

Company: ENCANA OIL & GAS (USA) INC.

Well: KEINATH FEDERAL 9-12H2 (C100U)

Field: ORCHARD UNIT

County: MESA State: COLORADO

CEMENT BOND LOG
CBL – VDL – MAP IMAGE
GAMMA RAY – CCL

County: MESA

Field: ORCHARD UNIT

Location:

Well: KEINATH FEDERAL 9-12H2 (C100U)

Company: ENCANA OIL & GAS (USA) INC.

LOCATION		Elev.:	
		K.B.	5590.00 ft
Permanent Datum:	GROUND LEVEL	G.L.	5568.00 ft
Log Measured From:	KELLY BUSHING	D.F.	5589.00 ft
Drilling Measured From:	KELLY BUSHING		

API Serial No. 05-045-20325-0000

Section 10

Township 8S

Range 96W

	Run 1	Run 2	Run 3
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	4-Jun-2011		
Run Number	ONE		
Depth Driller	7490 ft		
Schlumberger Depth	7146 ft		
Bottom Log Interval	7137.1 ft		
Top Log Interval	200 ft		
Casing Fluid Type	WATER		
Salinity			
Density	8.4 lbm/gal		
Fluid Level	0 ft		
BIT/CASING/TUBING STRING			
Bit Size	9.625 in		
From	22 ft		
To	7490 ft		
Casing/Tubing Size	7.625 in		
Weight	26.4 lbm/ft		
Grade			
From	22 ft		
To	7446 ft		
Maximum Recorded Temperatures	218 degF		
Logger On Bottom	4-Jun-2011	6:59	
Unit Number	391	GRAND JUNCTION	
Recorded By	SHOWKAT HOSSAIN		
Witnessed By	UNATTENDED		

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: 4-JUN-2011 7:40:55

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-2010	Calibration Date:	27-MAY-2011	Length:	18000 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	174878	Conveyance Method: Wireline Rig Type: LAND	
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:	First Log In the Well
Rig Up Length At Surface:	280.00 FT
Rig Up Length At Bottom:	281.00 FT
Rig Up Length Correction:	-1.00 FT
Stretch Correction:	2.50 FT
Tool Zero Check At Surface:	0.50 FT

Depth Control Remarks

1. ALL SCHLUMBERGER DEPTH CONTROL PROCEDURES 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	OTHER SERVICES2
OS1: CBL	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
THIS IS FIRST RUN IN WELL.	
TOOL RAN AS PER TOOL SKETCH.	
TD TAGGED AT: 7146 FT	
MAXIMUM RECORDED TEMPERATURE AT TD: 217.7 DEG F	
MAXIMUM RECORDED PRESSURE AT TD: 3002.7 PSIA	

MAXIMUM RECORDED PRESSURE: 12100021 PSI	
EXPECTED FREE PIPE AMPLITUDE: 59 mV	
RIG: NABORS M11	
THANK YOU FOR CHOOSING SCHLUMBERGER.	
CREW: W. AZIZ AND J. ROSA	

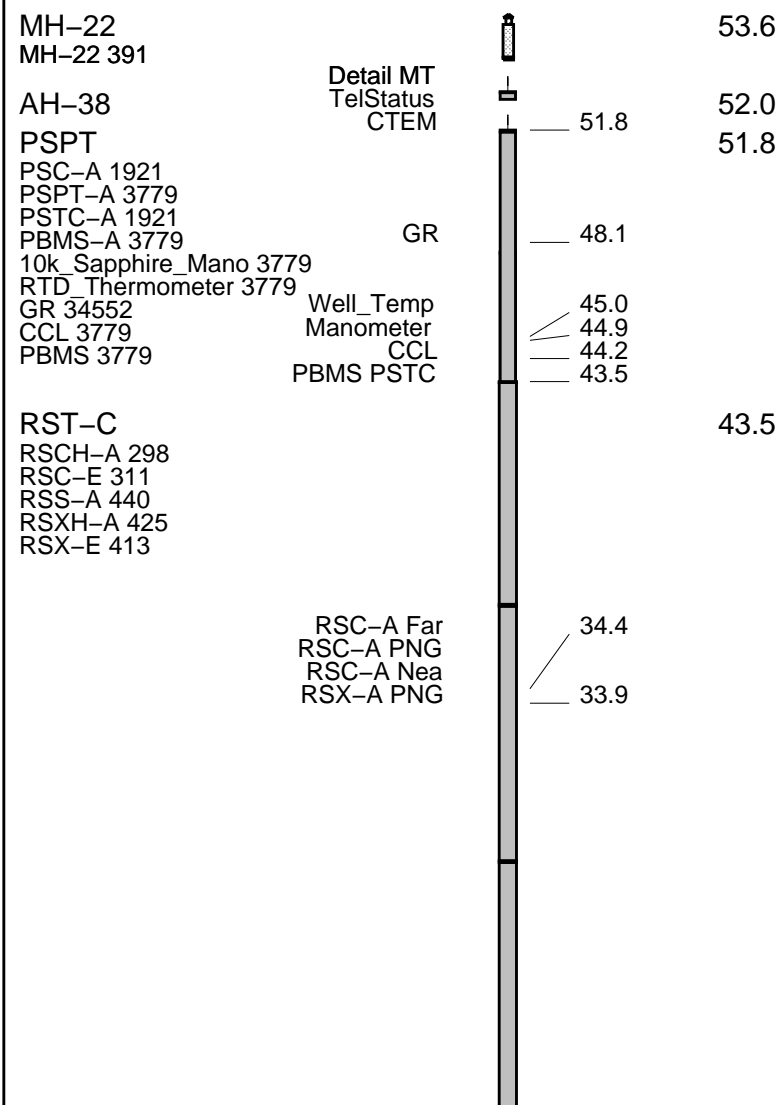
RUN 1 SERVICE ORDER #: BOC2-00062 PROGRAM VERSION: 18C0-147 FLUID LEVEL: 0 ft			RUN 2 SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

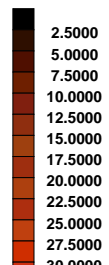
EQUIPMENT	DESCRIPTION

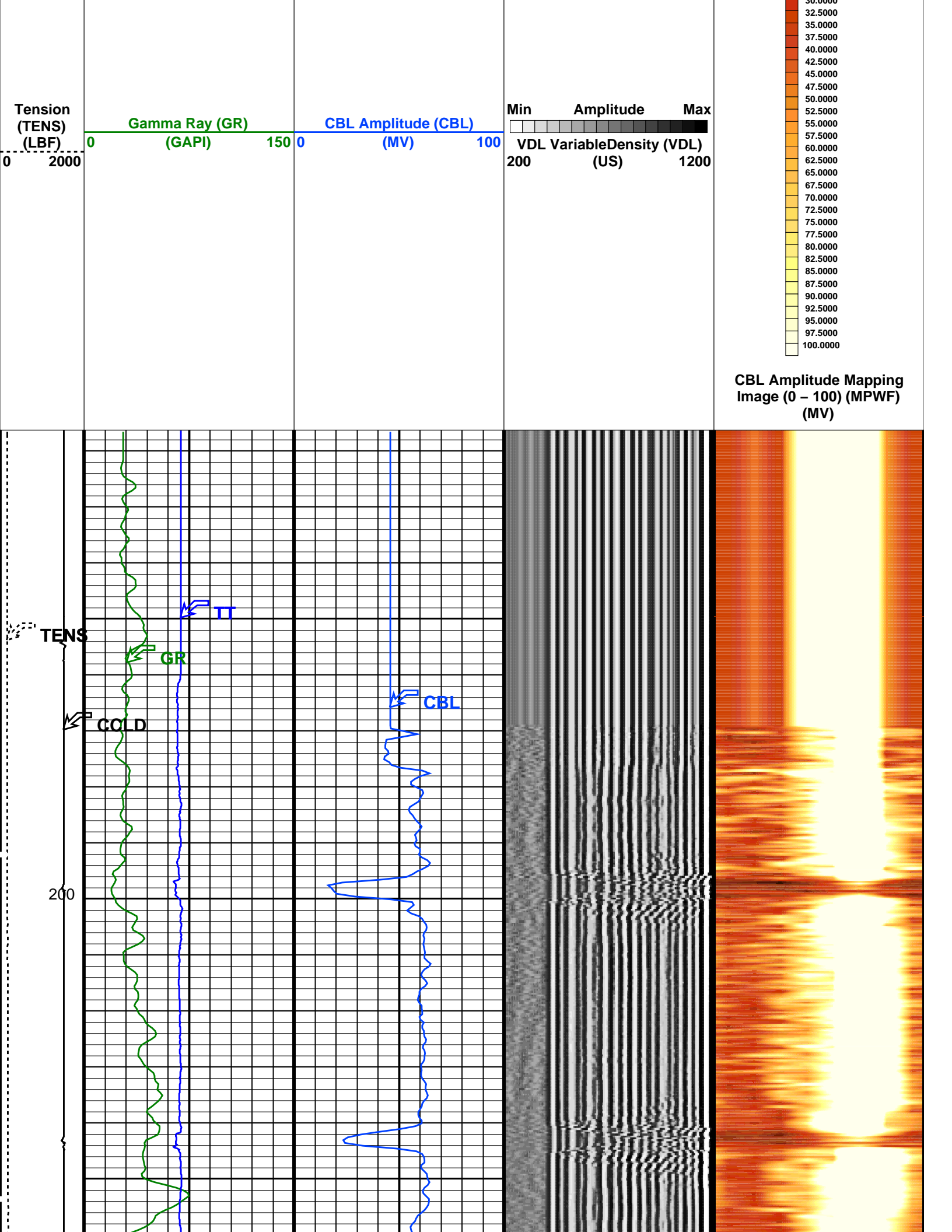
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5	1	1
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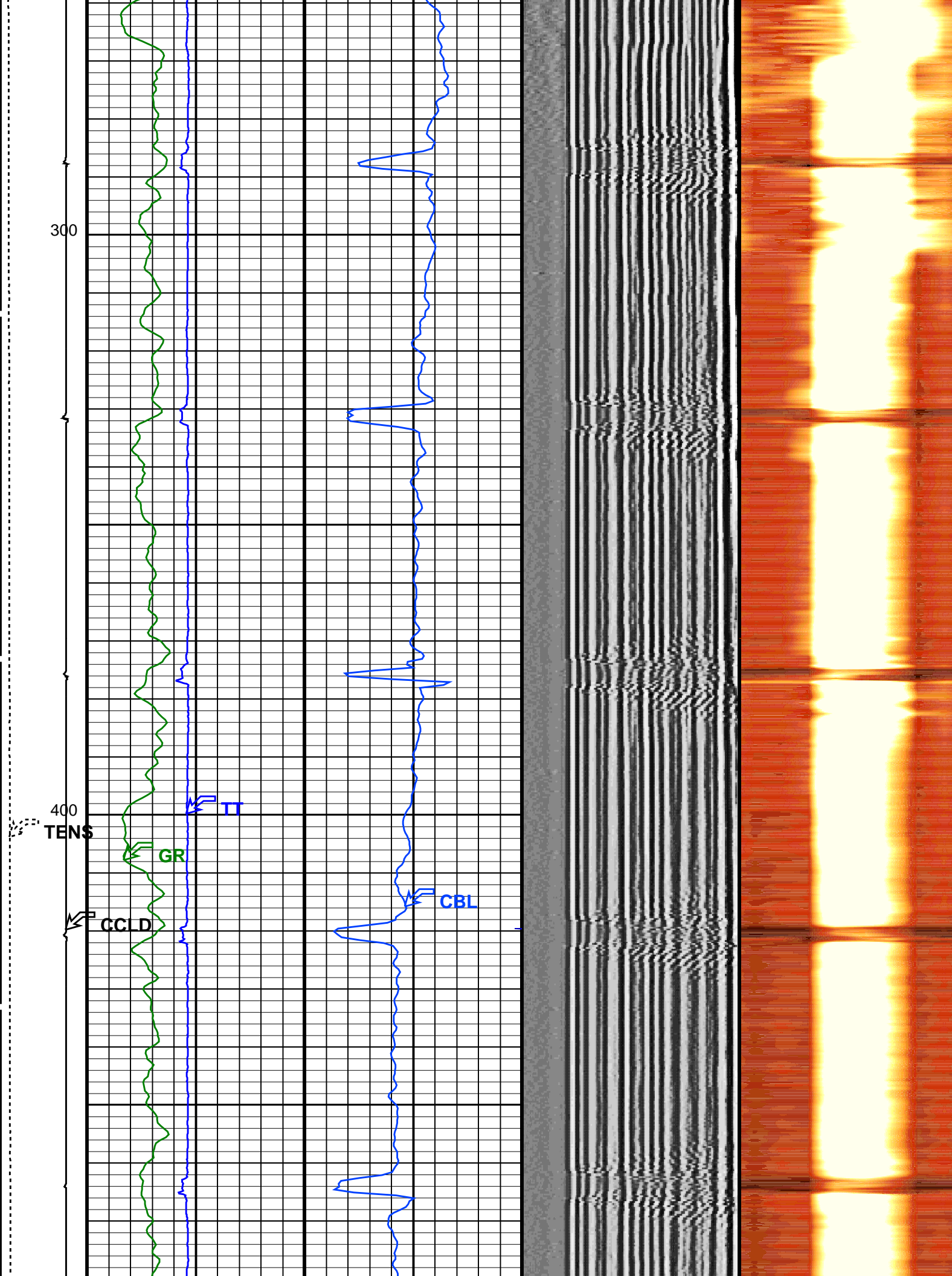
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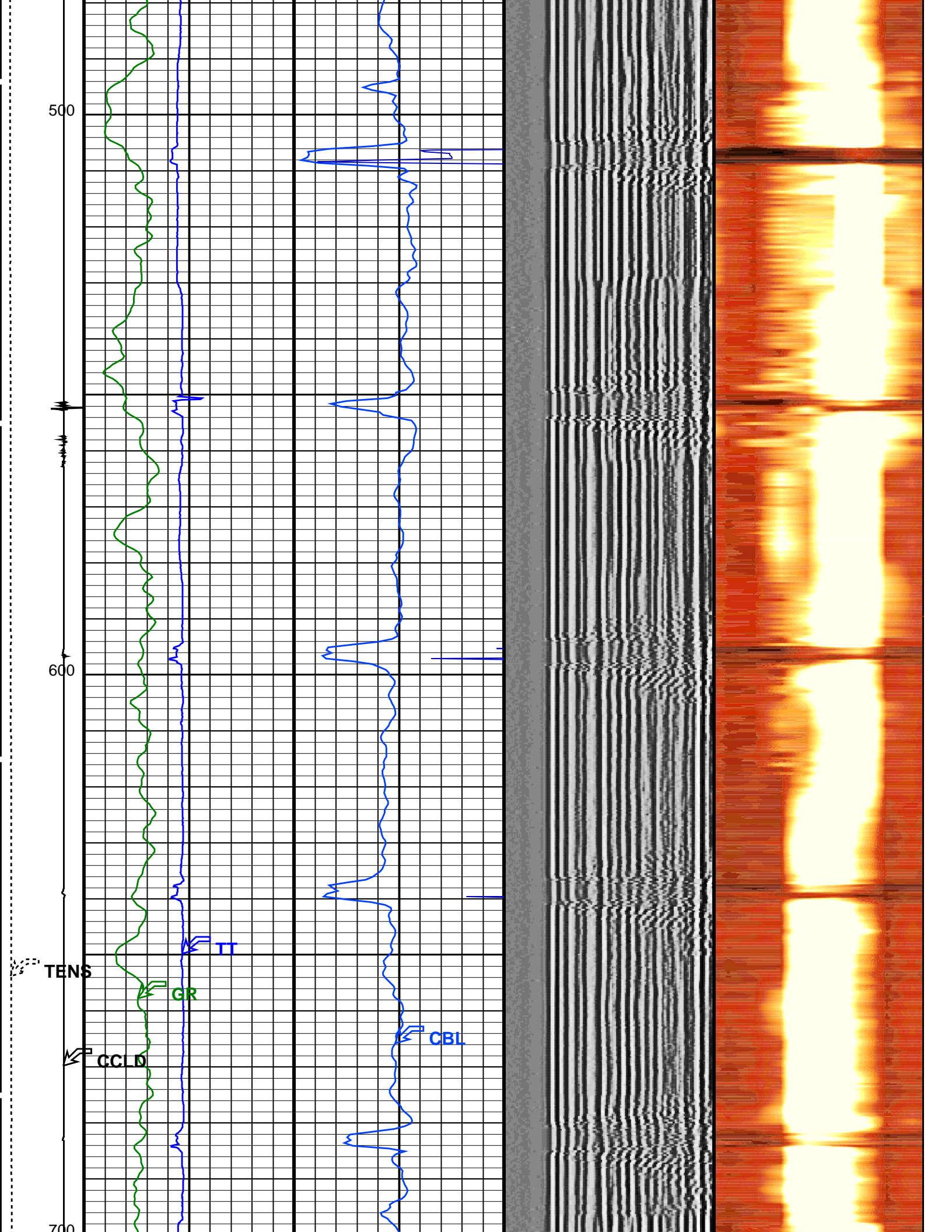
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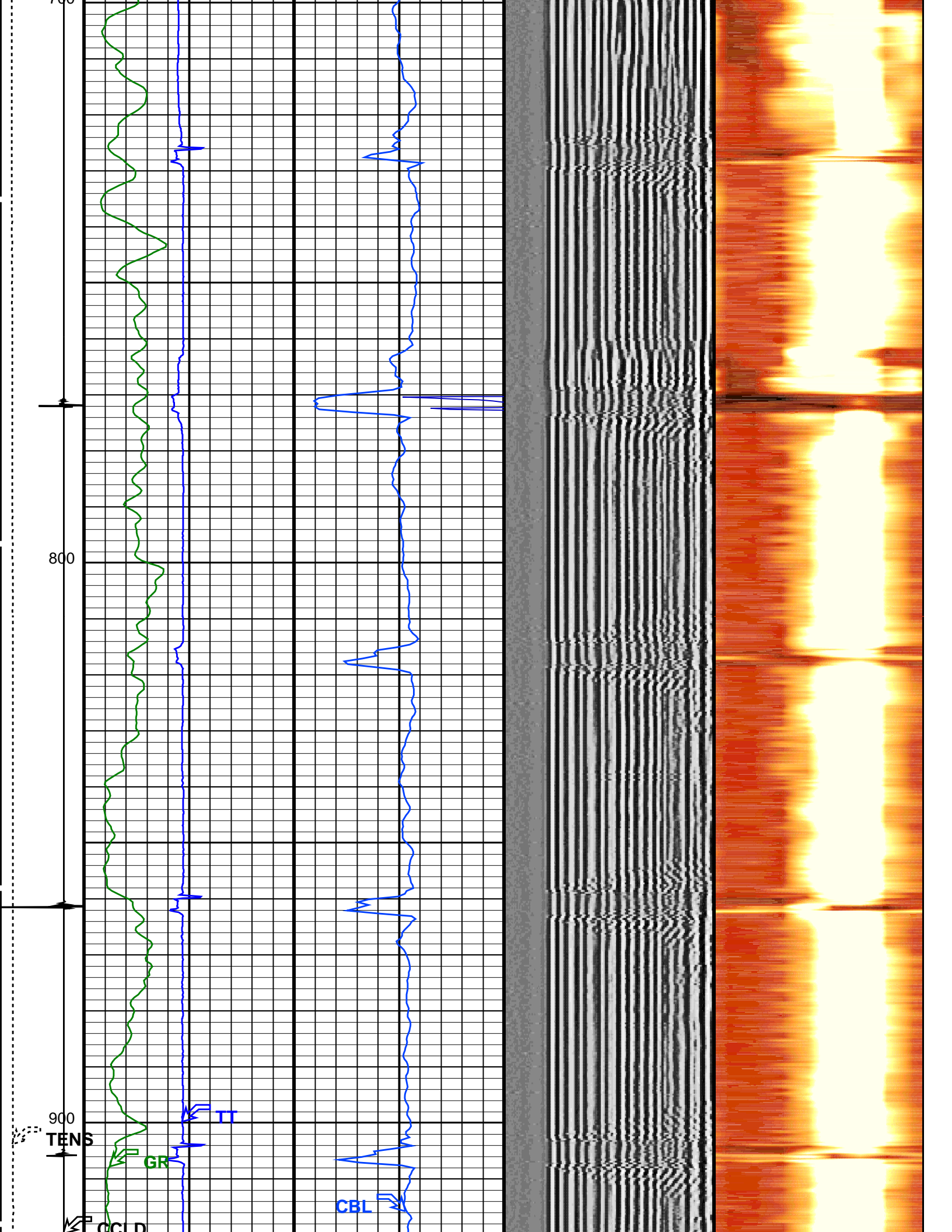


