Schlumberger

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

Well: **HAGEN FEDERAL 22−2D (PC22)**
Field: **SOUTH PARACHUTE**
County: **GARFIELD** State: **COLORADO**

County: GARFIELD
Field: SOUTH PARACHUTE
Location: SHL: 654 FNL & 1819 FWL
Well: HAGEN FEDERAL 22−2D (PC22)
Company: ENCANA OIL & GAS (USA) INC

SLIM CEMENT MAPPING LOG
CBL−VDL
GR−CCL

LOCATION

SHL: 654 FNL & 1819 FWL
BHL: 700 FNL & 1923 FEL

Elev.: K.B. 6543.00 ft
G.L. 6521.00 ft
D.F. 6542.00 ft

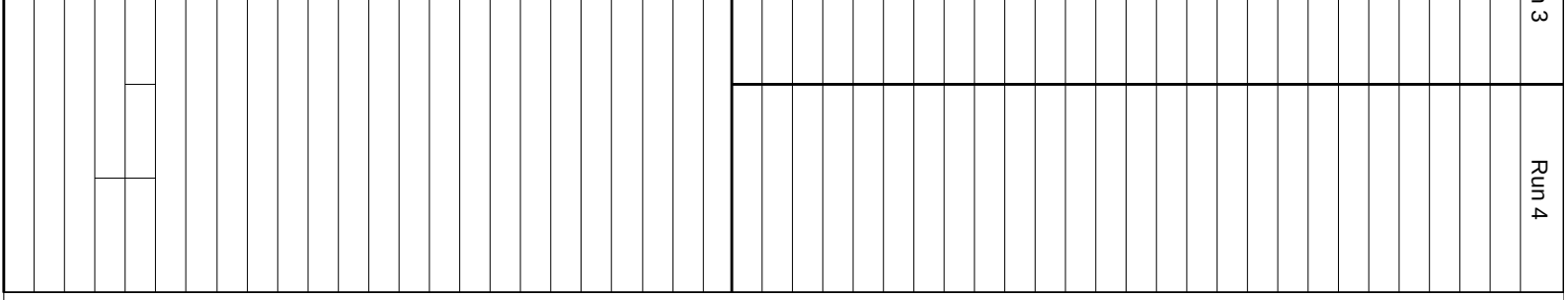
Permanent Datum: GROUND LEVEL Elev.: 6521.00 ft
Log Measured From: KELLY BUSHING 22.00 ft above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	Section	Township	Range
05−045−22015−0(	22	7S	95W

Logging Date		21−Oct−2013						
Run Number		1						
Depth Driller		8040 ft						
Schlumberger Depth		7968 ft						
Bottom Log Interval		7959 ft						
Top Log Interval		60 ft						
Casing Fluid Type		FRESH WATER						
Salinity								
Density		8.4 lbm/gal						
Fluid Level		60 ft						
BIT/CASING/TUBING STRING								
Bit Size		8.750 in						
From		22 ft						
To		8040 ft						
Casing/Tubing Size		4.500 in						
Weight		11.6 lbm/ft						
Grade		S−80						
From		22 ft						
To		8020 ft						
Maximum Recorded Temperatures		220 degF						
Logger On Bottom	Time	21−Oct−2013	20:30					
Unit Number	Location	391	GRAND JUNCTION					
Recorded By		KIRSTIE BUNTING						
Witnessed By		SHANE						

		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.

OTHER SERVICES1	OTHER SERVICES2
OS1: RESERVOIR SATURATION	OS1:
OS2: LOG	OS2:
OS3: SIGMA MODE	OS3:
OS4: GR−CCL	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
FIRST RUN IN HOLE CORRELATED TO DOWN LOG	
TOOL RAN AS PER TOOL SKETCH	
ENTRANCE TIME: 20:00	
TIME ON BOTTOM: 20:30	
EXIT TIME: 23:00	

MAXIMUM RECORDED TEMPERATURE: 220 DEGF

MAXIMUM RECORDED PRESSURE: 3296 PSIA

EXPECTED CBL AMPLITUDE IN FREE PIPE IS 80 MV

MAIN PASS LOGGED UNDER ZERO SURFACE PRESSURE

SHORT JOINTS : 5692 FT & 6750 FT

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

CREW: KBUNTING, KIRWIN, WAZIZ, KJOHNS

RUN 1		RUN 2	
SERVICE ORDER #:	CGF9−00156	SERVICE ORDER #:	
PROGRAM VERSION:	19C0−187	PROGRAM VERSION:	
FLUID LEVEL:	60 ft	FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

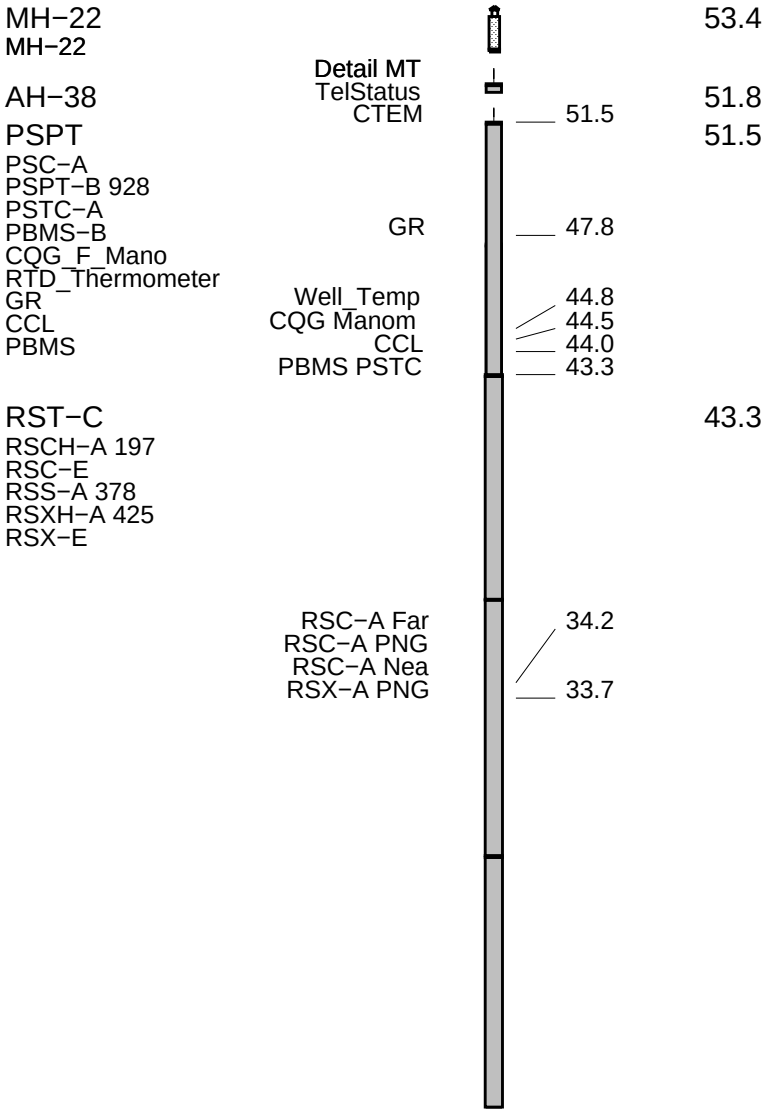
EQUIPMENT DESCRIPTION

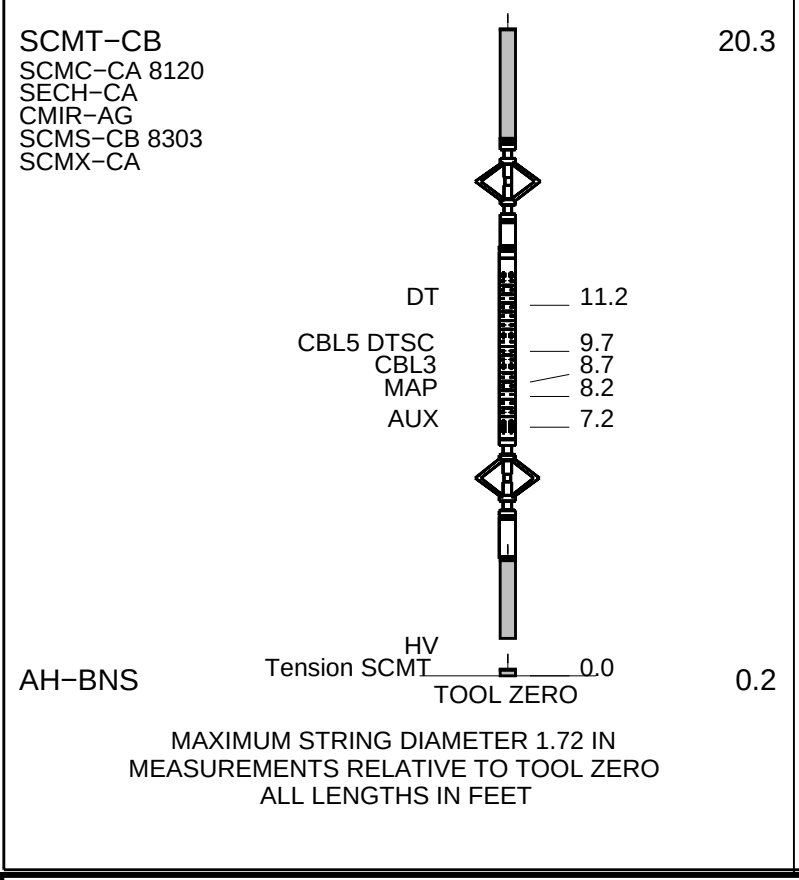
RUN 1 RUN 2

SURFACE EQUIPMENT

WITM−A
PSC_16MHZ

DOWNHOLE EQUIPMENT





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: HAGEN FEDERAL 22−2D (PC22)**

Input DLIS Files

DEFAULT	**Splice_SCMT_RST_PSP_042CUP**	**FN:1**	**PRODUCER**	**21−Oct−2013 23:08**	**7974.5 FT**	**−35.0 FT**

Output DLIS Files

DEFAULT	**SCMT_RST_PSP_043PUP**	**FN:39**	**PRODUCER**	**21−Oct−2013 23:11**	**7978.5 FT**	**−83.0 FT**

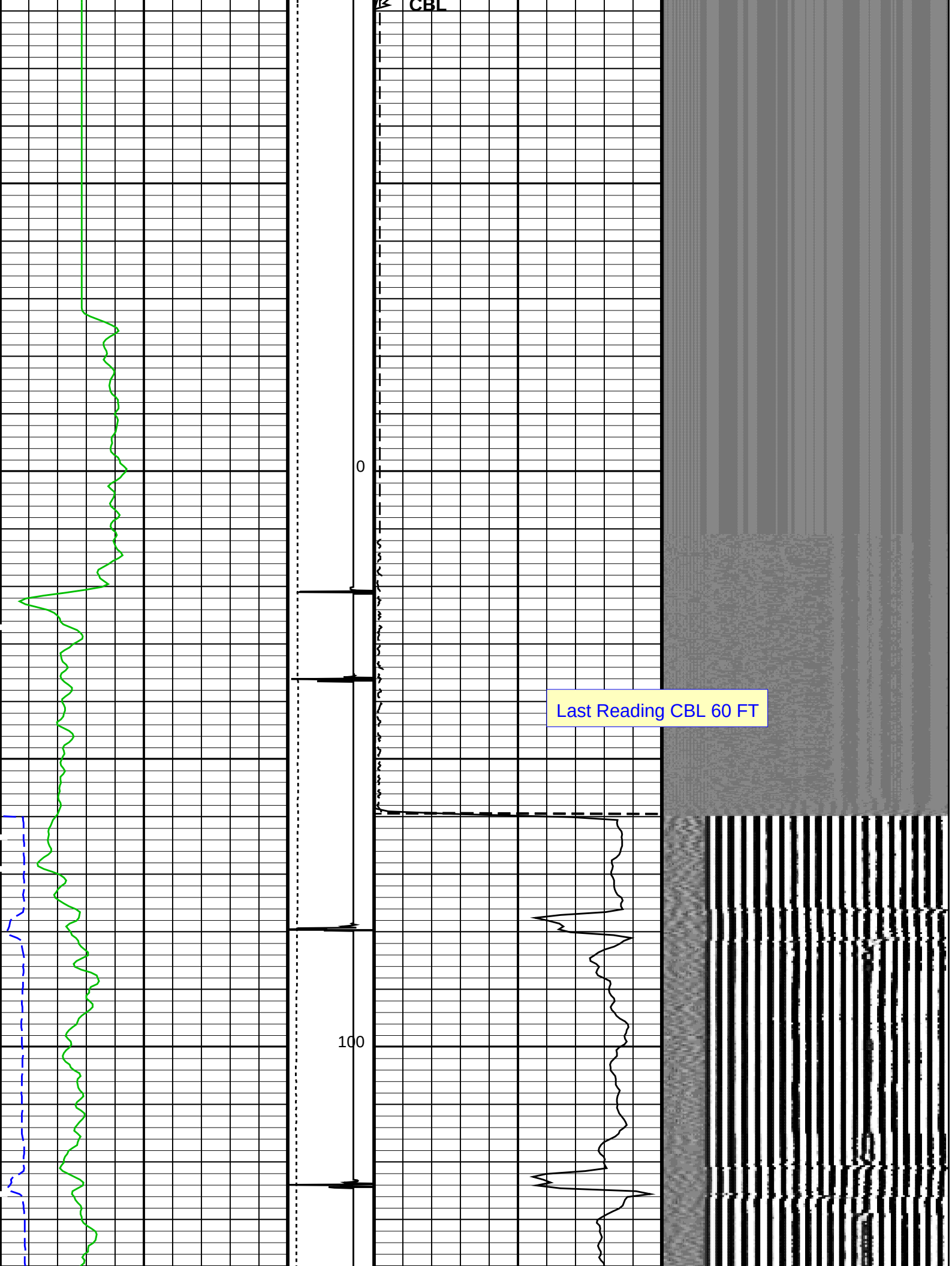
OP System Version: 19C0−187

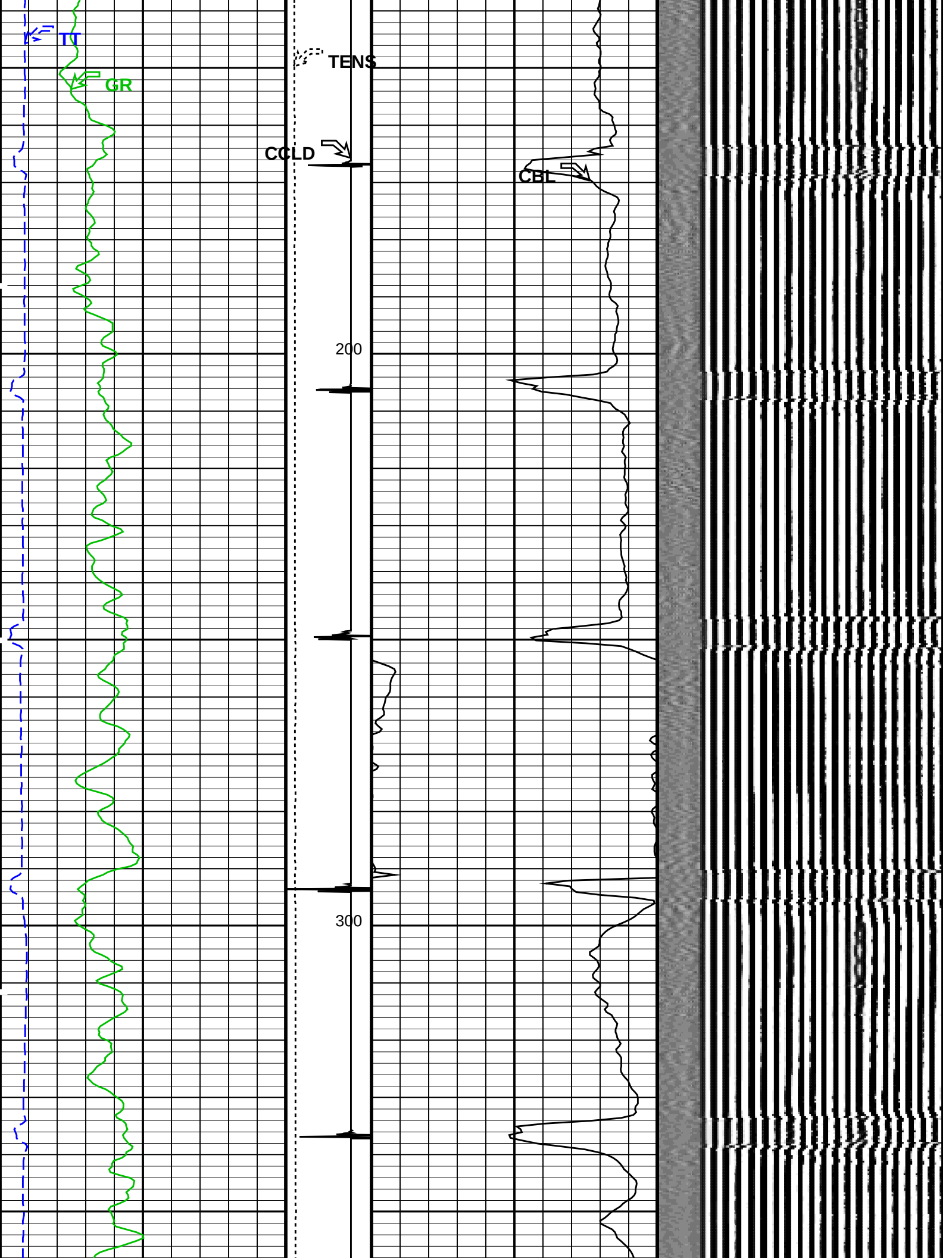
SCMT−CB	**SRPC−5214−H2−2012−OP1**	**RST−C**	**SRPC−5214−H2−2012−OP1**
PSPT	**SRPC−5214−H2−2012−OP1**		

