS 1772	CCL	44.2			
	PBMS PSTC	43.5			
RST-C		43.5			
RSCH-A 297 RSC-E 314 RSS-A 194 RSXH-A 216 RSX-E 218					
	</				

20.5

Gene	DT	DTSC	CBL3	MAP	AUX
DT	11.4				
CBL5		9.9			
CBL3			8.9		
MAP				8.4	
AUX					7.4

11.4

9.9

8.9

8.4

7.4

HV

Tension SCMI

TOOL ZERO

0.0

0.5

MAXIMUM STRING DIAMETER 1.72 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Schlumberger

MAIN PASS 0 PSI

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC

Well: BENJAMIN FEDERAL 28-13C2 (K28NW)

Output DLIS Files

DEFAULT	SCMT_RST_PSP_048LUP	FN:47	PRODUCER	12-Jun-2011 06:54	9084.5 FT	127.0 FT
---------	---------------------	-------	----------	-------------------	-----------	----------

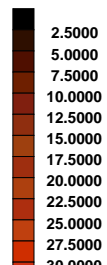
OP System Version: 19C0-187

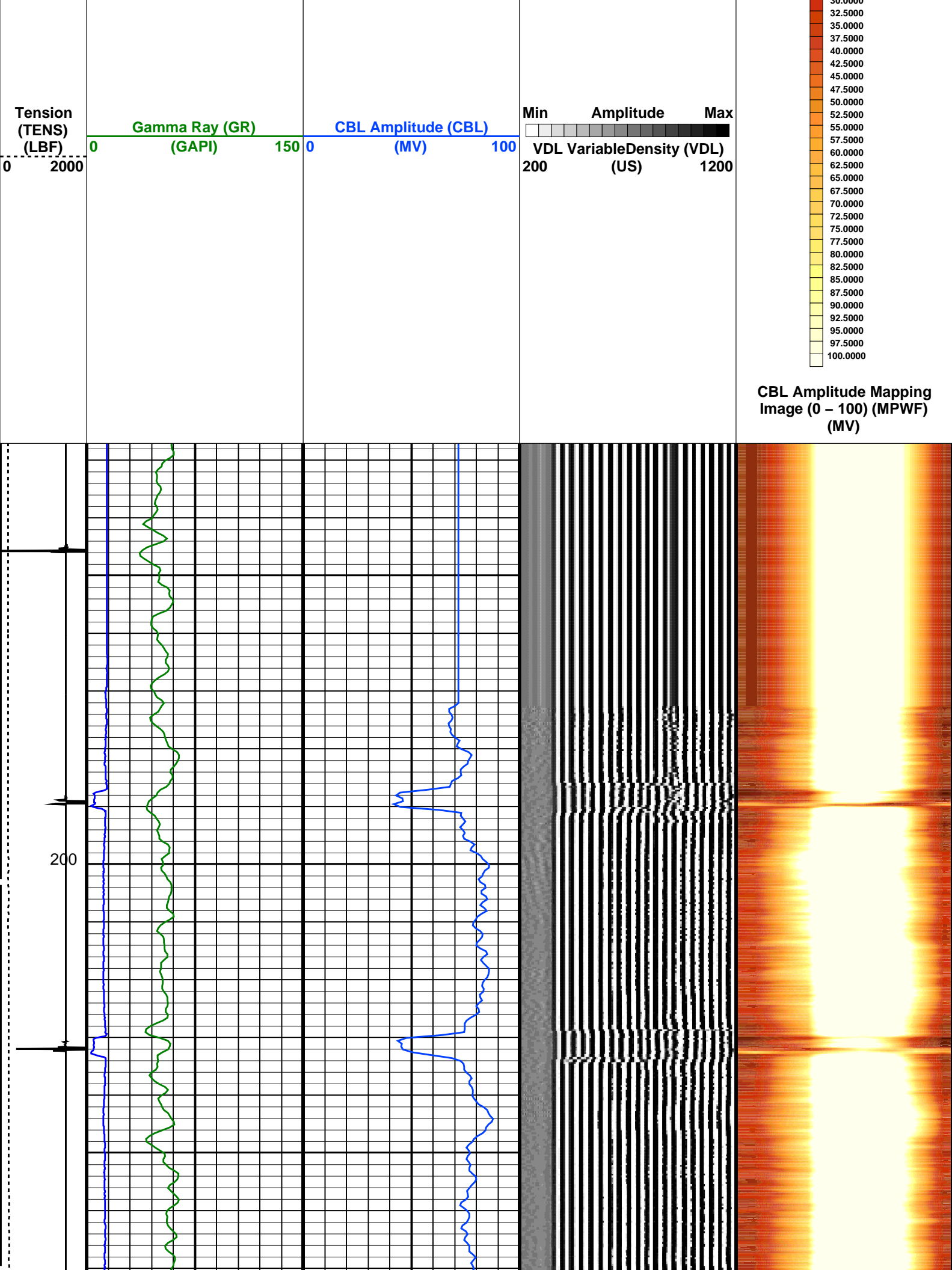
SCMT-CB PSPT	SRPC-5047-H1-2011-OP19 19C0-187	RST-C	SRPC-5047-H1-2011-OP19
-----------------	------------------------------------	-------	------------------------

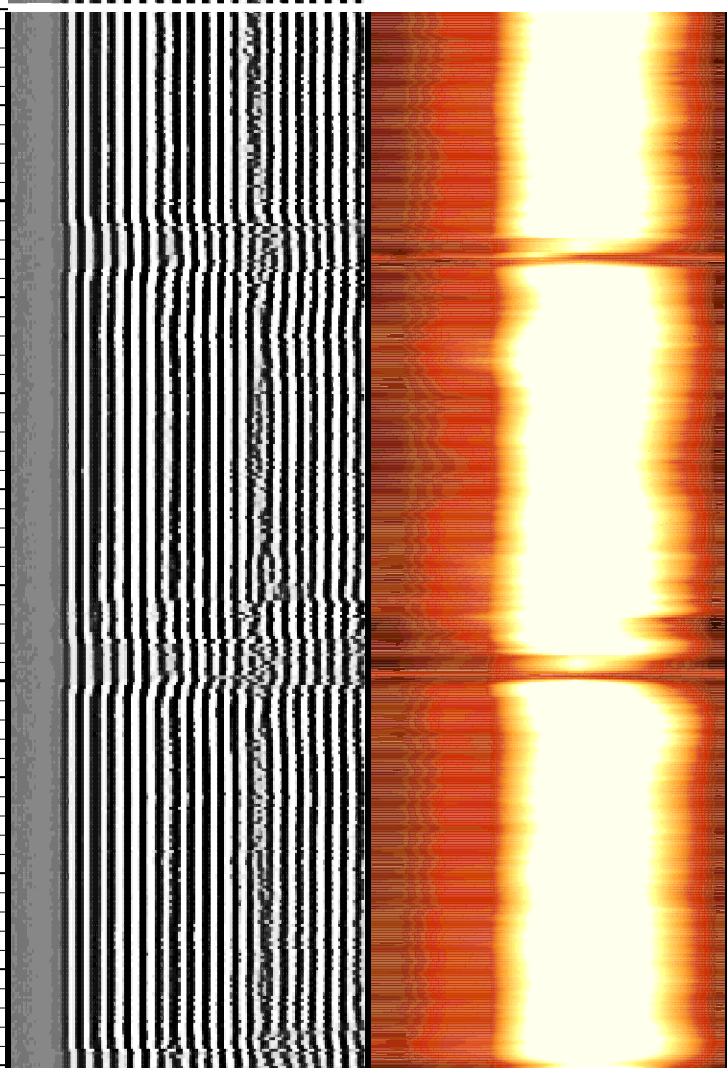
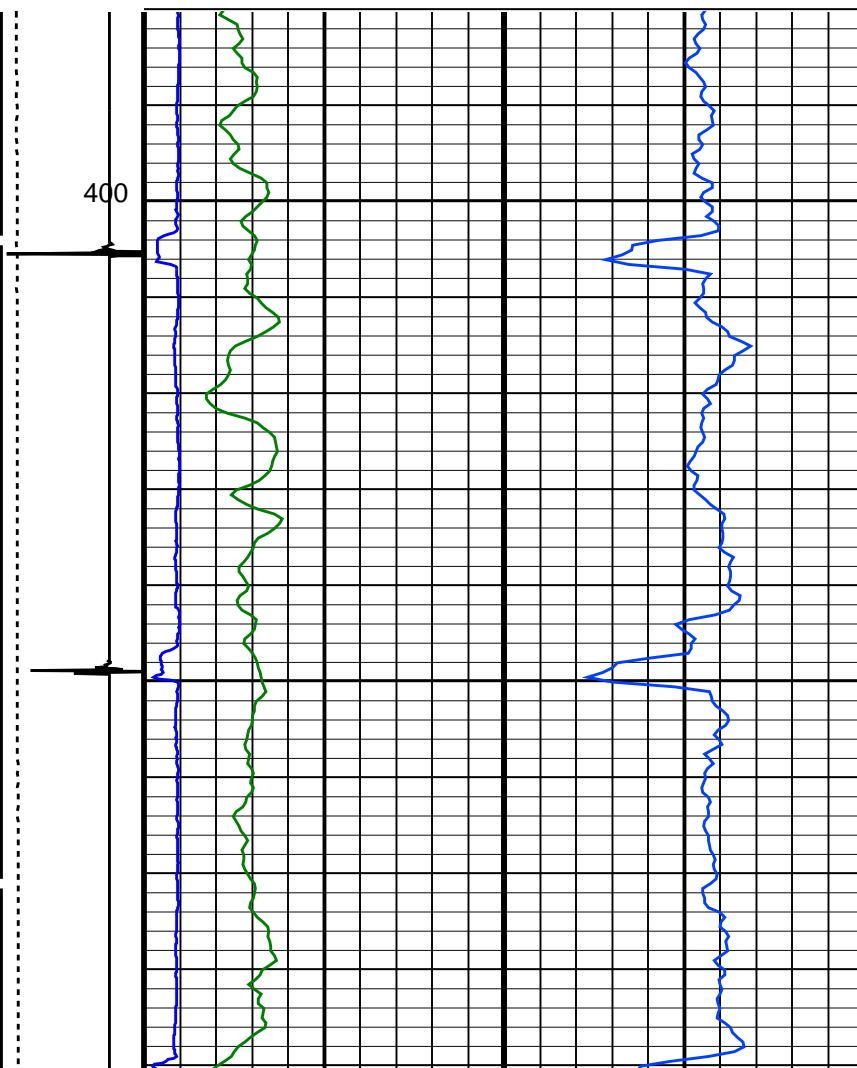
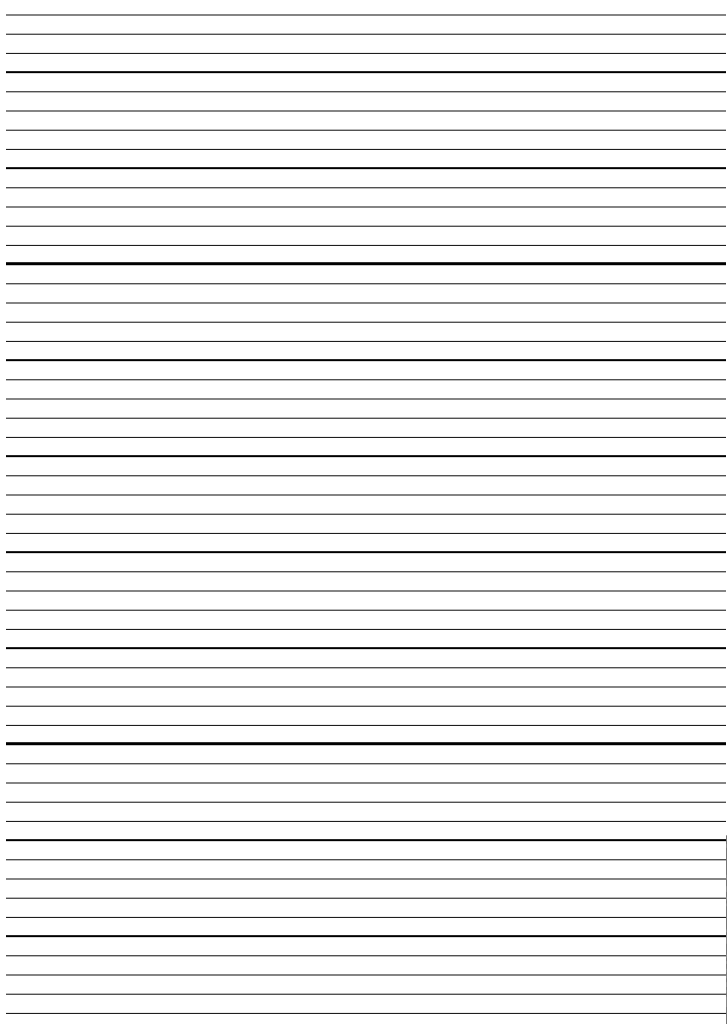
PIP SUMMARY

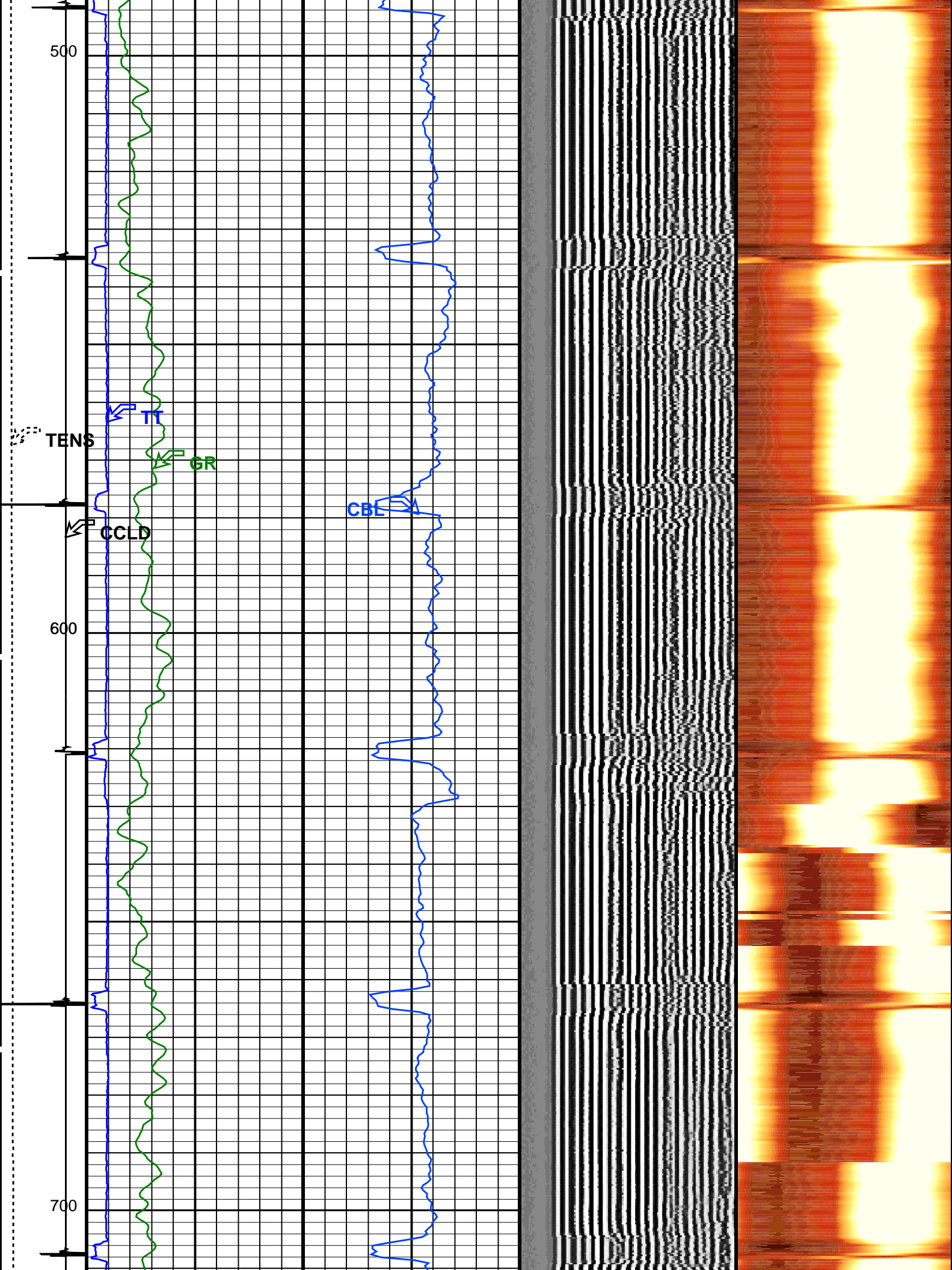
Time Mark Every 60 S

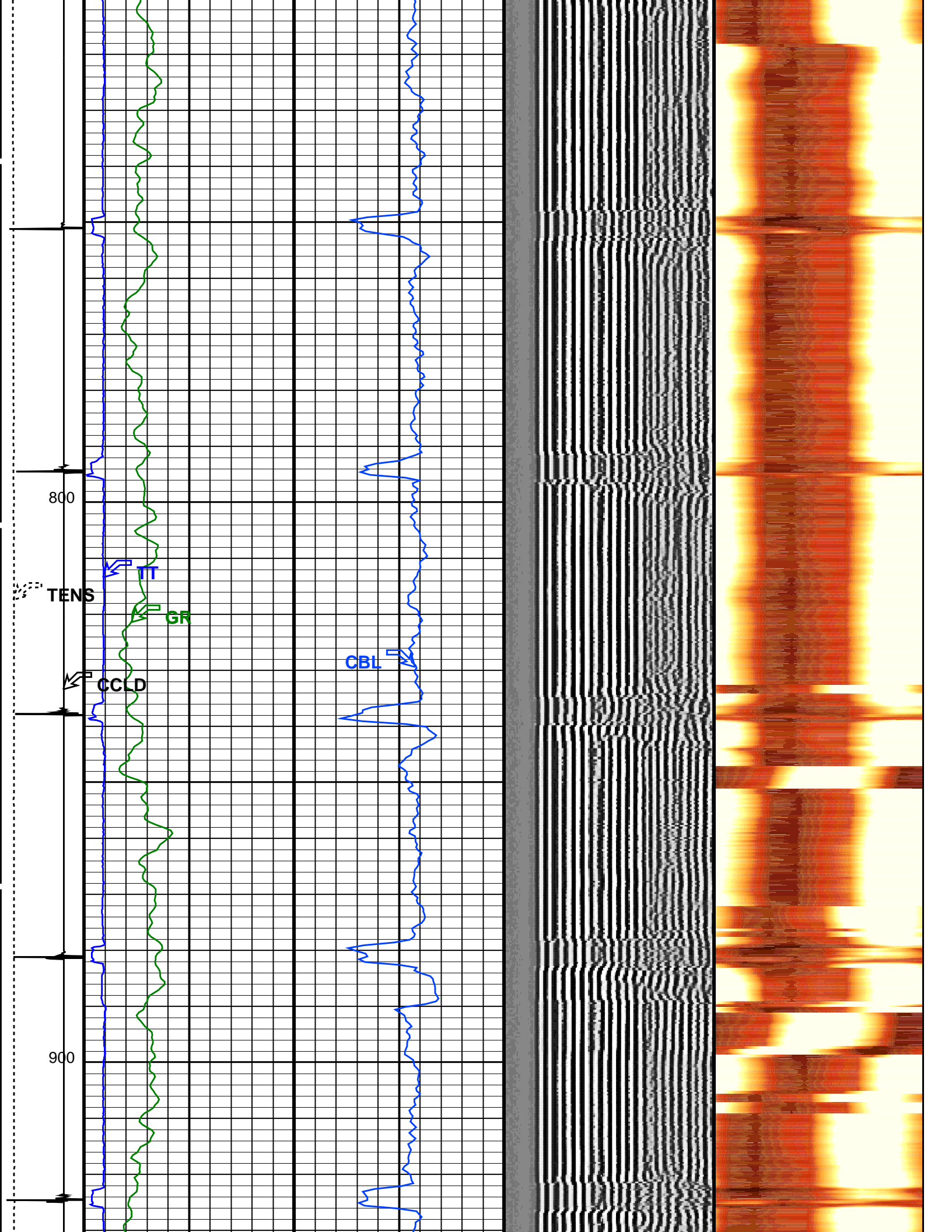
Discriminat ed CCL (CCLD)	Transit Time (TT)		CBL Amplitude (CBL)	
	260 (US)	160	0	10 (MV)
3 (V) -1				