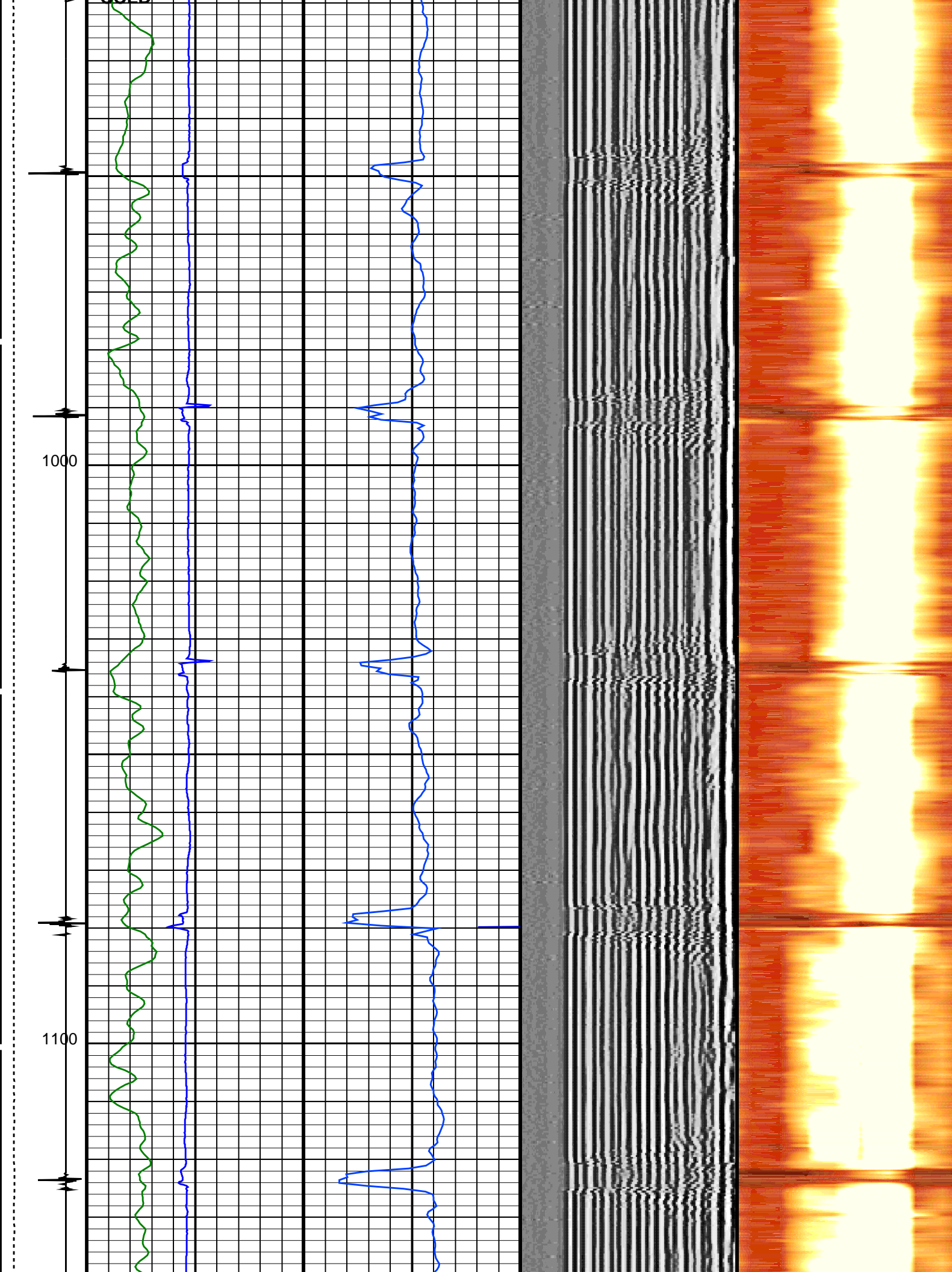


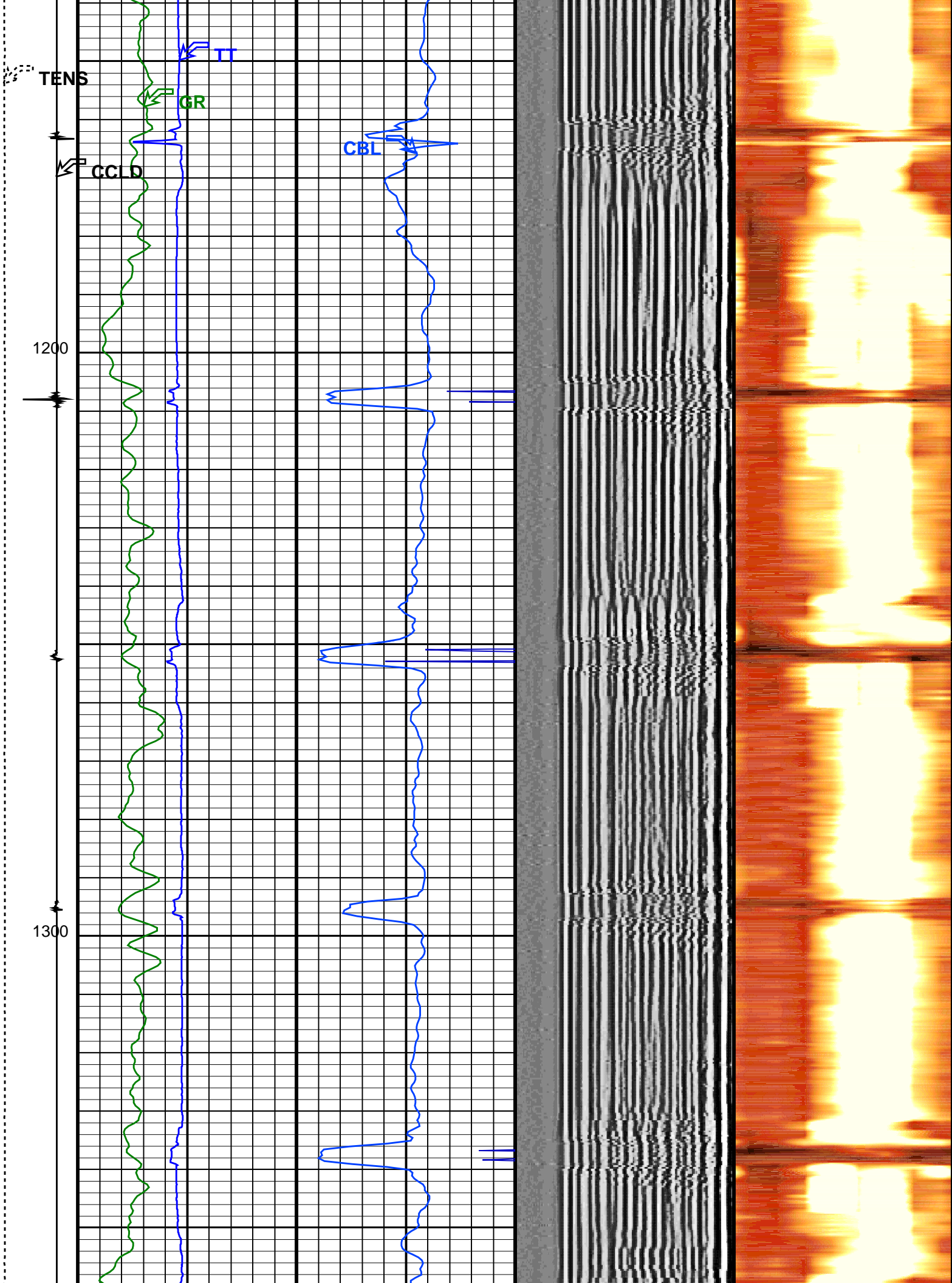


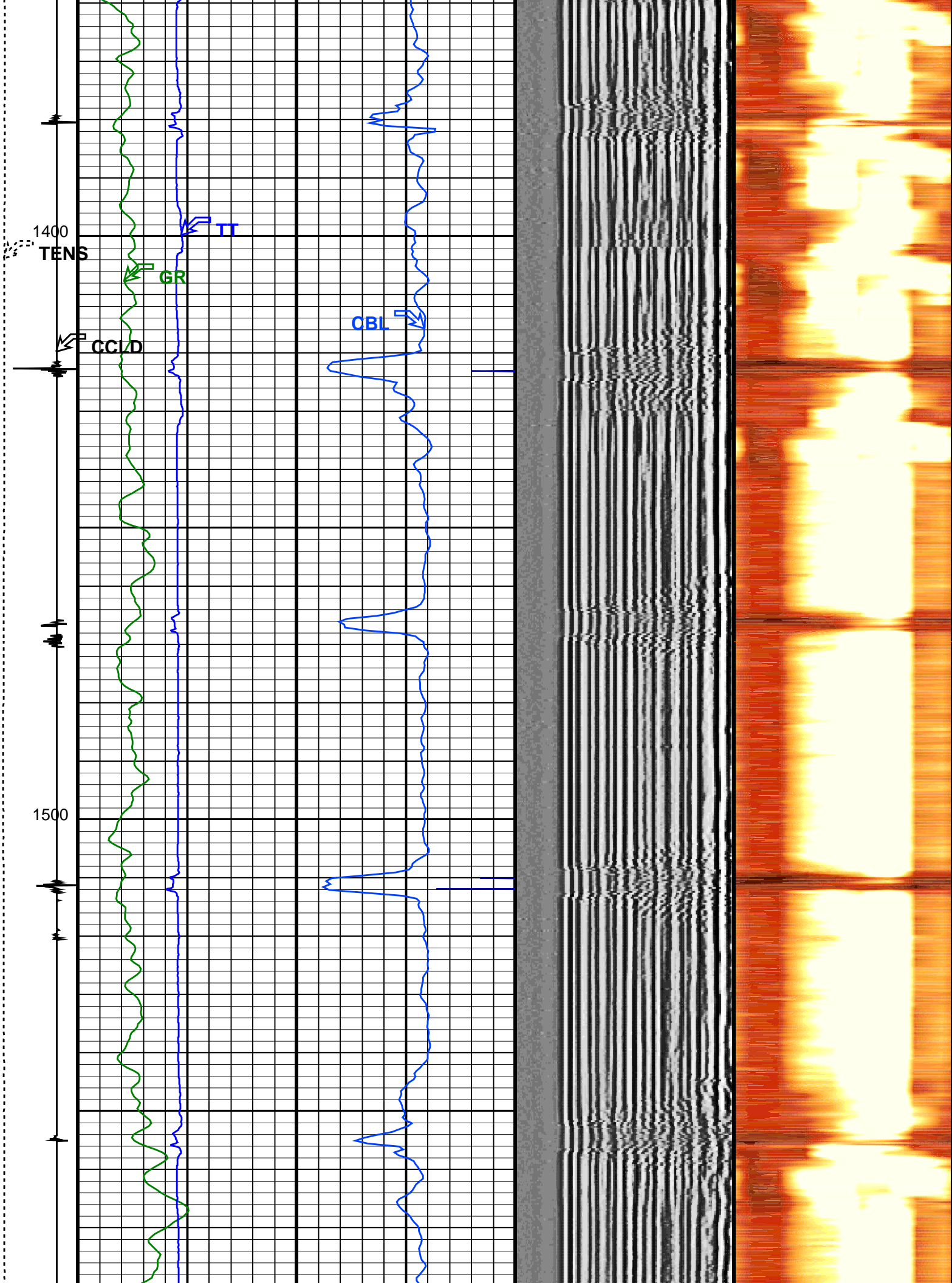


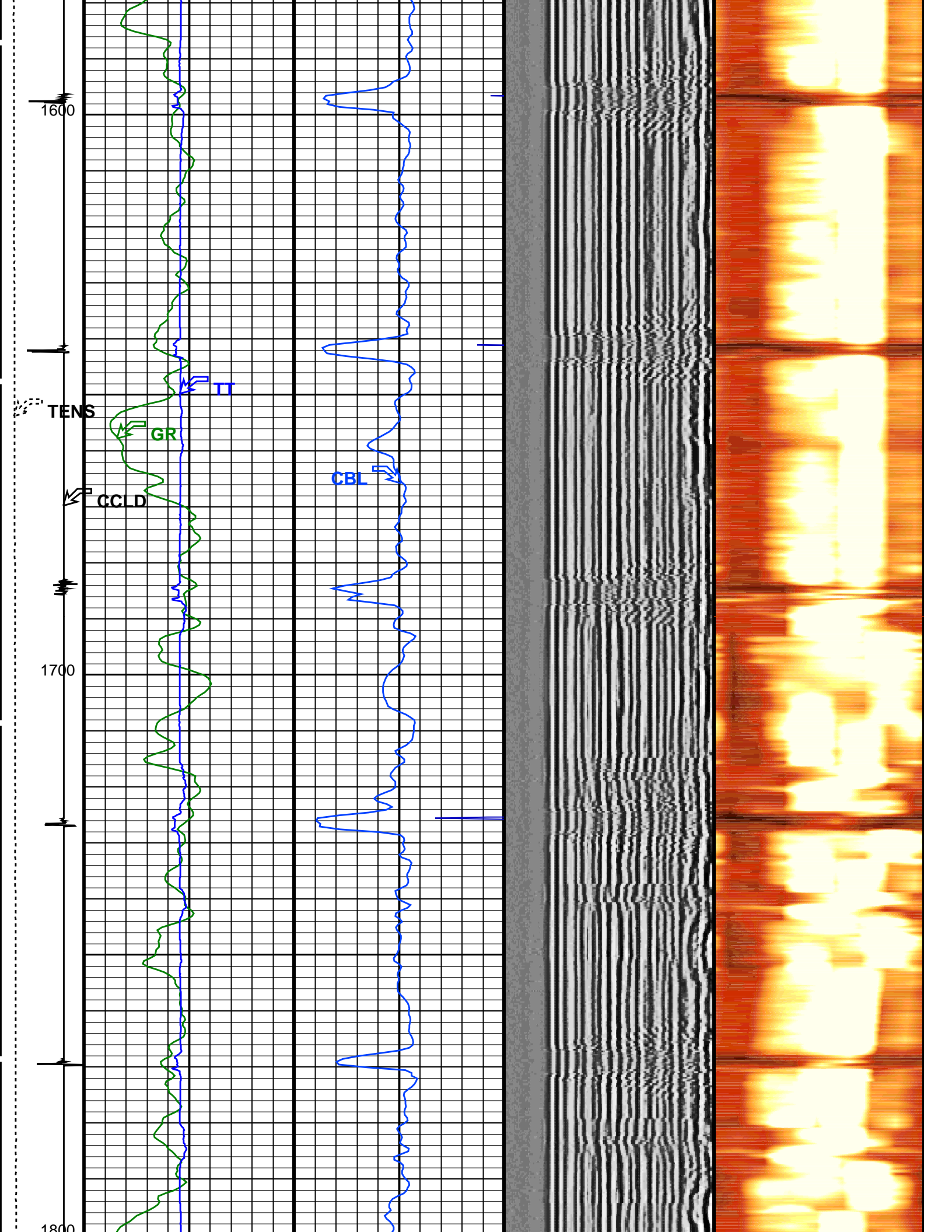


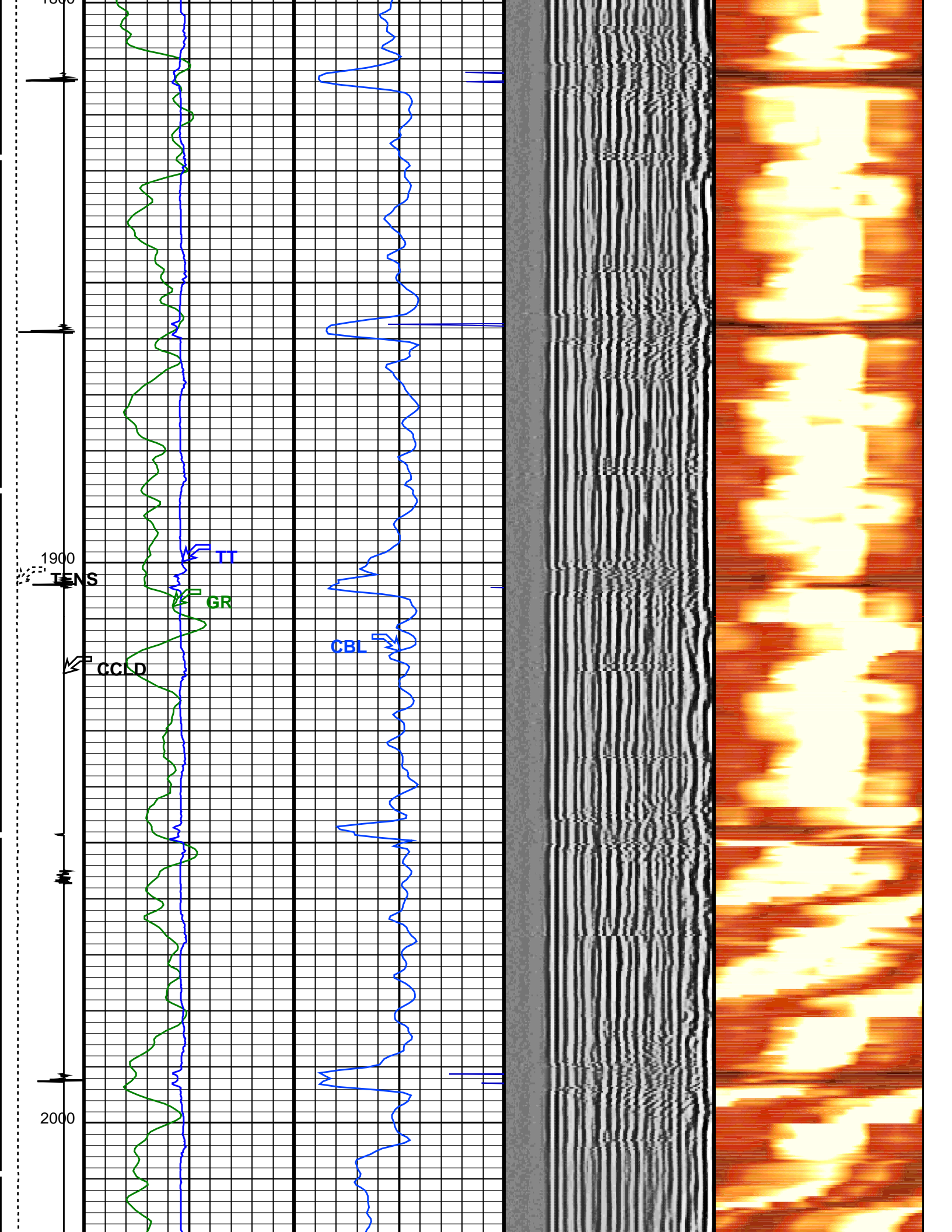


