

Company: ENCANA OIL & GAS (USA) INC.

Well: FEDERAL 29-4 (PA30)

Field: PARACHUTE

County: GARFIELD

State: COLORADO

CEMENT BOND LOG
CBL – VDL
GAMMA RAY – CCL

County: GARFIELD

Field: PARACHUTE

Location: SHL: 559' FNL & 383' FEL

Well: FEDERAL 29-4 (PA30)

Company: ENCANA OIL & GAS (USA) INC.

LOCATION

SHL: 559' FNL & 383' FEL
BHL: NWNW 1023' FNL & 1756' FWL

Elev.: K.B. 5828.00 ft
G.L. 5806.00 ft
D.F. 5827.00 ft

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

GROUND LEVEL
KELLY BUSHING
KELLY BUSHING

Elev.: 22.00 ft
above Perm. Datum

API Serial No. 05-045-20780-0000

Section 30

Township 7S

Range 95W

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 21-Nov-2011

Run Number ONE

Depth Driller 7185 ft

Schlumberger Depth 7134 ft

Bottom Log Interval 7125.4 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 7185 ft

Casing/Tubing Size 4.500 in

Weight 11.6 lbm/ft

Grade S-80

From 22 ft

To 7181 ft

Maximum Recorded Temperatures 203 degF

Logger On Bottom 21-Nov-2011

Unit Number 391

Recorded By SHOWKAT HOSSAIN

Witnessed By UNATTENDED

Logging Date	21-Nov-2011					
Run Number	ONE					
Depth Driller	7185 ft					
Schlumberger Depth	7134 ft					
Bottom Log Interval	7125.4 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	7185 ft					
Casing/Tubing Size	4.500 in					
Weight	11.6 lbm/ft					
Grade	S-80					
From	22 ft					
To	7181 ft					
Maximum Recorded Temperatures	203 degF					
Logger On Bottom	21-Nov-2011					
Unit Number	391					
Recorded By	SHOWKAT HOSSAIN					
Witnessed By	UNATTENDED					

DEPTH SUMMARY LISTING

Date Created: 21-NOV-2011 14:38:02

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-JA	Type:	CMTD-C	Type:	1-25ZT
Serial Number:	6322	Serial Number:	5006	Serial Number:	391
Calibration Date:	07-APR-2011	Calibration Date:	04-OCT-2011	Length:	14200 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	174878	<div>Conveyance Method: Wireline</div> <div>Rig Type: LAND</div>	
Calibration Cable Type:	1-25P	Number of Calibration Points:	10		
Wheel Correction 1:	-6	Calibration RMS:	4		
Wheel Correction 2:	-5	Calibration Peak Error:	8		

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	212.00 FT
Rig Up Length At Bottom:	211.00 FT
Rig Up Length Correction:	1.00 FT
Stretch Correction:	3.20 FT
Tool Zero Check At Surface:	0.70 FT

Depth Control Remarks

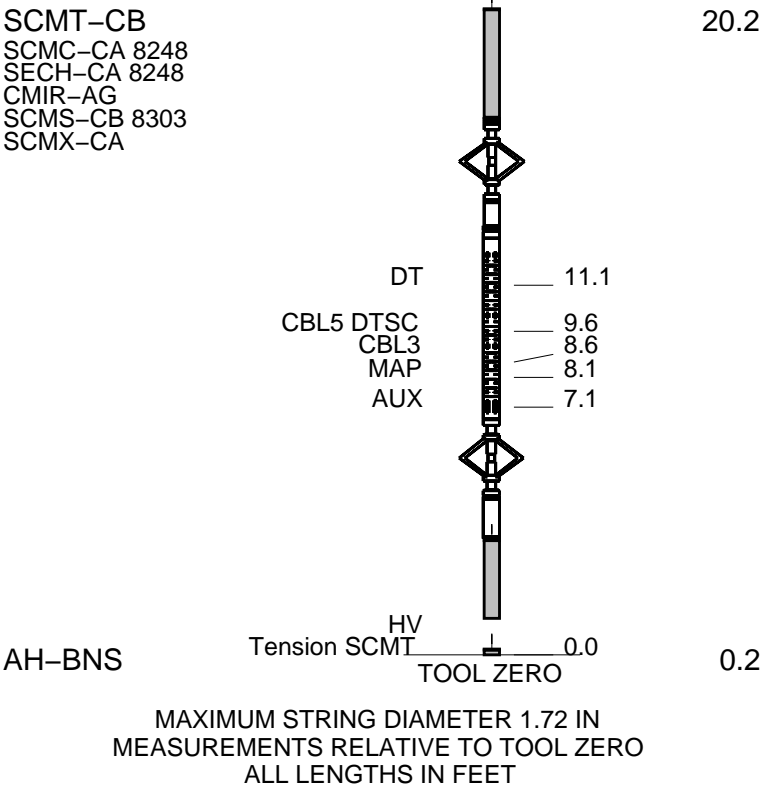
1. ALL SCHLUMBERGER DEPTH CONTROL PROCEDURES FOLLOWED.
2. IDW USED AS PRIMARY DEPTH CONTROL.
3. Z-CHART AND DRUM COUNTER USED AS SECONDARY DEPTH CONTROL.
- 4.
- 5.
- 6.

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 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.	
TD TAGGED AT: 7134 FT	
MAXIMUM RECORDED PRESSURE AT TD: 2779.2 PSIA	
MAXIMUM RECORDED TEMPERATURE AT TD: 203.1 DEGF	

SHORT JOINT: 4534 FT – 4556 FT					
EXPECTED FREE PIPE AMPLITUDE: 80 mV					
CBL TRANSIT TIME CYCLE SKIPPING IN ZONES OF GOOD CEMENT DUE TO LOW SIGNAL AMPLITUDE.					
AFE: 11155189					
THANK YOU FOR CHOOSING SCHLUMBERGER.					
CREW: 391–W. AZIZ & J. ROSA					
RUN 1			RUN 2		
SERVICE ORDER #: BOC2–00184			SERVICE ORDER #:		
PROGRAM VERSION: 19C0–187			PROGRAM VERSION:		
FLUID LEVEL: 22 ft			FLUID LEVEL:		
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					
Detail MT					
AH–38	TelStatus		51.5		51.8
PSPT	CTEM				51.5
PSC–A 3779					
PSPT–A 3779					
PSTC–A 1921					
PBMS–A 3779	GR		47.8		
10k_Sapphire_Mano 3779					
RTD_Thermometer 3779					
GR 34552	Well_Temp		44.7		
CCL 3779	Manometer		44.6		
PBMS 3779	CCL		44.0		
	PBMS PSTC		43.2		
RST–C					43.2
RSCH–A 429					
RSC–E 430					
RSS–A 373					
RSXH–A 425					
RSX–E 413					
	RSC–A Far		34.1		
	RSC–A PNG				
	RSC–A Nea				
	RSX–A PNG		33.6		



MAIN PASS 0 PSI

MAXIS Field Log

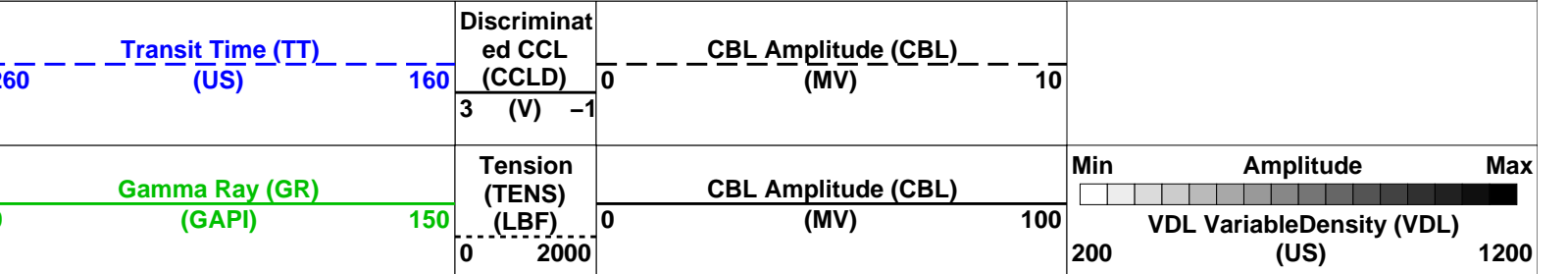
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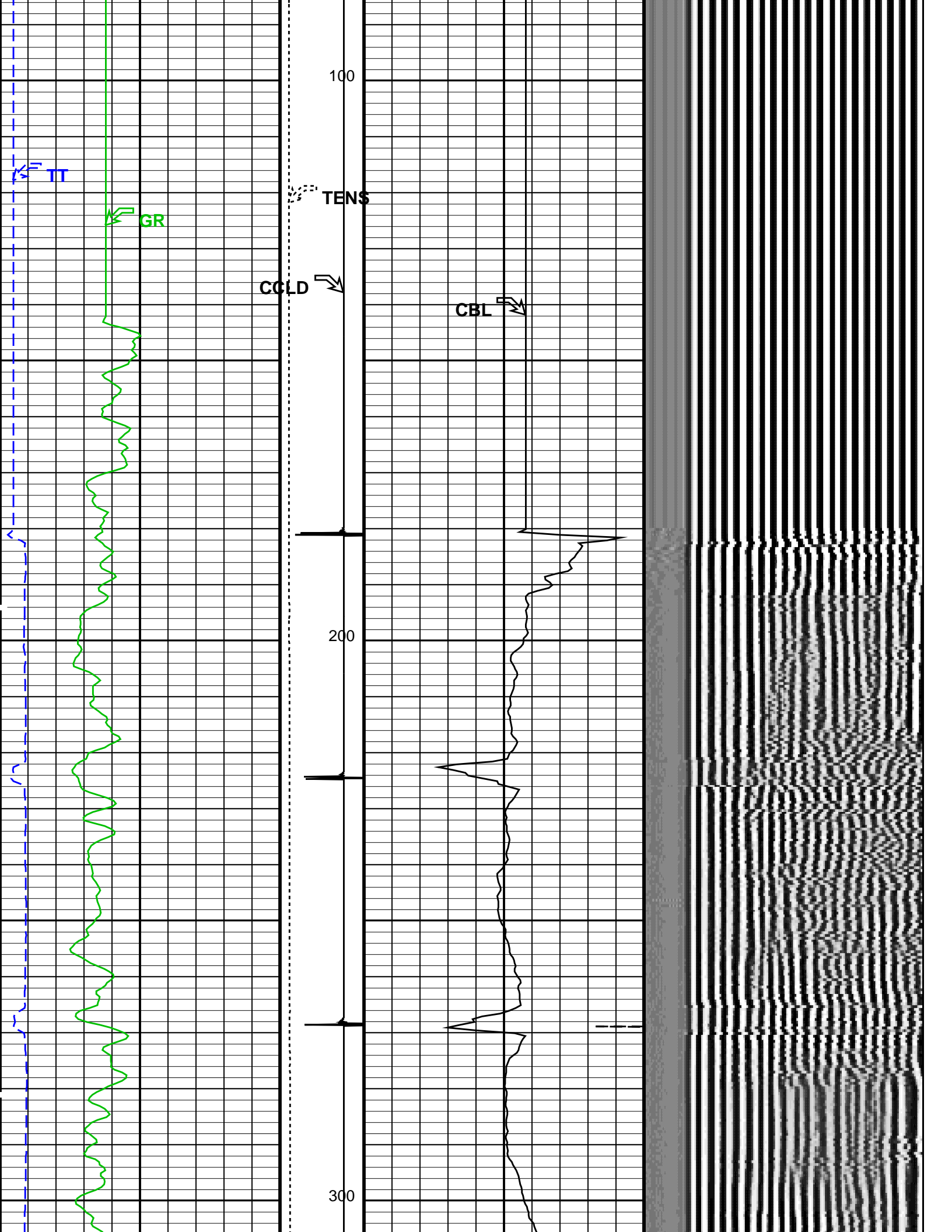
Input DLIS Files						
DEFAULT	SCMT_RST_PSP_017LUP	FN:16	PRODUCER	21-Nov-2011 13:21	7141.0 FT	134.5 FT
Output DLIS Files						
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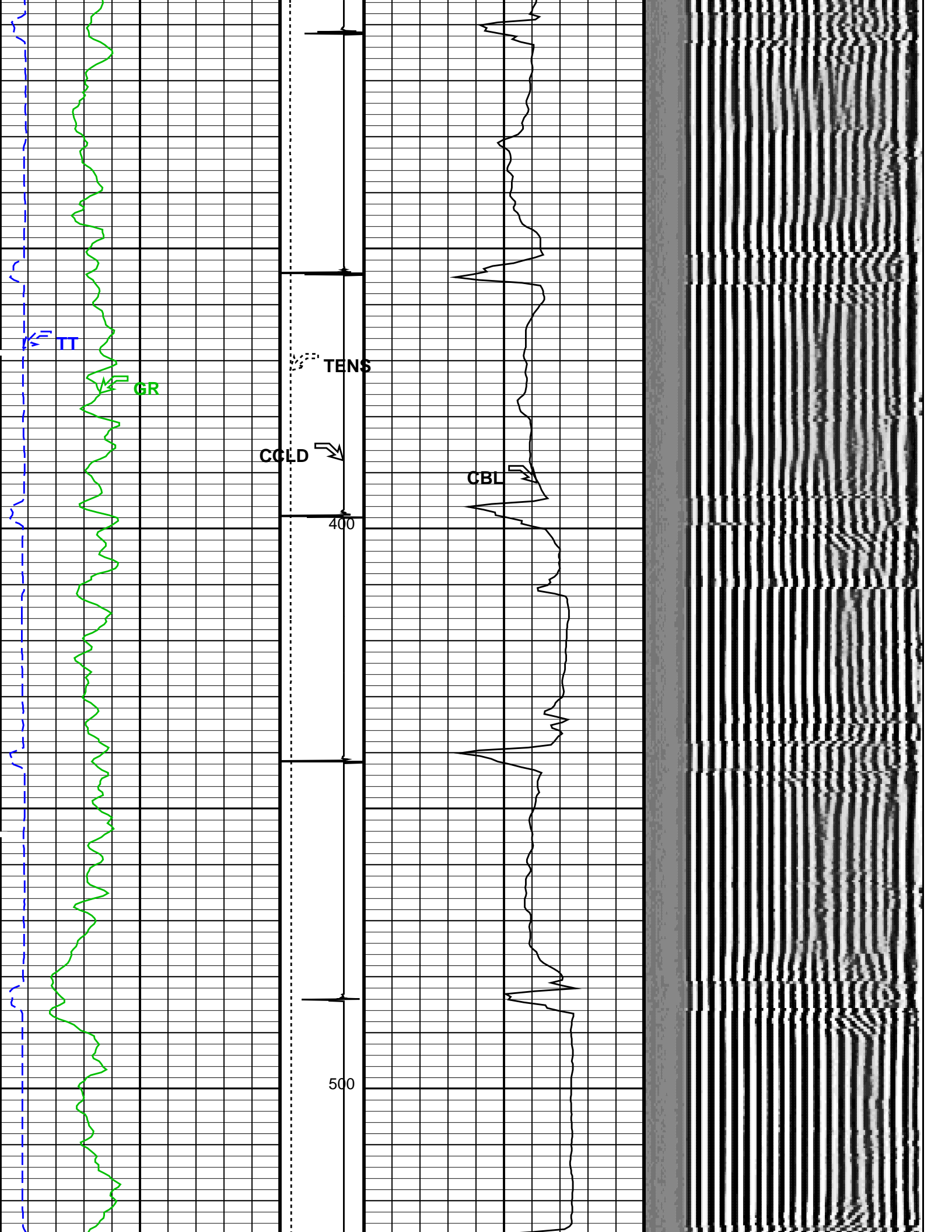
OP System Version: 19C0-187			
SCMT-CB PSPT	SRPC-5095-H2-2011-OP19_b 19C0-187	RST-C	SRPC-5095-H2-2011-OP19_b

