Schlumberger

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

Well: **SG 8504E−36 (D36 496)**

Field: **STORY GULCH**

County: **GARFIELD** State: **COLORADO**

SLIM CEMENT MAPPING LOG

CBL−VDL

GR−CCL

County: GARFIELD
Field: STORY GULCH
Location: SHL: 373 FNL & 1061 FWL
Well: SG 8504E−36 (D36 496)
Company: ENCANA OIL & GAS (USA) INC

LOCATION

SHL: 373 FNL & 1061 FWL
BHL: 672 FWL & 1186 FNL

Elev.: K.B. 8320.00 ft
G.L. 8290.00 ft
D.F. 8319.00 ft

Permanent Datum: GROUND LEVEL Elev.: 8290.00 ft
Log Measured From: KELLY BUSHING 30.00 ft above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	Section	Township	Range
05−045−20933−0C	36	4S	96W

Logging Date	11−Apr−2013
Run Number	1
Depth Driller	11992 ft
Schlumberger Depth	11916 ft
Bottom Log Interval	11907 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	10085 ft
To	11992 ft
Casing/Tubing Size	4.500 in
Weight	11.6 lbm/ft
Grade	
From	30 ft
To	11972 ft
Maximum Recorded Temperatures	285 degF
Logger On Bottom / Time	11−Apr−2013 13:15
Unit Number / Location	391 GRAND JUNCTION
Recorded By	KIRSTIE BUNTING
Witnessed By	JOHN MILLER

PVT DATA	Run 1	Run 2	Run 3
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−MAR−2013 10:41:08

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:	112136
Calibration Date:	24−APR−2012	Calibration Date:	20−FEB−201	Length:	19500 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:	4	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 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: NONE	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	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	
MAXIMUM RECORDED TEMPERATURE = 285 DEGF	
MAXIMUM RECORDED PRESSURE = 5008 PSIA	

SHORT JOINTS = 7509 FT & 10458 FT	
ENTRANCE TIME = 12:30	
LOGGER ON BOTTOM = 13:15	
EXIT TIME = 16:15	
MAIN PASS LOGGED WITH ZERO SURFACE PRESSURE	
EXPECTED CBL AMPLITUDE IN FREE PIPE 80MV	
CYCLE SKIPPING DUE TO GOOD BOND	
THANK YOU FOR CHOOSING E&P WIRELINE, A SCHLUMBERGER COMPANY	
YOUR CREW, K. BUNTING, W. AZIZ, K. JOHNS	

RUN 1		RUN 2	
SERVICE ORDER #:	CGF9−00039	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

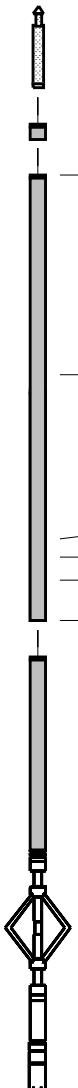
MH−22 30.4
MH−22

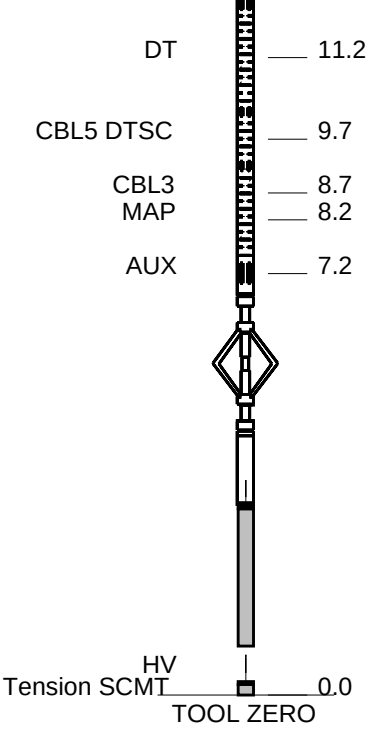
Detail MT
TelStatus
CTEM
AH−38 28.8
28.5
PSPT 28.5
PSC−A
PSPT−B 928
PSTC−A
PBMS−B
CQG_F_Mano
RTD_Thermometer
GR
CCL
PBMS

GR 24.8

Well_Temp 21.8
CQG Manom 21.4
CCL 21.0
PBMS PSTC 20.3

SCMT−CB 20.3
SCMC−CA 8120
SECH−CA
CMIR−AG
SCMS−CB 8317
SCMX−CA





AH−BNS

0.2

MAXIMUM STRING DIAMETER 1.69 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: SG 8504E−36 (D36 496)**

Input DLIS Files

DEFAULT	SCMT_PSP_023LUP	FN:22	PRODUCER	11−Apr−2013 13:16	11929.5 FT	31.0 FT

Output DLIS Files

DEFAULT	SCMT_PSP_026PUP	FN:25	PRODUCER	11−Apr−2013 16:33	11933.5 FT	13.5 FT

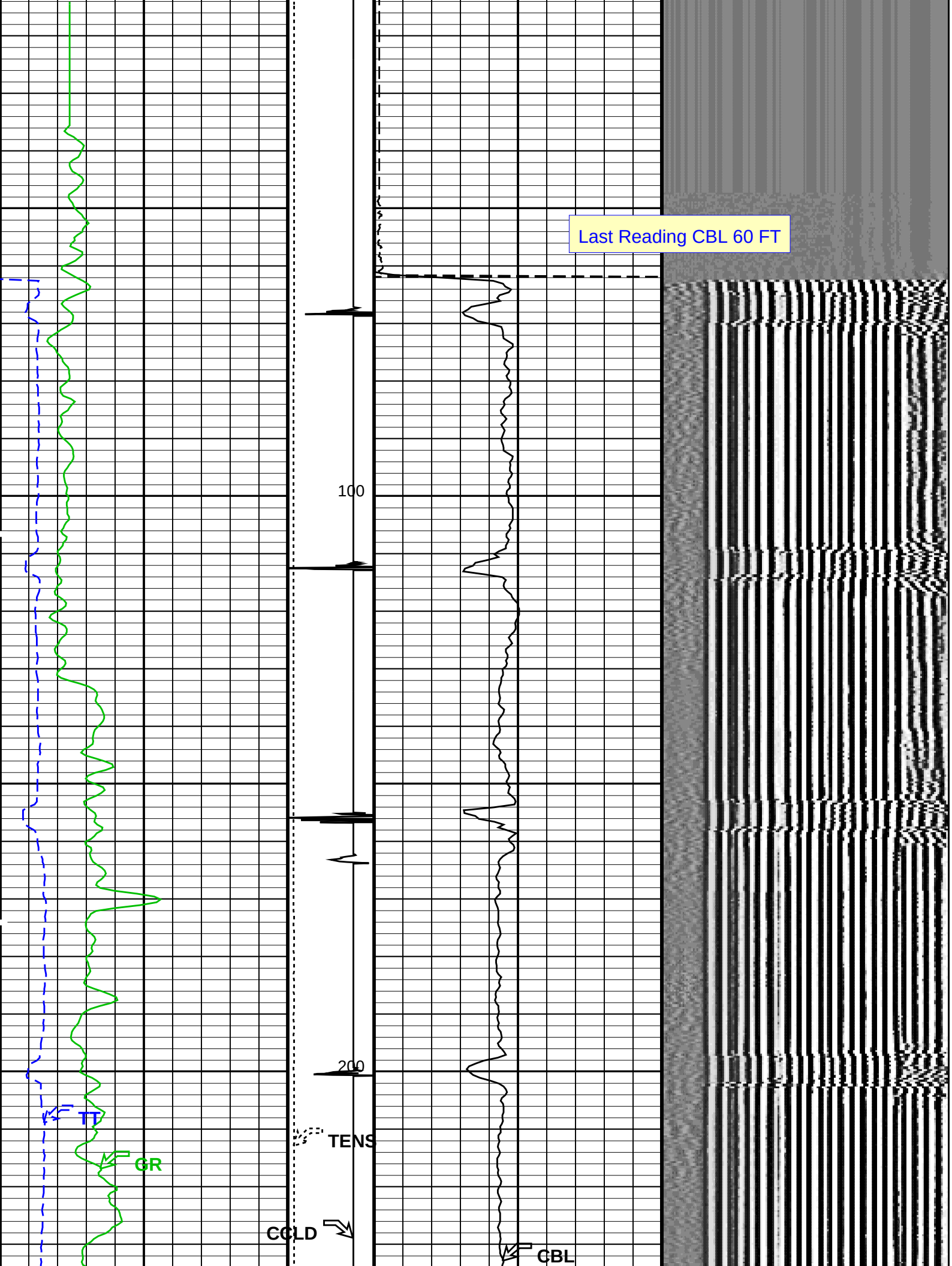
OP System Version: 19C0−187

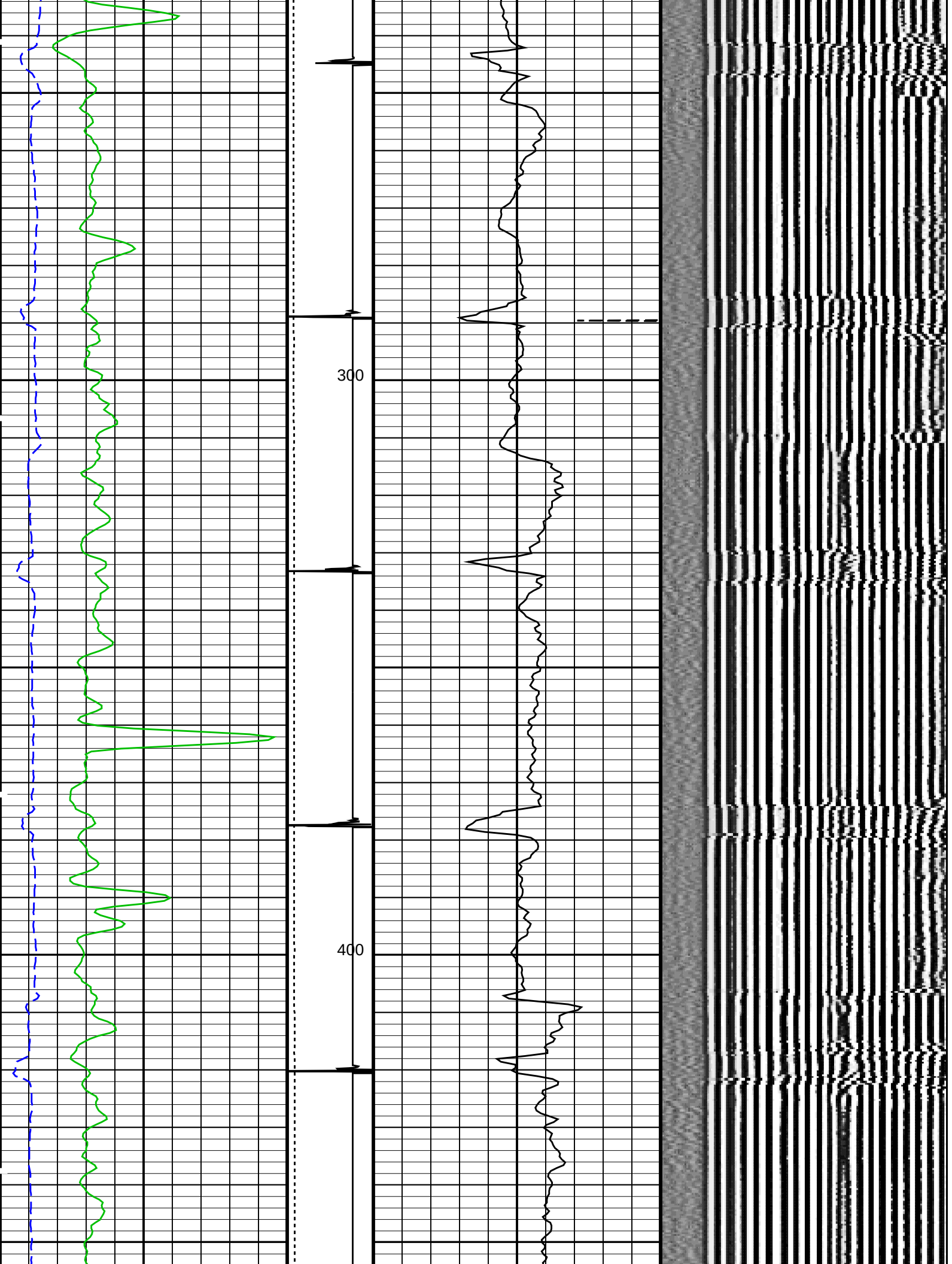
SCMT−CB	SRPC−5214−H2−2012−OP1	PSPT	SRPC−5214−H2−2012−OP1

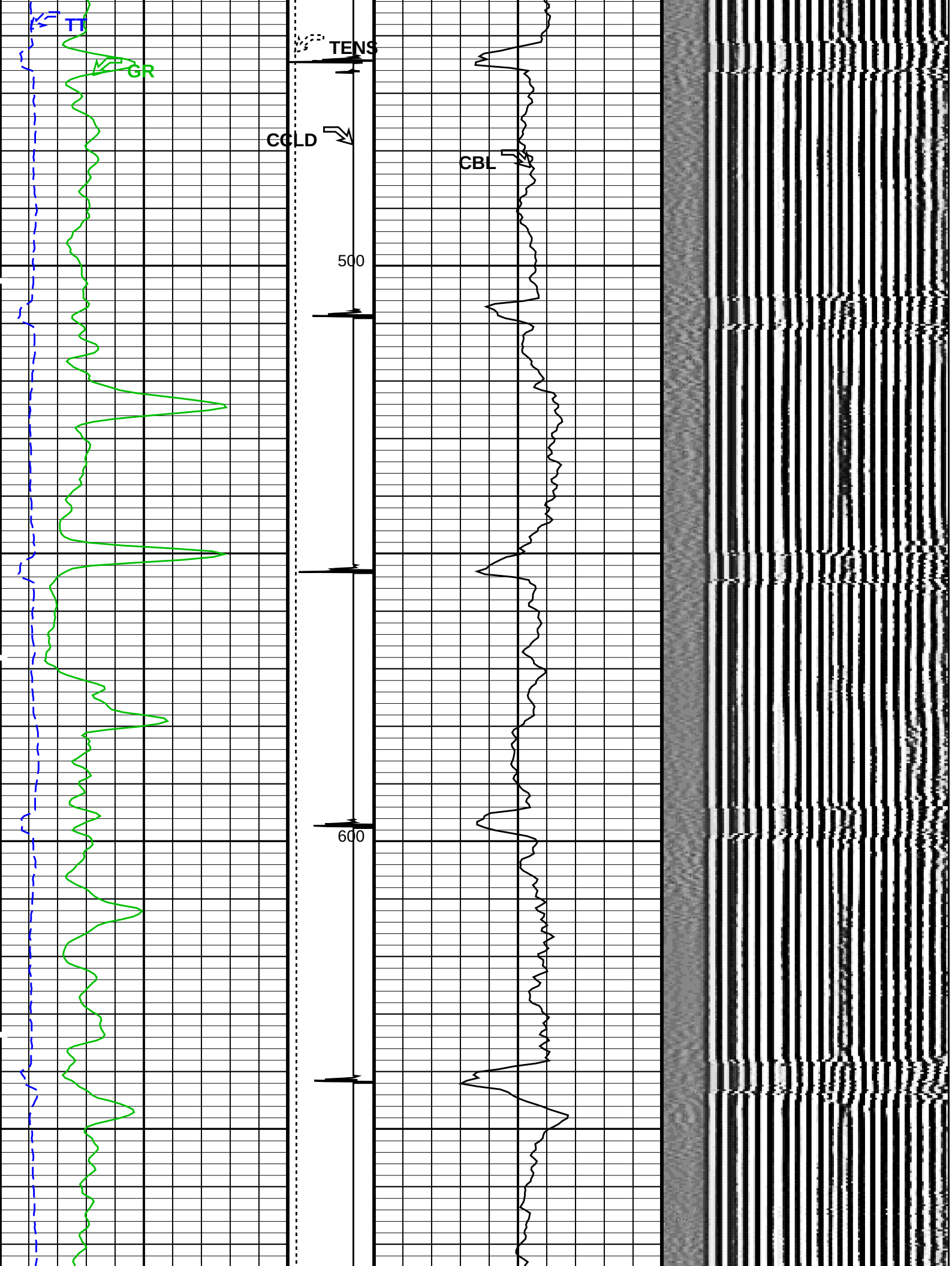
PIP SUMMARY

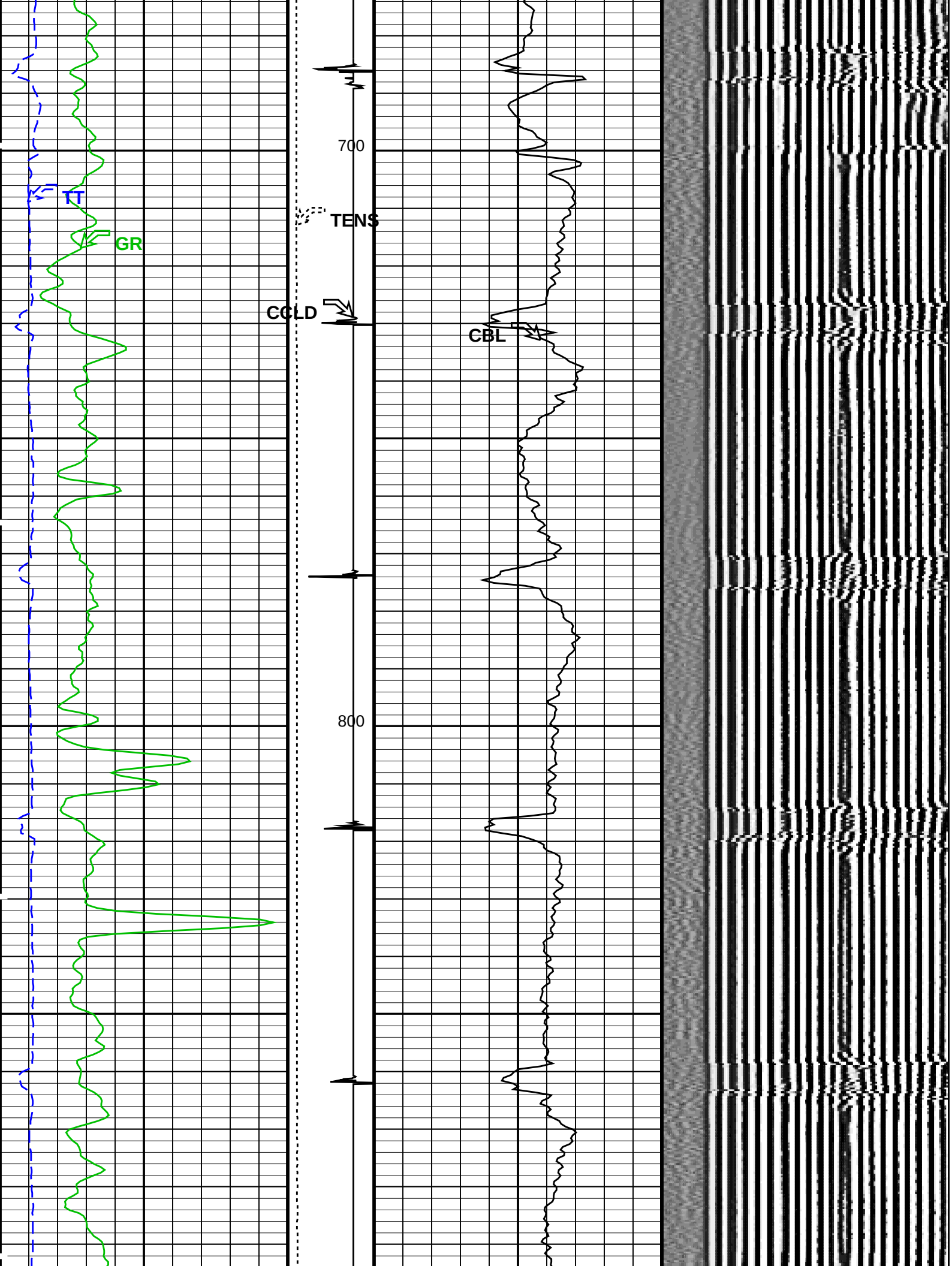
Time Mark Every 60 S

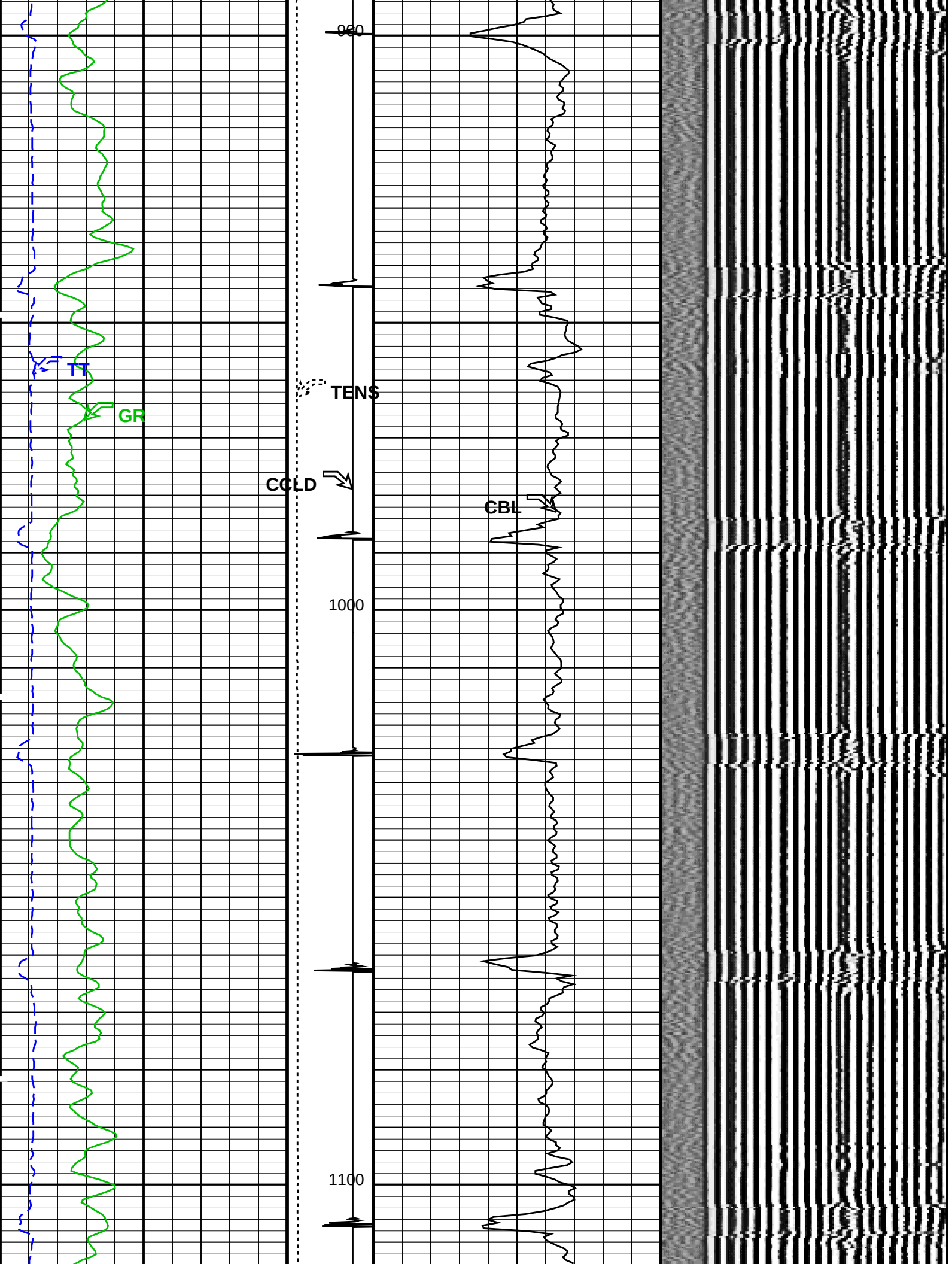
Transit Time (TT) 260 (US) 160	Discriminated CCL (CCLD) 3 (V) −1	CBL Amplitude (CBL) 0 (MV) 10	
Gamma Ray (GR) 0 (GAPI) 150	Tension (TENS) (LBF) 0 2000	CBL Amplitude (CBL) 0 (MV) 100	Min Amplitude Max VDL VariableDensity (VDL) 200 (US) 1200