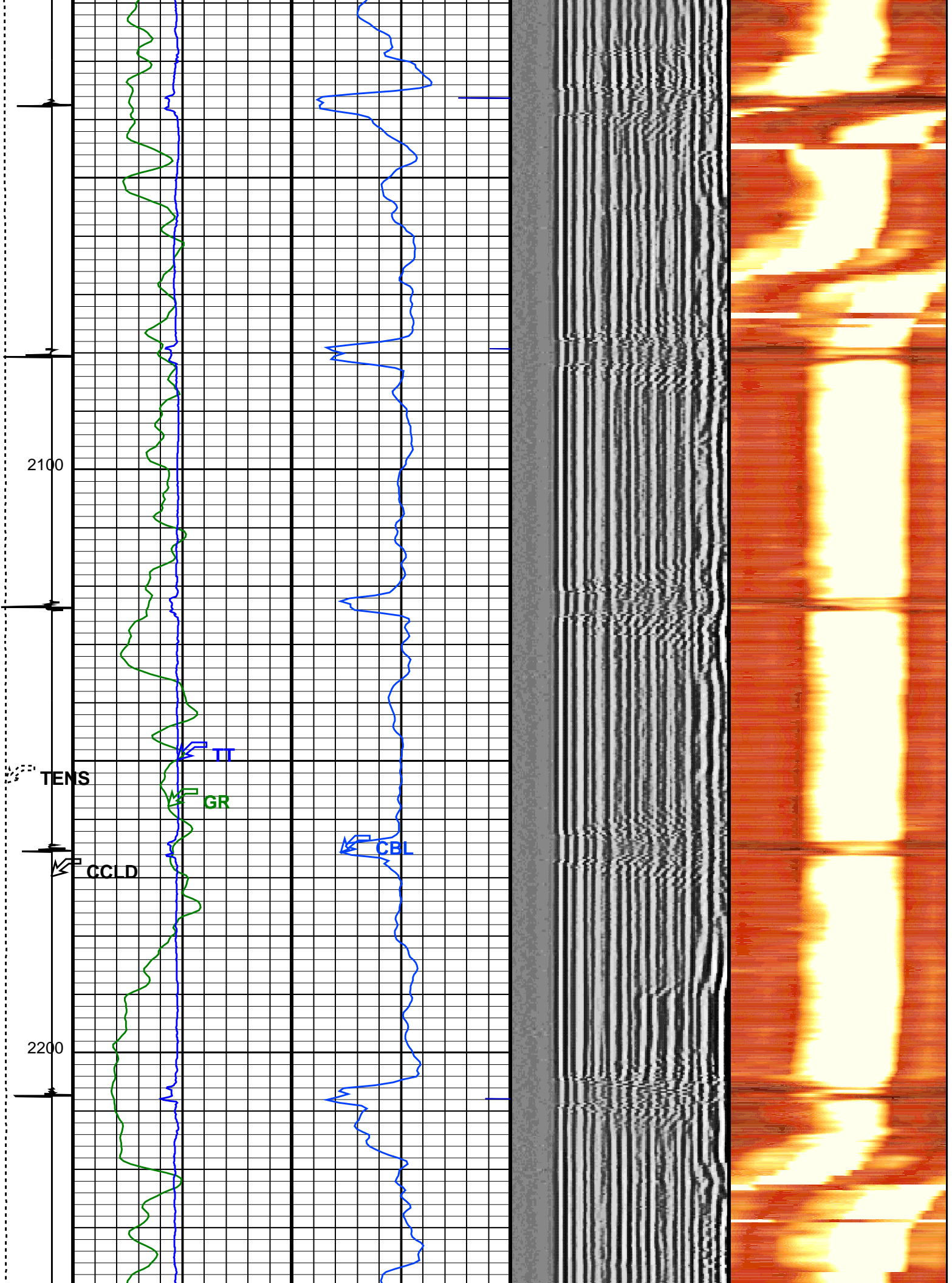


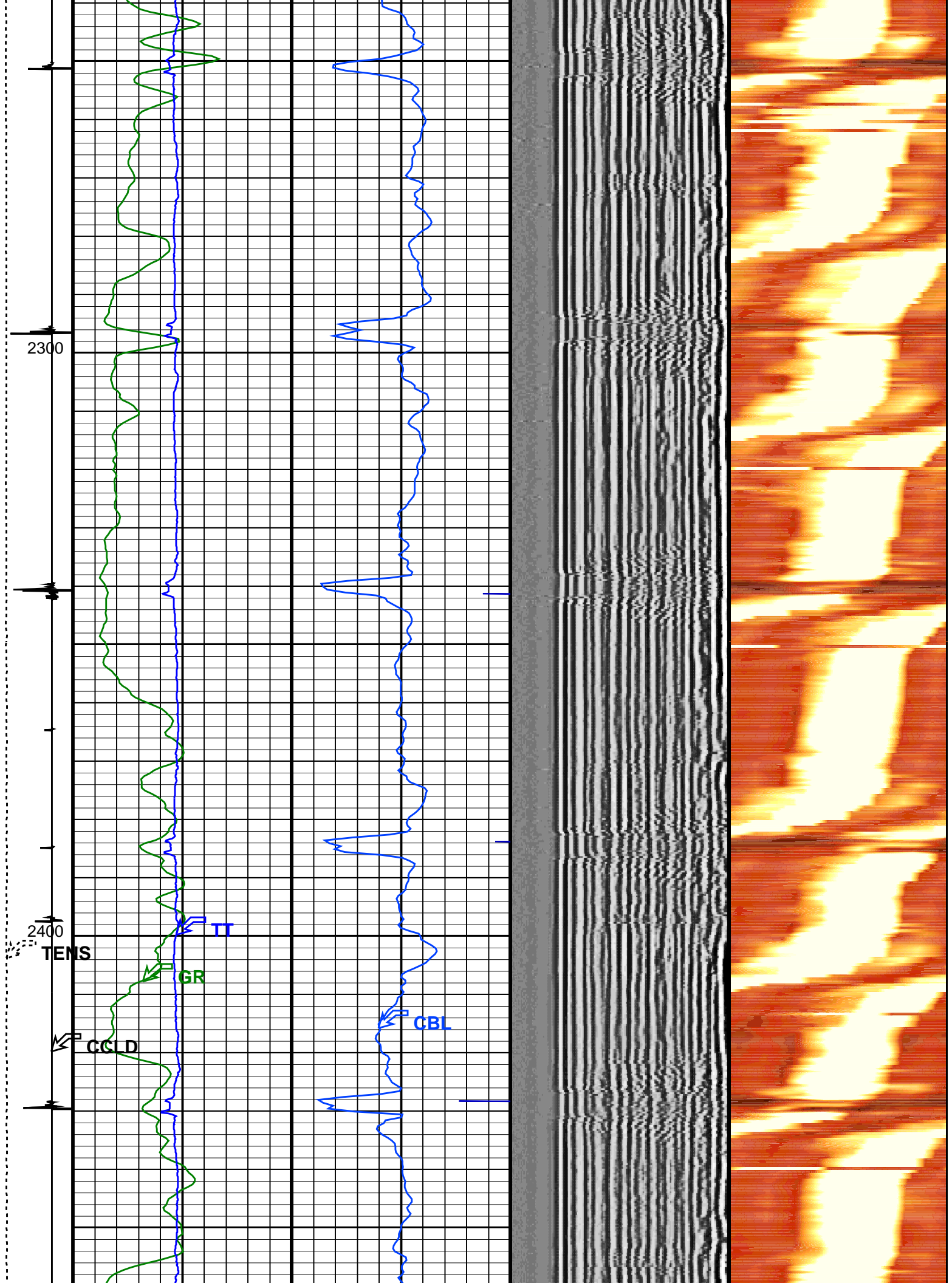


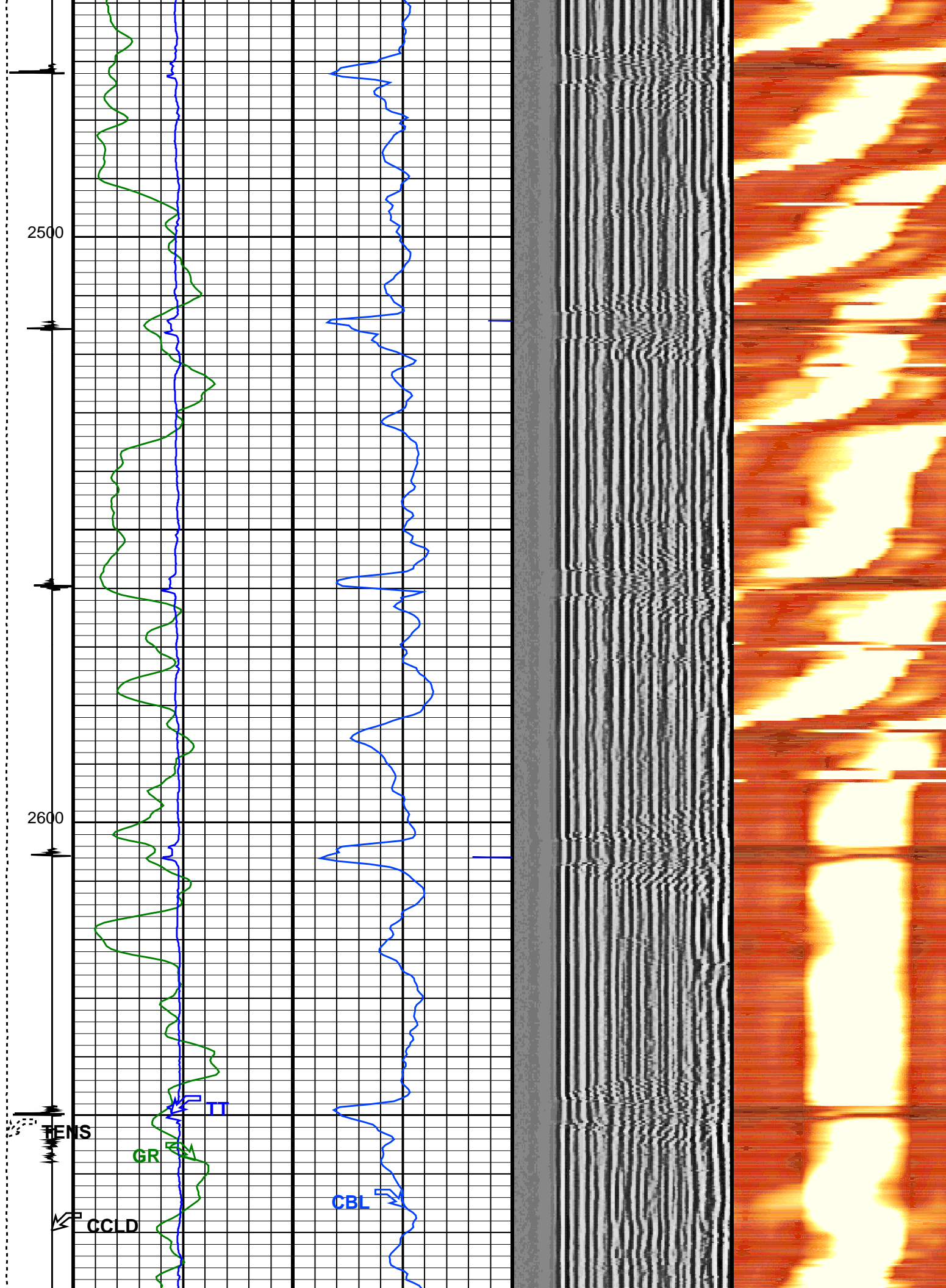


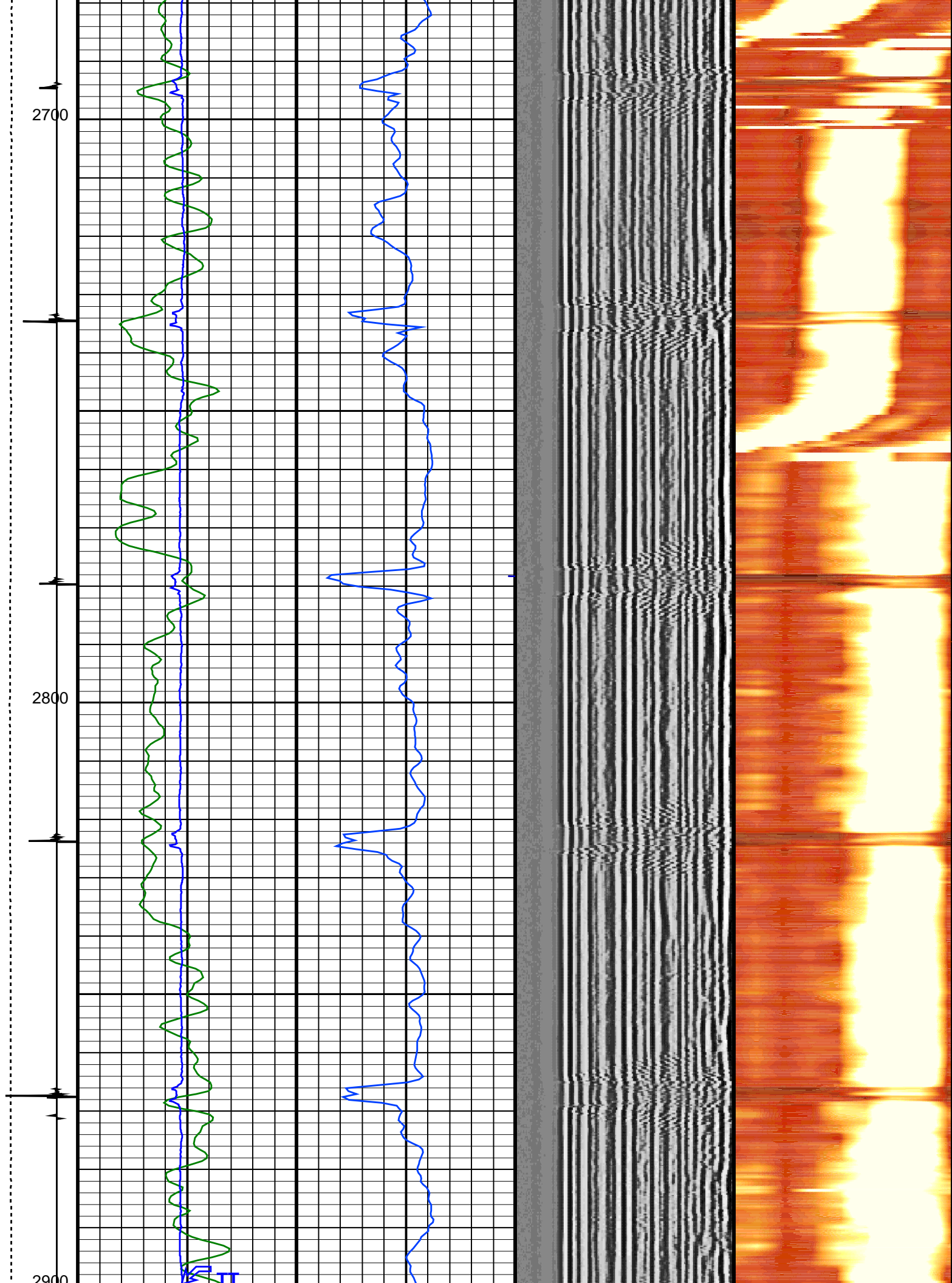


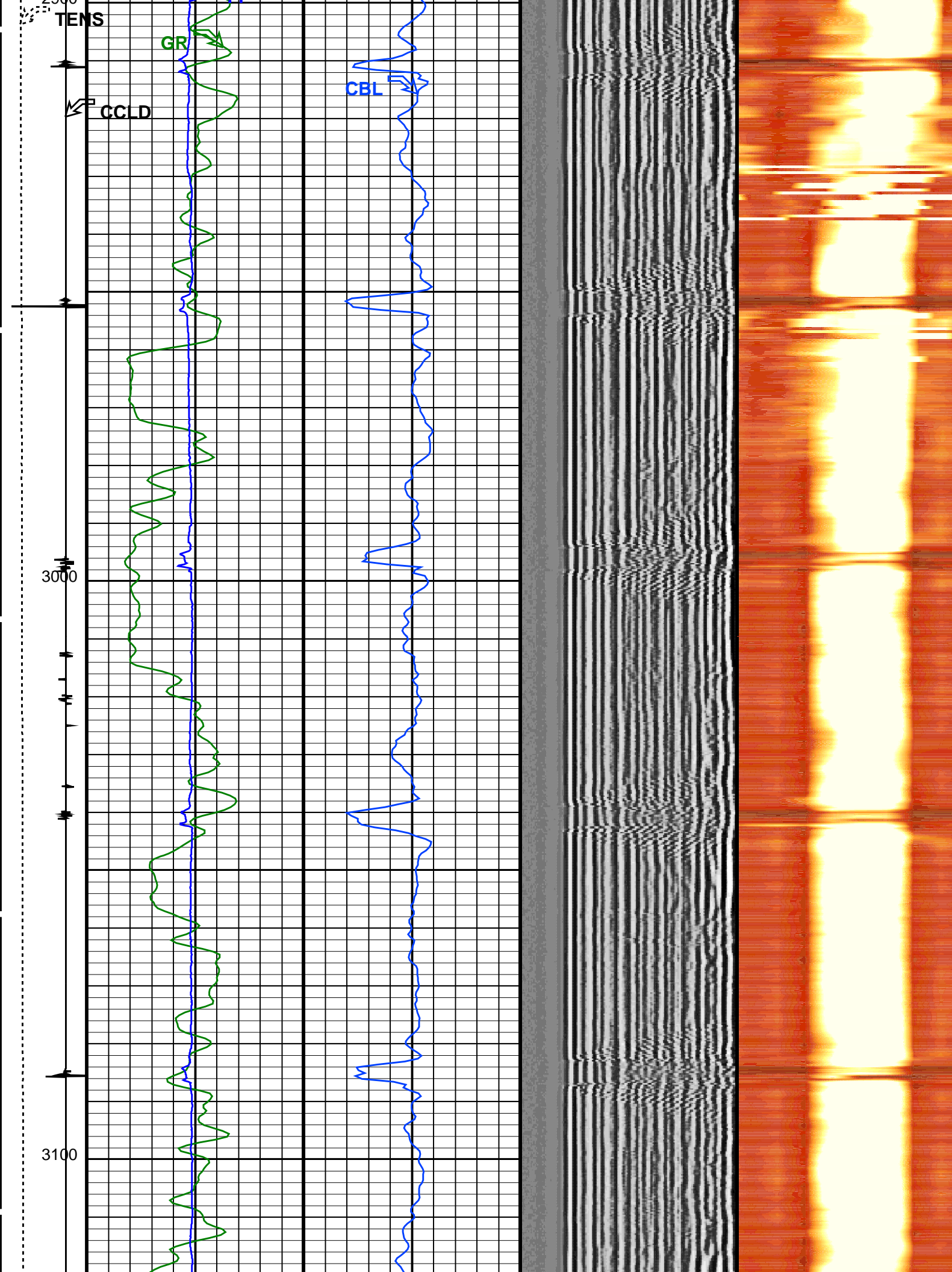


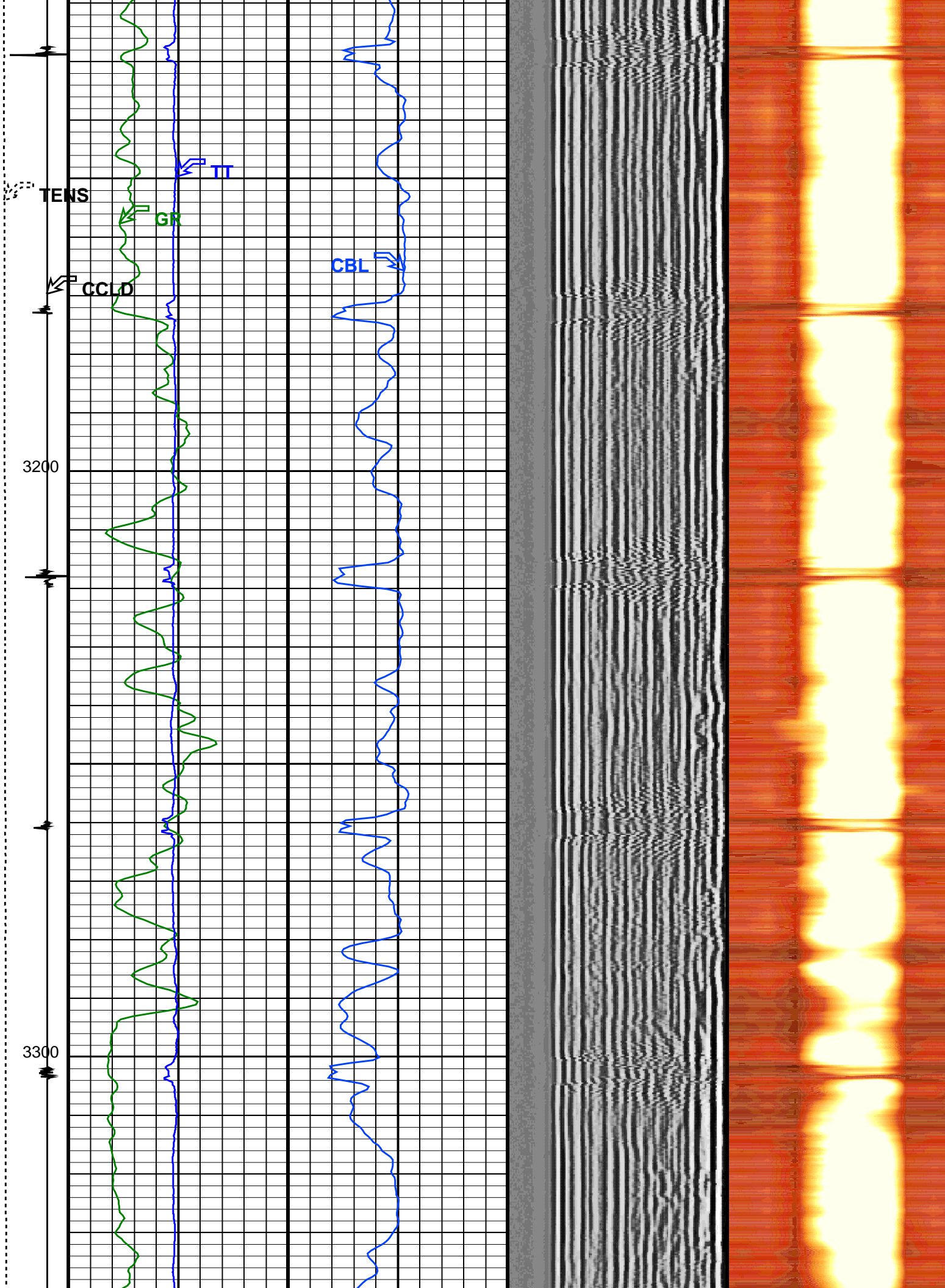


