Schlumberger

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

Well: **HMU 6−15D (J6SEB)**
Field: **MAMM CREEK**
County: **GARFIELD** State: **COLORADO**

County: GARFIELD
Field: MAMM CREEK
Location: SHL: 1922 FSL & 1896 FEL
Well: HMU 6−15D (J6SEB)
Company: ENCANA OIL & GAS (USA) INC

SLIM CEMENT MAPPING LOG
CBL−VDL
GAMMA RAY−CCL

LOCATION

SHL: 1922 FSL & 1896 FEL
BHL: 297 FSL & 1363 FEL

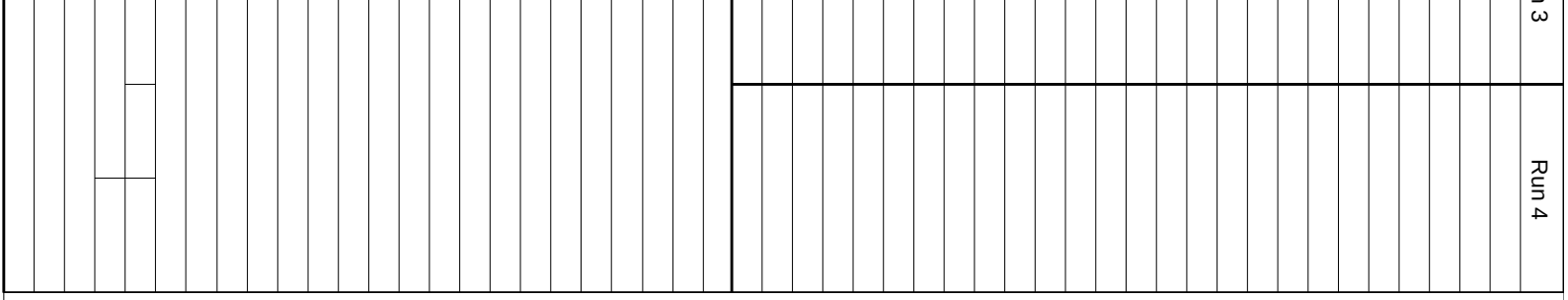
Elev.: K.B. 7166.00 ft
G.L. 7144.00 ft
D.F. 7165.00 ft

Permanent Datum: GROUND LEVEL Elev.: 7144.00 ft
Log Measured From: KELLY BUSHING 22.00 ft above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	Section	Township	Range
05−045−21944−0000	6	8S	92W

Logging Date		26−Nov−2013						
Run Number		1						
Depth Driller		8843 ft						
Schlumberger Depth		8762 ft						
Bottom Log Interval		8753 ft						
Top Log Interval		70 ft						
Casing Fluid Type		FRESH WATER						
Salinity								
Density		8.4 lbm/gal						
Fluid Level		70 ft						
BIT/CASING/TUBING STRING								
Bit Size		7.875 in						
From		6609 ft						
To		8843 ft						
Casing/Tubing Size		4.500 in						
Weight		11.6 lbm/ft						
Grade		S−80						
From		22 ft						
To		8825 ft						
Maximum Recorded Temperatures		246 degF						
Logger On Bottom	Time	26−Nov−2013	10:00					
Unit Number	Location	391	GRAND JUNCTION					
Recorded By		KIRSTIE BUNTING						
Witnessed By		JIM DYKEMAN						

		Run 1	Run 2	Run
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			
	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 Time			
	Unit Number Location			
	Recorded By			
	Witnessed By			



DEPTH SUMMARY LISTING

Date Created: 14−AUG−2013 11:54:57

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW−JB	Type:	CMTD−B/A	Type:	1−25ZT
Serial Number:	6349	Serial Number:	3421	Serial Number:	112136
Calibration Date:	7−31−2013	Calibration Date:	14−AUG−201	Length:	19000 FT
Calibrator Serial Number:		Calibrator Serial Number:	174878		
Calibration Cable Type:	1−25ZT	Number of Calibration Points:	10	Conveyance Method:	Wireline
Wheel Correction 1:	−5	Calibration RMS:	3	Rig Type:	LAND
Wheel Correction 2:	−4	Calibration Peak Error:	8		

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	0.00 FT
Rig Up Length At Bottom:	0.00 FT
Rig Up Length Correction:	0.00 FT
Stretch Correction:	
Tool Zero Check At Surface:	

Depth Control Remarks

1. ALL SCHLUMBERGER DEPTH CONTROL PROCEDURES USED
2. IDW USED AS PRIMARY DEPTH REFERENCE
3. SPWT DRUM COUNTER USED AS SECONDARY DEPTH REFERENCE
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	OTHER SERVICES2
OS1: RESERVOIR SATURATION	OS1:
OS2: LOG	OS2:
OS3: SIGMA MODE	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
FIRST RUN IN HOLE CORRLEATED TO DOWN LOG	
TOOL RAN AS PER TOOL SKETCH	
ENTRANCE: 09:00	
TIME ON BOTTOM: 10:00	
EXIT: 12:30	

MAXIMUM RECORDED TEMPERATURE: 246 DEGF

MAXIMUM RECORDED PRESSURE: 3623 PSIA

SHORT JOINTS: 6622 FT & 7620 FT

EXPECTED CBL AMPLITUDE IN FREE PIPE IS 80MV

MAIN PASS LOGGED UNDER ZERO SURFACE PRESSURE

CREW: KBUNTING, WAZIZ, KJOHNS, KBOZARTH

THANK YOU FOR CHOOSING E&P WIRELINE, A SCHLUMBERGER COMPANY

RUN 1		RUN 2	
SERVICE ORDER #:	CGF9−00176	SERVICE ORDER #:	
PROGRAM VERSION:	19C0−187	PROGRAM VERSION:	
FLUID LEVEL:	70 ft	FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

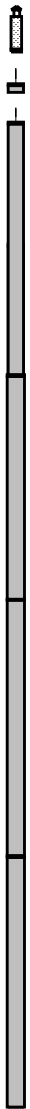
EQUIPMENT DESCRIPTION

RUN 1 RUN 2

SURFACE EQUIPMENT

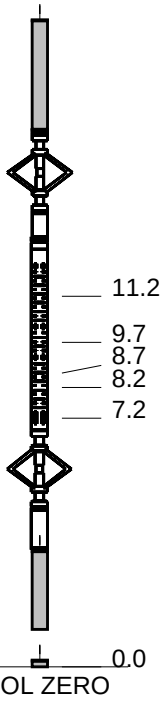
WITM−A
PSC_16MHZ

DOWNHOLE EQUIPMENT



SCMT−CB
SCMC−CA 8120
SECH−CA
CMIR−AG
SCMS−CB 8303
SCMX−CA

20.3



AH−BNS

0.2

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

Schlumberger

MAIN PASS CBL VDL

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC **Well: HMU 6−15D (J6SEB)**

Input DLIS Files

DEFAULT	**SCMT_RST_PSP_077LUP**	**FN:74**	**PRODUCER**	**26−Nov−2013 10:04**	**8771.0 FT**	**−38.0 FT**

Output DLIS Files

DEFAULT	**SCMT_RST_PSP_082PUP**	**FN:79**	**PRODUCER**	**26−Nov−2013 12:43**	**8773.0 FT**	**−80.5 FT**

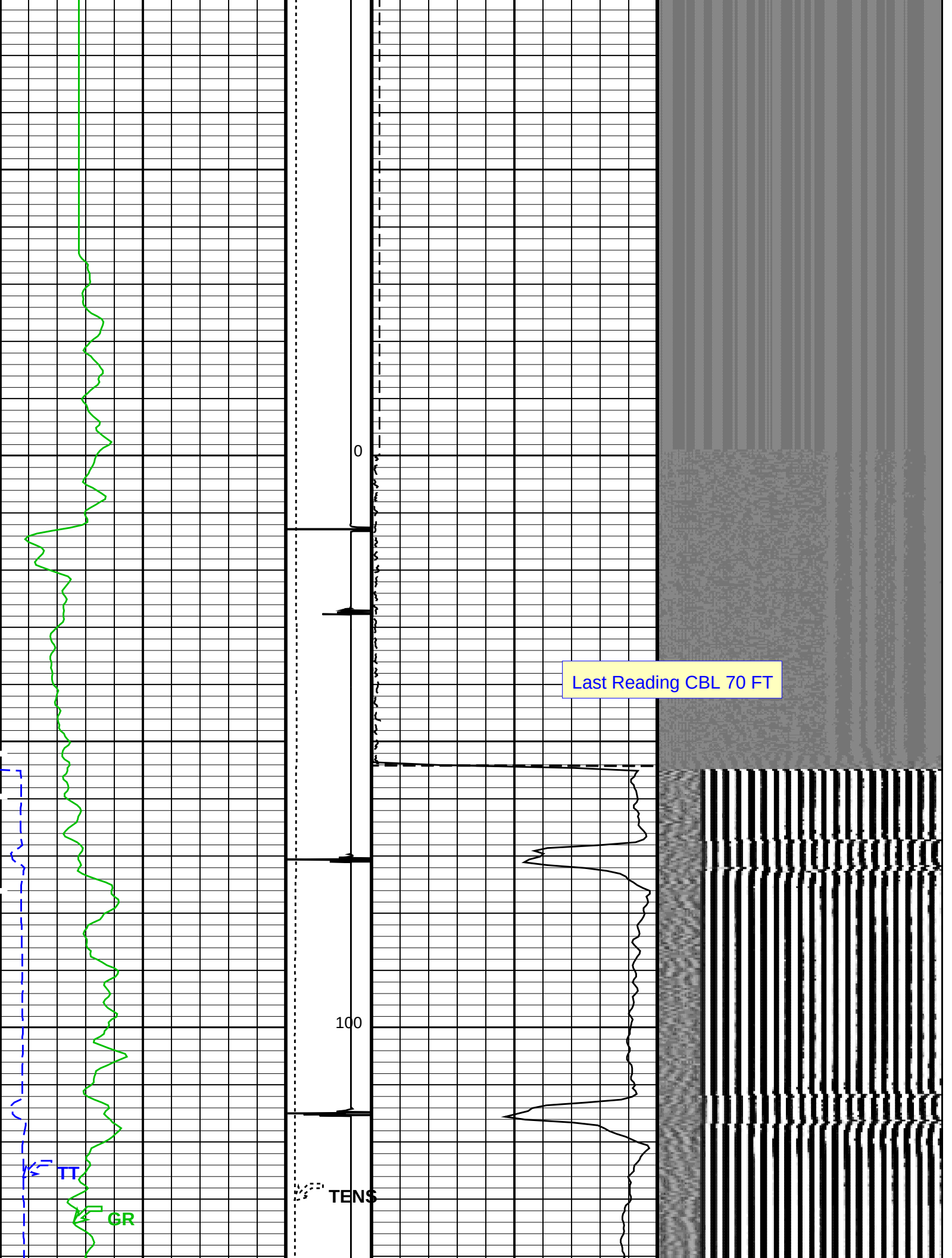
OP System Version: 19C0−187

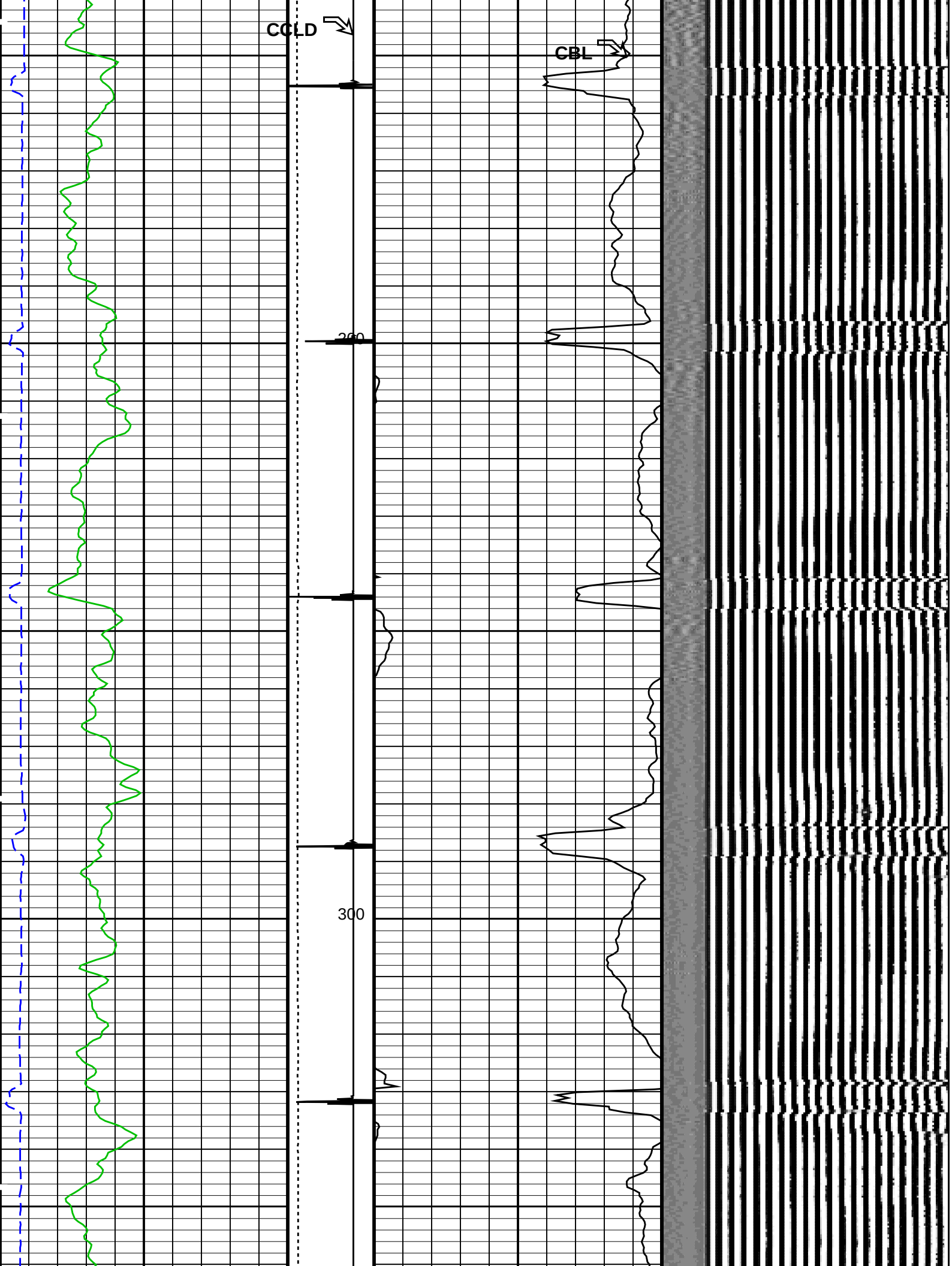
SCMT−CB	**SRPC−5214−H2−2012−OP1**	**RST−C**	**SRPC−5214−H2−2012−OP1**
PSPT	**SRPC−5214−H2−2012−OP1**		

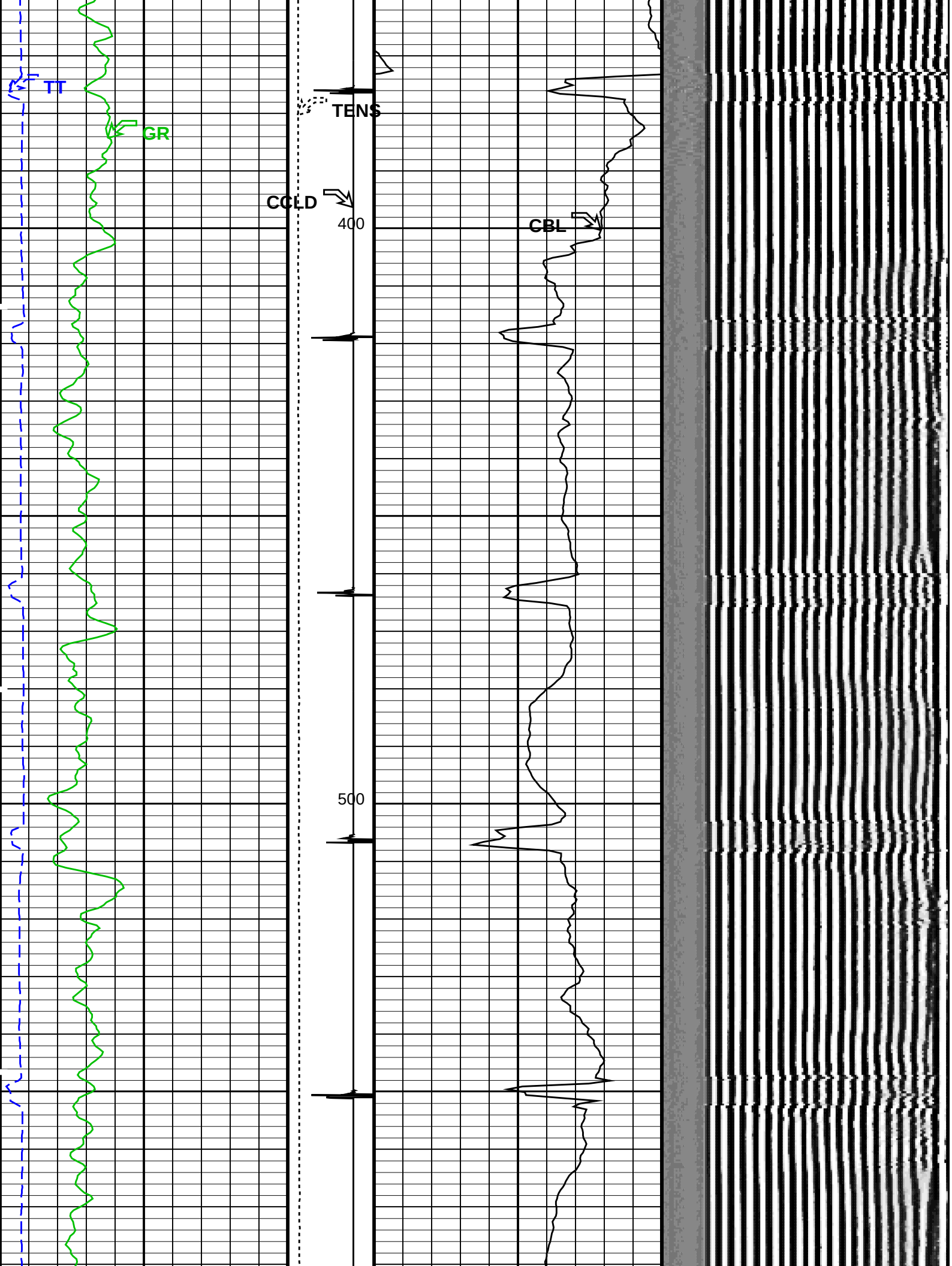
PIP SUMMARY

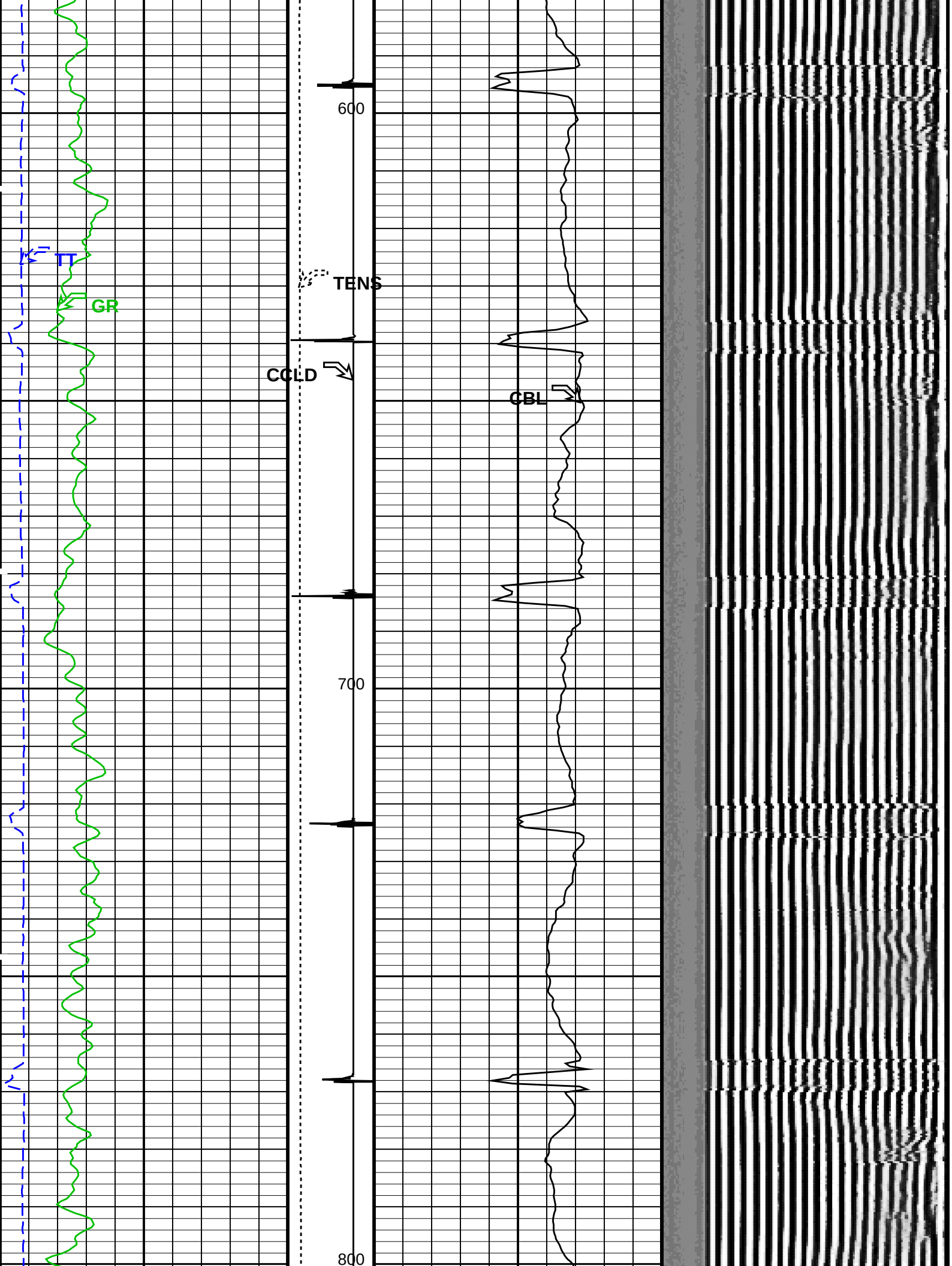
Time Mark Every 60 S

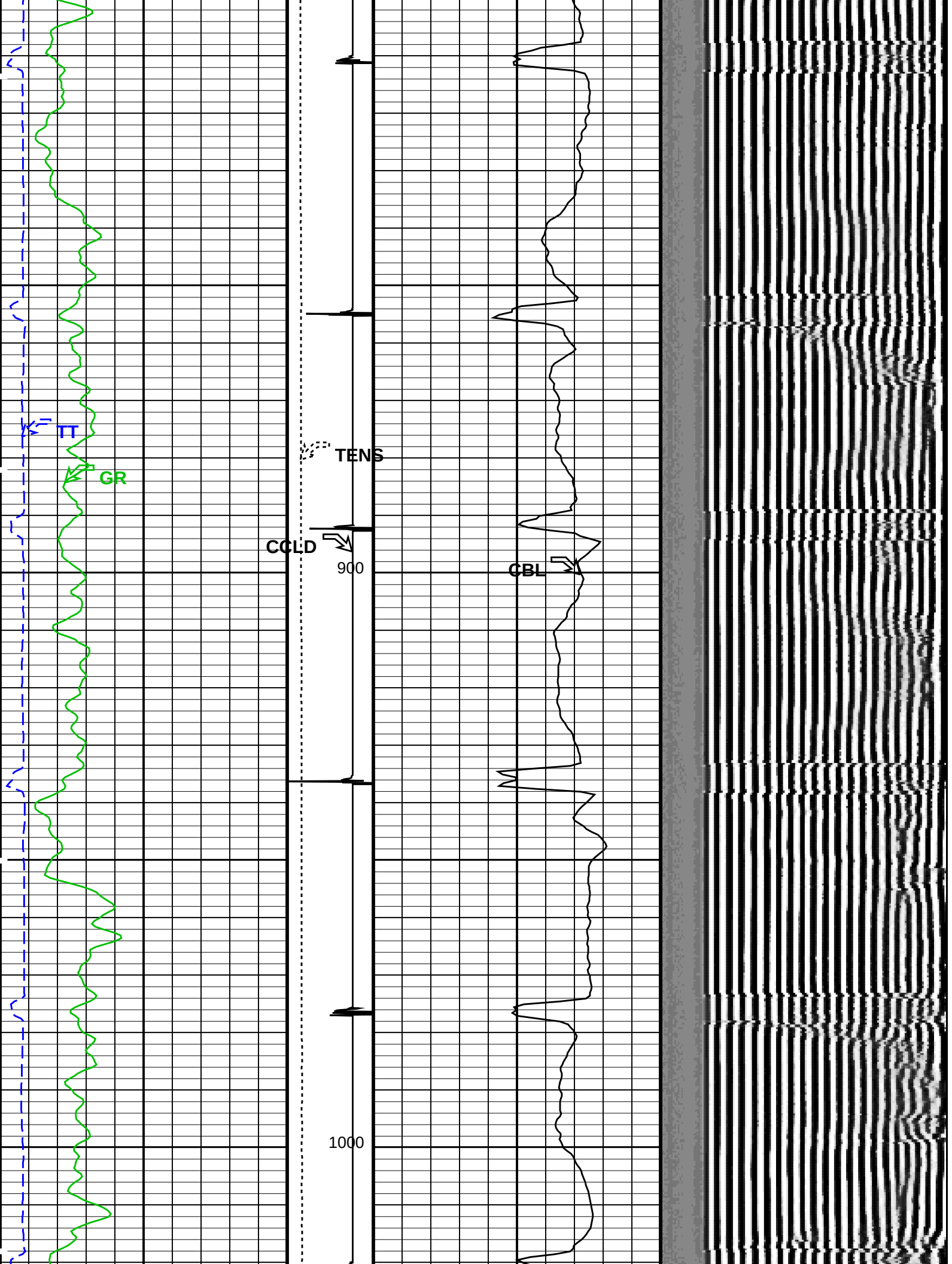
Transit Time (TT) 260 (US) 160	**Discriminated CCL (CCLD)** 3 (V) −1	**CBL Amplitude (CBL)** 0 (MV) 10
Gamma Ray (GR) 0 (GAPI) 150	**Tension (TENS)** (LBF) 0 2000	**CBL Amplitude (CBL)** 0 (MV) 100
		Min Amplitude Max **VDL VariableDensity (VDL)** 200 (US) 1200

