Schlumberger

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

Well: **SG 8513E−25 (D36 496)**
Field: **STORY GULCH**
County: **GARFIELD** State: **COLORADO**

SLIM CEMENT MAPPING LOG
CBL−VDL
GR − CCL

County: GARFIELD
Field: STORY GULCH
Location: SHL: 1086 FWL & 314 FNL
Well: SG 8513E−25 (D36 496)
Company: ENCANA OIL & GAS (USA) INC

LOCATION

SHL: 1086 FWL & 314 FNL
BHL: 676 FWL & 134 FSL

Elev.: K.B. 8321.00 ft
G.L. 8291.00 ft
D.F. 8320.00 ft

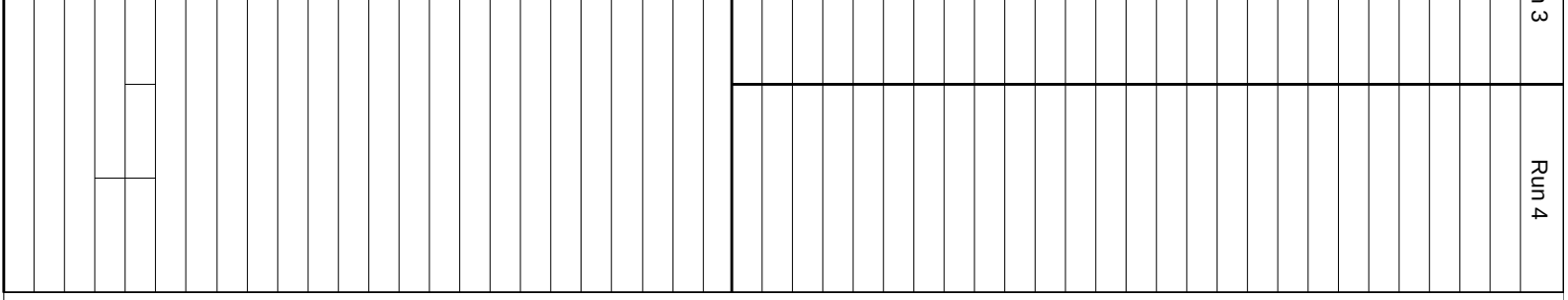
Permanent Datum: GROUND LEVEL Elev.: 8291.00 ft
Log Measured From: KELLY BUSHING 30.00 ft above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	Section	Township	Range
05−045−20920−0(	36	4S	96W

Logging Date		31−Dec−2012						
Run Number		1						
Depth Driller		12090 ft						
Schlumberger Depth		12015 ft						
Bottom Log Interval		12006 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		9988 ft						
To		12090 ft						
Casing/Tubing Size		4.500 in						
Weight		11.6 lbm/ft						
Grade		P−110						
From		30 ft						
To		12067 ft						
Maximum Recorded Temperatures		284 degF						
Logger On Bottom	Time	31−Dec−2012	10:15					
Unit Number	Location	391	GRAND JUNCTION					
Recorded By		KIRSTIE BUNTING						
Witnessed By		RYAN TOMPKINS						

		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: 12−DEC−2012 9:29:15

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW−B	Type:	CMTD−B/A	Type:	1−25ZT
Serial Number:	6214	Serial Number:	3421	Serial Number:	
Calibration Date:	4−24−2012	Calibration Date:	28−11−2012	Length:	19700 FT
Calibrator Serial Number:		Calibrator Serial Number:	174878		
Calibration Cable Type:	1−25ZT	Number of Calibration Points:	10	Conveyance Method:	Wireline
Wheel Correction 1:	−3	Calibration RMS:	6	Rig Type:	LAND
Wheel Correction 2:	−4	Calibration Peak Error:	11		

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	200.00 FT
Rig Up Length At Bottom:	200.00 FT
Rig Up Length Correction:	0.00 FT
Stretch Correction:	
Tool Zero Check At Surface:	

Depth Control Remarks

1. ALL SCHLUMBERGER DEPTH CONTROL POLICIES APPLIED
2. IDW USED AS PRIMARY DEPTH REFERENCE
3. SWPT DRUM COUNTER USED AS SECONDARY DEPTH REFERENCE
4.
5.
6.

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 CORRELATED TO WEATHERFORD COMPACT TRIPLE COMBO LOG	
RUN ON DEC−6−2012	
TOOL RAN AS PER TOOL SKETCH	
MAXIMUM RECORDED TEMPERATURE= 284 DEGF	
MAXIMUM RECORDED PRESSURE= 5049 PSIA	

SHORT JOINTS=7500'/10550'	
ENTRANCE TIME= 09:30	
LOGGER ON BOTTOM= 10:15	
EXIT TIME=14:30	
EXPECTED CBL AMP IN FREE PIPE 80 MV	
CYCLE SKIPPING DUE TO GOOD BOND	
MAIN PASS LOGGED WITH ZERO SURFACE PRESSURE	
CBAF=.8	
THANK YOU FOR CHOOSING E&P WIRELINE A SCHLUMBERGER COMPANY	
YOUR CREW: KBUNTING WFLOYD WAZIZ KJOHNS BRANSBOTTOM	

RUN 1		RUN 2	
SERVICE ORDER #:	CADB−00067	SERVICE ORDER #:	
PROGRAM VERSION:	19C0−187	PROGRAM VERSION:	
FLUID LEVEL:	70 ft	FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

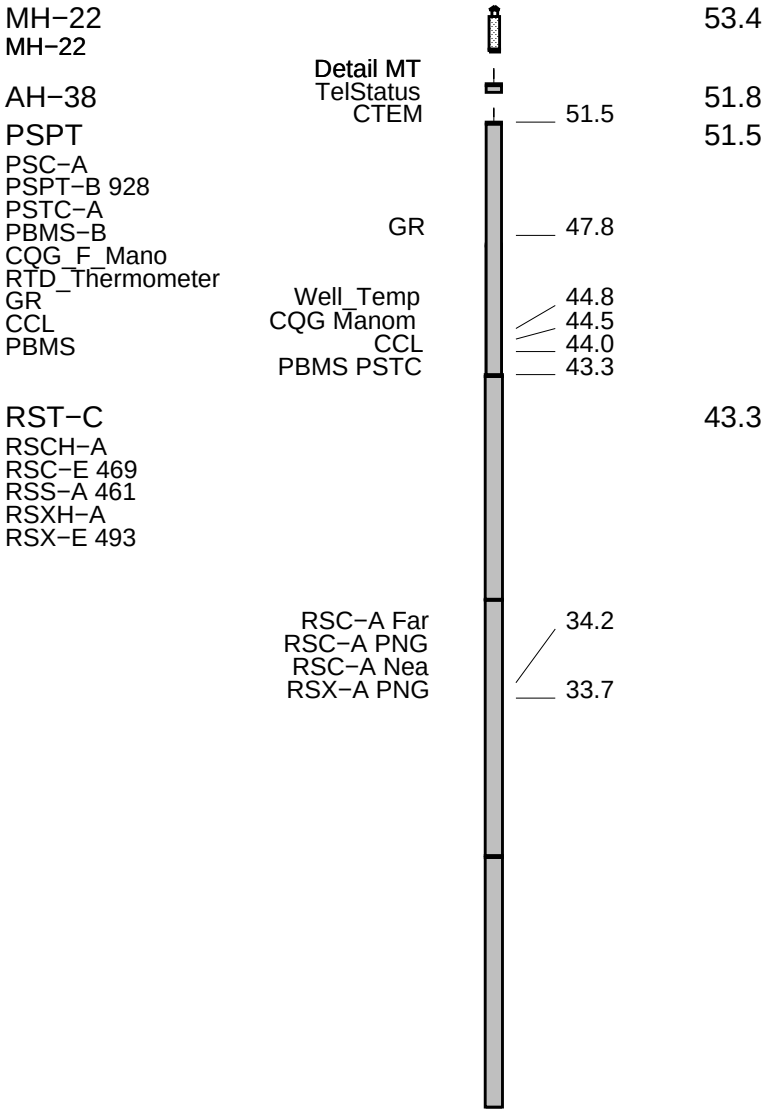
EQUIPMENT DESCRIPTION

RUN 1 RUN 2

SURFACE EQUIPMENT

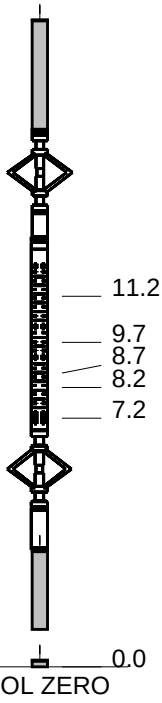
WITM−A
PSC_16MHZ

DOWNHOLE EQUIPMENT



SCMT−CA
SCMC−CA 8110
SECH−CA
SCME−K
SCMS−CA 8140
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

Input DLIS Files

Well: SG 8513E−25 (D36 496)

DEFAULT	SCMT_RST_PSP_003LUP	FN:2	PRODUCER	31−Dec−2012 10:15	12022.5 FT	12.5 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_005PUP	FN:4	PRODUCER	31−Dec−2012 13:38	12027.5 FT	−27.0 FT

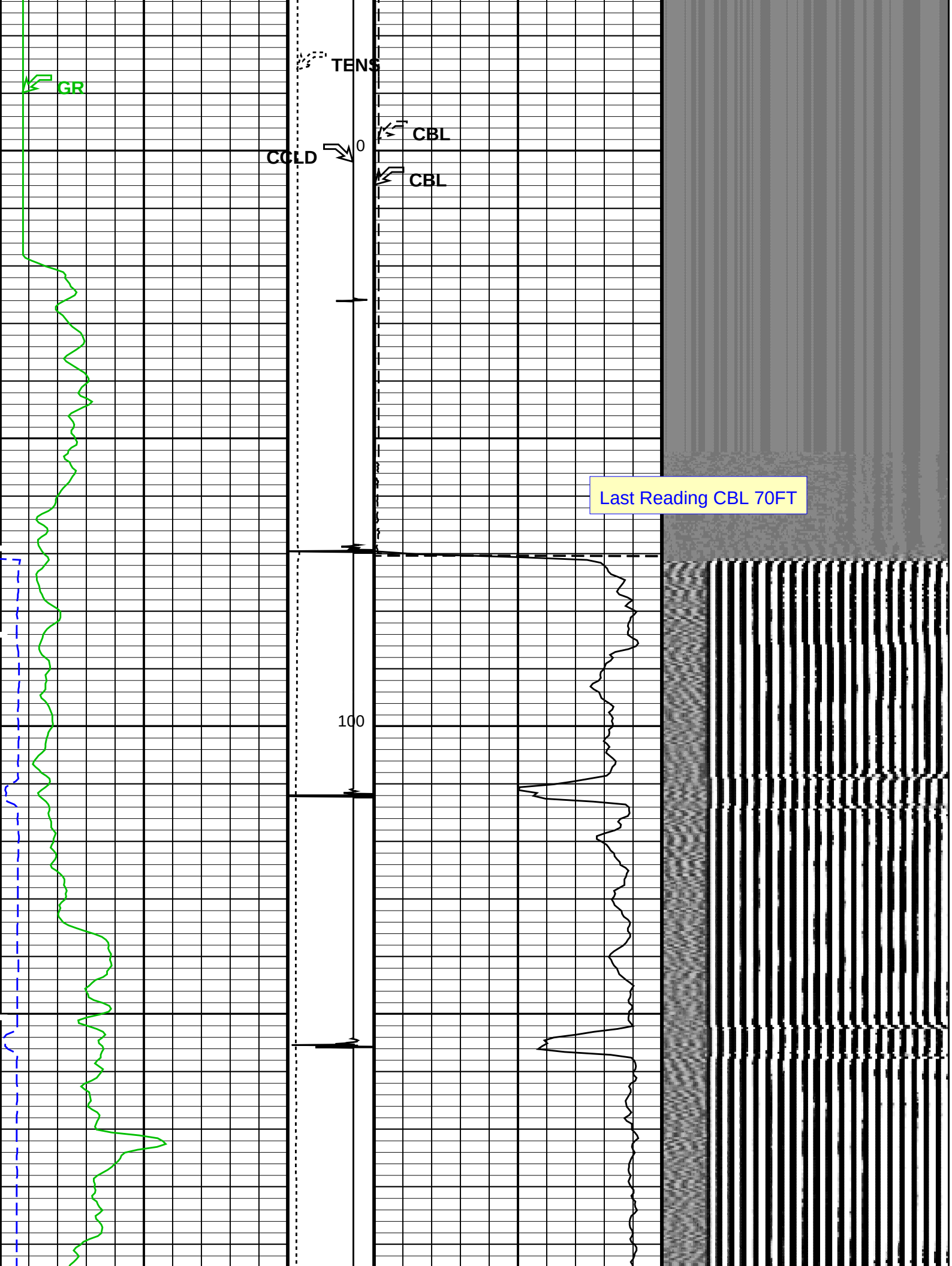
OP System Version: 19C0−187

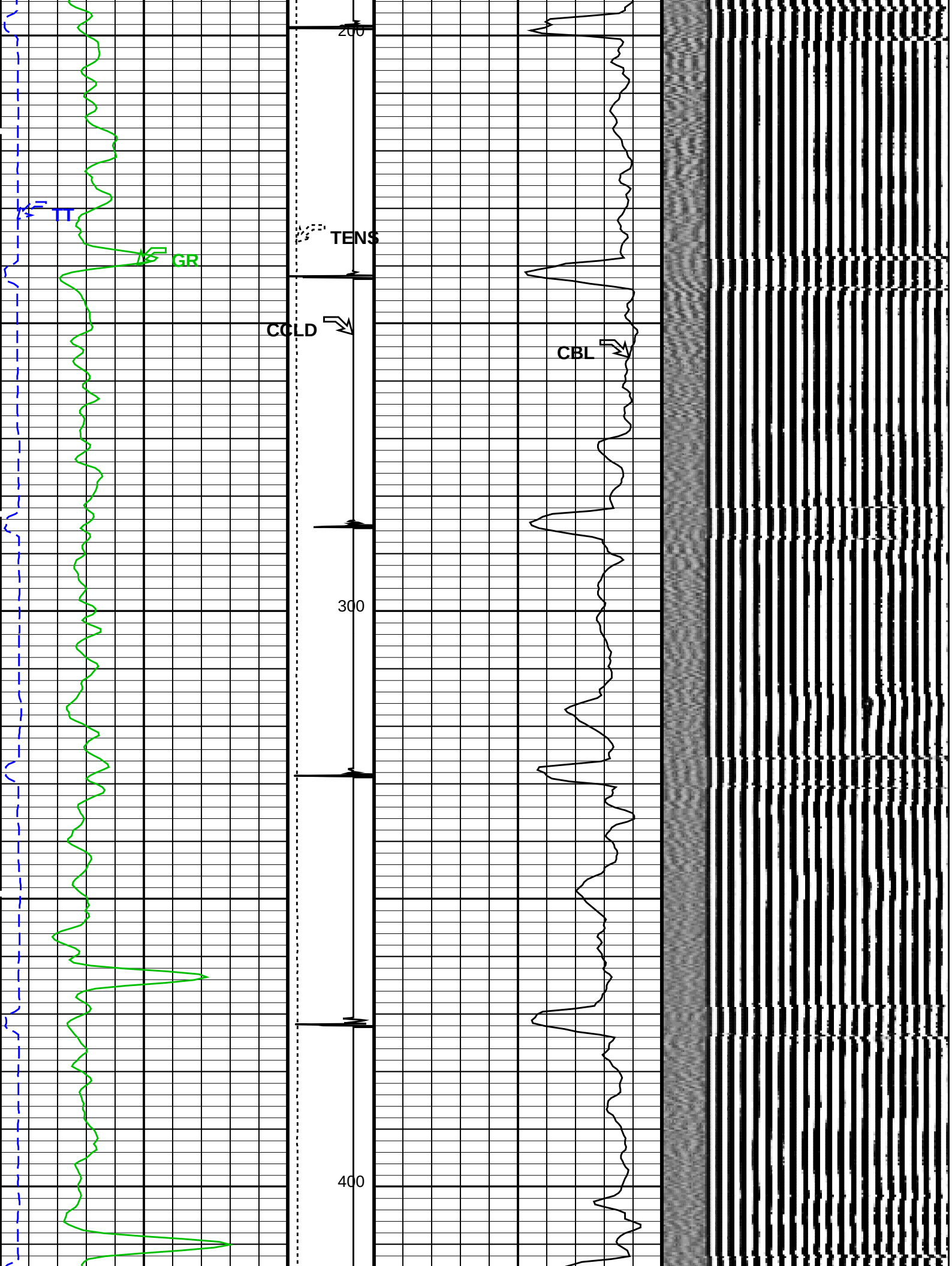
SCMT−CA	SRPC−5214−H2−2012−OP1	RST−C	SRPC−5214−H2−2012−OP1
PSPT	SRPC−5214−H2−2012−OP1		

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


TENS
GR
CBL
CCLD
0
CBL
Last Reading CBL 70FT
100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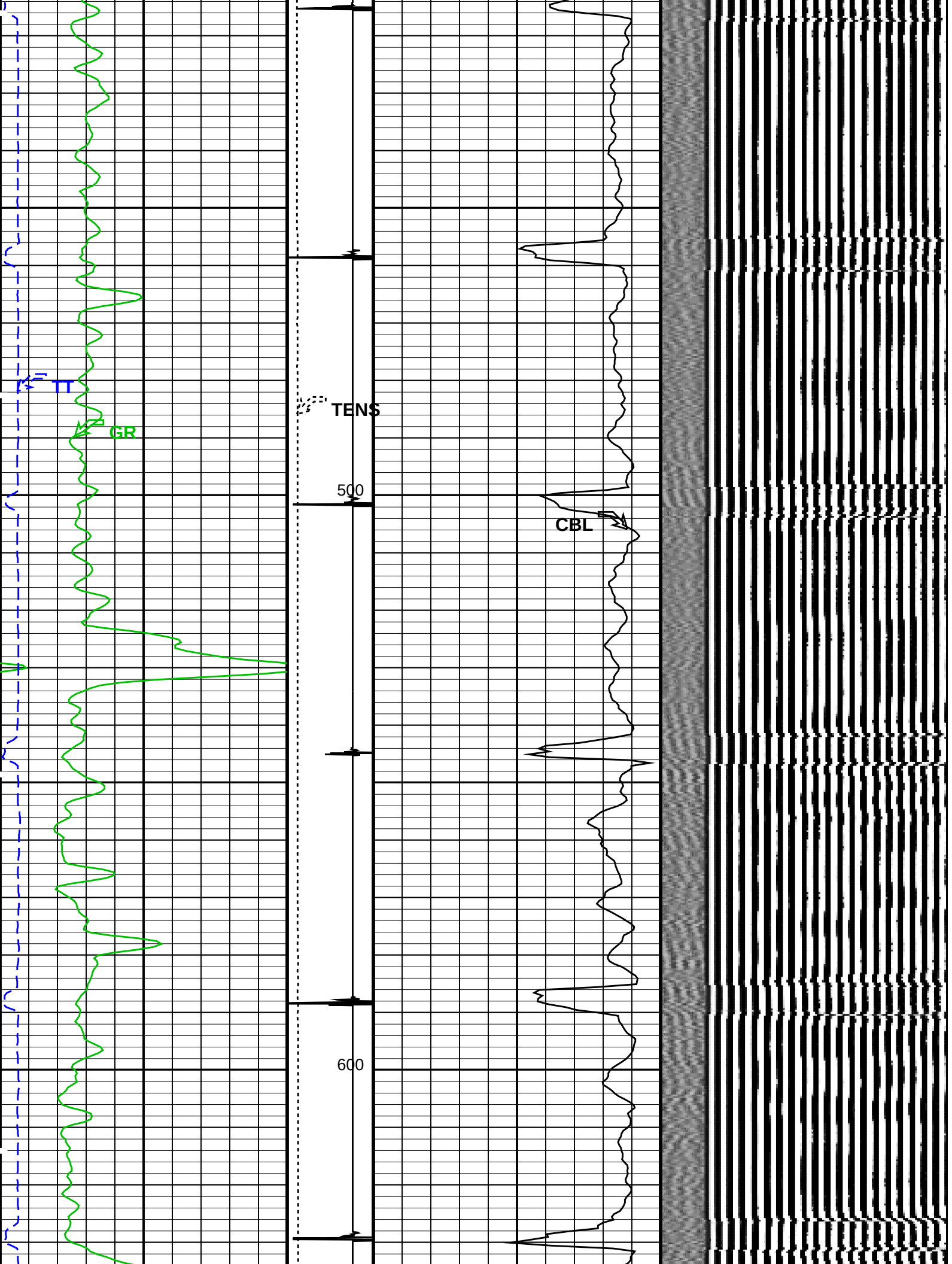
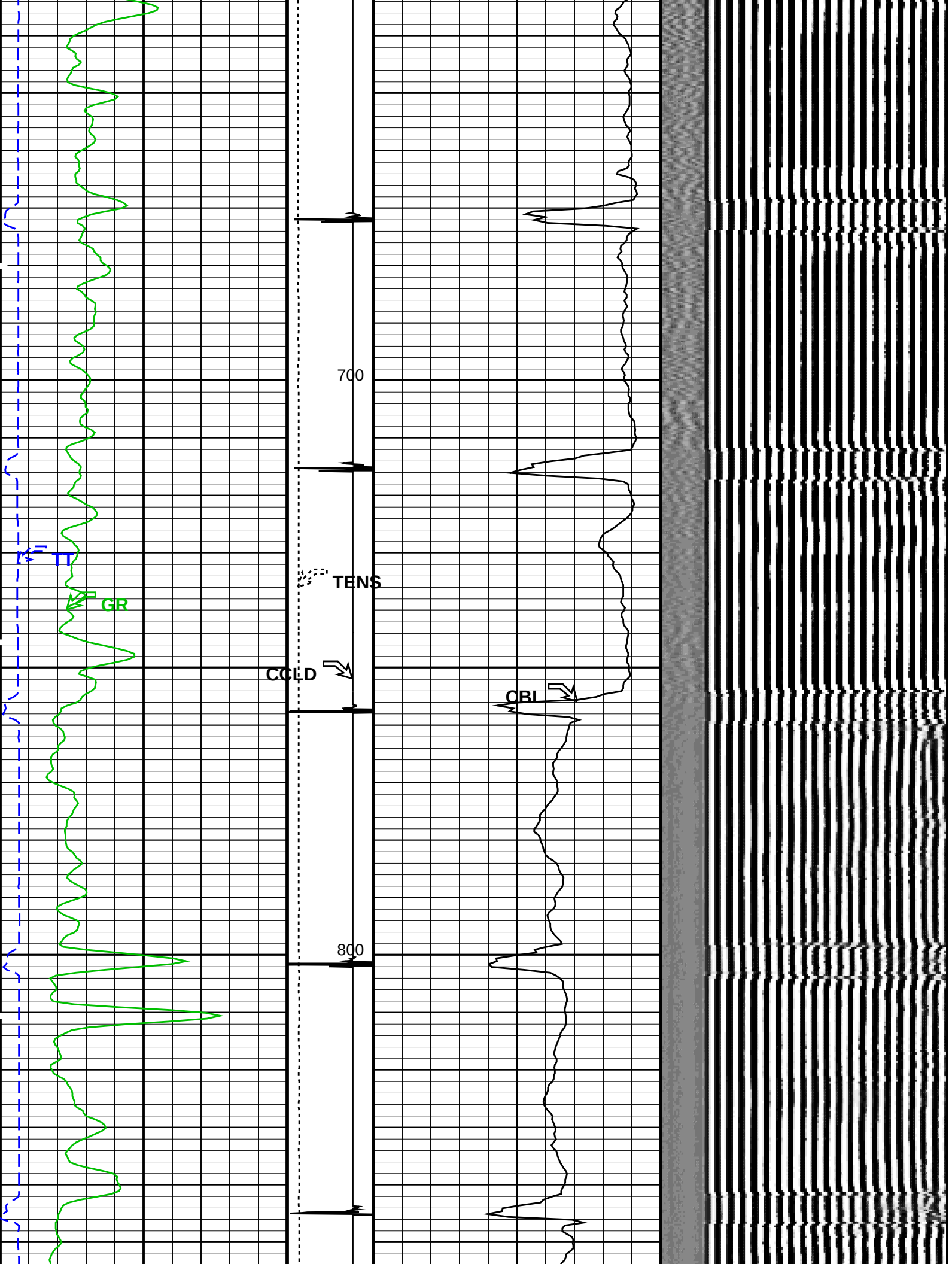
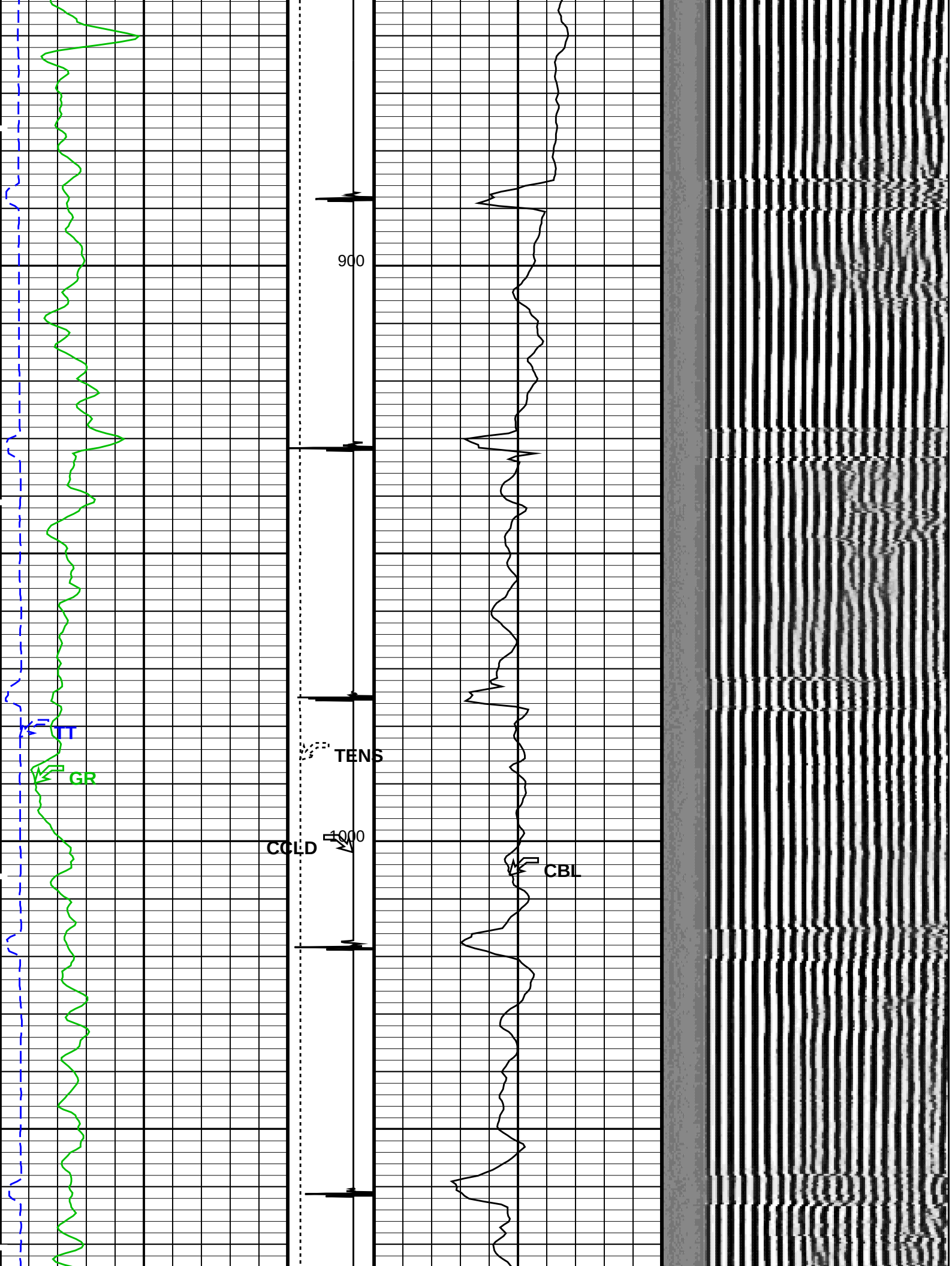
GR
TENS
CCLD
CBL
200
300
400