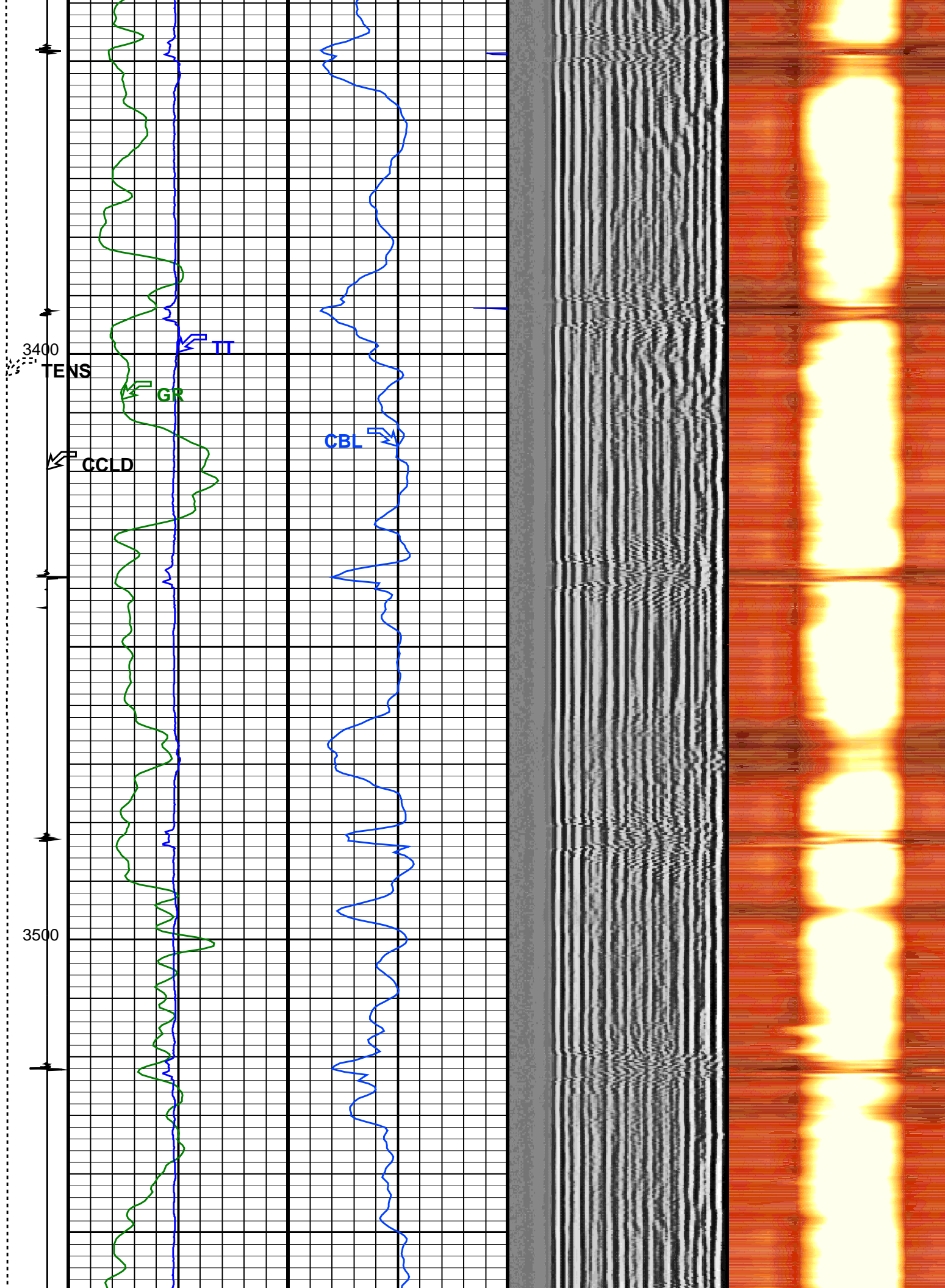


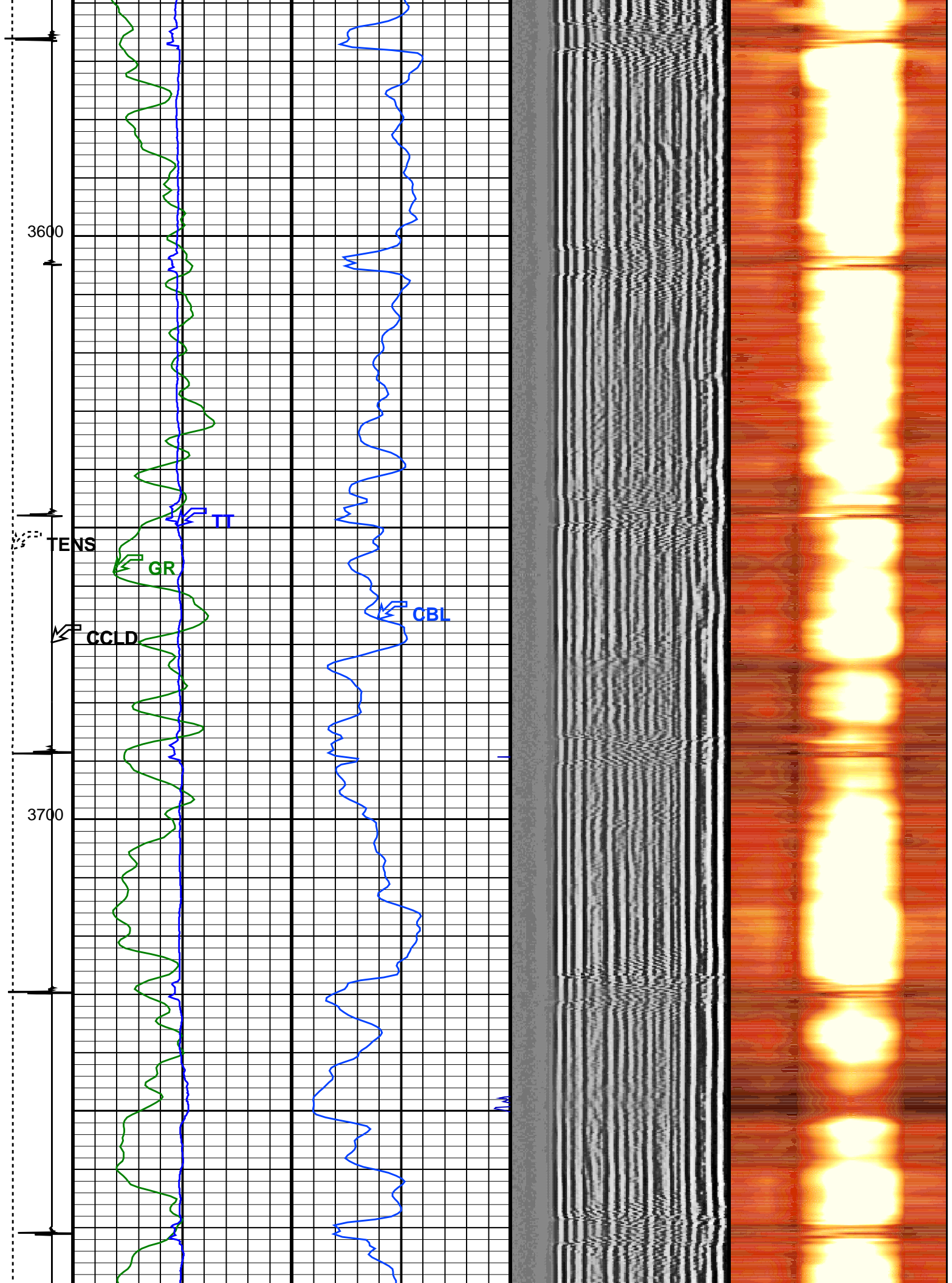


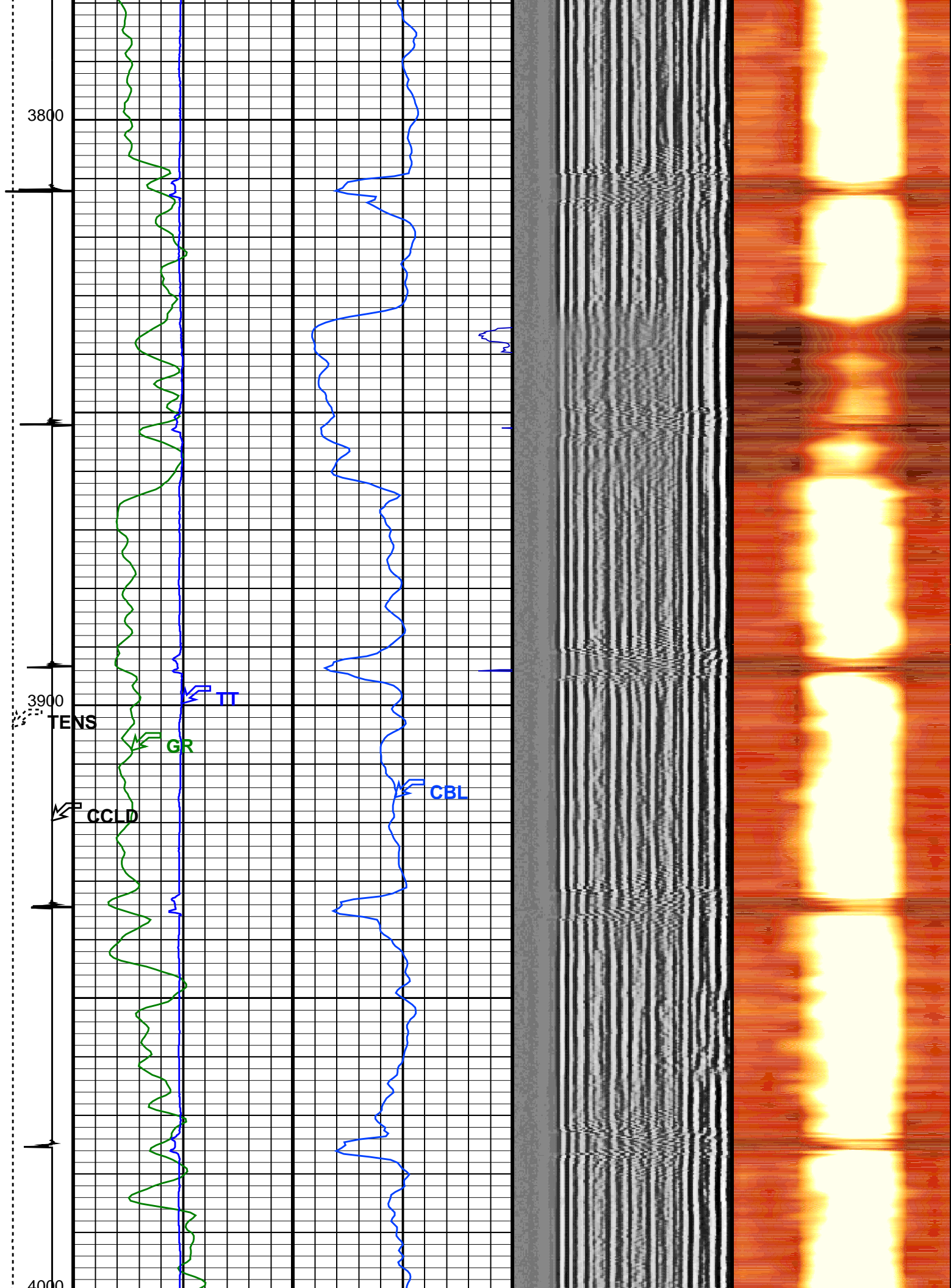


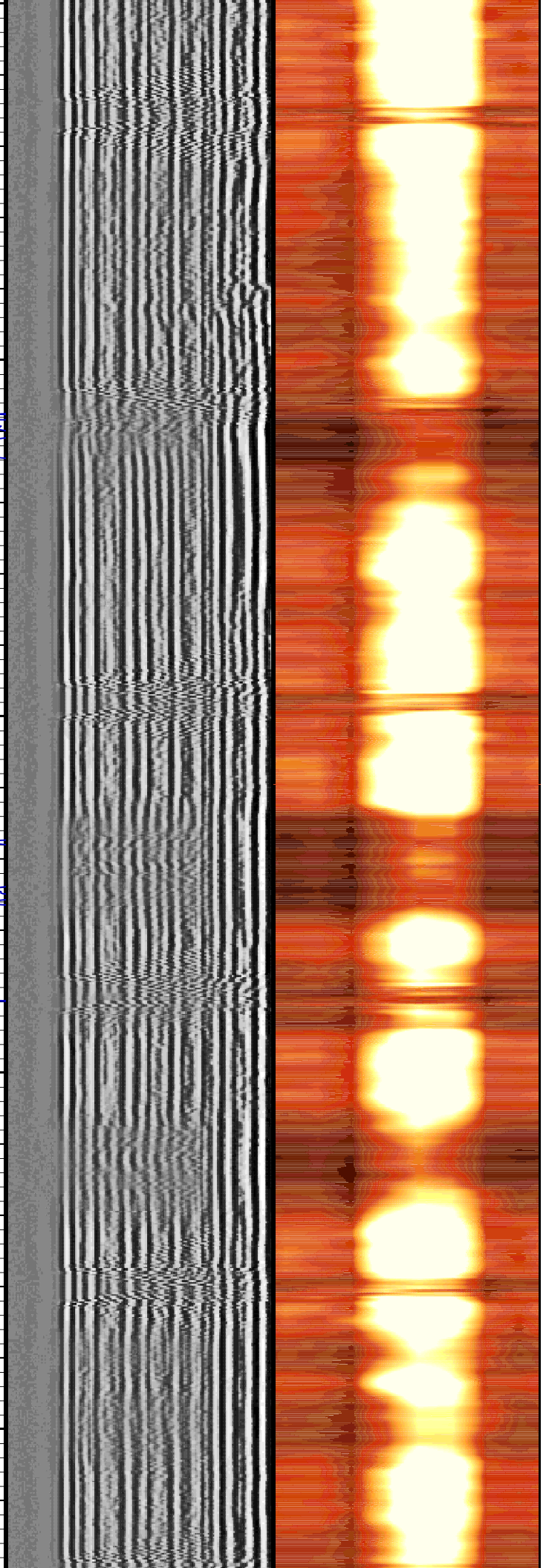
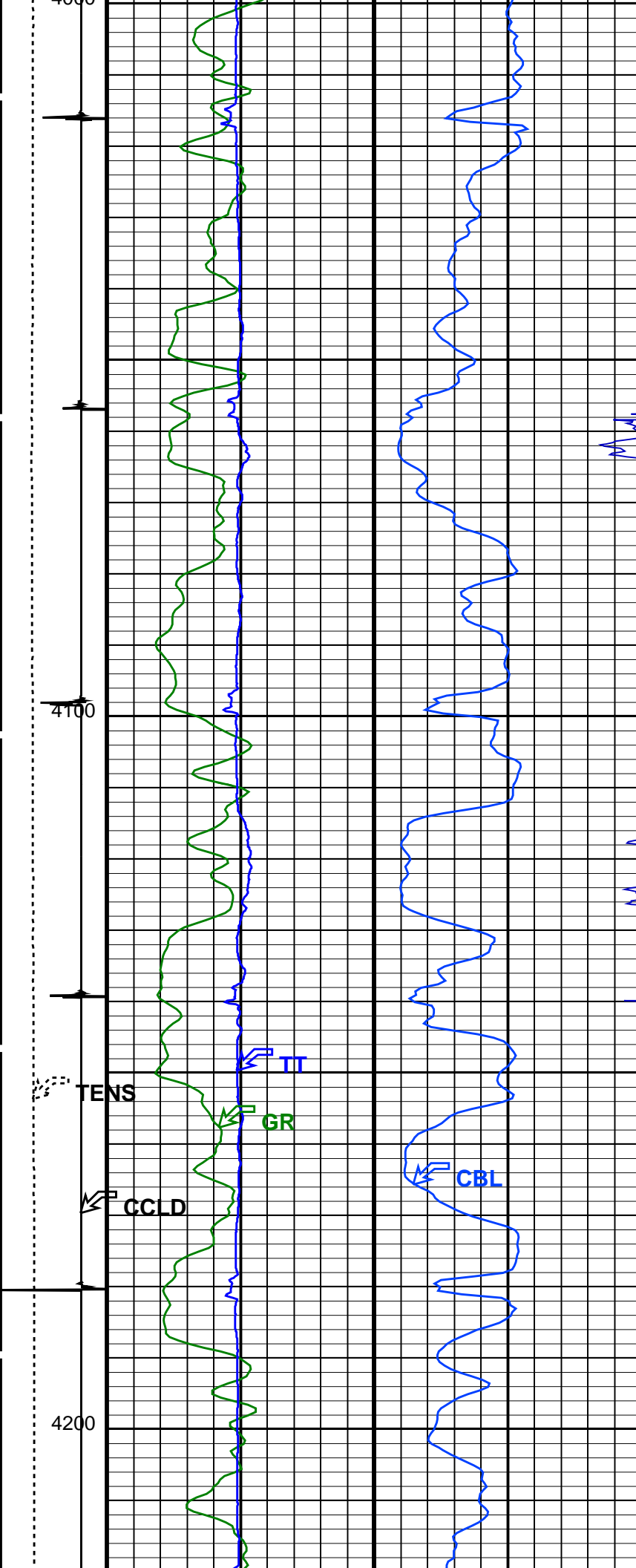


