

Company: ENCANA OIL & GAS (USA) INC.

Well: MF 06B-16 (H17) 696
Field: NORTH PARACHUTE
County: GARFIELD

State: COLORADO

County: GARFIELD
Field: NORTH PARACHUTE
Location: SHL: SENE 1548' FNL 292' FEL
Well: MF 06B-16 (H17) 696
Company: ENCANA OIL & GAS (USA) INC.

CEMENT BOND LOG
CBL- VDL
GAMMA RAY - CCL

SHL: SENE 1548' FNL 292' FEL
BHL: SENE 1711' FNL 1394' FWL

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

LOCATION

Permanent Datum: GROUND LEVEL Elev.: 5654.00 ft
Log Measured From: KELLY BUSHING 22.00 ft above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No. 05-045-18705-000C
Section 16
Township 6S
Range 96W

			Run 1	Run 2	Run 3
PVT DATA					
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 13-Apr-2011

Run Number ONE
Depth Driller 7688 ft
Schlumberger Depth 7588 ft
Bottom Log Interval 7579 ft
Top Log Interval 200 ft
Casing Fluid Type WATER
Salinity
Density 8.4 lbm/gal
Fluid Level 30 ft
BIT/CASING/TUBING STRING
Bit Size 8.750 in
From 30 ft
To 7688 ft
Casing/Tubing Size 4.500 in
Weight 11.6 lbm/ft
Grade
From 30 ft
To 7665 ft
Maximum Recorded Temperatures 238 degF
Logger On Bottom 13-Apr-2011 11:42
Unit Number 409 Location GRAND JUNCTION
Recorded By DAVID PATE
Witnessed By SCOTT PITT

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 12:52:25

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:	152.00 FT
Rig Up Length At Bottom:	151.00 FT
Rig Up Length Correction:	1.00 FT
Stretch Correction:	6.00 FT
Tool Zero Check At Surface:	1.20 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.

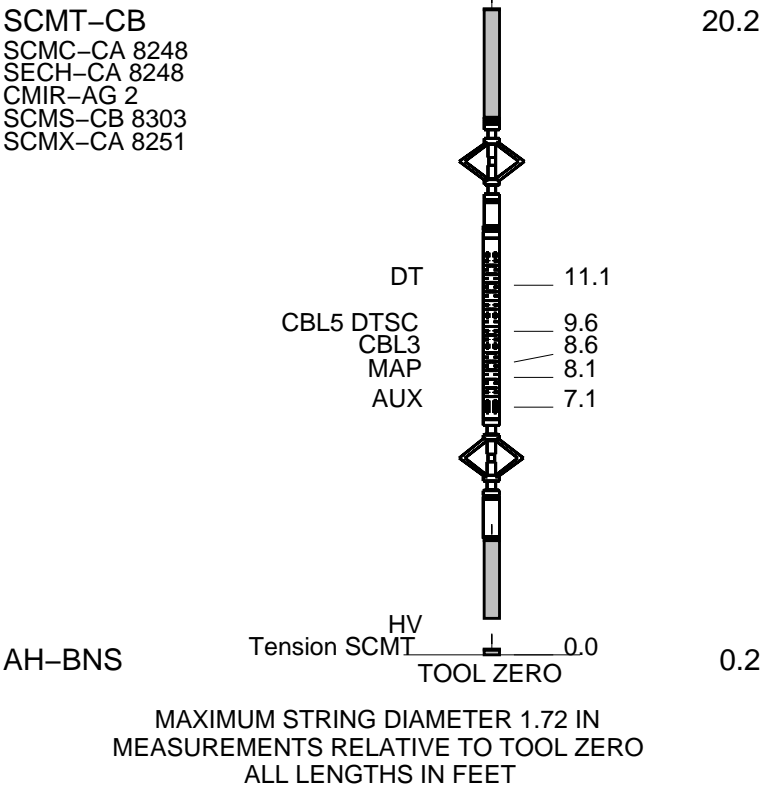
DISCLAIMER

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: SIGMA 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: 7588 FT	
MAXIMUM RECORDED TEMPERATURE AT TD: 238 DEGF	
MAXIMUM RECORDED PRESSURE AT TD: 3066 PSIA	

SHORT JOINTS: 4200FT AND 6160 FT					
CYCLE SKIPPING DUE TO GOOD BOND CAUSING TT TO READ HIGH.					
EXPECTED FREE PIPE AMPLITUDE: 81 mV.					
AFE: 10141635					
THANK YOU FOR CHOOSING SCHLUMBERGER.					
CREW: DAVID P., WALEED A. & JARED R.					
<div> <div>RUN 1</div> <div> <div>SERVICE ORDER #:</div> <div>PROGRAM VERSION:</div> <div>FLUID LEVEL:</div> </div> <div> <div>BIHS-00103</div> <div>17C0-154</div> <div>30 ft</div> </div> </div>			<div> <div>RUN 2</div> <div> <div>SERVICE ORDER #:</div> <div>PROGRAM VERSION:</div> <div>FLUID LEVEL:</div> </div> </div>		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION					
RUN 1			RUN 2		
<div> <div>SURFACE EQUIPMENT</div> <div> <div>WITM-A 4045</div> <div>PSC_16MHZ 4045</div> </div> </div>					
<div> <div>DOWNHOLE EQUIPMENT</div> <div> <div> <div>MH-22</div> <div>MH-22 410</div> <div> <div>Detail MT</div> <div>TelStatus</div> <div>CTEM</div> </div> <div> <div>AH-38</div> <div>PSPT</div> <div>PSC-A 1921</div> <div>PSPT-A 3779</div> <div>PSTC-A 1921</div> <div>PBMS-A 3779</div> <div>10k_Sapphire_Mano 3779</div> <div>RTD_Thermometer 3779</div> <div>GR 34552</div> <div>CCL 3779</div> <div>PBMS 3779</div> </div> <div> <div>GR</div> <div>Well_Temp</div> <div>Manometer</div> <div>CCL</div> <div>PBMS PSTC</div> </div> </div> </div> </div>					



Schlumberger

MAIN PASS 0 PSI

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC.

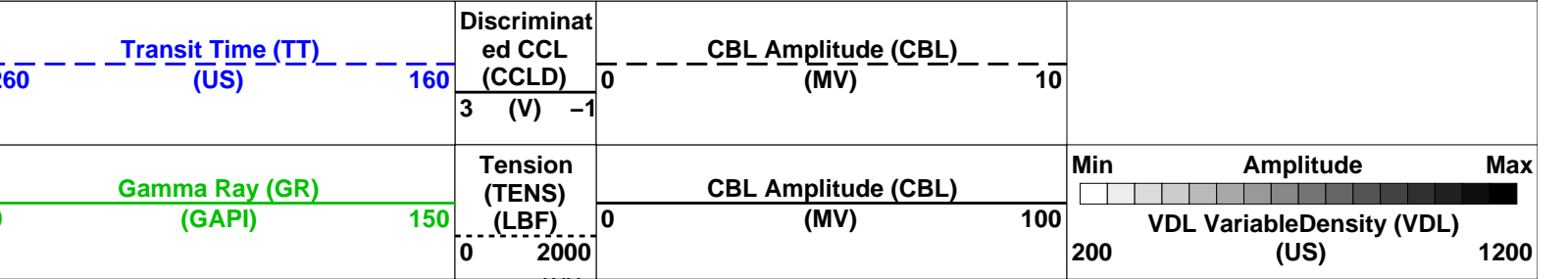
Well: MF 06B-16 (H17) 696

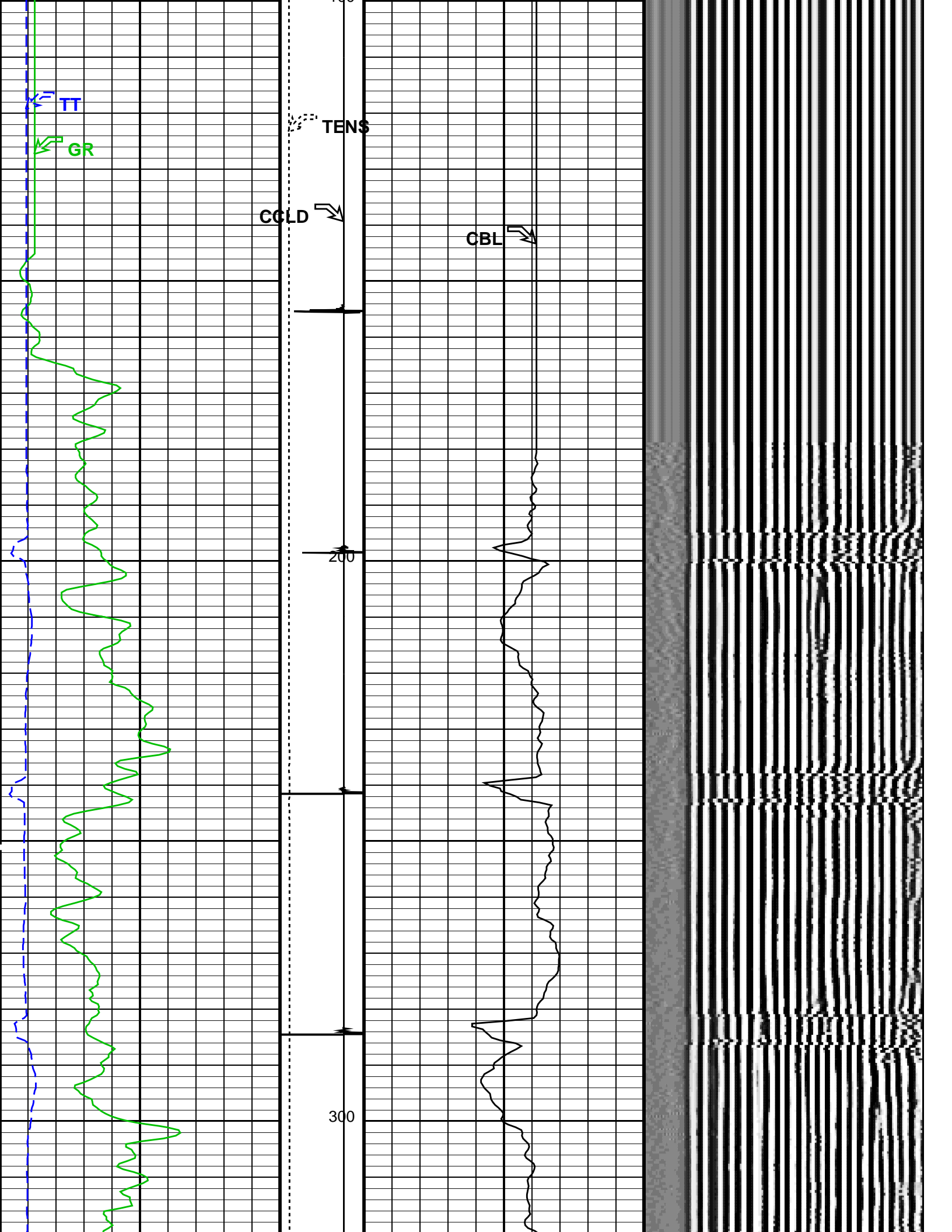
Input DLIS Files						
DEFAULT	SCMT_RST_PSP_004LUP	FN:3	PRODUCER	13-Apr-2011 11:42	7638.5 FT	137.5 FT
Output DLIS Files						
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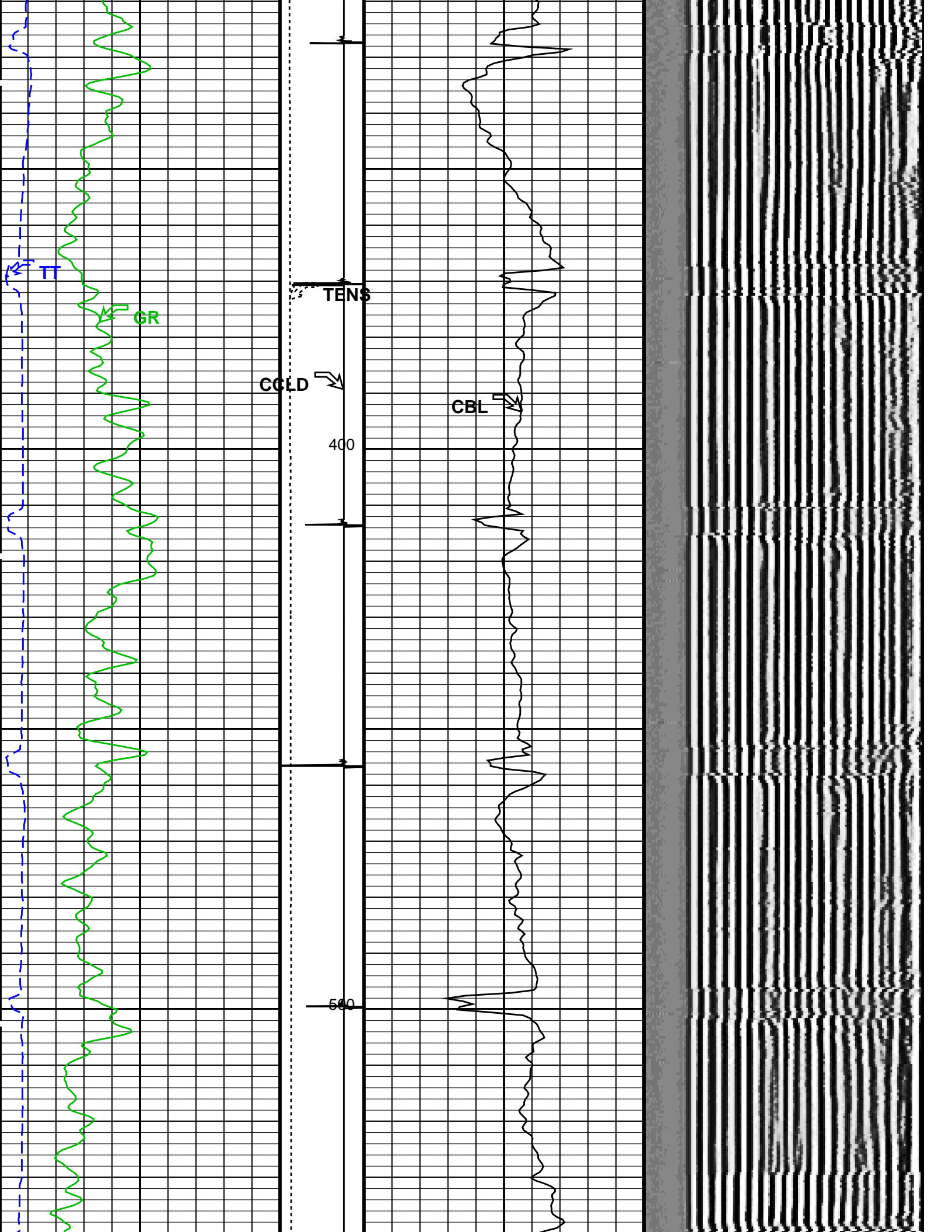
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SCMT-CB	17C0-154	RST-C	17C0-154
PSPT	17C0-154		

