

Company: ENCANA OIL & GAS (USA) INC.

Well: MF 07C-16 (H17) 696
Field: NORTH PARACHUTE
County: GARFIELD

State: COLORADO

County: GARFIELD
Field: NORTH PARACHUTE
Location: SHL: SENE 1555' FNL 292' FEL
Well: MF 07C-16 (H17) 696
Company: ENCANA OIL & GAS (USA) INC.

CEMENT BOND LOG
CBL- VDL
GAMMA RAY - CCL

LOCATION

SHL: SENE 1555' FNL 292' FEL
BHL: SENE 2313' FNL 2402' FEL

Elev.: K.B. 5676.00 ft
G.L. 5654.00 ft
D.F. 5675.00 ft

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

GROUND LEVEL
Elev.: 5654.00 ft

22.00 ft above Perm. Datum

API Serial No.
05-045-18703-000C

Section
16

Township
6S

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 Date13-Apr-2011

Run NumberONE

Depth Driller8760 ft

Schlumberger Depth8680 ft

Bottom Log Interval8671 ft

Top Log Interval200 ft

Casing Fluid TypeWATER

Salinity

Density8.4 lbm/gal

Fluid Level30 ft

BIT/CASING/TUBING STRING

Bit Size8.750 in

From22 ft

To8760 ft

Casing/Tubing Size4.500 in

Weight11.6 lbm/ft

GradeE-80

From22 ft

To8732 ft

Maximum Recorded Temperatures240 degF

Logger On Bottom13-Apr-2011

Unit Number409

Recorded ByDAVID PATE

Witnessed BySCOTT PITT

20:09

Location

GRAND JUNCTION

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: 13-APR-2011 16:19:11

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-C	Type:	1-25ZT
Serial Number:	5873	Serial Number:	5033	Serial Number:	409
Calibration Date:	19-OCT-2010	Calibration Date:	21-MAR-201	Length:	11450 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	10051	Conveyance Method:	Wireline
Calibration Cable Type:	1-25P	Number of Calibration Points:	10	Rig Type:	LAND
Wheel Correction 1:	-6	Calibration RMS:	9		
Wheel Correction 2:	-5	Calibration Peak Error:	21		

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	165.00 FT
Rig Up Length At Bottom:	164.00 FT
Rig Up Length Correction:	1.00 FT
Stretch Correction:	6.00 FT
Tool Zero Check At Surface:	1.60 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

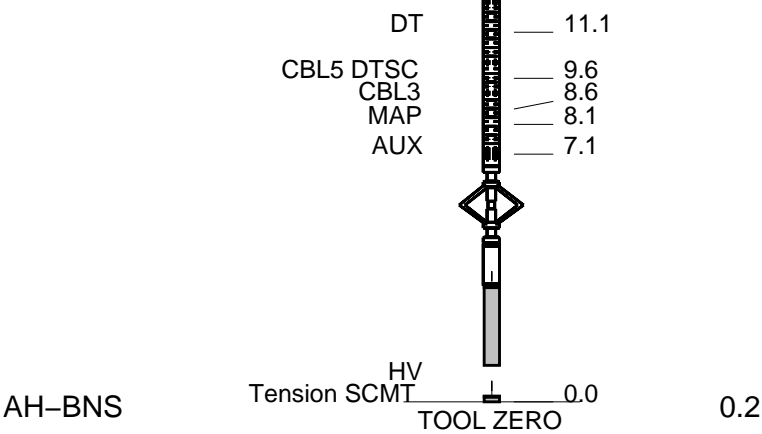
THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (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: RST OS2: OS3: OS4: OS5:	OTHER SERVICES2 OS1: OS2: OS3: OS4: OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
THIS IS THE FIRST RUN IN WELL.	
TOOL RAN AS PER TOOL SKETCH.	
TD TAGGED AT: 8680FT	
MAXIMUM RECORDED TEMPERATURE AT TD: 240 DEGF	
MAXIMUM RECORDED PRESSURE AT TD: 3115 PSIA	

DOWNHOLE EQUIPMENT			
MH-22			53.4
MH-22 410			
Detail MT			
AH-38	TelStatus		51.8
PSPT	CTEM		51.5
PSC-A 1921			51.5
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 298			
RSC-E 311			
RSS-A 440			
RSXH-A 493			
RSX-E 493			
	RSC-A Far		34.1
	RSC-A PNG		
	RSC-A Nea		
	RSX-A PNG		33.6

SCMT-CB
SCMC-CA 8248
SECH-CA 8248
CMIR-AG 2
SCMS-CB 8303
SCMX-CA 8251

20.2



MAXIMUM STRING DIAMETER 1.72 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Schlumberger

MAIN PASS 0 PSI

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC. Well: MF 07C-16 (H17) 696

Output DLIS Files

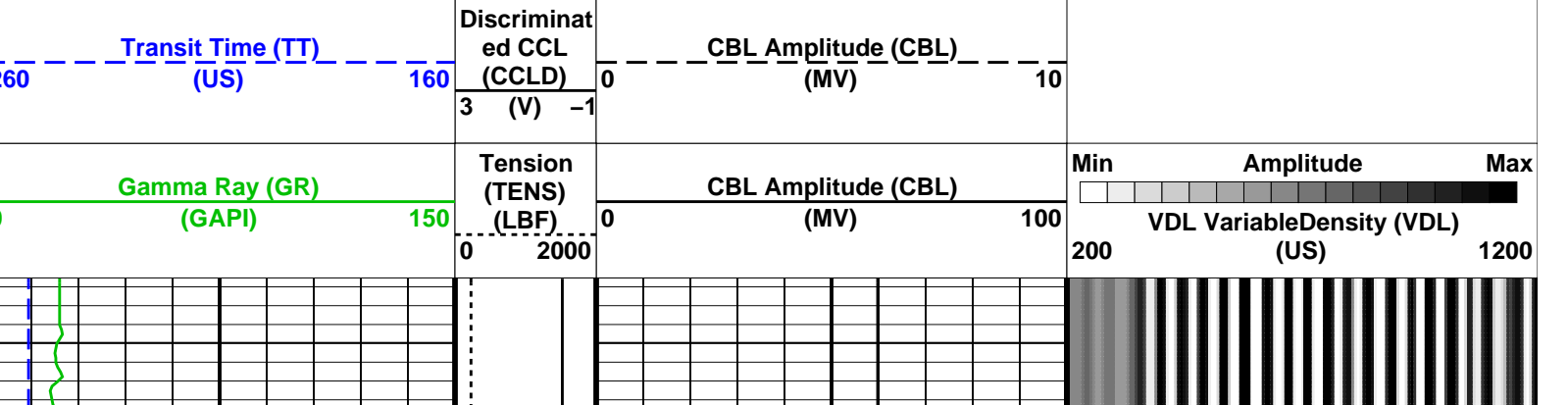
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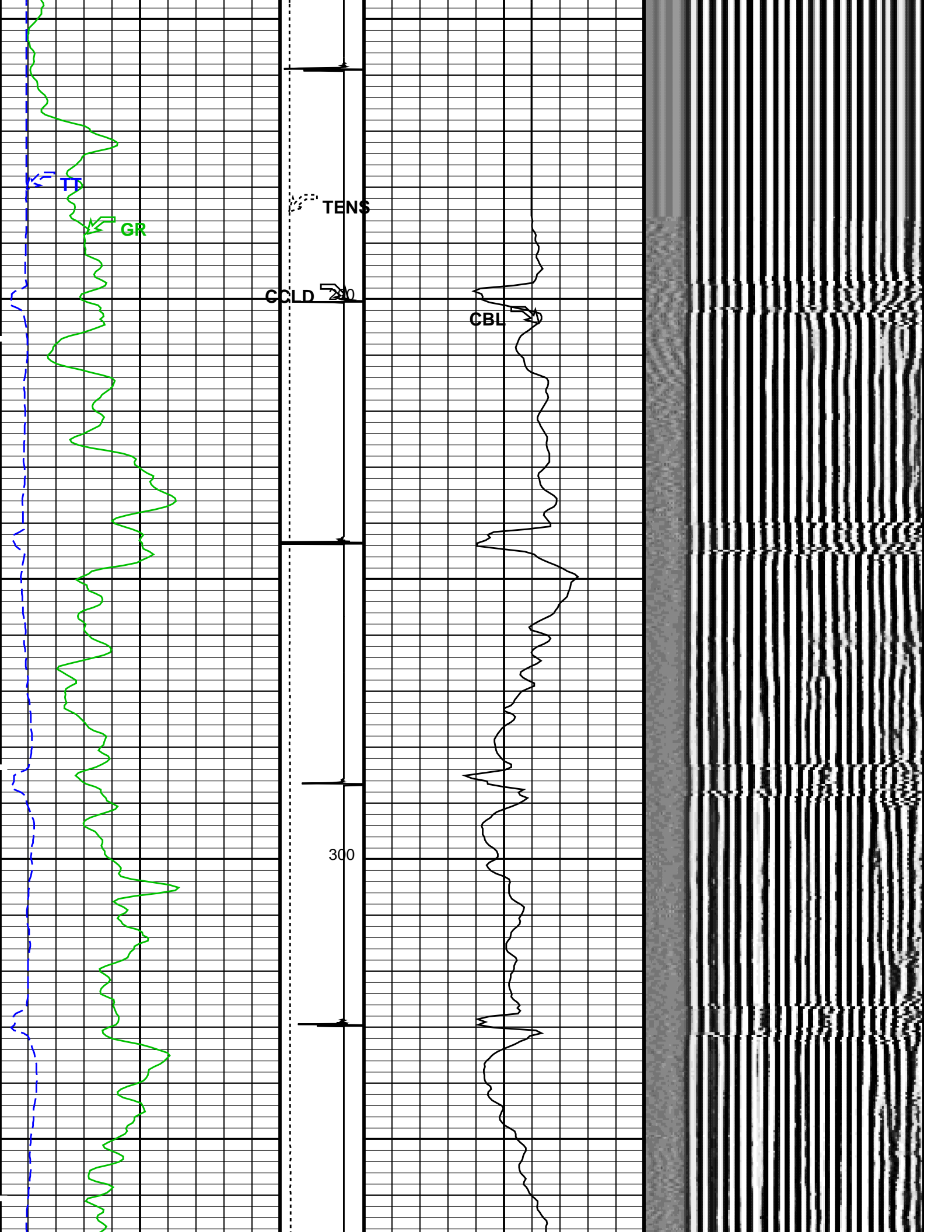
OP System Version: 17C0-154

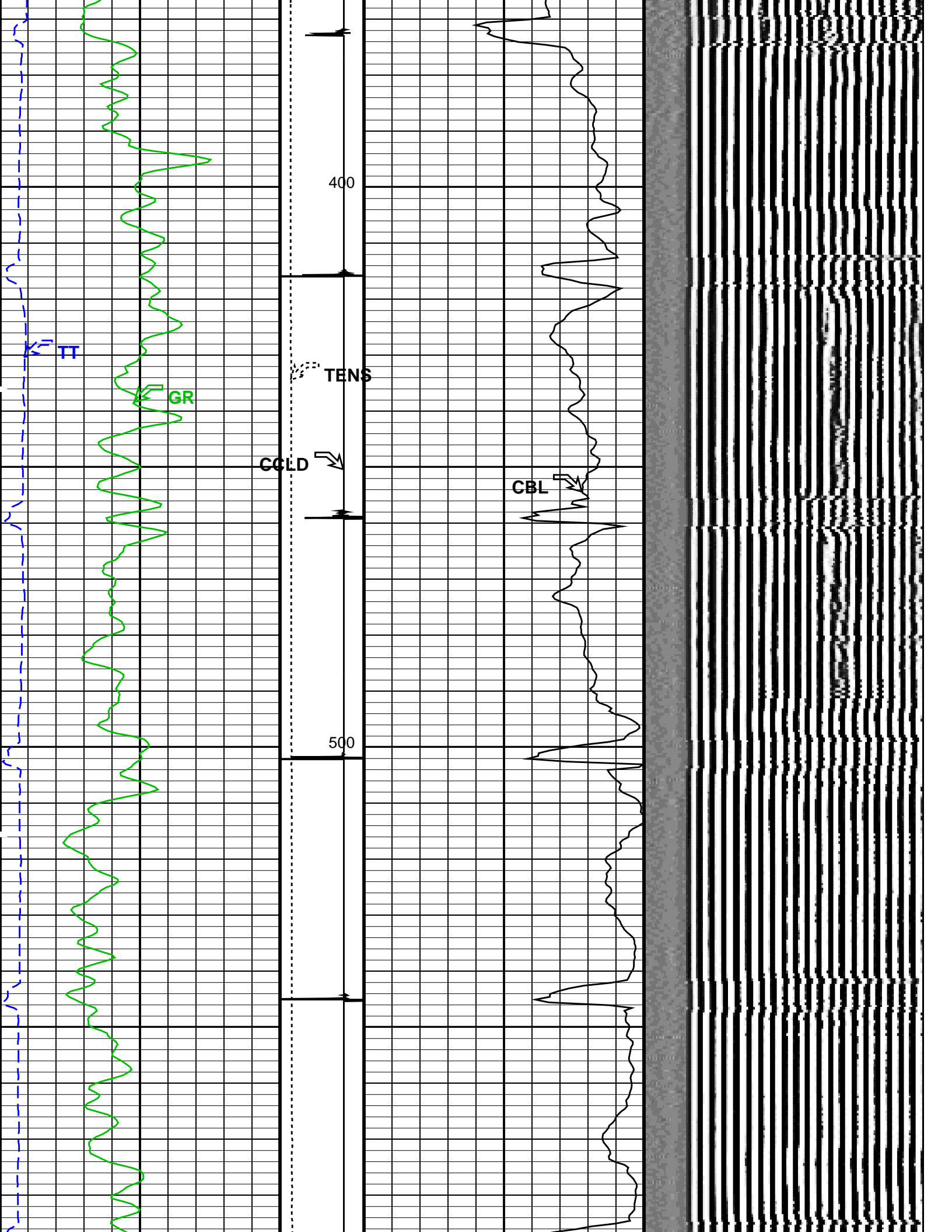
SCMT-CB 17C0-154 RST-C 17C0-154
PSPT 17C0-154

