

Company: ENCANA OIL & GAS (USA) INC.

Well: TWIN CREEK 1-10B1 (O1EB)

Field: MAMM CREEK

County: GARFIELD State: COLORADO

CEMENT BOND LOG
CBL - VDL
GAMMA RAY - CCL

County: GARFIELD
Field: MAMM CREEK
Location: SHL: 845 FSL 1868 FEL
Well: TWIN CREEK 1-10B1 (O1EB)
Company: ENCANA OIL & GAS (USA) INC.

LOCATION			
SHL: 845 FSL 1868 FEL BHL: 330 FNL 2015 FEL	Elev.: K.B. 6084.00 ft G.L. 6062.00 ft D.F. 6083.00 ft		
Permanent Datum: _____	GROUND LEVEL _____	Elev.: 6062.00 ft _____	
Log Measured From: _____	KELLY BUSHING _____	22.00 ft above Perm. Datum	
Drilling Measured From: _____	KELLY BUSHING _____		
API Serial No. 05-045-19536-000C	Section 1	Township 7S	Range 92W

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 27-Jan-2011

Run Number TWO

Depth Driller 6265 ft

Schlumberger Depth 6183 ft

Bottom Log Interval 6174.4 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 6265 ft

Casing/Tubing Size 4.500 in

Weight 11.6 lbm/ft

Grade E80

From 22 ft

To 6255 ft

Maximum Recorded Temperatures 166 degF

Logger On Bottom 27-Jan-2011 17:05

Unit Number 385 Location GRAND JUNCTION

Recorded By HOSSAIN AND CHAN

Witnessed By UNATTENDED

DEPTH SUMMARY LISTING

Date Created: 27-JAN-2011 17:50:48

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	1-25P
Serial Number:	3775	Serial Number:	2537	Serial Number:	385
Calibration Date:	28-DEC-2010	Calibration Date:	25-JAN-201	Length:	18000 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	1159		
Calibration Cable Type:	1-25P	Number of Calibration Points:	10	Conveyance Method:	Wireline
Wheel Correction 1:	-5	Calibration RMS:	5	Rig Type:	LAND
Wheel Correction 2:	-5	Calibration Peak Error:	10		

Depth Control Parameters	
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Log Sequence:	Subsequent Trip To the Well
Reference Log Name:	TEMPERATURE LOG
Reference Log Run Number:	1
Reference Log Date:	17-OCT-2010
Subsequent Trip Down Log Correction:	4.00 FT

Depth Control Remarks	
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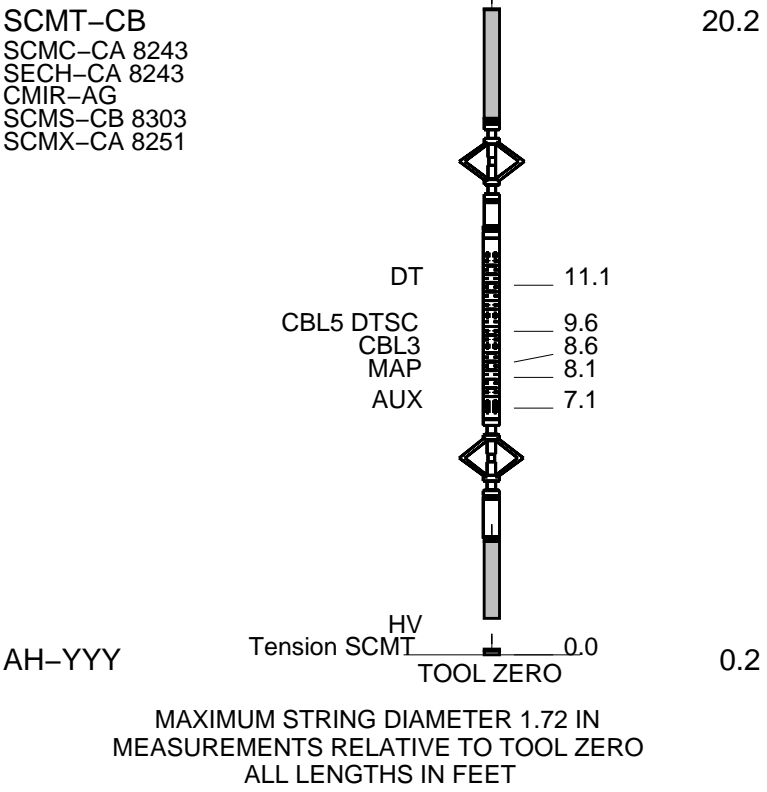
- | |
|---|
| <ol style="list-style-type: none">1. ALL SCHLUMBERGER DEPTH CONTROL PROCEDURES FOLLOWED2. IDW USED AS PRIMARY DEPTH CONTROL.3. Z-CHART USED AS SECONDARY DEPTH CONTROL4.5.6. |
|---|

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	OTHER SERVICES2
OS1: RST SIGMA	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
THIS IS A SUBSEQUENT TRIP IN HOLE.	
TOOL RAN AS PER TOOL SKETCH.	
THIS LOG CORRELATED TO TEMPERATURE LOG BY SCHLUMBERGER	ON 17-OCT-2010
TD TAGGED AT: 6183 FT	
MAX RECORDED TEMP: 166 DEGF	
MAX RECORDED PRESSURE: 2503 PSIA	

SHORT JOINTS: 5172 FT AND 4162 FT					
EXPECTED CBL AMPLITUDE: 80 mV					
TRANSIT TIME CYCLE SKIPPING IN ZONES OF GOOD CEMENT DUE TO LOW SIGNAL AMPLITUDE.					
LOGGED AT: 3600 FT/HR					
AFE: 9132507					
THANK YOU FOR CHOOSING SCHLUMBERGER.					
YOUR CREW: 385-AZIZ AND ROSA					
RUN 1			RUN 2		
SERVICE ORDER #:		BCN9-00111	SERVICE ORDER #:		
PROGRAM VERSION:		18C0-147	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 3812 PSC_16MHZ 1921					
DOWNHOLE EQUIPMENT					
<div><div>MH-22 MH-22 385</div><div>Detail MT TelStatus CTEM</div><div><div></div><div></div><div></div></div><div>53.4</div></div>					
<div><div>AH-38</div><div></div><div></div><div>51.5</div><div>51.8</div></div>					
<div><div>PSPT</div><div></div><div></div><div>51.5</div></div>					
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<div><div>RST-C</div><div></div><div></div><div>43.2</div></div>					
<div><div>RSCH-A 453 RSC-C 453 RSS-A 461 RSXH-A 309 RSX-C 309</div><div></div><div></div><div></div></div>					
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Schlumberger

MAIN PASS 0 PSI

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC.

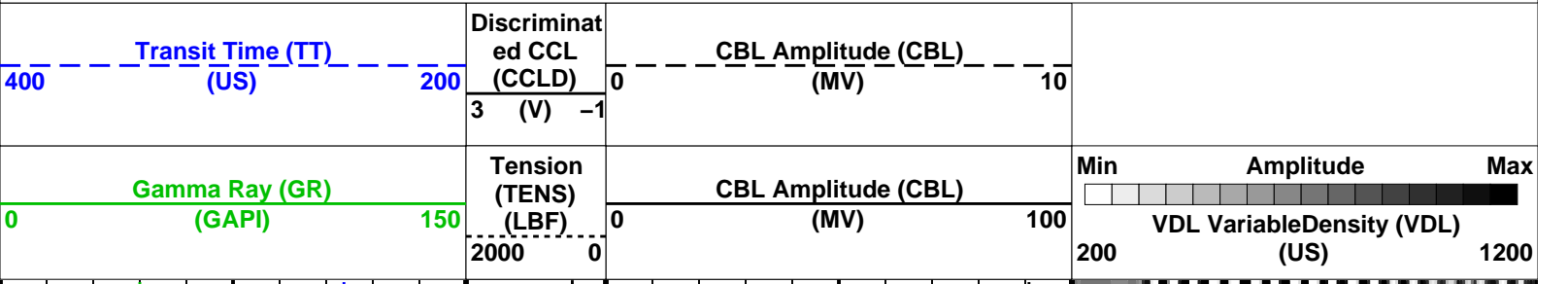
Well: TWIN CREEK 1-10B1 (O1EB)

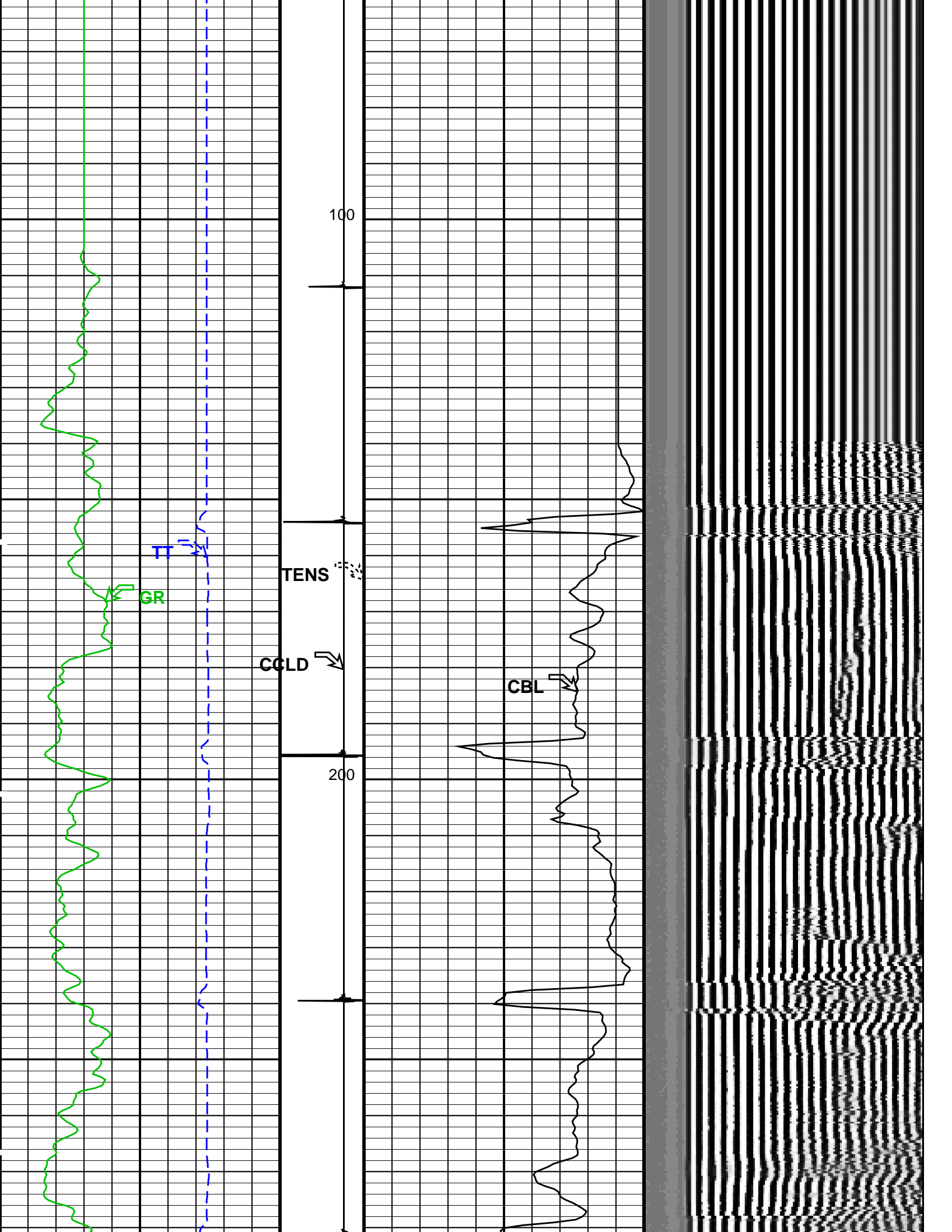
Input DLIS Files						
DEFAULT	SCMT_RST_PSP_065LUP	FN:64	PRODUCER	27-Jan-2011 17:05	6179.5 FT	98.5 FT
Output DLIS Files						
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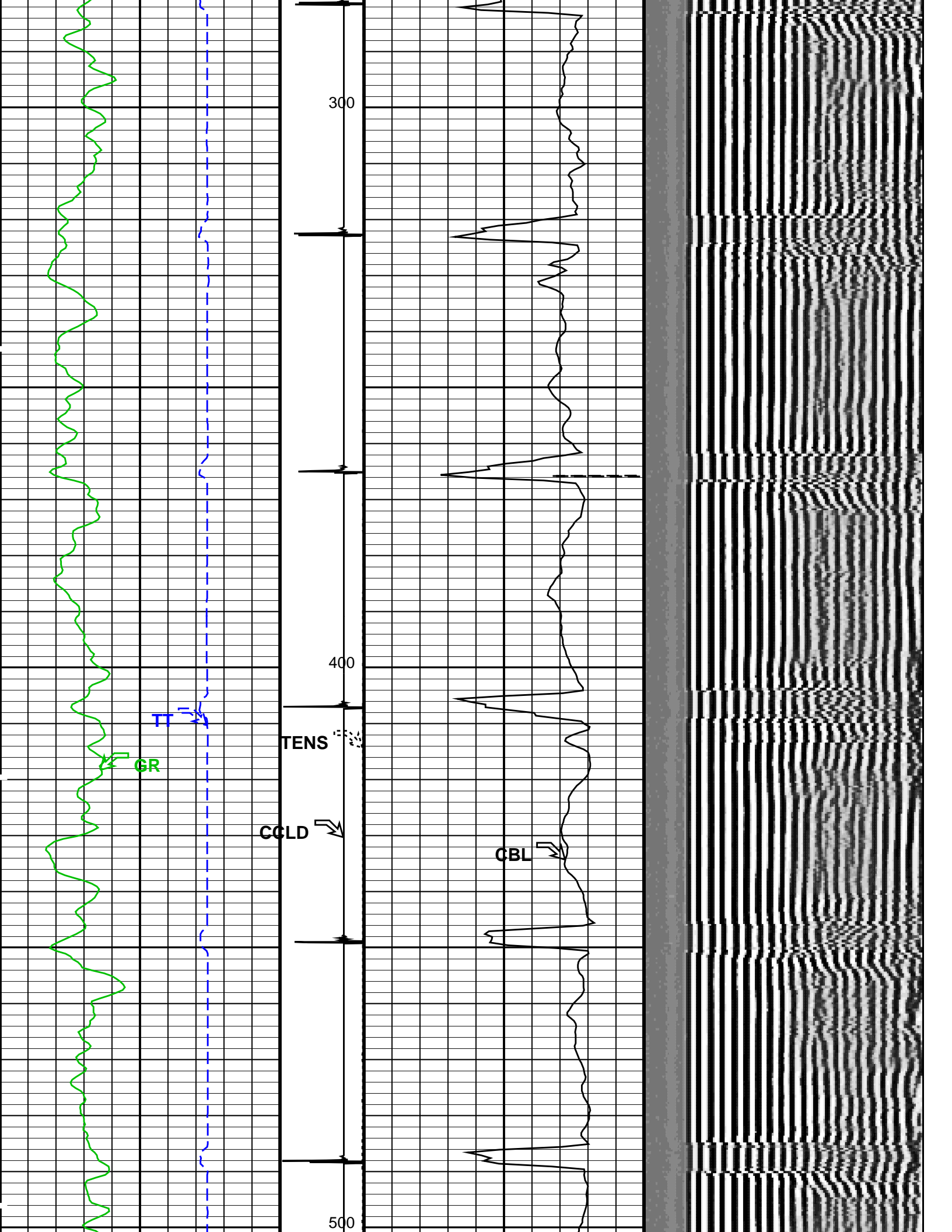
OP System Version: 18C0-147			
SCMT-CB	18C0-147	RST-C	18C0-147
PSPT	18C0-147		