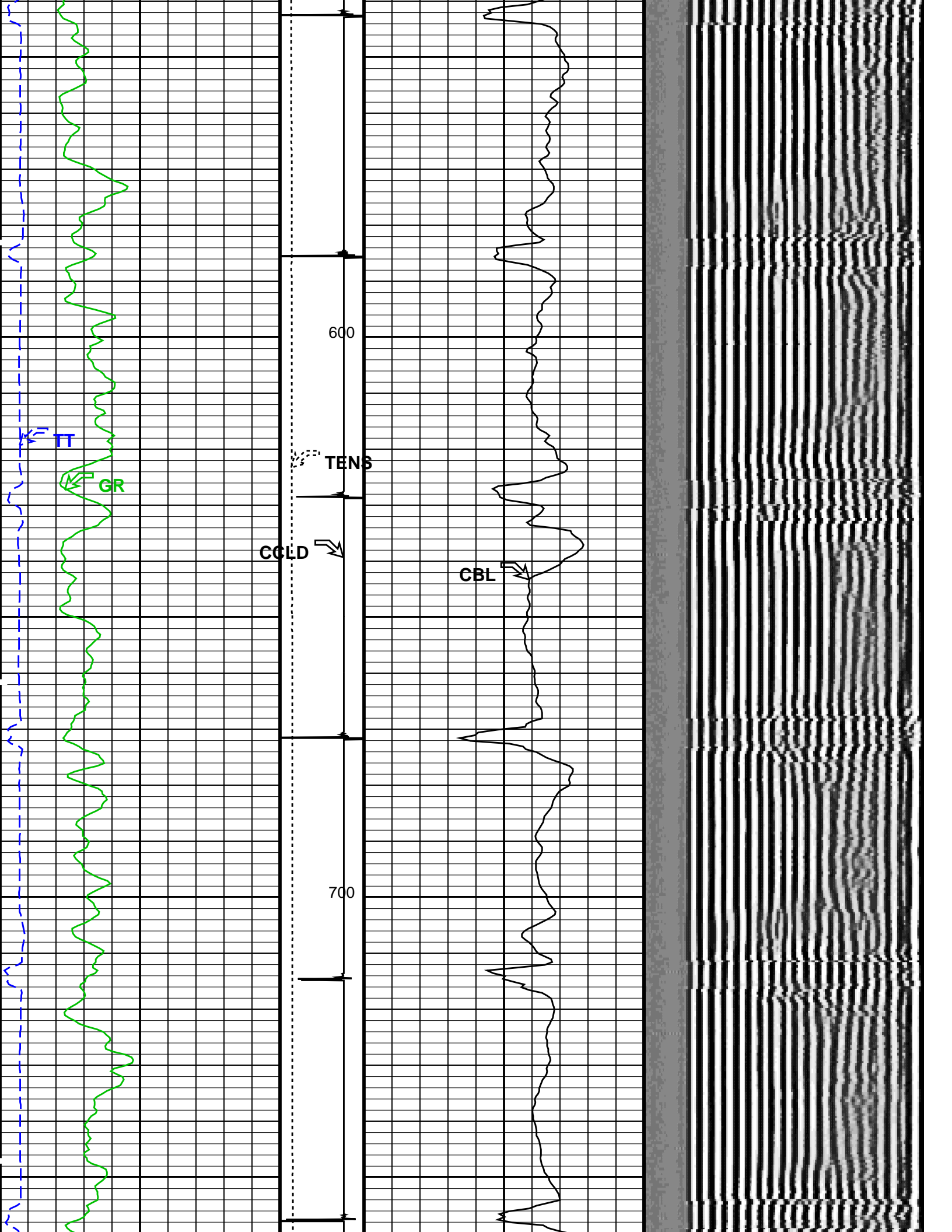
PIP SUMMARY

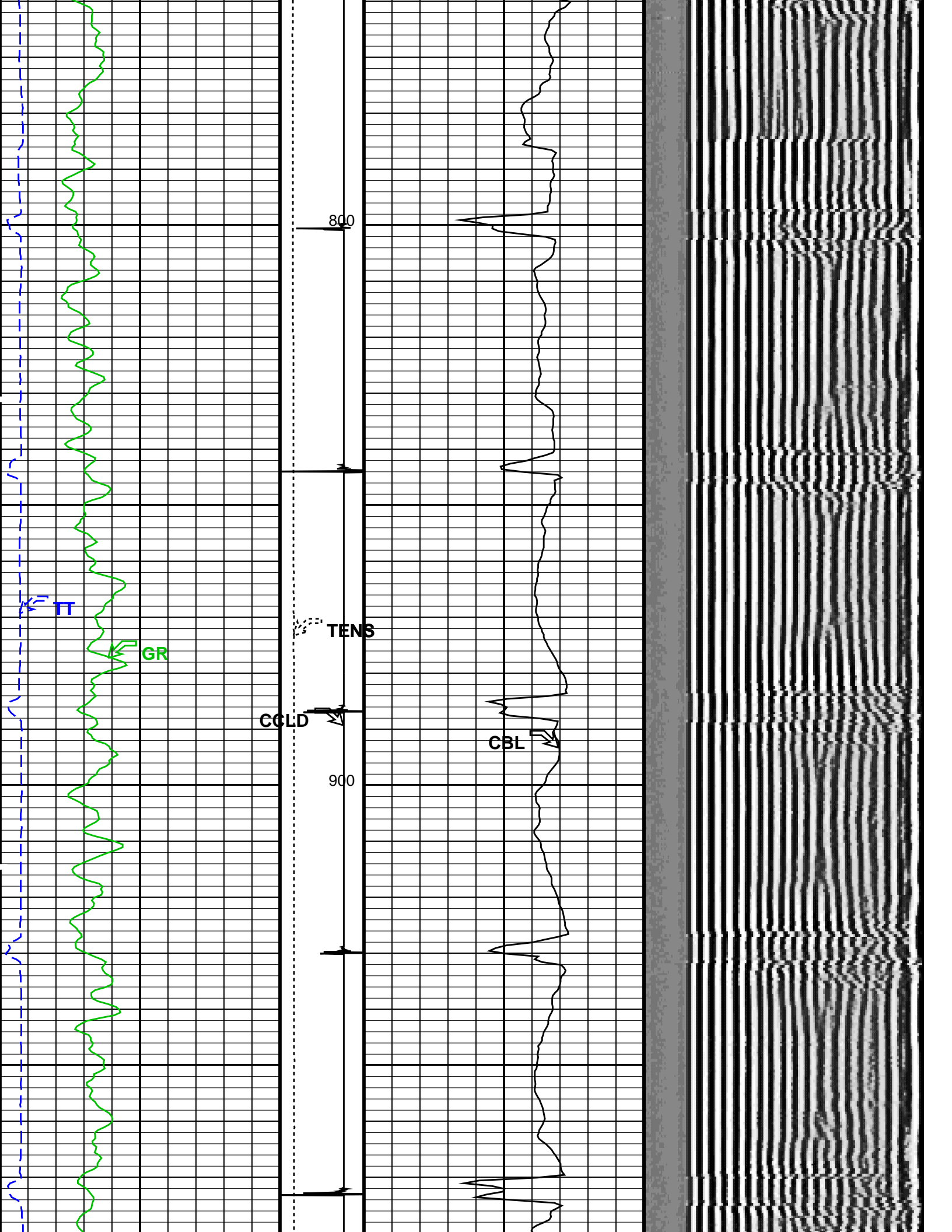
☒ Time Mark Every 60 S

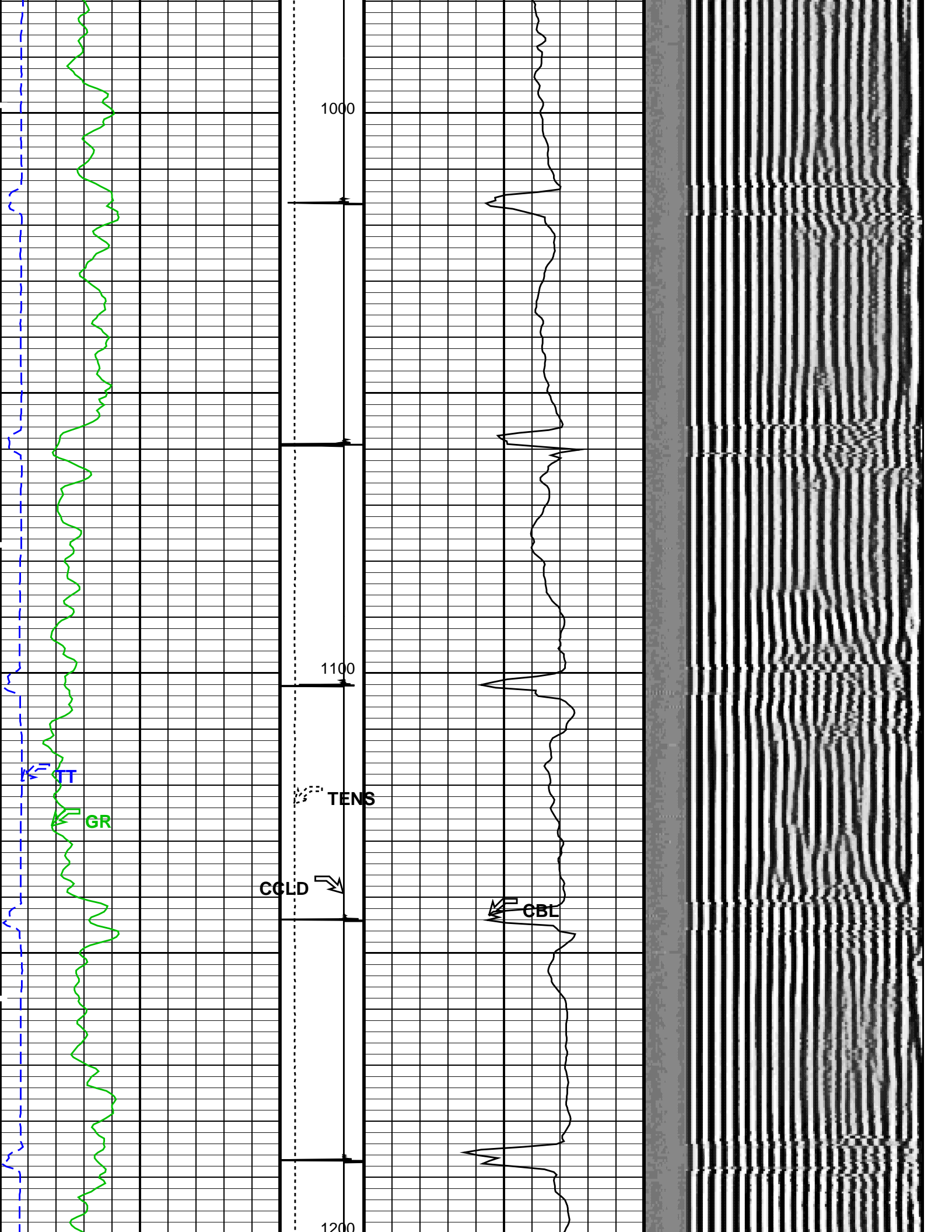


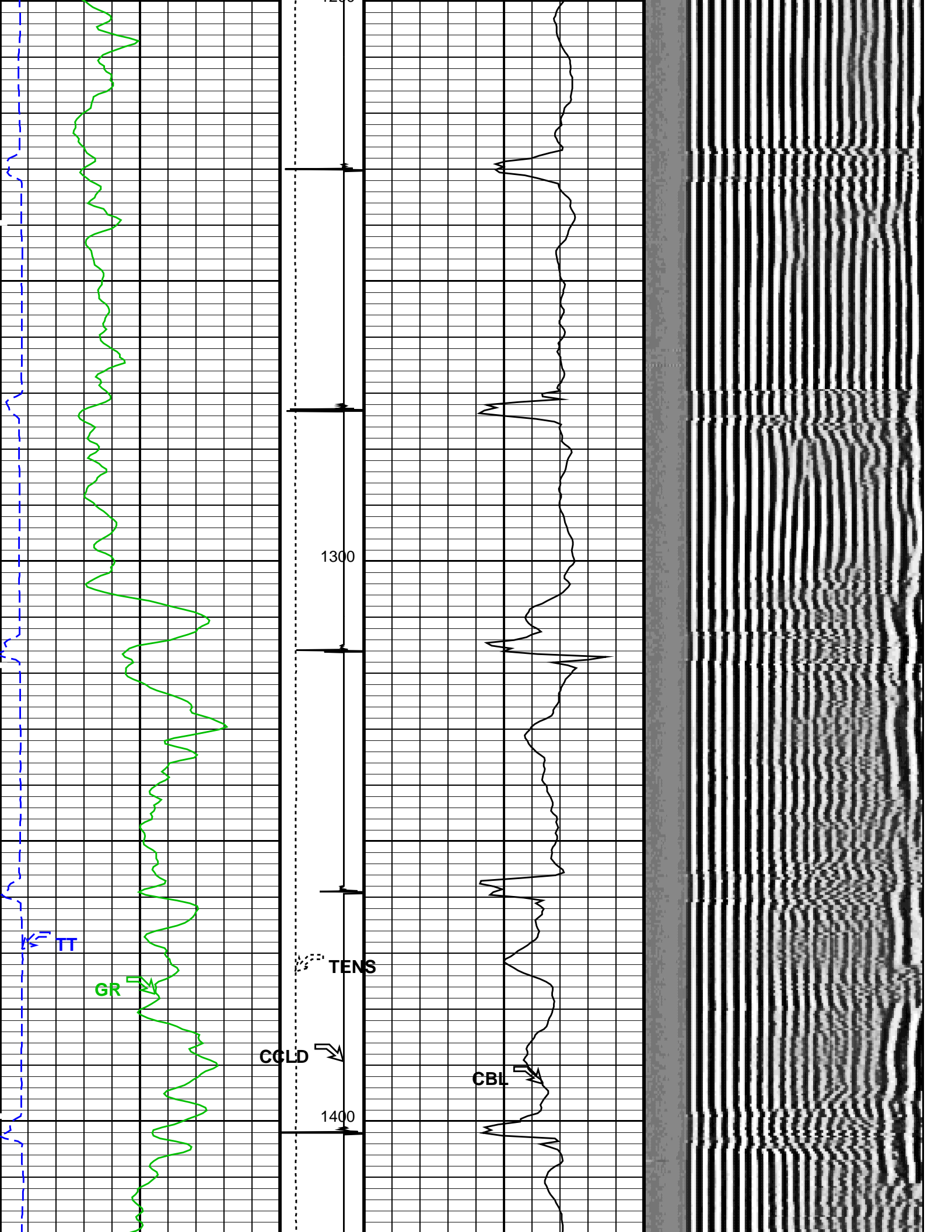


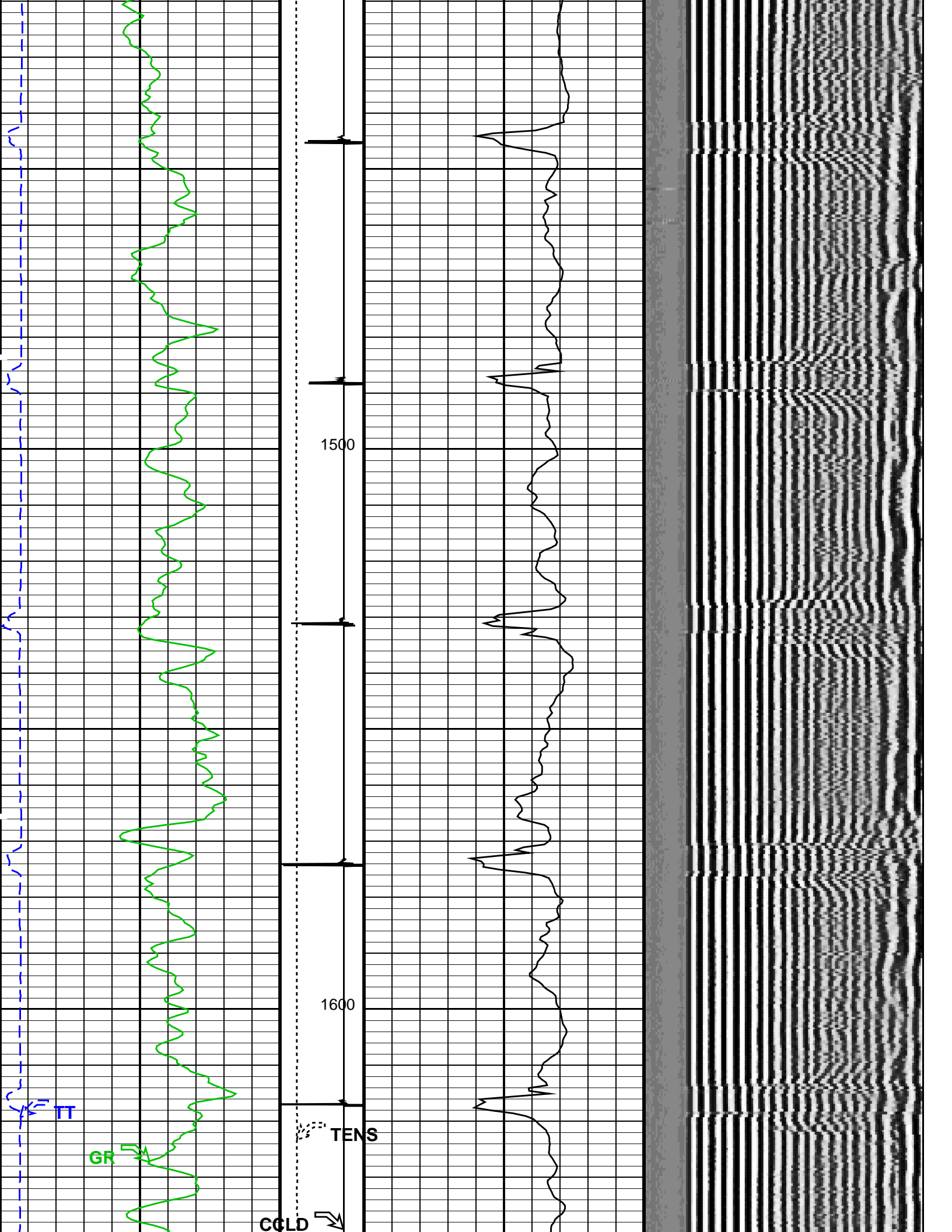


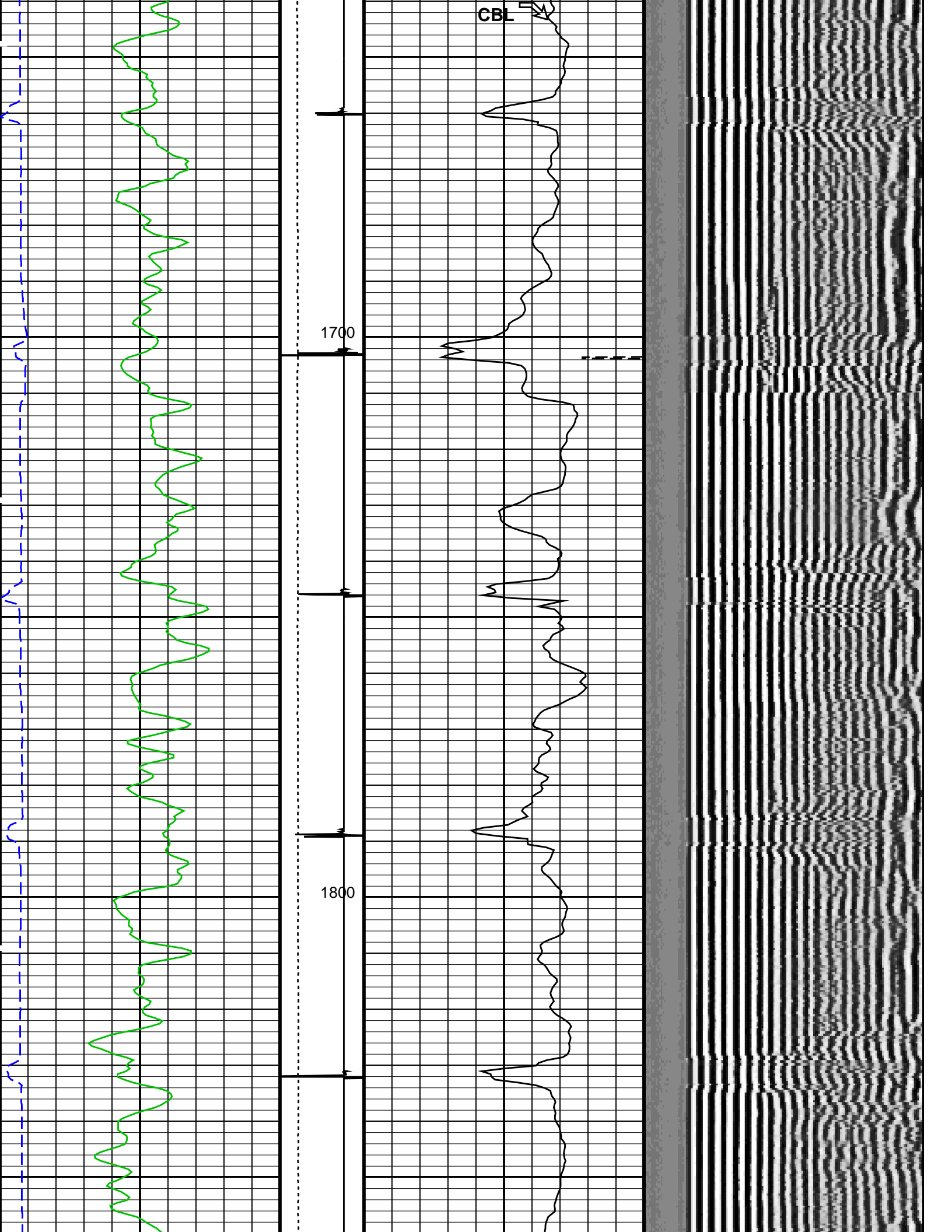