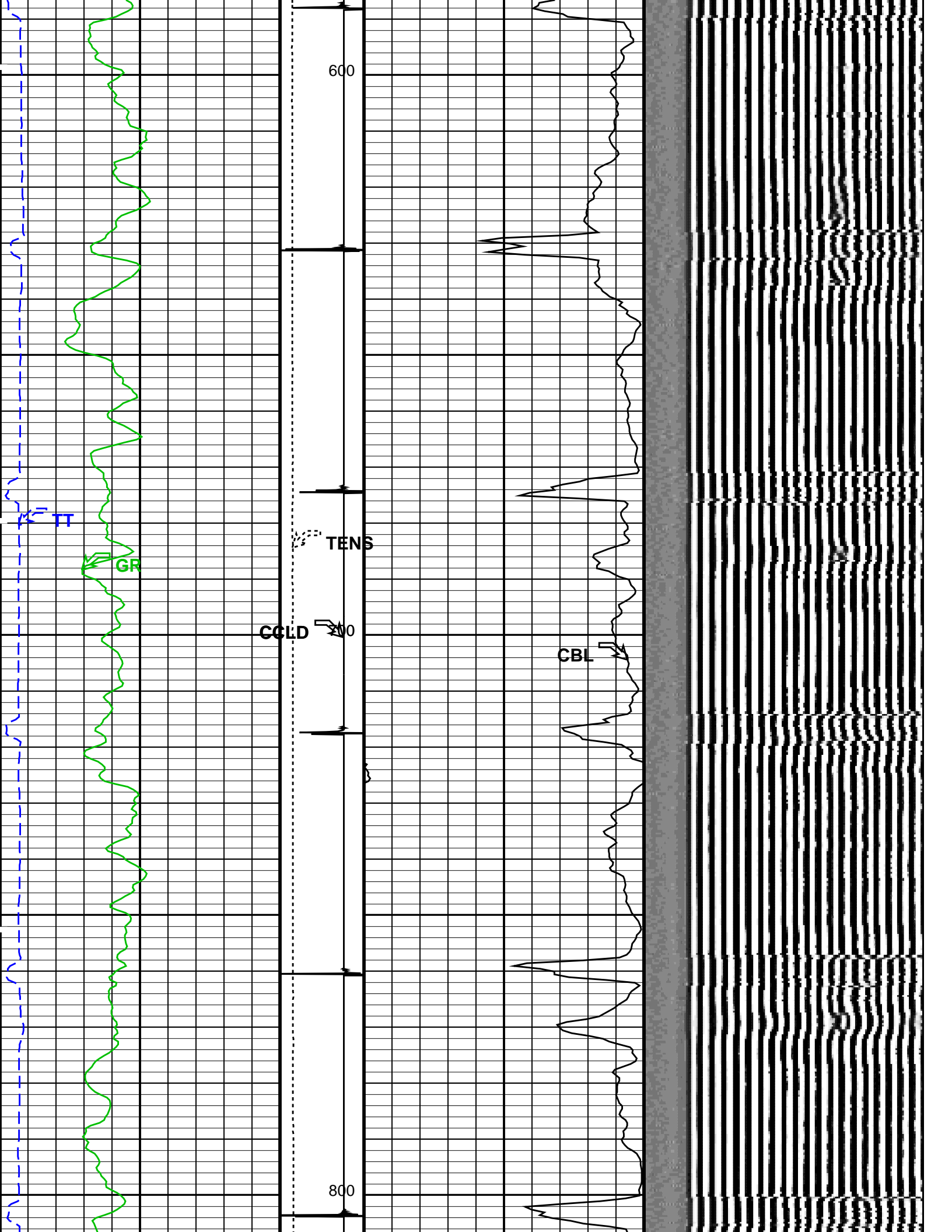
PIP SUMMARY

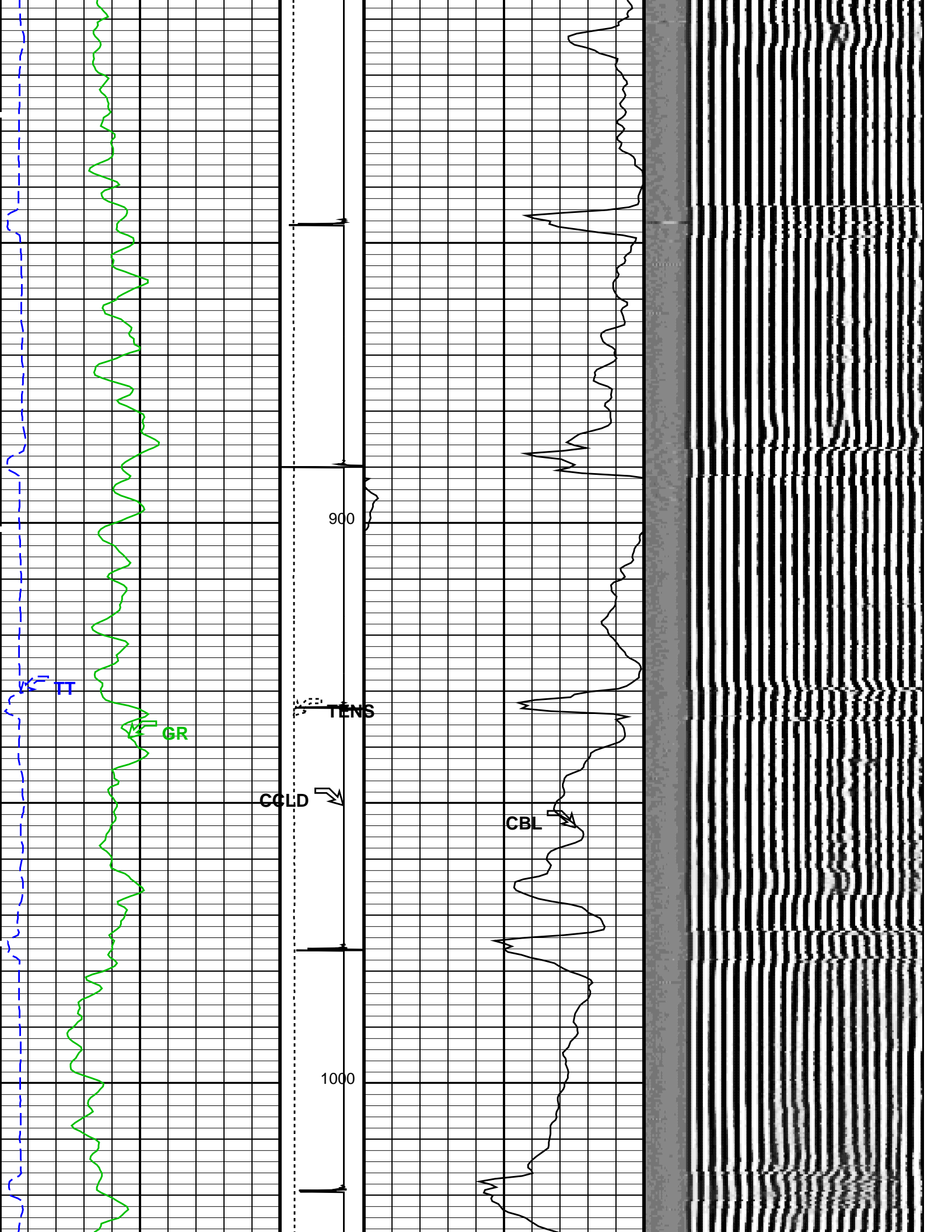
Time Mark Every 60 S

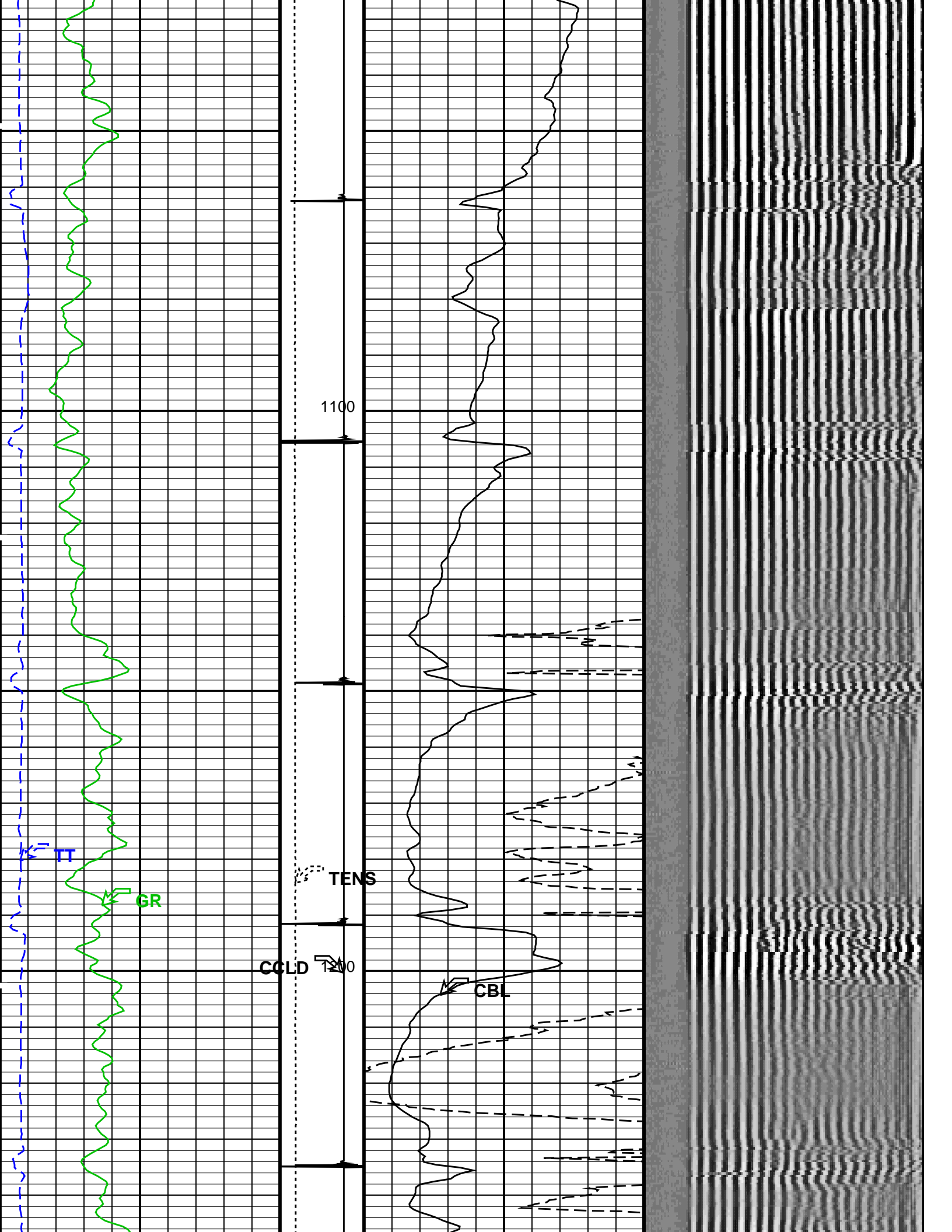


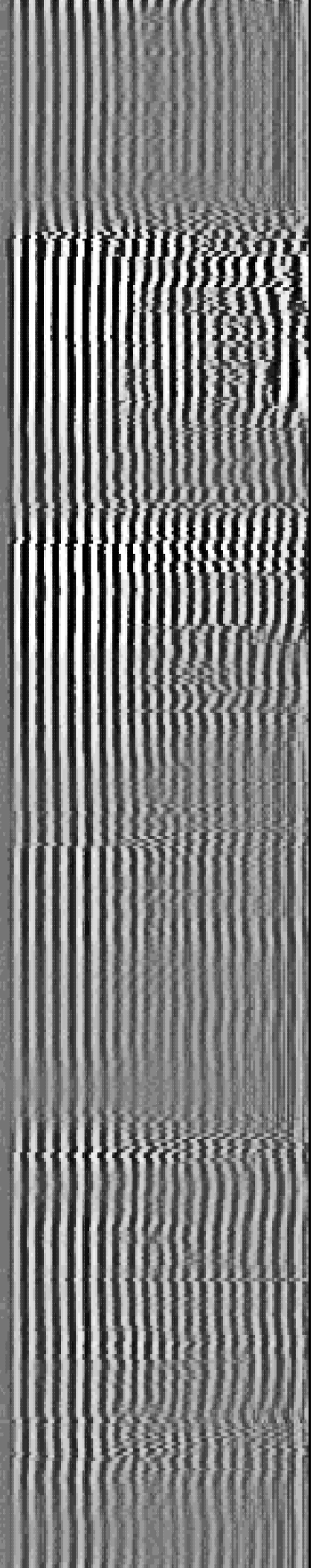
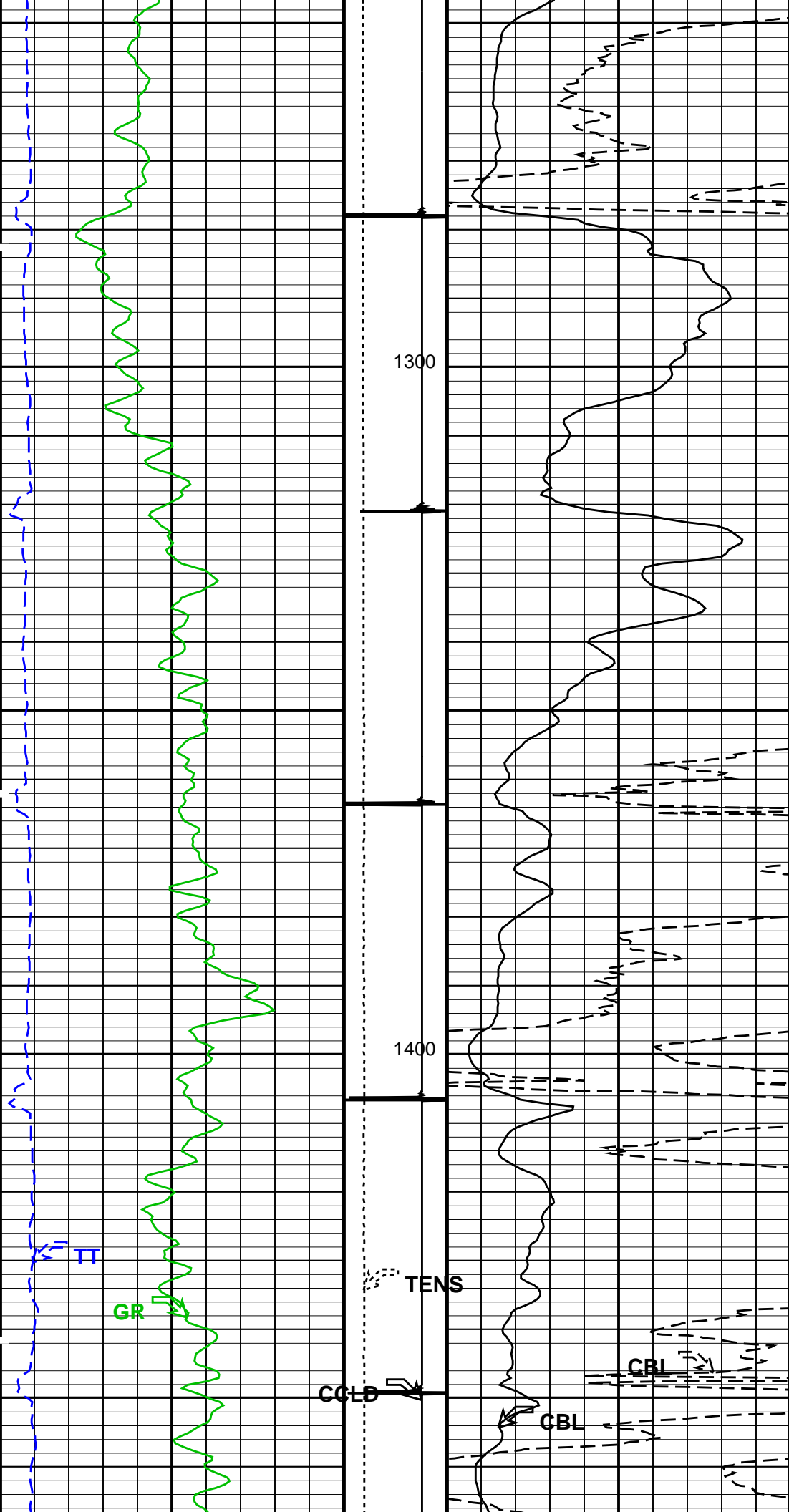


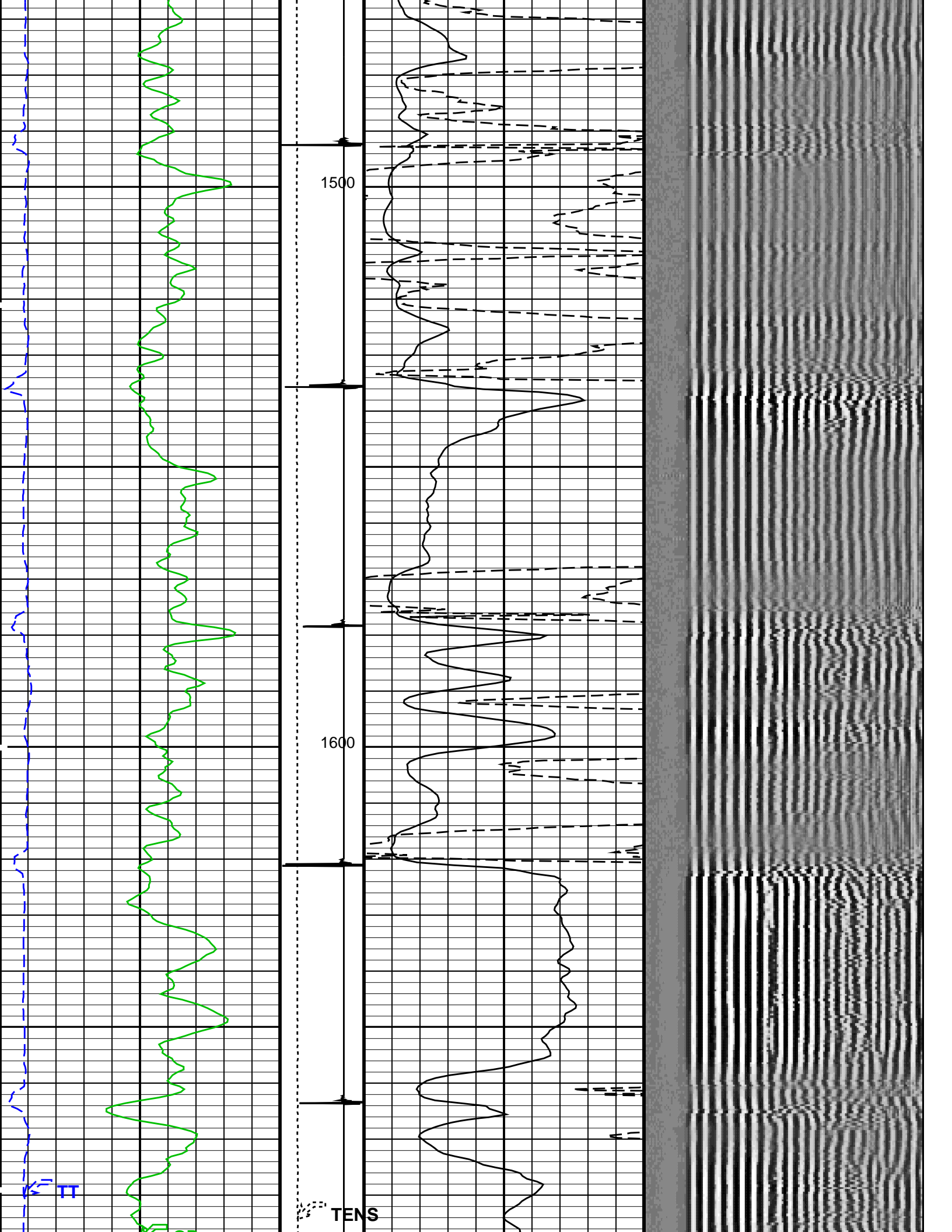


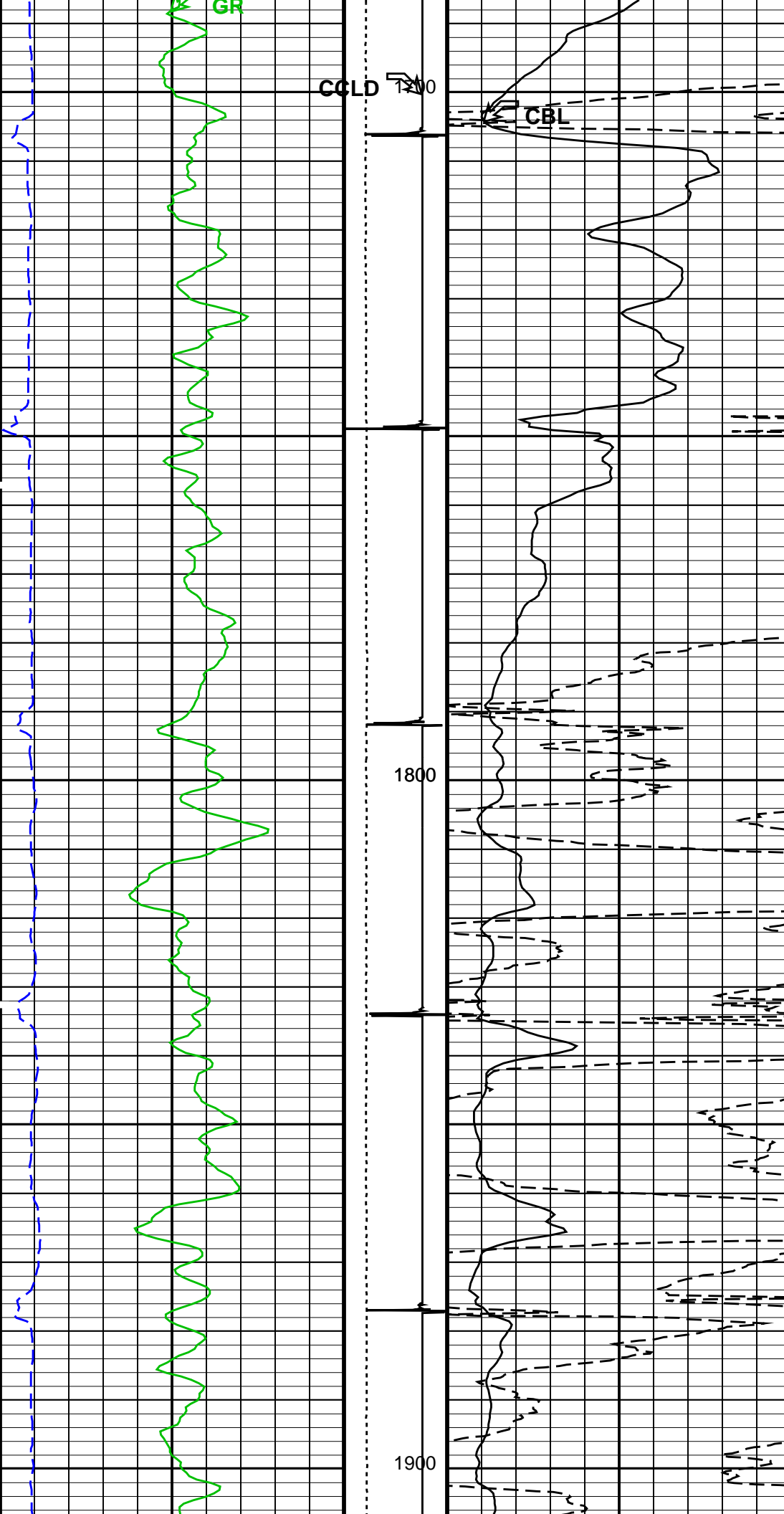


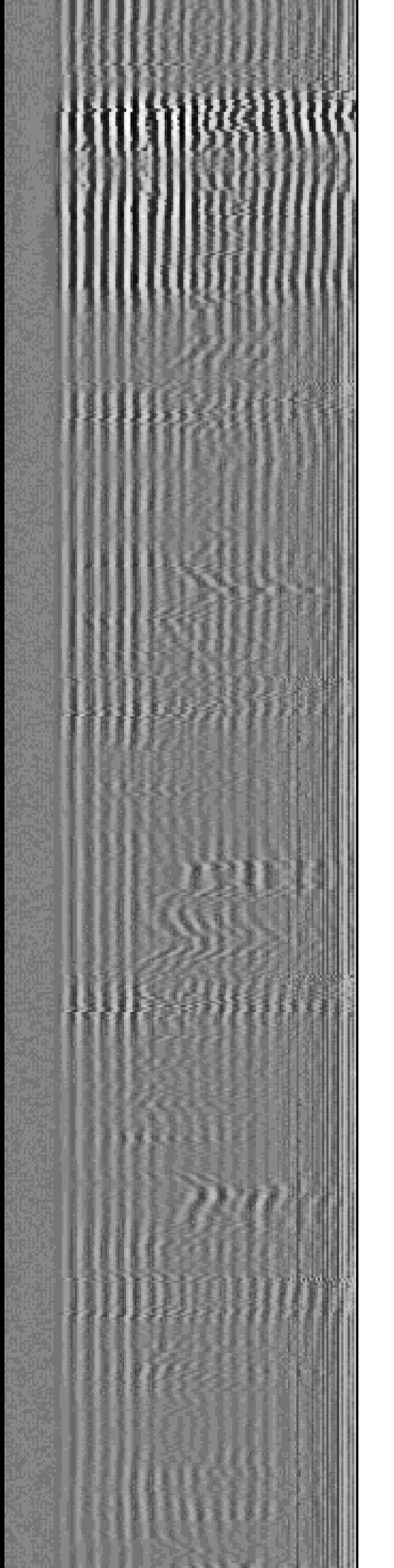
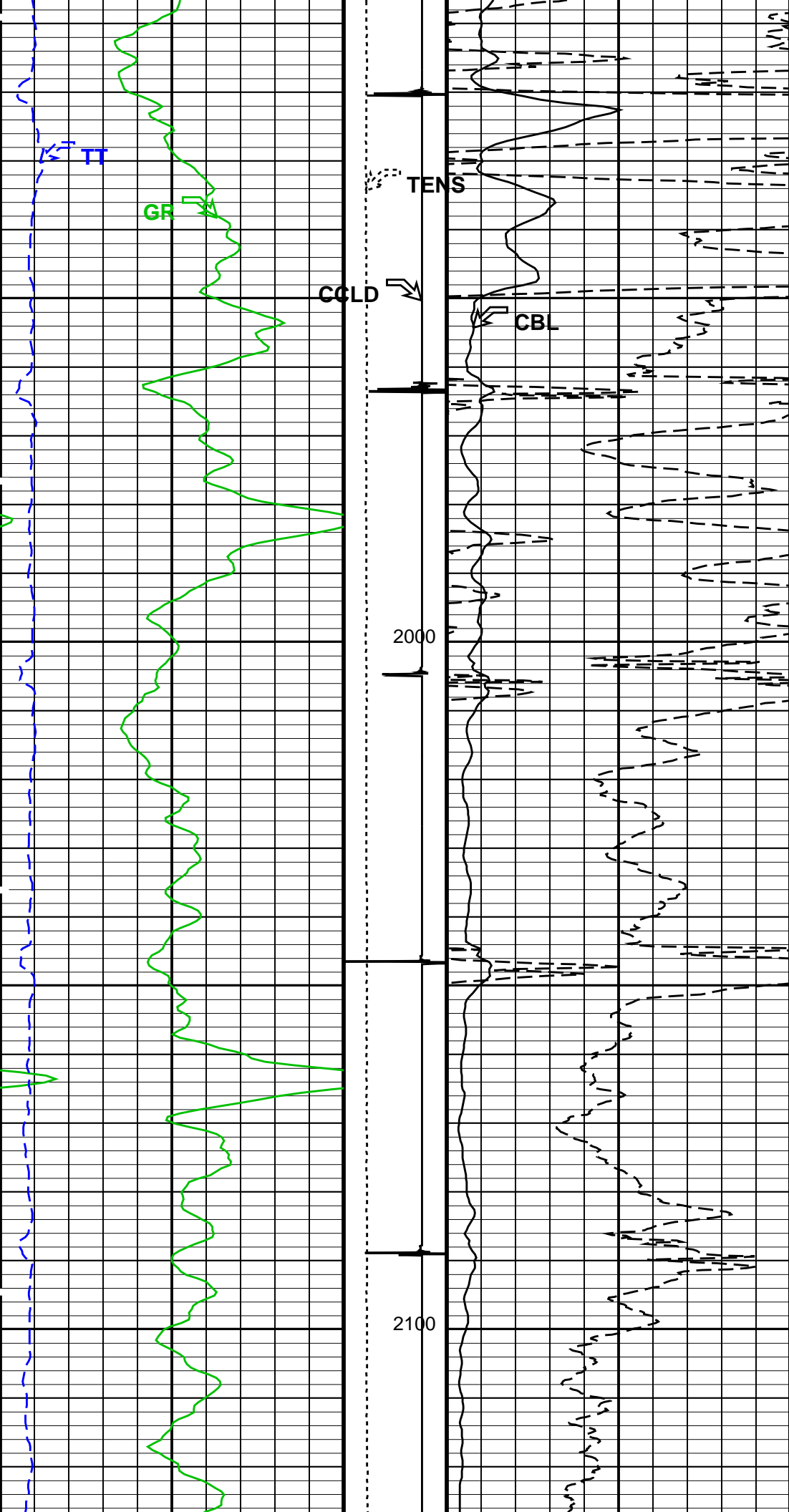