TT
GR
TENS
500
CBL
600


700
TT
TENS
GR
CCLD
CBL
800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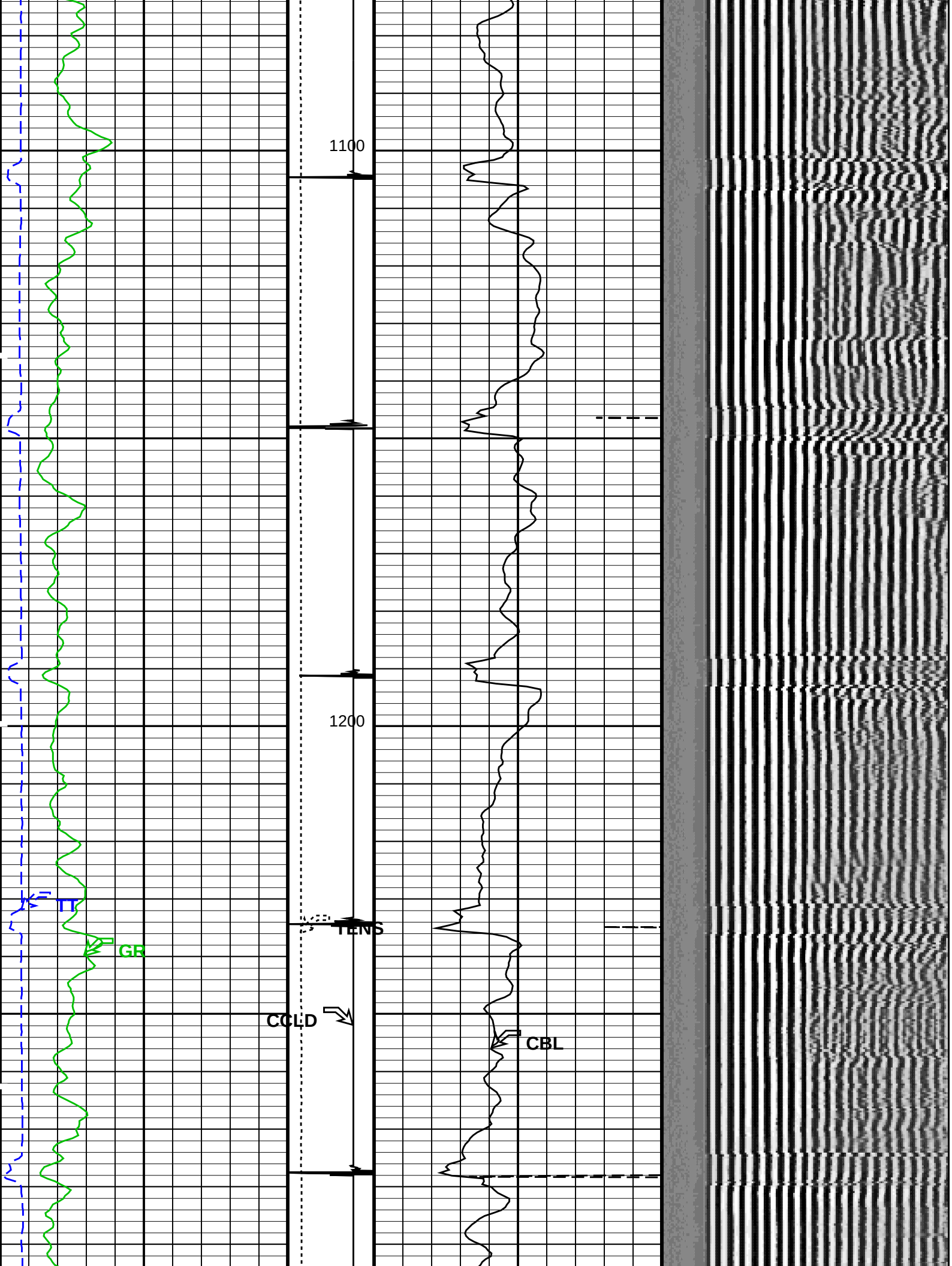
TT
GR
TENS
1000
CCLD
CBL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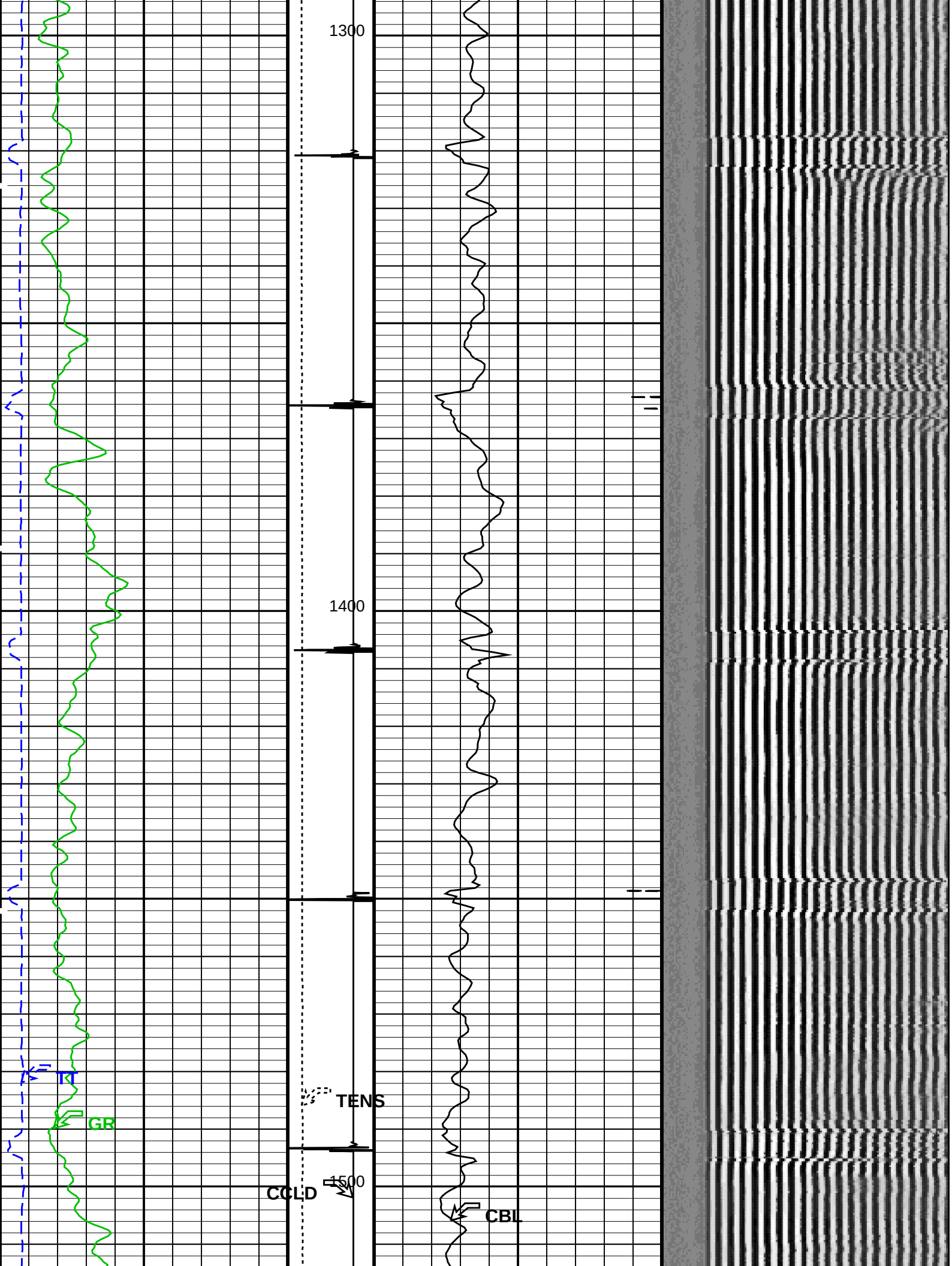
1200
TT
GR
TENS
CCLD
CBL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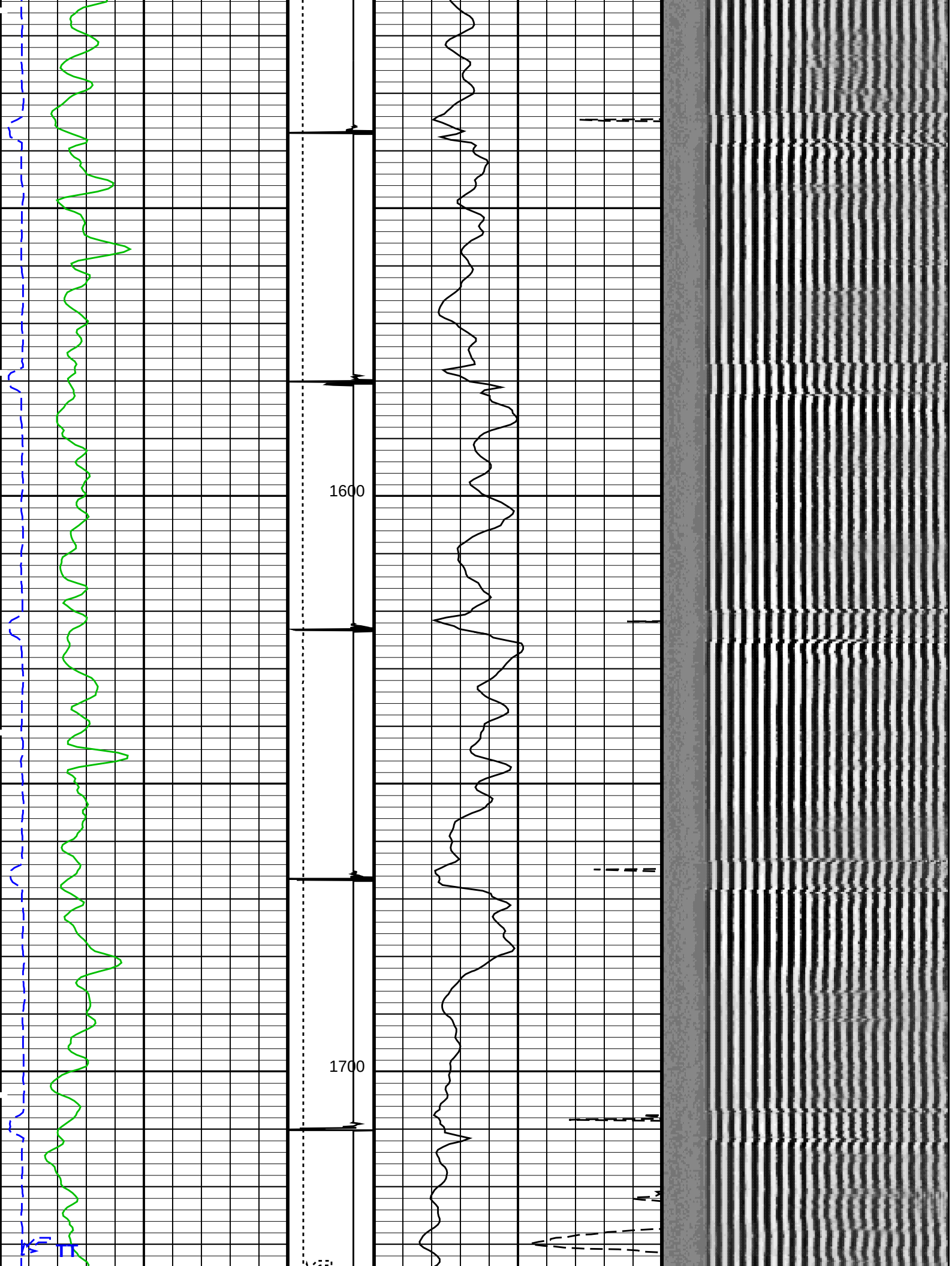
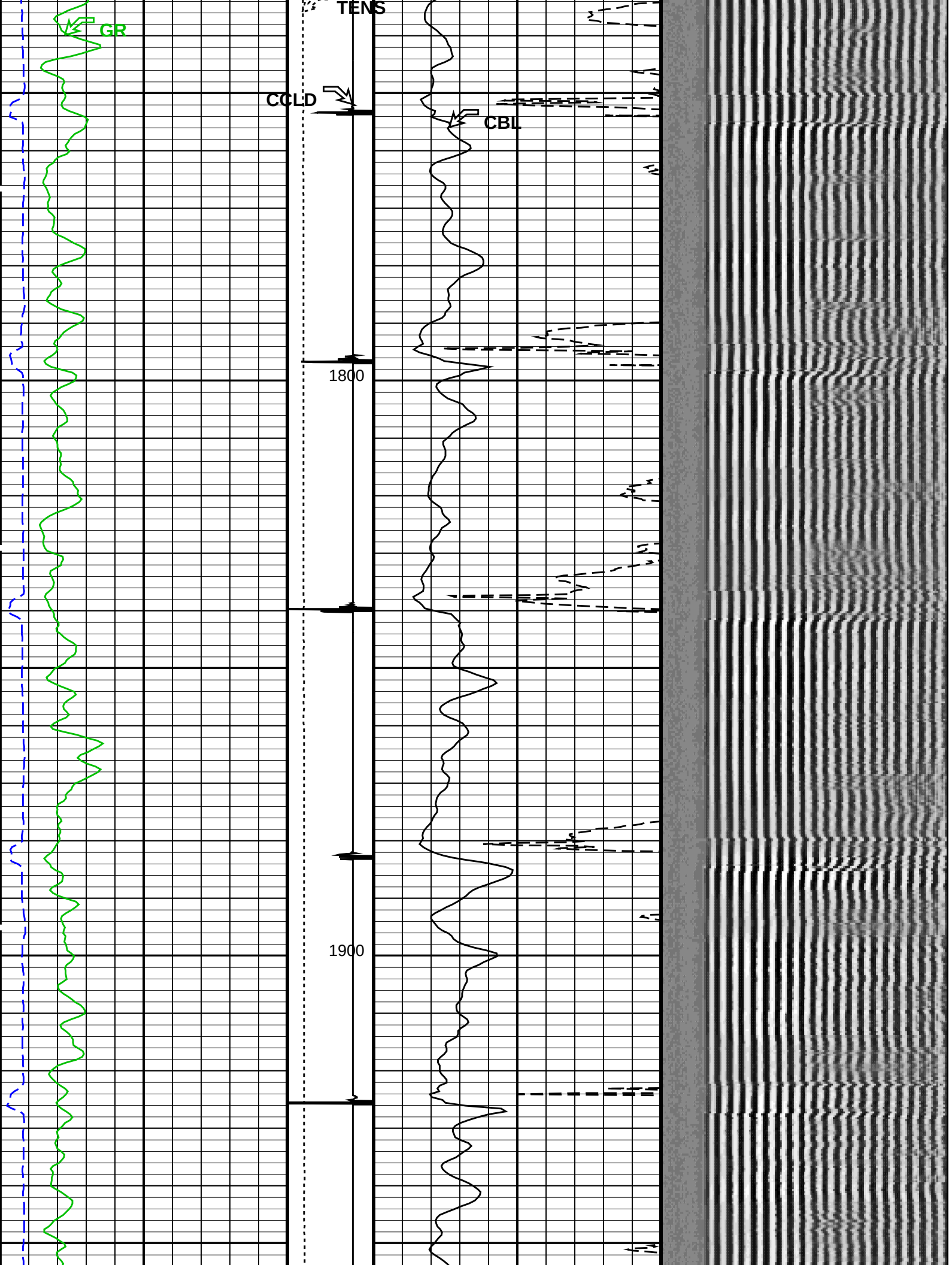
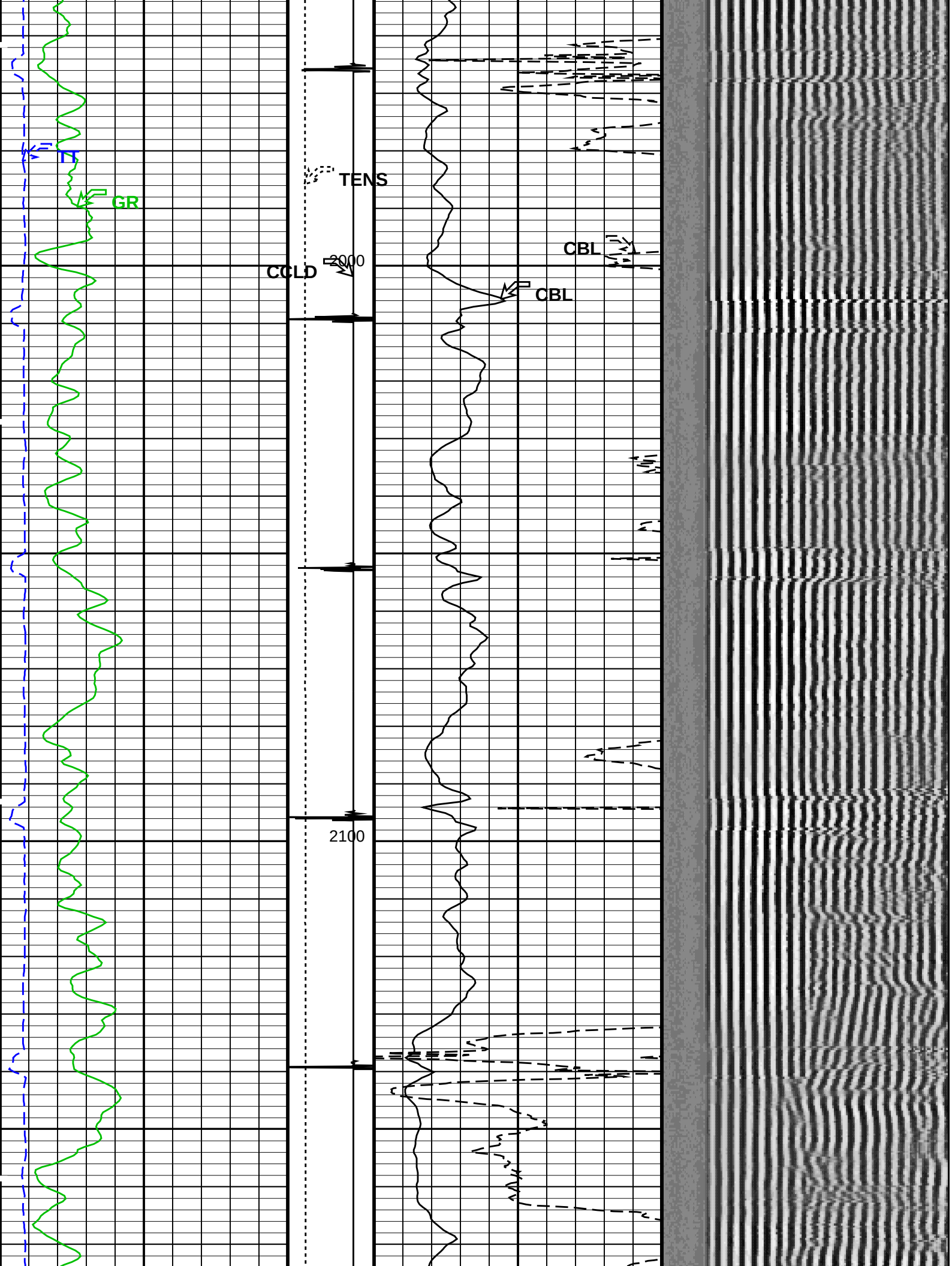
1400
1500
TT
GR
TENS
CCLD
CBL


