

Company: ENCANA OIL & GAS (USA) INC.

Well: FEDERAL 19-16BB (PA30)

Field: PARACHUTE

County: GARFIELD State: COLORADO

CEMENT BOND LOG  
CBL – VDL  
GAMMA RAY – CCL

County: GARFIELD

Field: PARACHUTE

Location: SHL: 524' FNL & 413' FEL

Well: FEDERAL 19-16BB (PA30)

Company: ENCANA OIL & GAS (USA) INC.

LOCATION			
SHL: 524' FNL & 413' FEL	Elev.: K.B.	5828.00 ft	
BHL: SESE 248' FSL & 1165' FEL	G.L.	5806.00 ft	
	D.F.	5827.00 ft	
Permanent Datum:	GROUND LEVEL	Elev.: 5806.00 ft	
Log Measured From:	KELLY BUSHING	22.00 ft above Perm. Datum	
Drilling Measured From:	KELLY BUSHING		
API Serial No.	Section	Township	Range
05-045-20787-0000	30	7S	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	6655 ft			
Schlumberger Depth	6532 ft			
Bottom Log Interval	6523.4 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	6655 ft			
Casing/Tubing Size	4.500 in			
Weight	11.6 lbm/ft			
Grade	S-80			
From	22 ft			
To	6588 ft			
Maximum Recorded Temperatures	197 degF			
Logger On Bottom	21-Nov-2011	23:45		
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	
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Date Created: 22-NOV-2011 1:08:54

## 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		
Calibration Cable Type:	1-25P	Number of Calibration Points:	10	Conveyance Method:	Wireline
Wheel Correction 1:	-6	Calibration RMS:	4	Rig Type:	LAND
Wheel Correction 2:	-5	Calibration Peak Error:	8		

Depth Control Parameters	
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Log Sequence:	First Log In the Well
Rig Up Length At Surface:	198.00 FT
Rig Up Length At Bottom:	199.00 FT
Rig Up Length Correction:	-1.00 FT
<b>Stretch Correction:</b>	<b>2.80 FT</b>
Tool Zero Check At Surface:	0.90 FT

Depth Control Remarks	
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- |                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"><li>1. ALL SCHLUMBERGER DEPTH CONTROL PROCEDURES FOLLOWED.</li><li>2. IDW USED AS PRIMARY DEPTH CONTROL.</li><li>3. Z-CHART AND DRUM COUNTER USED AS SECONDARY DEPTH CONTROL.</li><li>4.</li><li>5.</li><li>6.</li></ol> |
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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: RST – SIGMA	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: 6532 FT	
MAXIMUM RECORDED PRESSURE AT TD: 2724.9 PSIA	
MAXIMUM RECORDED TEMPERATURE AT TD: 196.7DEGE	

SHORT JOINT: 4204 FT – 4226 FT & 5194 FT – 5216 FT

CBL TRANSIT TIME CYCLE SKIPPING IN ZONES OF GOOD CEMENT DUE TO LOW SIGNAL AMPLITUDE.

THANK YOU FOR CHOOSING SCHLUMBERGER.

CREW: 391-W. AZIZ & J. ROSA

SERVICE ORDER #:	BOC2-00188
PROGRAM VERSION:	18C0-147
FLUID LEVEL:	22 ft

SERVICE ORDER #:  
PROGRAM VERSION:  
FLUID LEVEL:

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

[illegible]

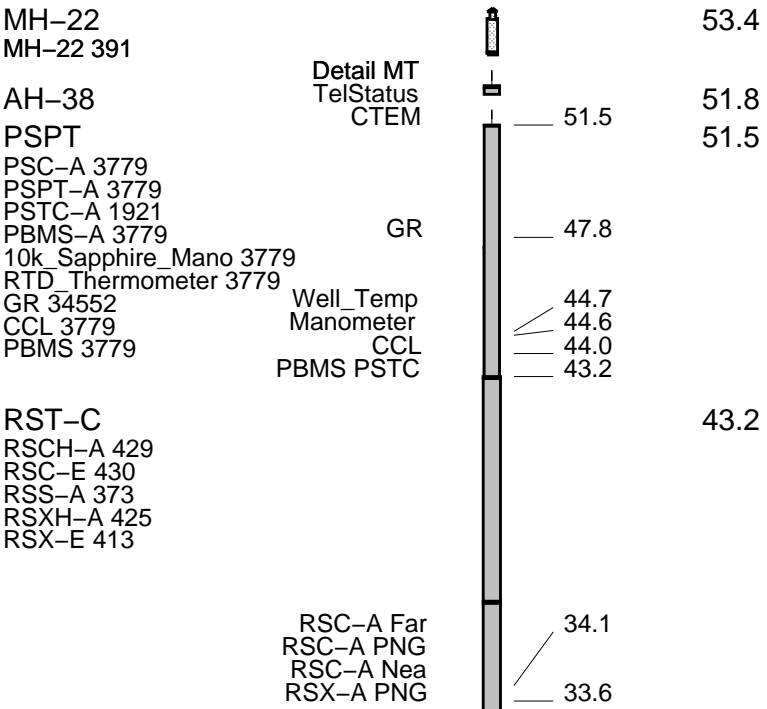
RUN 1

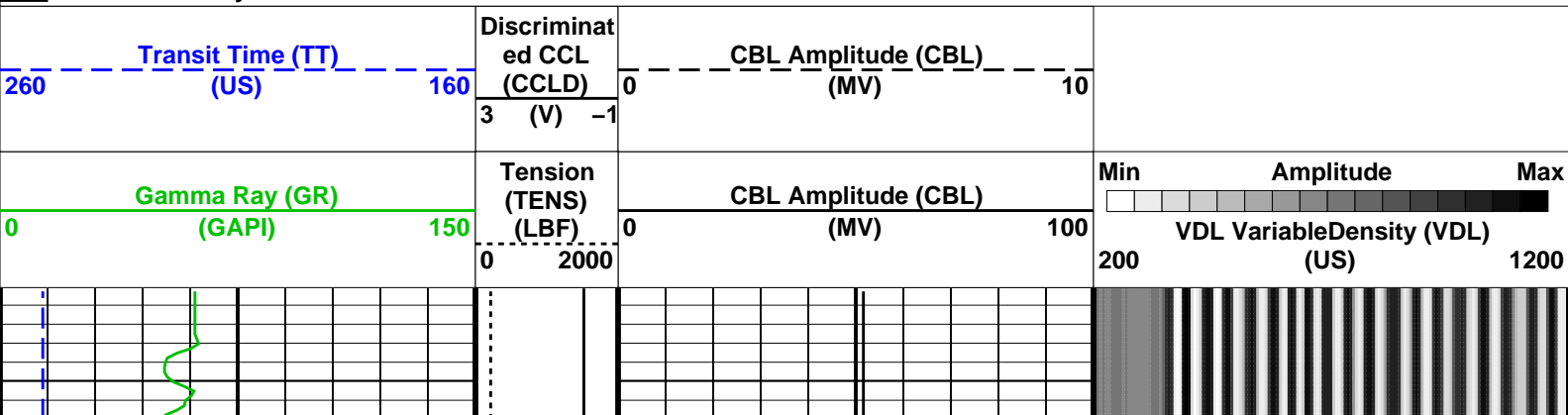
RUN 2

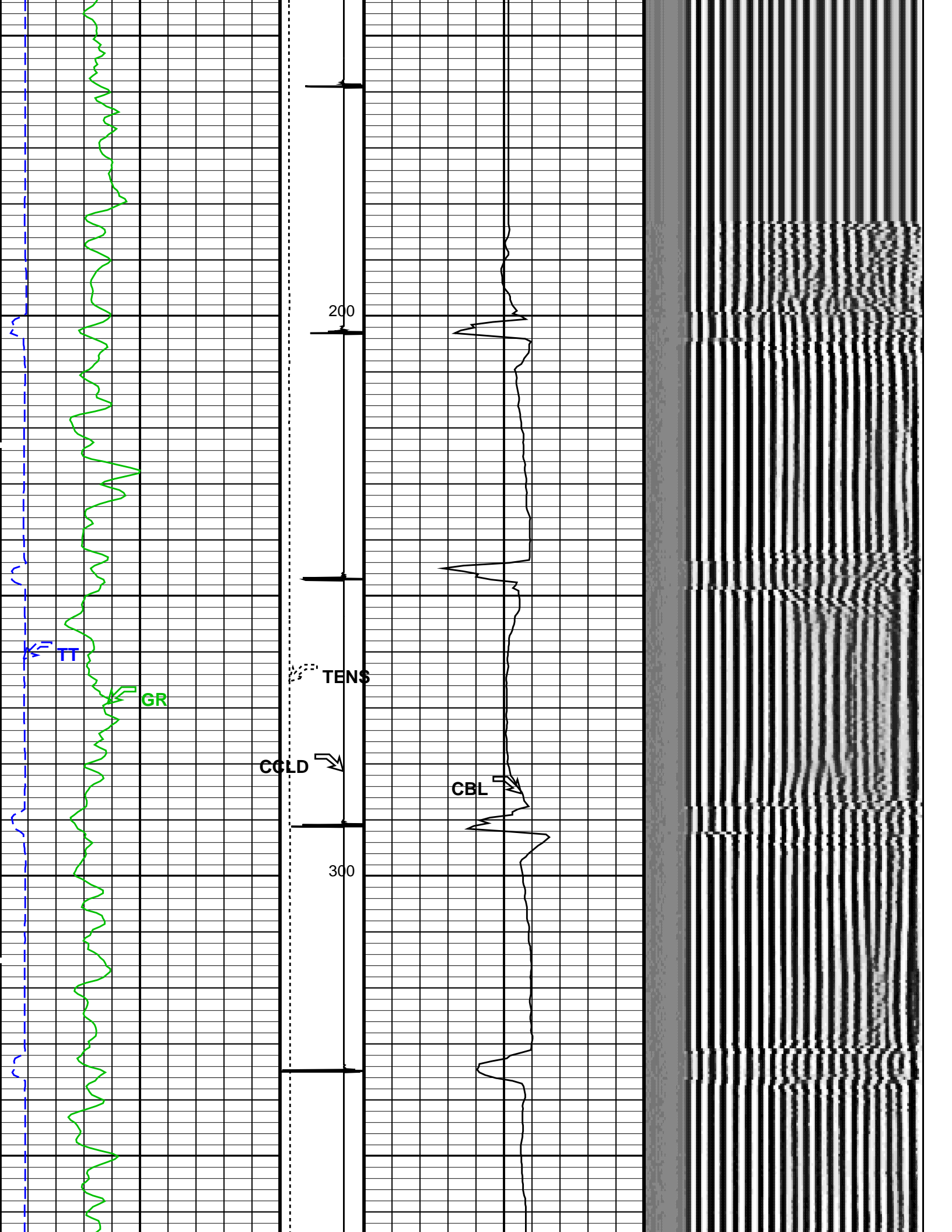
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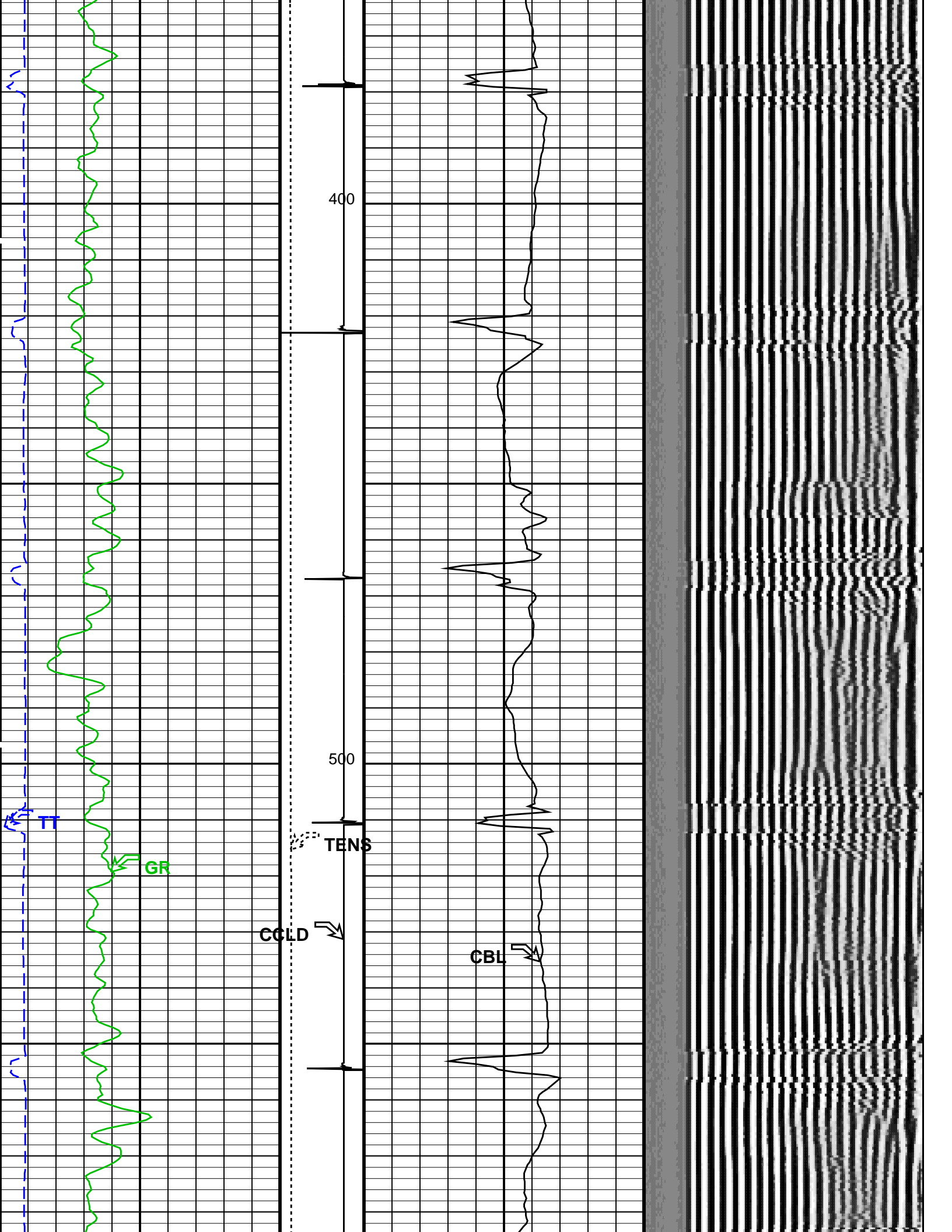
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PSC\_16MHZ 3412