PIP SUMMARY

Time Mark Every 60 S

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


CBL
0
Last Reading CBL 60 FT
100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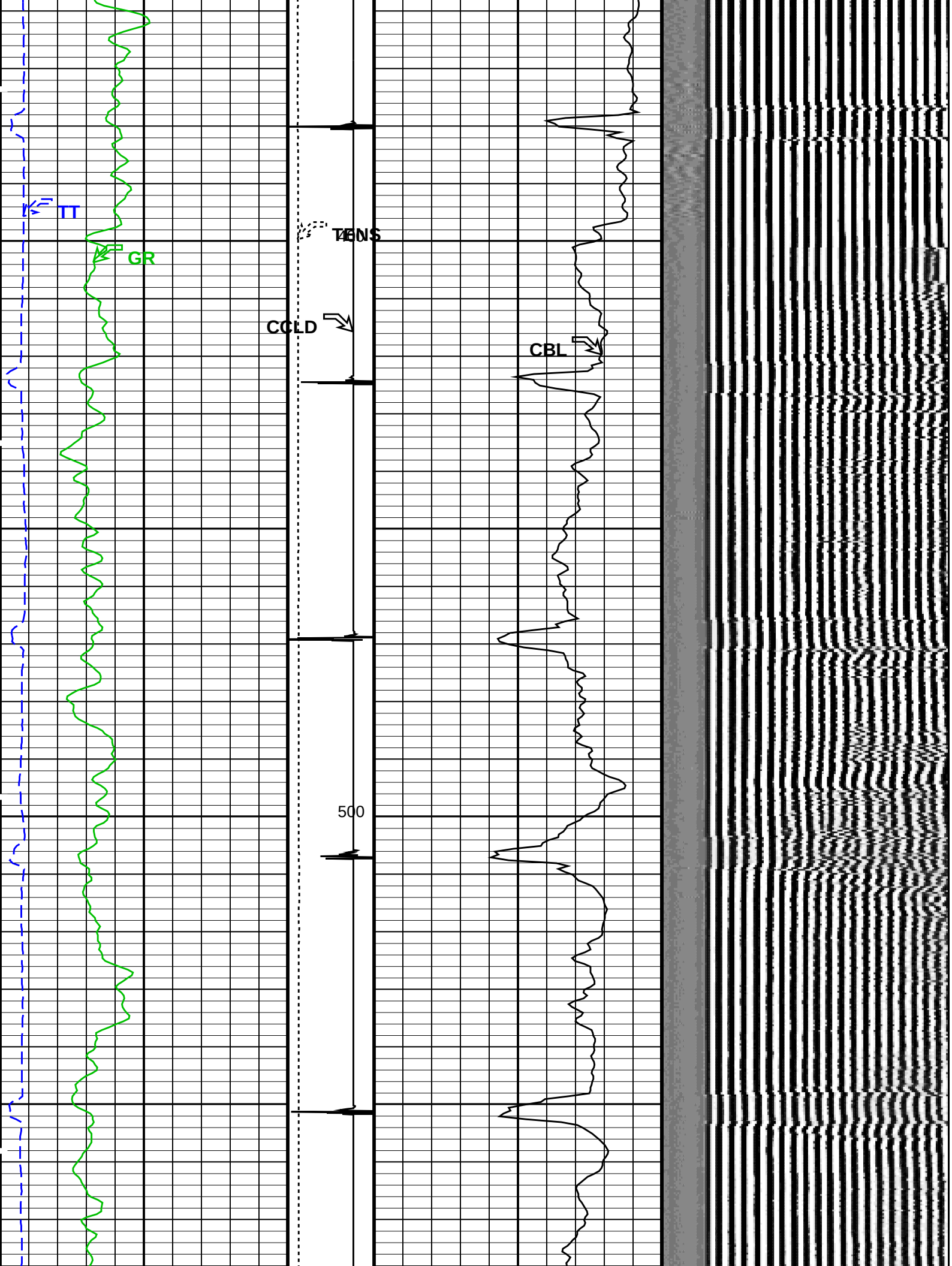
GR
TENS
CCLD
CBL
200
300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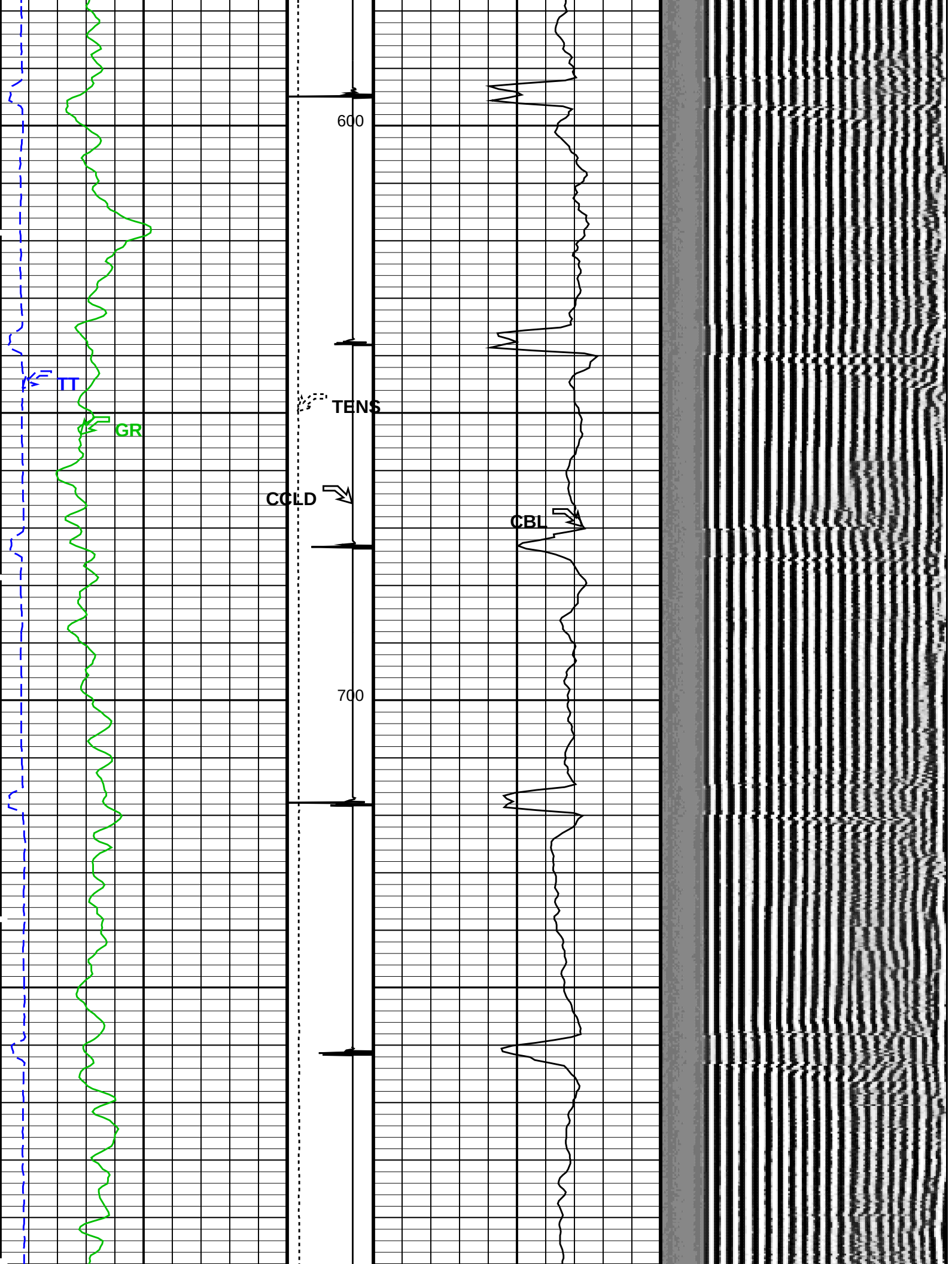
GR
TENS
CCLD
CBL
500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TT
TENS
GR
CCLD
CBL
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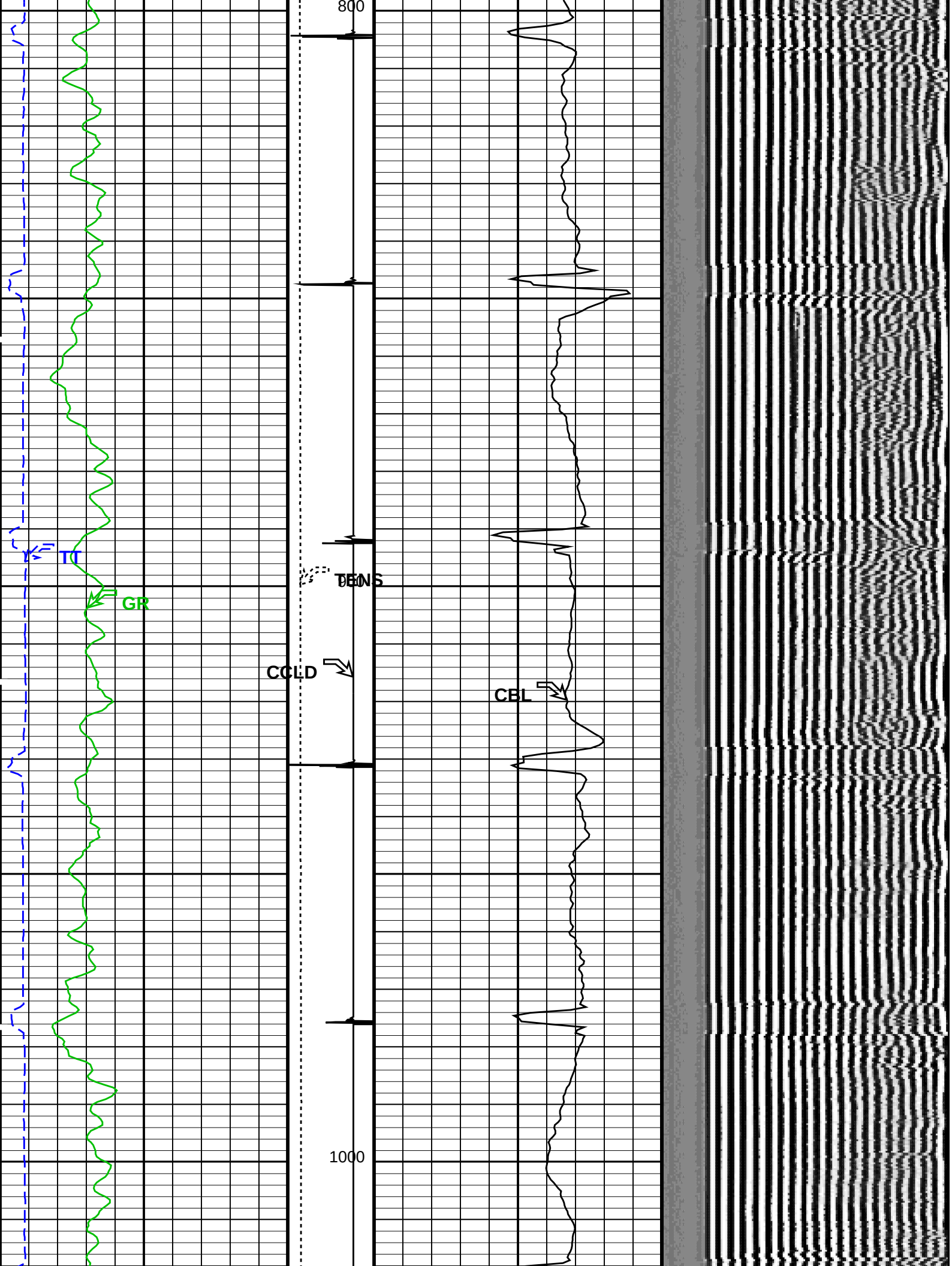
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CCLD
CBL
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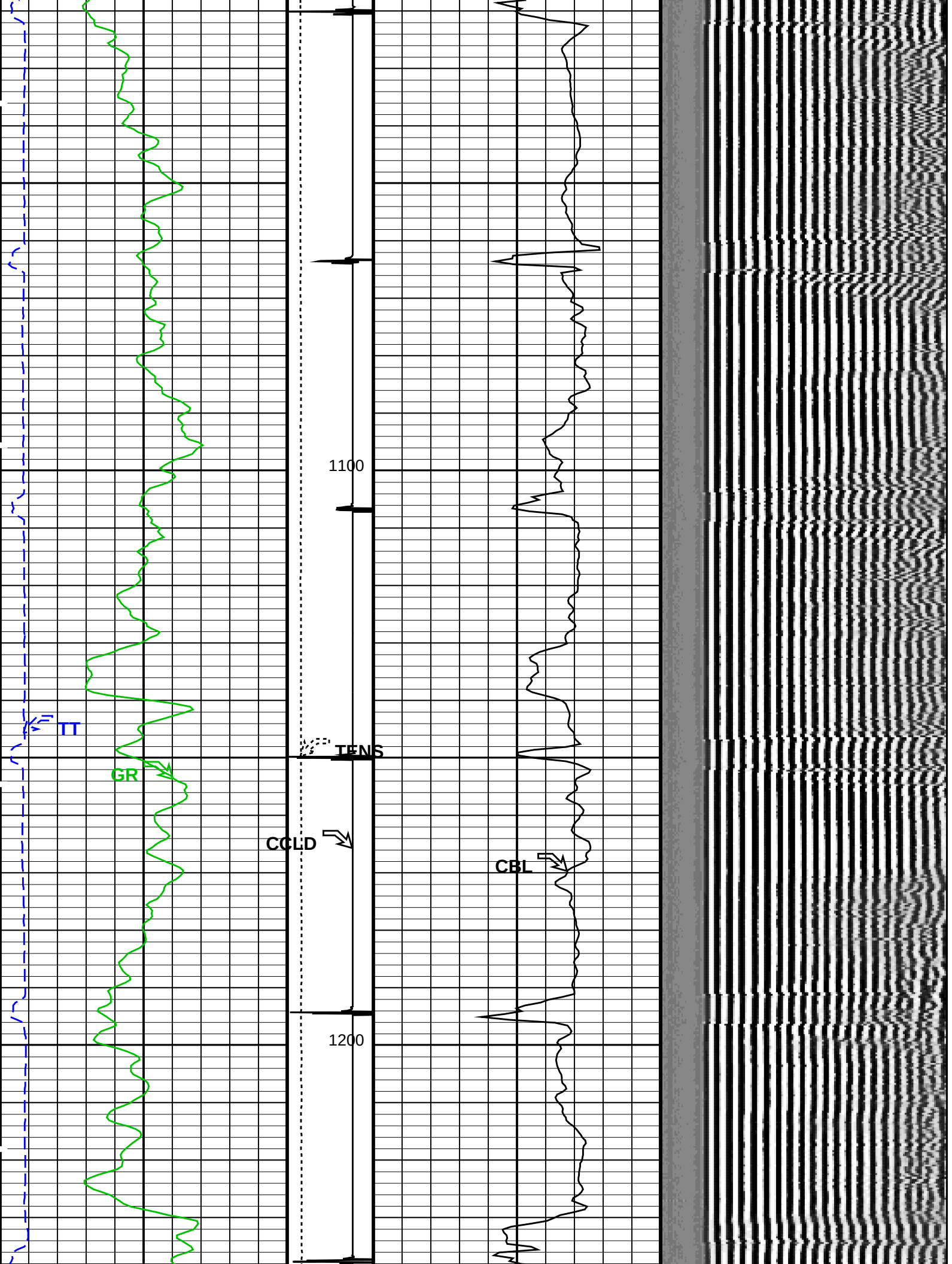
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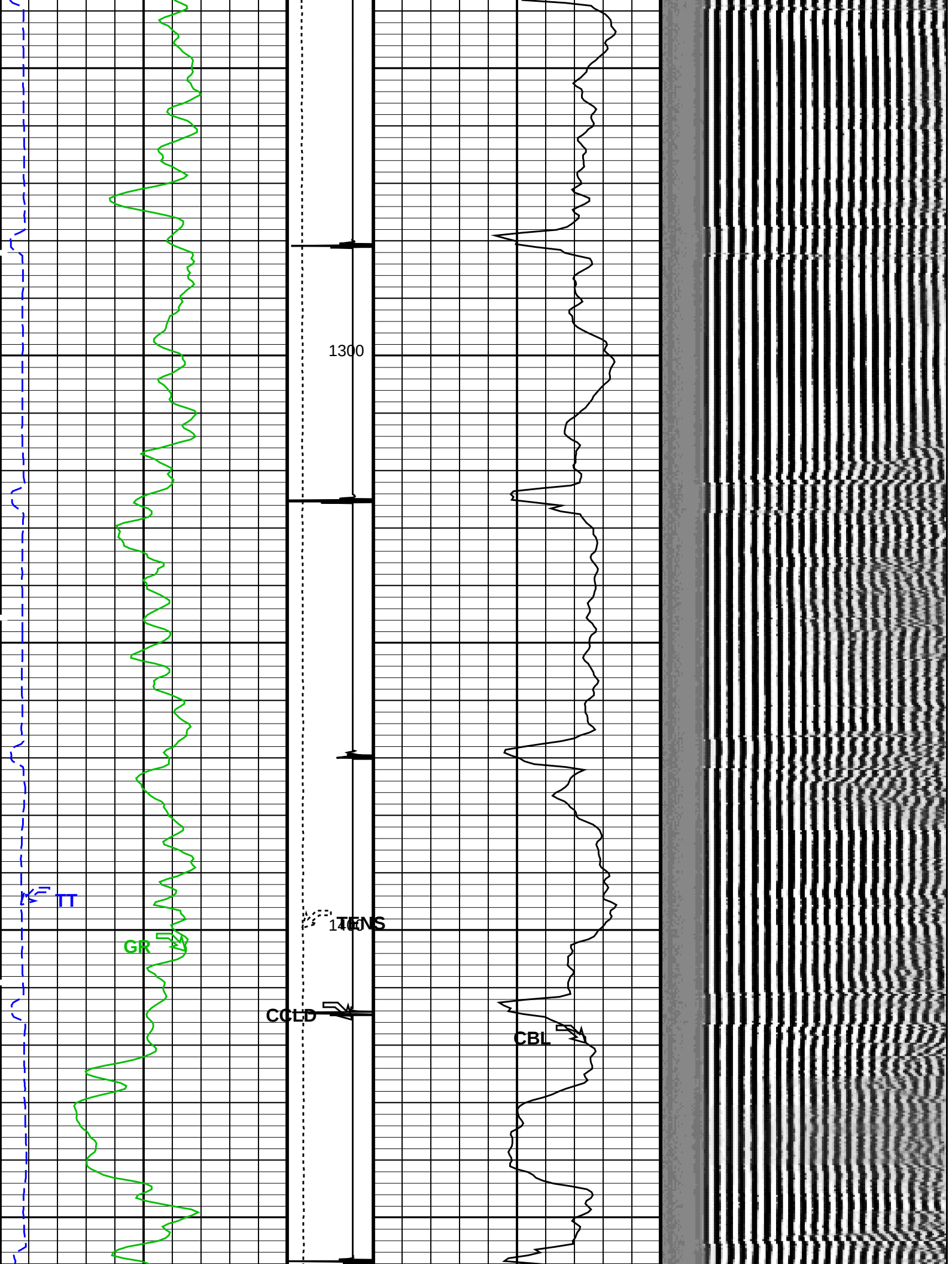
