Schlumberger

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

Well: **ALP FEE 24−12A (J24NW)**
Field: **MAMM CREEK**
County: **GARFIELD** State: **COLORADO**

County: GARFIELD
Field: MAMM CREEK
Location: SHL: 2436 FSL & 1953 FEL
Well: ALP FEE 24−12A (J24NW)
Company: ENCANA OIL & GAS (USA) INC

SLIM CEMENT MAPPING LOG
CBL−VDL
GAMMA RAY−CCL

LOCATION

SHL: 2436 FSL & 1953 FEL
BHL: 2163 FSL & 1074 FWL

Elev.: K.B. 5702.00 ft
G.L. 5680.00 ft
D.F. 5701.00 ft

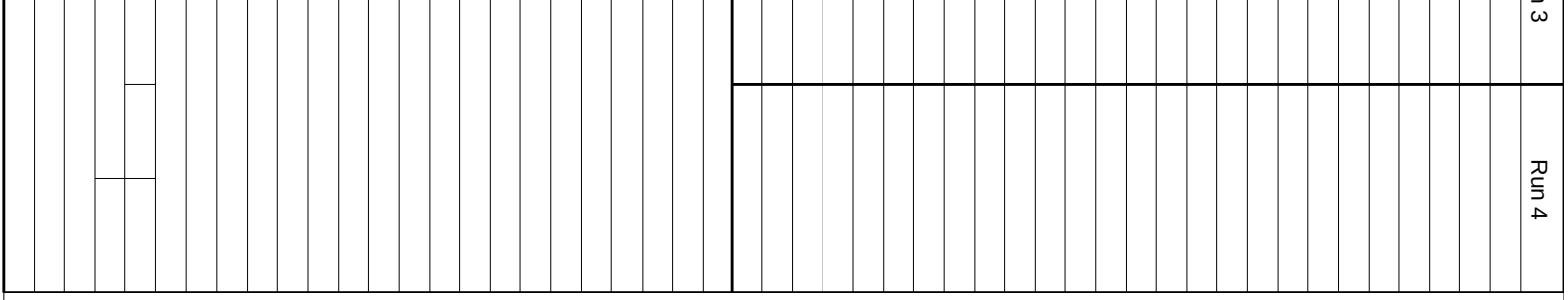
Permanent Datum: GROUND LEVEL Elev.: 5680.00 ft
Log Measured From: KELLY BUSHING 22.00 ft above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	Section	Township	Range
05−045−21808−0(	24	6S	93W

Logging Date		15−Aug−2013						
Run Number		1						
Depth Driller		8266 ft						
Schlumberger Depth		8188 ft						
Bottom Log Interval		8179 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		7.875 in						
From		6049 ft						
To		8266 ft						
Casing/Tubing Size		4.500 in						
Weight		11.6 lbm/ft						
Grade		S−80						
From		22 ft						
To		8246 ft						
Maximum Recorded Temperatures		216 degF						
Logger On Bottom	Time	15−Aug−2013	11:45					
Unit Number	Location	391	GRAND JUNCTION					
Recorded By		KIRSTIE BUNTING						
Witnessed By		BILLY MYERS						

		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:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
FIRST RUN IN HOLE CORRELATED TO DOWN LOG	
TOOL RUN AS PER TOOL SKETCH	
ENTRANCE: 11:30	
TIME ON BOTTOM: 11:45	
EXIT: 14:00	

MAXIMUM RECORDED TEMPERATURE: 216 DEGF

MAXIMUM RECORDED PRESSURE: 3275 PSIA

SHORT JOINTS: 6125 FT & 7114 FT

MAIN PASS LOGGED WITH ZERO SURFACE PRESSURE

EXPECTED FREE PIPE CBL AMPLITUDE 82MV

CREW: KBUNTING, WAZIZ, KJOHNS

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

RUN 1		
SERVICE ORDER #:	CGF9−00103	
PROGRAM VERSION:	19C0−187	
FLUID LEVEL:	60 ft	
LOGGED INTERVAL	START	STOP

RUN 2		
SERVICE ORDER #:		
PROGRAM VERSION:		
FLUID LEVEL:		
LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1 RUN 2

SURFACE EQUIPMENT

WITM−A
PSC_16MHZ

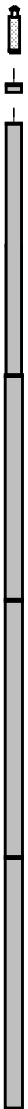
DOWNHOLE EQUIPMENT

MH−22
MH−22

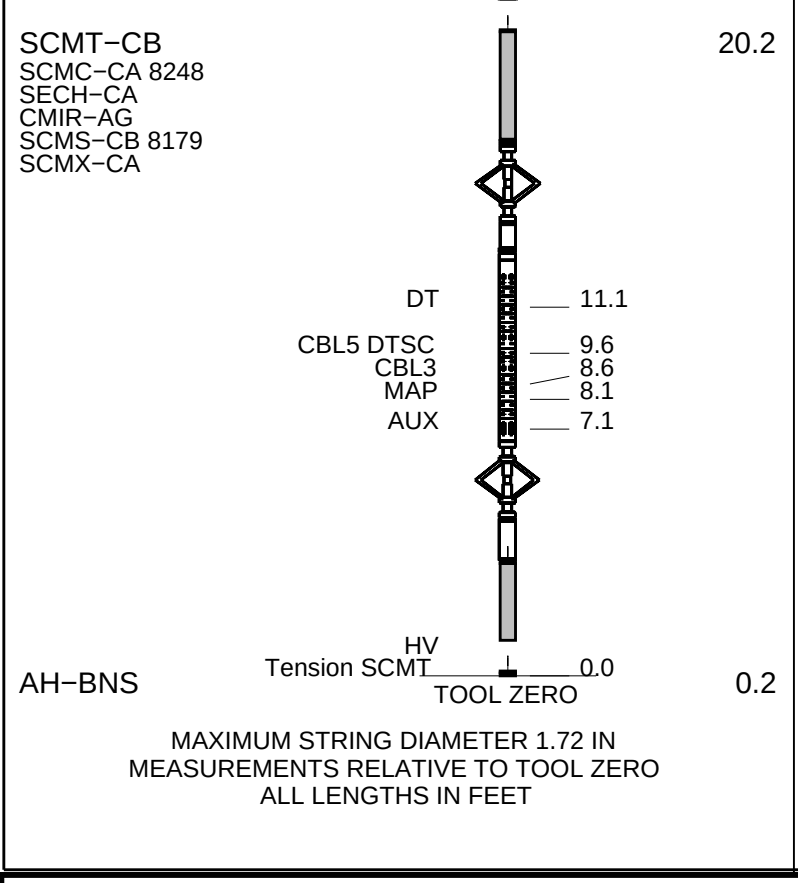
AH−38

PSPT
PSC−A
PSPT−A
PSTC−A
PBMS−A 1978
10k_Sapphire_Mano
RTD_Thermometer
GR
CCL
PBMS

RST−C
RSCH−A
RSC−E 469
RSS−A 461
RSXH−A
RSX−E 493



		53.3
Detail MT		
TelStatus		
CTEM	51.5	51.7
		51.5
GR	47.8	
Well_Temp	44.7	
Manometer	44.6	
CCL	44.0	
PBMS PSTC	43.2	
		43.2
RSC−A Far	34.1	
RSC−A PNG		
RSC−A Nea		
RSX−A PNG	33.6	



Schlumberger

MAIN PASS CBL VDL

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC **Well: ALP FEE 24−12A (J24NW)**

Input DLIS Files

DEFAULT	**SCMT_RST_PSP_018LUP**	**FN:17**	**PRODUCER**	**15−Aug−2013 11:44**	**8196.5 FT**	**−1.5 FT**

Output DLIS Files

DEFAULT	**SCMT_RST_PSP_023PUP**	**FN:22**	**PRODUCER**	**15−Aug−2013 13:58**	**8200.5 FT**	**−42.0 FT**

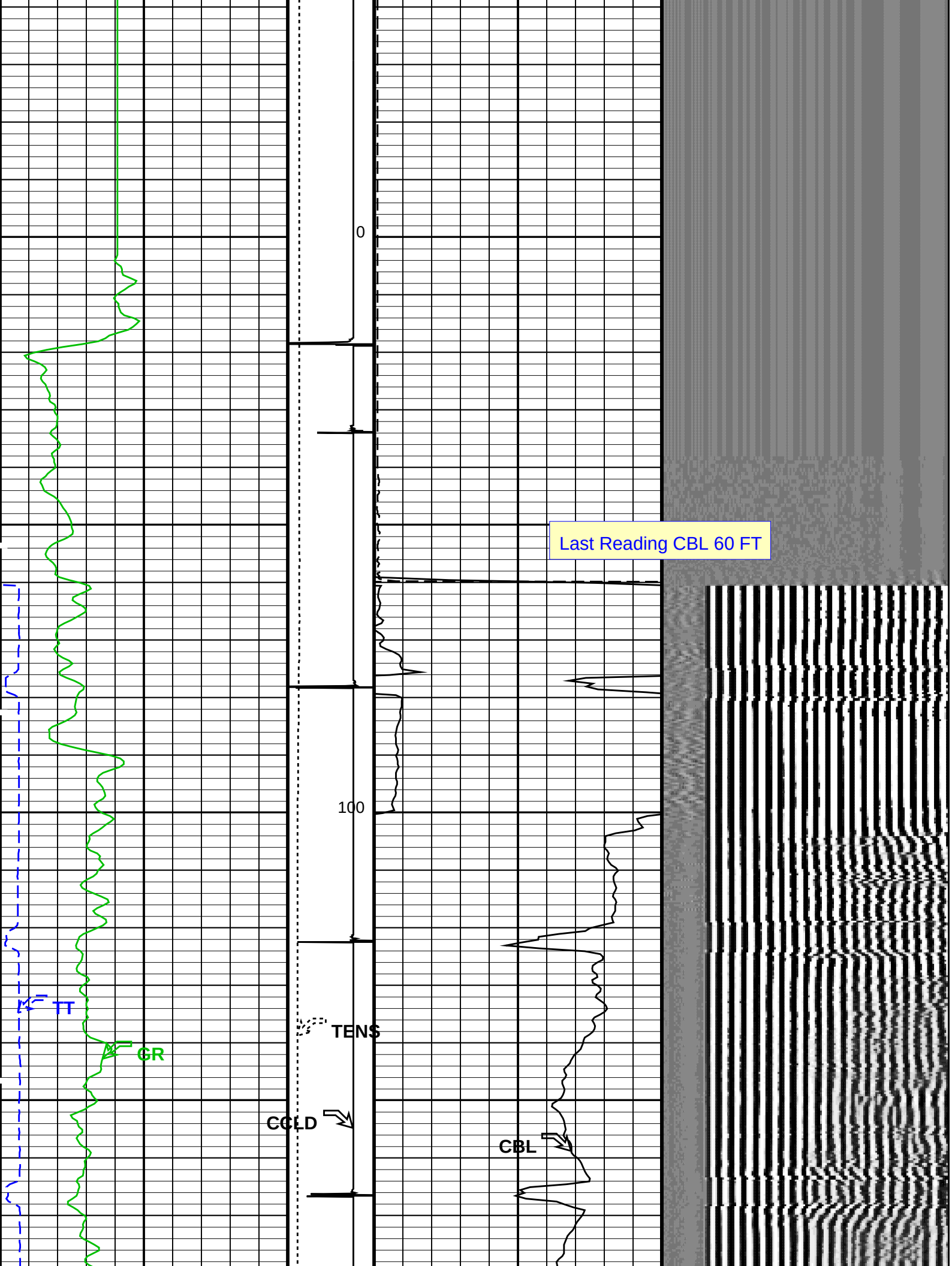
OP System Version: 19C0−187

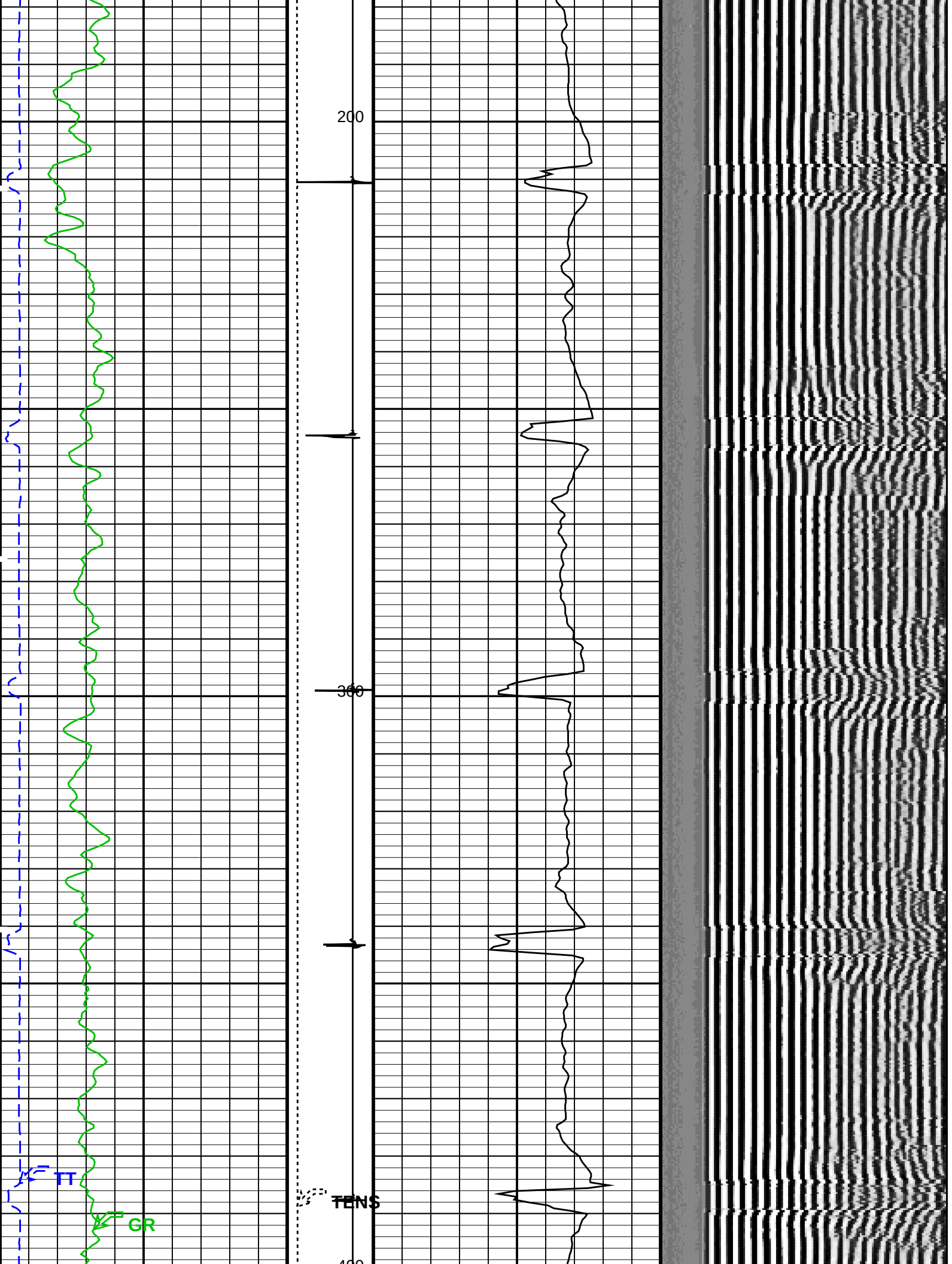
SCMT−CB	**SRPC−5214−H2−2012−OP1**	**RST−C**	**SRPC−5214−H2−2012−OP1**
PSPT	**SRPC−5214−H2−2012−OP1**		