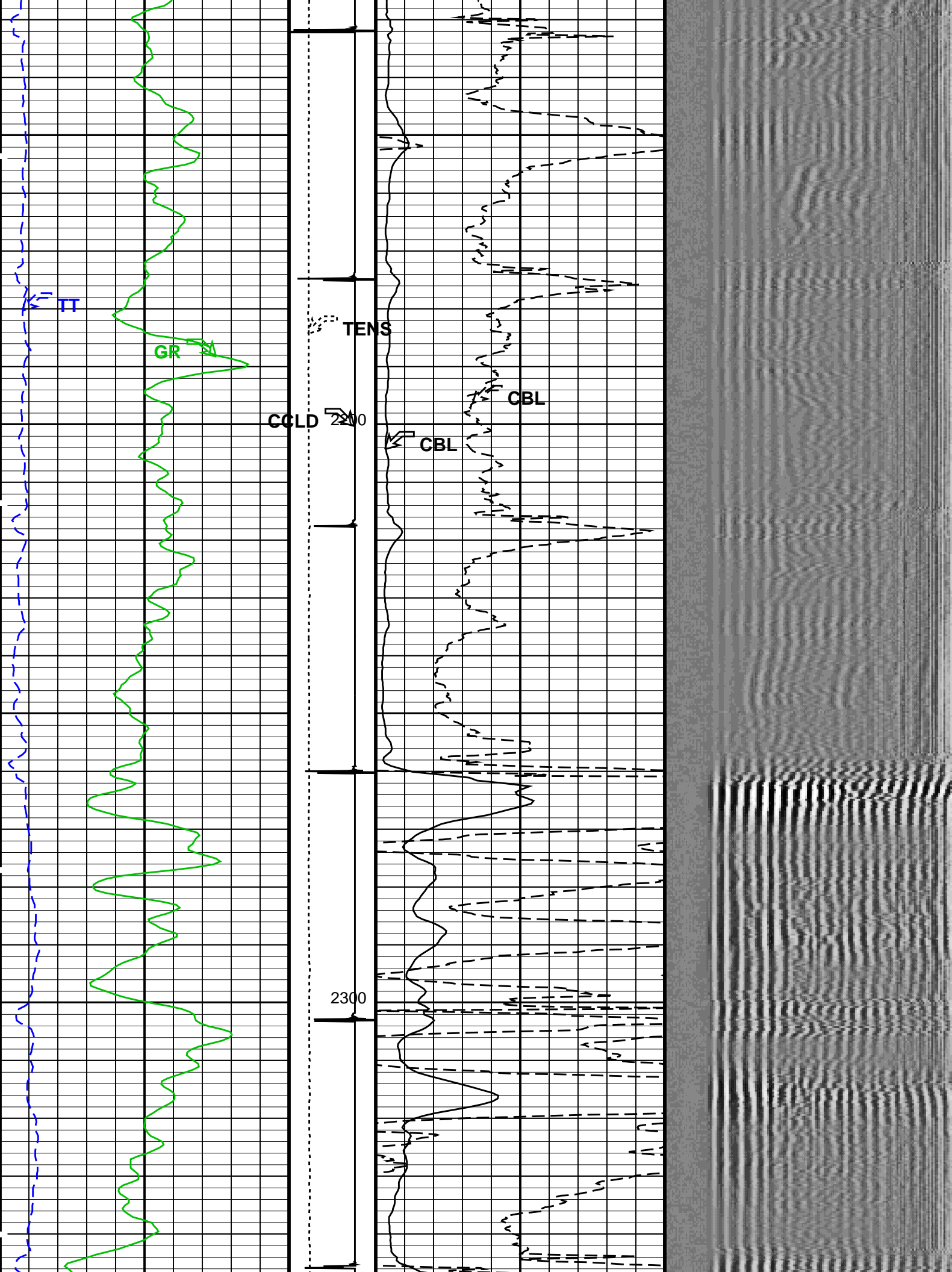


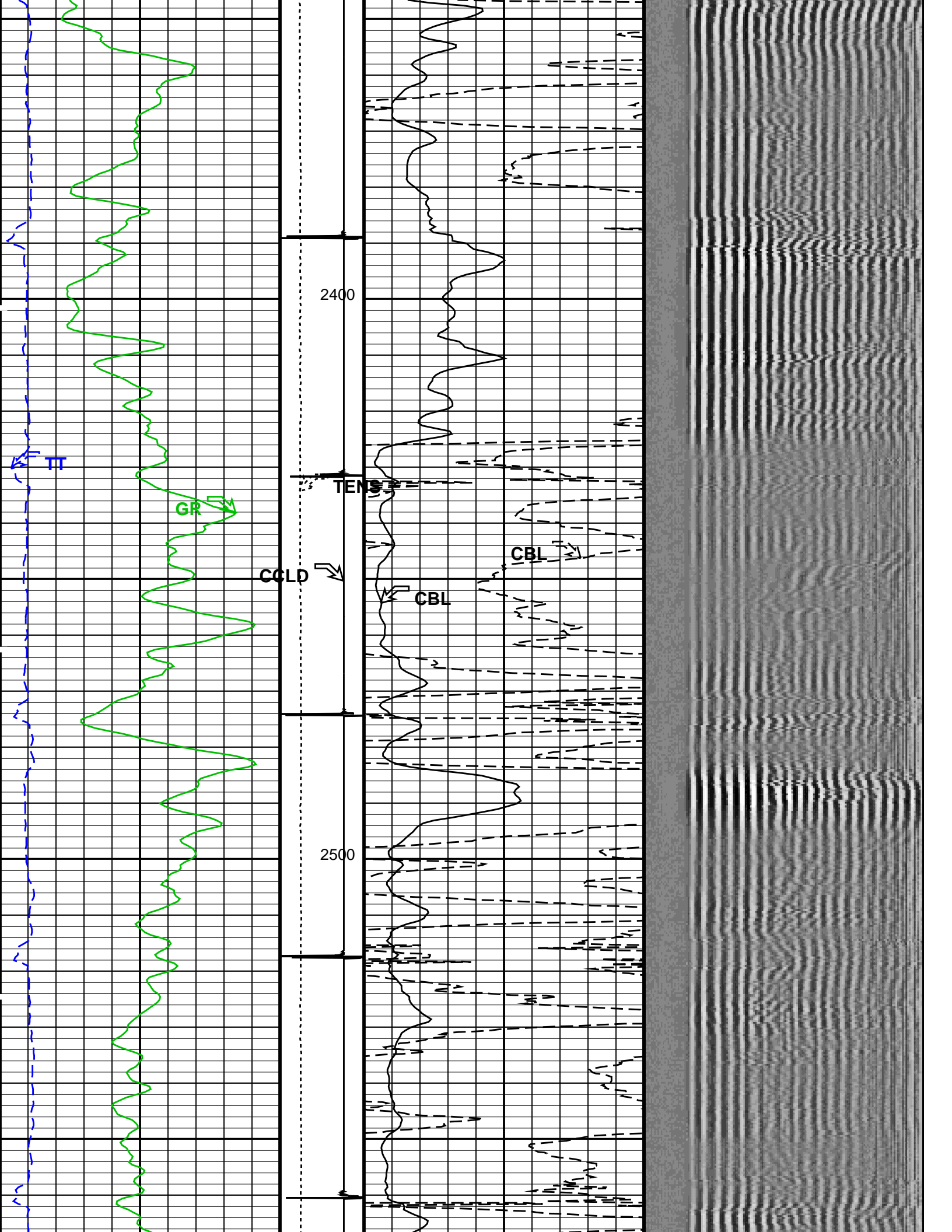


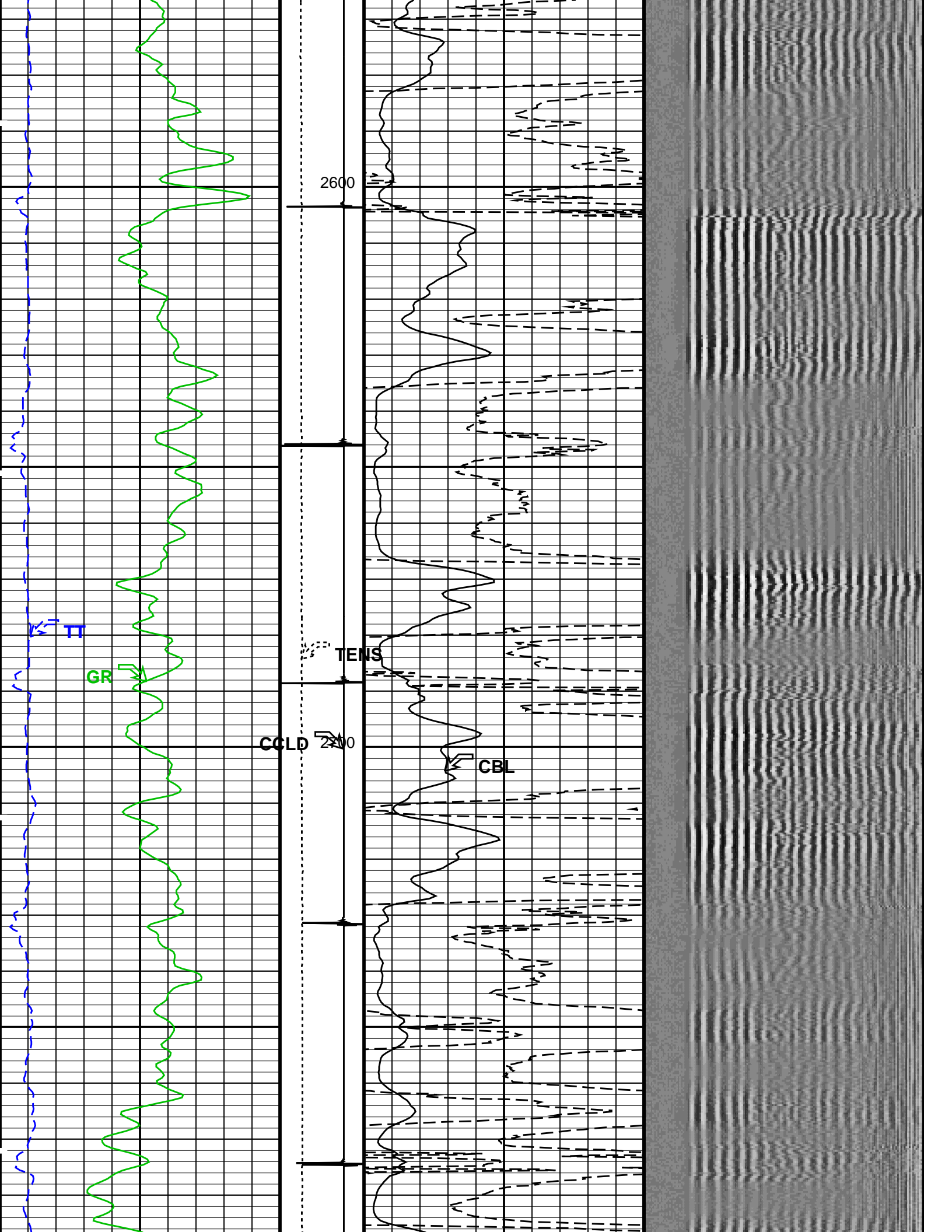


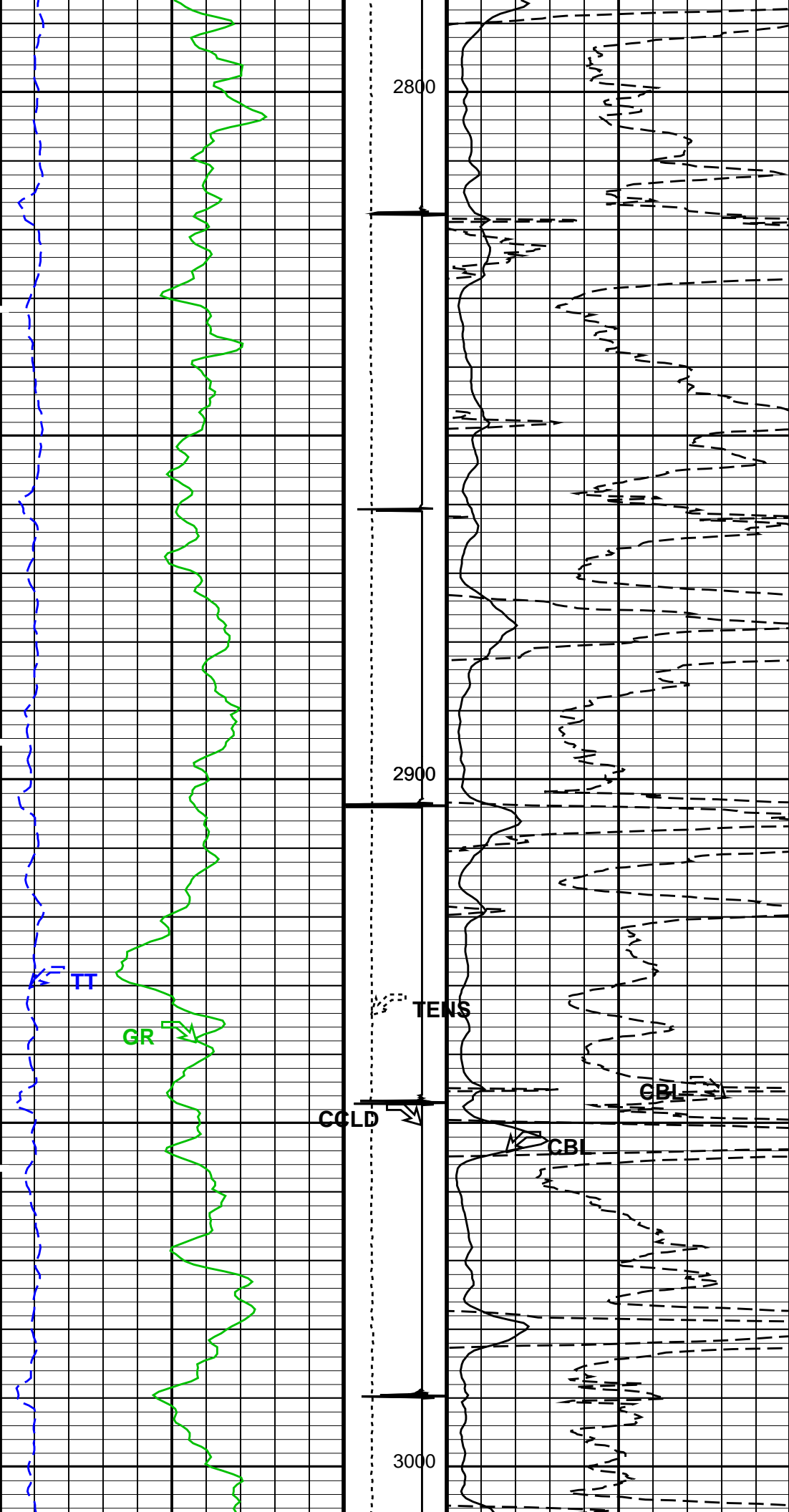


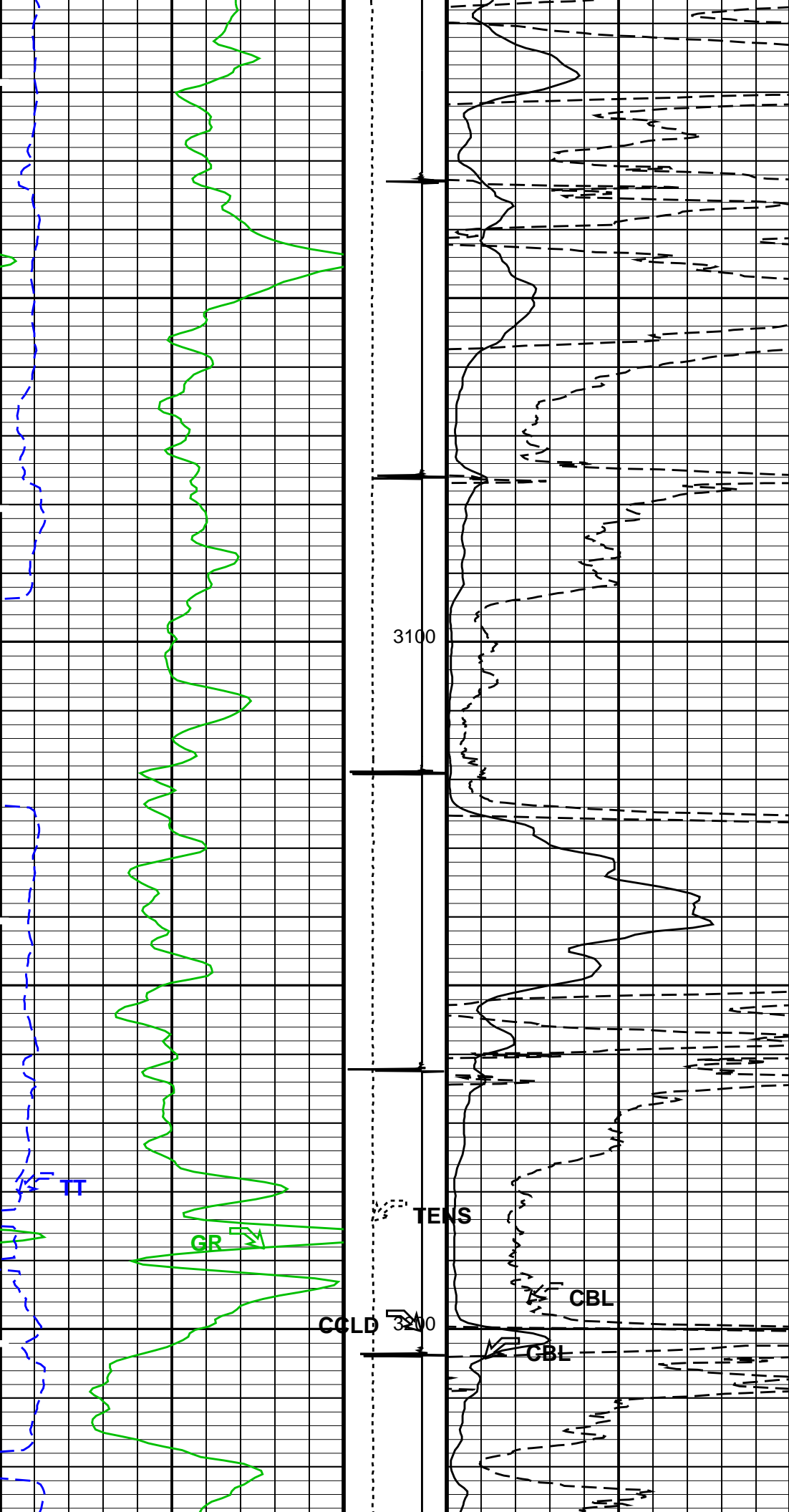


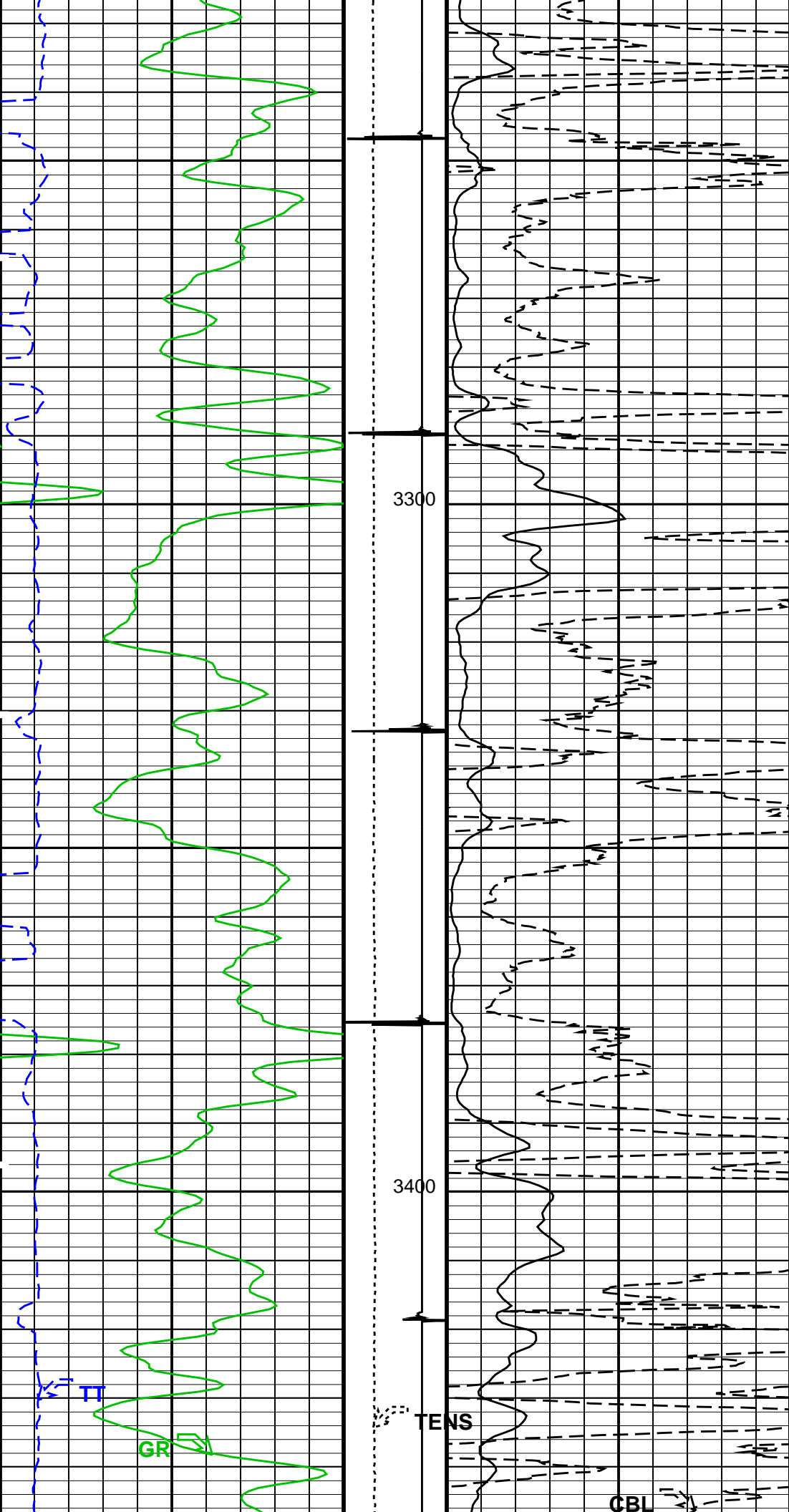


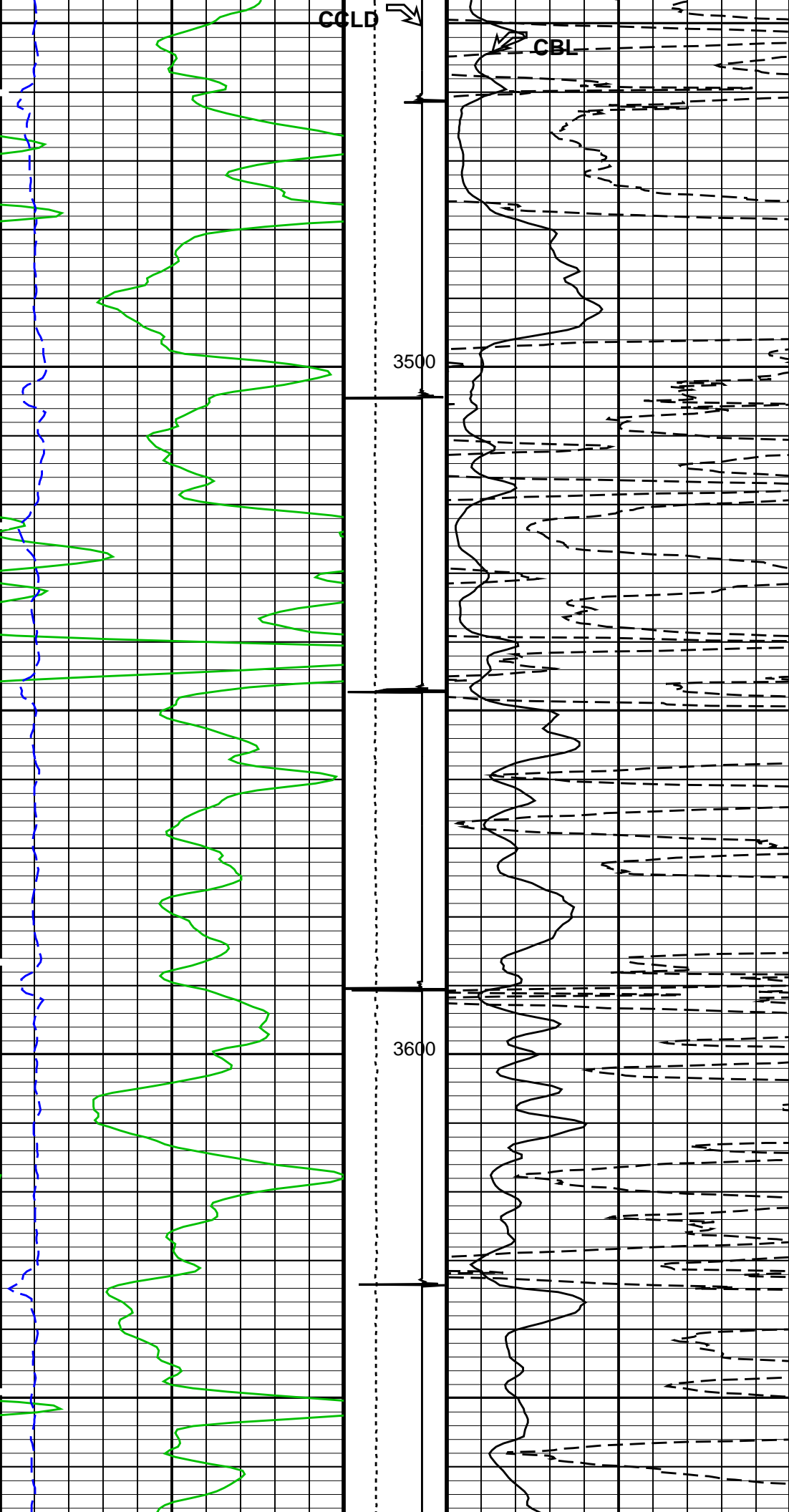


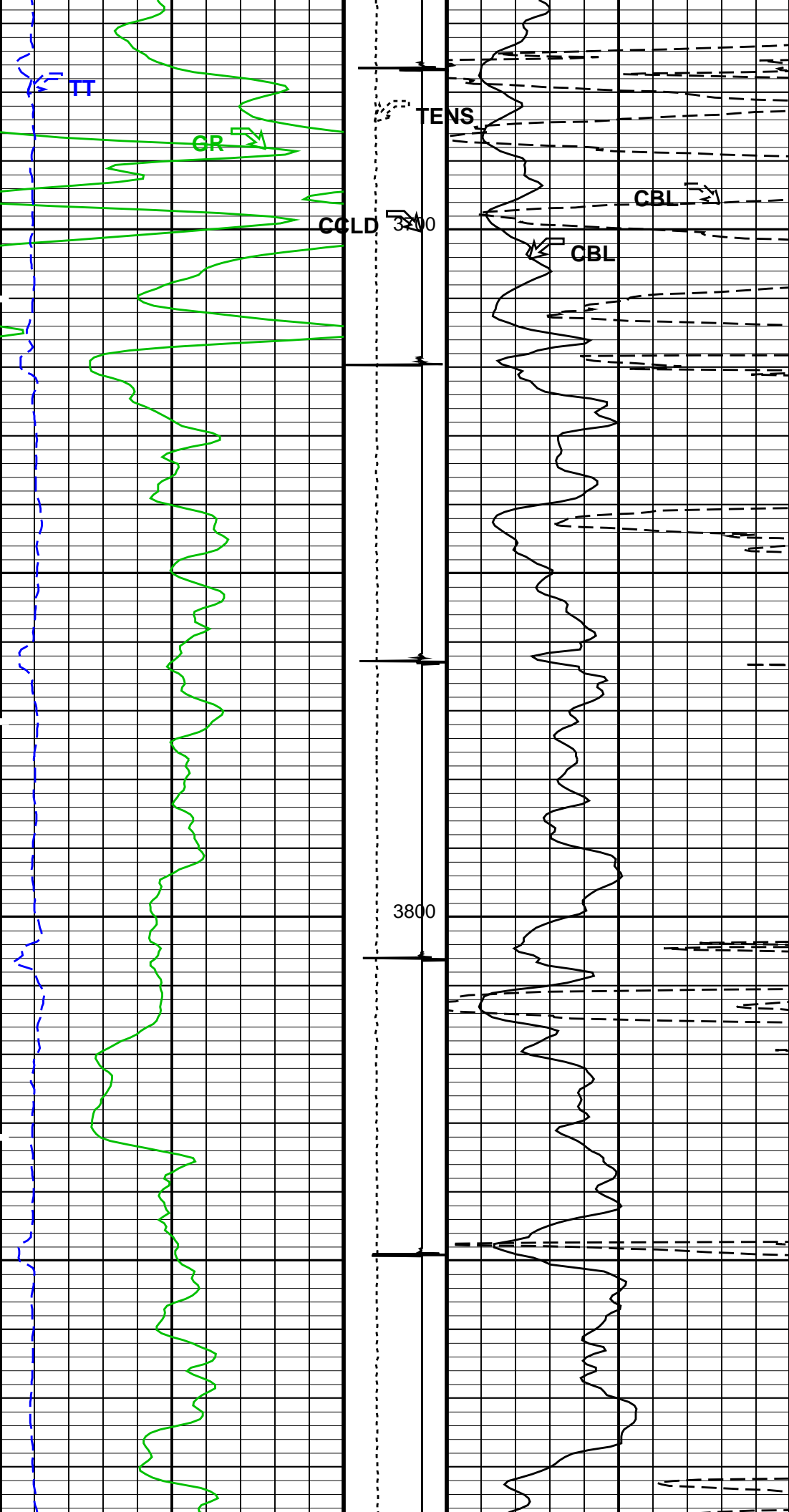


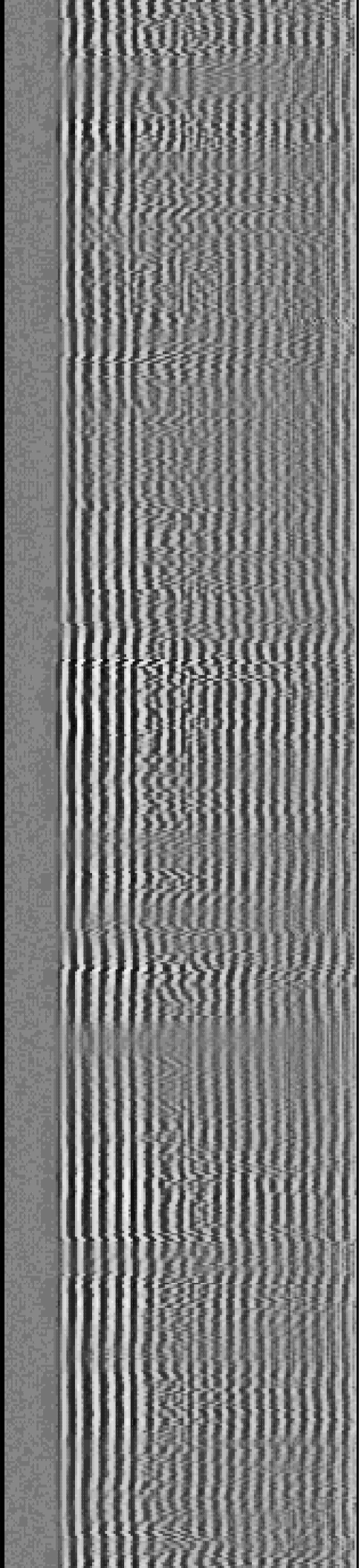
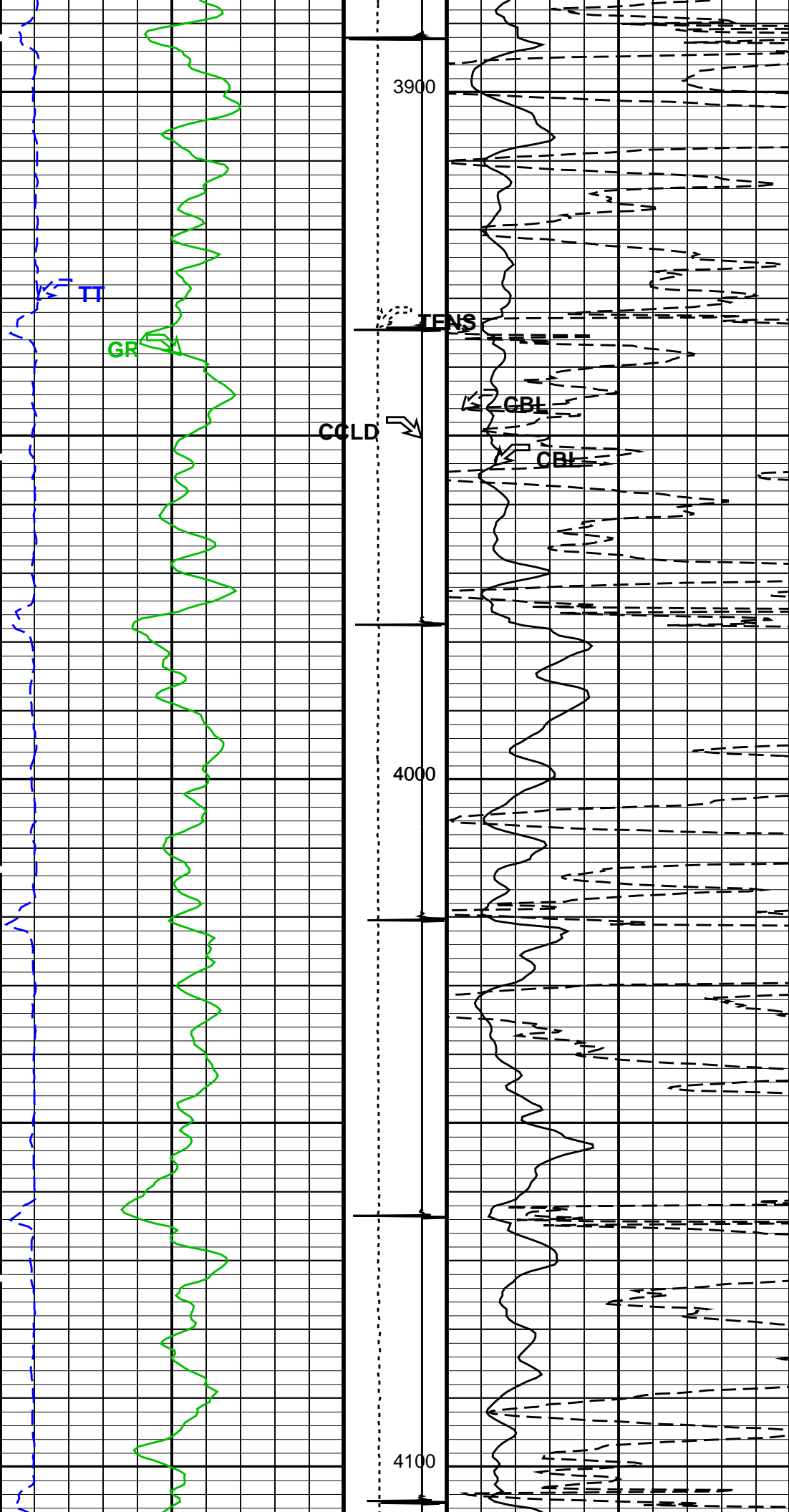