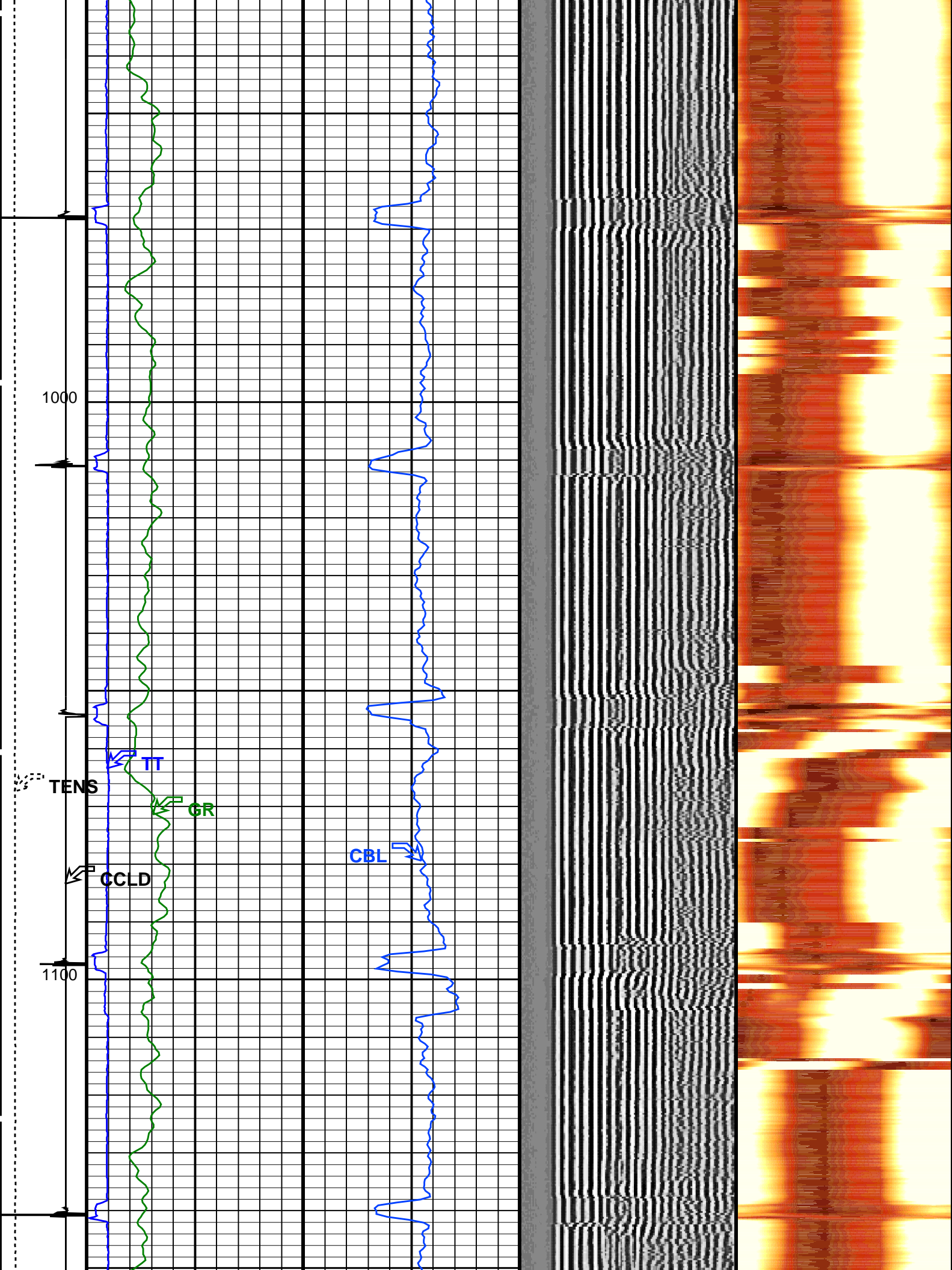


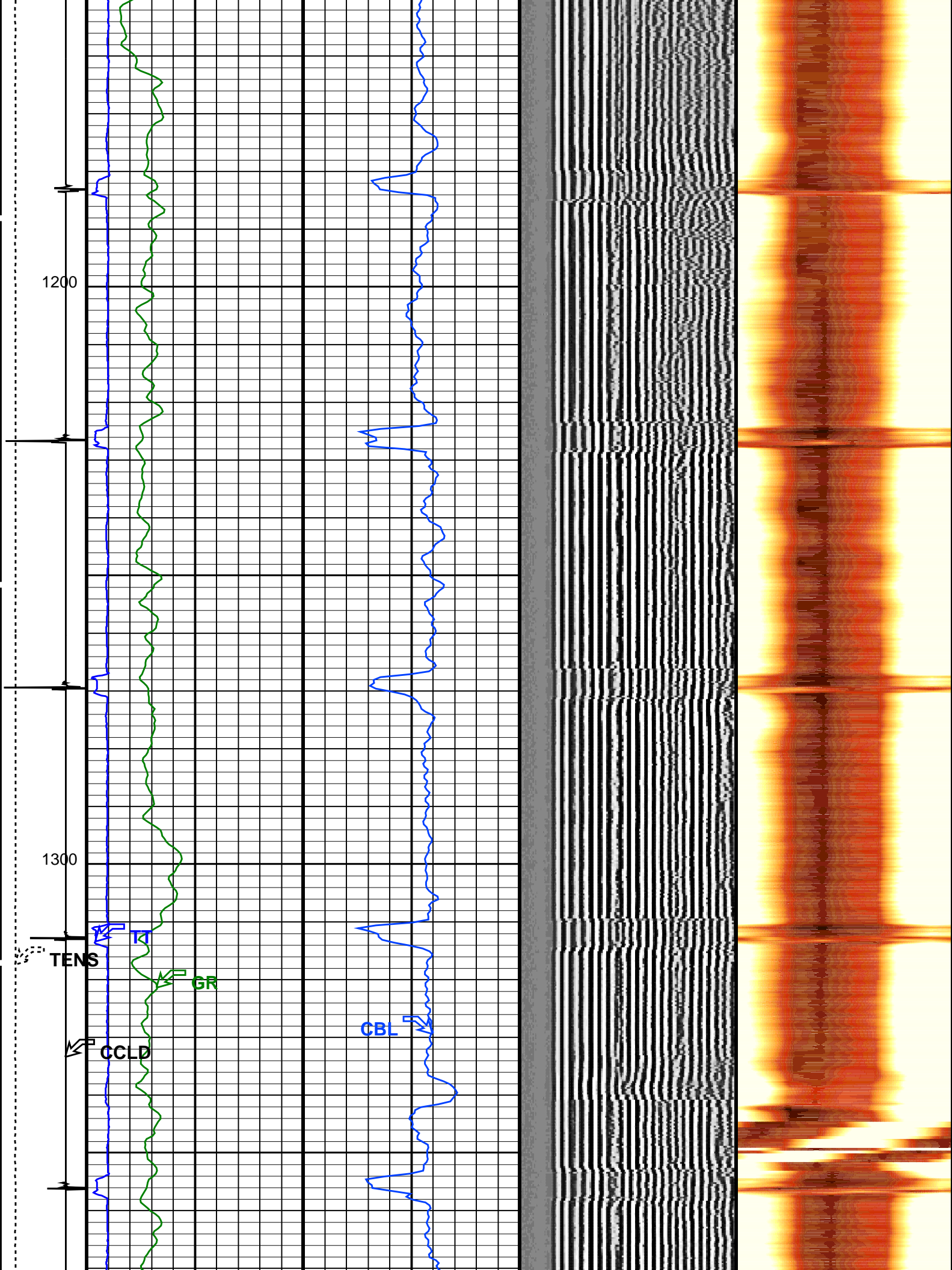


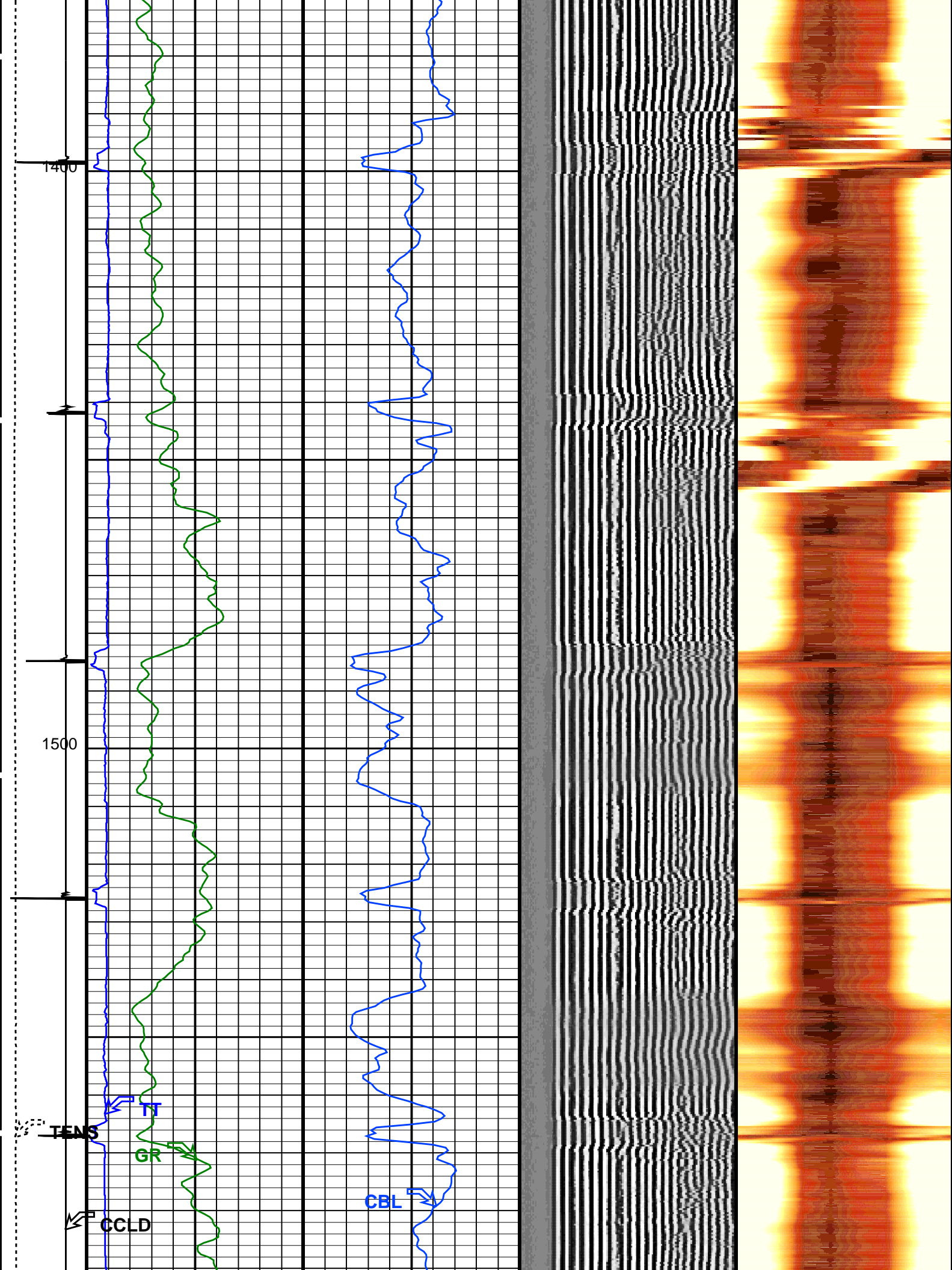


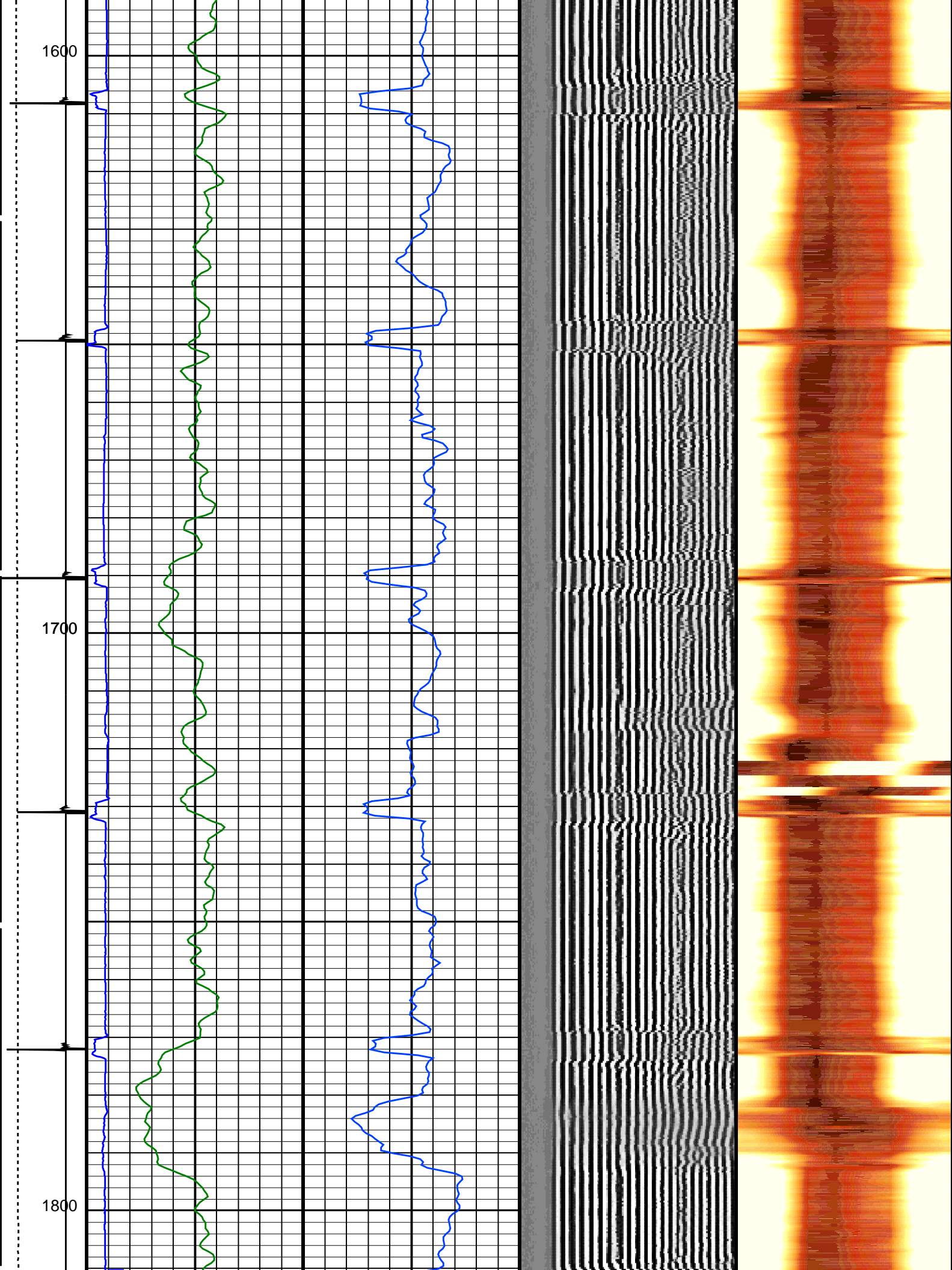


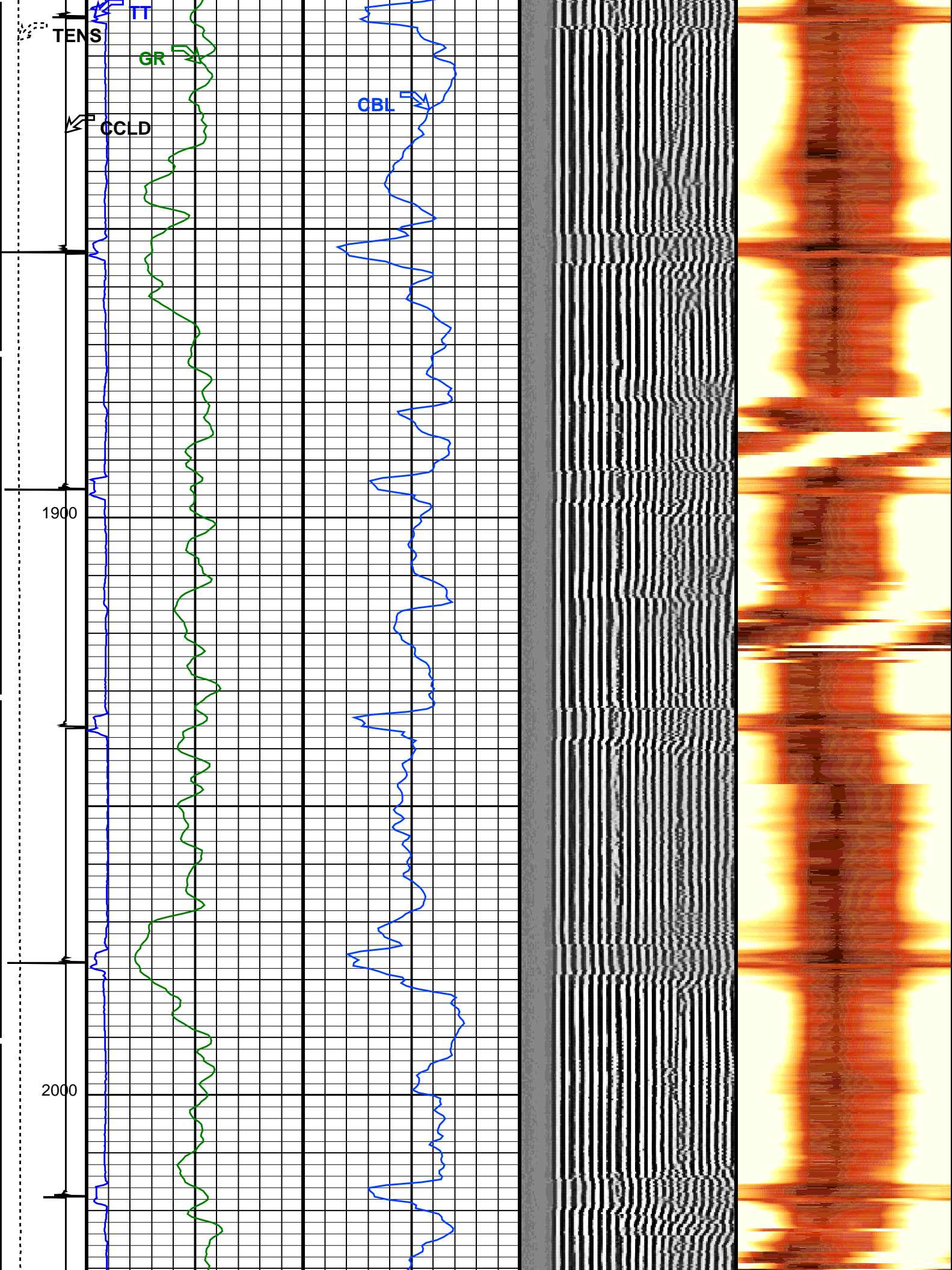


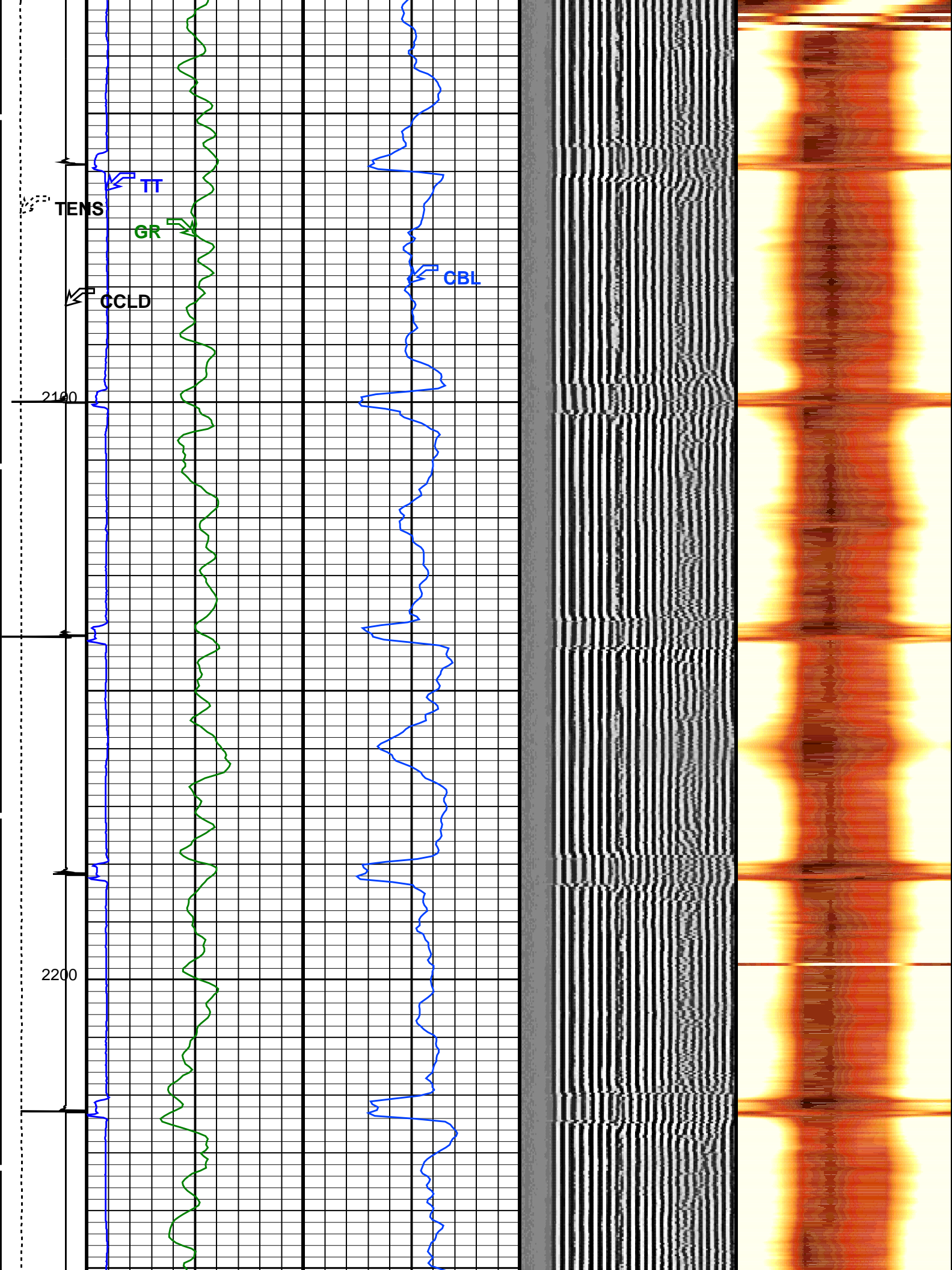


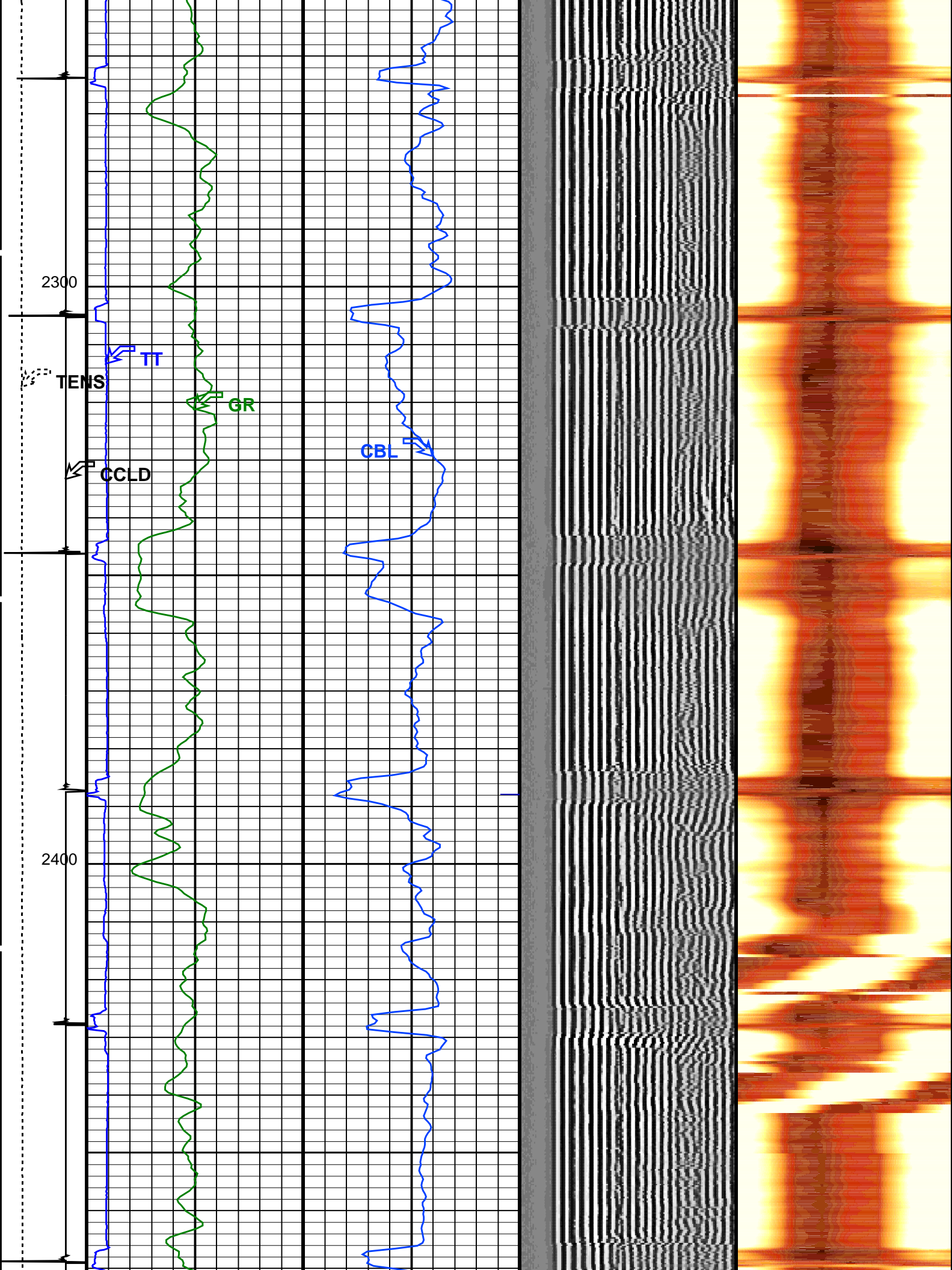