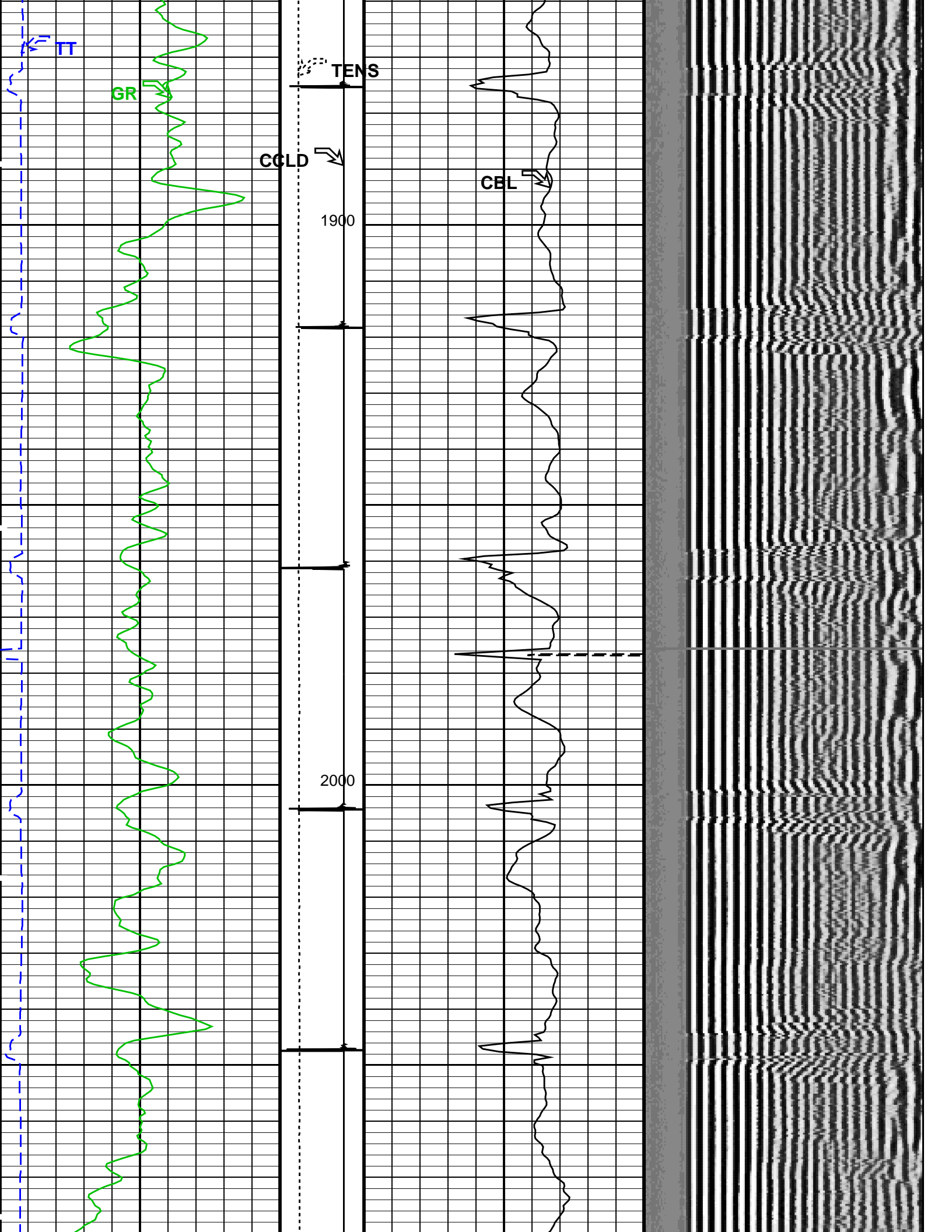


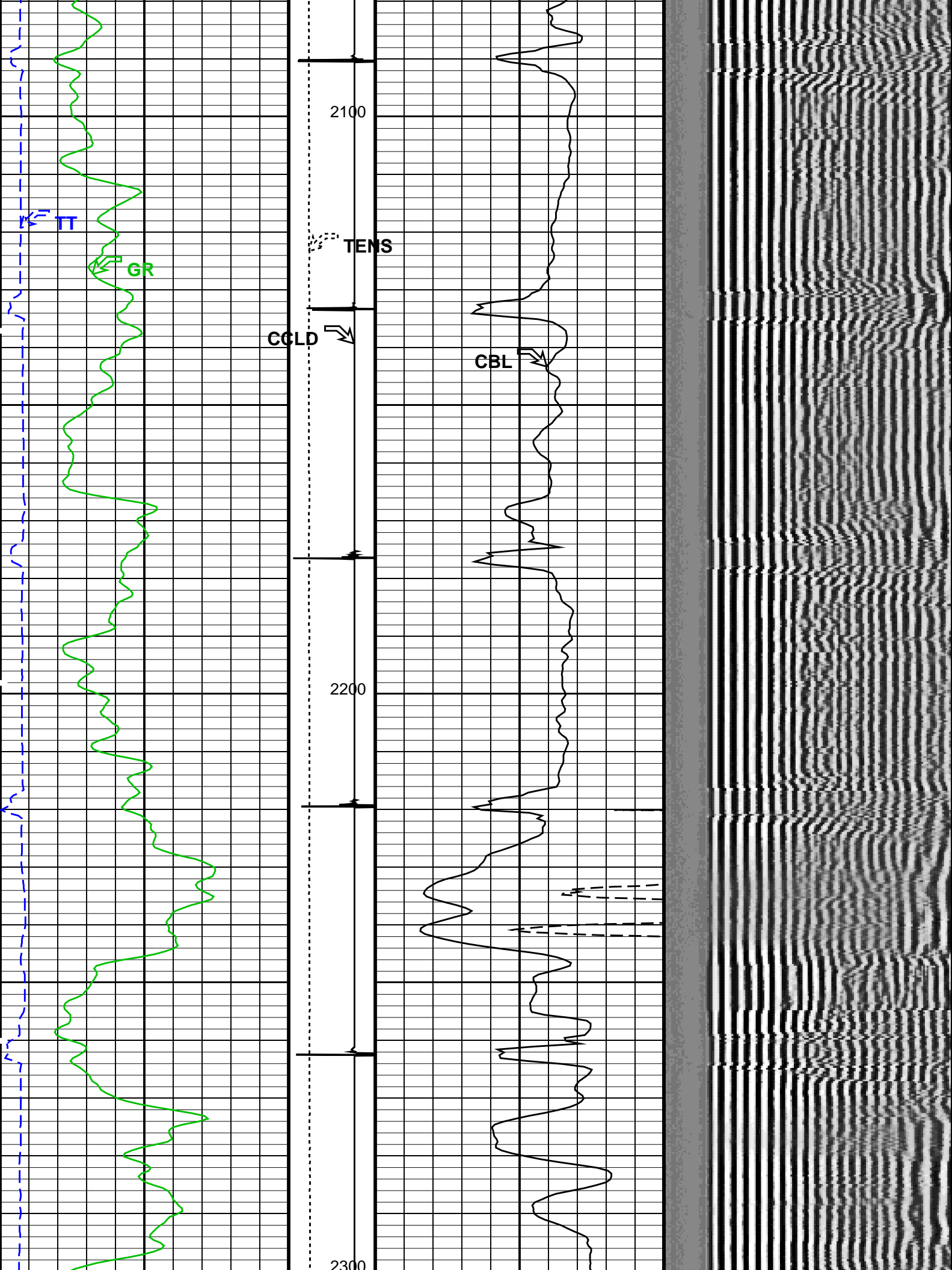


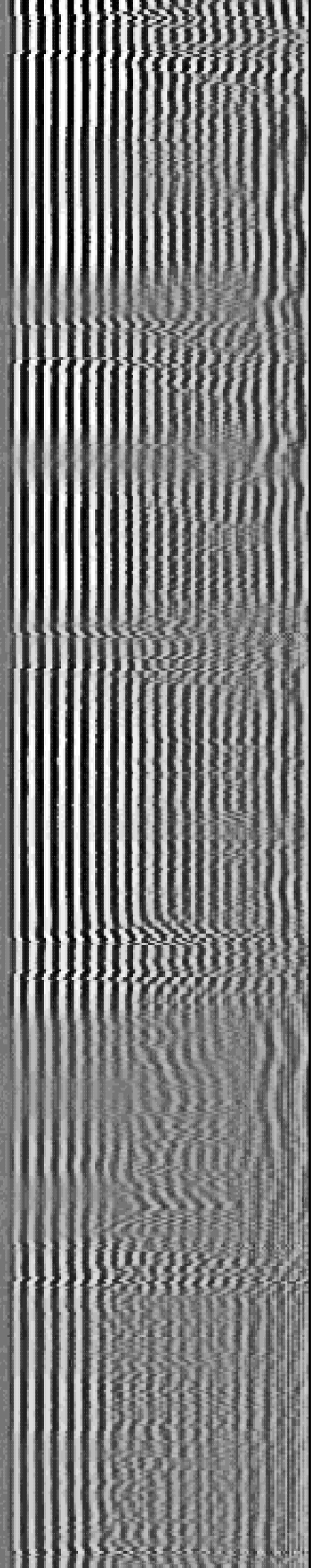
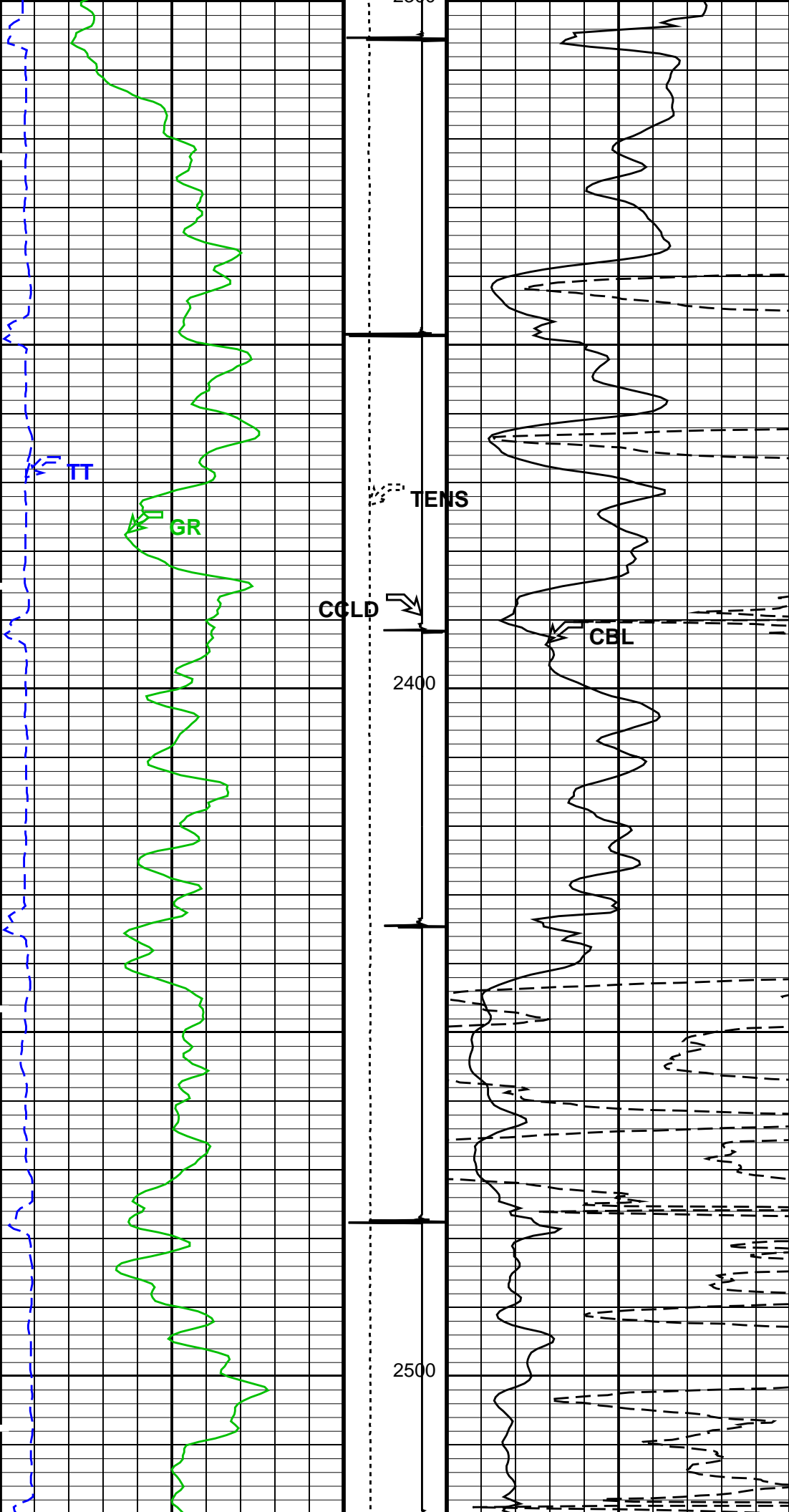


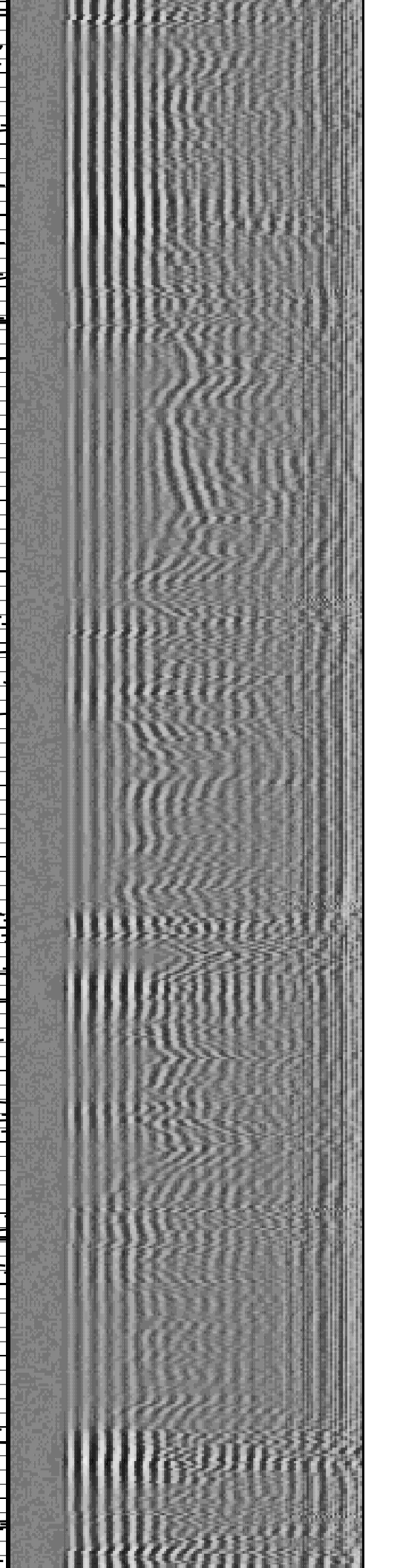
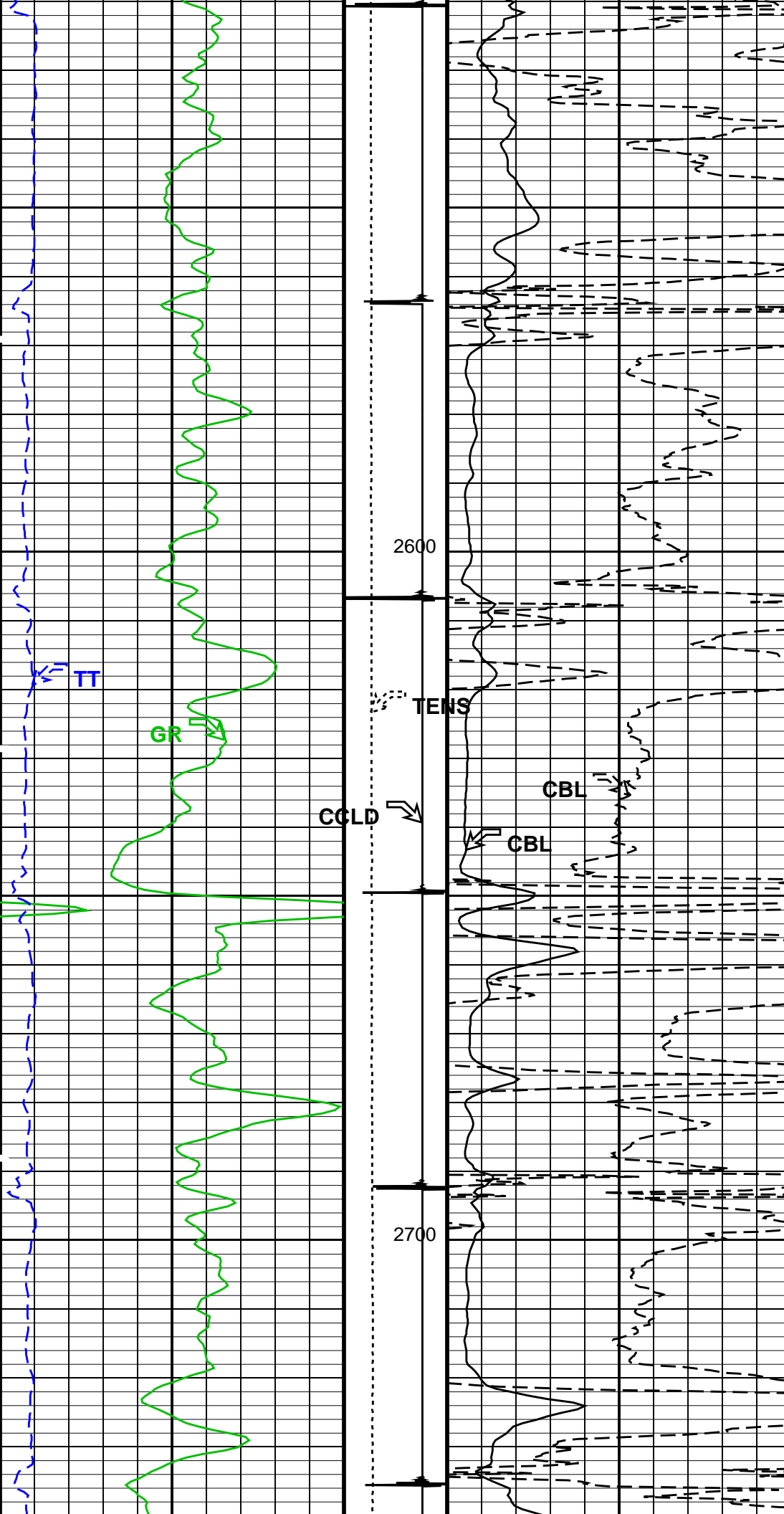