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TT
GR
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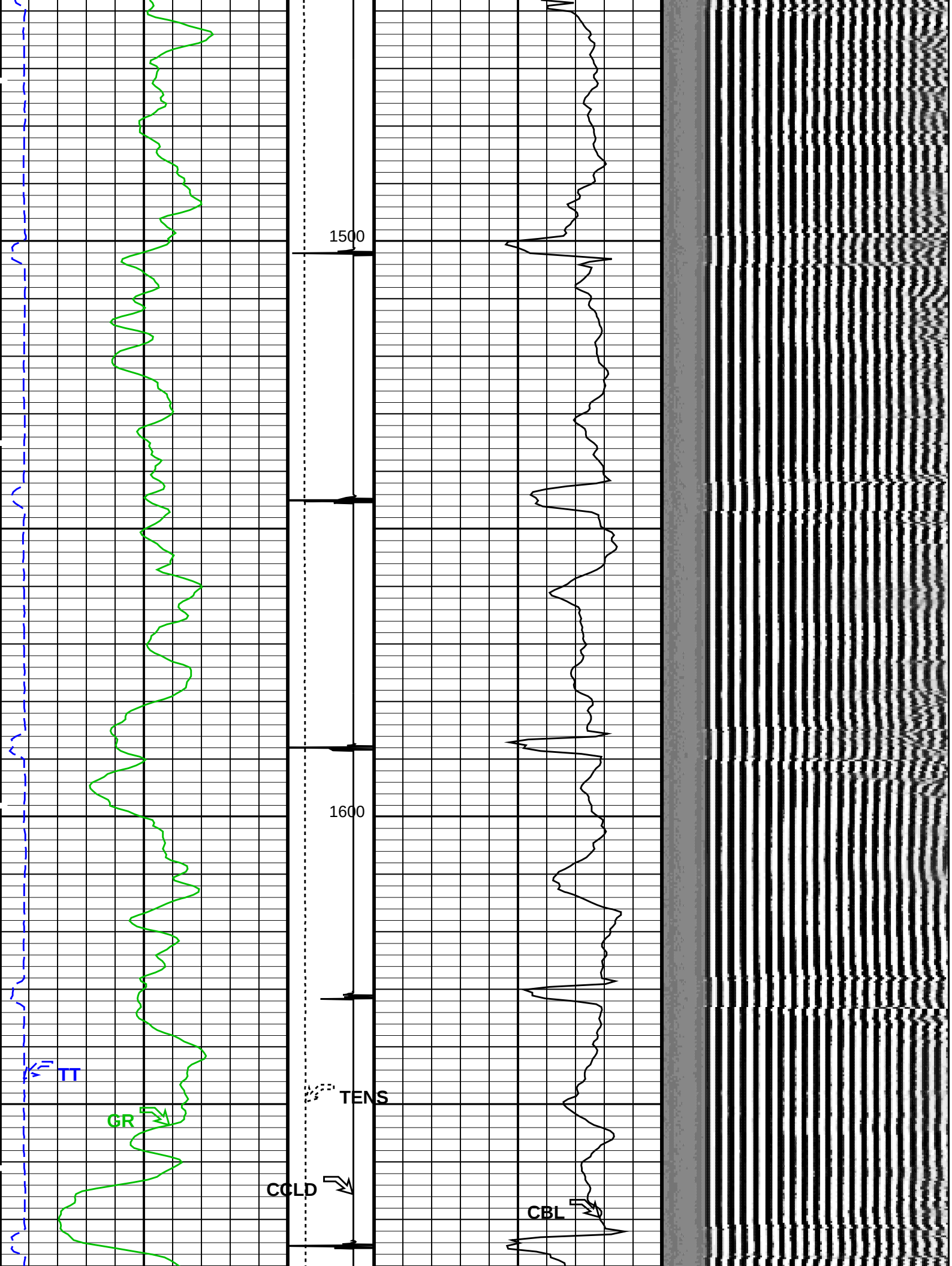
CCLD
CBL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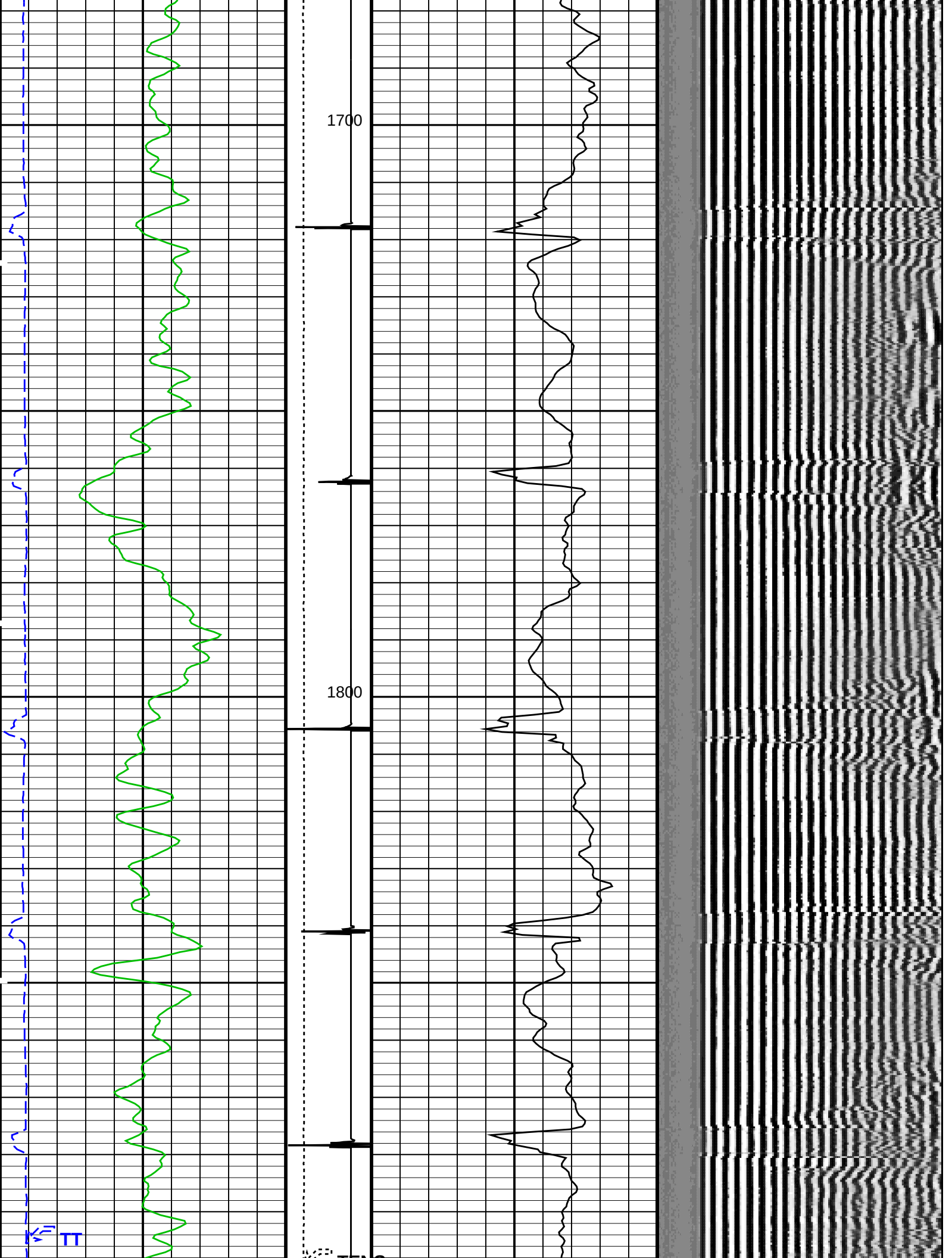
1600
TT
GR
TENS
CCLD
CBL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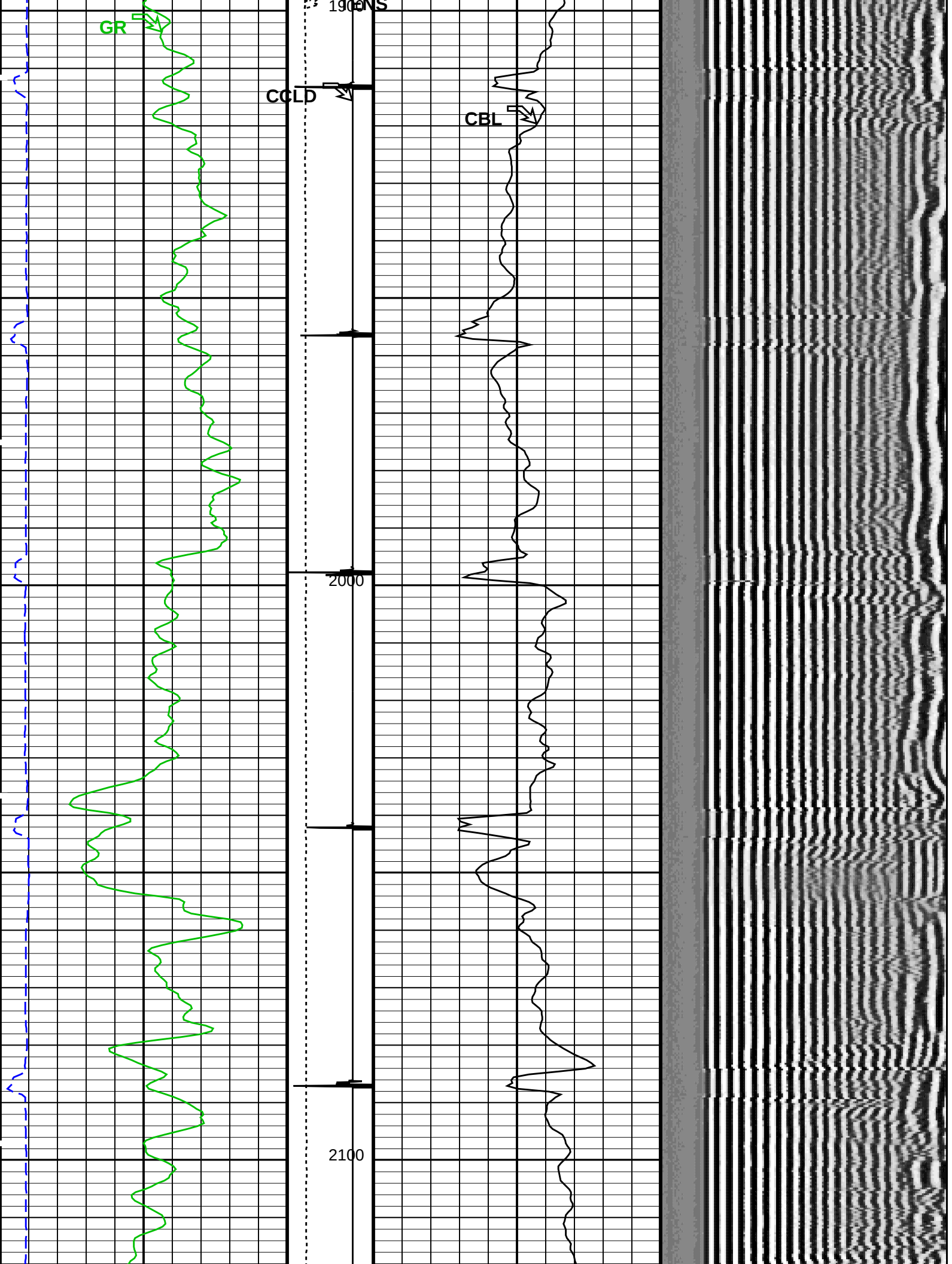
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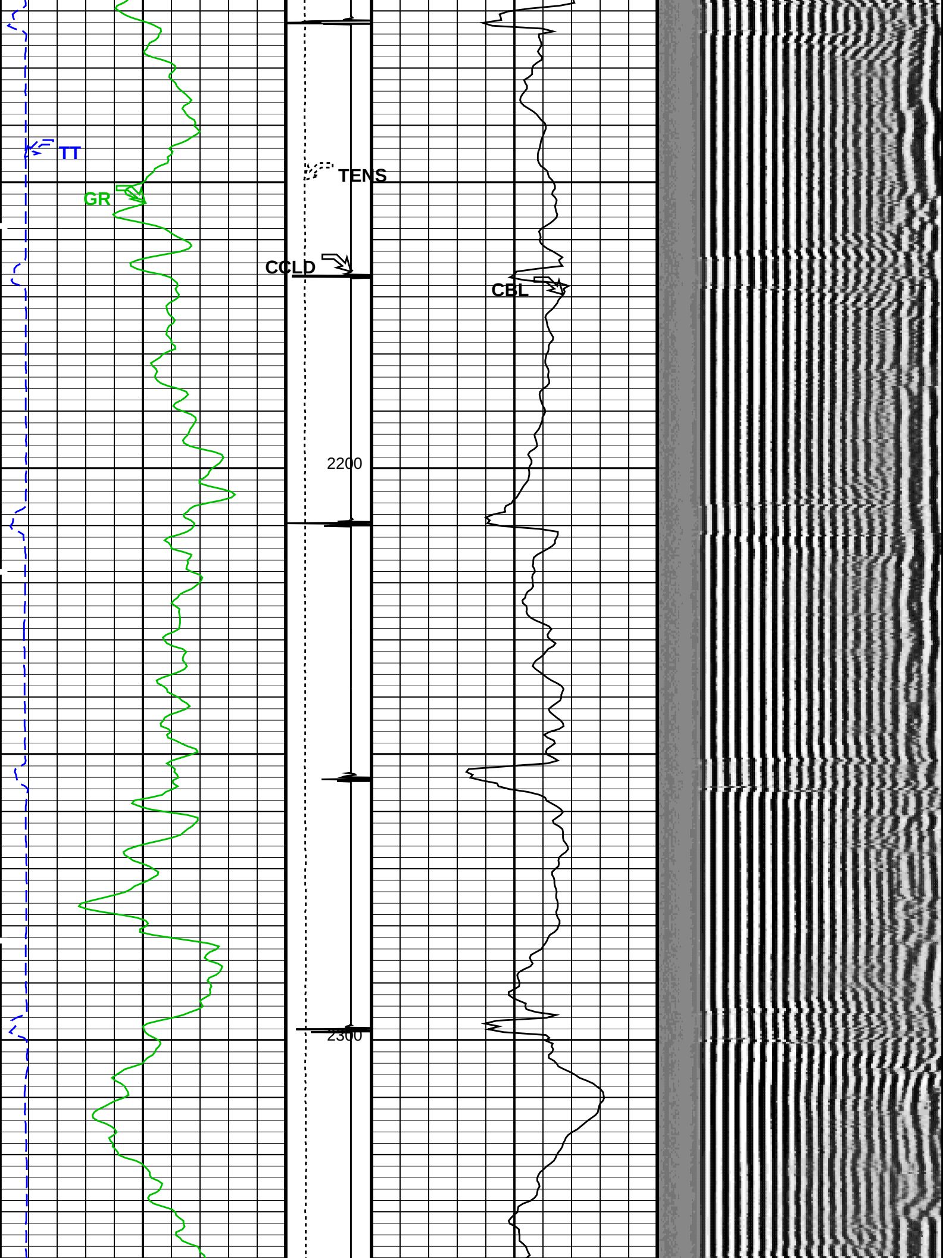
CCLD
CBL
1900
2000
2100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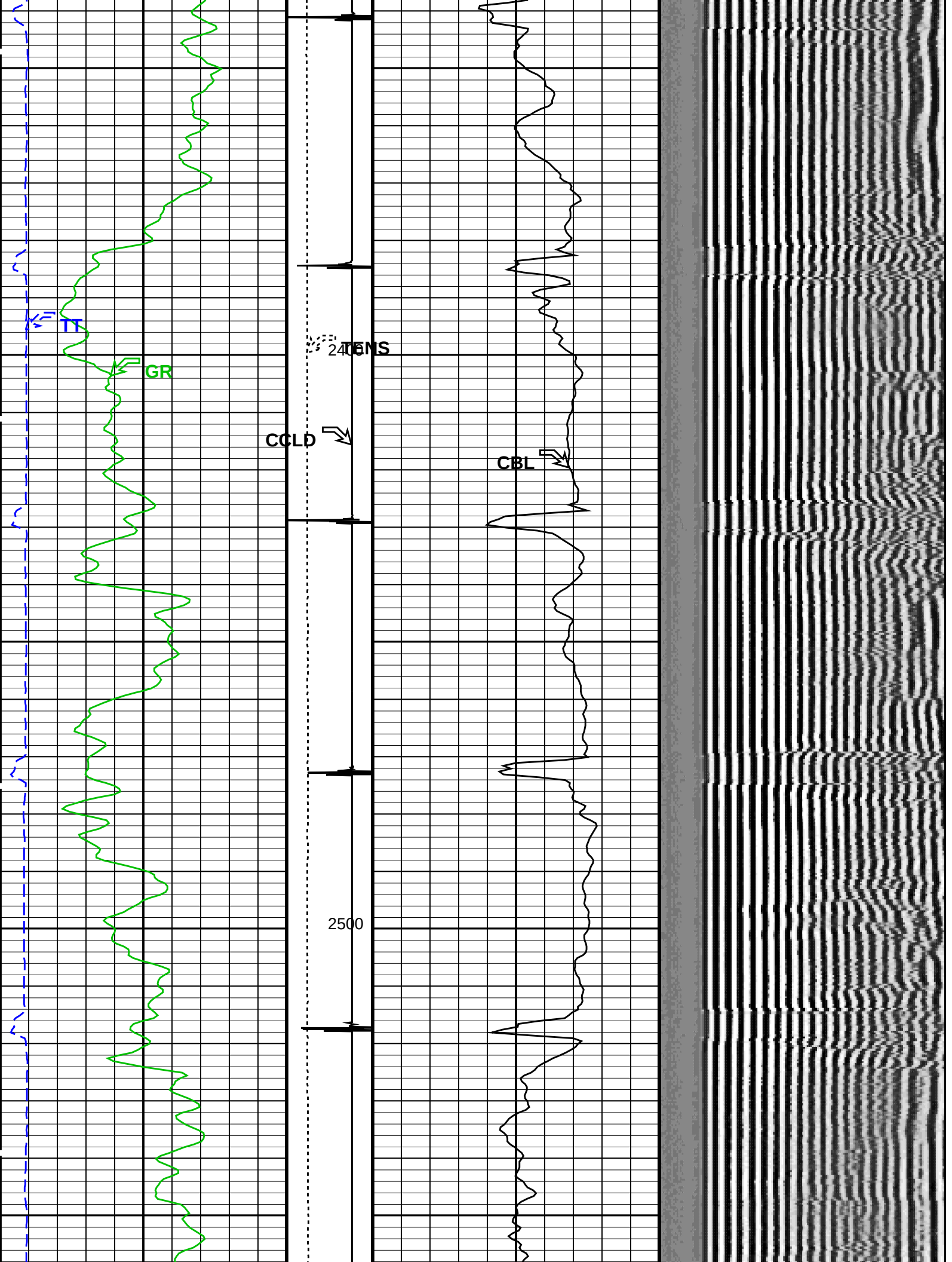
GR
TENS
CCLD
CBL
2200
2300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GR
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TENS
CCLD
