



Company: ENCANA OIL & GAS (USA) INC.

Well: SG 8506C-22 N22 496

Field: STORY GULCH

County: GARFIELD State: COLORADO

CEMENT BOND LOG
CBL- VDL
GAMMA RAY - CCL

County: GARFIELD

Field: STORY GULCH

Location: SHL: SESW 1286' FSL & 1995' FWL
BHL: SESW 2097' FNL & 1325' FWL

Well: SG 8506C-22 N22 496

Company: ENCANA OIL & GAS (USA) INC.

LOCATION

SHL: SESW 1286' FSL & 1995' FWL
BHL: SESW 2097' FNL & 1325' FWL

Elev.: K.B. 7607.00 ft
G.L. 7585.00 ft
D.F. 7606.00 ft

Permanent Datum: _____
Log Measured From: KELLY BUSHING
Drilling Measured From: KELLY BUSHING

GROUND LEVEL _____
Elev.: 7585.00 ft
22.00 ft above Perm. Datum

API Serial No. 05-045-20659-000C

Section 22

Township 4S

Range 96W

PVT DATA				Run 1	Run 2	Run 3
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 28-Feb-2012

Run Number ONE

Depth Driller 11575 ft

Schlumberger Depth 11509 ft

Bottom Log Interval 11501 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 30 ft

To 11575 ft

Casing/Tubing Size 4.500 in

Weight 11.6 lbm/ft

Grade P-110

From 30 ft

To 11552 ft

Maximum Recorded Temperatures 285 degF

Logger On Bottom 28-Feb-2012 9:17

Unit Number 391 Location GRAND JUNCTION

Recorded By DAVID PATE

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: 28-FEB-2012 11:08:52

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-C	Type:	1-25ZT
Serial Number:	6322	Serial Number:	1155	Serial Number:	3017
Calibration Date:	13-DEC-2011	Calibration Date:	07-JAN-2012	Length:	19800 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	174878	Conveyance Method:	Wireline
Calibration Cable Type:	1-25ZT	Number of Calibration Points:	10	Rig Type:	LAND
Wheel Correction 1:	-3	Calibration RMS:	3		
Wheel Correction 2:	-4	Calibration Peak Error:	7		

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	202.00 FT
Rig Up Length At Bottom:	201.00 FT
Rig Up Length Correction:	1.00 FT
Stretch Correction:	10.00 FT
Tool Zero Check At Surface:	1.10 FT

Depth Control Remarks

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

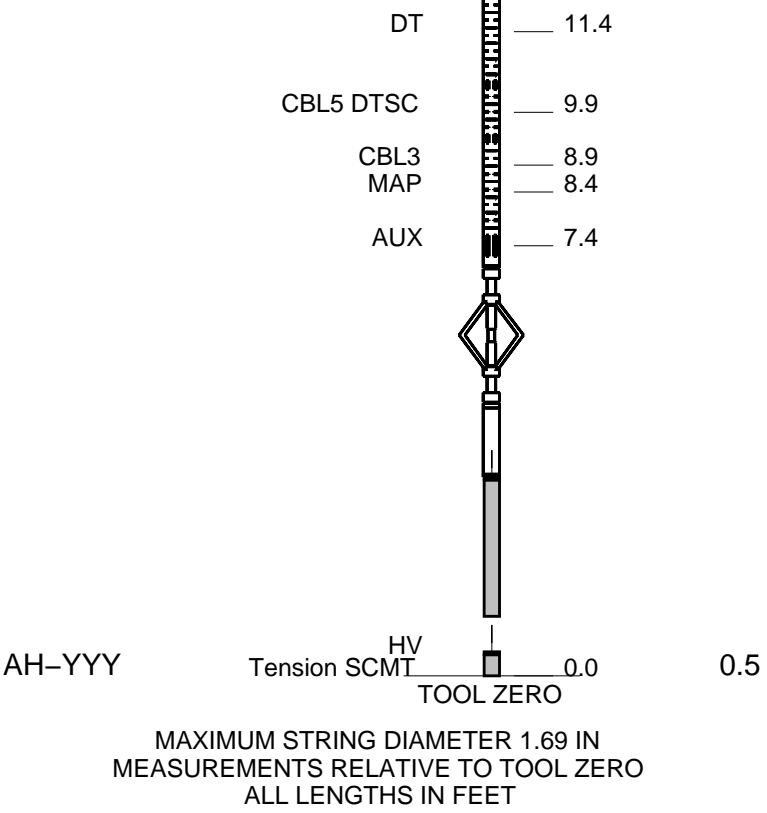
DISCLAIMER

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: NONE 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.	
TD TAGGED AT: 11509 FT	
MAXIMUM RECORDED TEMPERATURE AT TD: 285 DEGF	
MAXIMUM RECORDED PRESSURE AT TD: 4735 PSIA	

SHORT JOINTS: 7120 FT & 10080 FT					
EXPECTED FREE PIPE AMPLITUDE: 80mA.					
CYCLESKIPPING DUE TO GOOD BOND CAUSING TT TO READ HIGH					
AFE: 11155327					
PAD: N22 QUAD 3					
THANK YOU FOR CHOOSING SCHLUMBERGER.					
CREW: 391					
<div> <div>RUN 1</div> <div> <div>SERVICE ORDER #:</div> <div>PROGRAM VERSION:</div> <div>FLUID LEVEL:</div> </div> <div> <div>BIHS-00219</div> <div>19C0-187</div> <div>22 ft</div> </div> </div>			<div> <div>RUN 2</div> <div> <div>SERVICE ORDER #:</div> <div>PROGRAM VERSION:</div> <div>FLUID LEVEL:</div> </div> </div>		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION					
RUN 1			RUN 2		
<div> <div>SURFACE EQUIPMENT</div> <div> <div>WITM-A 234</div> <div>PSC_16MHZ 234</div> </div> </div>					
<div> <div>DOWNHOLE EQUIPMENT</div> <div> <div> <div> <div>MH-22</div> <div>MH-22 391</div> </div> <div> <div>30.6</div> </div> </div> <div> <div> <div>AH-38</div> <div>Detail MT</div> <div>TelStatus</div> <div>CTEM</div> </div> <div> <div>28.7</div> </div> </div> <div> <div> <div>PSPT</div> <div>PSC-A</div> <div>PSPT-A</div> <div>PSTC-A</div> <div>PBMS-A 3779</div> <div>10k_Sapphire_Mano</div> <div>RTD_Thermometer</div> <div>GR</div> <div>CCL</div> <div>PBMS 3779</div> </div> <div> <div>28.7</div> </div> </div> <div> <div> <div>GR</div> <div>25.0</div> </div> </div> <div> <div> <div>Well_Temp</div> <div>Manometer</div> <div>CCL</div> <div>PBMS PSTC</div> </div> <div> <div>21.9</div> <div>21.8</div> <div>21.2</div> <div>20.5</div> </div> </div> <div> <div> <div>SCMT-CB</div> <div>SCMC-CA 8172</div> <div>SECH-CA</div> <div>CMIR-AG</div> <div>SCMS-CB 8186</div> <div>SCMX-CA 8132</div> </div> <div> <div>20.5</div> </div> </div> </div> </div>					



MAIN PASS 0 PSI

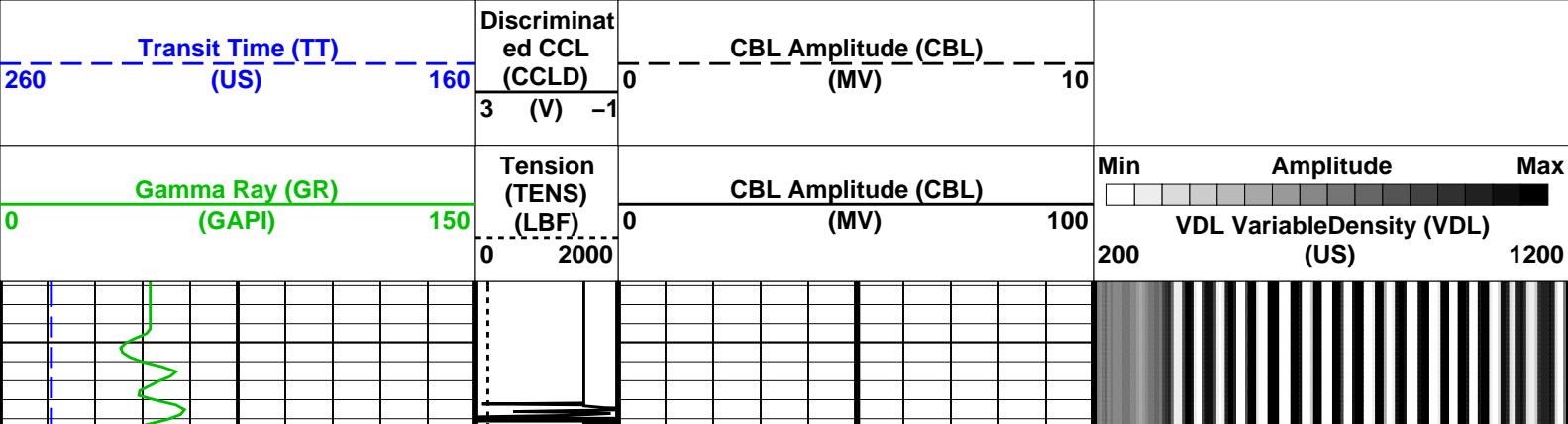
MAXIS Field Log

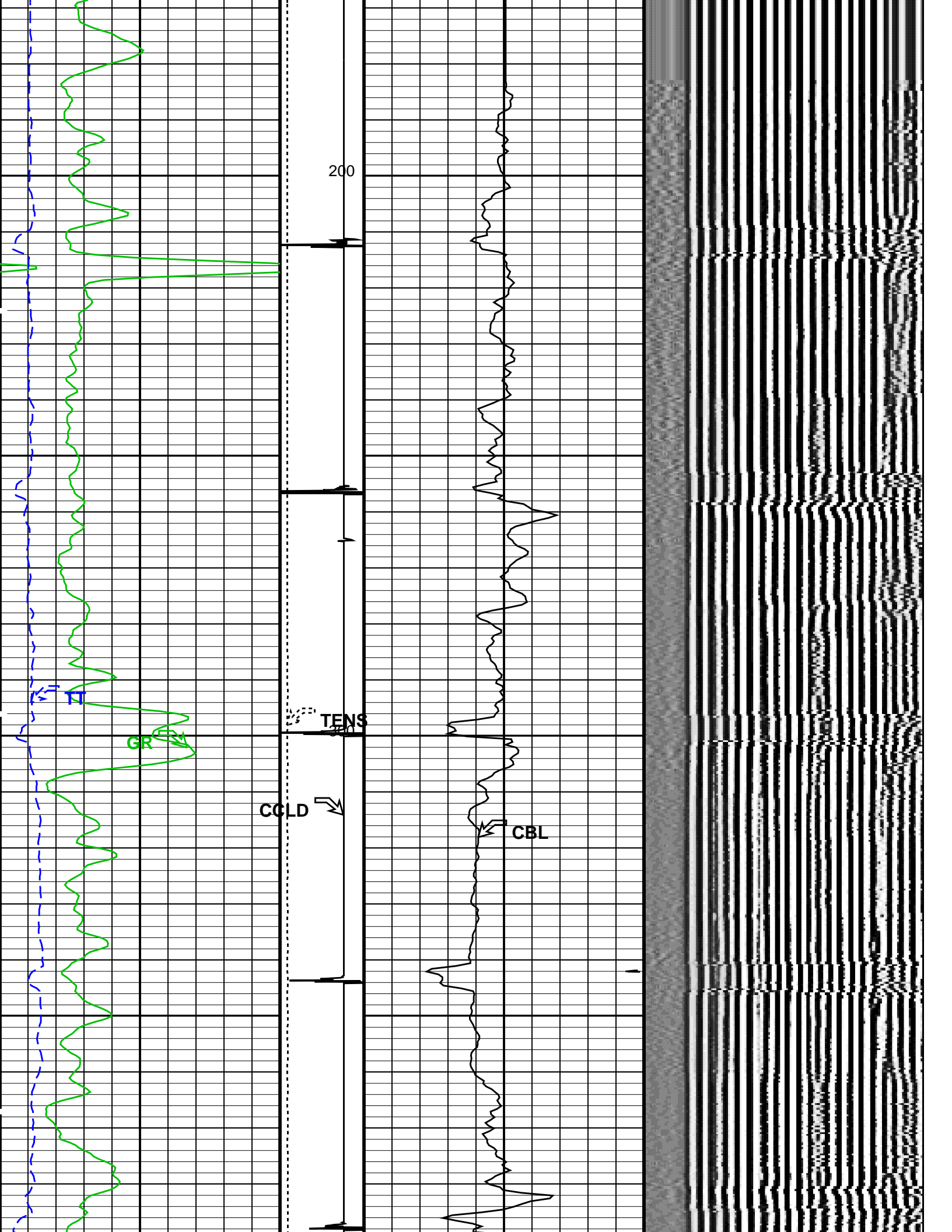
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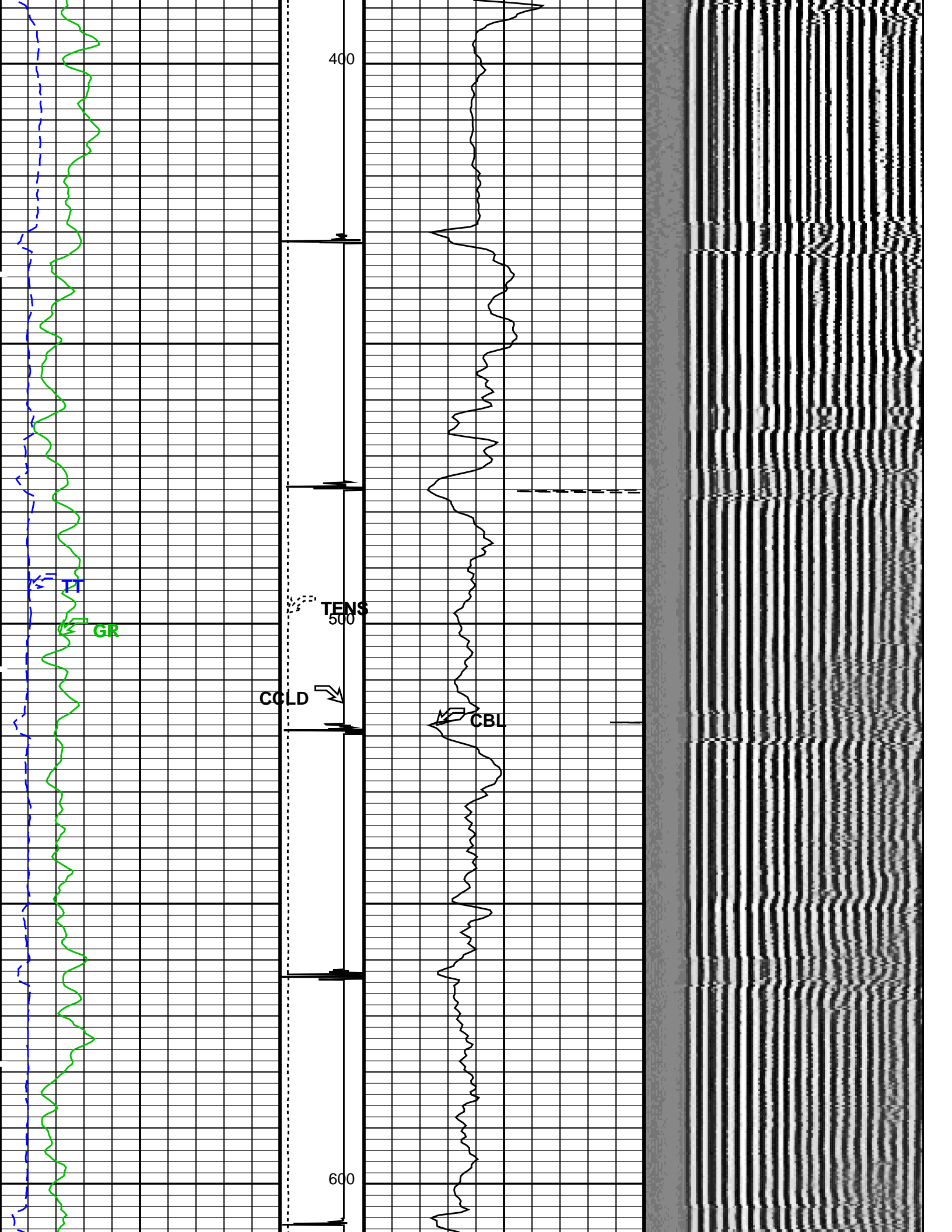
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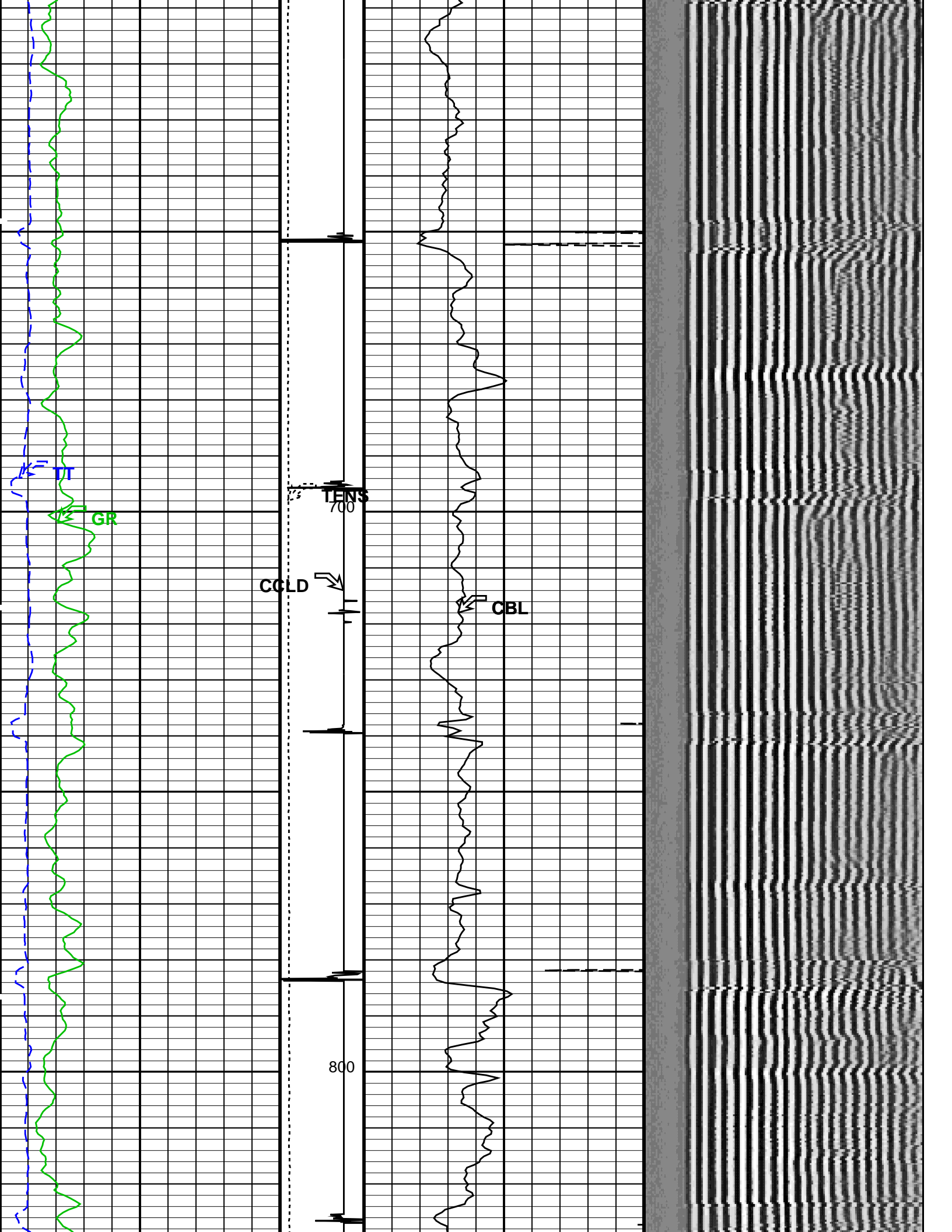
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SCMT-CB	SRPC-5095-H2-2011-OP19_I	PSPT	19C0-187	

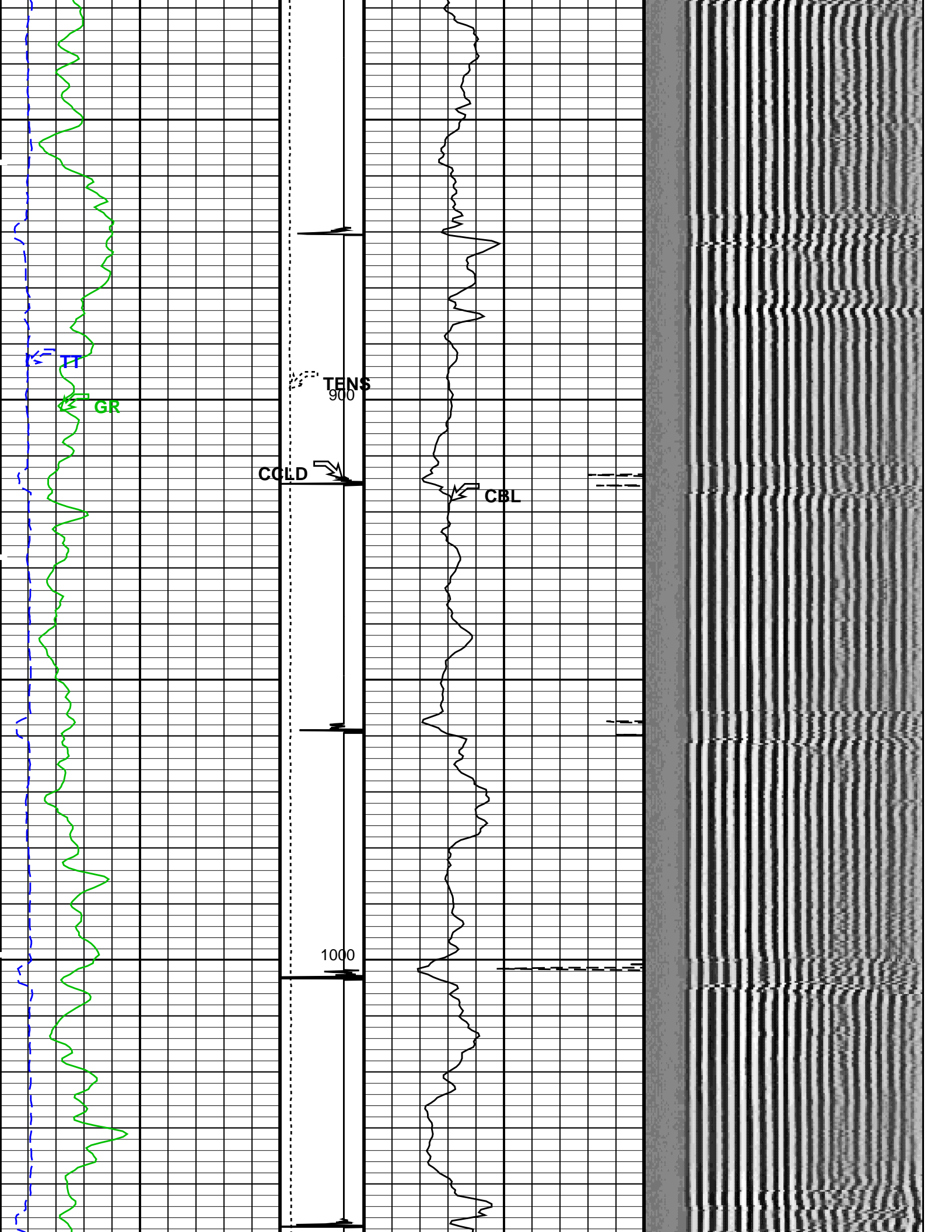
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Time Mark Every 60 S				