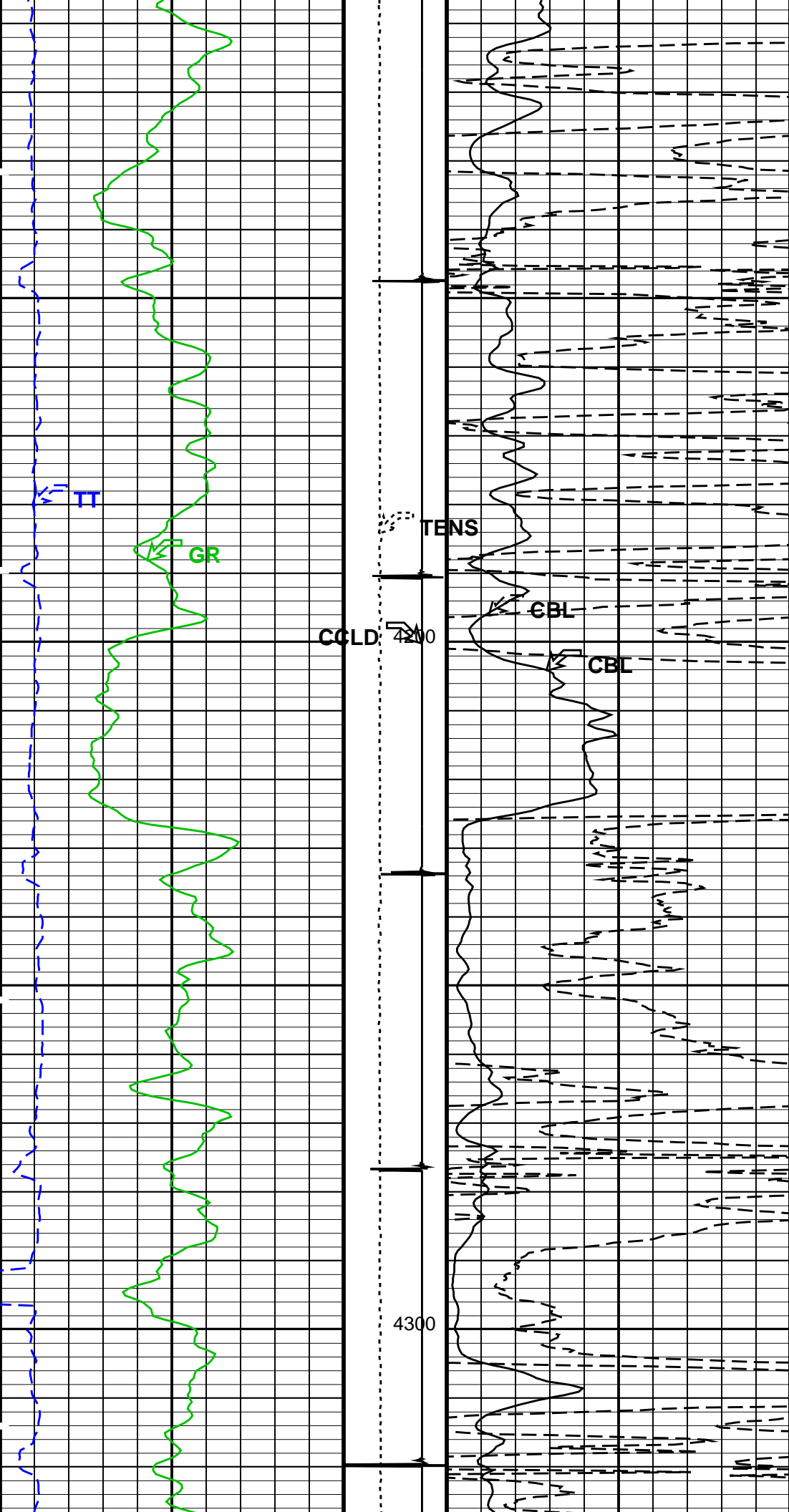


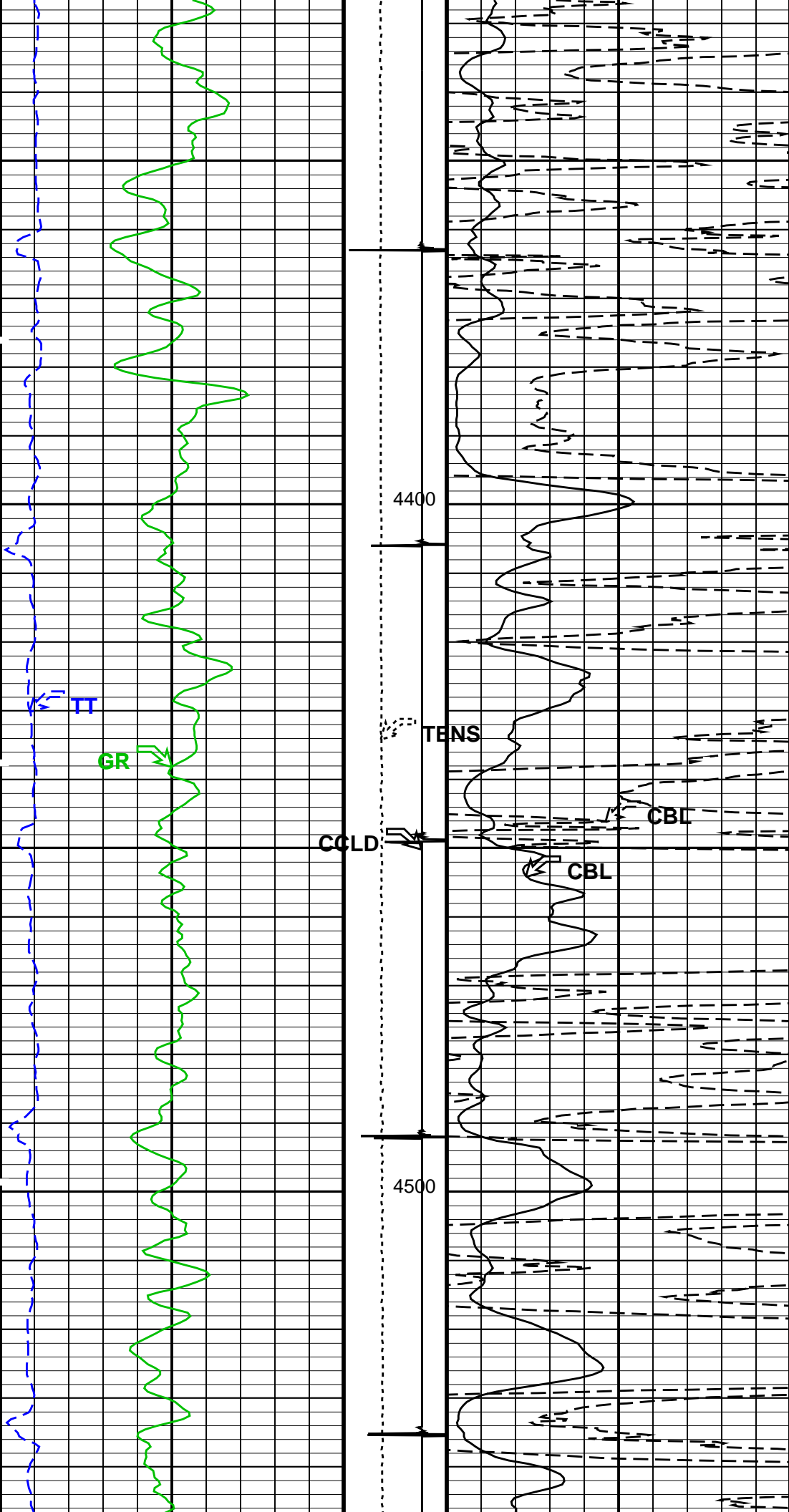


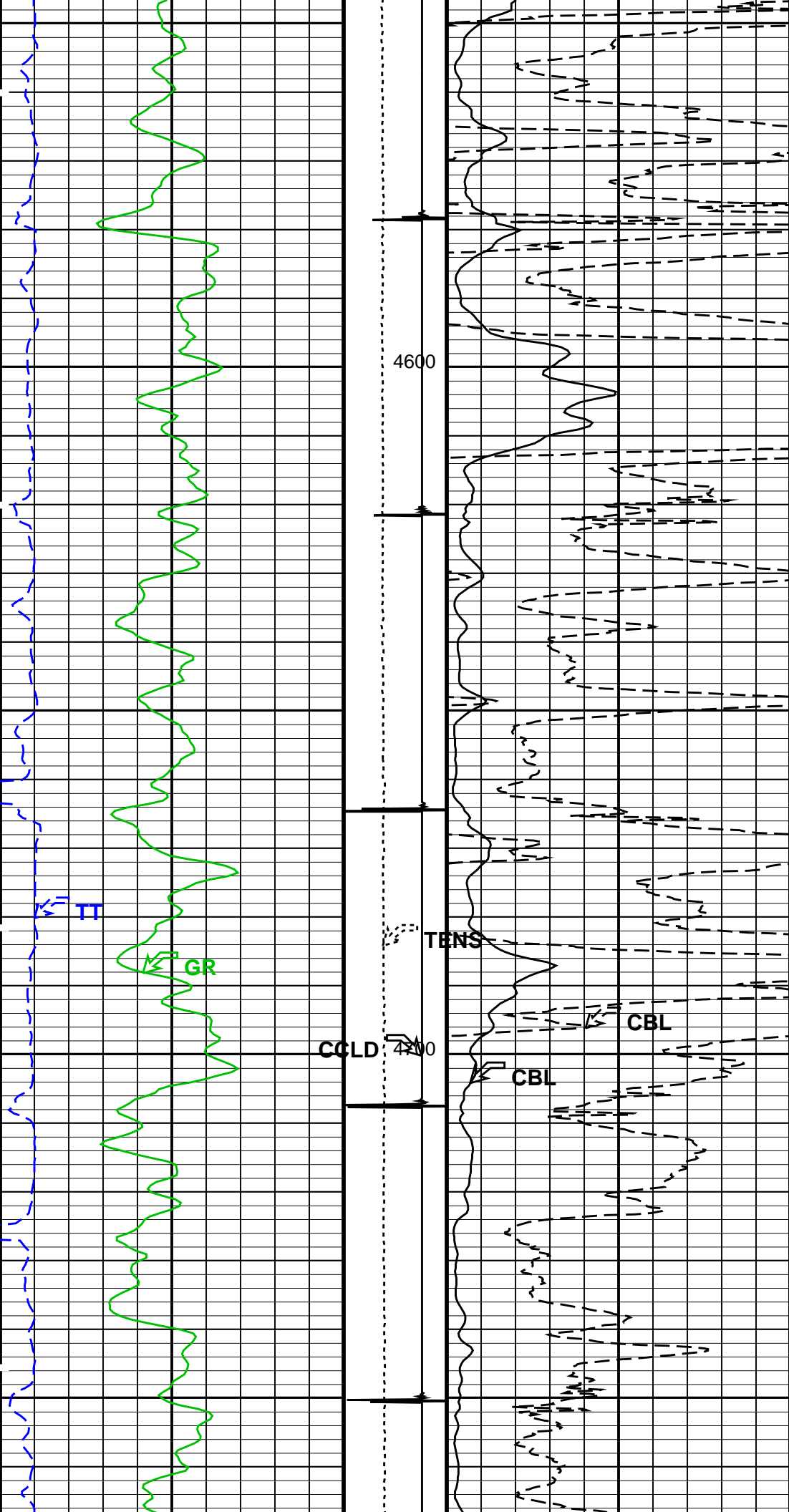


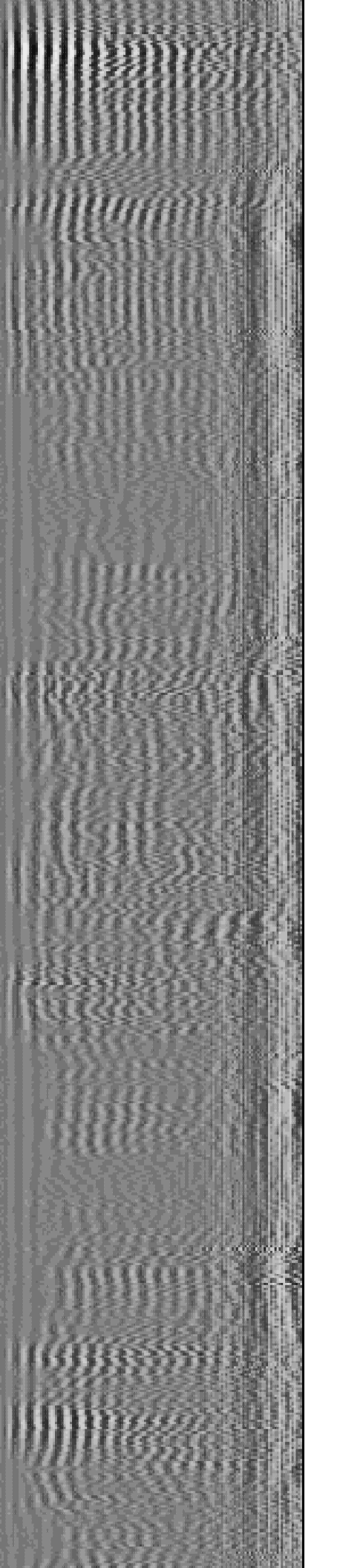
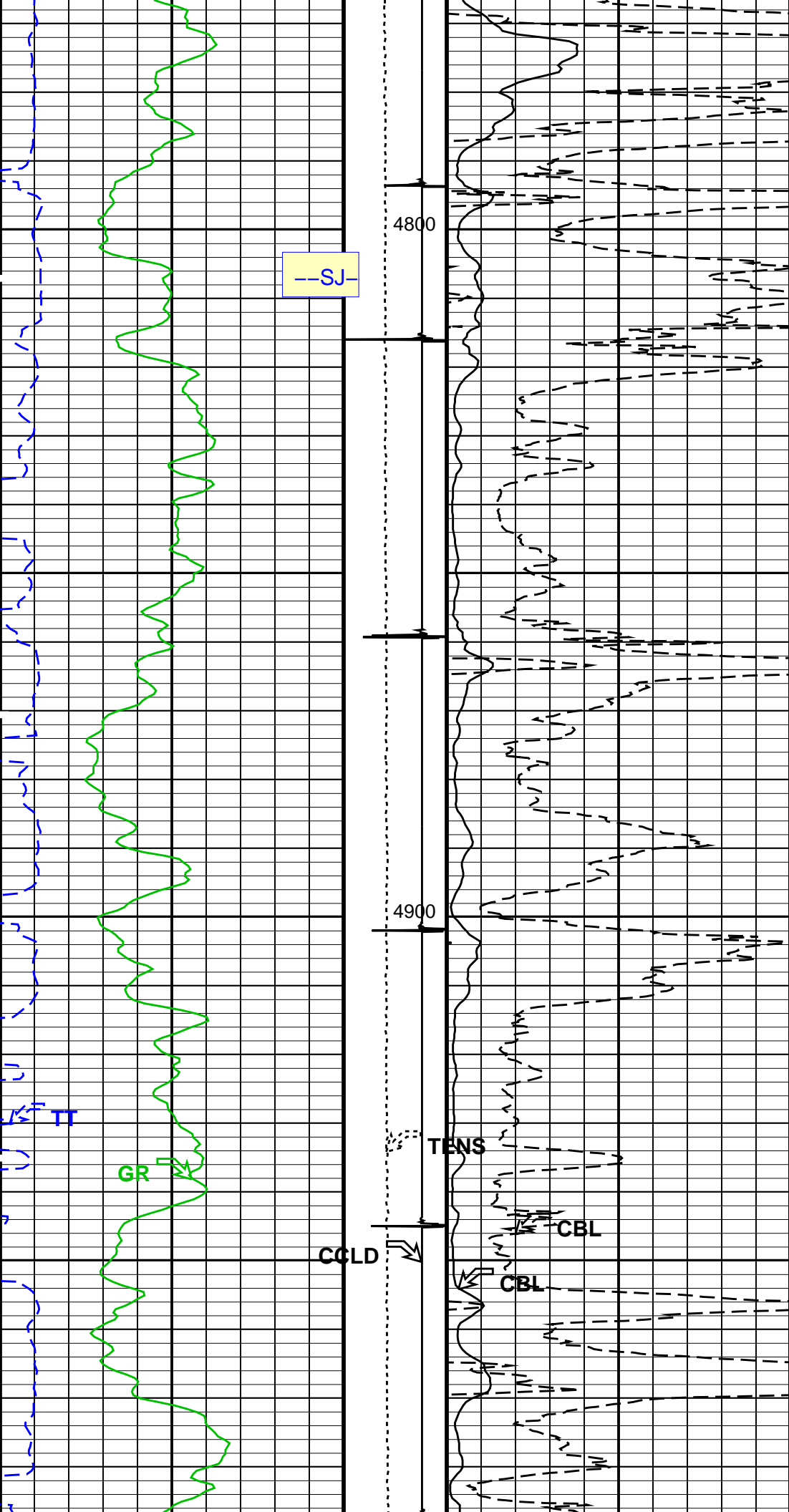