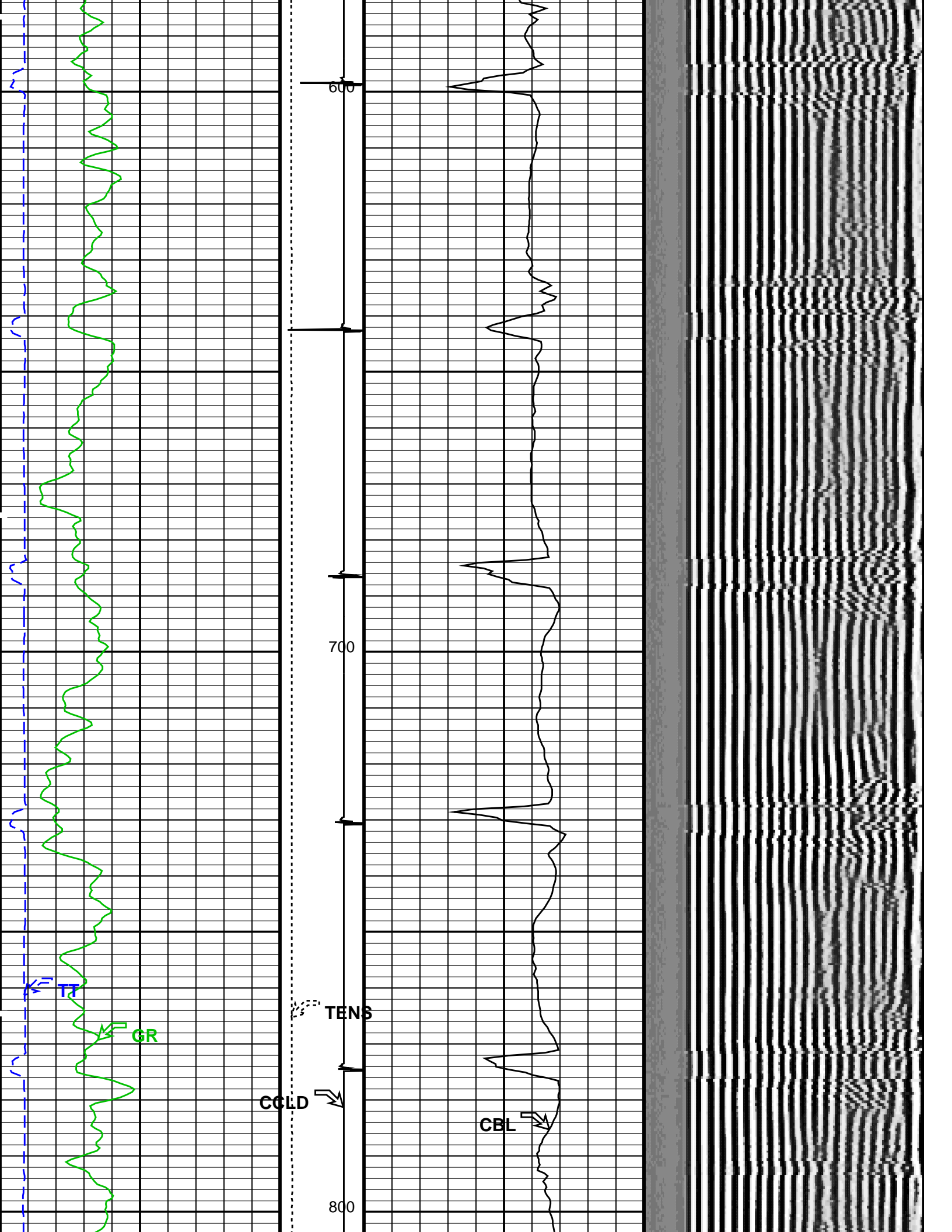
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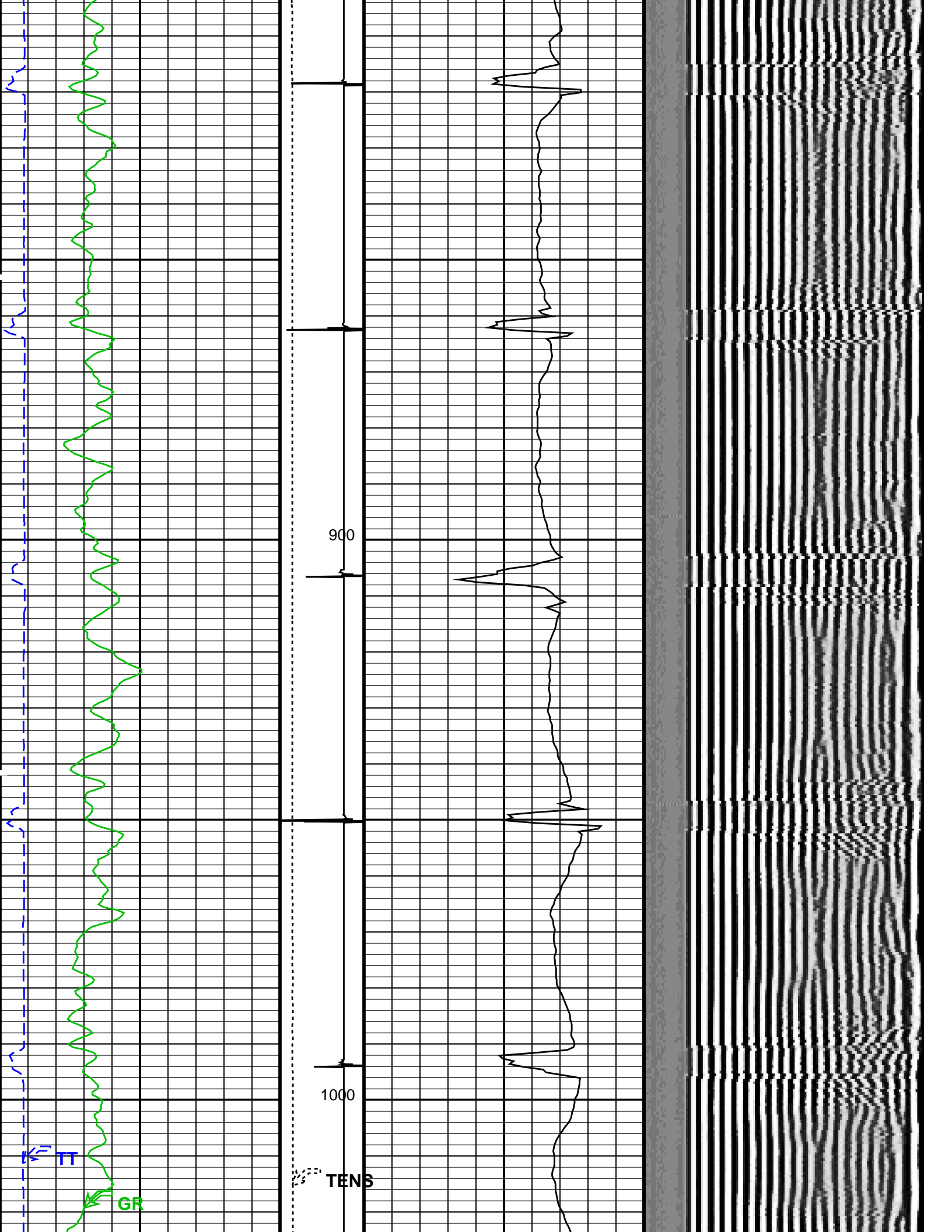