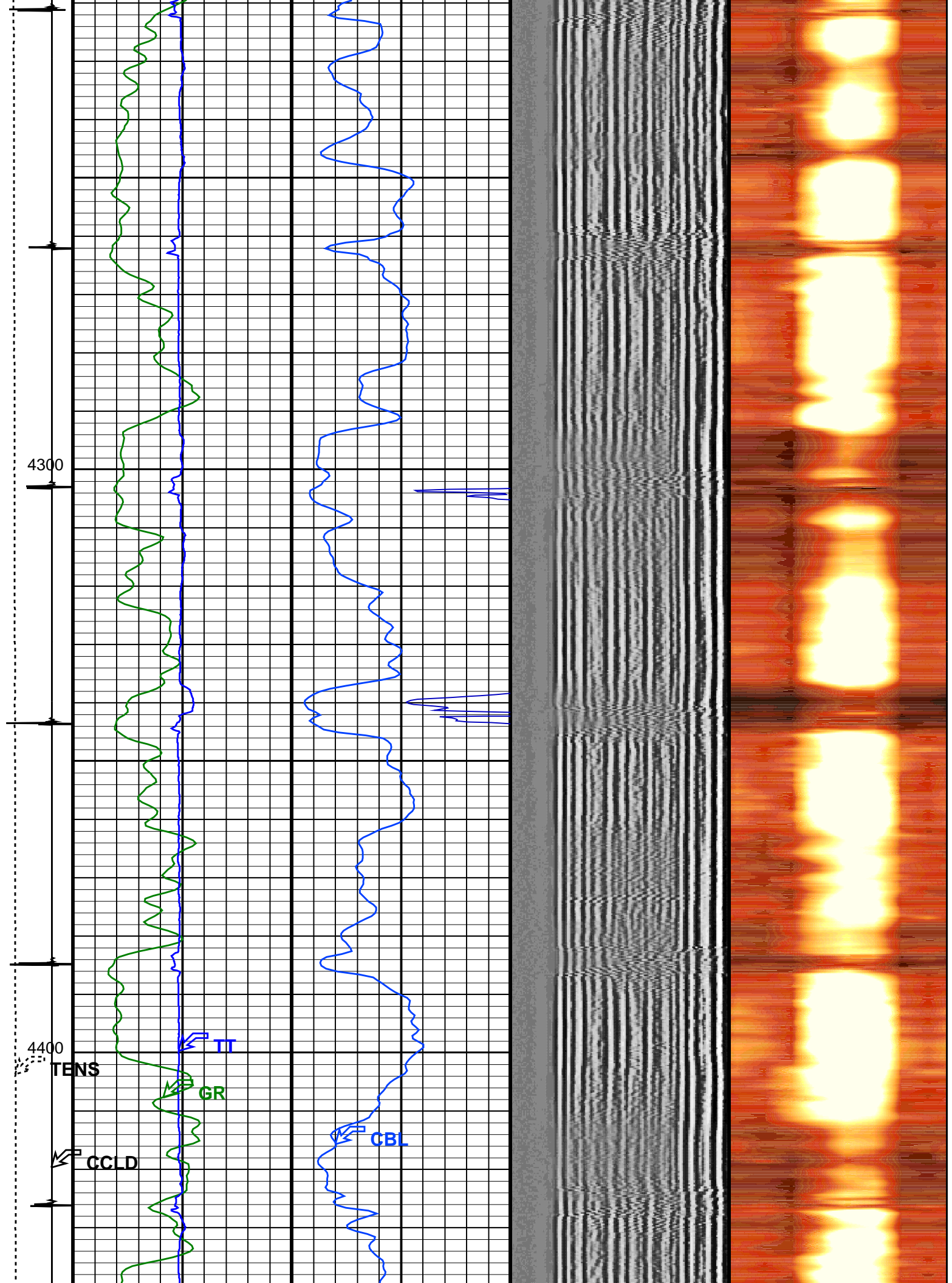


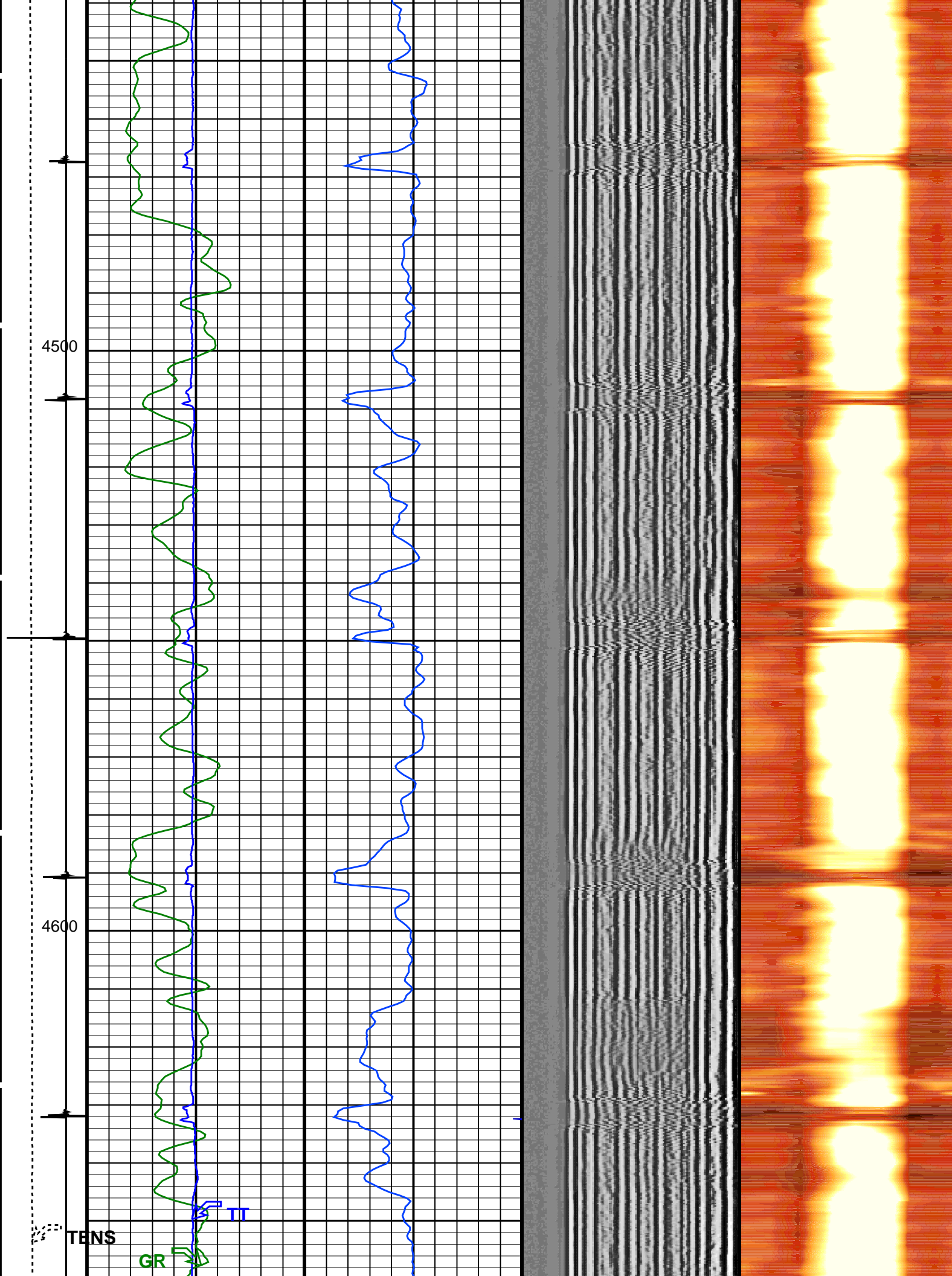


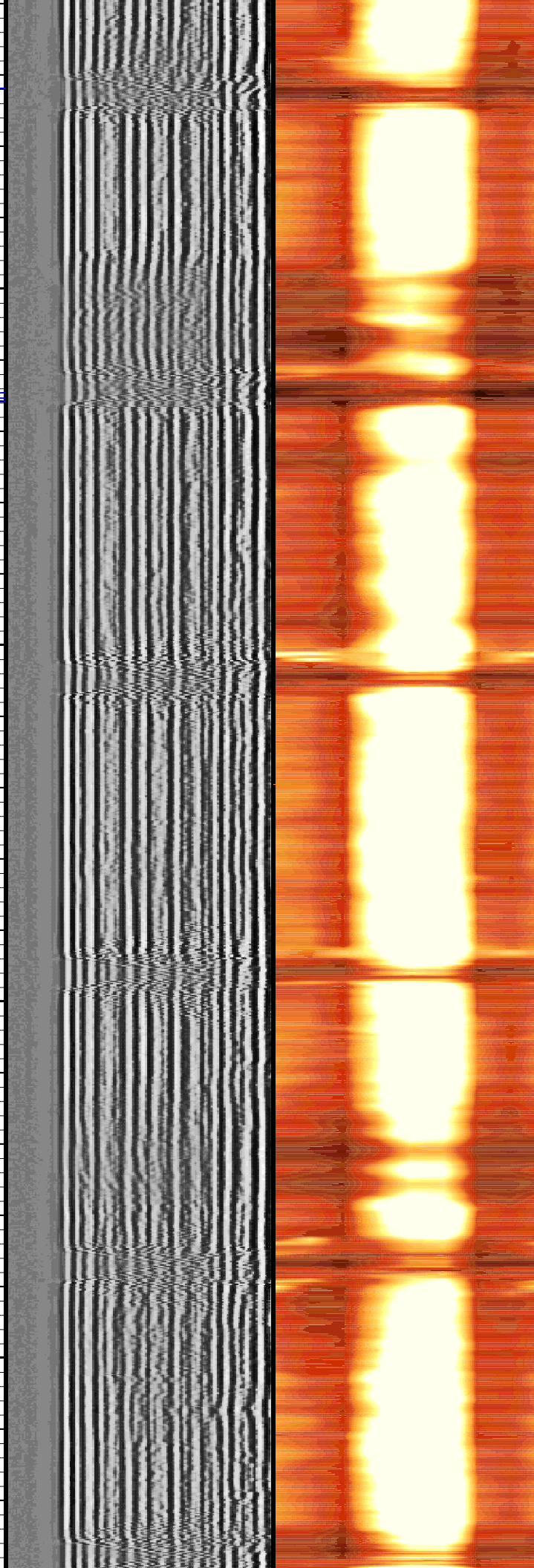
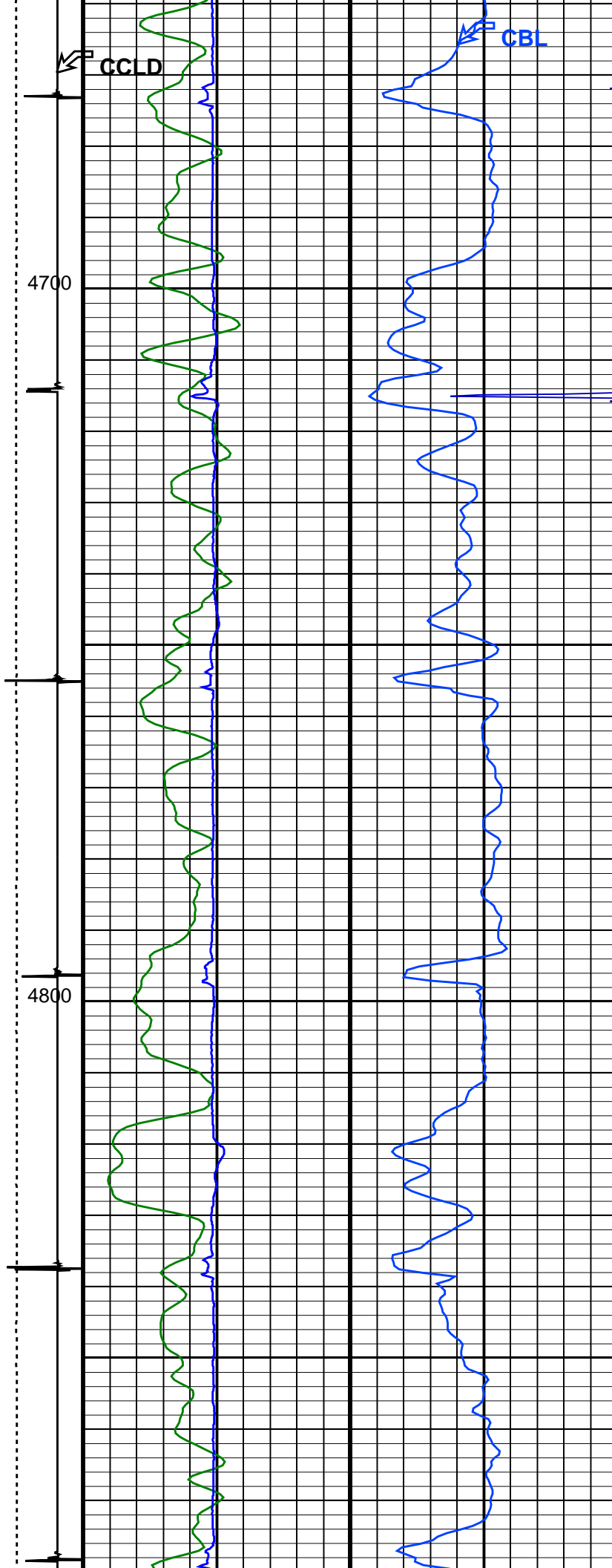