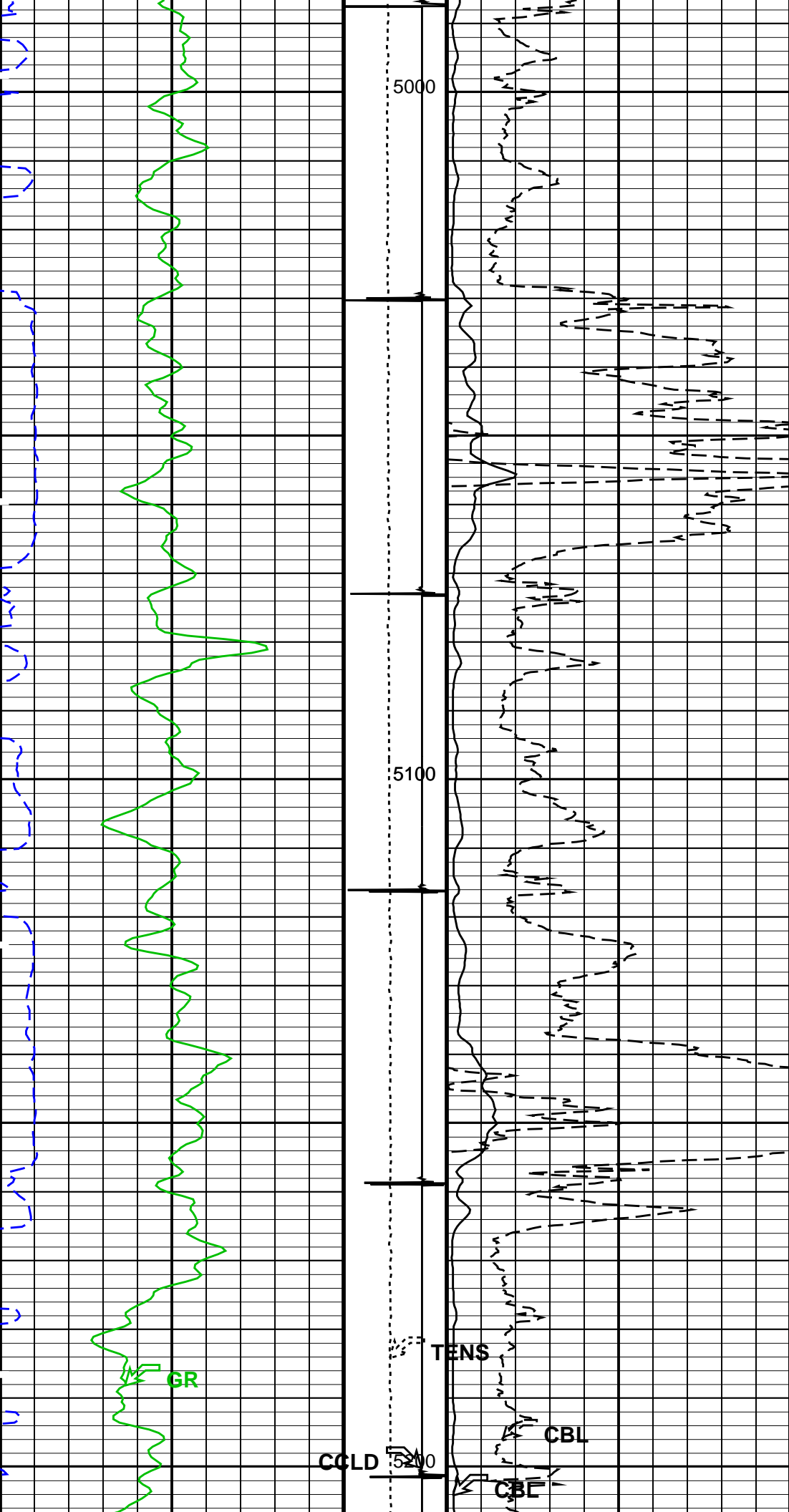


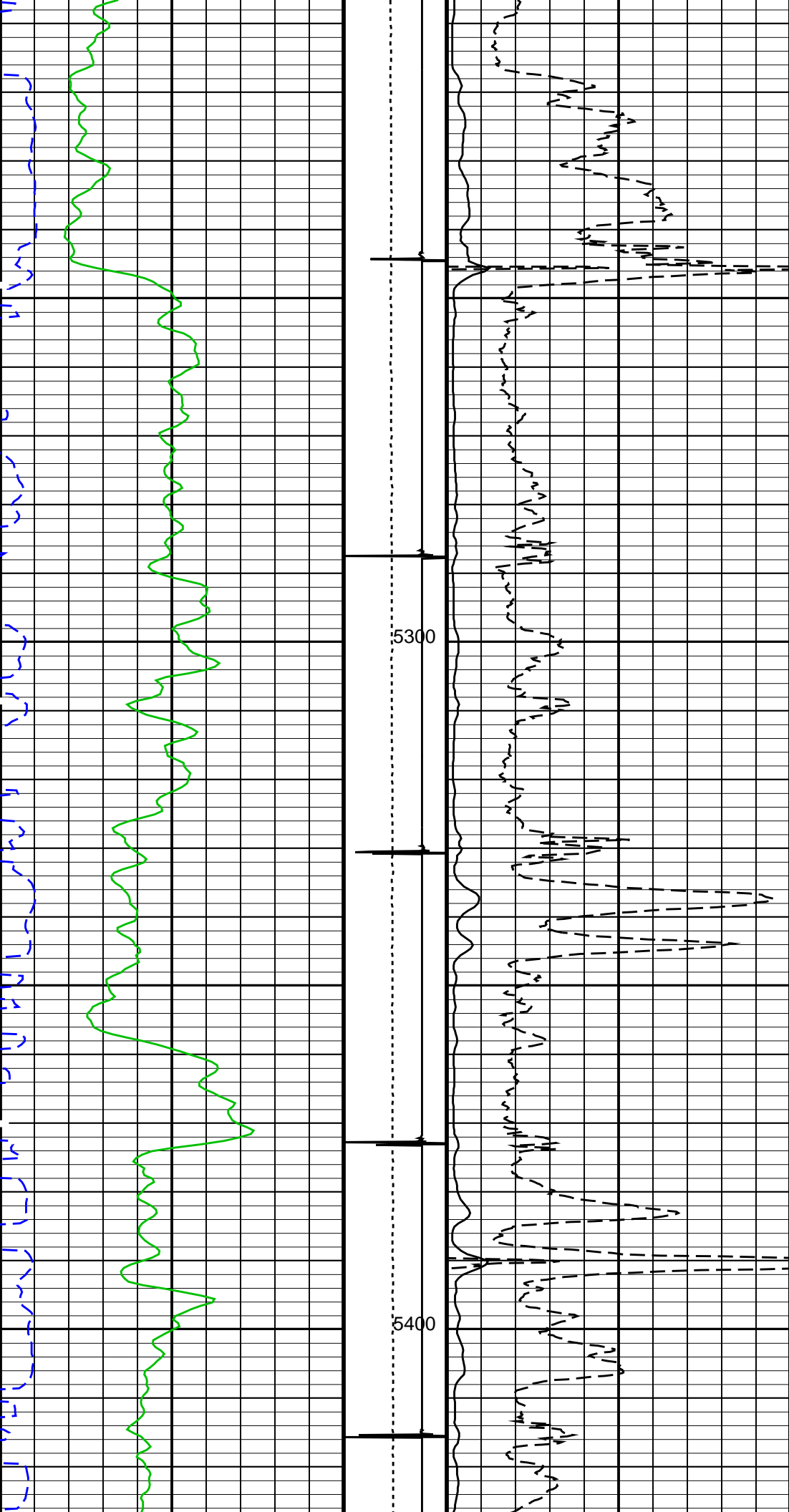


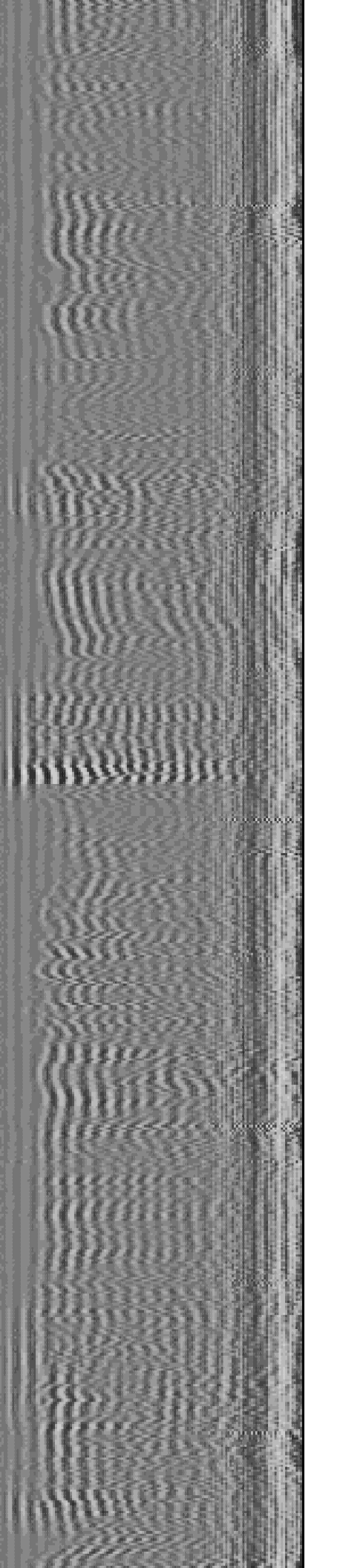
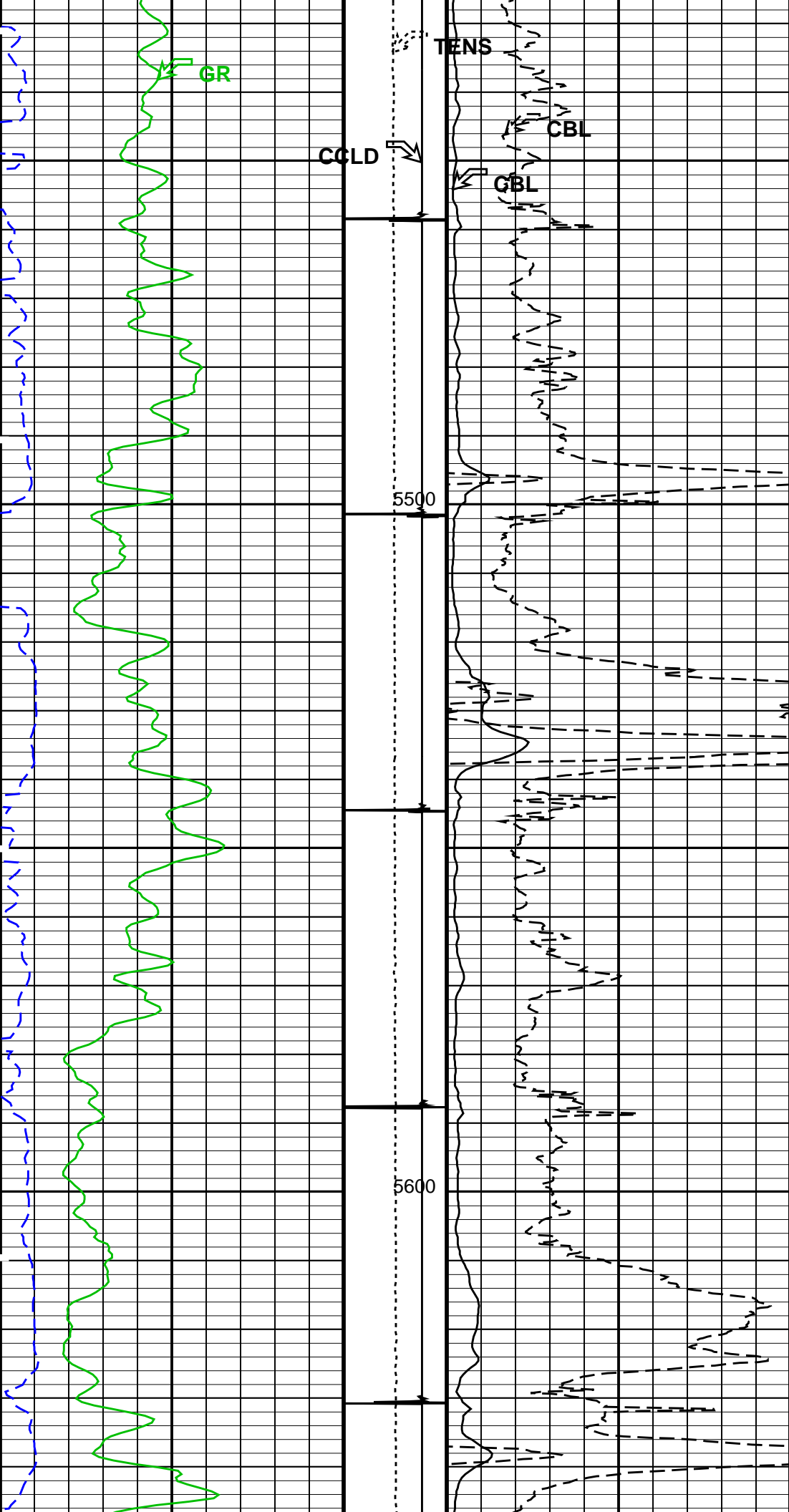


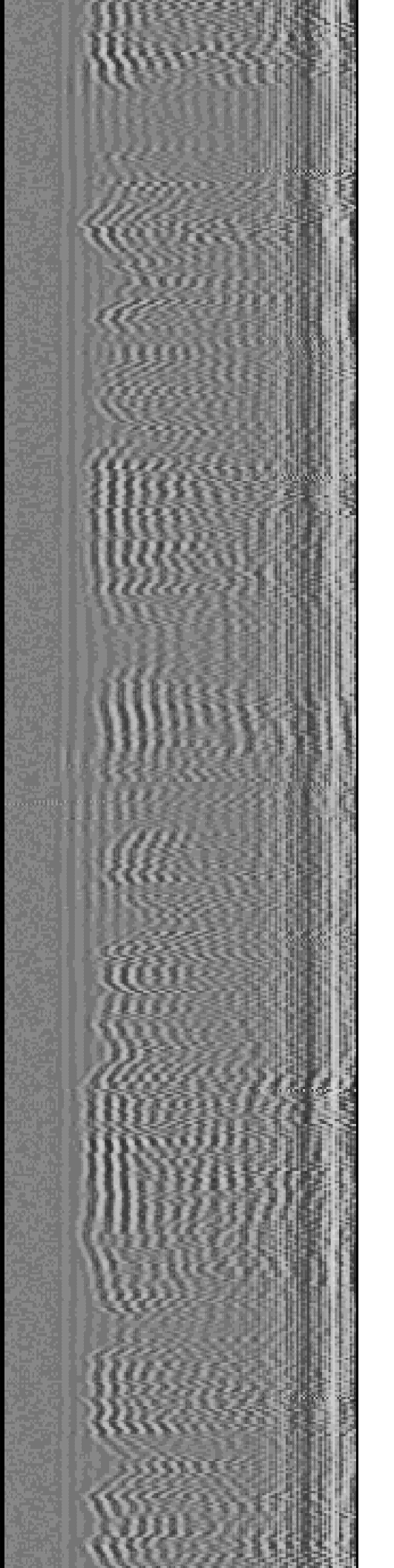
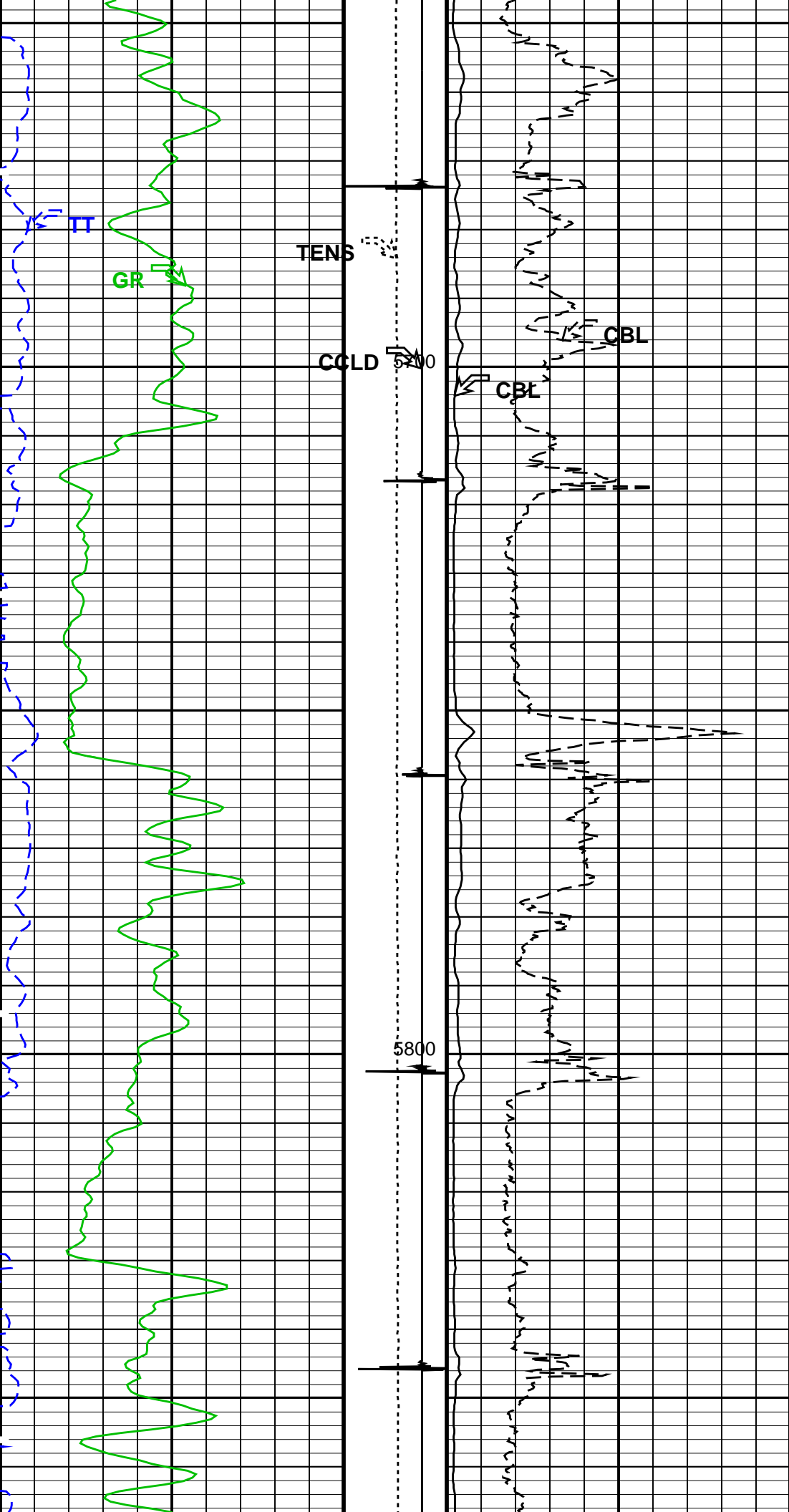


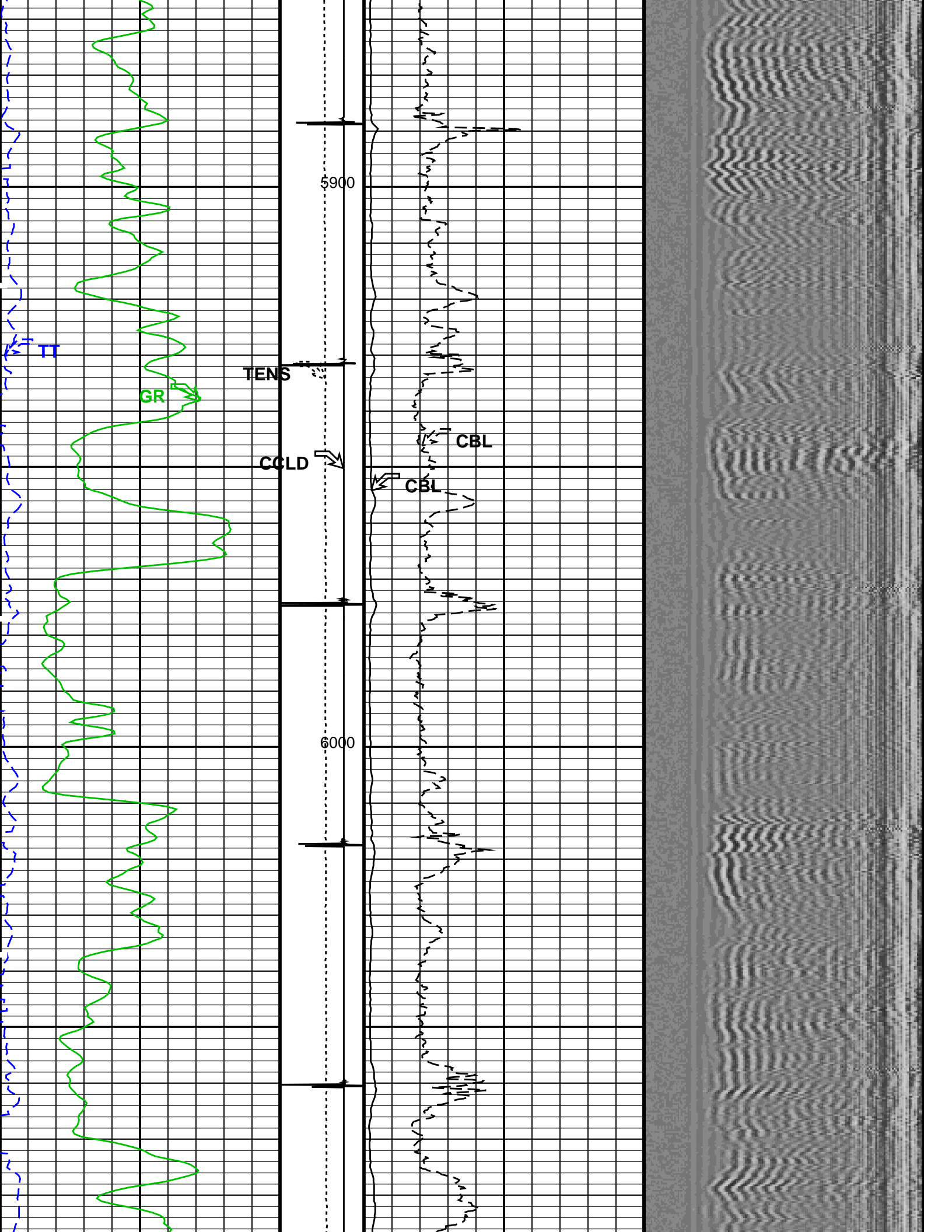


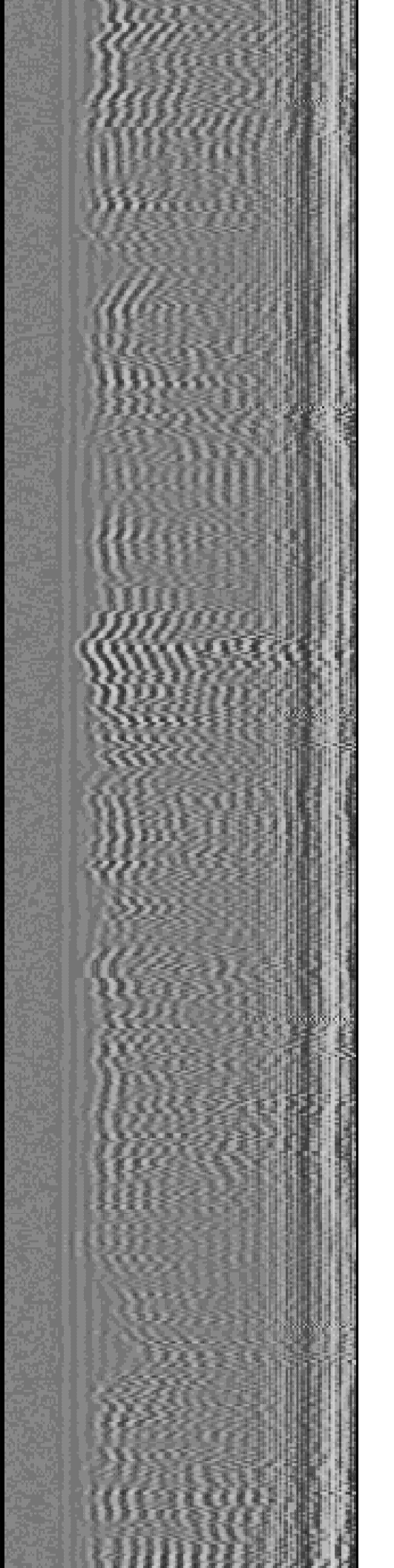
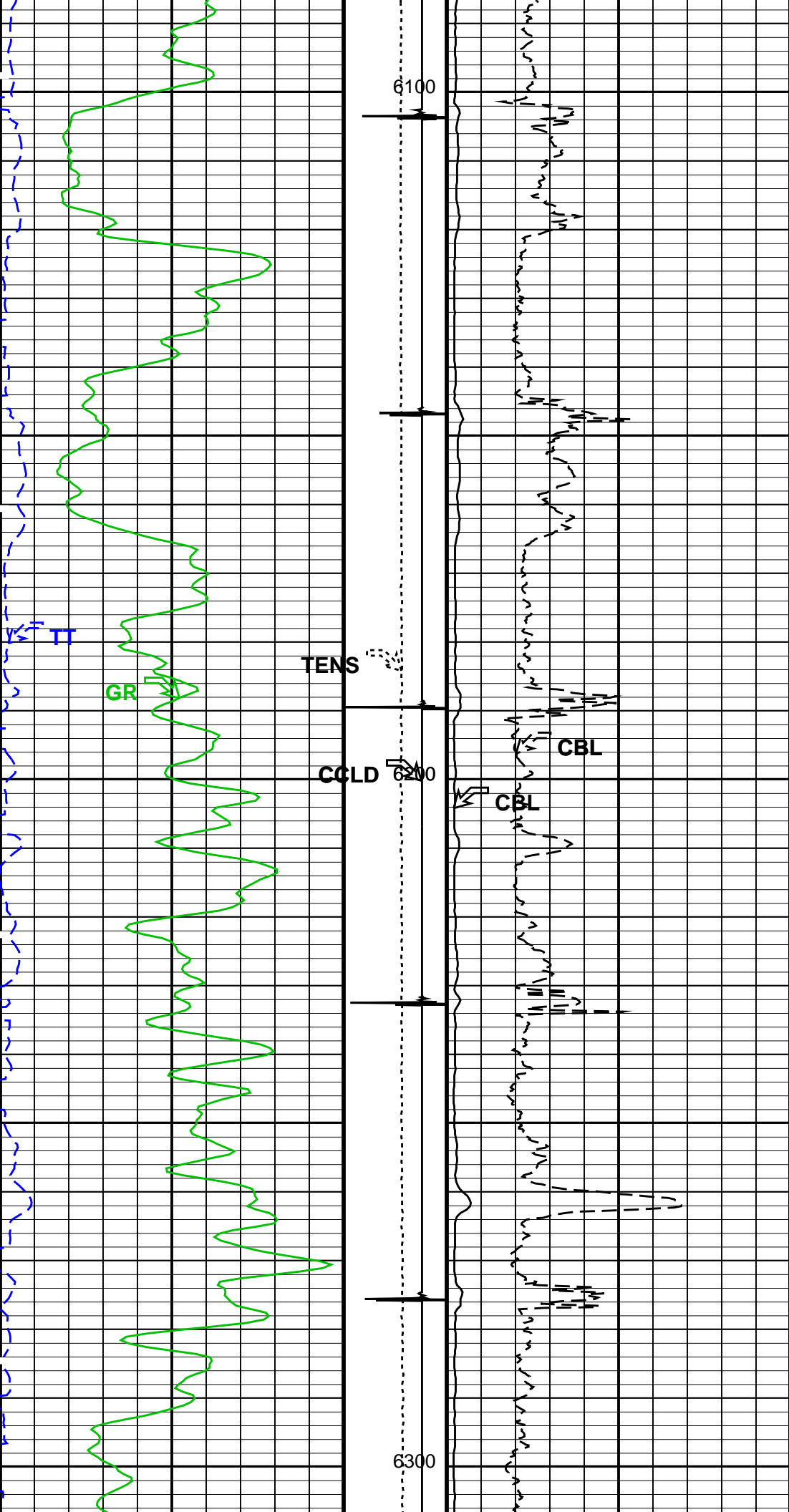


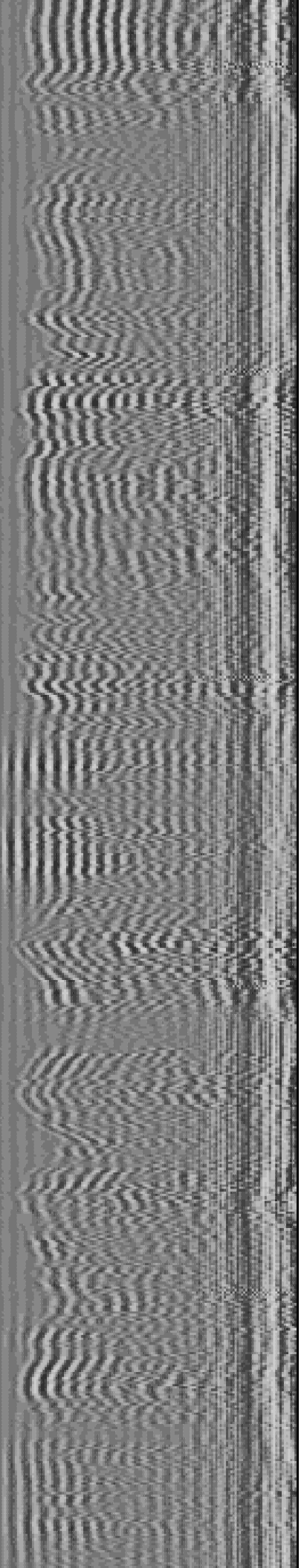
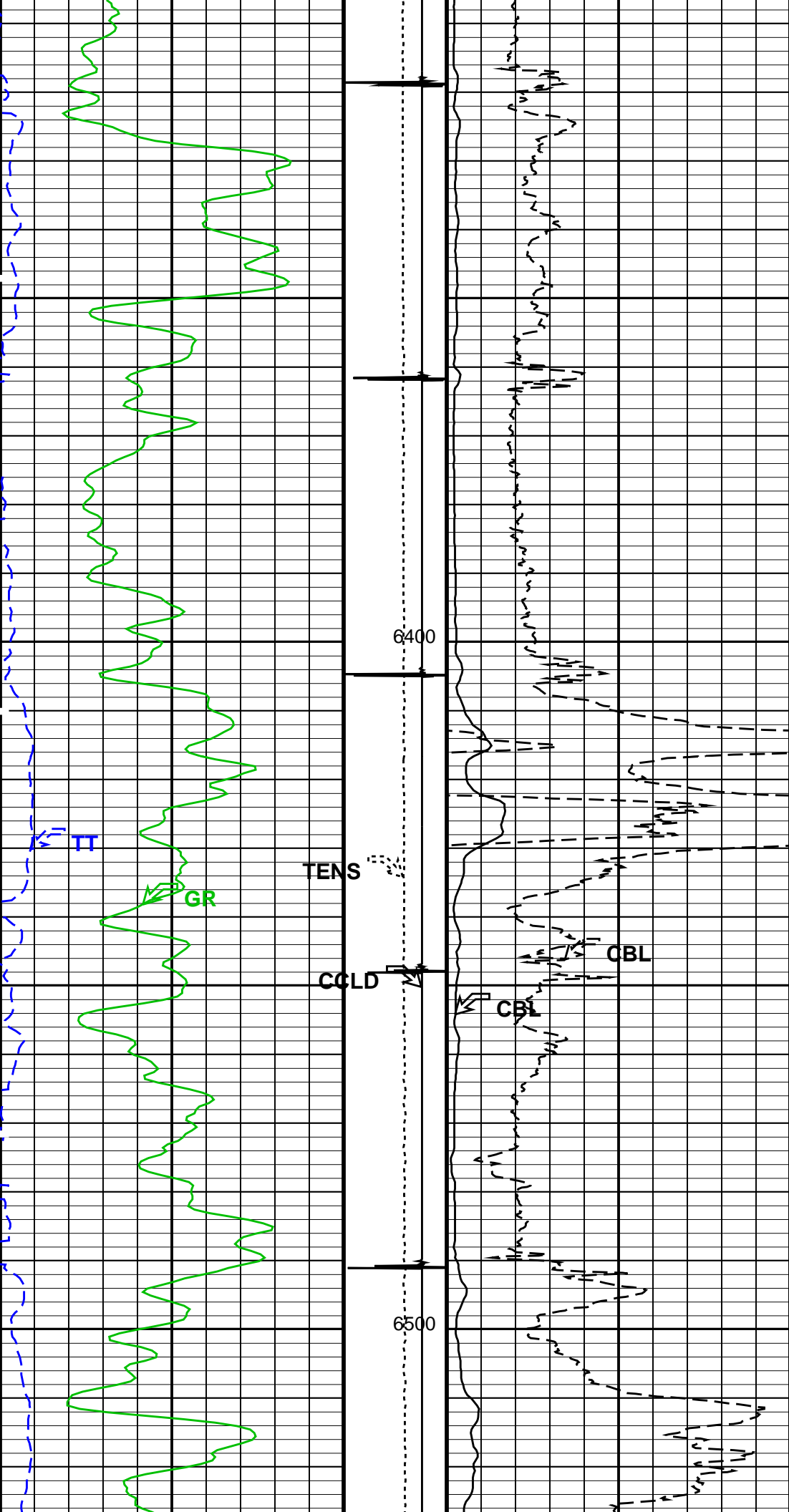