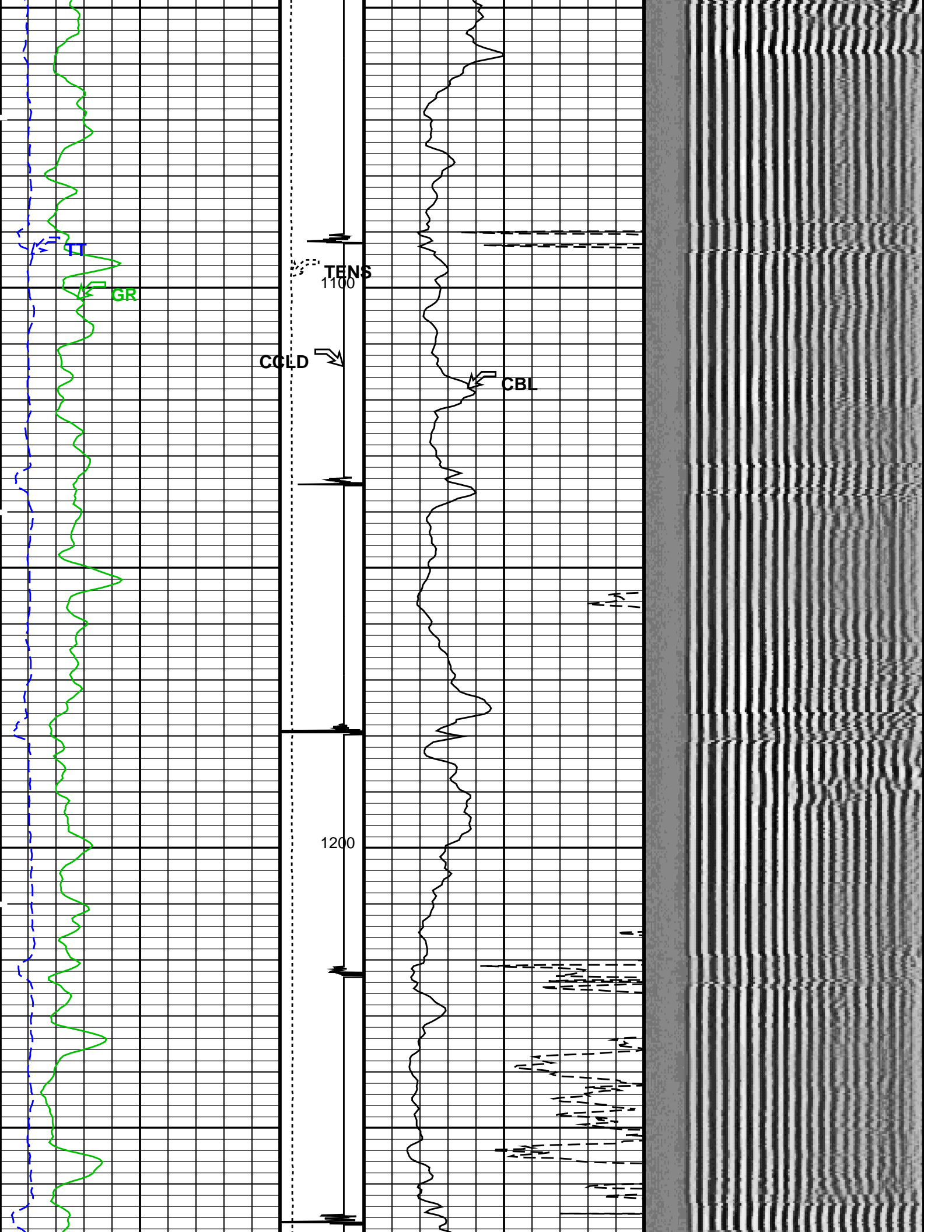


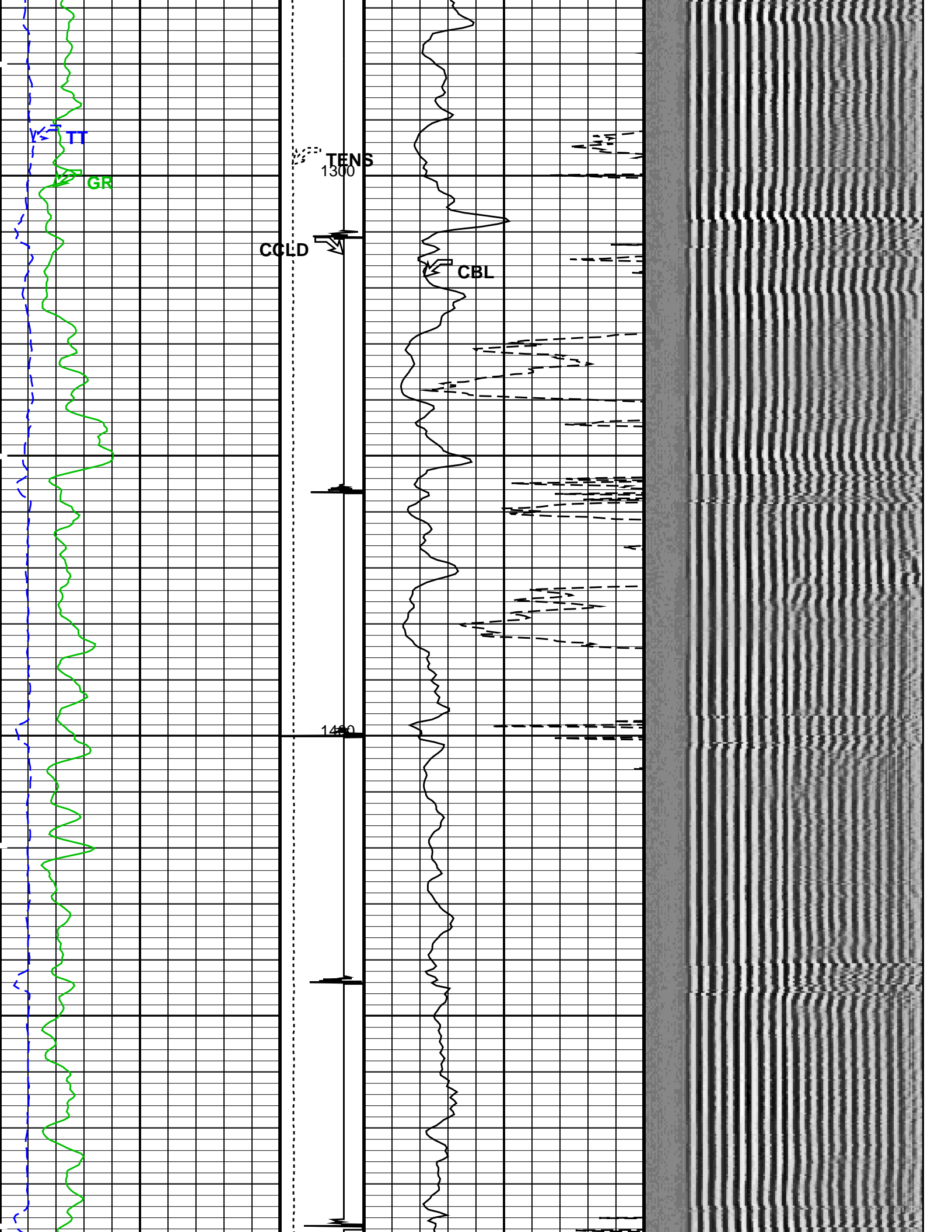


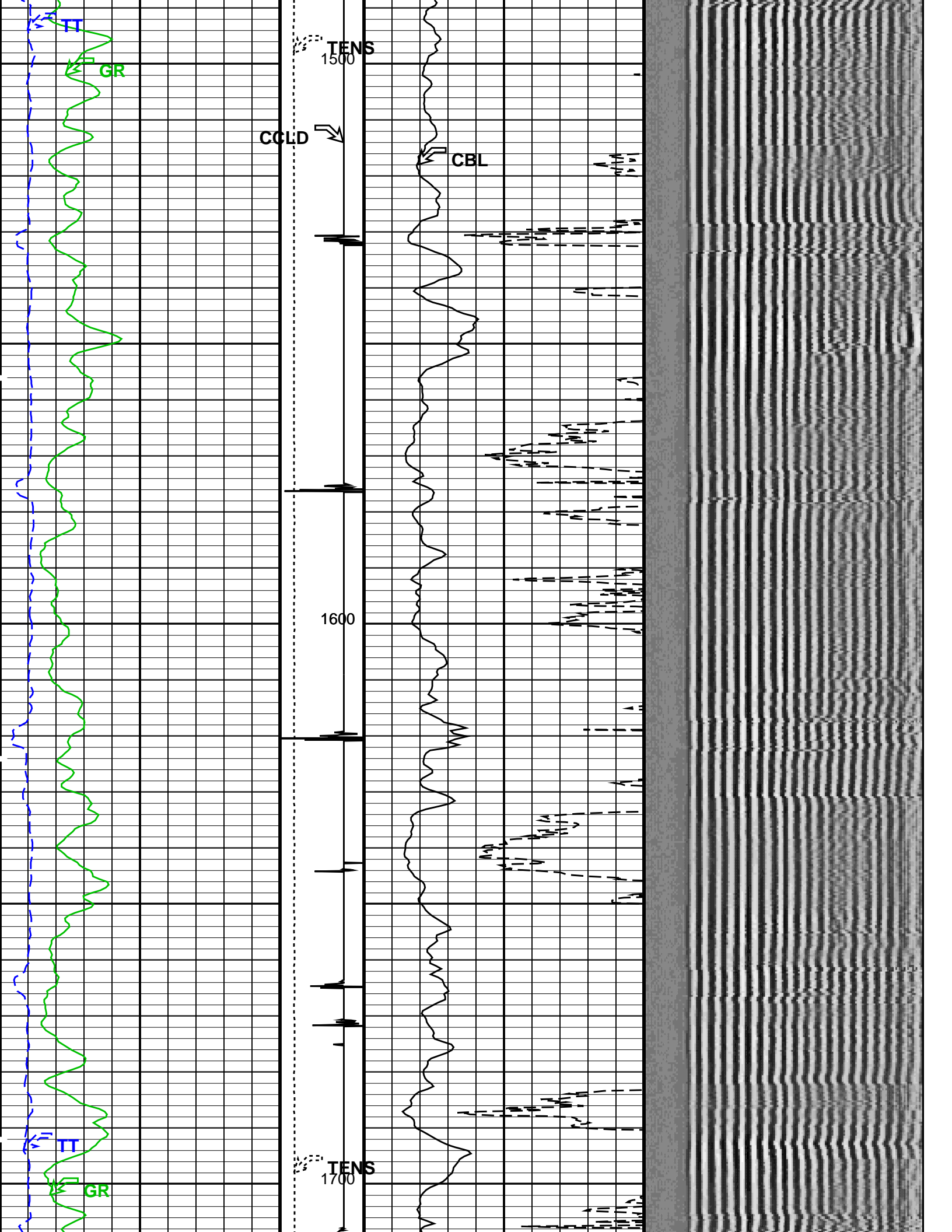


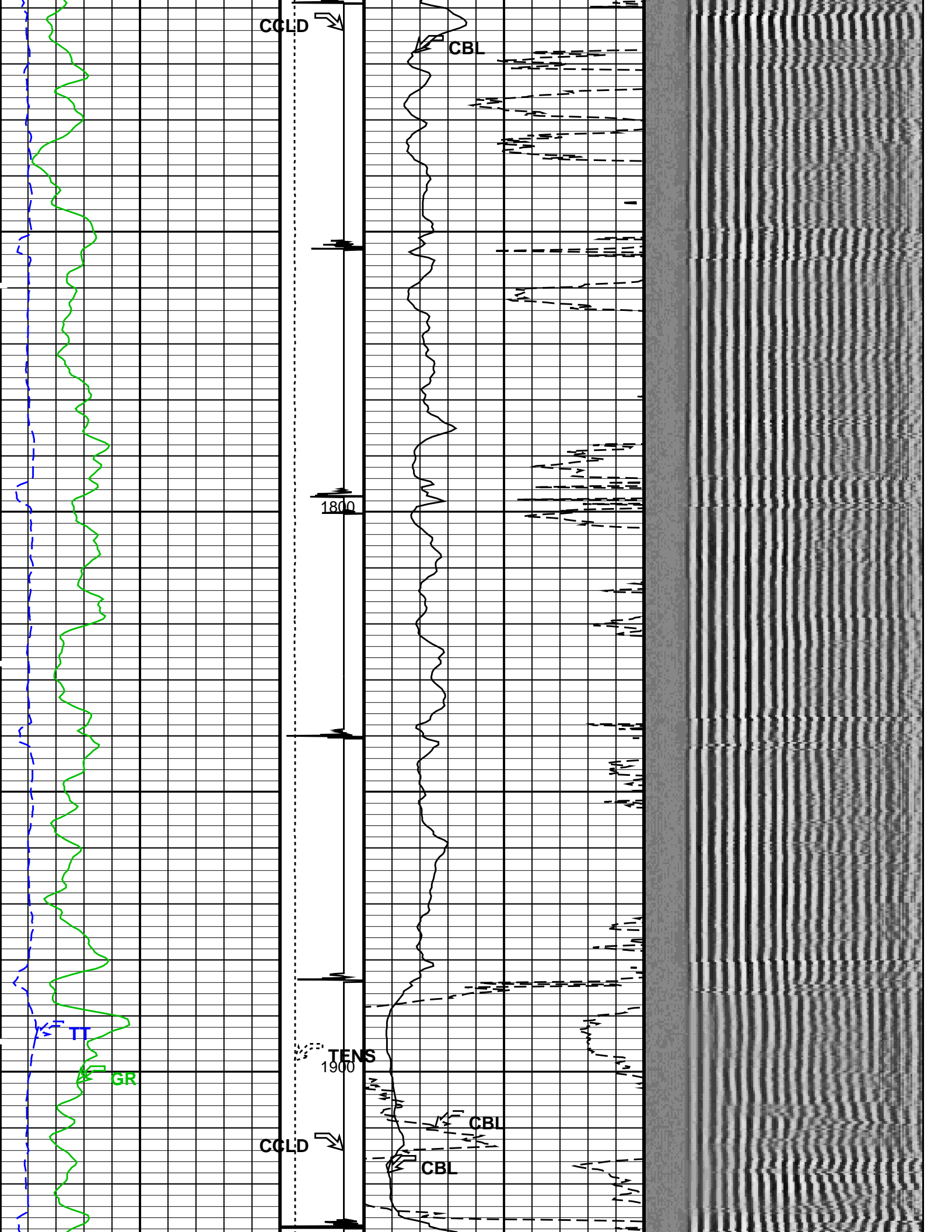


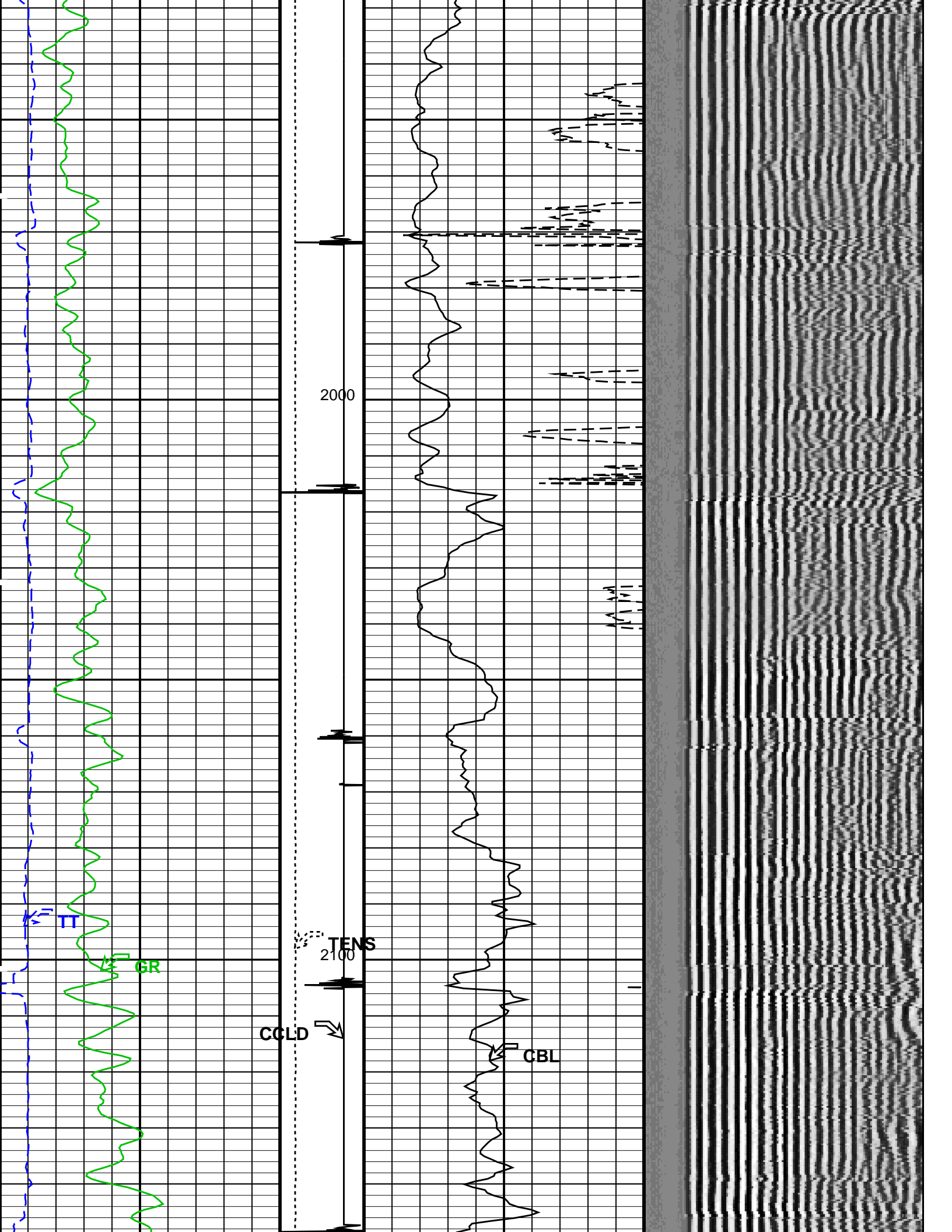


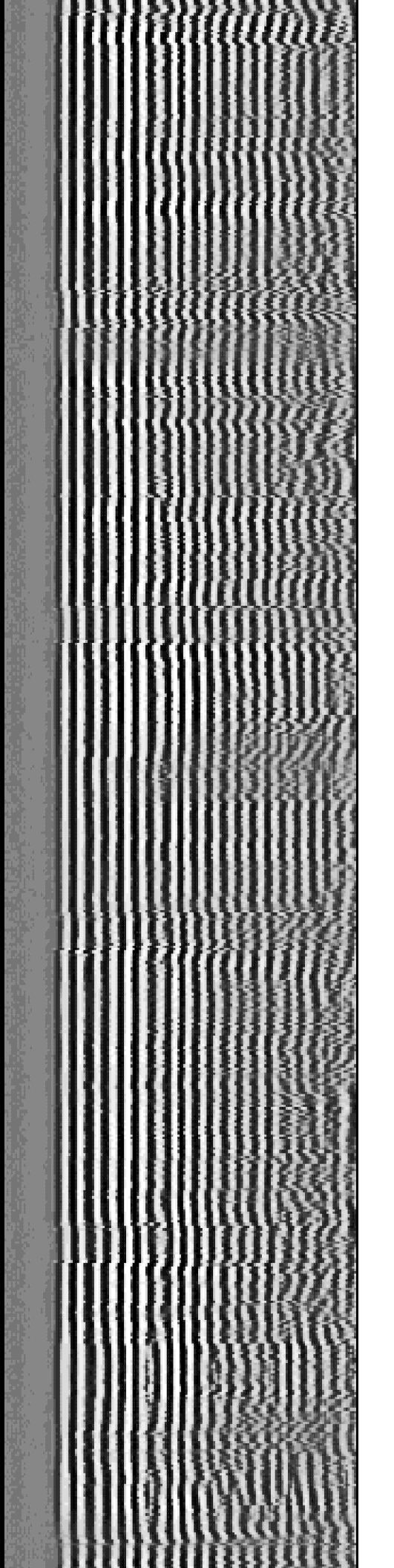
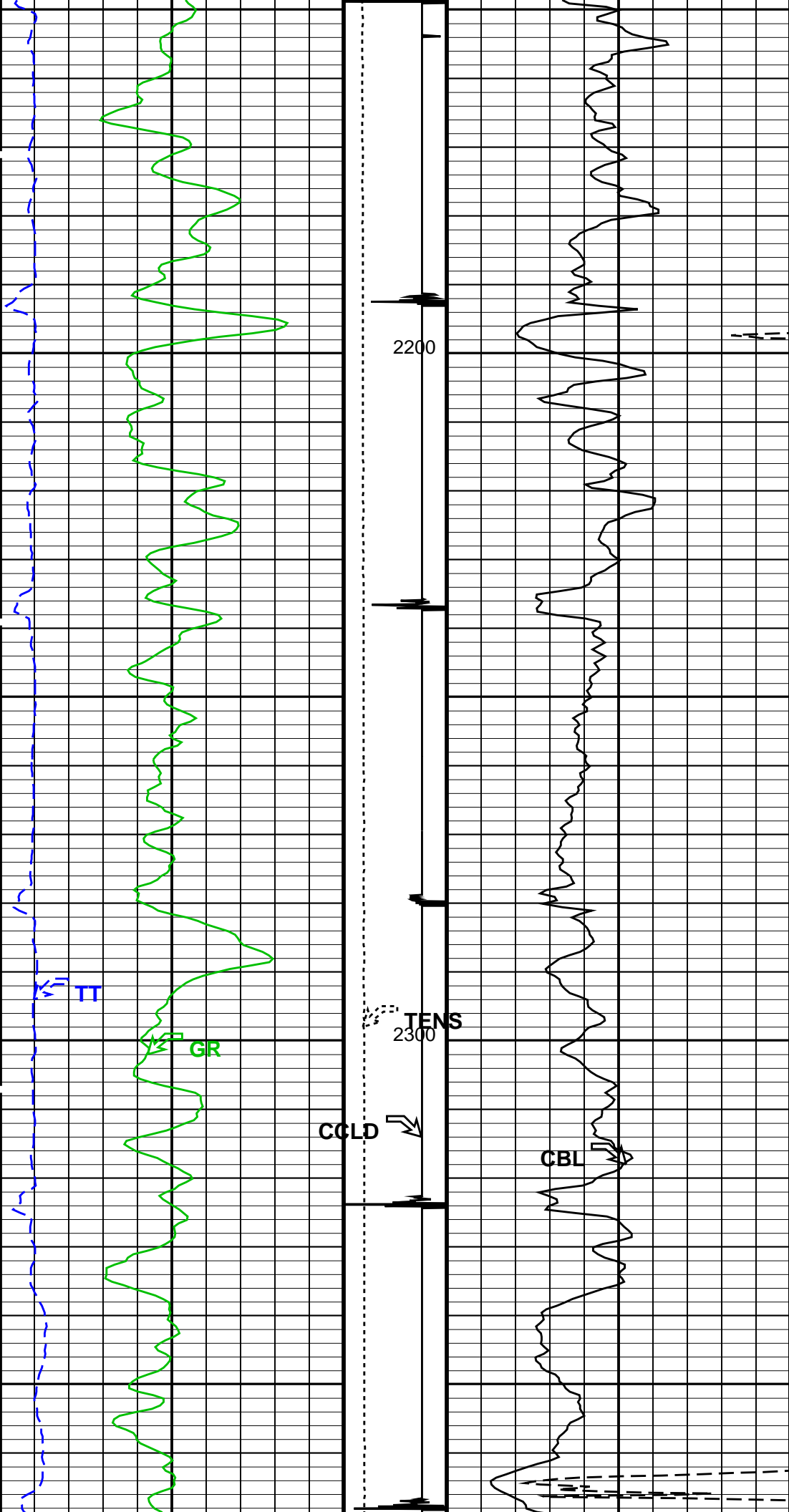