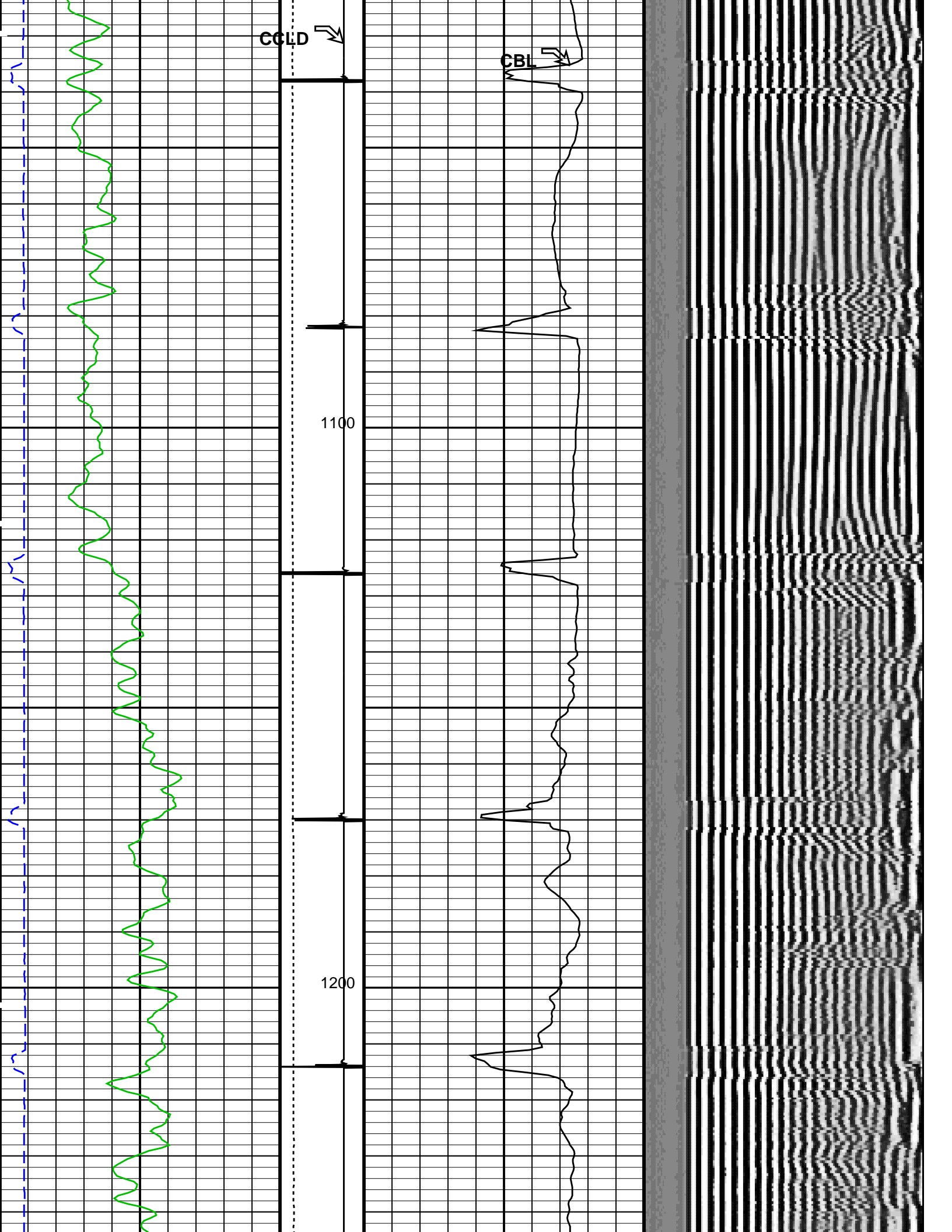


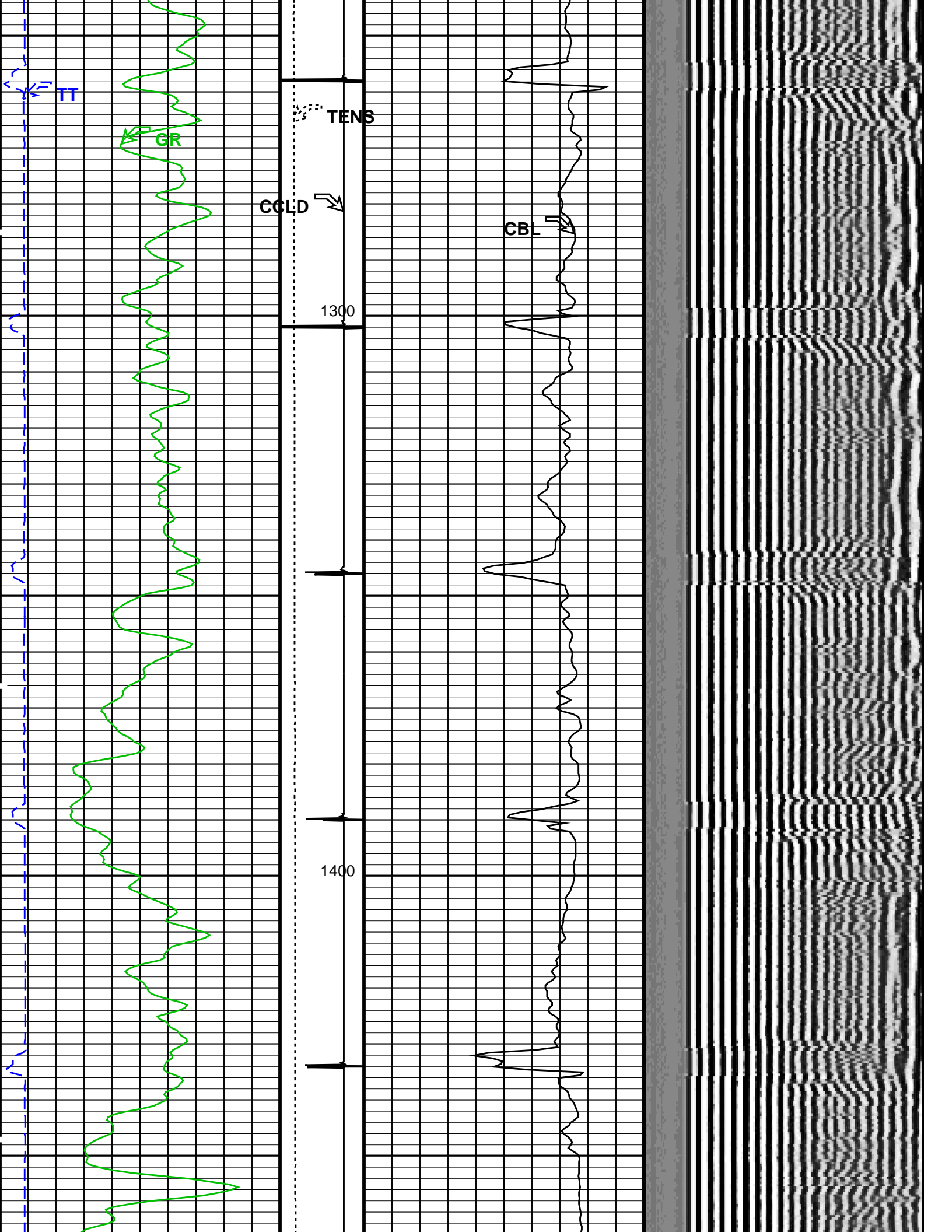


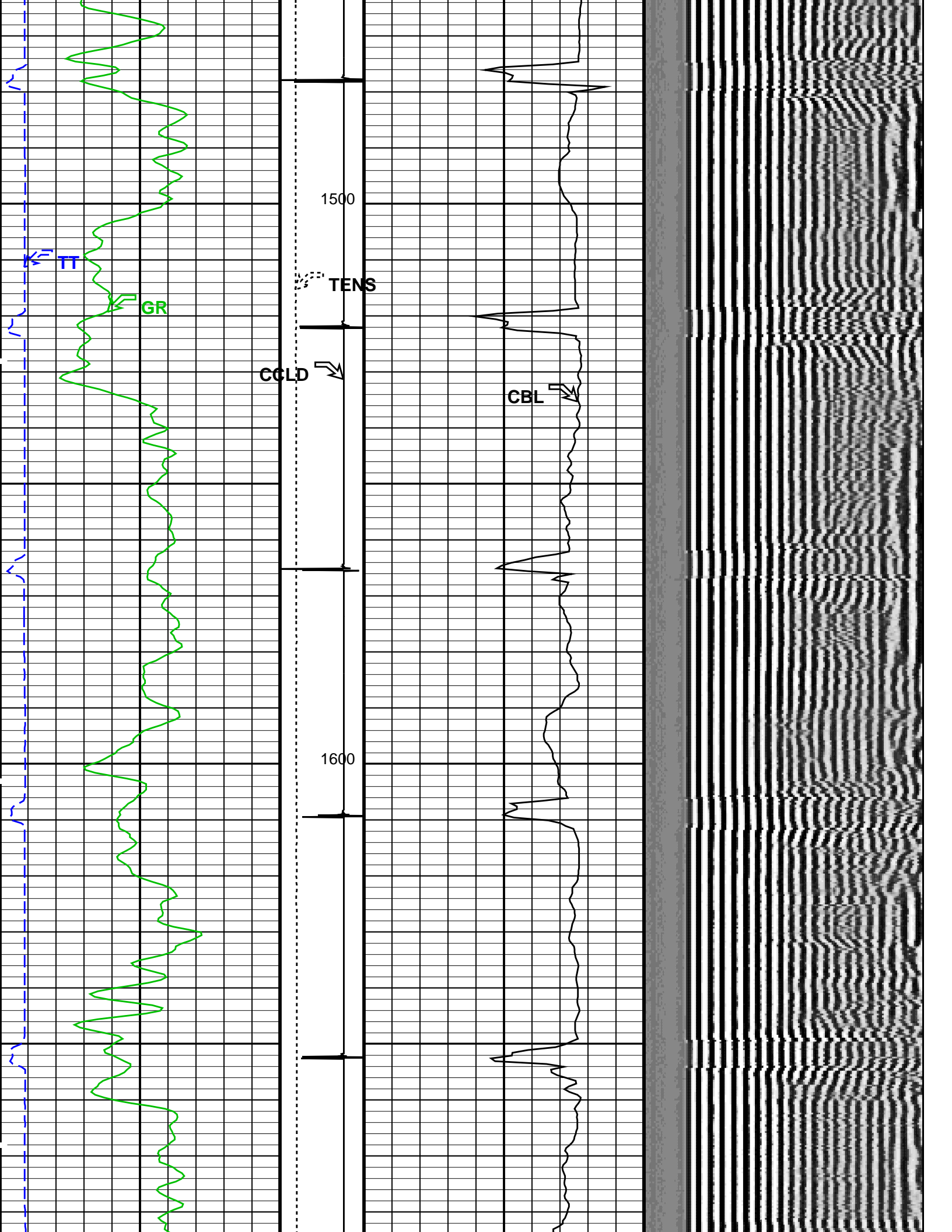


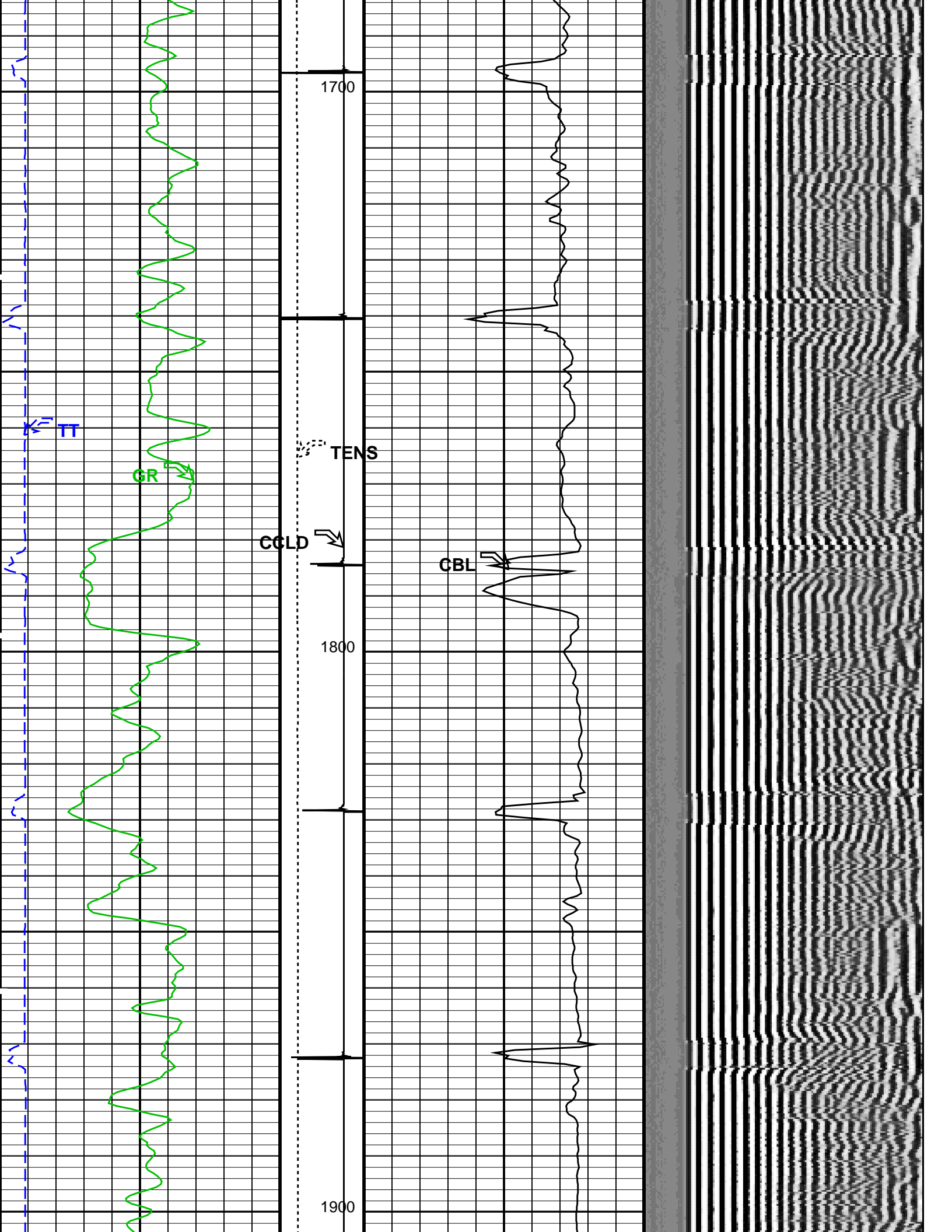


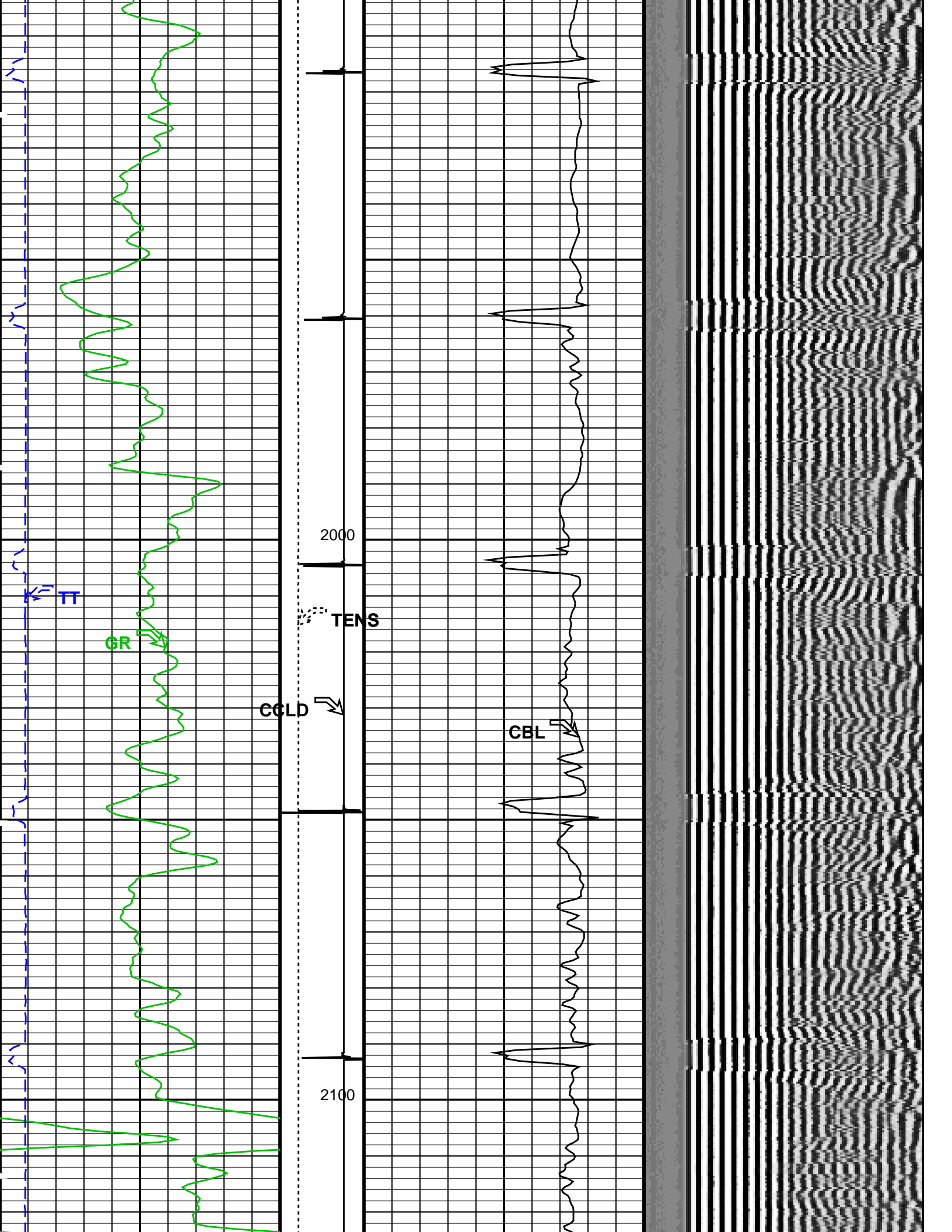


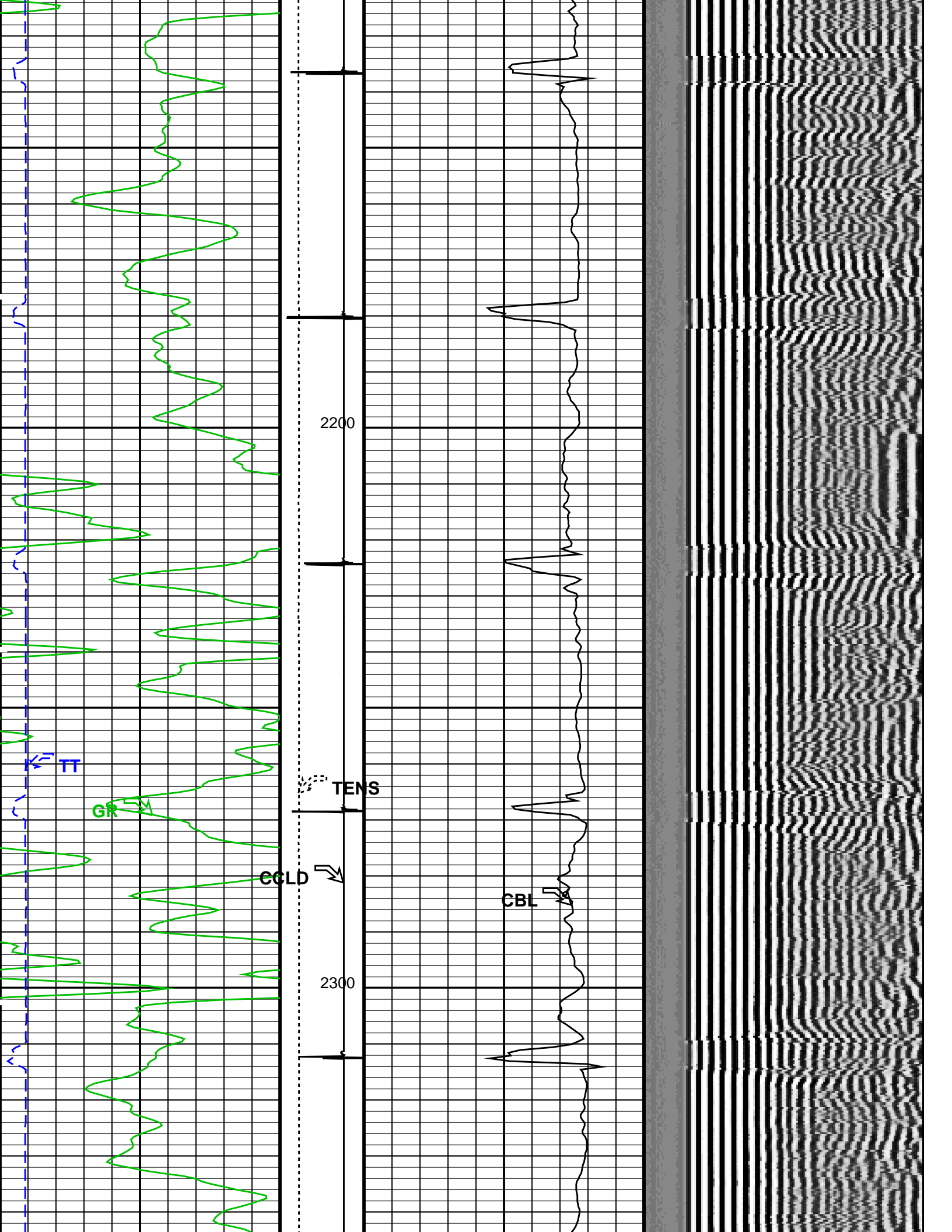