1600
1700
TT


GR
TENS
CCLD
CBL
1800
1900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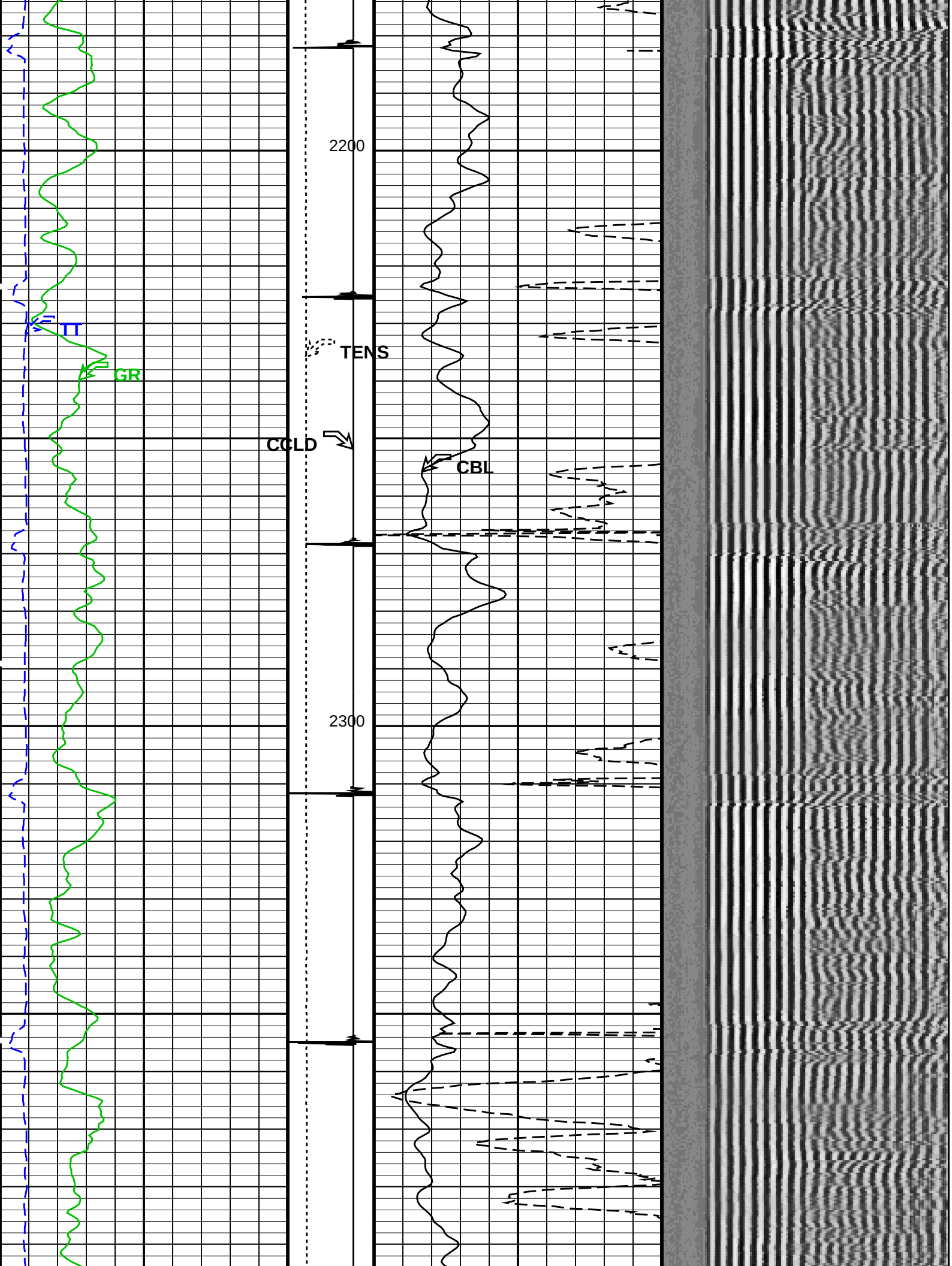
GR
TENS
CCLD
2000
CBL
CBL
2100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TENS
GR
CCLD
CBL
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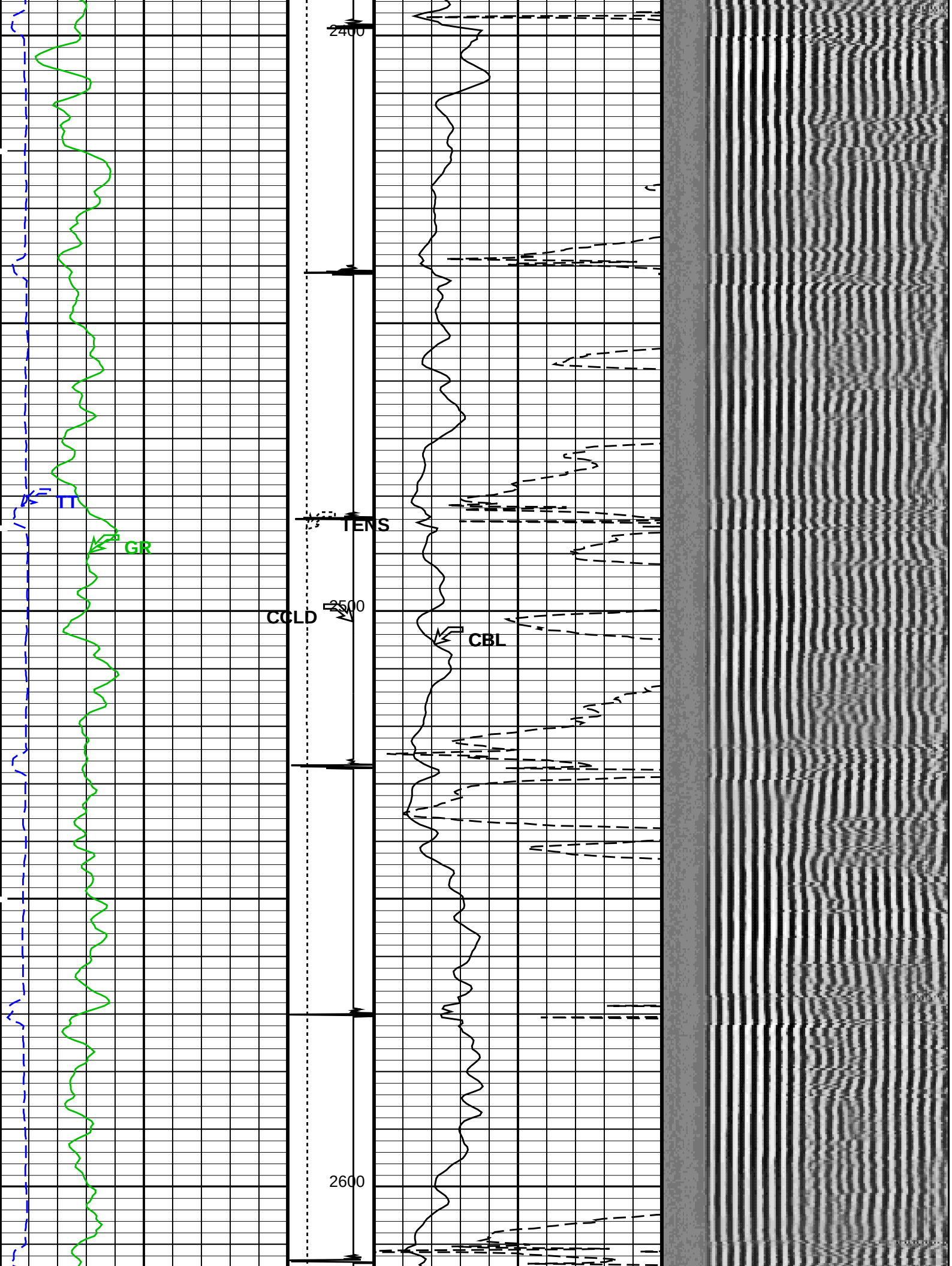
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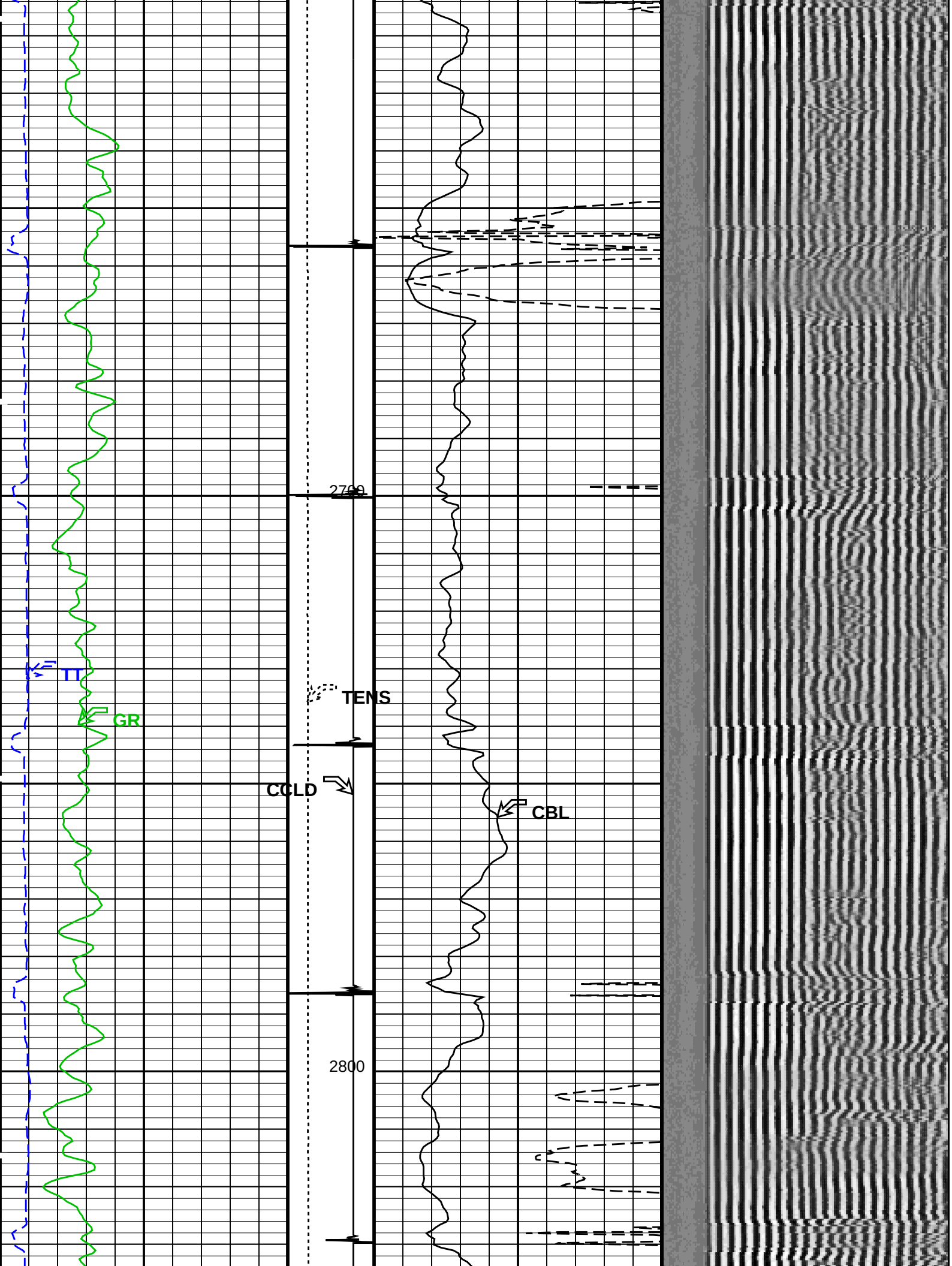
GR
TENS
2500
CCLD
CBL
2600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GR
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CCLD
CBL
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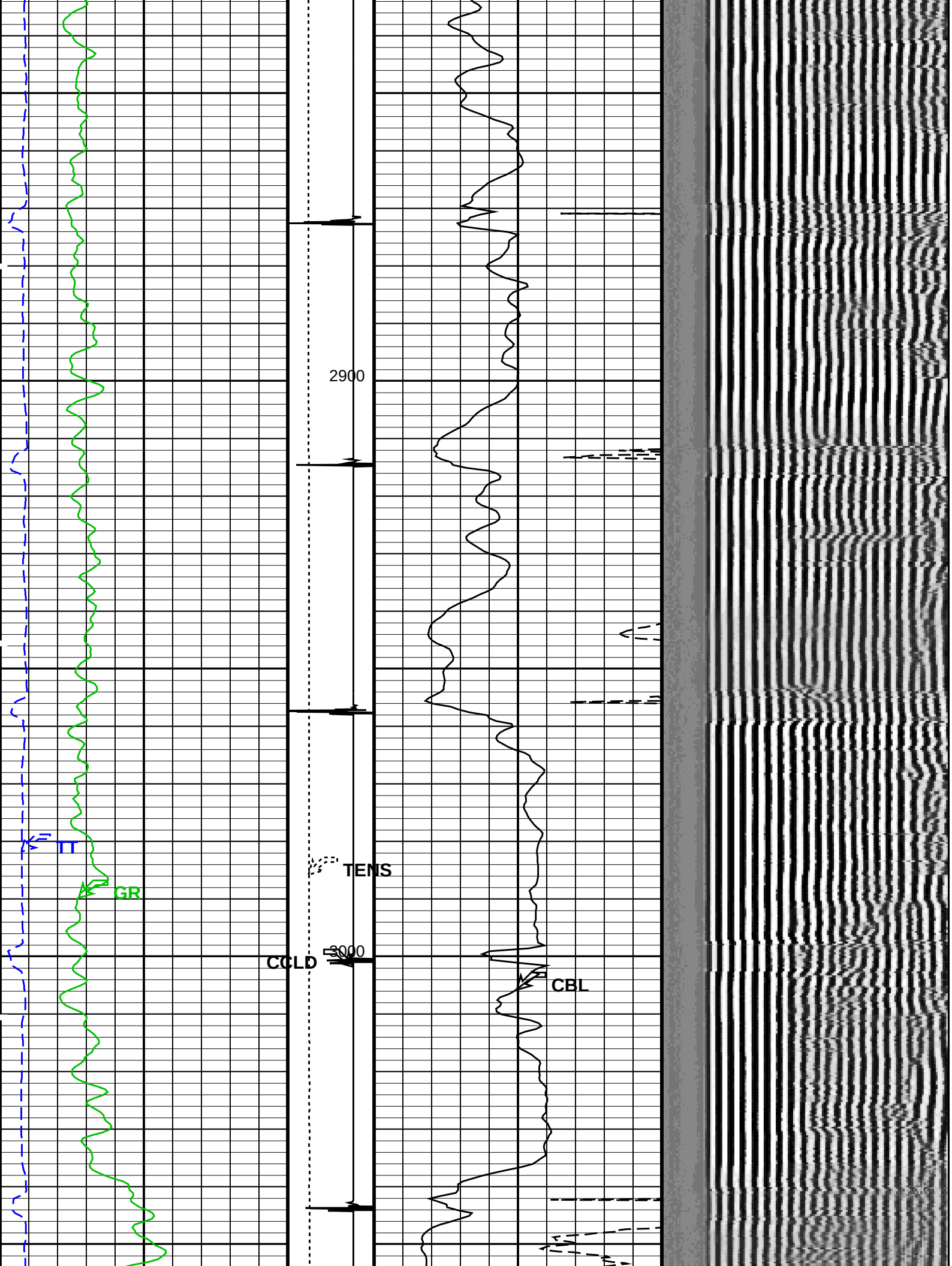
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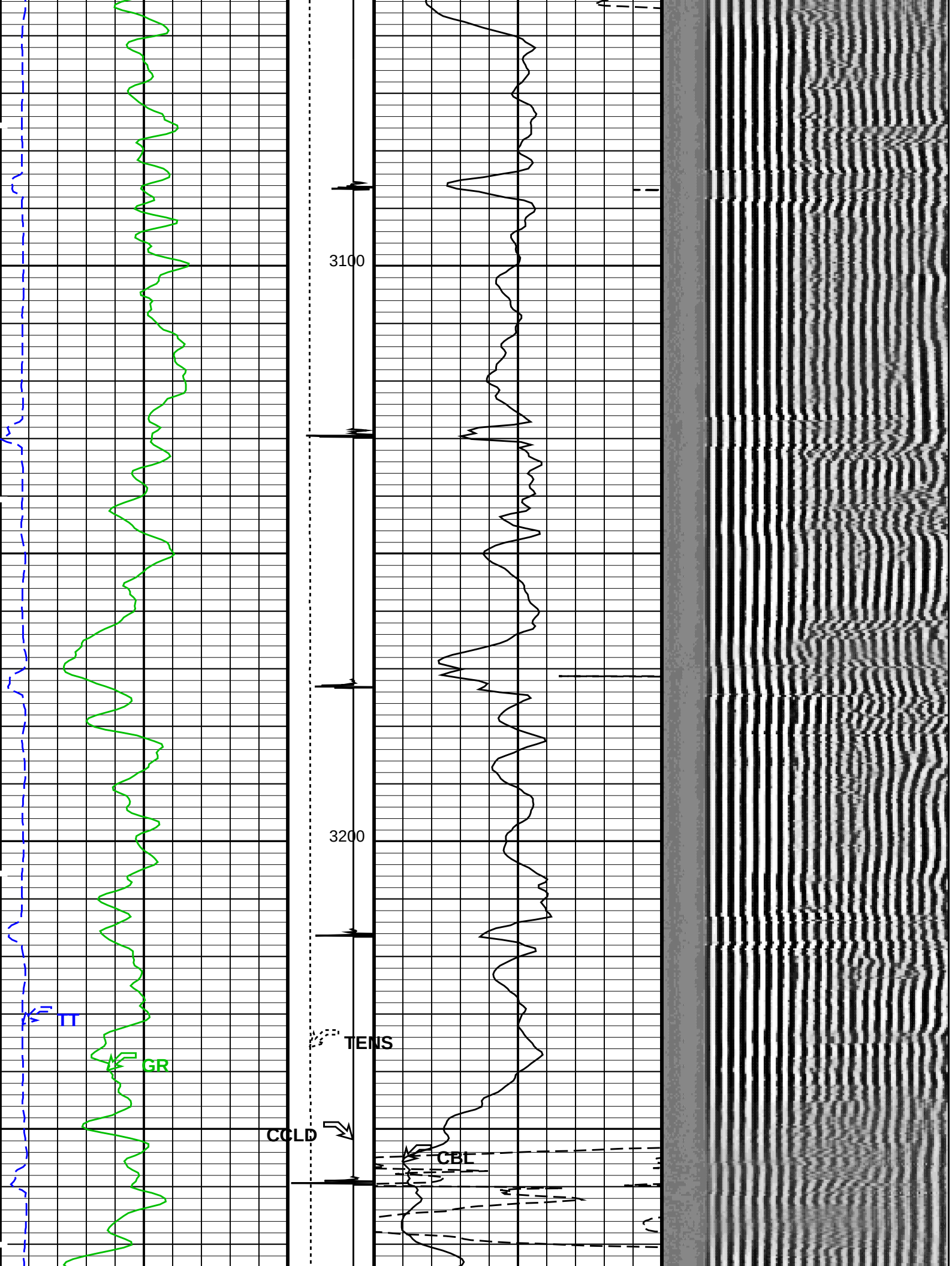
GR
TENS
3000
CCLD
CBL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CCLD
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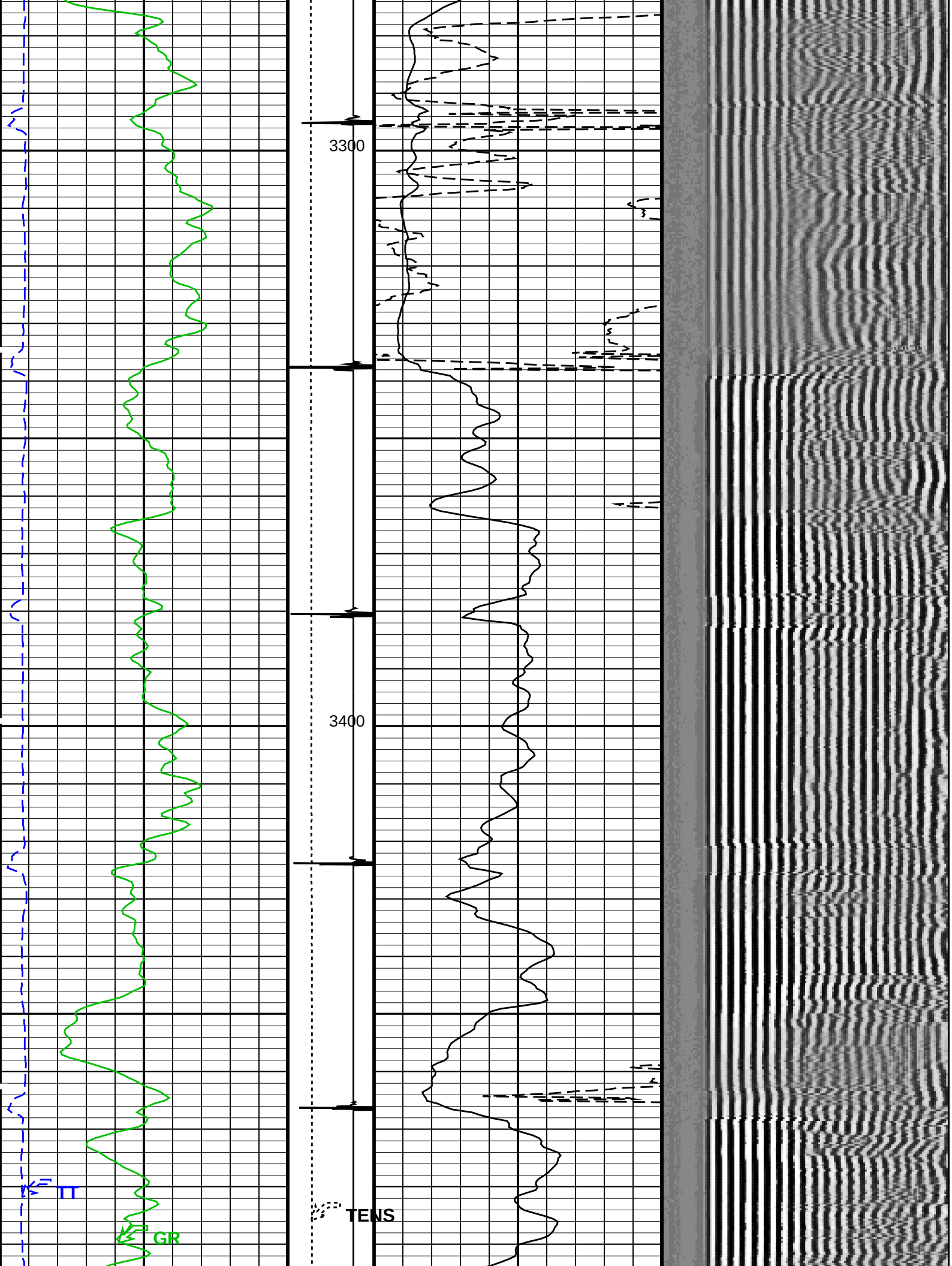
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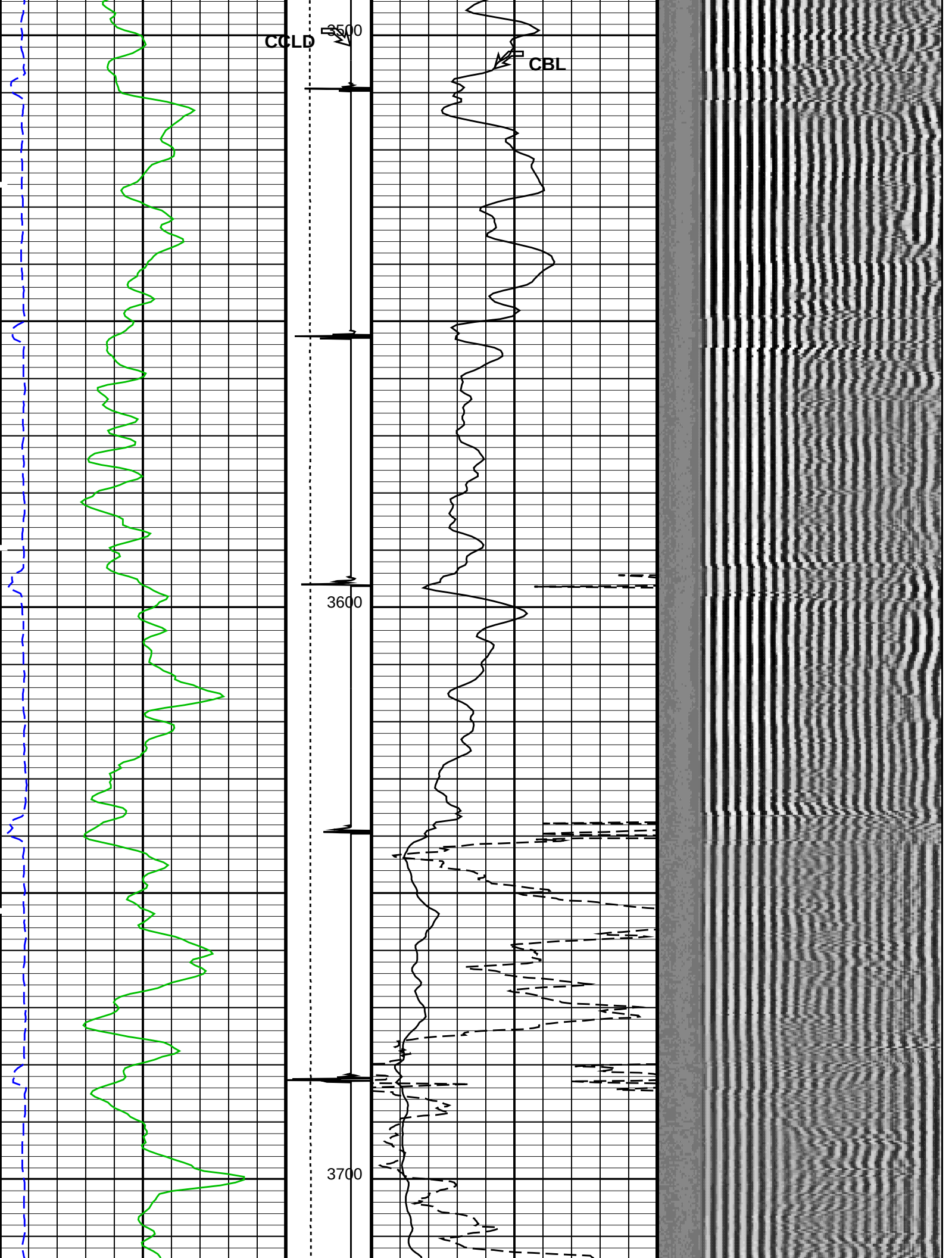
GR
TENS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3600
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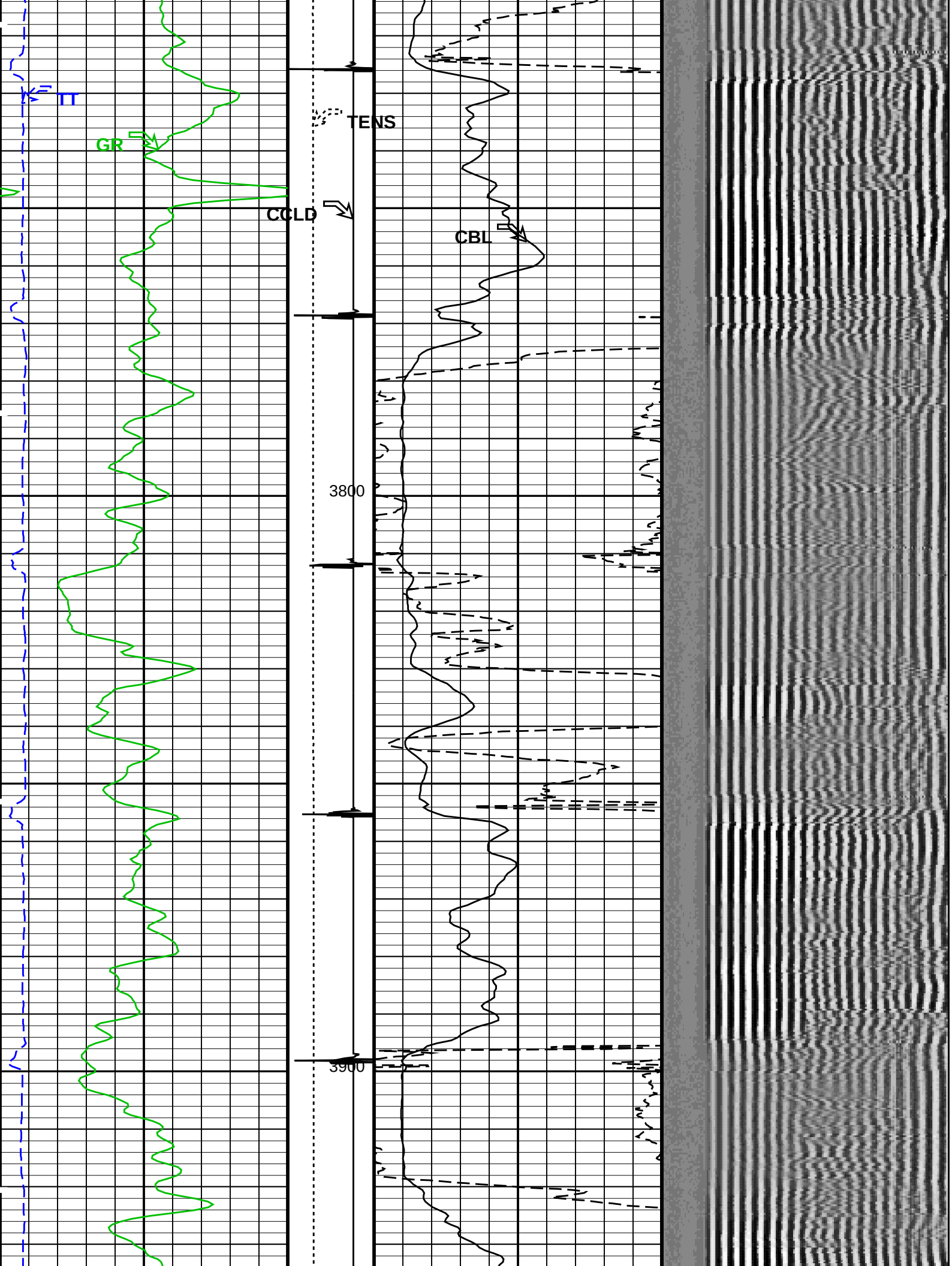
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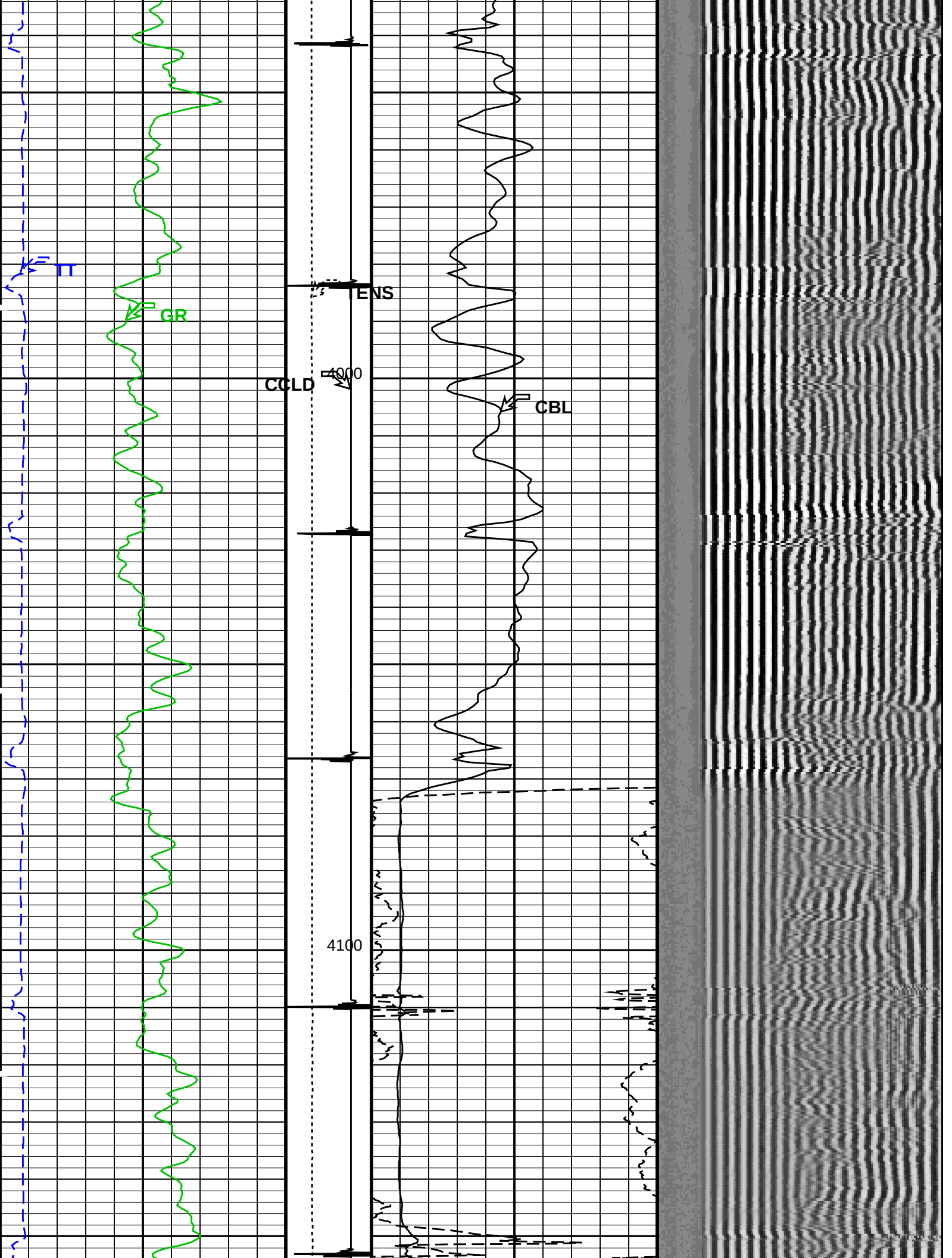