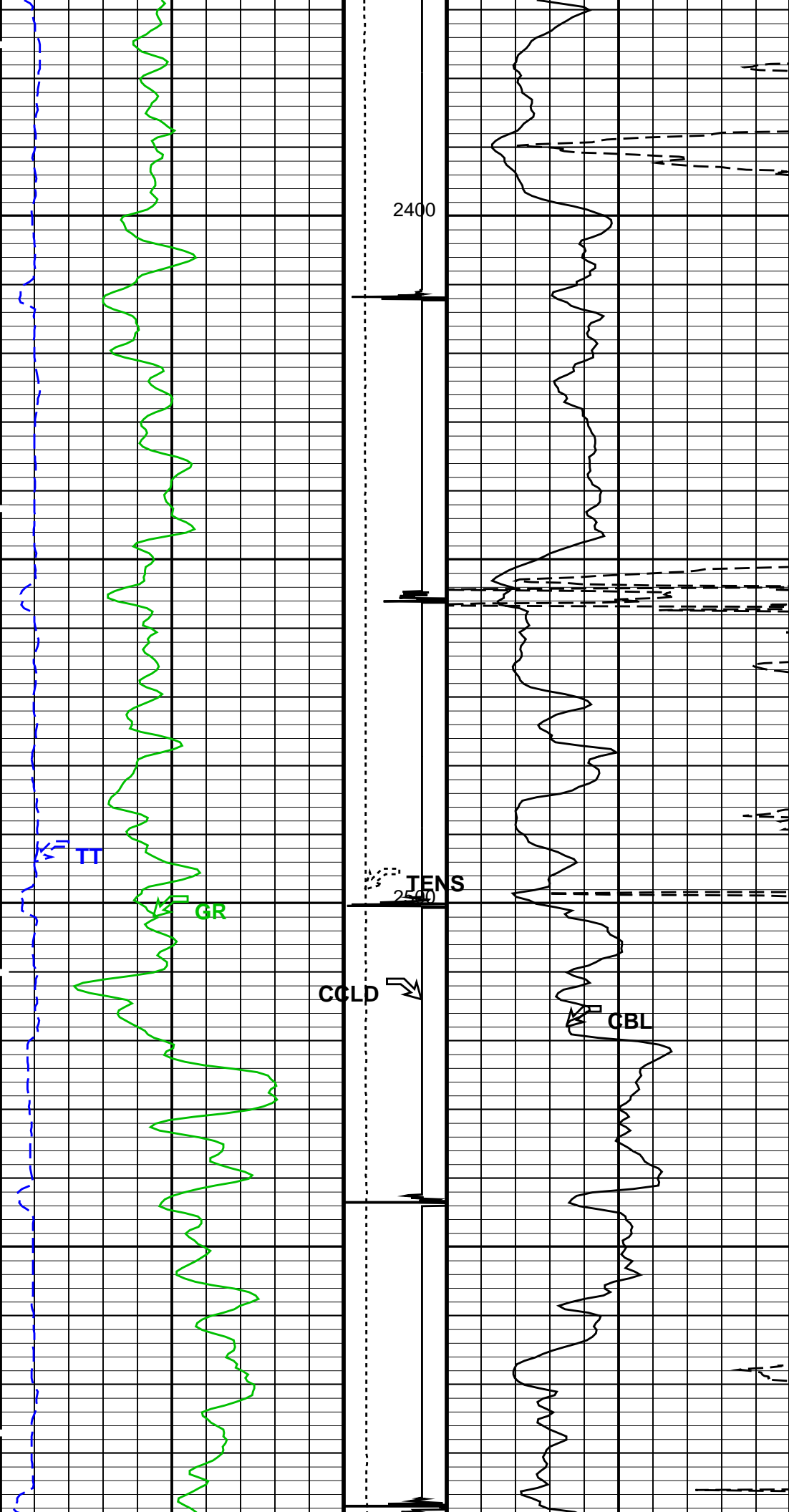


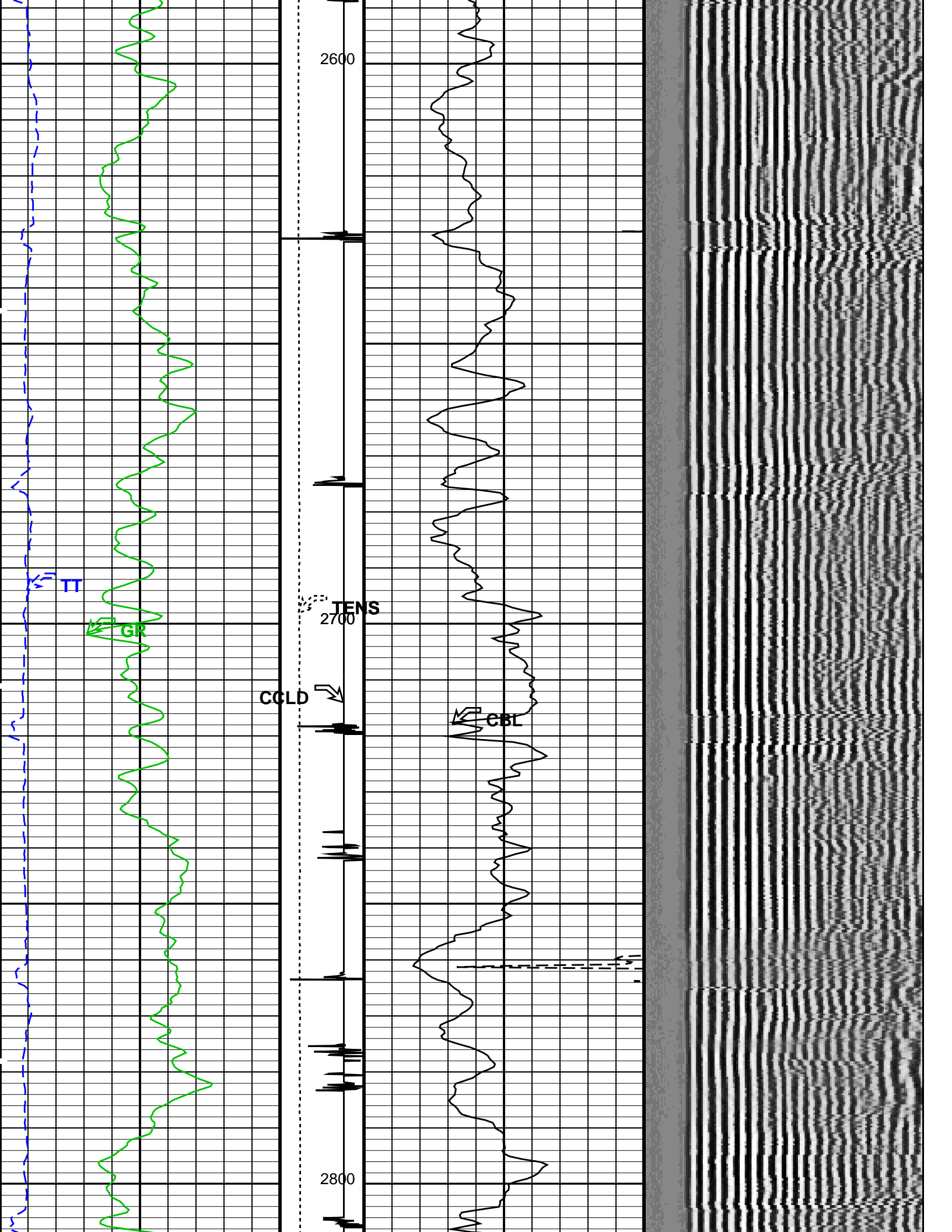


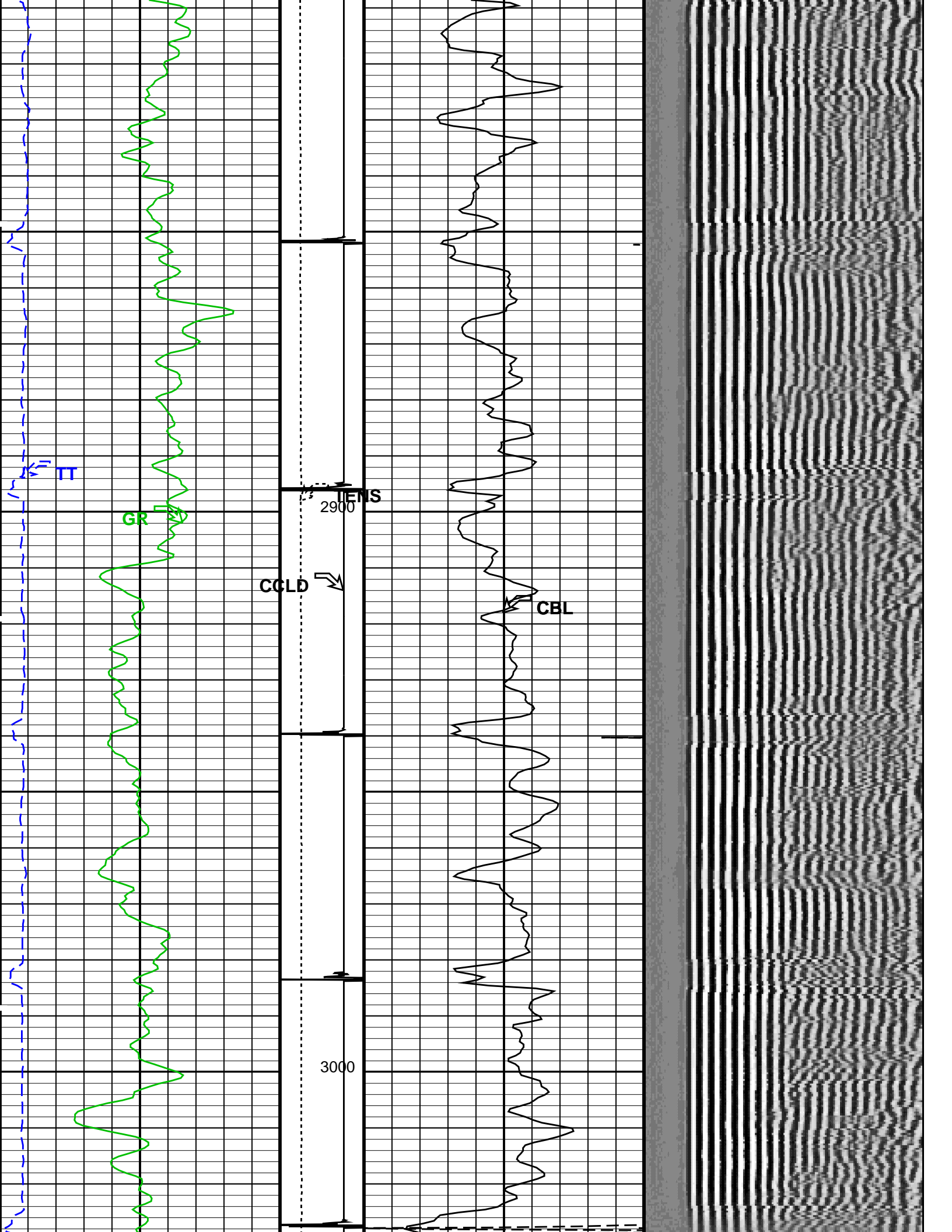


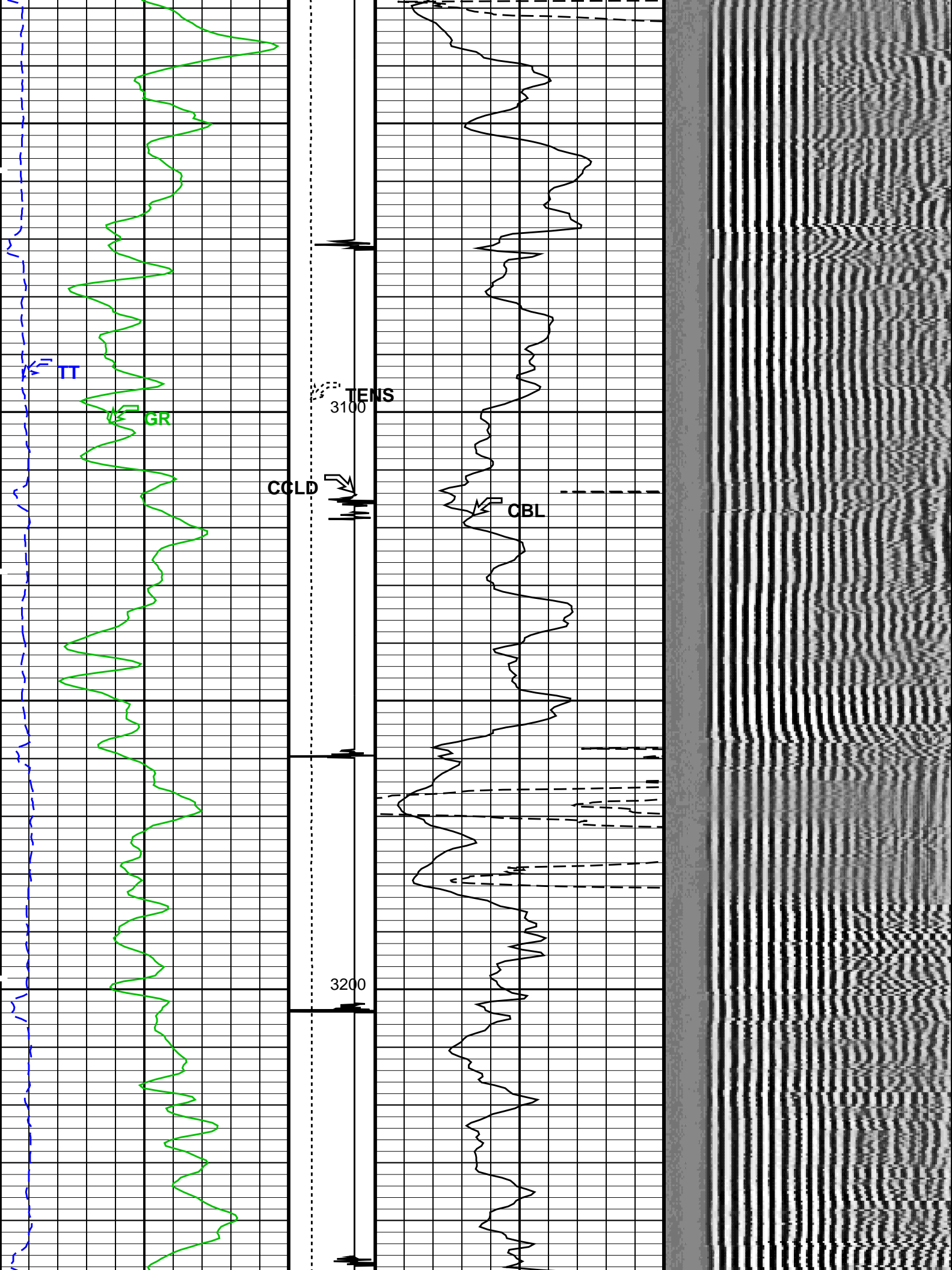


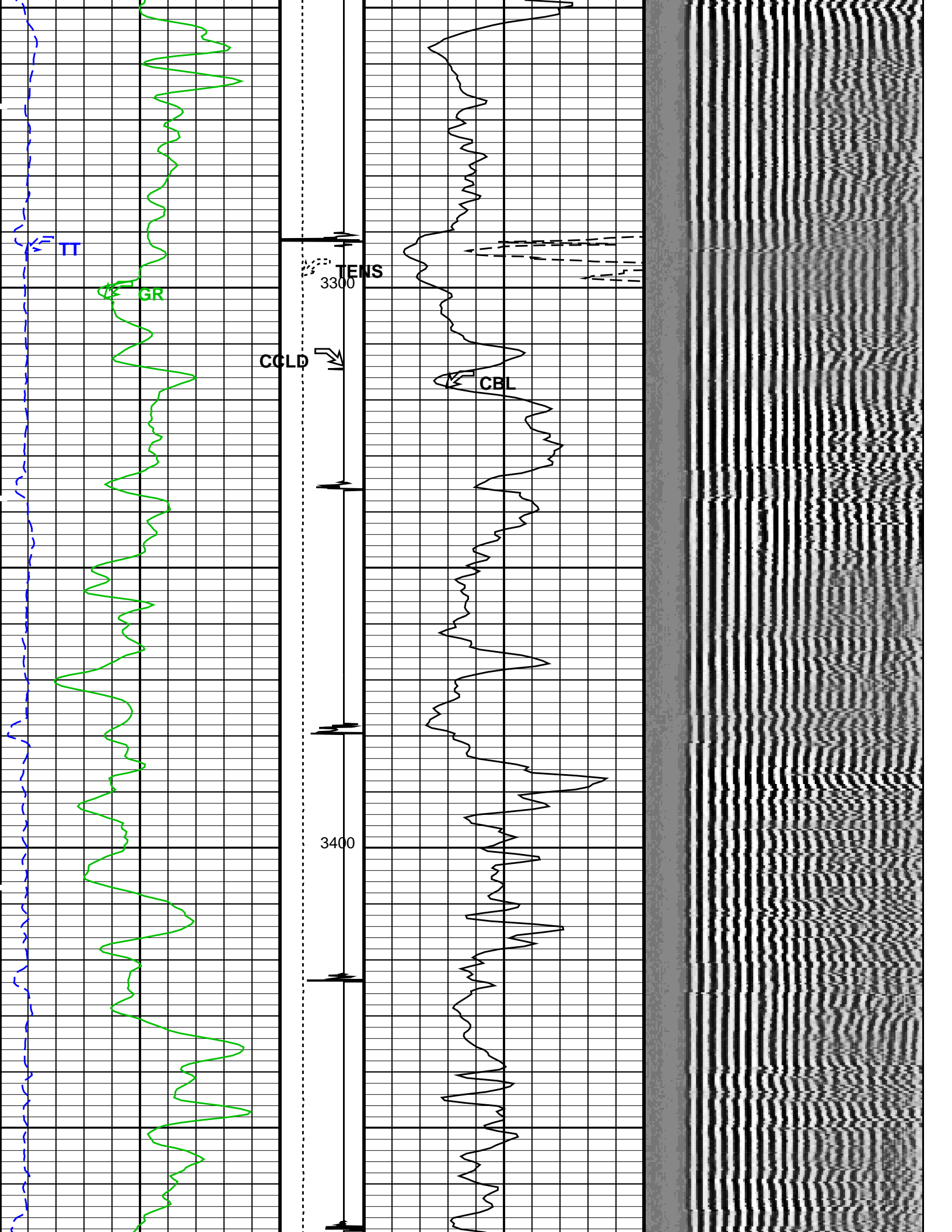


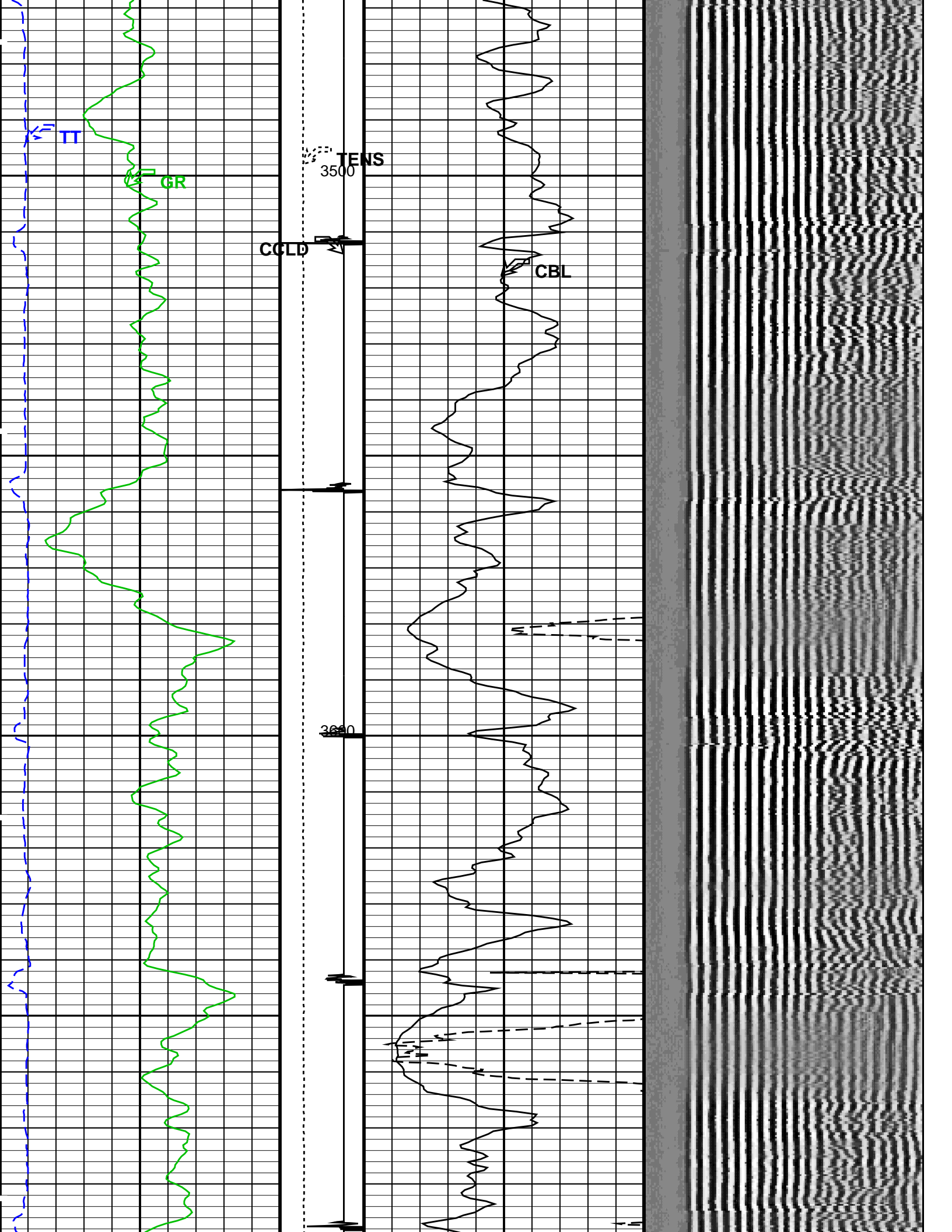


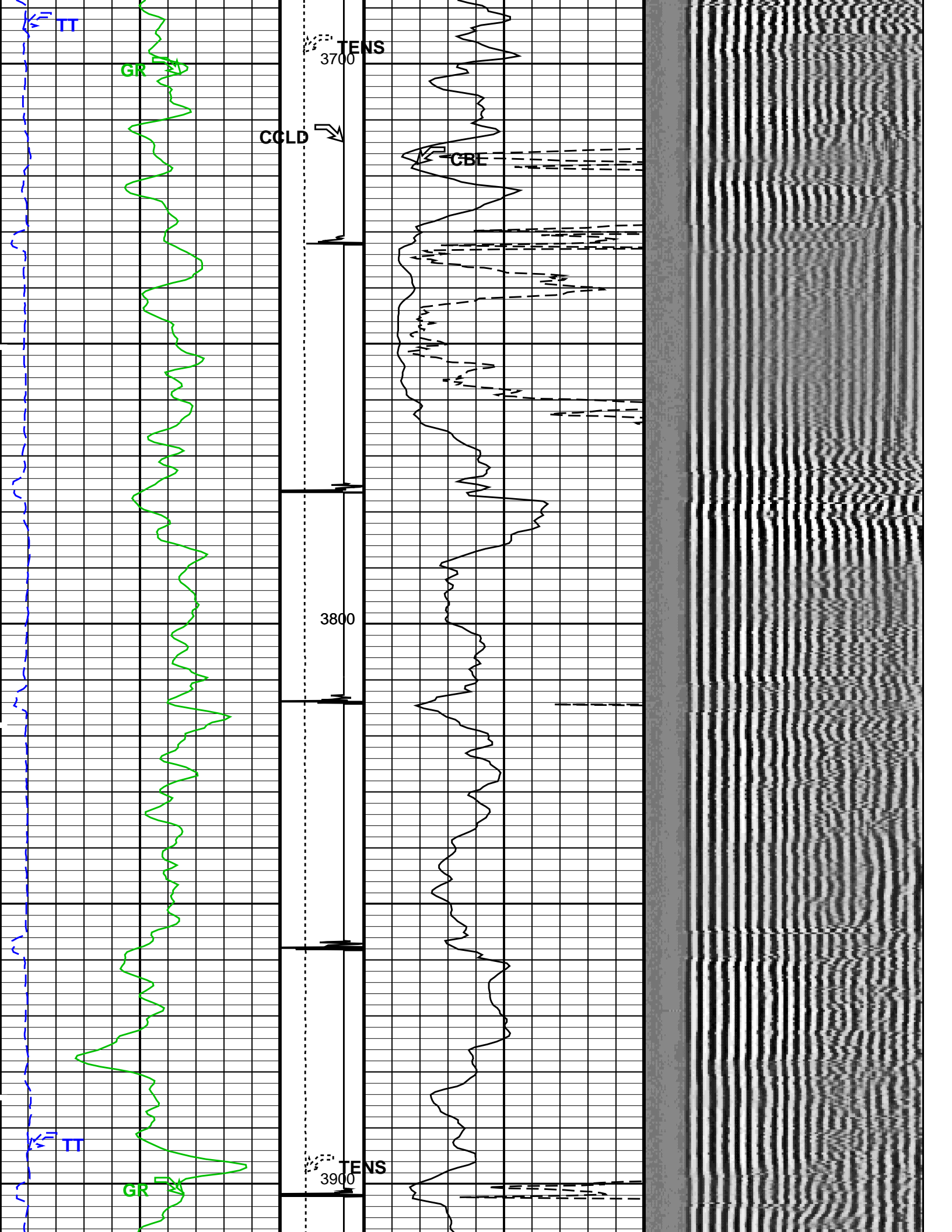


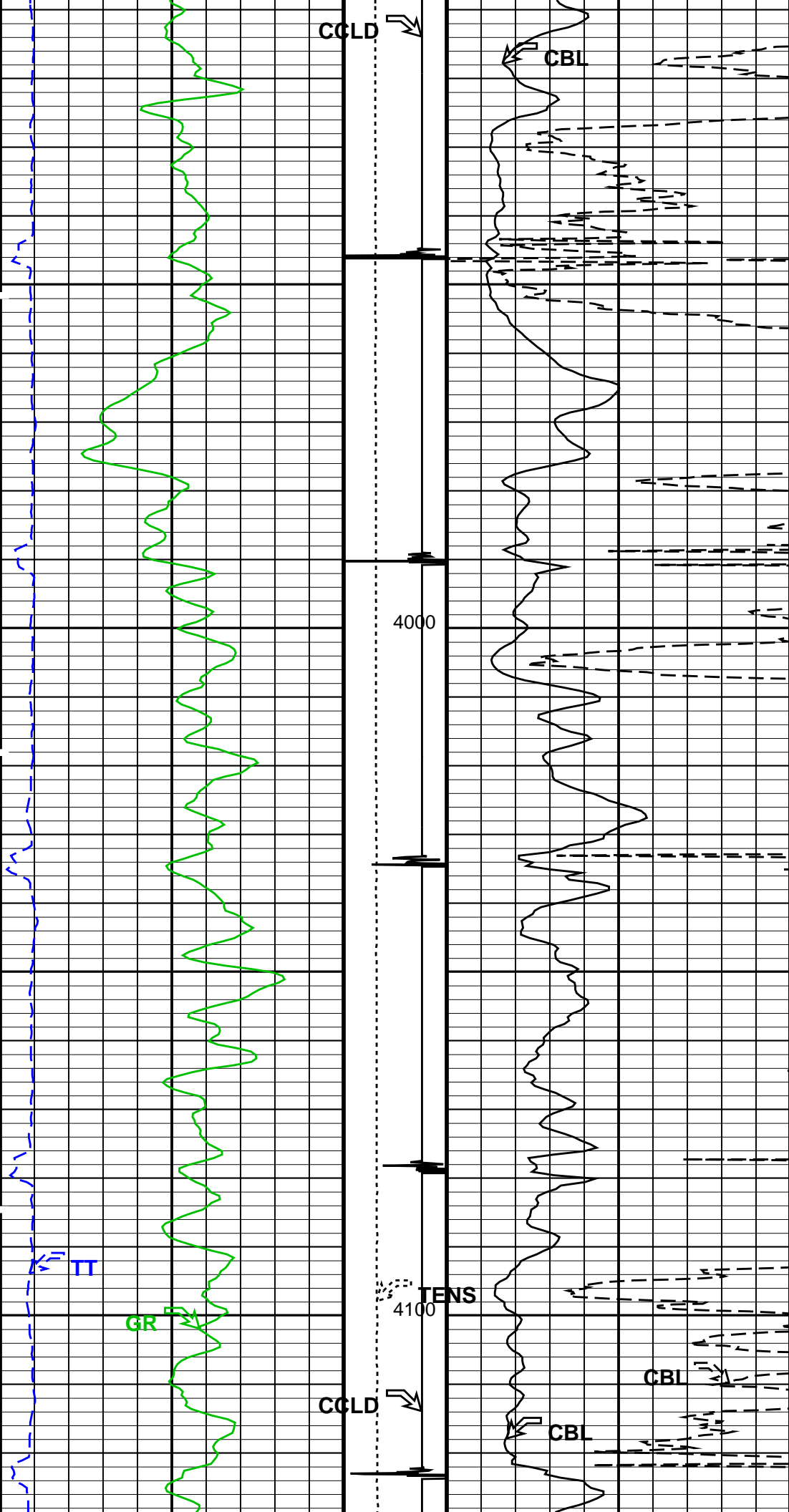