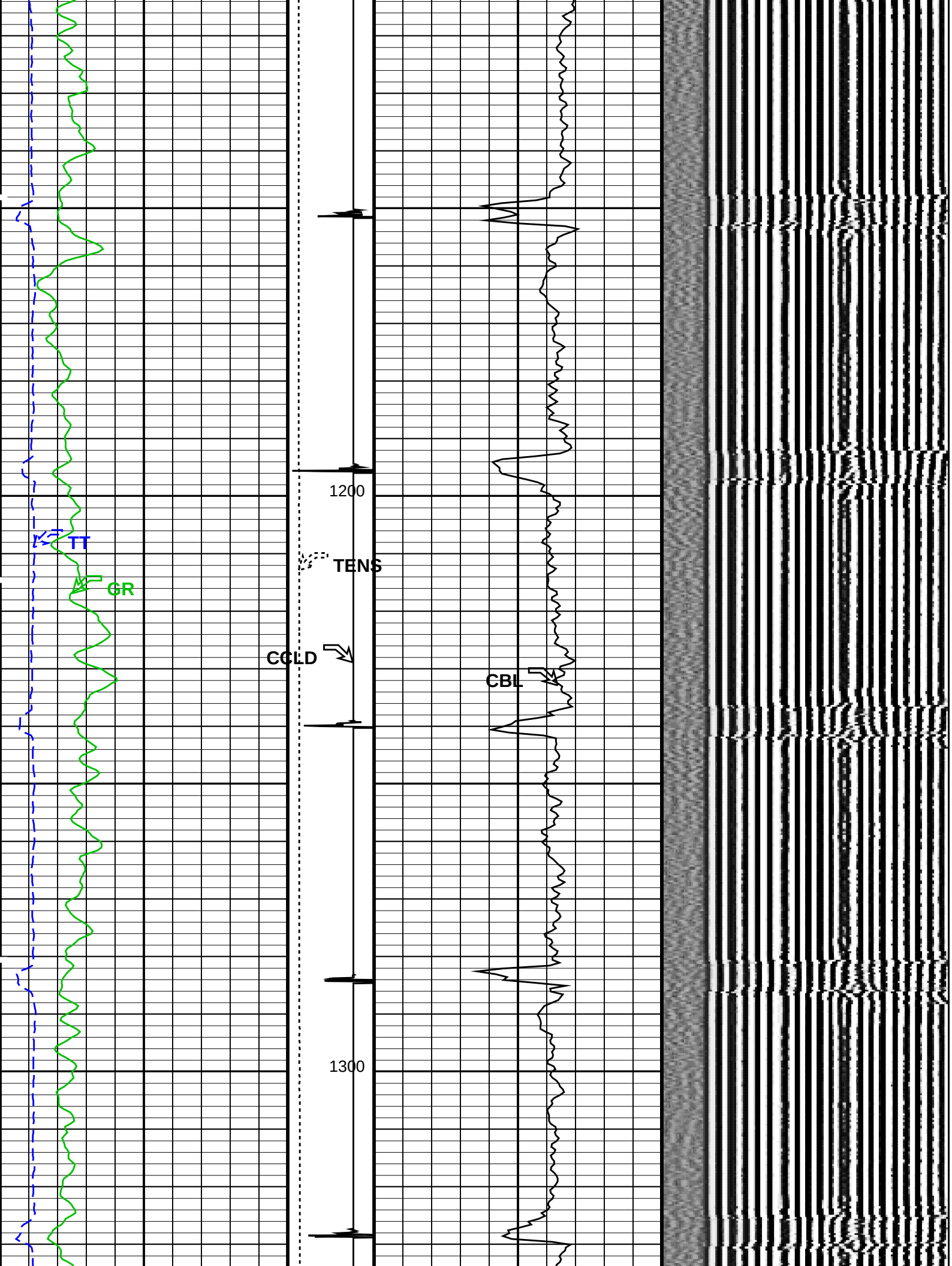

Last Reading CBL 60 FT
100
200
TT
GR
TENS
CCLD
CBL


300
400


TT
GR
TENS
CCLD
CBL
500
600


TT
GR
700
TENS
CCLD
CBL
800


900
TT
GR
TENS
CCLD
CBL
1000
1100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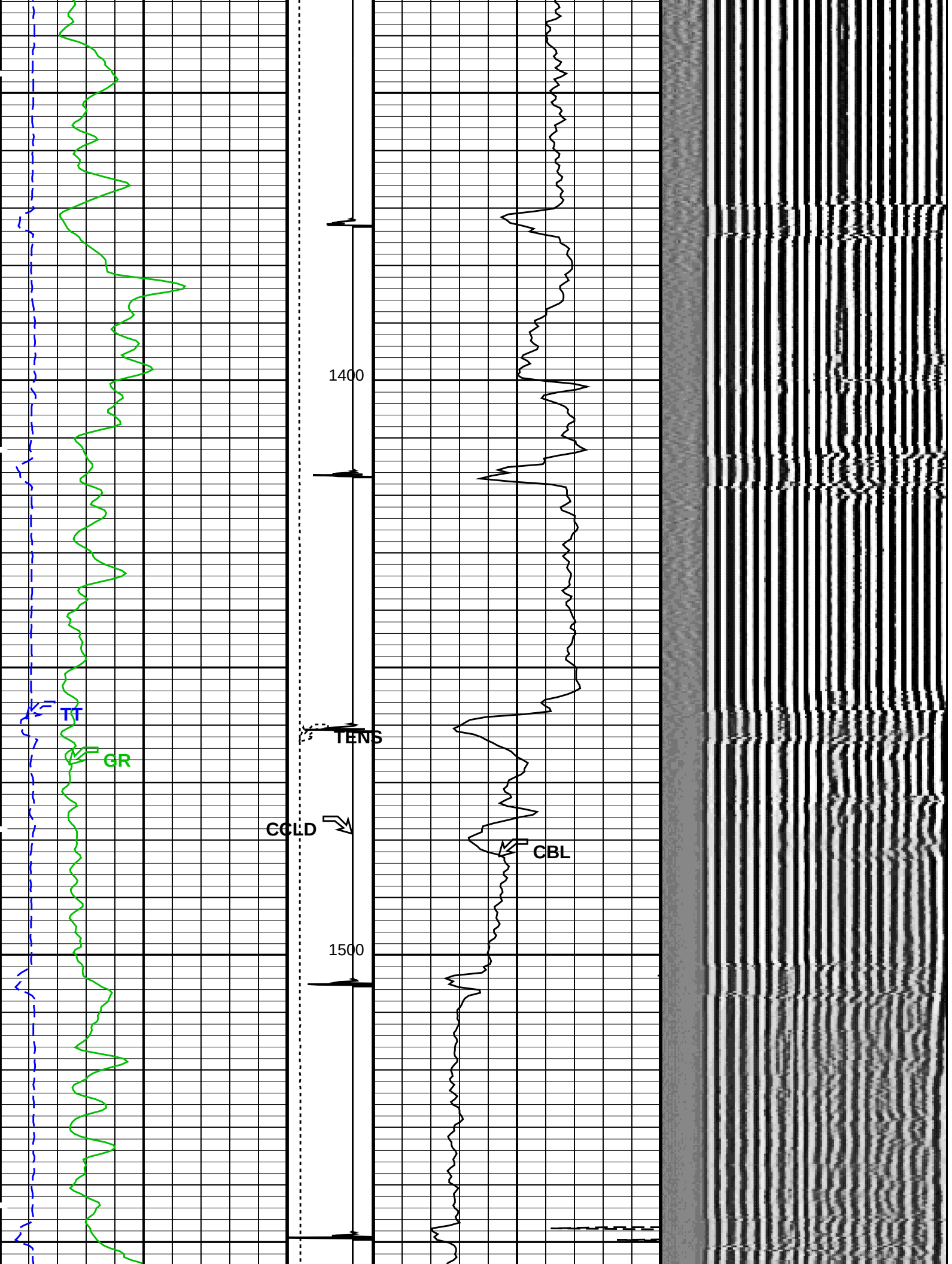
TENS
CCLD
CBL
1200
1300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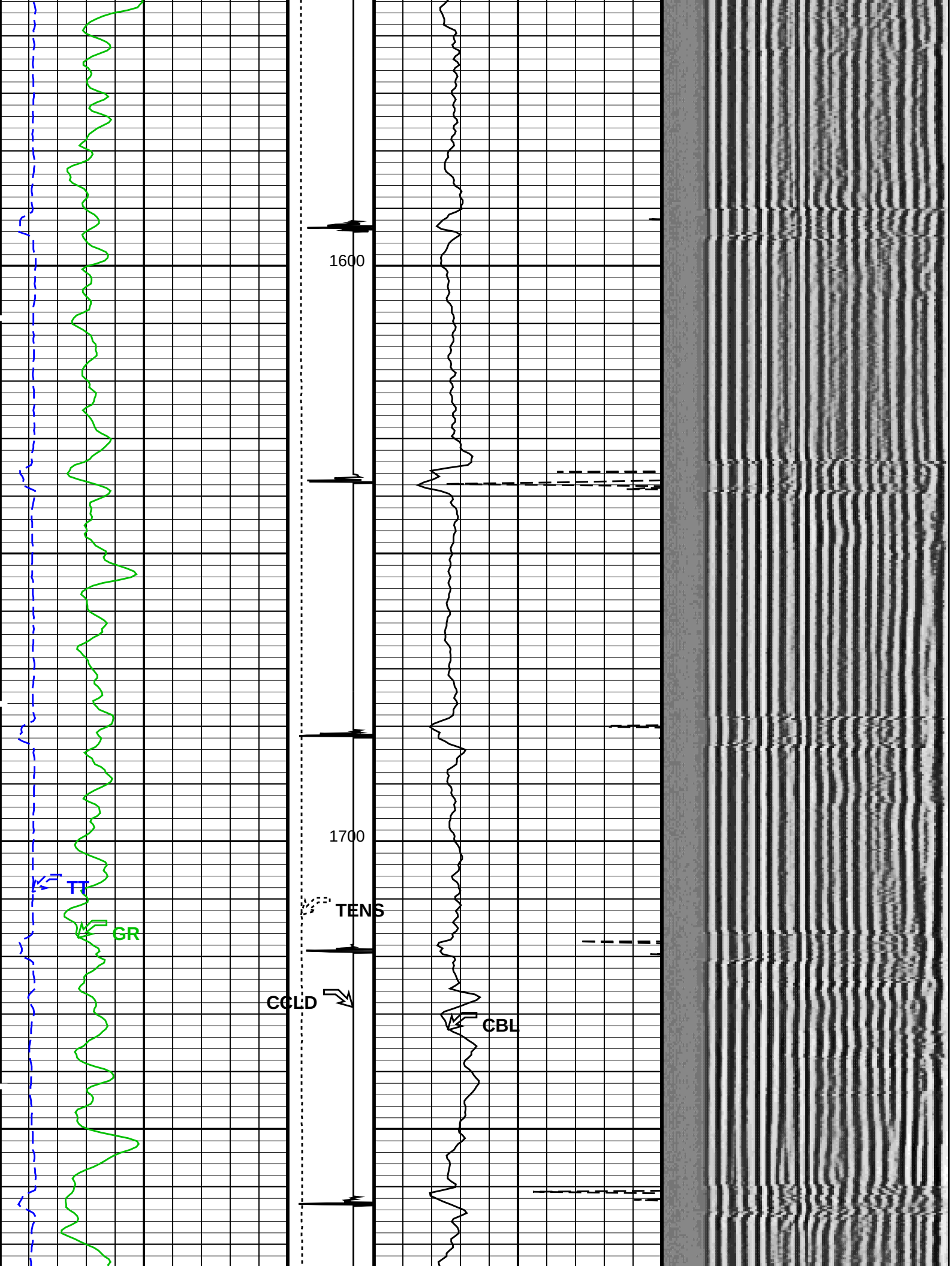
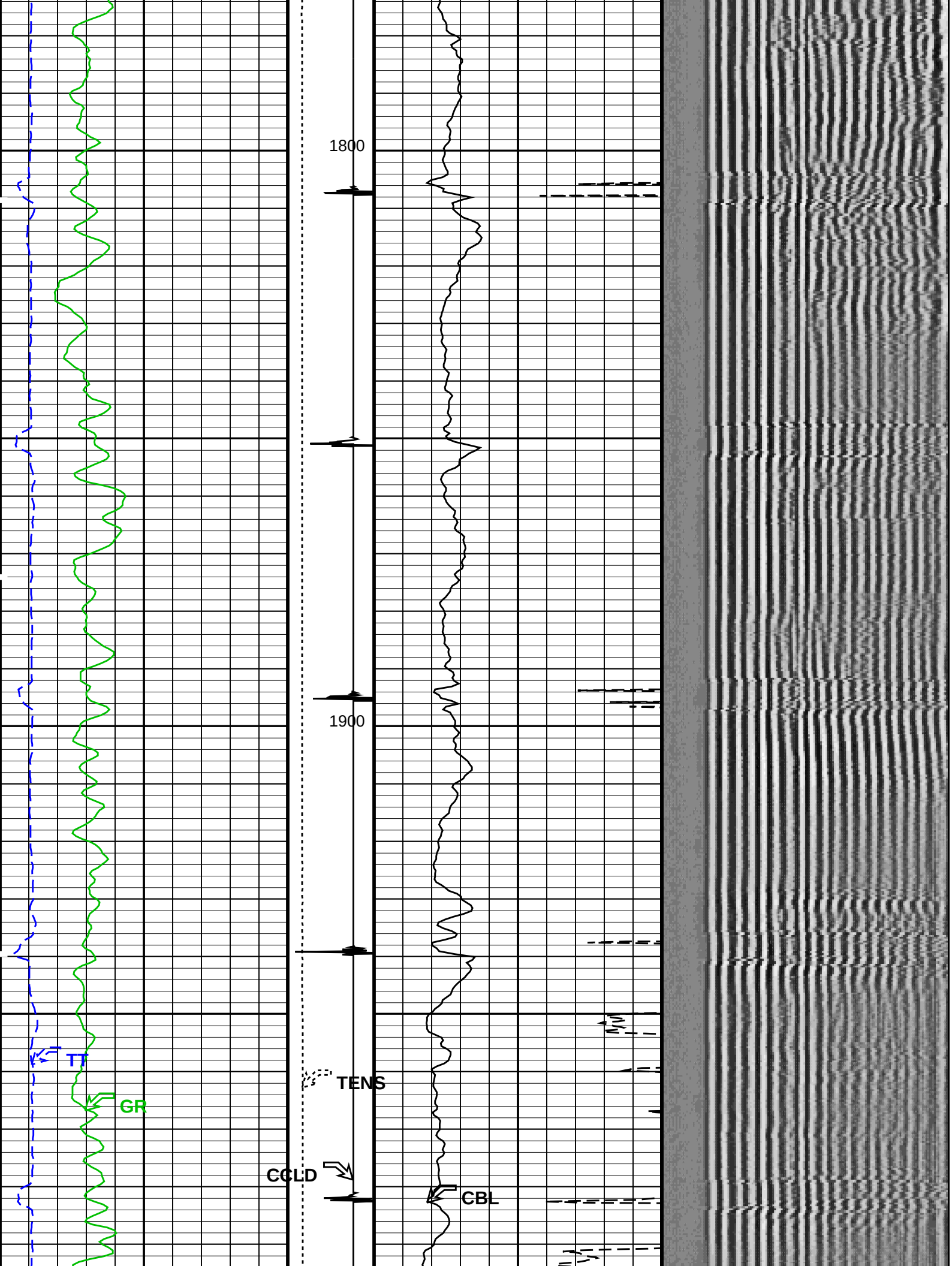
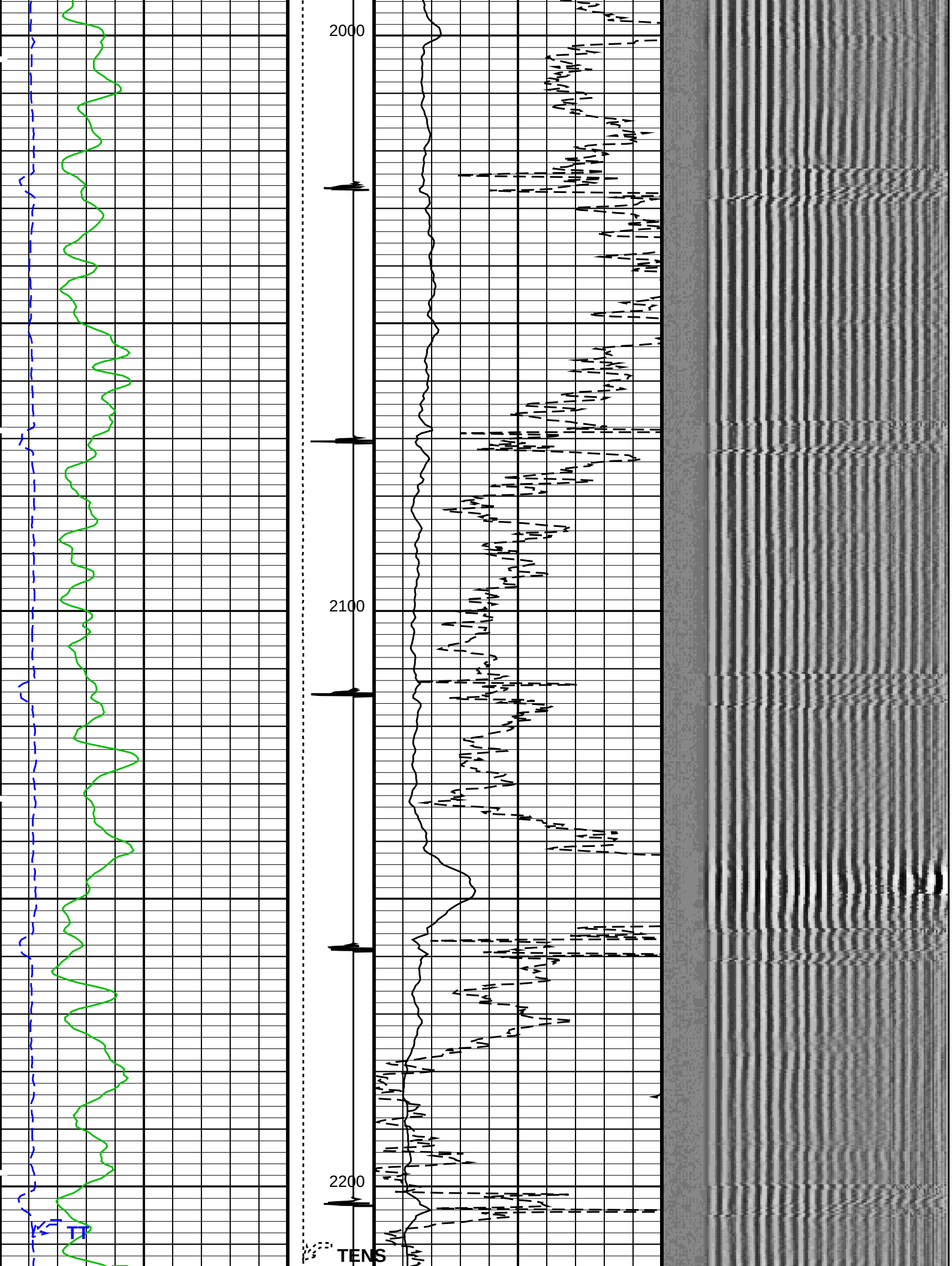
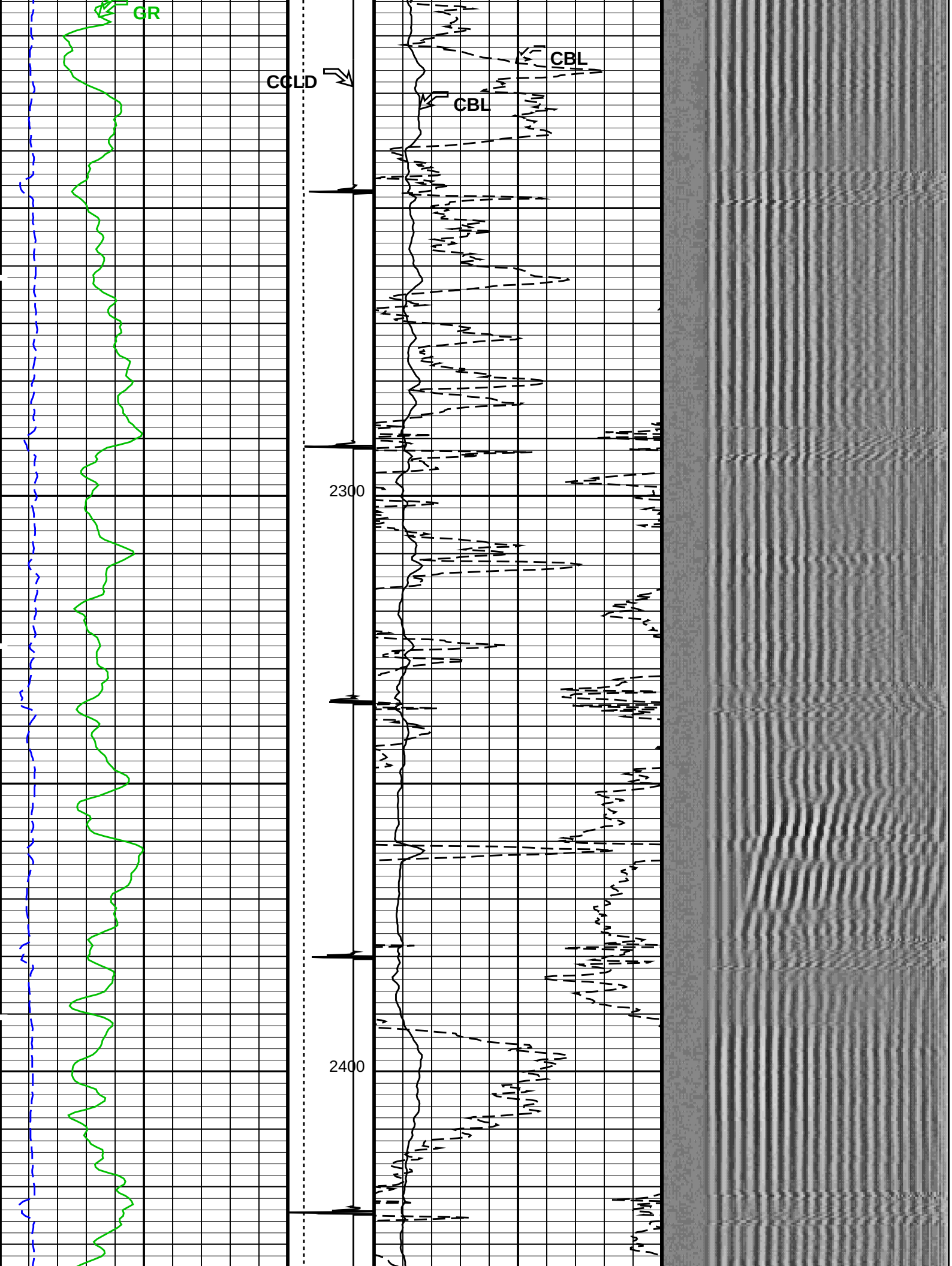
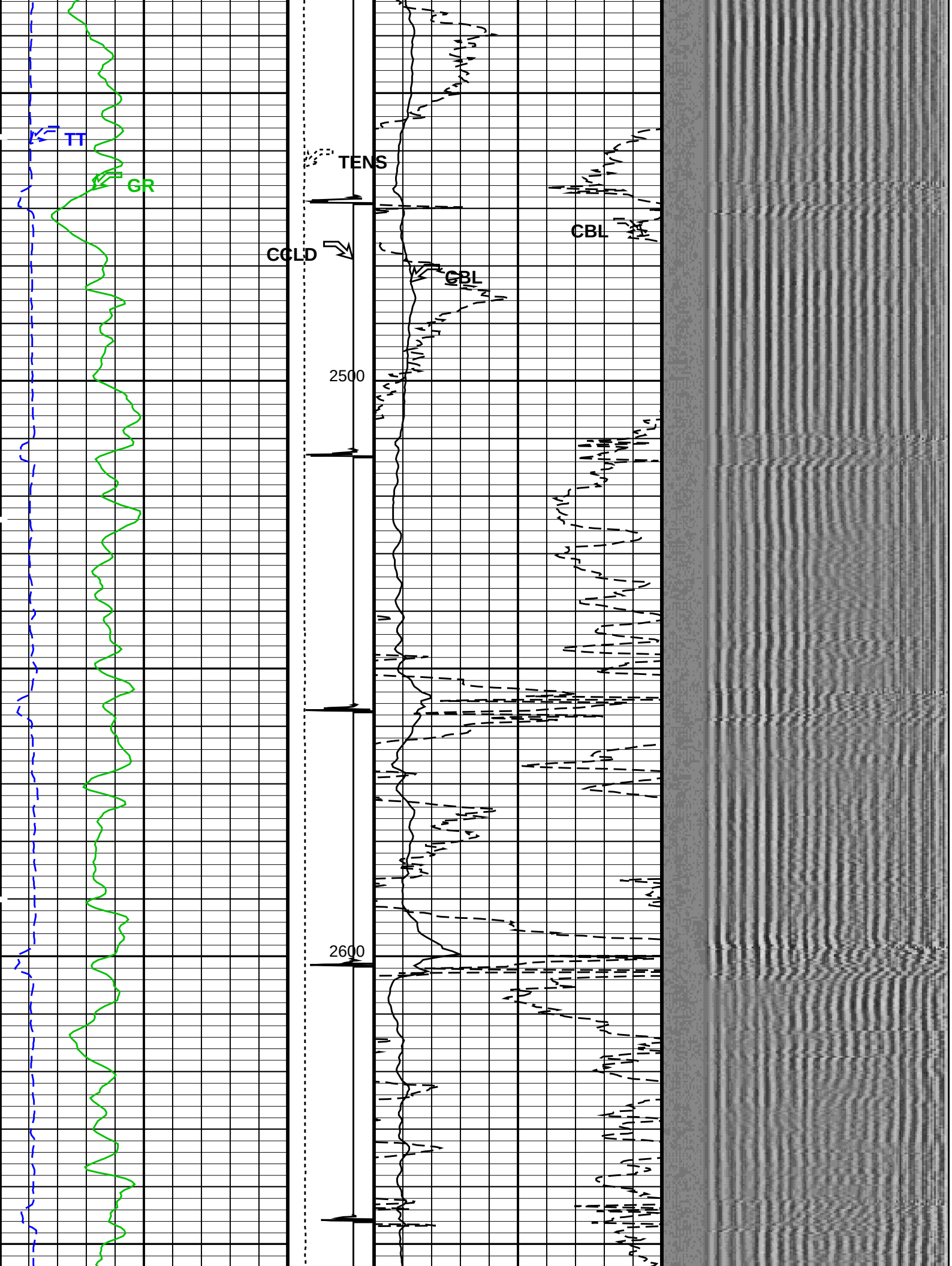
TT
GR
TENS
CCLD
CBL
1500