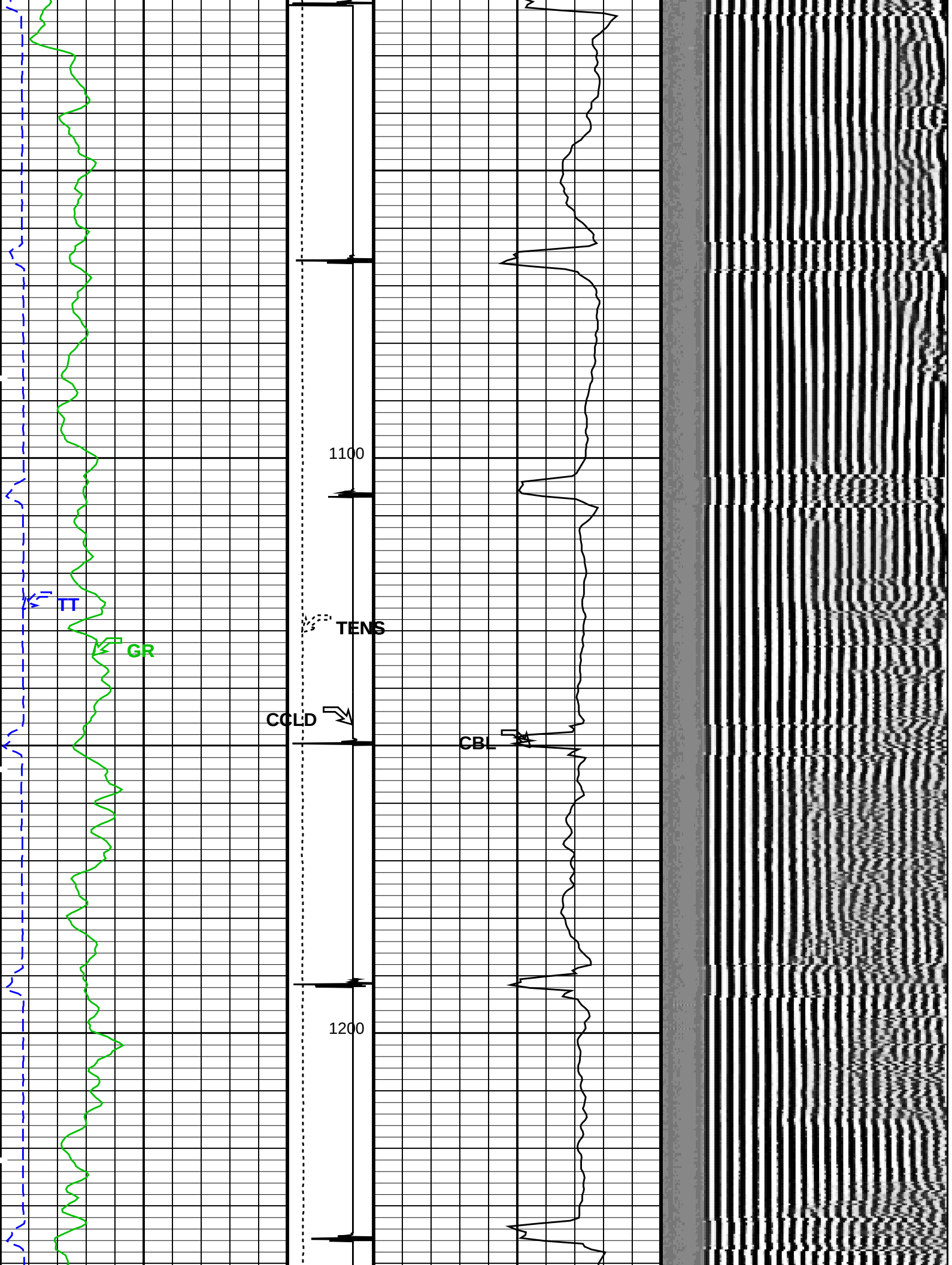

0
100
Last Reading CBL 70 FT
TT
GR
TENS

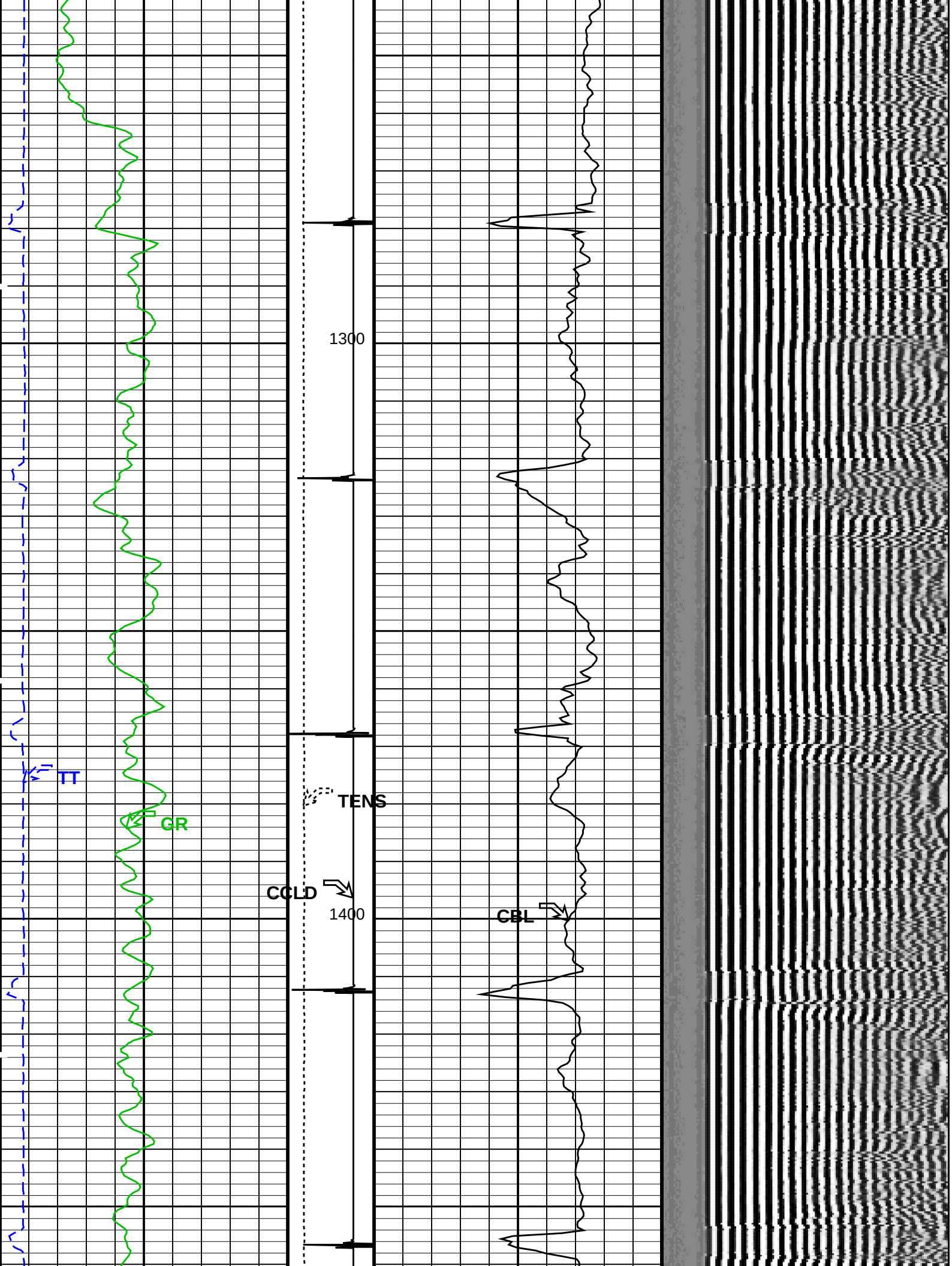

CCLD
CBL
300

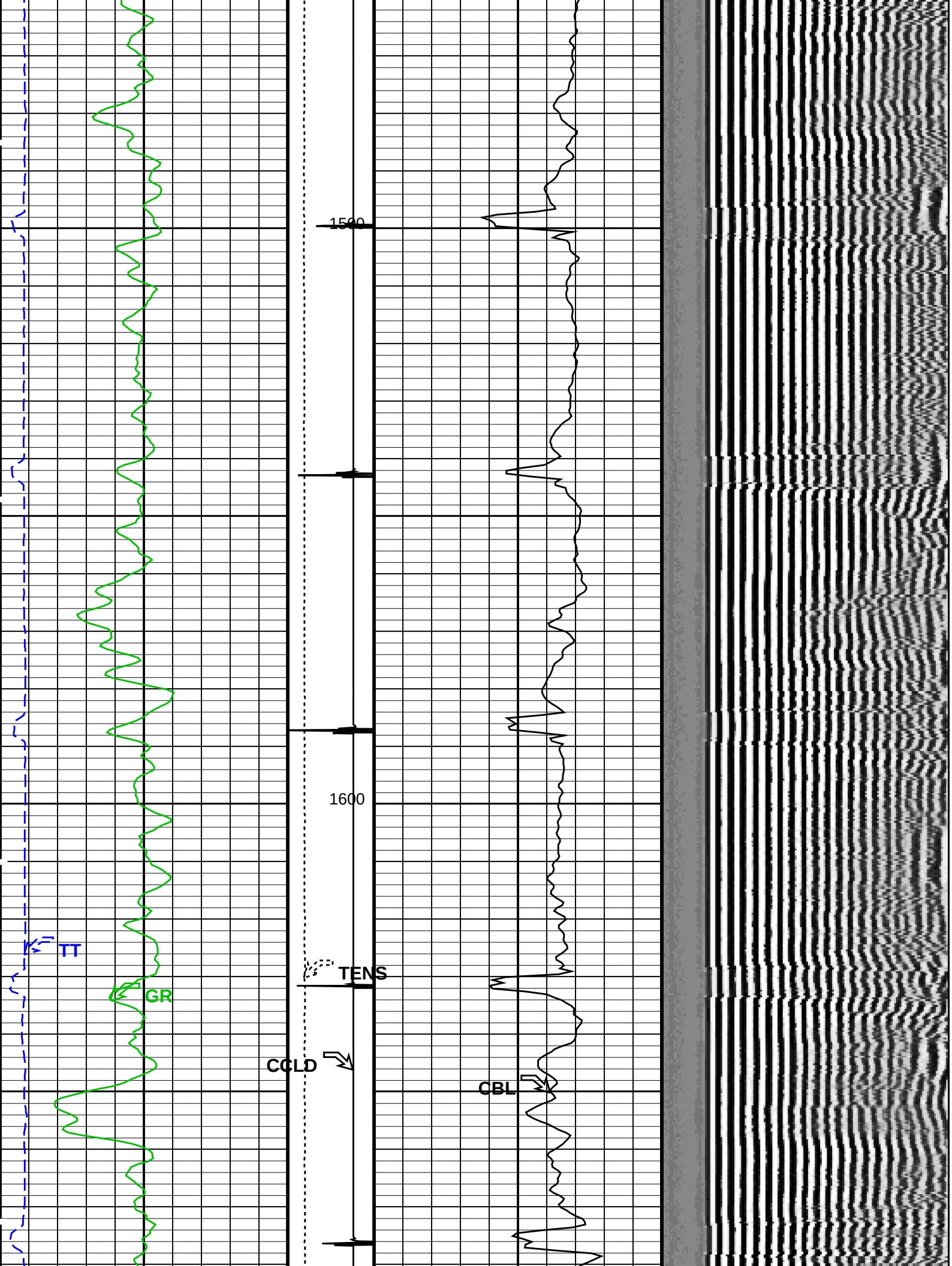

TT
GR
TENS
CCLD
400
CBL
500

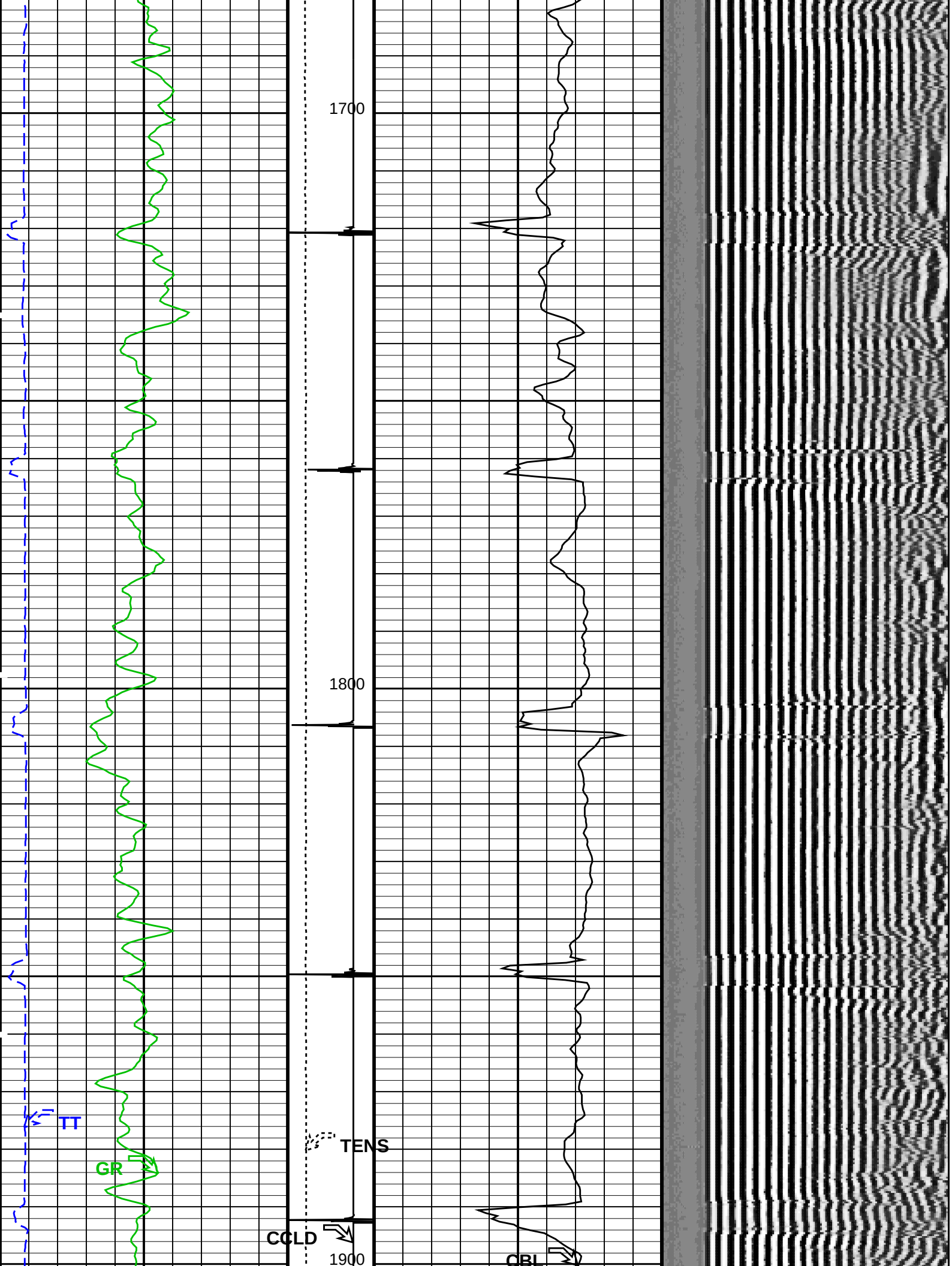

600
TT
TENS
GR
CCLD
CBL
700
800

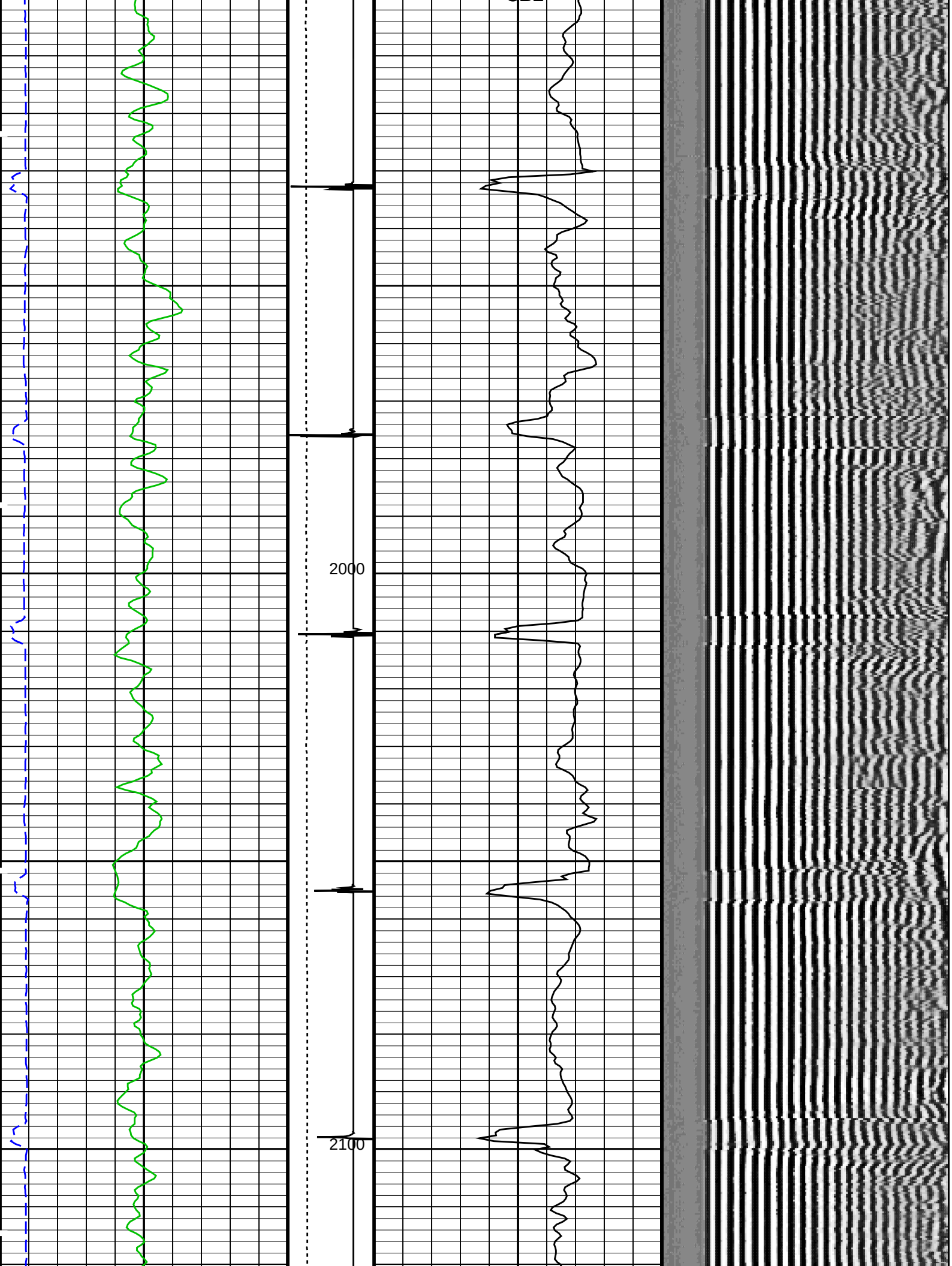

TT
GR
TENS
CCLD
900
CBL
1000

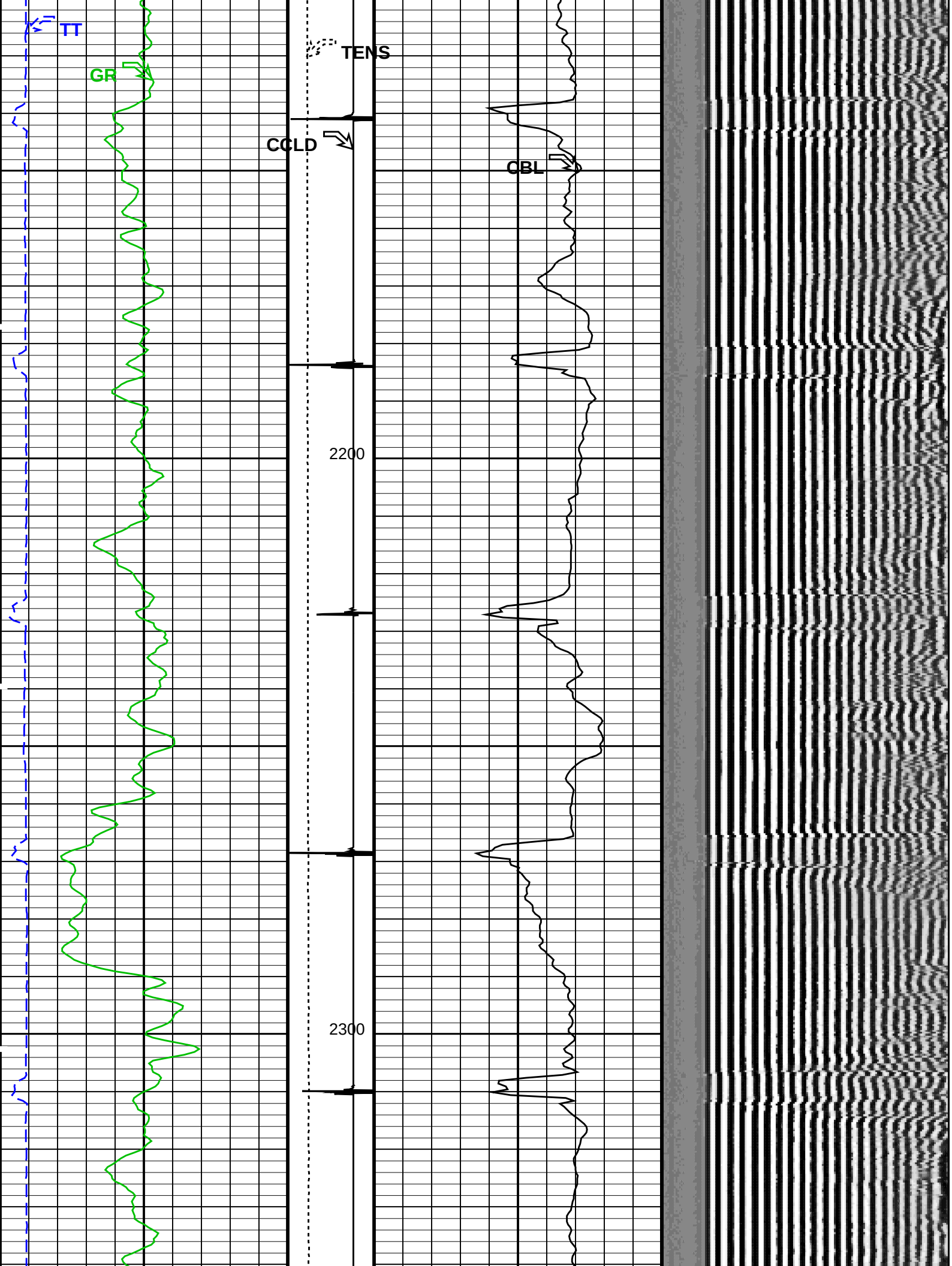

1100
TT
TENS
GR
CCLD
CBL
1200

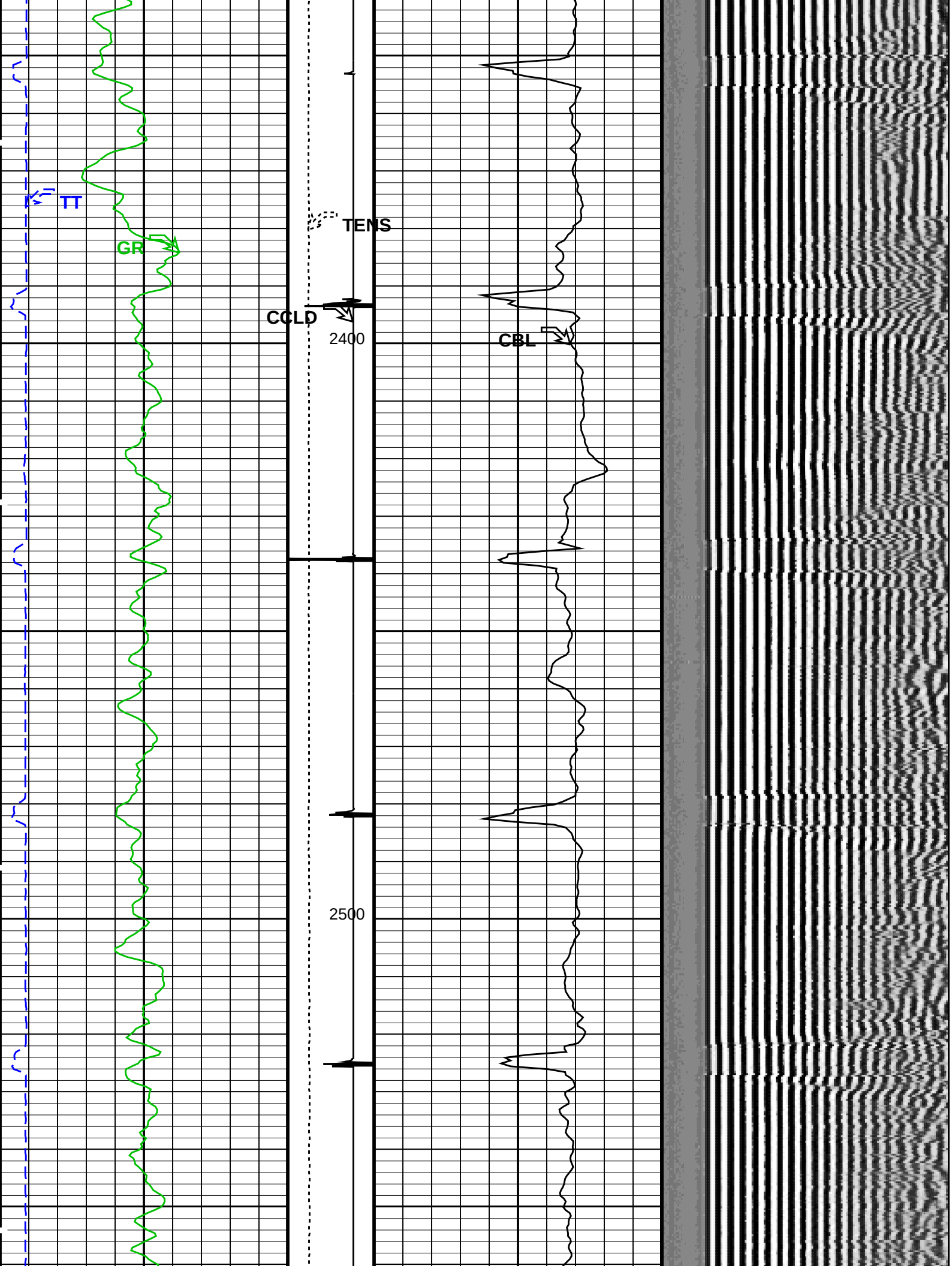

1300
TT
GR
TENS
CCLD
1400
CBL

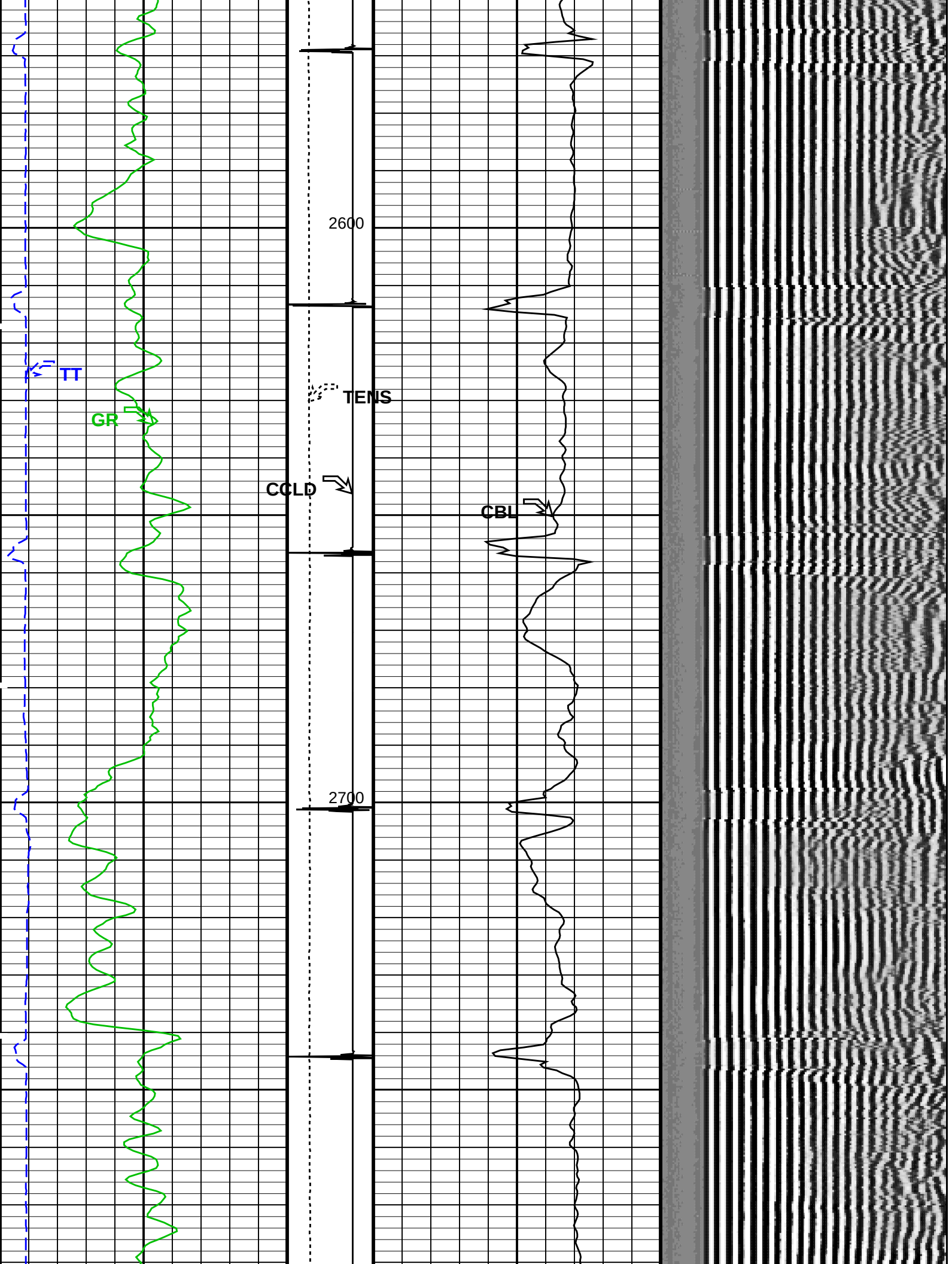

1500
1600
TT
GR
TENS
CCLD
CBL

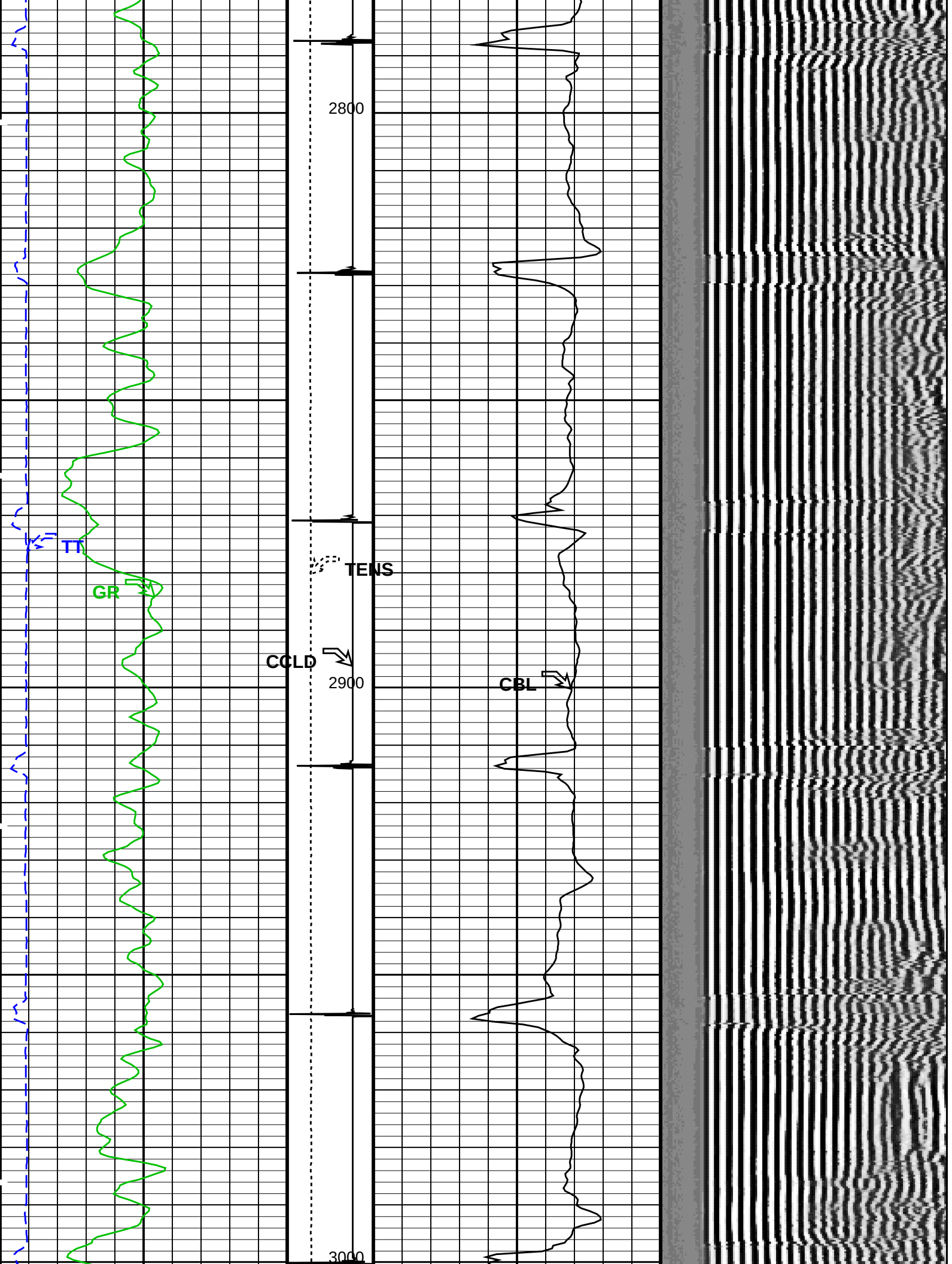

1700
1800
1900
TT
GR
TENS
CCLD
CBL

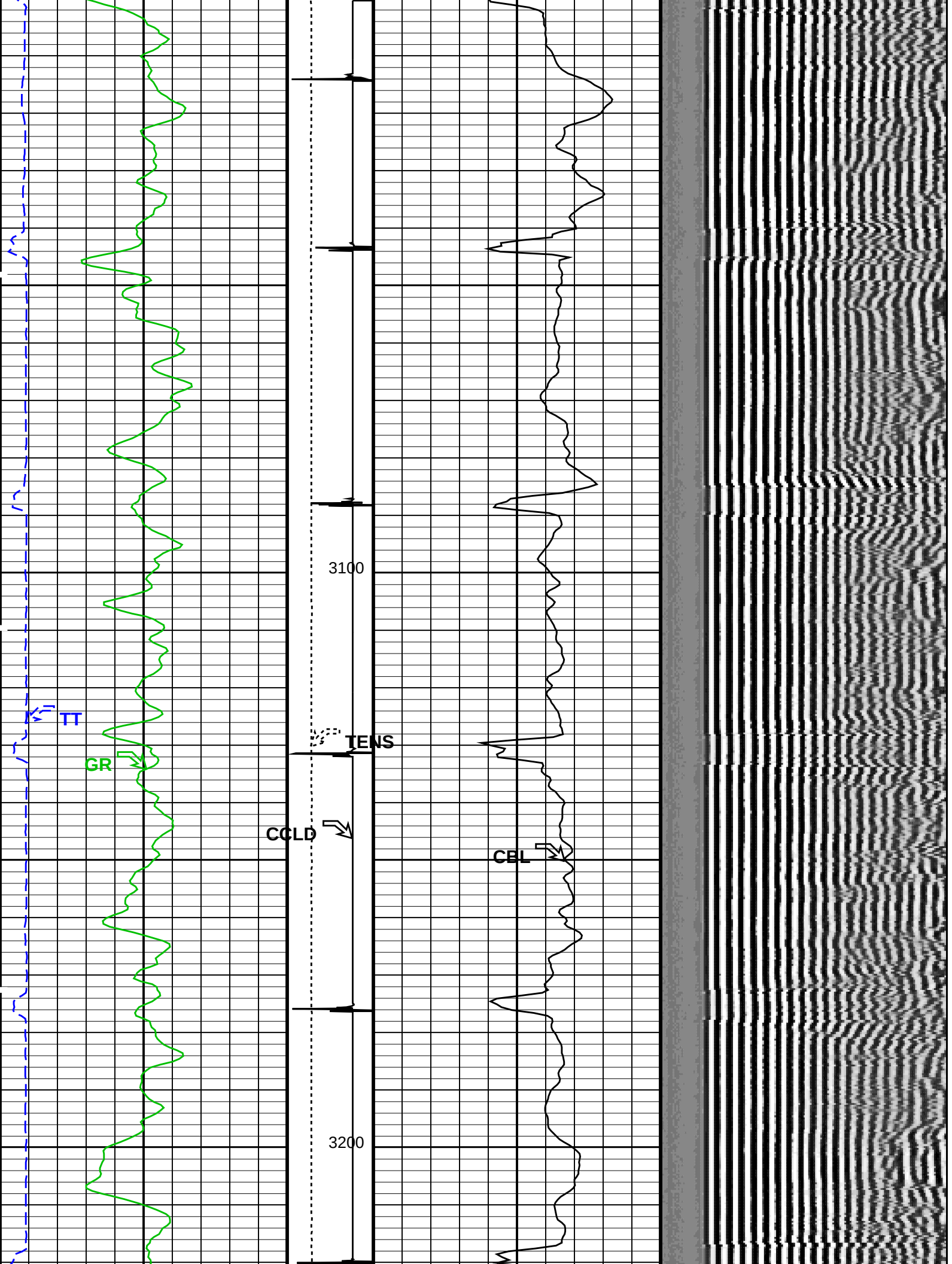

2000
2100

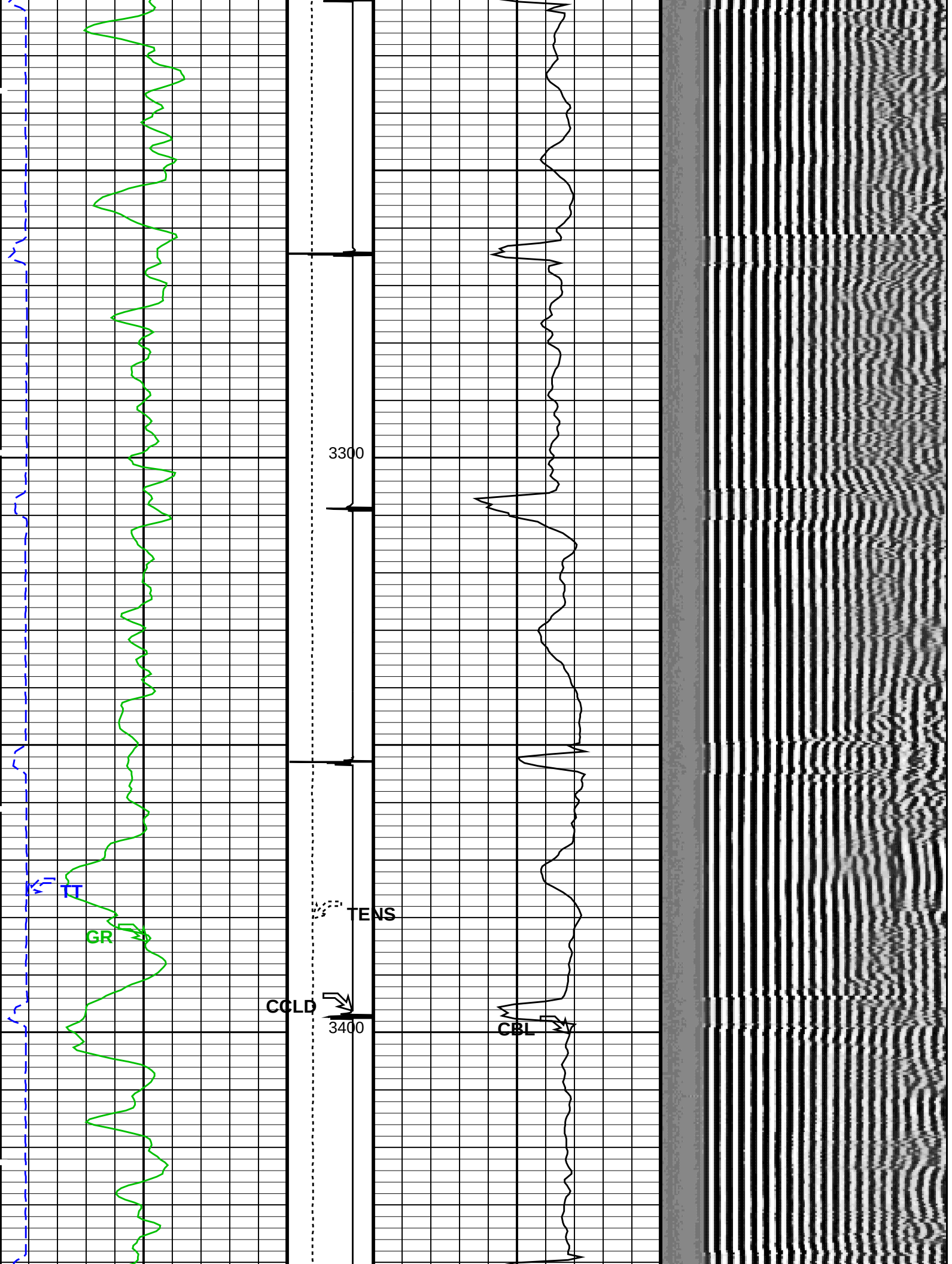

TT