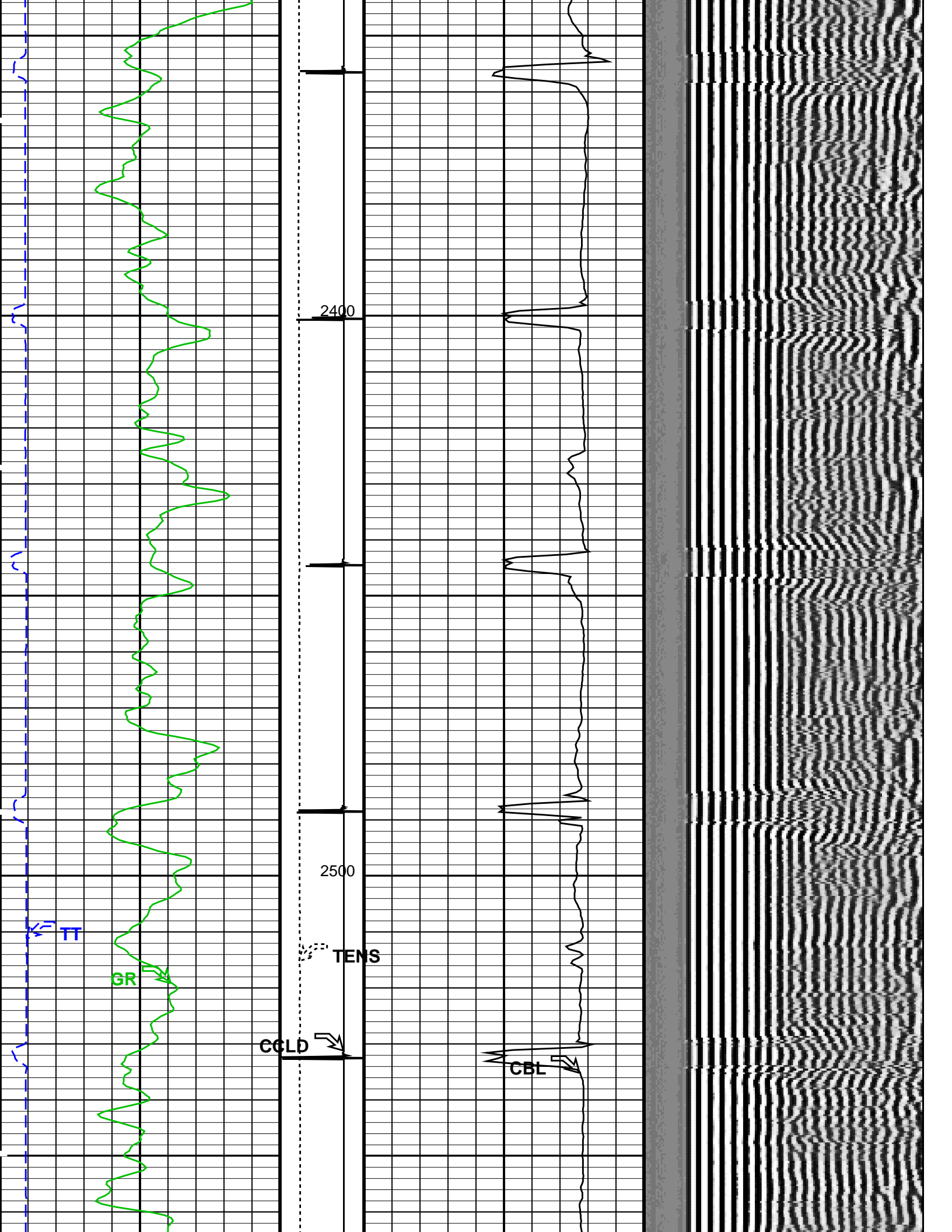


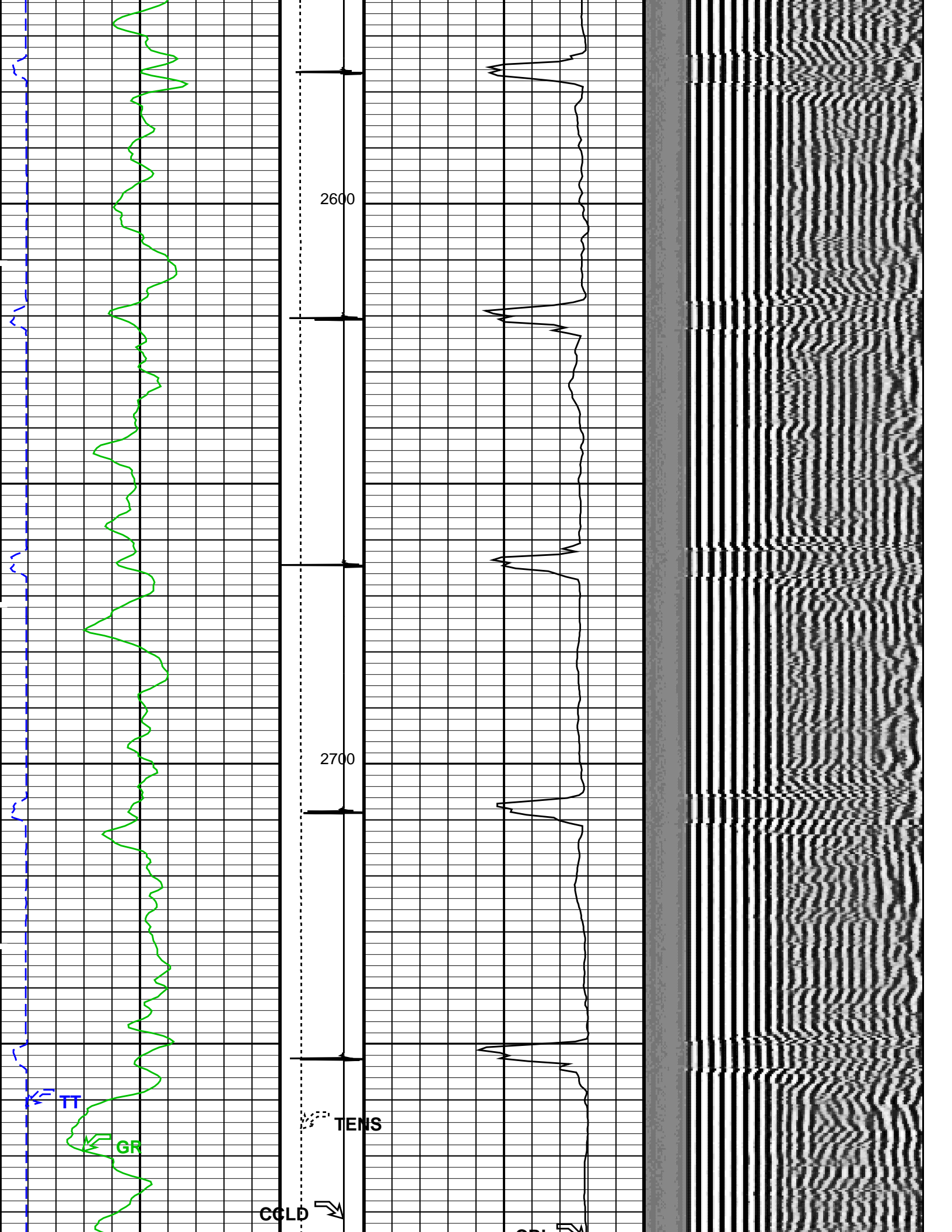


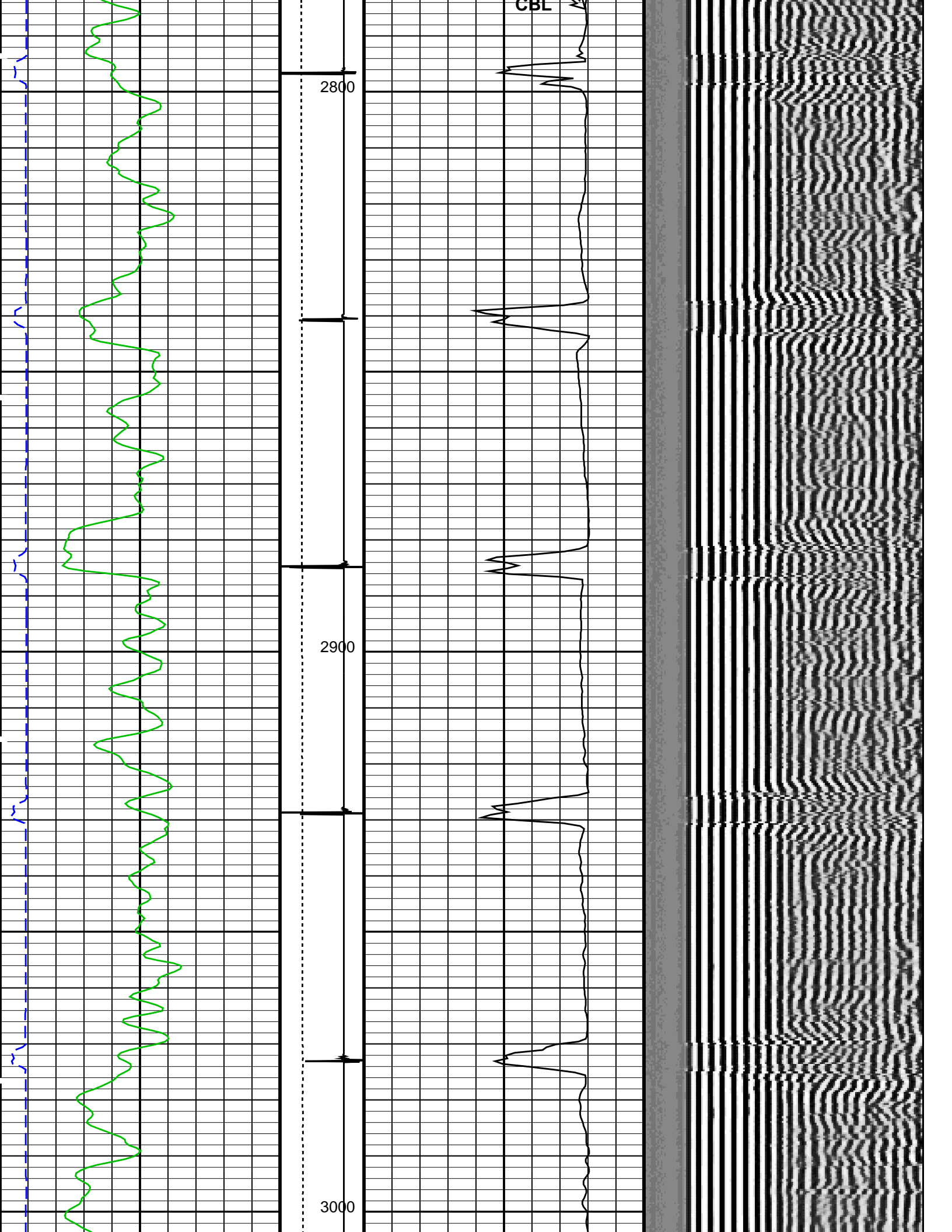


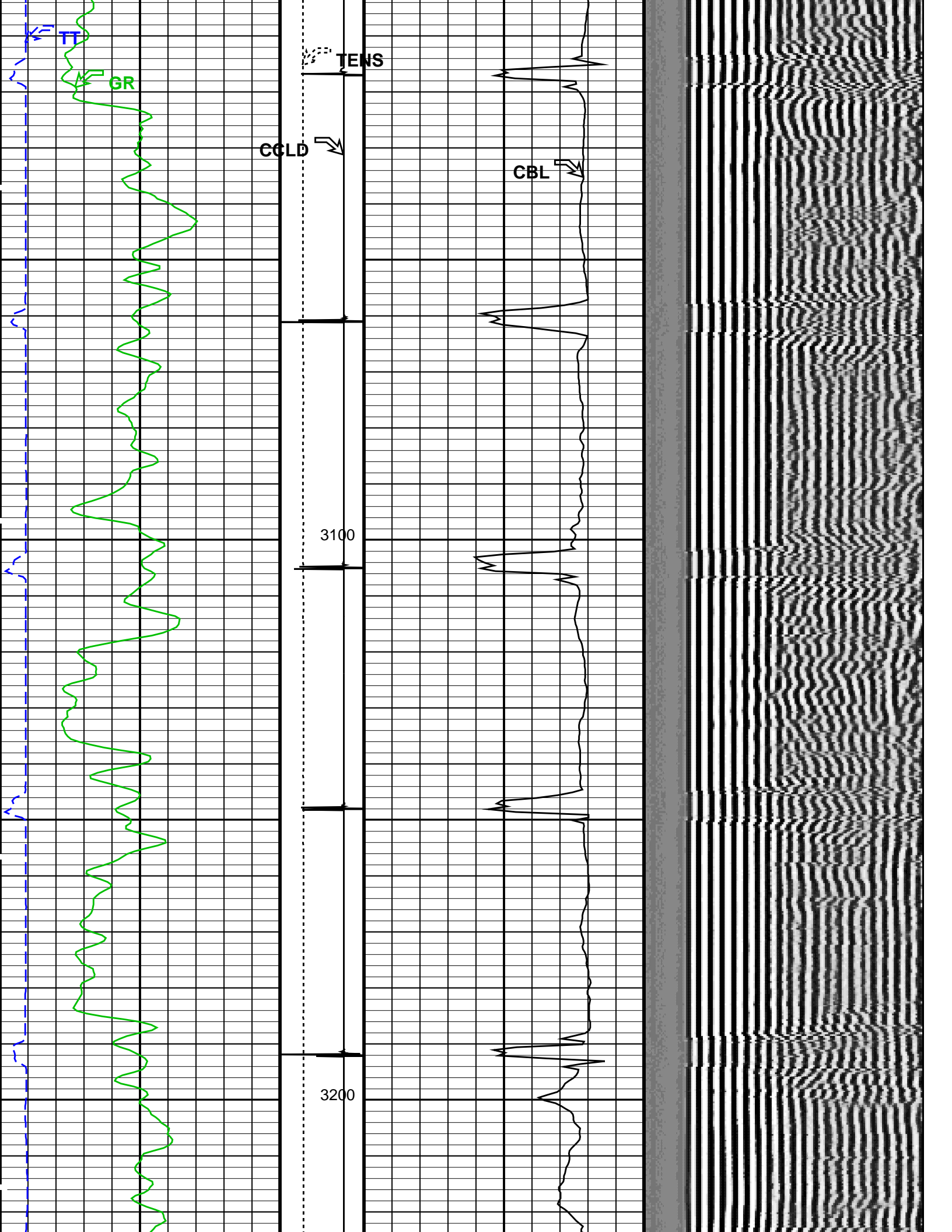


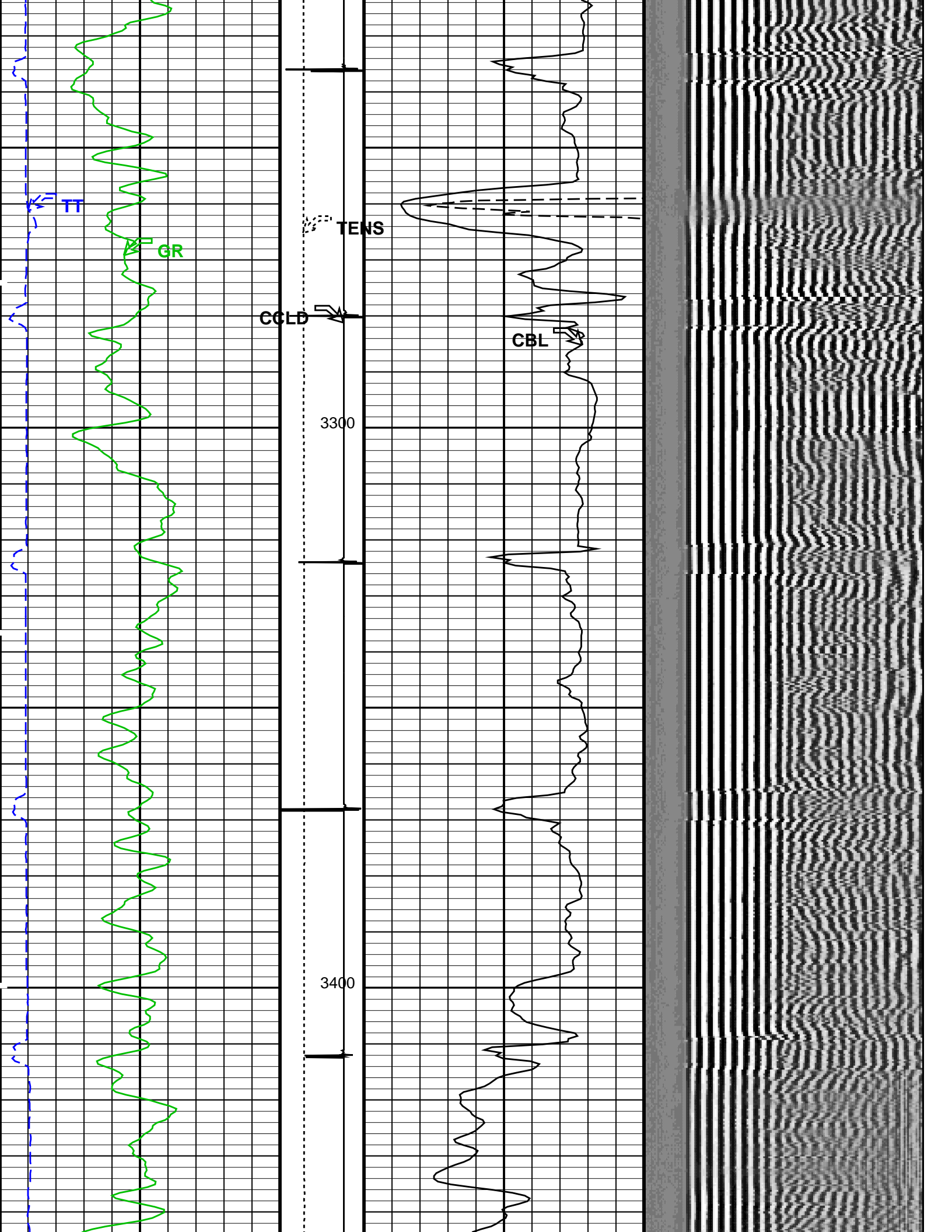