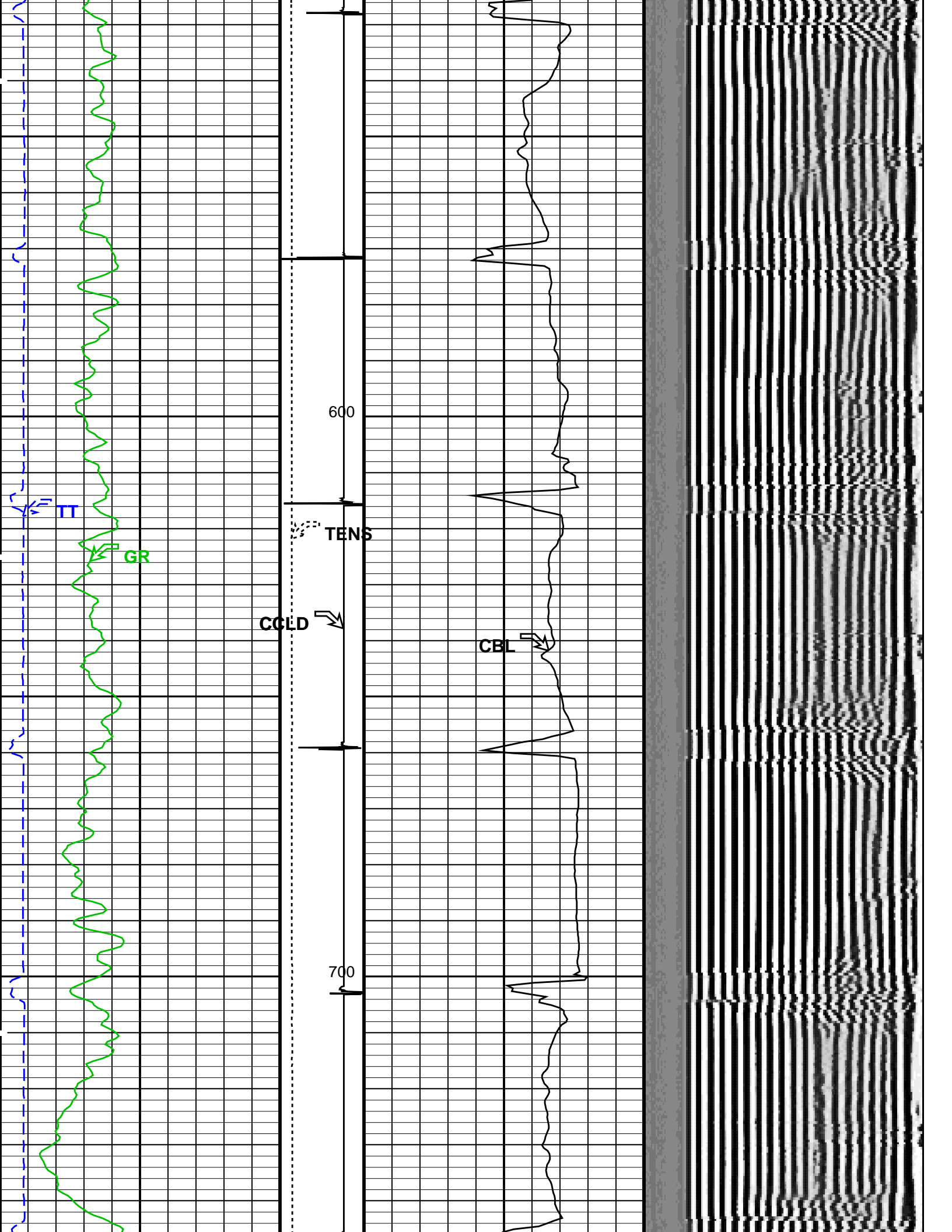
PIP SUMMARY

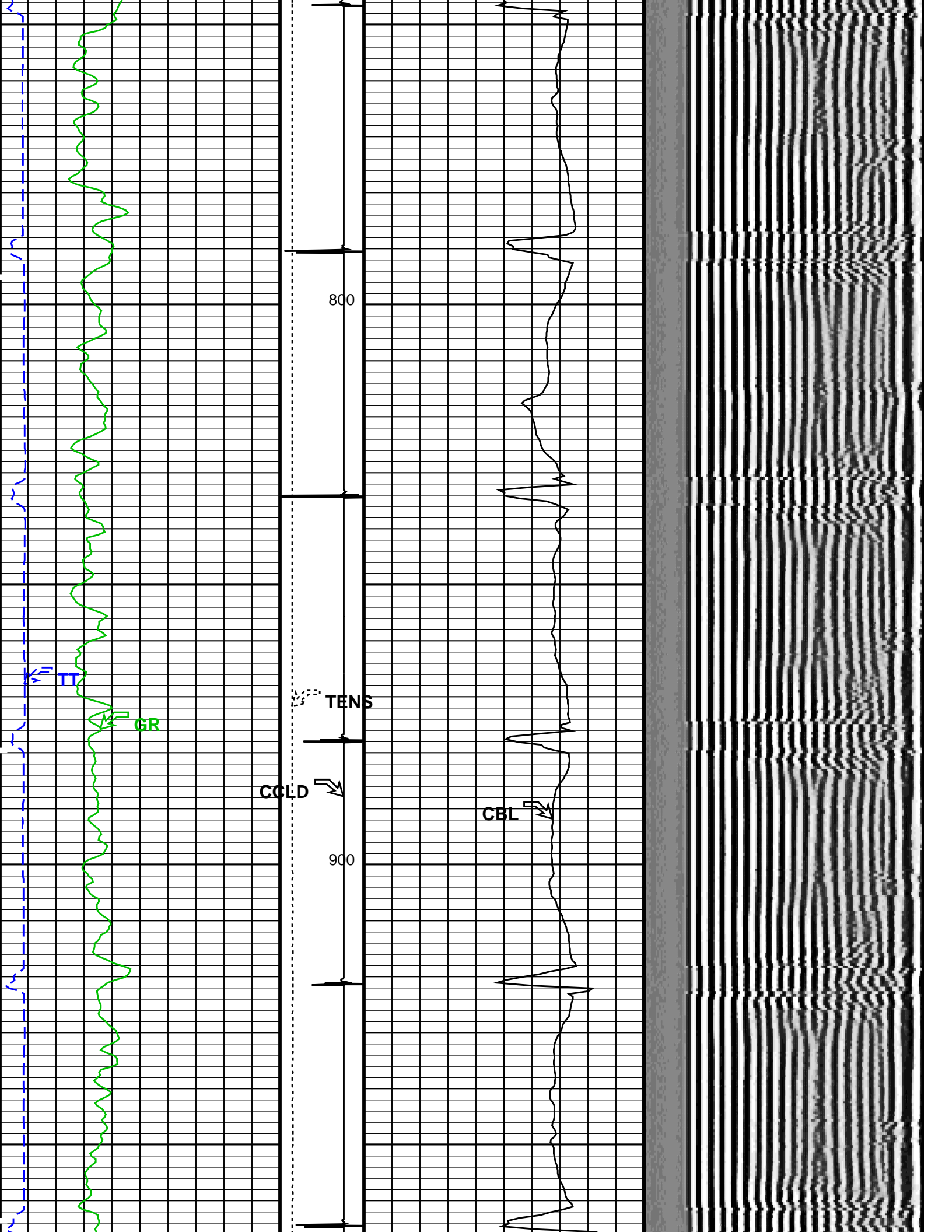
☐ Time Mark Every 60 S

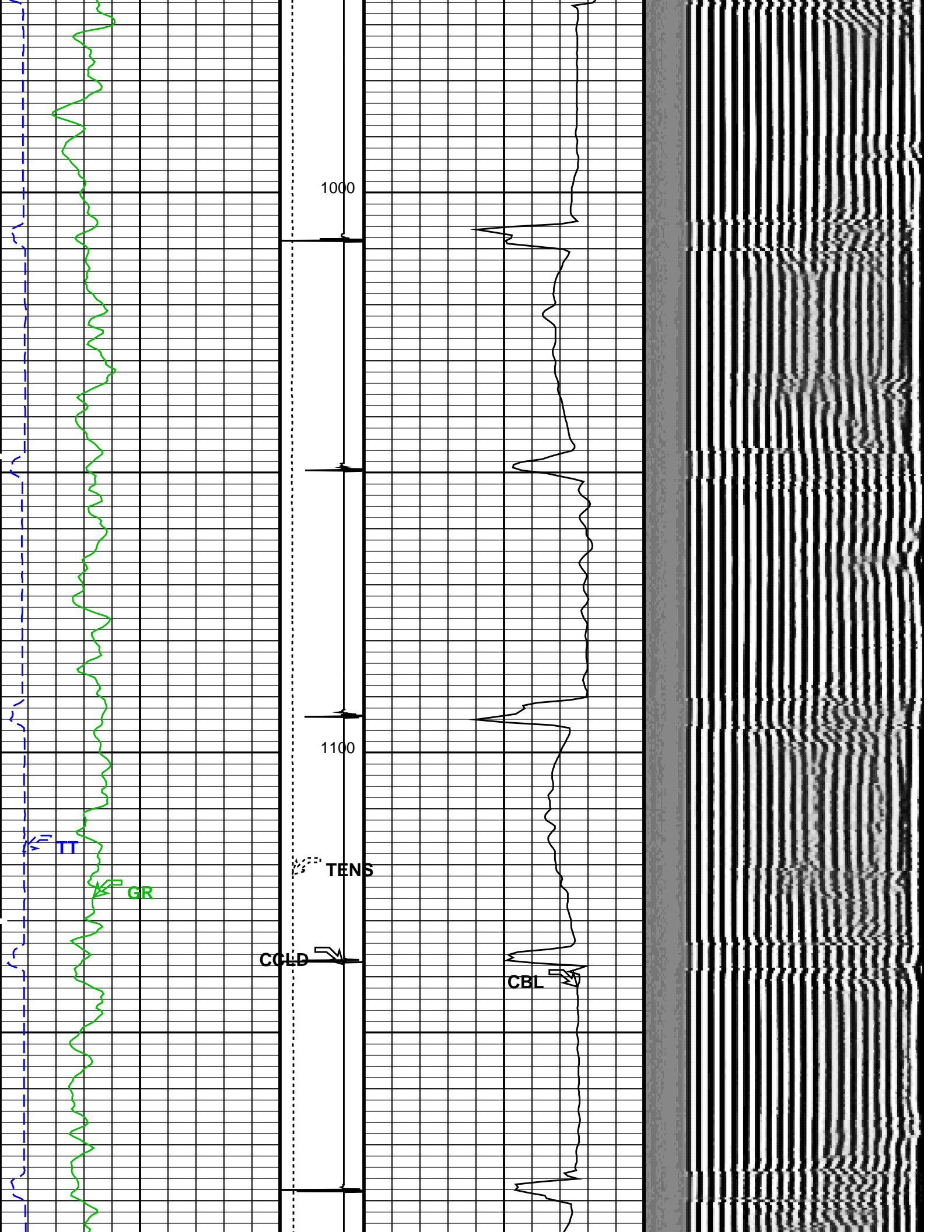


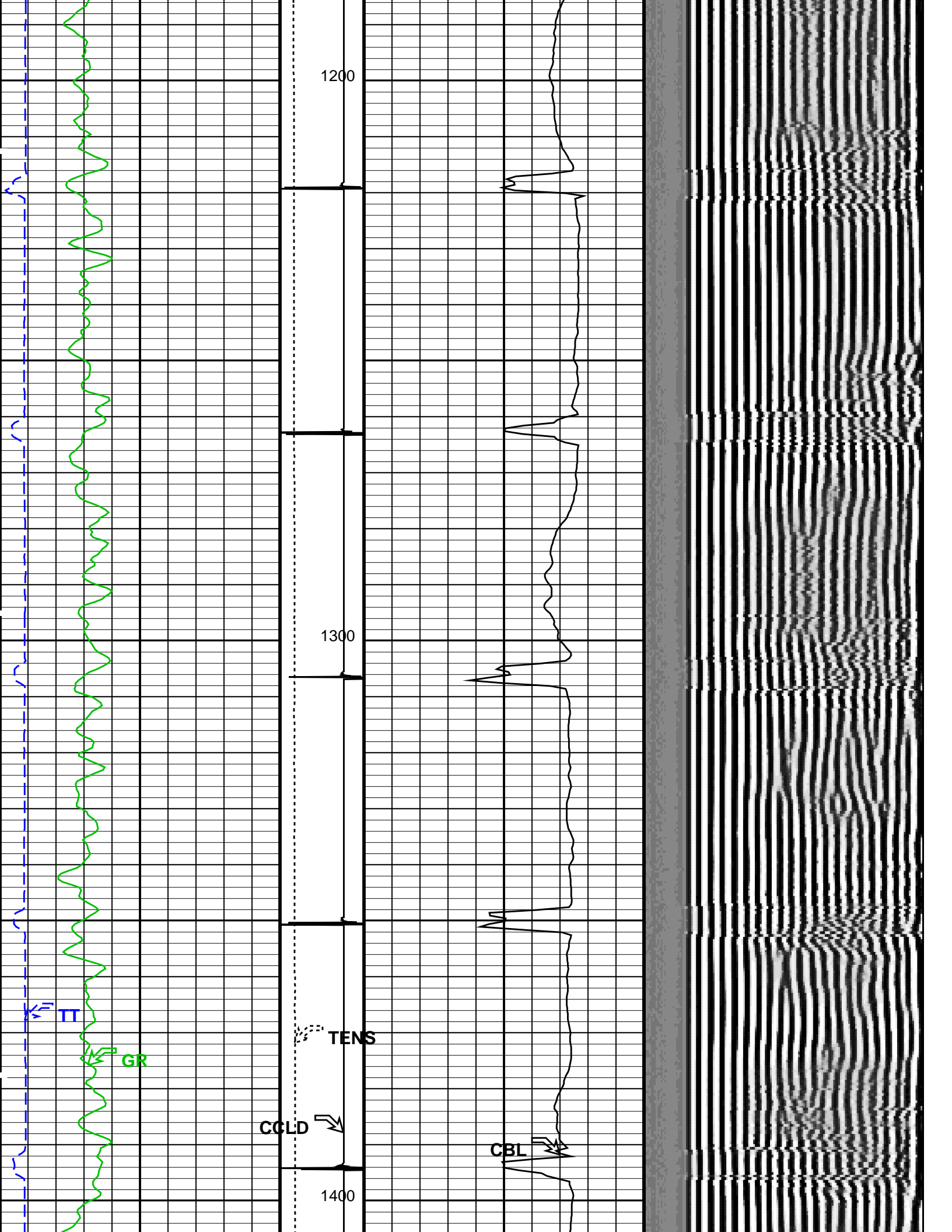


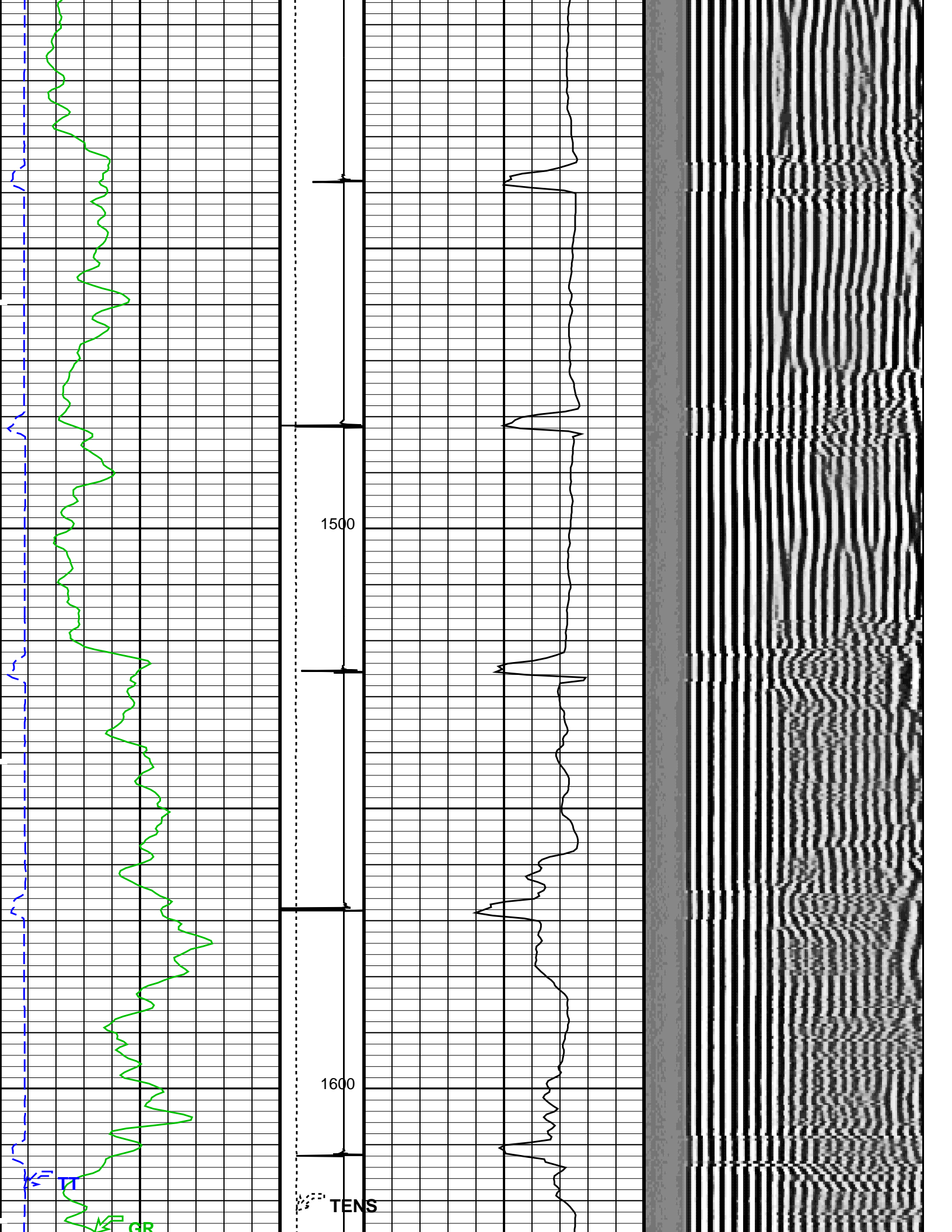