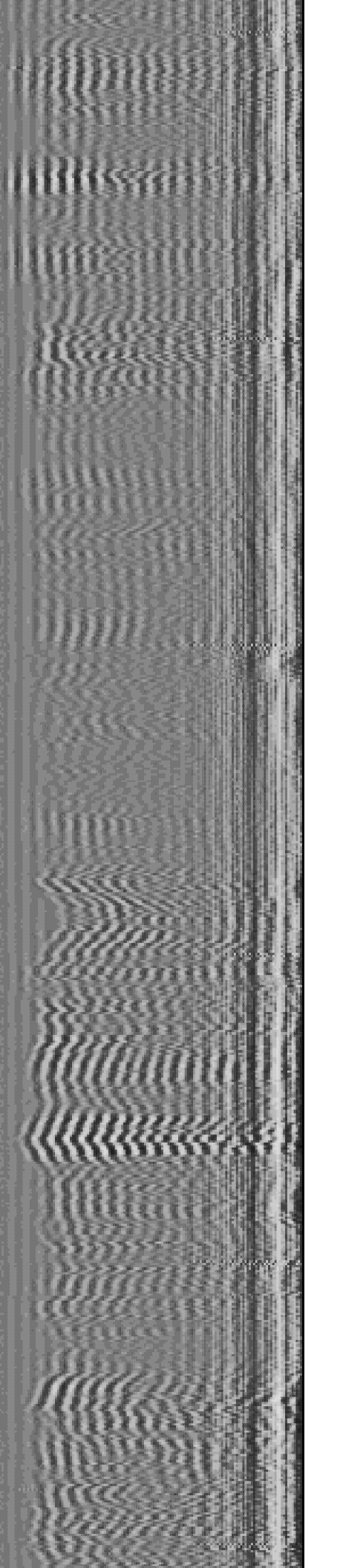
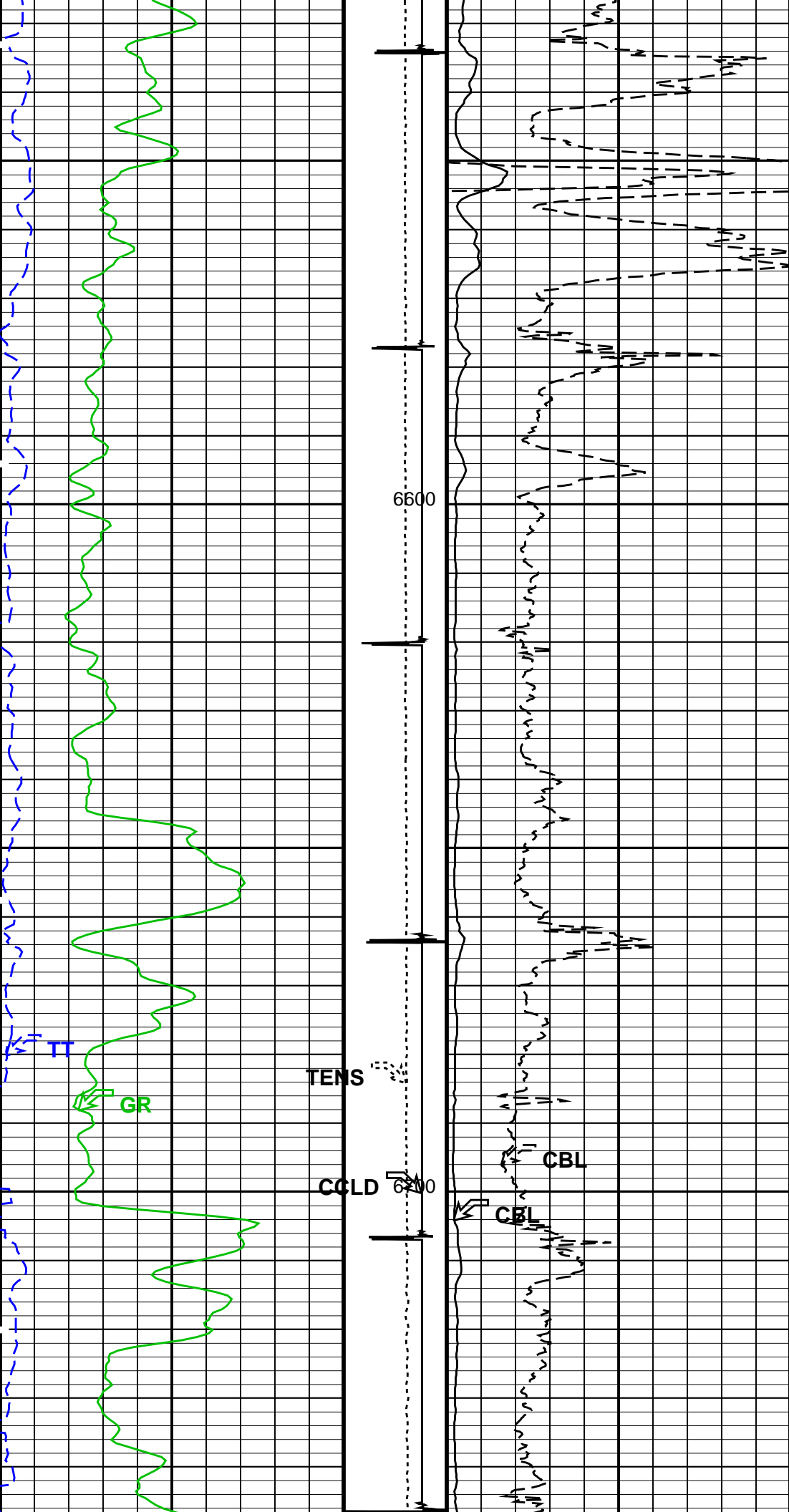


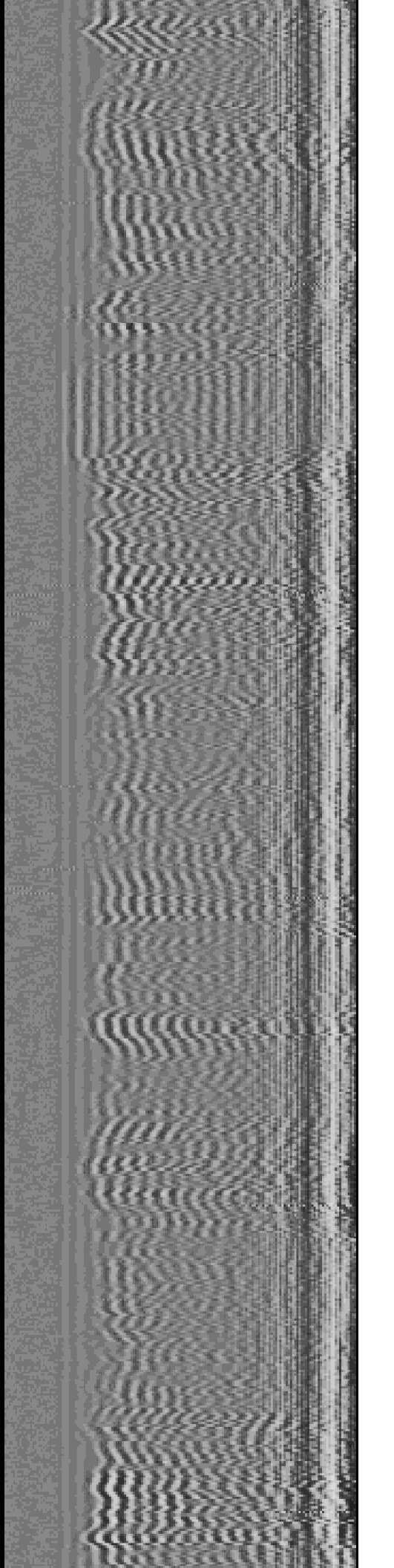
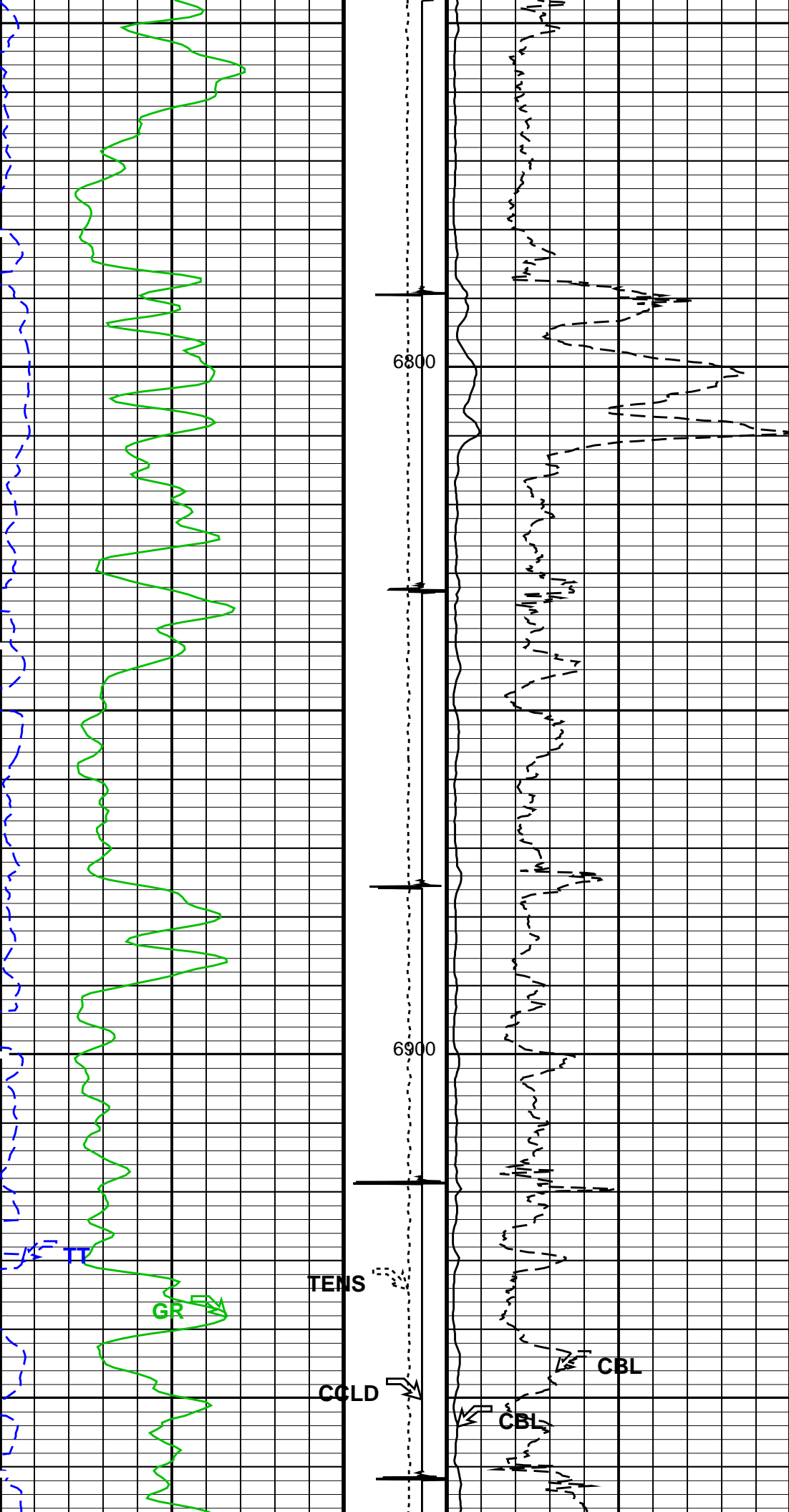


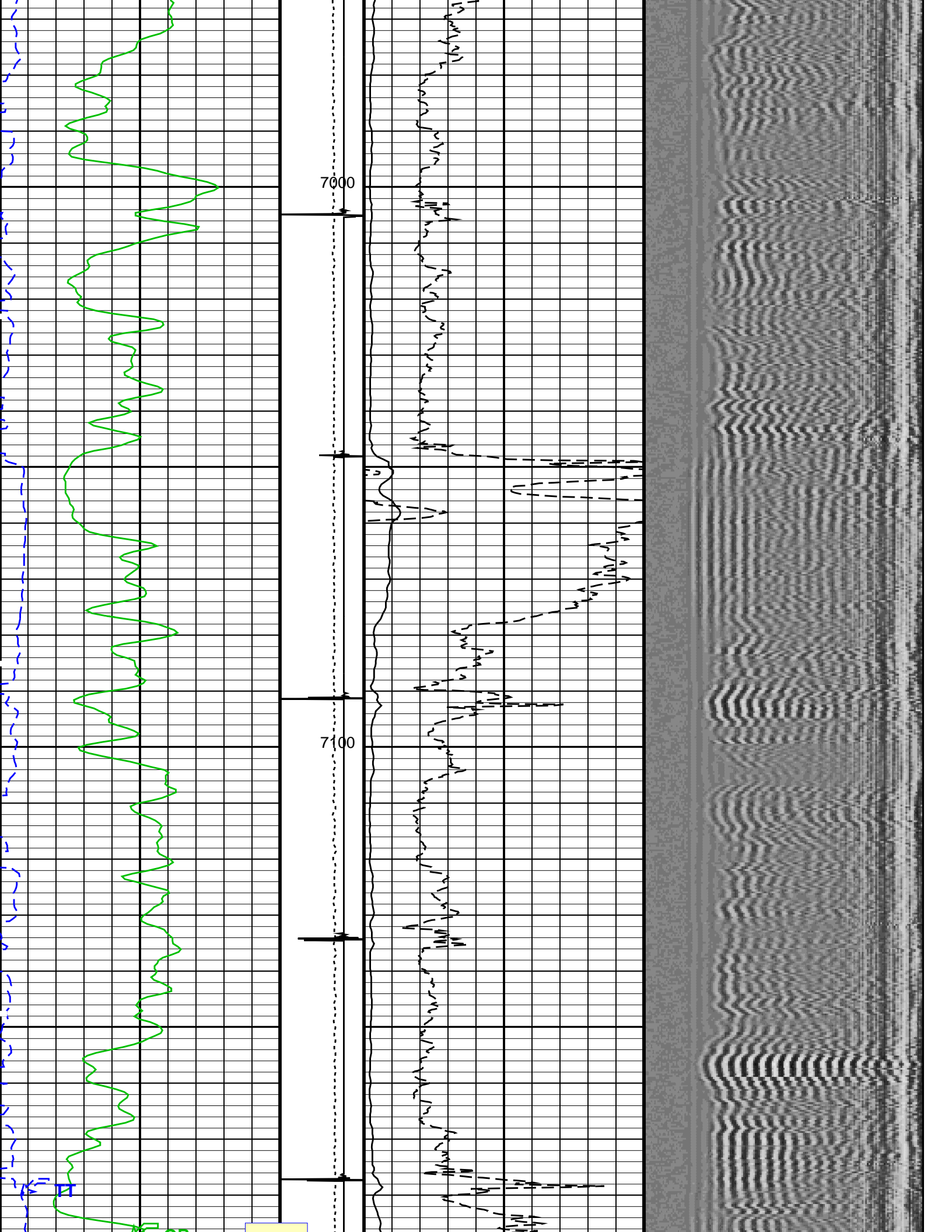


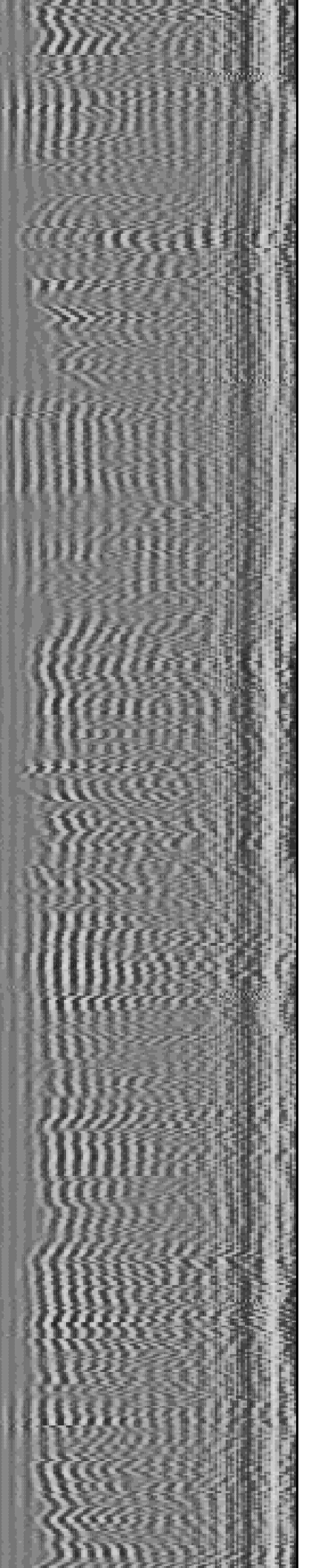
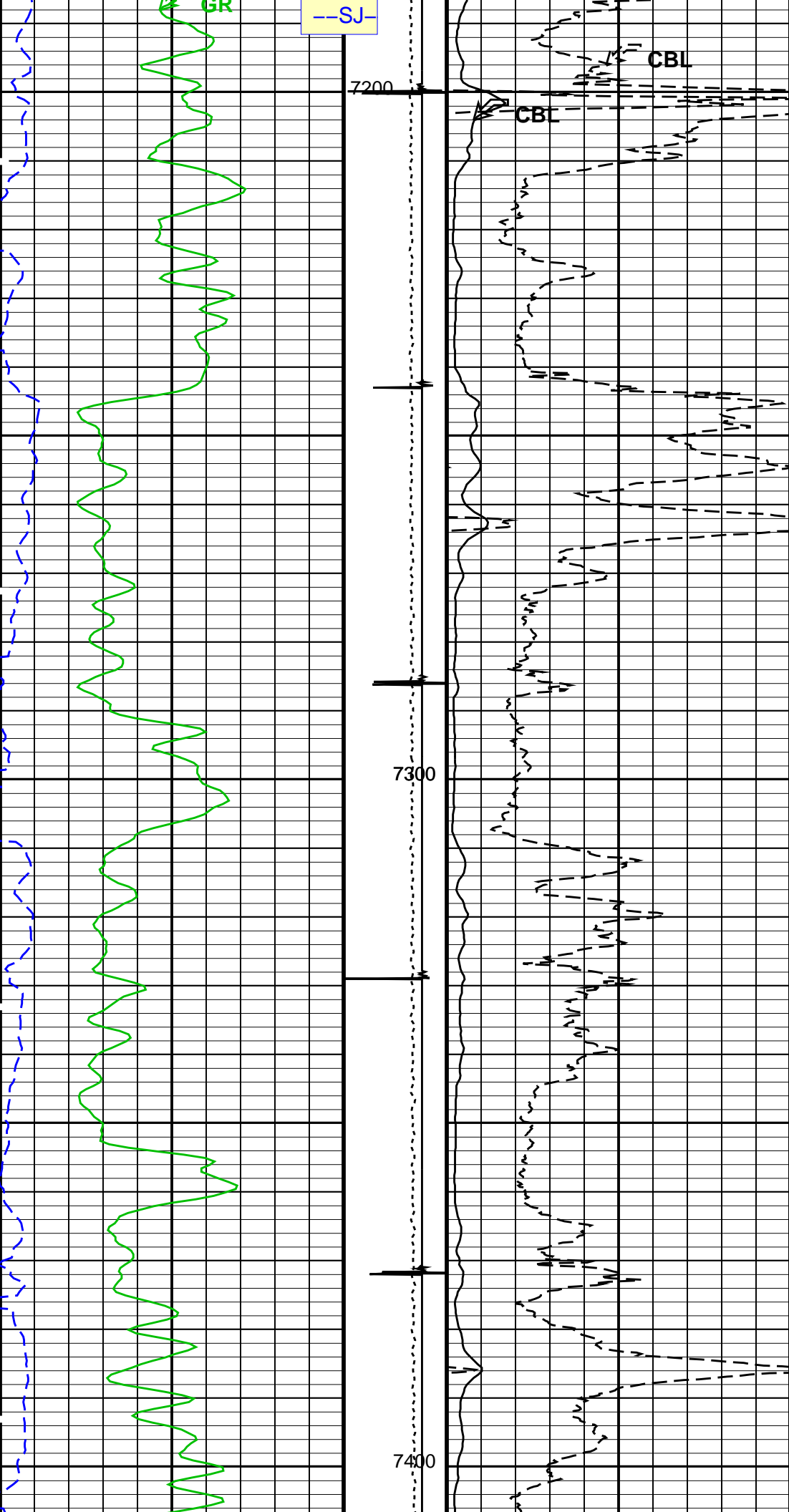