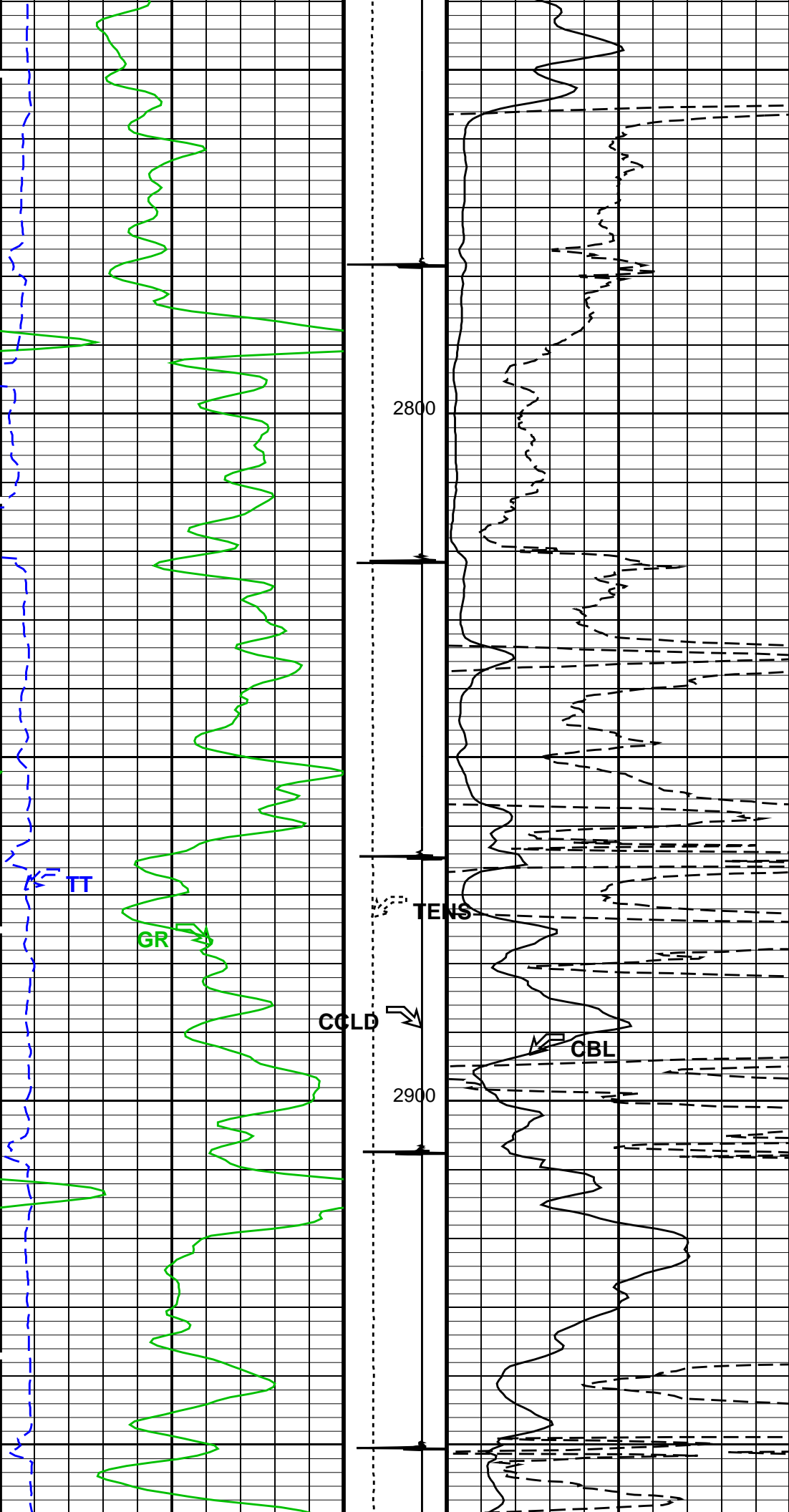


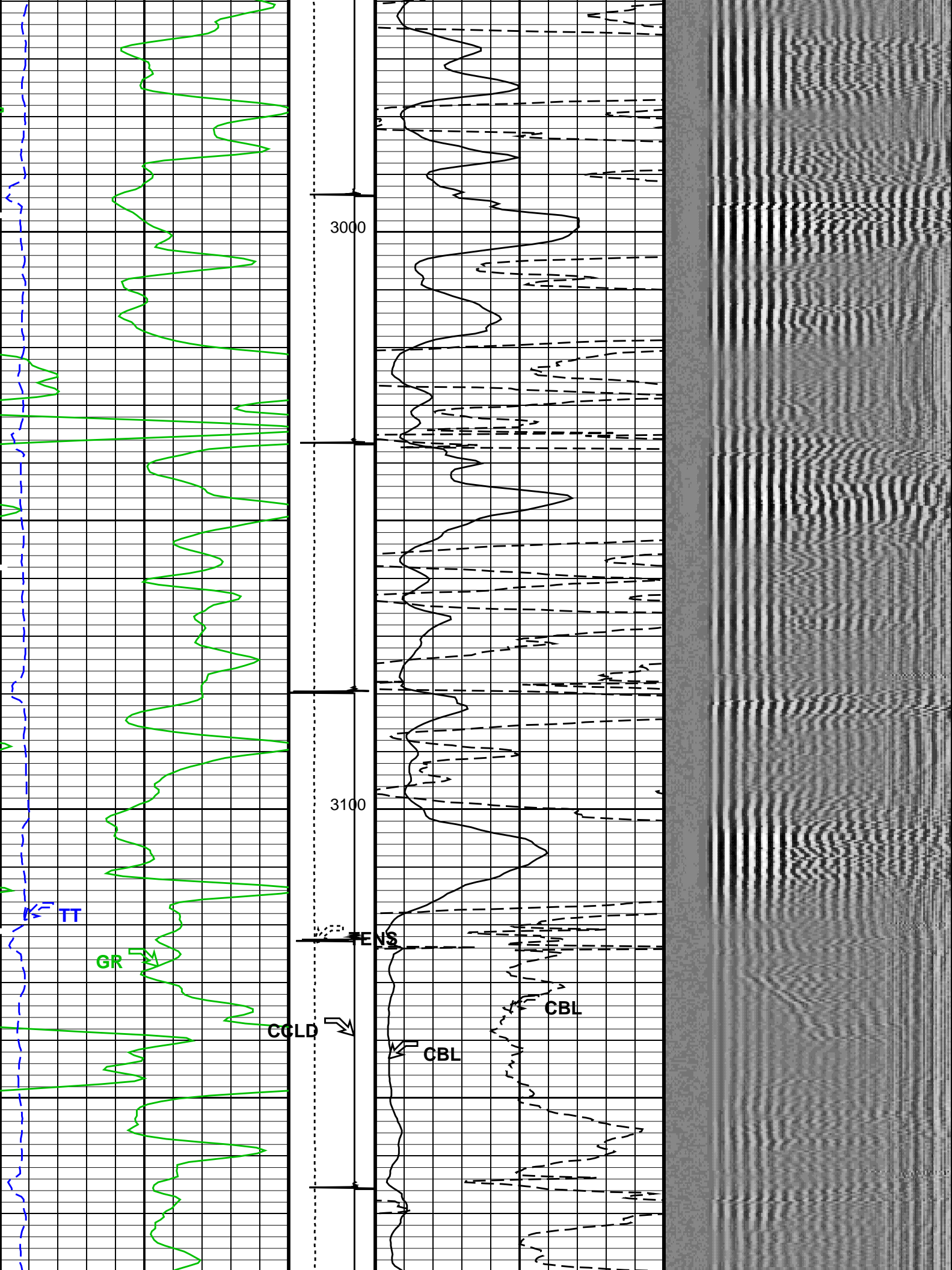


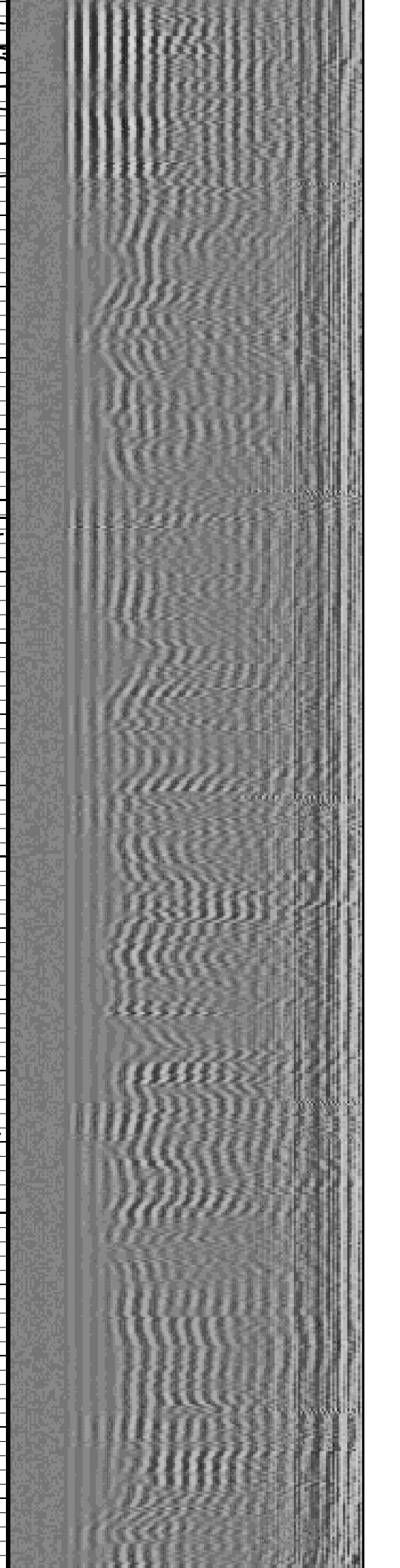
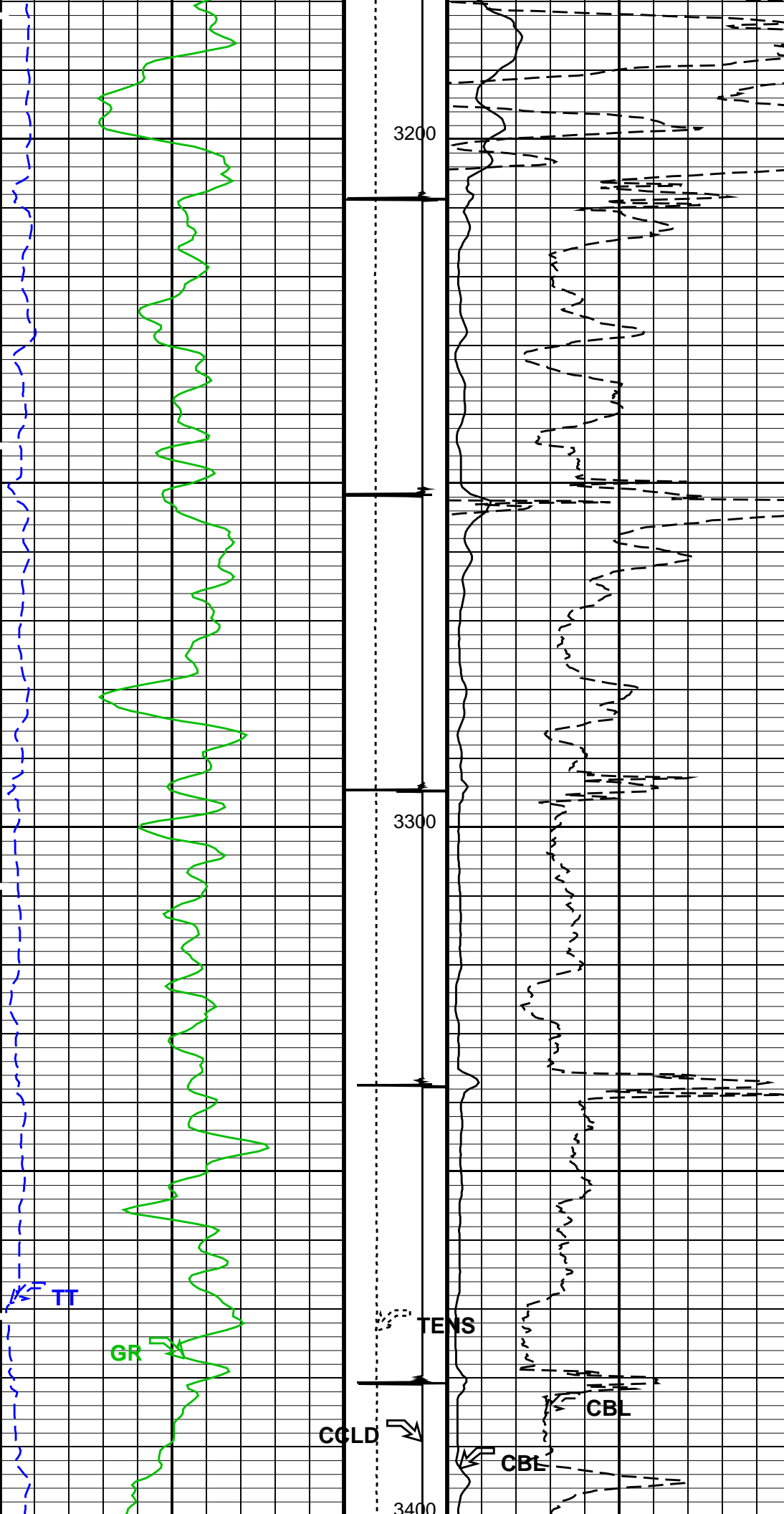


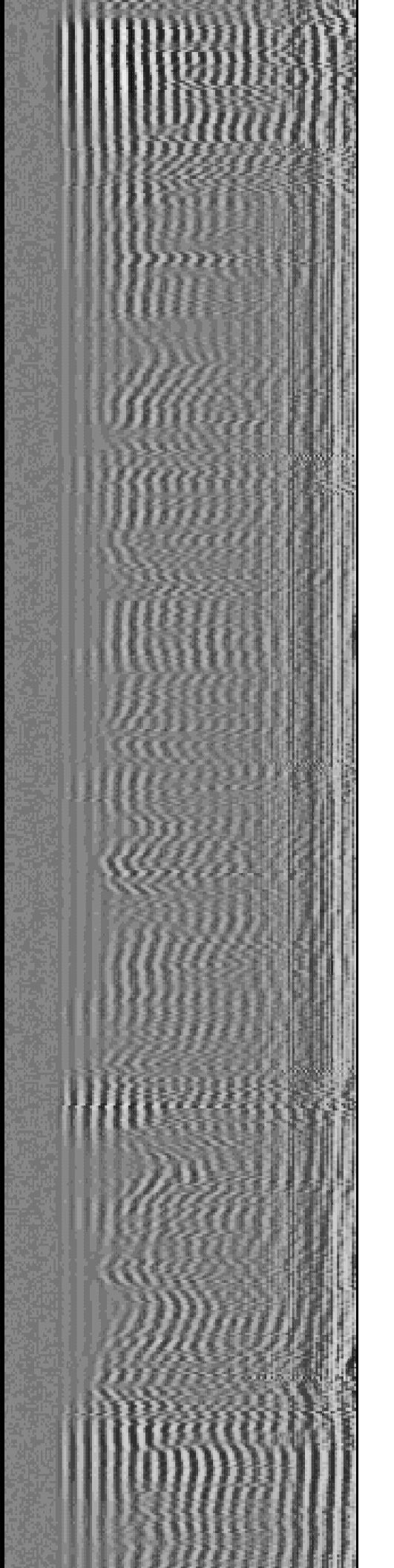
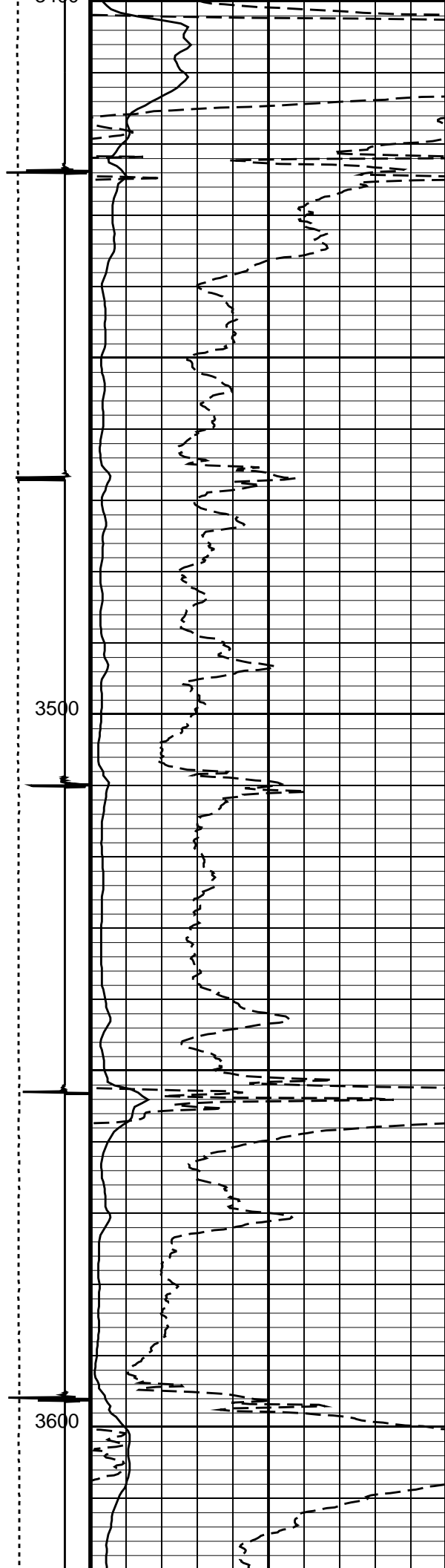
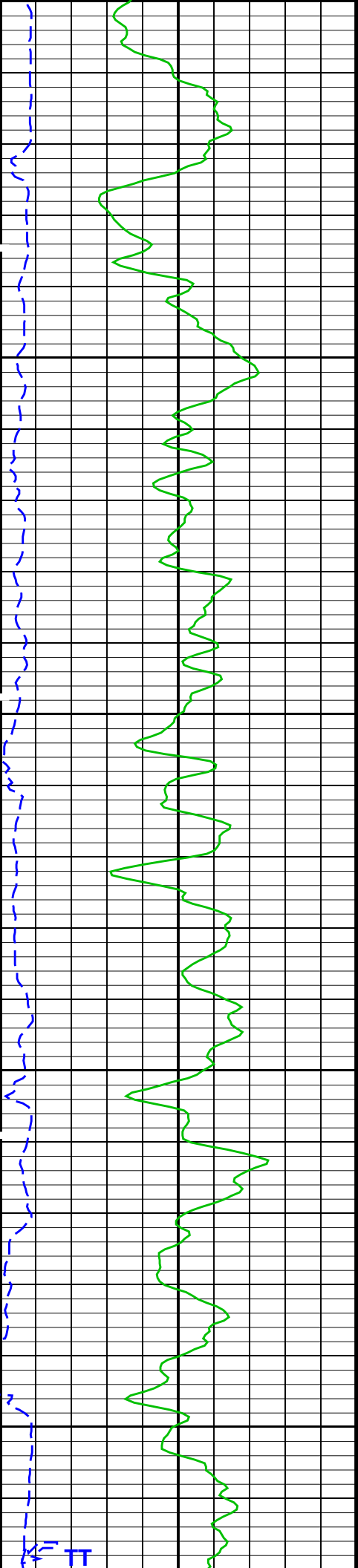


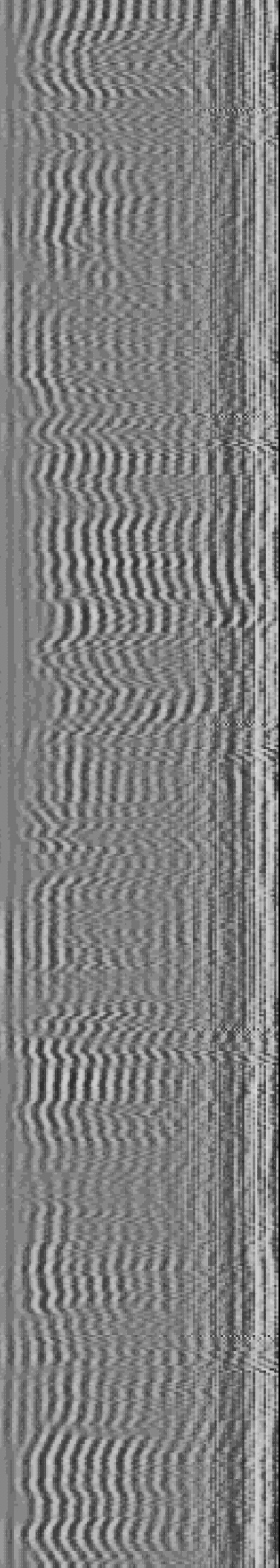
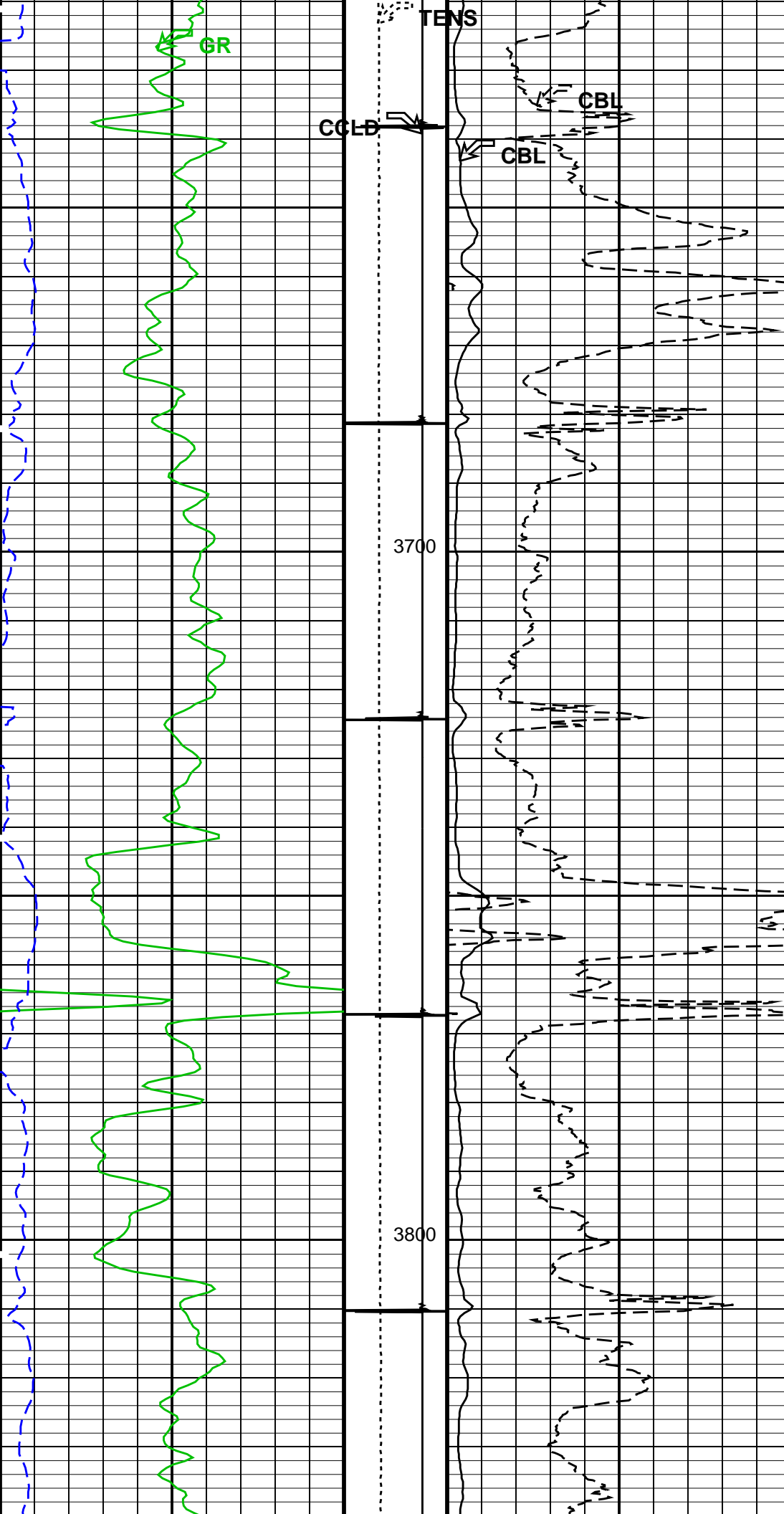


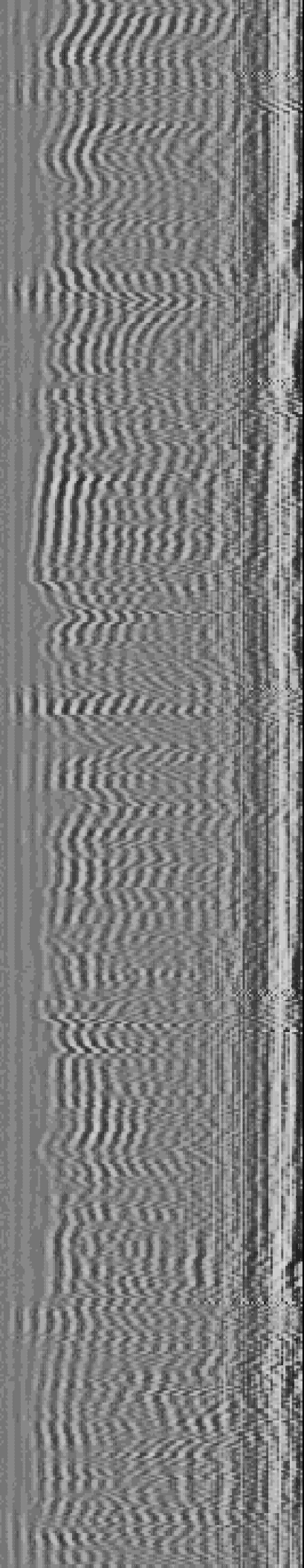
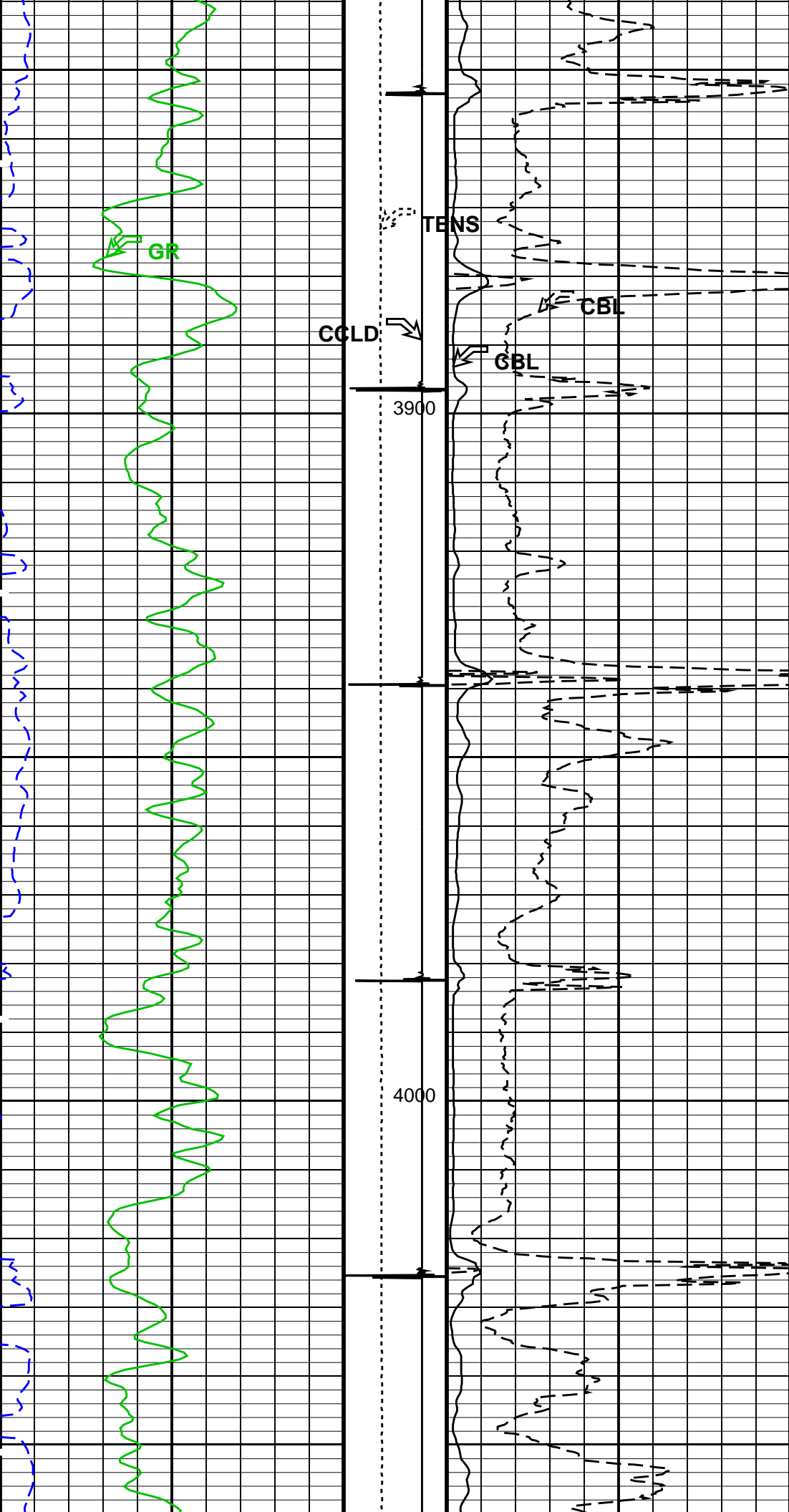