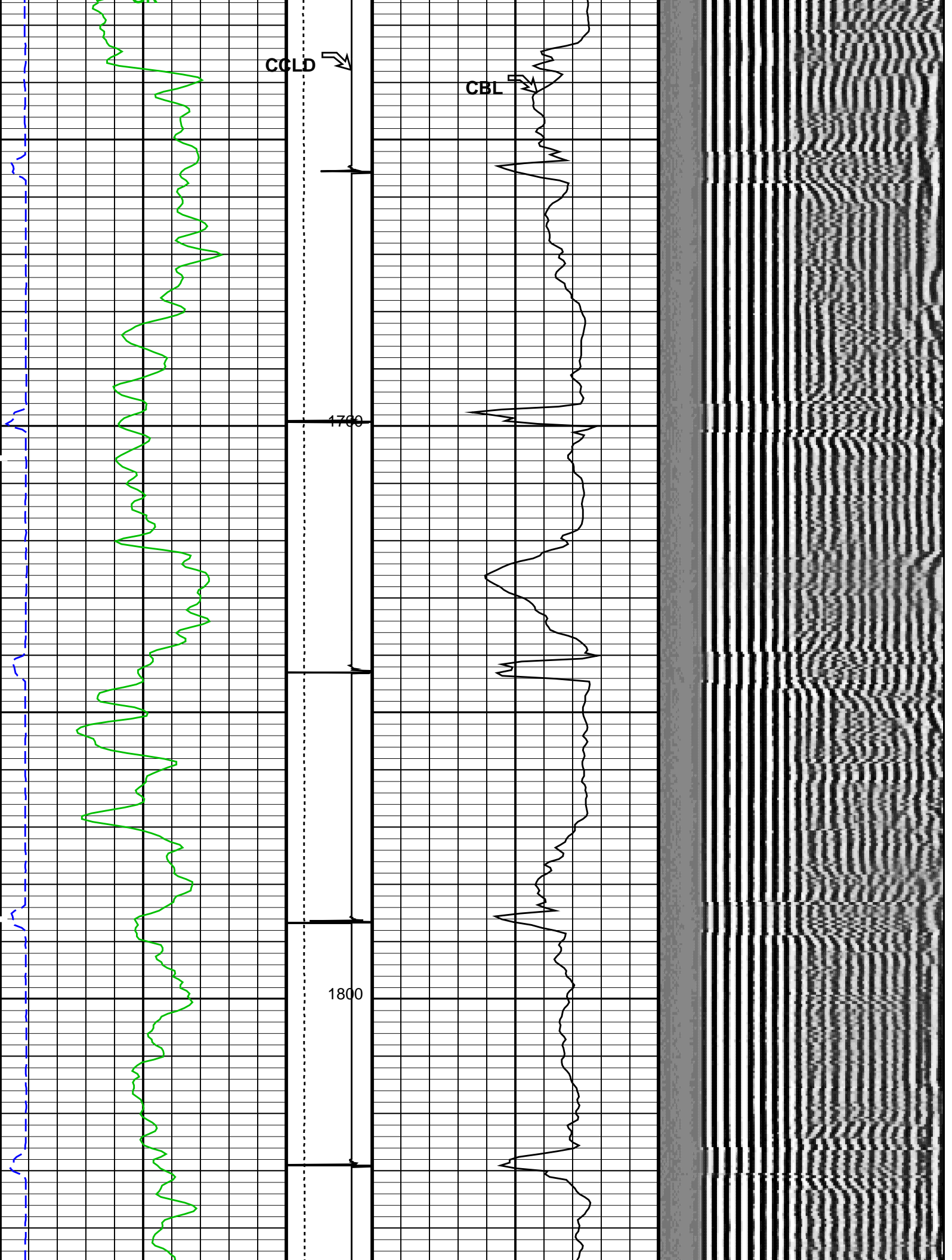


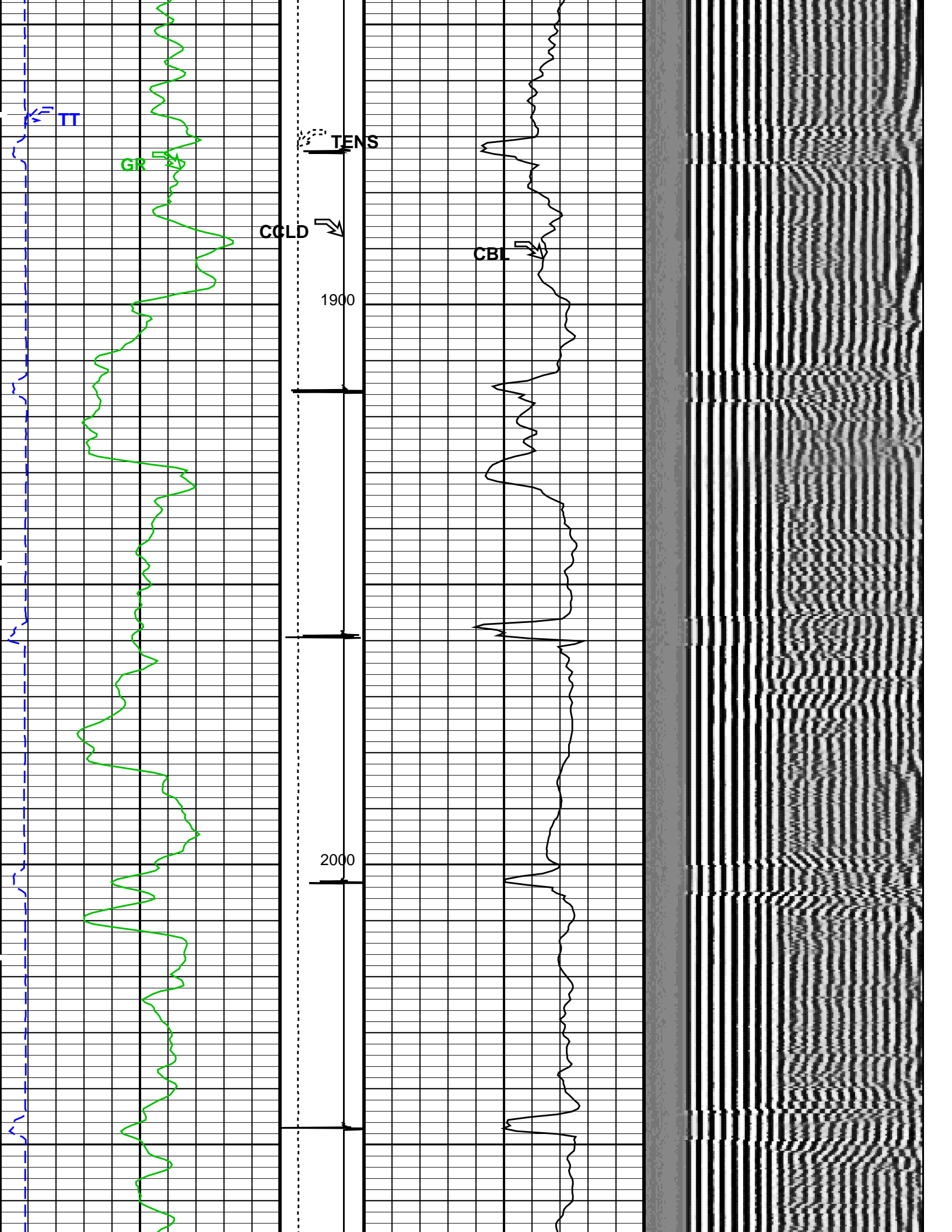


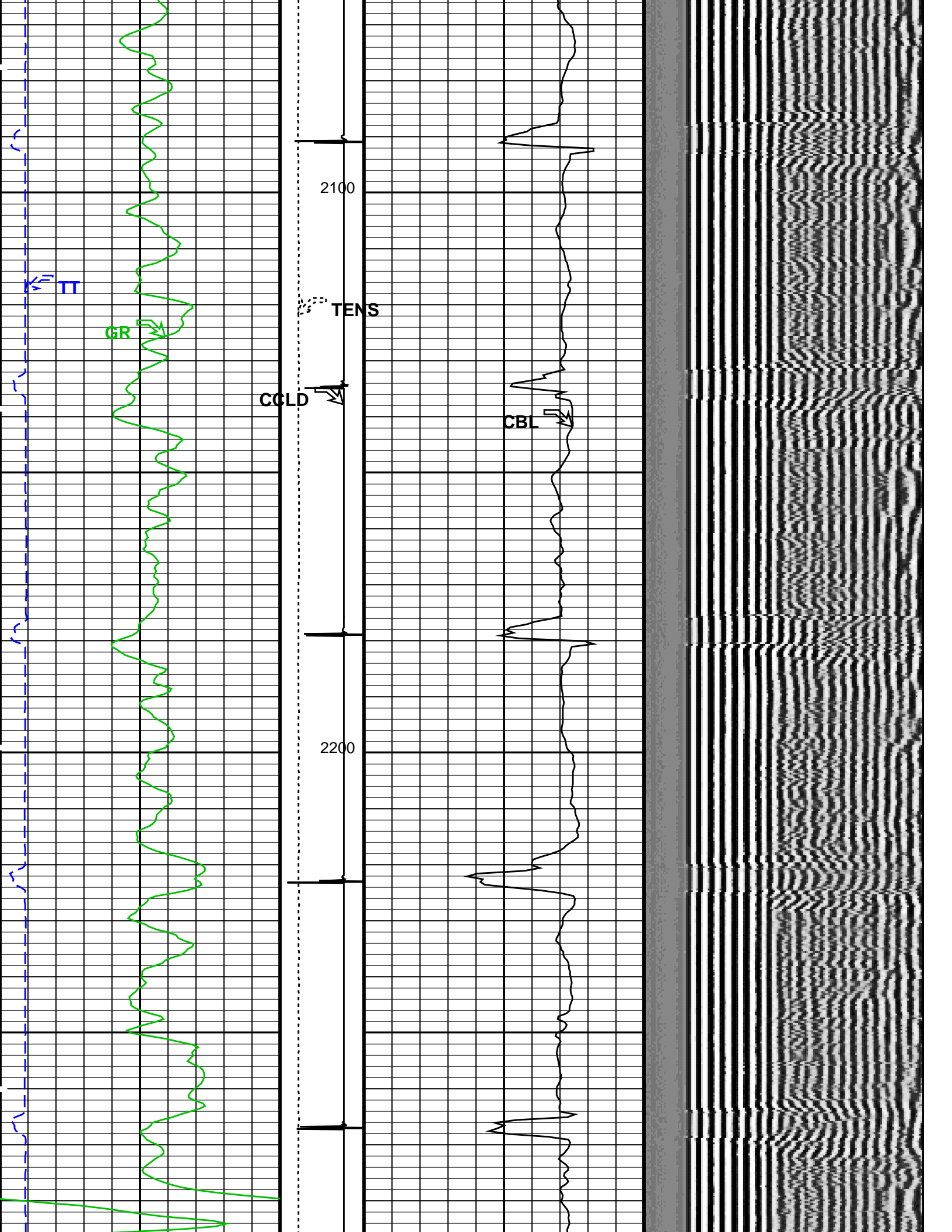


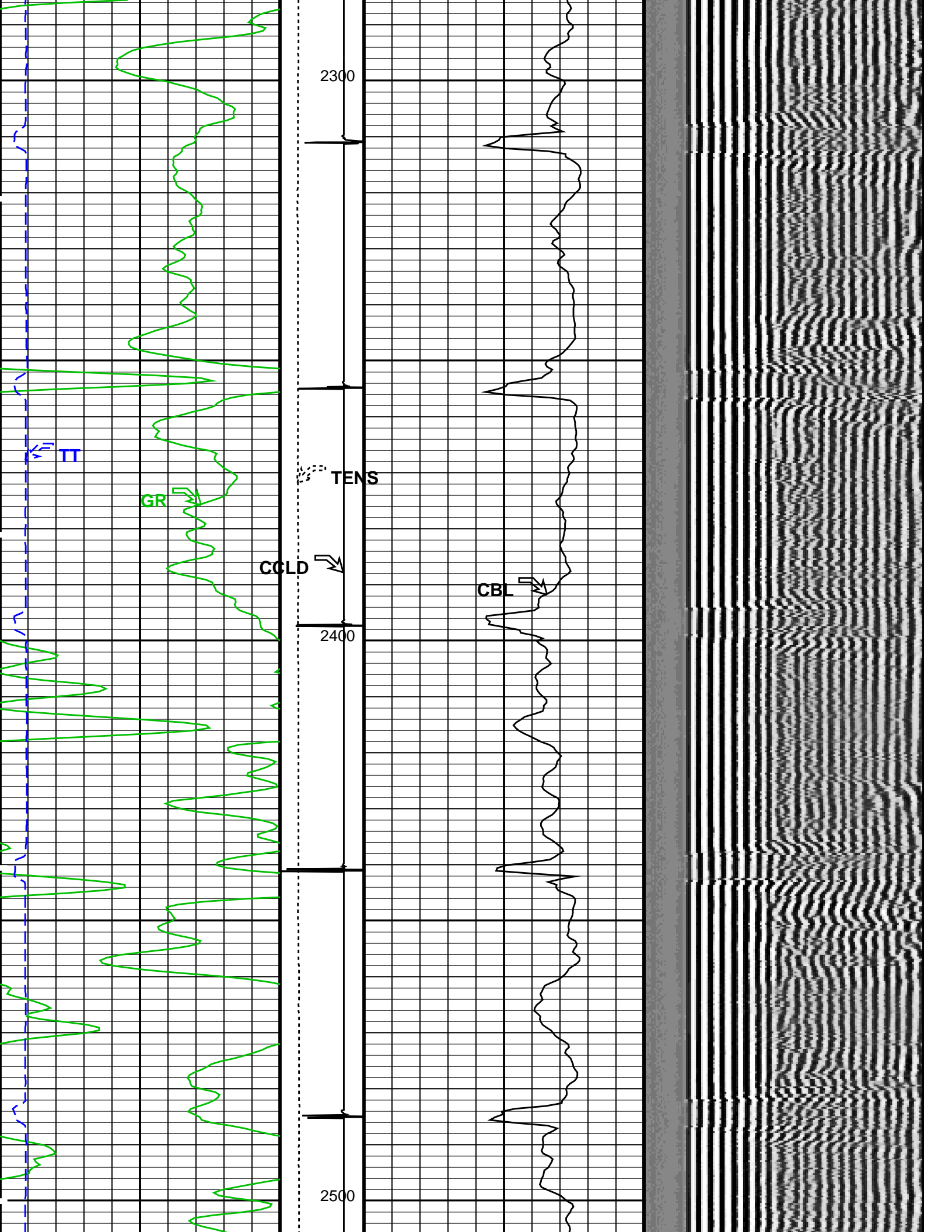


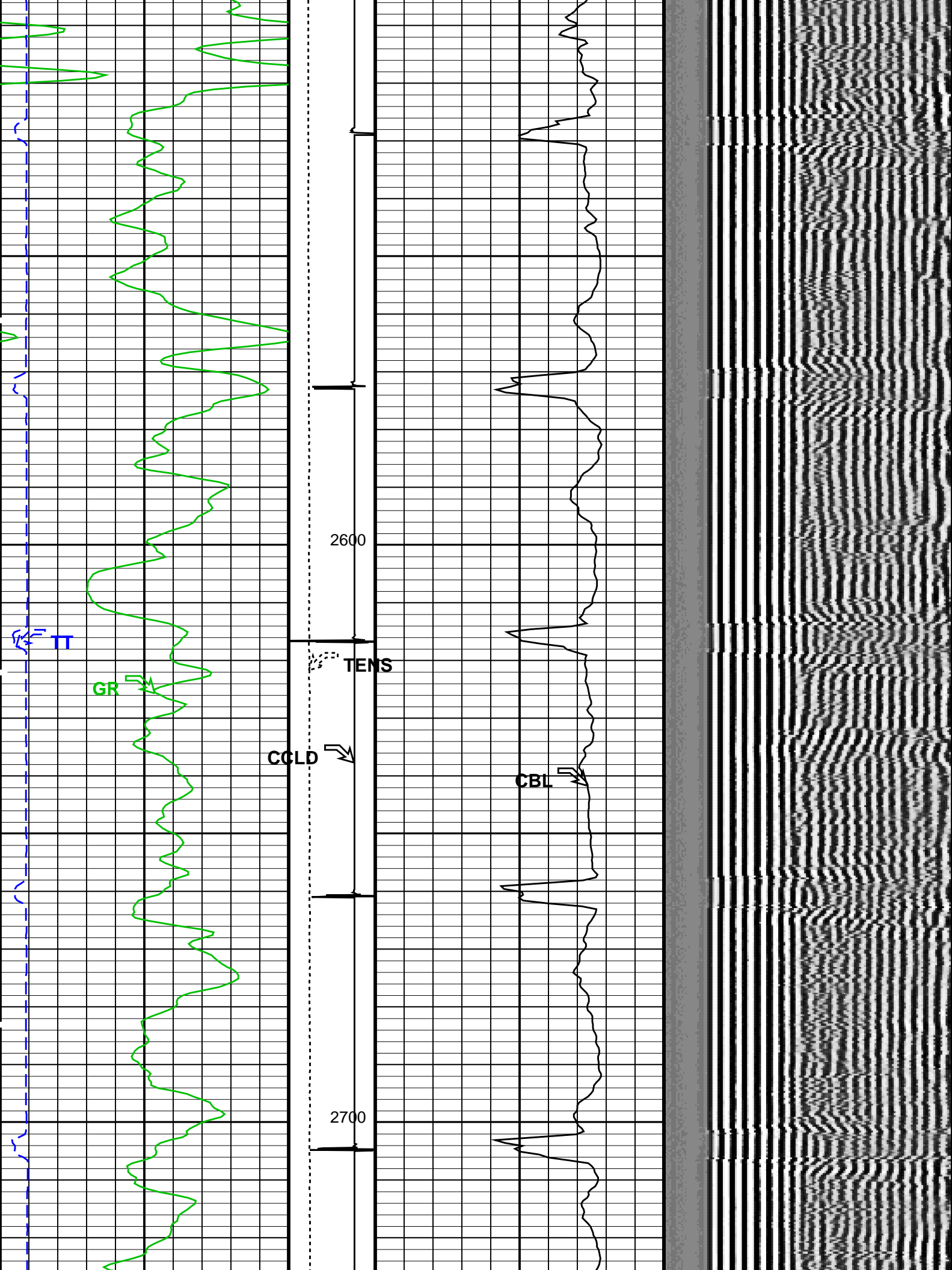


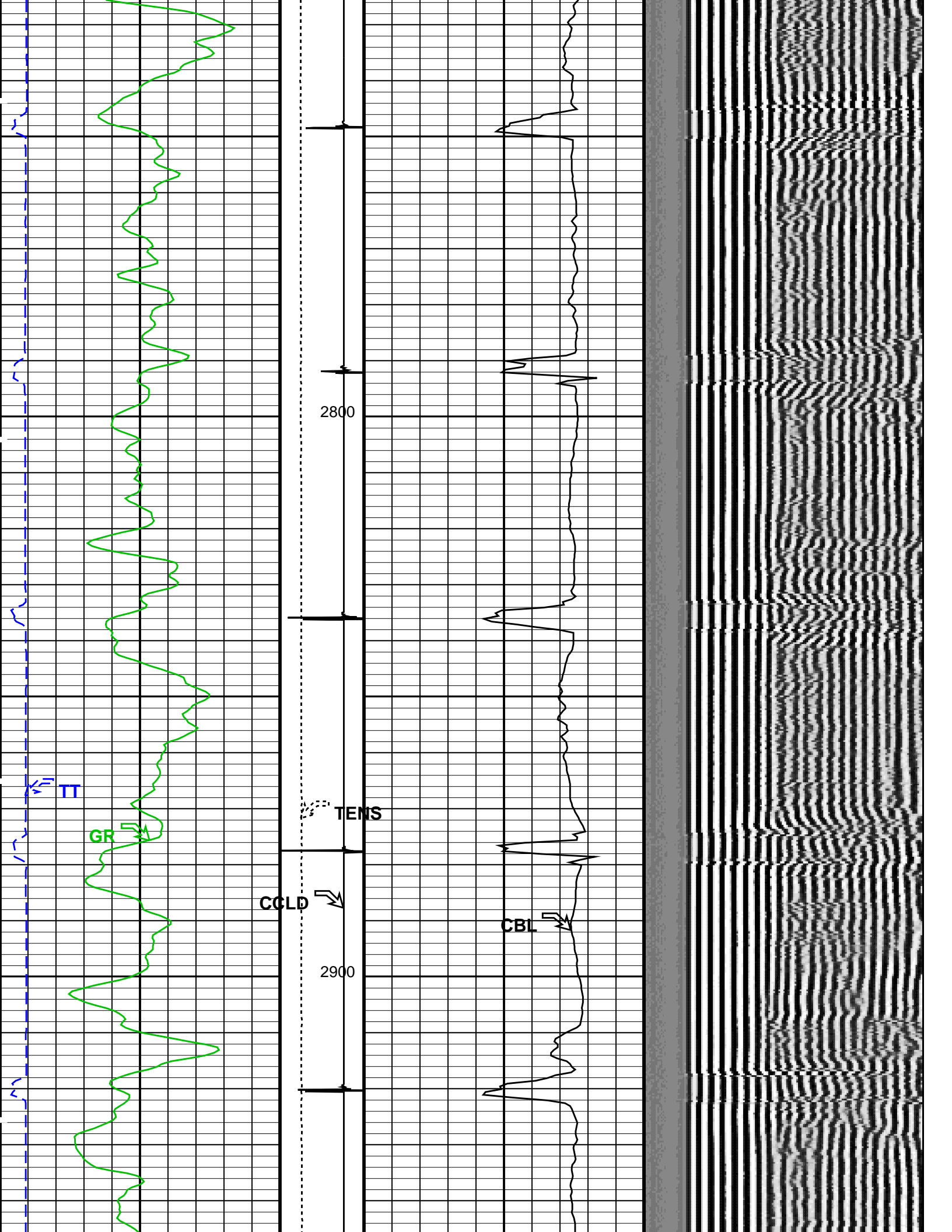