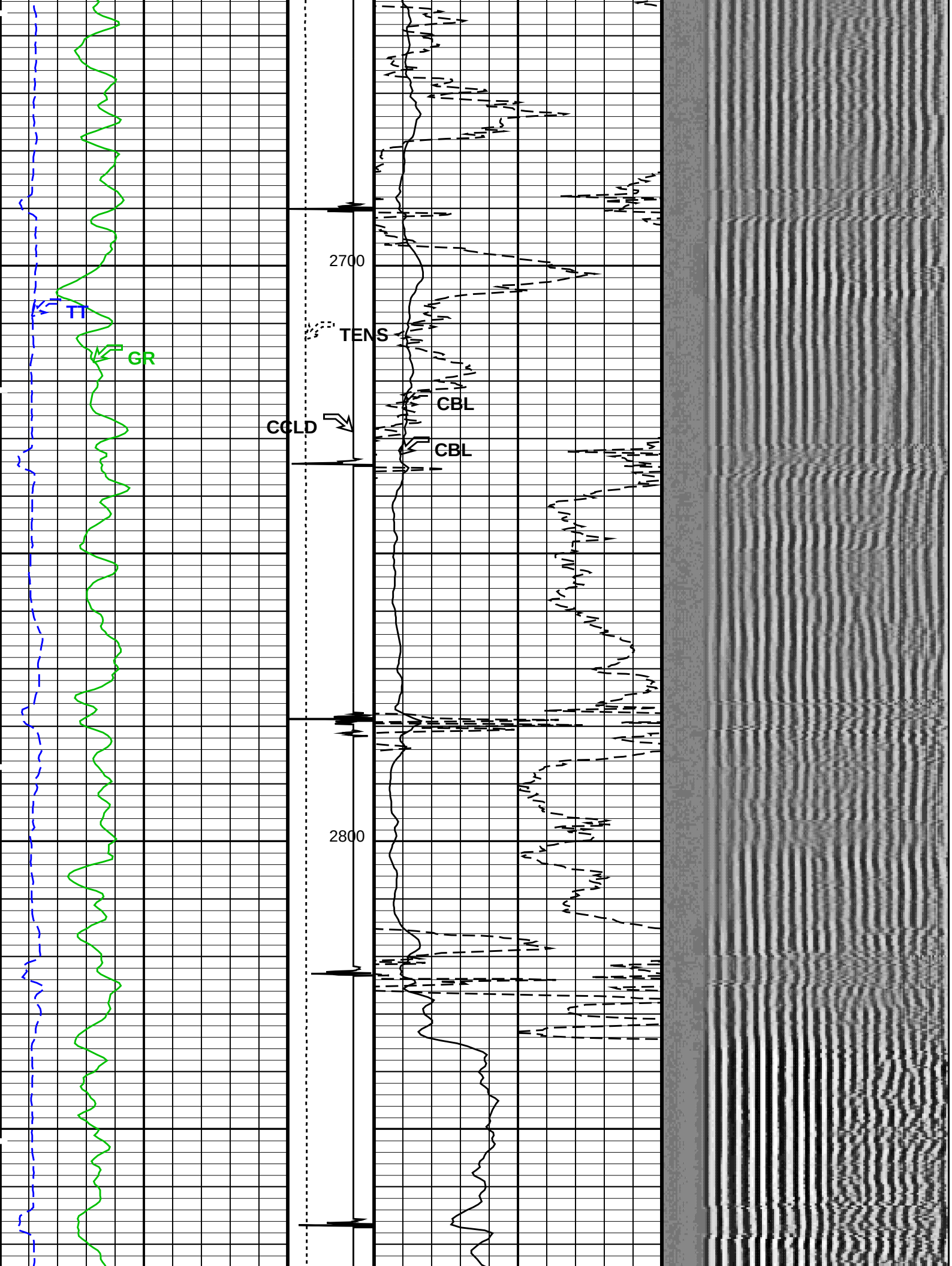

1600
1700
TT
GR
TENS
CCLD
CBL

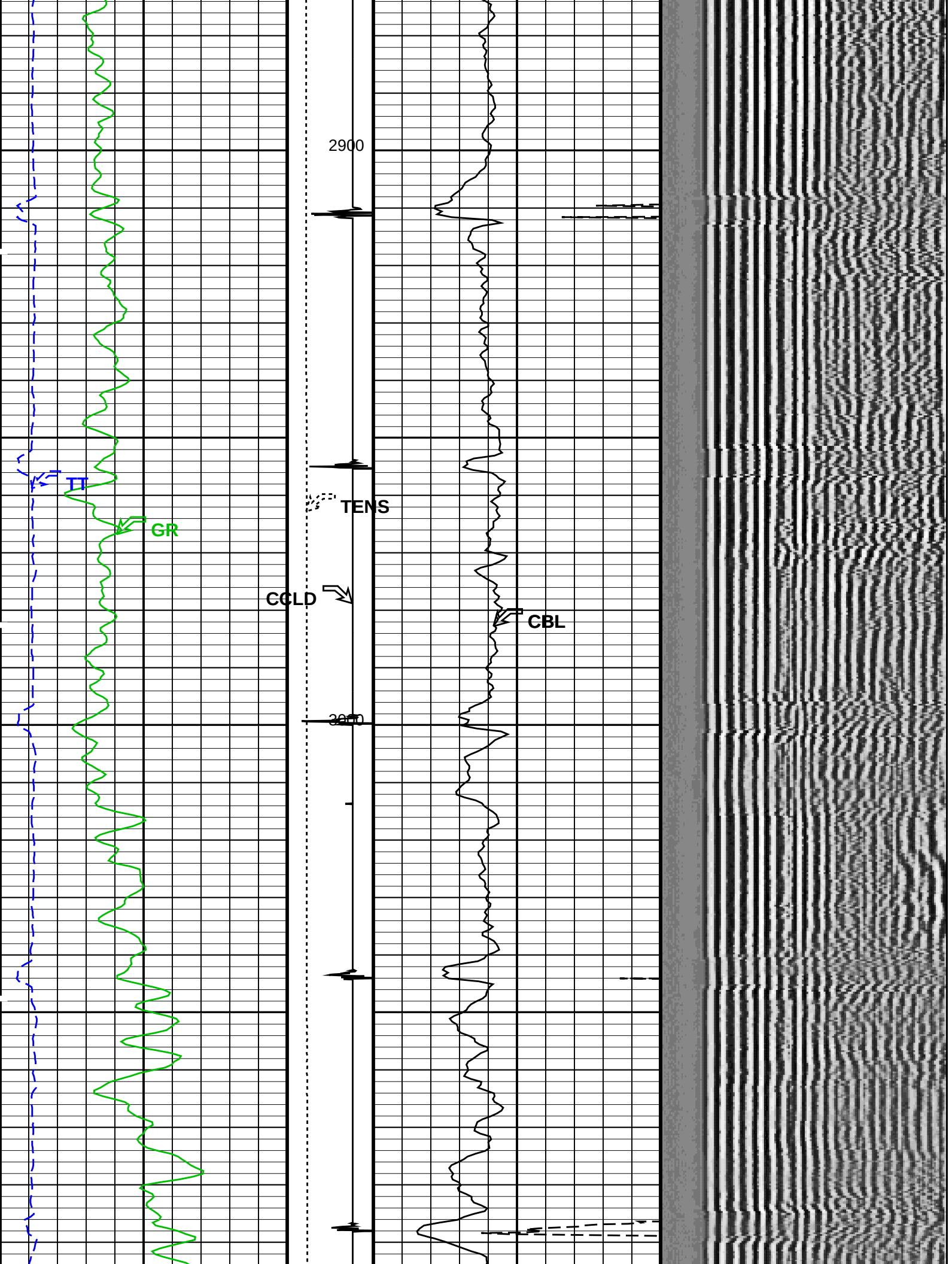

1800
1900
TT
GR
TENS
CCLD
CBL

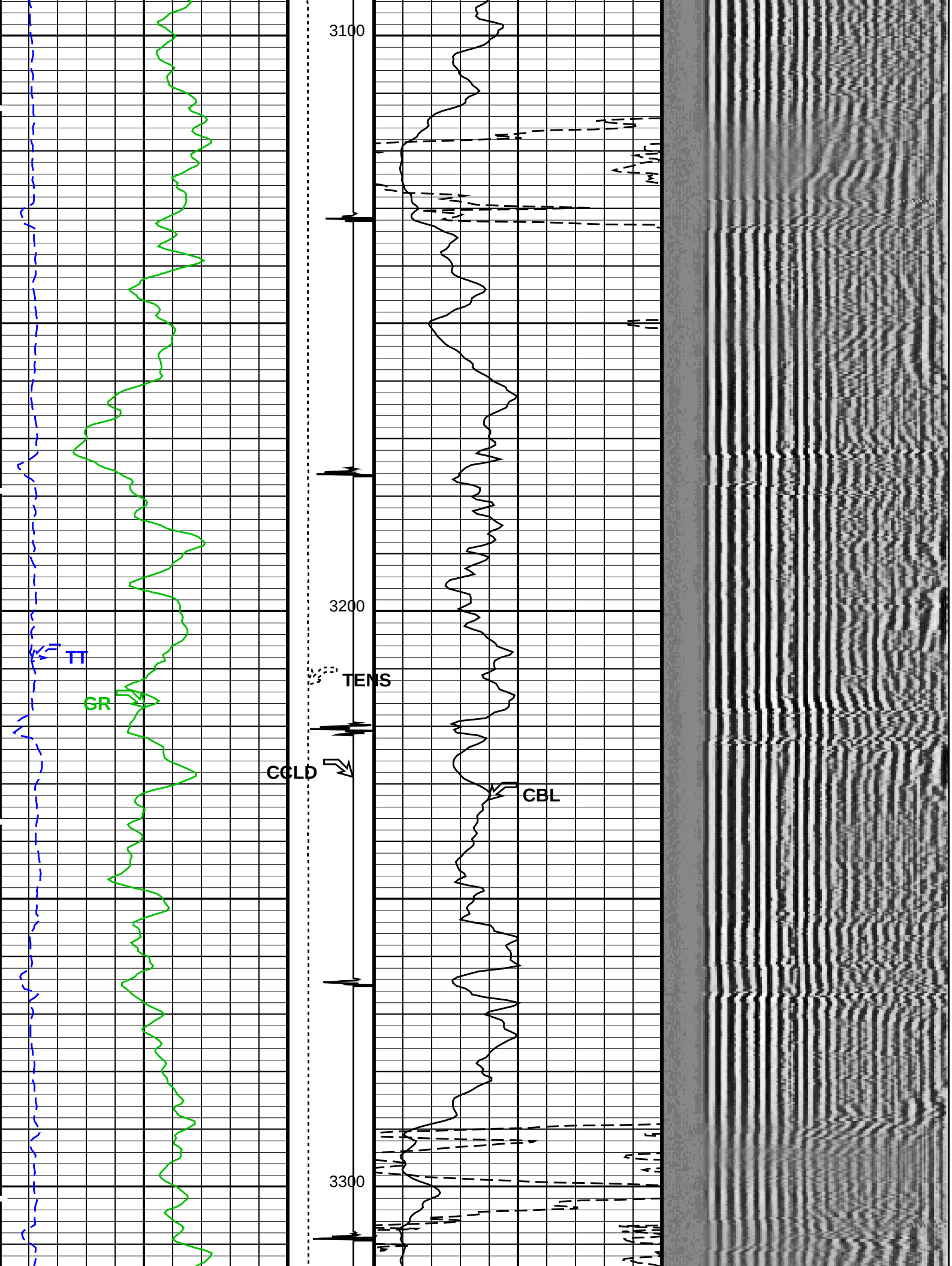

2000
2100
2200
TT
TENS


GR
CCLD
CBL
CBL
2300
2400


TT
GR
TENS
CCLD
CBL
CBL
2500
2600


TT
GR
2700
TENS
CBL
CCLD
CBL
2800


2900
TT
TENS
GR
CCLD
CBL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3300
TT
GR
TENS
CCLD
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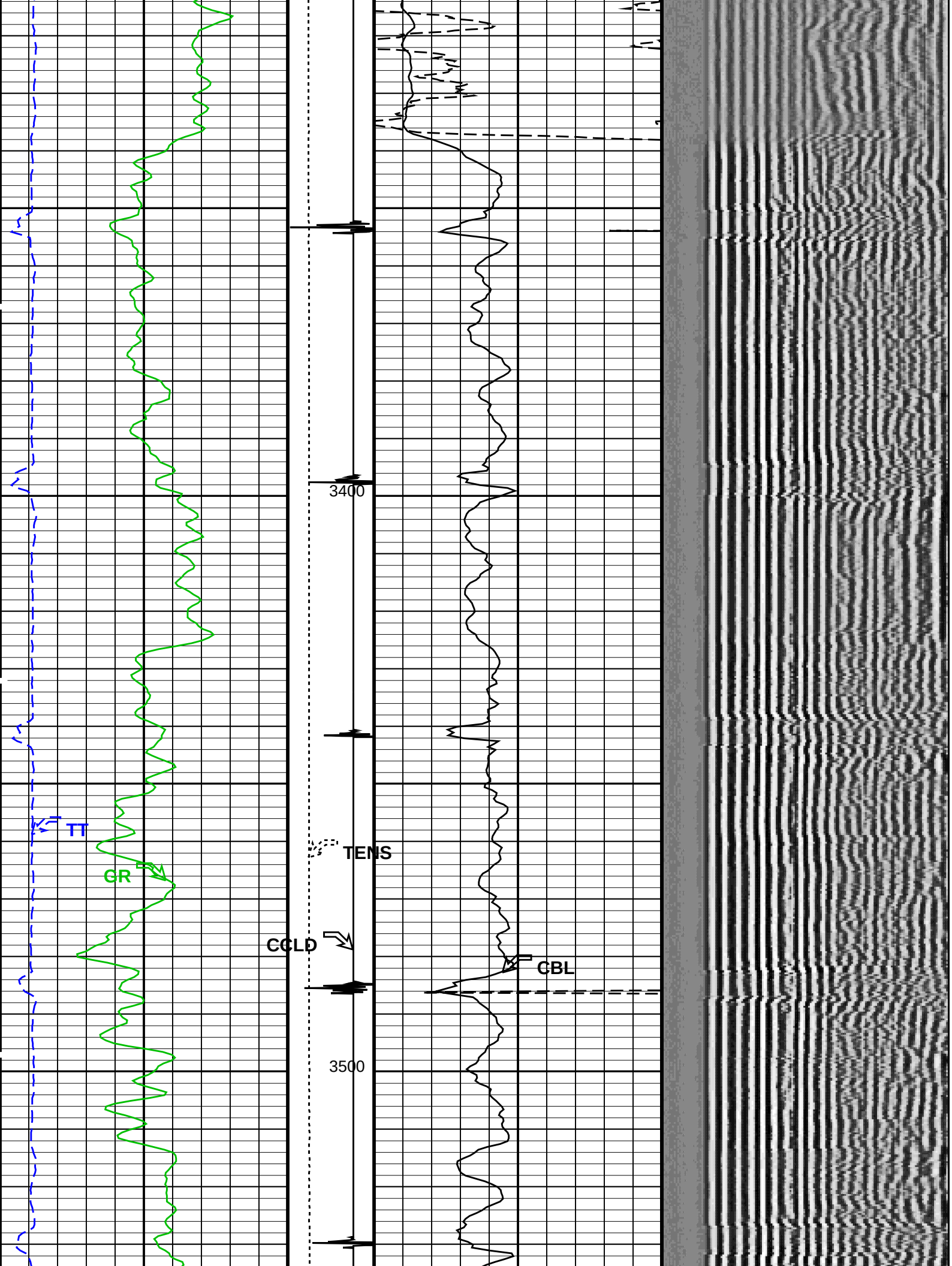
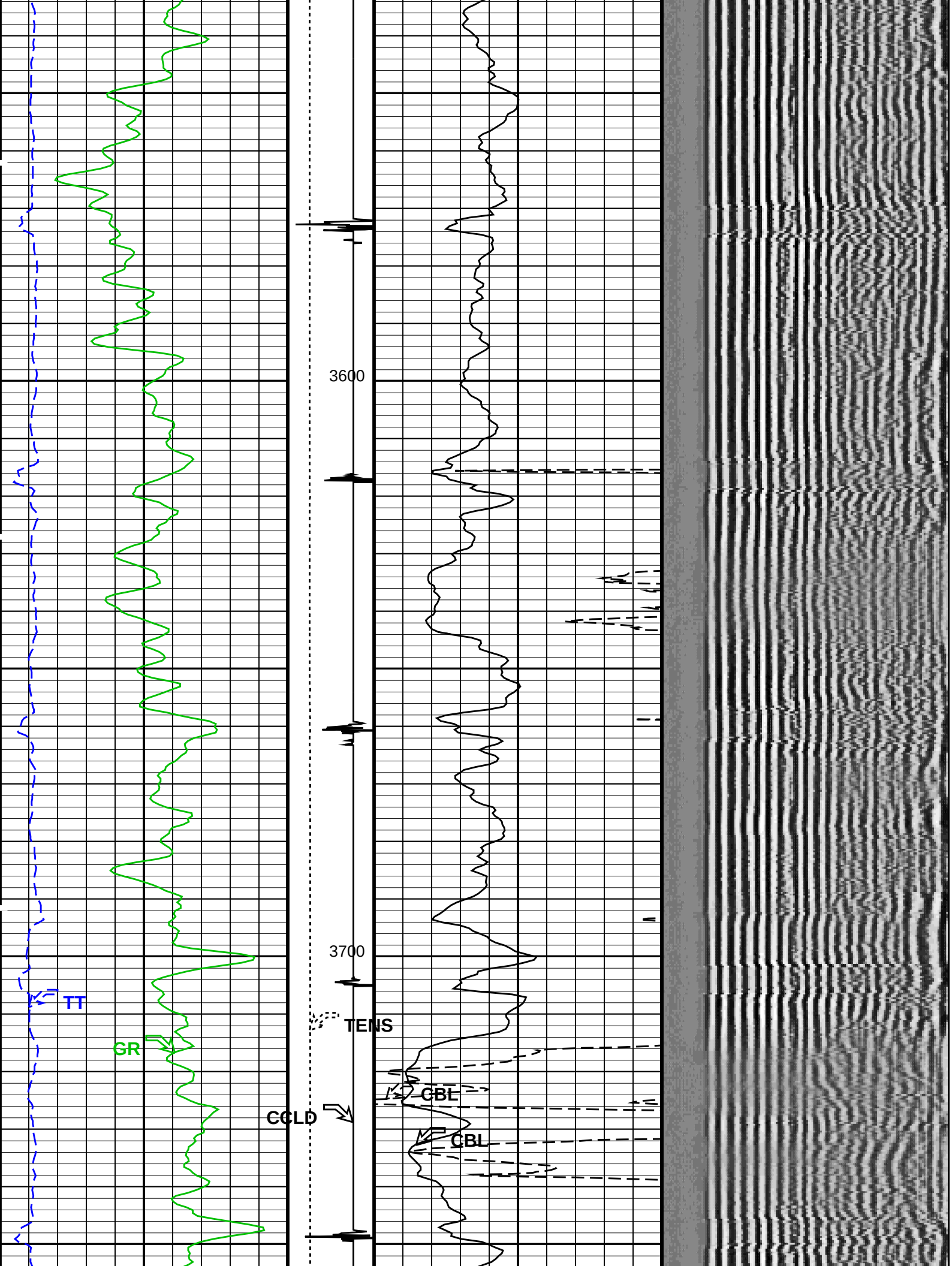
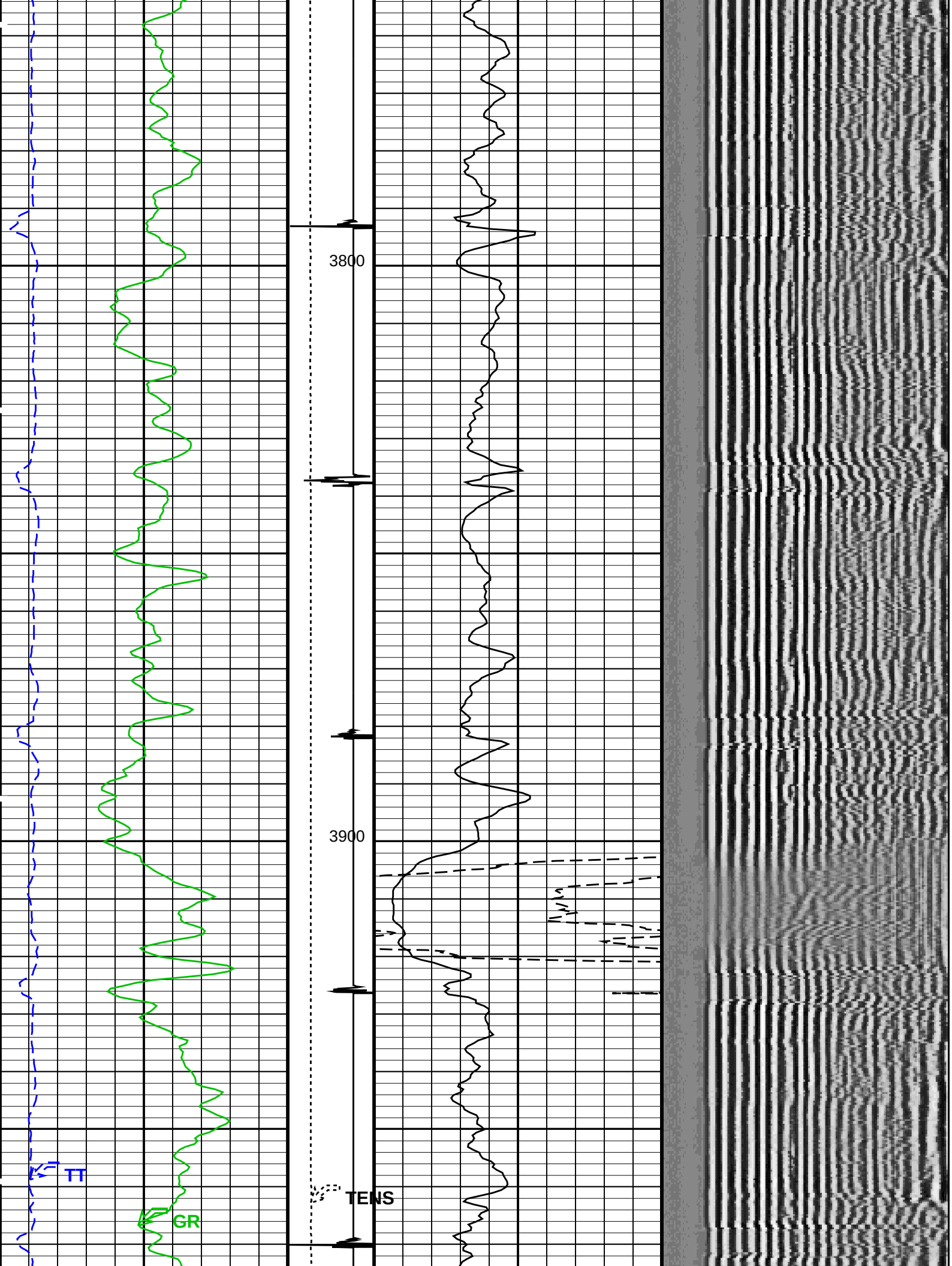
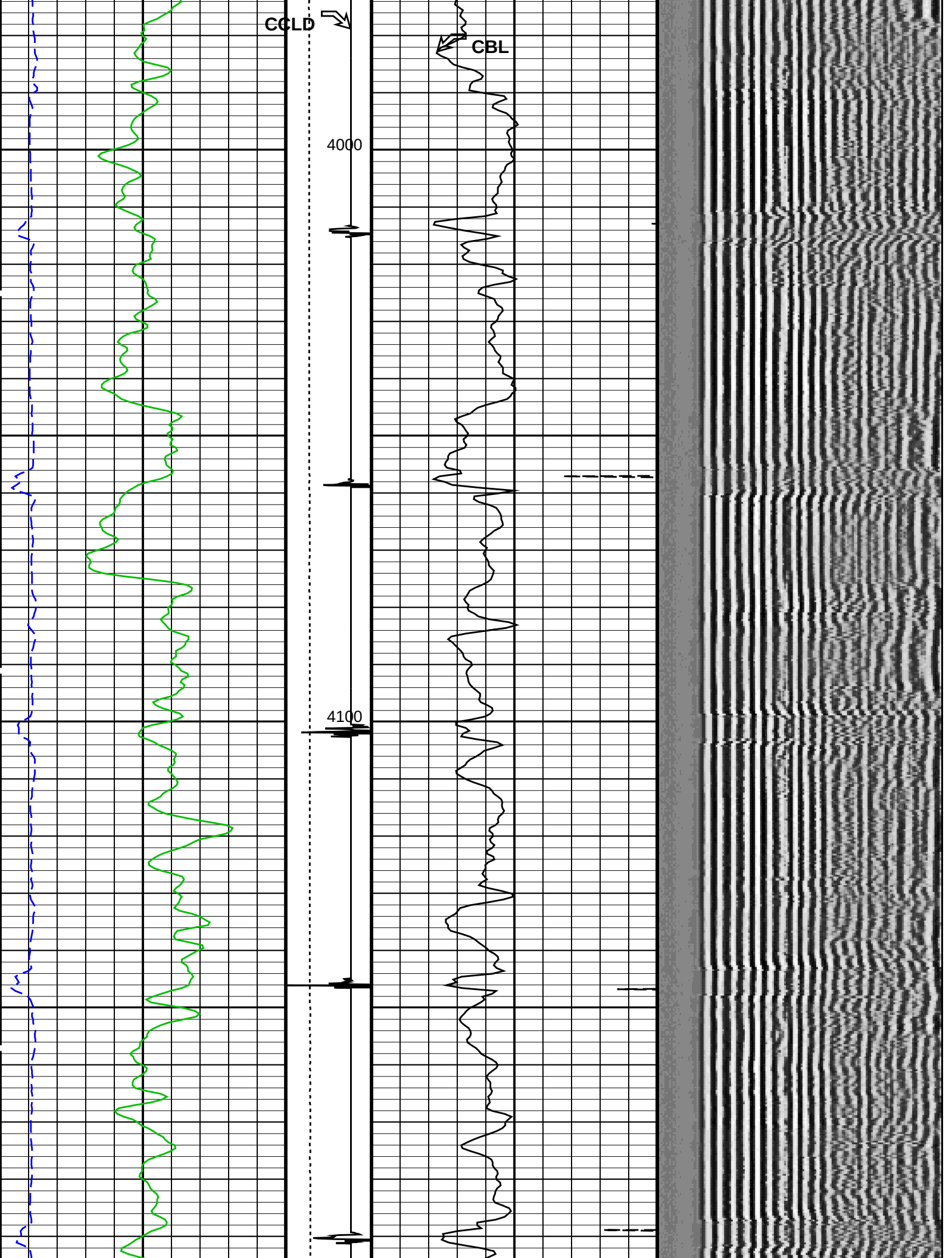