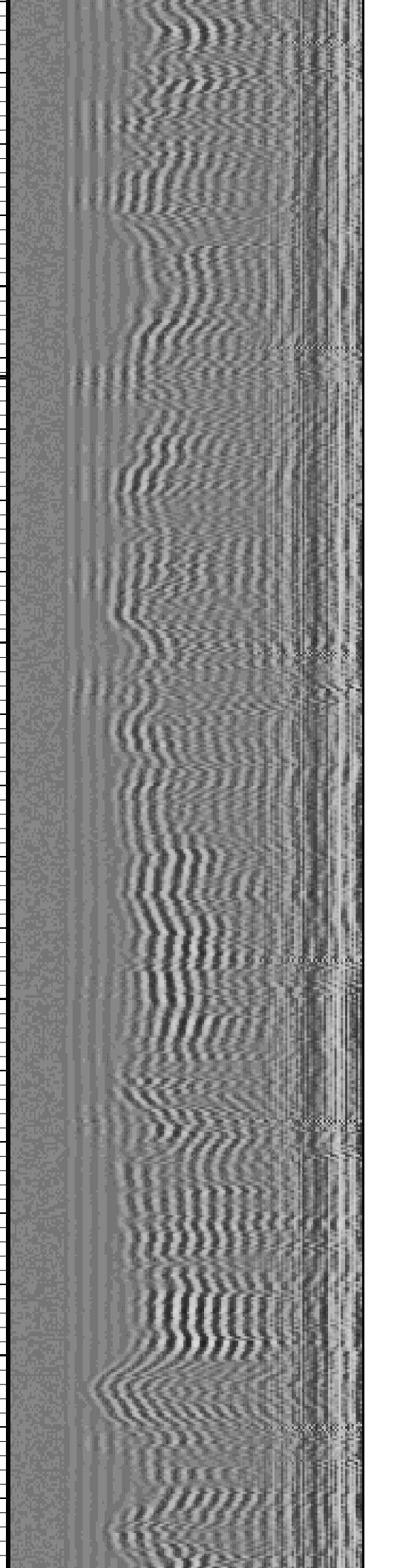
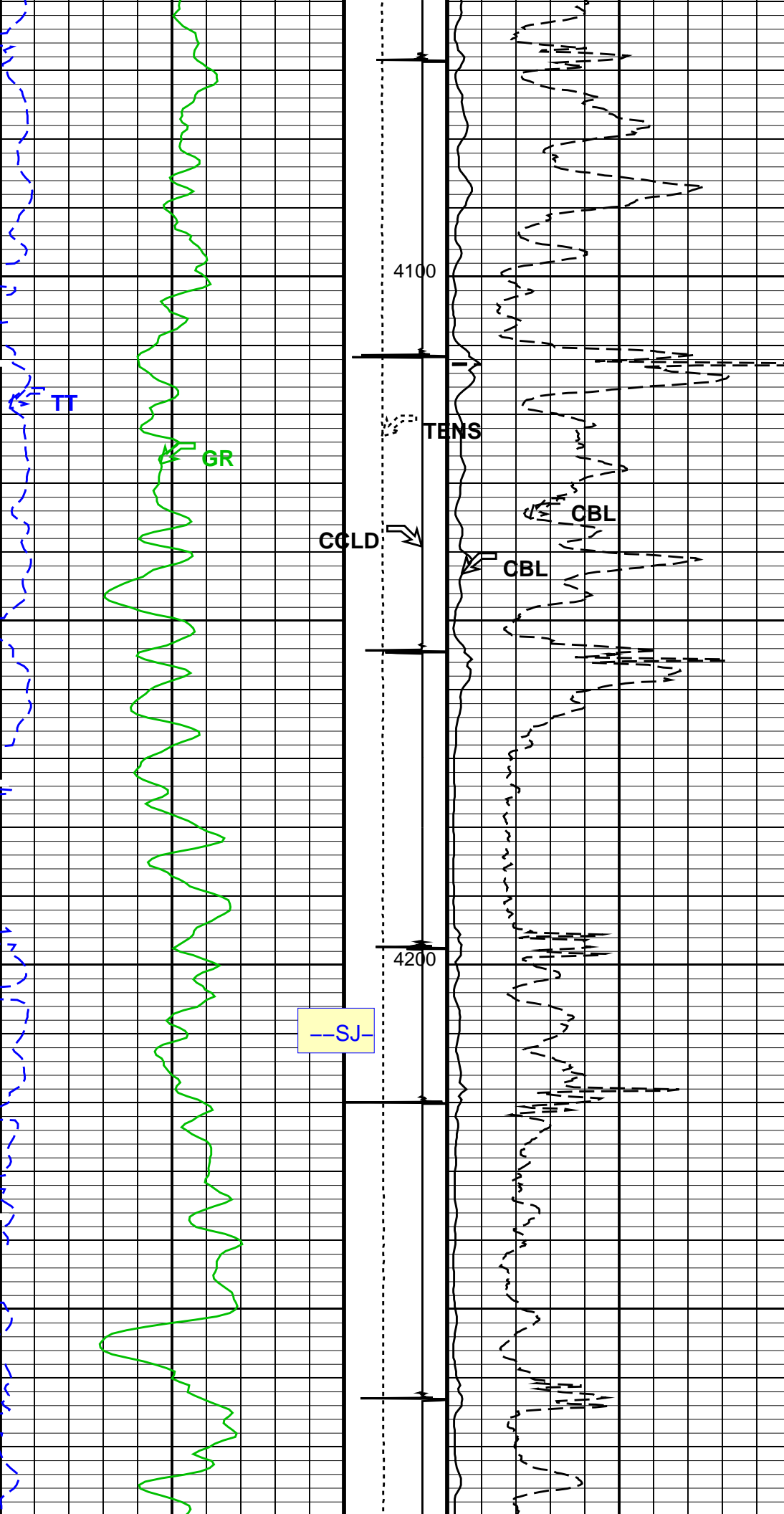


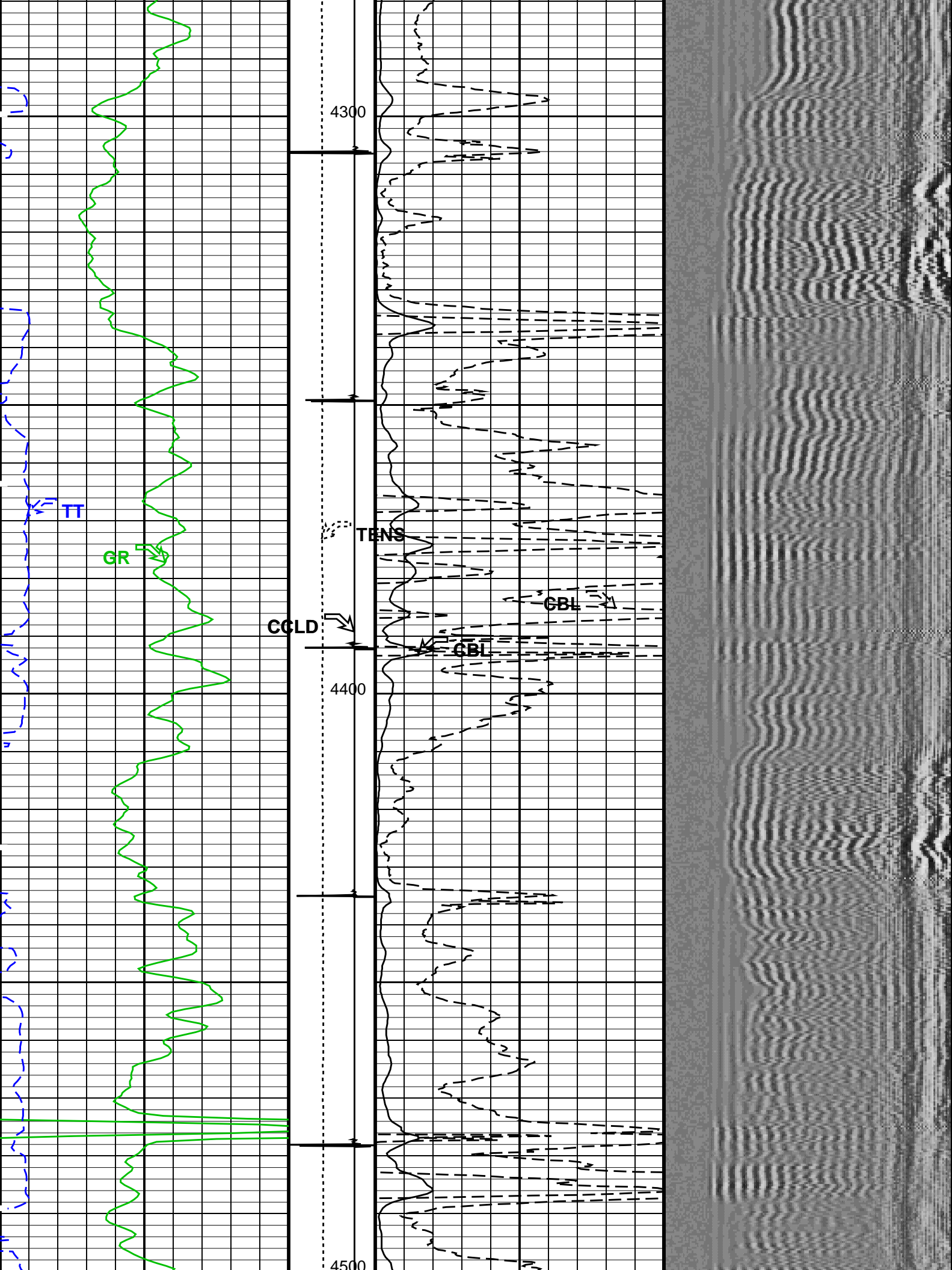


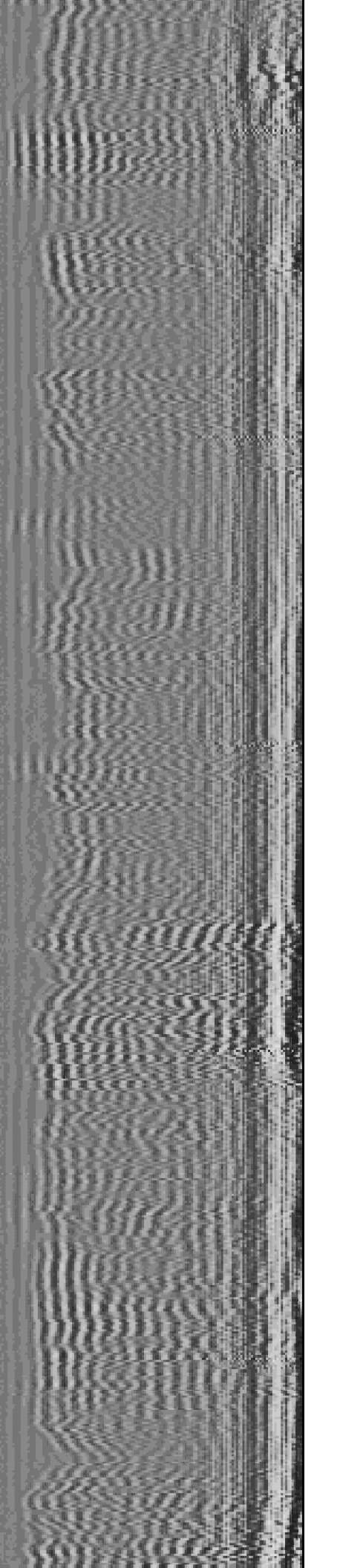
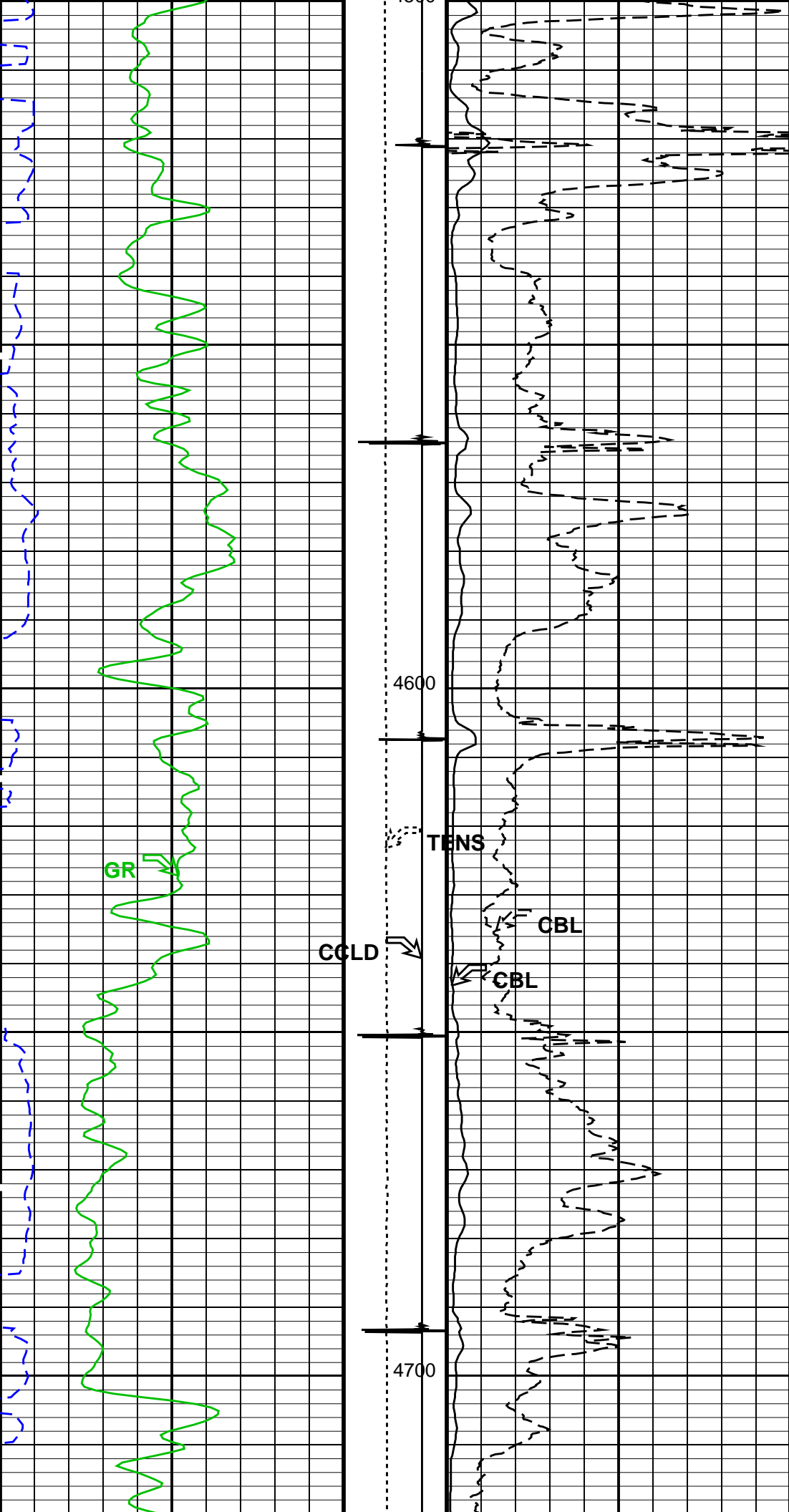