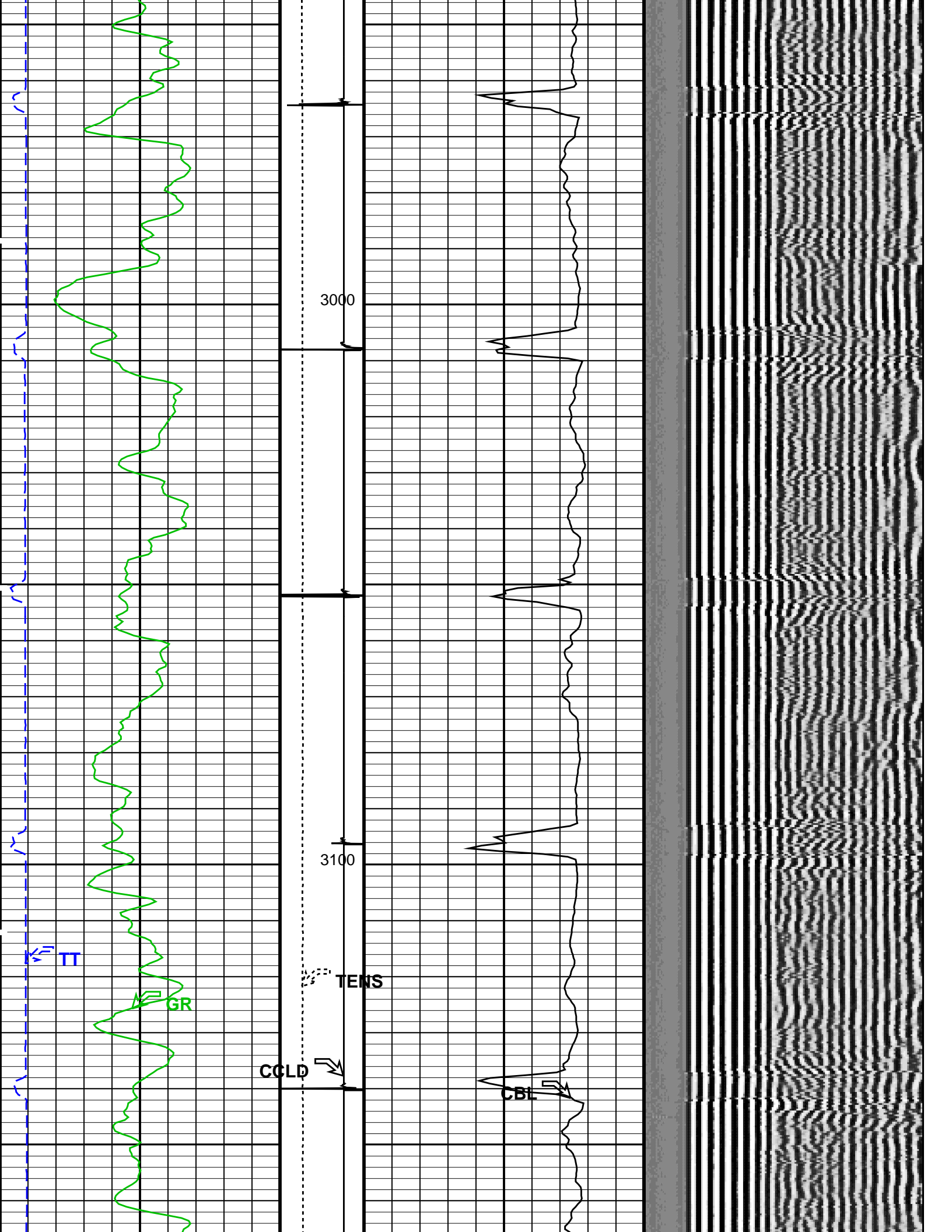


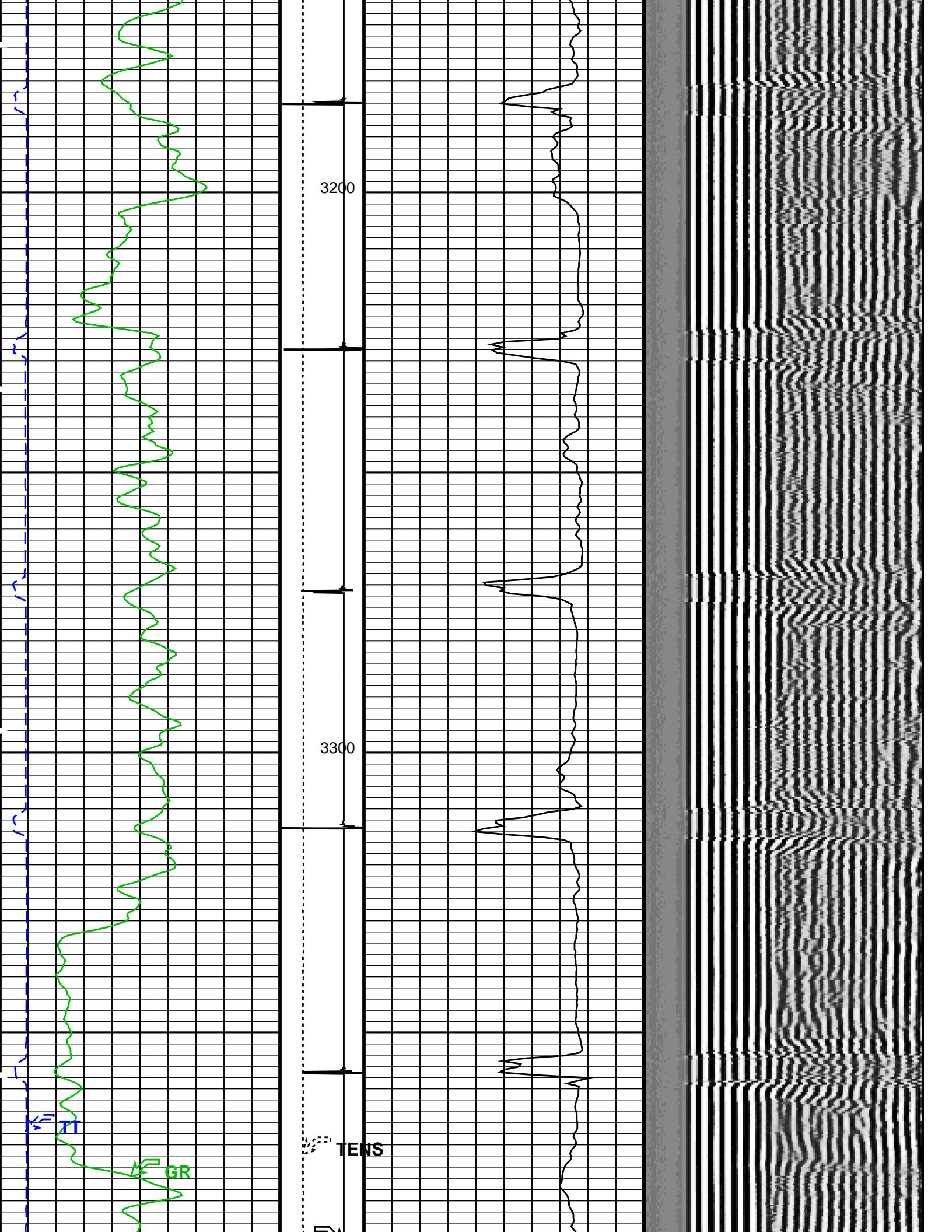


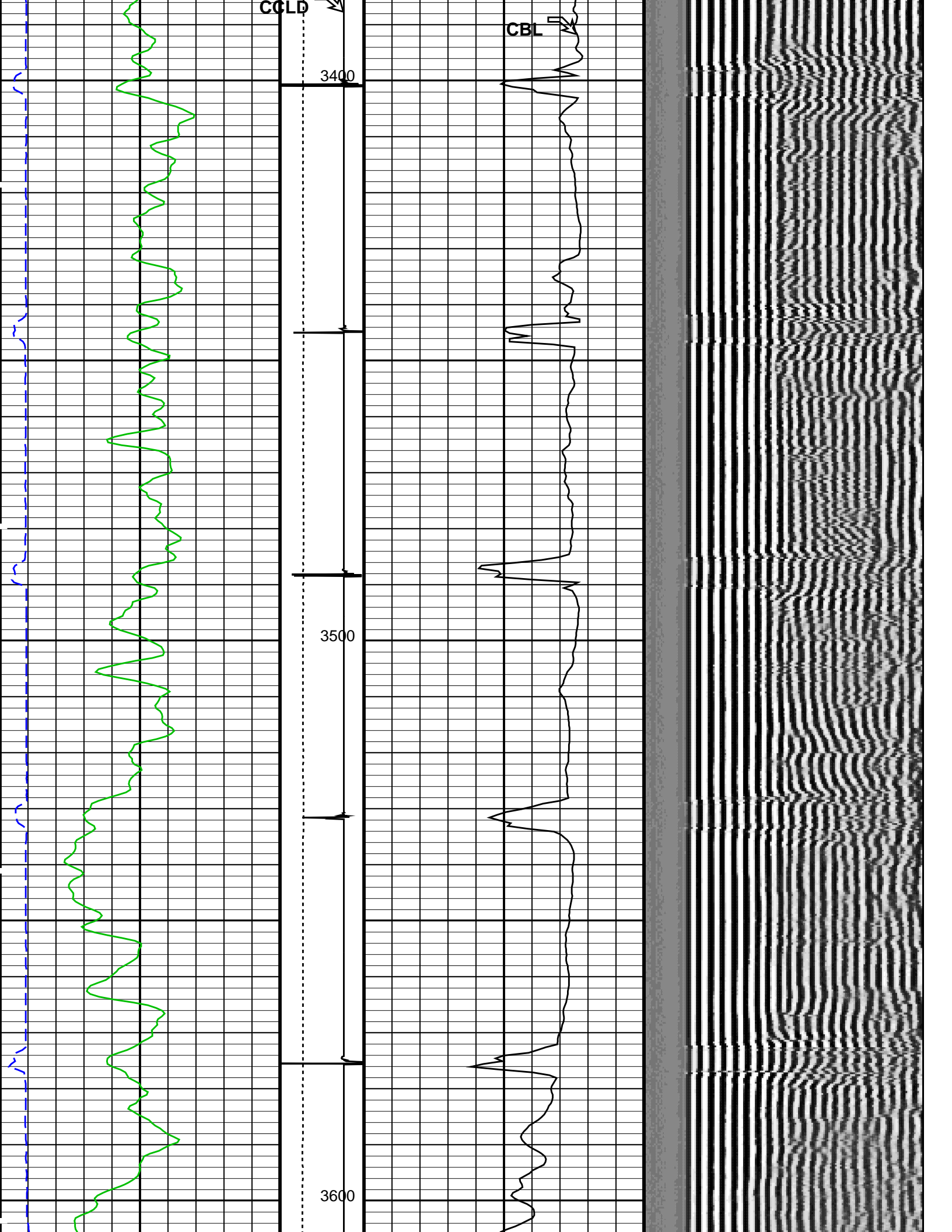


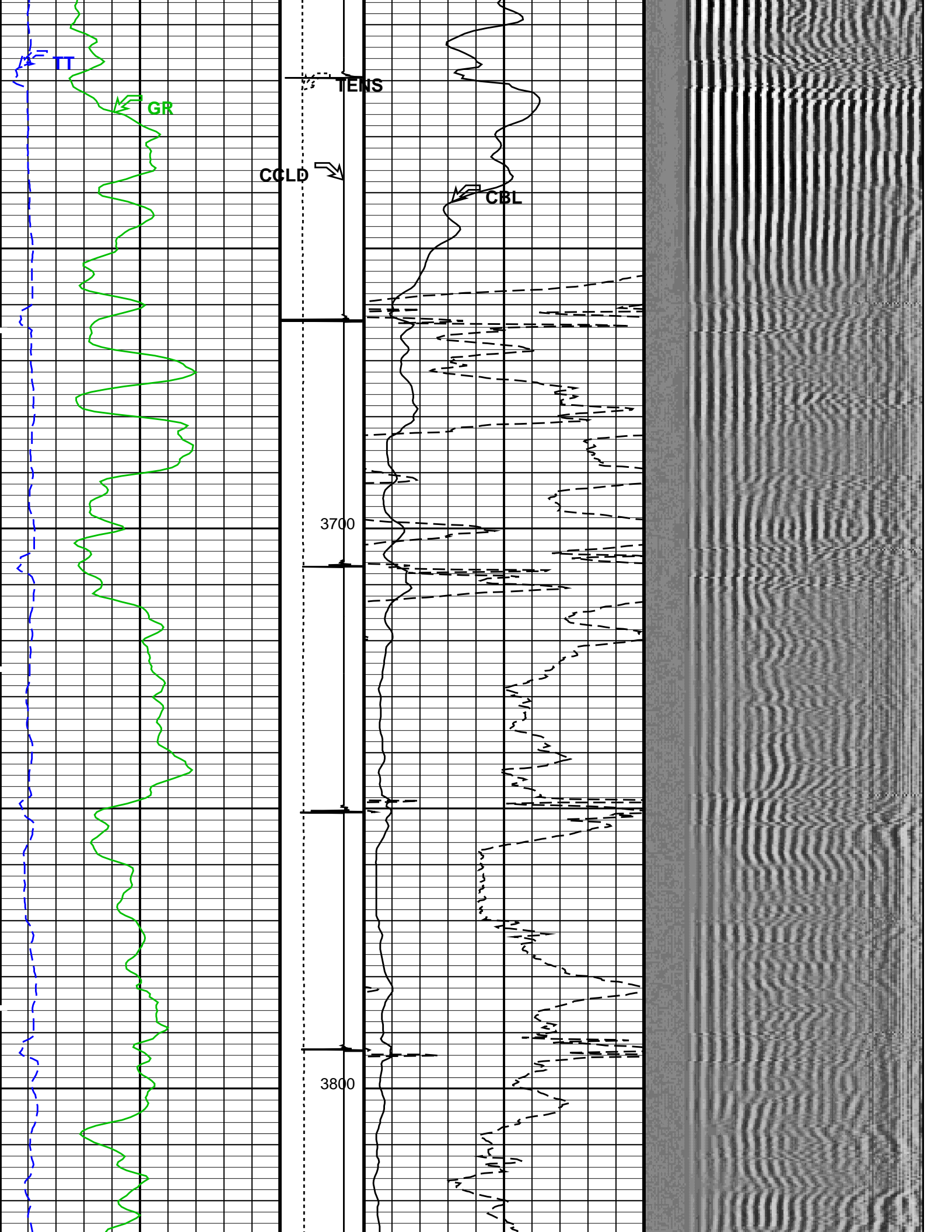


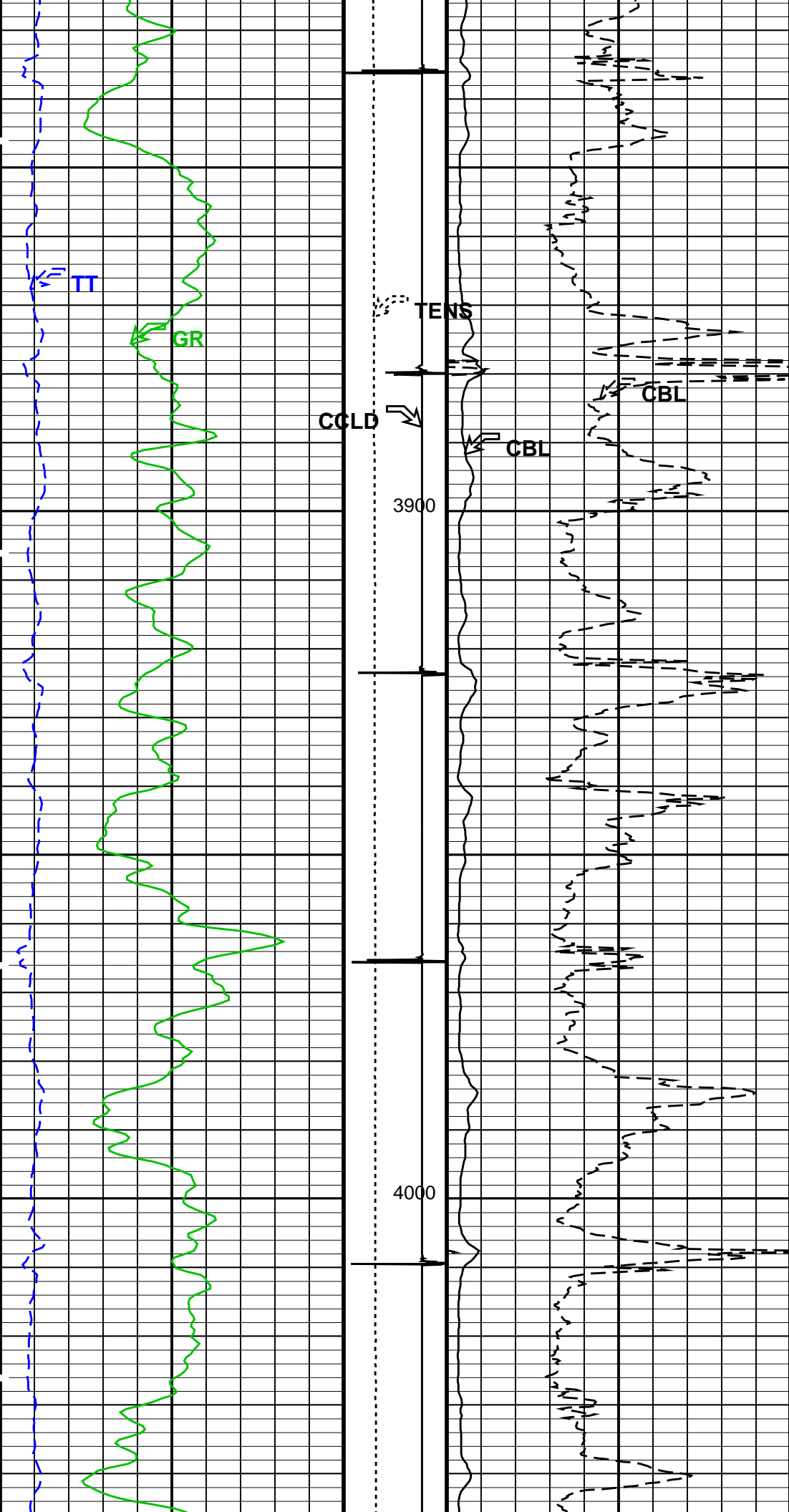