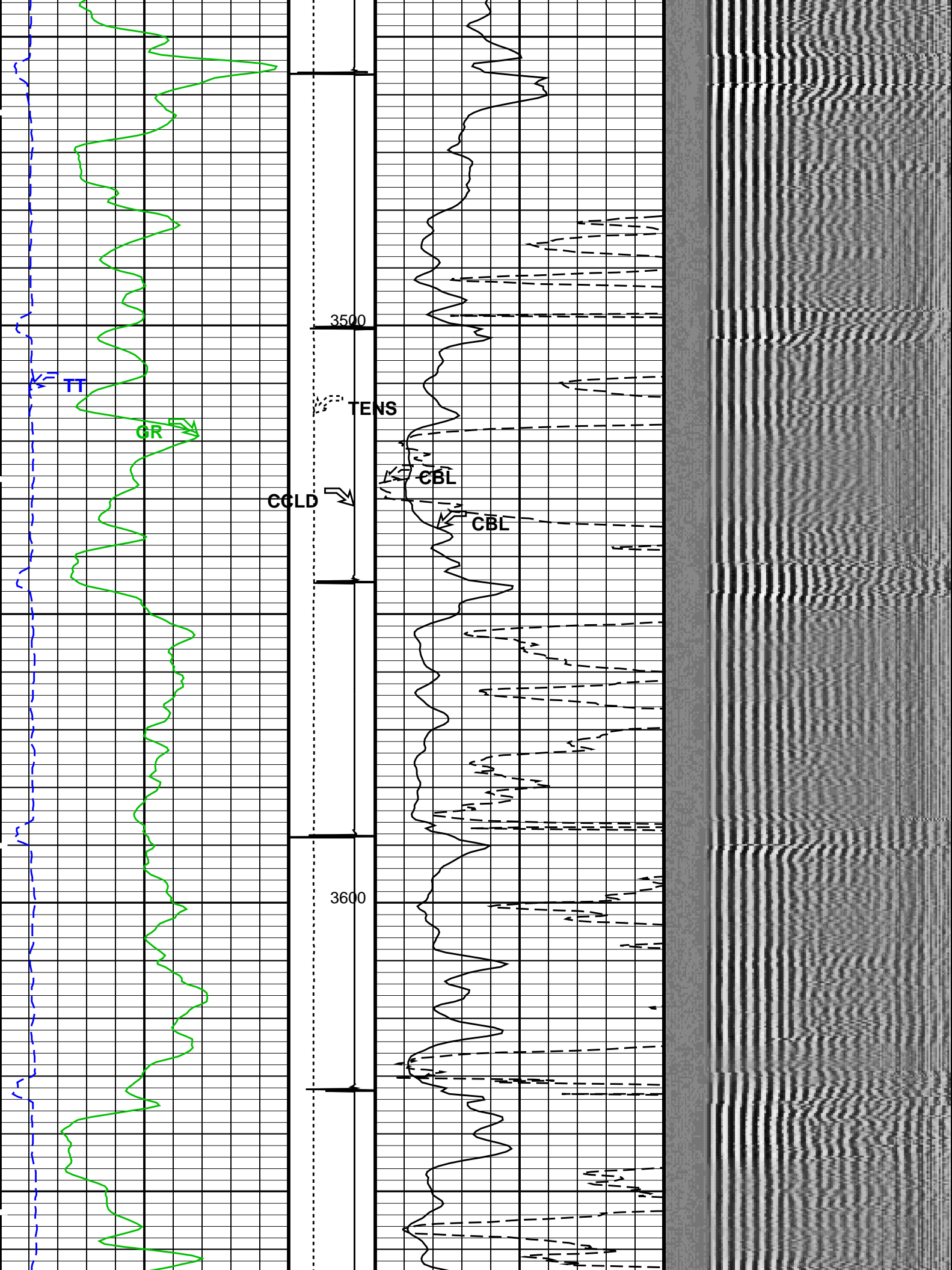


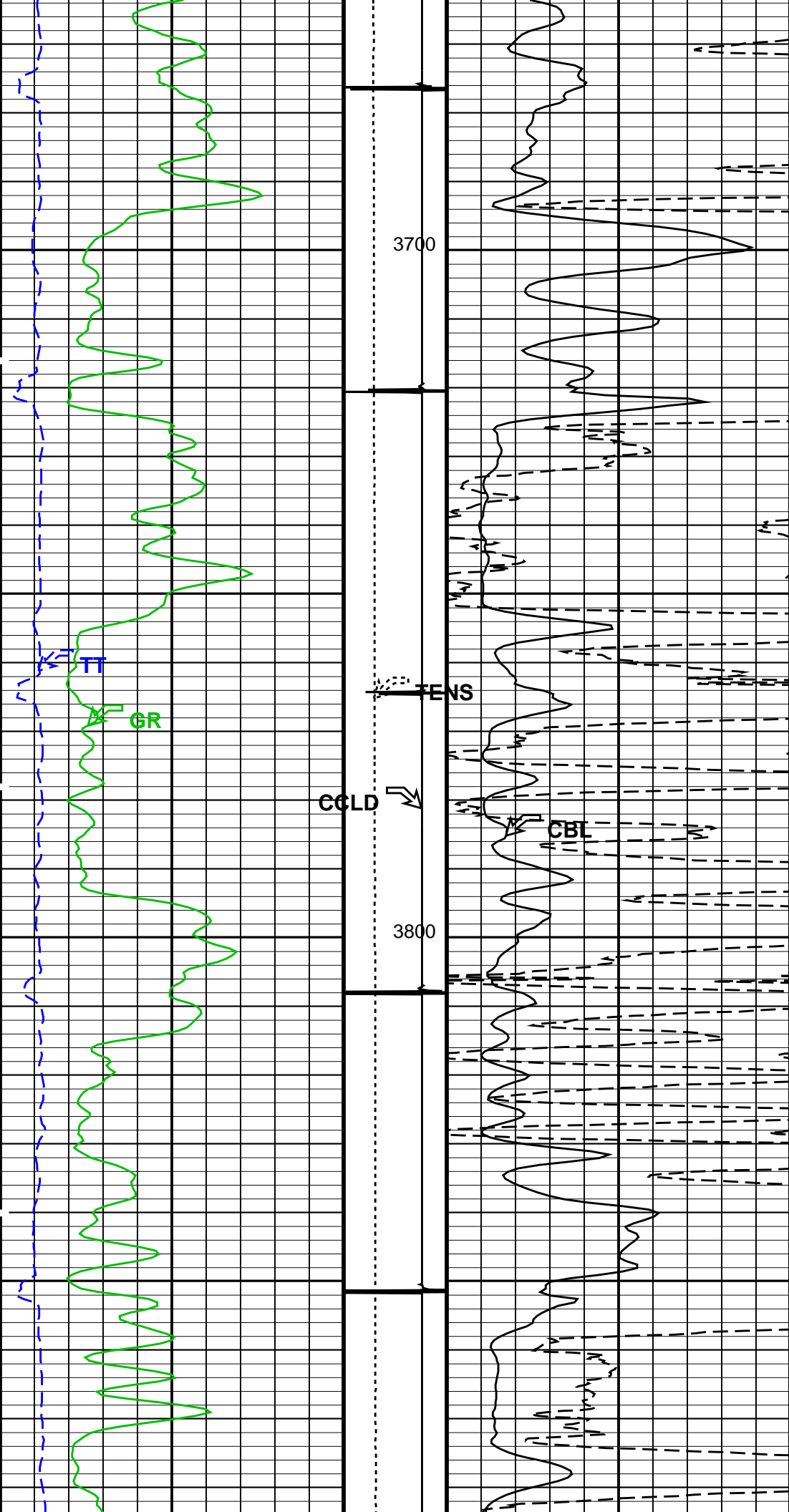


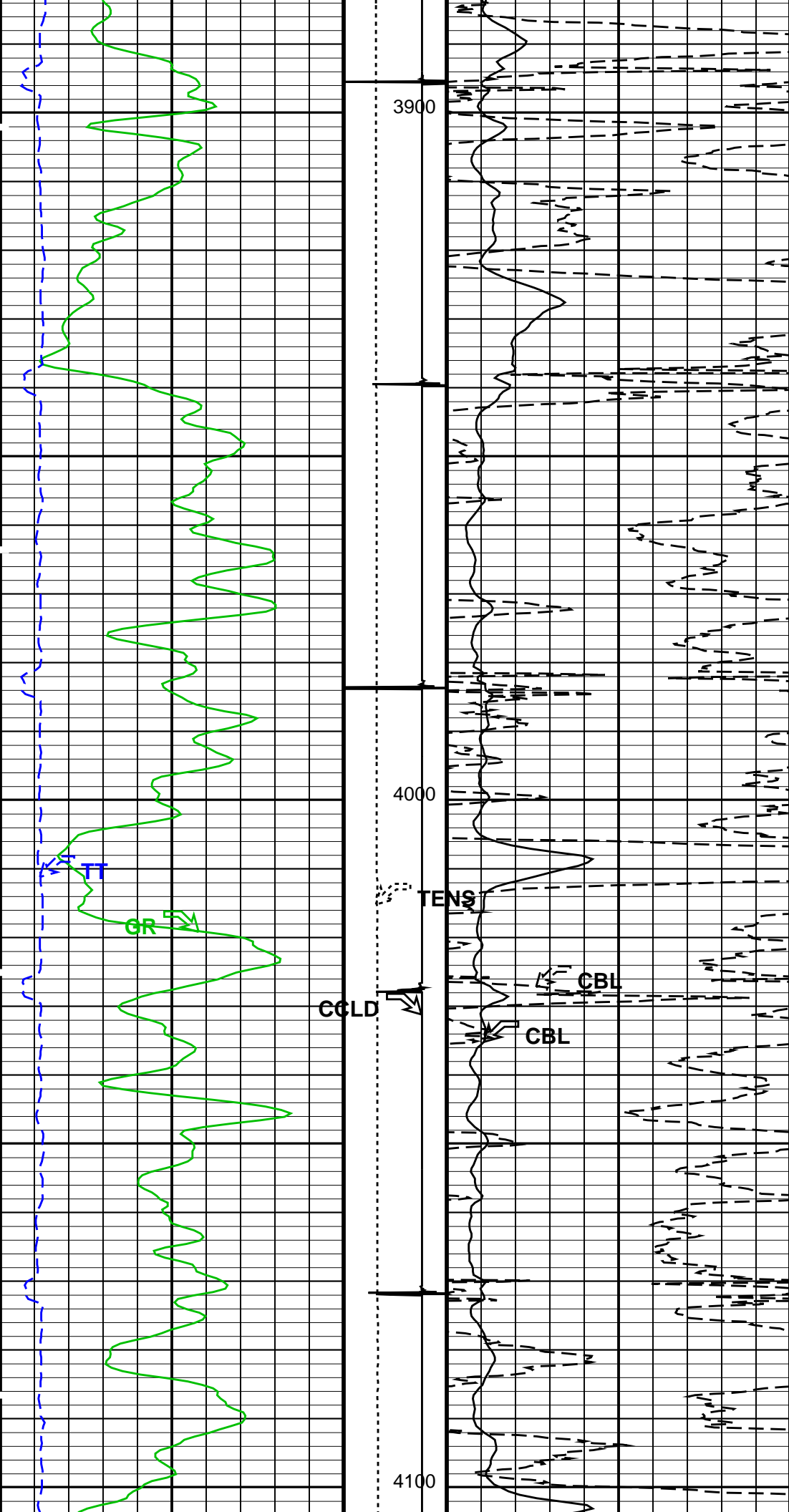


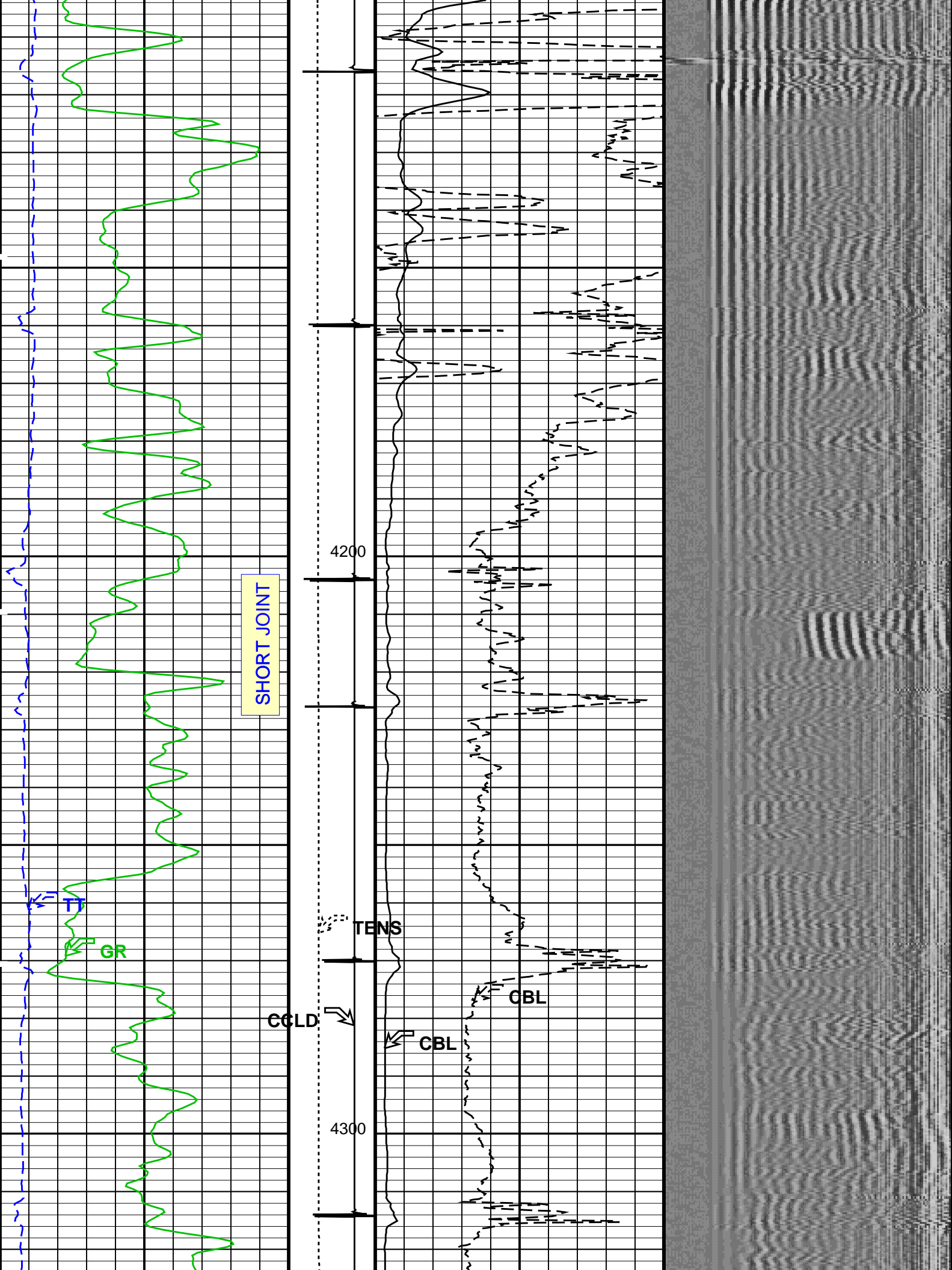


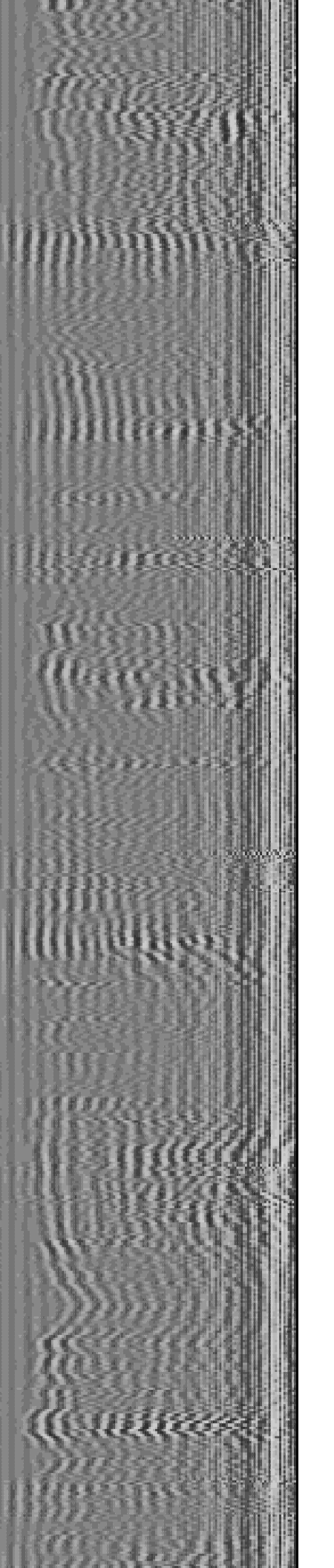
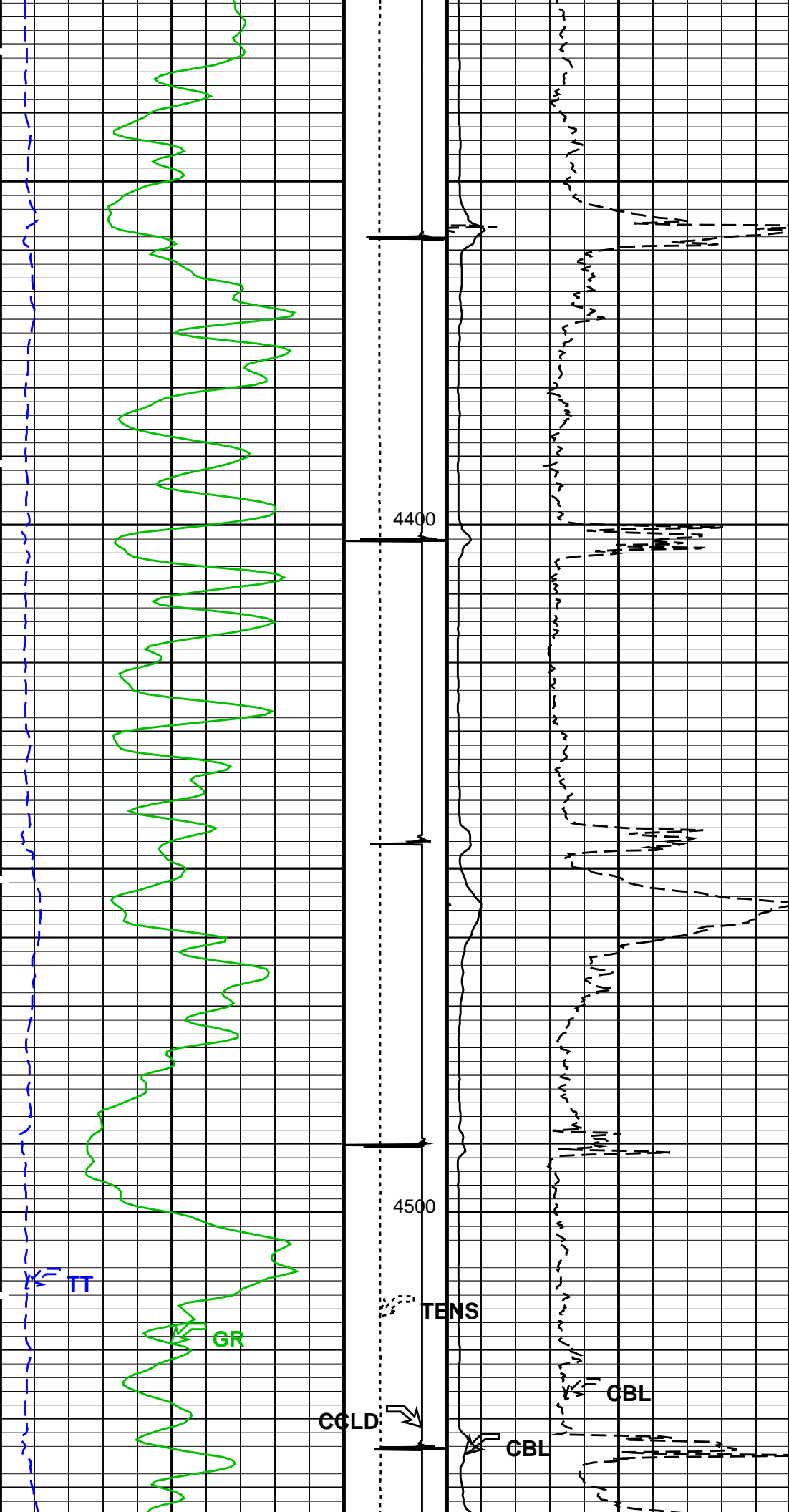