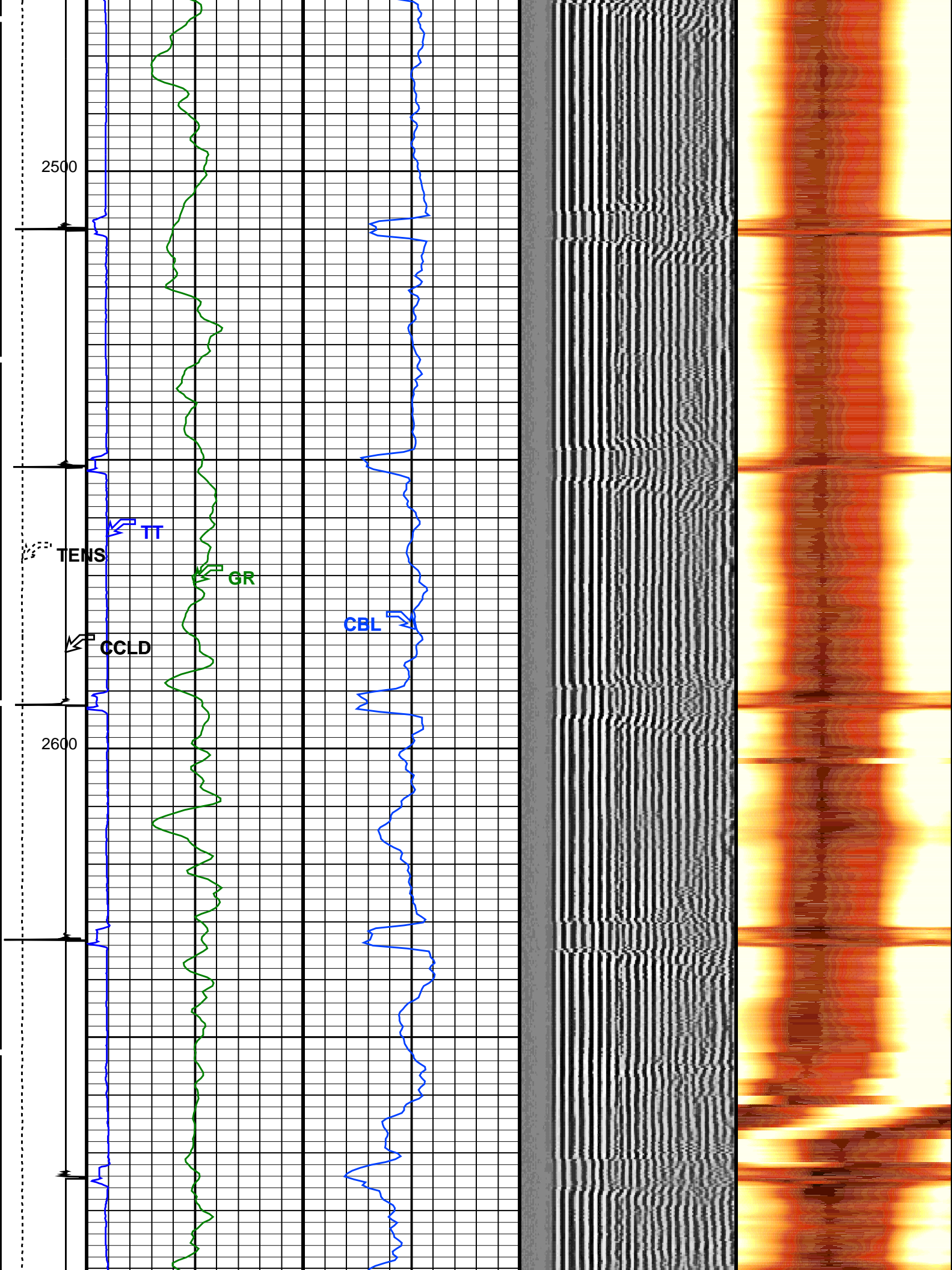


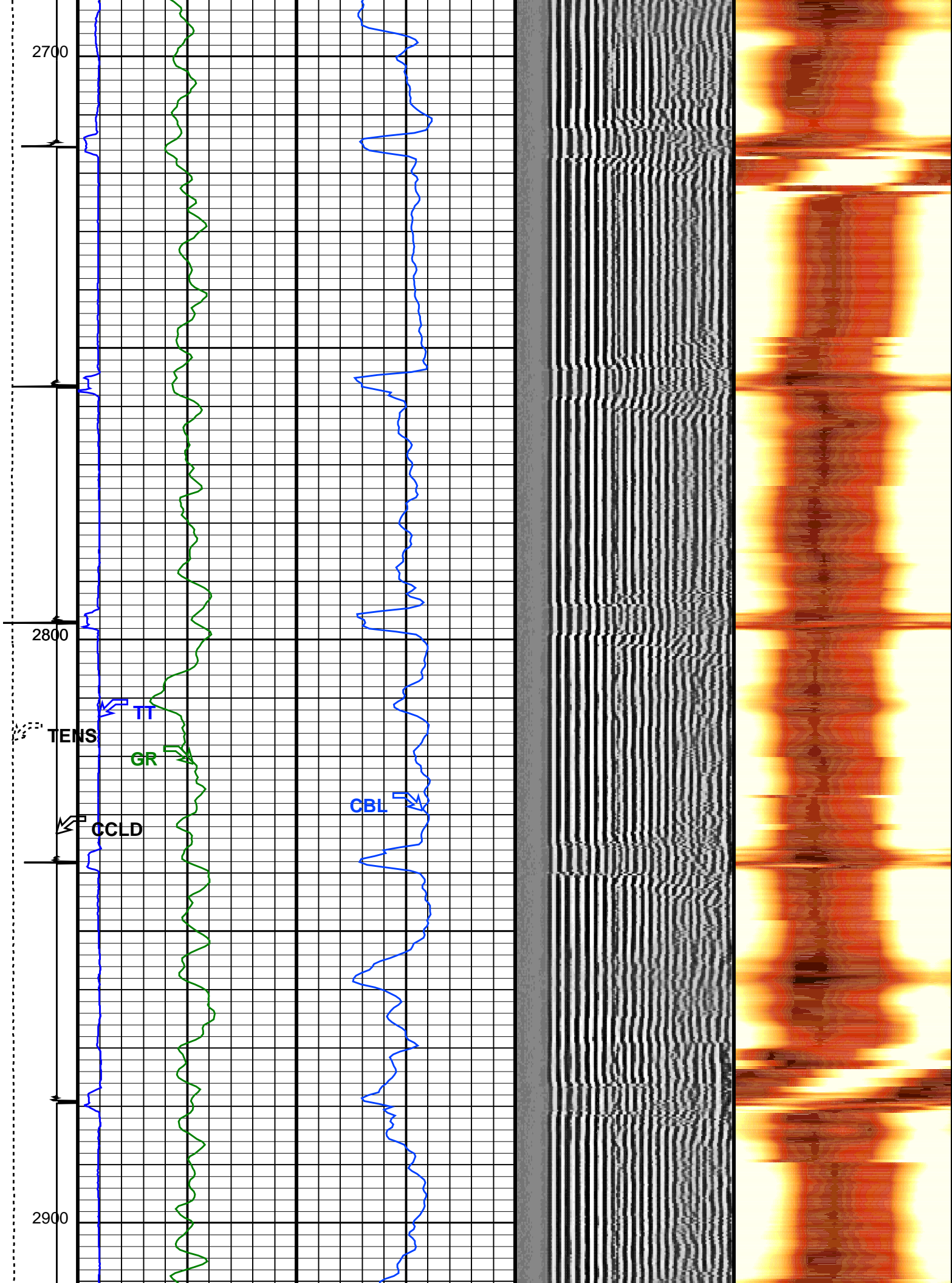


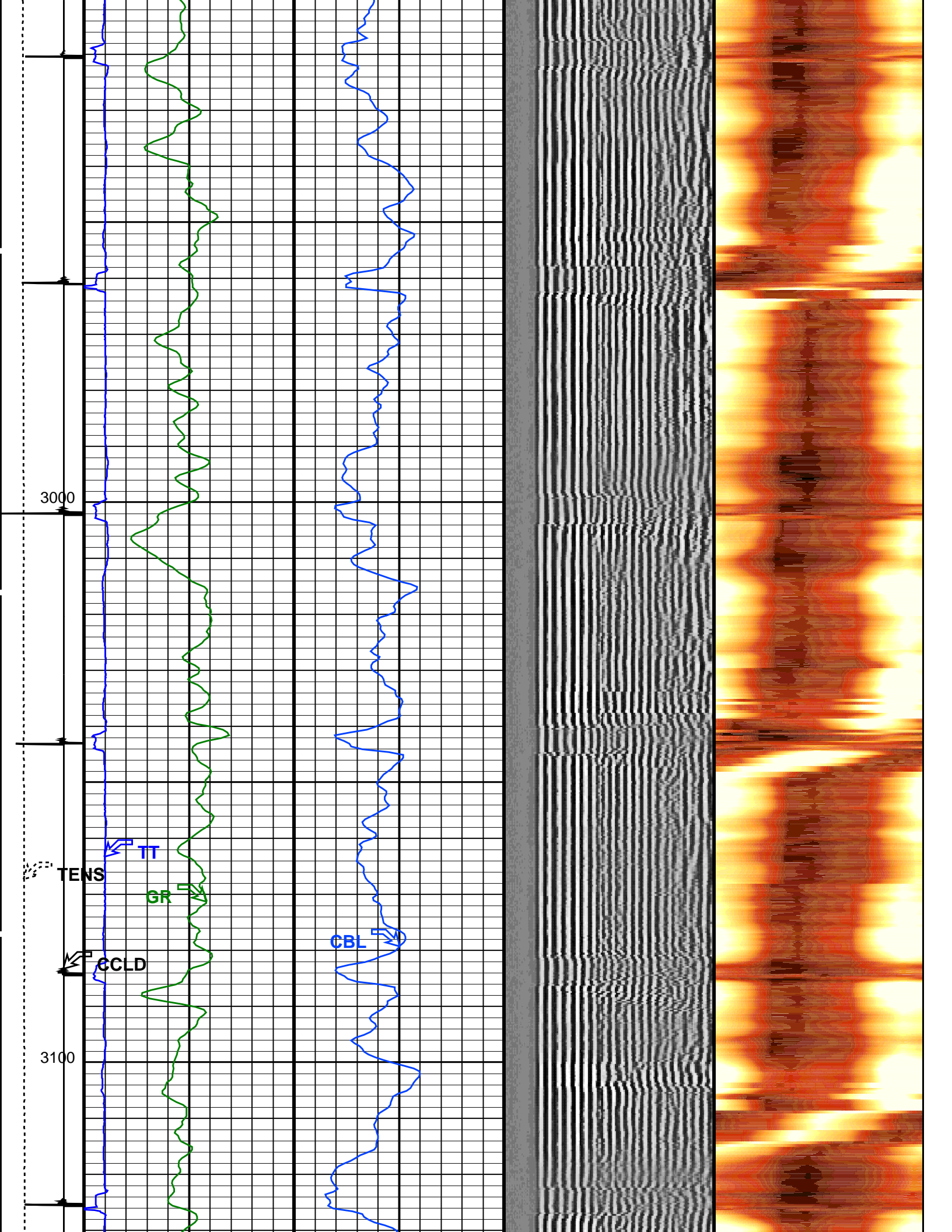


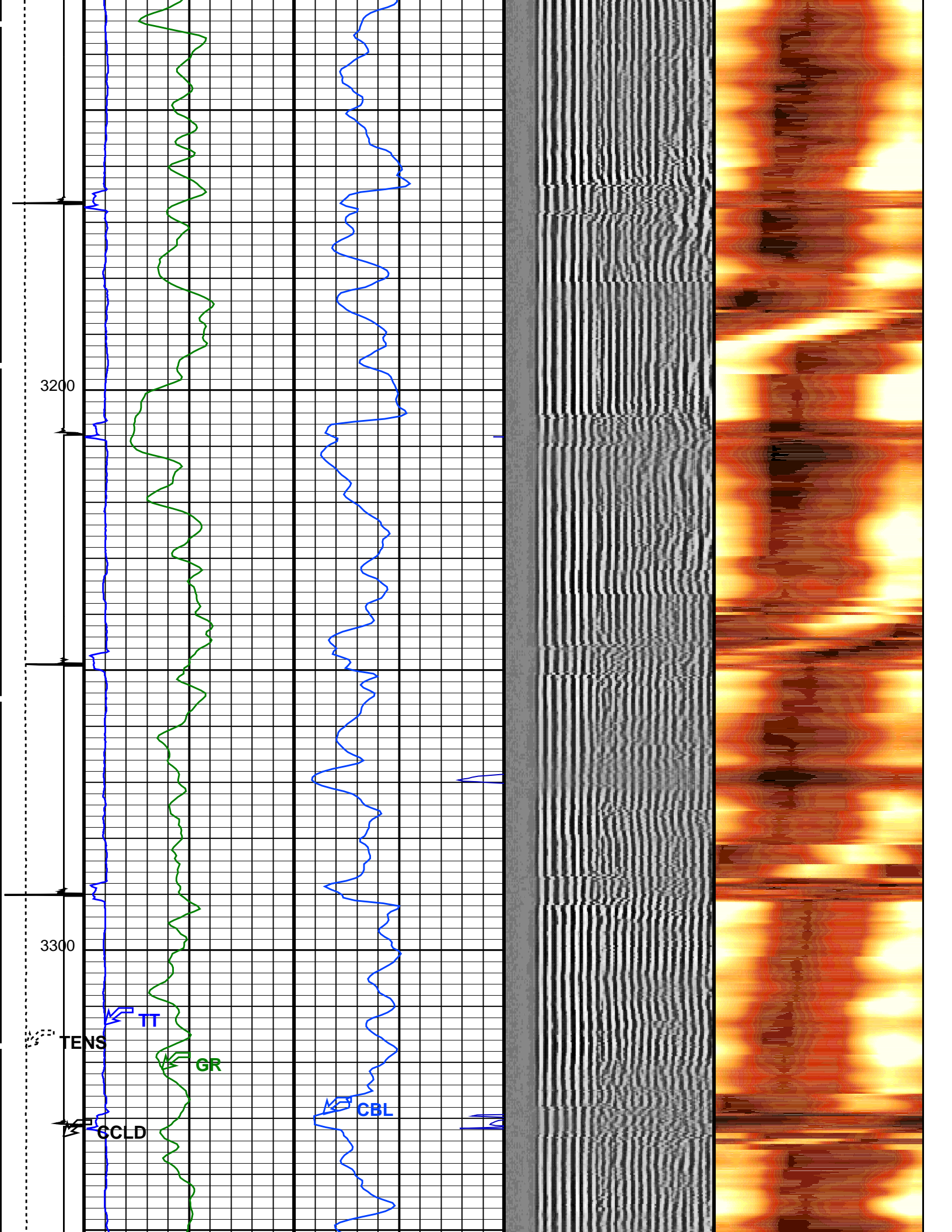


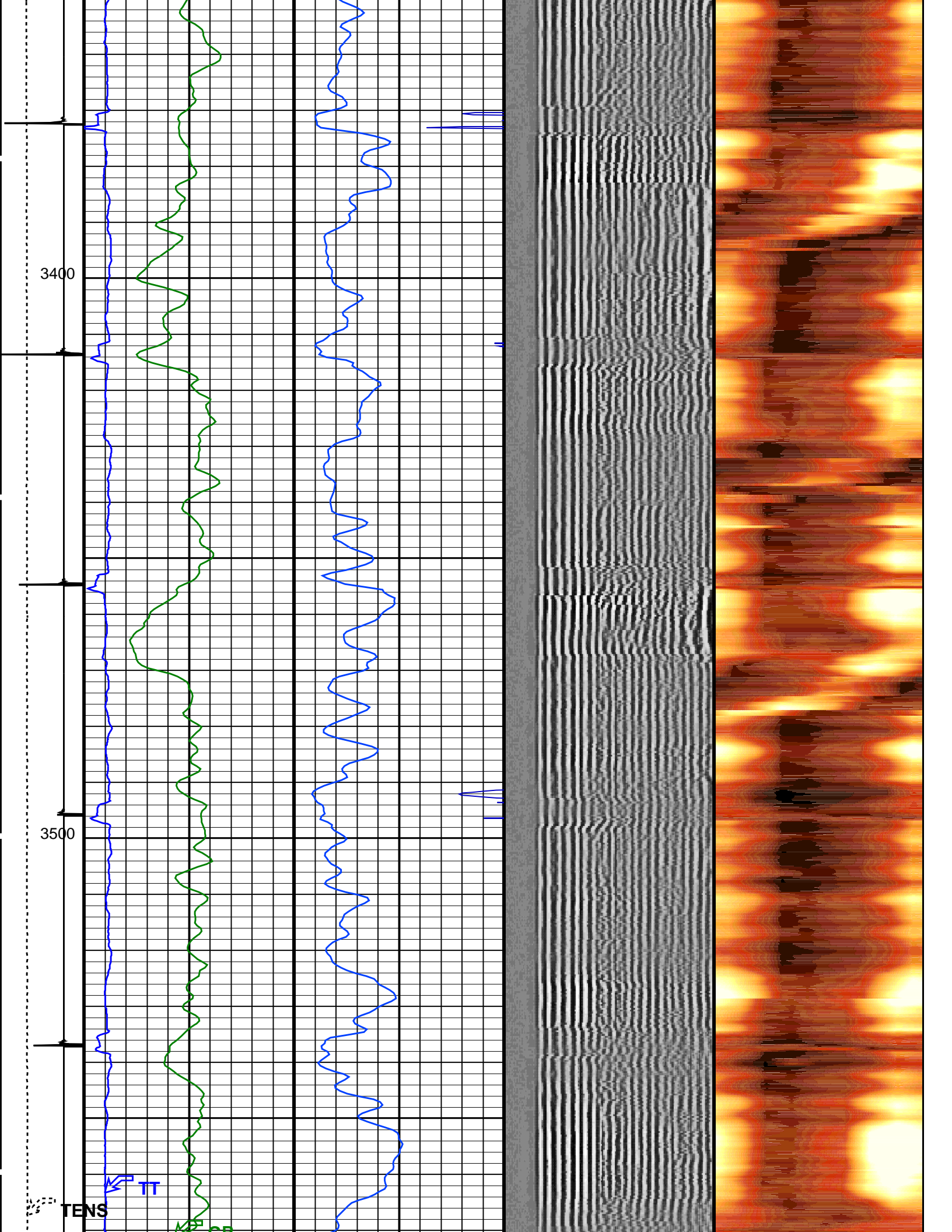


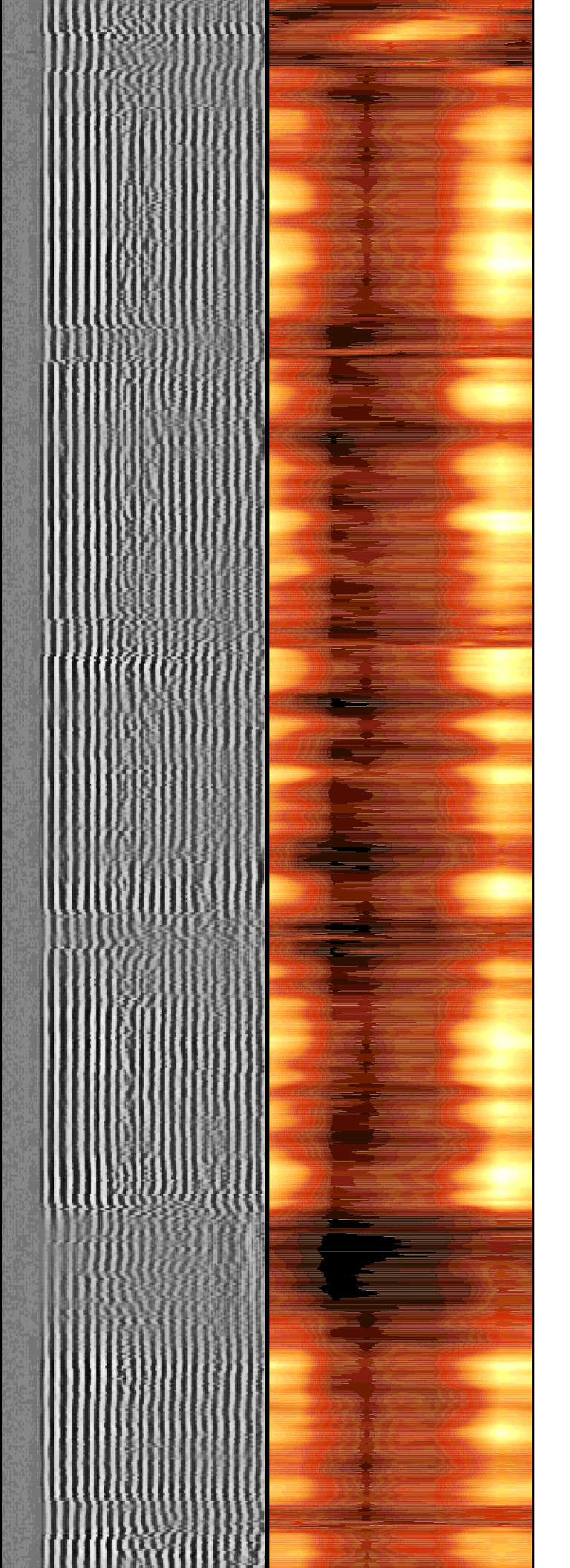
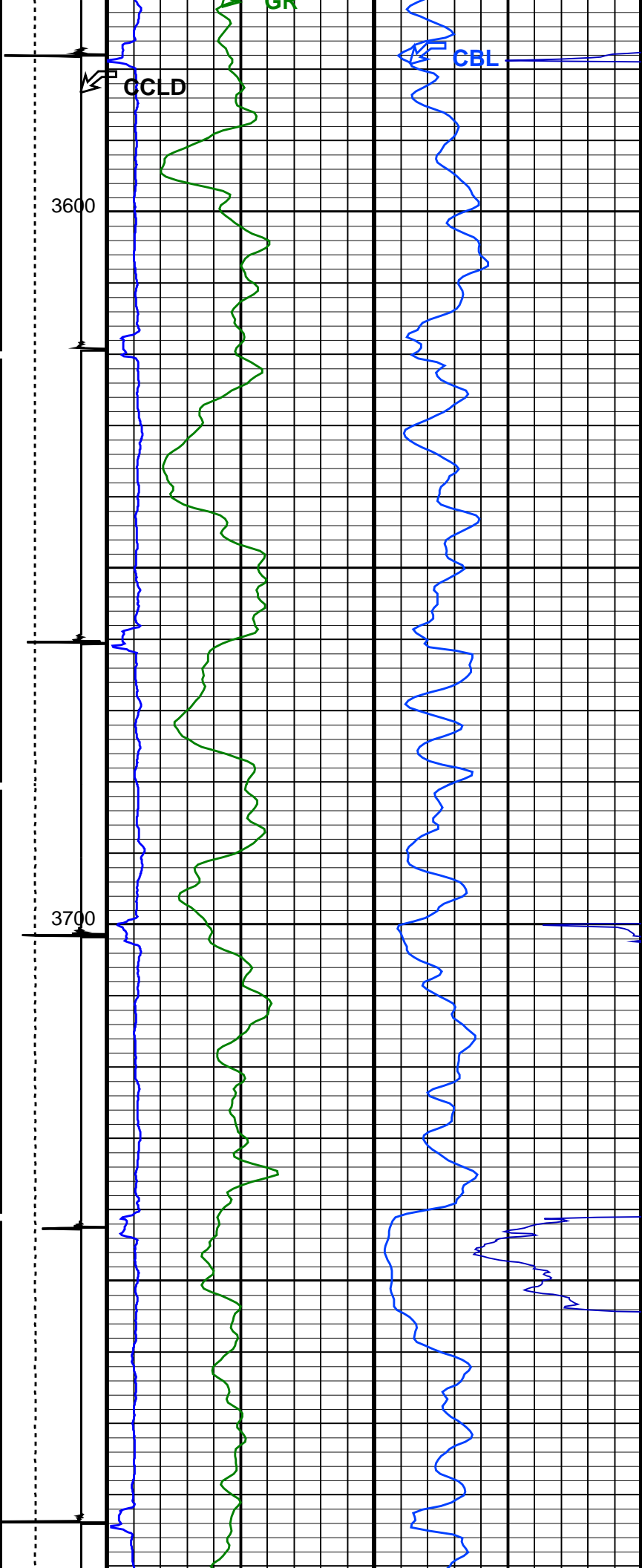