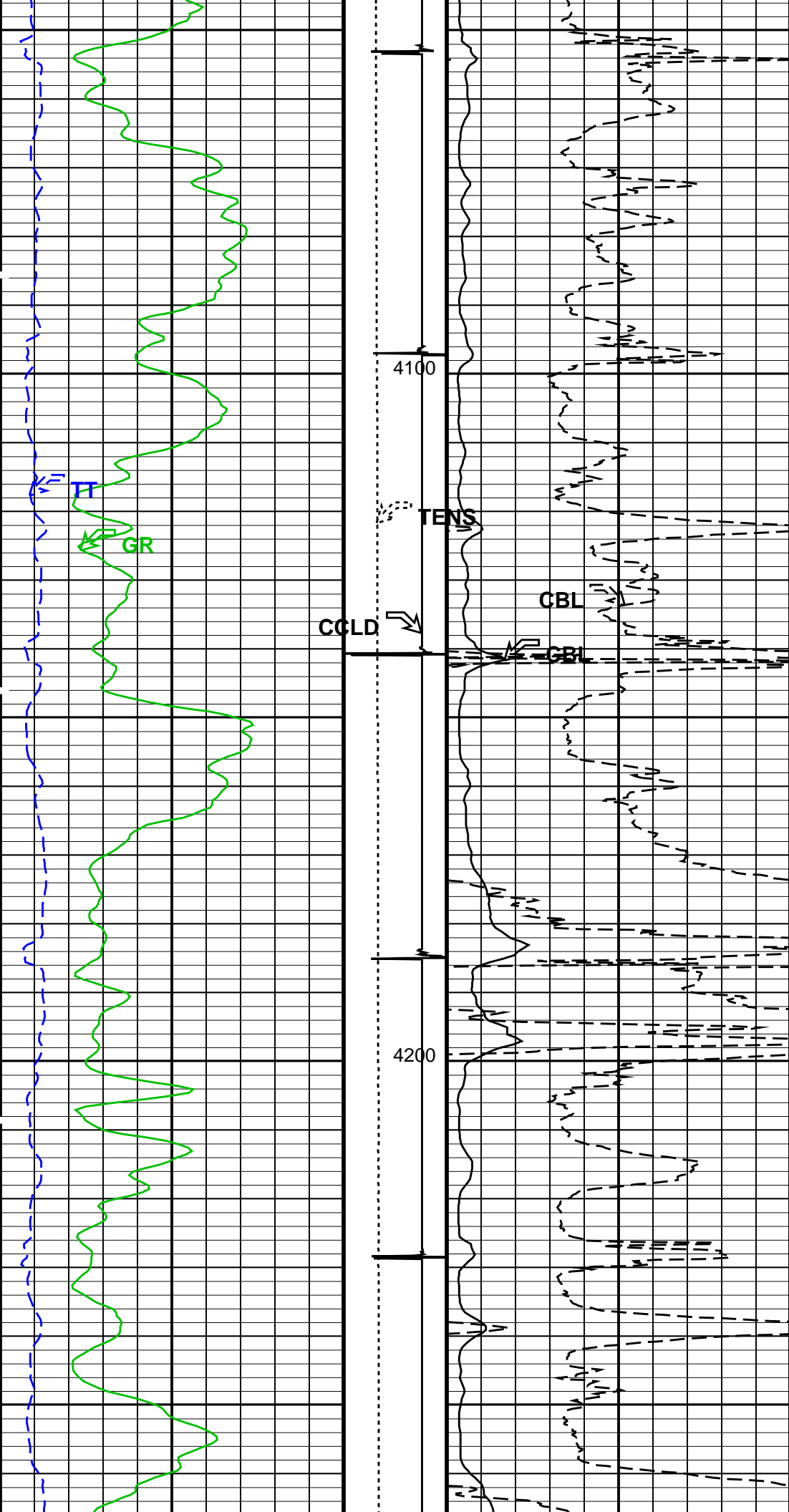


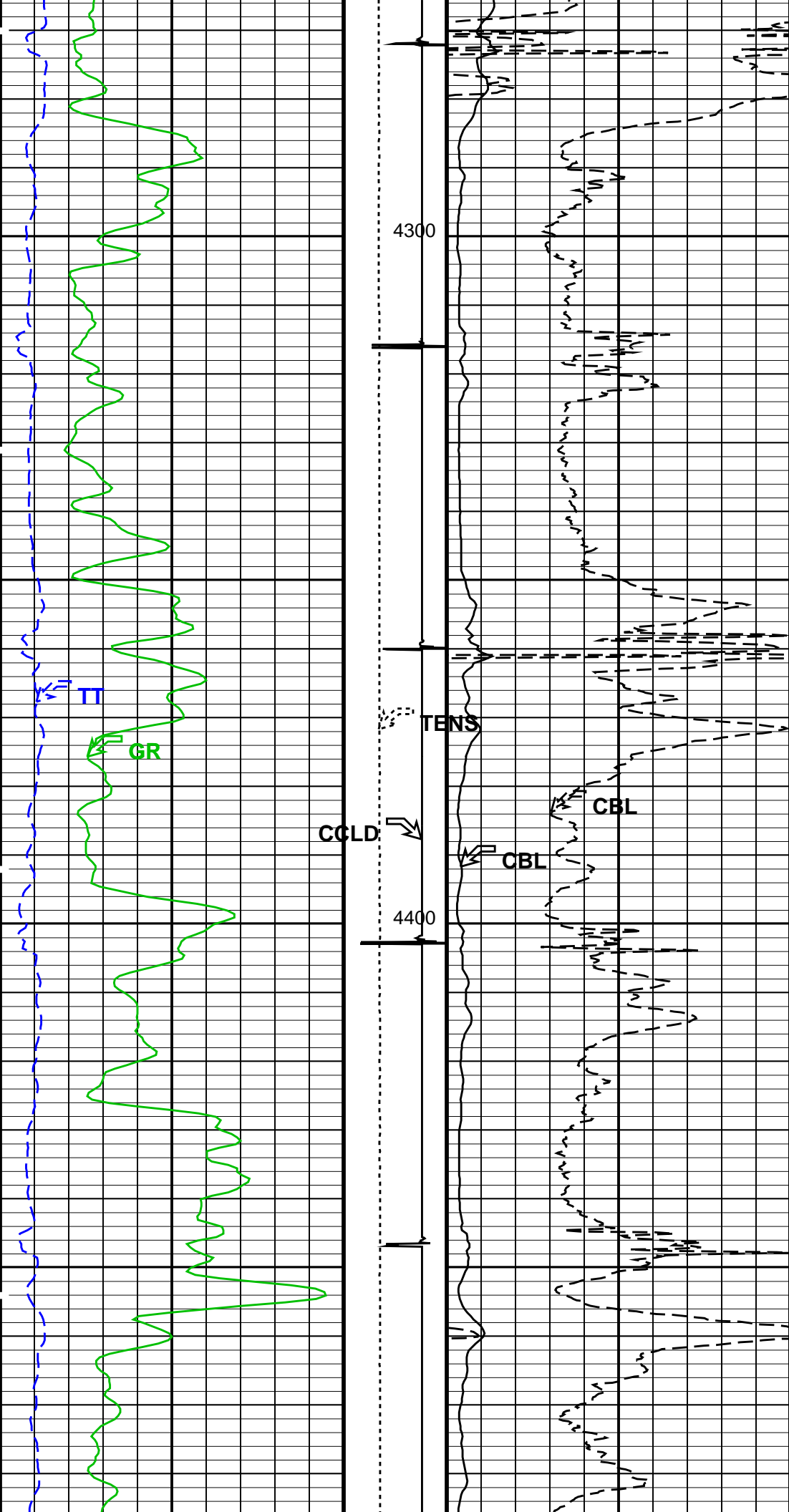


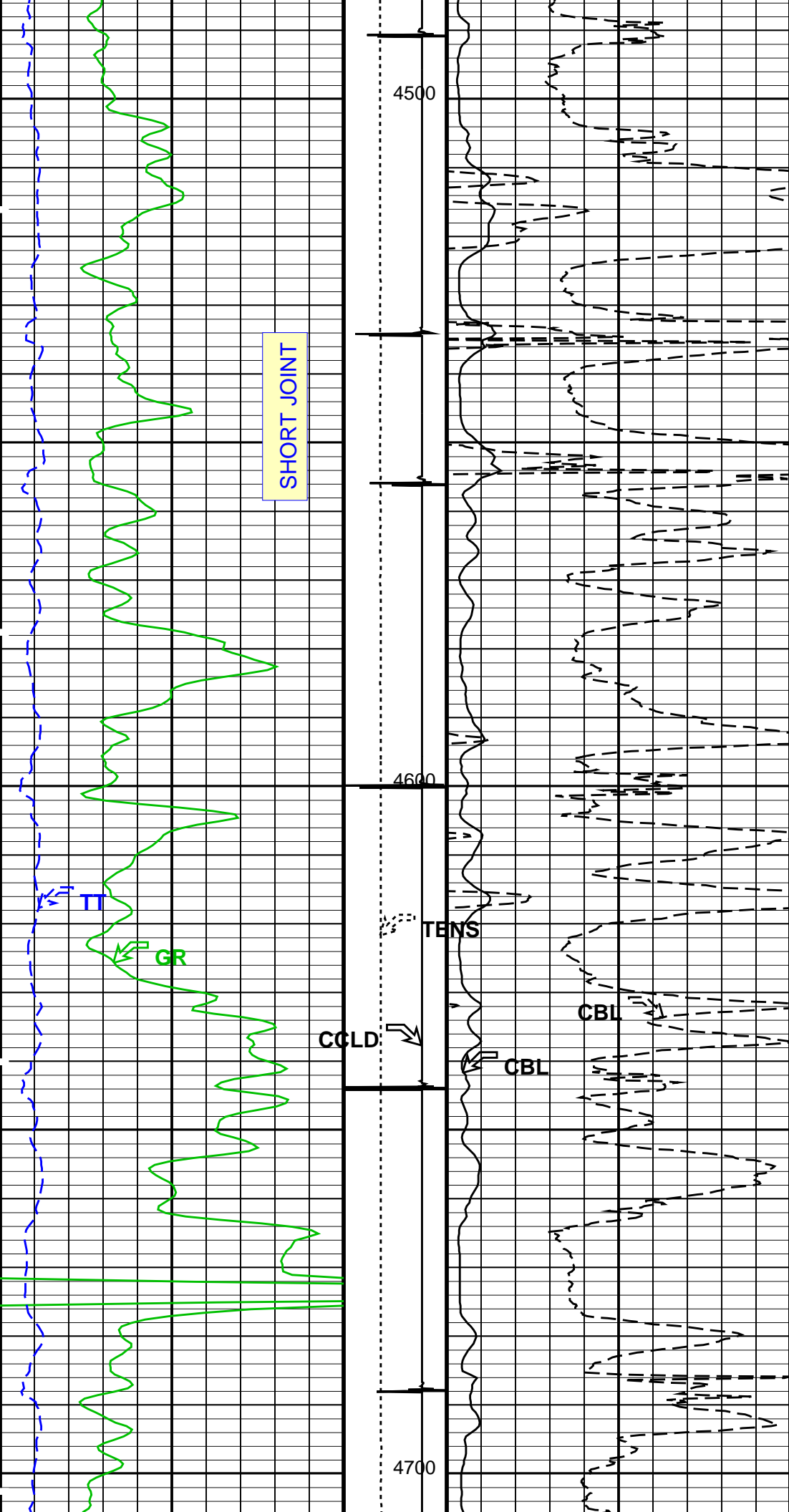


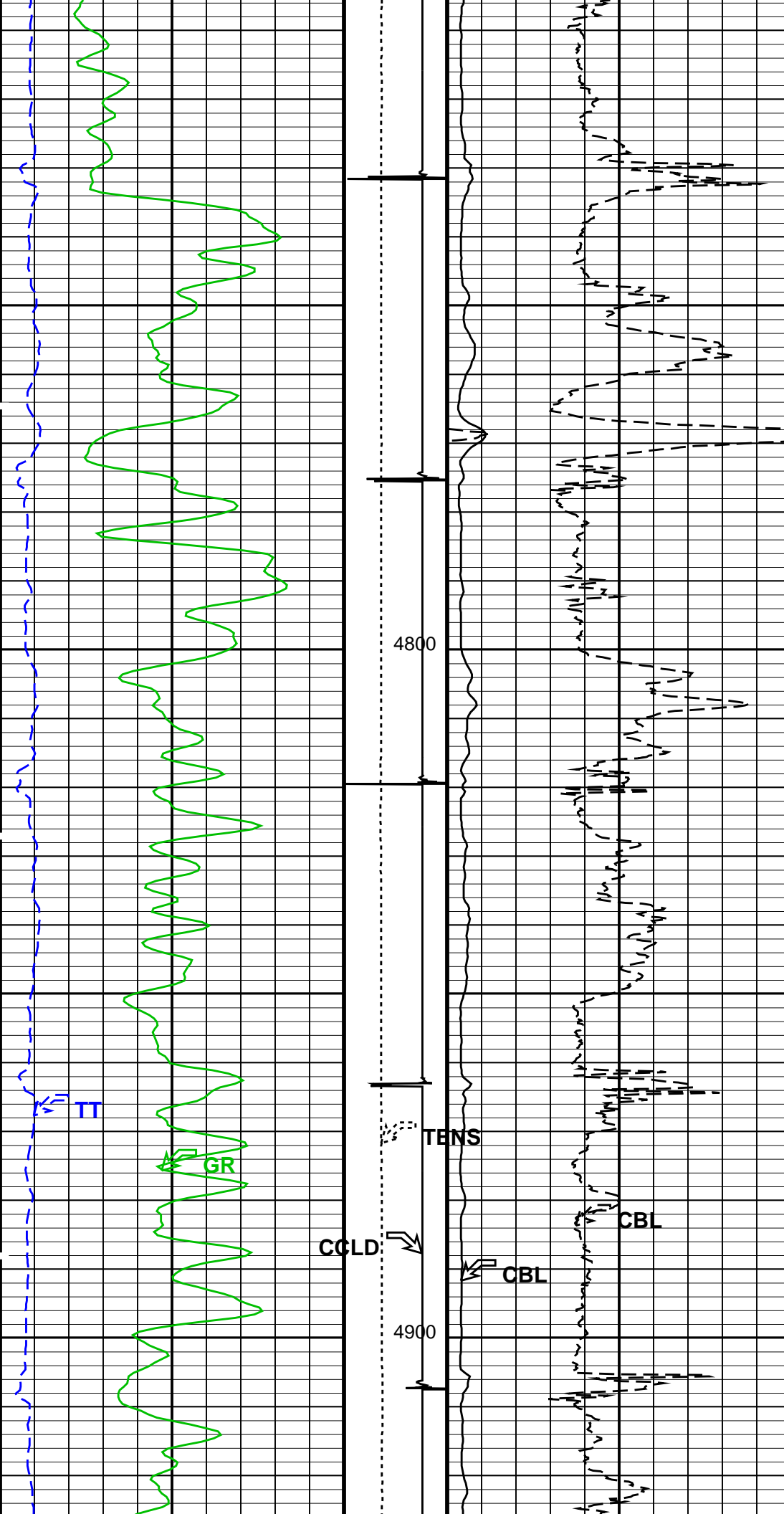


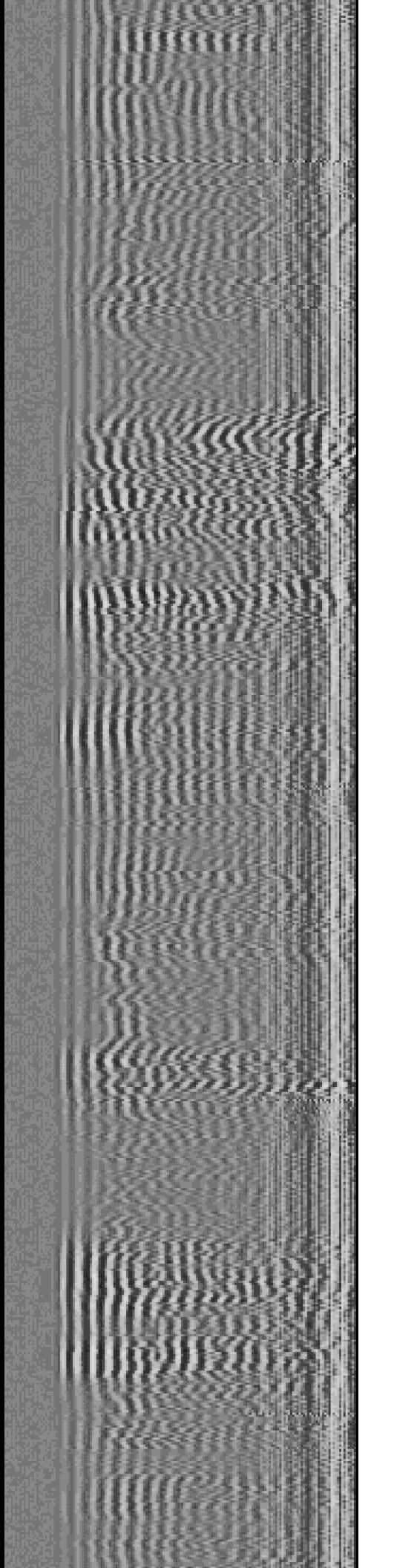
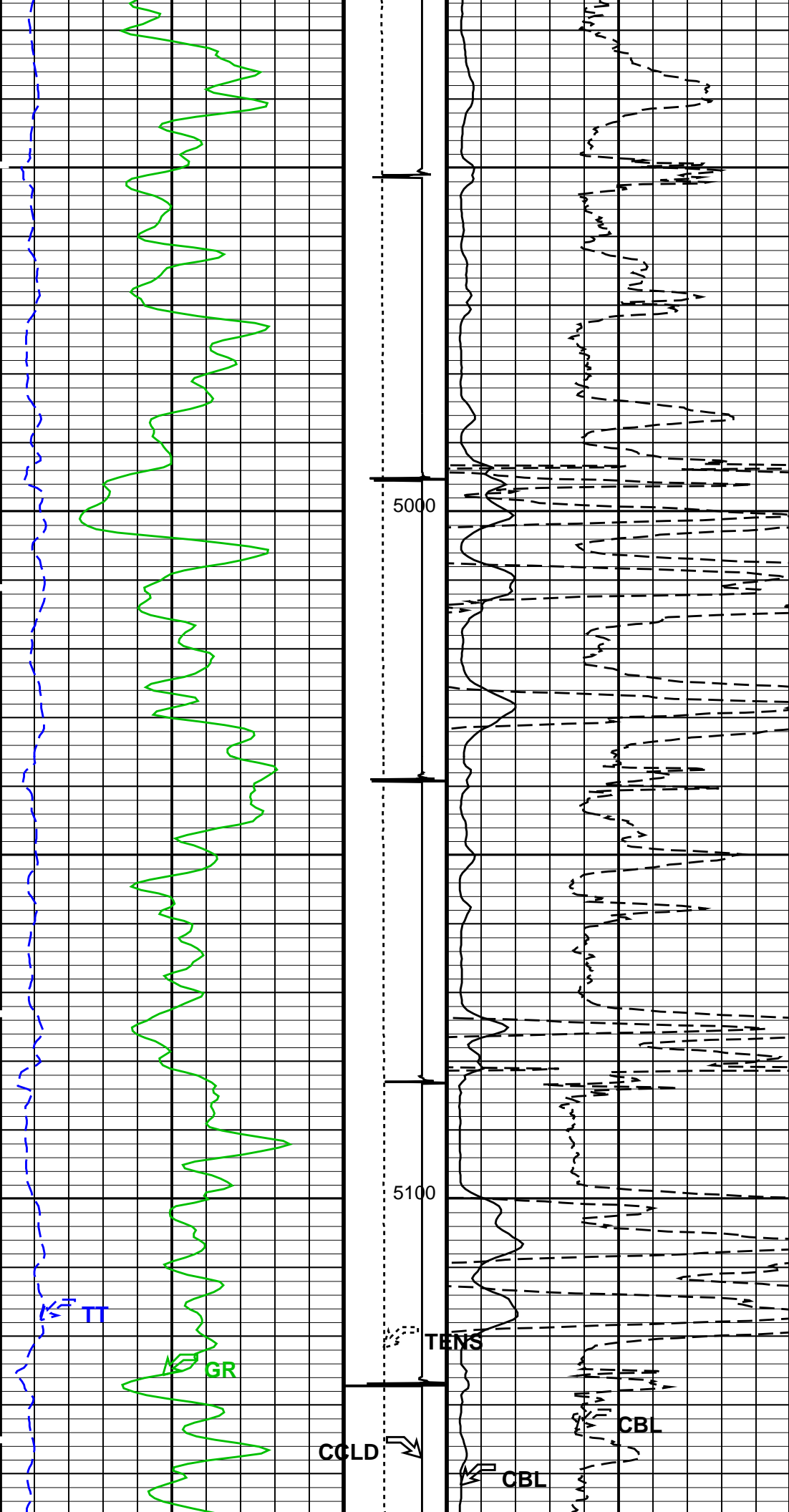


