Schlumberger

Company: **ENCANA OIL & GAS (USA) INC**

Well: **SGU 8510C−23 (L24 496)**
Field: **STORY GULCH**
County: **GARFIELD** State: **COLORADO**

County: GARFIELD
Field: STORY GULCH
Location: SHL: 1589' FSL & 878' FWL
Well: SGU 8510C−23 (L24 496)
Company: ENCANA OIL & GAS (USA) INC

SLIM CEMENT MAPPING LOG
GAMMA RAY − CCL − TEMPERATUR
CBL − VDL

LOCATION

SHL: 1589' FSL & 878' FWL	Elev.:	K.B.	8210.00 ft
BHL: 2055' FSL & 1814' FEL		G.L.	8180.00 ft
		D.F.	8109.00 ft

Permanent Datum:	GROUND LEVEL	Elev.:	8180.00 ft
Log Measured From:	KELLY BUSHING	30.00 ft	above Perm. Datum
Drilling Measured From:	KELLY BUSHING		

API Serial No.	Section	Township	Range
05−045−21169−0000	24	4S	96W

		Run 1	Run 2	Run
PVT DATA	Oil Density			
	Water Salinity			
	Gas Gravity			
	Bo			
	Bw			
	1/Bg			
	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		18−Mar−2013						
Run Number		1						
Depth Driller		12643 ft						
Schlumberger Depth		12568 ft						
Bottom Log Interval		12560 ft						
Top Log Interval		75 ft						
Casing Fluid Type		FRESH WATER						
Salinity								
Density		8.4 lbm/gal						
Fluid Level		75 ft						
BIT/CASING/TUBING STRING								
Bit Size		7.875 in						
From		8549 ft						
To		12643 ft						
Casing/Tubing Size		4.500 in						
Weight		11.6 lbm/ft						
Grade								
From		30 ft						
To		12637 ft						
Maximum Recorded Temperatures		287 degF						
Logger On Bottom	Time	18−Mar−2013	19:45					
Unit Number	Location	391	GRAND JUNCTION					
Recorded By		JASON BARRY						
Witnessed By		JOHN MILLER						

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	Time							
Unit Number	Location							
Recorded By								
Witnessed By								

DEPTH SUMMARY LISTING

Date Created: 14−MAR−2013 10:41:08

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW−B	Type:	CMTD−B/A	Type:	1−25ZT
Serial Number:	6214	Serial Number:	3421	Serial Number:	112136
Calibration Date:	24−APR−2012	Calibration Date:	20−FEB−201	Length:	19500 FT
Calibrator Serial Number:		Calibrator Serial Number:	174878		
Calibration Cable Type:	1−25ZT	Number of Calibration Points:	10	Conveyance Method:	Wireline
Wheel Correction 1:	−3	Calibration RMS:	4	Rig Type:	LAND
Wheel Correction 2:	−4	Calibration Peak Error:	8		

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	0.00 FT
Rig Up Length At Bottom:	0.00 FT
Rig Up Length Correction:	0.00 FT
Stretch Correction:	
Tool Zero Check At Surface:	

Depth Control Remarks

1. ALL SCHLUMBERGER DEPTH CONTROL POLICIES APPLIED
2. IDW USED AS PRIMARY DEPTH REFERENCE
3. SWPT DRUM COUNTER USED AS SECONDARY DEPTH REFERENCE
4.
5.
6.

OTHER SERVICES1	OTHER SERVICES2
OS1: NONE	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
FIRST RUN IN HOLE	
TOOL RAN AS PER TOOL SKETCH	
MAX RECORDED TEMPERATURE: 287 DEGF	
MAX RECORDED PRESSURE: 5123 PSI	
SHORT JOINTS: 11093 FT & 8296 FT	

ENTRANCE TIME: 19:00
TIME ON BOTTOM: 19:15
EXIT TIME: 23:15

MAIN PASS LOGGED UNDER ZERO SURFACE PRESSURE
EXPECTED CBL AMP IN FREE PIPE = 0 MV

CREW: J BARRY, B CUPP, J MANN, W AZIZ, K JOHNS
THANK YOU FOR CHOOSING E&P WIRELINE, A SCHLUMBERGER COMPANY

RUN 1		RUN 2	
SERVICE ORDER #:	C920−00052	SERVICE ORDER #:	
PROGRAM VERSION:	19C0−187	PROGRAM VERSION:	
FLUID LEVEL:	75 ft	FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

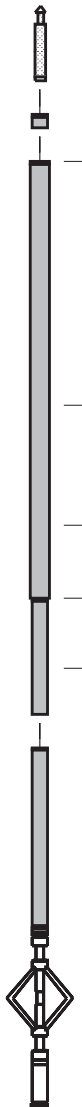
EQUIPMENT DESCRIPTION

RUN 1 RUN 2

SURFACE EQUIPMENT

WITM−A
PSC_16MHZ

DOWNHOLE EQUIPMENT

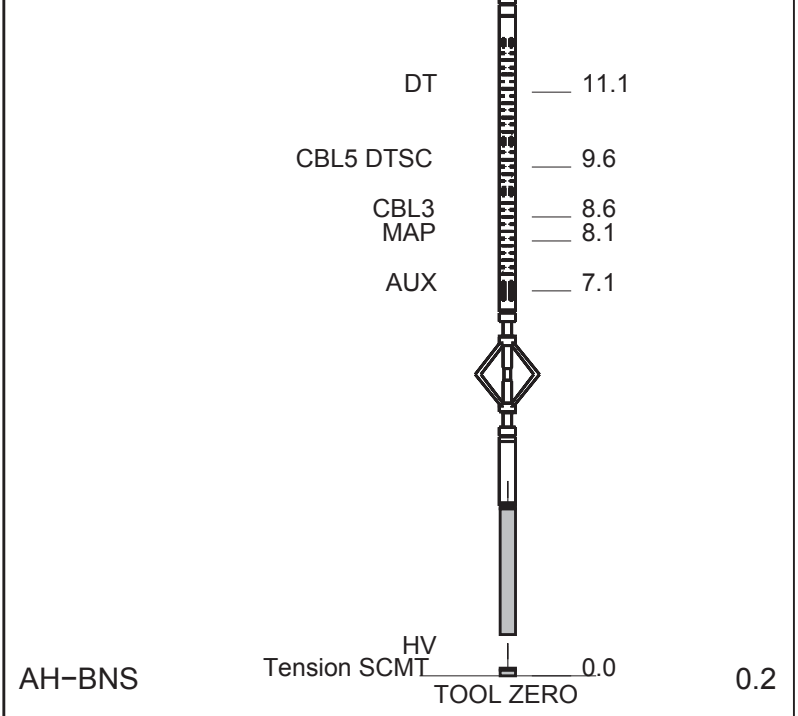


MH−22 33.2
MH−22

AH−38 31.6

HBMS−B 31.3
PSC−A 2884
HUDH−A 2884
HSTC−A
HBMC−A
GR
CCL
HBMC
HTPS−A 2884
HCQG_E_Mano
RTD_Thermometer

SCMT−CB 20.2
SCMC−CA 8120
SECH−CA
CMIR−AG
SCMS−CB 8179
SCMX−CA



AH−BNS

0.2

MAXIMUM STRING DIAMETER 2.07 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Schlumberger

MAIN PASS CBL VDL

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC **Well: SGU 8510C−23 (L24 496)**

Input DLIS Files

DEFAULT	SCMT_HBMS_018LUP	FN:17	PRODUCER	18−Mar−2013 19:41	12580.0 FT	38.0 FT

Output DLIS Files

DEFAULT	SCMT_HBMS_020PUP	FN:19	PRODUCER	18−Mar−2013 23:10	12580.0 FT	6.5 FT

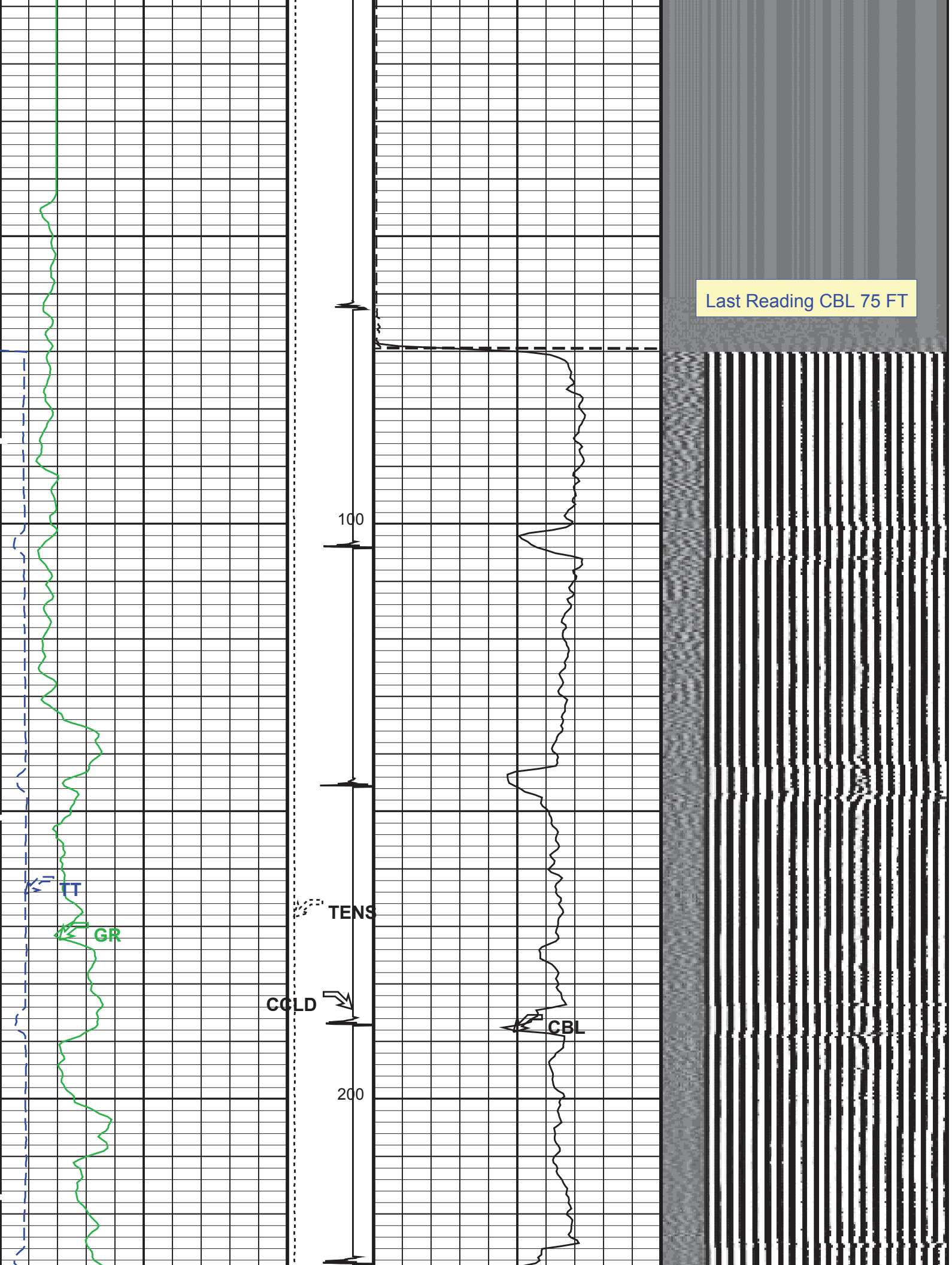
OP System Version: 19C0−187

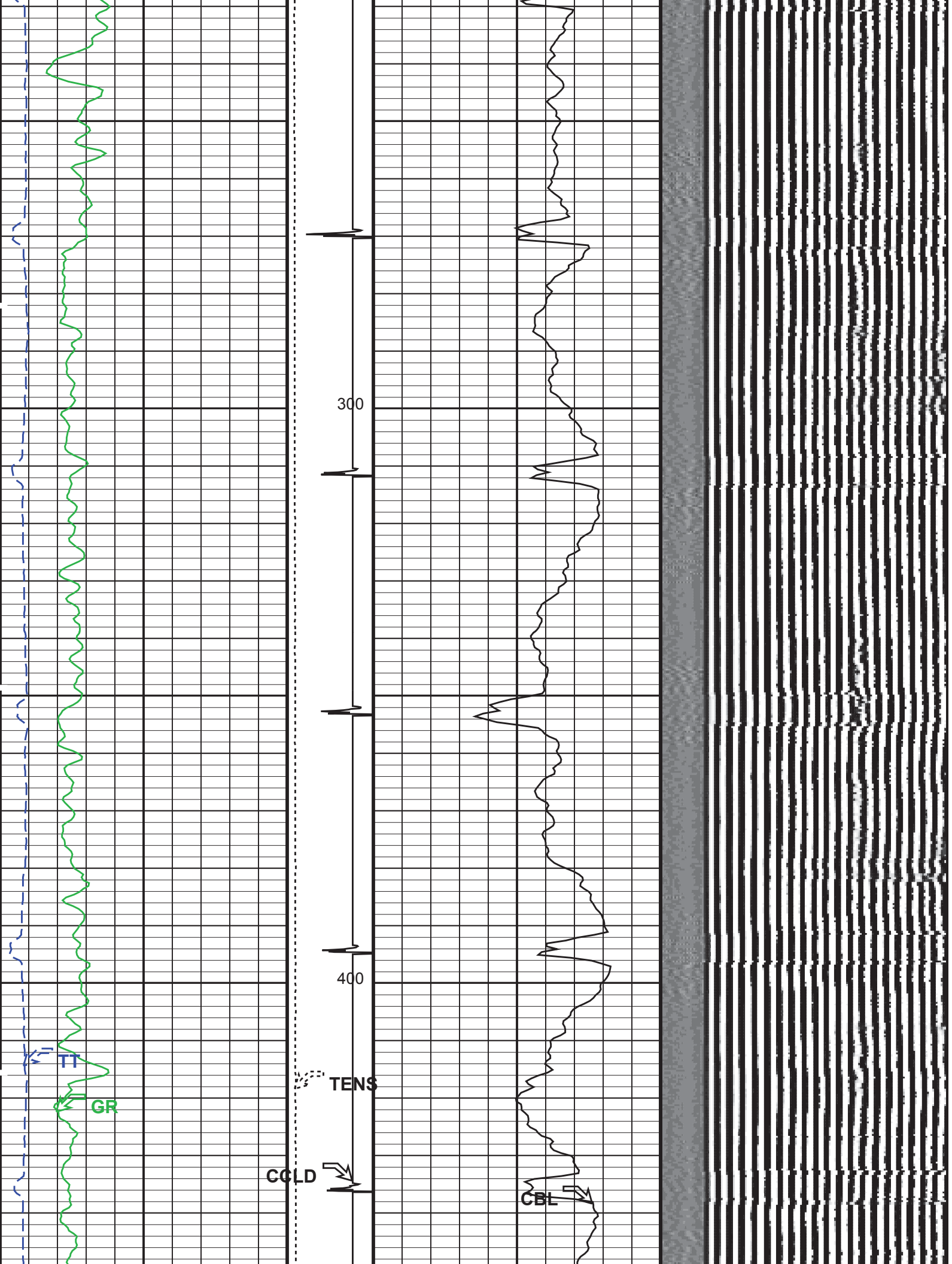
SCMT−CB	SRPC−5214−H2−2012−OP1	HBMS−B	SRPC−5214−H2−2012−OP1

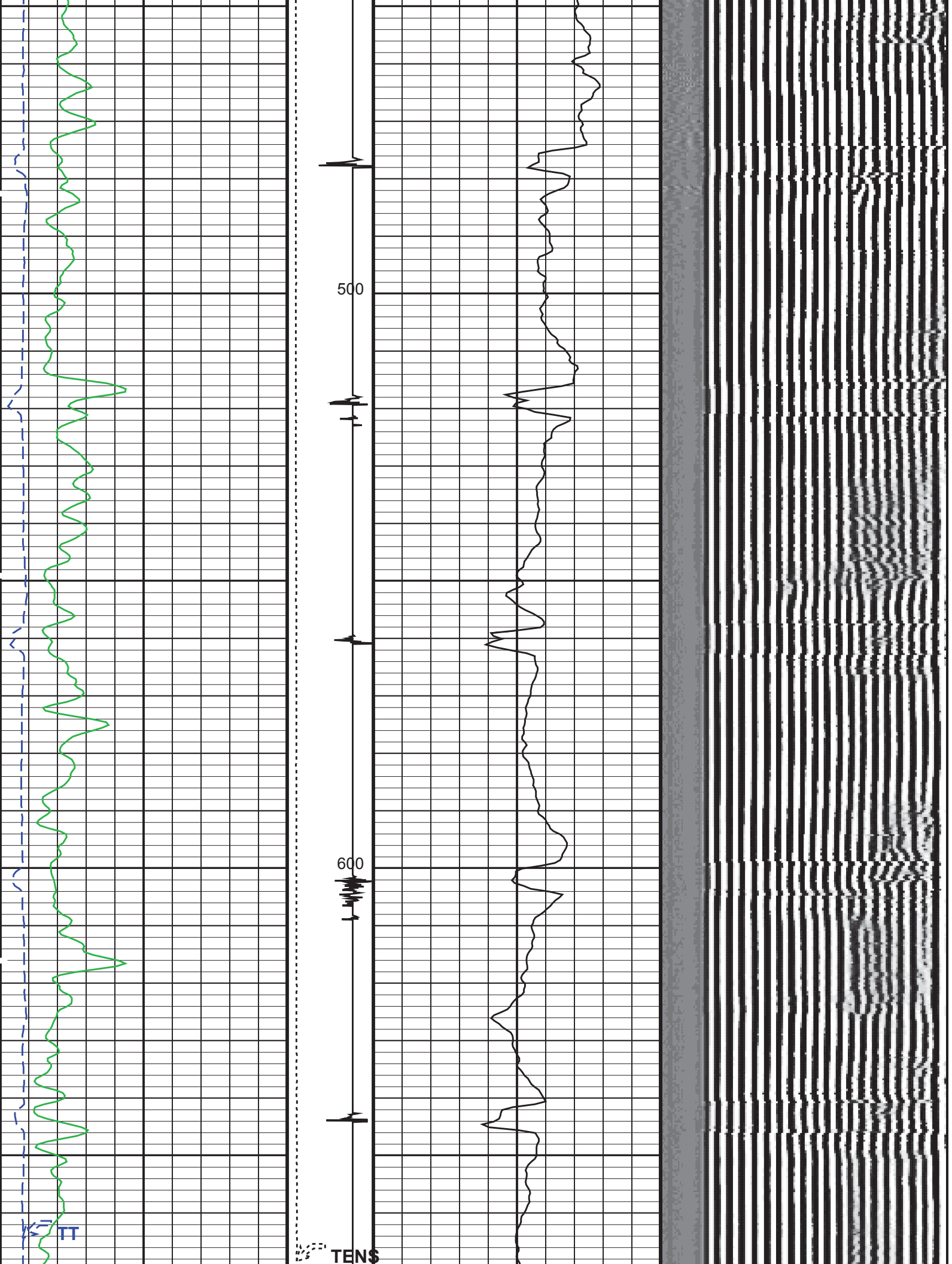
PIP SUMMARY

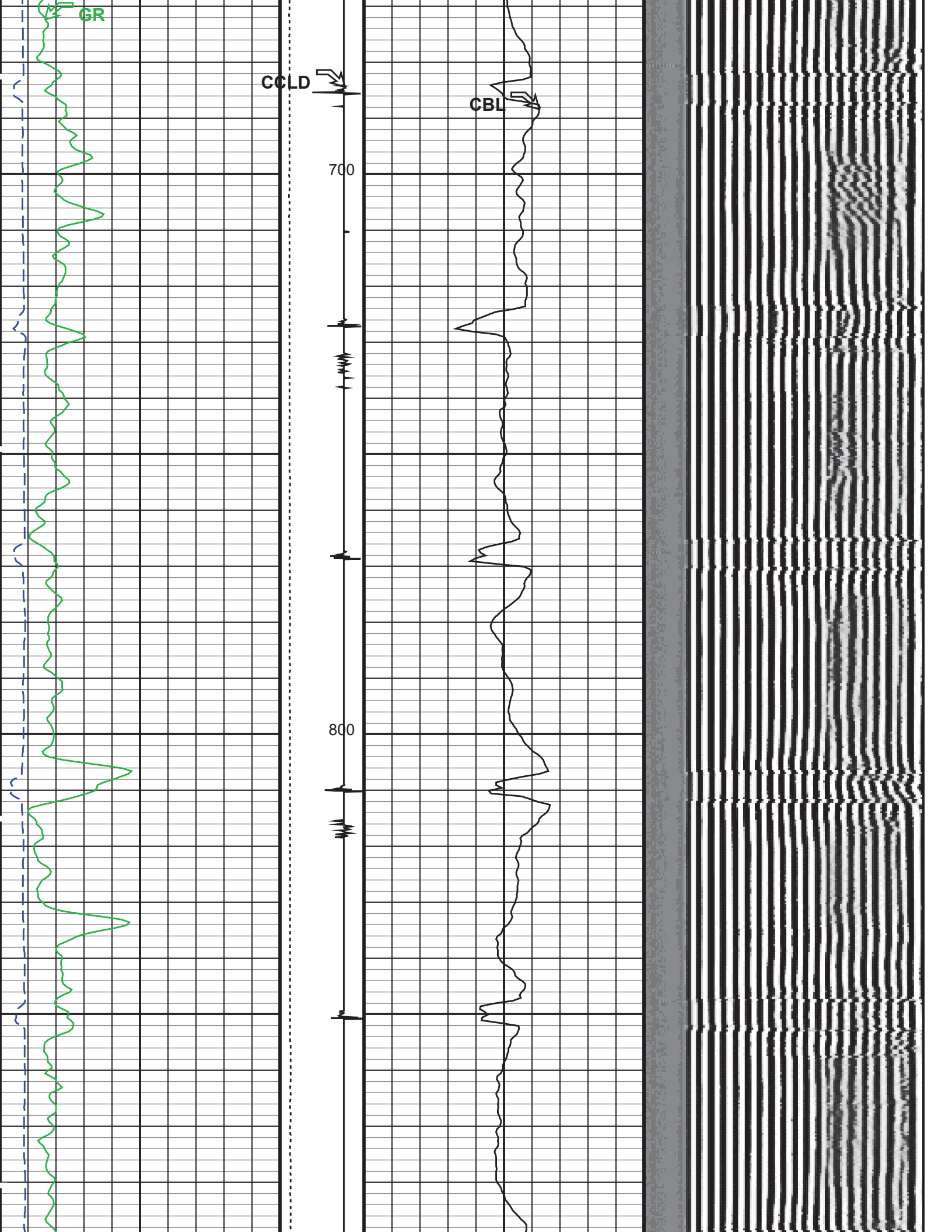
Time Mark Every 60 S

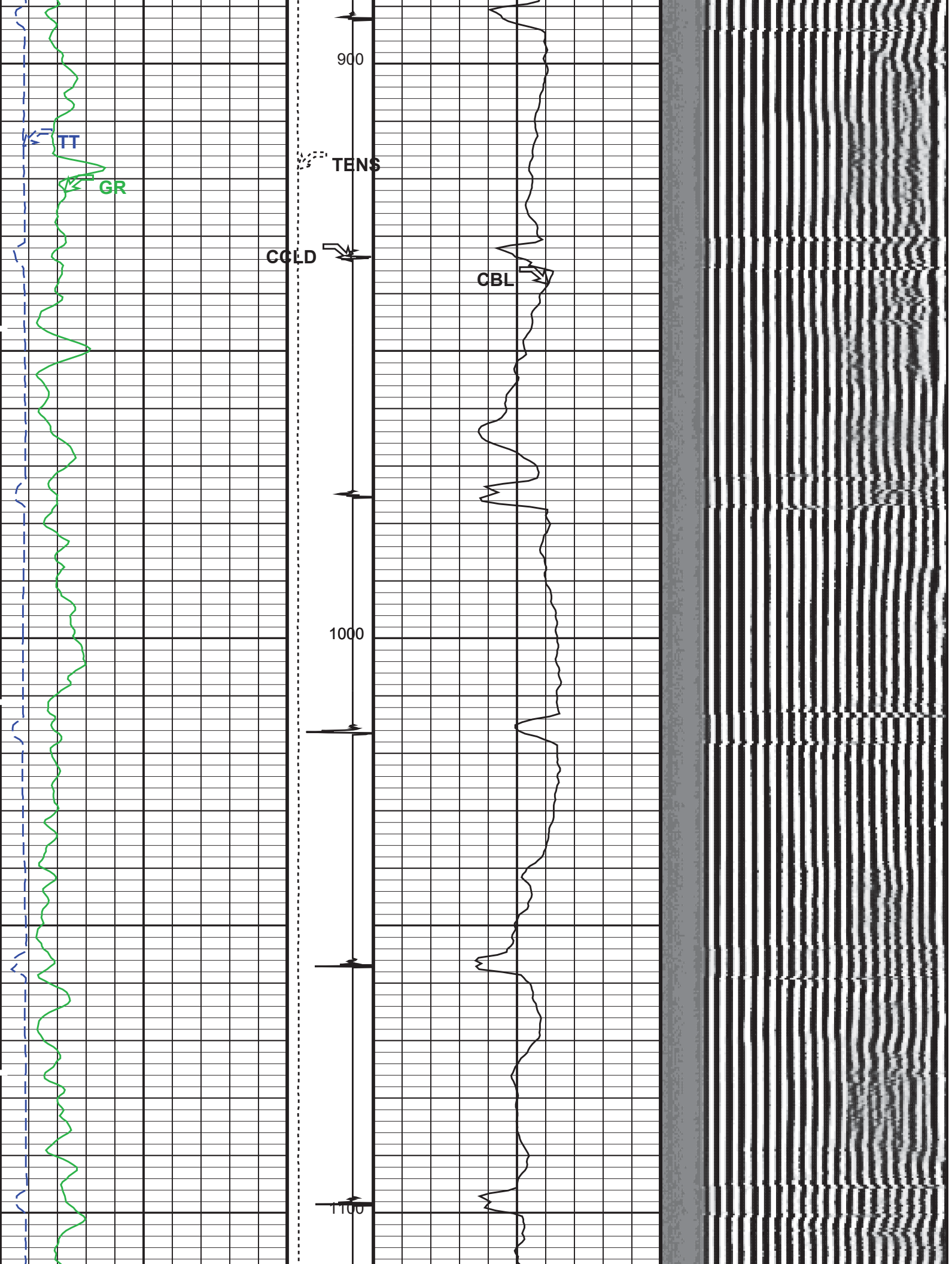
Transit Time (TT) 260 (US) 160	Discriminated CCL (CCLD) 3 (V) −1	CBL Amplitude (CBL) 0 (MV) 10	
Gamma Ray (GR) 0 (GAPI) 150	Tension (TENS) (LBF) 0 2000	CBL Amplitude (CBL) 0 (MV) 100	Min Amplitude Max VDL VariableDensity (VDL) 200 (US) 1200