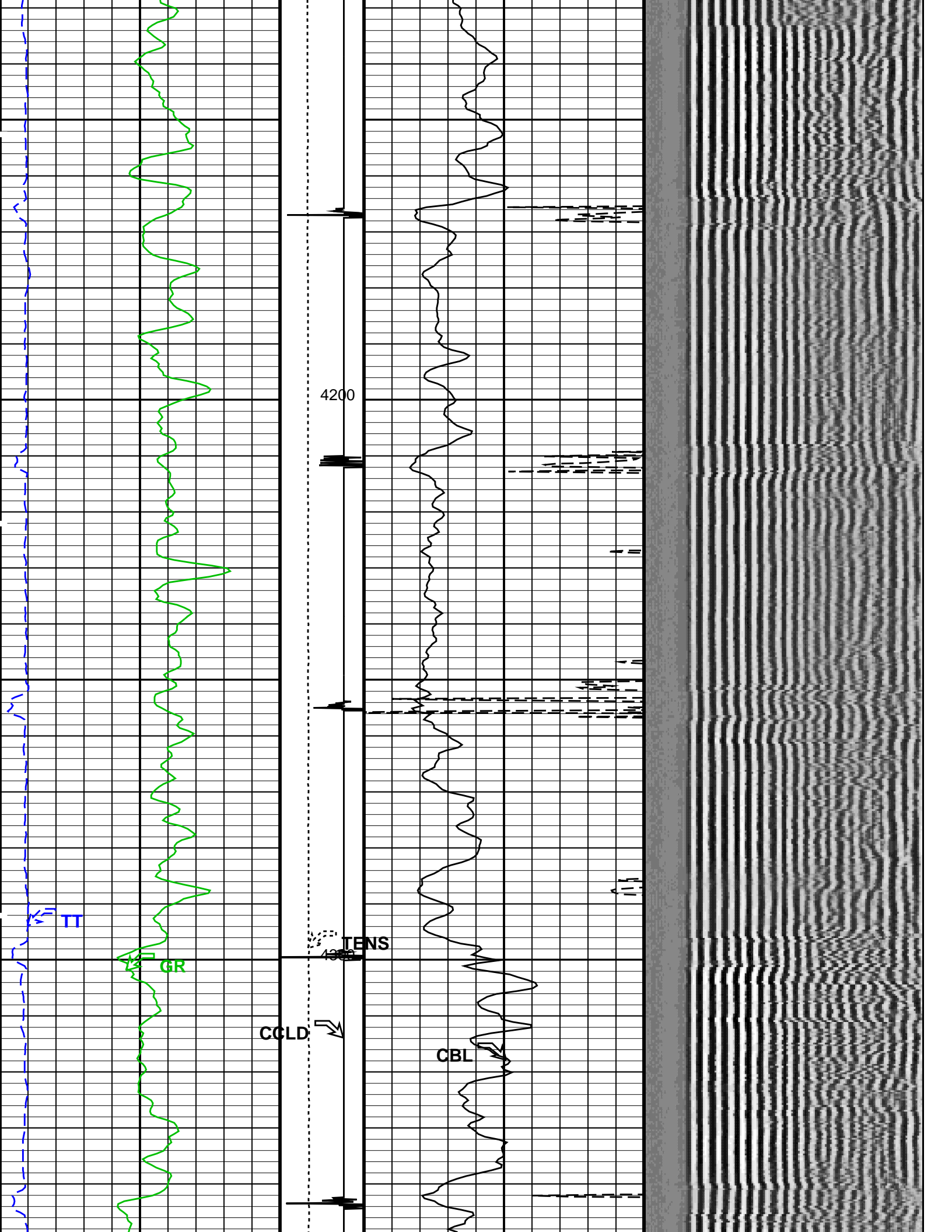


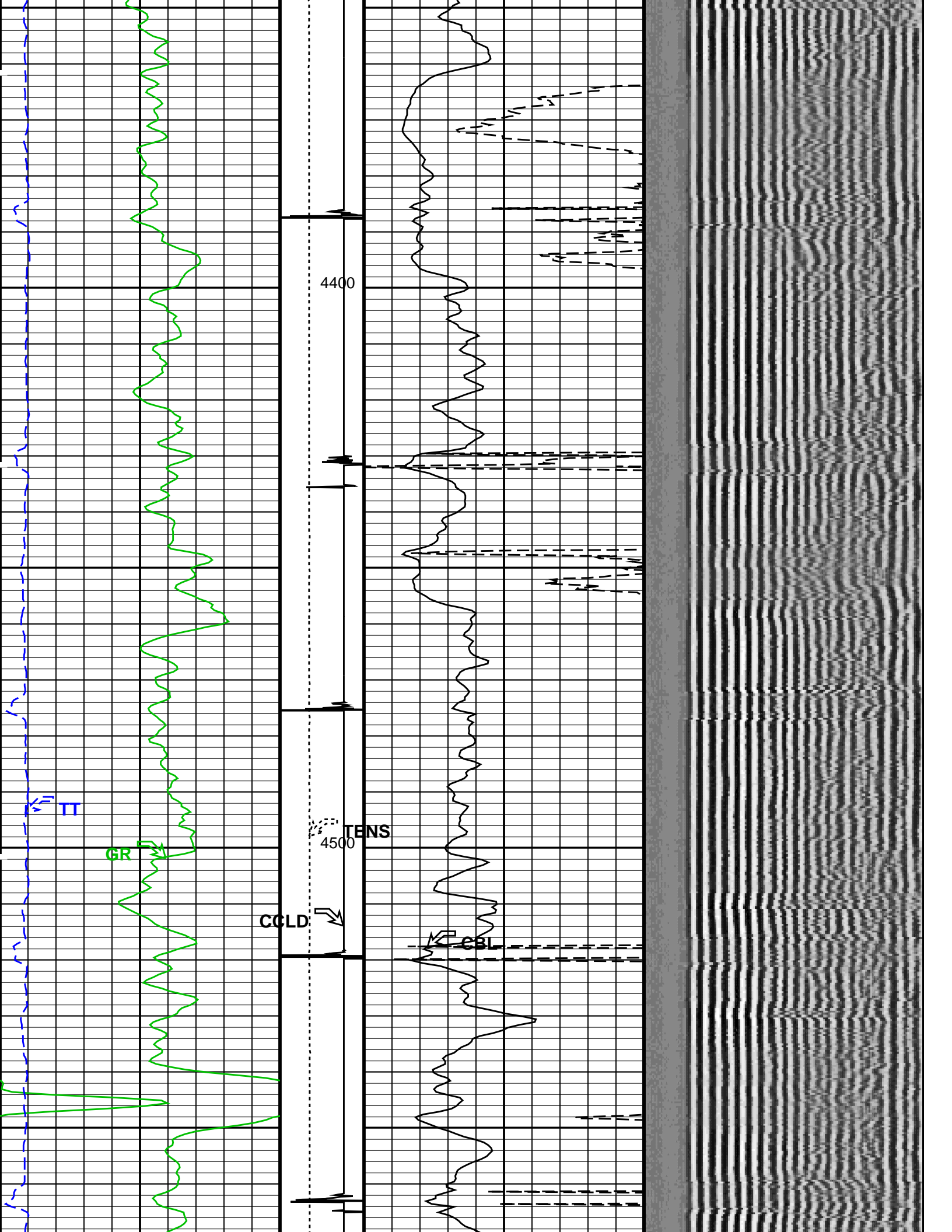


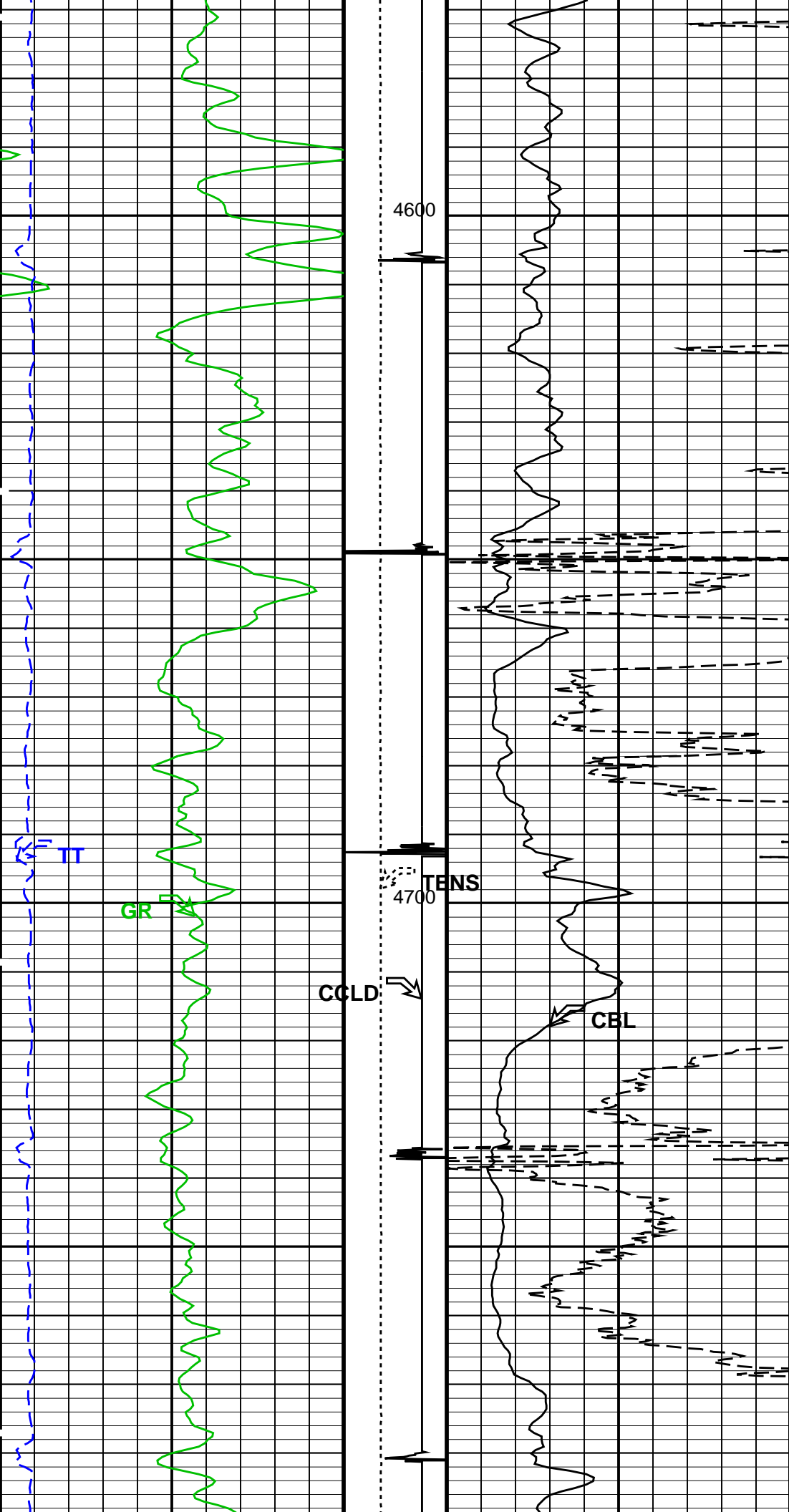


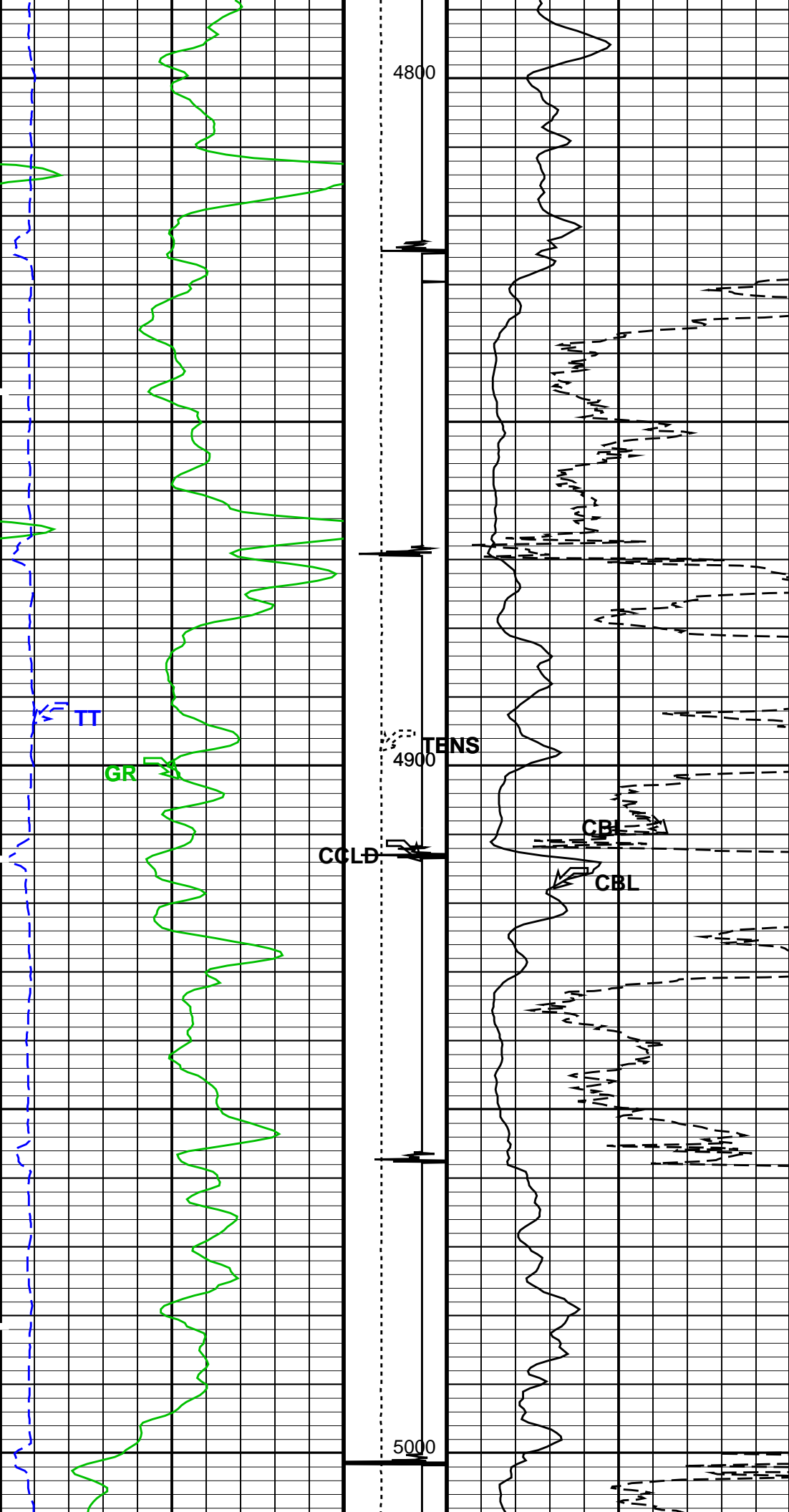


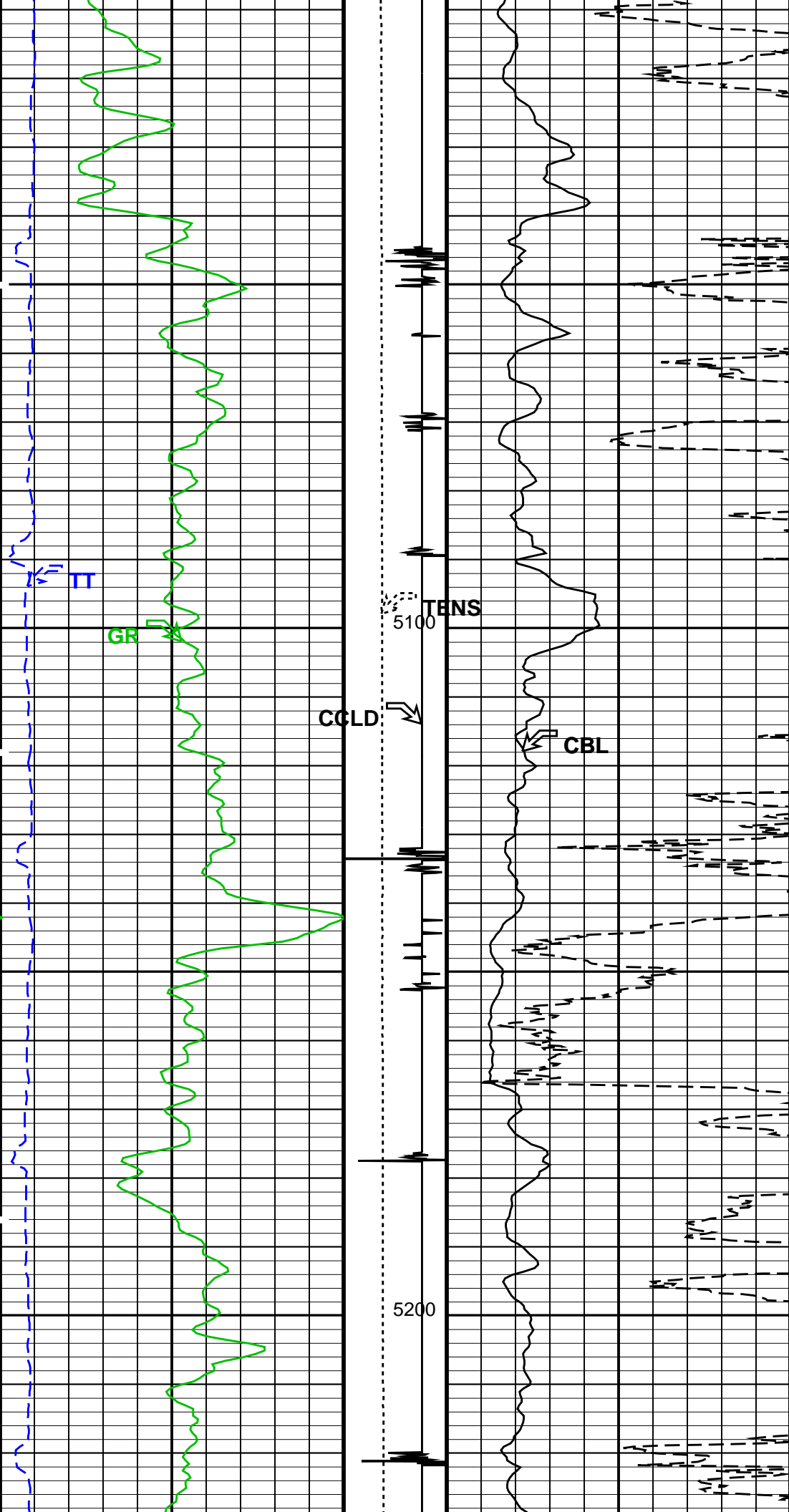


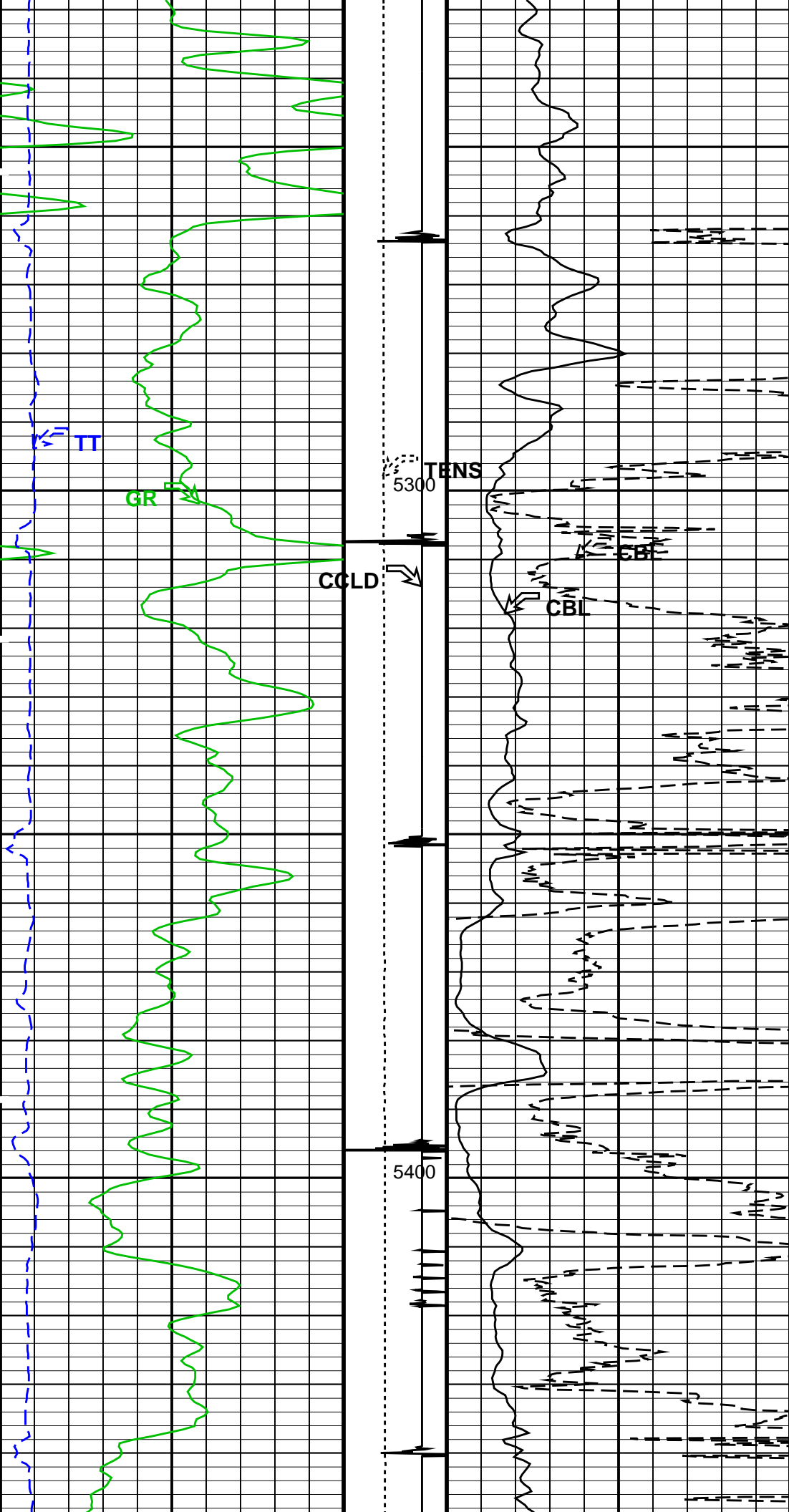


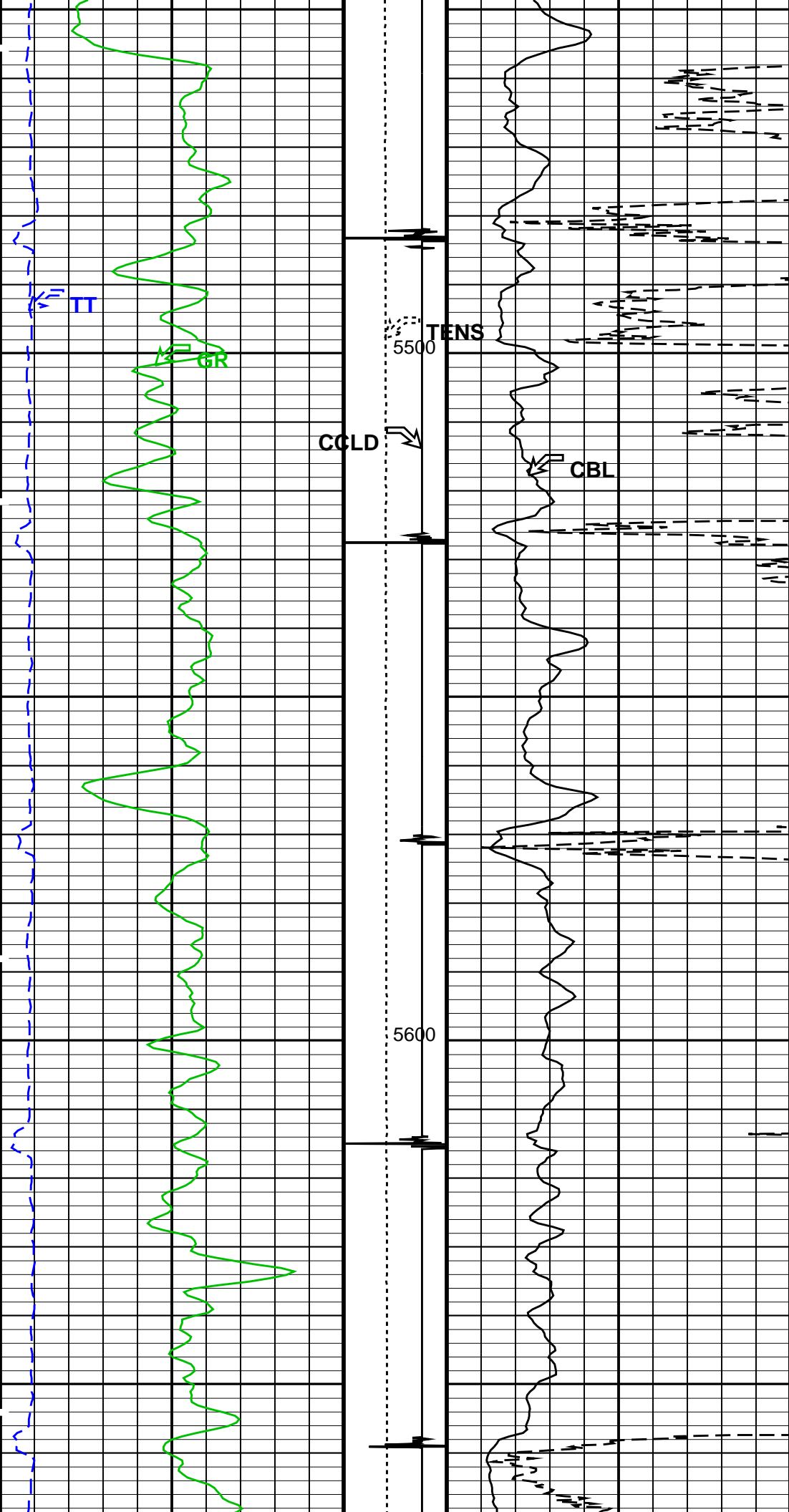


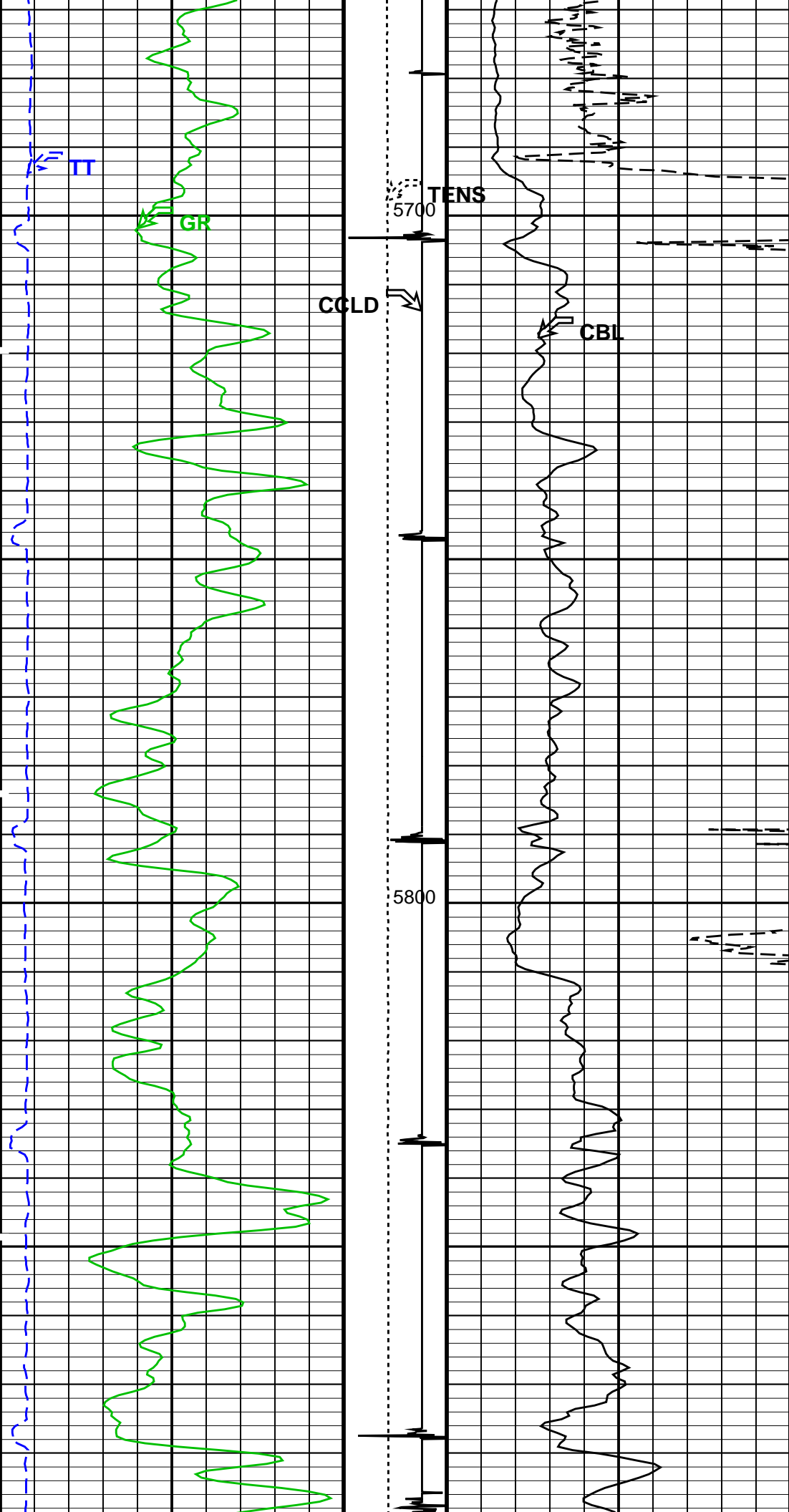


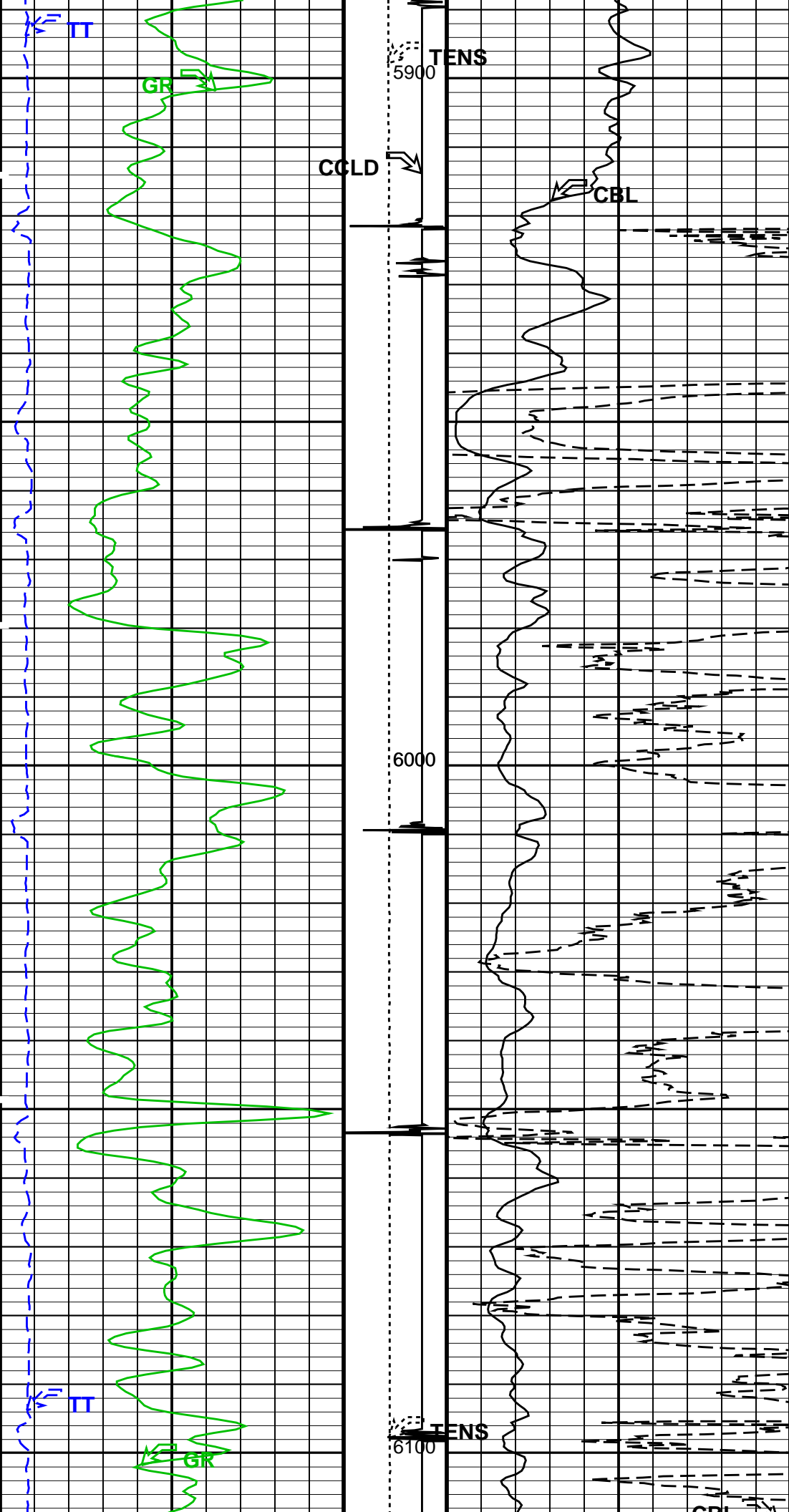