GR
TENS
CCLD
CBL
2200
2300

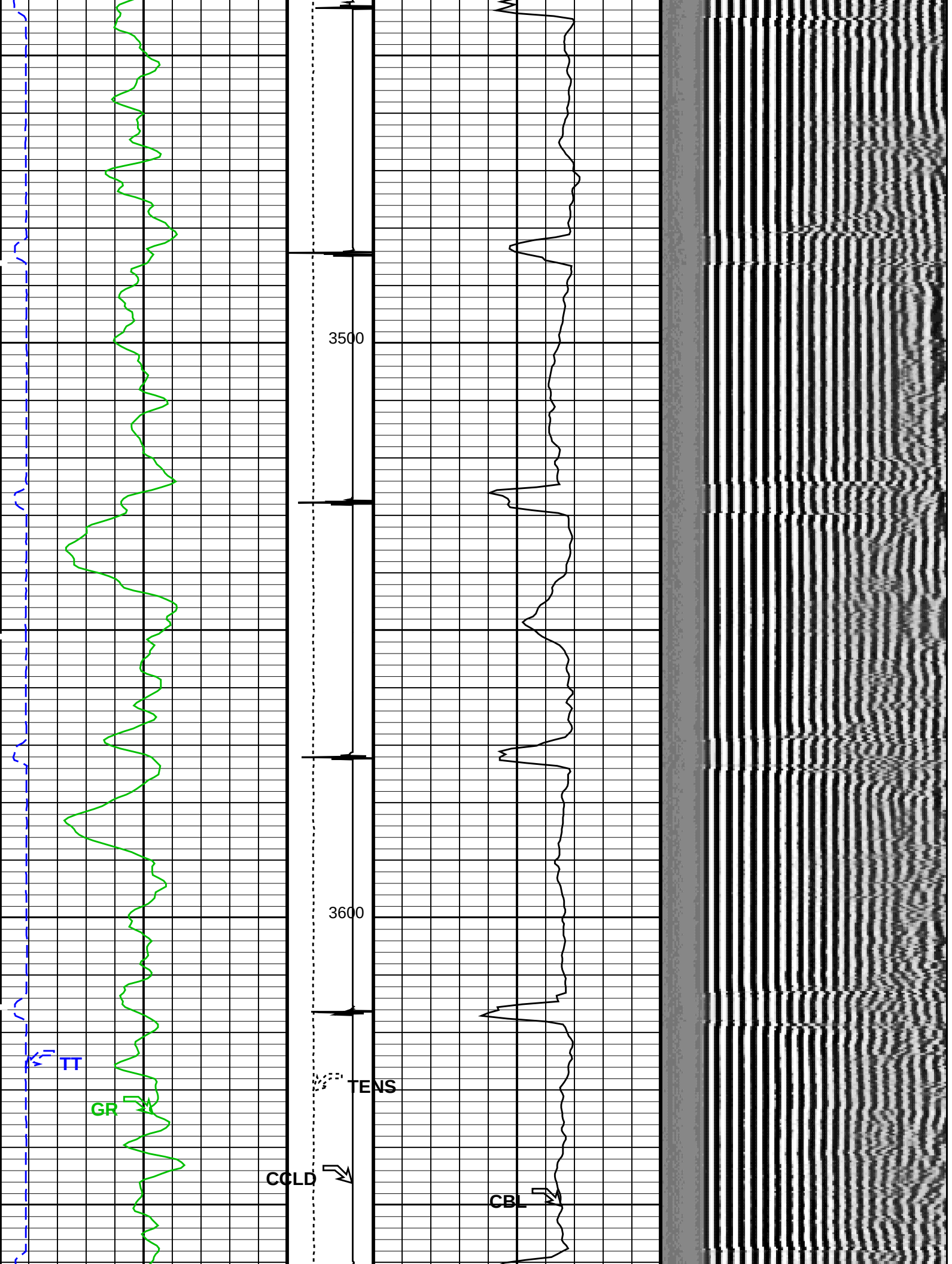

TT
GR
TENS
CCLD
2400
CBL
2500

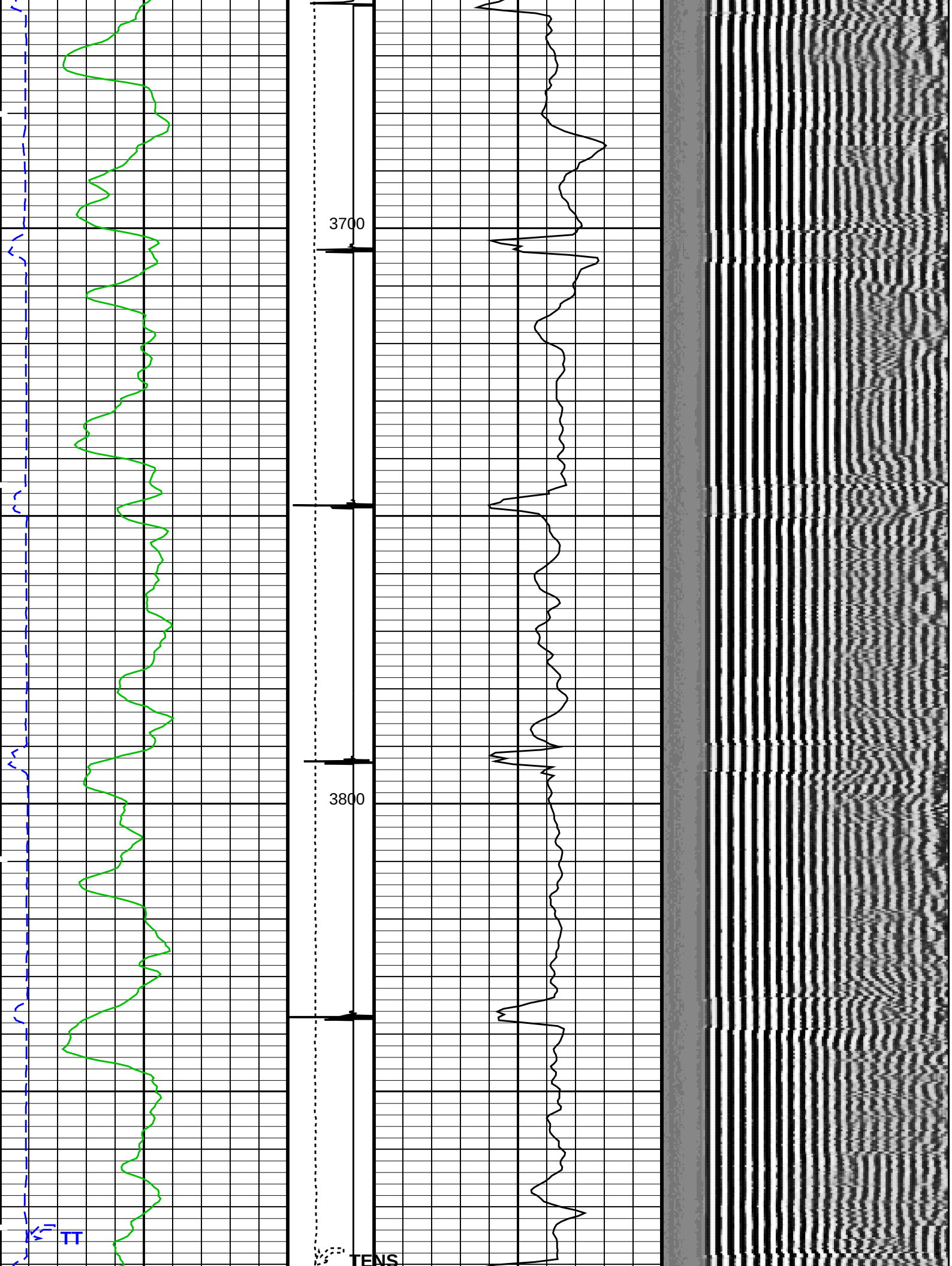

2600
TT
TENS
GR
CCLD
CBL
2700

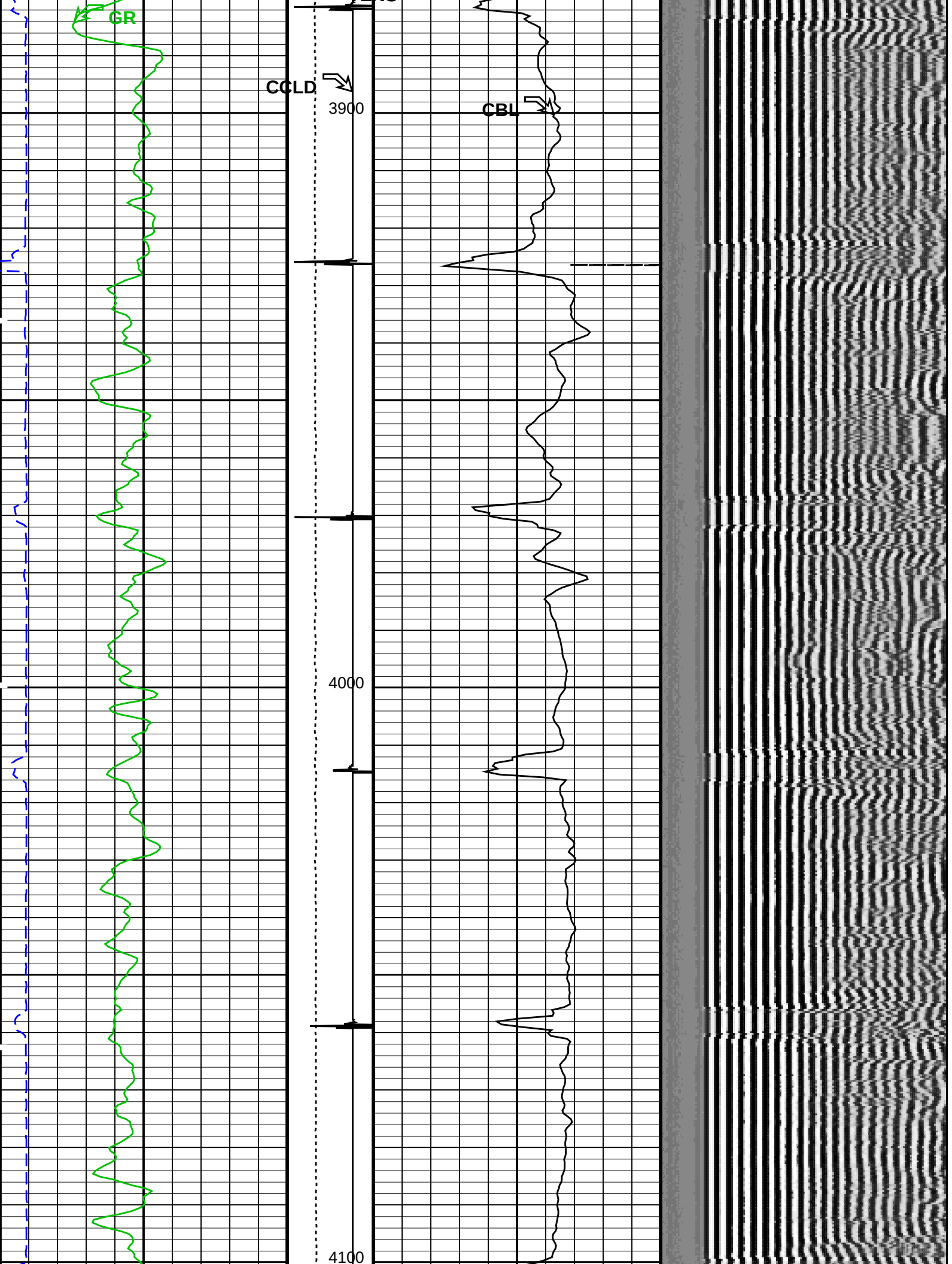

2800
TT
TENS
GR
CCLD
2900
CBL
3000

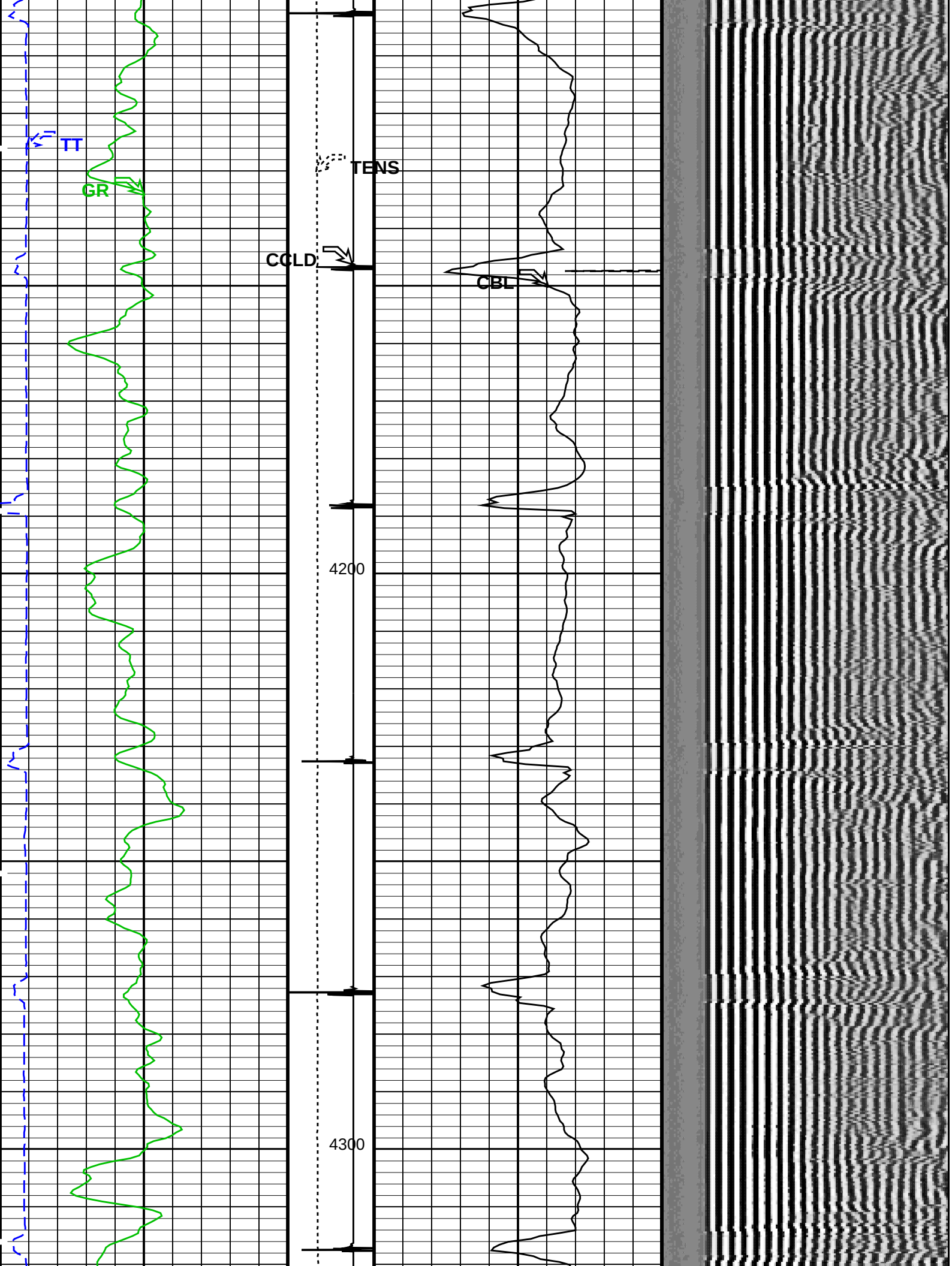

TT
GR
TENS
CCLD
CBL
3100
3200

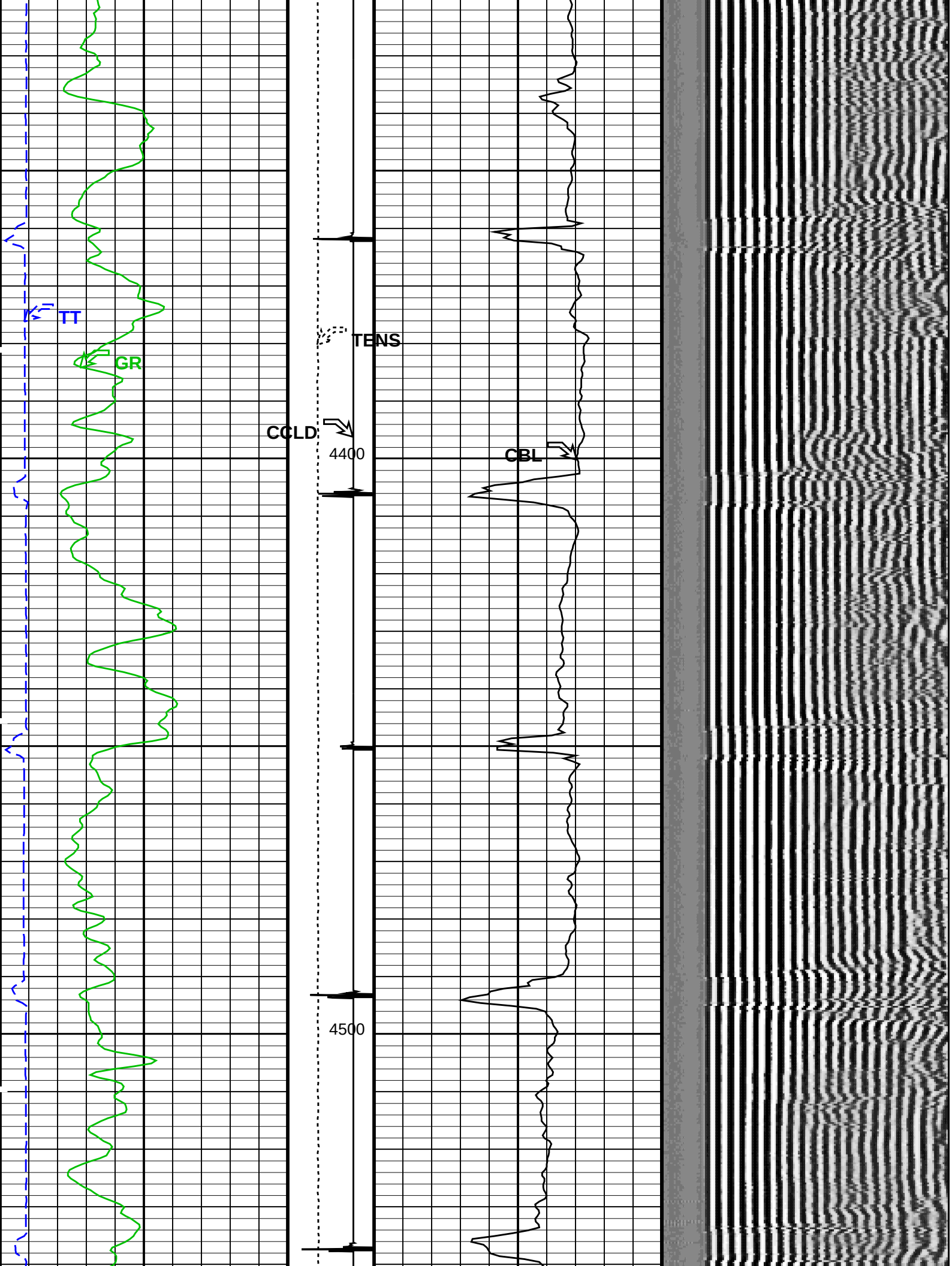

3300
TT
GR
TENS
CCLD
3400
CBL

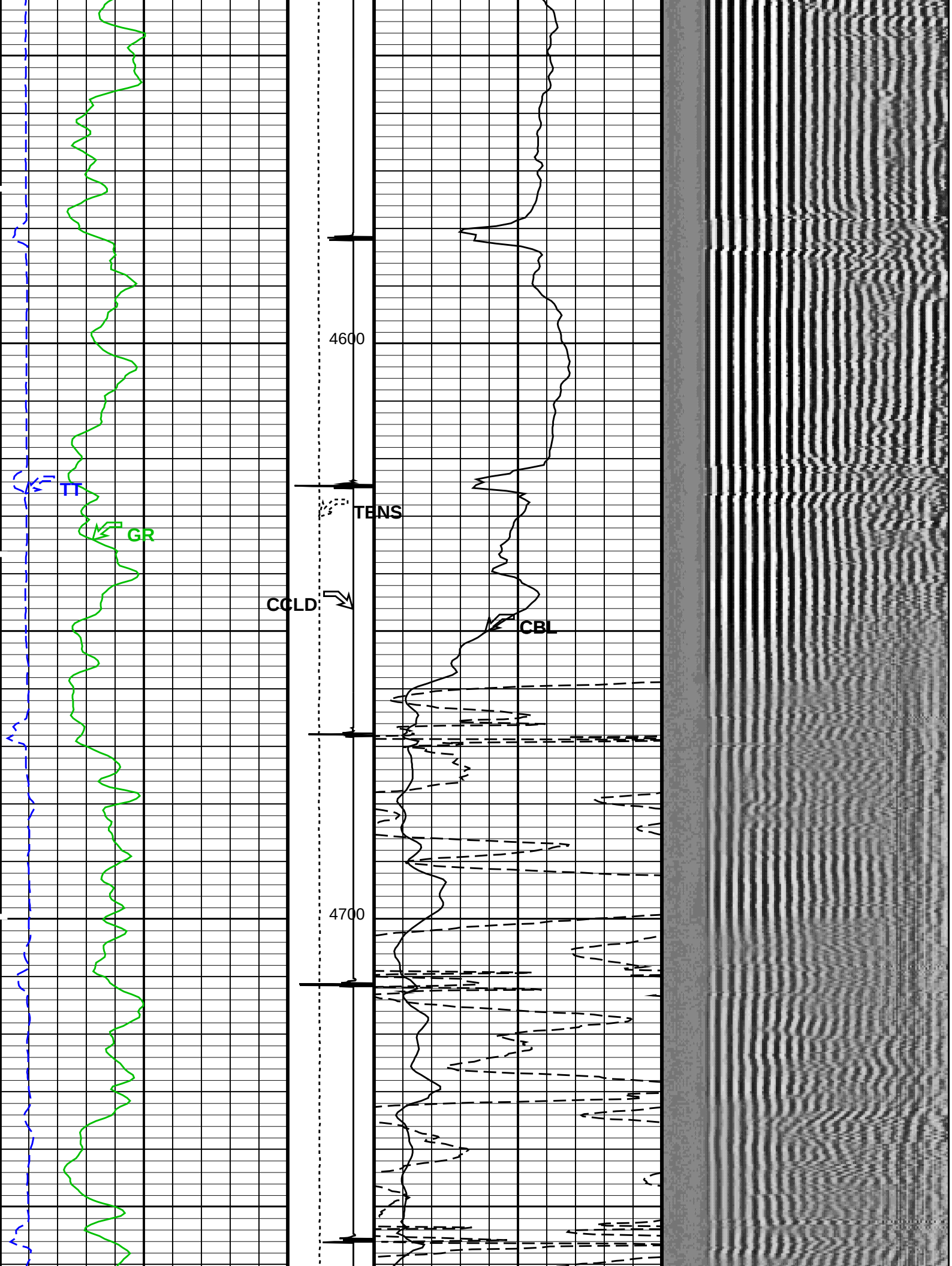

3500
3600
TT
GR
TENS
CCLD
CBL

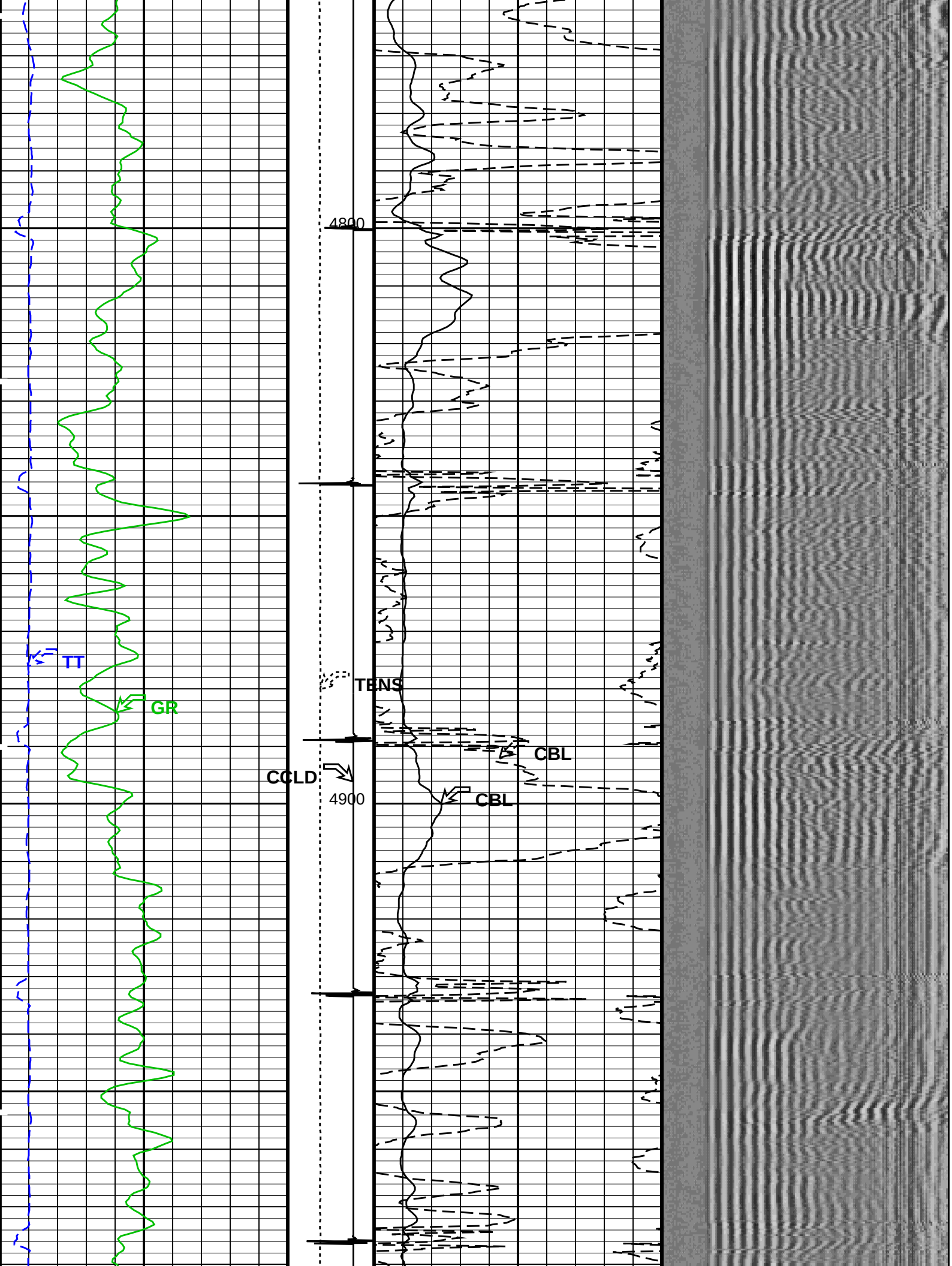

3700
3800
TT
TENS

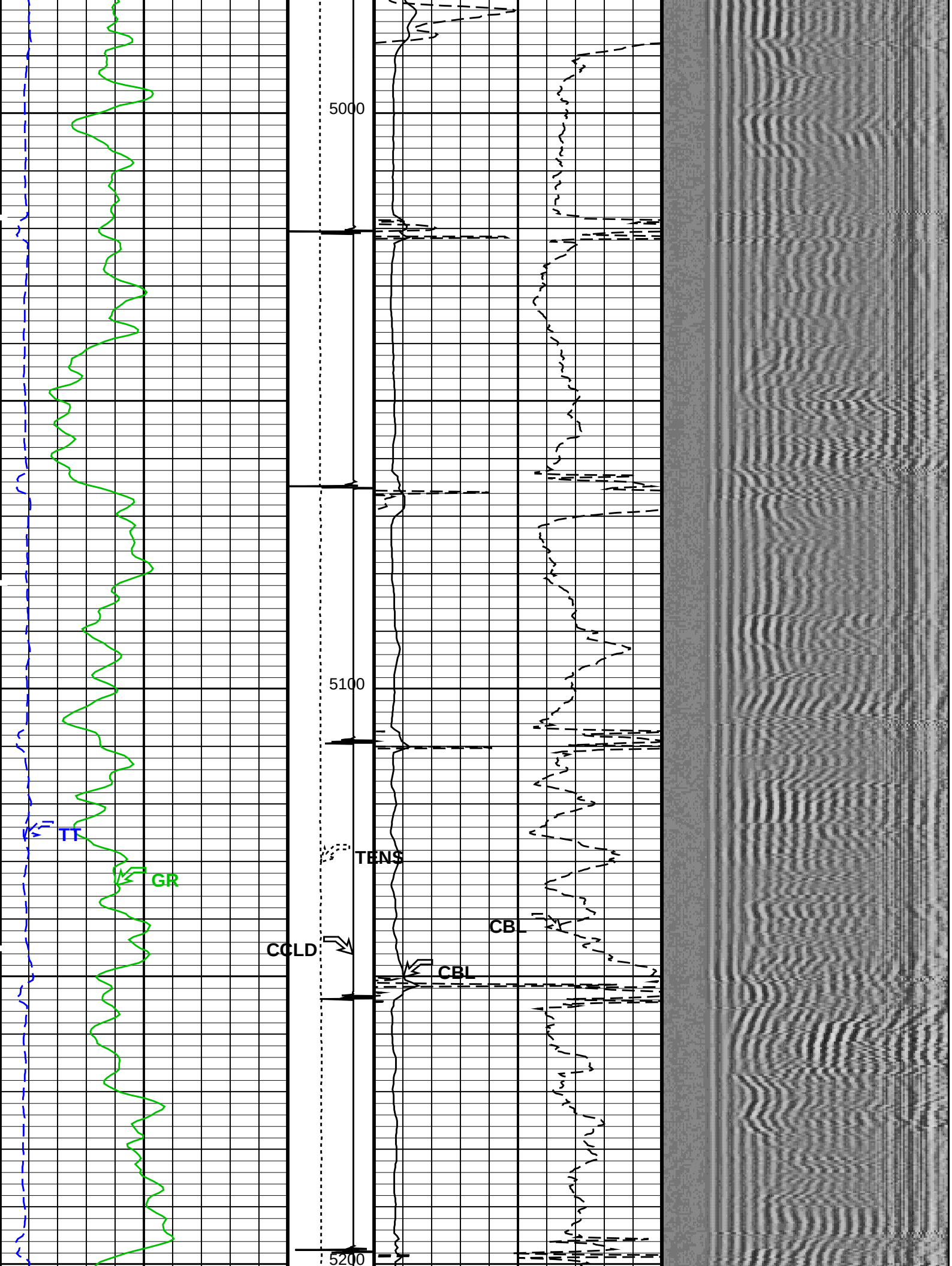

GR
CCLD
3900
CBL
4000
4100

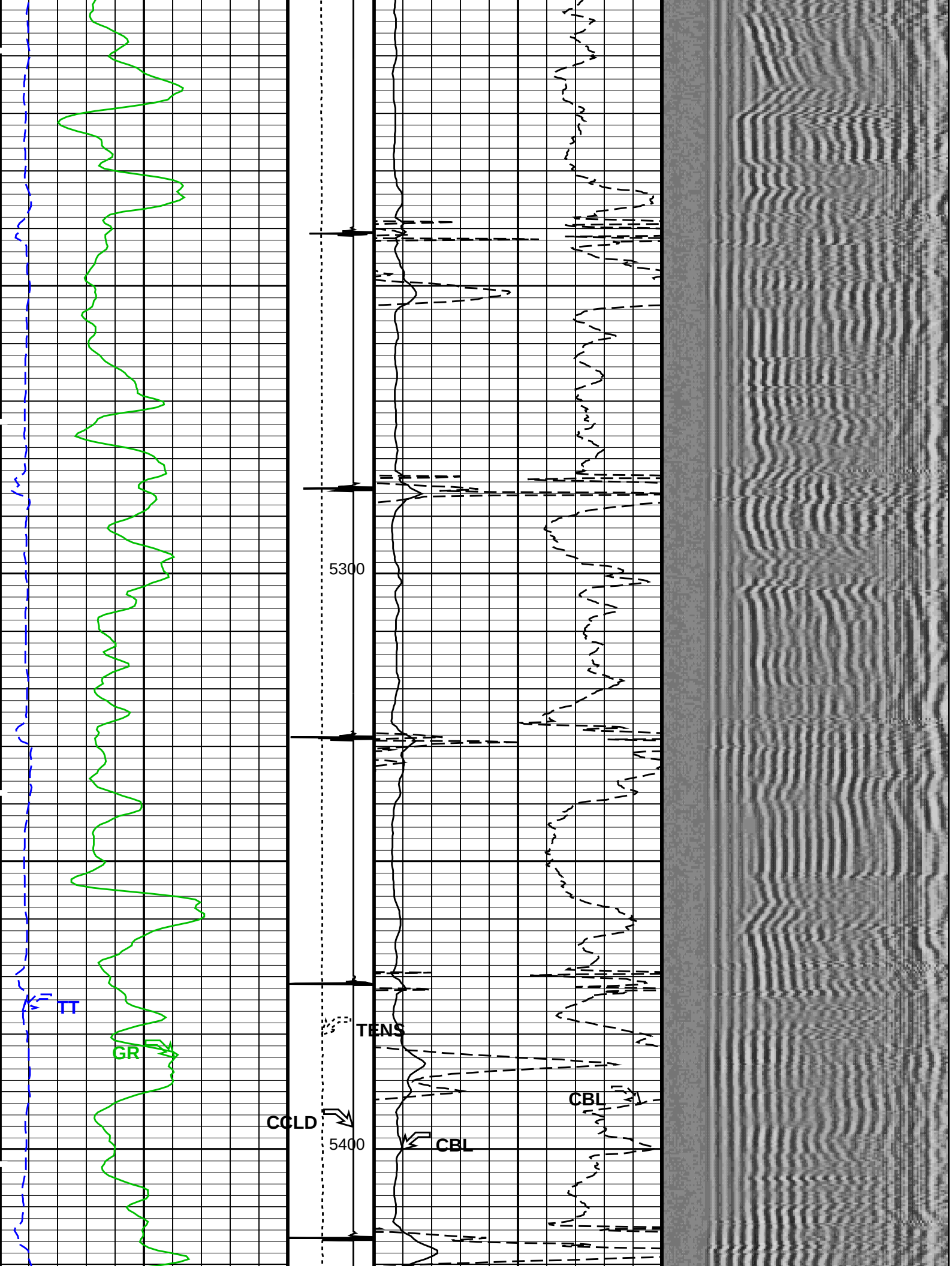

TT
GR
TENS
CCLD
CBL
4200
4300

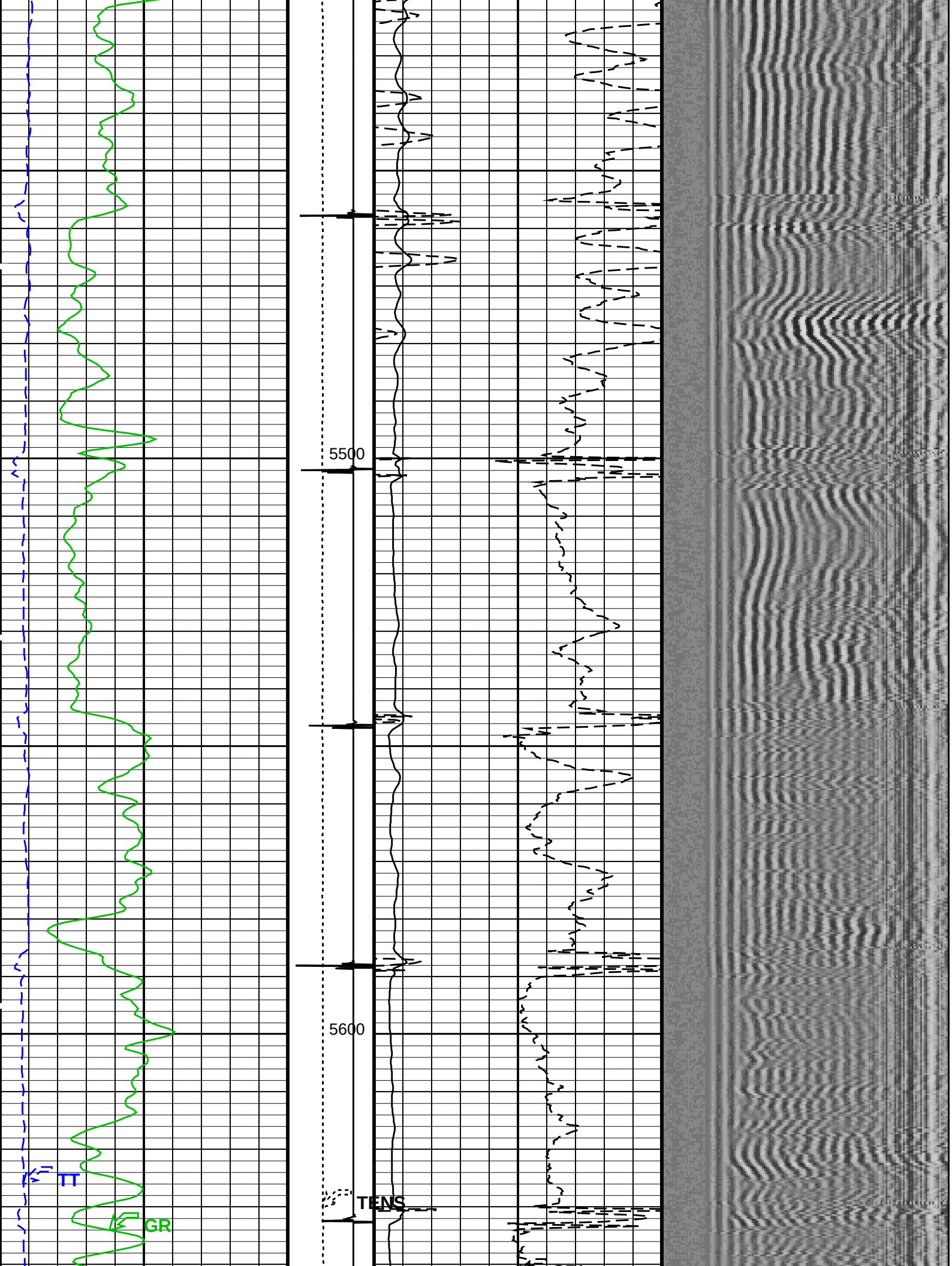

TT
GR
TENS
CCLD
4400
CBL
4500