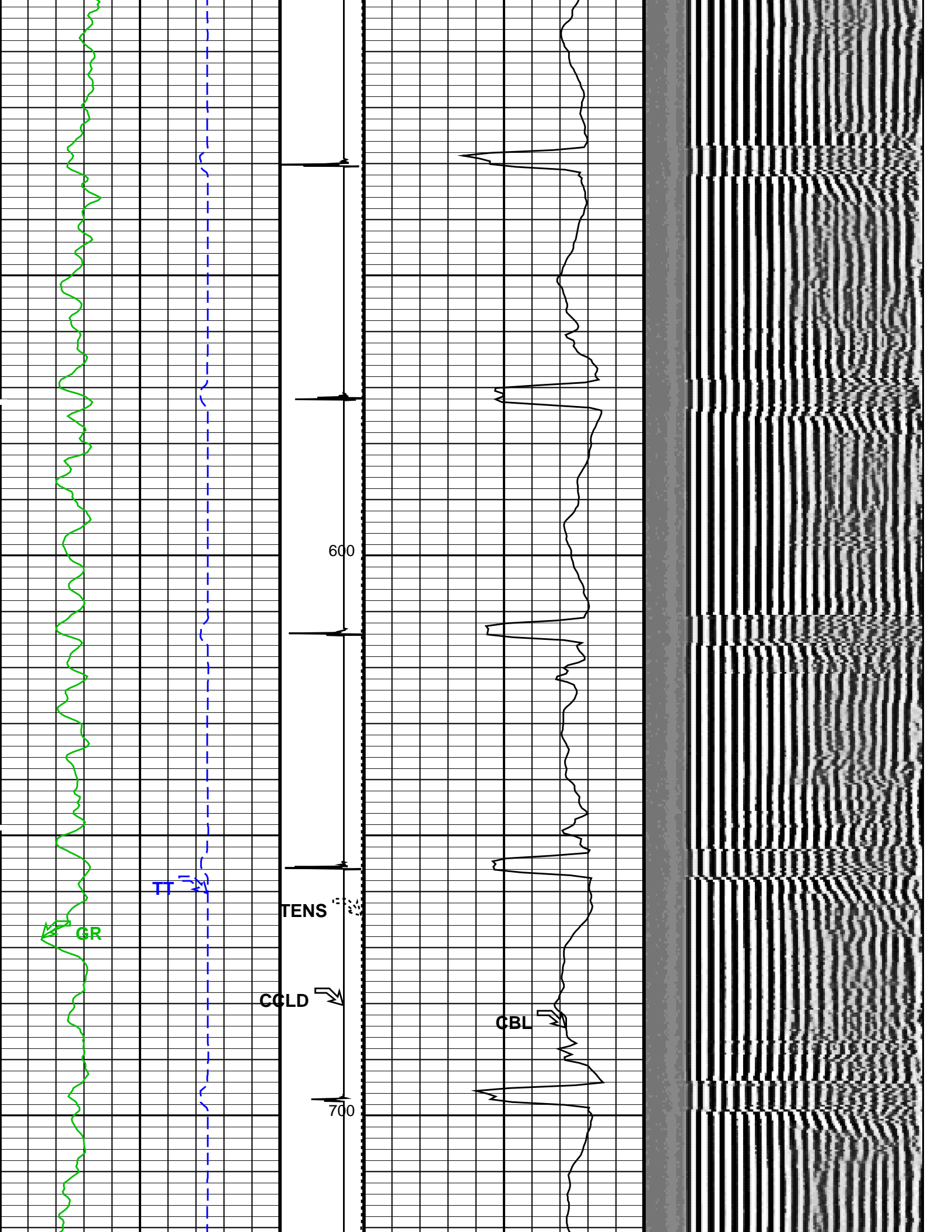
PIP SUMMARY

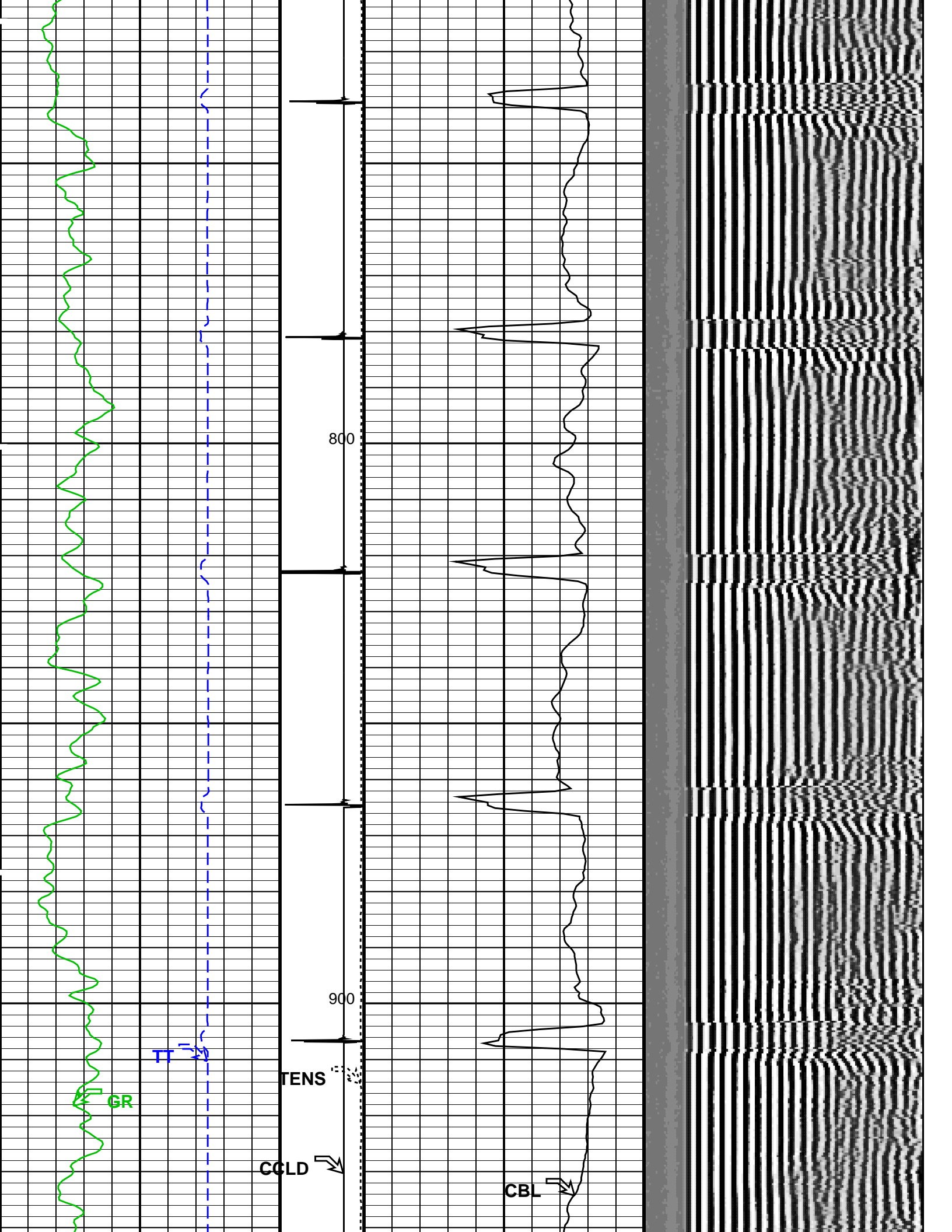
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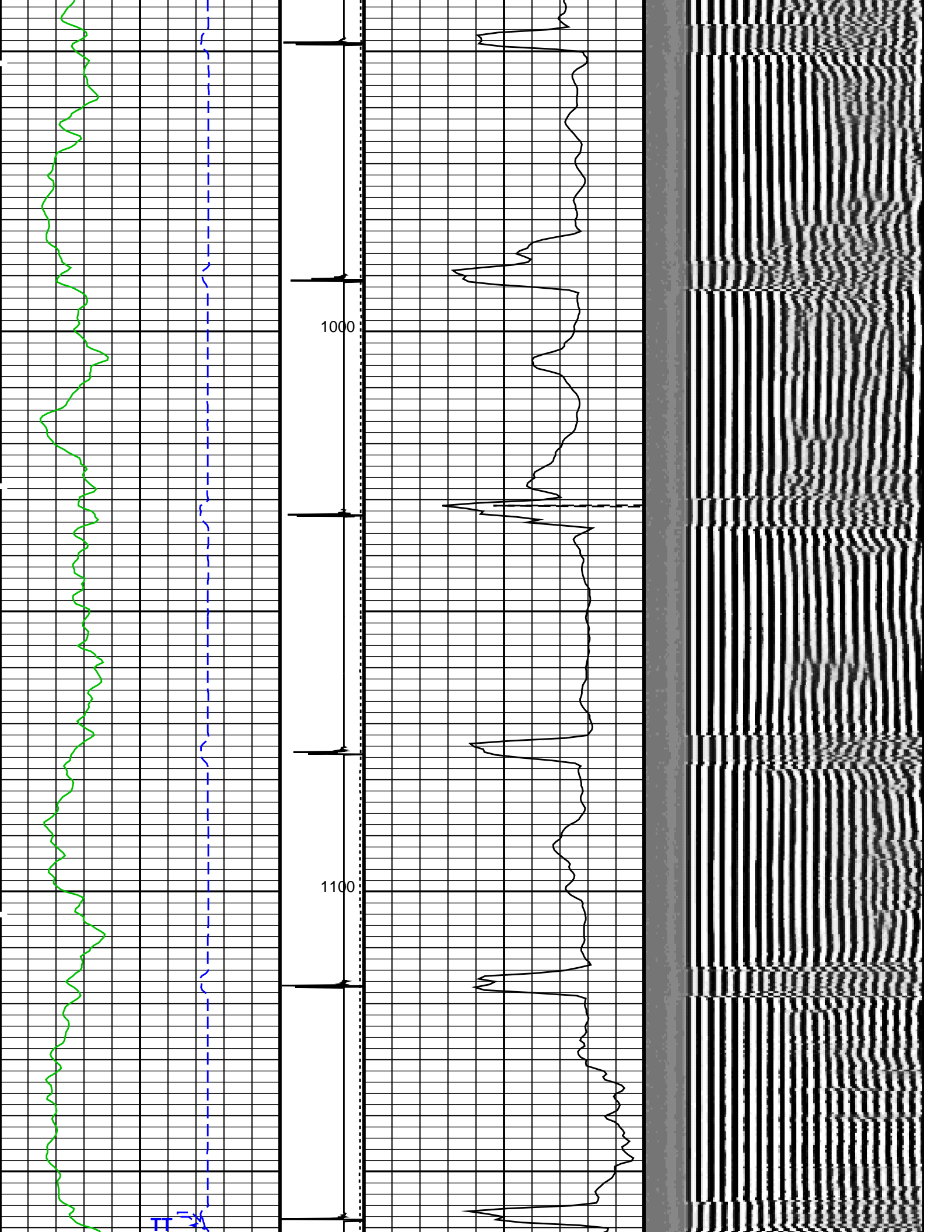