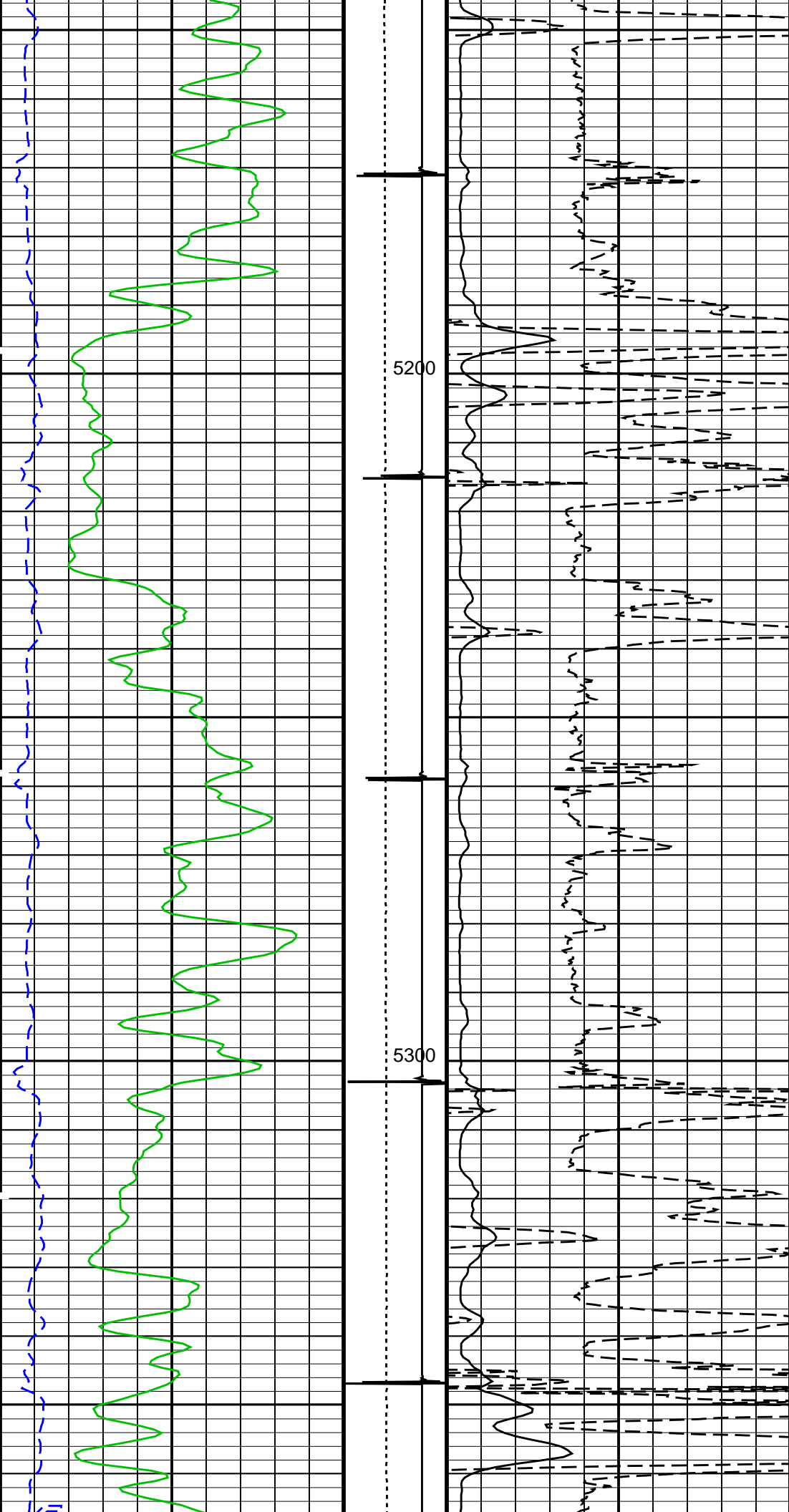


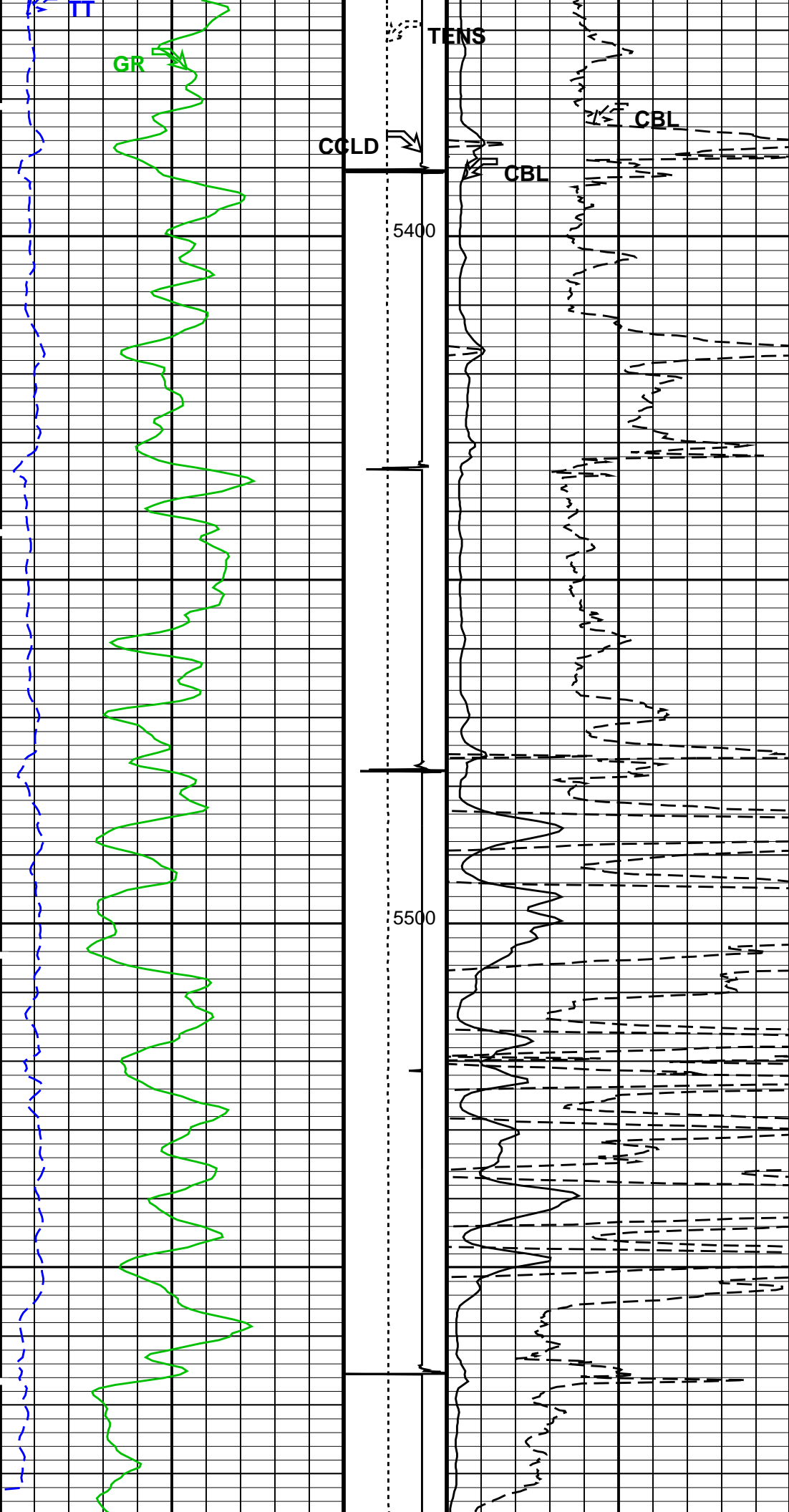


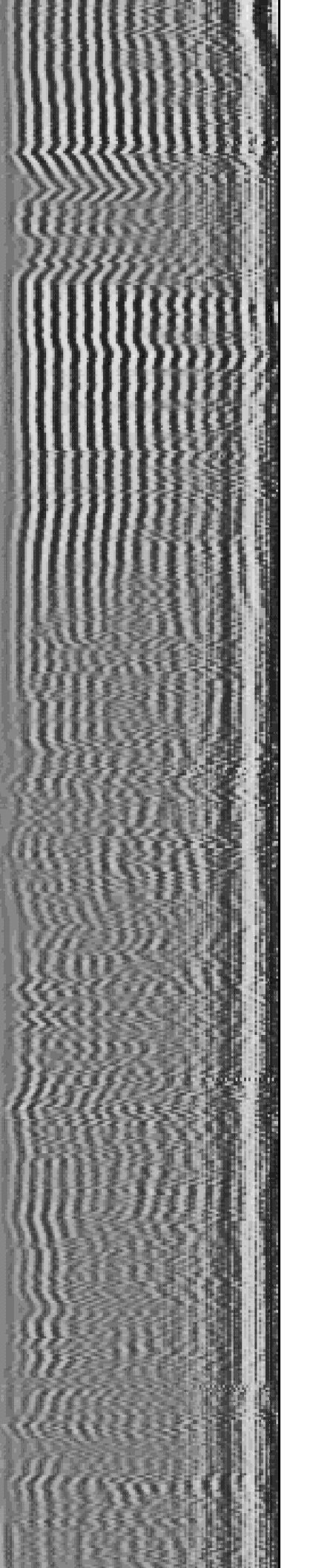
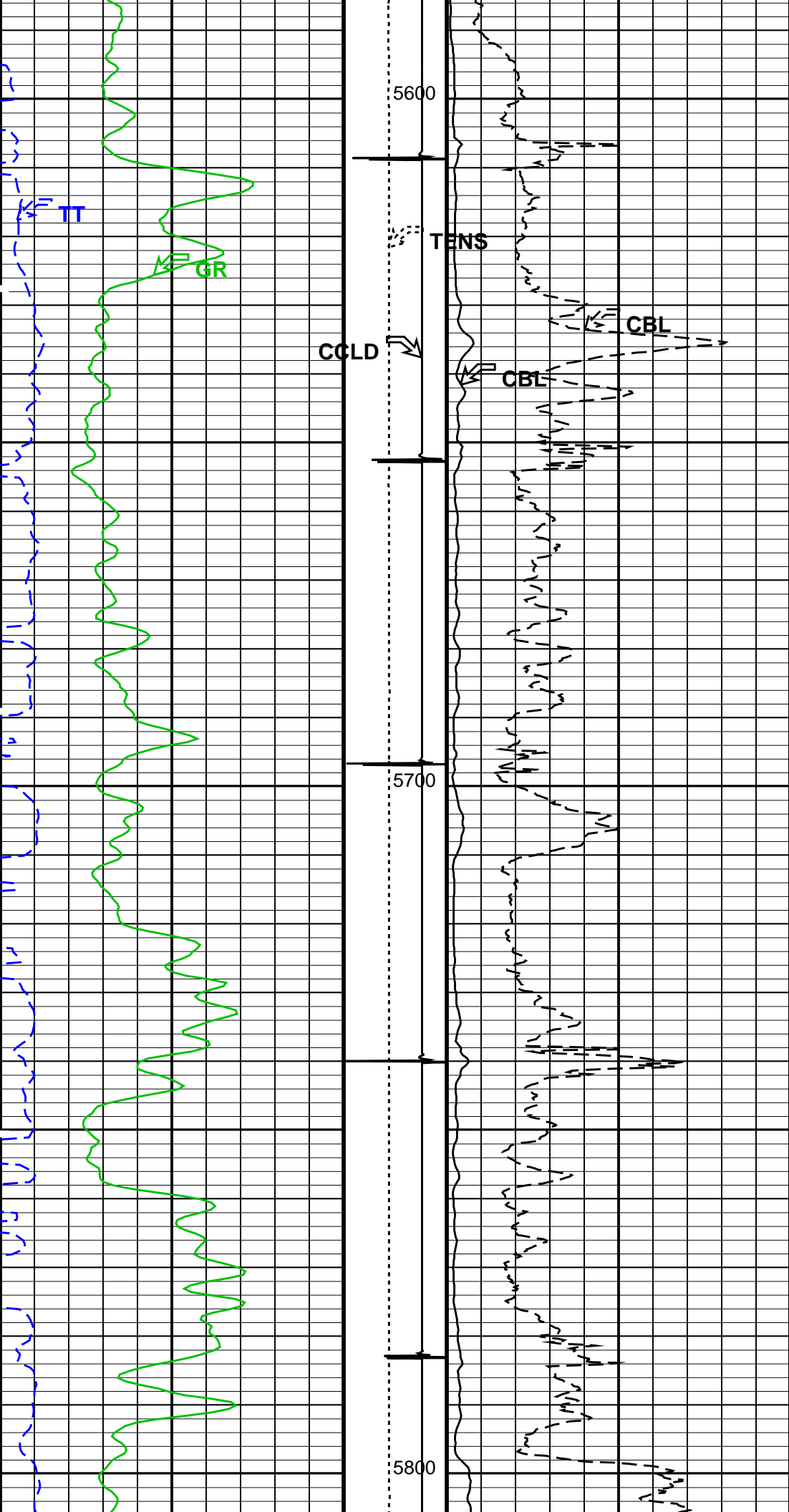


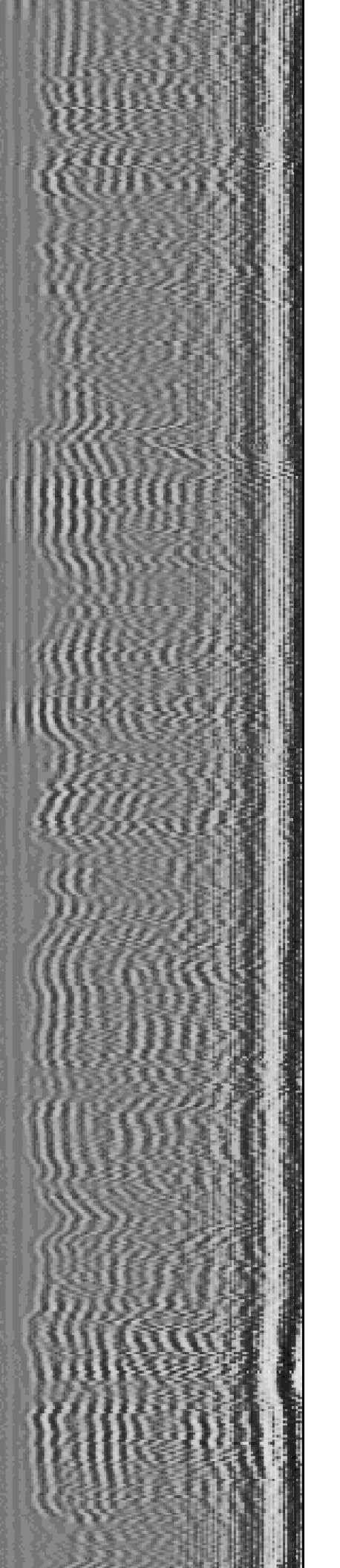
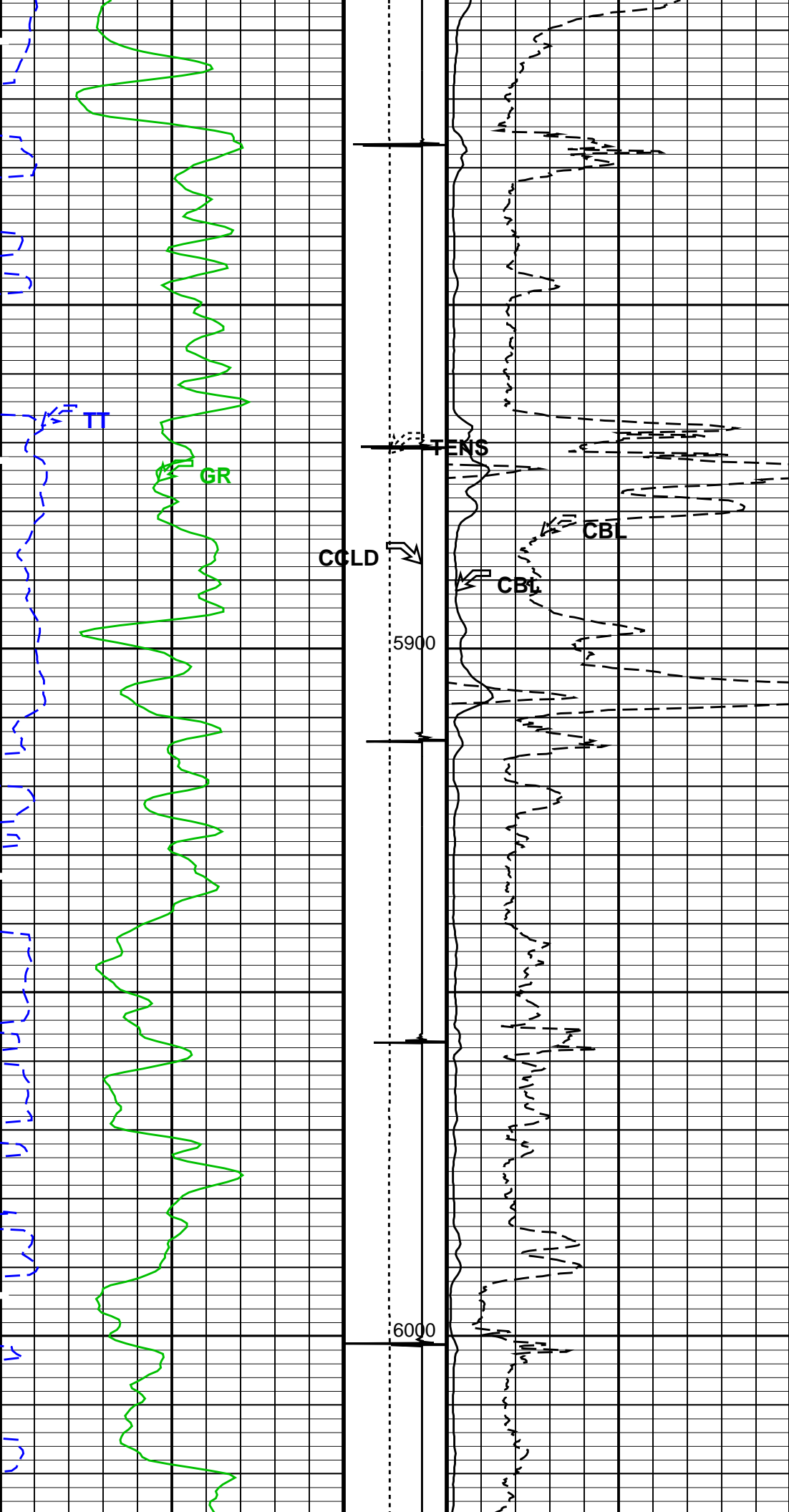