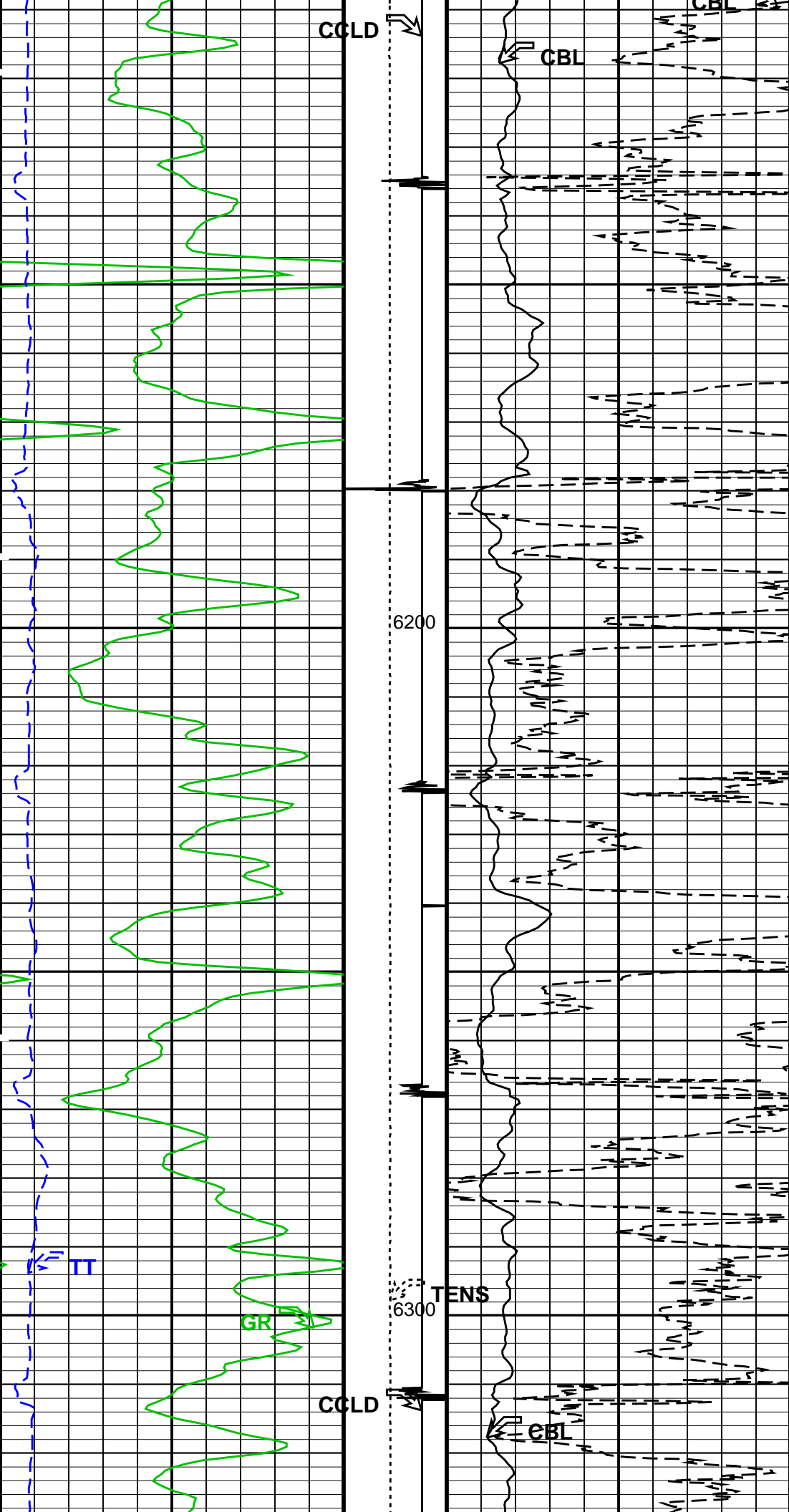


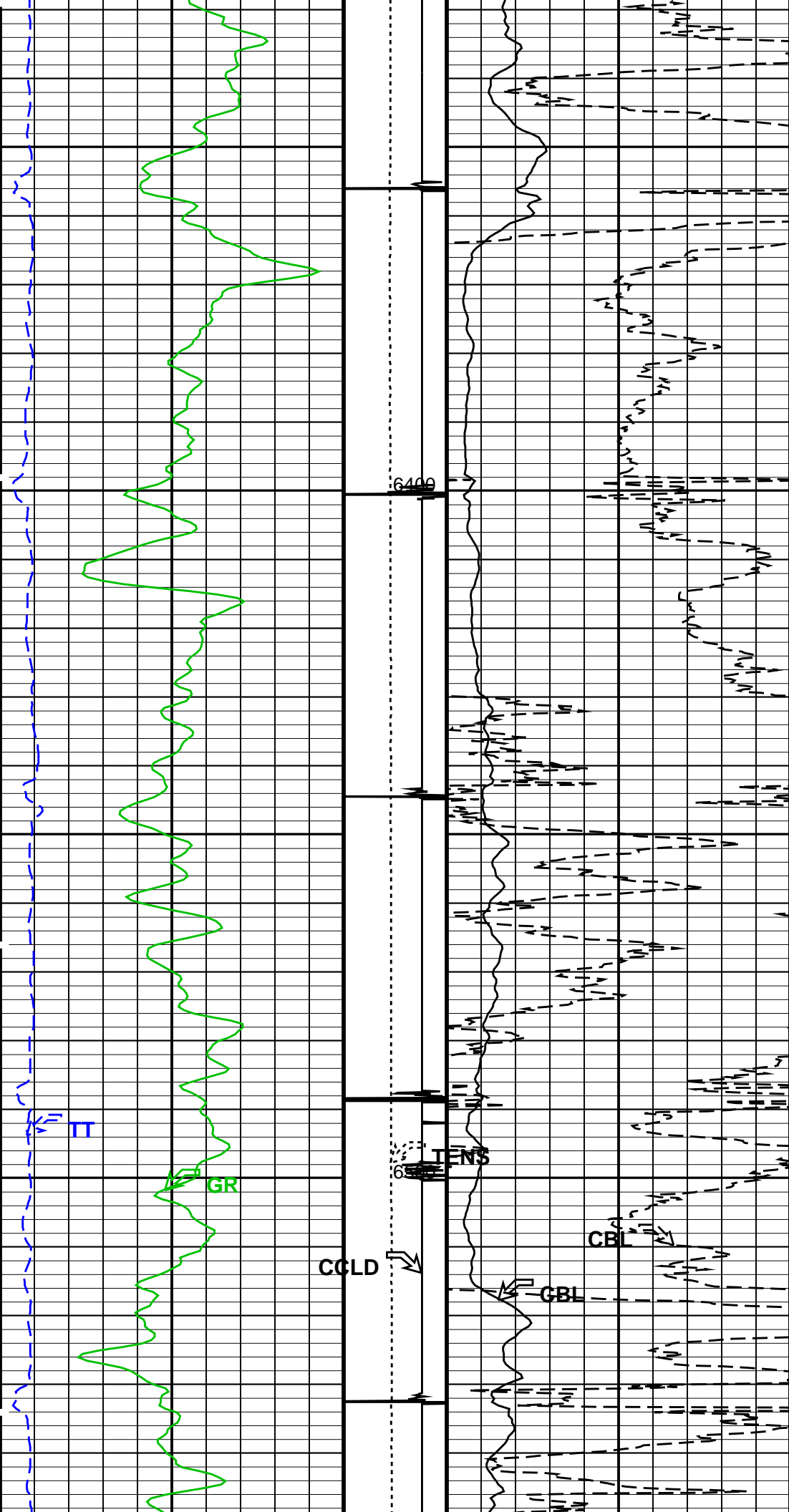


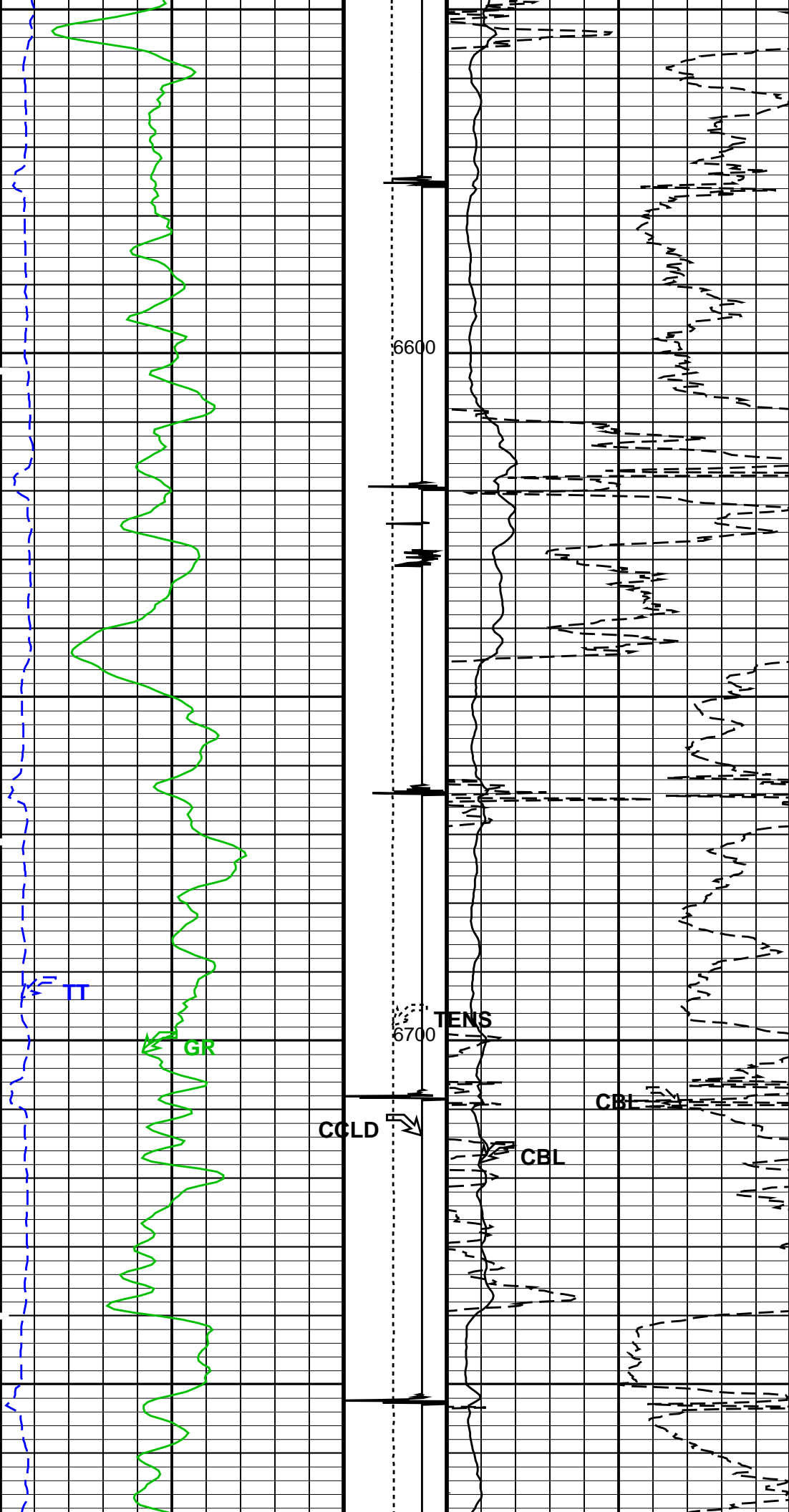


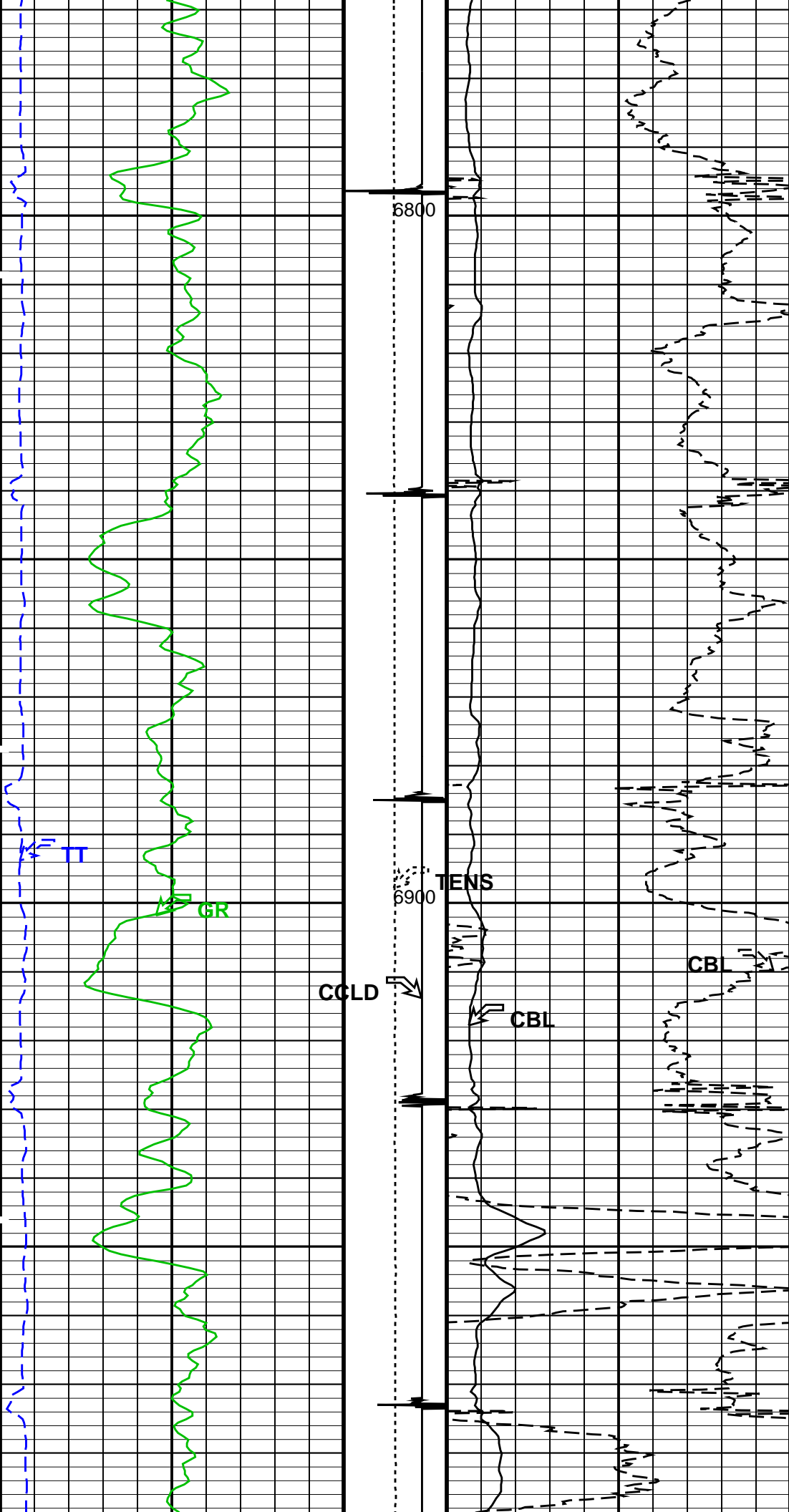


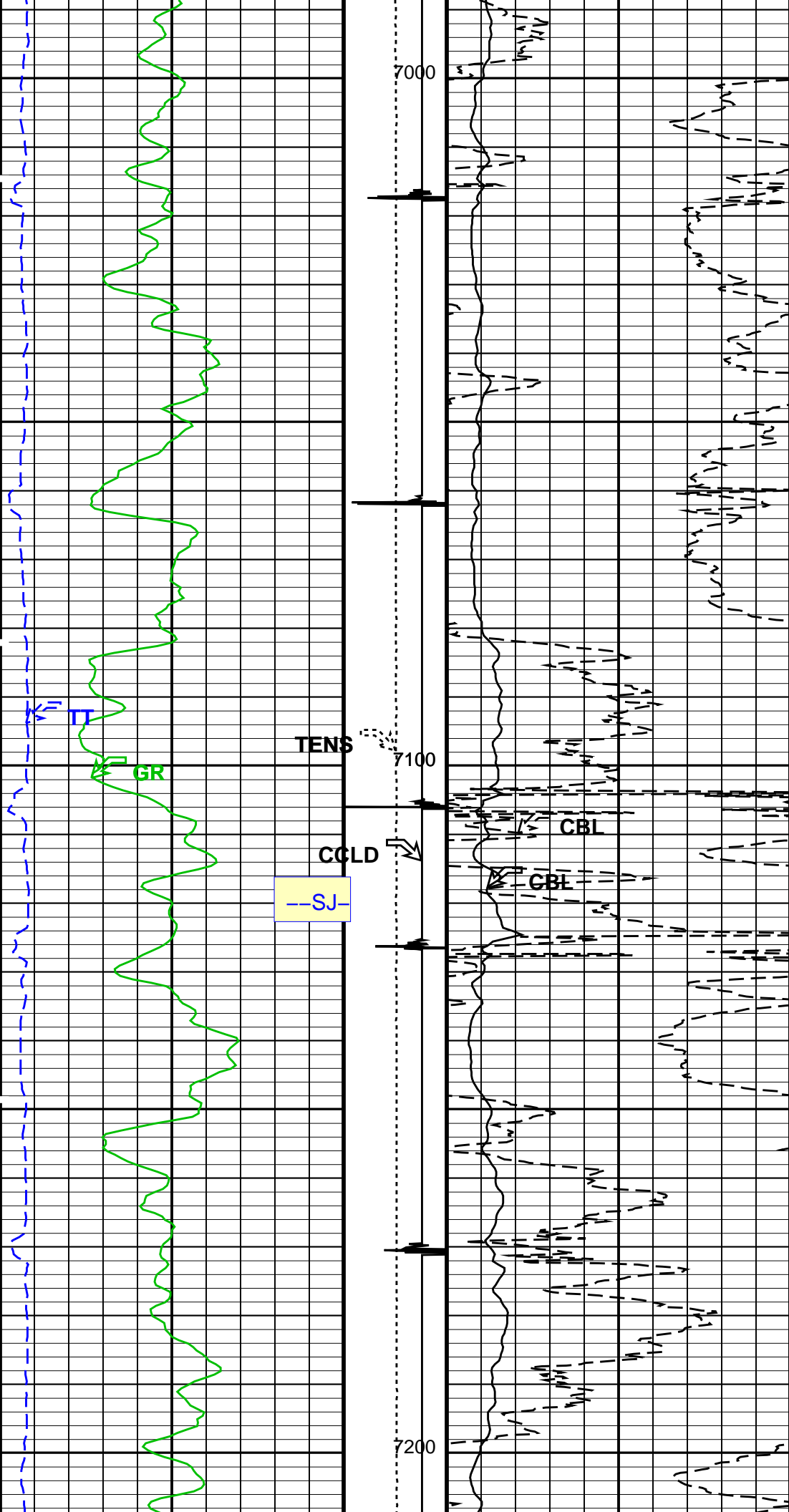


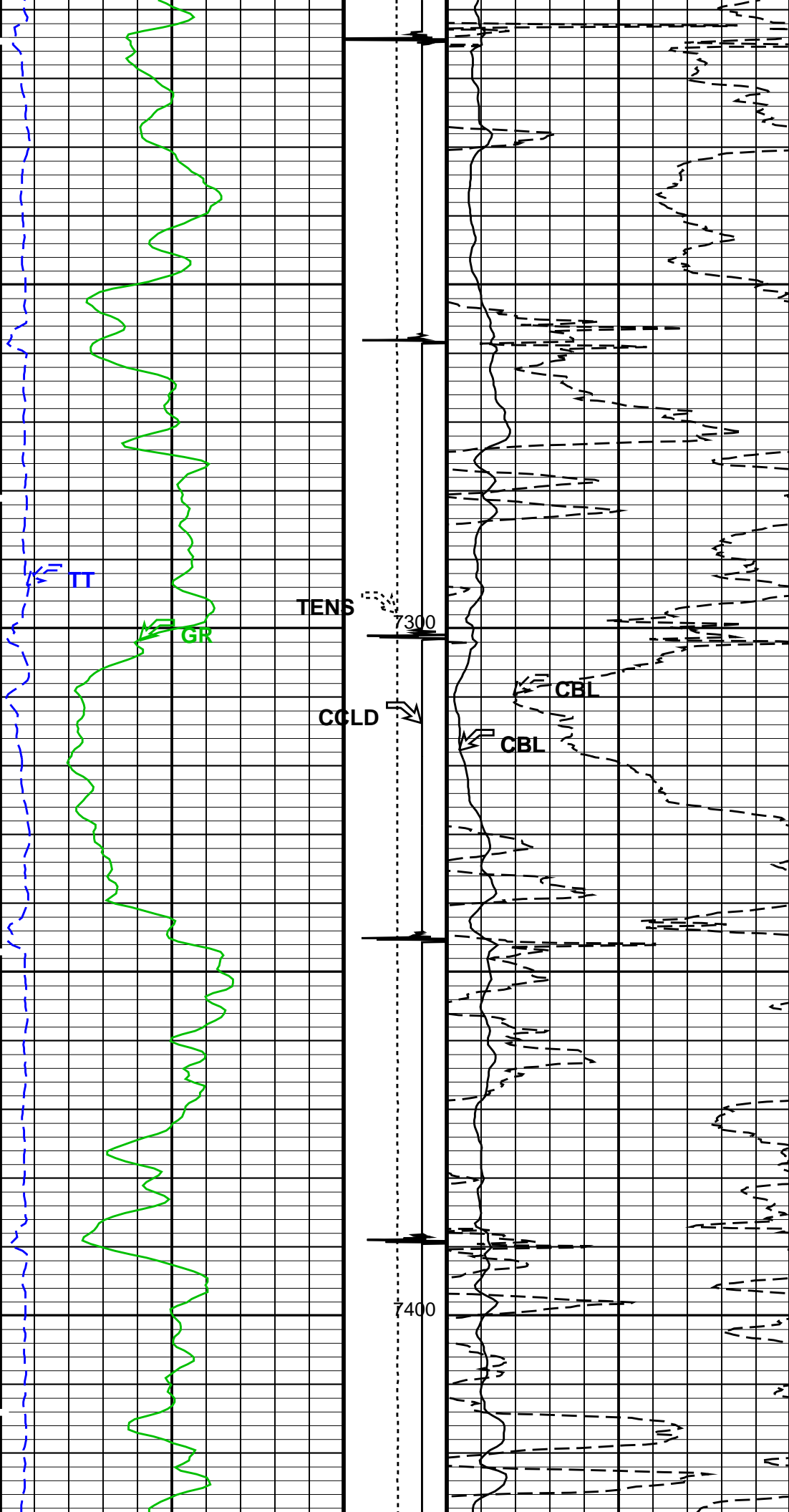


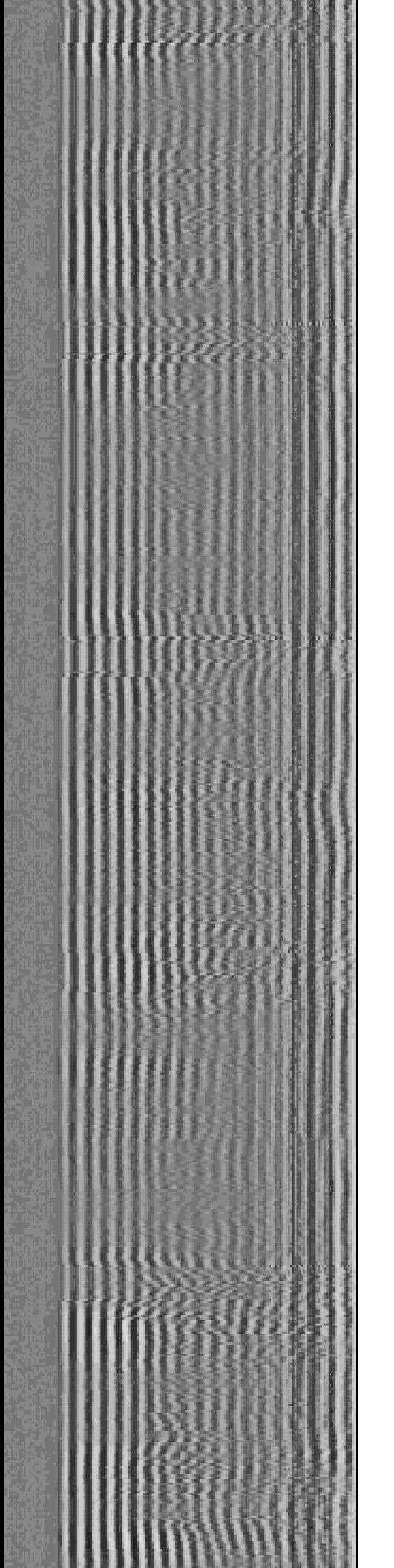
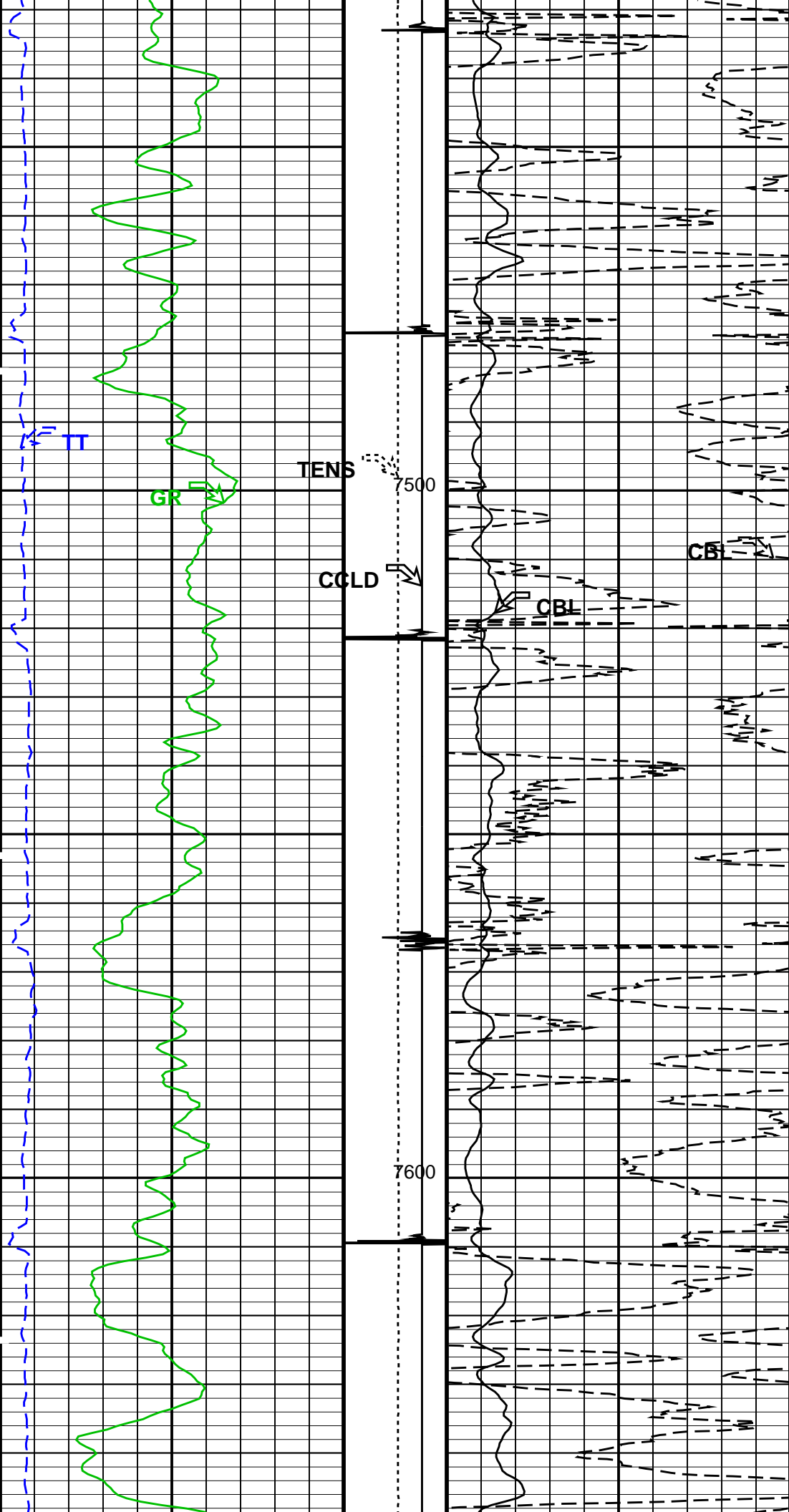