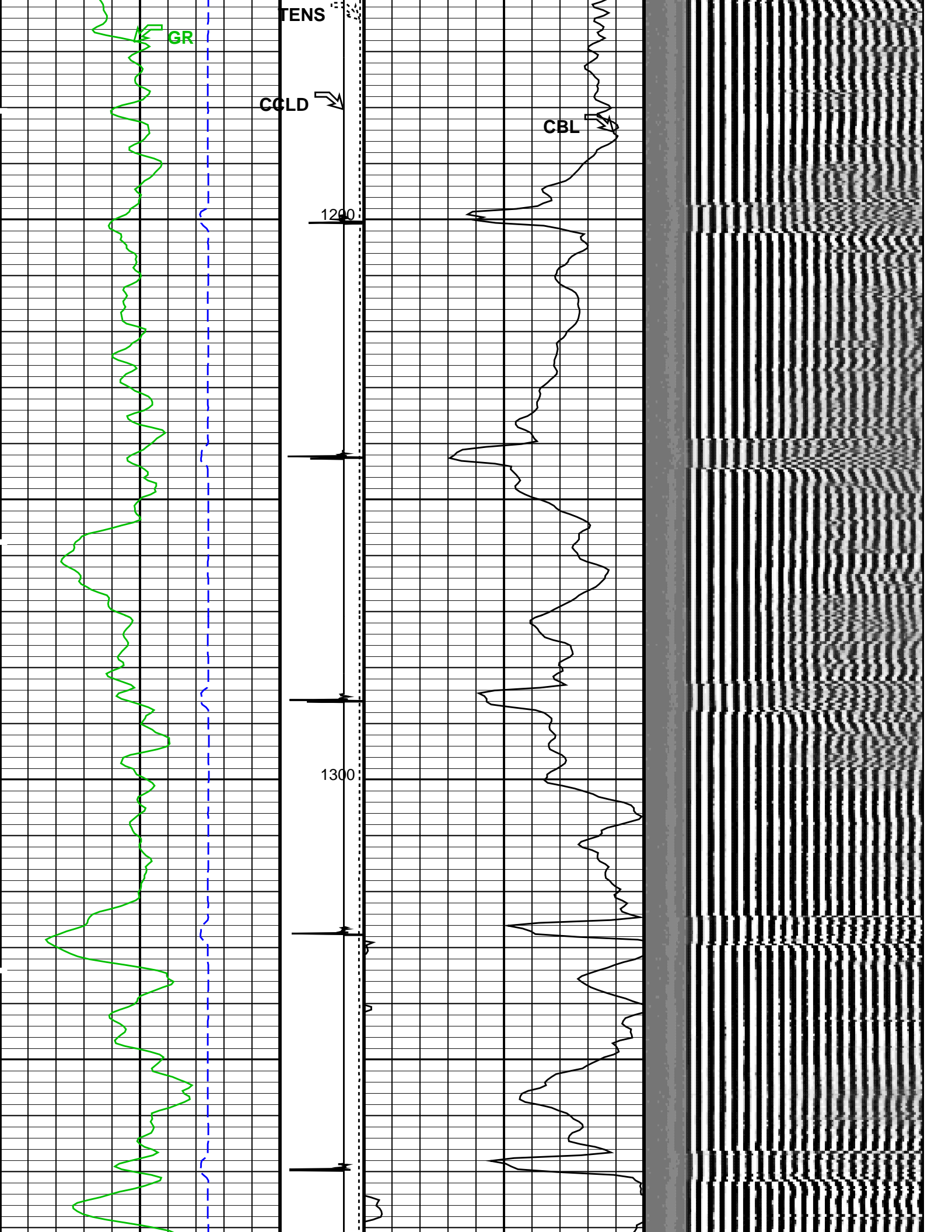


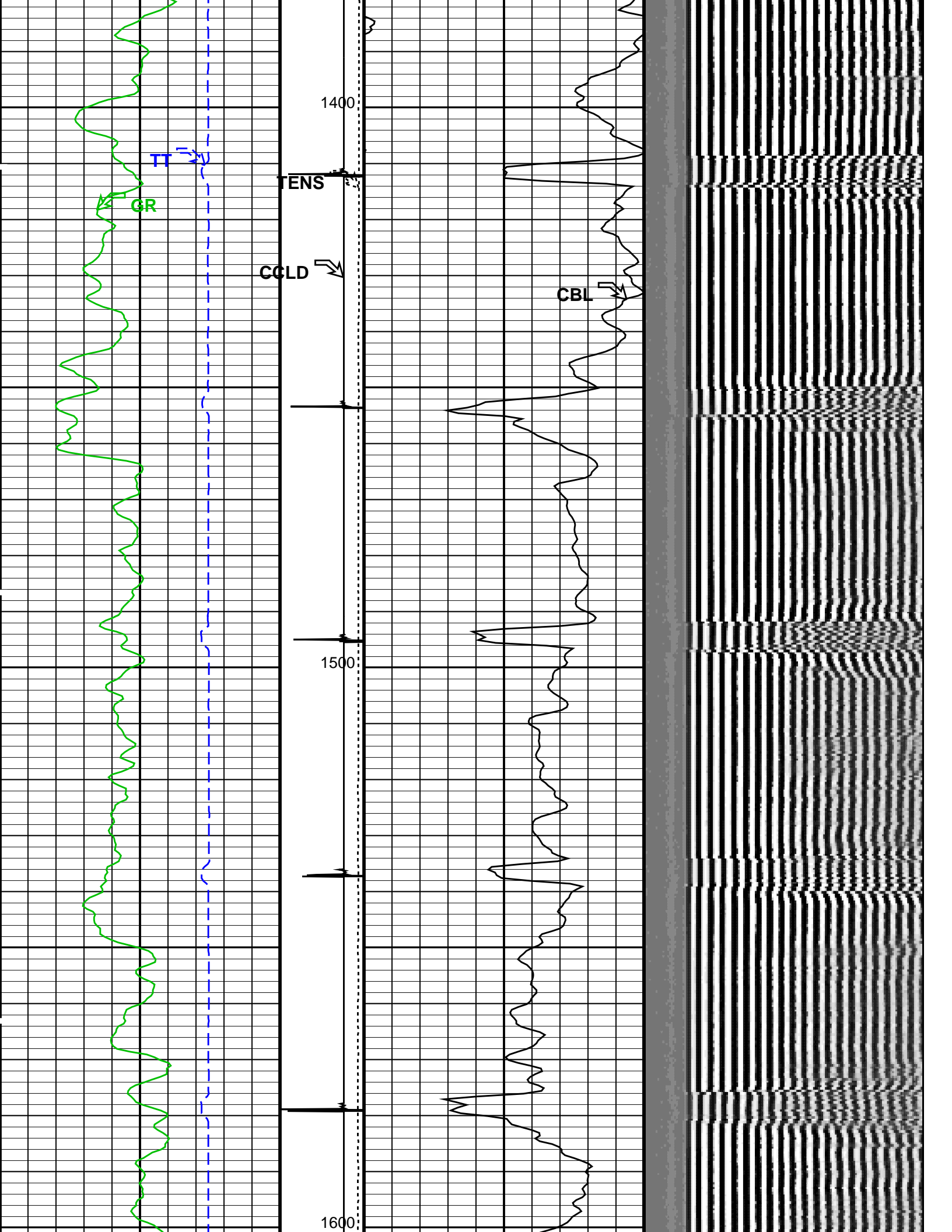


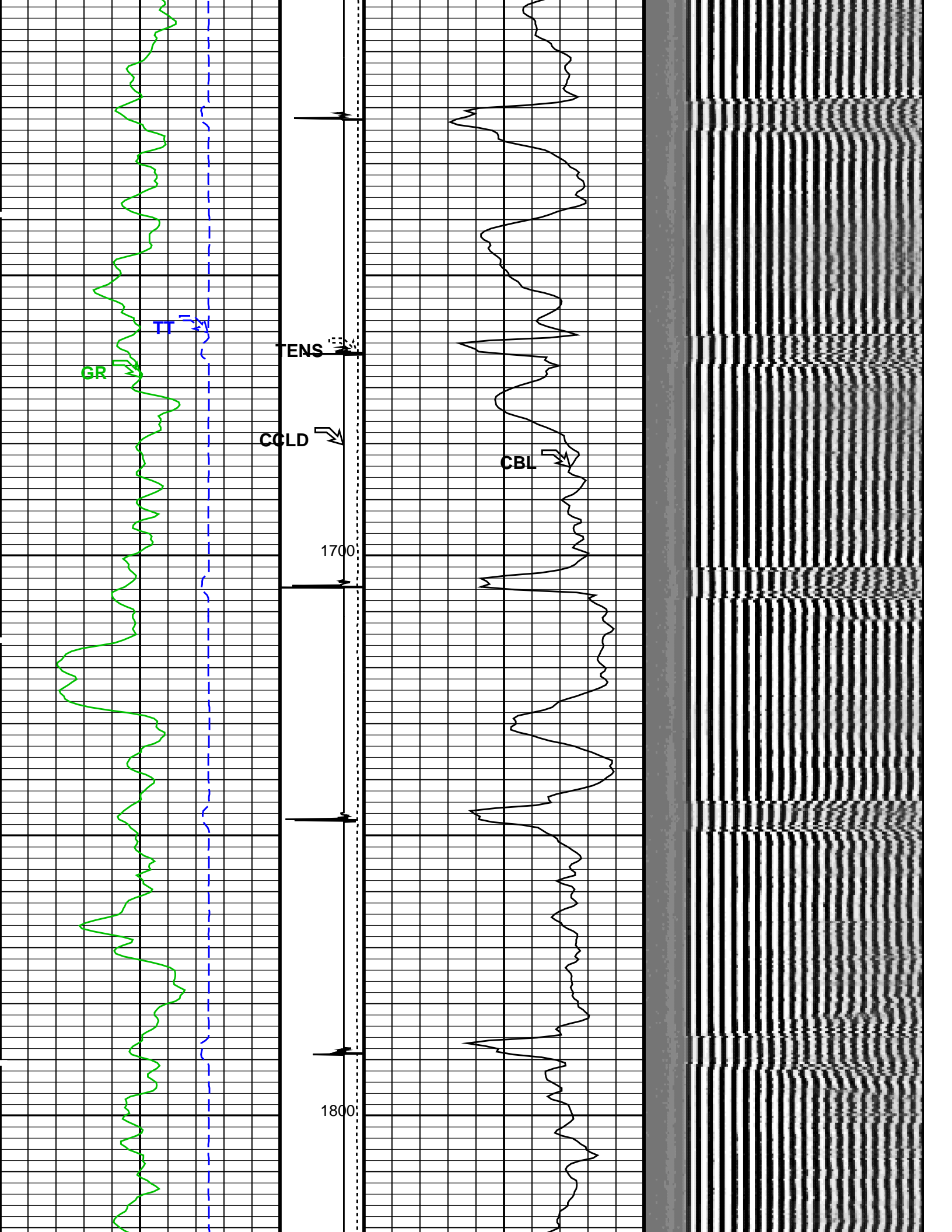


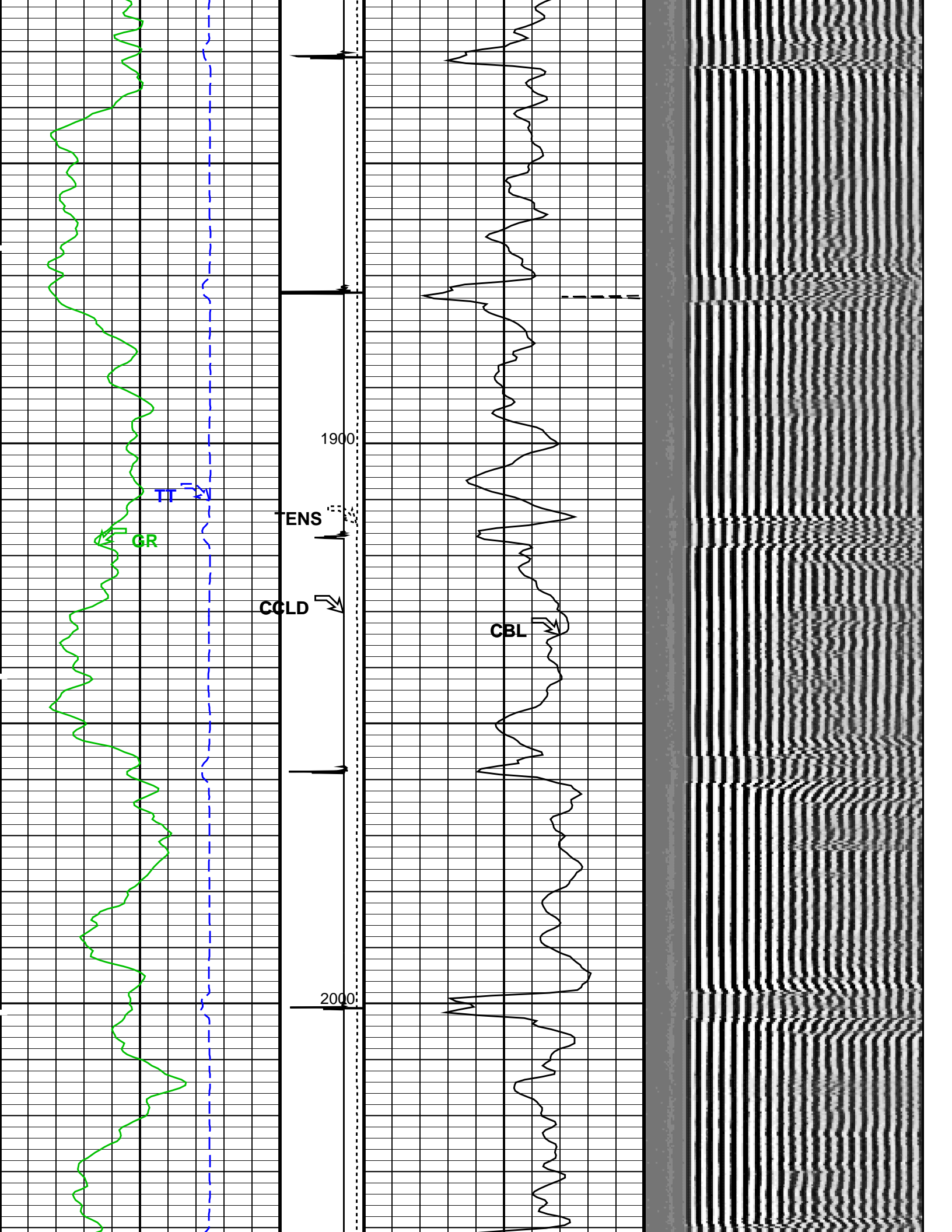


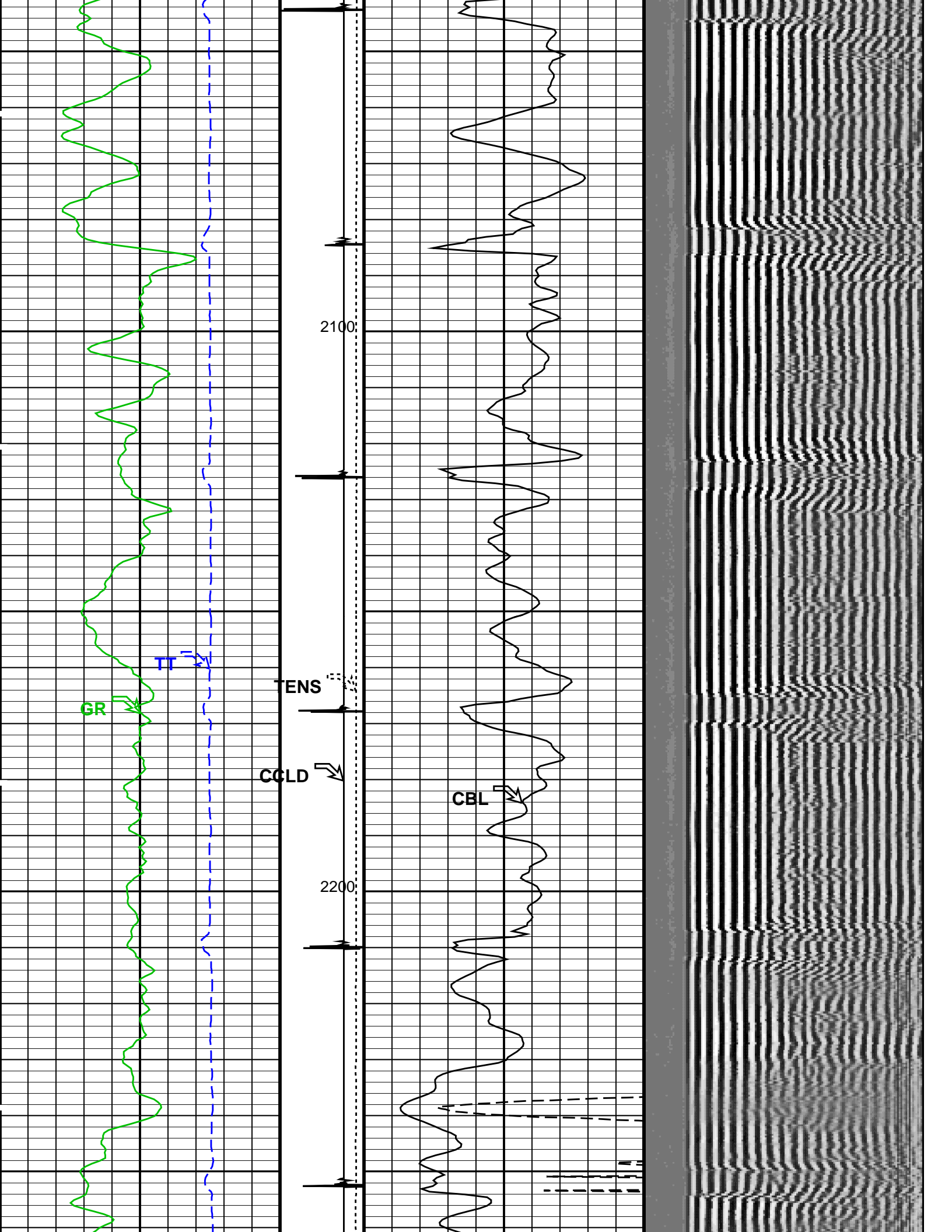


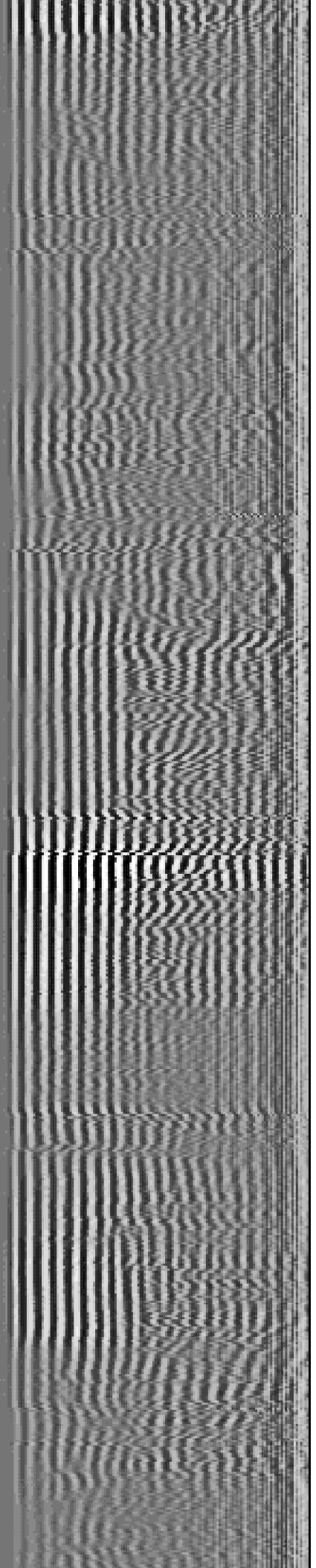
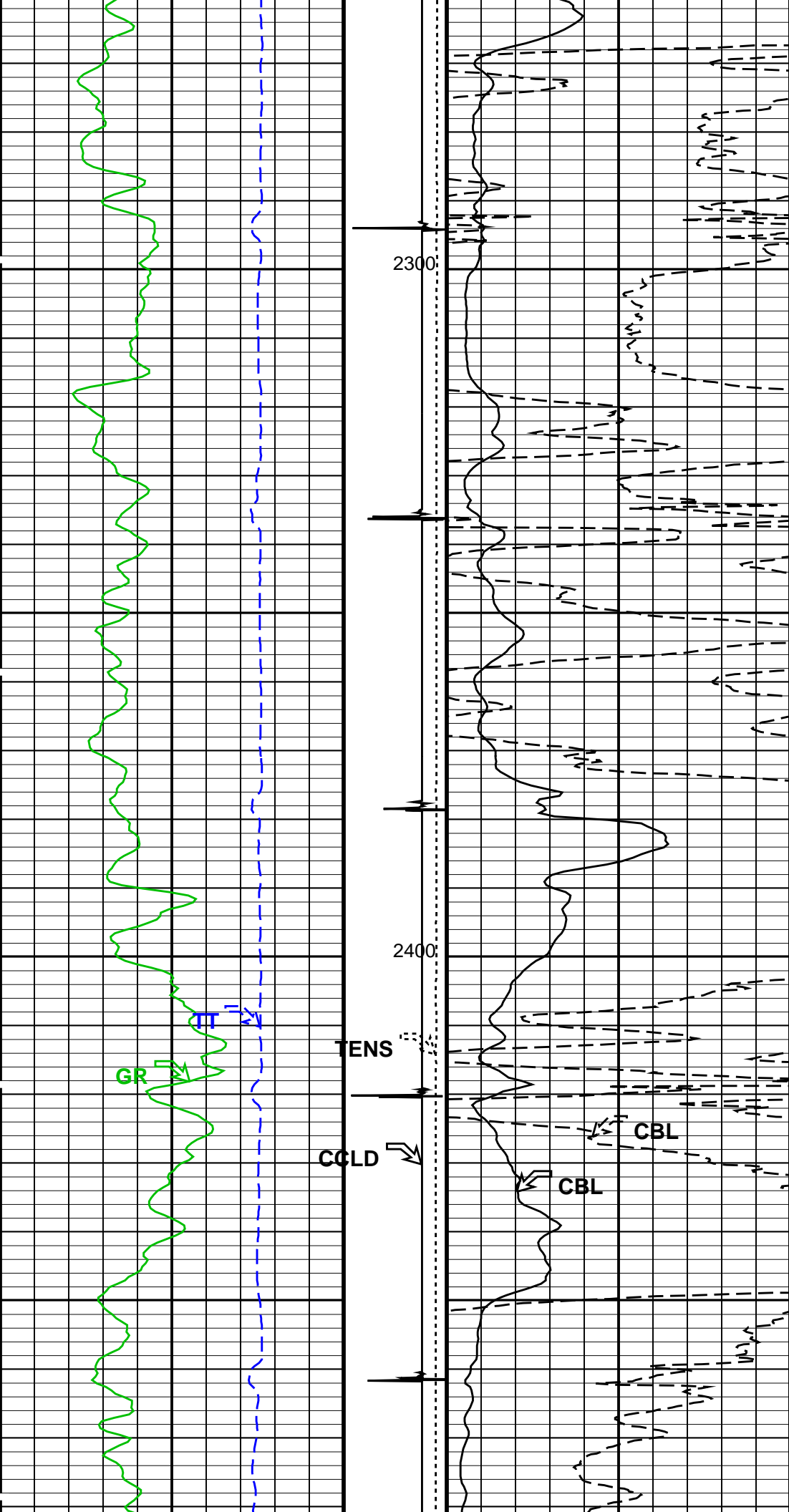