TT
GR
TENS
CCLD
CBL
3400
3500


3600
3700
TT
GR
TENS
CCLD
GBL
GBL


3800
3900
TT
GR
TENS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CBL
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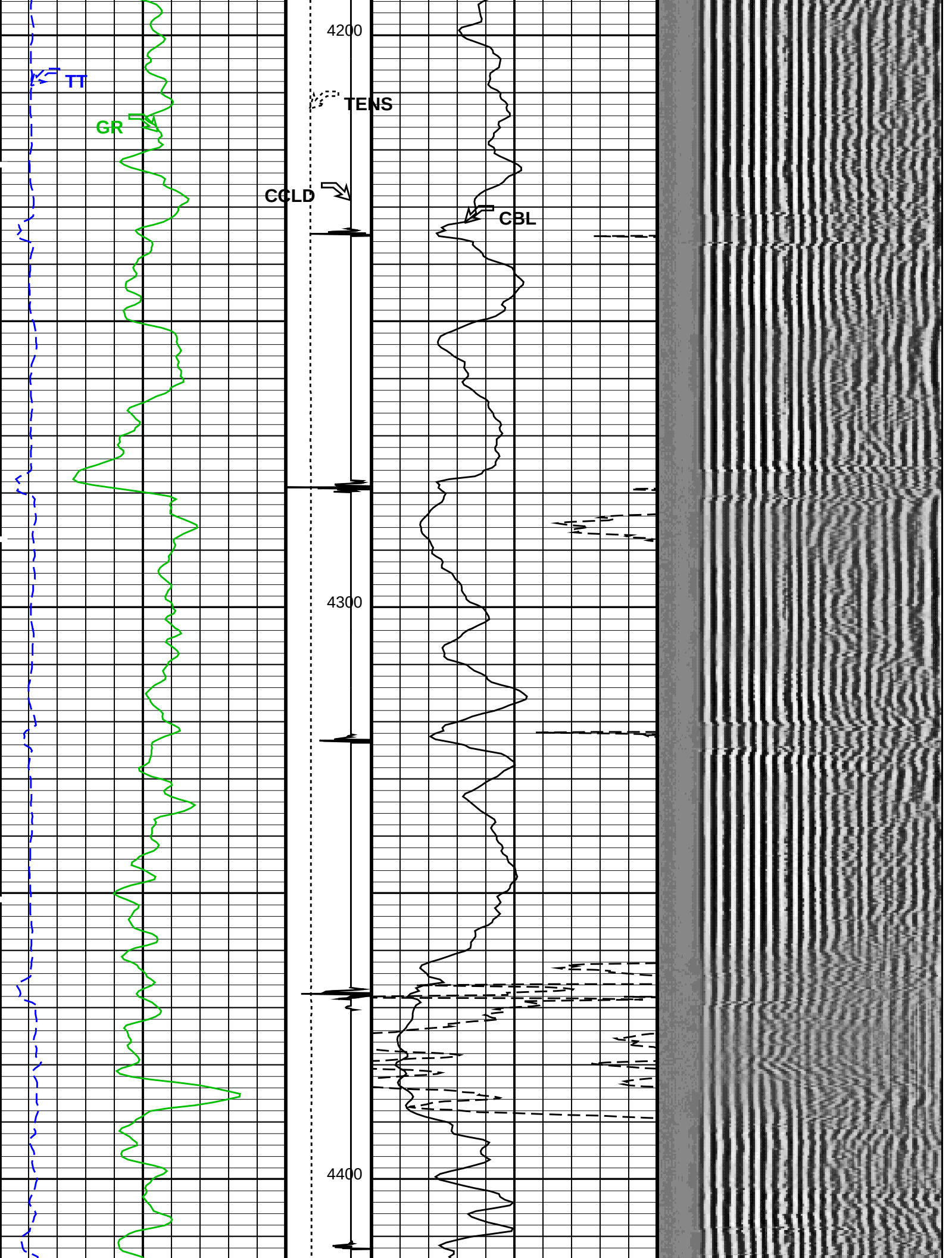
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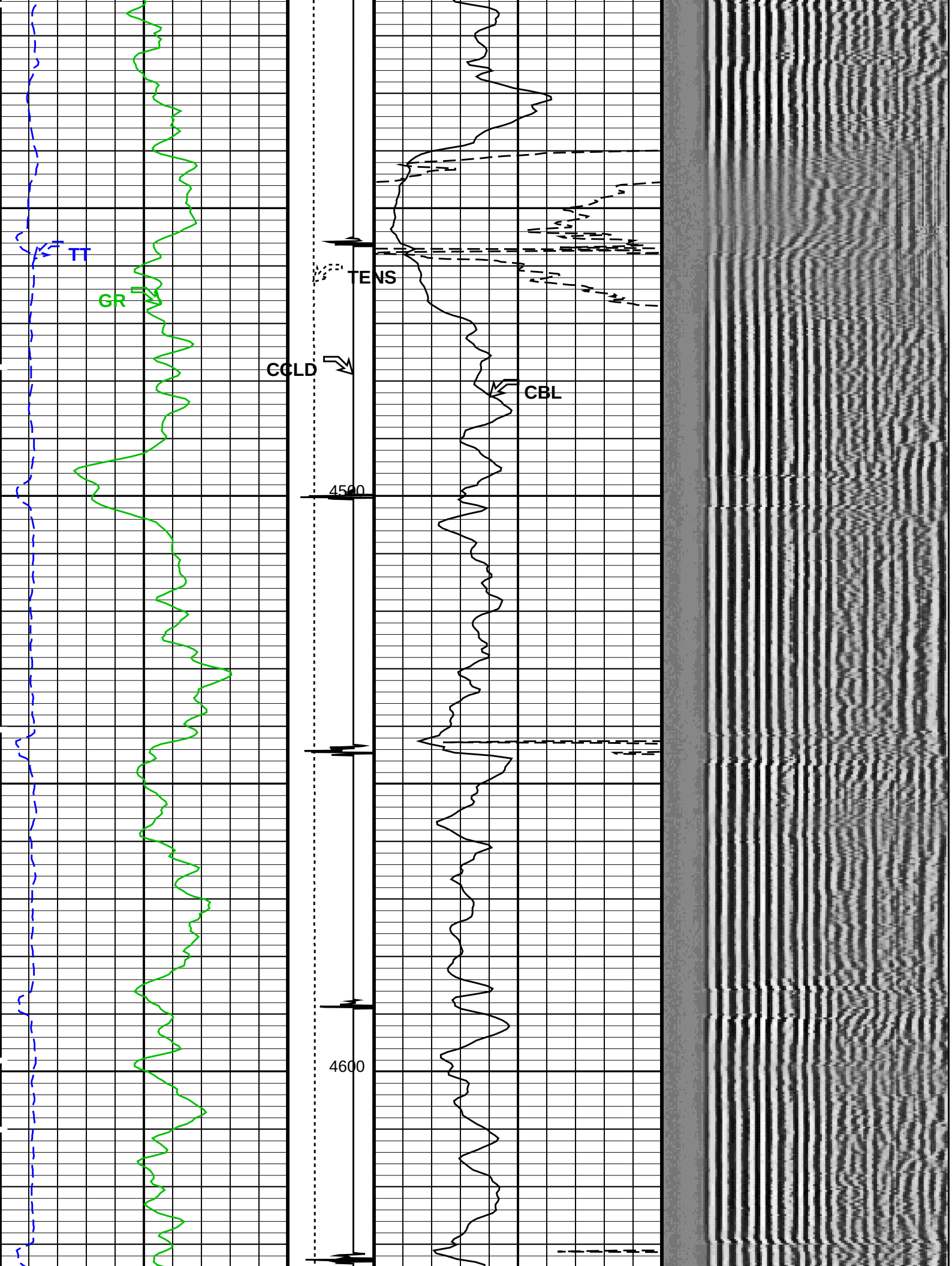
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TENS
CCLD
CBL
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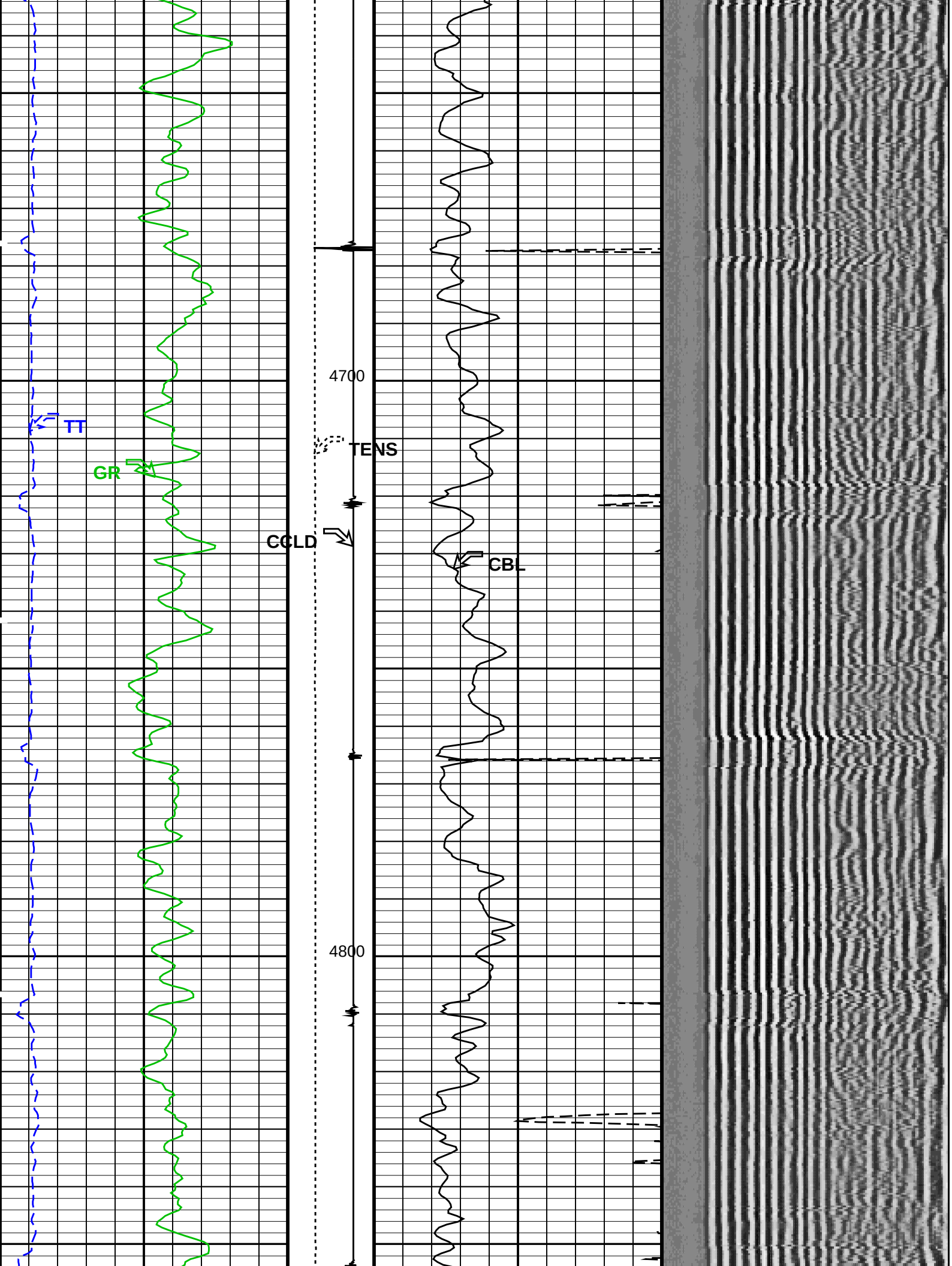
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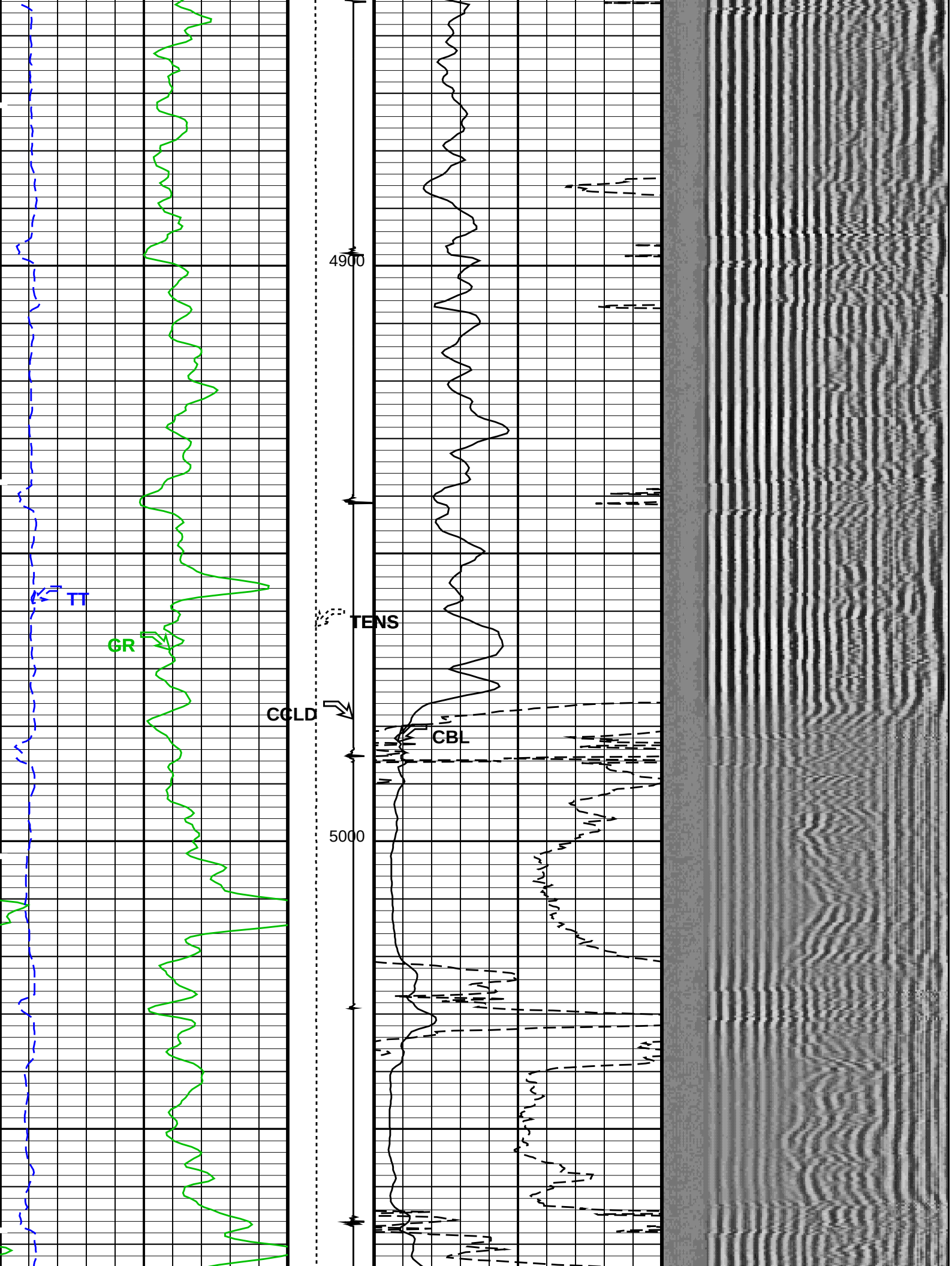
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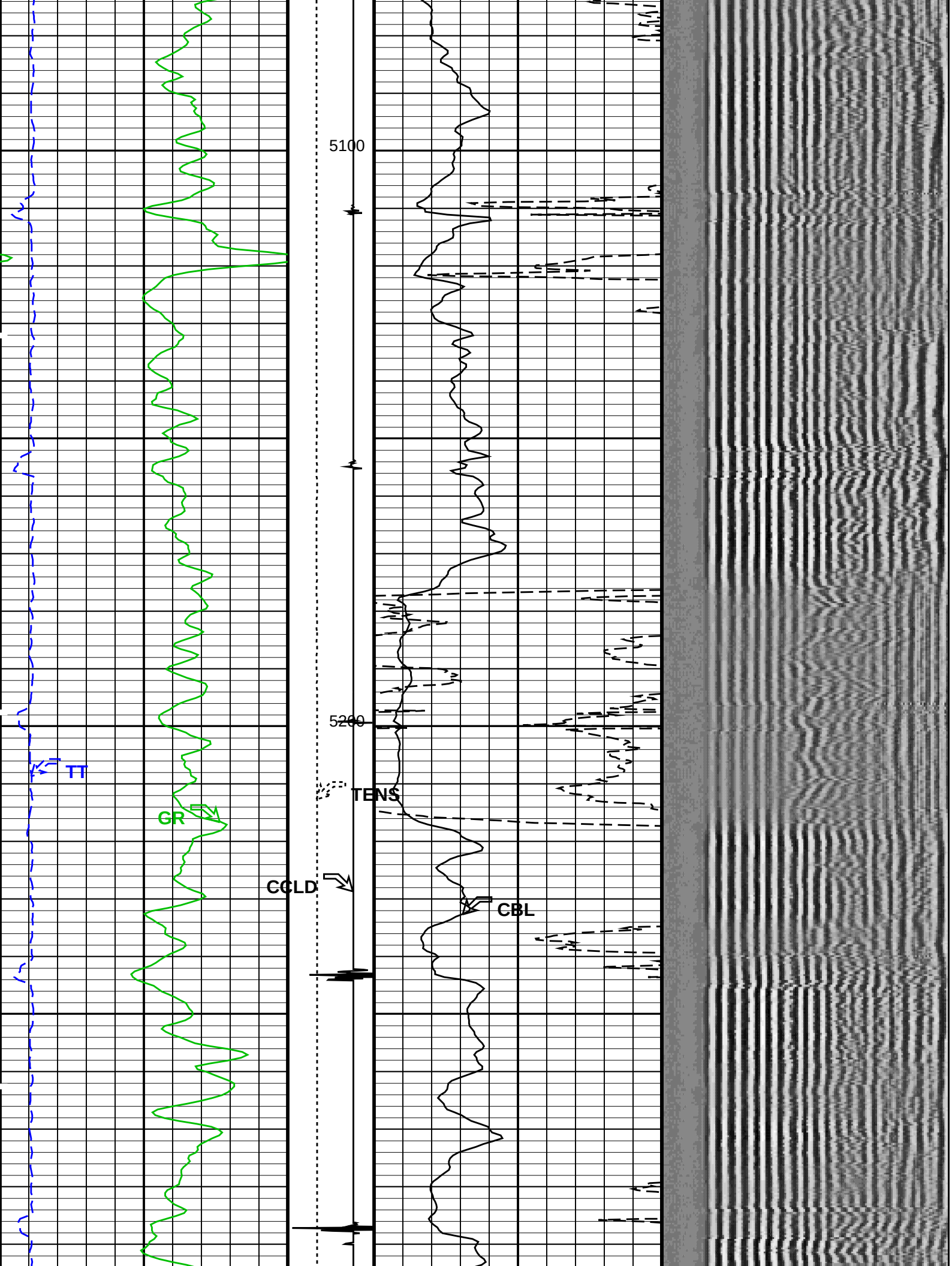
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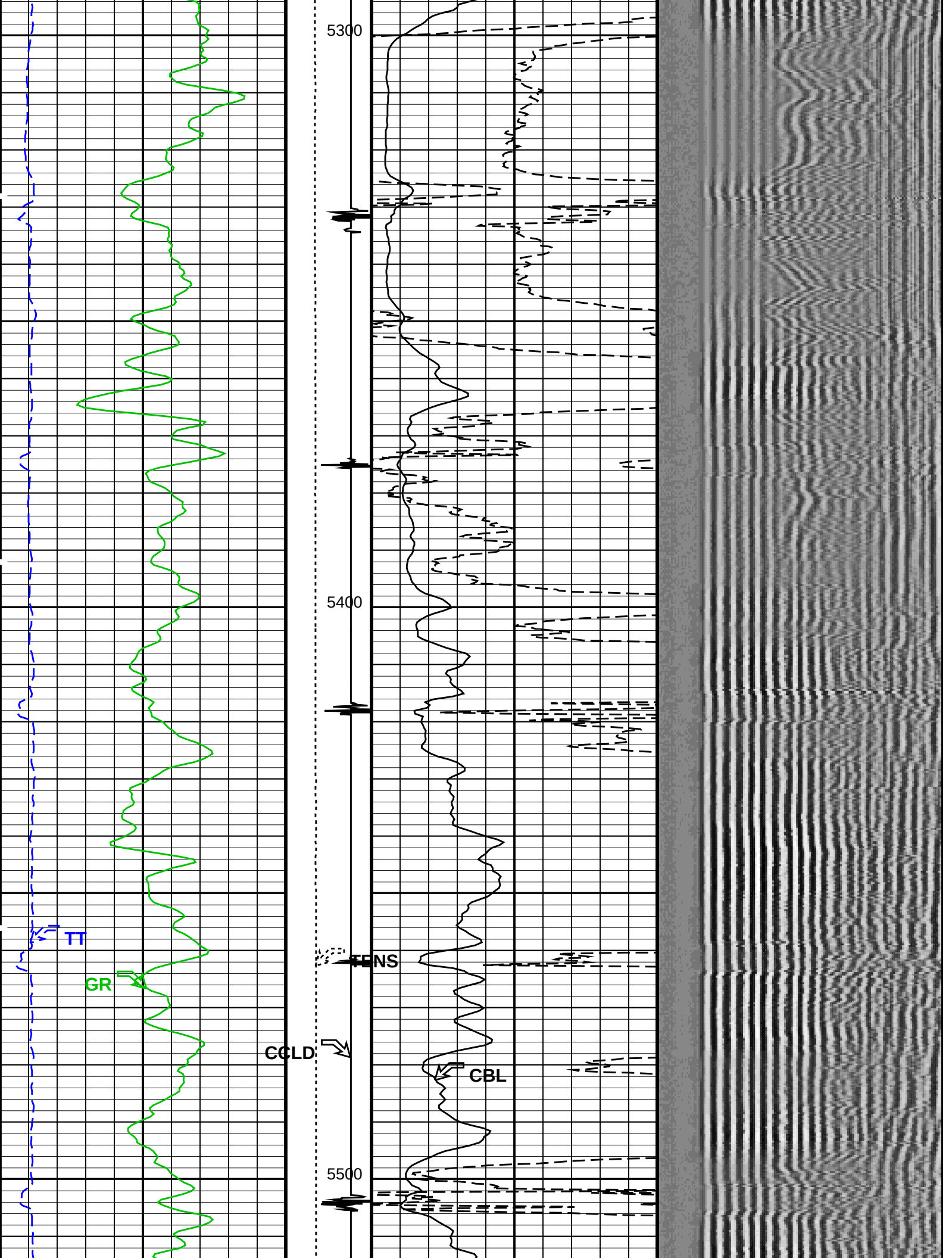