CBL
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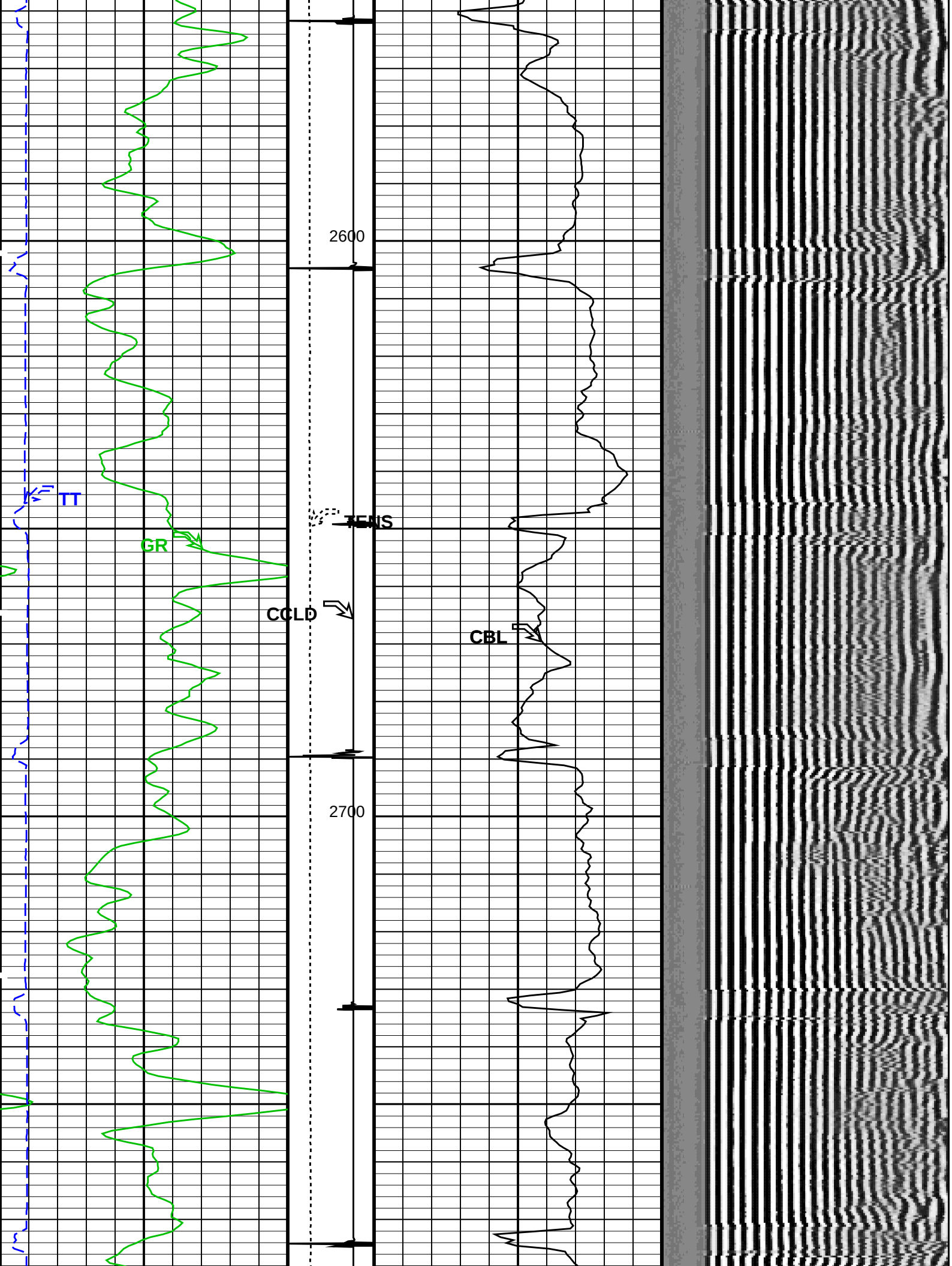
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TT
TENS
GR
CCLD
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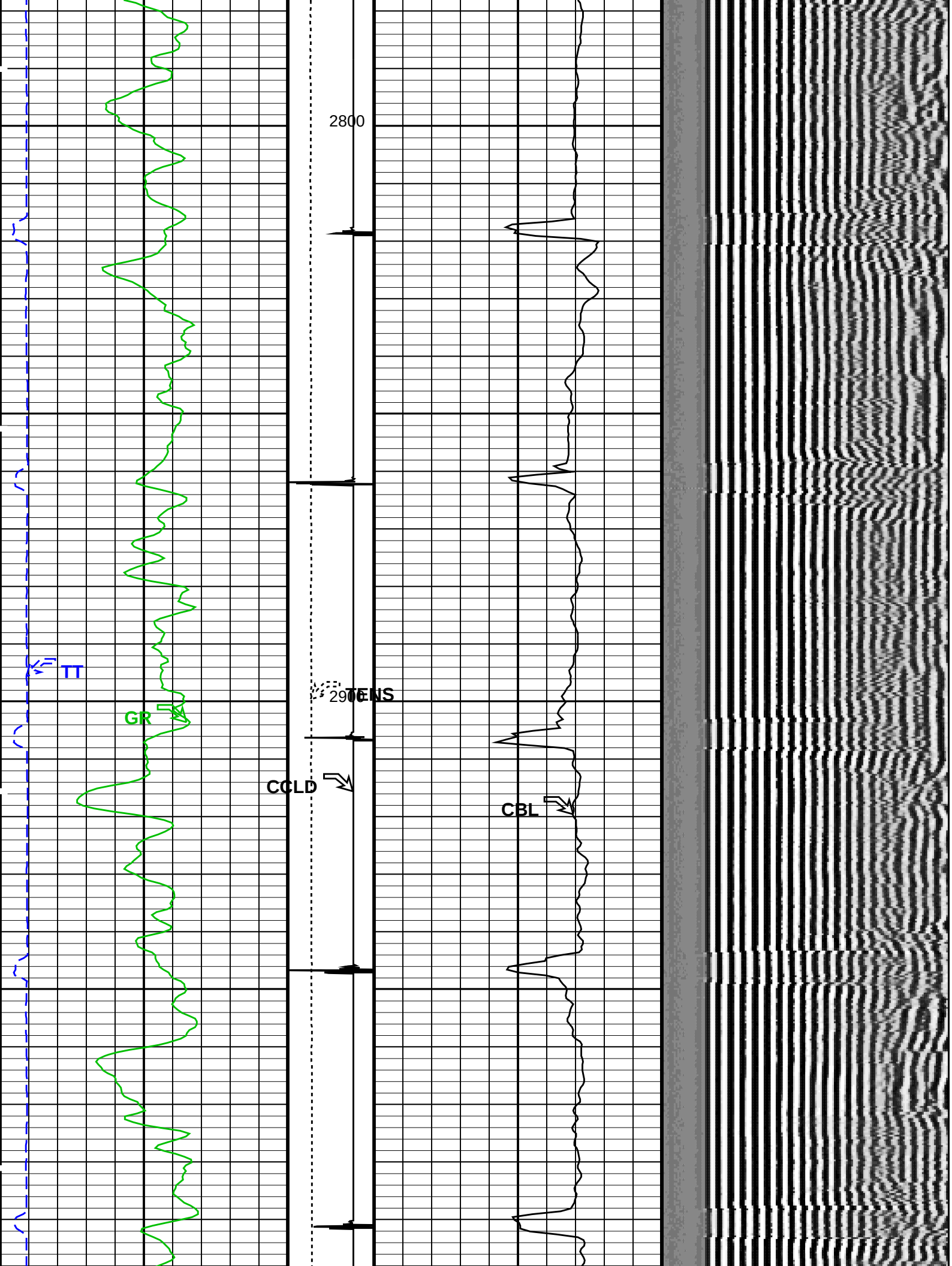
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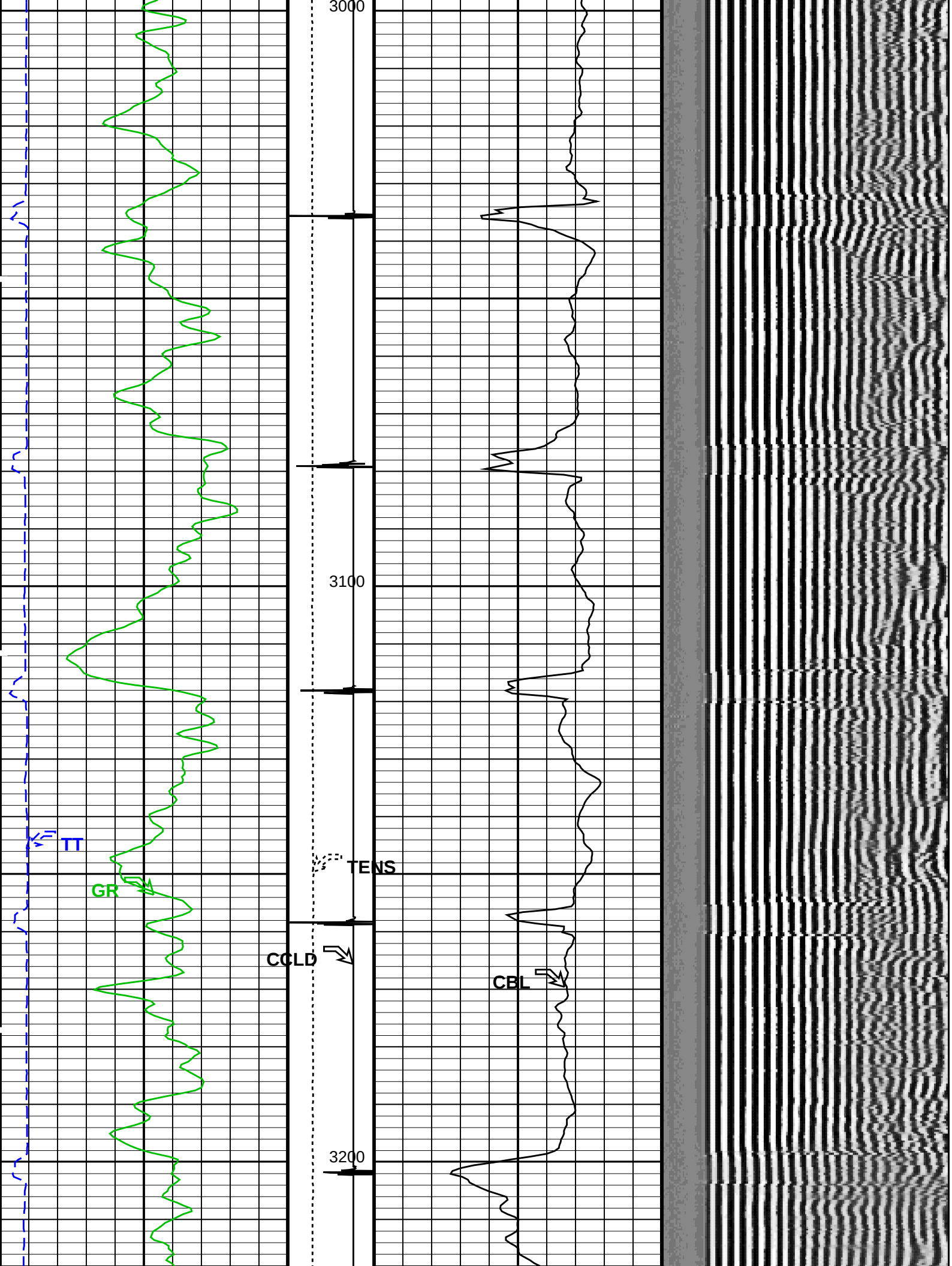
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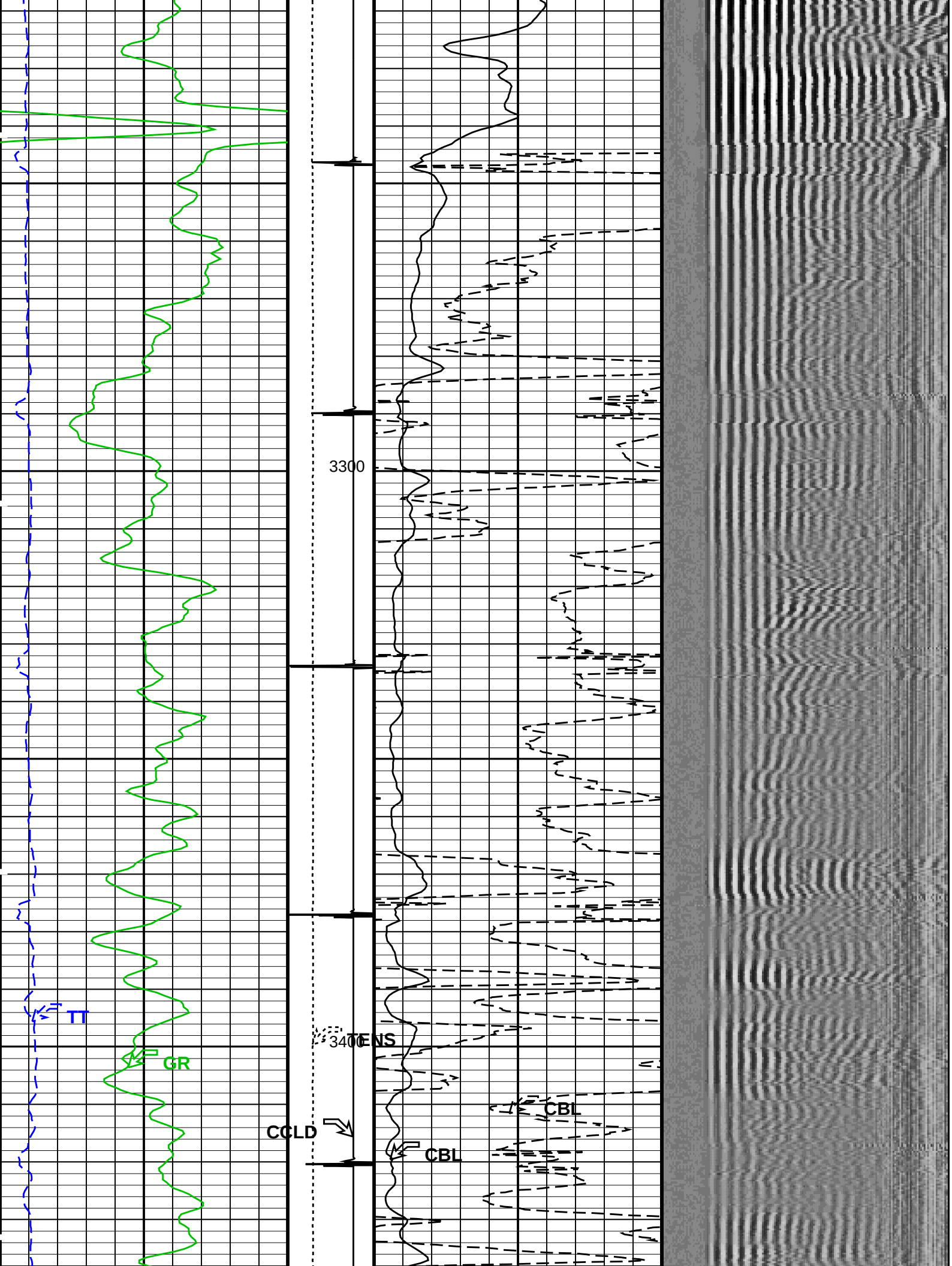
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GR
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TENS
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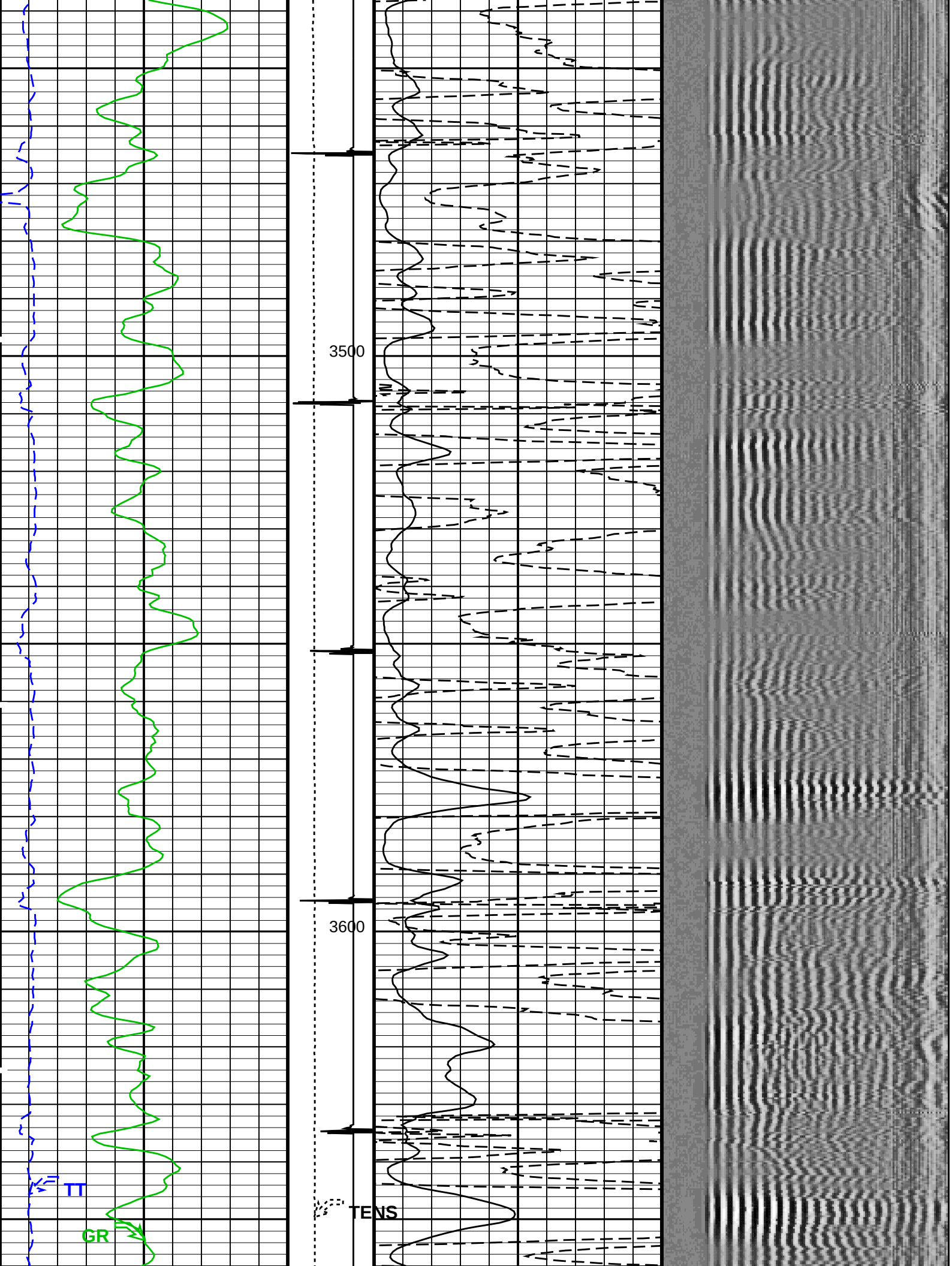
CBL
CBL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3600