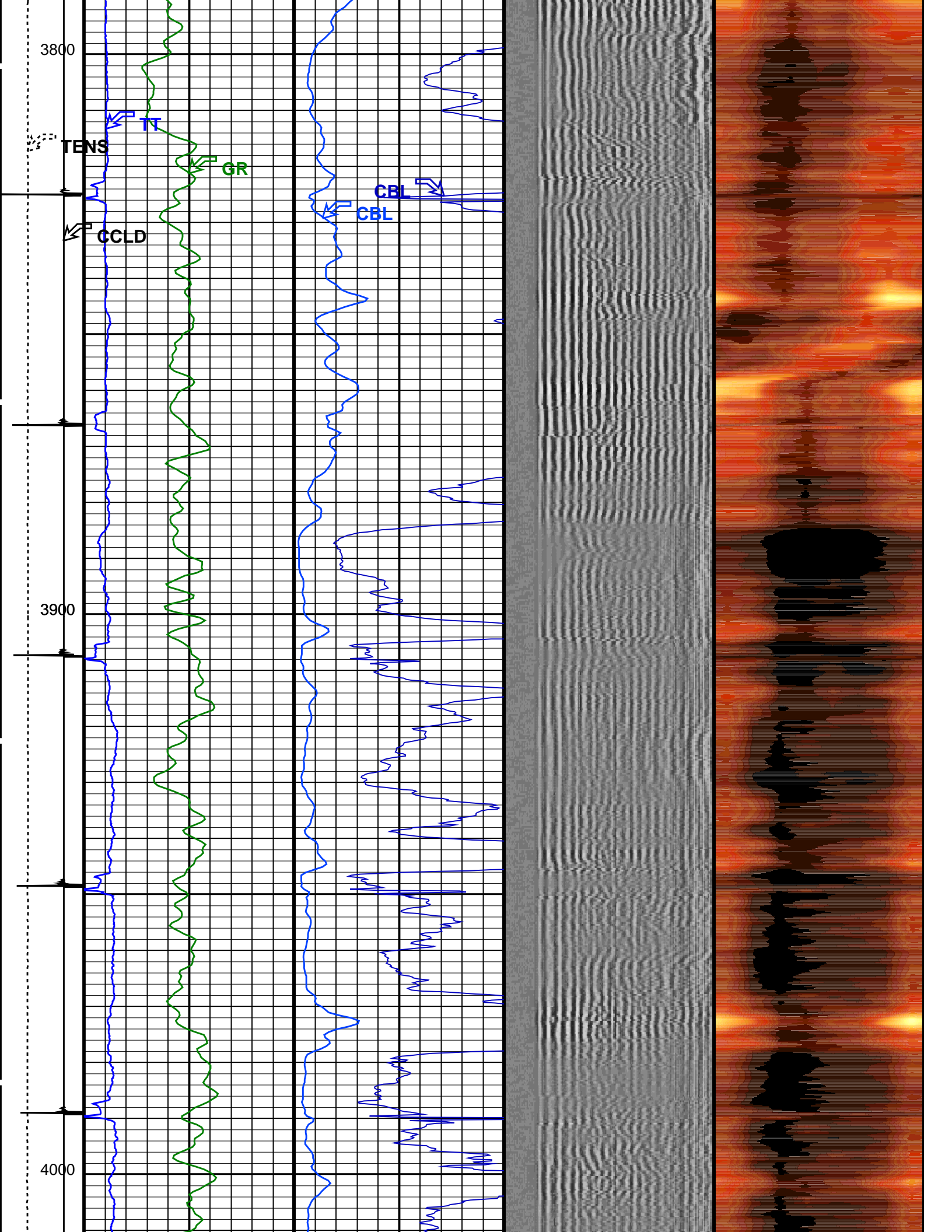


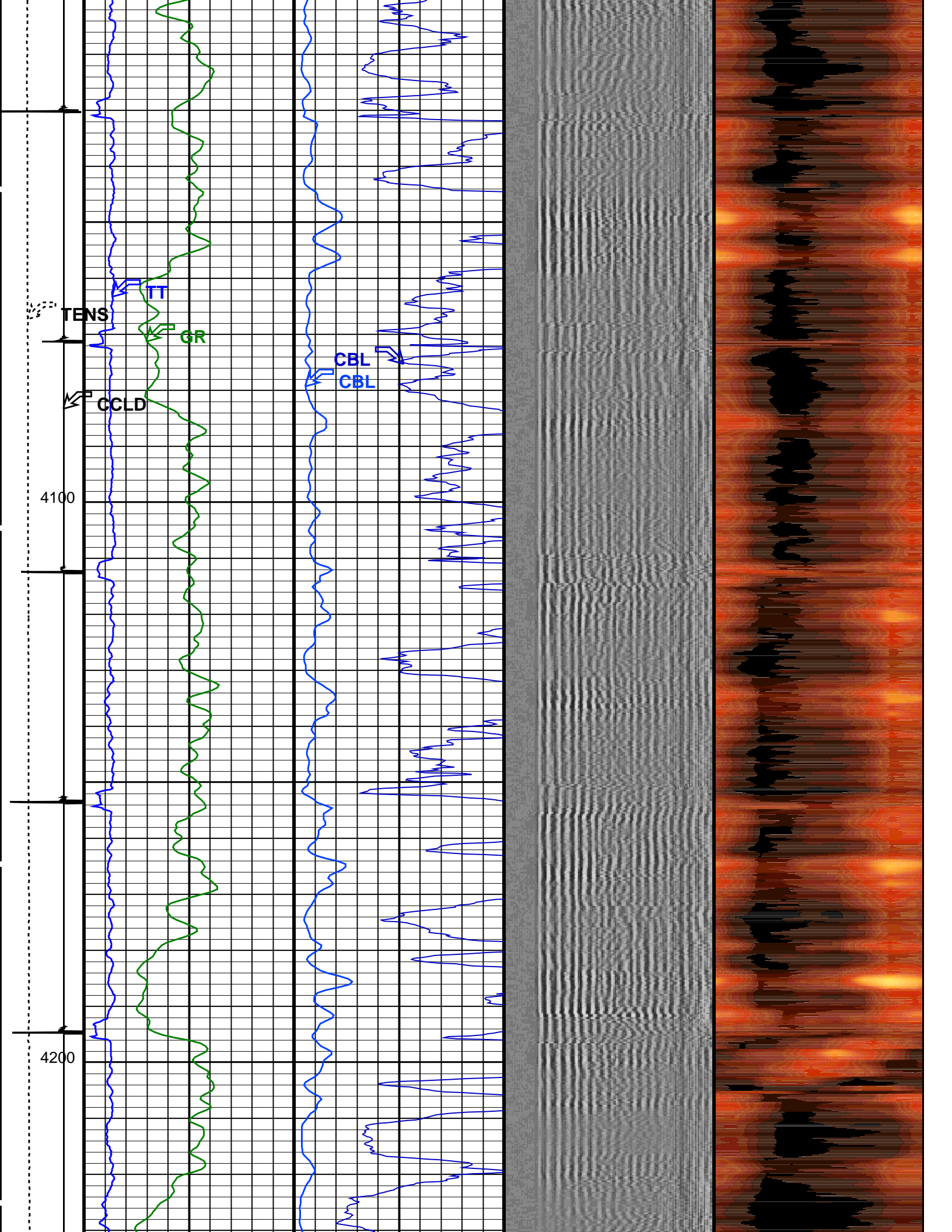


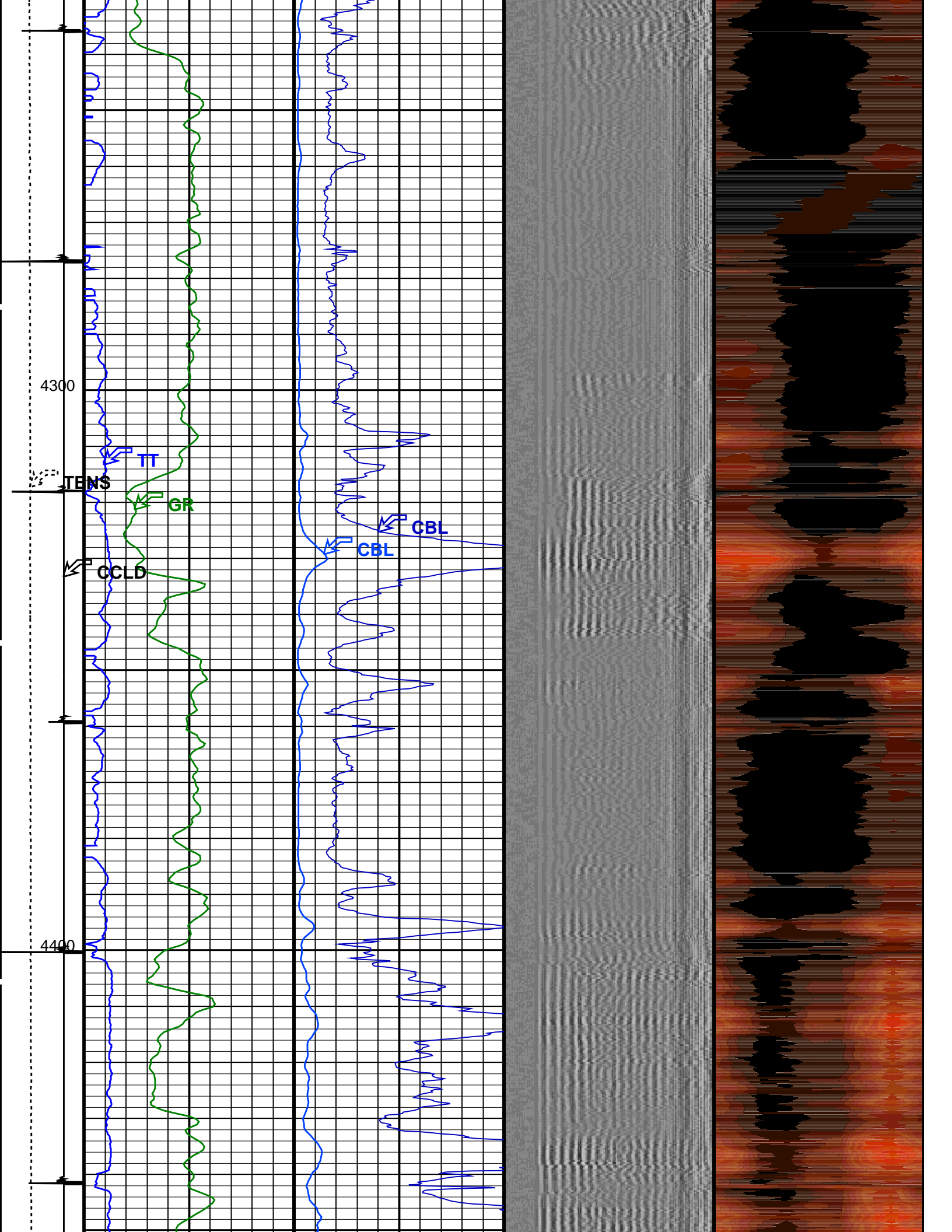


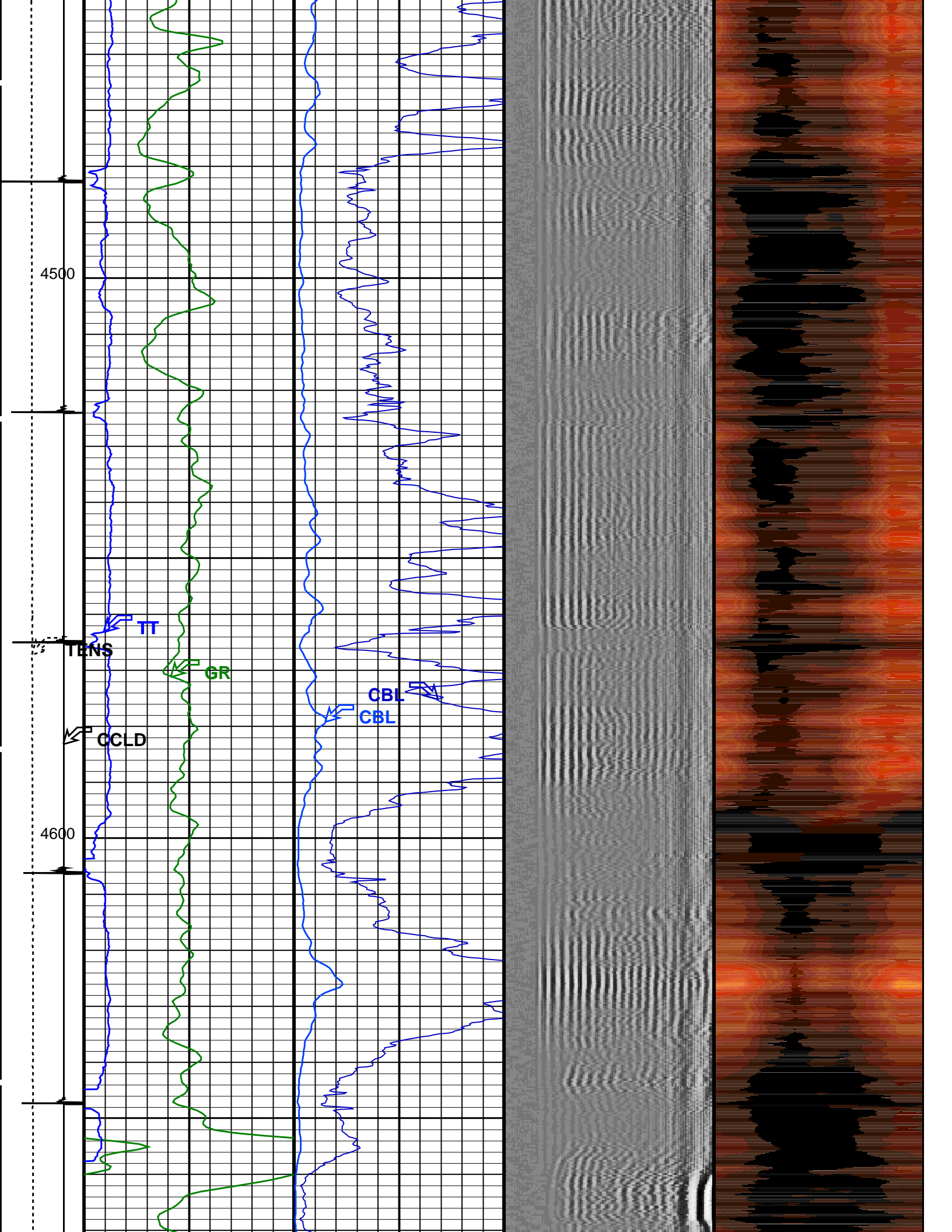


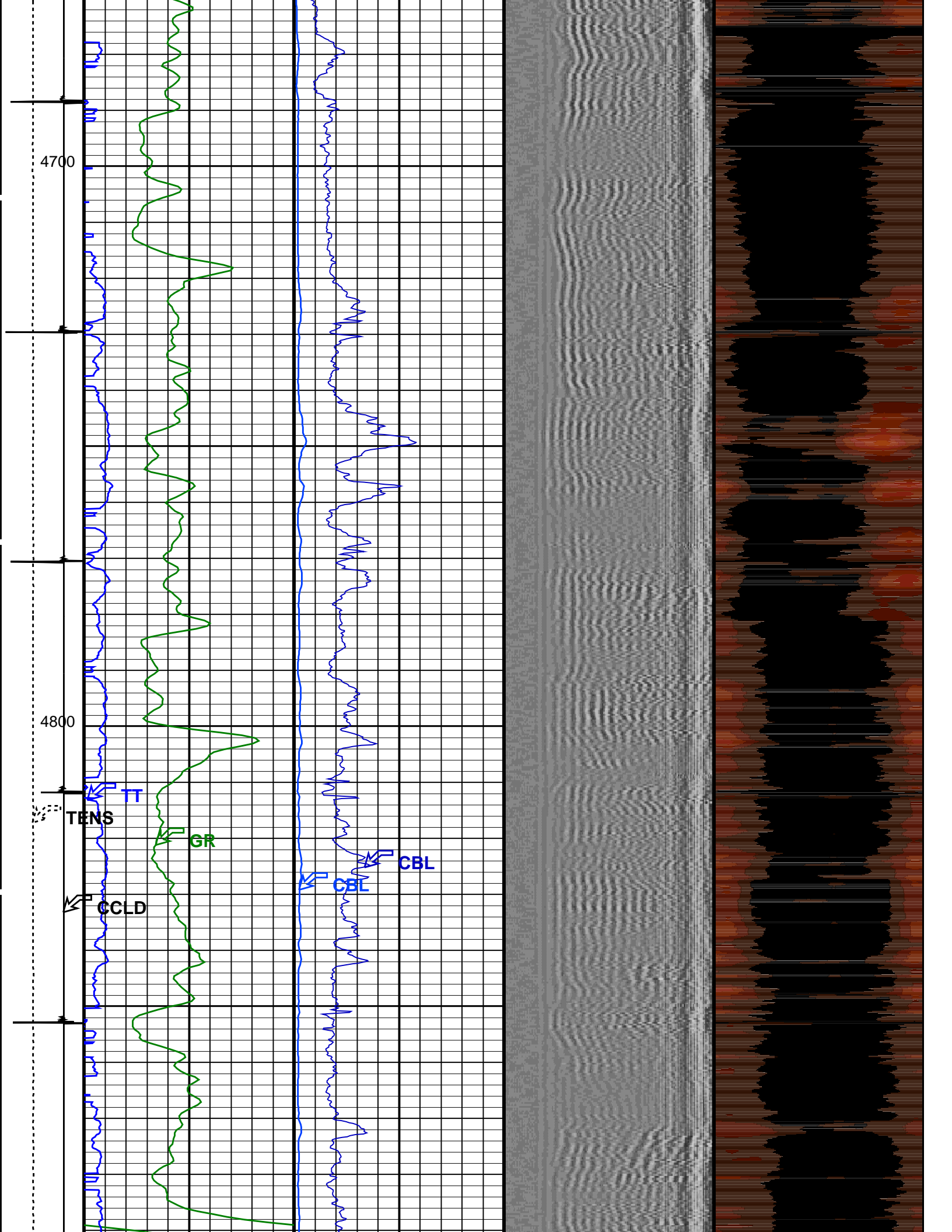


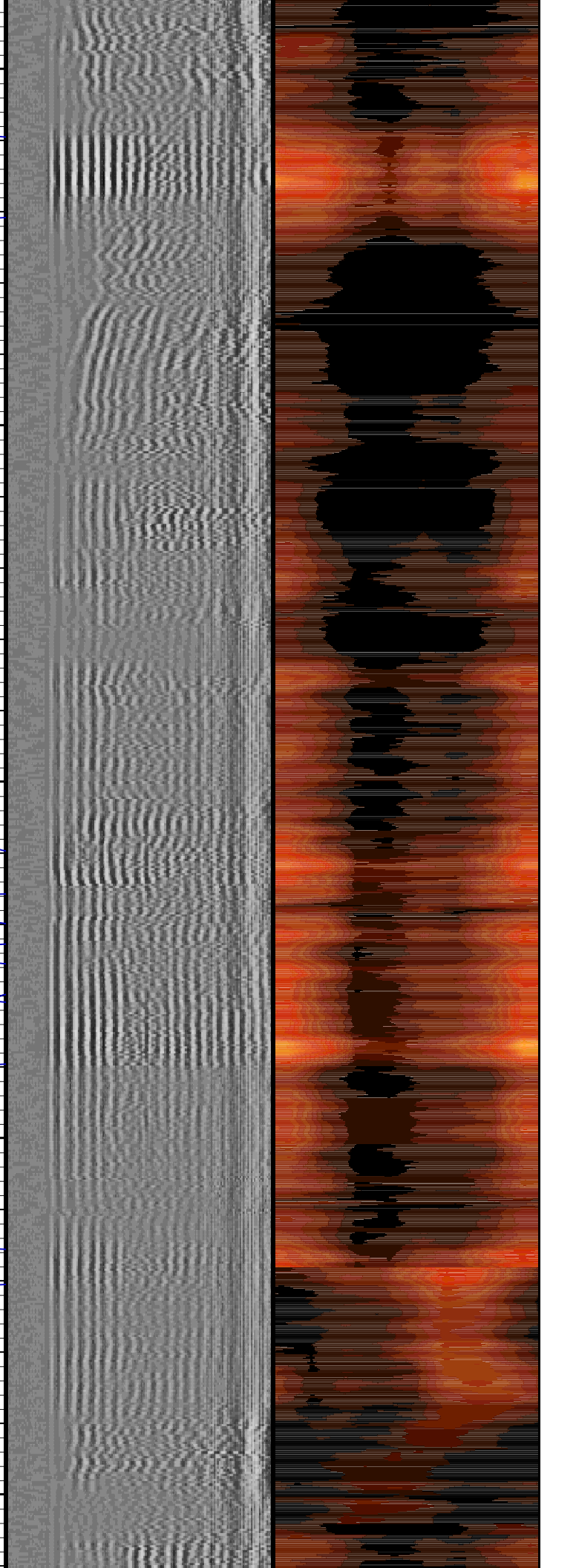
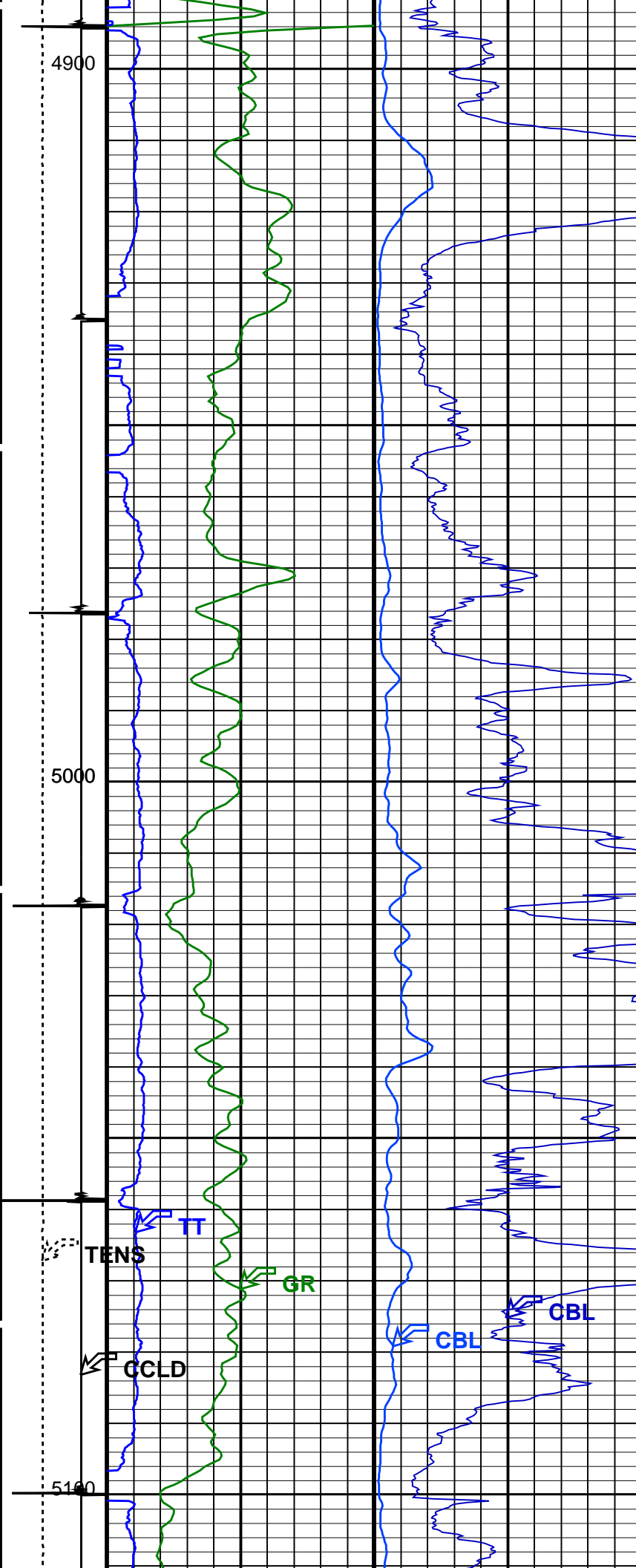