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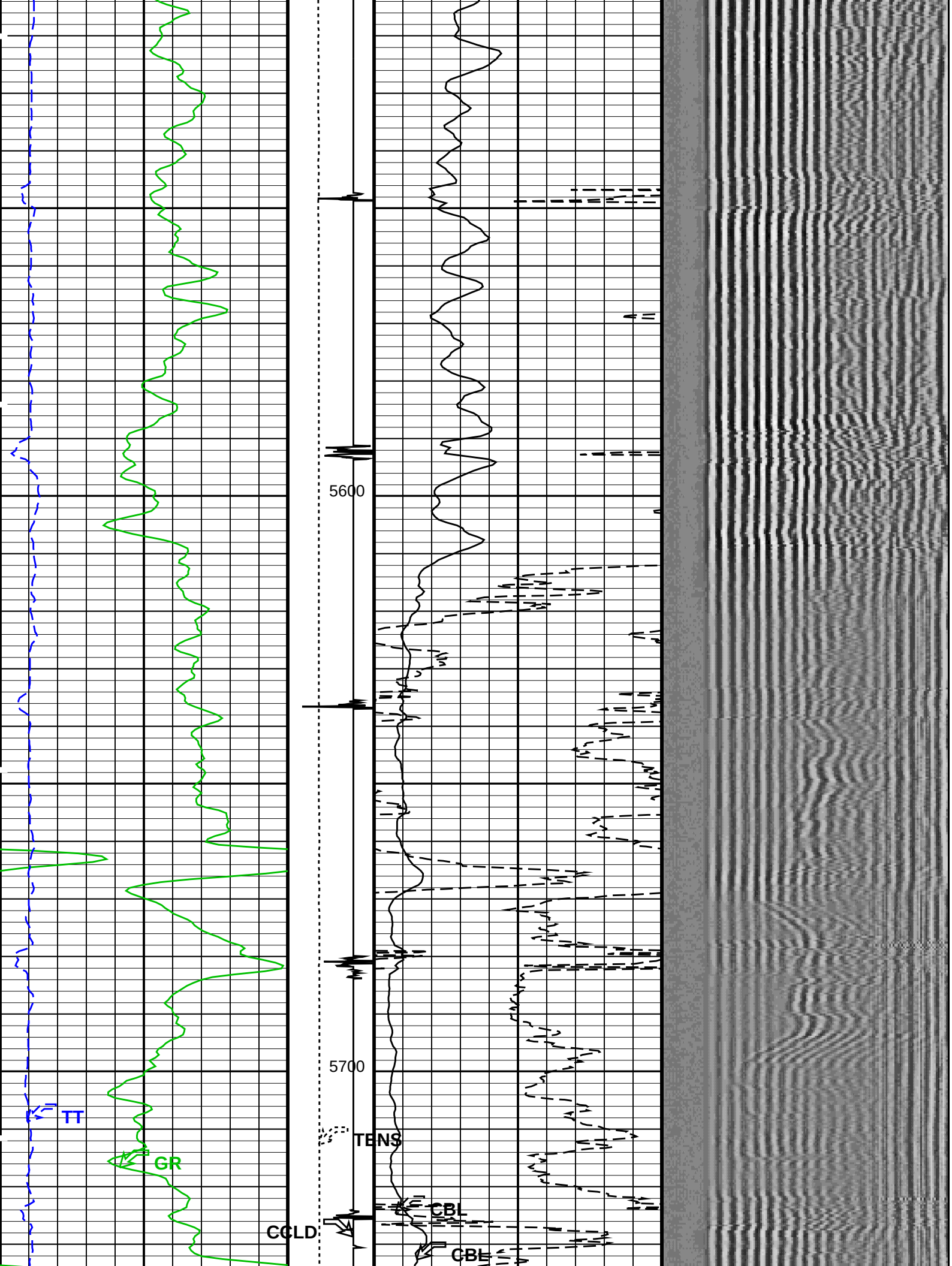
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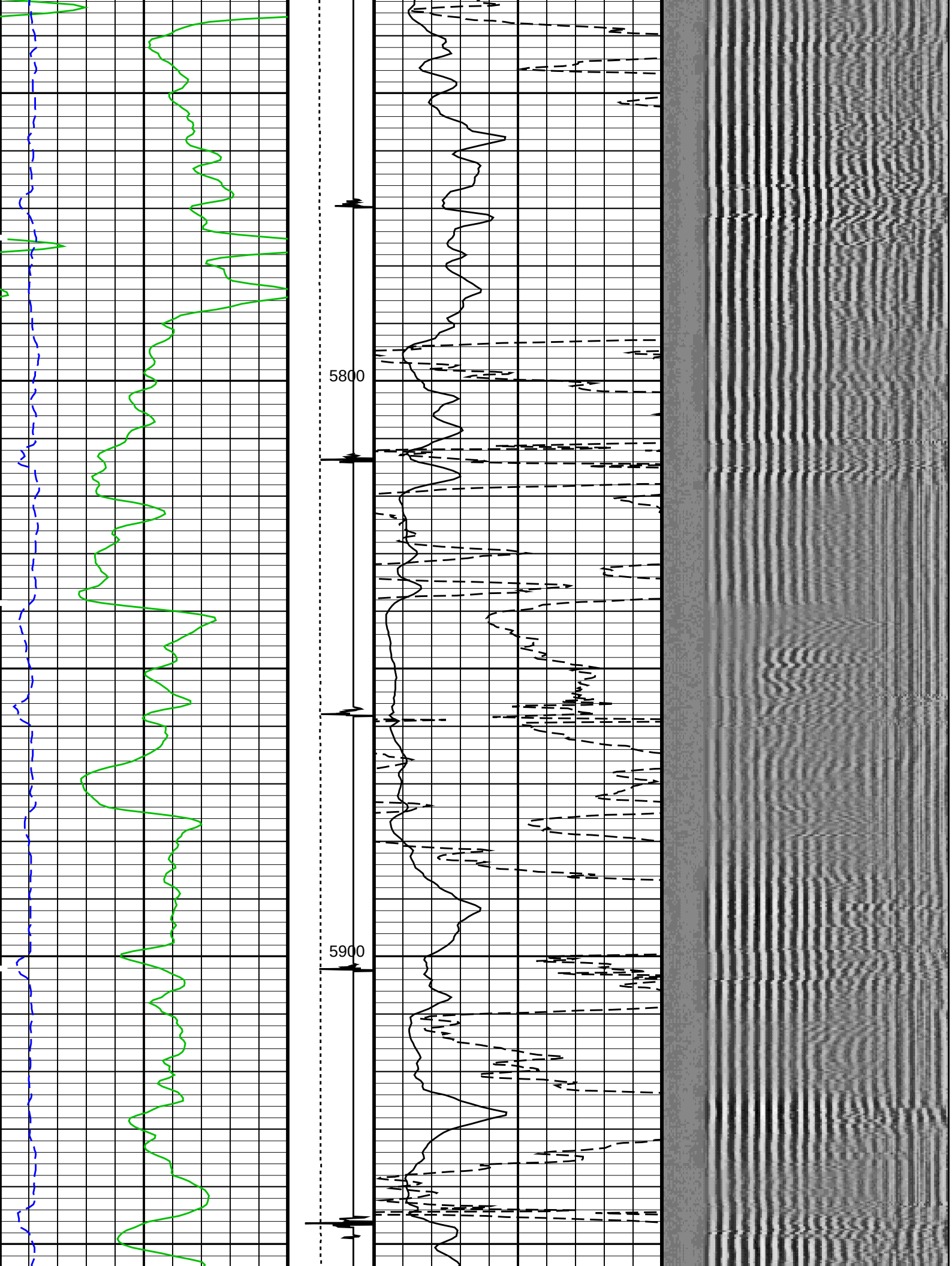
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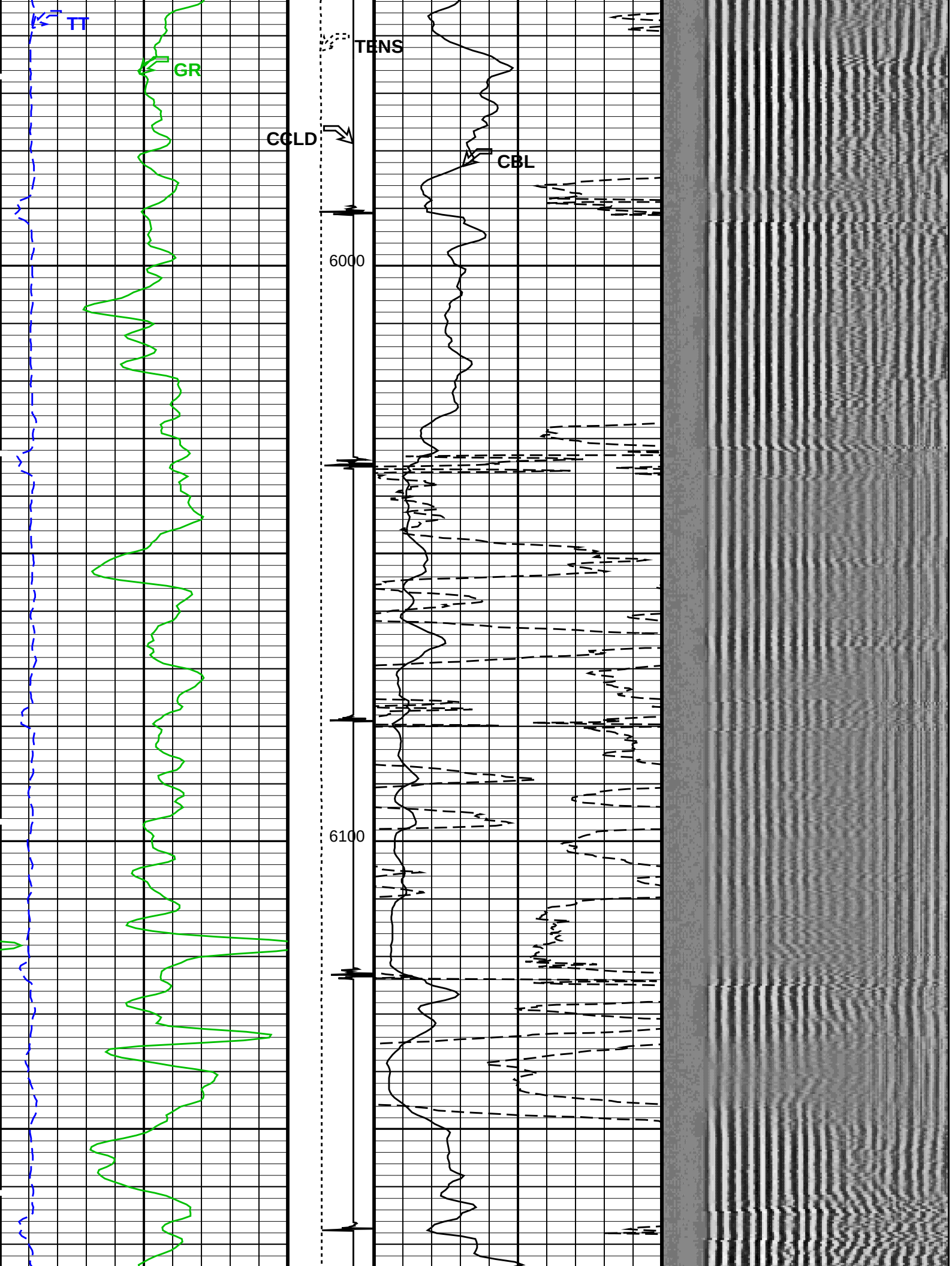
5900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CCLD
CBL
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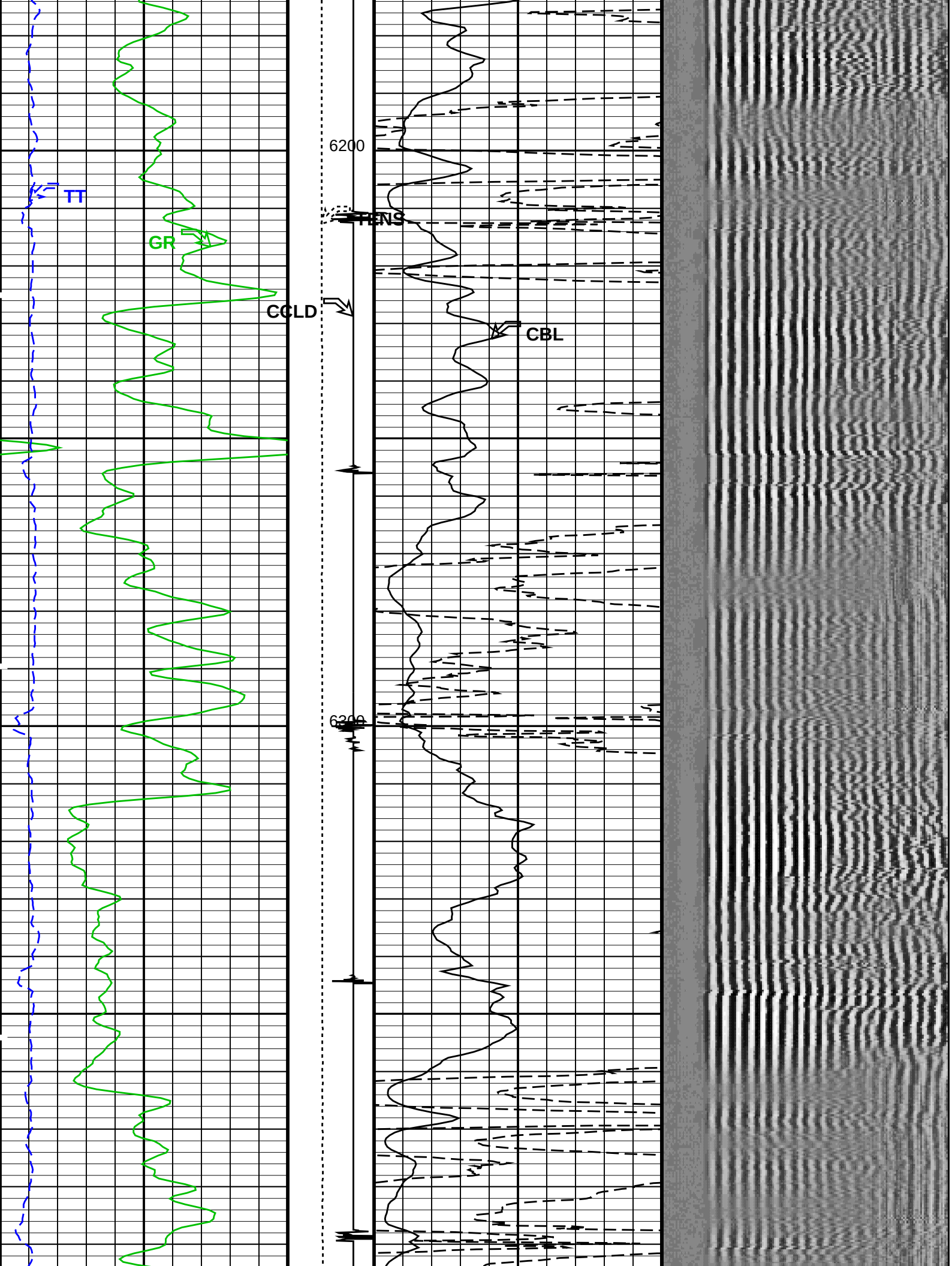
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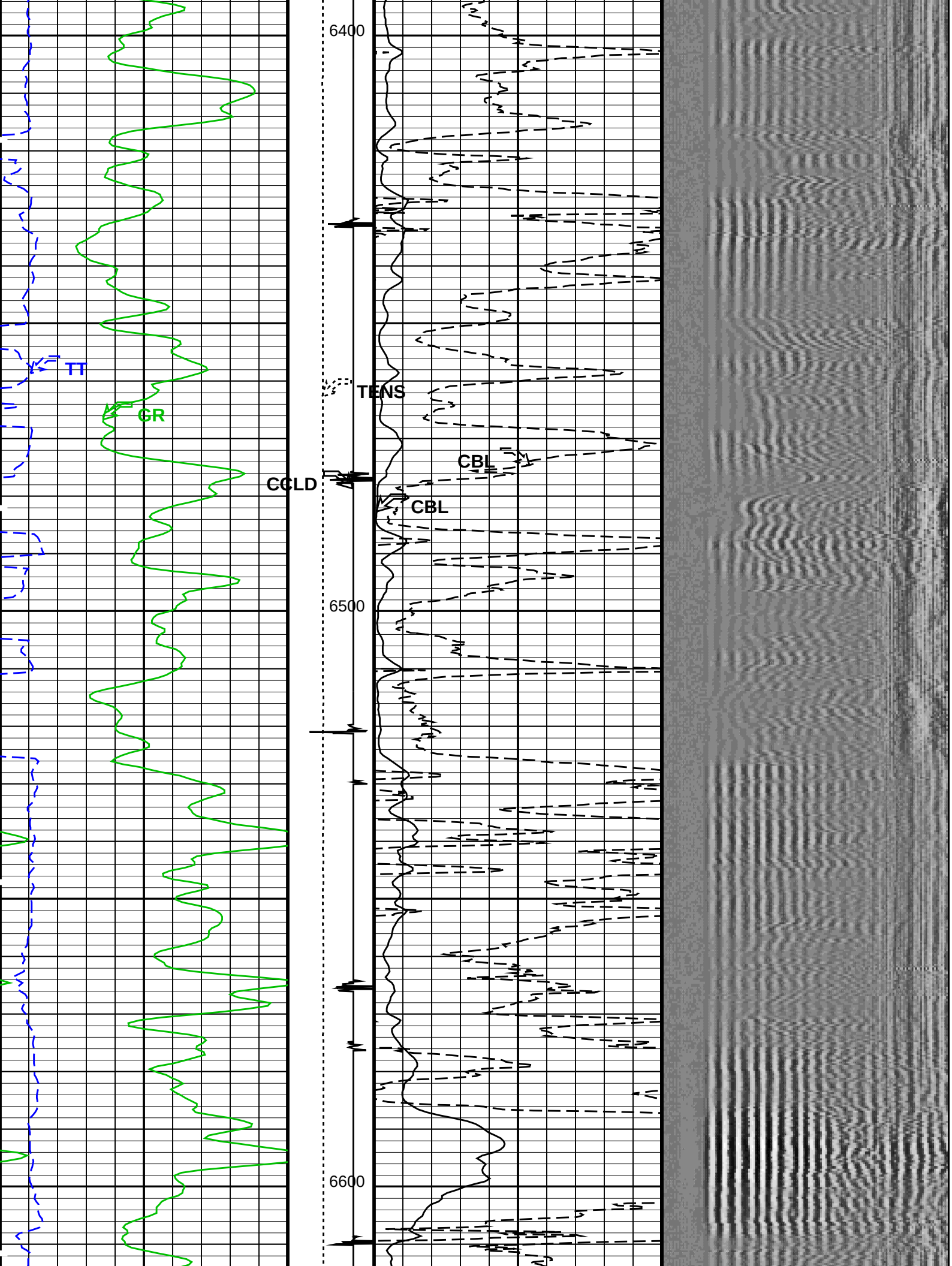
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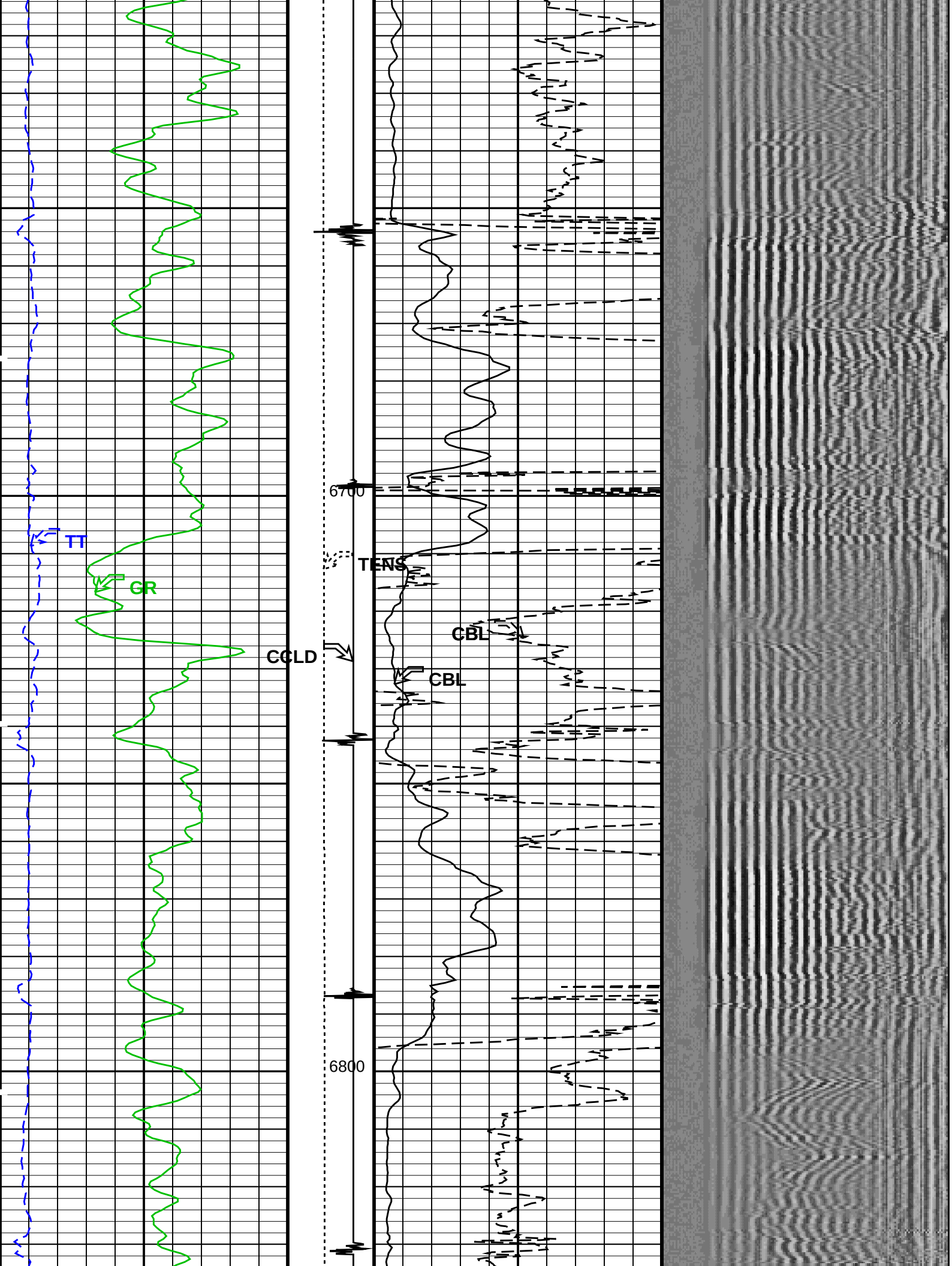
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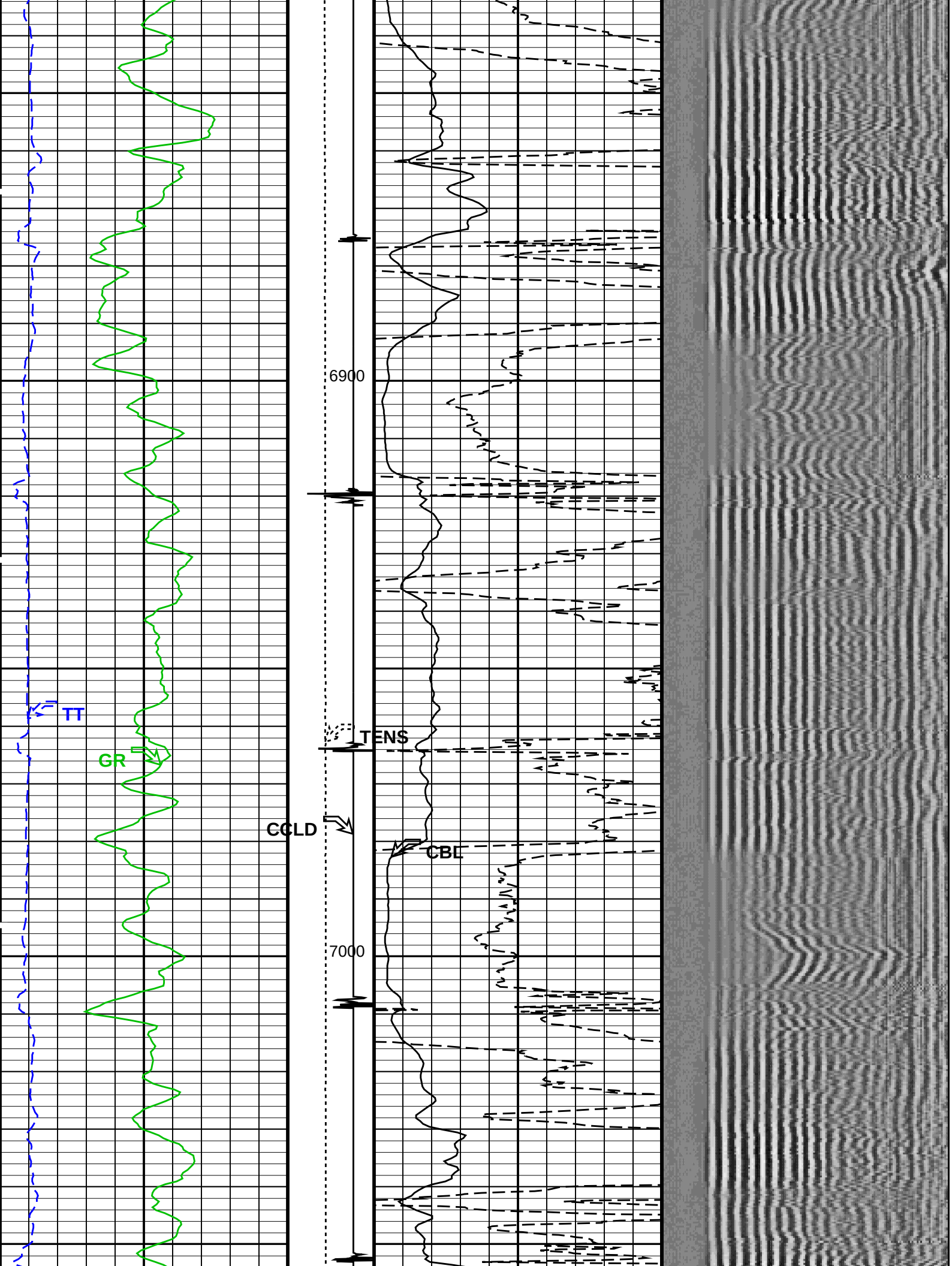