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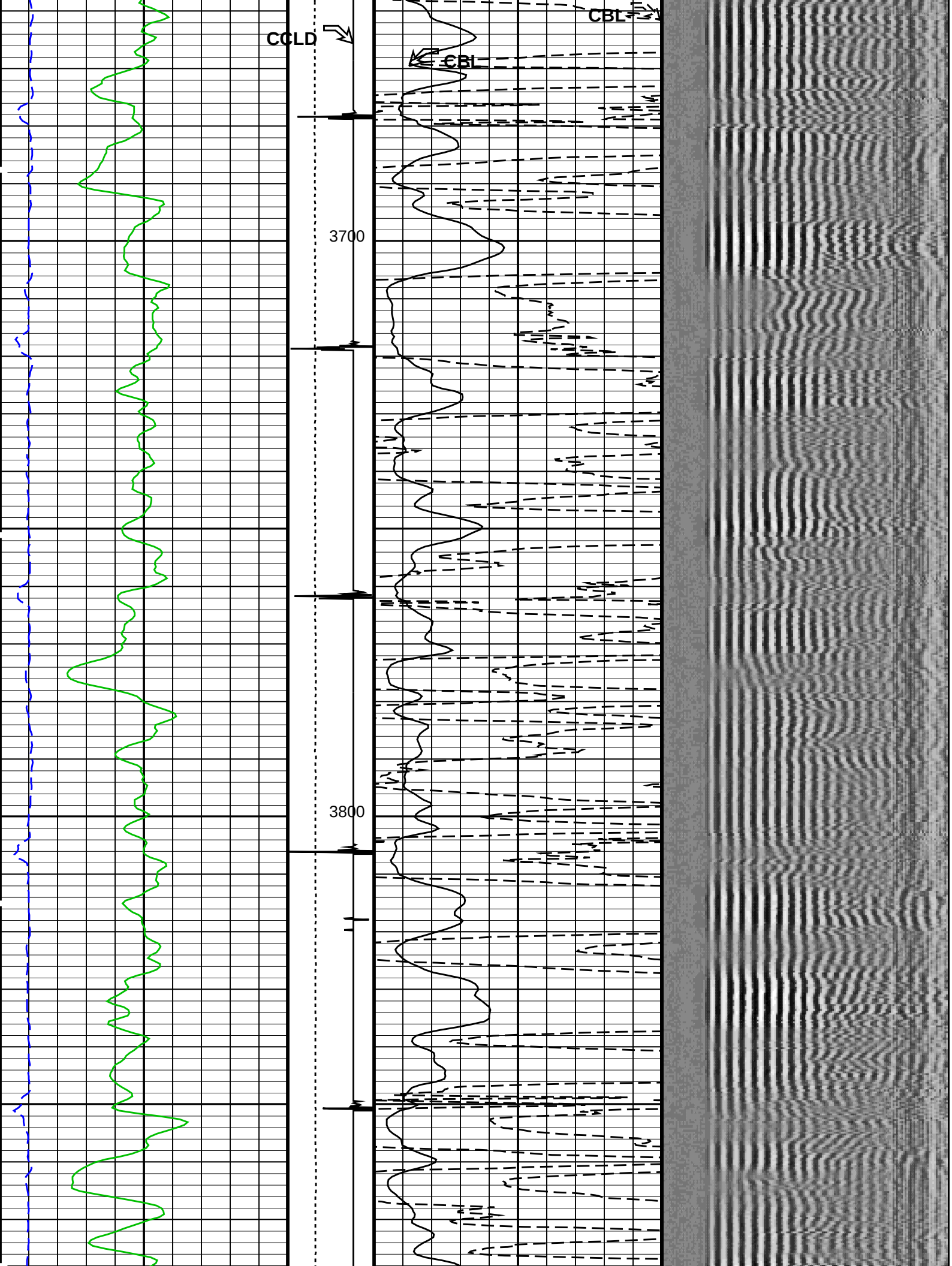
GR
TENS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CBL
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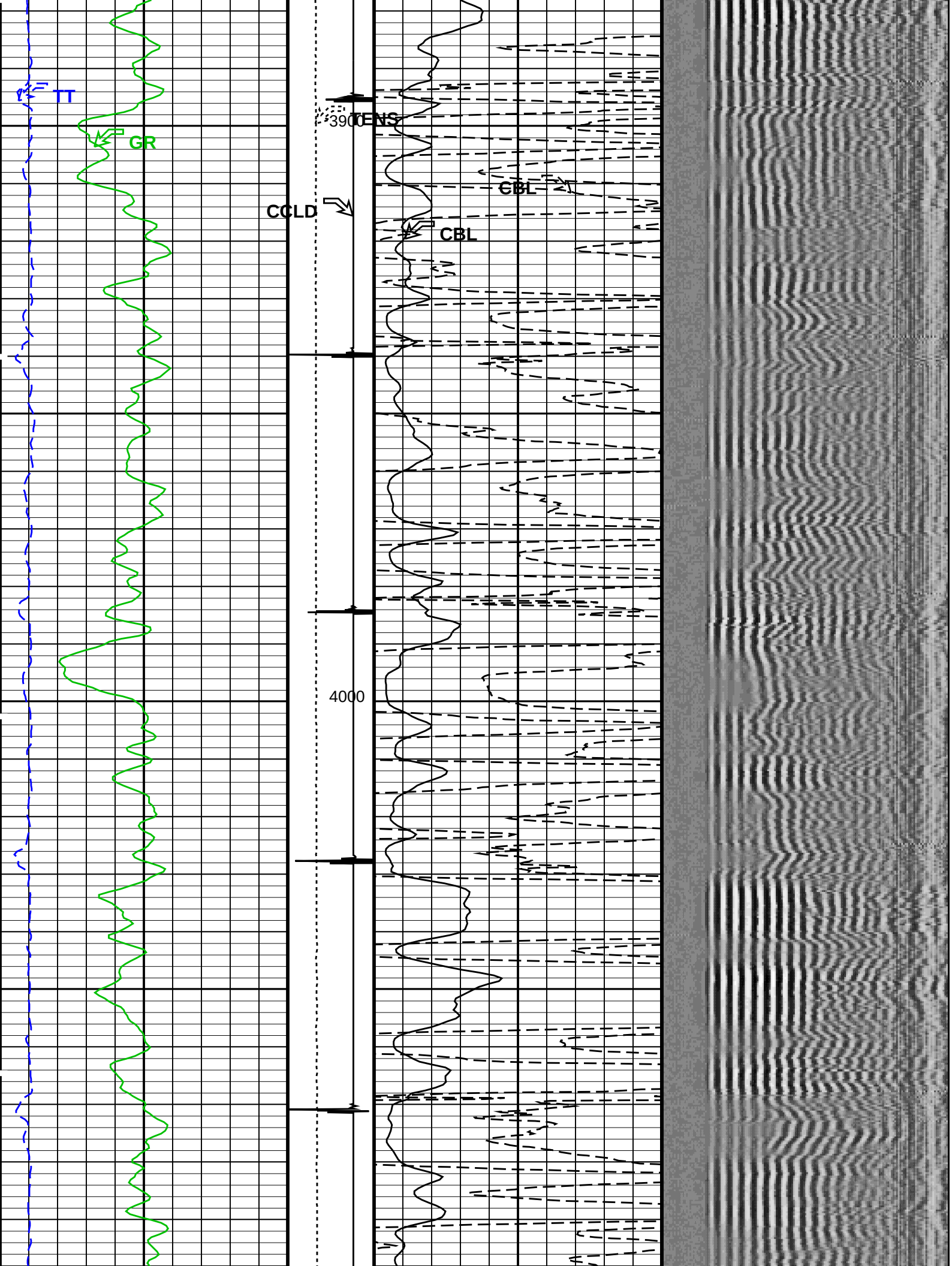
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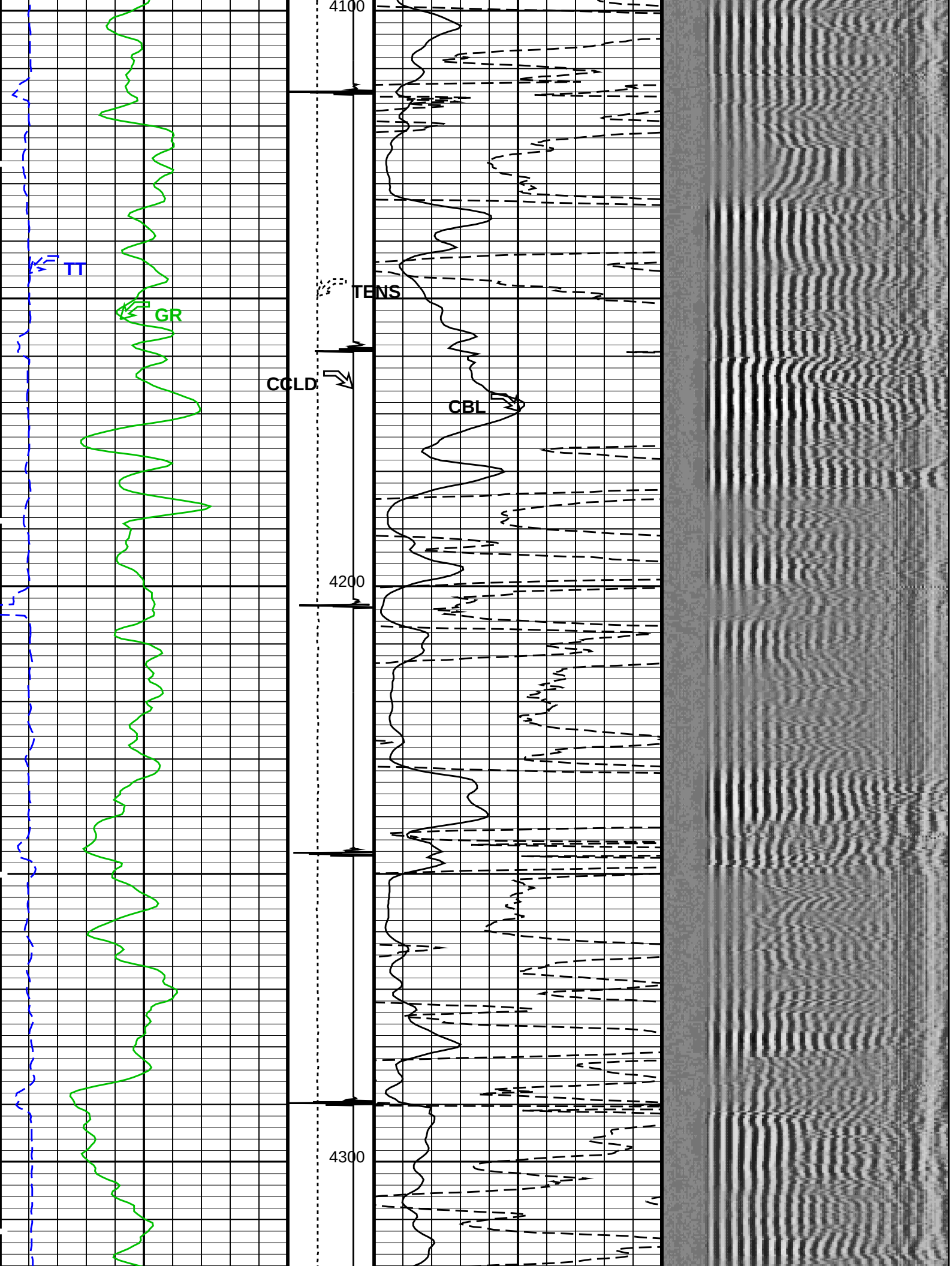
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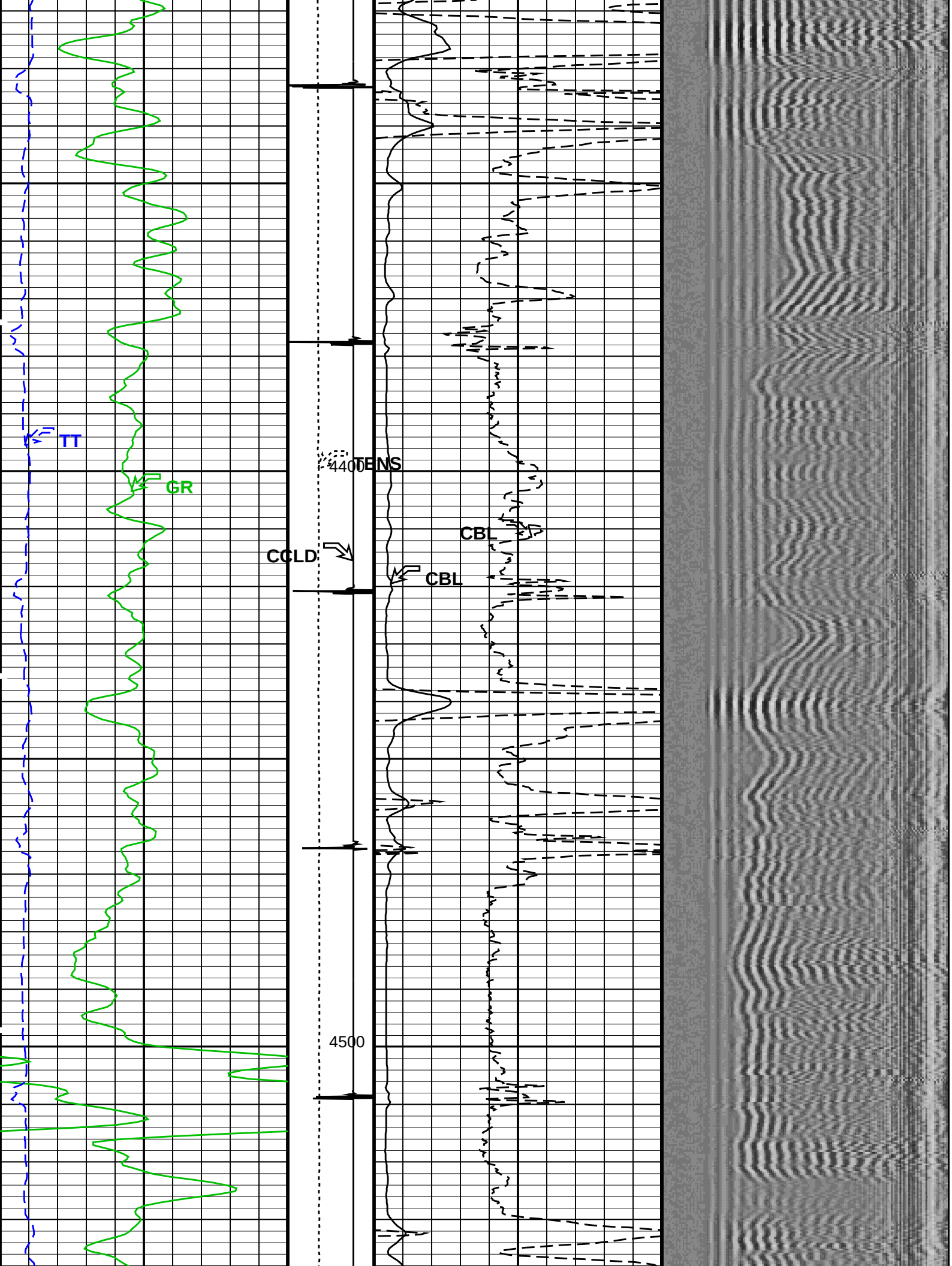
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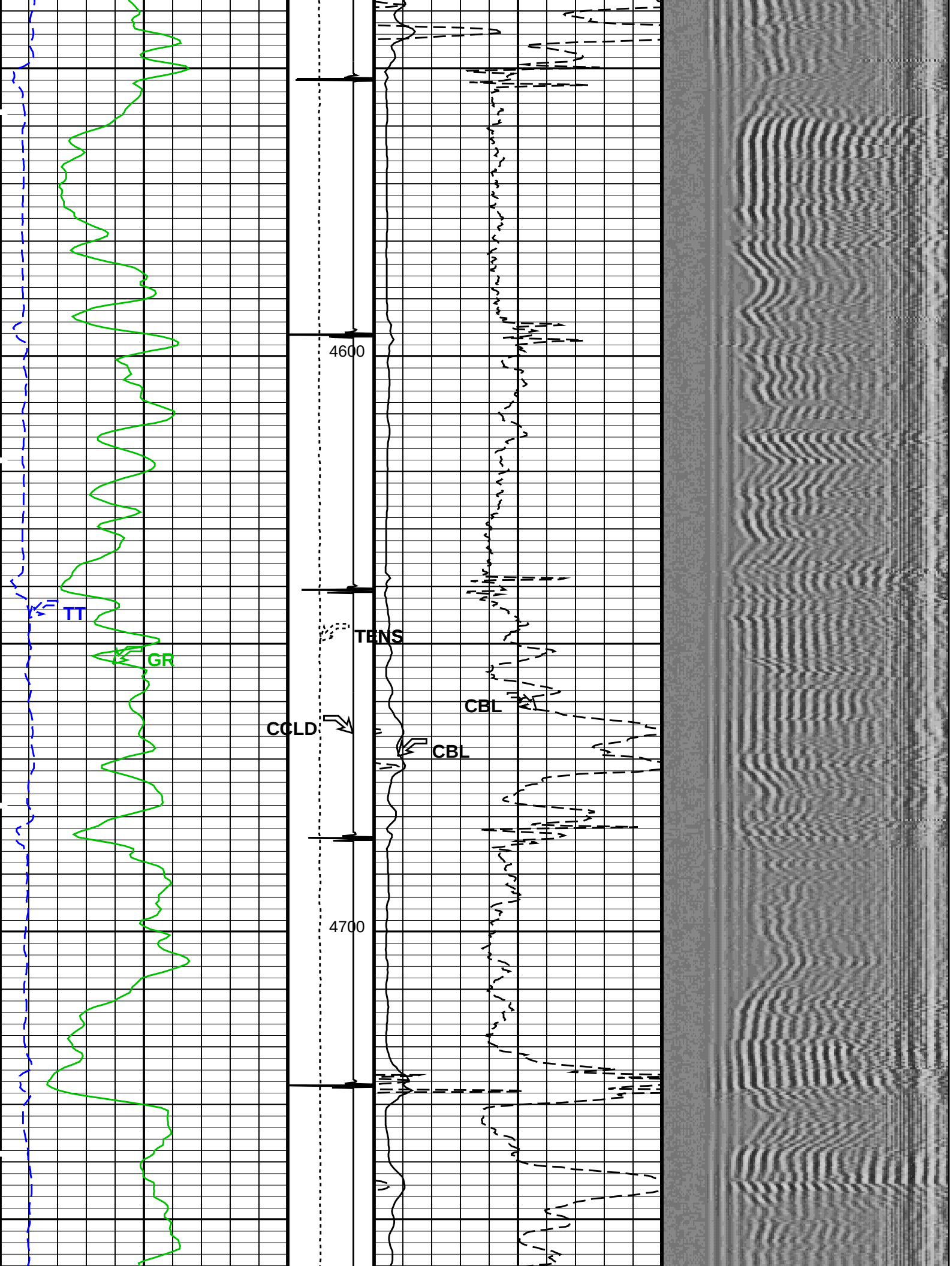
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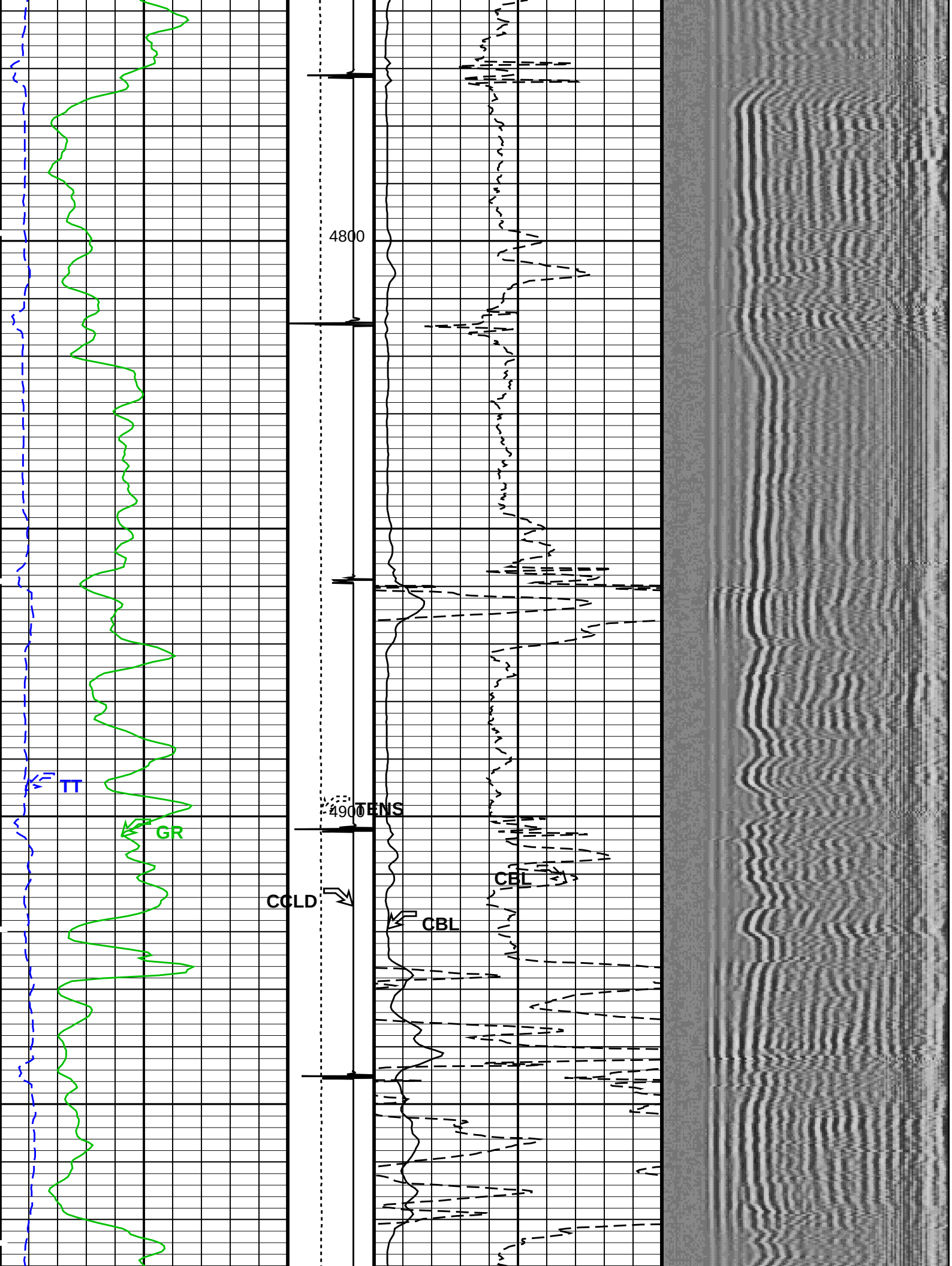
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GR
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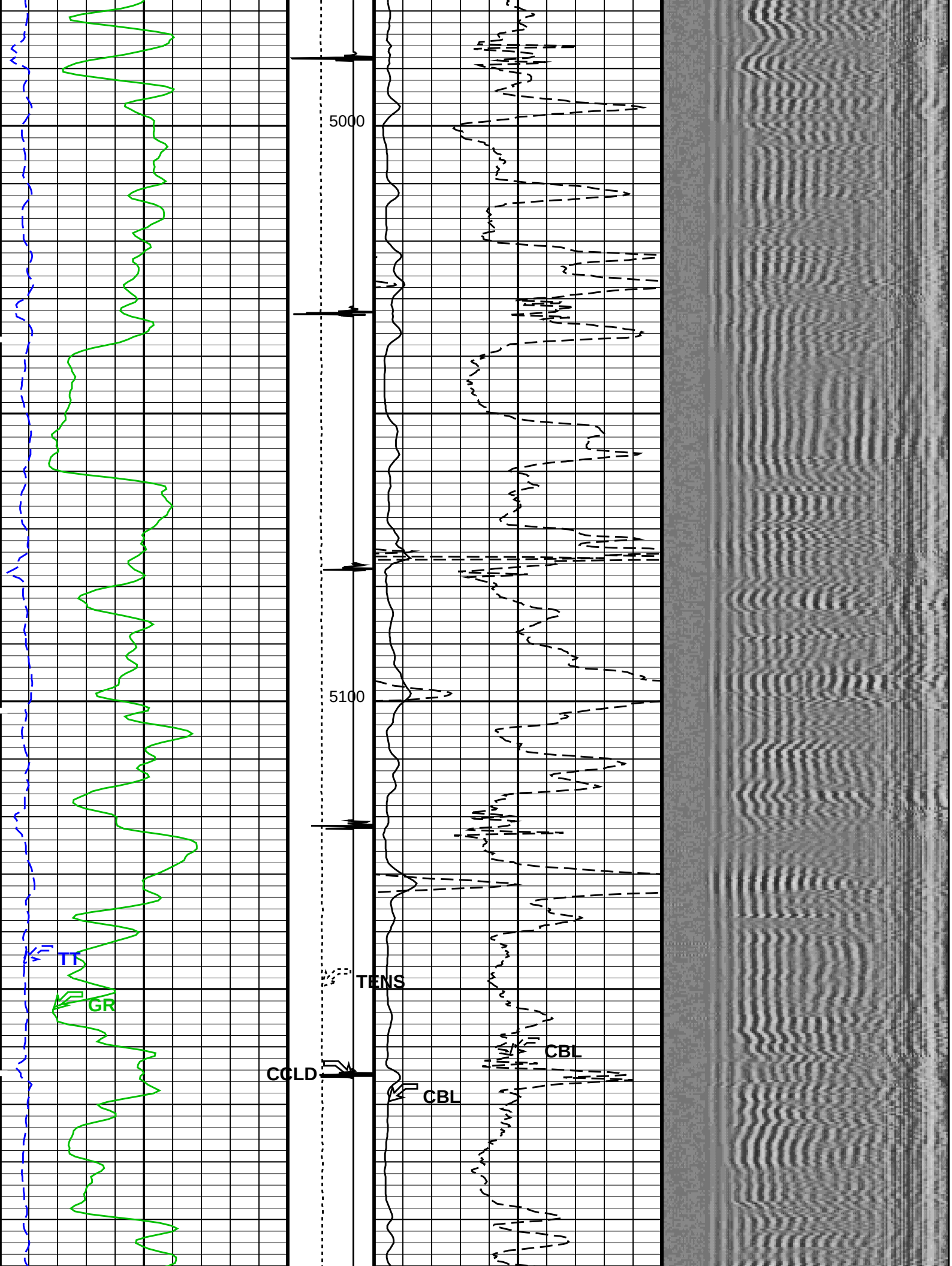