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


0
100
Last Reading CBL 60 FT
TT
GR
TENS
CCLD
CBL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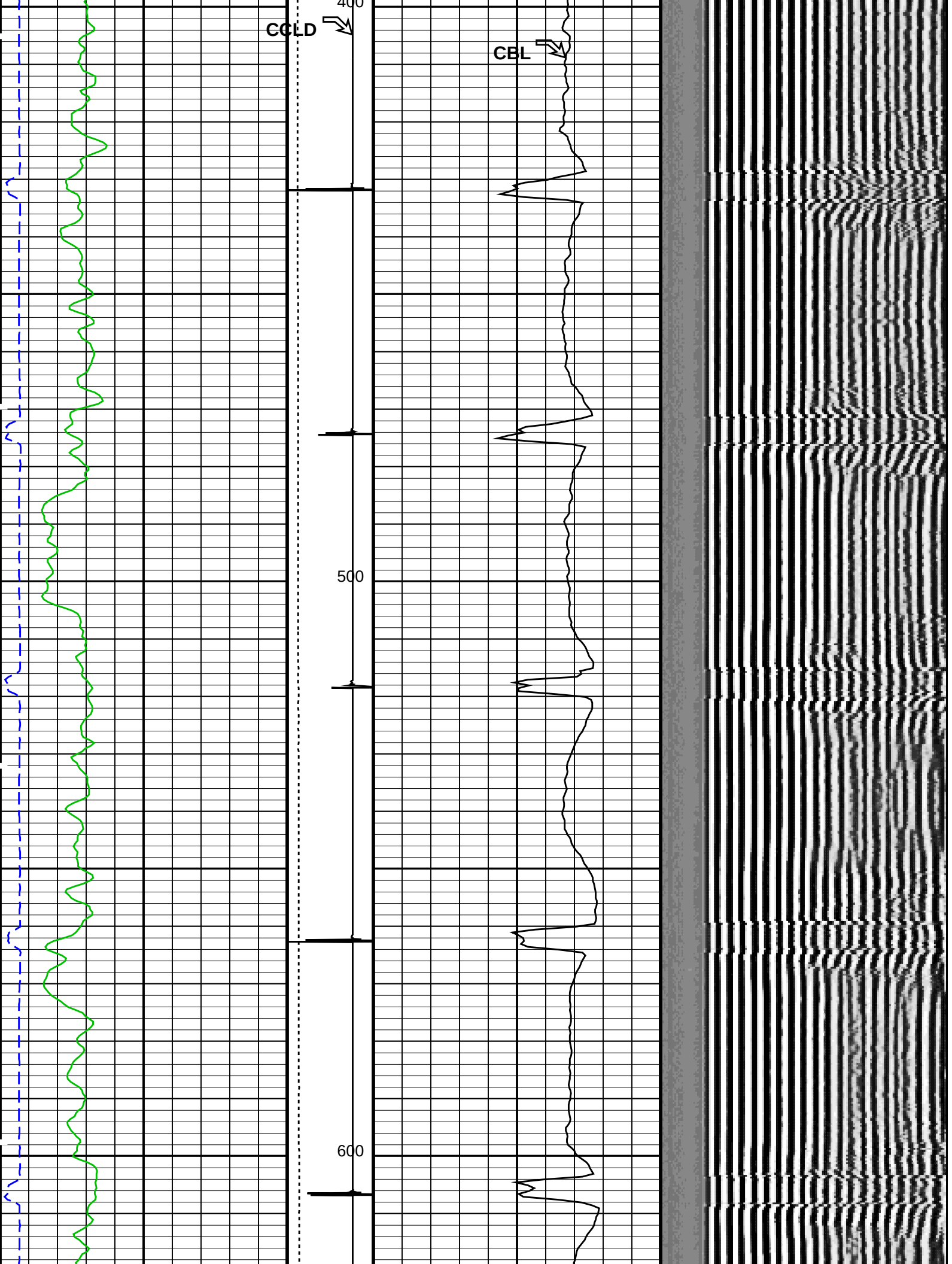
300
TT
GR
TENS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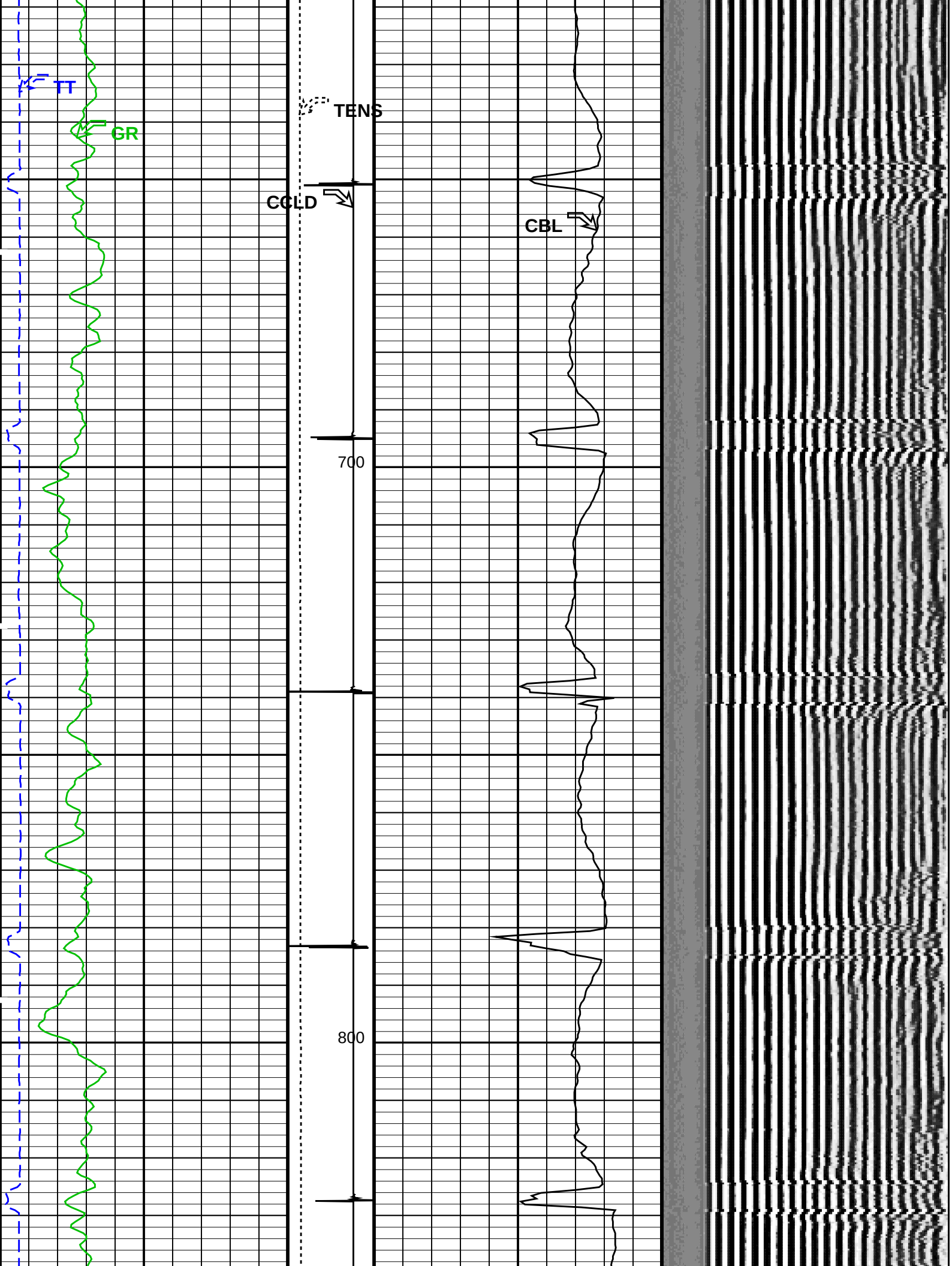
CCLD
CBL
500
600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GR
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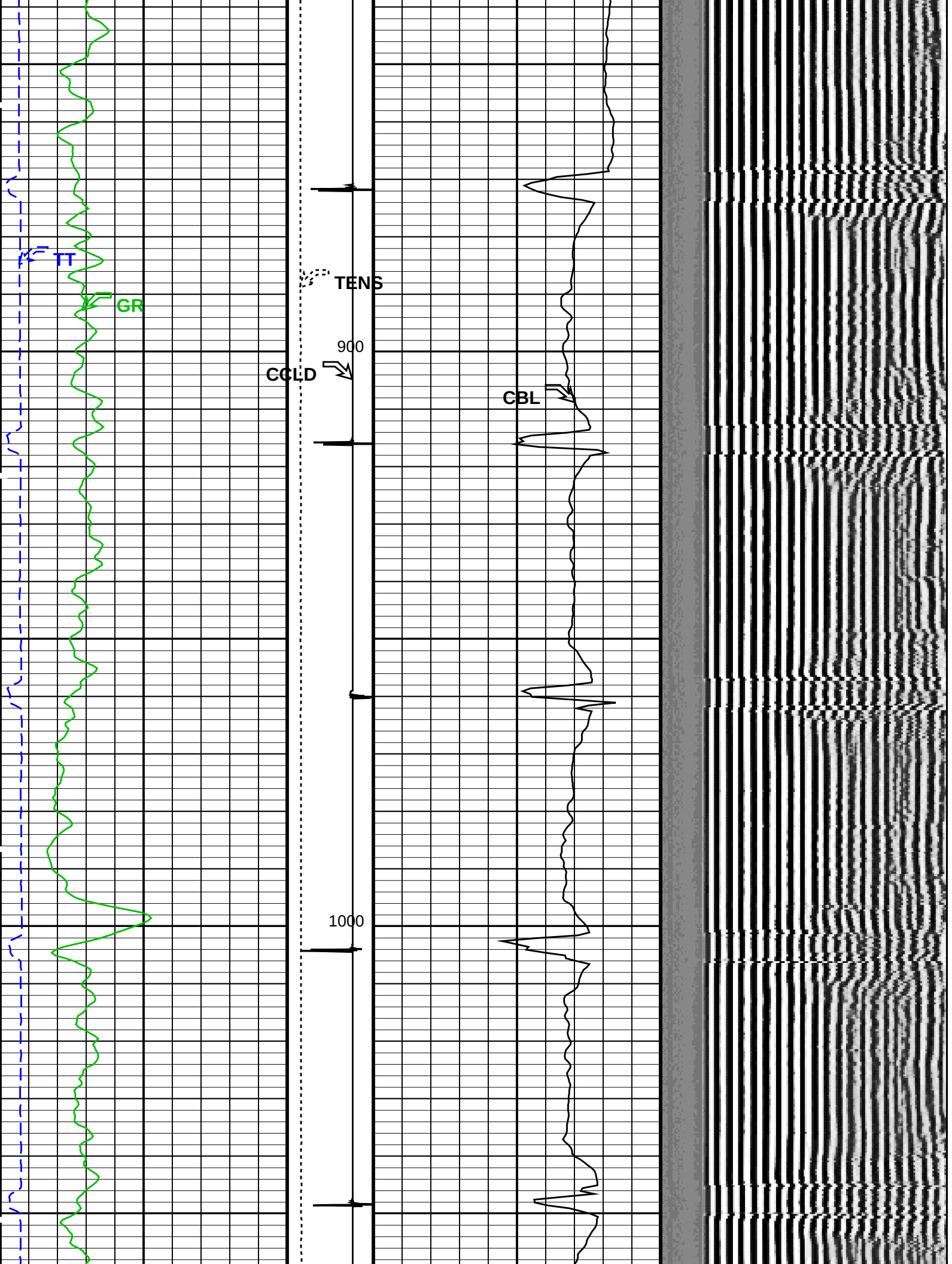
CCLD
CBL
700
800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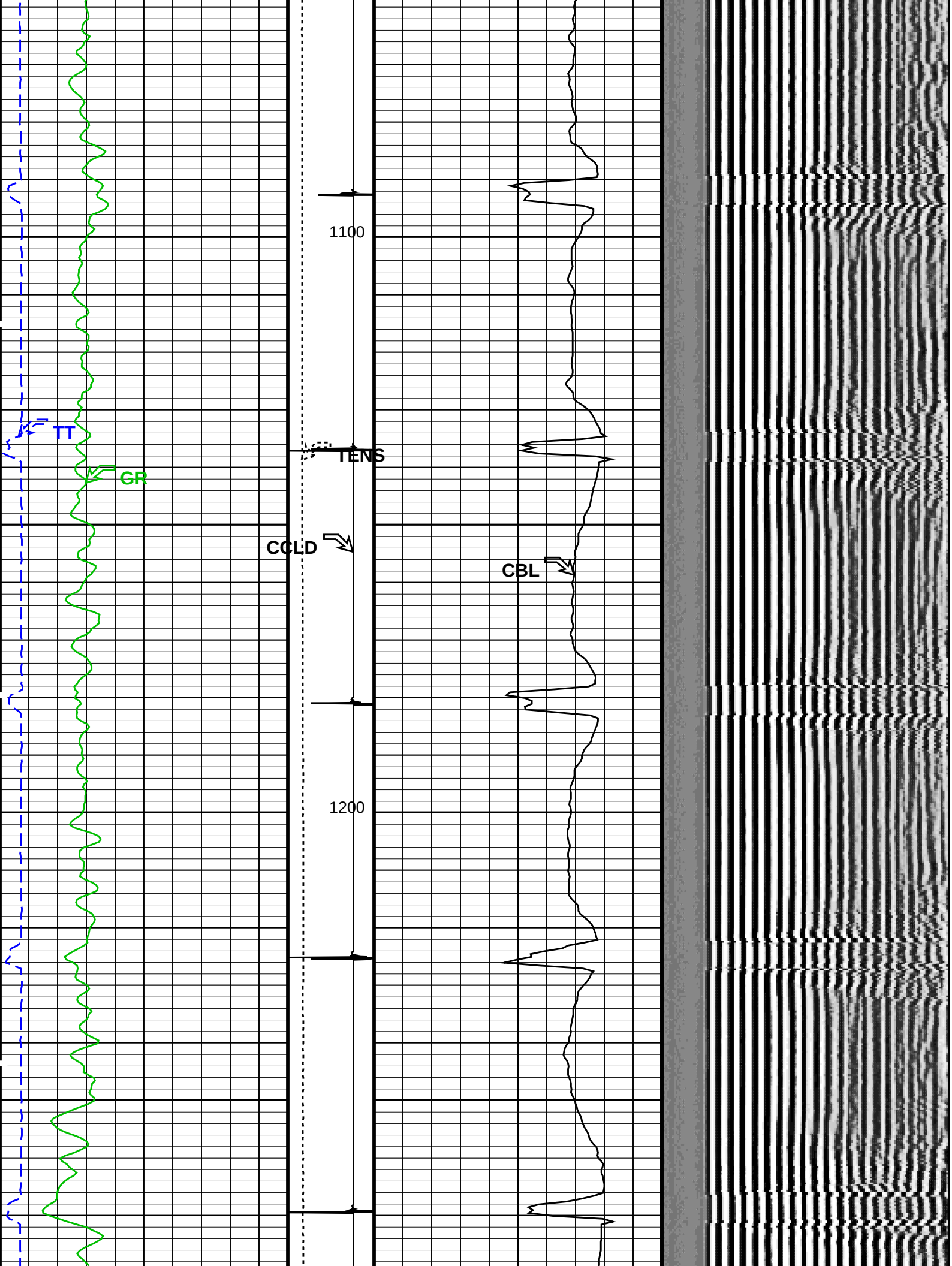
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GR
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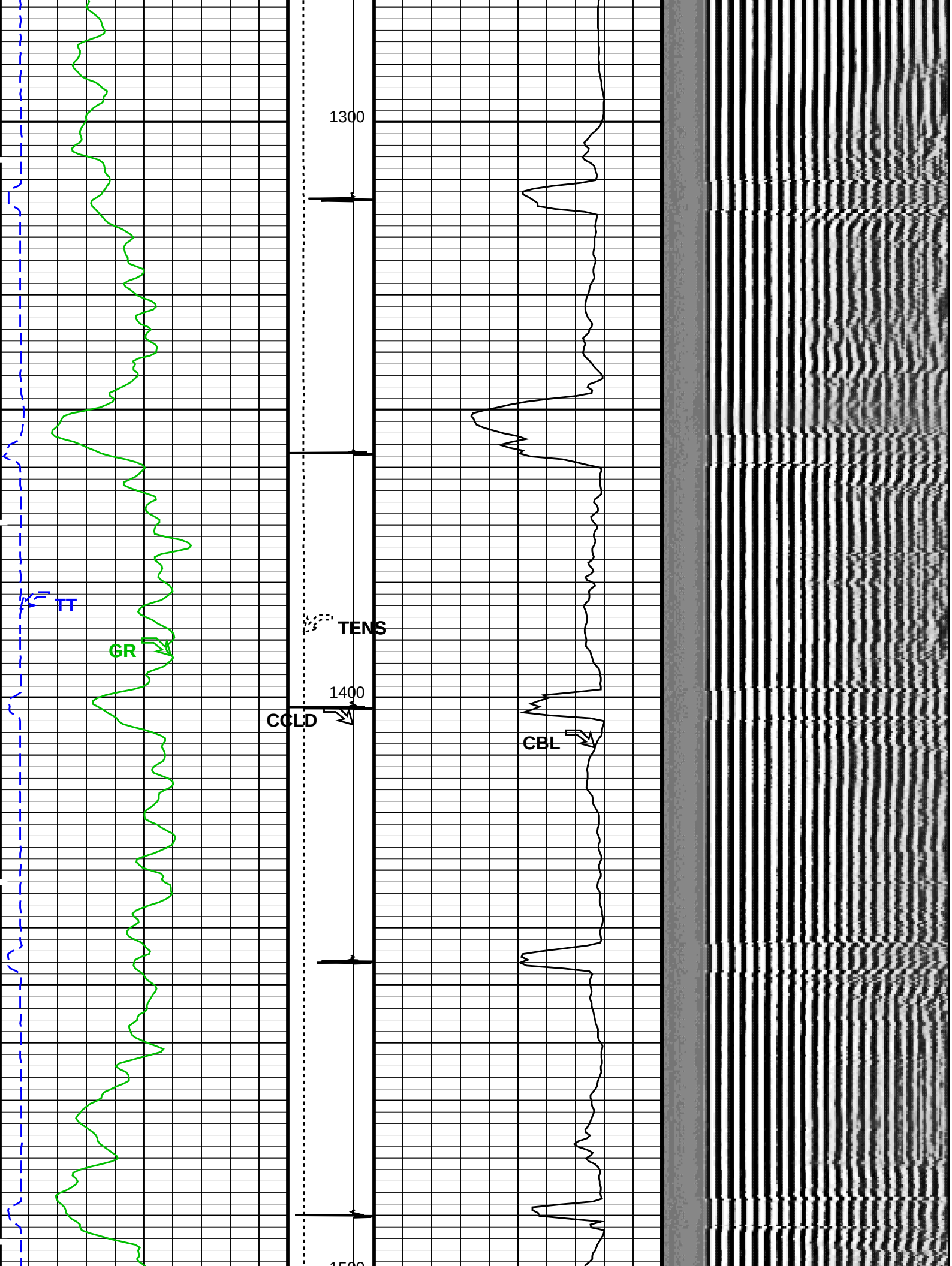
CBL