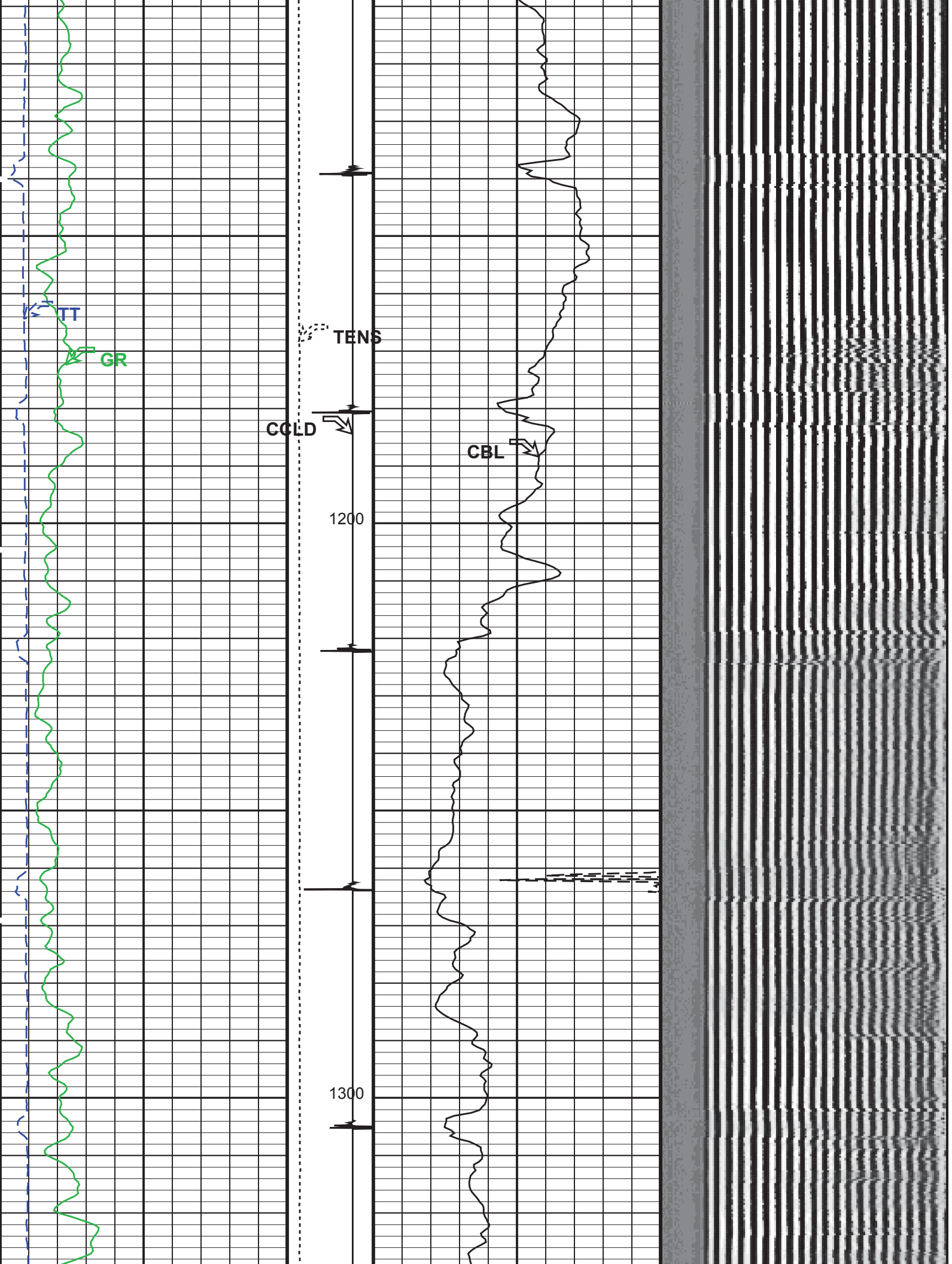

Last Reading CBL 75 FT
100
200
TT
GR
TENS
CCLD
CBL

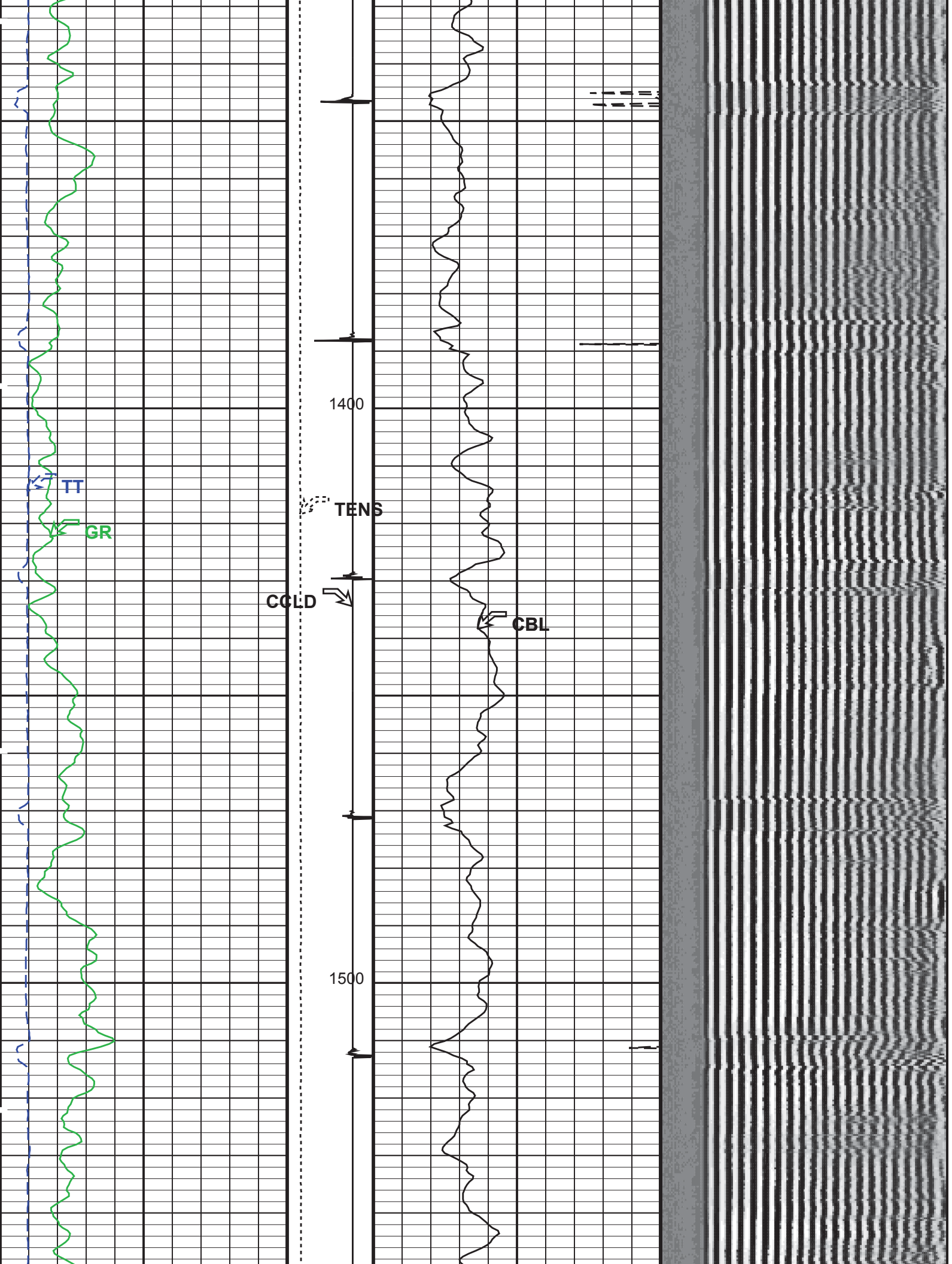

300
400
TT
GR
TENS
CCLD
CBL

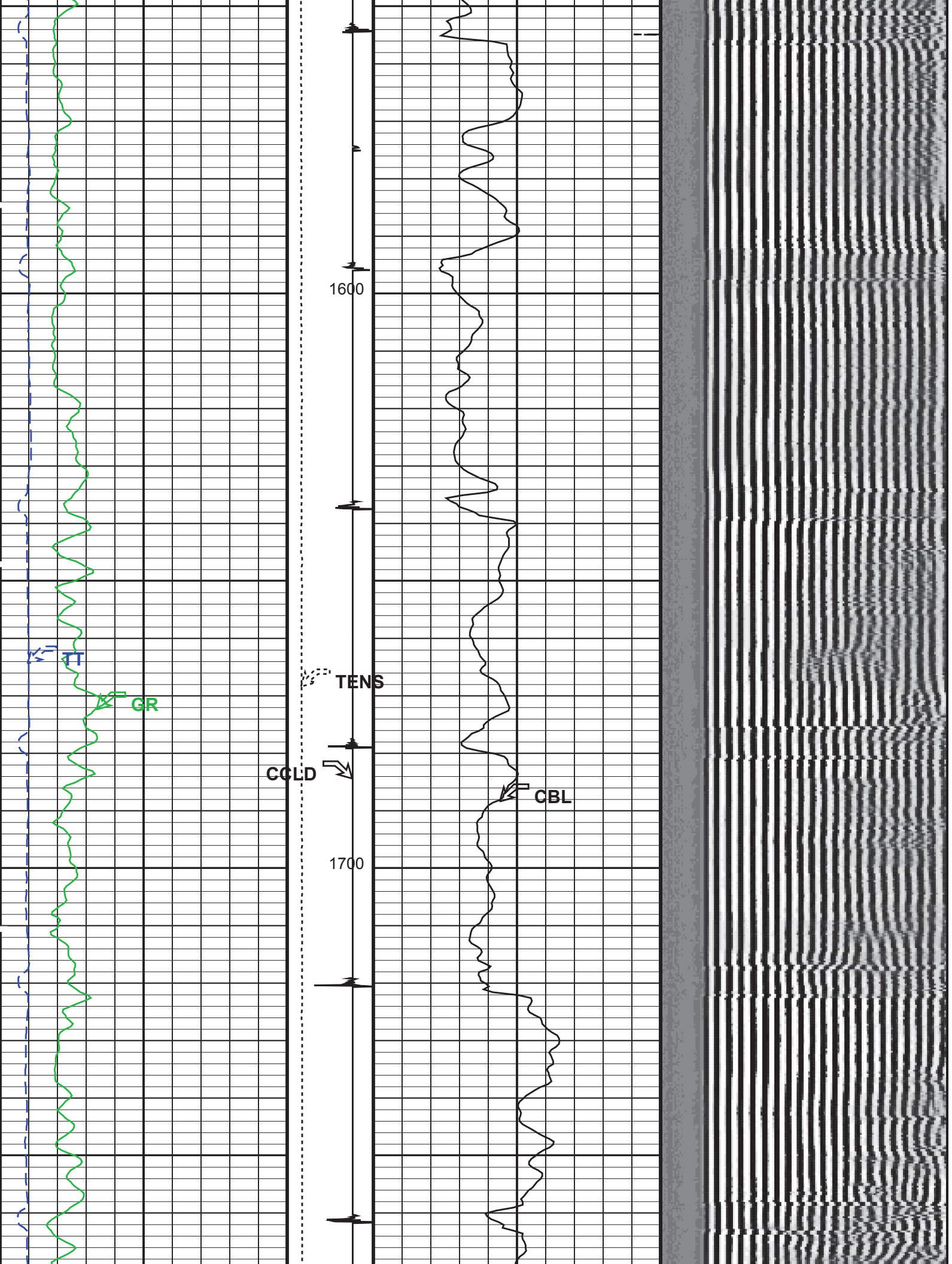

500
600
TT
TENS

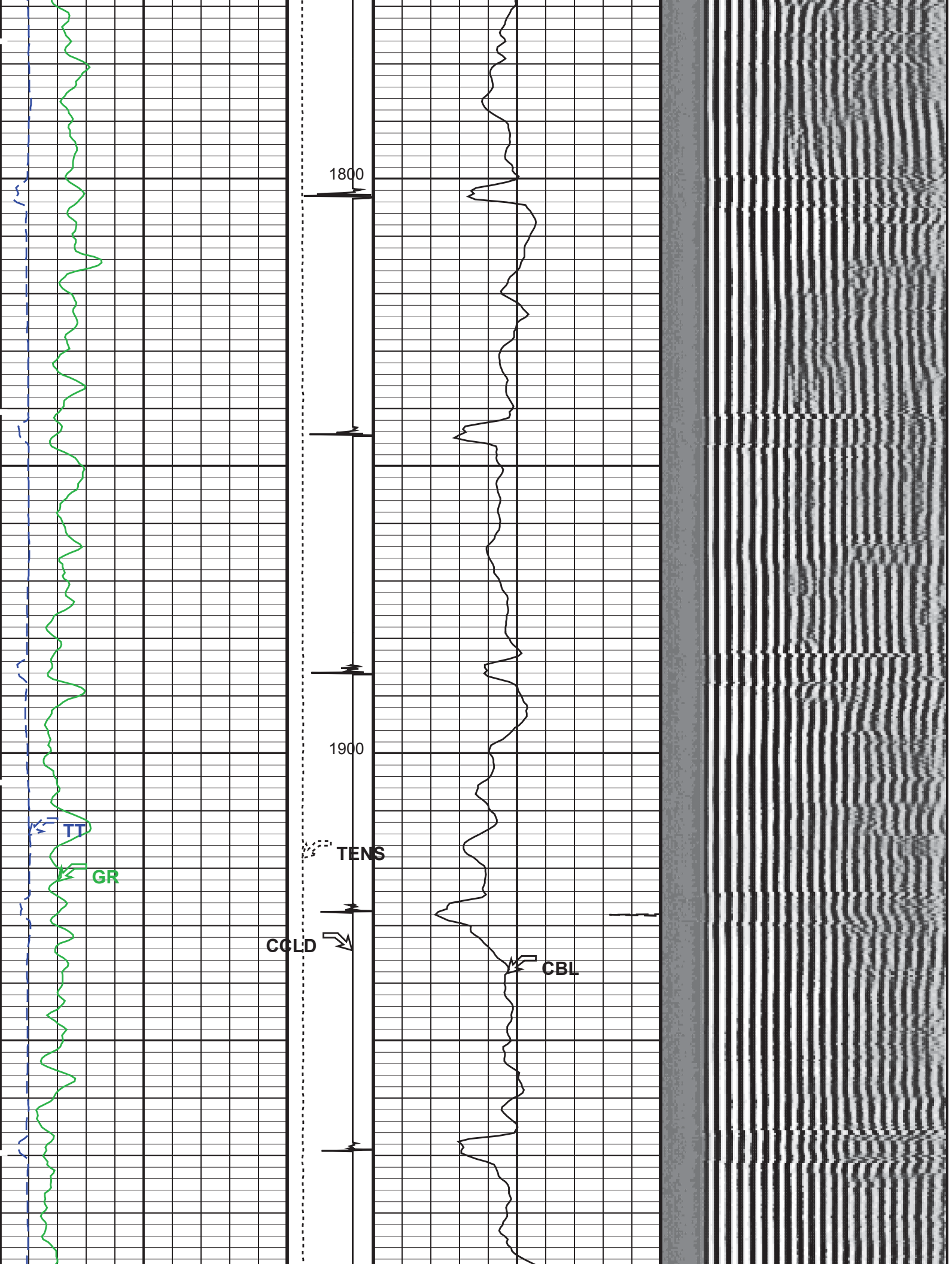

GR
CCLD
CBL
700
800

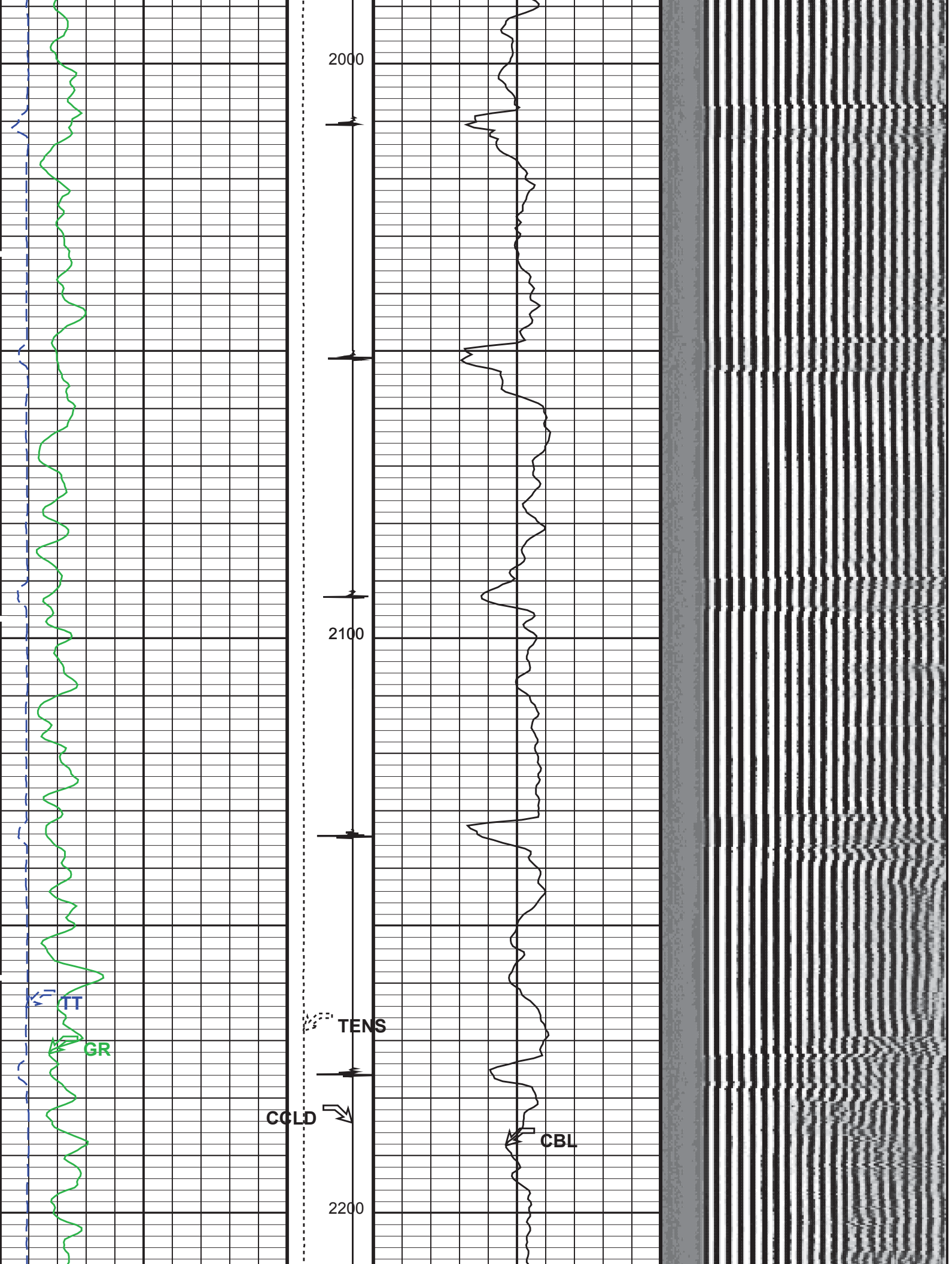

900
TT
TENS
GR
CCLD
CBL
1000
1100

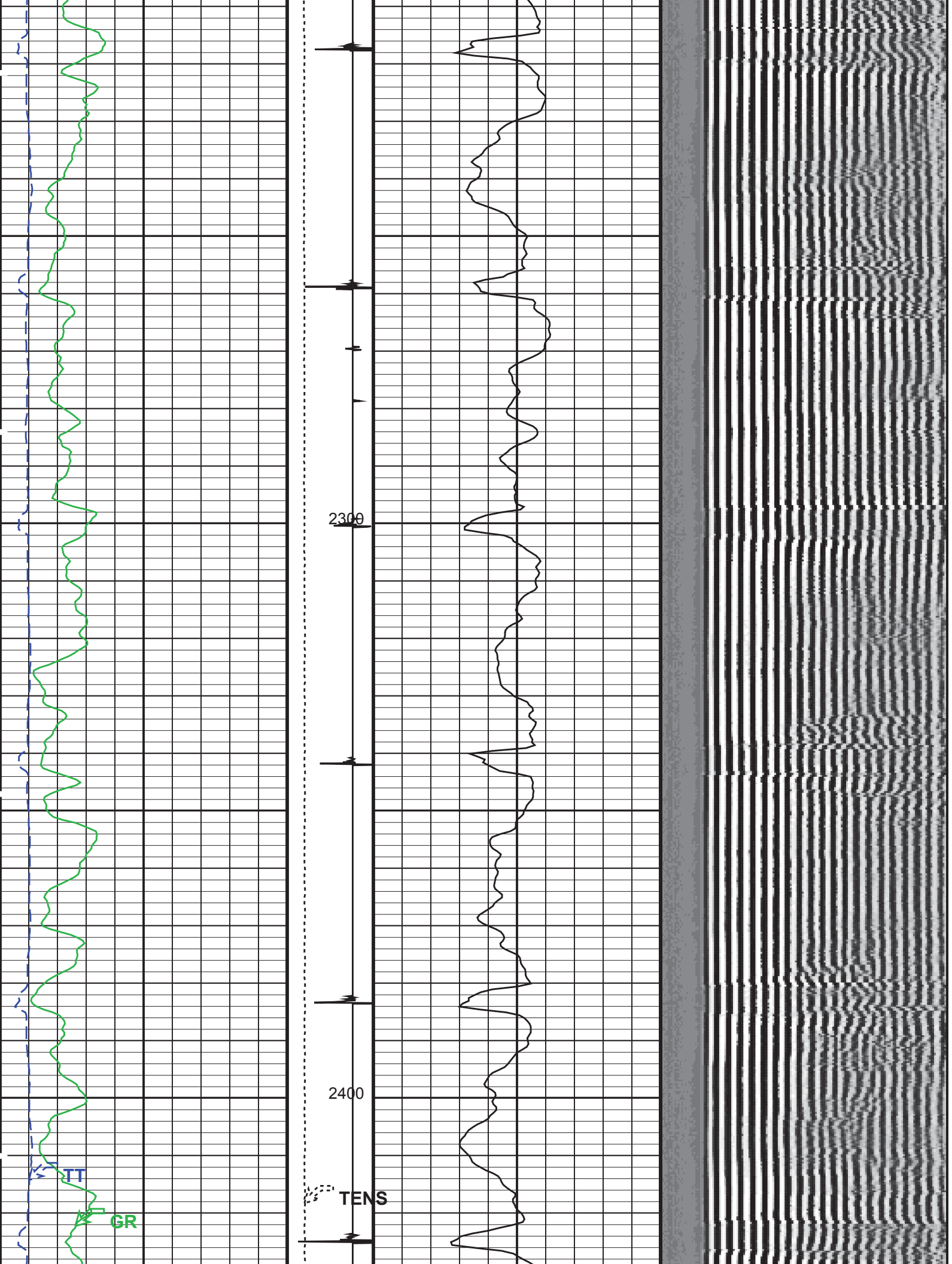

TT
GR
TENS
CCLD
CBL
1200
1300

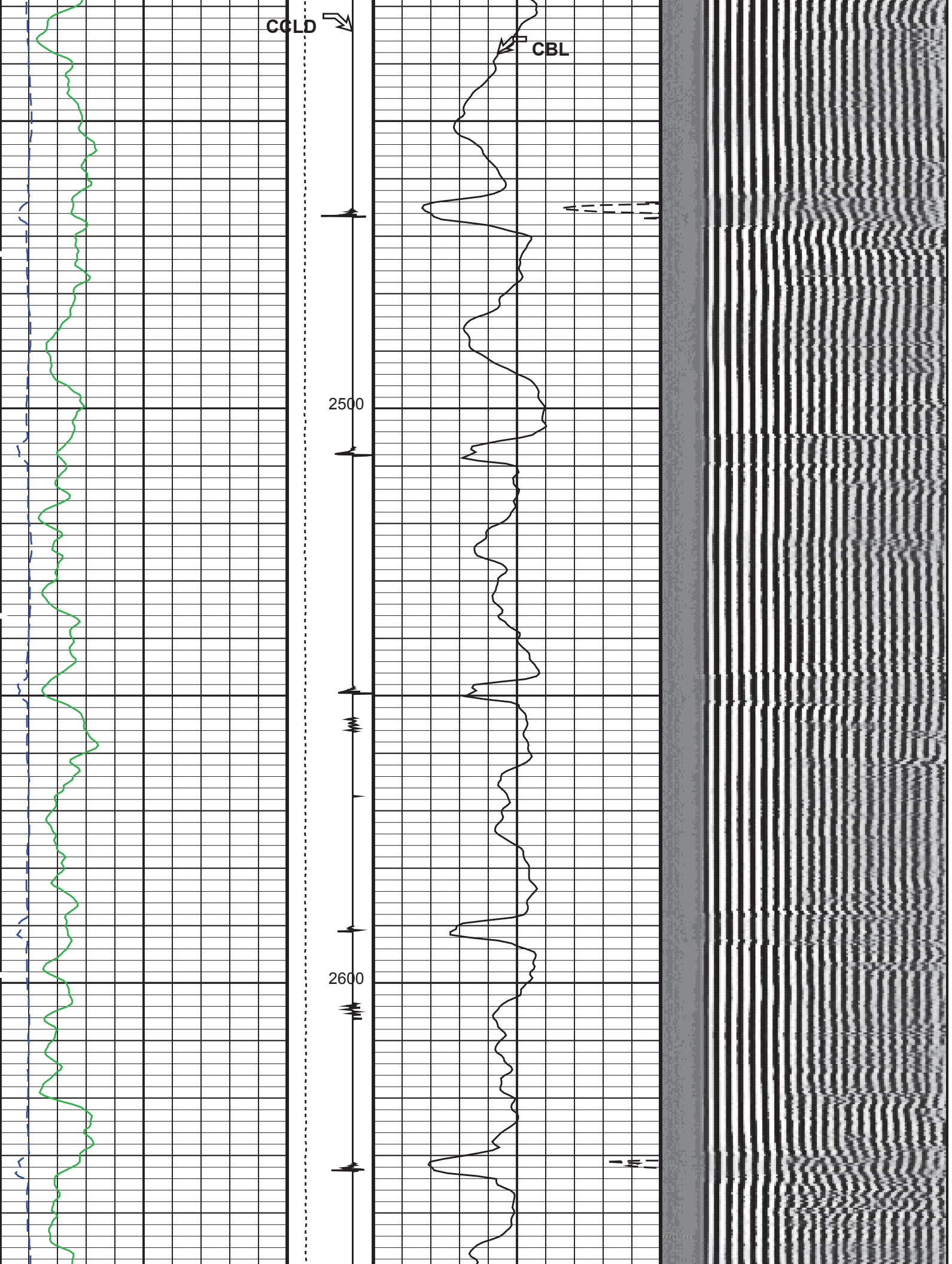

1400
TT
TENS
GR
CCLD
CBL
1500

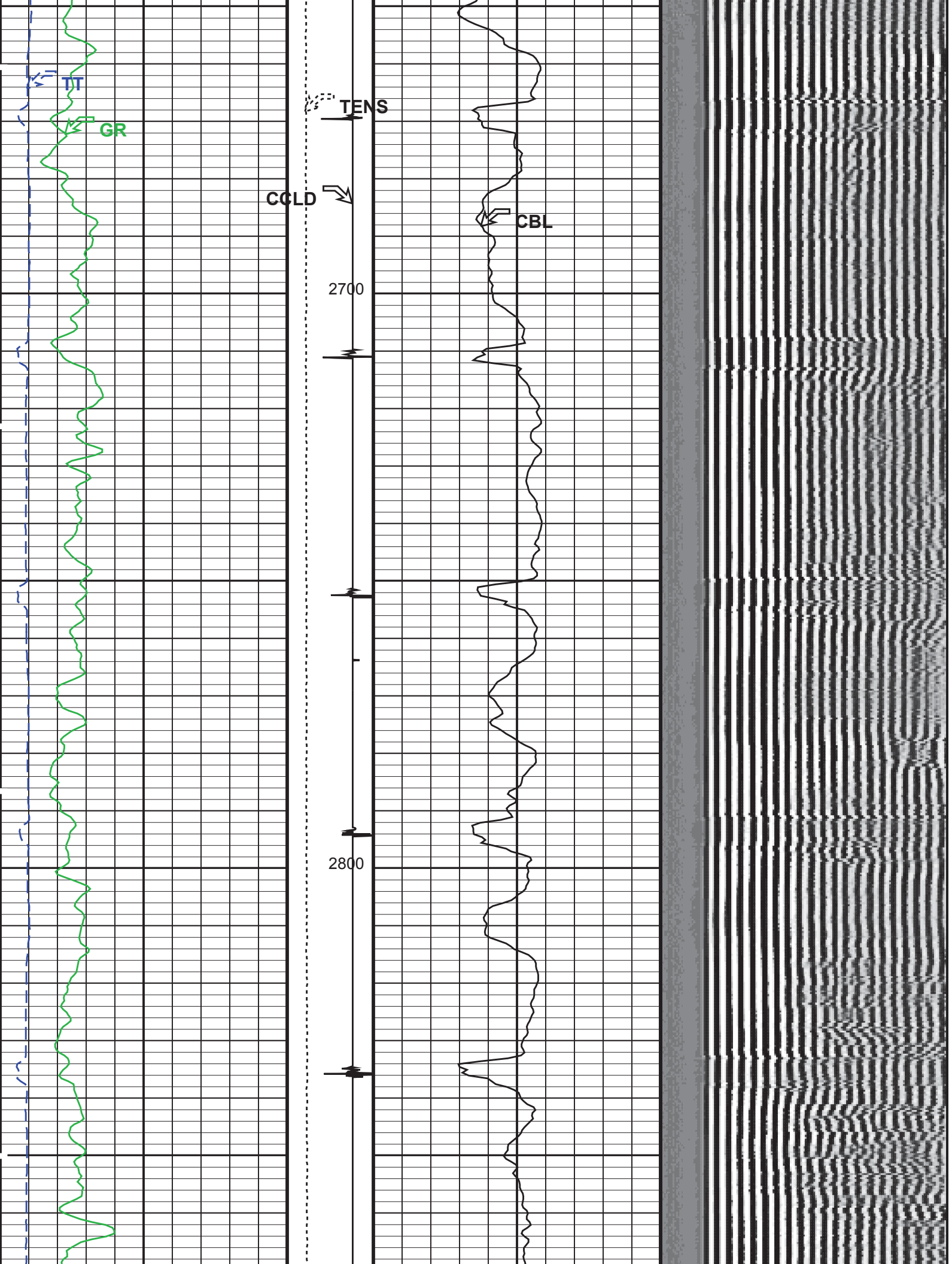

1600
TT
GR
TENS
CCLD
CBL
1700

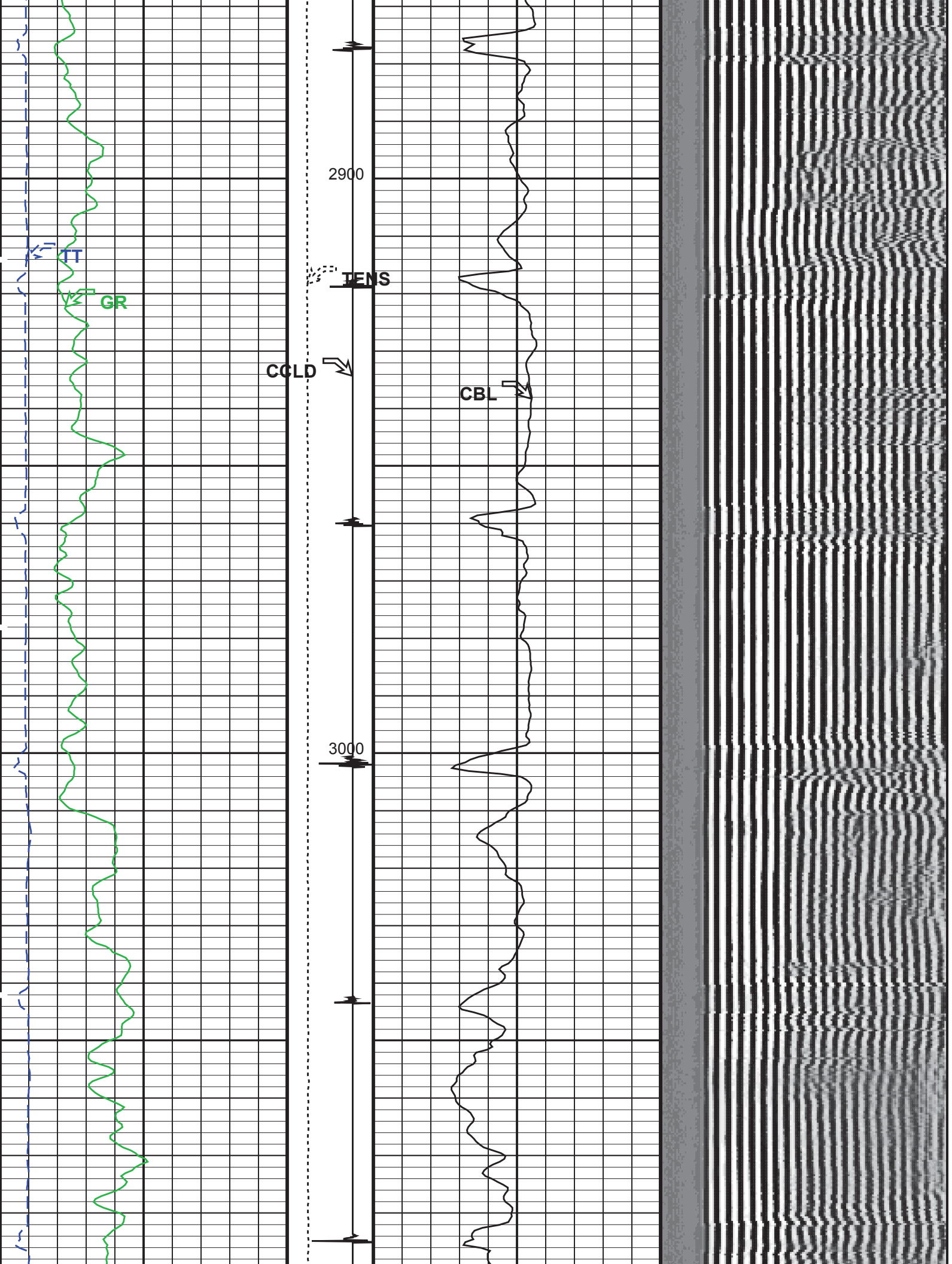

1800
1900
TT
GR
TENS
CCLD
CBL

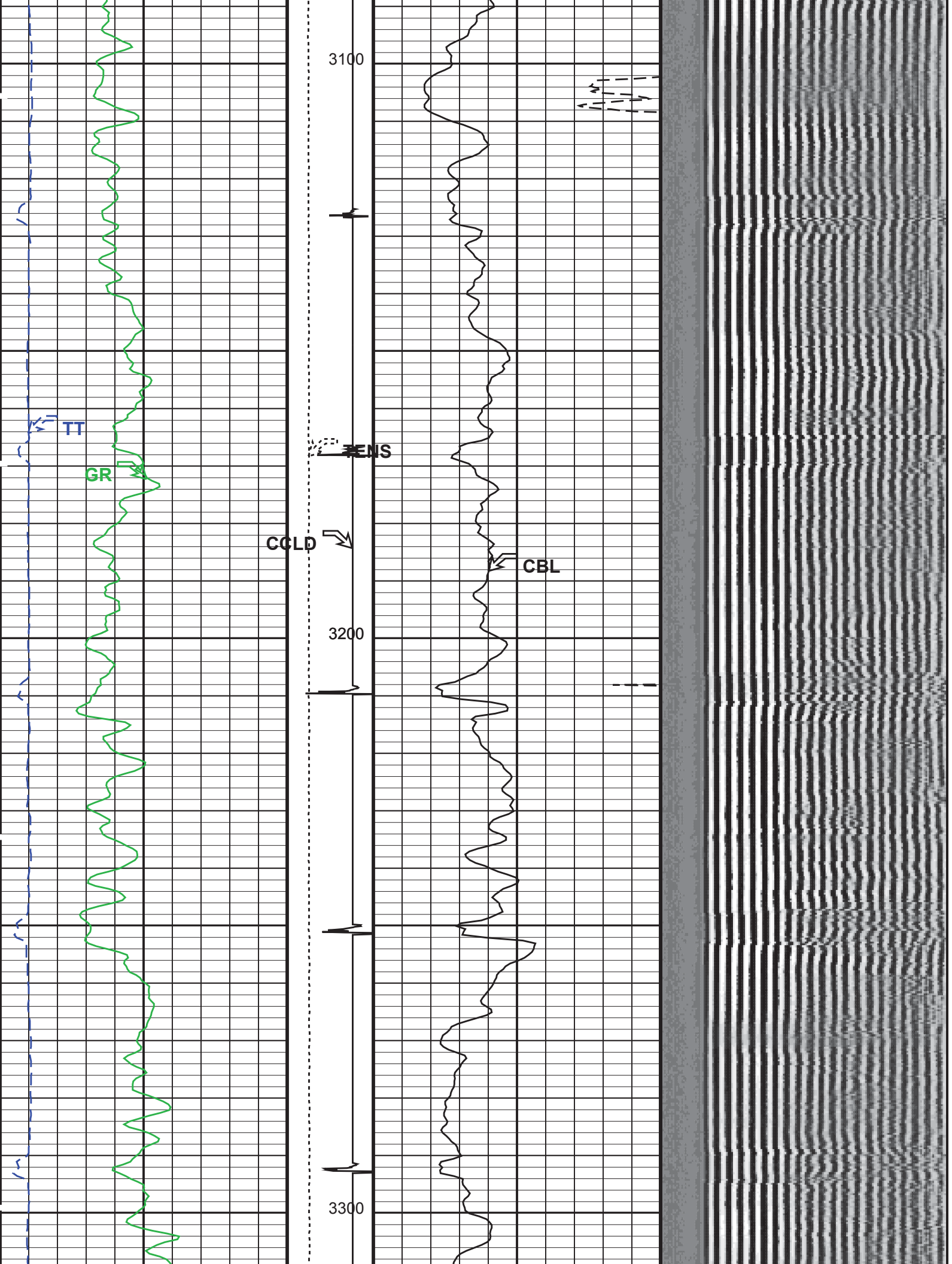

2000
2100
2200
TT
GR
TENS
CCLD
CBL

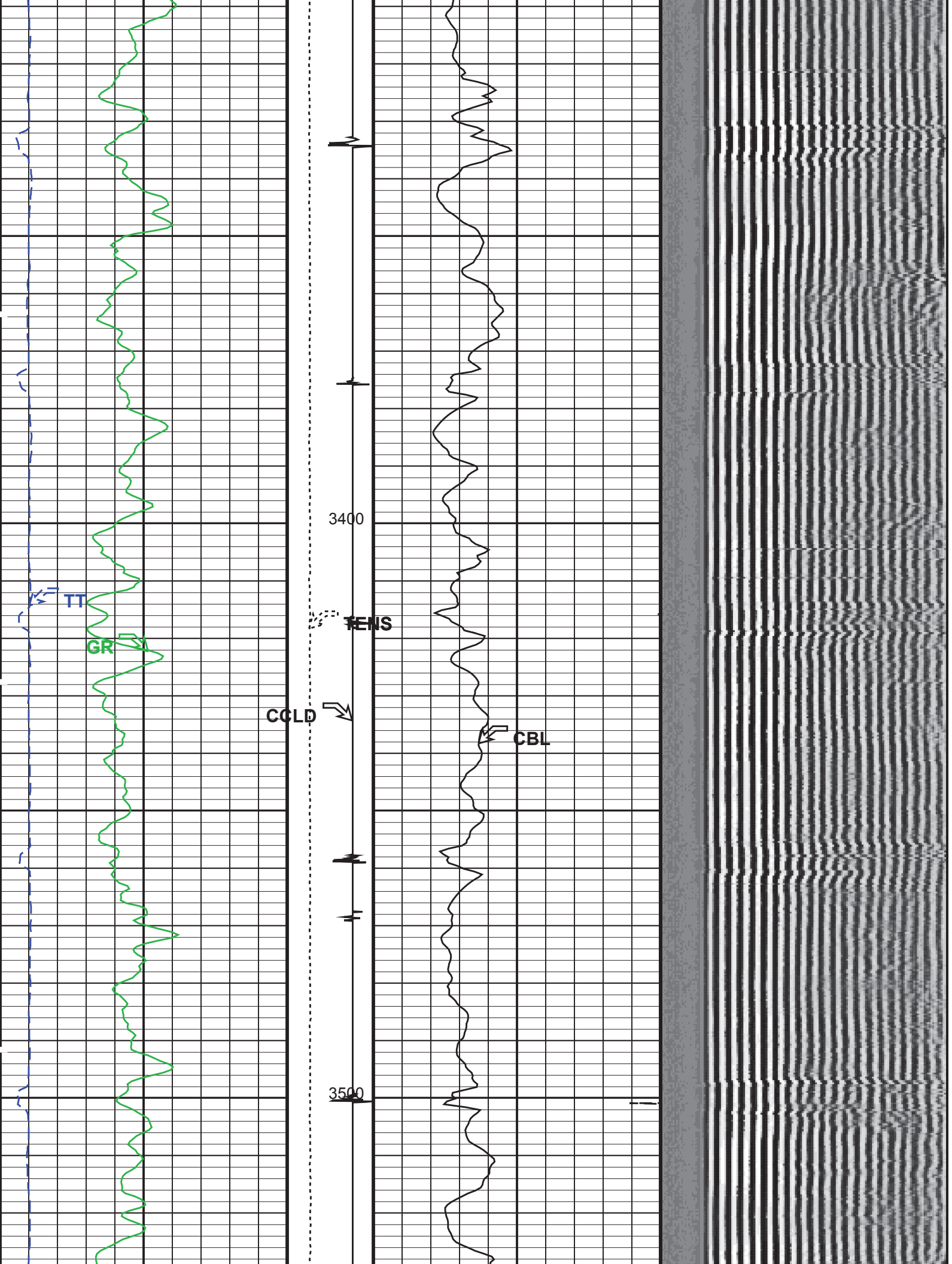

2300
2400
TT
GR
TENS

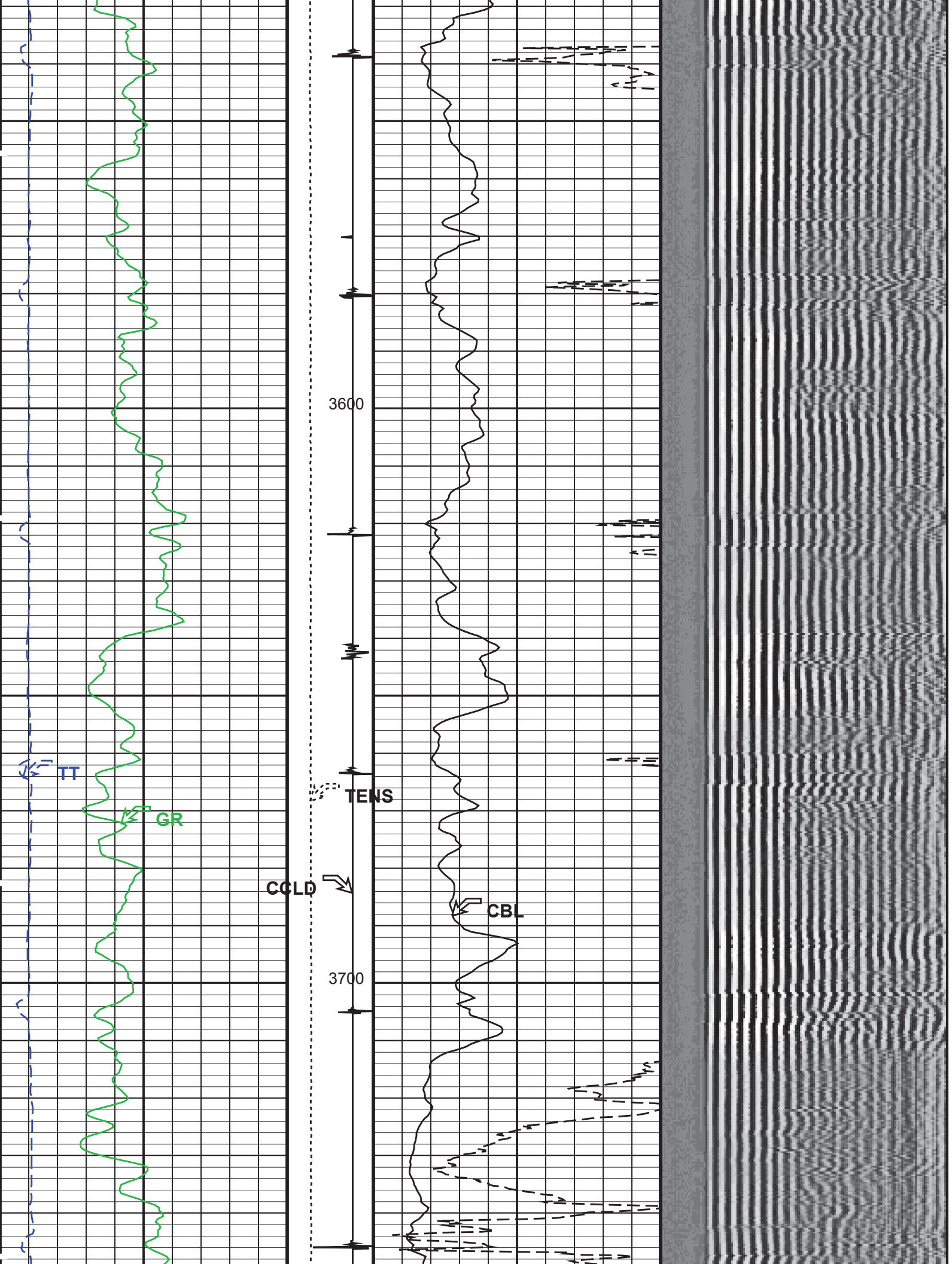

CCLD
CBL
2500
2600

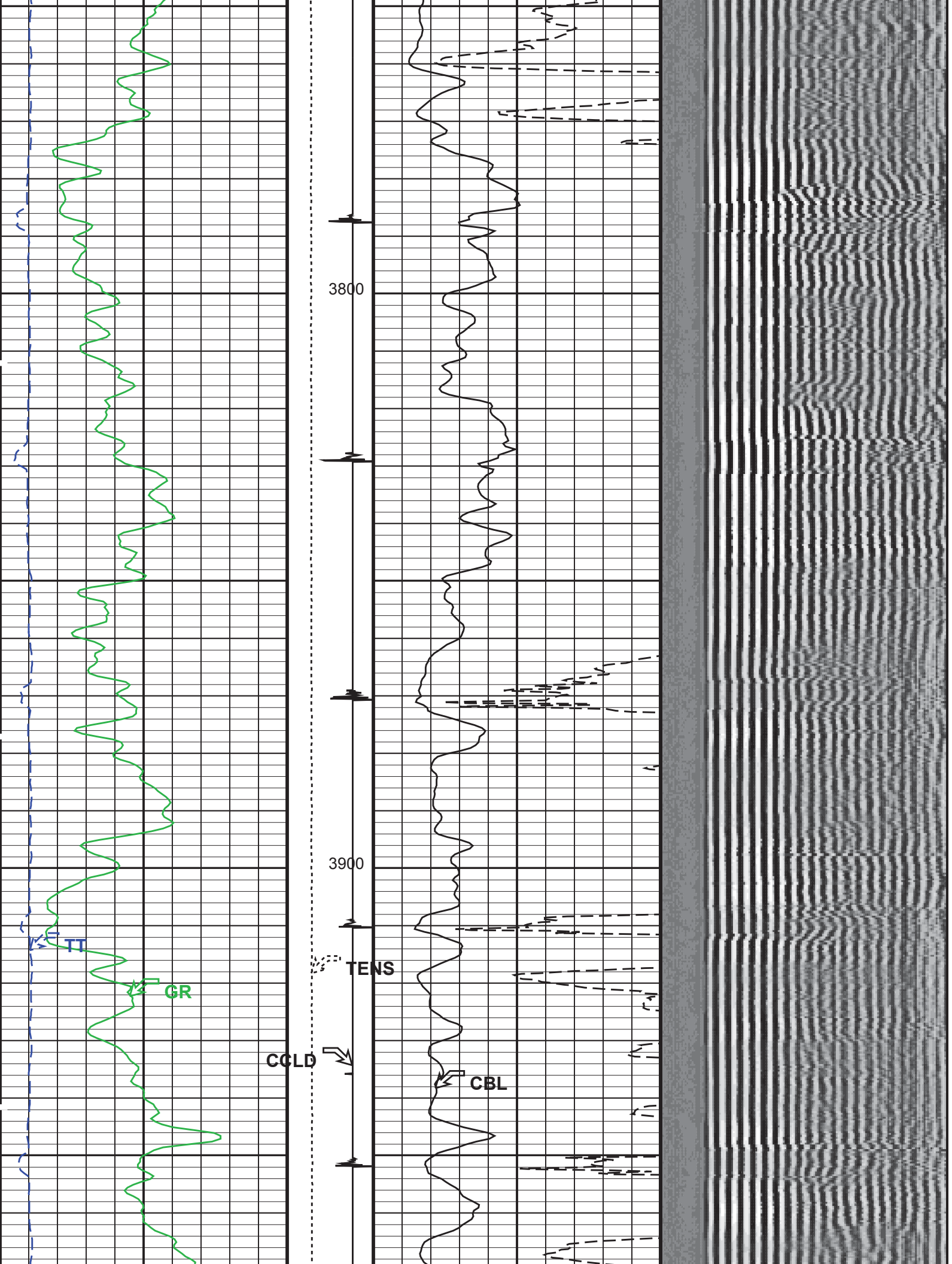