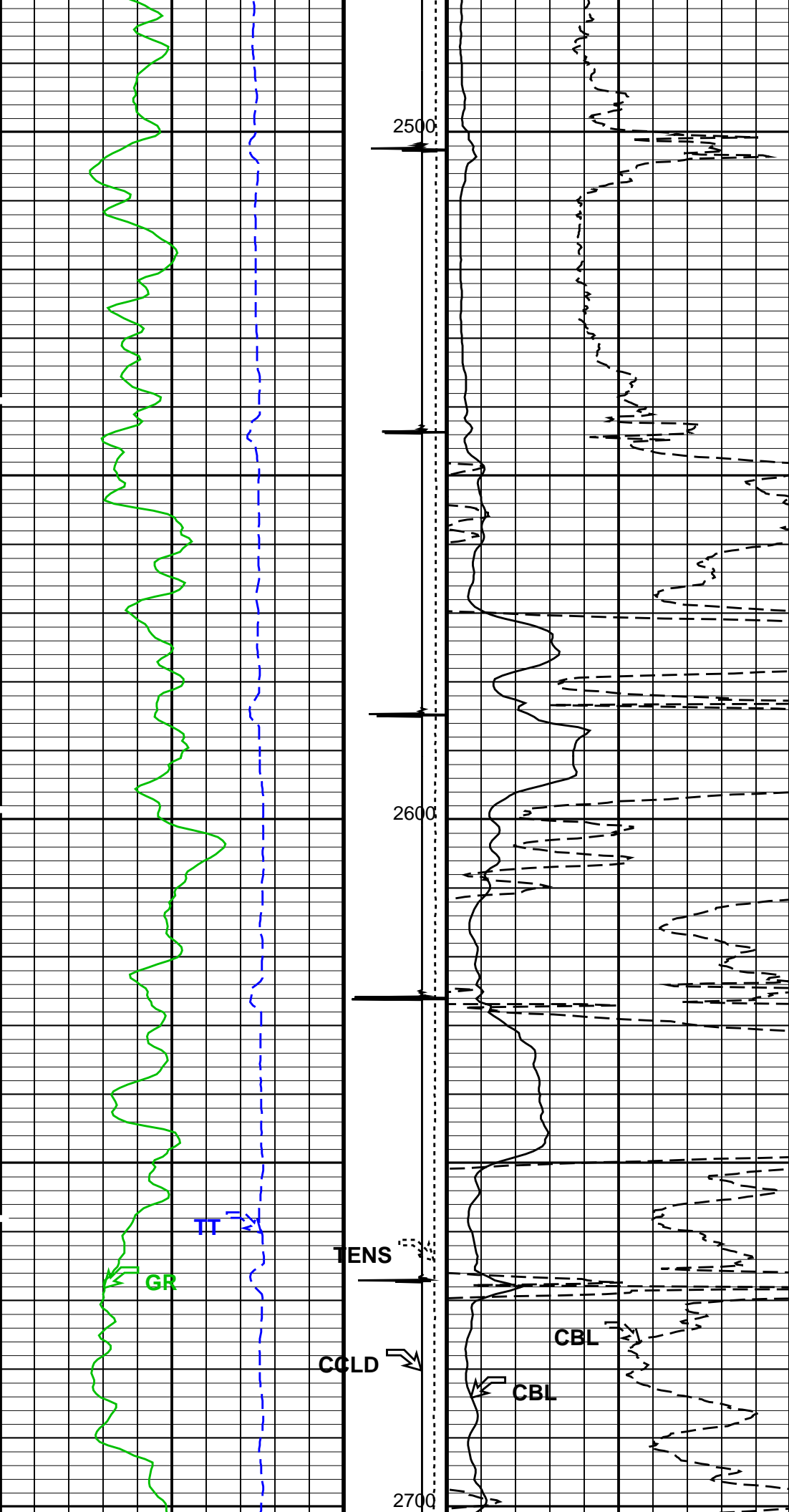


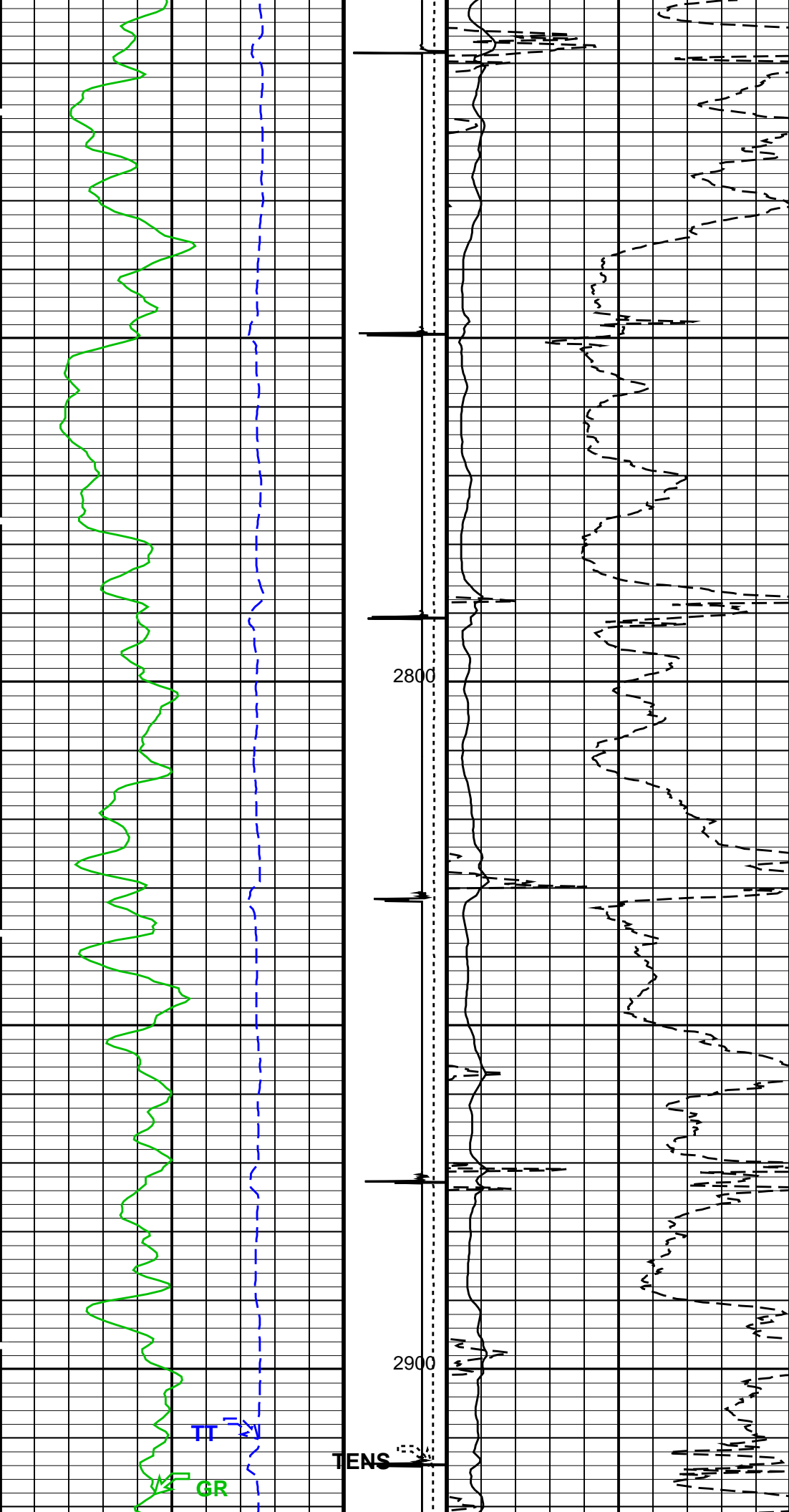


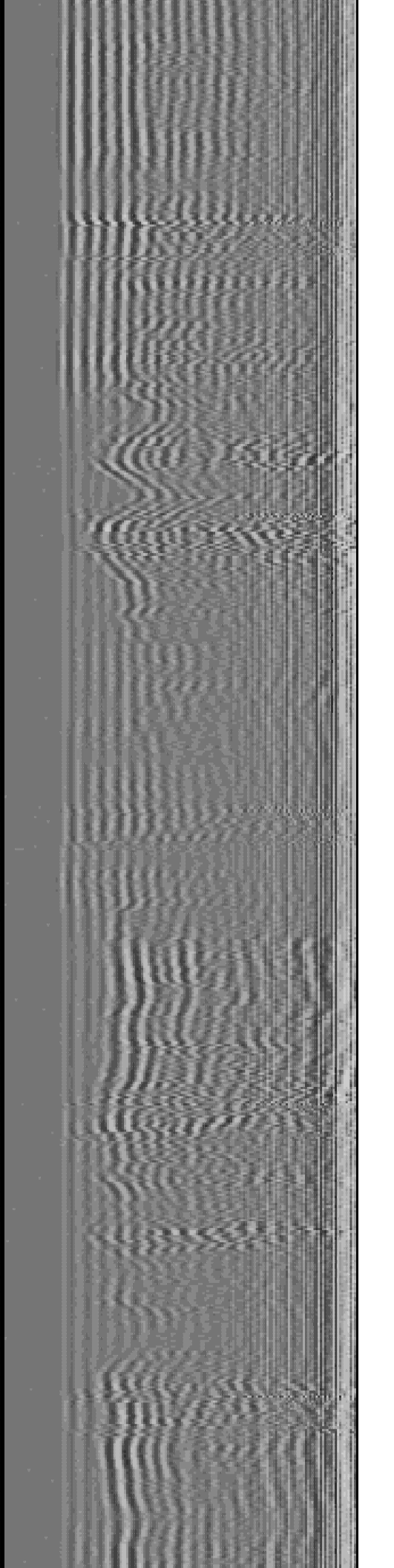
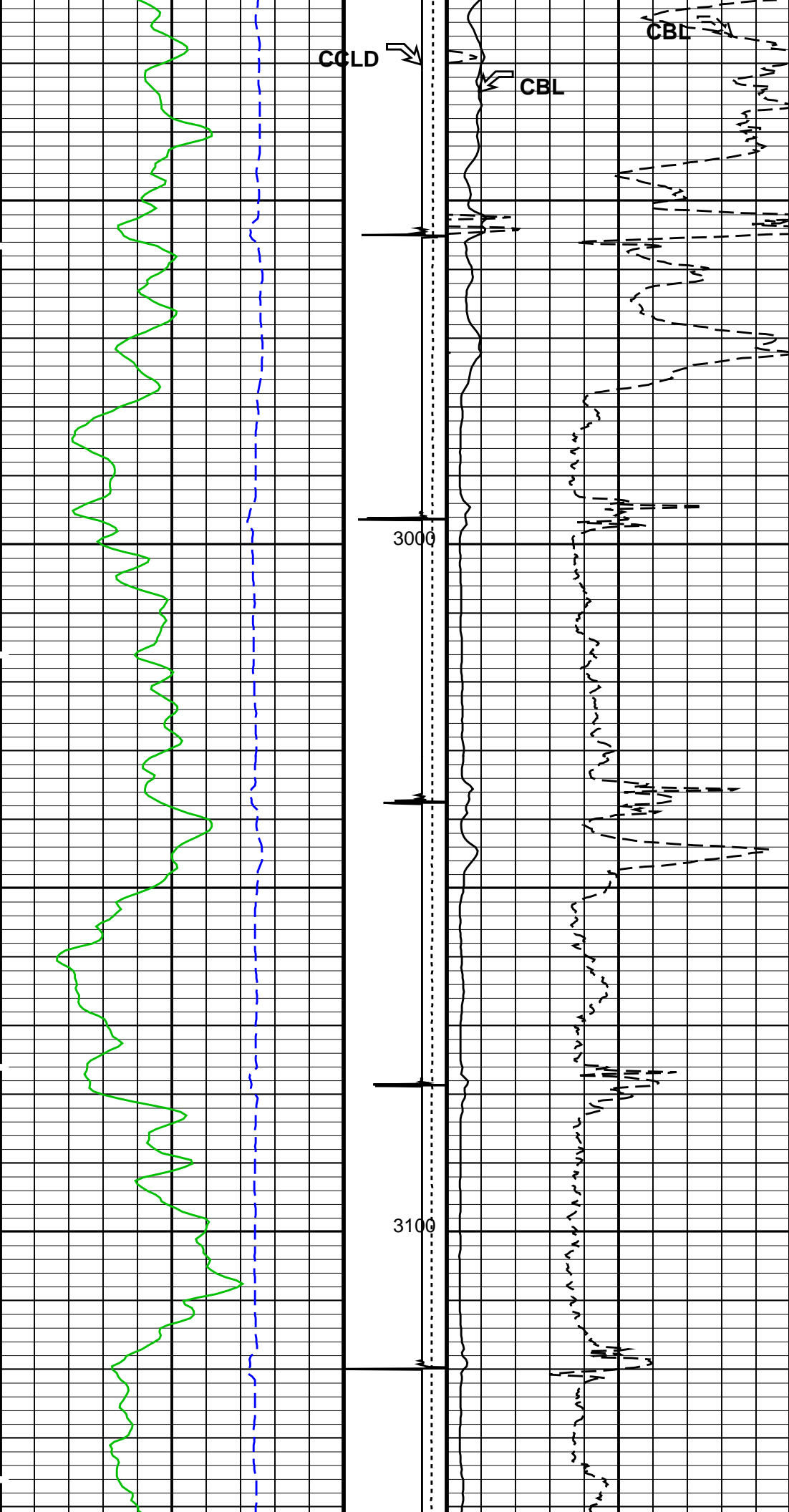


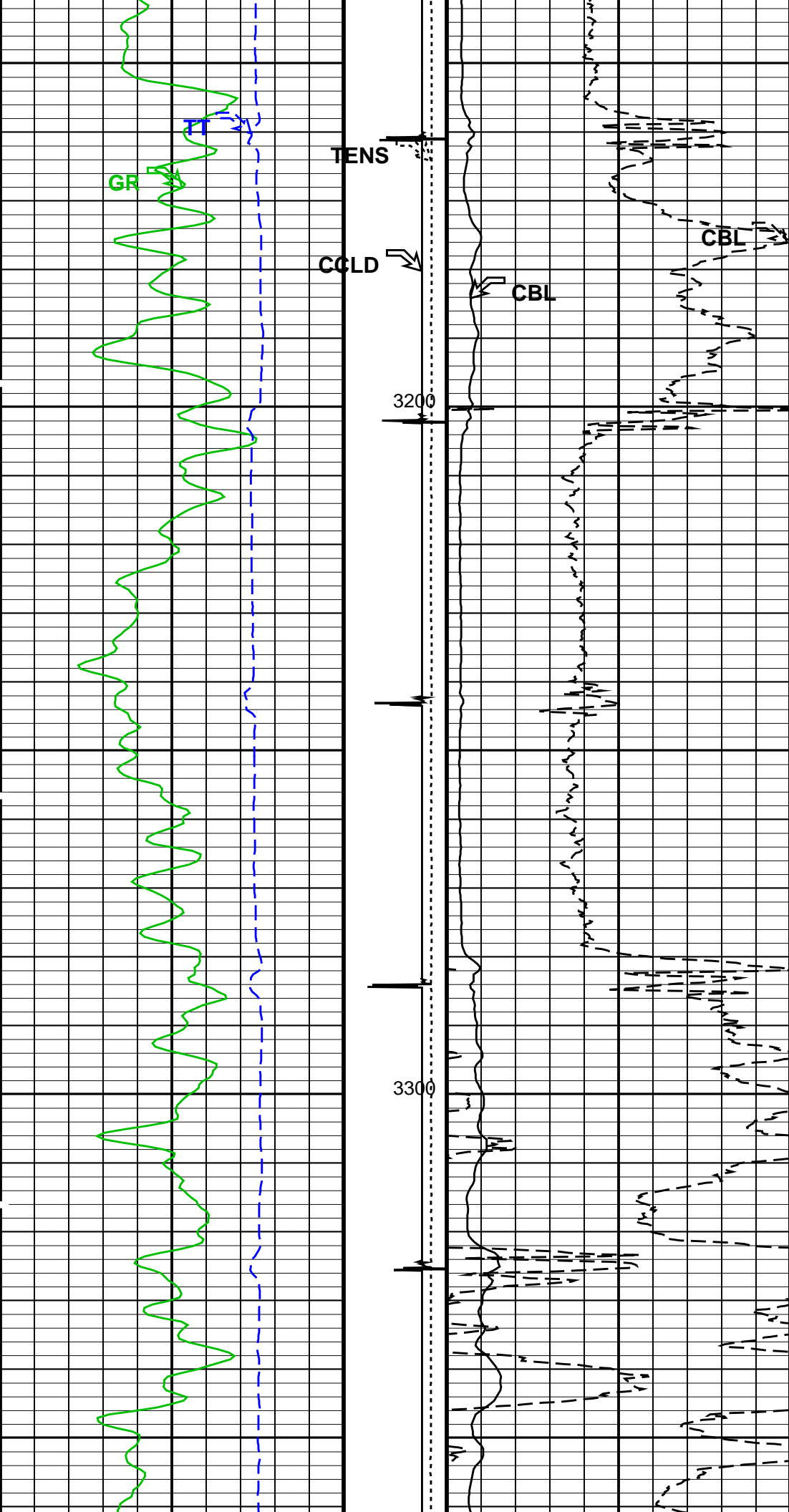


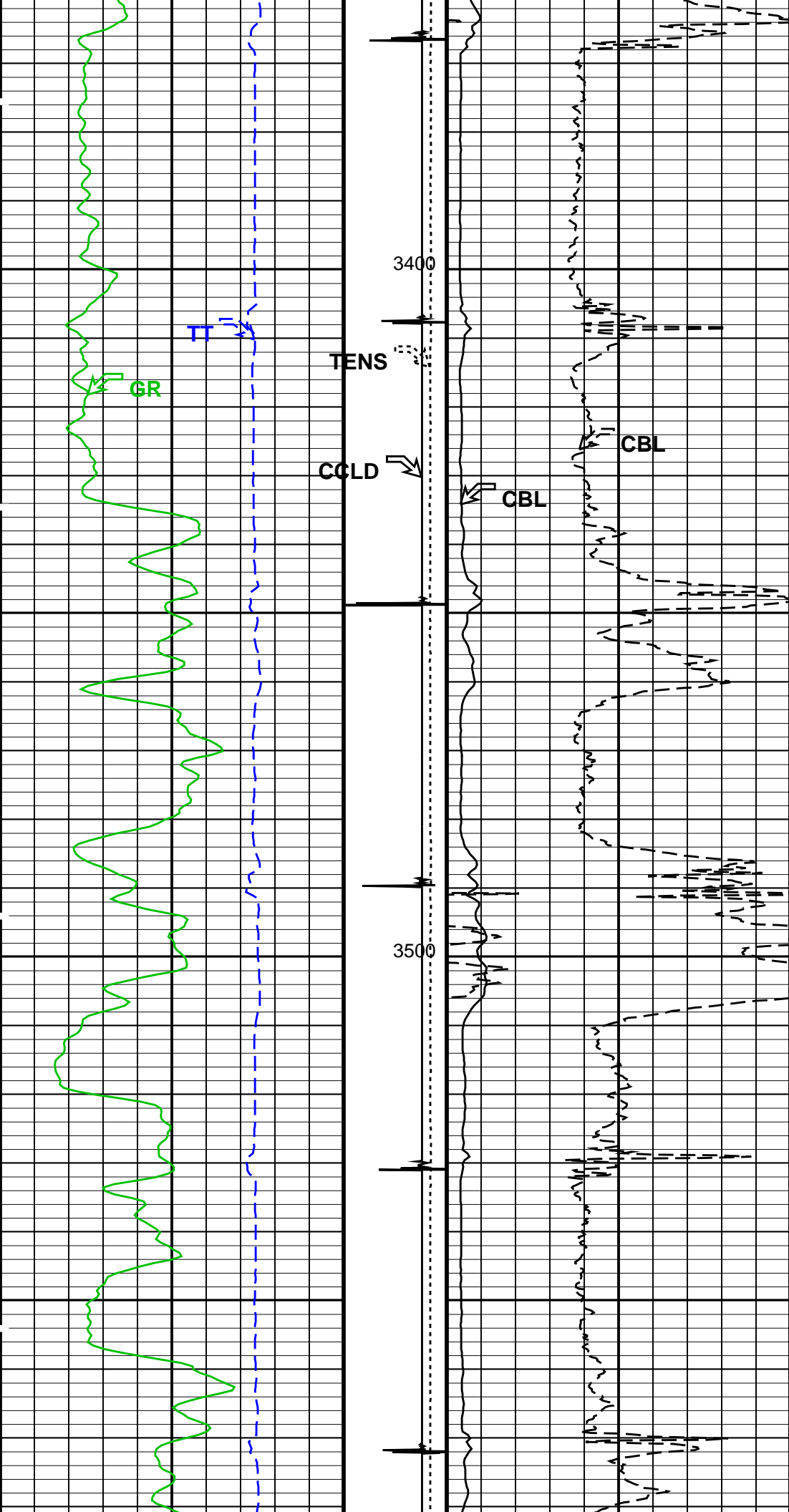


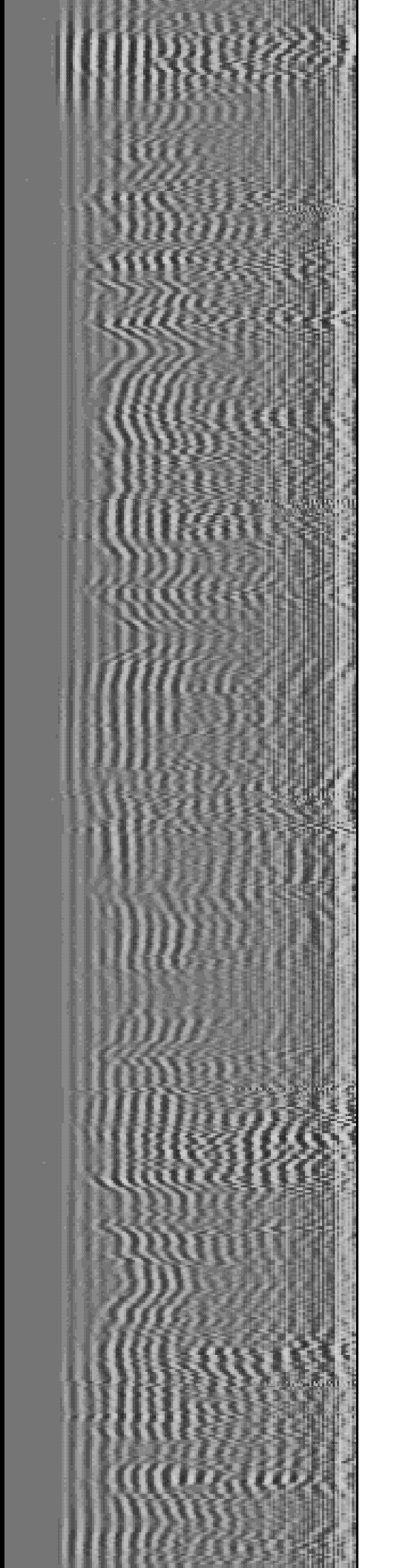
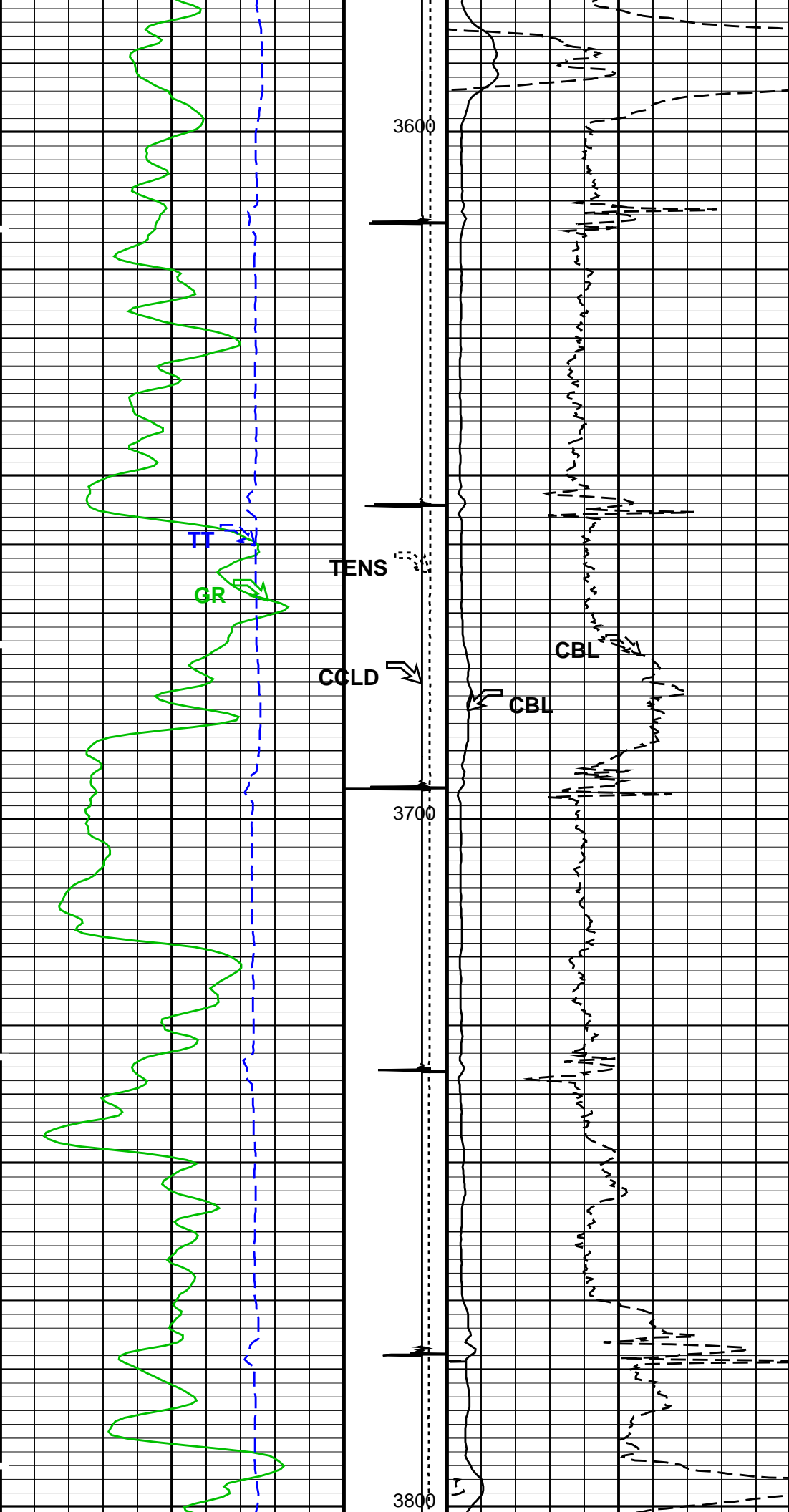