1200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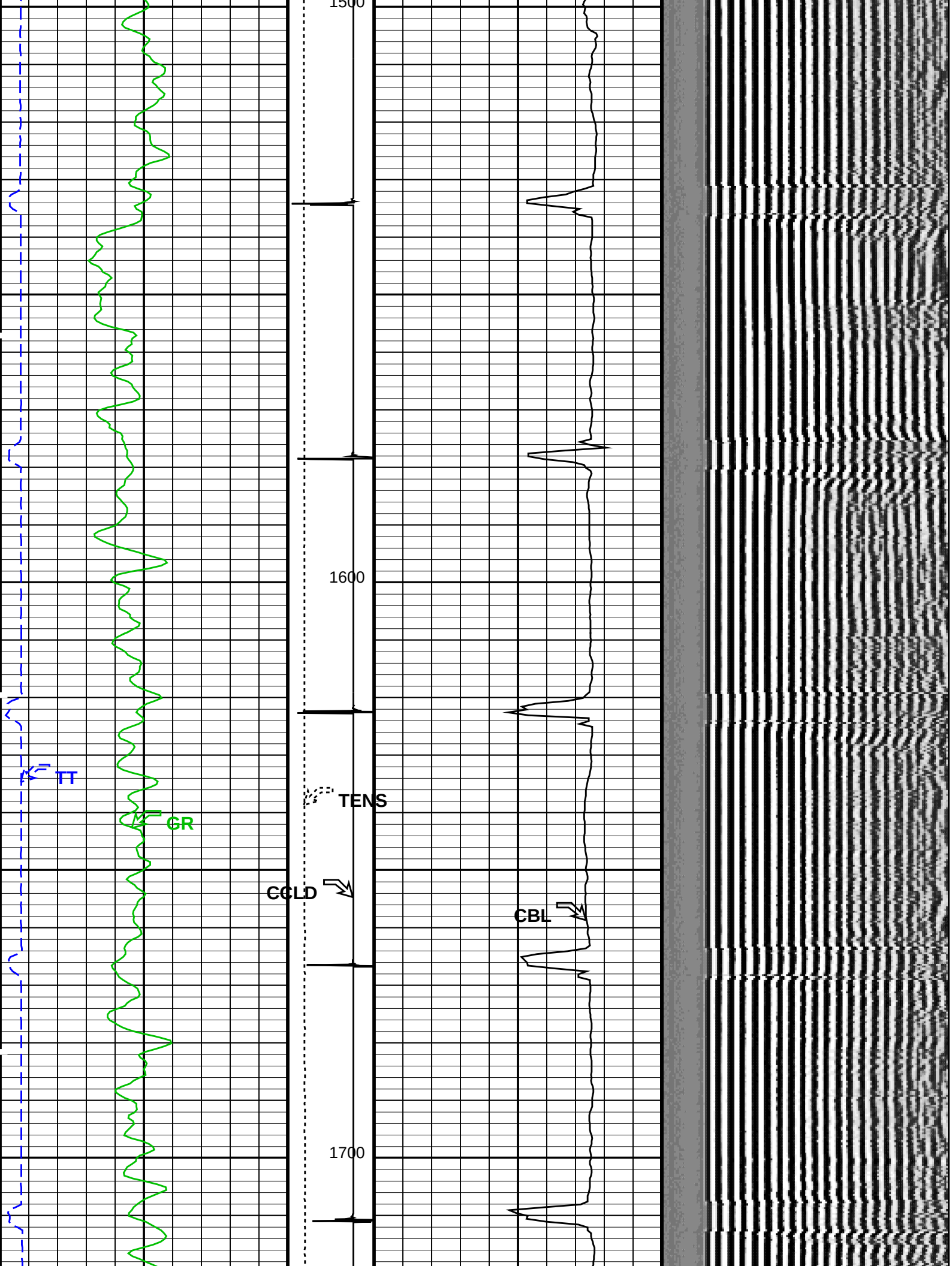
TT
GR
TENS
1400
CCLD
CBL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1700
TT
GR
TENS
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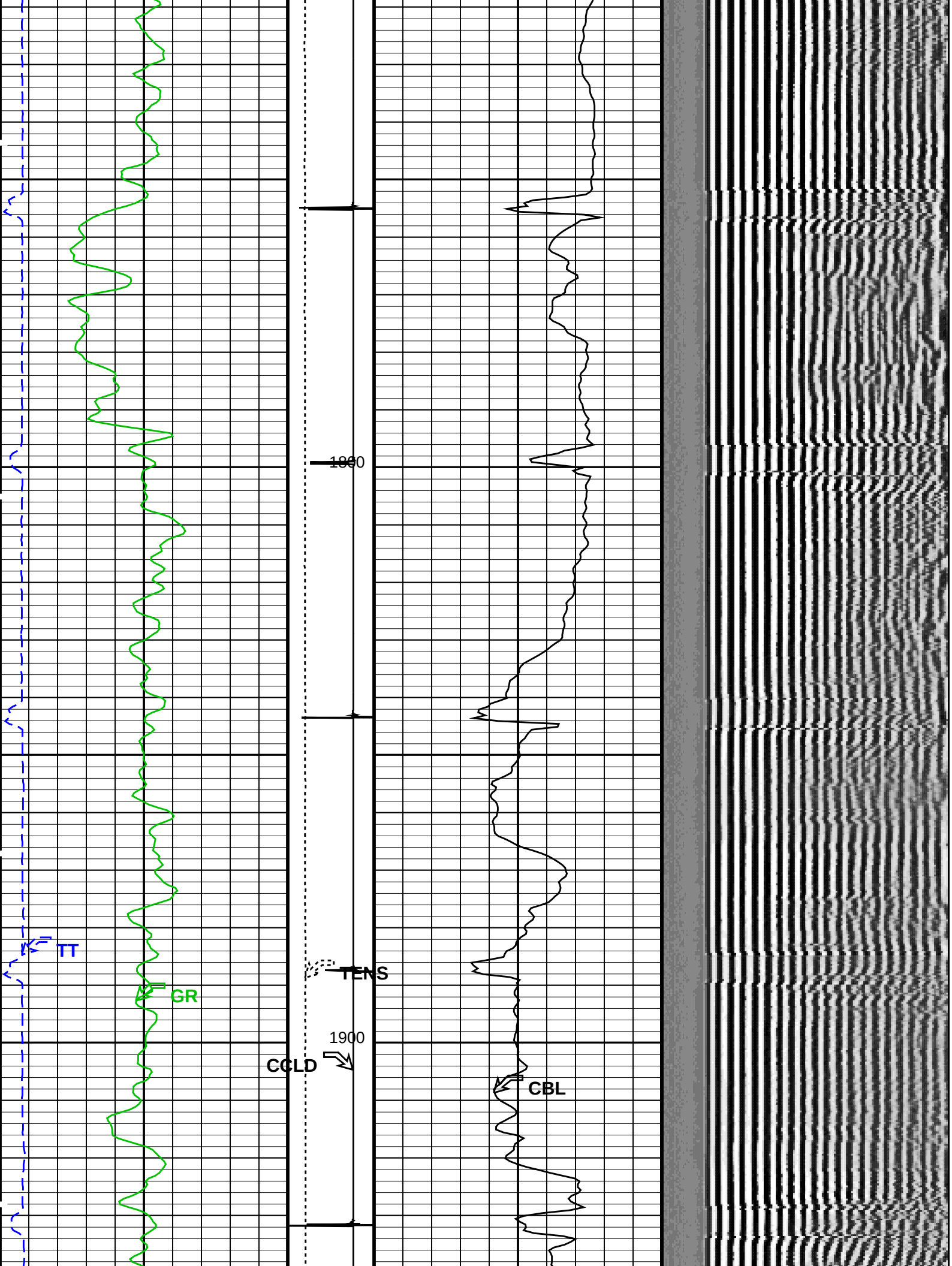
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GR
TENS
1900
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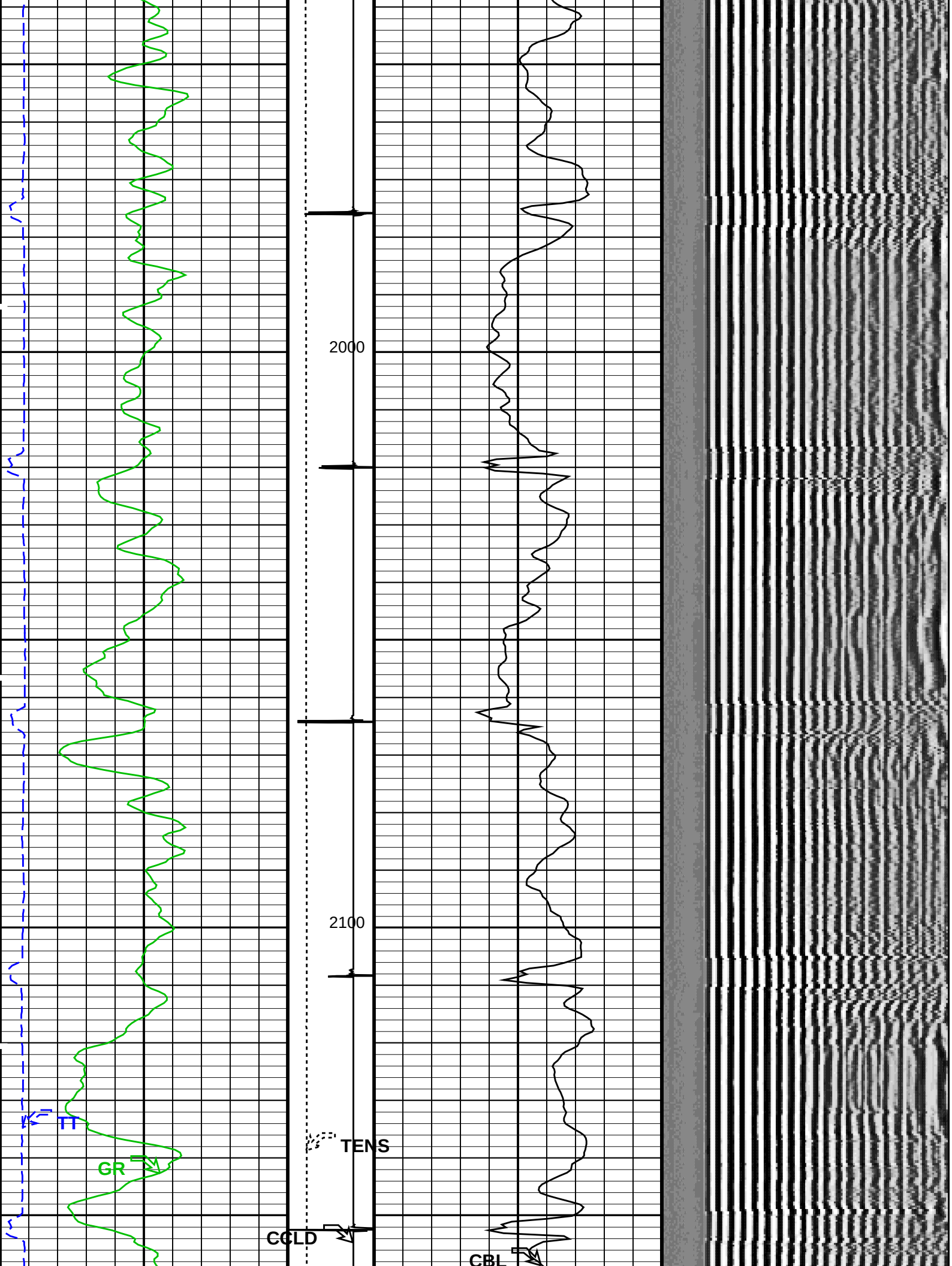
CBL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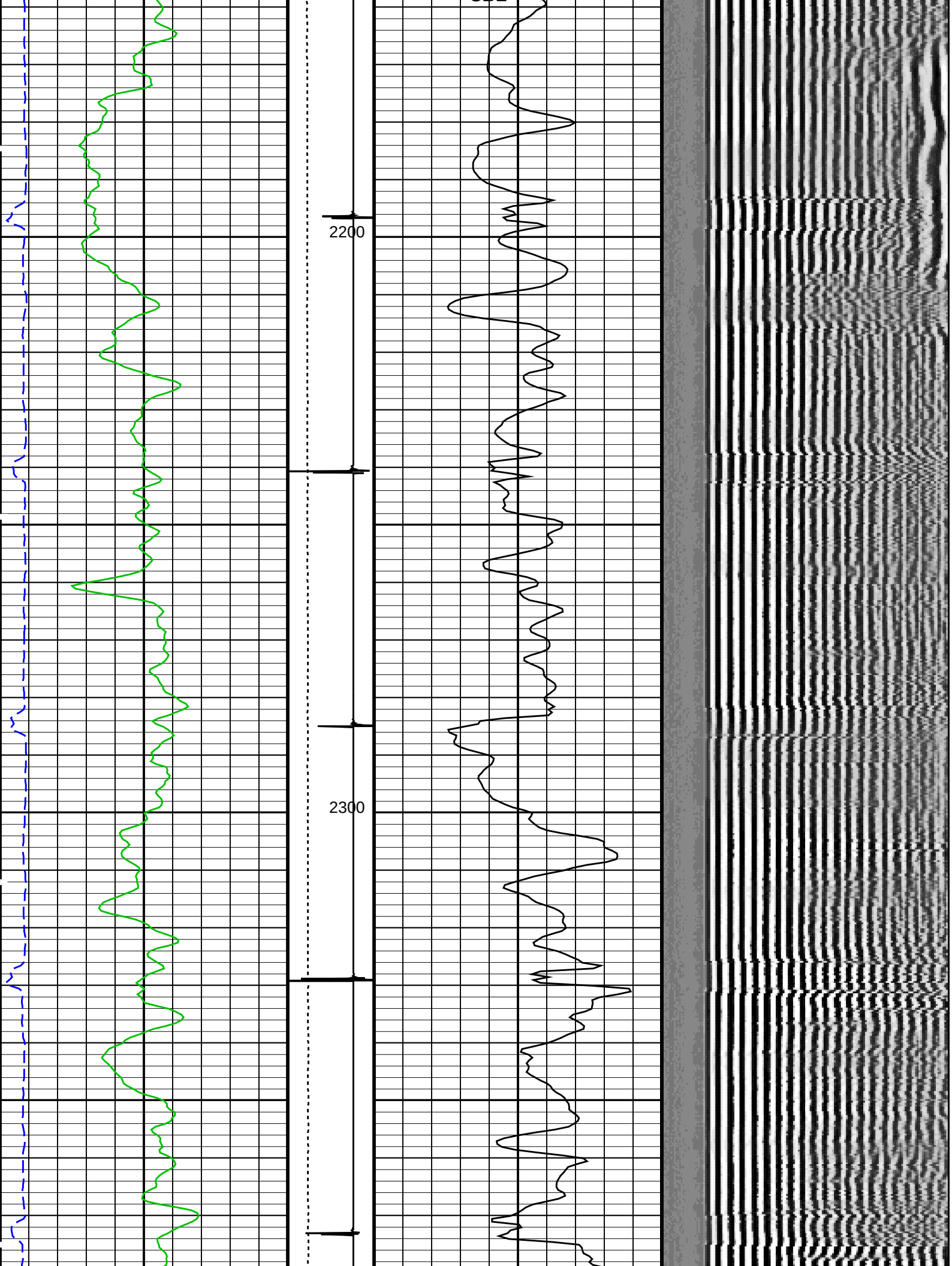
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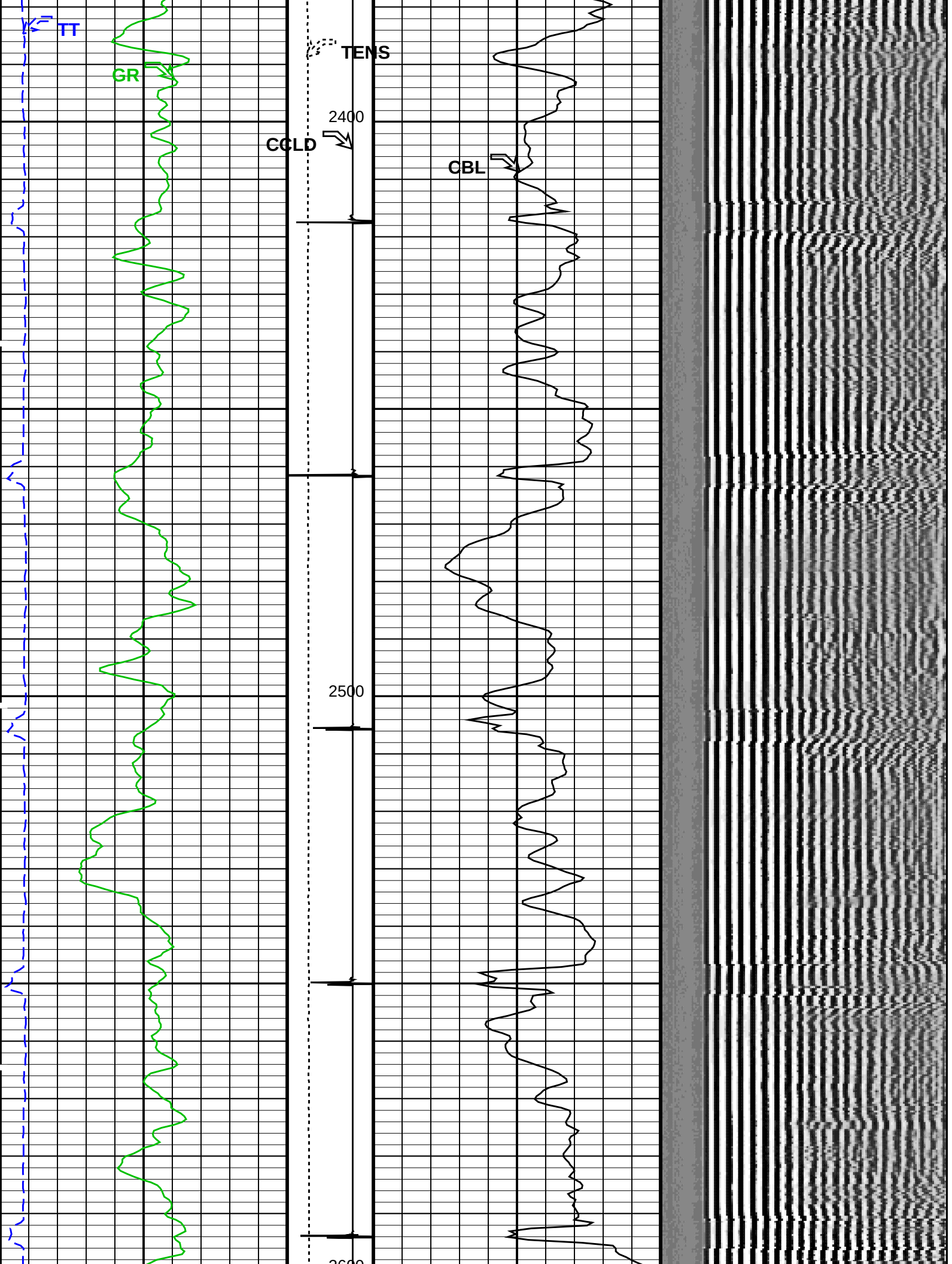
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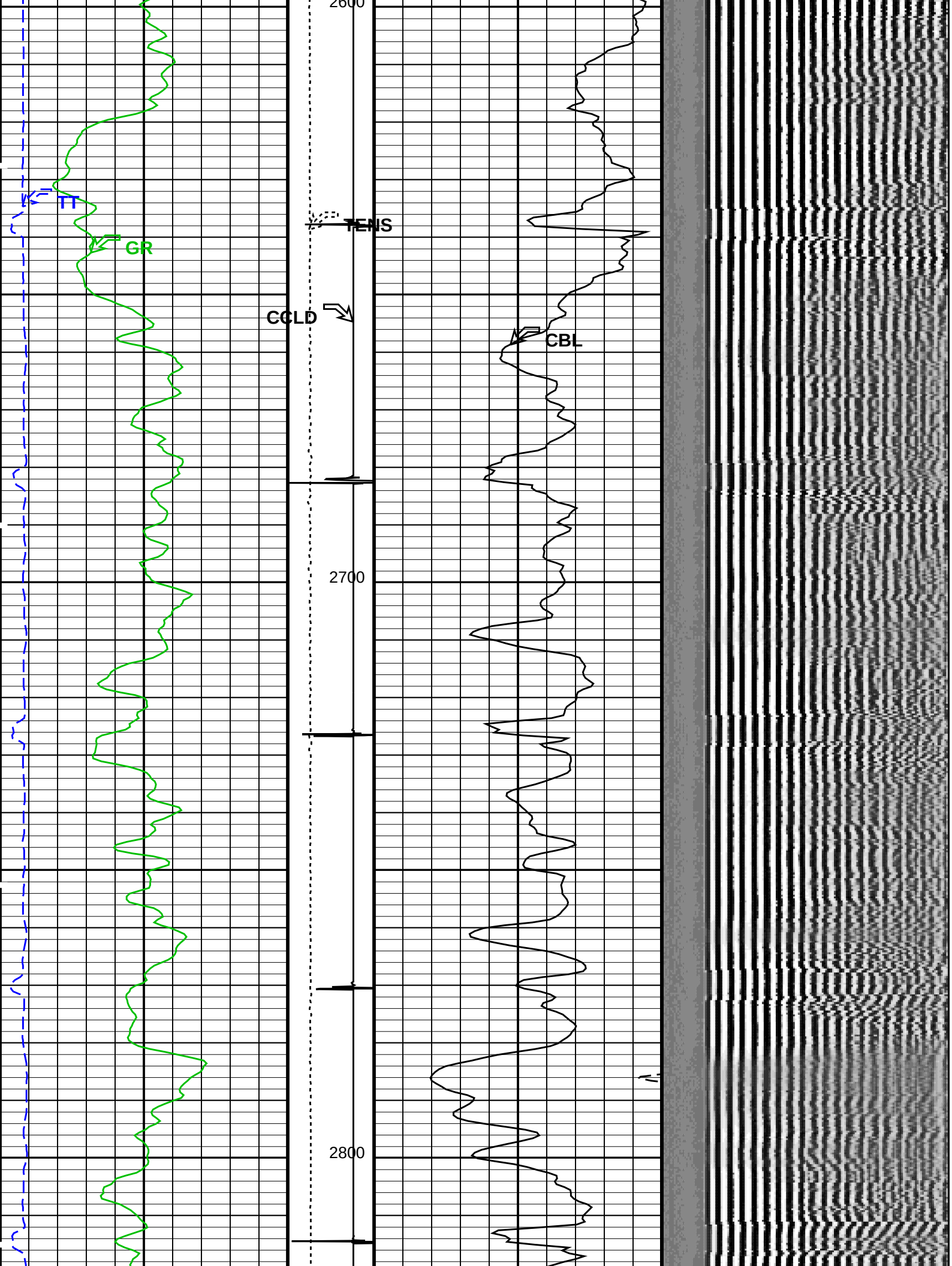
TENS
2400
CCLD
CBL
2500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TENS