TT
GR
TENS
CCLD
CBL
2700
2800

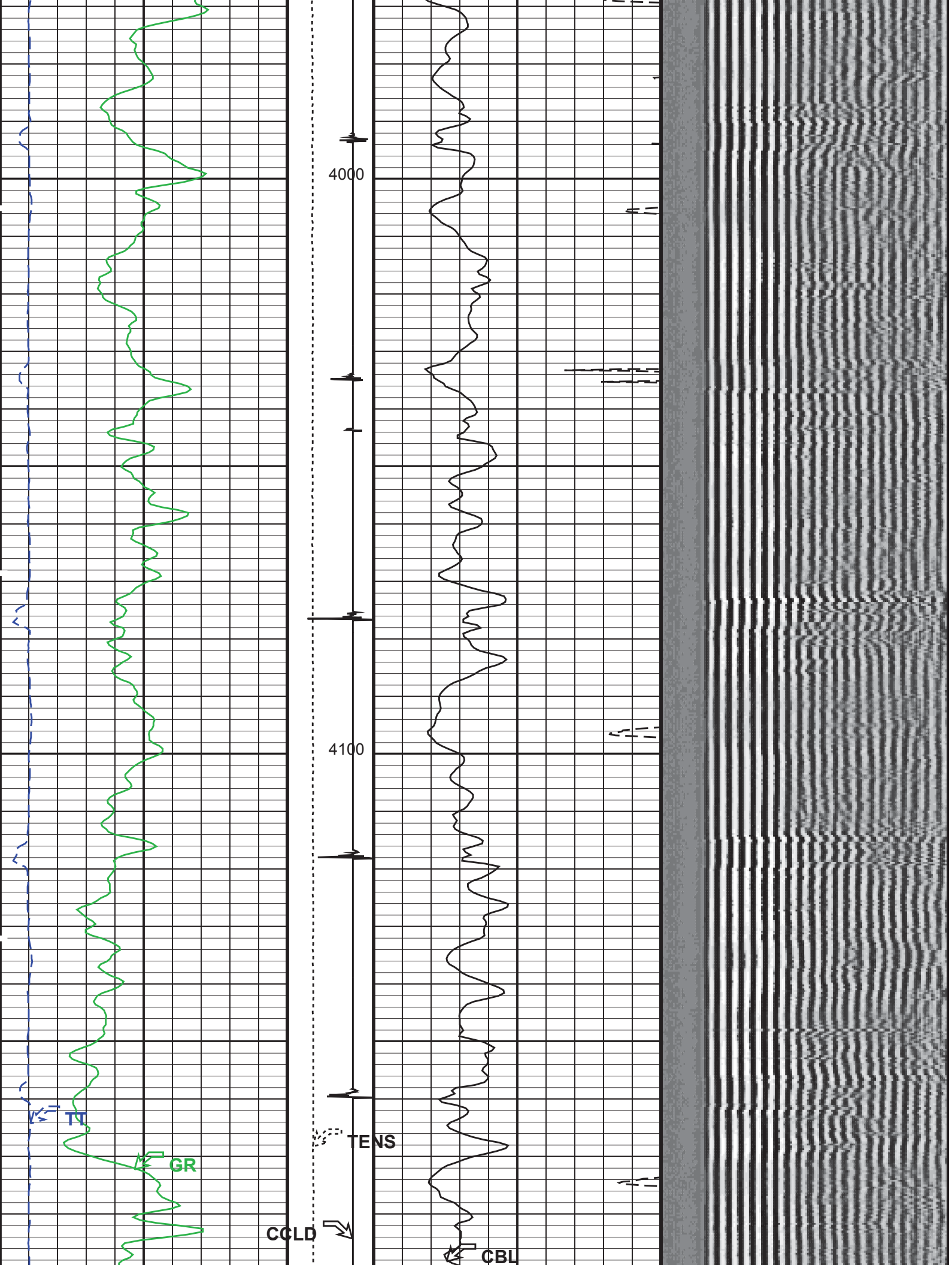

2900
TT
TENS
GR
CCLD
CBL
3000


3100
TT
TENS
GR
CCLD
CBL
3200
3300


TT
GR
TENS
CCLD
CBL
3400
3500


3600
TT
GR
TENS
CCLD
CBL
3700


3800
3900
TT
GR
TENS
CCLD
CBL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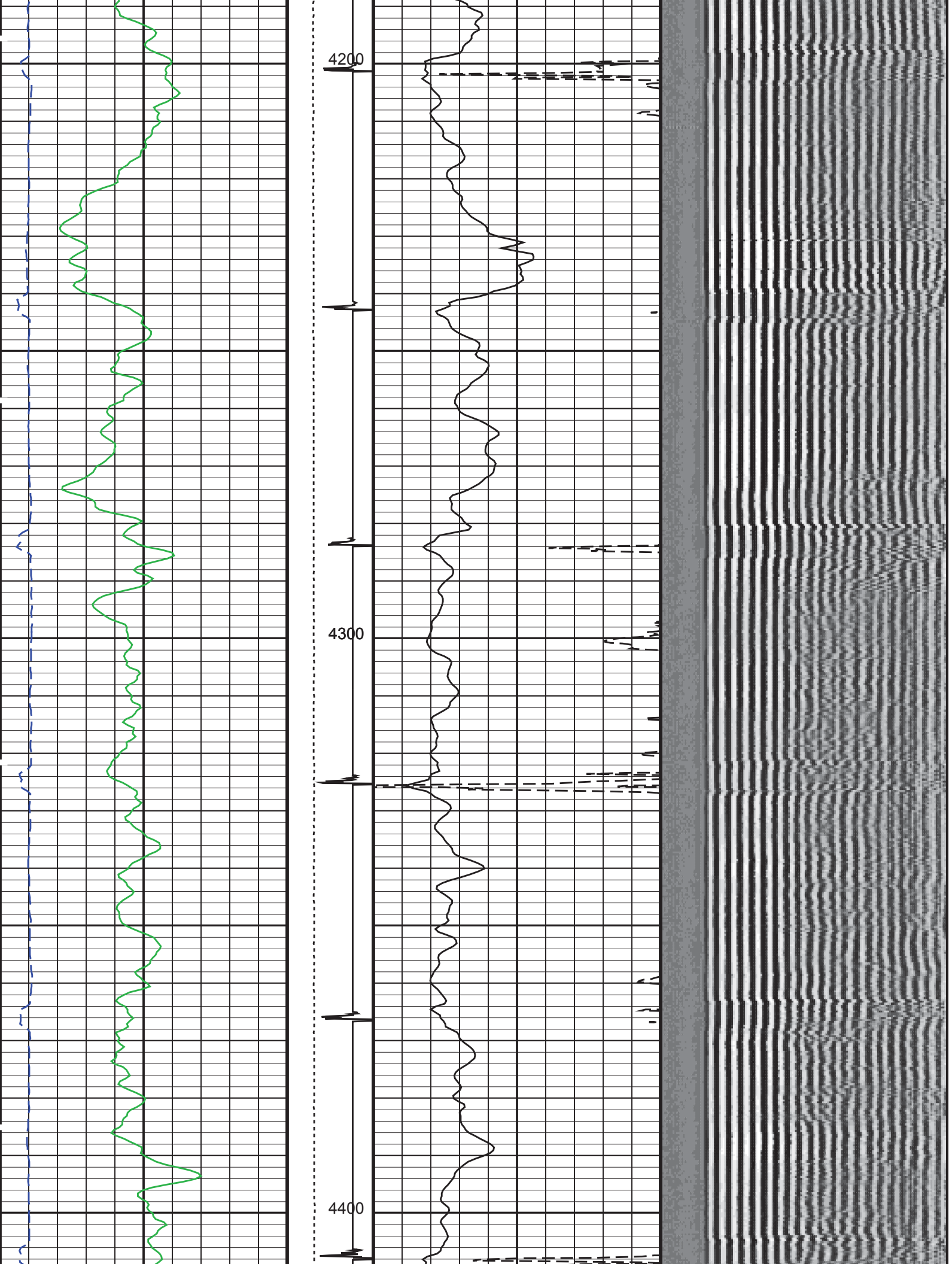
TENS
CCLD
CBL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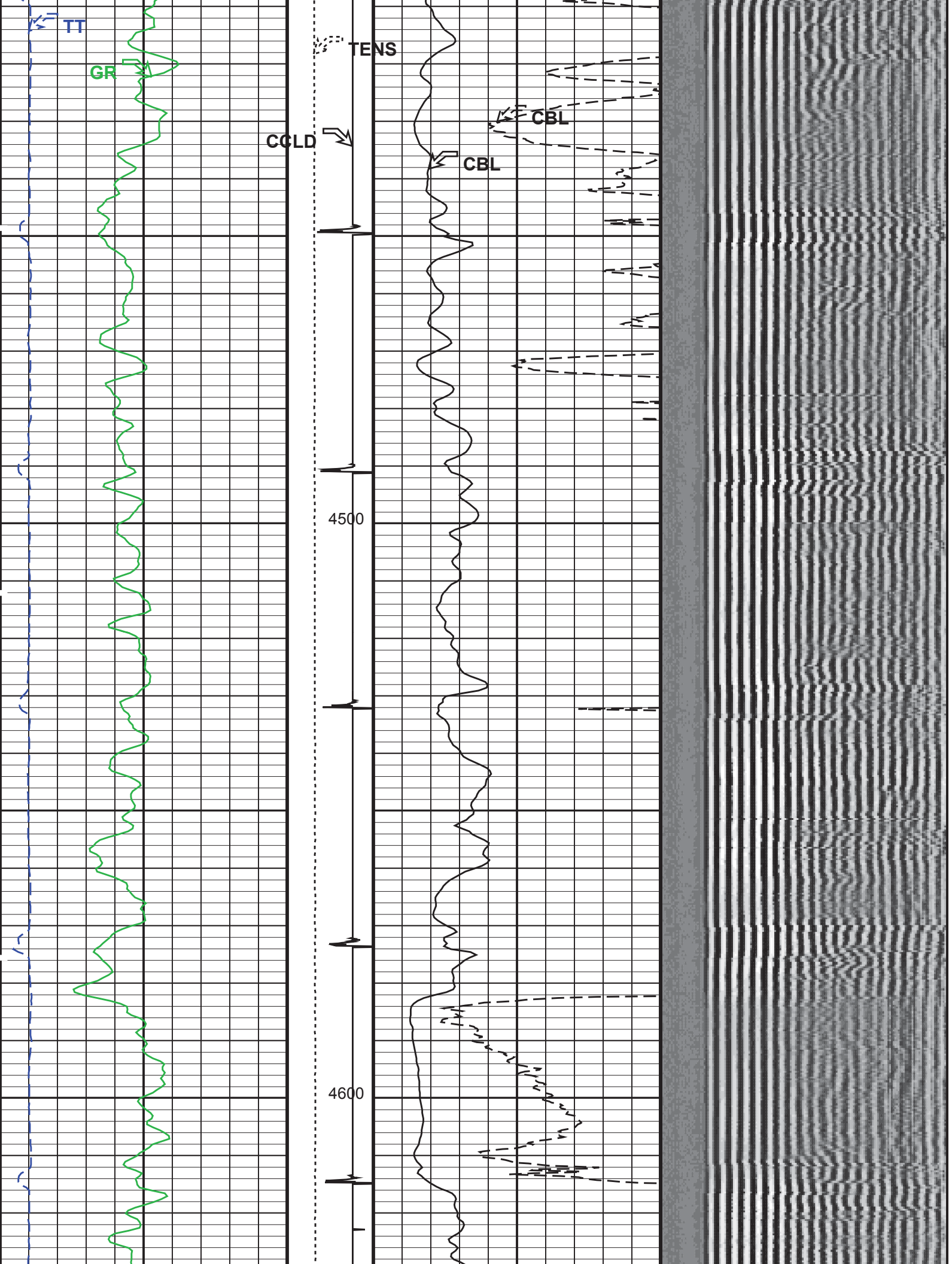
TT
GR
TENS
CCLD
CBL
CBL
4500
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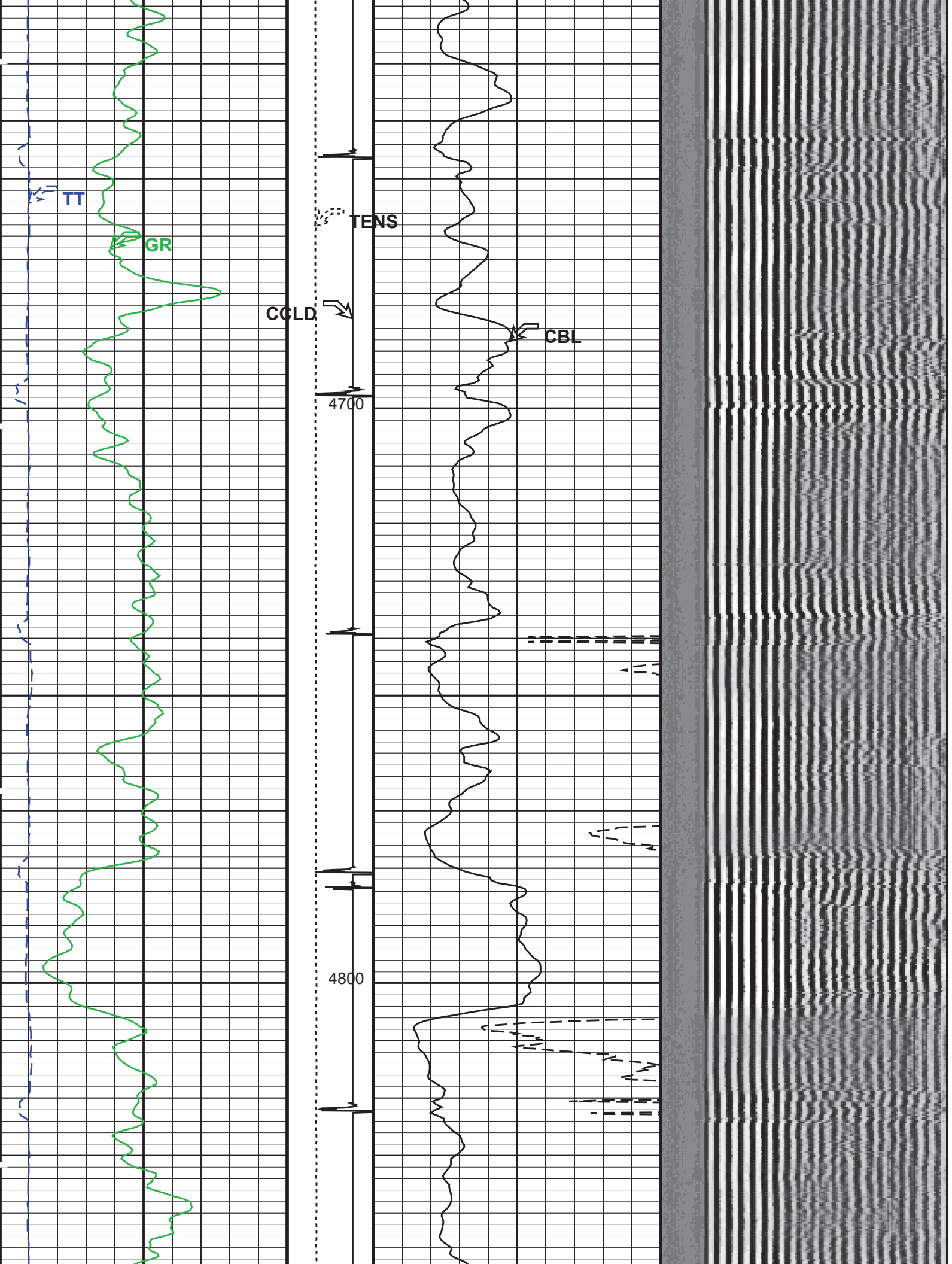
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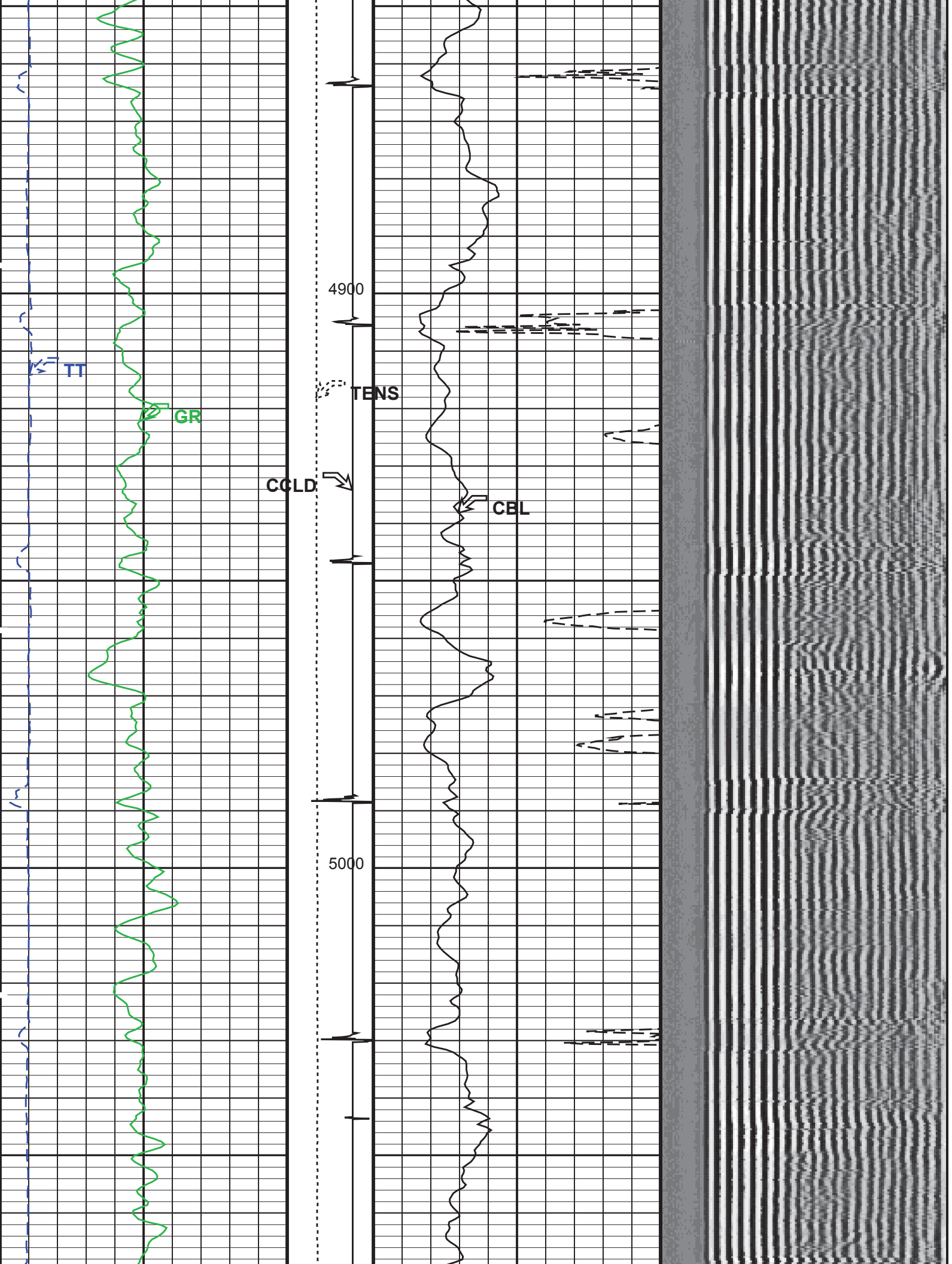
GR
TENS
CCLD
CBL
4700
4800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TENS
GR
CCLD
CBL
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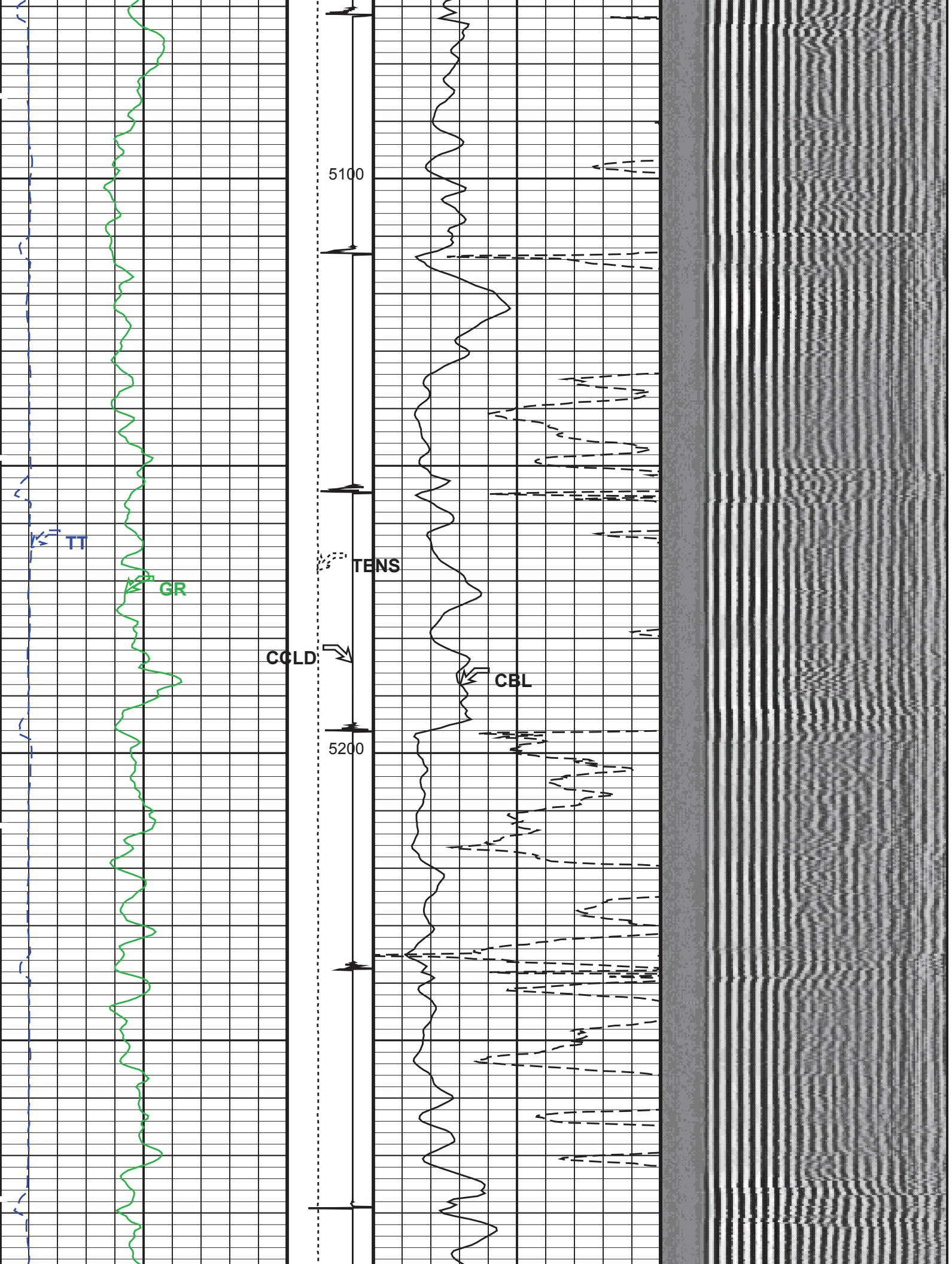
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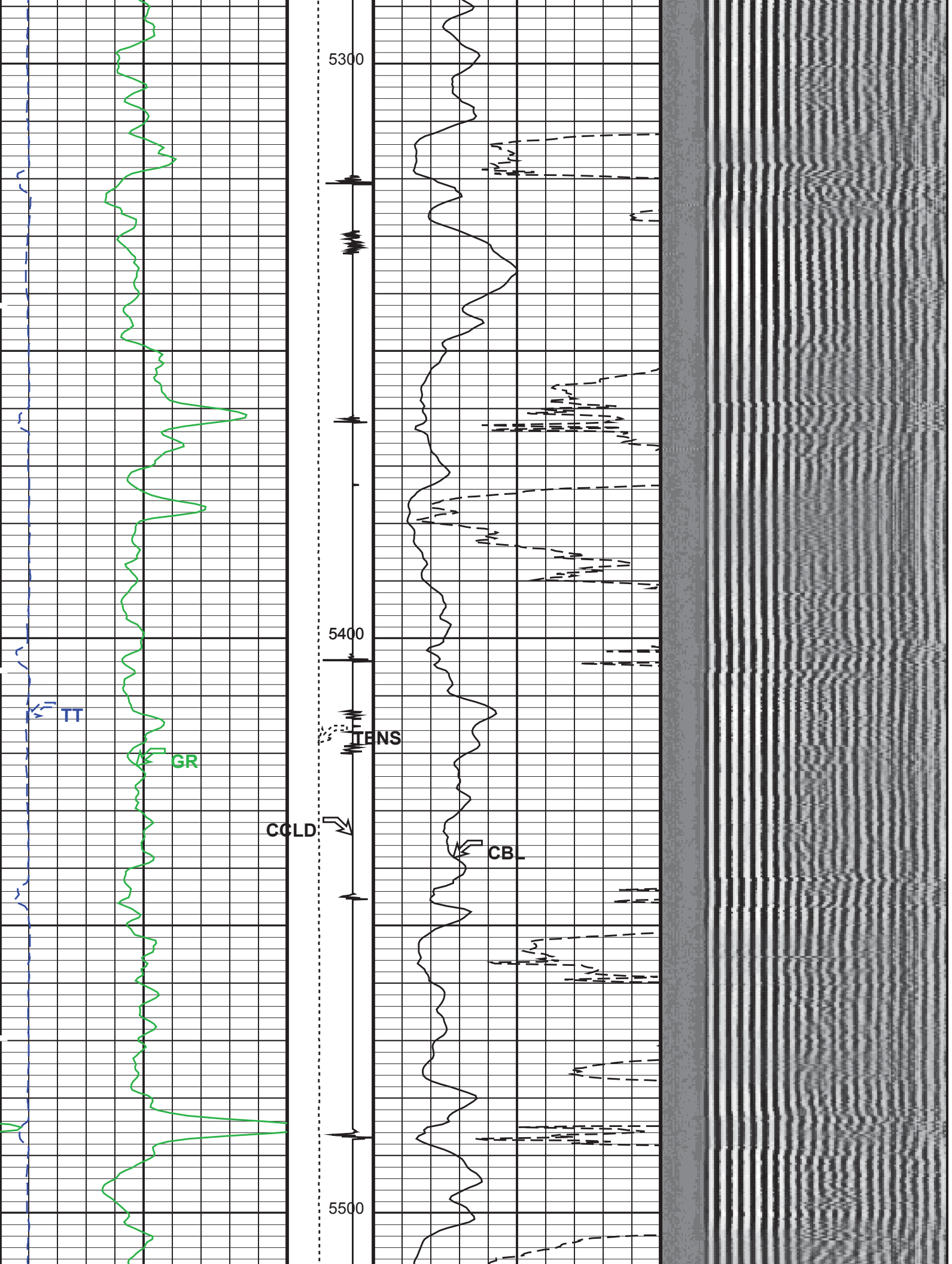