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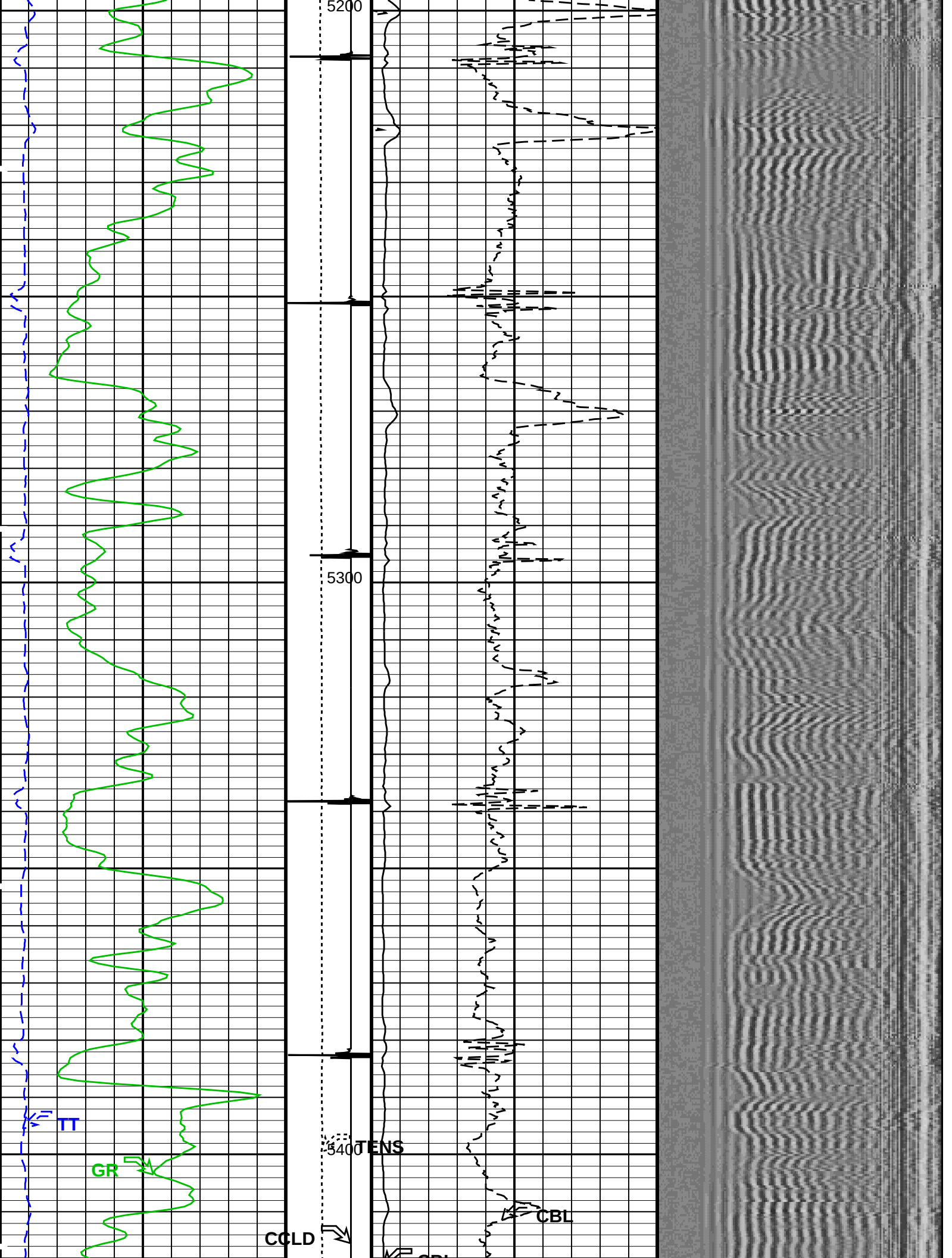
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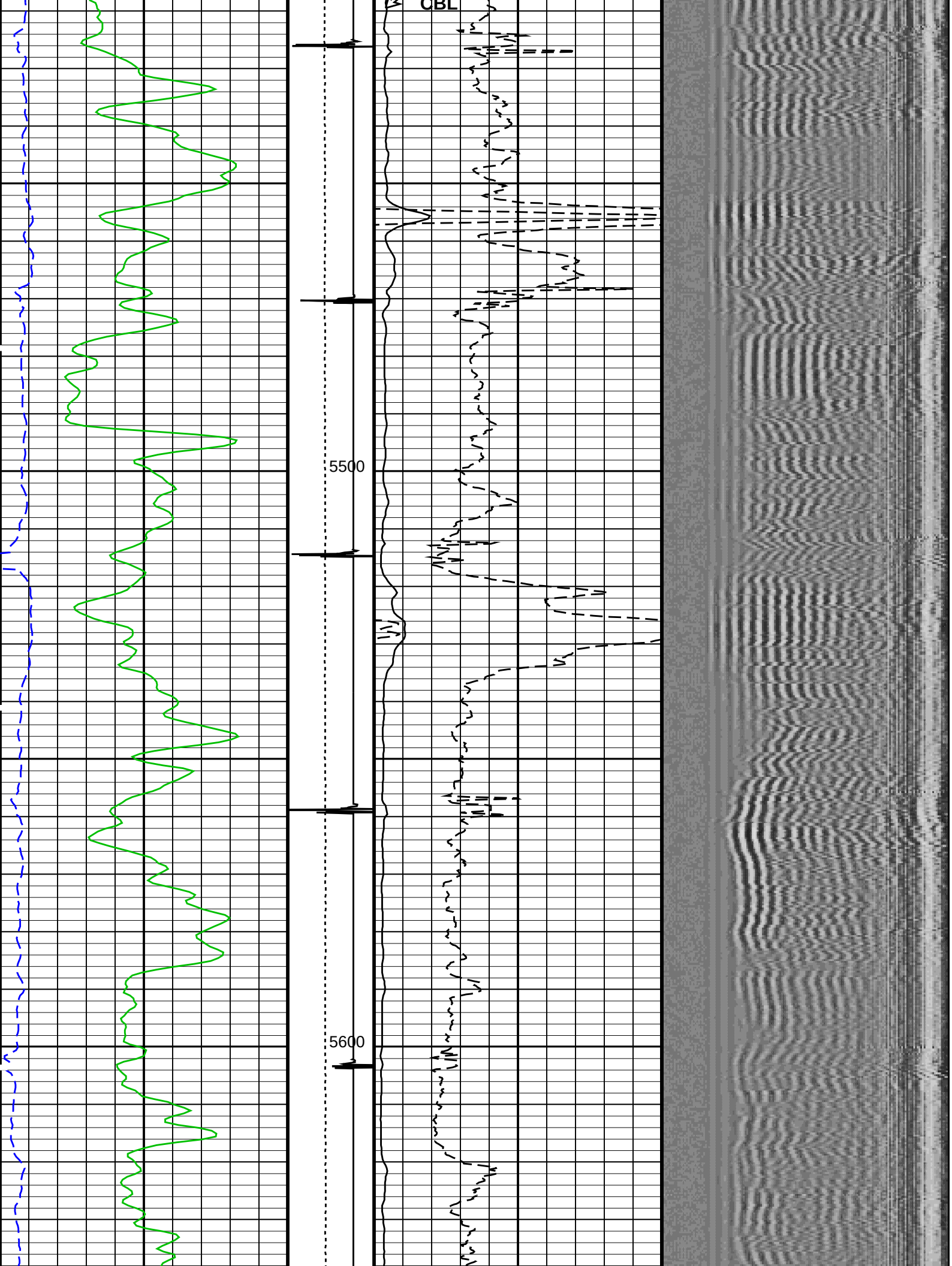
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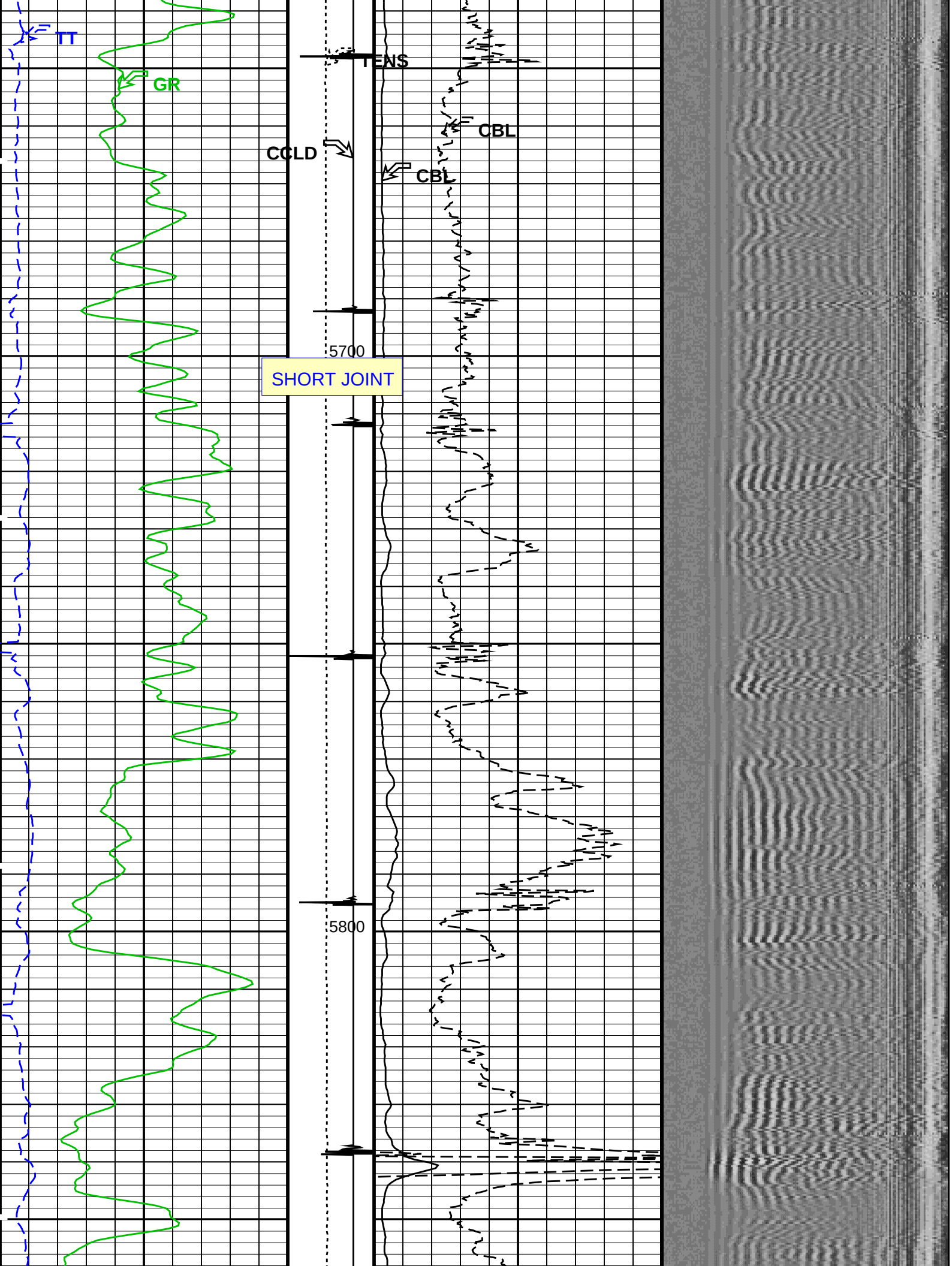
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SHORT JOINT
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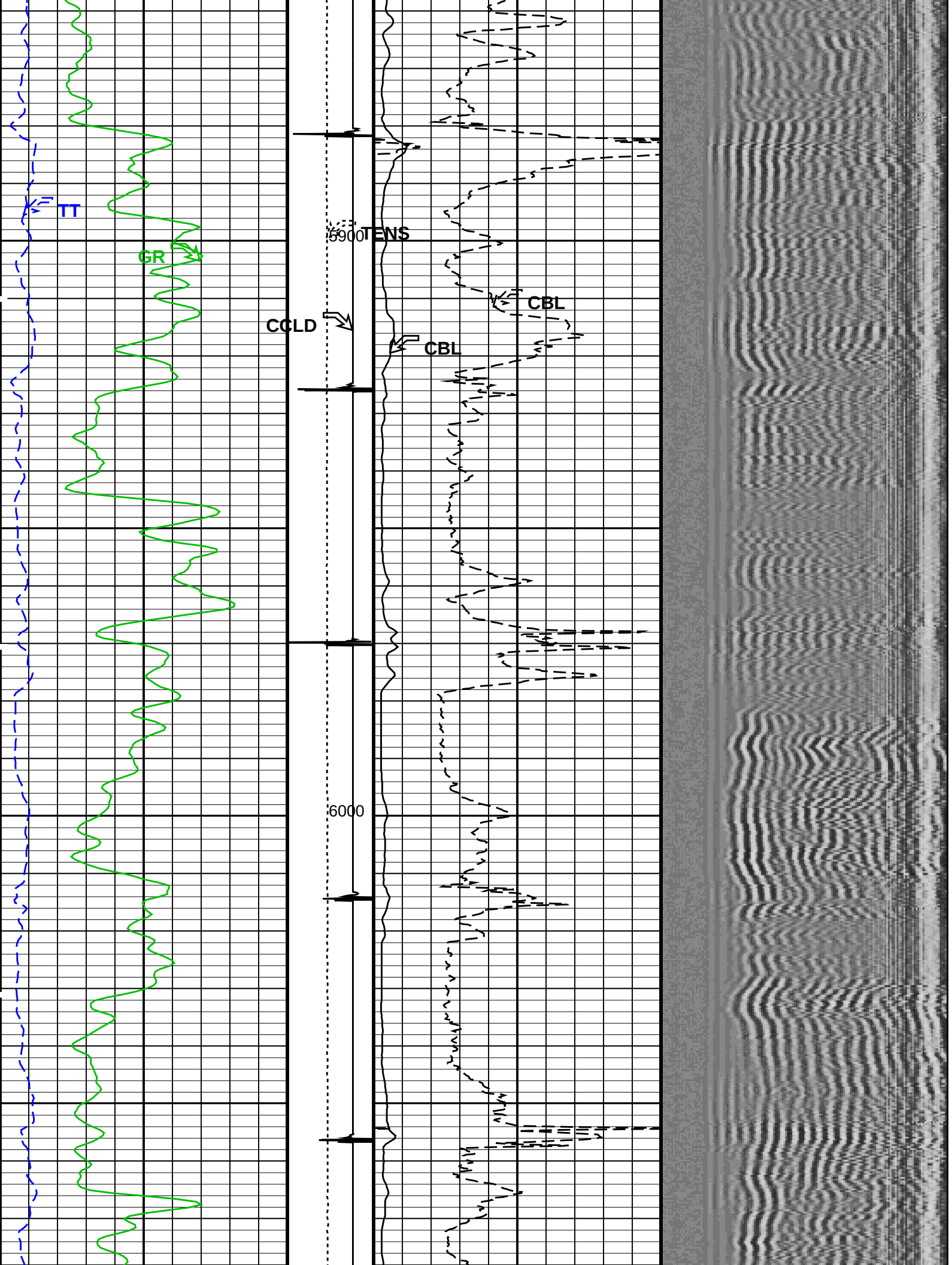
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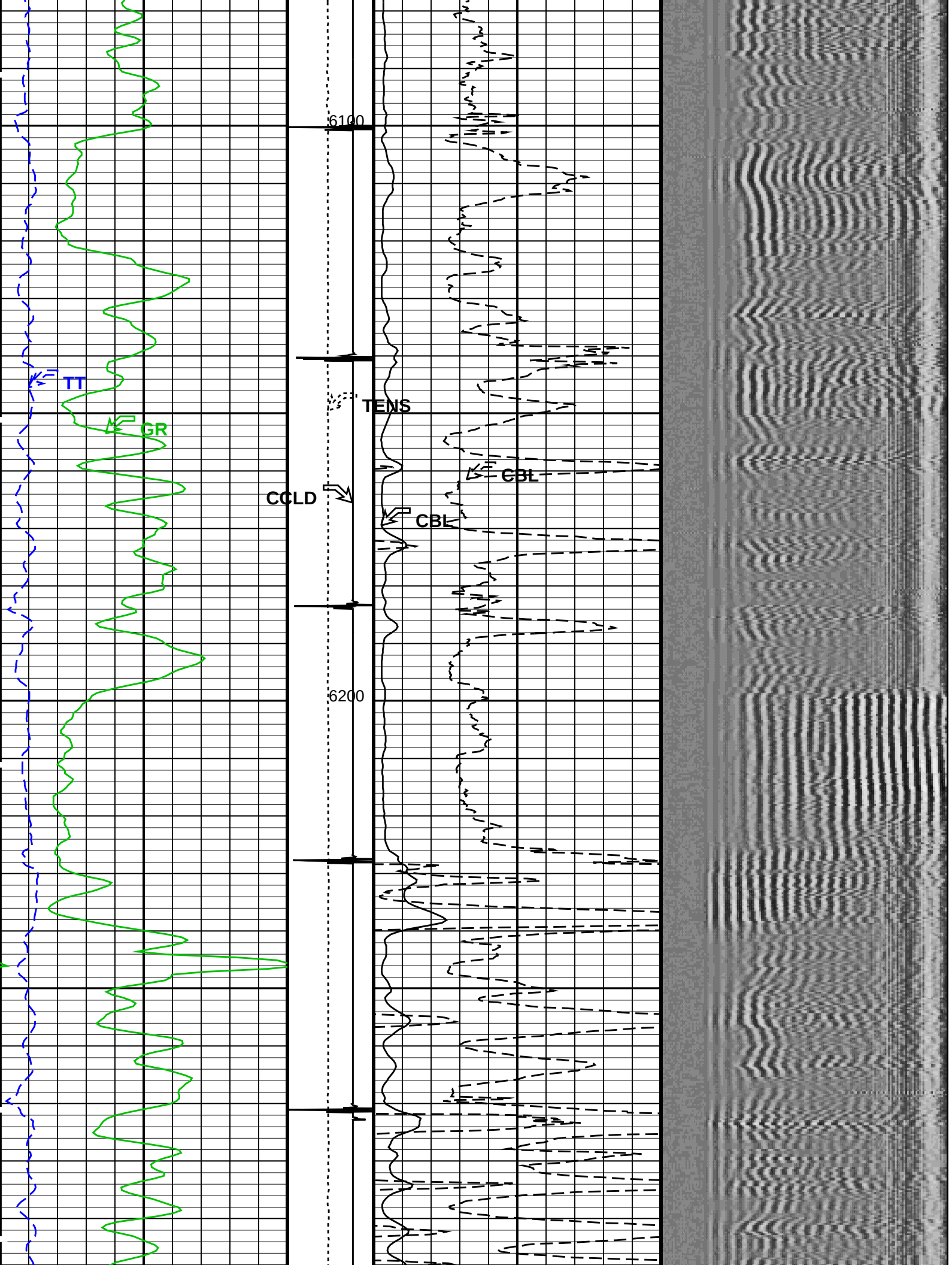
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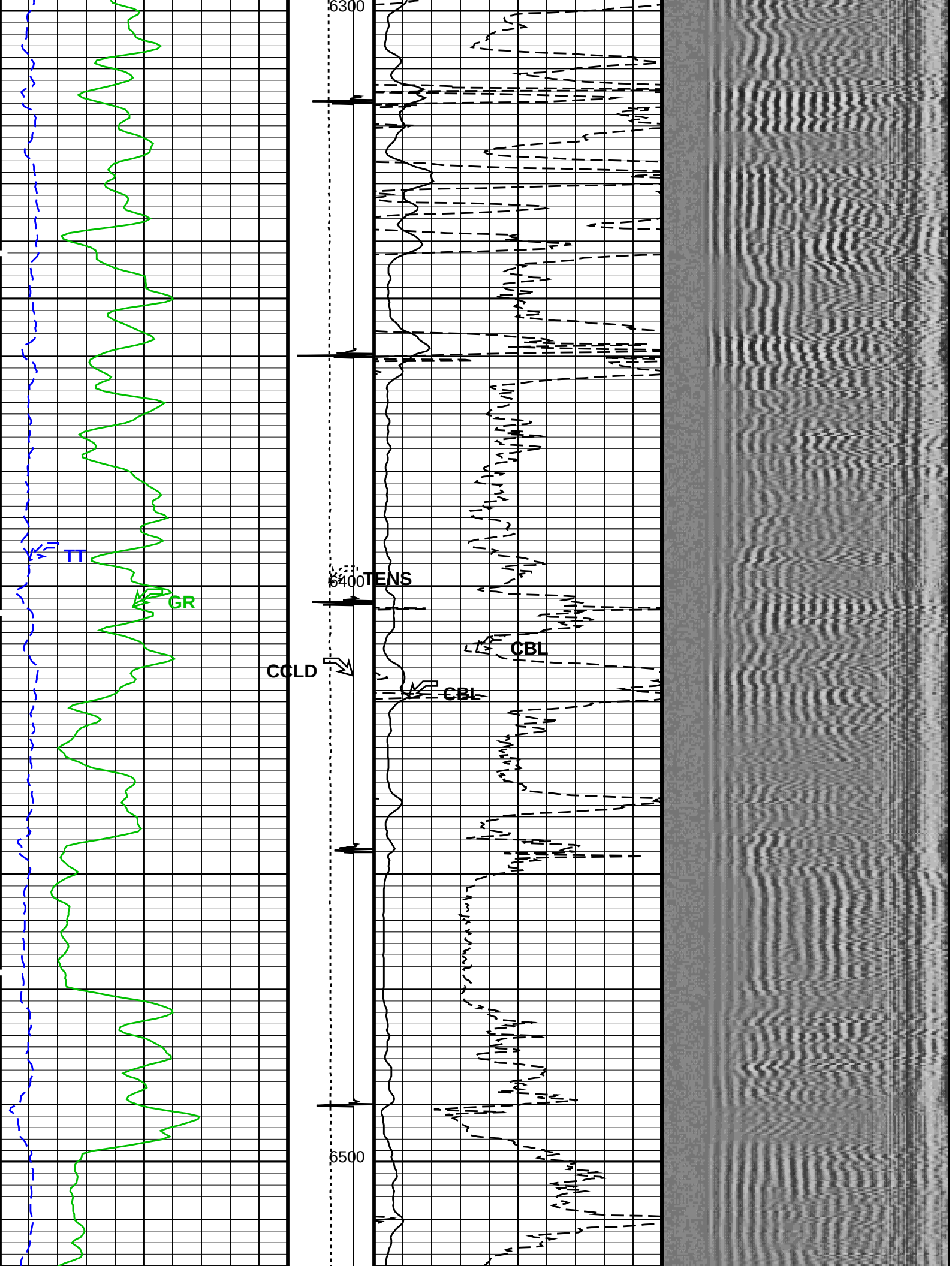
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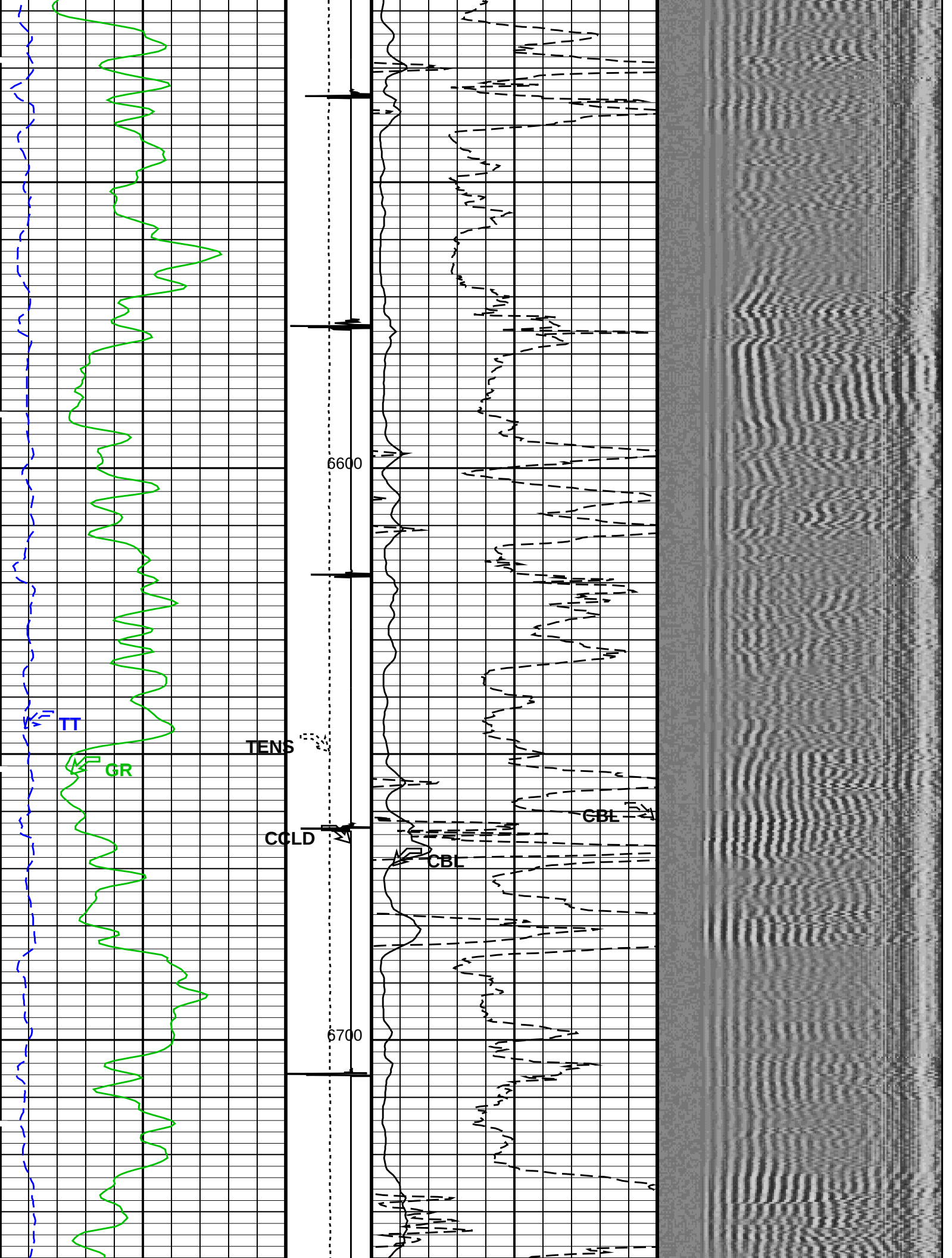