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CCLD
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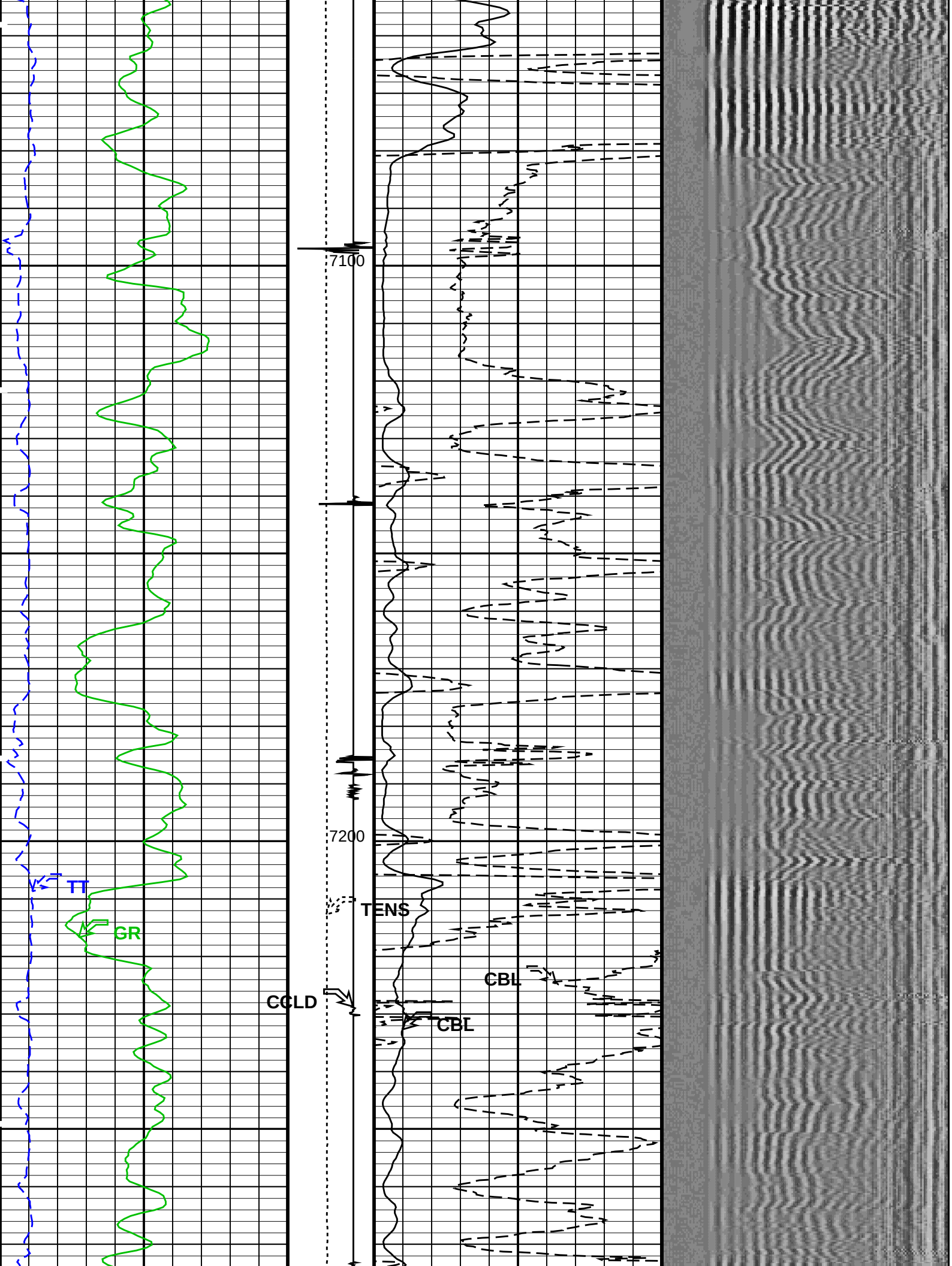
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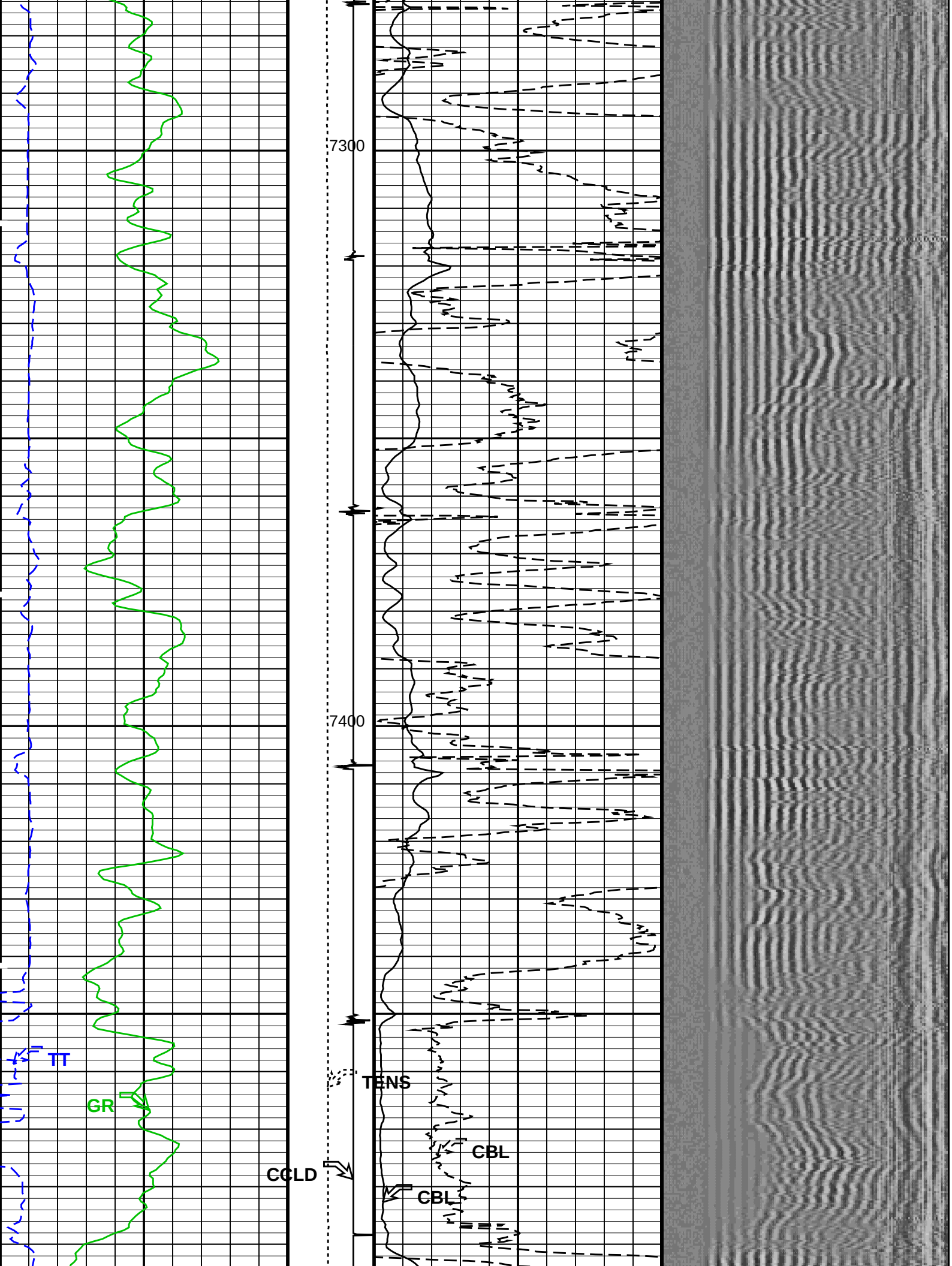
7200
TT
GR
TENS
CCLD
CBL
CBL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TENS
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CCLD
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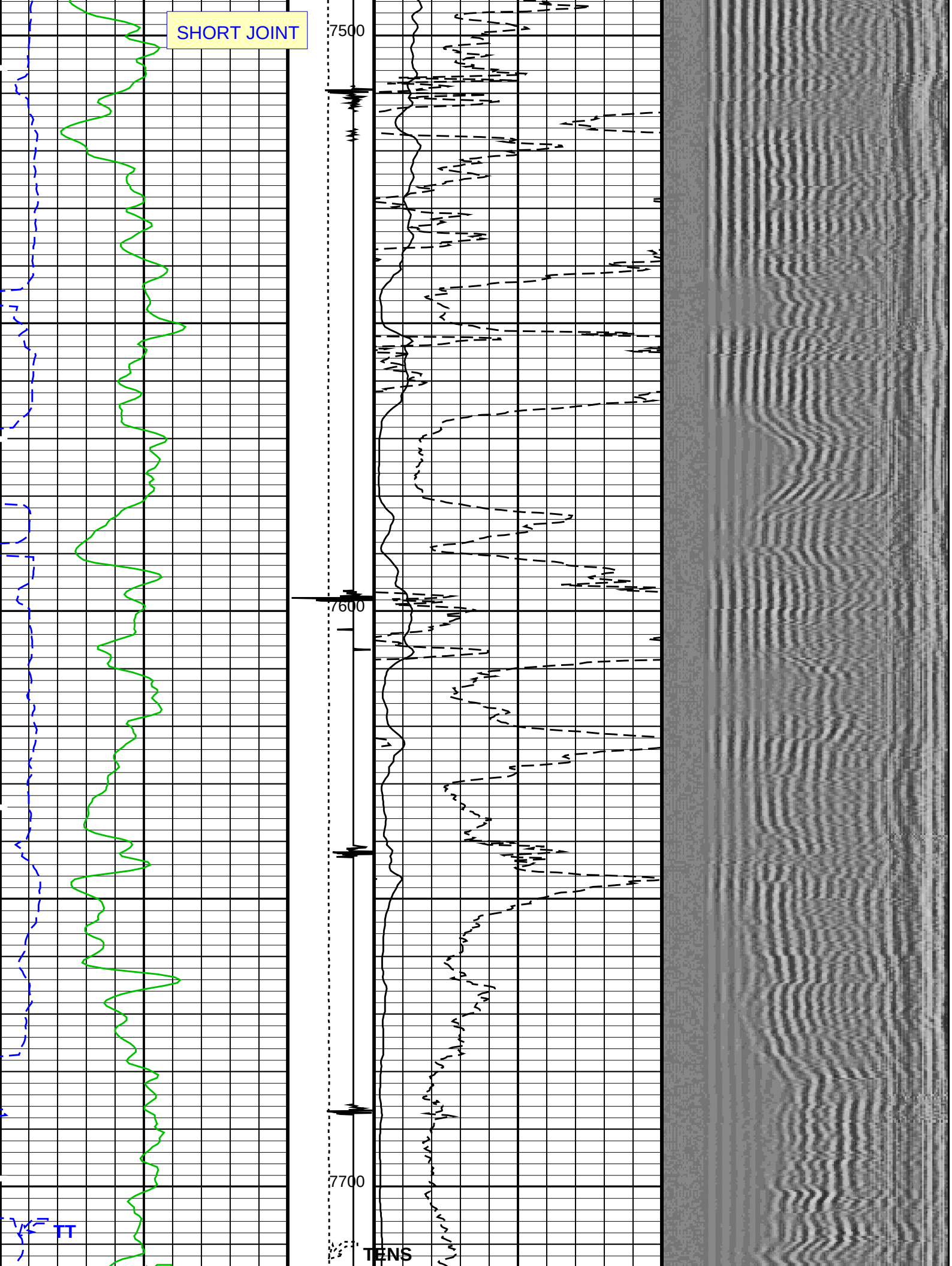
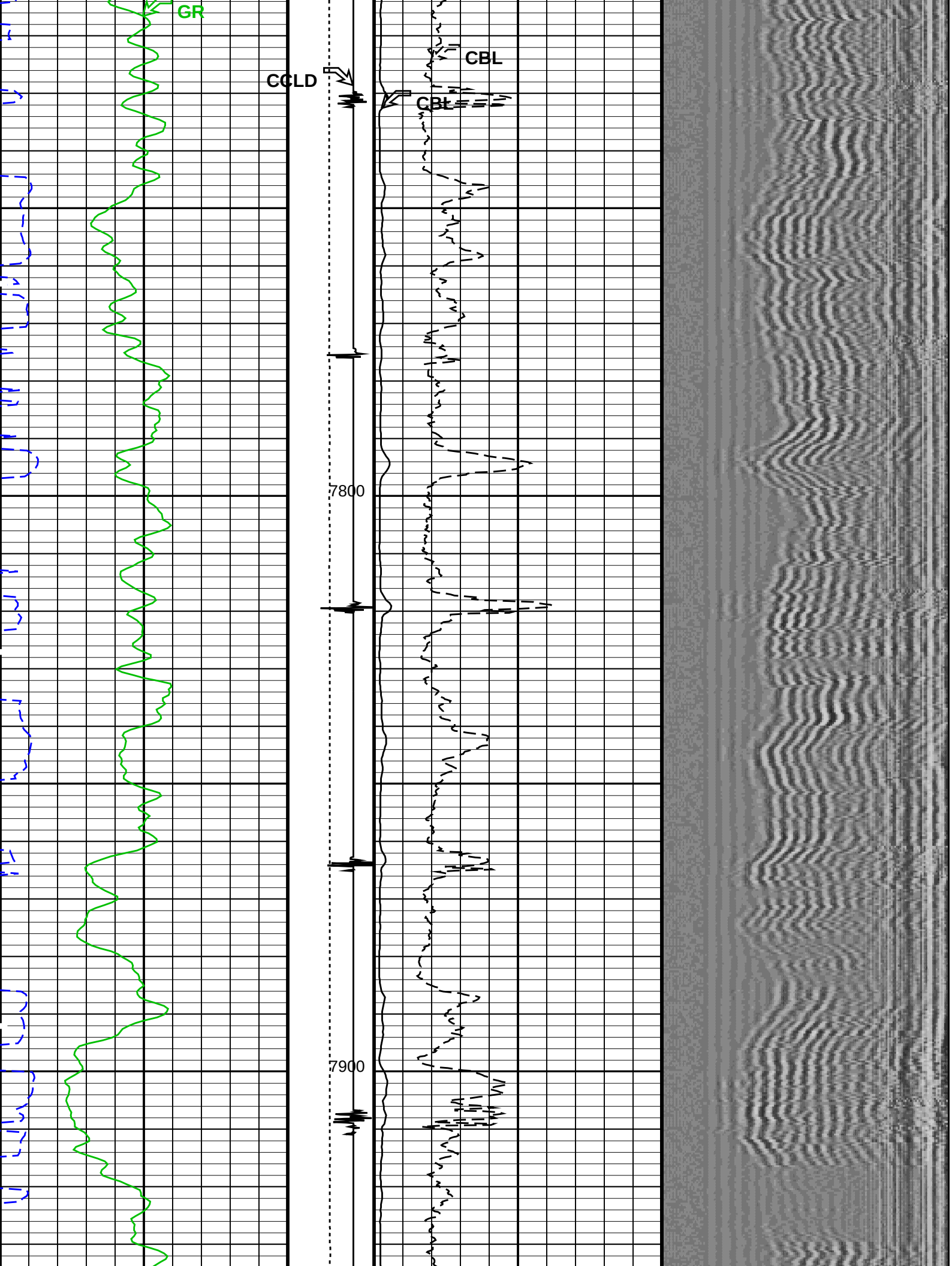
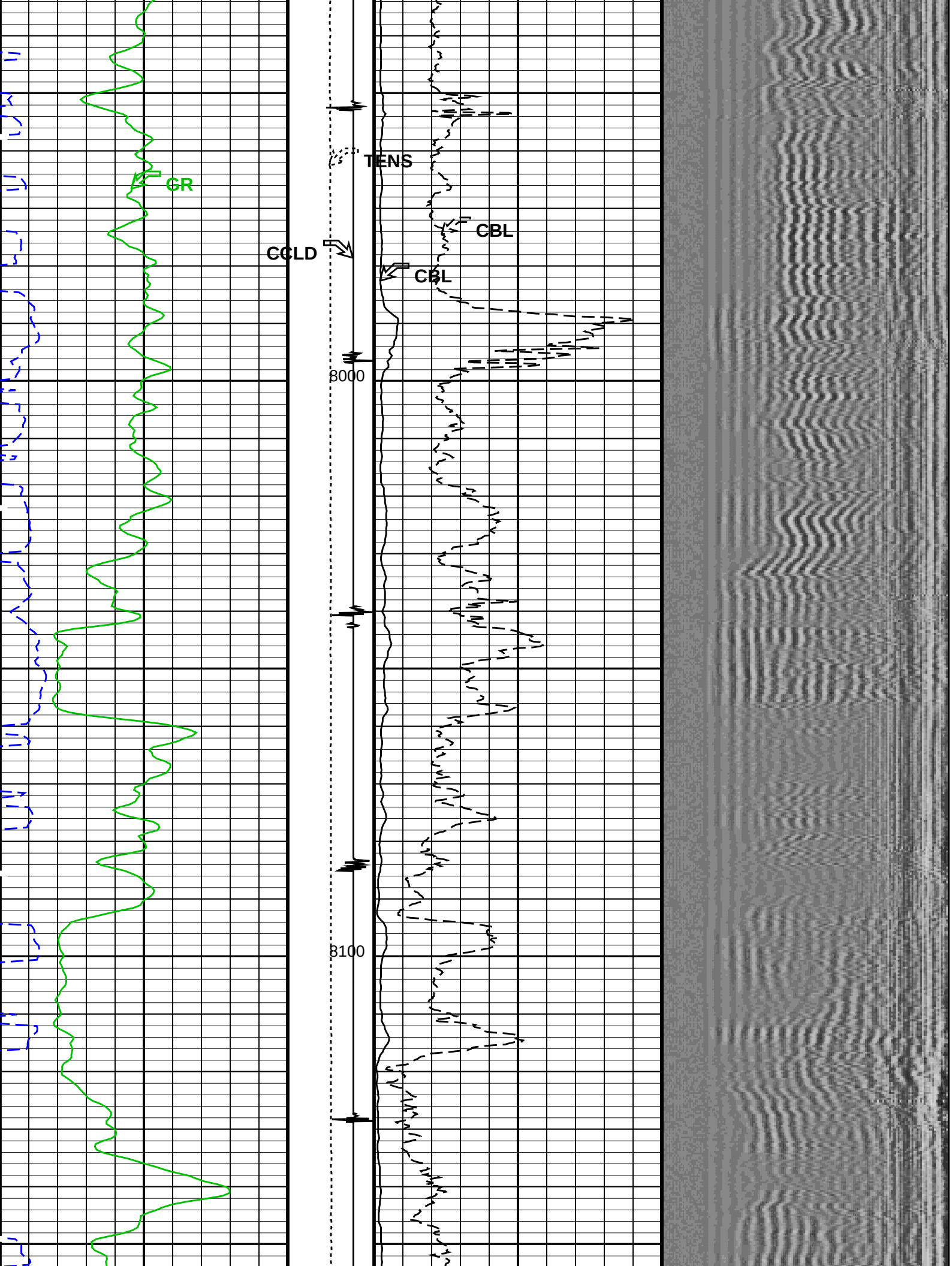
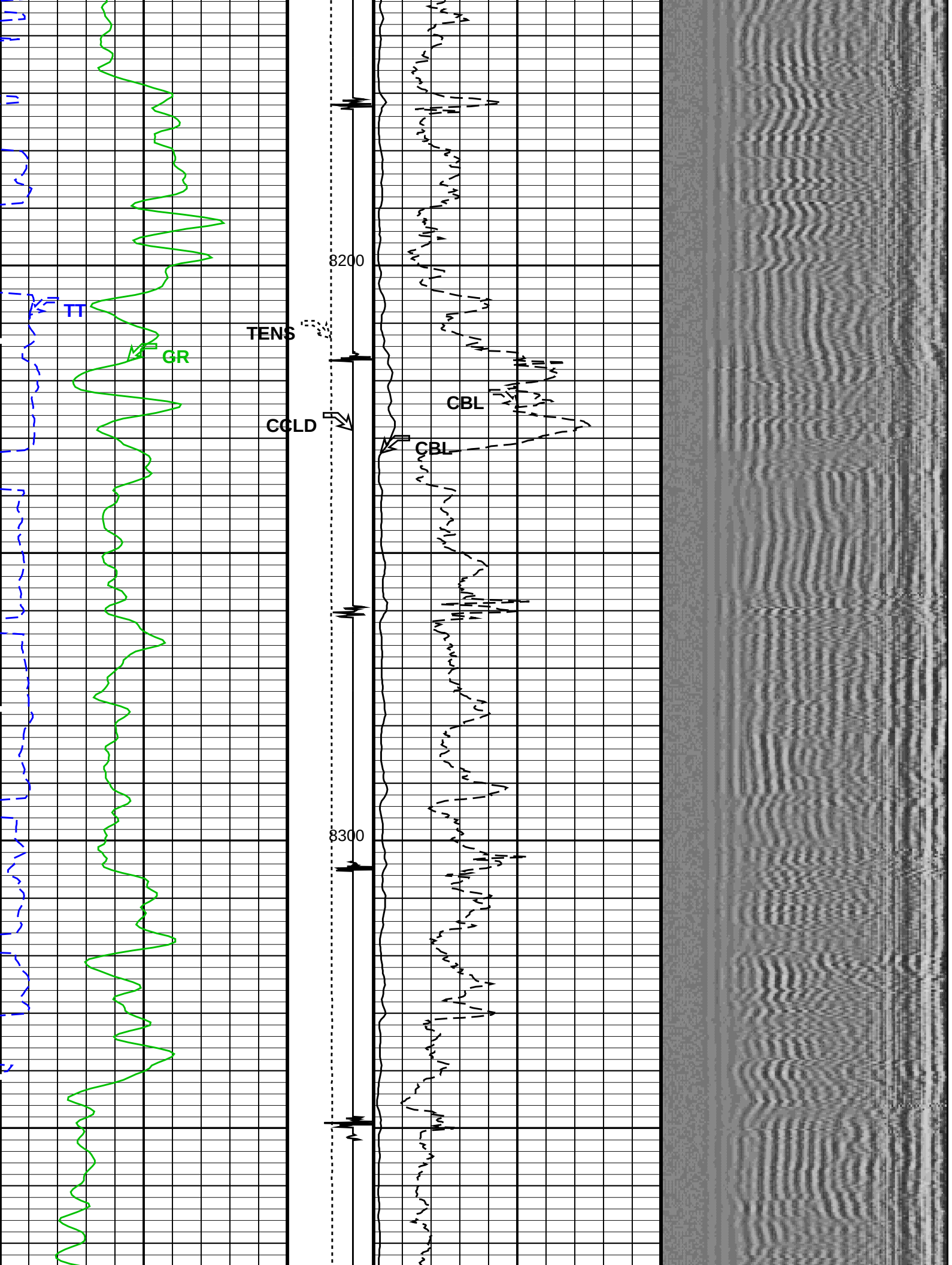
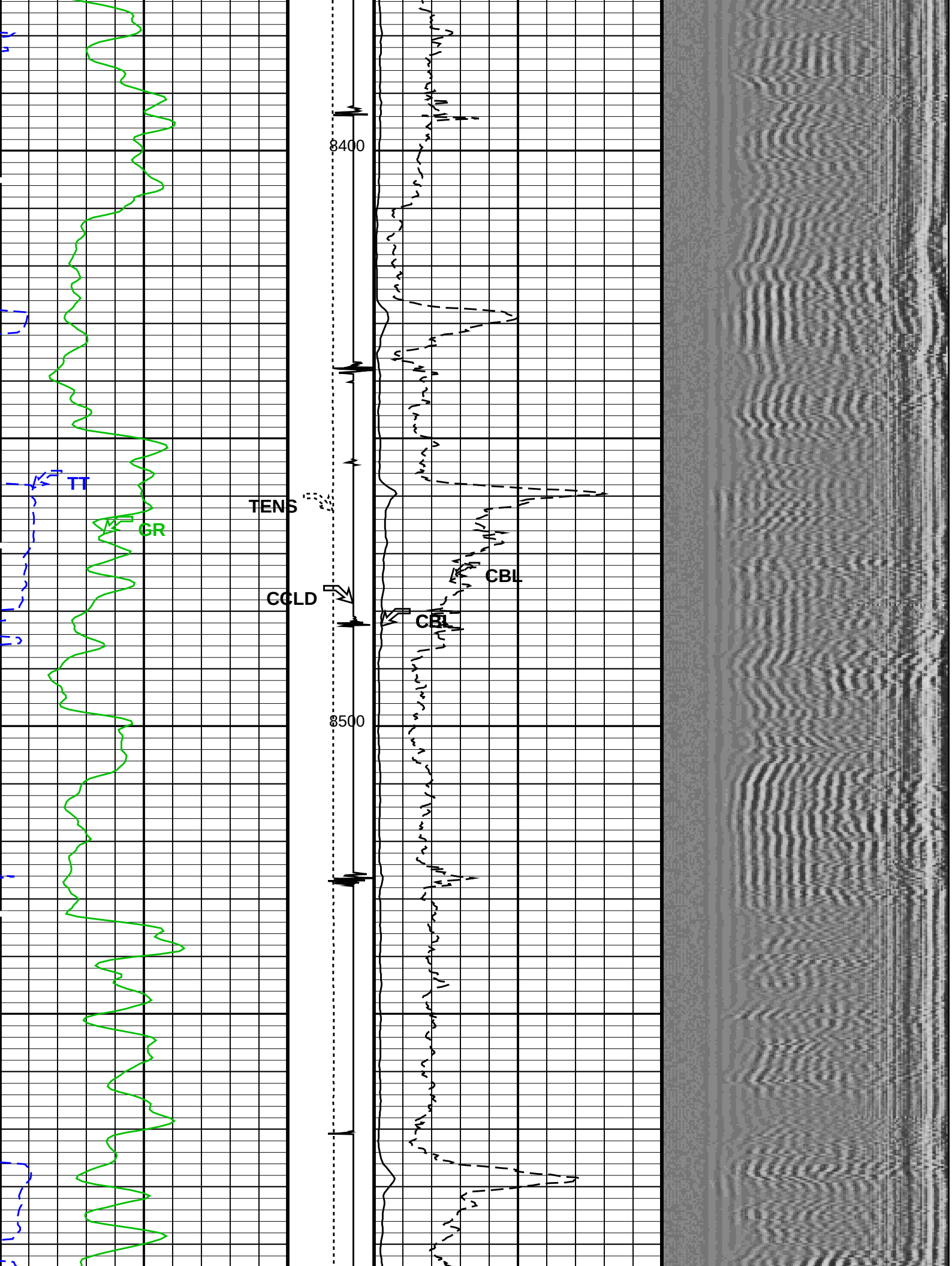
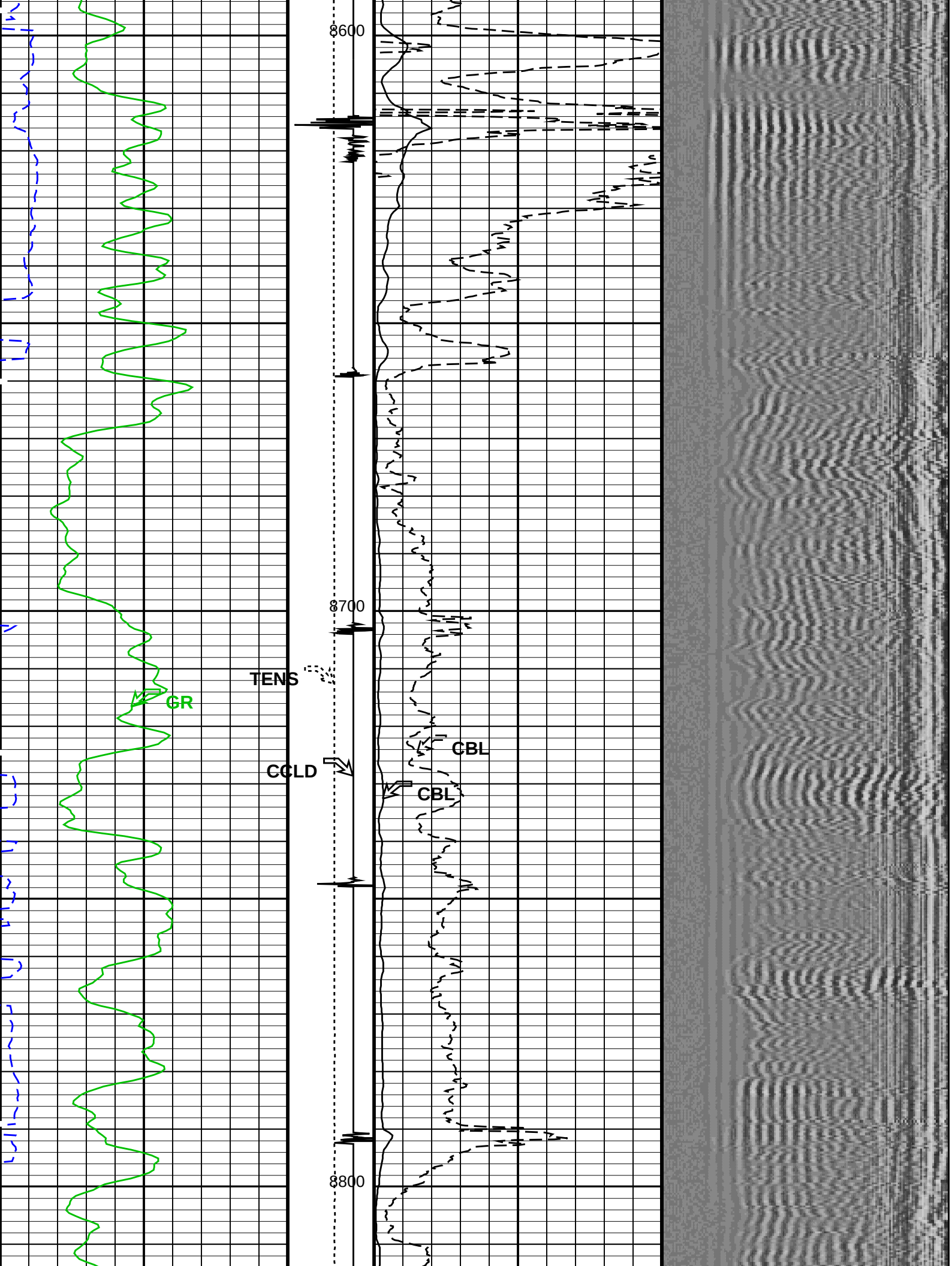