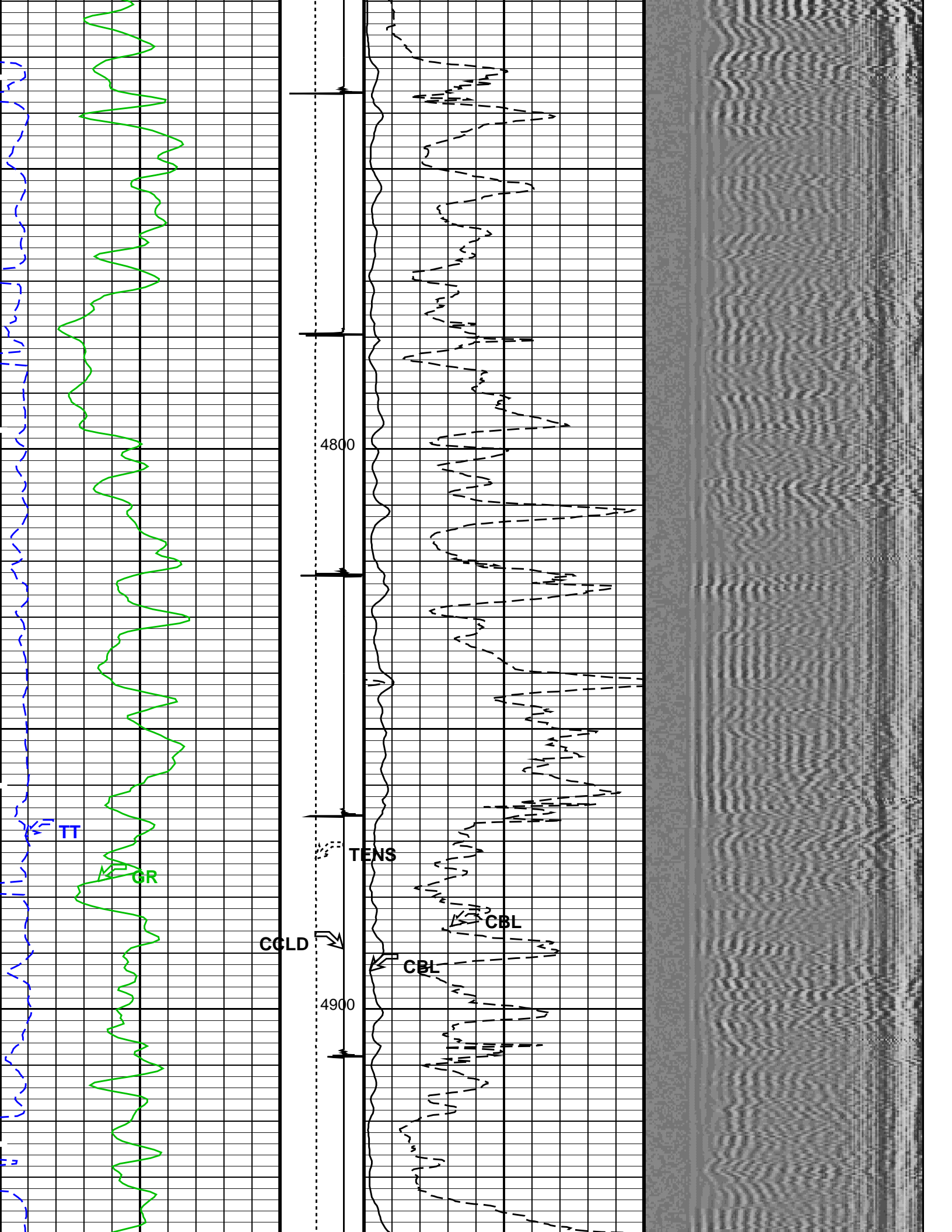


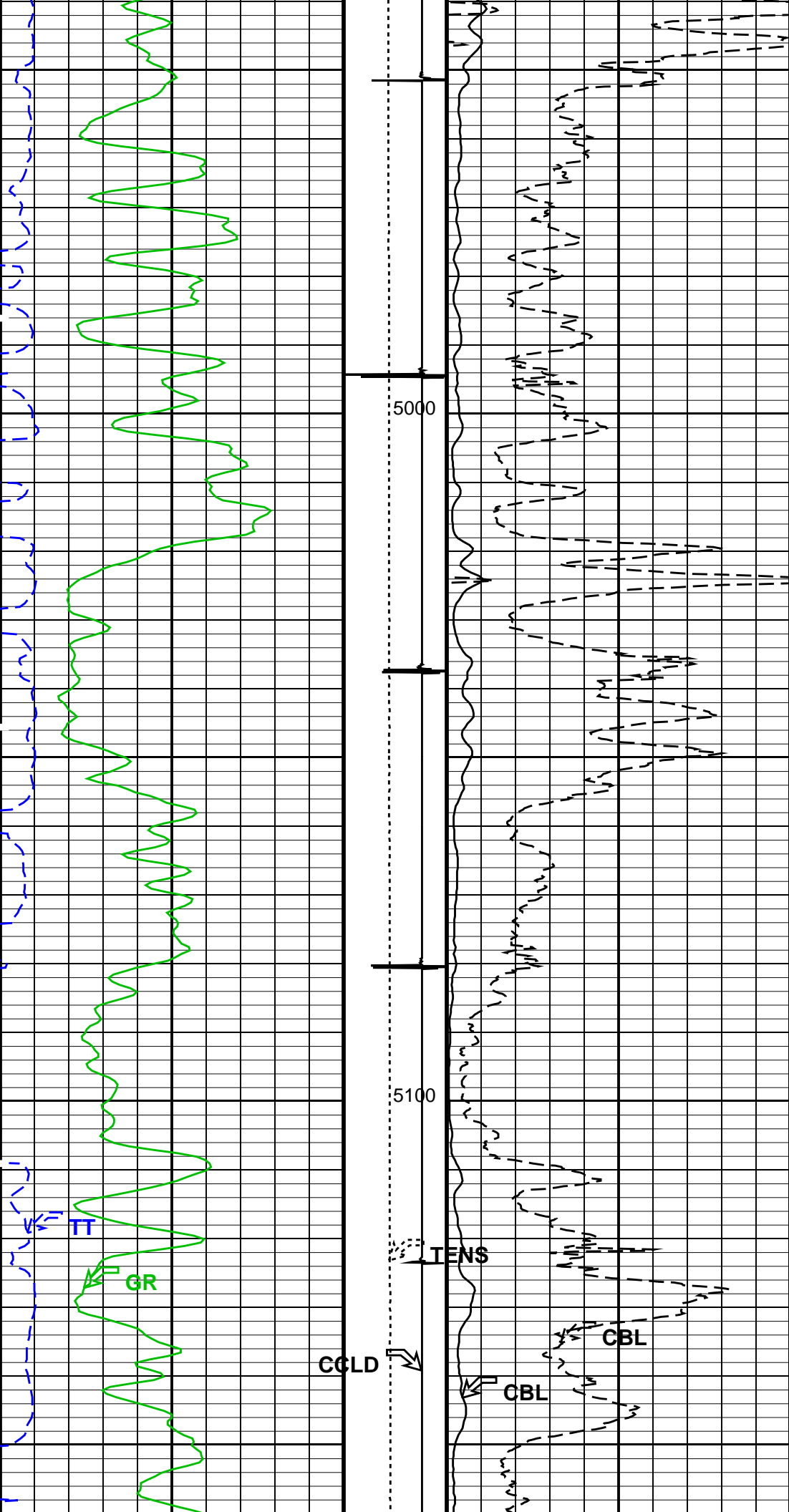


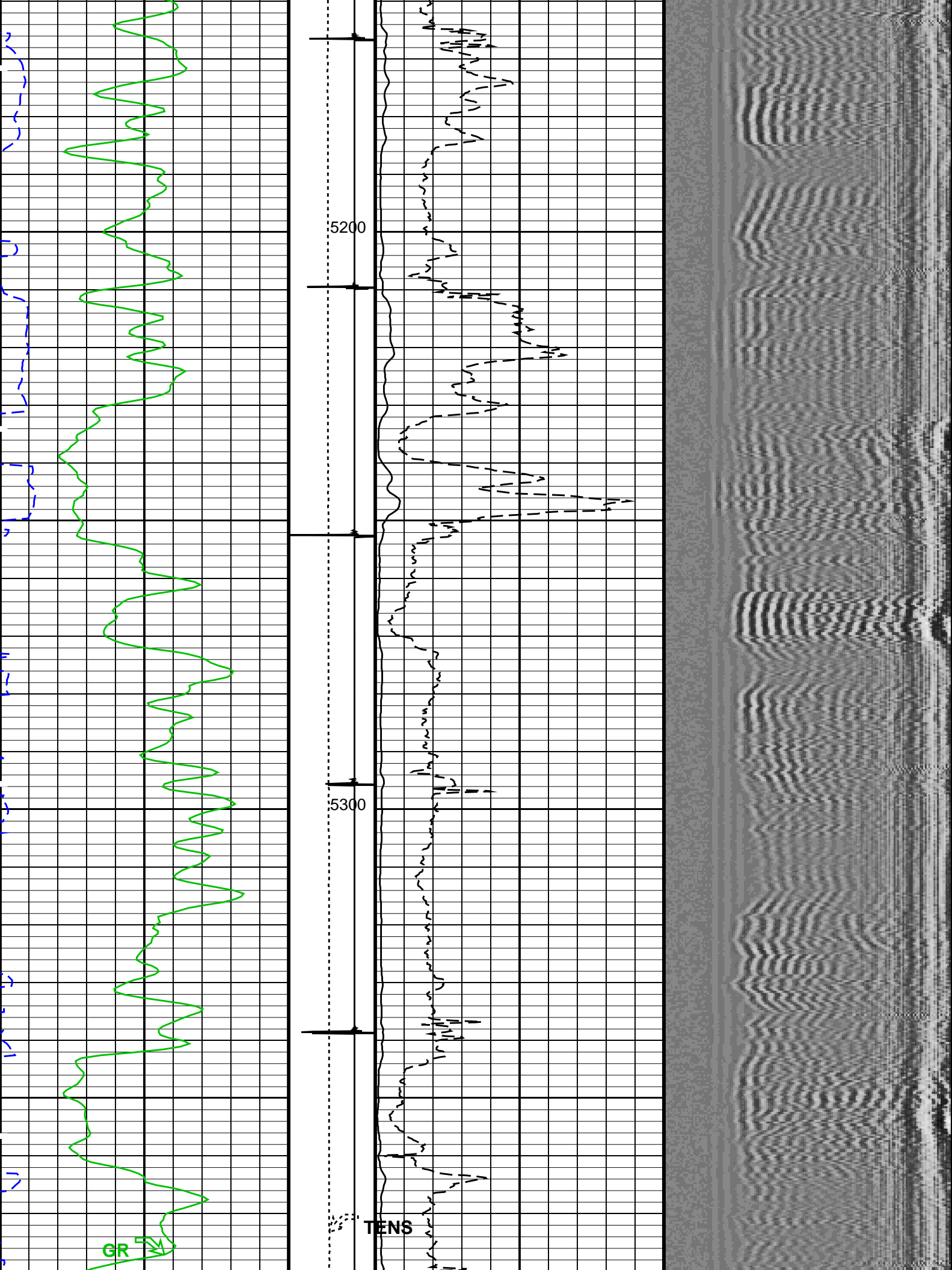


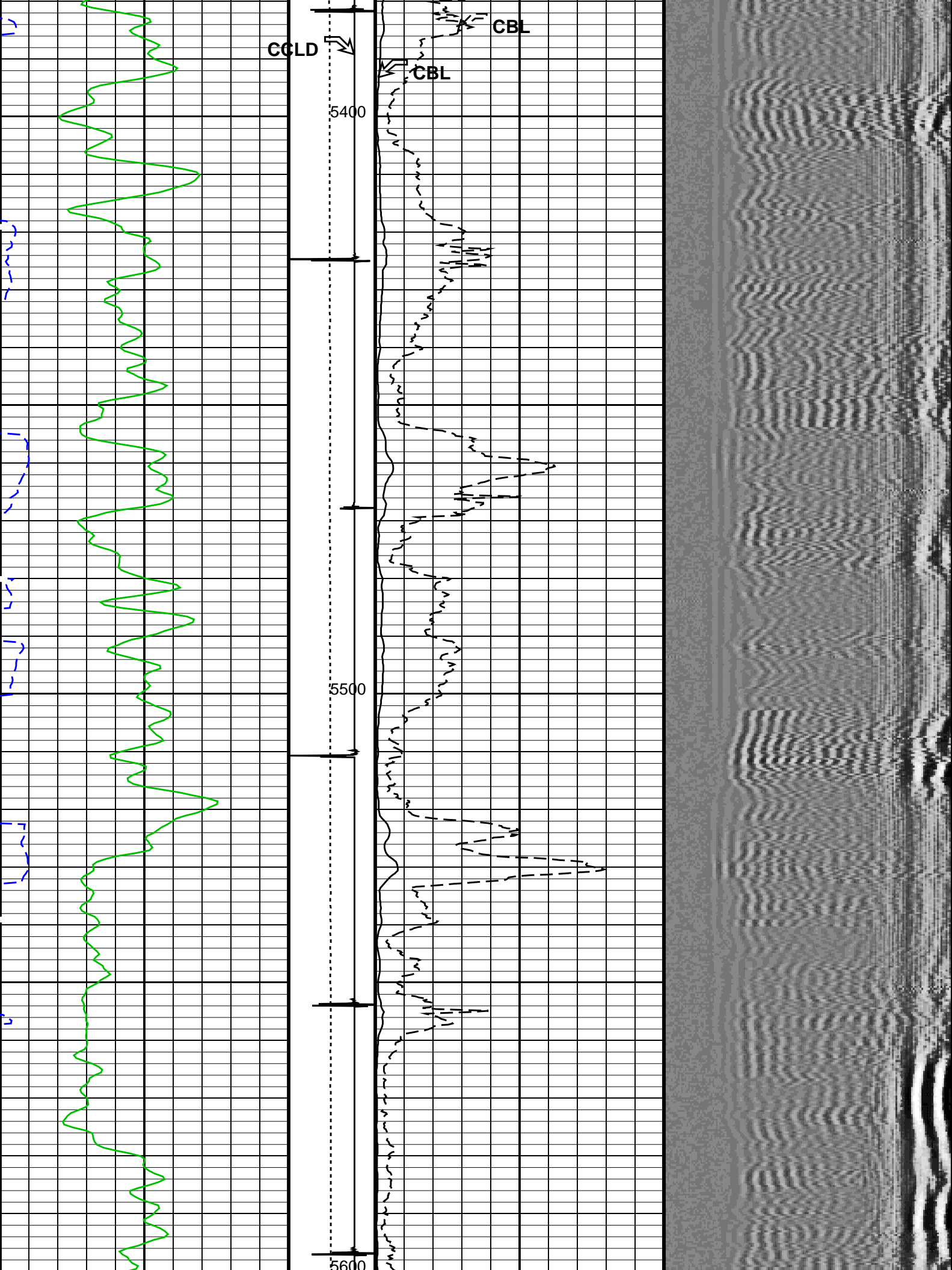


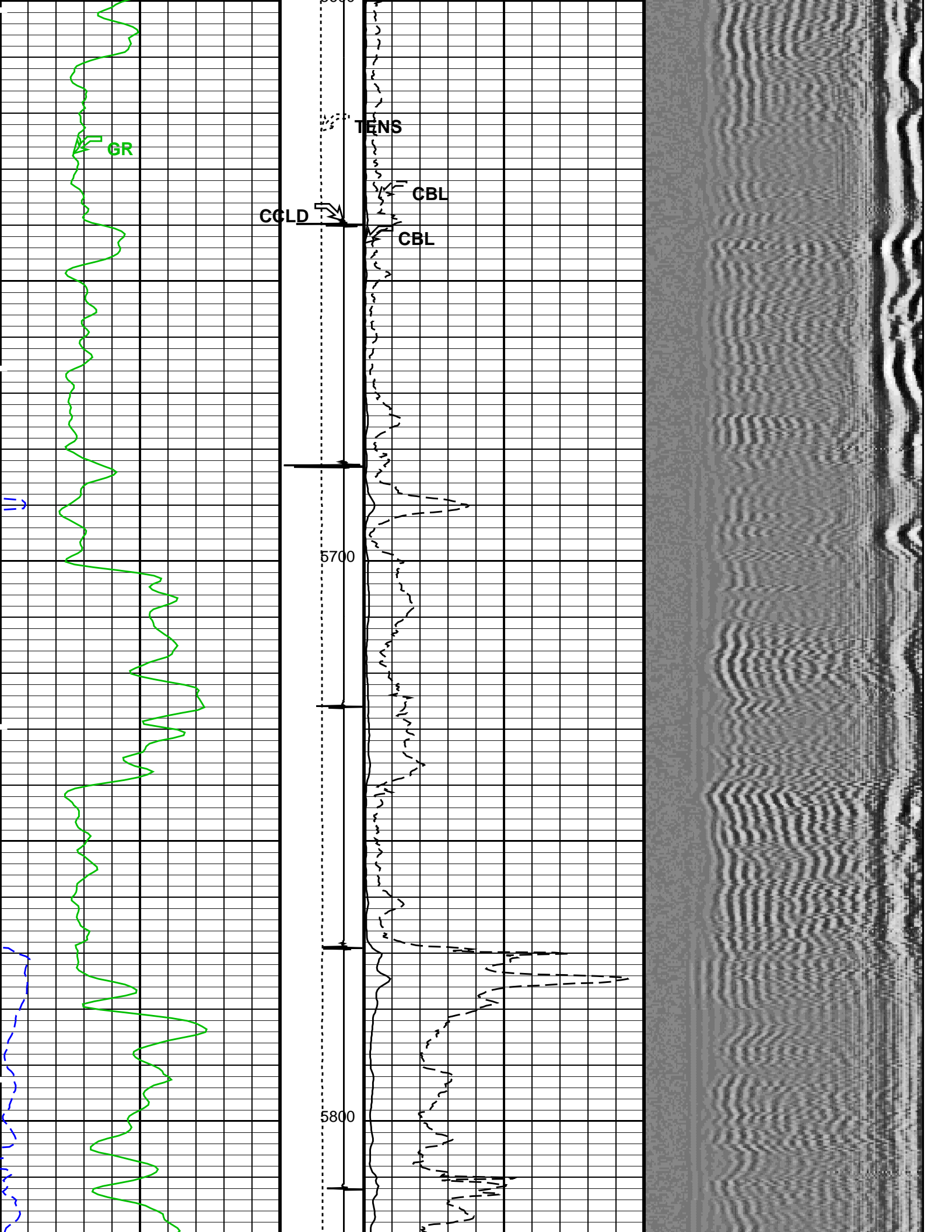


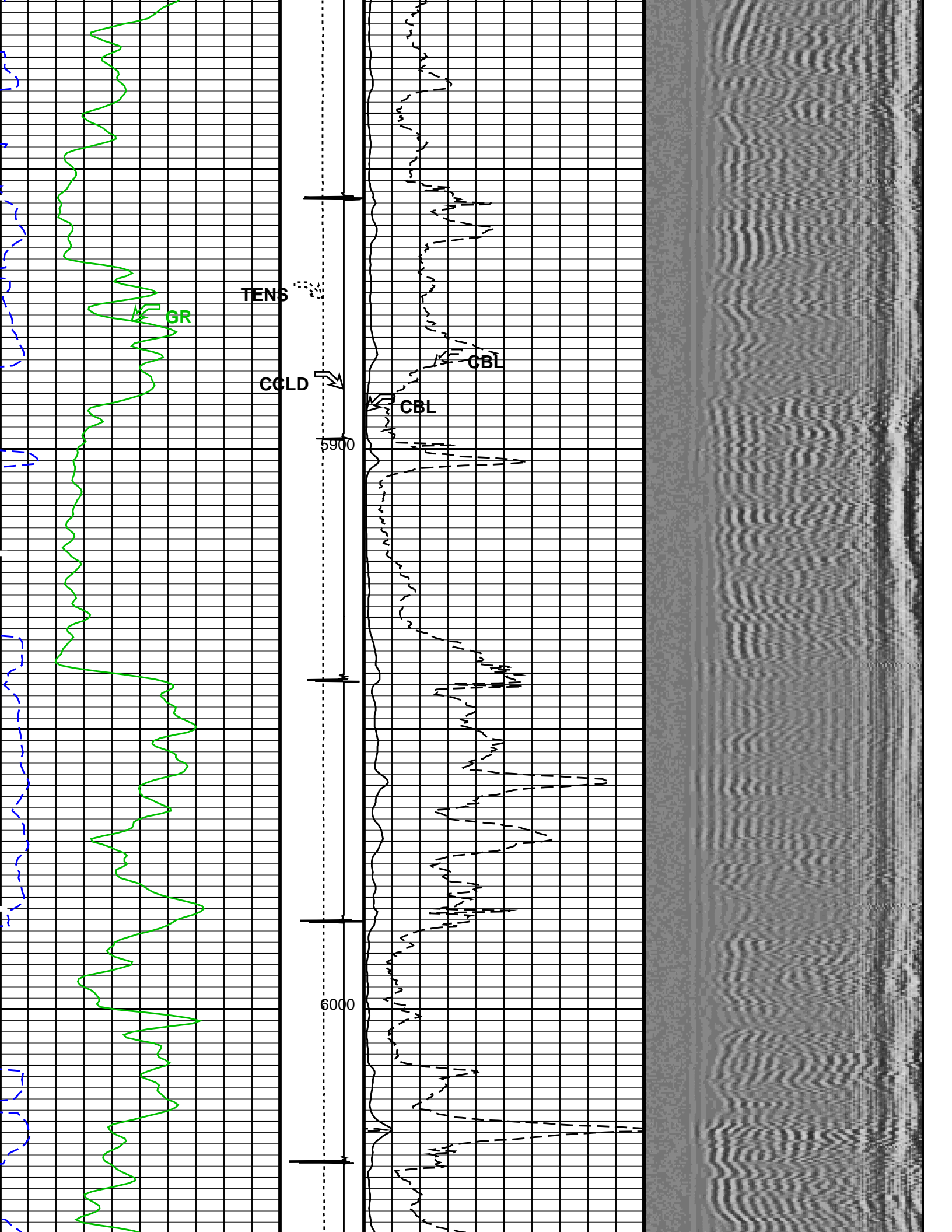


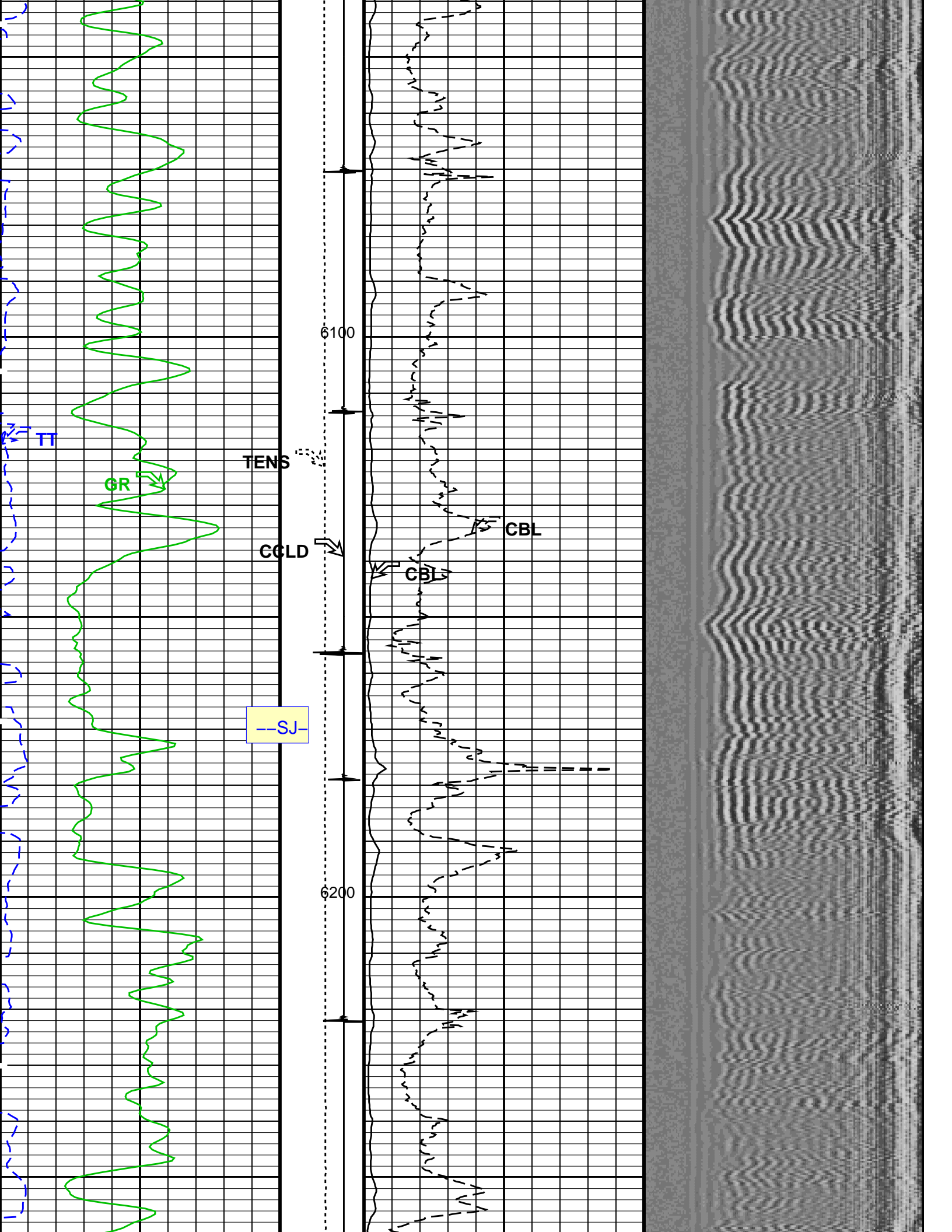


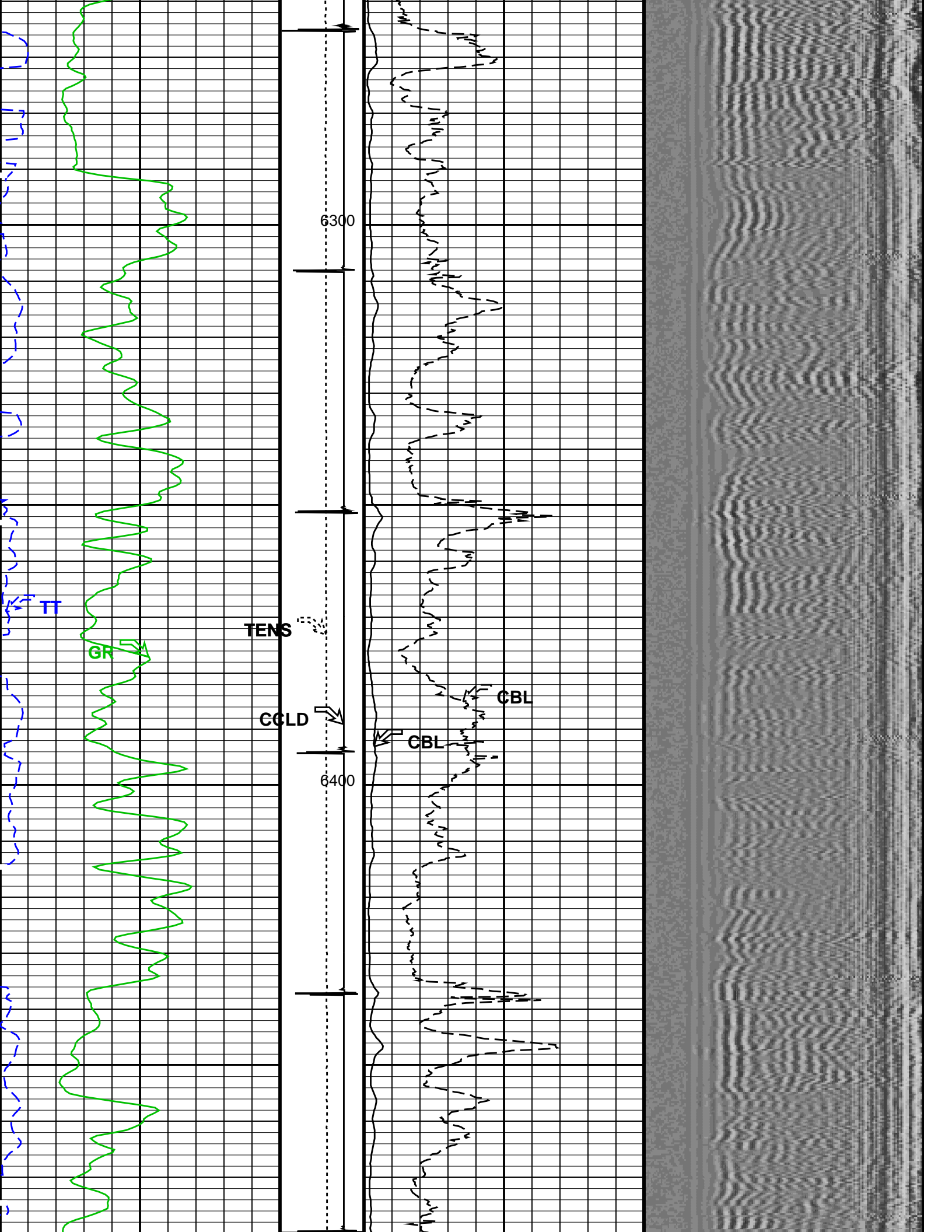


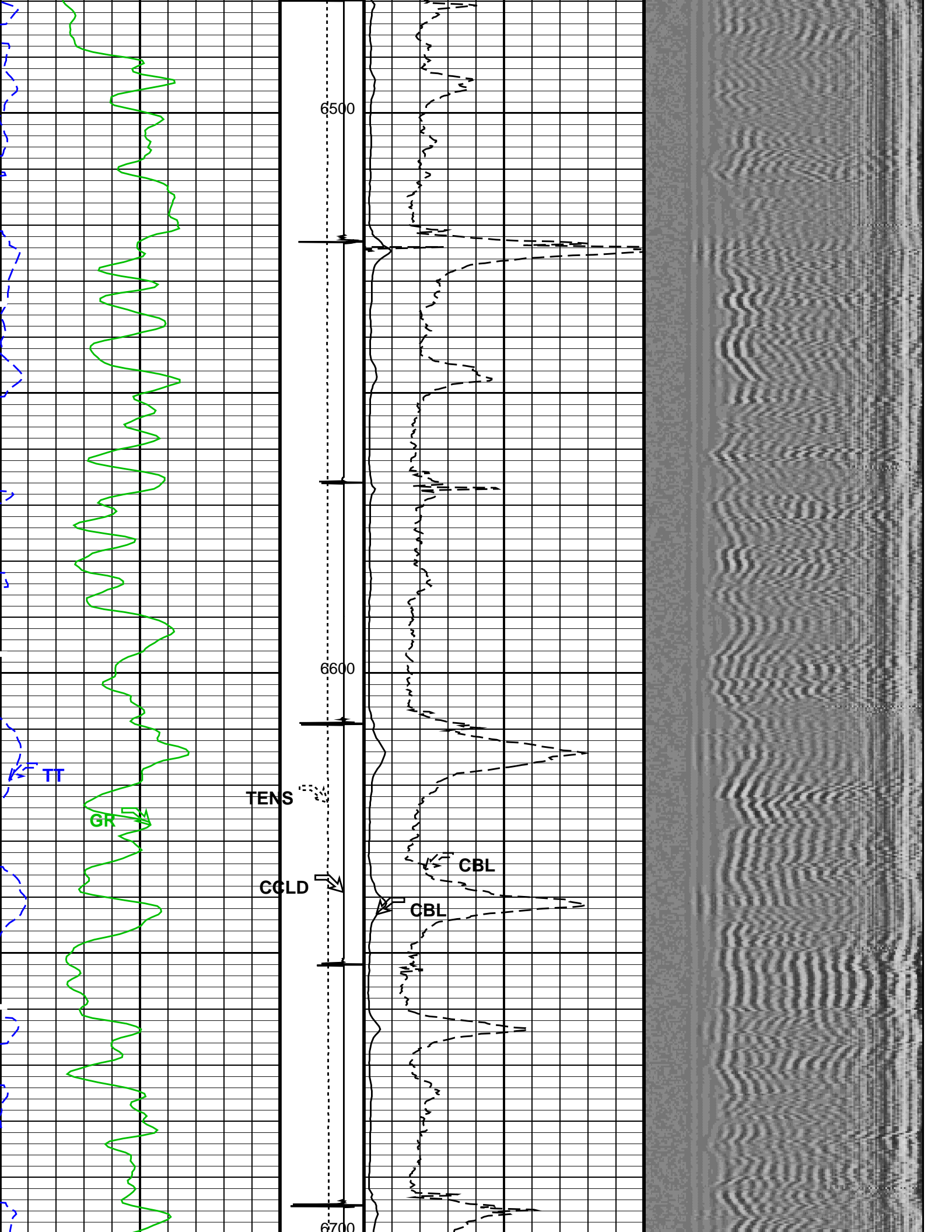


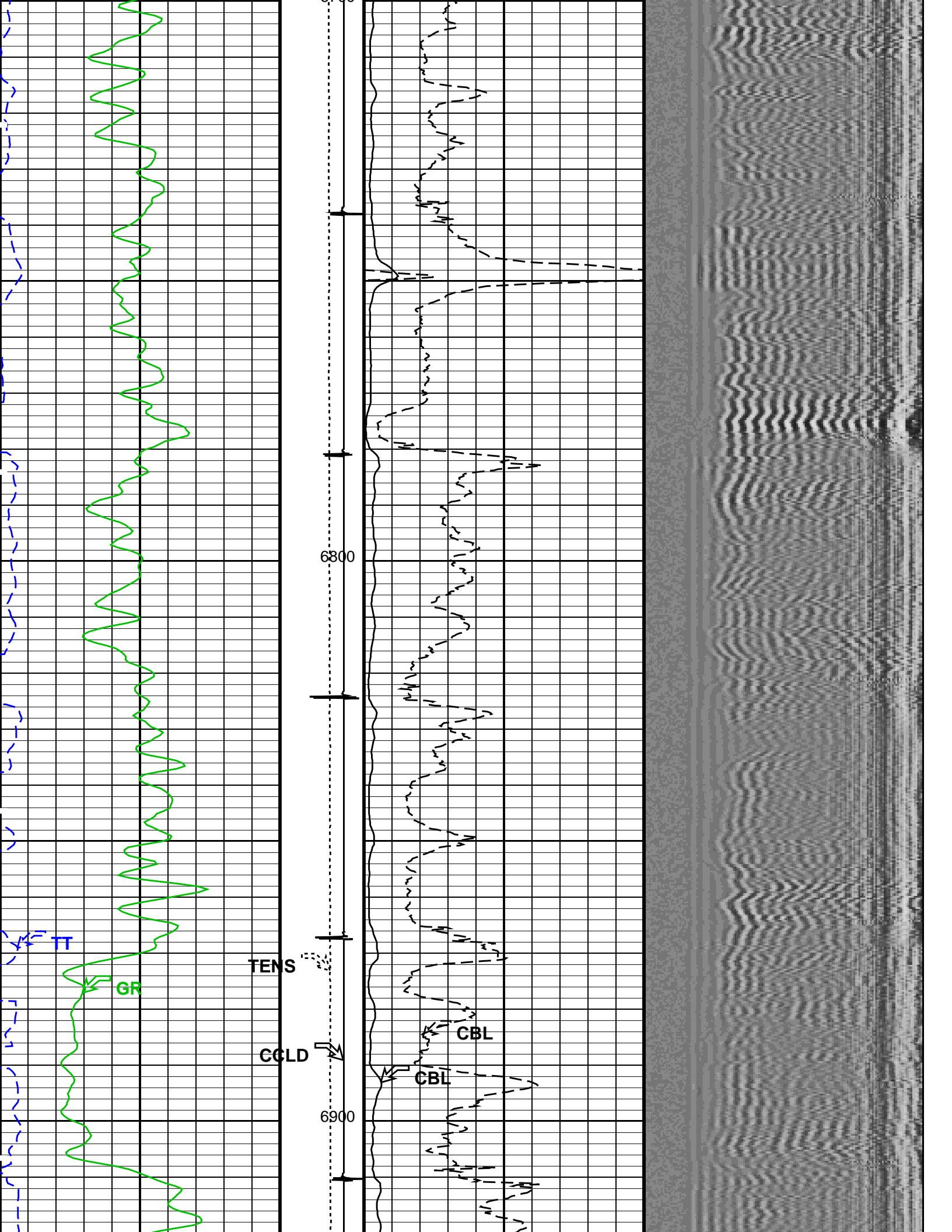


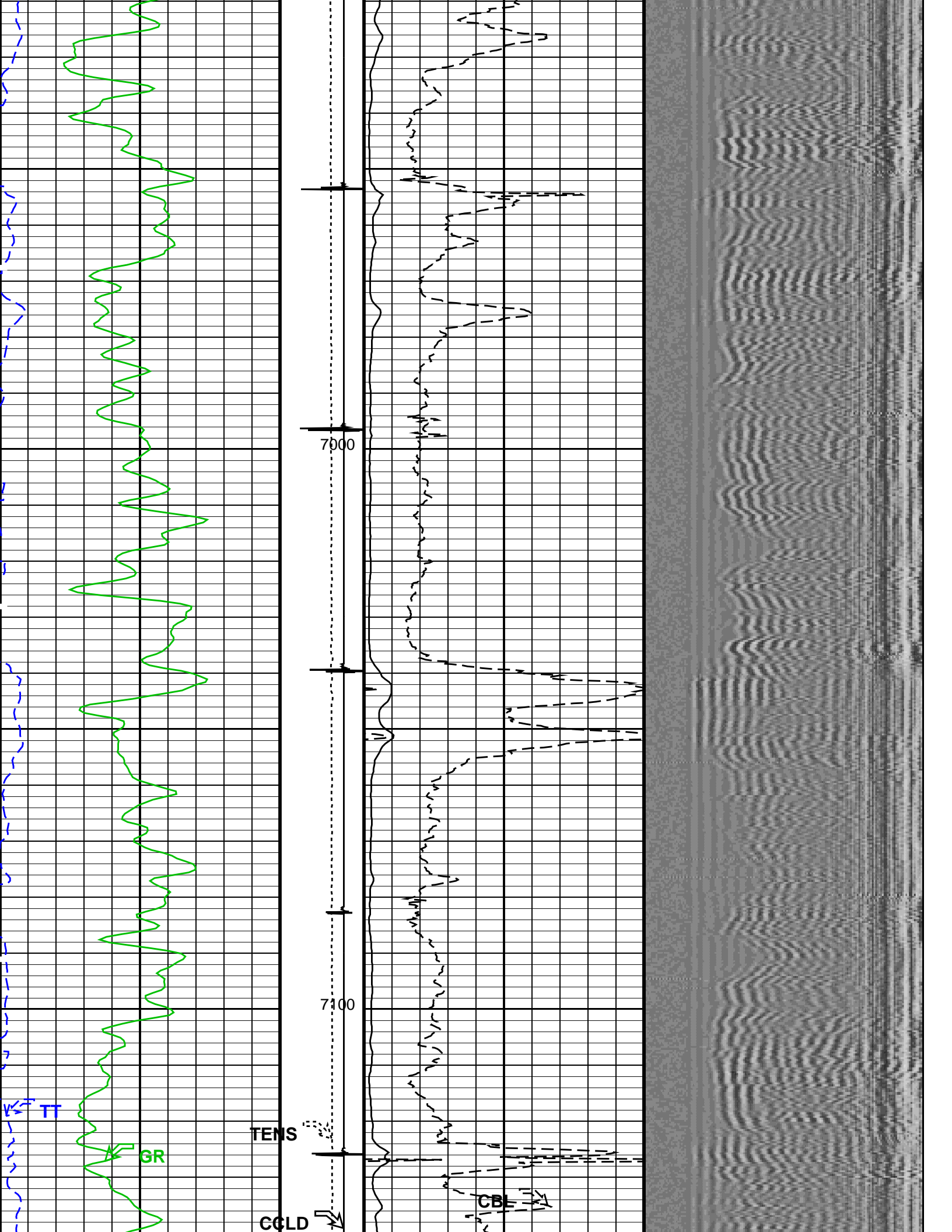


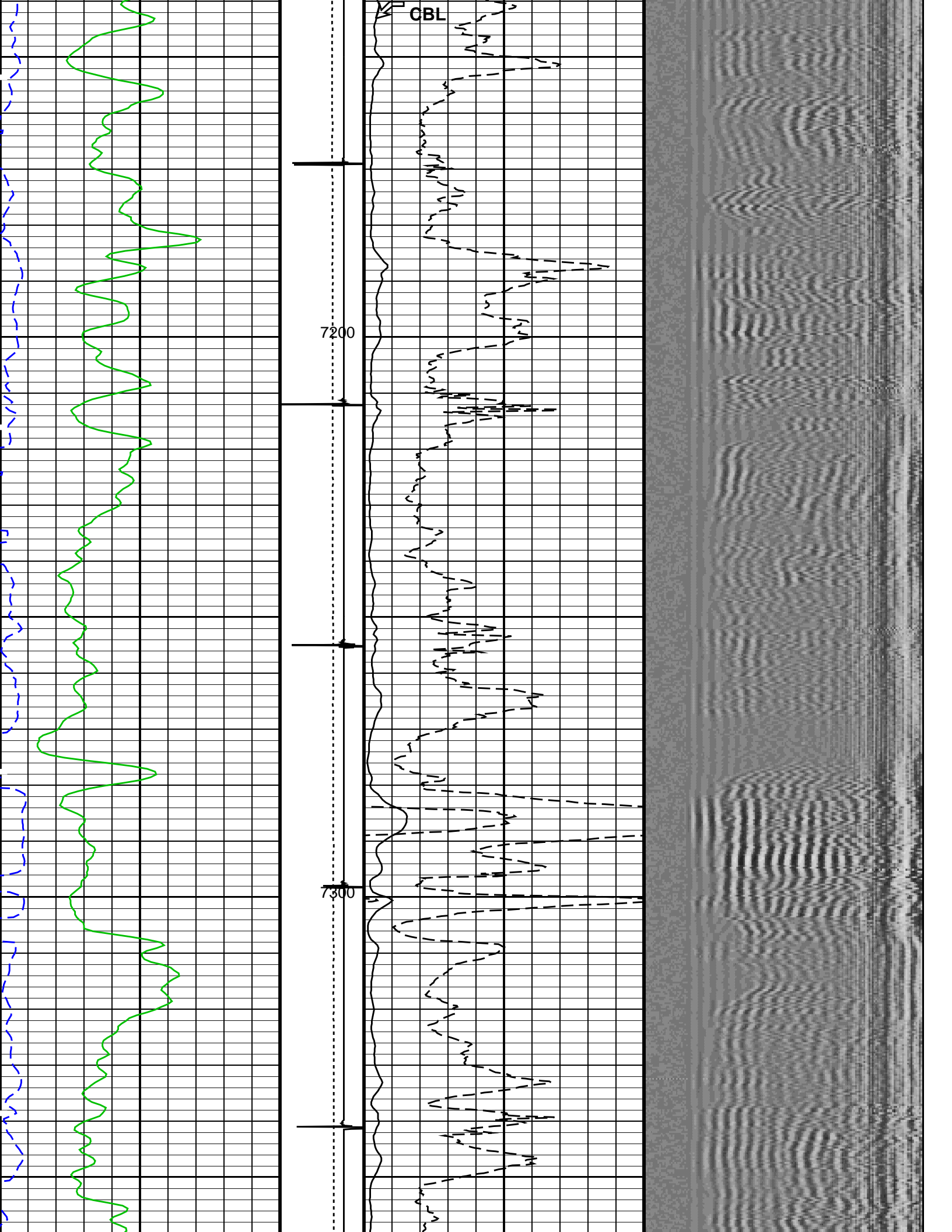


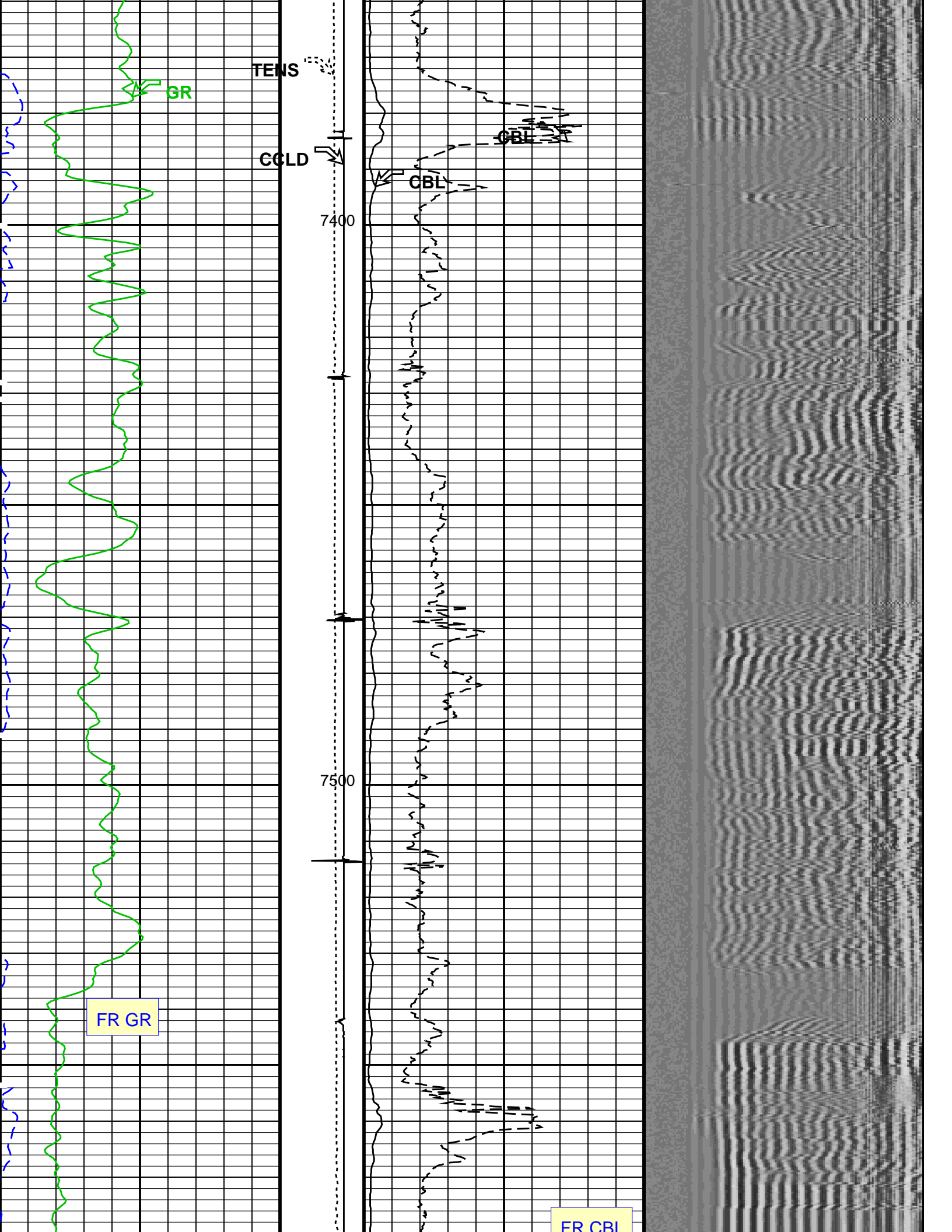


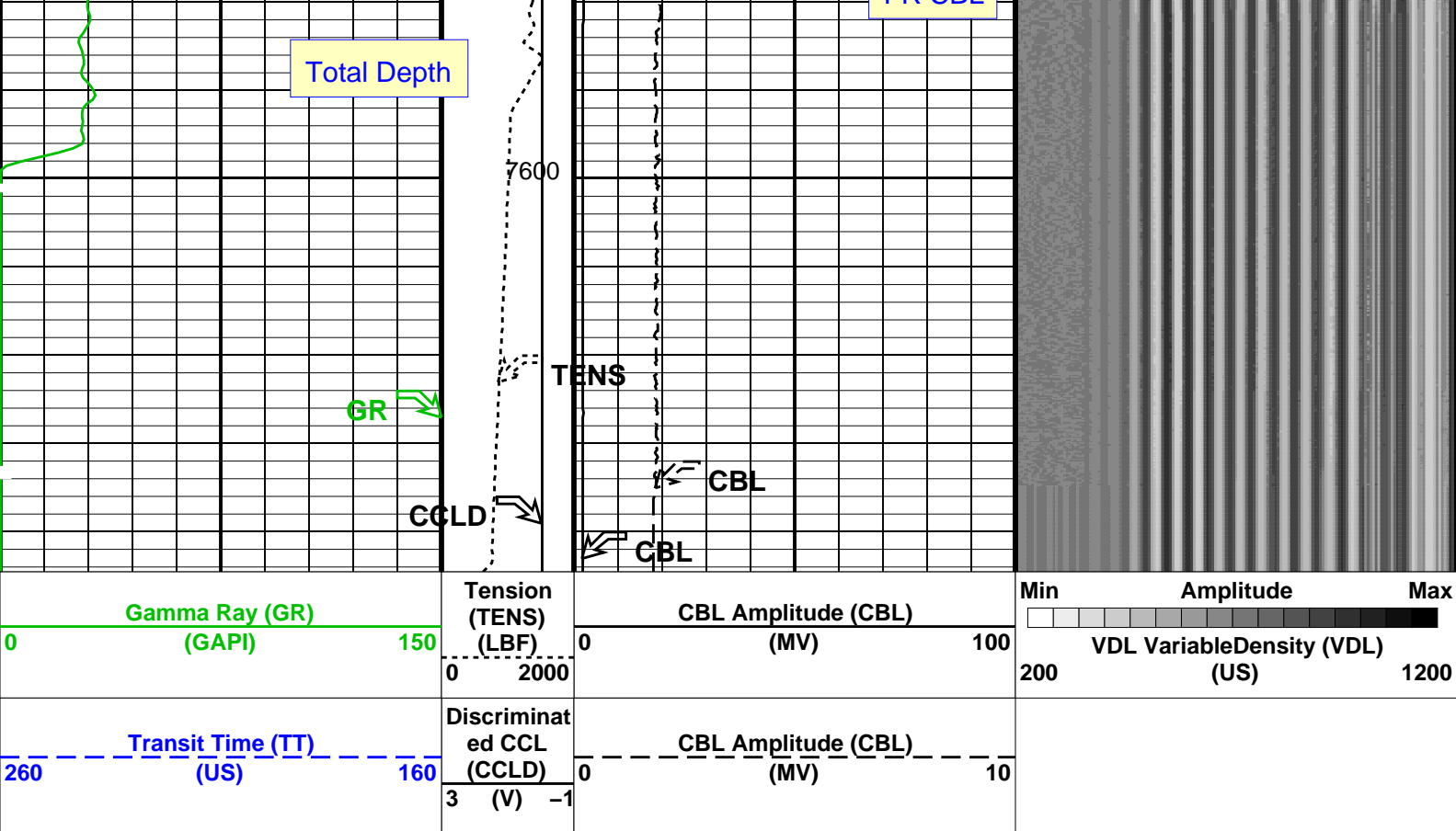












PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL Vertical Scale: 5" per 100'

Graphics File Created: 13-Apr-2011 13:43

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
DO	Depth Offset for Playback	6.0	FT
PP	Playback Processing	NORMAL	
TD	Total Depth	7588	FT

Input DLIS Files

DEFAULT	SCMT_RST_PSP_004LUP	FN:3	PRODUCER	13–Apr–2011 11:42	7638.5 FT	137.5 FT
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Output DLIS Files