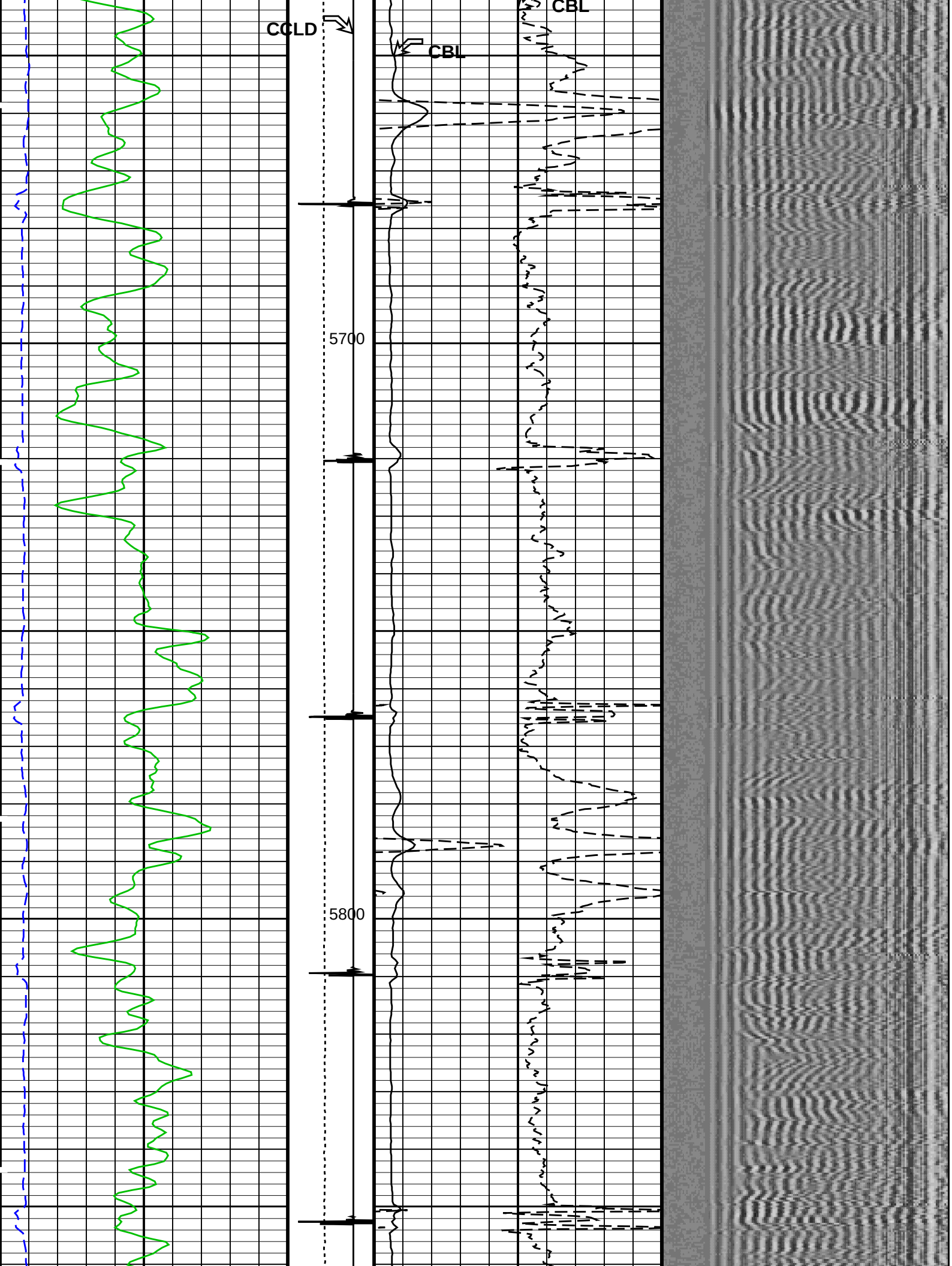

4600
TT
GR
TENS
CCLD
CBL
4700

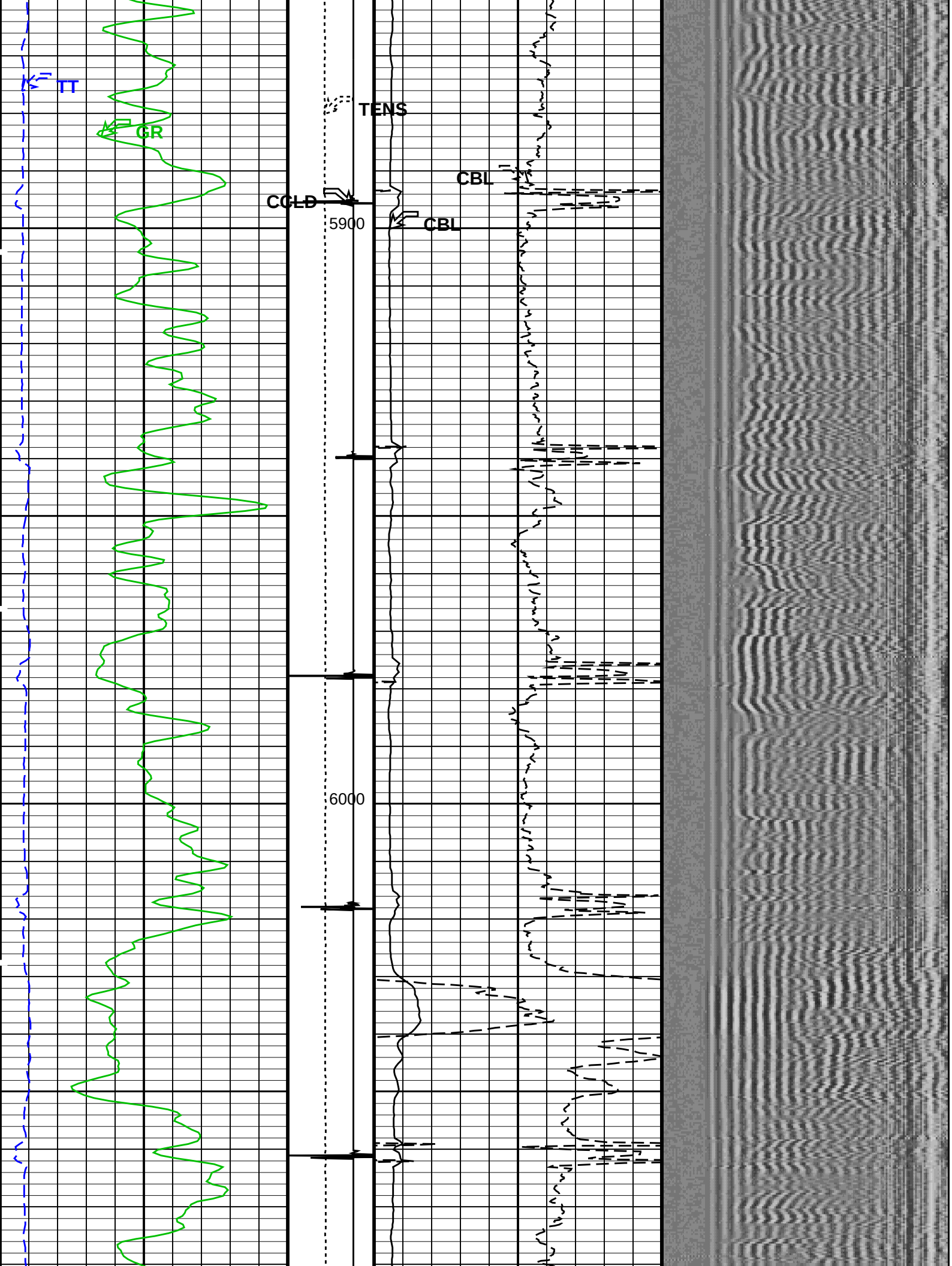

4800
TT
GR
TENS
CBL
CCLD
4900
CBL

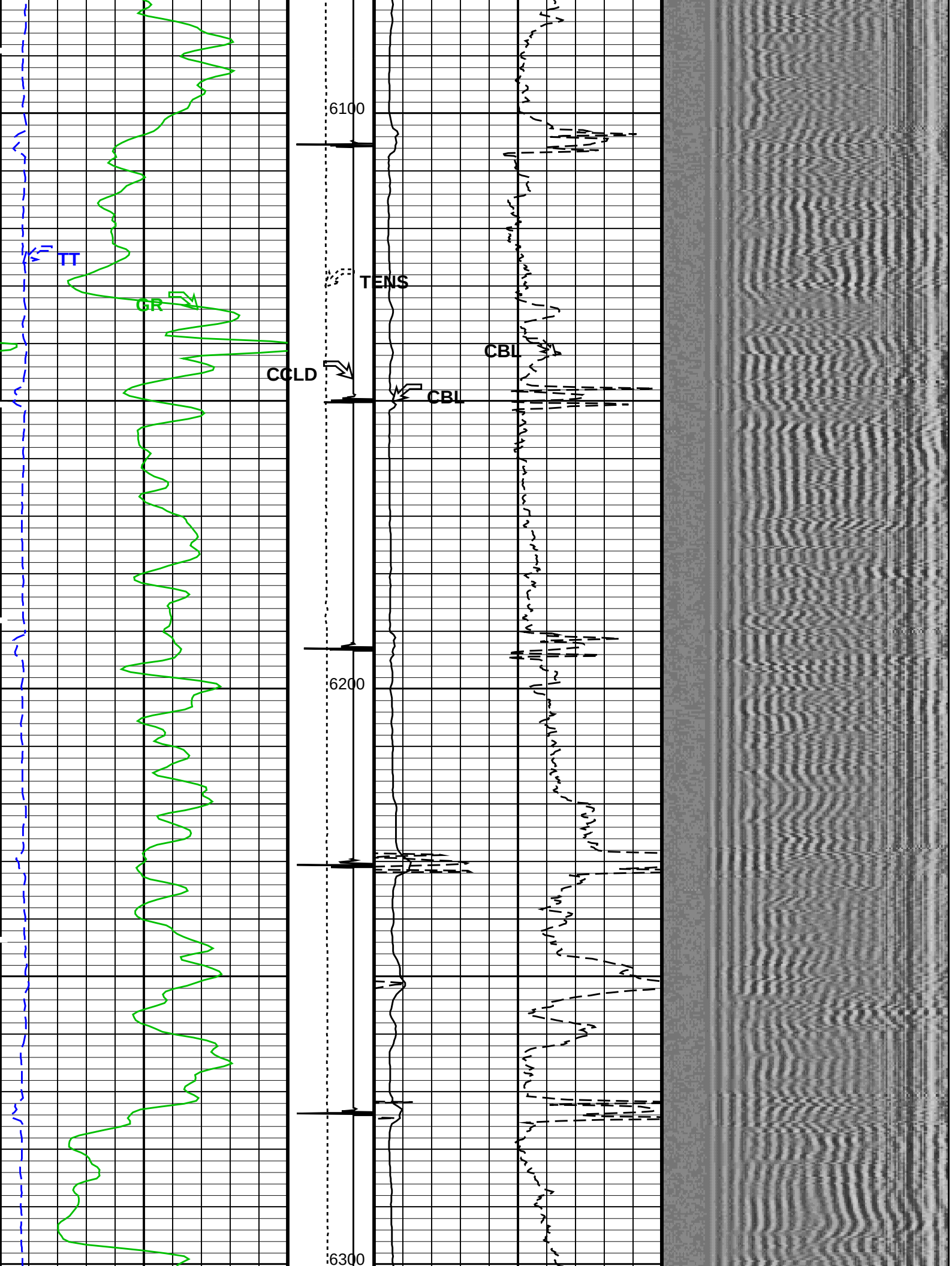

5000
5100
5200
TT
GR
TENS
CCLD
CBL
CBL

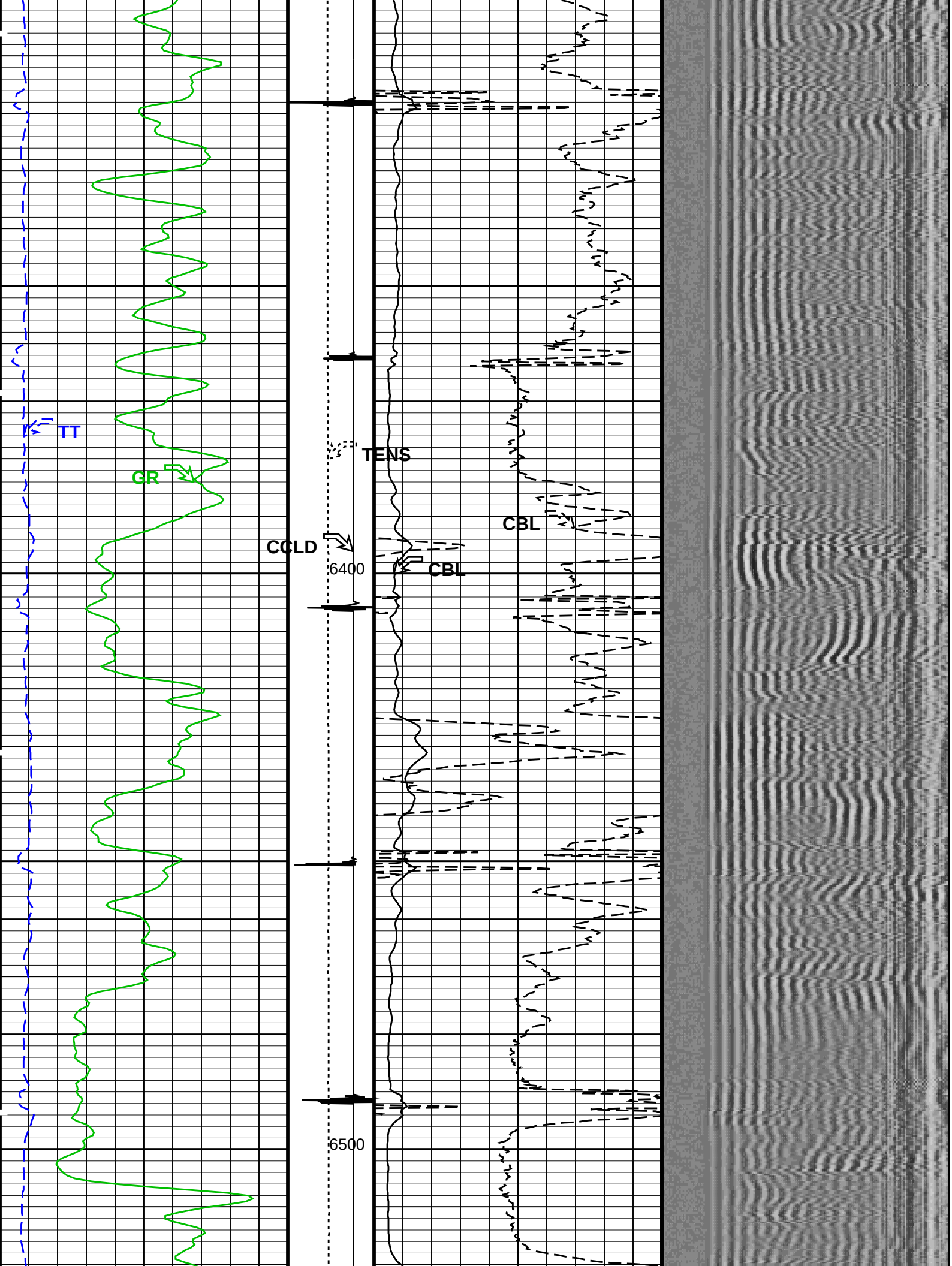

TT
GR
5300
TENS
CBL
CCLD
5400
CBL

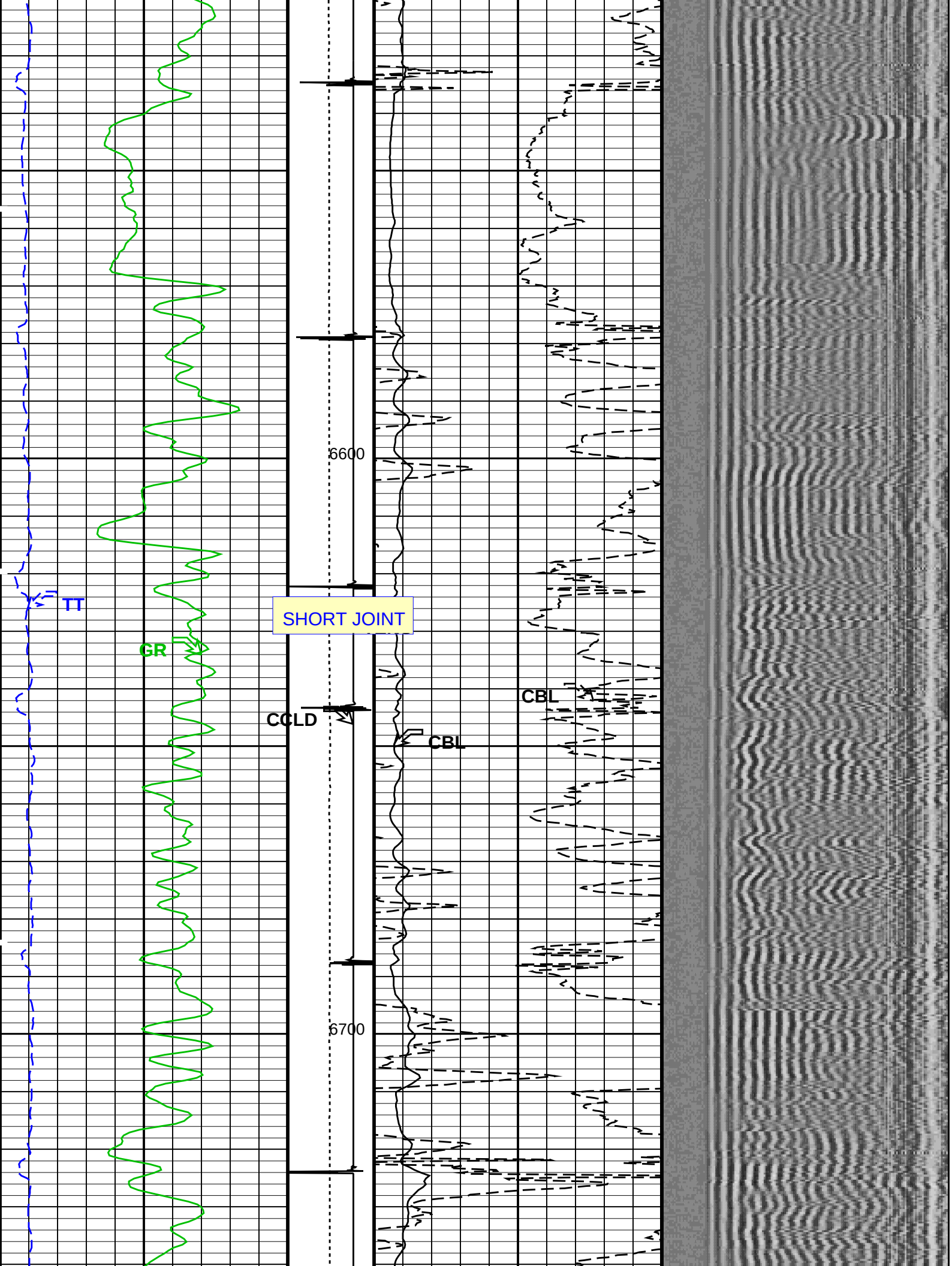

5500
5600
TT
GR
TENS

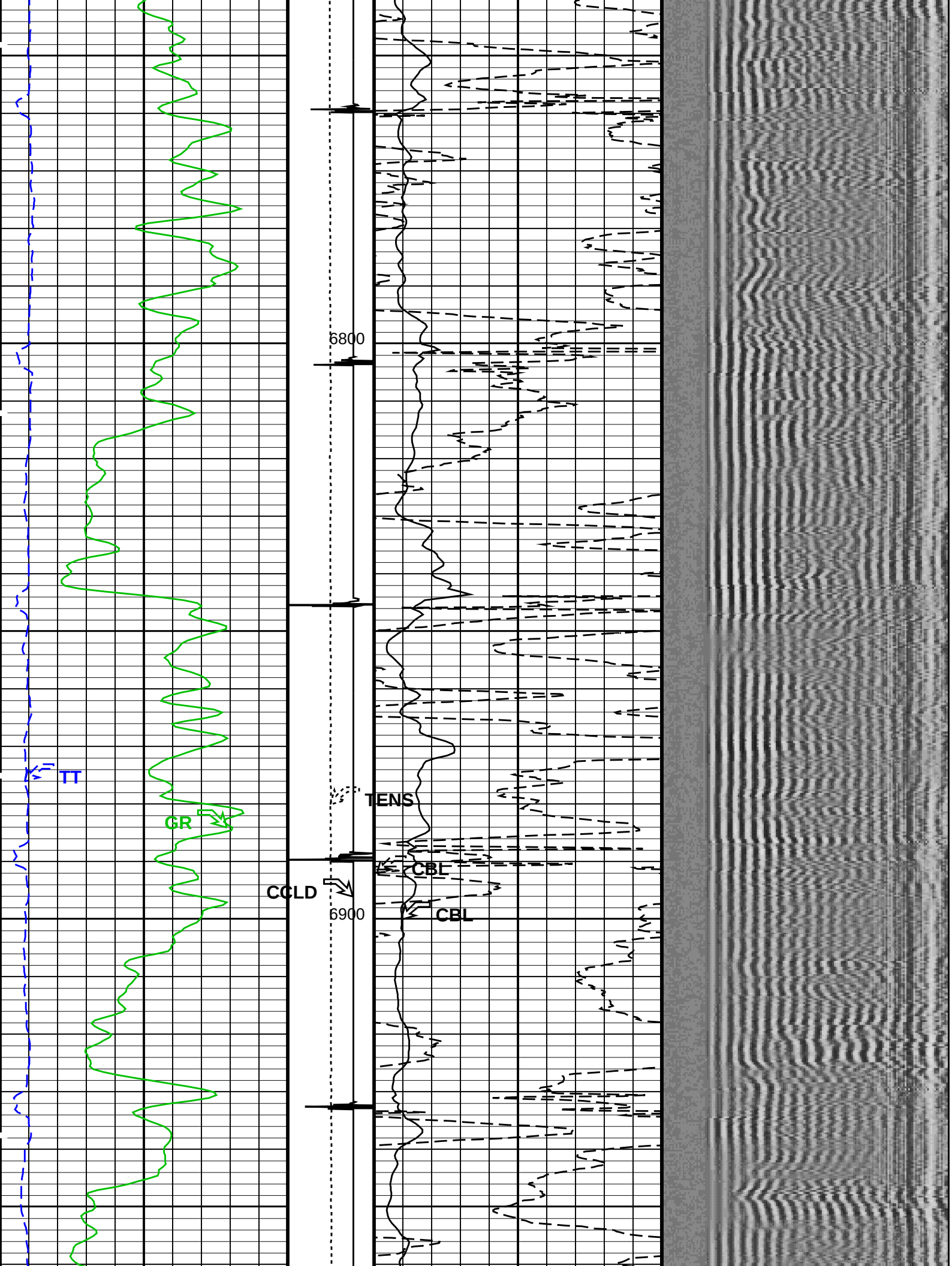

CCLD
CBL
CBL
5700
5800

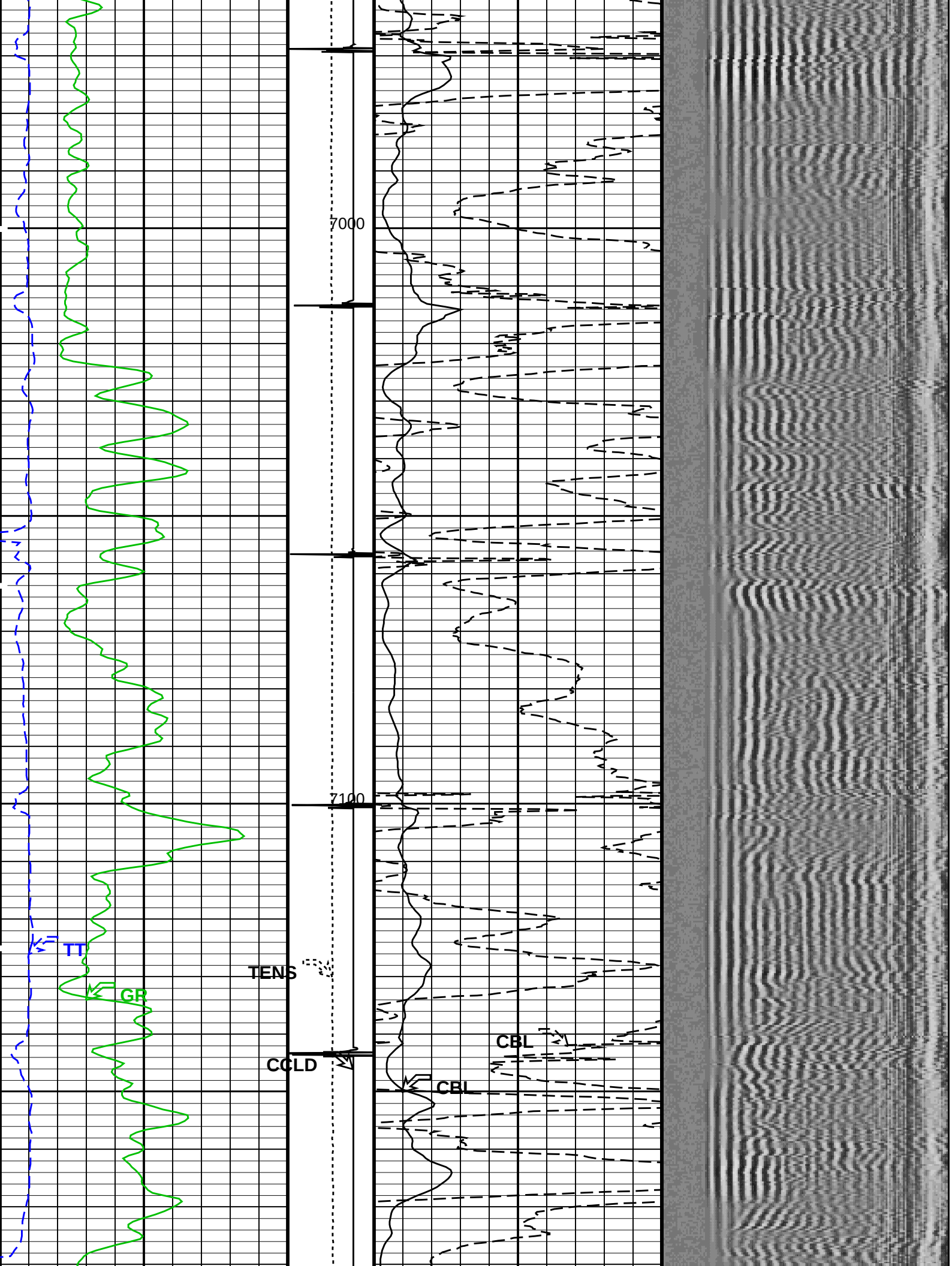

TT
GR
TENS
CBL
CCLD
5900
CBL
6000

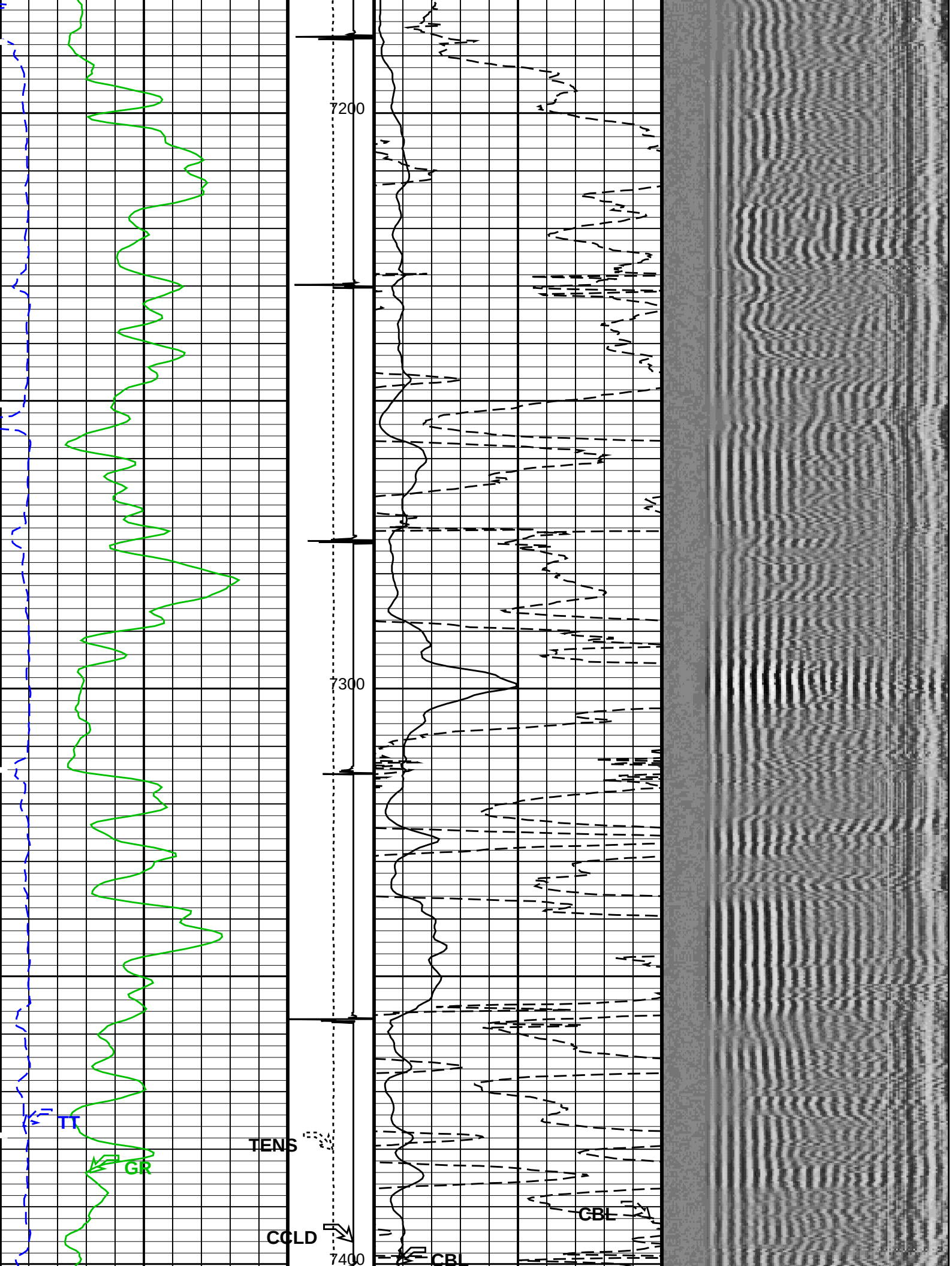

6100
TT
TENS
GR
CBL
CCLD
CBL
6200
6300

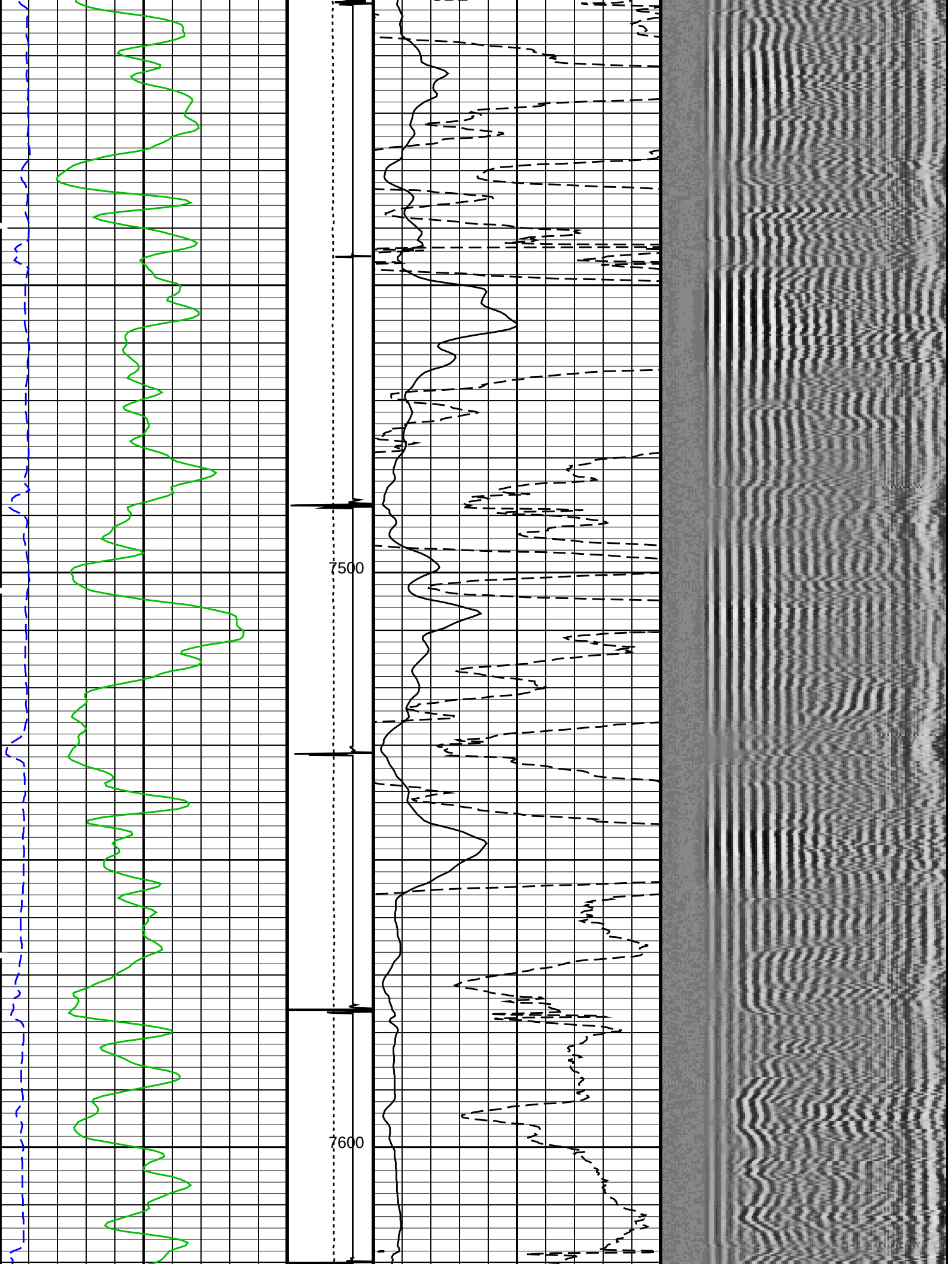

TT
GR
TENS
CCLD
6400
CBL
CBL
6500

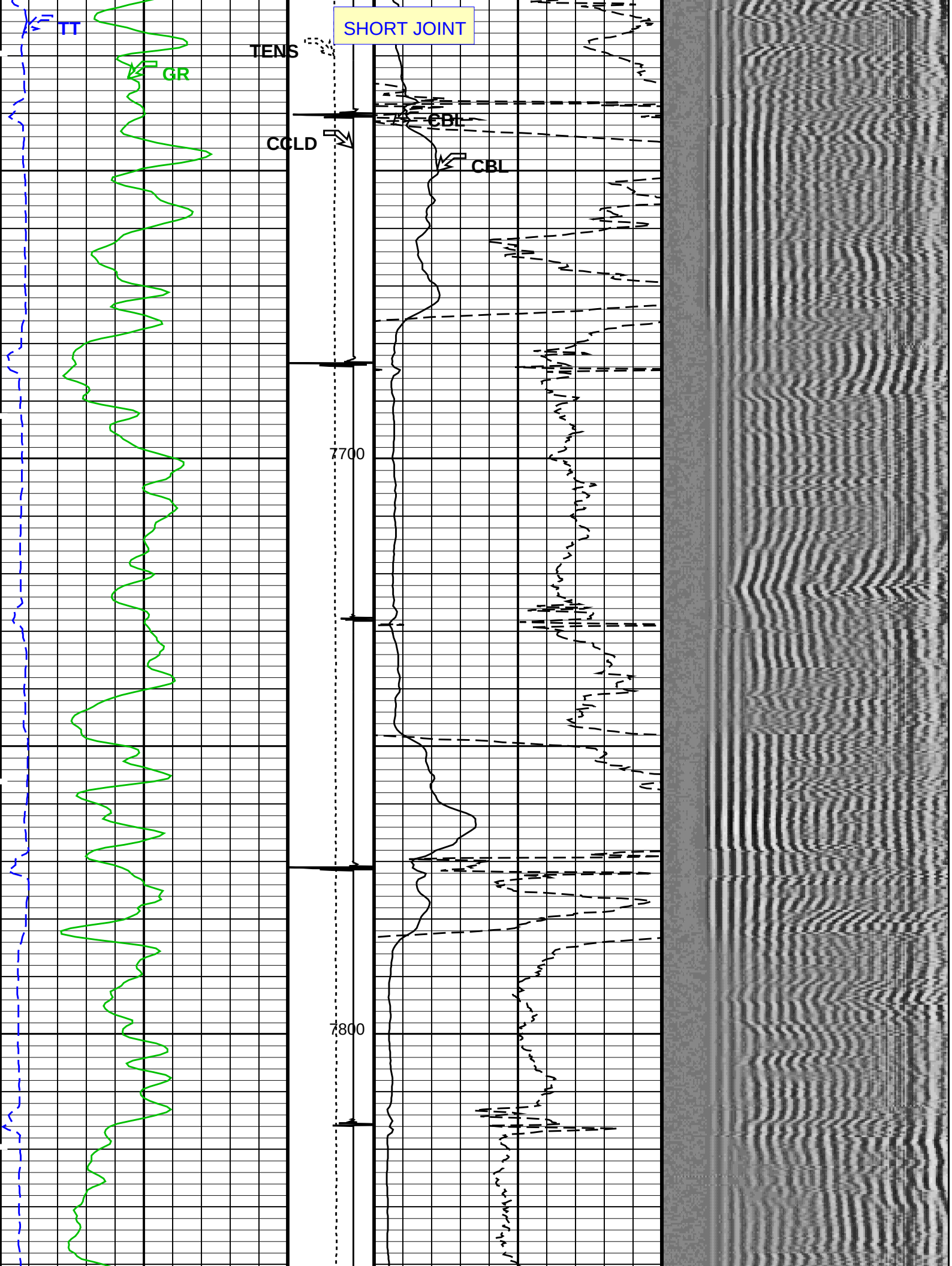

TT
GR
SHORT JOINT
CCLD
CBL
CBL
6600