TENS
GR
CCLD
CBL
5200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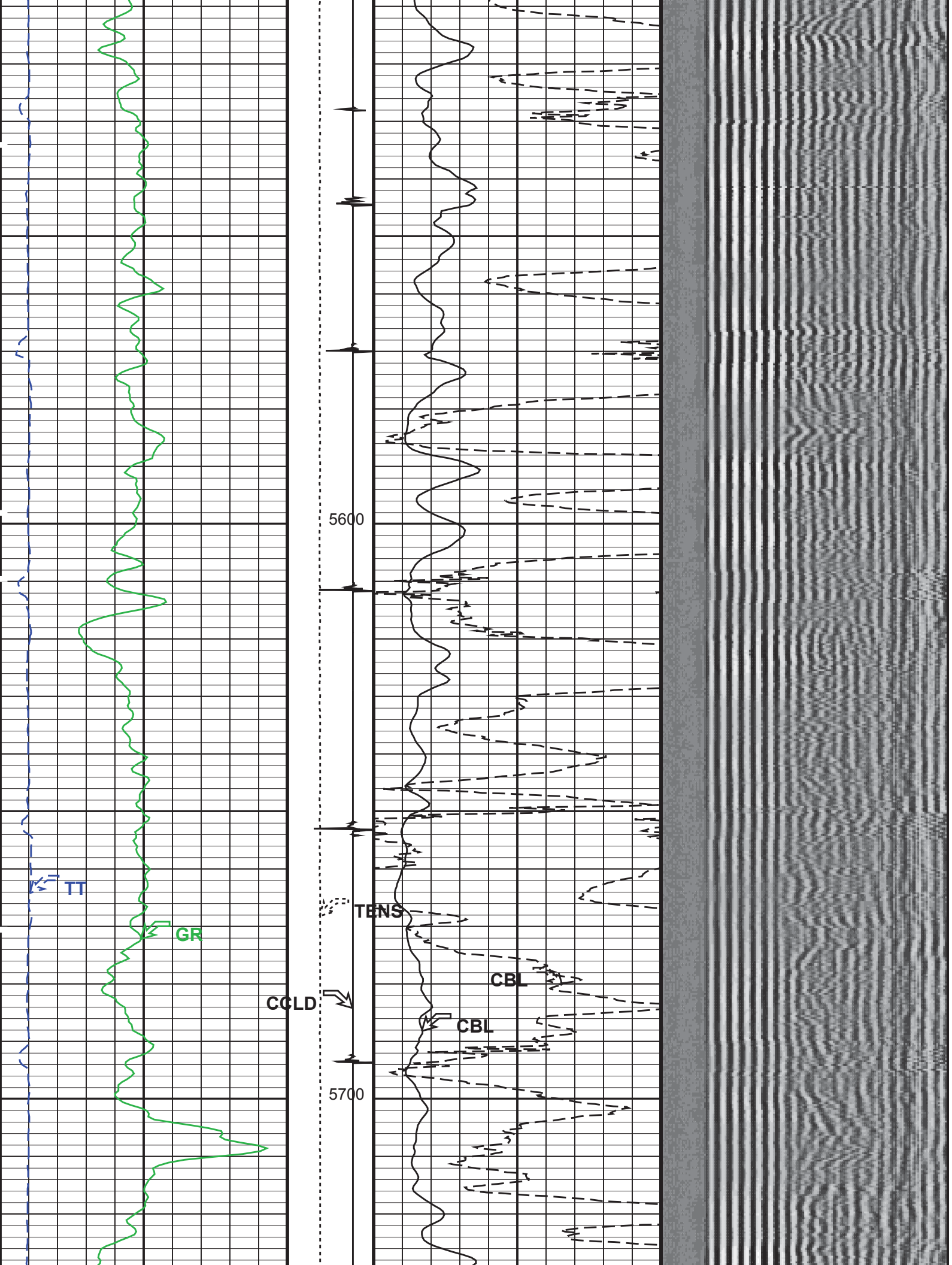
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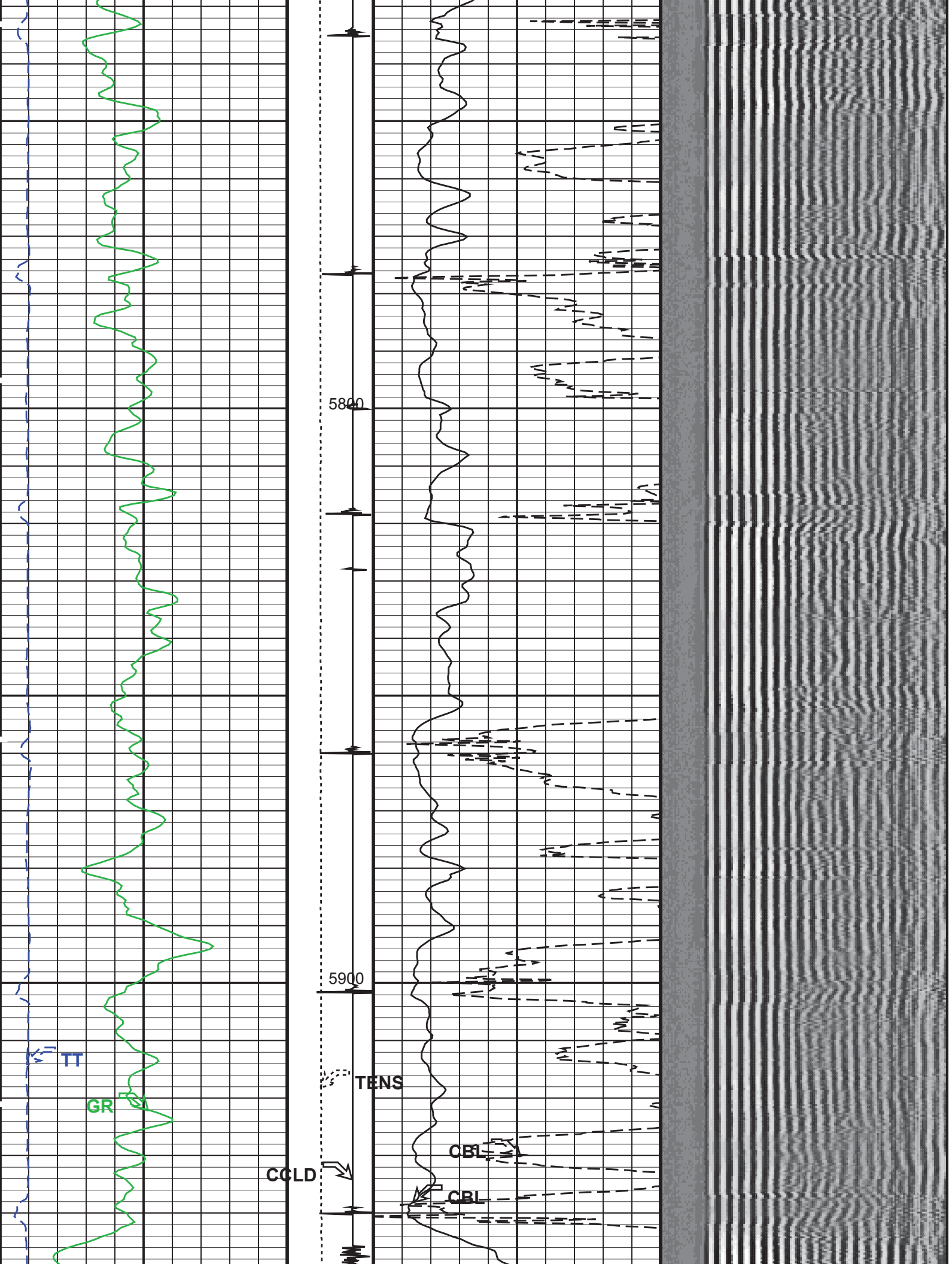
TT
GR
TENS
CCLD
CBL
CBL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TT
GR
TENS
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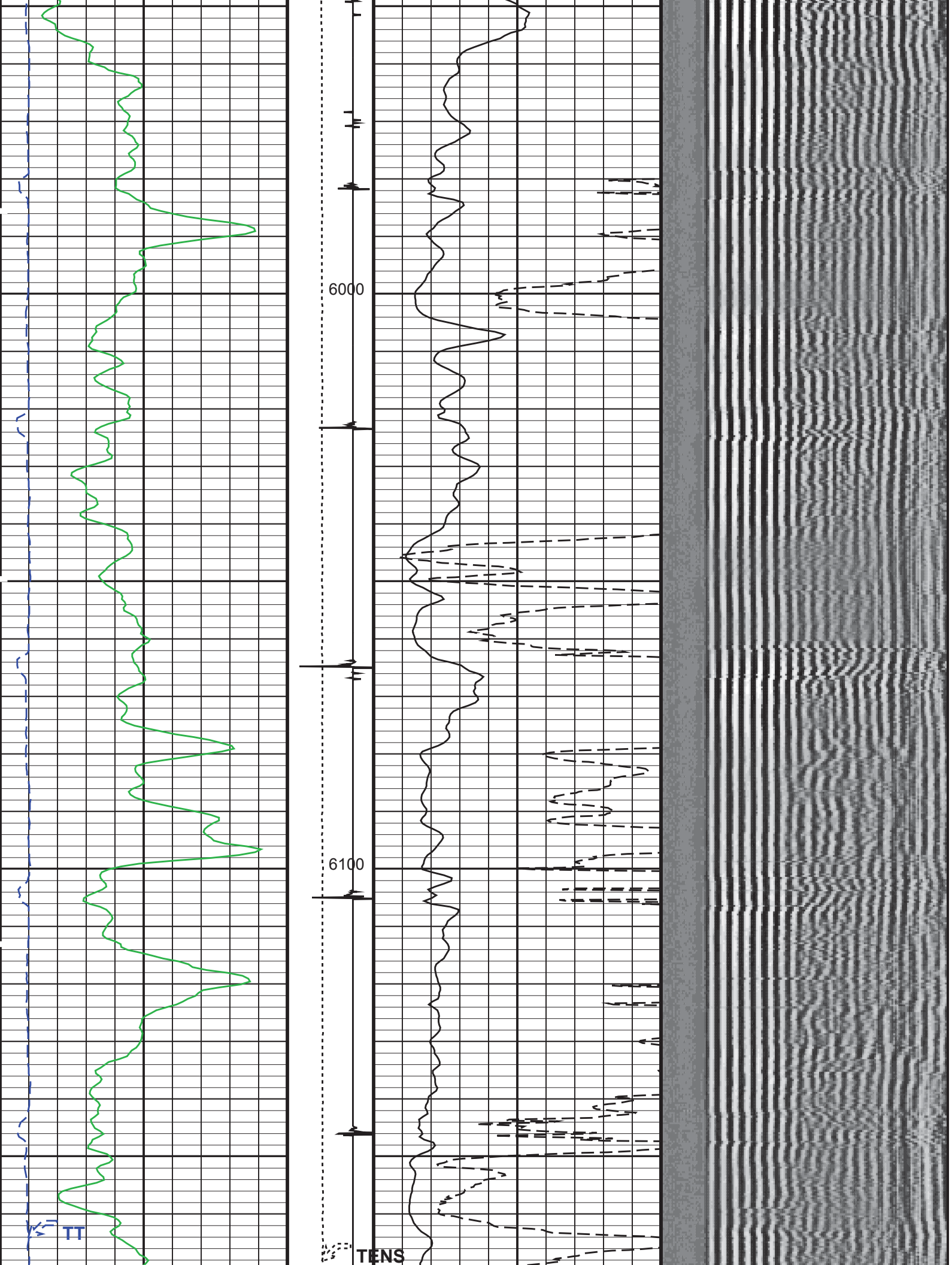
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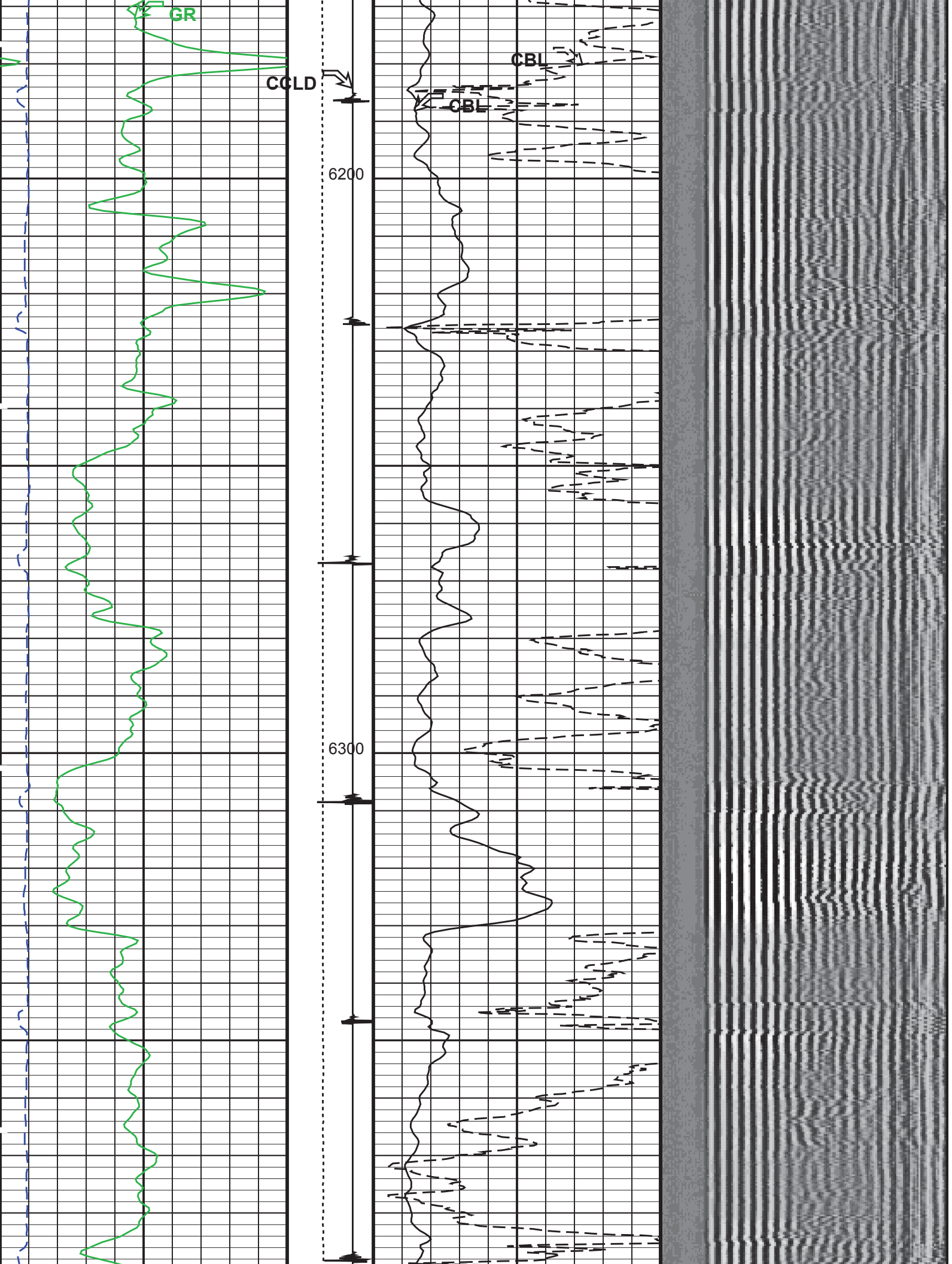
6100
TT
TENS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CCLD
CBL
CBL
6200
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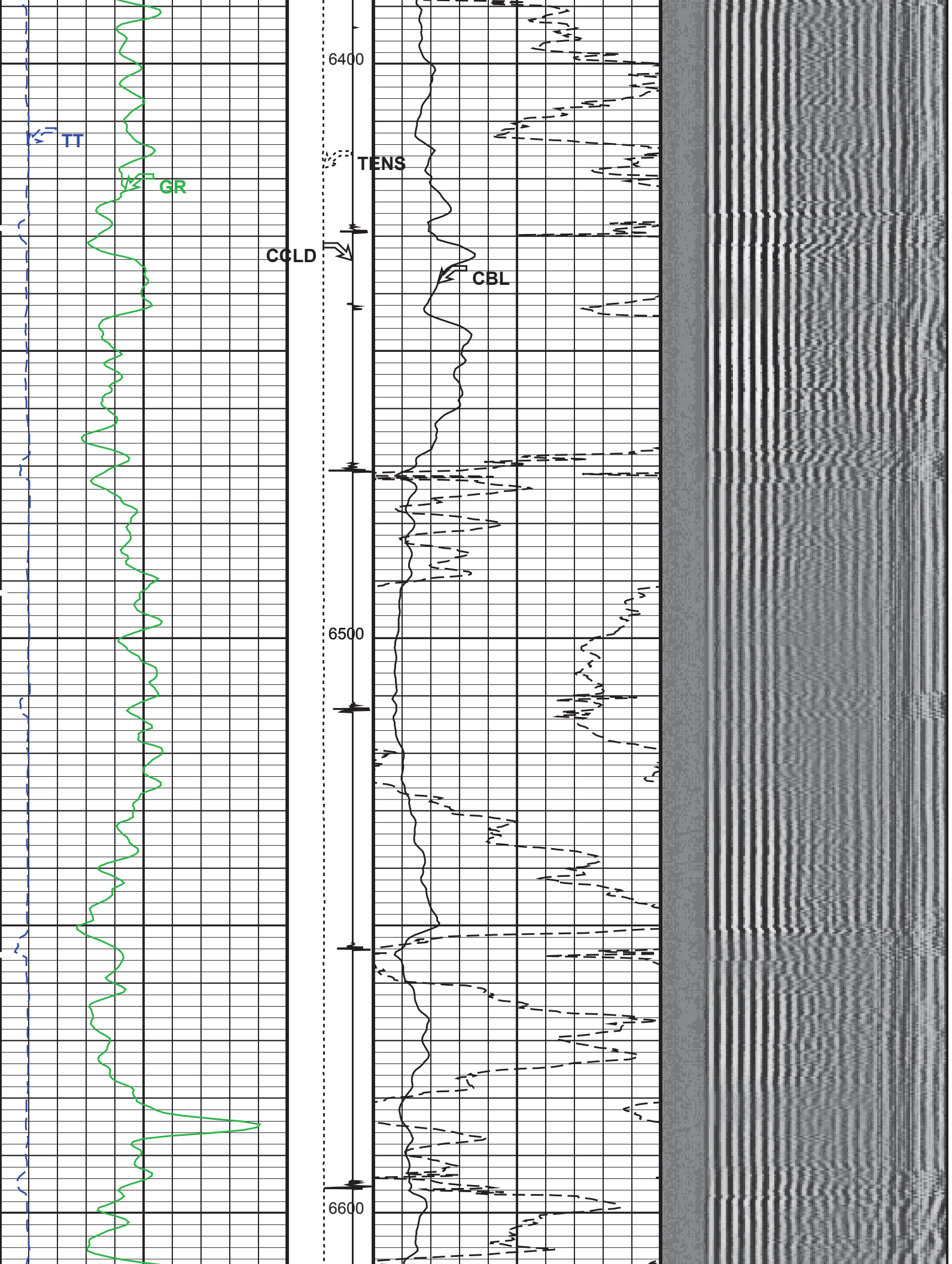
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TENS
CCLD
CBL
6500
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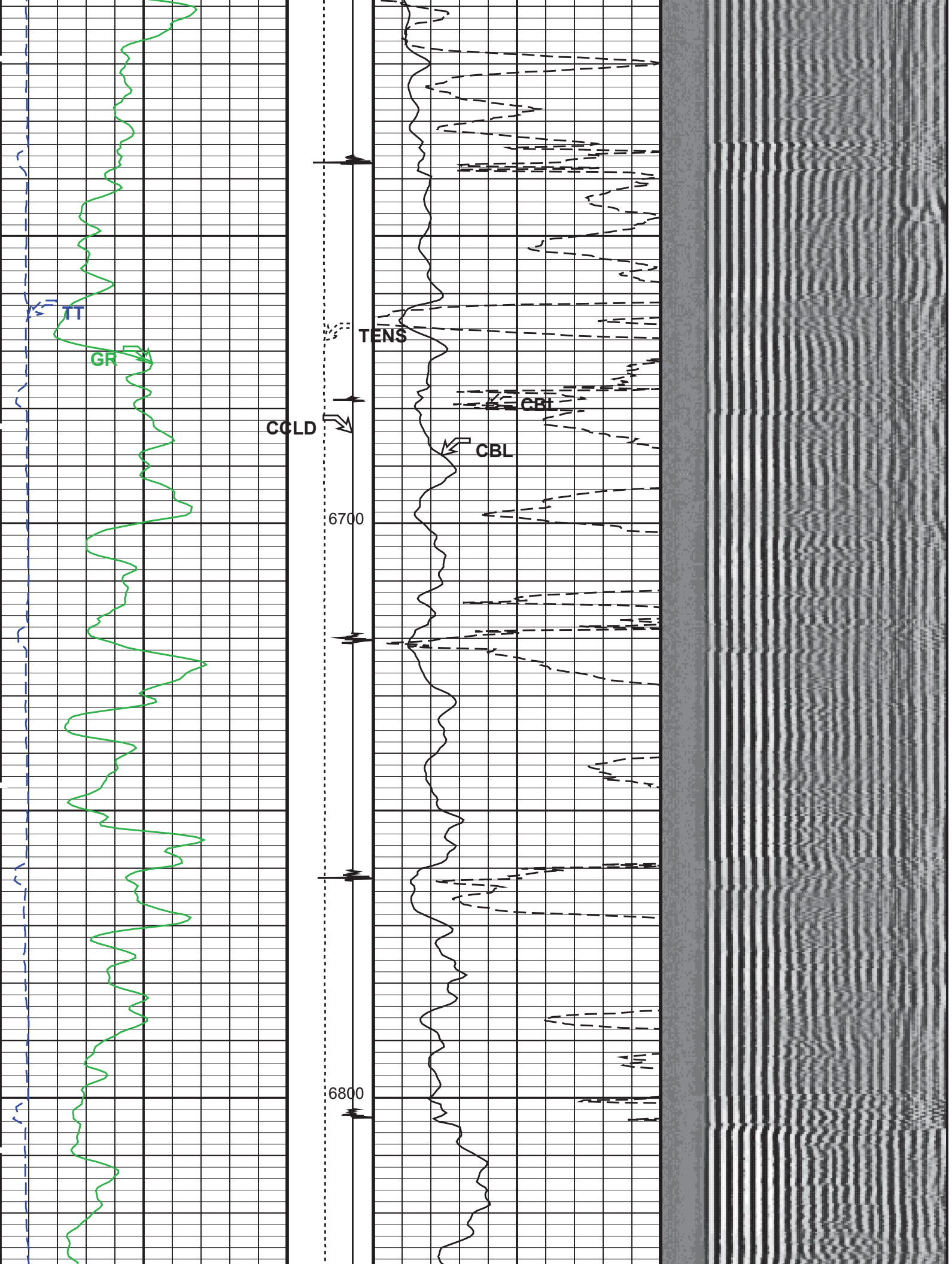
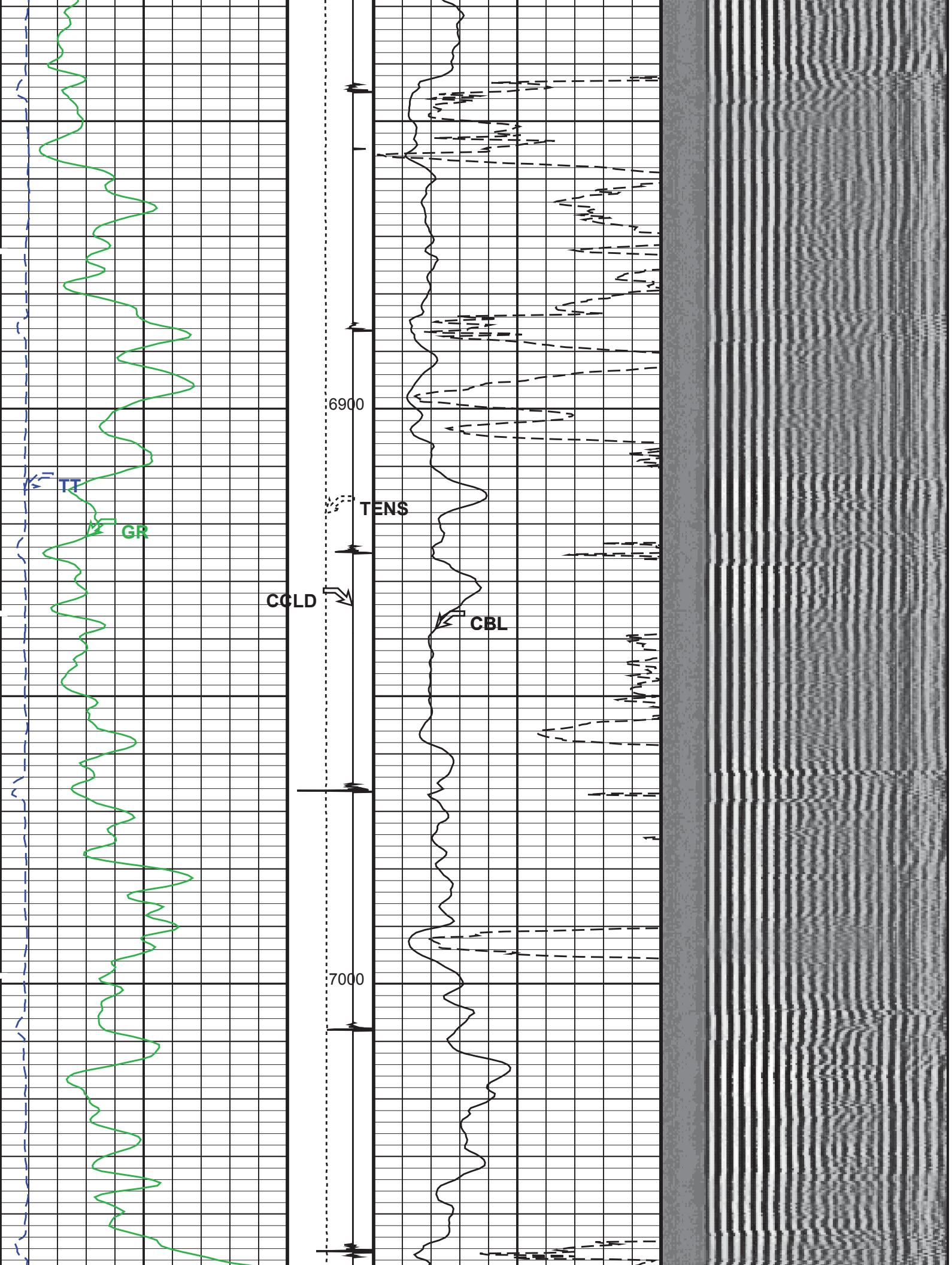