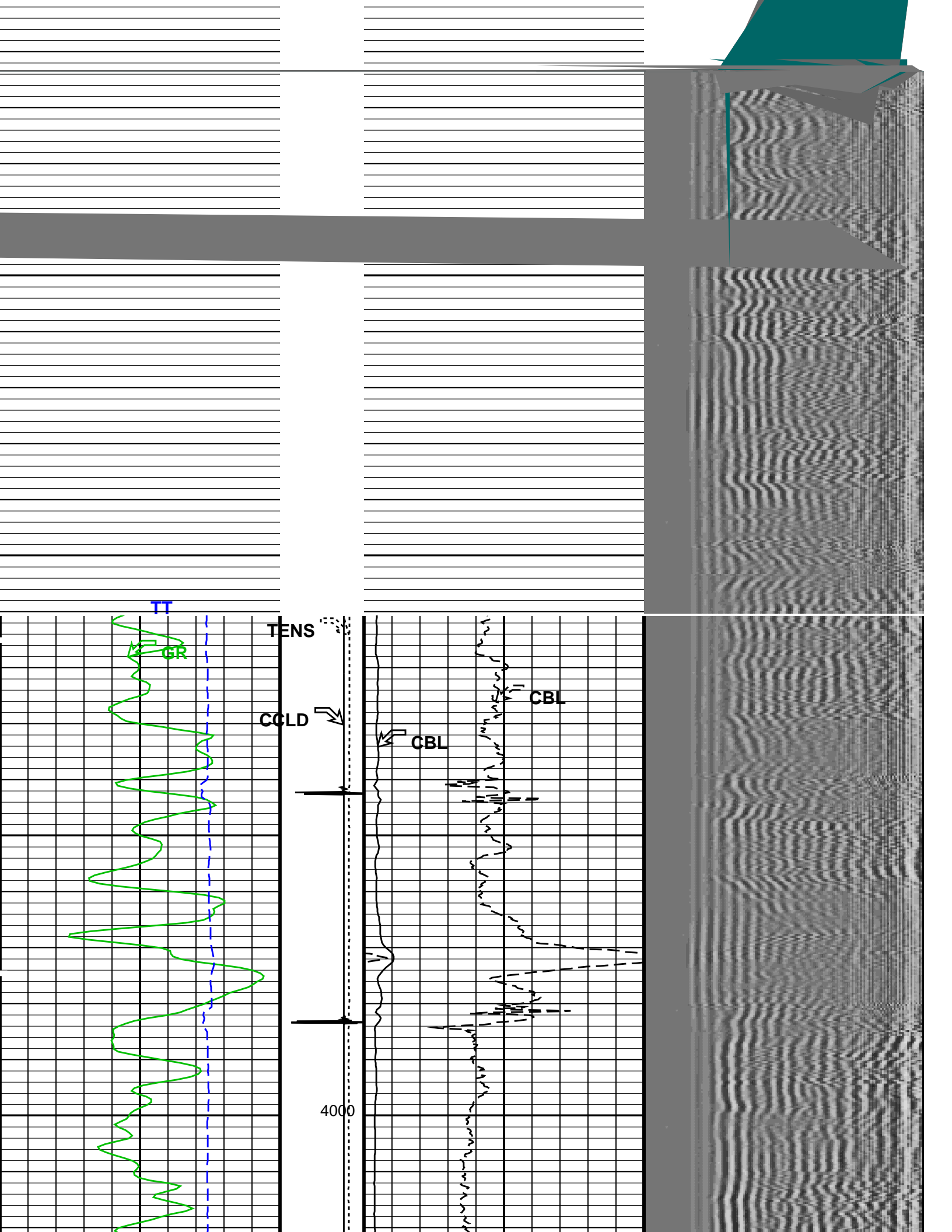


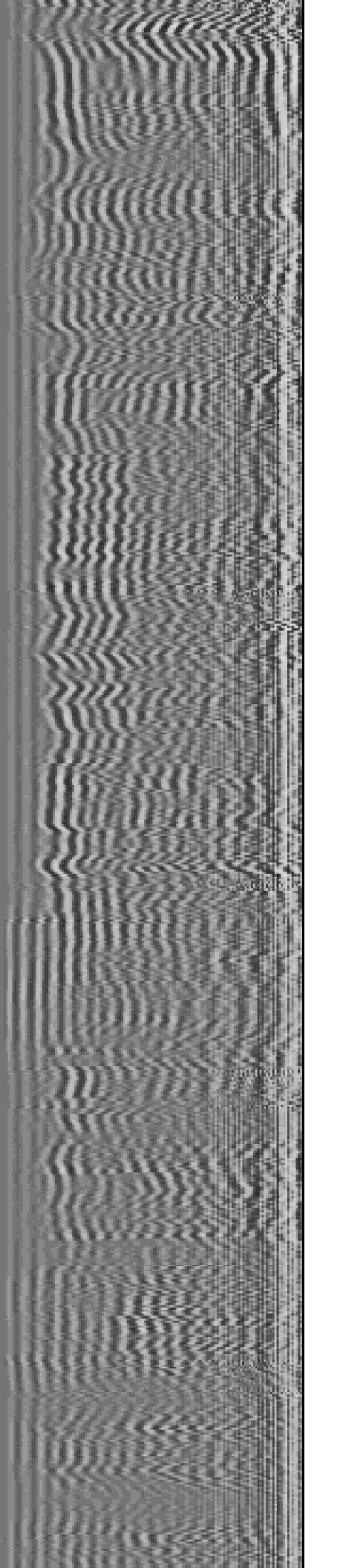
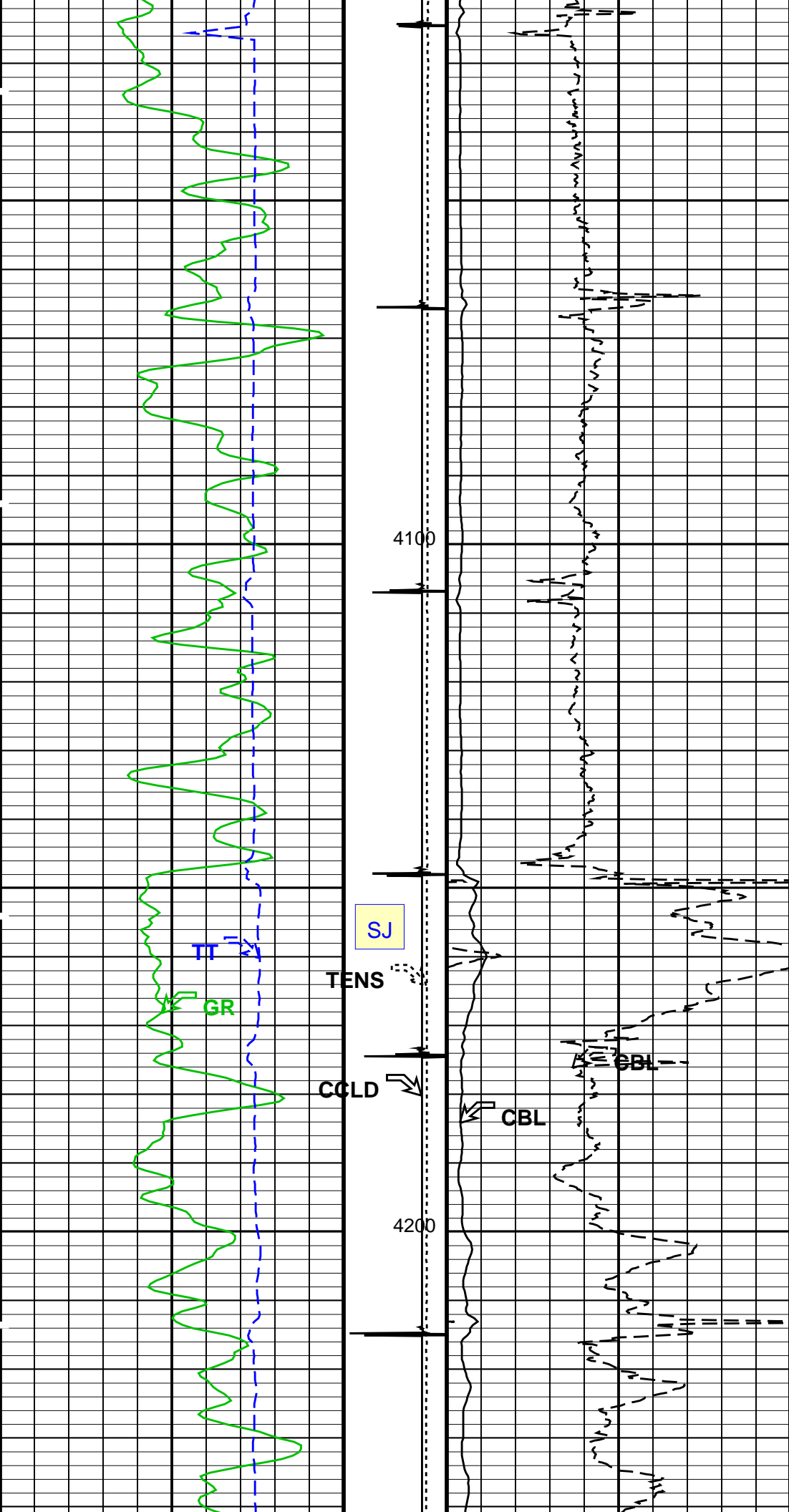


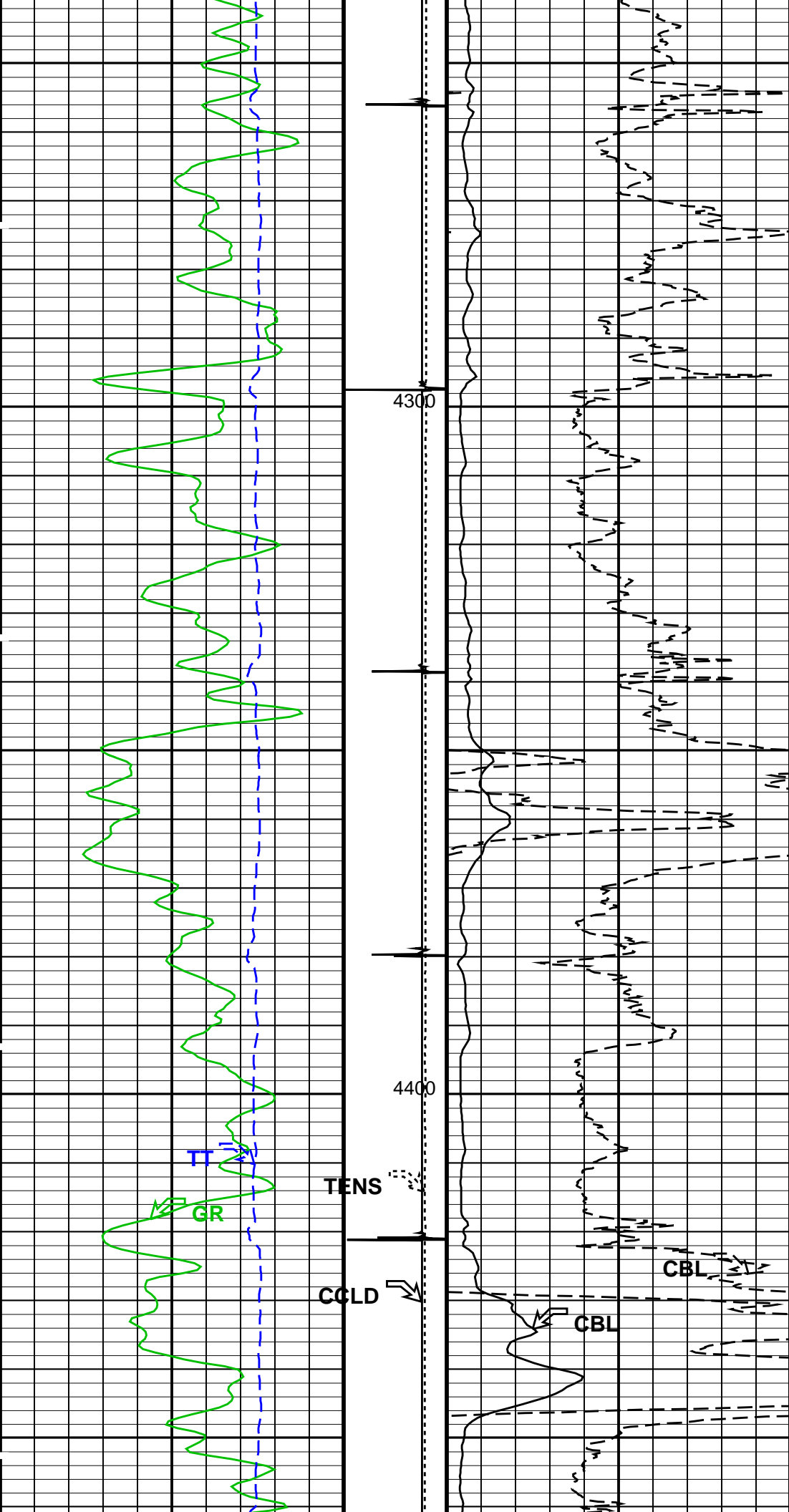


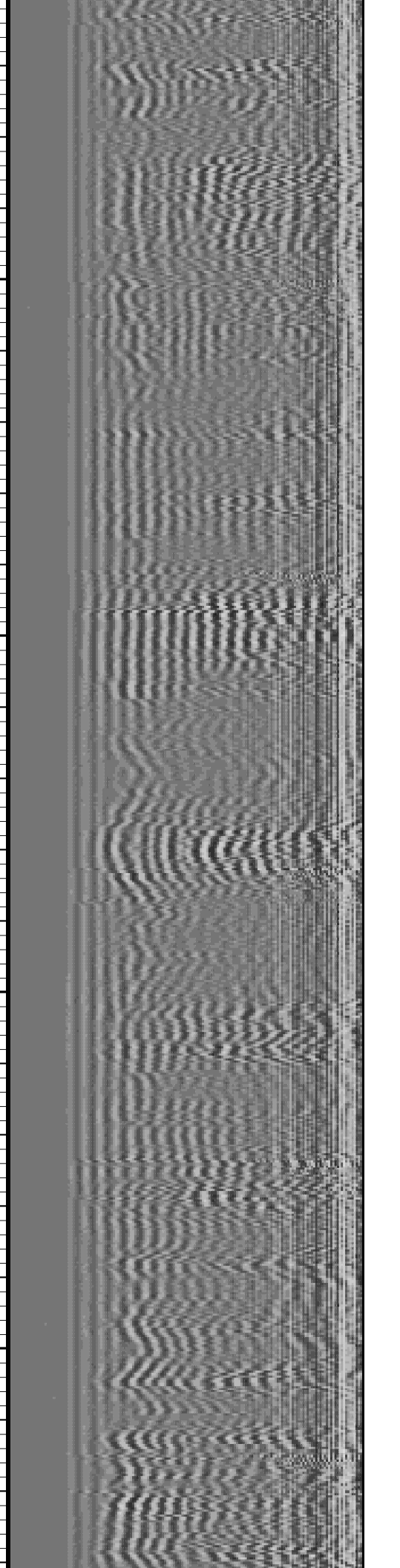
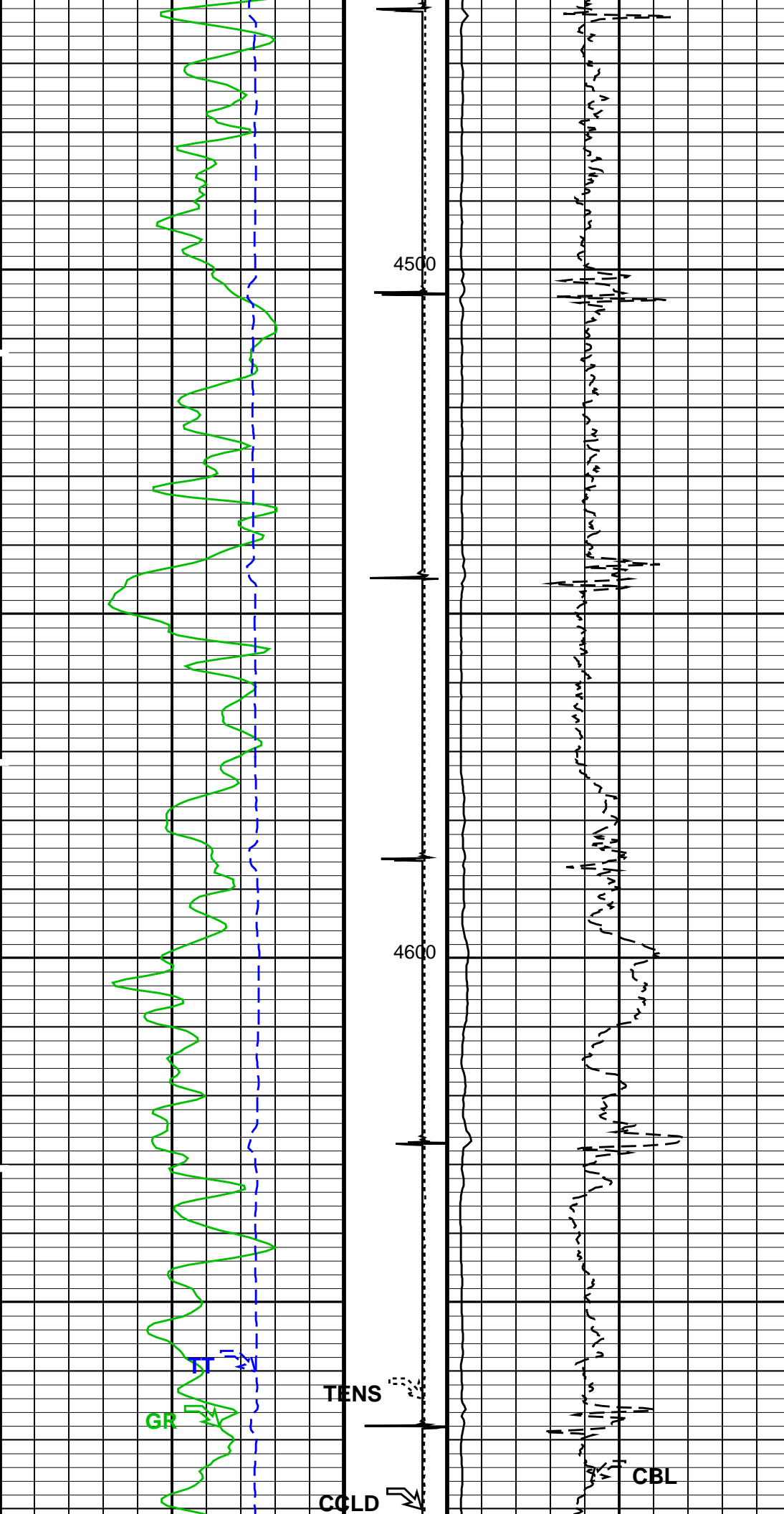