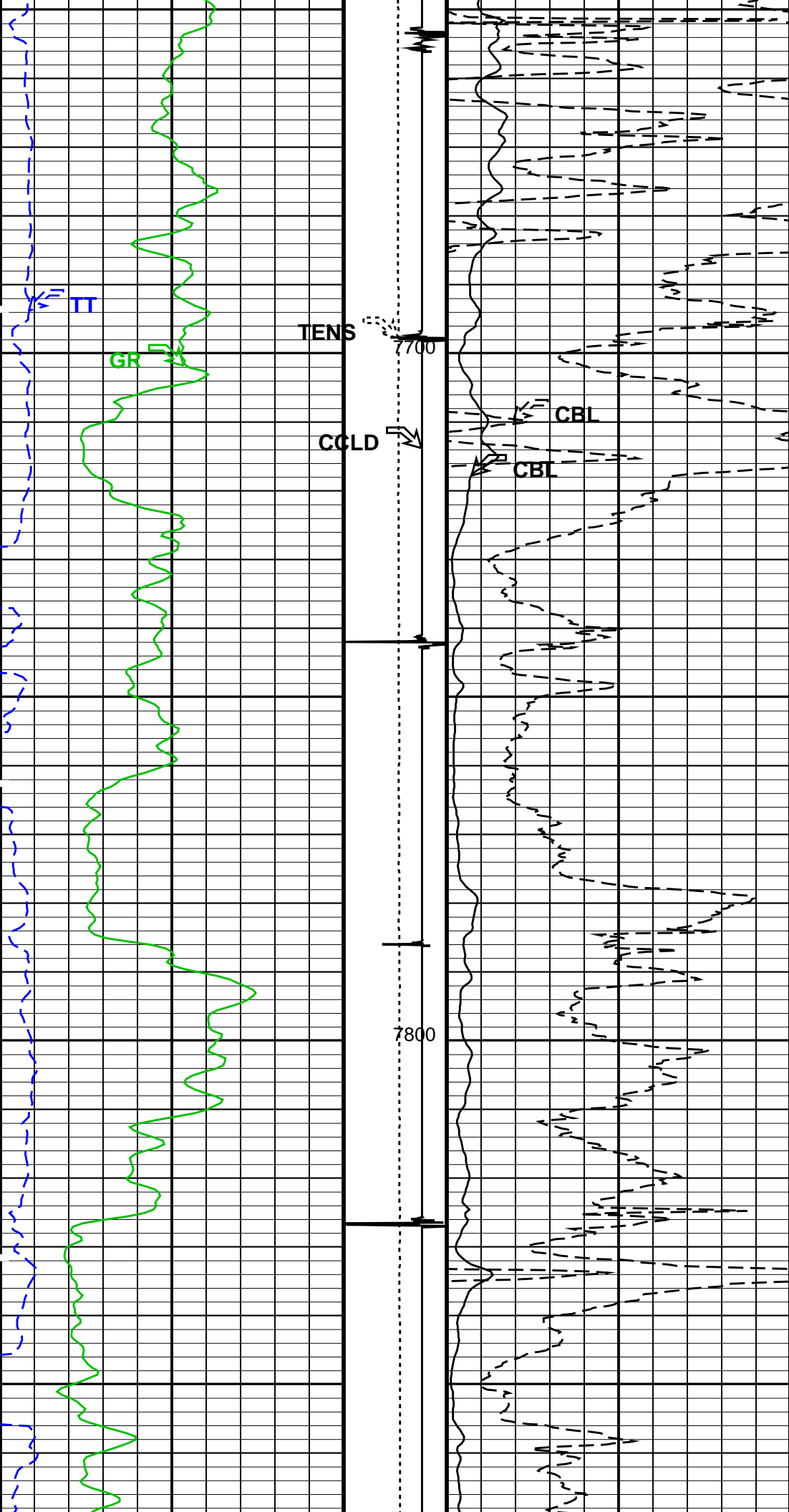


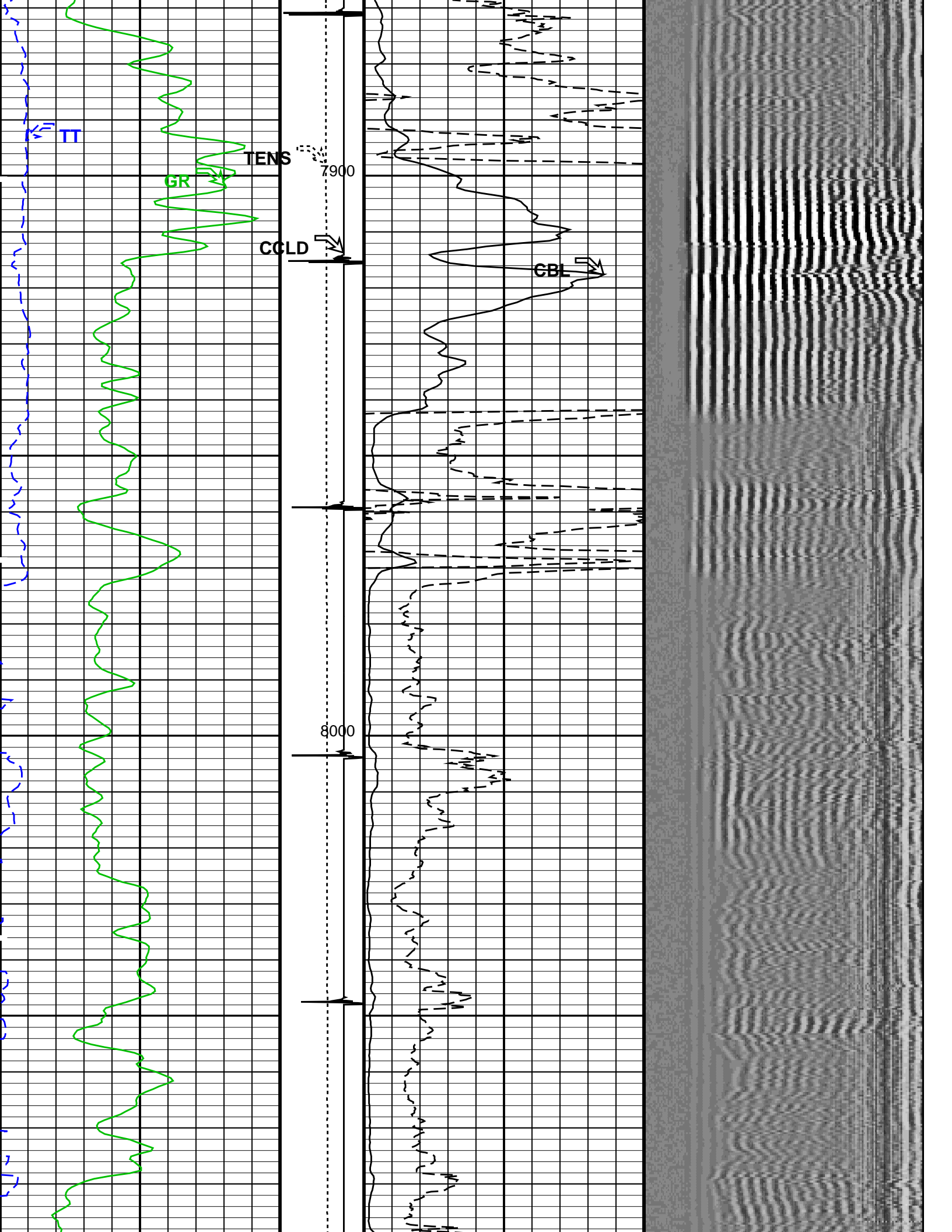


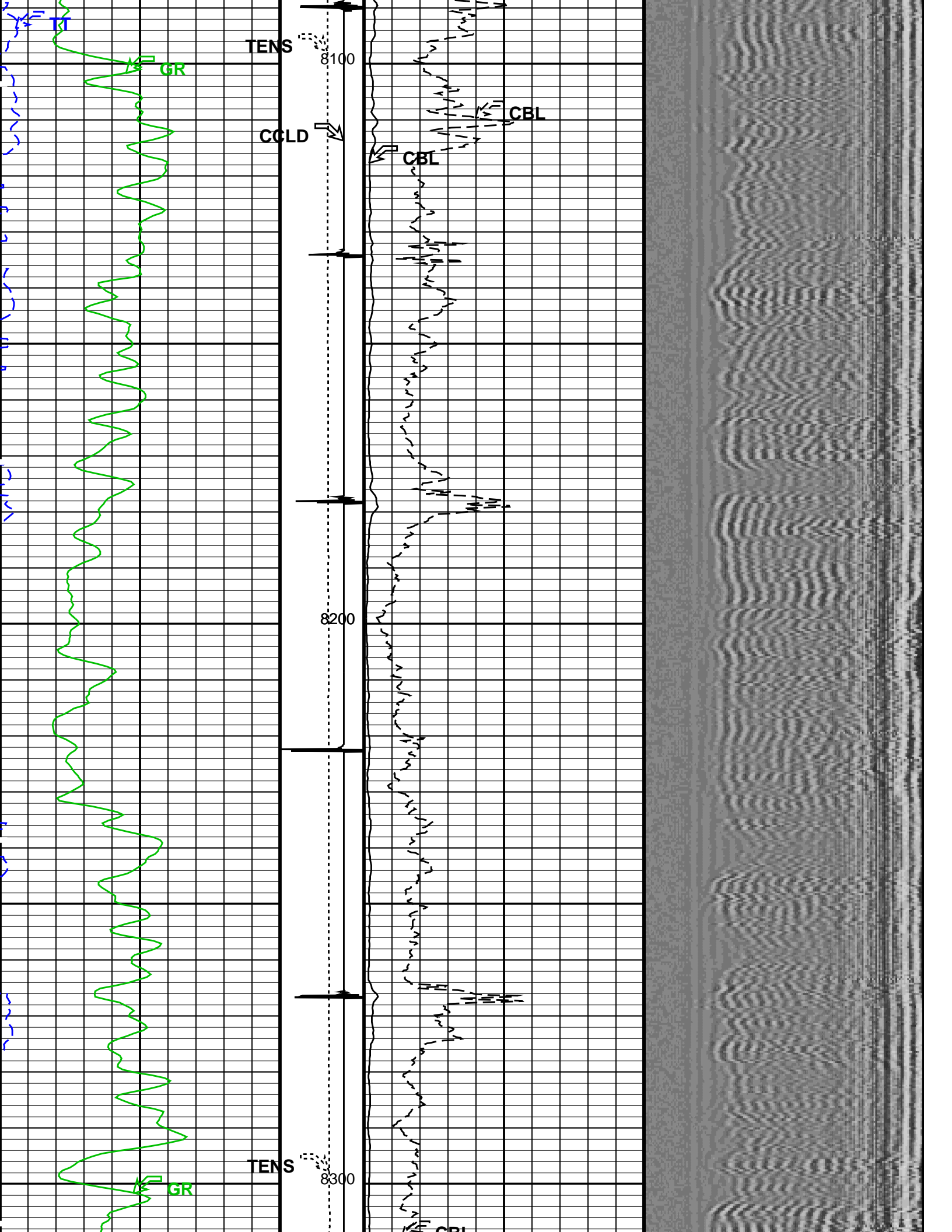


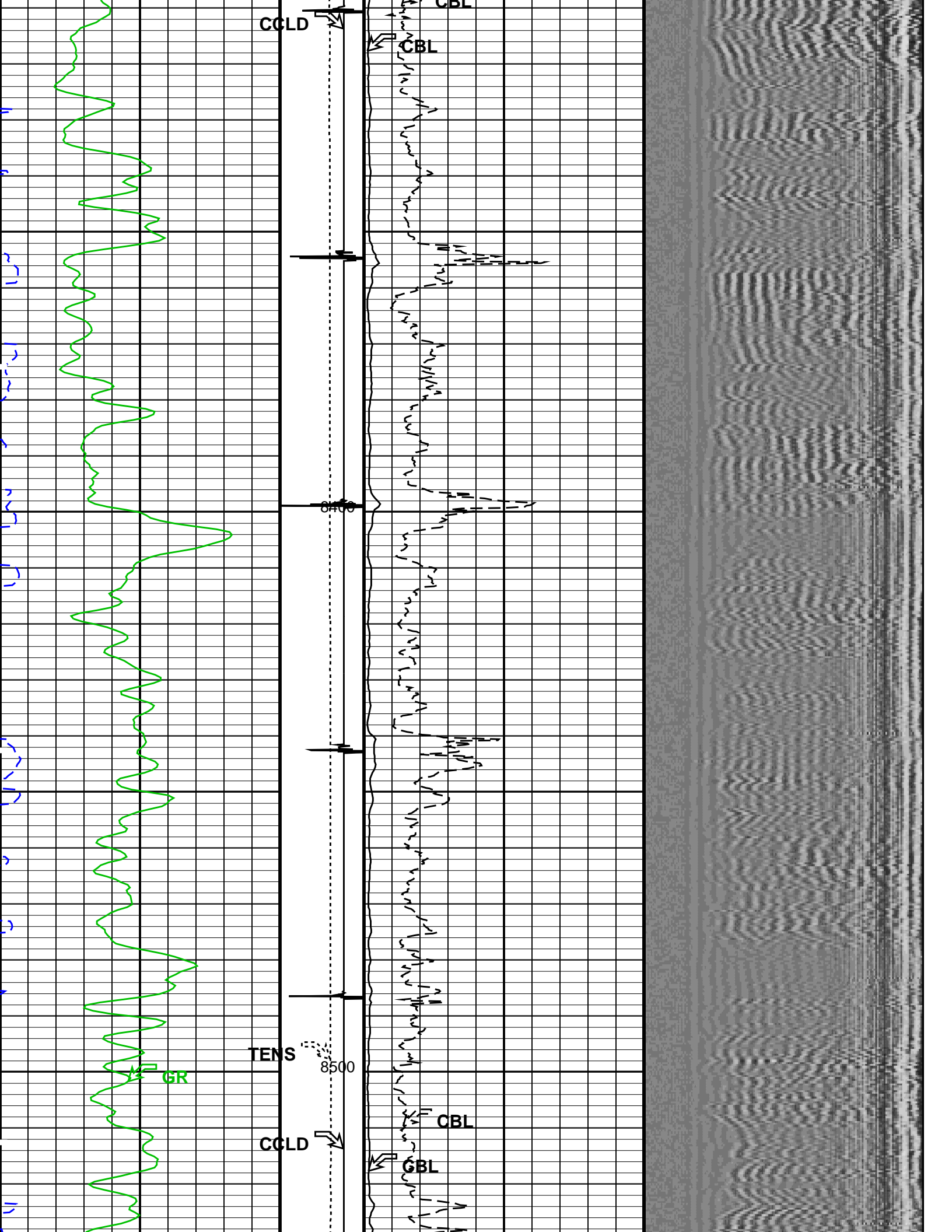


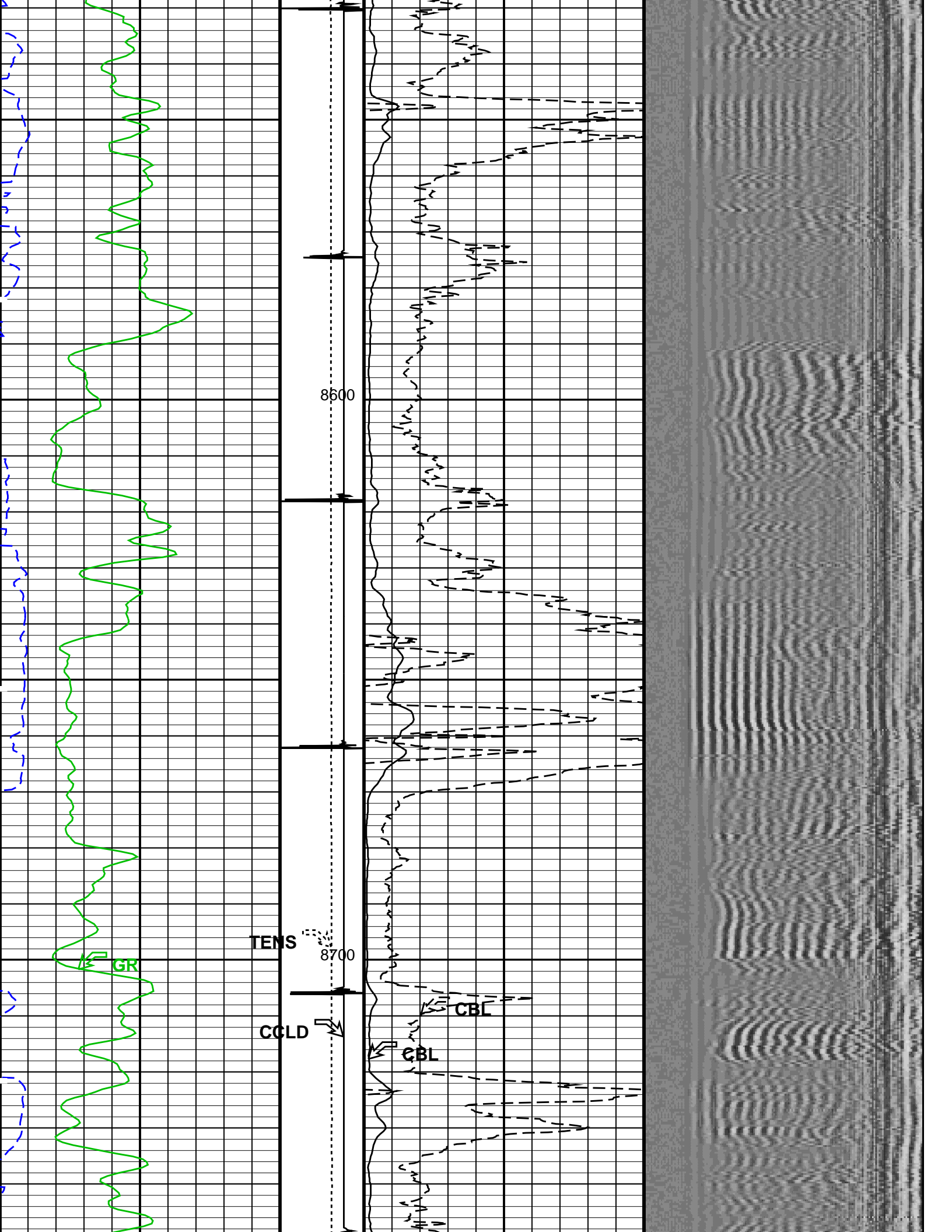


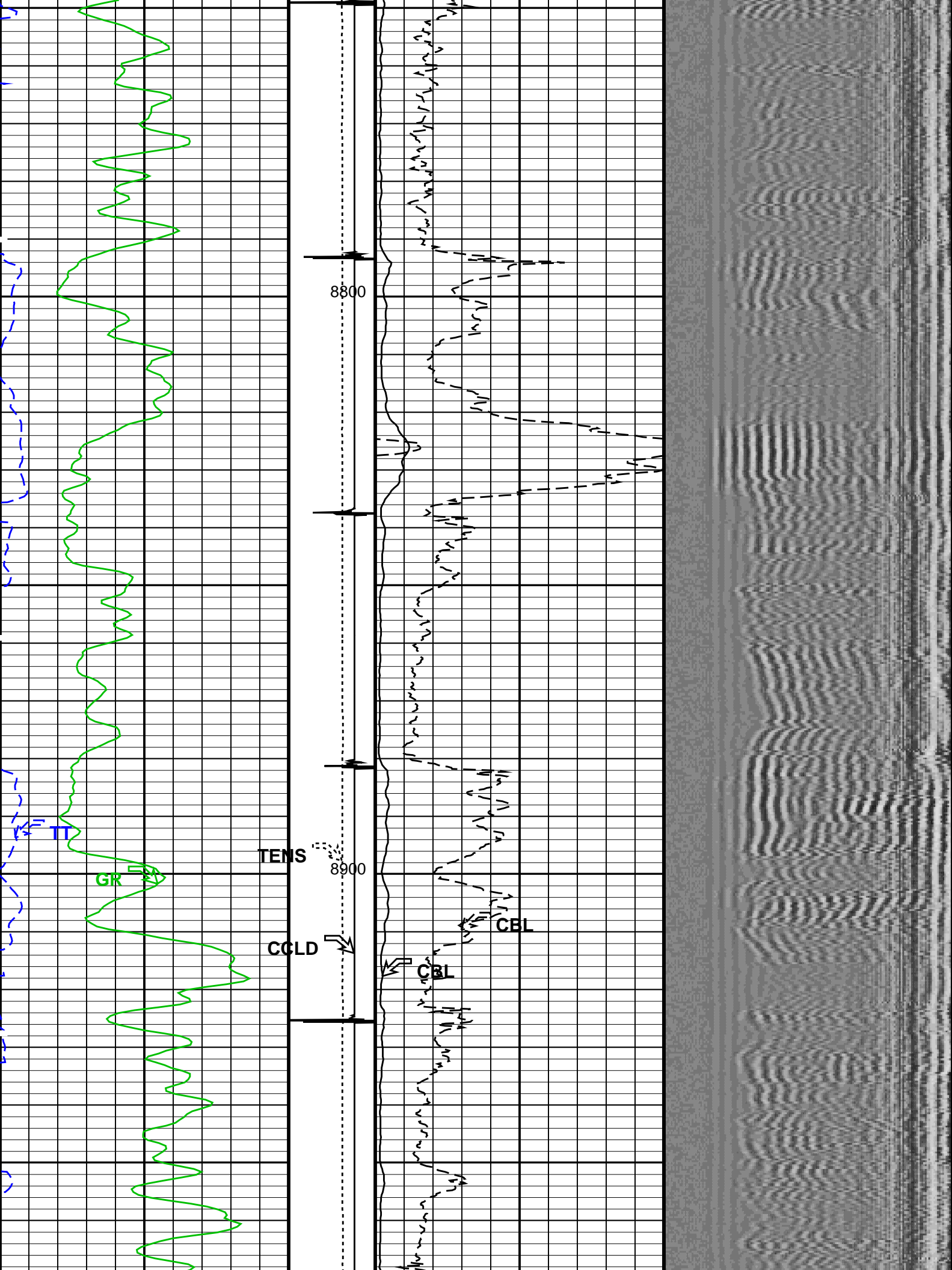


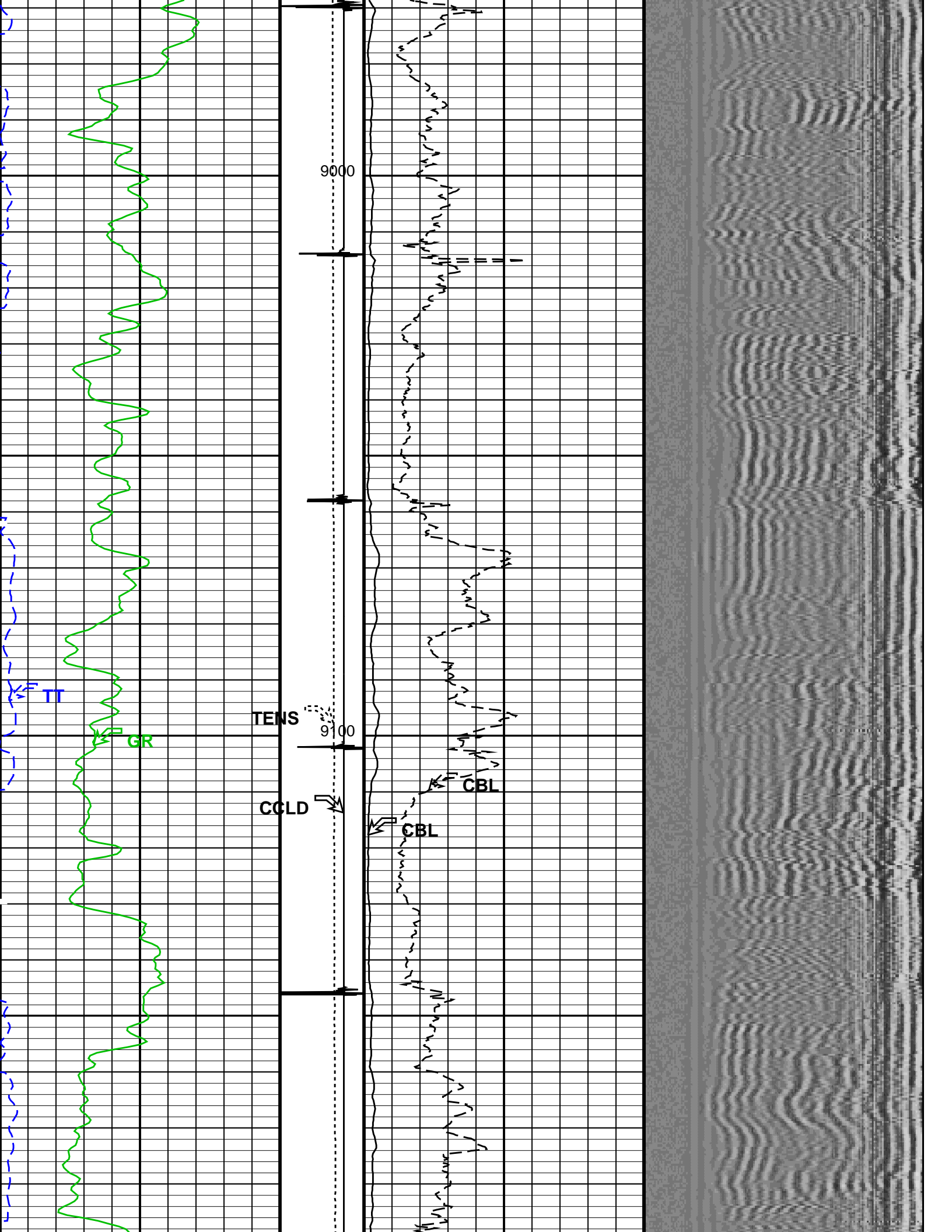