TT
GR
TENS
CBL
CCLD
CBL
6700
6800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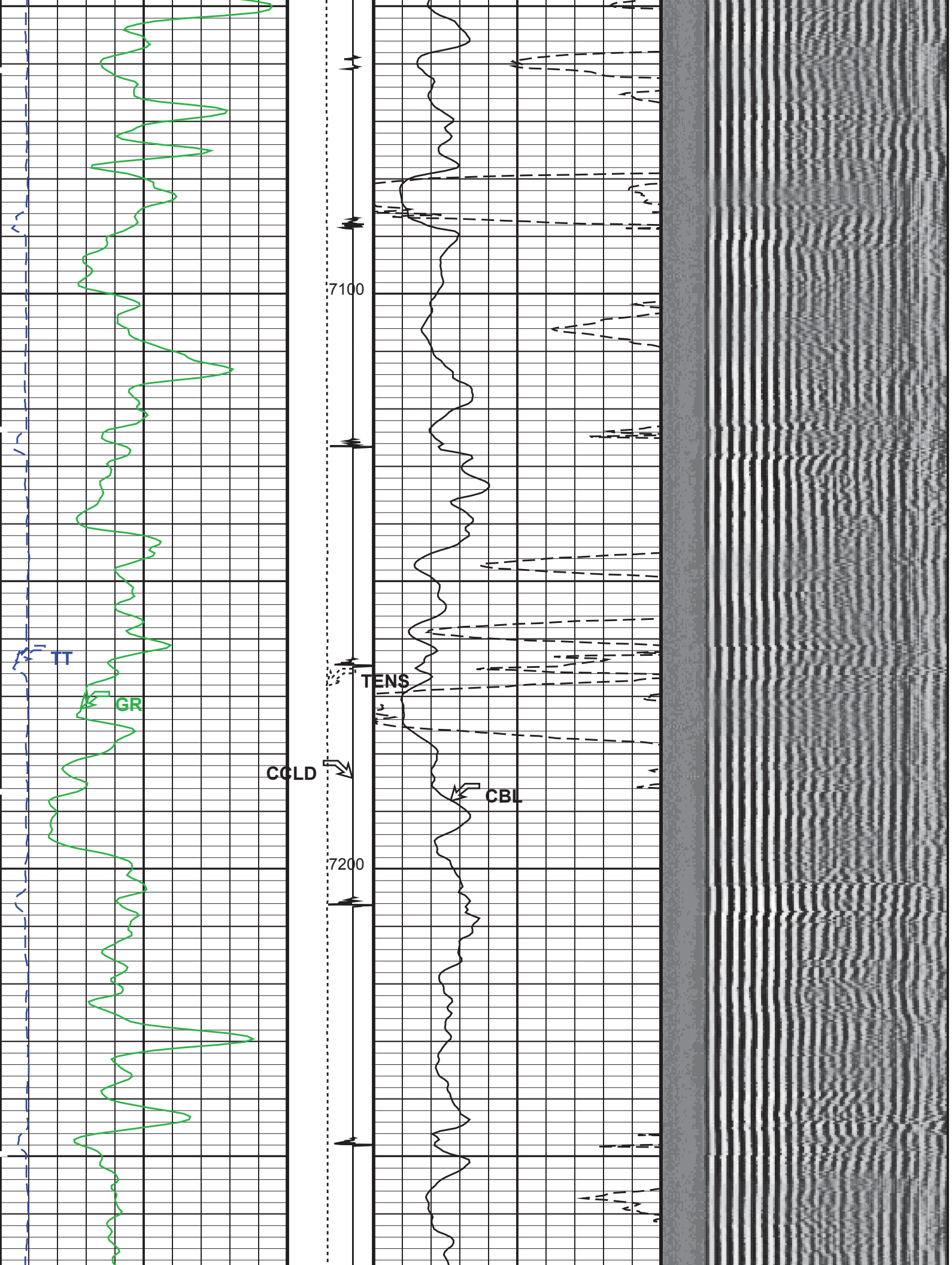
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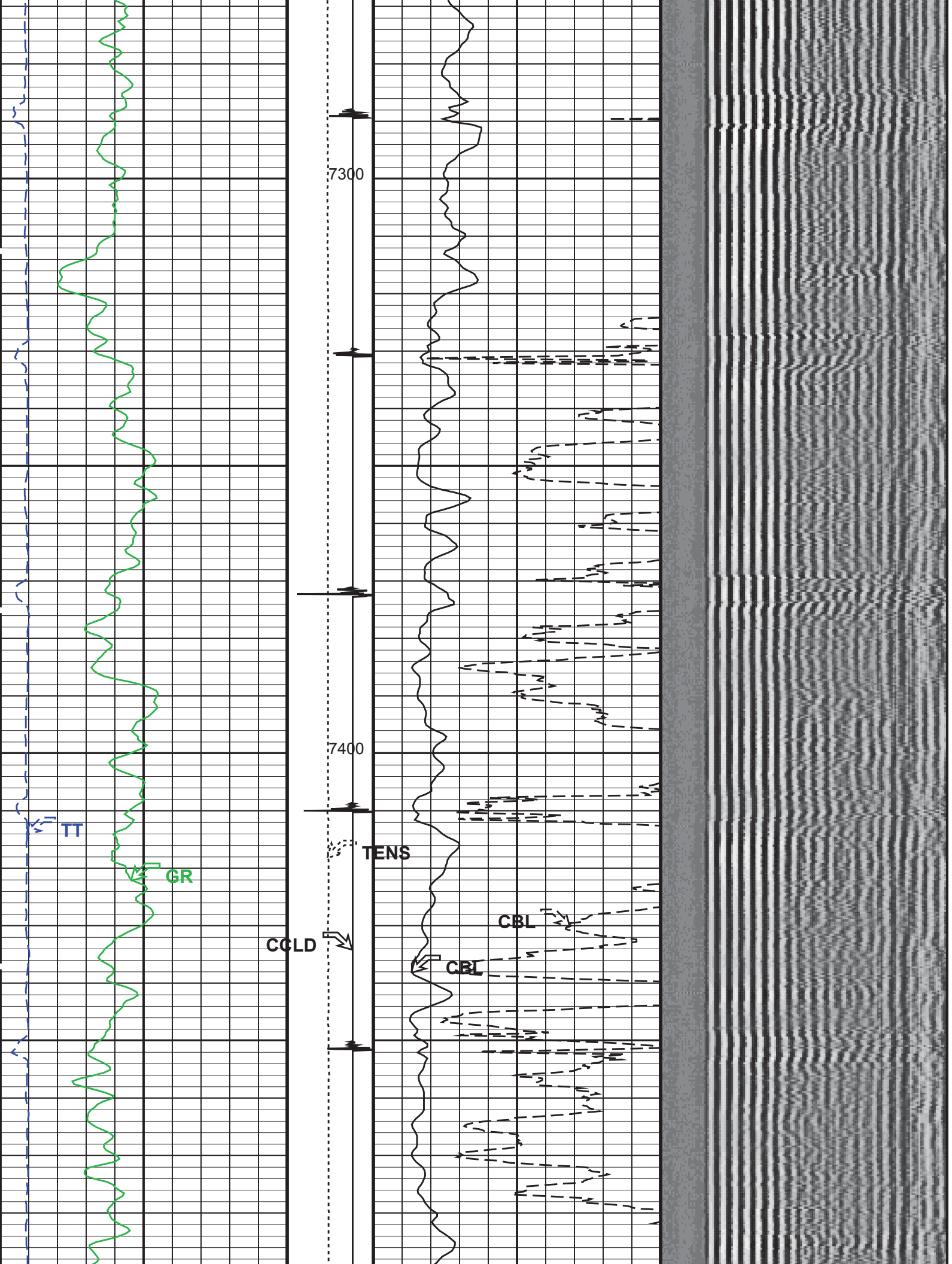
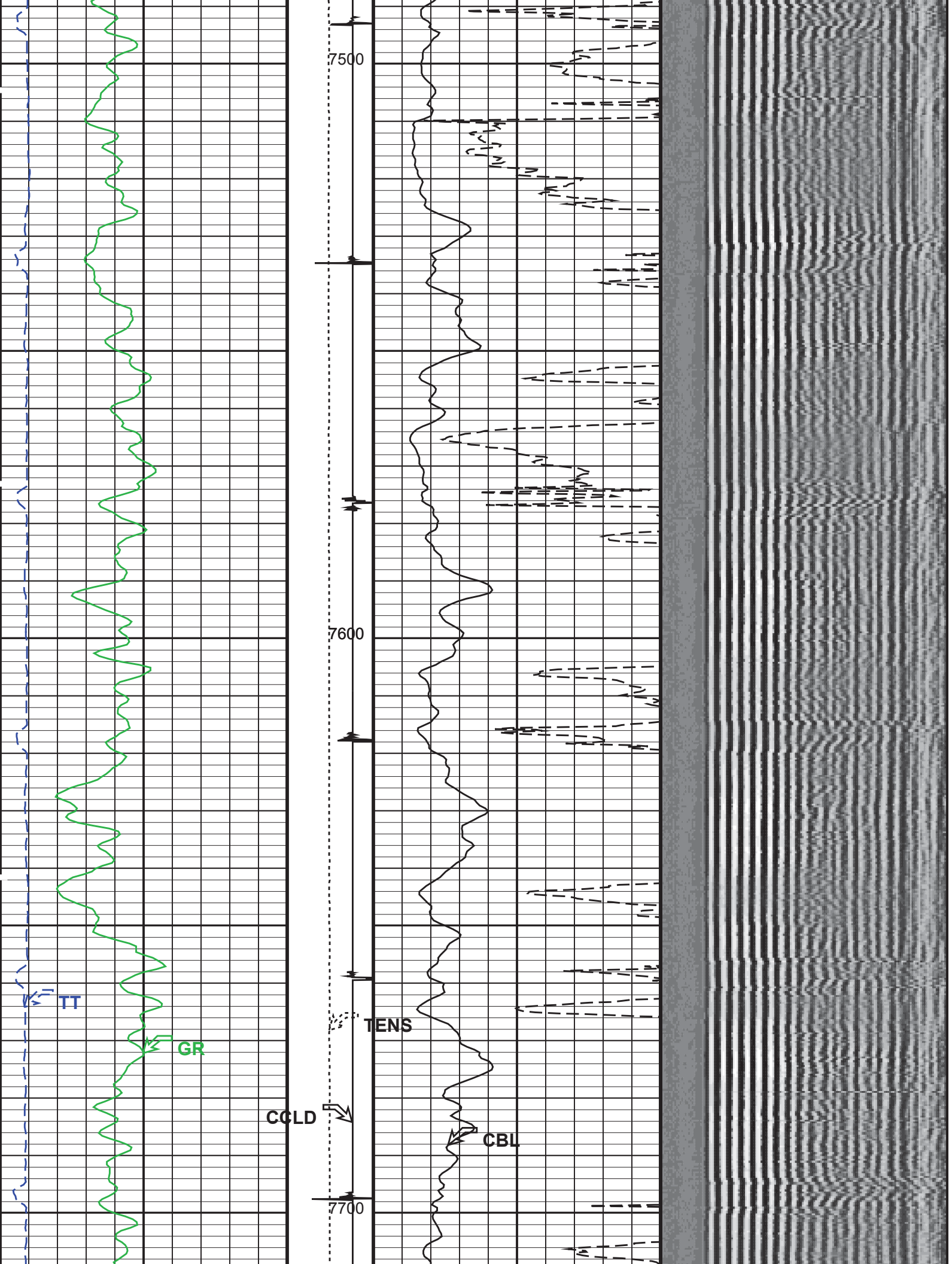
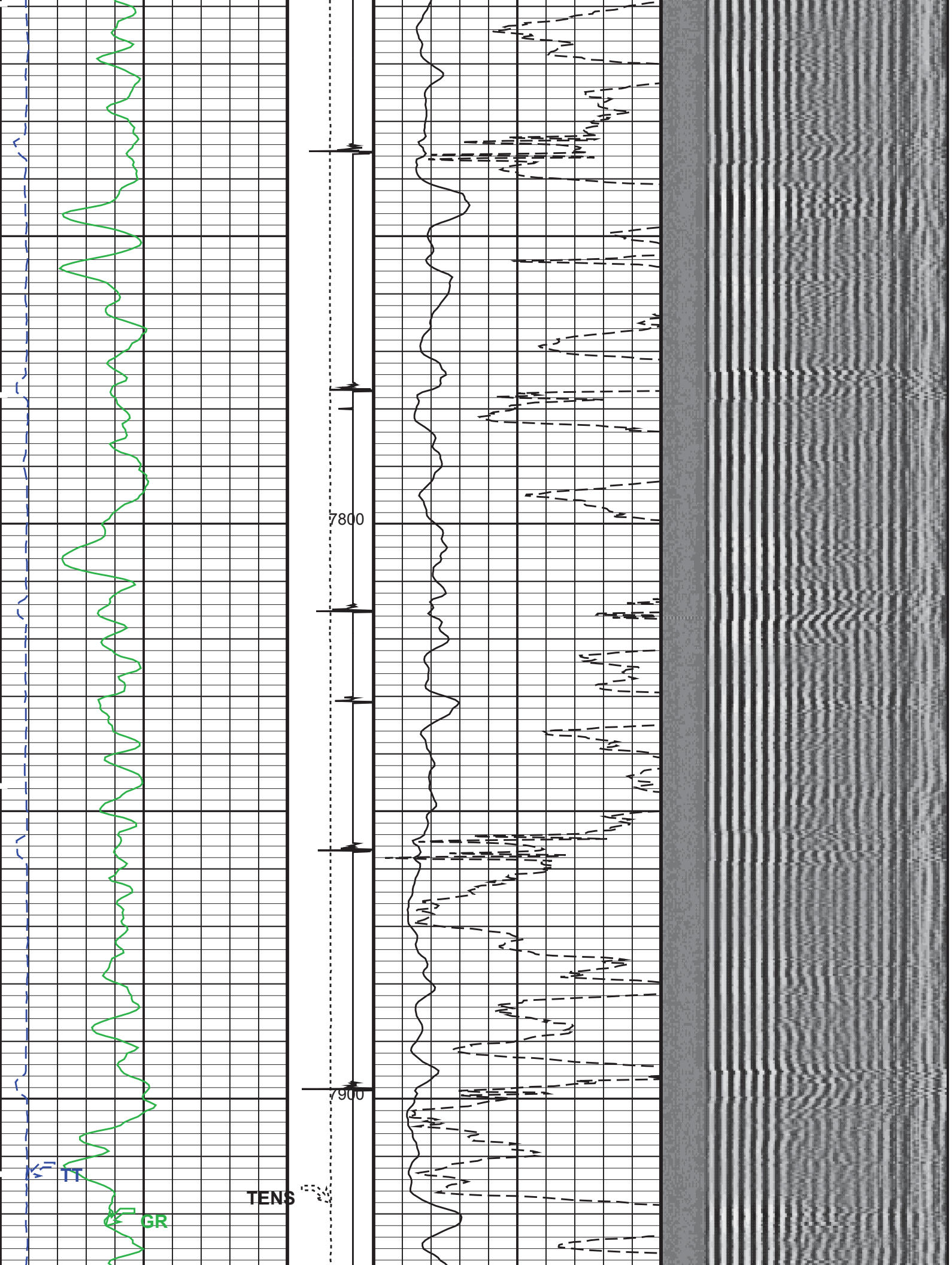
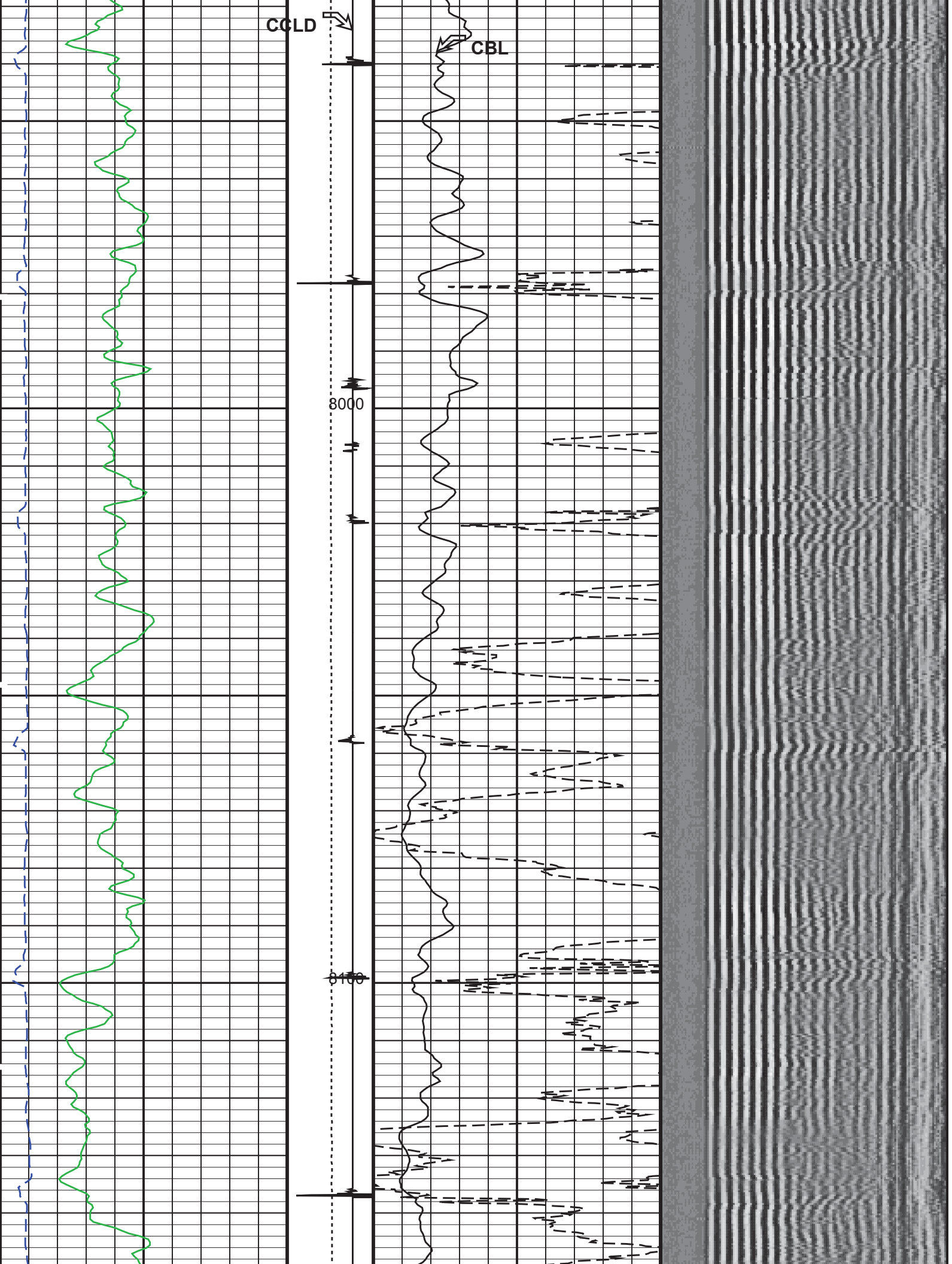
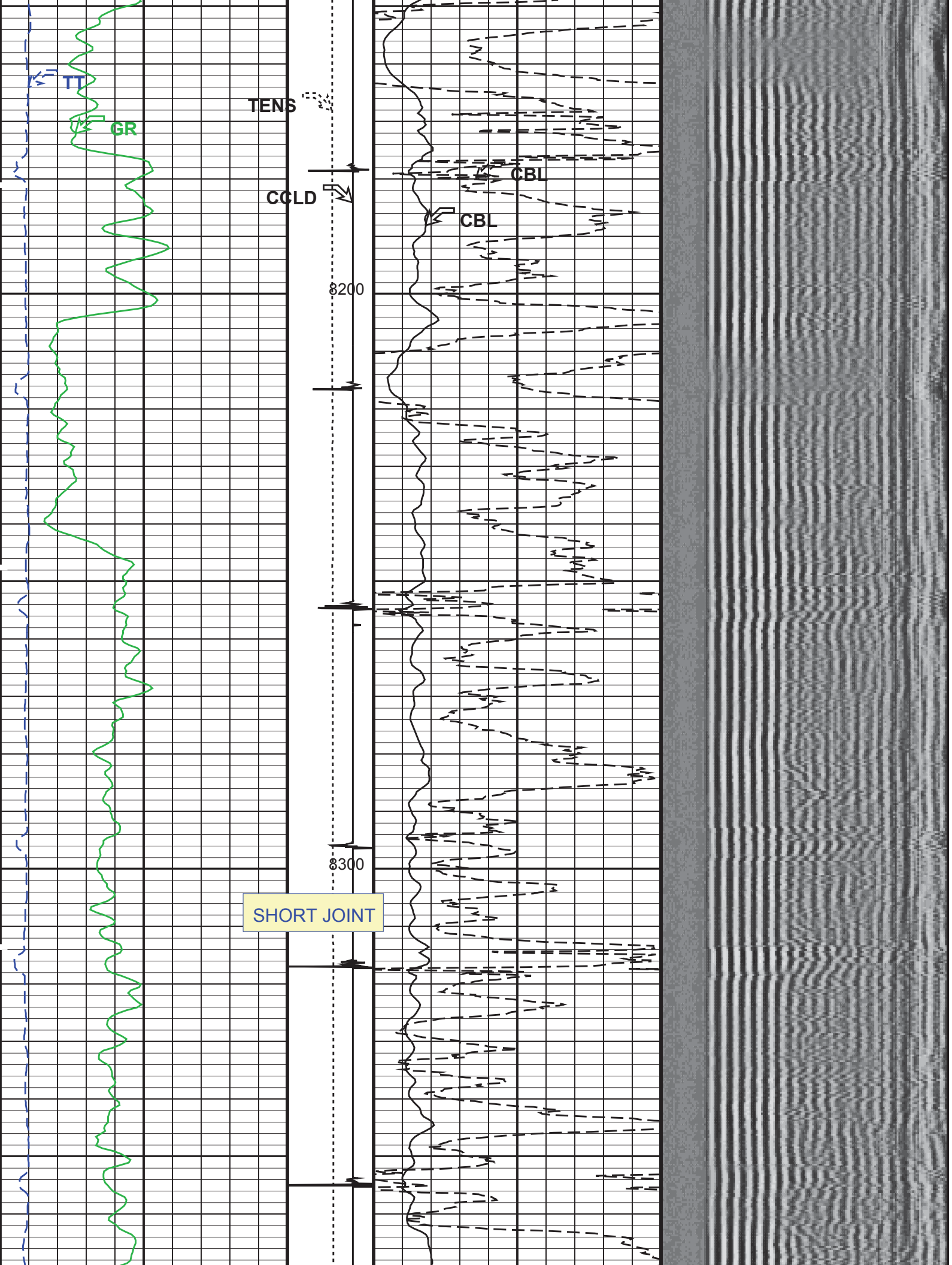
TT
GR
TENS
CCLD
CBL
7200