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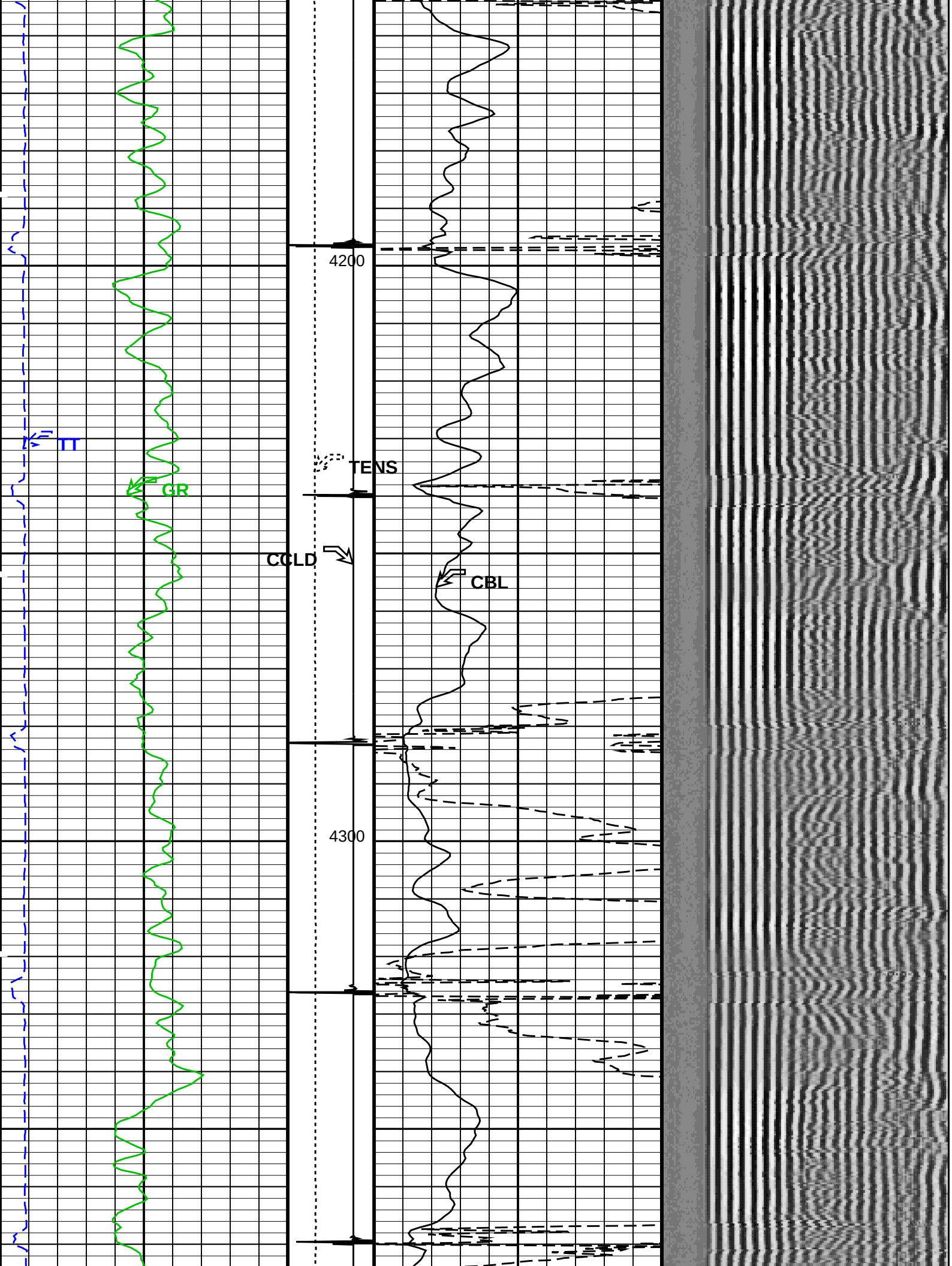
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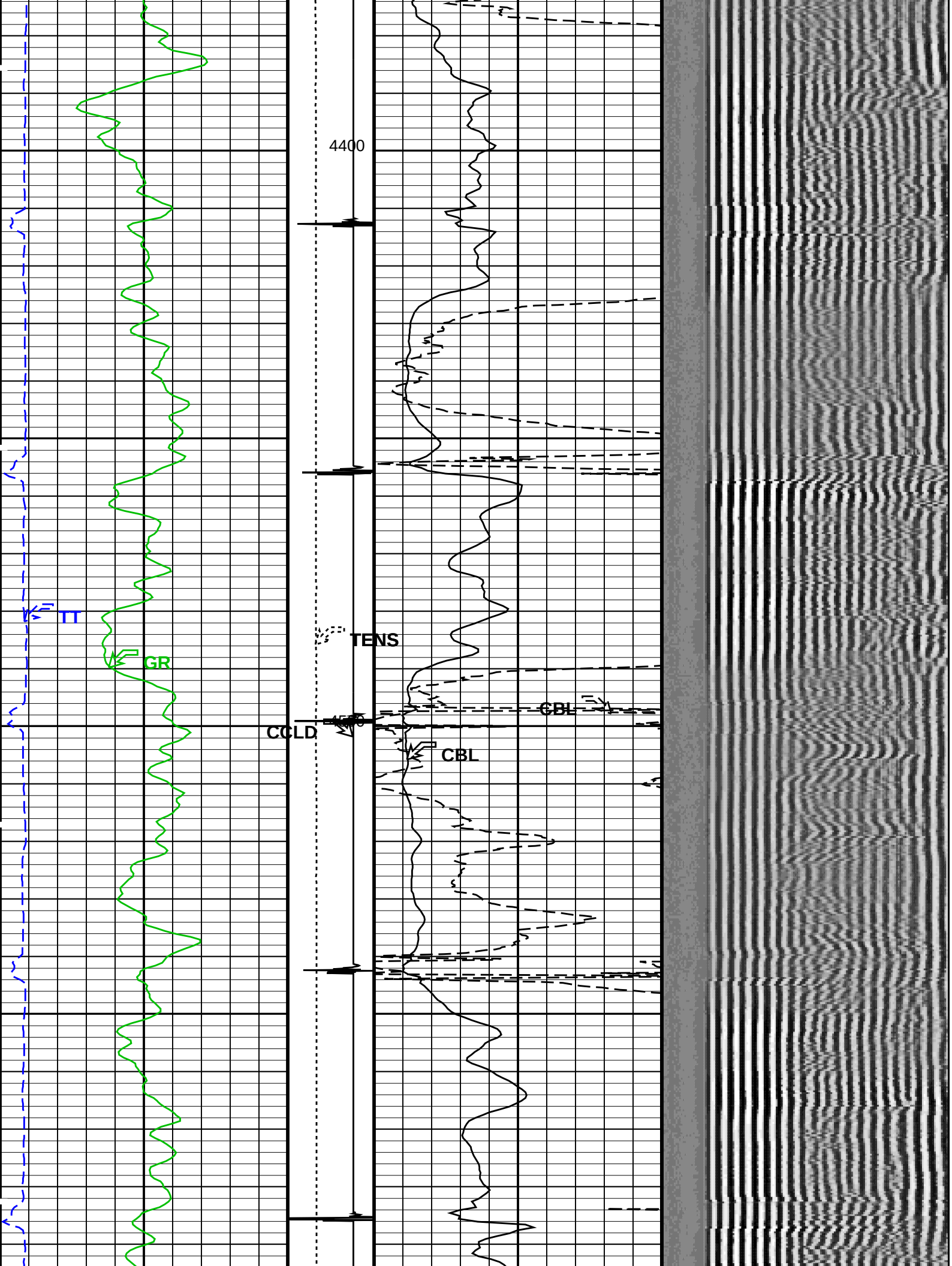
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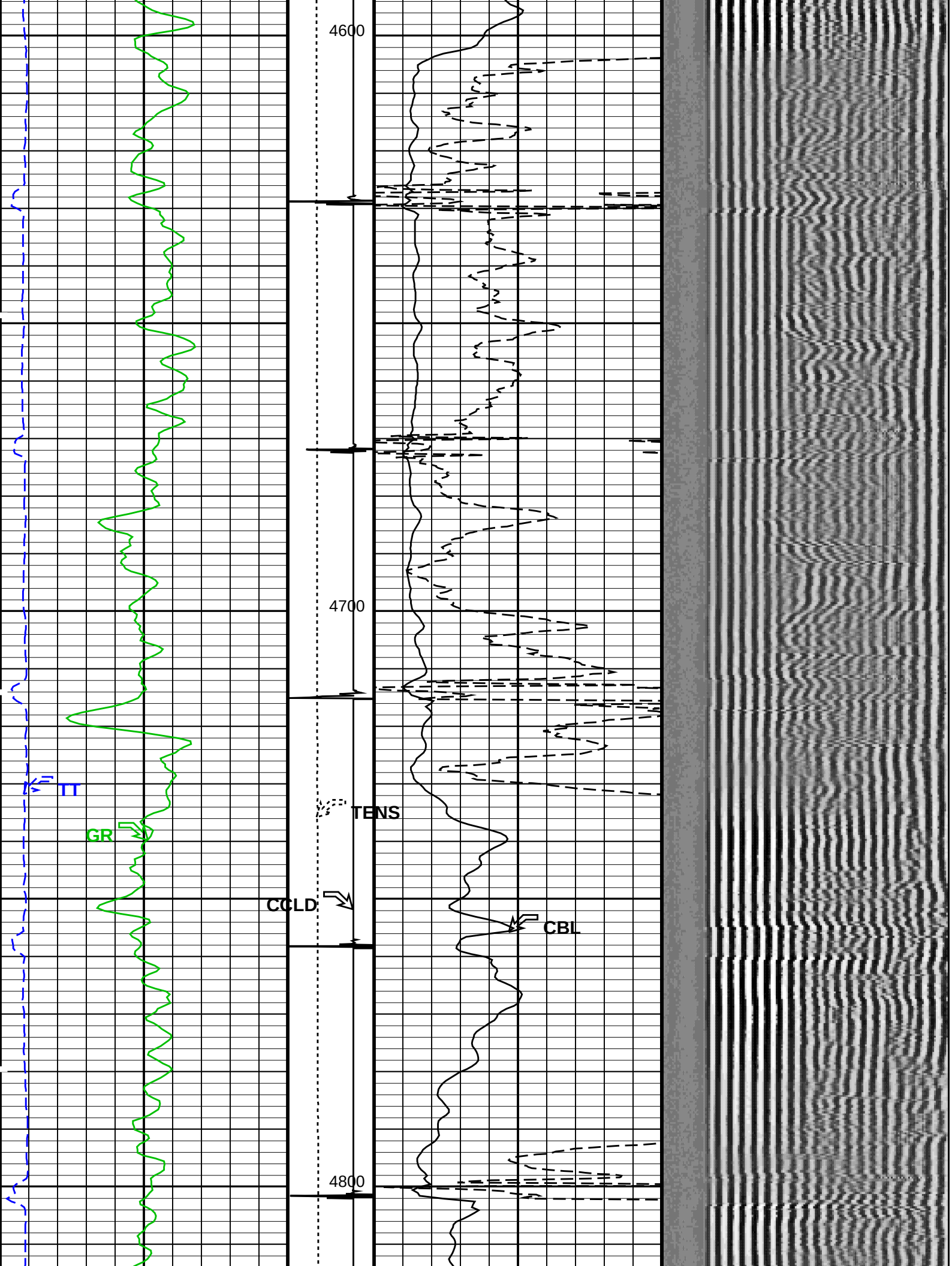
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TENS
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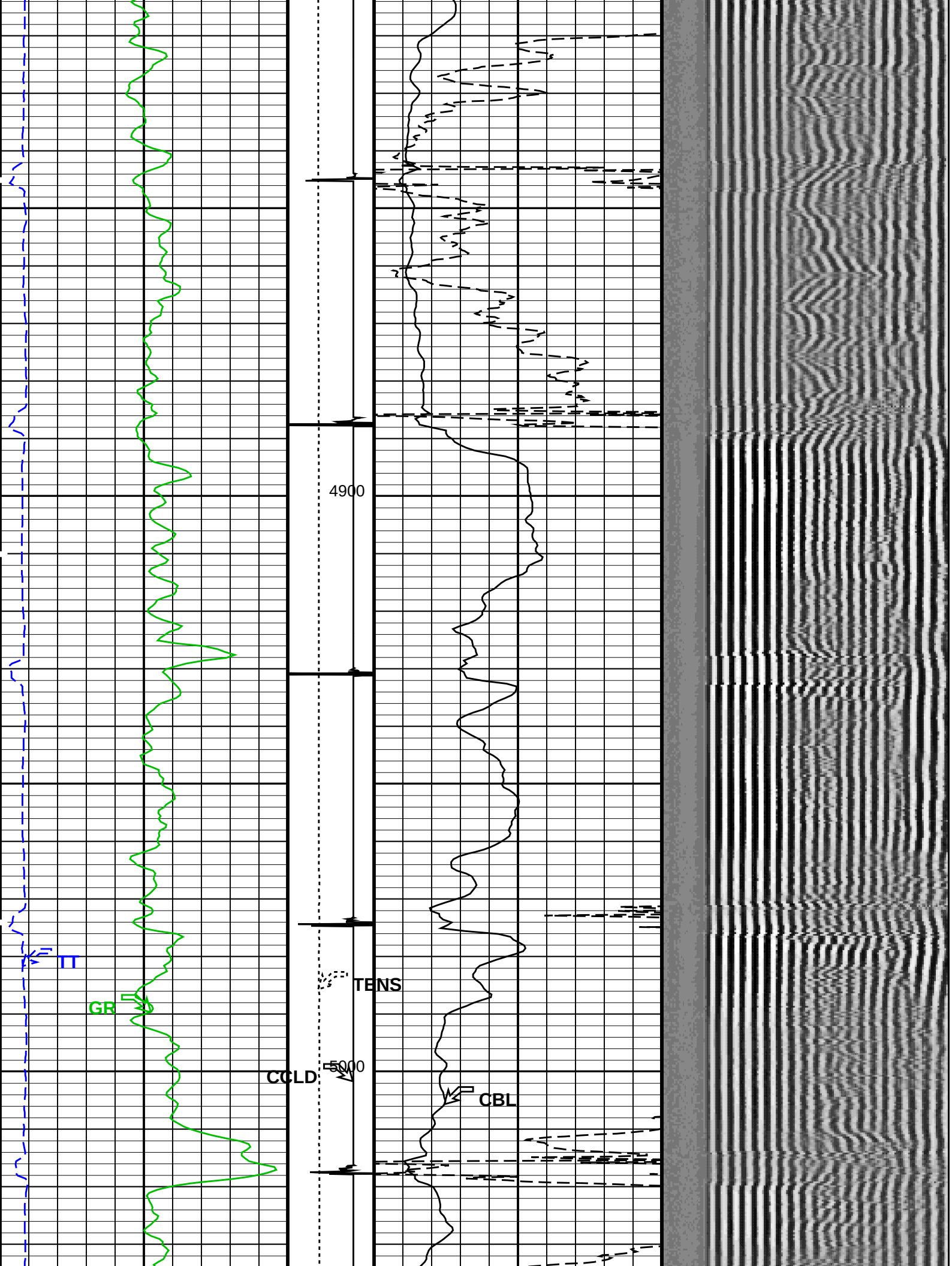
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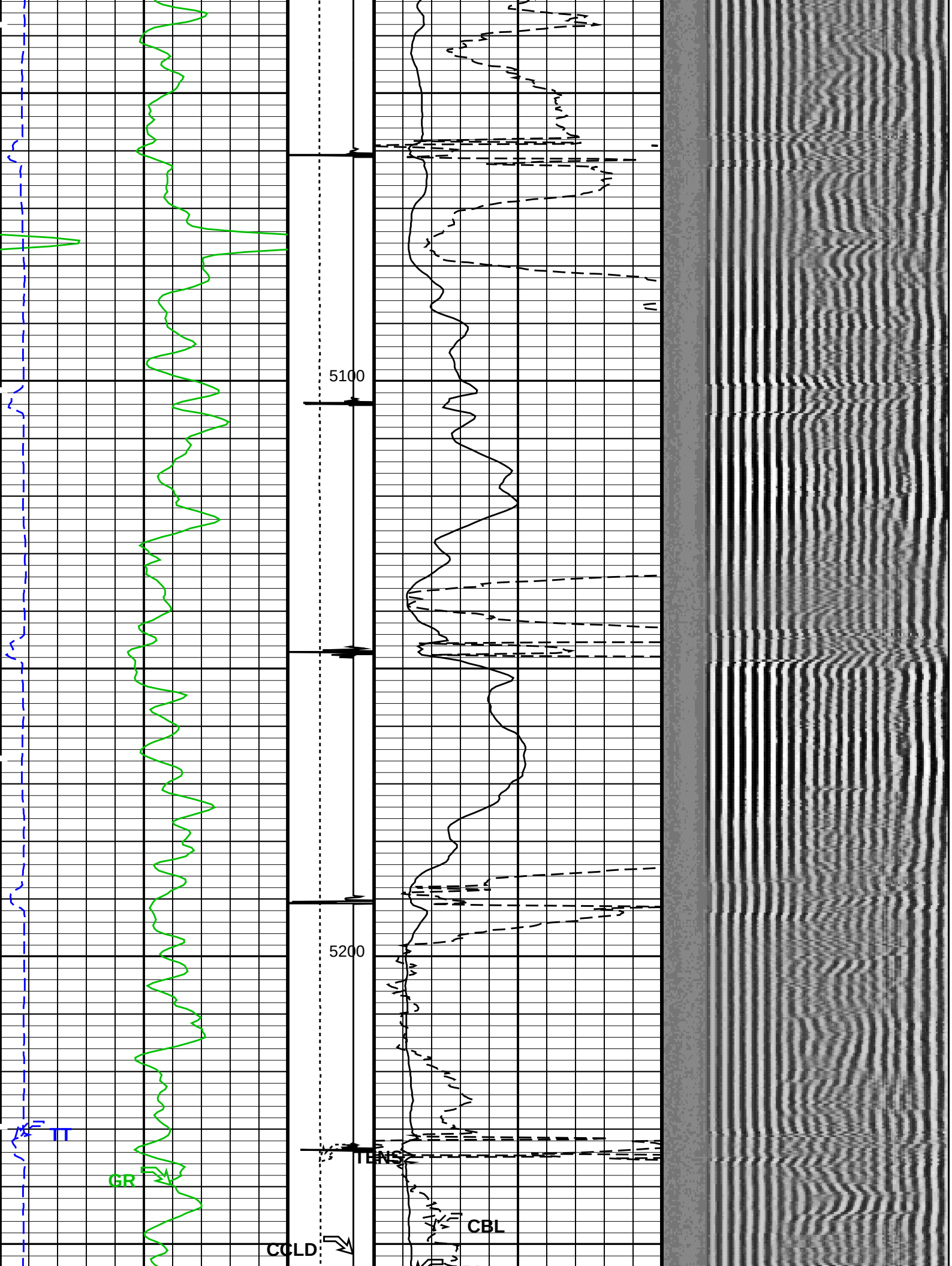
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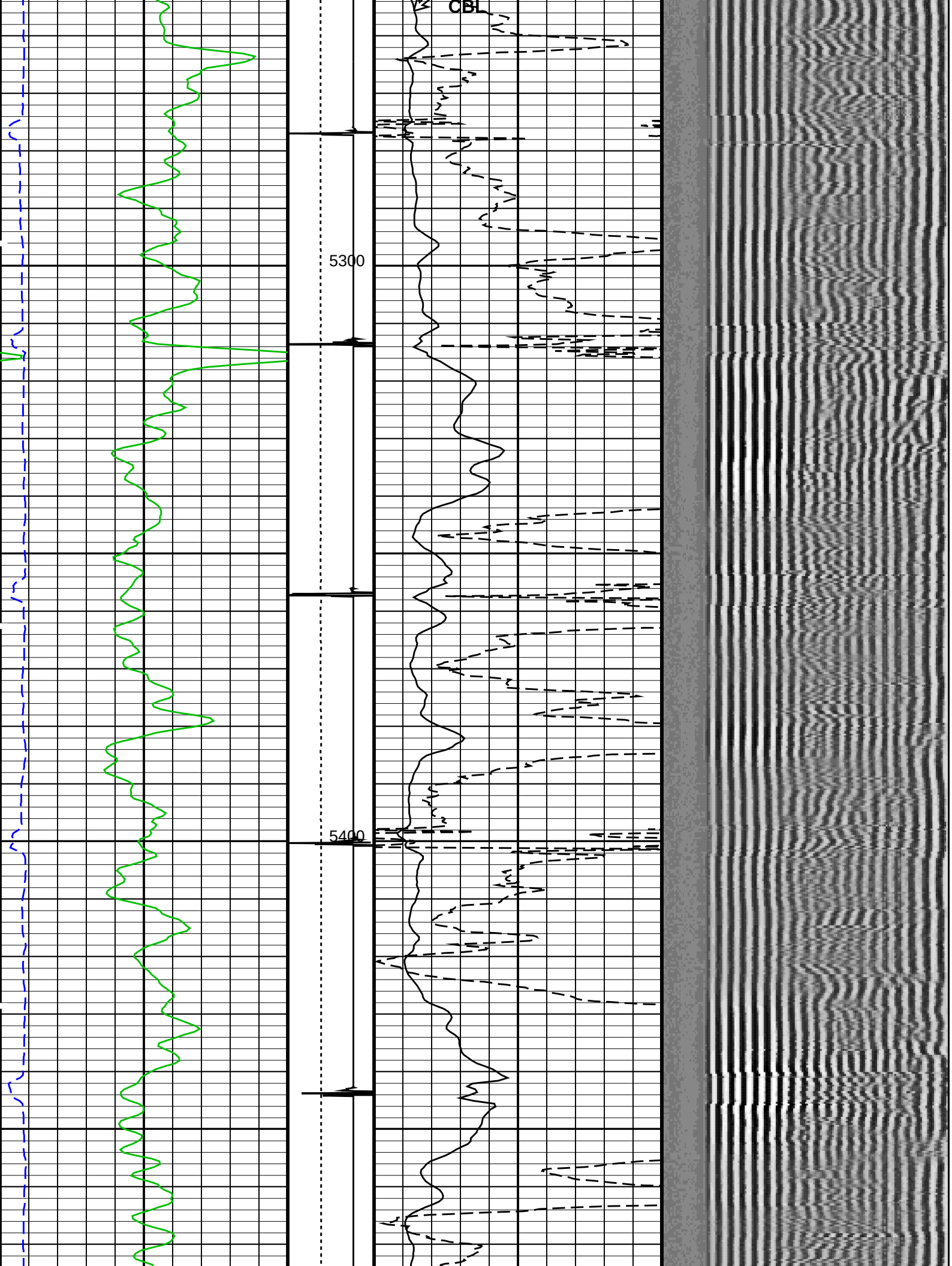
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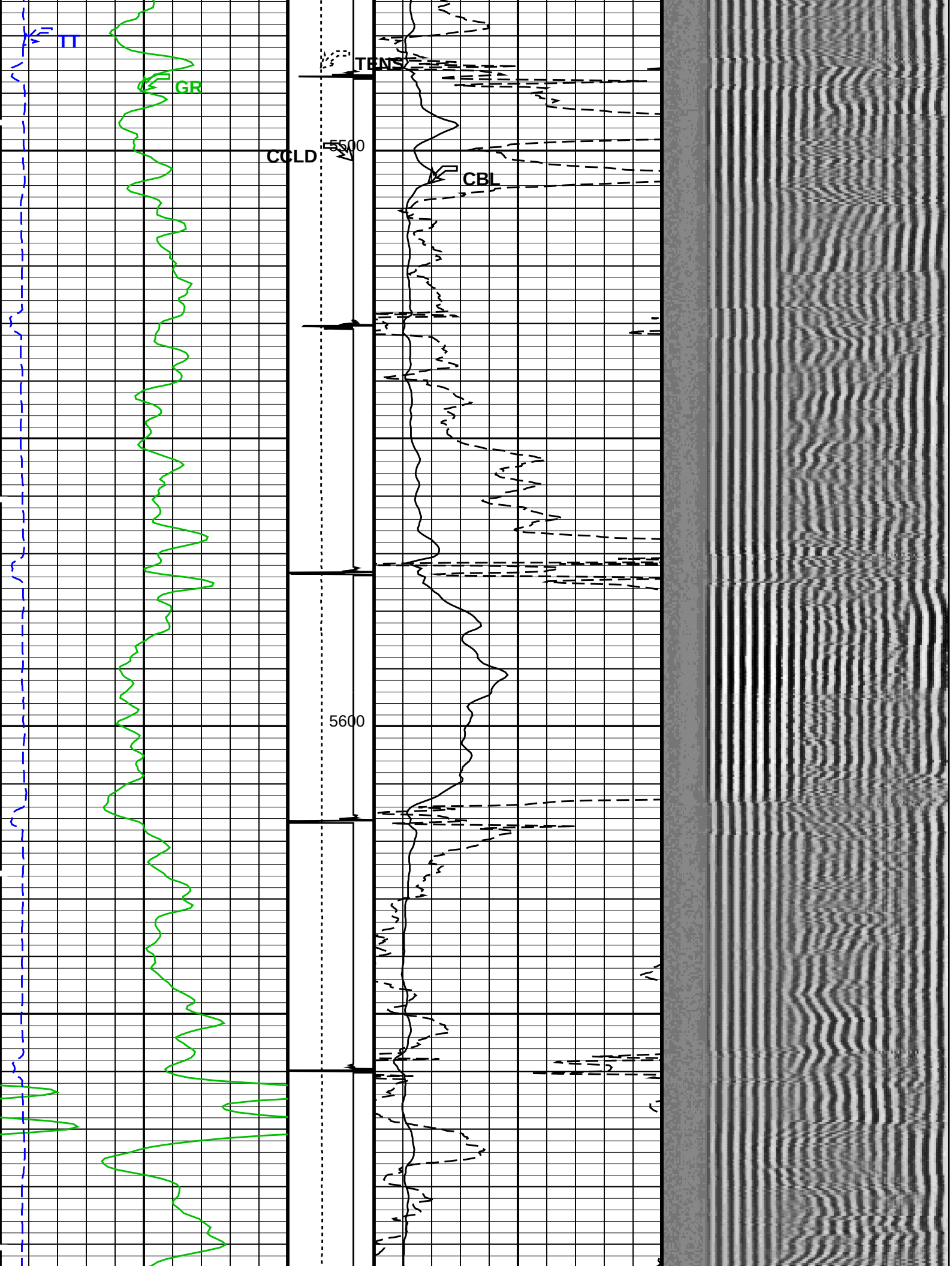
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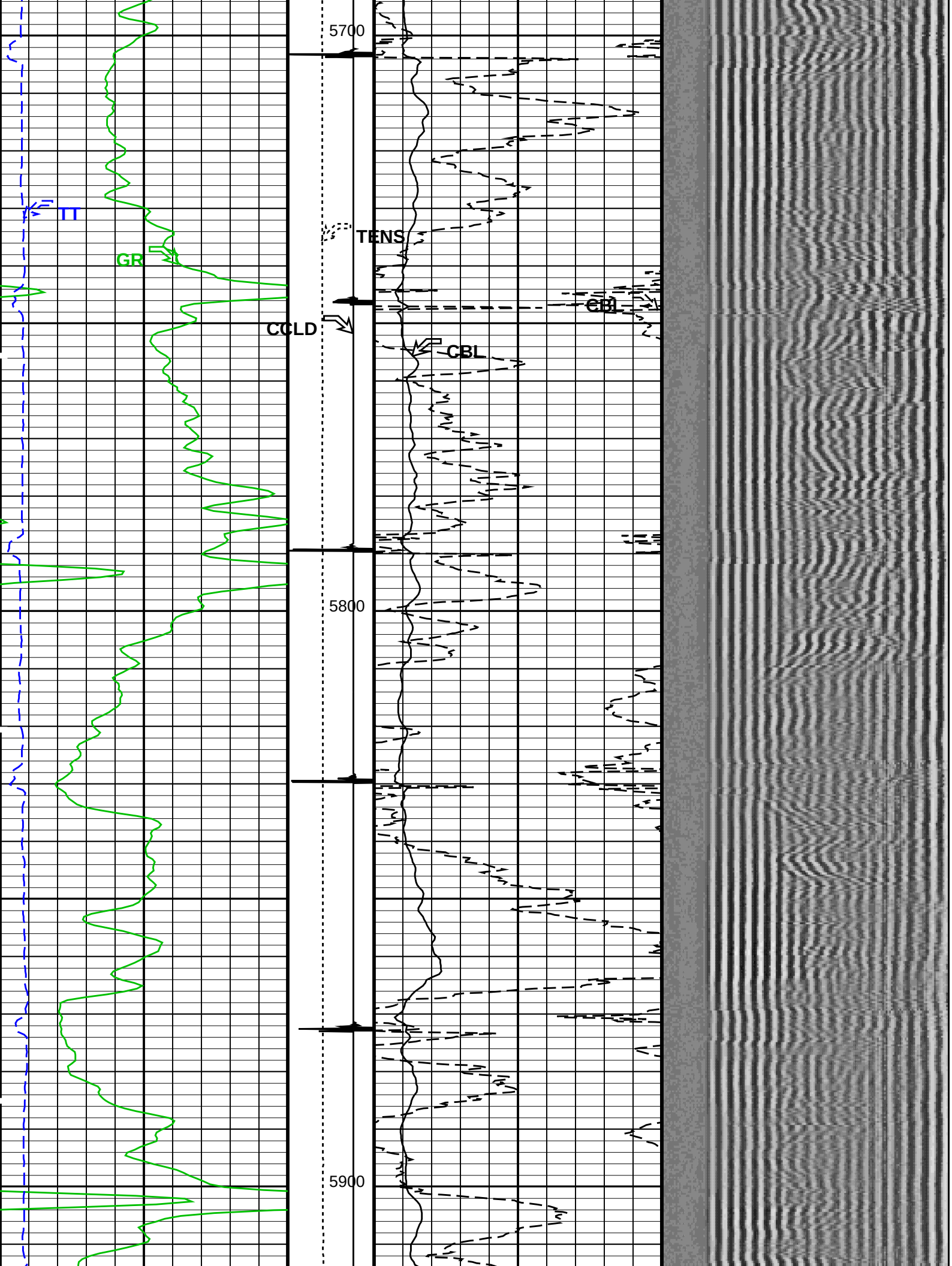
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CBL
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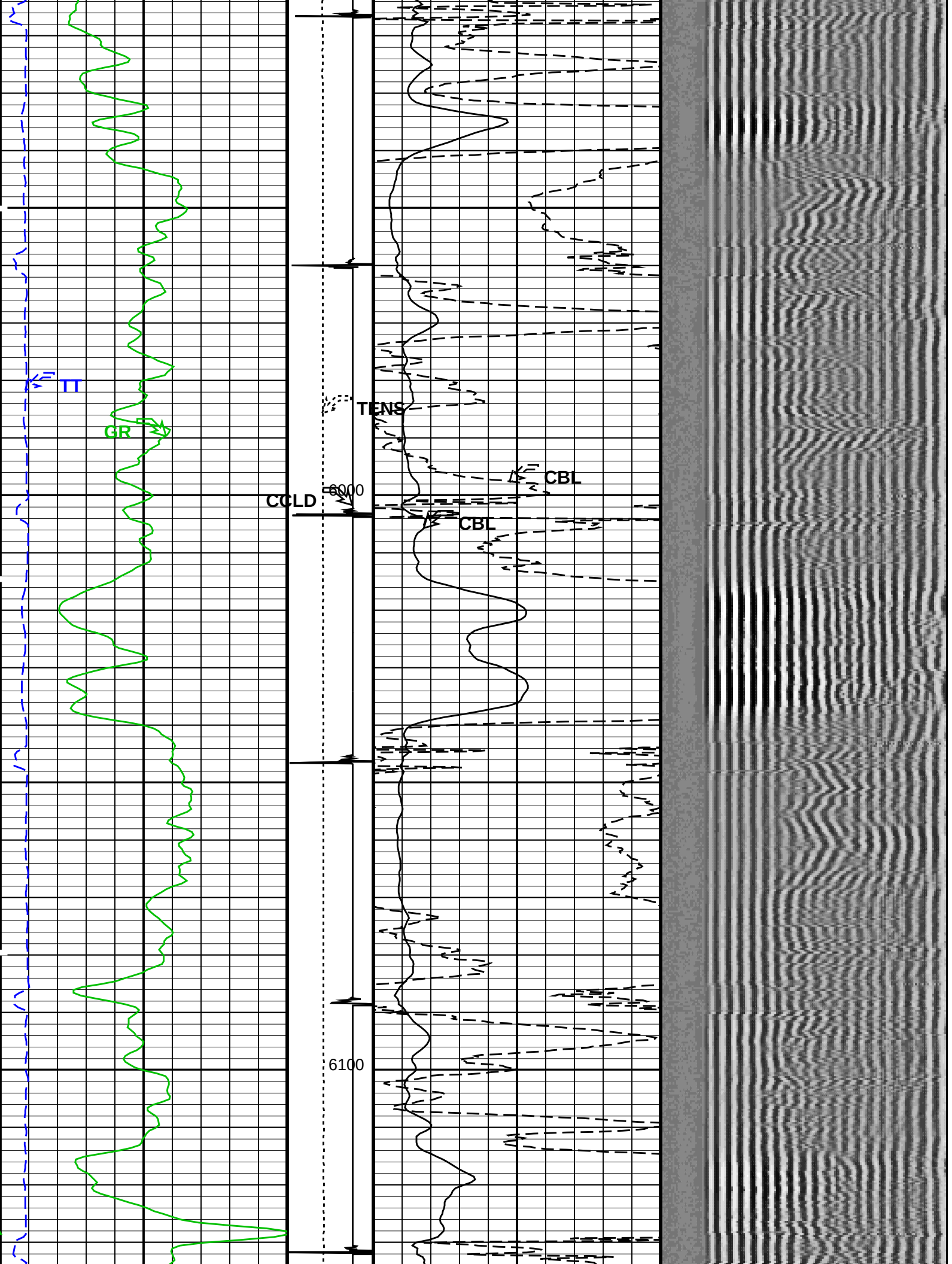
5900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TENS
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CBL
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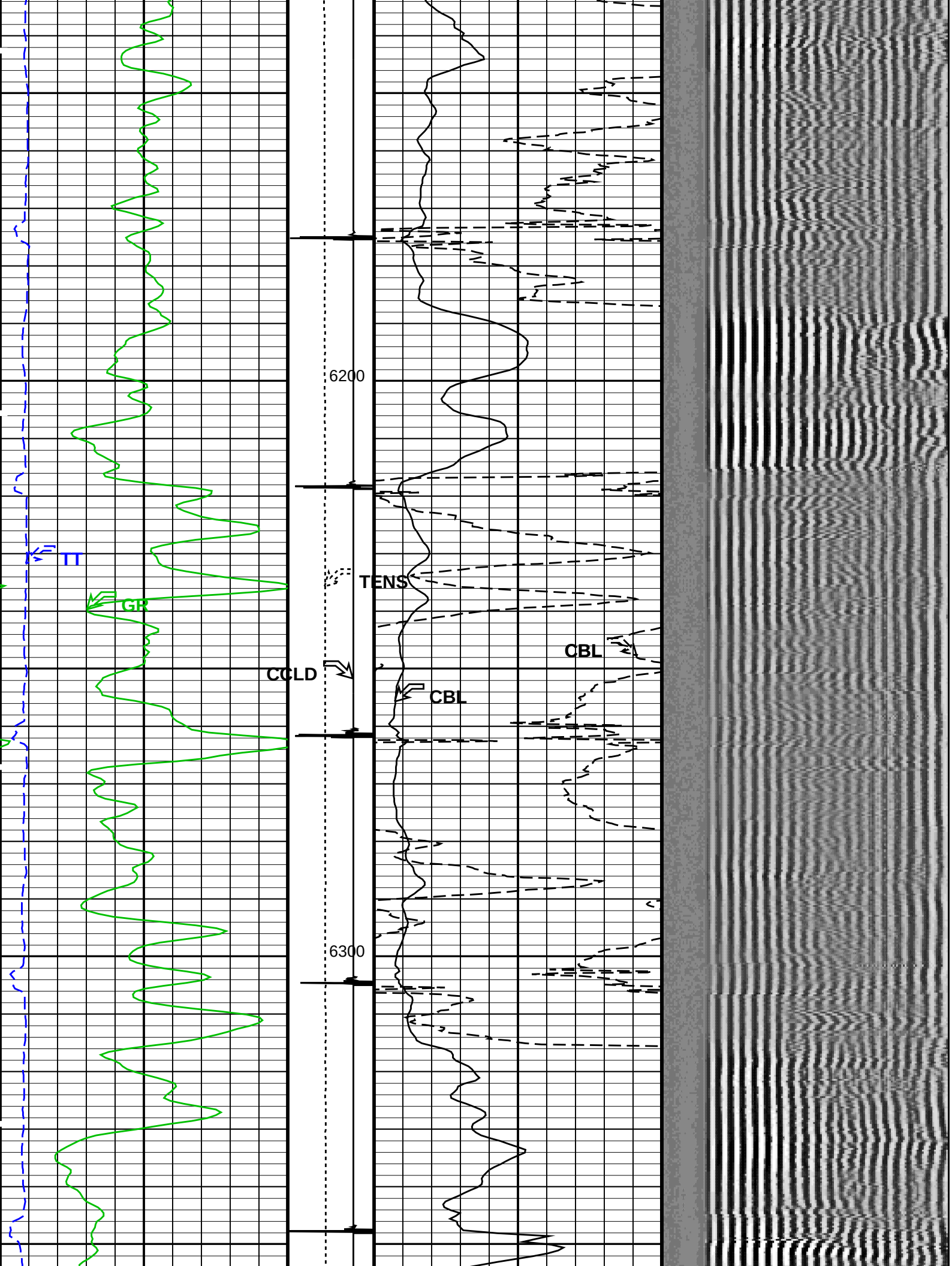
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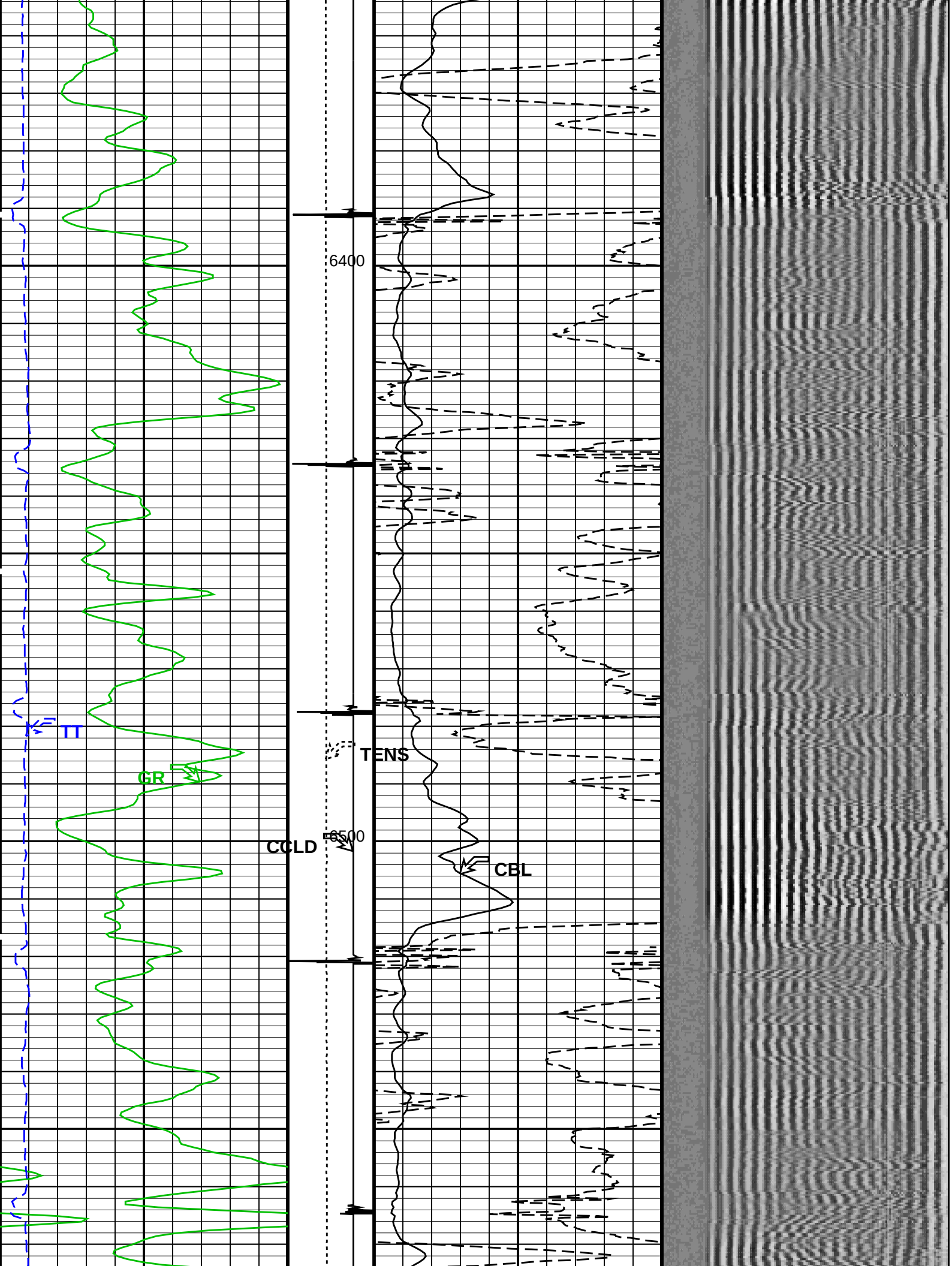