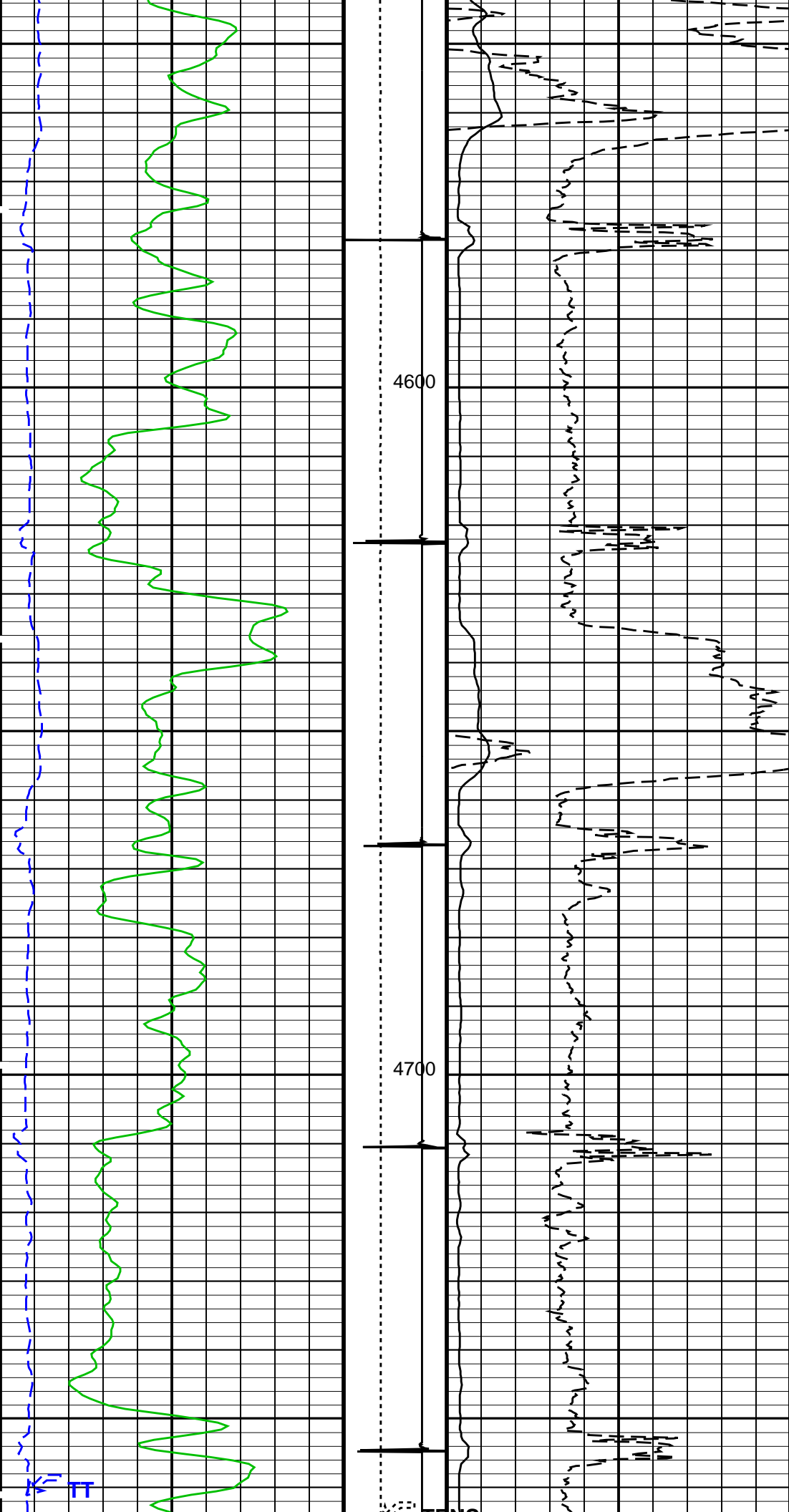


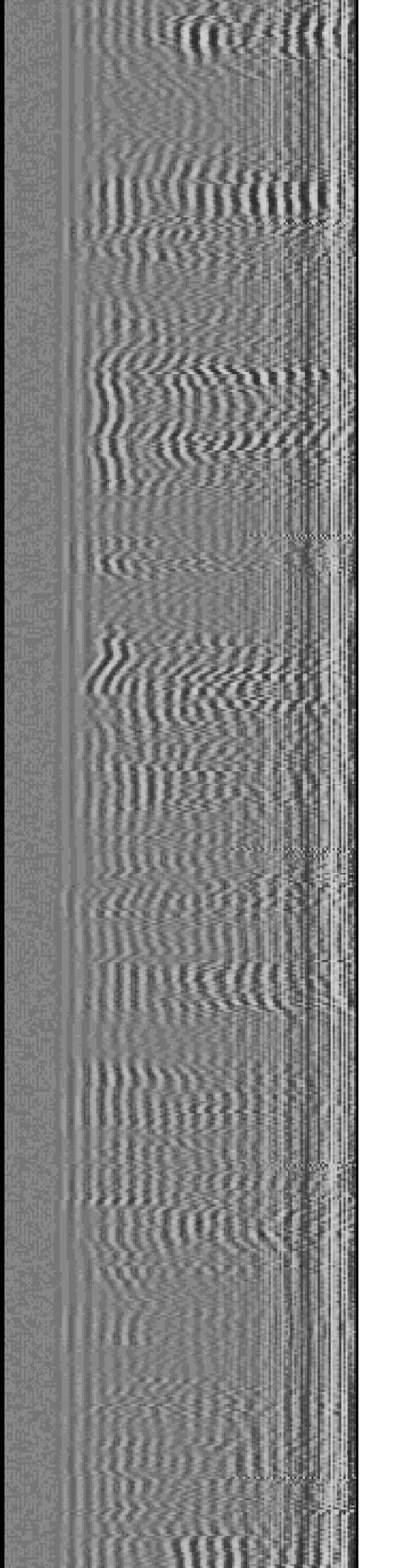
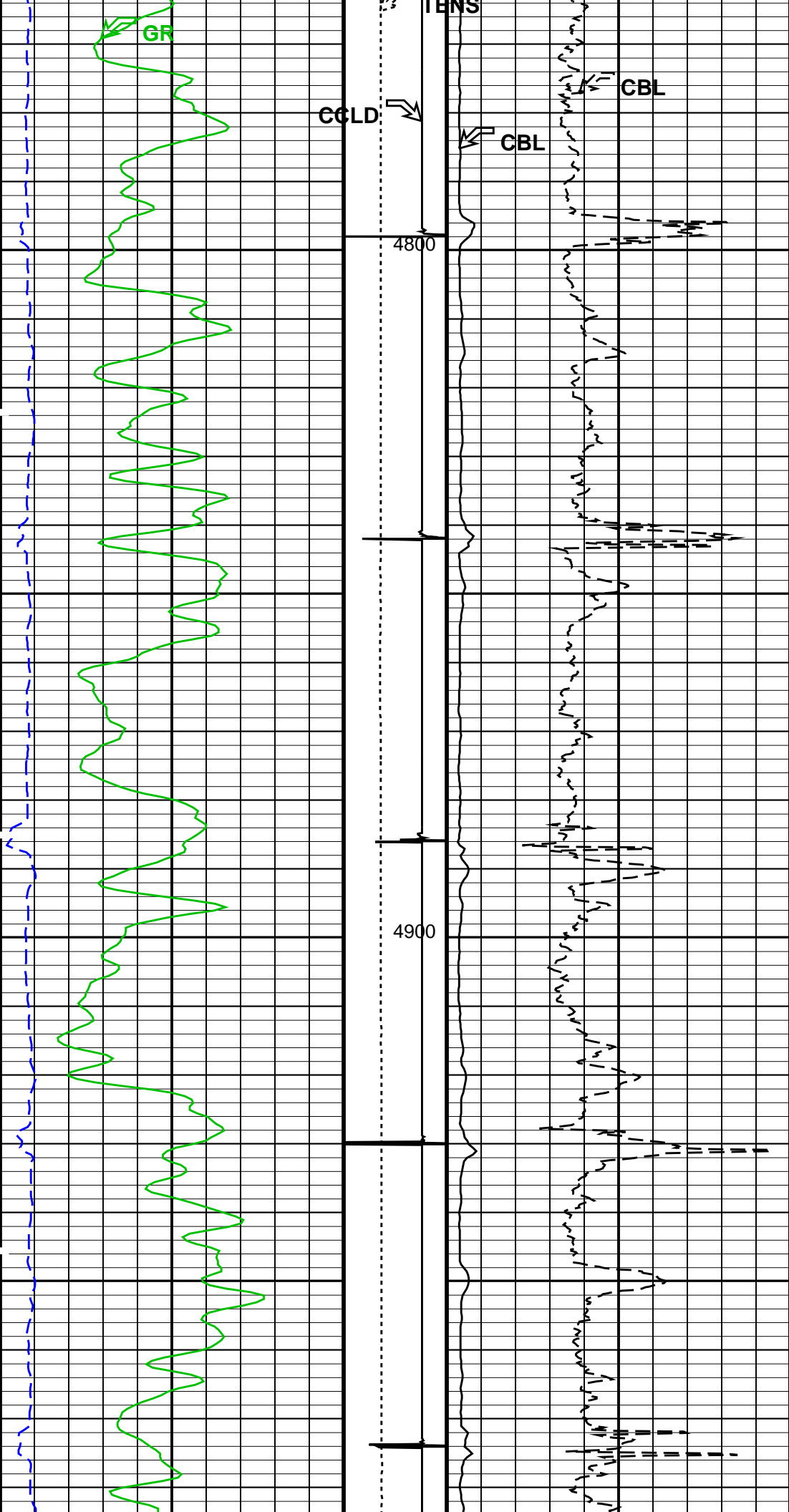