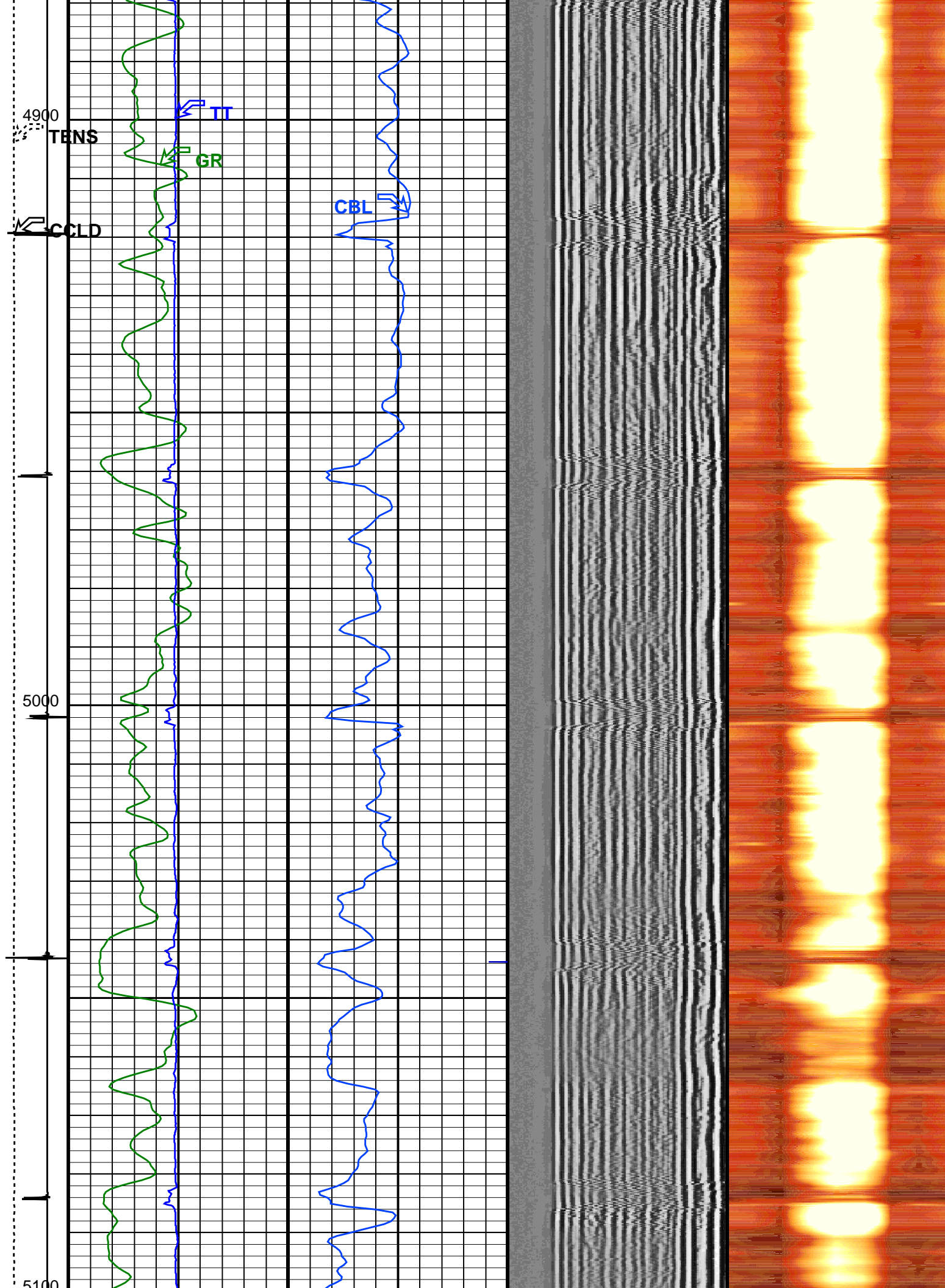


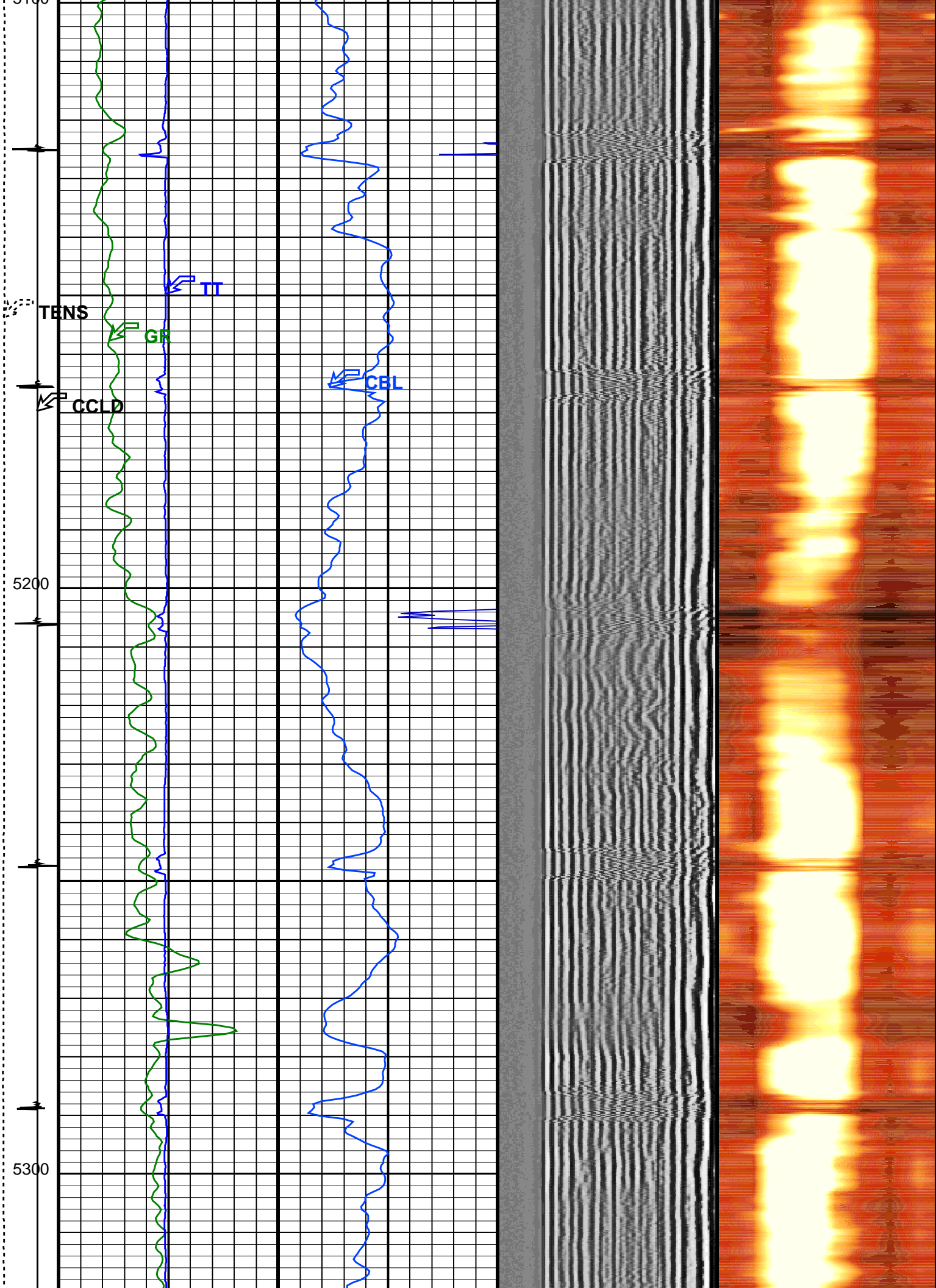


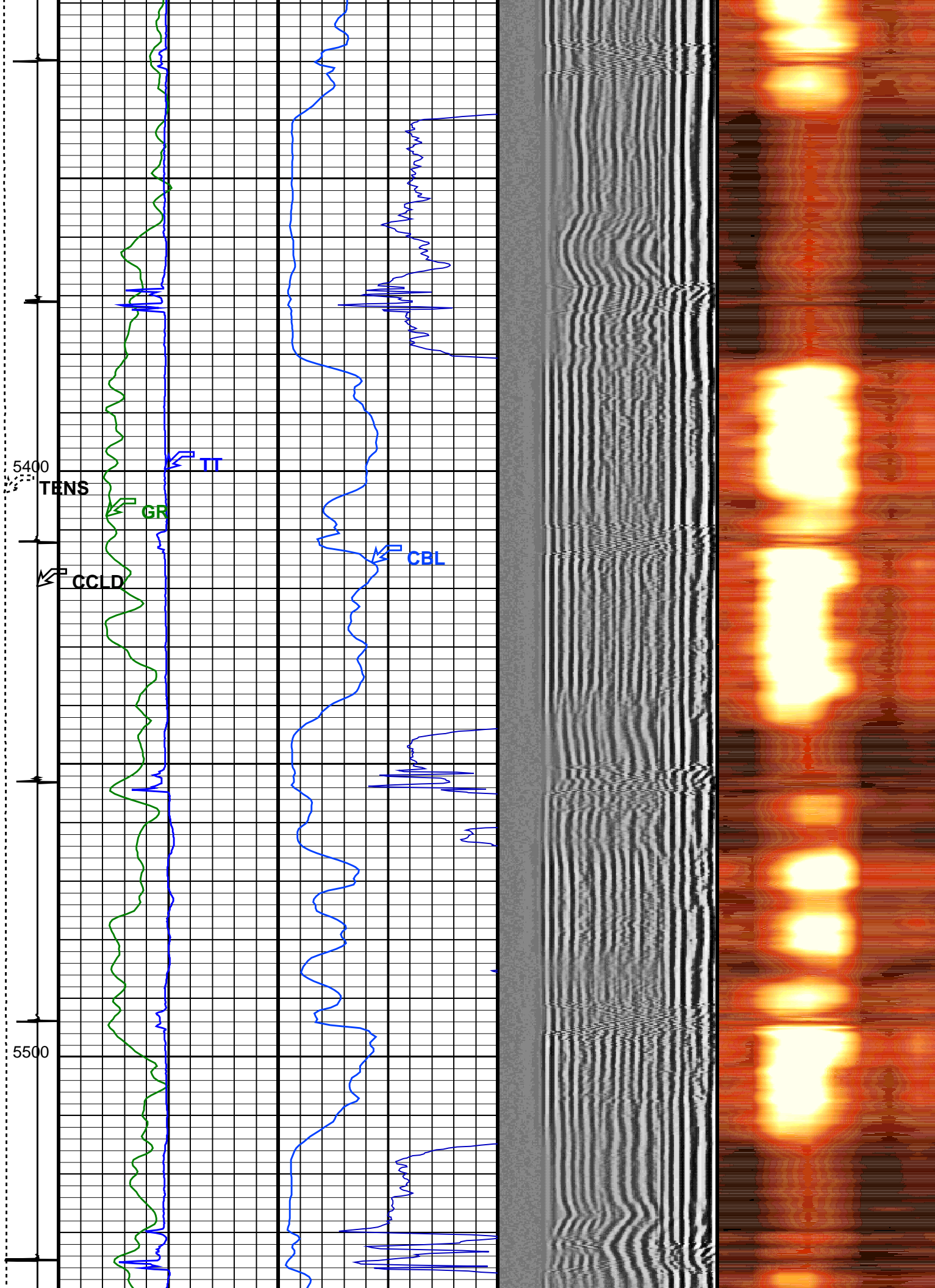


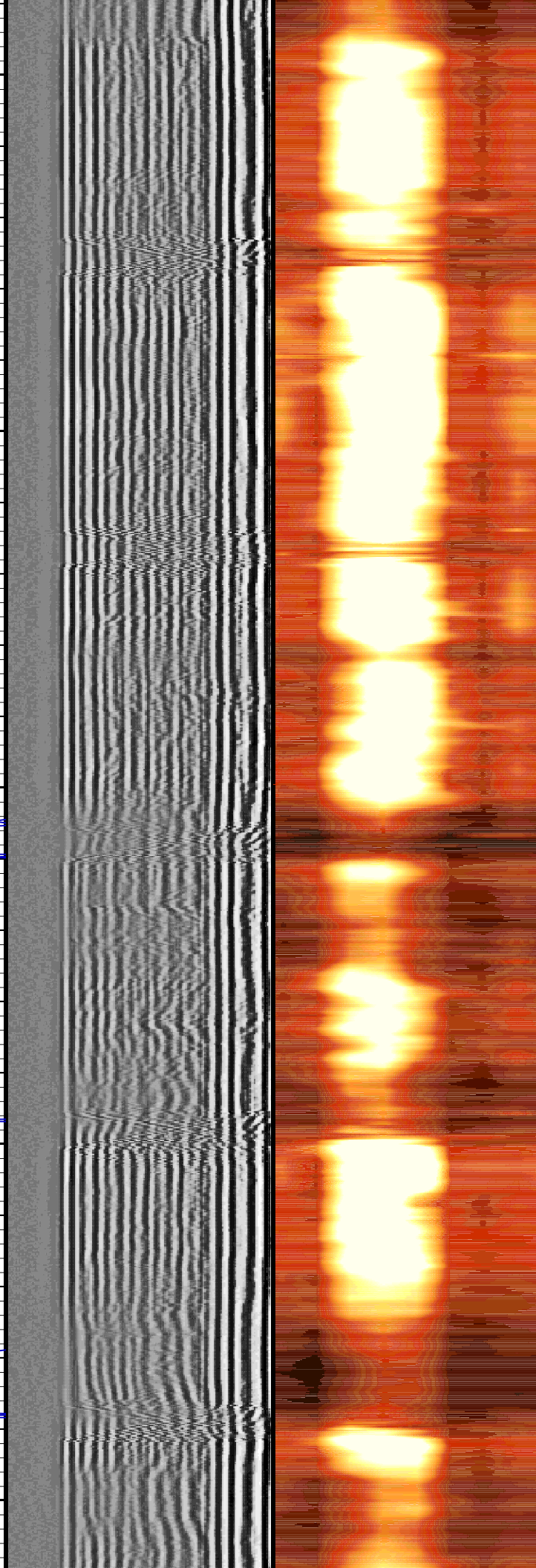
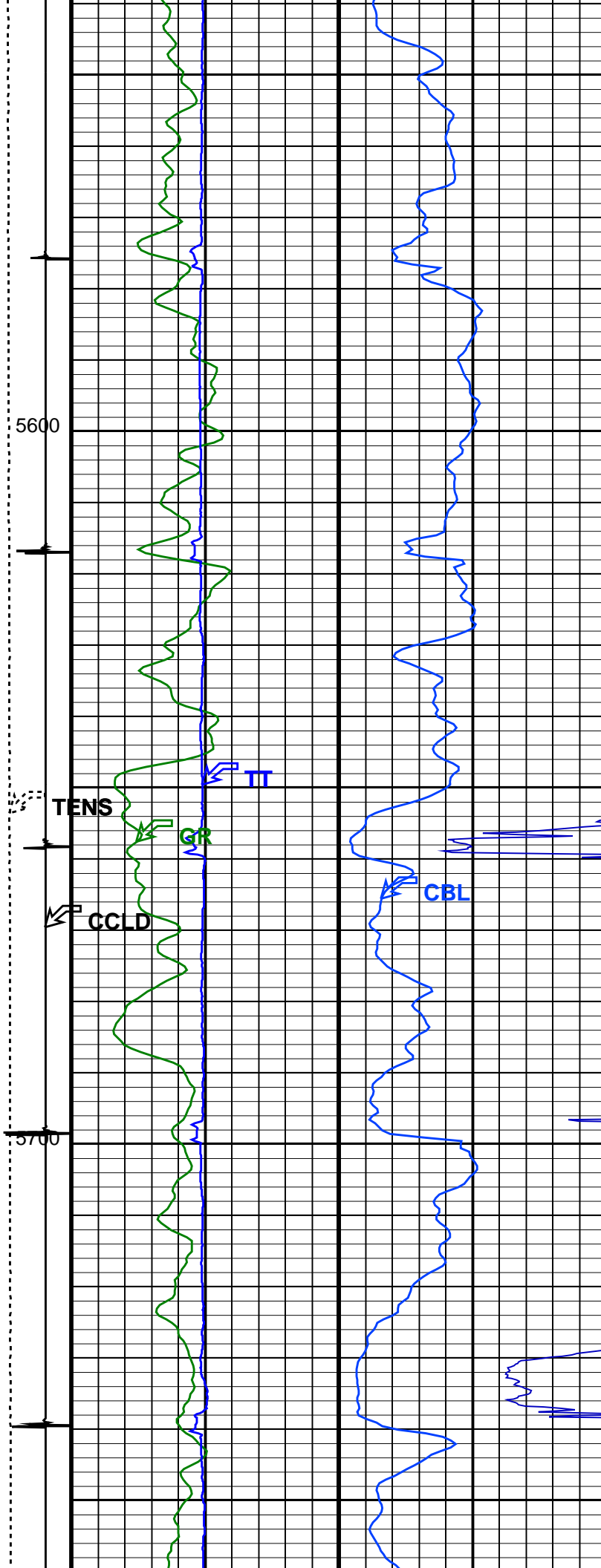


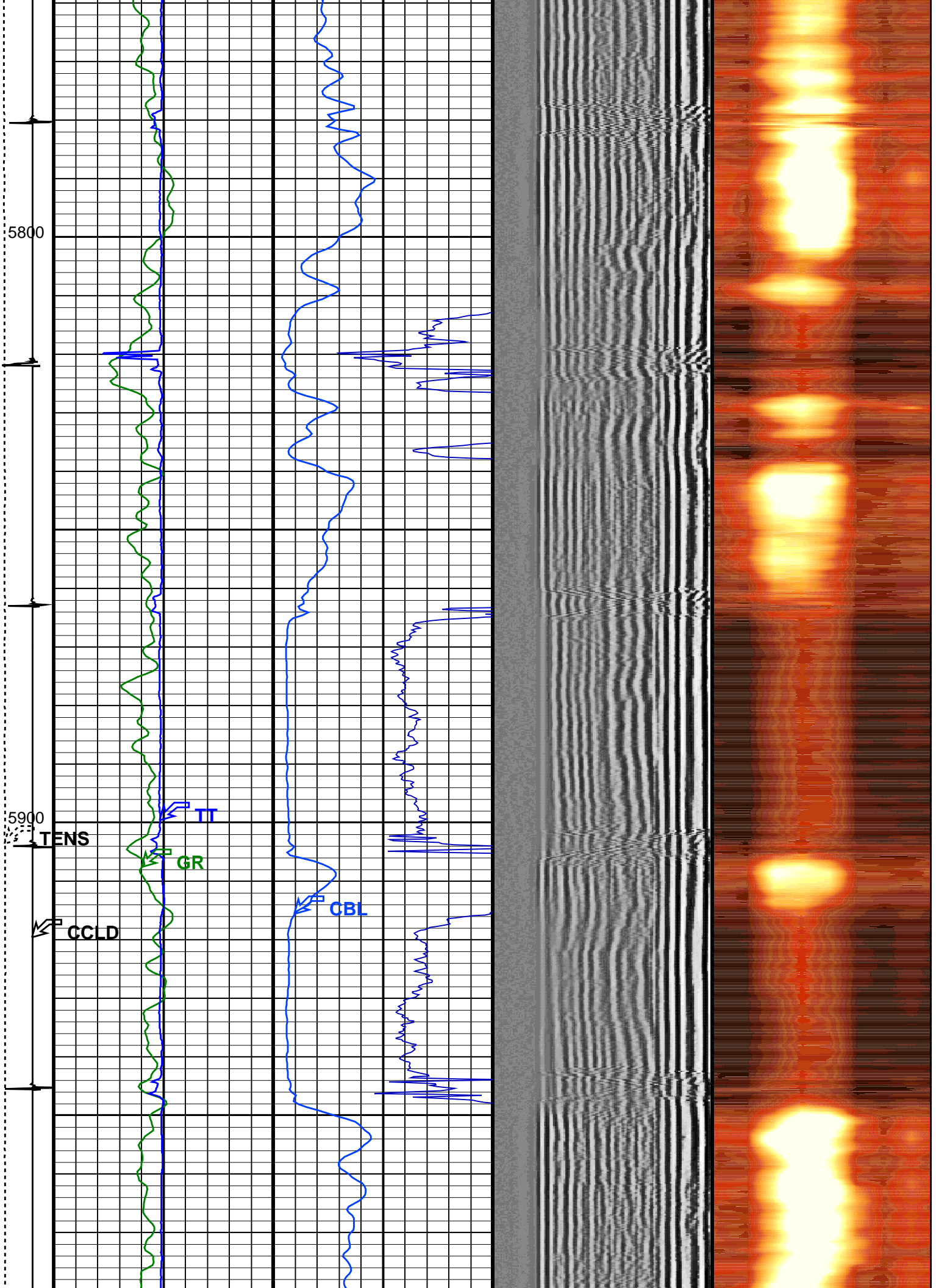


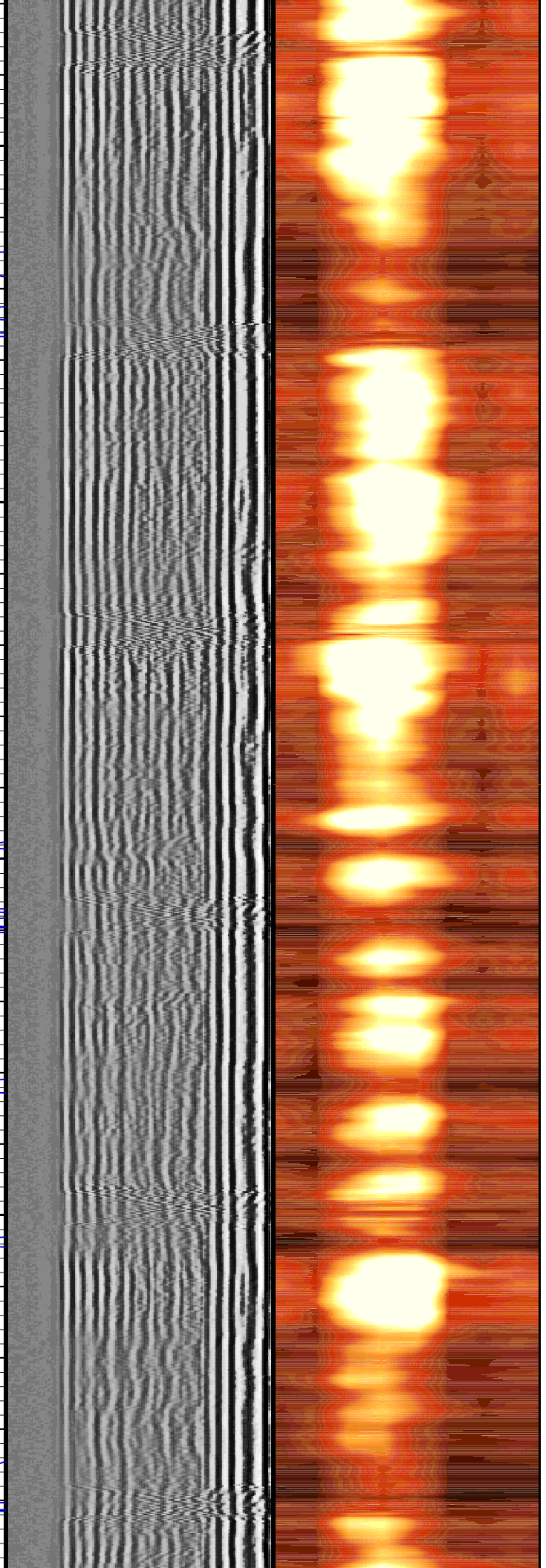
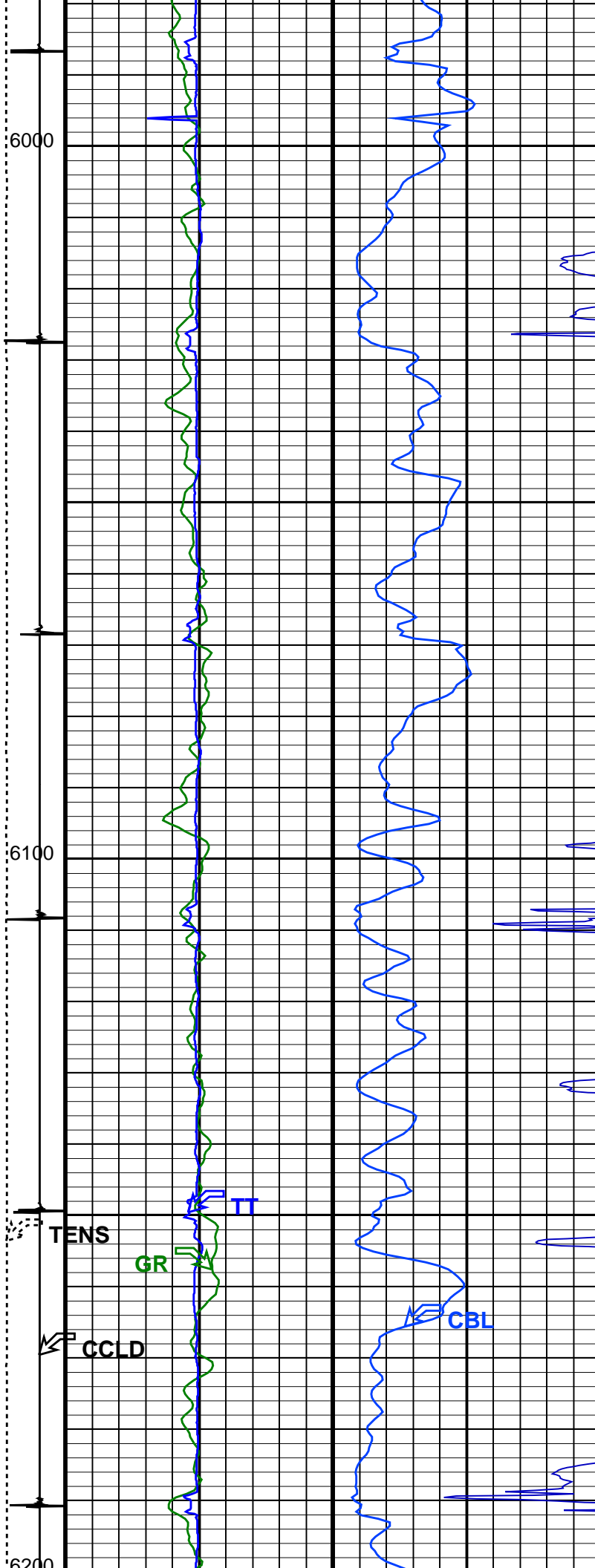