6700

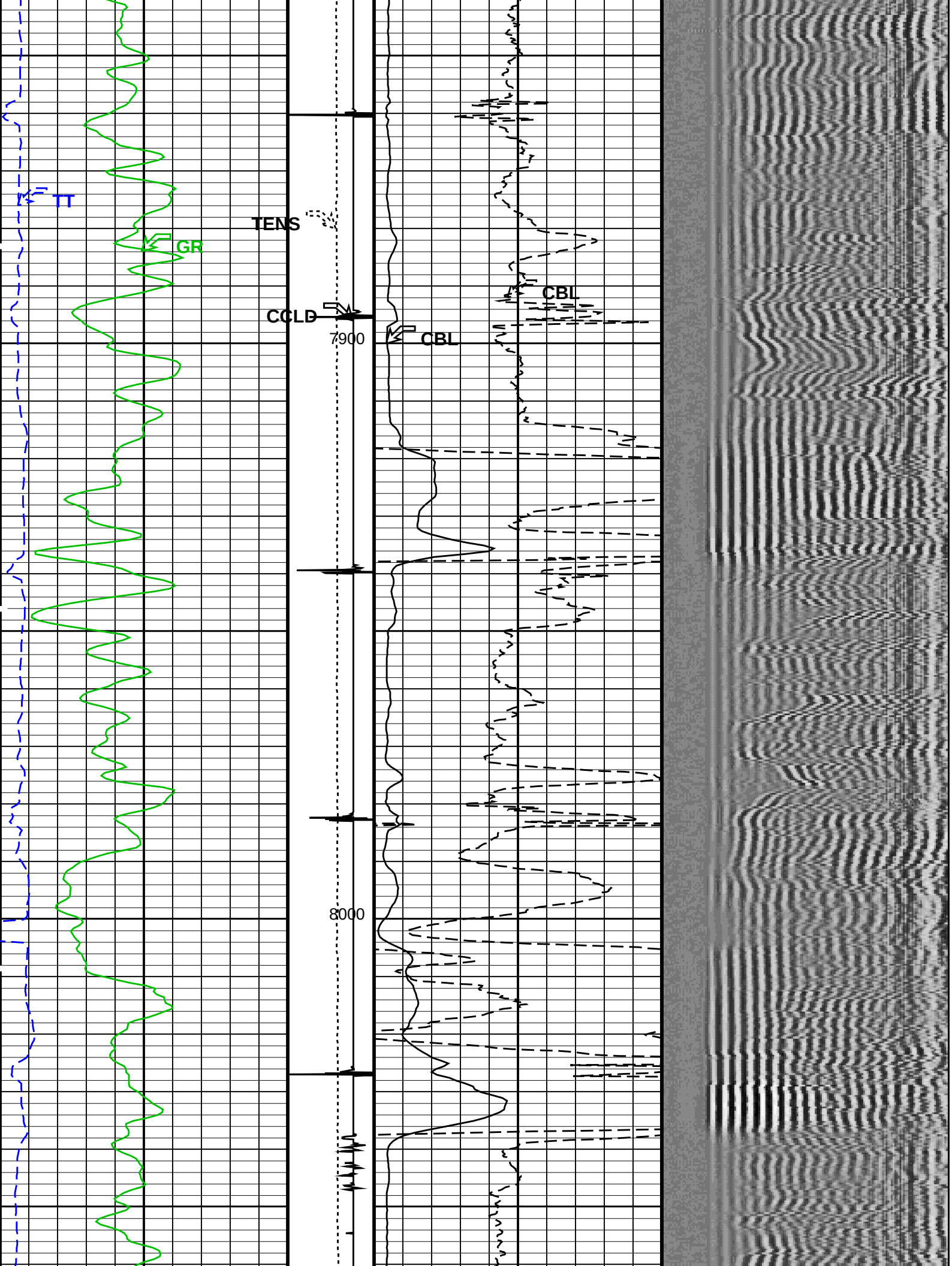

6800
TT
GR
TENS
CBL
CCLD
6900
CBL

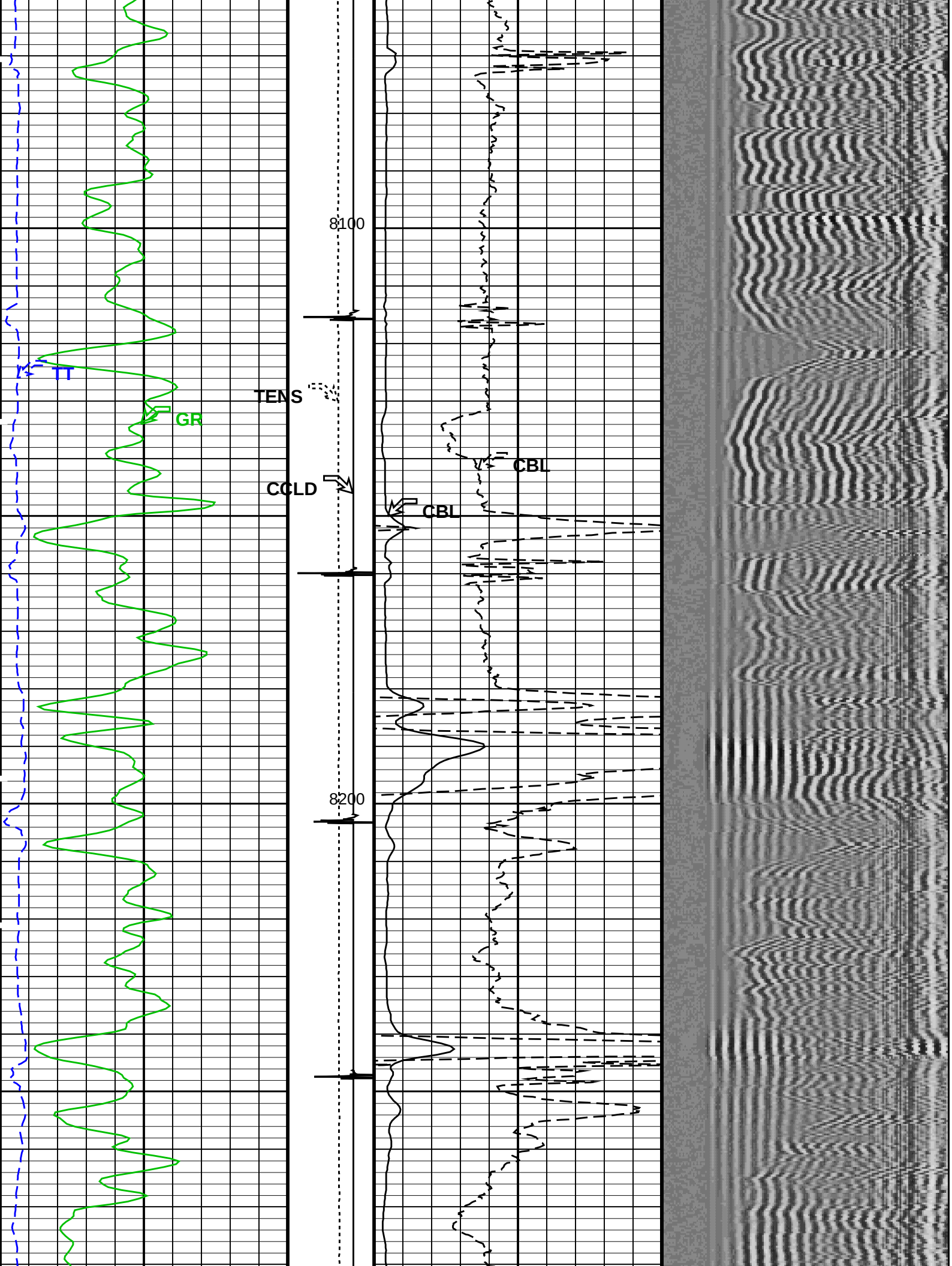

7000
7100
TT
GR
TENS
CCLD
CBL
CBL

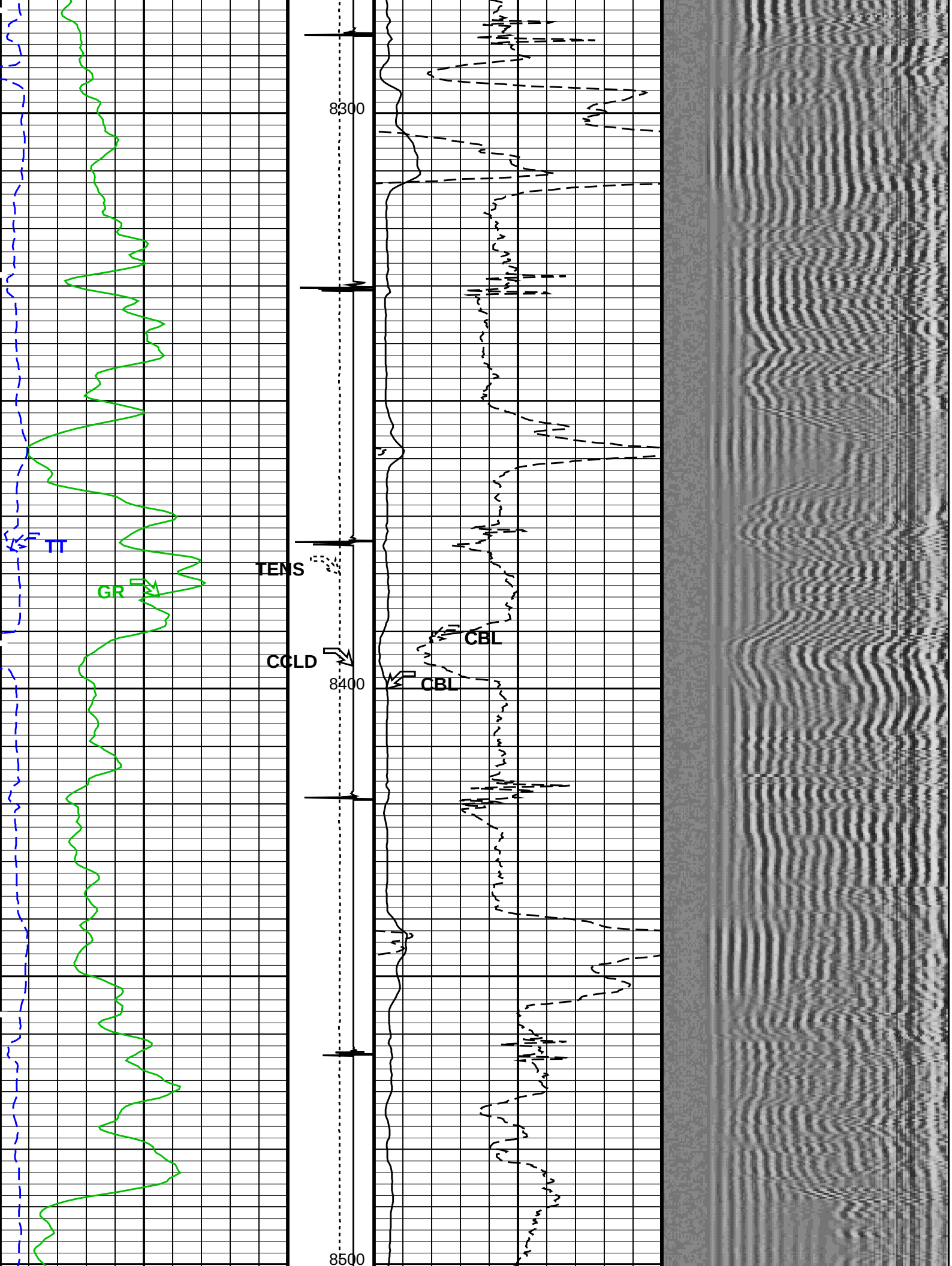

7200
7300
7400
TT
GR
TENS
CCLD
CBL
CBL

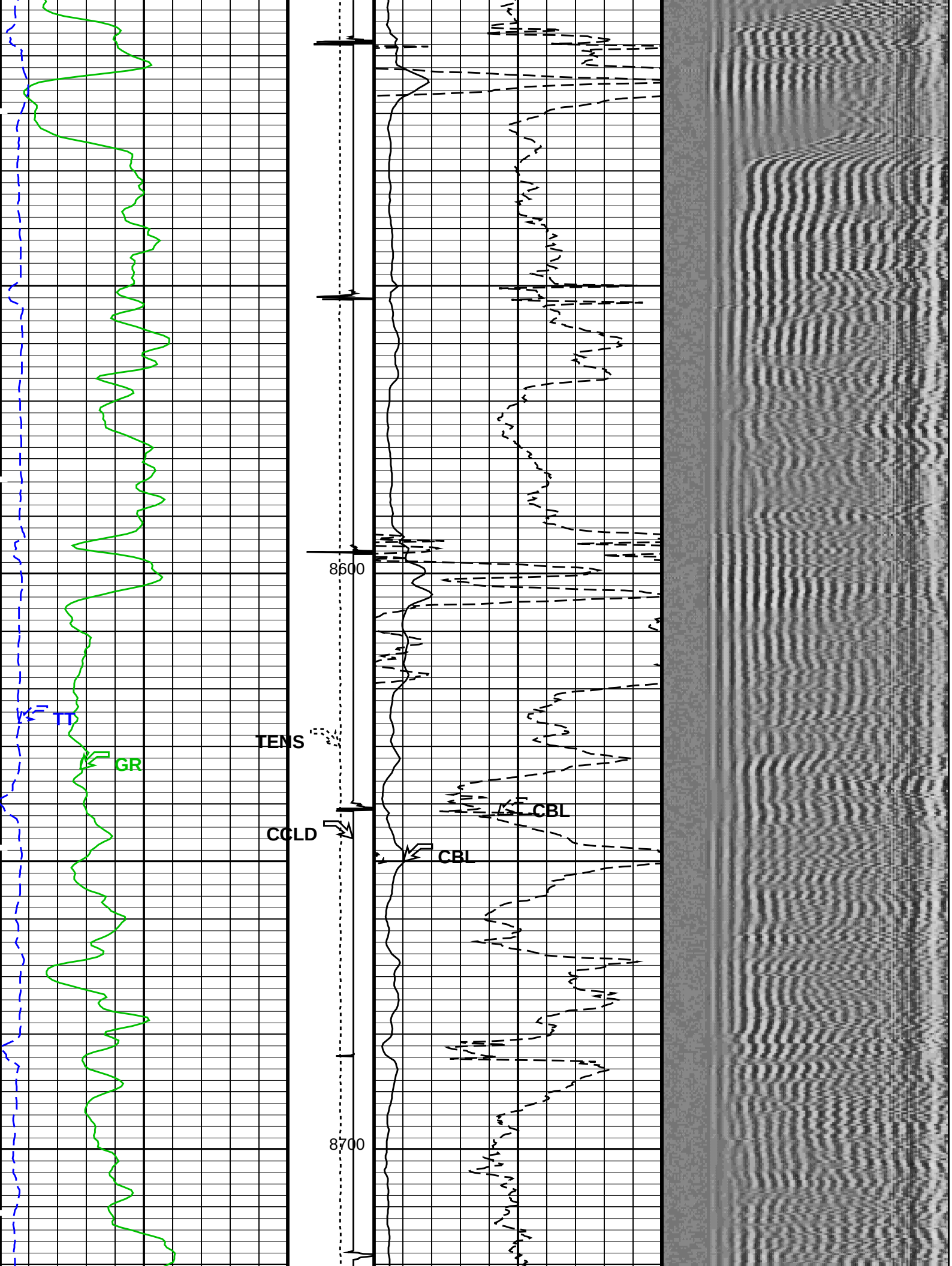

7500
7600

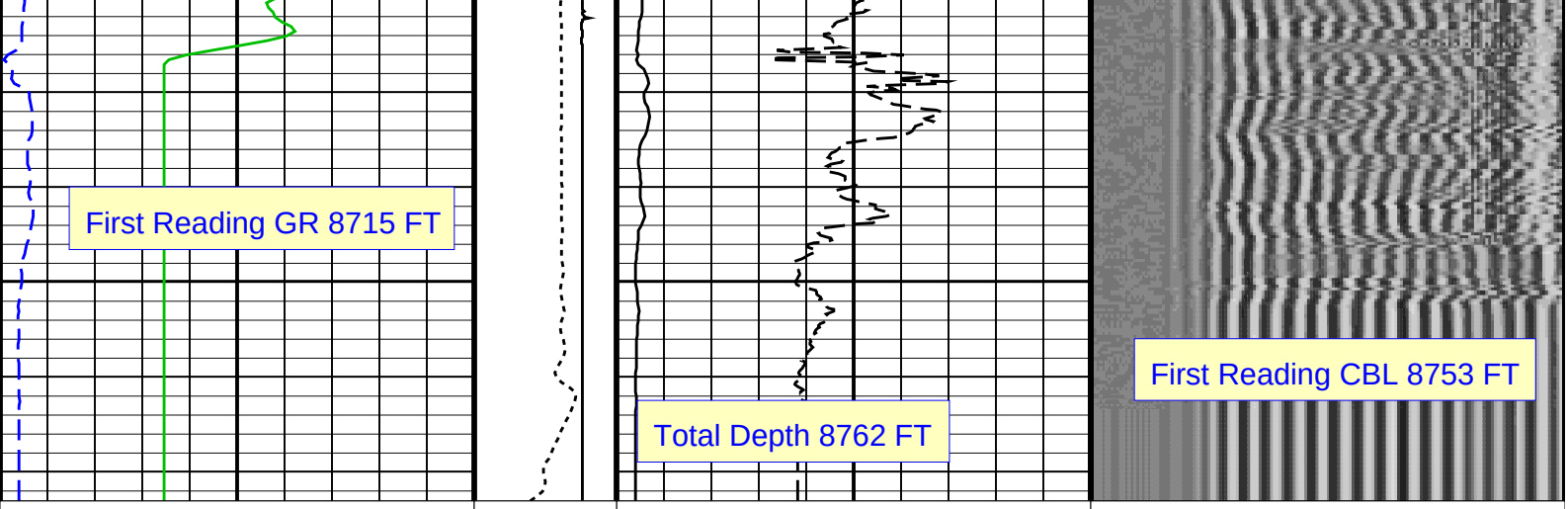

TT
GR
TENS
SHORT JOINT
CBL
CCLD
CBL
7700
7800


TT
GR
TENS
CCLD
CBL
CBL
7900
8000


8100
8200
TT
GR
TENS
CCLD
CBL
CBL


8300
TT
TENS
GR
CBL
CCLD
8400
CBL
8500


8600
8700
TT
GR
TENS
CCLD
CBL
CBL



Gamma Ray (GR)	Tension (TENS)	CBL Amplitude (CBL)	Min Amplitude Max
0 (GAPI) 150	(LBF) 0 2000	0 (MV) 100	VDL VariableDensity (VDL) 200 (US) 1200
Transit Time (TT) 260 (US) 160	Discriminated CCL (CCLD) 3 (V) −1	CBL Amplitude (CBL) 0 (MV) 10	

PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL Vertical Scale: 5" per 100' Graphics File Created: 26−Nov−2013 12:43

OP System Version: 19C0−187

SCMT−CB	SRPC−5214−H2−2012−OP1	RST−C	SRPC−5214−H2−2012−OP1
PSPT	SRPC−5214−H2−2012−OP1		

<<<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	19−NOV−2013		
CBL Correction Factor	0.0743678	CBL Adjustment Factor (CBAF)	1.0
MAP 1 Correction Factor	0.127925	MAP Adjustment Factor (MPAF)	1.0
MAP 2 Correction Factor	0.120622		
MAP 3 Correction Factor	0.153607		
MAP 4 Correction Factor	0.159414		
MAP 5 Correction Factor	0.164508		
MAP 6 Correction Factor	0.182220		
MAP 7 Correction Factor	0.190086		
MAP 8 Correction Factor	0.182177		

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	45	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	2.0	FT
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	8762	FT

Input DLIS Files

DEFAULT	SCMT_RST_PSP_077LUP	FN:74	PRODUCER	26−Nov−2013 10:04	8771.0 FT	−38.0 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_082PUP	FN:79	PRODUCER	26−Nov−2013 12:43	

Schlumberger

REPEAT ANALYSIS CBL VDL

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC — Well: HMU 6−15D (J6SEB)

Input DLIS Files

DEFAULT	SCMT_RST_PSP_075LUP	FN:72	PRODUCER	26−Nov−2013 09:45	6764.5 FT	6447.5 FT
DEFAULT	SCMT_RST_PSP_082PUP	FN:79	PRODUCER	26−Nov−2013 12:43	8773.0 FT	−80.5 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_083PUP	FN:80	PRODUCER	26−Nov−2013 12:53	6764.5 FT	6403.0 FT