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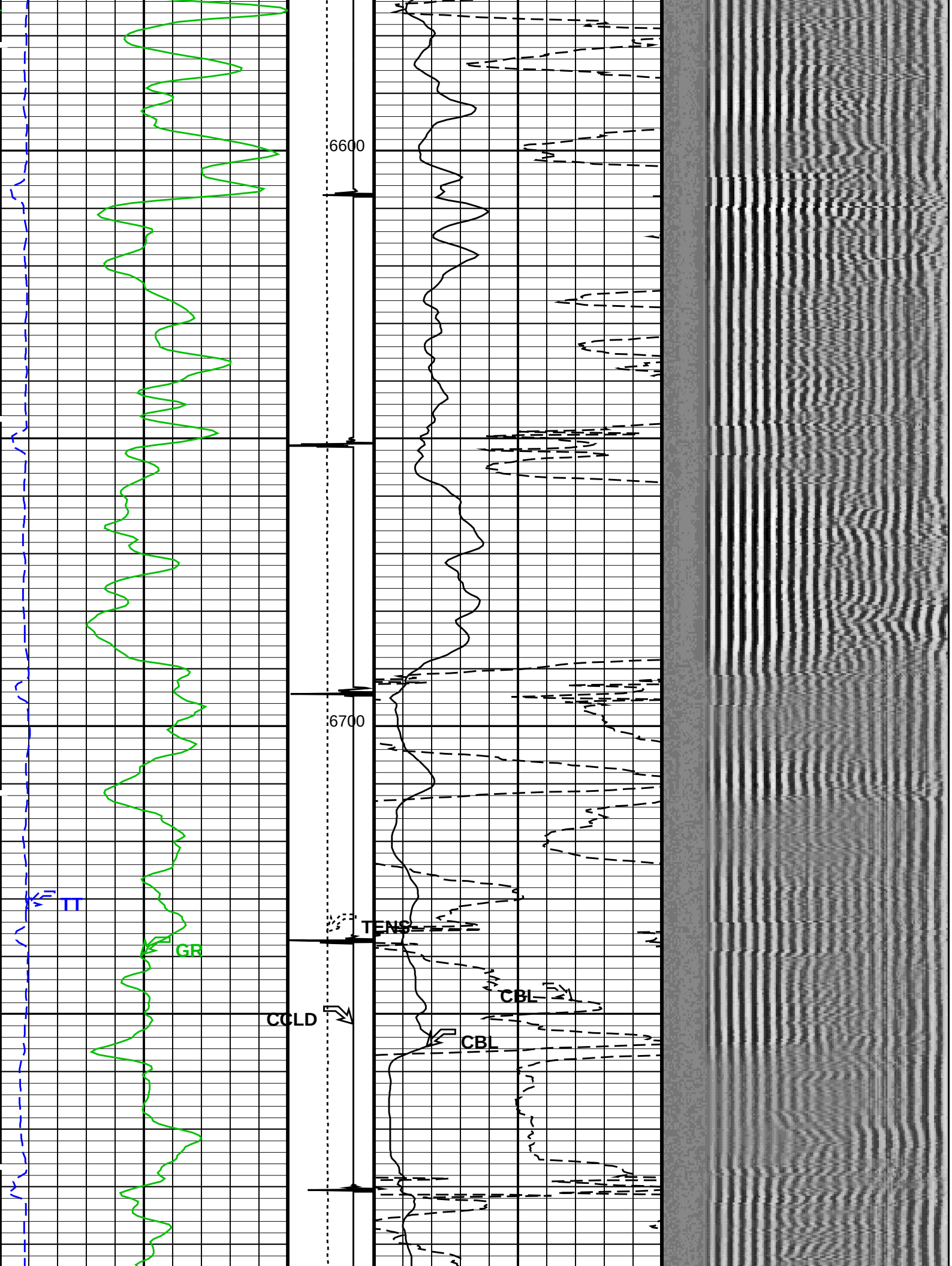
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TT
GR
TENS
CBL
CCLD
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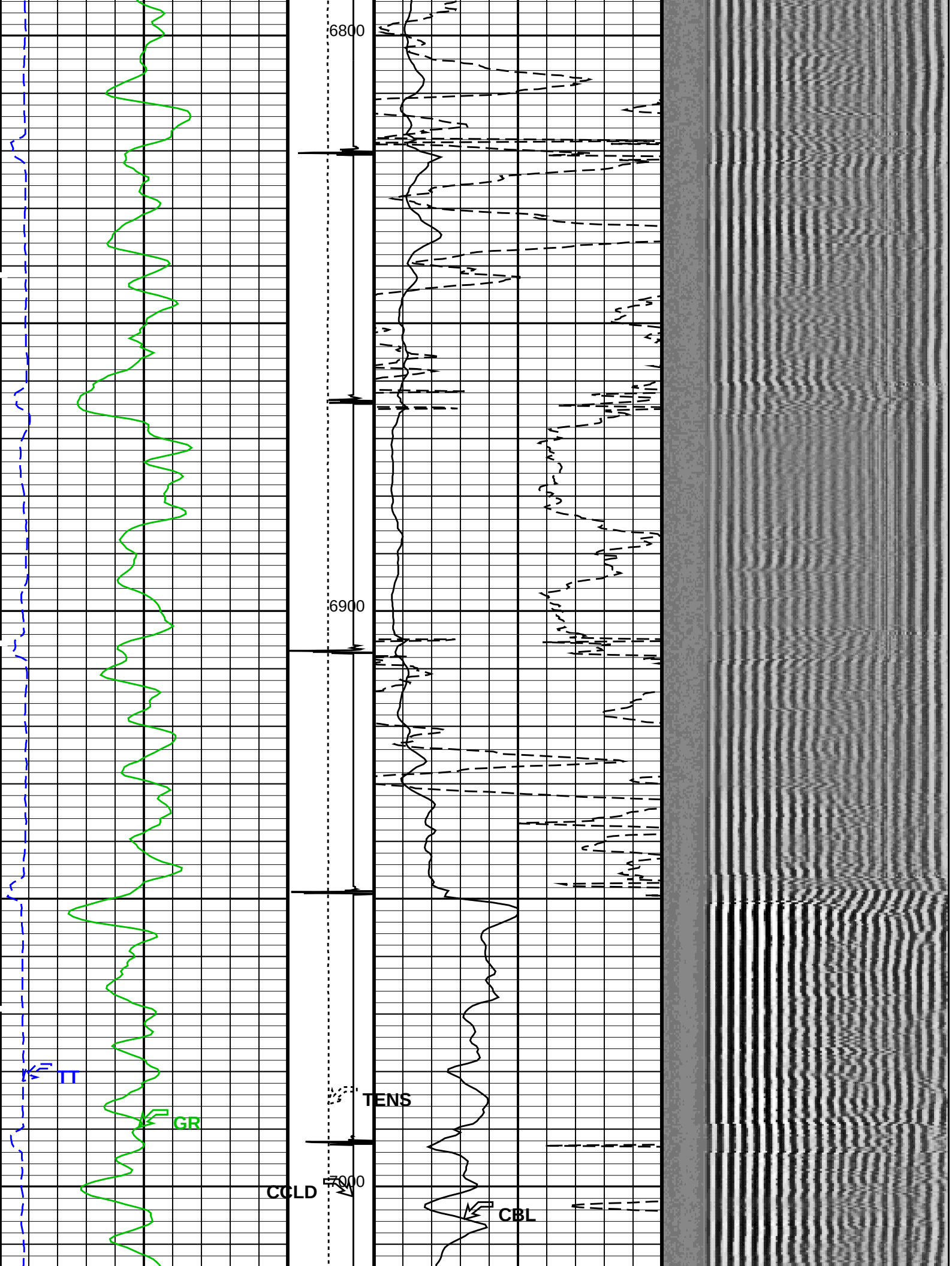
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7000
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GR
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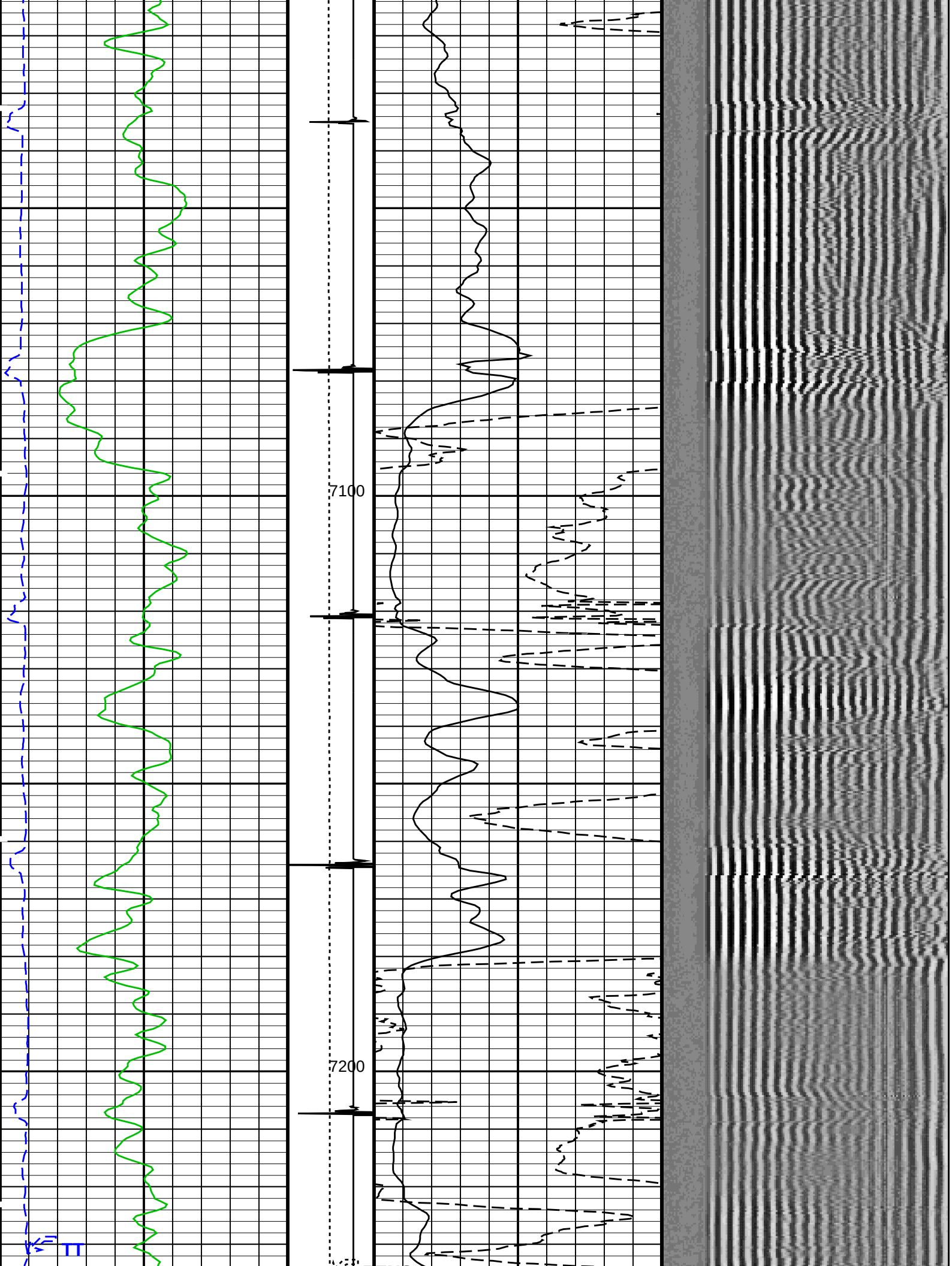
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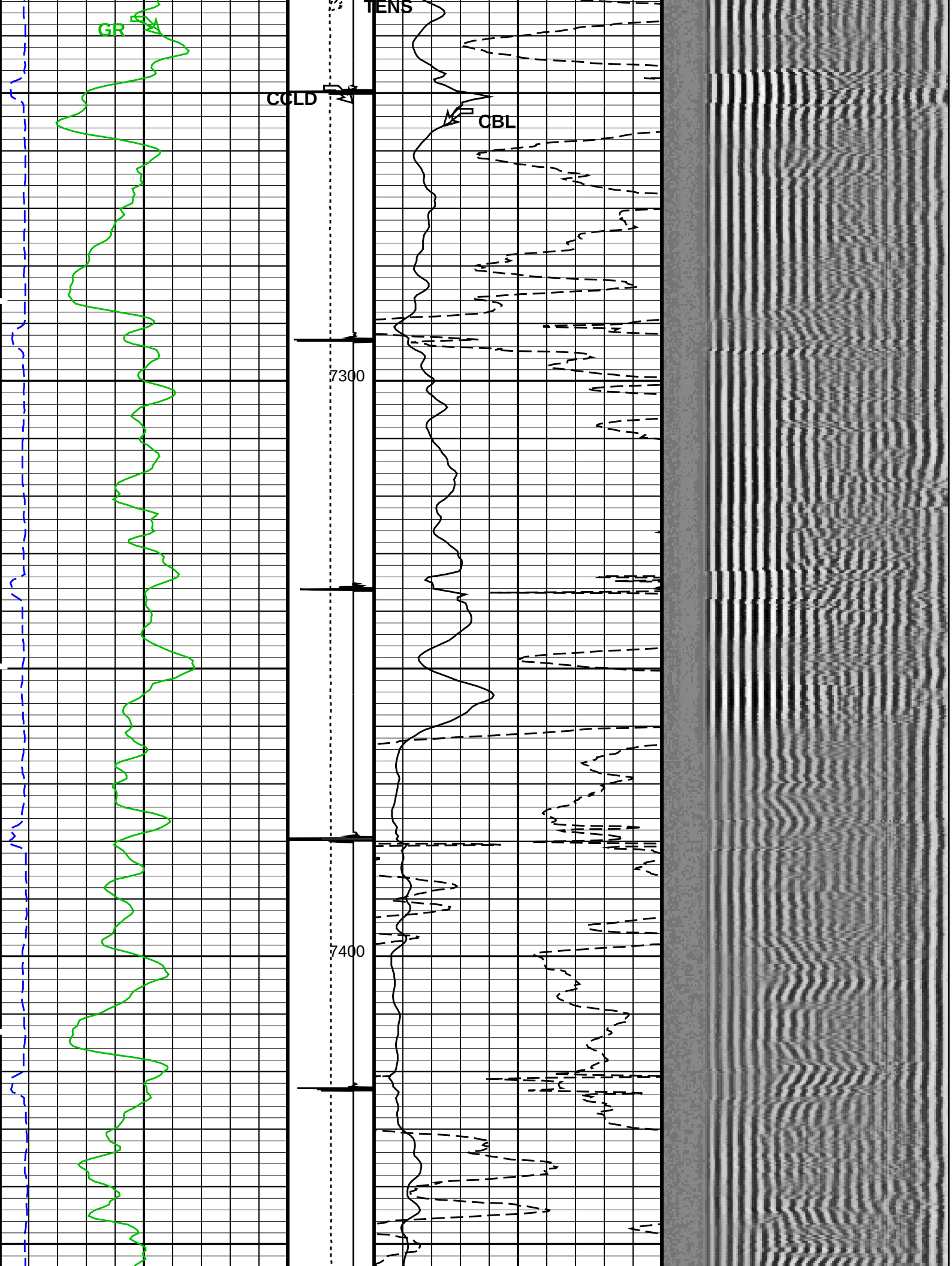
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TENS
CCLD
CBL
7300
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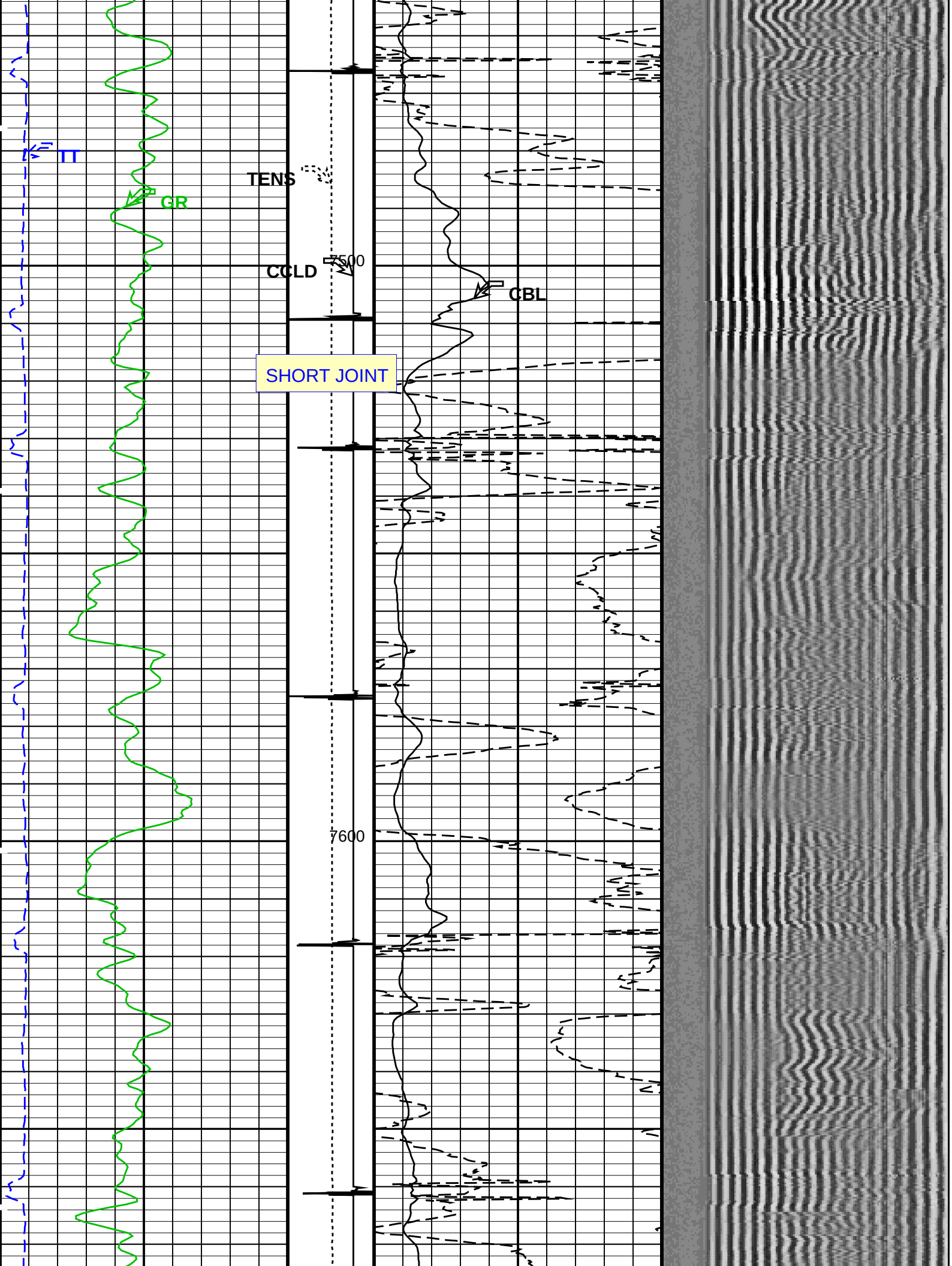
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TENS
CCLD
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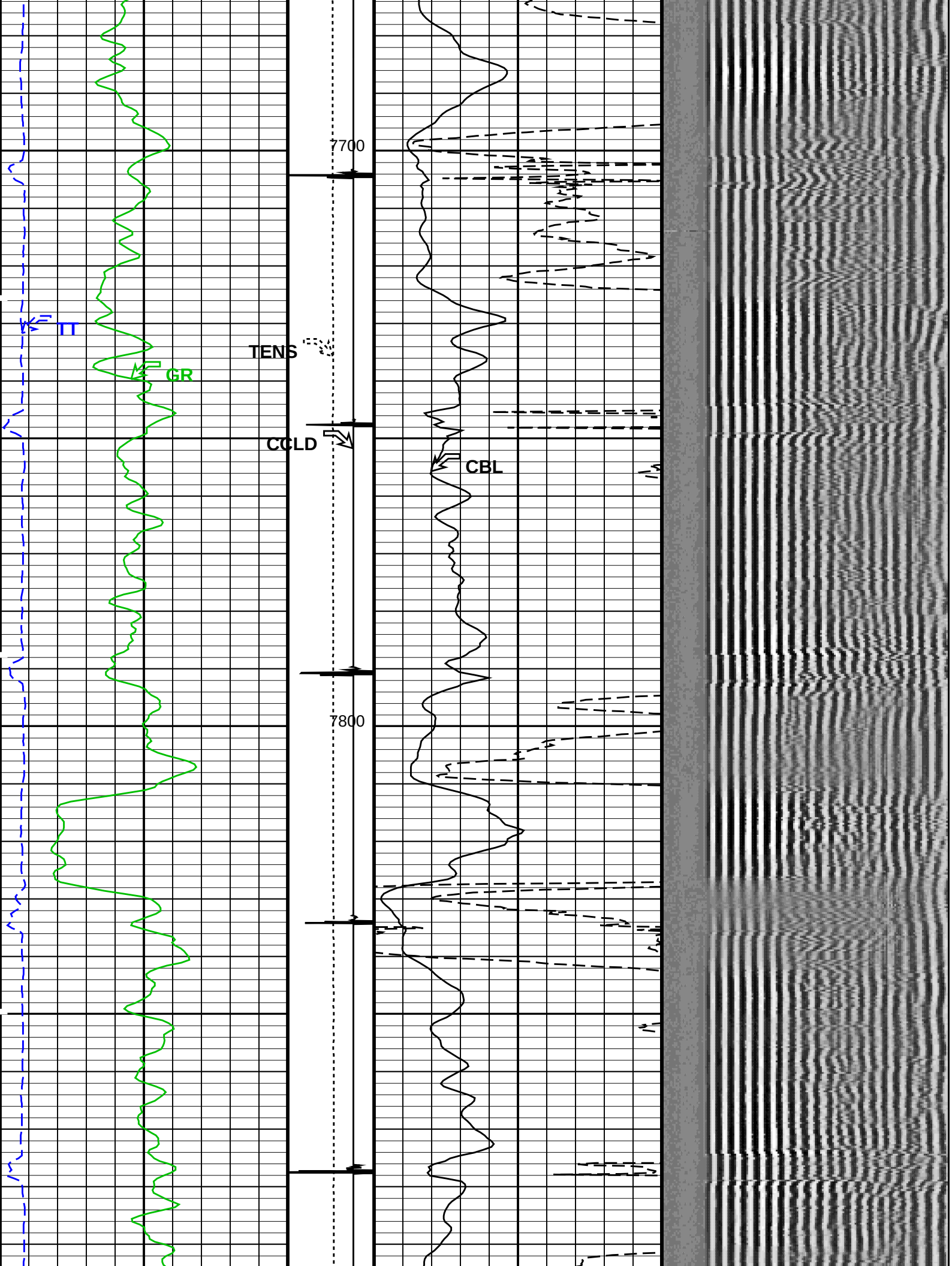
CBL
SHORT JOINT
7600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TENS
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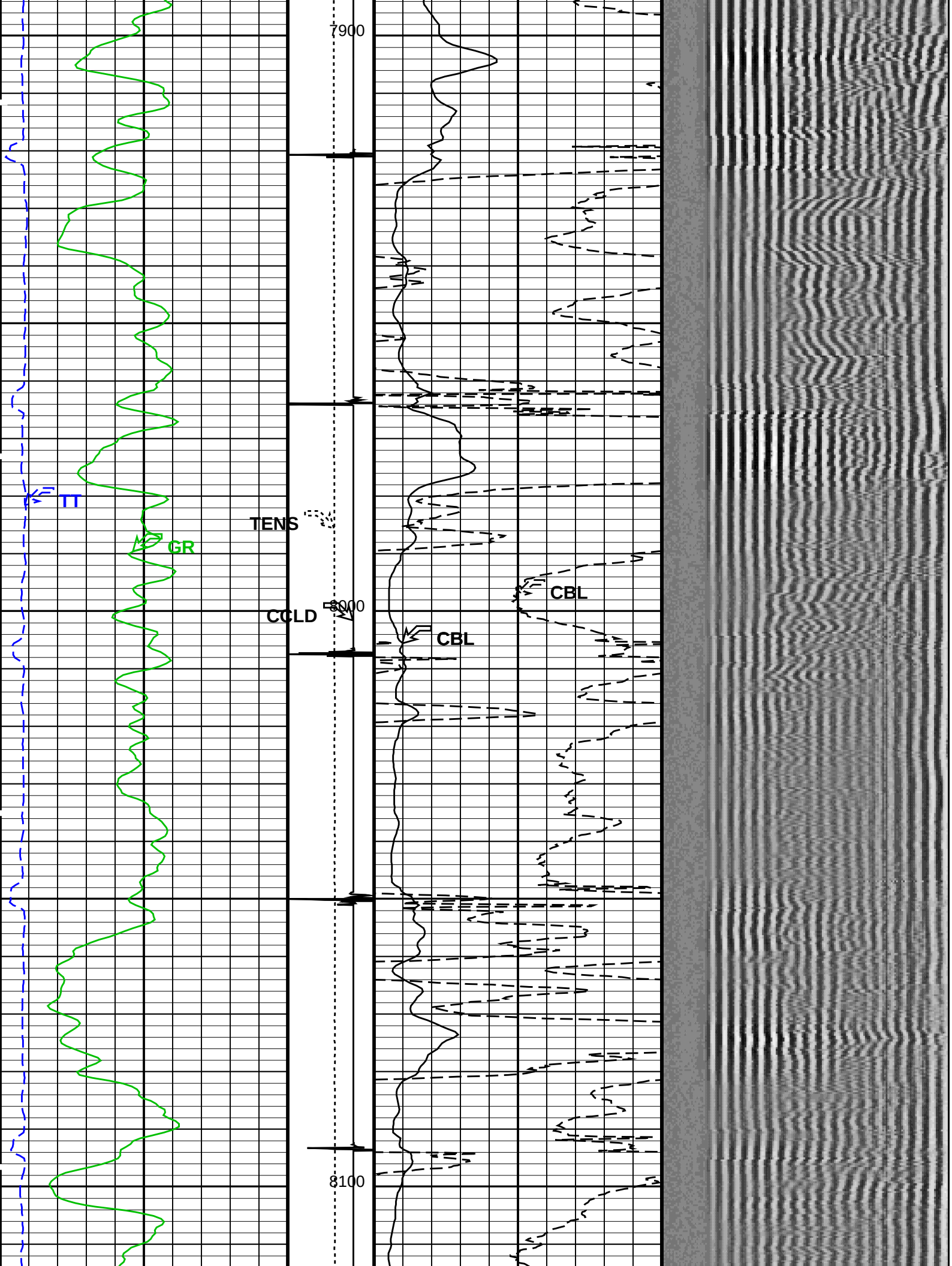
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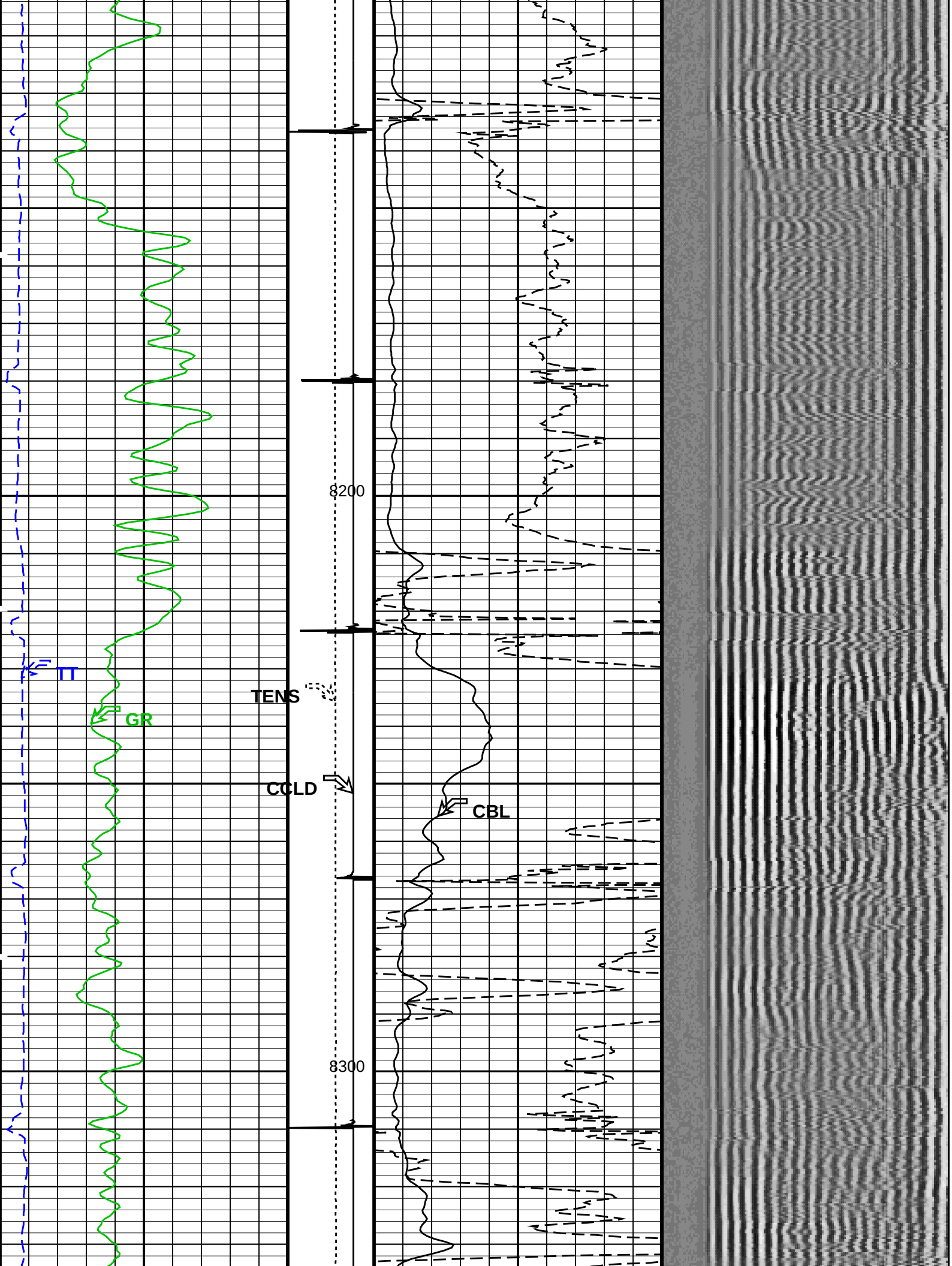
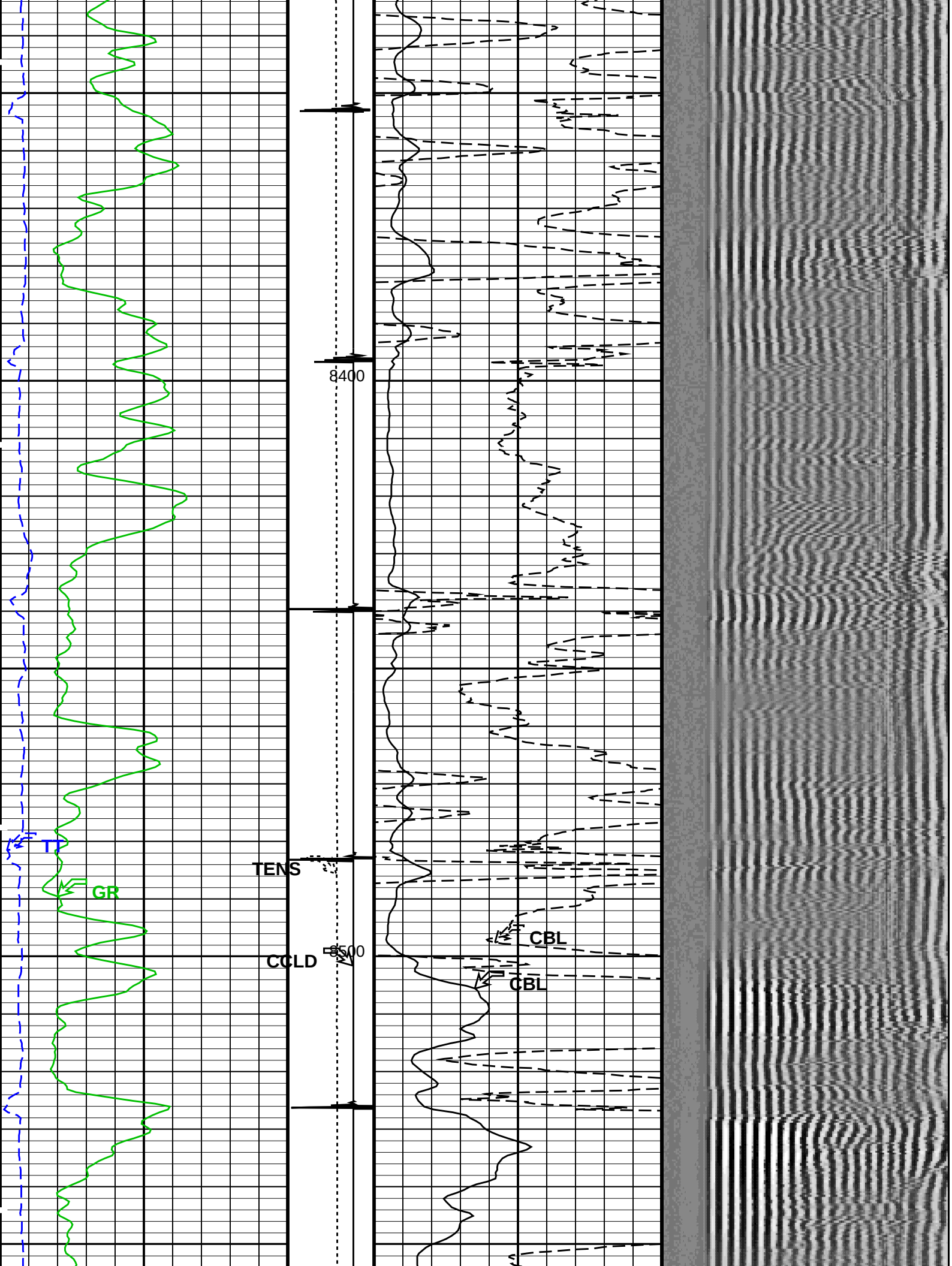
TT
GR
TENS
CCLD
8000
CBL
CBL
8100