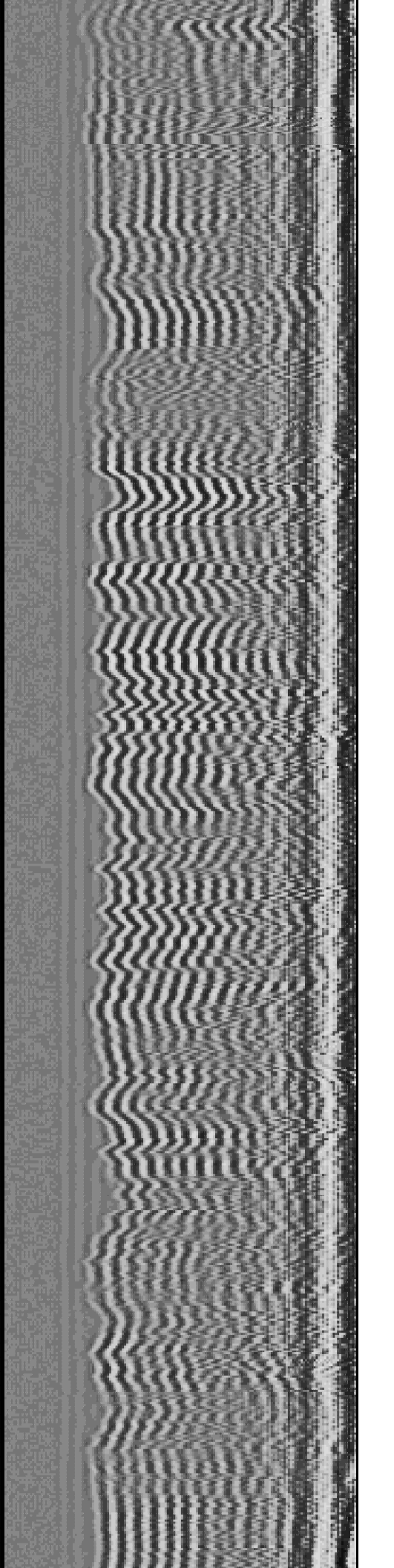
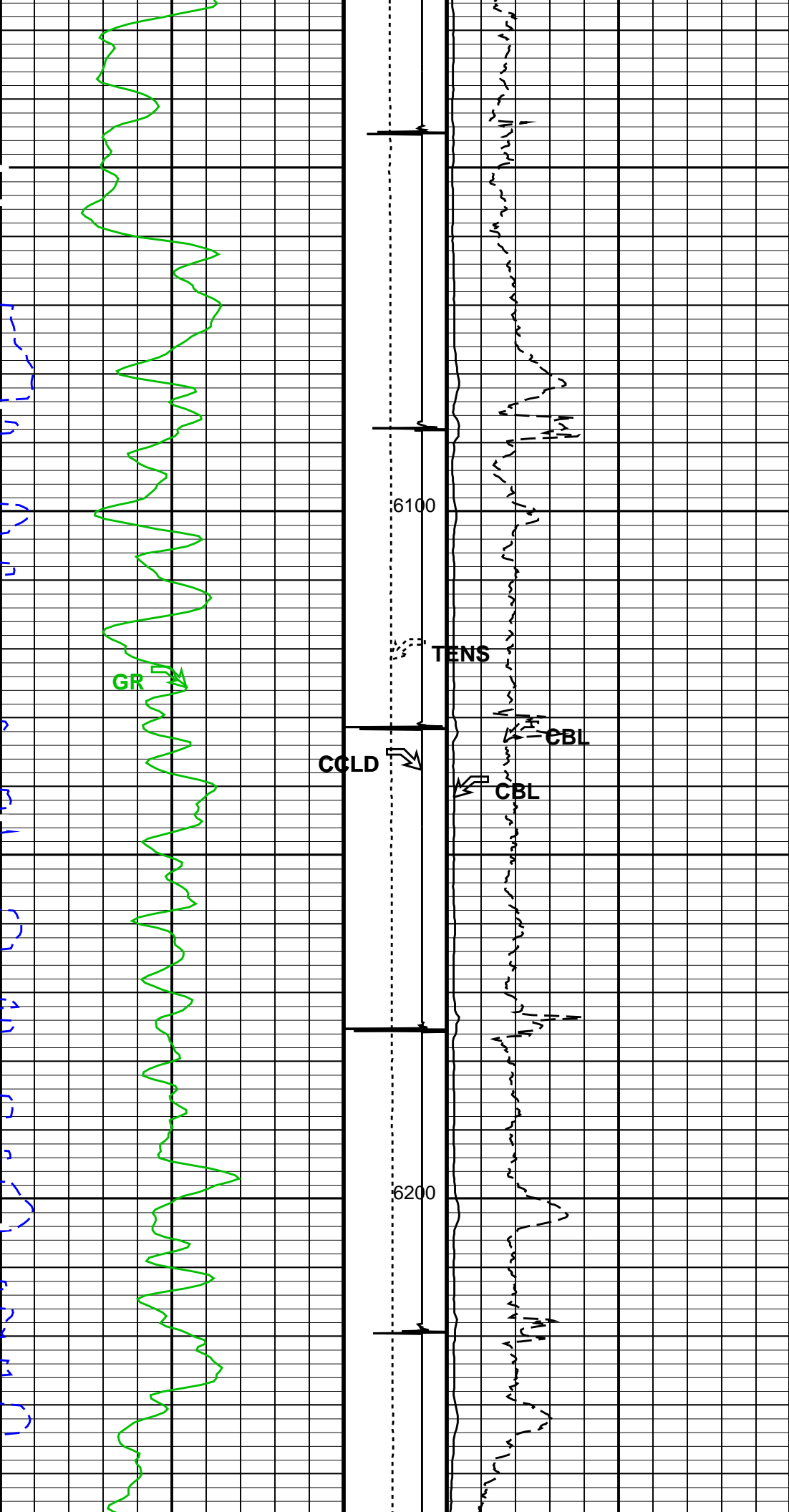


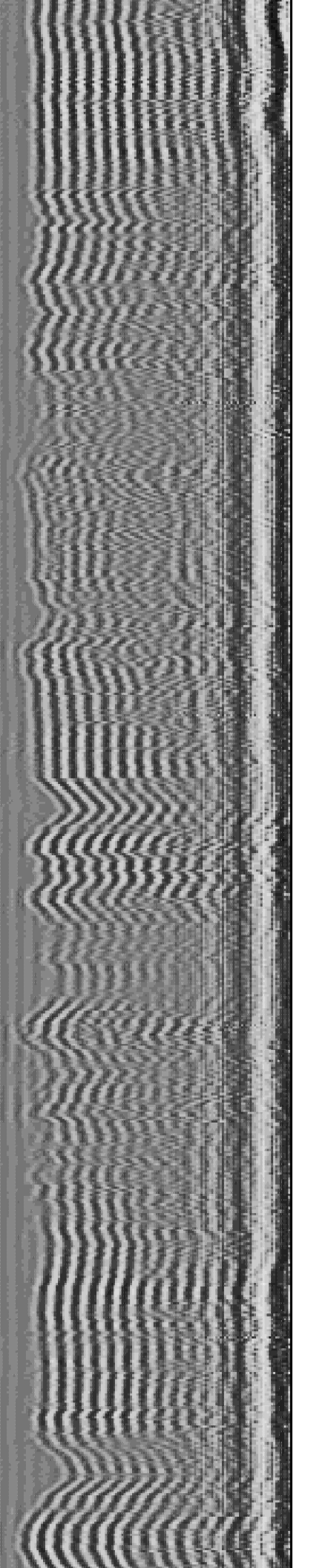
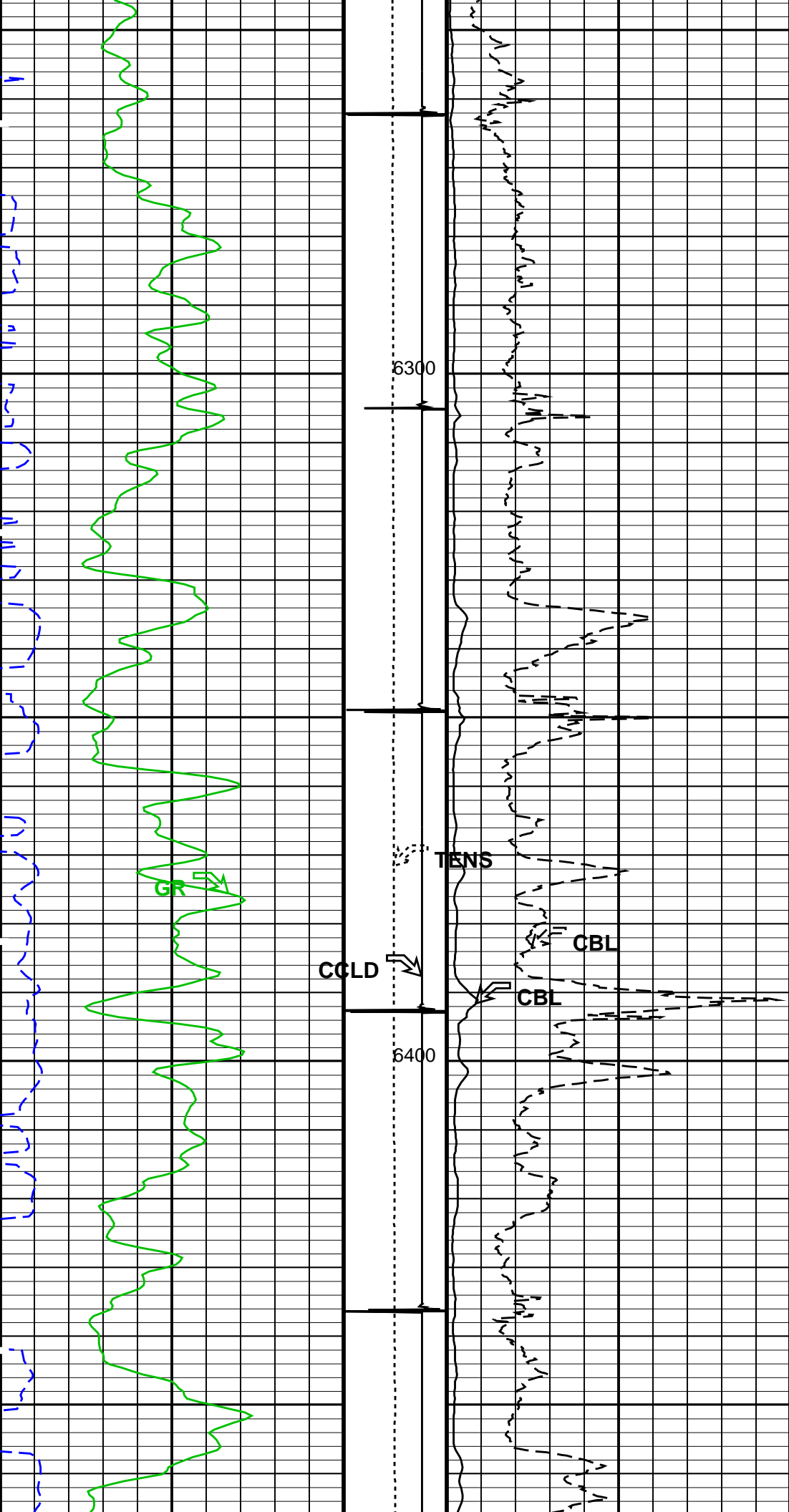