DEFAULT	SCMT_RST_PSP_010PUP	FN:9	PRODUCER	13–Apr–2011 13:43
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Schlumberger

REPEAT ANALYSIS

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC.

Well: MF 06B–16 (H17) 696

Input DLIS Files

DEFAULT	SCMT_RST_PSP_002LUP	FN:1	PRODUCER	13–Apr–2011 11:28	4512.0 FT	4176.0 FT
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Output DLIS Files

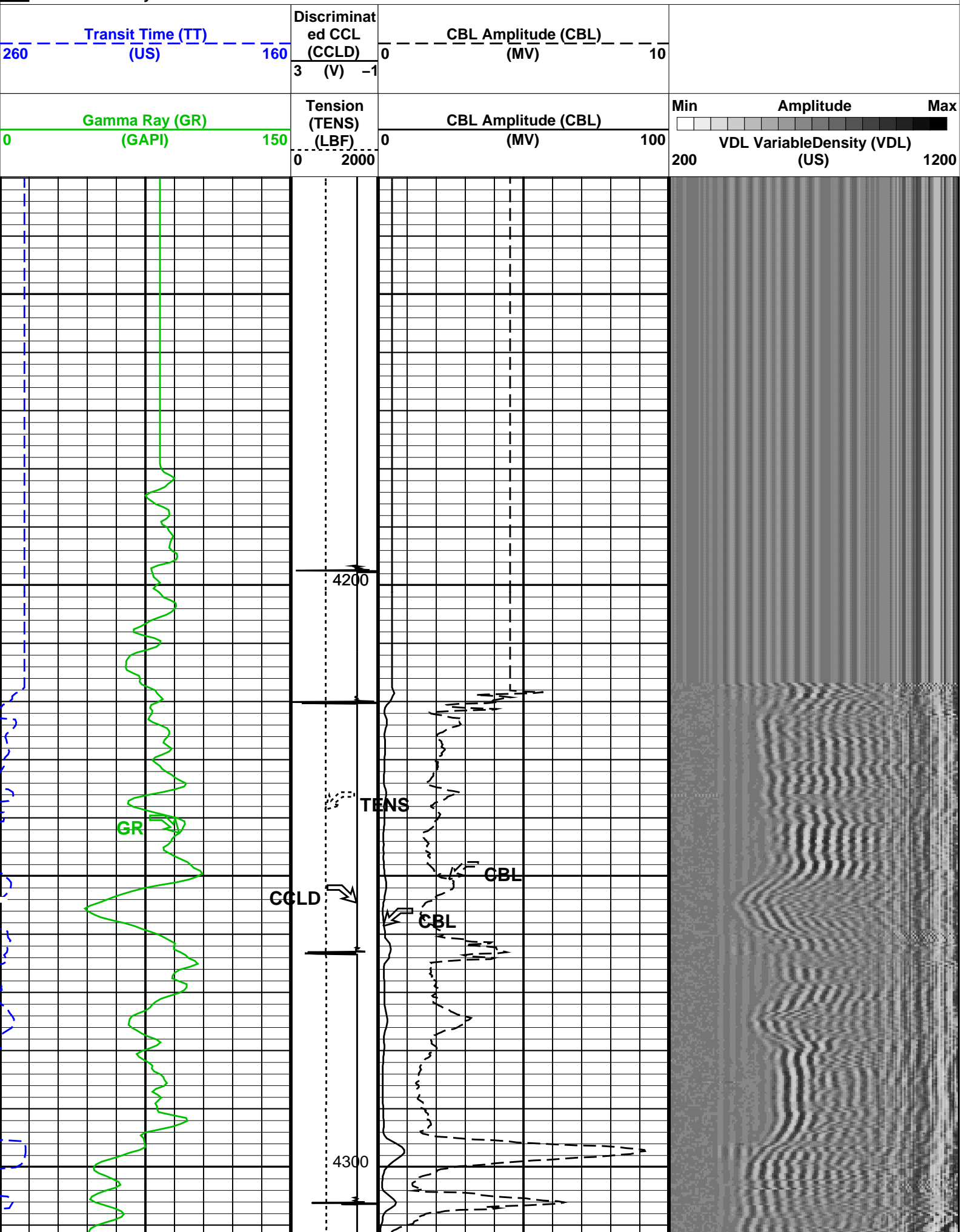
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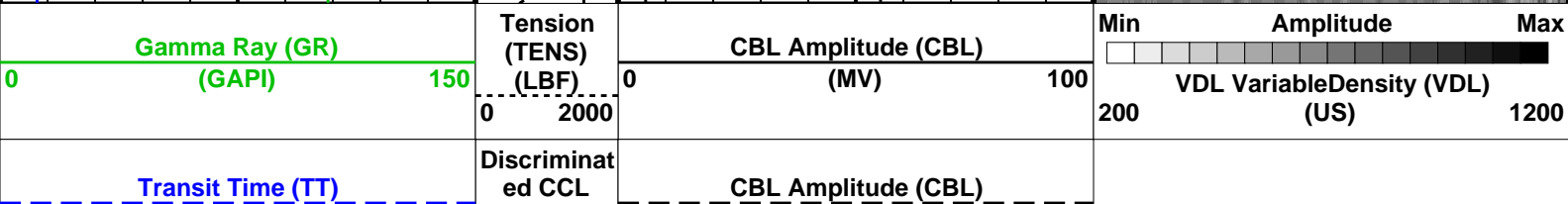
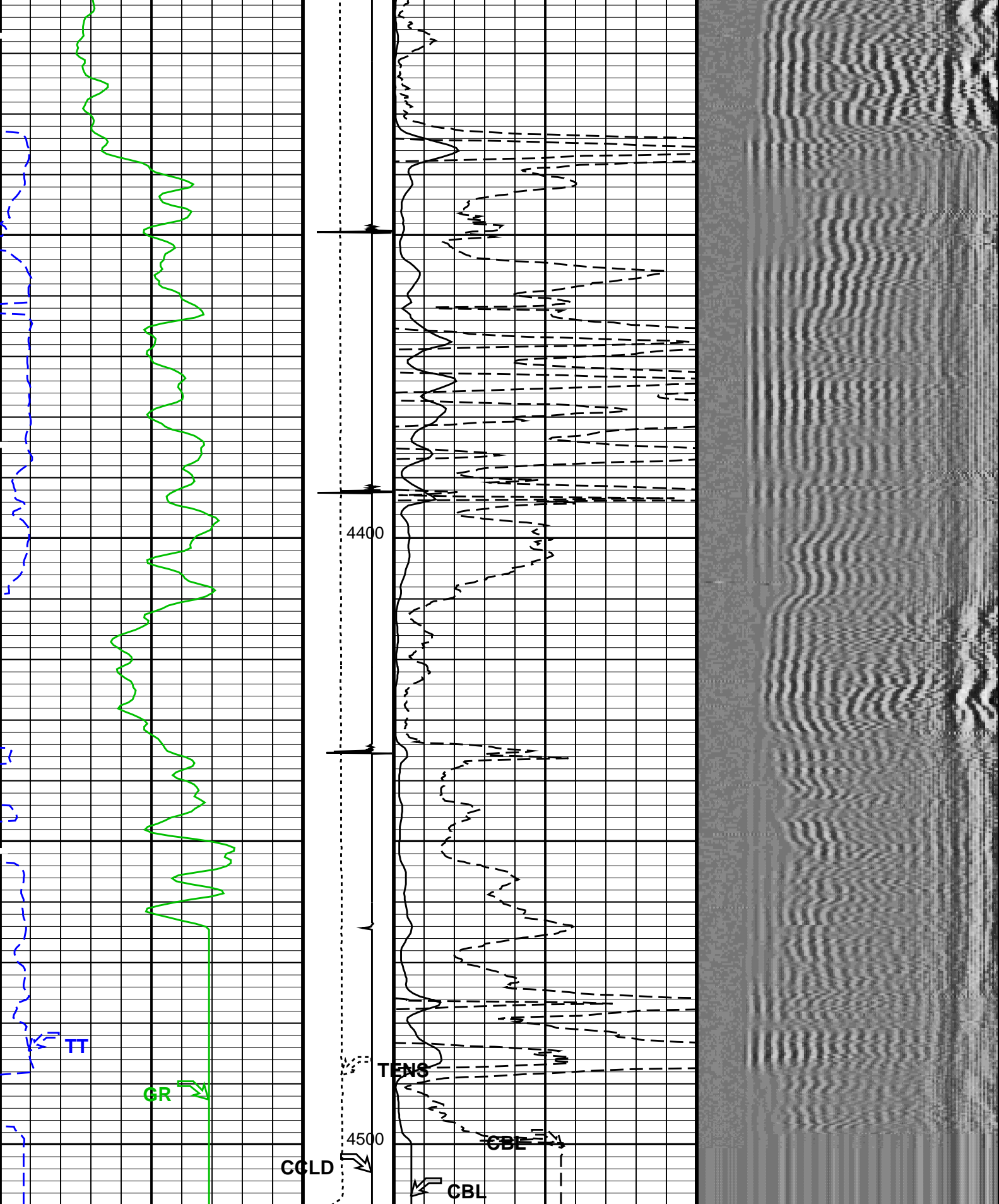
OP System Version: 17C0–154

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

PIP SUMMARY

Time Mark Every 60 S





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 13:42

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 Playback		-2.0	FT
DO		Playback Processing		NORMAL	
PP		Total Depth		7588	FT
TD					

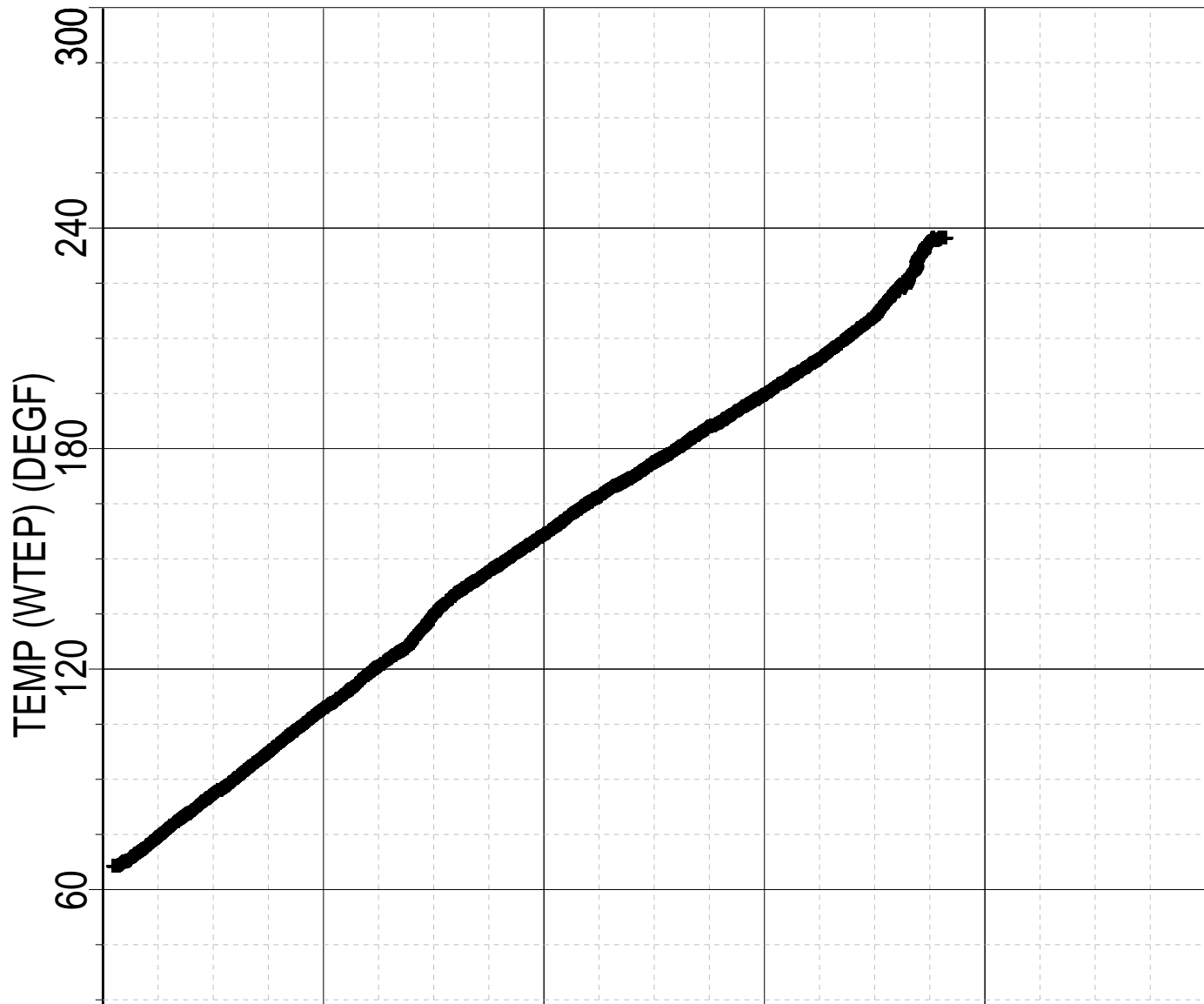
Input DLIS Files						