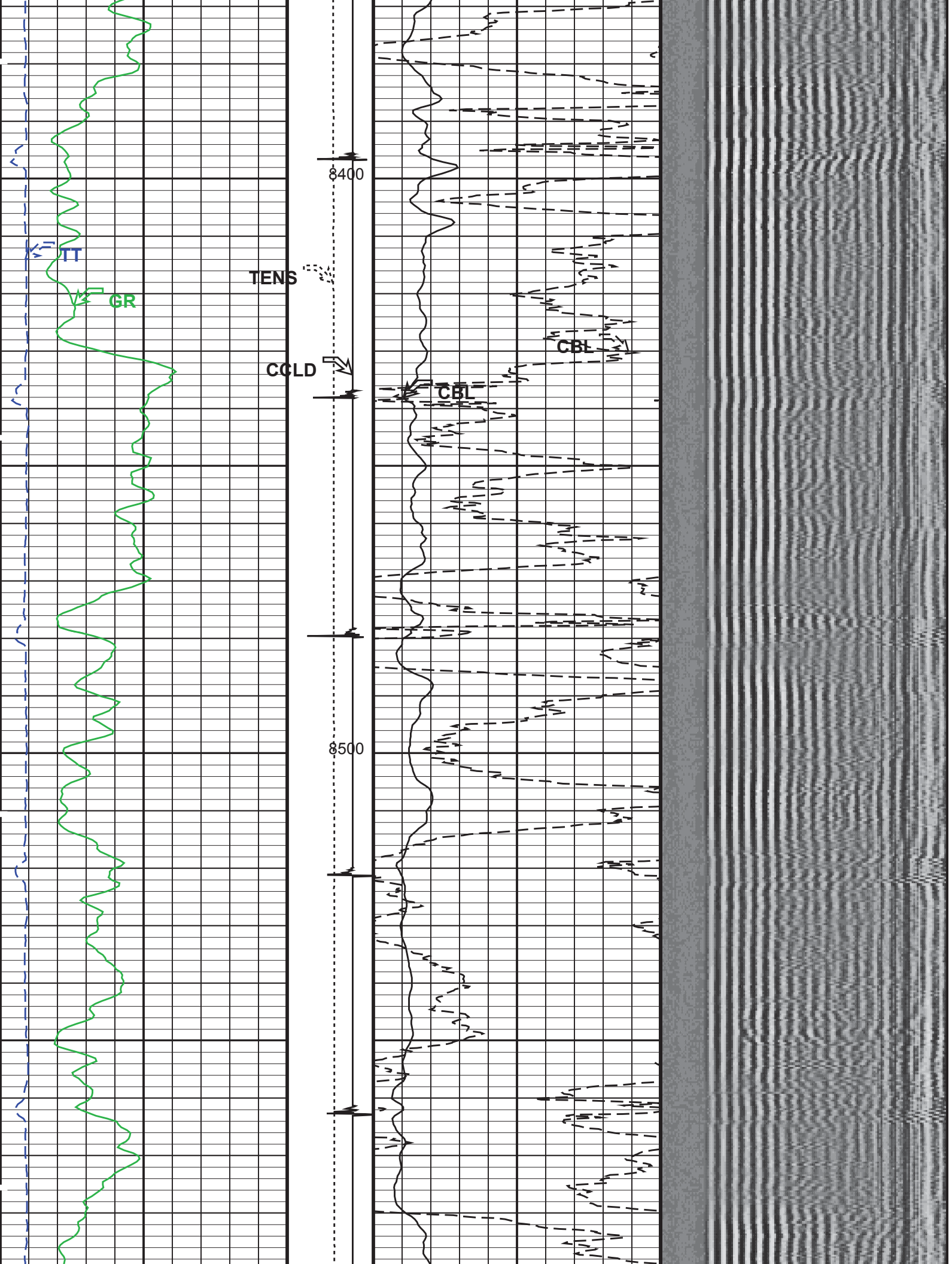

7300
7400
TT
GR
TENS
CCLD
CBL
CBL

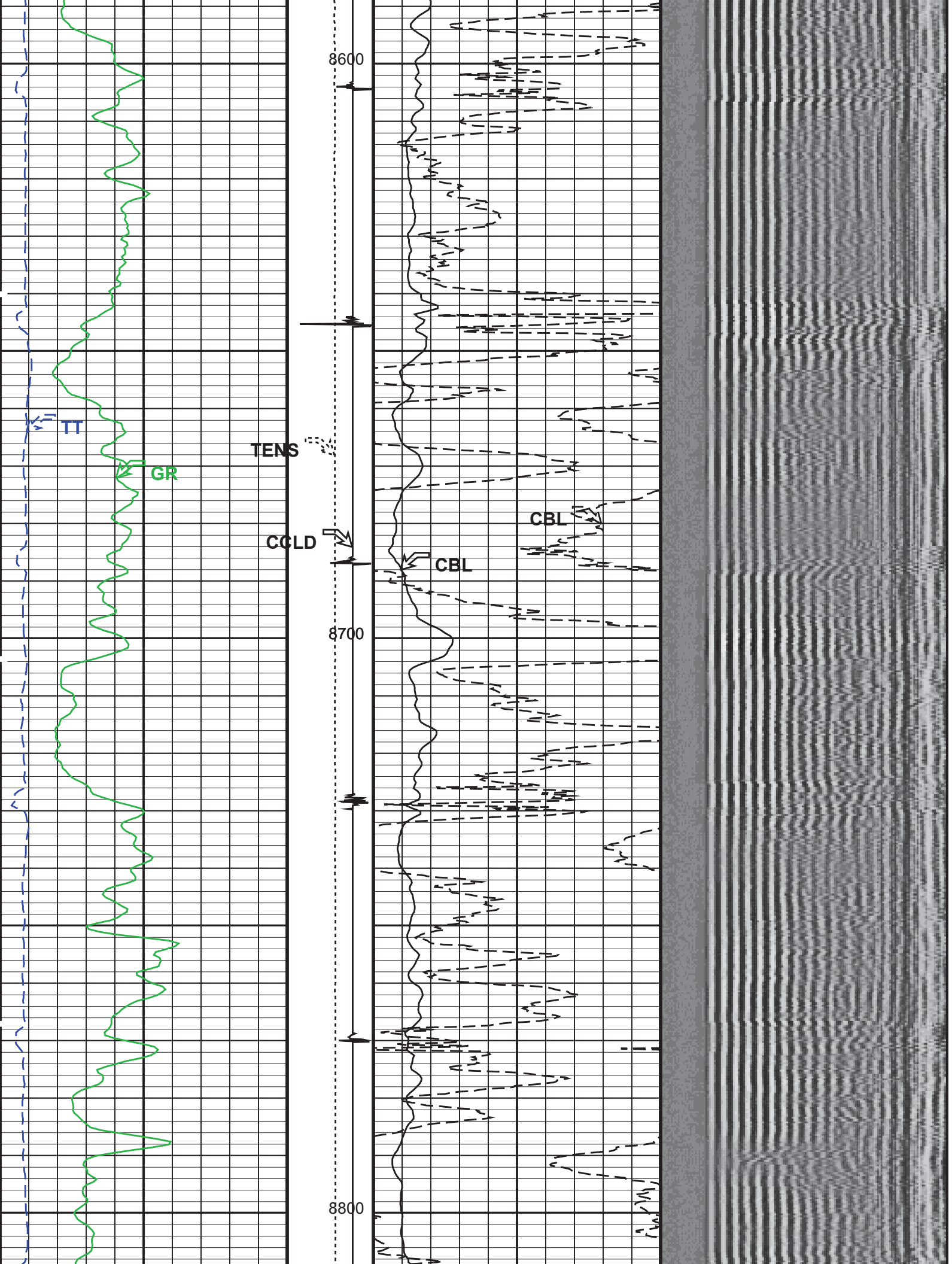

7500
7600
7700
TT
GR
TENS
CCLD
CBL

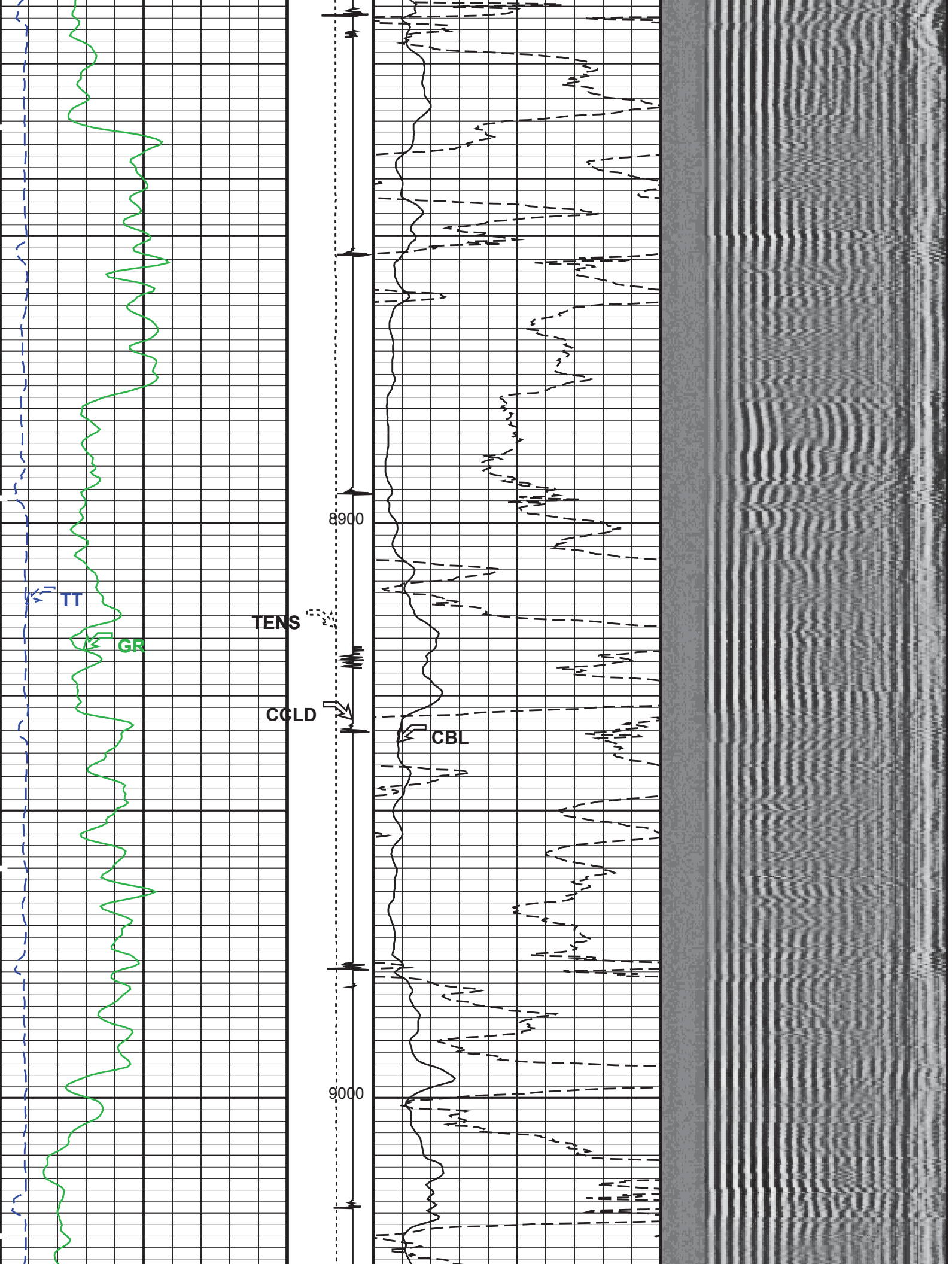

7800
7900
TT
TENS
GR

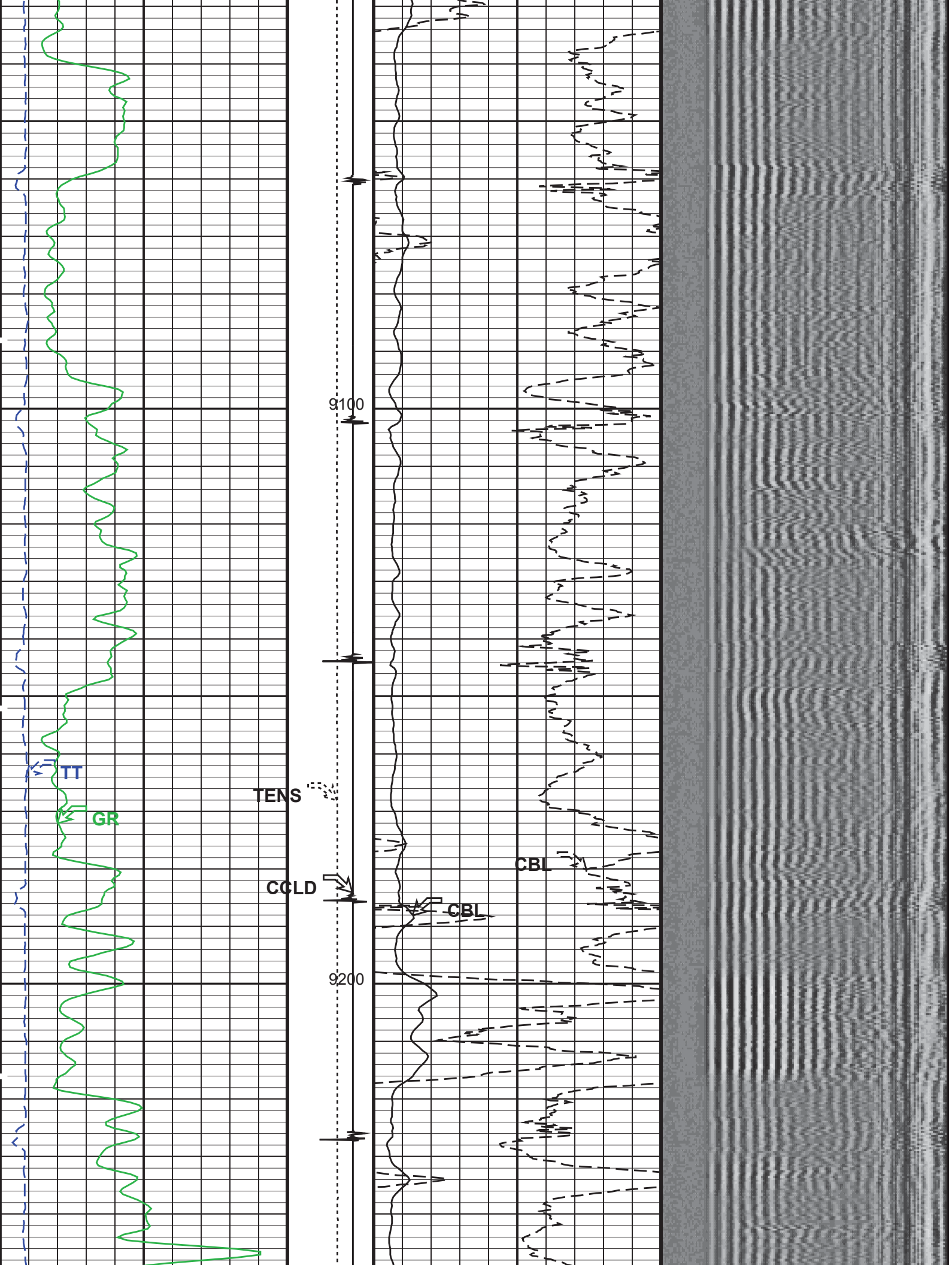

CCLD
CBL
8000
8100

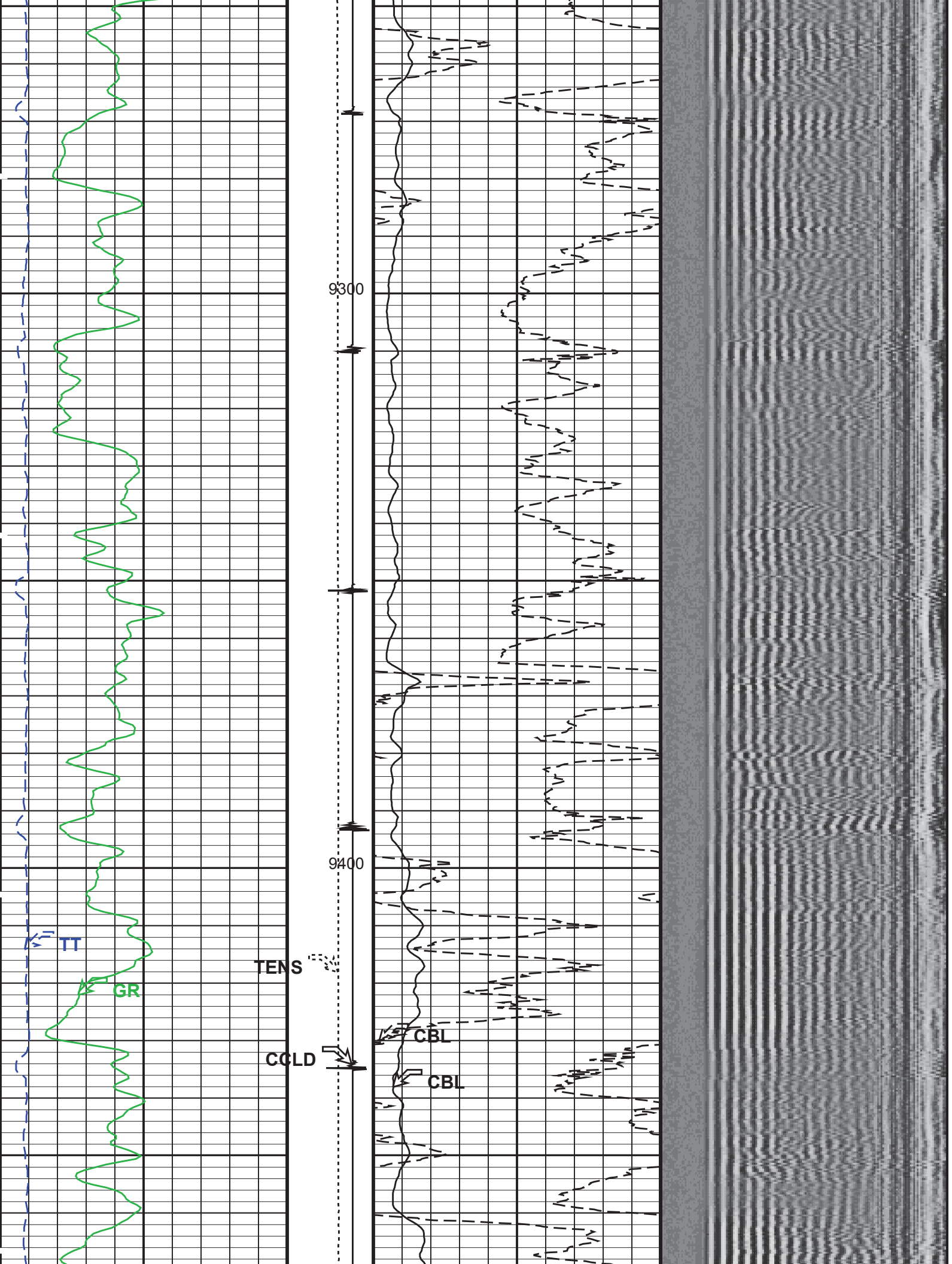

TT
GR
TENS
CCLD
CBL
CBL
8200
8300
SHORT JOINT

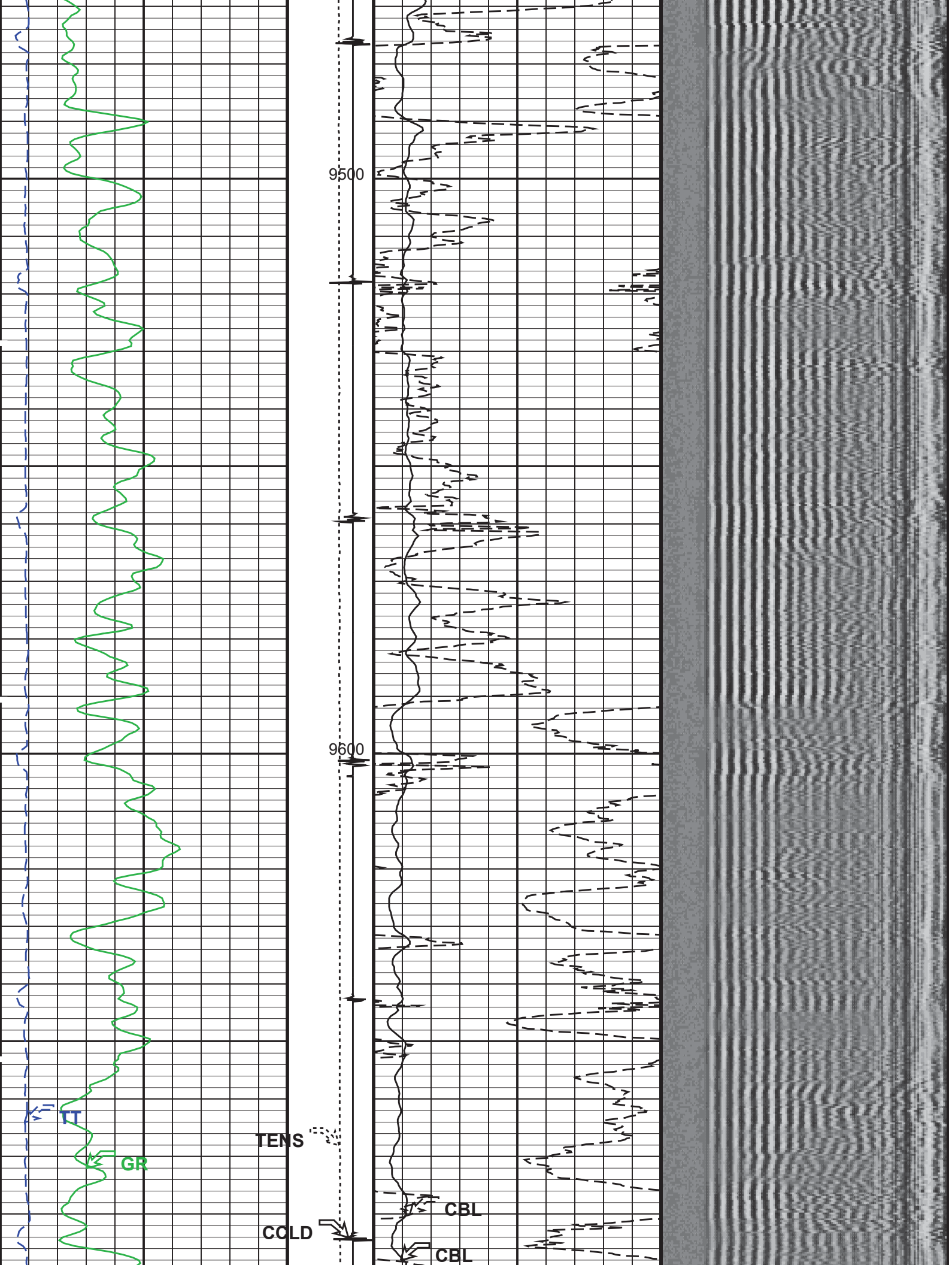

8400
TT
TENS
GR
CBL
CCLD
CBL
8500

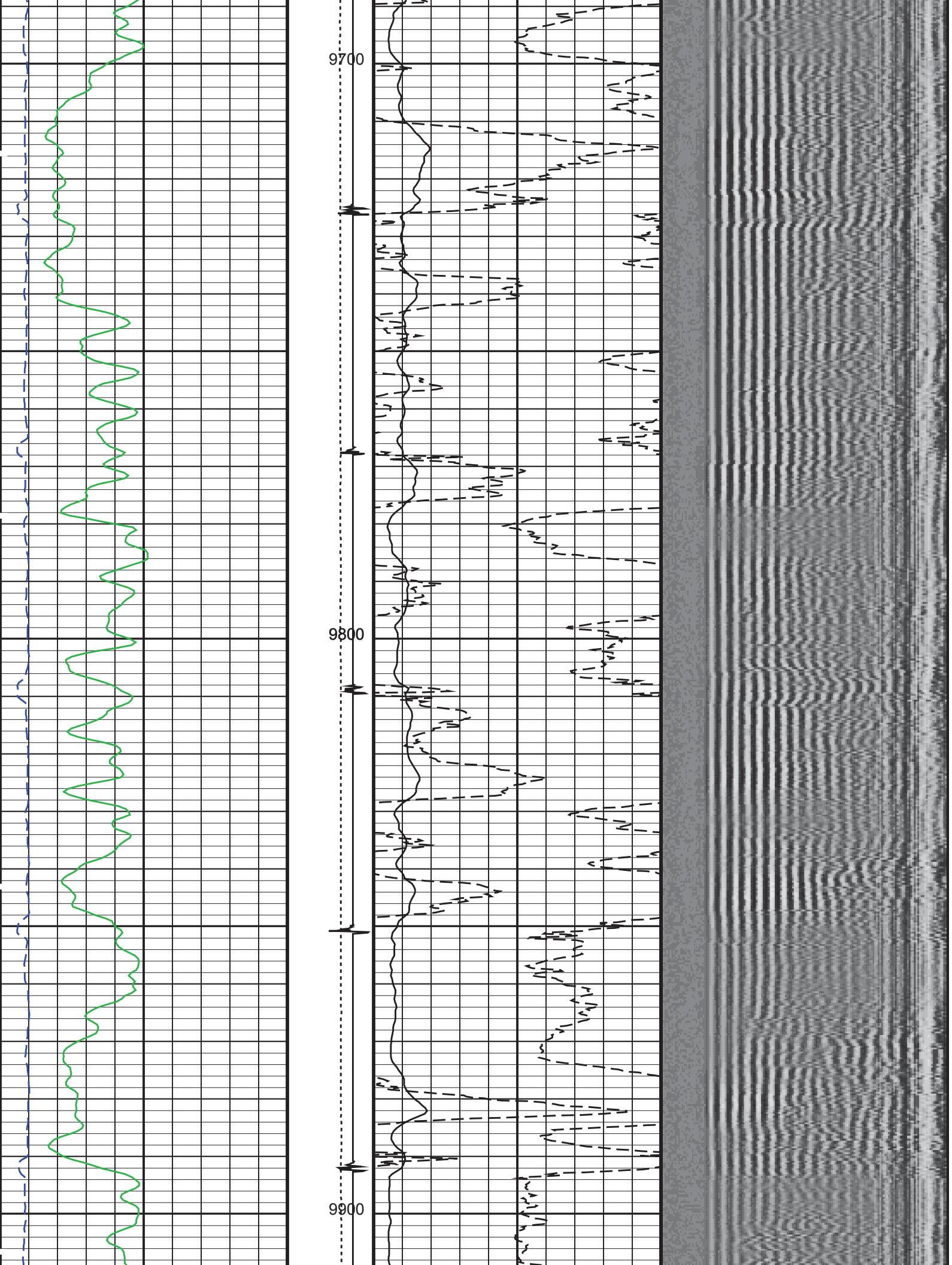

8600
TT
TENS
GR
CBL
CCLD
CBL
8700
8800

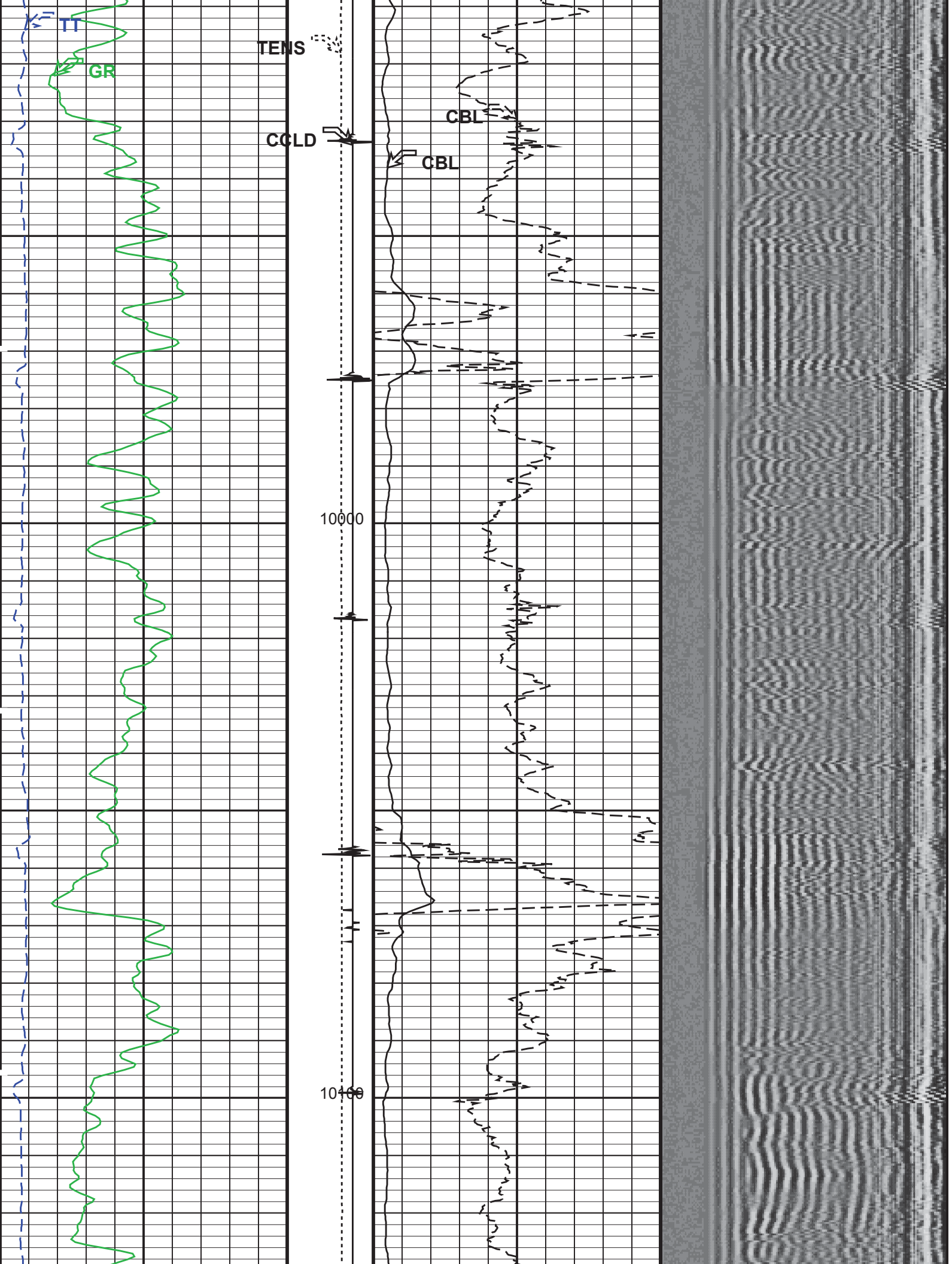

TT
GR
TENS
CCLD
CBL
8900
9000

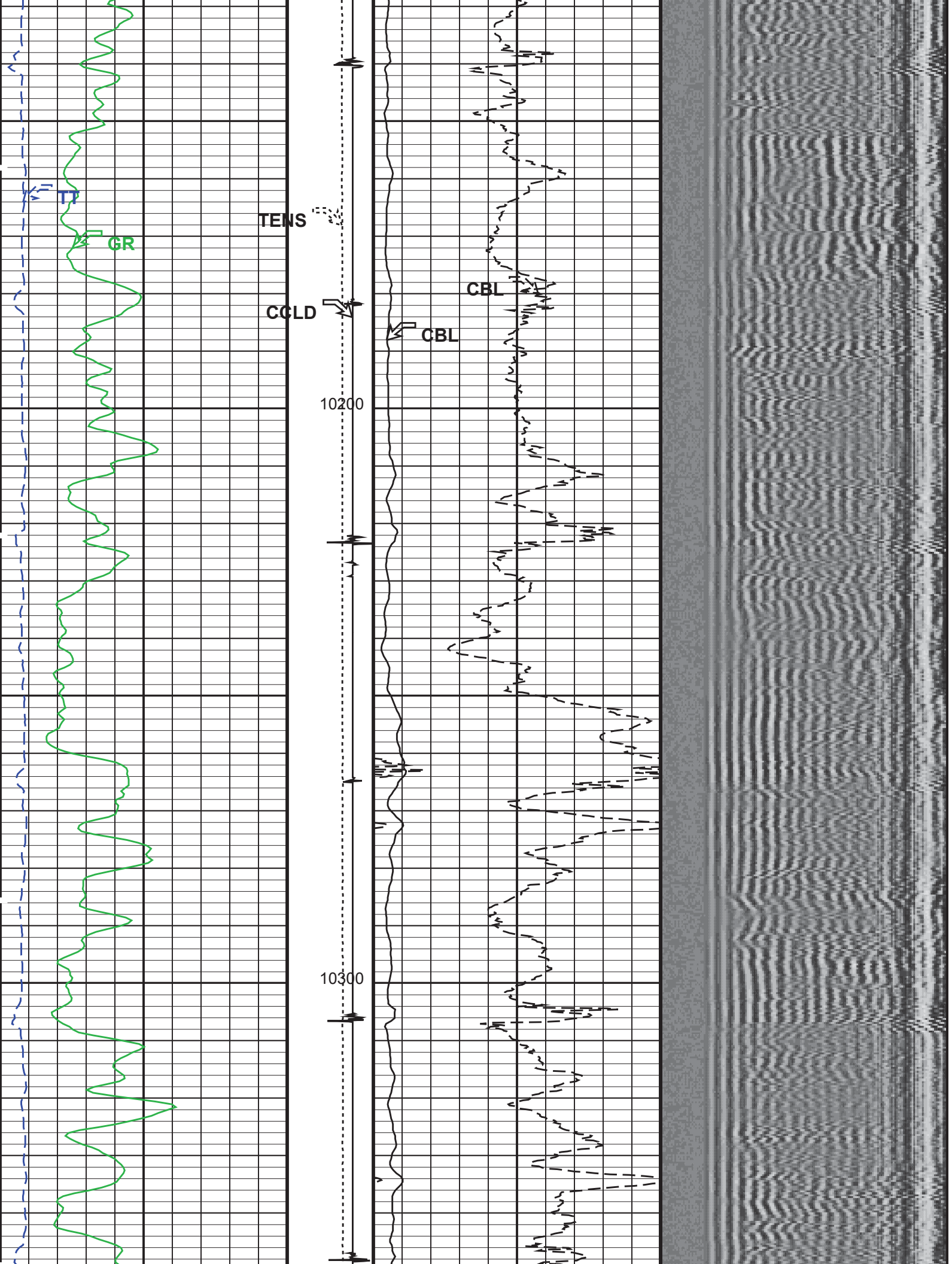

9100
TT
GR
TENS
CCLD
CBL
CBL
9200

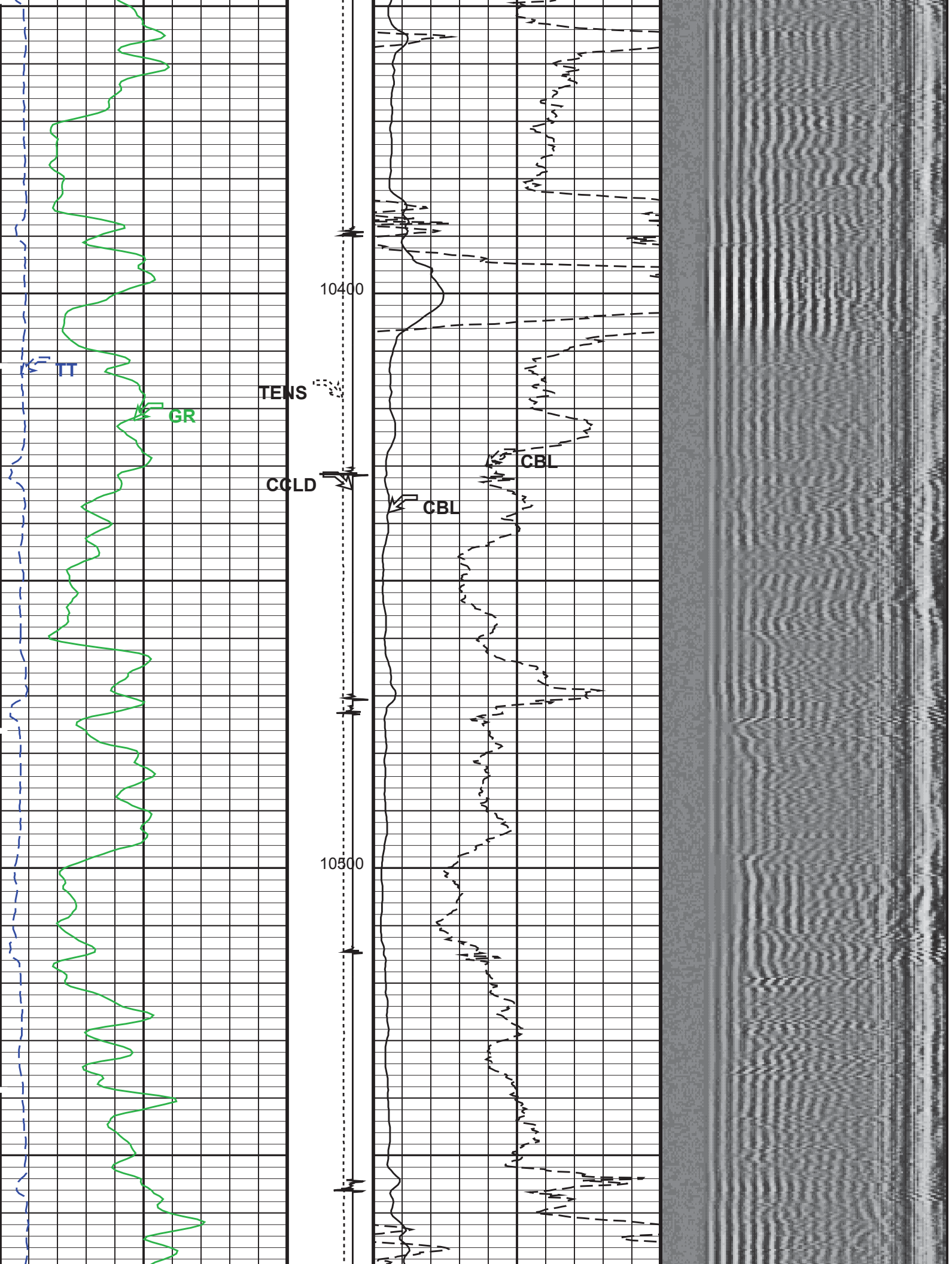

9300
9400
TT
GR
TENS
CCLD
CBL
CBL

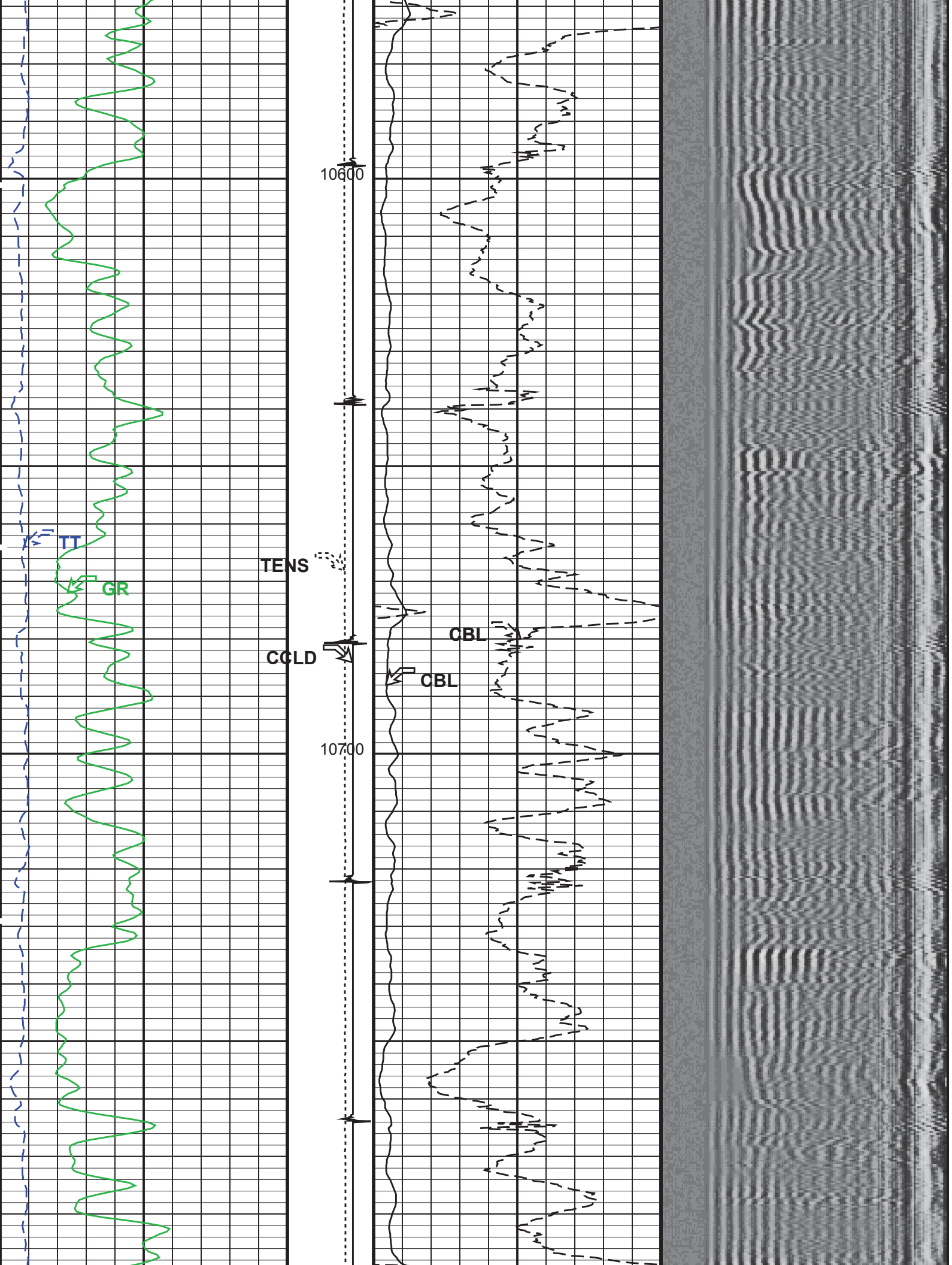

9500
9600
TT
GR
TENS
CBL
COLD
CBL

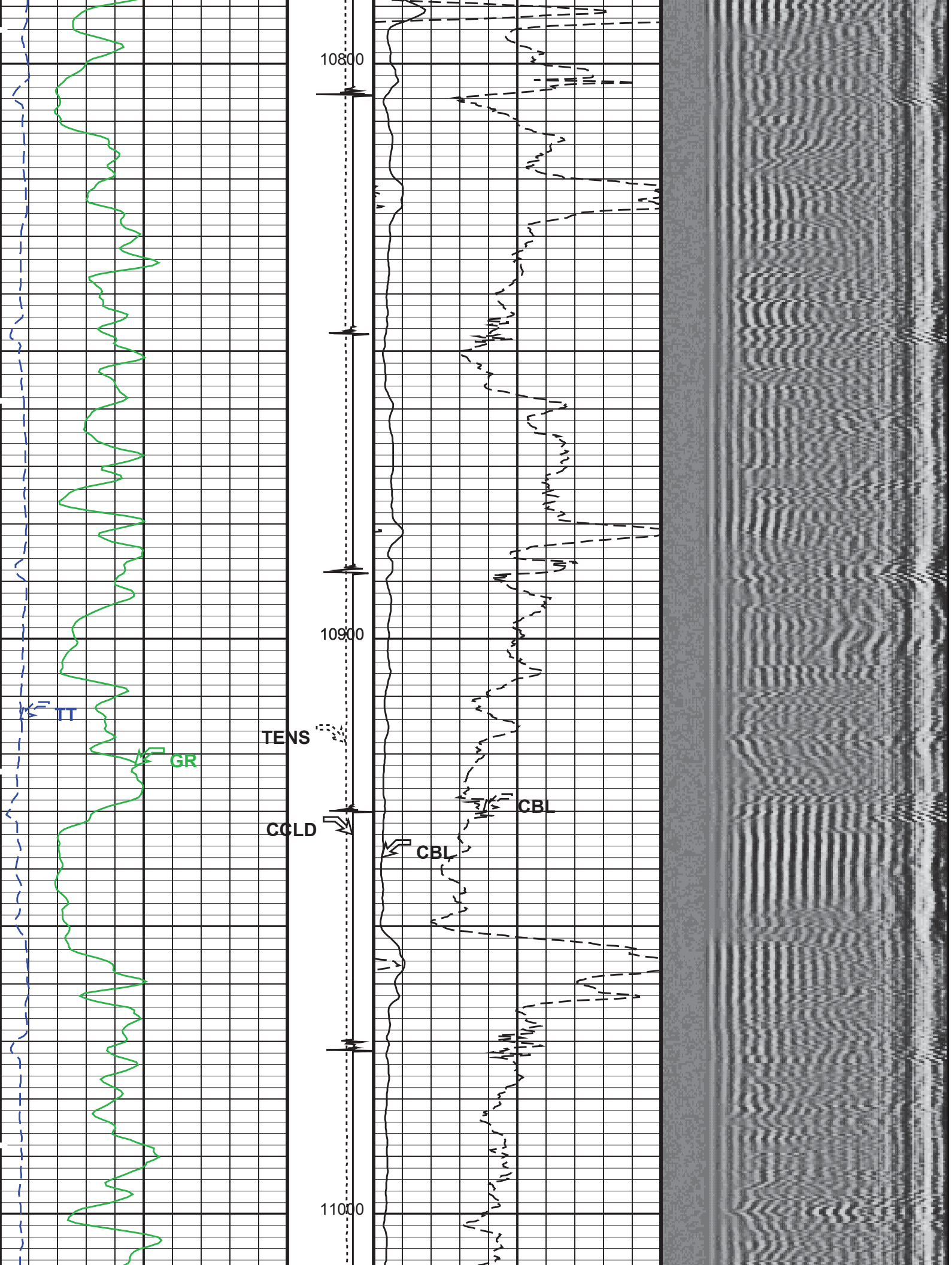

9700
9800
9900

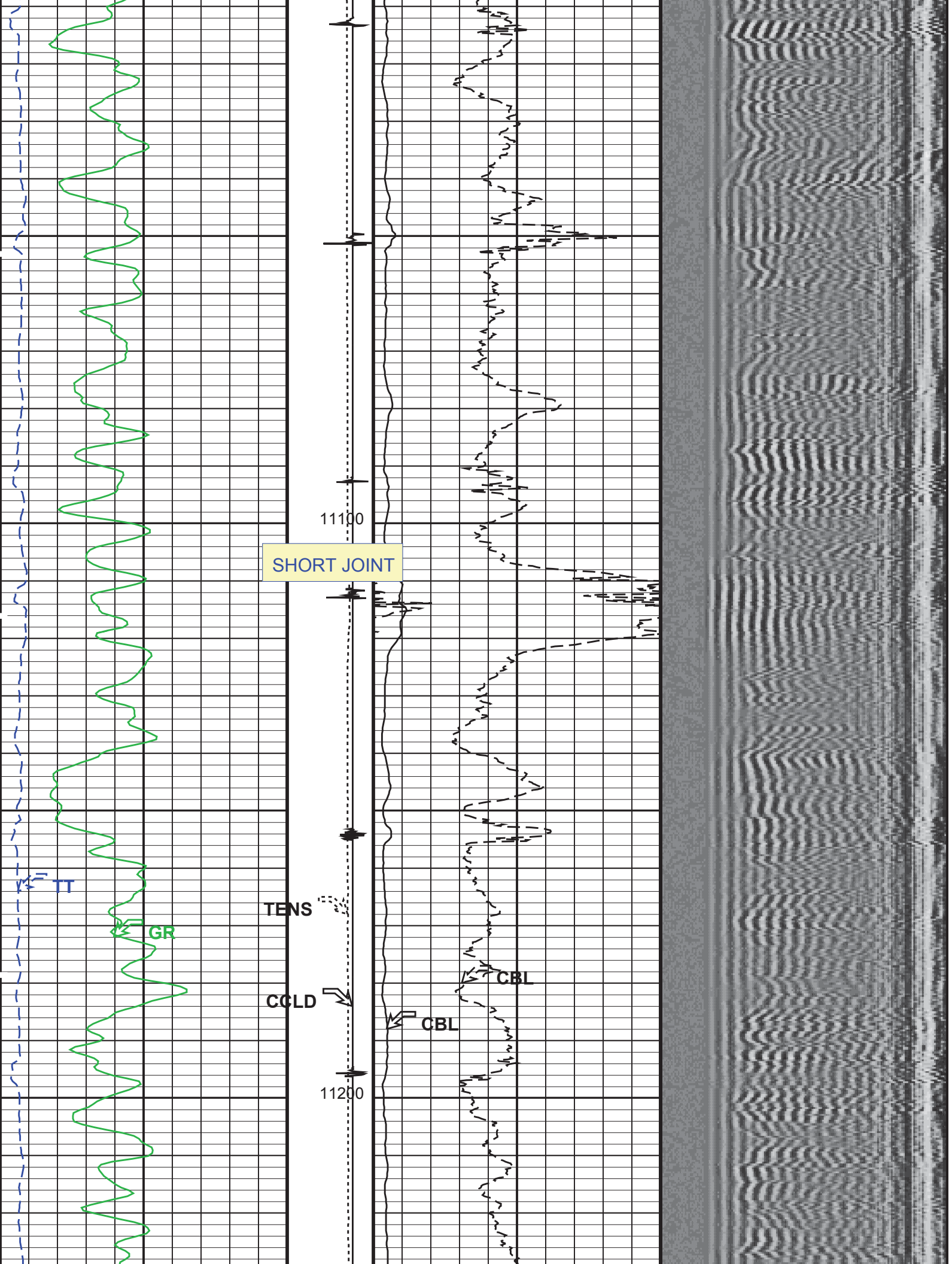

TT
GR
TENS
CCLD
CBL
CBL
10000
10100

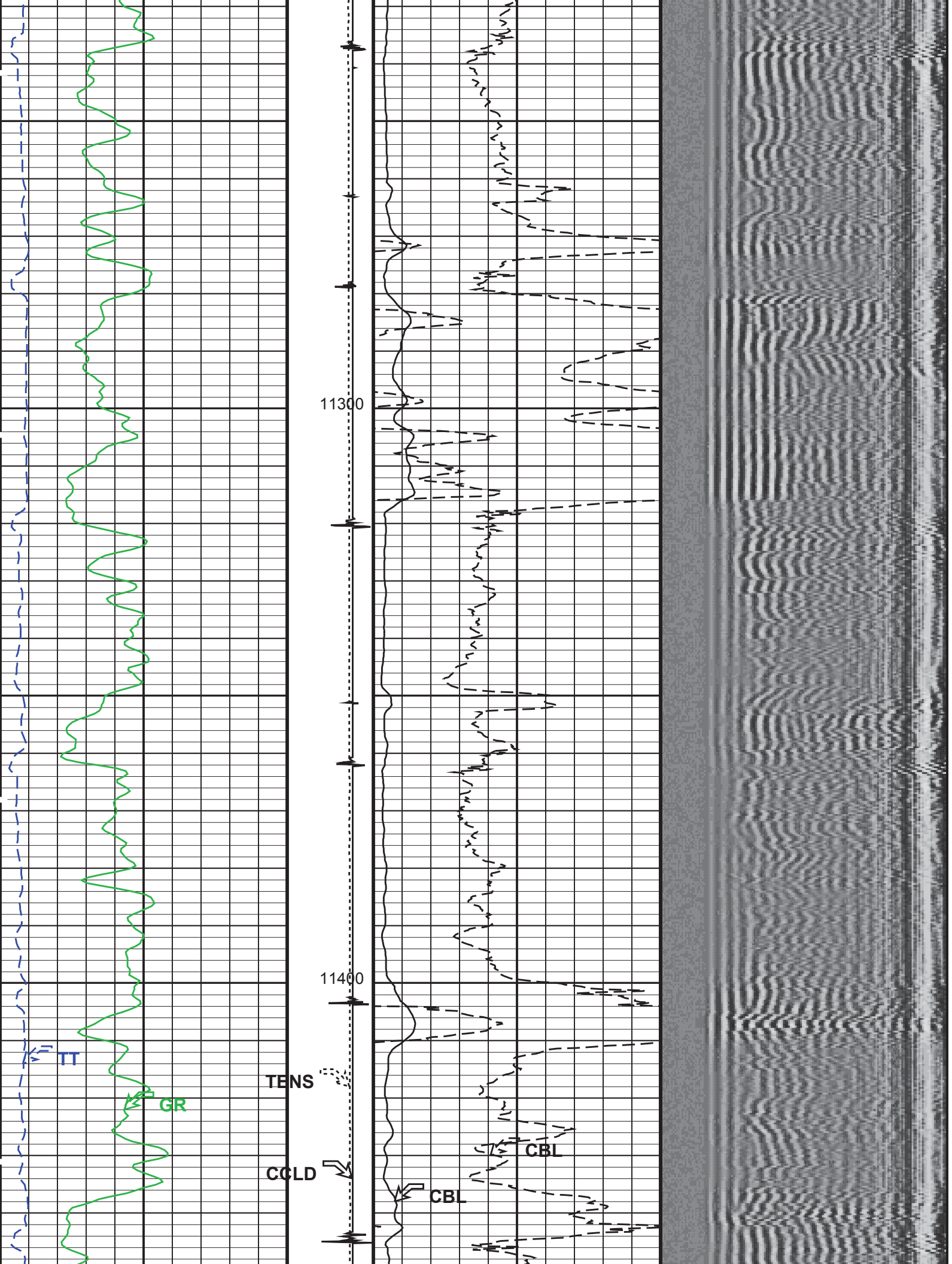

TT
GR
TENS
CCLD
CBL
CBL
10200
10300

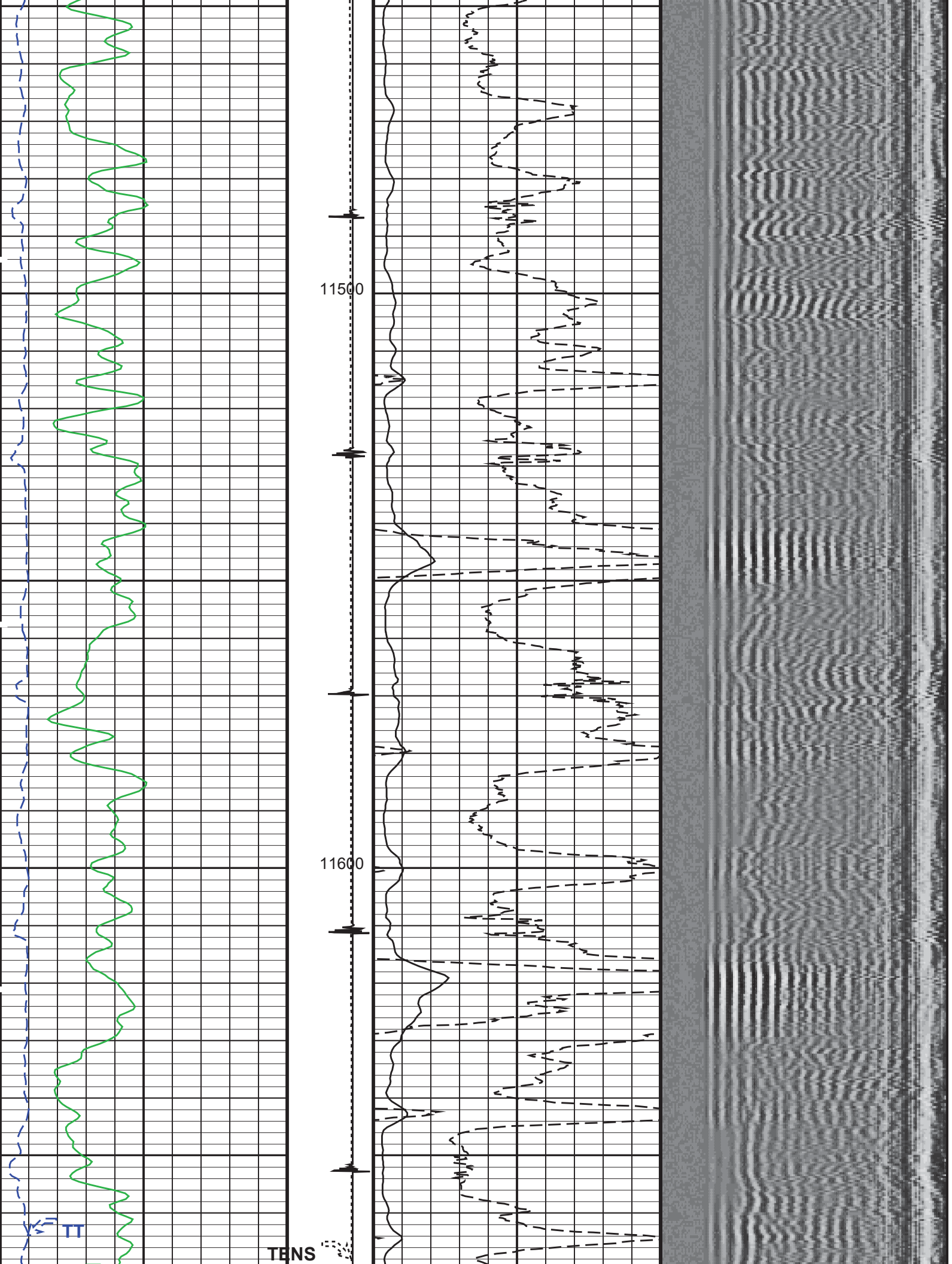

10400
TT
TENS
GR
CCLD
CBL
CBL
10500

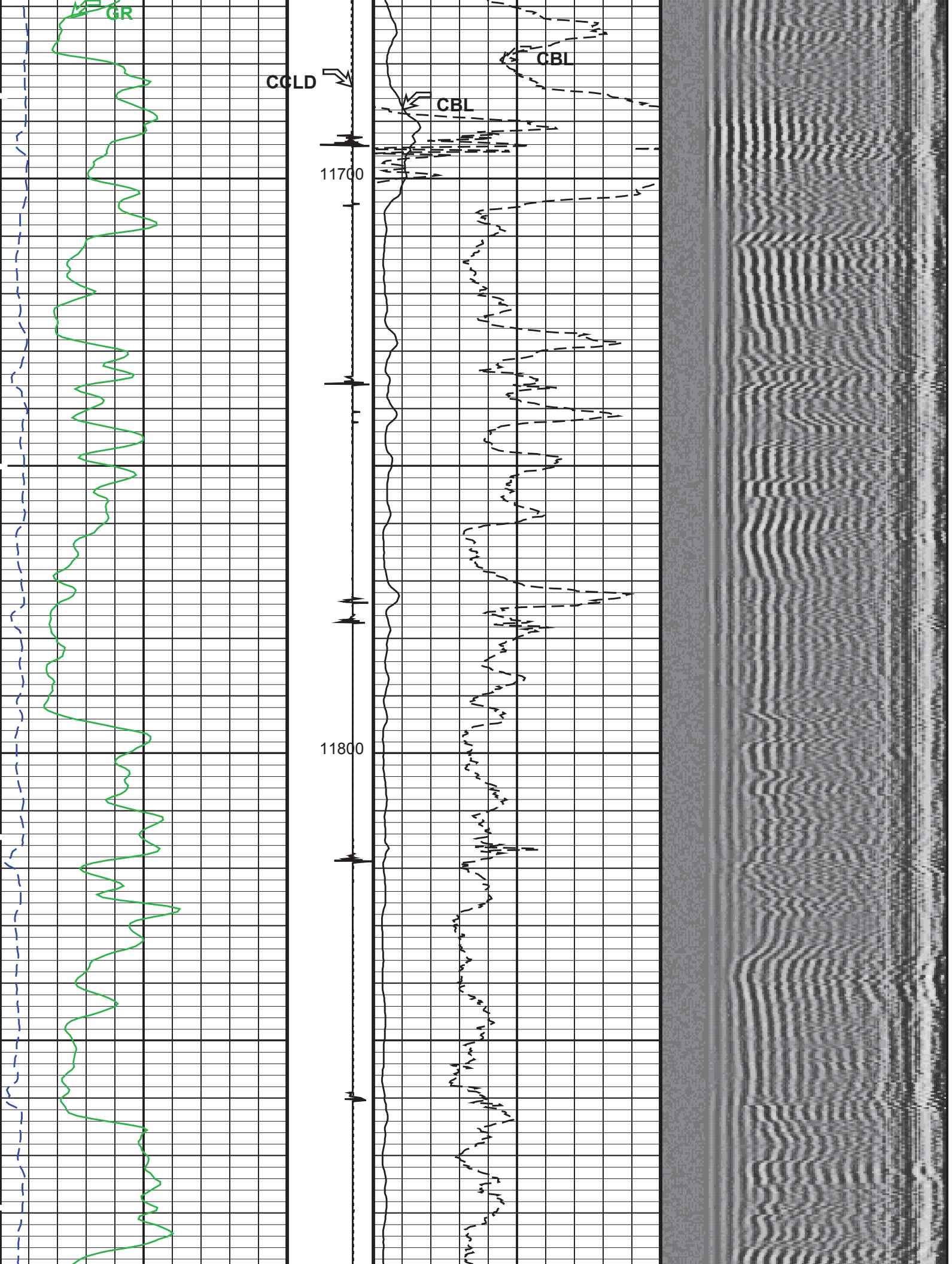

10600
TT
GR
TENS
CBL
CCLD
CBL
10700

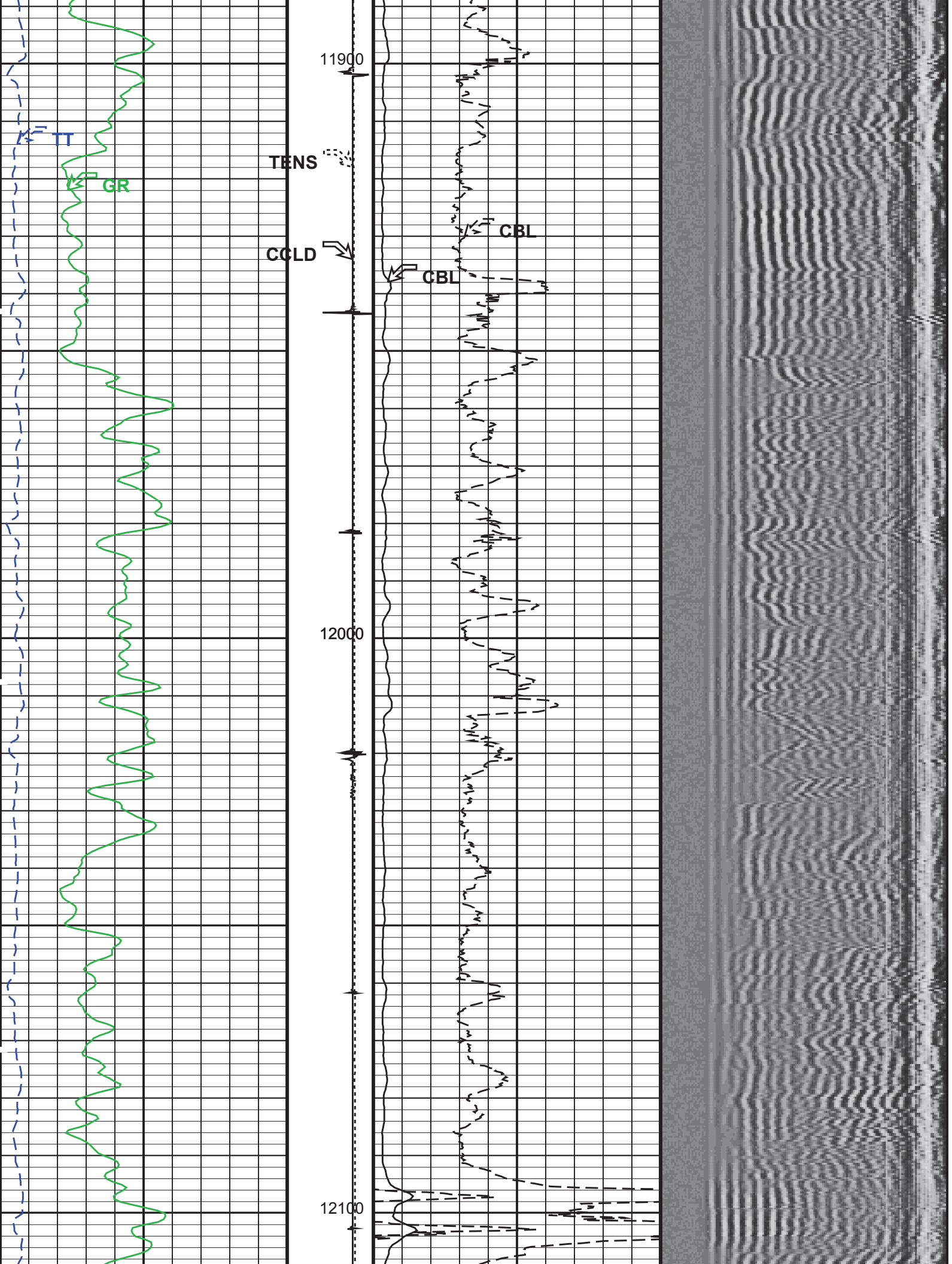

10800
10900
11000
TT
GR
TENS
CCLD
CBL
CBL

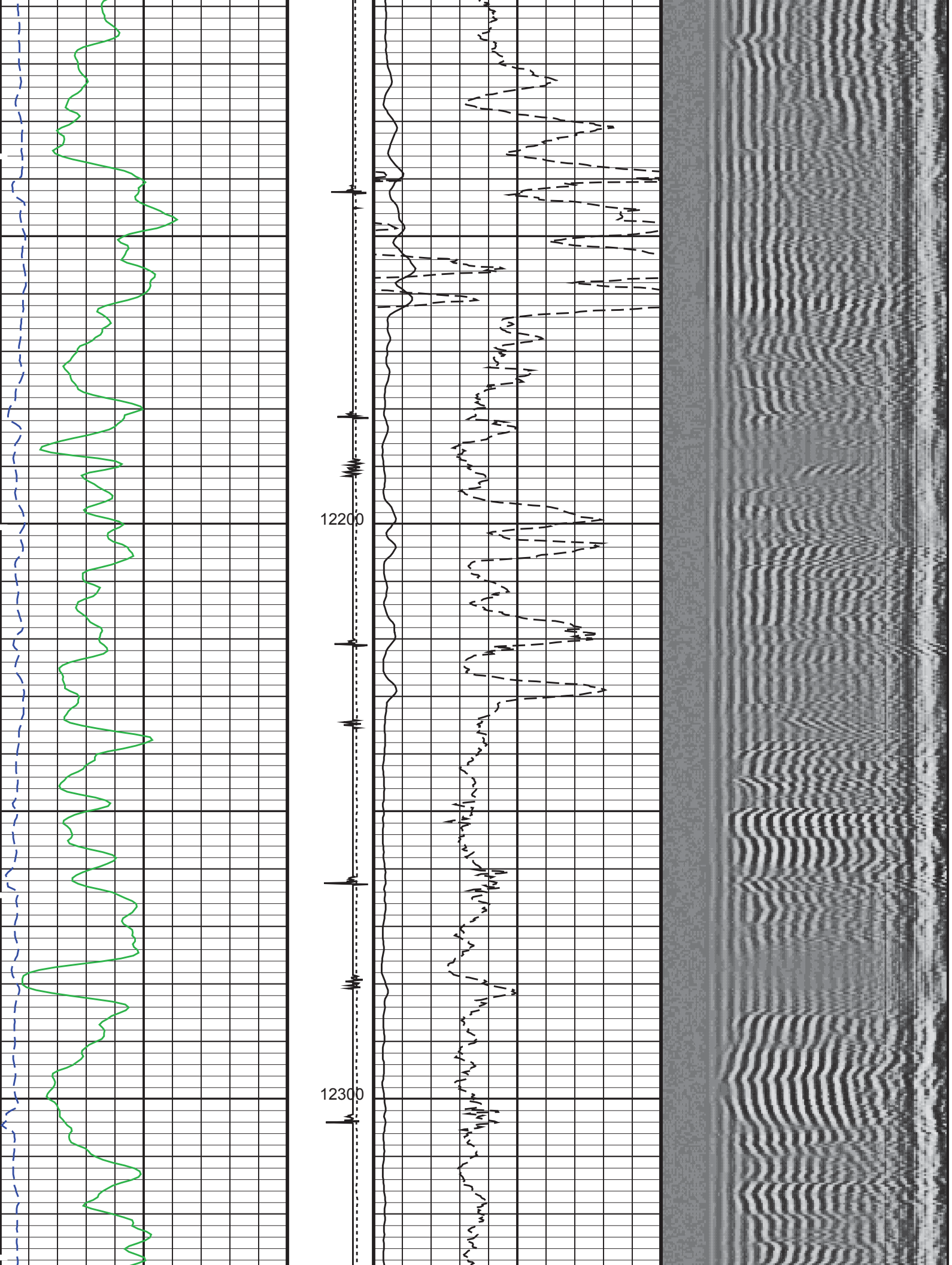

11100
SHORT JOINT
TT
GR
TENS
CCLD
CBL
CBL
11200

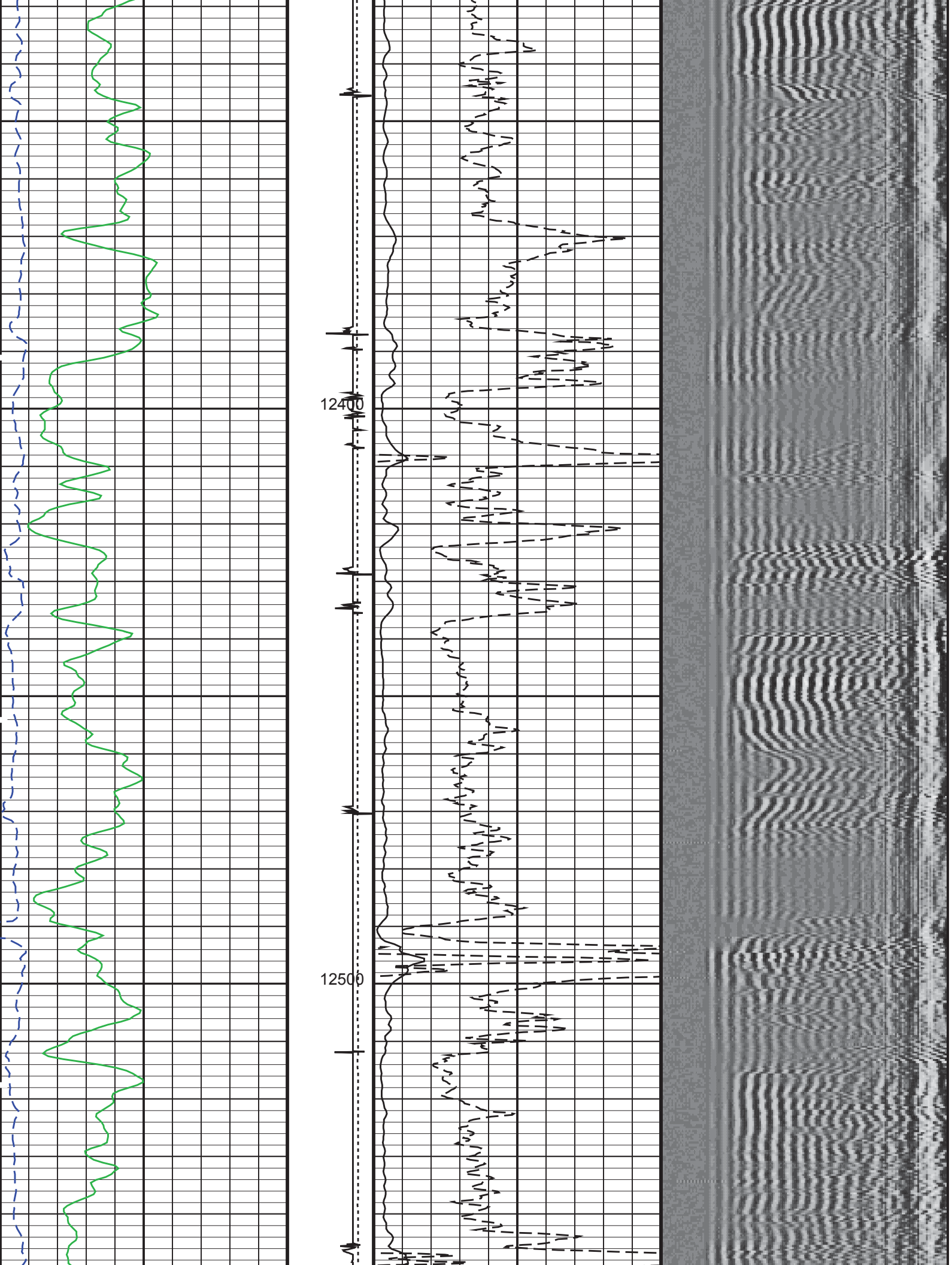

11300
11400
TT
GR
TENS
CCLD
CBL
CBL

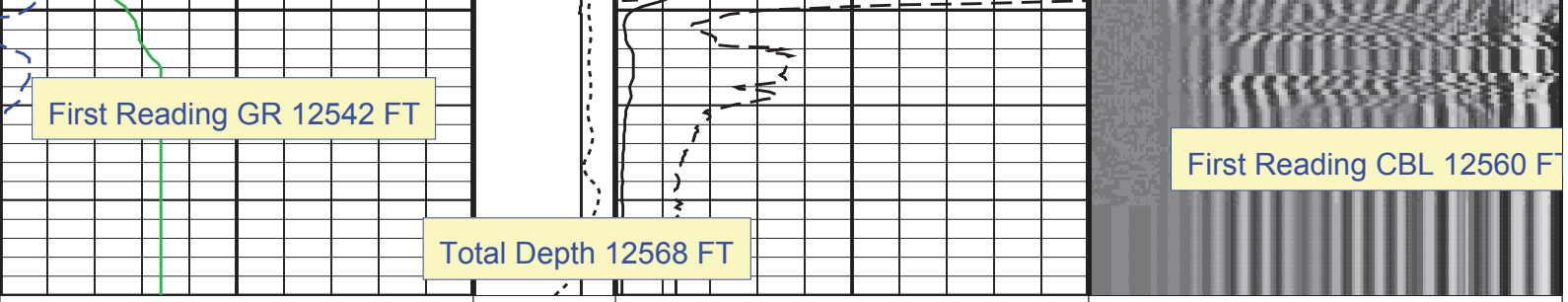

11500
11600
TT
TENS


GR
CCLD
CBL
CBL
11700
11800


TT
GR
TENS
CCLD
CBL
CBL
11900
12000
12100


12200
12300


12400
12500



Gamma Ray (GR)	Tension (TENS)	CBL Amplitude (CBL)	Min Amplitude Max
0 (GAPI) 150	(LBF) 0 2000	0 (MV) 100	VDL VariableDensity (VDL) 200 (US) 1200
Transit Time (TT) 260 (US) 160	Discriminated CCL (CCLD) 3 (V) −1	0 (MV) 10	

PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL Vertical Scale: 5" per 100' Graphics File Created: 18-Mar-2013 23:10

OP System Version: 19C0-187

SCMT-CB	SRPC-5214-H2-2012-OP1	HBMS-B	SRPC-5214-H2-2012-OP1

<<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number	SCMS-CB 8179		
Current Casing Size	4.50000 IN		
Casing Weight	13.5000 LB/F		
Expected CBL Amplitude in Free Pipe Section	81 MV	Minimum Sonic Amplitude	1.28673 MV (100% Cement) 2.94636 MV (80% Cement)
		MAP Minimum Sonic Amplitude	7.12449 MV (100% Cement) 12.0838 MV (80% Cement)
Master Calibration (Normalization)		Before Calibration (Adjustment)	
Date of Master Calibration	6-MAR-2012		
CBL Correction Factor	0.0704263	CBL Adjustment Factor (CBAF)	0.800000
MAP 1 Correction Factor	0.0993191	MAP Adjustment Factor (MPAF)	1.0
MAP 2 Correction Factor	0.0941329		
MAP 3 Correction Factor	0.101552		
MAP 4 Correction Factor	0.114415		
MAP 5 Correction Factor	0.127992		
MAP 6 Correction Factor	0.121190		
MAP 7 Correction Factor	0.112867		
MAP 8 Correction Factor	0.102913		

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	223.206	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	337.206	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	81	MV
CMCF	CBL Cement Type Compensation Factor	1	

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	0.300677	IN
DTF	Delta−T Fluid	189	US/F
FATT	Acoustic Attenuation due to Fluid	0	DB/F
FCF	CBL Fluid Compensation Factor	0.924277	
GOBO	Good Bond	2.94636	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	166.206	US
MAPT	SCMT MAP Fixed Threshold Level	30	MV
MATT	Maximum Attenuation	14.0905	DB/F
MCCF	MAP Cement Type Compensation Factor	1	
MCI	Minimum Cemented Interval for Isolation	1.25	FT
MMSA	MAP Minimum Sonic Amplitude	7.12449	MV
MSA	Minimum Sonic Amplitude	1.28673	MV
PEDE	Peak Detection On/Off Switch in Playback	OFF	
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	13.50	LB/F
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	0.0	FT
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	12568	FT

Input DLIS Files

DEFAULT	SCMT_HBMS_018LUP	FN:17	PRODUCER	18−Mar−2013 19:41	12580.0 FT	38.0 FT

Output DLIS Files

DEFAULT	SCMT_HBMS_020PUP	FN:19	PRODUCER	18−Mar−2013 23:10		

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REPEAT ANALYSIS CBL VDL

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC

Well: SGU 8510C−23 (L24 496)

Input DLIS Files