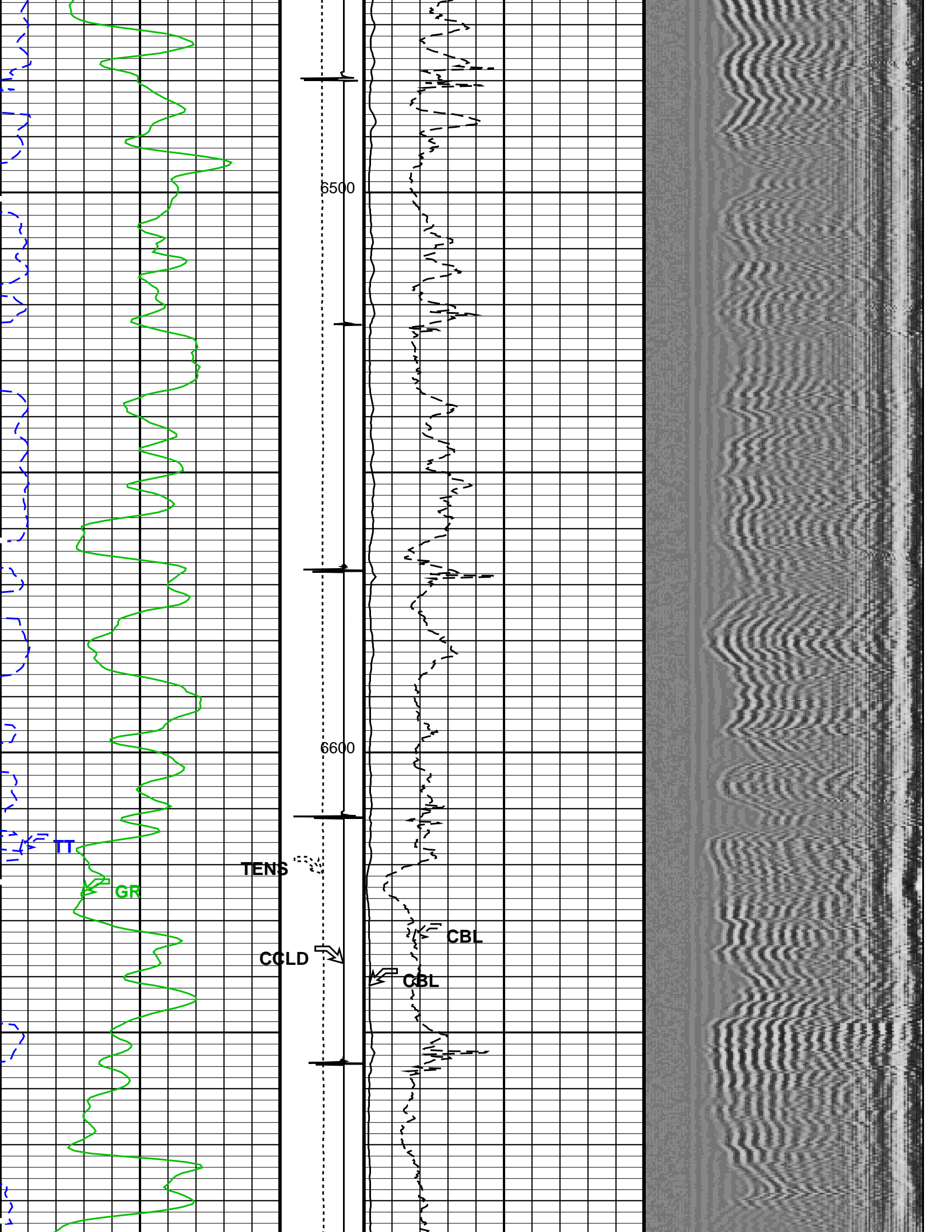


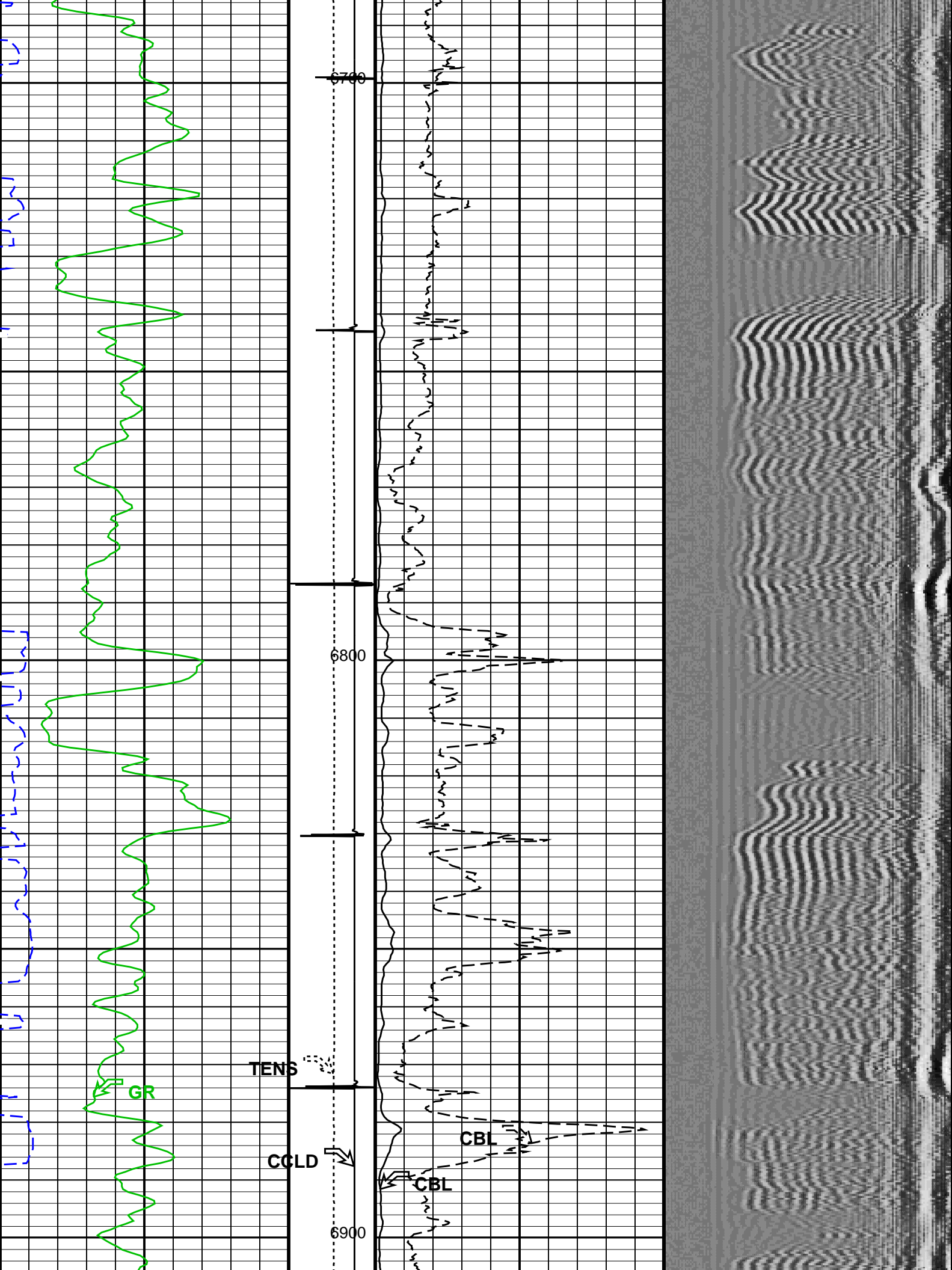


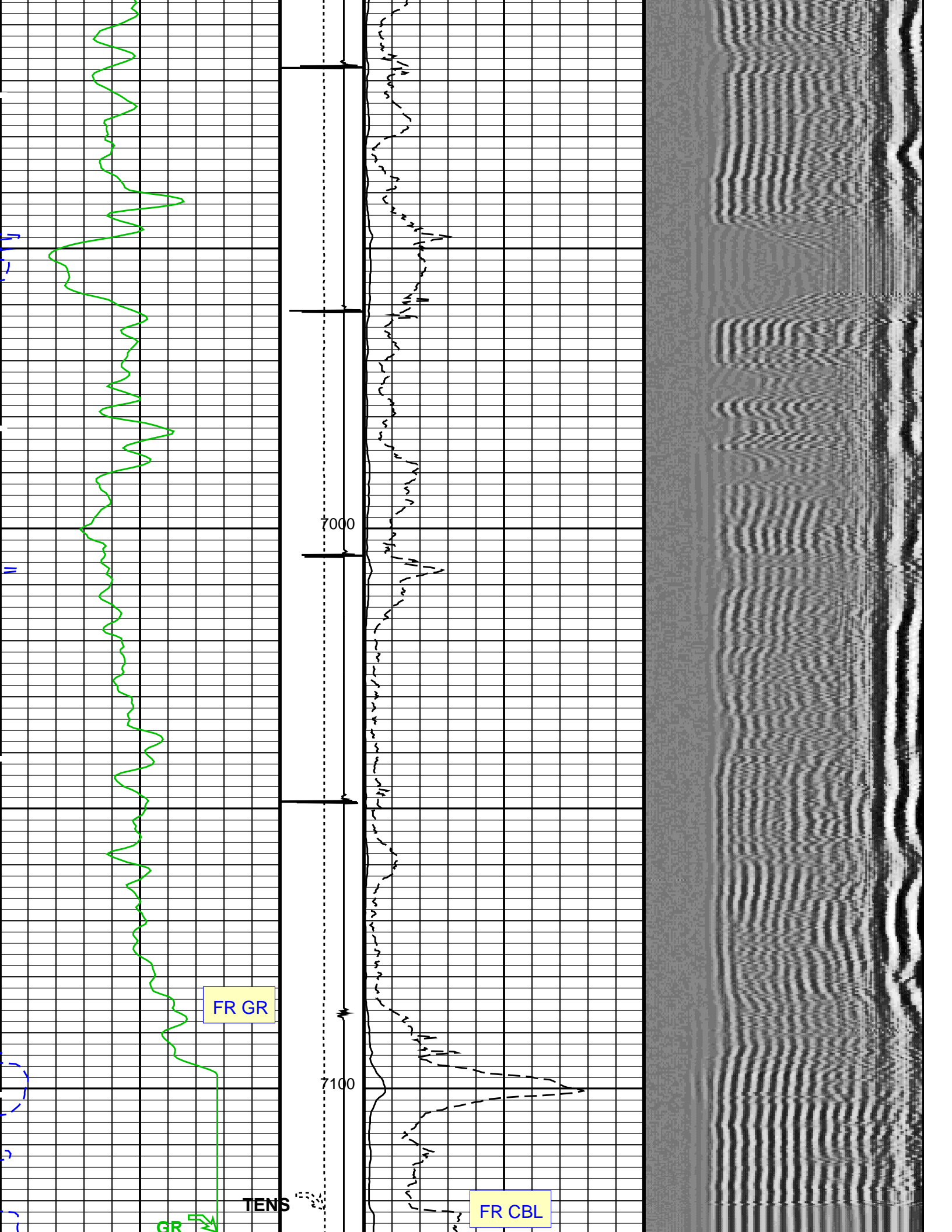


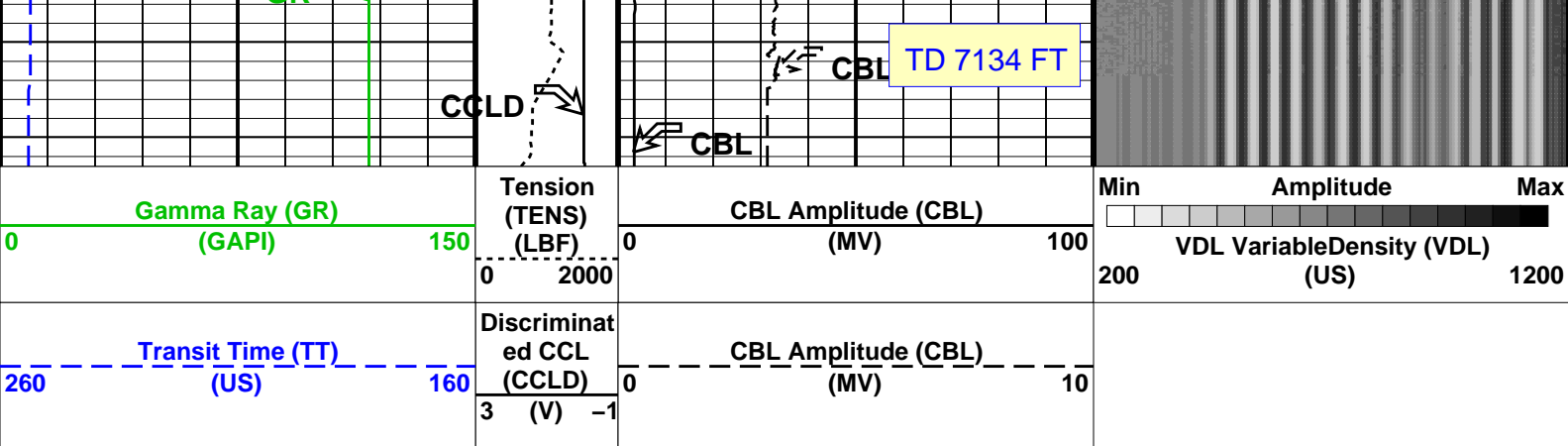












PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL Vertical Scale: 5" per 100'

Graphics File Created: 21-Nov-2011 15:17

OP System Version: 19C0-187

SCMT-CB SRPC-5095-H2-2011-OP19_b RST-C SRPC-5095-H2-2011-OP19_b
PSPT 19C0-187

<<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number	SCMS-CB 8303		
Current Casing Size	4.50000 IN		
Casing Weight	11.6000 LB/F		
Expected CBL Amplitude in Free Pipe Section	80 MV	Minimum Sonic Amplitude	0.579149 MV (100% Cement) 1.55185 MV (80% Cement)
		MAP Minimum Sonic Amplitude	4.32284 MV (100% Cement) 8.10244 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	224.559	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	338.559	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

DIF	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	1.55185	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	167.559	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	4.32284	MV
MSA	Minimum Sonic Amplitude	0.579149	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
DO	Depth Offset for Playback	2.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	NORMAL	
TD	Total Depth	-50000	FT

Input DLIS Files

DEFAULT SCMT_RST_PSP_017LUP FN:16 PRODUCER 21-Nov-2011 13:21 7141.0 FT 134.5 FT

Output DLIS Files

DEFAULT SCMT_RST_PSP_021PUP FN:20 PRODUCER 21-Nov-2011 15:17



REPEAT ANALYSIS

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC. Well: FEDERAL 29-4 (PA30)

Input DLIS Files

DEFAULT SCMT_RST_PSP_017LUP FN:16 PRODUCER 21-Nov-2011 13:21 7141.0 FT 134.5 FT
DEFAULT SCMT_RST_PSP_016PUP FN:15 PRODUCER 21-Nov-2011 13:13 4707.5 FT 4356.5 FT

Output DLIS Files

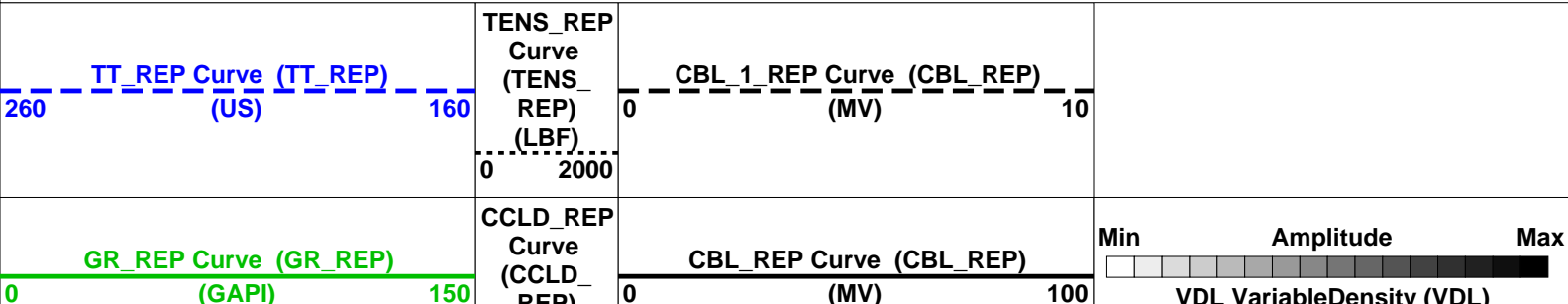
DEFAULT SCMT_RST_PSP_021PUP FN:20 PRODUCER 21-Nov-2011 15:17

OP System Version: 19C0-187

SCMT-CB SRPC-5095-H2-2011-OP19_b RST-C SRPC-5095-H2-2011-OP19_b
PSPT 19C0-187

PIP SUMMARY

Time Mark Every 60 S

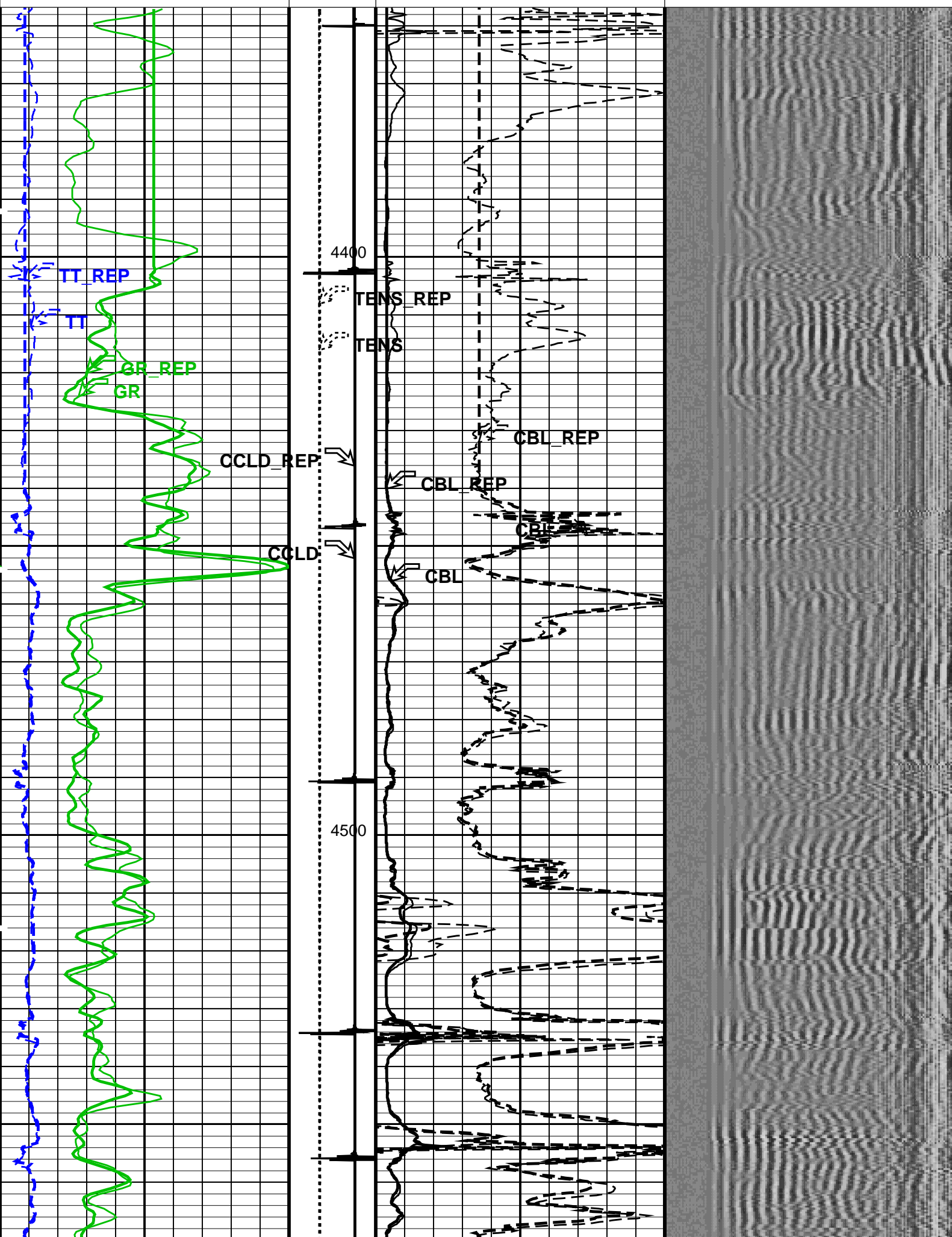


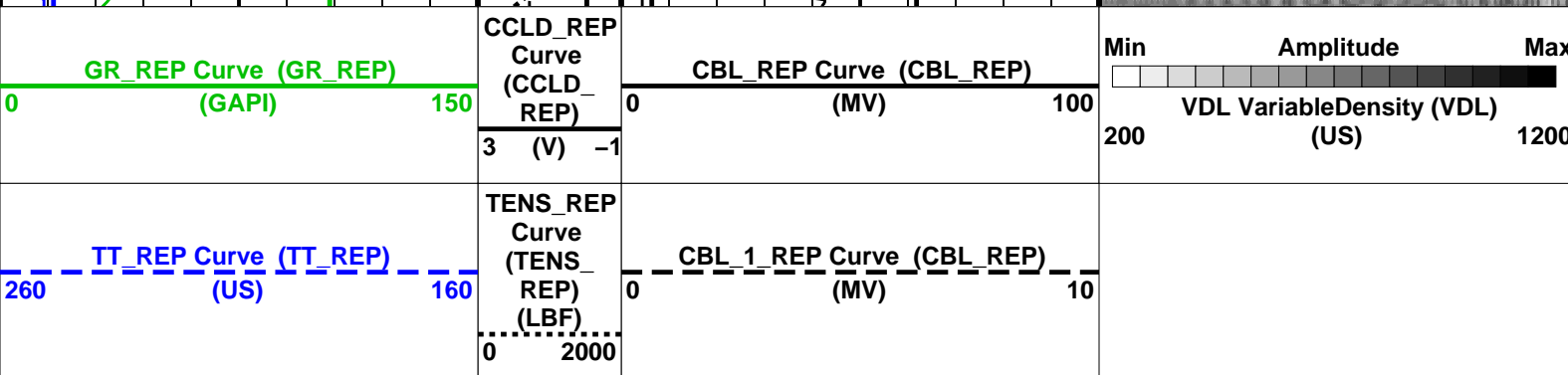
REF)
3 (V) -1

200

(US)

1200





PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL_REP Vertical Scale: 5" per 100'

Graphics File Created: 21-Nov-2011 15:17

OP System Version: 19C0-187

SCMT-CB PSPT	SRPC-5095-H2-2011-OP19_b 19C0-187	RST-C	SRPC-5095-H2-2011-OP19_b
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<<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number **SCMS-CB 8303**

Current Casing Size	4.50000 IN		
Casing Weight	11.6000 LB/F		
Expected CBL Amplitude in Free Pipe Section	80 MV	Minimum Sonic Amplitude	0.579149 MV (100% Cement) 1.55185 MV (80% Cement)
		MAP Minimum Sonic Amplitude	4.32284 MV (100% Cement) 8.10244 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
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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	224.559	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	338.559	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	189	US/F
FATT	Acoustic Attenuation due to Fluid	0	DB/F
FCF	CBL Fluid Compensation Factor	0.924277	
GOBO	Good Bond	1.55185	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	167.559	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	4.32284	MV
MSA	Minimum Sonic Amplitude	0.579149	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
DO	Depth Offset for Playback	2.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	NORMAL	
TD	Total Depth	-50000	FT

Input DLIS Files						
DEFAULT	SCMT_RST_PSP_017LUP	FN:16	PRODUCER	21-Nov-2011 13:21	7141.0 FT	134.5 FT
DEFAULT	SCMT_RST_PSP_016PUP	FN:15	PRODUCER	21-Nov-2011 13:13	4707.5 FT	4356.5 FT
Output DLIS Files						
DEFAULT	SCMT_RST_PSP_021PUP	FN:20	PRODUCER	21-Nov-2011 15:17		

MAXIS Field Log

Client: ENCANA OIL & GAS (USA) INC.
Field: PARACHUTE
Well: PAD PA30
Run date: 21-Nov-2011

Tool: PSP
Sub Type: PBMS
Sensor: Clock Model

PBMS Digitalization Clock

Sonde Serial NB

Sensor Serial NB 3779

Calib Date ddmmyy 090107

Matrix Size 16

Coeff CRC 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: PARACHUTE
Well: PAD PA30
Run date: 21-Nov-2011

Tool: PSP
Sub Type: PBMS
Sensor: Sapphire

PBMS Sapphire 10kPsi Gauge

Sonde Serial NB

Sensor Serial NB 3779

Calib Date ddmmyy 090107

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

Calib Date ddmmyy 090107
Matrix Size 66
Coeff CRC 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**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**4	0.0	0.0	0.0
Tt**5	0.0	0.0	0.0

Client:	ENCANA OIL & GAS (USA) INC.	Tool:	PSP
Field:	PARACHUTE	Sub Type:	PBMS
Well:	PAD PA30	Sensor:	GR
Run date:	21-Nov-2011		

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
Coeff CRC	3AE5
GR HV Rt	
	<div> <div>Rt**0</div> <div>Rt**1</div> </div>
Rt**0	<div> <div>+.200000000000e+04</div> <div>+.214000000000e+04</div> </div>

Client:	ENCANA OIL & GAS (USA) INC.	Tool:	PSP
Field:	PARACHUTE	Sub Type:	PBMS
Well:	PAD PA30	Sensor:	WellTemp RTD
Run date:	21-Nov-2011		

PBMS RTD Well Thermometer	
Sonde Serial NB	COEFFICIENTS FOR RTD THERMOMETER PBMS-A.3779 S/N:
Sensor Serial NB	3779
Calib Date ddmmyy	090107
Matrix Size	16
Coeff CRC	3846

WellTemp 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.

Schlumberger

Well: FEDERAL 29-4 (PA30)
Field: PARACHUTE
County: GARFIELD
State: COLORADO

CEMENT BOND LOG
CBL - VDL
GAMMA RAY - CCL