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CBL
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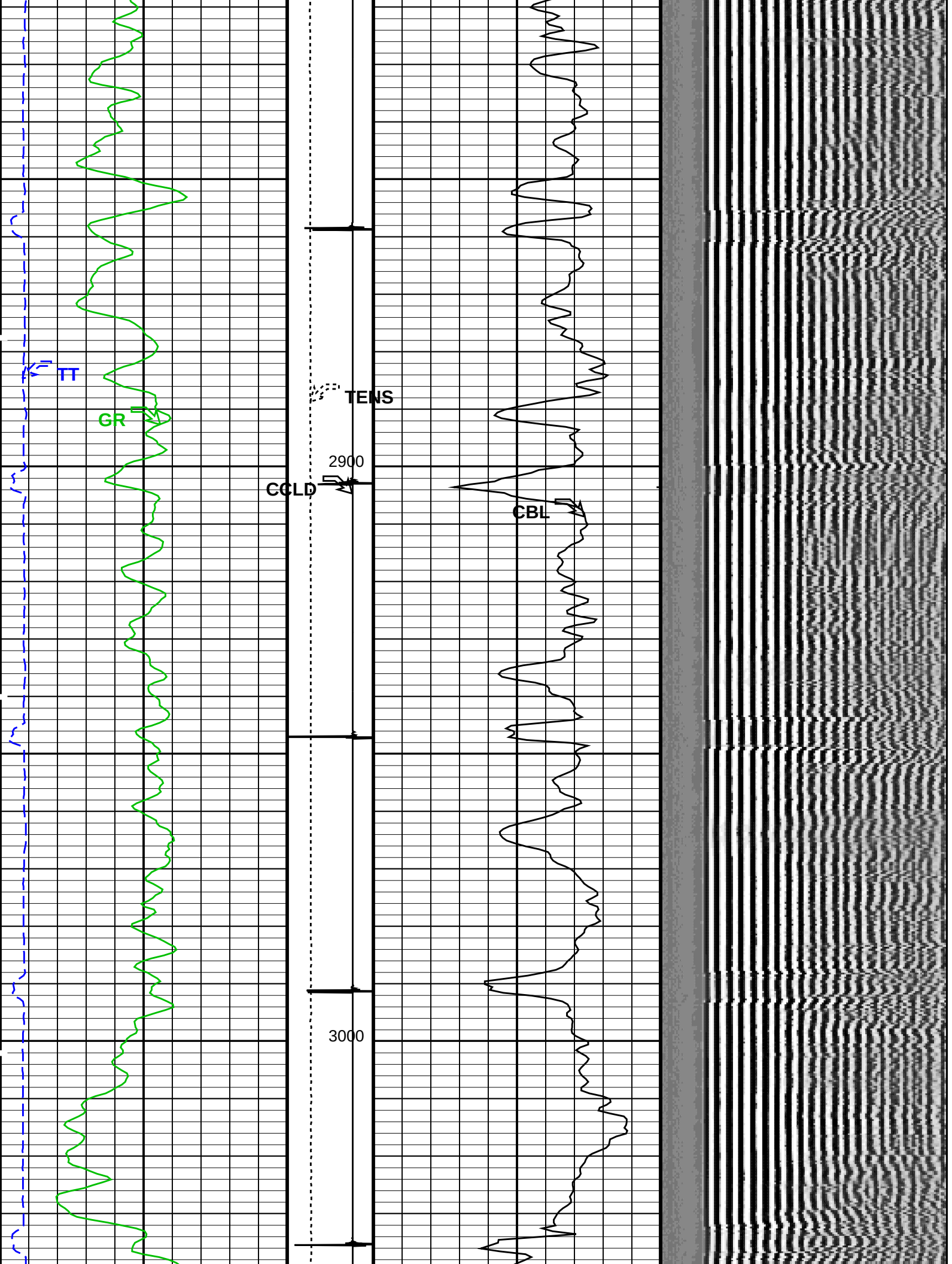
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GR
TENS
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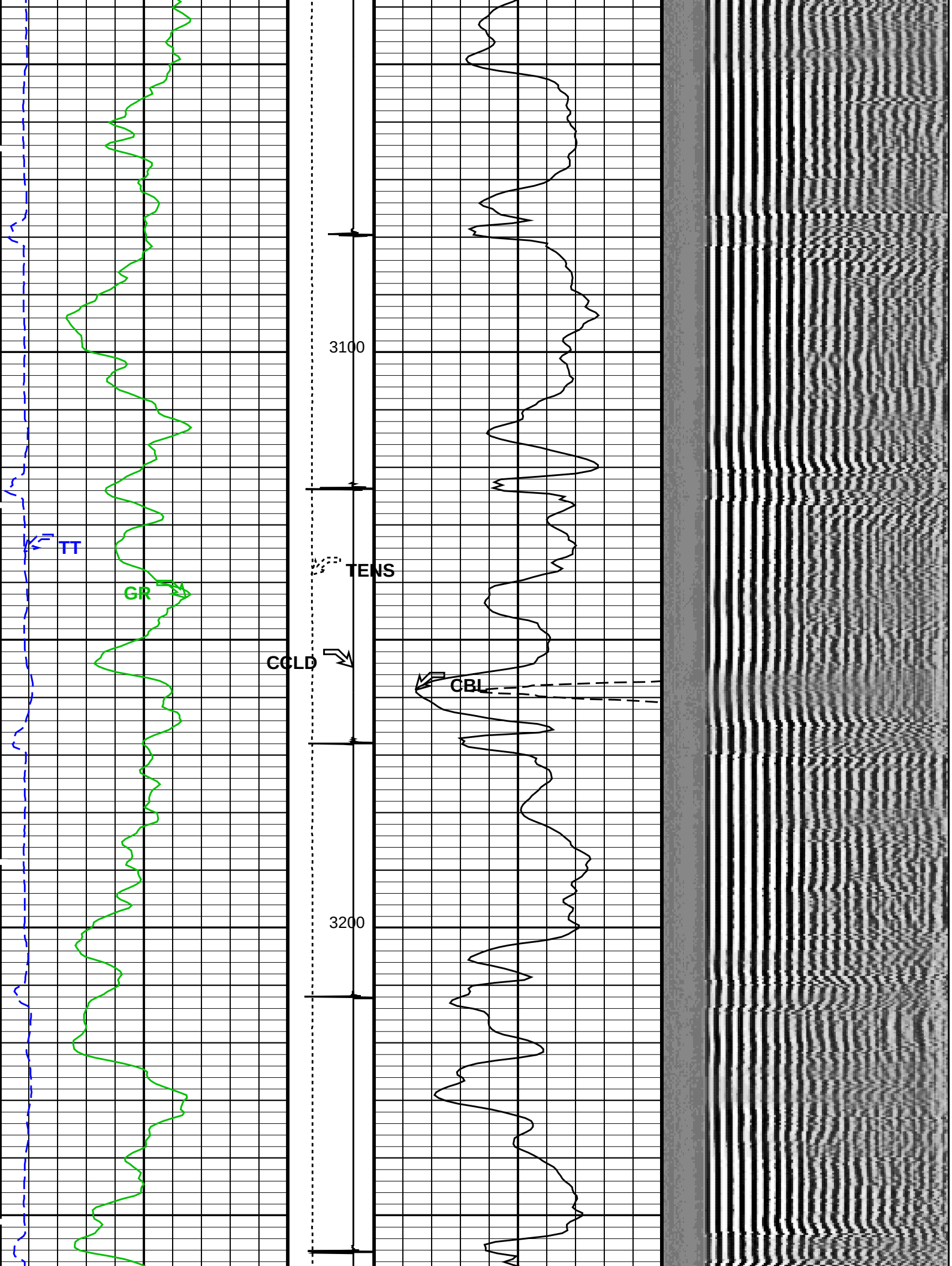
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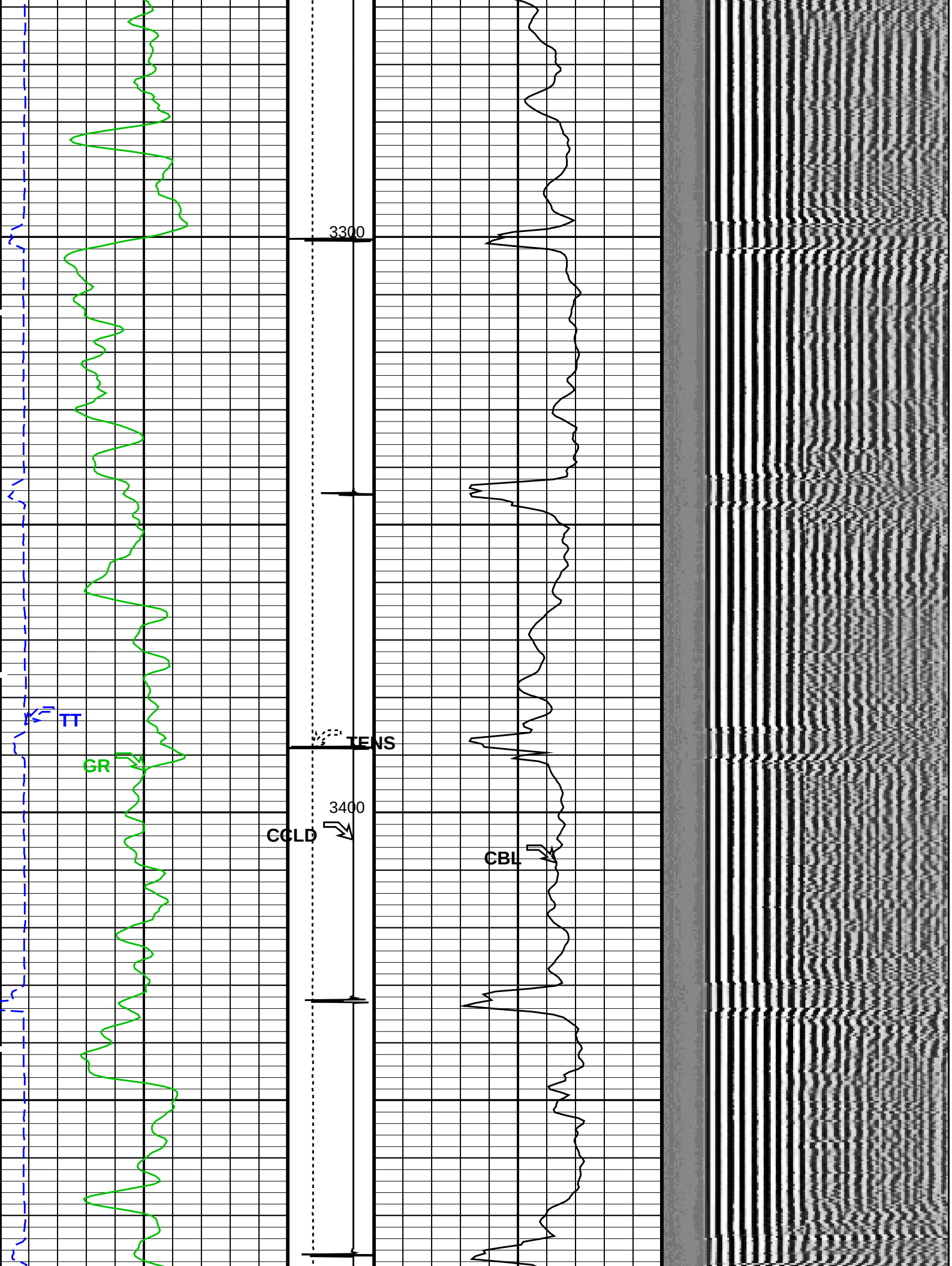
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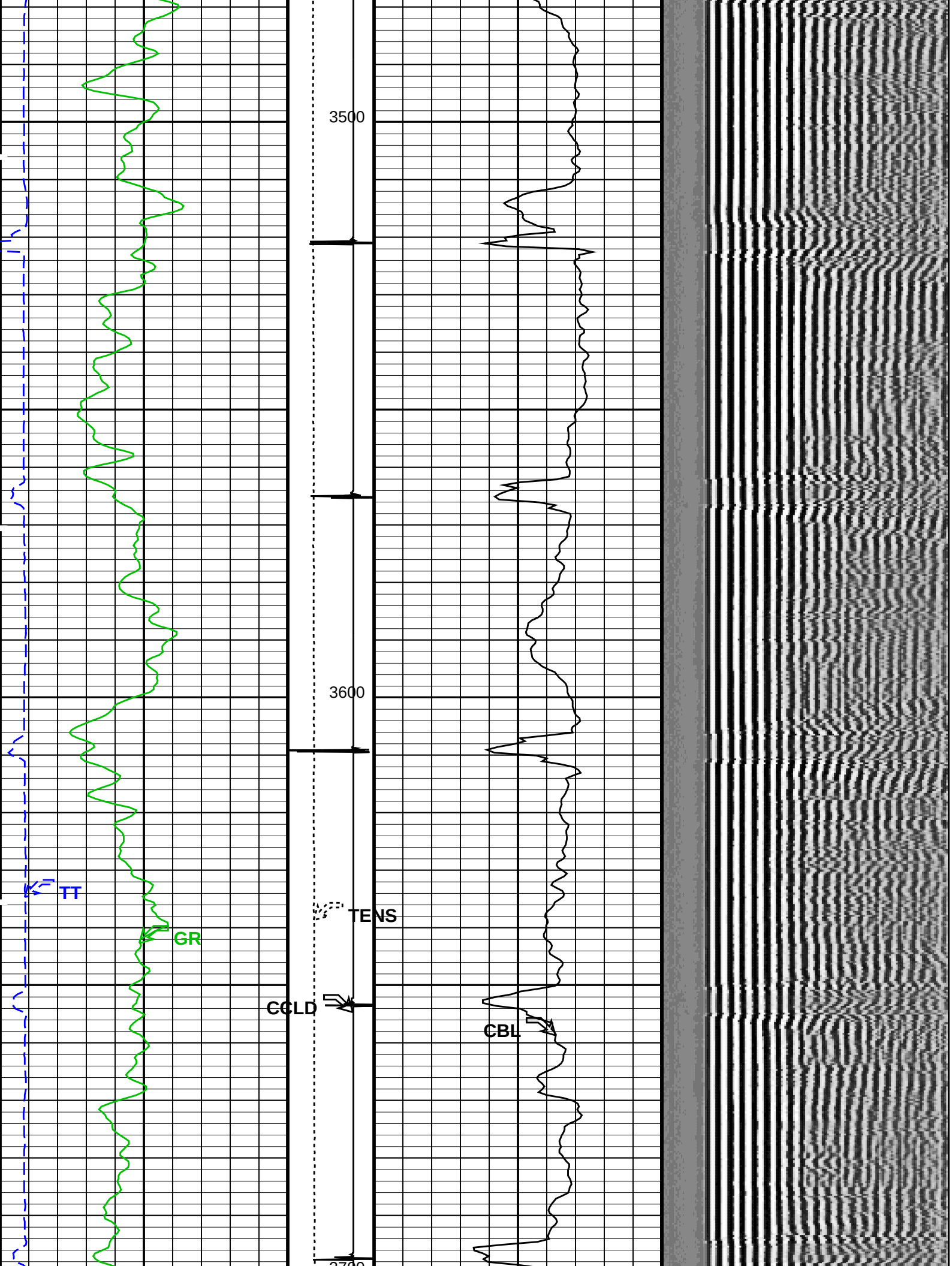
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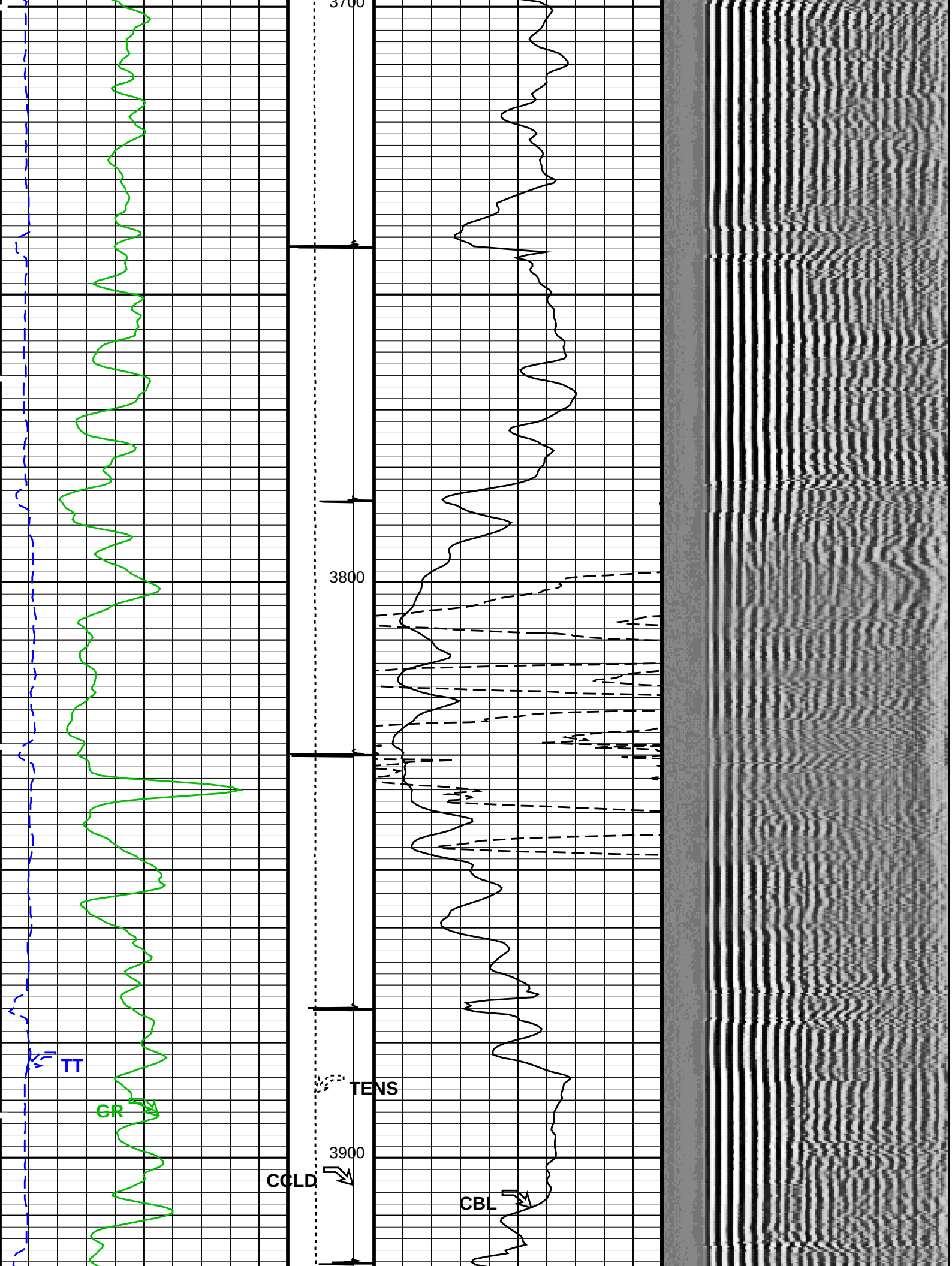
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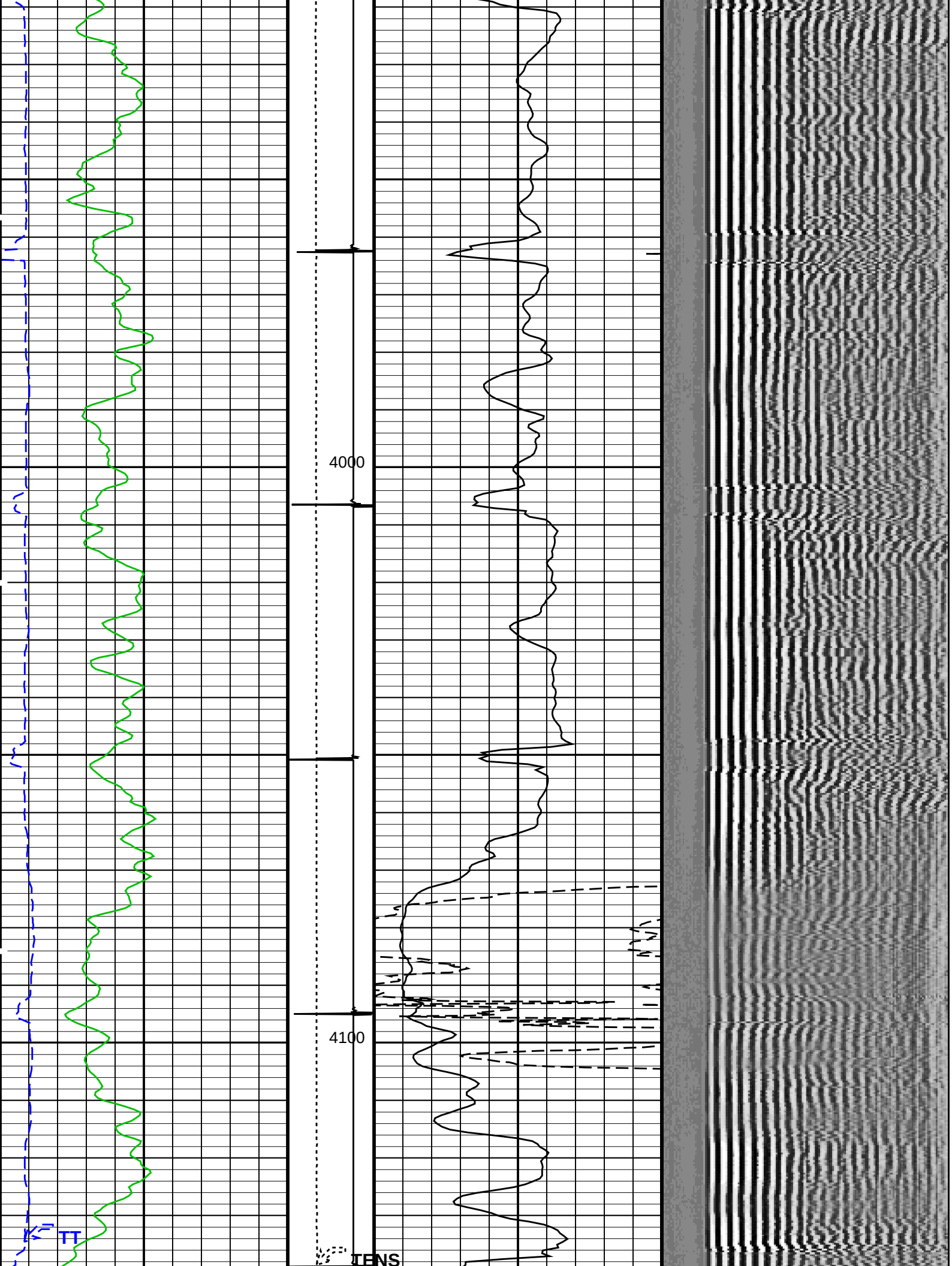
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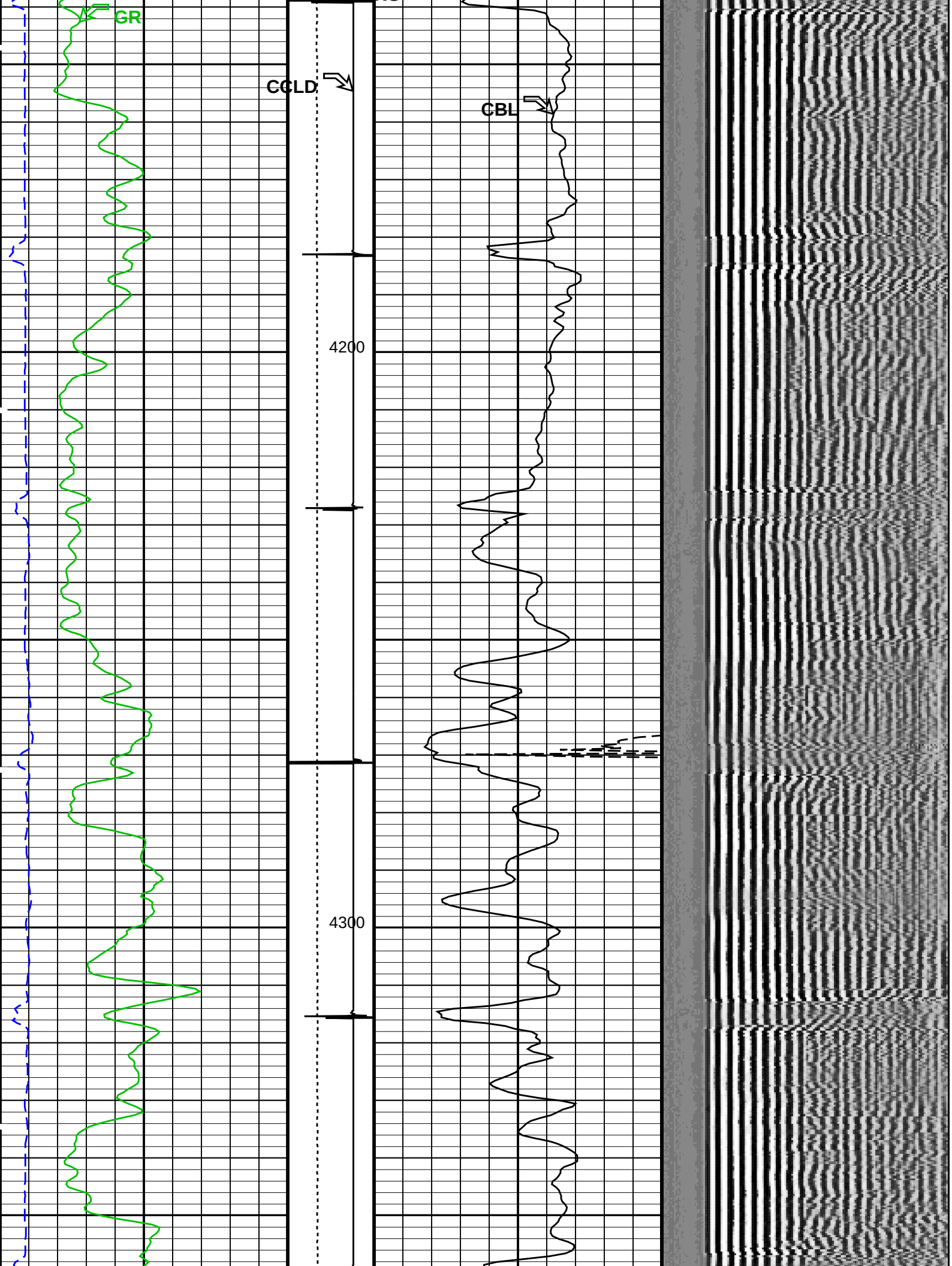