DEFAULT	SCMT_RST_PSP_002LUP	FN:1	PRODUCER	13-Apr-2011 11:28	4512.0 FT	4176.0 FT
Output DLIS Files						
DEFAULT	SCMT_RST_PSP_009PUP	FN:8	PRODUCER	13-Apr-2011 13:42		

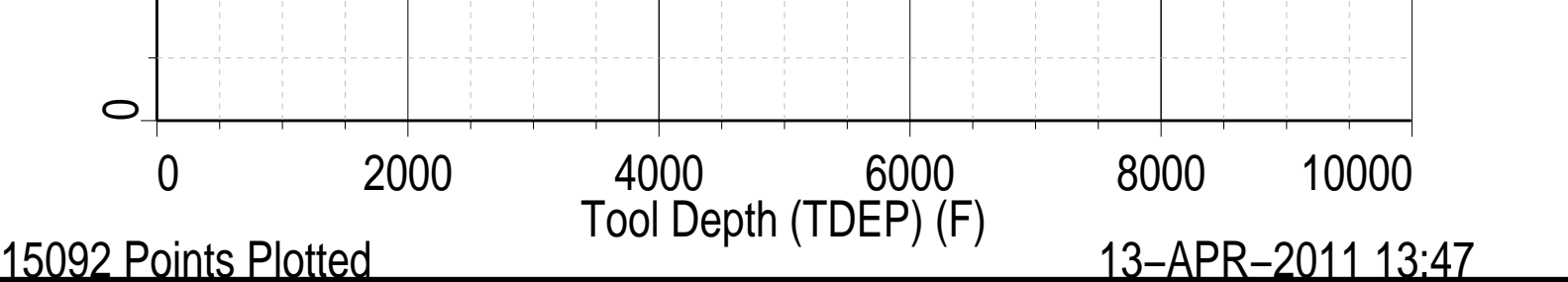


TEMPERATURE PLOT

MAXIS Field Log

Index: 7644.5 – 99.0 FT





COEFFICIENTS

MAXIS Field Log

Client:	ENCANA OIL & GAS (USA) INC.	Tool:	PSP
Field:	NORTH PARACHUTE	Sub Type:	PBMS
Well:	MFH17 QUAD 2	Sensor:	Clock Model
Run date:	13-Apr-2011		

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.	Tool:	PSP
Field:	NORTH PARACHUTE	Sub Type:	PBMS
Well:	MFH17 QUAD 2	Sensor:	Sapphire
Run date:	13-Apr-2011		

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
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

Ip**3

Ip**4

Ip**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

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	+1.200000000000e+04	+1.214000000000e+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 06B–16 (H17) 696
Field: NORTH PARACHUTE
County: GARFIELD
State: COLORADO

CEMENT BOND LOG
CBL– VDL
GAMMA RAY – CCL