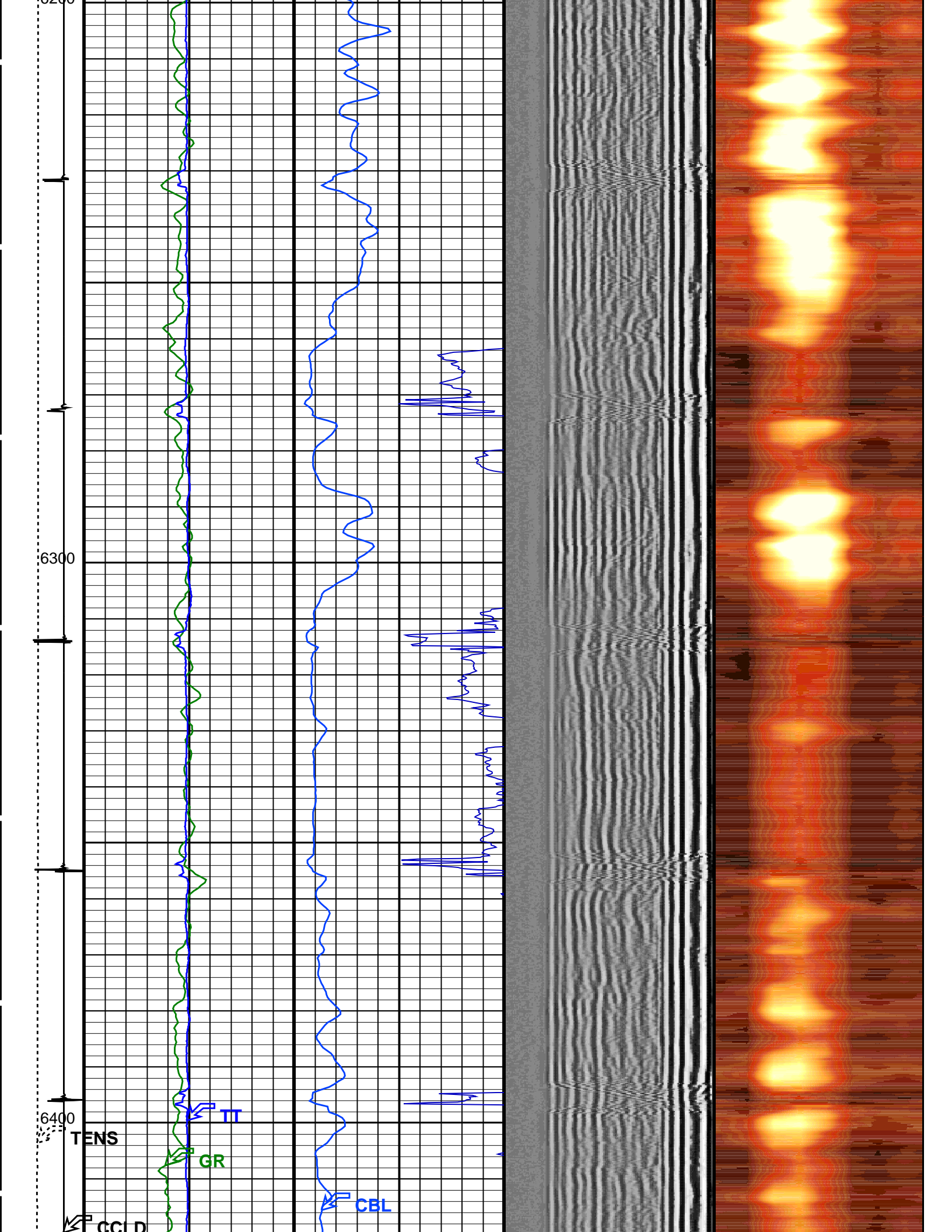


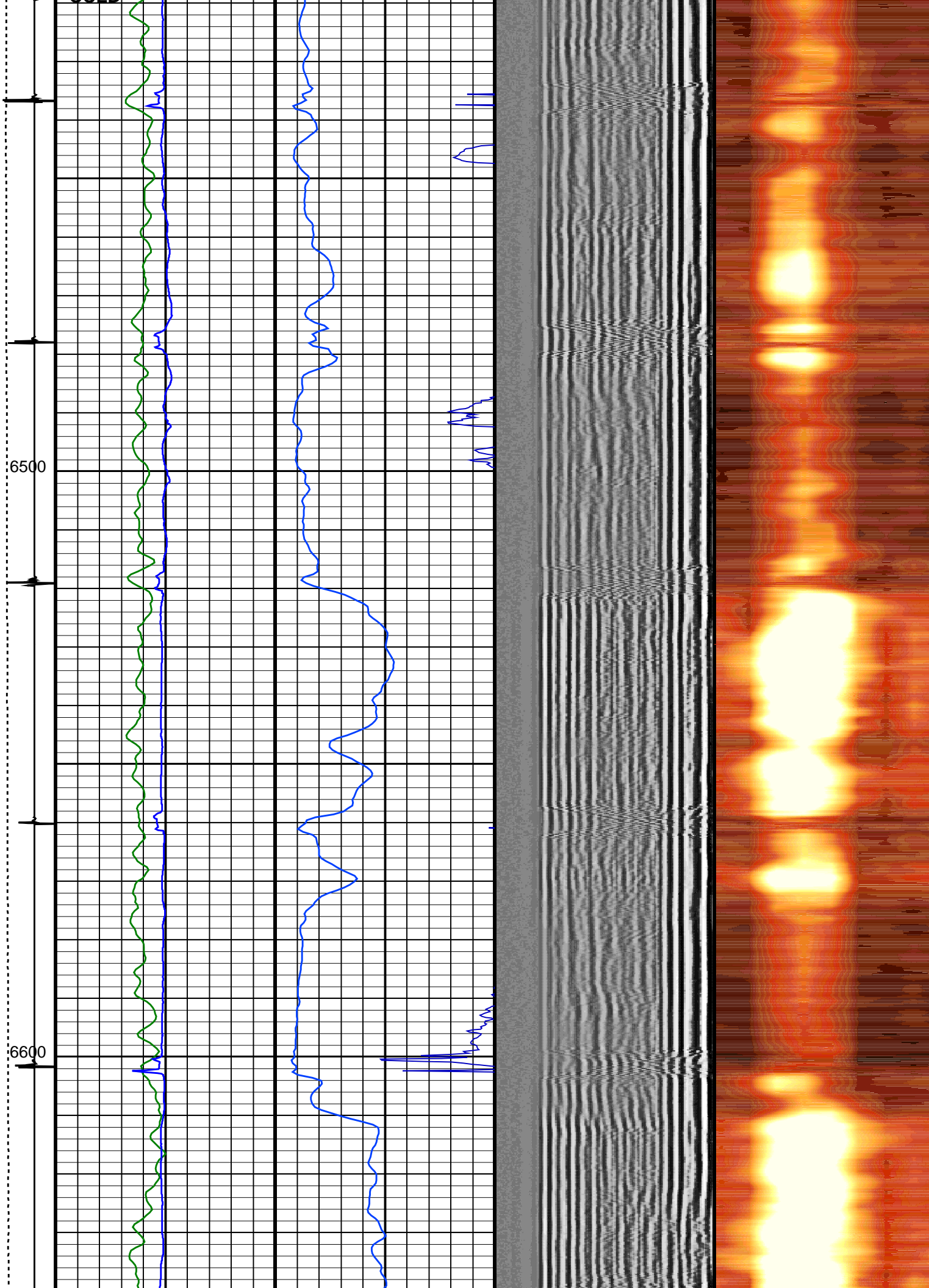


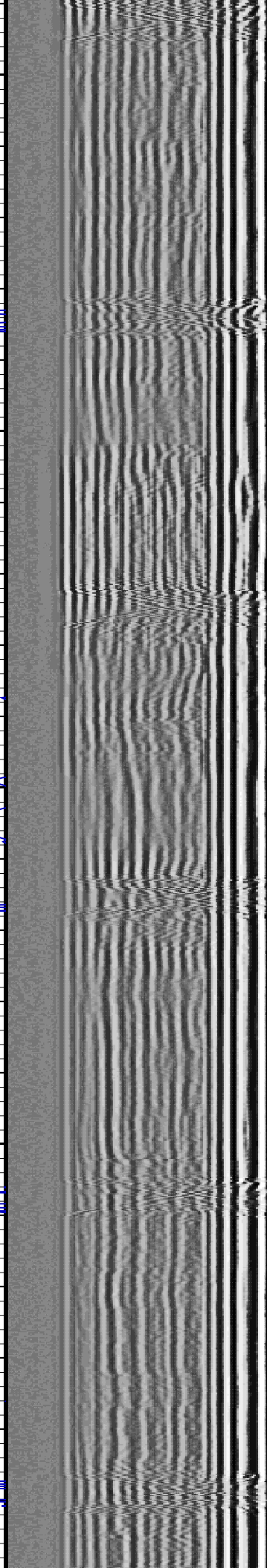
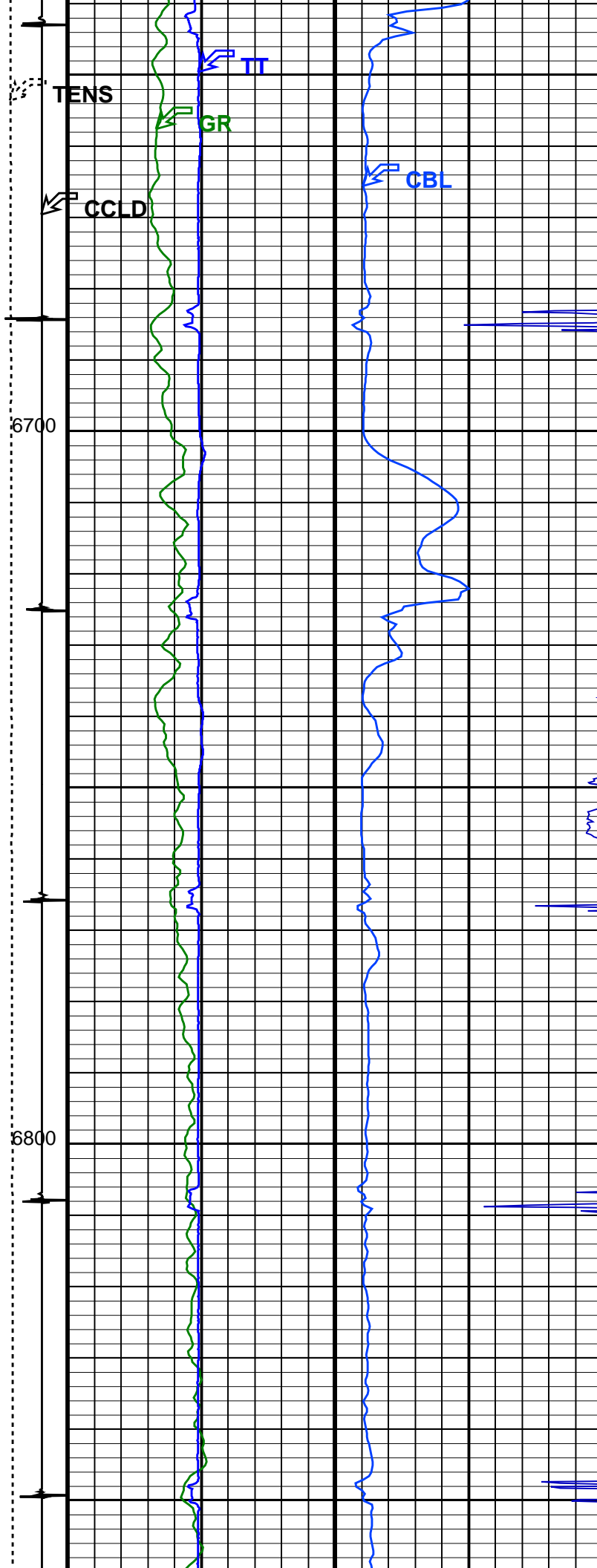


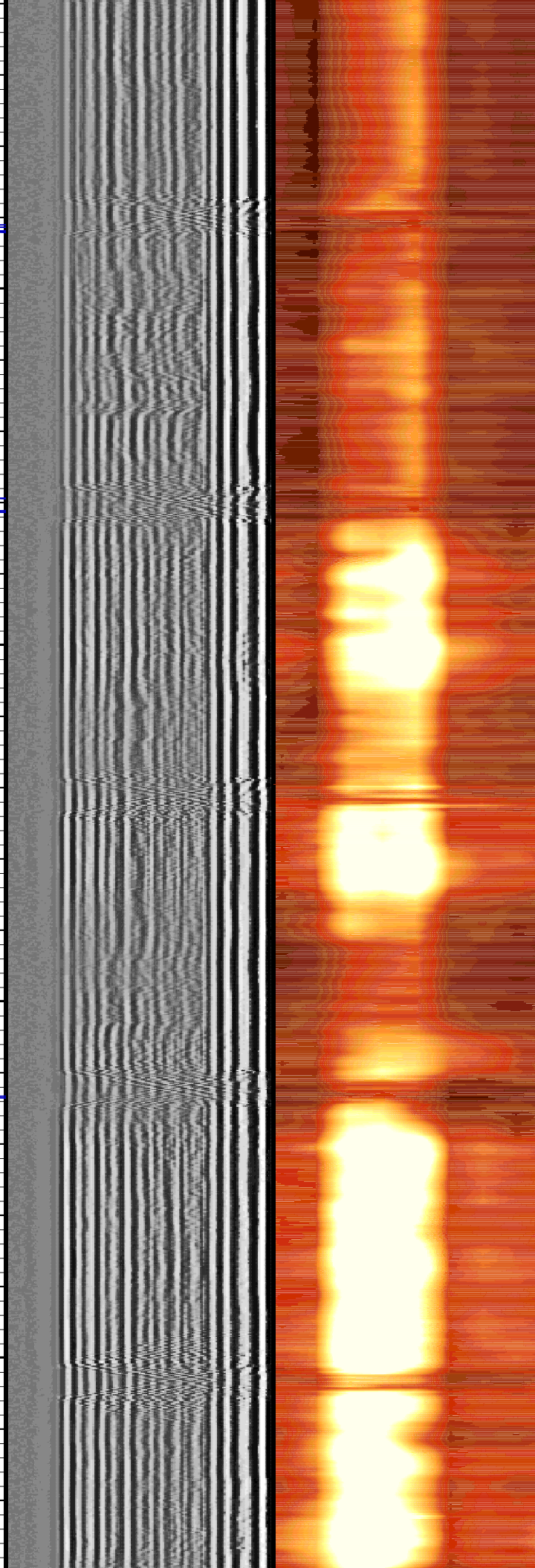
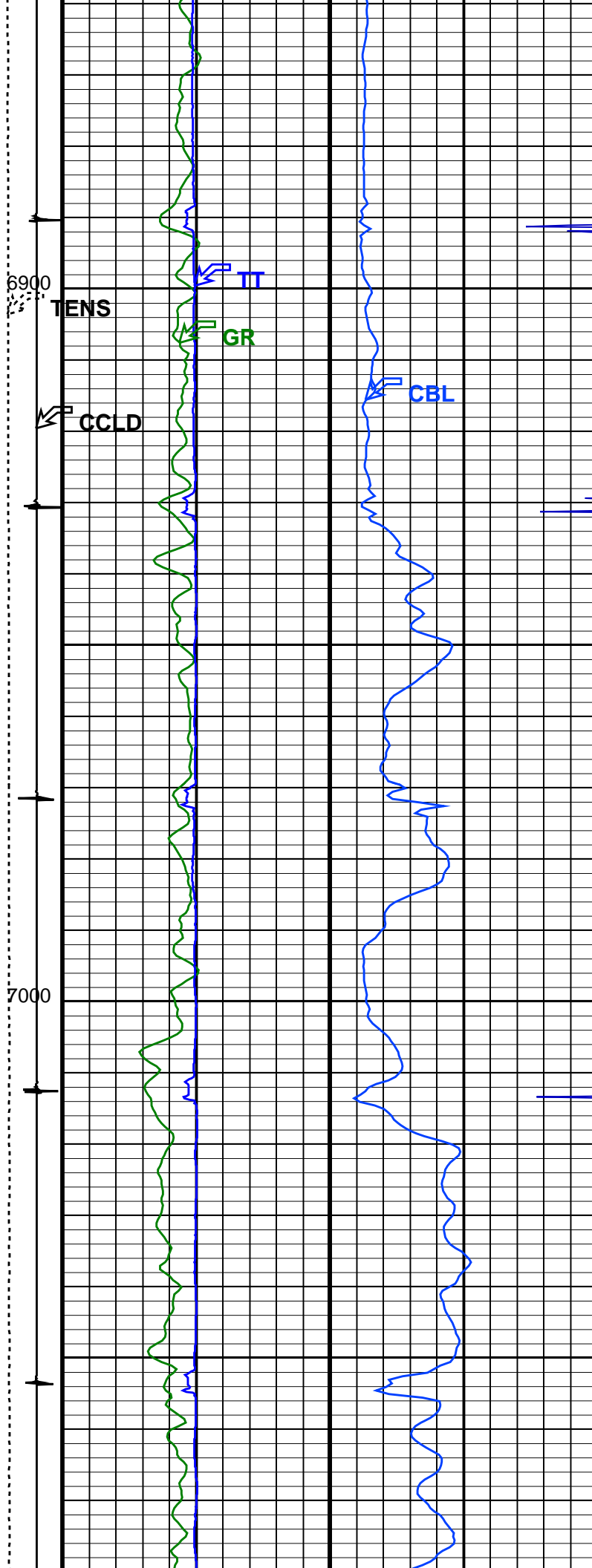


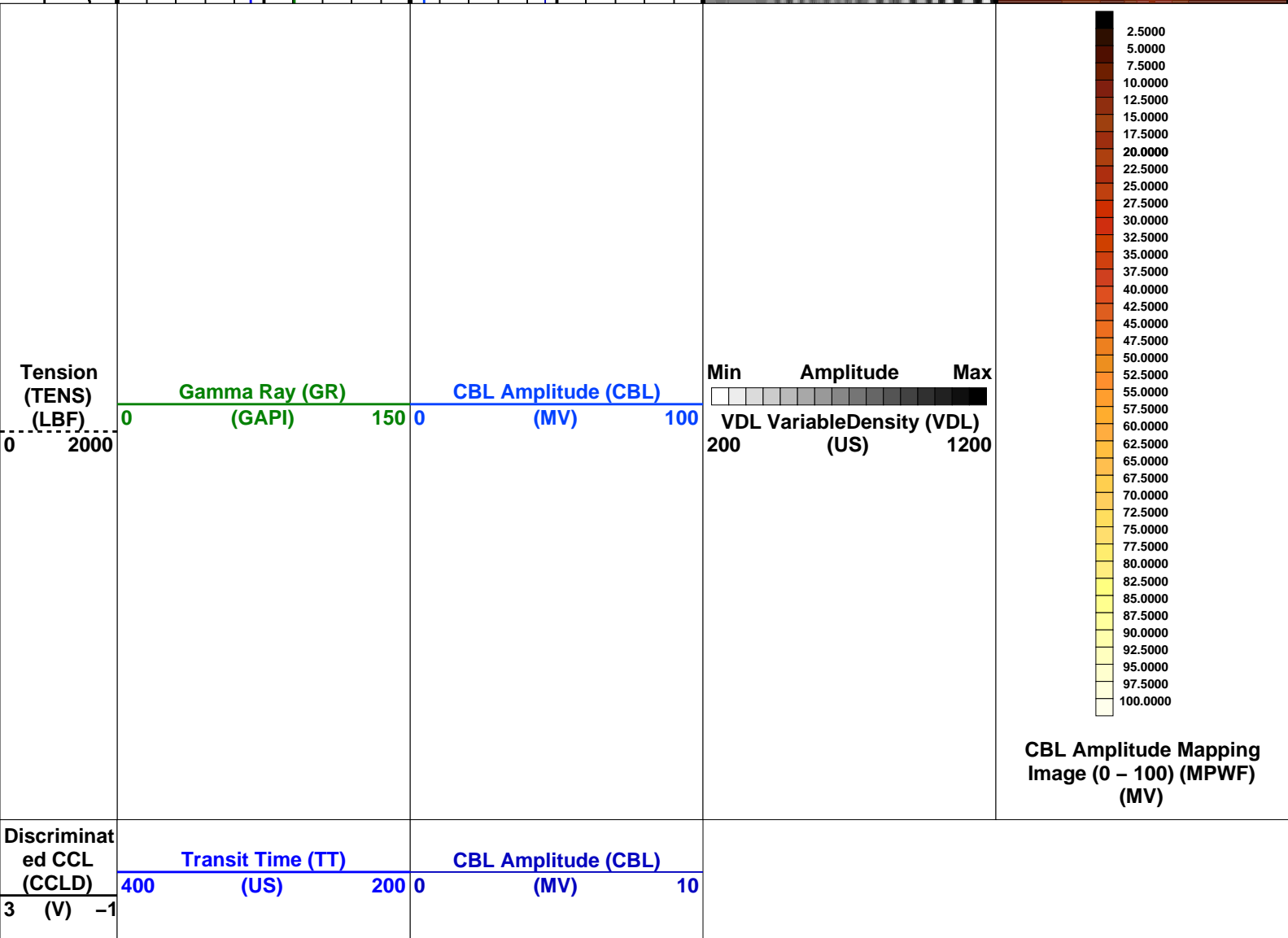
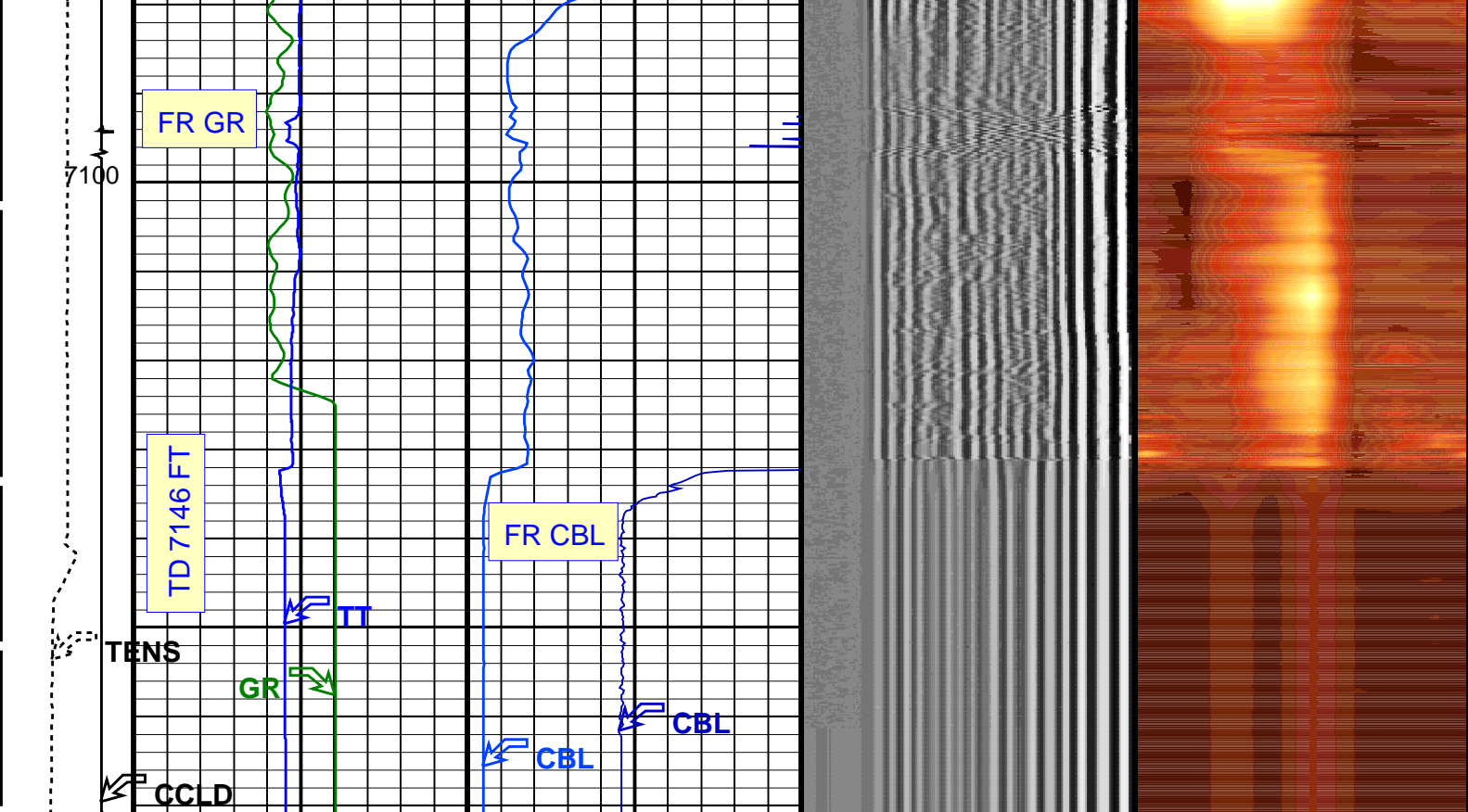












PIP SUMMARY

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 8303		
Current Casing Size	7.62500 IN		
Casing Weight	26.4000 LB/F		
Expected CBL Amplitude in Free Pipe Section	59 MV	Minimum Sonic Amplitude	1.38388 MV (100% Cement)
			2.93122 MV (80% Cement)
		MAP Minimum Sonic Amplitude	9.45215 MV (100% Cement)
			15.1504 MV (80% Cement)
Master Calibration (Normalization)	Before Calibration (Adjustment)		
Date of Master Calibration	17-JAN-2011		
CBL Correction Factor	0.0743637	CBL Adjustment Factor (CBAF)	1.0
MAP 1 Correction Factor	0.165722	MAP Adjustment Factor (MPAF)	1.0
MAP 2 Correction Factor	0.192039		
MAP 3 Correction Factor	0.132977		
MAP 4 Correction Factor	0.175062		
MAP 5 Correction Factor	0.161562		
MAP 6 Correction Factor	0.177685		
MAP 7 Correction Factor	0.144065		
MAP 8 Correction Factor	0.233552		

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	276.843	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	390.843	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	59	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	0.338886	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	2.93122	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	219.843	US
MAPT	SCMT MAP Fixed Threshold Level	30	MV
MATT	Maximum Attenuation	12.5702	DB/F
MCCF	MAP Cement Type Compensation Factor	1	
MCI	Minimum Cemented Interval for Isolation	11.1538	FT
MMSA	MAP Minimum Sonic Amplitude	9.45215	MV
MSA	Minimum Sonic Amplitude	1.38388	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	7.625	IN
CWEI	Casing Weight	26.40	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_005LUP FN:4 PRODUCER 04-Jun-2011 06:59

Schlumberger

REPEAT ANALYSIS

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC.