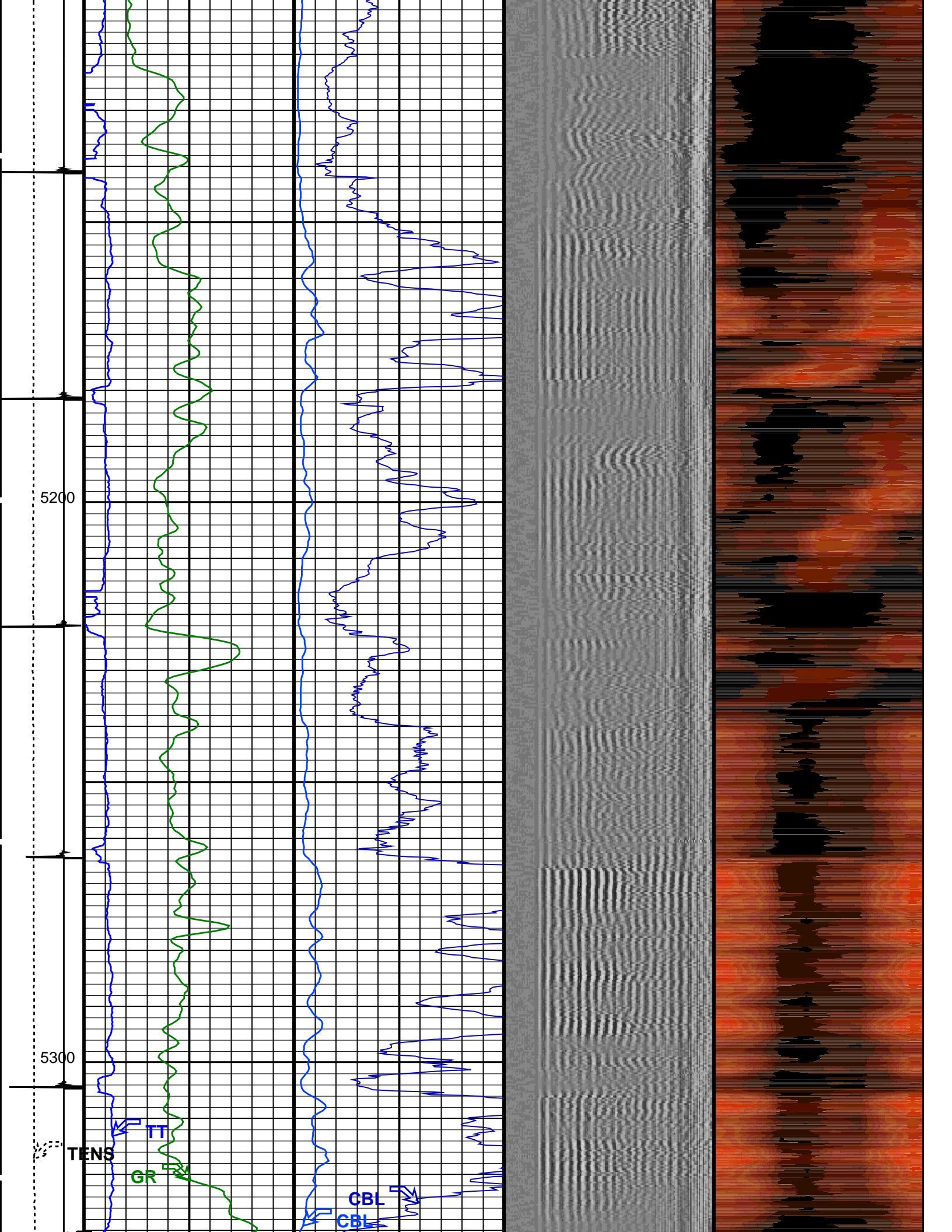


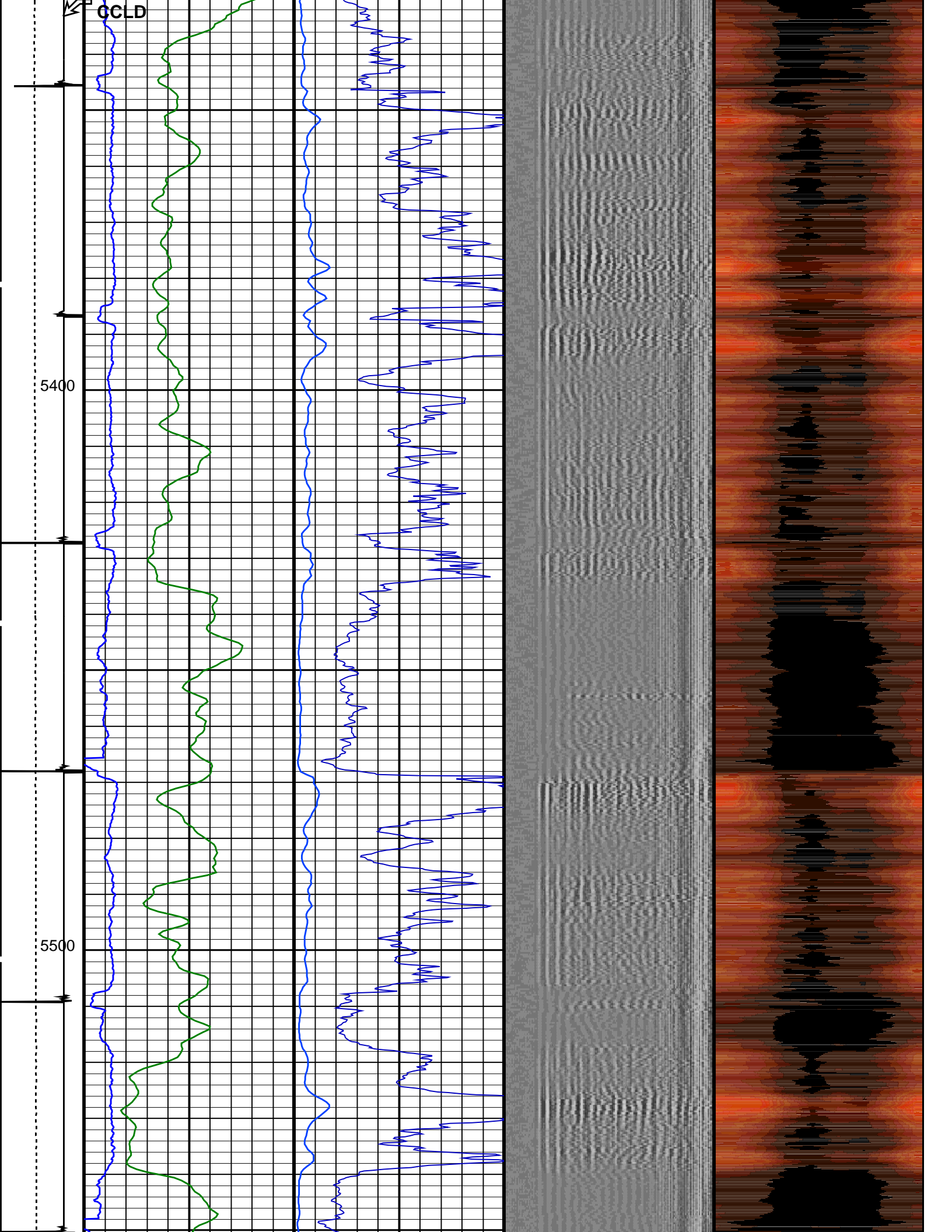


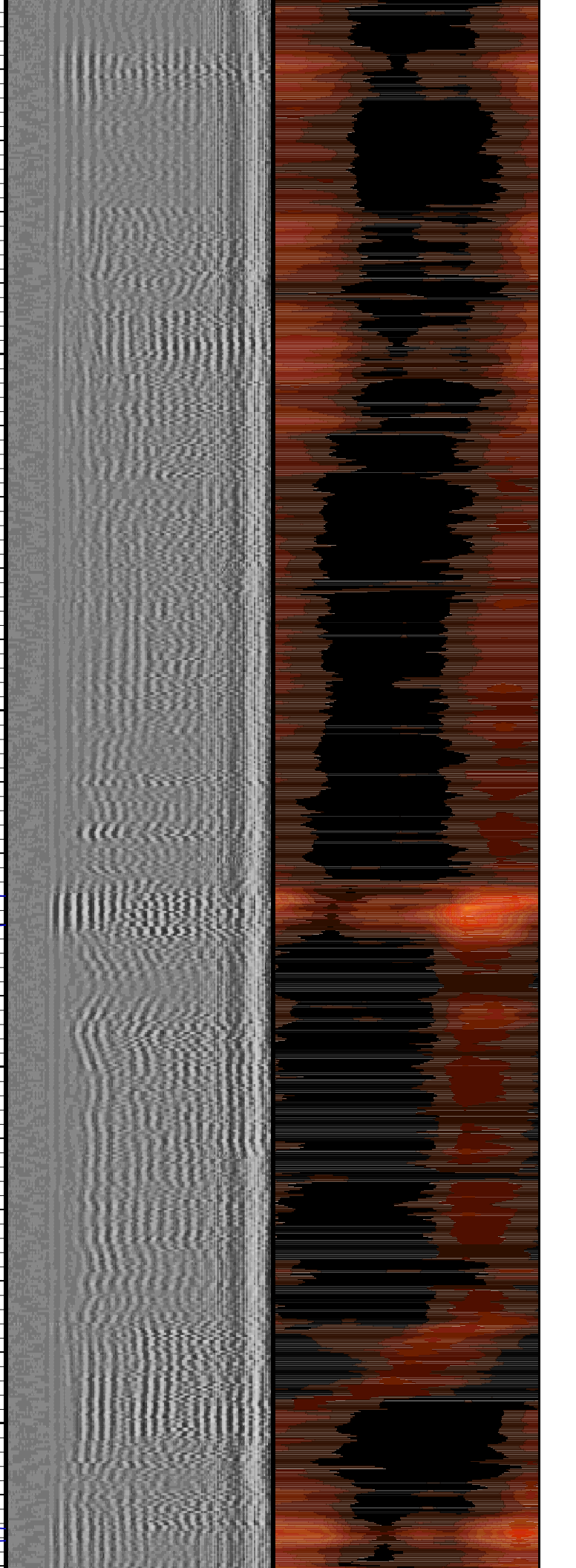
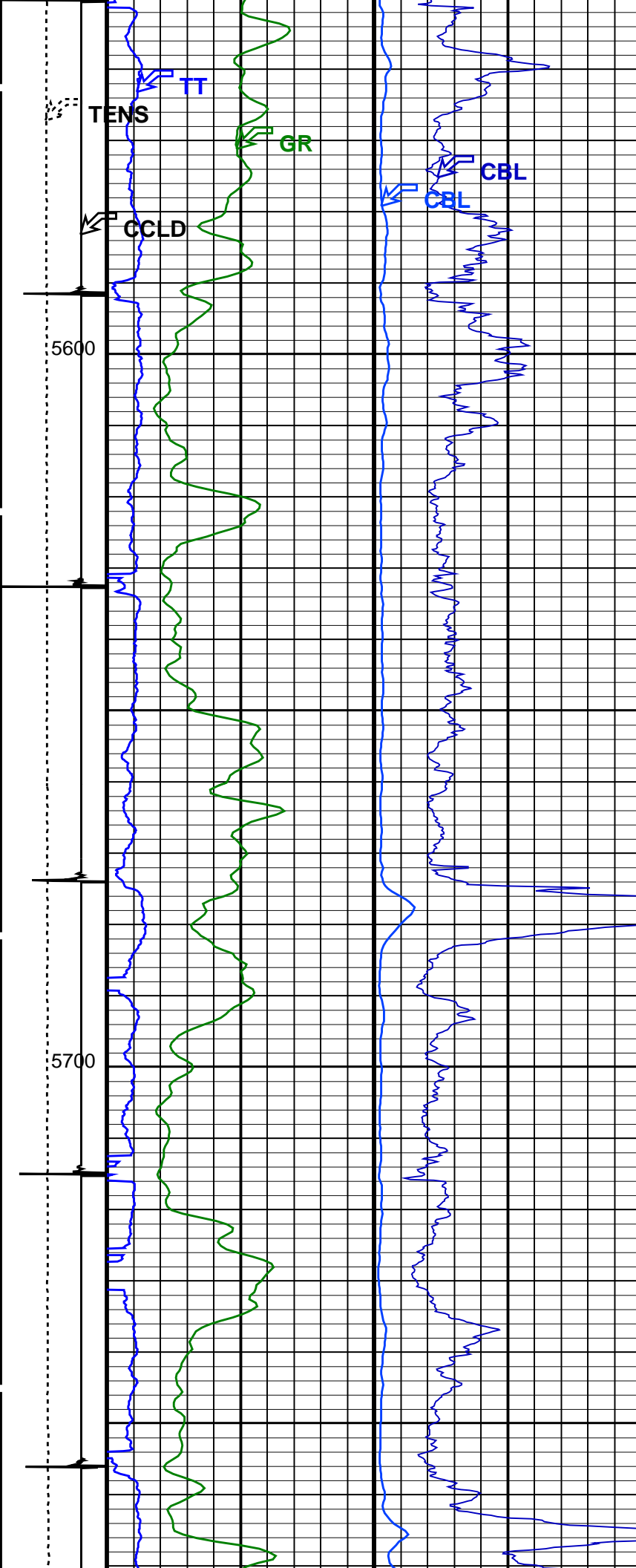


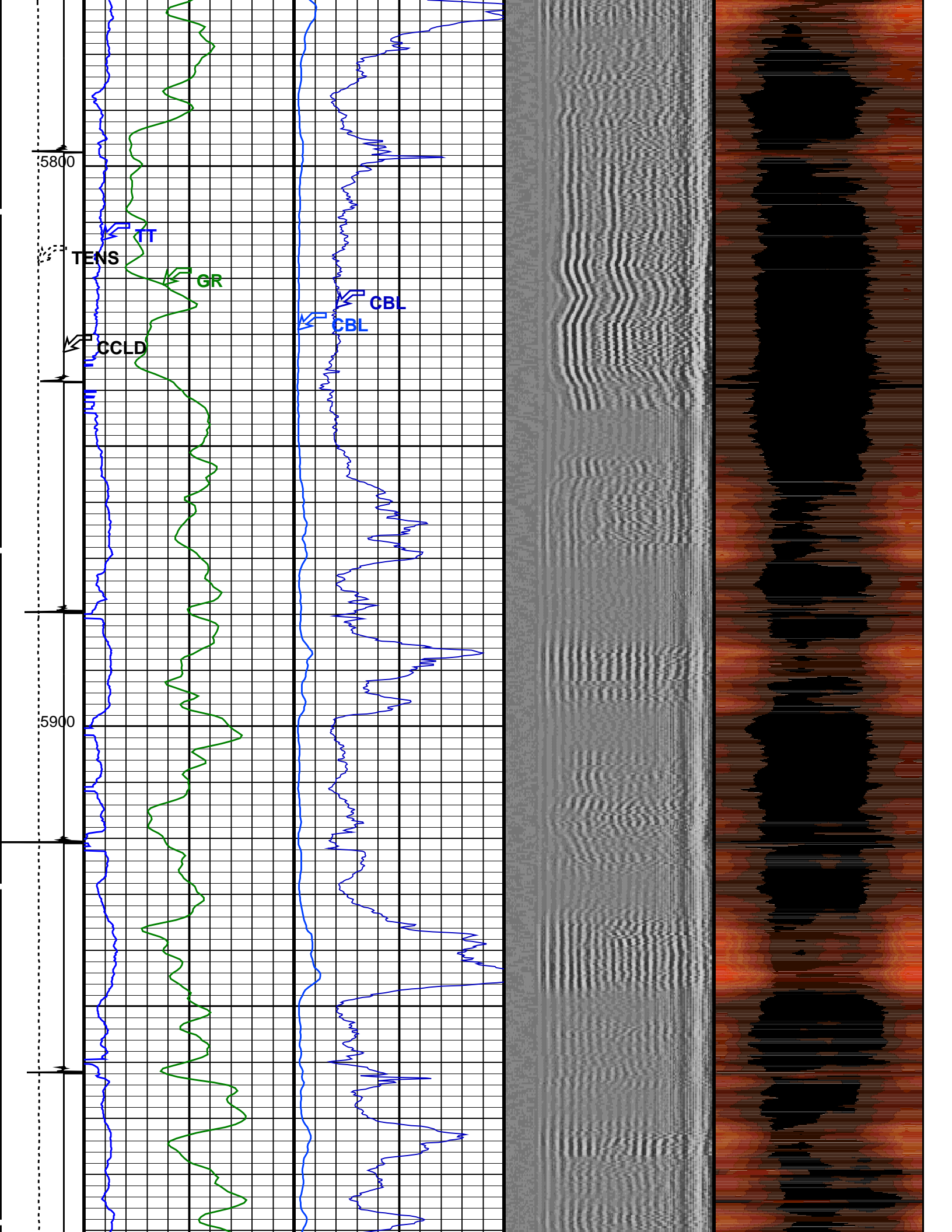


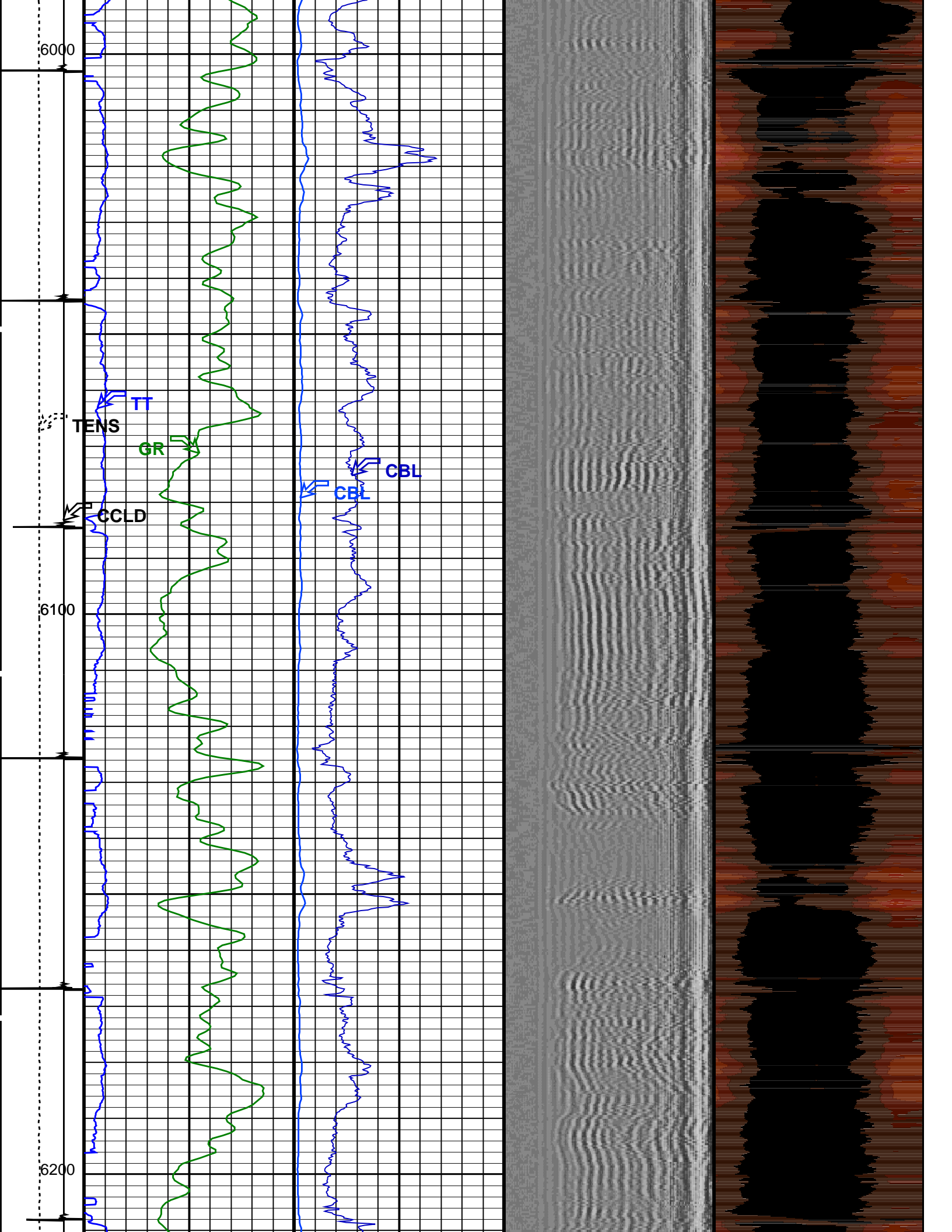


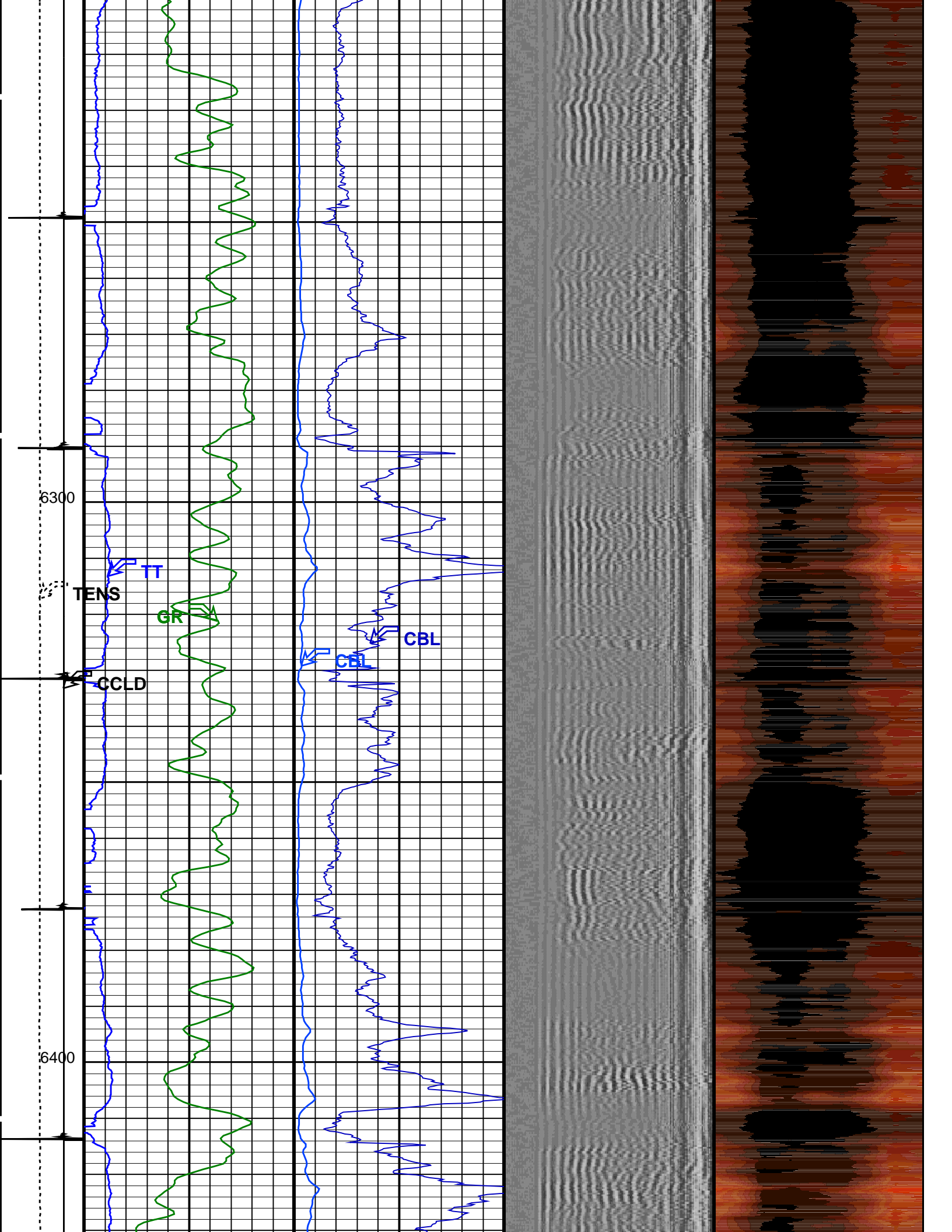


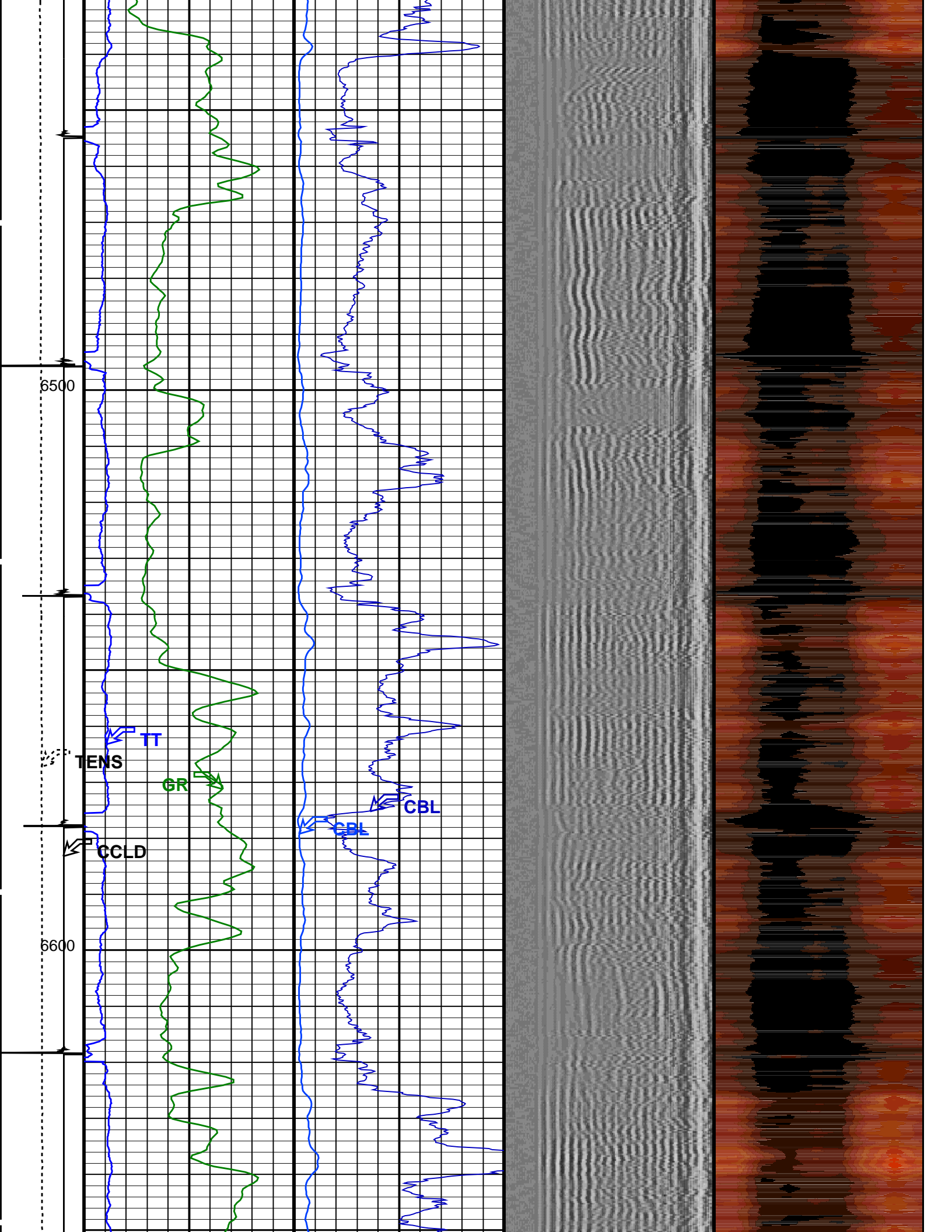


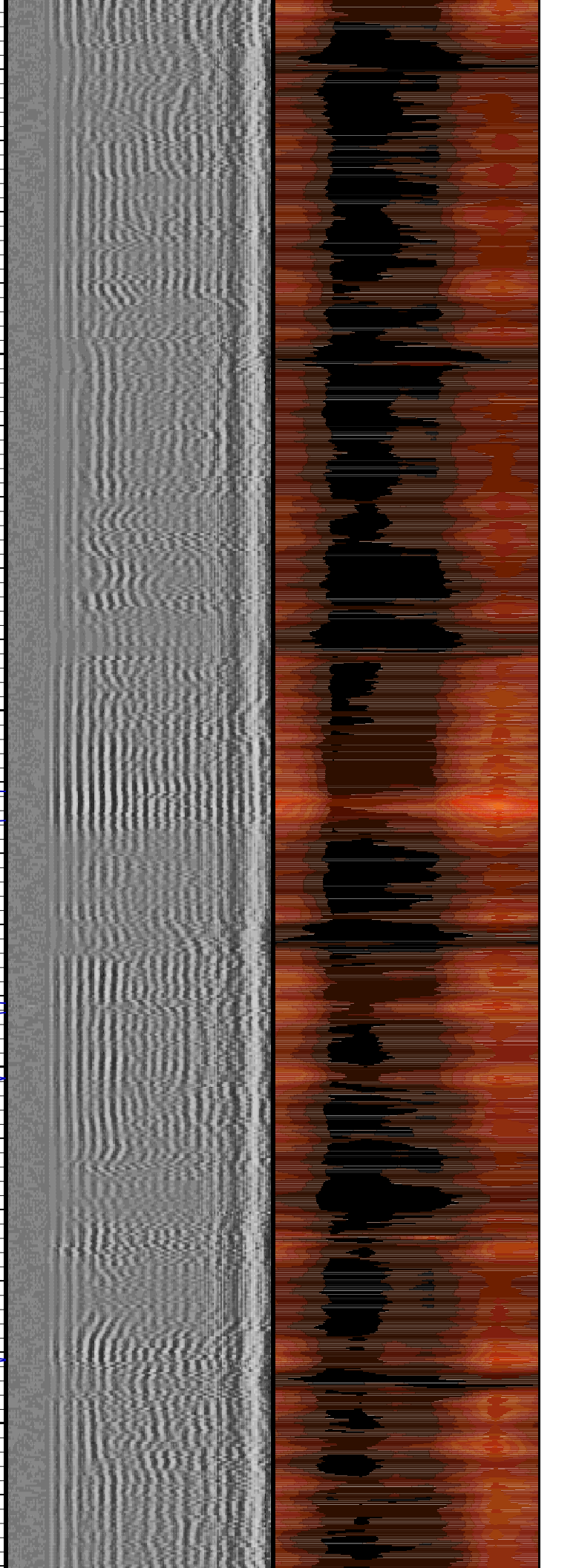
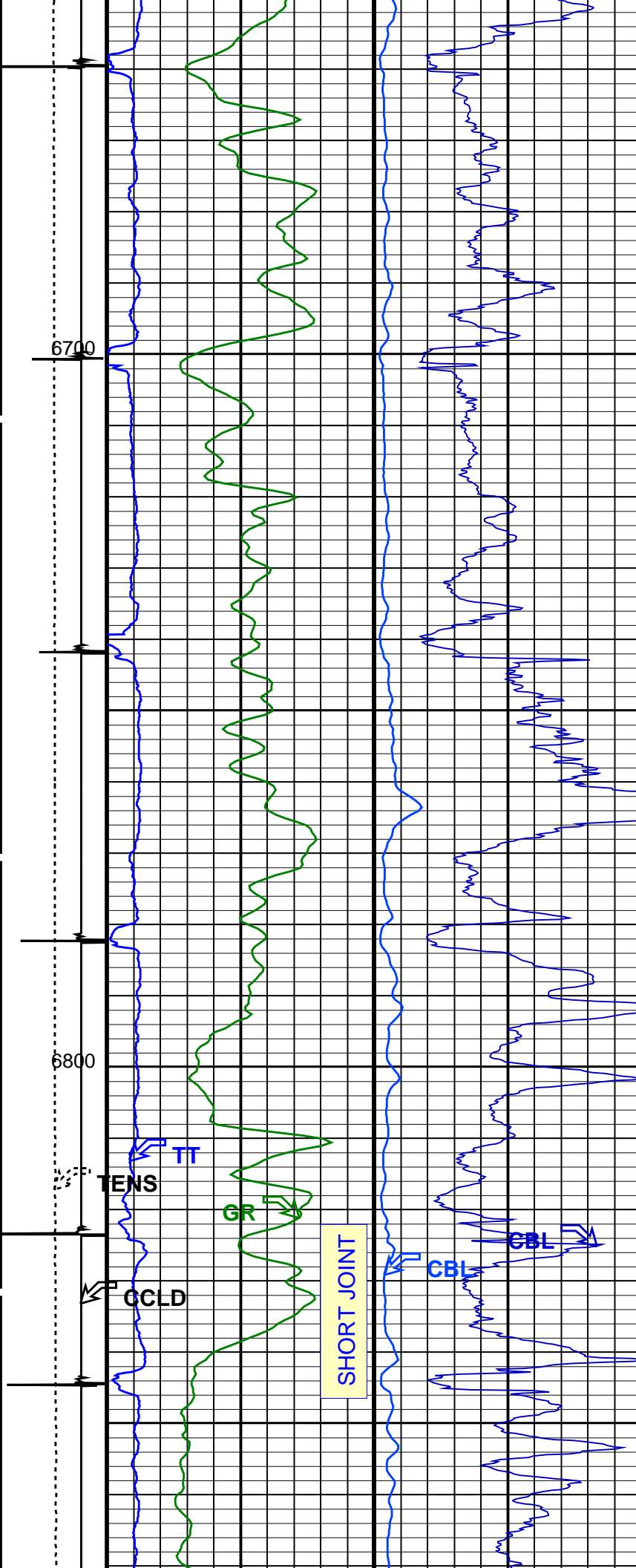