SHORT JOINT
7500
7600
7700
TT
TENS

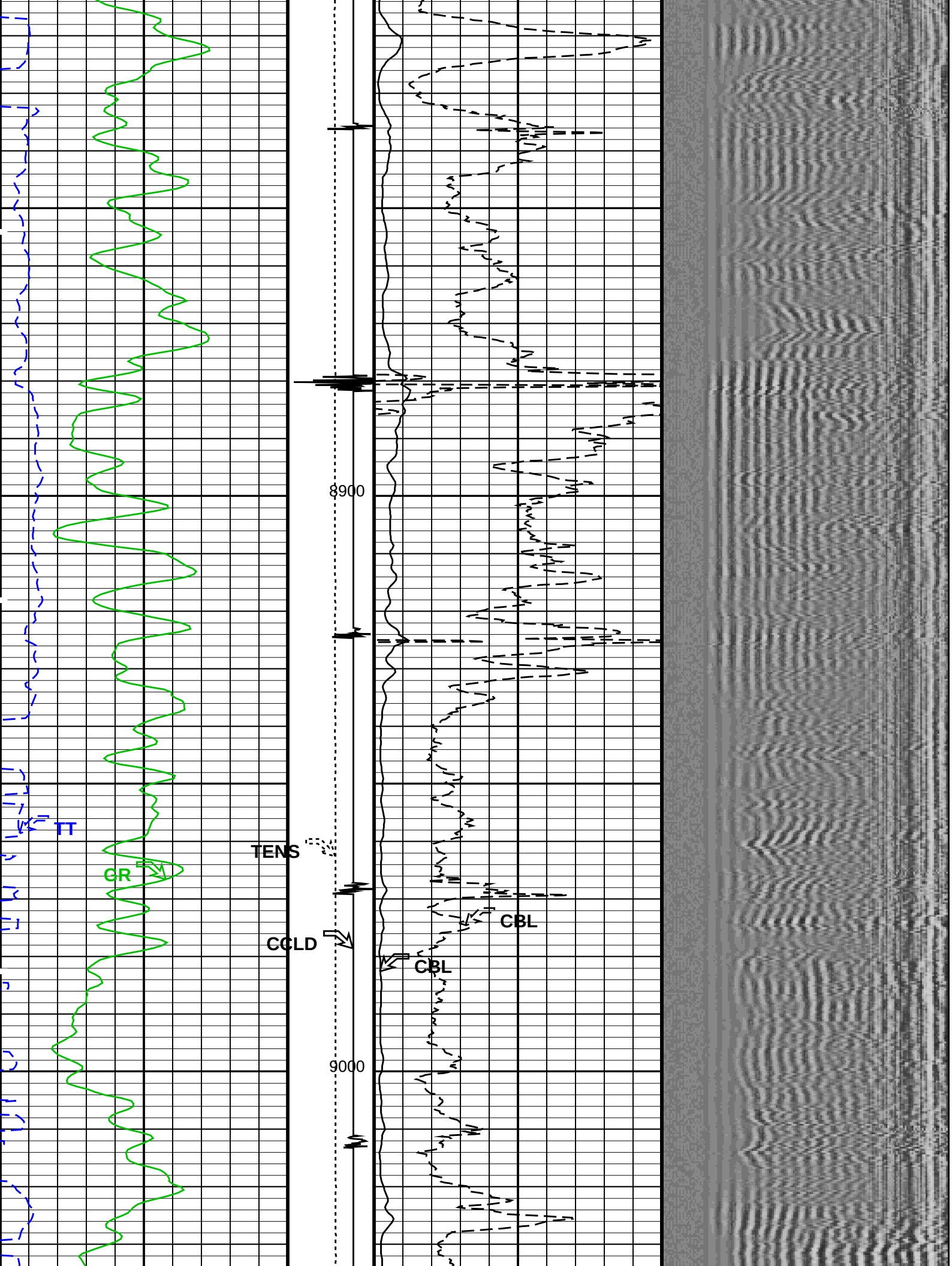

GR
CCLD
CBL
CBL
7800
7900

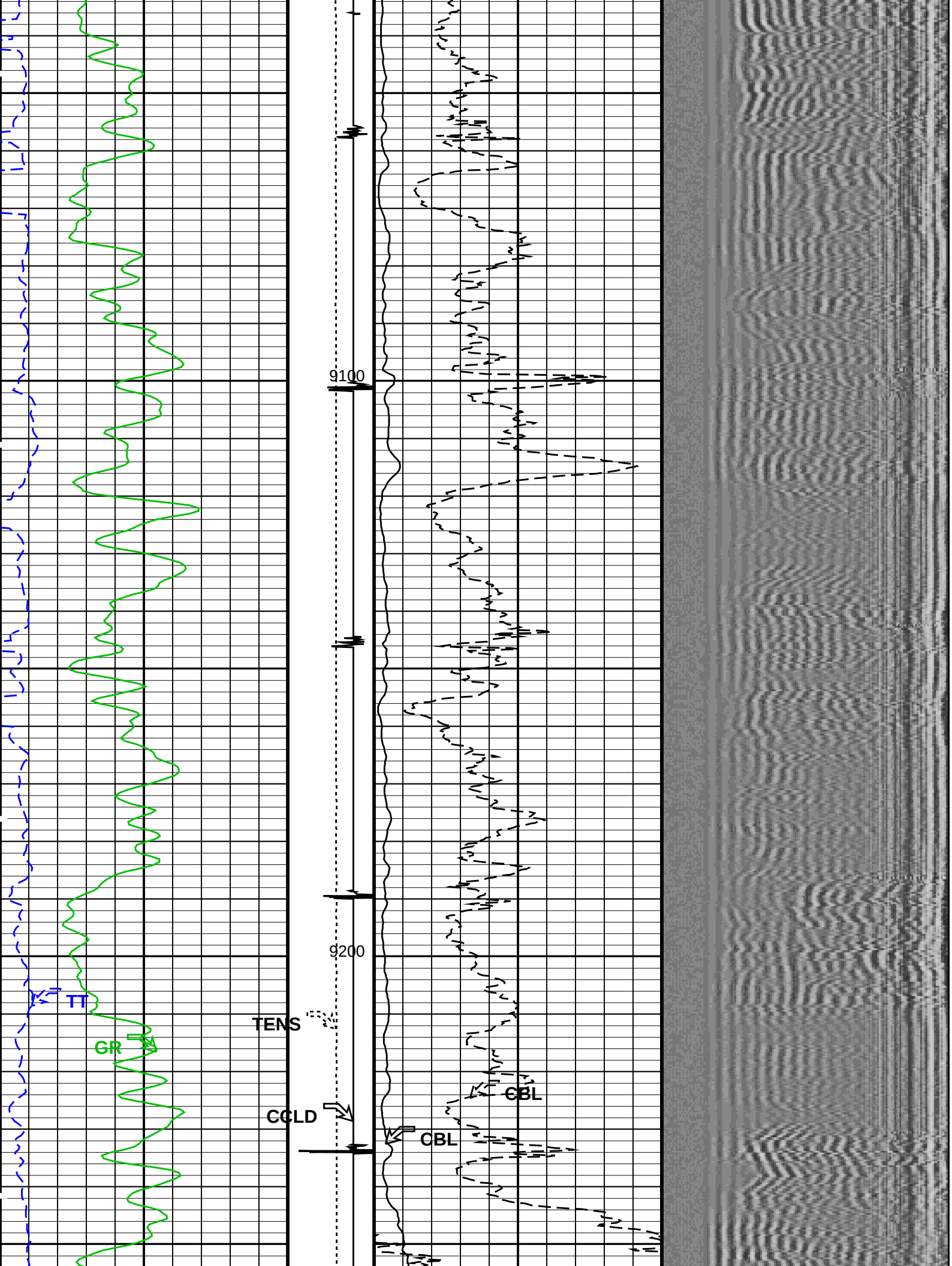

GR
TENS
CCLD
CBL
CBL
8000
8100

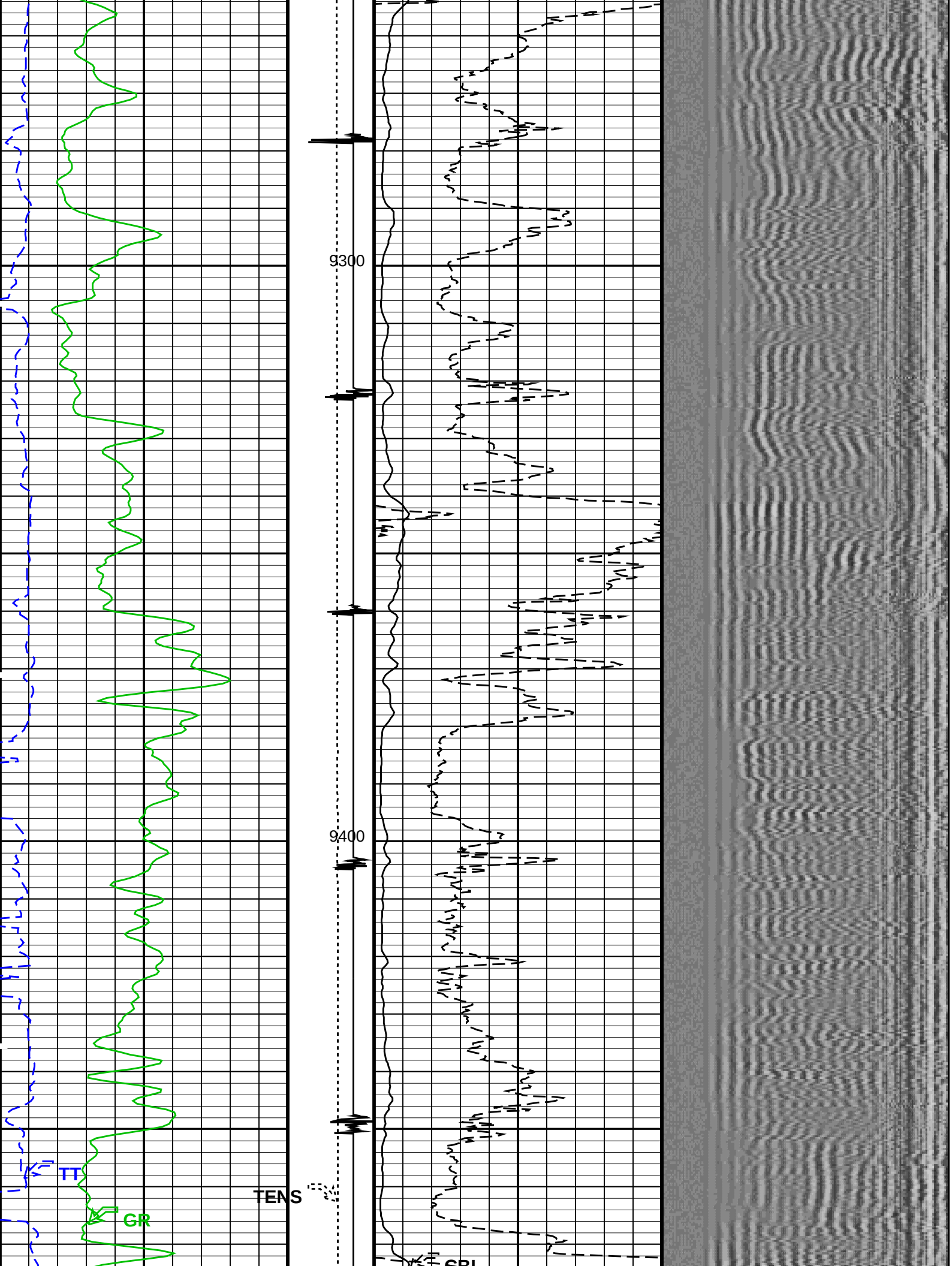

TT
GR
TENS
CCLD
CBL
CBL
8200
8300

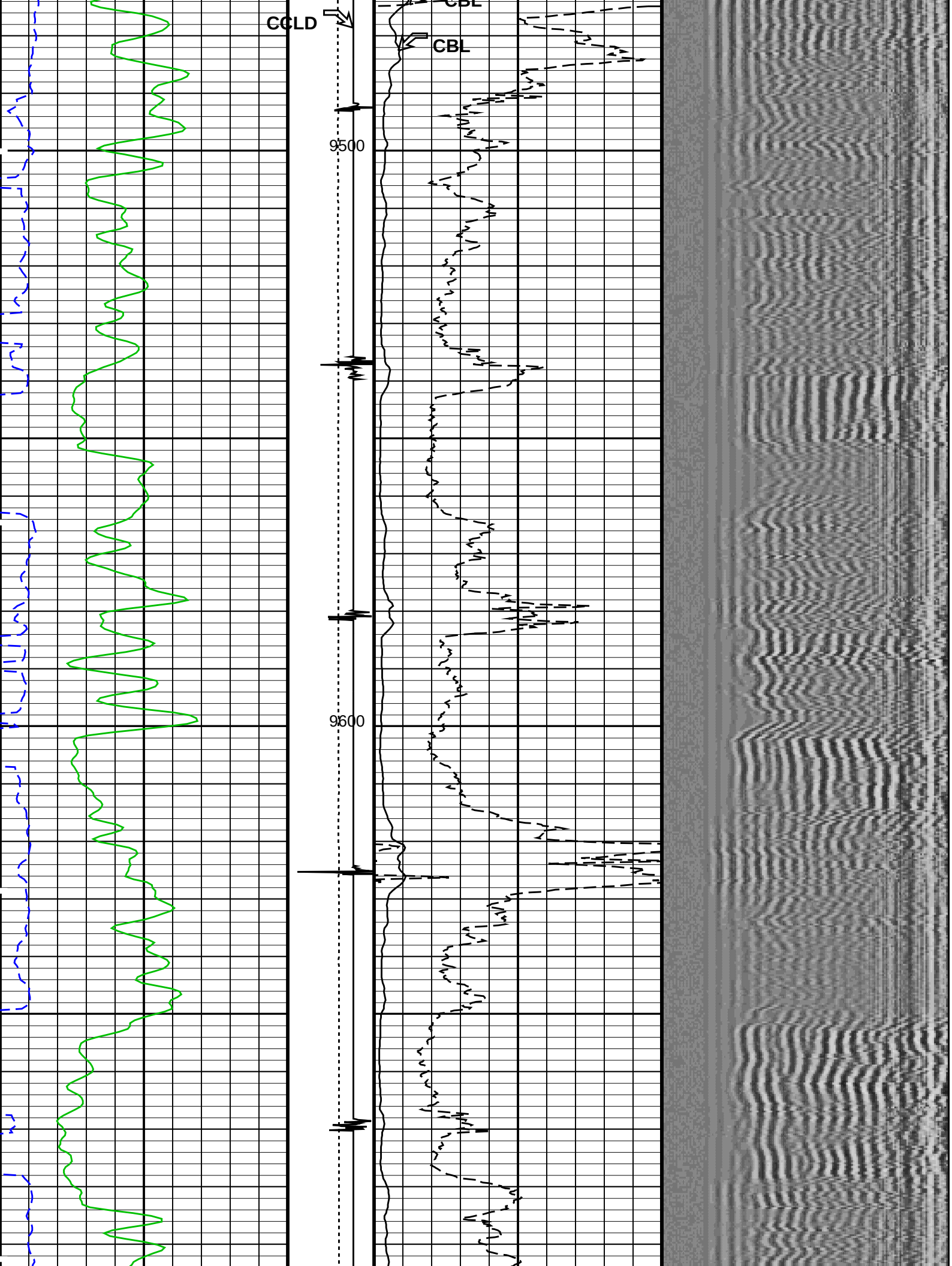

8400
TT
TENS
GR
CBL
CCLD
CBL
8500

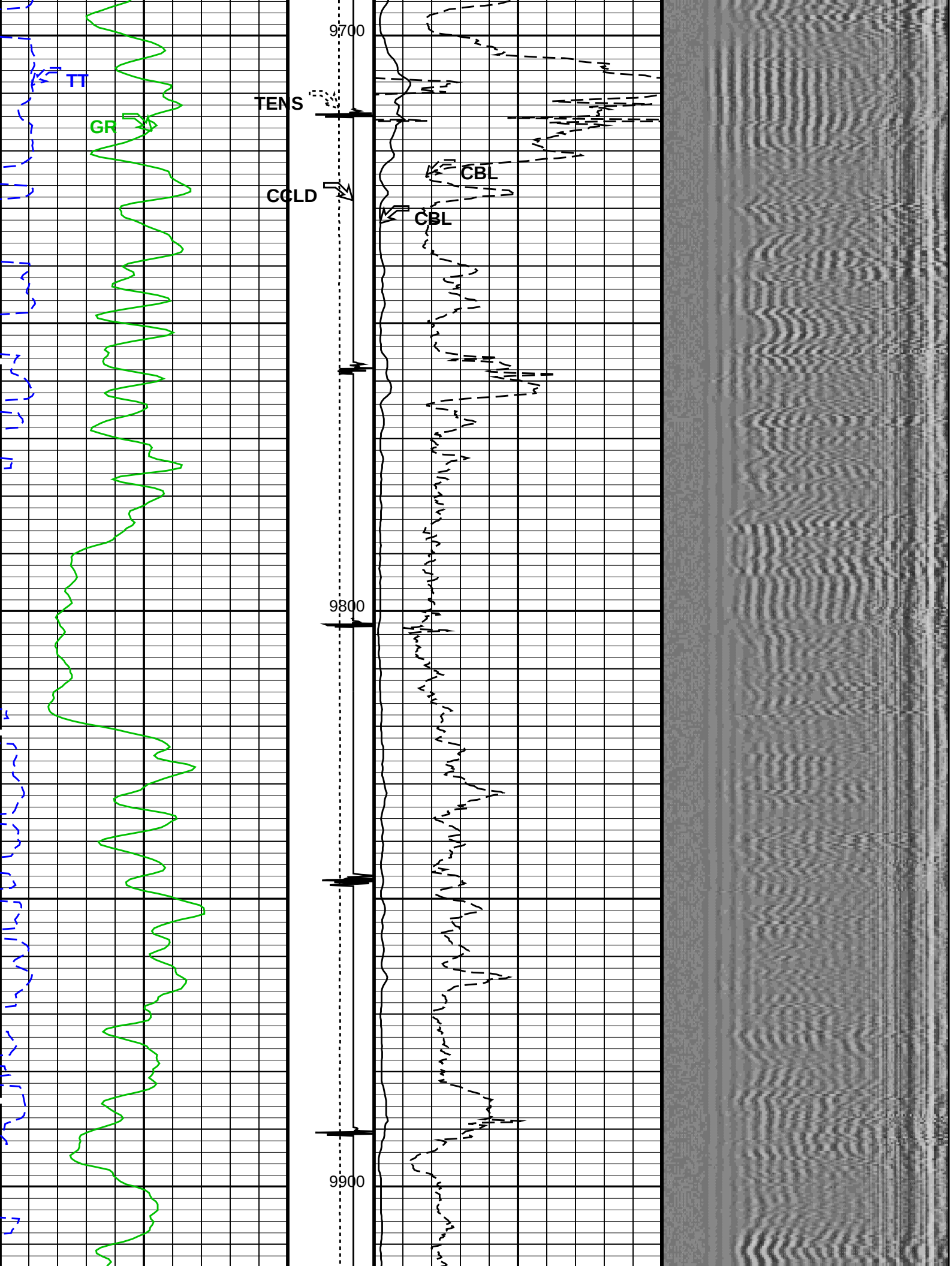

8600
8700
8800
TENS
GR
CCLD
CBL
CBL

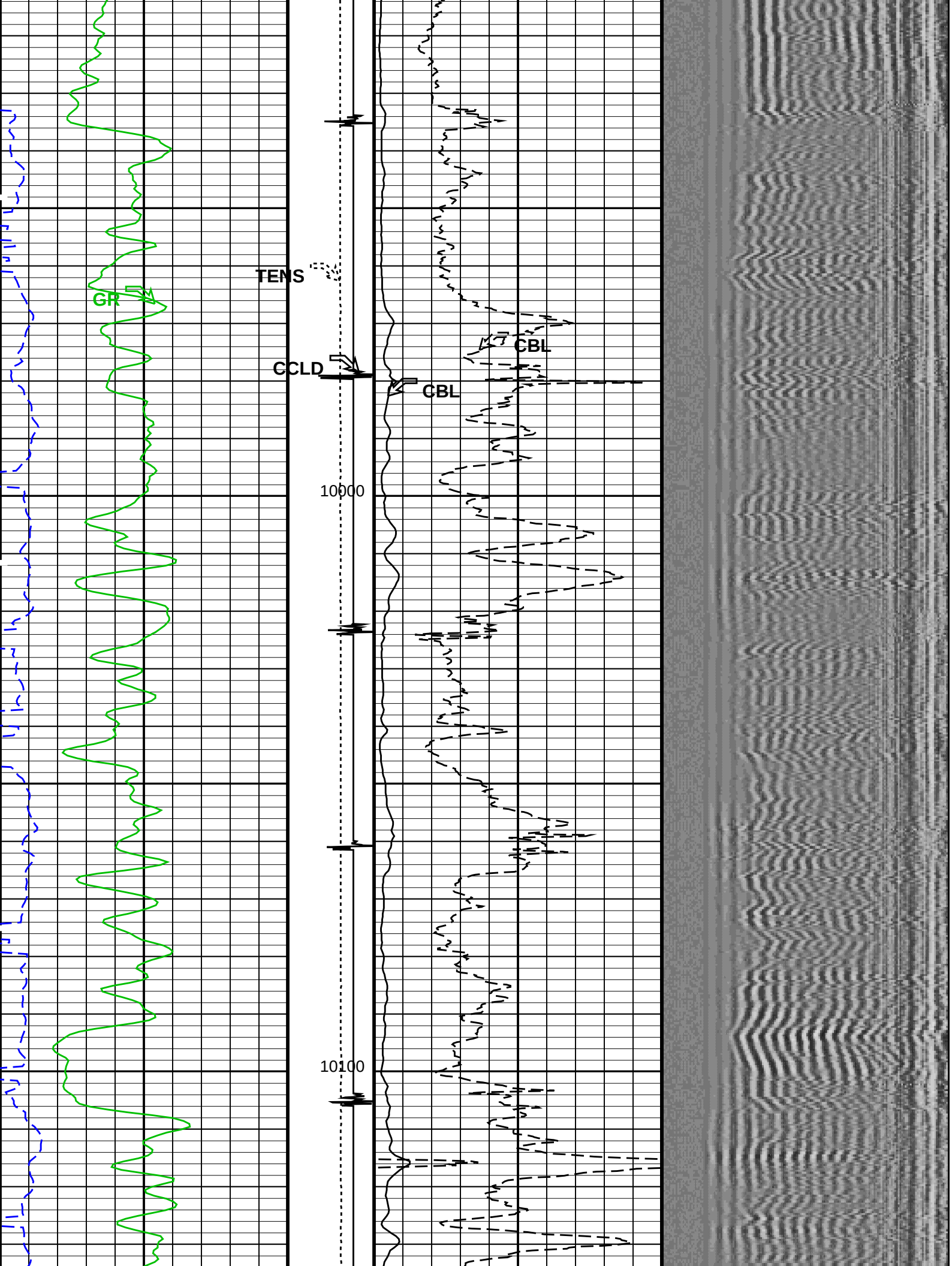

TT
GR
TENS
CCLD
CBL
CBL
8900
9000

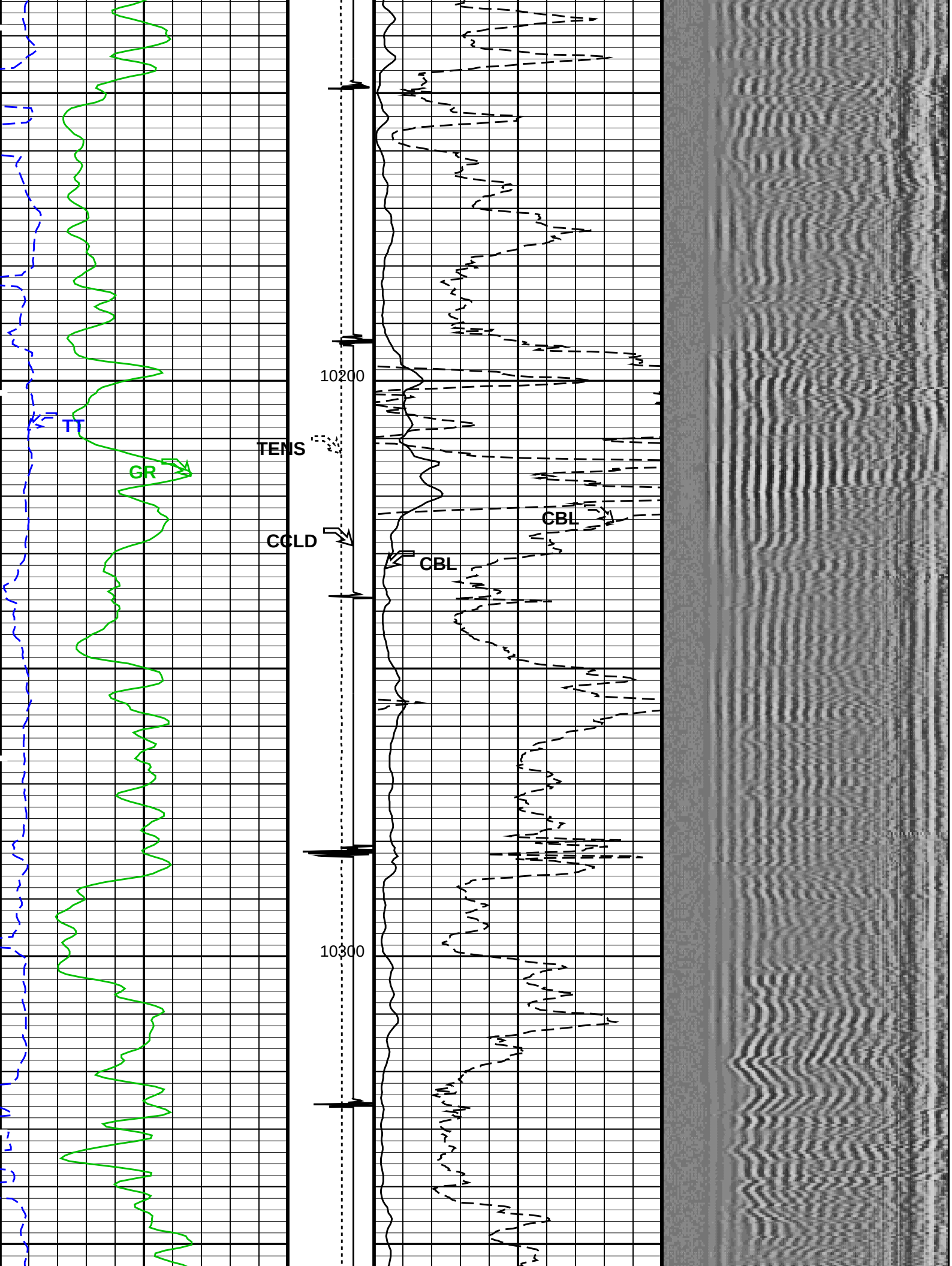

9100
9200
TT
TENS
GR
CBL
CCLD
CBL

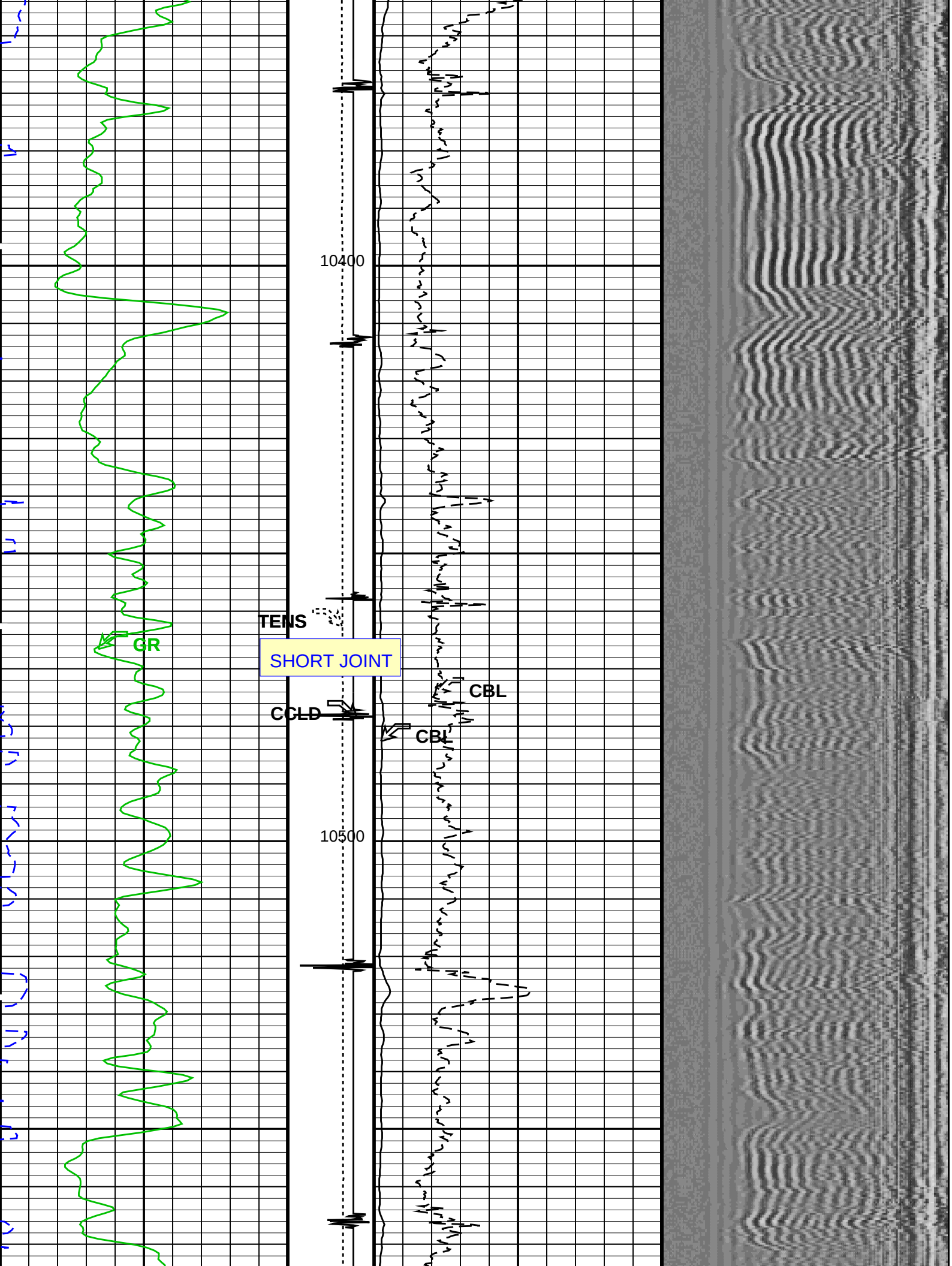

9300
9400
TT
GR
TENS

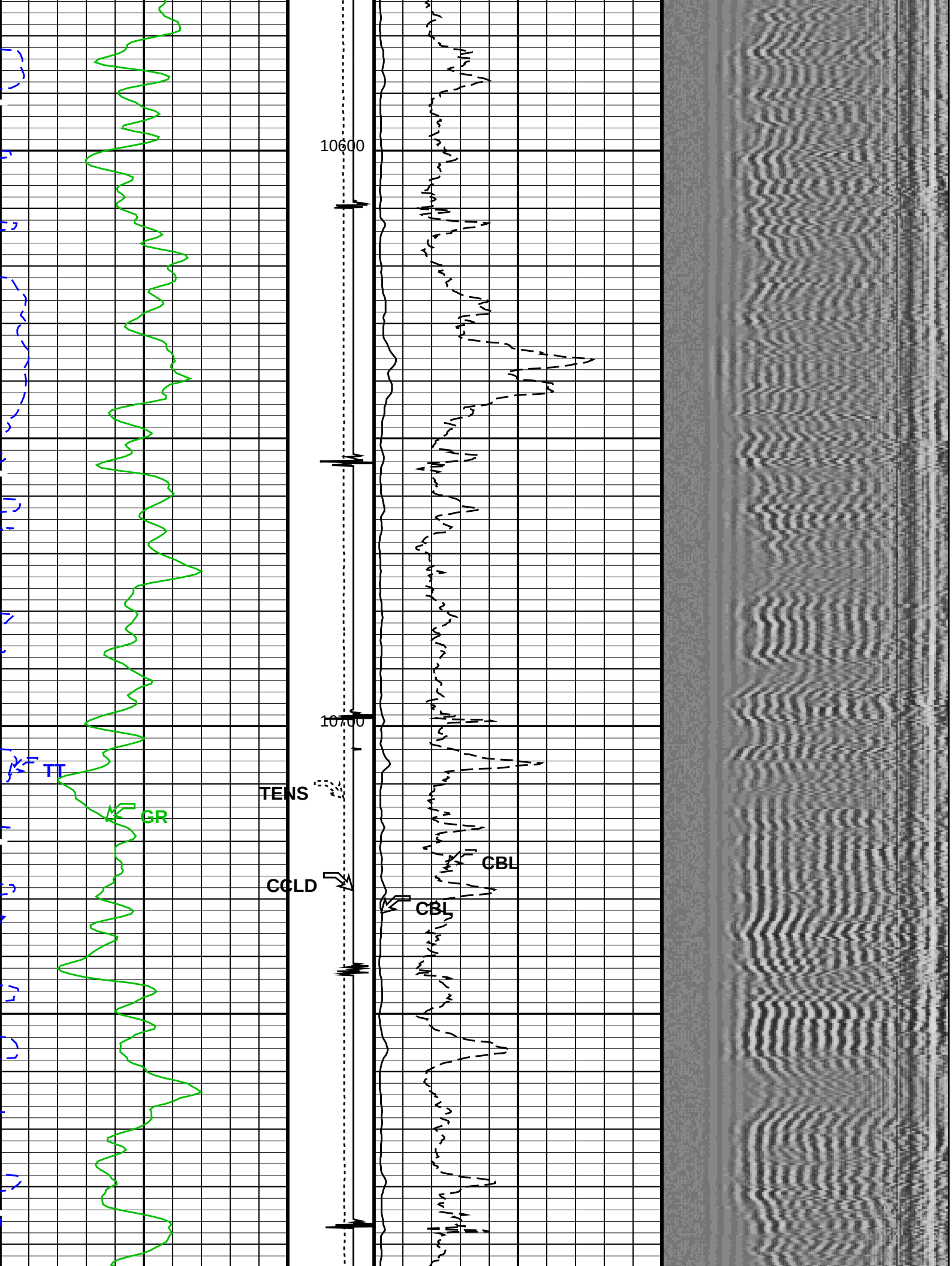

CCLD
CBL
CBL
9500
9600

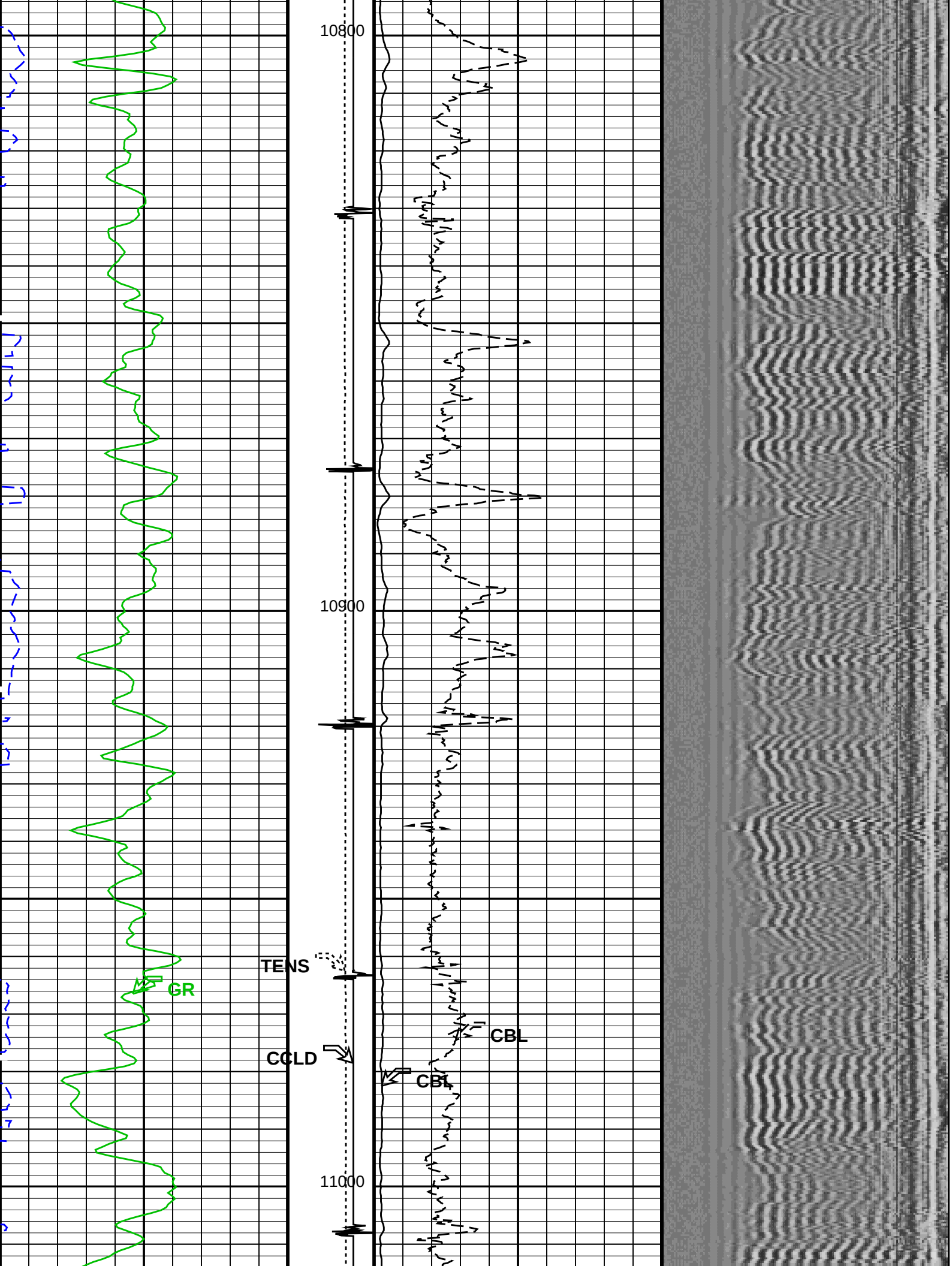

TT
GR
TENS
CCLD
CBL
CBL
9700
9800
9900

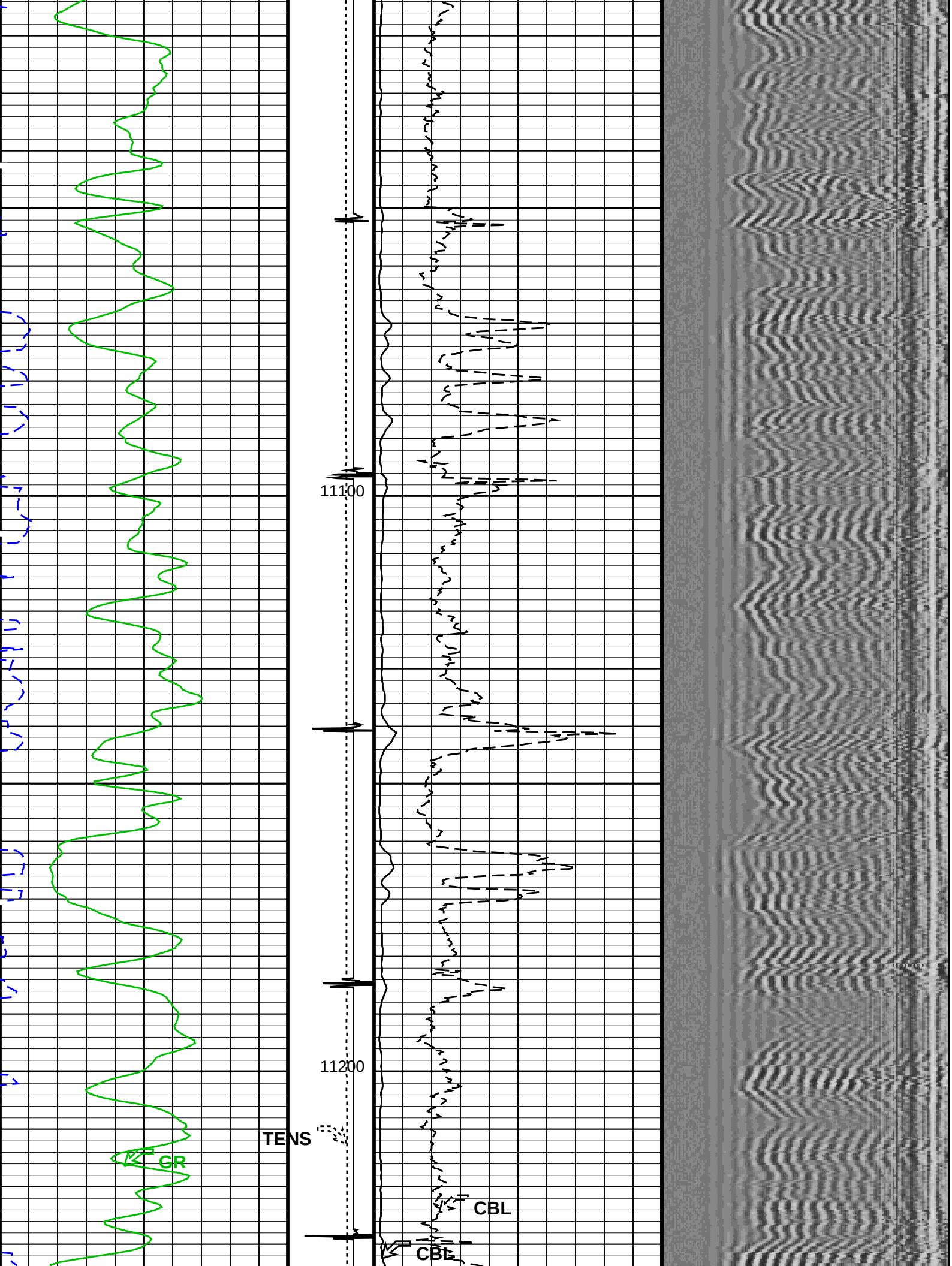

TENS
GR
CCLD
CBL
CBL
10000
10100

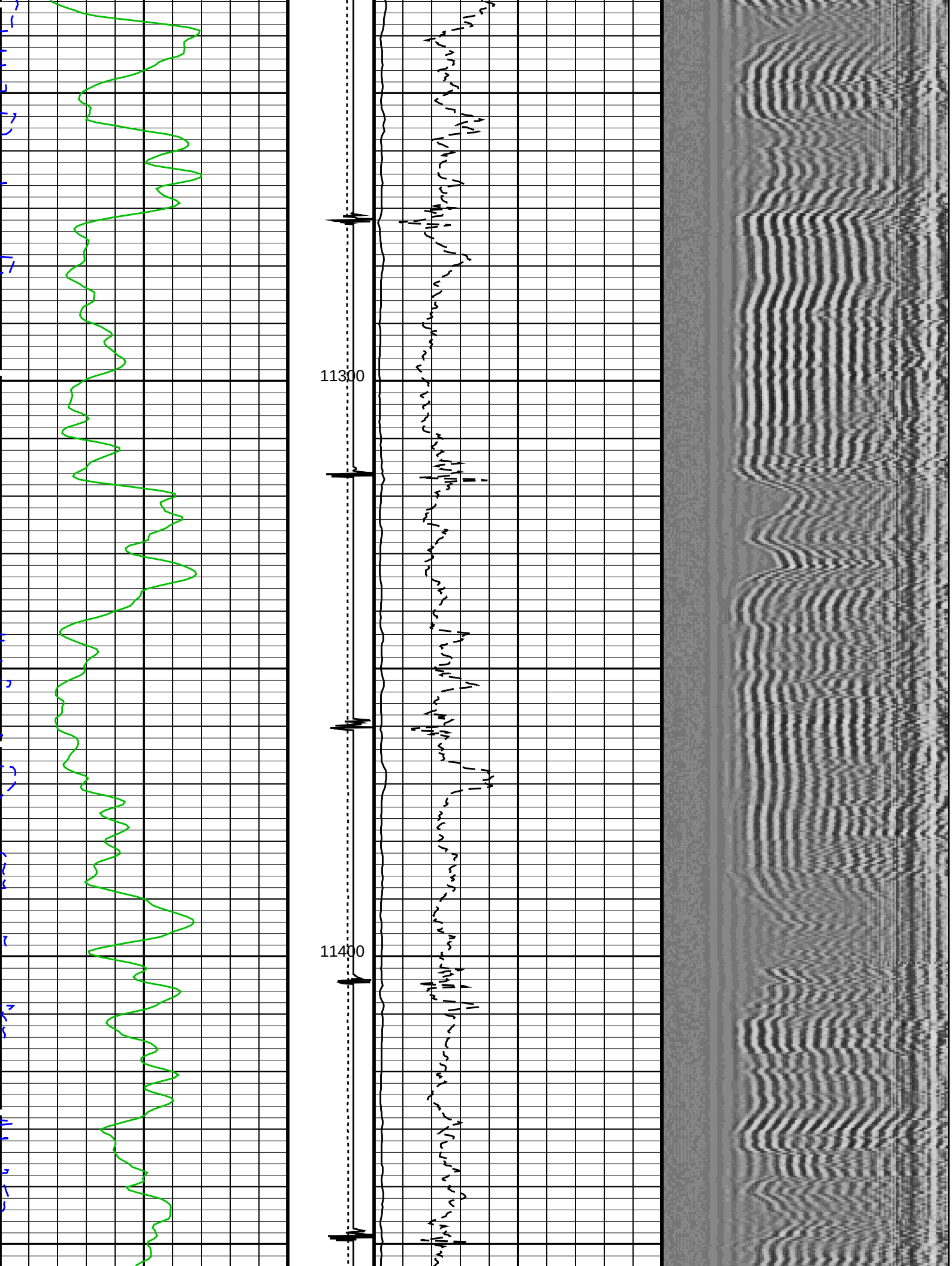

10200
TT
TENS
GR
CBL
CCLD
CBL
10300

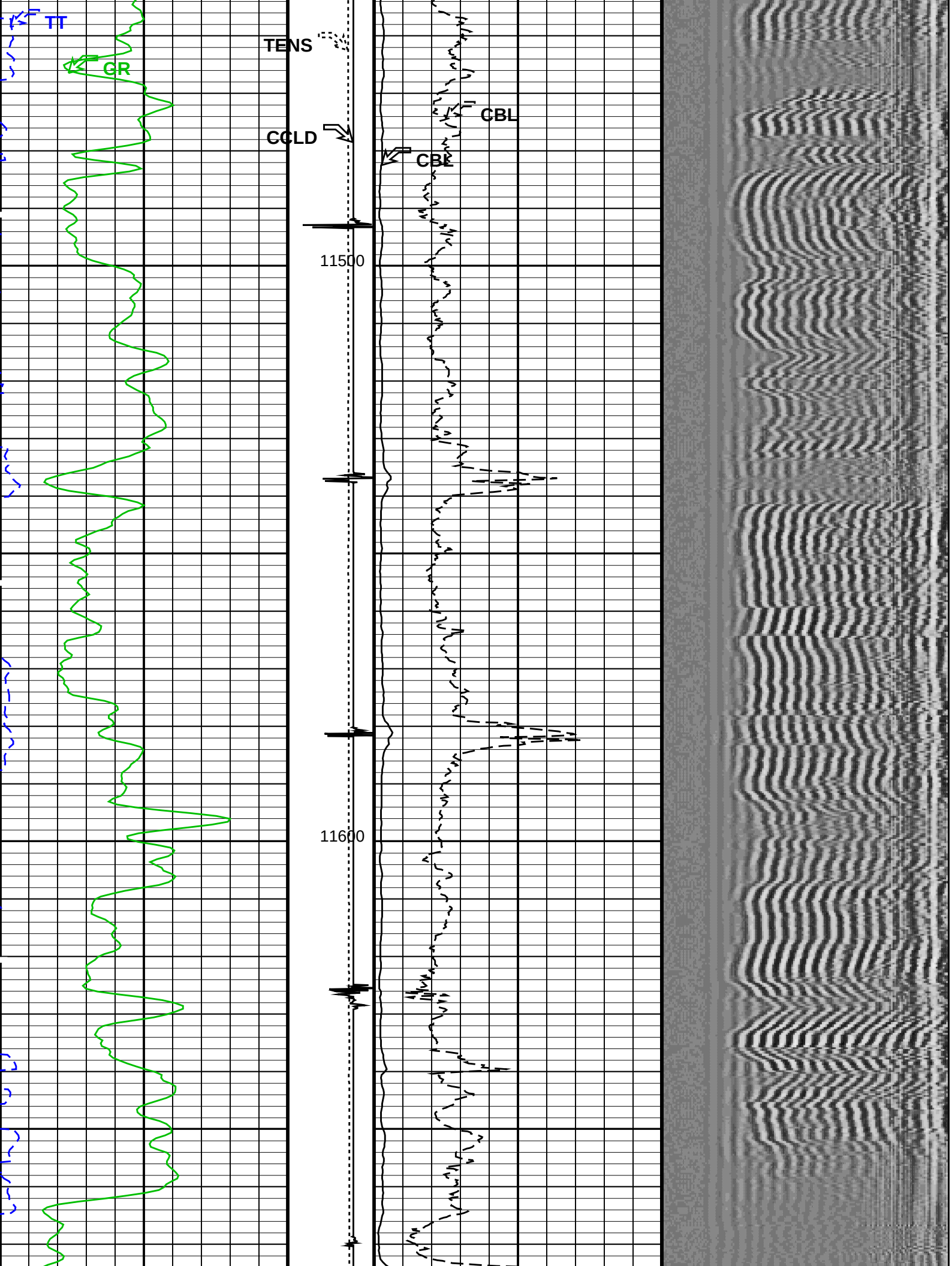

10400
TENS
GR
SHORT JOINT
CBL
CCLD
CBL
10500

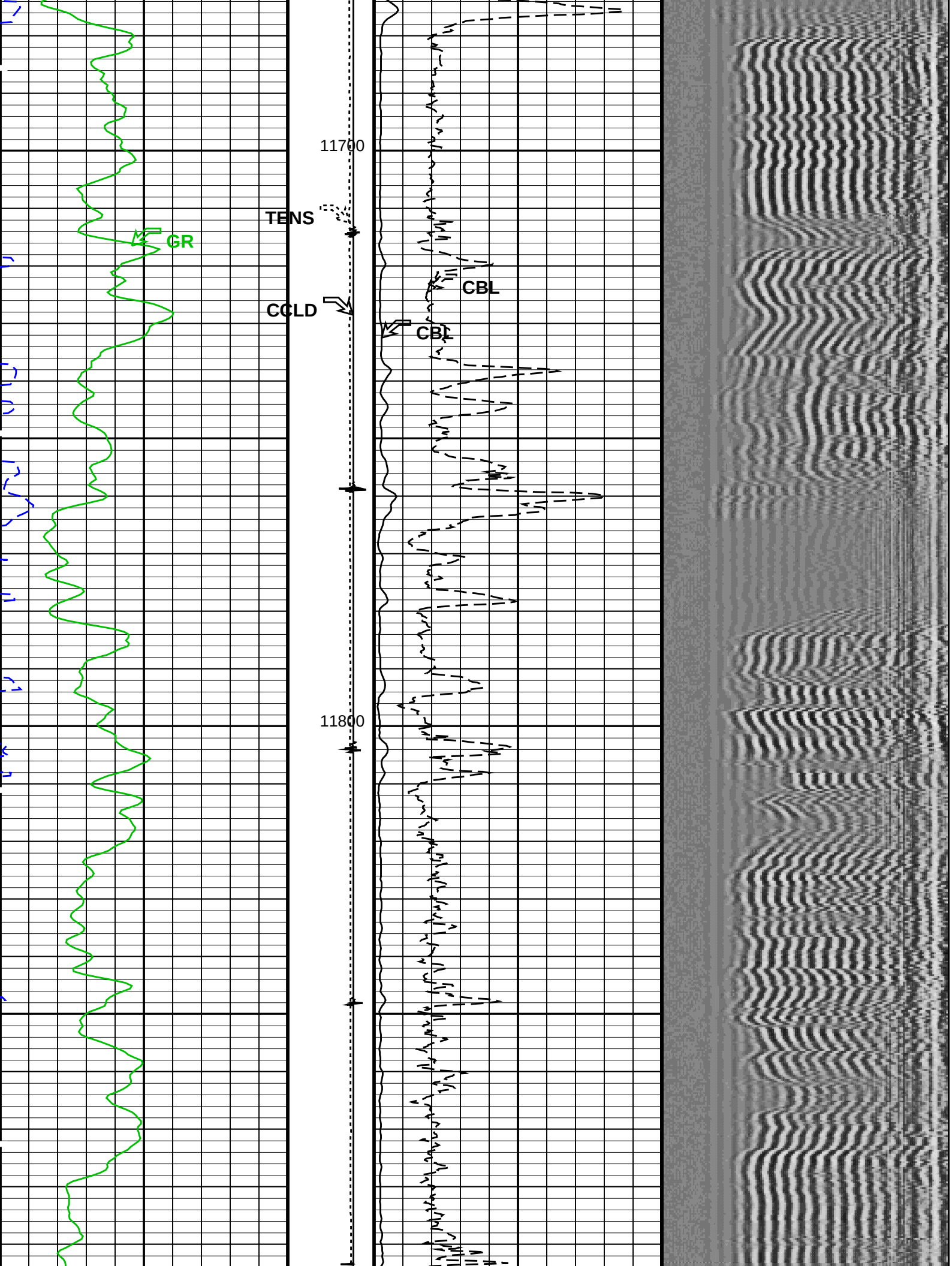

10600
10700
TT
GR
TENS
CCLD
CBL
CBL

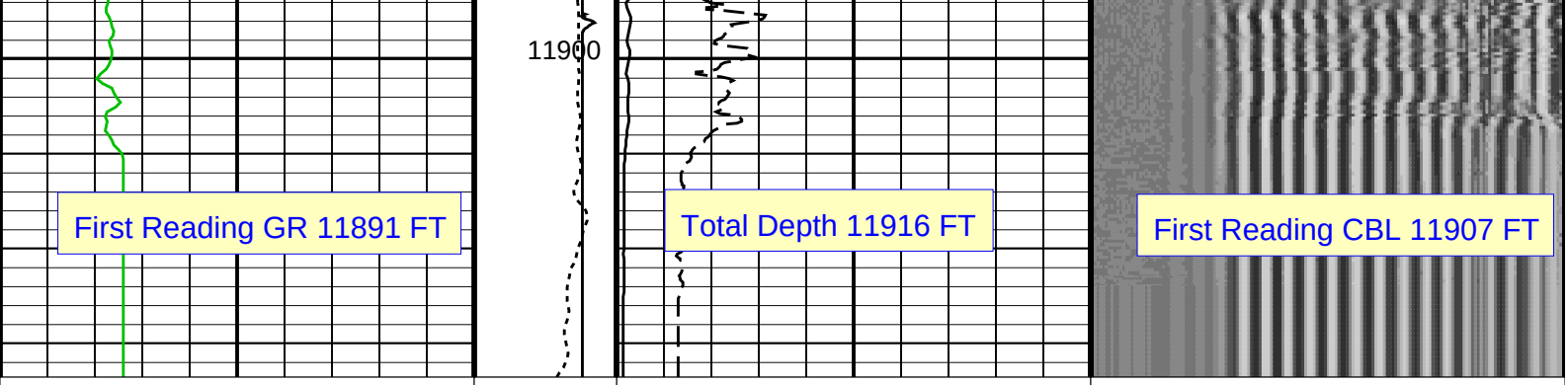

10800
10900
11000
TENS
GR
CCLD
CBL
CBL


11100
11200
TENS
GR
CBL
CBL


11300
11400


TT
GR
TENS
CCLD
CBL
CBL
11500
11600


11700
TENS
GR
CBL
CCLD
CBL
11800



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

PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL Vertical Scale: 5" per 100' Graphics File Created: 11−Apr−2013 16:33

OP System Version: 19C0−187

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

<<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number	SCMS−CB 8317		
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	26−SEP−2012		
CBL Correction Factor	0.0719381	CBL Adjustment Factor (CBAF)	1.12000
MAP 1 Correction Factor	0.116622	MAP Adjustment Factor (MPAF)	1.0
MAP 2 Correction Factor	0.138771		
MAP 3 Correction Factor	0.154480		
MAP 4 Correction Factor	0.126474		
MAP 5 Correction Factor	0.116062		
MAP 6 Correction Factor	0.126351		
MAP 7 Correction Factor	0.134711		
MAP 8 Correction Factor	0.138445		

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			
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	11916	FT

Input DLIS Files

DEFAULT	SCMT_PSP_023LUP	FN:22	PRODUCER	11−Apr−2013 13:16	11929.5 FT	31.0 FT

Output DLIS Files

DEFAULT	SCMT_PSP_026PUP	FN:25	PRODUCER	11−Apr−2013 16:33		

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REPEAT ANALYSIS CBL VDL

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC **Well: SG 8504E−36 (D36 496)**

Input DLIS Files

DEFAULT	SCMT_PSP_026PUP	FN:25	PRODUCER	11−Apr−2013 16:33	11933.5 FT	13.5 FT

Output DLIS Files

DEFAULT	SCMT_PSP_029PUP	FN:28	PRODUCER	11−Apr−2013 16:42	7606.5 FT	7244.5 FT

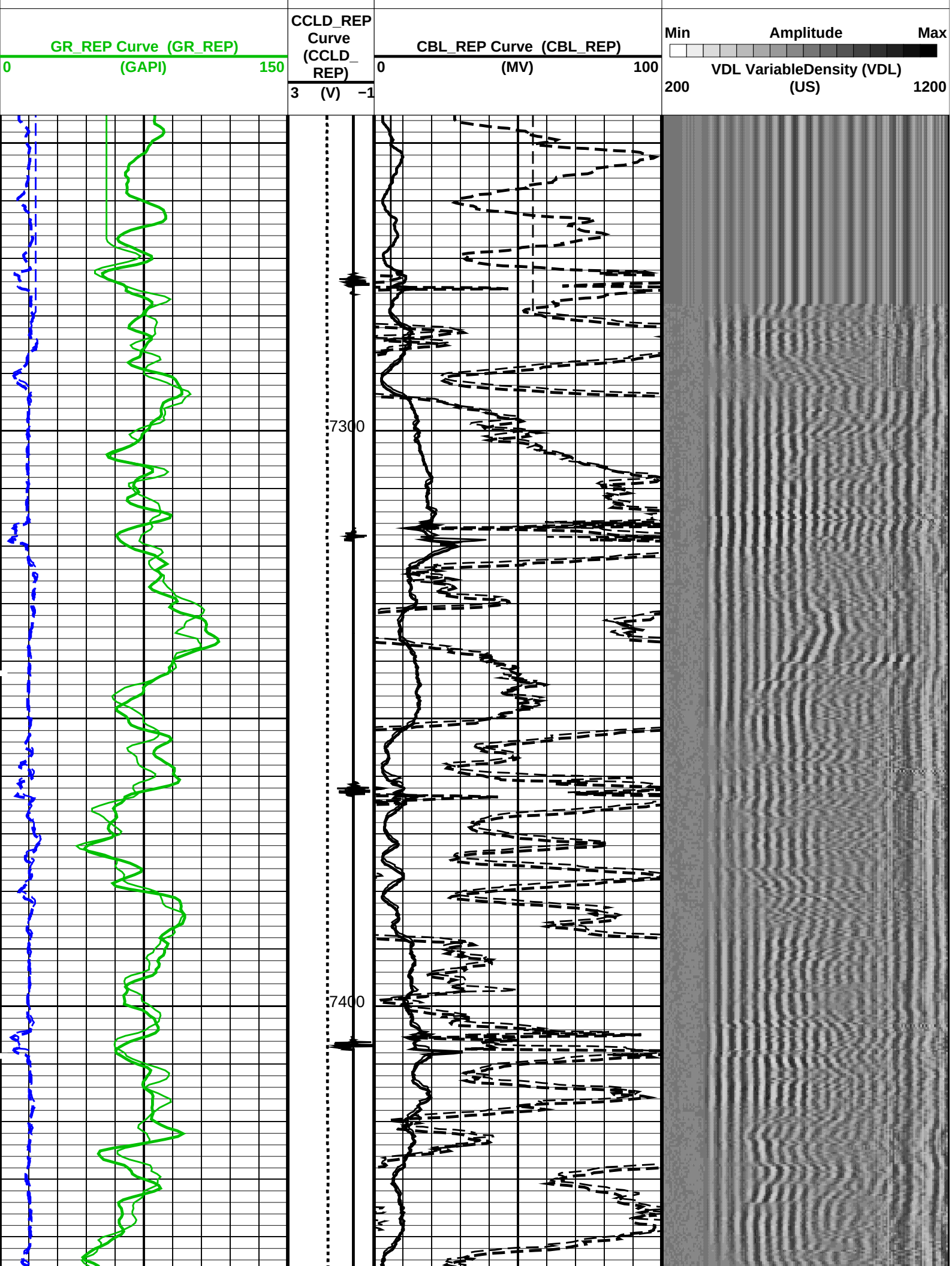
OP System Version: 19C0−187

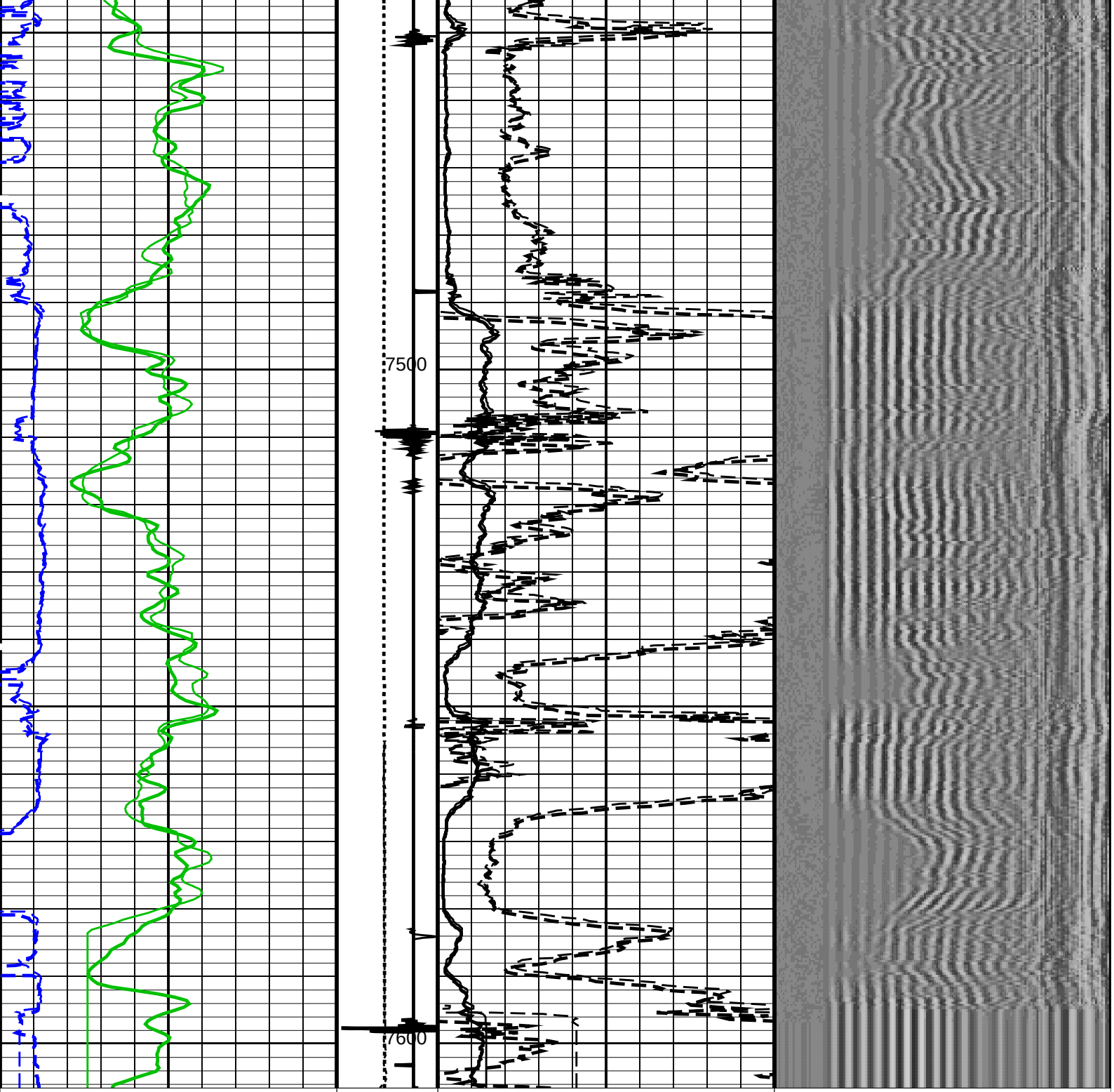
SCMT−CB	SRPC−5214−H2−2012−OP1	PSPT	SRPC−5214−H2−2012−OP1

PIP SUMMARY

Time Mark Every 60 S

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


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
7300
7400



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: 11−Apr−2013 16:42

OP System Version: 19C0−187

<<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number	SCMS−CB 8317		
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	26−SEP−2012		
CBL Correction Factor	0.0719381	CBL Adjustment Factor (CBAF)	1.12000
MAP 1 Correction Factor	0.116622	MAP Adjustment Factor (MPAF)	1.0