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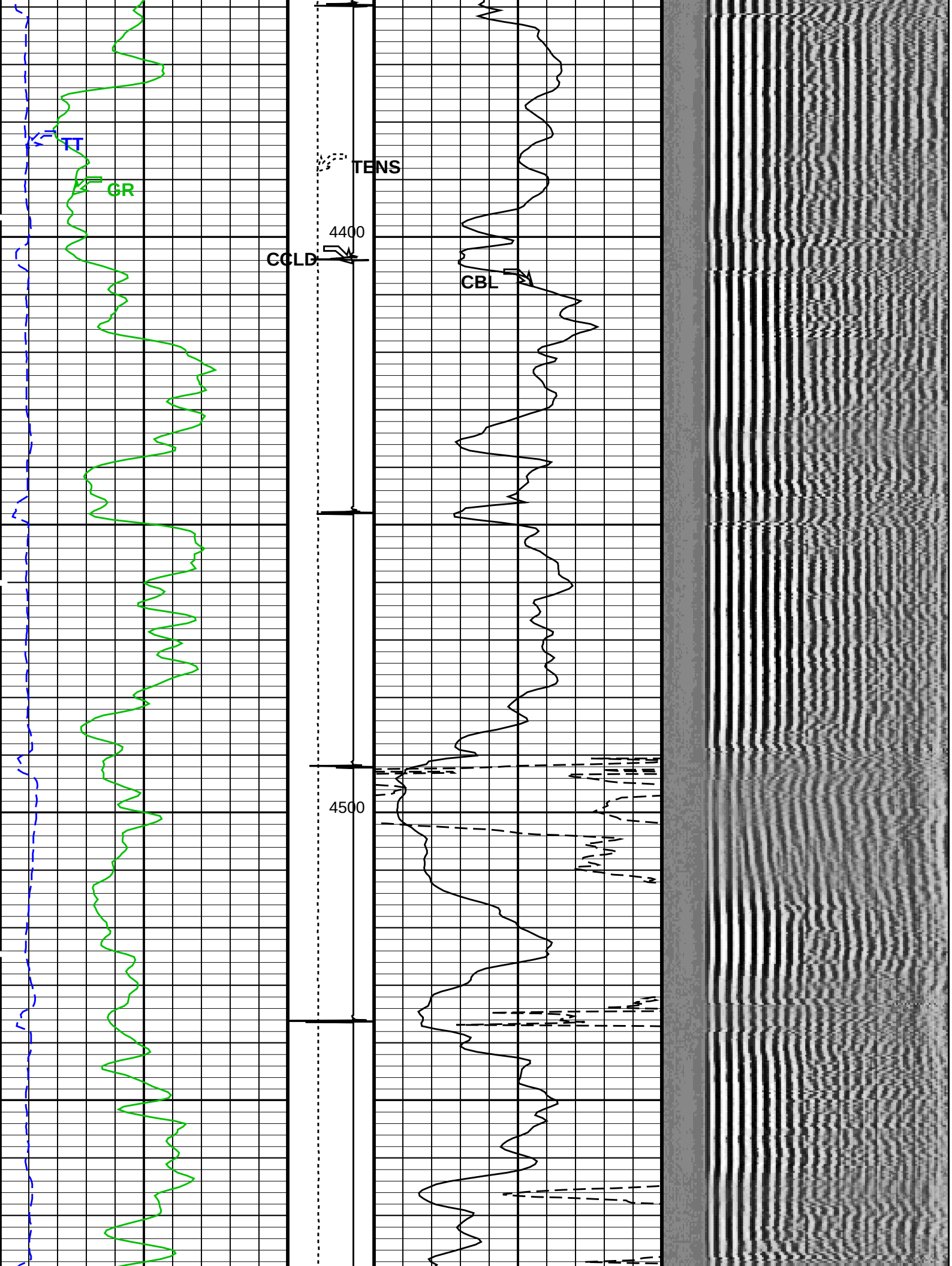
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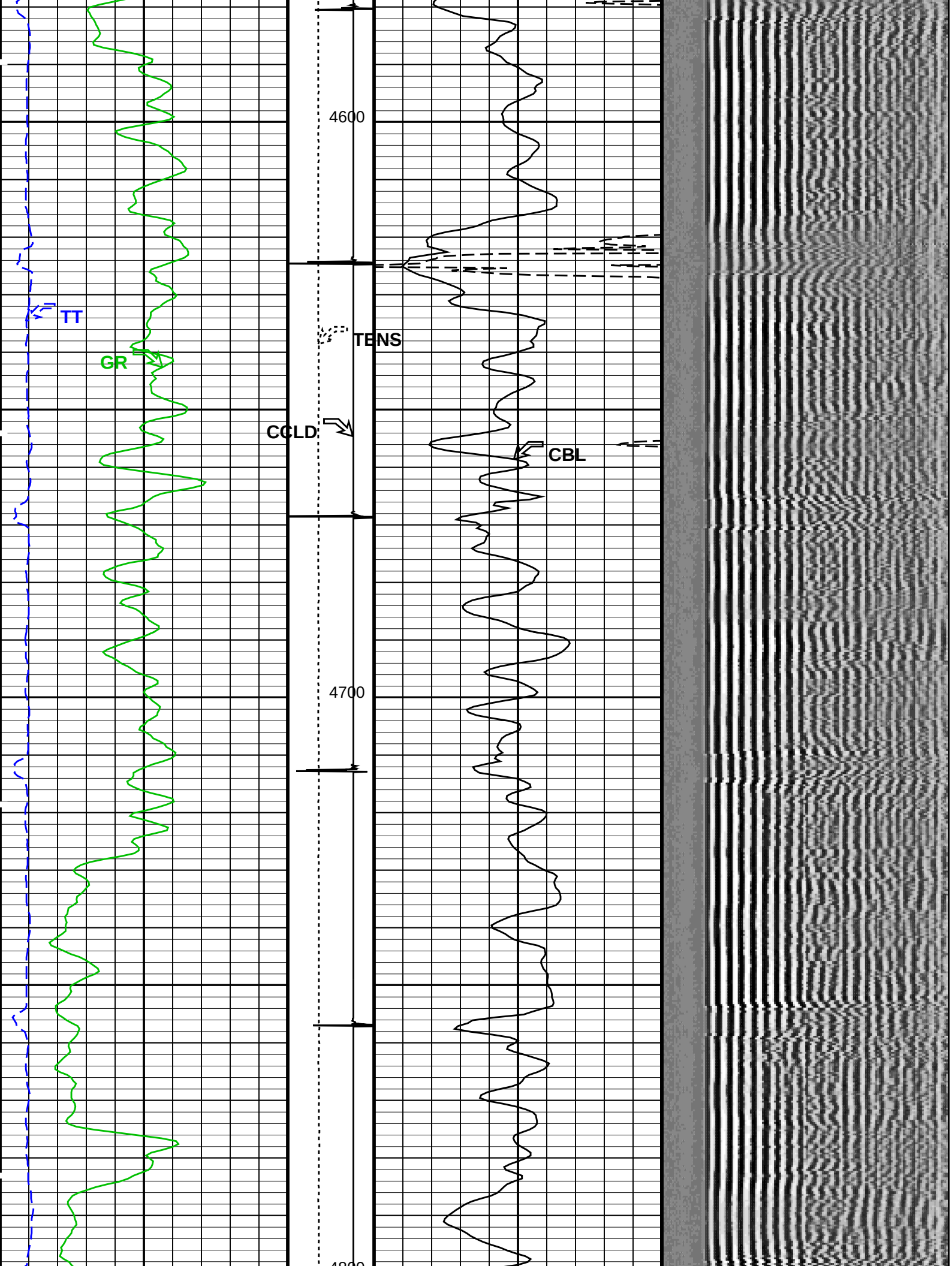
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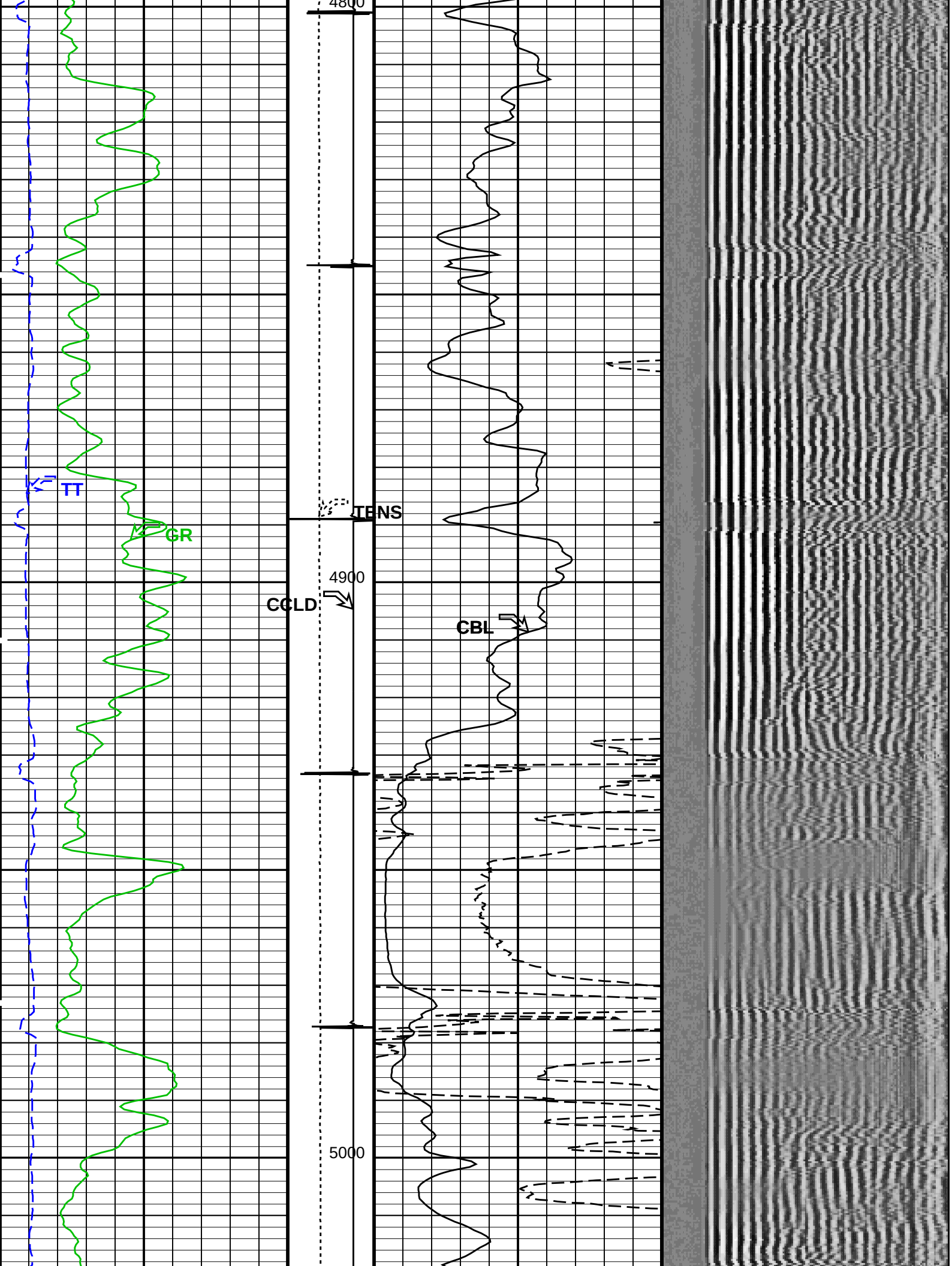
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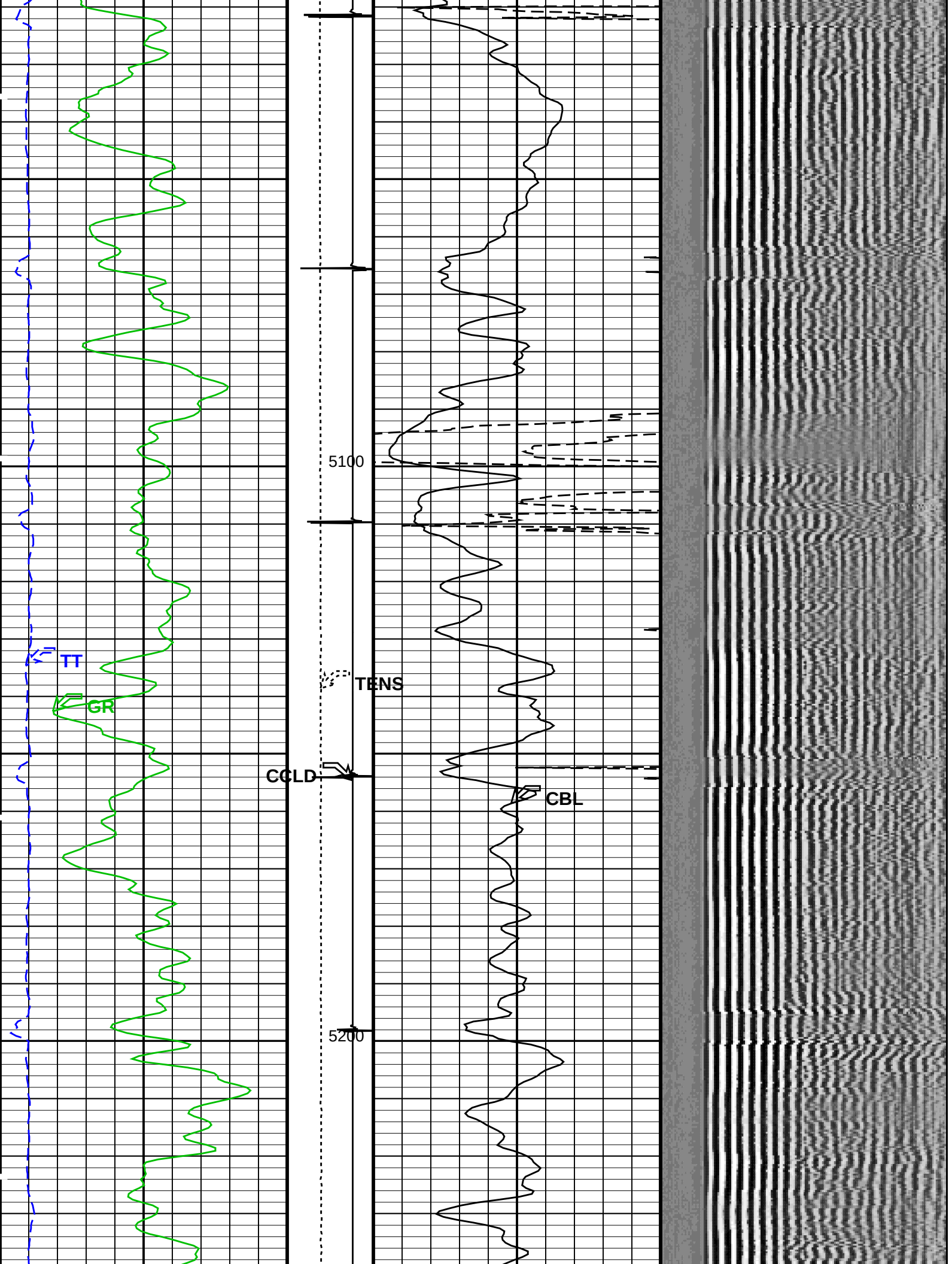
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TENS
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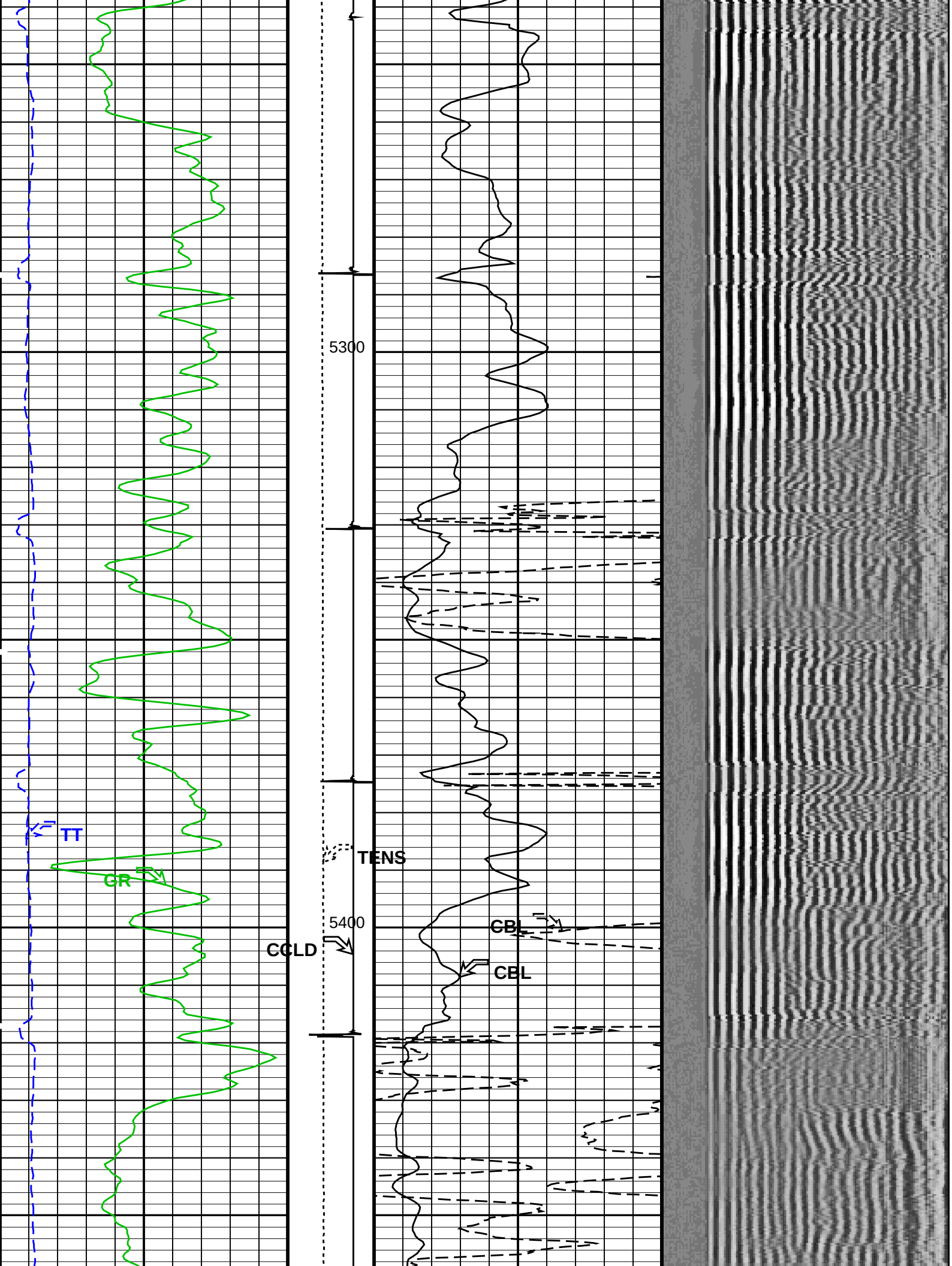
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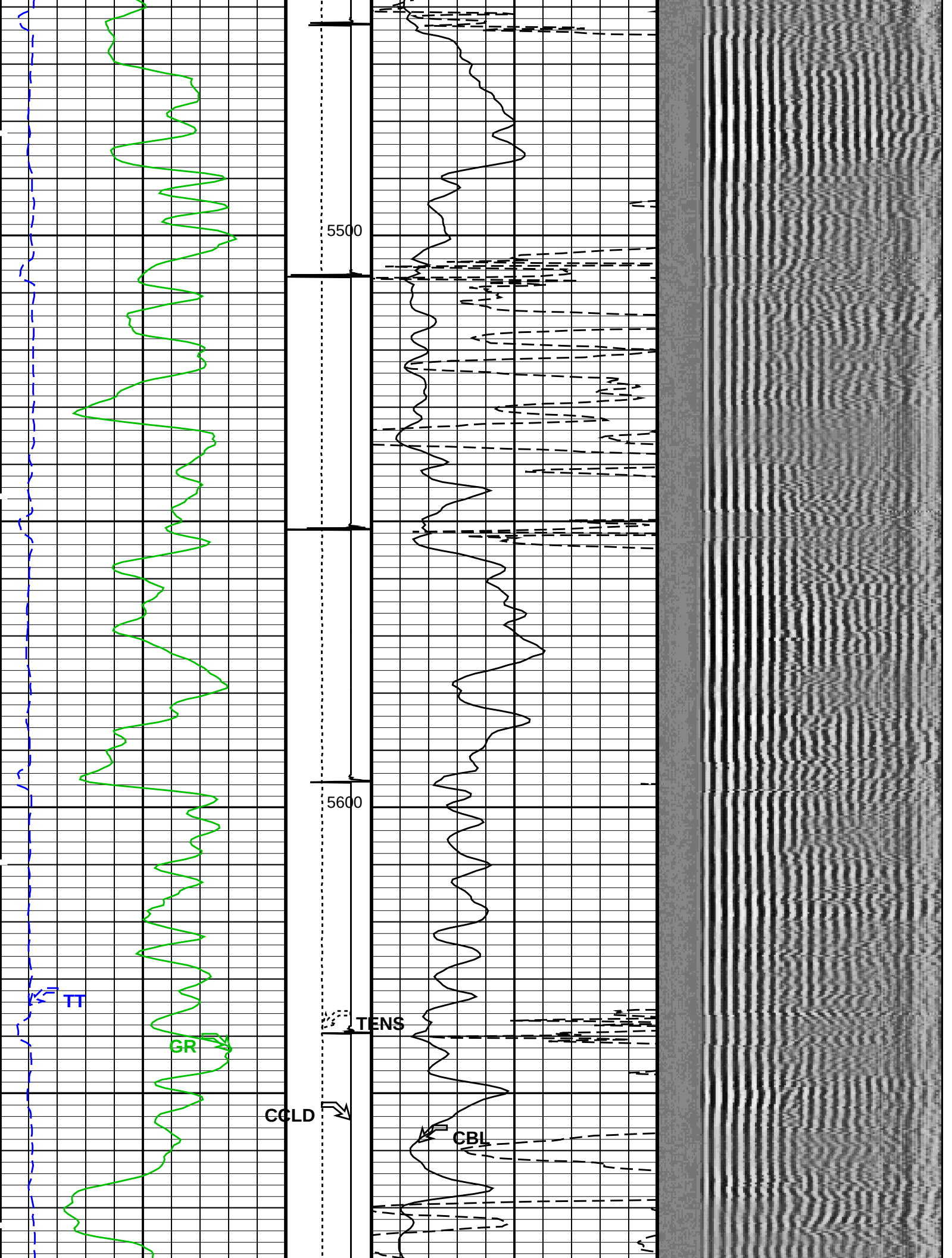
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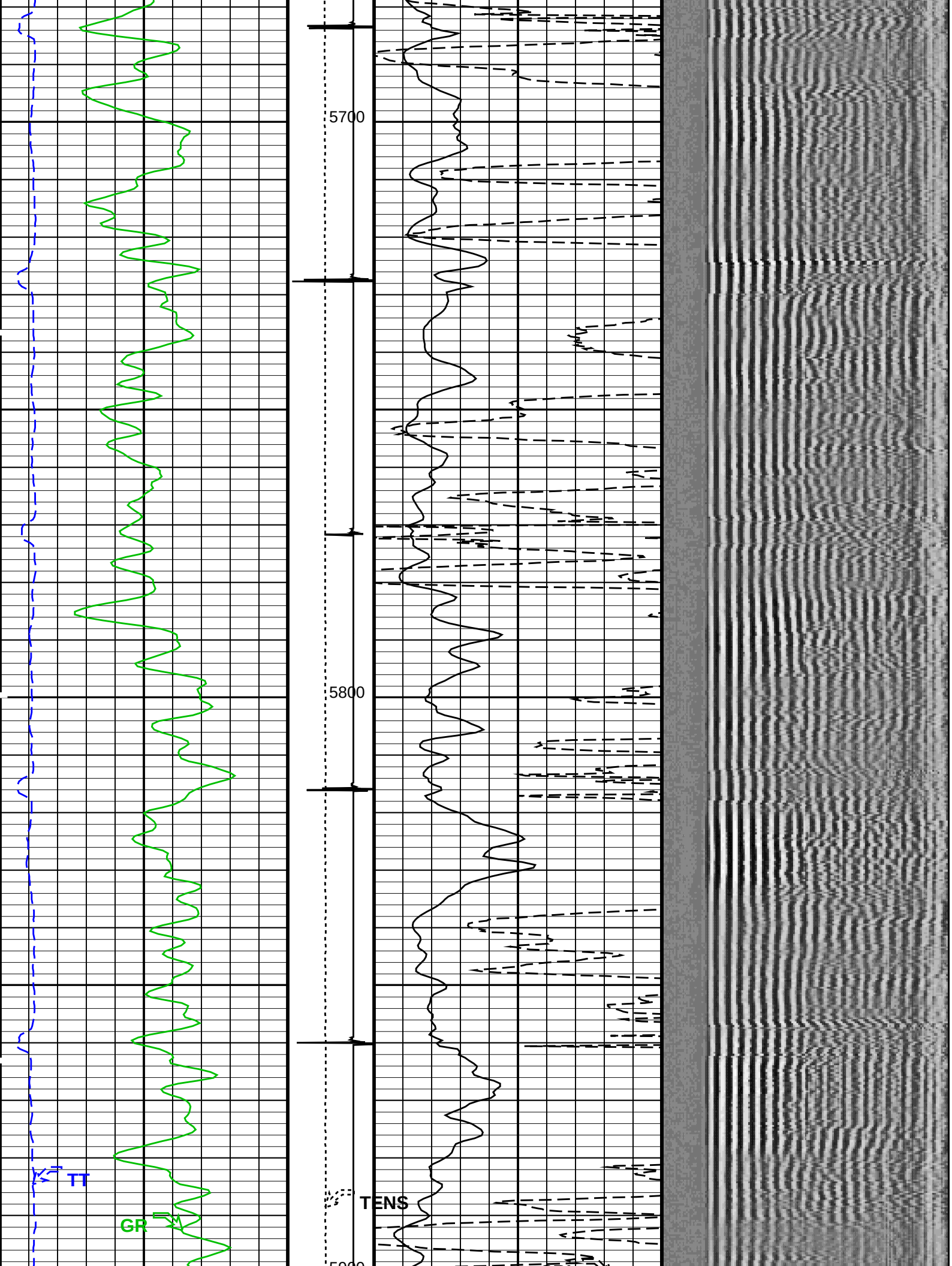
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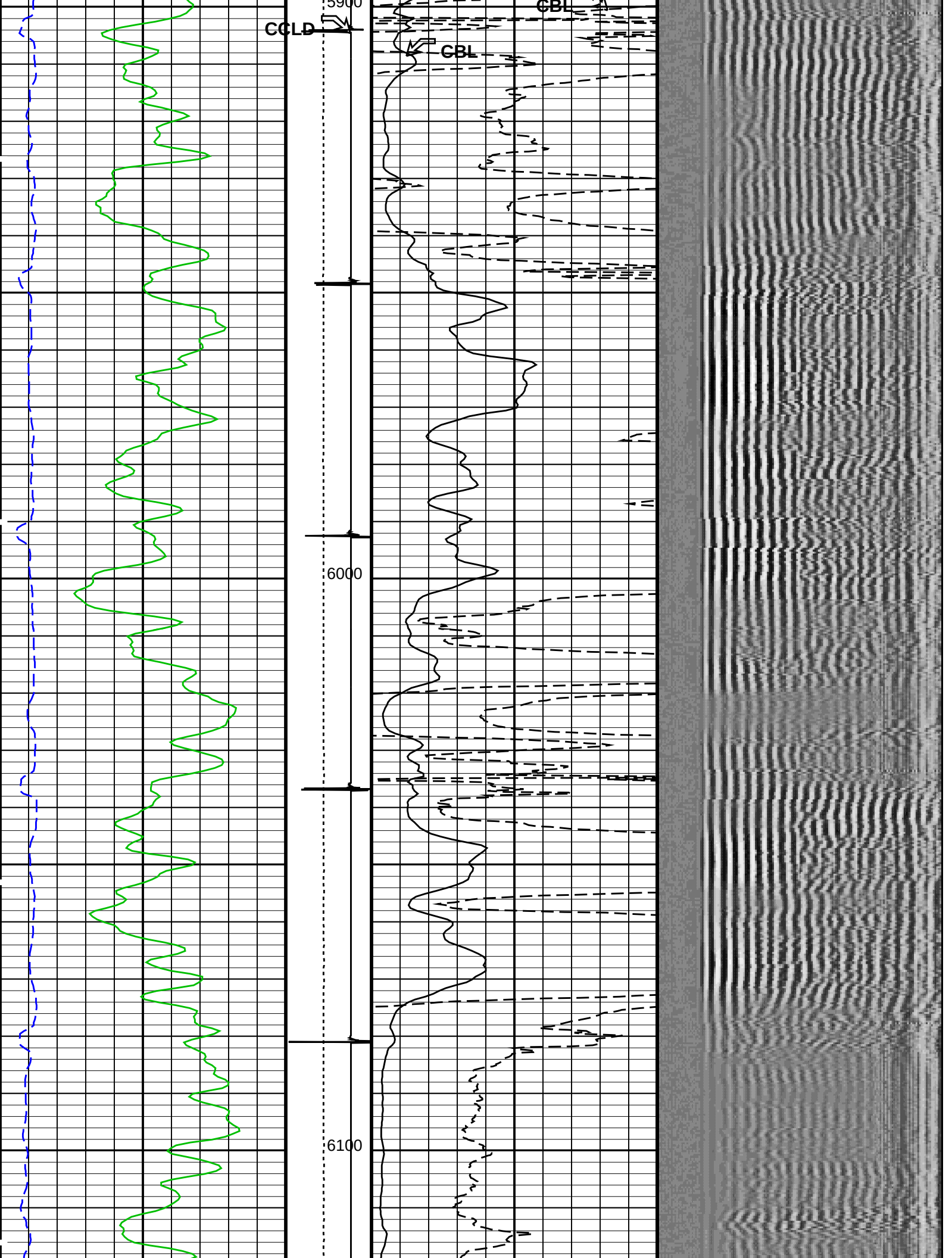