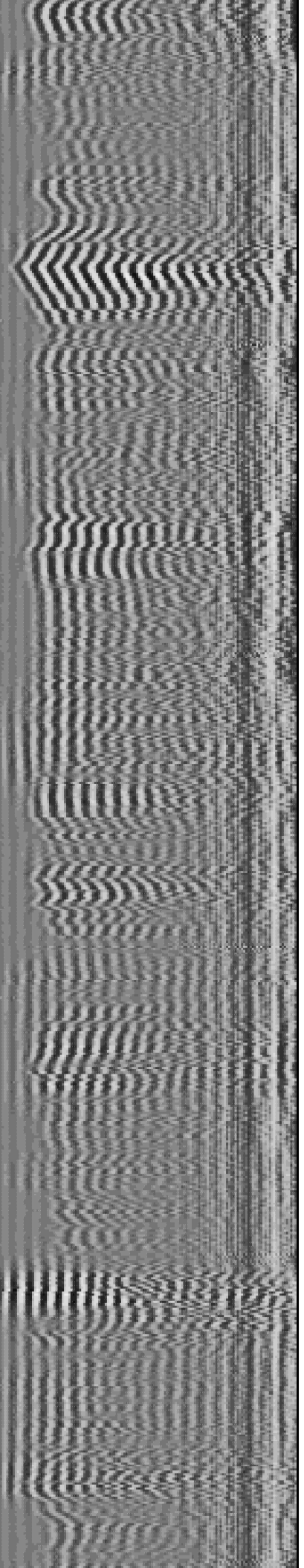
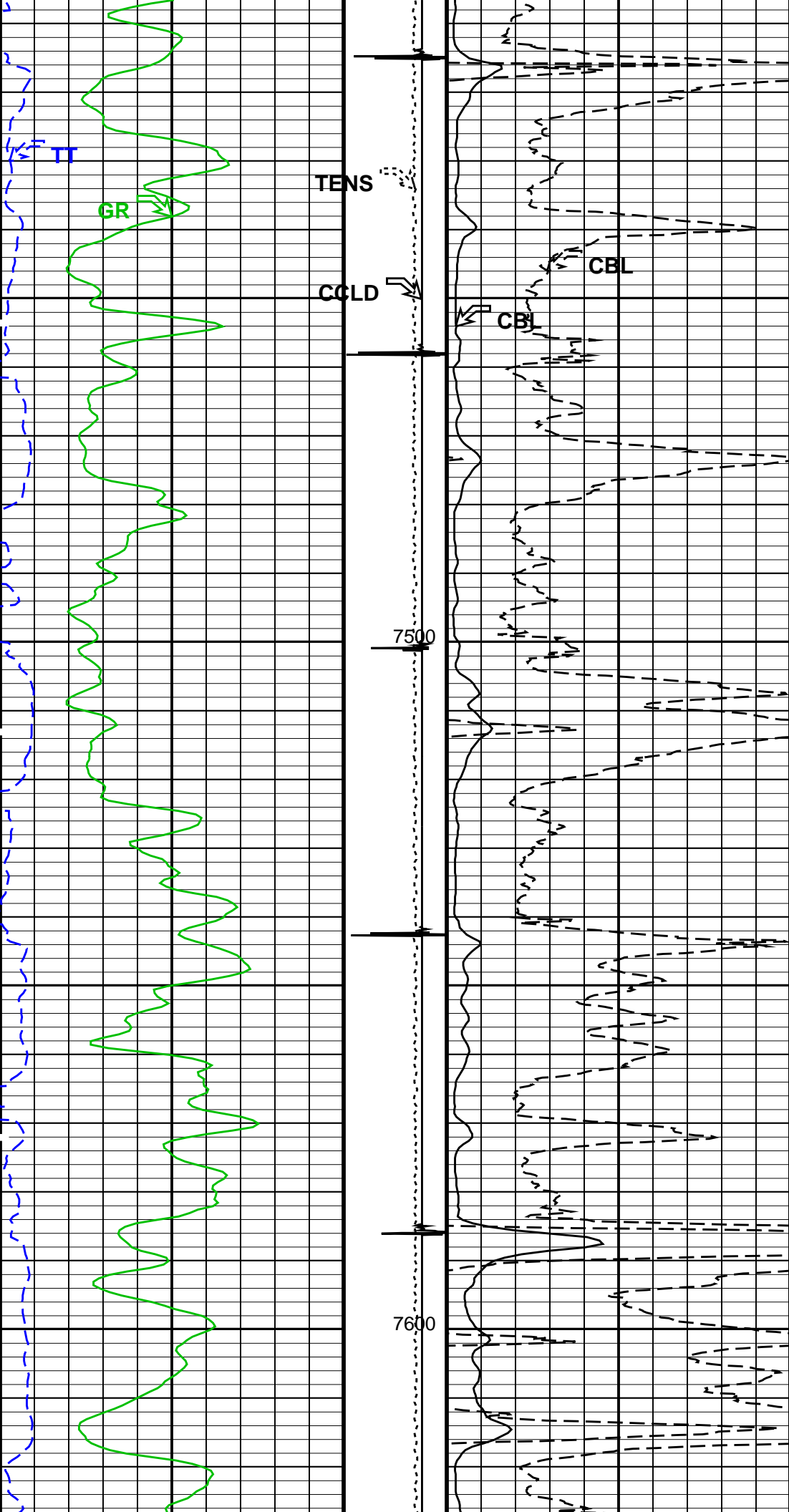


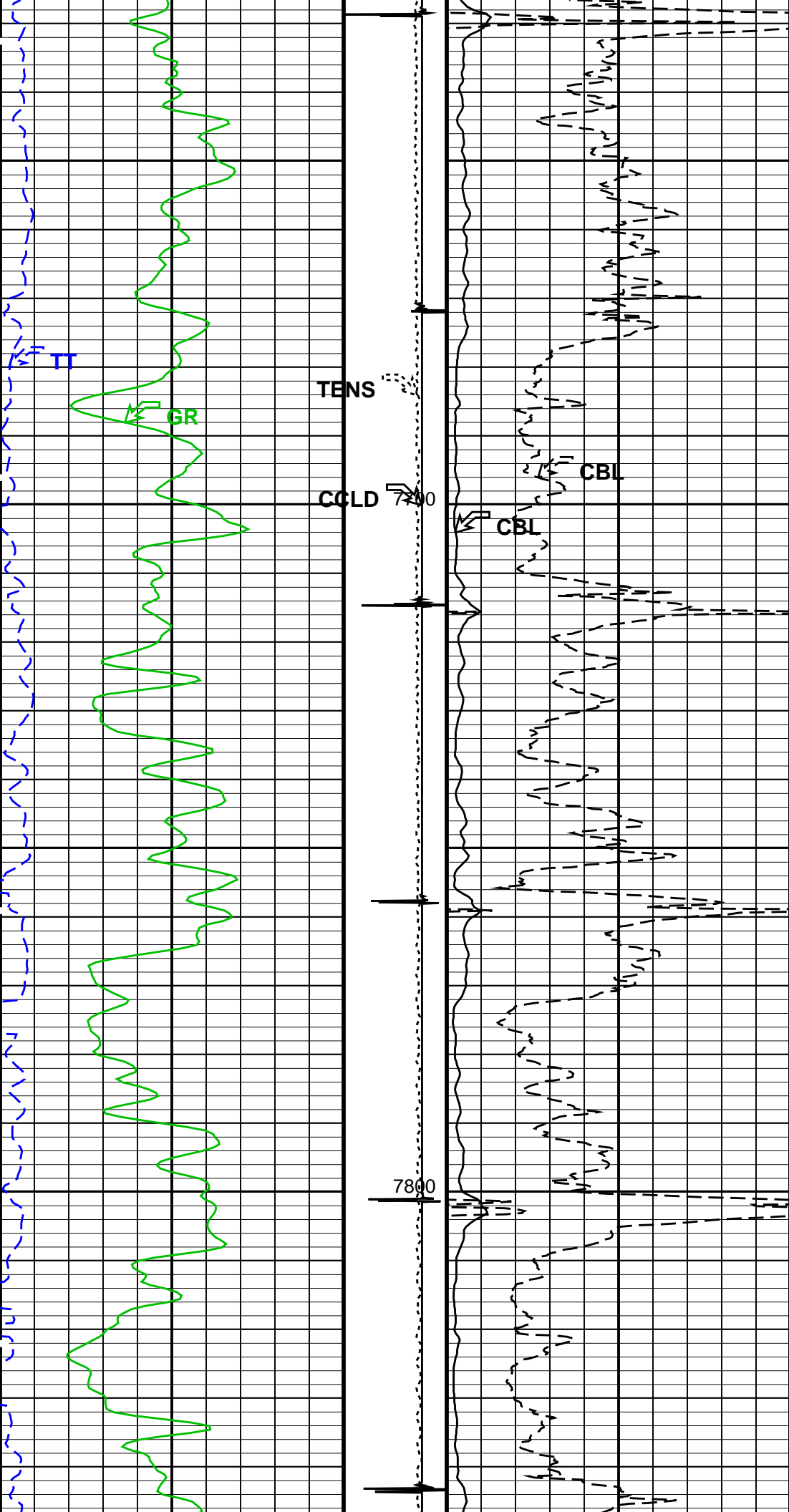


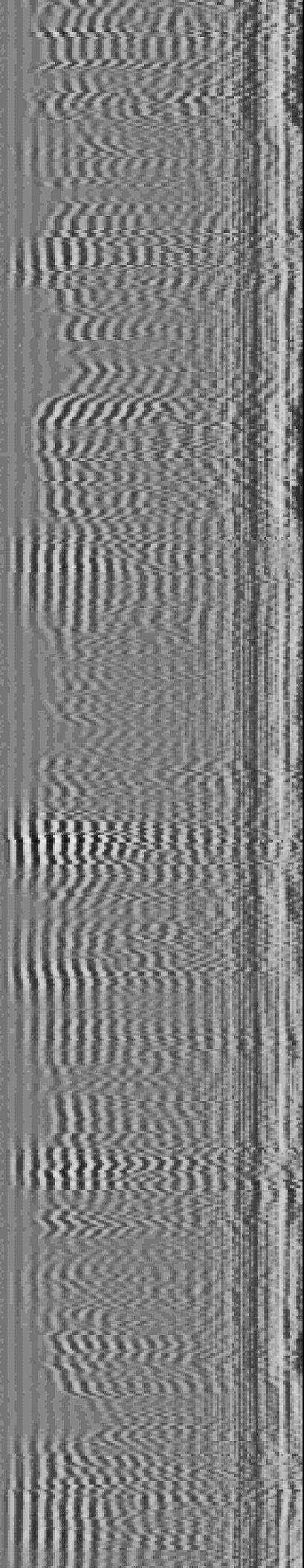
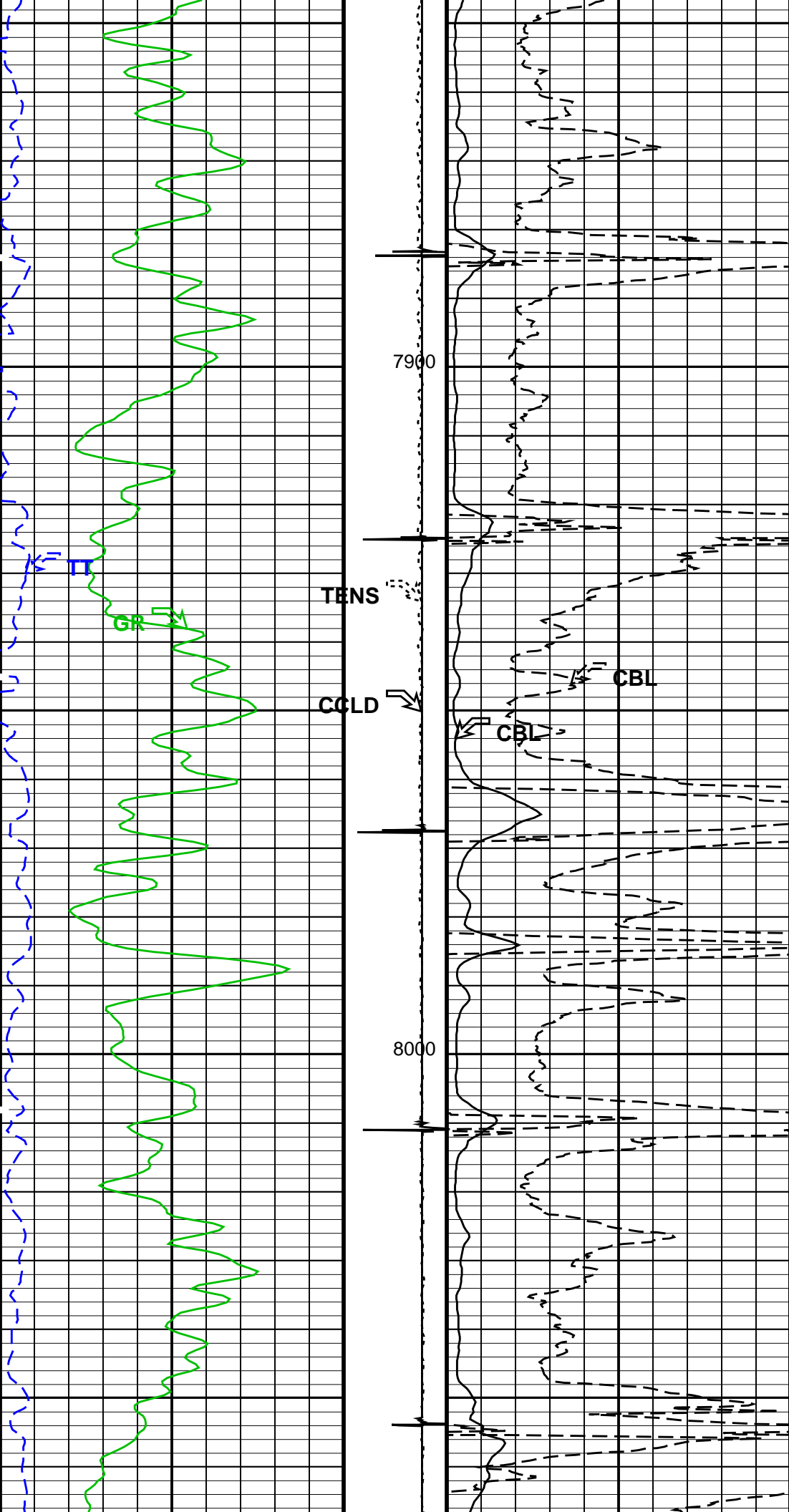


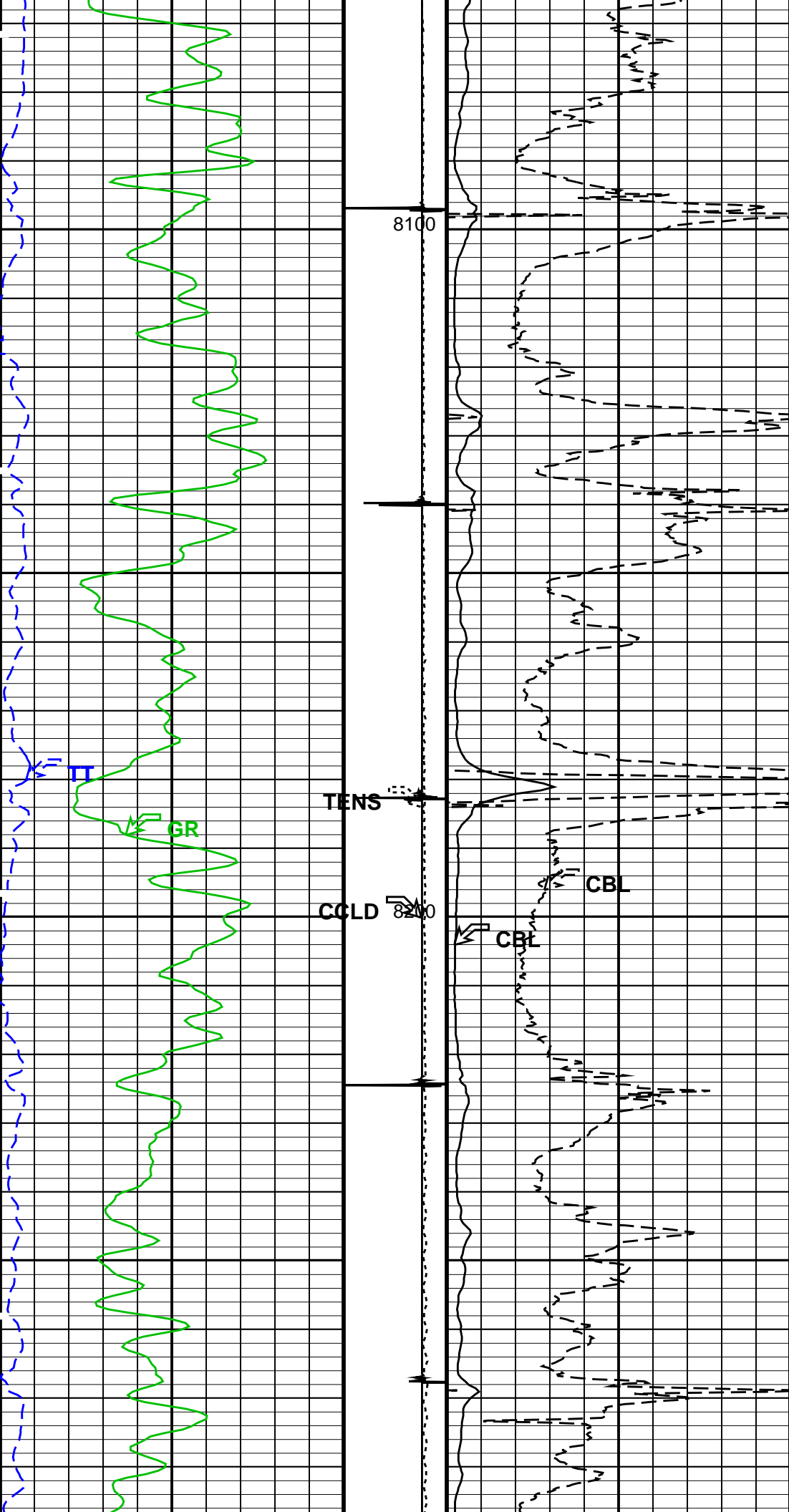


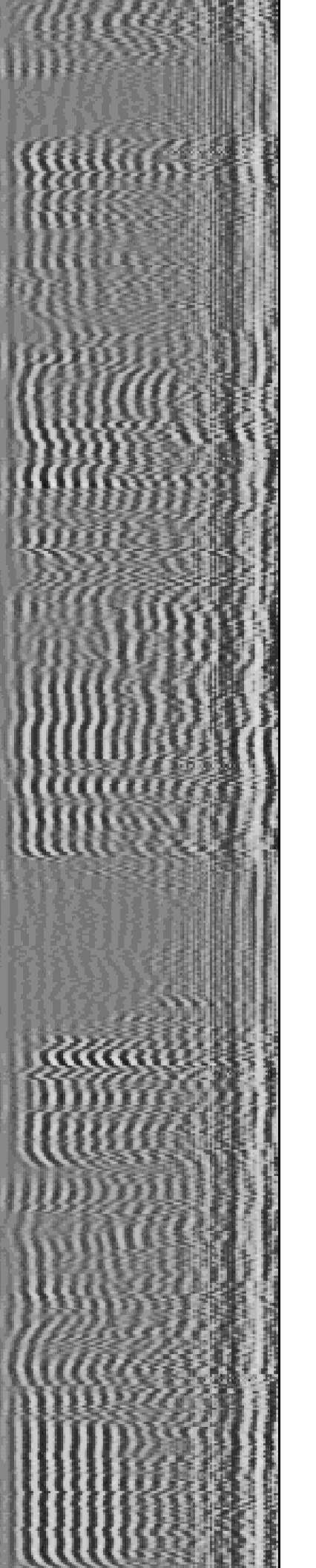
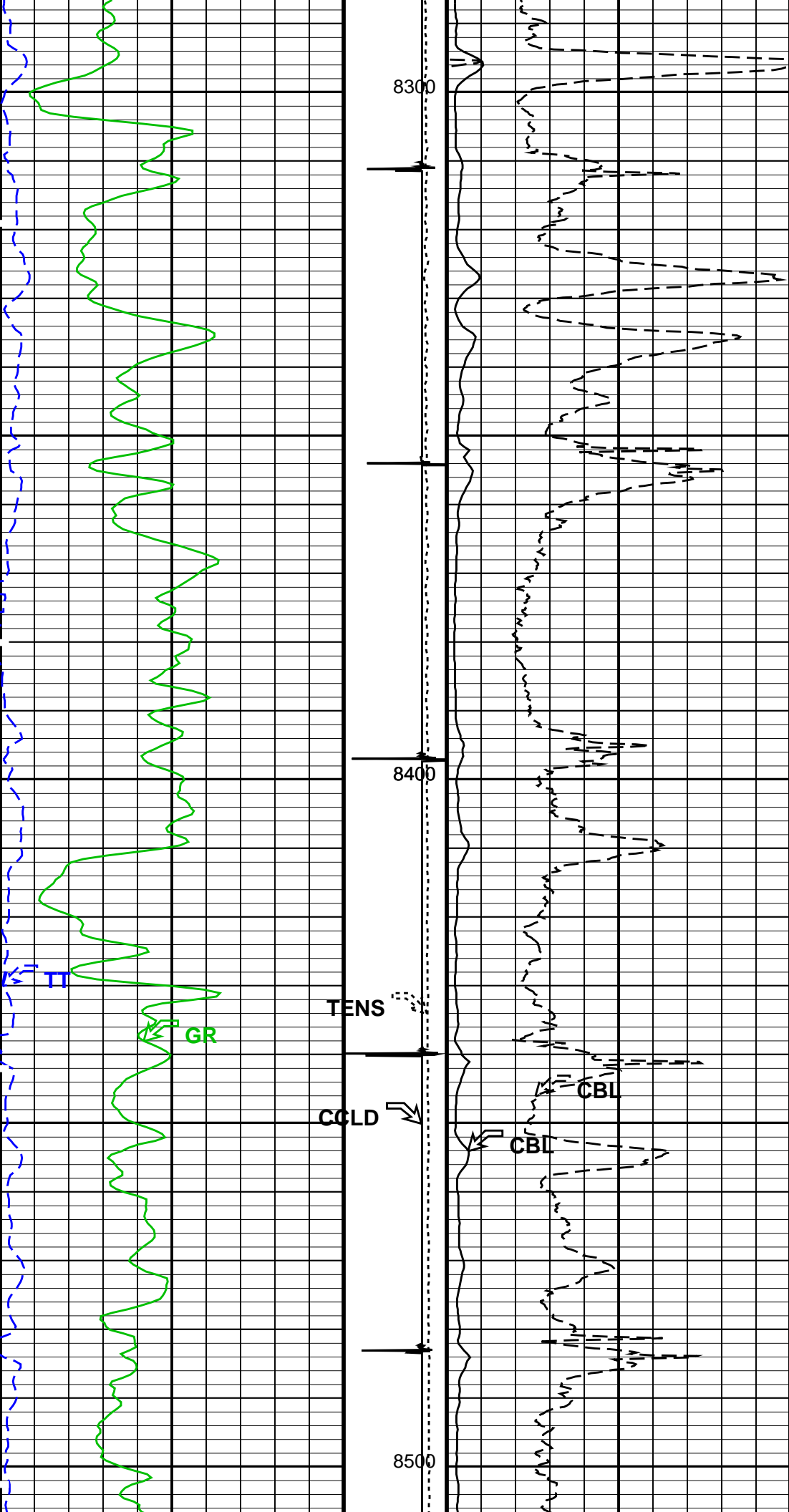


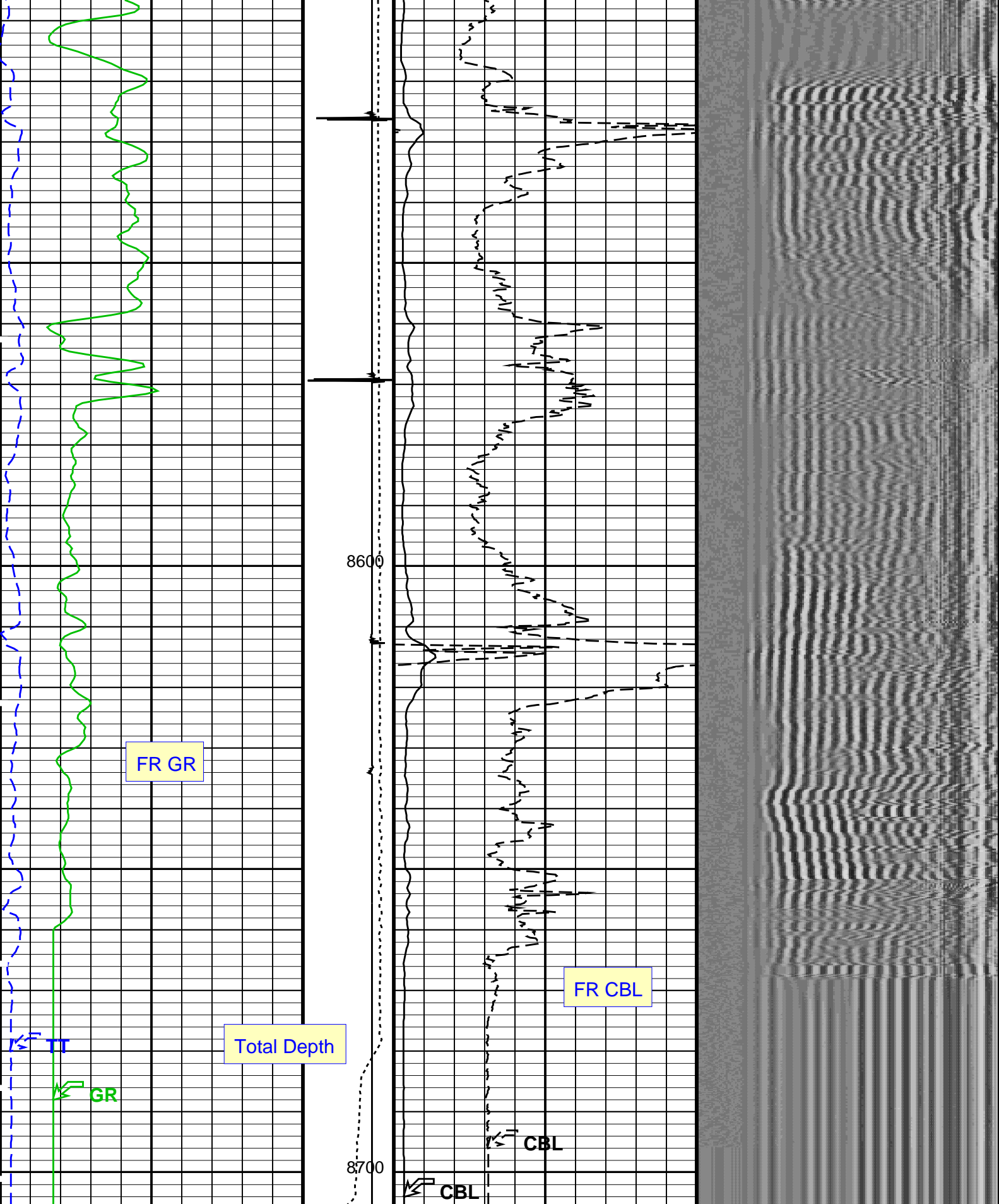












<p>Gamma Ray (GR) (GAPI)</p> <p>0 150</p>	<p>Tension (TENS) (LBF)</p> <p>0 2000</p>	<p>CBL Amplitude (CBL) (MV)</p> <p>0 100</p>	<p>Min Amplitude Max</p> <p>200 VDL VariableDensity (VDL) (US) 1200</p>
<p>Transit Time (TT)</p>	<p>Discriminat ed CCL</p>	<p>CBL Amplitude (CBL)</p>	

260	(US)	160	(CCLD)	0	(MV)	10
		3	(V)	-1		

PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL Vertical Scale: 5" per 100'