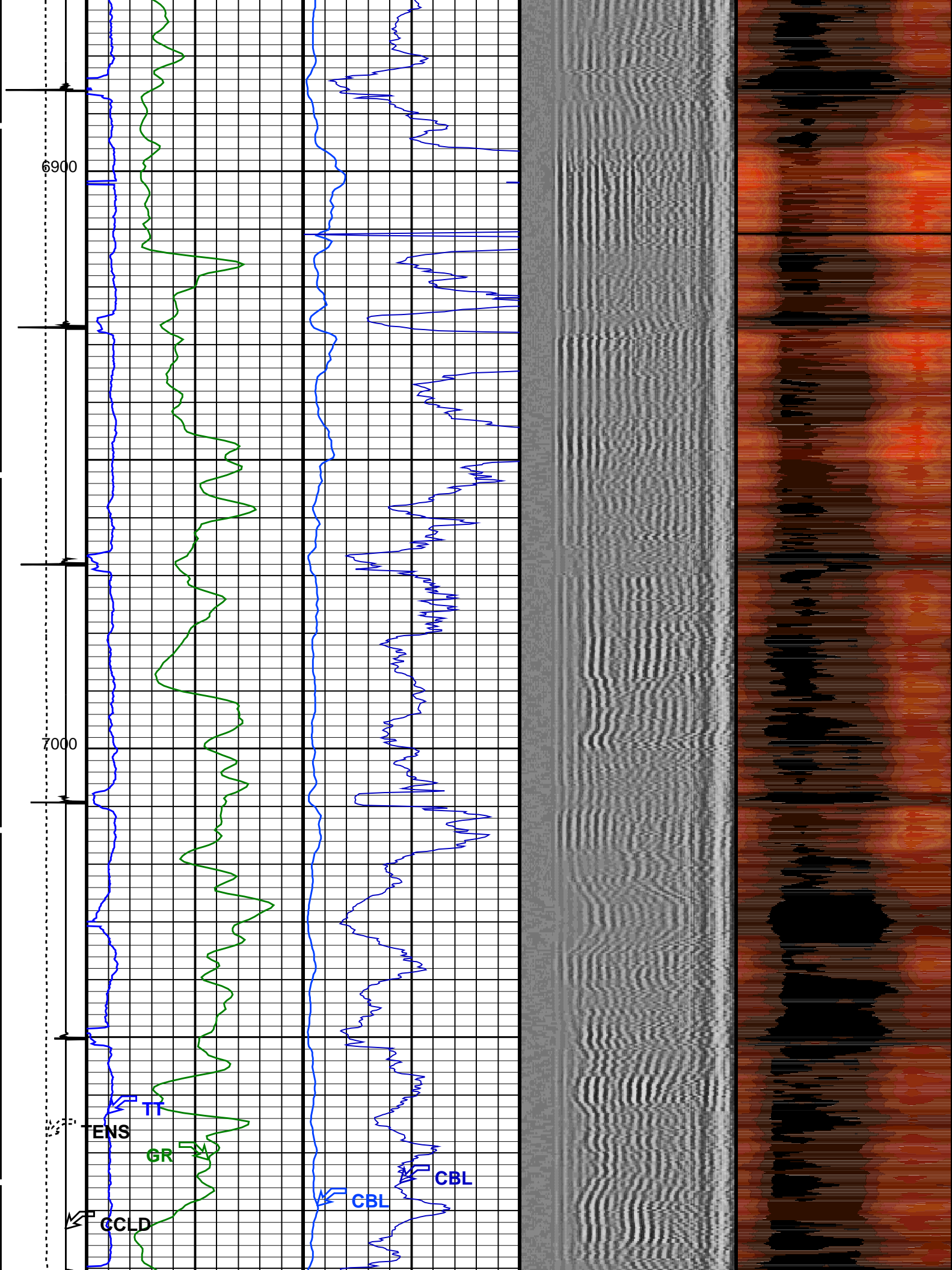


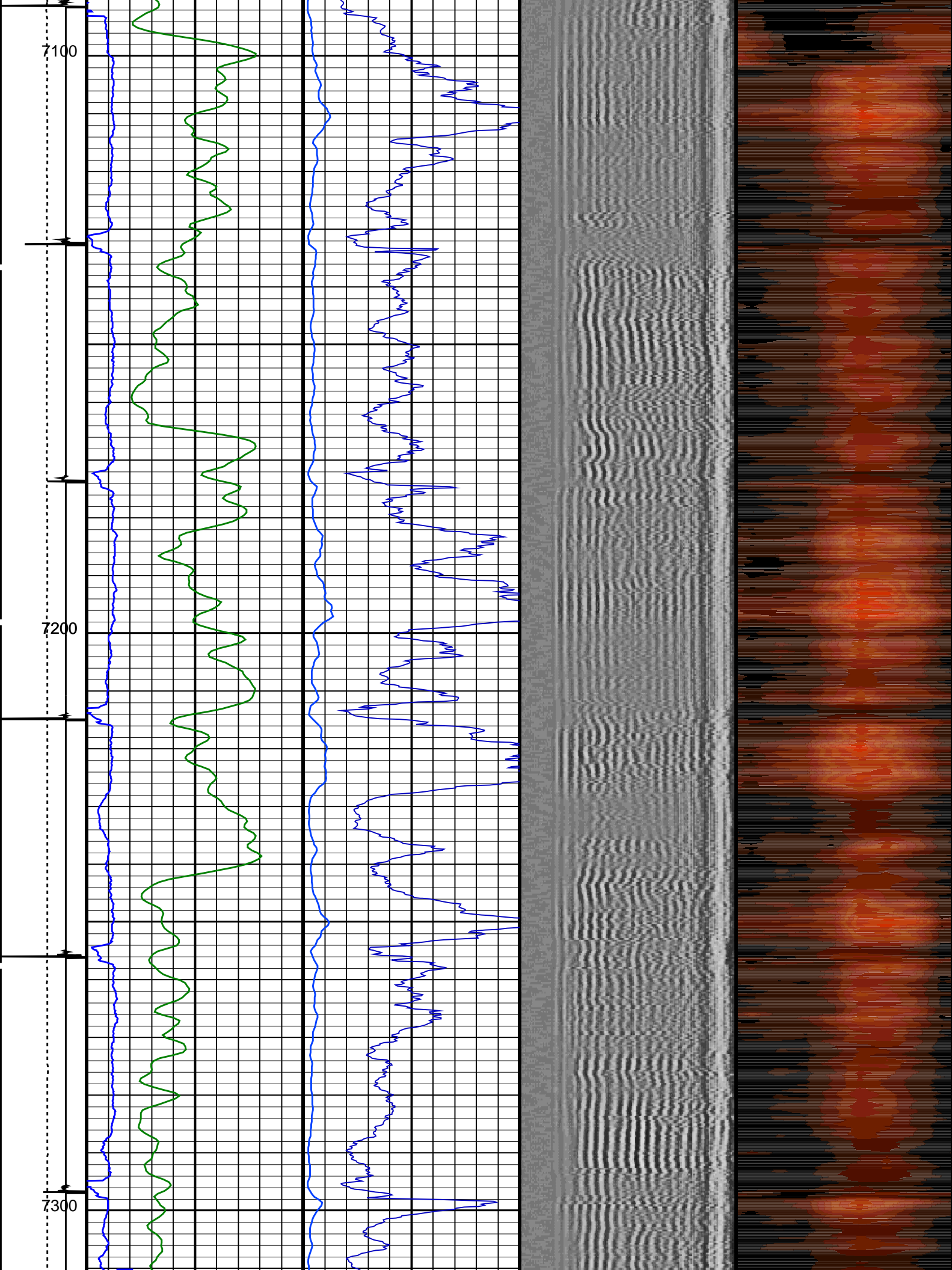


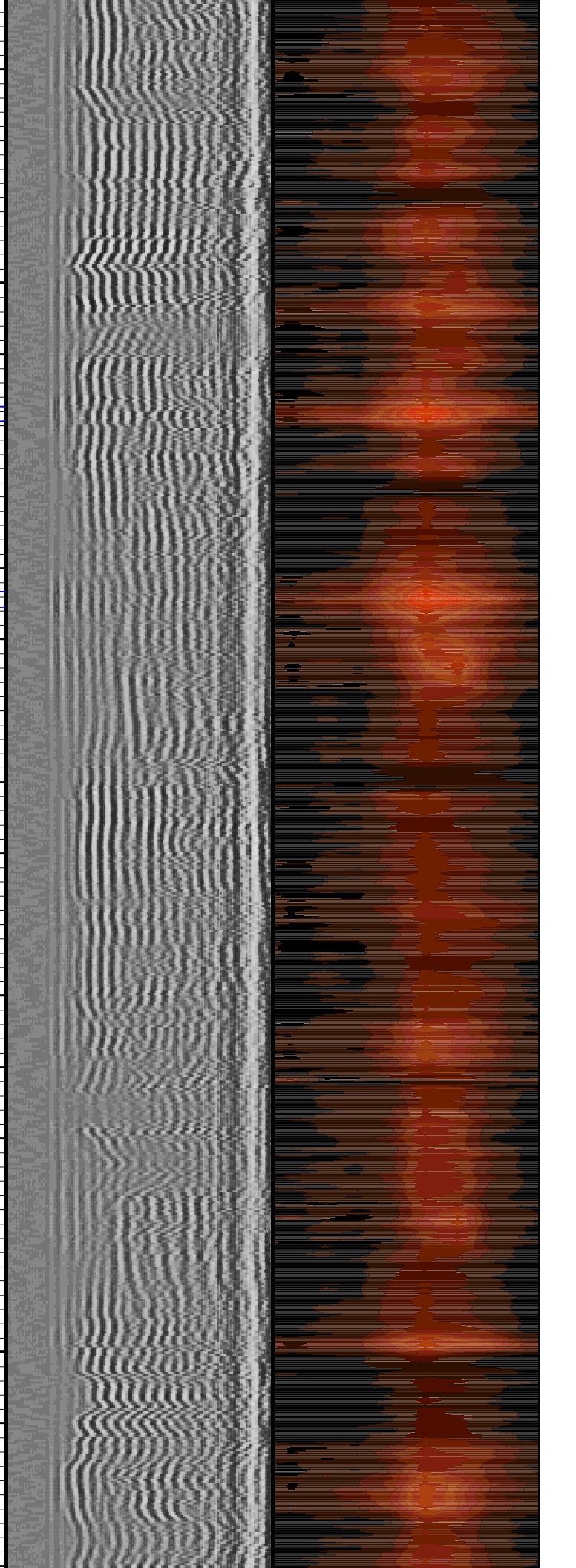
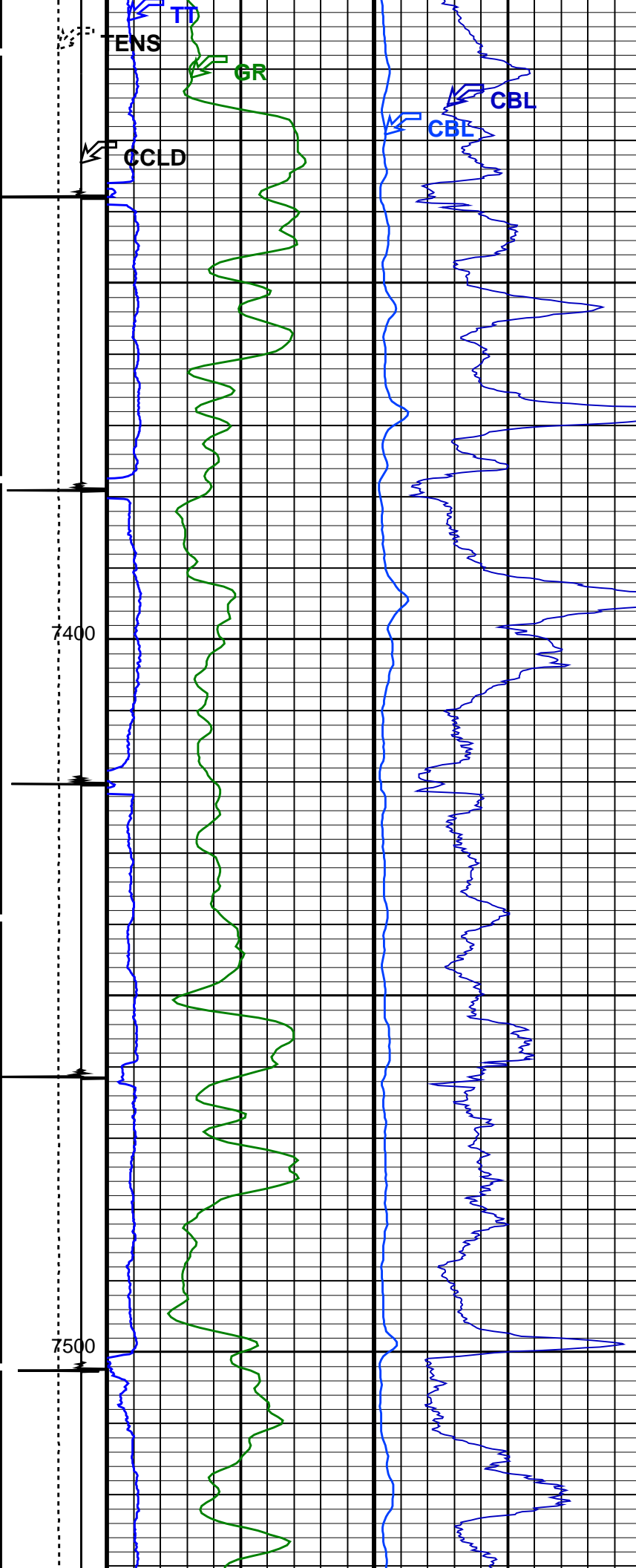


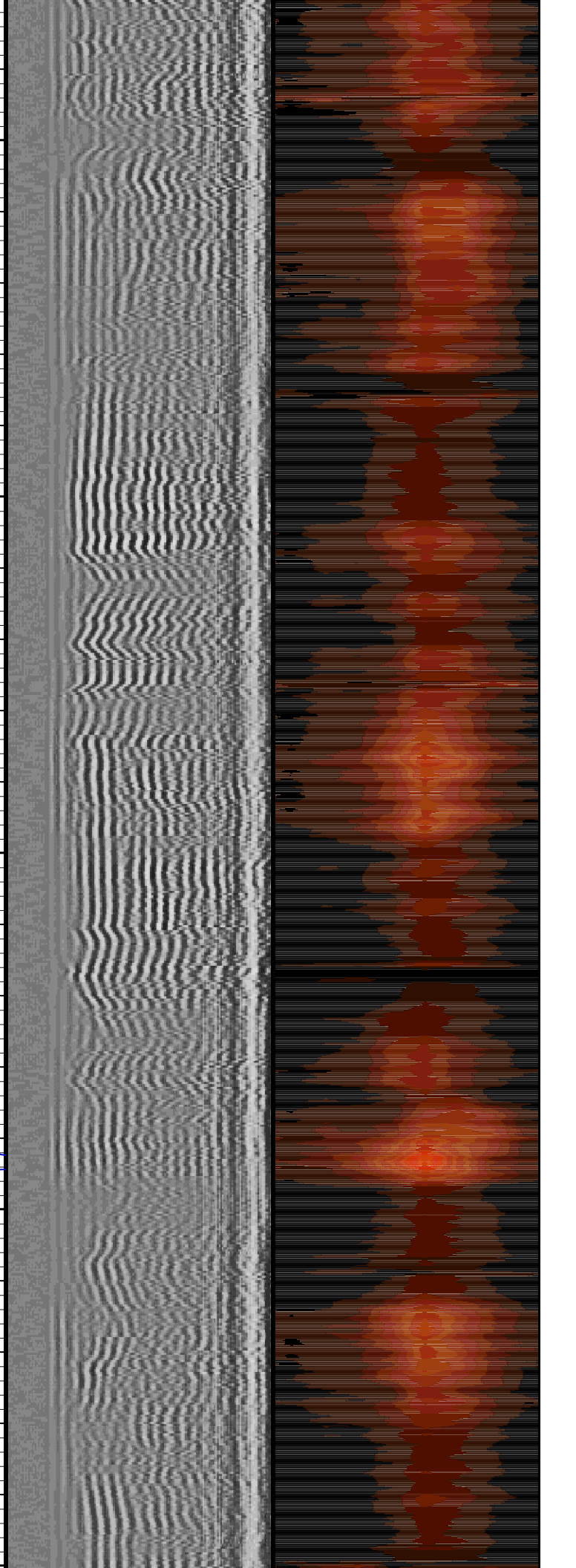
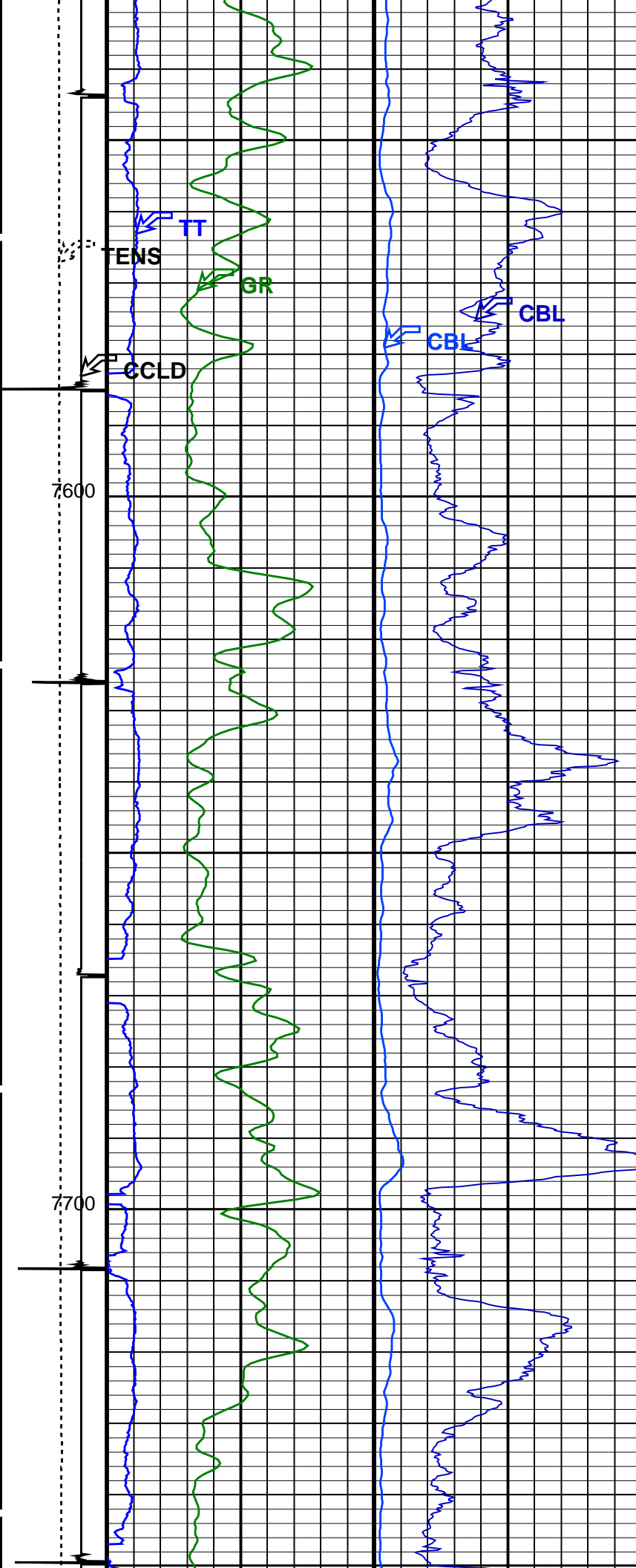