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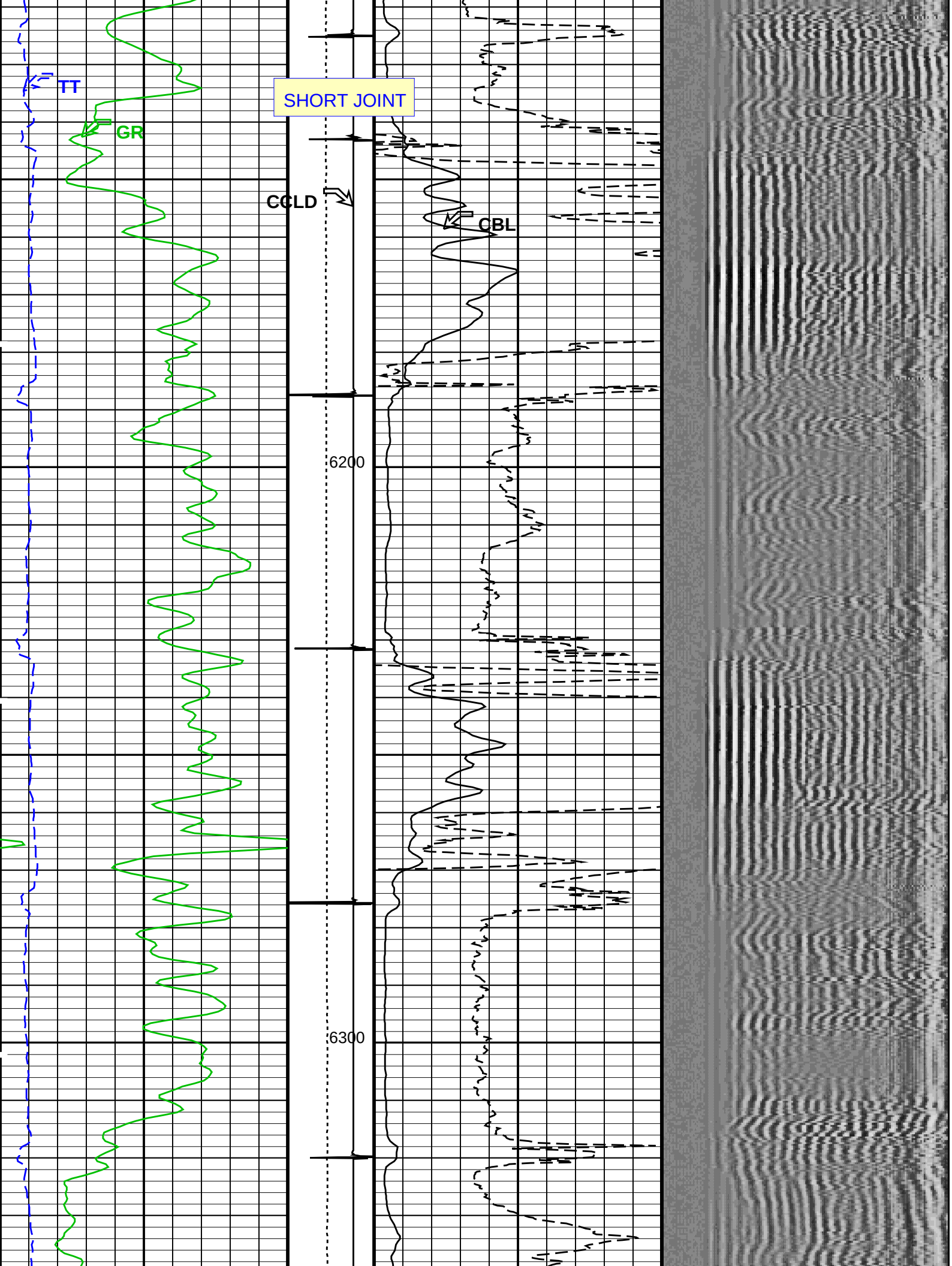
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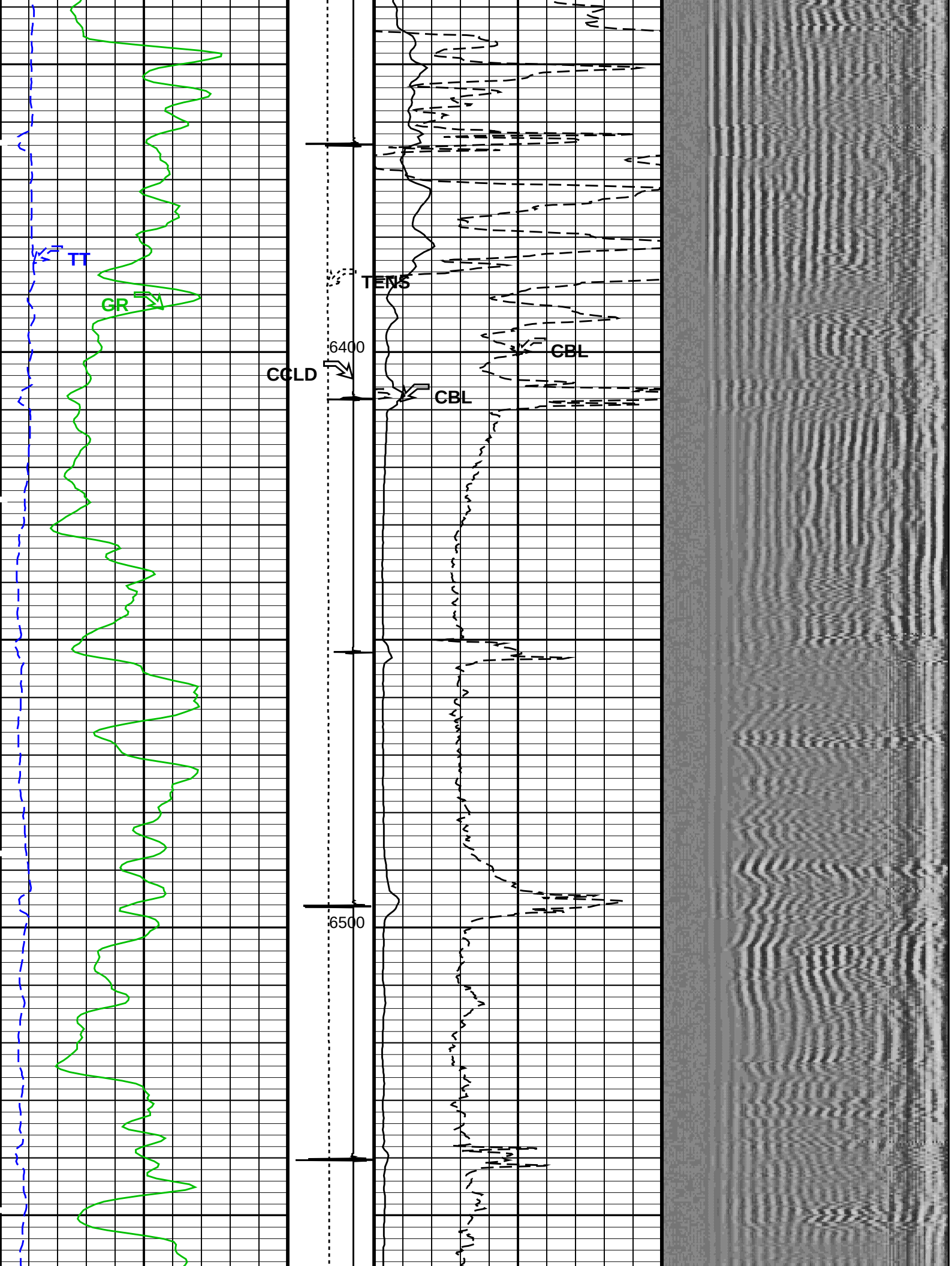
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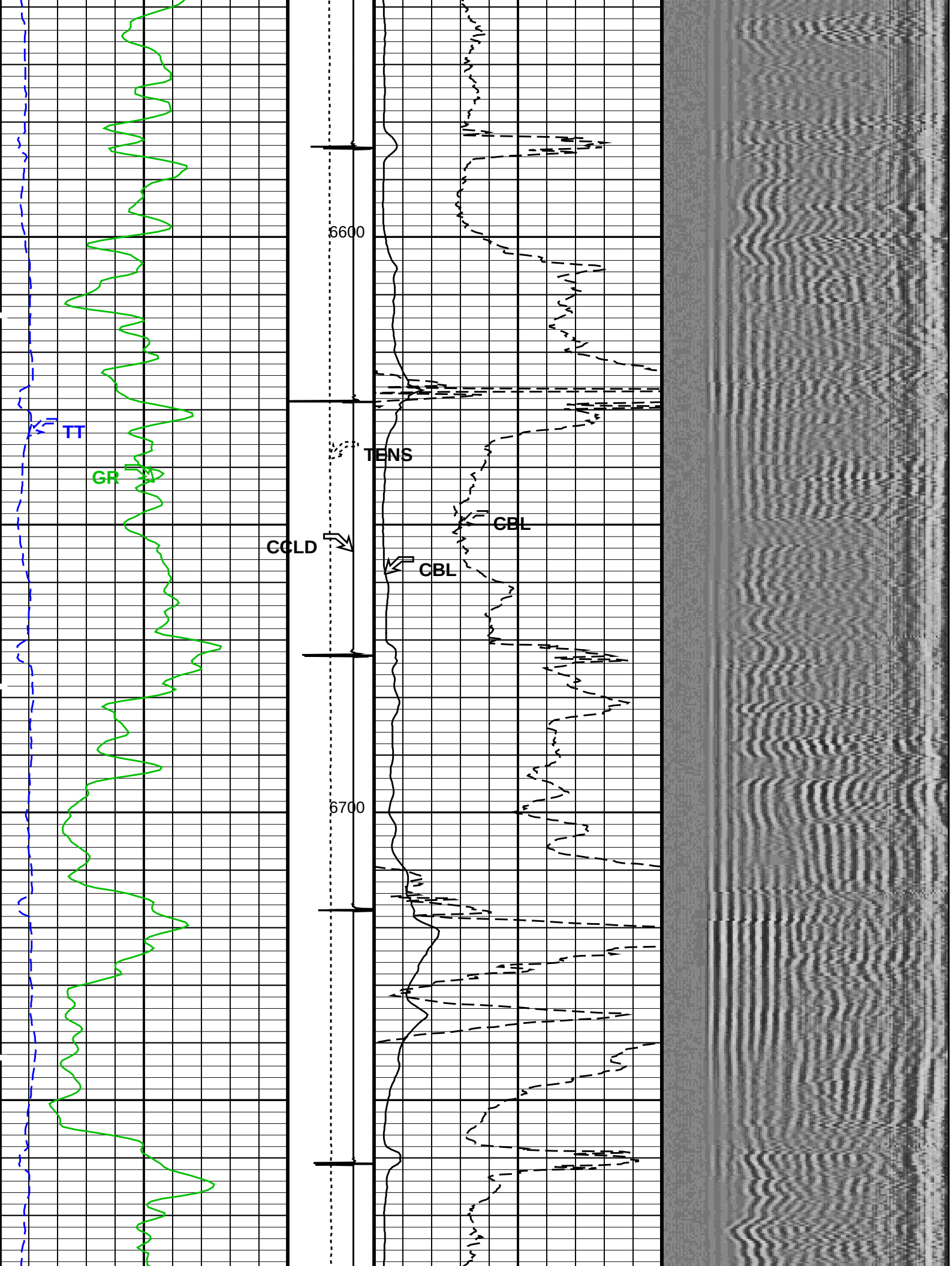
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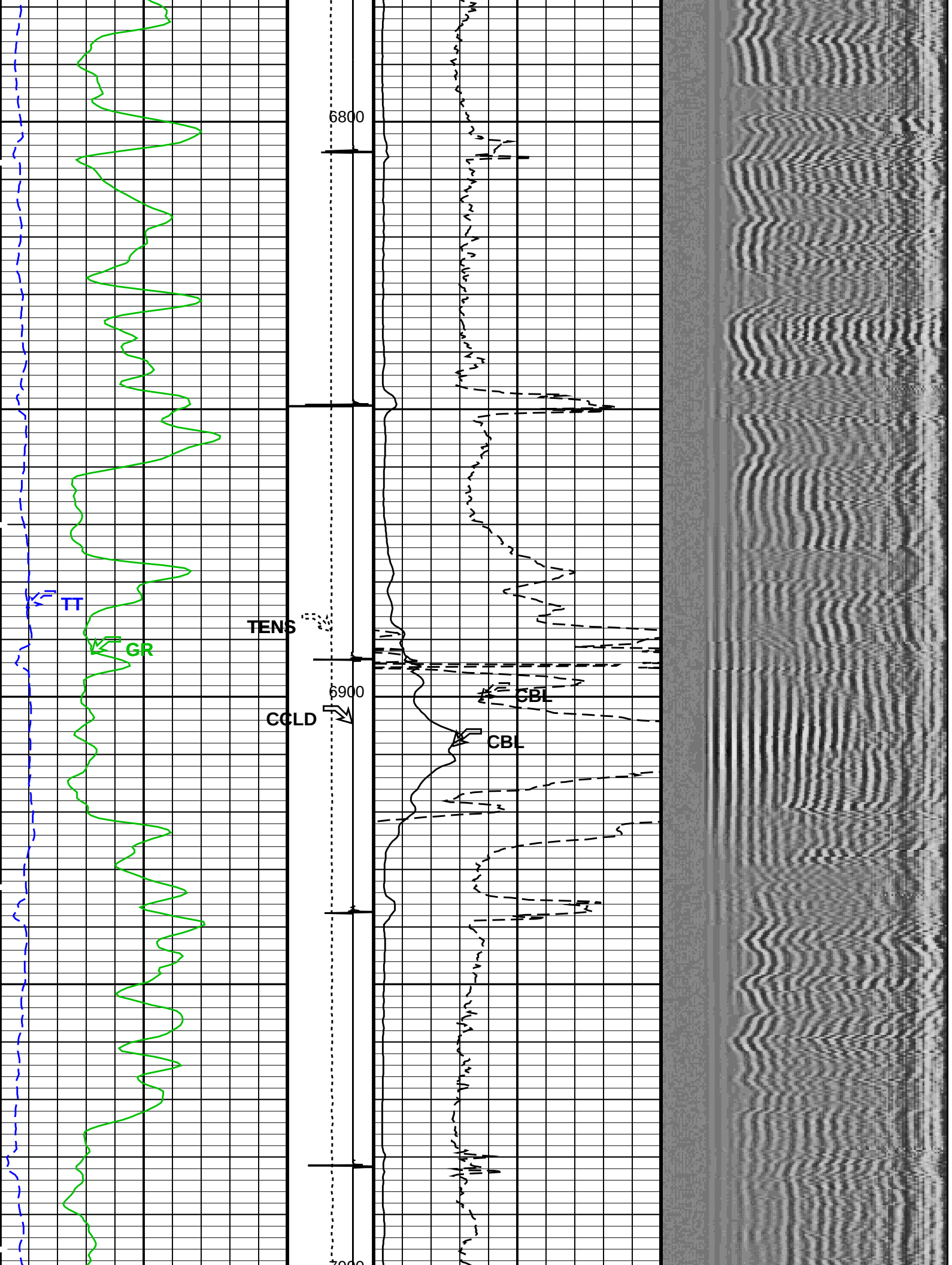
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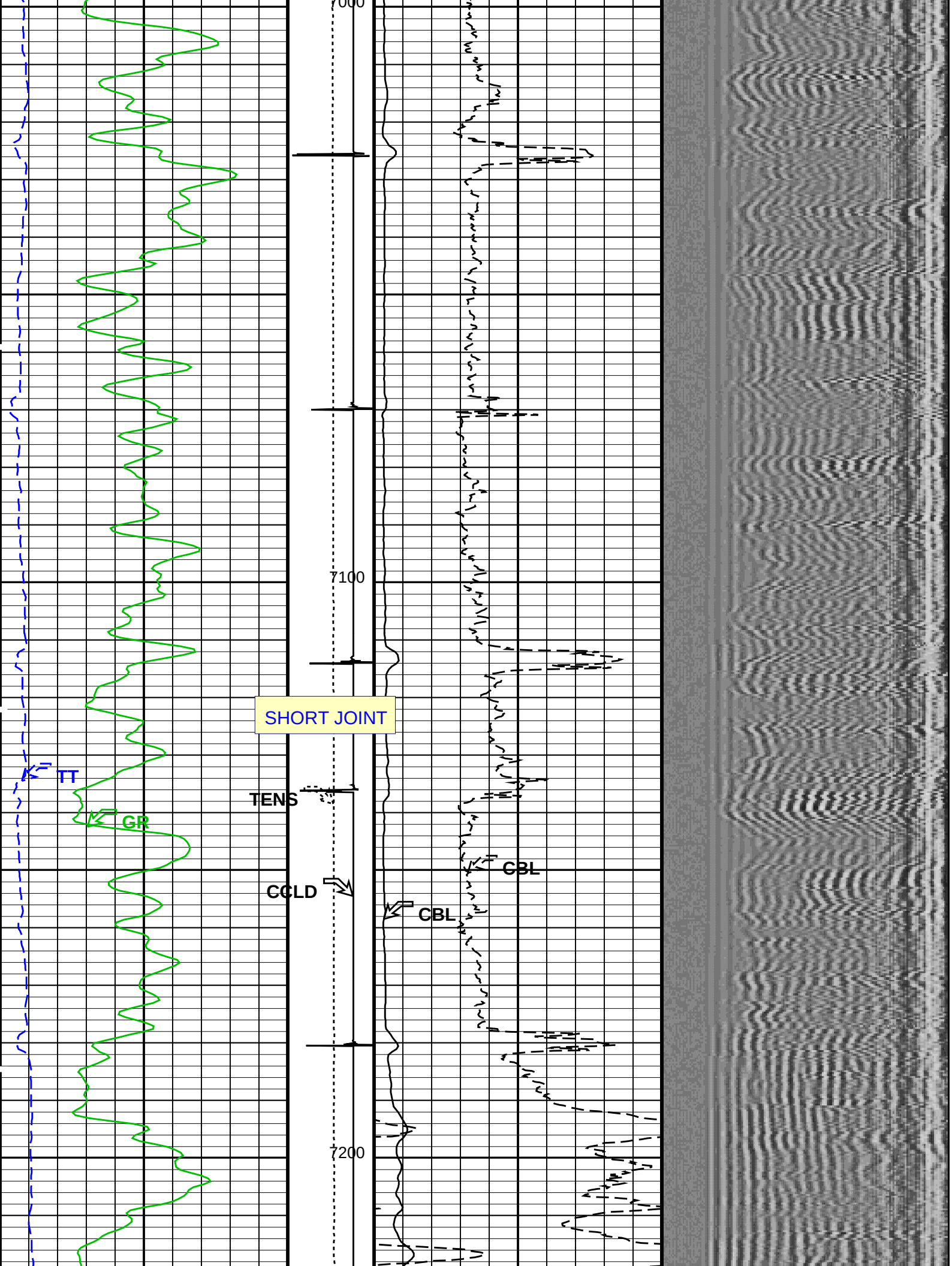
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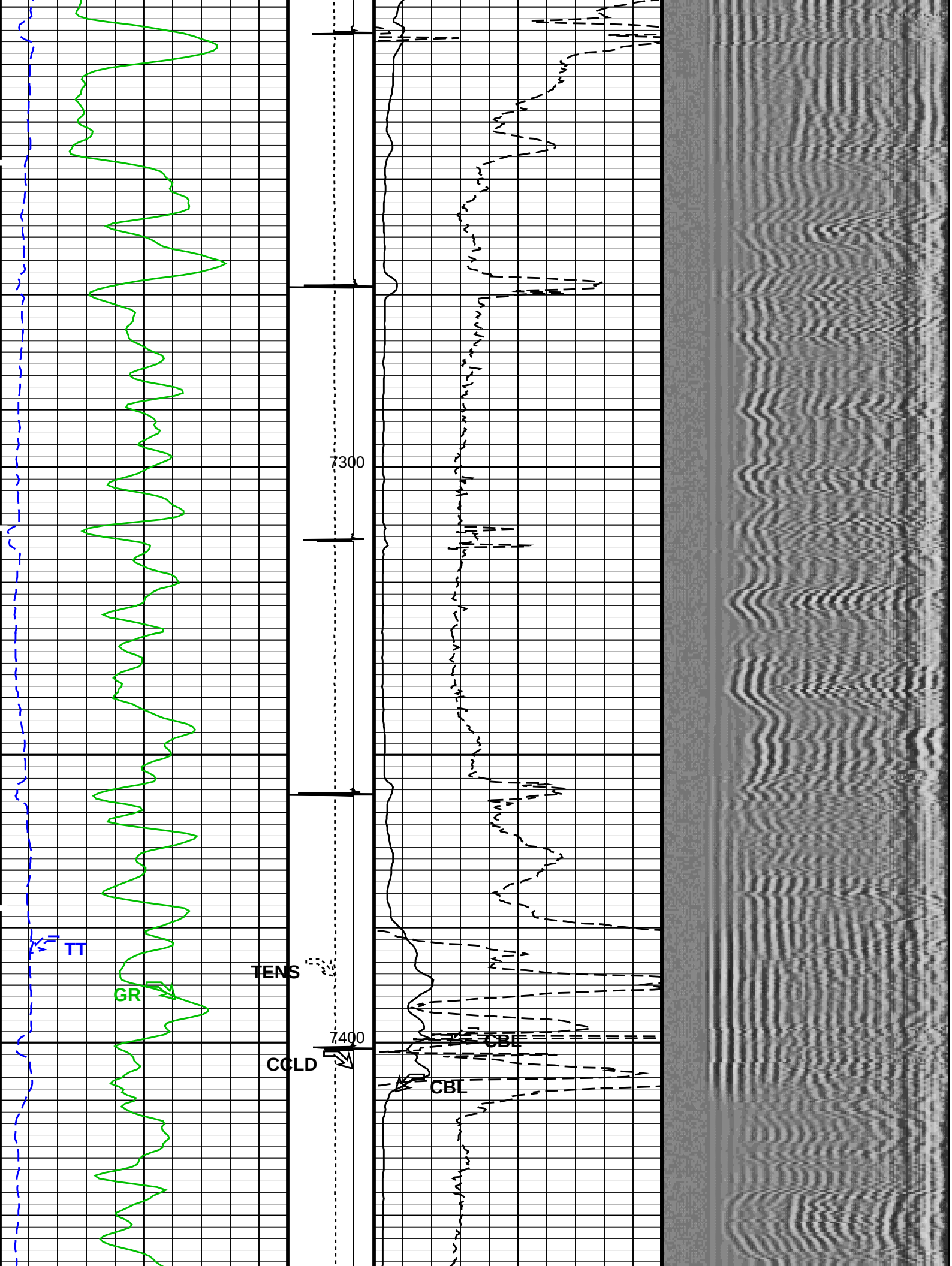
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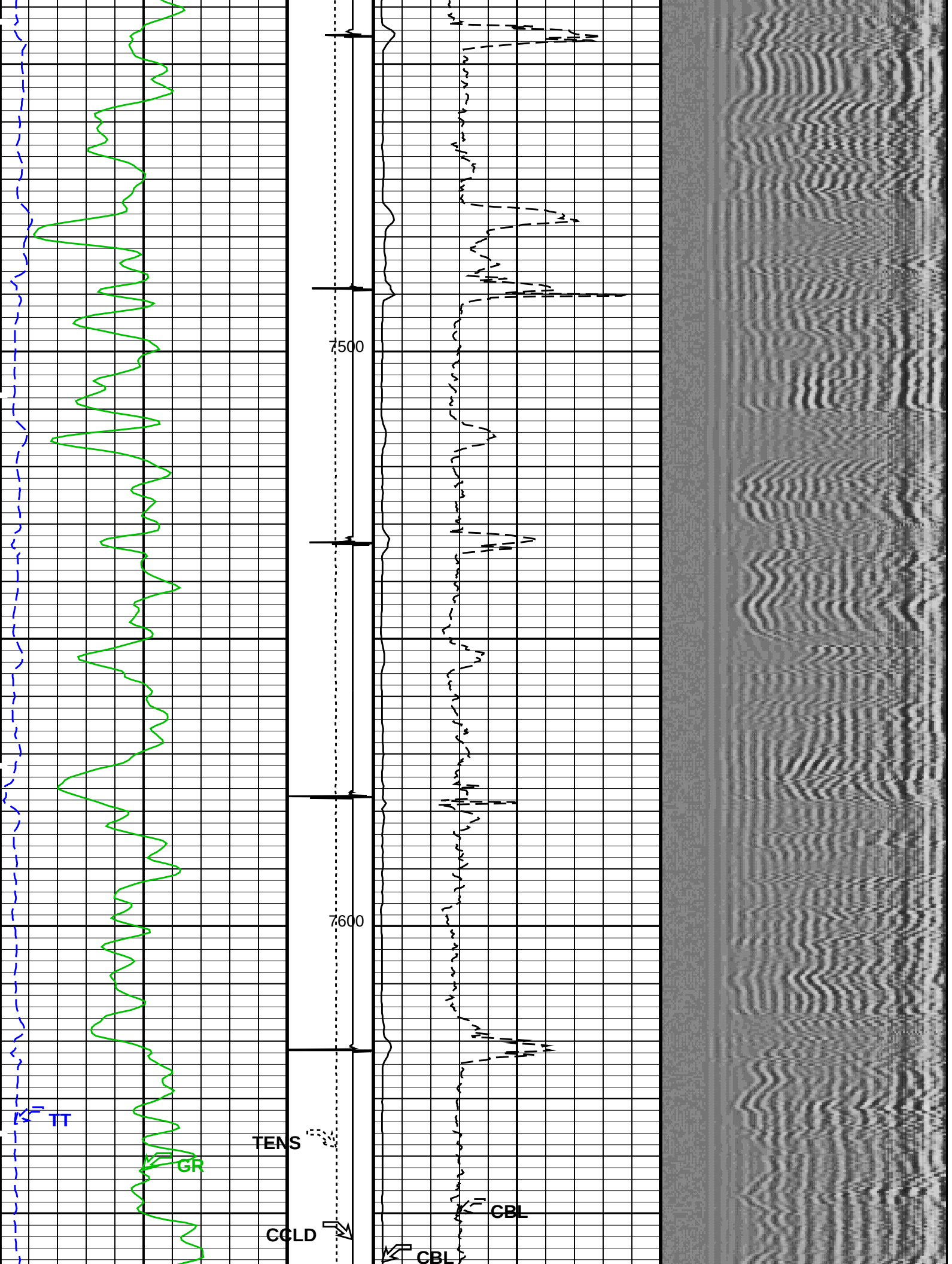
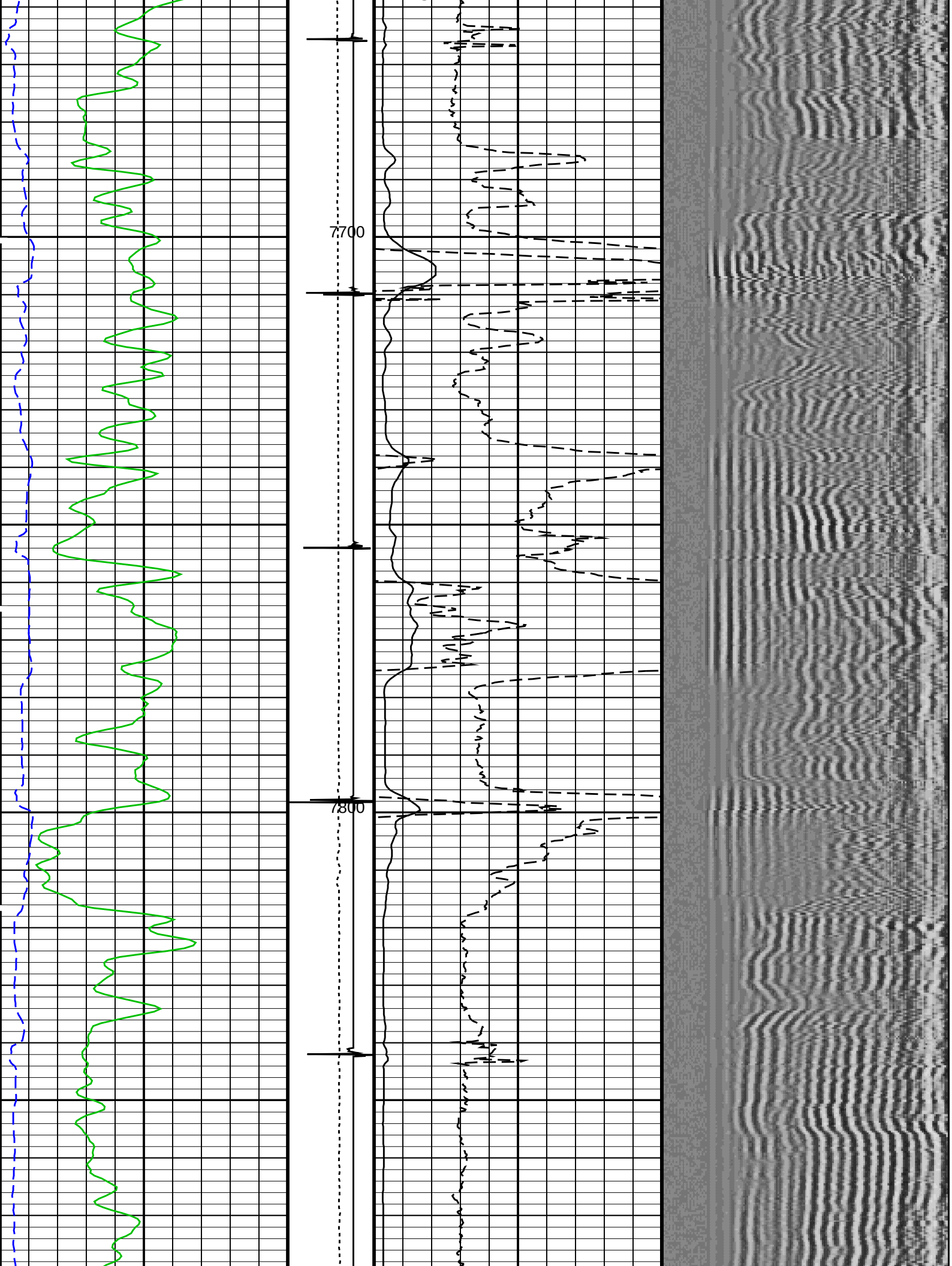
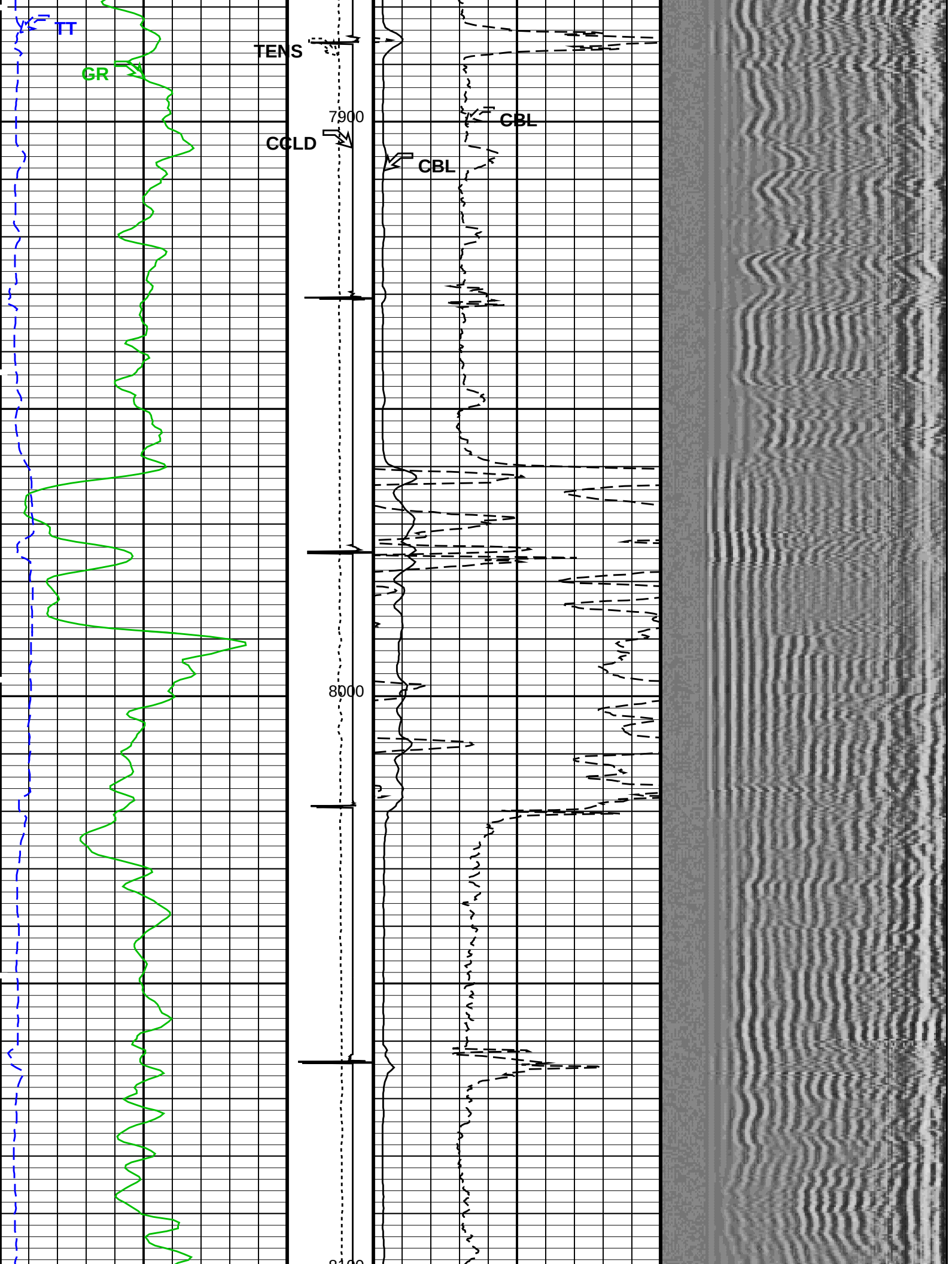
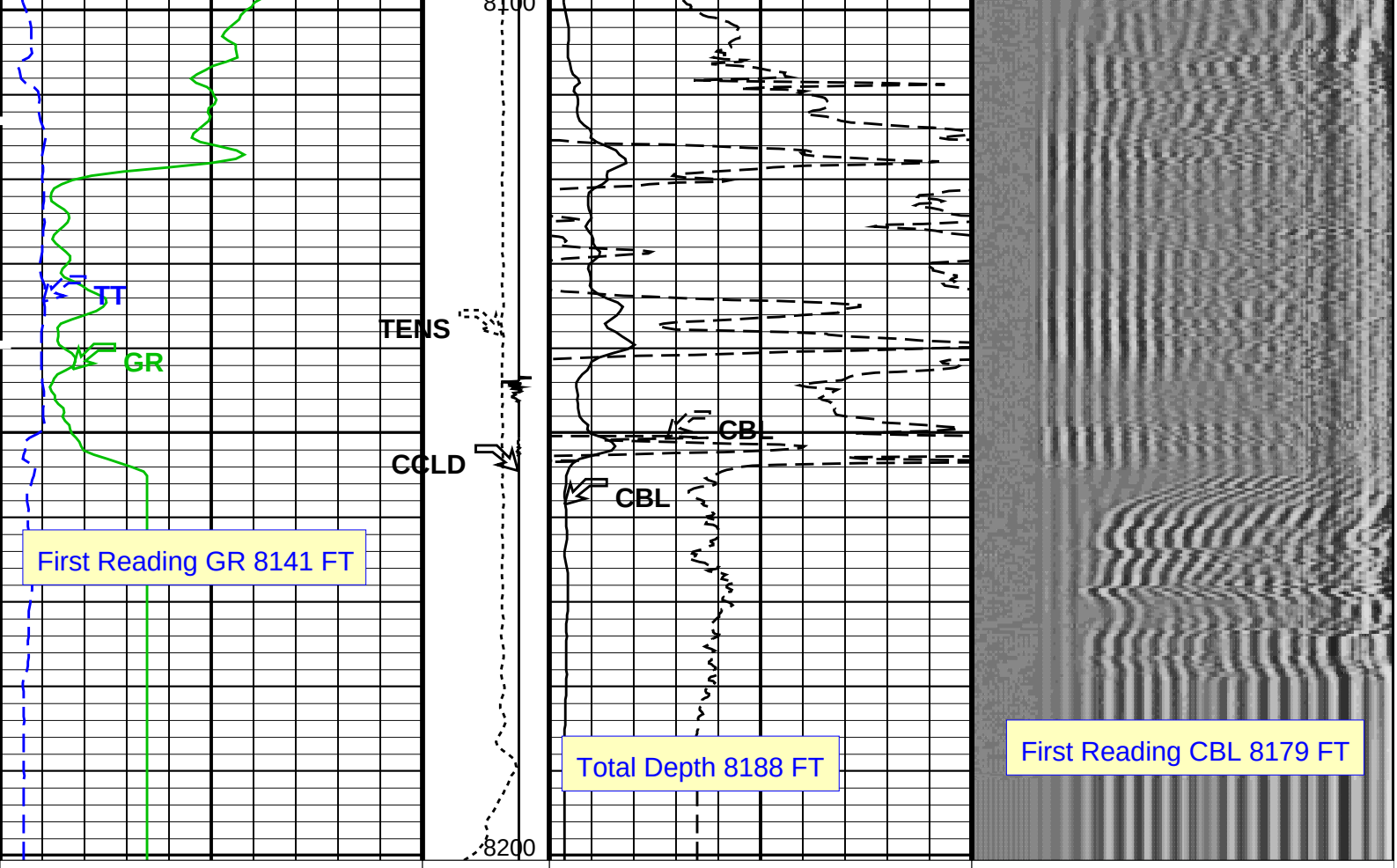
CBL