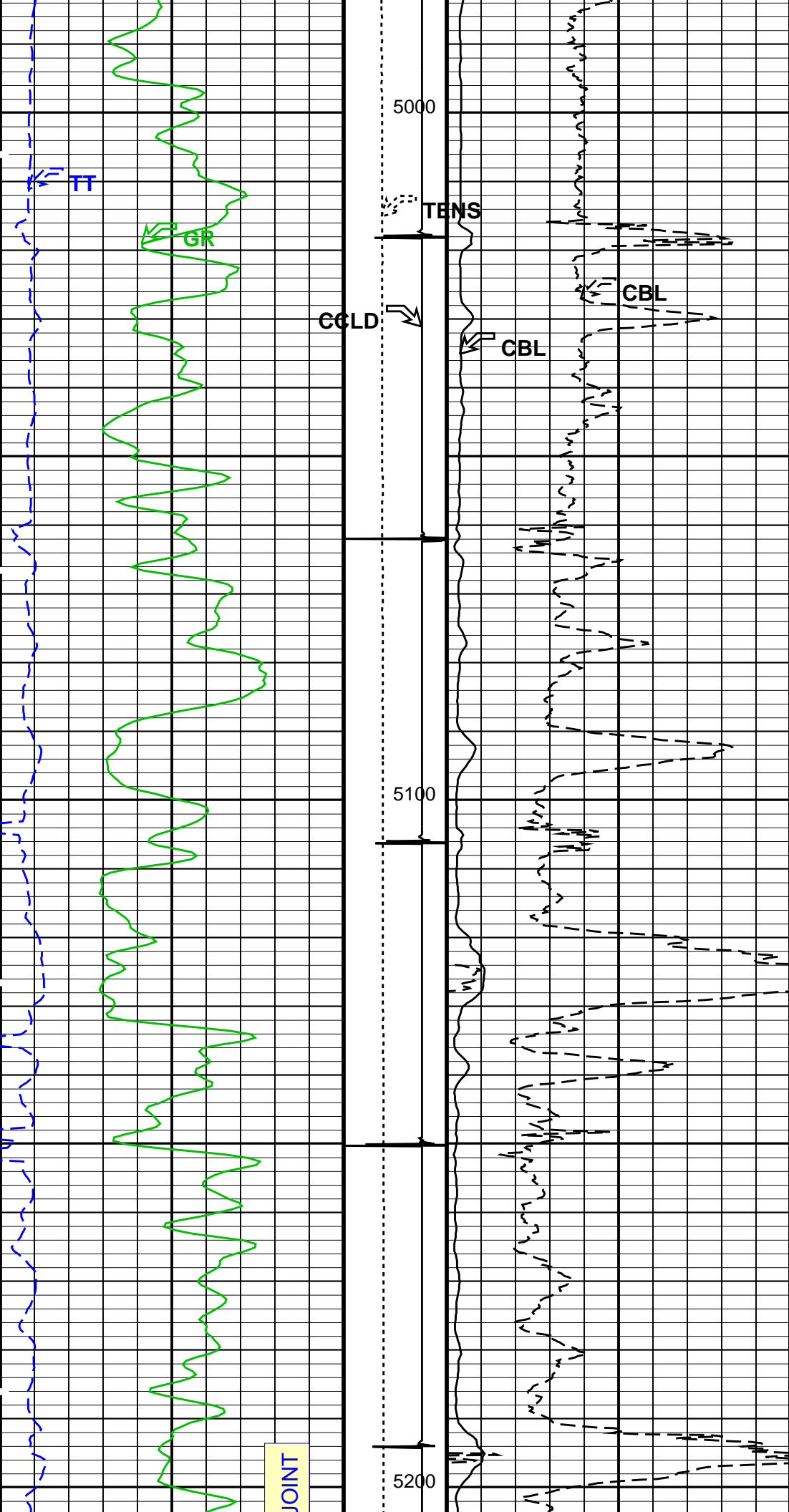




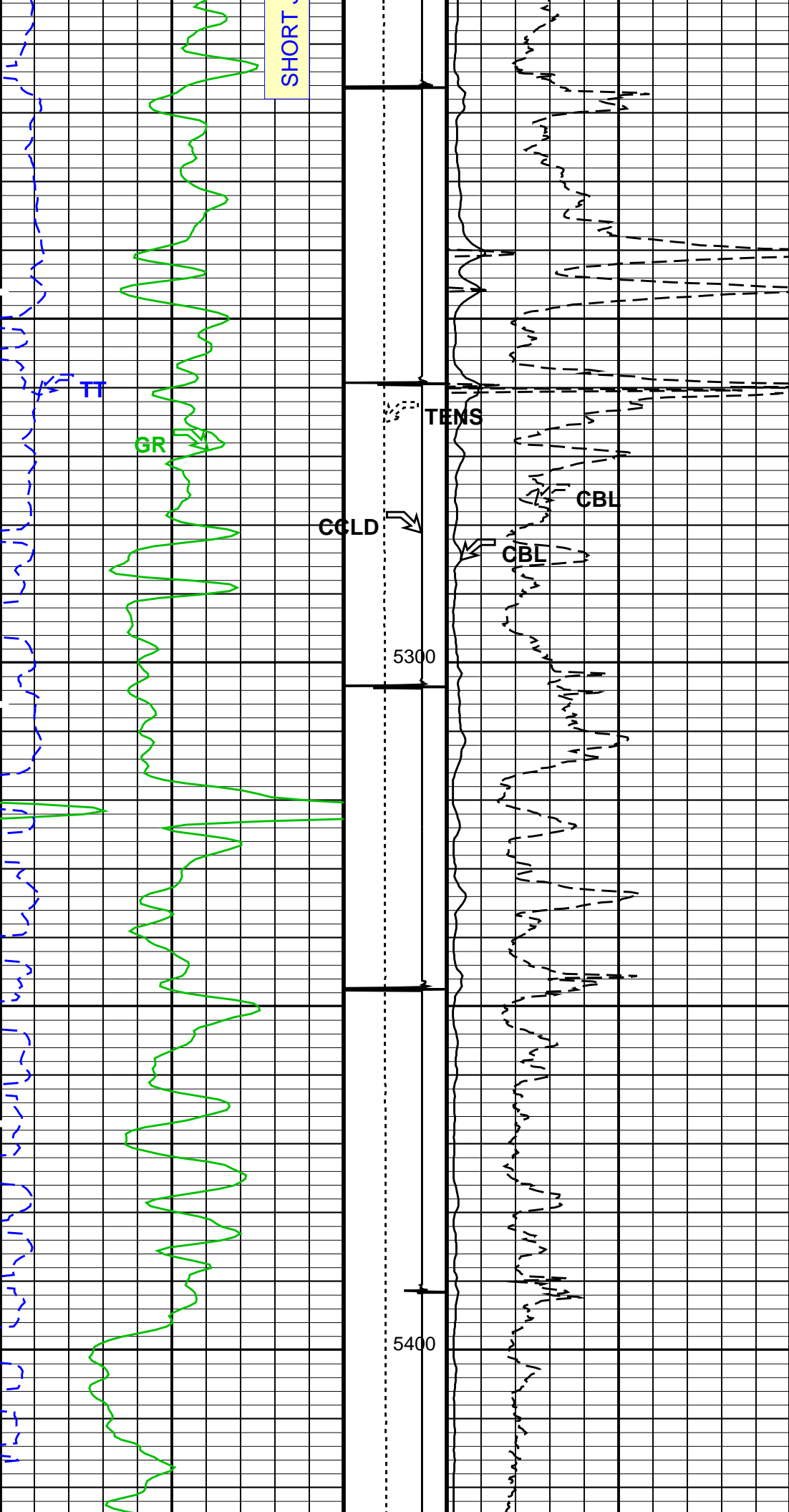


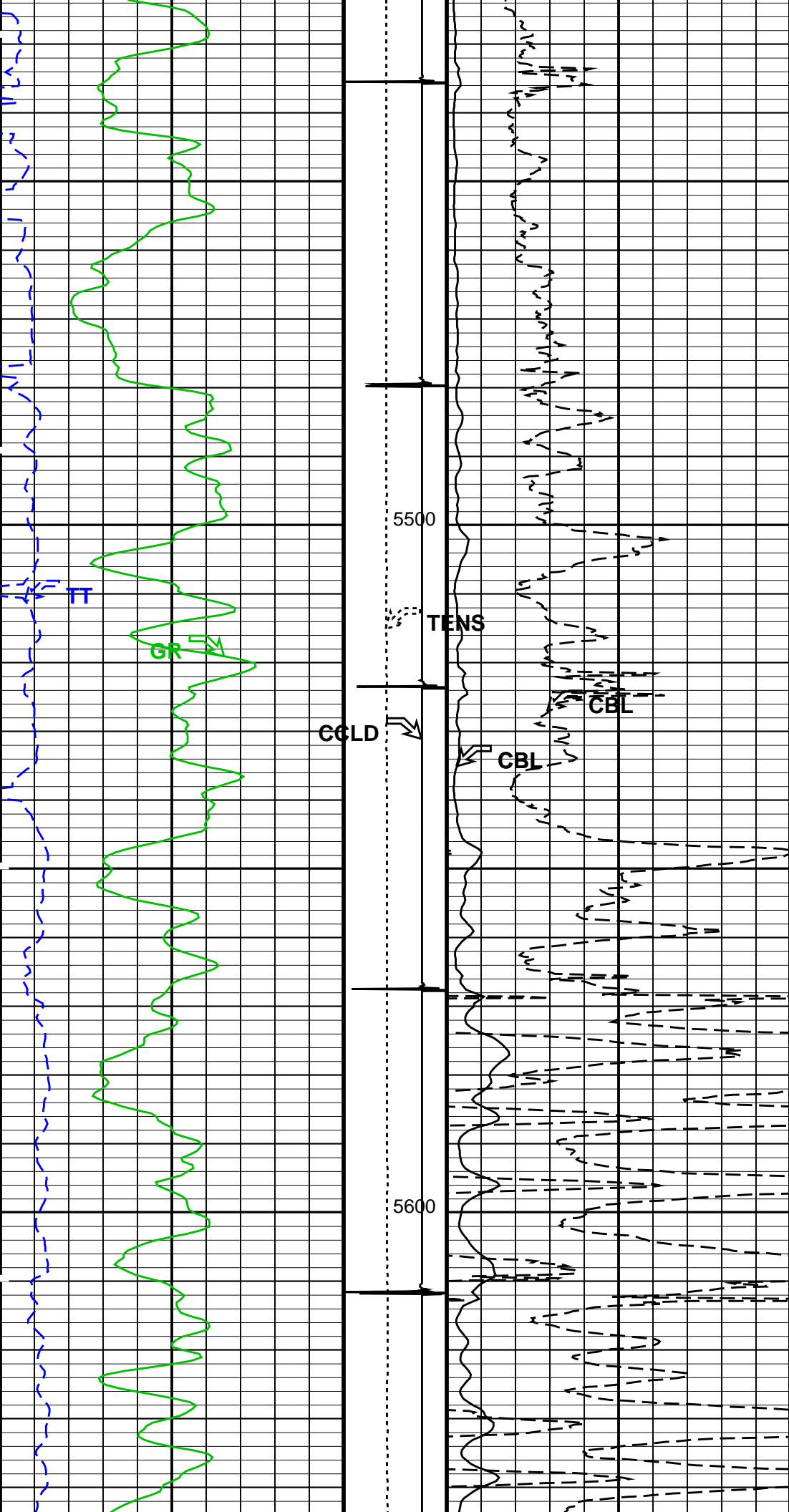


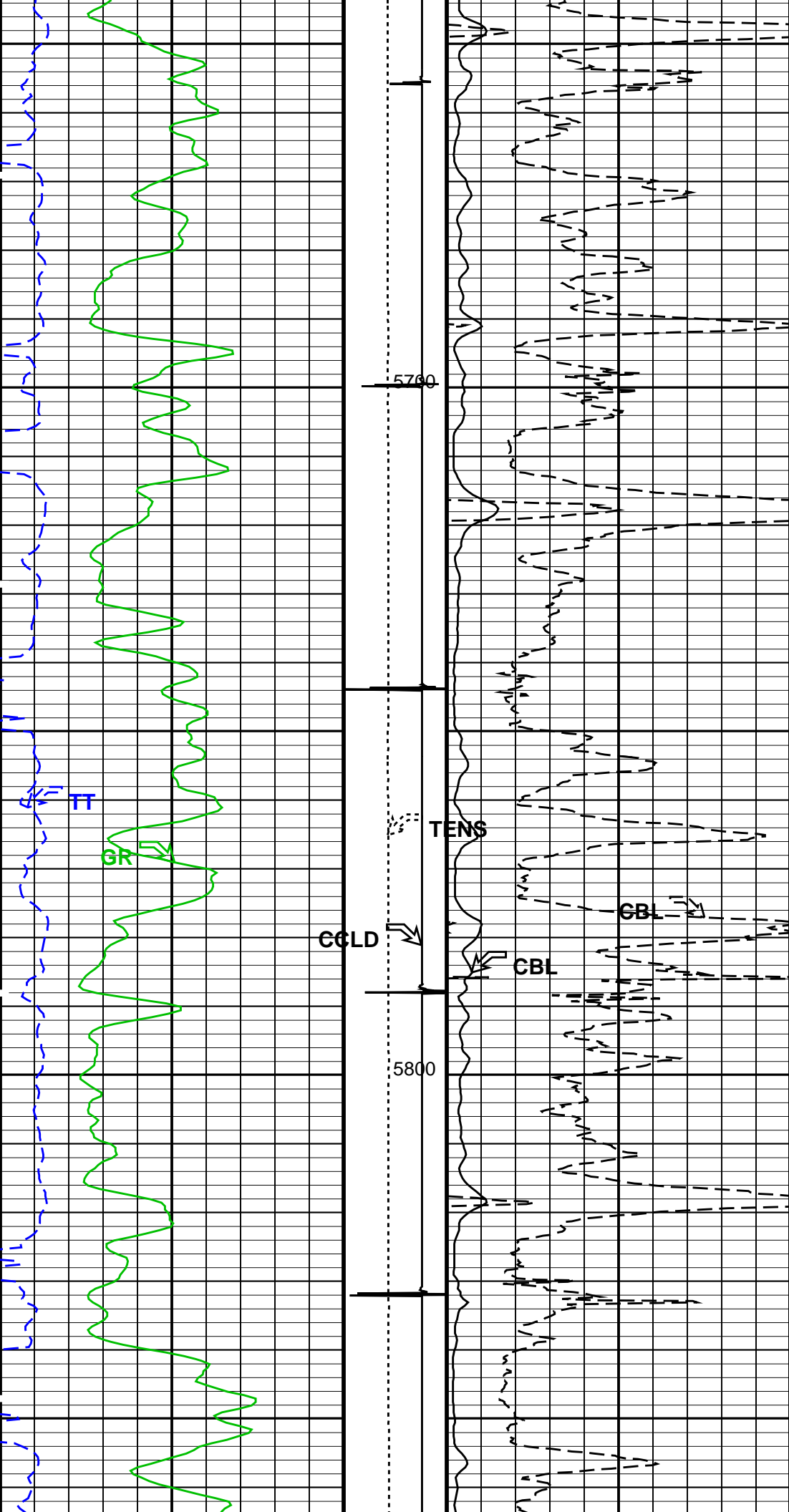


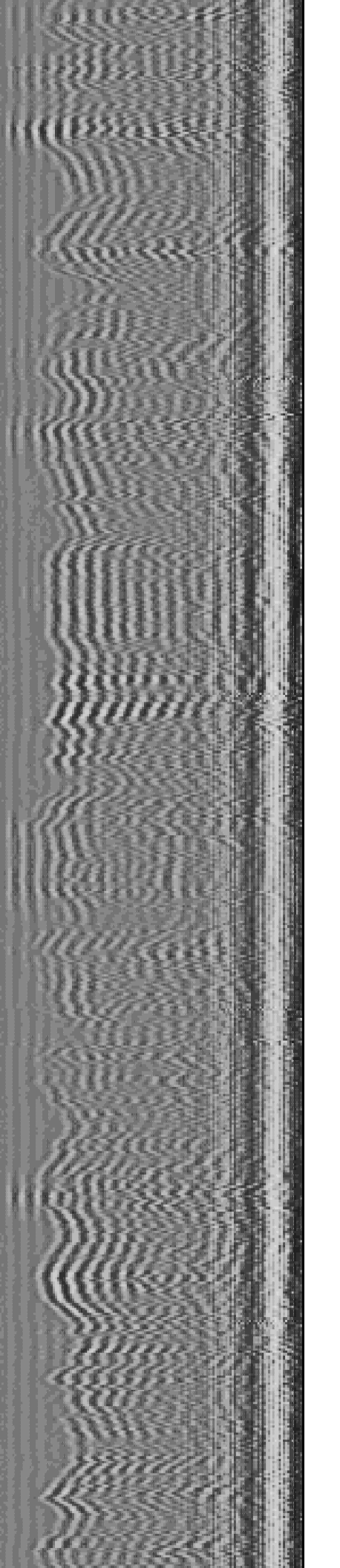
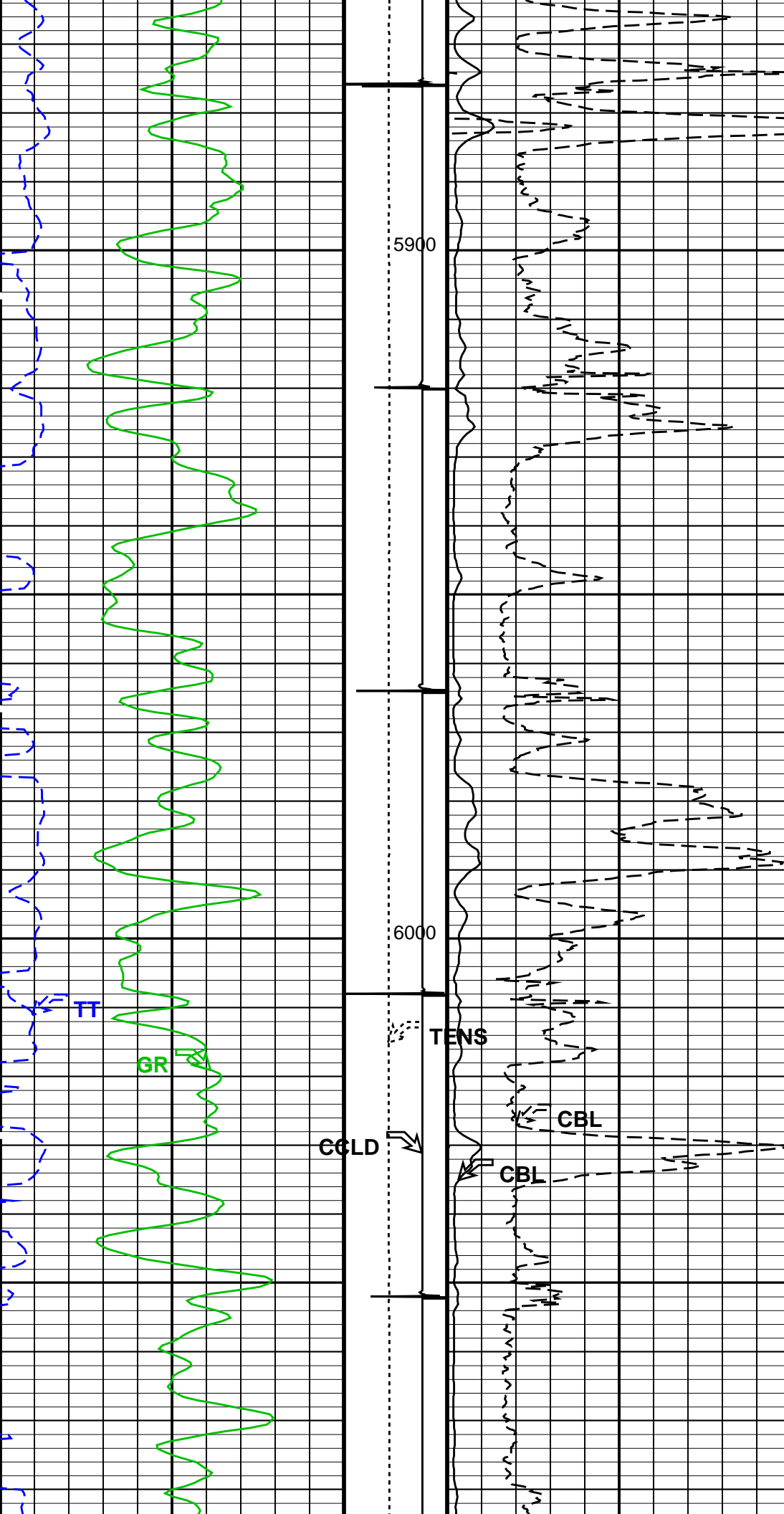


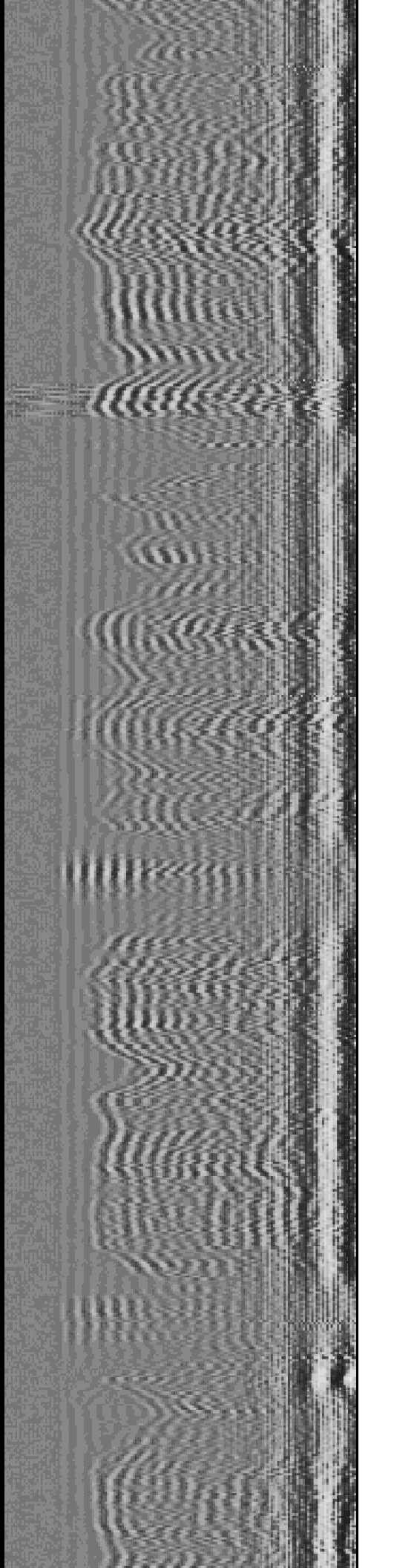
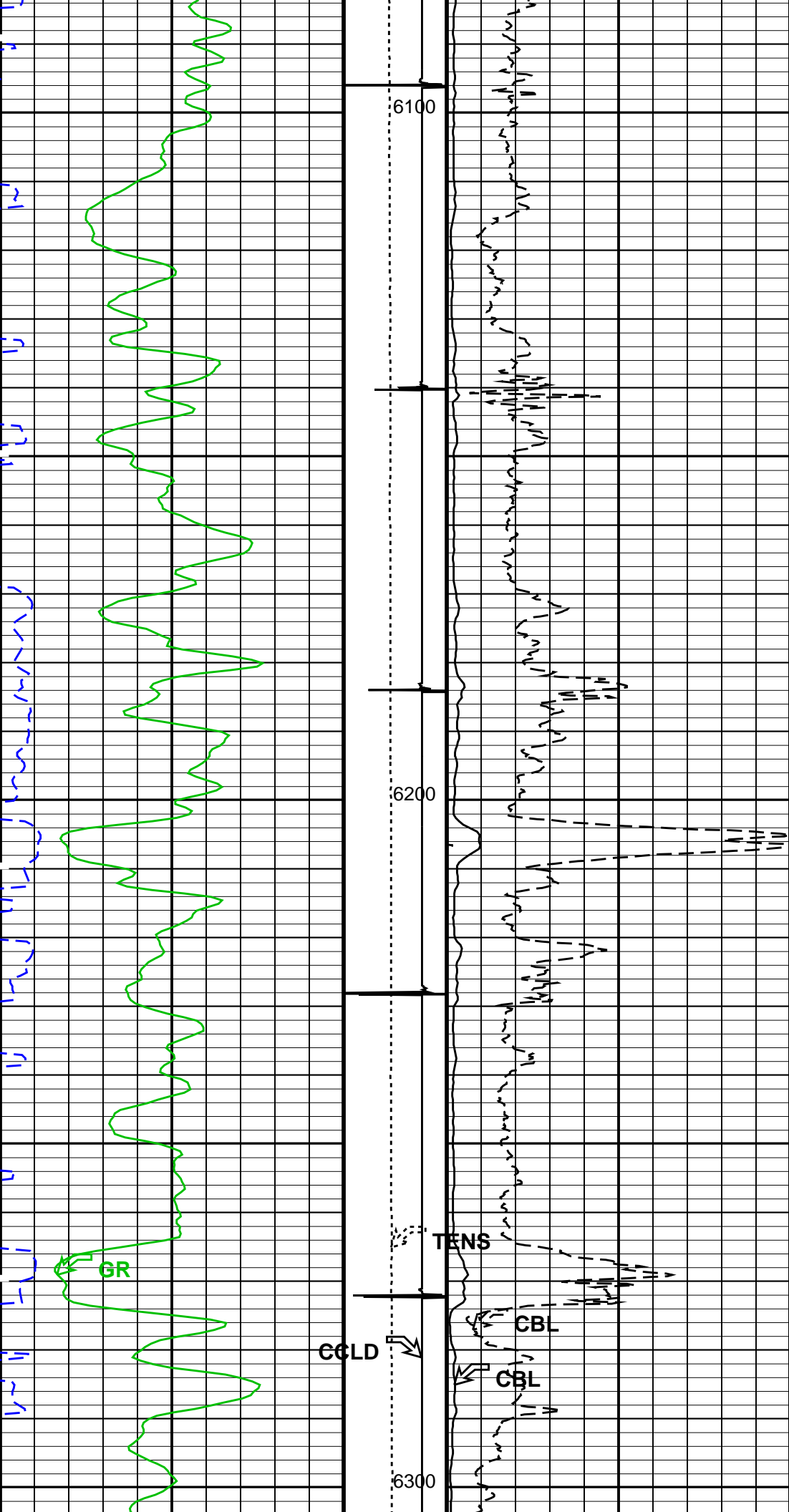
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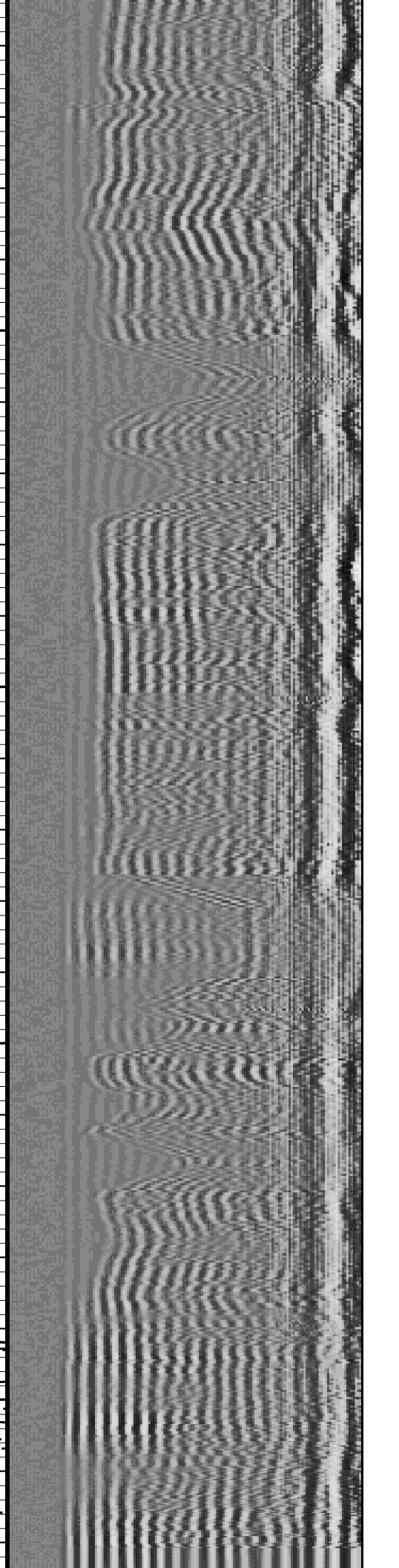
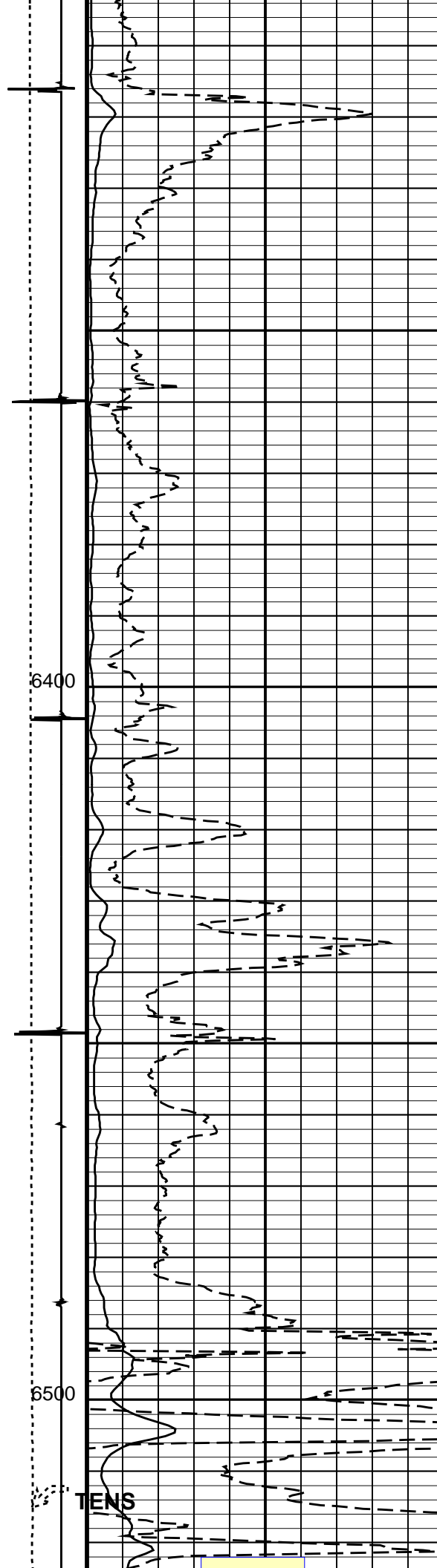
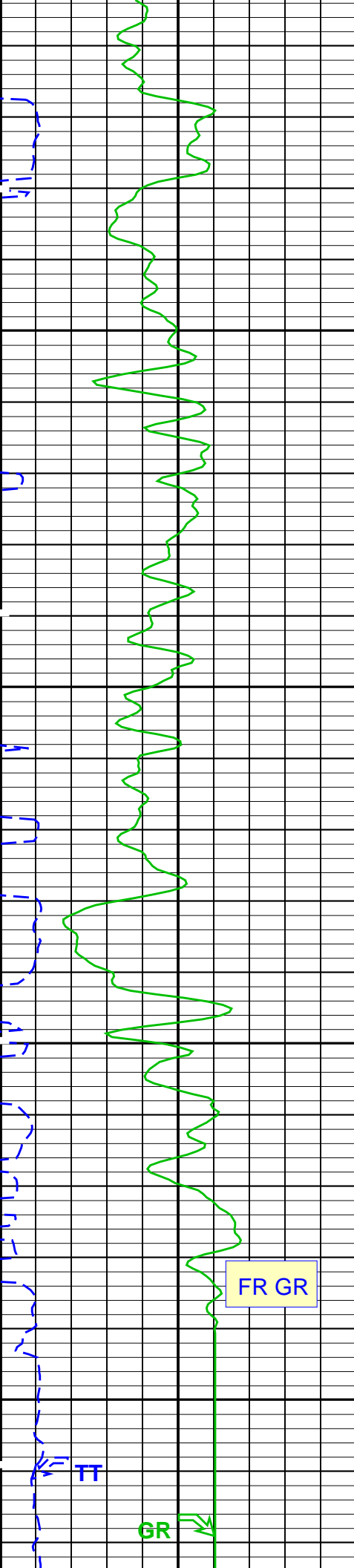