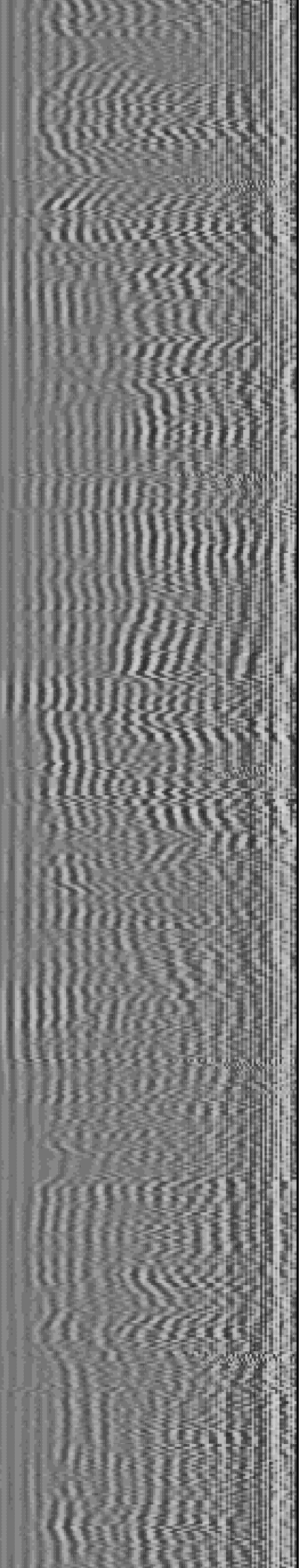
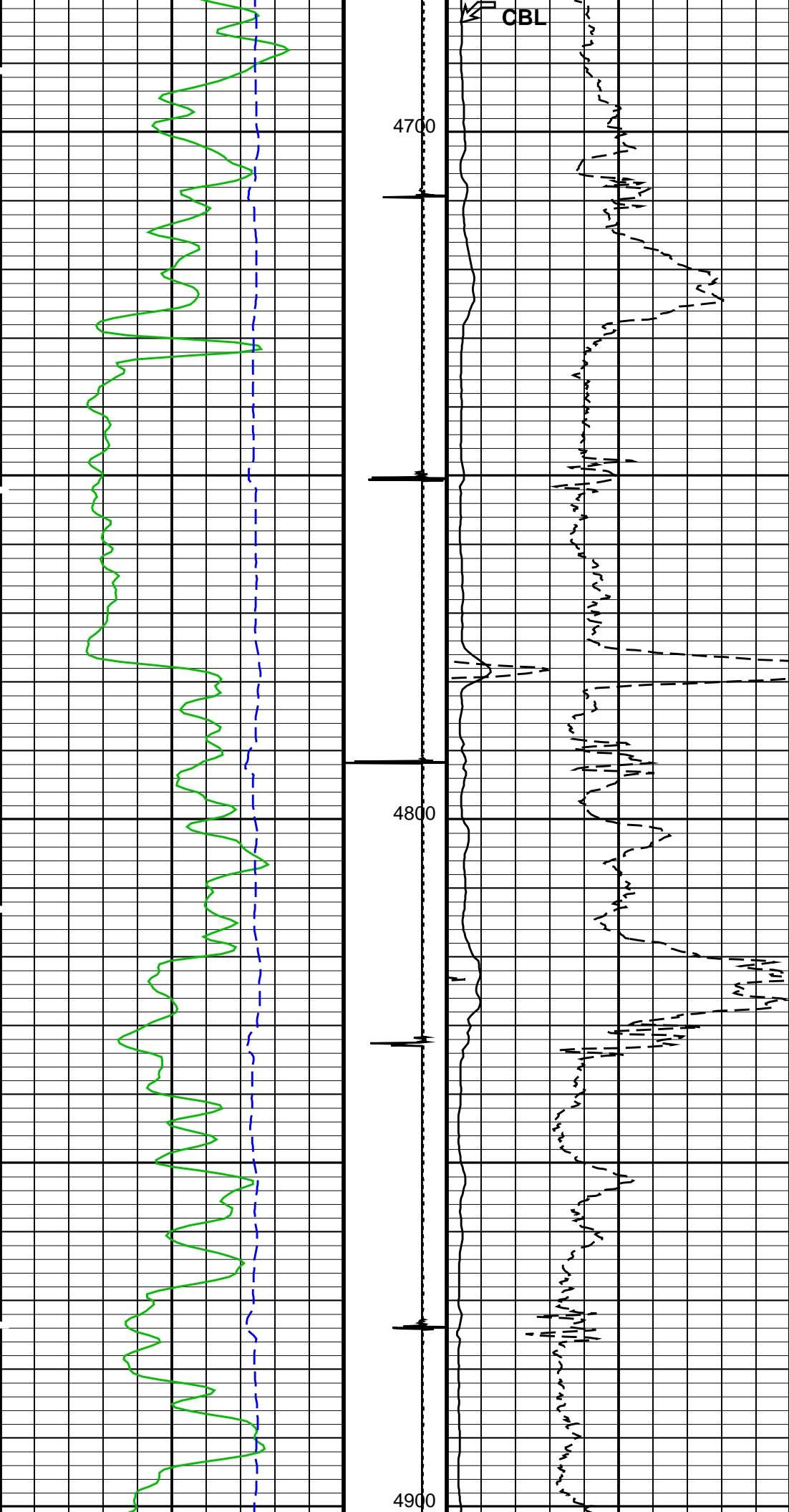


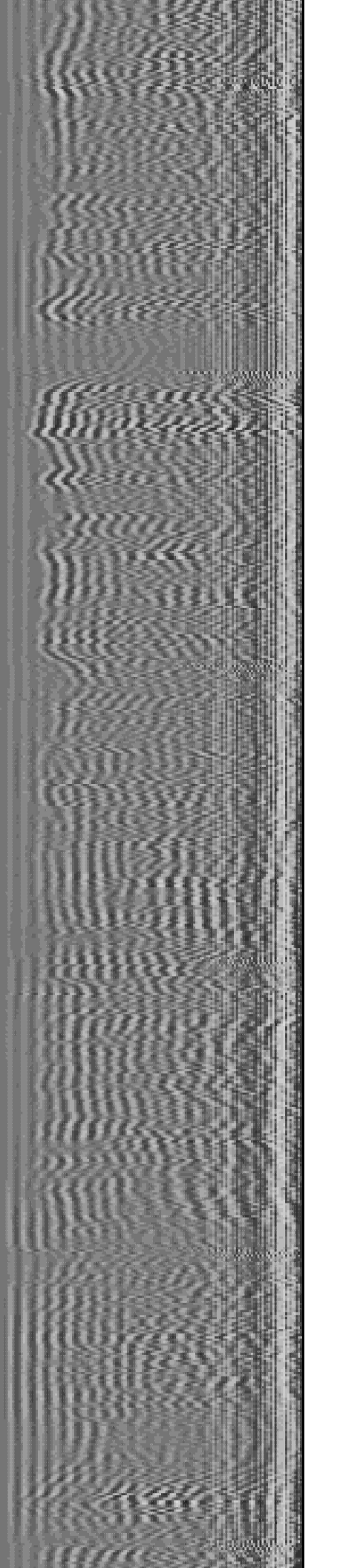
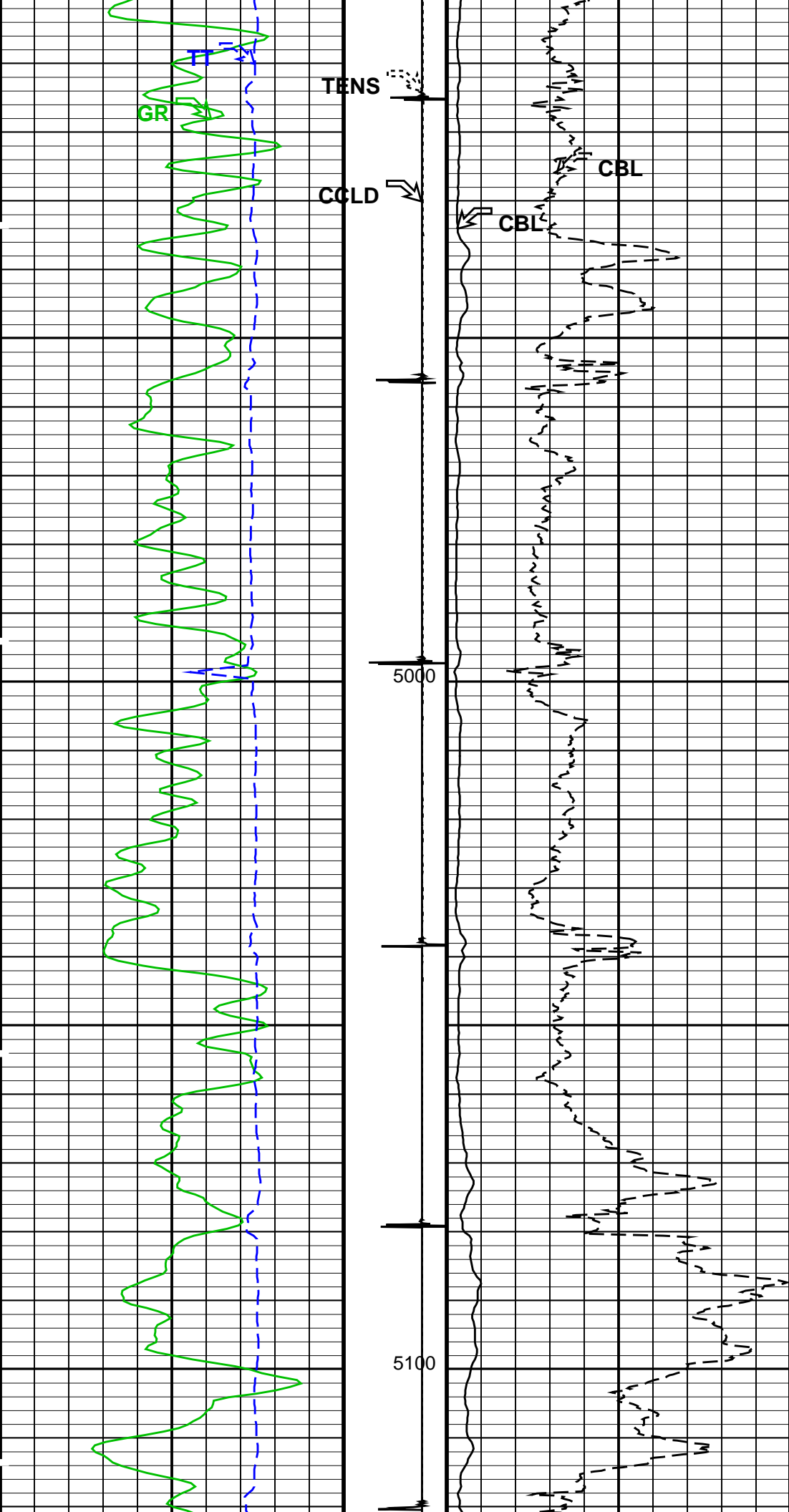