TT
GR
TENS
CCLD
CBL
8200
8300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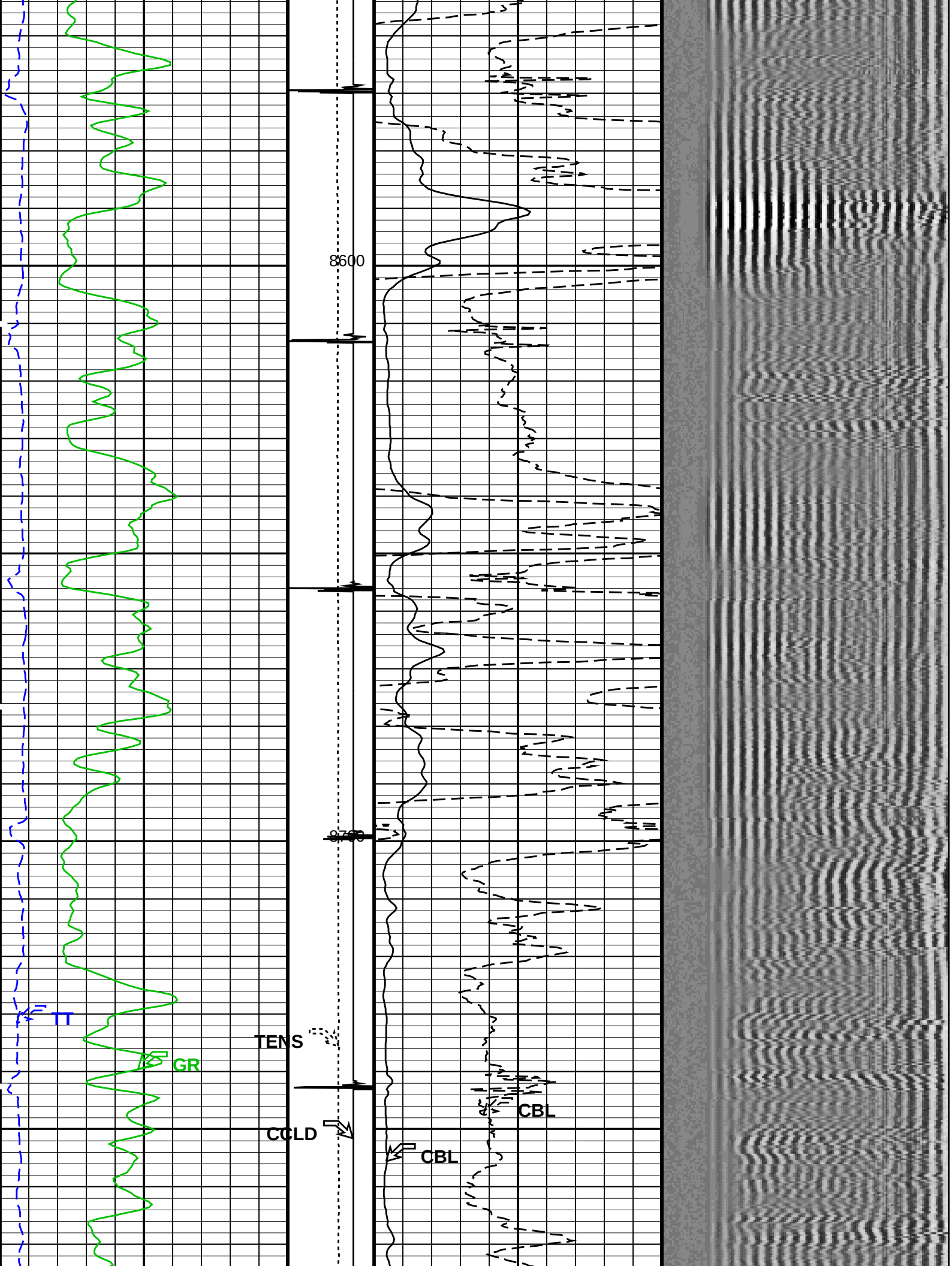
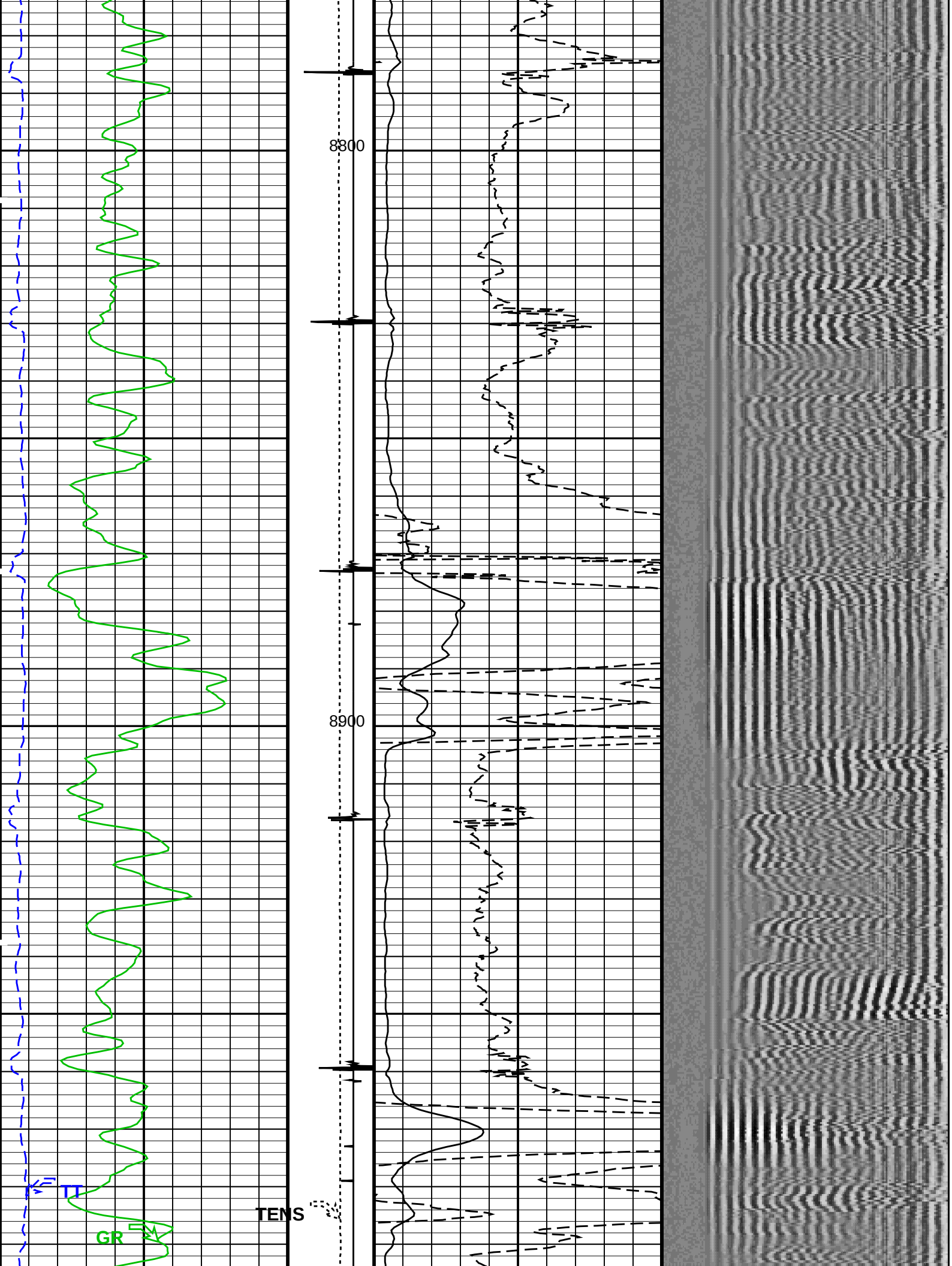
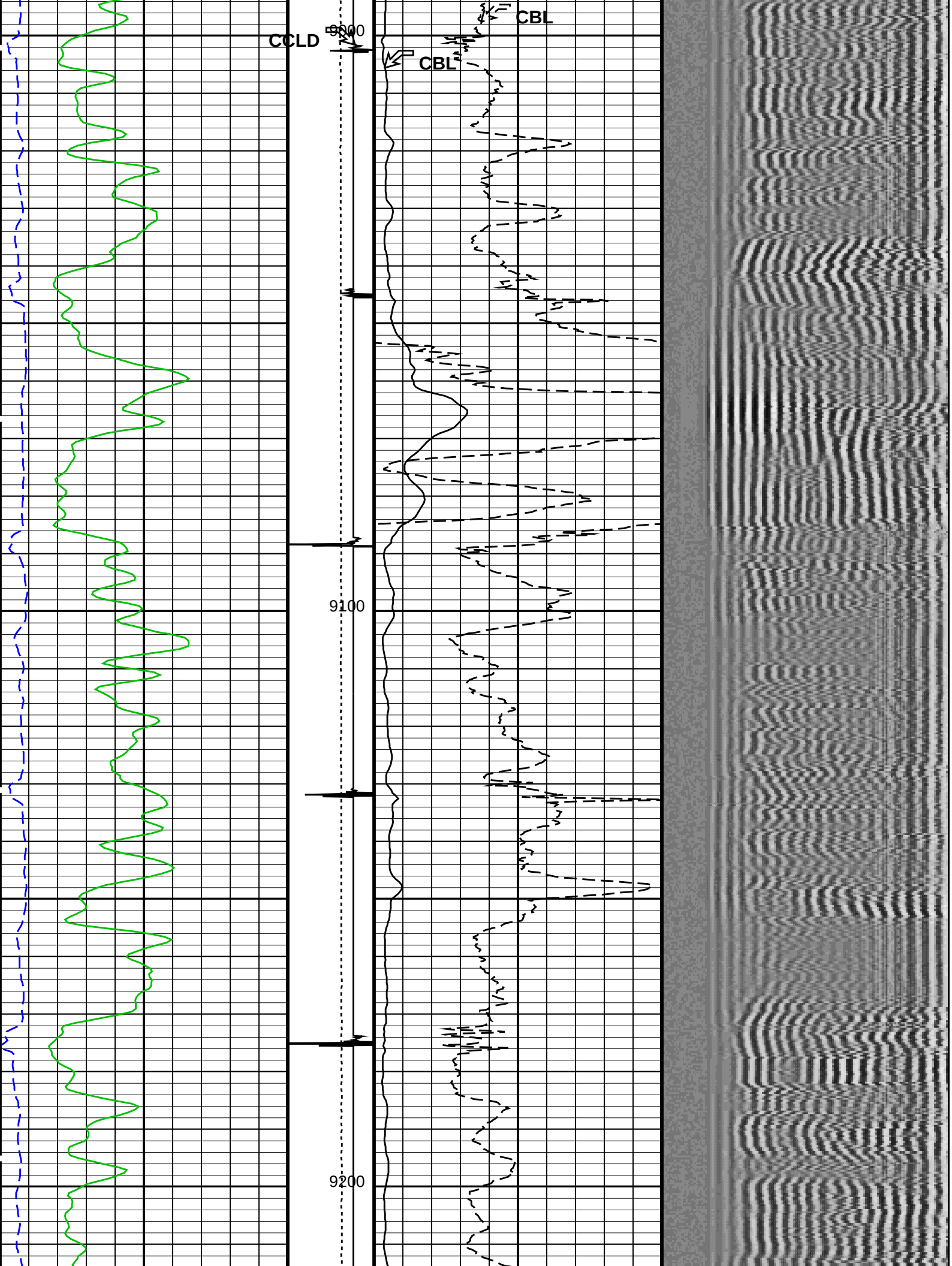
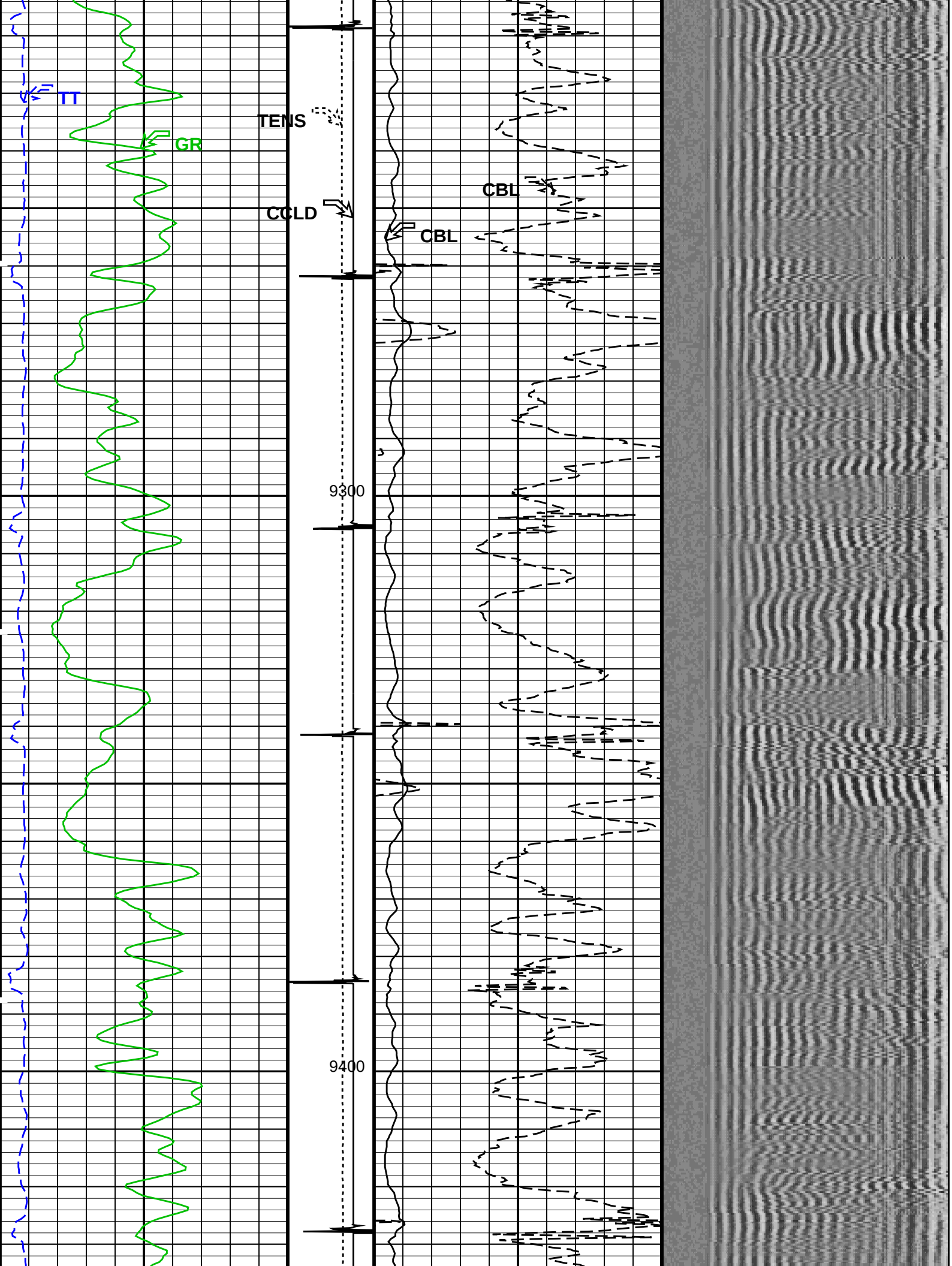
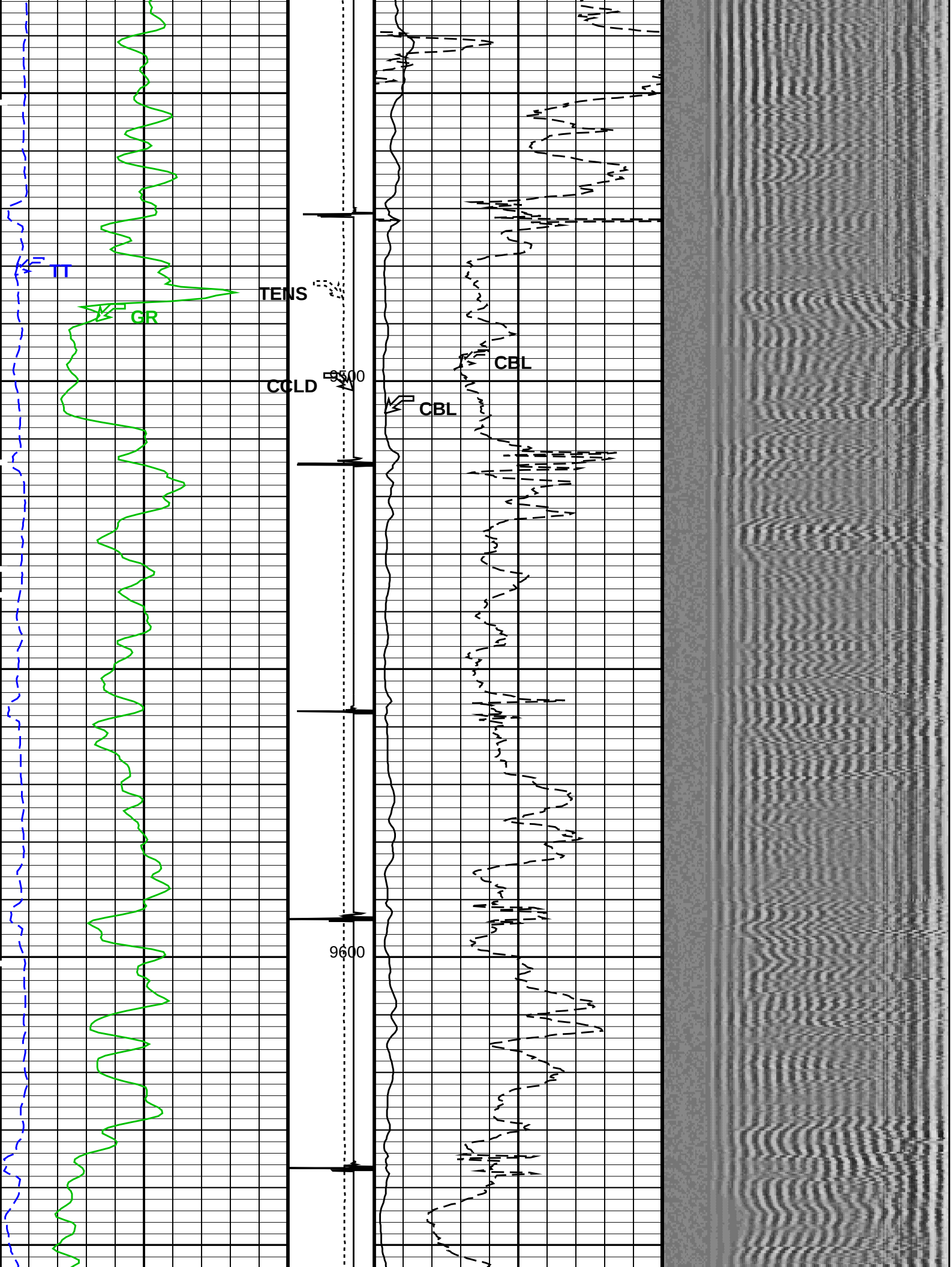
TT
GR
TENS
CCLD
8500
CBL
CBL