7500
7600
TT
GR
TENS
CCLD
CBL
CBL


7700
7800


TT
GR
TENS
7900
CCLD
CBL
CBL
8000



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

PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL Vertical Scale: 5" per 100' Graphics File Created: 15−Aug−2013 13:58

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 8179		
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	6−MAR−2012		
CBL Correction Factor	0.0704263	CBL Adjustment Factor (CBAF)	1.0
MAP 1 Correction Factor	0.0993191	MAP Adjustment Factor (MPAF)	1.0

MAP 2 Correction Factor	0.0941329
MAP 3 Correction Factor	0.101552
MAP 4 Correction Factor	0.114415
MAP 5 Correction Factor	0.127992
MAP 6 Correction Factor	0.121190
MAP 7 Correction Factor	0.112867
MAP 8 Correction Factor	0.102913

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	8188	FT

Input DLIS Files

DEFAULT	SCMT_RST_PSP_018LUP	FN:17	PRODUCER	15−Aug−2013 11:44	8196.5 FT	−1.5 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_023PUP	FN:22	PRODUCER	15−Aug−2013 13:58

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REPEAT ANALYSIS CBL VDL

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC

Well: ALP FEE 24−12A (J24NW)

Input DLIS Files

DEFAULT	SCMT_RST_PSP_016LUP	FN:15	PRODUCER	15−Aug−2013 11:30	6299.0 FT	5941.0 FT
DEFAULT	SCMT_RST_PSP_023PUP	FN:22	PRODUCER	15−Aug−2013 13:58	8200.5 FT	−42.0 FT