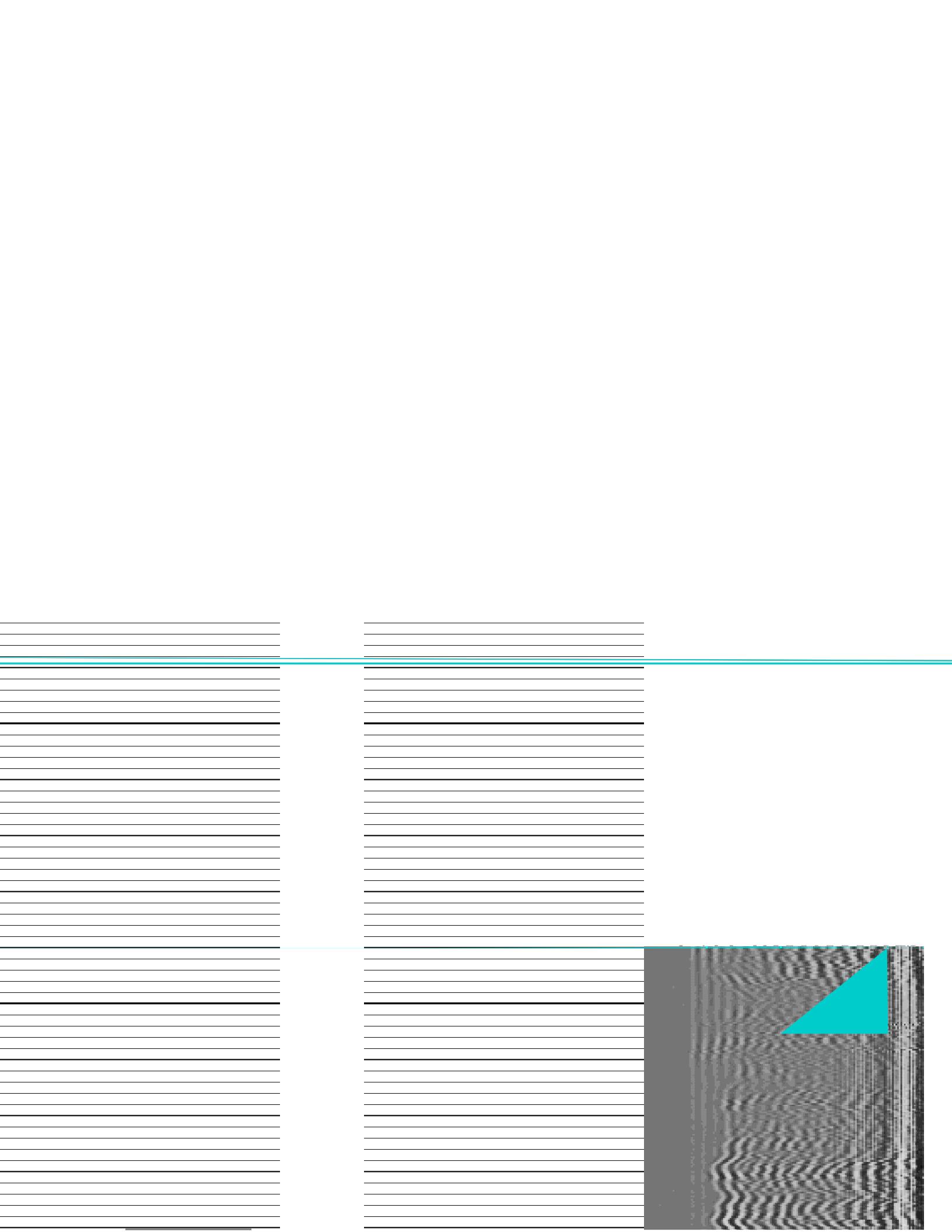


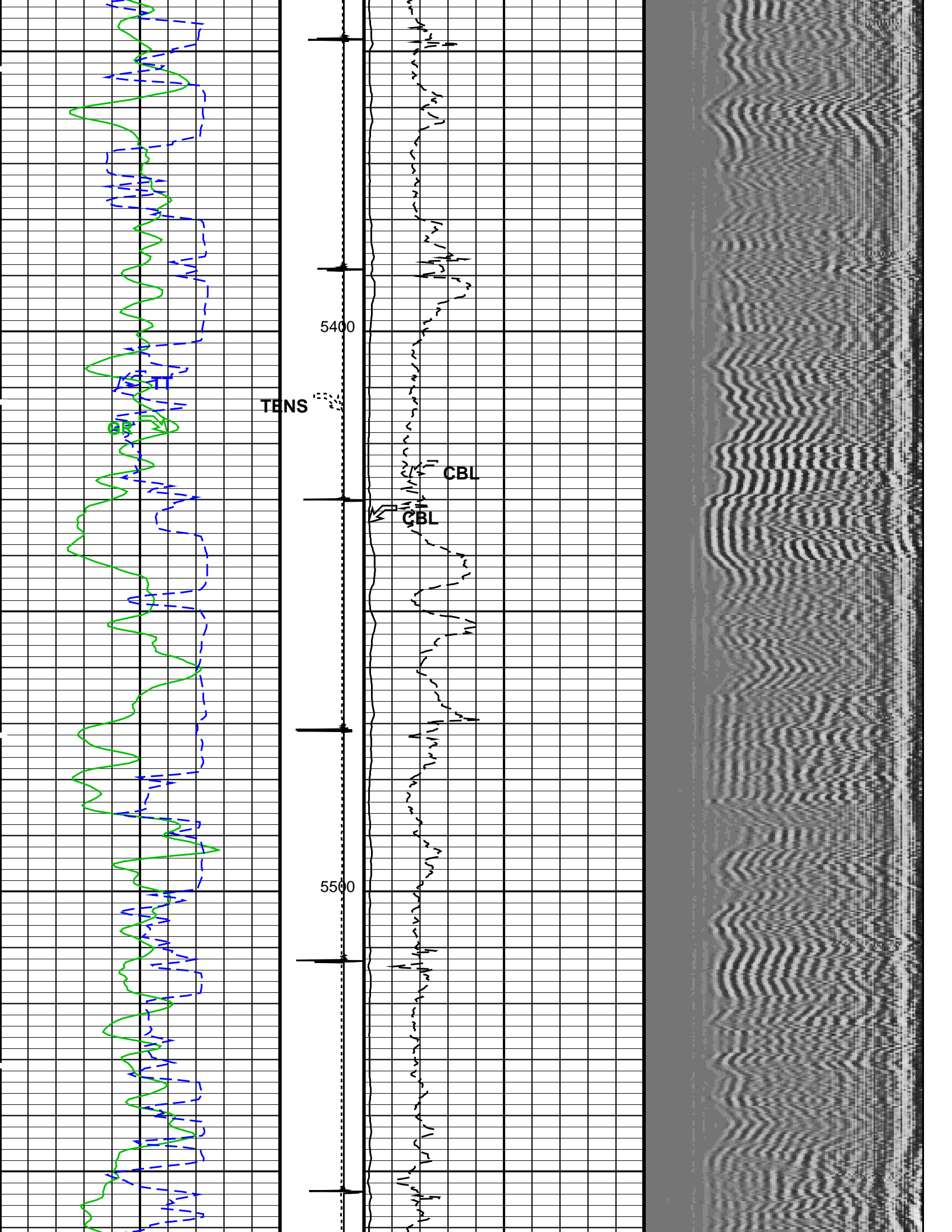


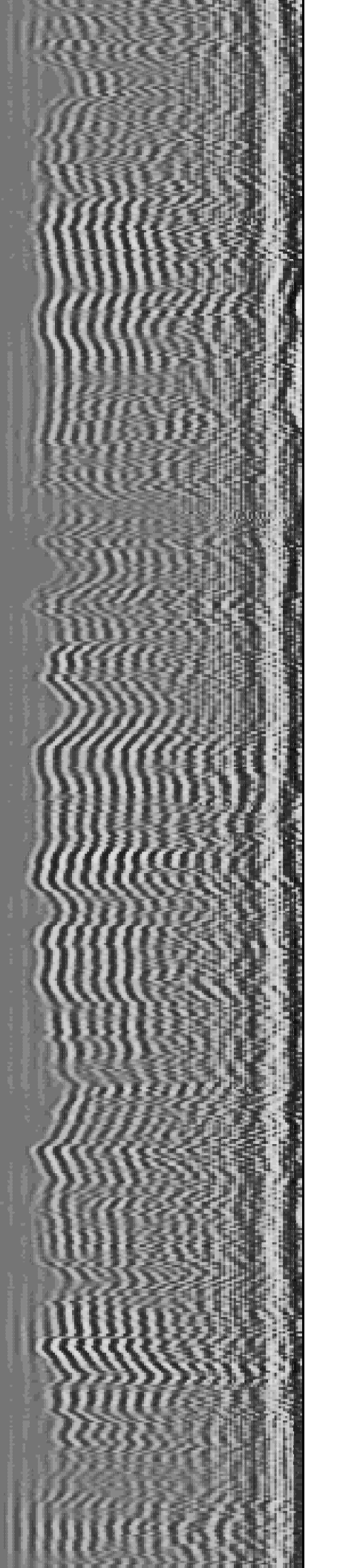
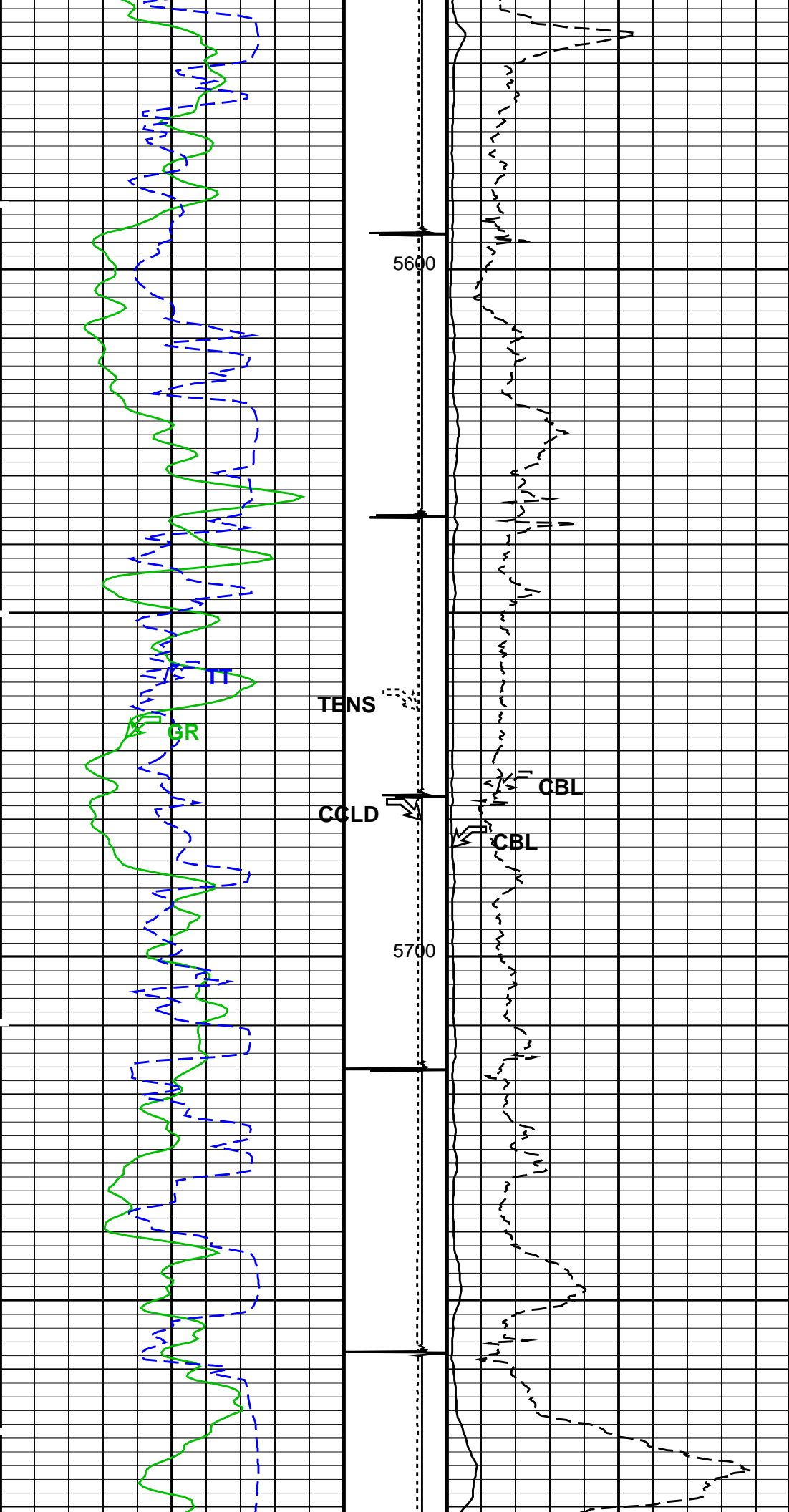


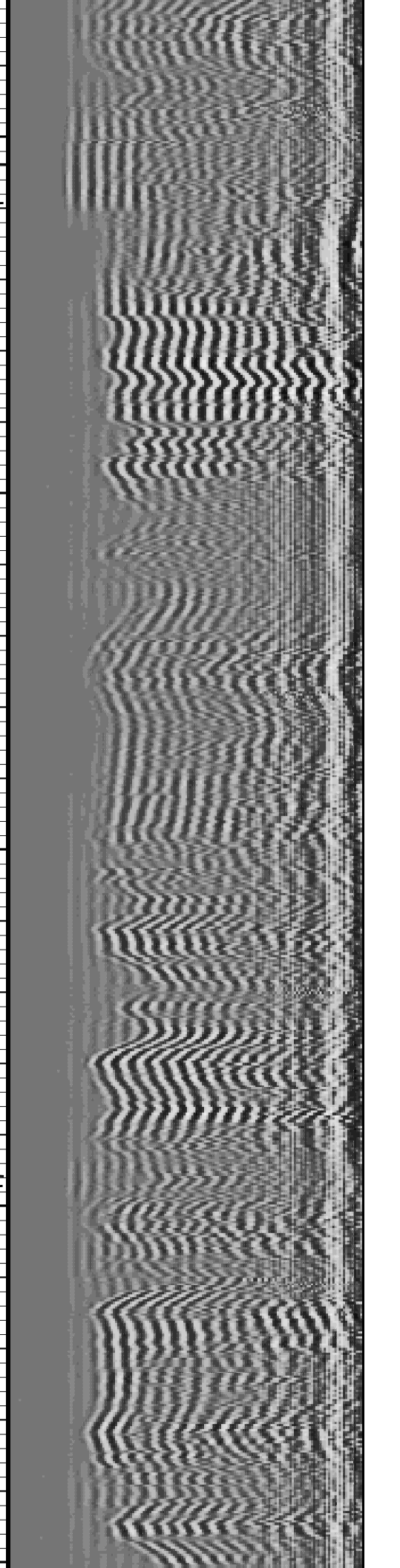
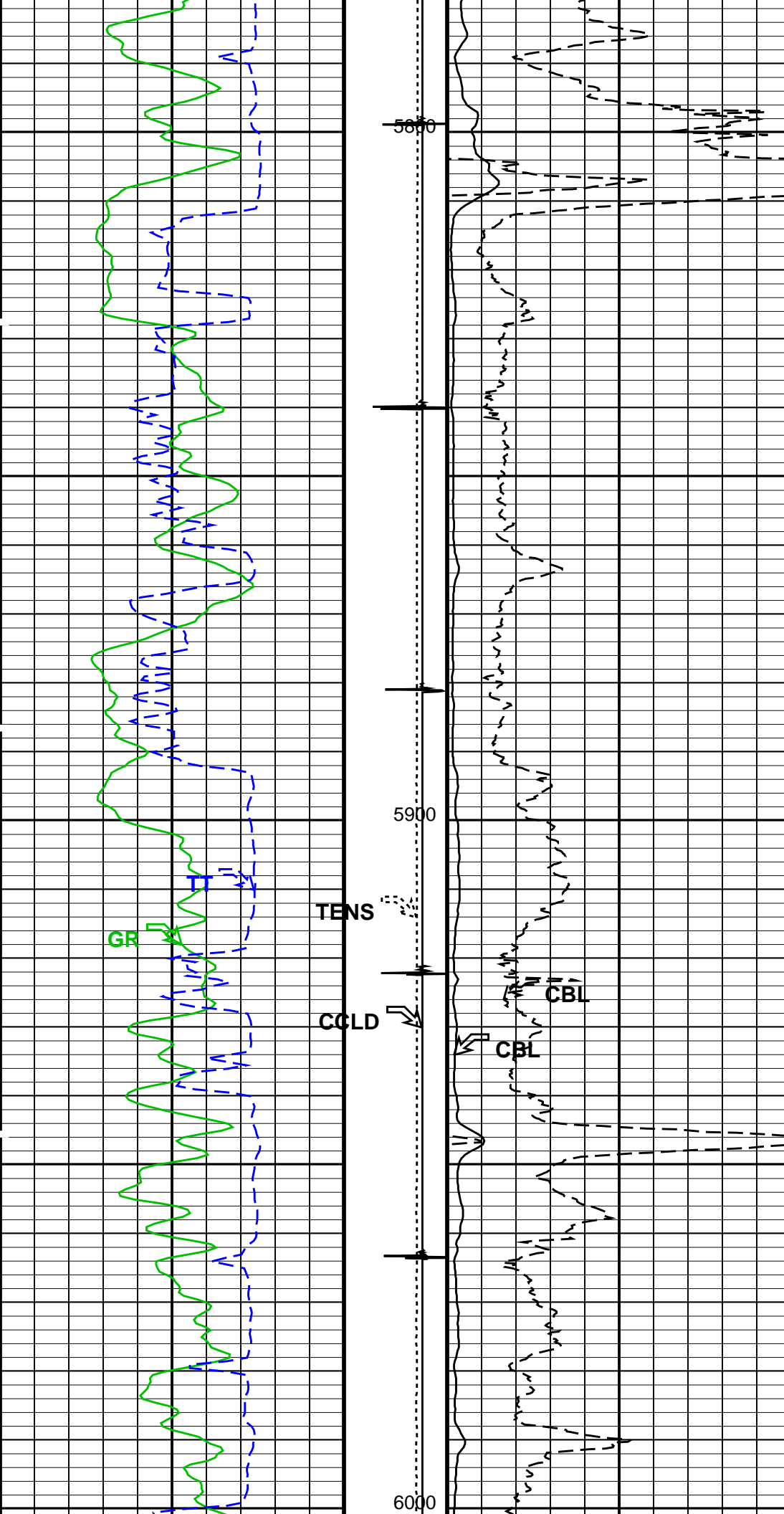


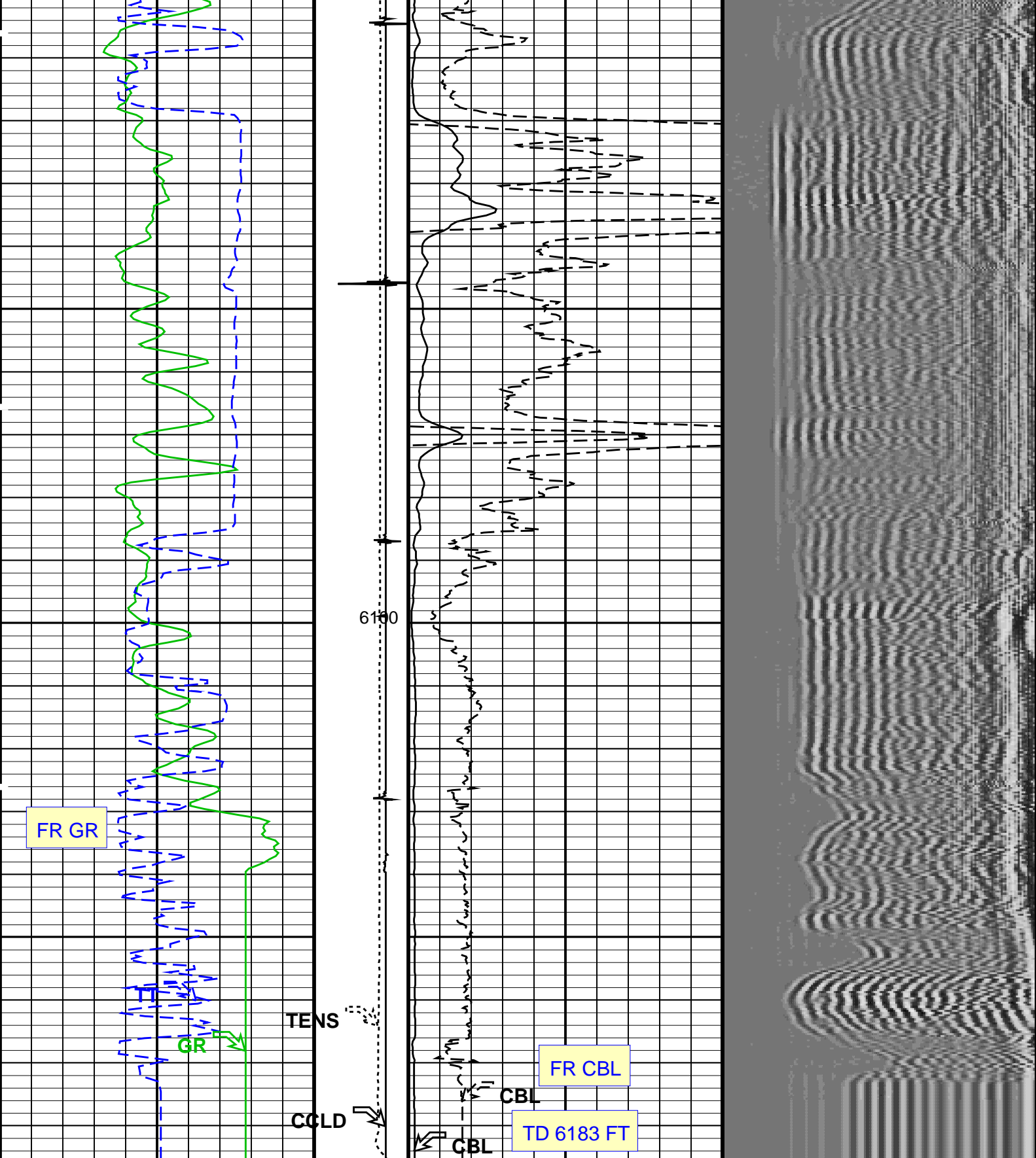












Gamma Ray (GR) (GAPI)		Tension (TENS) (LBF)	CBL Amplitude (CBL) (MV)		Min	Amplitude	Max
0	150	2000	0	100			
Transit Time (TT) (US)		Discriminat ed CCL (CCLD) (V)	CBL Amplitude (CBL) (MV)		VDL VariableDensity (VDL) (US)		
400	200	3 -1	0	10	200		1200

PIP SUMMARY

OP System Version: 18C0-147

SCMT-CB	18C0-147	RST-C	18C0-147
PSPT	18C0-147		

<<<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		

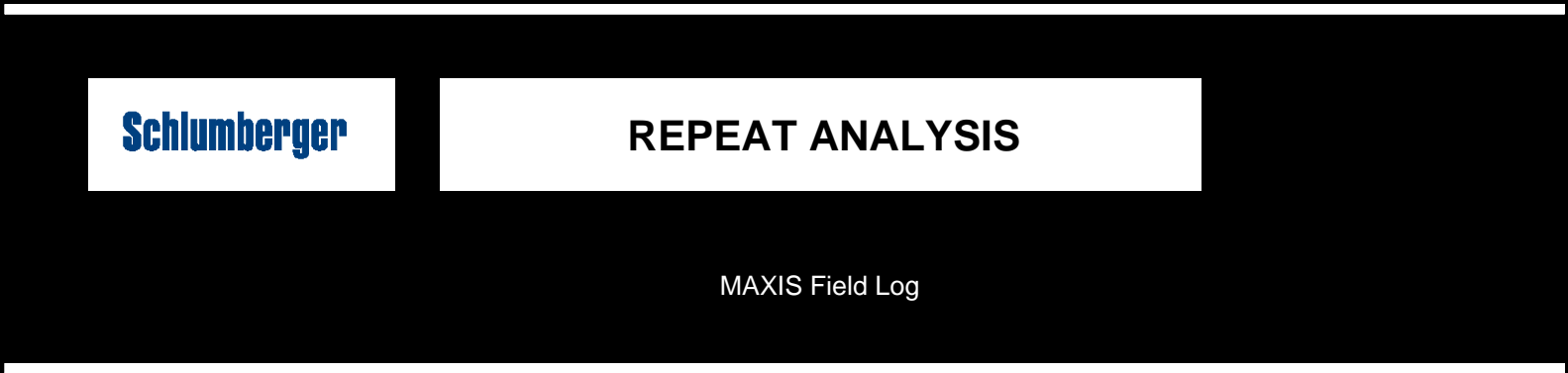
Parameters

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
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	6.0	FT
DOBI	Depth Offset for Repeat Analysis	0.0	FT

Input DLIS Files						
DEFAULT	SCMT_RST_PSP_065LUP	FN:64	PRODUCER	27-Jan-2011 17:05	6179.5 FT	98.5 FT
Output DLIS Files						
DEFAULT	SCMT_RST_PSP_069PUP	FN:68	PRODUCER	27-Jan-2011 18:47		