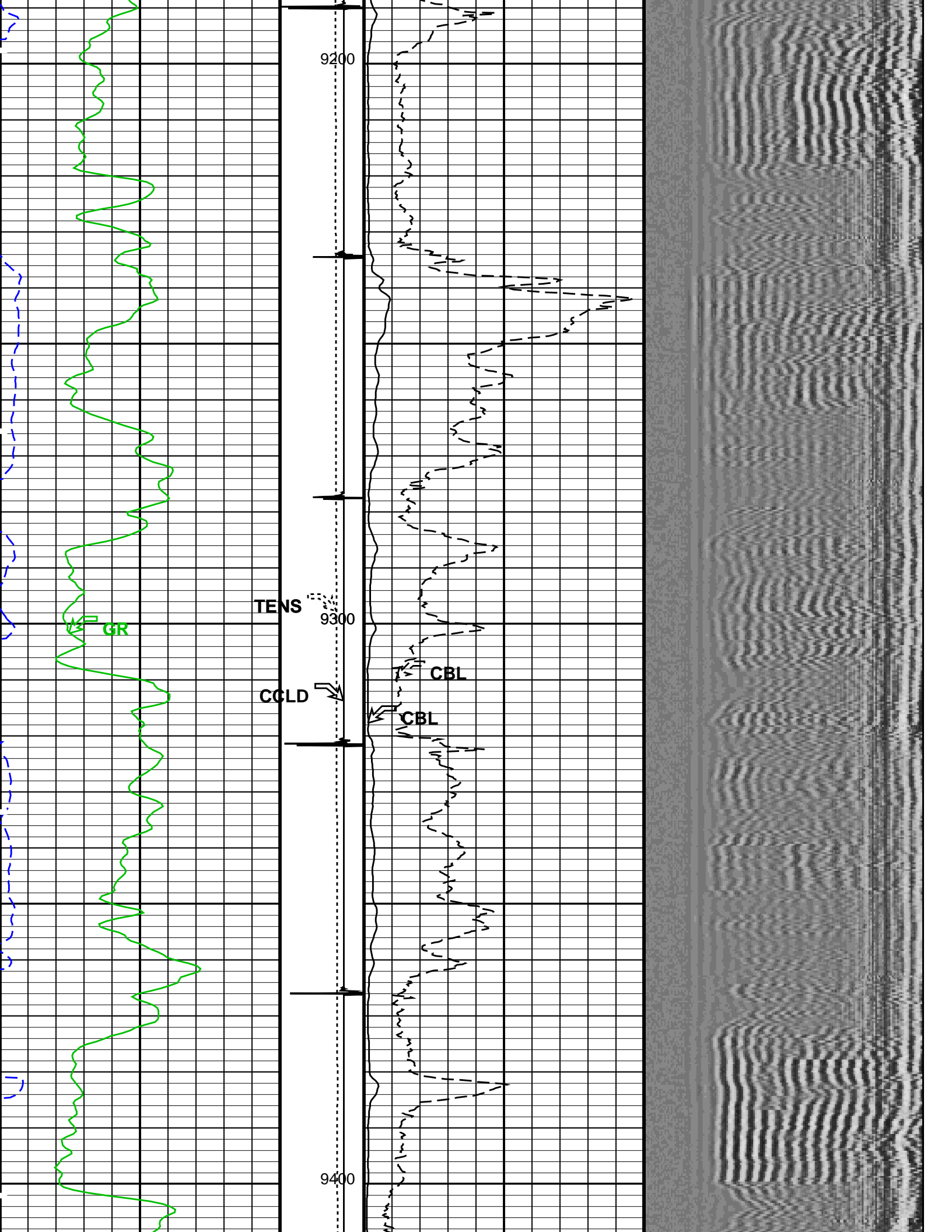


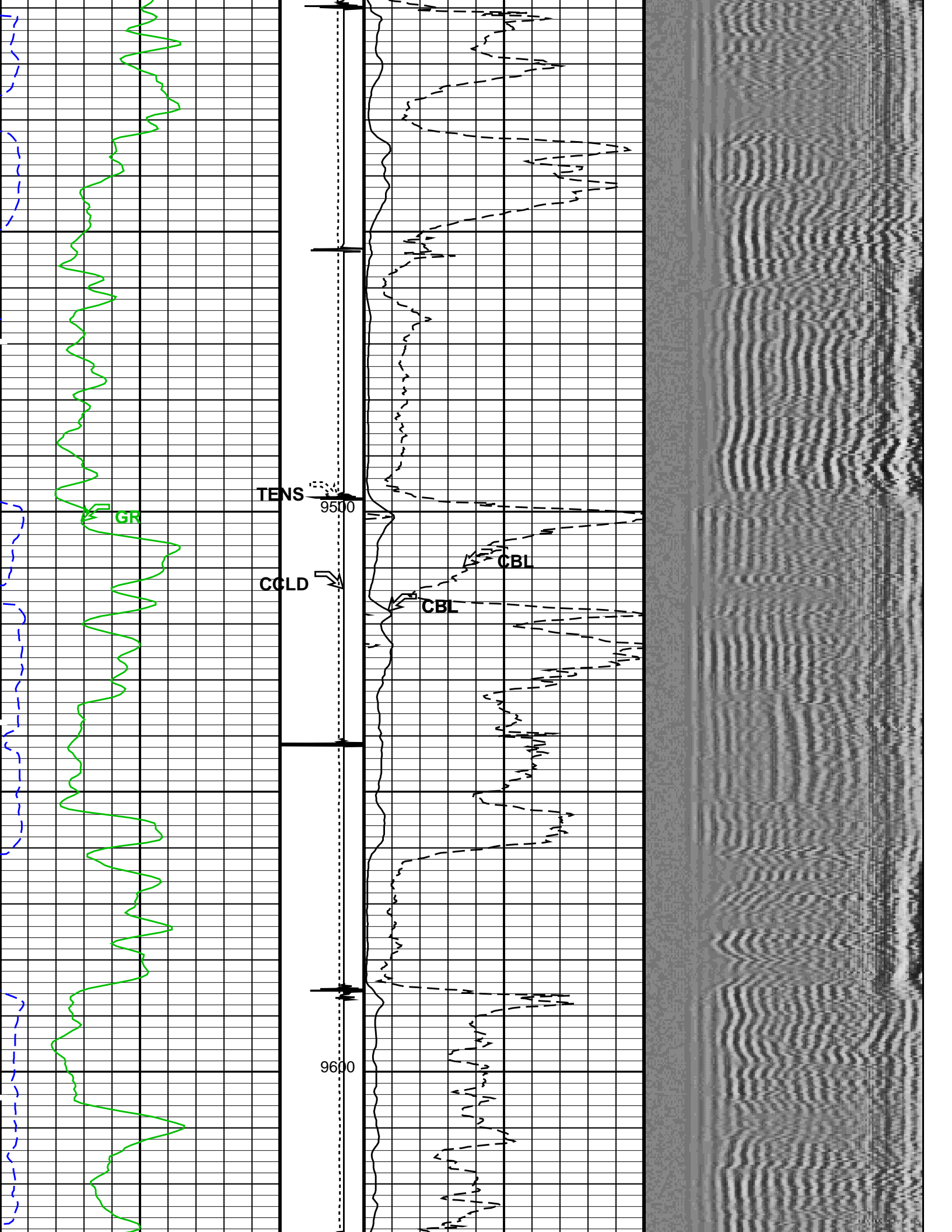


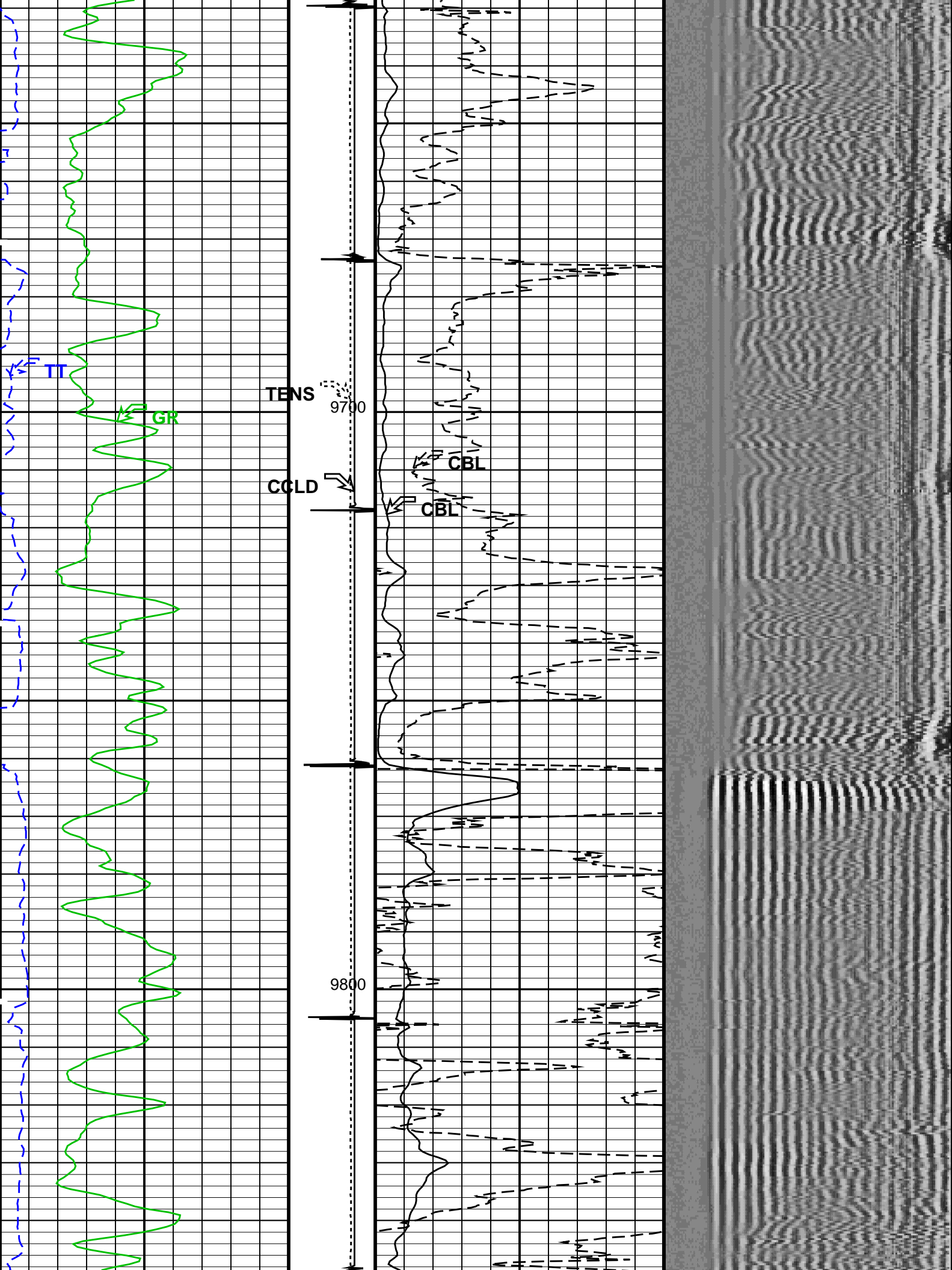


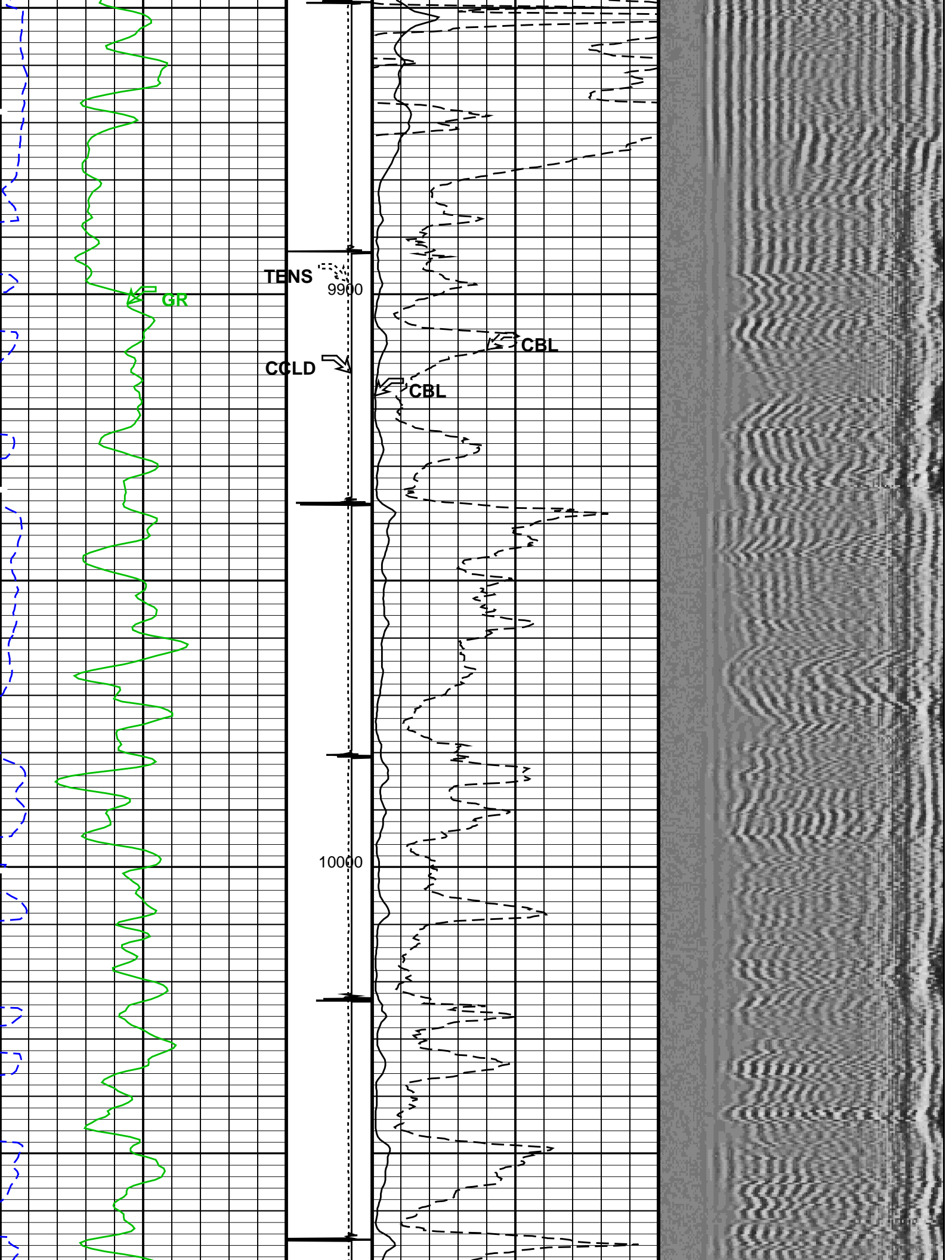


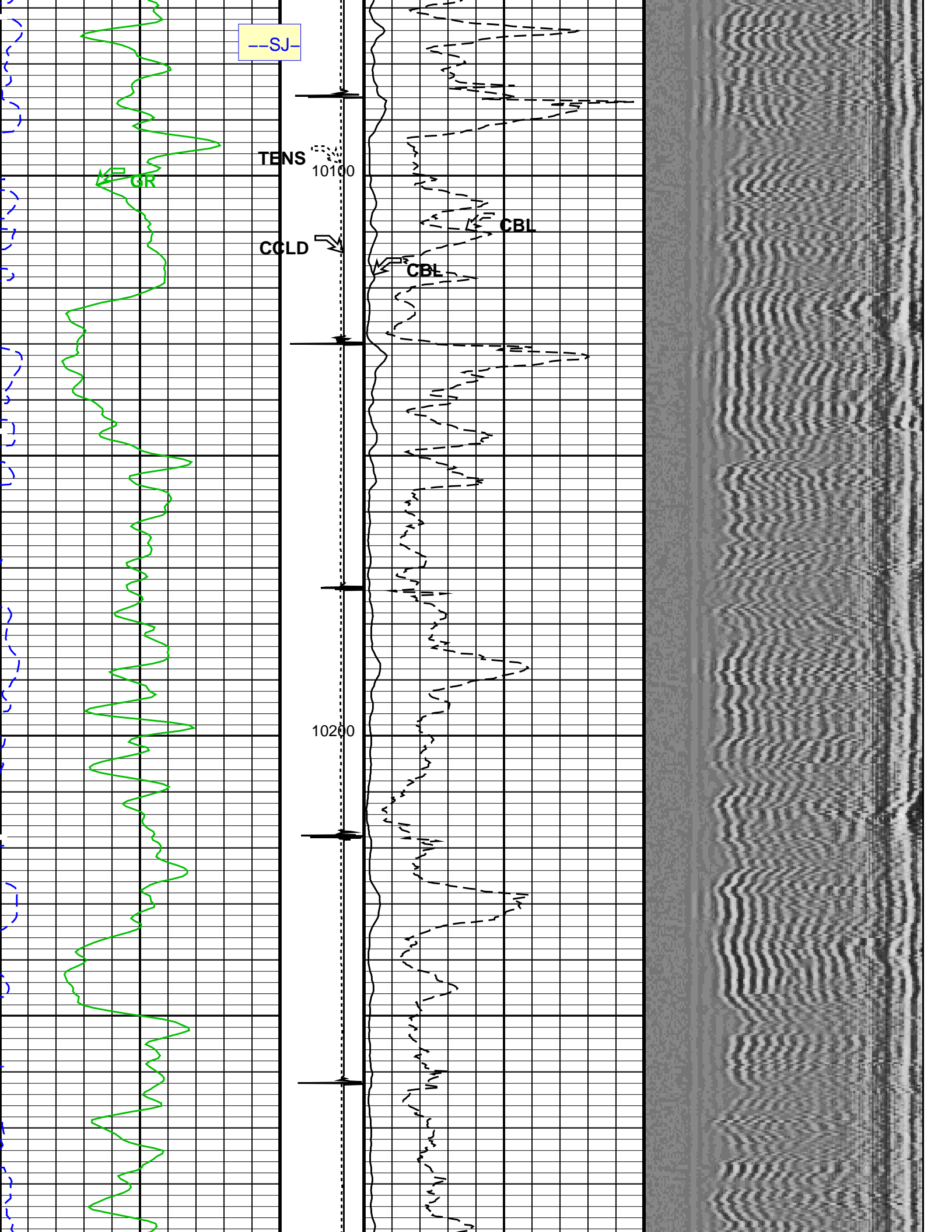


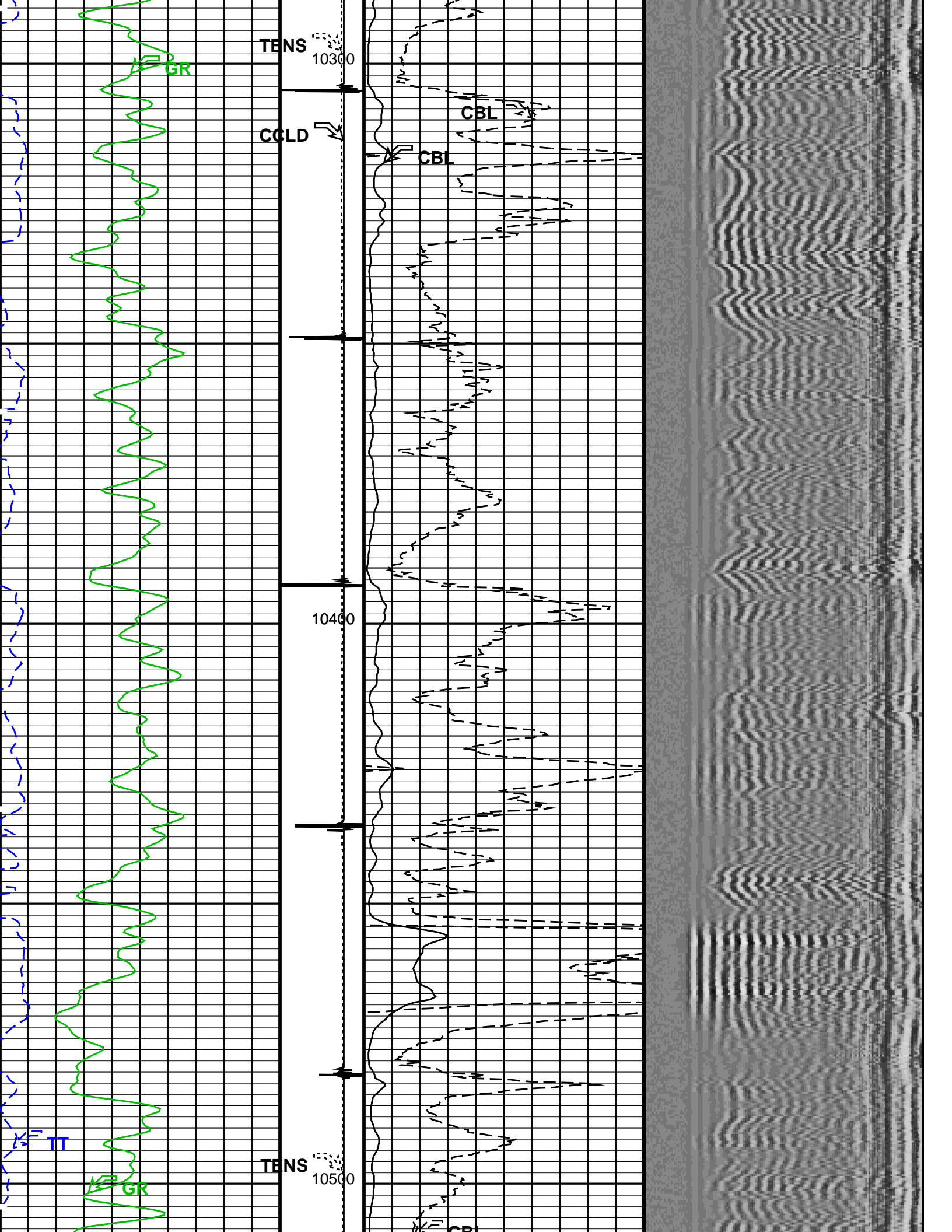


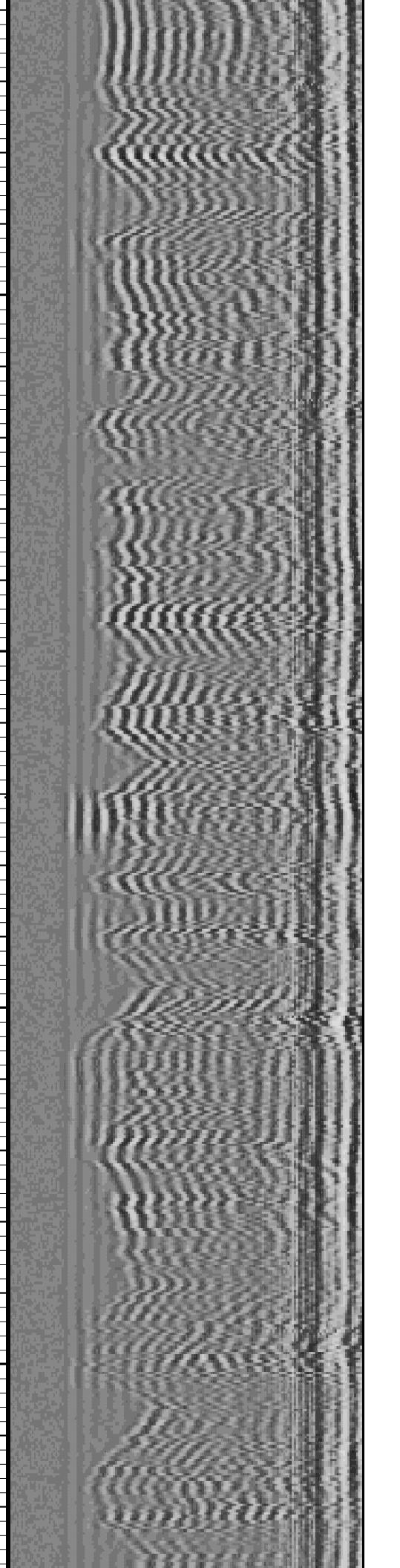
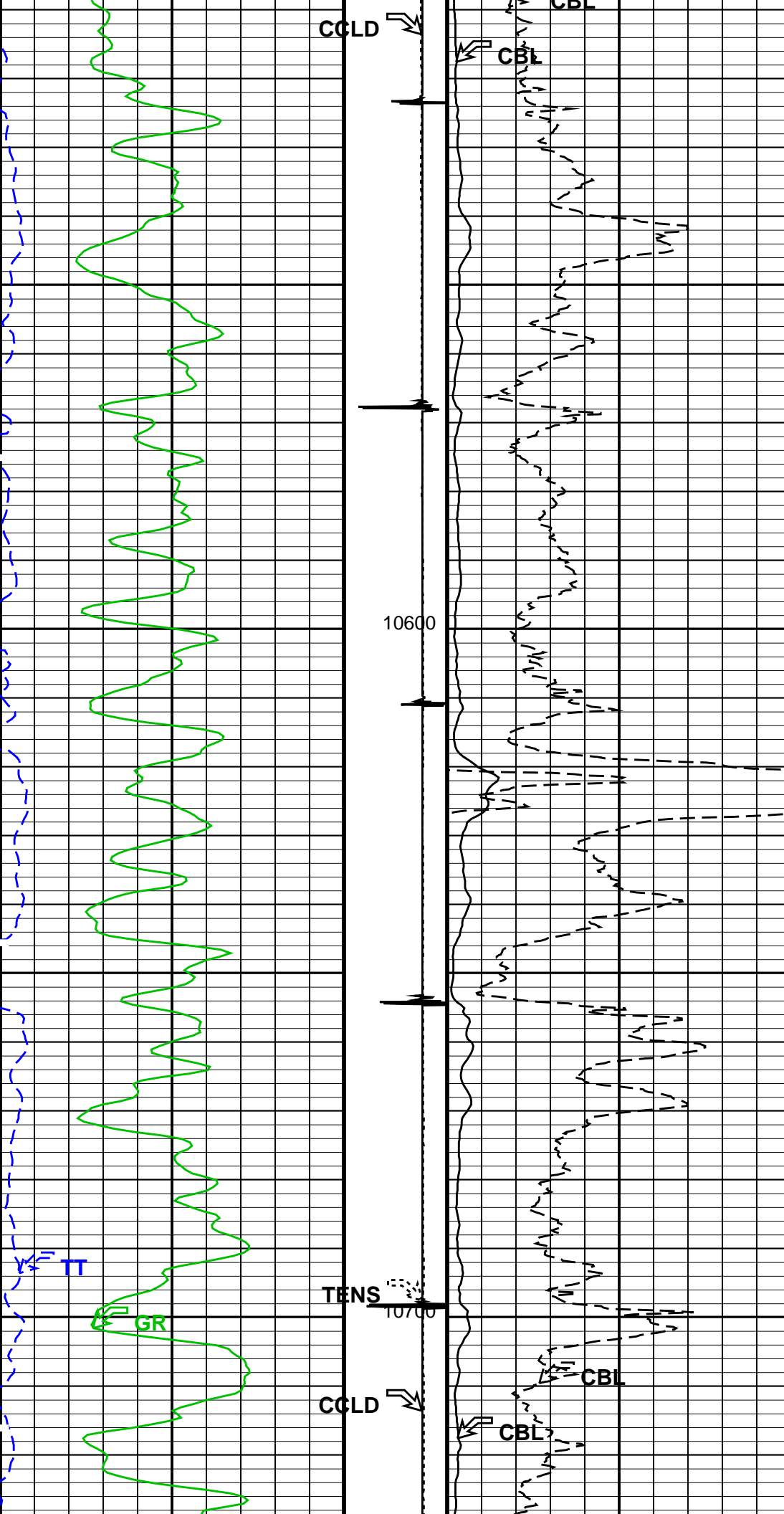