DEFAULT	SCMT_HBMS_017LUP	FN:16	PRODUCER	18−Mar−2013 19:21	8429.5 FT	8120.0 FT
DEFAULT	SCMT_HBMS_020PUP	FN:19	PRODUCER	18−Mar−2013 23:10	12580.0 FT	6.5 FT

Output DLIS Files

DEFAULT	SCMT_HBMS_021PUP	FN:20	PRODUCER	18−Mar−2013 23:19	8424.5 FT	8083.5 FT

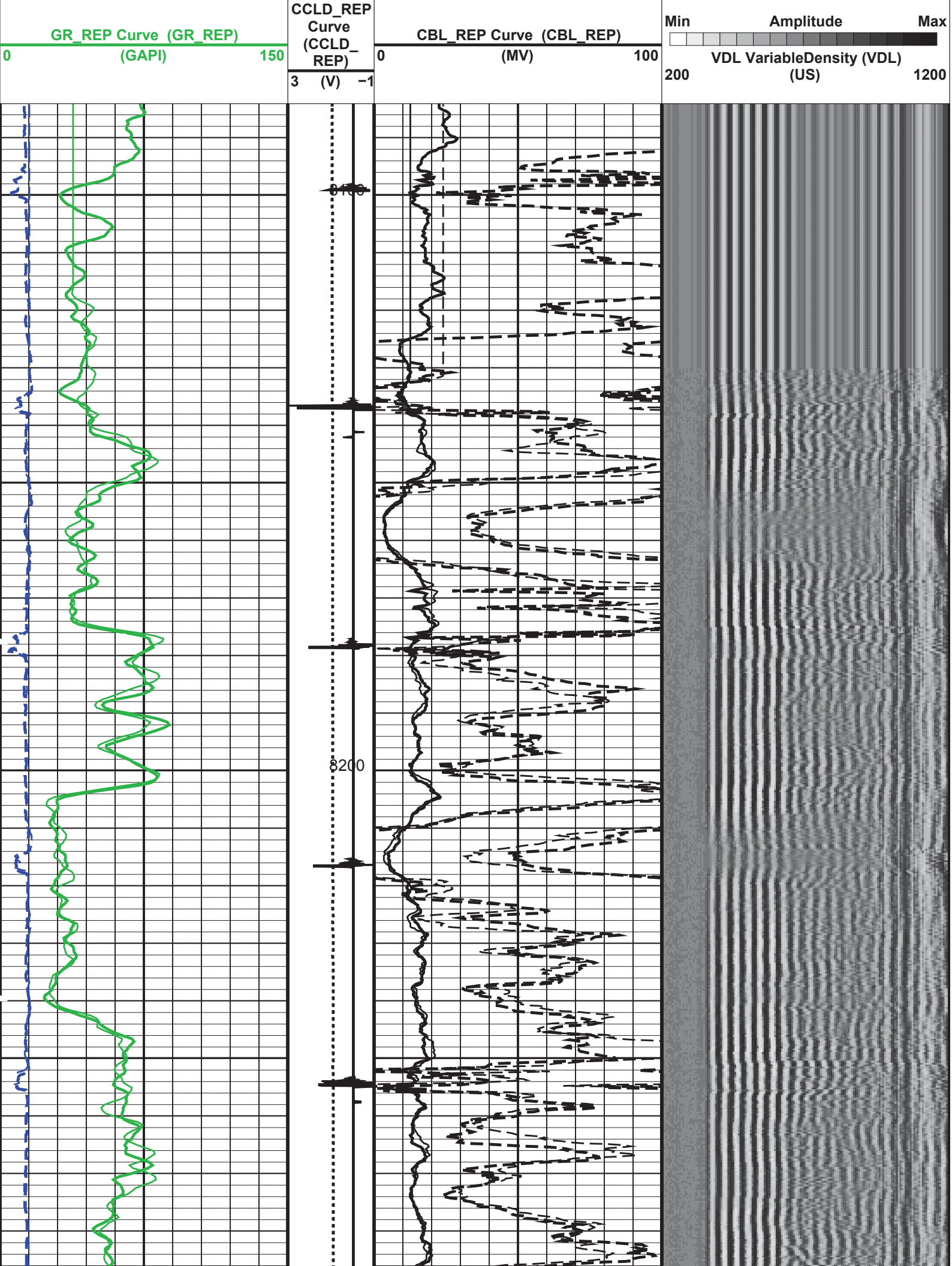
OP System Version: 19C0−187

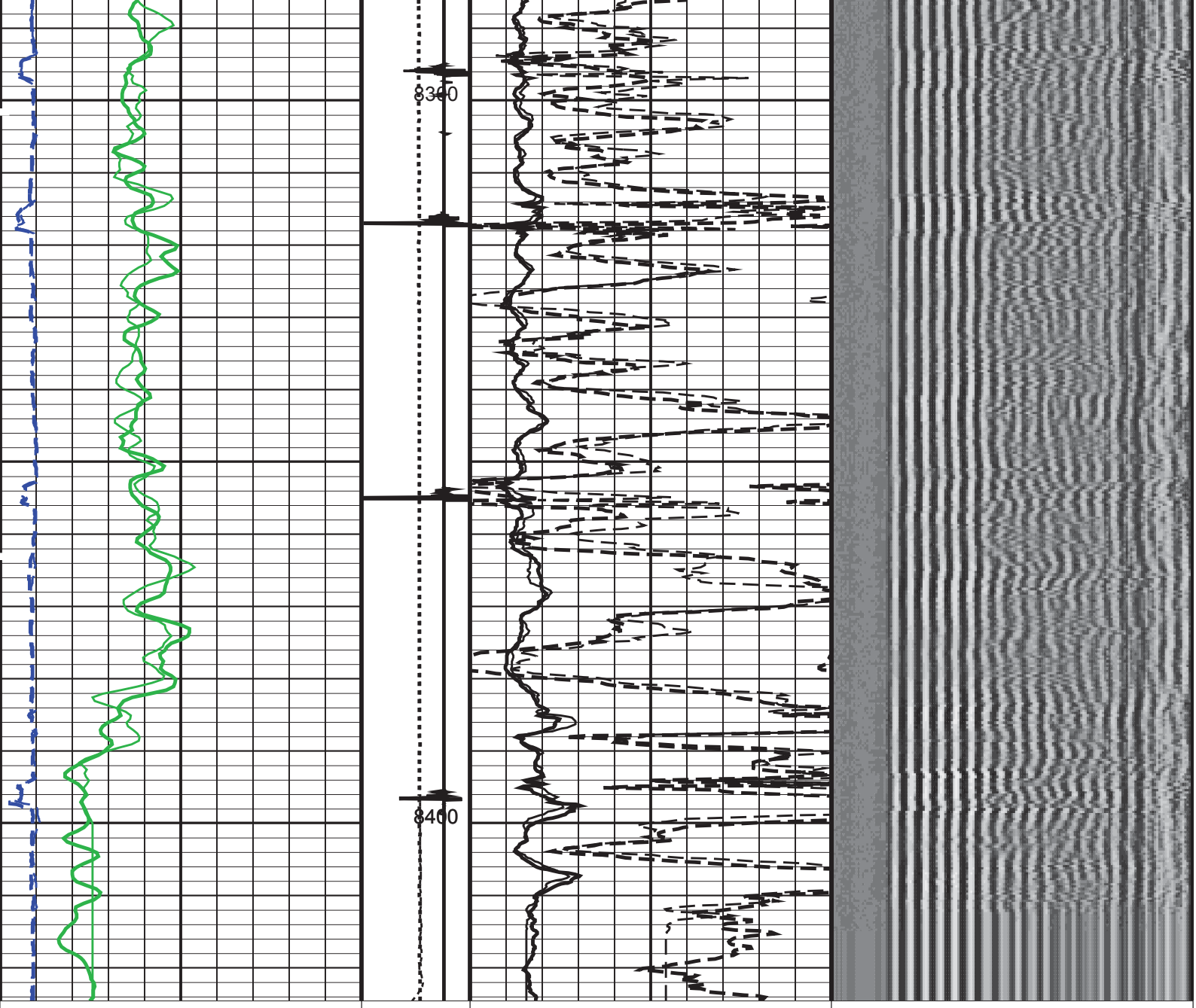
SCMT−CB	SRPC−5214−H2−2012−OP1	HBMS−B	SRPC−5214−H2−2012−OP1

PIP SUMMARY

Time Mark Every 60 S

TT_REP Curve (TT_REP) 260 (US) 160	TENS_REP Curve (TENS_REP) (LBF) 0 2000	CBL_1_REP Curve (CBL_REP) 0 (MV) 10


GR_REP Curve (GR_REP)
0
(GAPI)
150
CCLD_REP Curve (CCLD_REP)
3
(V)
−1
CBL_REP Curve (CBL_REP)
0
(MV)
100
Min
Amplitude
Max
VDL VariableDensity (VDL)
200
(US)
1200
8200



GR_REP Curve (GR_REP)
0 (GAPI) 150

CCLD_REP Curve (CCLD_REP)
3 (V) −1

CBL_REP Curve (CBL_REP)
0 (MV) 100

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

TT_REP Curve (TT_REP)
260 (US) 160

TENS_REP Curve (TENS_REP) (LBF)
0 2000

CBL_1_REP Curve (CBL_REP)
0 (MV) 10

PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL_REP Vertical Scale: 5" per 100' Graphics File Created: 18−Mar−2013 23:19

OP System Version: 19C0−187

SCMT−CB	SRPC−5214−H2−2012−OP1	HBMS−B	SRPC−5214−H2−2012−OP1

<<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number	SCMS−CB 8179

Current Casing Size	4.50000 IN		
Casing Weight	13.5000 LB/F		
Expected CBL Amplitude in Free Pipe Section	81 MV	Minimum Sonic Amplitude	1.28673 MV (100% Cement) 2.94636 MV (80% Cement)
		MAP Minimum Sonic Amplitude	7.12449 MV (100% Cement) 12.0838 MV (80% Cement)
Master Calibration (Normalization)		Before Calibration (Adjustment)	
Date of Master Calibration	6−MAR−2012		
CBL Correction Factor	0.0704263	CBL Adjustment Factor (CBAF)	0.800000
MAP 1 Correction Factor	0.0993191	MAP Adjustment Factor (MPAF)	1.0
MAP 2 Correction Factor	0.0941329		
MAP 3 Correction Factor	0.101552		
MAP 4 Correction Factor	0.114415		
MAP 5 Correction Factor	0.127992		
MAP 6 Correction Factor	0.121190		
MAP 7 Correction Factor	0.112867		
MAP 8 Correction Factor	0.102913		

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	223.206	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	337.206	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	81	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	0.300677	IN
DTF	Delta−T Fluid	189	US/F
FATT	Acoustic Attenuation due to Fluid	0	DB/F
FCF	CBL Fluid Compensation Factor	0.924277	
GOBO	Good Bond	2.94636	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	166.206	US
MAPT	SCMT MAP Fixed Threshold Level	30	MV
MATT	Maximum Attenuation	14.0905	DB/F
MCCF	MAP Cement Type Compensation Factor	1	
MCI	Minimum Cemented Interval for Isolation	1.25	FT
MMSA	MAP Minimum Sonic Amplitude	7.12449	MV
MSA	Minimum Sonic Amplitude	1.28673	MV
PEDE	Peak Detection On/Off Switch in Playback	OFF	
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	13.50	LB/F
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	−5.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	12568	FT

Input DLIS Files

DEFAULT	SCMT_HBMS_017LUP	FN:16	PRODUCER	18−Mar−2013 19:21	8429.5 FT	8120.0 FT
DEFAULT	SCMT_HBMS_020PUP	FN:19	PRODUCER	18−Mar−2013 23:10	12580.0 FT	6.5 FT

Output DLIS Files

DEFAULT	SCMT_HBMS_021PUP	FN:20	PRODUCER	18−Mar−2013 23:19

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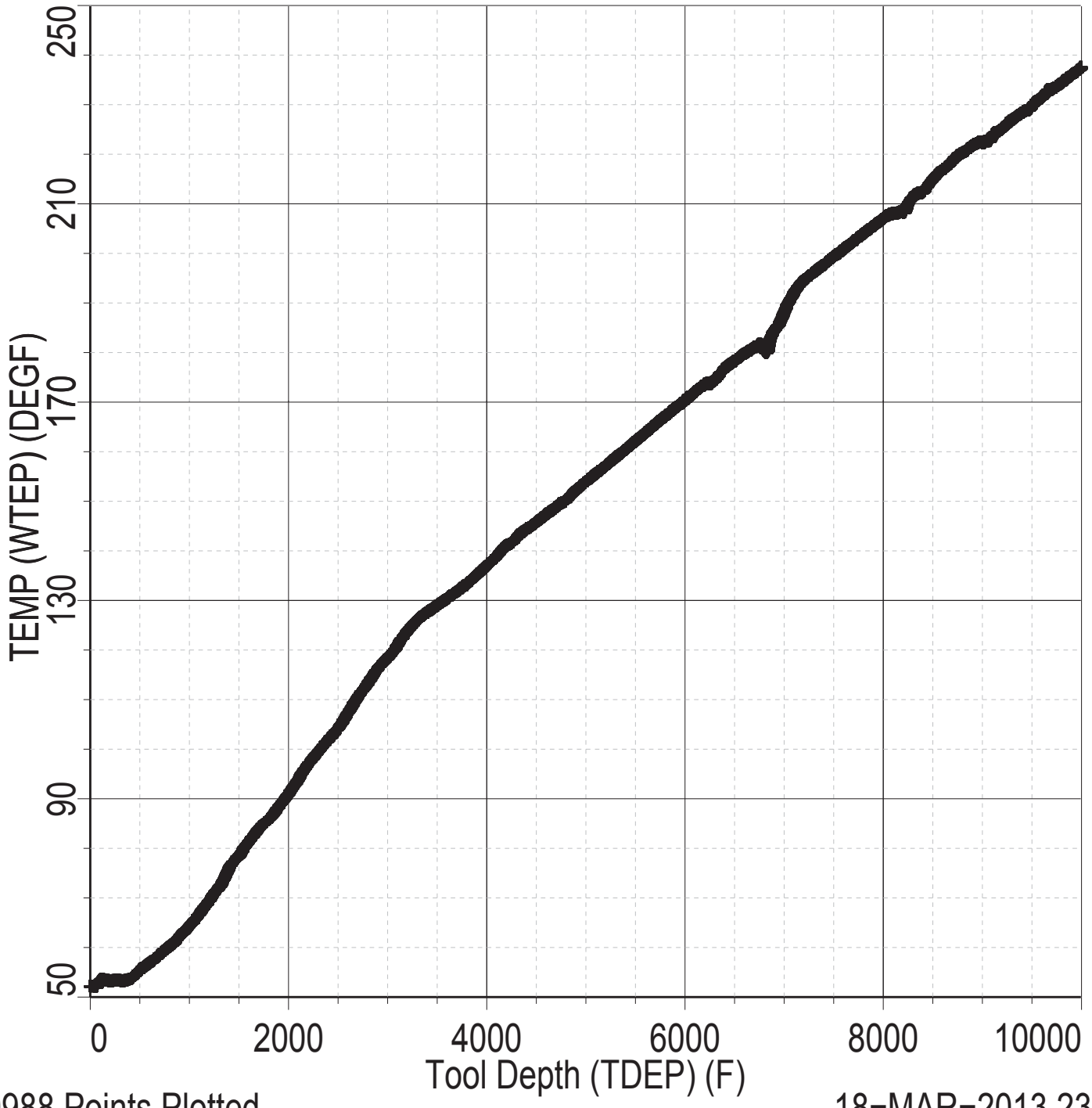
TEMPERATURE PLOT

MAXIS Field Log

Index: 12580.0 − 6.5 FT



19988 Points Plotted

18−MAR−2013 23:18

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RBMS COEFFICIENTS

Schlumberger

PBMS COEFFICIENTS

MAXIS Field Log

Client:	**ENCANA OIL & GAS (USA) INC**	**Tool:**	**PSP**
Field:	**STORY GULCH**	**Sub Type:**	**PBMS**
Well:	**SGU 8510C−23 (L24 496)**	**Sensor:**	**GR**
Run date:	**18−Mar−2013**		

PBMS Gamma Ray

Sonde Serial NB	**RESISTORS FOR GR SENSOR N.34473,TOOL HBMS−BA2884. SENSOR S/N:**
Sensor Serial NB	**34473**
Calib Date ddmmyy	**090506**
Matrix Size	**12**
Coeff CRC	**0708**

GR HV Rt

	Rt0**	**Rt**1**
Rt0**	**+.200000000000e+04**	**+.190000000000e+04**

Client:	**ENCANA OIL & GAS (USA) INC**	**Tool:**	**PSP**
Field:	**STORY GULCH**	**Sub Type:**	**PBMS**
Well:	**SGU 8510C−23 (L24 496)**	**Sensor:**	**WellTemp RTD**
Run date:	**18−Mar−2013**		

PBMS RTD Well Thermometer

Sonde Serial NB	**COEFFICIENTS FOR RTD THERMOMETER PBMS−B.2884 S/N:**