Output DLIS Files

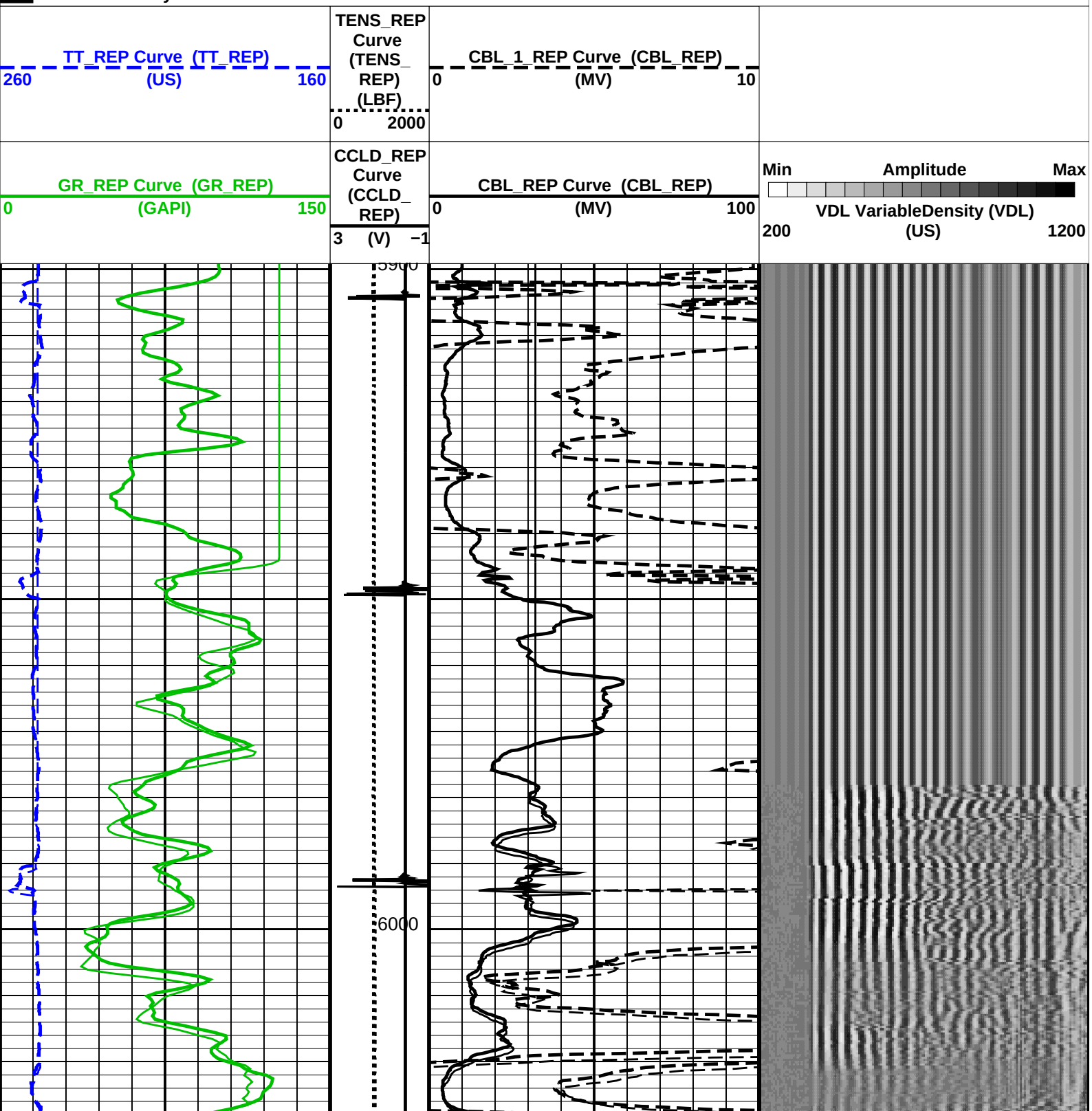
DEFAULT	SCMT_RST_PSP_024PUP	FN:23	PRODUCER	15−Aug−2013 14:06	6301.0 FT	5898.5 FT

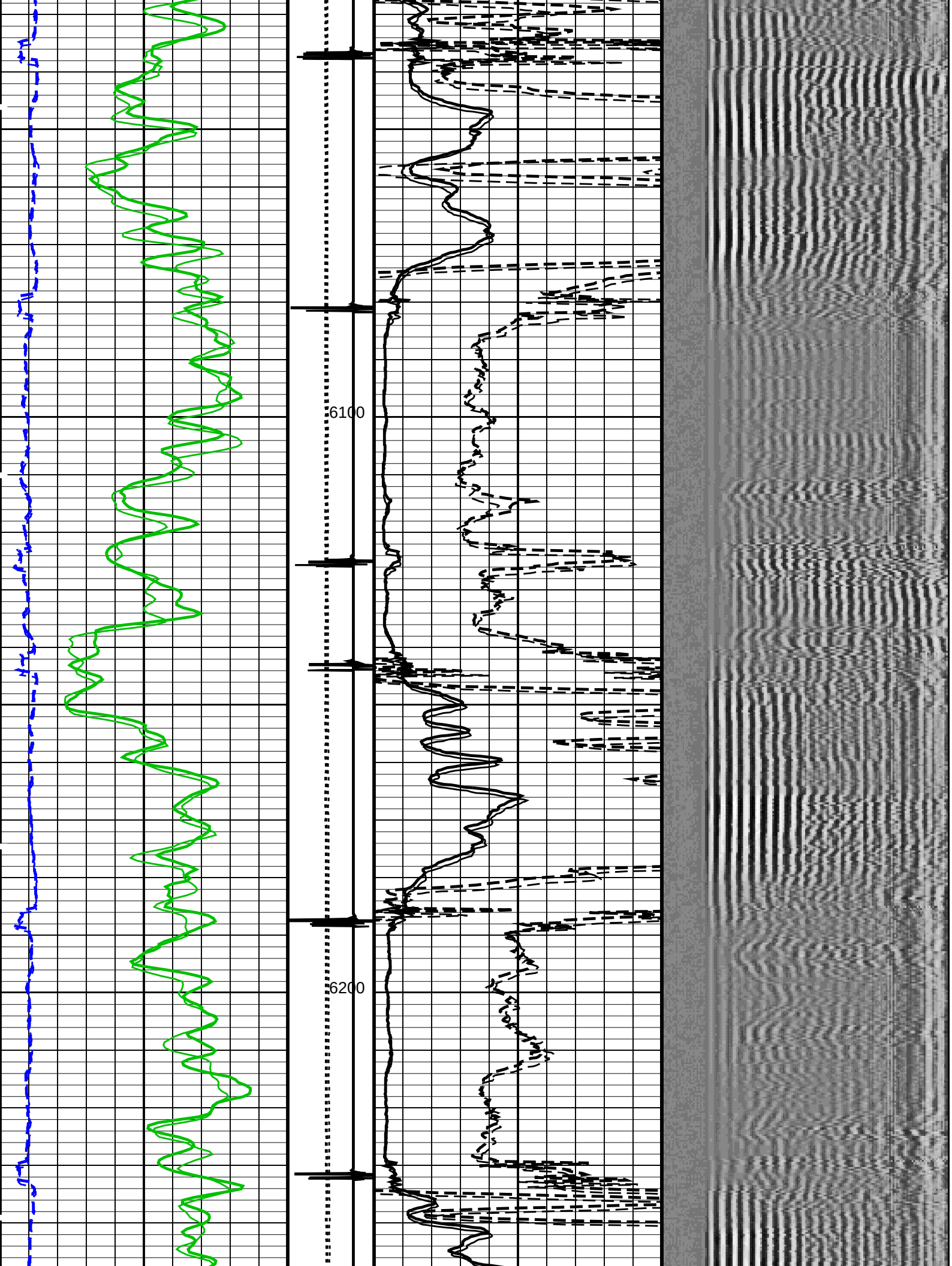
OP System Version: 19C0−187

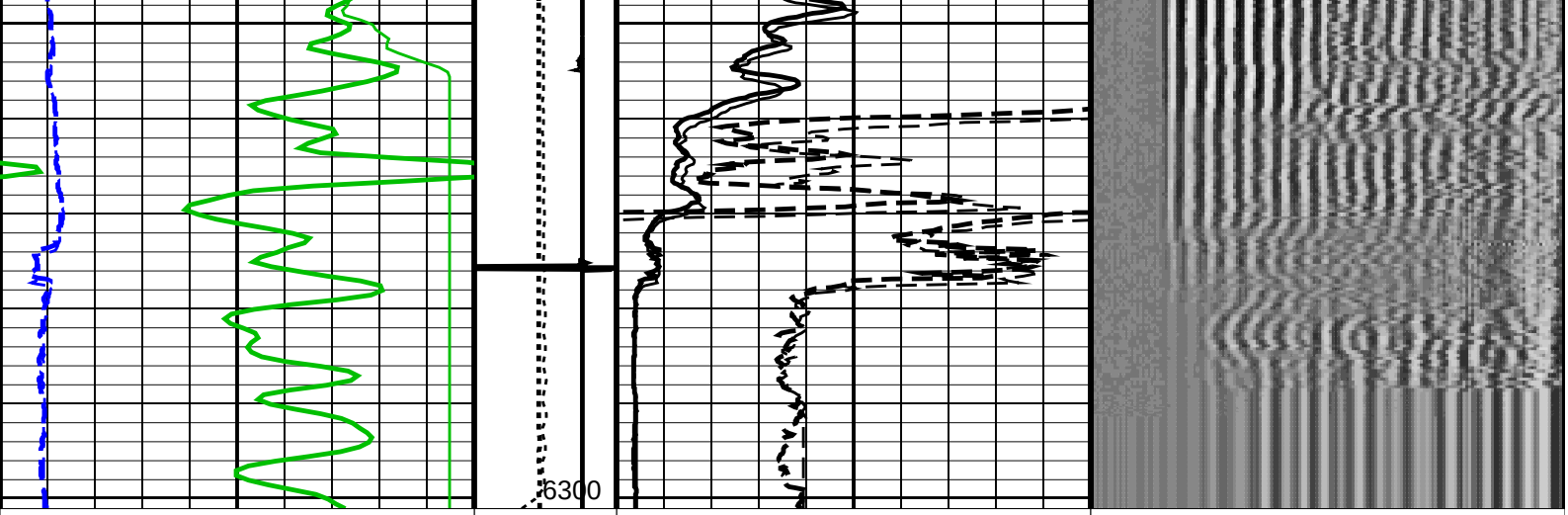
SCMT−CB	SRPC−5214−H2−2012−OP1	RST−C	SRPC−5214−H2−2012−OP1
PSPT	SRPC−5214−H2−2012−OP1		

PIP SUMMARY

Time Mark Every 60 S




6100
6200



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

PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL_REP Vertical Scale: 5" per 100' Graphics File Created: 15−Aug−2013 14:06

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 8179		
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	6−MAR−2012		
CBL Correction Factor	0.0704263	CBL Adjustment Factor (CBAF)	1.0
MAP 1 Correction Factor	0.0993191	MAP Adjustment Factor (MPAF)	1.0
MAP 2 Correction Factor	0.0941329		
MAP 3 Correction Factor	0.101552		
MAP 4 Correction Factor	0.114415		
MAP 5 Correction Factor	0.127992		
MAP 6 Correction Factor	0.121190		
MAP 7 Correction Factor	0.112867		
MAP 8 Correction Factor	0.102913		

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
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	8188	FT

Input DLIS Files

DEFAULT	SCMT_RST_PSP_016LUP	FN:15	PRODUCER	15−Aug−2013 11:30	6299.0 FT	5941.0 FT
DEFAULT	SCMT_RST_PSP_023PUP	FN:22	PRODUCER	15−Aug−2013 13:58	8200.5 FT	−42.0 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_024PUP	FN:23	PRODUCER	15−Aug−2013 14:06

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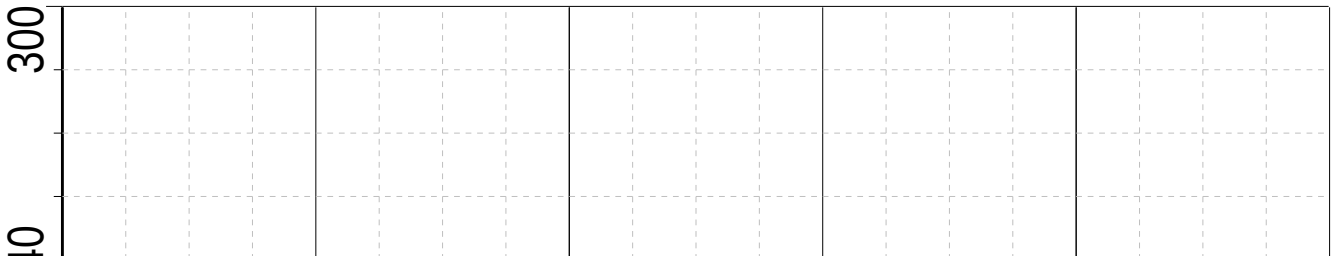
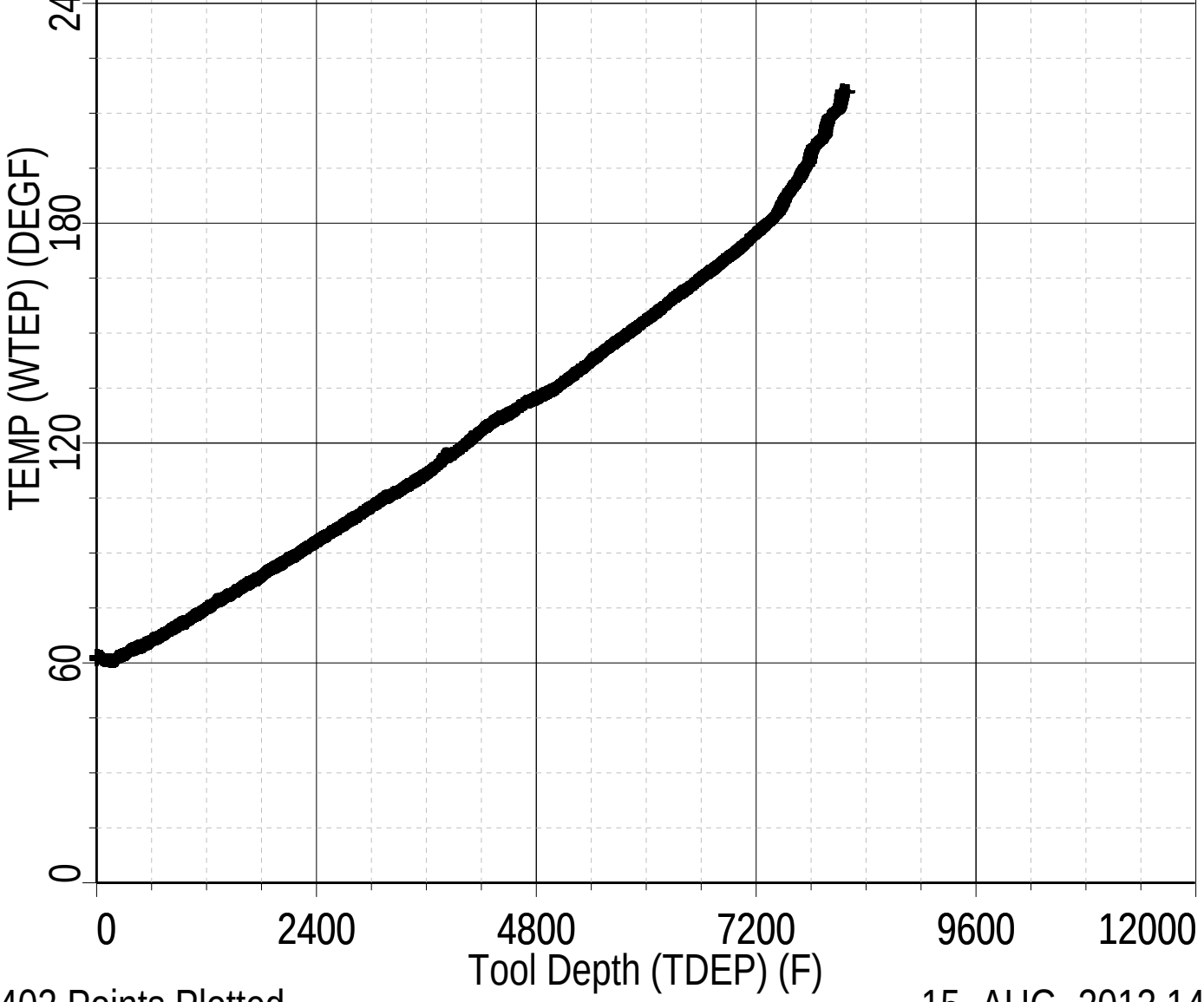
TEMPERATURE PLOT

MAXIS Field Log

Index: 8200.5 − −42.0 FT





16402 Points Plotted

15−AUG−2013 14:05

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PBMS COEFFICIENTS

MAXIS Field Log

Client:	**ENCANA OIL & GAS (USA) INC**	**Tool:**	**PSP**
Field:	**MAMM CREEK**	**Sub Type:**	**PBMS**
Well:	**ALP FEE 24−12A (J24NW)**	**Sensor:**	**Clock Model**
Run date:	**15−Aug−2013**		

PBMS Digitalization Clock	
Sonde Serial NB	
Sensor Serial NB	**1978**
Calib Date ddmmyy	**040413**
Matrix Size	**16**
Coeff CRC	**32D3**

Coeff CRC 32D3

Clock Coeff

	Temp**0	Temp**1	Temp**2
Temp**0	+.197240577294E+02	−.385846870252E+01	−.884656308536E−01

	Temp**3	Temp**4	Temp**5
Temp**0	+.864677466012E−03	+.180389331248E−05	0.0

Client:	ENCANA OIL & GAS (USA) INC	**Tool:**	PSP
Field:	MAMM CREEK	**Sub Type:**	PBMS
Well:	ALP FEE 24−12A (J24NW)	**Sensor:**	Sapphire
Run date:	15−Aug−2013		

PBMS Sapphire 10kPsi Gauge

Sonde Serial NB	COEFFICIENTS FOR SAPPHIRE PBMS−A.1978 S/N:
Sensor Serial NB	1978
Calib Date ddmmyy	040413
Matrix Size	66
Coeff CRC	FC03

Pres Coeff

	Tt**0	Tt**1	Tt**2
Tp**0	−.610621928185E+04	+.733479463928E+04	−.366313458381E+04
Tp**1	+.560047728214E+04	−.464751655104E+04	+.226378681937E+04
Tp**2	+.226844774102E+02	+.466095162698E+01	−.416031460599E+01
Tp**3	−.565000011498E+01	+.155154221168E+01	0.0
Tp**4	0.0	0.0	0.0
Tp**5	0.0	0.0	0.0

	Tt**3	Tt**4	Tt**5
Tp**0	+.661206381662E+03	−.442588980489E+02	0.0
Tp**1	−.405555010111E+03	+.270764938790E+02	0.0
Tp**2	0.0	0.0	0.0
Tp**3	0.0	0.0	0.0
Tp**4	0.0	0.0	0.0
Tp**5	0.0	0.0	0.0

Tp**3	0.0	0.0	0.0

PBMS Sapphire 10kPsi Gauge

Sonde Serial NB	:
Sensor Serial NB	1978
Calib Date ddmmyy	040413
Matrix Size	66
Coeff CRC	A9F6

Temp Coeff

	Tp**0	Tp**1	Tp**2
Tt**0	−.311910596034E+03	−.260514939056E+02	+.113131692891E+02
Tt**1	+.942044266961E+02	+.115447305149E+02	−.325190620792E+01
Tt**2	+.217040881254E+01	−.166464613929E+01	+.530464403583E−01
Tt**3	+.169097553929E+00	+.121208915106E+00	0.0
Tt**4	0.0	0.0	0.0
Tt**5	0.0	0.0	0.0

	Tp**3	Tp**4	Tp**5
Tt**0	−.311141115592E+01	+.330242609958E+00	0.0
Tt**1	+.850293467157E+00	−.913717647562E−01	0.0
Tt**2	0.0	0.0	0.0
Tt**3	0.0	0.0	0.0
Tt**4	0.0	0.0	0.0
Tt**5	0.0	0.0	0.0

Client:	ENCANA OIL & GAS (USA) INC	Tool:	PSP
Field:	MAMM CREEK	Sub Type:	PBMS
Well:	ALP FEE 24−12A (J24NW)	Sensor:	GR
Run date:	15−Aug−2013		

PBMS Gamma Ray

Sonde Serial NB	RESISTORS FOR GR SENSOR N.36646,TOOL PBMS−AA1978. SENSOR S/N:
Sensor Serial NB	36646
Calib Date ddmmyy	230611
Matrix Size	12
Coeff CRC	3017

GR HV Rt

	Rt**0	Rt**1

Rt**0	+.200000000000e+04	+.238000000000e+04

Client:	**ENCANA OIL & GAS (USA) INC**	**Tool:** **PSP**
Field:	**MAMM CREEK**	**Sub Type:** **PBMS**
Well:	**ALP FEE 24−12A (J24NW)**	**Sensor:** **WellTemp RTD**
Run date:	**15−Aug−2013**	

PBMS RTD Well Thermometer

Sonde Serial NB	**COEFFICIENTS FOR RTD THERMOMETER PBMS−A.1978 S/N:**
Sensor Serial NB	**1978**
Calib Date ddmmyy	**040413**
Matrix Size	**16**
Coeff CRC	**5275**

WTemp Coeff

	Tt**0	Tt**1	Tt**2
Tt**0	−.147060145836E+03	−.907965992712E+02	+.770663084969E+02

	Tt**3	Tt**4	Tt**5
Tt**0	−.131119885893E+02	+.876373733985E+00	0.0

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

Primary Equipment:		
Slim Cement Mapping Xmitter Electronics	SCMX − CA	8251
Slim Cement Mapping Sonde	SCMS − CB	8179
Slim Cement Mapping Cartridge	SCMC − CA	8121
Auxiliary Equipment:		
Slim Electronics Cartridge Housing	SECH − CA	8120

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		1158
500.0 (Minimum)	1075 (Nominal)	1650 (Maximum)

Phase	MAP 2 Amplitude Plus MV	Value
Master		1232
500.0 (Minimum)	1075 (Nominal)	1650 (Maximum)

Phase	MAP 3 Amplitude Plus MV	Value
Master		1237
500.0 (Minimum)	1075 (Nominal)	1650 (Maximum)

Phase	MAP 4 Amplitude Plus MV	Value
Master		1118
500.0 (Minimum)	1075 (Nominal)	1650 (Maximum)

Phase	MAP 5 Amplitude Plus MV	Value
Master		1061
500.0 (Minimum)	1075 (Nominal)	1650 (Maximum)

Phase	MAP 6 Amplitude Plus MV	Value
Master		1299
500.0 (Minimum)	1075 (Nominal)	1650 (Maximum)

Phase	MAP 7 Amplitude Plus MV	Value
Master		1258
500.0 (Minimum)	1075 (Nominal)	1650 (Maximum)

Phase	MAP 8 Amplitude Plus MV	Value
Master		1267
500.0 (Minimum)	1075 (Nominal)	1650 (Maximum)

Phase	CBL Amplitude Plus MV	Value
Master		1351
1000 (Minimum)	1350 (Nominal)	1700 (Maximum)

Master: 2−Jan−2013 15:55

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

Schlumberger

Well: **ALP FEE 24−12A (J24NW)**
Field: **MAMM CREEK**
County: **GARFIELD**
State: **COLORADO**

SLIM CEMENT MAPPING LOG
CBL−VDL
GAMMA RAY−CCL