OP System Version: 19C0−187

SCMT−CB	SRPC−5214−H2−2012−OP1	RST−C	SRPC−5214−H2−2012−OP1
PSPT	SRPC−5214−H2−2012−OP1		

PIP SUMMARY

Time Mark Every 60 S

TT_REP Curve (TT_REP)
260 (US) 160

TENS_REP Curve (TENS_REP) (LBF)
0 2000

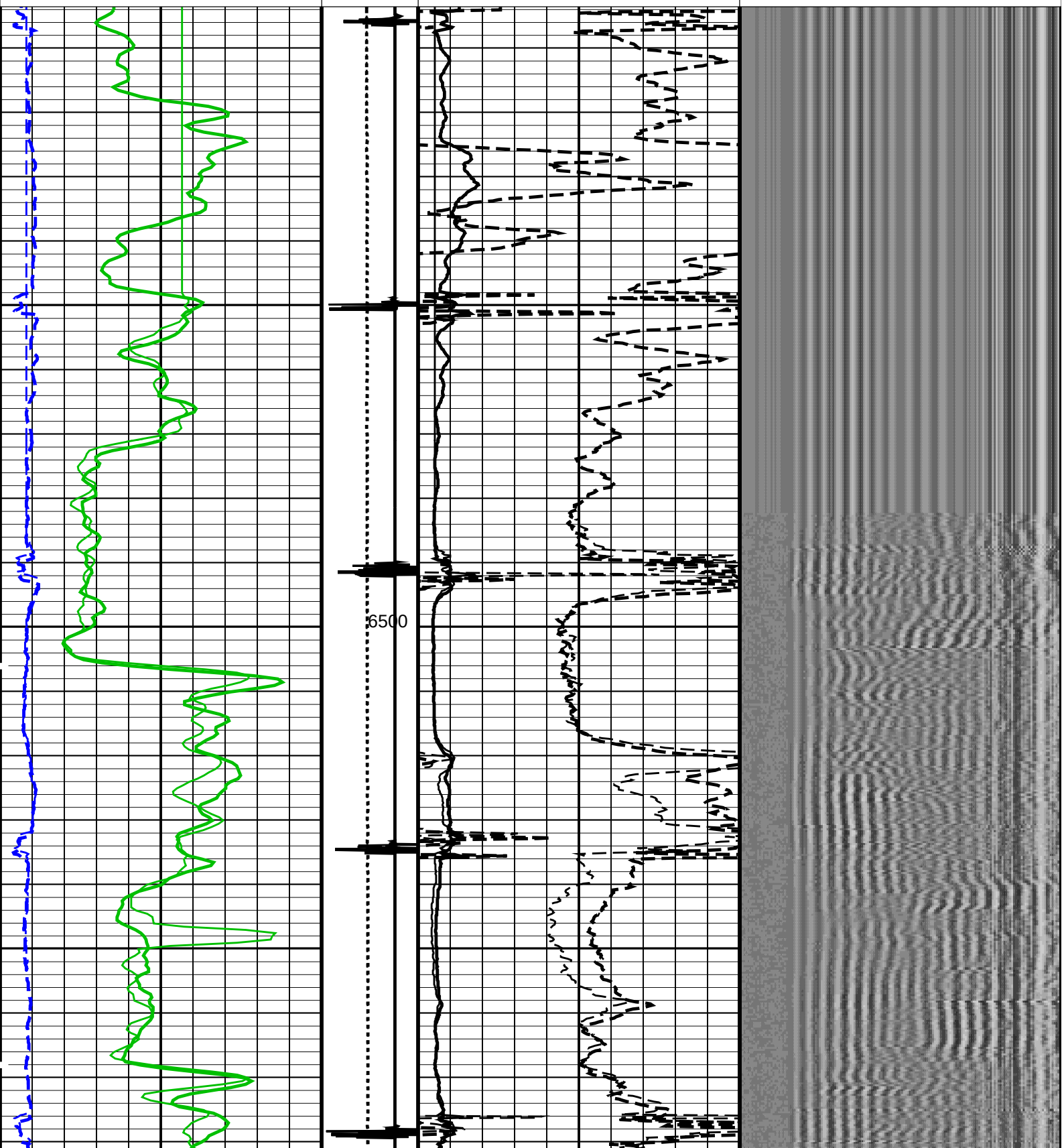
CBL_1_REP Curve (CBL_REP)
0 (MV) 10

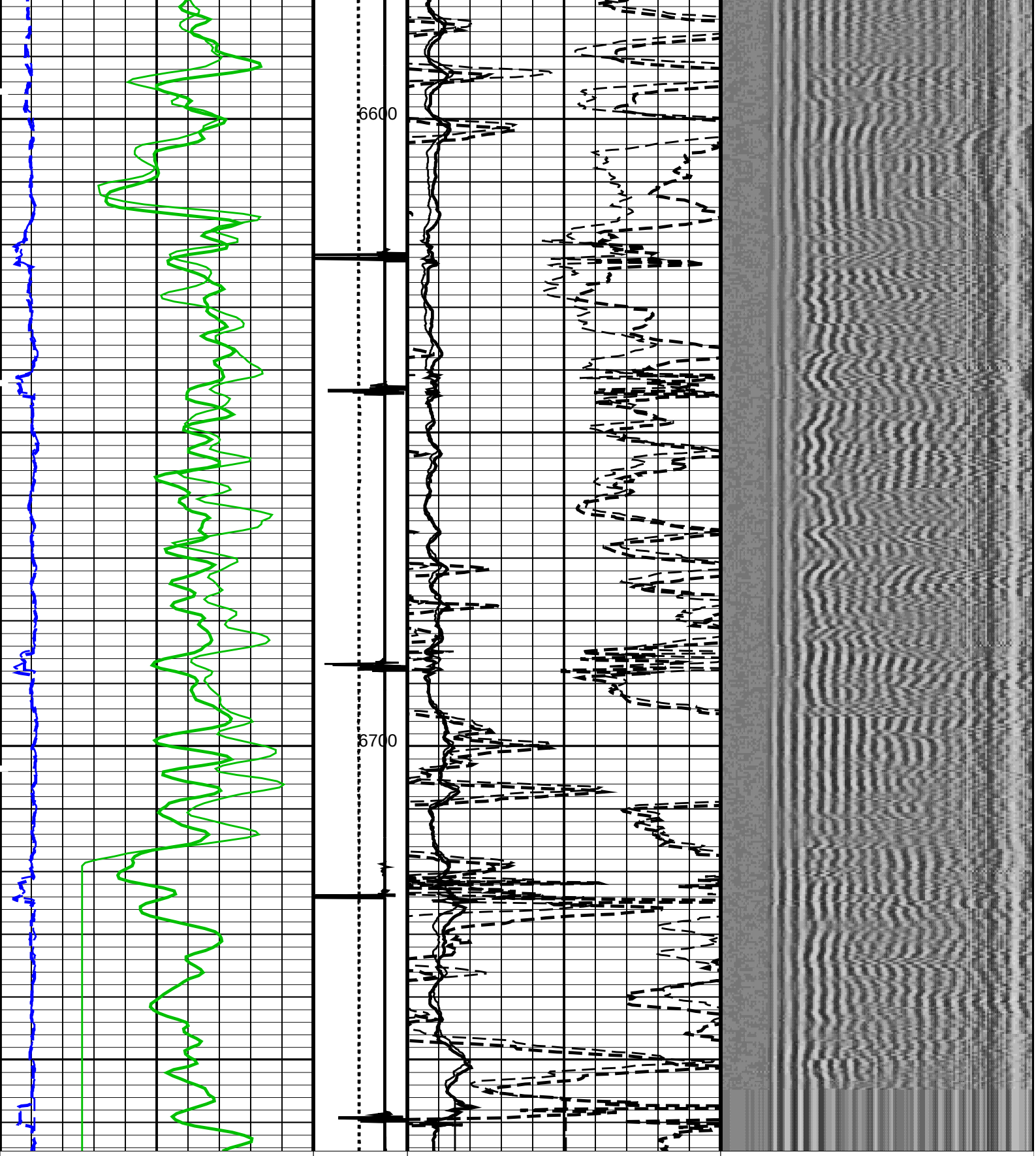
GR_REP Curve (GR_REP)
0 (GAPI) 150

CCLD_REP Curve (CCLD_REP)
3 (V) −1

CBL_REP Curve (CBL_REP)
0 (MV) 100

Min Amplitude Max
VDL VariableDensity (VDL)
200 (US) 1200





GR_REP Curve (GR_REP)
0 (GAPI) 150

CCLD_REP Curve (CCLD_REP)
3 (V) −1

CBL_REP Curve (CBL_REP)
0 (MV) 100

Min Amplitude Max
VDL VariableDensity (VDL)
200 (US) 1200

TT_REP Curve (TT_REP)
260 (US) 160

TENS_REP Curve (TENS_REP) (LBF)
0 2000

CBL_1_REP Curve (CBL_REP)
0 (MV) 10

0	2000		

PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL_REP **Vertical Scale: 5" per 100'** **Graphics File Created: 26−Nov−2013 12:53**

OP System Version: 19C0−187

SCMT−CB	SRPC−5214−H2−2012−OP1	RST−C	SRPC−5214−H2−2012−OP1
PSPT	SRPC−5214−H2−2012−OP1		

<<<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	19−NOV−2013		
CBL Correction Factor	0.0743678	CBL Adjustment Factor (CBAF)	1.0
MAP 1 Correction Factor	0.127925	MAP Adjustment Factor (MPAF)	1.0
MAP 2 Correction Factor	0.120622		
MAP 3 Correction Factor	0.153607		
MAP 4 Correction Factor	0.159414		
MAP 5 Correction Factor	0.164508		
MAP 6 Correction Factor	0.182220		
MAP 7 Correction Factor	0.190086		
MAP 8 Correction Factor	0.182177		

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	45	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

CWEI	Casing Weight	11.60	LB/F
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	0.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	8762	FT

Input DLIS Files

DEFAULT	SCMT_RST_PSP_075LUP	FN:72	PRODUCER	26−Nov−2013 09:45	6764.5 FT	6447.5 FT
DEFAULT	SCMT_RST_PSP_082PUP	FN:79	PRODUCER	26−Nov−2013 12:43	8773.0 FT	−80.5 FT

Output DLIS Files

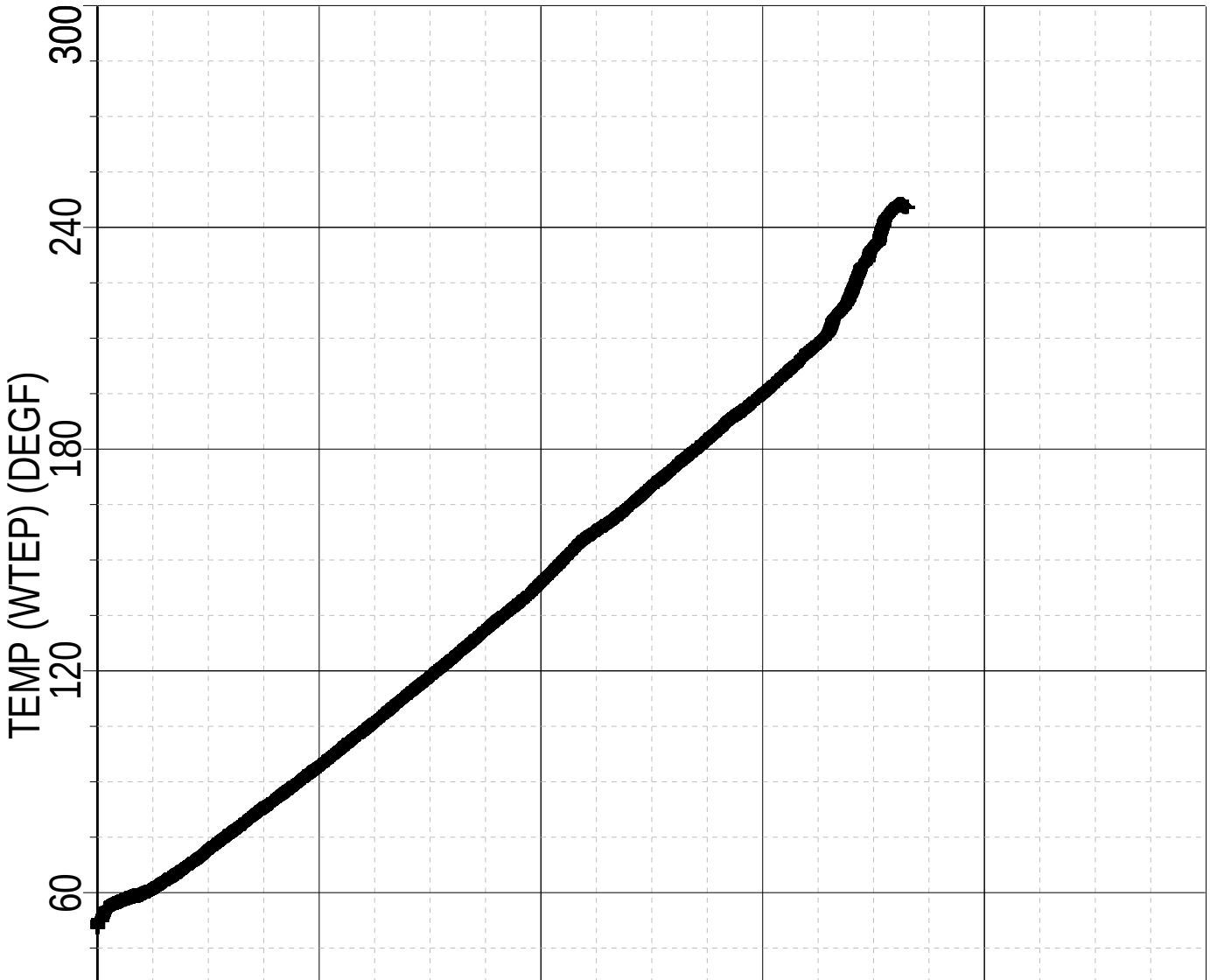
DEFAULT	SCMT_RST_PSP_083PUP	FN:80	PRODUCER	26−Nov−2013 12:53

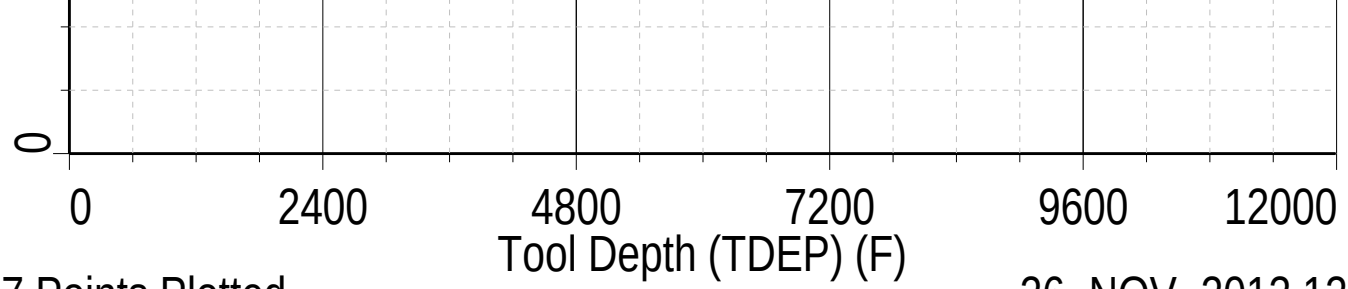
Schlumberger

TEMPERATURE PLOT

MAXIS Field Log

Index: 8773.0 − −80.5 FT





17547 Points Plotted

26−NOV−2013 12:50

Schlumberger

PBMS COEFFICIENTS

MAXIS Field Log

Client:	**ENCANA OIL & GAS (USA) INC**	**Tool:**	**PSP**
Field:	**MAMM CREEK**	**Sub Type:**	**PBMS**
Well:	**HMU 6−15D (J6SEB)**	**Sensor:**	**GR**
Run date:	**26−Nov−2013**		

PBMS Gamma Ray

Sonde Serial NB	**RESISTORS FOR GR SENSOR N.33223,TOOL PBMS−BA0928. SENSOR S/N:**
Sensor Serial NB	**33223**
Calib Date ddmmyy	**090800**
Matrix Size	**12**
Coeff CRC	**CFE2**

GR HV Rt

	Rt0**	**Rt**1**
Rt0**	**+.182000000000e+04**	**+.332000000000e+04**

Client:	**ENCANA OIL & GAS (USA) INC**	**Tool:**	**PSP**
Field:	**MAMM CREEK**	**Sub Type:**	**PBMS**
Well:	**HMU 6−15D (J6SEB)**	**Sensor:**	**WellTemp RTD**

Well: HMU 6−15D (J6SEB) Sensor: WellTemp RTD
Run date: 26−Nov−2013

PBMS RTD Well Thermometer

Sonde Serial NB	COEFFICIENTS FOR RTD THERMOMETER PBMS−B.928 S/N:
Sensor Serial NB	928
Calib Date ddmmyy	280612
Matrix Size	16
Coeff CRC	A24E

WTemp Coeff

	Tt**0	Tt**1	Tt**2
Tt**0	−.391987973189E+03	+.191346892512E+03	−.440920753451E+02

	Tt**3	Tt**4	Tt**5
Tt**0	+.957191300908E+01	−.711421725686E+00	0.0

Client: ENCANA OIL & GAS (USA) INC Tool: PSP
Field: MAMM CREEK Sub Type: PBMS
Well: HMU 6−15D (J6SEB) Sensor: CQG
Run date: 26−Nov−2013

PBMS Quartz Gauge type F

Sonde Serial NB	COEFFICIENTS FOR CQG PBMS−B.928 S/N:
Sensor Serial NB	928
Calib Date ddmmyy	280612
Matrix Size	66
Coeff CRC	9DC3

Pres Coeff

	Fb**0	Fb**1	Fb**2
Fc**0	+.714463802232E+04	+.183434658655E−01	−.156620073569E−06
Fc**1	−.100638308957E+01	−.119899563644E−04	−.912155899025E−10
Fc**2	+.936268101283E−06	+.423898071451E−10	+.958076371919E−15
Fc**3	+.185123362373E−11	+.203107925433E−15	0.0
Fc**4	0.0	0.0	0.0
Fc**5	0.0	0.0	0.0

	Fb**3	Fb**4	Fb**5
Fc**0	−.746577997611E−10	−.588773826860E−15	−.622250441458E−19
Fc**1	−.120636521092E−15	+.400325894750E−19	0.0
Fc**2	0.0	0.0	0.0
Fc**3	0.0	0.0	0.0
Fc**4	0.0	0.0	0.0
Fc**5	0.0	0.0	0.0

PBMS Quartz Gauge type F

Sonde Serial NB :
Sensor Serial NB 928
Calib Date ddmmyy 280612
Matrix Size 66
Coeff CRC 283B

Temp Coeff

	Fc**0	Fc**1	Fc**2
Fb**0	+.117016867873E+03	−.284359629614E−03	+.604391180345E−08
Fb**1	−.598309140812E−02	+.182731130848E−07	+.160166486172E−12
Fb**2	−.307621454576E−07	+.300601550309E−12	+.311233548560E−17
Fb**3	−.419658736767E−12	+.117473708647E−16	0.0
Fb**4	0.0	0.0	0.0
Fb**5	0.0	0.0	0.0

	Fc**3	Fc**4	Fc**5
Fb**0	+.114322792679E−12	+.153807711176E−17	−.736714260866E−21
Fb**1	−.528037875456E−18	−.220337637519E−21	0.0
Fb**2	0.0	0.0	0.0
Fb**3	0.0	0.0	0.0
Fb**4	0.0	0.0	0.0
Fb**5	0.0	0.0	0.0

PBMS Quartz Gauge type F

Sonde Serial NB :
Sensor Serial NB 928
Calib Date ddmmyy 280612
Matrix Size 16
Coeff CRC 093F

Clock Freq Coeff

Clock Freq Coeff

	(Fb'−Fc')**0	(Fb'−Fc')**1	(Fb'−Fc')**2
(Fb'−Fc')**0	+.310874009898E+05	+.288920923041E−02	+.697940727038E−06
	(Fb'−Fc')**3	(Fb'−Fc')**4	(Fb'−Fc')**5
(Fb'−Fc')**0	−.657432344763E−10	−.412920638782E−15	+.213369826099E−20

PBMS Quartz Gauge type F

Sonde Serial NB	**:**
Sensor Serial NB	**928**
Calib Date ddmmyy	**280612**
Matrix Size	**16**
Coeff CRC	**8419**

Clock Temp Coeff

	(Fb'−Fc')**0	(Fb'−Fc')**1	(Fb'−Fc')**2
(Fb'−Fc')**0	+.115369519827E+03	−.565338877075E−02	−.333717531829E−07
	(Fb'−Fc')**3	(Fb'−Fc')**4	(Fb'−Fc')**5
(Fb'−Fc')**0	−.124387135327E−12	+.713102327208E−16	−.316084316842E−20

Schlumberger

MASTER CALIBRATION

MAXIS Field Log

Slim Cement Mapping Tool, 1−11/16 OD / Equipment Identification

Primary Equipment:

Slim Cement Mapping Xmitter Electronics	SCMX − CA	
Slim Cement Mapping Sonde	SCMS − CB	8303
Slim Cement Mapping Cartridge	SCMC − CA	8120

Auxiliary Equipment:

Slim Electronics Cartridge Housing	SECH − CA

Slim Cement Mapping Tool, 1−11/16 OD Master Calibration

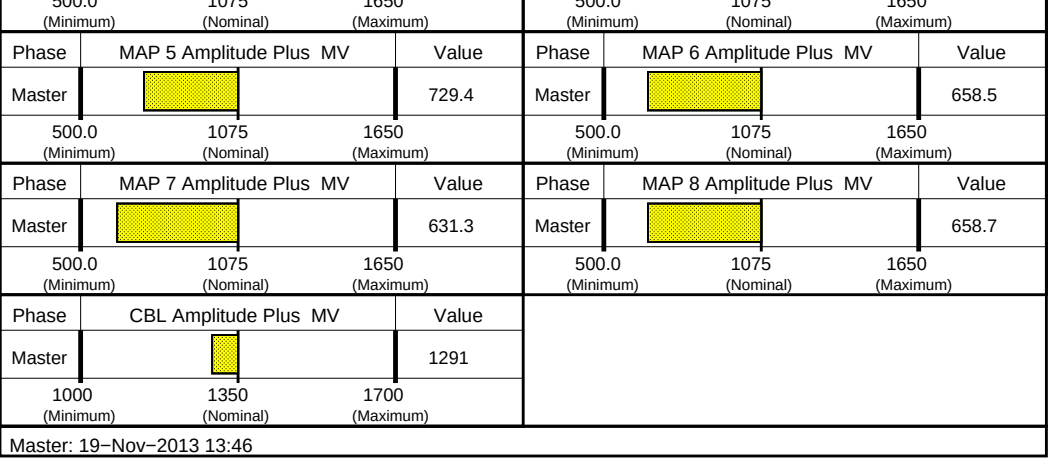
SCMT CBL and MAP Amplitude Normalization in SFT−155/−255

Phase	MAP 1 Amplitude Plus MV	Value
Master		938.0
500.0 (Minimum)	1075 (Nominal)	1650 (Maximum)

Phase	MAP 2 Amplitude Plus MV	Value
Master		994.8
500.0 (Minimum)	1075 (Nominal)	1650 (Maximum)

Phase	MAP 3 Amplitude Plus MV	Value
Master		781.2

Phase	MAP 4 Amplitude Plus MV	Value
Master		752.8



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

Schlumberger

Well: **HMU 6−15D (J6SEB)**
Field: **MAMM CREEK**
County: **GARFIELD**
State: **COLORADO**

SLIM CEMENT MAPPING LOG
CBL−VDL
GAMMA RAY−CCL