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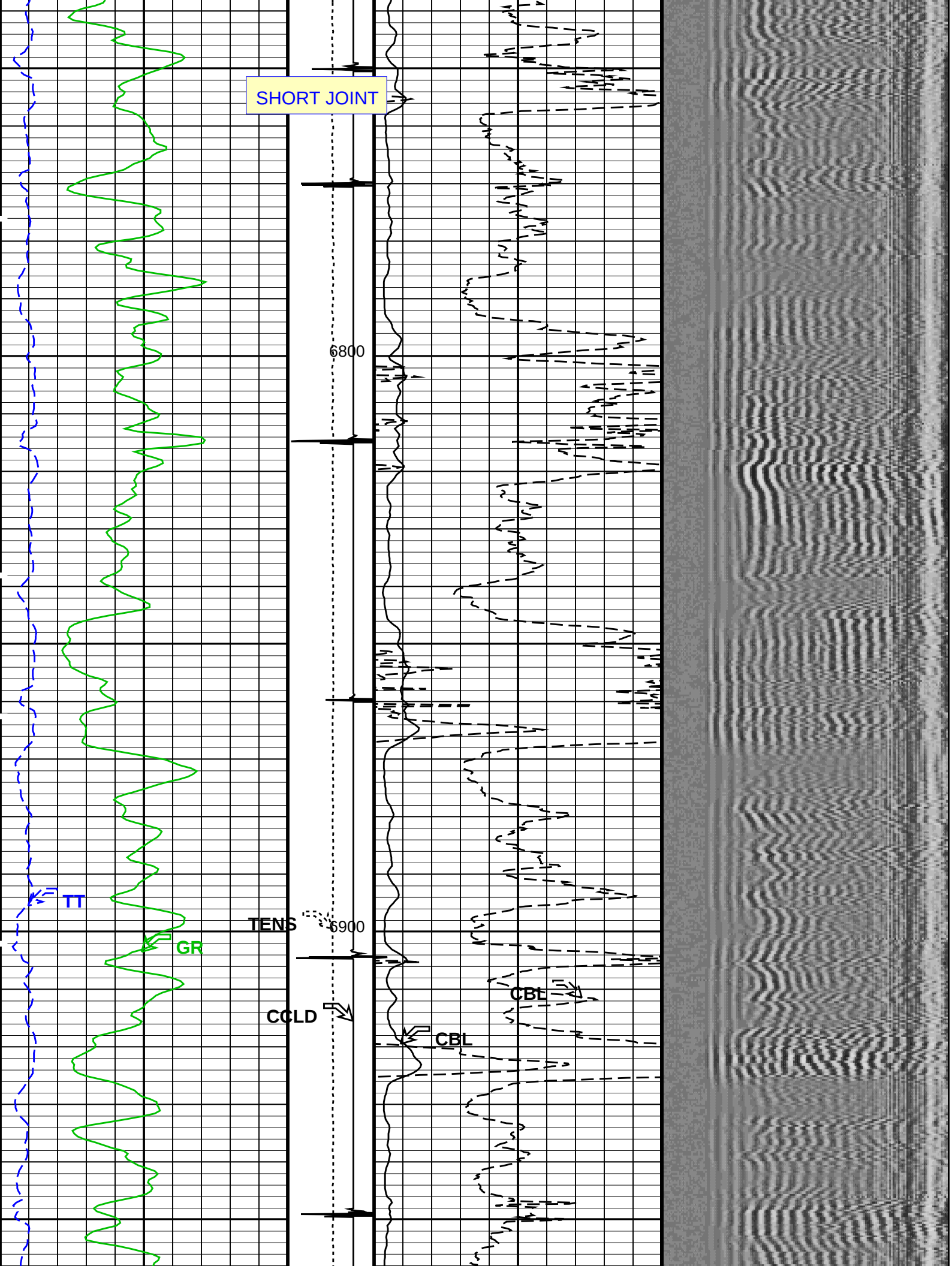
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TENS
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CCLD
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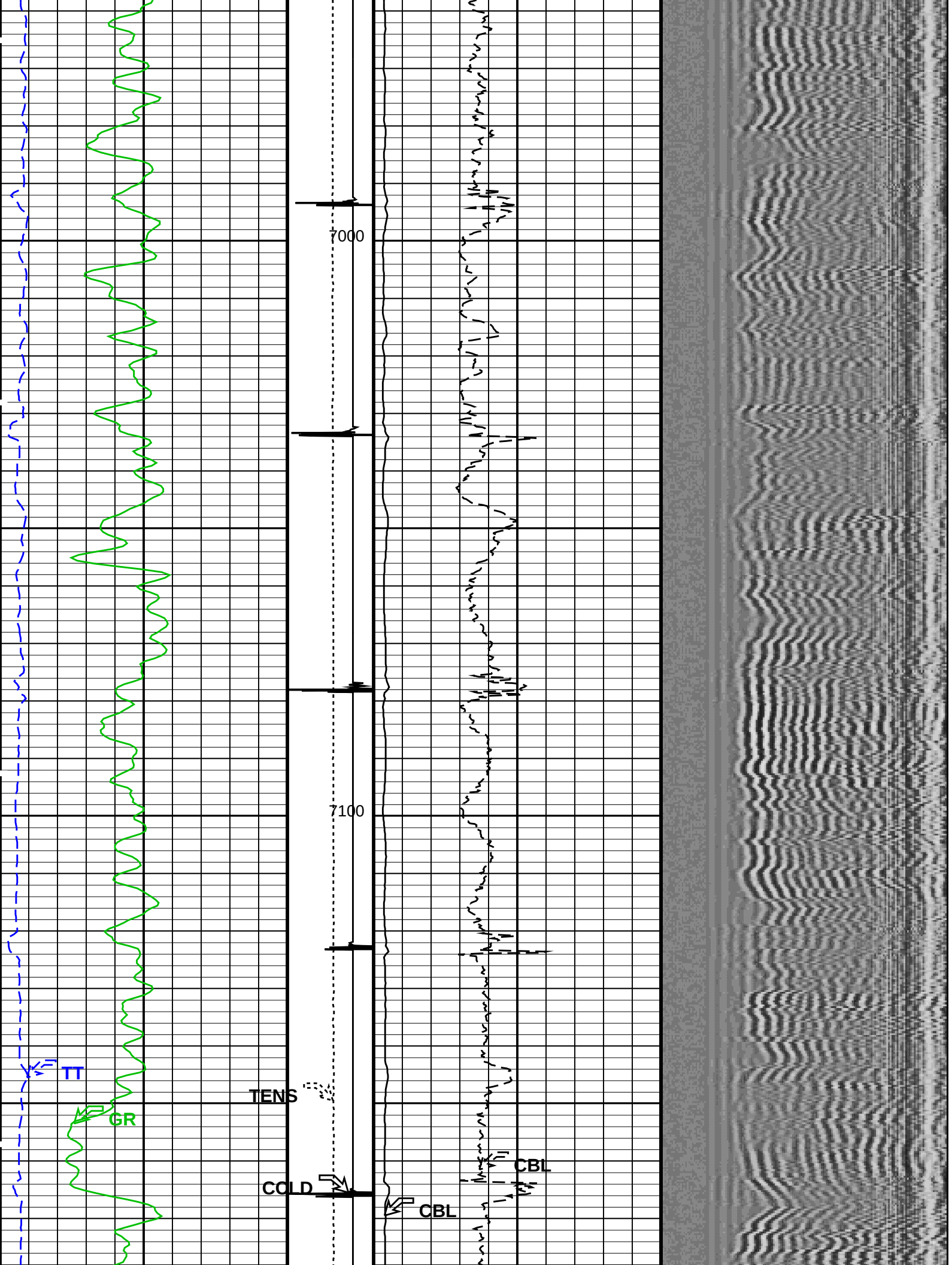
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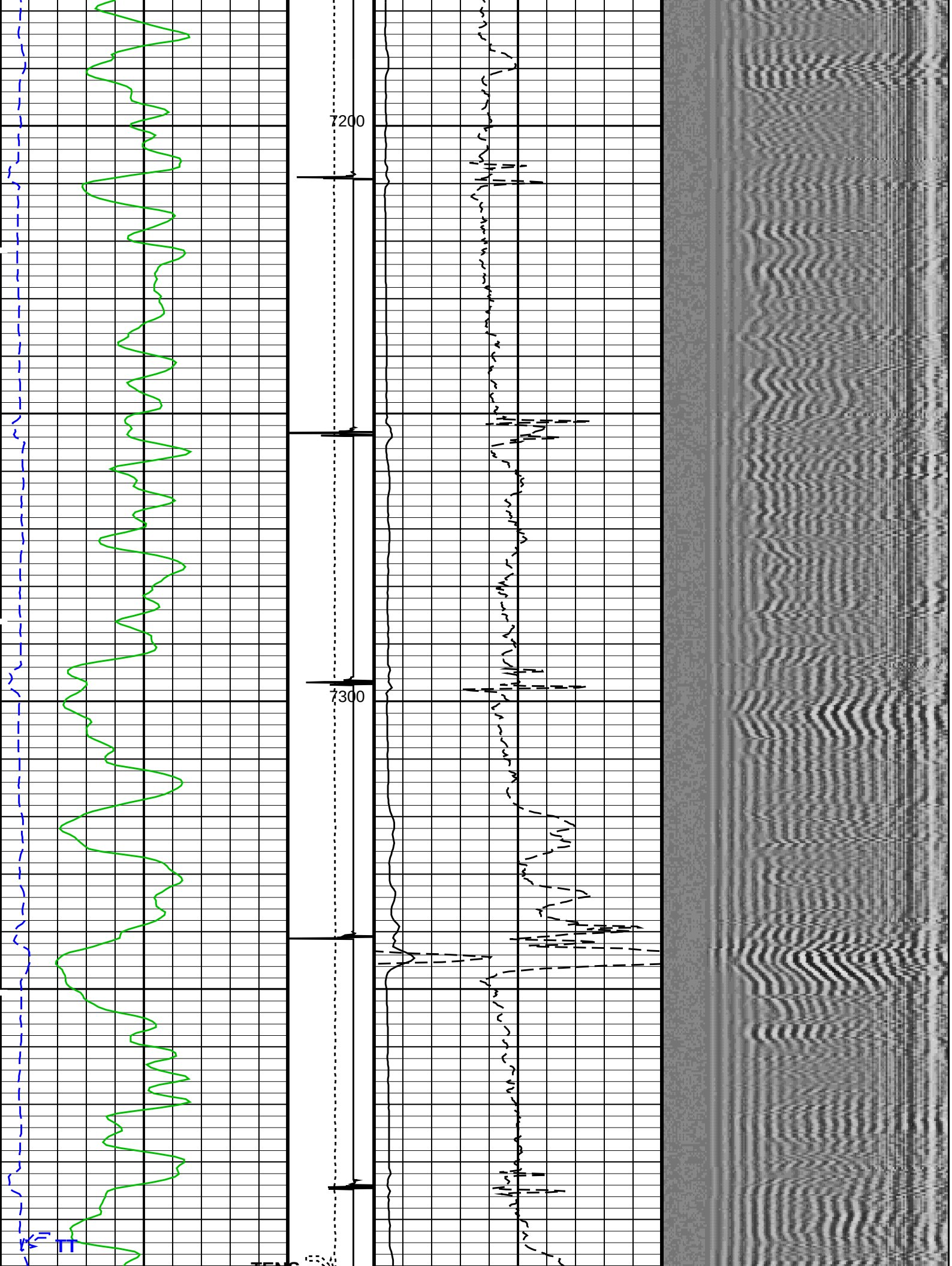
TT
GR
TENS
CCLD
CBL
CBL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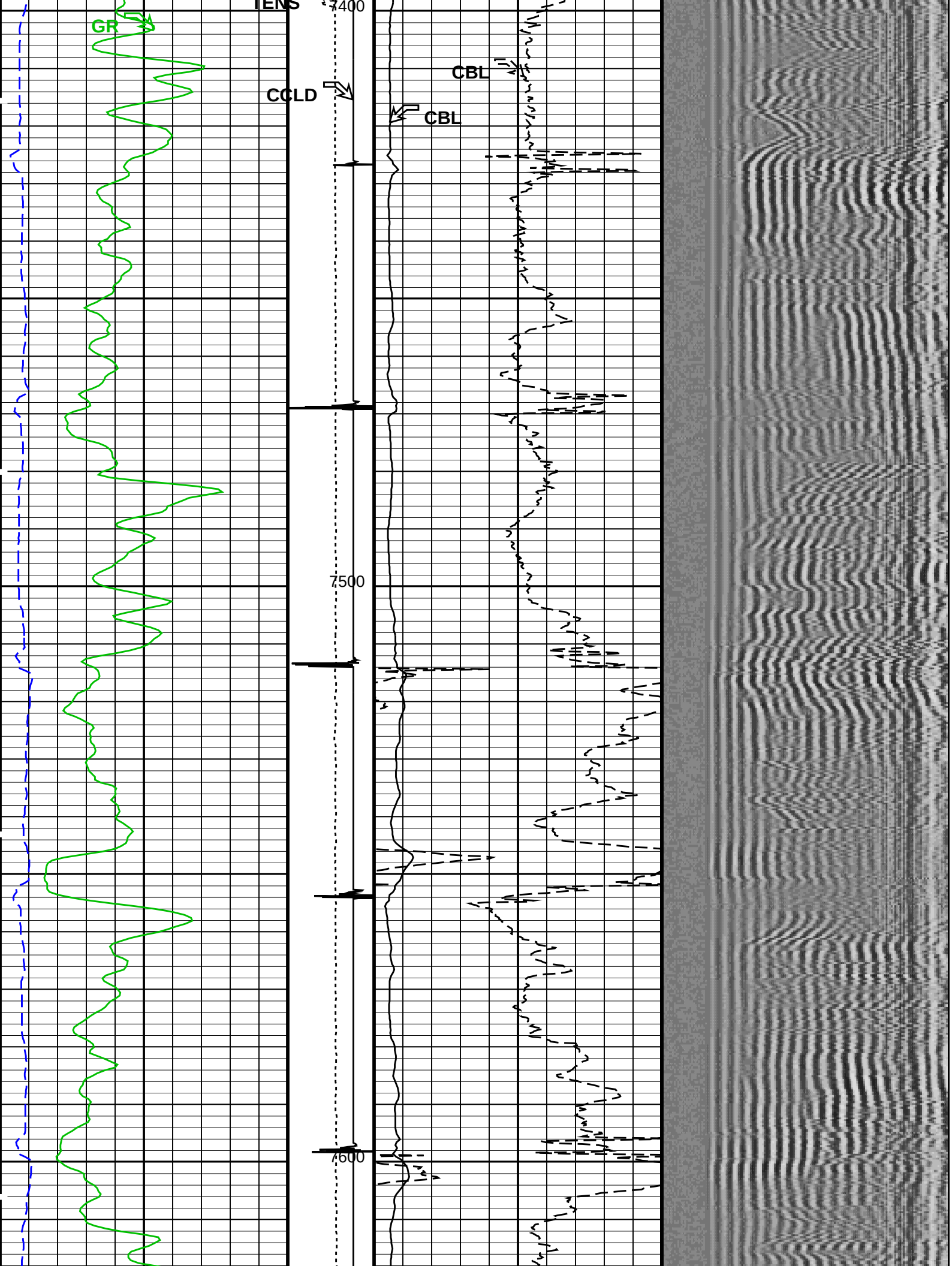
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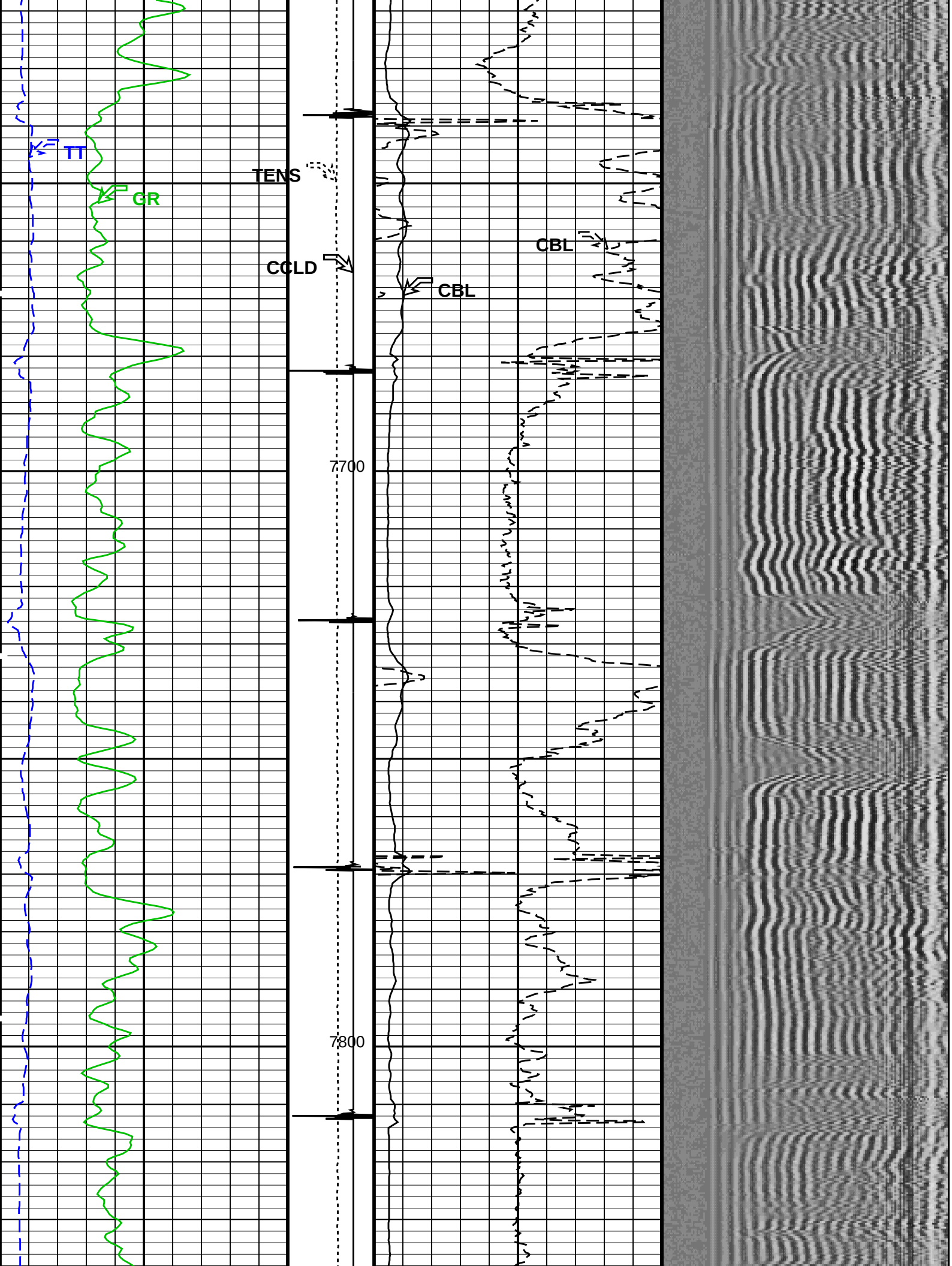
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GR
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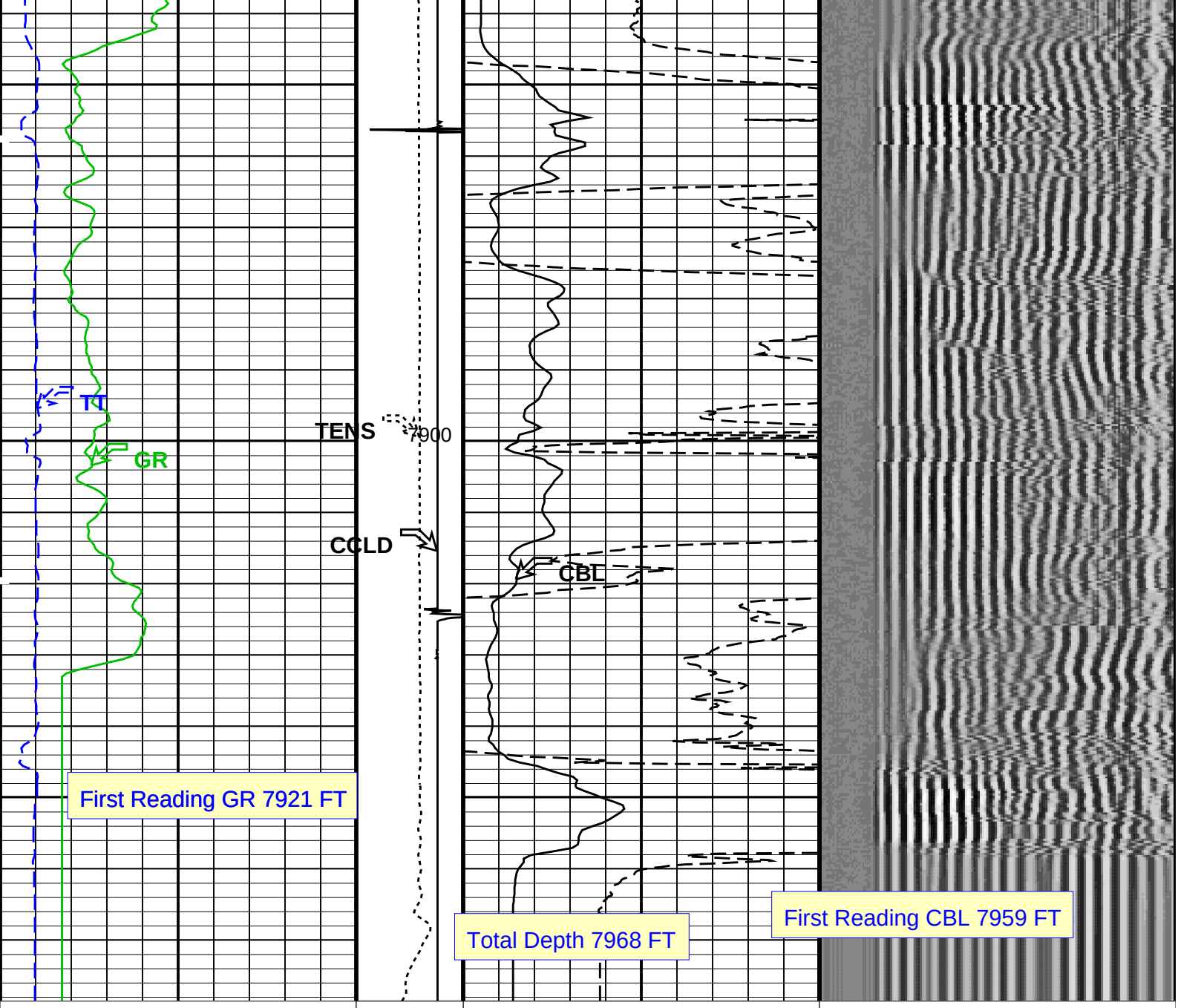
CBL
7700
7800