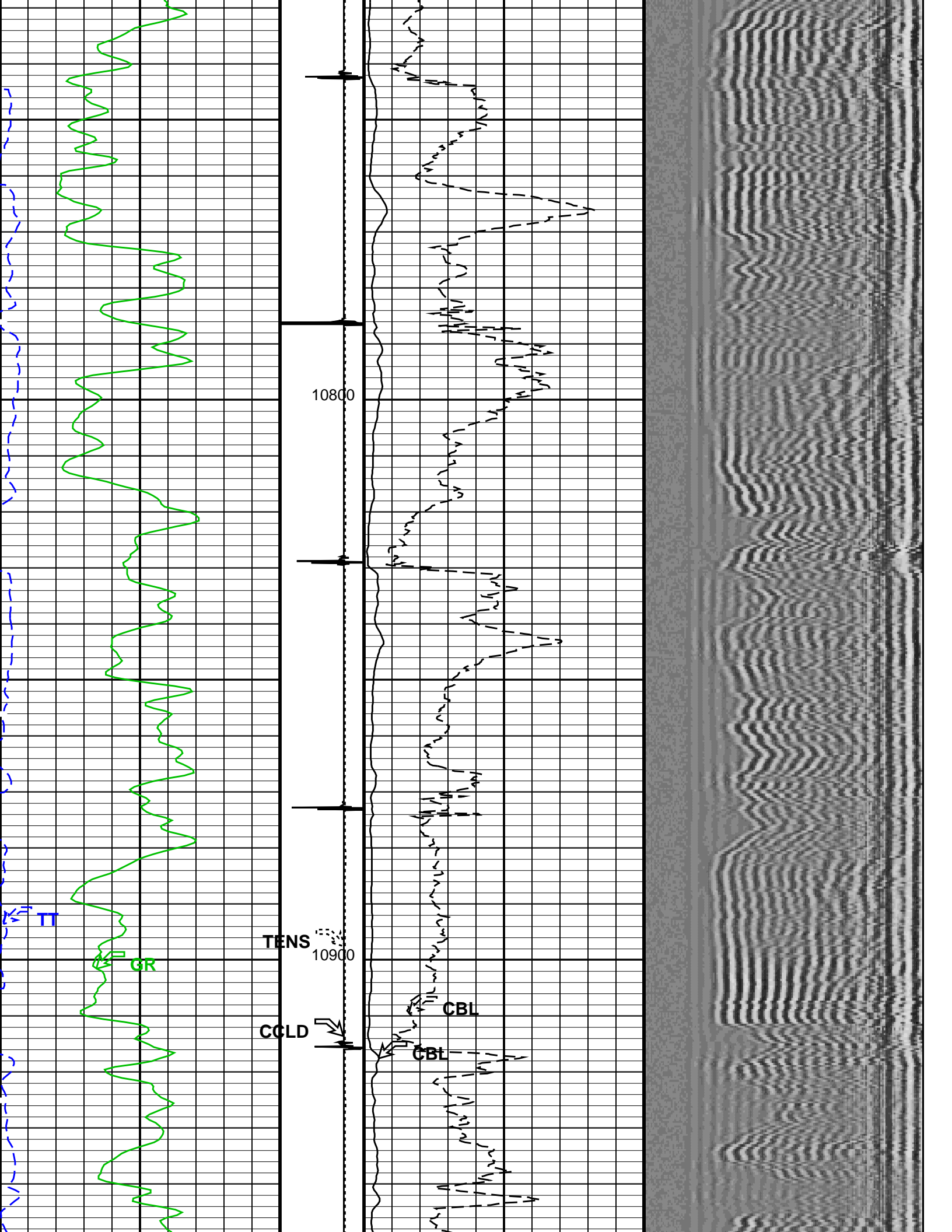


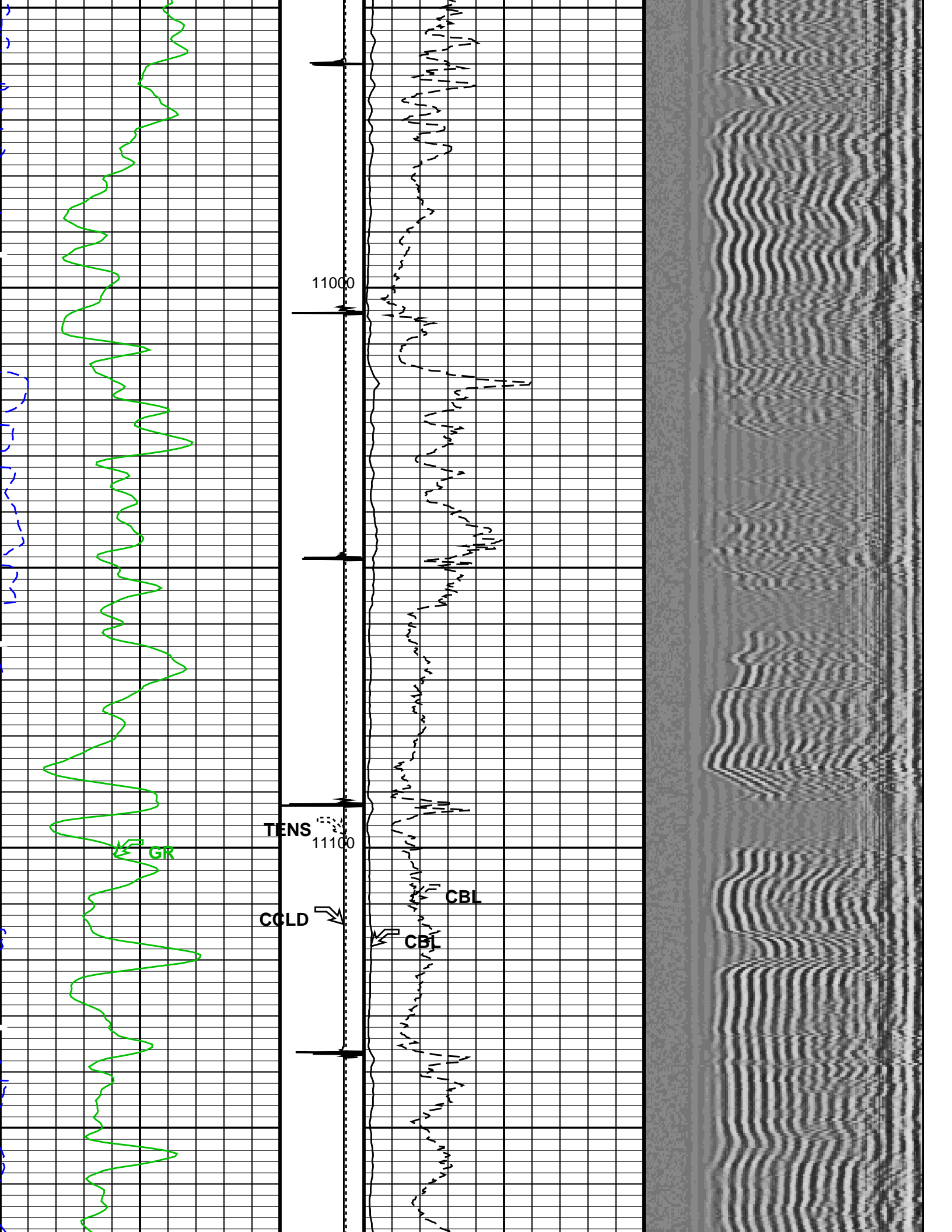


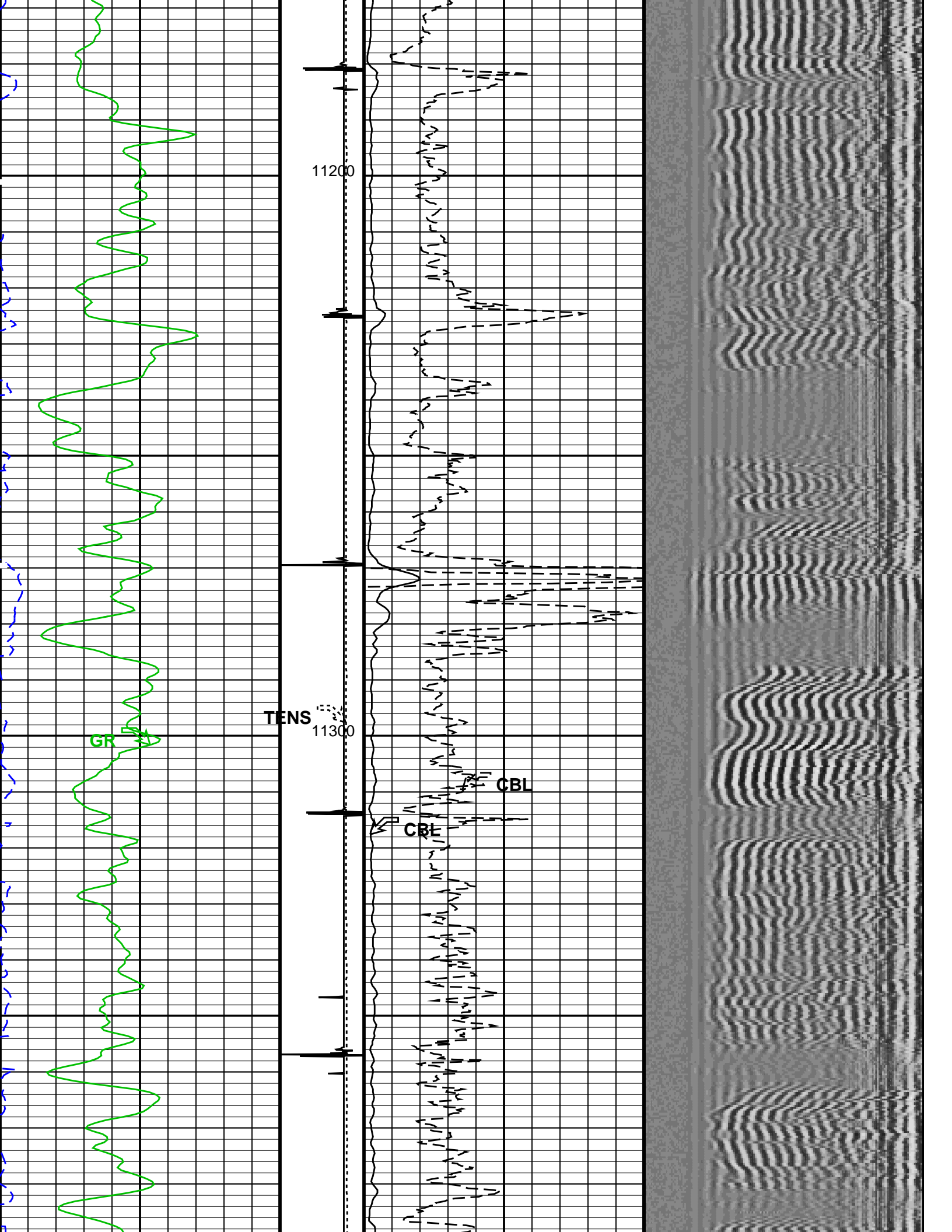


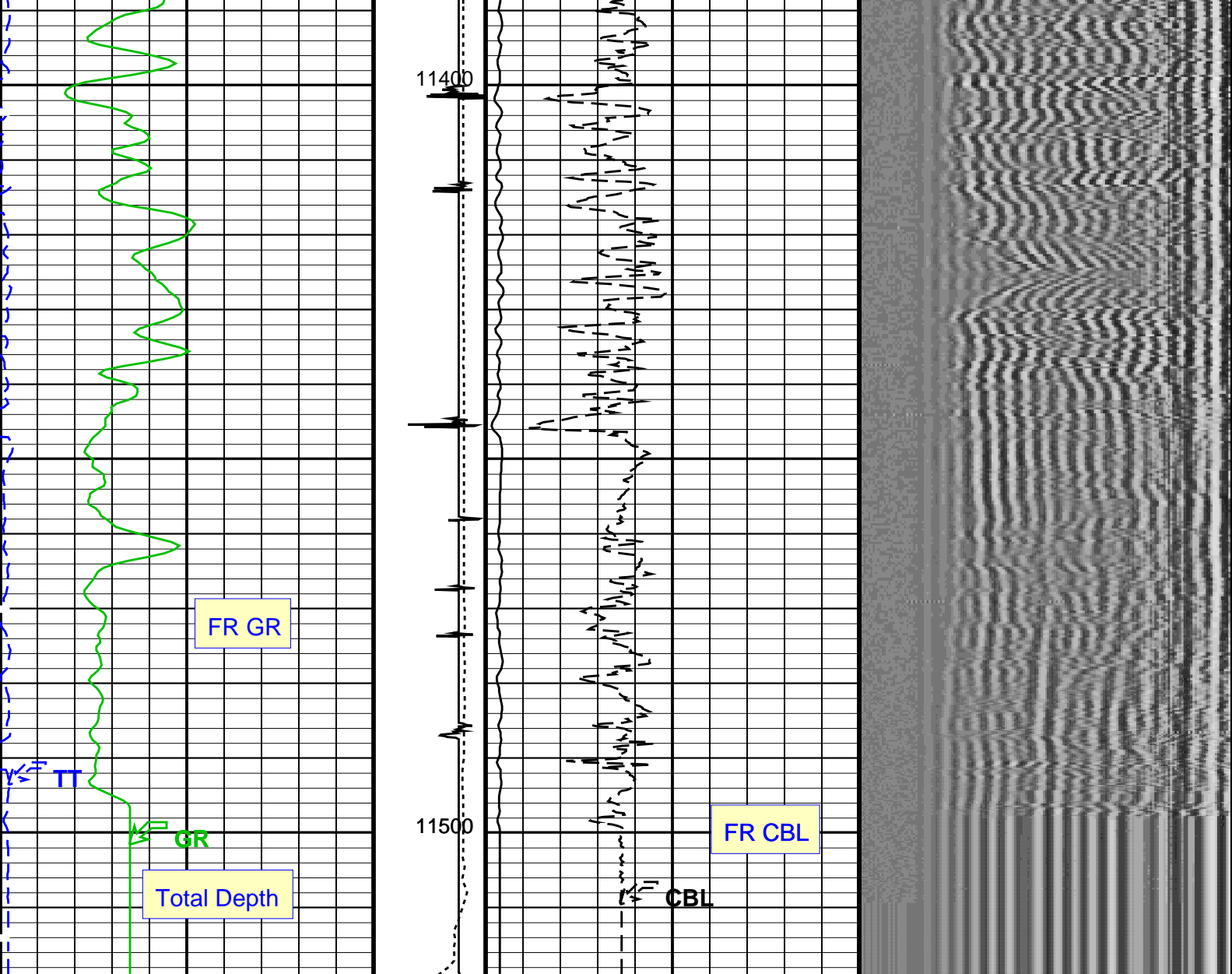












Gamma Ray (GR) (GAPI)	Tension (TENS) (LBF)	CBL Amplitude (CBL) (MV)	Min	Amplitude	Max
0	0	0	200	VDL Variable Density (VDL) (US)	1200
150	2000	100			
Transit Time (TT) (US)	Discriminat ed CCL (CCLD) (V)	CBL Amplitude (CBL) (MV)			
260	3	0			
160	-1	10			

PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL Vertical Scale: 5" per 100'

Graphics File Created: 28-Feb-2012 09:22

OP System Version: 19C0-187

SCMT-CB SRPC-5095-H2-2011-OP19_I PSPT 19C0-187

<<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number SCMS-CB 8186

Current Casing Size 4.50000 IN

Casing Weight 11.6000 LB/F

Expected CBL Amplitude 80 MV

in Free Pipe Section

Minimum Sonic Amplitude

0.573313 MV (100% Cement)

1.53933 MV (80% Cement)

MAP Minimum Sonic Amplitude 4.27928 MV (100% Cement)
8.03705 MV (80% Cement)

Master Calibration (Normalization)

Before Calibration (Adjustment)

Date of Master Calibration 23-FEB-2011

CBL Correction Factor 0.0700110
MAP 1 Correction Factor 0.0960446
MAP 2 Correction Factor 0.103019
MAP 3 Correction Factor 0.112474
MAP 4 Correction Factor 0.170246
MAP 5 Correction Factor 0.138168
MAP 6 Correction Factor 0.126543
MAP 7 Correction Factor 0.0891491
MAP 8 Correction Factor 0.107987

CBL Adjustment Factor (CBAF) 1.0
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	228.052	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	342.052	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	203	US/F
FATT	Acoustic Attenuation due to Fluid	0	DB/F
FCF	CBL Fluid Compensation Factor	0.992742	
GOBO	Good Bond	1.53933	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	171.052	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	4.27928	MV
MSA	Minimum Sonic Amplitude	0.573313	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	11.60	LB/F
DORL	Depth Offset for Repeat Analysis	0.0	FT
TD	Total Depth	9117	FT

Output DLIS Files

DEFAULT SCMT_PSP_014LUP FN:13 PRODUCER 28-Feb-2012 09:22

Schlumberger

REPEAT ANALYSIS

Input DLIS Files

DEFAULT SCMT_PSP_013PUP FN:12 PRODUCER 28-Feb-2012 09:22 11550.0 FT 11262.5 FT

Output DLIS Files

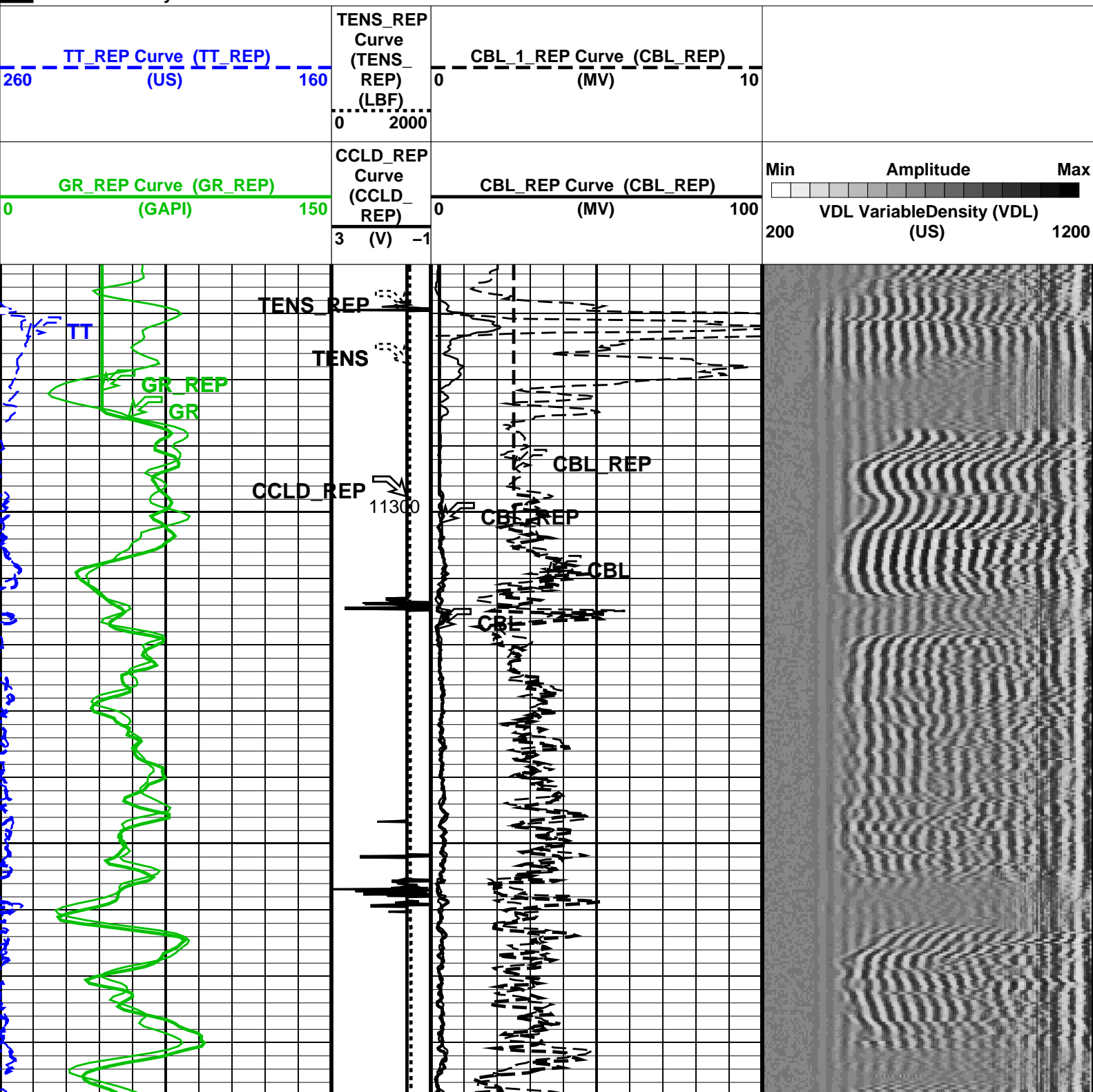
DEFAULT SCMT_PSP_014LUP FN:13 PRODUCER 28-Feb-2012 09:22

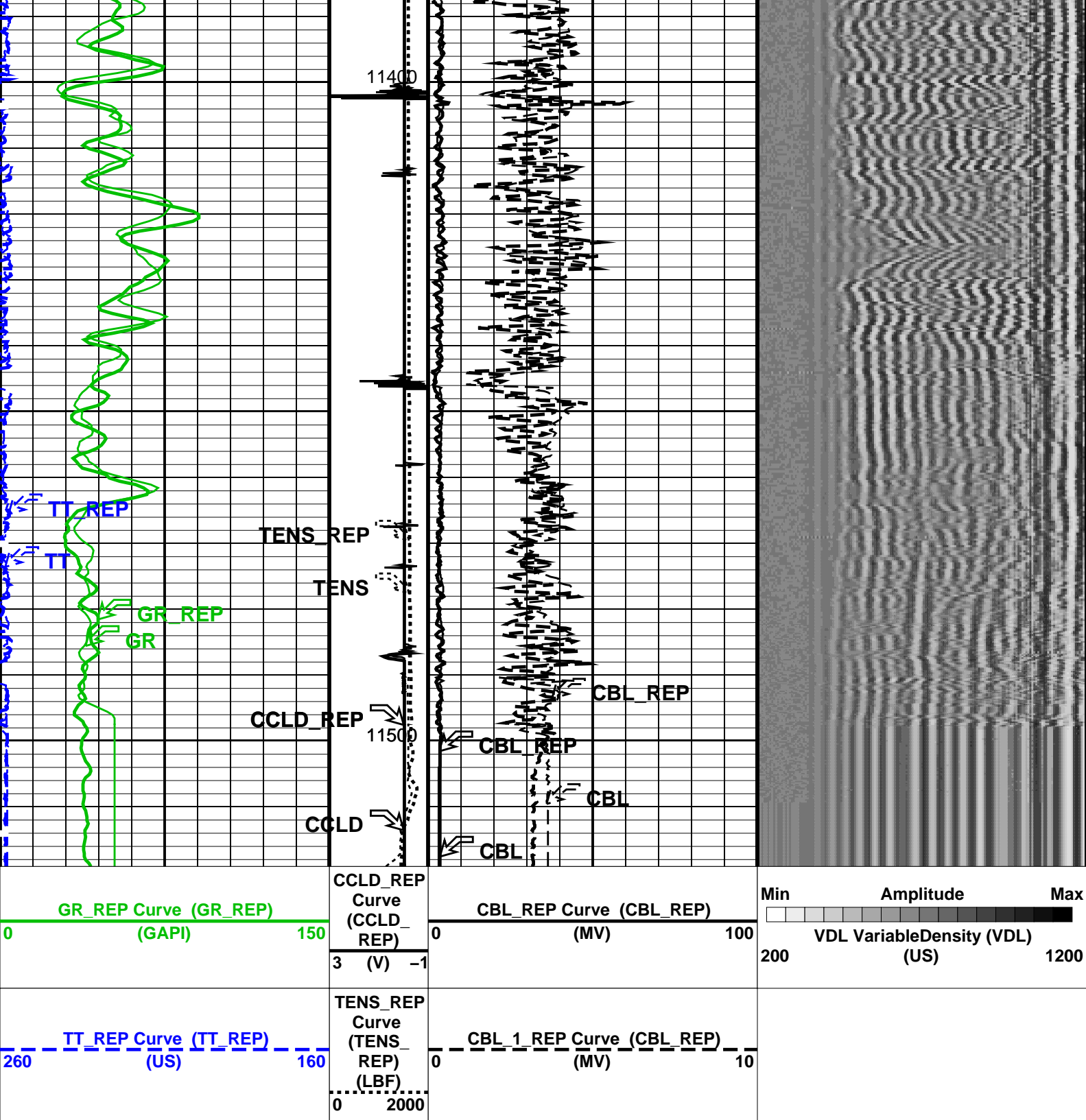
OP System Version: 19C0-187

SCMT-CB SRPC-5095-H2-2011-OP19_I PSPT 19C0-187

PIP SUMMARY

Time Mark Every 60 S





Time Mark Every 60 S

Format: CBL_VDL_REP Vertical Scale: 5" per 100' Graphics File Created: 28-Feb-2012 09:22

OP System Version: 19C0-187

SCMT-CB SRPC-5095-H2-2011-OP19_I PSPT 19C0-187

<<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number SCMS-CB 8186

Current Casing Size 4.50000 IN

Casing Weight 11.6000 LB/F

Expected CBL Amplitude in Free Pipe Section	80 MV	Minimum Sonic Amplitude	0.573313 MV (100% Cement)
			1.53933 MV (80% Cement)
		MAP Minimum Sonic Amplitude	4.27928 MV (100% Cement)
			8.03705 MV (80% Cement)

Master Calibration (Normalization)		Before Calibration (Adjustment)	
Date of Master Calibration	23-FEB-2011		
CBL Correction Factor	0.0700110	CBL Adjustment Factor (CBAF)	1.0
MAP 1 Correction Factor	0.0960446	MAP Adjustment Factor (MPAF)	1.0
MAP 2 Correction Factor	0.103019		
MAP 3 Correction Factor	0.112474		
MAP 4 Correction Factor	0.170246		
MAP 5 Correction Factor	0.138168		
MAP 6 Correction Factor	0.126543		
MAP 7 Correction Factor	0.0891491		
MAP 8 Correction Factor	0.107987		

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	228.052	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	342.052	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	203	US/F
FATT	Acoustic Attenuation due to Fluid	0	DB/F
FCF	CBL Fluid Compensation Factor	0.992742	
GOBO	Good Bond	1.53933	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	171.052	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	4.27928	MV
MSA	Minimum Sonic Amplitude	0.573313	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	11.60	LB/F
DORL	Depth Offset for Repeat Analysis	0.0	FT
TD	Total Depth	9117	FT

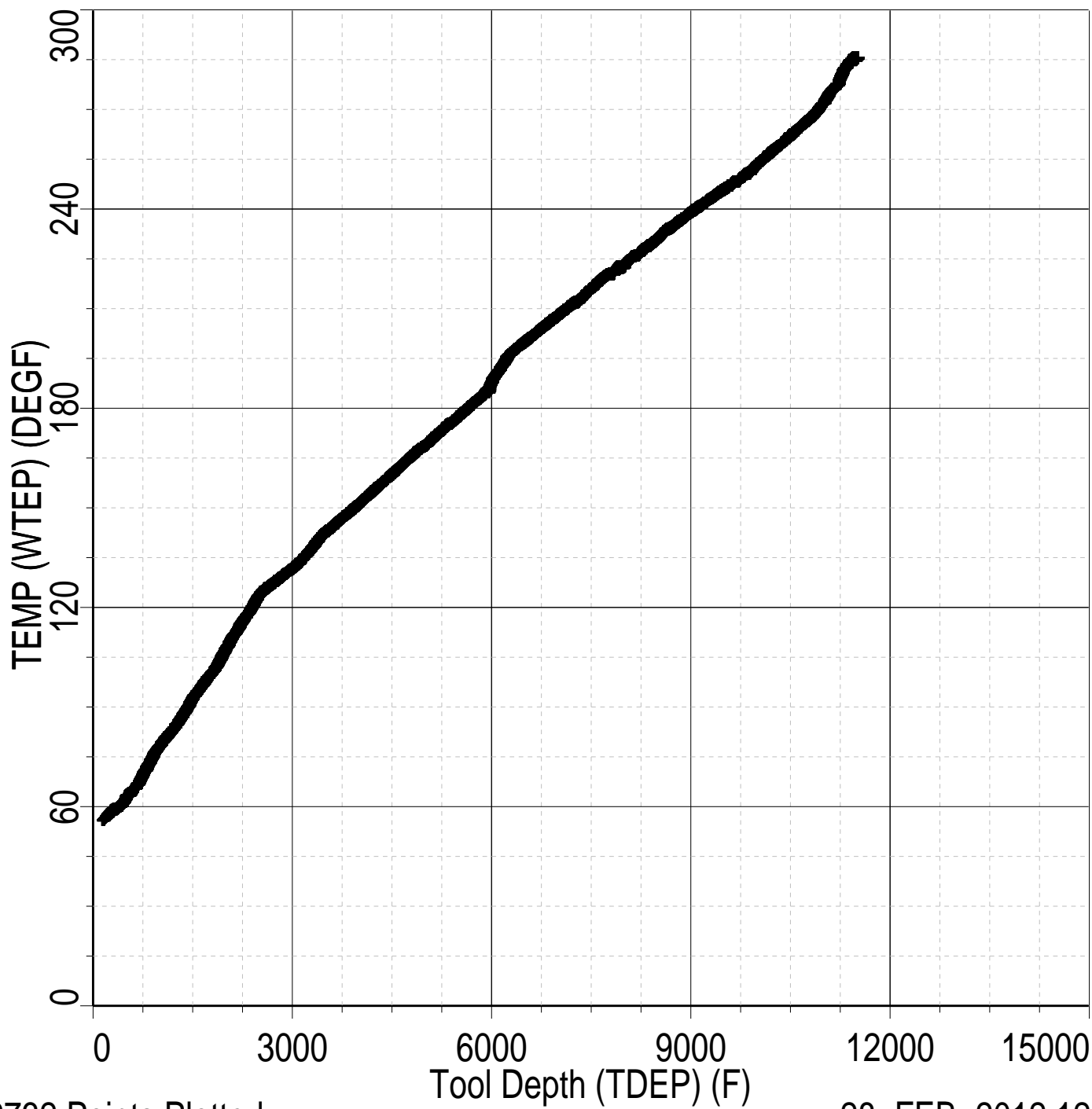
Input DLIS Files

DEFAULT	SCMT_PSP_013PUP	FN:12	PRODUCER	28-Feb-2012 09:22	11550.0 FT	11262.5 FT
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Output DLIS Files

DEFAULT	SCMT_PSP_014LUP	FN:13	PRODUCER	28-Feb-2012 09:22		
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Index: 11519.0 – 153.5 FT



22732 Points Plotted

28-FEB-2012 12:08

Schlumberger

COEFFICIENTS

Client: ENCANA OIL & GAS (USA) INC.

Field: NORTH PARACHUTE

Well: NP N22 QUAD 3

Run date: 28-Feb-2012

Tool: PSP

Sub Type: PBMS

Sensor: Clock Model

PBMS Digitalization Clock

Sonde Serial NB

Sensor Serial NB3779

Calib Date ddmmyy090107

Matrix Size16

Coeff CRCD285

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: NORTH PARACHUTE

Well: NP N22 QUAD 3

Run date: 28-Feb-2012

Tool: PSP

Sub Type: PBMS

Sensor: Sapphire

PBMS Sapphire 10kPsi Gauge

Sonde Serial NB

Sensor Serial NB3779

Calib Date ddmmyy090107

Matrix Size66

Coeff CRC4C82

COEFFICIENTS FOR SAPPHIRE PBMS-A.3779 S/N:

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**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: NORTH PARACHUTE

Well: NP N22 QUAD 3

Run date: 28-Feb-2012

Tool: PSP

Sub Type: PBMS

Sensor: GR

PBMS Gamma Ray

Sonde Serial NB

Sensor Serial NB

Calib Date ddmmyy

Matrix Size

Coeff CRC

RESISTORS FOR GR SENSOR N.34552,TOOL PBMS-AA3779. SENSOR S/N:

34552

030606

12

3AE5

GR HV Rt

Rt**0

Rt**1

Rt**0

+.200000000000e+04

+.214000000000e+04

Client: ENCANA OIL & GAS (USA) INC.

Field: NORTH PARACHUTE

Well: NP N22 QUAD 3

Run date: 28-Feb-2012

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

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



Well: **SG 8506C–22 N22 496**
Field: **STORY GULCH**
County: **GARFIELD**
State: **COLORADO**

CEMENT BOND LOG
CBL– VDL
GAMMA RAY – CCL