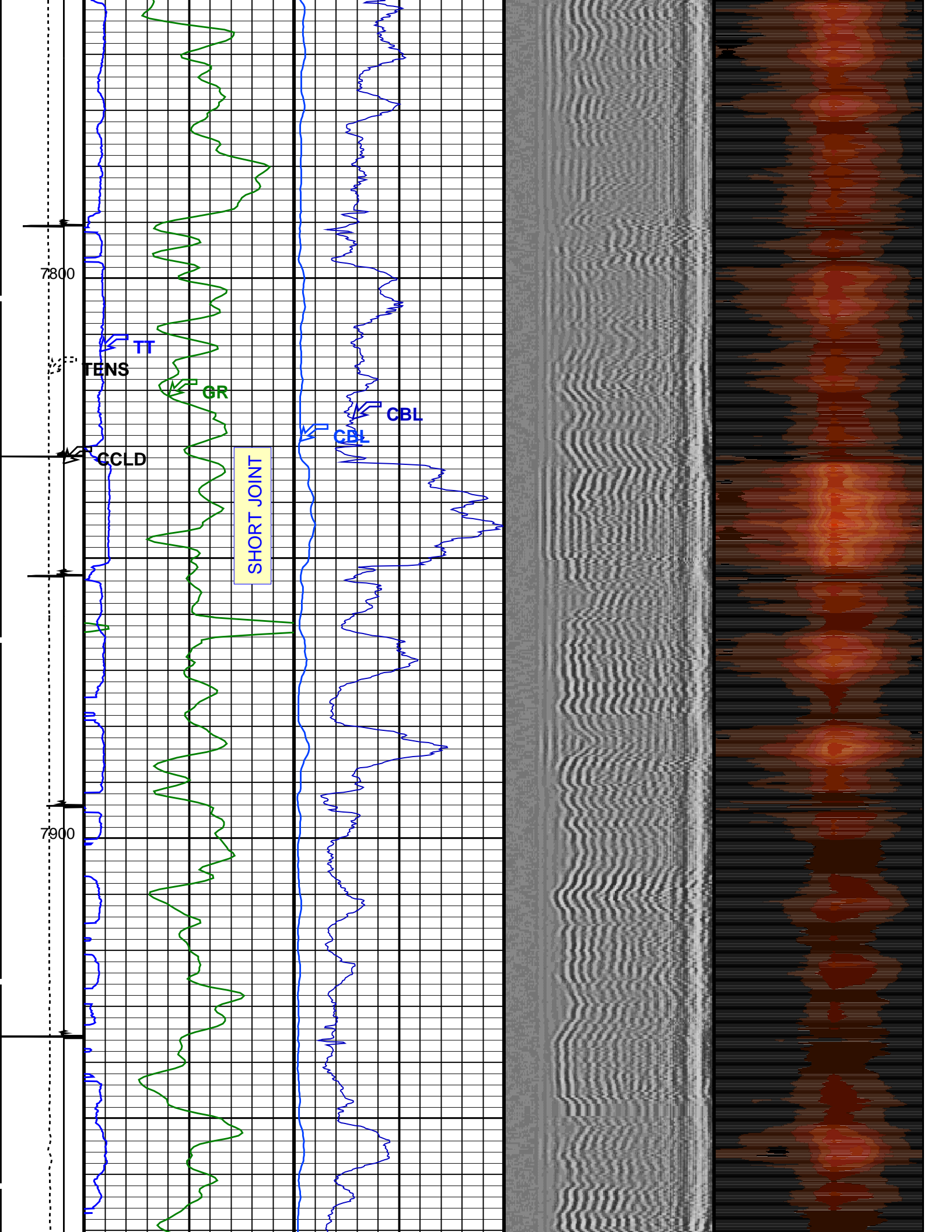


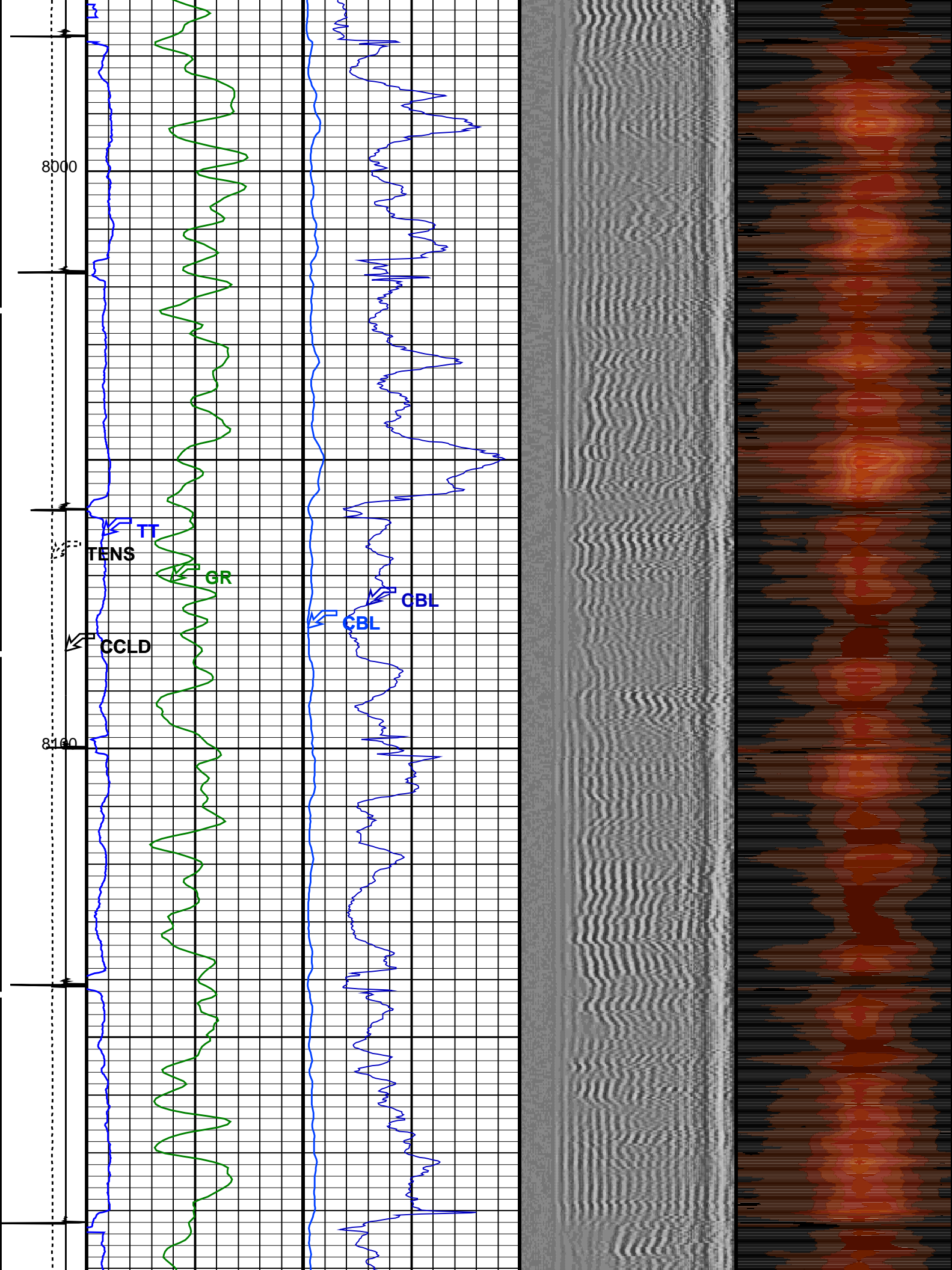


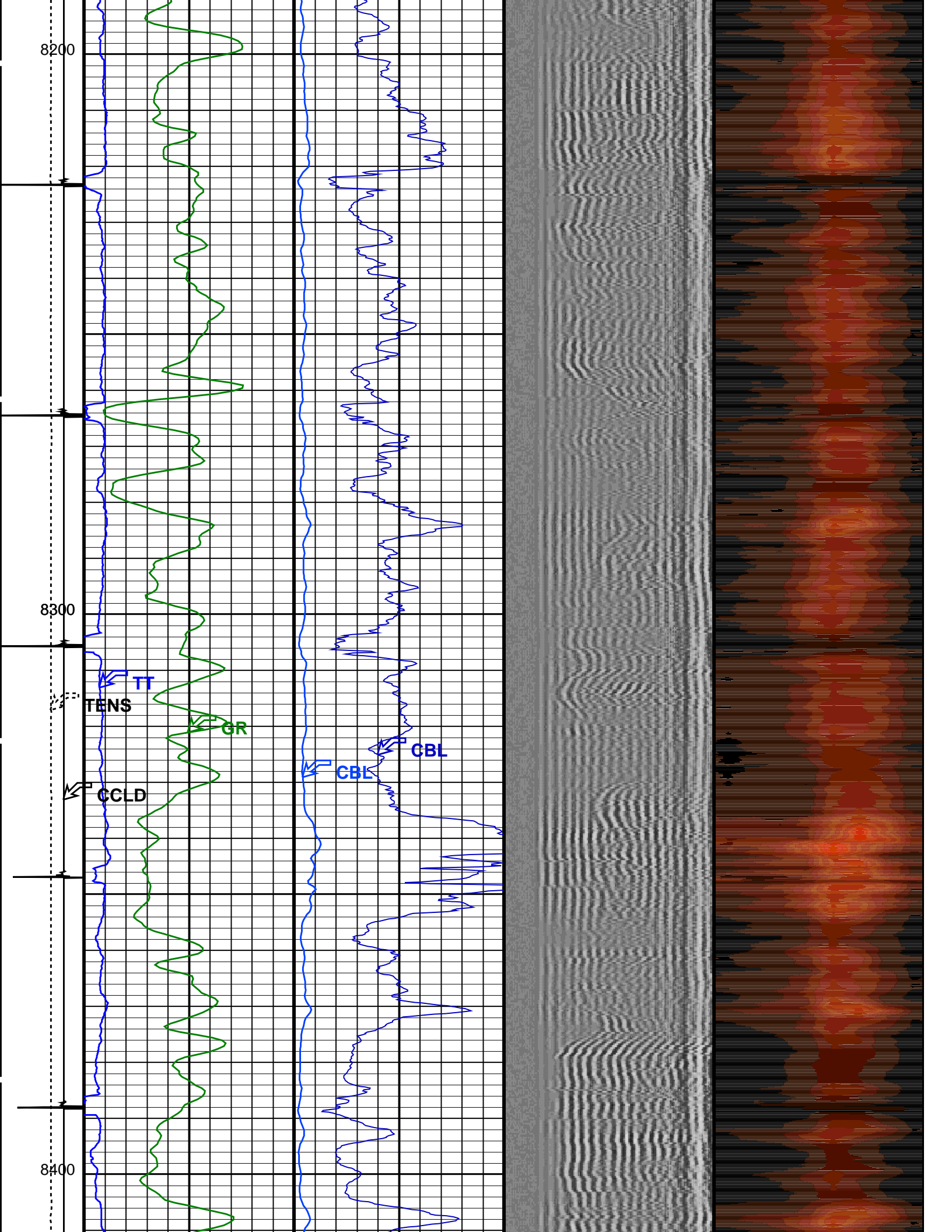


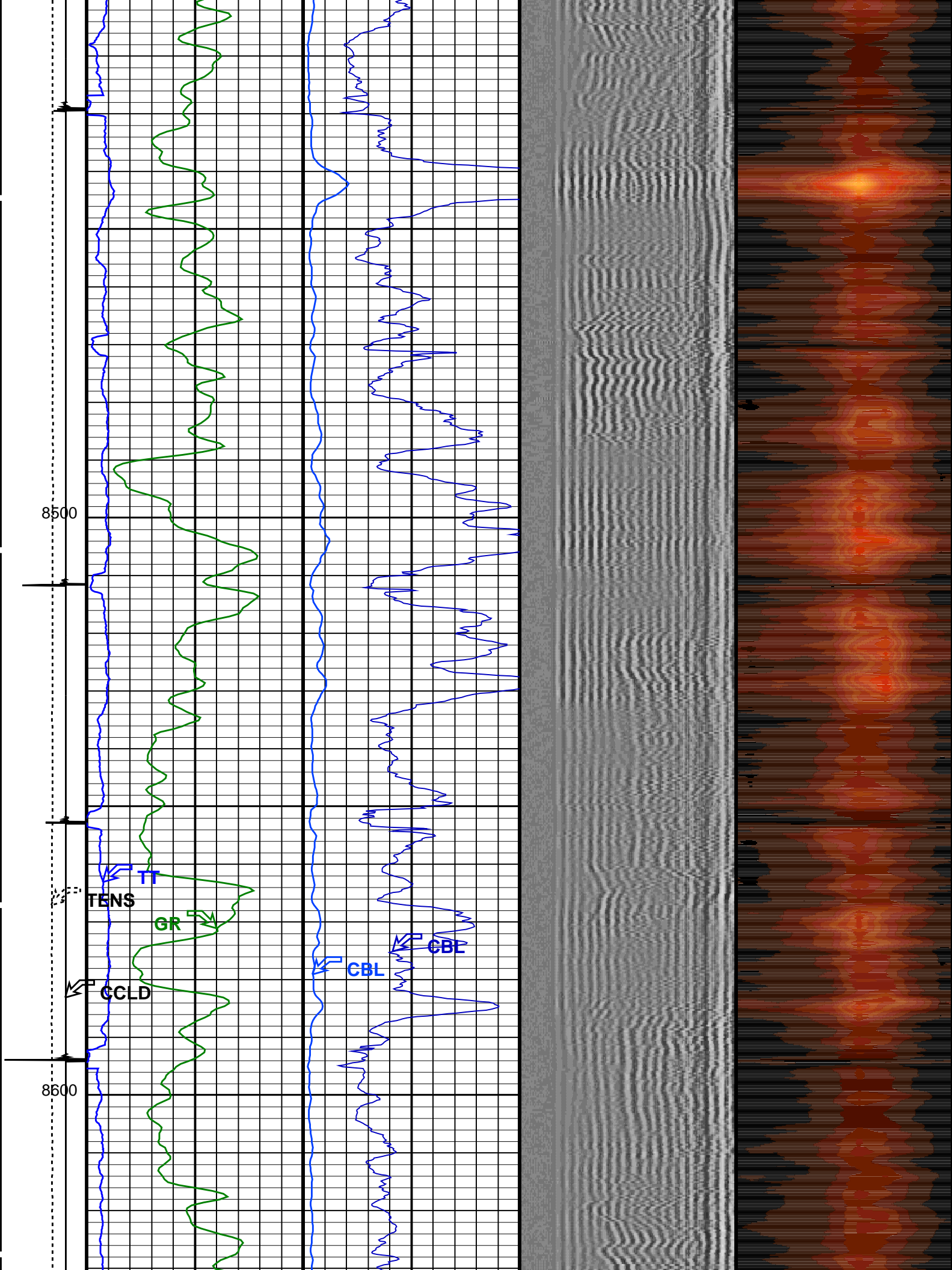


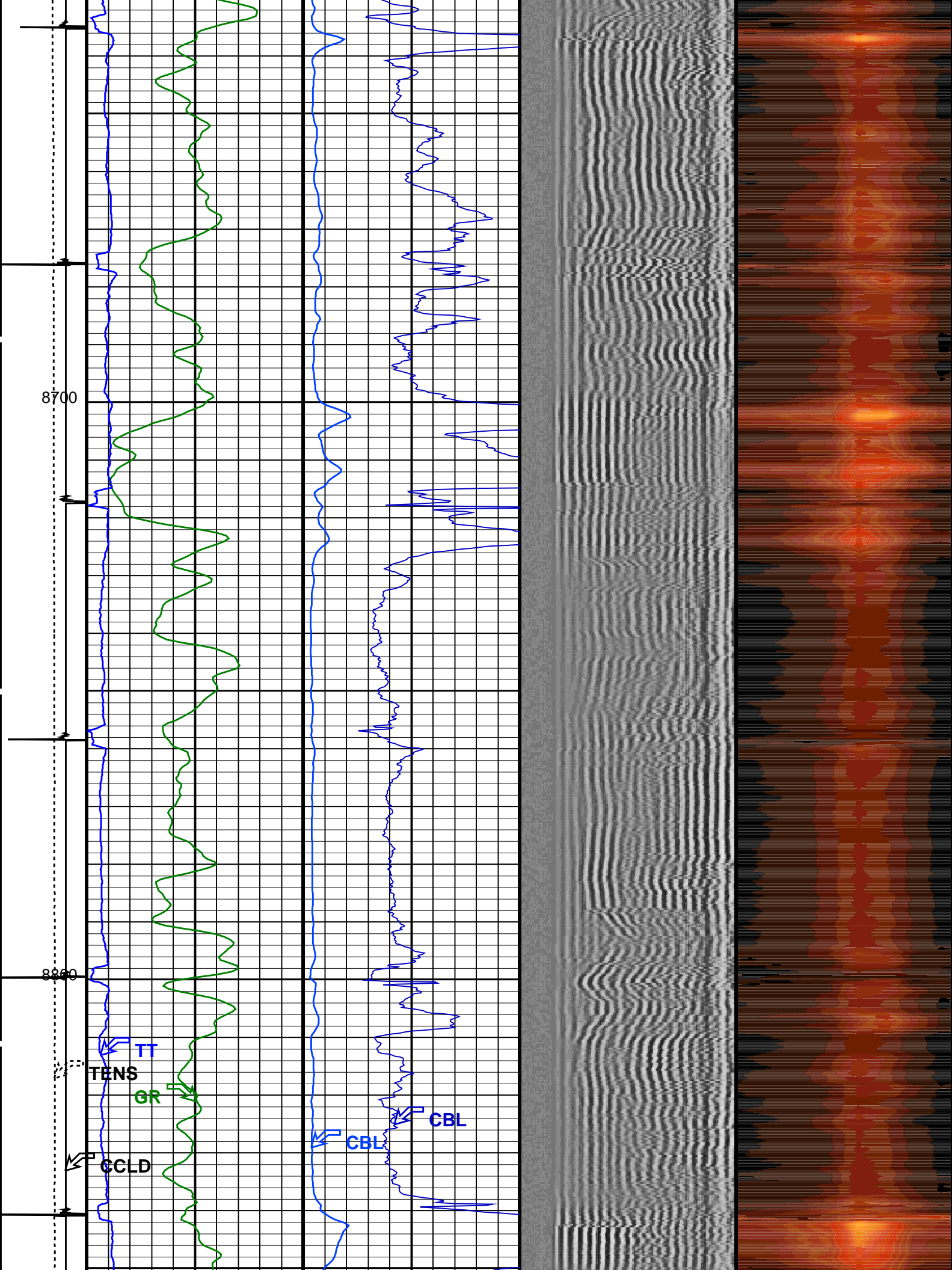


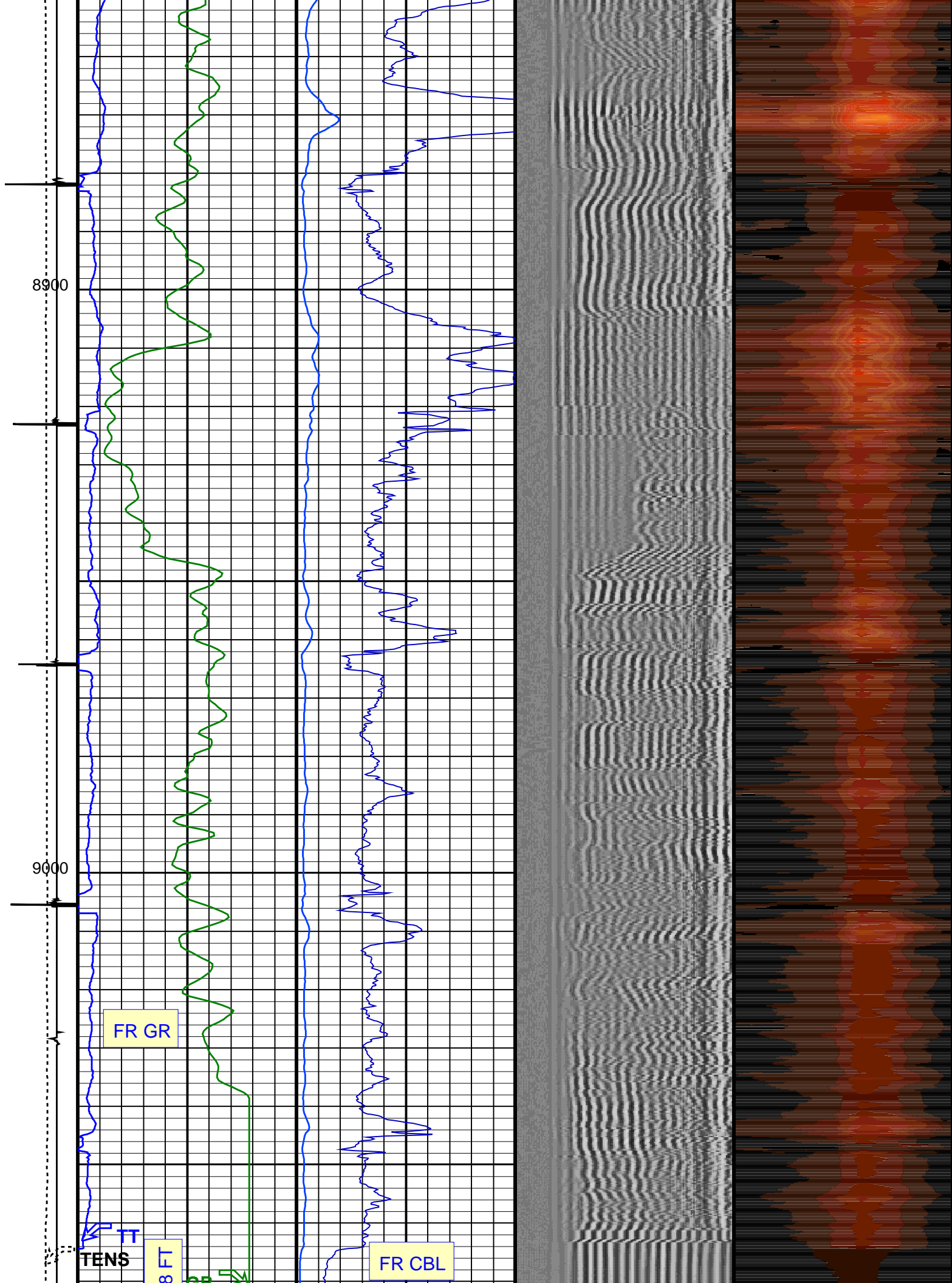


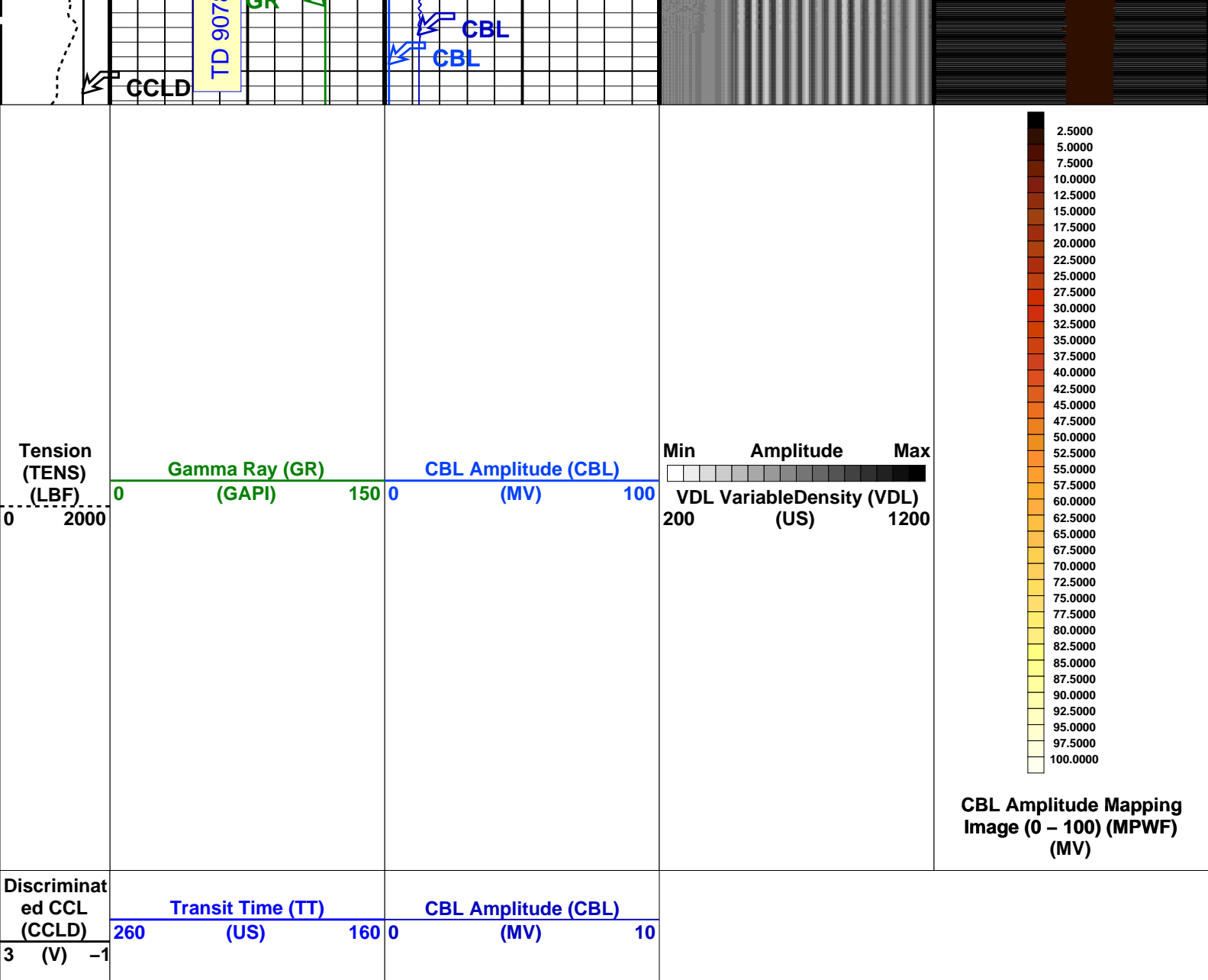












PIP SUMMARY

Time Mark Every 60 S

Format: Scmt_VDL_Image Vertical Scale: 5" per 100'

Graphics File Created: 12-Jun-2011 06:54

OP System Version: 19C0-187

SCMT-CB SRPC-5047-H1-2011-OP19 RST-C SRPC-5047-H1-2011-OP19
PSPT 19C0-187

<<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number SCMS-CB 8317

Current Casing Size 4.50000 IN

Casing Weight 11.6000 LB/F

Expected CBL Amplitude 80 MV

in Free Pipe Section

Minimum Sonic Amplitude

0.572744 MV (100% Cement)

1.53811 MV (80% Cement)

MAP Minimum Sonic Amplitude

4.27504 MV (100% Cement)

8.03067 MV (80% Cement)

Master Calibration (Normalization)

Before Calibration (Adjustment)

Date of Master Calibration 8-JUN-2011

CBL Correction Factor 0.0674965

CBL Adjustment Factor (CBAF)

1.0

MAP 1 Correction Factor	0.108127
MAP 2 Correction Factor	0.123424
MAP 3 Correction Factor	0.134368
MAP 4 Correction Factor	0.109324
MAP 5 Correction Factor	0.0995051
MAP 6 Correction Factor	0.108249
MAP 7 Correction Factor	0.111559
MAP 8 Correction Factor	0.121503

MAP Adjustment Factor (MPAF) 1.0

Parameters

DLIS Name	Description	Value	
SCMT-CB: Slim Cement Mapping Tool, 1-11/16 OD			
BILI	Bond Index Level for Zone Isolation	0.8	
CB3D	SCMT CBL 3 ft Peak Detection Mode	PEAK	
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	228.424	US
CB3T	SCMT CBL 3 ft Fixed Threshold Level	20	MV
CB5D	SCMT CBL 5 ft Peak Detection Mode	PEAK	
CB5G	SCMT CBL 5 ft Peak Detection T0_Delay and Noise Gate	342.424	US
CB5T	SCMT CBL 5 ft Fixed Threshold Level	20	MV
CBLG	CBL Gate Width	40	US
CBRA	CBL LQC Reference Amplitude in Free Pipe	80	MV
CMCF	CBL Cement Type Compensation Factor	1	
CMTC	SCMT Slow Channel Multiplexer Mode	SCAN	
CMTM	SCMT Operating Mode	LOG	
CSCS	SCMT Slow Channel Index	VCC	
CTHI	Casing Thickness	0.255617	IN
DTF	Delta-T Fluid	204.5	US/F
FATT	Acoustic Attenuation due to Fluid	0	DB/F
FCF	CBL Fluid Compensation Factor	1	
GOBO	Good Bond	1.53811	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	171.424	US
MAPT	SCMT MAP Fixed Threshold Level	30	MV
MATT	Maximum Attenuation	16.5449	DB/F
MCCF	MAP Cement Type Compensation Factor	1	
MCI	Minimum Cemented Interval for Isolation	1.25	FT
MMSA	MAP Minimum Sonic Amplitude	4.27504	MV
MSA	Minimum Sonic Amplitude	0.572744	MV
PEDE	Peak Detection On/Off Switch in Playback	OFF	
RBC	Relative Bearing Correction Allow/Disallow	ALLOW	
VDLG	VDL Manual Gain	5	
ZCMT	Acoustic Impedance of Cement	6.8	MRAY
System and Miscellaneous			
CSIZ	Current Casing Size	4.500	IN
CWEI	Casing Weight	11.60	LB/F
DFD	Drilling Fluid Density	8.40	LB/G
DORL	Depth Offset for Repeat Analysis	0.0	FT
TD	Total Depth	-50000	FT

Output DLIS Files

DEFAULT SCMT_RST_PSP_048LUP FN:47 PRODUCER 12-Jun-2011 06:54

Schlumberger

REPEAT ANALYSIS

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC

Well: BENJAMIN FEDERAL 28-13C2 (K28NW)

Input DLIS Files

DEFAULT SCMT_RST_PSP_046PUP FN:45 PRODUCER 12-Jun-2011 06:48 7899.0 FT 7493.5 FT

Output DLIS Files

DEFAULT

SCMT_RST_PSP_048LUP

FN:47

PRODUCER

12-Jun-2011 06:54

OP System Version: 19C0-187

SCMT-CB
PSPT

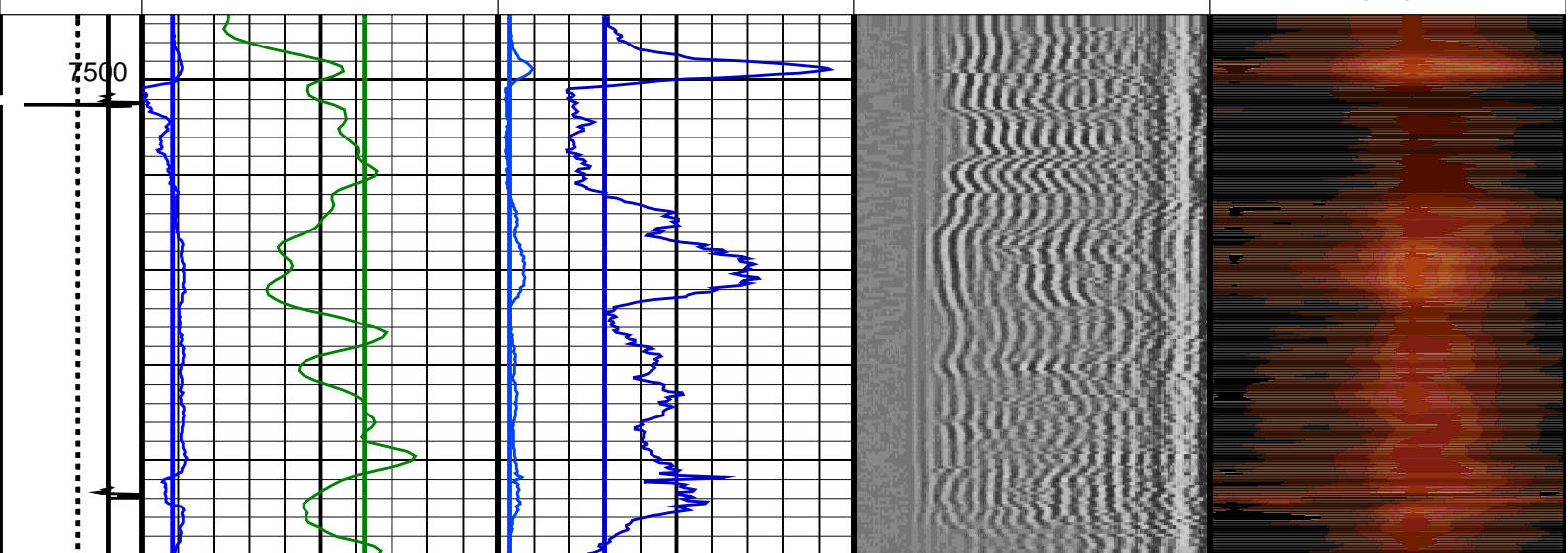
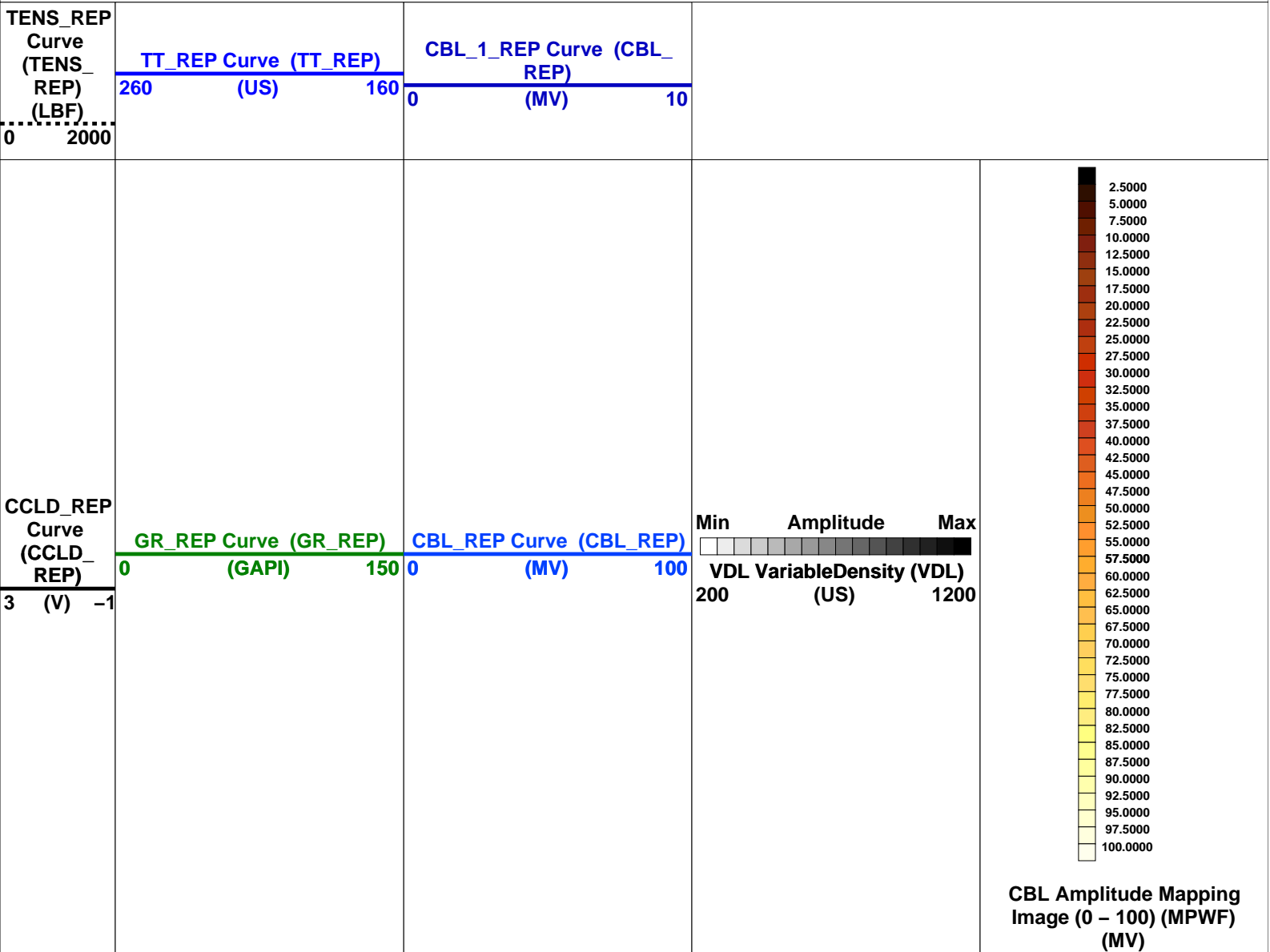
SRPC-5047-H1-2011-OP19
19C0-187