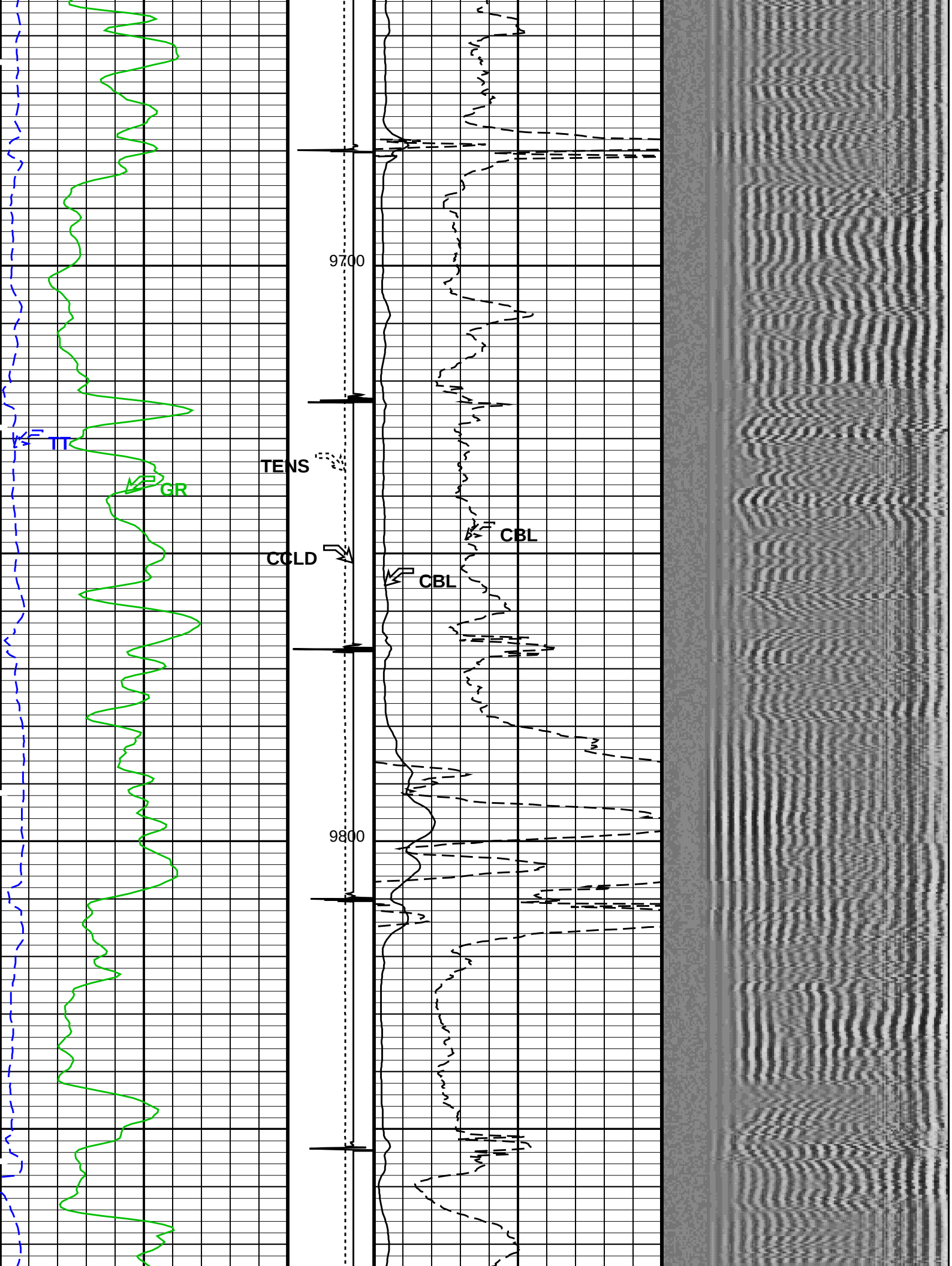

8600
TT
GR
TENS
CCLD
CBL
CBL

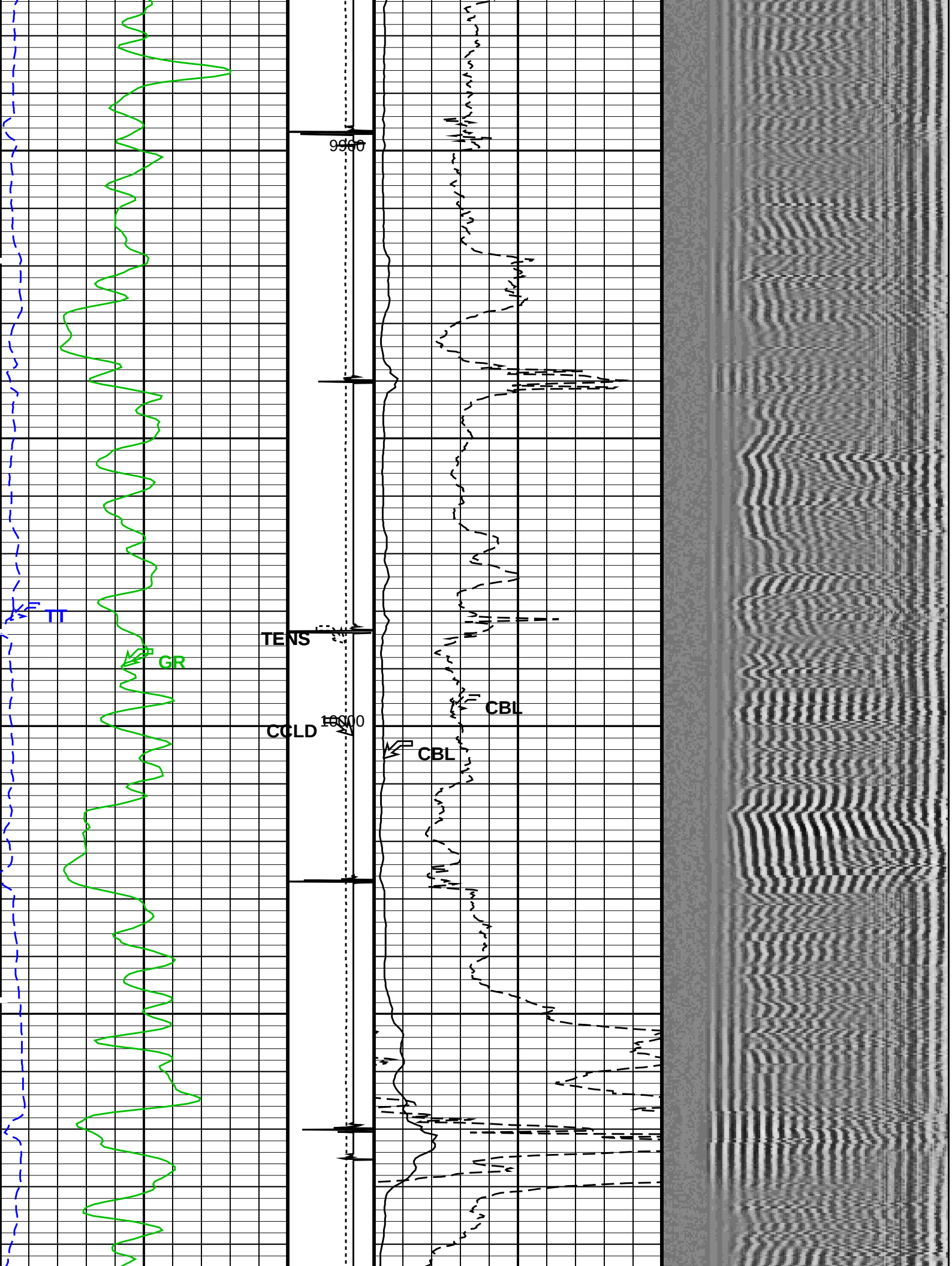

8800
8900
TT
GR
TENS

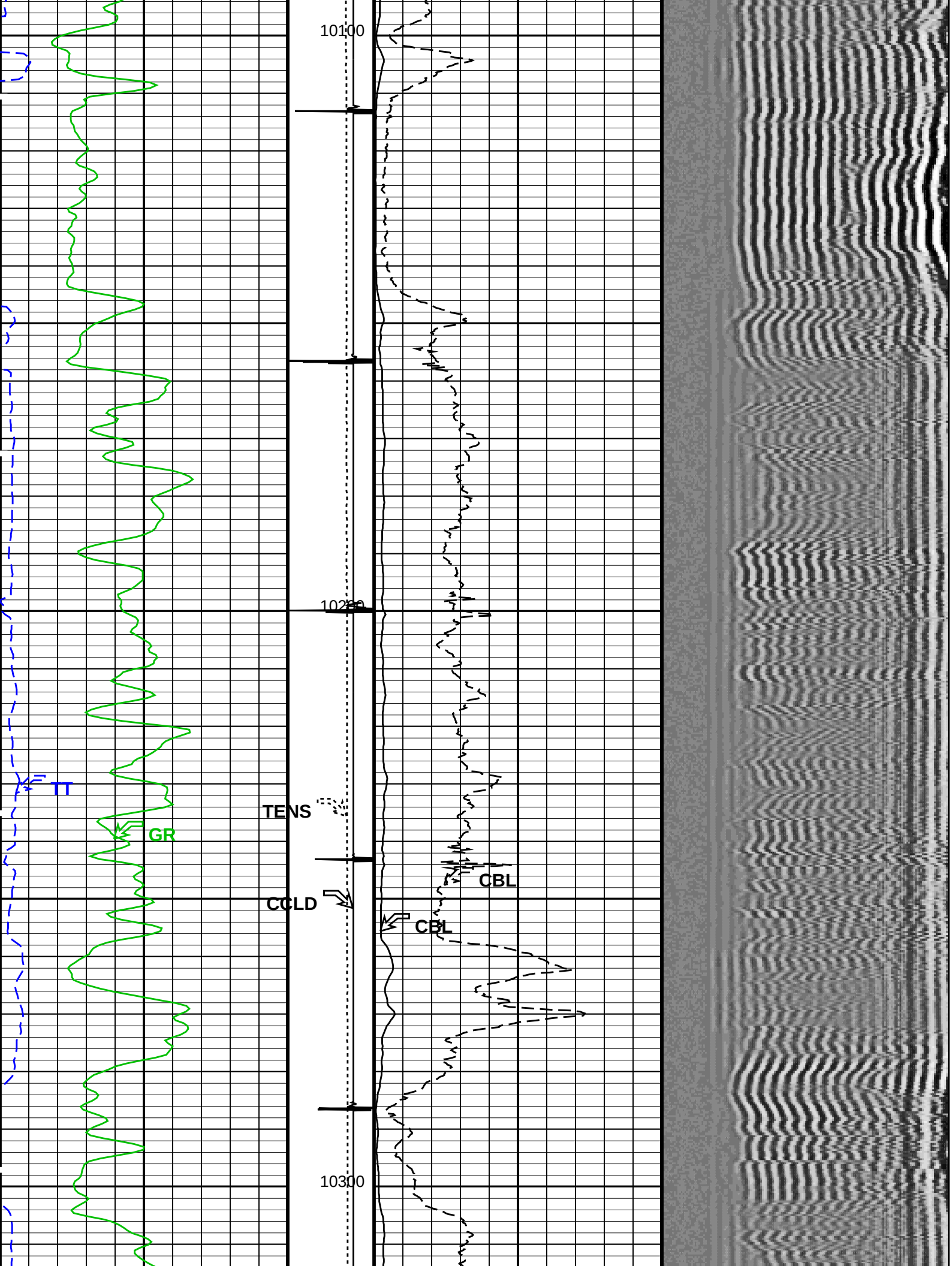

CCLD
CBL
CBL
9000
9100
9200

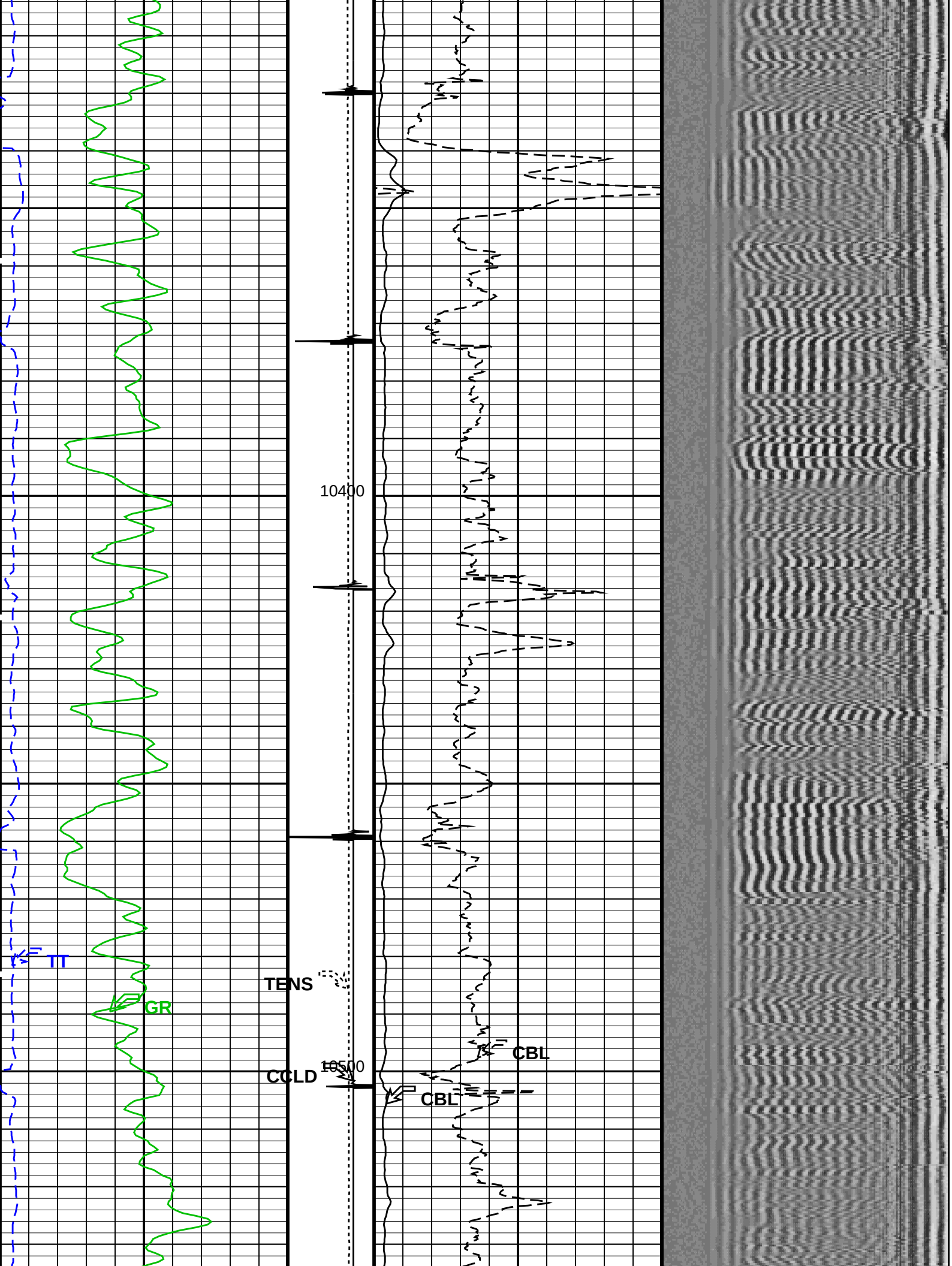

TT
GR
TENS
CCLD
CBL
CBL
9300
9400

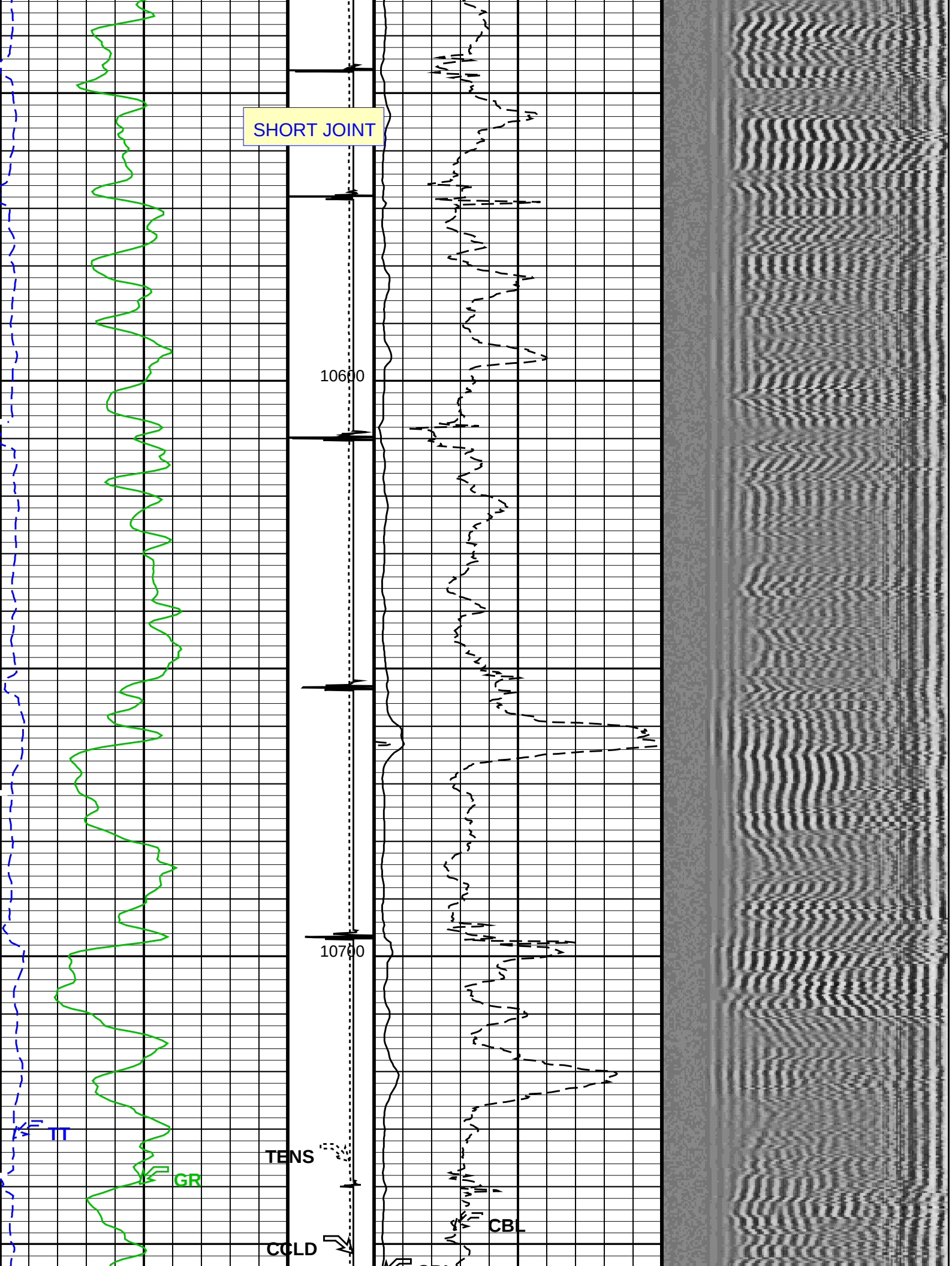

TT
TENS
GR
CCLD
9500
CBL
CBL
9600

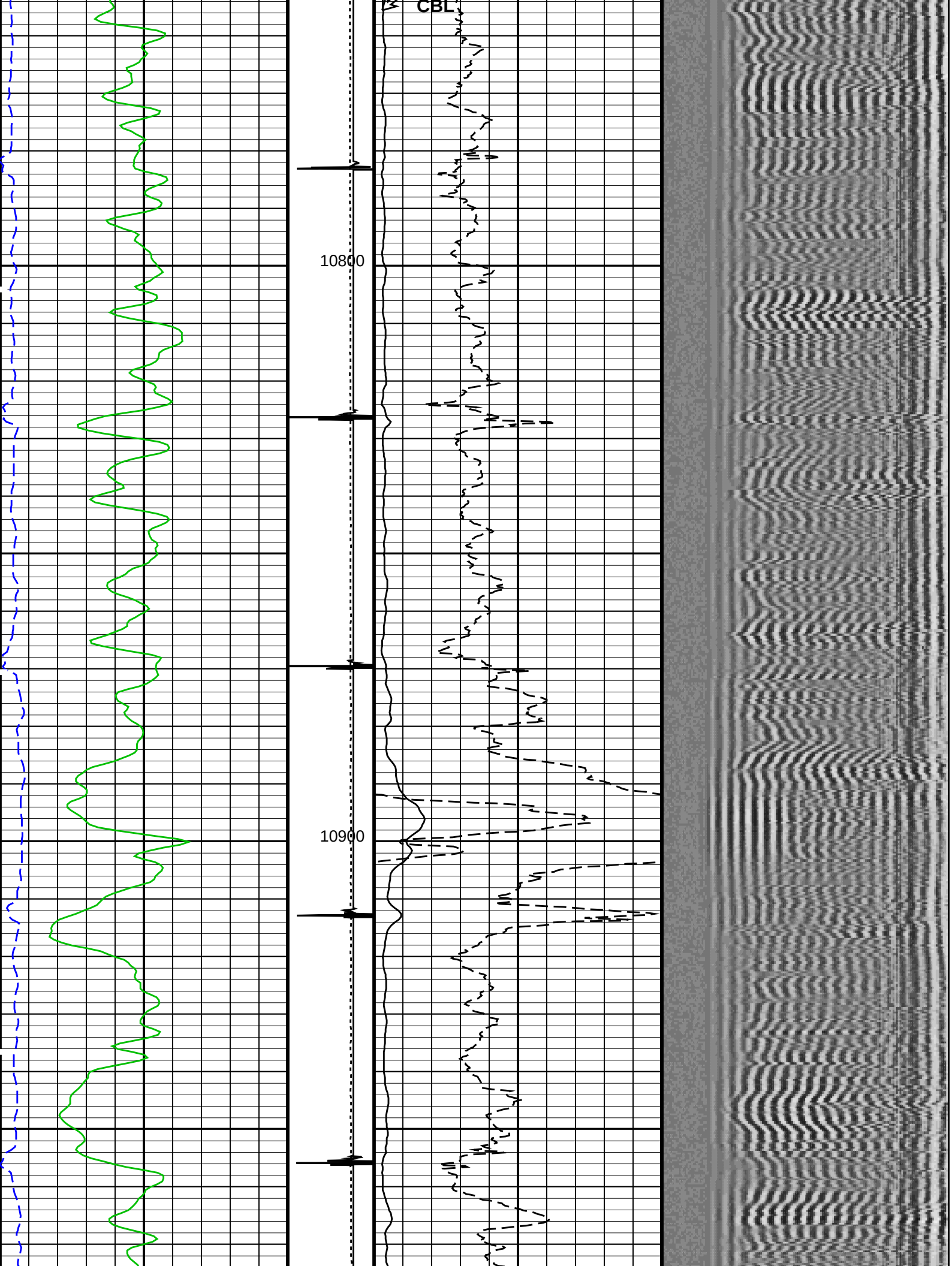

9700
TT
TENS
GR
CBL
CCLD
CBL
9800

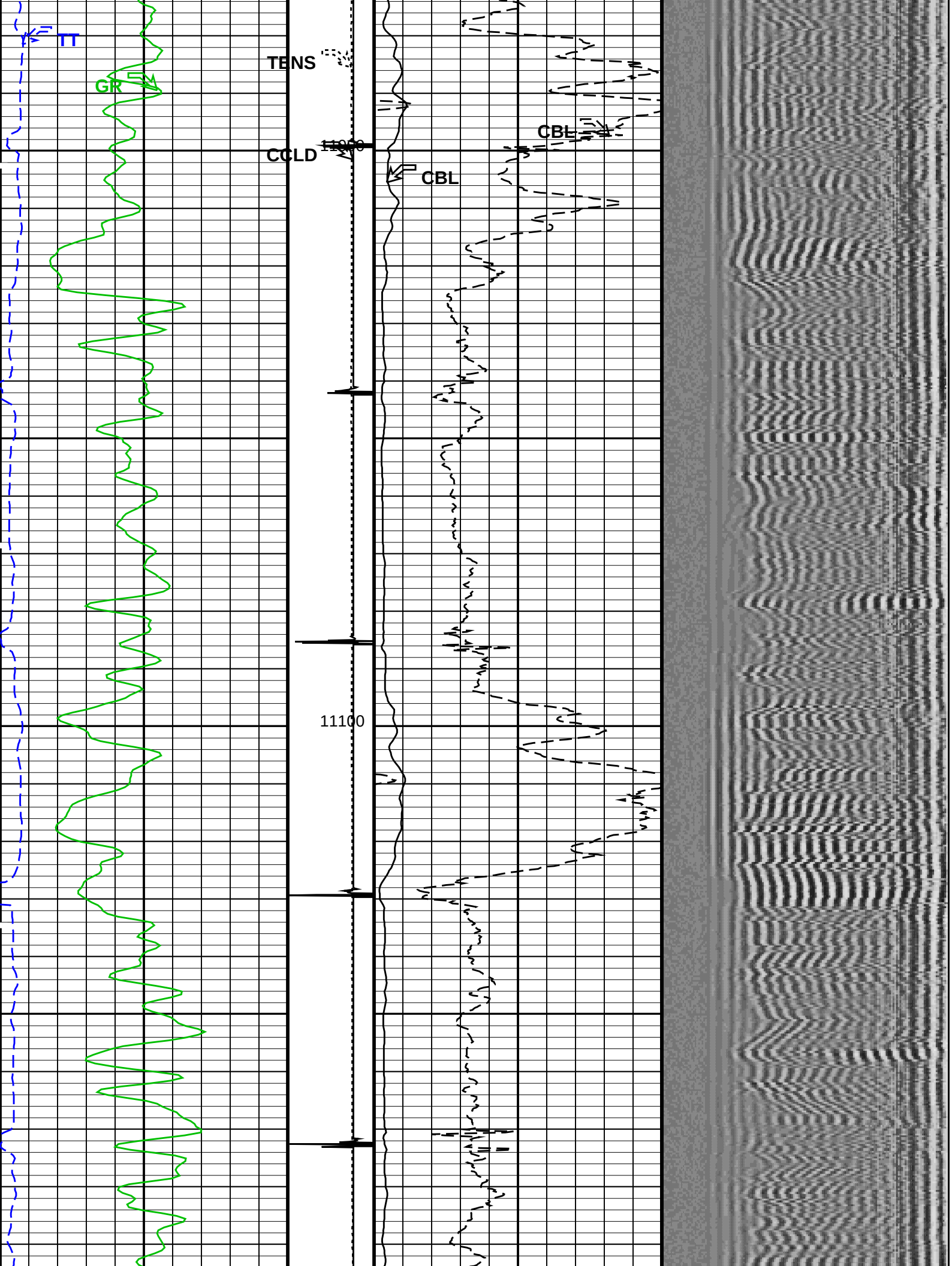

9900
TT
GR
TENS
CBL
CCLD
10000
CBL

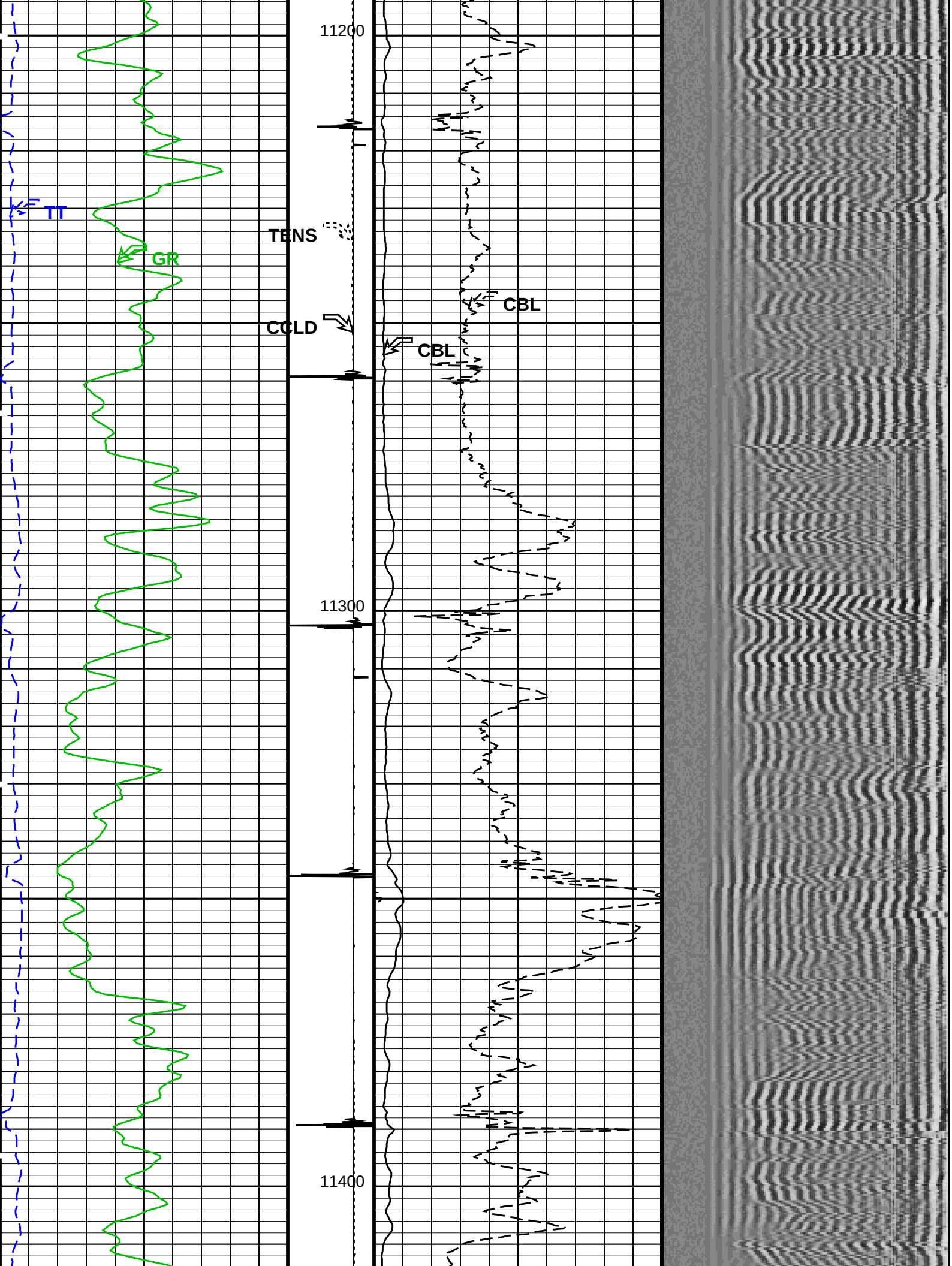

10100
10200
10300
TT
GR
TENS
CCLD
CBL
CBL

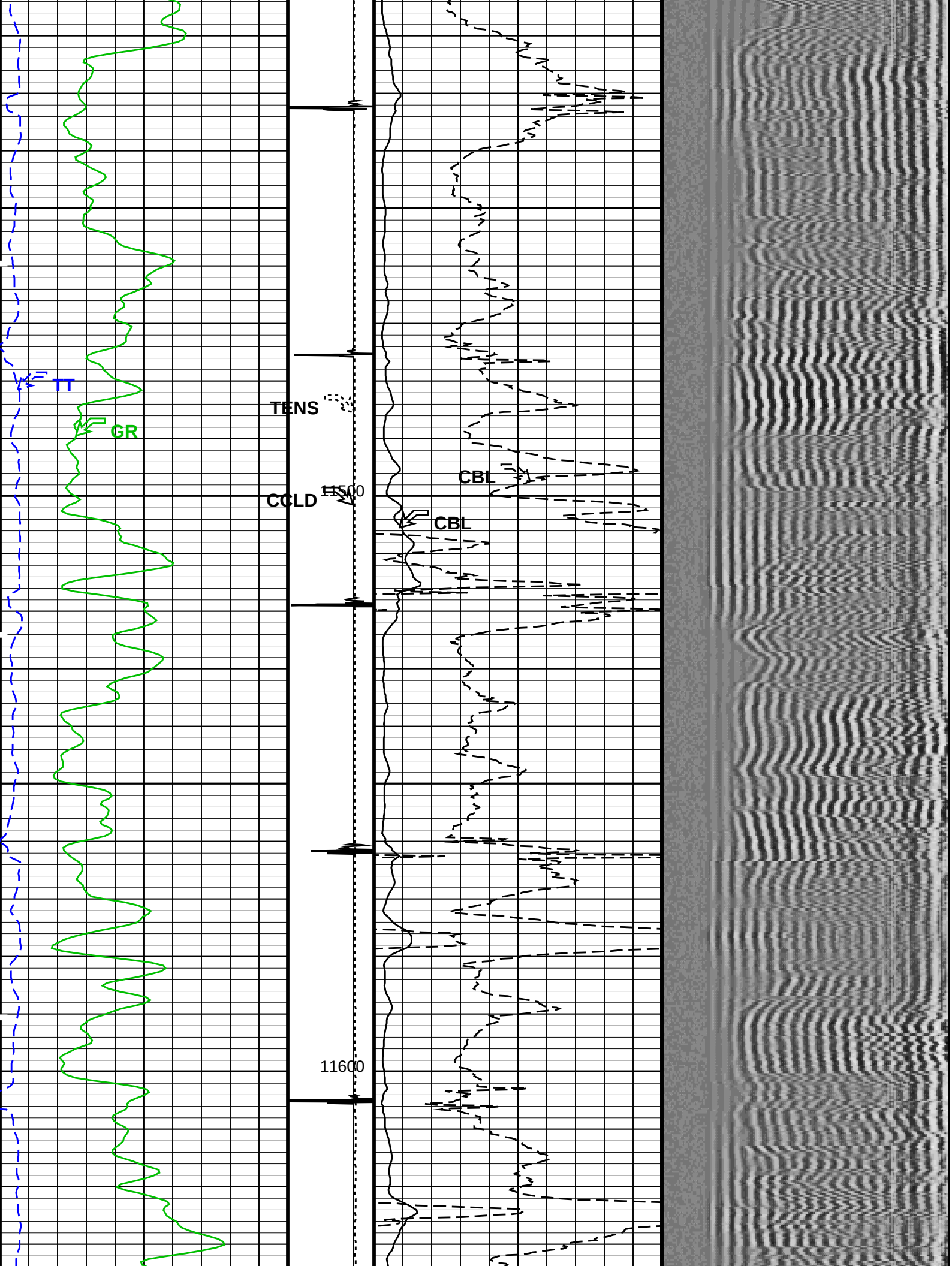

10400
TT
GR
TENS
CCLD
10500
CBL
CBL

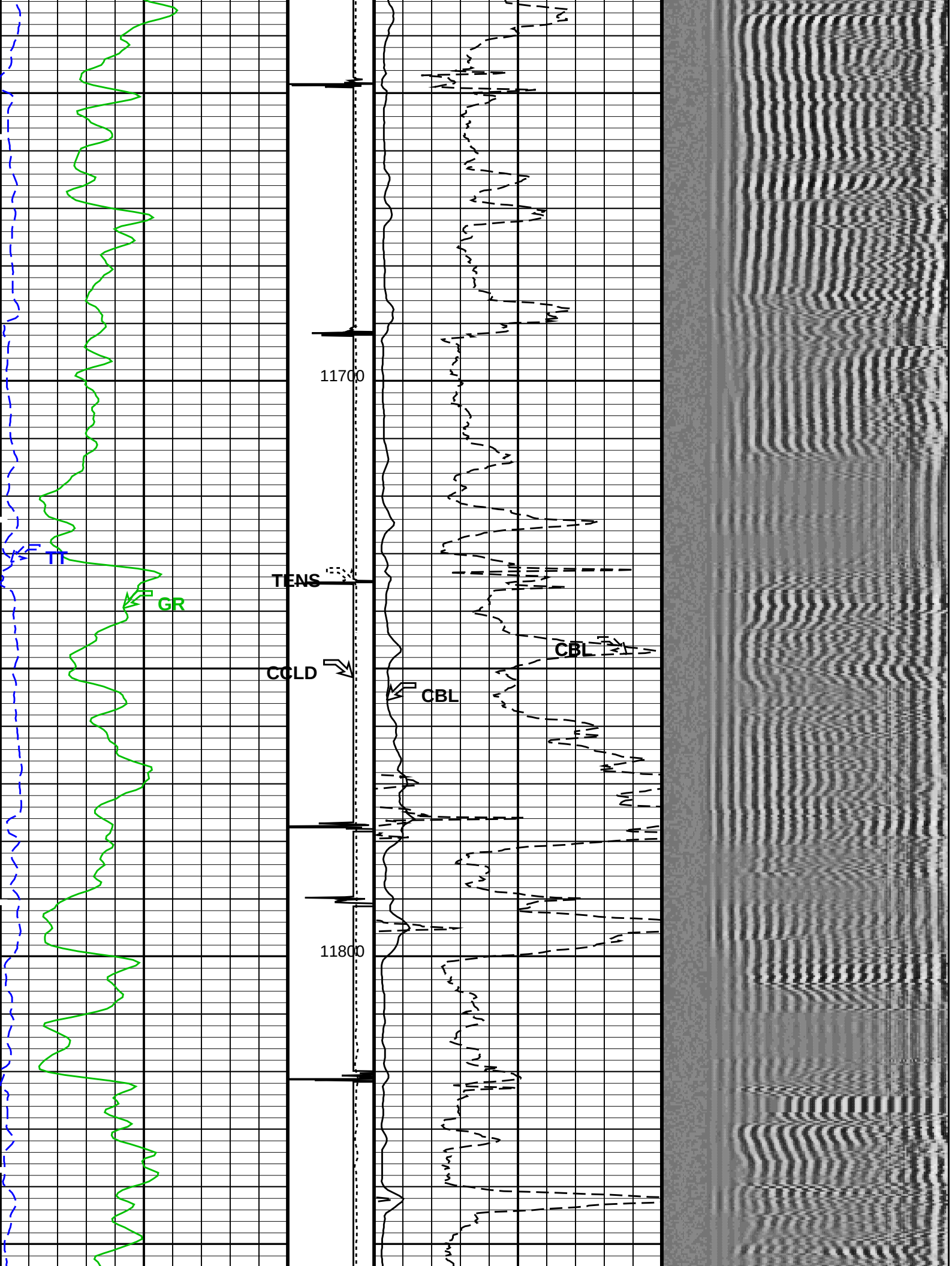

SHORT JOINT
10600
10700
TT
GR
TENS
CCLD
CBL

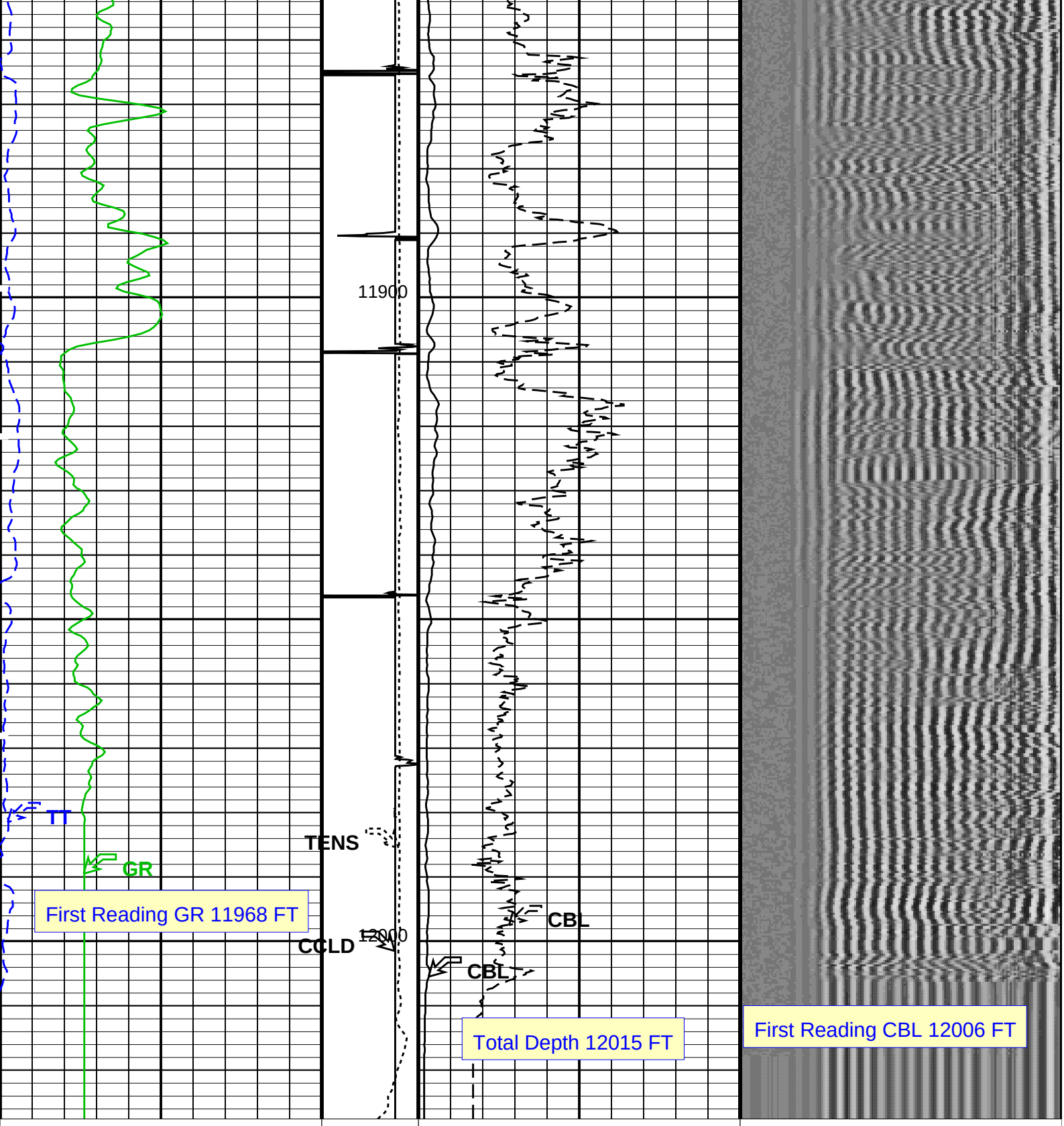

CBL
10800
10900


TT
GR
TENS
CCLD
CBL
CBL
11100


11200
TT
TENS
GR
CBL
CCLD
CBL
11300
11400


TT
GR
TENS
CCLD
CBL
CBL
11500
11600


11700
TT
TENS
GR
CBL
CCLD
CBL
11800



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
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: 31−Dec−2012 13:38

QP System Version: 19C0−187

OP System Version: 19C0−187

SCMT−CA	SRPC−5214−H2−2012−OP19	RST−C	SRPC−5214−H2−2012−OP19
PSPT	SRPC−5214−H2−2012−OP19		

<<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number	SCMS−CA 8140		
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	23−OCT−2012		
CBL Correction Factor	0.0696059	CBL Adjustment Factor (CBAF)	0.800000
MAP 1 Correction Factor	0.0973857	MAP Adjustment Factor (MPAF)	1.0
MAP 2 Correction Factor	0.104582		
MAP 3 Correction Factor	0.100665		
MAP 4 Correction Factor	0.0886387		
MAP 5 Correction Factor	0.0999776		
MAP 6 Correction Factor	0.110054		
MAP 7 Correction Factor	0.113590		
MAP 8 Correction Factor	0.0958998		

Parameters

DLIS Name	Description	Value	
	SCMT−CA: 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	5.0	FT
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	12015	FT

Input DLIS Files

DEFAULT	SCMT_RST_PSP_003LUP	FN:2	PRODUCER	31−Dec−2012 10:15	12022.5 FT	12.5 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_005PUP	FN:4	PRODUCER	31−Dec−2012 13:38		

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REPEAT ANALYSIS CBL VDL

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC

Well: SG 8513E−25 (D36 496)

Input DLIS Files

DEFAULT	SCMT_RST_PSP_005PUP	FN:4	PRODUCER	31−Dec−2012 13:38	12027.5 FT	−27.0 FT

Output DLIS Files

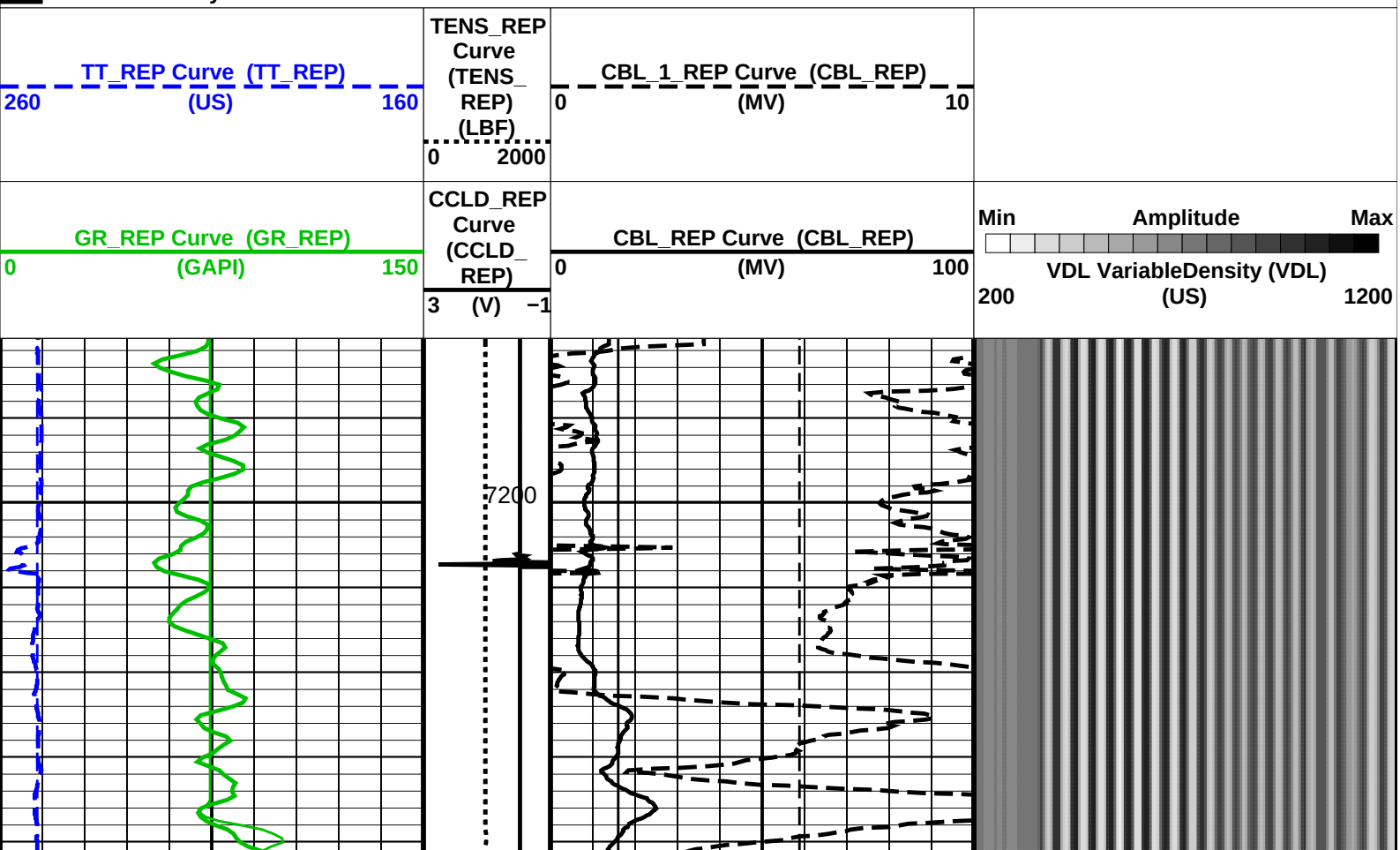
DEFAULT	SCMT_RST_PSP_009PUP	FN:8	PRODUCER	31−Dec−2012 14:04	7555.5 FT	7180.0 FT

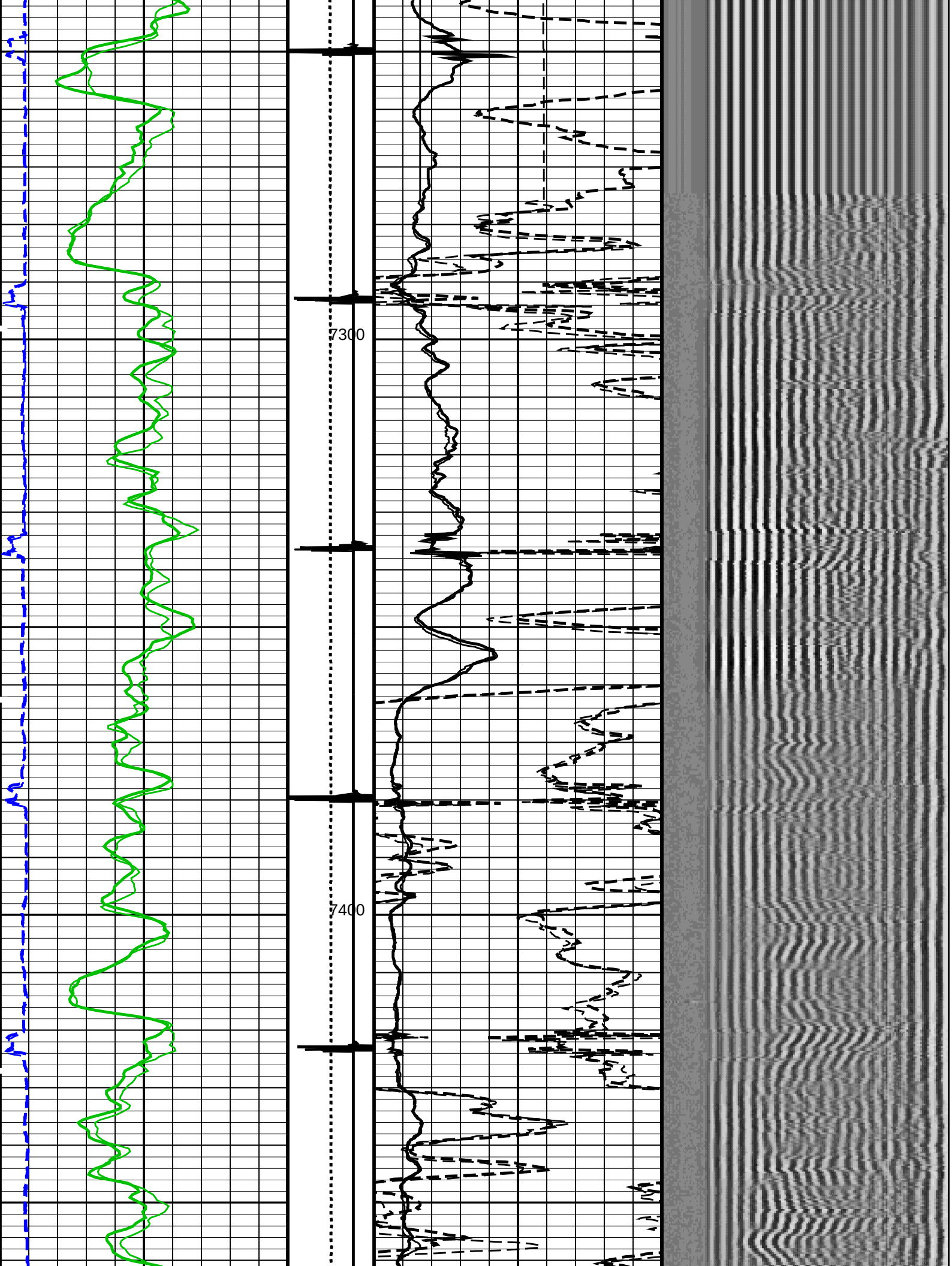
OP System Version: 19C0−187

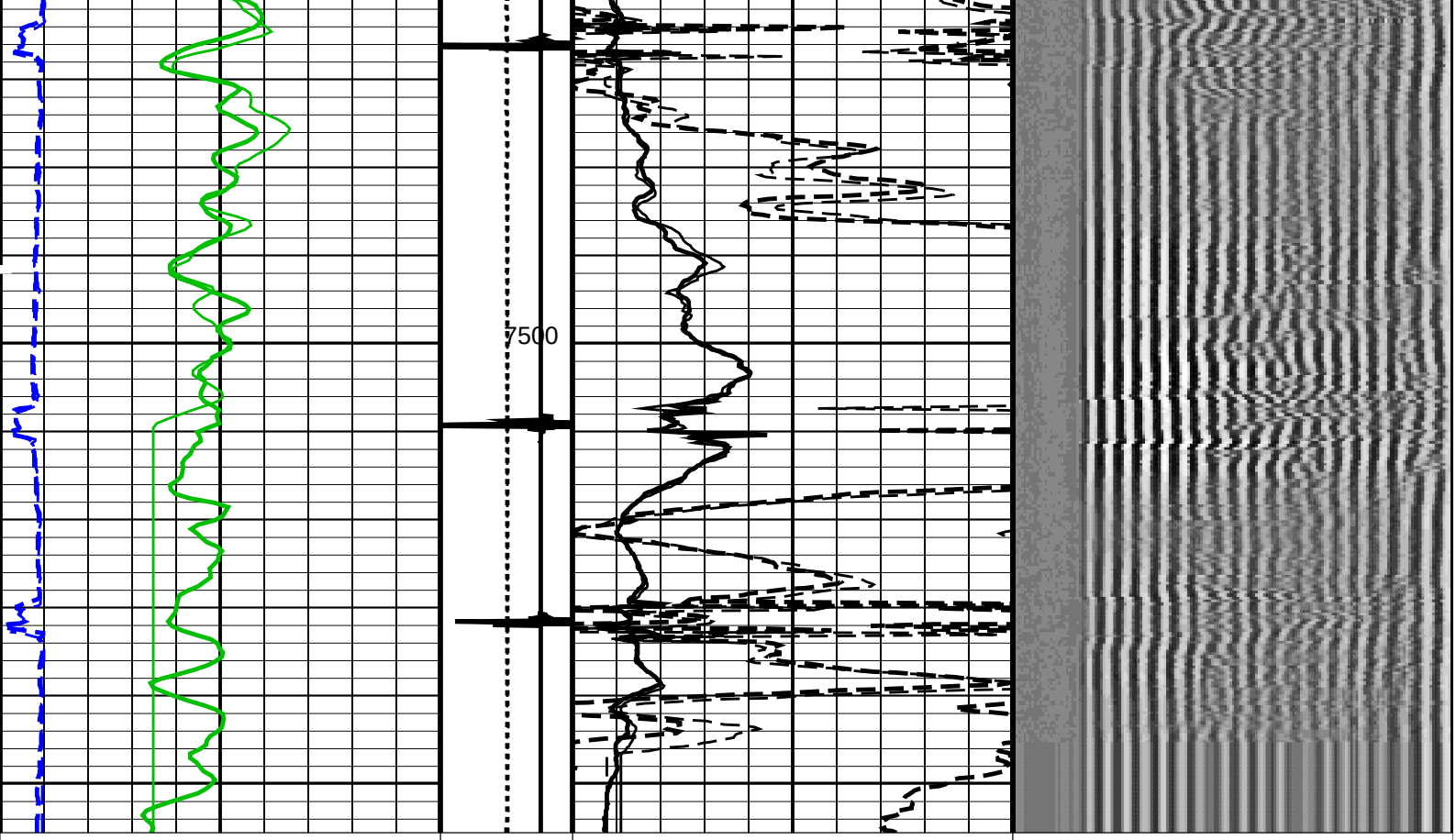
SCMT−CA	SRPC−5214−H2−2012−OP1	RST−C	SRPC−5214−H2−2012−OP1
PSPT	SRPC−5214−H2−2012−OP1		

PIP SUMMARY

Time Mark Every 60 S




7300
7400



GR_REP Curve (GR_REP)	CCLD_REP Curve (CCLD_REP)	CBL_REP Curve (CBL_REP)	Amplitude
0 (GAPI) 150	3 (V) −1	0 (MV) 100	Min Max
			VDL VariableDensity (VDL)
			200 (US) 1200
TT_REP Curve (TT_REP)	TENS_REP Curve (TENS_REP) (LBF)	CBL_1_REP Curve (CBL_REP)	
260 (US) 160	0 2000	0 (MV) 10	

PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL_REP Vertical Scale: 5" per 100' Graphics File Created: 31−Dec−2012 14:04

OP System Version: 19C0−187

SCMT−CA	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−CA 8140		
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	23−OCT−2012		
CBL Correction Factor	0.0696059	CBL Adjustment Factor (CBAF)	0.800000
MAP 1 Correction Factor	0.0972857	MAP Adjustment Factor (MBAF)	1.0

MAP 1 Correction Factor	0.0973857	MAP Adjustment Factor (MPAF)	1.0
MAP 2 Correction Factor	0.104582		
MAP 3 Correction Factor	0.100665		
MAP 4 Correction Factor	0.0886387		
MAP 5 Correction Factor	0.0999776		
MAP 6 Correction Factor	0.110054		
MAP 7 Correction Factor	0.113590		
MAP 8 Correction Factor	0.0958998		

Parameters

DLIS Name	Description	Value	
	SCMT−CA: 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	7.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	12015	FT

Input DLIS Files

DEFAULT	SCMT_RST_PSP_005PUP	FN:4	PRODUCER	31−Dec−2012 13:38	12027.5 FT	−27.0 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_009PUP	FN:8	PRODUCER	31−Dec−2012 14:04