MAP 2 Correction Factor	0.138771		
MAP 3 Correction Factor	0.154480		
MAP 4 Correction Factor	0.126474		
MAP 5 Correction Factor	0.116062		
MAP 6 Correction Factor	0.126351		
MAP 7 Correction Factor	0.134711		
MAP 8 Correction Factor	0.138445		

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		
CWEI	Casing Weight	11.60	LB/F
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	0.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	11916	FT

Input DLIS Files

DEFAULT	SCMT_PSP_026PUP	FN:25	PRODUCER	11−Apr−2013 16:33	11933.5 FT	13.5 FT

Output DLIS Files

DEFAULT **SCMT_PSP_029PUP** **FN:28** **PRODUCER** **11−Apr−2013 16:42**

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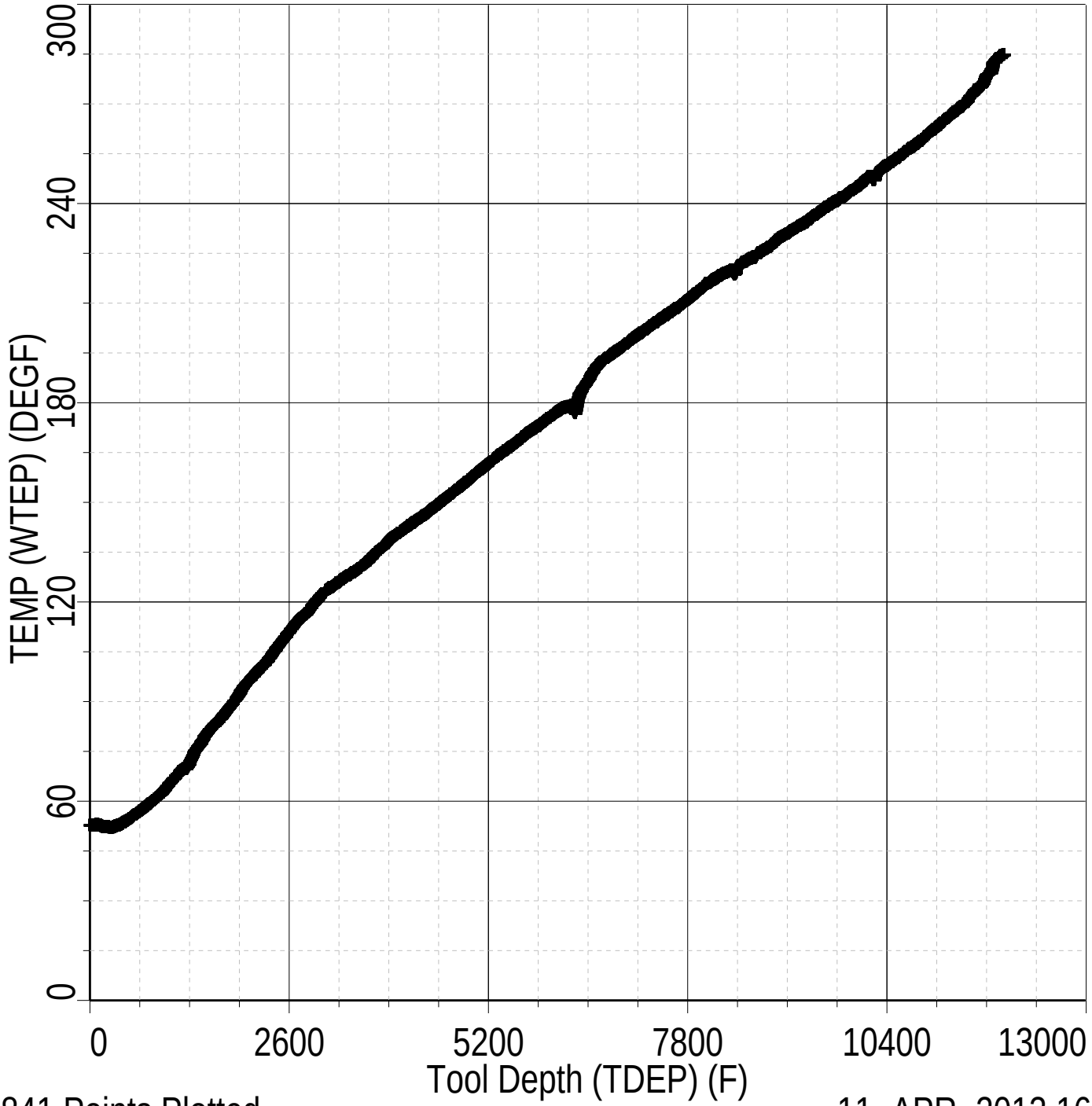
TEMPERATURE PLOT

MAXIS Field Log

Index: 11933.5 − 13.5 FT



22841 Points Plotted

11−APR−2013 16:40

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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 8504E-36 (D36 496)**	**Sensor:**	**GR**
Run date:	**11-Apr-2013**		

PBMS Gamma Ray

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

GR HV Rt

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

Client:	**ENCANA OIL & GAS (USA) INC**	**Tool:**	**PSP**
Field:	**STORY GULCH**	**Sub Type:**	**PBMS**
Well:	**SG 8504E-36 (D36 496)**	**Sensor:**	**WellTemp RTD**
Run date:	**11-Apr-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:	STORY GULCH	Sub Type:	PBMS
Well:	SG 8504E−36 (D36 496)	Sensor:	CQG
Run date:	11−Apr−2013		

PBMS Quartz Gauge type F

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

Pres Coeff

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

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

Fc**4	0.0	0.0	0.0
Fc**5	0.0	0.0	0.0

PBMS Quartz Gauge type F

Sonde Serial NB :

Sensor Serial NB 928

Calib Date ddmmyy 280612

Matrix Size 66

Coeff CRC 283B

Temp Coeff

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

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

PBMS Quartz Gauge type F

Sonde Serial NB :

Sensor Serial NB 928

Calib Date ddmmyy 280612

Matrix Size 16

Coeff CRC 093F

Clock Freq Coeff

	(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

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	8317
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	Phase	MAP 2 Amplitude Plus MV	Value
Master		1029	Master		864.7
	500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)			500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)	
Phase	MAP 3 Amplitude Plus MV	Value	Phase	MAP 4 Amplitude Plus MV	Value
Master		776.8	Master		948.8
	500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)			500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)	
Phase	MAP 5 Amplitude Plus MV	Value	Phase	MAP 6 Amplitude Plus MV	Value
Master		1034	Master		949.7
	500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)			500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)	
Phase	MAP 7 Amplitude Plus MV	Value	Phase	MAP 8 Amplitude Plus MV	Value
Master		890.8	Master		866.8
	500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)			500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)	

Phase	CBL Amplitude Plus MV	Value
Master		1334
1000 (Minimum)	1350 (Nominal)	1700 (Maximum)

Master: 26−Sep−2012 14:15

Company:	**ENCANA OIL & GAS (USA) INC**
Well:	**SG 8504E−36 (D36 496)**
Field:	**STORY GULCH**
County:	**GARFIELD**
State:	**COLORADO**

Schlumberger

SLIM CEMENT MAPPING LOG
CBL−VDL
GR−CCL