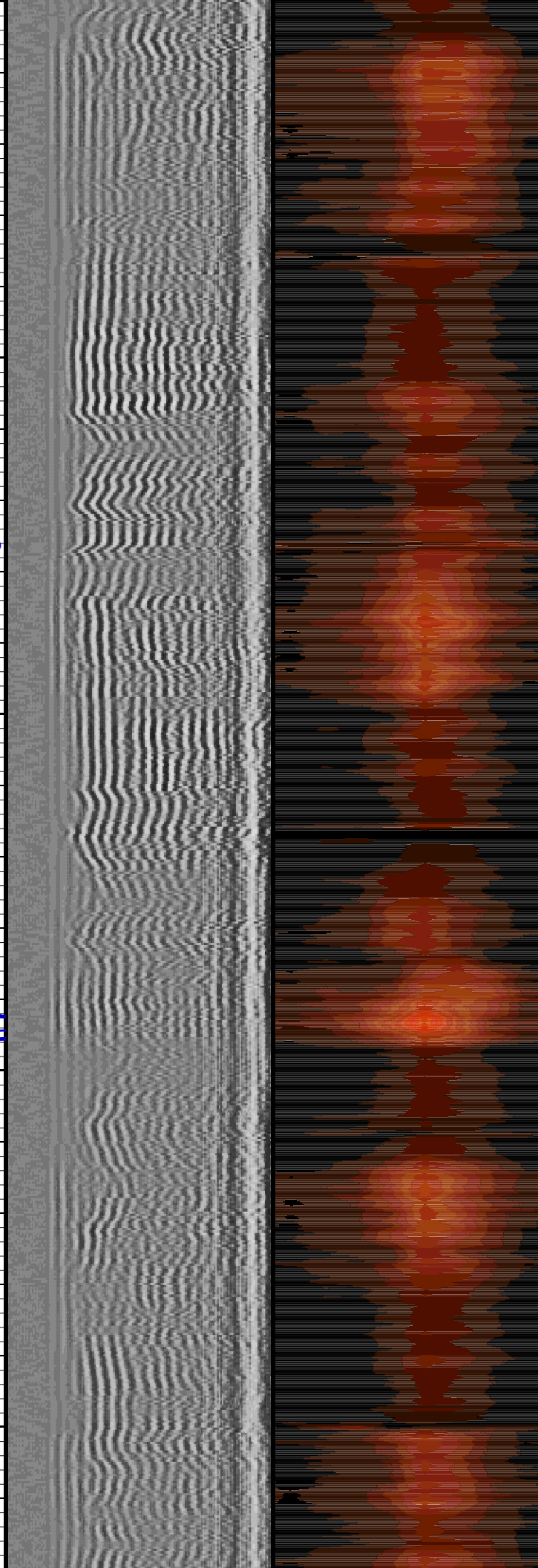
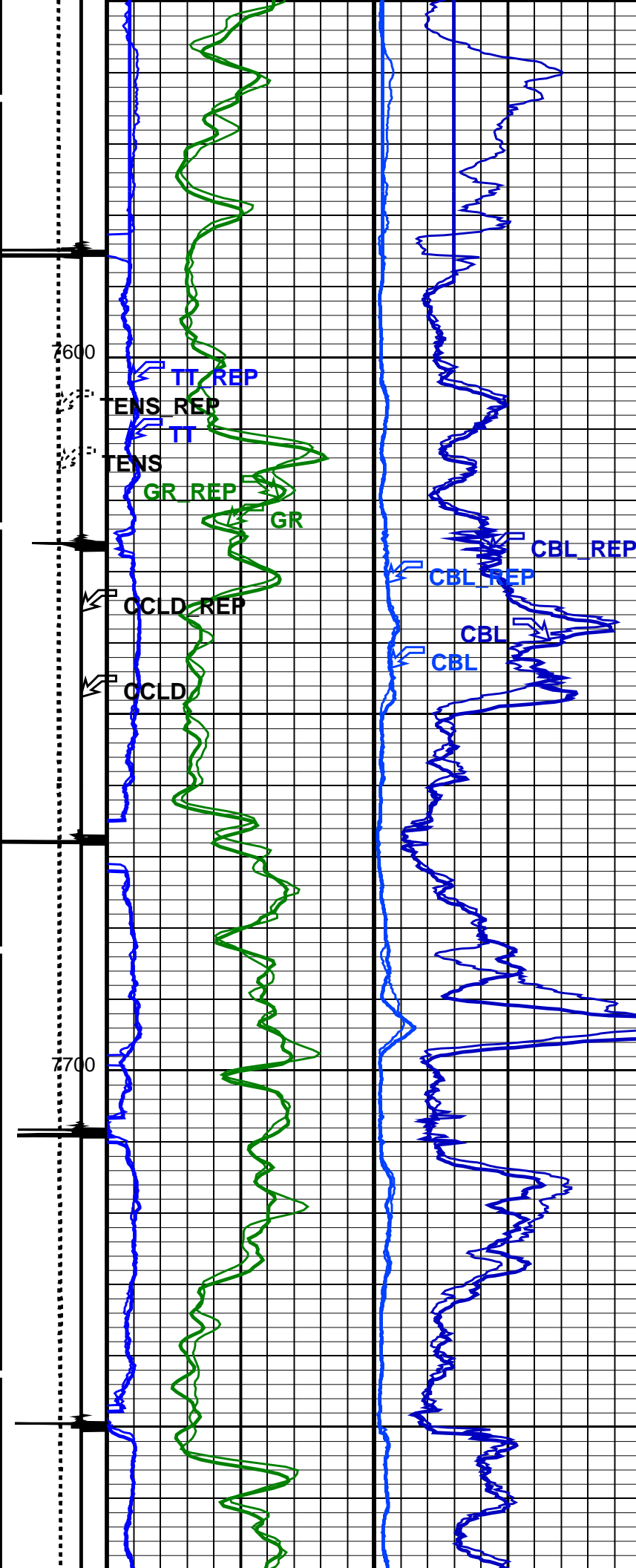
RST-C

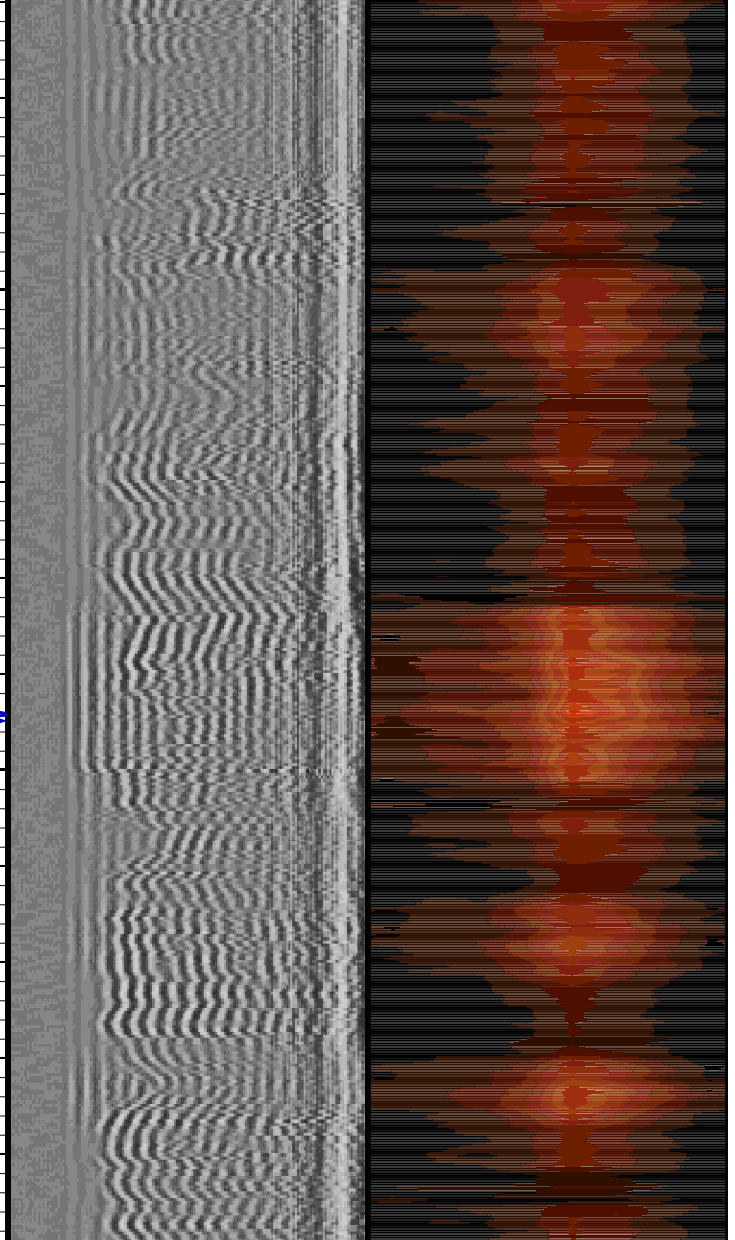
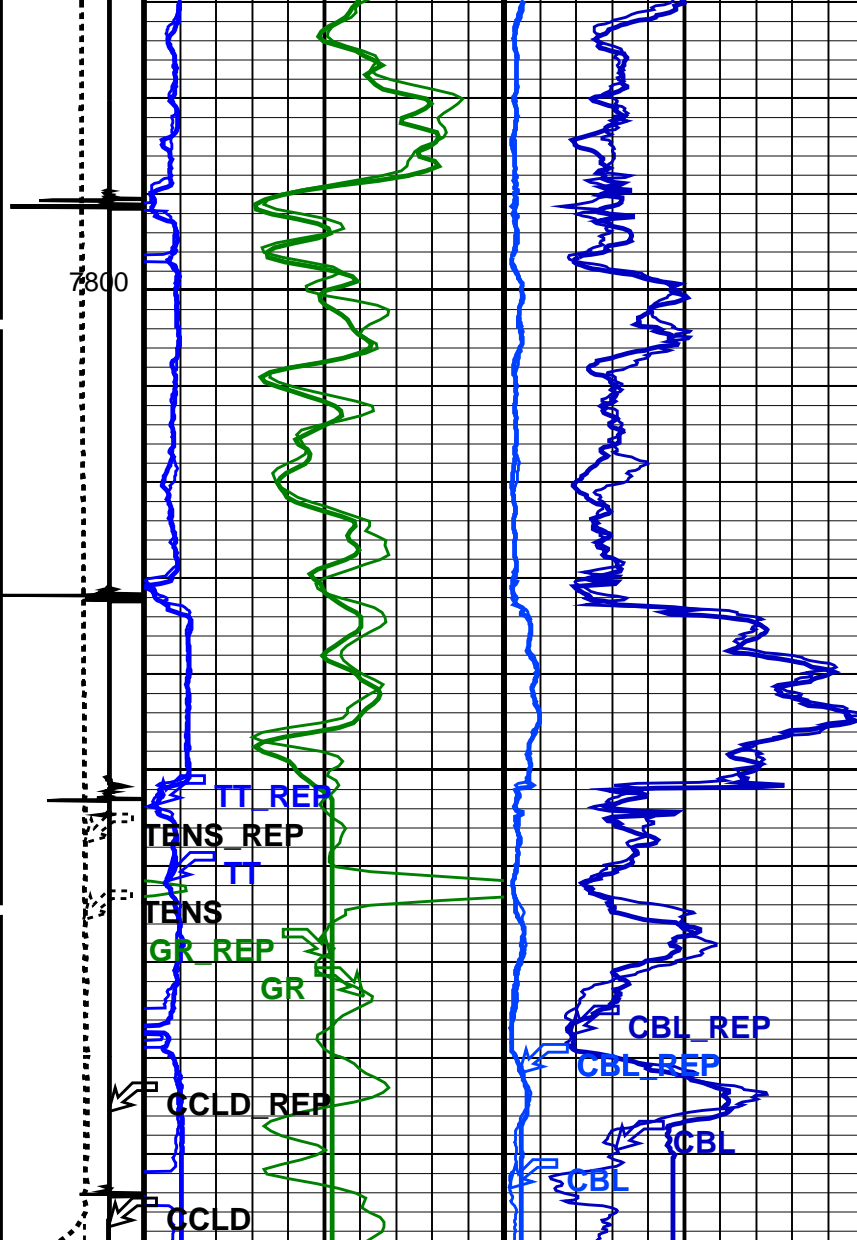
SRPC-5047-H1-2011-OP19

PIP SUMMARY

 Time Mark Every 60 S





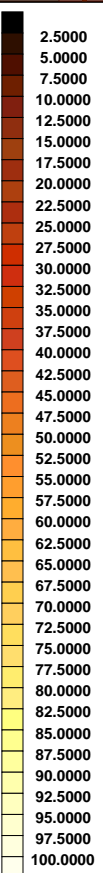


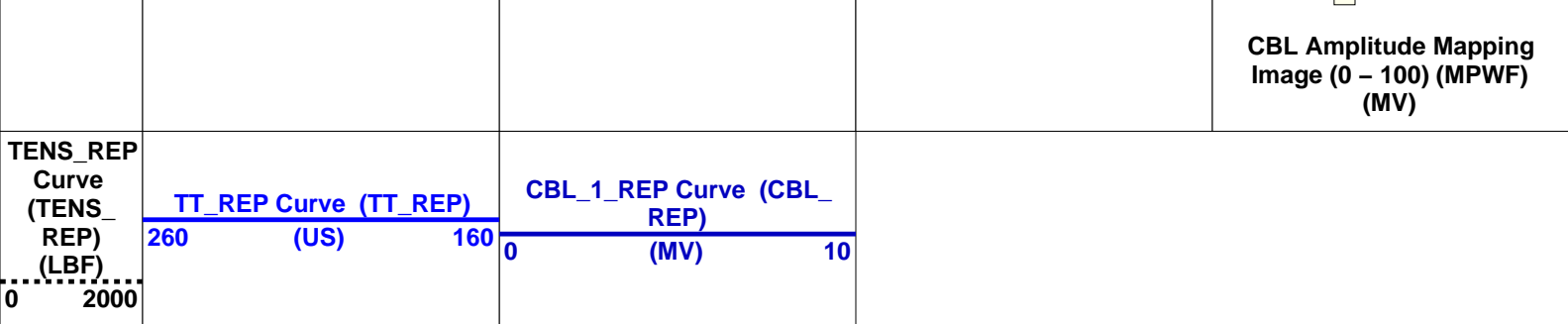
CCLD REP
Curve
(CCLD
REP)
3 (V) -1

GR REP Curve (GR REP)
(GAPI) 0 150

CBL REP Curve (CBL REP)
(MV) 0 100

Min Amplitude Max
VDL VariableDensity (VDL)
200 (US) 1200





PIP SUMMARY

Time Mark Every 60 S

Format: Scmt_VDL_Image_REP Vertical Scale: 5" per 100' Graphics File Created: 12-Jun-2011 06:54

OP System Version: 19C0-187

SCMT-CB PSPT	SRPC-5047-H1-2011-OP19 19C0-187	RST-C	SRPC-5047-H1-2011-OP19
--------------	---------------------------------	-------	------------------------

<<<SCMT Cement Evaluation Information Summary>>>			
Sonde Serial Number	SCMS-CB 8317		
Current Casing Size	4.50000 IN		
Casing Weight	11.6000 LB/F		
Expected CBL Amplitude in Free Pipe Section	80 MV	Minimum Sonic Amplitude	0.572744 MV (100% Cement) 1.53811 MV (80% Cement)
		MAP Minimum Sonic Amplitude	4.27504 MV (100% Cement) 8.03067 MV (80% Cement)
Master Calibration (Normalization)	Before Calibration (Adjustment)		
Date of Master Calibration	8-JUN-2011		
CBL Correction Factor	0.0674965	CBL Adjustment Factor (CBAF)	1.0
MAP 1 Correction Factor	0.108127	MAP Adjustment Factor (MPAF)	1.0
MAP 2 Correction Factor	0.123424		
MAP 3 Correction Factor	0.134368		
MAP 4 Correction Factor	0.109324		
MAP 5 Correction Factor	0.0995051		
MAP 6 Correction Factor	0.108249		
MAP 7 Correction Factor	0.111559		
MAP 8 Correction Factor	0.121503		

Parameters			
DLIS Name	Description	Value	
SCMT-CB: Slim Cement Mapping Tool, 1-11/16 OD			
BILI	Bond Index Level for Zone Isolation	0.8	
CB3D	SCMT CBL 3 ft Peak Detection Mode	PEAK	
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	228.424	US
CB3T	SCMT CBL 3 ft Fixed Threshold Level	20	MV
CB5D	SCMT CBL 5 ft Peak Detection Mode	PEAK	
CB5G	SCMT CBL 5 ft Peak Detection T0_Delay and Noise Gate	342.424	US
CB5T	SCMT CBL 5 ft Fixed Threshold Level	20	MV
CBLG	CBL Gate Width	40	US
CBRA	CBL LQC Reference Amplitude in Free Pipe	80	MV
CMCF	CBL Cement Type Compensation Factor	1	
CMTC	SCMT Slow Channel Multiplexer Mode	SCAN	
CMTM	SCMT Operating Mode	LOG	
CSCS	SCMT Slow Channel Index	VCC	
CTHI	Casing Thickness	0.255617	IN
DTF	Delta-T Fluid	204.5	US/F
FATT	Acoustic Attenuation due to Fluid	0	DB/F
FCF	CBL Fluid Compensation Factor	1	
GOBO	Good Bond	1.53811	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	

MAPG	SCMT MAP Peak Detection T0 Delay and Noise Gate	171.424	US
MAPT	SCMT MAP Fixed Threshold Level	30	MV
MATT	Maximum Attenuation	16.5449	DB/F
MCCF	MAP Cement Type Compensation Factor	1	
MCI	Minimum Cemented Interval for Isolation	1.25	FT
MMSA	MAP Minimum Sonic Amplitude	4.27504	MV
MSA	Minimum Sonic Amplitude	0.572744	MV
PEDE	Peak Detection On/Off Switch in Playback	OFF	
RBC	Relative Bearing Correction Allow/Disallow	ALLOW	
VDLG	VDL Manual Gain	5	
ZCMT	Acoustic Impedance of Cement	6.8	MRAY
System and Miscellaneous			
CSIZ	Current Casing Size	4.500	IN
CWEI	Casing Weight	11.60	LB/F
DFD	Drilling Fluid Density	8.40	LB/G
DORL	Depth Offset for Repeat Analysis	0.0	FT
TD	Total Depth	-50000	FT

Input DLIS Files

DEFAULT	SCMT_RST_PSP_046PUP	FN:45	PRODUCER	12-Jun-2011 06:48	7899.0 FT	7493.5 FT
---------	---------------------	-------	----------	-------------------	-----------	-----------

Output DLIS Files

DEFAULT	SCMT_RST_PSP_048LUP	FN:47	PRODUCER	12-Jun-2011 06:54
---------	---------------------	-------	----------	-------------------

Schlumberger

COEFFICIENTS

MAXIS Field Log

Client:	Tool:	PSP
Field:	Sub Type:	PBMS
Well:	Sensor:	Clock Model
Run date:		

PBMS Digitalization Clock

Sonde Serial NB

Sensor Serial NB 1772

Calib Date ddmmyy 250102

Matrix Size 16

Coeff CRC 279D

Clock Coeff

	Temp**0	Temp**1	Temp**2
Temp**0	-.161517143435E+03	-.455833634022E+01	-.104938566503E+00
	Temp**3	Temp**4	Temp**5
Temp**0	+.665806803953E-03	+.215816423936E-05	0.0

Client:

Field:

Well:

Run date:

Tool:

Sub Type:

Sensor:

PSP

PBMS

Sapphire

PBMS Sapphire 10kPsi Gauge

Sonde Serial NB

Sensor Serial NB

Calib Date ddmmyy

Matrix Size

Coeff CRC

COEFFICIENTS FOR SAPPHIRE PBMS-A.1772 S/N:

1772

250102

66

7015

Pres Coeff

	Tt**0	Tt**1	Tt**2
Tp**0	−.301728254764E+05	+.213698779657E+05	−.667784145806E+04
Tp**1	+.222783691269E+05	−.154949942910E+05	+.506915258152E+04
Tp**2	−.219998557234E+03	+.903672682639E+02	−.973284421881E+01
Tp**3	+.373083861809E+01	−.914930924512E+00	0.0
Tp**4	0.0	0.0	0.0
Tp**5	0.0	0.0	0.0

	Tt**3	Tt**4	Tt**5
Tp**0	+.999867705458E+03	−.587093588268E+02	0.0
Tp**1	−.790152285056E+03	+.481404114544E+02	0.0
Tp**2	0.0	0.0	0.0
Tp**3	0.0	0.0	0.0
Tp**4	0.0	0.0	0.0
Tp**5	0.0	0.0	0.0

PBMS Sapphire 10kPsi Gauge

Sonde Serial NB

Sensor Serial NB

Calib Date ddmmyy

Matrix Size

Coeff CRC

:

1772

250102

66

8D09

Temp Coeff

	Tp**0	Tp**1	Tp**2
Tt**0	+.232726172867E+04	+.748146006300E+01	−.308596169368E+01
Tt**1	−.145543937674E+04	−.382344629538E+01	+.886665691754E+00
Tt**2	+.319573055861E+03	+.722043926946E+00	−.543588515298E−01
Tt**3	−.247026874426E+02	−.512988254724E−01	0.0
Tt**4	0.0	0.0	0.0
Tt**5	0.0	0.0	0.0
	Tp**3	Tp**4	Tp**5
Tt**0	+.711608702827E+00	−.763411838100E−01	0.0
Tt**1	−.147911019947E+00	+.159378916834E−01	0.0
Tt**2	0.0	0.0	0.0
Tt**3	0.0	0.0	0.0
Tt**4	0.0	0.0	0.0
Tt**5	0.0	0.0	0.0

Client:	Tool:	PSP
Field:	Sub Type:	PBMS
Well:	Sensor:	GR
Run date:		

PBMS Gamma Ray	
Sonde Serial NB	RESISTORS FOR GR SENSOR N.33401,TOOL PBMS−AA1772. SENSOR S/N:
Sensor Serial NB	33401
Calib Date ddmmyy	021101
Matrix Size	12
Coeff CRC	1F7D
GR HV Rt	
	Rt**0Rt**1
Rt**0	+.150000000000e+04+.236000000000e+04

Client:

Field:

Well:

Run date:

Tool:

Sub Type:

Sensor:

PSP

PBMS

WellTemp RTD

PBMS RTD Well Thermometer

Sonde Serial NB

Sensor Serial NB1772

Calib Date ddmmyy250102

Matrix Size16

Coeff CRC0B6D

WTemp Coeff

	Tt**0	Tt**1	Tt**2
Tt**0	-.578338733285E+03	+.354557410577E+03	-.963404561888E+02
	Tt**3	Tt**4	Tt**5
Tt**0	+.167992041034E+02	-.106406976994E+01	0.0

Company:

Well:

Field:

County:

State:

ENCANA OIL & GAS (USA) INC

BENJAMIN FEDERAL 28-13C2 (K28NW)

MAMM CREEK

GARFIELD

COLORADO

Schlumberger

CEMENT BOND LOG

CBL – VDL – MAP IMAGE

GAMMA RAY – CCL