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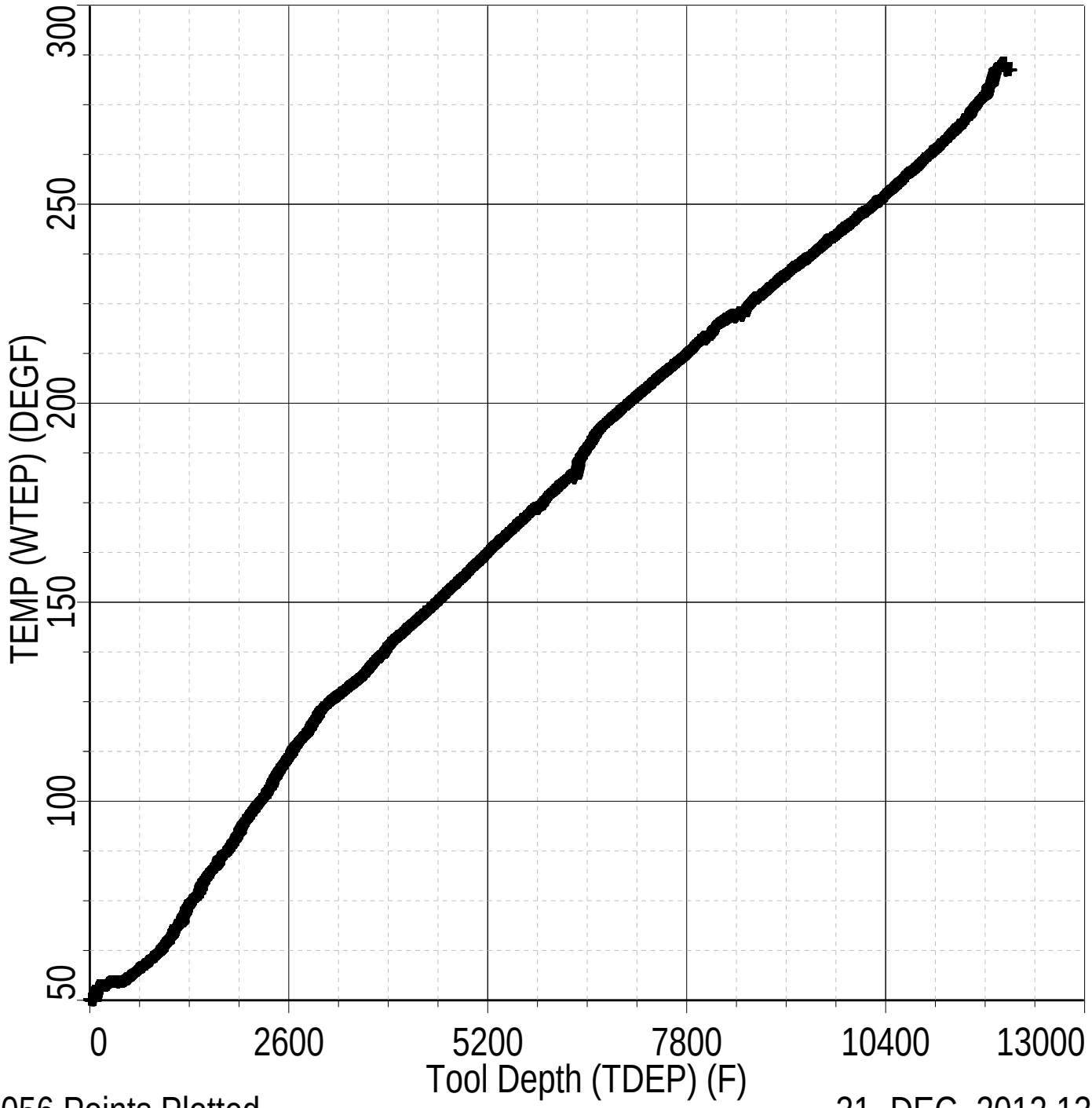
TEMPERATURE PLOT

MAXIS Field Log

Index: 12027.5 − −27.0 FT



24056 Points Plotted

31−DEC−2012 13:48

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PBMS COEFFICIENTS

MAXIS Field Log

Client:	**ENCANA OIL & GAS (USA) INC**	**Tool:**	**PSP**
Field:	**STORY GULCH**	**Sub Type:**	**PBMS**
Well:	**SG 8513E−25 (D36 496)**	**Sensor:**	**GR**
Run date:	**31−Dec−2012**		

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

	Rt**0	Rt**1
Rt0**	**+.182000000000e+04**	**+.332000000000e+04**

Client:	**ENCANA OIL & GAS (USA) INC**	**Tool:** **PSP**
Field:	**STORY GULCH**	**Sub Type:** **PBMS**
Well:	**SG 8513E−25 (D36 496)**	**Sensor:** **WellTemp RTD**
Run date:	**31−Dec−2012**	

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
Tt0**	**−.391987973189E+03**	**+.191346892512E+03**	**−.440920753451E+02**

	Tt**3	Tt**4	Tt**5
Tt0**	**+.957191300908E+01**	**−.711421725686E+00**	**0.0**

Client:	**ENCANA OIL & GAS (USA) INC**	**Tool:**	**PSP**
Field:	**STORY GULCH**	**Sub Type:**	**PBMS**
Well:	**SG 8513E−25 (D36 496)**	**Sensor:**	**CQG**
Run date:	**31−Dec−2012**		

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
Fc0**	**+.714463802232E+04**	**+.183434658655E−01**	**−.156620073569E−06**
Fc1**	**−.100638308957E+01**	**−.119899563644E−04**	**−.912155899025E−10**
Fc2**	**+.936268101283E−06**	**+.423898071451E−10**	**+.958076371919E−15**
Fc3**	**+.185123362373E−11**	**+.203107925433E−15**	**0.0**
Fc4**	**0.0**	**0.0**	**0.0**
Fc5**	**0.0**	**0.0**	**0.0**

	Fb**3	Fb**4	Fb**5
Fc0**	**−.746577997611E−10**	**−.588773826860E−15**	**−.622250441458E−19**
Fc1**	**−.120636521092E−15**	**+.400325894750E−19**	**0.0**
Fc2**	**0.0**	**0.0**	**0.0**
Fc3**	**0.0**	**0.0**	**0.0**
Fc4**	**0.0**	**0.0**	**0.0**
Fc5**	**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

	(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

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MASTER CALIBRATION

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Slim Cement Mapping Tool, 1−11/16 OD Master Calibration − SCMT CBL and MAP Amplitude Normalization in SFT−155/−255							
Master: 23−Oct−2012 16:09							
MAP 1 Amplitude Plus	1075	1232	−−	−−	−−	−−	MV
MAP 2 Amplitude Plus	1075	1147	−−	−−	−−	−−	MV
MAP 3 Amplitude Plus	1075	1192	−−	−−	−−	−−	MV
MAP 4 Amplitude Plus	1075	1354	−−	−−	−−	−−	MV
MAP 5 Amplitude Plus	1075	1200	−−	−−	−−	−−	MV
MAP 6 Amplitude Plus	1075	1090	−−	−−	−−	−−	MV
MAP 7 Amplitude Plus	1075	1056	−−	−−	−−	−−	MV
MAP 8 Amplitude Plus	1075	1251	−−	−−	−−	−−	MV
CBL Amplitude Plus	1350	1379	−−	−−	−−	−−	MV

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

Primary Equipment:

Slim Cement Mapping Xmitter Electronics	SCMX − CA	
Slim Cement Mapping Sonde	SCMS − CA	8140
Slim Cement Mapping Cartridge	SCMC − CA	8110

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		1232
	500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)	

Phase	MAP 2 Amplitude Plus MV	Value
Master		1147
	500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)	

Phase	MAP 3 Amplitude Plus MV	Value
Master		1192
	500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)	

Phase	MAP 4 Amplitude Plus MV	Value
Master		1354
	500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)	

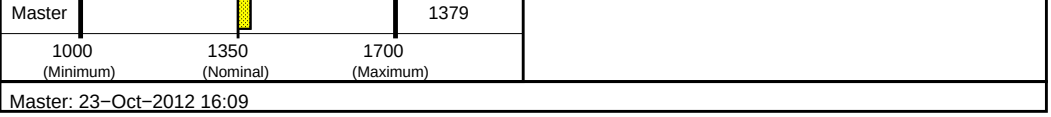
Phase	MAP 5 Amplitude Plus MV	Value
Master		1200
	500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)	

Phase	MAP 6 Amplitude Plus MV	Value
Master		1090
	500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)	

Phase	MAP 7 Amplitude Plus MV	Value
Master		1056
	500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)	

Phase	MAP 8 Amplitude Plus MV	Value
Master		1251
	500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)	

Phase	CBL Amplitude Plus MV	Value



Master: 23−Oct−2012 16:09

Company:	**ENCANA OIL & GAS (USA) INC**
Well:	**SG 8513E−25 (D36 496)**
Field:	**STORY GULCH**
County:	**GARFIELD**
State:	**COLORADO**

Schlumberger

SLIM CEMENT MAPPING LOG
CBL−VDL
GR − CCL