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)	**Discriminated CCL (CCLD)**	**CBL Amplitude (CBL)**	
260 (US) 160	3 (V) −1	0 (MV) 10	

PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL **Vertical Scale: 5" per 100'** **Graphics File Created: 21−Oct−2013 23:11**

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

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	**7−SEP−2012**		
CBL Correction Factor	**0.0756720**	**CBL Adjustment Factor (CBAF)**	**1.0**
MAP 1 Correction Factor	**0.136845**	**MAP Adjustment Factor (MPAF)**	**1.0**
MAP 2 Correction Factor	**0.165126**		
MAP 3 Correction Factor	**0.125717**		
MAP 4 Correction Factor	**0.196395**		
MAP 5 Correction Factor	**0.147692**		
MAP 6 Correction Factor	**0.128887**		
MAP 7 Correction Factor	**0.150775**		
MAP 8 Correction Factor	**0.144577**		

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**	**4.0**	**FT**
PP	**Playback Processing**	**RECOMPUTE**	
TD	**Total Depth**	**7968**	**FT**

Input DLIS Files

DEFAULT	**Splice_SCMT_RST_PSP_042CUP**	**FN:1**	**PRODUCER**	**21−Oct−2013 23:08**	**7974.5 FT**	**−35.0 FT**

Output DLIS Files

DEFAULT	**SCMT_RST_PSP_043PUP**	**FN:39**	**PRODUCER**	**21−Oct−2013 23:11**

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REPEAT ANALYSIS CBL VDL

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC **Well: HAGEN FEDERAL 22−2D (PC22)**

Input DLIS Files

DEFAULT	SCMT_RST_PSP_035LUP	FN:32	PRODUCER	21−Oct−2013 20:17	5851.5 FT	5550.7 FT
DEFAULT	SCMT_RST_PSP_043PUP	FN:39	PRODUCER	21−Oct−2013 23:11	7978.5 FT	−83.0 FT

Output DLIS Files

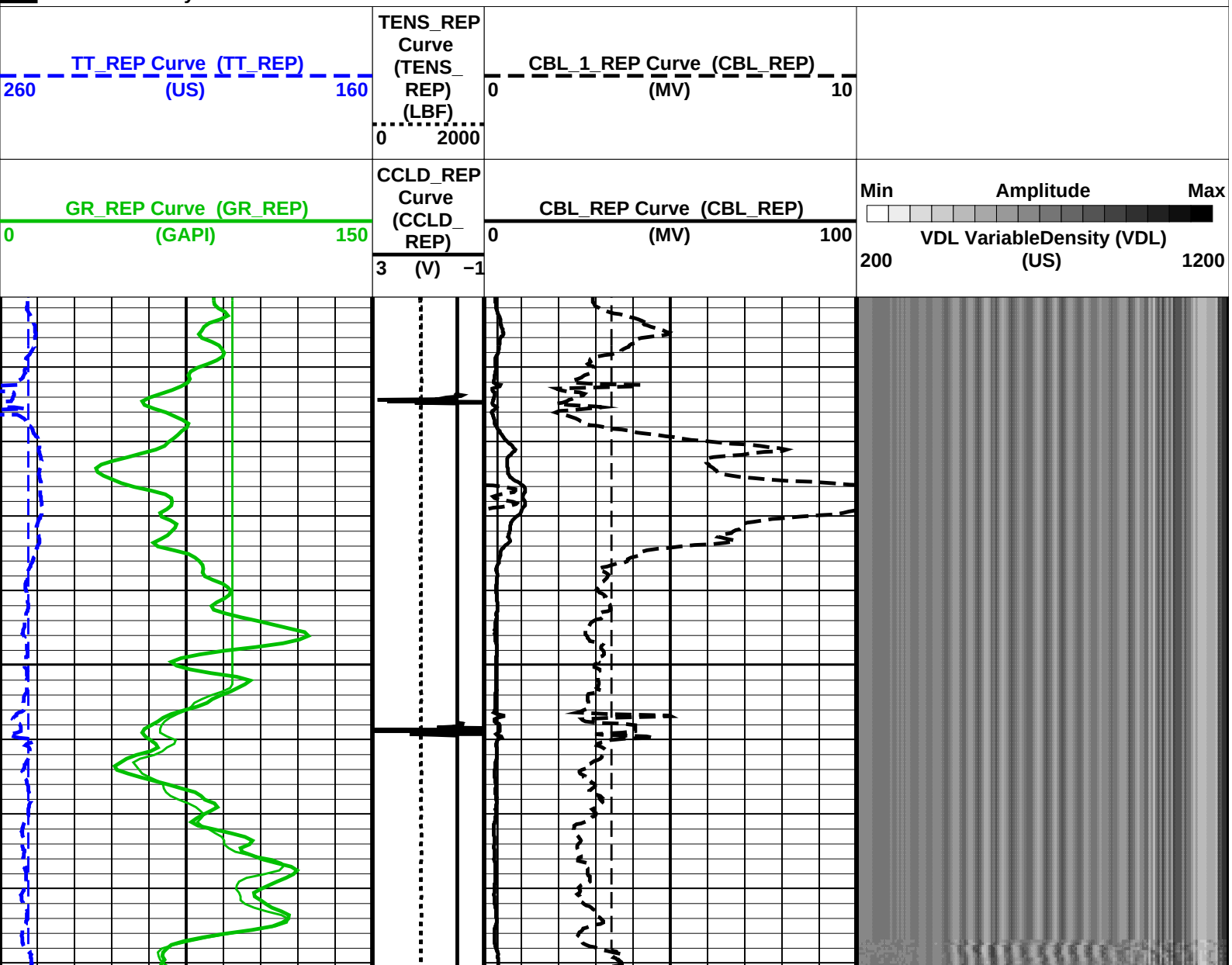
DEFAULT	SCMT_RST_PSP_044PUP	FN:40	PRODUCER	21−Oct−2013 23:21	5852.5 FT	5500.0 FT

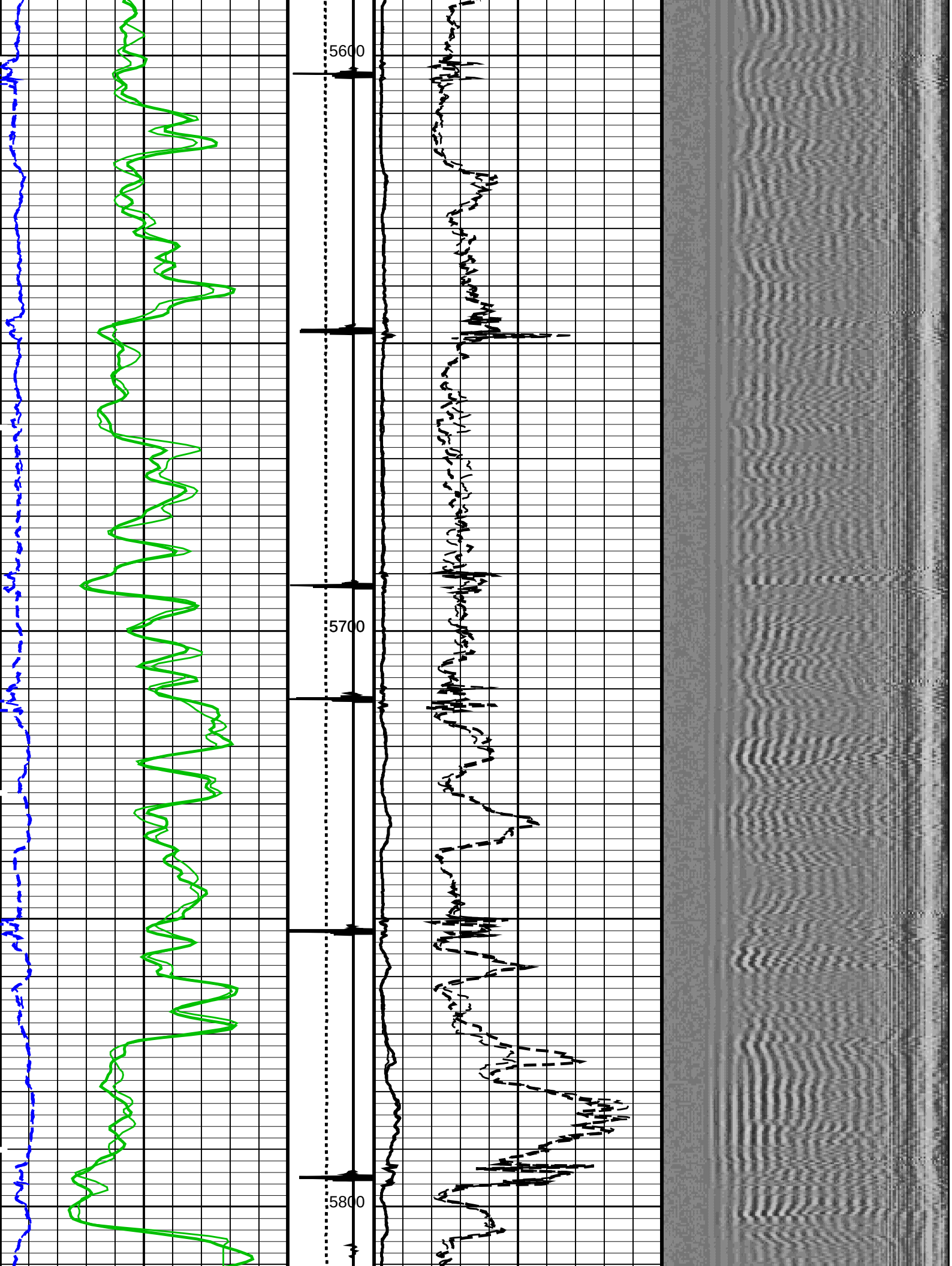
OP System Version: 19C0−187

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




5600
5700
5800

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: 21−Oct−2013 23:21

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	7−SEP−2012		
CBL Correction Factor	0.0756720	CBL Adjustment Factor (CBAF)	1.0
MAP 1 Correction Factor	0.136845	MAP Adjustment Factor (MPAF)	1.0
MAP 2 Correction Factor	0.165126		
MAP 3 Correction Factor	0.125717		
MAP 4 Correction Factor	0.196395		
MAP 5 Correction Factor	0.147692		
MAP 6 Correction Factor	0.128887		
MAP 7 Correction Factor	0.150775		
MAP 8 Correction Factor	0.144577		

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	1.0	FT	
DORL	Depth Offset for Repeat Analysis	0.0	FT	
PP	Playback Processing	RECOMPUTE		
TD	Total Depth	7968	FT	

Input DLIS Files

DEFAULT	SCMT_RST_PSP_035LUP	FN:32	PRODUCER	21−Oct−2013 20:17	5851.5 FT	5550.7 FT
DEFAULT	SCMT_RST_PSP_043PUP	FN:39	PRODUCER	21−Oct−2013 23:11	7978.5 FT	−83.0 FT

Output DLIS Files

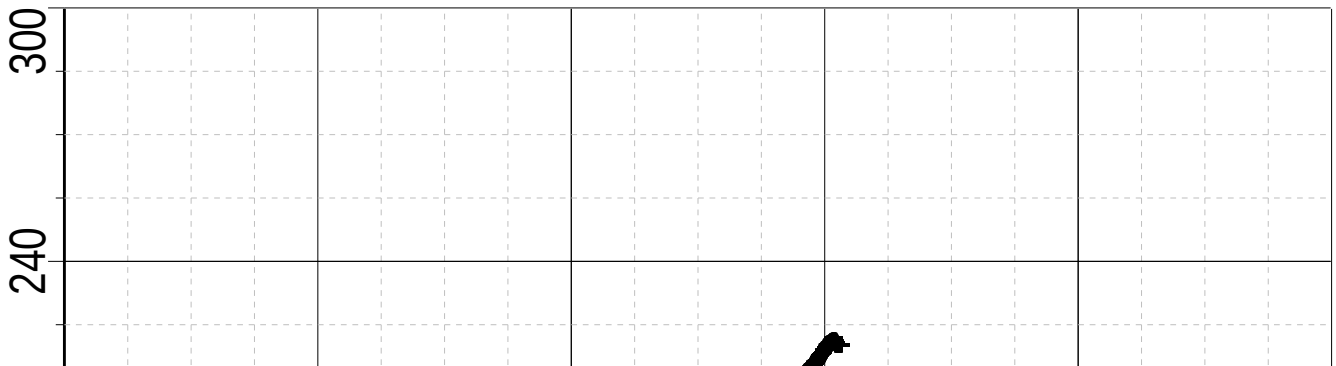
DEFAULT	SCMT_RST_PSP_044PUP	FN:40	PRODUCER	21−Oct−2013 23:21

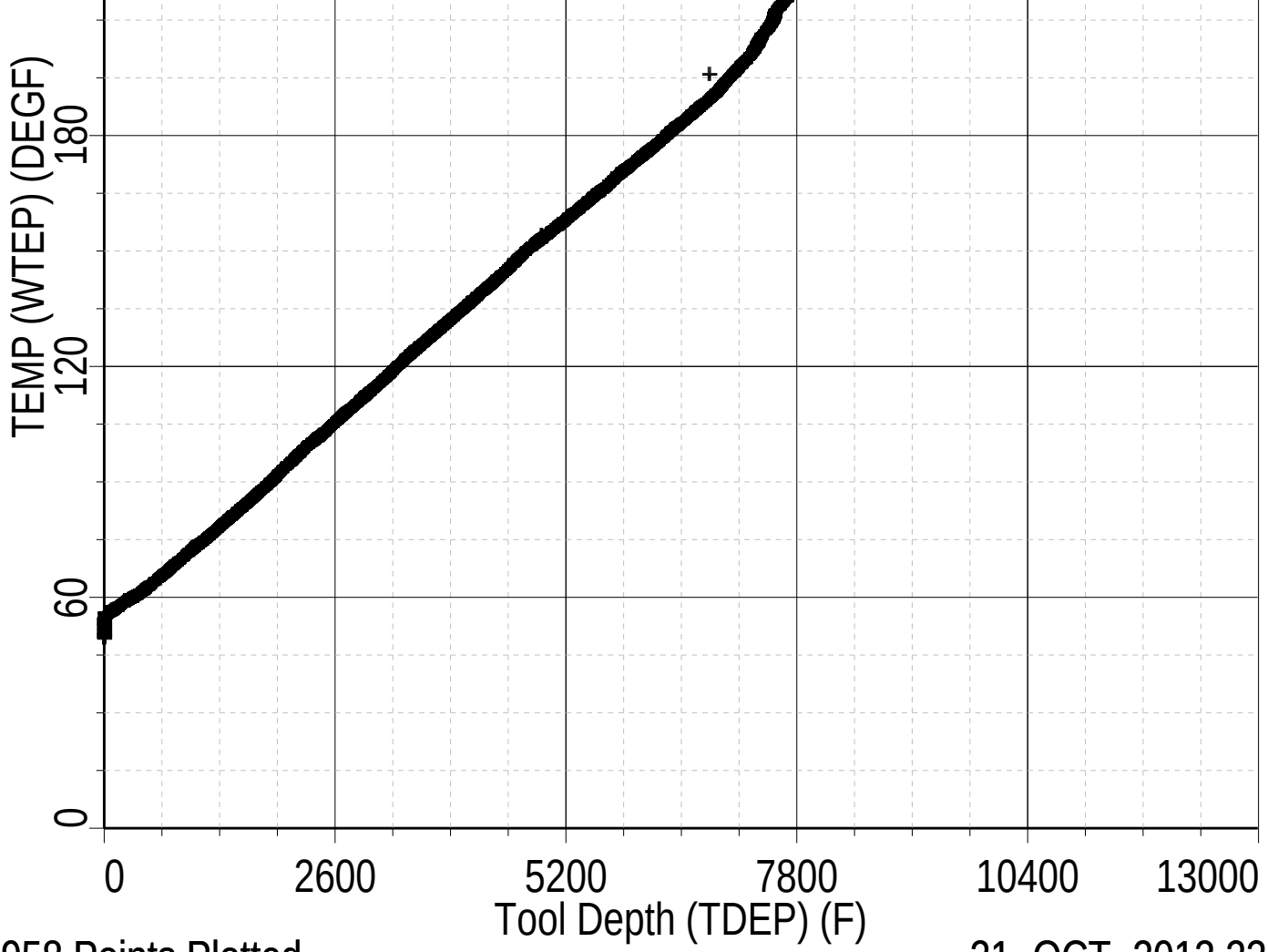
Schlumberger

TEMPERATURE PLOT

MAXIS Field Log

Index: 7978.5 − −83.0 FT





15958 Points Plotted

21−OCT−2013 23:19

Schlumberger

PBMS COEFFICIENTS

MAXIS Field Log

Client:	**ENCANA OIL & GAS (USA) INC**	**Tool:**	**PSP**
Field:	**SOUTH PARACHUTE**	**Sub Type:**	**PBMS**
Well:	**HAGEN FEDERAL 22−2D (PC22)**	**Sensor:**	**GR**
Run date:	**21−Oct−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**

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

Client:	ENCANA OIL & GAS (USA) INC	Tool:	PSP
Field:	SOUTH PARACHUTE	Sub Type:	PBMS
Well:	HAGEN FEDERAL 22−2D (PC22)	Sensor:	WellTemp RTD
Run date:	21−Oct−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:	SOUTH PARACHUTE	Sub Type:	PBMS
Well:	HAGEN FEDERAL 22−2D (PC22)	Sensor:	CQG
Run date:	21−Oct−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

	Fb0**	**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**

	Fb3**	**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

	Fc0**	**Fc**1**	**Fc**2**
Fb0**	**+.117016867873E+03**	**−.284359629614E−03**	**+.604391180345E−08**
Fb1**	**−.598309140812E−02**	**+.182731130848E−07**	**+.160166486172E−12**
Fb2**	**−.307621454576E−07**	**+.300601550309E−12**	**+.311233548560E−17**
Fb3**	**−.419658736767E−12**	**+.117473708647E−16**	**0.0**
Fb4**	**0.0**	**0.0**	**0.0**
Fb5**	**0.0**	**0.0**	**0.0**

	Fc3**	**Fc**4**	**Fc**5**
Fb0**	**+.114338708670E−12**	**+.152807711176E−17**	**−.726714260866E−21**

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

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		876.9
500.0 (Minimum)	1075 (Nominal)	1650 (Maximum)

Phase	MAP 2 Amplitude Plus MV	Value
Master		726.7
500.0 (Minimum)	1075 (Nominal)	1650 (Maximum)

Phase	MAP 3 Amplitude Plus MV	Value
Master		954.5
500.0 (Minimum)	1075 (Nominal)	1650 (Maximum)

Phase	MAP 4 Amplitude Plus MV	Value
Master		611.0
500.0 (Minimum)	1075 (Nominal)	1650 (Maximum)

Phase	MAP 5 Amplitude Plus MV	Value
Master		812.5
500.0 (Minimum)	1075 (Nominal)	1650 (Maximum)

Phase	MAP 6 Amplitude Plus MV	Value
Master		931.0
500.0 (Minimum)	1075 (Nominal)	1650 (Maximum)

Phase	MAP 7 Amplitude Plus MV	Value
Master		795.9
500.0 (Minimum)	1075 (Nominal)	1650 (Maximum)

Phase	MAP 8 Amplitude Plus MV	Value
Master		830.0
500.0 (Minimum)	1075 (Nominal)	1650 (Maximum)

Phase	CBL Amplitude Plus MV	Value
Master		1269
1000 (Minimum)	1350 (Nominal)	1700 (Maximum)

Master: Calibration out of date 7−Sep−2012 16:30

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

Schlumberger

Well: **HAGEN FEDERAL 22−2D (PC22)**
Field: **SOUTH PARACHUTE**
County: **GARFIELD**
State: **COLORADO**

SLIM CEMENT MAPPING LOG
CBL−VDL
GR−CCL