Well: KEINATH FEDERAL 9-12H (C10OU)

Input DLIS Files

DEFAULT SCMT_RST_PSP_004PUP FN:3 PRODUCER 04-Jun-2011 06:54 5309.5 FT 4913.0 FT

Output DLIS Files

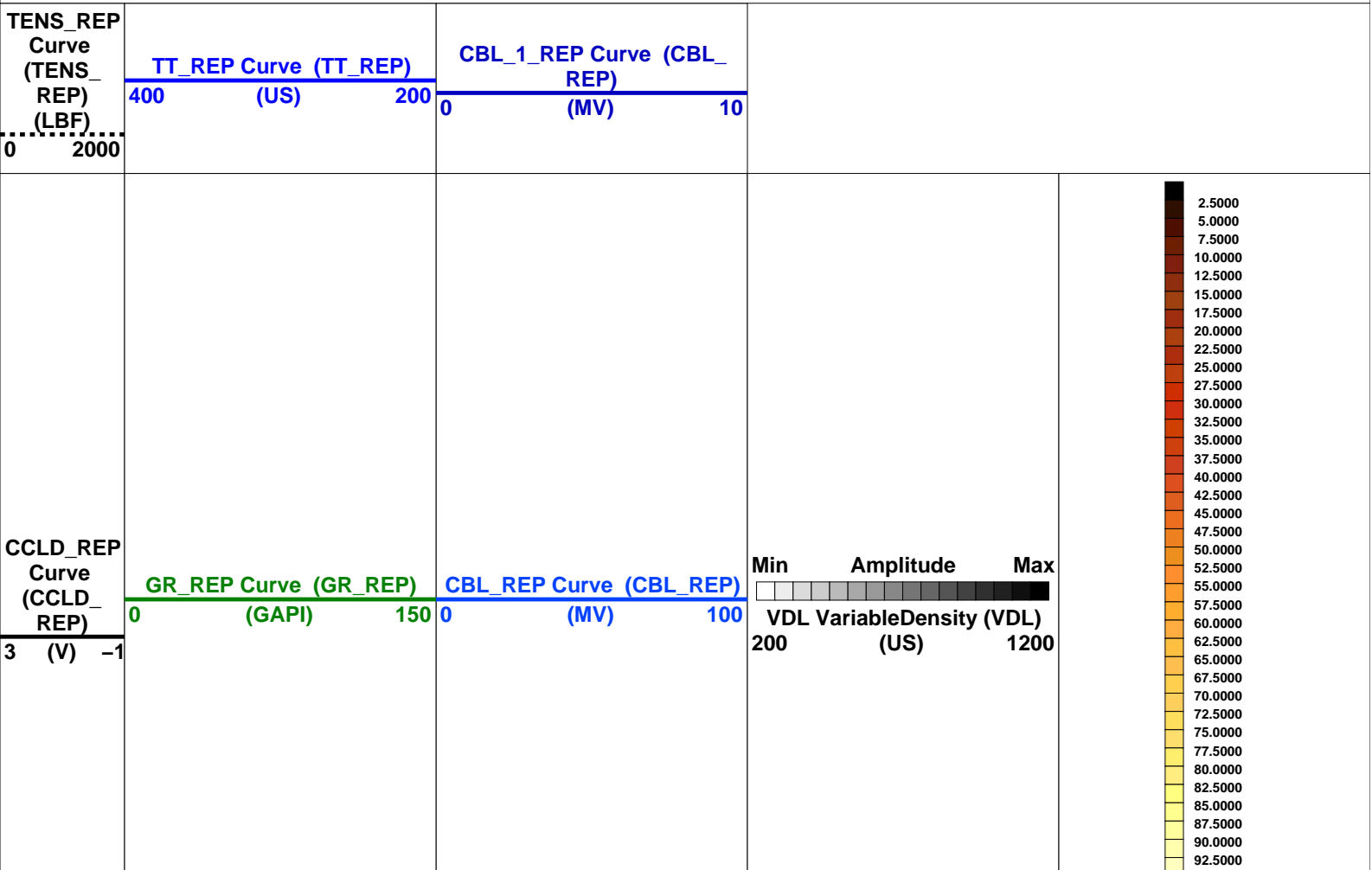
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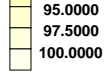
OP System Version: 19C0-187

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

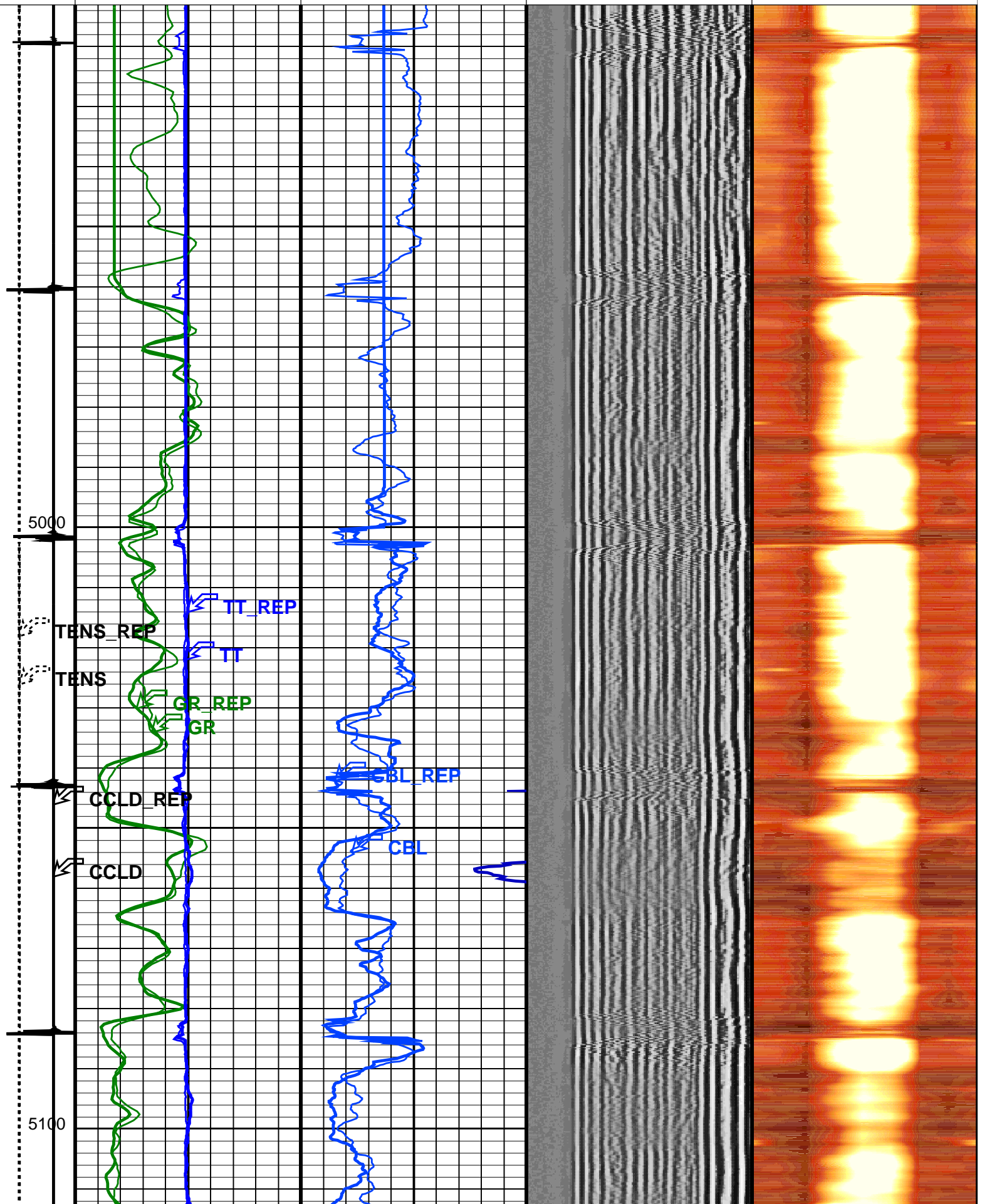
PIP SUMMARY

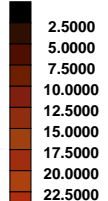
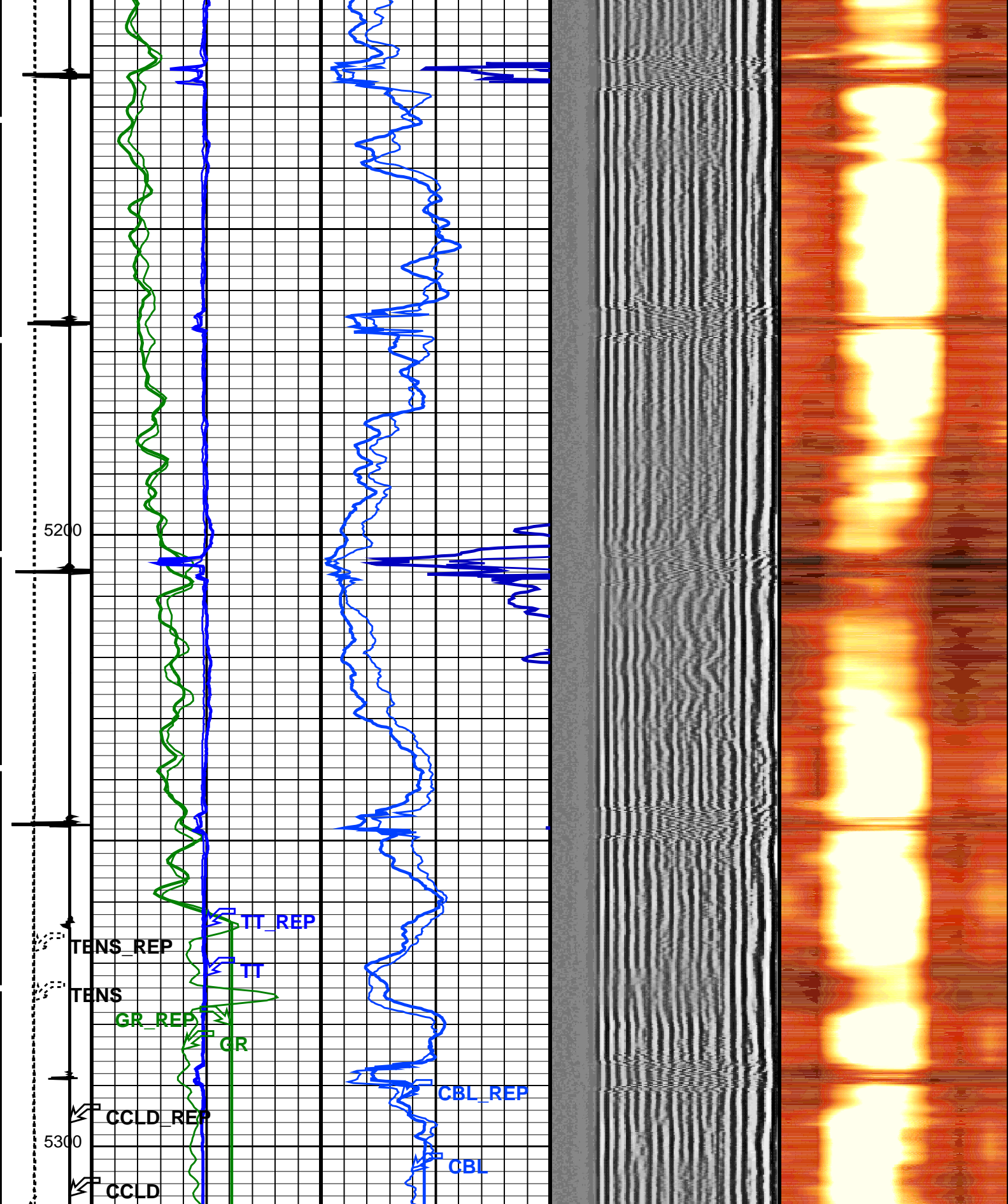
Time Mark Every 60 S

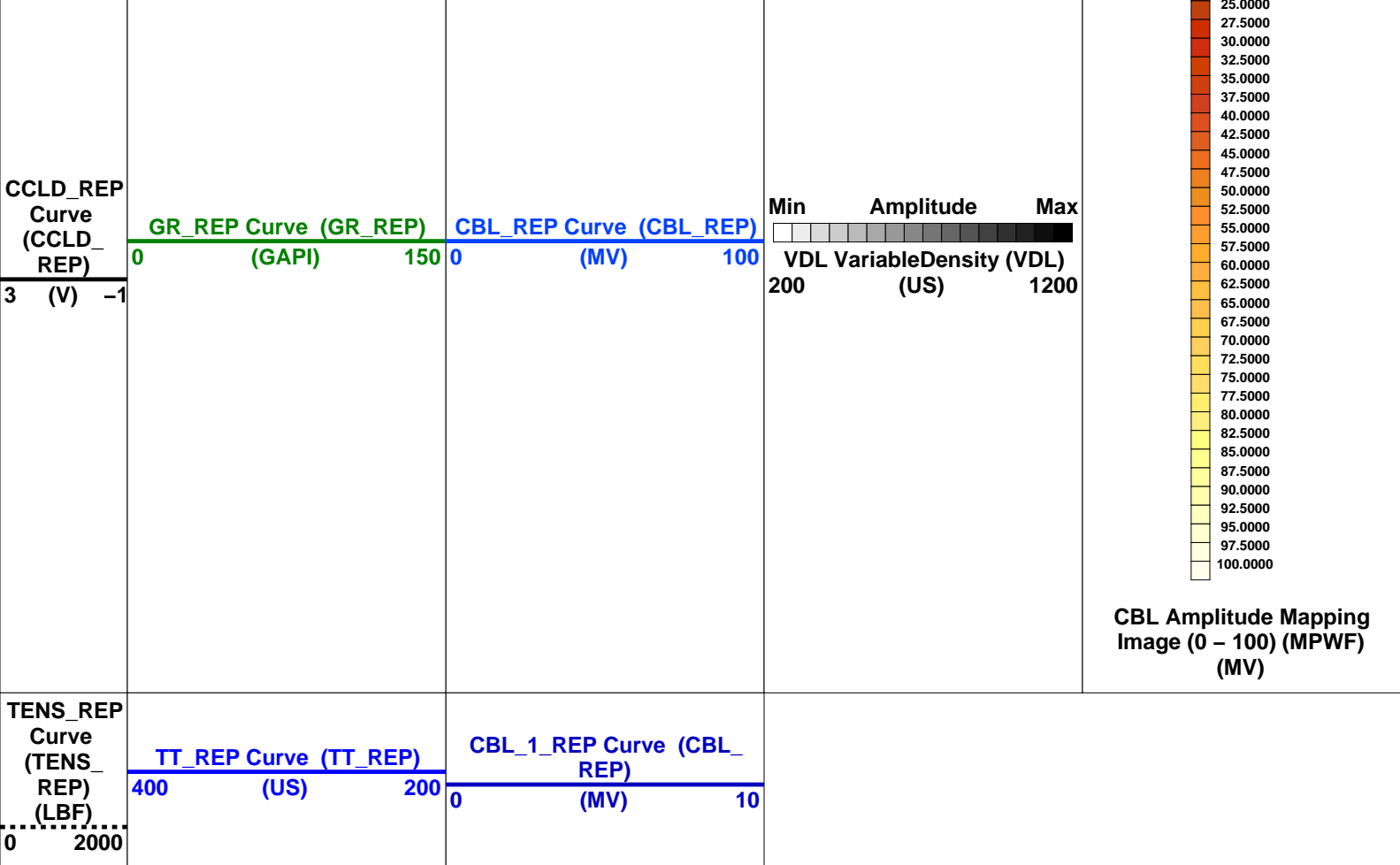




CBL Amplitude Mapping
Image (0 – 100) (MPWF)
(MV)







PIP SUMMARY

Time Mark Every 60 S

Format: Scmt_VDL_Image_REP Vertical Scale: 5" per 100' Graphics File Created: 04-Jun-2011 06:59

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 8303		
Current Casing Size	7.62500 IN		
Casing Weight	26.4000 LB/F		
Expected CBL Amplitude in Free Pipe Section	59 MV	Minimum Sonic Amplitude	1.38388 MV (100% Cement)
			2.93122 MV (80% Cement)
		MAP Minimum Sonic Amplitude	9.45215 MV (100% Cement)
			15.1504 MV (80% Cement)
Master Calibration (Normalization)		Before Calibration (Adjustment)	
Date of Master Calibration	17-JAN-2011		
CBL Correction Factor	0.0743637	CBL Adjustment Factor (CBAF)	1.0
MAP 1 Correction Factor	0.165722	MAP Adjustment Factor (MPAF)	1.0
MAP 2 Correction Factor	0.192039		
MAP 3 Correction Factor	0.132977		
MAP 4 Correction Factor	0.175062		
MAP 5 Correction Factor	0.161562		
MAP 6 Correction Factor	0.177685		
MAP 7 Correction Factor	0.144065		
MAP 8 Correction Factor	0.233552		

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	276.843	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	390.843	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	59	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	0.338886	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	2.93122	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	219.843	US
MAPT	SCMT MAP Fixed Threshold Level	30	MV
MATT	Maximum Attenuation	12.5702	DB/F
MCCF	MAP Cement Type Compensation Factor	1	
MCI	Minimum Cemented Interval for Isolation	11.1538	FT
MMSA	MAP Minimum Sonic Amplitude	9.45215	MV
MSA	Minimum Sonic Amplitude	1.38388	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	7.625	IN
CWEI	Casing Weight	26.40	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_004PUP	FN:3	PRODUCER	04-Jun-2011 06:54	5309.5 FT	4913.0 FT
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Output DLIS Files

DEFAULT	SCMT_RST_PSP_005LUP	FN:4	PRODUCER	04-Jun-2011 06:59
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COEFFICIENTS

MAXIS Field Log

Client: ENCANA OIL & GAS (USA) INC.
 Field: ORCHARD UNIT
 Well: KEINATH FEDERAL 9-12H (C100U)
 Run date: 4-Jun-2011

Tool: PSP
 Sub Type: PBMS
 Sensor: Clock Model

Sonde Serial NB
Sensor Serial NB
Calib Date ddmmyy
Matrix Size
Coeff CRC

3779
090107
16
D285

Clock Coeff

	Temp**0	Temp**1	Temp**2
Temp**0	-.210501098404E+03	-.537713340627E+01	-.752421519422E-01
	Temp**3	Temp**4	Temp**5
Temp**0	+.630273975887E-03	+.266728381738E-05	0.0

Client: ENCANA OIL & GAS (USA) INC.
Field: ORCHARD UNIT
Well: KEINATH FEDERAL 9-12H (C10OU)
Run date: 4-Jun-2011

Tool: PSP
Sub Type: PBMS
Sensor: Sapphire

PBMS Sapphire 10kPsi Gauge

Sonde Serial NB
Sensor Serial NB
Calib Date ddmmyy
Matrix Size
Coeff CRC

COEFFICIENTS FOR SAPPHIRE PBMS-A.3779 S/N:
3779
090107
66
4C82

Pres Coeff

	Tt**0	Tt**1	Tt**2
Tp**0	-.611876617639E+04	+.471061007964E+04	-.216447354932E+04
Tp**1	+.371836126905E+04	-.234756196935E+04	+.129149325686E+04
Tp**2	+.193143980957E+02	-.189348218853E+01	-.341812471126E+01
Tp**3	-.568815065386E+01	+.200079683569E+01	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	+.380249508124E+03	-.247683004908E+02	0.0
Tp**1	-.227135245080E+03	+.146352372057E+02	0.0
Tp**2	0.0	0.0	0.0

Tp**1	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 3779
Calib Date ddmmyy 090107
Matrix Size 66
Coeff CRC C39E

Temp Coeff

	Tp**0	Tp**1	Tp**2
Tt**0	-.278275571347E+03	+.251216271916E+01	-.820715649824E+00
Tt**1	+.598349067015E+02	-.107326373545E+01	+.652890183203E-01
Tt**2	+.109160002120E+02	+.262812193556E+00	-.450134240377E-02
Tt**3	-.673302171285E+00	-.213772918779E-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	+.151507143209E+00	-.592670012996E-02	0.0
Tt**1	+.127486538512E-01	-.437897076104E-02	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: ENCANA OIL & GAS (USA) INC.

Field: ORCHARD UNIT

Well: KEINATH FEDERAL 9-12H (C10OU)

Run date: 4-Jun-2011

Tool: PSP

Sub Type: PBMS

Sensor: GR

PBMS Gamma Ray

Sonde Serial NB RESISTORS FOR GR SENSOR N.34552,TOOL PBMS-AA3779. SENSOR S/N:
Sensor Serial NB 34552
Calib Date ddmmyy 030606
Matrix Size 12

Matrix Size
Coeff CRC

12
3AE5

GR HV Rt

Rt**0

Rt**1

Rt**0

+.200000000000e+04

+.214000000000e+04

Client: ENCANA OIL & GAS (USA) INC.
Field: ORCHARD UNIT
Well: KEINATH FEDERAL 9-12H (C10OU)
Run date: 4-Jun-2011

Tool: PSP
Sub Type: PBMS
Sensor: WellTemp RTD

PBMS RTD Well Thermometer

Sonde Serial NB
Sensor Serial NB
Calib Date ddmmyy
Matrix Size
Coeff CRC

COEFFICIENTS FOR RTD THERMOMETER PBMS-A.3779 S/N:
3779
090107
16
3846

WTemp Coeff

Tt**0

Tt**1

Tt**2

Tt**0

+.492135102627E+02

-.278827553804E+03

+.142867554561E+03

Tt**3

Tt**4

Tt**5

Tt**0

-.233378392336E+02

+.145553494493E+01

0.0

Well: KEINATH FEDERAL 9–12H2 (C10OU)

Field: ORCHARD UNIT

County: MESA

State: COLORADO

CEMENT BOND LOG

CBL – VDL – MAP IMAGE

GAMMA RAY – CCL