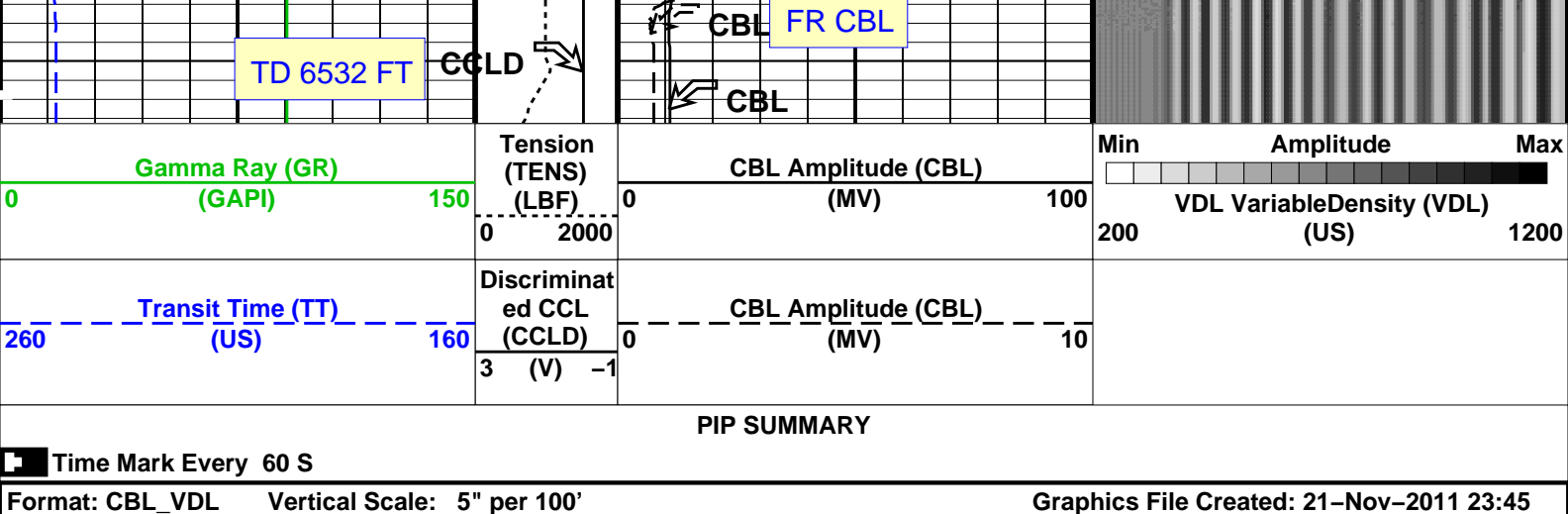












## OP System Version: 19C0-187

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
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
DORL	Depth Offset for Repeat Analysis	0.0	FT
TD	Total Depth	-50000	FT

## Output DLIS Files

DEFAULT	SCMT_RST_PSP_045LUP	FN:44	PRODUCER	21-Nov-2011 23:45
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Schlumberger

## REPEAT ANALYSIS

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC.	Well: FEDERAL 19-6BB (PA30)
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## Input DLIS Files

DEFAULT	SCMT_RST_PSP_044PUP	FN:43	PRODUCER	21-Nov-2011 23:39	5355.5 FT	4978.0 FT
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## Output DLIS Files

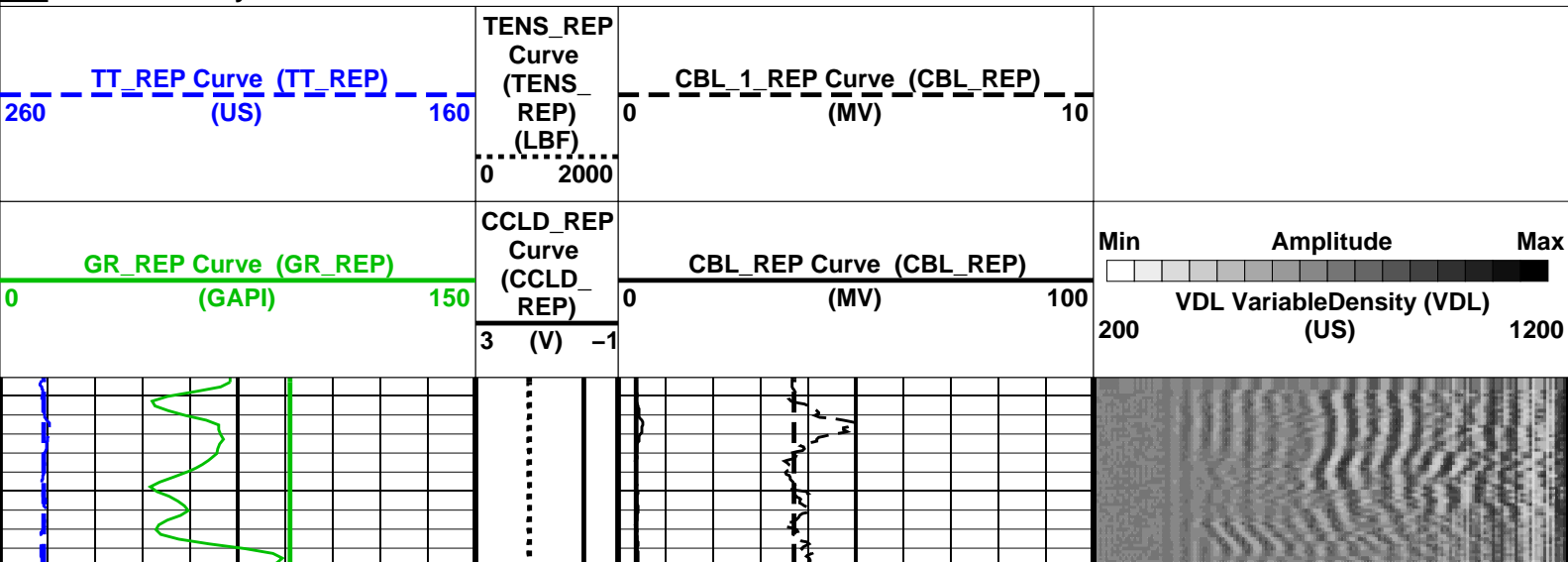
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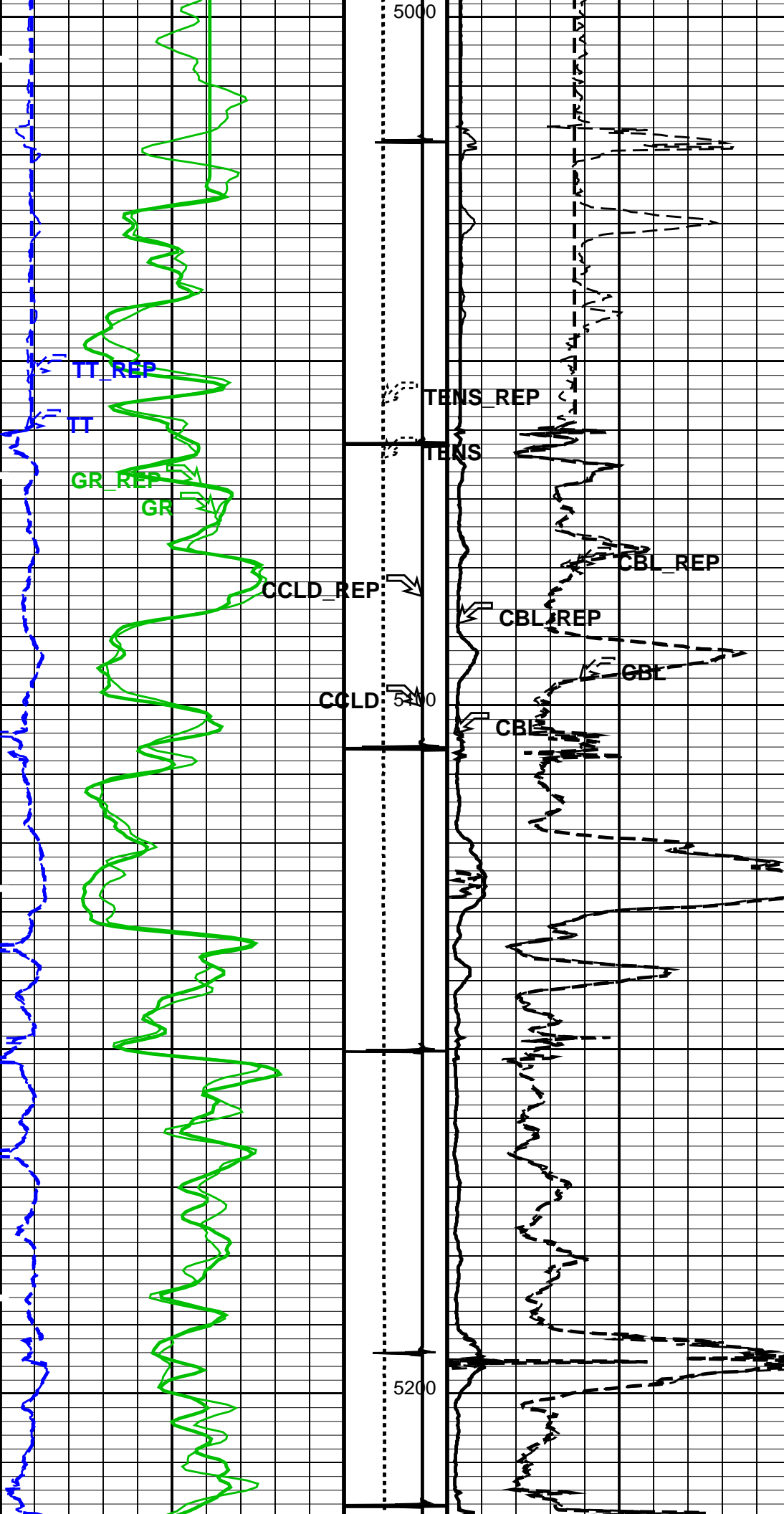
## OP System Version: 19C0-187

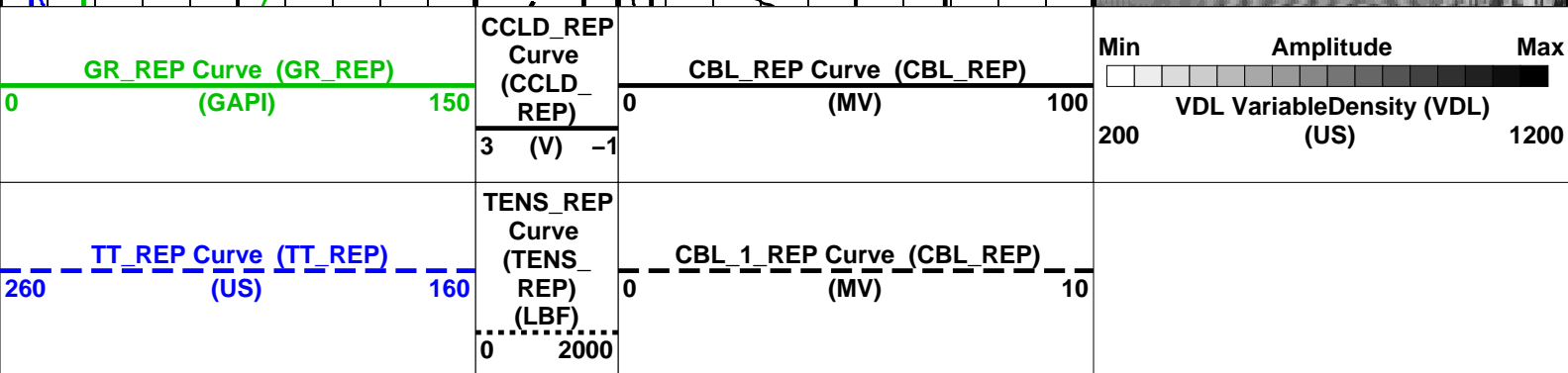
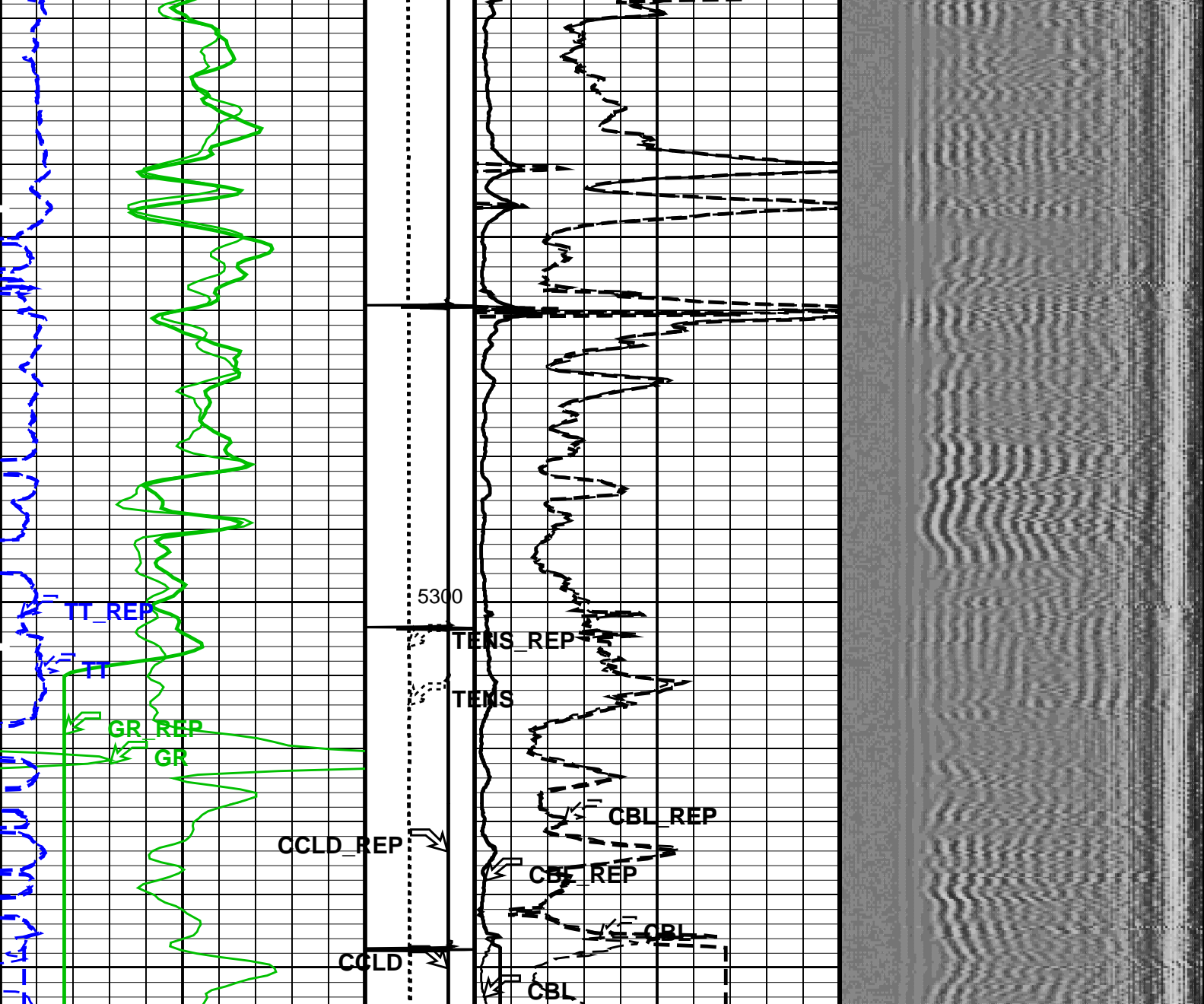
SCMT-CB PSPT	SRPC-5095-H2-2011-OP19_b 19C0-187	RST-C	SRPC-5095-H2-2011-OP19_b
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### PIP SUMMARY

Time Mark Every 60 S







# PIP SUMMARY

Time Mark Every 60 S

Format: CBL\_VDL\_REP Vertical Scale: 5" per 100'

Graphics File Created: 21-Nov-2011 23:45

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>>>

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Date of Master Calibration	17-JAN-2011		
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MAP 8 Correction Factor	0.233552		

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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
DORL	Depth Offset for Repeat Analysis	0.0	FT
TD	Total Depth	-50000	FT

Input DLIS Files						
DEFAULT	SCMT_RST_PSP_044PUP	FN:43	PRODUCER	21-Nov-2011 23:39	5355.5 FT	4978.0 FT
Output DLIS Files						
DEFAULT	SCMT_RST_PSP_045LUP	FN:44	PRODUCER	21-Nov-2011 23:45		

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 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: 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 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: PARACHUTE

Well: PAD PA30

Run date: 21–Nov–2011

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: PARACHUTE

Well: PAD PA30

Run date: 21–Nov–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

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

**Schlumberger**

Well: **FEDERAL 19-16BB (PA30)**  
Field: **PARACHUTE**  
County: **GARFIELD**  
State: **COLORADO**

CEMENT BOND LOG  
CBL – VDL  
GAMMA RAY – CCL