REPEAT ANALYSIS

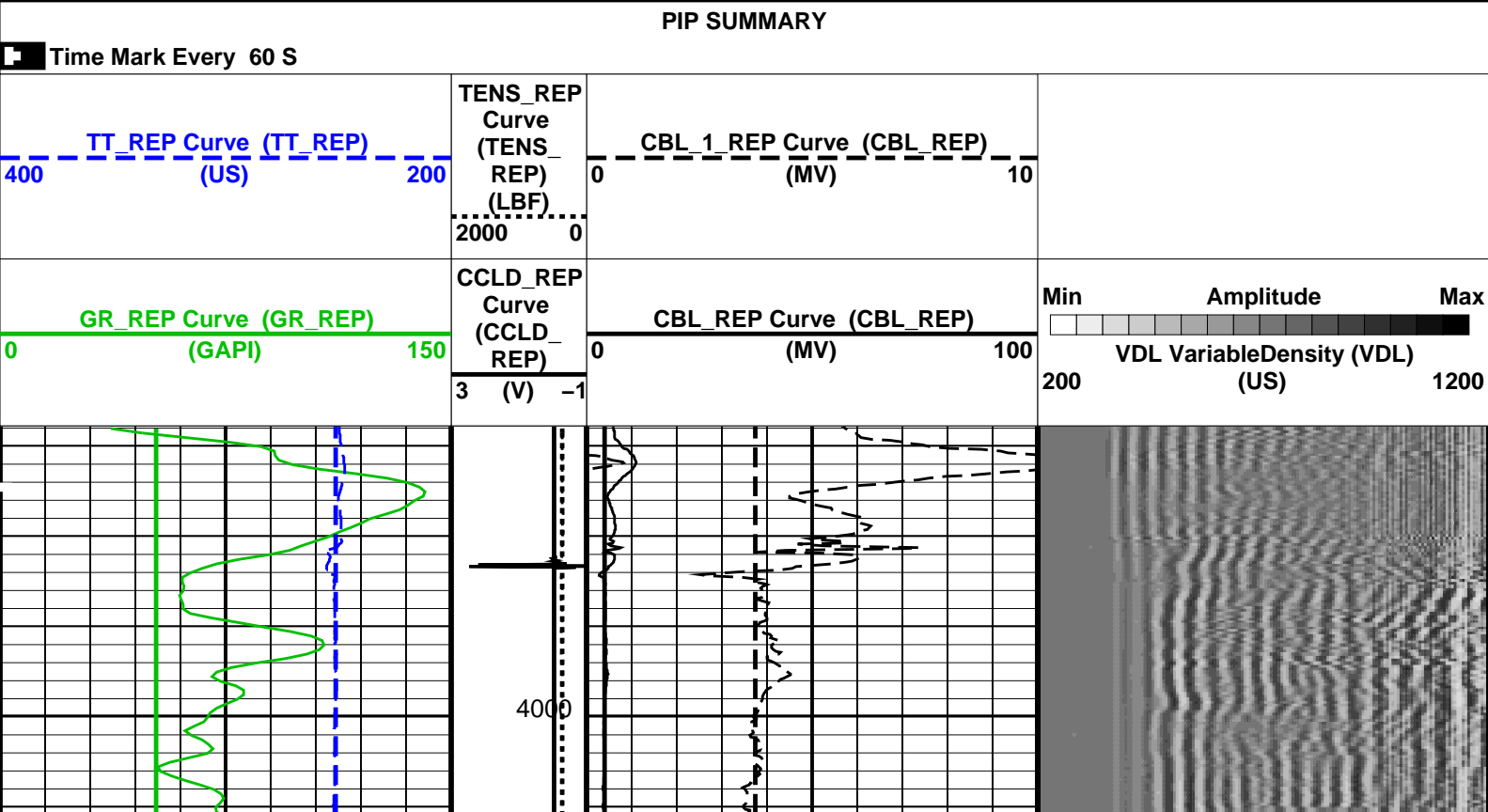


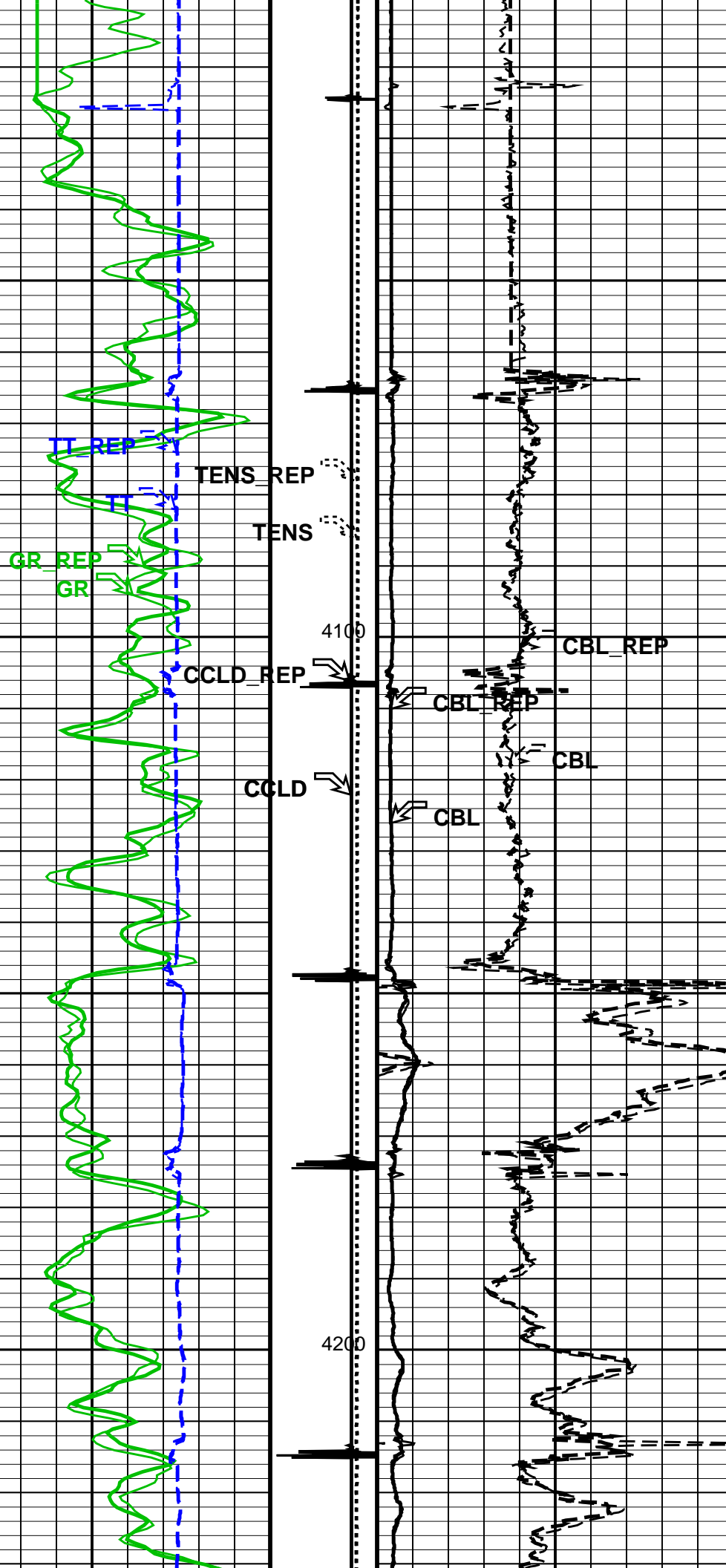
Company: ENCANA OIL & GAS (USA) INC.

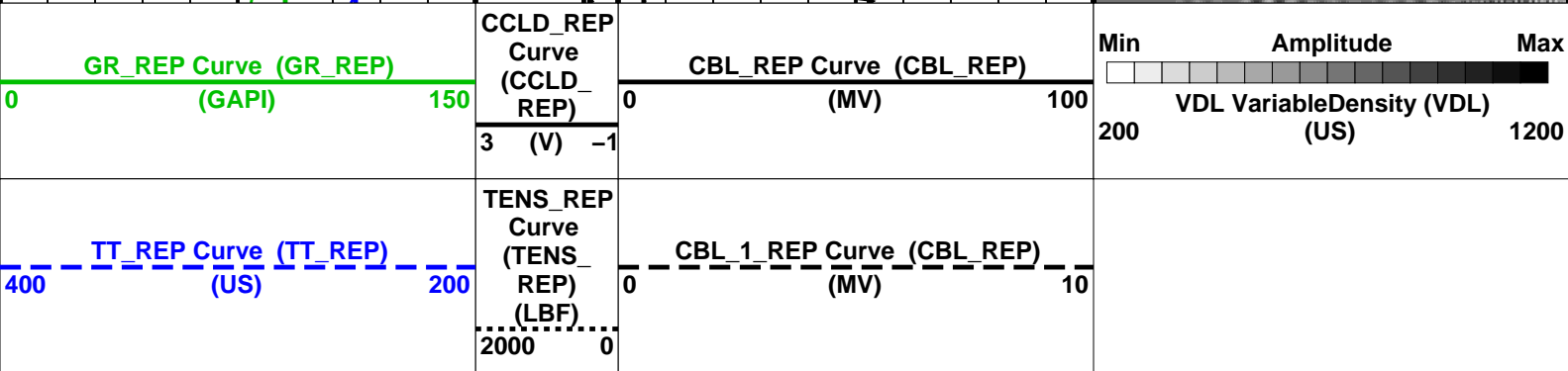
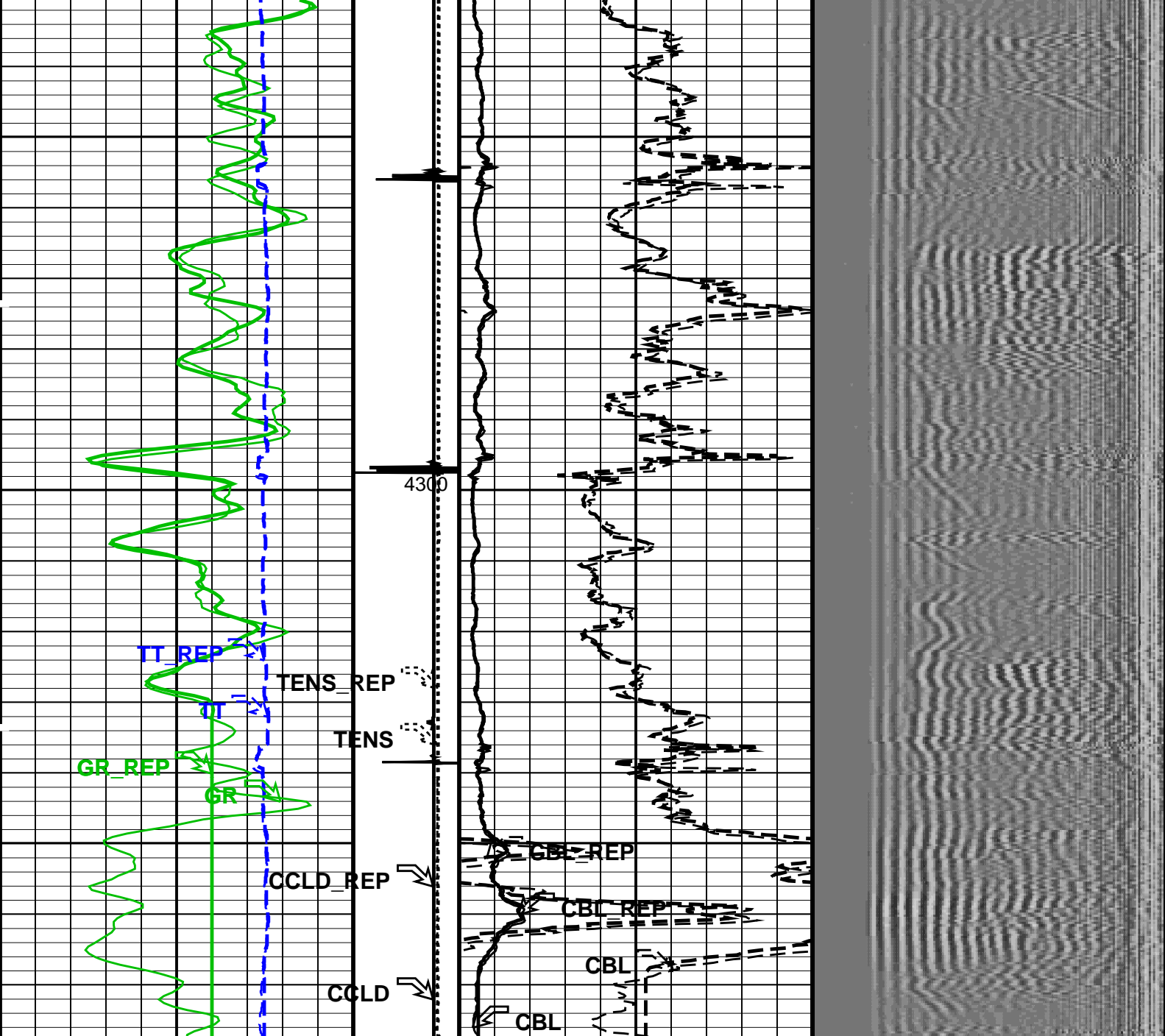
Well: TWIN CREEK 1-10B1 (O1EB)

Input DLIS Files						
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Output DLIS Files						
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OP System Version: 18C0-147			
SCMT-CB	18C0-147	RST-C	18C0-147
PSPT	18C0-147		







PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL_REP Vertical Scale: 5" per 100'

Graphics File Created: 27-Jan-2011 18:47

OP System Version: 18C0-147

SCMT-CB 18C0-147
PSPT 18C0-147

RST-C 18C0-147

<<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number	SCMS-CB 8303		
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Casing Weight	11.6000 LB/F		
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			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		
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MAP 8 Correction Factor	0.233552		

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DLIS Name	Description	Value	
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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
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	6.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	NORMAL	
TD	Total Depth	6183	FT

Input DLIS Files						
DEFAULT	SCMT_RST_PSP_065LUP	FN:64	PRODUCER	27-Jan-2011 17:05	6179.5 FT	98.5 FT
DEFAULT	SCMT_RST_PSP_063PUP	FN:62	PRODUCER	27-Jan-2011 16:59	4377.5 FT	3967.5 FT

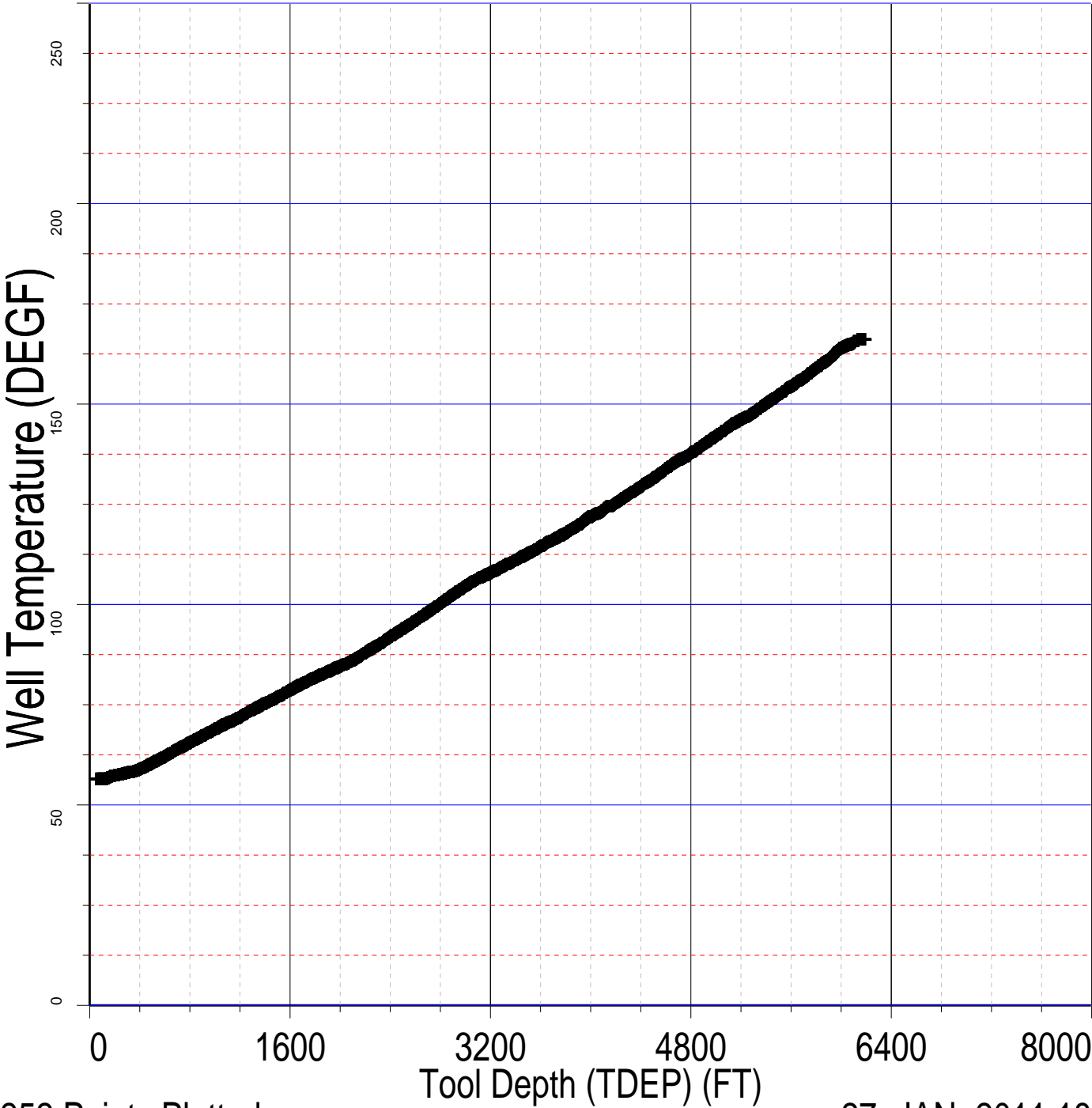
Output DLIS Files

Schlumberger

TEMPERATURE PLOT

MAXIS Field Log

Index: 6185.5 – 60.0 FT



MAXIS Field Log

Client: ENCANA OIL & GAS (USA) INC.
Field: MAMM CREEK
Well: TWIN CREEK 1-10C2 (O1EB)
Run date: 26-Jan-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: MAMM CREEK
Well: TWIN CREEK 1-10C2 (O1EB)
Run date: 26-Jan-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:

Matrix Size 66
Coeff CRC 4C82

Pres Coeff

	Tt**0	Tt**1	Tt**2
Tp**0	-.611876617639E+04	+4.71061007964E+04	-.216447354932E+04
Tp**1	+3.71836126905E+04	-.234756196935E+04	+1.29149325686E+04
Tp**2	+1.93143980957E+02	-.189348218853E+01	-.341812471126E+01
Tp**3	-.568815065386E+01	+2.00079683569E+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	+3.80249508124E+03	-.247683004908E+02	0.0
Tp**1	-.227135245080E+03	+1.146352372057E+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	+2.51216271916E+01	-.820715649824E+00
Tt**1	+5.98349067015E+02	-.107326373545E+01	+6.52890183203E-01
Tt**2	+1.109160002120E+02	+2.62812193556E+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	+1.151507143209E+00	-.592670012996E-02	0.0
Tt**1	+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
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Client:	ENCANA OIL & GAS (USA) INC.	Tool:	PSP
Field:	MAMM CREEK	Sub Type:	PBMS
Well:	TWIN CREEK 1-10C2 (O1EB)	Sensor:	GR
Run date:	26-Jan-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		
	Rt**0	Rt**1
Rt**0	+.200000000000e+04	+.214000000000e+04

Client:	ENCANA OIL & GAS (USA) INC.	Tool:	PSP
Field:	MAMM CREEK	Sub Type:	PBMS
Well:	TWIN CREEK 1-10C2 (O1EB)	Sensor:	WellTemp RTD
Run date:	26-Jan-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
WTemp Coeff

Tt**0

Tt**1

Tt**2

Tt**0

+.492135102627E+02	-.278827553804E+03	+.142867554561E+03
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Tt**3

Tt**4

Tt**5

Tt**0

-.233378392336E+02	+.145553494493E+01	0.0
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Company: ENCANA OIL & GAS (USA) INC.

Schlumberger

Well: TWIN CREEK 1–10B1 (O1EB)
Field: MAMM CREEK
County: GARFIELD
State: COLORADO

CEMENT BOND LOG
CBL – VDL
GAMMA RAY – CCL