Sensor Serial NB	**2884**
Calib Date ddmmyy	**290706**
Matrix Size	**16**
Coeff CRC	**B134**

WTemp Coeff

	Tt**0	Tt**1	Tt**2
Tt**0	−.111322977181E+04	+.870150832462E+03	−.279503665762E+03

	Tt**3	Tt**4	Tt**5
Tt**0	+.449965652060E+02	−.264920434334E+01	0.0

Client:	ENCANA OIL & GAS (USA) INC	Tool:	PSP
Field:	STORY GULCH	Sub Type:	PBMS
Well:	SGU 8510C−23 (L24 496)	Sensor:	CQG
Run date:	18−Mar−2013		

PBMS Quartz Gauge type F

Sonde Serial NB	COEFFICIENTS FOR CQG PBMS−B.2884 S/N:
Sensor Serial NB	2884
Calib Date ddmmyy	290706
Matrix Size	66
Coeff CRC	CA7A

Pres Coeff

	Fb**0	Fb**1	Fb**2
Fc**0	+.746225778248E+04	+.221418944849E−01	−.210426289152E−06
Fc**1	−.104881478055E+01	−.124860716120E−04	−.949662972749E−10
Fc**2	+.872904863754E−06	+.426833452654E−10	+.759423319181E−15
Fc**3	+.239319347612E−11	+.290279345385E−15	0.0
Fc**4	0.0	0.0	0.0
Fc**5	0.0	0.0	0.0

	Fb**3	Fb**4	Fb**5
Fc**0	−.812091932516E−10	−.147717591127E−14	−.150620854654E−19
Fc**1	+.145644303959E−15	+.160803895109E−19	0.0
Fc**2	0.0	0.0	0.0
Fc**3	0.0	0.0	0.0
Fc**4	0.0	0.0	0.0
Fc**5	0.0	0.0	0.0

PBMS Quartz Gauge type F

Sonde Serial NB	**:**
Sensor Serial NB	**2884**
Calib Date ddmmyy	**290706**
Matrix Size	**66**
Coeff CRC	**F21E**

Temp Coeff

	Fc**0	Fc**1	Fc**2
Fb0**	**+.113897507996E+03**	**−.324965333678E−03**	**+.697134219555E−08**
Fb1**	**−.601014483015E−02**	**+.175847256148E−07**	**+.180458009797E−12**
Fb2**	**−.317240807344E−07**	**+.374112953741E−12**	**+.133653042149E−17**
Fb3**	**−.236568542854E−12**	**+.787205826536E−17**	**0.0**
Fb4**	**0.0**	**0.0**	**0.0**
Fb5**	**0.0**	**0.0**	**0.0**

	Fc**3	Fc**4	Fc**5
Fb0**	**+.881675188724E−13**	**−.146952444192E−16**	**−.415359060767E−21**
Fb1**	**−.553774805449E−18**	**−.739378844697E−21**	**0.0**
Fb2**	**0.0**	**0.0**	**0.0**
Fb3**	**0.0**	**0.0**	**0.0**
Fb4**	**0.0**	**0.0**	**0.0**
Fb5**	**0.0**	**0.0**	**0.0**

PBMS Quartz Gauge type F

Sonde Serial NB	**:**
Sensor Serial NB	**2884**
Calib Date ddmmyy	**290706**
Matrix Size	**16**
Coeff CRC	**72C9**

Clock Freq Coeff

	(Fb'−Fc')**0	(Fb'−Fc')**1	(Fb'−Fc')**2
(Fb'−Fc')0**	**+.310161623072E+05**	**+.363878692519E−02**	**+.311171630292E−06**

	(Fb'−Fc')**3	(Fb'−Fc')**4	(Fb'−Fc')**5
(Fb'−Fc')0**	**−.277965051815E−10**	**−.181738305366E−14**	**−.633170122188E−20**

PBMS Quartz Gauge type F

Sonde Serial NB	**:**
Sensor Serial NB	**2884**
Calib Date ddmmyy	**290706**
Matrix Size	**16**
Coeff CRC	**3E80**

Clock Temp Coeff

	(Fb'−Fc')**0	(Fb'−Fc')**1	(Fb'−Fc')**2
(Fb'−Fc')**0	+.111177101155E+03	−.545261137223E−02	−.112186276799E−06

	(Fb'−Fc')**3	(Fb'−Fc')**4	(Fb'−Fc')**5
(Fb'−Fc')**0	+.756690675632E−11	−.207457772298E−16	−.121623071907E−19

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MASTER CALIBRATION

MAXIS Field Log

Slim Cement Mapping Tool, 1−11/16 OD / Equipment Identification

Primary Equipment:

Slim Cement Mapping Xmitter Electronics	SCMX − CA	
Slim Cement Mapping Sonde	SCMS − CB	8179
Slim Cement Mapping Cartridge	SCMC − CA	8120

Auxiliary Equipment:

Slim Electronics Cartridge Housing	SECH − CA

Slim Cement Mapping Tool, 1−11/16 OD Master Calibration

SCMT CBL and MAP Amplitude Normalization in SFT−155/−255

Phase	MAP 1 Amplitude Plus MV	Value	Phase	MAP 2 Amplitude Plus MV	Value
Master		1158	Master		1232
500.0 (Minimum)	1075 (Nominal) 1650 (Maximum)		500.0 (Minimum)	1075 (Nominal) 1650 (Maximum)	

Phase	MAP 3 Amplitude Plus MV	Value	Phase	MAP 4 Amplitude Plus MV	Value
Master		1237	Master		1118
500.0 (Minimum)	1075 (Nominal) 1650 (Maximum)		500.0 (Minimum)	1075 (Nominal) 1650 (Maximum)	

Phase	MAP 5 Amplitude Plus MV	Value	Phase	MAP 6 Amplitude Plus MV	Value
Master		1061	Master		1299
500.0 (Minimum)	1075 (Nominal) 1650 (Maximum)		500.0 (Minimum)	1075 (Nominal) 1650 (Maximum)	

Phase	MAP 7 Amplitude Plus MV	Value	Phase	MAP 8 Amplitude Plus MV	Value
Master		1258	Master		1267
500.0 (Minimum)	1075 (Nominal) 1650 (Maximum)		500.0 (Minimum)	1075 (Nominal) 1650 (Maximum)	

Phase	CBL Amplitude Plus MV	Value
Master		1351
1000 (Minimum)	1350 (Nominal) 1700 (Maximum)	

Master: 2− Jan−2013 15:55

Master: 2 Jan 2015 15:55

Company:	**ENCANA OIL & GAS (USA) INC**
Well:	**SGU 8510C−23 (L24 496)**
Field:	**STORY GULCH**
County:	**GARFIELD**
State:	**COLORADO**

Schlumberger

SLIM CEMENT MAPPING LOG
GAMMA RAY − CCL − TEMPERATUR
CBL − VDL