Graphics File Created: 13-Apr-2011 20:09

OP System Version: 17C0-154

SCMT-CB	17C0-154	RST-C	17C0-154
PSPT	17C0-154		

<<<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	0.572744 MV (100% Cement) 1.53811 MV (80% Cement)
		MAP Minimum Sonic Amplitude	4.27504 MV (100% Cement) 8.03067 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	228.424	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	342.424	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	204.5	US/F
FATT	Acoustic Attenuation due to Fluid	0	DB/F
FCF	CBL Fluid Compensation Factor	1	
GOBO	Good Bond	1.53811	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	171.424	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	4.27504	MV
MSA	Minimum Sonic Amplitude	0.572744	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	Current Casing Size	4.500	IN
CSIZ	Drilling Fluid Density	8.40	LB/G
DFD	Depth Offset for Repeat Analysis	0.0	FT
DORL	Total Depth	7588	FT
TD			

Output DLIS Files

DEFAULT
 SCMT_RST_PSP_036LUP
 FN:35
 PRODUCER
 13-Apr-2011 20:09

Schlumberger

REPEAT ANALYSIS

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC.
 Well: MF 06C-16 (H17) 696

Input DLIS Files

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 PRODUCER
 13-Apr-2011 19:57
 5115.0 FT
 4613.0 FT

Output DLIS Files

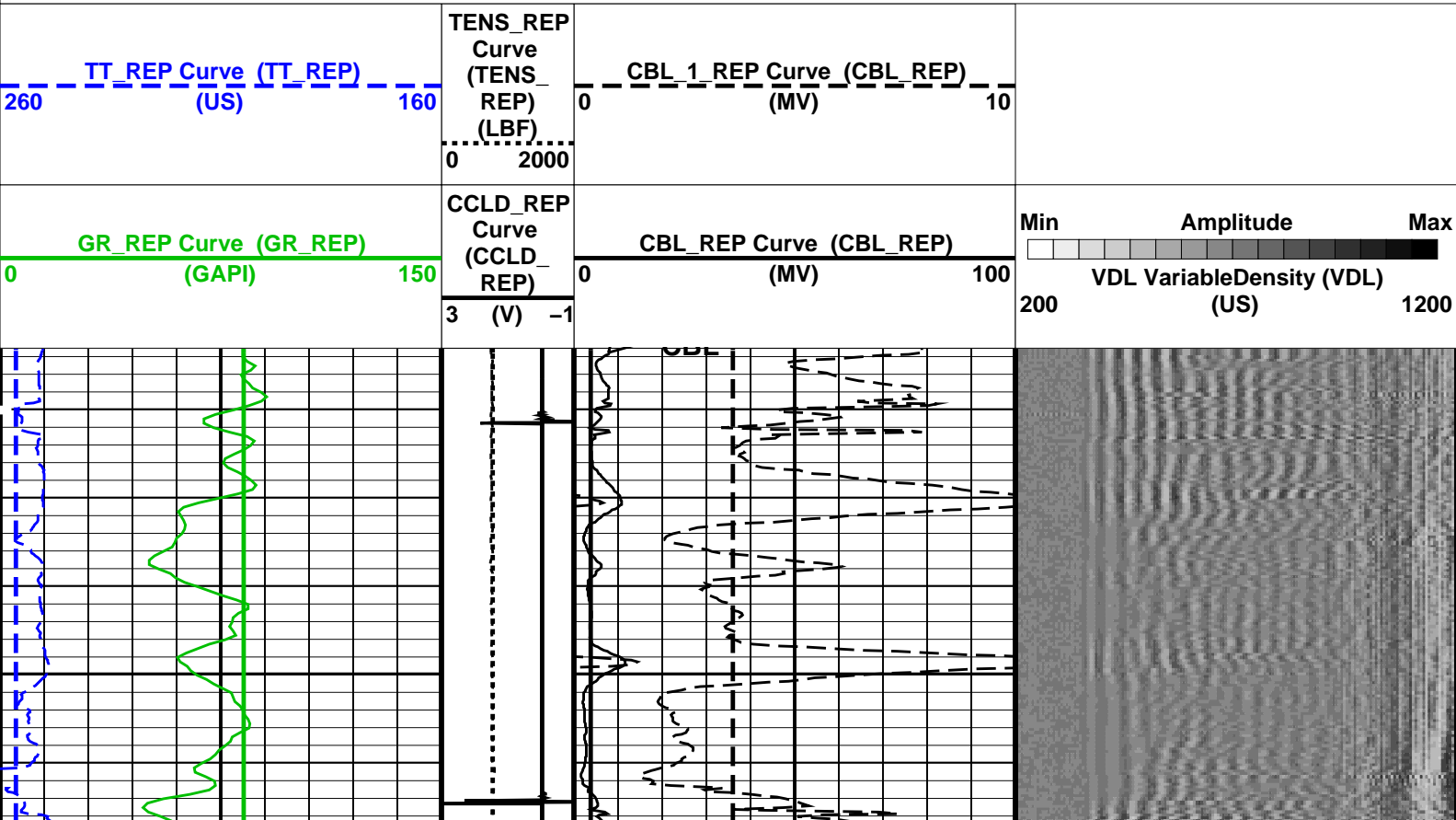
DEFAULT
 SCMT_RST_PSP_036LUP
 FN:35
 PRODUCER
 13-Apr-2011 20:09

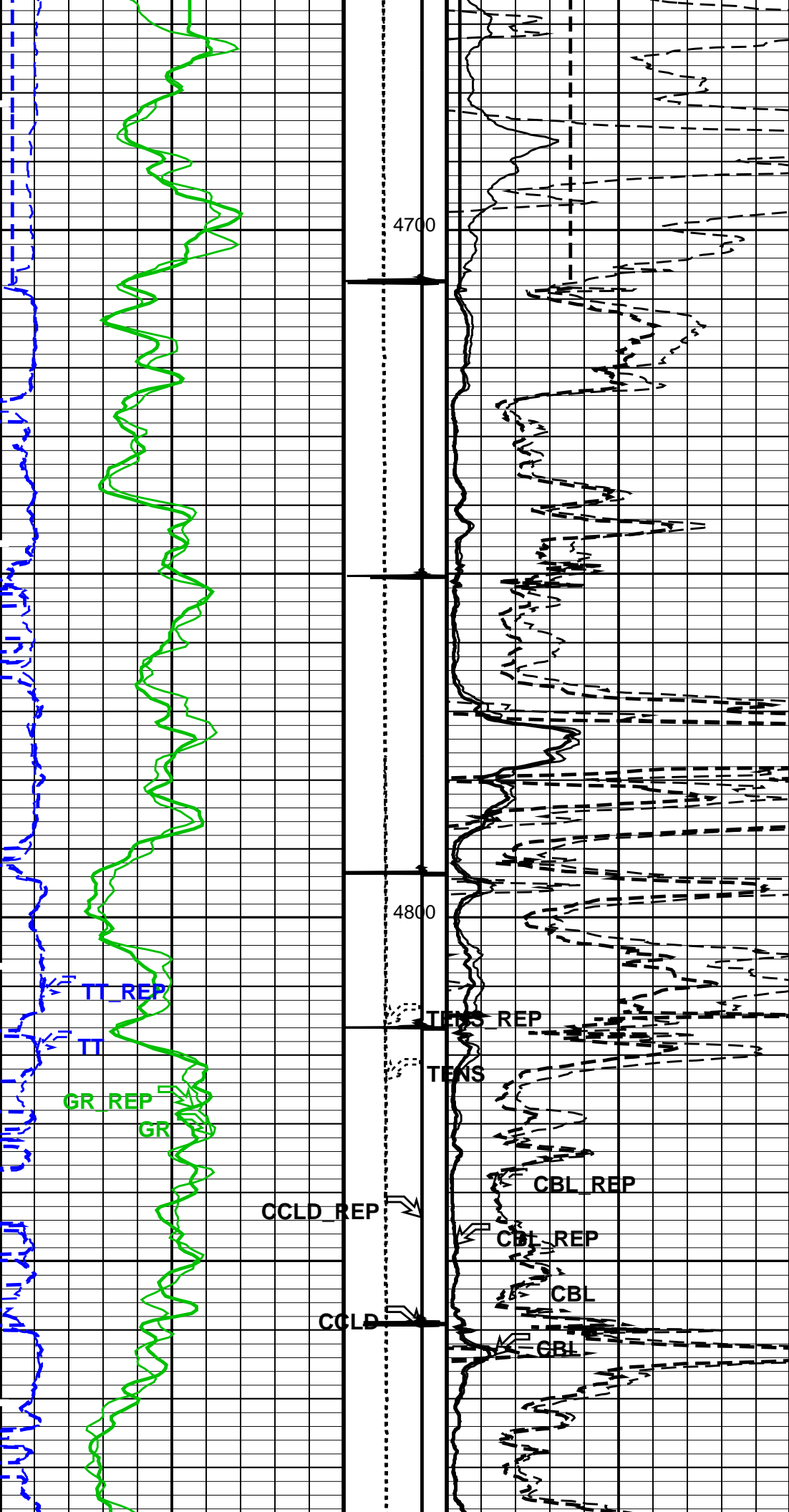
OP System Version: 17C0-154

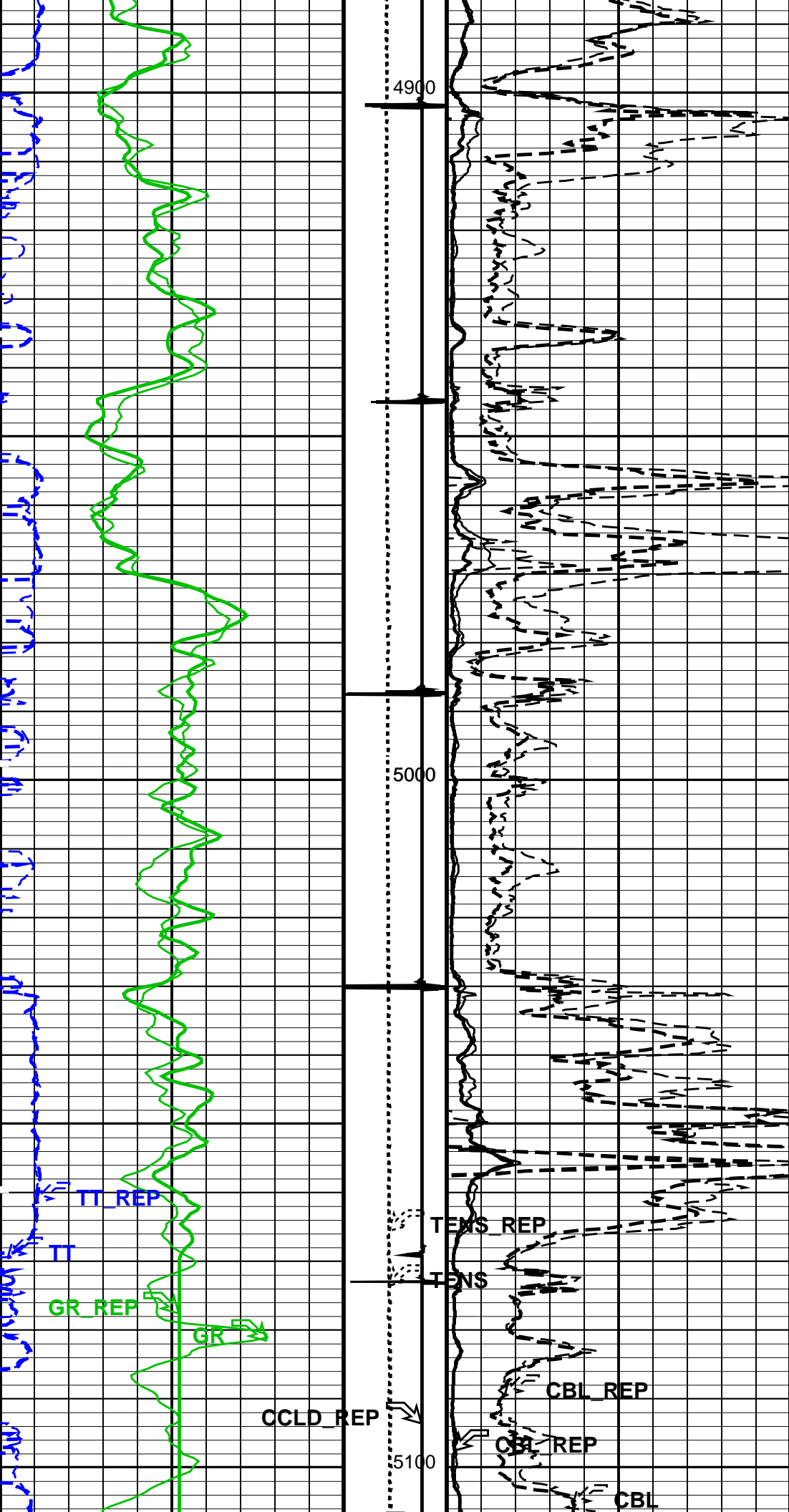
SCMT-CB
 17C0-154
 RST-C
 17C0-154
 PSPT
 17C0-154

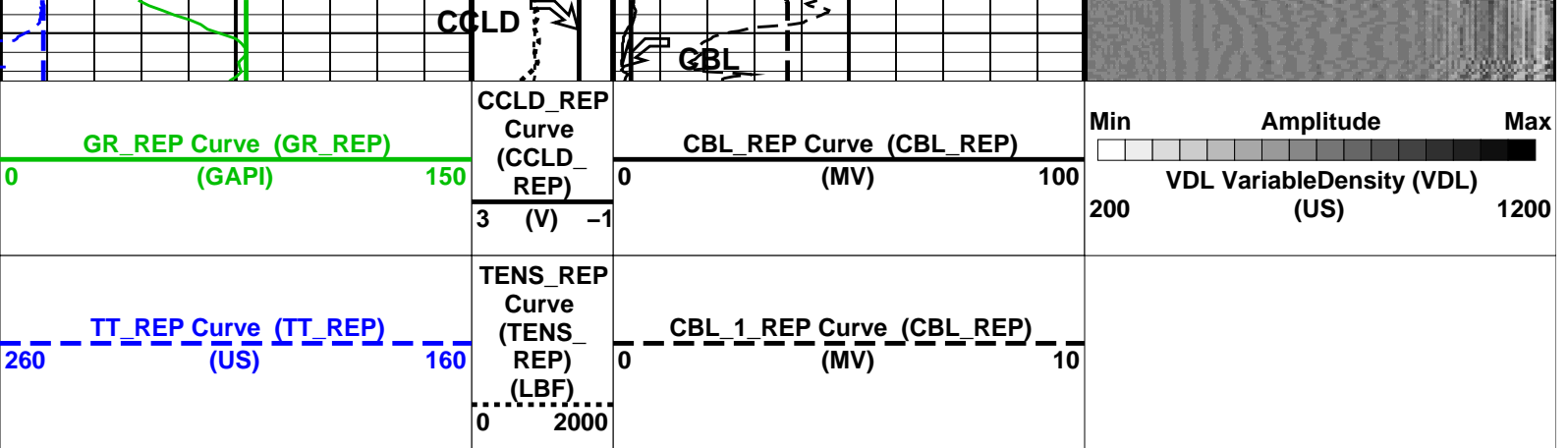
PIP SUMMARY

Time Mark Every 60 S









PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL_REP Vertical Scale: 5" per 100'

Graphics File Created: 13-Apr-2011 20:09

OP System Version: 17C0-154

SCMT-CB 17C0-154 RST-C 17C0-154
PSPT 17C0-154

<<<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	0.572744 MV (100% Cement) 1.53811 MV (80% Cement)
		MAP Minimum Sonic Amplitude	4.27504 MV (100% Cement) 8.03067 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	228.424 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	342.424 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	204.5	US/F
FATT	Acoustic Attenuation due to Fluid	0	DB/F
FCF	CBL Fluid Compensation Factor	1	
GOBO	Good Bond	1.53811	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0 Delay and Noise Gate	171.424	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	4.27504	MV
MSA	Minimum Sonic Amplitude	0.572744	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
DFD	Drilling Fluid Density	8.40	LB/G
DORL	Depth Offset for Repeat Analysis	0.0	FT
TD	Total Depth	7588	FT

Input DLIS Files

DEFAULT SCMT_RST_PSP_033PUP FN:32 PRODUCER 13-Apr-2011 19:57 5115.0 FT 4613.0 FT

Output DLIS Files

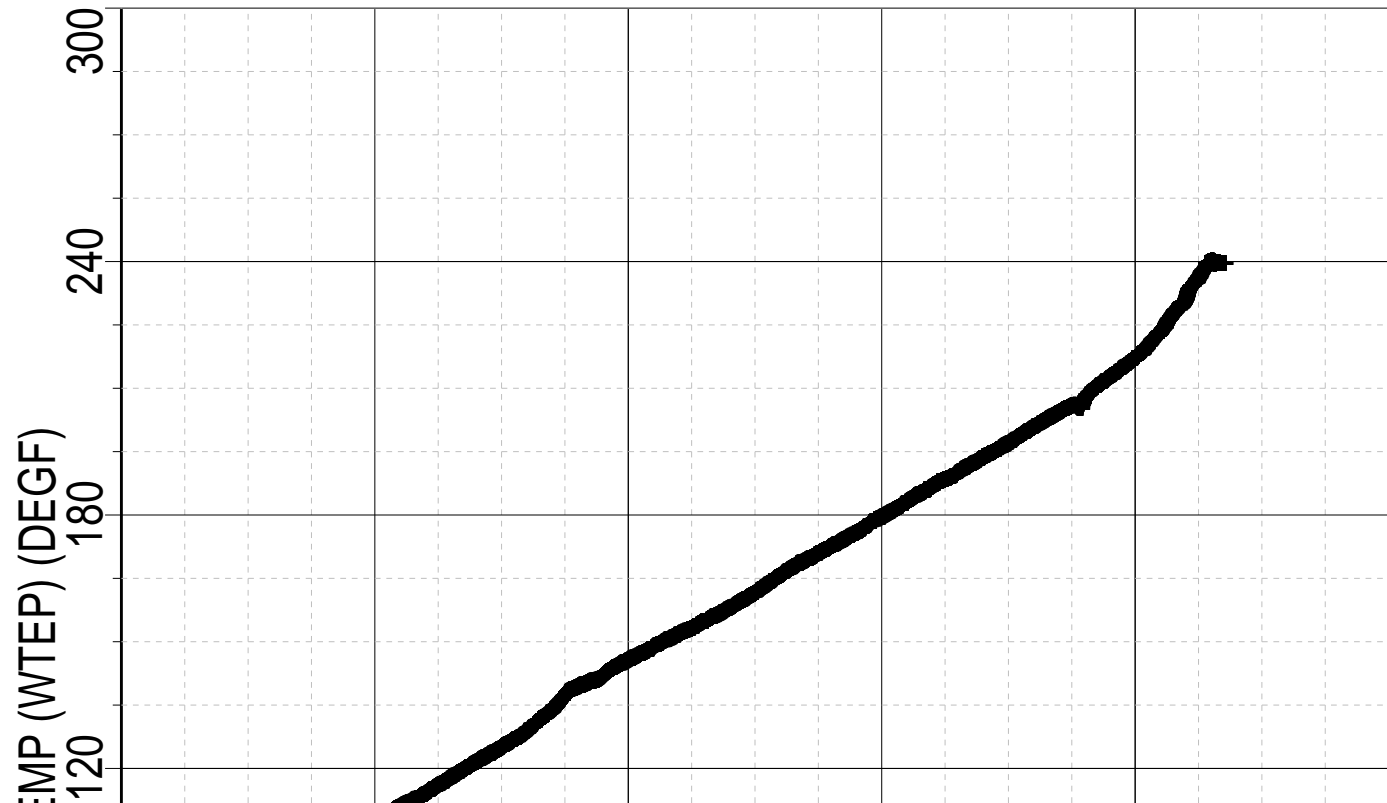
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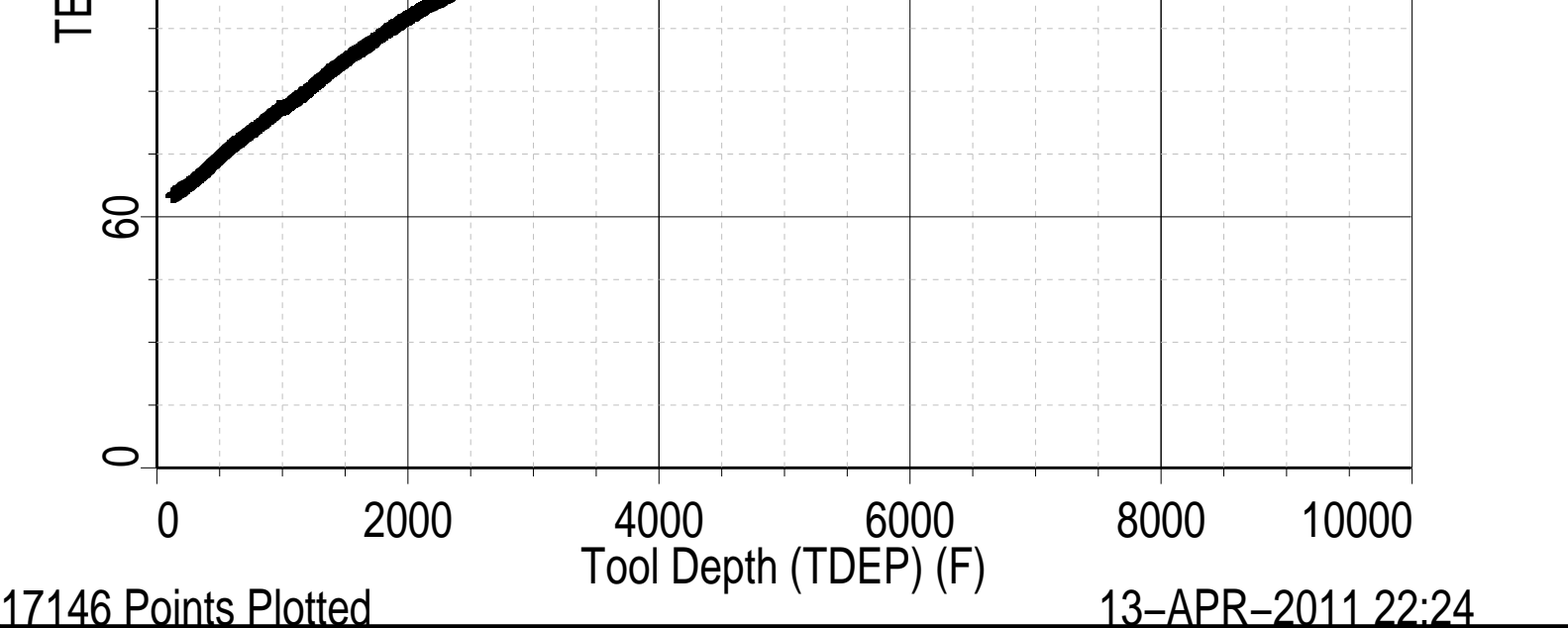


TEMPERATURE PLOT

MAXIS Field Log

Index: 8705.5 – 133.0 FT





Schlumberger

COEFFICIENTS

MAXIS Field Log

Client: ENCANA OIL & GAS (USA) INC.
Field: NORTH PARACHUTE
Well: MFH17 QUAD 2
Run date: 13-Apr-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: NORTH PARACHUTE

Well: MFH17 QUAD 2

Run date: 13-Apr-2011

Tool: PSP

Sub Type: PBMS

Sensor: Sapphire

PBMS Sapphire 10kPsi Gauge

Sonde Serial NB

Sensor Serial NB

Calib Date ddmmyy

Matrix Size

Coeff CRC

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

3779

090107

66

4C82

Pres Coeff

	Tt**0	Tt**1	Tt**2
Tp**0	−.611876617639E+04	+ .471061007964E+04	−.216447354932E+04
Tp**1	+ .371836126905E+04	−.234756196935E+04	+ .129149325686E+04
Tp**2	+ .193143980957E+02	−.189348218853E+01	−.341812471126E+01
Tp**3	−.568815065386E+01	+ .200079683569E+01	0.0
Tp**4	0.0	0.0	0.0
Tp**5	0.0	0.0	0.0

	Tt**3	Tt**4	Tt**5
Tp**0	+ .380249508124E+03	−.247683004908E+02	0.0
Tp**1	−.227135245080E+03	+ .146352372057E+02	0.0
Tp**2	0.0	0.0	0.0
Tp**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

Calib Date ddmmyy

Matrix Size

Coeff CRC

:

3779

090107

66

C39E

Temp Coeff

	Tp**0	Tp**1	Tp**2
TEMP	0.00000000E+00	0.00000000E+00	0.00000000E+00

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: MFH17 QUAD 2
Run date: 13-Apr-2011

Tool: PSP
Sub Type: PBMS
Sensor: GR

PBMS Gamma Ray

Sonde Serial NB RESISTORS FOR GR SENSOR N.34552, TOOL PBMS-AA3779. SENSOR S/N:
Sensor Serial NB 34552
Calib Date ddmmyy 030606
Matrix Size 12
Coeff CRC 3AE5

GR HV Rt

Rt**0

Rt**1

Rt**0	+.200000000000e+04	+.214000000000e+04
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Client: ENCANA OIL & GAS (USA) INC.

Field: NORTH PARACHUTE

Well: MFH17 QUAD 2

Run date: 13-Apr-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.



Well: MF 07C-16 (H17) 696

Field: NORTH PARACHUTE

County: GARFIELD

State: COLORADO

CEMENT BOND LOG

CBL- VDL

GAMMA RAY - CCL